Peace River Area Monitoring Program

2022

Annual Ambient Air Quality Monitoring Report

PRAMP-2022

Report Prepared By:

Peace River Area Monitoring Program

March 31, 2023

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Contents

List of Acronyms

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH4	Methane
EPEA	Environmental Protection and Enhancement Act
H2S	Hydrogen Sulphide
kph	kilometers per hour
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
ppb	parts per billion
ppm	parts per million
PRAMP	Peace River Area Monitoring Program
RH	Relative Humidity
SO2	Sulphur Dioxide
ST	Station Temperature
THC	Total Hydrocarbons
TRS	Total Reduced Sulphur
VWD	Vector Wind Direction
VWS	Vector Wind Speed
WD	Wind Direction
WS	Wind Speed
°C	Degrees Celsius

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March 31, 2023

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RE: 2022 Annual Ambient Air Quality Monitoring Report -PRAMP Airshed

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Enclosed is the *2022 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 2022.

The representative of the Person Responsible for this monitoring program is:

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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 2022 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
N	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 2022

986-C Station:

- A summary of the annual statistics for the station are presented below:

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	ST
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	C°
Minimum	0	0	1.88	1.88	0	12	912	-39.8	11
Min Date	Jan-01 @0	Jan-3 @3	Aug-30 @16	Aug-30 @16	Jan-01 @0	Jun-3 @16	Oct-27 @9	Dec-20 @8	Dec-20 @9
Maximum	4	3.62	2.96	2.96	0.01	100	974	32.6	24.8
Max Date	Dec-02 @23	Sept-18 @22	Dec-20 @11	Dec-20 @11	June-16 @7	Jan-01 @10	Nov-16 @18	Jul-28 @15	Mar-20 @13
Average	0	0.32	2.1	2.1	0	69	942	1.9	23.3
# of Reading	8169	7970	8117	8117	8117	8576	8620	8617	8622
Valid Data[%]	93.3	91	92.7	92.7	92.7	97.9	98.4	98.4	98.4
Operational Uptime[%]	98.2	96	97.6	97.6	97.6	97.9	98.4	98.4	98.5

	PRECIP*	WDS	WDV
	mm	KPH	Deg
Minimum	0	0.1	0
Min Date	Jan-1 @0	Feb-13 @15	Jan-02 @3
Maximum	3.3	40.9	360
Max Date	Aug-04 @9	Oct-27 @12	Jan-02 @4
Average	138.5	2.6	226
# of Reading	7164	8573	8573
Valid Data[%]	81.8	97.9	97.9
Operational Uptime[%]	81.9	98	98

* Total amounts were presented on the table

- There were no exceedances of the AAAQOs at the 986-C Station in 2022.
- **AT/RH:** On January 13, the Rotronic HC2-S3 RH/AT sensor, s/n: 20357528, as removed following a shut-down verification due to persistently high RH readings. The Rotronic HC2-S3 RH/AT sensor, s/n: 61116376, was installed afterwards. Two hours of downtime were recorded due to this event.
- **Precipitation:** The precipitation gauge was found to be non-functional (tipping bucket and drain holes frozen) on February 3. Troubleshooting was performed on the precipitation unit and batteries for the unit were changed. The unit passed the tip-test afterwards. In the absence of a clear point of failure, data were invalidated from the time that the ambient temperature dropped consistently below the sensor's operating range (-20°C), to the time that the sensor was found to be working again (January 31 hour 19 to February 3 hour 13). Five and sixty-two hours of data collected in January and February were discarded, respectively, due to this event. Operational uptime 72.8%.

- **WS/WD:** The RM Young 05305L, s/n: 174795, wind system gave unstable wind direction readings on April 10. Following a successful shut-down calibration on April 11, the wind system was removed, and the RM Young 05305AQ, s/n: 180340, wind system was installed. Both the wind speed and wind direction channels were back online after the installation calibration on April 12. Forty-three hours of downtime were recorded due to this event.
- **TRS:** Following a shut down calibration on May 12, the PRAMP-owned CD Nova CDN101 convertor, s/n: 583, was removed, and the BV-supplied CD Nova CDN101 convertor, s/n: 552, was installed. A successful post-repair calibration was completed afterward. Seven hours of downtime were recorded due to this event.
- **TPX/RH**: On May 12, the BV-supplied Rotronic HC2-S3 sensor, s/n: 61116376, was removed, and the PRAMP-owned Rotronic HC2-S3 sensor, s/n: 20357528, was installed. The PRAMP-sensor was removed from the field and sent back to the manufacturer for repair and recalibration in March. Two hours of downtime were recorded due to this maintenance activity.
- **THC/CH4/NMJHC:** In order to investigate persistently high CH4 concentrations, the analyzer was decided to be removed from the field and brought back to the BV shop for further checking and bench testing. Following a shut down calibration on June 7, the PRAMP-owned Thermo 55i HC analyzer, s/n: 1193585652, was removed, and the BV-supplied Thermo 55i HC analyzer, s/n: 1433563261, was installed. A successful post-repair calibration was completed afterward. Four hours of downtime were recorded due to this event.
- **SO2**: The analyzer failed due to a firmware crash on August 28. The analyzer was reset on August 29. Twenty-two hours of downtime were recorded. With the downtime caused by the power outage (sixty-eight hours of downtime) and the system crash, the 90% operational uptime was not meet in August. Operational uptime 87.8%. **AEP reference #: 404462**.
- **THC/CH4/NMHC**: The analyzer failed due to a sample pump failure on August 4. The pump was replaced, and a successful post-repair calibration was completed on August 5. Sixteen hours of downtime were recorded due to this event. With the downtime caused by the power outage (sixty-eight hours of downtime) and the sample pump failure, the 90% operational uptime was not meet in August. Operational uptime 88.7%. **AEP reference #: 404462.**
- **Precipitation**: The precipitation gauge was found to have a loose connection with the datalogger during the September 19 site visit. The connection was fixed on September 19 hour 18. Data collected before September 19 were compared with other near-by stations and deemed invalid. Data were discarded back to the time the last valid system check, which was August 5 hour 9. Six hundred thirty-nine hours and four hundred fifty hours of data were discarded in August and September, respectively. Operational uptime for August and September were 5.0% and 37.4%.
- **TRS:** Operational uptime 73.5%. **AEP Reference #: 407836:**
    - The analyzer failed the as-found points check on November 9. It was suspected the issue was from the scrubber material. The scrubber check and a post-repair calibration were completed on November 9. Analyzer was left offline after the calibration for three hours to monitor its functionality. Data were invalidated back to the last valid calibration check, which was November 5. Eighty-eight hours of downtime were recorded.
    - The analyzer failed the daily zero-span check on November 11 and failed the shut-down calibration on November 13. Maintenance was completed on the TRS converter (SO2 scrubber material). The analyzer was left offline overnight to stabilize. A successful post-repair calibration was completed on November 14. Data were invalidated back to the last valid calibration check, which was November 10. Ninety hours of downtime were recorded.

842-B Station:

- A summary of the annual statistics for the station are presented below:

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	ST
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	C°
Minimum	0	0.04	1.77	1.77	0	13	912	-39.7	20.1
Min Date	Jan-01 @0	Feb-01 @20	Jan-15 @7	Jan-15 @7	Jan-01 @0	Jun-03 @15	Apr-04 @13	Dec-20 @6	Nov-08 @9
Maximum	5	5.1	4.95	4.61	0.34	100	973	31.4	24.4
Max Date	Dec-02 @22	Aug-27 @20	Mar-15 @5	Mar-15 @5	Mar-15 @5	Jan-12 @22	Nov-16 @18	Jul-28 @16	Jul-11 @2
Average	0	0.5	1.96	1.96	0	72	940	2.3	22.5
# of Reading	8248	7868	8175	8175	8175	8681	8681	8681	8681
Valid Data[%]	94.2	89.8	93.3	93.3	93.3	99.1	99.1	99.1	99.1
Operational Uptime[%]	99.1	94.5	98.3	98.3	98.3	99.1	99.1	99.1	99.1

	PRECIP*	WDS	WDV
	mm	KPH	Deg
Minimum	0	0	0
Min Date	Jan-01 @0	Mar-05 @20	Jan-30 @19
Maximum	5.3	40.5	360
Max Date	Aug-04 @9	Oct-27 @11	Jan-02 @5
Average	254.4	2.3	230
# of Reading	8642	8679	8679
Valid Data[%]	98.7	99.1	99.1
Operational Uptime[%]	98.7	99.1	99.1

* Total amounts were presented on the table

- There were no exceedances of the AAAQOs at the 842-B Station in 2022.
- **TRS:** The analyzer failed the as-found points check on February 17. Data review showed that although the daily span results were within the acceptable limits, the analyzer failed to recover from the February 11's power failure event properly; a power outage caused sudden jump in lamp voltage. As such, data collected after the power failure on February 11 hour 3 to February 17 hour 7 were discarded. One hundred forty-nine hours of downtime were recorded. Operational uptime 77.2%. **AEP reference #: 388141**.
- **Precipitation:** The precipitation gauge was found to be non-functional (tipping bucket and drain holes frozen) on February 17. Troubleshooting was performed on the precipitation unit and batteries for the unit were changed. The unit passed the tip-test afterwards. In the absence of a clear point of failure, data were invalidated from the time that the ambient temperature dropped consistently below the sensor's operating range (-20°C), to the time that the sensor was found to be working again (February 16 hour 7 to February 17 hour 11). Twenty-nine hours of data were discarded due to this event.
- **TRS:** The CD Nova CDN-101 TRS converter, s/n: 576, failed on July 6. The converter was replaced by

the CD Nova CDN-101 TRS converter, s/n: 583, on July 10. The channel was back online after a successful post-repair calibration on July 11. One hundred twenty-five hours of downtime were recorded due to this event. Operational uptime 77.3%. **AEP reference #: 401189**.

- **THC/CH4/NMHC:** Following a successful shut-down calibration on the Thermo 55i analyzer, s/n: 1501663728, on August 17, the analyzer was removed for maintenance. The Thermo 55i analyzer, s/n: 1193585652, was installed. The analyzer was put offline overnight to stabilize, and a successful installation calibration was completed on August 18. Twenty-four hours of downtime were recorded due to this event.
- **THC/CH4/NMHC:** Following a successful shut-down calibration on the Thermo 55i analyzer, s/n: 1193585652, on September 6, the analyzer was removed. The Thermo 55i analyzer, s/n: 12208316589, was installed. The analyzer was put offline overnight to stabilize, and a successful installation calibration was completed on September 7. Fourteen hours of downtime were recorded due to this event. This analyzer swap was to address the concern of unexpected high CH4 concentrations continuing being recorded from the analyzer.
- **TRS:** The analyzer failed the as-found points check on November 8. Maintenance was completed on the SO2 scrubber material. A successful post-repair calibration was completed afterwards. Data were invalidated back to the last valid calibration check, which was November 5. Seventy hours of downtime were recorded. Operational uptime 89.4%. **AEP Reference #: 407837.**
- On November 21, the BV-supplied Ultimate datalogger, s/n: ACI400063, was removed, and the PRAMP-owned Ultimate datalogger, s/n: ACL1000105, was installed. The PRAMP datalogger was removed from the field in July 2022 due to ransomware attacks.

Reno (Reno-B) Station:

- A summary of the annual statistics for the station are presented below:

	SO2	TRS	THC55	CH4	NMHC	RH	BP	AT	ST
	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°	C°
Minimum	0	0	1.87	1.87	0	0	910	-39.1	17
Min Date	Jan-01 @0	Mar-08 @7	Jan-20 @15	Jan-20 @15	Jan-01 @0	May-08 @7	Apr-04 @12	Dec-20 @23	Jan-5 @9
Maximum	8	9.81	9.13	9.12	0.16	100	973	33	25.3
Max Date	Dec-14 @16	Aug-24 @6	Apr-08 @2	Apr-08 @2	Jan-04 @9	Jan-13 @8	Dec-21 @17	Jul-28 @16	Jan-11 @1
Average	0	0.22	2.03	2.03	0	65	939	2.4	23
# of Reading	8006	7993	8000	8000	8000	8034	8063	8443	8449
Valid Data[%]	91.4	91.2	91.3	91.3	91.3	91.7	92	96.4	96.5
Operational Uptime[%]	96.2	96.1	96	96	96	91.6	92	96.3	96.4

	PRECIP*	WDS	WDV
	mm	KPH	Deg
Minimum	0	0	0
Min Date	Jan-01 @0	Jan-17 @1	Jan-04 @10
Maximum	4.4	34	360
Max Date	Jun-14 @17	Nov-27 @3	Jan-04 @13
Average	232.1	1.3	248
# of Reading	8339	8442	8442
Valid Data[%]	95.2	96.4	96.4
Operational Uptime[%]	95.2	96.3	96.3

* Total amounts were presented on the table

- There were no exceedances of the AAAQOs at the Reno Station in 2022.
- **SO2:** The BV-supplied Thermo 43i-TLE analyzer, s/n: 1162460023, was removed and the PRAMP-owned Thermo 43iQTL analyzer, s/n: 12101910505, was installed on January 11. An installation calibration was completed on January 12. Twenty hours of downtime were recorded due to this event.
- **TRS:** The BV-supplied Thermo 43i-TLE analyzer, s/n: 1162460022, was removed and the PRAMP-owned Thermo 43iQTL analyzer, s/n: 12101910504, was installed on January 11. An installation calibration was completed on January 12. Twenty hours of downtime were recorded due to this event.
- **THC/CH4/NMHC:** The BV-supplied Thermo 55i analyzer, s/n: 1505664392, was removed and the PRAMP-owned Thermo 55i analyzer, s/n: 12101910497, was installed on January 11. An installation calibration was completed on January 12. Twenty-one hours of downtime were recorded due to this event.
- **Meteorological channels:** Channels were put offline during the datalogger swap (the BV-supplied data logger was removed and the PRAMP-owned datalogger was installed) on January 11 between hour 16 and 17. Two hours of downtime were recorded as a result.
- **All Parameters:** Due to collection issues on datalogger, one hundred fifteen hours of data were lost this month. The data logger was replaced to correct the issue on February 15. Operational uptime requirement (82.4%). **AEP reference #: 387887.**
- **RH:** The probe failed on May 23 hour 7, and it was replaced on June 9 hour 10. 209 hours of downtime were recorded in May. Operational uptime 71.9%.
- **RH:** The Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, failed on May 23 hour 7. On June 9, the faulty sensor was removed, and the Rotronic HC2-S3 RH/AT sensor, s/n: 61116376, was installed. 202 hours of downtime were recorded in June. Operational uptime 71.9%.
- **BP:** It was noticed that no variations were shown in the data between June 29 hour 15 and July 12 hour 16. Data are not believed to be real readings and were discarded. Thirty-three and two hundred eight-one hours of downtime were recorded in June and July, respectively. Operational uptime for June and July were 95.4% and 55.5%.
- The air monitoring station was relocated on November 22, from 55.86936 North, -117.05739 West to 55.890868 North, 117.137080 West. The station name was changed from Reno to Reno-B to distinguish between the old and new locations. The station was relocated to address the following EPA 2019 Ambient Air Monitoring Station Audit finding. All analyzers, meteorological systems and the datalogger were installed and calibrated/audited on November 23. The station was brought back online on November 23.

- **RH/TPX:** The Rotonic HC2-S3 sensor, s/n: 61116376, was removed after the audit on November 22. The Rotonic HC2-S3 sensor, s/n: 20467597, was installed on November 23.
- **BP:** The MetOne 92 sensor, s/n: K12864, was removed after the audit on November 22. The MetOne 92 sensor, s/n: A17940, was installed on November 23.
- **Wind system:** The RM Young 05305VK system, s/n: 149769, was removed after the shut-down calibration on November 22. The RM Young 05305AQ system, s/n: 174795, was installed following by an installation calibration on November 23.

PRC Station:

- A summary of the annual statistics for the station are presented below:

	SO2	H2S	TRS	THC55	CH4	NMHC	RH	BP	AT
	ppb	ppb	ppb	ppm	ppm	ppm	%RH	mb	C°
Minimum	0	0	0	1.88	1.88	0.00	14	913	-40.3
Min Date	Jan-01 @0	Jan-01 @0	Jan-01 @0	Apr-04 @12	Apr-04 @12	Jan-01 @0	Jun-03 @15	Oct-27 @8	Jan-05 @4
Maximum	21	7	7	2.41	2.41	0.25	100	974	32.6
Max Date	Feb-24 @13	Oct-20 @11	Oct-20 @11	Aug-20 @7	Aug-20 @7	May-16 @21	June-20 @3	Nov-16 @18	Jul-28 @15
Average	0.0	0	0	2.02	2.02	0.00	68	942	1.9
# of Reading	8247	8217	8249	8260	8260	8260	5870	5120	8728
Valid Data[%]	94.1	93.8	94.2	94.3	94.3	94.3	67.0	58.5	99.6
Operational Uptime[%]	99.1	98.8	99.3	99.2	99.2	99.2	99.8	87.2	99.6

	ST	WDS	WDV
	C°	KPH	Deg
Minimum	12.4	0.2	0
Min Date	Nov-02 @8	Jan-22 @3	Feb-15 @10
Maximum	32.1	42.6	360
Max Date	Jun-11 @7	Oct-27 @12	Feb-15 @18
Average	22.3	3.3	221
# of Reading	8731	8726	8726
Valid Data[%]	99.7	99.6	99.6
Operational Uptime[%]	99.7	99.6	99.6

* RH sensor and BP sensor was installed in mid-April. The first valid reading was recorded on May 1. Operational uptimes were calculated based on values collected between May and December.

- There were no exceedances of the AAAQOs at the PRC Station in 2022.
- PRAMP began managing the PRC station, starting March 1. Data validation and monthly reports for data collected in January and February were completed by Bureau Veritas.

- **TPX/RH**: On April 19, the CRUL-owned MetOne 064-2, s/n: F6705, temperature sensor was replaced with a PRAMP-supplied Rotronic C2-S3, s/n: 28558318, temperature/relative humidity sensor. Reporting of humidity data commenced in the May 2022 monthly report.
- **BP**: The MetOne 092, s/n: B19577, barometric pressure sensor was installed on April 19. Reporting of barometric pressure data commenced in the May 2022 monthly report.
- **TRS:** Following a shut down calibration on May 18, the BV-supplied Thermo 43i-TLE analyzer, s/n: 116460022, and the CD Nova CDN101 convertor, s/n: 553, was removed. The CNUL-owned Thermo 450i analyzer, s/n: 1034746224, and the CD Nova CDN101 convertor, s/n: 506, was installed following by a successful installation calibration. The CNUL's equipment was removed from the field and was serviced by BV; for the analyzer, the UV lamp was changed and the pump was rebuilt, and for the convertor, the quartz crystal tube was changed. One hour of downtime was recorded due to this event.
- **BP:** During monthly data review, it was noticed that no variations were shown in the data between July 1 hour 0 and August 1 hour 5. Data are not believed to be real readings and were discarded. Seven hundred forty-four hours of downtime were recorded July. Operational uptime 0.0%.

AQHI - Grimshaw Station:

- A summary of the annual statistics for the station are presented below:

	SO2	TRS	NOx	NO	NO2	O3	THC55	CH4	NMHC
	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppm	ppm
Minimum	0	0.00	0	0	0	0.2	1.85	1.85	0.00
Min Date	Jan-001 @0	Jan-03 @19	Jan-15 @6	Jan-01 @0	Jan-15 @6	Jan-13 @18	Jan-20 @13	Jan-20 @13	Jan-01 @1
Maximum	4	14.24	126	96	46	63.3	4.32	3.1	2.24
Max Date	Sept-12 @9	May-03 @2	Dec-29 @17	Dec-29 @17	Jan-18 @8	Jun-03 @17	Aug-23 @22	Jan-14 @3	Aug-23 @22
Average	0.0	0.39	5	1	4	27.8	2.04	2.03	0.01
# of Reading	8299	8241	8239	8239	8239	8304	8250	8250	8250
Valid Data[%]	94.7	94.1	94.1	94.1	94.1	94.8	94.2	94.2	94.2
Operational Uptime[%]	99.7	99.1	99.3	99.3	99.3	99.8	99.1	99.1	99.1

	PM2.5	RH	BP	AT	ST	WDS	WDV
	ug/m3	%RH	mb	C°	C°	KPH	Deg
Minimum	0	14	914	-38.8	20.6	0.1	0
Min Date	Jan-15 @5	Jun-03 @15	Apr-04 @11	Dec-21 @9	Apr-10 @10	Jan-01 @0	Jan-02 @13
Maximum	302	100	975	33.1	25.8	38.3	360
Max Date	Sept-04 @8	June-17 @5	Nov-16 @17	Jul-28 @15	Aug-10 @18	Feb-06 @3	Jan-17 @2
Average	7	66	942	2.7	22.3	9.1	300
# of Reading	8732	8757	8757	8757	8757	8754	8754
Valid Data [%]	99.7	100.0	100.0	100.0	100.0	99.9	99.9
Operational Uptime[%]	99.9	100.0	100.0	100.0	100.0	100.0	100.0

- There were no exceedances of the AAAQOs at the AQHI - Grimshaw Station in 2022, except PM2.5.
- PM2.5:
    - Eight 24-Hour exceedances and twenty-five 1-Hour exceedances of PM2.5 were recorded.
    - In September, twenty-two 1-hour and three 24-hour PM2.5 exceedances were recorded and were caused by smoke being transported into the area from wildfires burning in British Columbia.
    - In October, three 1-hour and four 24-hour PM2.5 exceedances were recorded and were caused by wildfires.
    - In November, one 24-hour PM2.5 exceedance was recorded and were caused by caused by stagnant weather conditions; similar air quality observations were made at several monitoring stations across Alberta between November 10 – 13, 2022. This stagnant episode was marked by sustained low wind speeds which hindered the dispersion of pollutants causing them to become built-up in the area.

Date	Time (MST)	Average Period	Pollutant Parameter	Average Value	Units	WS (kph)	WD (deg)	AEP Reference #
04-Sep	7	1-Hour	PM2.5	139	µg/m3	7.7	320°	403913
04-Sep	8	1-Hour	PM2.5	302	µg/m3	3.5	310°	403913
04-Sep	9	1-Hour	PM2.5	286	µg/m3	1	265°	403913
04-Sep	10	1-Hour	PM2.5	199	µg/m3	5.9	249°	403913
04-Sep	17	1-Hour	PM2.5	97	µg/m3	22.7	221°	403913
04-Sep	-	24-Hour	PM2.5	62	µg/m3	11.8	275°	403913
10-Sep	10	1-Hour	PM2.5	98	µg/m3	14.4	294°	404189
10-Sep	11	1-Hour	PM2.5	111	µg/m3	13.1	295°	404189
10-Sep	12	1-Hour	PM2.5	81	µg/m3	12.1	292°	404189
10-Sep	13	1-Hour	PM2.5	92	µg/m3	13.1	291°	404189
10-Sep	14	1-Hour	PM2.5	92	µg/m3	12.7	284°	404189
10-Sep	17	1-Hour	PM2.5	86	µg/m3	2.6	331°	404189
10-Sep	18	1-Hour	PM2.5	91	µg/m3	0.1	335°	404189
10-Sep	19	1-Hour	PM2.5	107	µg/m3	2.1	331°	404189
10-Sep	20	1-Hour	PM2.5	107	µg/m3	3.1	335°	404189
10-Sep	21	1-Hour	PM2.5	104	µg/m3	4.4	329°	404189
10-Sep	22	1-Hour	PM2.5	84	µg/m3	6.1	345°	404189
10-Sep	-	24-Hour	PM2.5	60	µg/m3	8.8	286°	404189
16-Sep	13	1-Hour	PM2.5	90	µg/m3	12.4	196°	404497
16-Sep	4	1-Hour	PM2.5	123	µg/m3	9.7	242°	404497
16-Sep	15	1-Hour	PM2.5	102	µg/m3	9	288°	404497
16-Sep	16	1-Hour	PM2.5	84	µg/m3	11.1	298°	404497
16-Sep	17	1-Hour	PM2.5	96	µg/m3	8.3	287°	404497
16-Sep	18	1-Hour	PM2.5	95	µg/m3	8.2	303°	404497

Date	Time (MST)	Average Period	Pollutant Parameter	Average Value	Units	WS (kph)	WD (deg)	AEP Reference #
16-Sep	-	24-Hour	PM2.5	47	µg/m3	5.7	255°	404497
07-Oct	-	24-Hour	PM2.5	41	µg/m3	5.4	231°	404189
08-Oct	-	24-Hour	PM2.5	31	µg/m3	4.5	250°	404189
14-Oct	19	1-Hour	PM2.5	165	µg/m3	12.4	33°	403913
14-Oct	20	1-Hour	PM2.5	156	µg/m3	10.6	28°	403913
14-Oct	21	1-Hour	PM2.5	83	µg/m3	7.9	27°	403913
14-Oct	-	24-Hour	PM2.5	42	µg/m3	12.8	331°	403913
18-Oct	-	24-Hour	PM2.5	32	µg/m3	8.3	256°	404189
10-Nov	-	24-Hour	PM2.5	38	µg/m3	5.1	219°	406665

- The AQM station and all monitoring equipment were moved from the last monitoring location, which was Grimshaw, to the town of Grimshaw on November 24, 2021. All equipment were allowed time to stabilize. The station was back online after an installation calibration and/or meteorological sensor check/verification was completed on the equipment on December 1. During the equipment stabilizing period, the O3 analyzer was replaced from Teledyne T200, s/n: 824, to API 400A, s/n: 445, to address noise issues that were identified during the previous months (while the analyzer was running at Grimshaw).
- **TRS**: On February 15, the BV-supplied CD Nova CDN101 TRS convertor, s/n: 534, was removed, and the PRAMP-owned CD Nova CDN101, s/n: 530, was installed.
- **O3:** On July 12, the BV-supplied API 400A analyzer, s/n: 445, was removed, and the PRAMP-owned Teledyne T400 analyzer, was installed. One hour of downtime was recorded due to this event.
- **TRS**: On December 13, the CD Nova CDN-101 TRS convertor, s/n: 530, was removed and replaced by the CD Nova CDN-101 TRS convertor, s/n: 576.

Passive Monitoring Summary

12 multi-parameter passive stations were used around the PRC station. These stations monitored both SO_2, and H_2S. 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 Alberta's Ambient Air Data Warehouse 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**
2022	0

Special Study 1

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 2022, 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.

A total of 5 non-methane canister samples were collected in 2022.

Date	Time	Station	Concentration (ppm)
15-Mar	04:40	842-B	0.31
28-May	14:20	842-B	0.37
10-Sept	20:30	Reno	0.34
30-Sept	19:20	Reno	0.35
08-Oct	21:55	Reno	0.44

Special Study 2

The Thermo 55i HC analyzer, s/n: 1193585652, tended to record higher than expected methane (CH4) concentrations since it was installed at the 986-C station on December 8, 2021. Comparing data collected at this station with data collected at the 842-B, Reno, and PRC stations, the analyzer was detecting CH4 about 0.18 ppm higher than expected (on average). In 2022, this analyzer underwent multiple maintenance events and extensive bench testing at the Bureau Veritas (BV) shop; BV is PRAMP's field contractor. No issues could be identified. The analyzer also passed the monthly calibration and daily zero-span check each time. Because the analyzer passed the calibration requirements each month, data were deemed valid. However, CH4 data remained questionable. A special study was conducted by a BV senior technician at the BV Edmonton shop between January 10 and February 8, 2023 to try to determine how much drift the analyzer was producing. Data were compared with Thermo 55i analyzer, s/n: 1034745854. The #103475854 analyzer was an instrument known to have stable, and reliable performance. On January 10, both the analyzers were calibrated in parallel using a shared calibration system. Following the calibration, the analyzers shared a common sample inlet that pulled in air from the ambient workshop. That is (a) the calibration system output was shared by both analyzers and used to perform an identical adjustment, and (b) the analyzers sampled identical air. On January 16, a quick test was run using the calibrator to compare the response at higher concentrations. The test results met the AMD calibration requirements.

The study results showed that a noticeable difference developed between the analyzers: with the #1193585652 analyzer indicating a slightly higher CH4 concentrations (about 0.05ppm). Although the difference was clear, it is not obvious if this is significant given the 55i performance specifications:

Limit of detection	50 ppb
Analysis time	Approximately 70 seconds
Accuracy	±1% of range
Repeatability	±2% of measured value or 50 ppb (whichever is larger)
Drift (without auto calibration)	±2% of span over 24 hours

Given that the difference between the #1193585652 and #1034745854 analyzers was minor, the result will not be used to re-verify and re-calculate the data that were recorded in the field. As a result, data collected by the Thermo 55i analyzer, s/n: 1193585652, at the 986 station between December 8, 2021 and June 7, 2022, and at the 842-B station on August 17, 2022 and September 6, 2022, were not adjusted and considered valid.

Notification of Changes Made After Monthly Report Issuance

During 2022 annual data review, it was noticed two hourly RH data collected in August 2022 at the 842 station were reported above 100%; August hour 8 and August 16 hour 23. The data were revised and resubmitted to ETS on March 14. **ETS request # 4528009**.

Deviations from Authorized Monitoring Methods

The Reno air monitoring station was relocated on November 22, from 55.86936 North, -117.05739 West to 55.890868 North, 117.137080 West. The station name was changed from Reno to Reno-B to distinguish between the old and new locations. The station was relocated to address the following EPA 2019 Ambient Air Monitoring Station Audit finding: - *"Based on observations and measurements made at the Reno station, it appears that the wind speed and direction sensor siting does not meet AMD criteria found in Chapter 3 SS 2-G and Table 3/Figure 2."* All analyzers, meteorological systems and the datalogger were installed and calibrated/audited on November 23. The station was brought back online on November 23.

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 31, 2023

1. Summaries of Statistics and Data Qualifier Flag Summaries

1.1 986-C Station

Table 1 SO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Readings	Monthly Avg. (ppb)	# of 30-day AAAQO Exceedances	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	100.0	706	0.0	0	0	1	0	0	0
February	100.0	639	0.1	0	0	1	0	1	0
March	100.0	708	0.1	0	0	3	0	1	0
April	100.0	685	0.0	0	0	1	0	0	0
May	98.4	695	0.0	0	0	1	0	0	0
June	100.0	685	0.0	0	0	1	0	0	0
July	92.9	657	0.0	0	0	2	0	0	0
August	87.8	619	0.0	0	0	1	0	0	0
September	100.0	683	0.0	0	0	1	0	0	0
October	100.0	707	0.1	0	0	1	0	0	0
November	100.0	684	0.1	0	0	2	0	1	0
December	99.2	701	0.2	0	0	4	0	1	0
Annual	98.2	8169	0.1	0	0	4	0	1	0

Table 2 SO2 2022 Annual Frequency Distribution

Month	Percentage of Readings in Concentration Range (in ppb)				
	0 - 10	11 -50	51 -100	101 - 172	>172
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 3 SO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	1	0	0	0	24	55	374	0

Total Hours of Downtime	162	Total Hours of Calibration Time	429	Total Hours of Flagged	591

Table 4 TRS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	100.0	706	0.09	0.00	0.90	0.31
February	100.0	638	0.09	0.00	0.48	0.25
March	100.0	707	0.09	0.00	0.42	0.21
April	99.3	679	0.08	0.00	0.36	0.21
May	97.4	689	0.27	0.00	0.90	0.61
June	99.6	681	0.41	0.05	1.32	0.86
July	90.3	633	0.47	0.00	3.19	2.11
August	90.5	636	0.75	0.17	3.37	1.00
September	100.0	683	0.57	0.07	3.62	1.23
October	100.0	707	0.40	0.07	1.23	0.69
November	75.3	510	0.27	0.03	0.53	0.43
December	99.2	701	0.38	0.02	1.05	0.84
Annual	96.0	7970	0.32	0.00	3.62	2.11

Table 5 TRS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	98.9%	1.1%	0.0%	0.0%	0.0%
August	99.8%	0.2%	0.0%	0.0%	0.0%
September	99.6%	0.4%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.9%	0.1%	0.0%	0.0%	0.0%

Table 6 TRS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	172	0	0	0	45	70	366	0

Total Hours of Downtime	354	Total Hours of Calibration Time	436	Total Hours of Flagged	790

Table 7 THC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	97.3	687	2.10	1.91	2.62	2.31
February	99.6	636	2.18	2.03	2.88	2.40
March	99.5	704	2.21	2.12	2.53	2.26
April	99.2	681	2.23	2.09	2.50	2.35
May	98.4	696	2.22	2.06	2.53	2.34
June	99.4	680	2.09	1.95	2.93	2.31
July	92.7	656	2.00	1.89	2.30	2.07
August	88.7	626	2.00	1.88	2.45	2.08
September	100.0	685	2.03	1.93	2.45	2.11
October	100.0	708	2.03	1.96	2.31	2.11
November	99.9	683	2.03	1.95	2.24	2.18
December	96.0	675	2.10	1.96	2.96	2.29
Annual	97.6	8117	2.10	1.88	2.96	2.40

Table 8 THC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 40	>40
January	99.4%	0.6%	0.0%	0.0%	0.0%
February	97.5%	2.5%	0.0%	0.0%	0.0%
March	99.4%	0.6%	0.0%	0.0%	0.0%
April	99.3%	0.7%	0.0%	0.0%	0.0%
May	97.6%	2.4%	0.0%	0.0%	0.0%
June	98.8%	1.2%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.8%	0.2%	0.0%	0.0%	0.0%
September	99.9%	0.1%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.4%	0.6%	0.0%	0.0%	0.0%
Annual	99.3%	0.7%	0.0%	0.0%	0.0%

Table 9 THC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	44	1	0	0	36	54	371	0

Total Hours of Downtime	218	Total Hours of Calibration Time	425	Total Hours of Flagged	643

Table 10 CH4 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	97.3	687	2.10	1.91	2.62	2.31
February	99.6	636	2.18	2.03	2.88	2.40
March	99.5	704	2.21	2.12	2.53	2.26
April	99.2	681	2.23	2.09	2.50	2.35
May	98.4	696	2.22	2.06	2.53	2.34
June	99.4	680	2.09	1.95	2.93	2.31
July	92.7	656	2.00	1.89	2.30	2.07
August	88.7	626	2.00	1.88	2.45	2.08
September	100.0	685	2.03	1.93	2.45	2.11
October	100.0	708	2.03	1.96	2.31	2.11
November	99.9	683	2.03	1.95	2.24	2.18
December	96.0	675	2.10	1.96	2.96	2.29
Annual	97.6	8117	2.10	1.88	2.96	2.40

Table 11 CH4 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 20	>20
January	99.4%	0.6%	0.0%	0.0%	0.0%
February	97.5%	2.5%	0.0%	0.0%	0.0%
March	99.4%	0.6%	0.0%	0.0%	0.0%
April	99.3%	0.7%	0.0%	0.0%	0.0%
May	97.6%	2.4%	0.0%	0.0%	0.0%
June	98.8%	1.2%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.8%	0.2%	0.0%	0.0%	0.0%
September	99.9%	0.1%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.4%	0.6%	0.0%	0.0%	0.0%
Annual	99.3%	0.7%	0.0%	0.0%	0.0%

Table 12 CH4 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	44	1	0	0	36	54	371	0

Total Hours of Downtime	218	Total Hours of Calibration Time	425	Total Hours of Flagged	643

Table 13 NMHC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	97.3	687	0.00	0.00	0.00	0.00
February	99.6	636	0.00	0.00	0.00	0.00
March	99.5	704	0.00	0.00	0.00	0.00
April	99.2	681	0.00	0.00	0.00	0.00
May	98.4	696	0.00	0.00	0.00	0.00
June	99.4	680	0.00	0.00	0.01	0.00
July	92.7	656	0.00	0.00	0.00	0.00
August	88.7	626	0.00	0.00	0.00	0.00
September	100.0	685	0.00	0.00	0.00	0.00
October	100.0	708	0.00	0.00	0.00	0.00
November	99.9	683	0.00	0.00	0.00	0.00
December	96.0	675	0.00	0.00	0.00	0.00
Annual	97.6	8117	0.00	0.00	0.01	0.00

Table 14 NMHC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 -2	>2
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 15 NMHC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	44	1	0	0	36	54	371	0

Total Hours of Downtime	218	Total Hours of Calibration Time	425	Total Hours of Flagged	643

Table 16 RH 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (%)	Min. 1-hr (%)	Max. 1-hr (%)	Max. 24-hr (%)
January	99.7	742	80.4	43	100	100
February	100.0	672	69.8	42	93	79
March	100.0	744	64.5	29	92	80
April	99.7	718	61.8	21	99	98
May	98.3	731	62.3	14	97	94
June	100.0	720	60.2	12	98	94
July	92.9	691	67.8	26	97	85
August	90.9	676	73.6	28	99	96
September	100.0	720	67.8	27	99	97
October	100.0	744	64.6	21	99	97
November	100.0	720	80.4	38	100	93
December	93.8	698	80.9	40	100	97
Annual	97.9	8576	69.5	12	100	100

Table 17 RH Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	41	6	0	0	0	0	0	0

Total Hours of Downtime	184	Total Hours of Calibration Time	0	Total Hours of Flagged	187

Table 18 BP 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	99.9	743	942	921	964	962
February	100.0	672	944	923	965	962
March	100.0	744	941	924	960	959
April	99.7	718	941	914	960	958
May	98.5	733	938	918	954	953
June	100.0	720	941	929	953	952
July	92.9	691	941	932	949	947
August	90.9	676	942	929	950	949
September	100.0	720	941	928	949	949
October	100.0	744	939	912	957	955
November	100.0	720	944	919	974	970
December	99.3	739	943	918	973	971
Annual	98.4	8620	942	912	974	971

Table 19 BP Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	0	3	0	0	0	0	0	0

Total Hours of Downtime	140	Total Hours of Calibration Time	0	Total Hours of Flagged	140

Table 20 AT 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	99.7	742	-12.9	-37.2	5.8	3.4
February	100.0	672	-10.9	-33.8	8.4	5.2
March	100.0	744	-3.2	-18.3	10.8	6.0
April	99.7	718	1.4	-14.3	16.8	11.4
May	98.3	731	8.3	-4.3	20.3	13.0
June	100.0	720	15.3	3.4	25.2	17.8
July	92.9	691	16.8	3.5	32.6	24.0
August	90.9	676	17.8	5.6	29.6	22.0
September	100.0	720	12.4	-1.8	28.7	19.2
October	100.0	744	7.2	-4.8	22.2	15.9
November	100.0	720	-7.6	-26.8	7.7	4.9
December	99.3	739	-19.7	-39.8	-2.1	-5.5
Annual	98.4	8617	2.1	-39.8	32.6	24.0

Table 21 AT Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	0	5	0	0	0	0	0	0

Total Hours of Downtime	142	Total Hours of Calibration Time	0	Total Hours of Flagged	142

Table 22 Precipitation 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Total (mm)	Min. Total 1-hr (mm)	Max. Total 1-hr (mm)	Max. Total 24-hr (mm)
January	72.2	535	8.3	0.0	0.8	2.1
February	90.8	610	4.5	0.0	1.4	3.0
March	99.5	740	1.1	0.0	0.4	0.5
April	100.0	720	14.0	0.0	1.5	7.3
May	98.5	733	48.4	0.0	2.3	15.3
June	100.0	720	30.3	0.0	3.2	14.4
July	92.9	691	3.1	0.0	1.3	1.8
August	5.0	37	13.1	0.0	3.3	13.0
September	37.4	269	1.8	0.0	0.5	1.8
October	99.5	739	5.3	0.0	2.6	2.6
November	100.0	720	5.6	0.0	1.4	2.7
December	87.4	650	3.0	0.0	1.5	1.0
Annual	81.9	7164	11.5	0.0	3.3	15.3

Table 23 Precipitation Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	1447	4	4	0	1	3	0	0
Total Hours of Downtime		1593	Total Hours of Calibration Time		3	Total Hours of Flagged		1596

Table 24 ST 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	99.9	743	23.2	22.1	24.2	23.6
February	100.0	672	23.2	21.2	24.5	23.8
March	100.0	744	23.6	22.8	24.8	24.0
April	100.0	720	23.3	22.3	24.7	23.8
May	98.5	733	23.3	22.5	24.1	23.5
June	100.0	720	23.4	22.8	24.2	23.9
July	92.9	691	23.3	22.7	24.6	23.8
August	90.9	676	23.5	22.7	24.7	24.0
September	100.0	720	23.3	21.8	24.3	23.7
October	100.0	744	23.3	22.4	24.3	23.6
November	100.0	720	23.4	22.7	24.3	23.8
December	99.3	739	23.2	11.0	24.4	24.1
Annual	98.5	8622	23.3	11.0	24.8	24.1

Table 25 ST Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	0	1	0	0	0	0	0	0

Total Hours of Downtime	138	Total Hours of Calibration Time	0	Total Hours of Flagged	138

Table 26 WS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (kph)	Min. 1-hr (kph)	Max. 1-hr (kph)	Max. 24-hr (kph)
January	99.9	743	4.5	0.5	29.8	15.7
February	100.0	672	4.3	0.1	35.9	22.8
March	100.0	744	4.8	0.3	36.2	20.4
April	94.0	673	2.0	0.1	31.0	19.5
May	98.5	733	0.9	0.4	33.1	18.0
June	100.0	720	1.6	0.4	33.6	18.1
July	92.9	691	4.8	0.3	26.0	16.1
August	90.9	674	3.3	0.2	30.3	14.1
September	100.0	720	4.2	0.3	25.6	14.8
October	100.0	744	6.5	0.5	40.9	25.1
November	100.0	720	3.5	0.5	28.2	21.7
December	99.3	739	0.5	0.1	29.9	18.7
Annual	98.0	8573	3.4	0.1	40.9	25.1

Table 27 WS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in kph)				
	0 - 6	7 - 15	16 - 29	30 -39	>39
January	33.5%	46.7%	19.7%	0.1%	0.0%
February	27.4%	49.0%	21.3%	2.4%	0.0%
March	23.5%	53.5%	22.4%	0.5%	0.0%
April	27.3%	49.8%	22.3%	0.6%	0.0%
May	22.4%	51.0%	26.2%	0.4%	0.0%
June	35.6%	46.4%	17.8%	0.3%	0.0%
July	31.8%	52.7%	15.5%	0.0%	0.0%
August	32.6%	58.2%	9.1%	0.1%	0.0%
September	32.6%	58.2%	9.2%	0.0%	0.0%
October	20.3%	51.3%	25.8%	2.3%	0.3%
November	14.4%	57.6%	27.9%	0.0%	0.0%
December	33.6%	51.6%	14.6%	0.3%	0.0%
Annual	27.9%	52.2%	19.3%	0.6%	0.0%

Table 28 WS Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
137	28	1	0	0	15	6	0	0
Total Hours of Downtime		181	Total Hours of Calibration Time		6	Total Hours of Flagged		187

1.2 842-B Station

Table 29 SO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	# of 30-day AAAQO Exceedances	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	100.0	706	0.1	0	0	2	0	1	0
February	99.4	635	0.1	0	0	1	0	1	0
March	100.0	707	0.1	0	0	2	0	1	0
April	100.0	684	0.0	0	0	1	0	0	0
May	98.3	695	0.0	0	0	1	0	0	0
June	100.0	686	0.0	0	0	0	0	0	0
July	94.4	664	0.0	0	0	0	0	0	0
August	100.0	708	0.0	0	0	0	0	0	0
September	100.0	685	0.0	0	0	1	0	0	0
October	100.0	706	0.0	0	0	1	0	0	0
November	99.2	679	0.1	0	0	2	0	1	0
December	98.0	693	0.2	0	0	5	0	1	0
Annual	99.1	8248	0.0	0	0	5	0	1	0

Table 30 SO2 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 10	11 -50	51 -100	101 - 172	>172
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 31 SO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	1	1	0	42	0	54	378	0

Total Hours of Downtime	80	Total Hours of Calibration Time	432	Total Hours of Flagged	512

Table 32 TRS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	100.0	706	0.31	0.05	0.94	0.48
February	77.2	493	0.28	0.04	0.83	0.44
March	100.0	707	0.30	0.11	0.85	0.43
April	99.9	682	0.43	0.10	0.90	0.80
May	98.3	695	0.59	0.19	1.21	0.91
June	100.0	684	0.50	0.14	1.98	0.78
July	77.3	544	0.75	0.27	2.21	1.08
August	96.8	685	0.94	0.36	5.10	2.40
September	100.0	685	0.70	0.32	4.59	1.65
October	100.0	706	0.43	0.22	0.89	0.59
November	89.4	612	0.35	0.13	0.70	0.49
December	94.6	669	0.43	0.15	0.85	0.56
Annual	94.5	7868	0.50	0.04	5.10	2.40

Table 33 TRS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.0%	1.0%	0.0%	0.0%	0.0%
September	98.7%	1.3%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.8%	0.2%	0.0%	0.0%	0.0%

Table 34 TRS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	370	1	0	42	27	55	361	0

Total Hours of Downtime	476	Total Hours of Calibration Time	416	Total Hours of Flagged	892

Table 35 THC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	99.5	702	1.87	1.77	3.33	1.98
February	99.3	635	1.96	1.84	3.77	2.25
March	96.8	683	1.95	1.84	4.95	2.48
April	99.9	683	1.90	1.84	2.03	1.93
May	98.0	695	1.87	1.83	2.07	1.92
June	100.0	685	1.87	1.82	2.15	1.93
July	94.4	661	1.87	1.79	2.10	1.95
August	96.6	682	2.03	1.80	2.56	2.29
September	98.1	671	2.09	1.94	2.51	2.25
October	100.0	706	2.00	1.87	2.36	2.11
November	98.9	678	2.00	1.91	2.24	2.12
December	98.0	694	2.12	1.94	3.38	2.45
Annual	98.3	8175	1.96	1.77	4.95	2.48

Table 36 THC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 40	>40
January	99.6%	0.4%	0.0%	0.0%	0.0%
February	97.3%	2.7%	0.0%	0.0%	0.0%
March	99.1%	0.9%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	97.8%	2.2%	0.0%	0.0%	0.0%
September	99.0%	1.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	96.7%	3.3%	0.0%	0.0%	0.0%
Annual	99.1%	0.9%	0.0%	0.0%	0.0%

Table 37 THC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	3	1	0	42	71	57	375	0

Total Hours of Downtime	153	Total Hours of Calibration Time	432	Total Hours of Flagged	585

Table 38 CH4 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	99.5	702	1.87	1.77	3.26	1.97
February	99.3	635	1.96	1.84	3.61	2.23
March	96.8	683	1.95	1.84	4.61	2.42
April	99.9	683	1.90	1.84	2.03	1.93
May	98.0	695	1.87	1.83	2.07	1.92
June	100.0	685	1.87	1.82	2.15	1.93
July	94.4	661	1.87	1.79	2.10	1.95
August	96.6	682	2.02	1.80	2.56	2.29
September	98.1	671	2.09	1.94	2.51	2.25
October	100.0	706	2.00	1.87	2.36	2.11
November	98.9	678	2.00	1.91	2.24	2.12
December	98.0	694	2.12	1.94	3.38	2.45
Annual	98.3	8175	1.96	1.77	4.61	2.45

Table 39 CH4 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 20	>20
January	99.6%	0.4%	0.0%	0.0%	0.0%
February	97.3%	2.7%	0.0%	0.0%	0.0%
March	99.1%	0.9%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	97.9%	2.1%	0.0%	0.0%	0.0%
September	99.0%	1.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	96.7%	3.3%	0.0%	0.0%	0.0%
Annual	99.1%	0.9%	0.0%	0.0%	0.0%

Table 40 CH4 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	3	1	0	42	71	57	375	0

Total Hours of Downtime	153	Total Hours of Calibration Time	432	Total Hours of Flagged	585

Table 41 NMHC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	99.5	702	0.00	0.00	0.07	0.00
February	99.3	635	0.00	0.00	0.17	0.02
March	96.8	683	0.00	0.00	0.34	0.06
April	99.9	683	0.00	0.00	0.00	0.00
May	98.0	695	0.00	0.00	0.03	0.00
June	100.0	685	0.00	0.00	0.01	0.00
July	94.4	661	0.00	0.00	0.09	0.00
August	96.6	682	0.00	0.00	0.23	0.03
September	98.1	671	0.00	0.00	0.03	0.00
October	100.0	706	0.00	0.00	0.00	0.00
November	98.9	678	0.00	0.00	0.00	0.00
December	98.0	694	0.00	0.00	0.00	0.00
Annual	98.3	8175	0.00	0.00	0.34	0.06

Table 42 NMHC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 -2	>2
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	99.8%	0.2%	0.0%	0.0%	0.0%
March	99.4%	0.6%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.7%	0.3%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.9%	0.1%	0.0%	0.0%	0.0%

Table 43 NMHC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	3	1	0	42	71	57	375	0

Total Hours of Downtime	153	Total Hours of Calibration Time	432	Total Hours of Flagged	585

Table 44 RH 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (%)	Min. 1-hr (%)	Max. 1-hr (%)	Max. 24-hr (%)
January	100.0	744	80.0	42	100	97
February	99.4	668	75.0	42	100	86
March	100.0	744	69.8	33	100	90
April	100.0	720	65.0	22	100	100
May	98.4	732	66.0	17	100	100
June	100.0	720	63.5	13	100	97
July	94.4	702	73.2	33	100	90
August	100.0	744	75.5	27	101	99
September	100.0	720	69.4	26	100	99
October	100.0	744	66.3	24	100	97
November	99.2	714	80.4	41	100	90
December	98.0	729	79.4	41	100	95
Annual	99.1	8681	72.0	13	101	100

Table 45 RH Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	0	1	0	42	0	0	0	0
Total Hours of Downtime		79	Total Hours of Calibration Time		0	Total Hours of Flagged		79

Table 46 BP 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	100.0	744	941	919	963	961
February	99.4	668	943	921	964	961
March	100.0	744	940	923	958	958
April	100.0	720	940	912	959	957
May	98.4	732	937	917	953	952
June	100.0	720	940	929	952	951
July	94.4	702	940	932	948	946
August	100.0	744	940	928	949	948
September	100.0	720	940	927	948	948
October	100.0	744	938	912	956	954
November	99.2	714	943	918	973	969
December	98.0	729	942	916	972	970
Annual	99.1	8681	940	912	973	970

Table 47 BP Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	0	1	0	42	0	0	0	0

Total Hours of Downtime	79	Total Hours of Calibration Time	0	Total Hours of Flagged	79

Table 48 AT 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	100.0	744	-12.6	-37.6	5.8	3.2
February	99.4	668	-11.0	-34.8	7.8	4.9
March	100.0	744	-3.3	-19.7	11.6	6.0
April	100.0	720	1.2	-15.8	17.0	11.4
May	98.4	732	8.4	-4.9	20.6	13.5
June	100.0	720	15.5	3.6	24.9	18.0
July	94.4	702	16.9	3.7	31.4	19.8
August	100.0	744	18.1	6.8	29.5	22.5
September	100.0	720	12.8	-0.5	29.6	19.1
October	100.0	744	7.4	-4.6	22.7	16.1
November	99.2	714	-7.6	-26.7	7.7	4.9
December	98.0	729	-19.4	-39.7	-2.0	-5.6
Annual	99.1	8681	2.2	-39.7	31.4	22.5

Table 49 AT Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	0	1	0	42	0	0	0	0
Total Hours of Downtime		79	Total Hours of Calibration Time		0	Total Hours of Flagged		79

Table 50 Precipitation 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Total (mm)	Min. Total 1-hr (mm)	Max. Total 1-hr (mm)	Max. Total 24-hr (mm)
January	100.0	744	8.1	0.0	0.8	1.9
February	94.9	638	5.3	0.0	1.6	3.7
March	100.0	744	2.7	0.0	0.3	0.7
April	100.0	720	20.4	0.0	1.8	9.5
May	98.4	732	52.5	0.0	3.6	17.4
June	100.0	719	44.4	0.0	2.7	12.9
July	94.4	701	20.9	0.0	4.7	7.3
August	100.0	742	60.7	0.0	5.3	30.4
September	100.0	719	24.9	0.0	3.4	18.5
October	99.5	740	7.6	0.0	2.2	3.9
November	99.2	714	3.9	0.0	1.0	1.5
December	98.0	729	3.0	0.0	0.9	0.3
Annual	98.7	8642	21.2	0.0	5.3	30.4

Table 51 Precipitation Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	29	5	0	42	1	5	0	0

Total Hours of Downtime	113	Total Hours of Calibration Time	5	Total Hours of Flagged	118

Table 52 ST 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	100.0	744	22.3	20.9	23.4	23.1
February	99.4	668	22.4	21.0	23.5	23.0
March	100.0	744	22.3	20.9	23.7	22.7
April	100.0	720	22.3	20.8	24.0	22.7
May	98.4	732	22.4	20.5	24.0	22.8
June	100.0	720	22.8	21.3	24.2	23.6
July	94.4	702	22.8	21.2	24.4	23.4
August	100.0	744	22.5	20.7	23.7	23.2
September	100.0	720	22.3	20.7	23.6	22.8
October	100.0	744	22.1	21.0	23.6	22.6
November	99.2	714	22.4	20.1	23.4	23.1
December	98.0	729	22.9	21.0	24.0	23.6
Annual	99.1	8681	22.5	20.1	24.4	23.6

Table 53 ST Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	0	1	0	42	0	0	0	0

Total Hours of Downtime	79	Total Hours of Calibration Time	0	Total Hours of Flagged	79

Table 54 WS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (kph)	Min. 1-hr (kph)	Max. 1-hr (kph)	Max. 24-hr (kph)
January	100.0	744	2.3	0.2	26.5	14.0
February	99.4	668	2.4	0.2	35.5	20.4
March	100.0	744	2.8	0.0	23.6	15.1
April	100.0	720	1.6	0.3	23.5	16.9
May	98.4	732	1.6	0.2	24.9	14.8
June	100.0	720	0.9	0.1	21.6	9.5
July	94.4	702	4.2	0.0	25.8	15.4
August	100.0	742	2.8	0.2	27.1	11.5
September	100.0	720	3.6	0.2	29.4	17.1
October	100.0	744	5.7	0.2	40.5	23.4
November	99.2	714	3.1	0.1	23.1	14.7
December	98.0	729	0.7	0.1	23.9	16.7
Annual	99.1	8679	2.6	0.0	40.5	23.4

Table 55 WS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in kph)				
	0 - 6	7 - 15	16 - 29	30 -39	>39
January	42.3%	46.0%	11.7%	0.0%	0.0%
February	39.8%	47.5%	12.0%	0.7%	0.0%
March	35.8%	52.2%	12.1%	0.0%	0.0%
April	38.8%	50.3%	11.0%	0.0%	0.0%
May	36.2%	55.3%	8.5%	0.0%	0.0%
June	50.4%	43.2%	6.4%	0.0%	0.0%
July	43.0%	45.3%	11.7%	0.0%	0.0%
August	46.8%	48.1%	5.1%	0.0%	0.0%
September	47.2%	45.7%	7.1%	0.0%	0.0%
October	35.5%	42.9%	19.2%	2.3%	0.1%
November	22.1%	67.6%	10.2%	0.0%	0.0%
December	52.8%	42.5%	4.7%	0.0%	0.0%
Annual	40.9%	48.9%	10.0%	0.3%	0.0%

Table 56 WS Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
36	0	1	0	42	0	2	0	0
Total Hours of Downtime		79	Total Hours of Calibration Time		2	Total Hours of Flagged		81

1.3 Reno Station

Table 57 SO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	# of 30-day AAAQO Exceedances	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	97.0	684	0.1	0	0	2	0	1	0
February	82.9	527	0.1	0	0	1	0	1	0
March	98.5	698	0.1	0	0	2	0	0	0
April	94.6	647	0.0	0	0	1	0	0	0
May	100.0	707	0.0	0	0	1	0	0	0
June	100.0	686	0.0	0	0	1	0	0	0
July	93.3	659	0.0	0	0	1	0	0	0
August	94.4	666	0.0	0	0	1	0	0	0
September	100.0	684	0.0	0	0	1	0	0	0
October	99.9	707	0.0	0	0	1	0	0	0
November	96.1	654	0.0	0	0	1	0	0	0
December	97.2	687	0.2	0	0	8	0	1	0
Annual	96.2	8006	0.1	0	0	8	0	1	0

Table 58 SO2 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 10	11 -50	51 -100	101 - 172	>172
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 59 SO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	5	173	28	21	58	367	0

Total Hours of Downtime	329	Total Hours of Calibration Time	425	Total Hours of Flagged	752

Table 60 TRS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	97.0	684	0.26	0.10	3.75	0.82
February	82.9	526	0.19	0.04	0.48	0.24
March	98.5	696	0.16	0.00	0.40	0.20
April	94.3	643	0.15	0.01	0.35	0.21
May	100.0	705	0.15	0.00	0.96	0.22
June	100.0	685	0.22	0.05	2.26	0.38
July	93.3	659	0.27	0.00	3.61	0.98
August	94.4	666	0.42	0.08	9.81	1.99
September	100.0	684	0.26	0.00	3.03	0.56
October	99.9	707	0.20	0.00	1.79	0.59
November	96.1	654	0.17	0.10	0.44	0.24
December	97.2	684	0.23	0.14	0.51	0.35
Annual	96.1	7993	0.22	0.00	9.81	1.99

Table 61 TRS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	99.9%	0.1%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.2%	0.8%	0.0%	0.0%	0.0%
August	98.0%	1.4%	0.6%	0.0%	0.0%
September	99.9%	0.1%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.7%	0.2%	0.1%	0.0%	0.0%

Table 62 TRS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	5	173	28	23	69	367	0

Total Hours of Downtime	331	Total Hours of Calibration Time	436	Total Hours of Flagged	767

Table 63 THC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	96.9	684	2.00	1.87	2.78	2.12
February	82.9	526	2.04	1.90	3.04	2.27
March	98.4	697	2.01	1.89	2.79	2.20
April	94.3	645	2.03	1.89	9.13	2.63
May	99.7	705	1.99	1.92	2.49	2.08
June	99.7	683	2.00	1.95	2.53	2.10
July	93.3	660	2.00	1.94	2.39	2.08
August	94.4	667	2.03	1.90	2.39	2.14
September	100.0	685	2.02	1.91	2.62	2.11
October	99.9	707	2.06	1.92	3.00	2.25
November	96.0	654	2.06	1.96	2.80	2.24
December	97.2	687	2.11	1.99	2.82	2.28
Annual	96.0	8000	2.03	1.87	9.13	2.63

Table 64 THC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 40	>40
January	99.3%	0.7%	0.0%	0.0%	0.0%
February	97.5%	2.5%	0.0%	0.0%	0.0%
March	98.4%	1.6%	0.0%	0.0%	0.0%
April	98.9%	0.8%	0.3%	0.0%	0.0%
May	99.7%	0.3%	0.0%	0.0%	0.0%
June	99.4%	0.6%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	98.8%	1.2%	0.0%	0.0%	0.0%
October	97.2%	2.8%	0.0%	0.0%	0.0%
November	98.5%	1.5%	0.0%	0.0%	0.0%
December	98.8%	1.2%	0.0%	0.0%	0.0%
Annual	98.9%	1.1%	0.0%	0.0%	0.0%

Table 65 THC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	7	175	29	25	53	369	0

Total Hours of Downtime	338	Total Hours of Calibration Time	422	Total Hours of Flagged	760

Table 66 CH4 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	96.9	684	2.00	1.87	2.78	2.12
February	82.9	526	2.04	1.90	3.04	2.27
March	98.4	697	2.01	1.89	2.78	2.20
April	94.3	645	2.03	1.89	9.12	2.63
May	99.7	705	1.99	1.92	2.49	2.08
June	99.7	683	2.00	1.95	2.53	2.10
July	93.3	660	2.00	1.94	2.39	2.08
August	94.4	667	2.03	1.90	2.39	2.14
September	100.0	685	2.02	1.91	2.61	2.11
October	99.9	707	2.06	1.92	2.95	2.24
November	96.0	654	2.06	1.96	2.80	2.24
December	97.2	687	2.11	1.99	2.82	2.28
Annual	96.0	8000	2.03	1.87	9.12	2.63

Table 67 CH4 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 20	>20
January	99.3%	0.7%	0.0%	0.0%	0.0%
February	97.5%	2.5%	0.0%	0.0%	0.0%
March	98.4%	1.6%	0.0%	0.0%	0.0%
April	98.9%	0.8%	0.3%	0.0%	0.0%
May	99.7%	0.3%	0.0%	0.0%	0.0%
June	99.6%	0.4%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	98.8%	1.2%	0.0%	0.0%	0.0%
October	97.3%	2.7%	0.0%	0.0%	0.0%
November	98.5%	1.5%	0.0%	0.0%	0.0%
December	98.8%	1.2%	0.0%	0.0%	0.0%
Annual	98.9%	1.1%	0.0%	0.0%	0.0%

Table 68 CH4 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	7	175	29	25	53	369	0

Total Hours of Downtime	338	Total Hours of Calibration Time	422	Total Hours of Flagged	760

Table 69 NMHC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	96.9	684	0.00	0.00	0.16	0.01
February	82.9	526	0.00	0.00	0.00	0.00
March	98.4	697	0.00	0.00	0.01	0.00
April	94.3	645	0.00	0.00	0.01	0.00
May	99.7	705	0.00	0.00	0.00	0.00
June	99.7	683	0.00	0.00	0.03	0.00
July	93.3	660	0.00	0.00	0.00	0.00
August	94.4	667	0.00	0.00	0.01	0.00
September	100.0	685	0.00	0.00	0.06	0.01
October	99.9	707	0.00	0.00	0.07	0.01
November	96.0	654	0.00	0.00	0.01	0.00
December	97.2	687	0.00	0.00	0.01	0.00
Annual	96.0	8000	0.00	0.00	0.16	0.01

Table 70 NMHC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 -2	>2
January	99.9%	0.1%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 71 NMHC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	7	175	29	25	53	369	0

Total Hours of Downtime	338	Total Hours of Calibration Time	422	Total Hours of Flagged	760

Table 72 RH 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (%)	Min. 1-hr (%)	Max. 1-hr (%)	Max. 24-hr (%)
January	99.5	740	70.7	41	100	93
February	82.9	557	66.1	44	100	76
March	98.7	734	63.0	32	100	78
April	94.3	679	63.0	20	100	100
May	71.9	535	60.9	0	100	100
June	71.9	518	60.9	21	98	89
July	93.3	694	63.1	19	97	87
August	94.4	702	65.9	24	97	94
September	100.0	720	59.9	19	98	93
October	99.9	743	60.2	20	98	91
November	95.7	689	74.3	39	99	83
December	97.2	723	74.9	48	99	89
Annual	91.6	8034	65.3	0	100	100

Table 73 RH Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	411	9	175	31	0	0	0	0

Total Hours of Downtime	726	Total Hours of Calibration Time	0	Total Hours of Flagged	726

Table 74 BP 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	99.5	740	940	918	962	960
February	82.9	557	943	920	963	960
March	98.7	734	939	922	957	956
April	94.3	679	939	910	957	955
May	100.0	744	935	915	951	950
June	95.4	687	938	927	951	949
July	55.5	413	938	931	943	942
August	94.2	701	939	927	948	946
September	100.0	720	939	926	947	946
October	90.9	676	937	912	954	953
November	95.7	689	943	916	972	968
December	97.2	723	942	914	973	971
Annual	92.0	8063	939	910	973	971

Table 75 BP Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	384	7	175	31	0	0	0	0
Total Hours of Downtime		697	Total Hours of Calibration Time		0	Total Hours of Flagged		697

Table 76 AT 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	99.5	740	-12.6	-37.5	5.7	2.6
February	82.9	557	-12.2	-30.8	7.3	3.7
March	98.7	734	-3.4	-19.1	12.3	5.1
April	94.3	679	1.0	-13.6	16.6	10.9
May	100.0	744	8.5	-3.9	20.6	13.6
June	99.7	718	15.5	6.4	25.8	18.7
July	93.3	694	17.6	6.8	33.0	24.9
August	94.4	702	18.5	7.0	30.9	23.3
September	100.0	720	13.3	0.0	29.4	20.8
October	99.9	743	7.7	-4.0	23.5	15.5
November	95.7	689	-8.0	-25.9	7.1	4.0
December	97.2	723	-19.0	-39.1	-1.6	-4.7
Annual	96.3	8443	2.2	-39.1	33.0	24.9

Table 77 AT Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	9	175	31	0	0	0	0

Total Hours of Downtime	317	Total Hours of Calibration Time	0	Total Hours of Flagged	317

Table 78 Precipitation 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Total (mm)	Min. Total 1-hr (mm)	Max. Total 1-hr (mm)	Max. Total 24-hr (mm)
January	93.0	691	12.5	0.0	1.3	6.6
February	81.0	543	8.1	0.0	1.5	3.1
March	98.7	734	4.3	0.0	1.4	2.1
April	94.3	679	32.6	0.0	1.7	16.0
May	100.0	744	40.2	0.0	2.5	10.6
June	100.0	718	45.3	0.0	4.4	8.4
July	93.3	692	14.7	0.0	1.6	4.3
August	94.4	702	53.6	0.0	3.6	35.9
September	100.0	719	11.4	0.0	3.5	10.4
October	99.9	742	4.1	0.0	1.2	3.2
November	95.6	688	4.1	0.0	1.0	1.5
December	92.3	687	1.2	0.0	0.2	0.6
Annual	95.2	8339	19.3	0.0	4.4	35.9

Table 79 Precipitation Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	101	5	175	32	0	8	0	0

Total Hours of Downtime	413	Total Hours of Calibration Time	8	Total Hours of Flagged	421

Table 80 ST 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	99.5	740	22.4	17.0	25.3	24.0
February	82.9	557	23.5	21.7	24.8	24.4
March	98.7	734	23.7	22.3	25.1	24.2
April	94.3	679	23.1	21.3	24.7	23.6
May	100.0	744	23.5	21.7	24.8	23.9
June	100.0	720	23.7	21.7	25.0	24.4
July	93.3	694	23.7	22.5	24.9	24.4
August	94.4	702	22.4	20.4	24.0	23.0
September	100.0	720	21.9	17.9	24.2	23.0
October	99.9	743	22.7	19.0	23.7	23.3
November	96.3	693	22.6	21.0	23.9	23.1
December	97.2	723	22.8	21.1	23.6	23.2
Annual	96.4	8449	23.0	17.0	25.3	24.4

Table 81 ST Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	7	175	27	0	0	0	0

Total Hours of Downtime	311	Total Hours of Calibration Time	0	Total Hours of Flagged	311

Table 82 WS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (kph)	Min. 1-hr (kph)	Max. 1-hr (kph)	Max. 24-hr (kph)
January	99.5	740	1.6	0.0	19.6	12.5
February	82.9	557	1.3	0.0	20.5	9.0
March	98.7	734	1.2	0.2	17.7	11.1
April	94.3	679	1.7	0.0	25.7	13.6
May	100.0	744	0.8	0.0	17.2	9.4
June	100.0	720	0.5	0.1	17.2	8.8
July	93.3	694	2.6	0.0	18.6	9.6
August	94.4	700	2.1	0.0	19.6	7.4
September	100.0	720	2.8	0.0	19.1	12.1
October	99.9	743	3.8	0.1	25.4	12.8
November	96.1	688	2.6	0.3	34.0	23.1
December	97.2	723	0.8	0.2	34.0	15.9
Annual	96.3	8442	1.8	0.0	34.0	23.1

Table 83 WS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in kph)				
	0 - 6	7 - 15	16 - 29	30 -39	>39
January	57.0%	40.7%	2.3%	0.0%	0.0%
February	53.7%	43.4%	2.9%	0.0%	0.0%
March	56.1%	43.3%	0.5%	0.0%	0.0%
April	55.5%	39.9%	4.6%	0.0%	0.0%
May	53.6%	46.2%	0.1%	0.0%	0.0%
June	66.9%	32.8%	0.3%	0.0%	0.0%
July	70.9%	28.0%	1.2%	0.0%	0.0%
August	79.4%	19.9%	0.7%	0.0%	0.0%
September	72.6%	26.1%	1.3%	0.0%	0.0%
October	55.3%	40.6%	4.0%	0.0%	0.0%
November	42.6%	43.8%	12.2%	1.5%	0.0%
December	27.9%	54.5%	16.9%	0.7%	0.0%
Annual	57.6%	38.3%	3.9%	0.2%	0.0%

Table 84 WS Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
100	2	7	175	28	0	6	0	0

Total Hours of Downtime	312	Total Hours of Calibration Time	6	Total Hours of Flagged	318

1.4 PRC Station

Table 85 SO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	# of 30-day AAAQO Exceedances	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	100.0	706	0.1	0	0	4	0	0	0
February	100.0	640	0.2	0	0	21	0	3	0
March	97.3	687	0.1	0	0	2	0	1	0
April	100.0	685	0.0	0	0	1	0	0	0
May	99.9	706	0.0	0	0	1	0	0	0
June	98.5	673	0.0	0	0	10	0	1	0
July	100.0	706	0.0	0	0	1	0	0	0
August	100.0	706	0.0	0	0	5	0	0	0
September	100.0	684	0.0	0	0	1	0	0	0
October	98.8	700	0.1	0	0	1	0	0	0
November	94.4	646	0.2	0	0	4	0	1	0
December	100.0	708	0.2	0	0	4	0	1	0
Annual	99.1	8247	0.1	0	0	21	0	3	0

Table 86 SO2 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 10	11 -50	51 -100	101 - 172	>172
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	99.5%	0.5%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 87 SO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	48	11	18	1	3	58	374	0

Total Hours of Downtime	81	Total Hours of Calibration Time	432	Total Hours of Flagged	513

Table 88 H2S 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	100.0	706	0.0	0	1	0	0.0	0
February	100.0	638	0.0	0	0	0	0.0	0
March	97.3	687	0.0	0	0	0	0.0	0
April	100.0	685	0.0	0	0	0	0.0	0
May	100.0	703	0.0	0	0	0	0.0	0
June	98.5	673	0.0	0	2	0	0.3	0
July	100.0	706	0.1	0	4	0	0.6	0
August	100.0	706	0.2	0	2	0	0.6	0
September	100.0	684	0.0	0	1	0	0.2	0
October	100.0	708	0.0	0	7	0	0.6	0
November	100.0	683	0.0	0	0	0	0.0	0
December	90.1	638	0.0	0	1	0	0.0	0
Annual	98.8	8217	0.0	0	7	0	0.6	0

Table 89 H2S 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.7%	0.3%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	99.7%	0.0%	0.3%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 90 H2S 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	71	11	18	0	5	65	373	0

Total Hours of Downtime	105	Total Hours of Calibration Time	438	Total Hours of Flagged	543

Table 91 TRS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	98.8	696	0.2	0	1	0.7
February	99.7	635	0.0	0	1	0.0
March	97.3	686	0.4	0	1	0.5
April	100.0	685	0.0	0	1	0.0
May	99.9	703	0.0	0	1	0.1
June	98.5	673	0.1	0	2	0.7
July	97.2	685	0.2	0	4	0.6
August	100.0	706	0.2	0	2	0.7
September	100.0	684	0.0	0	1	0.3
October	100.0	708	0.0	0	7	0.6
November	100.0	683	0.0	0	1	0.8
December	99.9	705	0.1	0	1	0.5
Annual	99.3	8249	0.1	0	7	0.8

Table 92 TRS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.6%	0.4%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	99.7%	0.0%	0.3%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.9%	0.0%	0.0%	0.0%	0.0%

Table 93 TRS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	3	19	18	0	25	70	376	0

Total Hours of Downtime	65	Total Hours of Calibration Time	446	Total Hours of Flagged	511

Table 94 THC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	100.0	708	2.03	1.93	2.22	2.12
February	100.0	641	2.06	1.99	2.23	2.15
March	95.0	672	2.03	1.91	2.22	2.12
April	100.0	686	1.97	1.88	2.12	2.05
May	96.8	684	1.98	1.92	2.30	2.03
June	98.3	672	2.00	1.92	2.15	2.06
July	100.0	707	1.99	1.90	2.21	2.05
August	100.0	707	2.02	1.88	2.41	2.12
September	100.0	684	2.05	1.94	2.33	2.11
October	100.0	708	2.02	1.92	2.18	2.09
November	100.0	684	1.99	1.88	2.22	2.16
December	99.9	707	2.05	1.90	2.37	2.26
Annual	99.2	8260	2.02	1.88	2.41	2.26

Table 95 THC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 40	>40
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.9%	0.1%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 96 THC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	52	13	5	0	4	52	374	0

Total Hours of Downtime	74	Total Hours of Calibration Time	426	Total Hours of Flagged	500

Table 97 CH4 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	100.0	708	2.03	1.93	2.22	2.12
February	100.0	641	2.06	1.99	2.23	2.15
March	95.0	672	2.03	1.91	2.22	2.12
April	100.0	686	1.97	1.88	2.12	2.05
May	96.8	684	1.98	1.92	2.10	2.03
June	98.3	672	2.00	1.92	2.15	2.06
July	100.0	707	1.99	1.90	2.21	2.05
August	100.0	707	2.02	1.88	2.41	2.12
September	100.0	684	2.05	1.94	2.33	2.11
October	100.0	708	2.02	1.92	2.14	2.09
November	100.0	684	1.99	1.88	2.21	2.16
December	99.9	707	2.05	1.90	2.34	2.25
Annual	99.2	8260	2.02	1.88	2.41	2.25

Table 98 CH4 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 20	>20
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	99.9%	0.1%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 99 CH4 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	52	13	5	0	4	52	374	0

Total Hours of Downtime	74	Total Hours of Calibration Time	426	Total Hours of Flagged	500

Table 100 NMHC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (in ppm)	Min. 1-hr (in ppm)	Max. 1-hr (in ppm)	Max. 24-hr (in ppm)
January	100.0	708	0.00	0.00	0.03	0.00
February	100.0	641	0.00	0.00	0.07	0.00
March	95.0	672	0.00	0.00	0.00	0.00
April	100.0	686	0.00	0.00	0.00	0.00
May	96.8	684	0.00	0.00	0.25	0.02
June	98.3	672	0.00	0.00	0.00	0.00
July	100.0	707	0.00	0.00	0.00	0.00
August	100.0	707	0.00	0.00	0.08	0.00
September	100.0	684	0.00	0.00	0.00	0.00
October	100.0	708	0.00	0.00	0.09	0.01
November	100.0	684	0.00	0.00	0.00	0.00
December	99.9	707	0.00	0.00	0.03	0.01
Annual	99.2	8260	0.00	0.00	0.25	0.02

Table 101 NMHC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 -2	>2
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	99.9%	0.1%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 102 NMHC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	52	13	5	0	4	52	374	0

Total Hours of Downtime	74	Total Hours of Calibration Time	426	Total Hours of Flagged	500

Table 103 RH 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (%)	Min. 1-hr (%)	Max. 1-hr (%)	Max. 24-hr (%)
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	100.0	744	64.3	15	99	95
June	98.5	709	60.7	14	100	94
July	100.0	744	65.5	24	99	87
August	100.0	744	69.9	26	100	96
September	100.0	720	67.4	26	100	98
October	100.0	744	65.4	21	100	96
November	100.0	720	77.3	37	100	88
December	100.0	744	77.1	52	96	91
Annual	99.8	5869	68.4	14	100	98

Table 104 RH Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	0	11	0	0	0	0	0	0

Total Hours of Downtime	11	Total Hours of Calibration Time	0	Total Hours of Flagged	11

Table 105 BP 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	100.0	744	939	919	954	953
June	98.5	709	942	930	954	953
July	0.0	0	-	-	-	-
August	99.2	738	942	929	951	949
September	100.0	720	942	929	950	950
October	100.0	744	940	913	957	956
November	100.0	720	945	920	974	970
December	100.0	744	943	918	973	971
Annual	87.2	5119	942	913	974	971

Table 106 BP Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
20	750	11	0	0	0	0	0	0
Total Hours of Downtime		761	Total Hours of Calibration Time		0	Total Hours of Flagged		761

Table 107 AT 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	100.0	744	-13.0	-40.3	4.7	2.8
February	100.0	672	-11.3	-36.4	8.2	4.8
March	97.6	726	-3.5	-20.0	13.0	6.2
April	99.6	717	0.9	-16.7	16.5	10.9
May	100.0	744	7.8	-5.0	20.6	12.4
June	98.5	709	14.9	1.5	25.1	18.1
July	100.0	744	17.0	2.7	32.6	24.9
August	100.0	744	17.8	4.7	30.0	22.5
September	100.0	720	12.2	-2.0	29.2	19.7
October	100.0	744	6.8	-5.3	22.0	15.8
November	100.0	720	-8.0	-27.8	8.0	4.6
December	100.0	744	-19.8	-39.6	-2.7	-5.7
Annual	99.6	8728	1.8	-40.3	32.6	24.9

Table 108 AT Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	0	14	18	0	0	0	0	0

Total Hours of Downtime	32	Total Hours of Calibration Time	0	Total Hours of Flagged	32

Table 109 ST 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	100.0	744	23.0	15.6	31.5	25.1
February	100.0	672	23.8	15.7	29.5	26.8
March	97.6	726	23.7	18.9	26.3	25.5
April	100.0	720	21.3	16.5	23.8	23.4
May	100.0	744	22.6	18.2	23.9	23.5
June	98.5	709	20.6	18.2	32.1	26.5
July	100.0	744	20.1	18.7	24.6	21.6
August	100.0	744	20.9	18.4	23.5	22.2
September	100.0	720	22.4	19.9	25.4	23.2
October	100.0	744	21.7	17.7	25.6	23.4
November	100.0	720	23.2	12.4	27.5	25.2
December	100.0	744	24.0	16.0	28.7	27.2
Annual	99.7	8731	22.3	12.4	32.1	27.2

Table 110 ST Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	0	11	18	0	0	0	0	0

Total Hours of Downtime	29	Total Hours of Calibration Time	0	Total Hours of Flagged	29

Table 111 WS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (kph)	Min. 1-hr (kph)	Max. 1-hr (kph)	Max. 24-hr (kph)
January	100.0	744	3.3	0.2	26.0	16.5
February	100.0	672	2.8	0.3	35.6	24.5
March	97.6	726	3.4	1.0	27.9	19.4
April	99.6	717	1.8	0.4	28.4	16.4
May	100.0	744	0.3	0.3	28.0	15.5
June	98.5	709	1.4	0.5	24.5	13.6
July	100.0	744	5.8	0.3	33.6	20.2
August	100.0	742	4.3	0.7	33.7	16.6
September	100.0	720	5.6	0.9	34.5	20.1
October	100.0	744	7.6	0.6	42.6	27.3
November	100.0	720	5.4	1.1	26.1	16.2
December	100.0	744	1.8	0.2	24.6	19.0
Annual	99.6	8726	3.6	0.2	42.6	27.3

Table 112 WS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in kph)				
	0 - 6	7 - 15	16 - 29	30 -39	>39
January	27.3%	60.5%	12.2%	0.0%	0.0%
February	22.9%	61.2%	14.0%	1.9%	0.0%
March	16.9%	63.4%	19.7%	0.0%	0.0%
April	25.9%	55.8%	18.3%	0.0%	0.0%
May	18.8%	62.5%	18.7%	0.0%	0.0%
June	34.6%	53.7%	11.7%	0.0%	0.0%
July	22.6%	53.4%	23.7%	0.4%	0.0%
August	19.1%	68.7%	11.6%	0.5%	0.0%
September	20.1%	68.2%	10.8%	0.8%	0.0%
October	15.1%	59.4%	22.3%	3.1%	0.1%
November	8.3%	75.1%	16.5%	0.0%	0.0%
December	35.5%	54.7%	9.8%	0.0%	0.0%
Annual	22.3%	61.4%	15.8%	0.6%	0.0%

Table 113 WS Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	0	14	18	0	0	2	0	0

Total Hours of Downtime	32	Total Hours of Calibration Time	2	Total Hours of Flagged	34

1.5 AQHI - Grimshaw Station

Table 114 SO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	# of 30-day AAAQO Exceedances	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)	# of 24-hr AAAQO Exceedances
January	99.7	705	0.1	0	0	3	0	1	0
February	96.6	617	0.0	0	0	1	0	0	0
March	100.0	707	0.1	0	0	2	0	1	0
April	100.0	685	0.0	0	0	1	0	0	0
May	99.9	706	0.0	0	0	2	0	0	0
June	100.0	684	0.0	0	0	1	0	0	0
July	100.0	707	0.0	0	0	1	0	0	0
August	100.0	707	0.0	0	0	1	0	0	0
September	100.0	684	0.1	0	0	4	0	1	0
October	100.0	707	0.0	0	0	1	0	0	0
November	99.7	682	0.1	0	0	2	0	1	0
December	100.0	708	0.1	0	0	3	0	1	0
Annual	99.7	8299	0.0	0	0	4	0	1	0

Table 115 SO2 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 10	11 -50	51 -100	101 - 172	>172
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	-	-	-	-	-
Annual	100.0%	0.0%	0.0%	0.0%	0.0%

Table 116 SO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	22	5	0	0	1	56	377	0

Total Hours of Downtime	28	Total Hours of Calibration Time	433	Total Hours of Flagged	461

Table 117 TRS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	94.2	664	0.36	0.00	1.51	0.60
February	97.2	618	0.44	0.11	1.28	0.95
March	100.0	707	0.38	0.01	1.52	0.68
April	100.0	685	0.37	0.00	1.19	0.50
May	99.9	704	0.42	0.00	14.24	1.17
June	98.8	675	0.40	0.00	1.29	0.53
July	99.9	706	0.42	0.12	6.25	1.00
August	100.0	707	0.46	0.14	2.66	0.83
September	99.6	681	0.44	0.02	3.20	0.82
October	100.0	707	0.39	0.07	3.99	0.72
November	99.7	682	0.33	0.13	0.74	0.52
December	99.9	705	0.27	0.01	1.42	0.45
Annual	99.1	8241	0.39	0.00	14.24	1.17

Table 118 TRS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 2	3 - 5	6 - 10	11 - 50	>50
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	99.1%	0.6%	0.1%	0.1%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.6%	0.3%	0.1%	0.0%	0.0%
August	99.7%	0.3%	0.0%	0.0%	0.0%
September	99.6%	0.4%	0.0%	0.0%	0.0%
October	99.7%	0.3%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	100.0%	0.0%	0.0%	0.0%	0.0%
Annual	99.8%	0.2%	0.0%	0.0%	0.0%

Table 119 TRS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	26	3	0	0	50	65	375	0

Total Hours of Downtime	79	Total Hours of Calibration Time	400	Total Hours of Flagged	519

Table 120 NOx 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	100.0	705	9.4	0	96	38
February	94.3	597	5.4	0	36	10
March	100.0	705	5.9	0	63	14
April	100.0	682	2.8	0	20	7
May	99.9	704	2.5	0	17	6
June	100.0	681	3.9	0	24	7
July	97.6	688	2.6	0	15	6
August	100.0	704	3.1	0	23	6
September	100.0	683	4.4	0	60	10
October	100.0	705	4.6	0	46	10
November	99.7	680	5.9	0	49	20
December	100.0	705	11.9	1	126	30
Annual	99.3	8239	5.2	0	126	38

Table 121 NOx 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	93.0%	4.5%	2.0%	0.4%	0.0%
February	99.3%	0.7%	0.0%	0.0%	0.0%
March	98.2%	1.7%	0.1%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	98.8%	1.0%	0.1%	0.0%	0.0%
October	98.9%	1.1%	0.0%	0.0%	0.0%
November	96.6%	3.4%	0.0%	0.0%	0.0%
December	91.6%	6.2%	1.6%	0.6%	0.0%
Annual	98.0%	1.6%	0.3%	0.1%	0.0%

Table 122 NOx 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	22	2	0	0	35	89	373	0

Total Hours of Downtime	59	Total Hours of Calibration Time	462	Total Hours of Flagged	521

Table 123 NO 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	Max. 24-hr (ppb)
January	100.0	705	2.1	0	54	16
February	94.3	597	1.1	0	14	3
March	100.0	705	1.3	0	28	4
April	100.0	682	0.4	0	3	1
May	99.9	704	0.5	0	7	2
June	100.0	681	0.5	0	8	2
July	97.6	688	0.5	0	10	3
August	100.0	704	0.4	0	12	2
September	100.0	683	0.9	0	36	3
October	100.0	705	1.1	0	27	3
November	99.7	680	1.8	0	23	7
December	100.0	705	4.1	0	96	17
Annual	99.3	8239	1.2	0	96	17

Table 124 NO 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	99.3%	0.6%	0.1%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	99.6%	0.4%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.0%	0.4%	0.4%	0.1%	0.0%
Annual	99.8%	0.1%	0.0%	0.0%	0.0%

Table 125 NO 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	22	2	0	0	35	89	373	0

Total Hours of Downtime	59	Total Hours of Calibration Time	462	Total Hours of Flagged	521

Table 126 NO2 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)
January	100.0	705	7.2	0	46	0	22
February	94.3	597	4.3	0	28	0	9
March	100.0	705	4.6	0	34	0	11
April	100.0	682	2.5	0	19	0	6
May	99.9	704	2.0	0	15	0	4
June	100.0	681	3.3	0	17	0	6
July	97.6	688	2.1	0	10	0	4
August	100.0	704	2.6	0	15	0	5
September	100.0	683	3.5	0	24	0	7
October	100.0	705	3.5	0	27	0	8
November	99.7	680	4.1	0	29	0	14
December	100.0	705	7.8	0	38	0	17
Annual	99.3	8239	4.0	0	46	0	22

Table 127 NO2 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	97.2%	2.8%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.4%	0.6%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	100.0%	0.0%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	100.0%	0.0%	0.0%	0.0%	0.0%
December	99.1%	0.9%	0.0%	0.0%	0.0%
Annual	99.6%	0.4%	0.0%	0.0%	0.0%

Table 128 NO2 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	22	2	0	0	35	89	373	0

Total Hours of Downtime	59	Total Hours of Calibration Time	462	Total Hours of Flagged	521

Table 129 O3 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppb)	Min. 1-hr (ppb)	Max. 1-hr (ppb)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ppb)
January	98.0	694	26.8	0	45	0	40
February	100.0	639	32.3	5	47	0	44
March	100.0	708	33.8	2	52	0	43
April	100.0	684	34.7	6	52	0	43
May	99.9	705	32.9	3	52	0	43
June	100.0	682	31.5	6	63	0	46
July	99.9	705	22.9	4	46	0	32
August	100.0	706	24.3	3	53	0	36
September	100.0	684	24.6	3	54	0	35
October	99.9	707	25.0	2	43	0	37
November	99.7	682	25.6	2	35	0	33
December	100.0	708	19.6	0	37	0	34
Annual	99.8	8304	27.8	0	63	0	46

Table 130 O3 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppb)				
	0 - 30	31 - 50	51 - 82	83 - 159	>159
January	67.3%	32.7%	0.0%	0.0%	0.0%
February	44.6%	55.4%	0.0%	0.0%	0.0%
March	33.8%	66.0%	0.3%	0.0%	0.0%
April	29.1%	70.2%	0.7%	0.0%	0.0%
May	40.7%	58.2%	1.1%	0.0%	0.0%
June	46.8%	50.4%	2.8%	0.0%	0.0%
July	85.2%	14.8%	0.0%	0.0%	0.0%
August	76.2%	23.4%	0.4%	0.0%	0.0%
September	70.2%	29.2%	0.6%	0.0%	0.0%
October	66.1%	33.9%	0.0%	0.0%	0.0%
November	74.3%	25.7%	0.0%	0.0%	0.0%
December	89.5%	10.5%	0.0%	0.0%	0.0%
Annual	60.3%	39.2%	0.5%	0.0%	0.0%

Table 131 O3 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	16	3	0	0	1	59	377	0

Total Hours of Downtime	20	Total Hours of Calibration Time	436	Total Hours of Flagged	456

Table 132 THC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	98.1	692	2.05	1.85	3.82	2.31
February	99.9	638	2.00	1.85	2.34	2.11
March	94.2	668	2.06	1.96	3.06	2.15
April	100.0	684	2.04	1.98	2.50	2.13
May	99.6	703	2.02	1.96	2.43	2.09
June	100.0	685	2.01	1.94	2.55	2.08
July	100.0	708	1.99	1.92	2.41	2.04
August	98.1	690	2.00	1.91	4.32	2.20
September	100.0	685	2.02	1.93	2.47	2.11
October	99.9	708	2.01	1.90	2.47	2.09
November	99.7	681	2.06	1.96	2.64	2.29
December	100.0	708	2.17	2.03	2.93	2.45
Annual	99.1	8250	2.04	1.85	4.32	2.45

Table 133 THC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 40	>40
January	96.8%	3.2%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	99.0%	1.0%	0.0%	0.0%	0.0%
April	98.8%	1.2%	0.0%	0.0%	0.0%
May	99.9%	0.1%	0.0%	0.0%	0.0%
June	99.9%	0.1%	0.0%	0.0%	0.0%
July	99.9%	0.1%	0.0%	0.0%	0.0%
August	99.6%	0.4%	0.0%	0.0%	0.0%
September	99.7%	0.3%	0.0%	0.0%	0.0%
October	99.7%	0.3%	0.0%	0.0%	0.0%
November	99.0%	1.0%	0.0%	0.0%	0.0%
December	93.4%	6.6%	0.0%	0.0%	0.0%
Annual	98.8%	1.2%	0.0%	0.0%	0.0%

Table 134 THC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	53	6	0	0	19	56	376	0

Total Hours of Downtime	78	Total Hours of Calibration Time	432	Total Hours of Flagged	510

Table 135 CH4 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	98.1	692	2.03	1.85	3.10	2.26
February	99.9	638	2.00	1.85	2.23	2.10
March	94.2	668	2.06	1.96	2.36	2.15
April	100.0	684	2.04	1.98	2.38	2.11
May	99.6	703	2.02	1.96	2.29	2.08
June	100.0	685	2.01	1.94	2.38	2.07
July	100.0	708	1.99	1.92	2.37	2.03
August	98.1	690	1.99	1.91	2.34	2.06
September	100.0	685	2.01	1.93	2.46	2.08
October	99.9	708	2.01	1.90	2.27	2.08
November	99.7	681	2.06	1.96	2.47	2.25
December	100.0	708	2.15	2.03	2.68	2.34
Annual	99.1	8250	2.03	1.85	3.10	2.34

Table 136 CH4 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 2	3 - 5	6 - 10	11 - 20	>20
January	98.7%	1.3%	0.0%	0.0%	0.0%
February	100.0%	0.0%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	99.9%	0.1%	0.0%	0.0%	0.0%
October	100.0%	0.0%	0.0%	0.0%	0.0%
November	99.6%	0.4%	0.0%	0.0%	0.0%
December	97.7%	2.3%	0.0%	0.0%	0.0%
Annual	99.7%	0.3%	0.0%	0.0%	0.0%

Table 137 CH4 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	53	6	0	0	19	56	376	0

Total Hours of Downtime	78	Total Hours of Calibration Time	432	Total Hours of Flagged	510

Table 138 NMHC 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ppm)	Min. 1-hr (ppm)	Max. 1-hr (ppm)	Max. 24-hr (ppm)
January	98.1	692	0.01	0.00	1.61	0.09
February	99.9	638	0.00	0.00	0.21	0.02
March	94.2	668	0.01	0.00	0.92	0.07
April	100.0	684	0.00	0.00	0.18	0.03
May	99.6	703	0.00	0.00	0.13	0.02
June	100.0	685	0.00	0.00	0.17	0.01
July	100.0	708	0.00	0.00	0.08	0.01
August	98.1	690	0.01	0.00	2.24	0.18
September	100.0	685	0.00	0.00	0.25	0.03
October	99.9	708	0.00	0.00	0.20	0.02
November	99.7	681	0.00	0.00	0.16	0.04
December	100.0	708	0.02	0.00	0.25	0.11
Annual	99.1	8250	0.01	0.00	2.24	0.18

Table 139 NMHC 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ppm)				
	0 - 0.1	0.2 - 0.3	0.4 - 0.9	1 -2	>2
January	97.7%	2.2%	0.0%	0.1%	0.0%
February	99.5%	0.5%	0.0%	0.0%	0.0%
March	99.4%	0.3%	0.3%	0.0%	0.0%
April	99.4%	0.6%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	99.9%	0.1%	0.0%	0.0%	0.0%
July	100.0%	0.0%	0.0%	0.0%	0.0%
August	98.8%	0.7%	0.1%	0.3%	0.0%
September	99.3%	0.7%	0.0%	0.0%	0.0%
October	99.7%	0.3%	0.0%	0.0%	0.0%
November	99.9%	0.1%	0.0%	0.0%	0.0%
December	98.3%	1.7%	0.0%	0.0%	0.0%
Annual	99.3%	0.6%	0.0%	0.0%	0.0%

Table 140 NMHC 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	53	6	0	0	19	56	376	0

Total Hours of Downtime	78	Total Hours of Calibration Time	432	Total Hours of Flagged	510

Table 141 PM2.5 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (ug/m3)	Min. 1-hr (ug/m3)	Max. 1-hr (ug/m3)	# of 1-hr AAAQO Exceedances	Max. 24-hr (ug/m3)	# of 24-hr AAAQO Exceedances
January	99.3	738	5.5	0	37	0	11	0
February	99.9	668	3.8	0	52	0	7	0
March	100.0	743	4.0	0	24	0	10	0
April	100.0	718	3.7	0	17	0	7	0
May	99.9	741	3.4	0	14	0	6	0
June	100.0	719	6.5	1	35	0	16	0
July	100.0	743	7.5	1	56	0	21	0
August	100.0	743	8.4	1	49	0	23	0
September	100.0	718	14.3	1	302	22	62	3
October	100.0	742	13.4	0	165	3	42	4
November	99.7	717	9.1	0	58	0	38	1
December	99.9	742	9.3	1	51	0	21	0
Annual	99.9	8732	7.4	0	302	25	62	8

Table 142 PM2.5 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in ug/m3)				
	0 - 50	51 - 80	81 - 120	121 - 240	>240
January	100.0%	0.0%	0.0%	0.0%	0.0%
February	99.9%	0.1%	0.0%	0.0%	0.0%
March	100.0%	0.0%	0.0%	0.0%	0.0%
April	100.0%	0.0%	0.0%	0.0%	0.0%
May	100.0%	0.0%	0.0%	0.0%	0.0%
June	100.0%	0.0%	0.0%	0.0%	0.0%
July	99.9%	0.1%	0.0%	0.0%	0.0%
August	100.0%	0.0%	0.0%	0.0%	0.0%
September	95.3%	1.7%	2.4%	0.4%	0.3%
October	96.1%	3.5%	0.1%	0.3%	0.0%
November	99.4%	0.6%	0.0%	0.0%	0.0%
December	99.9%	0.1%	0.0%	0.0%	0.0%
Annual	99.2%	0.5%	0.2%	0.1%	0.0%

Table 143 PM2.5 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	7	3	0	0	0	18	0	0

Total Hours of Downtime	10	Total Hours of Calibration Time	18	Total Hours of Flagged	28

Table 144 RH 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (%)	Min. 1-hr (%)	Max. 1-hr (%)	Max. 24-hr (%)
January	100.0	744	76.3	42	96	88
February	100.0	672	71.7	47	94	79
March	100.0	744	69.5	35	97	86
April	100.0	720	64.0	24	98	95
May	99.9	743	59.9	17	98	93
June	100.0	720	56.3	14	100	85
July	100.0	744	62.9	23	99	82
August	100.0	744	64.0	21	97	92
September	100.0	720	59.9	19	100	93
October	100.0	744	61.5	27	100	89
November	99.7	718	73.5	40	99	84
December	100.0	744	76.4	41	94	89
Annual	100.0	8757	66.3	14	100	95

Table 145 RH 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	1	2	0	0	0	0	0	0

Total Hours of Downtime	3	Total Hours of Calibration Time	0	Total Hours of Flagged	3

Table 146 BP 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	100.0	744	944	922	966	964
February	100.0	672	945	923	967	964
March	100.0	744	942	925	961	960
April	100.0	720	942	914	961	960
May	99.9	743	939	919	955	953
June	100.0	720	941	929	954	953
July	100.0	744	942	933	950	948
August	100.0	744	941	929	950	949
September	100.0	720	941	928	950	949
October	100.0	744	940	914	957	956
November	99.7	718	945	919	975	971
December	100.0	744	945	918	975	973
Annual	100.0	8757	942	914	975	973

Table 147 BP 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	1	2			0	0	0	0

Total Hours of Downtime	3	Total Hours of Calibration Time	0	Total Hours of Flagged	3

Table 148 AT 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (mb)	Min. 1-hr (mb)	Max. 1-hr (mb)	Max. 24-hr (mb)
January	100.0	744	-12.7	-37.3	5.9	3.5
February	100.0	672	-10.3	-28.6	8.5	4.1
March	100.0	744	-3.5	-17.1	8.3	4.7
April	100.0	720	1.3	-13.0	17.5	10.7
May	99.9	743	9.0	-3.7	21.1	14.7
June	100.0	720	16.3	7.7	25.8	19.2
July	100.0	744	18.0	7.6	33.1	24.9
August	100.0	744	18.9	8.4	30.8	23.2
September	100.0	720	13.6	1.9	29.7	19.8
October	100.0	744	7.7	-4.7	22.4	15.7
November	99.7	718	-7.3	-26.8	8.6	3.9
December	100.0	744	-19.4	-38.8	-0.3	-5.8
Annual	100.0	8757	2.6	-38.8	33.1	24.9

Table 149 AT 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	1	2	0	0	0	0	0	0
Total Hours of Downtime		3	Total Hours of Calibration Time		0	Total Hours of Flagged		3

Table 150 ST 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (°C)	Min. 1-hr (°C)	Max. 1-hr (°C)	Max. 24-hr (°C)
January	100.0	744	22.5	20.9	24.3	23.2
February	100.0	672	22.3	21.0	23.6	23.1
March	100.0	744	22.5	21.0	23.5	23.1
April	100.0	720	21.9	20.6	23.5	22.9
May	99.9	743	22.5	20.9	23.6	22.9
June	100.0	720	22.4	21.0	23.4	22.8
July	100.0	744	22.0	20.9	23.7	22.5
August	100.0	744	22.1	20.8	25.8	22.9
September	100.0	720	22.4	20.9	23.9	22.6
October	100.0	744	22.4	21.0	23.2	22.8
November	99.7	718	22.0	20.8	23.2	23.0
December	100.0	744	22.4	21.2	23.7	23.4
Annual	100.0	8757	22.3	20.6	25.8	23.4

Table 151 ST Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	1	2	0	0	0	0	0	0

Total Hours of Downtime	3	Total Hours of Calibration Time	0	Total Hours of Flagged	3

Table 152 WS 2022 Annual Continuous Data Summary

Month	Operational Uptime (%)	# of Reading	Monthly Avg. (kph)	Min. 1-hr (kph)	Max. 1-hr (kph)	Max. 24-hr (kph)
January	100.0	744	8.8	0.1	30.2	20.2
February	100.0	672	10.4	0.4	38.3	27.9
March	100.0	744	8.4	0.1	27.4	15.6
April	100.0	720	9.2	0.3	26.6	19.4
May	99.9	743	9.6	0.4	30.0	17.8
June	100.0	720	8.5	0.2	29.0	12.8
July	100.0	741	9.0	0.2	27.1	17.1
August	100.0	744	8.4	0.1	31.4	15.1
September	100.0	720	8.9	0.1	31.8	19.0
October	100.0	744	10.4	0.1	38.0	22.9
November	99.7	718	10.7	0.2	25.1	18.1
December	100.0	744	7.2	0.3	32.9	18.9
Annual	100.0	8754	9.1	0.1	38.3	27.9

Table 153 WS 2022 Annual Frequency Distribution

Month	Percentage Readings in Concentration Range (in kph)				
	0 - 6	7 - 15	16 - 29	30 -39	>39
January	49.1%	33.7%	16.9%	0.3%	0.0%
February	31.7%	50.6%	14.9%	2.8%	0.0%
March	43.4%	47.4%	9.1%	0.0%	0.0%
April	37.2%	46.5%	16.3%	0.0%	0.0%
May	31.0%	52.0%	17.0%	0.1%	0.0%
June	38.6%	53.1%	8.3%	0.0%	0.0%
July	41.2%	44.3%	14.6%	0.0%	0.0%
August	37.5%	52.2%	10.1%	0.3%	0.0%
September	40.4%	46.0%	13.2%	0.4%	0.0%
October	39.1%	38.6%	20.2%	2.2%	0.0%
November	24.1%	57.1%	18.8%	0.0%	0.0%
December	55.2%	37.2%	7.1%	0.4%	0.0%
Annual	39.0%	46.6%	13.9%	0.5%	0.0%

Table 154 WS 2022 Qualifier Flag Summary

P	X	Y	K	N	NRM	C	S	Q
0	1	2	0	0	0	3	0	0

3	99	Total Hours of Calibration Time	3	Total Hours of Flagged	6

1.6 Passive Stations

Table 155 SO2 Summary Statistic for Passive Stations

Parameter: SO2 (ppb)						
Station	**Annual Average**	**Maximum**	**Month**	**Minimum**	**Month**	**# of Samples**
1	0.4	1.2	January	<0.1	May	12
2	0.3	0.5	December	0.1	April	11
3	0.4	0.7	January	0.2	April	12
4	0.4	0.8	December	0.1	September	12
7	0.3	0.6	January	<0.1	May	12
8	0.2	0.5	December	0.1	January	12
9	0.2	0.3	January	<0.1	September	11
10	0.2	0.5	December	<0.1	May	12
11	0.2	0.4	August	<0.1	June	12
12	0.2	0.3	January	<0.1	June	12
13	0.3	0.5	August	0.1	April	12
14	0.2	0.3	August	<0.1	June	12

Note:

- The field operator could not locate station #9; therefore, no sample media were collected in April.
- The sample media at station #2 was found damaged and could not be analyzed in June.

Table 156 H2S Summary Statistic for Passive Stations

Parameter: H2S (ppb)						
Station	**Annual Average**	**Maximum**	**Month**	**Minimum**	**Month**	**# of Samples**
1	0.23	0.63	January	0.06	March	12
2	0.17	0.48	August	0.07	May	12
3	0.26	0.69	August	0.06	October	12
4	0.30	0.90	August	0.05	October	12
7	0.18	0.38	July	0.04	October	12
8	0.19	0.37	July	0.05	May	12
9	0.18	0.39	July	0.08	November	11
10	0.22	0.53	August	0.06	May	12
11	0.26	0.86	August	0.09	April	12
12	0.21	0.60	January	0.07	March	12
13	0.37	1.47	July	0.07	May	12
14	0.16	0.39	August	0.06	May	12

Note:

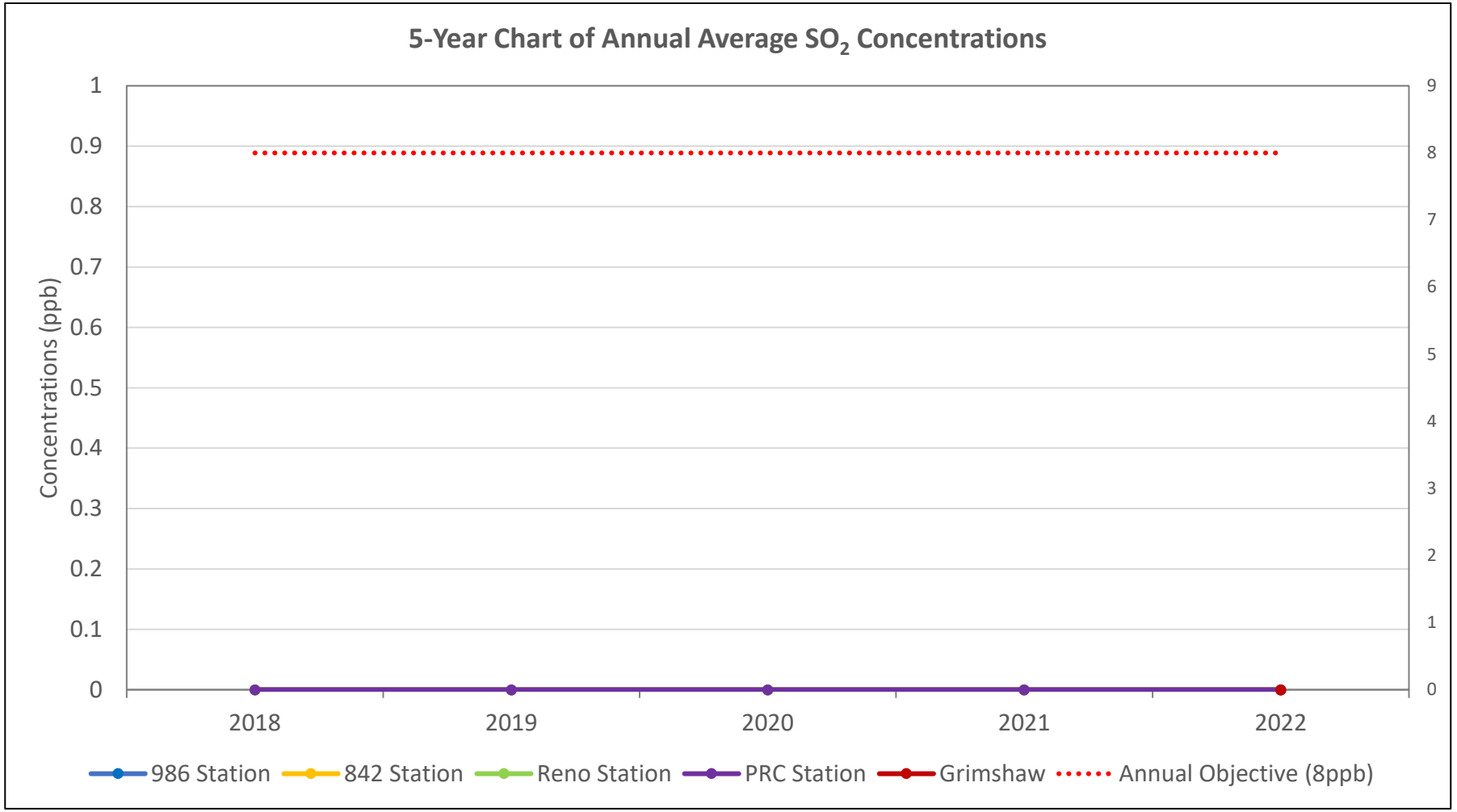
- The field operator could not locate station #9; therefore, no sample media were collected in April.

Table 157 Summary of AAAQO Exceedances at Passive Stations

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**
2022	0

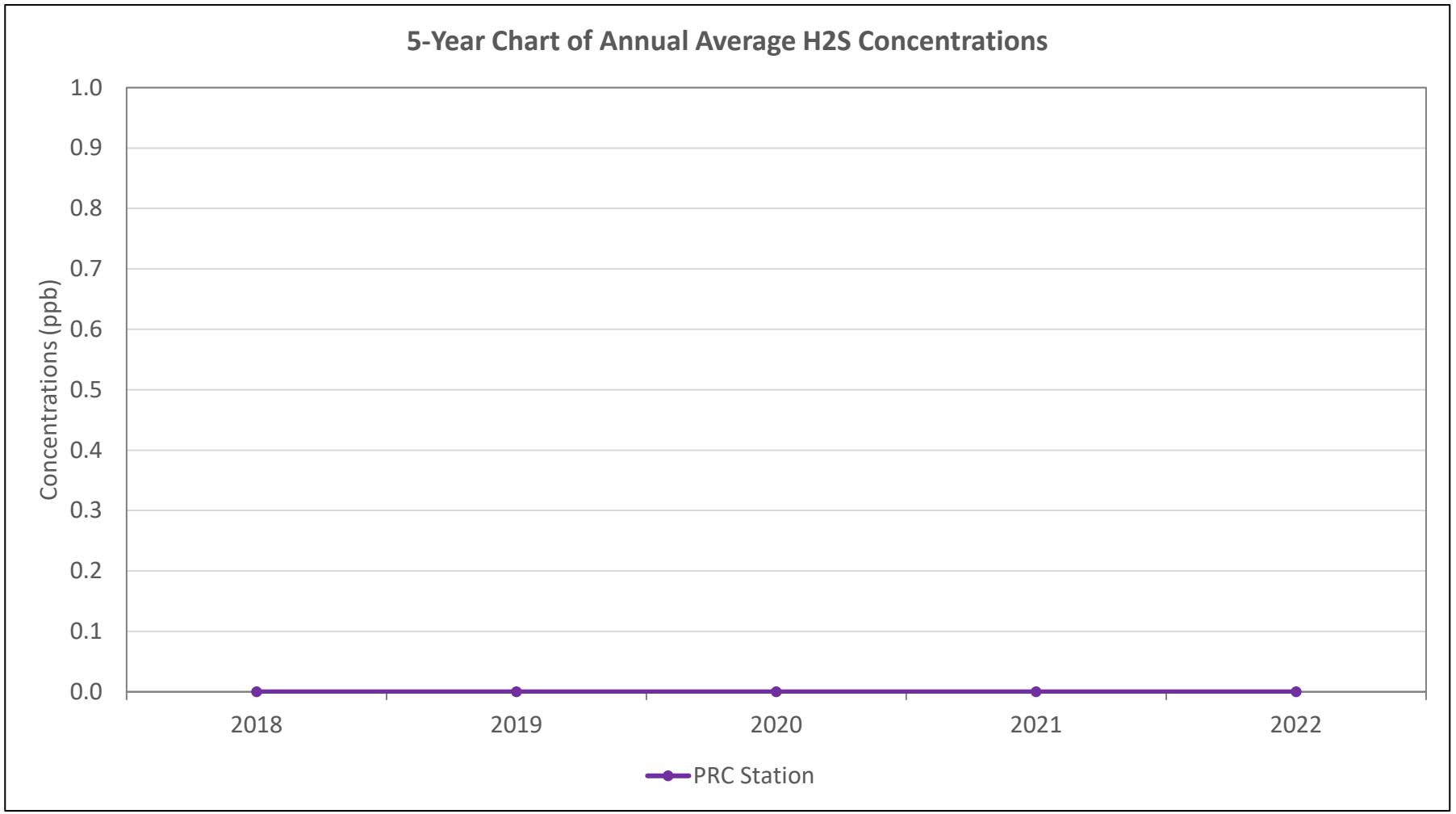
2 5-Year Charts of Annual Average Concentrations

2.1 Continuous Stations



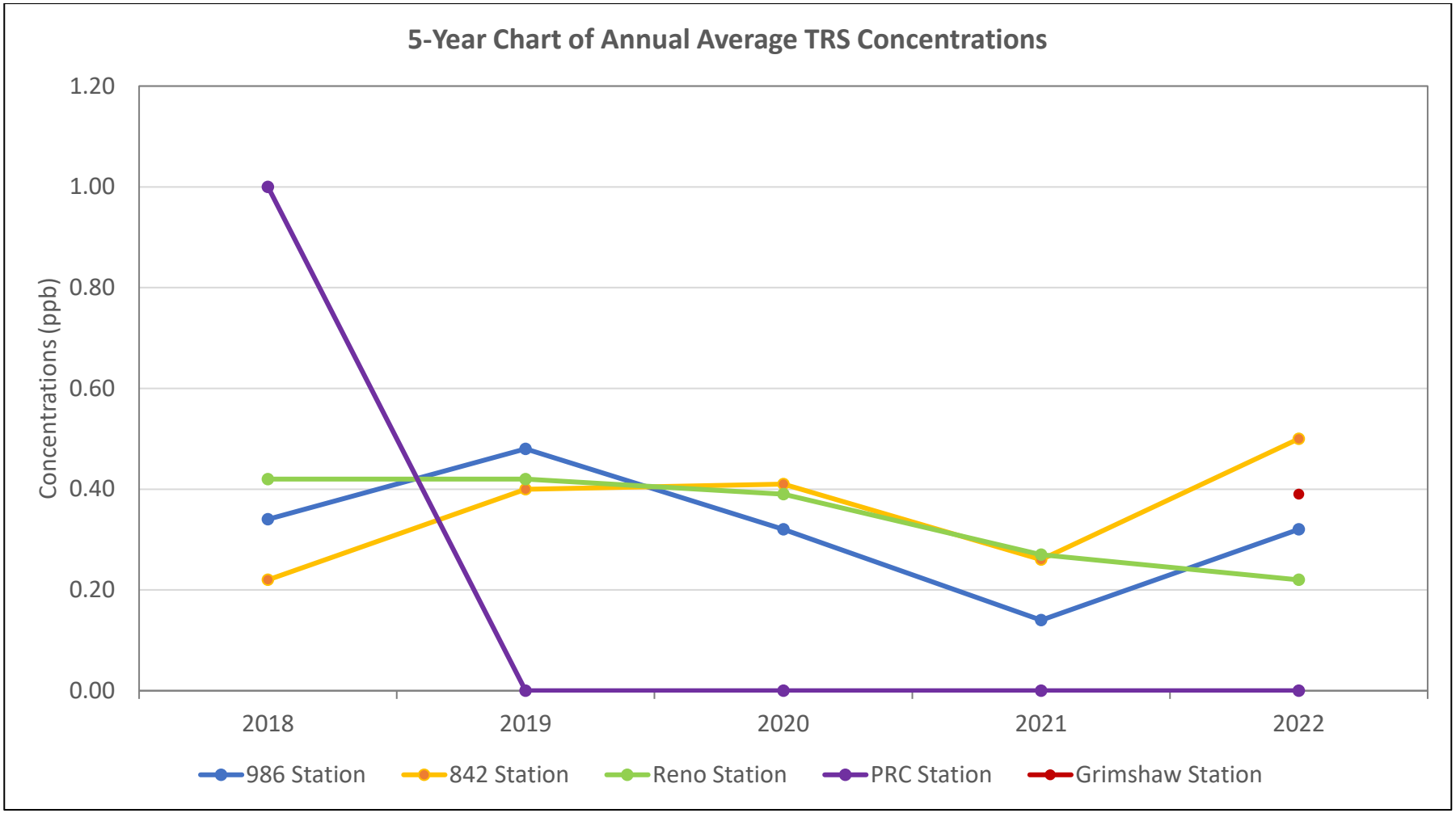
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



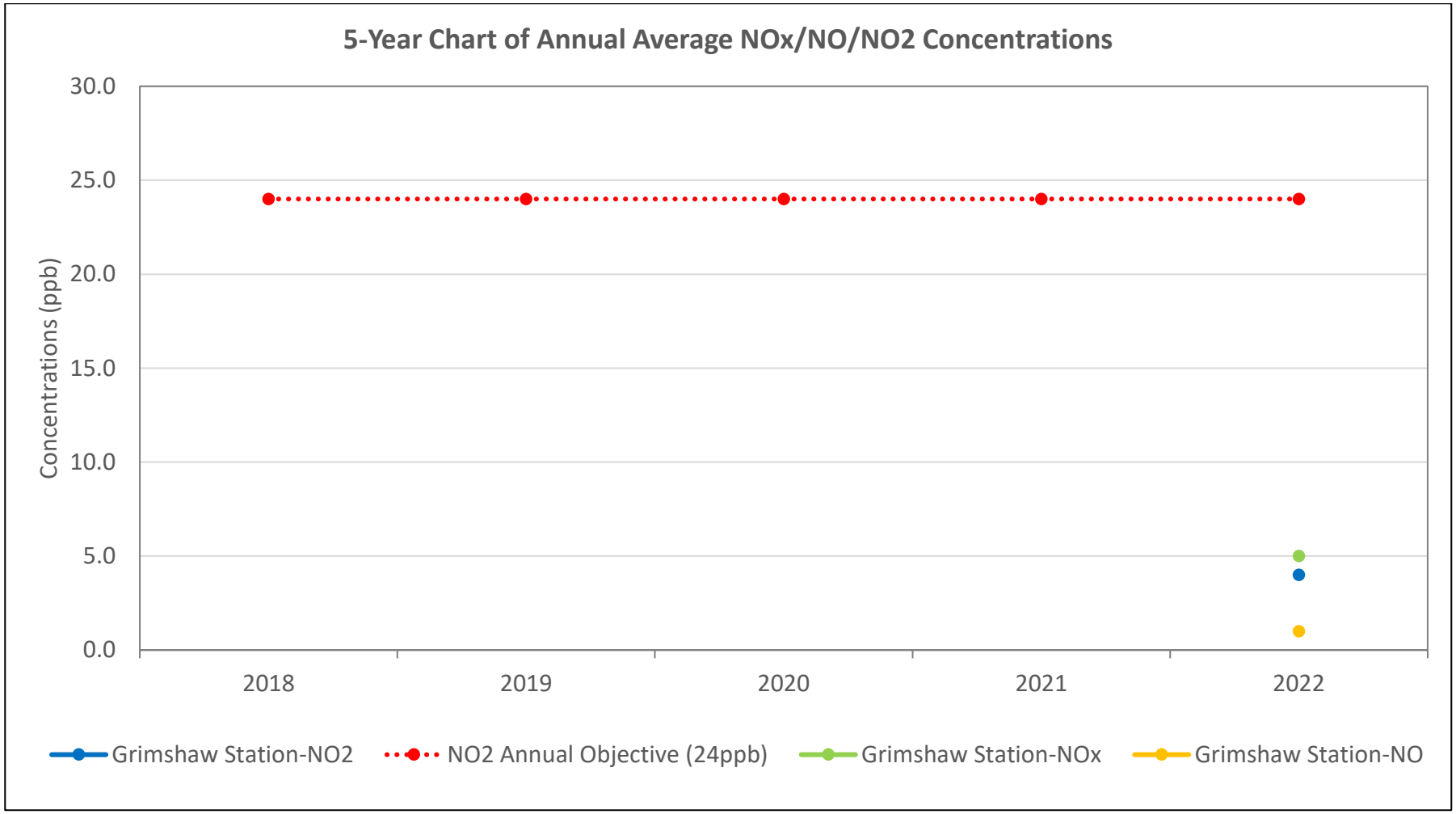
Note:

1. H2S was only monitored at the PRC Station.
2. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



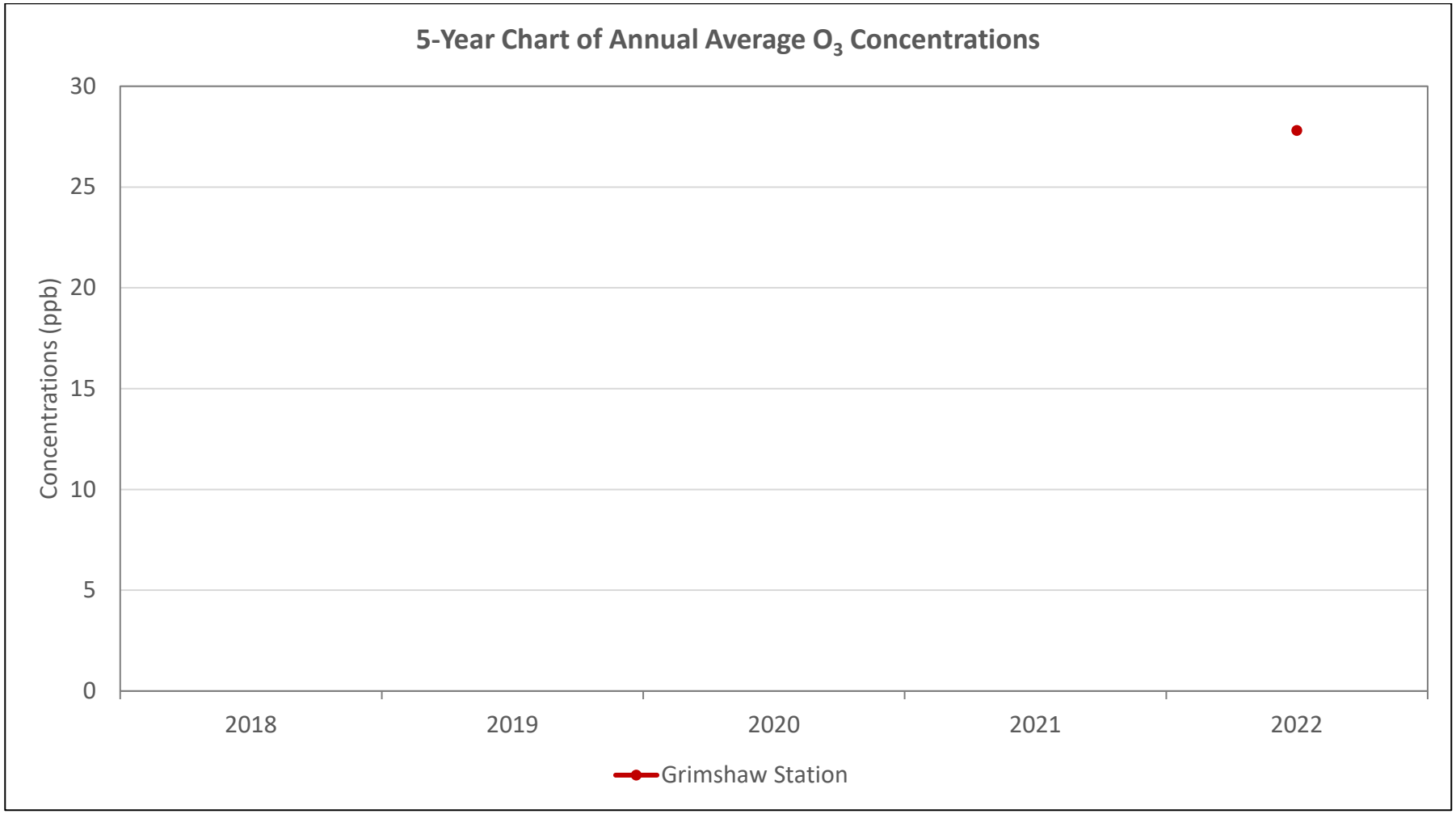
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



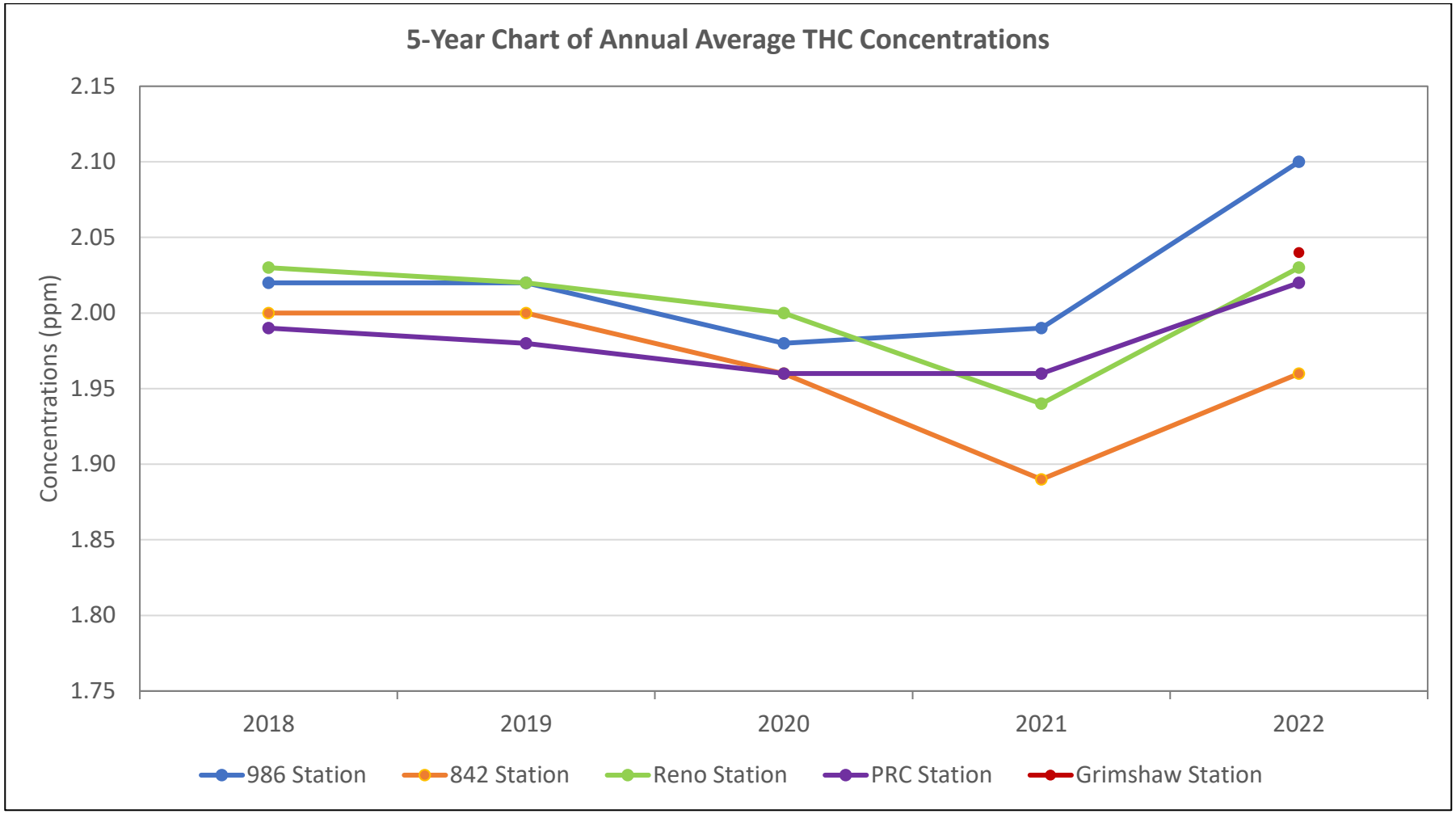
Note:

1. NOx/NO/NO2 was only monitored at the Grimshaw Station.
2. Grimshaw Station was installed in December 2021 – no previous data available.



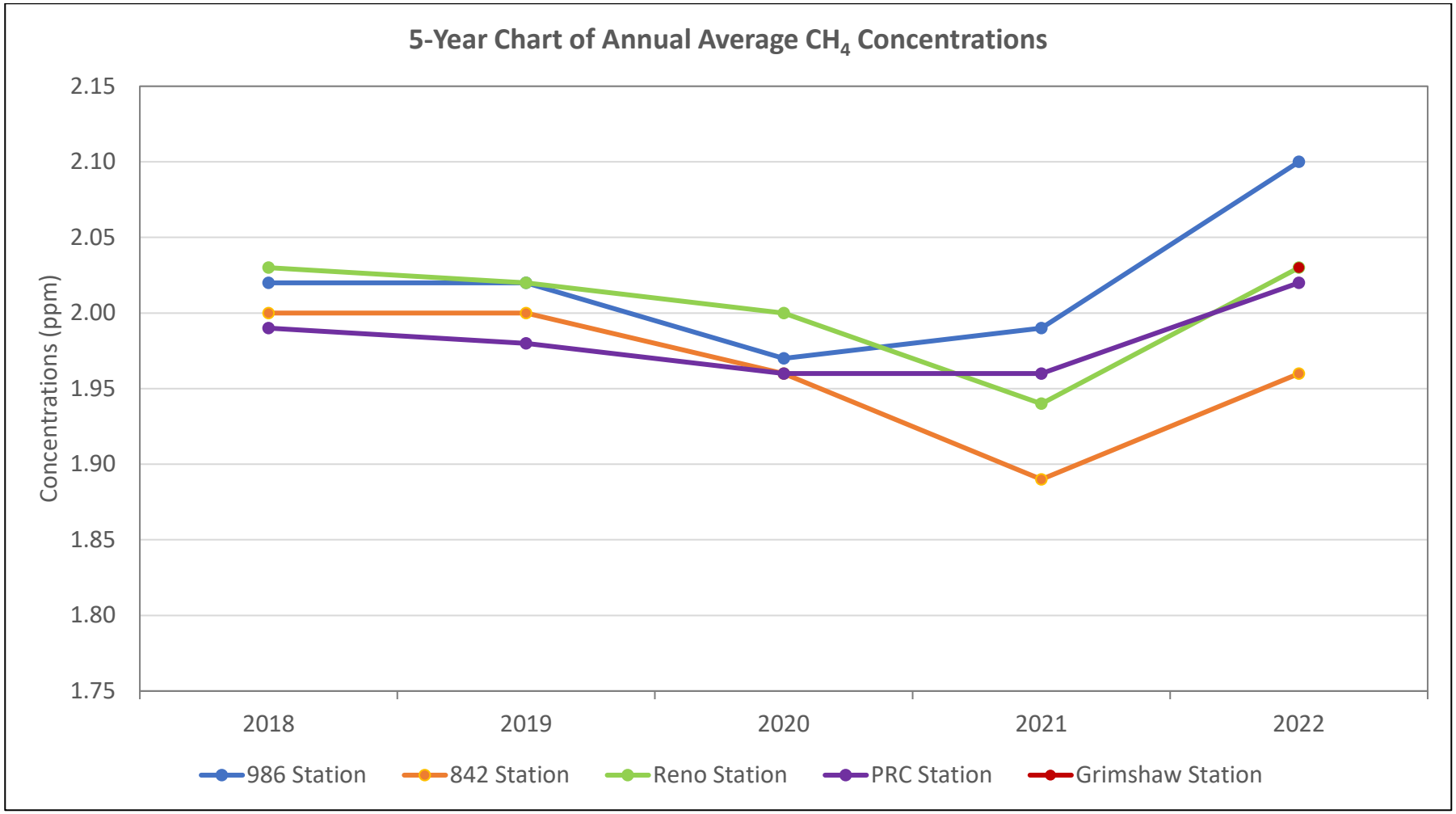
Note:

1. O3 was only monitored at the Grimshaw Station.
2. Grimshaw Station was installed in December 2021 – no previous data available.



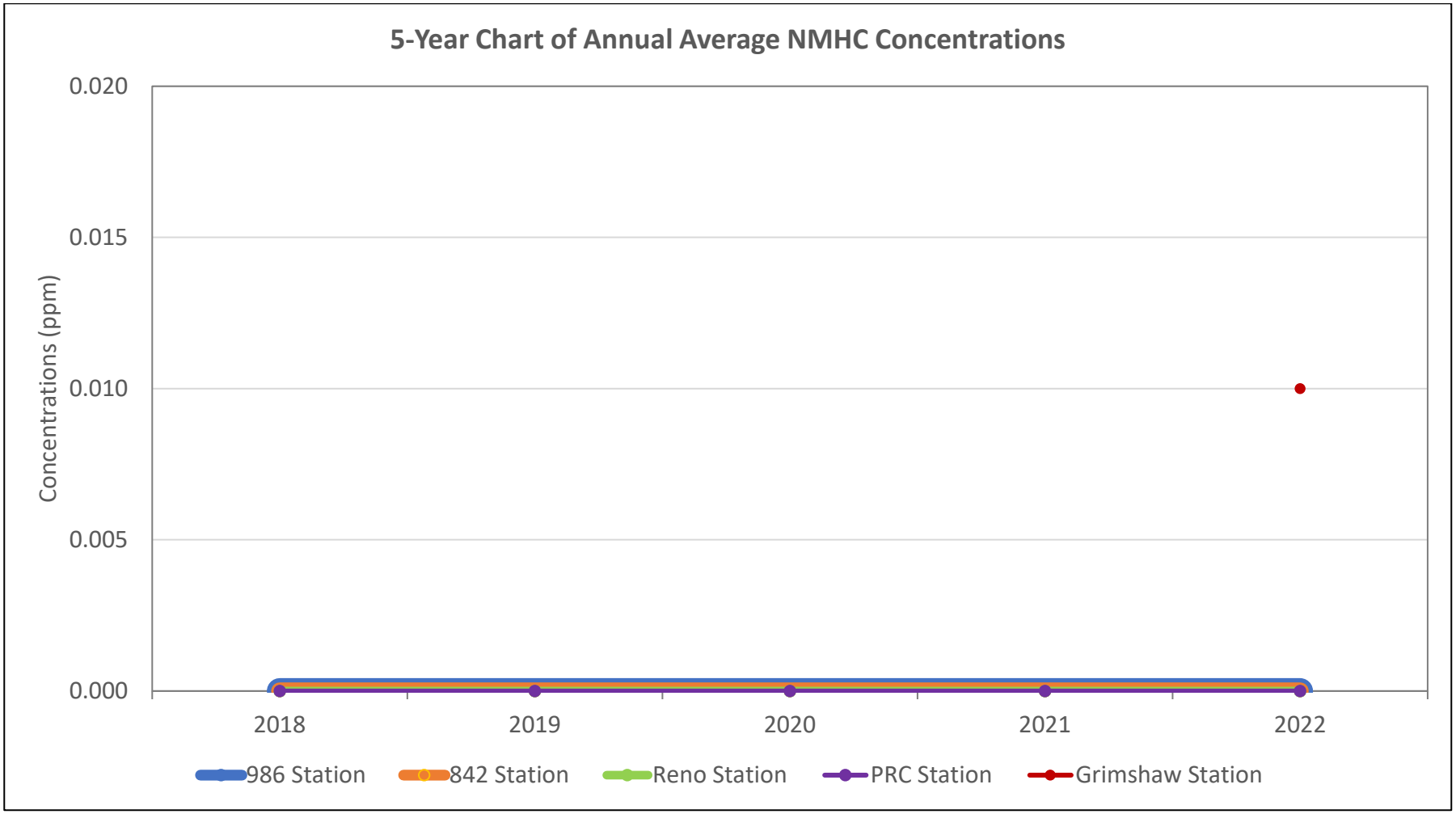
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



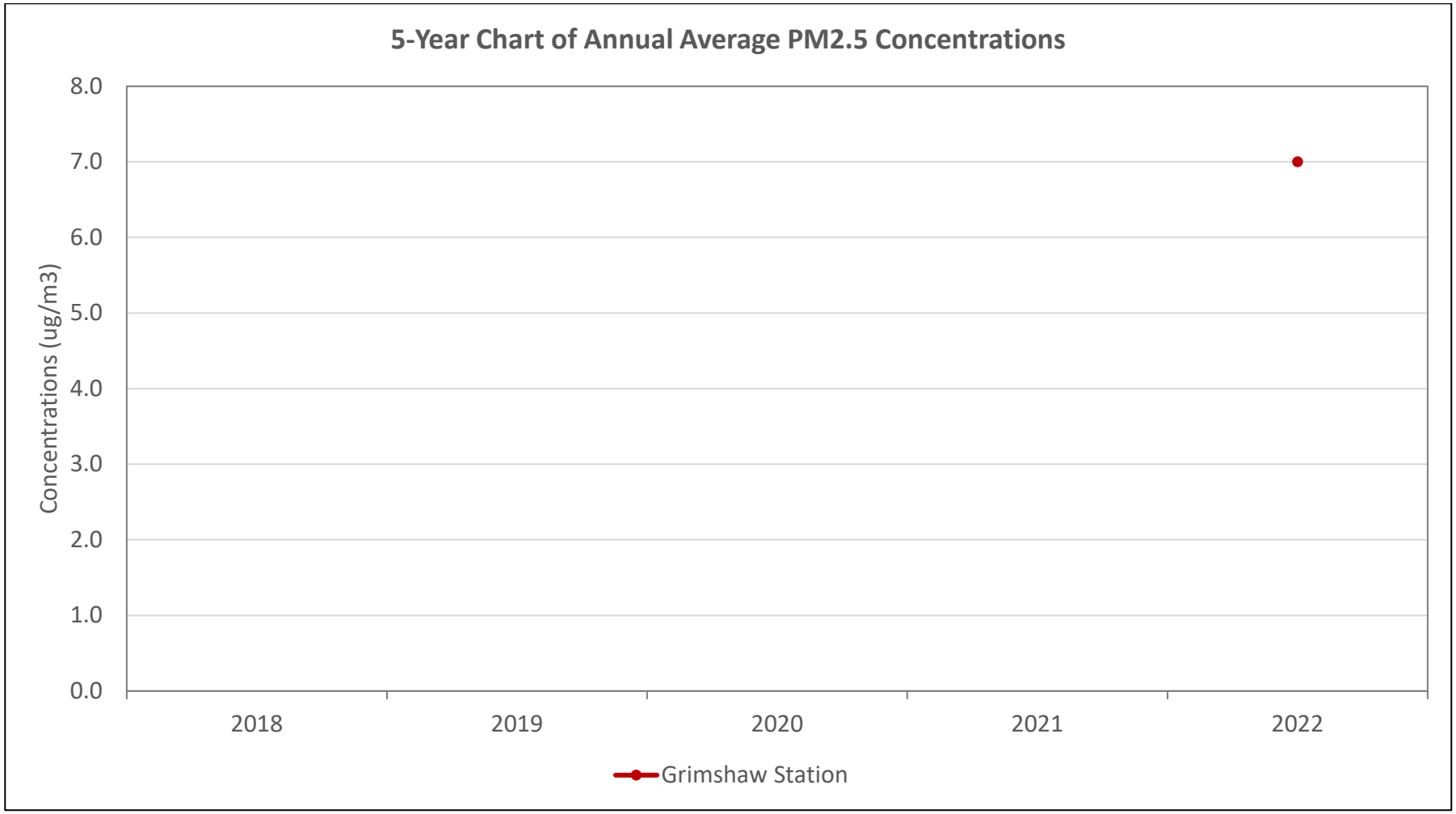
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



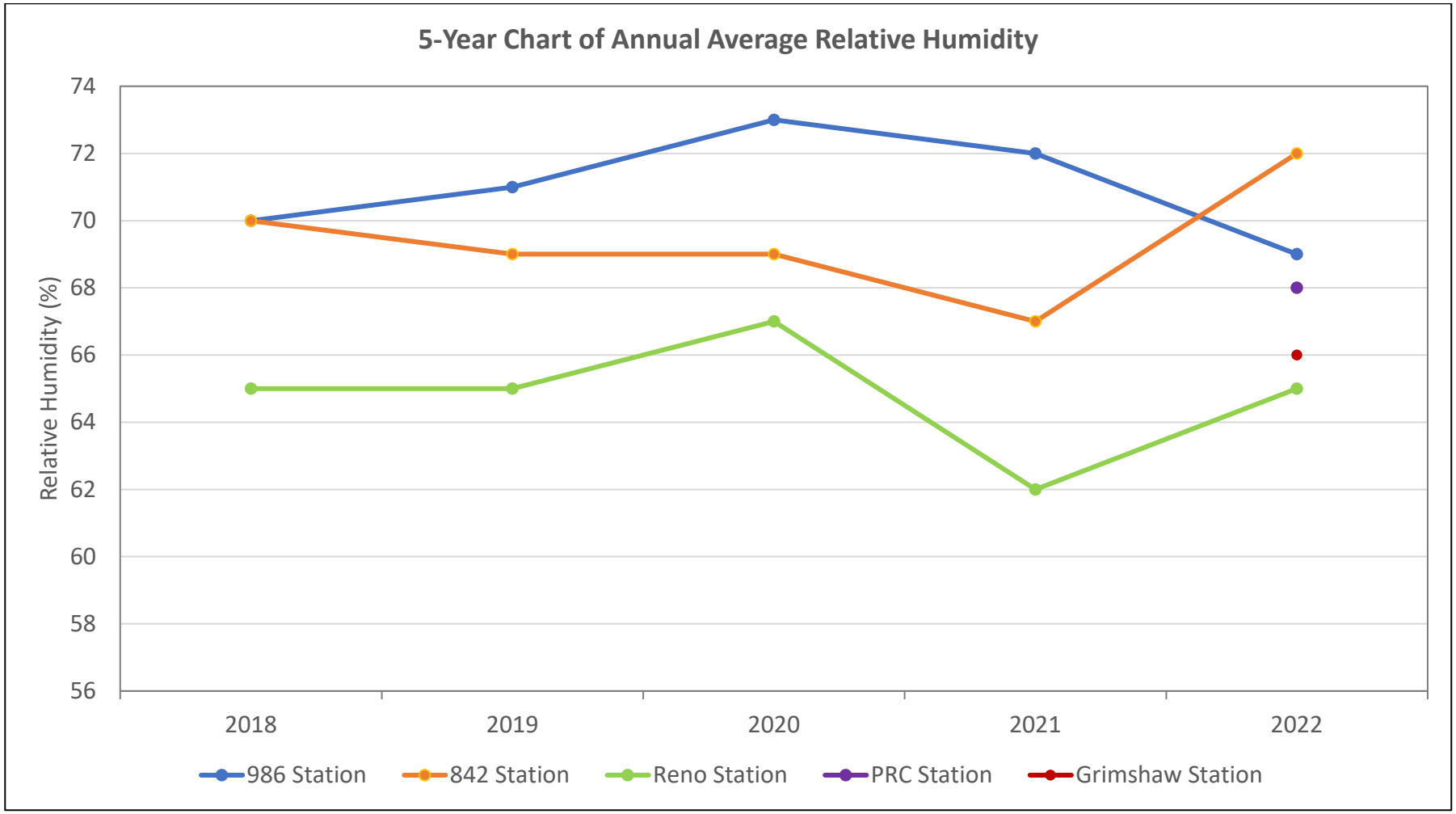
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



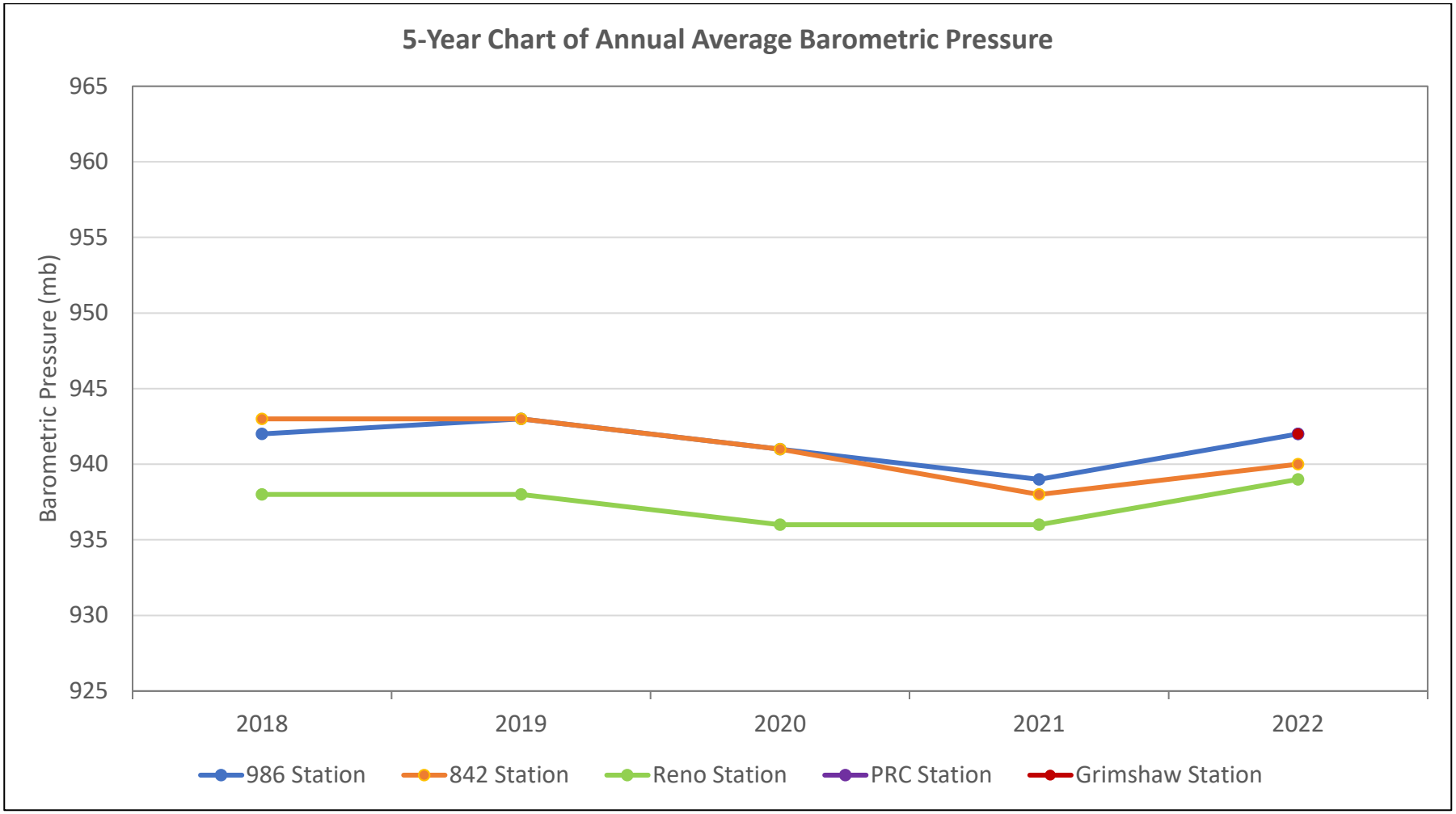
Note:

1. PM2.5 was only monitored at the Grimshaw Station.
2. Grimshaw Station was installed in December 2021 – no previous data available.



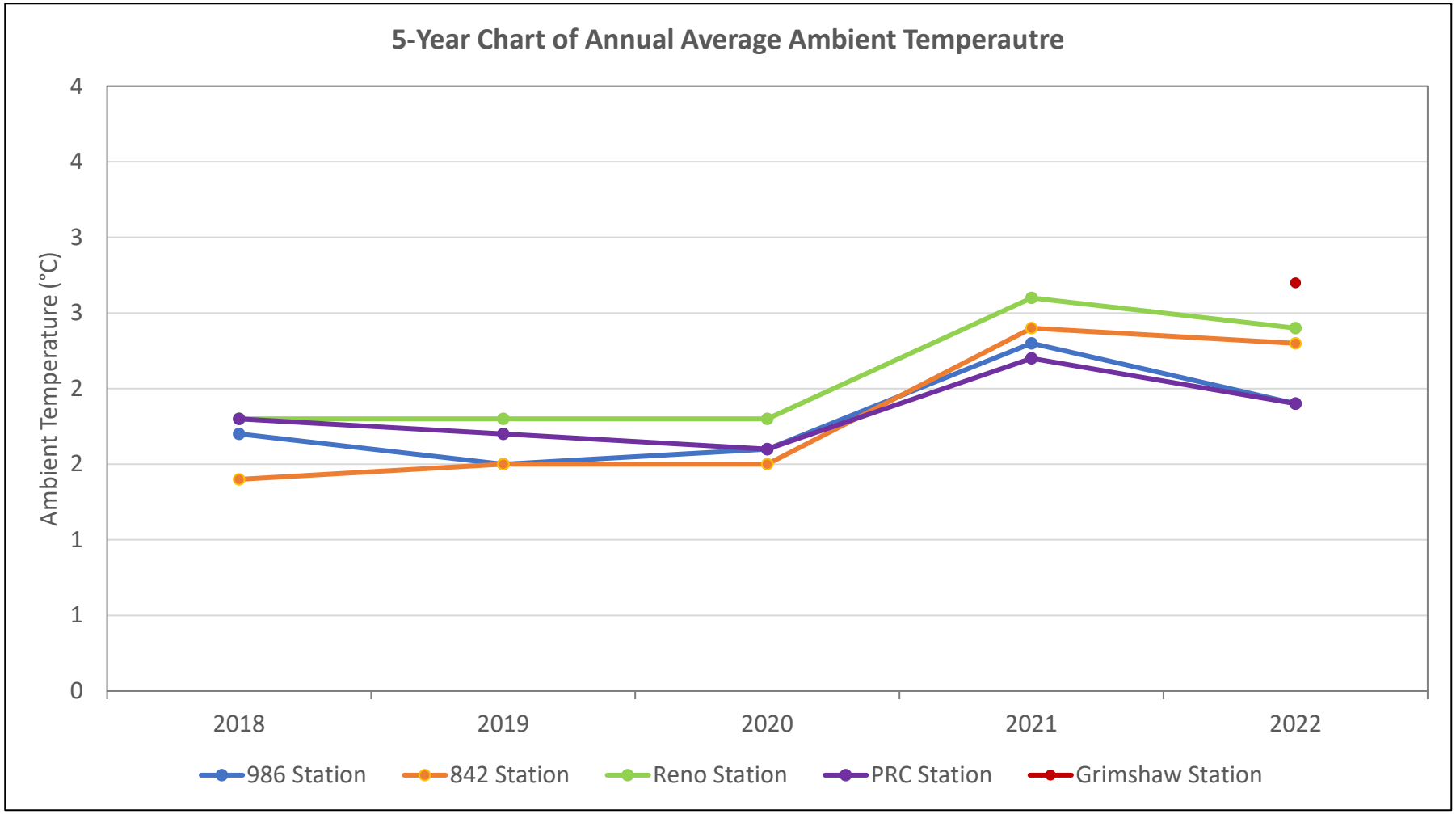
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. RH sensor was installed at the PRC Station in April 2022. Valid readings started being recorded on May 1, 2022.



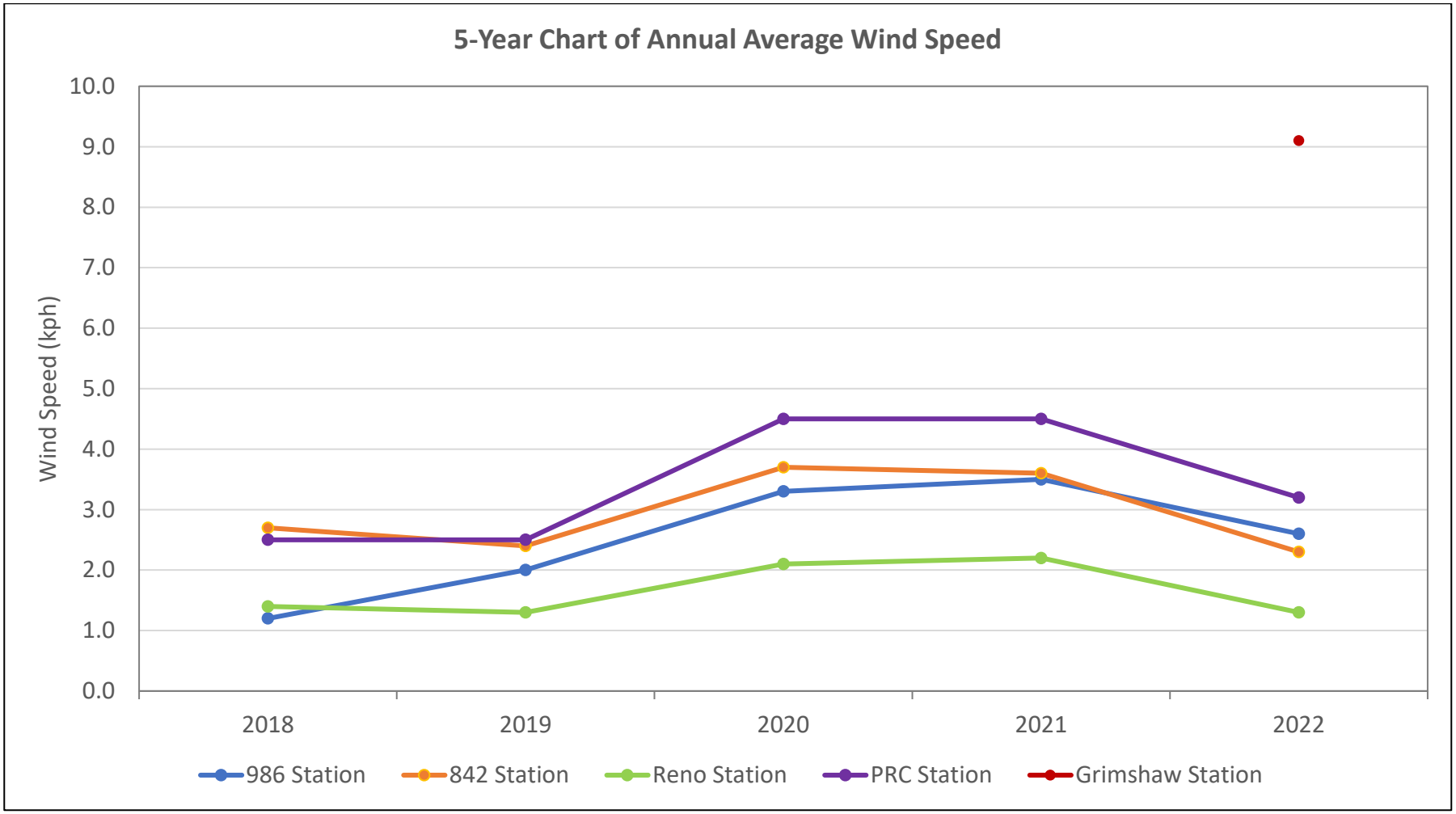
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. BP sensor was installed at the PRC Station in April 2022. Valid readings started being recorded on May 1, 2022.



Note:

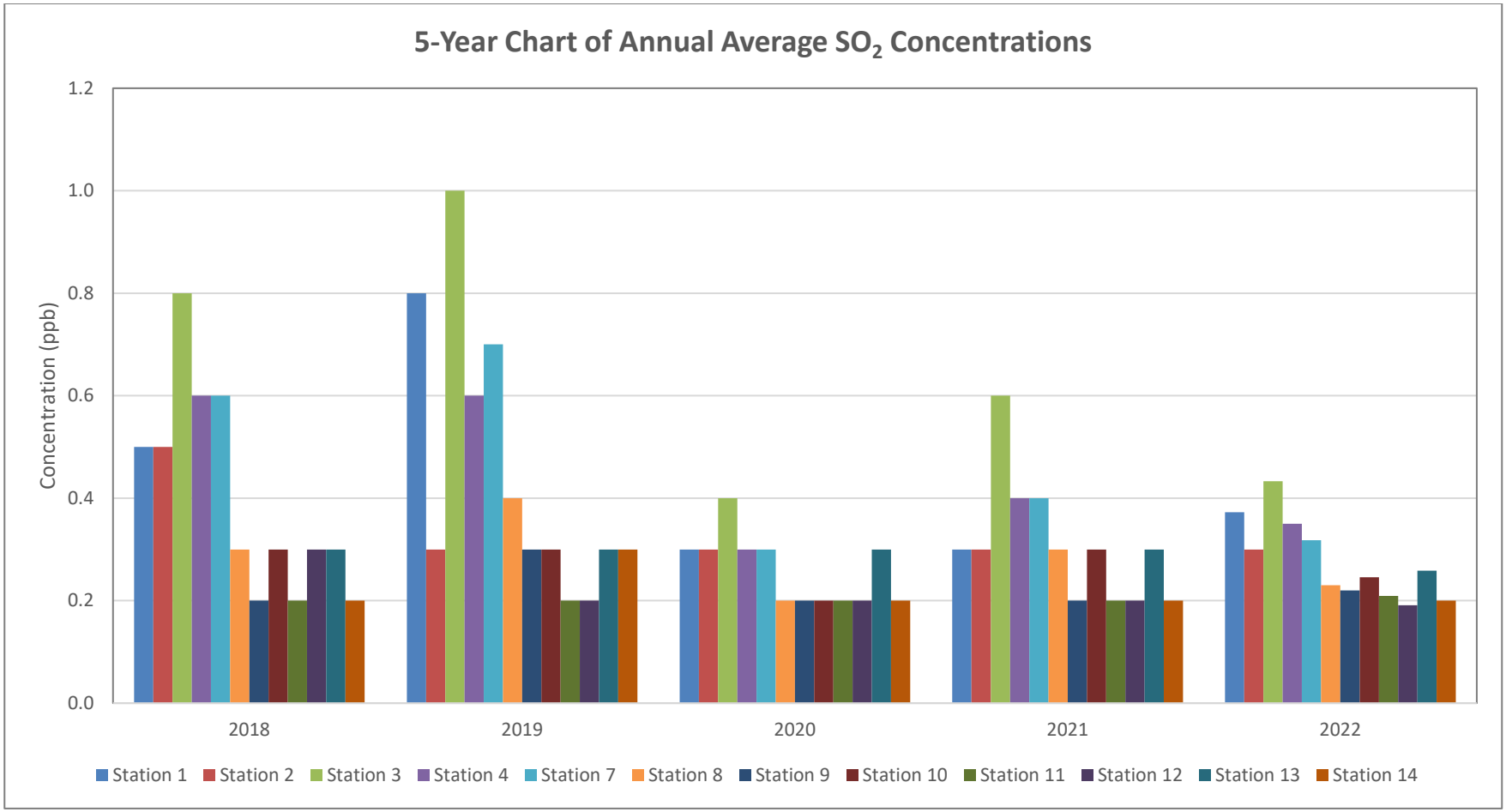
1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.



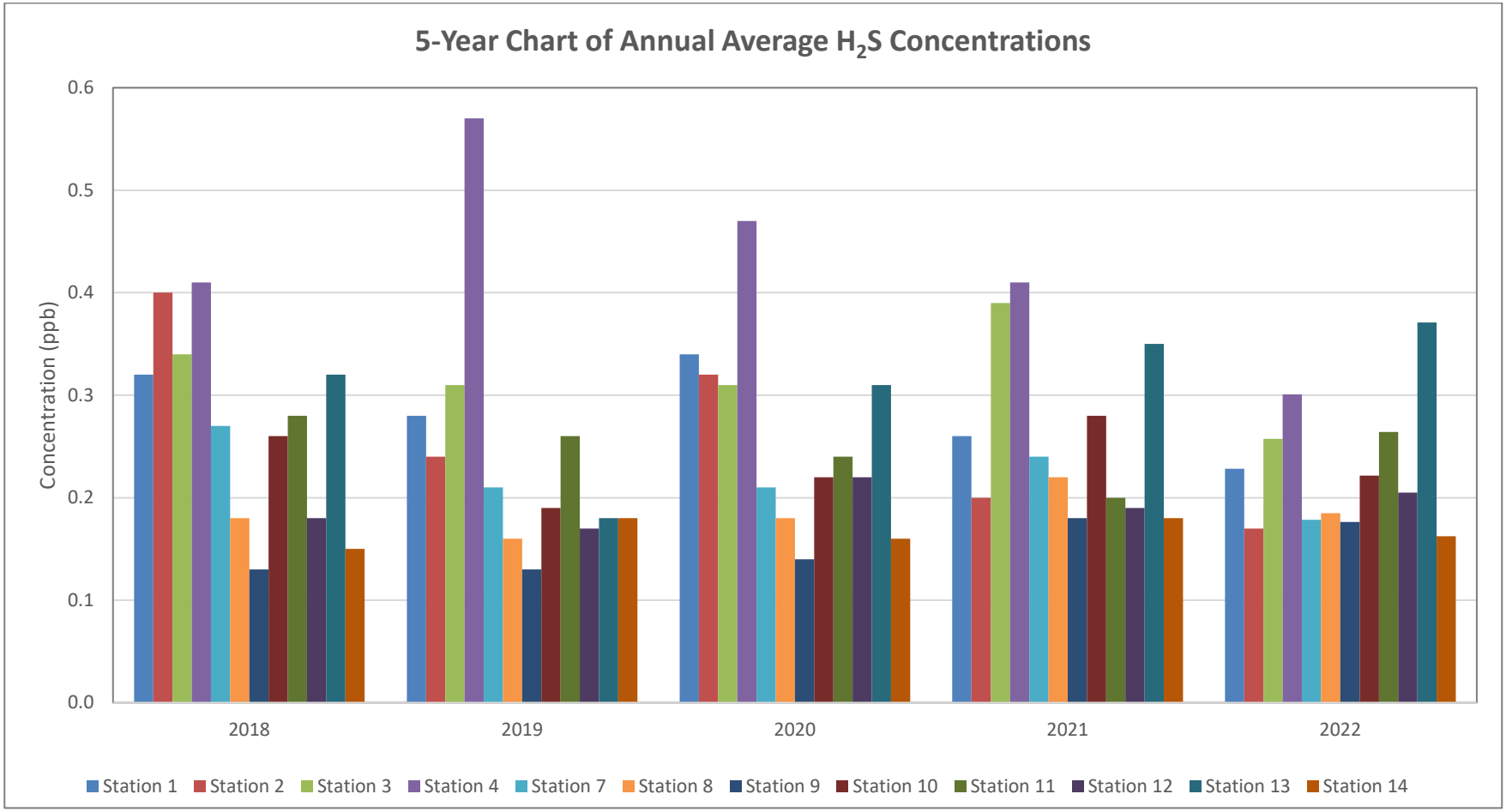
Note:

1. Grimshaw Station was installed in December 2021 – no previous data available.
2. 2019 average for 986 Station was calculated using both 986b and 986-C data.
3. PRC data collected from Jan 2018-Feb 2022 were provided by Bureau Veritas.

2.2 Passive Stations



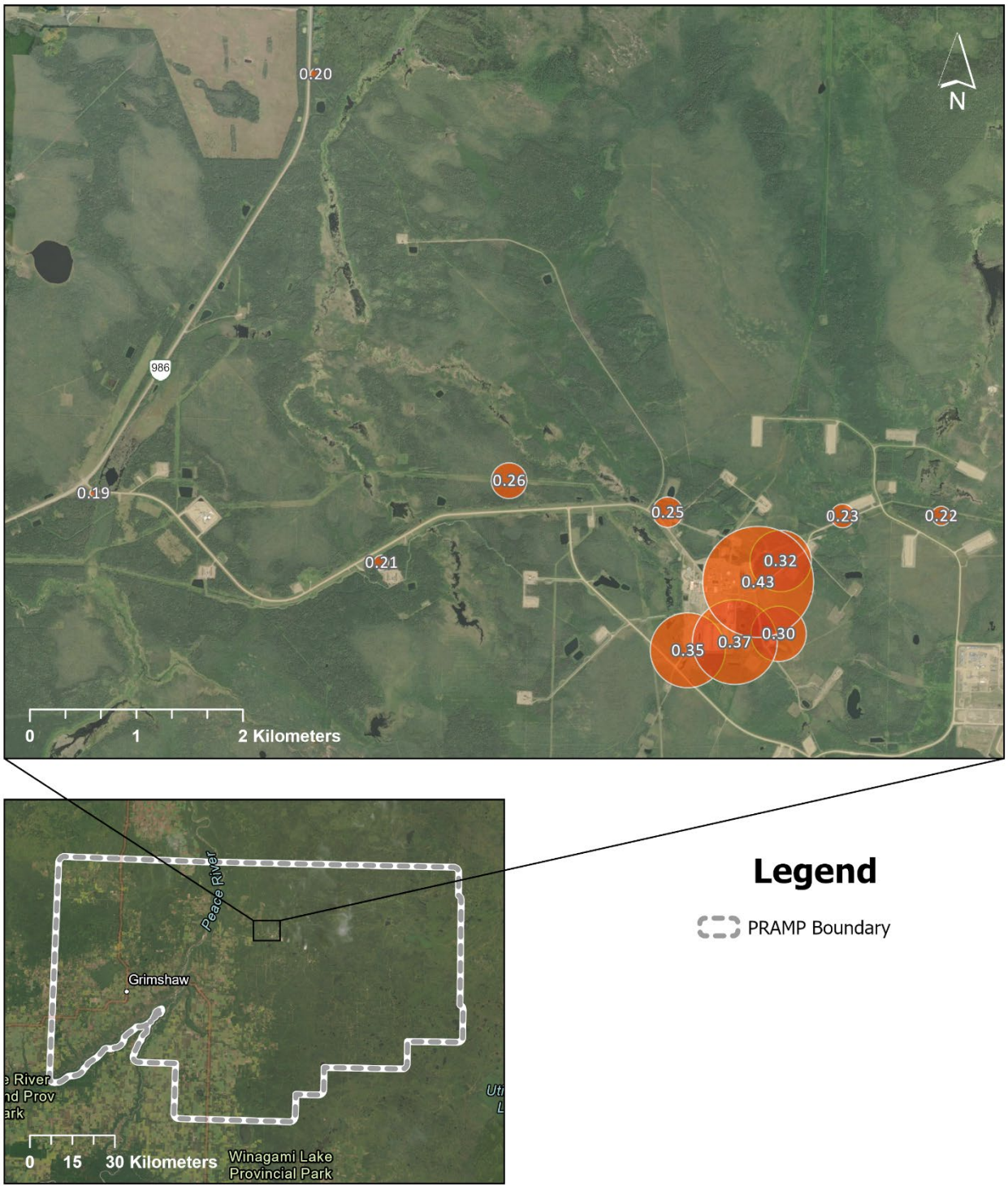
Note: Passive results for SO2 from Jan 2018-Feb 2022 were provided by Bureau Veritas



Note: Passive results for SO2 from Jan 2018-Feb 2022 were provided by Bureau Veritas

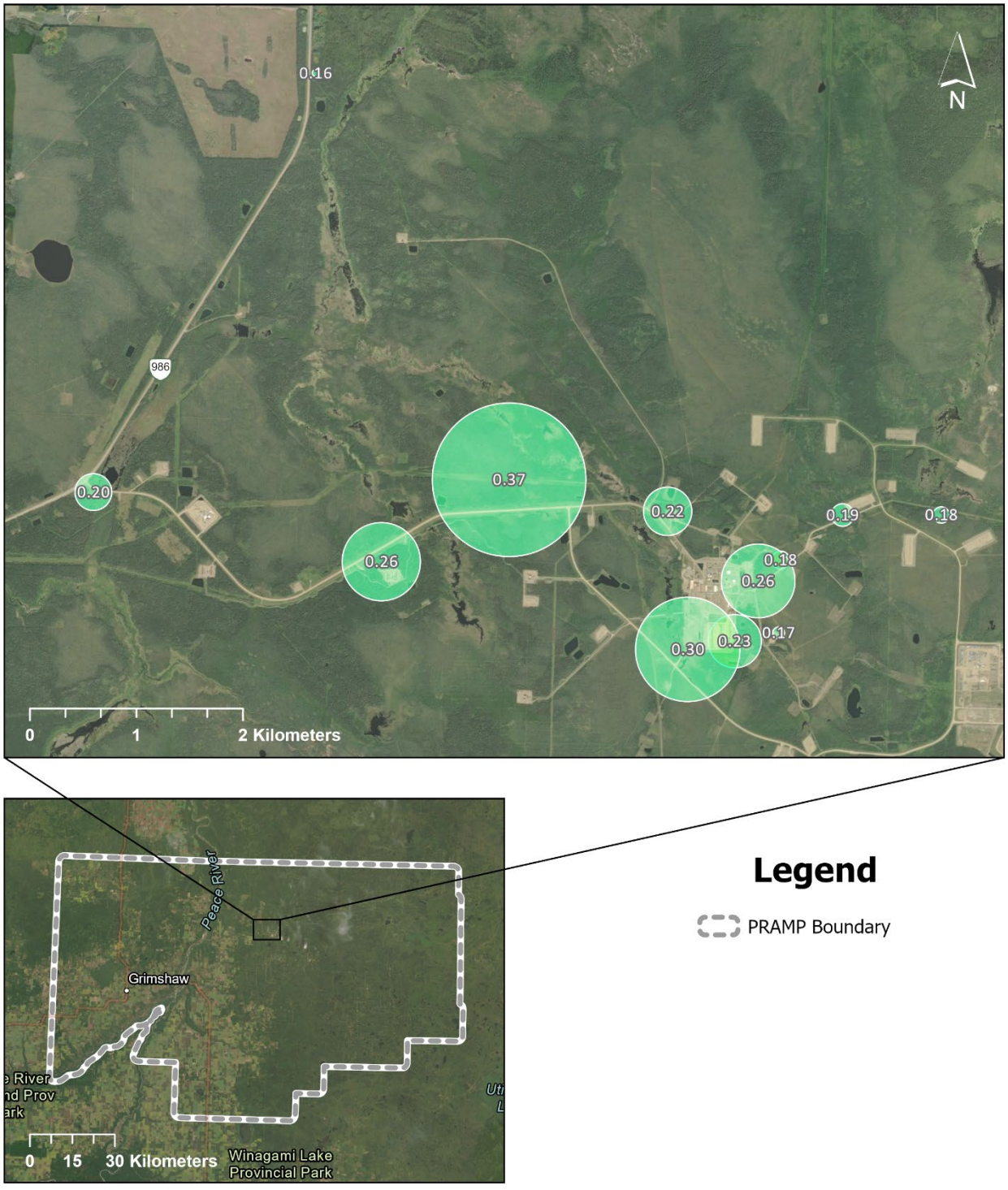
3 Spatial Plots of Annual Average Results from Passive Samplers

PRAMP Passive Network: 2022 Annual Average
Sulphur Dioxide in Parts Per Billion



Service Layer Credit: Esri Canada, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NRCan, Parks Canada, Earthstar Geographics, Maxar, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, USDA, NRCan, Parks Canada

PRAMP Passive Network: 2022 Annual Average
Hydrogen Sulphide in Parts Per Billion



Service Layer Credit: Esri Canada, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NRCan, Parks Canada, Earthstar Geographics, Maxar, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, USDA, NRCan, Parks Canada

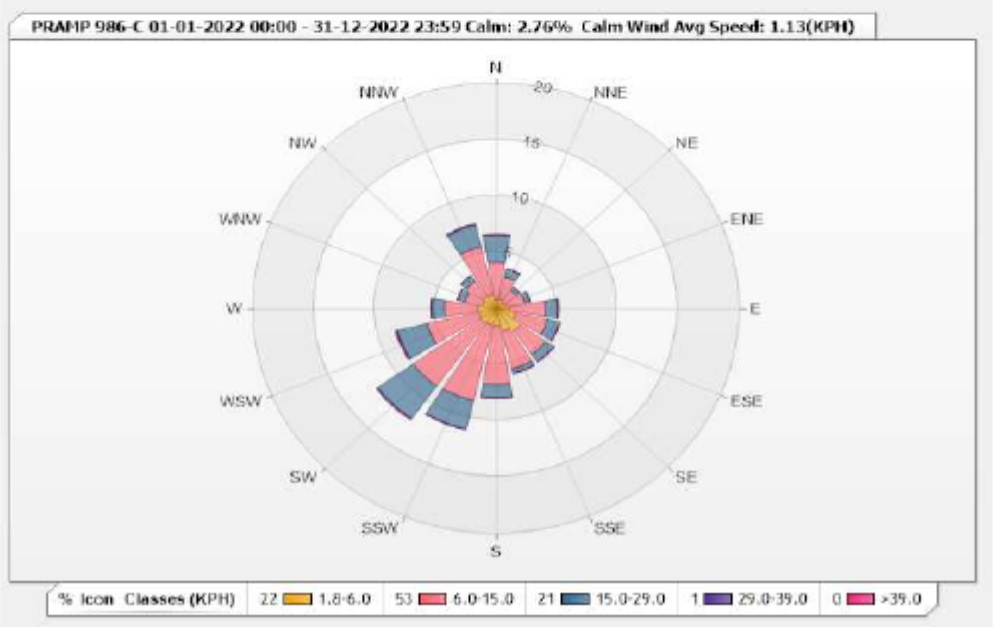
4 Annual Windrose Plots

Station: PRAMP 986-C Monitor: WDS [KPH] Periodically: 01-01-2022 00:00-31-12-2022 23:59

Type: Wind Rose
Direction: Blowing From (Wind Frequency)
Time Base: 1 - Hour

Calm (WS<1.8kph): 2.76% Valid Data: 97.85%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.82	3.3	2.46	0.03	0	6.61
NNE	0.86	2.04	0.71	0	0	3.61
NE	0.69	1.31	0.35	0	0	2.35
ENE	0.84	1.54	0.44	0.02	0	2.84
E	1.06	3.01	0.97	0.02	0	5.06
ESE	1.63	2.68	0.98	0.02	0	5.31
SE	2.43	2.59	0.78	0.01	0	5.81
SSE	2.05	3.43	0.41	0.01	0	5.9
S	1.53	5.23	1.14	0.05	0	7.95
SSW	1.5	6.87	2.61	0.05	0	11.03
SW	1.57	6.88	3.55	0.14	0.01	12.15
WSW	1.49	4.36	2.53	0.12	0.01	8.51
W	1.54	2.76	1.03	0.06	0	5.39
WNW	1.24	1.42	0.64	0.02	0	3.32
NW	1.33	1.68	0.61	0	0	3.62
NNW	1.28	4.39	1.98	0.09	0	7.74
Summary	21.86	53.49	21.19	0.64	0.02	97.2

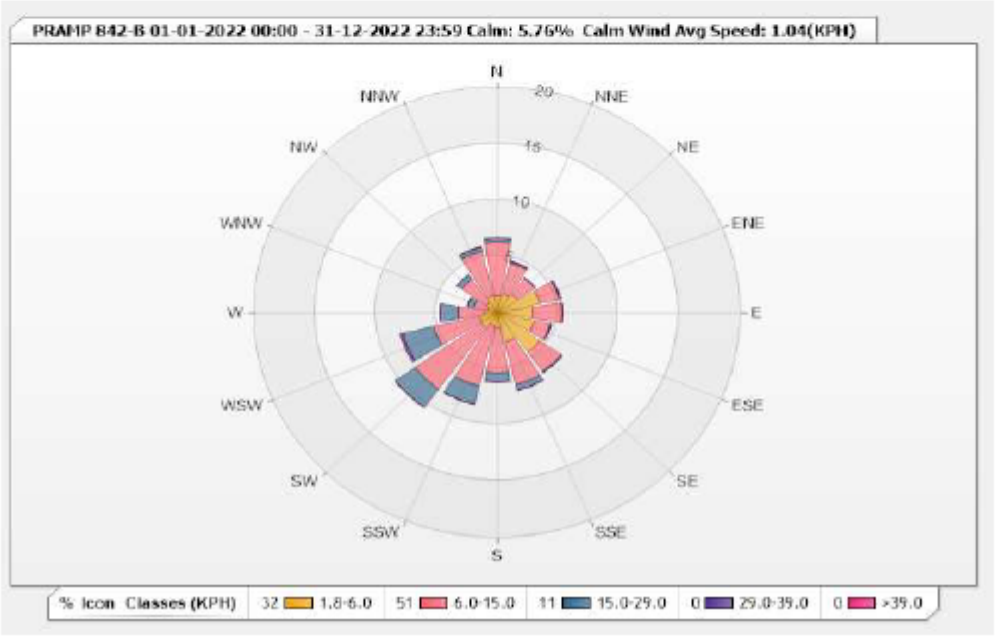


Station: PRAMP 842-B Monitor: WDS [KPH] Periodically: 01-01-2022 00:00-31-12-2022 23:59

Type: Wind Rose
Direction: Blowing From (Wind Frequency)
Time Base: 1 - Hour

Calm (WS<1.8kph): 5.76% Valid Data: 99.06%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	1.53	4.76	0.36	0	0	6.65
NNE	1.73	2.79	0.14	0	0	4.66
NE	1.99	1.8	0	0	0	3.79
ENE	3.61	1.6	0.1	0	0	5.31
E	2.89	2.44	0	0	0	5.33
ESE	3.1	1.36	0.08	0	0	4.54
SE	4.29	2.11	0.09	0	0	6.49
SSE	2.64	3.92	0.5	0	0	7.06
S	1.33	4.02	0.78	0.02	0	6.15
SSW	1.16	5.53	1.64	0.01	0	8.34
SW	1.61	6.74	1.98	0.02	0	10.35
WSW	1.53	3.86	2.62	0.2	0.01	8.22
W	1.06	2.21	1.42	0.03	0	4.72
WNW	0.83	1.18	0.52	0	0	2.53
NW	1.12	2.53	0.46	0	0	4.11
NNW	1.57	4.04	0.38	0	0	5.99
Summary	31.99	50.89	11.07	0.28	0.01	94.24

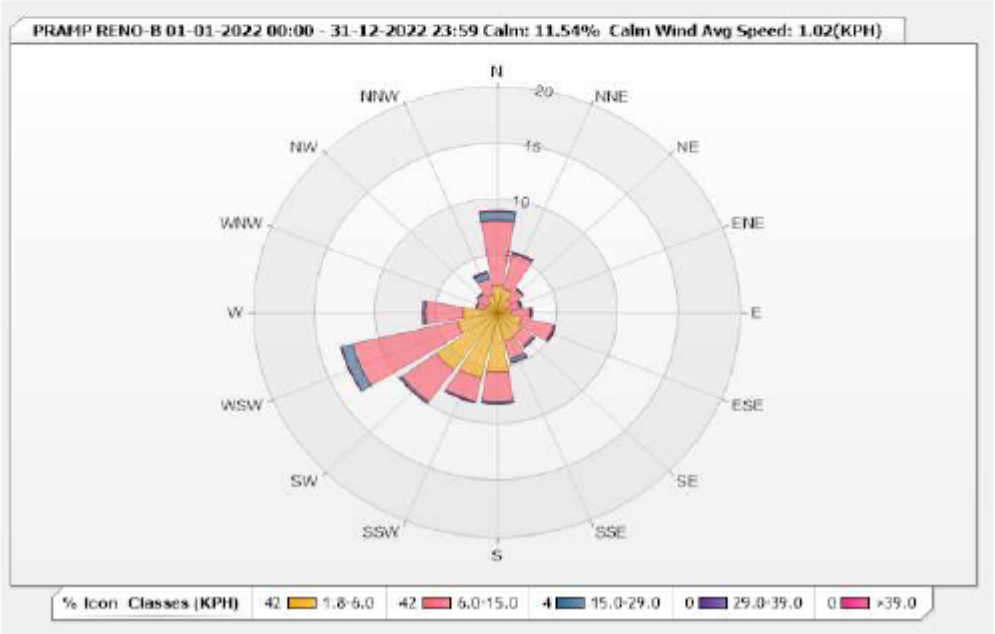


Station: PRAMP RENO Monitor: WDS [KPH] Periodically: 01-01-2022 00:00-31-12-2022 23:59

Type: Wind Rose
Direction: Blowing From (Wind Frequency)
Time Base: 1 - Hour

Calm (WS<1.8kph): 11.54% Valid Data: 96.36%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.37	5.84	0.83	0.01	0	9.05
NNE	2.16	3.17	0.15	0	0	5.48
NE	1.29	1.24	0.13	0	0	2.66
ENE	0.73	1.15	0.17	0	0	2.05
E	1.15	1.53	0.12	0	0	2.8
ESE	2.04	2.69	0.14	0	0	4.87
SE	2.36	1.22	0.19	0	0	3.77
SSE	2.55	1.66	0.37	0	0	4.58
S	5.26	2.61	0.19	0	0	8.06
SSW	5.95	2.12	0.12	0	0	8.19
SW	6.21	3.49	0.18	0.01	0	9.89
WSW	3.4	8.87	0.9	0.02	0	13.19
W	2.85	3.12	0.18	0.02	0	6.17
WNW	1.09	0.68	0.06	0	0	1.83
NW	1.04	0.98	0.09	0.02	0	2.13
NNW	1.61	1.48	0.53	0.12	0	3.74
Summary	42.06	41.85	4.35	0.2	0	88.46

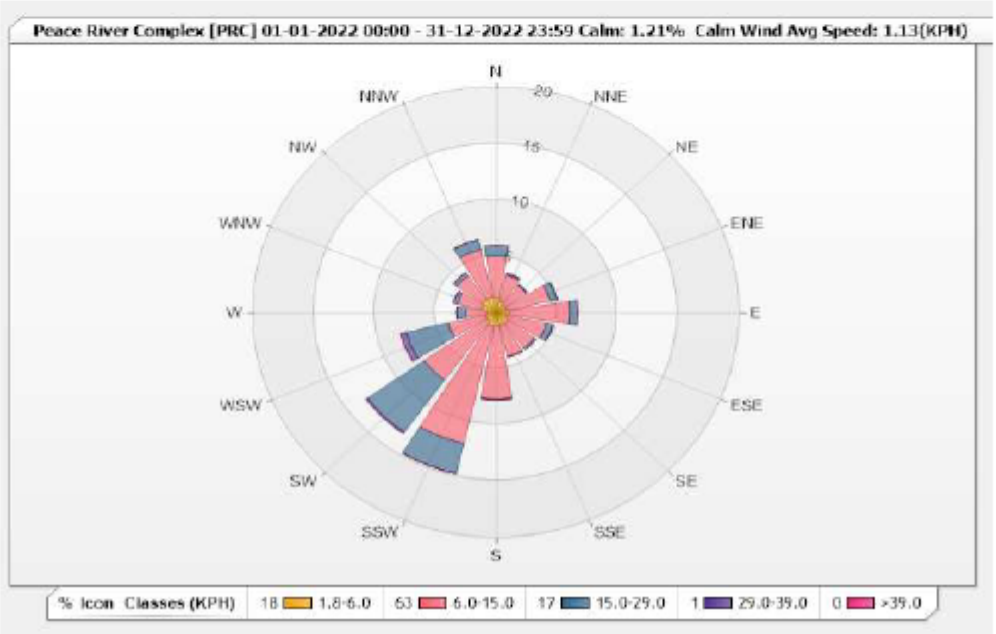


Station: Peace River Complex [PRC] Monitor: WDS [KPH] Periodically: 01-01-2022 00:00-31-12-2022 23:59

Type: Wind Rose
Direction: Blowing From (Wind Frequency)
Time Base: 1 - Hour

Calm (WS<1.8kph): 1.21% Valid Data: 99.60%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	1.33	3.7	0.91	0	0	5.94
NNE	1.05	2.37	0.14	0	0	3.56
NE	0.86	2.12	0.09	0	0	3.07
ENE	0.81	3.74	0.56	0	0	5.11
E	1.1	4.93	0.63	0	0	6.66
ESE	0.86	3.35	0.53	0	0	4.74
SE	1.18	2.66	0.15	0	0	3.99
SSE	1.18	2.83	0	0	0	4.01
S	1.21	6.47	0.03	0	0	7.71
SSW	1.25	10.67	2.74	0.01	0	14.67
SW	0.95	6.38	5.72	0.13	0	13.18
WSW	0.96	3.13	3.54	0.48	0.01	8.12
W	0.8	1.71	0.78	0	0	3.29
WNW	1.27	2.05	0.34	0	0	3.66
NW	1.42	2.62	0.34	0	0	4.38
NNW	1.42	4.35	0.89	0	0	6.66
Summary	17.65	63.08	17.39	0.62	0.01	98.75

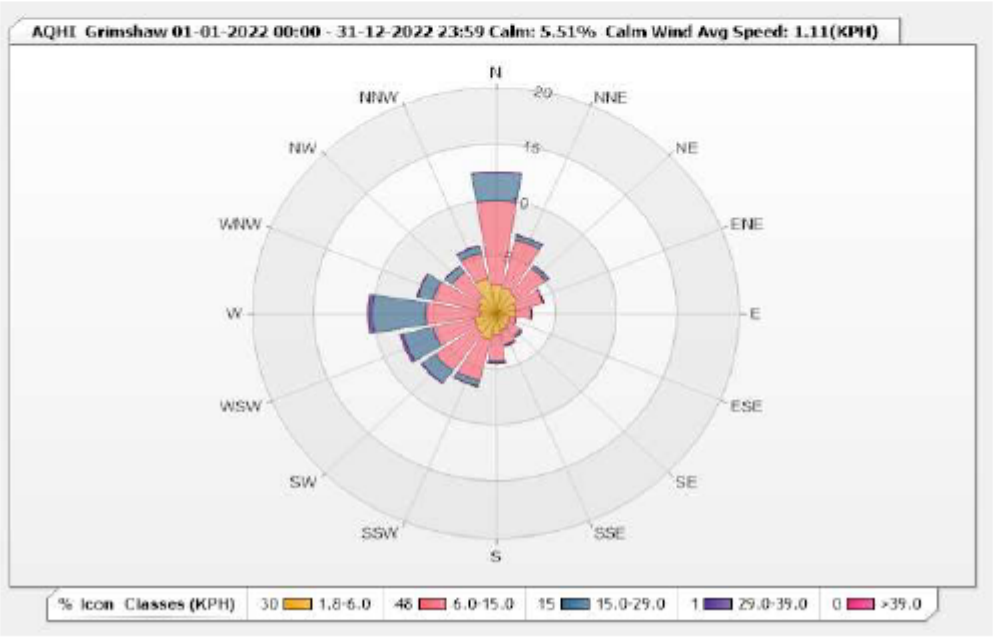


Station: AQHI Grimshaw Monitor: WDS [KPH] Periodically: 01-01-2022 00:00-31-12-2022 23:59

Type: Wind Rose
Direction: Blowing From (Wind Frequency)
Time Base: 1 - Hour

Calm (WS<1.8kph): 5.51% Valid Data: 99.92%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.58	7.44	2.57	0	0	12.59
NNE	2.33	4.41	0.43	0	0	7.17
NE	2.08	2.88	0.32	0	0	5.28
ENE	1.61	2.36	0.01	0	0	3.98
E	1.55	1.31	0.01	0	0	2.87
ESE	1.12	0.54	0.03	0	0	1.69
SE	1.27	1.12	0.19	0.01	0	2.59
SSE	1.51	1.31	0.08	0	0	2.9
S	1.92	2.23	0.22	0	0	4.37
SSW	2.36	3.75	0.53	0.01	0	6.65
SW	2.04	4.17	1.37	0.06	0	7.64
WSW	1.9	3.46	2.56	0.21	0	8.13
W	1.33	4.51	4.4	0.31	0	10.55
WNW	1.56	3.8	1.33	0	0	6.69
NW	1.9	2.64	0.66	0	0	5.2
NNW	3.21	2.33	0.65	0	0	6.19
Summary	30.27	48.26	15.36	0.6	0	94.49



End of Report

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