



Peace River Area Monitoring Program

2023

Annual Ambient Air Quality Monitoring Report

PRAMP-2023

Report Prepared By:

Peace River Area Monitoring Program

March 22, 2024

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List of Acronyms

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH ₄	Methane
EPEA	Environmental Protection and Enhancement Act
H ₂ S	Hydrogen Sulphide
kph	kilometers per hour
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxide of Nitrogen
O ₃	Ozone
PAC	Polycyclic Aromatic Compounds
PAHs	Polycyclic Aromatic Hydrocarbons
PM _{2.5}	Particulate Matters
ppb	parts per billion
ppm	parts per million
PRAMP	Peace River Area Monitoring Program
Precip	Precipitation
RH	Relative Humidity
SO ₂	Sulphur Dioxide
ST	Station Temperature
THC	Total Hydrocarbons
TRS	Total Reduced Sulphur
VOCs	Volatile Organic Compounds
VWD	Vector Wind Direction
VWS	Vector Wind Speed
WD	Wind Direction
WS	Wind Speed
°C	Degrees Celsius



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March 22, 2024

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RE: 2023 Annual Ambient Air Quality Monitoring Report -PRAMP Airshed

Enclosed is the *2023 Annual Ambient Air Quality Monitoring Report* for the continuous ambient air quality monitoring stations of the Peace River Area Monitoring Program (PRAMP) Airshed regional air quality monitoring network, as operated in the year 2023.

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This report was prepared by Lily Lin and reviewed by Mike Bisaga of PRAMP Airshed.

PRAMP Airshed has retained the services of Bureau Veritas to conduct continuous ambient monitoring on its behalf.

Listing of Continuous Monitoring Stations and Integrated Sampling Stations

The PRAMP continuous ambient air quality monitoring network stations are:

- 986-C Station
- 842-B Station
- Reno (Reno-B) Station
- PRC Station
- AQHI Grimshaw Station

Station ID	Station Name	Latitude	Longitude
1562	986-C	56.36980	-116.92500
1561	842-B	56.27406	-116.98129
1563	Reno	55.86936	-117.05739
1563	Reno-B	55.890868	-117.137080
1689	AQHI-Grimshaw	56.49022	-116.42739
1698	PRC	56.38257	-116.769283

Listing of Passive Sampling Stations

Site ID	Latitude	Longitude
1	56.377841	-116.787142
2	56.378638	-116.780496
3	56.382958	-116.783813
4	56.377044	-116.794220
7	56.384796	-116.780488
8	56.388710	-116.771234
9	56.388943	-116.756205
10	56.388642	-116.797817
11	56.383771	-116.841165
12	56.388962	-116.885263
13	56.390972	-116.822083
14	56.424825	-116.853181

Calibration Report and Data Submission

Hourly data and calibration reports for 2023 were submitted to Alberta's Ambient Air Data Warehouse for all stations. Data Qualifier Flags used in the monthly reports are summarized below.

Flag	Description	Instrument is operational?	Hour is valid?
P	Power failure	No	No
X	Machine malfunction / recovery	No	No
Y	Maintenance	Yes (unless otherwise noted)	No
K	Recording system failure	No	No
ND	Instrument not in service	No	No
NRM	Repeat quality assurance checks	Yes	No
C	Calibration	Yes	No
S	Daily zero/span	Yes	No
Q	Quality assurance	Yes	No

Major Operations and Maintenance Events at Continuous Monitoring Stations During 2023

986-C Station:

- There were no exceedances of the AAAQOs at the 986-C Station in 2023.
- RH/AT:
 - High RH values were recorded, starting in late December 2022. The probe was examined and cleaned on January 5, but it had only a temporary effect on readings. On January 12, the Rotronic HC2-S3 RH/AT sensor, s/n: 20357528, was removed, and the Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, was installed. RH data were reviewed and discarded if readings were recorded near or at 100%. The RH/AT probe failed on January 14 due to a broken connector. Troubleshooting commenced on February 1 hour 17 and February 13 at hour 17. The Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, was reinstalled on February 14. Valid AT data resumed February 1 at hour 18. However, the RH issue could not be resolved. The RH/AT sensor probe was replaced in March to correct the issue. and three hundred thirty hours of downtime for the RH channel and AT channel were recorded, respectively. except RH (0.0%), AT (50.9%) Data collected between January 14 and January 31 were discarded. Forty-six hours, six hundred seventy-two hours and six hundred seventy-two of RH data recorded in December 2022, January 2023 and February 2023 were invalidated due to this issue. Operational uptime was 93.8%, 6.9% and 0.0%, respectively. Four hundred seventeen hours and three hundred twenty-six hours of AT data collected in January and February 2023 were invalidated. Operational uptime was 43.8% and 50.9%, respectively.
 - On March 2, the Rotronic HC2-S3, s/n: 60837897, sensor, was removed, and the Rotronic HC2-S3, s/n: 20626912, sensor was installed. This sensor was replaced to correct the faulty RH probe issue. Forty-one hours of downtime were recorded.
- **Precipitation:**
 - The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on January 12. The problem could not be corrected during the visit with the equipment available. Data were invalidated back to the last valid value, which was December 28, 2022 hour 7, to January 14 hour 21 before a valid reading started being recorded. Eighty-nine hours of data collected in December 2022 were discarded.
 - The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on February 2. The problem could not be corrected during the visit as ambient temperatures were too low to allow the system to be de-iced. Data were invalidated back to the last known good value, which was January 23 hour 11, to February 3 hour 22 before a valid reading started being recorded. With the data which were discarded between January 01 and January 12 due to issues that was identified on January 12, a total of five hundred thirty-nine hours of data collected in January were discarded. Seventy-one hours of data collected in February were discarded as well. This correction did not affect the dataset in the ETS system as the precipitation parameter is not included in the PRAMP's required monitoring plan. The monitoring activity was conducted to provide data for the near-by residents use. Operational uptime for January and February were 27.6% and 89.4%, respectively.
- **THC/CH4/NMHC:**
 - The PRAMP-owned Teledyne T701H, s/n: 468, failed on May 5 following a brief power outage. A BV-supplied API T701, s/n: 80, was installed on May 7. Forty-six hours of downtime were recorded due to this event.
 - The Thermo 55i, s/n: 1433563261, failed the shut-down calibration due to frequent injection issues on July 5. The analyzer was removed, and the Thermo 55i, s/n: 1022143392, was

installed. One-minute data were reviewed and discarded if data quality was affected by injection issues. Two hours of data collected on July 1 were invalidated as a result.

- On November 7, BV's Thermo 55i analyzer, s/n: 1022143392, was removed and replaced by PRAMP's Thermo 55i analyzer, s/n: 12208316589. The newly installed analyzer was allowed time to stabilize overnight. A successful installation calibration was complete don November 8. Twenty-one hours of downtime were recorded due to this event.
- **SO2:** The expected zero value was entered incorrectly on July 7. The error was corrected on July 15. As a result, the value was not used for the baseline correction between July 7 and 15.
- **TRS:** The TRS convertor failed to recover after June 7's power outage. On June 9, the BV's CD Nova CDN101 convertor, s/n: 552, was removed, and the PRAMP's CD Nova CDN101 convertor, s/n: 530, was installed. Forty-five hours of downtime were recorded due to this event.

842-B Station:

- There were no exceedances of the AAAQOs at the 842-B Station in 2023.
- **Precipitation:** The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on February 14. The system was de-iced and tested to show correct function on February 14. Data were invalidated back to the last known good value, which was February 10 hour 15, to February 14 hour 11 the issue was corrected. Ninety-five hours of data collected were discarded.
- **THC/CH4/NMHC:**
 - Due to multiple bad injection events, the analyzer failed the shut-down calibrations on both April 3 and April 24. The Thermo 55i HC analyzer, s/n: 12208316589, was removed on April 25, and the Thermo 55i HC analyzer, s/n: 1314057759, was installed on April 26. A successful installation calibration was completed on April 27. A total of one hundred and five hours of downtime were recorded due to these events. Operational uptime was 85.4%. **EPA reference #: 413785.**
 - On November 8, BV's Thermo 55i analyzer, s/n: 1314057759, was removed and replaced by PRAMP's Thermo 55i analyzer, s/n: 1501663728. The newly installed analyzer was allowed time to stabilize overnight. A successful installation calibration was complete don November 9. Nineteen hours of downtime were recorded due to this event.
- **BP:** Due to a configuration error dating back to the urgent logger swap on August 10, data collected between August 11 hour 12 and August 21 hour 6 were invalid and were discarded. Two hundred thirty-five hours of downtime were recorded. Operational uptime was 61.7%.
- **Datalogger:**
 - The PRAMP's Envista Ultimate datalogger, s/n: 510, failed on August 9 due to a major hardware failure. The logger was replaced with the BV's Envista Ultimate datalogger, s/n: AC1400000208, on August 10. The system was back online on August 11. Forty-one hours of downtime were recorded.
 - On November 17, BV's Ultimate datalogger, s/n: ACI0000208, was removed, and PRAMP's Ultimate datalogger, s/n: ACL1000105, was installed following maintenance / testing. One hour of downtime was recorded due to this event.

Reno (Reno-B) Station:

- There were no exceedances of the AAAQOs at the Reno Station in 2023.
- **Precipitation:** The precipitation gauge was found to be non-functional on January 6; the tipping bucket and drain holes were blocked by ice. The problem could not be corrected during the visit with the equipment available. The precipitation gauge was de-iced and successfully tested to show correct function on January 17. Data were invalidated back to the last valid value, which was December 30, 2022 hour 12. Thirty-six and three hundred ninety-seven hours of data collected in December 2022 and January 2023 were discarded, respectively. Operational uptime for January 2023 was 46.4%.
- **THC/CH4/NMHC:**
 - To address bad injection issues, the PRAMP-owned Thermo 55i HC analyzer, s/n: 12101910497, was removed, and the BV-supplied Thermo 55i HC analyzer, s/n: 1505664392, was installed on January 17.
 - After a shut-down calibration on July 18, BV's Thermo 55i analyzer, s/n: 1505664392, was removed, and PRAMP's Thermo 55i analyzer, s/n: 12101910497, was installed. The analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on July 19. Twenty hours of downtime were recorded due to this event.

PRC Station:

- There were no exceedances of the AAAQOs at the PRC Station in 2023.
- **THC/CH4/NMHC:** On April 18, the BV-supplied Thermo 55i HC analyzer, s/n: 1022143392, was removed, and the CNRL-owned Thermo 55i HC analyzer, s/n: 1034745845, was installed. One hour of downtime was recorded due to this event.
- **TRS:** The analyzer failed due to a failed converter on October 26. The CNRL's CD Nova CDN-101 convertor, s/n: 506, was replaced with BV's CD Nova CDN-101 convertor, s/n: 516 on October 31. The channel was brought back online after a successful post-repair calibration on November 2. Data were invalidated back to the last valid calibration check, which was October 25 hour 11. One hundred fifty-seven hours of downtime were recorded due to this event. Operational uptime was 73.4%. ***DINC 0002366.***
- **Datalogger:**
 - The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event.
 - On April 18, the BV-supplied Ultimate datalogger, s/n: ACI4000637, was removed, and the recently repaired PRAMP-owned Ultimate datalogger, s/n: ACK7004200, was installed. Two hours of downtime were recorded due to this event.
- **Station HVAC unit:** Between October 19 and October 26, the station's temperature rose due to issues with the HVAC system; this caused the temperatures to rise above the manufacturer's recommended/ EPA-designated operating ranges for most gas analyzers (US EPA designation for TRS, H2S and THC/CH4/NMHC < 35°C and for SO2 < 30 °C). Data quality collected during this period could have been affected by the issue and therefore were discarded. Forty-three of downtime were recorded as a result.

AQHI - Grimshaw Station:

- There were no exceedances of the AAQOs at the AQHI - Grimshaw Station, except PM2.5 and O3.
 - O3: Two 1-Hour exceedances of PM2.5 were recorded in 2023.

Date	Time (MST)	Parameter	Average Period	Concentration (ppb)	Wind speed (km/hr)	Wind Direction	Reference #
21-May	16	O3	1-Hour	77.4	8.2	148° (SE)	414771
21-May	17	O3	1-Hour	77.8	6	155° (SSE)	414771

- PM2.5:
 - Six hundred eighty-seven 1-Hour exceedances of PM2.5 were recorded in 2023.

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
14-Apr	6	PM2.5	1-Hour	80	2.1	270° (W)	411705
05-May	7	PM2.5	1-Hour	83	6.9	69° (ENE)	412719
05-May	8	PM2.5	1-Hour	88	7.1	93° (E)	412719
05-May	14	PM2.5	1-Hour	86	18.1	119° (ESE)	412719
05-May	15	PM2.5	1-Hour	118	13.6	111° (ESE)	412719
05-May	16	PM2.5	1-Hour	122	9.9	114° (ESE)	412719
06-May	5	PM2.5	1-Hour	117	8	91° (E)	412719
06-May	6	PM2.5	1-Hour	132	8.5	91° (E)	412719
06-May	7	PM2.5	1-Hour	254	9.3	92° (E)	412719
06-May	8	PM2.5	1-Hour	212	11.2	106° (ESE)	412719
06-May	12	PM2.5	1-Hour	172	21.9	128° (SE)	412719
06-May	13	PM2.5	1-Hour	213	21.5	125° (SE)	412719
06-May	14	PM2.5	1-Hour	143	20.8	126° (SE)	412719
06-May	16	PM2.5	1-Hour	90	20.9	130° (SE)	412719
07-May	5	PM2.5	1-Hour	228	6.4	97° (E)	412719
07-May	6	PM2.5	1-Hour	289	6.7	103° (ESE)	412719
07-May	7	PM2.5	1-Hour	275	7.9	101° (E)	412719
07-May	8	PM2.5	1-Hour	399	8.6	98° (E)	412719
07-May	9	PM2.5	1-Hour	328	8.2	120° (ESE)	412719
07-May	10	PM2.5	1-Hour	245	8.7	93° (E)	412719
07-May	11	PM2.5	1-Hour	87	16.2	131° (SE)	412719
09-May	9	PM2.5	1-Hour	94	2.1	256° (WSW)	413090
09-May	10	PM2.5	1-Hour	117	0.8	144° (SE)	413090
09-May	11	PM2.5	1-Hour	98	1.4	189° (S)	413090
09-May	12	PM2.5	1-Hour	90	1.7	287° (WNN)	413090
14-May	18	PM2.5	1-Hour	103	5	134° (SE)	413090
14-May	19	PM2.5	1-Hour	94	1.7	100° (E)	413090
14-May	20	PM2.5	1-Hour	115	2.5	21° (NNE)	413090
14-May	21	PM2.5	1-Hour	101	3.9	11° (NNE)	413090
14-May	22	PM2.5	1-Hour	83	3.5	28° (NNE)	413090
14-May	23	PM2.5	1-Hour	144	4.3	108° (ENE)	413090
15-May	3	PM2.5	1-Hour	356	2.5	16° (NNE)	413528
15-May	4	PM2.5	1-Hour	273	0.8	17° (NNE)	413528
15-May	5	PM2.5	1-Hour	227	1.8	7° (N)	413528
15-May	6	PM2.5	1-Hour	252	1.4	61° (ENE)	413528
15-May	7	PM2.5	1-Hour	203	6.7	162° (SSE)	413528
15-May	8	PM2.5	1-Hour	157	11.6	170° (SSE)	413528
15-May	9	PM2.5	1-Hour	183	12	169° (SSE)	413528
15-May	10	PM2.5	1-Hour	163	12.6	167° (SSE)	413528

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
15-May	11	PM2.5	1-Hour	119	13.7	170° (SSE)	413528
15-May	12	PM2.5	1-Hour	85	12.4	171° (S)	413528
15-May	13	PM2.5	1-Hour	85	11.4	183° (S)	413528
15-May	14	PM2.5	1-Hour	99	8.5	208° (SSW)	413528
15-May	15	PM2.5	1-Hour	111	7.2	235° (SW)	413528
15-May	16	PM2.5	1-Hour	183	6	245° (WSW)	413528
15-May	17	PM2.5	1-Hour	328	5.1	308° (NW)	413528
15-May	18	PM2.5	1-Hour	402	4.7	325° (NW)	413528
15-May	19	PM2.5	1-Hour	383	21.7	5° (N)	413528
15-May	20	PM2.5	1-Hour	243	18.8	8° (N)	413528
15-May	21	PM2.5	1-Hour	219	20.7	4° (N)	413528
15-May	22	PM2.5	1-Hour	316	19.2	359° (N)	413528
15-May	23	PM2.5	1-Hour	243	12	170° (S)	413528
16-May	6	PM2.5	1-Hour	125	14.6	348° (NNW)	413528
16-May	7	PM2.5	1-Hour	105	12.8	350° (N)	413528
17-May	21	PM2.5	1-Hour	317	2.7	137° (SE)	413528
17-May	22	PM2.5	1-Hour	296	2.2	92° (E)	413528
17-May	23	PM2.5	1-Hour	328	6.2	45° (NNE)	413528
18-May	0	PM2.5	1-Hour	356	4.8	39° (NE)	413528
18-May	1	PM2.5	1-Hour	328	2.7	25° (NNE)	413528
18-May	2	PM2.5	1-Hour	349	1.5	342° (NNW)	413528
18-May	3	PM2.5	1-Hour	393	3	47° (NE)	413528
18-May	4	PM2.5	1-Hour	669	4.3	71° (ENE)	413528
18-May	5	PM2.5	1-Hour	890	3.4	54° (NE)	413528
18-May	6	PM2.5	1-Hour	1043	5.1	50° (NE)	413528
18-May	7	PM2.5	1-Hour	881	3.2	81° (E)	413528
18-May	8	PM2.5	1-Hour	396	9.6	148° (SE)	413528
18-May	9	PM2.5	1-Hour	216	10.7	158° (SSE)	413528
18-May	10	PM2.5	1-Hour	192	9.7	152° (SSE)	413528
18-May	11	PM2.5	1-Hour	143	11.3	137° (SE)	413528
18-May	12	PM2.5	1-Hour	130	11.7	143° (SE)	413528
18-May	13	PM2.5	1-Hour	126	11.5	135° (SE)	413528
18-May	14	PM2.5	1-Hour	160	12.8	142° (SE)	413528
18-May	15	PM2.5	1-Hour	160	12	149° (SSE)	413528
18-May	16	PM2.5	1-Hour	281	8.5	128° (SE)	413528
18-May	17	PM2.5	1-Hour	595	9.2	91° (E)	413528
18-May	18	PM2.5	1-Hour	539	8.5	90° (E)	413528
18-May	19	PM2.5	1-Hour	438	5.7	131° (SE)	413528
18-May	20	PM2.5	1-Hour	244	5.5	148° (SE)	413528
18-May	21	PM2.5	1-Hour	241	1.1	117° (ESE)	413528
18-May	22	PM2.5	1-Hour	252	1.1	31° (NNE)	413528
18-May	23	PM2.5	1-Hour	221	10.7	137° (SE)	413528
19-May	0	PM2.5	1-Hour	175	4.1	64° (ENE)	413528
19-May	1	PM2.5	1-Hour	136	3.5	87° (E)	413528
19-May	2	PM2.5	1-Hour	128	1.1	126° (SE)	413528
19-May	3	PM2.5	1-Hour	136	0.6	143° (SE)	413528
19-May	4	PM2.5	1-Hour	136	0.5	315° (NW)	413528
19-May	5	PM2.5	1-Hour	139	1.4	323° (NW)	413528
19-May	6	PM2.5	1-Hour	156	0.8	332° (NNW)	413528
19-May	7	PM2.5	1-Hour	188	5.9	188° (S)	413528
19-May	8	PM2.5	1-Hour	218	4.5	218° (SW)	413528

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
19-May	9	PM2.5	1-Hour	291	5.3	185° (S)	413528
19-May	10	PM2.5	1-Hour	259	7.6	198° (SSW)	413528
19-May	11	PM2.5	1-Hour	215	9.1	259° (WSW)	413528
19-May	12	PM2.5	1-Hour	171	7.6	263° (W)	413528
19-May	13	PM2.5	1-Hour	203	9.2	273° (W)	413528
19-May	14	PM2.5	1-Hour	239	10.7	295° (WNW)	413528
19-May	15	PM2.5	1-Hour	242	13.2	313° (NW)	413528
19-May	16	PM2.5	1-Hour	238	12	303° (WNW)	413528
19-May	17	PM2.5	1-Hour	329	9.8	358° (N)	413528
19-May	18	PM2.5	1-Hour	497	11.3	7° (N)	413528
19-May	19	PM2.5	1-Hour	434	15.6	5° (N)	413528
19-May	20	PM2.5	1-Hour	256	15.8	9° (N)	413528
19-May	21	PM2.5	1-Hour	186	14.4	8° (N)	413528
19-May	22	PM2.5	1-Hour	202	11	10° (N)	413528
19-May	23	PM2.5	1-Hour	203	5.3	259° (W)	413528
20-May	0	PM2.5	1-Hour	184	9.7	0° (N)	413528
20-May	1	PM2.5	1-Hour	150	8.6	4° (N)	413528
20-May	2	PM2.5	1-Hour	151	6.3	6° (N)	413528
20-May	3	PM2.5	1-Hour	142	7.6	6° (N)	413528
20-May	4	PM2.5	1-Hour	113	6	14° (NNE)	413528
20-May	5	PM2.5	1-Hour	106	4.9	17° (NNE)	413528
20-May	6	PM2.5	1-Hour	158	4.5	35° (NE)	413528
20-May	7	PM2.5	1-Hour	217	6.5	47° (NE)	413528
20-May	8	PM2.5	1-Hour	308	6.9	57° (ENE)	413528
20-May	9	PM2.5	1-Hour	418	6.8	73° (ENE)	413528
20-May	10	PM2.5	1-Hour	447	4.2	103° (ESE)	413528
20-May	11	PM2.5	1-Hour	552	4.6	86° (E)	413528
20-May	12	PM2.5	1-Hour	724	4.6	105° (ESE)	413528
20-May	13	PM2.5	1-Hour	851	4.8	120° (ESE)	413528
20-May	14	PM2.5	1-Hour	869	4.1	99° (E)	413528
20-May	15	PM2.5	1-Hour	1045	4.8	93° (E)	413528
20-May	16	PM2.5	1-Hour	1335	5.8	84° (E)	413528
20-May	17	PM2.5	1-Hour	919	5.3	86° (E)	413528
20-May	18	PM2.5	1-Hour	661	6.3	69° (ENE)	413528
20-May	19	PM2.5	1-Hour	778	3.1	96° (E)	413528
20-May	20	PM2.5	1-Hour	769	2.6	91° (E)	413528
20-May	21	PM2.5	1-Hour	798	3.3	150° (SSE)	413528
20-May	22	PM2.5	1-Hour	665	6.3	198° (SSW)	413528
20-May	23	PM2.5	1-Hour	549	6.8	86° (ESE)	413528
21-May	0	PM2.5	1-Hour	443	2.7	60° (ENE)	413528
21-May	1	PM2.5	1-Hour	458	2.9	181° (S)	413528
21-May	2	PM2.5	1-Hour	415	1.4	359° (N)	413528
21-May	3	PM2.5	1-Hour	390	4.4	1° (N)	413528
21-May	4	PM2.5	1-Hour	351	3.8	341° (NNW)	413528
21-May	5	PM2.5	1-Hour	355	1.6	316° (NW)	413528
21-May	6	PM2.5	1-Hour	341	1.7	190° (S)	413528
21-May	7	PM2.5	1-Hour	350	1.2	185° (S)	413528
21-May	8	PM2.5	1-Hour	407	2.6	145° (SE)	413528
21-May	9	PM2.5	1-Hour	425	2.4	98° (E)	413528
21-May	10	PM2.5	1-Hour	407	3.6	127° (SE)	413528

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
21-May	12	PM2.5	1-Hour	338	5.5	173° (S)	413528
21-May	13	PM2.5	1-Hour	319	8.2	185° (S)	413528
21-May	14	PM2.5	1-Hour	228	8	185° (S)	413528
21-May	15	PM2.5	1-Hour	169	7.2	182° (S)	413528
21-May	16	PM2.5	1-Hour	241	8.2	148° (SE)	413528
21-May	17	PM2.5	1-Hour	234	6	155° (SSE)	413528
21-May	18	PM2.5	1-Hour	248	7.4	153° (SSE)	413528
21-May	19	PM2.5	1-Hour	246	5.3	178° (S)	413528
21-May	20	PM2.5	1-Hour	255	8	192° (S)	413528
21-May	21	PM2.5	1-Hour	119	32.9	177° (S)	413528
21-May	22	PM2.5	1-Hour	104	4.5	168° (SSE)	413528
21-May	23	PM2.5	1-Hour	88	2.4	166° (S)	413528
22-May	3	PM2.5	1-Hour	95	6.1	20° (NNE)	413934
22-May	4	PM2.5	1-Hour	104	4.8	8° (N)	413934
22-May	5	PM2.5	1-Hour	102	7.1	5° (N)	413934
22-May	6	PM2.5	1-Hour	97	11.8	3° (N)	413934
22-May	7	PM2.5	1-Hour	119	12.5	5° (N)	413934
22-May	8	PM2.5	1-Hour	174	13	17° (NNE)	413934
22-May	9	PM2.5	1-Hour	216	12.8	33° (NNE)	413934
22-May	10	PM2.5	1-Hour	222	14.3	39° (NE)	413934
22-May	11	PM2.5	1-Hour	210	14.6	38° (NE)	413934
22-May	12	PM2.5	1-Hour	198	13.1	32° (NNE)	413934
22-May	13	PM2.5	1-Hour	144	13.3	35° (NE)	413934
22-May	14	PM2.5	1-Hour	94	14.3	31° (NNE)	413934
03-Jun	20	PM2.5	1-Hour	83	7.6	81° (E)	414422
03-Jun	21	PM2.5	1-Hour	102	7.4	52° (NE)	414422
03-Jun	22	PM2.5	1-Hour	119	8.5	52° (NE)	414422
03-Jun	23	PM2.5	1-Hour	88	18	136° (SE)	414422
07-Jun	3	PM2.5	1-Hour	84	10.7	228° (SW)	414725
07-Jun	4	PM2.5	1-Hour	106	1.7	256° (WSW)	414725
07-Jun	5	PM2.5	1-Hour	126	4.4	227° (SW)	414725
07-Jun	8	PM2.5	1-Hour	105	9.1	289° (WNW)	414725
07-Jun	9	PM2.5	1-Hour	116	10	299° (WNW)	414725
07-Jun	10	PM2.5	1-Hour	99	9.5	270° (W)	414725
07-Jun	21	PM2.5	1-Hour	191	10.1	3° (N)	414725
07-Jun	22	PM2.5	1-Hour	253	8.6	7° (N)	414725
07-Jun	23	PM2.5	1-Hour	239	10	253° (WSW)	414725
08-Jun	0	PM2.5	1-Hour	234	5.8	6° (N)	414725
08-Jun	1	PM2.5	1-Hour	220	6.8	1° (N)	414725
08-Jun	2	PM2.5	1-Hour	160	8.2	2° (N)	414725
08-Jun	3	PM2.5	1-Hour	88	9.7	6° (N)	414725
10-Jun	7	PM2.5	1-Hour	92	6.1	142° (SE)	414725
10-Jun	8	PM2.5	1-Hour	147	10.6	160° (SSE)	414725
10-Jun	9	PM2.5	1-Hour	118	12.9	185° (S)	414725
10-Jun	10	PM2.5	1-Hour	91	8.6	197° (SSW)	414725
10-Jun	14	PM2.5	1-Hour	84	14.8	234° (SW)	414725
10-Jun	15	PM2.5	1-Hour	159	15.5	238° (SW)	414725
10-Jun	16	PM2.5	1-Hour	263	15	258° (WSW)	414725
10-Jun	17	PM2.5	1-Hour	314	13.5	262° (W)	414725
10-Jun	18	PM2.5	1-Hour	332	11.2	280° (W)	414725
10-Jun	19	PM2.5	1-Hour	279	11.9	267° (W)	414725

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
10-Jun	20	PM2.5	1-Hour	210	4.4	237° (SW)	414725
10-Jun	21	PM2.5	1-Hour	197	3.2	268° (W)	414725
10-Jun	22	PM2.5	1-Hour	167	3.3	260° (WSW)	414725
10-Jun	23	PM2.5	1-Hour	185	12.9	176° (S)	414725
11-Jun	0	PM2.5	1-Hour	214	7.2	297° (WNW)	414725
11-Jun	1	PM2.5	1-Hour	229	6.8	299° (WNW)	414725
11-Jun	2	PM2.5	1-Hour	234	7.7	290° (WNW)	414725
11-Jun	3	PM2.5	1-Hour	190	7.6	295° (WNW)	414725
11-Jun	4	PM2.5	1-Hour	106	9.7	304° (WNW)	414725
11-Jun	5	PM2.5	1-Hour	137	9.2	315° (NW)	414725
11-Jun	6	PM2.5	1-Hour	163	5.4	325° (NW)	414725
11-Jun	7	PM2.5	1-Hour	179	4.9	3° (N)	414725
11-Jun	8	PM2.5	1-Hour	132	6	5° (N)	414725
11-Jun	14	PM2.5	1-Hour	83	10.2	201° (SSW)	414725
11-Jun	15	PM2.5	1-Hour	87	9.6	237° (SW)	414725
11-Jun	16	PM2.5	1-Hour	91	9.7	260° (WSW)	414725
11-Jun	17	PM2.5	1-Hour	83	11.5	254° (WSW)	414725
11-Jun	20	PM2.5	1-Hour	87	8.5	257° (WSW)	414725
11-Jun	23	PM2.5	1-Hour	152	4.3	254° (S)	414725
12-Jun	0	PM2.5	1-Hour	204	6.6	23° (NNE)	415194
12-Jun	1	PM2.5	1-Hour	208	5.3	20° (NNE)	415194
12-Jun	2	PM2.5	1-Hour	205	5.3	12° (NNE)	415194
12-Jun	3	PM2.5	1-Hour	211	5.7	22° (NNE)	415194
12-Jun	4	PM2.5	1-Hour	210	4.8	32° (NNE)	415194
12-Jun	5	PM2.5	1-Hour	198	5.6	45° (NE)	415194
12-Jun	6	PM2.5	1-Hour	196	3.5	53° (NE)	415194
12-Jun	7	PM2.5	1-Hour	193	3.4	58° (ENE)	415194
12-Jun	8	PM2.5	1-Hour	186	3.1	77° (ENE)	415194
12-Jun	9	PM2.5	1-Hour	175	5	129° (SE)	415194
12-Jun	10	PM2.5	1-Hour	159	10.4	147° (SE)	415194
12-Jun	11	PM2.5	1-Hour	147	10.9	154° (SSE)	415194
12-Jun	12	PM2.5	1-Hour	121	8.9	165° (SSE)	415194
12-Jun	13	PM2.5	1-Hour	102	9.2	197° (SSW)	415194
12-Jun	14	PM2.5	1-Hour	177	13.4	200° (SSW)	415194
12-Jun	15	PM2.5	1-Hour	145	13.3	210° (SSW)	415194
12-Jun	16	PM2.5	1-Hour	97	13.1	227° (SW)	415194
12-Jun	17	PM2.5	1-Hour	92	10.7	194° (SSW)	415194
12-Jun	18	PM2.5	1-Hour	104	12.6	186° (S)	415194
12-Jun	19	PM2.5	1-Hour	87	10	224° (SW)	415194
13-Jun	6	PM2.5	1-Hour	329	8.1	1° (N)	415194
13-Jun	7	PM2.5	1-Hour	375	8.8	352° (N)	415194
13-Jun	8	PM2.5	1-Hour	264	10.8	347° (NNW)	415194
13-Jun	9	PM2.5	1-Hour	254	10.4	347° (NNW)	415194
13-Jun	10	PM2.5	1-Hour	233	9.8	354° (N)	415194
13-Jun	11	PM2.5	1-Hour	229	9.1	351° (N)	415194
13-Jun	12	PM2.5	1-Hour	228	10.7	356° (N)	415194
13-Jun	13	PM2.5	1-Hour	245	12.4	348° (NNW)	415194
13-Jun	14	PM2.5	1-Hour	230	12	341° (NNW)	415194
13-Jun	15	PM2.5	1-Hour	241	11.6	342° (NNW)	415194
13-Jun	16	PM2.5	1-Hour	251	10	348° (NNW)	415194
13-Jun	17	PM2.5	1-Hour	190	12.3	355° (N)	415194

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
13-Jun	18	PM2.5	1-Hour	166	14.8	0° (N)	415194
13-Jun	19	PM2.5	1-Hour	107	15	360° (N)	415194
14-Jun	8	PM2.5	1-Hour	137	12	338° (NNW)	415194
14-Jun	9	PM2.5	1-Hour	134	15.6	349° (NNW)	415194
14-Jun	10	PM2.5	1-Hour	136	14.6	349° (NNW)	415194
14-Jun	11	PM2.5	1-Hour	115	12.9	347° (NNW)	415194
14-Jun	12	PM2.5	1-Hour	84	14.6	352° (N)	415194
27-Jun	13	PM2.5	1-Hour	82	5	333° (NNW)	415805
27-Jun	14	PM2.5	1-Hour	85	5.4	319° (NW)	415805
02-Jul	6	PM2.5	1-Hour	88	16.2	300° (WNW)	415805
02-Jul	7	PM2.5	1-Hour	103	15.8	295° (WNW)	415805
07-Jul	2	PM2.5	1-Hour	85	5.1	7° (N)	416910
07-Jul	3	PM2.5	1-Hour	99	5.4	14° (NNE)	416910
07-Jul	4	PM2.5	1-Hour	107	5.3	14° (NNE)	416910
07-Jul	5	PM2.5	1-Hour	100	4.2	10° (N)	416910
07-Jul	6	PM2.5	1-Hour	84	2.6	354° (N)	416910
09-Jul	12	PM2.5	1-Hour	85	10.4	189° (S)	416910
09-Jul	13	PM2.5	1-Hour	107	11.7	202° (SSW)	416910
09-Jul	14	PM2.5	1-Hour	118	9.6	218° (SW)	416910
09-Jul	15	PM2.5	1-Hour	115	9	245° (WSW)	416910
09-Jul	16	PM2.5	1-Hour	107	6.8	250° (WSW)	416910
09-Jul	17	PM2.5	1-Hour	106	4.8	246° (WSW)	416910
09-Jul	18	PM2.5	1-Hour	101	3.1	194° (SSW)	416910
09-Jul	19	PM2.5	1-Hour	100	3.4	107° (ESE)	416910
09-Jul	20	PM2.5	1-Hour	99	4.6	73° (ENE)	416910
09-Jul	21	PM2.5	1-Hour	96	5.2	50° (NE)	416910
09-Jul	22	PM2.5	1-Hour	107	6.5	42° (NE)	416910
09-Jul	23	PM2.5	1-Hour	113	6.9	45° (NE)	416910
10-Jul	0	PM2.5	1-Hour	149	8.3	50° (NE)	416553
10-Jul	1	PM2.5	1-Hour	158	8.6	55° (NE)	416553
10-Jul	2	PM2.5	1-Hour	174	7.4	63° (ENE)	416553
10-Jul	3	PM2.5	1-Hour	164	6.2	68° (ENE)	416553
10-Jul	4	PM2.5	1-Hour	162	8.1	68° (ENE)	416553
10-Jul	5	PM2.5	1-Hour	202	4.9	49° (NE)	416553
10-Jul	6	PM2.5	1-Hour	192	8.9	44° (NE)	416553
10-Jul	7	PM2.5	1-Hour	87	10.4	47° (NE)	416553
10-Jul	8	PM2.5	1-Hour	102	9.5	41° (NE)	416553
10-Jul	9	PM2.5	1-Hour	92	5	61° (ENE)	416553
10-Jul	10	PM2.5	1-Hour	89	3.2	83° (E)	416553
10-Jul	11	PM2.5	1-Hour	93	2.8	126° (SE)	416553
10-Jul	12	PM2.5	1-Hour	94	2.7	82° (E)	416553
10-Jul	13	PM2.5	1-Hour	83	3.6	57° (ENE)	416553
13-Jul	5	PM2.5	1-Hour	111	7.9	339° (NNW)	416553
13-Jul	6	PM2.5	1-Hour	121	8.1	346° (NNW)	416553
13-Jul	7	PM2.5	1-Hour	141	9.8	2° (N)	416553
13-Jul	8	PM2.5	1-Hour	164	11.6	4° (N)	416553
13-Jul	9	PM2.5	1-Hour	181	9.4	3° (N)	416553
13-Jul	10	PM2.5	1-Hour	253	7	4° (N)	416553
13-Jul	11	PM2.5	1-Hour	353	8.1	12° (NNE)	416553
13-Jul	12	PM2.5	1-Hour	270	8.5	17° (NNE)	416553
13-Jul	13	PM2.5	1-Hour	154	7.1	14° (NNE)	416553

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
13-Jul	14	PM2.5	1-Hour	136	7.6	0° (N)	416553
13-Jul	15	PM2.5	1-Hour	146	7.9	342° (NNW)	416553
13-Jul	16	PM2.5	1-Hour	117	8.9	3° (N)	416553
13-Jul	17	PM2.5	1-Hour	110	8	4° (N)	416553
13-Jul	18	PM2.5	1-Hour	111	6	7° (N)	416553
13-Jul	19	PM2.5	1-Hour	99	3.5	343° (NNW)	416553
13-Jul	20	PM2.5	1-Hour	104	4.5	274° (W)	416553
13-Jul	21	PM2.5	1-Hour	126	7.6	271° (W)	416553
13-Jul	22	PM2.5	1-Hour	116	7.5	293° (WNV)	416553
13-Jul	23	PM2.5	1-Hour	100	8.1	305° (WNV)	416553
14-Jul	0	PM2.5	1-Hour	109	8.1	322° (NW)	416553
14-Jul	1	PM2.5	1-Hour	123	7.3	327° (NW)	416553
14-Jul	2	PM2.5	1-Hour	142	7.7	341° (NNW)	416553
14-Jul	3	PM2.5	1-Hour	164	7.4	342° (NNW)	416553
14-Jul	4	PM2.5	1-Hour	192	6.1	355° (N)	416553
14-Jul	5	PM2.5	1-Hour	204	6.7	346° (NNW)	416553
14-Jul	6	PM2.5	1-Hour	235	5.7	346° (NNW)	416553
14-Jul	7	PM2.5	1-Hour	278	5.7	1° (N)	416553
14-Jul	8	PM2.5	1-Hour	297	4.7	8° (N)	416553
14-Jul	9	PM2.5	1-Hour	304	3.1	5° (N)	416553
14-Jul	10	PM2.5	1-Hour	306	3.1	325° (NW)	416553
14-Jul	11	PM2.5	1-Hour	318	3.6	296° (WNV)	416553
14-Jul	12	PM2.5	1-Hour	272	5.1	288° (WNV)	416553
14-Jul	13	PM2.5	1-Hour	290	5.1	248° (WSW)	416553
14-Jul	14	PM2.5	1-Hour	357	5.7	235° (SW)	416553
14-Jul	15	PM2.5	1-Hour	333	7.3	210° (SSW)	416553
14-Jul	16	PM2.5	1-Hour	202	9.2	193° (S)	416553
14-Jul	17	PM2.5	1-Hour	165	10.3	193° (S)	416553
14-Jul	18	PM2.5	1-Hour	147	9.3	199° (SSW)	416553
14-Jul	19	PM2.5	1-Hour	141	6.6	196° (SSW)	416553
14-Jul	20	PM2.5	1-Hour	115	5.3	203° (SSW)	416553
14-Jul	21	PM2.5	1-Hour	102	4.1	234° (SW)	416553
14-Jul	22	PM2.5	1-Hour	104	0.1	184° (S)	416553
14-Jul	23	PM2.5	1-Hour	104	0.3	130° (SE)	416553
15-Jul	0	PM2.5	1-Hour	107	3.2	248° (WSW)	416553
15-Jul	1	PM2.5	1-Hour	101	3.2	259° (WSW)	416553
15-Jul	2	PM2.5	1-Hour	102	0.5	281° (W)	416553
15-Jul	3	PM2.5	1-Hour	105	2.9	329° (NNW)	416553
15-Jul	4	PM2.5	1-Hour	106	3.6	354° (N)	416553
15-Jul	5	PM2.5	1-Hour	112	0.2	52° (NE)	416553
15-Jul	6	PM2.5	1-Hour	114	1.5	340° (NNW)	416553
15-Jul	7	PM2.5	1-Hour	137	2.3	10° (N)	416553
15-Jul	8	PM2.5	1-Hour	139	1.9	74° (ENE)	416553
15-Jul	9	PM2.5	1-Hour	139	3.2	86° (E)	416553
15-Jul	10	PM2.5	1-Hour	134	3.5	120° (ESE)	416553
15-Jul	11	PM2.5	1-Hour	115	3.9	90° (E)	416553
15-Jul	12	PM2.5	1-Hour	124	5.6	134° (SE)	416553
15-Jul	13	PM2.5	1-Hour	127	7	133° (SE)	416553
15-Jul	14	PM2.5	1-Hour	125	7.7	160° (SSE)	416553
15-Jul	15	PM2.5	1-Hour	132	6.3	176° (S)	416553
15-Jul	16	PM2.5	1-Hour	140	5.8	194° (SSW)	416553

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
15-Jul	17	PM2.5	1-Hour	142	4.5	191° (S)	416553
15-Jul	18	PM2.5	1-Hour	133	5.4	177° (S)	416553
15-Jul	19	PM2.5	1-Hour	120	6	199° (SSW)	416553
15-Jul	20	PM2.5	1-Hour	134	4.3	218° (SW)	416553
15-Jul	21	PM2.5	1-Hour	128	7	226° (SW)	416553
15-Jul	22	PM2.5	1-Hour	130	9.1	298° (WNW)	416553
15-Jul	23	PM2.5	1-Hour	136	1.6	67° (ENE)	416553
16-Jul	0	PM2.5	1-Hour	132	1.1	236° (SW)	416958
16-Jul	1	PM2.5	1-Hour	124	2.5	295° (WNW)	416958
16-Jul	2	PM2.5	1-Hour	120	3.5	294° (WNW)	416958
16-Jul	3	PM2.5	1-Hour	118	0.6	54° (NE)	416958
16-Jul	4	PM2.5	1-Hour	118	1.7	117° (ESE)	416958
16-Jul	5	PM2.5	1-Hour	117	2.6	225° (SW)	416958
16-Jul	6	PM2.5	1-Hour	114	2.4	127° (SE)	416958
16-Jul	7	PM2.5	1-Hour	106	6.7	142° (SE)	416958
16-Jul	8	PM2.5	1-Hour	92	9	155° (SSE)	416958
16-Jul	9	PM2.5	1-Hour	88	9.1	160° (SSE)	416958
16-Jul	10	PM2.5	1-Hour	87	11.9	153° (SSE)	416958
16-Jul	11	PM2.5	1-Hour	82	12.8	156° (SSE)	416958
16-Jul	12	PM2.5	1-Hour	81	13.5	147° (SE)	416958
16-Jul	13	PM2.5	1-Hour	82	9.9	154° (SSE)	416958
16-Jul	14	PM2.5	1-Hour	85	9.1	164° (SSE)	416958
16-Jul	15	PM2.5	1-Hour	91	9.8	148° (SE)	416958
16-Jul	16	PM2.5	1-Hour	94	9.6	137° (SE)	416958
16-Jul	17	PM2.5	1-Hour	100	10.3	134° (SE)	416958
16-Jul	18	PM2.5	1-Hour	99	8.1	135° (SE)	416958
16-Jul	19	PM2.5	1-Hour	98	5	143° (SE)	416958
16-Jul	20	PM2.5	1-Hour	92	2	114° (ESE)	416958
16-Jul	21	PM2.5	1-Hour	95	1.9	57° (ENE)	416958
16-Jul	22	PM2.5	1-Hour	99	3.3	51° (NE)	416958
16-Jul	23	PM2.5	1-Hour	96	6.1	59° (ENE)	416958
17-Jul	0	PM2.5	1-Hour	92	6.9	217° (SW)	416958
20-Jul	4	PM2.5	1-Hour	90	5.4	334° (NNW)	416958
20-Jul	5	PM2.5	1-Hour	104	5.7	326° (NW)	416958
20-Jul	6	PM2.5	1-Hour	104	3	24° (NNE)	416958
20-Jul	7	PM2.5	1-Hour	104	1.3	150° (SSE)	416958
20-Jul	8	PM2.5	1-Hour	102	1.7	173° (S)	416958
20-Jul	9	PM2.5	1-Hour	112	1.4	337° (NNW)	416958
20-Jul	10	PM2.5	1-Hour	113	3.5	332° (NNW)	416958
20-Jul	11	PM2.5	1-Hour	100	4.4	287° (WNW)	416958
20-Jul	12	PM2.5	1-Hour	96	3.8	311° (NW)	416958
20-Jul	13	PM2.5	1-Hour	90	2.5	282° (W)	416958
20-Jul	14	PM2.5	1-Hour	88	6.8	283° (W)	416958
20-Jul	15	PM2.5	1-Hour	96	7.2	289° (WNW)	416958
20-Jul	16	PM2.5	1-Hour	99	5	298° (WNW)	416958
20-Jul	17	PM2.5	1-Hour	98	3.8	277° (W)	416958
20-Jul	18	PM2.5	1-Hour	96	6.2	242° (WSW)	416958
20-Jul	19	PM2.5	1-Hour	93	8.7	189° (S)	416958
20-Jul	20	PM2.5	1-Hour	93	4.3	198° (SSW)	416958
20-Jul	21	PM2.5	1-Hour	96	1.6	287° (WNW)	416958
20-Jul	22	PM2.5	1-Hour	92	3.5	309° (NW)	416958

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
20-Jul	23	PM2.5	1-Hour	88	4.1	329° (NNW)	416958
21-Jul	0	PM2.5	1-Hour	90	3.7	329° (NNW)	416958
21-Jul	1	PM2.5	1-Hour	92	3.8	339° (NNW)	416958
21-Jul	2	PM2.5	1-Hour	93	5	348° (NNW)	416958
21-Jul	3	PM2.5	1-Hour	93	2.5	349° (NNW)	416958
21-Jul	4	PM2.5	1-Hour	92	2.9	350° (N)	416958
21-Jul	5	PM2.5	1-Hour	88	3.4	346° (NNW)	416958
21-Jul	6	PM2.5	1-Hour	91	3.2	356° (N)	416958
21-Jul	7	PM2.5	1-Hour	93	3.4	17° (NNE)	416958
21-Jul	8	PM2.5	1-Hour	94	3.3	73° (ENE)	416958
21-Jul	9	PM2.5	1-Hour	93	2.6	86° (E)	416958
21-Jul	10	PM2.5	1-Hour	94	4	88° (E)	416958
21-Jul	11	PM2.5	1-Hour	86	3.7	97° (E)	416958
21-Jul	12	PM2.5	1-Hour	85	4.3	87° (E)	416958
21-Jul	13	PM2.5	1-Hour	89	2.9	65° (ENE)	416958
21-Jul	14	PM2.5	1-Hour	85	4.3	83° (E)	416958
21-Jul	20	PM2.5	1-Hour	82	3.4	33° (NNE)	416958
21-Jul	21	PM2.5	1-Hour	86	5.3	40° (NE)	416958
21-Jul	22	PM2.5	1-Hour	81	6.2	136° (SE)	416958
24-Aug	1	PM2.5	1-Hour	225	6.8	351°(N)	418443
24-Aug	2	PM2.5	1-Hour	337	7.6	353°(N)	418443
24-Aug	3	PM2.5	1-Hour	309	9.1	354°(N)	418443
24-Aug	4	PM2.5	1-Hour	347	9.7	347°(NNW)	418443
24-Aug	5	PM2.5	1-Hour	339	9.6	353°(N)	418443
24-Aug	6	PM2.5	1-Hour	332	10.9	355°(N)	418443
24-Aug	7	PM2.5	1-Hour	331	10.5	356°(N)	418443
24-Aug	8	PM2.5	1-Hour	339	10	358°(N)	418443
24-Aug	9	PM2.5	1-Hour	338	8.3	357°(N)	418443
24-Aug	10	PM2.5	1-Hour	266	6.1	16°(NNE)	418443
24-Aug	11	PM2.5	1-Hour	182	5.8	44°(NE)	418443
24-Aug	12	PM2.5	1-Hour	146	6.5	60°(ENE)	418443
24-Aug	13	PM2.5	1-Hour	106	5.4	98°(E)	418443
24-Aug	14	PM2.5	1-Hour	104	2.6	126°(SE)	418443
24-Aug	15	PM2.5	1-Hour	147	5	163°(SSE)	418443
24-Aug	16	PM2.5	1-Hour	134	6.2	188°(S)	418443
24-Aug	17	PM2.5	1-Hour	126	8.1	170°(SSE)	418443
24-Aug	18	PM2.5	1-Hour	131	7.2	186°(S)	418443
24-Aug	19	PM2.5	1-Hour	137	5.2	170°(SSE)	418443
24-Aug	20	PM2.5	1-Hour	172	7.4	196°(SSW)	418443
24-Aug	21	PM2.5	1-Hour	175	6.8	203°(SSW)	418443
24-Aug	22	PM2.5	1-Hour	151	6.3	209°(SSW)	418443
24-Aug	23	PM2.5	1-Hour	124	5.8	216°(SW)	418443
25-Aug	0	PM2.5	1-Hour	100	4.8	224°(SW)	418443
25-Aug	1	PM2.5	1-Hour	90	3.2	227°(SW)	418443
25-Aug	2	PM2.5	1-Hour	81	2.9	210°(SSW)	418443
26-Aug	12	PM2.5	1-Hour	81	9.6	241°(WSW)	418443
26-Aug	13	PM2.5	1-Hour	84	9	256°(WSW)	418443
26-Aug	23	PM2.5	1-Hour	112	5	336°(NNW)	418443
27-Aug	0	PM2.5	1-Hour	181	5.1	340°(NNW)	418443
27-Aug	1	PM2.5	1-Hour	217	2.5	5°(N)	418443
27-Aug	2	PM2.5	1-Hour	217	4.4	346°(NNW)	418443

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
27-Aug	3	PM2.5	1-Hour	220	4.5	347°(NNW)	418443
27-Aug	4	PM2.5	1-Hour	234	4.4	358°(N)	418443
27-Aug	5	PM2.5	1-Hour	249	1.3	274°(W)	418443
27-Aug	6	PM2.5	1-Hour	249	3.2	344°(NNW)	418443
27-Aug	7	PM2.5	1-Hour	204	0.7	342°(NNW)	418443
27-Aug	8	PM2.5	1-Hour	219	4.5	195°(SSW)	418443
27-Aug	9	PM2.5	1-Hour	163	4.8	195°(SSW)	418443
27-Aug	10	PM2.5	1-Hour	126	8.1	193°(S)	418443
27-Aug	11	PM2.5	1-Hour	98	11.7	193°(S)	418443
27-Aug	16	PM2.5	1-Hour	85	13.5	246°(WSW)	418443
28-Aug	9	PM2.5	1-Hour	82	8.3	195°(SSW)	418931
28-Aug	10	PM2.5	1-Hour	87	8.6	208°(SSW)	418931
28-Aug	11	PM2.5	1-Hour	94	9.8	218°(SW)	418931
28-Aug	12	PM2.5	1-Hour	88	12.2	194°(SSW)	418931
28-Aug	13	PM2.5	1-Hour	83	13	192°(S)	418931
28-Aug	14	PM2.5	1-Hour	84	14.3	188°(S)	418931
28-Aug	15	PM2.5	1-Hour	98	15	188°(S)	418931
28-Aug	16	PM2.5	1-Hour	110	16	194°(SSW)	418931
28-Aug	17	PM2.5	1-Hour	85	12.3	186°(S)	418931
29-Aug	4	PM2.5	1-Hour	86	2.6	301°(WNW)	418931
29-Aug	5	PM2.5	1-Hour	87	1.1	187°(S)	418931
29-Aug	6	PM2.5	1-Hour	93	0.6	188°(S)	418931
29-Aug	7	PM2.5	1-Hour	92	1	236°(SW)	418931
29-Aug	8	PM2.5	1-Hour	96	4.8	178°(S)	418931
29-Aug	9	PM2.5	1-Hour	97	6.4	191°(S)	418931
29-Aug	10	PM2.5	1-Hour	89	5.4	184°(S)	418931
29-Aug	11	PM2.5	1-Hour	81	7.4	188°(S)	418931
29-Aug	13	PM2.5	1-Hour	88	6.3	191°(S)	418931
29-Aug	14	PM2.5	1-Hour	94	6.6	199°(SSW)	418931
29-Aug	15	PM2.5	1-Hour	99	9.4	194°(SSW)	418931
29-Aug	16	PM2.5	1-Hour	101	6.5	196°(SSW)	418931
29-Aug	17	PM2.5	1-Hour	96	6	180°(S)	418931
29-Aug	18	PM2.5	1-Hour	87	2.1	199°(SSW)	418931
29-Aug	19	PM2.5	1-Hour	153	5	315°(NW)	418931
29-Aug	20	PM2.5	1-Hour	177	6	323°(NW)	418931
29-Aug	21	PM2.5	1-Hour	167	5.9	337°(NNW)	418931
29-Aug	22	PM2.5	1-Hour	162	7.5	335°(NNW)	418931
29-Aug	23	PM2.5	1-Hour	159	8.3	333°(NNW)	418931
30-Aug	0	PM2.5	1-Hour	151	6.4	333°(NNW)	418931
30-Aug	1	PM2.5	1-Hour	150	2.8	4°(N)	418931
30-Aug	2	PM2.5	1-Hour	146	2.4	351°(N)	418931
30-Aug	3	PM2.5	1-Hour	146	2.1	349°(NNW)	418931
30-Aug	4	PM2.5	1-Hour	145	0.5	59°(ENE)	418931
30-Aug	5	PM2.5	1-Hour	144	0.5	276°(W)	418931
30-Aug	6	PM2.5	1-Hour	147	4.3	327°(NW)	418931
30-Aug	7	PM2.5	1-Hour	139	3.9	322°(NW)	418931
30-Aug	8	PM2.5	1-Hour	159	0.8	181°(S)	418931
30-Aug	9	PM2.5	1-Hour	230	1.4	228°(SW)	418931
30-Aug	10	PM2.5	1-Hour	393	2	260°(WSW)	418931
30-Aug	11	PM2.5	1-Hour	547	1.9	300°(WNW)	418931
30-Aug	12	PM2.5	1-Hour	611	4.8	325°(NW)	418931

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
30-Aug	13	PM2.5	1-Hour	552	1.9	308°(NW)	418931
30-Aug	14	PM2.5	1-Hour	329	4.7	176°(S)	418931
30-Aug	15	PM2.5	1-Hour	291	6	214°(SSW)	418931
30-Aug	16	PM2.5	1-Hour	276	5.7	228°(SW)	418931
30-Aug	17	PM2.5	1-Hour	280	7.3	270°(W)	418931
30-Aug	18	PM2.5	1-Hour	240	4.8	280°(W)	418931
30-Aug	19	PM2.5	1-Hour	218	4.6	275°(W)	418931
30-Aug	20	PM2.5	1-Hour	207	5.2	269°(W)	418931
30-Aug	21	PM2.5	1-Hour	153	11.7	288°(WNW)	418931
01-Sep	23	PM2.5	1-Hour	173	13.3	271°(W)	418931
02-Sep	0	PM2.5	1-Hour	269	9	288°(WNW)	418931
02-Sep	1	PM2.5	1-Hour	340	10.9	305°(WNW)	418931
02-Sep	2	PM2.5	1-Hour	350	9.8	315°(NW)	418931
02-Sep	3	PM2.5	1-Hour	396	8.6	284°(WNW)	418931
02-Sep	4	PM2.5	1-Hour	424	9.8	298°(WNW)	418931
02-Sep	5	PM2.5	1-Hour	421	11.1	300°(WNW)	418931
02-Sep	6	PM2.5	1-Hour	434	11.9	308°(NW)	418931
02-Sep	7	PM2.5	1-Hour	469	12.1	310°(NW)	418931
02-Sep	8	PM2.5	1-Hour	419	11.1	309°(NW)	418931
02-Sep	9	PM2.5	1-Hour	463	11.1	302°(WNW)	418931
02-Sep	10	PM2.5	1-Hour	453	8.9	292°(WNW)	418931
02-Sep	11	PM2.5	1-Hour	382	9.8	282°(W)	418931
02-Sep	12	PM2.5	1-Hour	312	11.4	310°(NW)	418931
02-Sep	13	PM2.5	1-Hour	348	7.8	333°(NNW)	418931
02-Sep	14	PM2.5	1-Hour	298	6.9	317°(NW)	418931
02-Sep	15	PM2.5	1-Hour	228	8.9	318°(NW)	418931
02-Sep	16	PM2.5	1-Hour	157	6.9	308°(NW)	418931
02-Sep	17	PM2.5	1-Hour	127	3.7	297°(WNW)	418931
02-Sep	18	PM2.5	1-Hour	129	2.7	162°(SSE)	418931
02-Sep	19	PM2.5	1-Hour	123	2.8	152°(SSE)	418931
02-Sep	20	PM2.5	1-Hour	132	3.4	186°(S)	418931
02-Sep	21	PM2.5	1-Hour	135	3.9	203°(SSW)	418931
02-Sep	22	PM2.5	1-Hour	135	3.3	221°(SW)	418931
02-Sep	23	PM2.5	1-Hour	146	1.9	210°(SSW)	418931
03-Sep	0	PM2.5	1-Hour	151	4.8	262°(W)	418931
03-Sep	1	PM2.5	1-Hour	157	3.9	237°(SW)	418931
03-Sep	2	PM2.5	1-Hour	116	5.7	224°(SW)	418931
03-Sep	3	PM2.5	1-Hour	90	6.8	232°(SW)	418931
03-Sep	4	PM2.5	1-Hour	101	10.3	270°(W)	418931
03-Sep	5	PM2.5	1-Hour	116	10.3	307°(NW)	418931
03-Sep	6	PM2.5	1-Hour	168	7.8	339°(NNW)	418931
03-Sep	7	PM2.5	1-Hour	345	11.1	6°(N)	418931
03-Sep	8	PM2.5	1-Hour	395	6.4	13°(NNE)	418931
03-Sep	9	PM2.5	1-Hour	361	6.4	25°(NNE)	418931
03-Sep	10	PM2.5	1-Hour	242	10.8	19°(NNE)	418931
03-Sep	11	PM2.5	1-Hour	163	12.7	14°(NNE)	418931
03-Sep	12	PM2.5	1-Hour	154	11.3	5°(N)	418931
03-Sep	13	PM2.5	1-Hour	135	11.3	351°(N)	418931
05-Sep	13	PM2.5	1-Hour	83	12.8	158°(SSE)	419220
05-Sep	14	PM2.5	1-Hour	84	10.6	181°(S)	419220
05-Sep	15	PM2.5	1-Hour	91	12.5	176°(S)	419220

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
05-Sep	16	PM2.5	1-Hour	89	14.7	155°(SSE)	419220
05-Sep	17	PM2.5	1-Hour	90	11.6	139°(SE)	419220
05-Sep	18	PM2.5	1-Hour	91	9.4	150°(SSE)	419220
05-Sep	19	PM2.5	1-Hour	90	6.5	147°(SE)	419220
05-Sep	20	PM2.5	1-Hour	92	2.9	133°(SE)	419220
05-Sep	21	PM2.5	1-Hour	93	2.1	122°(ESE)	419220
05-Sep	22	PM2.5	1-Hour	93	1.7	85°(E)	419220
05-Sep	23	PM2.5	1-Hour	83	1.5	37°(NE)	419220
06-Sep	0	PM2.5	1-Hour	81	2.9	146°(SE)	419220
06-Sep	10	PM2.5	1-Hour	93	10.2	266°(W)	419220
06-Sep	11	PM2.5	1-Hour	90	12	280°(W)	419220
06-Sep	12	PM2.5	1-Hour	95	14.3	286°(WNW)	419220
06-Sep	13	PM2.5	1-Hour	89	13.6	285°(WNW)	419220
06-Sep	14	PM2.5	1-Hour	83	11.5	292°(WNW)	419220
06-Sep	15	PM2.5	1-Hour	82	9.5	308°(NW)	419220
06-Sep	18	PM2.5	1-Hour	95	5	40°(NE)	419220
06-Sep	19	PM2.5	1-Hour	126	5.4	58°(ENE)	419220
06-Sep	20	PM2.5	1-Hour	135	4.2	45°(NE)	419220
06-Sep	21	PM2.5	1-Hour	140	4	42°(NE)	419220
06-Sep	22	PM2.5	1-Hour	132	2	19°(NNE)	419220
06-Sep	23	PM2.5	1-Hour	131	1.7	335°(NNW)	419220
07-Sep	0	PM2.5	1-Hour	125	2.6	268°(W)	419220
07-Sep	1	PM2.5	1-Hour	85	3.1	233°(SW)	419220
11-Sep	12	PM2.5	1-Hour	122	11.9	277°(W)	419626
11-Sep	13	PM2.5	1-Hour	315	14.6	276°(W)	419626
11-Sep	14	PM2.5	1-Hour	308	8.5	294°(WNW)	419626
11-Sep	15	PM2.5	1-Hour	290	9.1	257°(WSW)	419626
11-Sep	16	PM2.5	1-Hour	204	12.6	238°(SW)	419626
12-Sep	5	PM2.5	1-Hour	109	5.1	233°(SW)	419626
12-Sep	6	PM2.5	1-Hour	133	3.3	253°(WSW)	419626
12-Sep	7	PM2.5	1-Hour	123	4.1	198°(SSW)	419626
12-Sep	8	PM2.5	1-Hour	134	4.2	243°(WSW)	419626
12-Sep	9	PM2.5	1-Hour	185	2.2	224°(SW)	419626
12-Sep	10	PM2.5	1-Hour	288	6.7	240°(WSW)	419626
12-Sep	11	PM2.5	1-Hour	220	9.9	239°(WSW)	419626
12-Sep	12	PM2.5	1-Hour	162	13.7	263°(W)	419626
12-Sep	13	PM2.5	1-Hour	159	12.3	271°(W)	419626
12-Sep	14	PM2.5	1-Hour	126	11.1	272°(W)	419626
12-Sep	15	PM2.5	1-Hour	103	7	307°(NW)	419626
12-Sep	16	PM2.5	1-Hour	106	11.9	259°(WSW)	419626
15-Sep	20	PM2.5	1-Hour	99	10.5	288°(WNW)	419626
15-Sep	21	PM2.5	1-Hour	154	10.4	280°(W)	419626
15-Sep	22	PM2.5	1-Hour	223	11.9	287°(WNW)	419626
15-Sep	23	PM2.5	1-Hour	190	10.7	306°(NW)	419626
16-Sep	0	PM2.5	1-Hour	143	7.8	307°(NW)	419626
16-Sep	4	PM2.5	1-Hour	86	8.6	286°(WNW)	419626
16-Sep	5	PM2.5	1-Hour	92	8.7	305°(WNW)	419626
16-Sep	6	PM2.5	1-Hour	89	8.5	289°(WNW)	419626
16-Sep	8	PM2.5	1-Hour	86	4.1	173°(S)	419626
16-Sep	9	PM2.5	1-Hour	87	7.9	220°(SW)	419626
16-Sep	10	PM2.5	1-Hour	100	13.5	251°(WSW)	419626

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
16-Sep	11	PM2.5	1-Hour	101	14.8	248°(WSW)	419626
16-Sep	12	PM2.5	1-Hour	123	12.7	219°(SW)	419626
16-Sep	13	PM2.5	1-Hour	117	14.8	222°(SW)	419626
16-Sep	19	PM2.5	1-Hour	120	2	178°(S)	419626
16-Sep	20	PM2.5	1-Hour	167	0.2	358°(N)	419626
16-Sep	21	PM2.5	1-Hour	263	0.1	205°(SSW)	419626
16-Sep	22	PM2.5	1-Hour	294	0.8	56°(NE)	419626
16-Sep	23	PM2.5	1-Hour	334	5.7	10°(N)	419626
17-Sep	0	PM2.5	1-Hour	336	4.3	52°(NE)	419626
17-Sep	1	PM2.5	1-Hour	316	7	73°(ENE)	419626
17-Sep	2	PM2.5	1-Hour	302	4.7	316°(NW)	419626
17-Sep	3	PM2.5	1-Hour	277	3.4	337°(NNW)	419626
17-Sep	4	PM2.5	1-Hour	262	2.8	273°(W)	419626
17-Sep	5	PM2.5	1-Hour	261	2.8	283°(W)	419626
17-Sep	6	PM2.5	1-Hour	269	3.9	252°(WSW)	419626
17-Sep	7	PM2.5	1-Hour	263	4.3	173°(S)	419626
17-Sep	8	PM2.5	1-Hour	259	3.5	210°(SSW)	419626
17-Sep	9	PM2.5	1-Hour	241	2.9	198°(SSW)	419626
17-Sep	10	PM2.5	1-Hour	173	15.8	261°(W)	419626
17-Sep	11	PM2.5	1-Hour	125	15.4	263°(W)	419626
17-Sep	15	PM2.5	1-Hour	94	21.3	244°(WSW)	419626
17-Sep	16	PM2.5	1-Hour	99	15.8	237°(SW)	419626
17-Sep	17	PM2.5	1-Hour	94	13.2	218°(SW)	419626
17-Sep	18	PM2.5	1-Hour	137	14.4	239°(WSW)	419626
17-Sep	19	PM2.5	1-Hour	157	9.1	213°(SSW)	419626
17-Sep	20	PM2.5	1-Hour	180	7.9	213°(SSW)	419626
17-Sep	21	PM2.5	1-Hour	181	9	230°(SW)	419626
17-Sep	22	PM2.5	1-Hour	163	1.6	209°(SSW)	419626
17-Sep	23	PM2.5	1-Hour	160	2.2	266°(W)	419626
18-Sep	0	PM2.5	1-Hour	147	2.9	248°(WSW)	419924
20-Sep	7	PM2.5	1-Hour	92	1	313°(NW)	419924
20-Sep	8	PM2.5	1-Hour	121	0.6	150°(SSE)	419924
20-Sep	9	PM2.5	1-Hour	230	4.7	22°(NNE)	419924
20-Sep	10	PM2.5	1-Hour	280	3	117°(ESE)	419924
20-Sep	11	PM2.5	1-Hour	324	2.1	163°(SSE)	419924
20-Sep	12	PM2.5	1-Hour	328	3.7	170°(SSE)	419924
20-Sep	13	PM2.5	1-Hour	265	4.3	181°(S)	419924
20-Sep	14	PM2.5	1-Hour	257	4.9	205°(SSW)	419924
20-Sep	15	PM2.5	1-Hour	257	1.8	305°(WNW)	419924
20-Sep	16	PM2.5	1-Hour	230	2.9	194°(SSW)	419924
20-Sep	17	PM2.5	1-Hour	140	6.7	189°(S)	419924
20-Sep	18	PM2.5	1-Hour	151	5.8	227°(SW)	419924
20-Sep	19	PM2.5	1-Hour	197	4.1	256°(WSW)	419924
20-Sep	20	PM2.5	1-Hour	222	4.7	253°(WSW)	419924
20-Sep	21	PM2.5	1-Hour	159	5.1	228°(SW)	419924
20-Sep	22	PM2.5	1-Hour	133	6	217°(SW)	419924
20-Sep	23	PM2.5	1-Hour	133	5.6	211°(SSW)	419924
21-Sep	0	PM2.5	1-Hour	127	4.9	210°(SSW)	419924
21-Sep	1	PM2.5	1-Hour	115	6.1	211°(SSW)	419924
21-Sep	2	PM2.5	1-Hour	107	5.1	199°(SSW)	419924
21-Sep	3	PM2.5	1-Hour	96	6	205°(SSW)	419924

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
21-Sep	4	PM2.5	1-Hour	88	6.7	195°(SSW)	419924
25-Sep	6	PM2.5	1-Hour	208	4.9	33°(NNE)	420404
25-Sep	7	PM2.5	1-Hour	265	5.7	35°(NE)	420404
25-Sep	8	PM2.5	1-Hour	103	8.9	45°(NE)	420404
28-Sep	13	PM2.5	1-Hour	87	5.8	360°(N)	420404
28-Sep	14	PM2.5	1-Hour	101	6.3	4°(N)	420404
28-Sep	15	PM2.5	1-Hour	109	6.7	14°(NNE)	420404
28-Sep	16	PM2.5	1-Hour	114	6.5	21°(NNE)	420404
28-Sep	17	PM2.5	1-Hour	107	6.6	13°(NNE)	420404
28-Sep	18	PM2.5	1-Hour	103	5.4	22°(NNE)	420404
28-Sep	19	PM2.5	1-Hour	97	6.6	20°(NNE)	420404
28-Sep	20	PM2.5	1-Hour	82	9.4	19°(NNE)	420404
28-Sep	21	PM2.5	1-Hour	92	8.7	19°(NNE)	420404
28-Sep	22	PM2.5	1-Hour	91	8	14°(NNE)	420404
28-Sep	23	PM2.5	1-Hour	87	8.7	17°(NNE)	420404
29-Sep	0	PM2.5	1-Hour	93	7.8	20°(NNE)	420404
29-Sep	1	PM2.5	1-Hour	96	5.9	21°(NNE)	420404
29-Sep	2	PM2.5	1-Hour	102	5.3	12°(NNE)	420404
29-Sep	3	PM2.5	1-Hour	106	4.4	3°(N)	420404
29-Sep	4	PM2.5	1-Hour	112	4.3	16°(NNE)	420404
29-Sep	5	PM2.5	1-Hour	111	5.5	5°(N)	420404
29-Sep	6	PM2.5	1-Hour	110	5.5	15°(NNE)	420404
29-Sep	7	PM2.5	1-Hour	92	6	12°(NNE)	420404
10-Oct	9	PM2.5	1-Hour	99	2.4	358°(N)	EDGE00420845
10-Oct	10	PM2.5	1-Hour	100	1	312°(NW)	EDGE00420845
10-Oct	11	PM2.5	1-Hour	88	4	320°(NW)	EDGE00420845
23-Nov	5	PM2.5	1-Hour	108	1.1	249°(WSW)	DINC0002591

- Seventy-one 24-Hour exceedances were recorded in 2023.

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
17-Jan	-	PM2.5	24-Hour	38.9	NA*	NA*	408778
05-May	-	PM2.5	24-Hour	59	11.9	93° (E)	412719
06-May	-	PM2.5	24-Hour	82	13.6	115° (ESE)	412719
07-May	-	PM2.5	24-Hour	91	7.8	109° (ESE)	412719
09-May	-	PM2.5	24-Hour	59	4	340° (NNW)	413090
10-May	-	PM2.5	24-Hour	45	5.5	40° (NE)	413090
15-May	-	PM2.5	24-Hour	220	10.4	337° (NNW)	413528
17-May	-	PM2.5	24-Hour	65	5.2	32° (NNE)	413528
18-May	-	PM2.5	24-Hour	385	6.6	99° (E)	413528
19-May	-	PM2.5	24-Hour	224	7.7	324° (NW)	413528
20-May	-	PM2.5	24-Hour	538	5.5	68° (ENE)	413528
21-May	-	PM2.5	24-Hour	304	5.9	163° (SSE)	413528
22-May	-	PM2.5	24-Hour	91	12.6	19° (NNE)	413934
23-May	-	PM2.5	24-Hour	37	14.8	9° (N)	413934
24-May	-	PM2.5	24-Hour	37	6.8	299° (WNW)	413934
03-Jun	-	PM2.5	24-Hour	54	10.4	98° (E)	414422
07-Jun	-	PM2.5	24-Hour	82	9.4	271° (W)	414725
08-Jun	-	PM2.5	24-Hour	69	9.1	59° (ENE)	414725

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
09-Jun	-	PM2.5	24-Hour	48	7.9	81° (E)	414725
10-Jun	-	PM2.5	24-Hour	133	9.1	197° (SSW)	414725
11-Jun	-	PM2.5	24-Hour	115	7.6	295° (WNNW)	414725
12-Jun	-	PM2.5	24-Hour	137	7.4	170° (SSE)	415194
13-Jun	-	PM2.5	24-Hour	153	9.9	352° (N)	415194
14-Jun	-	PM2.5	24-Hour	57	11.2	343° (NNW)	415194
15-Jun	-	PM2.5	24-Hour	37	7.8	286° (WNNW)	415194
27-Jun	-	PM2.5	24-Hour	33	4	339° (NNW)	415805
02-Jul	-	PM2.5	24-Hour	40	13.7	296° (WNNW)	415805
07-Jul	-	PM2.5	24-Hour	58	4.1	61° (ENE)	416910
09-Jul	-	PM2.5	24-Hour	72	5.3	211° (SSW)	416910
11-Jul	-	PM2.5	24-Hour	42	6.8	167° (SSE)	416553
12-Jul	-	PM2.5	24-Hour	47	4.1	319° (NW)	416553
13-Jul	-	PM2.5	24-Hour	133	7	345° (NNW)	416553
14-Jul	-	PM2.5	24-Hour	209	5.7	285° (WNNW)	416553
15-Jul	-	PM2.5	24-Hour	124	4.2	169° (SSE)	416553
16-Jul	-	PM2.5	24-Hour	100	6.4	139° (SE)	416958
17-Jul	-	PM2.5	24-Hour	44	7.9	213° (SSW)	416958
19-Jul	-	PM2.5	24-Hour	42	6.6	289° (WNNW)	416958
20-Jul	-	PM2.5	24-Hour	93	4.2	301° (WNNW)	416958
21-Jul	-	PM2.5	24-Hour	86	4	48° (NE)	416958
07-Aug	-	PM2.5	24-Hour	31	5.9	72°(ENE)	419456
08-Aug	-	PM2.5	24-Hour	30	5.8	69°(ENE)	419456
24-Aug	-	PM2.5	24-Hour	210	7.1	26°(NNE)	418443
25-Aug	-	PM2.5	24-Hour	52	6.8	195°(SSW)	418443
26-Aug	-	PM2.5	24-Hour	57	6.8	260°(WSW)	418443
27-Aug	-	PM2.5	24-Hour	134	7	254°(WSW)	418443
28-Aug	-	PM2.5	24-Hour	80	7.8	213°(SSW)	418931
29-Aug	-	PM2.5	24-Hour	103	4.8	232°(SW)	418931
30-Aug	-	PM2.5	24-Hour	239	4.8	289°(WNNW)	418931
31-Aug	-	PM2.5	24-Hour	43	8.5	309°(NW)	418931
01-Sep	-	PM2.5	24-Hour	44	14.6	251°(WSW)	418931
02-Sep	-	PM2.5	24-Hour	295	7.8	286°(WNNW)	418931
03-Sep	-	PM2.5	24-Hour	130	8.8	336°(NNW)	418931
05-Sep	-	PM2.5	24-Hour	61	6.8	112°(ESE)	419220
06-Sep	-	PM2.5	24-Hour	85	5.5	276°(W)	419220
07-Sep	-	PM2.5	24-Hour	34	8.1	255°(WSW)	419220
09-Sep	-	PM2.5	24-Hour	31	3.9	71°(ENE)	419220
11-Sep	-	PM2.5	24-Hour	70	7.1	221°(SW)	419626
12-Sep	-	PM2.5	24-Hour	107	7.7	246°(WSW)	419626
15-Sep	-	PM2.5	24-Hour	49	9.1	168°(SSE)	419626
16-Sep	-	PM2.5	24-Hour	117	7.8	256°(WSW)	419626
17-Sep	-	PM2.5	24-Hour	187	9.3	243°(WSW)	419626
18-Sep	-	PM2.5	24-Hour	32	15.2	245°(WSW)	419924
20-Sep	-	PM2.5	24-Hour	152	4.3	243°(WSW)	419924
21-Sep	-	PM2.5	24-Hour	45	12.1	202°(SSW)	419924
25-Sep	-	PM2.5	24-Hour	33	8.6	76°(ENE)	420404
28-Sep	-	PM2.5	24-Hour	53	6.4	350°(N)	420404
29-Sep	-	PM2.5	24-Hour	89	4.6	43°(NE)	420404
29-Sep	-	PM2.5	24-Hour	61	4.6	43°(NE)	420404
11-Oct	-	PM2.5	24-Hour	32	6.9	355°(N)	EDGE00420845

Date	Time (MST)	Parameter	Average Period	Concentration (ug/m3)	Wind speed (km/hr)	Wind Direction	Reference #
02-Nov	-	PM2.5	24-Hour	33	5.8	33°(NNE)	EDGE00421585
03-Nov	-	PM2.5	24-Hour	37	2.7	355°(N)	EDGE00421626

Note: Wind data were not available on Jan 17 due to a frozen wind system

- **TRS:**

- The Teledyne T100U analyzer, s/n:132, failed after a successful as-found points check on March 1. The BV supplied Thermo 42i-TLE analyzer, s/n: 1152940011, was installed followed by a successful installation calibration on March 2. Twenty-one hours of downtime were recorded due to this event.
- Following a successful shut-down calibration on May 3, the BV-supplied Thermo 43i-TLE analyzer, s/n: 1152940011, was removed, and the PRAMP-owned Teledyne T100U analyzer, s/n: 132, was installed.

- **THC/CH4/NMHC:** Due to multiple bad injection events, the analyzer failed the shut-down calibrations on April 4. Maintenance was performed on April 4, and the post-repair calibration was completed on April 5. Data recorded between April 1 and April 4 were reviewed and discarded if data quality was affected by injection issues. Twenty-nine hours of downtime were recorded due to this event. Persistent high NMHC values started being recorded on April 6. Maintenance was performed on April 7, and the post-repair calibration was completed on April 8. After reviewing the diagnostic records, it was determined that data collected from April 6 hour 11 to April 8 hour 7 were invalid and therefore were discarded. Forty-eight hours of downtime were recorded due to this event. Operational uptime was 89.3%. **EPA reference #: 413787.**

- **NOX/NO/NO2:**

- The analyzer failed both the daily zero-span check and the as-found points check on July 11. Maintenance/troubleshooting commenced which included cleaning the sample valve. The post repair calibration was successfully completed afterwards. In the absence of a clear point of failure, data were discarded back to the last valid calibration, which was July 10. Thirty-five hours of downtime were recorded. The analyzer was put offline on July 12 for 5 hours to check the zero-span system. With other events which led to an additional 30 hours of downtime, including the station HVAC failure and power outages, the operational uptime was 89.9%. **AEPA reference #: 417906.**
- A successful shut-down calibration was completed on PRAMP's Teledyne T200 analyzer, s/n: 837, on August 1. The analyzer was removed for maintenance. The BV's API 200E analyzer, s/n: 594, was installed afterwards. The analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on August 2.
- On October 17, BV's API 200E analyzer, s/n: 594, was removed following a successful shut-down calibration, and PRAMP's Teledyne T200 analyzer, s/n: 837, was installed. The analyzer was allowed time to stabilize overnight. A successful installation calibration was completed on October 18. Twenty-one hours of downtime were recorded due to this activity.

- **O3:**

- PRAMP's Teledyne T400 analyzer, s/n: 824, failed the shut-down calibration on July 12 due to unstable/noisy readings. The analyzer also had a warning for lamp signal displayed on the screen. The analyzer was removed, and BV's Teledyne API 400A analyzer, s/n: 445, was installed and calibrated. In the absence of a clear point of failure, data were discarded back to the last valid multi-point calibration check, which was June 8. Five hundred forty-two hours of data collected in July and two hundred seventy-two hours of data collected in June were discarded. Operational uptime was 24.7% in June and 58.5% in July. **AEPA reference #: 417907.**

- On October 17, BV's API 400A analyzer, s/n: 445, was removed following a successful shut-down calibration, and PRAMP's Teledyne T400 analyzer, s/n: 824, was installed. The analyzer was allowed time to stabilize. A successful installation calibration was completed on October 19. Forty-six hours of downtime were recorded due to this activity.
- Station HVAC unit:** The compressor in the HVAC unit failed on September 10. The station temperatures subsequently rose above the manufacturer's recommended/ EPA designated operating temperature ranges for most gas analyzers (EPA designation for NO_x/NO/NO₂, H₂S and THC/CH₄/NMHC < 35°C and for SO₂ and O₃ < 30 °C) between September 10 and September 12 and between September 15 and September 18. Data quality collected during this period could have been affected by the issue and therefore were discarded. One hundred and ten hours of downtime were recorded in September as a result. Operational uptime was 84.7%. **AEPA reference #: 420864.** Based on the manufacturer's specification for PM_{2.5} (T640 analyzer), the acceptable operation temperature range is 4 °C - 50°C. Data quality was not affected by the high shelter temperatures. Data were considered valid.
- AQHI values:**
 - Due to the O₃ instrument issue, which was identified on July 12, data were discarded back to June 8. As O₃ is one of the parameters used to calculate the AQHI value, the AQHI values during this period were affected. However, considering ambient air and wildfires conditions around the Peace River region this season, PM_{2.5} was predominant parameter driving the AQHI values. As a result, AQHI values were not discarded and were kept for *reference use*.
 - Due to the HVAC unit issue, the quality of data collected by most gas analyzers between September 10 and September 12 and between September 15 and September 18 were affected and were invalidated. As NO₂, O₃ and PM_{2.5} are the parameters used to calculate the AQHI value, the AQHI values during this period were affected. However, considering that that 1) although elevated, the station temperature was still within the operating range of the PM_{2.5} instrument, and 2) wildfires in and around the PRAMP region led to elevated PM_{2.5} concentrations, PM_{2.5} was the predominant parameter driving the AQHI values during the time the HVAC unit failed. As a result, AQHI values were not discarded and were kept for *reference use*.

Passive Monitoring Summary

12 multi-parameter passive stations were used around the PRC station. These stations monitored both SO₂ and H₂S. Passive samples, including blanks were handled and deployed in accordance with the AMD. Analyses of the passive samples were performed by Bureau Veritas Canada. The full results of these analyses were submitted to ETS in accordance with the AMD.

SO2 (ppb) 30-Day Objective: 11 ppb	
Month	# Stations of Exceedance
January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0
Total	0
SO2 (ppb) Annual Objective: 8.0 ppb	
Year	AAAQO Exceedance
2023	0

NMHC Canister Events

A multi-year integrated sampling program continued operating at 986-C station, 842-B station, Reno station and Reno-B station; this program collects air samples using Silco/Summa Canisters which are analyzed in a laboratory for VOCs, reduced sulphur compounds, and methane isotopes. In 2023, the program collected a 1-hour sample of air in a canister when the continuously measured non-methane hydrocarbon (NMHC) concentration reached a specified trigger point. The trigger point was 0.3 ppm. The trigger point was based on real-time monitoring data that were averaged over a 5-minute period. Analysis of these samples were performed by InnoTech Alberta. Analytical results were included in the monthly integrated sampling reports following the month of sample collections.

The canister sampling program was temporarily paused between May 8 and May 30 and between July 8 and July 31 due to wildfire smokes. Intense wildfire smoke in the region caused NMHC concentrations to spike, resulting in PRAMP's canister systems being automatically activated to collect samples. The objective of the PRAMP canister program is to provide data and information about ambient hydrocarbon concentrations from local industrial sources. Collecting samples triggered by wildfire smoke is not within the intended scope of this component of the regional monitoring program. Therefore, the canister sampling program was paused pending dissipation of wildfire smoke and an improvement in air quality conditions.

A total of 9 non-methane canister samples were collected in 2023.

Date	Time	Station	Triggered Concentration (ppm)
09-Jan	06:45	Reno-B	0.36
8-May	06:35	842-B	0.30
30-Jun	13:45	986-C	0.34
07-Jul	03:25	842-B	0.30
07-Jul	04:20	Reno-B	0.43
07-Jul	06:45	986-C	0.34
11-Jul*	04:15	Reno-B	0.33
20-Sept	14:35	842-B	0.31
29-Sept	19:35	Reno-B	0.32

Note: The canister system at the Reno-B station was deactivated on July 8, but it was activated automatically after a power outage on July 10. Due to wildfires that caused the NMHC concentrations to become elevated, the canister system was triggered and sample was collected on July 11.

Notification of Changes Made After Monthly Report Issuance

During the 2023 annual data review, it was noticed that the wind speed data collected at the AQHI-Grimshaw station on February 1, 2023 hour 14 was reported incorreced; instead of 3.6 km/hr, 93 km/hr was reported. The error was corrected on January 17, 2024. Hourly dataset of wind speed for February 2023 was submitted to ETS on January 17, 2024. (ETS Request #: 4633197).

During the 2023 annual data review, it was noticed that THC data collected on December 26 hour 3 at the 986-C station was incorrect. The data was revised, and the revised dataset was submitted to ETS on March 27, 2024. (ETS Request #: 4659019).

During the 2023 annual data review, it was noticed that THC/CH4/NMHC data collected on March 11 hour 11 and December 30 hour 11 at the PRC station were incorrect. The data were revised, and the revised dataset was submitted to ETS on March 27, 2024. (ETS Request #: 4659037 and #4659095, respectively).

Deviations from Authorized Monitoring Methods

Reno Station: The scheduled daily zero-span check for all gas parameters did not execute correctly on April 2 at hour 10. During the next regularly scheduled zero-span check on April 3, the system self-corrected and executed properly. Therefore, troubleshooting could not be performed, and the root cause could not be determined. This was an isolated incident that did not repeat.

Certification

This report was prepared and submitted by Lily Lin in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).



Lily Lin, Environmental Monitoring Program Manager, PRAMP Airshed

This report was reviewed by Mike Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

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.



Michael Bisaga, Environmental Monitoring Program Manager, PRAMP Airshed

March 22, 2024

1.0 Continuous Monitoring Statistics and Data Qualifier Flag Summaries - 2023

1.1 986-C Station

1.1.1 Parameters Monitoring Summary

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	PRECIP	WDS	WDV
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	mm	KPH	Deg
Minimum	0	0.02	1.86	1.86	0.00	12	911	-36.6	0.0	0.1	0
Min Date	01-01-2023 20:00	19-04-2023 12:00	27-06-2023 13:00	27-06-2023 13:00	01-01-2023 00:00	05-05-2023 12:00	02-03-2023 06:00	22-02-2023 08:00	14-01-2023 23:00	12-01-2023 14:00	27-01-2023 06:00
Maximum	4	7.35	4.07	3.52	0.99	100	964	30.5	8.6	38.5	360
Max Date	08-06-2023 07:00	13-07-2023 00:00	15-05-2023 05:00	09-05-2023 05:00	15-05-2023 05:00	08-05-2023 02:00	28-01-2023 05:00	09-07-2023 15:00	25-06-2023 01:00	19-06-2023 16:00	30-01-2023 18:00
Average	0	0.54	2.05	2.05	0	69	939.6	5.9	174.7*	3.4	191
# of Reading	8227	8226	8214	8214	8214	7299	8700	7956	8113	8679	8679
Valid Data [%]	93.92	93.9	93.77	93.77	93.77	83.32	99.32	90.82	92.61	99.08	99.08
Operational Uptime [%]	98.9	98.9	98.7	98.7	98.7	82.8	99.36	90.6	92.7	99.1	99.1

* Total amounts were presented on the table

1.1.2 Monitoring Parameters – 2023 Continuous Data Summary and Frequency Distribution

986-C STATION
SULPHUR DIOXIDE (SO₂) in parts per billion (ppb)

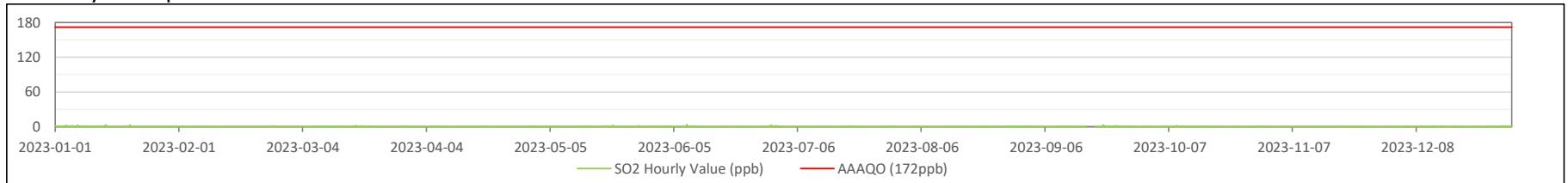
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances				Percentage Readings in Concentration Range				
							1-hour	24-hour	30-day	Annual	0 - 10	11 - 50	51 - 100	101 - 172	>172
January	100.0	707	0	3	1	0.3	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0	1	1	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.7	705	0	2	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.4	681	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
May	99.5	703	0	2	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
June	98.2	673	0	4	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
July	98.1	693	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0	705	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
September	91.5	626	0	3	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0	707	0	2	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	683	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	707	0	1	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.9	8227	0	4	1	0.1	0	0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%

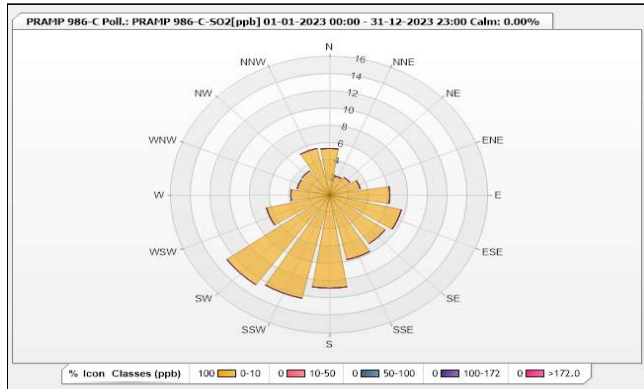
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	53	0	10	0	10	58	377	0
Total Hours of Downtime		98	Total Hours of Calibration		435	Total Hours of Flagged		533

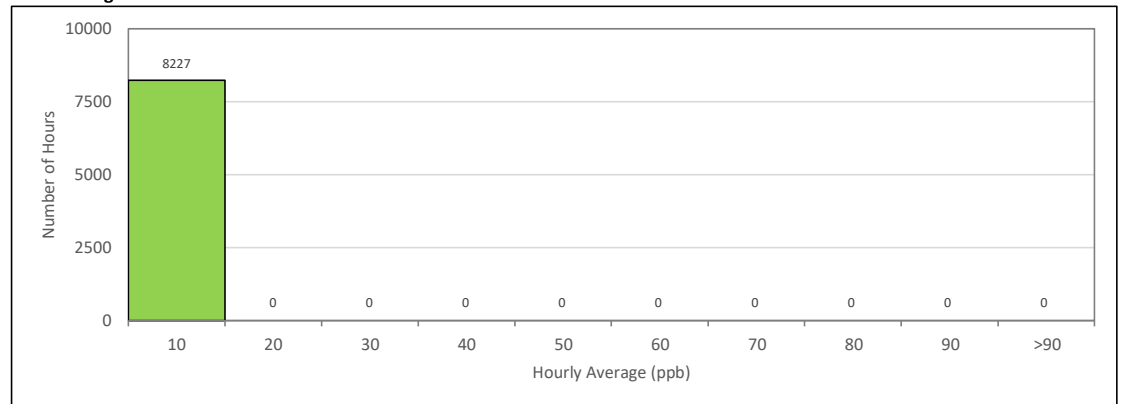
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



986-C STATION
TOTAL REDUCED SULPHUR (TRS) in parts per billion (ppb)

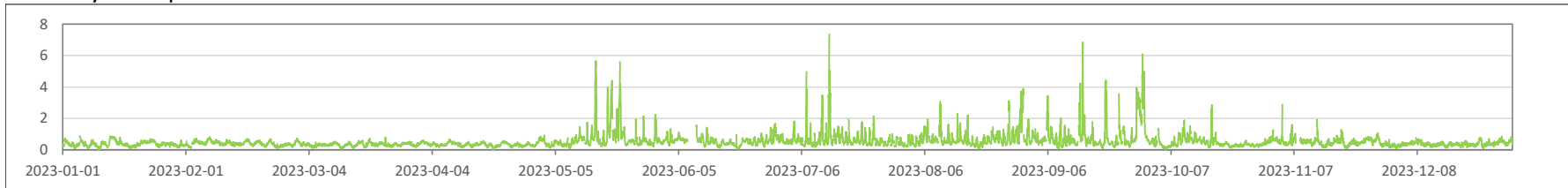
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0	707	0.04	0.89	0.78	0.38	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0.10	0.81	0.60	0.41	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.7	705	0.05	0.77	0.51	0.34	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.4	681	0.02	0.80	0.52	0.34	100.0%	0.0%	0.0%	0.0%	0.0%
May	99.5	703	0.10	5.66	2.33	0.77	95.0%	4.6%	0.4%	0.0%	0.0%
June	92.2	633	0.06	1.68	1.02	0.56	100.0%	0.0%	0.0%	0.0%	0.0%
July	98.1	693	0.17	7.35	1.45	0.68	98.1%	1.6%	0.3%	0.0%	0.0%
August	100.0	705	0.07	3.89	2.32	0.70	97.7%	2.3%	0.0%	0.0%	0.0%
September	100.0	685	0.08	6.74	2.86	0.91	91.5%	8.2%	0.3%	0.0%	0.0%
October	100.0	707	0.04	2.82	1.00	0.45	99.7%	0.3%	0.0%	0.0%	0.0%
November	97.4	663	0.10	2.87	0.80	0.51	99.8%	0.2%	0.0%	0.0%	0.0%
December	100.0	707	0.07	0.87	0.58	0.37	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.9	8226	0.02	7.35	2.86	0.53	98.5%	1.4%	0.1%	0.0%	0.0%

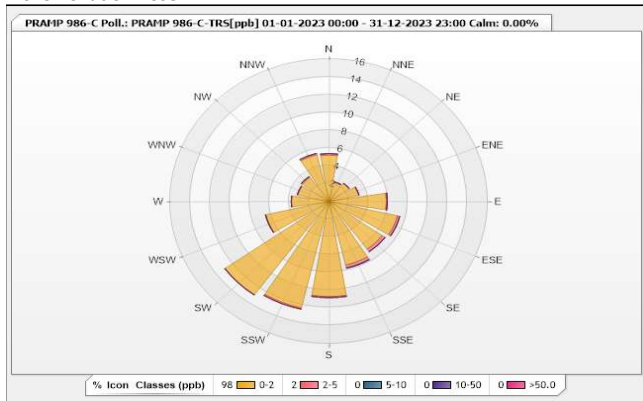
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	45	0	10	0	19	59	376	0
Total Hours of Downtime		99	Total Hours of Calibration		435	Total Hours of Flagged		534

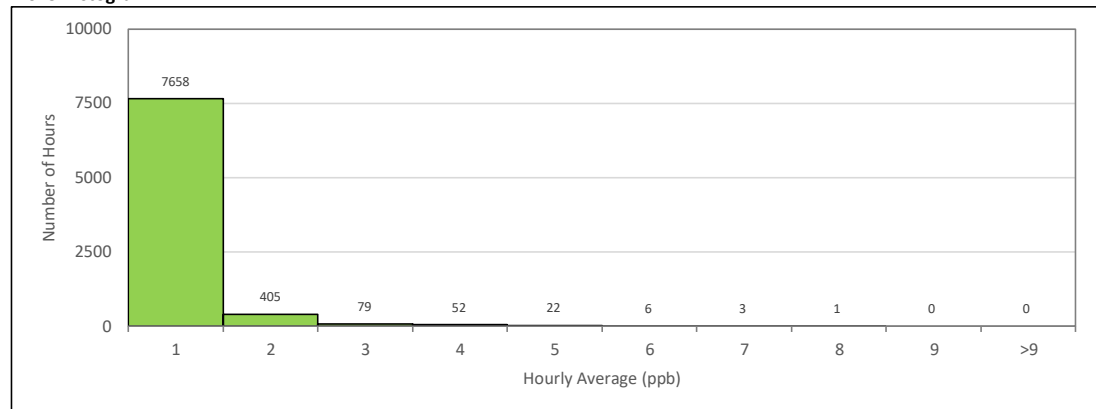
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



986-C STATION
TOTAL HYDROCARBONS (THC) in parts per million (ppm)

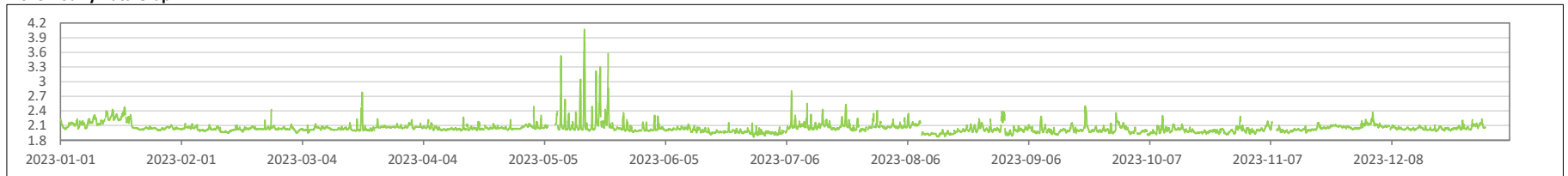
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 40	>40
January	100.0	707	2.00	2.48	2.35	2.13	98.7%	1.3%	0.0%	0.0%	0.0%
February	100.0	637	1.95	2.43	2.10	2.03	99.8%	0.2%	0.0%	0.0%	0.0%
March	99.7	705	1.95	2.78	2.22	2.05	99.0%	1.0%	0.0%	0.0%	0.0%
April	99.4	682	1.99	2.27	2.10	2.05	100.0%	0.0%	0.0%	0.0%	0.0%
May	93.3	660	1.97	4.07	2.65	2.14	92.0%	8.0%	0.0%	0.0%	0.0%
June	98.2	673	1.86	2.31	2.08	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	96.9	686	1.90	2.81	2.22	2.08	98.3%	1.7%	0.0%	0.0%	0.0%
August	100.0	705	1.87	2.39	2.28	2.03	100.0%	0.0%	0.0%	0.0%	0.0%
September	99.9	684	1.89	2.50	2.22	2.02	99.4%	0.6%	0.0%	0.0%	0.0%
October	99.9	706	1.90	2.30	2.07	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
November	97.1	662	1.93	2.20	2.11	2.04	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	707	1.98	2.37	2.19	2.06	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.7	8214	1.86	4.07	2.65	2.05	98.9%	1.1%	0.0%	0.0%	0.0%

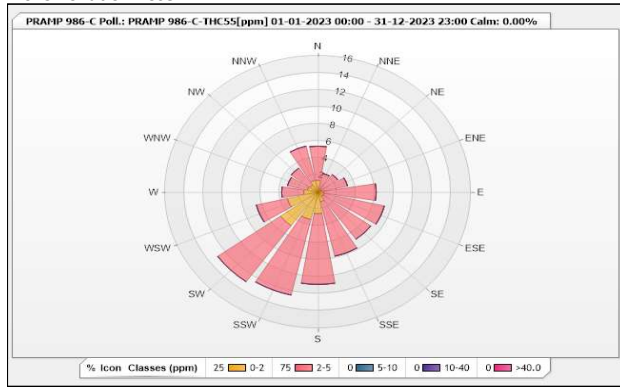
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	53	1	10	0	26	56	375	0
Total Hours of Downtime		115	Total Hours of Calibration		431	Total Hours of Flagged		546

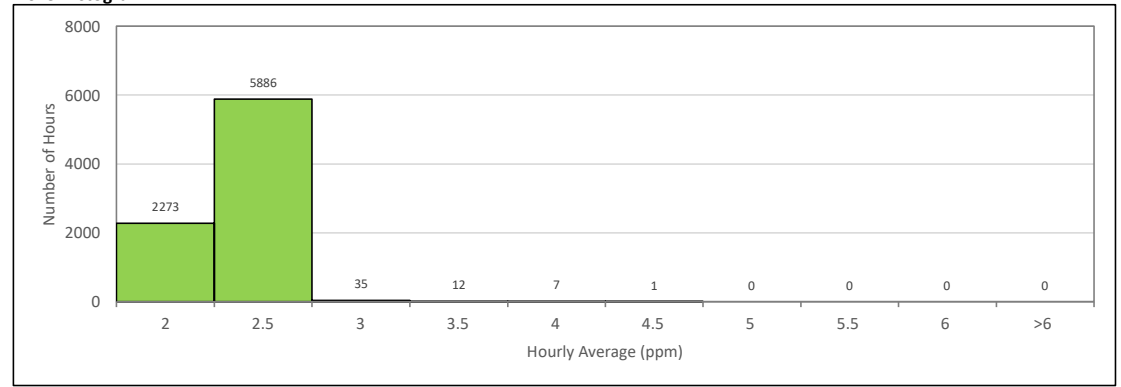
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



986-C STATION
METHANE (CH₄) in parts per million (ppm)

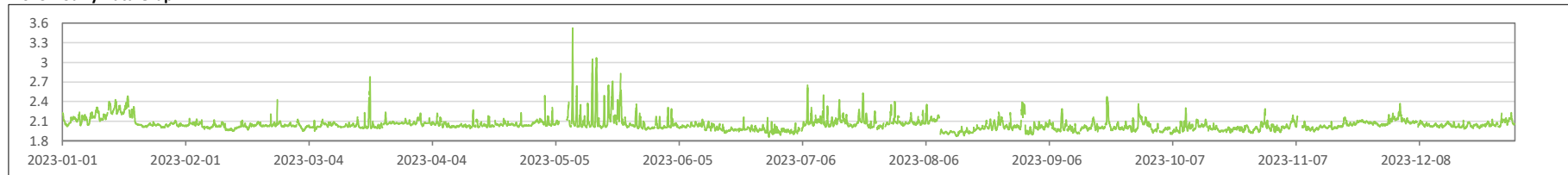
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 20	>20
January	100.0	707	2.00	2.48	2.35	2.13	98.7%	1.3%	0.0%	0.0%	0.0%
February	100.0	637	1.95	2.43	2.10	2.03	99.8%	0.2%	0.0%	0.0%	0.0%
March	99.7	705	1.95	2.78	2.22	2.05	99.0%	1.0%	0.0%	0.0%	0.0%
April	99.4	682	1.99	2.27	2.10	2.05	100.0%	0.0%	0.0%	0.0%	0.0%
May	93.3	660	1.97	3.52	2.38	2.12	92.0%	8.0%	0.0%	0.0%	0.0%
June	98.2	673	1.86	2.31	2.08	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	96.9	686	1.90	2.65	2.22	2.07	98.3%	1.7%	0.0%	0.0%	0.0%
August	100.0	705	1.87	2.39	2.28	2.03	100.0%	0.0%	0.0%	0.0%	0.0%
September	99.9	684	1.89	2.47	2.21	2.02	99.4%	0.6%	0.0%	0.0%	0.0%
October	99.9	706	1.90	2.30	2.07	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
November	97.1	662	1.93	2.20	2.11	2.04	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	707	1.98	2.37	2.19	2.06	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.7	8214	1.86	3.52	2.38	2.05	98.9%	1.1%	0.0%	0.0%	0.0%

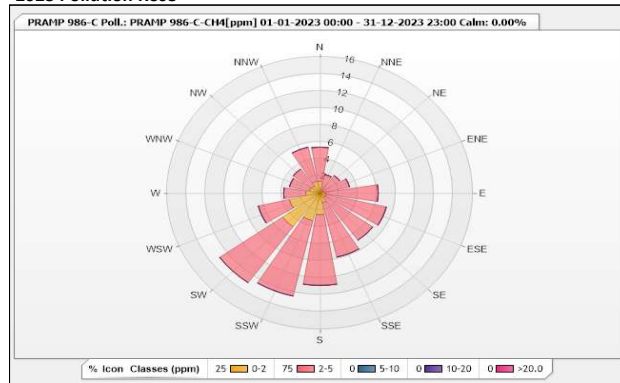
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	53	1	10	0	26	56	375	0
Total Hours of Downtime		115	Total Hours of Calibration		431	Total Hours of Flagged		546

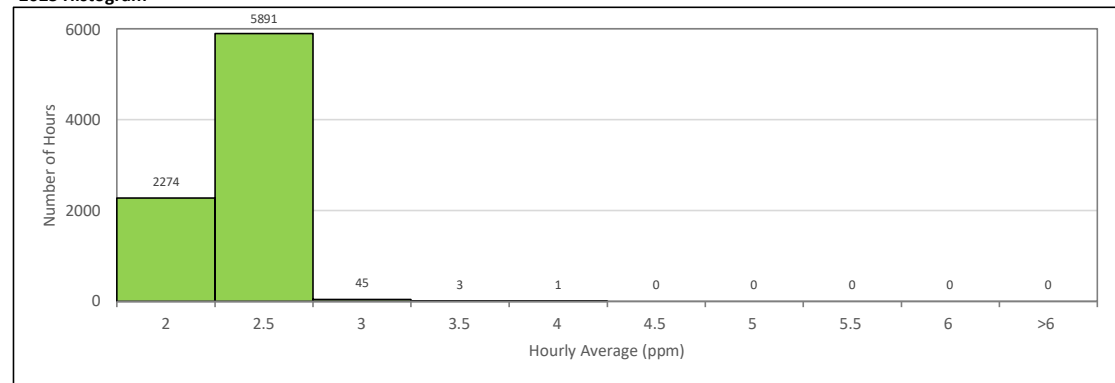
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



986-C STATION
NON-METHANE HYDROCARBONS (NMHC) in parts per million (ppm)

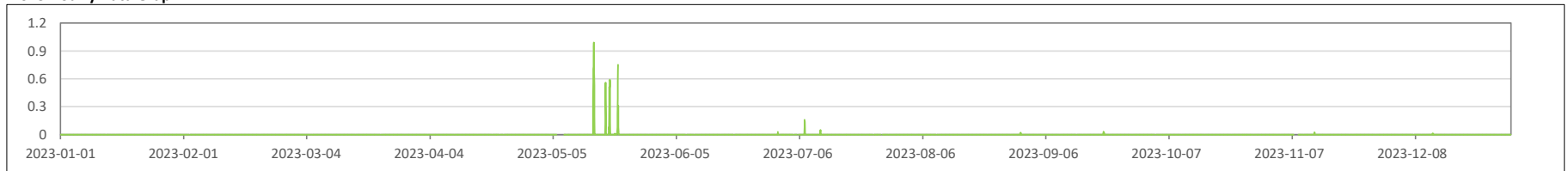
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 - 2	>2
January	100.0	707	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.7	705	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.4	682	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
May	93.3	660	0.00	0.99	0.26	0.02	96.7%	0.8%	2.4%	0.2%	0.0%
June	98.2	673	0.00	0.03	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	96.9	686	0.00	0.16	0.01	0.00	99.9%	0.1%	0.0%	0.0%	0.0%
August	100.0	705	0.00	0.02	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
September	99.9	684	0.00	0.03	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
October	99.9	706	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
November	97.1	662	0.00	0.02	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	707	0.00	0.01	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.7	8214	0.00	0.99	0.26	0.00	99.7%	0.1%	0.2%	0.0%	0.0%

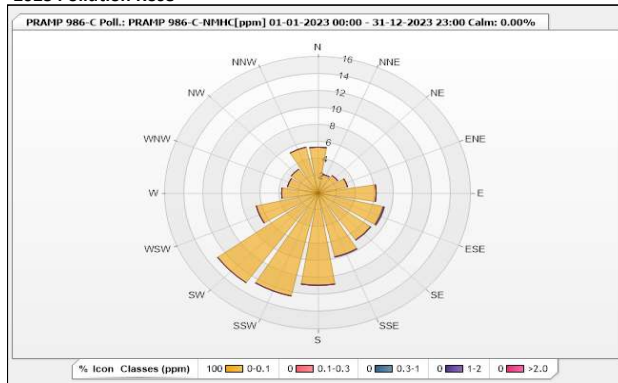
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	53	1	10	0	26	56	375	0
Total Hours of Downtime		115	Total Hours of Calibration		431	Total Hours of Flagged		546

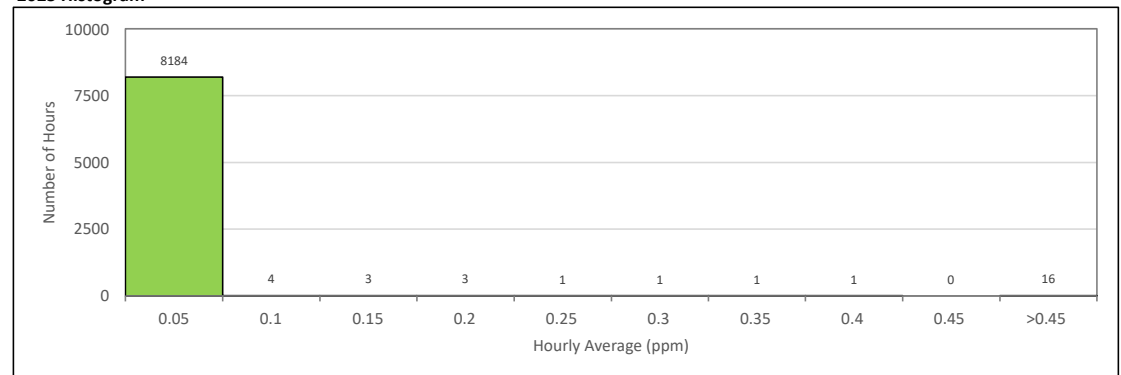
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



986-C STATION
RELATIVE HUMIDITY (RH) in percent (%)

2023 Annual Continuous Data Summary

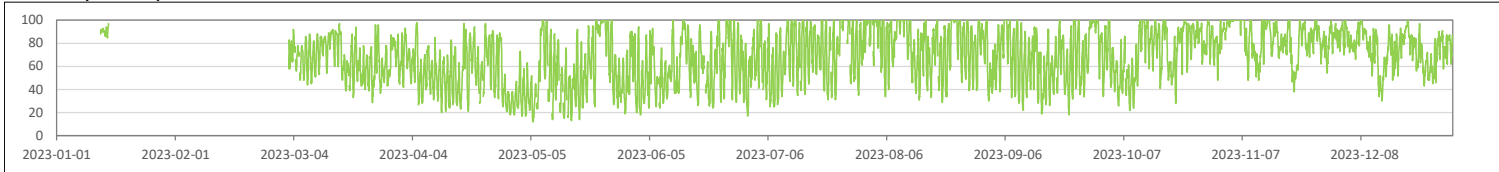
Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	6.9	51	NA	85	97	90
February	0.0	0	NA	NA	NA	NA
March	93.8	698	66.5	29	97	86
April	99.3	715	55.2	18	98	78
May	98.8	735	54.6	12	100	97
June	98.5	709	59.6	17	100	93
July	97.7	727	71.5	25	100	98
August	99.6	741	78.9	29	100	100
September	99.9	719	66.6	18	100	98
October	99.9	743	73.6	22	100	93
November	99.6	717	83.8	38	100	100
December	100.0	744	75.6	30	100	93
Annual	82.8	7299	68.6	12	100	100

NA: Data Not Available

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	1401	0	30	0	5	0	0	0
Total Hours of Downtime		1461	Total Hours of Calibration		0	Total Hours of Flagged		1461

2023 Hourly Data Graph



986-C STATION
AMBIENT TEMPERATURE (AT) in degree celsius (°C)

2023 Annual Continuous Data Summary

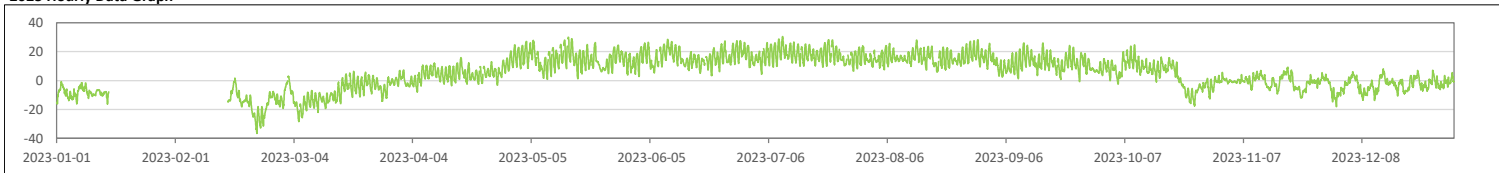
Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	43.8	326	NA	-16.2	-0.8	-3.6
February	50.9	342	NA	-36.6	1.7	-2.0
March	99.2	738	-7.5	-28.4	7.0	1.4
April	99.3	715	5.1	-7.8	24.8	16.8
May	98.8	735	15.0	0.9	30.0	21.8
June	98.5	709	16.4	2.8	28.6	21.9
July	97.7	727	17.5	4.4	30.5	22.9
August	99.6	741	16.1	5.9	28.3	21.1
September	99.9	719	12.1	-0.8	26.1	17.3
October	99.9	743	4.4	-17.5	24.7	15.8
November	99.6	717	-1.0	-14.7	9.3	5.8
December	100.0	744	-2.8	-18.0	8.1	4.6
Annual	90.6	7956	8	-36.6	30.5	22.9

NA: Data Not Available

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	0	4	31	0	0	0	0	0
Total Hours of Downtime		60	Total Hours of Calibration		0	Total Hours of Flagged		60

2023 Hourly Data Graph



986-C STATION
BAROMETRIC PRESSURE (BP) in millibar (mbar)

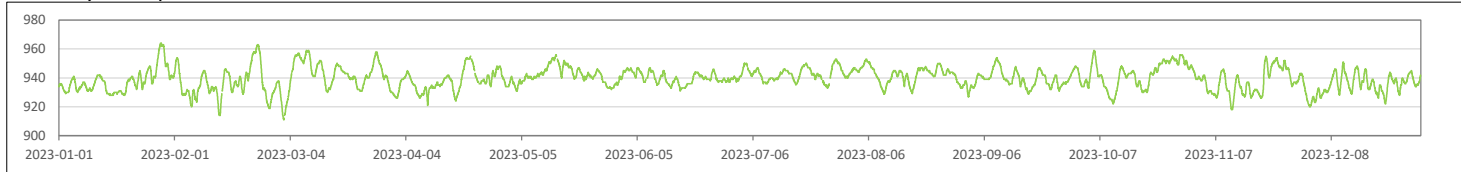
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	937.7	928	964	963
February	99.4	668	936.3	914	963	961
March	99.2	738	941.8	911	959	958
April	99.3	715	937.7	921	955	953
May	98.8	735	941.6	931	956	953
June	98.5	709	940.1	931	947	946
July	97.7	727	942.6	933	953	952
August	99.6	741	942.3	929	953	952
September	99.9	719	939.3	927	954	952
October	99.9	743	942.5	922	959	956
November	99.6	717	937.5	918	955	952
December	100.0	744	935.1	920	951	947
Annual	99.3	8700	939.6	911	964	963

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	743	0	31	0	5	0	0	0
Total Hours of Downtime		804	Total Hours of Calibration		0	Total Hours of Flagged		804

2023 Hourly Data Graph



986-C STATION
PRECIPITATION in millimeter (mm)

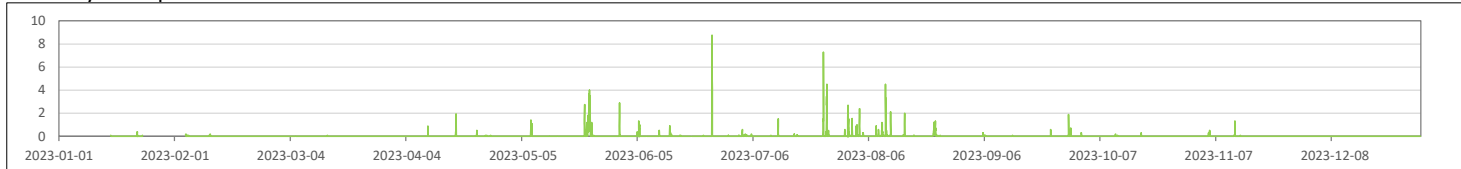
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	27.6	205	0.9	0.0	0.4	0.5
February	89.4	601	1.2	0.0	0.2	0.6
March	99.7	742	0.1	0.0	0.1	0.1
April	99.4	716	6.1	0.0	1.9	4.1
May	99.5	740	45.5	0.0	4.0	22.7
June	98.5	709	25.2	0.0	8.6	17.2
July	98.1	730	37.1	0.0	7.3	12.6
August	99.9	743	47.8	0.0	4.5	13.3
September	100.0	719	5.8	0.0	1.9	2.2
October	100.0	744	1.1	0.0	0.3	0.4
November	100.0	720	3.9	0.0	1.3	2.0
December	100.0	744	0.0	0.0	0.0	0.0
Annual	92.7	8113	174.7	0.0	8.6	22.7

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
25	610	0	11	0	0	1	0	0
Total Hours of Downtime		646	Total Hours of Calibration		1	Total Hours of Flagged		647

2023 Hourly Data Graph



986-C STATION VECTOR WIND SPEED (VWS) in kilometer per hour (km/hr)

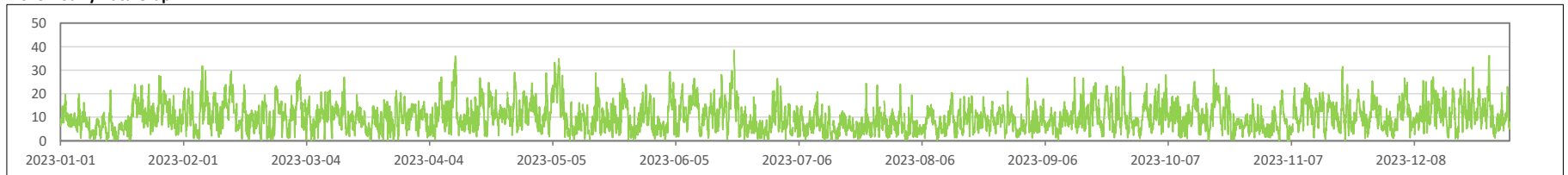
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 6	7 - 15	16 - 29	30 -39	>39
January	99.1	737	0.1	27.5	18.0	3.6	31.5%	53.9%	14.7%	0.0%	0.0%
February	97.5	655	0.2	31.8	17.9	2.5	26.1%	47.9%	25.5%	0.5%	0.0%
March	99.2	738	0.1	28.0	19.0	1.5	24.0%	60.2%	15.9%	0.0%	0.0%
April	99.3	715	0.7	36.0	25.0	4.0	16.9%	57.6%	24.3%	1.1%	0.0%
May	98.8	735	0.2	34.8	24.5	3.2	35.0%	43.4%	20.0%	1.6%	0.0%
June	98.5	709	0.5	38.5	26.6	1.1	31.9%	42.3%	25.1%	0.7%	0.0%
July	97.7	727	0.3	24.4	13.2	1.9	48.7%	47.2%	4.1%	0.0%	0.0%
August	99.6	740	0.2	21.0	14.3	2.9	39.1%	56.2%	4.7%	0.0%	0.0%
September	99.9	719	0.2	31.4	18.9	6.1	28.0%	55.5%	16.3%	0.3%	0.0%
October	99.9	743	0.2	30.4	19.8	4.5	27.9%	52.6%	19.4%	0.1%	0.0%
November	99.6	717	0.1	31.5	18.3	4.9	26.9%	51.2%	21.6%	0.3%	0.0%
December	100.0	744	0.9	36.2	19.0	8.5	18.1%	57.1%	23.7%	1.1%	0.0%
Annual	99.1	8679	0.1	38.5	26.6	3.4	29.5%	52.1%	17.9%	0.5%	0.0%

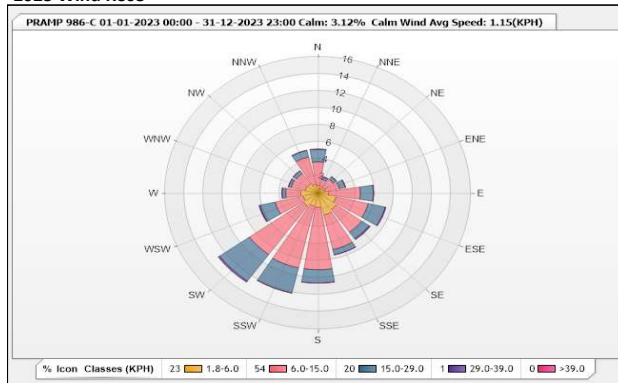
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
1900-01-25	23	1	31	0	0	1	0	0
Total Hours of Downtime		80	Total Hours of Calibration		1	Total Hours of Flagged		81

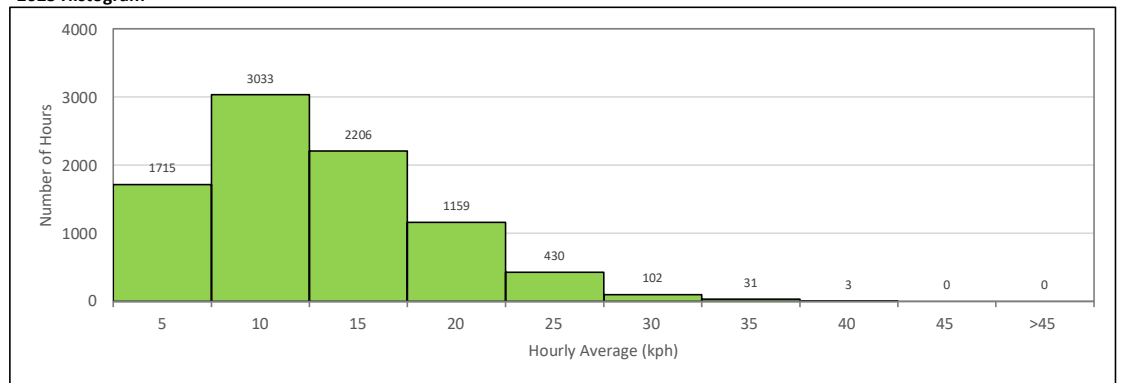
2023 Hourly Data Graph



2023 Wind Rose



2023 Histogram



1.2 842-B Station

1.2.1 Parameters Monitoring Summary

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	PRECIP	WDS	WDV
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	mm	KPH	Deg
Minimum	0	0.10	1.85	1.85	0.00	14	911	-35.2	0.0	0.0	0
Min Date	01-01-2023 00:00	02-08-2023 02:00	17-11-2023 18:00	17-11-2023 18:00	01-01-2023 00:00	05-05-2023 11:00	02-03-2023 04:00	22-02-2023 08:00	01-01-2023 00:00	09-01-2023 15:00	27-01-2023 08:00
Maximum	5	6.99	3.64	3.03	0.80	100	963	30.5	6.1	33.9	360
Max Date	19-01-2023 17:00	21-05-2023 09:00	21-05-2023 07:00	09-06-2023 07:00	21-05-2023 07:00	11-01-2023 11:00	28-01-2023 07:00	14-05-2023 16:00	24-07-2023 21:00	10-04-2023 13:00	27-01-2023 01:00
Average	0	0.59	2.03	2.02	0.01	72	939	5.2	171.5*	2.8	206
# of Reading	8168	8155	8066	8066	8066	8647	8412	8647	8524	8630	8630
Valid Data [%]	93.24	93.09	92.08	92.08	92.08	98.71	96.03	98.71	97.31	98.52	98.52
Operational Uptime [%]	98.2	98.1	97.0	97.0	97.0	98.7	96.1	98.7	97.2	98.5	98.5

* Total amounts were presented on the table

1.2.2 Monitoring Parameters – 2023 Continuous Data Summary and Frequency Distribution

842-B STATION
SULPHUR DIOXIDE (SO₂) in parts per billion (ppb)

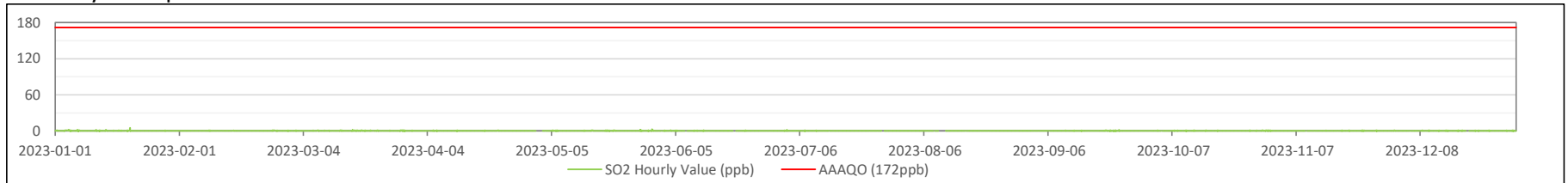
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances				Percentage Readings in Concentration Range				
							1-hour	24-hour	30-day	Annual	0 - 10	11 - 50	51 - 100	101 - 172	>172
January	100.0	706	0	5	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0	1	1	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	706	0	2	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0	684	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
May	94.6	668	0	3	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
June	95.6	653	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
July	97.7	690	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
August	93.3	658	0	0	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	685	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
October	99.9	706	0	1	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
November	99.9	682	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
December	97.7	692	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.2	8168	0	5	1	0.0	0	0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%

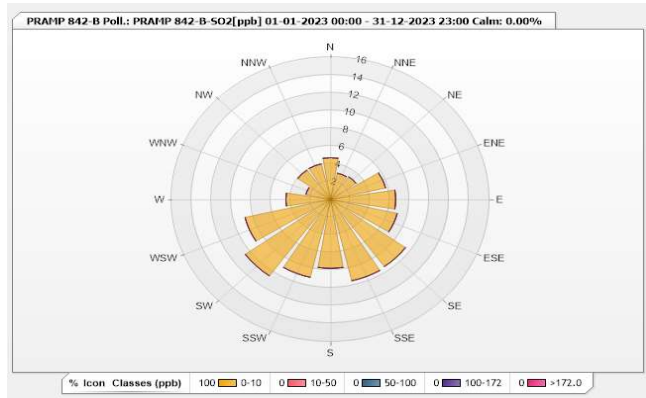
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	0	0	10	79	7	62	372	0
Total Hours of Downtime		158	Total Hours of Calibration		434	Total Hours of Flagged		592

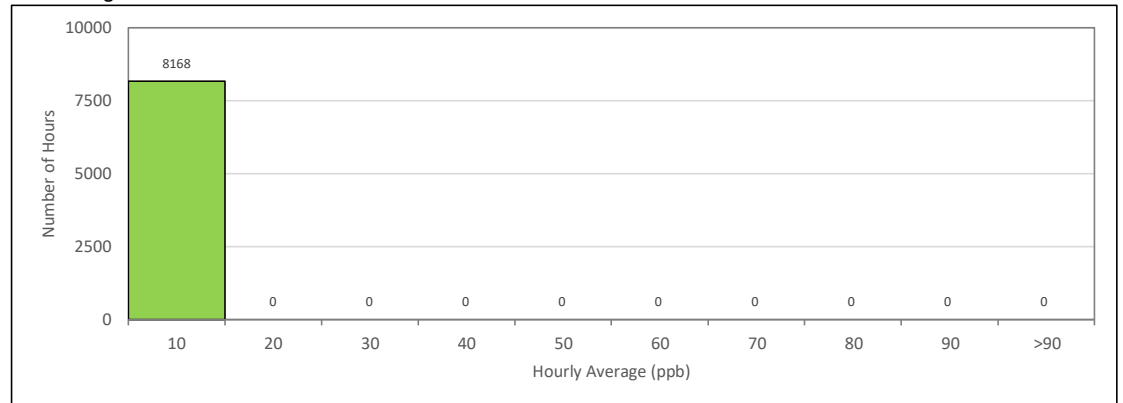
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



842-B STATION
TOTAL REDUCED SULPHUR (TRS) in parts per billion (ppb)

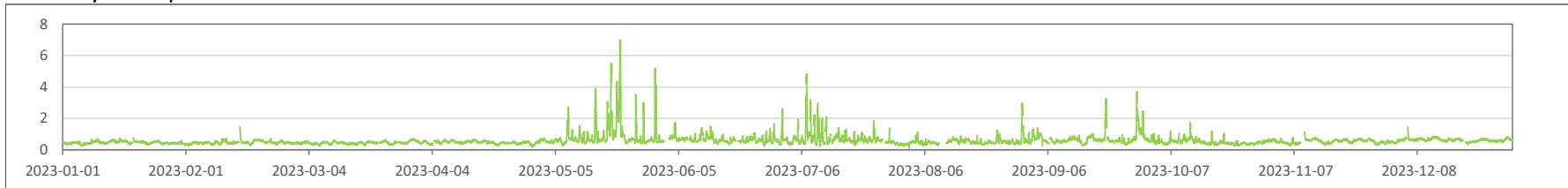
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0	706	0.26	0.77	0.59	0.46	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0.27	1.45	0.67	0.47	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.7	702	0.25	0.72	0.64	0.45	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0	684	0.19	0.68	0.59	0.47	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0	707	0.26	6.99	2.79	0.92	92.9%	6.1%	1.0%	0.0%	0.0%
June	92.5	633	0.25	1.75	1.01	0.67	100.0%	0.0%	0.0%	0.0%	0.0%
July	97.4	687	0.22	4.83	1.82	0.71	98.0%	2.0%	0.0%	0.0%	0.0%
August	93.3	656	0.10	2.95	1.31	0.53	99.4%	0.6%	0.0%	0.0%	0.0%
September	100.0	685	0.26	3.72	1.73	0.71	98.4%	1.6%	0.0%	0.0%	0.0%
October	99.9	706	0.25	1.72	0.76	0.49	100.0%	0.0%	0.0%	0.0%	0.0%
November	97.5	663	0.28	1.15	0.69	0.54	100.0%	0.0%	0.0%	0.0%	0.0%
December	97.4	688	0.36	1.45	0.80	0.62	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.1	8155	0.10	6.99	2.79	0.59	99.1%	0.9%	0.1%	0.0%	0.0%

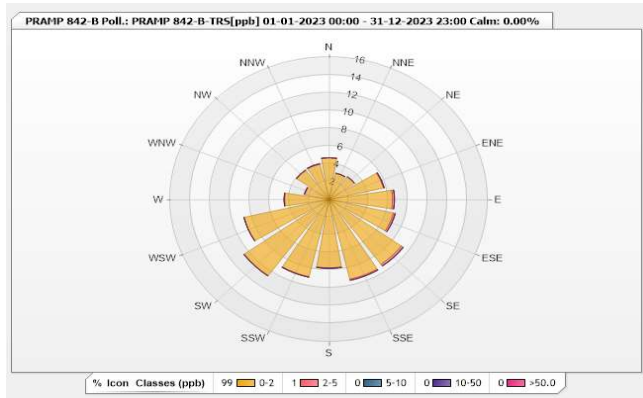
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
62	16	0	10	39	36	71	371	0	
Total Hours of Downtime		163	Total Hours of Calibration		442	Total Hours of Flagged			605

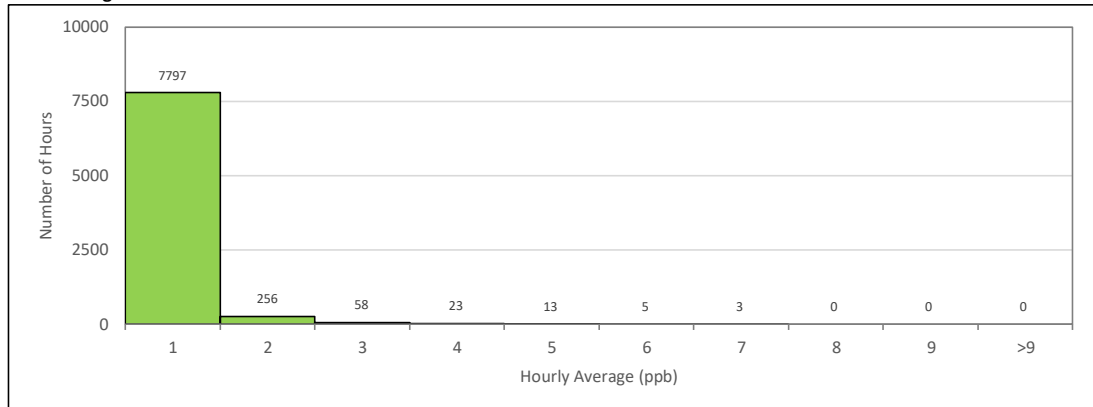
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



842-B STATION
TOTAL HYDROCARBONS (THC) in parts per million (ppm)

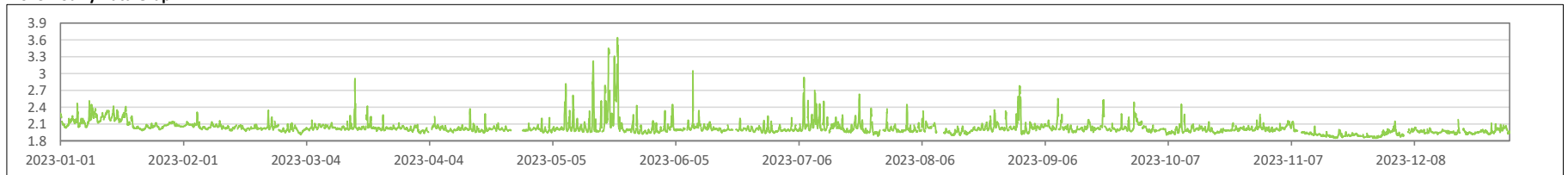
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 40	>40
January	100.0	706	1.98	2.51	2.29	2.13	99.3%	0.7%	0.0%	0.0%	0.0%
February	100.0	638	1.94	2.34	2.11	2.04	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	1.91	2.91	2.15	2.03	99.3%	0.7%	0.0%	0.0%	0.0%
April	85.4	584	1.93	2.37	2.07	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0	706	1.92	3.64	2.57	2.10	90.7%	9.3%	0.0%	0.0%	0.0%
June	95.6	653	1.93	3.05	2.14	2.02	99.4%	0.6%	0.0%	0.0%	0.0%
July	97.7	688	1.88	2.93	2.26	2.05	96.8%	3.2%	0.0%	0.0%	0.0%
August	93.3	659	1.90	2.78	2.43	2.03	97.6%	2.4%	0.0%	0.0%	0.0%
September	100.0	685	1.93	2.55	2.20	2.04	98.0%	2.0%	0.0%	0.0%	0.0%
October	99.9	706	1.90	2.45	2.06	2.00	99.9%	0.1%	0.0%	0.0%	0.0%
November	97.4	664	1.85	2.16	2.09	1.93	100.0%	0.0%	0.0%	0.0%	0.0%
December	94.8	670	1.87	2.18	2.02	1.96	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	97.0	8066	1.85	3.64	2.57	2.03	98.4%	1.6%	0.0%	0.0%	0.0%

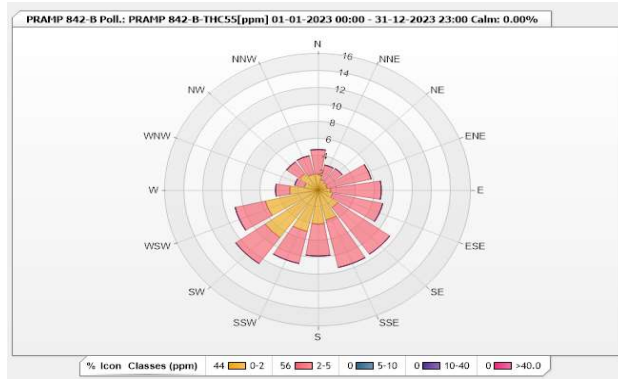
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	37	0	10	39	115	63	368	0
Total Hours of Downtime		263	Total Hours of Calibration		431	Total Hours of Flagged		694

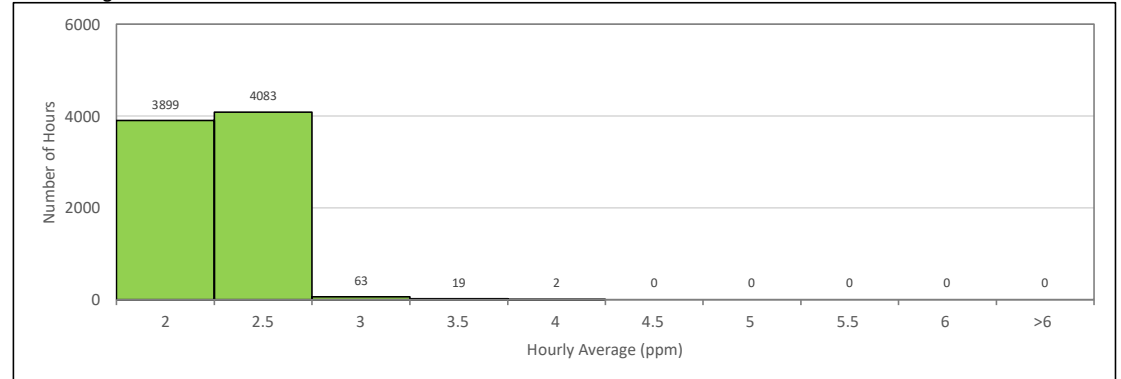
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



842-B STATION
METHANE (CH₄) in parts per million (ppm)

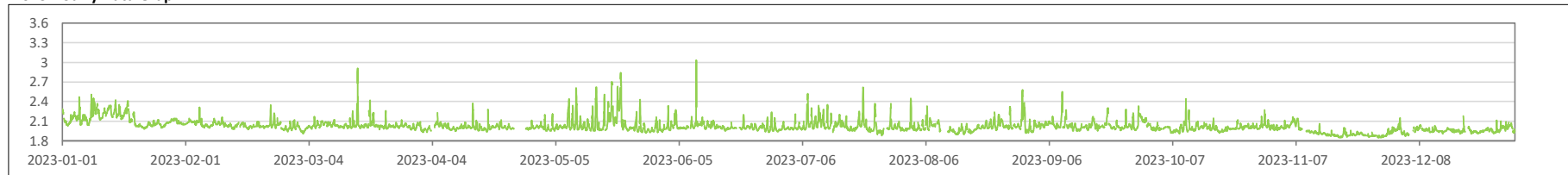
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 20	>20
January	100.0	706	1.98	2.51	2.29	2.13	99.3%	0.7%	0.0%	0.0%	0.0%
February	100.0	638	1.94	2.34	2.11	2.04	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	1.91	2.91	2.15	2.03	99.3%	0.7%	0.0%	0.0%	0.0%
April	85.4	584	1.93	2.37	2.07	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0	706	1.92	2.84	2.29	2.06	95.3%	4.7%	0.0%	0.0%	0.0%
June	95.6	653	1.93	3.03	2.11	2.02	99.8%	0.2%	0.0%	0.0%	0.0%
July	97.7	688	1.88	2.62	2.17	2.03	98.8%	1.2%	0.0%	0.0%	0.0%
August	93.3	659	1.90	2.58	2.27	2.02	98.9%	1.1%	0.0%	0.0%	0.0%
September	100.0	685	1.93	2.55	2.14	2.04	99.4%	0.6%	0.0%	0.0%	0.0%
October	99.9	706	1.91	2.44	2.06	2.00	99.9%	0.1%	0.0%	0.0%	0.0%
November	97.4	664	1.85	2.16	2.09	1.93	100.0%	0.0%	0.0%	0.0%	0.0%
December	94.8	670	1.87	2.18	2.02	1.96	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	97.0	8066	1.85	3.03	2.29	2.02	99.2%	0.8%	0.0%	0.0%	0.0%

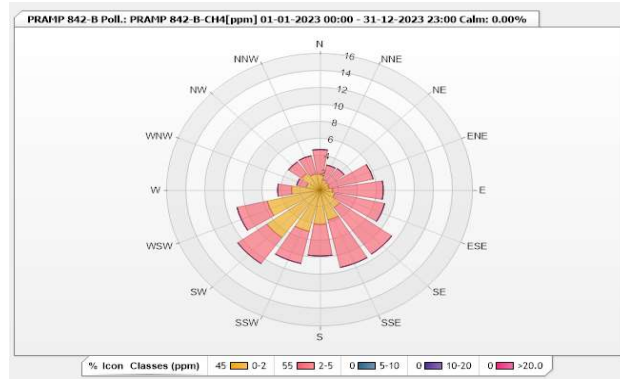
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	37	0	10	39	115	63	368	0
Total Hours of Downtime		263	Total Hours of Calibration		431	Total Hours of Flagged		694

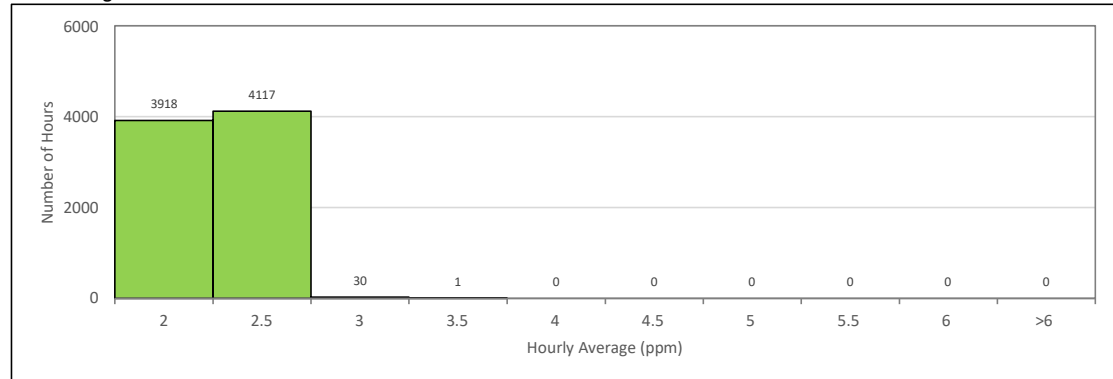
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



842-B STATION
NON-METHANE HYDROCARBONS (NMHC) in parts per million (ppm)

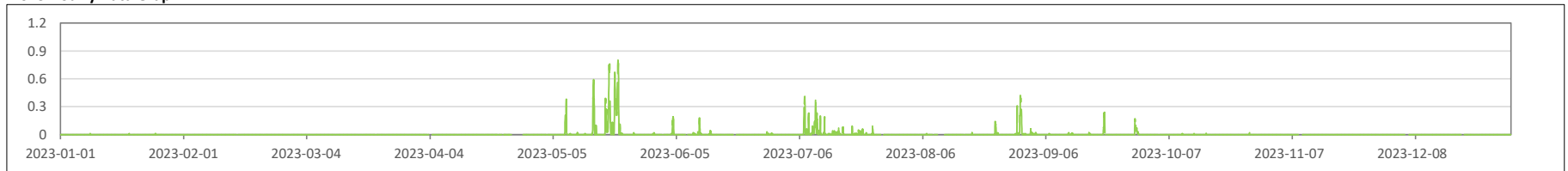
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 - 2	>2
January	100.0	706	0.00	0.01	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
April	85.4	584	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0	706	0.00	0.80	0.28	0.04	91.1%	3.4%	5.5%	0.0%	0.0%
June	95.6	653	0.00	0.19	0.05	0.00	98.9%	1.1%	0.0%	0.0%	0.0%
July	97.7	688	0.00	0.41	0.11	0.01	97.1%	2.3%	0.6%	0.0%	0.0%
August	93.3	659	0.00	0.42	0.16	0.01	98.2%	0.9%	0.9%	0.0%	0.0%
September	100.0	685	0.00	0.24	0.06	0.00	99.0%	1.0%	0.0%	0.0%	0.0%
October	99.9	706	0.00	0.02	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
November	97.4	664	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
December	94.8	670	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	97.0	8066	0.00	0.80	0.28	0.01	98.7%	0.7%	0.6%	0.0%	0.0%

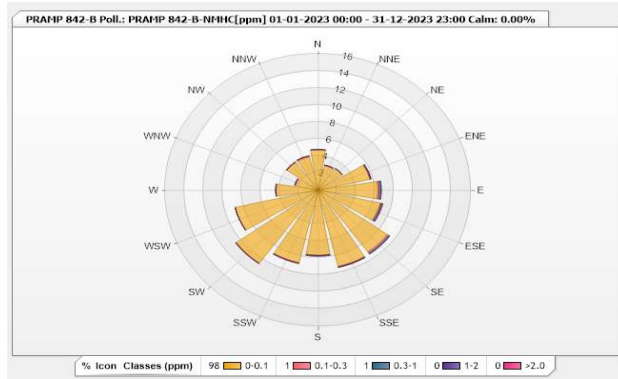
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	37	0	10	39	115	63	368	0
Total Hours of Downtime		263	Total Hours of Calibration		431	Total Hours of Flagged		694

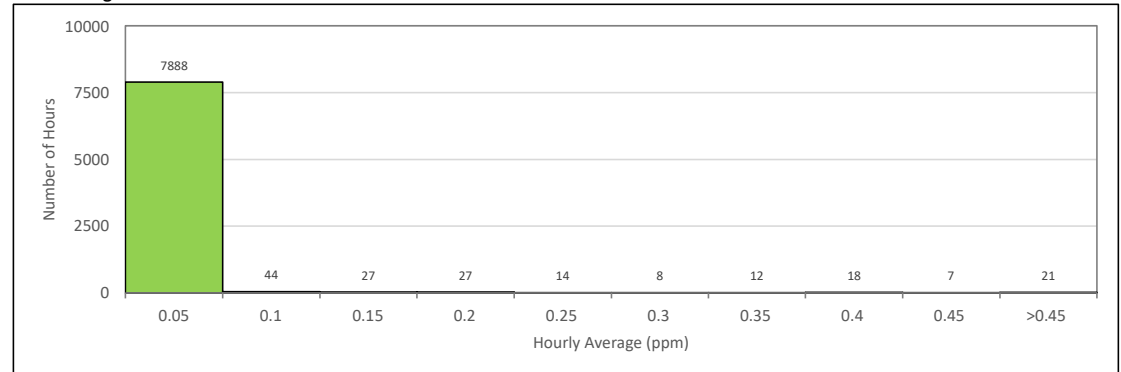
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



842-B STATION
RELATIVE HUMIDITY (RH) in percent (%)

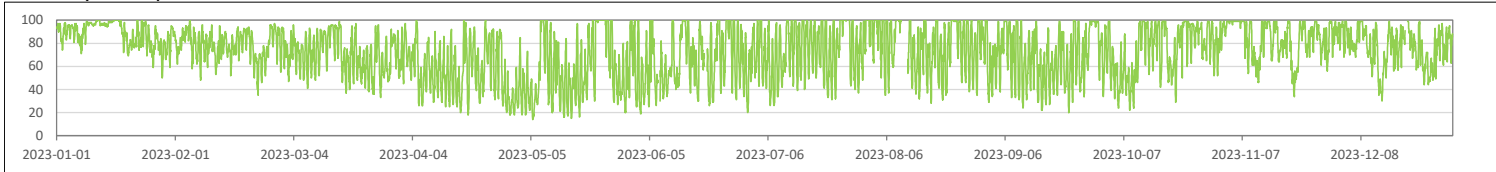
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	88.5	50	100	100
February	100.0	672	77.8	35	100	93
March	100.0	744	70.2	33	99	91
April	100.0	720	56.7	18	100	81
May	100.0	744	57.2	14	100	100
June	96.1	692	64.4	19	100	96
July	97.7	727	73.8	26	100	98
August	93.3	694	77.9	28	100	99
September	100.0	720	67.6	20	100	98
October	100.0	744	74.0	22	99	97
November	99.9	719	83.8	34	99	99
December	97.7	727	77.1	30	99	95
Annual	98.7	8647	72.4	14	100	100

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	0	0	10	39	2	0	0	0
Total Hours of Downtime		113	Total Hours of Calibration		0	Total Hours of Flagged		113

2023 Hourly Data Graph



842-B STATION
AMBIENT TEMPERATURE (AT) in degree celsius (°C)

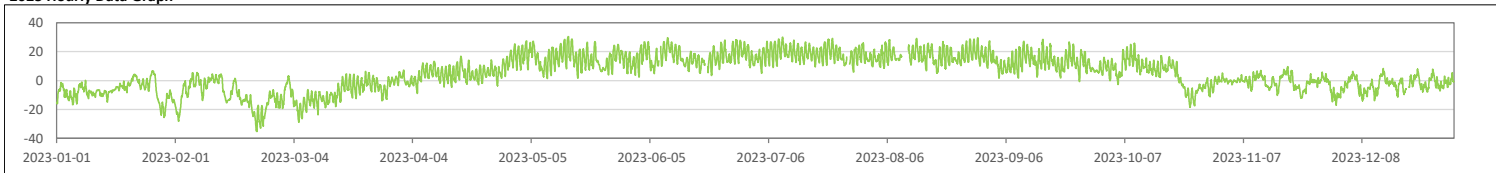
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	-7.0	-25.5	6.9	3.8
February	100.0	672	-10.1	-35.2	5.6	1.9
March	100.0	744	-7.4	-28.8	6.3	1.9
April	100.0	720	5.6	-9.0	25.4	17.7
May	100.0	744	15.4	1.5	30.5	22.2
June	96.1	692	16.8	2.5	29.7	22.9
July	97.7	727	18.3	5.1	30.1	23.2
August	93.3	694	17.3	5.2	29.6	22.4
September	100.0	720	13.0	-0.6	28.5	18.5
October	100.0	744	4.7	-18.4	25.8	17.5
November	99.9	719	-0.9	-14.6	9.6	5.8
December	97.7	727	-2.7	-17.2	8.3	4.7
Annual	98.7	8647	5.2	-35.2	30.5	23.2

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	235	0	10	39	2	0	0	0
Total Hours of Downtime		348	Total Hours of Calibration		0	Total Hours of Flagged		348

2023 Hourly Data Graph



842-B STATION
BAROMETRIC PRESSURE (BP) in millibar (mbar)

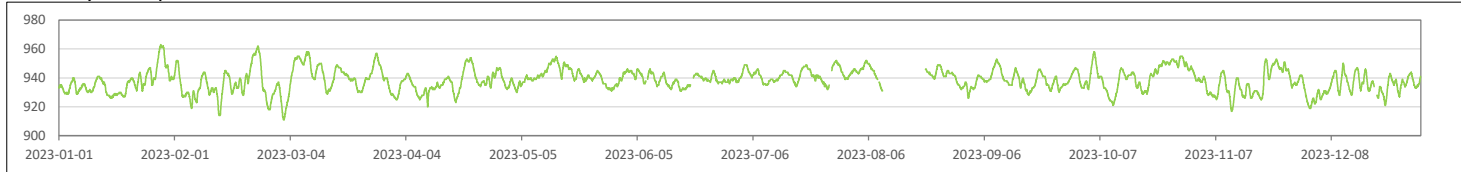
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	936.7	926	963	962
February	100.0	672	935.3	914	962	959
March	100.0	744	940.6	911	958	957
April	100.0	720	936.8	920	954	952
May	100.0	744	940.7	930	955	952
June	96.1	692	939.1	931	946	945
July	97.7	727	941.7	932	952	951
August	61.7	459	NA	931	952	951
September	100.0	720	938.4	926	953	951
October	100.0	744	941.4	921	958	955
November	99.9	719	936.5	917	953	951
December	97.7	727	934.3	919	950	946
Annual	96.1	8412	938.3	911	963	962

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	0	0	10	39	2	0	0	0
Total Hours of Downtime		113	Total Hours of Calibration		0	Total Hours of Flagged		113

2023 Hourly Data Graph



842-B STATION
PRECIPITATION in millimeter (mm)

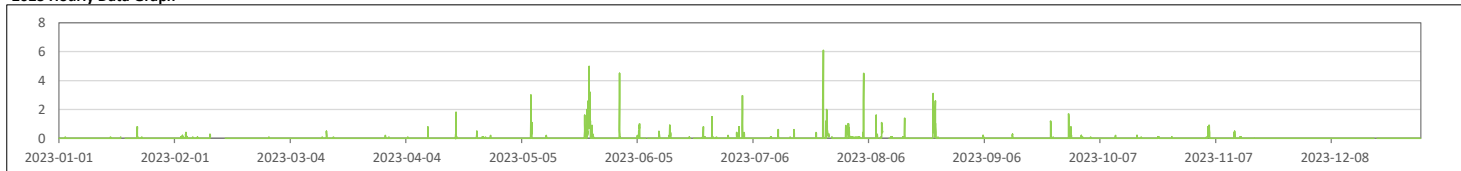
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	96.5	718	1.7	0.0	0.8	0.9
February	85.9	577	2.7	0.0	0.4	1.0
March	100.0	744	1.4	0.0	0.5	0.8
April	100.0	720	5.1	0.0	1.8	2.6
May	100.0	744	56.4	0.0	5.0	28.6
June	96.1	692	12.0	0.0	1.5	4.4
July	97.7	727	39.2	0.0	6.1	12.2
August	93.1	692	35.7	0.0	4.5	18.8
September	100.0	720	8.1	0.0	1.7	3.3
October	100.0	744	1.7	0.0	0.2	0.5
November	99.9	719	7.5	0.0	0.9	5.5
December	97.7	727	0.0	0.0	0.0	0.0
Annual	97.2	8524	171.5	0.0	6.1	28.6

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	117	0	10	39	7	1	0	0
Total Hours of Downtime		235	Total Hours of Calibration		1	Total Hours of Flagged		236

2023 Hourly Data Graph



842-B STATION
VECTOR WIND SPEED (VWS) in kilometer per hour (km/hr)

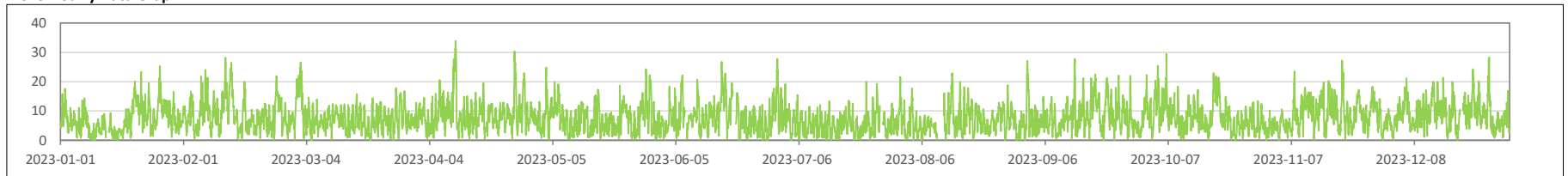
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 6	7 - 15	16 - 29	30 -39	>39
January	97.8	728	0.0	25.3	14.5	3.0	52.3%	42.6%	5.1%	0.0%	0.0%
February	100.0	672	0.3	28.0	17.5	2.2	40.6%	47.0%	12.4%	0.0%	0.0%
March	100.0	744	0.0	26.6	19.4	0.4	46.5%	47.7%	5.8%	0.0%	0.0%
April	100.0	720	0.3	33.9	22.8	2.6	32.9%	58.1%	8.1%	1.0%	0.0%
May	100.0	744	0.3	24.8	13.0	1.3	45.3%	48.9%	5.8%	0.0%	0.0%
June	96.1	692	0.0	27.8	16.1	2.2	40.6%	48.8%	10.5%	0.0%	0.0%
July	97.7	727	0.1	21.4	10.2	2.0	60.8%	36.7%	2.5%	0.0%	0.0%
August	93.3	693	0.0	22.8	14.5	2.3	55.6%	40.3%	4.2%	0.0%	0.0%
September	100.0	720	0.1	27.7	16.0	4.7	42.6%	47.6%	9.7%	0.0%	0.0%
October	100.0	744	0.0	29.5	16.9	3.4	43.1%	47.7%	9.0%	0.1%	0.0%
November	99.9	719	0.1	27.3	14.3	4.2	39.5%	53.4%	7.1%	0.0%	0.0%
December	97.7	727	0.2	28.3	14.8	6.5	31.8%	57.8%	10.5%	0.0%	0.0%
Annual	98.5	8630	0.0	33.9	22.8	2.8	44.3%	48.1%	7.5%	0.1%	0.0%

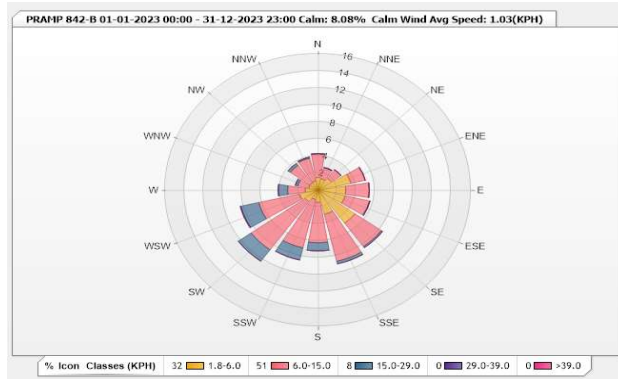
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
62	16	0	10	39	2	1	0	0
Total Hours of Downtime		129	Total Hours of Calibration		1	Total Hours of Flagged		130

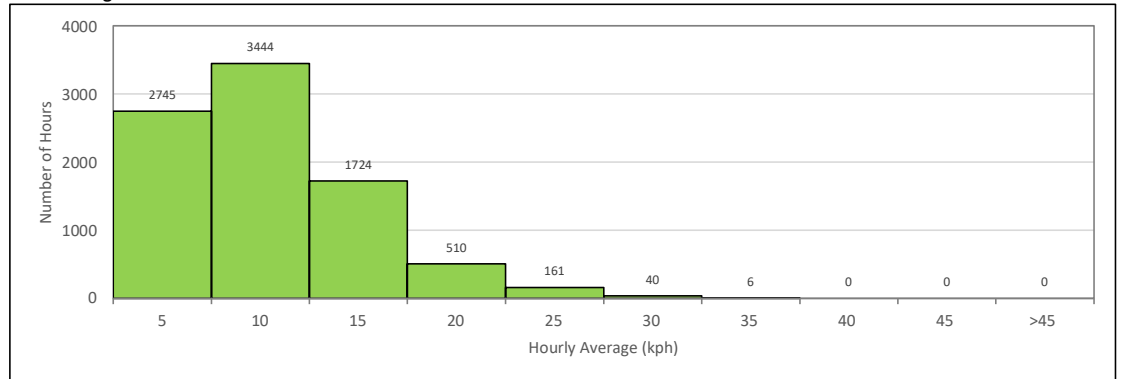
2023 Hourly Data Graph



2023 Wind Rose



2023 Histogram



1.3 Reno Station

1.3.1 Parameters Monitoring Summary

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	PRECIP	WDS	WDV
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	mm	KPH	Deg
Minimum	0	0.00	1.84	1.84	0.00	12	912	-34.0	0.0	0.0	0
Min Date	01-01-2023 00:00	17-05-2023 13:00	15-08-2023 15:00	15-08-2023 15:00	01-01-2023 00:00	15-05-2023 15:00	02-03-2023 03:00	22-02-2023 06:00	17-01-2023 15:00	05-06-2023 05:00	20-02-2023 23:00
Maximum	9	15.2	6.40	4.15	2.61	100	964	30.3	8.3	49.9	360
Max Date	02-06-2023 22:00	07-07-2023 07:00	18-05-2023 01:00	28-12-2023 00:00	18-05-2023 01:00	22-01-2023 01:00	28-01-2023 09:00	14-05-2023 16:00	21-05-2023 20:00	09-04-2023 22:00	31-01-2023 01:00
Average	0	0.37	2.02	2.02	0.00	71	938	4.7	254.9*	3.4	194
# of Reading	8245	8232	8128	8128	8128	8645	8645	8644	8259	8604	8604
Valid Data [%]	94.12	93.97	92.79	92.79	92.79	98.69	98.69	98.68	94.28	98.22	98.22
Operational Uptime [%]	99.1	98.9	97.7	97.7	97.7	98.7	98.7	98.7	94.4	98.3	98.3

* Total amounts were presented on the table

1.3.2 Monitoring Parameters – 2023 Continuous Data Summary and Frequency Distribution

Reno-B STATION
SULPHUR DIOXIDE (SO₂) in parts per billion (ppb)

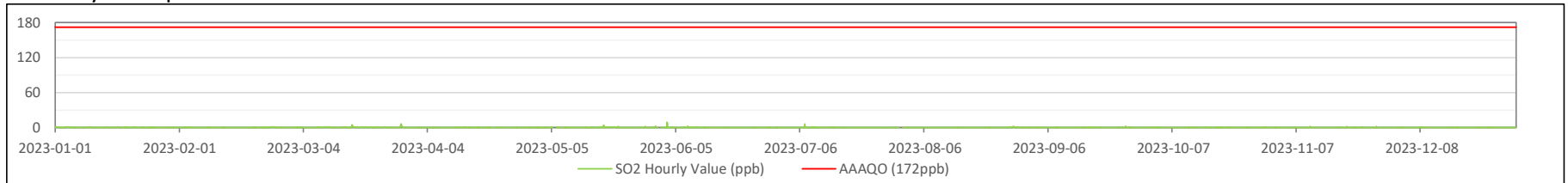
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances				Percentage Readings in Concentration Range				
							1-hour	24-hour	30-day	Annual	0 - 10	11 - 50	51 - 100	101 - 172	>172
January	100.0	708	0	1	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0	1	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0	6	2	0.3	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.7	684	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
May	96.0	678	0	4	1	0.2	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
June	97.8	668	0	9	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
July	96.0	676	0	6	1	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0	706	0	2	1	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	685	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0	706	0	1	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	683	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	706	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.1	8245	0	9	2	0.1	0	0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%

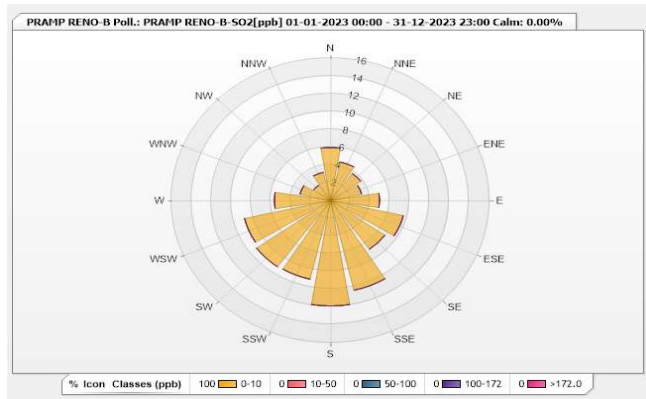
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	1	1	17	39	0	60	377	0
Total Hours of Downtime		78	Total Hours of Calibration		437	Total Hours of Flagged		515

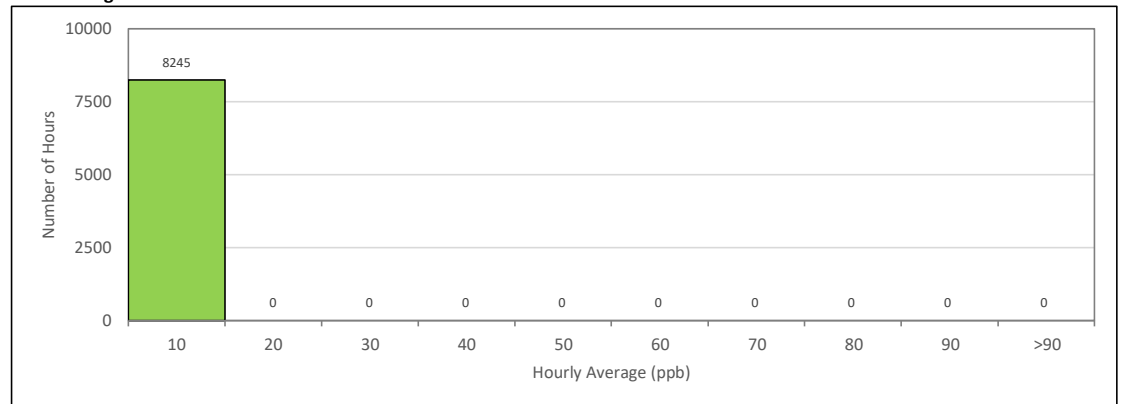
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Reno-B STATION
TOTAL REDUCED SULPHUR (TRS) in parts per billion (ppb)

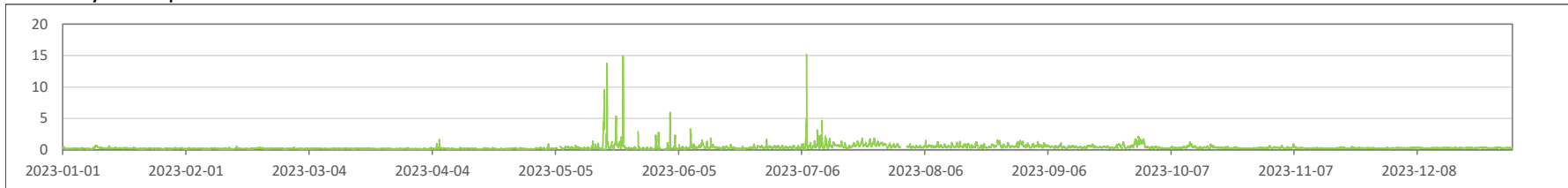
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0	708	0.12	0.70	0.49	0.23	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0.11	0.61	0.29	0.20	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0.11	0.37	0.21	0.18	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.7	684	0.10	1.61	0.42	0.18	100.0%	0.0%	0.0%	0.0%	0.0%
May	96.0	678	0.00	14.94	2.49	0.50	97.1%	1.9%	0.7%	0.3%	0.0%
June	97.8	668	0.09	5.94	0.90	0.38	99.6%	0.3%	0.1%	0.0%	0.0%
July	95.0	670	0.08	15.20	1.87	0.73	99.0%	0.9%	0.0%	0.1%	0.0%
August	98.8	699	0.25	1.56	1.12	0.57	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	685	0.24	2.13	1.47	0.56	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0	706	0.20	1.24	0.73	0.35	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	683	0.14	0.94	0.41	0.29	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	706	0.24	0.47	0.35	0.30	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.9	8232	0.00	15.20	2.49	0.37	99.6%	0.3%	0.1%	0.0%	0.0%

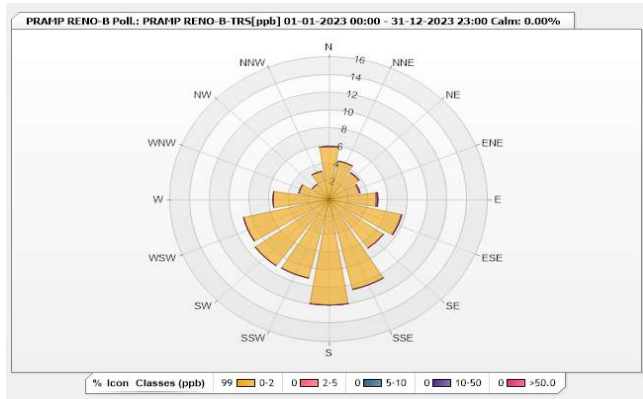
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
20	17	1	17	39	0	59	375	0	
Total Hours of Downtime		94	Total Hours of Calibration		434	Total Hours of Flagged			528

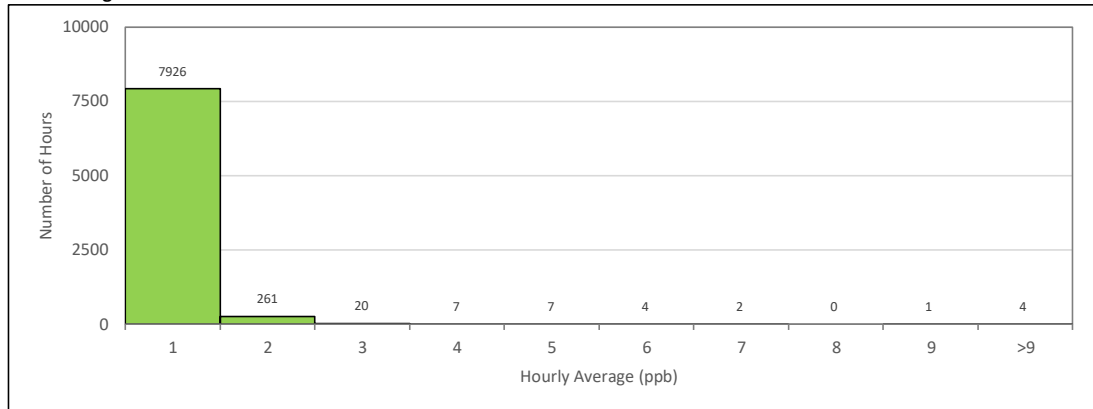
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Reno-B STATION
TOTAL HYDROCARBONS (THC) in parts per million (ppm)

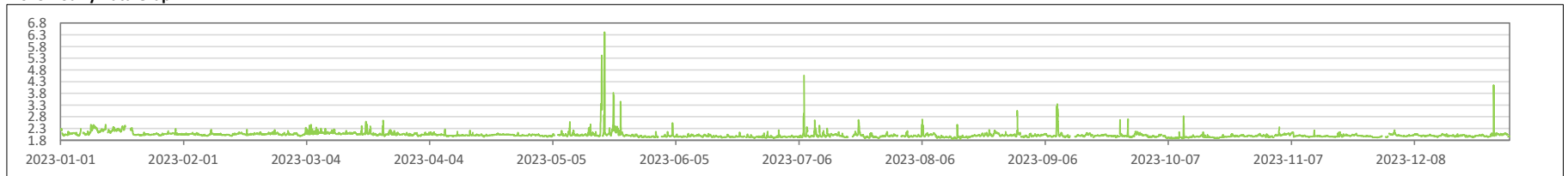
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 40	>40
January	93.3	660	1.98	2.46	2.35	2.12	98.9%	1.1%	0.0%	0.0%	0.0%
February	99.9	637	1.98	2.26	2.10	2.05	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	1.98	2.64	2.16	2.08	98.4%	1.6%	0.0%	0.0%	0.0%
April	99.7	684	1.94	2.27	2.07	2.02	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	677	1.92	6.40	2.82	2.08	96.5%	3.2%	0.3%	0.0%	0.0%
June	97.8	668	1.88	2.53	2.01	1.96	99.9%	0.1%	0.0%	0.0%	0.0%
July	93.1	655	1.88	4.56	2.23	2.00	98.3%	1.7%	0.0%	0.0%	0.0%
August	100.0	707	1.84	3.04	2.13	2.00	99.2%	0.8%	0.0%	0.0%	0.0%
September	96.9	663	1.91	3.33	2.29	2.02	98.2%	1.8%	0.0%	0.0%	0.0%
October	99.6	703	1.87	2.81	2.00	1.96	99.7%	0.3%	0.0%	0.0%	0.0%
November	96.8	661	1.91	2.36	2.06	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	706	1.92	4.15	2.14	2.00	99.9%	0.1%	0.0%	0.0%	0.0%
Annual	97.7	8128	1.84	6.40	2.82	2.02	99.1%	0.9%	0.0%	0.0%	0.0%

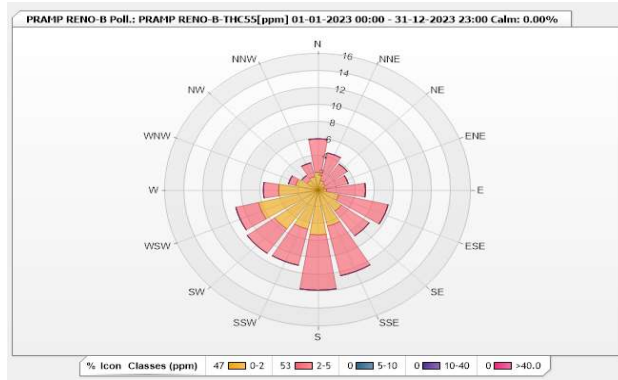
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	37	1	22	39	80	61	372	0
Total Hours of Downtime		199	Total Hours of Calibration		433	Total Hours of Flagged		632

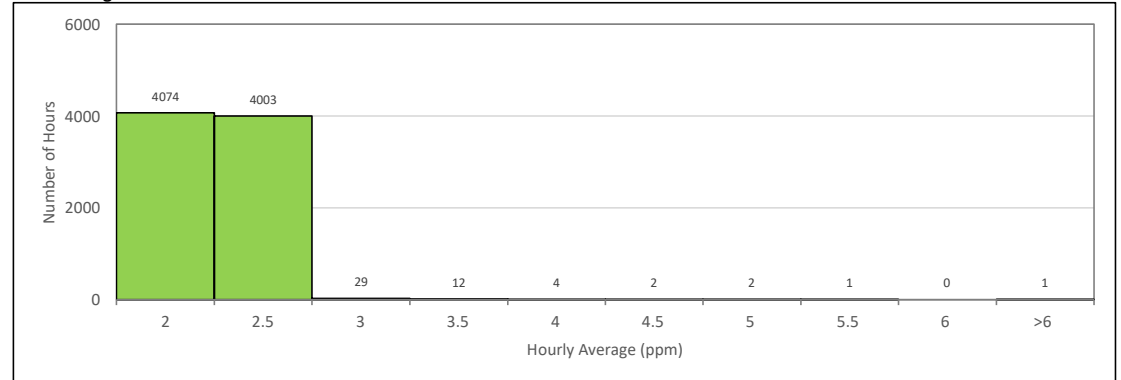
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Reno-B STATION
METHANE (CH₄) in parts per million (ppm)

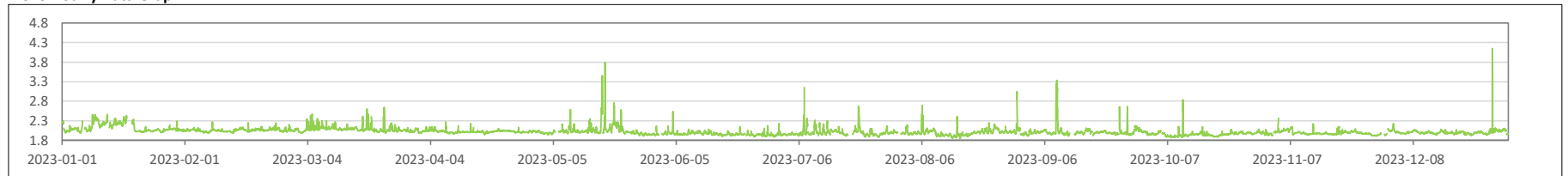
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 20	>20
January	93.3	660	1.98	2.46	2.35	2.12	98.9%	1.1%	0.0%	0.0%	0.0%
February	99.9	637	1.98	2.26	2.10	2.05	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	1.98	2.64	2.16	2.08	98.4%	1.6%	0.0%	0.0%	0.0%
April	99.7	684	1.94	2.27	2.07	2.02	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	677	1.92	3.79	2.38	2.04	97.5%	2.5%	0.0%	0.0%	0.0%
June	97.8	668	1.88	2.53	2.01	1.96	99.9%	0.1%	0.0%	0.0%	0.0%
July	93.1	655	1.88	3.15	2.16	2.00	98.9%	1.1%	0.0%	0.0%	0.0%
August	100.0	707	1.84	3.04	2.13	2.00	99.3%	0.7%	0.0%	0.0%	0.0%
September	96.9	663	1.91	3.33	2.29	2.02	98.2%	1.8%	0.0%	0.0%	0.0%
October	99.6	703	1.87	2.81	2.00	1.96	99.7%	0.3%	0.0%	0.0%	0.0%
November	96.8	661	1.91	2.36	2.06	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	706	1.92	4.15	2.14	2.00	99.9%	0.1%	0.0%	0.0%	0.0%
Annual	97.7	8128	1.84	4.15	2.38	2.02	99.2%	0.8%	0.0%	0.0%	0.0%

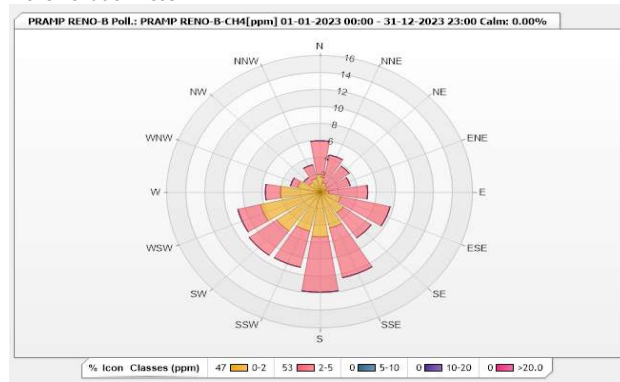
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	37	1	22	39	80	61	372	0
Total Hours of Downtime		199	Total Hours of Calibration		433	Total Hours of Flagged		632

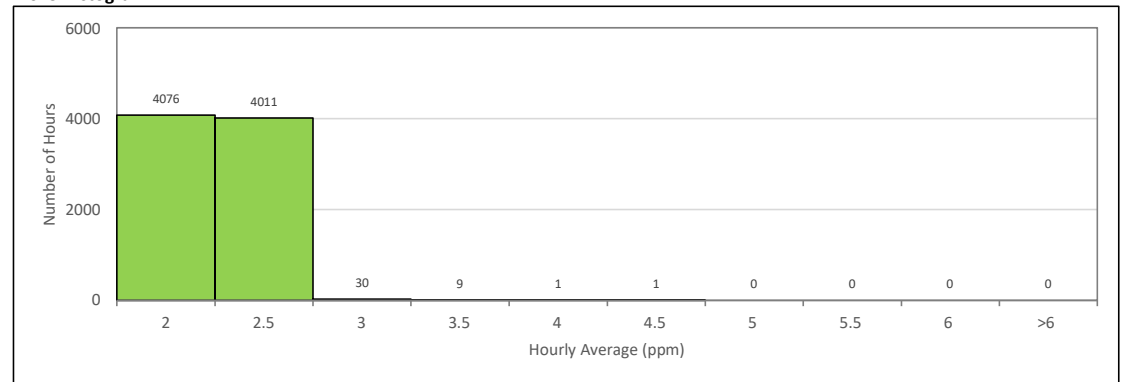
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Reno-B STATION
NON-METHANE HYDROCARBONS (NMHC) in parts per million (ppm)

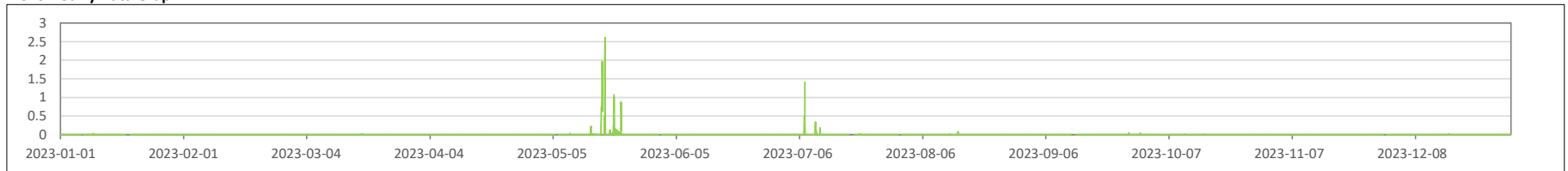
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 - 2	>2
January	93.3	660	0.00	0.03	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
February	99.9	637	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0.00	0.02	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.7	684	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	677	0.00	2.61	0.44	0.03	96.6%	0.7%	1.5%	1.0%	0.1%
June	97.8	668	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	93.1	655	0.00	1.41	0.11	0.01	99.1%	0.5%	0.3%	0.2%	0.0%
August	100.0	707	0.00	0.08	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
September	96.9	663	0.00	0.04	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
October	99.6	703	0.00	0.01	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
November	96.8	661	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0	706	0.00	0.02	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	97.7	8128	0.00	2.61	0.44	0.00	99.6%	0.1%	0.1%	0.1%	0.0%

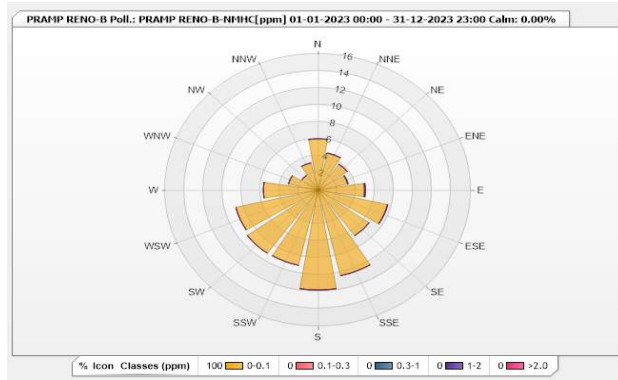
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	37	1	22	39	80	60	373	0
Total Hours of Downtime		199	Total Hours of Calibration		433	Total Hours of Flagged		632

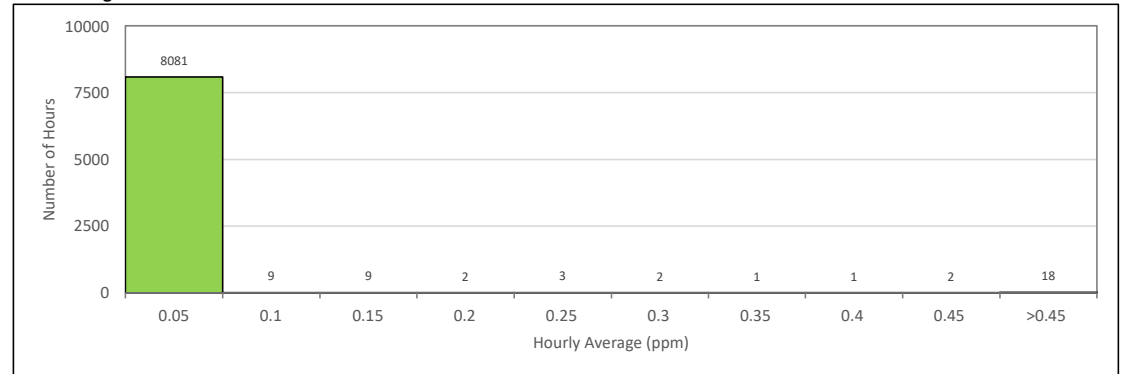
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Reno-B STATION
RELATIVE HUMIDITY (RH) in percent (%)

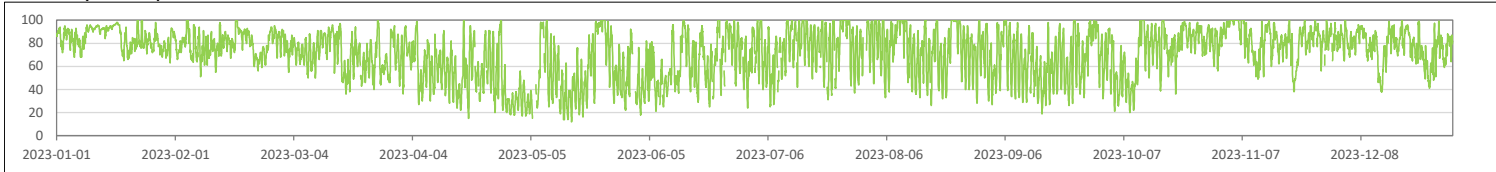
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	84.8	63	100	97
February	100.0	672	79.2	51	100	94
March	99.9	743	70.9	36	100	88
April	99.6	717	56.3	15	100	82
May	95.6	711	53.3	12	100	98
June	96.4	694	61.6	18	100	91
July	95.2	708	75.4	25	100	98
August	99.7	742	75.4	26	100	100
September	99.6	717	65.0	19	100	94
October	99.6	741	72.7	20	100	93
November	99.0	713	82.9	38	100	100
December	99.9	743	77.3	38	100	90
Annual	98.7	8645	71.2	12	100	100

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	0	1	55	39	0	0	0	0
Total Hours of Downtime		115	Total Hours of Calibration		0	Total Hours of Flagged		115

2023 Hourly Data Graph



Reno-B STATION
AMBIENT TEMPERATURE (AT) in degree celsius (°C)

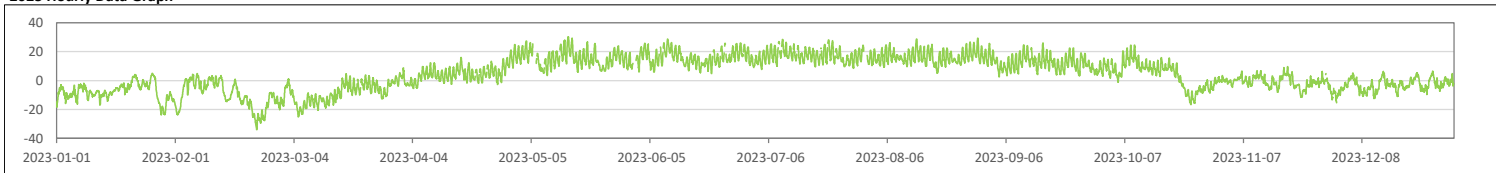
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	-7.5	-23.6	5.0	2.7
February	100.0	672	-10.2	-34.0	4.9	1.3
March	99.7	742	-8.1	-25.1	5.5	1.0
April	99.6	717	5.0	-5.4	24.9	17.4
May	95.6	711	15.5	3.6	30.3	22.3
June	96.4	694	16.3	4.9	28.7	22.8
July	95.2	708	17.2	7.7	28.5	22.2
August	99.7	742	16.5	5.3	29.5	21.2
September	99.6	717	12.3	2.6	26.0	17.9
October	99.6	741	4.4	-16.6	24.6	17.7
November	99.0	713	-1.0	-13.4	9.7	5.1
December	99.9	743	-3.0	-15.3	6.5	3.4
Annual	98.7	8644	5	-34.0	30.3	22.8

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	0	1	55	39	0	0	0	0
Total Hours of Downtime		115	Total Hours of Calibration		0	Total Hours of Flagged		115

2023 Hourly Data Graph



Reno-B STATION
BAROMETRIC PRESSURE (BP) in millibar (mbar)

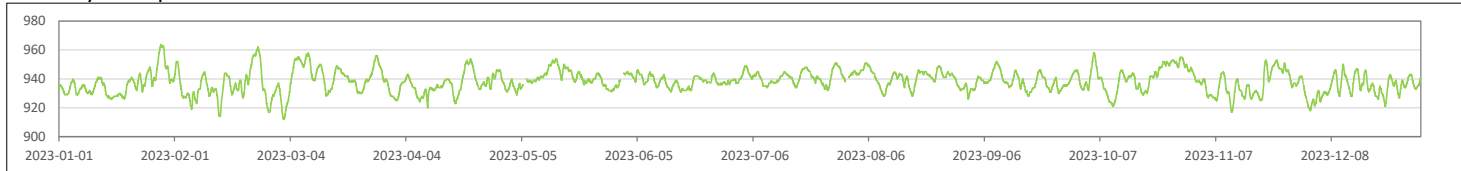
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	936.7	926	964	962
February	100.0	672	935.1	914	962	959
March	99.9	743	940.3	912	958	956
April	99.6	717	936.2	920	954	952
May	95.6	711	940.1	929	954	952
June	96.4	694	938.4	931	946	944
July	95.2	708	941.2	932	951	950
August	99.7	742	940.8	928	951	950
September	99.6	717	938.1	926	952	951
October	99.6	741	941.2	921	958	955
November	99.0	713	936.4	917	953	951
December	99.9	743	934.2	918	950	946
Annual	98.7	8645	938.2	912	964	962

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	0	1	56	39	0	0	0	0
Total Hours of Downtime		116	Total Hours of Calibration		0	Total Hours of Flagged		116

2023 Hourly Data Graph



Reno-B STATION
PRECIPITATION in millimeter (mm)

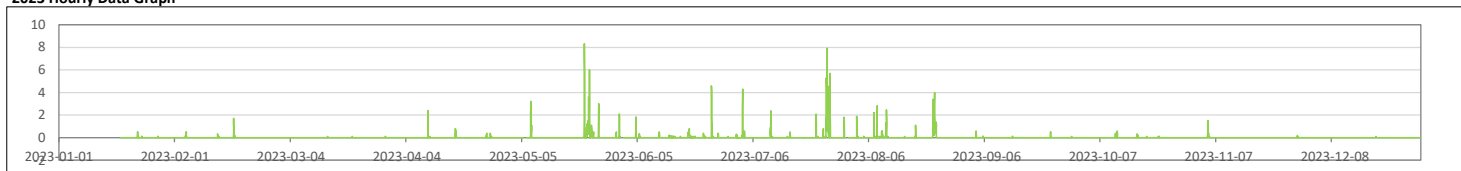
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	46.4	345	1.4	0.0	0.5	1.2
February	100.0	671	5.1	0.0	1.7	3.1
March	99.9	743	0.5	0.0	0.1	0.3
April	99.7	718	5.3	0.0	2.4	2.4
May	95.7	712	76.1	0.0	8.3	24.6
June	97.1	699	23.6	0.0	4.6	7.3
July	95.6	711	78.9	0.0	7.9	35.6
August	100.0	744	53.6	0.0	4.0	27.5
September	99.7	718	1.9	0.0	0.6	0.8
October	99.6	741	2.8	0.0	0.6	1.1
November	99.2	714	5.6	0.0	1.5	3.1
December	99.9	743	0.1	0.0	0.1	0.1
Annual	94.4	8259	254.9	0.0	8.3	35.6

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	397	1	41	39	2	1	0	0
Total Hours of Downtime		500	Total Hours of Calibration		1	Total Hours of Flagged		501

2023 Hourly Data Graph



Reno-B STATION
VECTOR WIND SPEED (VWS) in kilometer per hour (km/hr)

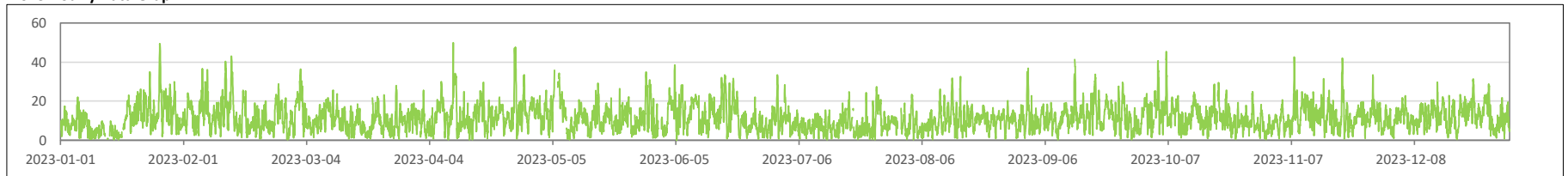
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 6	7 - 15	16 - 29	30 -39	>39
January	95.4	710	0.2	49.3	21.9	3.9	32.7%	44.1%	21.3%	1.0%	1.0%
February	100.0	672	0.3	43.0	22.0	2.1	24.9%	44.0%	28.0%	2.5%	0.6%
March	99.7	742	0.5	36.4	24.3	2.3	27.1%	53.0%	19.1%	0.8%	0.0%
April	99.3	715	0.2	49.9	27.1	4.1	19.9%	48.5%	27.1%	3.4%	1.1%
May	95.4	710	0.3	35.8	18.4	2.8	23.8%	52.5%	21.8%	1.8%	0.0%
June	96.4	694	0.0	38.5	20.9	1.9	23.6%	43.7%	30.3%	2.4%	0.0%
July	95.2	708	0.2	28.2	15.1	2.9	37.4%	53.7%	8.9%	0.0%	0.0%
August	99.6	739	0.3	32.6	18.2	3.7	27.1%	59.9%	12.3%	0.7%	0.0%
September	99.6	717	0.2	41.3	22.3	6.4	19.9%	54.8%	22.3%	2.8%	0.1%
October	99.6	741	0.4	44.9	22.3	4.4	19.0%	53.7%	25.4%	1.3%	0.5%
November	99.0	713	0.7	42.6	18.5	5.0	19.6%	54.0%	24.7%	1.4%	0.3%
December	99.9	743	0.4	31.4	20.8	8.6	16.7%	53.0%	29.9%	0.4%	0.0%
Annual	98.3	8604	0.0	49.9	27.1	3.4	24.3%	51.2%	22.6%	1.5%	0.3%

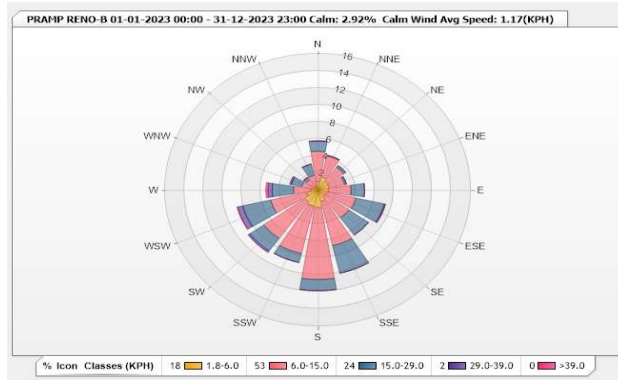
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
20	36	1	58	39	0	2	0	0
Total Hours of Downtime		154	Total Hours of Calibration		2	Total Hours of Flagged		156

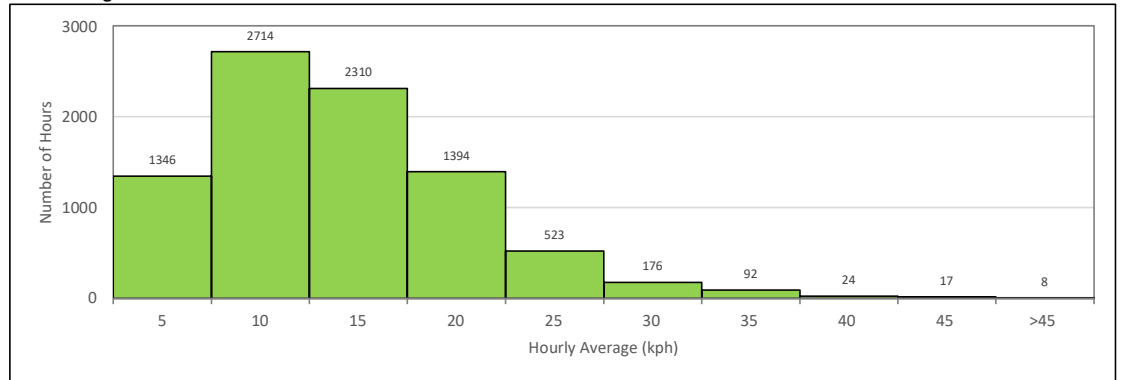
2023 Hourly Data Graph



2023 Wind Rose



2023 Histogram



1.4 PRC Station

1.4.1 Parameters Monitoring Summary

	SO2	H2S	TRS	THC55	CH4	NMHC	RH	BP	AT	WDS	WDV
	ppb	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	KPH	Deg
Minimum	0	0	0	1.88	1.88	0.00	13	912	-38.0	0.0	0
Min Date	01-01-2023 00:00	01-01-2023 00:00	01-01-2023 00:00	13-08-2023 11:00	13-08-2023 11:00	01-01-2023 00:00	05-05-2023 12:00	02-03-2023 04:00	22-02-2023 07:00	03-11-2023 22:00	18-02-2023 18:00
Maximum	14	6	7	4.15	2.94	1.21	100	963	30.7	38.0	360
Max Date	07-02-2023 13:00	29-12-2023 21:00	21-05-2023 08:00	15-05-2023 04:00	15-05-2023 04:00	15-05-2023 04:00	22-01-2023 00:00	28-01-2023 04:00	09-07-2023 16:00	10-04-2023 10:00	30-01-2023 23:00
Average	0	0	0	2.02	2.01	0.00	71	940	4.7	3.9	204
# of Reading	8187	8147	8010	8153	8153	8153	8670	8670	8670	8668	8668
Valid Data [%]	93.46	93.00	91.44	93.07	93.07	93.07	98.97	98.97	98.97	98.95	98.95
Operational Uptime [%]	98.4	98.0	96.3	98.1	98.1	98.1	99.0	99.0	99.0	99.0	99.0

1.4.2 Monitoring Parameters – 2023 Continuous Data Summary and Frequency Distribution



**Peace River Complex (PRC) Station
SULPHUR DIOXIDE (SO₂) in parts per billion (ppb)**

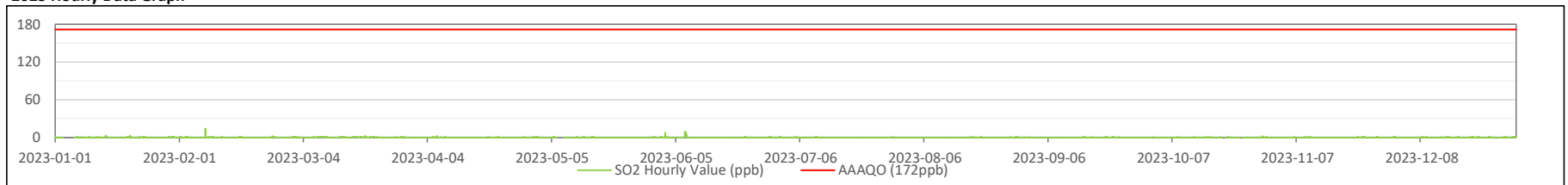
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances				Percentage Readings in Concentration Range				
							1-hour	24-hour	30-day	Annual	0 - 10	11 - 50	51 - 100	101 - 172	>172
January	92.1	652	0	3	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0	14	1	0.1	0	0	0	-	99.8%	0.2%	0.0%	0.0%	0.0%
March	99.7	705	0	2	1	0.2	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.7	683	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	676	0	1	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0	683	0	9	2	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	706	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0	706	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	684	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
October	94.2	667	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	682	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	0	1	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.4	8187	0	14	2	0.1	0	0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%

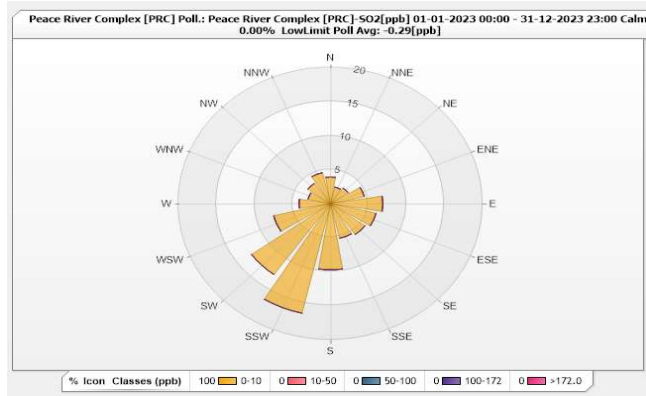
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	43	0	57	0	9	63	371	0
Total Hours of Downtime		139	Total Hours of Calibration		434	Total Hours of Flagged		573

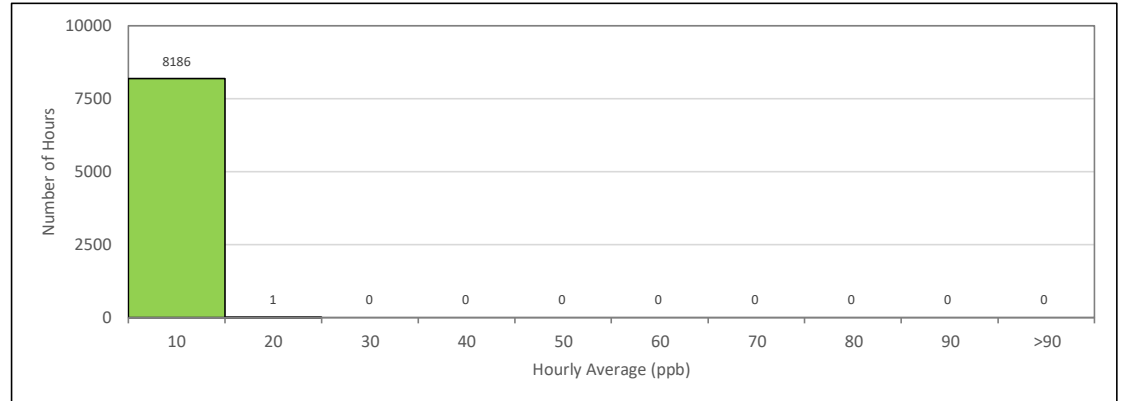
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



**Peace River Complex (PRC) Station
HYDROGEN SULPHIDE (H₂S) in parts per billion (ppb)**

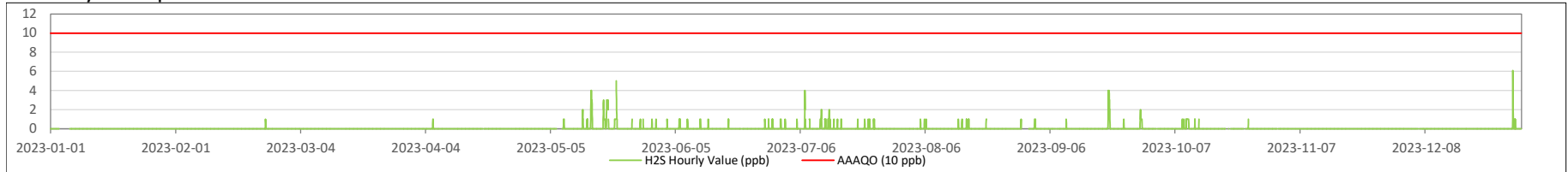
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances		Percentage Readings in Concentration Range				
							1-hour	24-hour	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	92.2	653	0	0	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0	1	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0	0	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.3	680	0	1	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	676	0	5	1	0.2	0	0	97.3%	2.7%	0.0%	0.0%	0.0%
June	100.0	683	0	1	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	706	0	4	0	0.1	0	0	99.9%	0.1%	0.0%	0.0%	0.0%
August	94.5	666	0	1	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	684	0	4	1	0.1	0	0	99.1%	0.9%	0.0%	0.0%	0.0%
October	94.2	667	0	1	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	682	0	0	0	0.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	0	6	1	0.0	0	0	99.7%	0.1%	0.1%	0.0%	0.0%
Annual	98.0	8147	0	6	1	0.0	0	0	99.7%	0.3%	0.0%	0.0%	0.0%

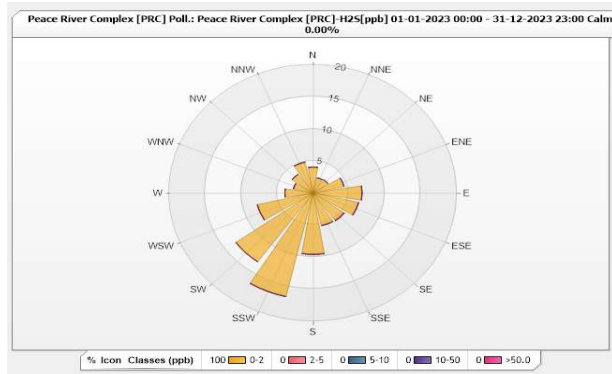
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q		
30	79	0	57	0	14	63	370	0		
Total Hours of Downtime		180		Total Hours of Calibration		433		Total Hours of Flagged		613

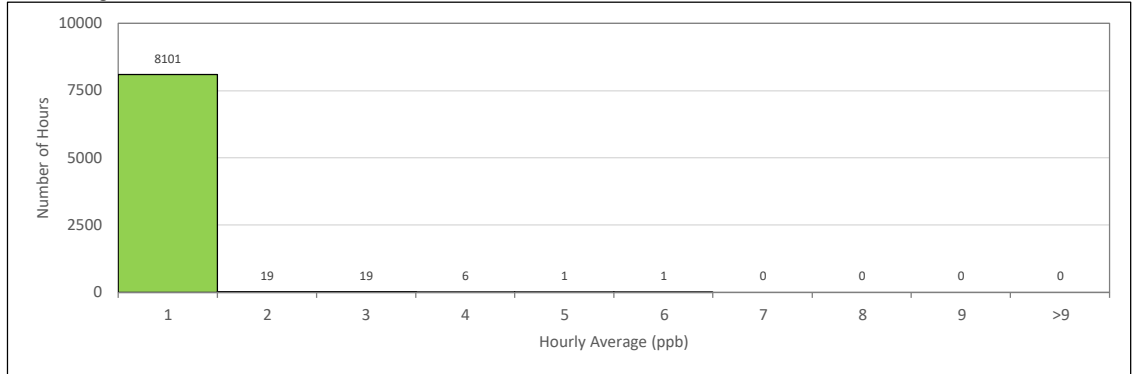
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



**Peace River Complex (PRC) Station
TOTAL REDUCED SULPHUR (TRS) in parts per billion (ppb)**

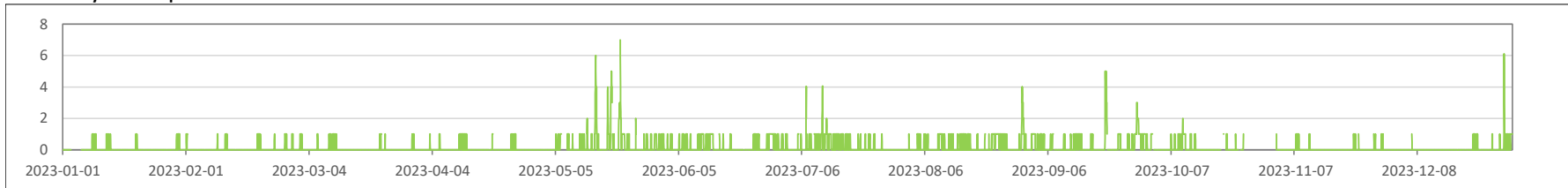
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 50	>50
January	92.2	653	0	1	0	0.0	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0	1	1	0.1	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	707	0	1	0	0.1	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.3	680	0	1	1	0.1	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.8	676	0	7	2	0.4	96.0%	3.6%	0.4%	0.0%	0.0%
June	100.0	683	0	1	1	0.2	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	706	0	4	1	0.2	99.6%	0.4%	0.0%	0.0%	0.0%
August	100.0	706	0	4	2	0.3	99.0%	1.0%	0.0%	0.0%	0.0%
September	100.0	684	0	5	2	0.3	98.0%	2.0%	0.0%	0.0%	0.0%
October	73.4	519	0	2	1	NA	100.0%	0.0%	0.0%	0.0%	0.0%
November	95.3	653	0	1	0	0.0	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	0	6	1	0.1	99.7%	0.1%	0.1%	0.0%	0.0%
Annual	96.3	8010	0	7	2	0.2	99.4%	0.6%	0.0%	0.0%	0.0%

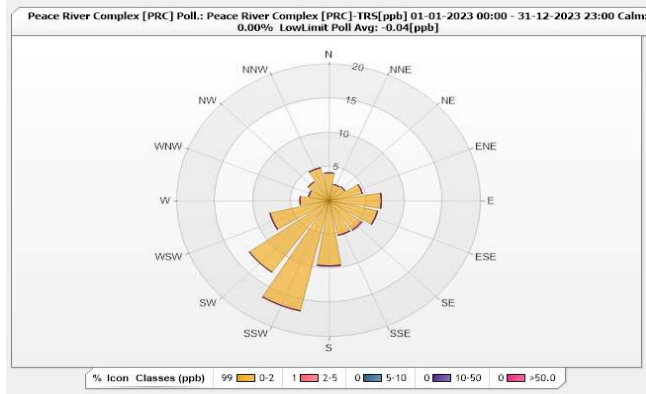
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	232	0	57	0	9	60	362	0
Total Hours of Downtime		328	Total Hours of Calibration		422	Total Hours of Flagged		750

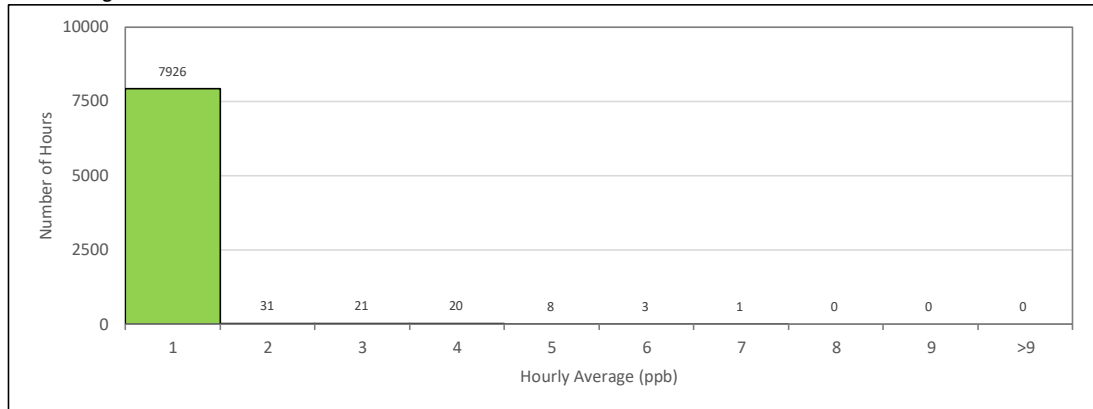
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Peace River Complex (PRC) Station TOTAL HYDROCARBONS (THC) in parts per million (ppm)

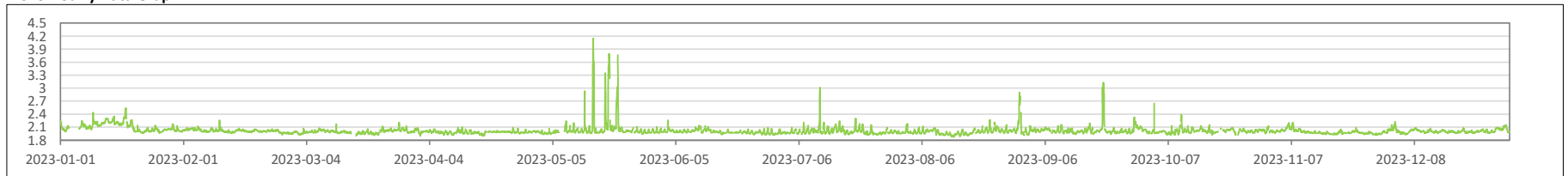
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 40	>40
January	92.2	653	1.96	2.53	2.32	2.11	98.8%	1.2%	0.0%	0.0%	0.0%
February	100.0	637	1.93	2.26	2.06	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
March	96.4	680	1.90	2.21	2.06	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.6	681	1.90	2.10	2.01	1.98	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.7	675	1.94	4.15	2.67	2.08	94.4%	5.6%	0.0%	0.0%	0.0%
June	100.0	683	1.92	2.26	2.06	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	705	1.92	3.01	2.11	2.00	99.7%	0.3%	0.0%	0.0%	0.0%
August	100.0	706	1.88	2.90	2.43	2.01	98.4%	1.6%	0.0%	0.0%	0.0%
September	100.0	684	1.92	3.13	2.44	2.03	98.7%	1.3%	0.0%	0.0%	0.0%
October	93.5	660	1.92	2.65	2.11	2.01	99.8%	0.2%	0.0%	0.0%	0.0%
November	100.0	683	1.92	2.20	2.12	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	1.93	2.22	2.08	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.1	8153	1.88	4.15	2.67	2.02	99.2%	0.8%	0.0%	0.0%	0.0%

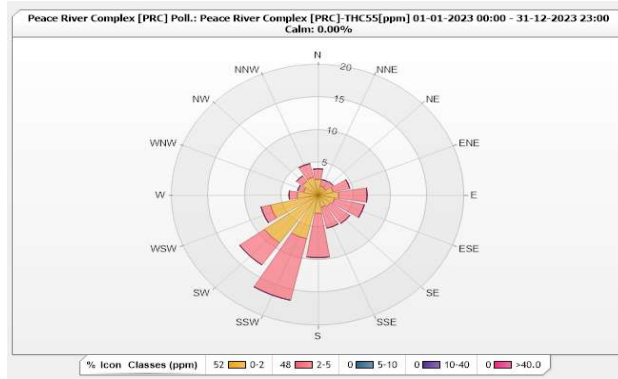
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	75	1	57	0	7	66	371	0
Total Hours of Downtime		170	Total Hours of Calibration		437	Total Hours of Flagged		607

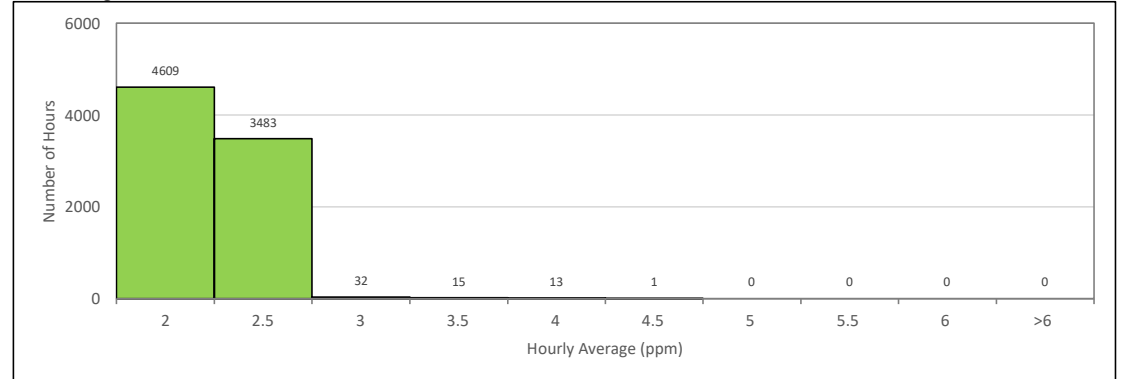
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



**Peace River Complex (PRC) Station
METHANE (CH₄) in parts per million (ppm)**

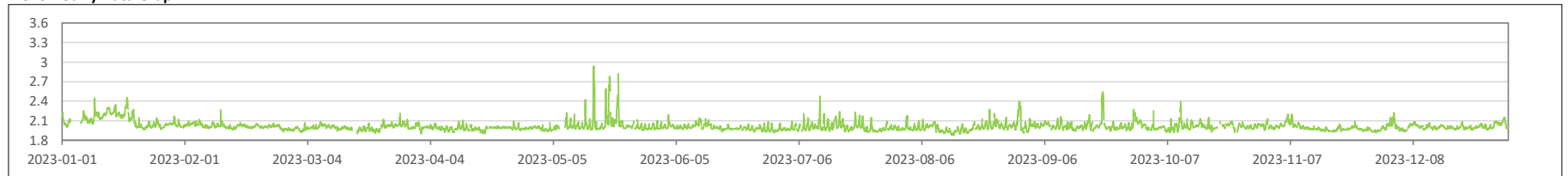
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 20	>20
January	92.2	653	1.96	2.45	2.30	2.11	99.1%	0.9%	0.0%	0.0%	0.0%
February	100.0	637	1.93	2.26	2.06	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
March	96.4	680	1.90	2.21	2.06	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
April	99.6	681	1.90	2.10	2.01	1.98	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.7	675	1.94	2.94	2.32	2.04	95.7%	4.3%	0.0%	0.0%	0.0%
June	100.0	683	1.92	2.19	2.06	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	705	1.92	2.47	2.07	2.00	99.9%	0.1%	0.0%	0.0%	0.0%
August	100.0	706	1.88	2.40	2.25	2.00	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0	684	1.92	2.54	2.25	2.03	99.0%	1.0%	0.0%	0.0%	0.0%
October	93.5	660	1.92	2.39	2.11	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	683	1.92	2.20	2.12	1.99	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	1.93	2.22	2.08	2.01	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.1	8153	1.88	2.94	2.32	2.01	99.5%	0.5%	0.0%	0.0%	0.0%

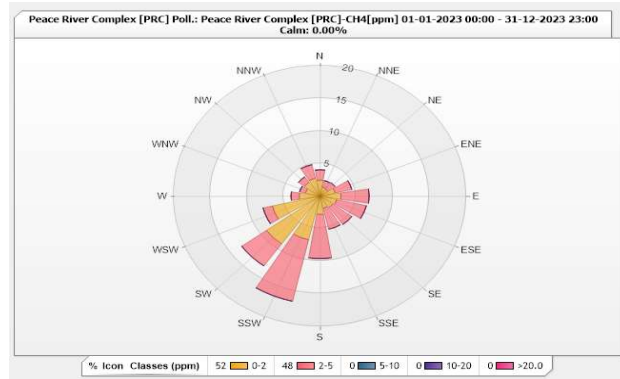
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	75	1	57	0	7	66	371	0
Total Hours of Downtime		170	Total Hours of Calibration		437	Total Hours of Flagged		607

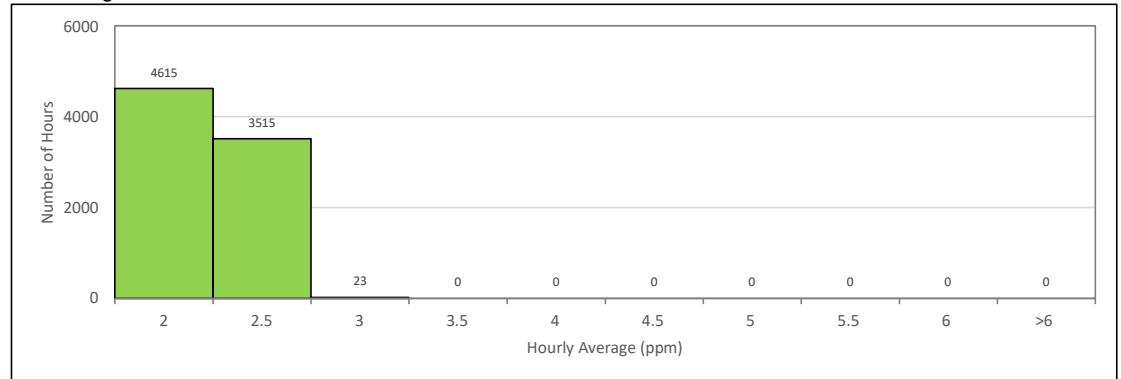
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



**Peace River Complex (PRC) Station
NON-METHANE HYDROCARBONS (NMHC) in parts per million (ppm)**

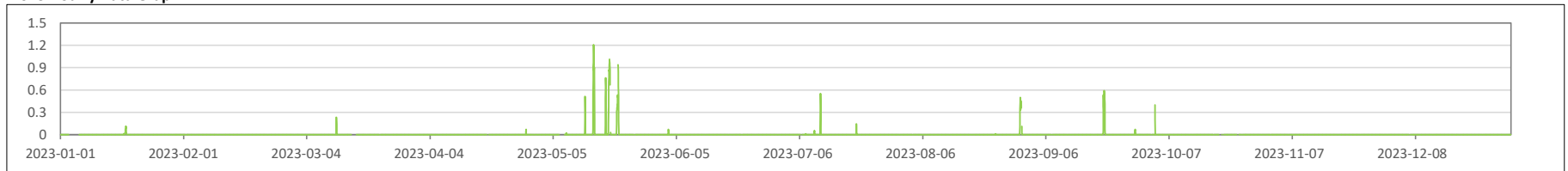
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 - 2	>2
January	92.2	653	0.00	0.11	0.02	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	637	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
March	96.4	680	0.00	0.00	0.00	0.00	99.9%	0.1%	0.0%	0.0%	0.0%
April	99.6	681	0.00	0.07	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
May	95.7	675	0.00	1.21	0.36	0.04	94.2%	0.7%	4.3%	0.7%	0.0%
June	100.0	683	0.00	0.07	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9	705	0.00	0.54	0.05	0.00	99.7%	0.0%	0.3%	0.0%	0.0%
August	100.0	706	0.00	0.50	0.18	0.01	98.6%	0.3%	1.1%	0.0%	0.0%
September	100.0	684	0.00	0.59	0.19	0.01	98.7%	0.3%	1.0%	0.0%	0.0%
October	93.5	660	0.00	0.40	0.02	0.00	99.8%	0.0%	0.2%	0.0%	0.0%
November	100.0	683	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.9	706	0.00	0.00	0.00	0.00	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.1	8153	0.00	1.21	0.36	0.00	99.2%	0.1%	0.6%	0.1%	0.0%

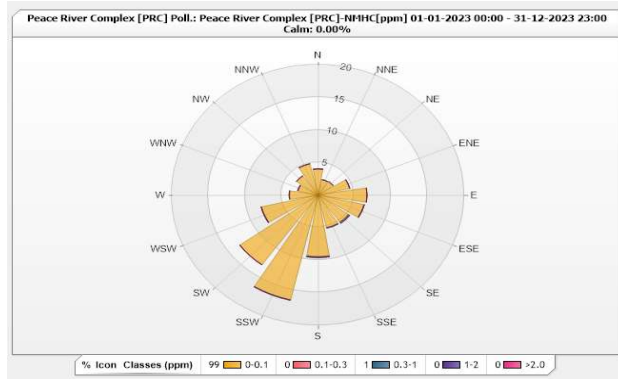
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
30	75	1	57	0	7	66	371	0	
Total Hours of Downtime		170	Total Hours of Calibration		437	Total Hours of Flagged			607

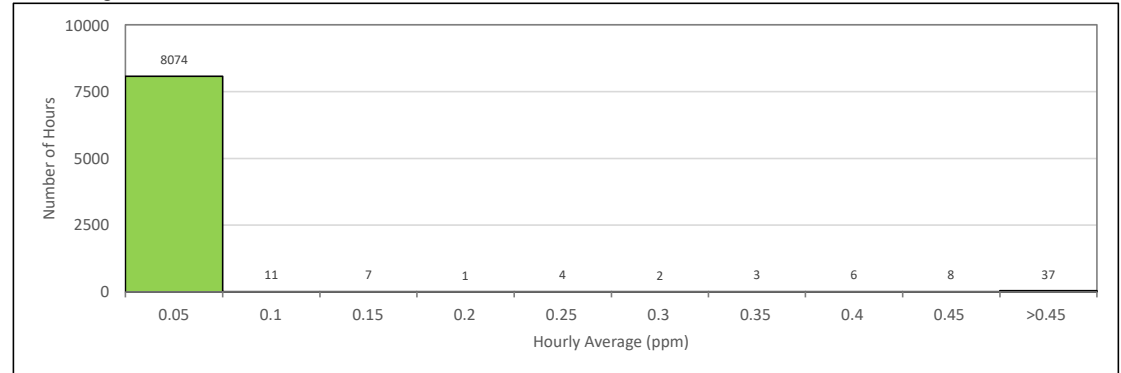
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



Peace River Complex (PRC) Station
RELATIVE HUMIDITY (RH) in percent (%)

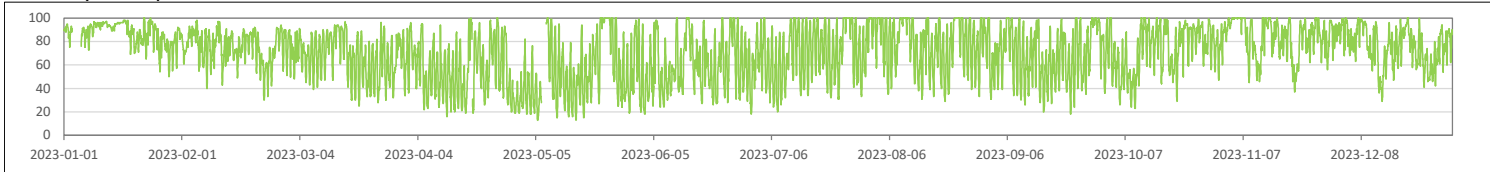
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	92.2	686	86.8	50	100	97
February	100.0	672	74.6	30	98	90
March	100.0	744	67.1	25	97	89
April	99.7	718	55.2	16	100	79
May	96.0	714	55.5	13	100	100
June	100.0	720	59.8	18	100	91
July	100.0	744	70.6	20	100	98
August	100.0	744	78.5	29	100	100
September	100.0	720	67.5	18	100	97
October	100.0	744	73.1	23	100	91
November	100.0	720	83.6	37	100	100
December	100.0	744	76.3	29	100	95
Annual	99.0	8670	70.7	13	100	100

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	0	0	57	0	3	0	0	0
Total Hours of Downtime		90	Total Hours of Calibration		0	Total Hours of Flagged		90

2023 Hourly Data Graph



Peace River Complex (PRC) Station
AMBIENT TEMPERATURE (AT) in degree celsius (°C)

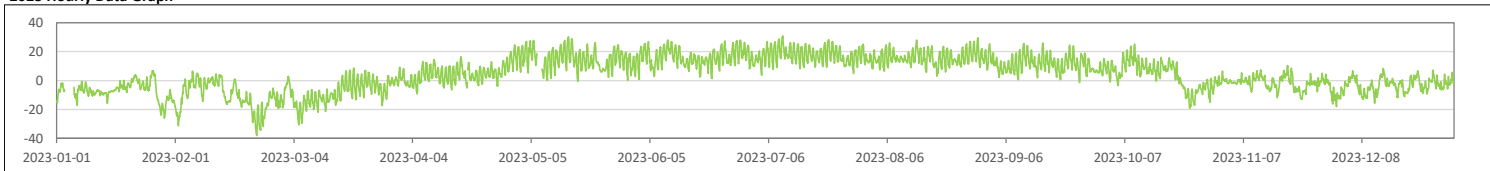
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	92.2	686	-6.9	-25.9	6.8	3.4
February	100.0	672	-10.6	-38.0	6.5	0.8
March	100.0	744	-7.5	-30.6	9.2	2.0
April	99.7	718	4.8	-9.2	24.8	16.7
May	96.0	714	14.8	-0.2	30.3	21.6
June	100.0	720	16.2	0.9	28.1	21.9
July	100.0	744	17.4	3.8	30.7	23.4
August	100.0	744	15.8	3.2	29.6	20.7
September	100.0	720	11.8	-1.3	26.0	17.2
October	100.0	744	4.0	-19.1	25.2	16.7
November	100.0	720	-1.6	-16.3	10.3	5.2
December	100.0	744	-3.3	-18.0	8.4	4.4
Annual	99.0	8670	4.6	-38.0	30.7	23.4

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	0	0	57	0	3	0	0	0
Total Hours of Downtime		90	Total Hours of Calibration		0	Total Hours of Flagged		90

2023 Hourly Data Graph



**Peace River Complex (PRC) Station
BAROMETRIC PRESSURE (BP) in millibar (mbar)**

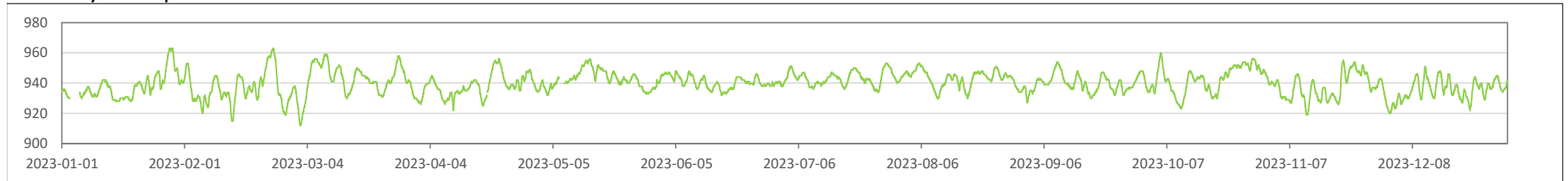
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	92.2	686	937.9	928	963	962
February	100.0	672	936.4	915	963	960
March	100.0	744	941.9	912	959	958
April	99.7	718	938.2	922	956	954
May	96.0	714	942.4	932	956	954
June	100.0	720	940.6	932	948	946
July	100.0	744	943.1	934	953	952
August	100.0	744	942.8	930	953	952
September	100.0	720	939.8	927	954	953
October	100.0	744	942.7	923	960	957
November	100.0	720	937.7	919	955	952
December	100.0	744	935.3	920	951	947
Annual	99.0	8670	939.9	912	963	962

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
30	0	0	57	0	3	0	0	0	
Total Hours of Downtime		90	Total Hours of Calibration		0	Total Hours of Flagged			90

2023 Hourly Data Graph



**Peace River Complex (PRC) Station
VECTOR WIND SPEED (VWS) in kilometer per hour (km/hr)**

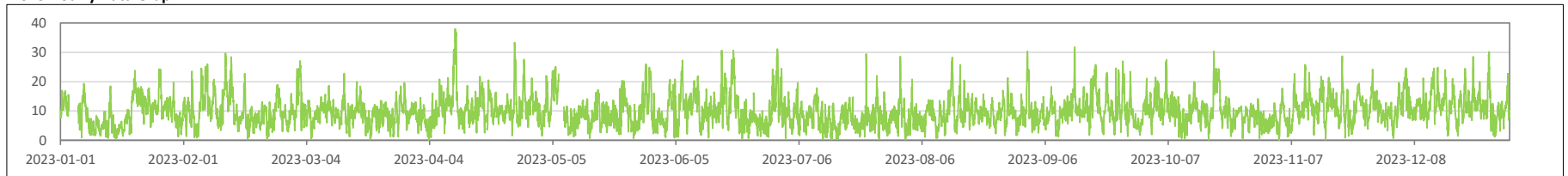
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 6	7 - 15	16 - 29	30 -39	>39
January	92.2	686	0.7	24.3	17.4	4.3	34.0%	55.4%	10.6%	0.0%	0.0%
February	100.0	672	0.3	29.5	19.3	2.9	25.3%	58.6%	15.9%	0.1%	0.0%
March	100.0	744	0.3	27.1	17.9	1.4	20.3%	73.1%	6.6%	0.0%	0.0%
April	99.7	718	0.1	38.0	27.9	3.8	14.9%	70.1%	13.2%	1.8%	0.0%
May	96.0	714	0.6	26.0	19.3	2.6	29.6%	56.7%	13.7%	0.0%	0.0%
June	100.0	720	0.4	31.1	22.9	2.3	25.6%	54.2%	19.7%	0.6%	0.0%
July	100.0	744	0.2	29.4	13.3	2.4	40.5%	55.5%	4.0%	0.0%	0.0%
August	100.0	742	0.3	28.1	18.6	3.8	27.5%	66.2%	6.3%	0.0%	0.0%
September	100.0	720	1.3	31.8	20.1	6.9	20.1%	64.6%	14.9%	0.4%	0.0%
October	100.0	744	0.2	30.2	20.8	5.2	20.0%	68.5%	11.3%	0.1%	0.0%
November	100.0	720	0.0	28.7	16.4	5.8	20.8%	63.2%	16.0%	0.0%	0.0%
December	100.0	744	0.7	30.2	18.3	8.7	9.1%	71.2%	19.4%	0.3%	0.0%
Annual	99.0	8668	0.0	38.0	27.9	3.9	24.0%	63.1%	12.6%	0.3%	0.0%

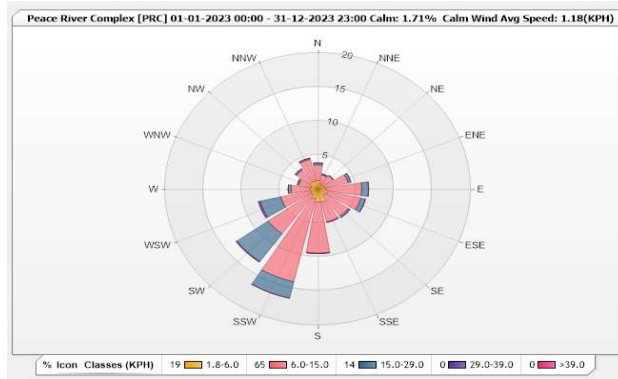
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
30	0	0	57	0	3	2	0	0
Total Hours of Downtime		90	Total Hours of Calibration		2	Total Hours of Flagged		92

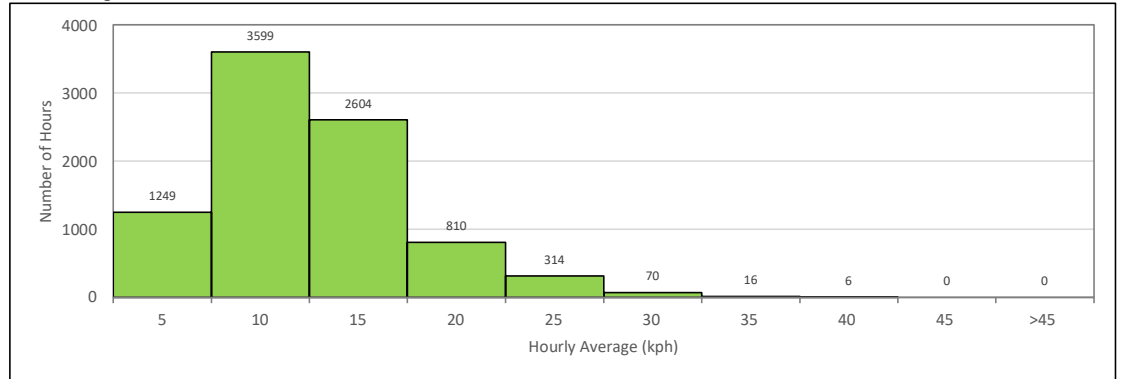
2023 Hourly Data Graph



2023 Wind Rose



2023 Histogram



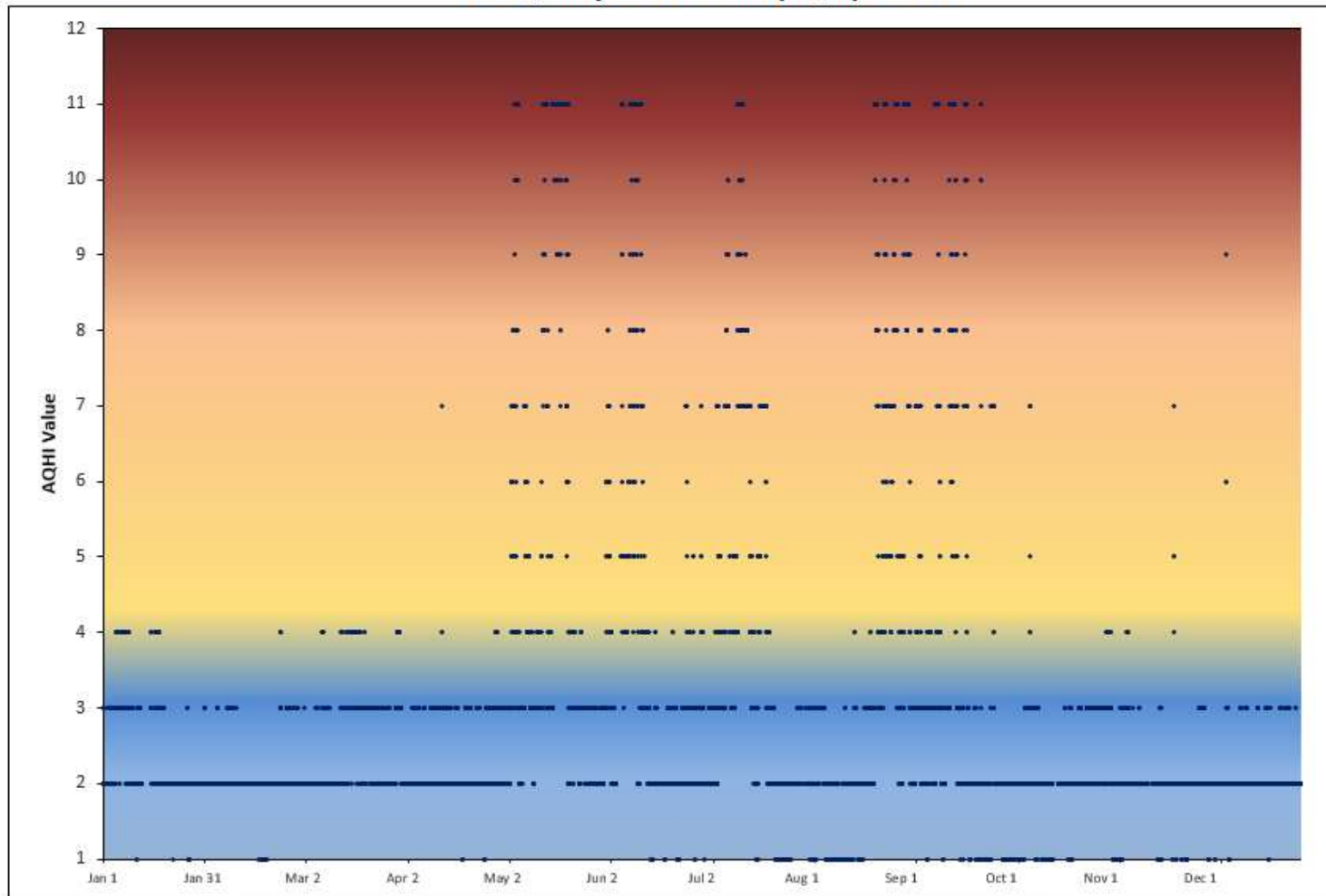
1.5 AQHI - Grimshaw Station

1.5.1 Parameters Monitoring Summary

	SO2	TRS	NOx	NO	NO2	O3	THC55	CH4	NMHC	PM2.5	RH	BP
	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppm	ppm	ug/m3	%RH	mb
Minimum	0	0	0	0	0	0.0	1.88	1.88	0.00	0	14	913
Min Date	27-07-2023 04:00	12-01-2023 15:00	25-01-2023 23:00	01-01-2023 19:00	25-01-2023 23:00	09-01-2023 22:00	13-08-2023 15:00	13-08-2023 15:00	01-01-2023 13:00	21-01-2023 12:00	05-05-2023 11:00	02-03-2023 04:00
Maximum	8	37.15	112	66.00	49	77.8	3.77	3.39	0.93	1335	100	966
Max Date	19-01-2023 19:00	07-05-2023 04:00	16-03-2023 07:00	16-03-2023 07:00	17-03-2023 06:00	21-05-2023 17:00	20-05-2023 16:00	06-08-2023 05:00	20-05-2023 16:00	20-05-2023 16:00	07-05-2023 16:00	28-01-2023 05:00
Average	0	0.24	6	1	5	25.1	2.08	2.06	0.02	27	67	940
# of Reading	8156	7994	7970	7970	7970	7352	8072	8072	8072	8629	8733	8733
Valid Data [%]	93.11	91.26	90.98	90.98	90.98	83.93	92.15	92.15	92.15	98.5	99.69	99.69
Operational Uptime [%]	98.1	96.2	96.4	96.4	96.4	88.3	96.9	96.9	96.9	98.8	99.7	99.7
	AT	WDS	WDV									
	C°	KPH	Deg									
Minimum	-29.5	0.0	0									
Min Date	24-02-2023 07:00	18-04-2023 03:00	09-01-2023 16:00									
Maximum	30.9	36.2	360									
Max Date	09-06-2023 15:00	25-01-2023 22:00	05-01-2023 09:00									
Average	5.1	7.9	282									
# of Reading	8733	8697	8697									
Valid Data [%]	99.69	99.28	99.28									
Operational Uptime [%]	99.7	99.3	99.3									

1.5.2 AQHI

PRAMP - AQHI-Grimshaw Station
2023 Air Quality Health Index (AQHI) Values



1.5.3 Monitoring Parameters – 2023 Continuous Data Summary and Frequency Distribution

AQHI - GRIMSHAW STATION
SULPHUR DIOXIDE (SO₂) in parts per billion (ppb)

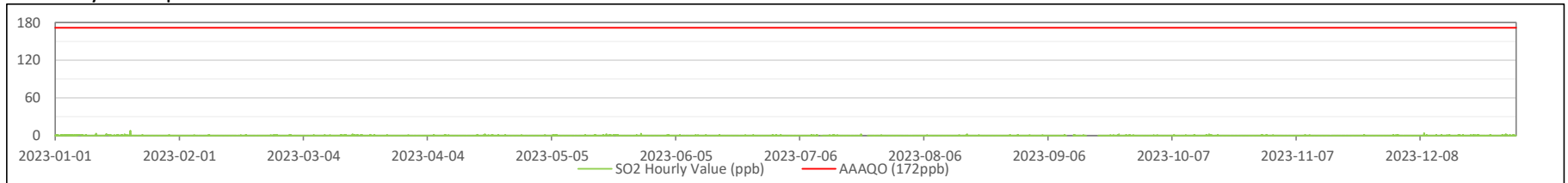
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances				Percentage Readings in Concentration Range				
							1-hour	24-hour	30-day	Annual	0 - 10	11 - 50	51 - 100	101 - 172	>172
January	100.0	708	0	8	1	0.2	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0	638	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	708	0	2	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0	685	0	2	0	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
May	99.6	703	0	3	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0	683	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
July	93.4	657	0	2	1	0.2	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.6	703	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
September	84.7	579	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0	706	0	2	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0	682	0	1	0	0.0	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.6	704	0	4	1	0.1	0	0	0	-	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	98.1	8156	0	8	1	0.1	0	0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%

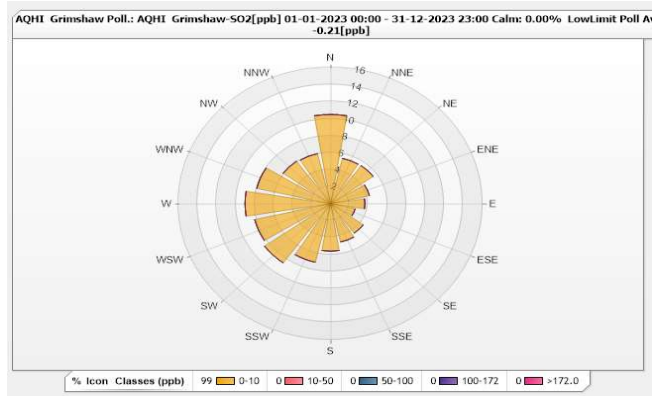
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	142	0	21	0	3	65	371	0
Total Hours of Downtime		168	Total Hours of Calibration		436	Total Hours of Flagged		604

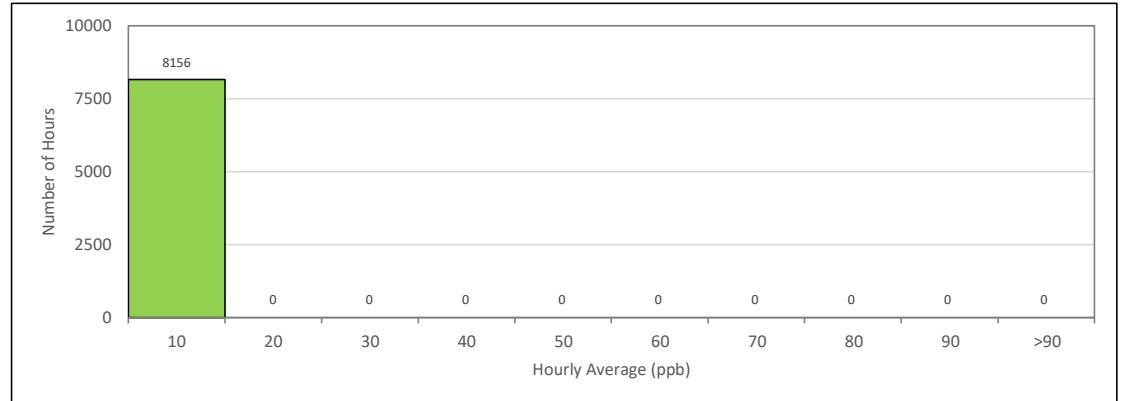
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
TOTAL REDUCED SULPHUR (TRS) in parts per billion (ppb)

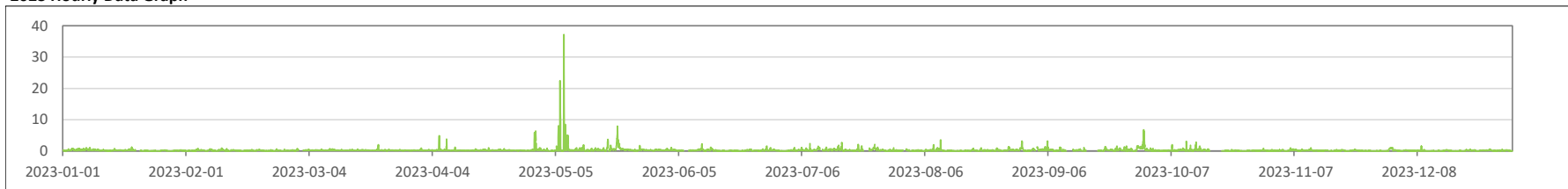
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 50	>50
January	97.4	686	0.00	1.17	0.47	0.19	100.0%	0.0%	0.0%	0.0%	0.0%
February	99.6	635	0.00	0.89	0.34	0.14	100.0%	0.0%	0.0%	0.0%	0.0%
March	97.2	687	0.10	1.95	0.37	0.22	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0	685	0.09	6.21	1.05	0.25	99.0%	0.6%	0.4%	0.0%	0.0%
May	99.5	701	0.00	37.15	3.32	0.60	95.9%	2.9%	0.9%	0.4%	0.0%
June	96.4	659	0.00	2.24	0.55	0.19	100.0%	0.0%	0.0%	0.0%	0.0%
July	92.2	650	0.00	2.74	0.82	0.29	99.8%	0.2%	0.0%	0.0%	0.0%
August	98.4	694	0.00	3.51	1.02	0.20	99.3%	0.7%	0.0%	0.0%	0.0%
September	83.2	568	0.00	6.72	1.79	0.41	98.6%	1.1%	0.4%	0.0%	0.0%
October	90.9	643	0.00	3.05	0.48	0.16	99.7%	0.3%	0.0%	0.0%	0.0%
November	100.0	682	0.00	0.98	0.38	0.12	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.6	704	0.00	1.52	0.79	0.13	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	96.2	7994	0.00	37.15	3.32	0.24	99.4%	0.5%	0.1%	0.0%	0.0%

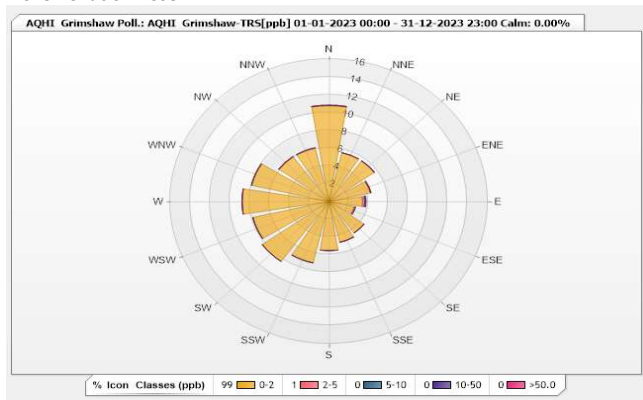
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	180	0	23	10	120	65	366	0
Total Hours of Downtime		335	Total Hours of Calibration		431	Total Hours of Flagged		766

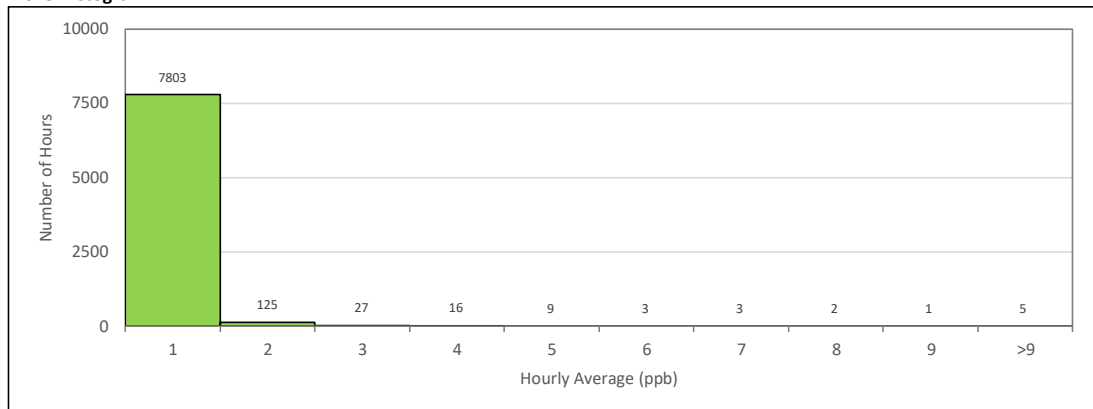
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
OXIDES OF NITROGEN (NOx) in parts per billion (ppb)

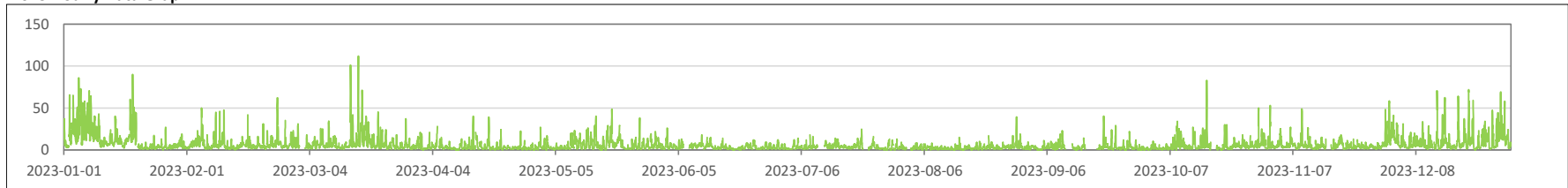
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 30	31 - 50	51 - 82	83 - 159	>159
January	100.0	705	0	90	34	12.6	89.9%	7.0%	2.7%	0.4%	0.0%
February	100.0	633	0	62	16	6.8	97.8%	1.9%	0.3%	0.0%	0.0%
March	97.6	685	1	112	22	8.1	95.9%	3.1%	0.7%	0.3%	0.0%
April	100.0	682	0	40	7	3.4	99.7%	0.3%	0.0%	0.0%	0.0%
May	98.9	696	0	48	14	6.0	99.3%	0.7%	0.0%	0.0%	0.0%
June	96.5	653	0	26	7	3.6	100.0%	0.0%	0.0%	0.0%	0.0%
July	89.9	634	0	24	6	3.5	100.0%	0.0%	0.0%	0.0%	0.0%
August	96.8	678	0	39	7	2.7	99.9%	0.1%	0.0%	0.0%	0.0%
September	84.7	577	0	40	8	3.2	99.8%	0.2%	0.0%	0.0%	0.0%
October	95.6	668	0	83	15	5.3	99.1%	0.6%	0.1%	0.1%	0.0%
November	96.9	658	1	53	14	5.5	98.8%	1.1%	0.2%	0.0%	0.0%
December	99.3	701	0	72	27	11.3	93.6%	4.3%	2.1%	0.0%	0.0%
Annual	96.4	7970	0	112	34	6.0	97.8%	1.6%	0.5%	0.1%	0.0%

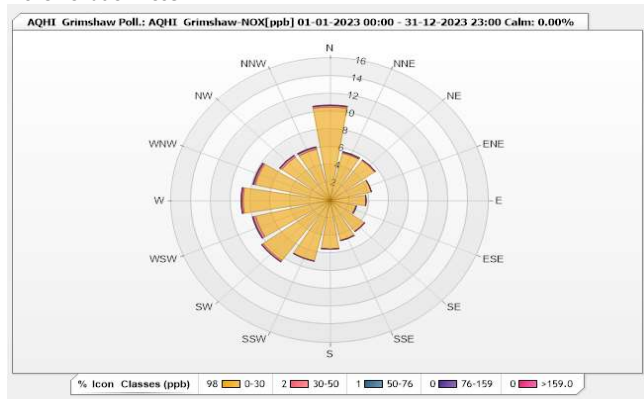
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	173	5	9	0	131	108	362	0
Total Hours of Downtime		320	Total Hours of Calibration		470	Total Hours of Flagged		790

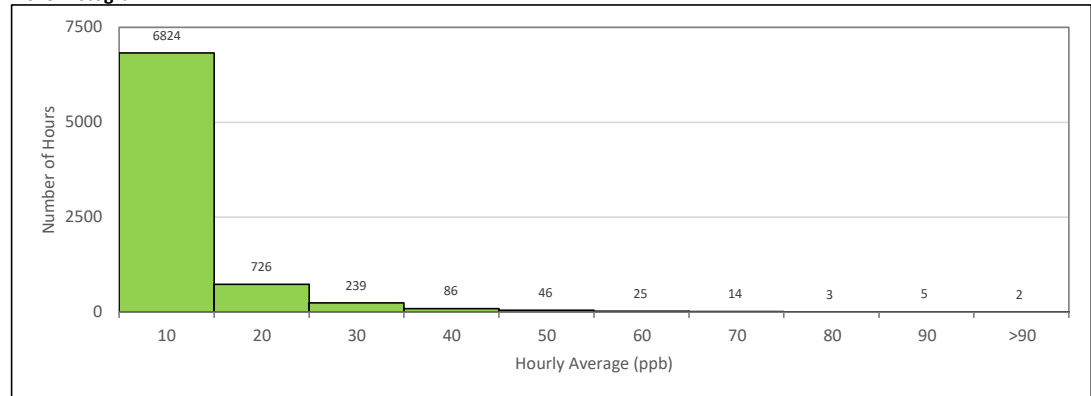
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
NITRIC OXIDE (NO) in parts per billion (ppb)

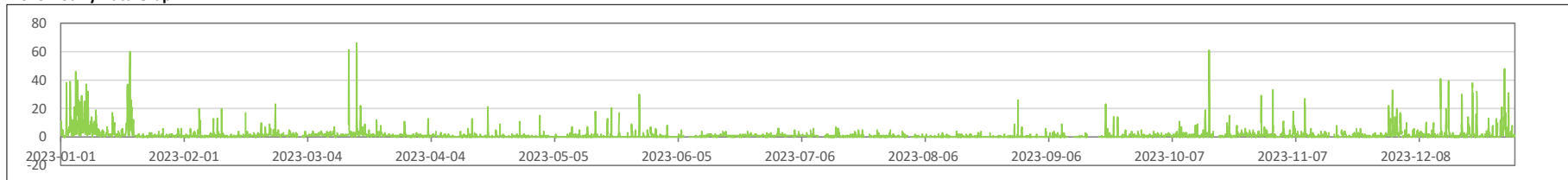
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 30	31 - 50	51 - 82	83 - 159	>159
January	100.0	705	0	60	13	3.8	98.6%	1.3%	0.1%	0.0%	0.0%
February	100.0	633	0	23	4	1.5	100.0%	0.0%	0.0%	0.0%	0.0%
March	97.6	685	0	66	7	1.9	99.6%	0.1%	0.3%	0.0%	0.0%
April	100.0	682	0	21	2	0.6	100.0%	0.0%	0.0%	0.0%	0.0%
May	98.9	696	0	30	2	0.7	100.0%	0.0%	0.0%	0.0%	0.0%
June	96.5	653	0	8	2	0.8	100.0%	0.0%	0.0%	0.0%	0.0%
July	89.9	634	0	7	2	0.8	100.0%	0.0%	0.0%	0.0%	0.0%
August	96.8	678	0	26	2	0.3	100.0%	0.0%	0.0%	0.0%	0.0%
September	84.7	577	0	23	3	0.5	100.0%	0.0%	0.0%	0.0%	0.0%
October	95.6	668	0	61	8	1.6	99.7%	0.0%	0.3%	0.0%	0.0%
November	96.9	658	0	33	5	1.2	99.8%	0.2%	0.0%	0.0%	0.0%
December	99.3	701	0	48	11	2.9	98.1%	1.9%	0.0%	0.0%	0.0%
Annual	96.4	7970	0	66	13	1.4	99.7%	0.3%	0.1%	0.0%	0.0%

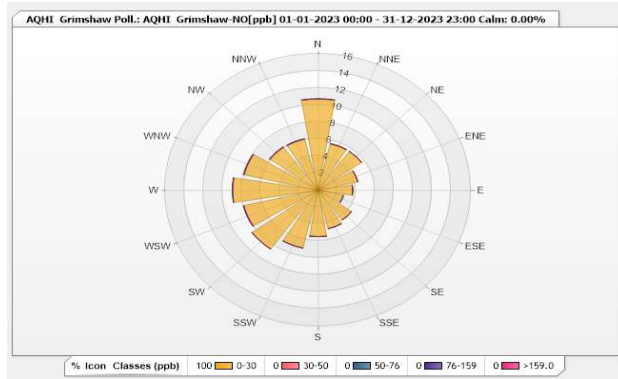
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q			
2	173	5	9	0	131	108	362	0			
Total Hours of Downtime		320		Total Hours of Calibration		470		Total Hours of Flagged		790	

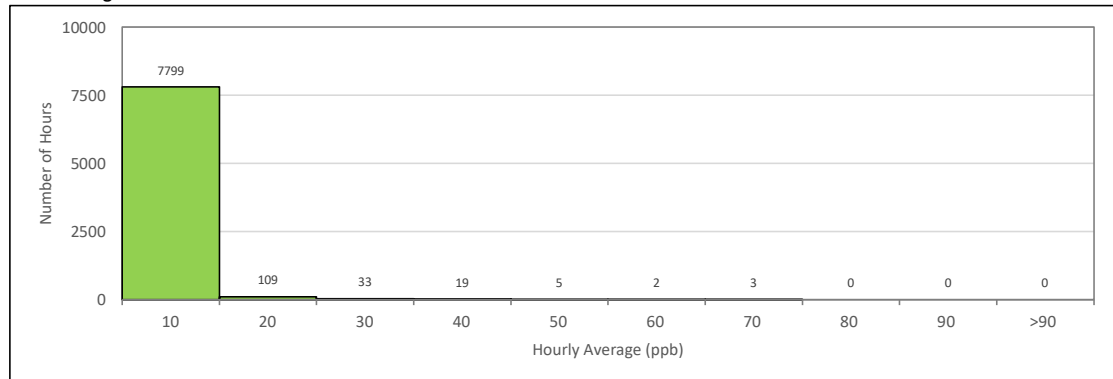
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
NITROGEN DIOXIDE (NO₂) in parts per billion (ppb)

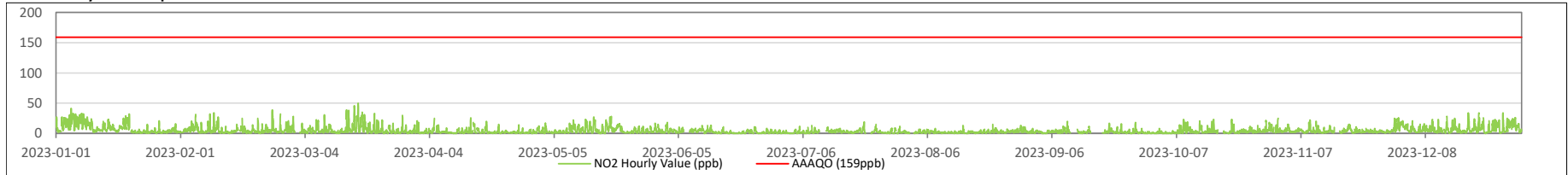
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances	Percentage Readings in Concentration Range				
							1-hour	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	100.0	705	0	41	21	8.8	0	97.4%	2.6%	0.0%	0.0%	0.0%
February	100.0	633	0	39	11	5.3	0	98.6%	1.4%	0.0%	0.0%	0.0%
March	97.6	685	0	49	17	6.2	0	97.7%	2.3%	0.0%	0.0%	0.0%
April	100.0	682	0	26	6	2.9	0	100.0%	0.0%	0.0%	0.0%	0.0%
May	98.9	696	0	28	12	5.3	0	100.0%	0.0%	0.0%	0.0%	0.0%
June	96.5	653	0	18	7	2.8	0	100.0%	0.0%	0.0%	0.0%	0.0%
July	89.9	634	0	19	6	2.7	0	100.0%	0.0%	0.0%	0.0%	0.0%
August	96.8	678	0	15	5	2.4	0	100.0%	0.0%	0.0%	0.0%	0.0%
September	84.7	577	0	20	6	2.6	0	100.0%	0.0%	0.0%	0.0%	0.0%
October	95.6	668	0	23	8	3.7	0	100.0%	0.0%	0.0%	0.0%	0.0%
November	96.9	658	1	25	10	4.3	0	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.3	701	0	34	16	8.3	0	99.3%	0.7%	0.0%	0.0%	0.0%
Annual	96.4	7970	0	49	21	4.6	0	99.4%	0.6%	0.0%	0.0%	0.0%

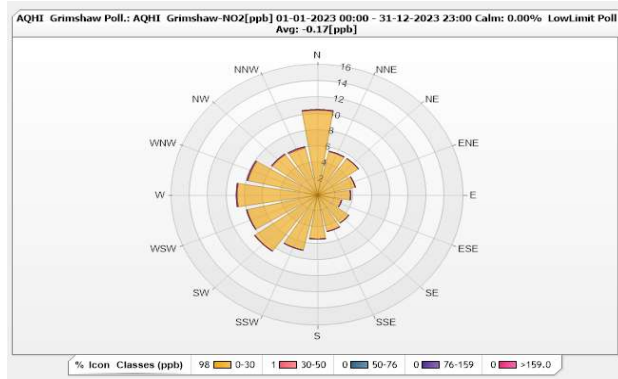
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
2	173	5	9	0	131	108	362	0	
Total Hours of Downtime		320		Total Hours of Calibration		470		Total Hours of Flagged	790

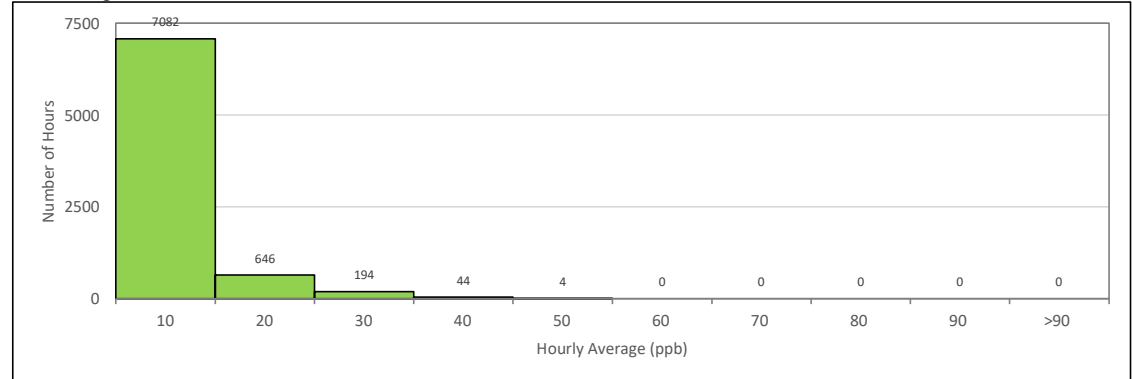
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
OZONE (O₃) in parts per billion (ppb)

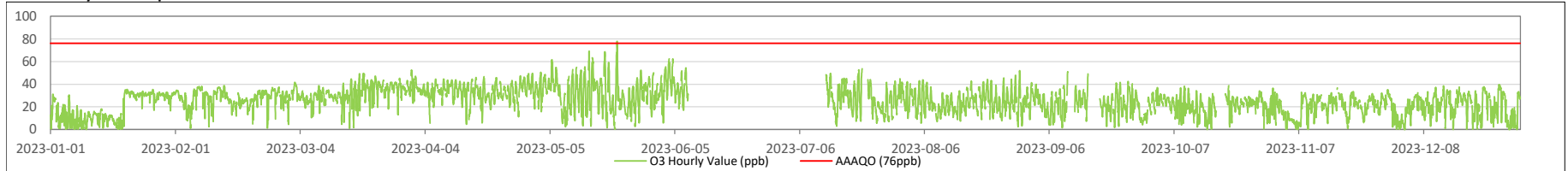
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances		Percentage Readings in Concentration Range				
							1-hour	24-hour	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	100.0	709	0	35	33	18.4	0	0	75.6%	24.4%	0.0%	0.0%	0.0%
February	99.7	638	1	39	34	27.5	0	0	60.0%	40.0%	0.0%	0.0%	0.0%
March	100.0	708	1	53	39	32.1	0	0	39.8%	59.6%	0.6%	0.0%	0.0%
April	100.0	685	5	50	40	33.8	0	0	30.4%	69.6%	0.0%	0.0%	0.0%
May	99.5	702	0	78	46	31.5	2	0	45.7%	44.9%	9.1%	0.3%	0.0%
June	24.7	170	6	62	45	NA	0	0	28.2%	56.5%	15.3%	0.0%	0.0%
July	58.5	413	3	61	36	NA	0	0	59.8%	38.5%	1.7%	0.0%	0.0%
August	99.9	704	2	52	32	24.1	0	0	75.6%	24.0%	0.4%	0.0%	0.0%
September	84.7	578	1	51	29	22.0	0	0	78.7%	20.9%	0.3%	0.0%	0.0%
October	93.8	662	0	39	29	21.7	0	0	90.9%	9.1%	0.0%	0.0%	0.0%
November	99.9	682	0	37	30	20.0	0	0	91.3%	8.7%	0.0%	0.0%	0.0%
December	99.3	702	0	39	29	19.8	0	0	81.6%	18.4%	0.0%	0.0%	0.0%
Annual	88.3	7353	0	78	46	25.1	2	0	63.1%	34.5%	2.3%	0.0%	0.0%

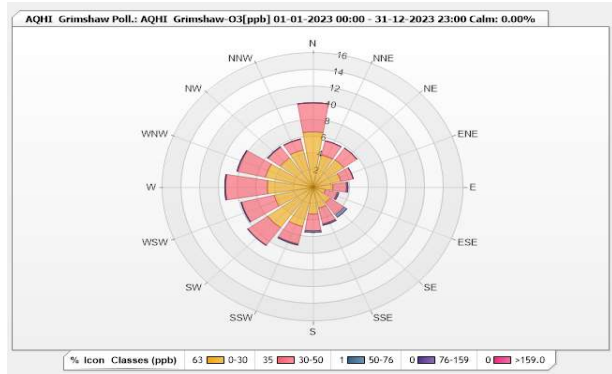
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
2	952	2	9	0	55	55	332	0	
Total Hours of Downtime		1020		Total Hours of Calibration		387		Total Hours of Flagged	1407

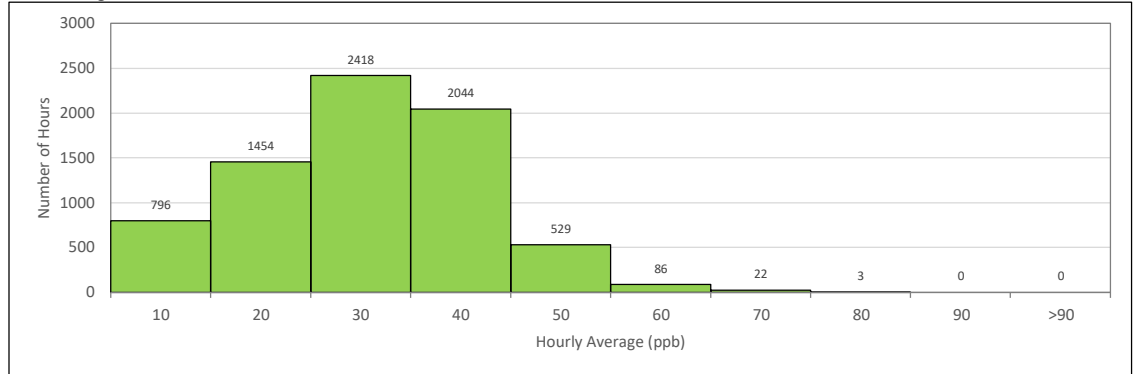
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
TOTAL HYDROCARBONS (THC) in parts per million (ppm)

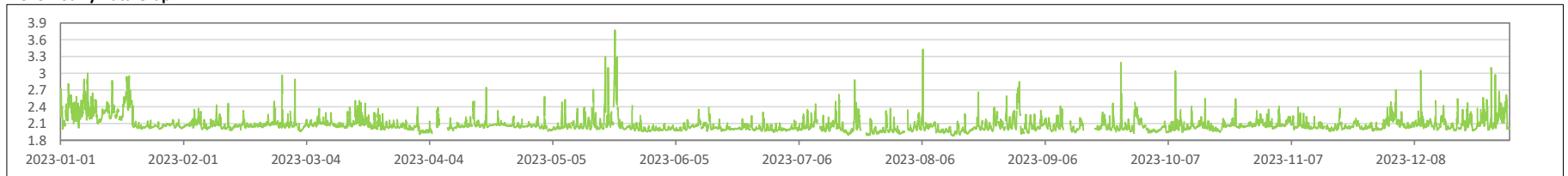
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 40	>40
January	100.0	709	2.00	3.00	2.59	2.22	82.8%	17.2%	0.0%	0.0%	0.0%
February	100.0	638	1.98	2.96	2.15	2.08	98.9%	1.1%	0.0%	0.0%	0.0%
March	99.9	707	1.96	2.89	2.21	2.09	98.9%	1.1%	0.0%	0.0%	0.0%
April	89.3	612	1.90	2.74	2.15	2.06	99.2%	0.8%	0.0%	0.0%	0.0%
May	99.5	703	1.95	3.77	2.69	2.09	94.7%	5.3%	0.0%	0.0%	0.0%
June	100.0	684	1.94	2.39	2.12	2.02	100.0%	0.0%	0.0%	0.0%	0.0%
July	93.4	660	1.89	2.88	2.19	2.03	98.8%	1.2%	0.0%	0.0%	0.0%
August	97.8	692	1.88	3.43	2.47	2.05	97.0%	3.0%	0.0%	0.0%	0.0%
September	84.7	580	1.93	3.19	2.18	2.07	98.6%	1.4%	0.0%	0.0%	0.0%
October	100.0	707	1.93	3.04	2.14	2.05	99.3%	0.7%	0.0%	0.0%	0.0%
November	99.4	679	1.96	2.41	2.15	2.05	99.9%	0.1%	0.0%	0.0%	0.0%
December	99.3	701	1.97	3.10	2.34	2.13	94.3%	5.7%	0.0%	0.0%	0.0%
Annual	96.9	8072	1.88	3.77	2.69	2.08	96.9%	3.1%	0.0%	0.0%	0.0%

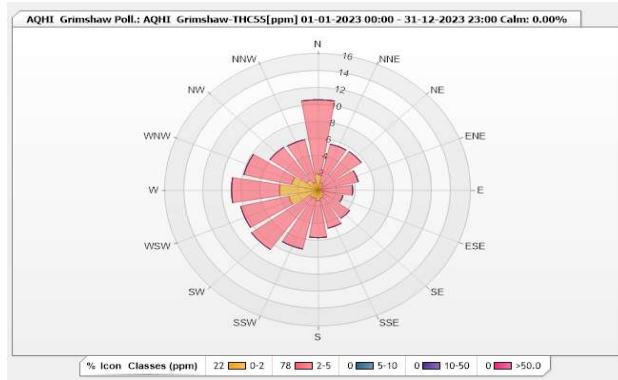
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	193	1	23	0	46	54	369	0
Total Hours of Downtime		265	Total Hours of Calibration		423	Total Hours of Flagged		688

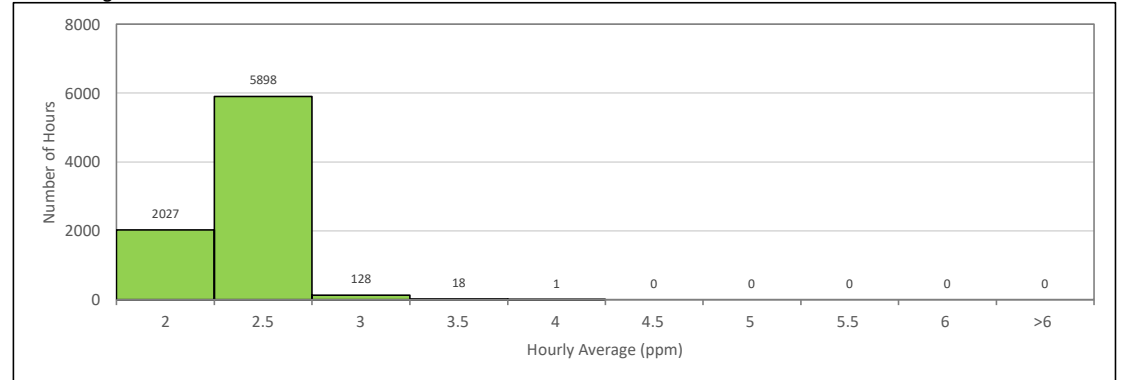
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
METHANE (CH₄) in parts per million (ppm)

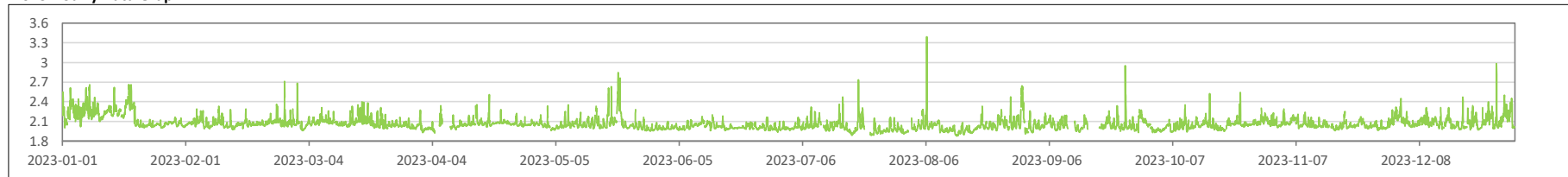
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 2	3 - 5	6 - 10	11 - 20	>20
January	100.0	709	2.00	2.66	2.43	2.18	93.9%	6.1%	0.0%	0.0%	0.0%
February	100.0	638	1.98	2.71	2.13	2.07	99.7%	0.3%	0.0%	0.0%	0.0%
March	99.9	707	1.96	2.68	2.17	2.08	99.7%	0.3%	0.0%	0.0%	0.0%
April	89.3	612	1.92	2.51	2.12	2.06	99.8%	0.2%	0.0%	0.0%	0.0%
May	99.5	703	1.95	2.84	2.36	2.06	97.7%	2.3%	0.0%	0.0%	0.0%
June	100.0	684	1.94	2.20	2.08	2.02	100.0%	0.0%	0.0%	0.0%	0.0%
July	93.4	660	1.89	2.72	2.15	2.01	99.5%	0.5%	0.0%	0.0%	0.0%
August	97.8	692	1.88	3.39	2.33	2.03	98.0%	2.0%	0.0%	0.0%	0.0%
September	84.7	580	1.93	2.95	2.13	2.05	99.5%	0.5%	0.0%	0.0%	0.0%
October	100.0	707	1.93	2.54	2.14	2.04	99.7%	0.3%	0.0%	0.0%	0.0%
November	99.4	679	1.96	2.29	2.14	2.05	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.3	701	1.97	2.98	2.27	2.10	98.9%	1.1%	0.0%	0.0%	0.0%
Annual	96.9	8072	1.88	3.39	2.43	2.06	98.9%	1.1%	0.0%	0.0%	0.0%

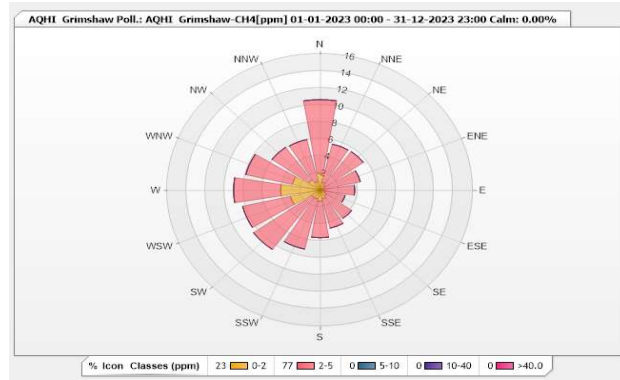
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q			
2	193	1	23	0	47	54	368	0			
Total Hours of Downtime		266		Total Hours of Calibration		422		Total Hours of Flagged		688	

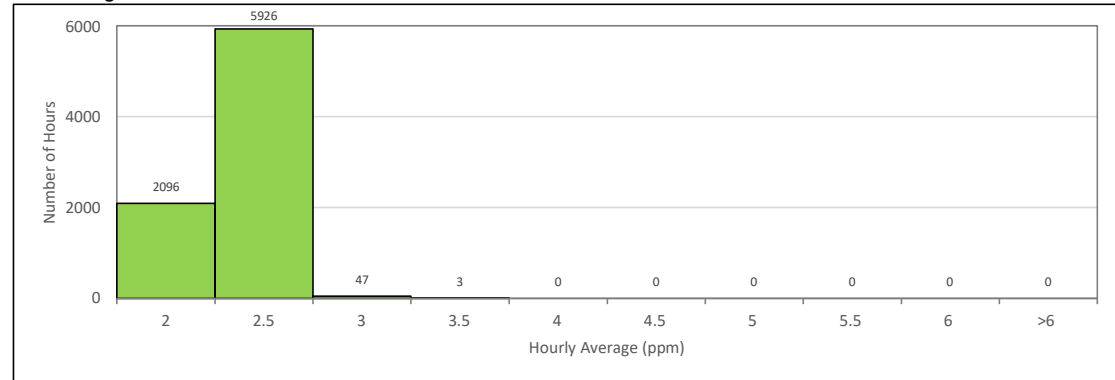
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
NON-METHANE HYDROCARBONS (NMHC) in parts per million (ppm)

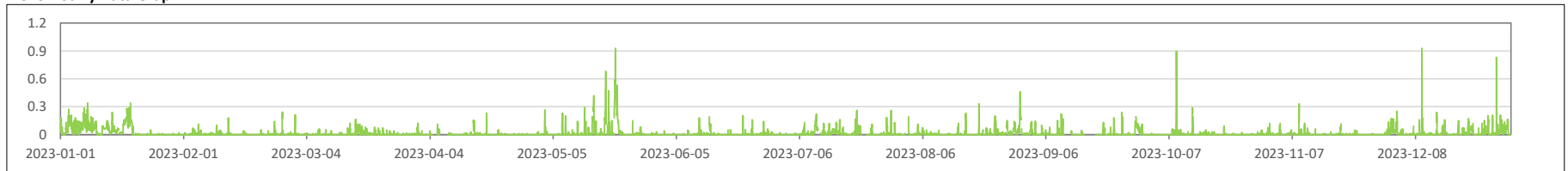
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 - 2	>2
January	100.0	709	0.00	0.34	0.16	0.05	91.4%	8.6%	0.0%	0.0%	0.0%
February	100.0	638	0.00	0.24	0.02	0.01	99.5%	0.5%	0.0%	0.0%	0.0%
March	99.9	707	0.00	0.21	0.04	0.01	99.6%	0.4%	0.0%	0.0%	0.0%
April	89.3	612	0.00	0.23	0.03	0.00	99.5%	0.5%	0.0%	0.0%	0.0%
May	99.5	703	0.00	0.93	0.33	0.03	92.6%	4.8%	2.6%	0.0%	0.0%
June	100.0	684	0.00	0.20	0.04	0.01	99.3%	0.7%	0.0%	0.0%	0.0%
July	93.4	660	0.00	0.26	0.04	0.02	98.0%	2.0%	0.0%	0.0%	0.0%
August	97.8	692	0.00	0.46	0.14	0.02	97.0%	2.6%	0.4%	0.0%	0.0%
September	84.7	580	0.00	0.24	0.07	0.02	97.8%	2.2%	0.0%	0.0%	0.0%
October	100.0	707	0.00	0.89	0.09	0.01	99.3%	0.4%	0.3%	0.0%	0.0%
November	99.4	679	0.00	0.33	0.02	0.00	99.9%	0.1%	0.0%	0.0%	0.0%
December	99.3	701	0.00	0.93	0.08	0.03	96.1%	3.4%	0.4%	0.0%	0.0%
Annual	96.9	8072	0.00	0.93	0.33	0.02	97.5%	2.2%	0.3%	0.0%	0.0%

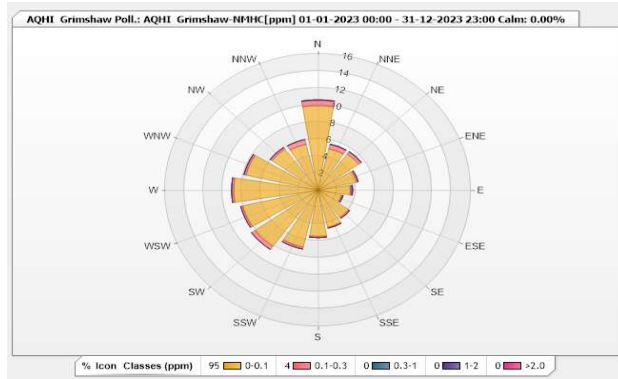
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	193	1	23	0	47	54	368	0
Total Hours of Downtime		266	Total Hours of Calibration		422	Total Hours of Flagged		688

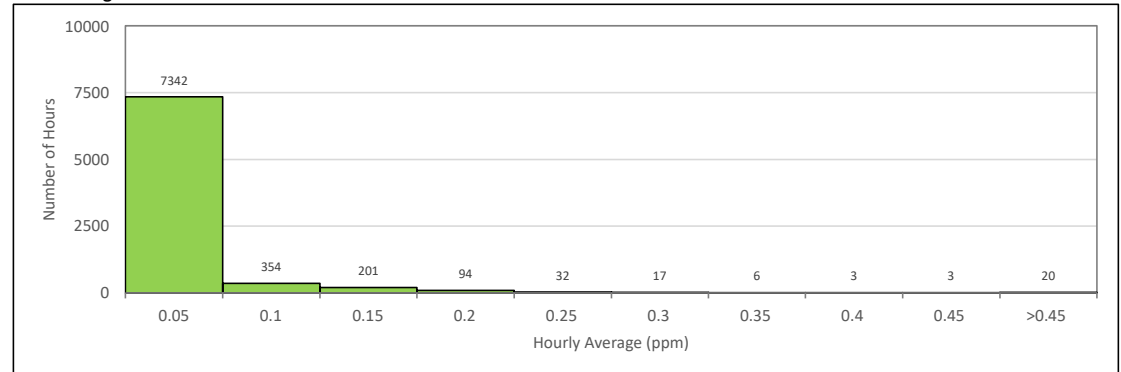
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
PARTICULATE MATTER 2.5 (PM_{2.5}) in microgram per cubic meter (µg/m³)

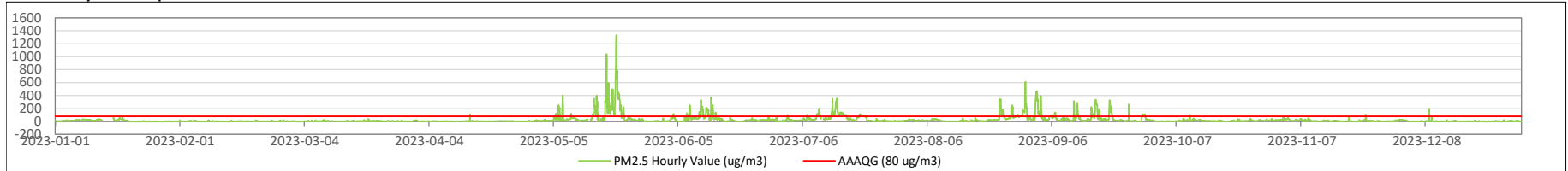
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	# of AAAQO Exceedances		Percentage Readings in Concentration Range				
							1-hour	24-hour	0 - 50	51 - 80	81 - 120	121 - 240	>240
January	91.0	675	0	58	39	10.9	0	1	98.8%	1.2%	0.0%	0.0%	0.0%
February	100.0	671	0	22	9	3.9	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0	741	1	41	14	6.0	0	0	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0	718	1	111	12	5.0	1	0	99.9%	0.0%	0.1%	0.0%	0.0%
May	97.4	724	4	1335	538	81.8	164	14	69.2%	8.1%	4.6%	7.7%	10.4%
June	100.0	718	1	375	153	39.5	87	11	77.7%	10.2%	4.2%	6.3%	1.7%
July	97.6	725	2	357	209	45.7	163	13	68.7%	8.8%	15.0%	5.8%	1.7%
August	99.9	742	2	611	239	40.2	92	10	79.6%	8.0%	4.4%	5.4%	2.6%
September	100.0	718	2	469	295	59.9	168	18	68.2%	8.4%	9.2%	8.2%	6.0%
October	100.0	743	1	100	32	11.0	3	1	99.3%	0.3%	0.4%	0.0%	0.0%
November	100.0	717	1	108	37	11.8	1	2	98.5%	1.4%	0.1%	0.0%	0.0%
December	99.2	737	0	200	19	5.5	1	0	99.6%	0.3%	0.0%	0.1%	0.0%
Annual	98.8	8629	0	1335	538	26.8	680	70	88.3%	3.9%	3.2%	2.8%	1.9%

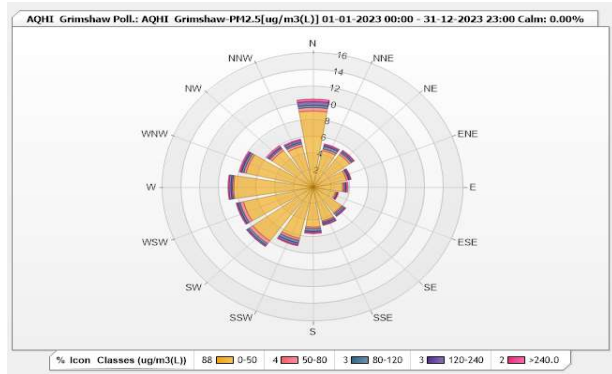
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
2	69	0	23	16	0	20	0	0	
Total Hours of Downtime		110		Total Hours of Calibration		20		Total Hours of Flagged	130

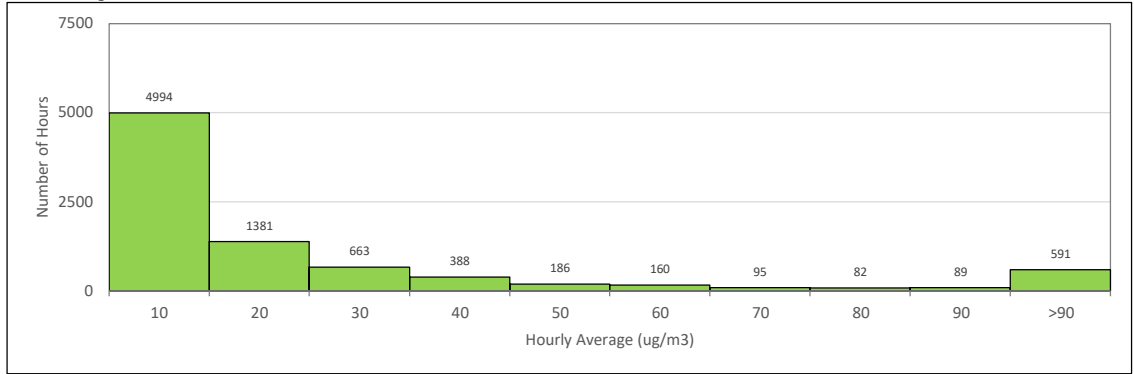
2023 Hourly Data Graph



2023 Pollution Rose



2023 Histogram



AQHI - GRIMSHAW STATION
RELATIVE HUMIDITY (RH) in percent (%)

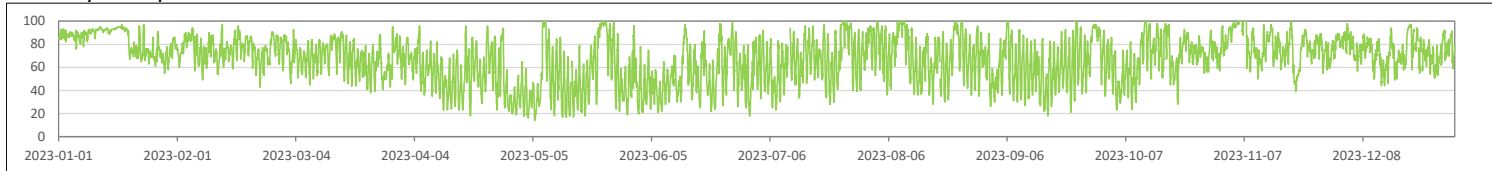
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	83.5	55	97	95
February	100.0	672	75.2	43	97	87
March	100.0	744	68.2	38	95	84
April	100.0	720	54.6	18	96	75
May	99.6	741	52.6	14	100	99
June	100.0	720	52.7	18	99	82
July	97.8	728	66.1	23	100	94
August	99.9	743	71.1	28	100	97
September	100.0	720	61.7	18	100	93
October	100.0	744	68.1	23	100	89
November	100.0	720	78.5	39	100	99
December	99.1	737	74.2	44	98	87
Annual	99.7	8733	67.2	14	100	99

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	0	0	25	0	0	0	0	0
Total Hours of Downtime		27	Total Hours of Calibration		0	Total Hours of Flagged		27

2023 Hourly Data Graph



AQHI - GRIMSHAW STATION
AMBIENT TEMPERATURE (AT) in degree celsius (°C)

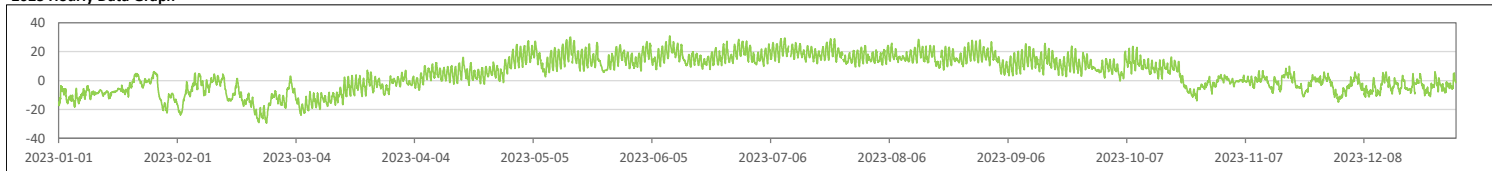
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	-7.6	-22.4	6.2	3.9
February	100.0	672	-10.3	-29.5	5.3	1.3
March	100.0	744	-7.7	-23.9	7.0	0.4
April	100.0	720	5.2	-6.7	25.0	17.0
May	99.6	741	15.6	2.6	30.1	22.4
June	100.0	720	17.4	6.6	30.9	22.9
July	97.8	728	18.4	9.4	29.5	23.6
August	99.9	743	17.1	7.5	28.5	21.4
September	100.0	720	12.5	2.8	26.8	18.7
October	100.0	744	5.0	-14.0	23.6	14.6
November	100.0	720	-0.9	-11.6	9.9	4.8
December	99.1	737	-4.0	-14.9	6.1	2.4
Annual	99.7	8733	5.1	-29.5	30.9	23.6

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	0	0	25	0	0	0	0	0
Total Hours of Downtime		27	Total Hours of Calibration		0	Total Hours of Flagged		27

2023 Hourly Data Graph



AQHI - GRIMSHAW STATION
BAROMETRIC PRESSURE (BP) in millibar (mbar)

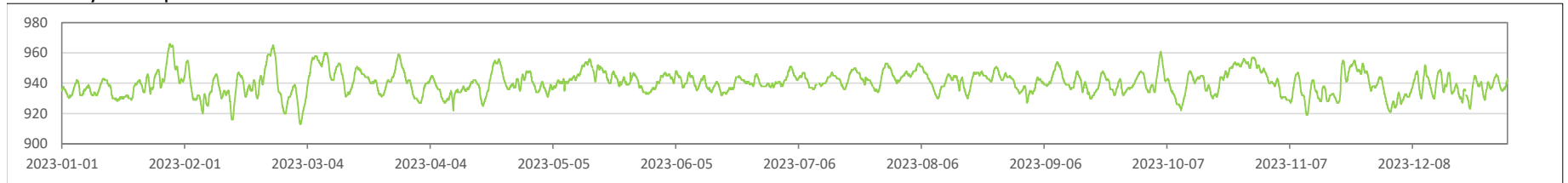
2023 Annual Continuous Data Summary

Month	Operational	# of Reading	Monthly Avg.	Min. 1-hr	Max. 1-hr	Max. 24-hr
January	100.0	744	938.8	928	966	965
February	100.0	672	937.4	916	965	962
March	100.0	744	942.7	913	960	959
April	100.0	720	938.4	922	956	954
May	99.6	741	941.9	931	956	954
June	100.0	720	940.4	932	948	946
July	97.8	728	943.0	934	953	952
August	99.9	743	942.6	930	953	952
September	100.0	720	939.7	927	954	953
October	100.0	744	943.1	922	961	957
November	100.0	720	938.3	919	955	953
December	99.1	737	936.1	921	952	947
Annual	99.7	8733	940.2	913	966	965

2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q	
2	0	0	25	0	0	0	0	0	
Total Hours of Downtime		27	Total Hours of Calibration		0	Total Hours of Flagged			27

2023 Hourly Data Graph



AQHI - GRIMSHAW STATION
VECTOR WIND SPEED (VWS) in kilometer per hour (km/hr)

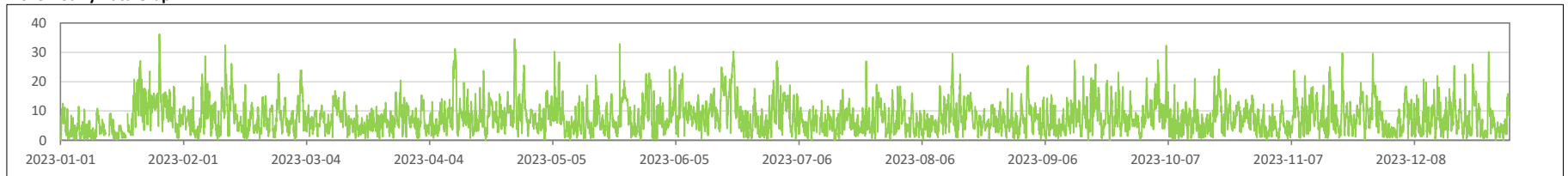
2023 Annual Continuous Data Summary and Annual Frequency Distribution

Month	Operational Uptime (%)	# of Reading	Min. 1-hr	Max. 1-hr	Max. 24-hr	Monthly Avg.	Percentage Readings in Concentration Range				
							0 - 6	7 - 15	16 - 29	30 -39	>39
January	95.4	710	0.1	36.2	16.6	7.4	54.8%	35.6%	8.9%	0.7%	0.0%
February	100.0	672	0.2	32.4	16.9	8.3	43.8%	47.3%	8.6%	0.3%	0.0%
March	100.0	744	0.3	23.9	16.5	7.2	48.9%	47.2%	3.9%	0.0%	0.0%
April	100.0	720	0.0	34.6	21.5	8.7	38.8%	52.8%	7.5%	1.0%	0.0%
May	99.6	741	0.2	32.9	14.8	7.9	47.8%	43.5%	8.5%	0.3%	0.0%
June	100.0	720	0.4	30.3	23.4	9.8	33.5%	48.9%	17.4%	0.3%	0.0%
July	97.8	728	0.1	26.5	13.7	7.2	49.7%	46.7%	3.6%	0.0%	0.0%
August	99.9	741	0.3	29.6	16.5	7.3	51.8%	43.9%	4.2%	0.1%	0.0%
September	100.0	720	0.1	27.3	15.2	8.1	44.4%	46.3%	9.3%	0.0%	0.0%
October	100.0	744	0.2	32.2	16.6	8.2	41.9%	50.0%	7.8%	0.3%	0.0%
November	100.0	720	0.2	29.5	15.8	8.1	44.2%	45.8%	9.7%	0.3%	0.0%
December	99.1	737	0.0	30.2	11.5	7.0	57.0%	35.5%	7.2%	0.3%	0.0%
Annual	99.3	8697	0.0	36.2	23.4	7.9	46.4%	45.3%	8.0%	0.3%	0.0%

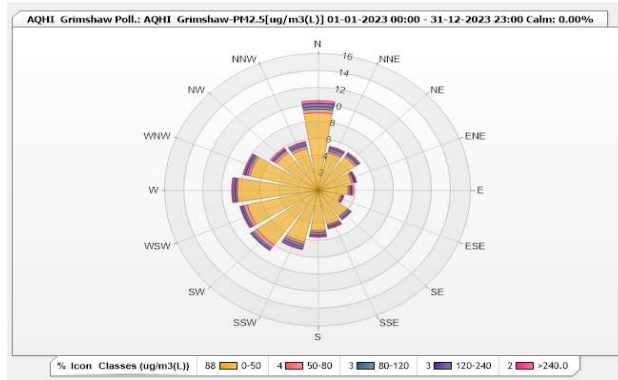
2023 Data Qualifier Flag Summary

P	X	Y	K	ND	NRM	C	S	Q
2	34	0	25	0	0	2	0	0
Total Hours of Downtime		61	Total Hours of Calibration		2	Total Hours of Flagged		63

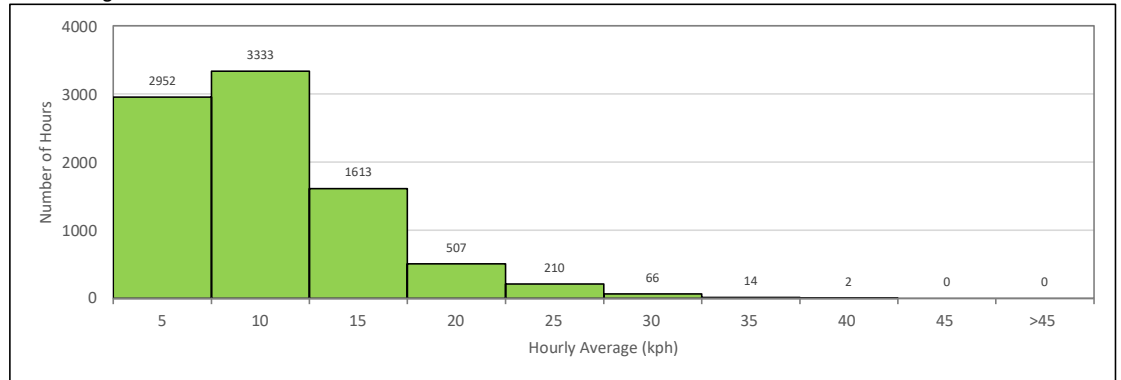
2023 Hourly Data Graph



2023 Wind Rose



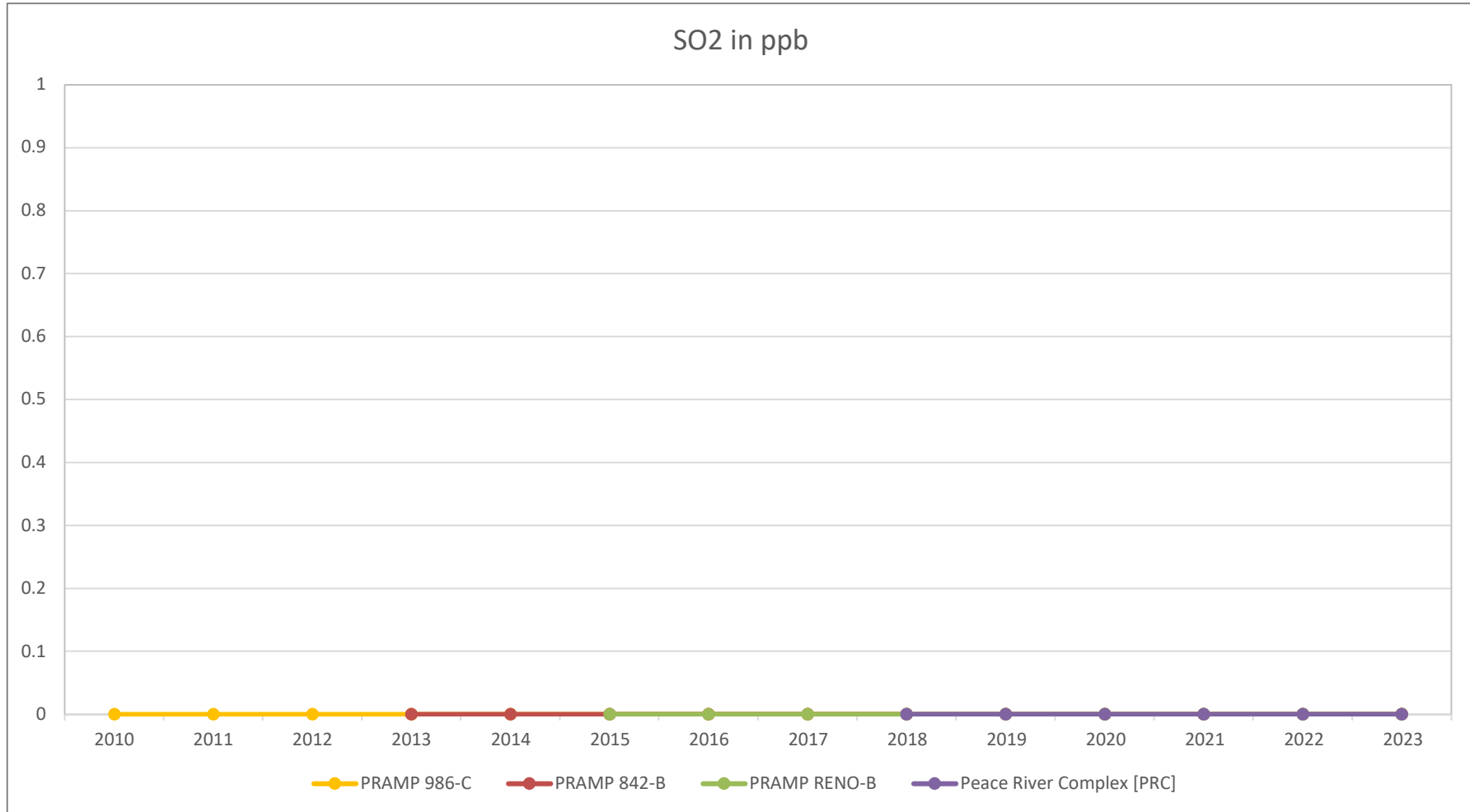
2023 Histogram



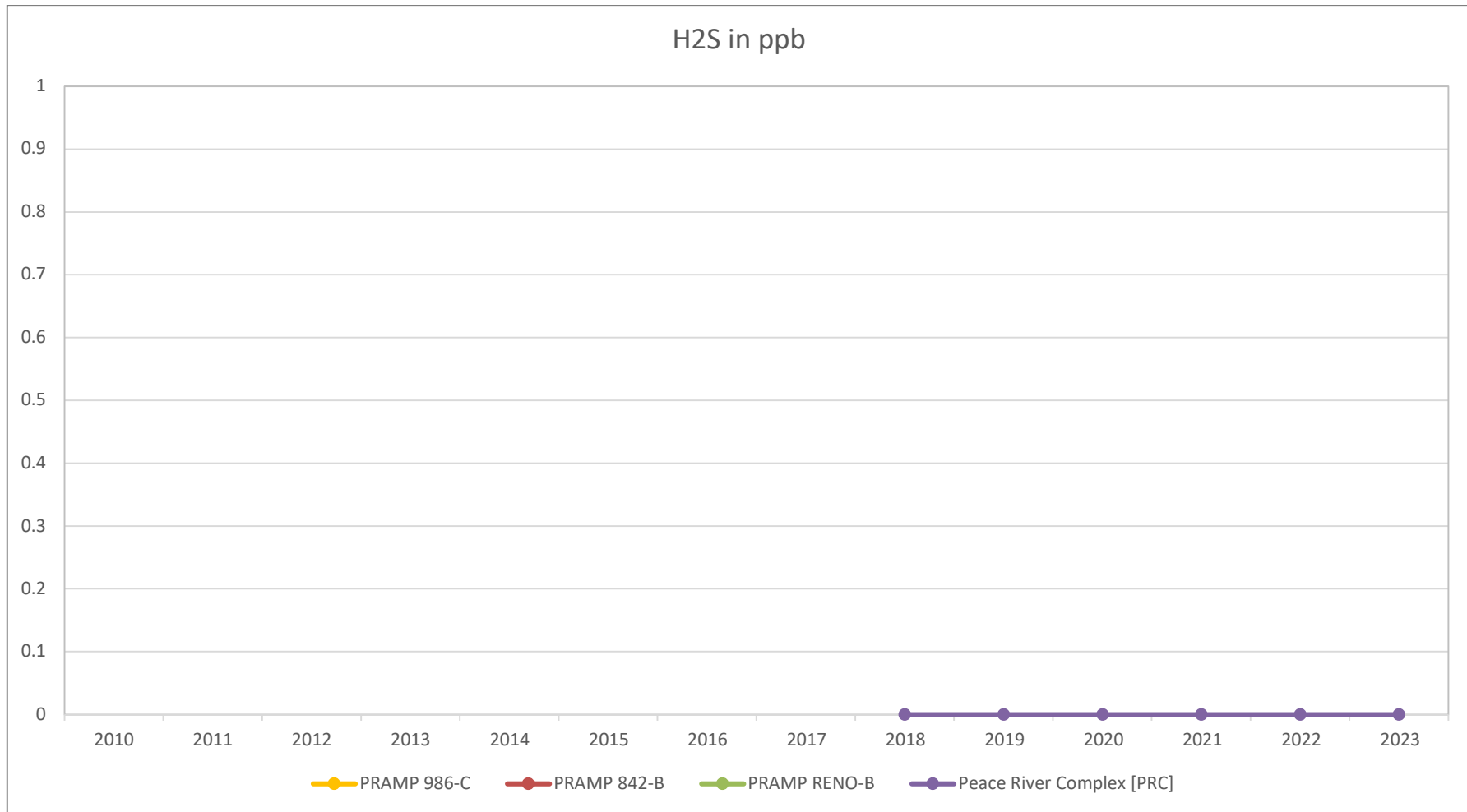
2.0 Continuous Monitoring 14- Year Charts (2010 – 2023) of Annual Average Concentrations

Only data collected at the 986-C, 842-B, Reno-B and PRC stations are included in this long-term data study. As the AQHI portable monitoring station only collects data at one location for maximum of 24-months period, they do not provide enough data for long-term trend study; therefore, they are excluded from this section.

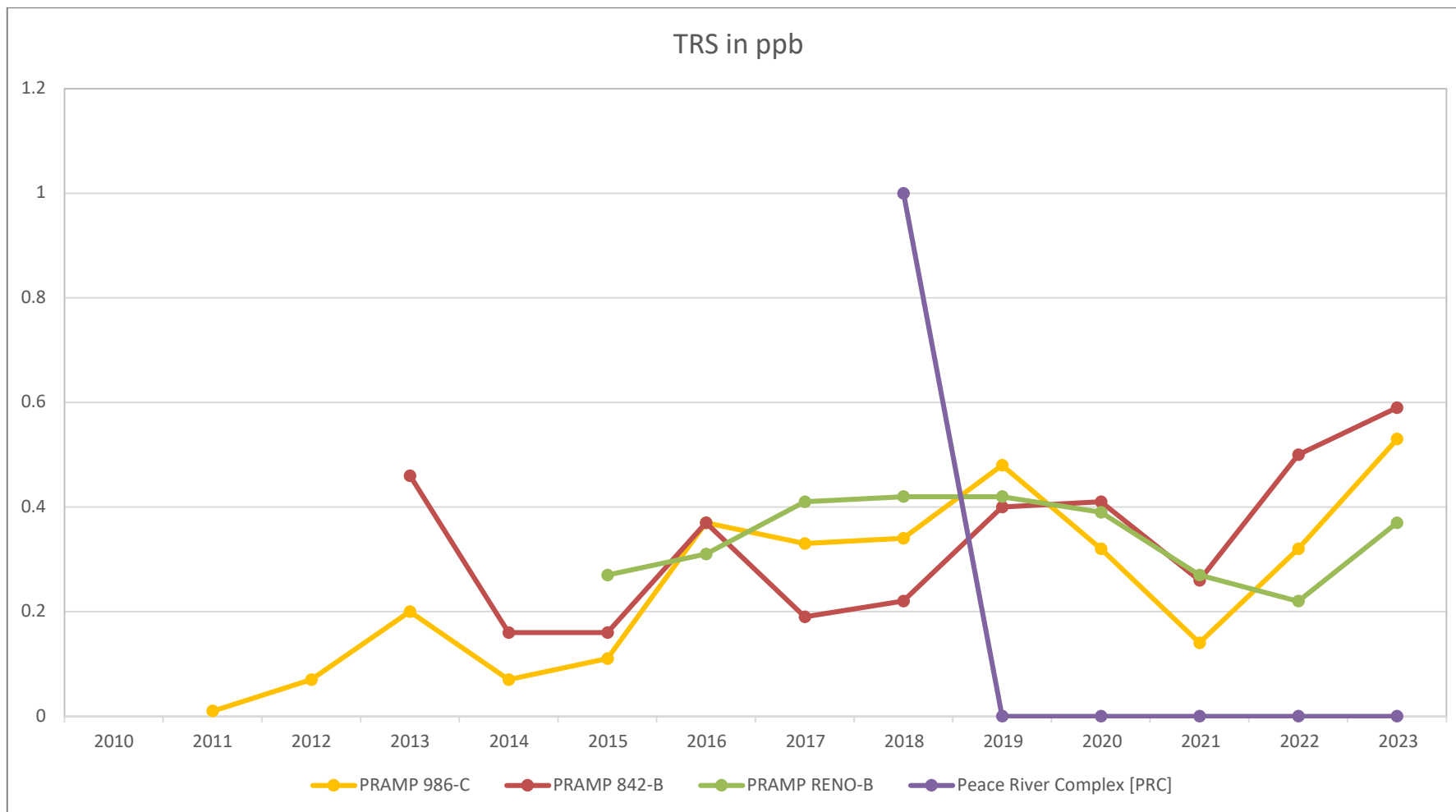
2.1 Sulphur Dioxide (SO₂)



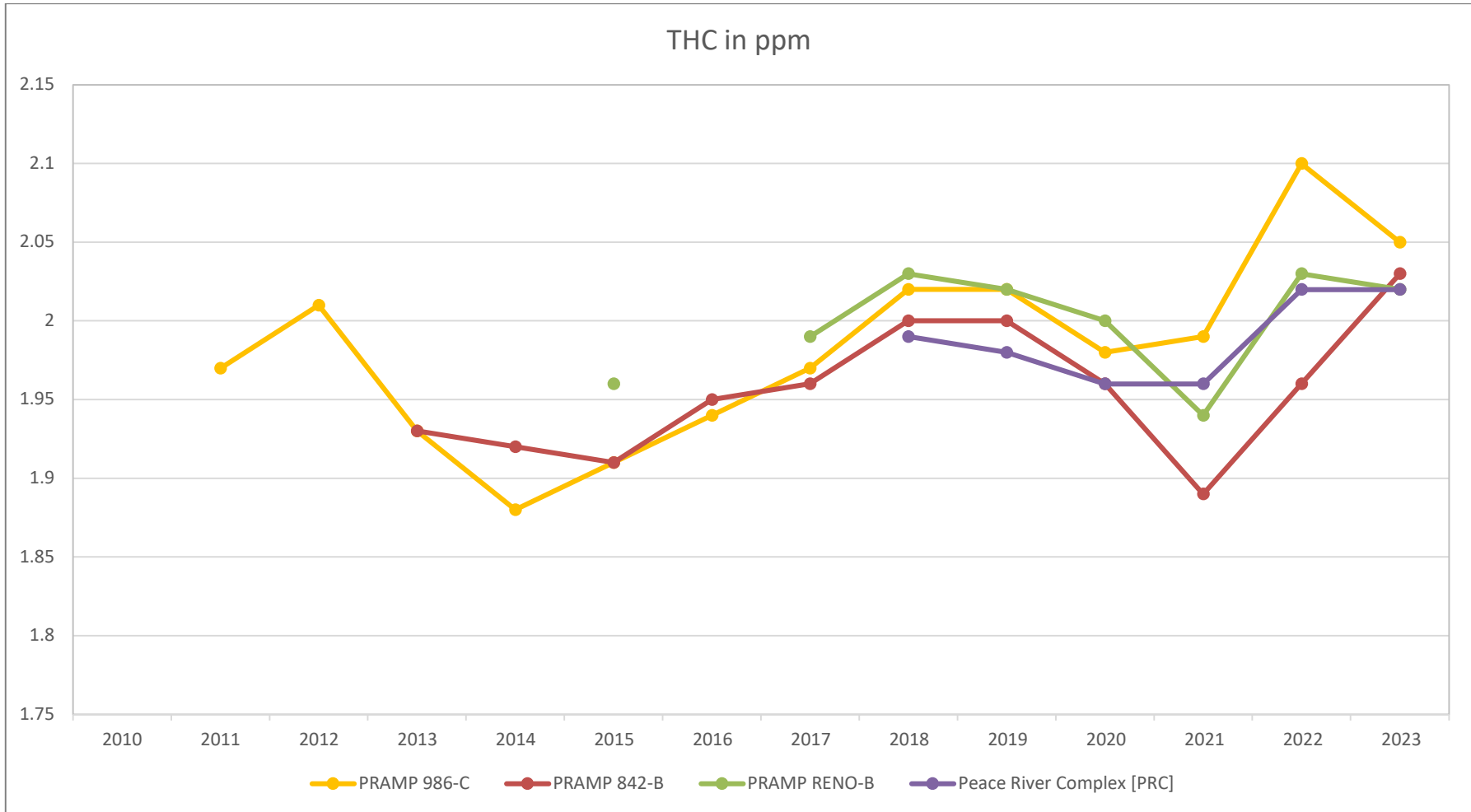
2.2 Hydrogen Sulphide (H2S)



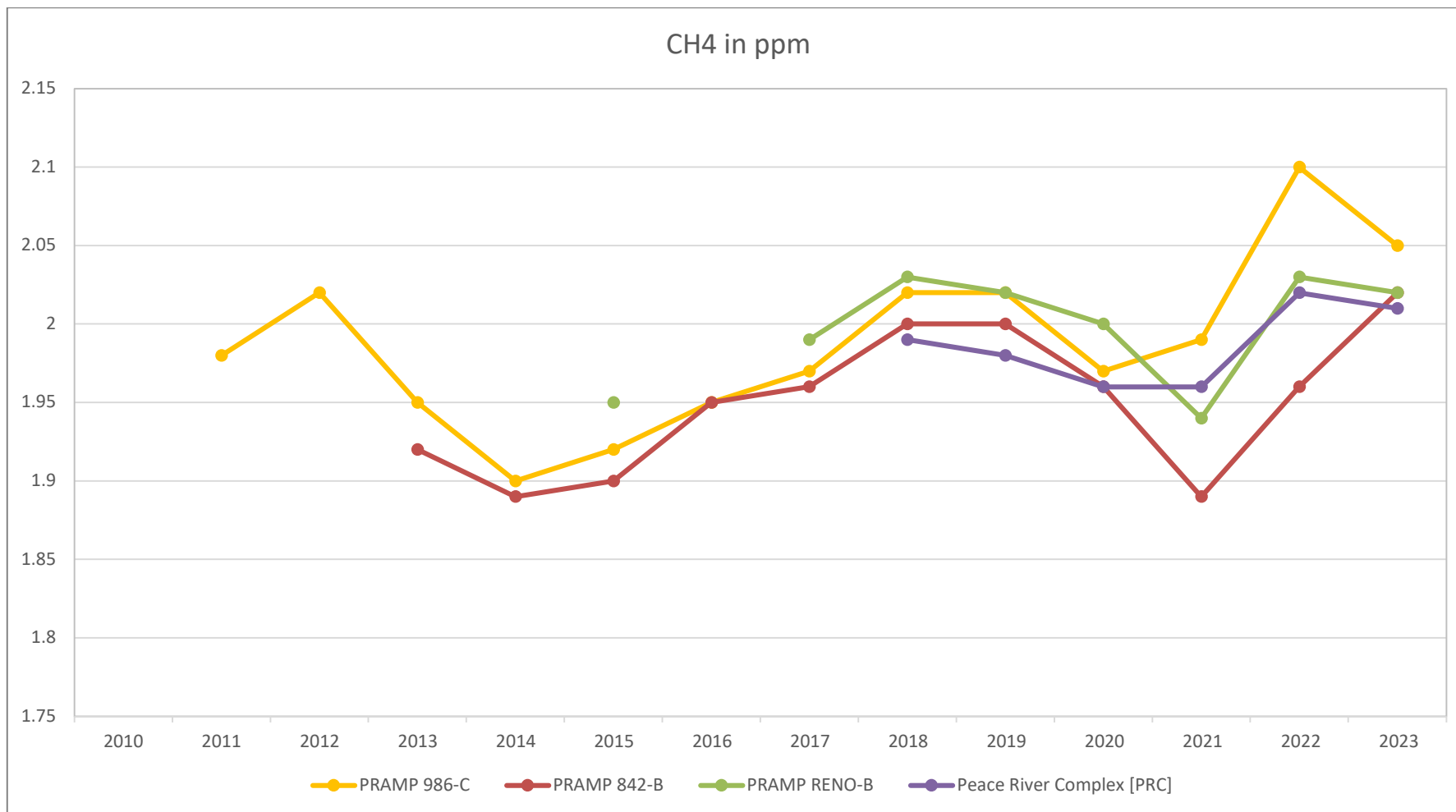
2.3 Total Reduced Sulphur (TRS)



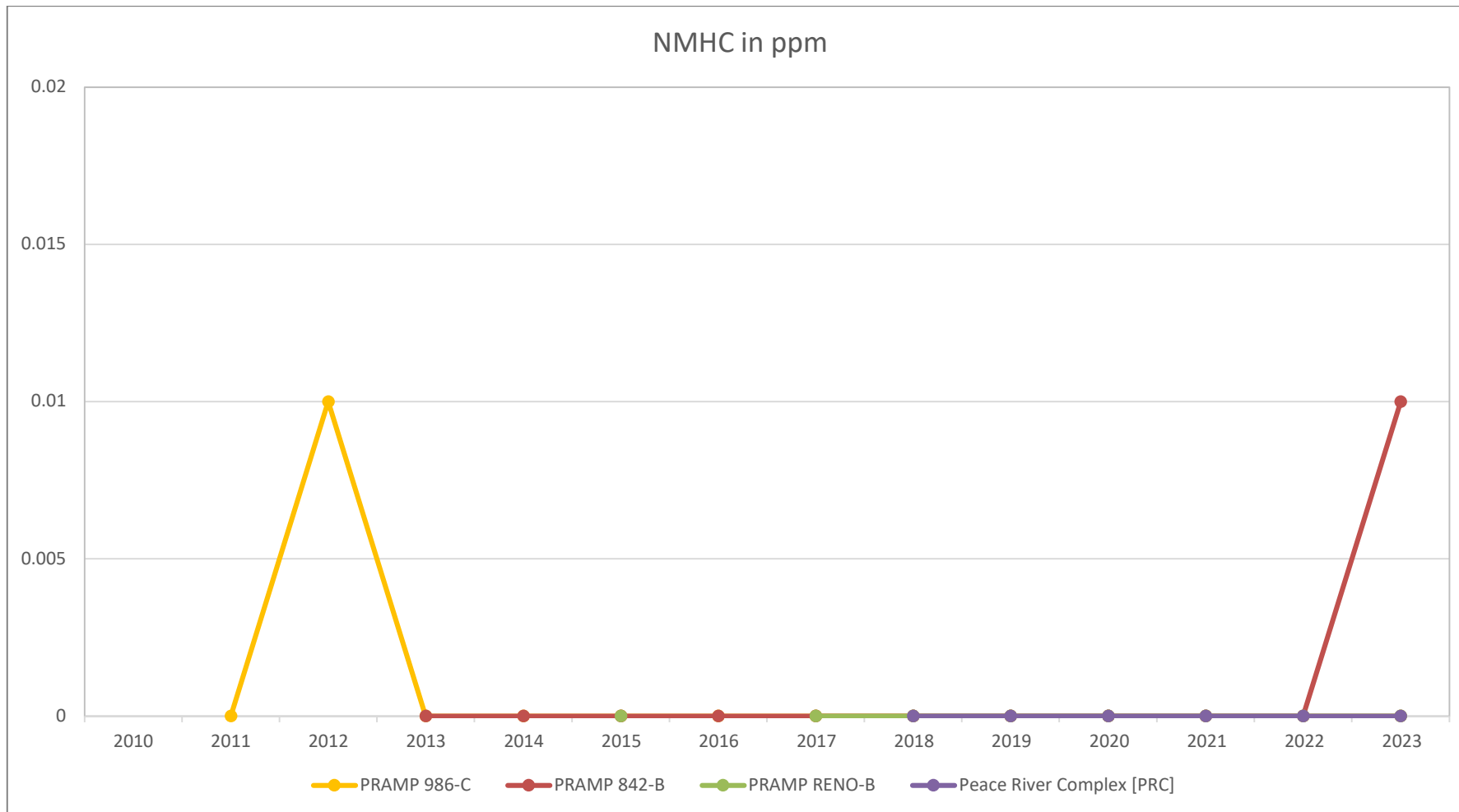
2.4 Total Hydrocarbons (THC)



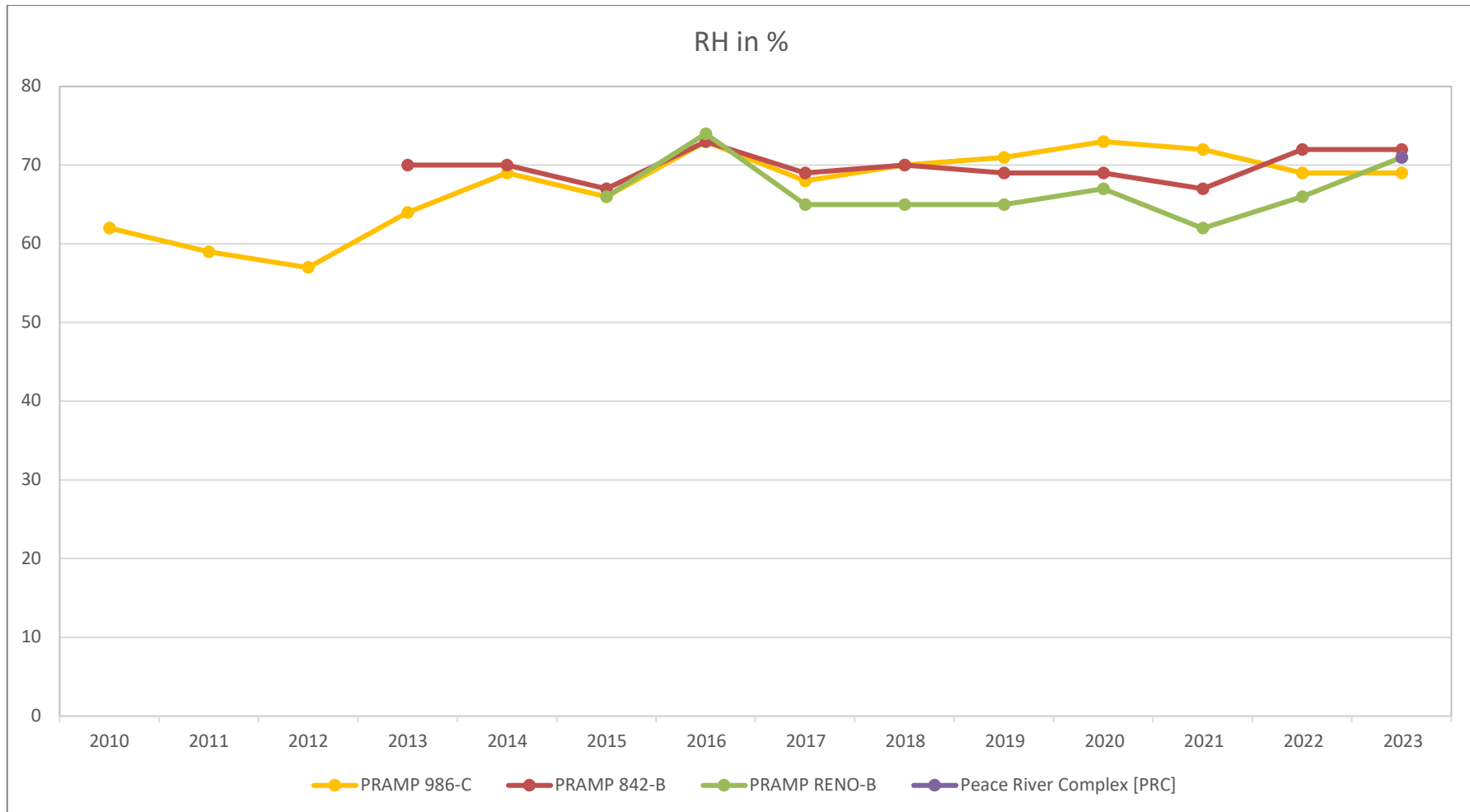
2.5 Methane (CH₄)



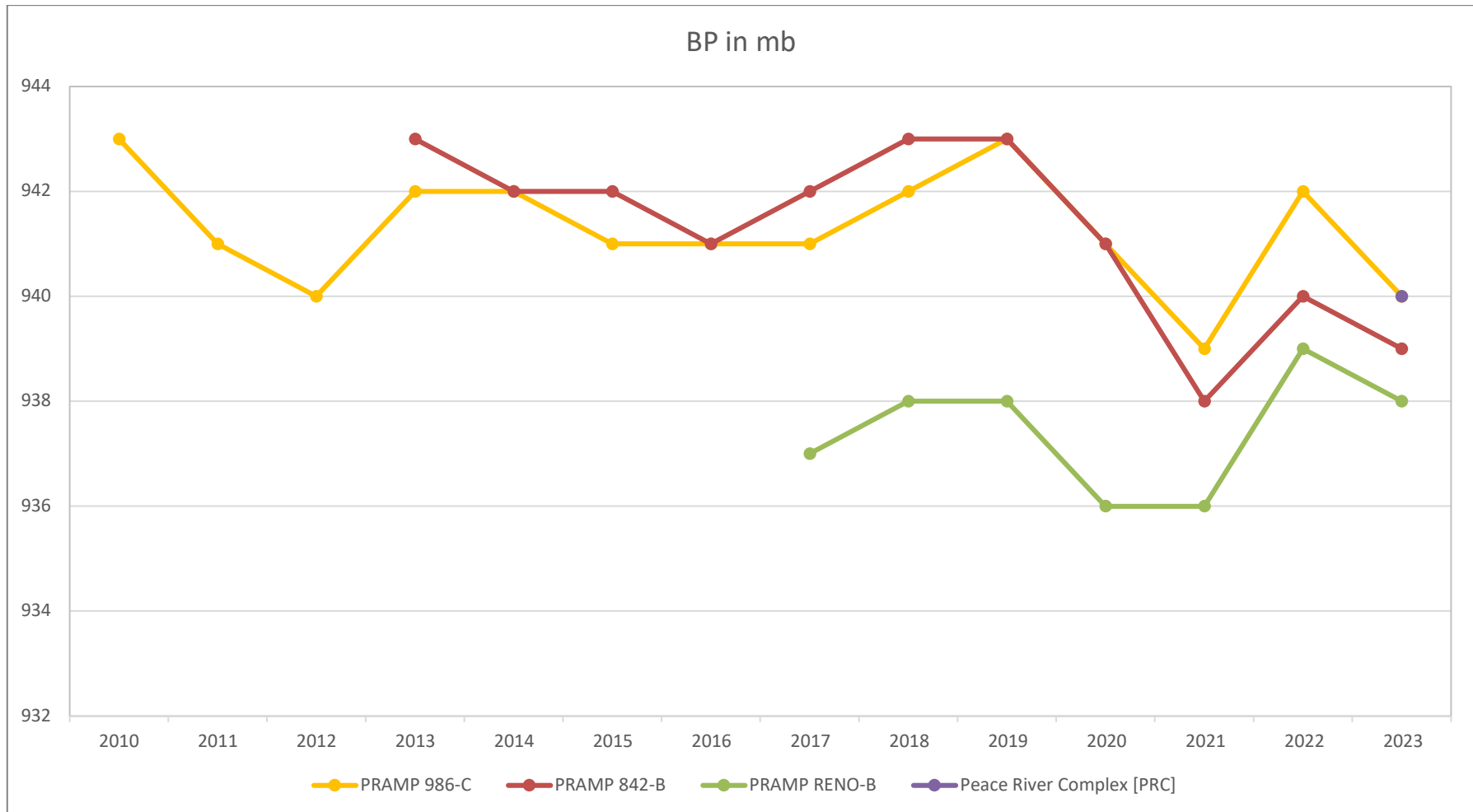
2.6 Non-Methane Hydrocarbons (NMHC)



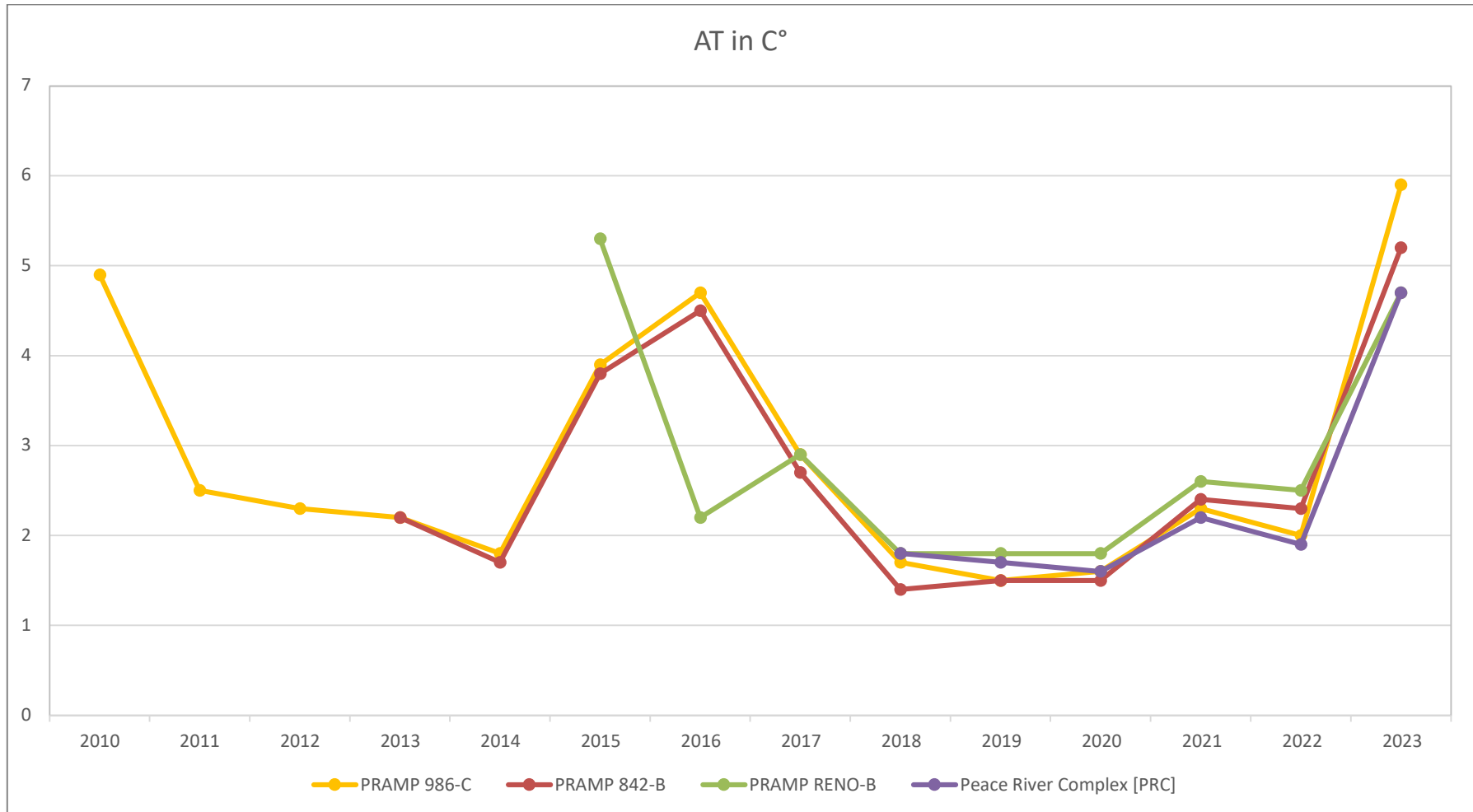
2.7 Relative Humidity (RH)



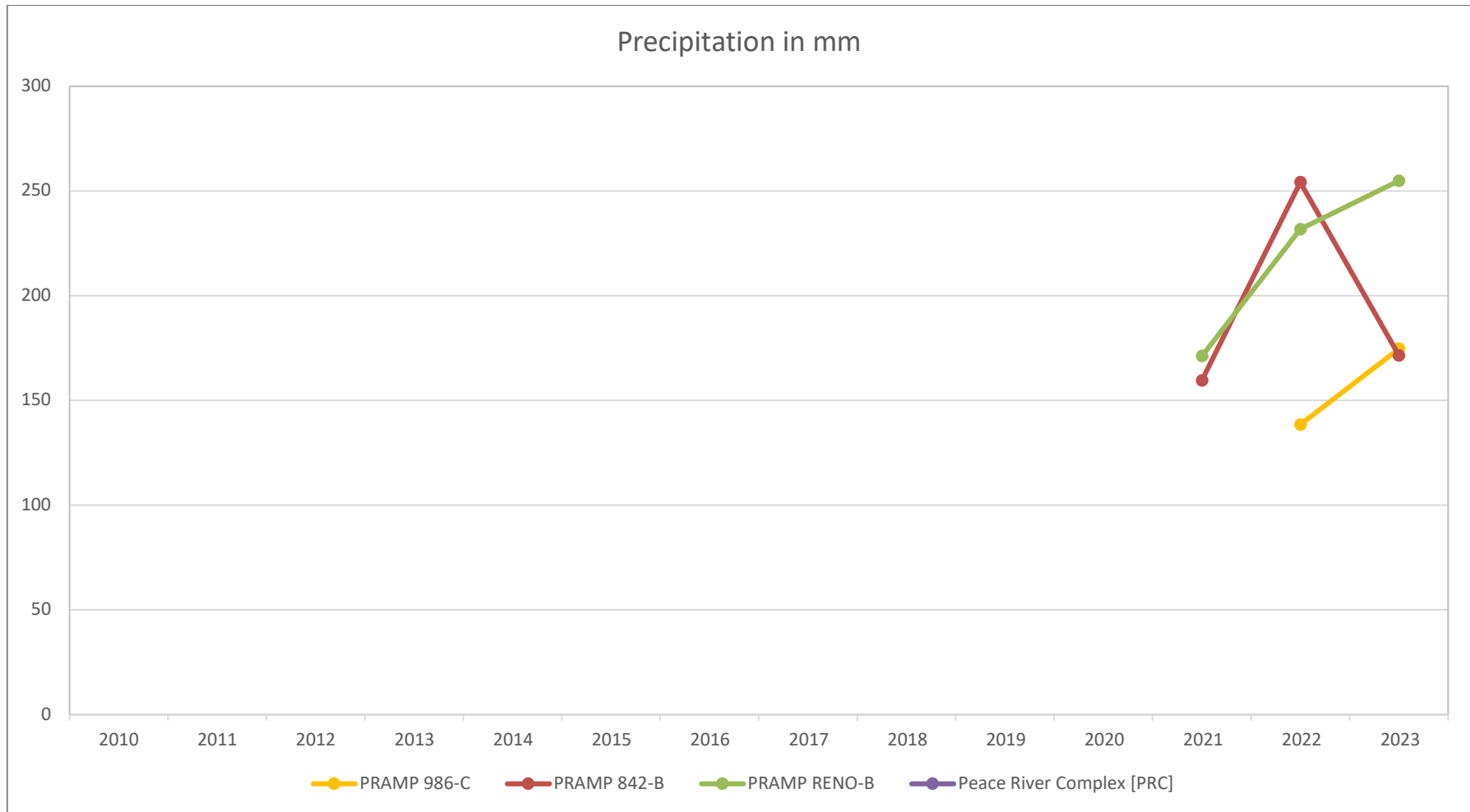
2.8 Barometric Pressure (BP)



2.9 Ambient Temperature (AT)

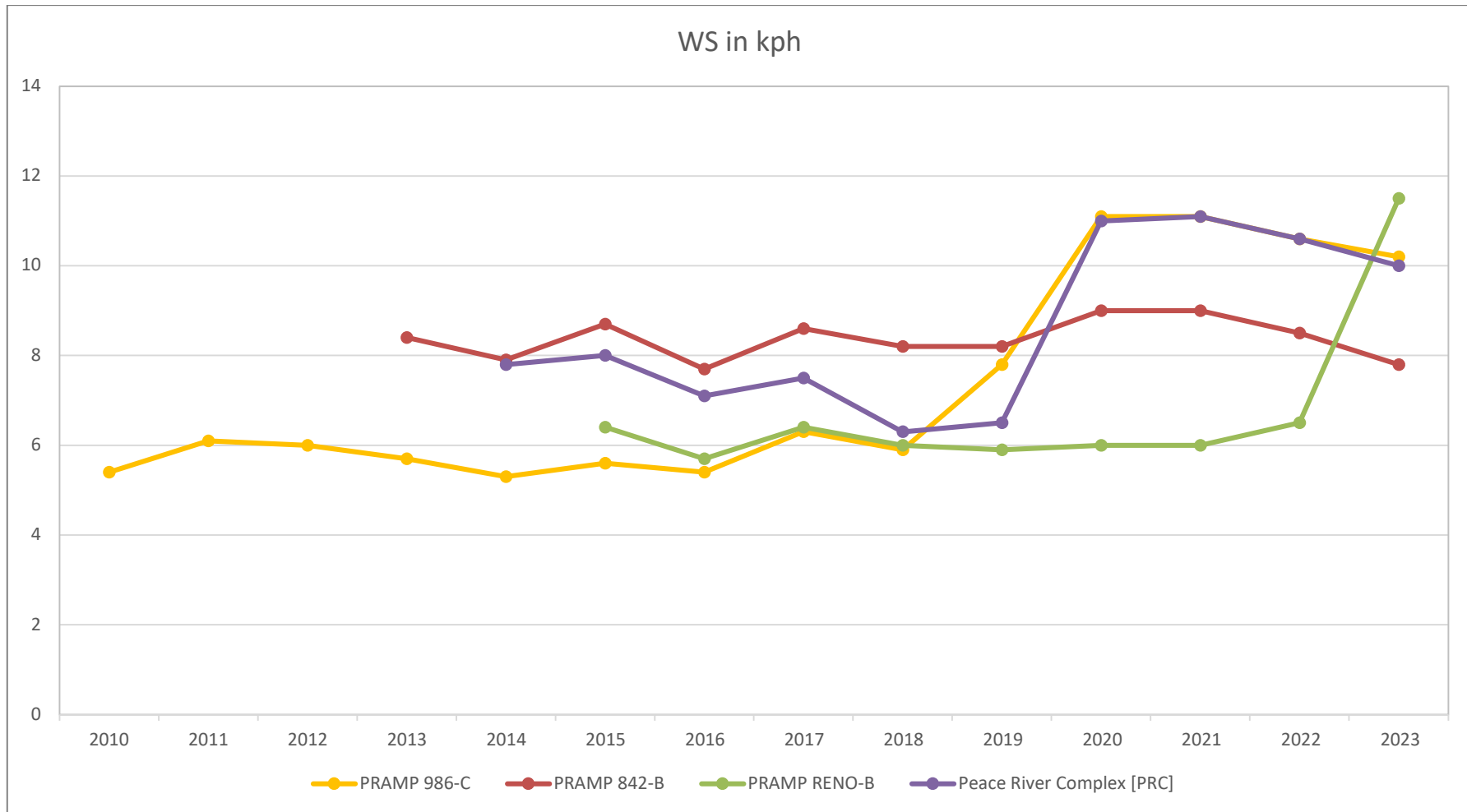


2.10 Precipitation (Precip)

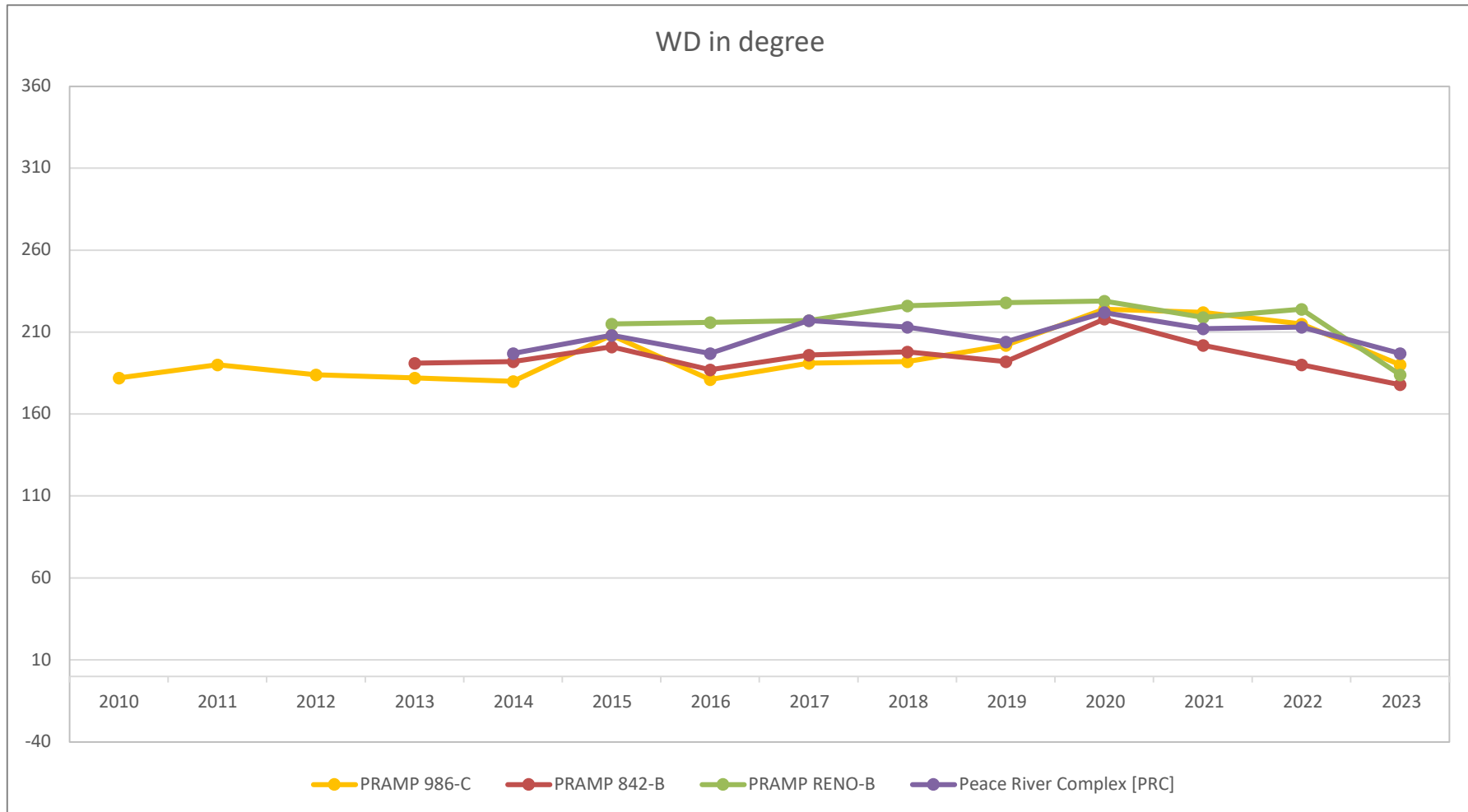


Note: Values on this chart are the total amount of precipitation collected in the year.

2.11 Vector Wind Speed (WS)



2.12 Vector Wind Direction (WD)



3.0 Integrated Monitoring Statistics Summaries – 2023

3.1 Passive Sampling System

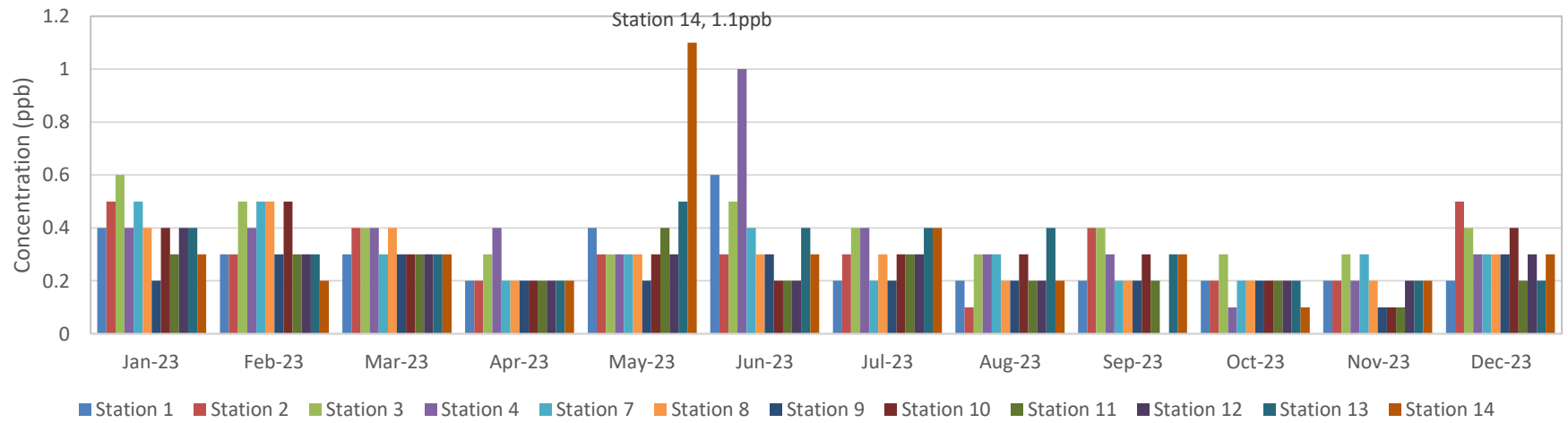
3.1.1 Sulphur Dioxide (SO₂)

Station	Annual Average	Maximum	Month	Minimum	Month	# of Samples
1	0.3	0.6	June	0.2	April	12
2	0.3	0.5	January	0.1	August	12
3	0.4	0.6	January	0.3	April	12
4	0.4	1.0	June	0.1	October	12
7	0.3	0.5	January	0.2	April	12
8	0.3	0.5	February	0.2	April	12
9	0.2	0.3	February	0.1	November	12
10	0.3	0.5	February	0.1	November	12
11	0.2	0.4	May	0.1	November	12
12	0.3	0.4	January	0.2	April	11
13	0.3	0.5	May	0.2	April	12
14	0.3	1.1	May	0.1	October	12

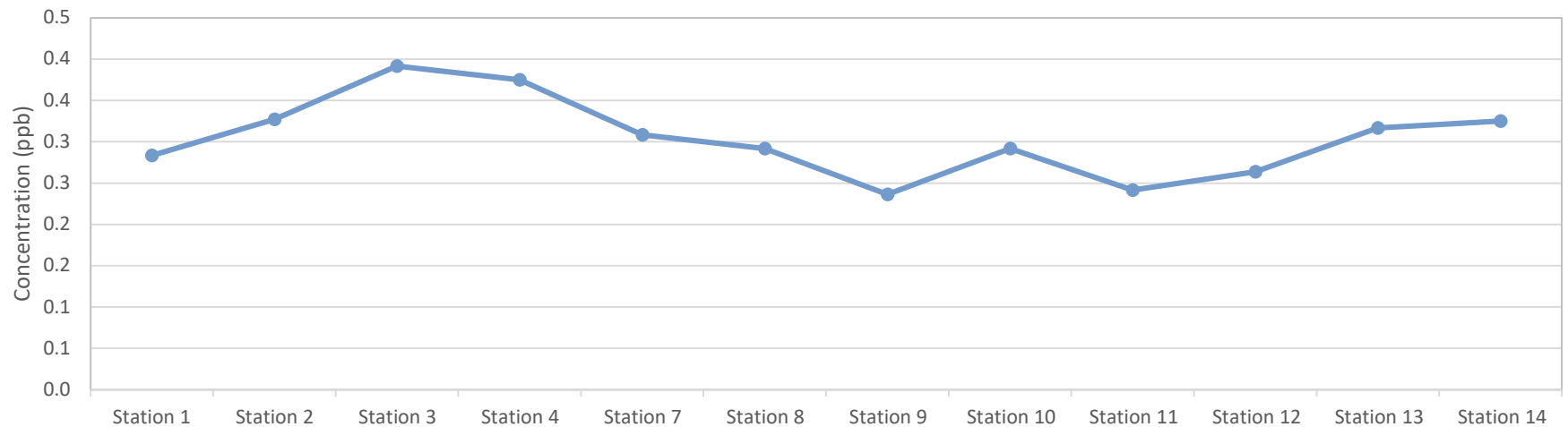
Notes:

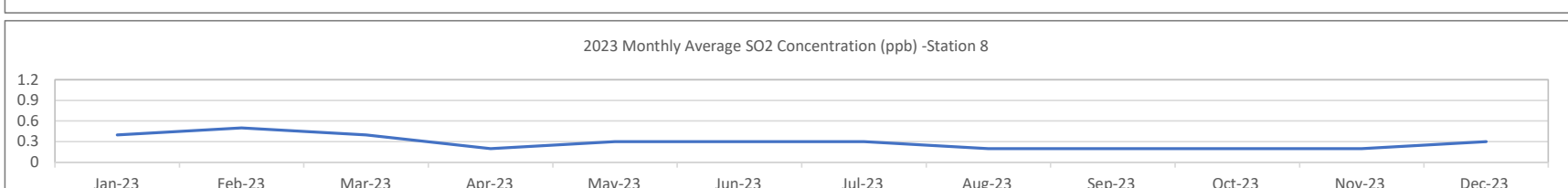
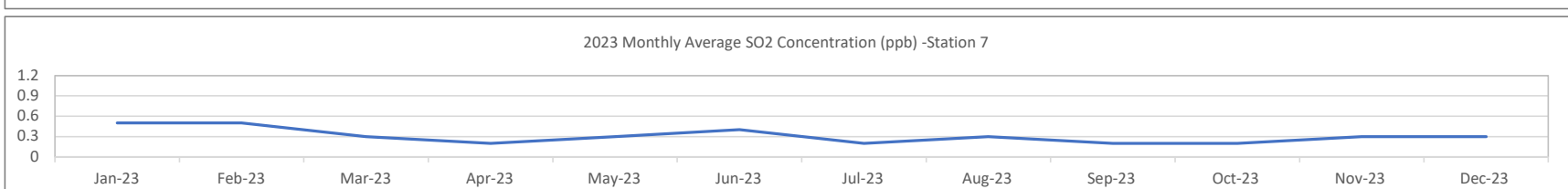
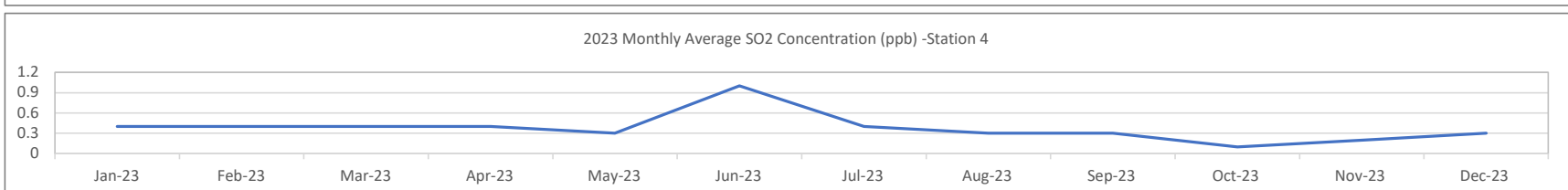
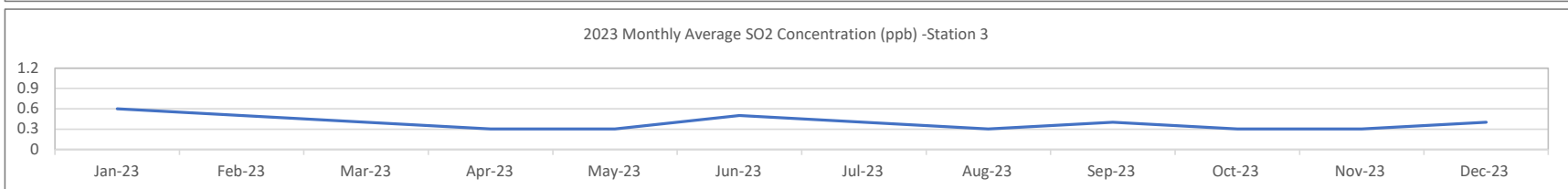
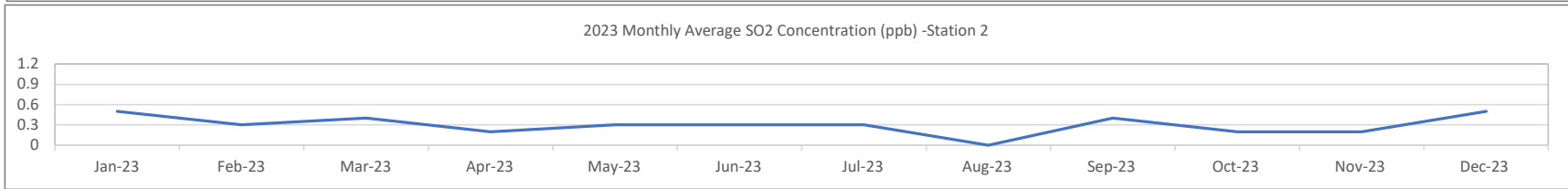
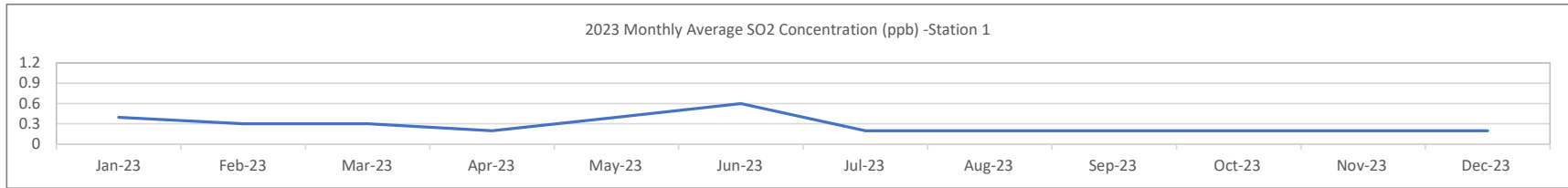
- Concentration unit: ppb
- Station 12: Sample media for the September's collection was returned to the lab without filter inside. No analysis was performed as a result.

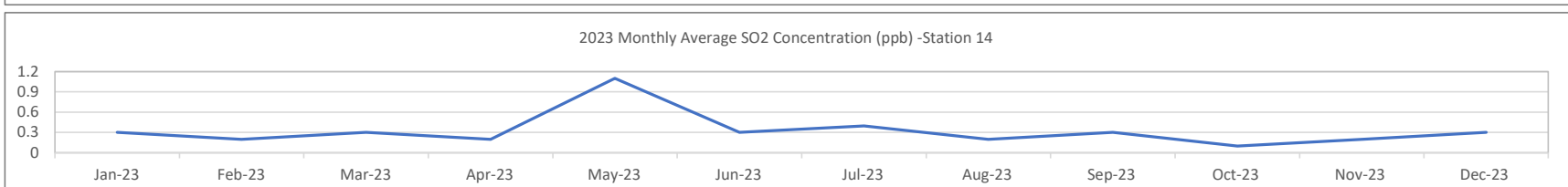
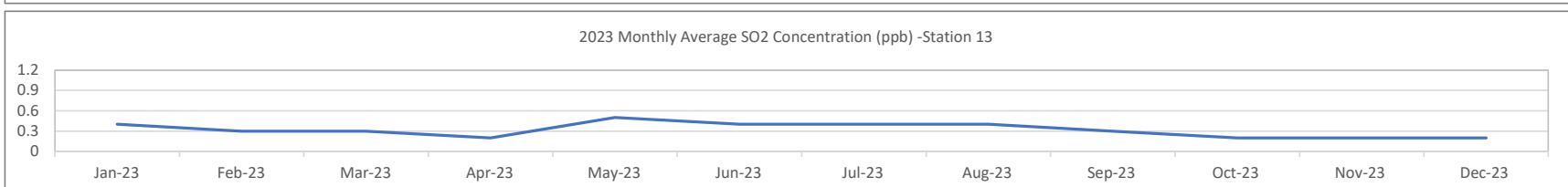
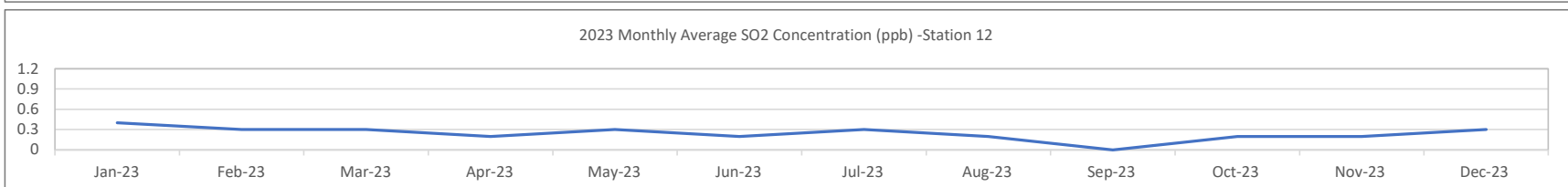
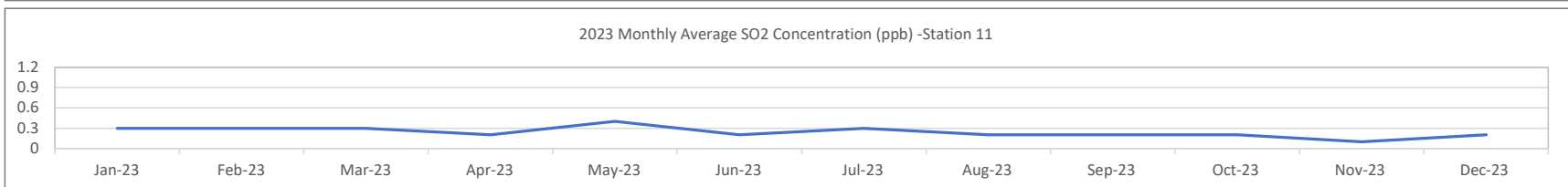
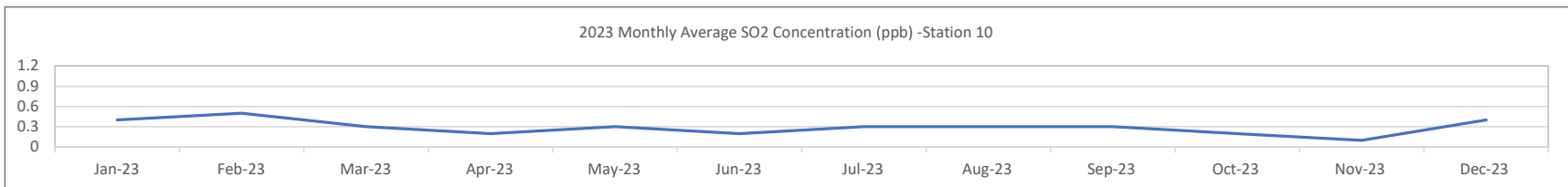
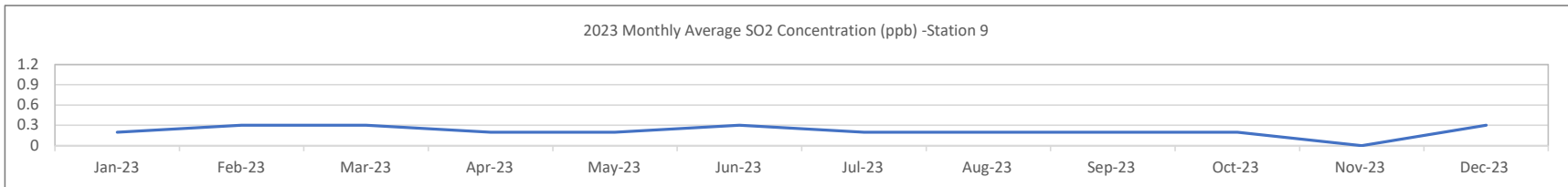
2023 SO2 Monthly Average Concentrations

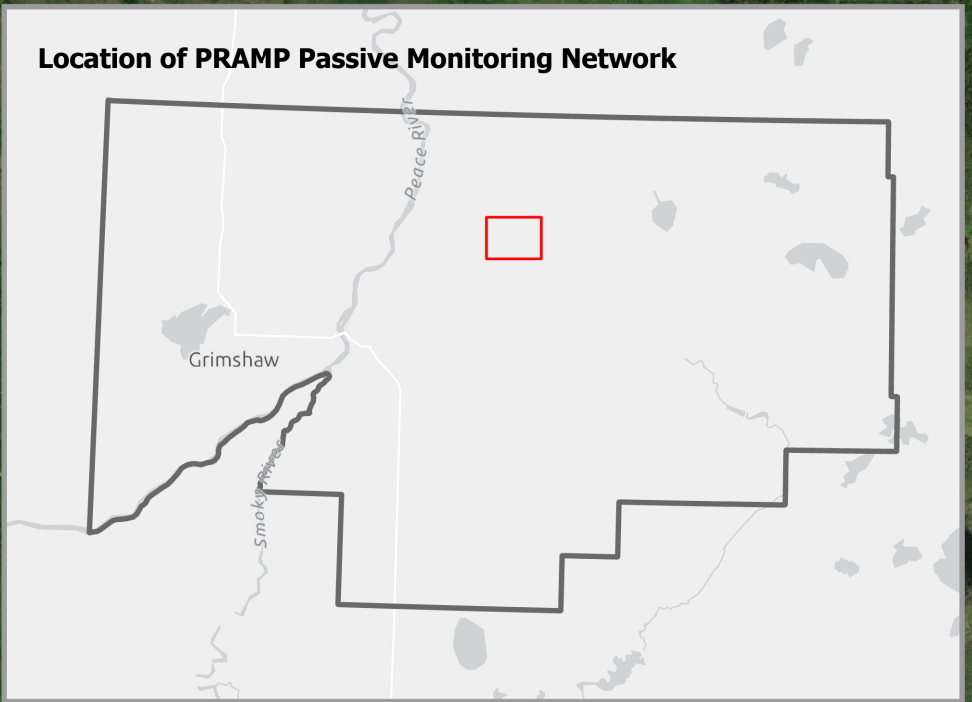


2023 SO2 Annual Average Concentrations

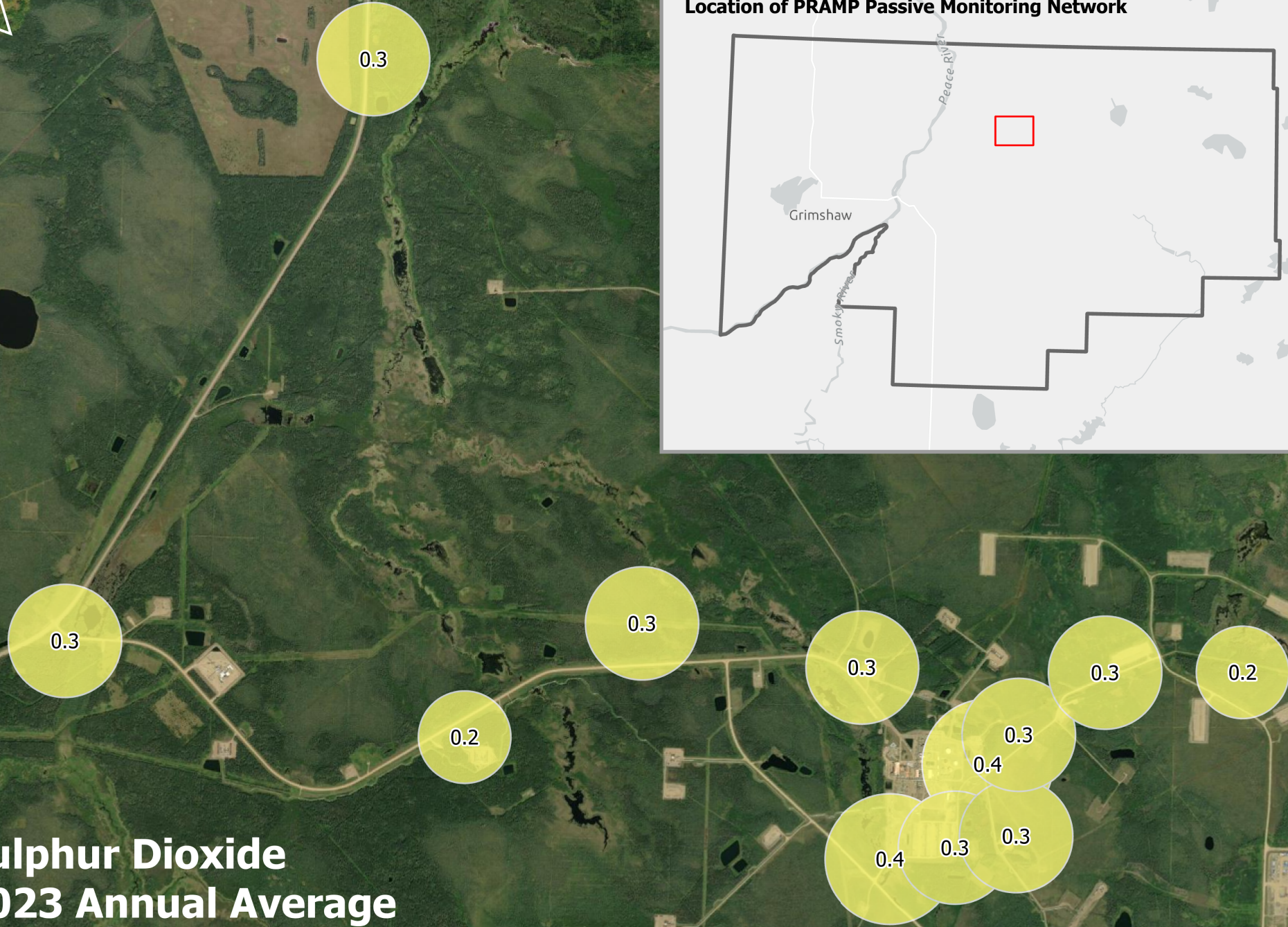








Sulphur Dioxide 2023 Annual Average (in ppb)



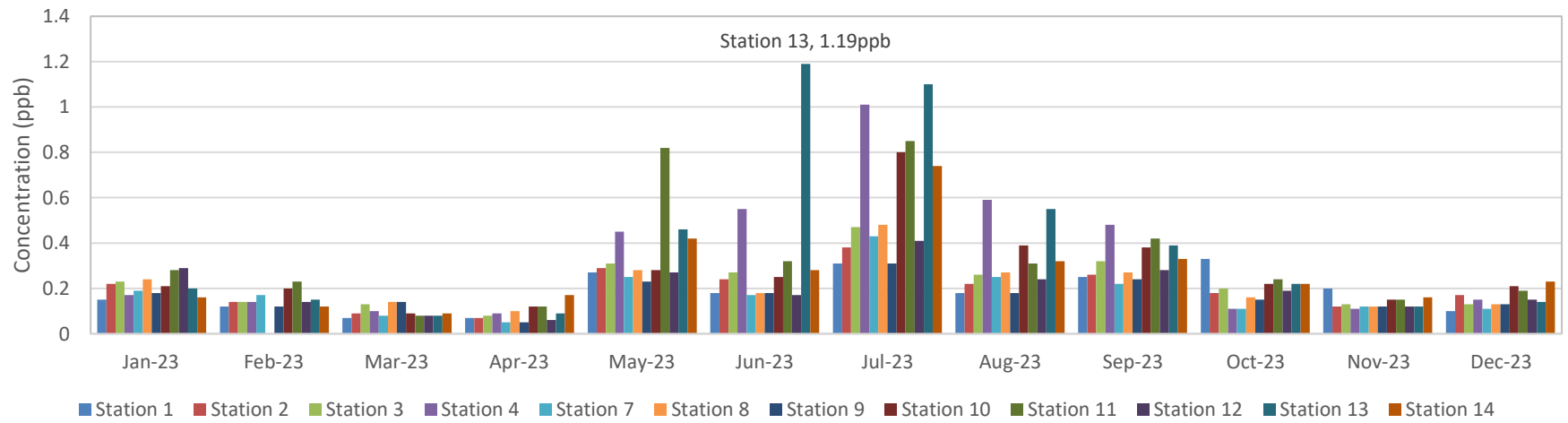
3.1.2 Hydrogen Sulphide (H₂S)

Station	Annual Average	Maximum	Month	Minimum	Month	# of Samples
1	0.19	0.33	October	0.07	March	12
2	0.20	0.38	July	0.07	April	12
3	0.22	0.47	July	0.08	April	12
4	0.33	1.01	July	0.09	April	12
7	0.18	0.43	July	0.05	April	12
8	0.22	0.48	July	0.10	April	11
9	0.17	0.31	July	0.05	April	12
10	0.28	0.80	July	0.09	March	12
11	0.33	0.85	July	0.08	March	12
12	0.20	0.41	July	0.06	April	12
13	0.39	1.19	June	0.08	March	12
14	0.27	0.74	July	0.09	March	12

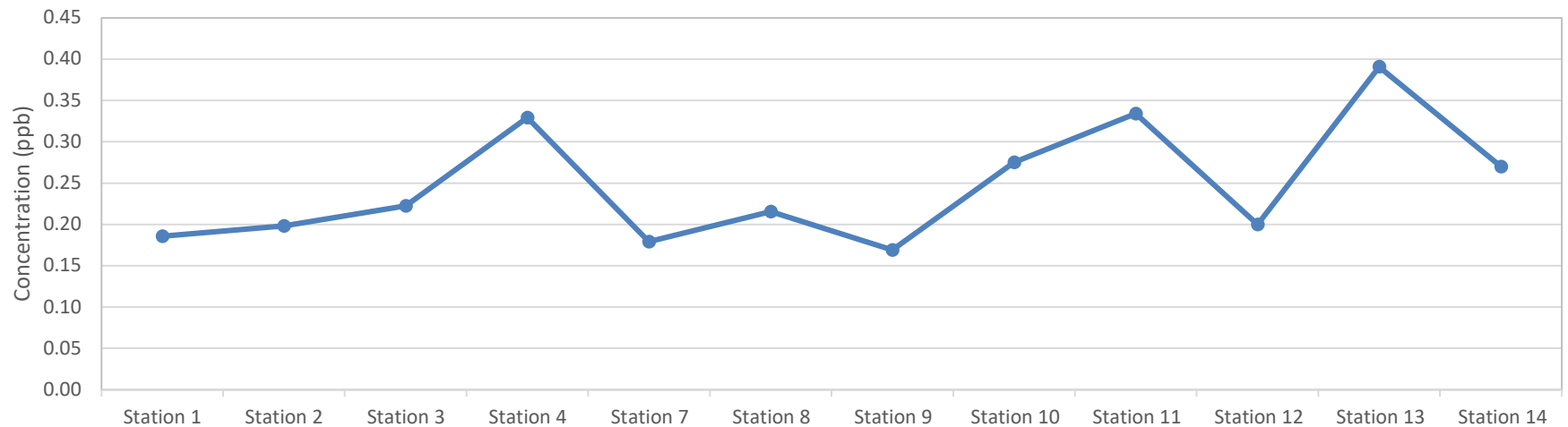
Notes:

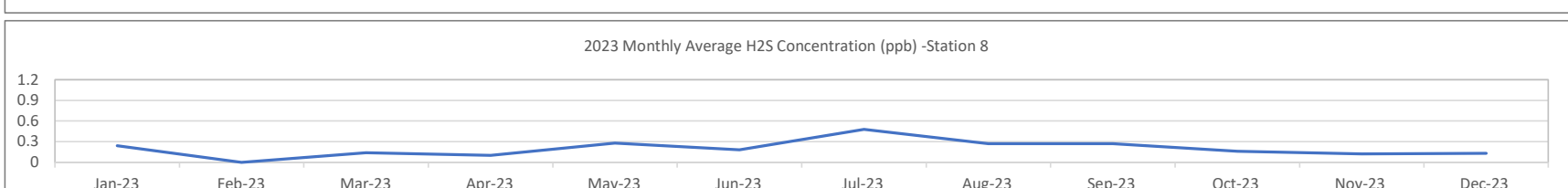
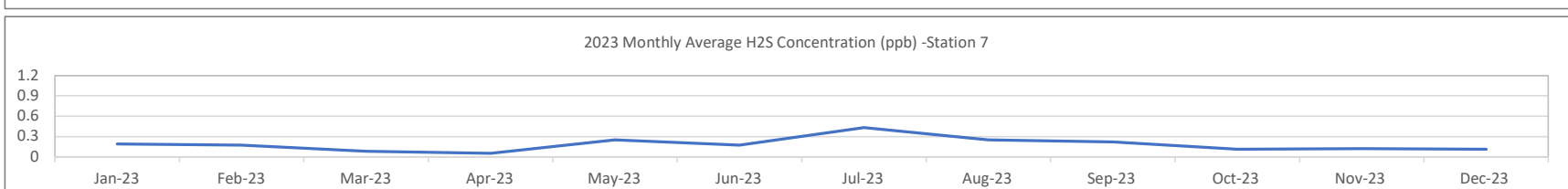
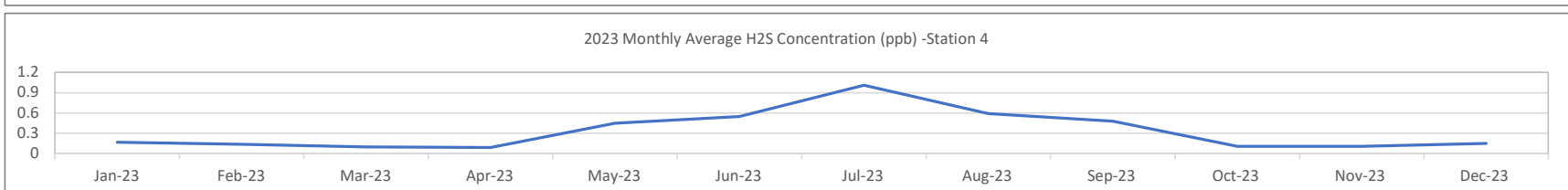
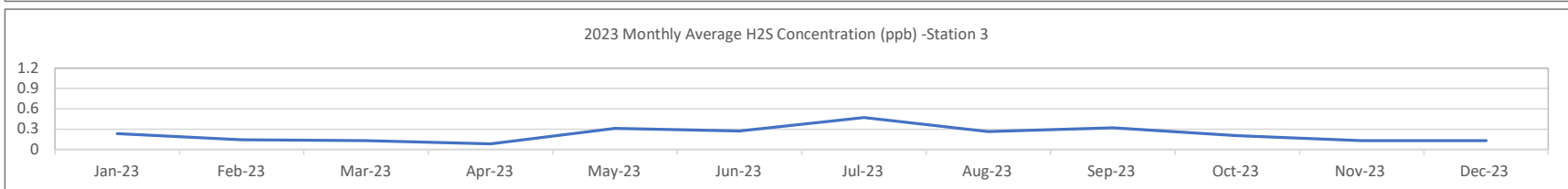
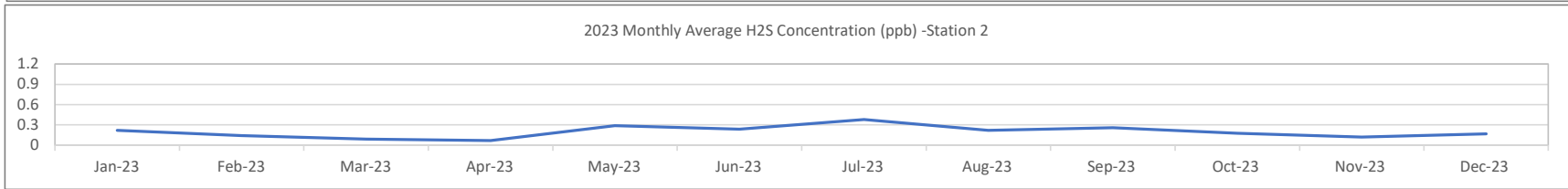
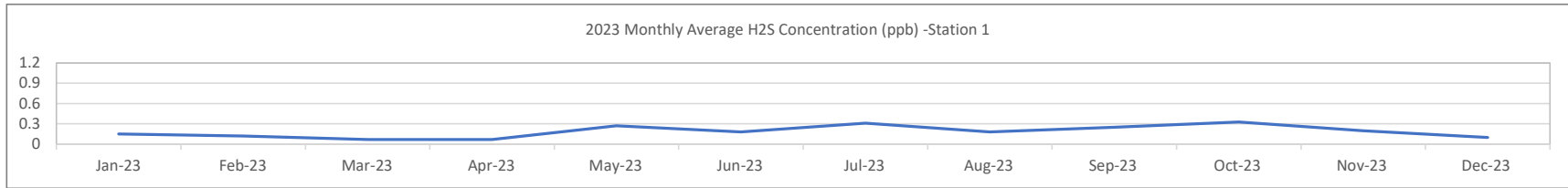
- Concentration unit: ppb
- Station 8: Sample media for the February's collection was missing. No analysis was performed as a result.

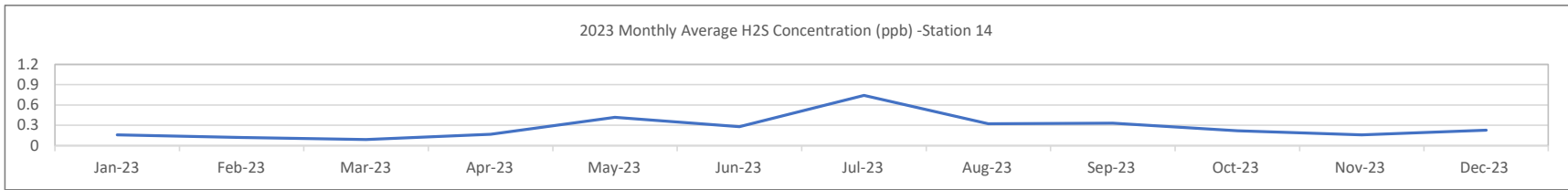
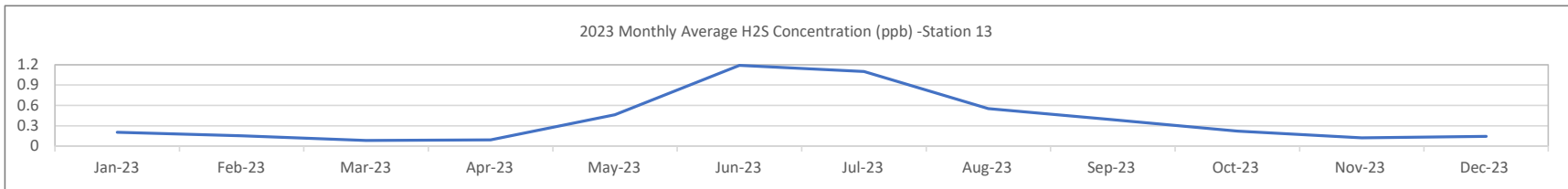
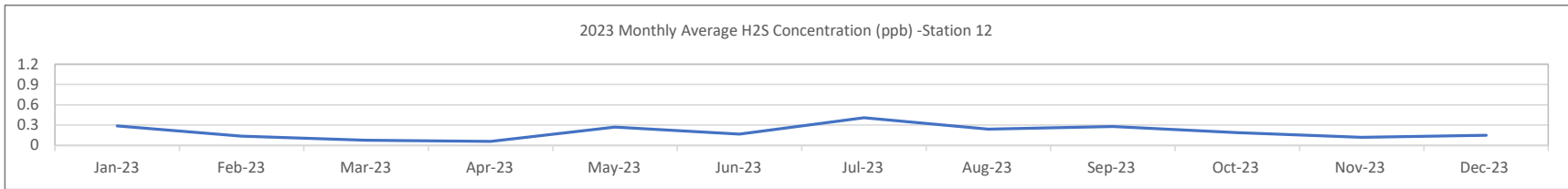
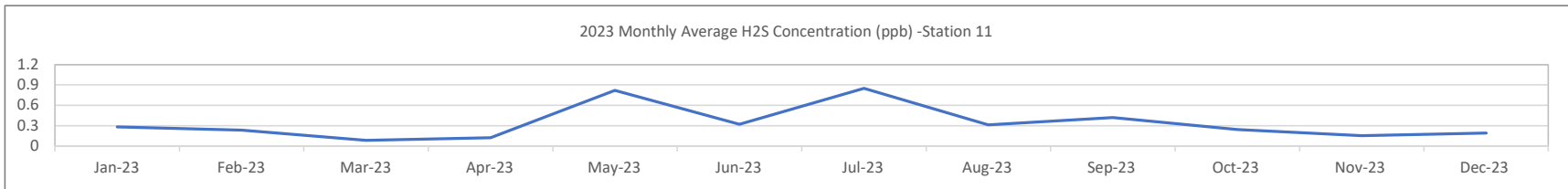
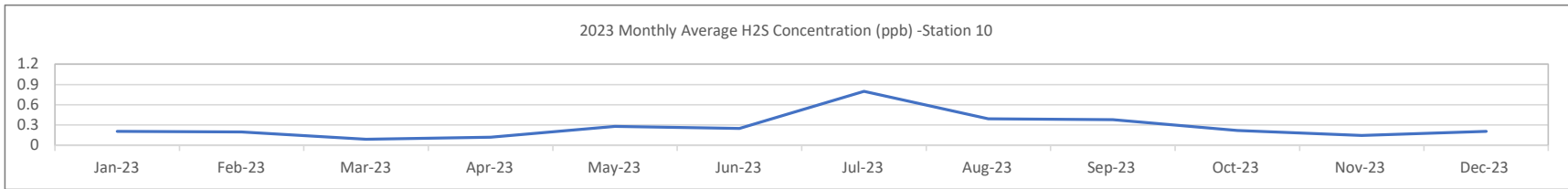
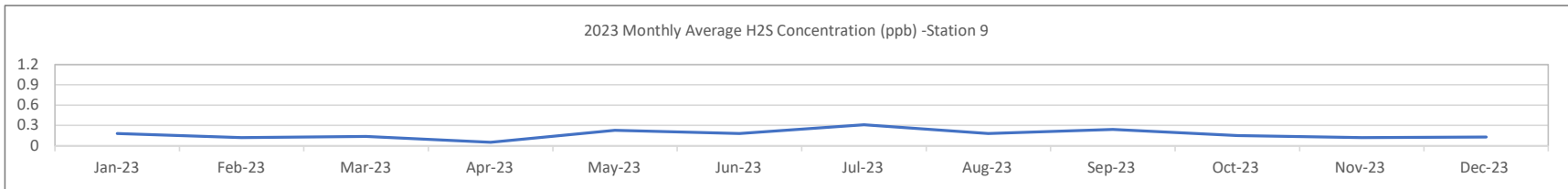
2023 H2S Monthly Average Concentrations

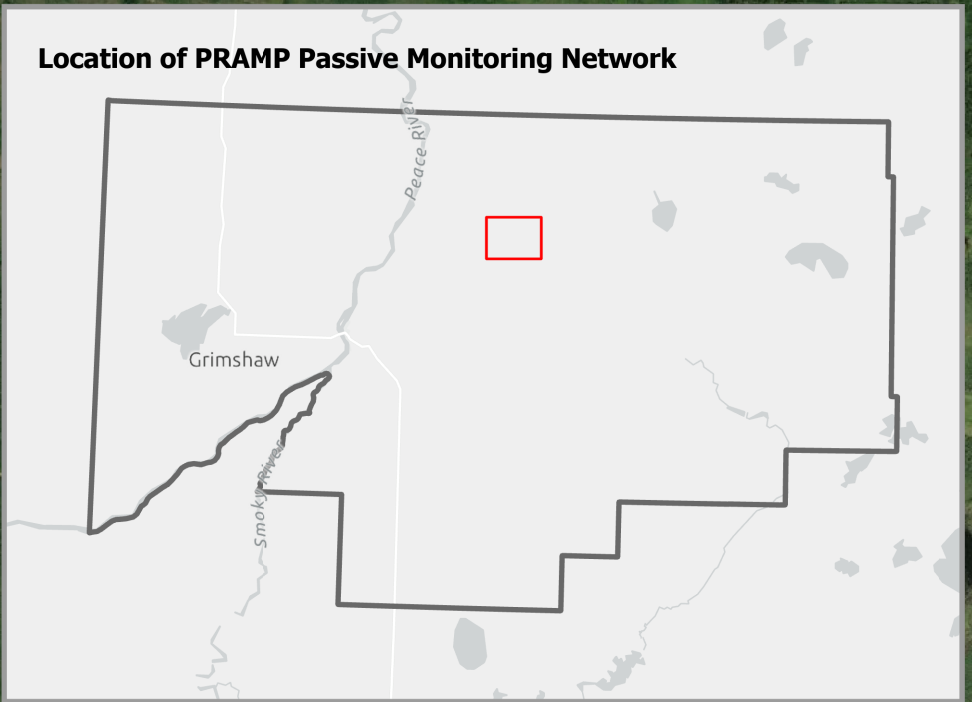


2023 H2S Annual Average Concentrations

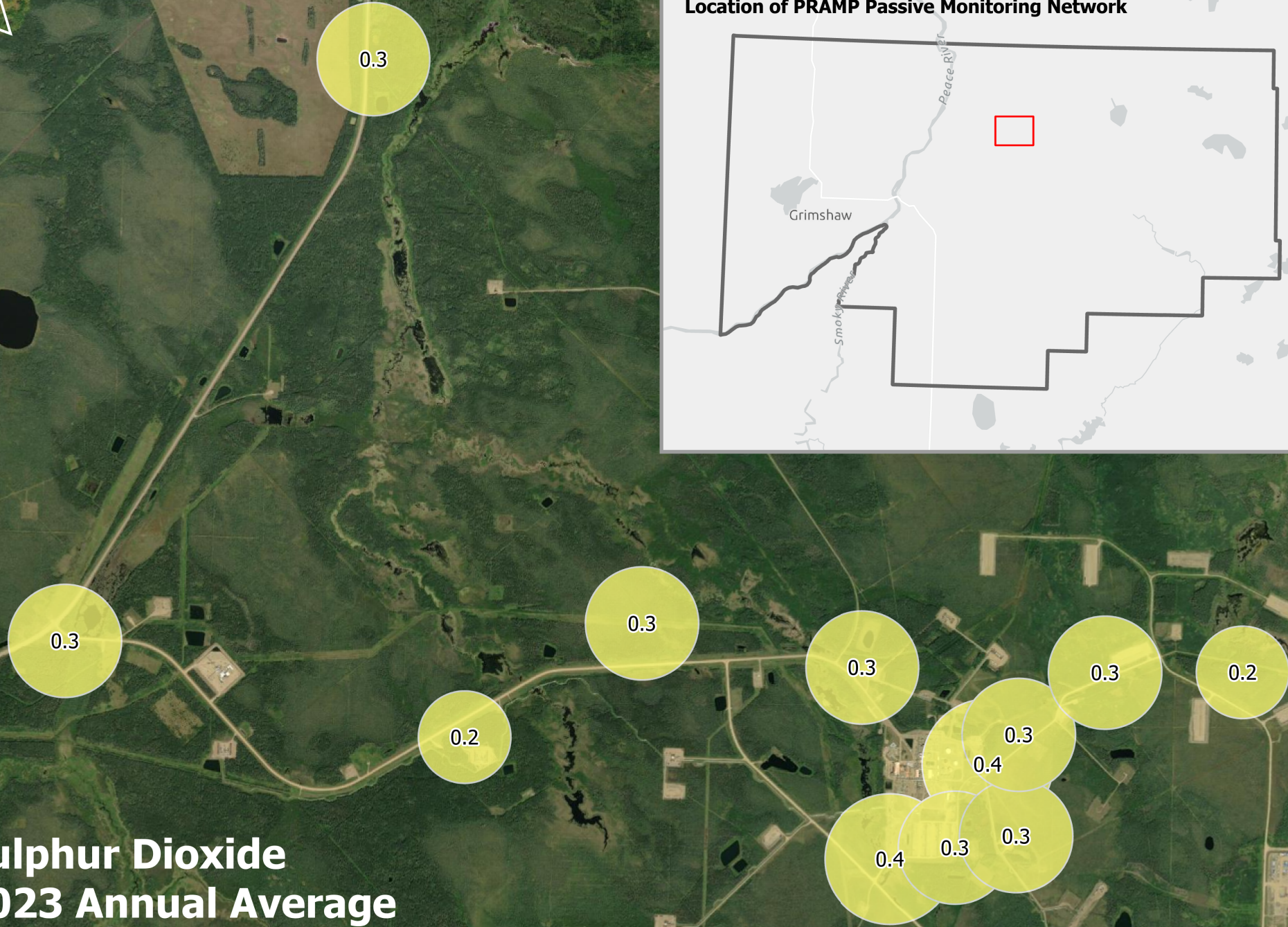








Sulphur Dioxide 2023 Annual Average (in ppb)



3.2 NMHC Canister Sampling System

Sample Date/Time	Canister Triggered Conc. (ppm)	Station	Canister ID	Method	Maximum Reading (ppmv)	Parameter
2023-01-05@06:45	0.39	Reno-B	55650	NA-025	2.6	Methane
				NA-024	4.3	Dimethyl sulphide
				AC-058	4.25	n-Butane
2023-05-08@06:35	0.30	842-B	28950	NA-025	2.6	Methane
				NA-024	-	-
				AC-058	270	Vinyl acetate
2023-06-30@13:45	0.34	986-C	32231	NA-025	2.0	Methane
				NA-024	2.2	Carbonyl sulphide
				AC-058	13.1	Acetone
2023-07-07@03:30	0.30	842-B	28905	NA-025	2.6	Methane
				NA-024	-	-
				AC-058	15.3	Acetone
2023-07-07@04:25	0.43	Reno-B	32256	NA-025	3.2	Methane
				NA-024	2.9	Carbonyl sulphide
				AC-058	18.2	Acetone
2023-07-07@06:50	0.32	986-C	32230	NA-025	3.0	Methane
				NA-024	3.4	Hydrogen sulphide
				AC-058	18.8	Acetone
2023-07-11@04:20	0.33	Reno-B	28907	NA-025	3.3	Methane
				NA-024	-	-
				AC-058	11.9	Acetone
2023-09-20@14:40	0.31	842-B	31823	NA-025	2.5	Methane
				NA-024	-	-
				AC-058	17.2	Acetone
2023-09-29@19:40	0.32	Reno-B	29038	NA-025	1.9	Methane
				NA-024	-	-
				AC-058	5.6	Acetone

Notes:

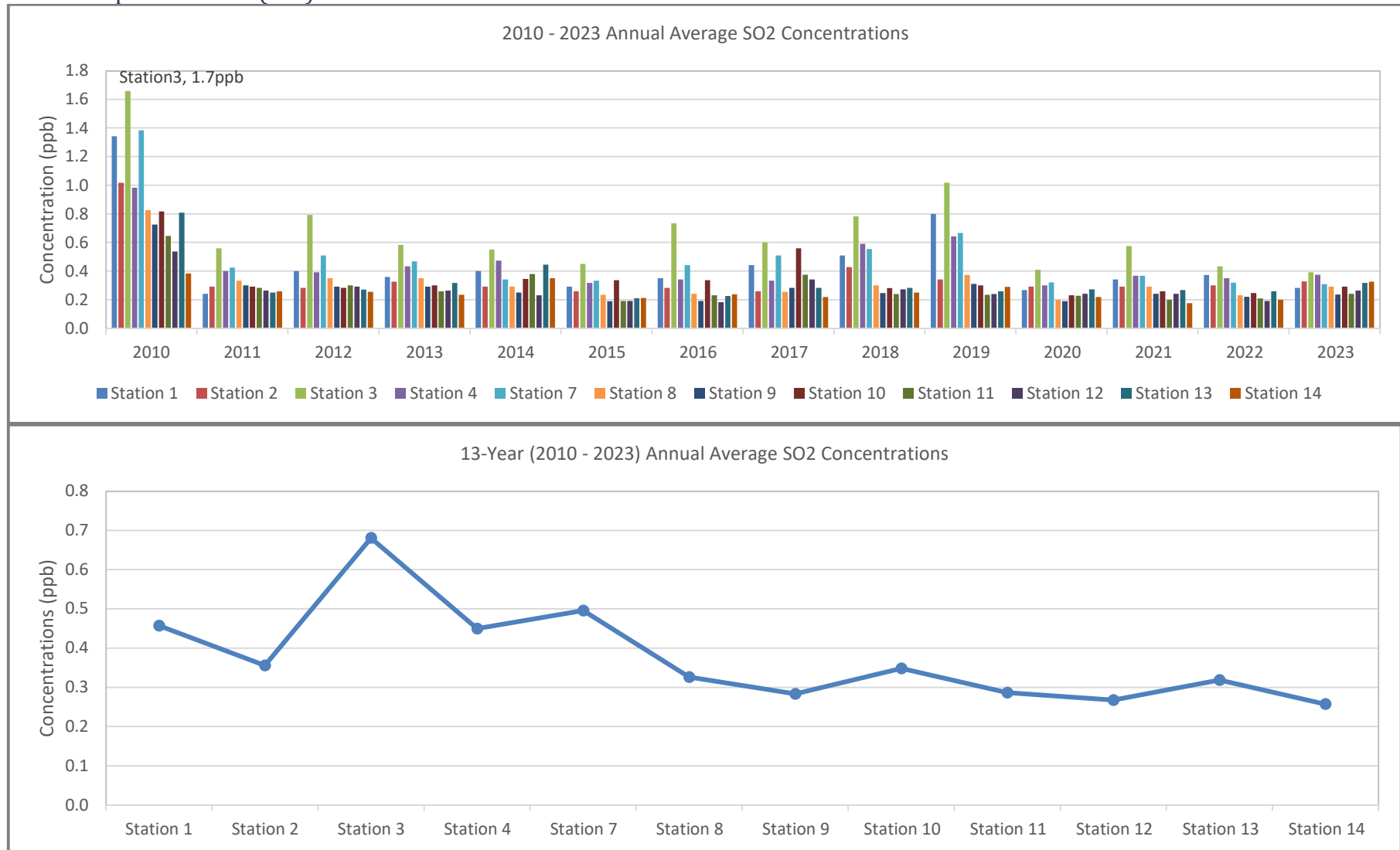
- “-”: value is not available as the analyzer result was below the detectable limit.

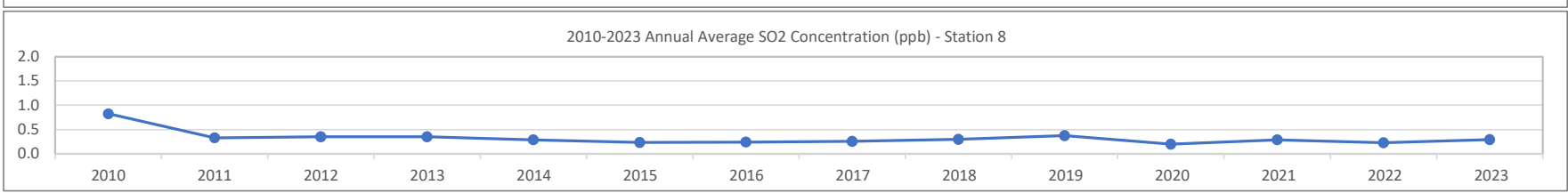
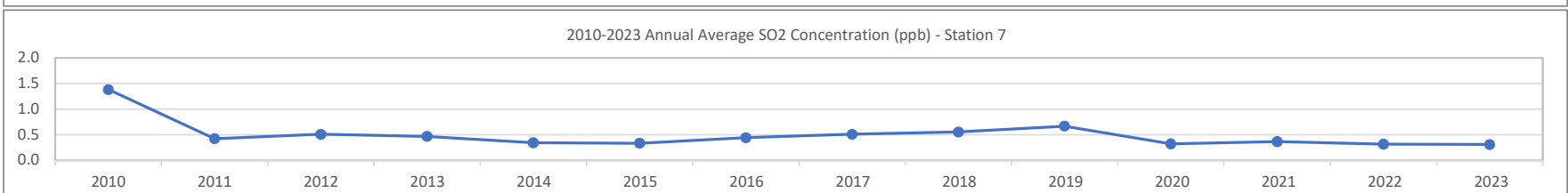
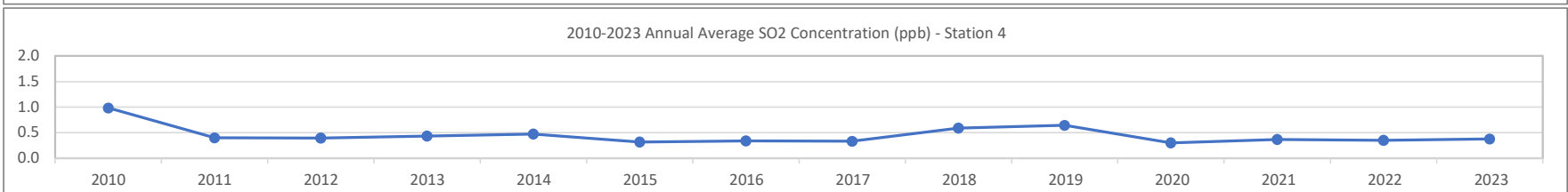
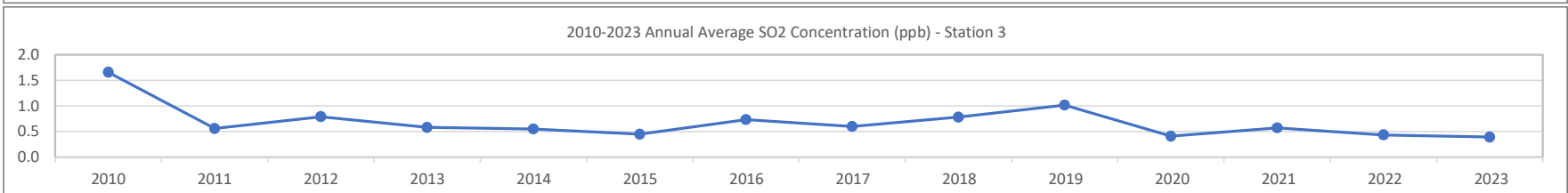
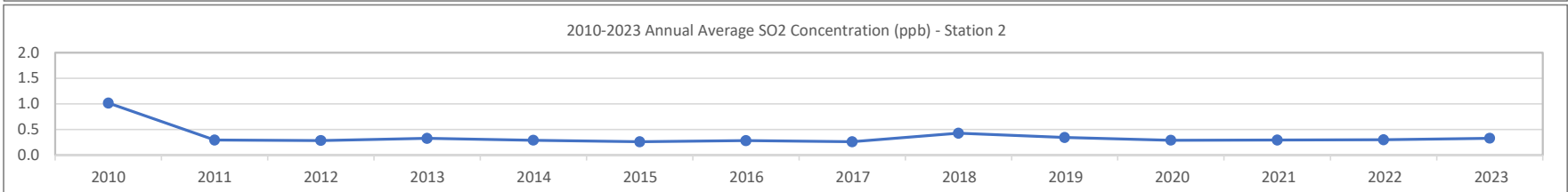
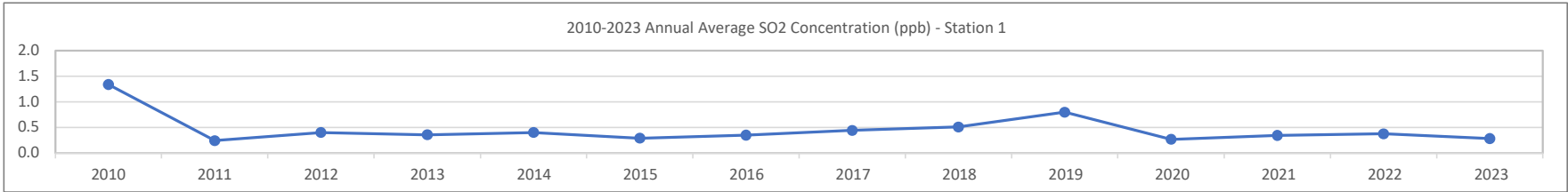
4.0 Integrated Monitoring 14-Year (2010- 2023) Charts of Annual Average Concentrations

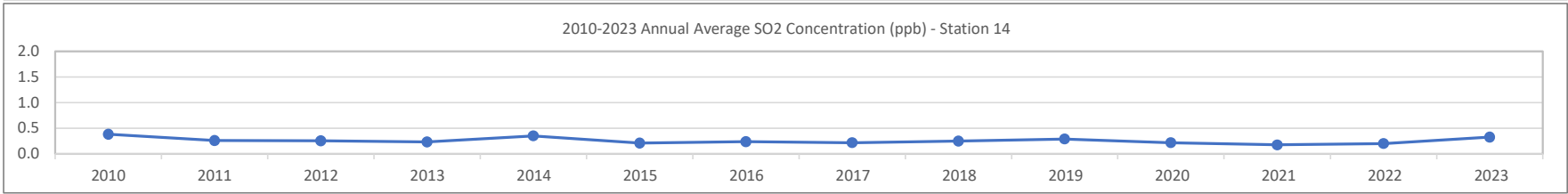
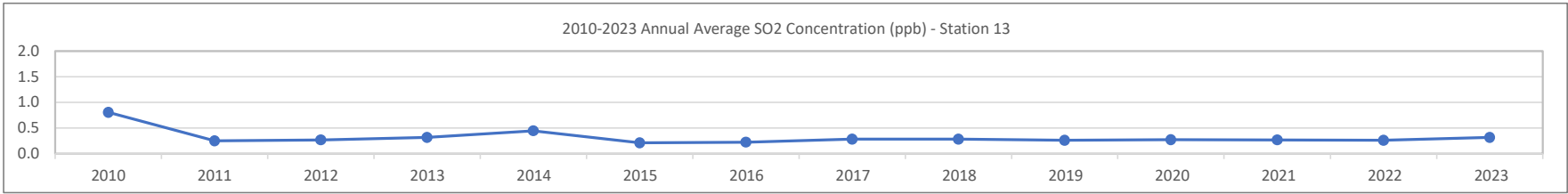
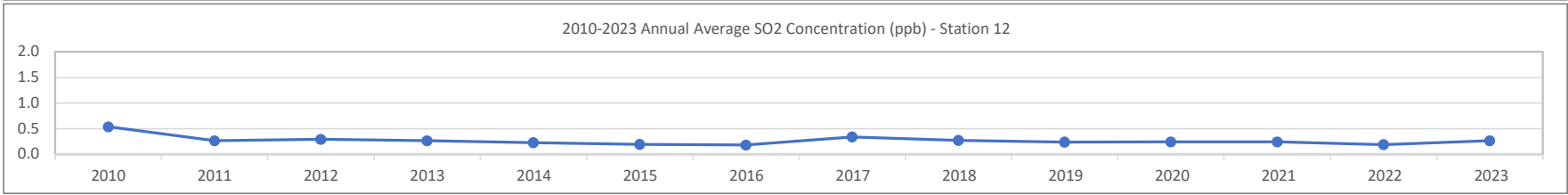
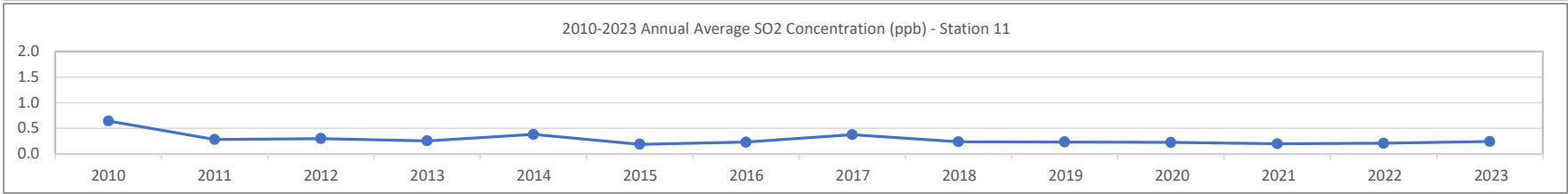
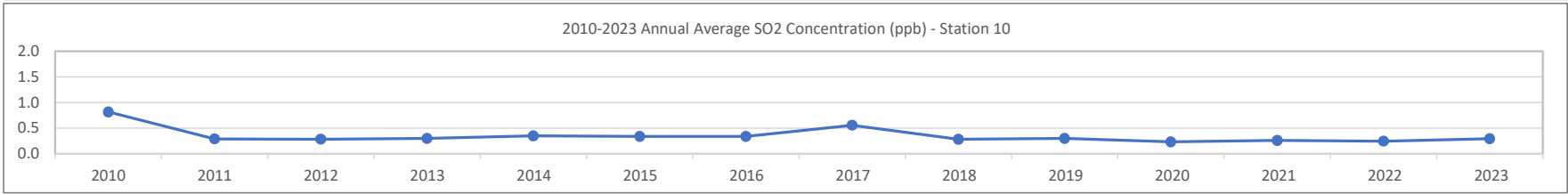
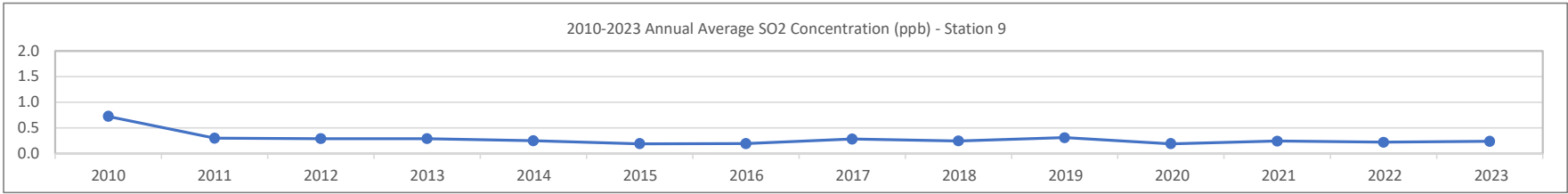
Each canister sample is considered a discrete collection event and not part of a continuous record of monitoring; it is therefore not visualized in this section.

4.1 Passive Sampling System

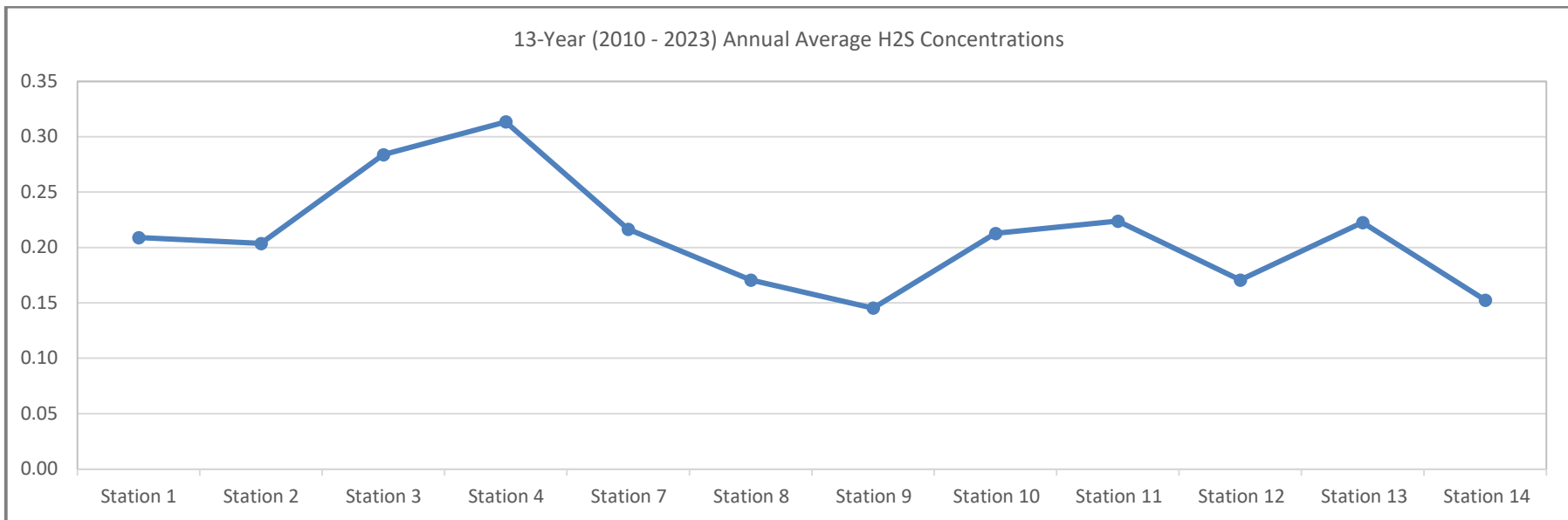
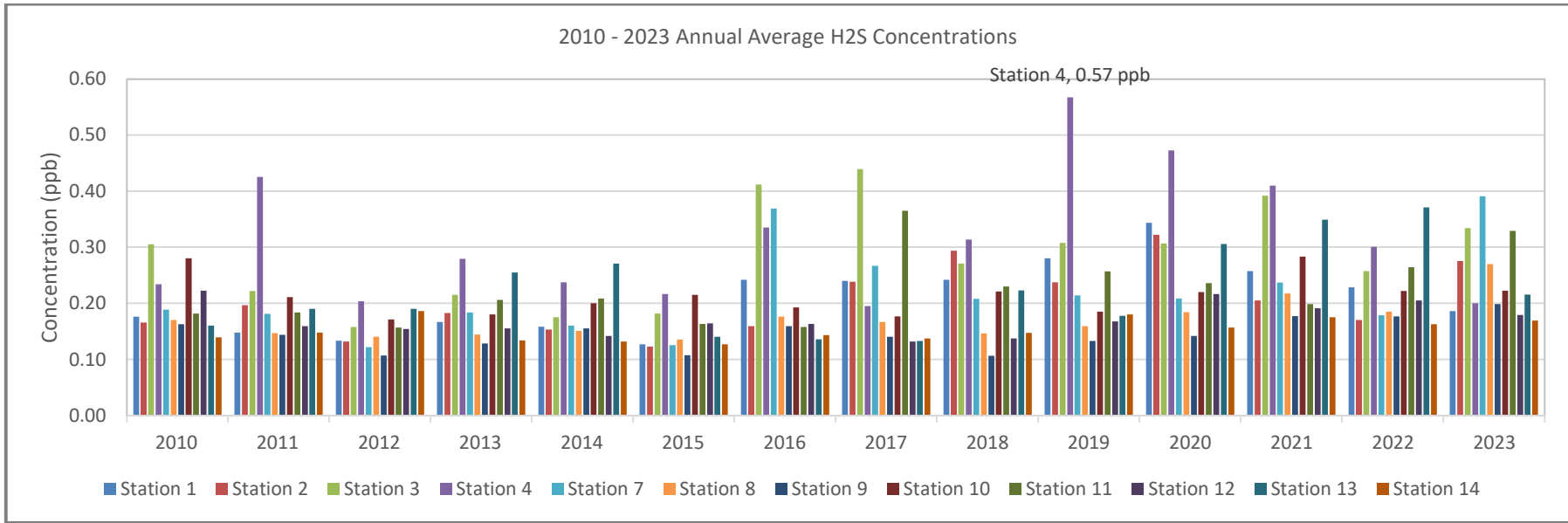
4.1.1 Sulphur Dioxide (SO₂)

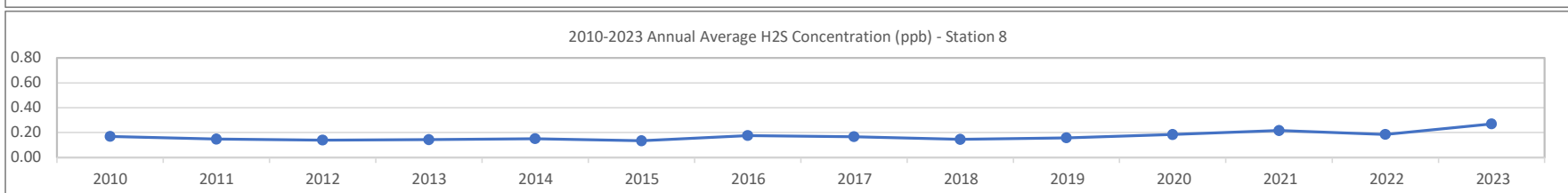
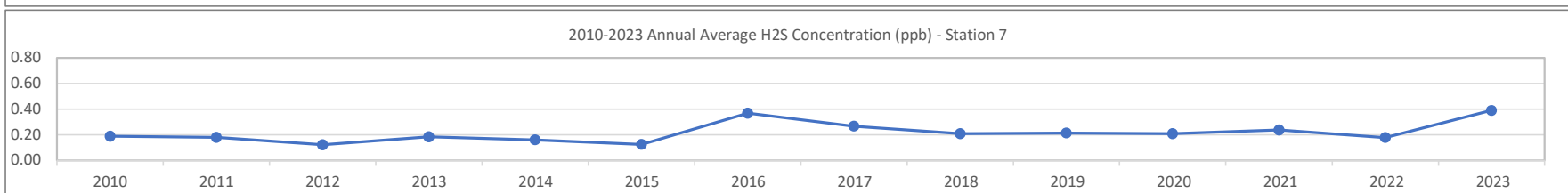
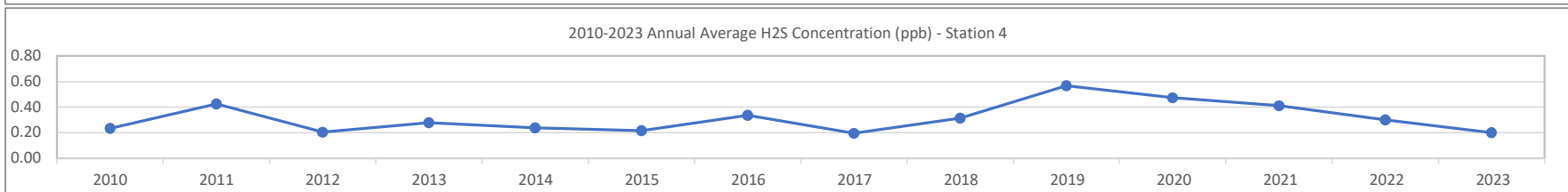
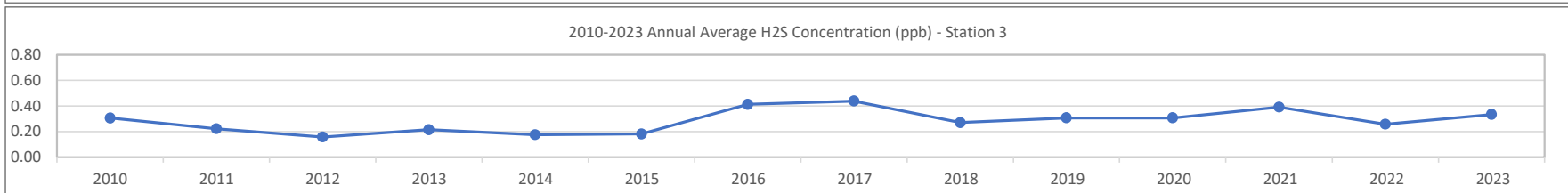
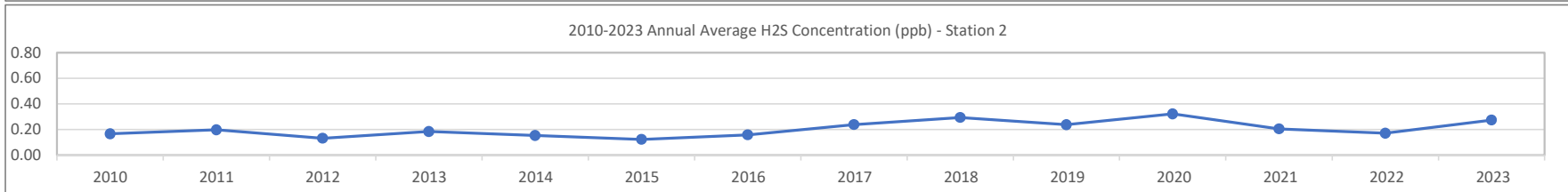
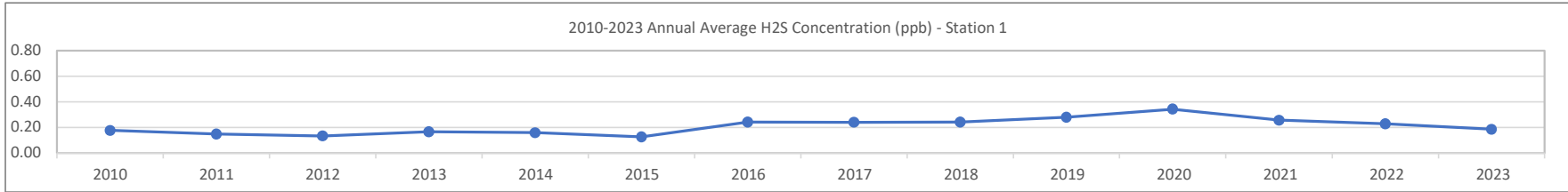


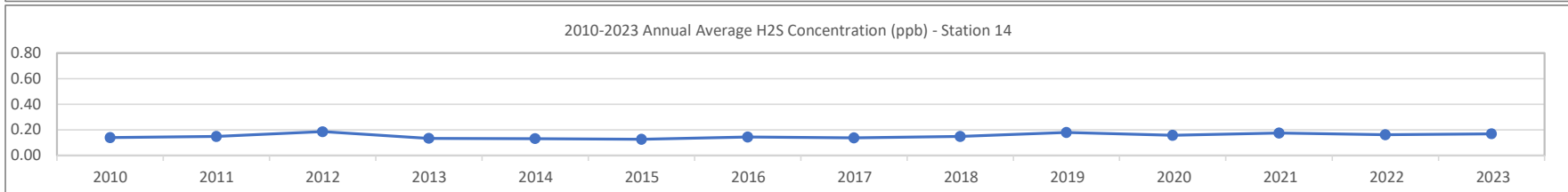
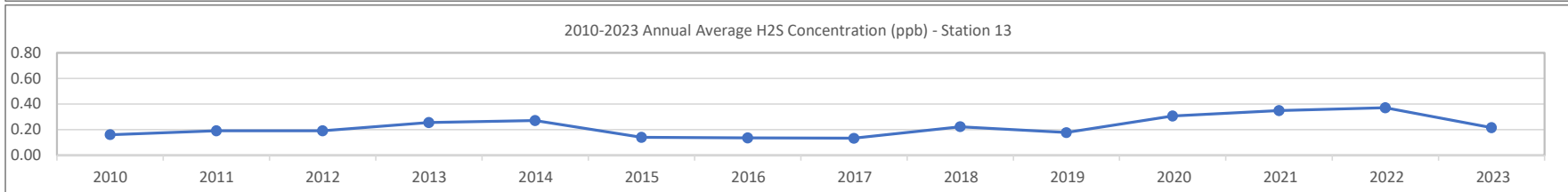
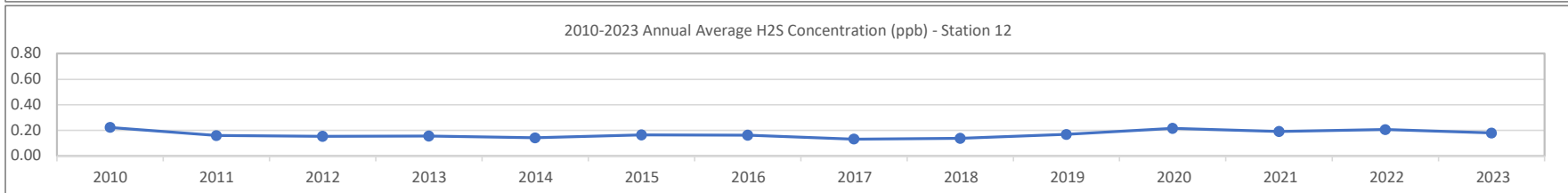
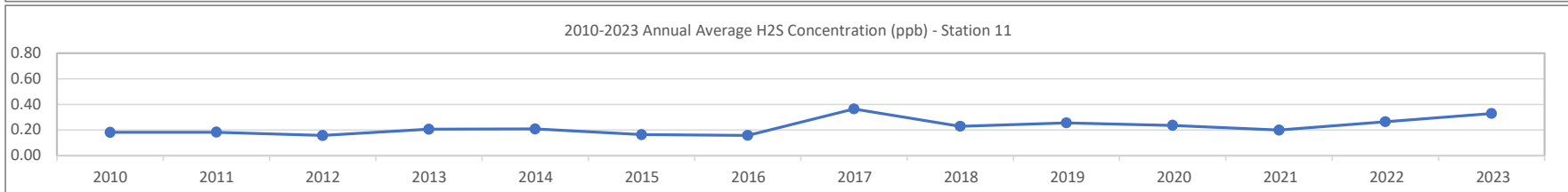
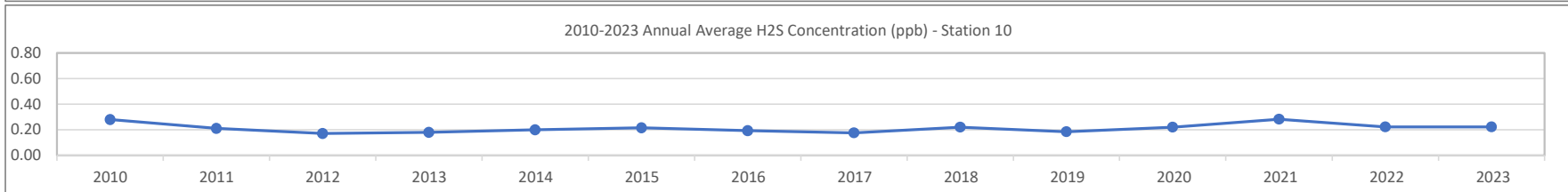
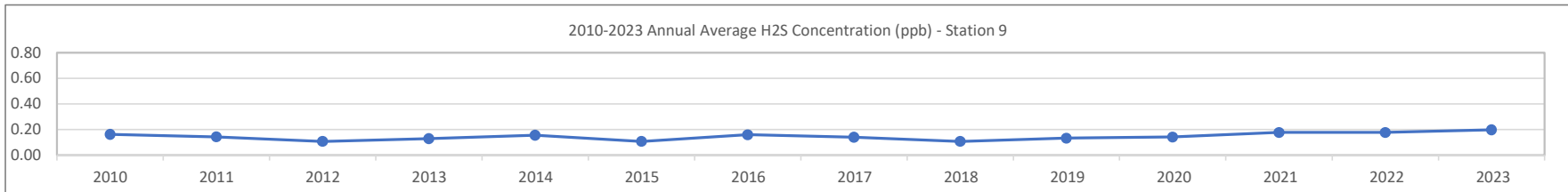




4.1.2 Hydrogen Sulphide (H₂S)







END OF REPORT

This page, 117 of 117, ends the 2023 Annual Ambient Air Quality Monitoring Report.