



Peace River Area Monitoring Program

JANUARY 2023

Monthly Ambient Air Quality Monitoring Report

PRAMP-202301

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Peace River Area Monitoring Program

February 24, 2023

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LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
AEP	Alberta Environment and Parks
AMD	Air Monitoring Directive
AT	Ambient Temperature
BP	Barometric Pressure
CH ₄	Methane
EPEA	Environmental Protection and Enhancement Act
H ₂ S	Hydrogen Sulphide
kph	kilometers per hour
mb	millibar
mm	millimeter
NMHC	Non-Methane Hydrocarbons
ppb	parts per billion
ppm	parts per million
PRAMP	Peace River Area Monitoring Program
RH	Relative Humidity
SO ₂	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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February 24, 2023

RE: PRAMP – January 2023 Monthly Ambient Air Quality Monitoring Report

Enclosed is the January 2023 Monthly Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Peace River Area Monitoring Program (PRAMP) regional air quality monitoring network.

The representative of the Person Responsible for this monitoring program is

PRAMP Airshed
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This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the PRAMP Airshed. This report is also submitted on behalf of the industrial member companies to satisfy the requirements of the facility operating approvals.

NETWORK STATION SUMMARY

Listing of Continuous Monitoring Stations

The PRAMP continuous ambient air quality monitoring network stations are:

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

Station ID	Station Name	Latitude	Longitude
1562	986-C	56.36980	-116.92500
1561	842-B	56.27406	-116.98129
1563	Reno-B	55.890868	-117.137080
1689	AQHI-Grimshaw	56.18657	-117.604994
1698	PRC	56.38257	-116.769283

Listing of Intermittent Monitoring Stations

- VOC Canister Sampling Station
 - 986-C Station
 - 842-B Station
 - Reno-B Station

Listing of PRAMP member with EPEA Facility Operating Approval

Company	Facility	Approval No.
Canadian Natural Upgrading Limited	Peace River Complex	1642-03-00

Monitoring Notes during the Month of January 2023

986-C Station

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement, except RH (6.9%), AT (43.8%) and precipitation (55.1%).
- **RH/AT:**

- High RH values were recorded, starting in late December 2022. The probe was examined and cleaned on January 5, but it had only a temporary effect on readings.
- On January 12, the Rotronic HC2-S3 RH/AT sensor, s/n: 20357528, was removed, and the Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, was installed. Data were reviewed and discarded if readings were recorded near or at 100%. Forty-six hours and two hundred seventy-five hours of data recorded in December 2022 and January 2023 were invalidated due to this issue.
- The probe failed on January 14 due to a broken connector. Data collected between January 14 and January 31 were discarded. Four hundred seventeen hours of data were invalidated.
- **Precipitation:** The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on January 12. The problem could not be corrected during the visit with the equipment available. Data were invalidated back to the last valid value, which was December 28, 2022 hour 7, to January 14 hour 21 before a valid reading started being recorded. Eighty-nine and three hundred thirty-four hours of data collected in December 2022 and January 2023 were discarded, respectively.

842-B Station

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- No major operational issues were recorded this month.

Reno-B Station

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement, except precipitation (46.4%).
- **Precipitation:** The precipitation gauge was found to be non-functional on January 6; the tipping bucket and drain holes were blocked by ice. The problem could not be corrected during the visit with the equipment available. The precipitation gauge was de-iced and successfully tested to show correct function on January 17. Data were invalidated back to the last valid value, which was December 30, 2022 hour 12. Thirty-six and three hundred ninety-seven hours of data collected in December 2022 and January 2023 were discarded, respectively.
- **THC/CH4/NMHC:** To address bad injection issues, the PRAMP-owned Thermo 55i HC analyzer, s/n: 12101910497, was removed, and the BV-supplied Thermo 55i HC analyzer, s/n: 1505664392, was installed on January 17.

PRC Station

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- **All parameters:** The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event.

AQHI – Grimshaw Station

- All data collected this month were compliant with the requirements outlined in the AMD 2016.
- All parameters met the 90% operational uptime requirement.
- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) and /or Alberta Ambient Air Quality Guidelines (AAAQGs) where applicable, except PM2.5. **Alberta EPA reference number: 408778.**
- **PM2.5:** One 24-hour exceedance was recorded on January 17, at concentration of 38.9 ug/m3. The cause for the exceedance was because of stagnant weather conditions. The stagnant episode was marked by sustained low wind speeds which hindered the dispersion of pollutants causing them to become built-up in the area.

VOCs Canister Sampling Program

- The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm for non-methane hydrocarbons. The trigger point is based on real-time monitoring data that are averaged over a 5-minute period.
- The canister sample collection systems are in place at Station 986c, 842b, and the Reno Station; a canister sample collection system is not part of the suite of instruments currently deployed at both the PRC station and the AQHI-Grimshaw station.
- Sample analysis and analytical results were prepared and provided by InnoTech Alberta.
- One NMHC canister event was recorded at the Reno station this month.

Station	Parameter	Date	Time	Concentration (ppm)
Reno	Non-methane HC	9 Jan	06:45	0.36

Revisions to Alberta's Ambient Air Quality Data Warehouse

High relative humidity values were recorded at the 986-C station in late December 2022. Data were reviewed and compared with data collected by nearby stations. It was determined data collected between December 30, 2022 hour 7 and January 12 hour 10 were considered invalid and discarded even though the probe passed the January 12's removal audit. Forty-six hours of data recorded in December 2022 were invalidated due to this issue. The revised data were submitted to the ETS on February 26, 2023 (Request #: 4519849).

Deviations from Authorized Monitoring Methods

No deviations from authorized monitoring methods were recorded this month.

Disclaimer

Baseline corrections were performed on the 1-minute data. 5-minute and hourly data were calculated based on the post-baseline correction 1-minute data set. Data verification/validation were then performed on the 5-minute and hourly data. Hourly data that are included in this report are the post-validation hourly data set.

Equipment calibration / maintenance records were provided by Bureau Veritas.

Certification

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



Lily Lin, Technical Program Manager, PRAMP Airshed

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

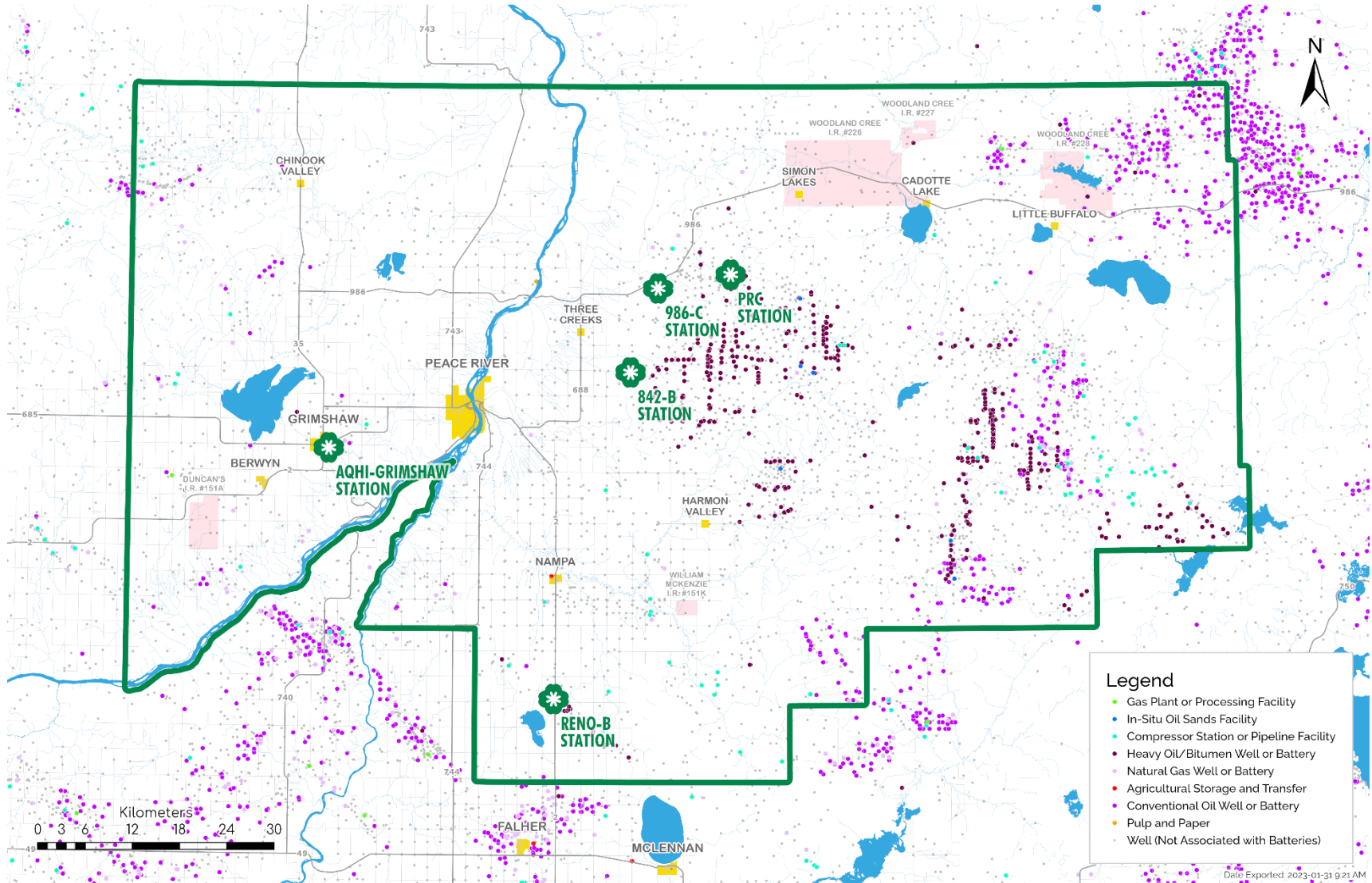
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta's Ambient Air Quality Data Warehouse as required by the AMD. Uploading of VOC data from the canister sampling program was not required at the time of completing this report.



Michael Bisaga, Technical Program Manager, PRAMP Airshed

February 24, 2023

Map of PRAMP Continuous Monitoring Network



CONTINUOUS NETWORK EQUIPMENT AND MONITORING RESULTS SUMMARY

Equipment Operation Summary

Parameter	Equipment Operational Summary
SO2 Thermo 43iQTL #1193585646	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 12. • The analyzer spanned high on December 17 and onwards. The cause was the zero-span system was affected by the December 16's power failure. As the analyzer passed the January 12 multi-point calibration requirements, data collected between December 17, 2022 and January 12 were considered valid.
TRS Thermo 43iQTL #1191833341	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 12.
THC/CH4/NMHC Thermo 55i #1433563261	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 12.
RH Rotronic HC2-S3 #20357528 #60837897	<ul style="list-style-type: none"> • High RH values were recorded, starting in late December 2022. The probe was examined and cleaned on January 5, but it had only a temporary effect on readings. • On January 12, the Rotronic HC2-S3 RH/AT sensor, s/n: 20357528, was removed, and the Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, was installed in order to address the high RH reading issue. One hour of data was invalidated due to this maintenance activity. Data were reviewed and discarded if readings were recorded near or at 100%. Forty-six hours and two hundred seventy-five hours of data recorded in December 2022 and January 2023 were invalidated due to this issue. • The probe failed on January 14 due to a broken connector. Data collected between January 14 and January 31 were discarded. Four hundred seventeen hours of data were invalidated.
BP MetOne 092 #Y23358	<ul style="list-style-type: none"> • The BP sensor was checked on January 12. The sensor passed the check requirements
AT Rotronic HC2-S3 #20357528 #60837897	<ul style="list-style-type: none"> • On January 12, the Rotronic HC2-S3 RH/AT sensor, s/n: 20357528, was removed, and the Rotronic HC2-S3 RH/AT sensor, s/n: 60837897, was installed in order to address the high RH reading issue. One hour of data was invalidated due to this maintenance activity. • The probe failed on January 14 due to a broken connector. Data collected between January 14 and January 31 were discarded. Four hundred seventeen hours of data were invalidated.

Parameter	Equipment Operational Summary
ST COMET #18961918	<ul style="list-style-type: none"> No operational issues were identified this month.
Precipitation RM Young 52202 #TB 16325	<ul style="list-style-type: none"> The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on January 12. The problem could not be corrected during the visit with the equipment available. Data were invalidated back to the last valid value, which was December 28, 2022 hour 7, to January 14 hour 21 before a valid reading started being recorded. Eighty-nine and three hundred thirty-four hours of data collected in December 2022 and January 2023 were discarded, respectively.
WS/ WD RM Young 05305AQ #180340	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The annual wind system calibration was completed on August 5, 2022. The anemometer sensors were check on January 12. The wind system passed the check requirements. Seven hours of data collected between January 15 and January 17 were invalidated due to a frozen wind system.

Monitored Data Summary for 986-C Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.3	0	3	January 13 at hour 15	19.3	E	1.0	January 4	100.0	95.0
TRS (ppb)	-	-	-	-	-	-	0.38	0.04	0.89	January 13 at hour 0	2.7	NNW	0.78	January 13	100.0	95.0
THC (ppm)	-	-	-	-	-	-	2.13	2.00	2.48	January 17 at hour 10	8.6	S	2.35	January 17	100.0	95.0
CH4 (ppm)	-	-	-	-	-	-	2.13	2.00	2.48	January 17 at hour 10	8.6	S	2.35	January 17	100.0	95.0
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.00	January 1 at hour 0	6.4	S	0.00	January 1	100.0	95.0
RH (%)	-	-	-	-	-	-	NA	85	97	January 14 at hour 14	1.5	NNE	89.7	January 13	6.9	6.9
BP (millibar)	-	-	-	-	-	-	938	928	964	January 28 at hour 5	7.3	WNW	963	January 28	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	NA	-16.2	-0.8	January 2 at hour 5	17.9	SSW	-3.6	January 2	43.8	43.8
Stn. Temp. (°C)	-	-	-	-	-	-	23.8	23.1	24.3	January 25 at hour 14	13.5	SSW	24.0	January 28	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	0.9	0.0	0.4	January 22 at hour 0	5.5	NW	0.5	January 22	55.1	55.1
WSV (km/hr)	-	-	-	-	-	-	3.6	0.1	27.5	January 25 at hour 21	27.5	SW	18.0	January 19	99.1	99.1
WDV (sector)	-	-	-	-	-	-	216 (SW)	-	-	-	-	-	-	-	99.1	99.1

1- Date/ Time given is the first minimum and maximum value that was recorded

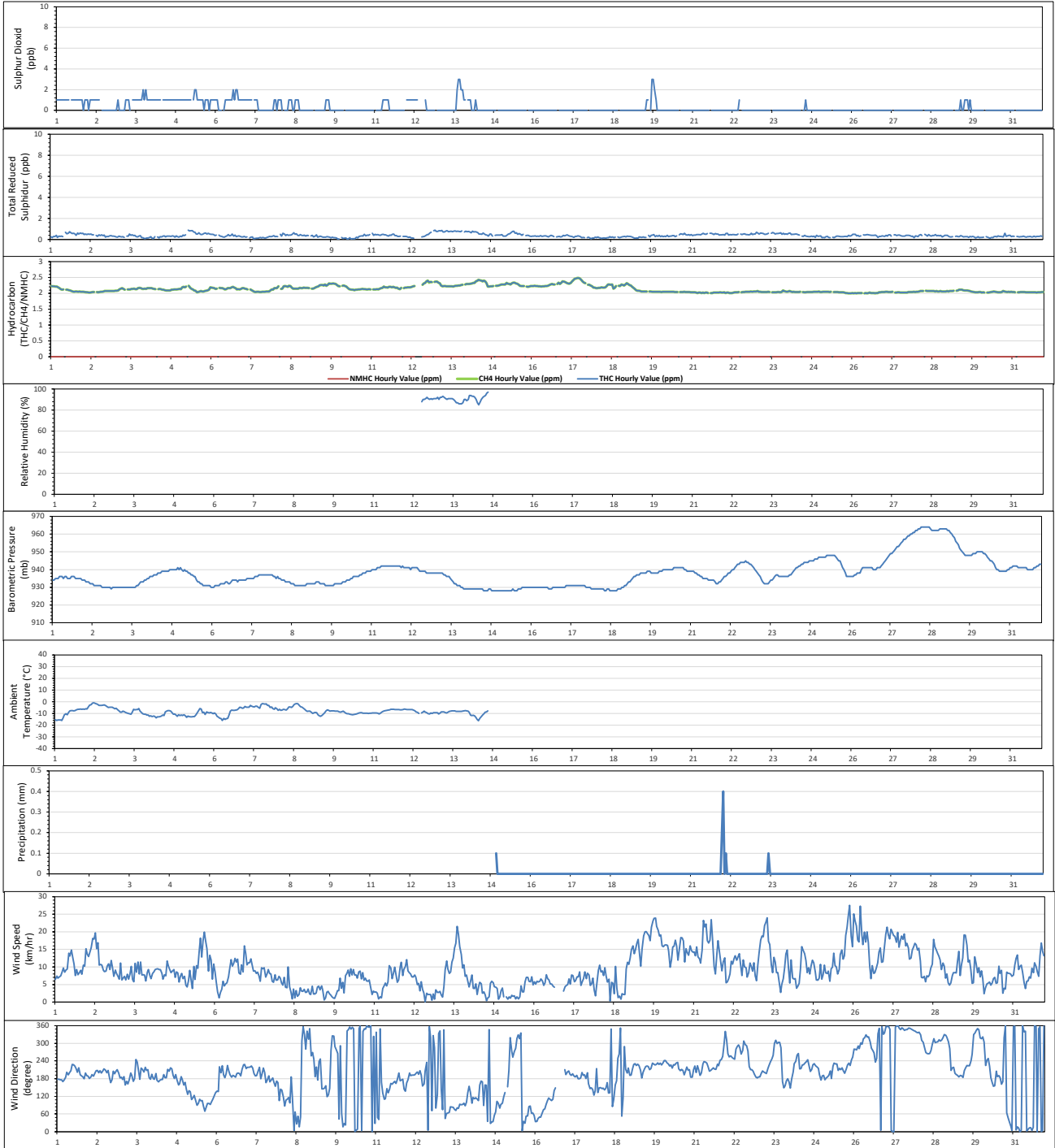
* Data represents the total (sum) for the indicated time frame

NA: Hourly average is not available as less than 75% of valid data for the month were collected.

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of January 2023 - 986-C Station



842-B Station

Equipment Operation Summary

Parameter	Equipment Operational Summary
SO2 Thermo 43iQTL #1200736629	<ul style="list-style-type: none"> A successful monthly calibration was performed on January 18.
TRS Thermo 43iQTL #1200736630	<ul style="list-style-type: none"> A successful monthly calibration was performed on January 18.
THC/CH4/NMHC Thermo 55i #12208316589	<ul style="list-style-type: none"> A successful monthly calibration was performed on January 18. Maintenance was completed on the hydrogen generator on January 18.
RH Rotronic HC2-S3 #20370767	<ul style="list-style-type: none"> The RH sensor was checked on January 18. The sensor passed the check requirements.
BP MetOne 092 #Y23362	<ul style="list-style-type: none"> The BP sensor was checked on January 18. The sensor passed the check requirements
AT Rotronic HC2-S3 #20370767	<ul style="list-style-type: none"> The temperature sensor was checked on January 18. The sensor passed the check requirements.
ST COMET #20790297	<ul style="list-style-type: none"> No operational issues were identified this month.
Precipitation RM Young 52202 #TB 15878	<ul style="list-style-type: none"> The precipitation gauge was found to be non-functional; the tipping bucket and drain holes were blocked by ice on January 18. The unit was de-iced and then successfully tested. Data were invalidated back to the last valid value, which was January 17 hour 15. Twenty-eight hours of downtime were recorded due to this event.

Parameter	Equipment Operational Summary
<p>WS/ WD</p> <p>RM Young 05305AQ #174802</p>	<ul style="list-style-type: none"> • Wind direction data contained in this report represents where the wind is coming from. • The annual wind system calibration was completed on August 3, 2022. • The anemometer sensors were check on January 18. Both the wind speed sensor and wind direction sensor passed the check requirements. • Sixteen hours of data collected between January 12 and January 13 were invalidated due to a frozen wind system.

Monitored Data Summary for 842-B Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	5	January 19 at hour 17	17.7	SW	0.9	January 4	100.0	94.9
TRS (ppb)	-	-	-	-	-	-	0.46	0.26	0.77	January 18 at hour 19	1.6	WSW	0.59	January 13	100.0	94.9
THC (ppm)	-	-	-	-	-	-	2.13	1.98	2.51	January 8 at hour 7	3	ENE	2.29	January 9	100.0	94.9
CH4 (ppm)	-	-	-	-	-	-	2.13	1.98	2.51	January 8 at hour 7	3	ENE	2.29	January 9	100.0	94.9
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.01	January 8 at hour 12	1.9	NE	0.00	January 24	100.0	94.9
RH (%)	-	-	-	-	-	-	88.5	50	100	January 11 at hour 11	8.3	SSE	100.0	January 16	100.0	100.0
BP (millibar)	-	-	-	-	-	-	937	926	963	January 28 at hour 7	5.2	W	962	January 28	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-7.0	-25.5	6.9	January 26 at hour 0	25.3	W	3.8	January 26	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	22.4	20.0	23.6	January 28 at hour 8	6.3	WSW	23.1	January 29	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	1.7	0.0	0.8	January 22 at hour 0	4.5	NW	0.9	January 22	96.5	96.5
WSV (km/hr)	-	-	-	-	-	-	3.0	0.0	25.3	January 26 at hour 0	25.3	W	14.5	January 19	97.8	97.9
WDV (sector)	-	-	-	-	-	-	212 (SSW)	-	-	-	-	-	-	-	97.8	97.9

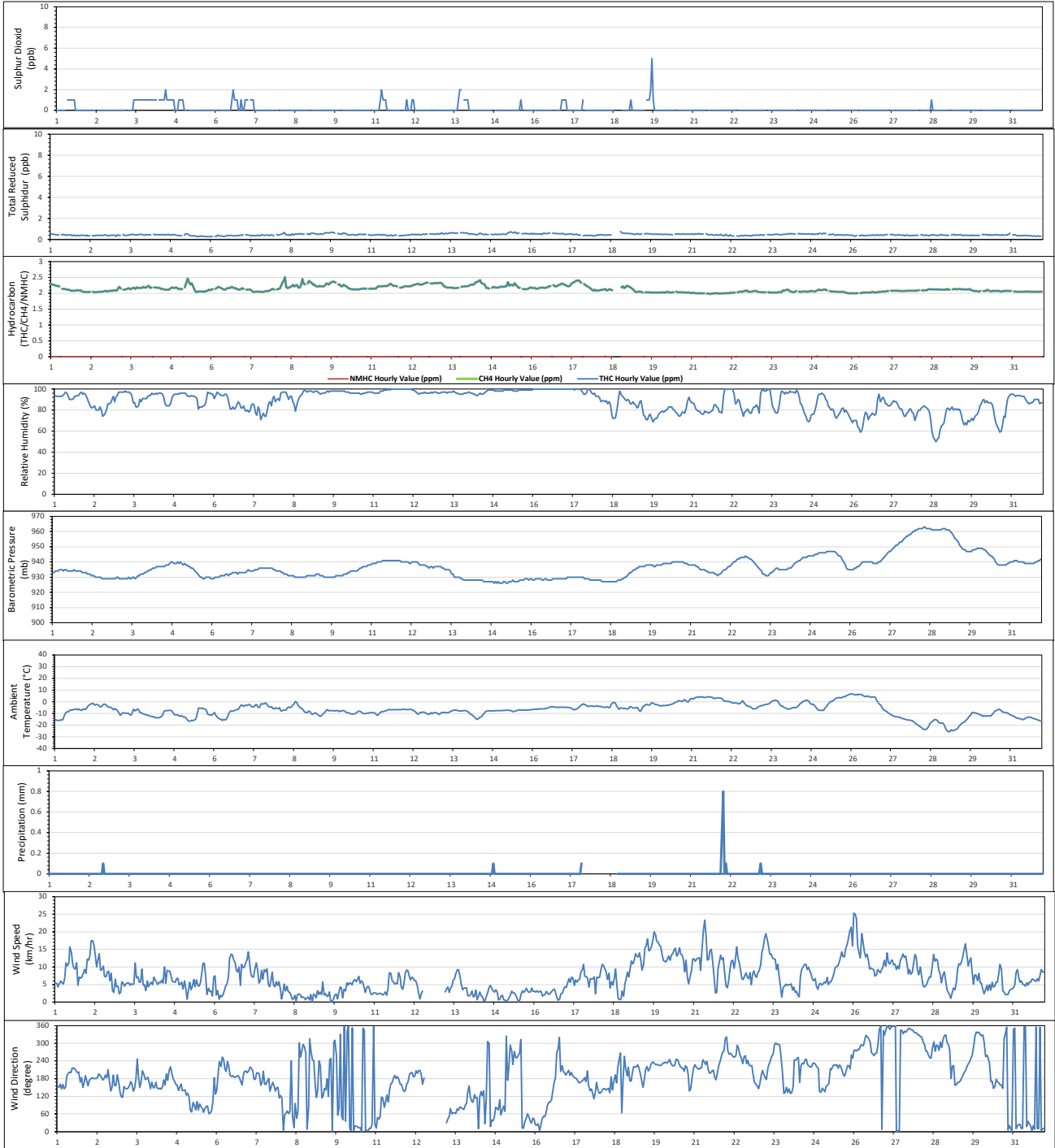
1- Date/ Time given is the first minimum and maximum value that was recorded

* Data represents the total (sum) for the indicated time frame

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of January 2023 - 842-B Station



Reno-B Station

Equipment Operation Summary

Parameter	Equipment Operational Summary
SO2 Thermo 43iQTL #12101910505	<ul style="list-style-type: none"> A successful monthly calibration was performed on January 6.
TRS Thermo 43iQTL #12101910504	<ul style="list-style-type: none"> A successful monthly calibration was performed on January 6.
THC/CH4/NMHC Thermo 55i #12101910497 #1505664392	<ul style="list-style-type: none"> Multiple bad injections started being recorded between January 2 and January 6. Data were reviewed and discarded if data quality was affected by injection issues. Hourly data collected on January 5 hour 17 was discarded as a result. One hour of downtime was recorded due to this event. The analyzer failed the January 6's shut-down calibration due to bad injections. Troubleshooting was performed and gas pressures were adjusted. A successful post-repair calibration was completed afterward. Data were invalidated back to the last valid calibration check, which was January 6 hour 5. Nine hours of downtime were recorded due to this event. The analyzer failed on January 12 hour 12. Remote troubleshooting was performed at hour 13. Hourly data collected on January 12 between hours 14 and 20 were discarded as the analyzer was stabilizing from the maintenance. A successful repeat zero-span check was completed on January 13 hours 6 and 7. Eleven hours of downtime were recorded due to this event. To address bad injection issues, the PRAMP-owned Thermo 55i HC analyzer, s/n: 12101910497, was removed, and the BV-supplied Thermo 55i HC analyzer, s/n: 1505664392, was installed on January 17. The analyzer was allowed time to stabilize and column conditioning overnight. A successful installation calibration was completed on January 18. Twenty-nine hours of downtime were recorded.
RH Rotronic HC2-S3 #20467597	<ul style="list-style-type: none"> The RH sensor was checked on January 6. The sensor passed the check requirements.
BP MetOne 092 #A17940	<ul style="list-style-type: none"> The BP sensor was checked on January 6. The sensor passed the check requirements

Parameter	Equipment Operational Summary
AT Rotronic HC2-S3 #20467597	<ul style="list-style-type: none"> The temperature sensor was checked on January 6. The sensor passed the check requirements.
ST COMET #NA	<ul style="list-style-type: none"> No operational issues were identified this month.
Precipitation RM Young 52202 #TB 15877	<ul style="list-style-type: none"> The precipitation gauge was found to be non-functional on January 6; the tipping bucket and drain holes were blocked by ice. The problem could not be corrected during the visit with the equipment available. The precipitation gauge was de-iced and successfully tested to show correct function on January 17. Data were invalidated back to the last valid value, which was December 30, 2022 hour 12. Thirty-six and three hundred ninety-seven hours of data collected in December 2022 and January 2023 were discarded, respectively.
WS/ WD RM Young 05305AQ #174795	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The annual wind system calibration was completed on November 23, 2022. The anemometer sensors were checked on January 7. Both the wind speed sensor and wind direction sensor passed the check requirements. Thirty-four hours of data collected between January 12 and January 16 were invalidated due to a frozen wind system.

Monitored Data Summary for Reno-B Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	1	January 1 at hour 4	6.2	SW	0.7	January 4	100.0	95.1
TRS (ppb)	-	-	-	-	-	-	0.23	0.12	0.70	January 9 at hour 10	4.9	S	0.49	January 9	100.0	95.1
THC (ppm)	-	-	-	-	-	-	2.12	1.98	2.46	January 8 at hour 16	3.2	WNW	2.35	January 9	93.3	88.7
CH4 (ppm)	-	-	-	-	-	-	2.12	1.98	2.46	January 8 at hour 16	3.2	WNW	2.35	January 9	93.3	88.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.03	January 9 at hour 6	1.6	E	0.00	January 9	93.3	88.7
RH (%)	-	-	-	-	-	-	84.8	63	100	January 22 at hour 1	15.4	NW	96.9	January 16	100.0	100.0
BP (millibar)	-	-	-	-	-	-	937	926	964	January 28 at hour 9	12.2	WSW	962	January 28	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-7.5	-23.6	5.0	January 25 at hour 23	42	W	2.7	January 21	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	23.1	21.1	24.1	January 28 at hour 9	12.2	WSW	23.8	January 28	100.0	100.0
Precipitation (mm)*	-	-	-	-	-	-	1.4	0.0	0.5	January 22 at hour 2	9.7	WNW	1.2	January 22	46.4	46.4
WSV (km/hr)	-	-	-	-	-	-	3.9	0.2	49.3	January 26 at hour 0	49.3	W	21.9	January 26	95.4	95.4
WDV (sector)	-	-	-	-	-	-	217 (SW)	-	-	-	-	-	-	-	95.4	95.4

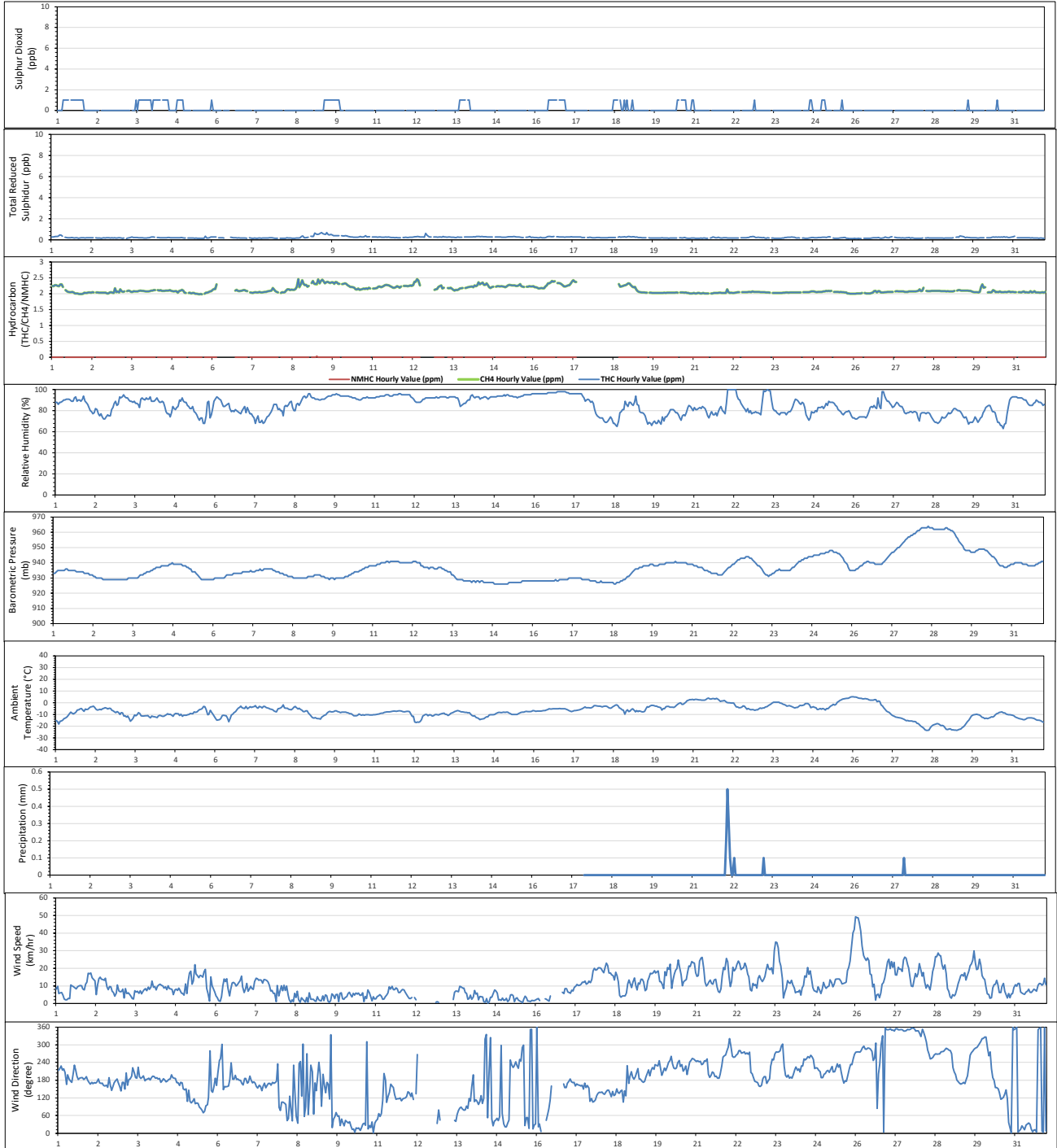
1- Date/ Time given is the first minimum and maximum value that was recorded

* Data represents the total (sum) for the indicated time frame

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of January 2023 - Reno-B Station



Equipment Operation Summary

Parameter	Equipment Operational Summary
SO2 Thermo 43i #1034746225	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • A successful monthly calibration was performed on January 5.
H2S Thermo 450i #1308857354	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • A successful monthly calibration was performed on January 5.
TRS Thermo 450i #1034746224	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • A successful monthly calibration was performed on January 5.
THC/CH4/NMHC Thermo 55i #1022143392	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • A successful monthly calibration was performed on January 5.
RH Rotronic HC2-S3 #20558318	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • The RH sensor was checked on January 5. The sensor passed the check requirements.
BP MetOne 092 #B19577	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • The BP sensor was checked on January 5. The sensor passed the check requirements.
AT Rotronic HC2-S3 #20558318	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • The AT sensor was checked on January 5. The sensor passed the check requirements.

Parameter	Equipment Operational Summary
ST Canadian Natural #NA	<ul style="list-style-type: none"> • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • The channel was put offline on January 5 hour 13 to perform channel configuration. One hour of downtime was recorded.
WS/ WD RM Young 05305VK #129612	<ul style="list-style-type: none"> • Wind direction data contained in this report represents where the wind is coming from. • The annual wind system calibration was completed on August 17, 2022. • The PRAMP-owned Ultimate datalogger, s/n: ACK7004200, failed on January 3. The BV-supplied Ultimate datalogger, s/n: ACI4000637, was installed on January 5. Fifty-eight hours of data were lost due to this event. • The anemometer sensors were check on January 5. Both the wind speed sensor and wind direction sensor passed the check requirements.

Monitored Data Summary for Peace River Complex (PRC) Station

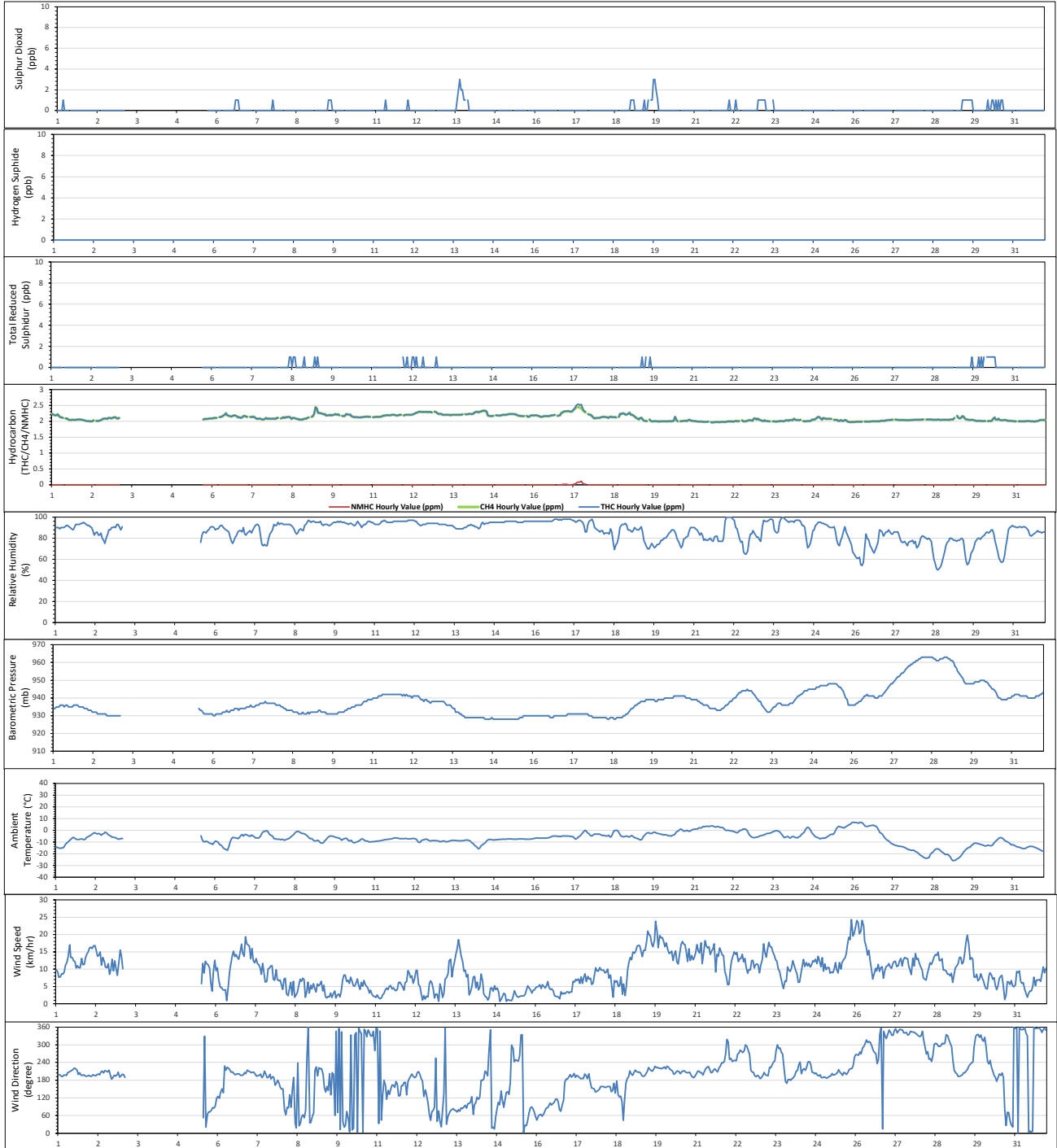
Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.1	0	3	January 13 at hour 15	16.3	E	0.7	January 19	92.1	87.6
H2S (ppb)	10	3	-	0	0	-	0.0	0	0	January 1 at hour 0	9.9	SSW	0.0	January 1	92.2	87.7
TRS (ppb)	-	-	-	-	-	-	0.0	0	1	January 8 at hour 10	6.5	NNE	0.4	January 30	92.2	87.7
THC (ppm)	-	-	-	-	-	-	2.11	1.96	2.53	January 17 at hour 9	5.9	S	2.32	January 17	92.2	87.7
CH4 (ppm)	-	-	-	-	-	-	2.11	1.96	2.45	January 17 at hour 8	7.2	S	2.30	January 17	92.2	87.7
NMHC (ppm)	-	-	-	-	-	-	0.00	0.00	0.11	January 17 at hour 12	7.6	SSW	0.02	January 17	92.2	87.7
RH (%)	-	-	-	-	-	-	86.8	50	100	January 22 at hour 0	5.5	NW	96.7	January 16	92.2	92.2
BP (millibar)	-	-	-	-	-	-	938	928	963	January 28 at hour 4	7.1	WNW	962	January 28	92.2	92.2
Ext. Temp. (°C)	-	-	-	-	-	-	-6.9	-25.9	6.8	January 26 at hour 0	22.2	W	3.4	January 26	92.2	92.2
Stn. Temp. (°C)	-	-	-	-	-	-	24.0	21.2	27.3	January 1 at hour 10	17	SSW	26.8	January 1	92.1	92.1
WSV (km/hr)	-	-	-	-	-	-	4.3	0.7	24.3	January 25 at hour 21	24.3	SW	17.4	January 19	92.2	92.2
WDV (sector)	-	-	-	-	-	-	215 (SSW)	-	-	-	-	-	-	-	92.2	92.2

1- Date/ Time given is the first minimum and maximum value that was recorded

Alberta Ambient Air Quality Objectives (AAAQOs) Exceedances

The measured ambient air quality was within the AAAQOs for all monitored parameters.

Timeseries Chart of Hourly Average for the month of January 2023 - Peace River Complex (PRC) Station



AQHI – Grimshaw Station

Equipment Operation Summary

Parameter	Equipment Operational Summary
SO2 Teledyne T100 #722	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 19.
TRS Teledyne T100U #132	<ul style="list-style-type: none"> • The monthly calibration was attempted on January 19. While the analyzer passed the as-found points check, there were issues with the low-point check during the multi-point phase. As a result, calibration was aborted. Troubleshooting was performed on the analyzer, and maintenance was performed on the CD Nova CDN-101 convertor, s/n: 576. The analyzer was allowed time to stabilize overnight. A successful post-repair calibration was completed on January 20. Because the analyzer passed the January 19's as-found points check and daily zero-span check each day, data collected before January 19 were considered valid. Nineteen hours of downtime were recorded due to this maintenance activity.
NOx/NO/NO2 Teledyne T200 #837	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 19.
O3 Teledyne T400 #824	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 19.
THC/CH4/NMHC Thermo 55i #1191032505	<ul style="list-style-type: none"> • A successful monthly calibration was performed on January 19. • The carrier gas cylinder was replaced on January 19.
PM2.5 Teledyne T640 #3189	<ul style="list-style-type: none"> • The link between the analyzer and the datalogger was unstable and eventually lost between January 12 and January 15. The analyzer was remotely reset on January 13, 14 and 15, but the link repeated failed. The issue was self-corrected on January 15 hour 10. No problem could be found with the analyzer during the January 19 site visit. The root cause of the communication error cannot be identified. Sixty-seven hours of downtime were recorded due to this event. • A successful monthly calibration was performed on January 19.
RH Vaisala HMP155 #N2910506	<ul style="list-style-type: none"> • The RH sensor was checked on January 19. The sensor passed the check requirements.

Parameter	Equipment Operational Summary
BP MetOne 092 #A2397	<ul style="list-style-type: none"> The BP sensor was checked on January 19. The sensor passed the check requirements.
AT Vaisala HMP155 #N2910506	<ul style="list-style-type: none"> The AT sensor was checked on January 19. The sensor passed the check requirements.
ST COMET #NA	<ul style="list-style-type: none"> No operational issues were identified this month.
WS/ WD RM Young 05305AQ #174801	<ul style="list-style-type: none"> Wind direction data contained in this report represents where the wind is coming from. The last annual wind system calibration was completed on July 12, 2022. The anemometer sensors were checked on January 19. Both the wind speed sensor and wind direction sensor passed the check requirements. Thirty-four hours of data collected between January 12 and January 18 were invalidated due to a frozen wind system.

Monitored Data Summary for AQHI - Grimshaw Station

Parameter	Objectives/Guidelines			Exceedances			Monthly Avg.	Min. 1-hr	Max. 1-hr	Date/Time	VWS (km/hr)	VWD (sector)	Max. 24-hr	Date	Operational Uptime (%)	Valid Data (%)
	1-hr	24-hr	30-day	1-hr	24-hr	30-day										
SO2 (ppb)	172	48	11	0	0	0	0.2	0	8	January 19 at hour 19	15.3	SW	1.1	January 19	100.0	95.1
TRS (ppb)	-	-	-	-	-	-	0.19	0.00	1.17	January 18 at hour 9	2.6	WNW	0.47	January 3	97.4	92.2
NOx (ppb)	-	-	-	-	-	-	12.6	0	90	January 18 at hour 9	2.6	WNW	34.4	January 7	100.0	94.7
NO (ppb)	-	-	-	-	-	-	3.8	0	60	January 18 at hour 9	2.6	WNW	13.1	January 7	100.0	94.7
NO2 (ppb)	159	-	-	0	-	-	8.8	0	41	January 4 at hour 18	3.1	WNW	21.4	January 7	100.0	94.7
O3 (ppb)	76	-	-	0	-	-	18.4	0.0	35.2	January 19 at hour 23	14.5	SSW	32.6	January 20	100.0	95.3
THC (ppm)	-	-	-	-	-	-	2.22	2.00	3.00	January 7 at hour 20	2.8	NNE	2.59	January 17	100.0	95.3
CH4 (ppm)	-	-	-	-	-	-	2.18	2.00	2.66	January 7 at hour 20	2.8	NNE	2.43	January 17	100.0	95.3
NMHC (ppm)	-	-	-	-	-	-	0.05	0.00	0.34	January 7 at hour 20	2.8	NNE	0.16	January 17	100.0	95.3
PM2.5 (µg/m3)	80	29	-	0	1	-	10.9	0	58	January 17 at hour 19	X	X	38.9	January 17	91.0	90.7
RH (%)	-	-	-	-	-	-	83.5	55	97	January 17 at hour 11	0.9	SSE	94.8	January 17	100.0	100.0
BP (millibar)	-	-	-	-	-	-	939	928	966	January 28 at hour 5	7.4	WNW	965	January 28	100.0	100.0
Ext. Temp. (°C)	-	-	-	-	-	-	-7.6	-22.4	6.2	January 25 at hour 21	34.5	W	3.9	January 21	100.0	100.0
Stn. Temp. (°C)	-	-	-	-	-	-	21.9	21.2	23.7	January 31 at hour 19	5.2	NNE	22.5	January 22	100.0	100.0
WSV (km/hr)	-	-	-	-	-	-	7.4	0.1	36.2	January 25 at hour 22	36.2	W	16.6	January 20	95.4	95.4
WDV (sector)	-	-	-	-	-	-	273 (W)	-	-	-	-	-	-	-	95.4	95.4

1- Date/ Time given is the first minimum and maximum value that was recorded

X: Wind data is not available

Alberta Ambient Air Quality Objectives (AAAQOs) and/or Alberta Ambient Air Quality Guidelines (AAAQGs) Exceedances

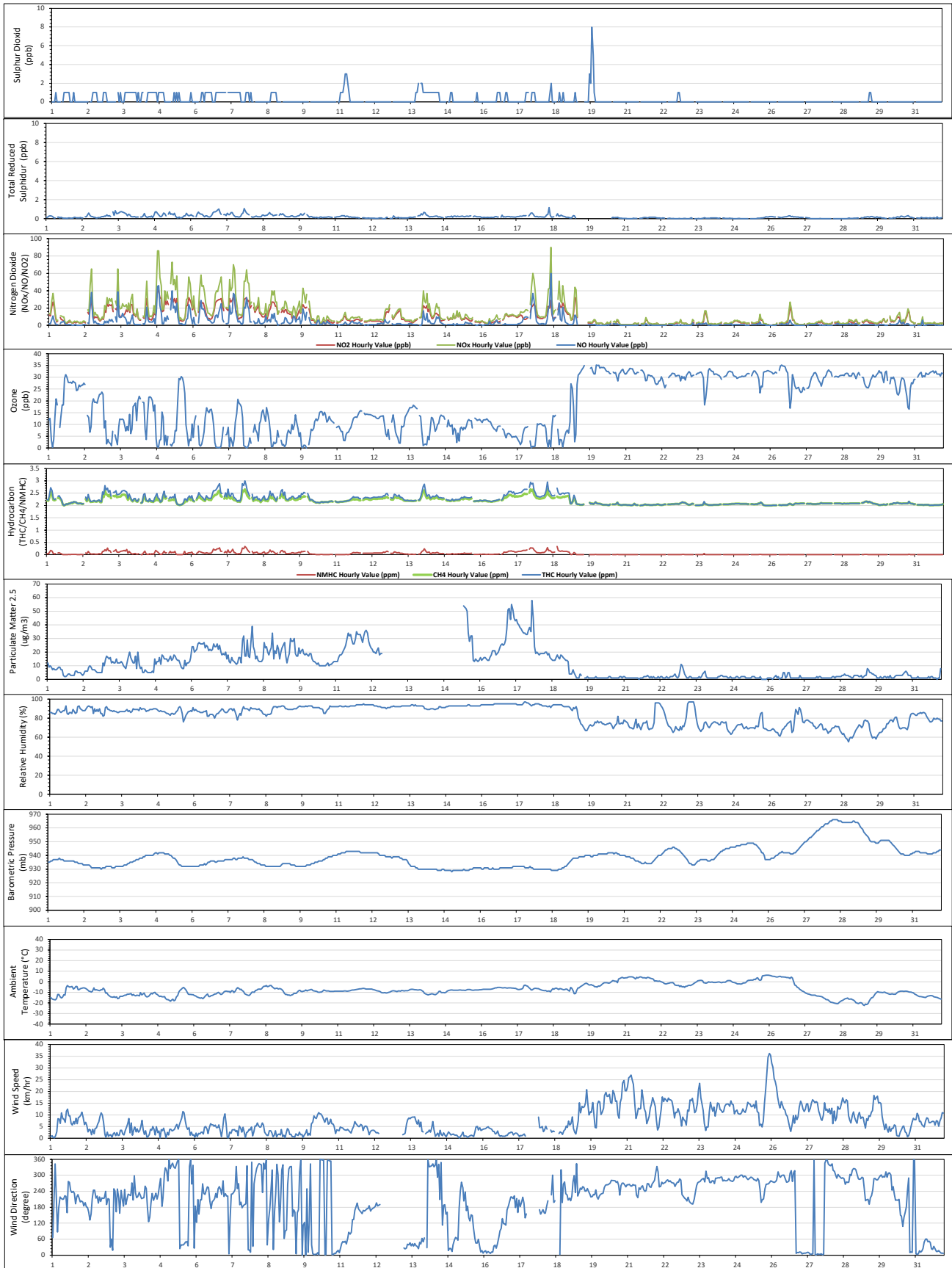
The following exceedances of AAAQOs were observed at the AQHI - Grimshaw Station.

Date	Time (MST)	Parameter	Average Period	AAAQOs / AAAQGs	Concentration	Wind speed	Wind Direction	Reference #
January 17	-	PM2.5	24-Hour	29 µg/m3	38.9 µg/m3	NA*	NA*	408778

* Wind data were not available on Jan 17 due to a frozen wind system.

The cause for the exceedance was because of stagnant weather conditions. The stagnant episode was marked by sustained low wind speeds which restrained the dispersion of pollutants causing them to become built-up in the area.

Timeseries Chart of Hourly Average for the month of January 2023 - AQHI - Grimshaw Station



TABLES, CHARTS AND WIND ROSES

986-C STATION

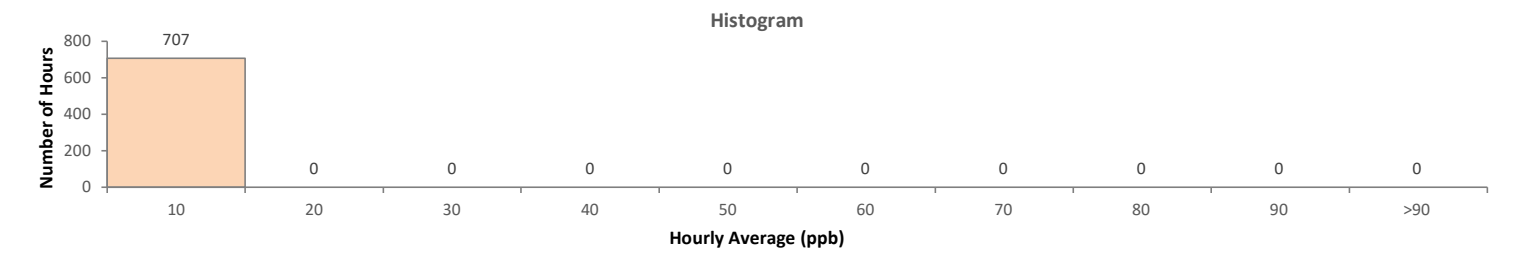
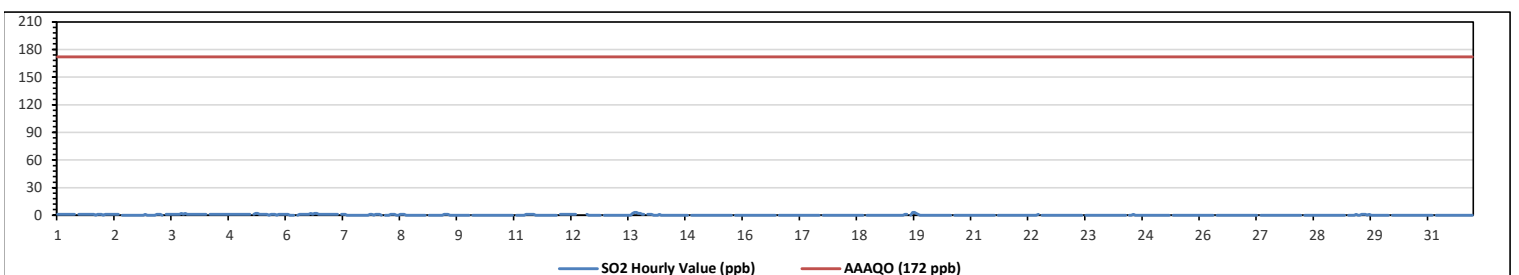
Peace River Area Monitoring Program

986-C Station - January 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																																			
Number of 1-Hour Exceedances:						0						Number of 24-Hour Exceedances:						0						30-Day Exceedance:						0					
Maximum Hourly Value:						3 ppb on January 13 at hour 15						Hours in Service:						744																	
Maximum Daily Value:						1.0 ppb on January 4						Hours of Data:						707																	
Minimum Hourly Value:						0 ppb on January 1 at hour 20						Hours of Missing Data:						0																	
Minimum Daily Value:						0.0 ppb on January 10						Hours of Calibration:						37																	
Monthly Average:						0.3 ppb						Operational Uptime:						100.0																	
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23								
Jan 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1.0								
Jan 2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0.4							
Jan 3	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	0	0	2	0.9							
Jan 4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0							
Jan 5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0							
Jan 6	1	1	1	0	0	0	0	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	0	2	1.0							
Jan 7	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0.4							
Jan 8	1	1	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3							
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1							
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 11	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2							
Jan 12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.6							
Jan 13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3	2	2	1	1	1	1	1	0	3	0.7							
Jan 14	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1							
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	3	0.5							
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0							
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0.2							
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0							
Diurnal Maximum	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	2	3	3	3	3	2	1	1	1	1										
Diurnal Average	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2											

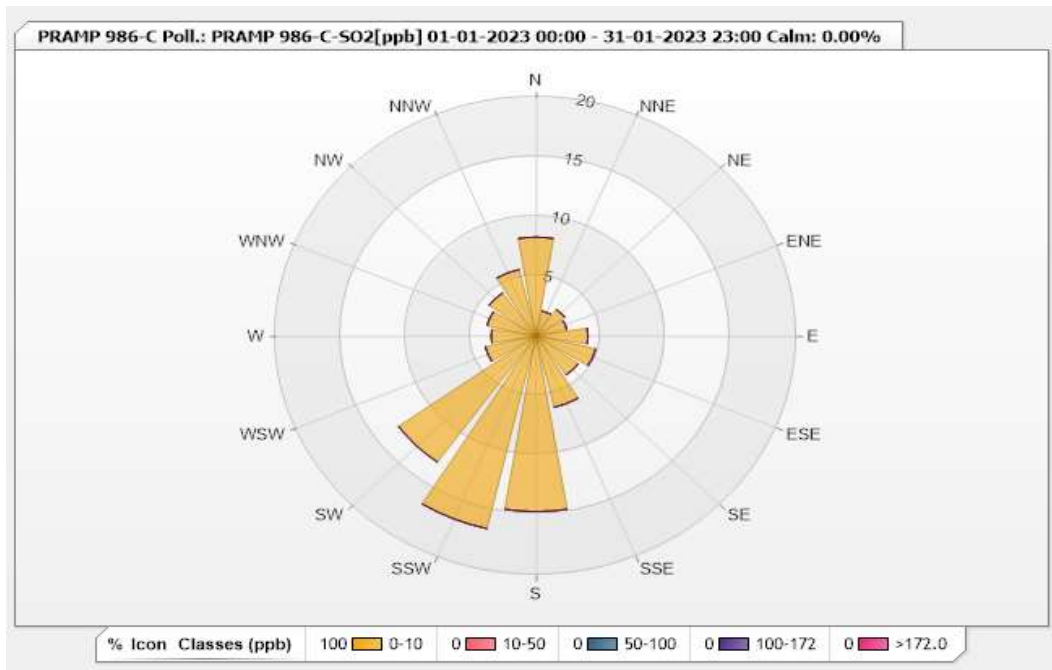


Station: PRAMP 986-C Poll.: PRAMP 986-C-SO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	8.27	0	0	0	0	8.27
NNE	2.14	0	0	0	0	2.14
NE	2.71	0	0	0	0	2.71
ENE	2.43	0	0	0	0	2.43
E	3.99	0	0	0	0	3.99
ESE	4.71	0	0	0	0	4.71
SE	3.99	0	0	0	0	3.99
SSE	6.13	0	0	0	0	6.13
S	14.69	0	0	0	0	14.69
SSW	16.55	0	0	0	0	16.55
SW	12.98	0	0	0	0	12.98
WSW	3.99	0	0	0	0	3.99
W	3.42	0	0	0	0	3.42
WNW	3.85	0	0	0	0	3.85
NW	4.42	0	0	0	0	4.42
NNW	5.71	0	0	0	0	5.71
Summary	100	0	0	0	0	100

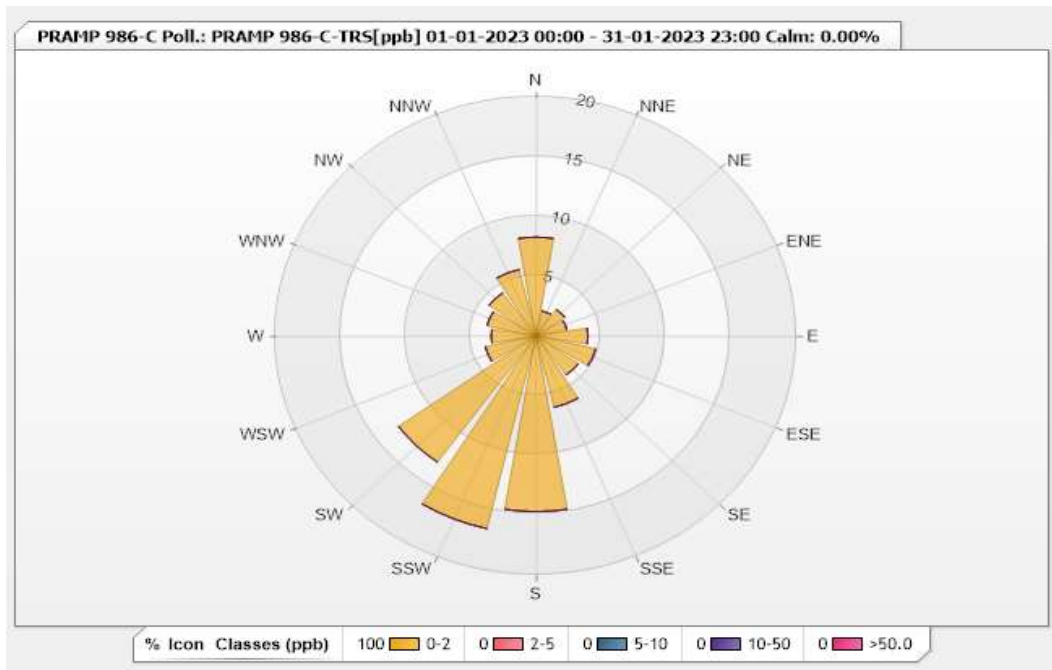


Station: PRAMP 986-C Poll.: PRAMP 986-C-TRS[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	8.27	0	0	0	0	8.27
NNE	2.14	0	0	0	0	2.14
NE	2.71	0	0	0	0	2.71
ENE	2.43	0	0	0	0	2.43
E	3.99	0	0	0	0	3.99
ESE	4.71	0	0	0	0	4.71
SE	3.99	0	0	0	0	3.99
SSE	6.13	0	0	0	0	6.13
S	14.69	0	0	0	0	14.69
SSW	16.55	0	0	0	0	16.55
SW	12.98	0	0	0	0	12.98
WSW	3.99	0	0	0	0	3.99
W	3.42	0	0	0	0	3.42
WNW	3.85	0	0	0	0	3.85
NW	4.42	0	0	0	0	4.42
NNW	5.71	0	0	0	0	5.71
Summary	100	0	0	0	0	100

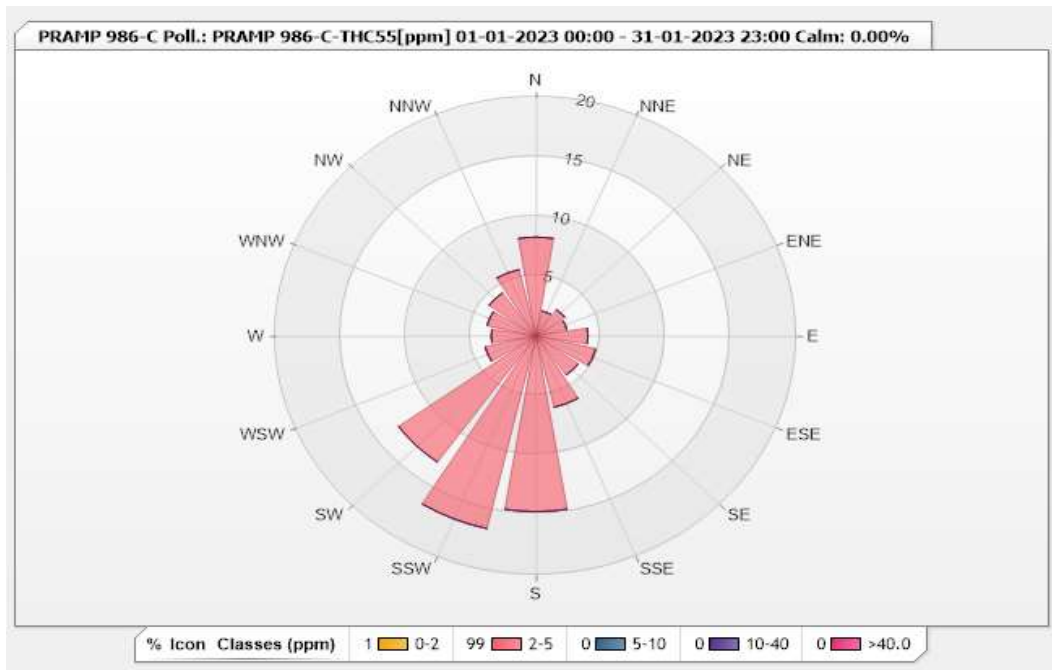


Station: PRAMP 986-C Poll.: PRAMP 986-C-THC55[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	8.27	0	0	0	8.27
NNE	0	2.14	0	0	0	2.14
NE	0	2.71	0	0	0	2.71
ENE	0	2.43	0	0	0	2.43
E	0	3.99	0	0	0	3.99
ESE	0	4.71	0	0	0	4.71
SE	0	3.99	0	0	0	3.99
SSE	0	6.13	0	0	0	6.13
S	0	14.69	0	0	0	14.69
SSW	0	16.55	0	0	0	16.55
SW	0	12.98	0	0	0	12.98
WSW	0.29	3.71	0	0	0	4
W	0.14	3.28	0	0	0	3.42
WNW	0.14	3.71	0	0	0	3.85
NW	0	4.42	0	0	0	4.42
NNW	0	5.71	0	0	0	5.71
Summary	0.57	99.42	0	0	0	100

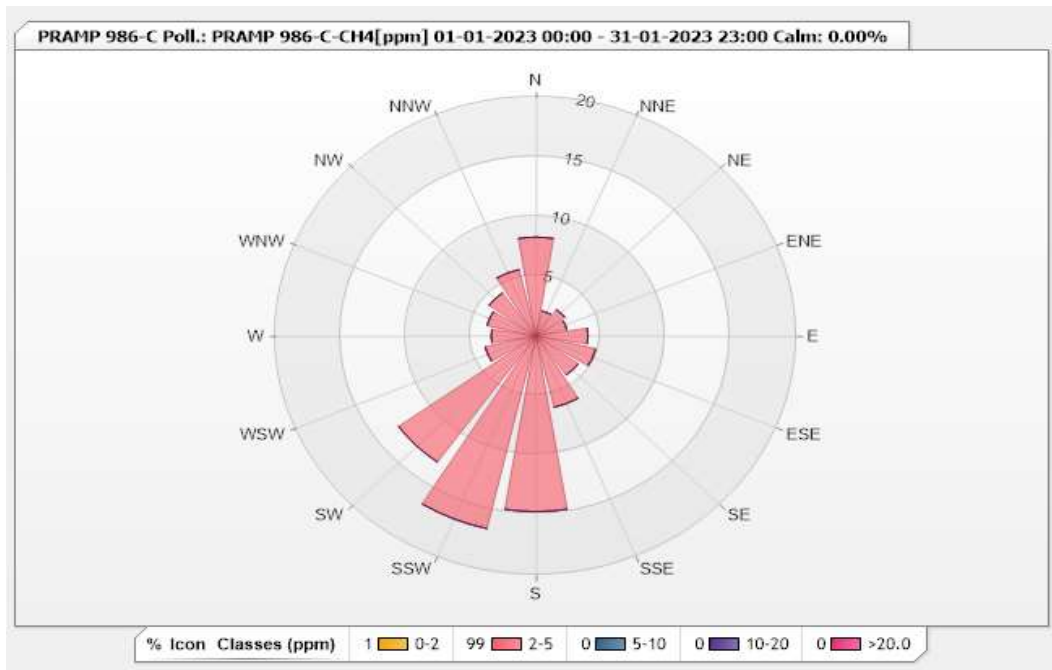


Station: PRAMP 986-C Poll.: PRAMP 986-C-CH4[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	8.27	0	0	0	8.27
NNE	0	2.14	0	0	0	2.14
NE	0	2.71	0	0	0	2.71
ENE	0	2.43	0	0	0	2.43
E	0	3.99	0	0	0	3.99
ESE	0	4.71	0	0	0	4.71
SE	0	3.99	0	0	0	3.99
SSE	0	6.13	0	0	0	6.13
S	0	14.69	0	0	0	14.69
SSW	0	16.55	0	0	0	16.55
SW	0	12.98	0	0	0	12.98
WSW	0.29	3.71	0	0	0	4
W	0.14	3.28	0	0	0	3.42
WNW	0.14	3.71	0	0	0	3.85
NW	0	4.42	0	0	0	4.42
NNW	0	5.71	0	0	0	5.71
Summary	0.57	99.42	0	0	0	100

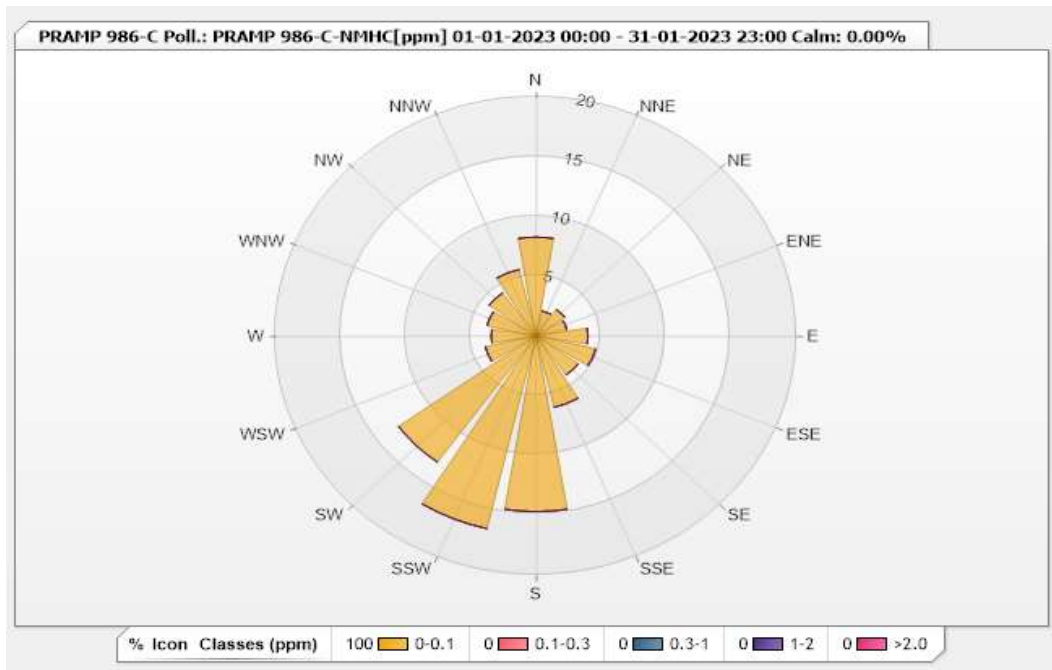


Station: PRAMP 986-C Poll.: PRAMP 986-C-NMHC[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 94.22% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	8.27	0	0	0	0	8.27
NNE	2.14	0	0	0	0	2.14
NE	2.71	0	0	0	0	2.71
ENE	2.43	0	0	0	0	2.43
E	3.99	0	0	0	0	3.99
ESE	4.71	0	0	0	0	4.71
SE	3.99	0	0	0	0	3.99
SSE	6.13	0	0	0	0	6.13
S	14.69	0	0	0	0	14.69
SSW	16.55	0	0	0	0	16.55
SW	12.98	0	0	0	0	12.98
WSW	3.99	0	0	0	0	3.99
W	3.42	0	0	0	0	3.42
WNW	3.85	0	0	0	0	3.85
NW	4.42	0	0	0	0	4.42
NNW	5.71	0	0	0	0	5.71
Summary	100	0	0	0	0	100



Peace River Area Monitoring Program

986-C Station - January 2023

Summary of Hourly Averages

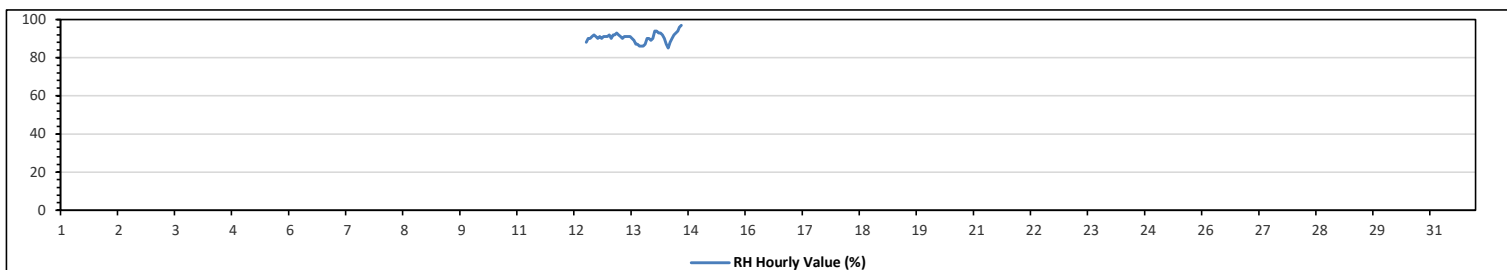
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	97 %	on January 14 at hour 14	Hours in Service:	744
Maximum Daily Value:	89.7 %	on January 13	Hours of Data:	51
Minimum Hourly Value:	85 %	on January 14 at hour 7	Hours of Missing Data:	693
Minimum Daily Value:	89.7 %	on January 13	Hours of Calibration:	0
Monthly Average:	NA %		Operational Uptime:	6.9

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	NRM	88	90	90	91	92	91	90	91	90	91	91	91	88	92	NA
Jan 13	92	90	92	92	93	92	91	90	91	91	91	91	90	89	87	87	86	86	86	87	90	90	89	90	86	93	89.7
Jan 14	94	94	93	93	92	90	87	85	88	90	92	93	94	96	97	X	X	X	X	X	X	X	X	X	85	97	NA
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Diurnal Maximum	94	94	93	93	93	92	91	90	91	91	92	93	94	96	97	91	92	91	90	91	90	91	91	91	-	-	-
Diurnal Average	93.0	92.0	92.5	92.5	92.5	91.0	89.0	87.5	89.5	90.5	91.5	92.0	90.7	91.7	91.3	89.0	89.0	88.5	88.0	89.0	90.0	90.5	90.0	90.5	-	-	-

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X Invalid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

986-C Station - January 2023

Summary of Hourly Averages

PRECIPITATION in mm

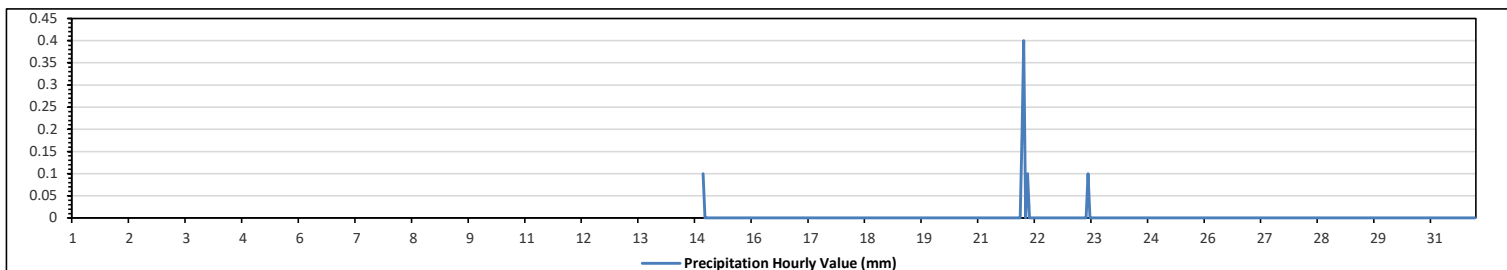
Maximum Hourly Value:	0.4 mm	on January 22 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.5 mm	on January 22	Hours of Data:	410
Minimum Hourly Value:	0.0 mm	on January 14 at hour 23	Hours of Missing Data:	334
Minimum Daily Value:	0.0 mm	on January 15	Hours of Calibration:	0
Monthly Total:	0.9 mm		Operational Uptime:	55.1

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.1	0.0	0.1	NA
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.0	0.2	0.2	
Jan 22	0.4	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4	0.5	
Jan 23	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1	
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Diurnal Maximum	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2				
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X Invalid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.

Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

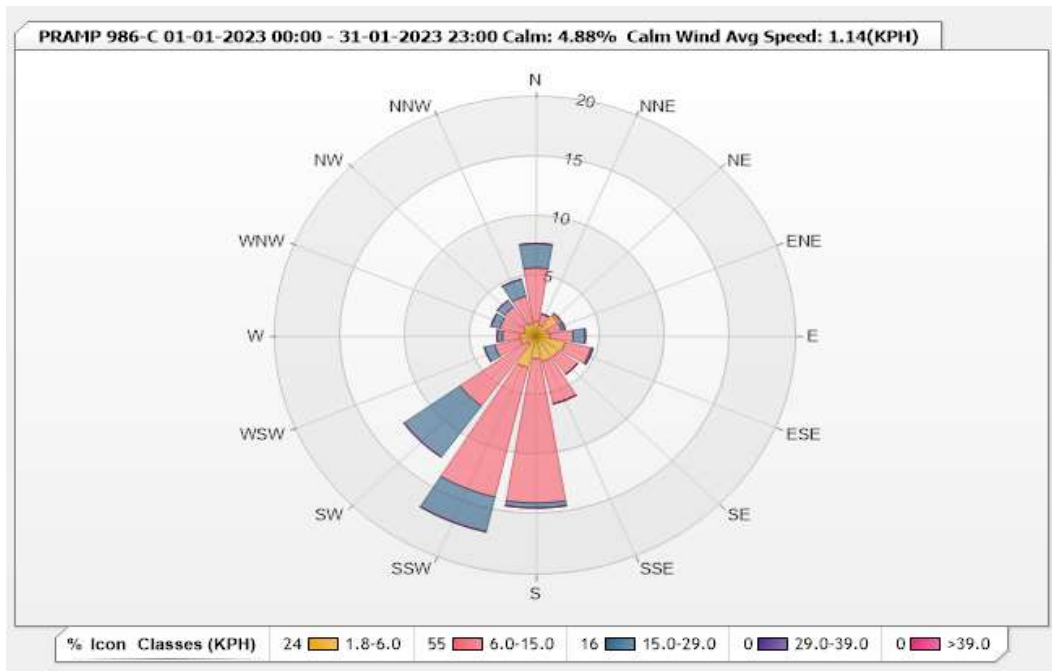


Station: PRAMP 986-C Monitor: WDS [KPH] Monthly: 01-2023

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

Calm (WS<1.8kph): 4.88% 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	1.22	4.48	2.04	0	0	7.74
NNE	0.95	0.95	0	0	0	1.9
NE	2.04	0.27	0	0	0	2.31
ENE	0.95	1.09	0.27	0	0	2.31
E	1.09	1.76	0.95	0	0	3.8
ESE	2.31	2.04	0.14	0	0	4.49
SE	2.17	1.76	0	0	0	3.93
SSE	2.17	3.66	0	0	0	5.83
S	1.9	12.08	0.41	0	0	14.39
SSW	2.71	11.13	2.99	0	0	16.83
SW	0.81	6.38	5.29	0	0	12.48
WSW	1.22	2.04	0.81	0	0	4.07
W	1.22	1.36	0.41	0	0	2.99
WNW	0.95	1.9	0.68	0	0	3.53
NW	1.22	1.76	0.68	0	0	3.66
NNW	1.09	2.31	1.49	0	0	4.89
Summary	24.02	54.97	16.16	0	0	95.15



Peace River Area Monitoring Program

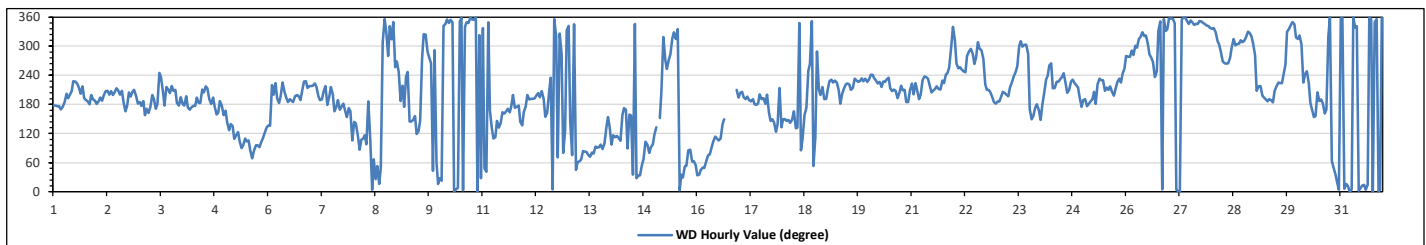
986-C Station - January 2023

Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		216 (SW) degree														Hours in Service:		744									
																Hours of Data:		737									
																Hours of Missing Data:		7									
																Hours of Calibration:		0									
																Operational Uptime:		99.1									
Day	Hourly Period Starting at (MST)																							Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant	
Jan 1	S	S	S	S	SSE	S	S	SSW	S	SSW	SSW	SW	SW	SW	SSW	SSW	SW	S	S	S	S	SSW	SSW	S	198	SSW	
Jan 2	S	S	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	S	197	SSW	
Jan 3	S	S	S	SSE	S	SSE	S	SSW	S	S	S	WSW	SW	SSW	S	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	193	S		
Jan 4	S	S	SSW	S	SSE	S	S	SSW	S	S	SSW	SW	SSW	SW	SSW	S	S	SSW	S	SSE	SSE	S	S	185	S		
Jan 5	SSE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	E	E	ESE	ESE	E	ENE	E	E	E	E	E	ESE	ESE	S	104	ESE		
Jan 6	SE	SE	SW	SSW	SW	S	S	SSW	SW	SSW	S	S	S	S	S	SSW	SSW	SSW	S	SSW	SW	SSW	SW	198	SSW		
Jan 7	SW	SW	SW	SW	SSW	S	S	SSW	SW	S	SSW	SW	SSW	SSE	S	S	SSE	S	S	SSE	SSE	S	SSE	ESE	192	S	
Jan 8	SE	SE	ESE	E	ESE	ESE	ESE	E	S	ESE	N	ENE	NNE	NE	NNE	NE	NW	N	NNW	W	NNW	NW	N	WSW	91	E	
Jan 9	W	WSW	S	SW	S	SW	WSW	SE	SE	SE	SSE	ESE	SE	SE	W	NW	NW	WNW	W	W	NE	WNW	ENE	NNE	205	SSW	
Jan 10	NNE	NNE	NNW	NNW	N	NNW	N	NNW	N	N	N	N	N	N	NNW	NNW	NNW	N	N	N	N	N	N	N	356	N	
Jan 11	NNW	NE	NE	NNW	SSE	SE	ESE	ESE	SE	SE	SE	SSE	SSE	SSE	S	SSE	S	SSW	S	S	S	SE	SE	SSE	158	SSE	
Jan 12	S	SSW	S	S	S	S	SSW	SSW	SSW	SSW	S	SSE	SSE	SSE	SSW	SW	N	NW	ENE	NW	WNW	E	SE	NNW	190	S	
Jan 13	NNW	SE	ENE	NNW	NE	ENE	ENE	ENE	E	E	ENE	ENE	E	ENE	E	E	E	E	E	E	E	SE	SSE	SE	85	E	
Jan 14	E	ESE	ESE	ESE	ESE	ESE	SSE	S	SSE	E	SSE	SSE	NE	NNW	NNE	NNE	NE	NE	ENE	ESE	E	E	E	E	102	E	
Jan 15	ESE	SE	X	SSE	SSW	NW	W	WSW	W	W	NW	NNW	NW	NNW	N	NE	NNE	NE	NE	E	E	ENE	ENE	NE	54	NE	
Jan 16	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	ESE	ESE	ESE	ESE	ESE	SE	SSE	X	X	X	X	X	X	X	SSW	SSW	88	E
Jan 17	SSW	SSW	SSW	S	SSW	S	S	S	S	S	S	SSW	S	S	S	SSW	SSE	SE	SSE	SE	ESE	SE	SSW	SE	178	S	
Jan 18	SSE	SSE	SE	SE	SE	SE	SSE	SE	SE	NNW	E	ESE	SSE	S	WSW	W	N	NE	ESE	WNW	SSW	SSW	SW	S	161	SSE	
Jan 19	S	SSW	SW	SW	SW	SW	SSW	S	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	222	SW
Jan 20	SW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	S	S	SSW	S	218	SW	
Jan 21	SW	SSW	SW	SSW	S	SSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	226	SW
Jan 22	NW	W	WSW	WSW	WSW	WSW	WSW	W	WNW	WNW	WNW	W	W	NW	WNW	WNW	W	SW	SSW	SSW	SSW	SSW	S	S	257	WSW	
Jan 23	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	WNW	NW	WNW	WNW	WNW	WNW	SSE	SSE	SSE	S	S	SSE	213	SSW	
Jan 24	SE	S	SSW	SW	WSW	WSW	W	SSW	SSW	SW	SW	SW	SW	WSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	219	SW
Jan 25	S	S	S	S	S	S	SSW	S	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	216	SW
Jan 26	W	W	W	WNW	W	WNW	WNW	NW	NW	NNW	NW	NW	WNW	W	W	SW	WSW	NNW	N	N	N	NNW	NNW	N	305	WNW	
Jan 27	N	N	N	NNW	N	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	N	352	N
Jan 28	NNW	NNW	NNW	NW	WNW	WNW	W	W	W	W	W	WNW	NW	WNW	WNW	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NW	308	NW
Jan 29	W	SSW	SW	SW	SSW	SSW	S	S	S	S	S	SSW	SW	SW	SW	WSW	W	NNW	NNW	NNW	NNW	N	NNW	NW	227	SW	
Jan 30	NW	NW	WNW	SW	WSW	WSW	SW	S	SSE	SSE	SSE	SSW	S	S	S	SSE	SSE	NW	N	ENE	NE	NE	NNE	N	191	S	
Jan 31	N	N	N	NNE	NNE	N	N	NNW	NNW	N	N	NNE	NNE	N	NNE	N	N	N	N	N	N	N	N	N	N	2	N
C	Monthly Calibration														S	Daily Zero-Span Check				Q	Quality Assurance						
K	Collection Error														ND	No Data (Machine Not in Service)				Y	Routine Maintenance				P	Power Failure	
X	Invalid Data (Machine Malfunction /Recovery)														NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)											

Daily Average is shown "°" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "°" if minimum data completeness criteria of 75% of days per month is not met.



842-B STATION

Peace River Area Monitoring Program

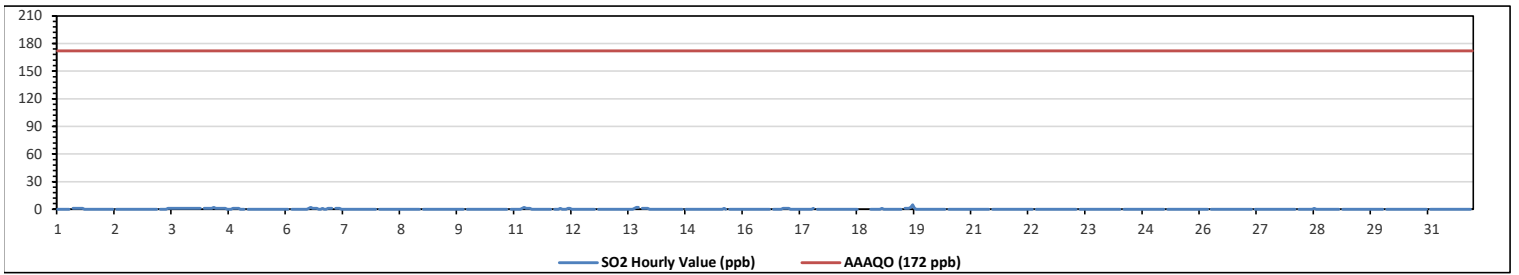
842-B Station - January 2023

Summary of Hourly Averages

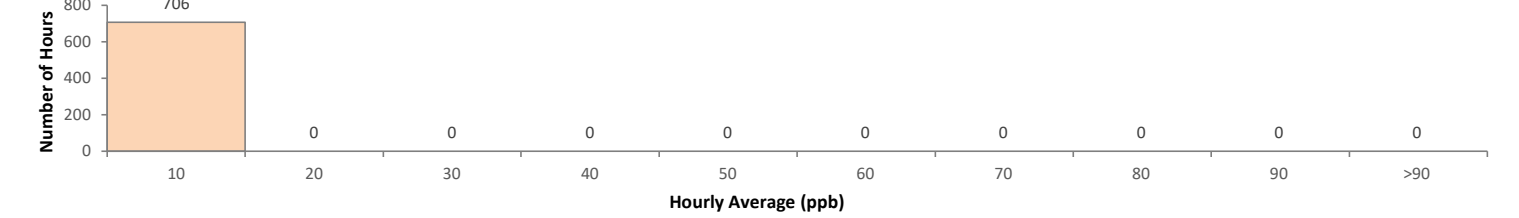
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb		Number of 1-Hour Exceedances:		0		Number of 24-Hour Exceedances:		0		30-Day Exceedance:		0																
Maximum Hourly Value:	5 ppb	on January 19	at hour 17	Hours in Service:	744																							
Maximum Daily Value:	0.9 ppb	on January 4		Hours of Data:	706																							
Minimum Hourly Value:	0 ppb	on January 1	at hour 0	Hours of Missing Data:	0																							
Minimum Daily Value:	0.0 ppb	on January 2		Hours of Calibration:	38																							
Monthly Average:	0.1 ppb			Operational Uptime:	100.0																							
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3
Jan 2	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	S	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.6
Jan 4	1	1	1	1	S	1	1	1	1	1	2	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	2	0.9
Jan 5	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 6	0	0	S	0	0	0	0	0	0	0	0	0	1	2	1	1	1	0	0	1	0	0	1	1	1	0	2	0.4
Jan 7	1	S	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Jan 8	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0
Jan 11	0	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	2	0.3
Jan 12	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.1
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	S	1	1	1	1	1	1	0	2	0.4
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	0	1	0.0
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	1	1	0	1	0.1
Jan 17	1	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	S	C	C	C	C	C	0	0	0	0	0	0	0	0	0.0
Jan 19	0	1	0	0	0	0	0	0	0	0	0	0	S	1	1	1	2	S	1	0	0	0	0	0	0	0	5	0.5
Jan 20	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 23	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 24	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 25	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 26	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 27	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Jan 29	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 30	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0
Diurnal Maximum	1	1	1	1	1	2	1	1	1	1	2	1	1	2	1	1	2	5	1	1	1	1	1	1	1			
Diurnal Average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1			
C	Monthly Calibration													S	Daily Zero-Span Check				Q	Quality Assurance								
K	Collection Error													ND	No Data (Machine Not in Service)				Y	Routine Maintenance			P	Power Failure				
X	Invalid Data (Equipment Malfunction /Recovery)													NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)													

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Histogram

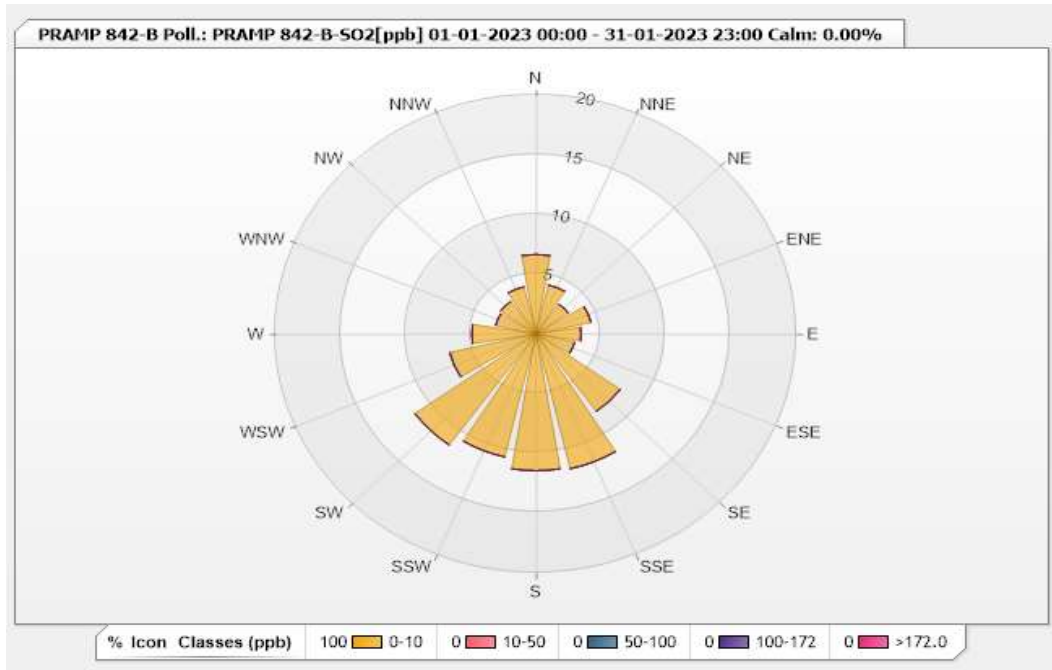


Station: PRAMP 842-B Poll.: PRAMP 842-B-SO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	6.66	0	0	0	0	6.66
NNE	4.2	0	0	0	0	4.2
NE	3.04	0	0	0	0	3.04
ENE	4.34	0	0	0	0	4.34
E	3.47	0	0	0	0	3.47
ESE	3.04	0	0	0	0	3.04
SE	7.96	0	0	0	0	7.96
SSE	11.58	0	0	0	0	11.58
S	11.43	0	0	0	0	11.43
SSW	10.56	0	0	0	0	10.56
SW	11.43	0	0	0	0	11.43
WSW	6.8	0	0	0	0	6.8
W	4.92	0	0	0	0	4.92
WNW	3.18	0	0	0	0	3.18
NW	3.33	0	0	0	0	3.33
NNW	4.05	0	0	0	0	4.05
Summary	100	0	0	0	0	100

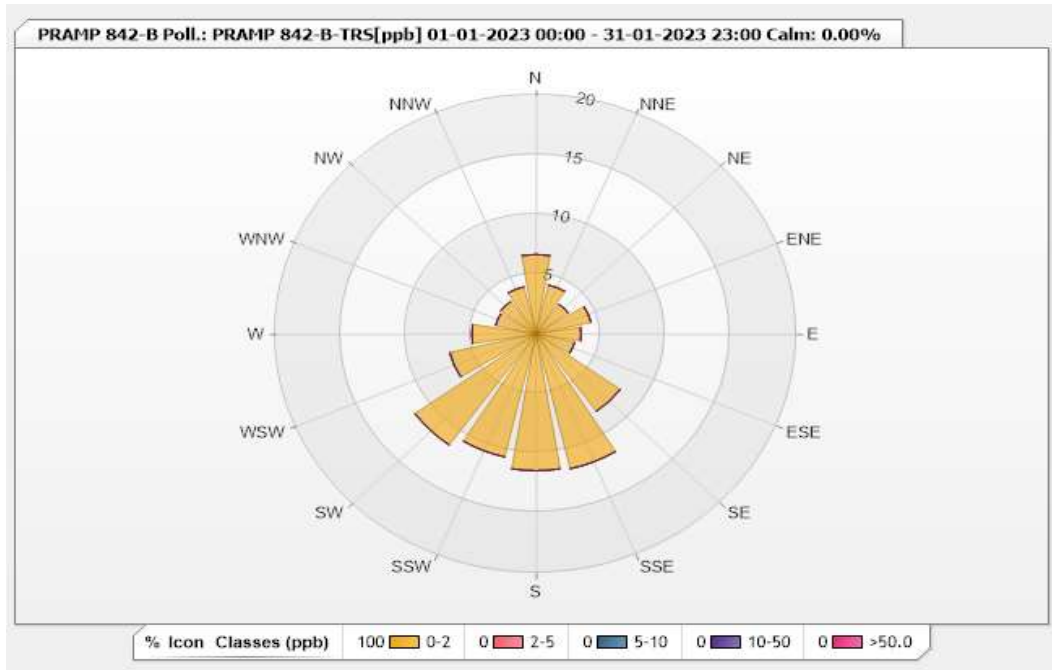


Station: PRAMP 842-B Poll.: PRAMP 842-B-TRS[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	6.66	0	0	0	0	6.66
NNE	4.2	0	0	0	0	4.2
NE	3.04	0	0	0	0	3.04
ENE	4.34	0	0	0	0	4.34
E	3.47	0	0	0	0	3.47
ESE	3.04	0	0	0	0	3.04
SE	7.96	0	0	0	0	7.96
SSE	11.58	0	0	0	0	11.58
S	11.43	0	0	0	0	11.43
SSW	10.56	0	0	0	0	10.56
SW	11.43	0	0	0	0	11.43
WSW	6.8	0	0	0	0	6.8
W	4.92	0	0	0	0	4.92
WNW	3.18	0	0	0	0	3.18
NW	3.33	0	0	0	0	3.33
NNW	4.05	0	0	0	0	4.05
Summary	100	0	0	0	0	100

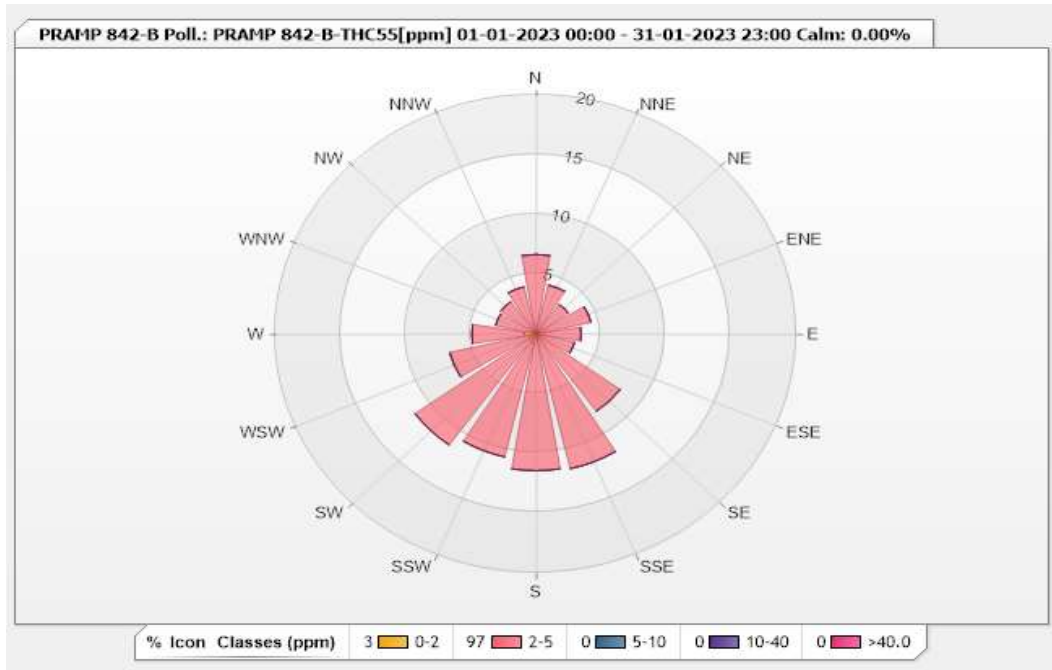


Station: PRAMP 842-B Poll.: PRAMP 842-B-THC55[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	6.66	0	0	0	6.66
NNE	0	4.2	0	0	0	4.2
NE	0	3.04	0	0	0	3.04
ENE	0	4.34	0	0	0	4.34
E	0	3.47	0	0	0	3.47
ESE	0	3.04	0	0	0	3.04
SE	0	7.96	0	0	0	7.96
SSE	0	11.58	0	0	0	11.58
S	0.29	11.14	0	0	0	11.43
SSW	0.72	9.84	0	0	0	10.56
SW	0.43	11	0	0	0	11.43
WSW	0.43	6.37	0	0	0	6.8
W	0.87	4.05	0	0	0	4.92
WNW	0	3.18	0	0	0	3.18
NW	0.14	3.18	0	0	0	3.32
NNW	0	4.05	0	0	0	4.05
Summary	2.88	97.1	0	0	0	100

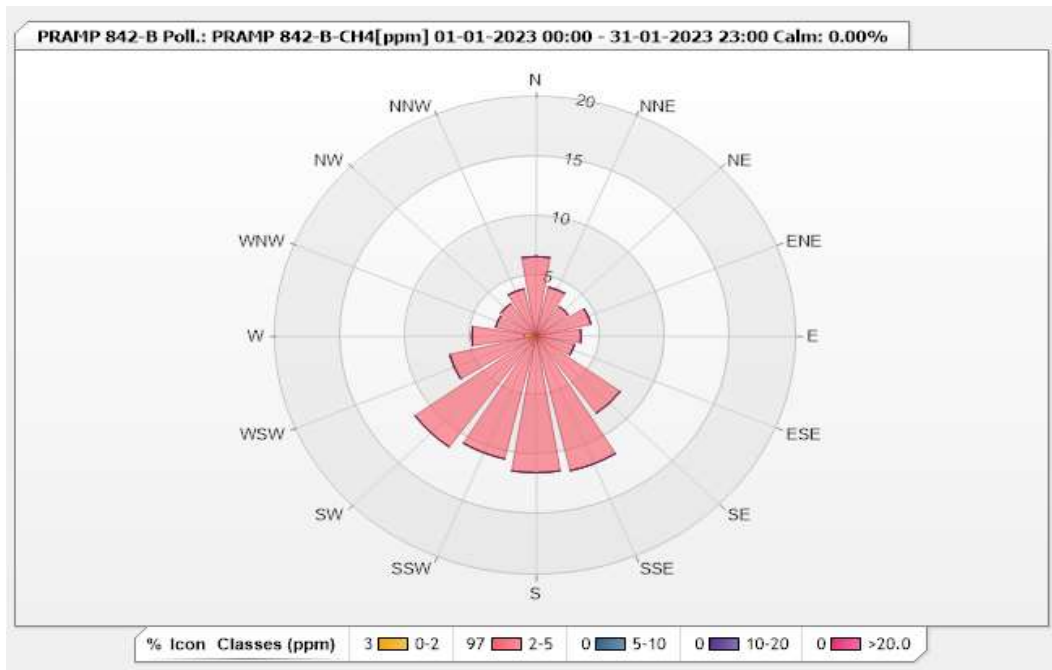


Station: PRAMP 842-B Poll.: PRAMP 842-B-CH4[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	6.66	0	0	0	6.66
NNE	0	4.2	0	0	0	4.2
NE	0	3.04	0	0	0	3.04
ENE	0	4.34	0	0	0	4.34
E	0	3.47	0	0	0	3.47
ESE	0	3.04	0	0	0	3.04
SE	0	7.96	0	0	0	7.96
SSE	0	11.58	0	0	0	11.58
S	0.29	11.14	0	0	0	11.43
SSW	0.72	9.84	0	0	0	10.56
SW	0.43	11	0	0	0	11.43
WSW	0.43	6.37	0	0	0	6.8
W	0.87	4.05	0	0	0	4.92
WNW	0	3.18	0	0	0	3.18
NW	0.14	3.18	0	0	0	3.32
NNW	0	4.05	0	0	0	4.05
Summary	2.88	97.1	0	0	0	100

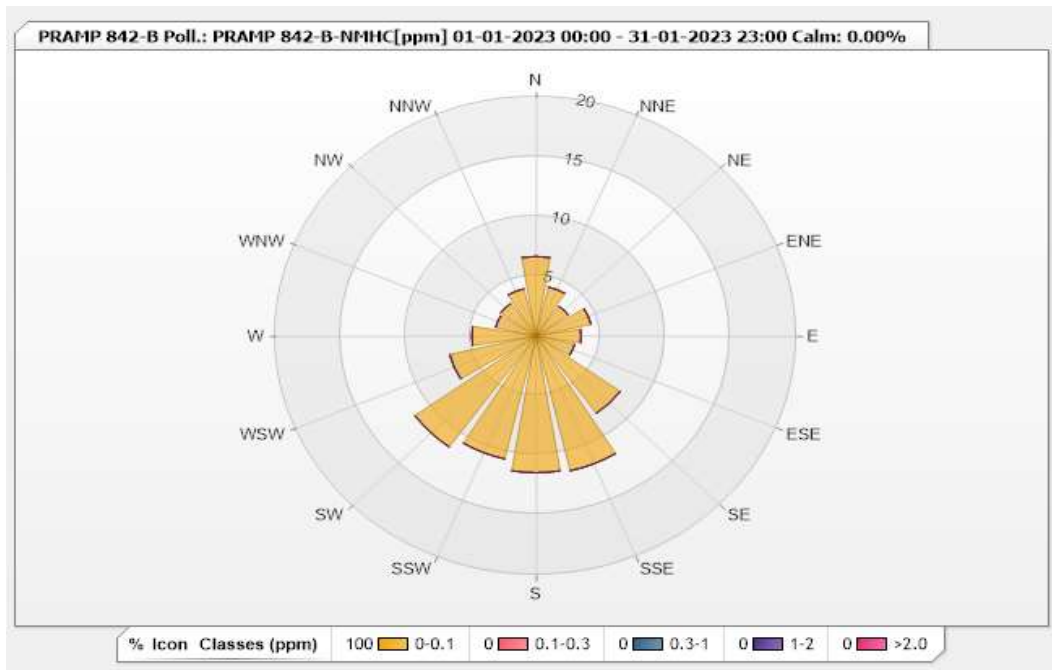


Station: PRAMP 842-B Poll.: PRAMP 842-B-NMHC[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 92.88% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.66	0	0	0	0	6.66
NNE	4.2	0	0	0	0	4.2
NE	3.04	0	0	0	0	3.04
ENE	4.34	0	0	0	0	4.34
E	3.47	0	0	0	0	3.47
ESE	3.04	0	0	0	0	3.04
SE	7.96	0	0	0	0	7.96
SSE	11.58	0	0	0	0	11.58
S	11.43	0	0	0	0	11.43
SSW	10.56	0	0	0	0	10.56
SW	11.43	0	0	0	0	11.43
WSW	6.8	0	0	0	0	6.8
W	4.92	0	0	0	0	4.92
WNW	3.18	0	0	0	0	3.18
NW	3.33	0	0	0	0	3.33
NNW	4.05	0	0	0	0	4.05
Summary	100	0	0	0	0	100

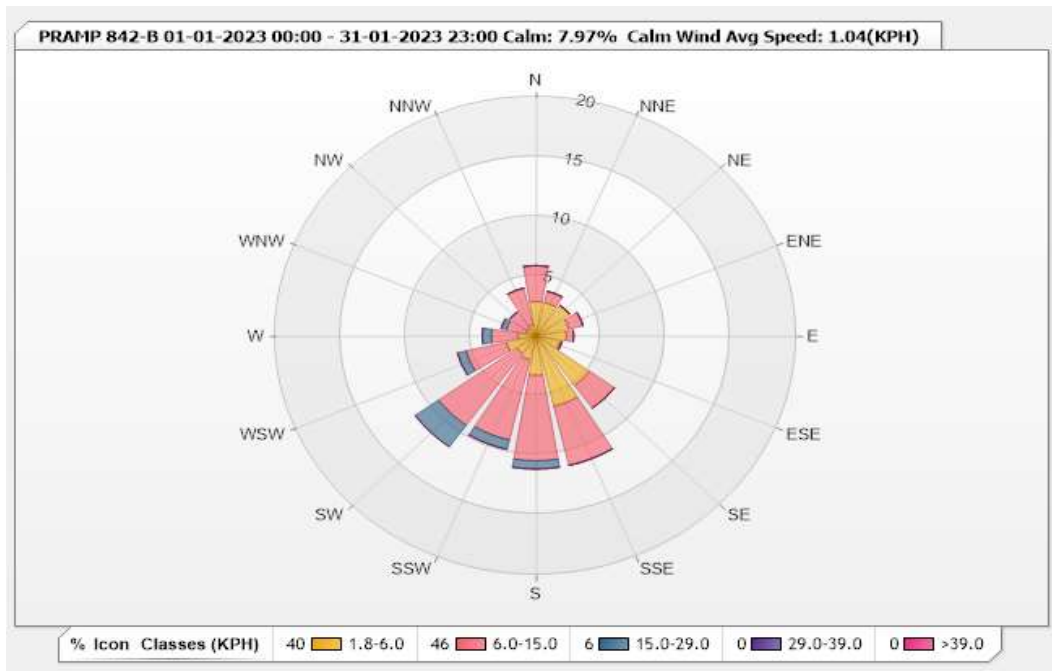


Station: PRAMP 842-B Monitor: WDS [KPH] Monthly: 01-2023

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

Calm (WS<1.8kph): 7.97% 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	2.88	3.02	0	0	0	5.9
NNE	2.88	0.96	0	0	0	3.84
NE	3.16	0	0	0	0	3.16
ENE	2.61	1.1	0	0	0	3.71
E	2.34	0.55	0	0	0	2.89
ESE	1.92	0.14	0	0	0	2.06
SE	5.08	2.34	0	0	0	7.42
SSE	6.04	5.08	0	0	0	11.12
S	3.3	7.14	0.69	0	0	11.13
SSW	2.06	6.87	0.82	0	0	9.75
SW	1.79	7.42	2.2	0	0	11.41
WSW	2.34	3.16	0.69	0	0	6.19
W	1.37	2.06	0.69	0	0	4.12
WNW	0.82	1.51	0.41	0	0	2.74
NW	0.82	1.65	0	0	0	2.47
NNW	0.96	3.16	0	0	0	4.12
Summary	40.37	46.16	5.5	0	0	92.03



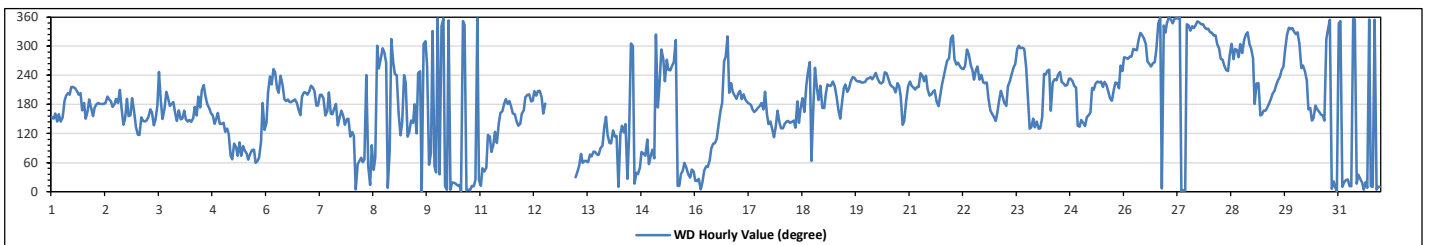
Peace River Area Monitoring Program

842-B Station - January 2023
Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		212 (SSW) degree										Hours in Service:		744												
												Hours of Data:		728												
												Hours of Missing Data:		16												
												Hours of Calibration:		0												
												Operational Uptime:		97.8												
Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	SSE	SSE	SSE	SE	SSE	SE	SSE	S	SSW	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSE	S	SSE	SSE	S	S	SSE	187	S
Jan 2	S	S	S	S	S	S	S	SSW	S	S	S	S	S	S	S	S	S	SSE	S	SSE	SSE	S	SSE	SSE	180	S
Jan 3	ESE	ESE	SSE	SE	SE	SE	SSE	SSE	SE	SE	S	WSW	S	SSE	SSE	SSW	SSW	S	S	S	SSE	SE	SSE	170	SSE	
Jan 4	SSE	SSE	SSE	ESE	SE	SE	SSE	S	SSE	SSW	S	SSW	SW	SSW	S	S	SSE	SSE	SE	SSE	SSE	SE	SE	167	SSE	
Jan 5	SE	ESE	SE	ESE	ENE	ENE	E	ENE	E	ENE	E	E	ENE	ENE	ENE	E	E	ENE	ENE	ENE	ESE	S	SE	90	E	
Jan 6	SE	SSW	SW	SW	WSW	WSW	SSW	SSW	WSW	SW	S	S	S	S	S	S	S	SSE	SSE	SSW	SSW	SSW	SSW	192	S	
Jan 7	SSW	SW	SSW	SSW	S	S	SSW	SSW	S	SSE	SSE	SSW	SSE	SSE	S	S	SE	SSE	SSE	SSE	SE	SSE	SSE	ESE	181	S
Jan 8	ESE	ESE	N	ENE	ENE	ENE	ENE	ENE	WSW	NE	NNE	E	NE	ENE	WNW	WSW	W	WNW	WNW	W	N	E	NW	W	59	ENE
Jan 9	WSW	WSW	SSE	ESE	SE	WSW	SW	ESE	ESE	SE	SE	S	ESE	WSW	WSW	N	WNW	NW	WSW	NE	E	NNW	NE	148	SE	
Jan 10	N	NE	NNW	N	NNE	N	N	N	NNE	NNE	NNE	NNE	N	N	NNW	N	N	N	NNE	NNE	NNE	N	NNE	7	N	
Jan 11	NNE	NE	NE	NE	ESE	ESE	E	ESE	E	SE	SSE	SSE	S	S	S	S	SSE	SSE	SE	SE	SE	SE	SSE	152	SSE	
Jan 12	SSE	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSE	S	X	X	X	X	X	X	X	X	X	X	NA	NA	
Jan 13	X	X	X	X	X	NNE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	ENE	ENE	E	E	SE	SSE	ESE	76	ENE	
Jan 14	E	E	SE	ESE	ESE	N	ESE	SE	ESE	SE	NNE	ESE	NW	WNW	NNE	NE	NE	NE	E	ENE	ENE	ESE	ENE	75	ENE	
Jan 15	E	ENE	NW	S	SW	WNW	W	SW	W	WSW	WSW	WSW	W	NW	NNE	NNE	NE	NE	ENE	NE	NNE	NE	NE	17	NNE	
Jan 16	NNE	NNE	NNE	N	NNE	NE	NE	ENE	E	E	ESE	SE	SSE	S	W	W	NW	SSW	SW	SSW	SSW	S	103	ESE		
Jan 17	SSW	SSW	S	SSW	S	S	S	SSE	SSE	SSE	S	S	S	SSE	SSW	SSE	SE	SE	SE	ESE	SE	SSE	SE	170	SSE	
Jan 18	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	S	S	SSE	SW	WSW	W	ENE	S	WSW	SSW	S	SW	S	161	SSE	
Jan 19	S	SSW	SW	SW	SW	SW	SSW	SSE	SSE	S	SSW	SW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	216	SW	
Jan 20	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	WSW	SW	SW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SE	SE	S	SW	224	SW	
Jan 21	SW	SW	SSW	SSW	SW	SW	WSW	WSW	SW	WSW	SSW	SSW	SSW	SSW	S	S	SSW	SW	WSW	WSW	W	W	NW	227	SW	
Jan 22	NW	W	W	W	WSW	WSW	WSW	WSW	WNW	W	W	WSW	SW	WSW	WSW	SW	WSW	SW	SW	SW	S	SSE	SSE	247	WSW	
Jan 23	SE	SSE	S	SSW	SSW	S	S	SW	SW	WSW	WSW	W	WNW	WNW	WNW	WNW	WNW	WSW	SE	SE	SSE	SE	SE	219	SW	
Jan 24	SE	SE	SSE	WSW	WSW	WSW	WSW	SSE	SW	SW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SE	SE	219	SW	
Jan 25	SE	SE	SE	SSE	SSE	SSE	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	S	S	SSW	SW	SSW	WSW	214	SSW	
Jan 26	W	W	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	W	W	WSW	W	W	WNW	NNW	N	N	NNW	296	WNW	
Jan 27	NNW	N	N	NNW	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	348	NNW	
Jan 28	NNW	NNW	NW	NW	WNW	WNW	W	WSW	WSW	WSW	W	WNW	W	WNW	WNW	W	WNW	WNW	NW	NW	NNW	NNW	NNW	296	WNW	
Jan 29	W	S	SW	SW	SSE	SSE	SSE	SSE	S	S	S	SSW	SSW	SW	SW	SW	WSW	WNW	NW	NNW	NNW	NNW	NNW	221	SW	
Jan 30	NW	NNW	WNW	WSW	WSW	WSW	SW	SSE	S	SE	SSE	S	SSE	SSE	SSE	SSE	SE	NW	NNW	N	N	NNE	N	187	S	
Jan 31	NNW	N	N	NNE	NNE	NNE	NNE	N	N	NNE	NE	NNE	NNE	N	N	NNE	N	N	N	N	N	N	N	10	N	
C	Monthly Calibration										S	Daily Zero-Span Check					Q	Quality Assurance								
K	Collection Error										ND	No Data (Machine Not in Service)					Y	Routine Maintenance								
X	Invalid Data (Machine Malfunction /Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)					P	Power Failure								

Daily Average is shown "X" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "X" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

842-B Station - January 2023

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

Summary statistics for WIND SPEED and WIND DIRECTION. Includes Maximum Hourly Value (25.3 kph), Minimum Hourly Value (0.0 kph), and Monthly Average (212 degree (SSW)).

Main data table showing hourly wind speed and direction for each day from Jan 1 to Jan 31. Columns include Day, hourly periods (0-23), and Daily Minimum/Maximum/Average.

Legend for data quality indicators: C (Monthly Calibration), K (Collection Error), X (Invalid Data), S (Daily Zero-Span Check), ND (No Data), NRM (Repeat Calibration), Q (Quality Assurance), Y (Routine Maintenance), P (Power Failure).

RENO -B STATION

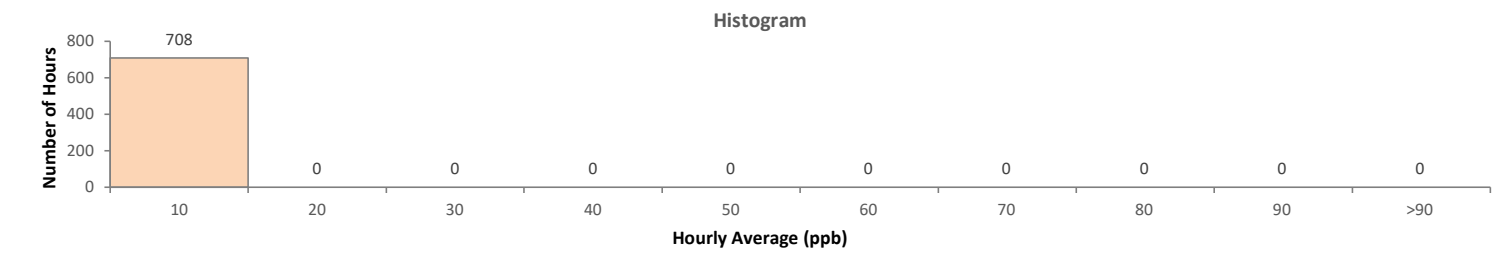
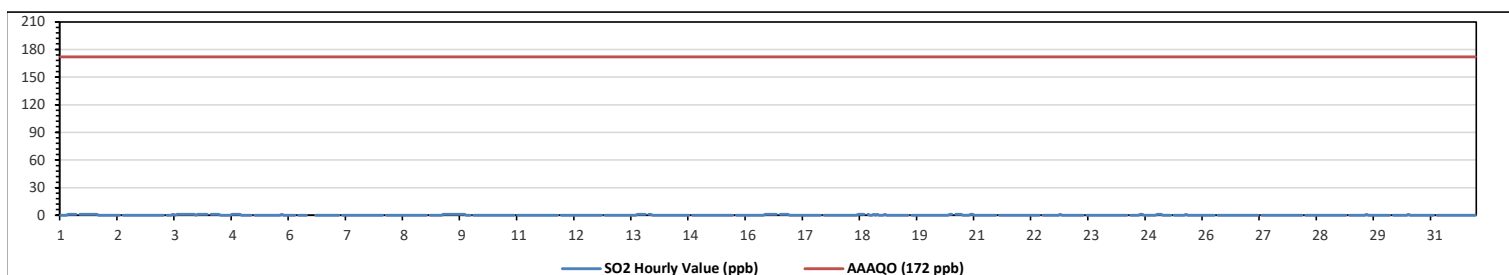
Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb		Number of 1-Hour Exceedances: 0		Number of 24-Hour Exceedances: 0		30-Day Exceedance: 0																				
Maximum Hourly Value:	1 ppb	on January 1 at hour 4	Hours in Service:	744																						
Maximum Daily Value:	0.7 ppb	on January 4	Hours of Data:	708																						
Minimum Hourly Value:	0 ppb	on January 1 at hour 0	Hours of Missing Data:	0																						
Minimum Daily Value:	0.0 ppb	on January 2	Hours of Calibration:	36																						
Monthly Average:	0.1 ppb		Operational Uptime:	100.0																						
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Jan 1	0	0	0	0	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0.7
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5
Jan 4	1	1	1	1	1	1	S	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0.7
Jan 5	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Jan 6	0	0	0	0	S	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 7	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 8	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 9	0	S	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0.5
Jan 10	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	S	1	1	0	1	0.3
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0
Jan 16	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	0.5
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0
Jan 18	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	S	1	0	0	1	0	1	0	0	1	0.3
Jan 19	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	1	1	1	0	0	0	0	1	1	1	0.3
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 22	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1
Jan 25	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 27	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 28	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Jan 29	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Jan 30	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Jan 31	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Diurnal Maximum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.0
Diurnal Average	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0

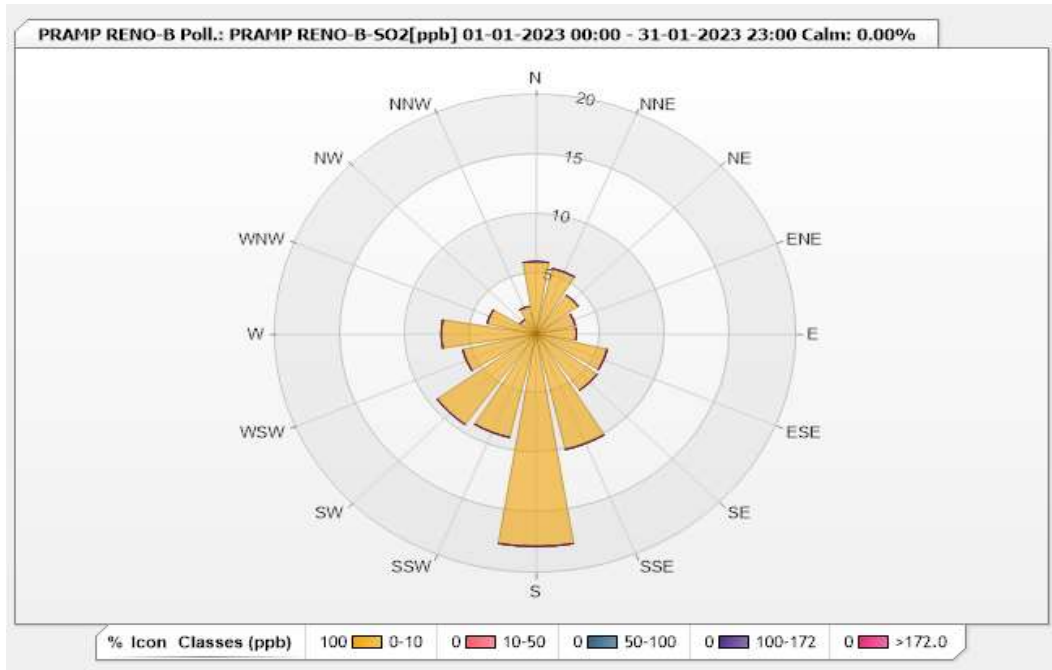


Station: PRAMP RENO-B Poll.: PRAMP RENO-B-SO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.73% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	6.07	0	0	0	0	6.07
NNE	5.63	0	0	0	0	5.63
NE	4	0	0	0	0	4
ENE	3.11	0	0	0	0	3.11
E	3.11	0	0	0	0	3.11
ESE	5.63	0	0	0	0	5.63
SE	5.78	0	0	0	0	5.78
SSE	9.93	0	0	0	0	9.93
S	17.78	0	0	0	0	17.78
SSW	8.89	0	0	0	0	8.89
SW	9.33	0	0	0	0	9.33
WSW	5.78	0	0	0	0	5.78
W	7.26	0	0	0	0	7.26
WNW	3.85	0	0	0	0	3.85
NW	1.48	0	0	0	0	1.48
NNW	2.37	0	0	0	0	2.37
Summary	100	0	0	0	0	100

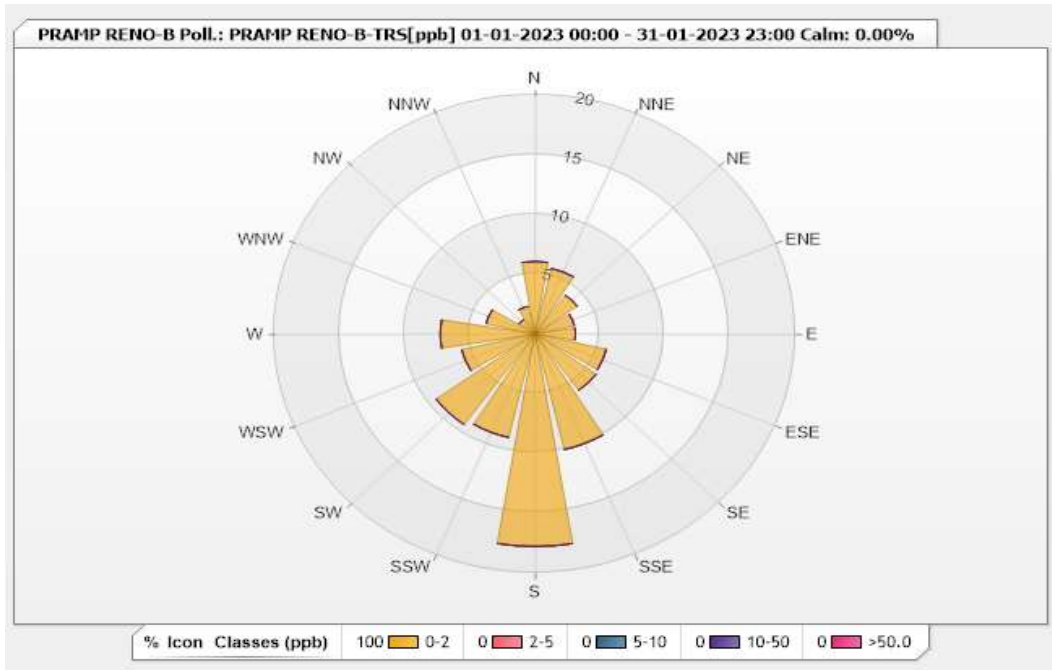


Station: PRAMP RENO-B Poll.: PRAMP RENO-B-TRS[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.73% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	6.07	0	0	0	0	6.07
NNE	5.63	0	0	0	0	5.63
NE	4	0	0	0	0	4
ENE	3.11	0	0	0	0	3.11
E	3.11	0	0	0	0	3.11
ESE	5.63	0	0	0	0	5.63
SE	5.78	0	0	0	0	5.78
SSE	9.93	0	0	0	0	9.93
S	17.78	0	0	0	0	17.78
SSW	8.89	0	0	0	0	8.89
SW	9.33	0	0	0	0	9.33
WSW	5.78	0	0	0	0	5.78
W	7.26	0	0	0	0	7.26
WNW	3.85	0	0	0	0	3.85
NW	1.48	0	0	0	0	1.48
NNW	2.37	0	0	0	0	2.37
Summary	100	0	0	0	0	100

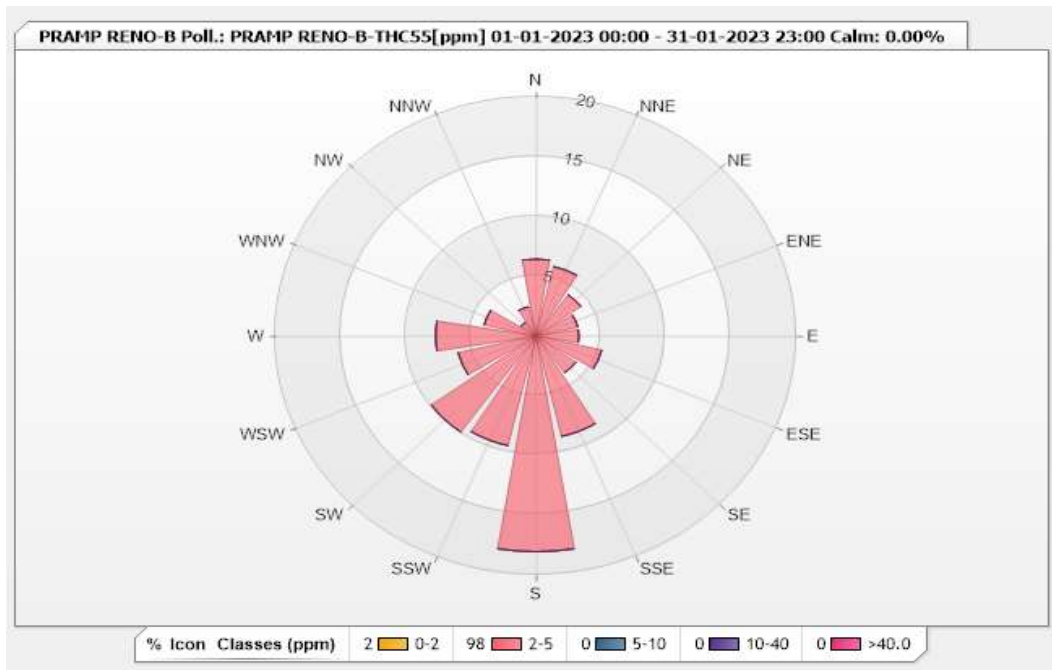


Station: PRAMP RENO-B Poll.: PRAMP RENO-B-THC55[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 85.62% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	6.44	0	0	0	6.44
NNE	0	5.97	0	0	0	5.97
NE	0	4.24	0	0	0	4.24
ENE	0.47	2.83	0	0	0	3.3
E	0.31	2.98	0	0	0	3.29
ESE	0	5.18	0	0	0	5.18
SE	0	3.77	0	0	0	3.77
SSE	0	8.63	0	0	0	8.63
S	0.47	17.58	0	0	0	18.05
SSW	0.16	9.26	0	0	0	9.42
SW	0	9.89	0	0	0	9.89
WSW	0.16	5.97	0	0	0	6.13
W	0.16	7.54	0	0	0	7.7
WNW	0	4.08	0	0	0	4.08
NW	0	1.41	0	0	0	1.41
NNW	0	2.51	0	0	0	2.51
Summary	1.73	98.28	0	0	0	100

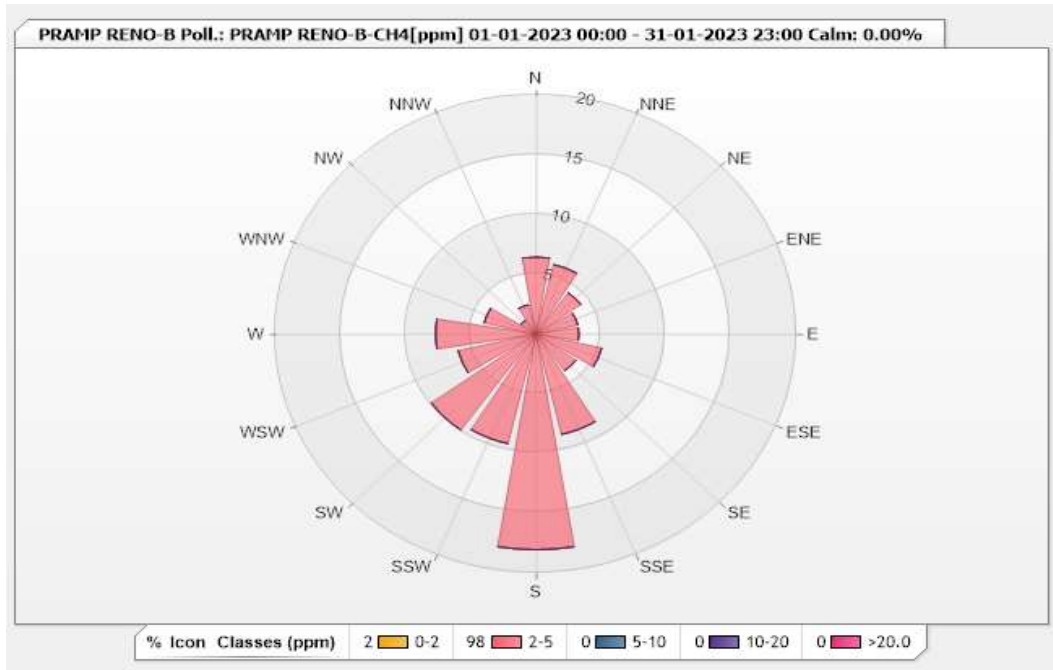


Station: PRAMP RENO-B Poll.: PRAMP RENO-B-CH4[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 85.62% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	6.44	0	0	0	6.44
NNE	0	5.97	0	0	0	5.97
NE	0	4.24	0	0	0	4.24
ENE	0.47	2.83	0	0	0	3.3
E	0.31	2.98	0	0	0	3.29
ESE	0	5.18	0	0	0	5.18
SE	0	3.77	0	0	0	3.77
SSE	0	8.63	0	0	0	8.63
S	0.47	17.58	0	0	0	18.05
SSW	0.16	9.26	0	0	0	9.42
SW	0	9.89	0	0	0	9.89
WSW	0.16	5.97	0	0	0	6.13
W	0.16	7.54	0	0	0	7.7
WNW	0	4.08	0	0	0	4.08
NW	0	1.41	0	0	0	1.41
NNW	0	2.51	0	0	0	2.51
Summary	1.73	98.28	0	0	0	100

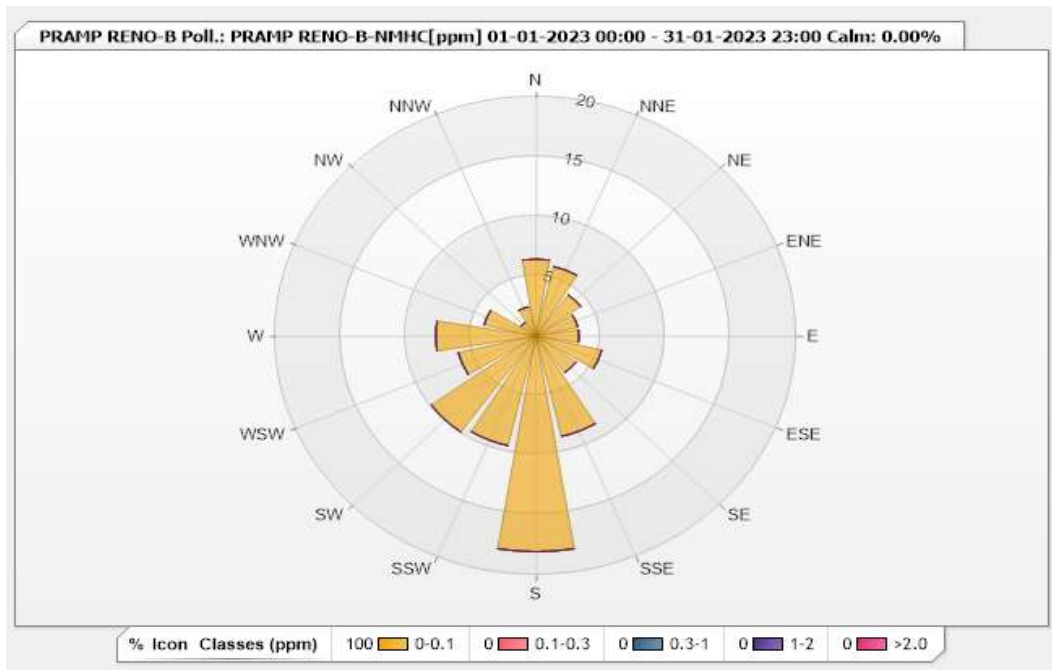


Station: PRAMP RENO-B Poll.: PRAMP RENO-B-NMHC[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 85.62% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	6.44	0	0	0	0	6.44
NNE	5.97	0	0	0	0	5.97
NE	4.24	0	0	0	0	4.24
ENE	3.3	0	0	0	0	3.3
E	3.3	0	0	0	0	3.3
ESE	5.18	0	0	0	0	5.18
SE	3.77	0	0	0	0	3.77
SSE	8.63	0	0	0	0	8.63
S	18.05	0	0	0	0	18.05
SSW	9.42	0	0	0	0	9.42
SW	9.89	0	0	0	0	9.89
WSW	6.12	0	0	0	0	6.12
W	7.69	0	0	0	0	7.69
WNW	4.08	0	0	0	0	4.08
NW	1.41	0	0	0	0	1.41
NNW	2.51	0	0	0	0	2.51
Summary	100	0	0	0	0	100



Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

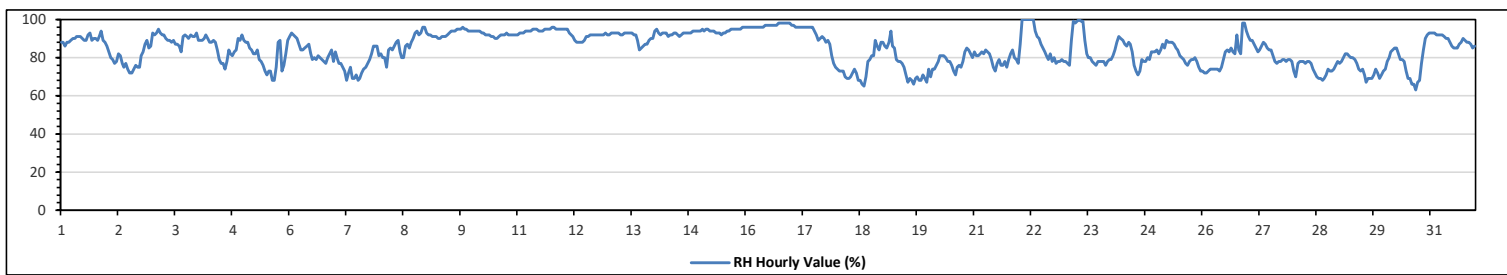
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100	%	on January 22 at hour 1	Hours in Service:	744
Maximum Daily Value:	96.9	%	on January 16	Hours of Data:	744
Minimum Hourly Value:	63	%	on January 30 at hour 16	Hours of Missing Data:	0
Minimum Daily Value:	73.9	%	on January 28	Hours of Calibration:	0
Monthly Average:	84.8	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	88	88	86	88	88	89	90	90	91	91	91	90	89	89	92	93	89	90	90	89	91	94	89	88	86	94	89.7	
Jan 2	86	83	80	79	77	78	82	81	77	75	77	74	72	72	74	76	75	75	81	83	87	89	85	86	72	89	79.3	
Jan 3	93	92	93	95	93	92	92	90	89	89	88	89	87	87	86	83	91	92	91	90	92	91	91	93	83	95	90.4	
Jan 4	89	89	89	90	92	90	88	88	89	88	84	79	77	77	74	78	84	82	81	83	84	90	89	92	74	92	85.3	
Jan 5	89	88	88	85	84	82	82	84	79	78	76	73	71	73	73	68	68	75	88	89	73	76	82	89	68	89	79.7	
Jan 6	91	93	92	91	90	87	84	84	85	86	87	82	79	80	79	81	80	79	78	77	80	82	84	78	77	93	83.7	
Jan 7	83	80	77	77	75	73	68	72	75	69	69	71	68	69	72	74	75	77	79	82	86	86	86	81	68	86	76.0	
Jan 8	82	80	80	75	84	85	84	86	88	89	83	80	80	86	87	85	88	90	93	94	92	93	96	96	75	96	86.5	
Jan 9	93	92	92	91	91	91	90	90	91	91	91	92	93	94	94	94	95	95	95	96	95	95	94	94	94	90	96	92.9
Jan 10	94	94	94	94	94	93	93	92	92	92	91	91	90	90	91	92	92	92	93	92	92	92	92	92	90	94	92.3	
Jan 11	92	93	93	93	94	94	94	94	95	95	95	94	94	94	95	95	95	95	96	96	95	95	95	95	92	96	94.4	
Jan 12	95	95	95	93	92	91	89	88	88	88	88	89	91	91	92	92	92	92	92	92	92	92	93	92	88	95	91.4	
Jan 13	92	93	93	93	93	92	92	93	93	93	93	93	93	93	92	89	84	85	86	87	87	89	90	90	84	93	90.7	
Jan 14	94	95	93	92	93	93	93	91	92	92	93	93	92	91	92	93	93	93	93	93	94	94	94	94	91	95	92.9	
Jan 15	94	95	94	95	95	94	94	94	93	93	93	92	93	93	94	94	95	95	95	95	95	95	96	96	92	96	94.3	
Jan 16	96	96	96	96	96	96	96	96	96	96	97	97	97	97	97	97	97	98	98	98	98	98	98	98	96	98	96.9	
Jan 17	97	97	96	96	96	96	96	96	96	96	96	96	94	92	89	90	91	90	88	89	87	81	77	75	75	97	91.5	
Jan 18	74	73	73	73	70	69	69	70	72	74	72	68	68	66	65	70	78	79	81	81	89	86	84	88	65	89	74.7	
Jan 19	88	86	85	88	94	86	85	79	78	78	77	75	71	67	69	68	66	69	70	68	68	71	69	67	66	94	75.9	
Jan 20	74	70	74	74	76	78	81	81	81	80	78	78	76	73	71	75	76	75	78	83	85	84	82	80	70	85	77.6	
Jan 21	83	81	81	82	83	82	84	83	82	79	75	73	77	79	76	76	78	75	79	82	84	80	79	77	73	84	79.6	
Jan 22	87	100	100	100	100	100	100	100	94	91	90	87	85	83	81	79	82	78	80	77	78	78	79	78	77	100	87.8	
Jan 23	78	77	76	89	99	98	99	100	99	99	89	82	80	80	78	77	76	78	78	78	78	76	78	79	76	100	84.2	
Jan 24	79	81	84	88	91	90	89	87	86	88	87	83	76	73	71	73	79	78	78	80	79	83	83	83	71	91	82.0	
Jan 25	84	82	84	87	85	89	88	88	88	87	85	84	81	80	79	77	76	78	79	79	80	78	75	73	73	89	81.9	
Jan 26	73	72	72	73	74	74	74	74	74	73	75	79	83	84	83	85	83	82	92	84	82	98	98	94	72	98	80.6	
Jan 27	91	89	89	87	85	83	84	86	88	87	85	84	84	81	78	77	78	78	79	79	78	79	79	78	77	91	82.8	
Jan 28	73	70	77	78	78	78	77	78	78	77	74	72	70	69	69	68	69	71	74	73	73	74	76	78	68	78	73.9	
Jan 29	77	78	80	82	82	81	80	80	79	77	74	73	74	71	67	69	69	69	71	74	72	69	71	73	67	82	74.7	
Jan 30	74	78	80	83	84	85	85	82	79	79	78	73	69	69	66	66	63	67	68	77	84	90	92	93	63	93	77.7	
Jan 31	93	93	93	92	92	92	92	91	90	90	88	86	85	85	85	87	88	90	89	88	88	87	85	86	85	93	89.0	
Diurnal Maximum	97	100	100	100	100	100	100	100	99	99	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	
Diurnal Average	86.3	86.2	86.4	87.1	87.7	87.2	86.9	86.7	86.4	85.8	84.5	83.0	81.9	81.5	81.0	81.3	82.1	82.6	84.3	84.8	85.1	86.0	85.8	85.7				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

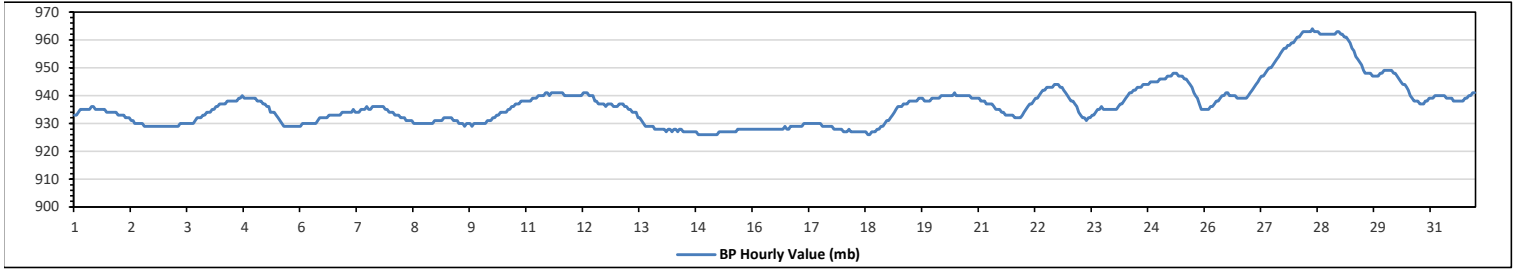
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	964	mb	on January 28 at hour 9	Hours in Service:	744
Maximum Daily Value:	962	mb	on January 28	Hours of Data:	744
Minimum Hourly Value:	926	mb	on January 14 at hour 19	Hours of Missing Data:	0
Minimum Daily Value:	927	mb	on January 15	Hours of Calibration:	0
Monthly Average:	937	mb		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Jan 1	933	933	934	935	935	935	935	935	935	936	936	935	935	935	935	935	935	934	934	934	934	934	933	933	936	935
Jan 2	933	933	933	932	932	932	931	931	930	930	930	930	929	929	929	929	929	929	929	929	929	929	929	929	929	930
Jan 3	929	929	929	929	929	929	929	929	930	930	930	930	930	930	930	931	932	932	932	933	933	934	934	934	934	931
Jan 4	934	935	935	936	936	937	937	937	937	938	938	938	938	938	939	939	940	939	939	939	939	939	939	939	939	938
Jan 5	939	938	938	938	937	937	936	936	934	934	934	933	932	931	930	929	929	929	929	929	929	929	929	929	929	933
Jan 6	929	930	930	930	930	930	930	930	930	931	932	932	932	932	932	933	933	933	933	933	933	933	934	934	934	932
Jan 7	934	934	934	934	935	934	934	934	935	935	935	936	936	935	935	936	936	936	936	936	936	935	935	934	934	935
Jan 8	934	934	933	933	933	932	932	932	931	931	931	931	930	930	930	930	930	930	930	930	930	930	931	931	931	931
Jan 9	931	931	931	931	932	932	932	932	932	931	931	931	930	930	930	929	930	930	930	930	930	930	930	930	930	931
Jan 10	930	930	930	931	931	931	932	932	933	933	934	934	934	934	935	935	936	936	937	937	937	938	938	938	938	934
Jan 11	938	938	938	939	939	939	940	940	940	940	941	941	940	941	941	941	941	941	941	941	941	940	940	940	940	940
Jan 12	940	940	940	940	940	940	941	941	941	940	940	940	938	938	937	937	937	937	936	937	937	937	936	936	936	939
Jan 13	936	937	937	937	936	936	935	935	934	934	934	932	932	931	930	929	929	929	929	929	928	928	928	928	928	932
Jan 14	928	928	927	928	928	927	928	928	927	928	928	927	927	927	927	927	927	927	927	927	926	926	926	926	926	927
Jan 15	926	926	926	926	926	926	927	927	927	927	927	927	927	927	927	927	928	928	928	928	928	928	928	928	928	927
Jan 16	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	929	929	929	929	929	928
Jan 17	929	929	929	930	930	930	930	930	930	930	930	930	930	929	929	929	929	929	929	928	928	928	928	928	928	929
Jan 18	927	927	927	928	927	927	927	927	927	927	927	927	927	926	926	927	927	927	928	928	929	930	931	931	931	928
Jan 19	931	932	933	934	935	936	936	936	937	937	938	938	938	938	939	939	939	939	938	938	938	938	939	939	939	937
Jan 20	939	939	939	939	940	940	940	940	940	940	941	940	940	940	940	940	940	940	940	940	939	939	939	939	939	940
Jan 21	939	938	938	938	937	937	937	937	936	935	935	935	934	934	933	933	933	933	932	932	932	932	932	932	932	935
Jan 22	934	935	936	937	937	938	939	939	940	941	942	942	943	943	943	943	944	944	944	943	943	942	941	940	940	941
Jan 23	939	938	938	937	936	934	933	932	932	931	932	932	933	933	934	935	935	936	935	935	935	935	935	935	935	935
Jan 24	935	935	936	937	937	938	939	940	941	941	942	942	943	943	943	944	944	944	944	945	945	945	945	945	945	941
Jan 25	946	946	946	946	947	947	947	948	948	948	947	947	947	946	946	945	944	943	941	940	939	937	935	935	935	944
Jan 26	935	935	935	936	936	937	938	938	939	940	940	941	941	940	940	940	940	939	939	939	939	939	940	940	940	939
Jan 27	941	942	943	944	945	946	947	947	948	949	950	950	951	952	953	954	955	956	957	957	958	958	959	959	959	951
Jan 28	960	961	961	962	963	963	963	963	964	964	963	963	963	962	962	962	962	962	962	962	962	962	963	963	963	962
Jan 29	962	962	961	961	960	959	957	956	954	953	952	951	949	948	948	948	948	947	947	947	947	948	948	949	949	953
Jan 30	949	949	949	949	948	948	947	946	945	944	944	943	942	940	939	938	938	938	937	937	937	938	938	939	943	943
Jan 31	939	939	940	940	940	940	940	940	939	939	939	939	938	938	938	938	938	938	939	939	940	941	941	938	939	939
Diurnal Maximum	962	962	961	962	963	963	963	963	963	964	963	963	963	962	962	962	962	962	962	962	962	962	963	963	963	963
Diurnal Average	936	936	937	937	937	937	937	937	937	937	937	937	937	936	936	936	937	937	937	936	936	936	936	936	937	937

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

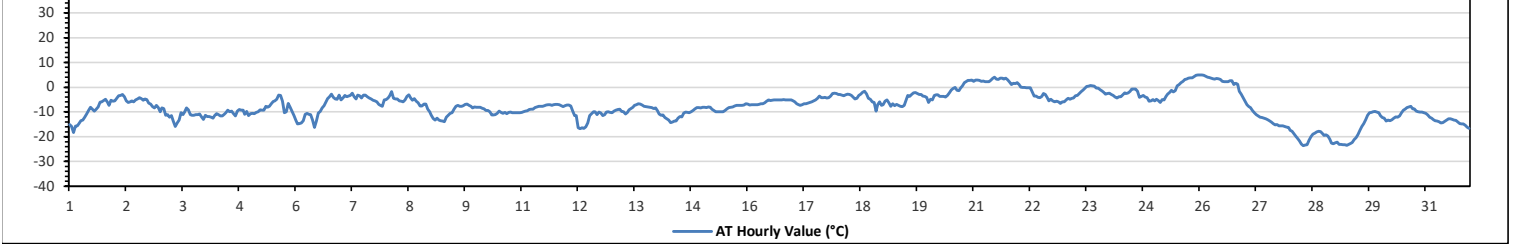
AMBIENT TEMPERATURE (AT) in Degree Celsius

Summary statistics table including Maximum Hourly Value: 5.0 °C, Minimum Hourly Value: -23.6 °C, Hours in Service: 744, and Operational Uptime: 100.0.

Main data table with columns for Day, Hourly Period Starting at (MST) from 0 to 23, and summary columns: Daily Minimum, Daily Maximum, Daily Average.

Legend table for error codes: C (Monthly Calibration), K (Collection Error), X (Invalid Data), S (Daily Zero-Span Check), ND (No Data), NRM (UnitMaint), Q (Quality Assurance), Y (Routine Maintenance), P (Power Failure).

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met. Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

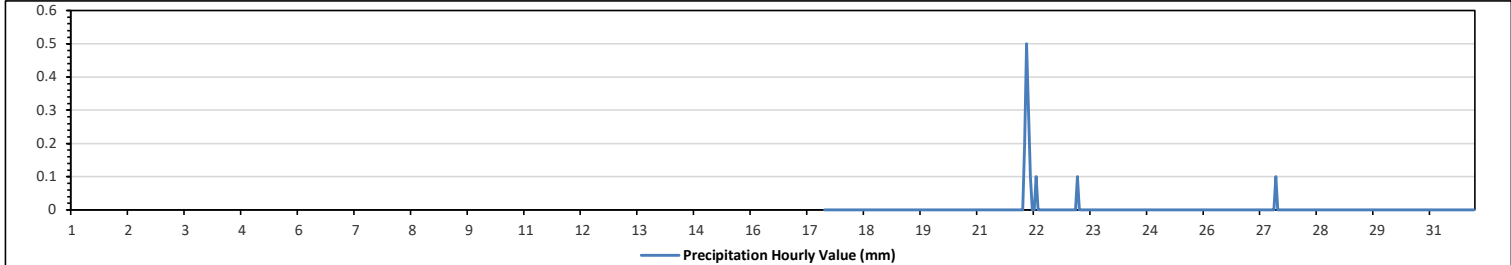
PRECIPITATION in mm

Maximum Hourly Value:	0.5	mm	on January 22 at hour 2	Hours in Service:	744
Maximum Daily Value:	1.2	mm	on January 22	Hours of Data:	345
Minimum Hourly Value:	0.0	mm	on January 17 at hour 15	Hours of Missing Data:	399
Minimum Daily Value:	0.0	mm	on January 18	Hours of Calibration:	0
Monthly Total:	1.4	mm		Operational Uptime:	46.4

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Total
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Jan 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Jan 17	X	X	X	X	X	X	X	X	X	X	X	X	NRM	NRM	0	0	0	0	0	0	0	0	0	0.0	0.0	NA
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 22	0	0.2	0.5	0.3	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.5	1.2
Jan 23	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.0	0.1	0.1
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.0	0.2	0.5	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance		
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance	P	Power Failure
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)				

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

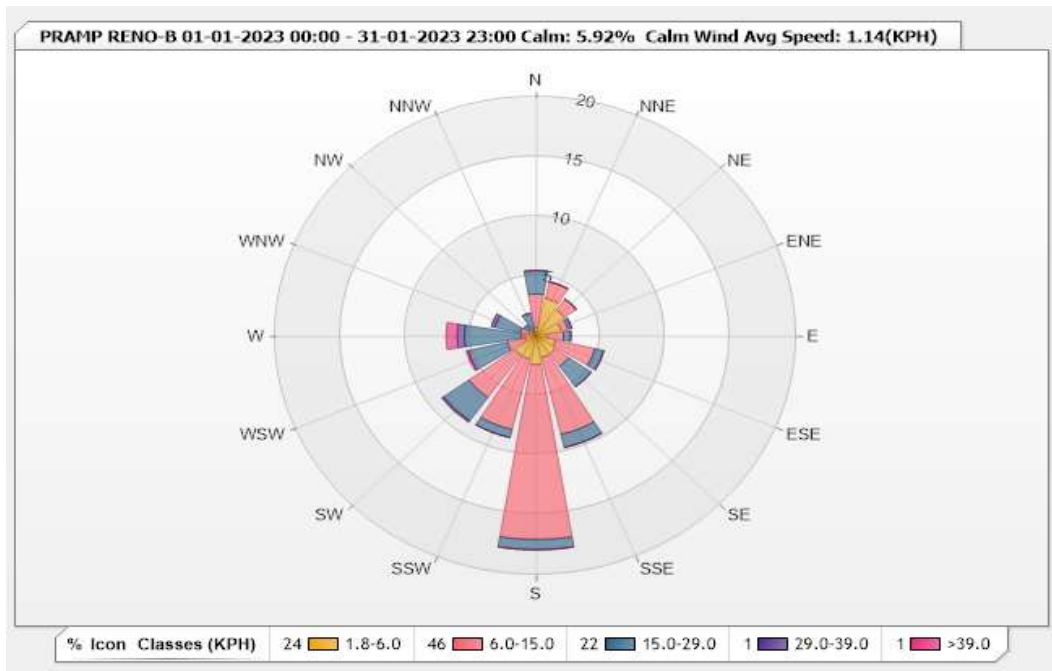


Station: PRAMP RENO-B Monitor: WDS [KPH] Monthly: 01-2023

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

Calm (WS<1.8kph): 5.92% Valid Data: 95.43%

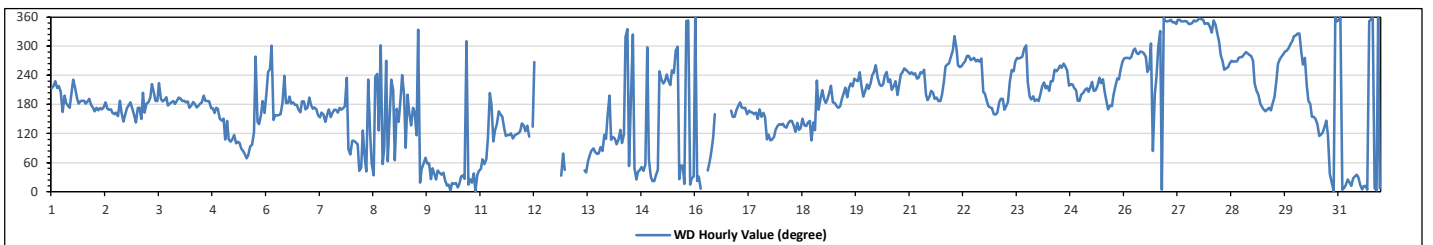
Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	0.7	2.82	1.97	0	0	5.49
NNE	3.24	1.41	0	0	0	4.65
NE	2.68	1.13	0	0	0	3.81
ENE	1.97	0.56	0.28	0	0	2.81
E	0.85	1.27	0.56	0	0	2.68
ESE	1.55	3.1	0.7	0	0	5.35
SE	1.83	1.27	2.11	0	0	5.21
SSE	1.83	6.62	1.13	0	0	9.58
S	2.39	14.65	0.85	0	0	17.89
SSW	1.97	6.06	0.7	0	0	8.73
SW	1.97	4.37	2.39	0.14	0	8.87
WSW	0.85	1.41	3.1	0	0.14	5.5
W	0.85	0.28	4.37	0.56	0.85	6.91
WNW	0.56	0.7	1.97	0.28	0	3.51
NW	0.28	0.42	0.42	0	0	1.12
NNW	0	0.42	1.55	0	0	1.97
Summary	23.52	46.49	22.1	0.98	0.99	94.08



Peace River Area Monitoring Program
Reno-B Station - January 2023
Summary of Hourly Averages
WIND DIRECTION (VWD) in sector

Monthly Average:		217 (SW) degree														Hours in Service:		744											
																Hours of Data:		710											
																Hours of Missing Data:		34											
																Hours of Calibration:		0											
																Operational Uptime:		95.4											
Day	Hourly Period Starting at (MST)																							Daily Average					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant			
Jan 1	SSW	SW	SW	SSW	SW	SSW	SSE	SSW	S	S	S	SSW	SW	SSW	S	S	S	S	S	S	S	S	S	S	196	SSW			
Jan 2	SSE	S	SSE	S	SSE	S	S	S	SSE	SSE	SSE	SSE	SSE	S	SSE	SE	SSE	S	S	S	S	S	SSE	SE	167	SSE			
Jan 3	S	S	SSE	SSW	SSE	S	S	SSW	SW	SSW	S	S	SW	S	S	S	S	S	S	S	S	S	S	S	185	S			
Jan 4	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	SSE	S	SSE	SE	180	S			
Jan 5	SSE	ESE	SE	ESE	ESE	ESE	ESE	E	ESE	E	E	E	ENE	ENE	E	E	ESE	W	SE	SE	SSE	S	SSE	S	105	ESE			
Jan 6	SSW	WSW	WSW	WNW	SE	SSE	SSE	SSE	SSE	S	WSW	S	S	SSW	S	S	S	S	SSE	SSE	S	S	SSE	S	177	S			
Jan 7	SSW	S	S	S	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	S	SW	E	ENE	E	161	SSE			
Jan 8	ESE	ESE	E	E	NE	NE	SE	ENE	NE	SW	ESE	ENE	NE	SW	WSW	SE	WNW	ENE	E	W	ENE	SSE	SW	SSW	91	E			
Jan 9	ENE	S	SE	S	WSW	SSW	E	SSW	SSE	SE	S	SSE	ESE	NNW	NNE	NE	ENE	ENE	ENE	ENE	NNE	NE	NNE	E	86	E			
Jan 10	NE	NE	NE	NE	NNE	NNE	NNE	N	NNE	NNE	NNE	N	NNE	NNE	NE	NNE	NW	NNE	NNE	NNE	NE	N	NE	NE	21	NNE			
Jan 11	NE	ENE	ENE	ENE	ESE	SSW	S	ESE	SE	SE	SSE	SSE	SSE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	124	ESE			
Jan 12	SE	SE	SE	ESE	X	SE	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA			
Jan 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA			
Jan 14	SSW	ESE	ESE	ESE	E	ESE	SE	E	ESE	NW	NNW	NE	SSW	NW	NE	NNE	NE	NE	NE	NE	NE	W	W	ENE	ENE	73	ENE		
Jan 15	NNE	NNE	NE	NE	WSW	SW	SW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	301	WNW			
Jan 16	N	NNE	NNE	N	X	X	X	NE	ENE	E	ESE	SSE	X	SSE	X	X	X	X	X	X	X	X	X	SSE	SSE	NA	NA		
Jan 17	S	S	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	144	SE		
Jan 18	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SW	144	SE		
Jan 19	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	SSW	207	SSW		
Jan 20	SW	SSW	SW	WSW	WSW	W	SW	SW	SW	SW	WSW	WSW	SW	SSW	SSW	SW	SSW	SW	SSW	SW	WSW	WSW	WSW	WSW	WSW	234	SW		
Jan 21	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	SSW	S	SSW	SSW	SSW	S	SSW	S	S	SSW	SW	WSW	W	W	W	SSW	234	SW		
Jan 22	WNW	NW	WNW	W	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	SSE	262	W		
Jan 23	SSE	SSE	S	S	S	SSE	S	S	SW	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	SSE	233	SW		
Jan 24	S	SSW	SW	SSW	SW	SSW	SW	SSW	SW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	S	233	SW		
Jan 25	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	SSW	SW	SW	SW	SW	SSW	S	SSE	S	S	SSW	SW	SW	WSW	W	W	SSW	223	SW		
Jan 26	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	WSW	WSW	NW	E	SSW	SW	WNW	NNW	N	N	N	SSW	286	WNW		
Jan 27	N	N	N	NNW	N	NNW	N	N	N	N	N	N	NNW	NNW	NNW	N	N	N	N	N	N	N	N	N	NNW	350	N		
Jan 28	NNW	NNW	N	NNW	NW	NW	W	WSW	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	NNW	285	WNW		
Jan 29	W	SW	SSW	SSW	S	S	SSE	SSE	S	SSE	S	SSW	SW	W	W	W	W	W	W	W	W	W	W	W	W	251	WSW		
Jan 30	NW	NW	NW	WNW	W	W	SW	S	S	SSE	SSE	SSE	SE	ESE	ESE	ESE	SE	SE	ESE	NE	NNE	N	N	N	SSW	140	SE		
Jan 31	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NE	NNE	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	8	N		
C	Monthly Calibration														S	Daily Zero-Span Check				Q	Quality Assurance								
K	Collection Error														ND	No Data (Machine Not in Service)				Y	Routine Maintenance				P	Power Failure			
X	Invalid Data (Machine Malfunction/Recovery)														NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)													

Daily Average is shown "X" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "X" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program

Reno-B Station - January 2023

Summary of Hourly Averages

VECTOR WIND SPEED (VWS) in km/hr & WIND DIRECTION (VWD) in sector

WIND SPEED
Maximum Hourly Value: 49.3 kph on January 26 at hour 0
Maximum Daily Value: 21.9 kph on January 26
Minimum Hourly Value: 0.2 kph on January 14 at hour 12
Minimum Daily Value: 2.3 kph on January 15
Monthly Average: 3.9 kph
Hours in Service: 744
Hours of Data: 710
Hours of Missing Data: 34
Hours of Calibration: 0
Operational Uptime: 95.4

WIND DIRECTION
Monthly Average: 217 degree (SW)

Main data table with columns: Day, Hourly Period Starting at (MST) [0-23], Daily Minimum, Daily Maximum, Daily Average. Rows represent hours from Jan 1 to Jan 31. Includes wind speed and direction data for each hour.

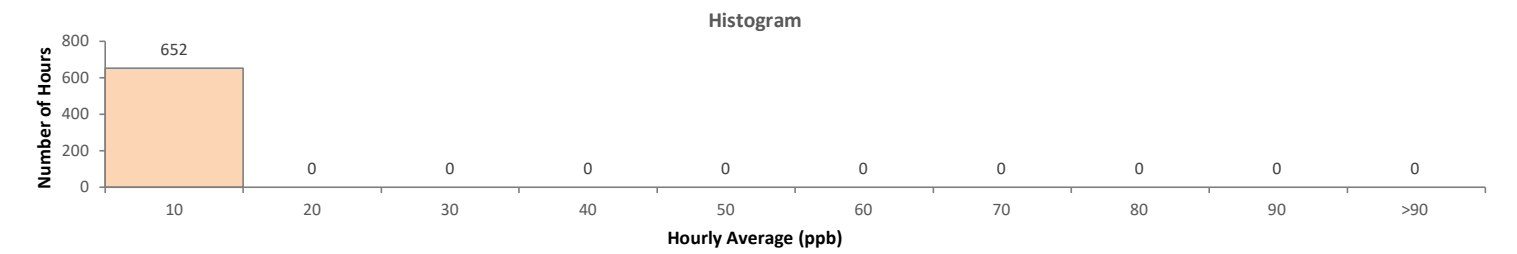
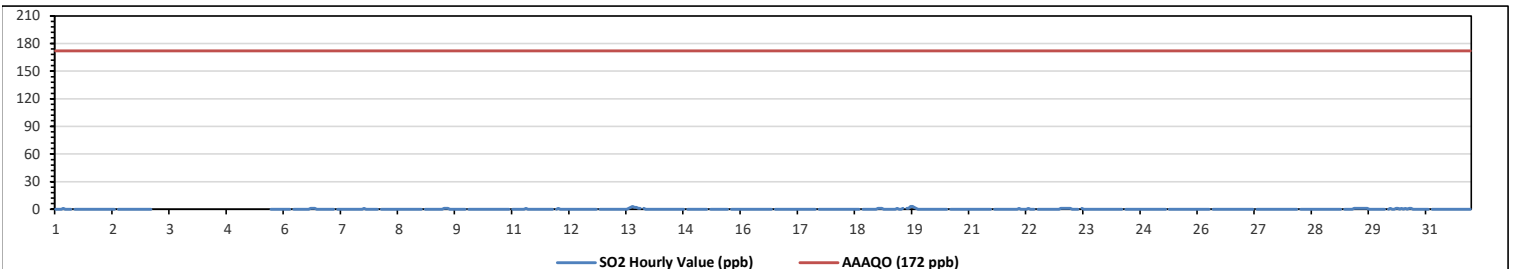
Legend table: C Monthly Calibration, K Collection Error, X InValid Data, S Daily Zero-Span Check, ND No Data, NRM Unit/Maint, Q Quality Assurance, Y Routine Maintenance, P Power Failure.

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met. Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

PRC STATION

Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages
SULPHUR DIOXIDE (SO₂) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 172 ppb, 24-Hour 48 ppb, 30-Day 11 ppb																													
Number of 1-Hour Exceedances:		0		Number of 24-Hour Exceedances:		0		30-Day Exceedance:		0																			
Maximum Hourly Value:		3 ppb		on January 13 at hour 15		Hours in Service:		744																					
Maximum Daily Value:		0.7 ppb		on January 19		Hours of Data:		652																					
Minimum Hourly Value:		0 ppb		on January 1 at hour 0		Hours of Missing Data:		59																					
Minimum Daily Value:		0.0 ppb		on January 2		Hours of Calibration:		33																					
Monthly Average:		0.1 ppb				Operational Uptime:		92.1																					
Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Jan 1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0		
Jan 2	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 3	0	0	0	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	0	0	NA			
Jan 4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-	-			
Jan 5	K	K	K	K	K	K	K	K	K	K	K	K	NRM	C	C	C	C	0	0	0	0	0	0	0	0	NA			
Jan 6	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0.1			
Jan 7	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0			
Jan 8	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 9	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0.1			
Jan 10	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0			
Jan 12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.0			
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	2	1	1	S	1	0	3	0.6				
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0.0			
Jan 15	0	0	0	0	0	0	0	NRM	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0			
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0			
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0			
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0			
Jan 19	1	1	1	0	0	0	0	0	0	0	1	0	0	1	S	1	1	3	3	2	1	0	0	3	0.7				
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 22	0	0	1	0	0	0	0	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.1			
Jan 23	1	1	1	1	1	1	0	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3			
Jan 24	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 25	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 26	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 27	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 28	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Jan 29	0	0	0	0	S	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0.3			
Jan 30	0	0	0	S	0	1	0	0	1	1	0	1	0	1	1	1	1	1	0	0	0	0	0	0	1	0.3			
Jan 31	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0			
Diurnal Maximum	1	1	1	1	1	1	0	1	1	1	1	1	1	1	2	3	2	3	3	2	1	1	0						
Diurnal Average	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0						
C	Monthly Calibration												S	Daily Zero-Span Check												Q	Quality Assurance		
K	Collection Error							ND	No Data (Machine Not in Service)							Y	Routine Maintenance			P	Power Failure								
X	Invalid Data (Equipment Malfunction /Recovery)												NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)															

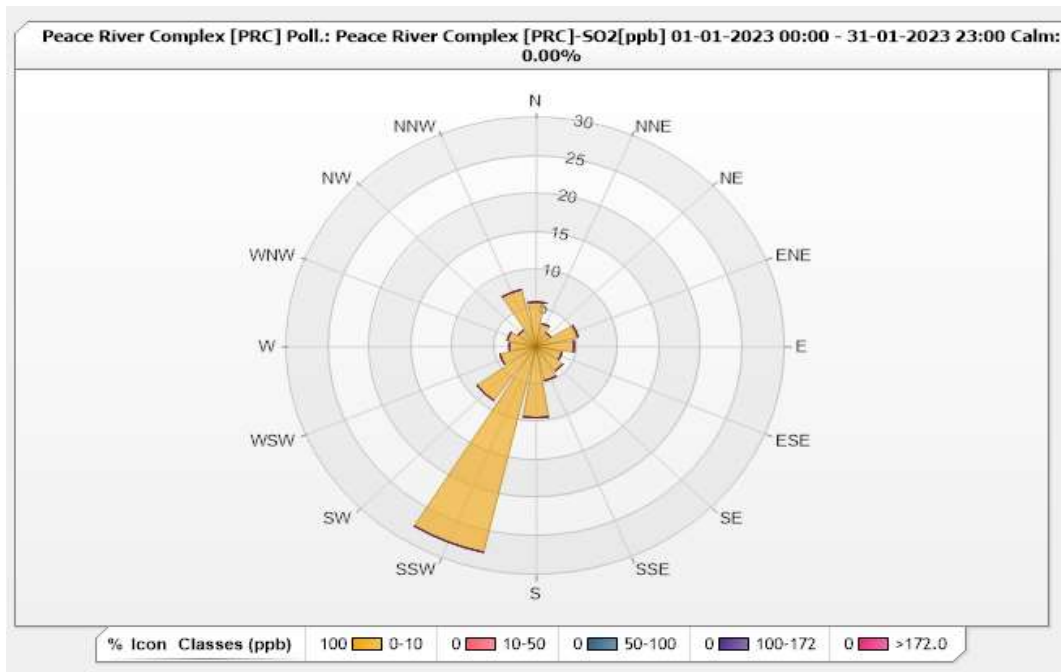


Station: Peace River Complex [PRC] Poll.: Peace River Complex [PRC]-SO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 87.63% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	5.83	0	0	0	0	5.83
NNE	3.07	0	0	0	0	3.07
NE	2.15	0	0	0	0	2.15
ENE	5.21	0	0	0	0	5.21
E	4.6	0	0	0	0	4.6
ESE	3.22	0	0	0	0	3.22
SE	3.99	0	0	0	0	3.99
SSE	4.6	0	0	0	0	4.6
S	9.36	0	0	0	0	9.36
SSW	27.76	0	0	0	0	27.76
SW	8.74	0	0	0	0	8.74
WSW	4.45	0	0	0	0	4.45
W	3.22	0	0	0	0	3.22
WNW	3.53	0	0	0	0	3.53
NW	2.61	0	0	0	0	2.61
NNW	7.67	0	0	0	0	7.67
Summary	100	0	0	0	0	100



Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages

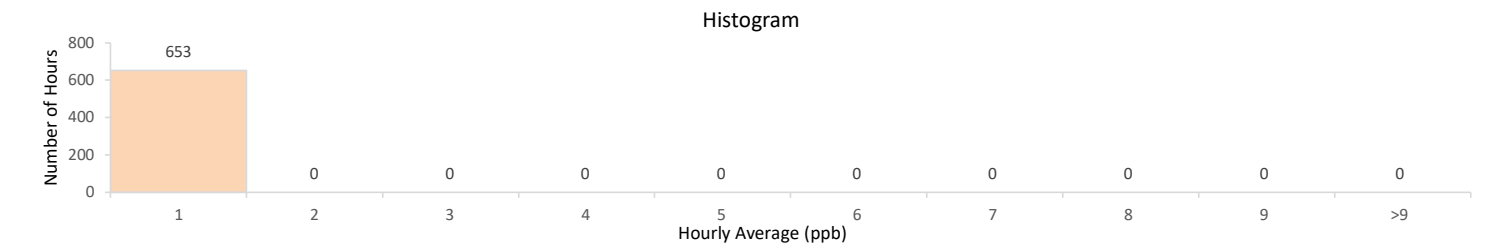
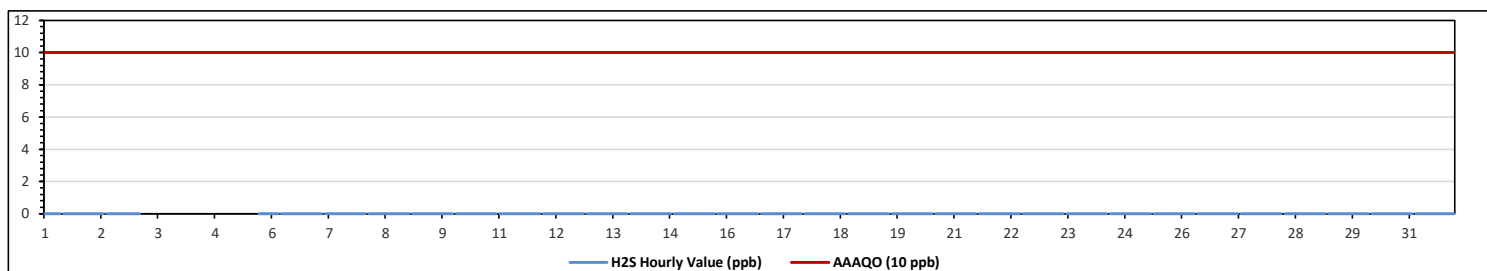
HYDROGEN SULPHIDE (H₂S) in ppb

Alberta Ambient Air Quality Objectives (AAAQO): 1-Hour 10 ppb, 24-Hour 3 ppb			
Number of 1-Hour Exceedances:	0	Number of 24-Hour Exceedances:	0
Maximum Hourly Value:	0 ppb on January 1 at hour 0	Hours in Service:	744
Maximum Daily Value:	0.0 ppb on January 1	Hours of Data:	653
Minimum Hourly Value:	0 ppb on January 1 at hour 0	Hours of Missing Data:	58
Minimum Daily Value:	0.0 ppb on January 1	Hours of Calibration:	33
Monthly Average:	0.0 ppb	Operational Uptime:	92.2

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Jan 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Diurnal Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diurnal Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X Invalid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

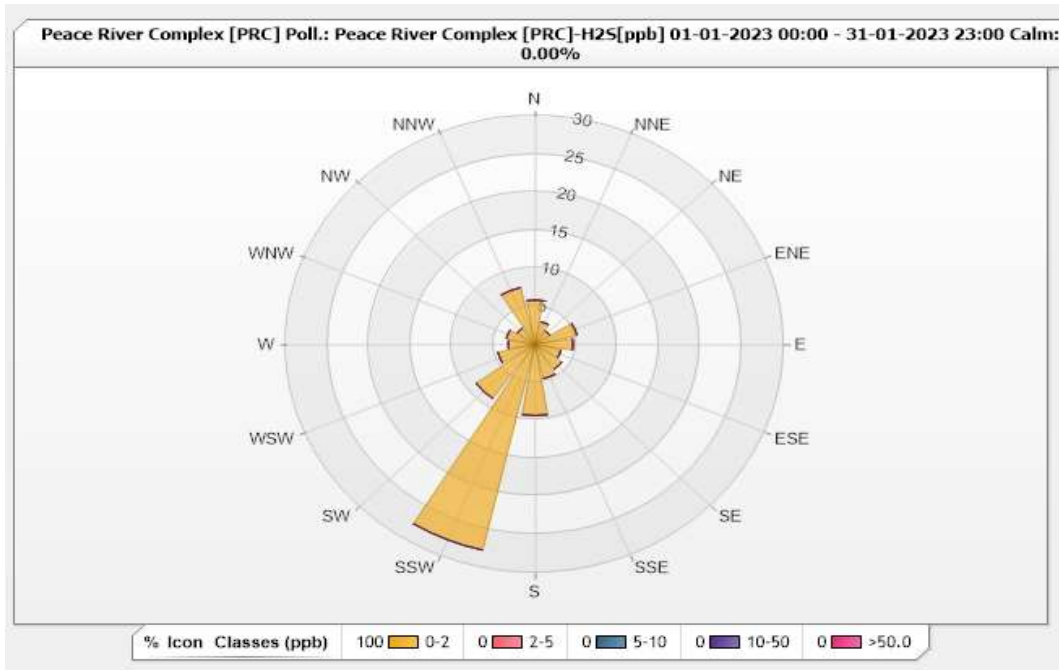


Station: Peace River Complex [PRC] Poll.: Peace River Complex [PRC]-H2S[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 87.77% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	5.82	0	0	0	0	5.82
NNE	3.06	0	0	0	0	3.06
NE	2.14	0	0	0	0	2.14
ENE	5.21	0	0	0	0	5.21
E	4.59	0	0	0	0	4.59
ESE	3.22	0	0	0	0	3.22
SE	3.98	0	0	0	0	3.98
SSE	4.59	0	0	0	0	4.59
S	9.34	0	0	0	0	9.34
SSW	27.72	0	0	0	0	27.72
SW	8.73	0	0	0	0	8.73
WSW	4.59	0	0	0	0	4.59
W	3.22	0	0	0	0	3.22
WNW	3.52	0	0	0	0	3.52
NW	2.6	0	0	0	0	2.6
NNW	7.66	0	0	0	0	7.66
Summary	100	0	0	0	0	100

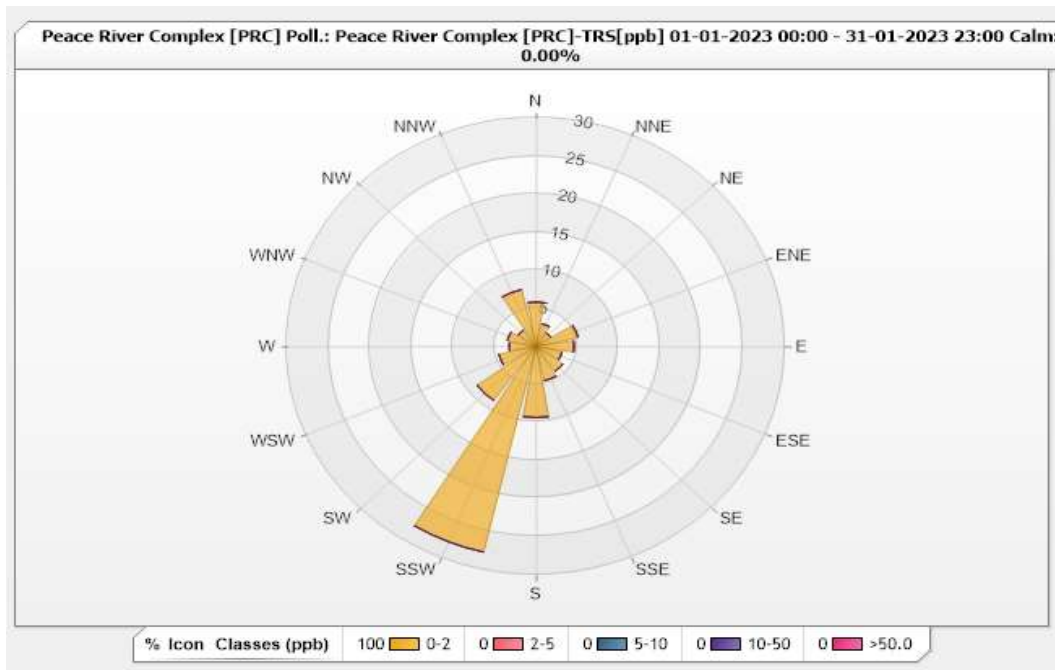


Station: Peace River Complex [PRC] Poll.: Peace River Complex [PRC]-TRS[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 87.77% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	5.82	0	0	0	0	5.82
NNE	3.06	0	0	0	0	3.06
NE	2.14	0	0	0	0	2.14
ENE	5.21	0	0	0	0	5.21
E	4.59	0	0	0	0	4.59
ESE	3.22	0	0	0	0	3.22
SE	3.98	0	0	0	0	3.98
SSE	4.59	0	0	0	0	4.59
S	9.34	0	0	0	0	9.34
SSW	27.72	0	0	0	0	27.72
SW	8.73	0	0	0	0	8.73
WSW	4.59	0	0	0	0	4.59
W	3.22	0	0	0	0	3.22
WNW	3.52	0	0	0	0	3.52
NW	2.6	0	0	0	0	2.6
NNW	7.66	0	0	0	0	7.66
Summary	100	0	0	0	0	100

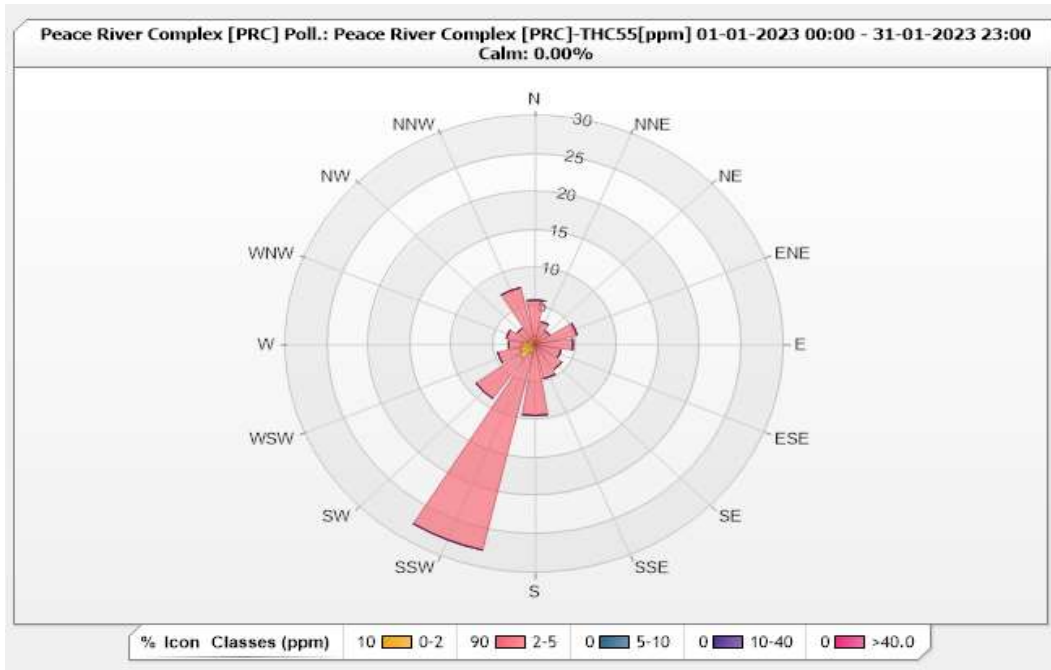


Station: Peace River Complex [PRC] Poll.: Peace River Complex [PRC]-THC55[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 87.77% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	1.07	4.75	0	0	0	5.82
NNE	0	3.06	0	0	0	3.06
NE	0	2.14	0	0	0	2.14
ENE	0	5.21	0	0	0	5.21
E	0	4.59	0	0	0	4.59
ESE	0	3.22	0	0	0	3.22
SE	0	3.98	0	0	0	3.98
SSE	0	4.59	0	0	0	4.59
S	0.15	9.19	0	0	0	9.34
SSW	1.23	26.49	0	0	0	27.72
SW	2.3	6.43	0	0	0	8.73
WSW	1.84	2.76	0	0	0	4.6
W	1.53	1.68	0	0	0	3.21
WNW	0.92	2.6	0	0	0	3.52
NW	0.92	1.68	0	0	0	2.6
NNW	0	7.66	0	0	0	7.66
Summary	9.96	90.03	0	0	0	100

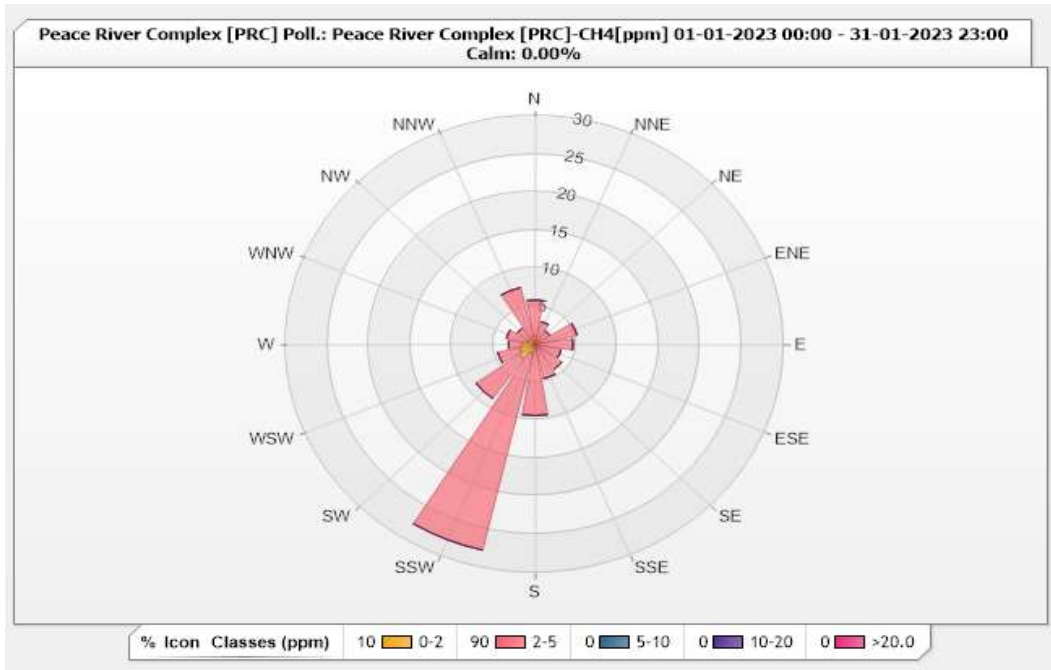


Station: Peace River Complex [PRC] Poll.: Peace River Complex [PRC]-CH4[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 87.77% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	1.07	4.75	0	0	0	5.82
NNE	0	3.06	0	0	0	3.06
NE	0	2.14	0	0	0	2.14
ENE	0	5.21	0	0	0	5.21
E	0	4.59	0	0	0	4.59
ESE	0	3.22	0	0	0	3.22
SE	0	3.98	0	0	0	3.98
SSE	0	4.59	0	0	0	4.59
S	0.15	9.19	0	0	0	9.34
SSW	1.23	26.49	0	0	0	27.72
SW	2.3	6.43	0	0	0	8.73
WSW	1.84	2.76	0	0	0	4.6
W	1.53	1.68	0	0	0	3.21
WNW	0.92	2.6	0	0	0	3.52
NW	0.92	1.68	0	0	0	2.6
NNW	0	7.66	0	0	0	7.66
Summary	9.96	90.03	0	0	0	100



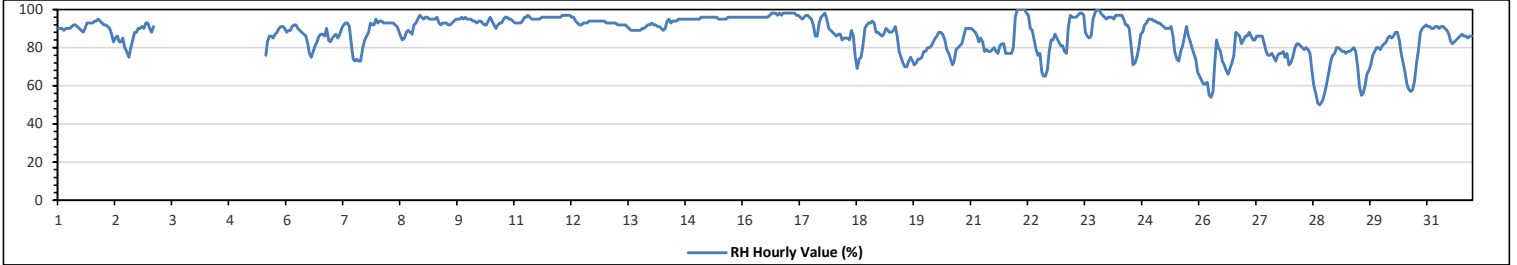
Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	100 %	on January 22 at hour 0	Hours in Service:	744
Maximum Daily Value:	96.7 %	on January 16	Hours of Data:	686
Minimum Hourly Value:	50 %	on January 28 at hour 15	Hours of Missing Data:	58
Minimum Daily Value:	69.5 %	on January 28	Hours of Calibration:	0
Monthly Average:	86.8 %		Operational Uptime:	92.2

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23
Jan 1	90	90	90	89	90	90	91	90	92	91	90	89	88	90	93	93	93	93	94	94	95	94	93	88	95	91.4	
Jan 2	92	92	91	90	87	83	85	86	83	83	85	80	78	75	80	84	88	88	90	91	90	93	93	75	93	86.5	
Jan 3	90	88	91	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	NA	
Jan 4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	NA	
Jan 5	K	K	K	K	K	K	K	K	K	K	K	K	NRM	76	83	86	86	85	87	88	90	91	91	90	76	91	NA
Jan 6	88	89	89	91	92	92	90	89	88	87	86	82	77	75	78	81	83	86	87	87	86	90	84	83	75	92	85.8
Jan 7	85	86	87	85	87	90	92	93	93	91	82	74	73	74	73	80	84	86	88	93	92	92	95	73	95	85.3	
Jan 8	93	94	94	93	93	93	93	93	93	92	91	89	86	84	85	88	89	88	87	92	93	95	97	96	84	97	91.3
Jan 9	95	96	96	95	95	95	95	96	93	92	93	93	93	92	92	93	94	95	95	95	96	95	96	95	92	96	94.4
Jan 10	95	95	94	94	93	94	94	93	92	92	94	96	94	92	90	92	93	93	95	96	96	95	95	94	90	96	93.8
Jan 11	93	93	93	93	94	96	96	97	96	95	95	95	95	95	96	96	96	96	96	96	96	96	96	96	93	97	95.3
Jan 12	96	97	97	97	97	97	96	96	94	93	92	92	93	93	93	94	94	94	94	94	94	94	94	94	92	97	94.5
Jan 13	93	93	93	93	93	92	92	92	92	92	91	90	89	89	89	89	89	89	89	90	90	91	92	92	89	93	91.2
Jan 14	93	92	92	91	91	90	89	90	94	95	93	94	94	94	95	95	95	95	95	95	95	95	95	95	89	95	93.4
Jan 15	95	95	96	96	96	96	96	96	96	96	96	95	95	95	95	95	96	96	96	96	96	96	96	96	95	96	95.7
Jan 16	96	96	96	96	96	96	96	96	96	96	96	96	96	96	97	98	98	98	97	98	97	98	98	98	96	98	96.7
Jan 17	98	98	98	98	97	97	96	95	96	97	97	96	95	92	86	86	93	96	97	98	95	90	89	88	86	98	94.5
Jan 18	87	86	87	87	84	85	85	85	84	89	86	75	69	74	75	81	90	92	93	93	94	93	88	88	69	94	85.4
Jan 19	87	86	87	90	89	88	88	89	91	86	78	75	72	70	70	73	75	73	71	72	74	74	75	78	70	91	79.6
Jan 20	78	80	80	81	83	85	86	88	88	87	84	79	77	74	71	73	79	80	81	82	86	90	90	90	71	90	82.2
Jan 21	90	89	88	86	83	85	83	78	79	78	78	79	80	78	77	81	82	82	77	77	77	77	80	96	77	96	81.7
Jan 22	100	100	100	100	100	98	97	90	89	84	79	76	77	67	65	65	68	78	84	84	87	85	83	81	65	100	84.9
Jan 23	81	78	77	91	97	96	96	96	97	98	98	97	88	86	85	86	95	98	100	100	98	97	96	95	77	100	92.8
Jan 24	96	96	96	95	97	97	97	97	95	92	92	90	81	71	72	75	80	87	88	92	93	95	95	95	71	97	90.2
Jan 25	94	94	93	93	92	91	90	90	90	91	86	78	74	73	78	81	86	91	86	83	80	77	74	67	67	94	84.7
Jan 26	65	63	61	61	62	55	54	57	71	84	80	78	73	71	68	66	69	72	76	88	87	86	82	84	54	88	71.4
Jan 27	86	86	88	86	84	84	86	86	86	86	82	78	76	76	77	75	73	76	77	77	78	75	77	71	71	88	80.3
Jan 28	72	75	80	82	82	81	80	79	80	79	68	60	56	51	50	51	53	57	62	67	73	76	77	50	82	69.5	
Jan 29	80	80	79	78	78	77	78	78	79	80	78	70	59	55	56	60	66	68	71	76	78	80	80	79	55	80	73.5
Jan 30	81	82	83	85	86	85	86	88	88	84	77	72	67	61	58	57	58	63	72	79	88	90	91	92	57	92	78.0
Jan 31	91	91	90	90	91	91	90	91	91	90	89	87	83	82	83	84	85	86	87	86	86	85	86	86	82	91	87.5
Diurnal Maximum	100	100	100	100	100	98	97	97	97	98	98	97	96	96	97	98	98	98	100	100	98	98	98	98	98	98	98
Diurnal Average	89.0	89.0	89.2	89.5	89.6	89.3	89.1	89.1	89.5	89.3	87.4	84.5	81.6	79.4	79.6	81.0	83.6	85.3	86.3	87.9	88.8	89.0	88.8	88.9	88.9	88.9	

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



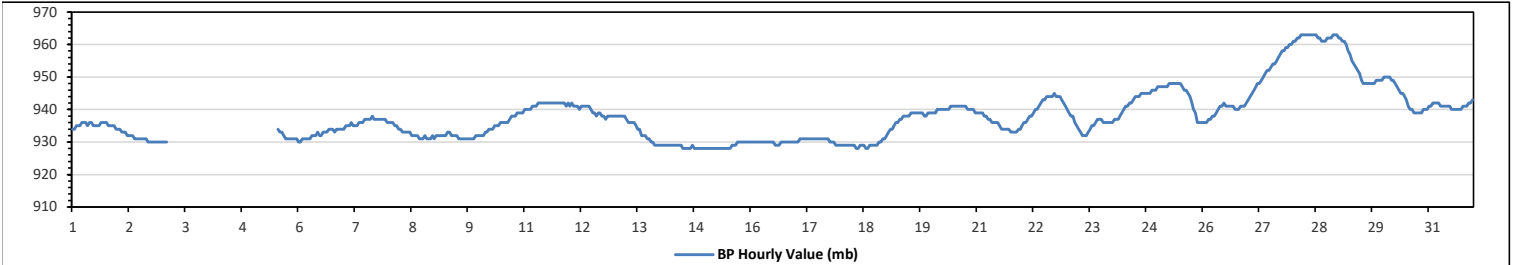
Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages
BAROMETRIC PRESSURE (BP) in millibar

Maximum Hourly Value:	963	mb	on January 28 at hour 4	Hours in Service:	744
Maximum Daily Value:	962	mb	on January 28	Hours of Data:	686
Minimum Hourly Value:	928	mb	on January 14 at hour 12	Hours of Missing Data:	58
Minimum Daily Value:	929	mb	on January 14	Hours of Calibration:	0
Monthly Average:	938	mb		Operational Uptime:	92.2

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	934	934	935	935	935	936	936	936	935	936	936	935	935	935	935	936	936	936	936	935	935	935	935	934	934	936	935	
Jan 2	934	934	933	933	933	932	932	932	932	931	931	931	931	931	931	931	930	930	930	930	930	930	930	930	930	930	934	931
Jan 3	930	930	930	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	930	930	
Jan 4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	NA	
Jan 5	K	K	K	K	K	K	K	K	K	K	K	K	NRM	934	933	933	932	931	931	931	931	931	931	931	931	931	934	NA
Jan 6	930	930	931	931	931	931	931	932	932	932	933	932	932	933	933	933	934	934	934	933	934	934	934	934	934	930	932	
Jan 7	934	935	935	935	936	935	935	935	936	936	936	937	937	937	937	938	937	937	937	937	937	937	937	937	936	934	936	
Jan 8	936	936	936	935	935	934	934	933	933	933	933	933	932	932	932	932	931	931	931	931	932	931	931	932	932	931	933	
Jan 9	931	932	932	932	932	932	932	933	933	933	932	932	932	931	931	931	931	931	931	931	931	931	931	931	932	932	932	
Jan 10	932	932	932	933	933	934	934	934	935	935	935	936	936	936	936	936	937	938	938	938	939	939	939	939	939	932	936	
Jan 11	940	940	940	940	941	941	941	942	942	942	942	942	942	942	942	942	942	942	942	942	942	941	941	942	942	942	942	
Jan 12	941	942	941	941	941	940	941	941	941	941	941	940	939	939	938	939	939	938	938	937	938	938	938	938	938	937	940	
Jan 13	938	938	938	938	938	938	937	936	936	936	936	935	934	934	932	932	932	931	931	930	930	929	929	929	929	929	934	
Jan 14	929	929	929	929	929	929	929	929	929	929	929	929	929	928	928	928	928	928	929	928	928	928	928	928	928	928	929	
Jan 15	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	929	929	929	930	930	930	930	930	930	930	929	929	
Jan 16	930	930	930	930	930	930	930	930	930	930	930	930	930	929	929	929	930	930	930	930	930	930	930	930	930	929	930	
Jan 17	930	930	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	930	930	929	929	929	929	929	929	931	
Jan 18	929	929	929	929	929	929	929	929	929	929	929	929	929	928	928	929	929	929	929	929	930	930	931	931	931	928	929	
Jan 19	932	933	934	934	935	936	936	937	937	938	938	938	938	939	939	939	939	939	939	939	938	938	939	939	939	932	937	
Jan 20	939	939	939	940	940	940	940	940	940	940	941	941	941	941	941	941	941	941	941	940	940	940	940	940	939	939	940	
Jan 21	939	939	939	939	938	938	937	937	936	936	936	935	934	934	934	934	934	934	933	933	933	933	934	934	933	939	936	
Jan 22	935	936	936	937	938	938	939	940	940	941	942	943	943	944	944	944	944	945	944	944	944	943	942	941	935	945	941	
Jan 23	940	939	938	938	936	935	934	933	932	932	932	933	934	935	935	936	937	937	937	936	936	936	936	936	932	940	936	
Jan 24	936	937	937	937	938	939	940	941	941	942	942	943	944	944	944	945	945	945	945	945	945	946	946	946	936	946	942	
Jan 25	947	947	947	947	947	948	948	948	948	948	948	948	947	946	946	945	944	942	940	939	936	936	936	936	936	948	945	
Jan 26	936	936	936	937	937	938	938	939	940	941	942	941	941	941	941	941	940	940	940	941	941	941	942	942	936	942	940	
Jan 27	943	944	945	946	947	948	948	949	950	951	952	952	953	954	954	955	956	957	958	958	959	959	960	960	943	960	952	
Jan 28	961	961	962	962	963	963	963	963	963	963	963	963	963	962	962	961	961	961	962	962	962	963	963	963	961	963	962	
Jan 29	962	962	961	961	960	958	957	955	954	953	952	951	949	948	948	948	948	948	948	948	949	949	949	949	948	962	953	
Jan 30	950	950	950	950	949	949	948	947	946	945	945	944	943	941	940	940	939	939	939	939	939	940	940	940	939	950	944	
Jan 31	941	941	942	942	942	941	941	941	941	941	941	941	940	940	940	940	940	941	941	941	941	942	942	943	940	943	941	
Diurnal Maximum	962	962	962	962	963	963	963	963	963	963	963	963	963	962	962	961	961	962	962	962	963	963	963	963	963	963	963	
Diurnal Average	937	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	

C	Monthly Calibration	S	Daily Zero-Span Check	Q	Quality Assurance
K	Collection Error	ND	No Data (Machine Not in Service)	Y	Routine Maintenance
X	InValid Data (Equipment Malfunction /Recovery)	NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P	Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages

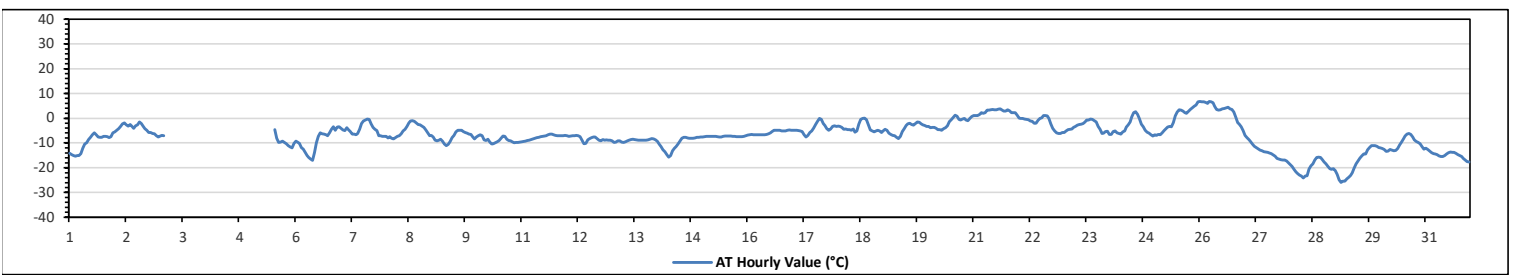
AMBIENT TEMPERATURE (AT) in Degree Celsius

Maximum Hourly Value:	6.8 °C	on January 26 at hour 0	Hours in Service:	744
Maximum Daily Value:	3.4 °C	on January 26	Hours of Data:	686
Minimum Hourly Value:	-25.9 °C	on January 29 at hour 3	Hours of Missing Data:	58
Minimum Daily Value:	-19.9 °C	on January 28	Hours of Calibration:	0
Monthly Average:	-6.9 °C		Operational Uptime:	92.2

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	-14.2	-14.7	-15	-15.3	-15	-15.1	-14.3	-12.2	-10.5	-9.9	-8.6	-7.7	-6.6	-6	-6.6	-7.6	-7.8	-7.7	-7.4	-7.3	-7.5	-7.9	-7.5	-6	-15.3	-6.0	-9.9	
Jan 2	-5.6	-4.8	-4.2	-3.3	-2.3	-1.9	-2.7	-3.2	-2.6	-3.2	-4.1	-3.1	-2.7	-1.5	-2.1	-3.4	-4.2	-4.9	-5.8	-5.8	-6.2	-6.3	-7	-7.6	-7.6	-1.5	-4.1	
Jan 3	-7.2	-6.9	-7.1	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-7.2	-6.9	NA
Jan 4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-	-
Jan 5	K	K	K	K	K	K	K	K	K	K	K	K	NRM	-4.6	-8.1	-9.8	-9.7	-9.3	-9.8	-10.3	-11.1	-11.6	-12	-10.2	-12.0	-4.6	NA	
Jan 6	-9.2	-9.6	-10.2	-11.9	-12.5	-13.8	-15.1	-15.9	-16.5	-17.1	-13.9	-9.9	-7.3	-6	-6.3	-6.4	-6.6	-7.1	-6	-4.4	-3.5	-4.9	-3.6	-3.5	-17.1	-3.5	-9.2	
Jan 7	-4.1	-4.7	-5	-3.9	-4.6	-5.4	-6.4	-6.4	-6.7	-6.2	-4.5	-2.1	-1.2	-0.8	-0.4	-0.5	-2.2	-3.8	-4.4	-5	-7	-7	-7.4	-7.4	-7.4	-0.4	-4.5	
Jan 8	-7.4	-8	-7.5	-8.1	-8.4	-7.9	-7.3	-7.1	-6.3	-5.2	-4.5	-3.3	-1.9	-1.1	-1	-1.3	-1.9	-2.5	-2.7	-3.2	-3.7	-4.7	-5.9	-7	-8.4	-1.0	-4.9	
Jan 9	-6.9	-7.6	-8.9	-9.1	-8.9	-8.5	-9.3	-10.5	-11	-10.6	-9.4	-7.9	-6.9	-5.5	-4.9	-4.8	-4.9	-5.4	-5.8	-6.1	-6.4	-6.5	-7.5	-8.4	-11.0	-4.8	-7.6	
Jan 10	-7.6	-7	-6.7	-7	-8.7	-9	-8.5	-9.7	-10.5	-10.3	-10	-9.5	-9	-8.2	-7.2	-7.3	-8.5	-9	-9.1	-9.5	-9.9	-9.8	-9.8	-9.6	-10.5	-6.7	-8.8	
Jan 11	-9.5	-9.4	-9.2	-9	-8.9	-8.6	-8.4	-8.1	-7.9	-7.7	-7.5	-7.4	-7.2	-7	-6.7	-6.4	-6.4	-6.7	-6.9	-7	-7.1	-7	-7	-6.9	-9.5	-6.4	-7.7	
Jan 12	-7	-7.3	-7.2	-7.1	-7	-6.9	-7.1	-7.5	-8.9	-10.4	-10.2	-8.7	-8.3	-7.9	-7.6	-7.6	-8.3	-8.9	-9.1	-8.6	-8.9	-8.7	-8.8	-8.9	-10.4	-6.9	-8.2	
Jan 13	-9.1	-9.8	-9.6	-9.1	-9.1	-9.6	-9.8	-9.5	-9.1	-8.8	-8.6	-8.6	-8.7	-8.8	-8.9	-8.8	-8.8	-8.8	-8.8	-8.7	-8.5	-8.3	-8.4	-8.7	-9.8	-8.3	-8.9	
Jan 14	-9.4	-10.5	-11.4	-12.8	-13.5	-14.7	-15.7	-15.1	-13.1	-12.2	-11.4	-10.5	-9.2	-8.2	-7.8	-7.8	-8	-8.2	-8.2	-8.1	-8	-7.8	-7.7	-7.6	-15.7	-7.6	-10.3	
Jan 15	-7.6	-7.5	-7.4	-7.4	-7.3	-7.3	-7.3	-7.3	-7.5	-7.6	-7.6	-7.4	-7.2	-7.2	-7.2	-7.2	-7.3	-7.4	-7.5	-7.5	-7.5	-7.3	-7	-7	-7.6	-7.0	-7.4	
Jan 16	-6.8	-6.6	-6.5	-6.6	-6.6	-6.6	-6.7	-6.7	-6.7	-6.6	-6.5	-6.3	-5.9	-5.4	-4.9	-4.8	-4.8	-4.9	-5.2	-5.1	-5.2	-4.9	-4.7	-4.8	-6.8	-4.7	-5.8	
Jan 17	-4.8	-4.9	-4.9	-5	-5.2	-5.4	-6.7	-7.6	-6.9	-5.8	-5.1	-4	-2.5	-1.3	-0.1	-0.5	-2.1	-3	-4.2	-4.9	-4.3	-3.4	-3.1	-3.3	-7.6	-0.1	-4.1	
Jan 18	-3.2	-3.3	-3.8	-4.4	-4.3	-4.6	-4.6	-4.8	-4.3	-5.7	-5.2	-2.4	-0.5	-0.1	0.1	-0.6	-2.7	-4.7	-5.1	-5.5	-5.2	-4.9	-5.1	-5.8	-5.8	0.1	-3.8	
Jan 19	-5.2	-4.4	-4.9	-6.1	-6.5	-6.9	-7.1	-7.7	-8.3	-7.4	-5.4	-4.2	-2.9	-2.2	-2	-2.5	-2.8	-2.1	-1.6	-1.7	-2.3	-2.7	-3	-3.3	-8.3	-1.6	-4.3	
Jan 20	-3.4	-3.9	-3.7	-3.8	-4.1	-4.6	-4.6	-4.8	-4.2	-3.9	-3.1	-1.4	-0.6	0.3	1.2	0.8	-0.5	-0.7	-0.4	0	-0.7	-1	0	0.6	-4.8	1.2	-1.9	
Jan 21	1	1.1	1.1	1.4	2.2	2	2.2	3.3	3.2	3.4	3.5	3.4	3.4	3.4	3.7	3.8	3.3	2.9	3.4	3	2.3	2.3	2.2	1.2	1.0	3.8	2.6	
Jan 22	0.1	0	0	-0.3	-0.5	-0.6	-1.1	-1.3	-2	-2	-0.9	0	0.2	1.1	1.1	0.9	-0.1	-2.2	-4.1	-5.1	-6	-6.2	-6.2	-5.8	-6.2	1.1	-1.7	
Jan 23	-5.8	-5.1	-4.6	-4.4	-4.3	-3.8	-3.3	-2.8	-2.6	-2.4	-2.1	-1.6	-0.8	-0.7	-0.3	-0.5	-1	-1.6	-3.4	-4.5	-6.2	-6.1	-5.4	-5.3	-6.2	-0.3	-3.3	
Jan 24	-6.5	-6.5	-5.4	-5.2	-6	-6.2	-6.4	-5.6	-5.1	-3.6	-2.7	-1.6	0.5	2.2	2.6	1.6	-0.2	-2.4	-3.5	-4.8	-5.7	-6.1	-6.7	-7.2	-7.2	2.6	-3.8	
Jan 25	-6.6	-6.9	-6.5	-6.6	-5.9	-5	-4.2	-3.6	-3.4	-3.5	-1.8	0.9	2.5	3.4	3.2	2.8	2.3	2	2.7	3.5	4.2	4.8	5.3	6.6	-6.9	6.6	-0.4	
Jan 26	6.8	6.7	6.7	6.4	6	6.8	6.7	6.2	4.8	3.5	3.3	3.4	3.8	3.9	4.2	4.5	3.8	3.5	2.5	0.4	-1.8	-2.4	-3.5	-5	-5.0	6.8	3.4	
Jan 27	-6.9	-7.9	-8.6	-9.4	-10.5	-11.3	-11.9	-12.4	-12.9	-13.1	-13.5	-13.6	-13.8	-14.1	-14.3	-14.9	-15.3	-16.2	-16.5	-16.8	-17	-16.9	-17.2	-18.1	-18.1	-6.9	-13.5	
Jan 28	-18.7	-19.5	-20.6	-21.6	-22.3	-23	-23.4	-24.1	-23.4	-23.3	-20.5	-19.3	-18.5	-17	-15.9	-15.7	-15.9	-16.7	-17.7	-18.5	-19.4	-20.4	-20.6	-20.4	-24.1	-15.7	-19.9	
Jan 29	-21.2	-22.7	-24.9	-25.9	-25.5	-25.4	-24.5	-23.8	-23.1	-22	-20.1	-18.4	-17.3	-16.1	-15.2	-14.5	-14.4	-12.8	-11.9	-11.1	-11	-11.1	-11.3	-11.8	-25.9	-11.0	-18.2	
Jan 30	-12	-12.3	-12.7	-13.4	-13.3	-12.7	-12.9	-13.1	-13	-12.3	-10.8	-9.6	-8.4	-7.2	-6.4	-6.2	-6.5	-7.6	-8.7	-9.4	-9.8	-10.4	-11.4	-12.5	-13.4	-6.2	-10.5	
Jan 31	-12.1	-12.7	-13.2	-13.9	-14.3	-14.4	-14.8	-15.2	-15.4	-15.4	-15	-14.5	-13.9	-13.6	-13.8	-13.8	-14.2	-14.7	-15.1	-15.5	-16.2	-16.9	-17.5	-17.7	-17.7	-12.1	-14.7	
Diurnal Maximum	6.8	6.7	6.7	6.4	6.0	6.8	6.7	6.2	4.8	3.5	3.5	3.4	3.8	3.9	4.2	4.5	3.8	3.5	3.4	3.5	4.2	4.8	5.3	6.6				
Diurnal Average	-7.2	-7.5	-7.7	-8.0	-8.1	-8.2	-8.4	-8.4	-8.4	-8.2	-7.4	-6.3	-5.4	-4.7	-4.5	-4.8	-5.4	-5.9	-6.2	-6.5	-6.9	-7.0	-7.2	-7.3				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

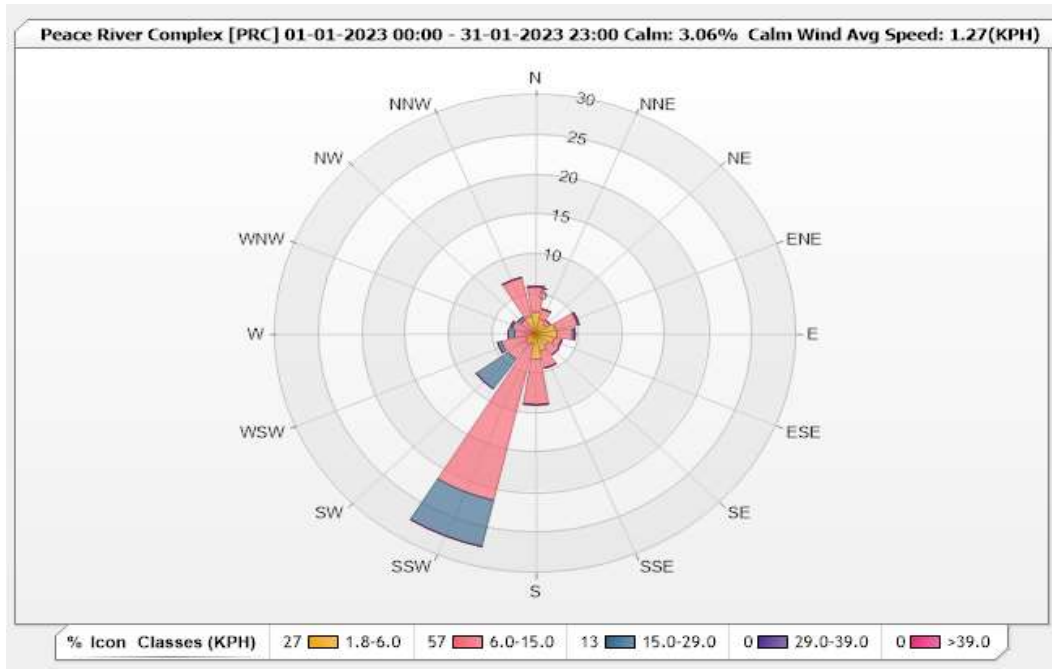


Station: Peace River Complex [PRC] Monitor: WDS [KPH] Monthly: 01-2023

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

Calm (WS<1.8kph): 3.06% Valid Data: 92.20%

Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.77	3.21	0	0	0	5.98
NNE	1.9	1.31	0	0	0	3.21
NE	1.46	0.58	0	0	0	2.04
ENE	2.33	2.62	0.15	0	0	5.1
E	2.48	1.75	0.29	0	0	4.52
ESE	2.19	0.87	0	0	0	3.06
SE	1.75	1.46	0	0	0	3.21
SSE	2.19	2.19	0	0	0	4.38
S	3.21	5.69	0	0	0	8.9
SSW	1.31	20.12	5.98	0	0	27.41
SW	1.46	2.48	4.52	0	0	8.46
WSW	1.17	2.92	0.44	0	0	4.53
W	0.44	2.04	0.73	0	0	3.21
WNW	0.15	2.62	0.29	0	0	3.06
NW	0.29	1.9	0.44	0	0	2.63
NNW	2.33	4.96	0	0	0	7.29
Summary	27.43	56.72	12.84	0	0	96.99



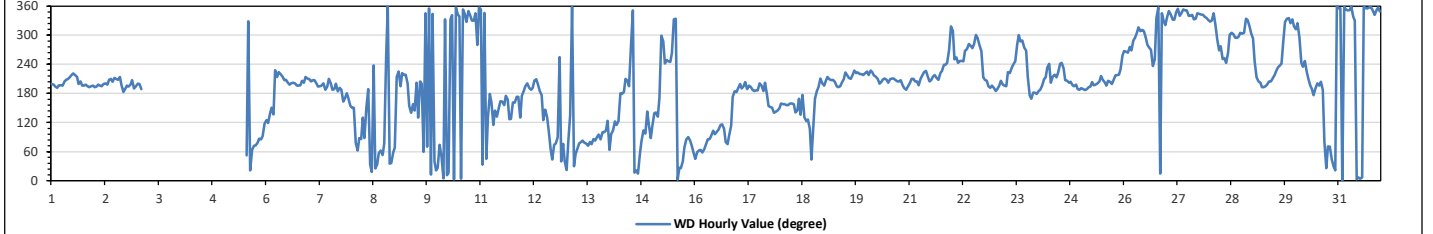
Peace River Area Monitoring Program
Peace River Complex (PRC) Station - January 2023
Summary of Hourly Averages

WIND DIRECTION (VWD) in sector

Monthly Average:		215 (SSW) degree																		Hours in Service:		744				
																				Hours of Data:		686				
																				Hours of Missing Data:		58				
																				Hours of Calibration:		0				
																				Operational Uptime:		92.2				
Day	Hourly Period Starting at (MST)																							Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant
Jan 1	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	203	SSW
Jan 2	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	S	SSW	200	SSW
Jan 3	SSW	SSW	S	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	NA	NA
Jan 4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	-	-
Jan 5	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	NA	NA
Jan 6	SE	ESE	SE	SSE	SE	SW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	196	SSW
Jan 7	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	S	S	SSW	S	S	SSE	SSE	S	SSE	SSE	SSE	194	SSW
Jan 8	SSE	SSE	ENE	ENE	E	E	SE	E	SSE	S	NNE	NNE	SW	NNE	NE	ENE	ENE	NE	ENE	WSW	N	NE	NE	ENE	72	ENE
Jan 9	ENE	SSW	SW	SSW	SW	SW	SW	SSW	SSE	SE	SSE	SE	SSW	SE	SSW	SSW	ENE	NNW	ENE	N	NNE	NNW	NE	NNE	186	S
Jan 10	NNE	ENE	NE	N	NNW	NNE	NNE	NNW	NNW	N	N	NNW	NNW	N	N	NNW	NW	N	NNW	NNW	NNW	NNW	NW	N	359	N
Jan 11	N	NNE	NNW	NE	SE	S	SSE	ESE	SE	SE	SSE	SSE	SSE	SSE	S	SSE	SE	SE	SSE	SSE	S	S	SE	S	150	SSE
Jan 12	S	SSW	SSW	S	S	S	SSW	SSW	SSW	S	S	SE	SE	SE	SE	ESE	ENE	NE	ENE	E	WSW	NE	ENE	NE	172	S
Jan 13	NNE	ENE	SE	N	NNE	NE	ENE	ENE	E	E	ENE	ENE	ENE	E	ENE	E	E	E	E	E	E	ESE	ESE	ESE	79	ENE
Jan 14	ENE	E	ESE	ESE	ESE	ESE	S	S	SSW	SSW	SSW	W	N	NNE	NNE	NE	E	ESE	E	ESE	E	SE	ESE	E	110	ESE
Jan 15	ESE	SE	SE	SE	S	WNNW	WNNW	WSW	WSW	WSW	WSW	W	NNW	NNW	N	NNE	NNE	NE	ENE	E	E	E	ENE	ENE	62	ENE
Jan 16	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	ESE	E	E	ESE	E	E	ESE	ESE	ESE	E	ENE	E	ESE	S	S	89	E
Jan 17	S	SSW	S	SSW	SSW	S	SSW	S	S	S	S	S	S	SSW	SSW	S	SSW	S	SSE	SSE	SSE	SE	SE	SSE	176	S
Jan 18	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	ESE	NE	ESE	SSE	S	S	SSW	159	SSE
Jan 19	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	212	SSW
Jan 20	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	209	SSW
Jan 21	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	219	SSW
Jan 22	NW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	250	WSW
Jan 23	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	220	SSW
Jan 24	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	209	SSW
Jan 25	S	S	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	208	SSW
Jan 26	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	292	W
Jan 27	NNW	N	NNW	NNW	NNW	NNW	N	NNW	NNW	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	342	NNW
Jan 28	NNW	NNW	NNW	NW	WNNW	W	W	WSW	WSW	WSW	W	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	WNNW	NW	WNNW	298	WNNW
Jan 29	WNNW	WSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	231	SSW
Jan 30	NW	NW	WNNW	WSW	WSW	WSW	WSW	SSW	SSW	S	S	S	SSW	SSW	SSW	S	E	NNE	ENE	ENE	NE	NNE	NNE	N	221	SSW
Jan 31	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	355	N

C Monthly Calibration **S** Daily Zero-Span Check **Q** Quality Assurance
K Collection Error **ND** No Data (Machine Not in Service) **Y** Routine Maintenance
X InValid Data (Machine Malfunction/Recovery) **NRM** UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance) **P** Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.



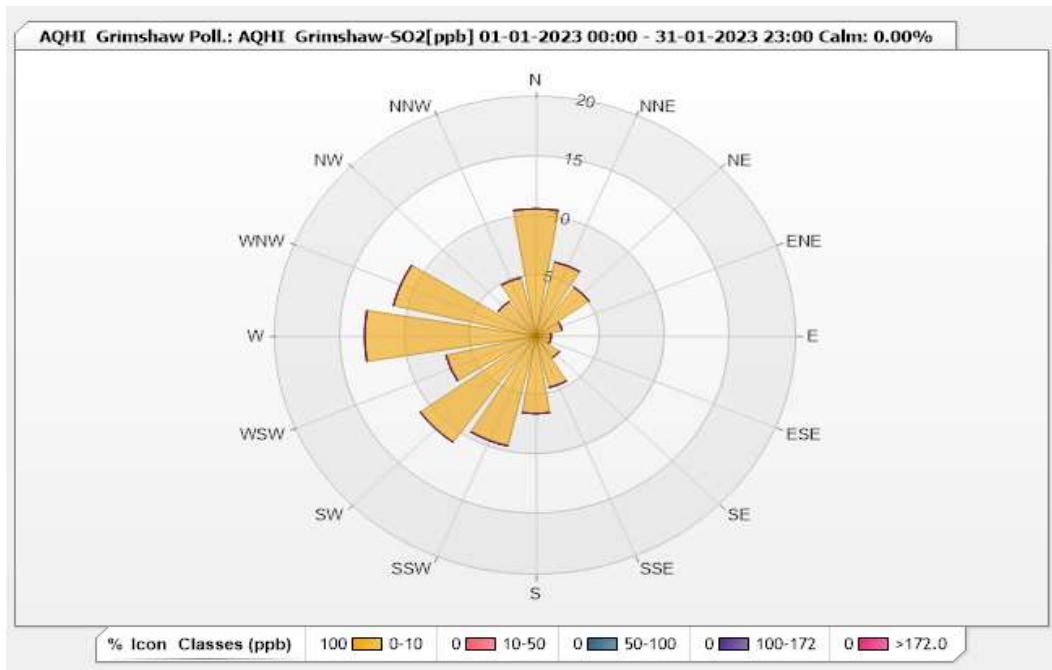
AQHI GRIMSHAW STATION

Station: AQHI Grimshaw Poll.: AQHI Grimshaw-SO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.99% Calm Avg: 0.00 [ppm]

Direction	0-10	10-50	50-100	100-172	>172.0	Total
N	10.64	0	0	0	0	10.64
NNE	6.35	0	0	0	0	6.35
NE	5.02	0	0	0	0	5.02
ENE	2.07	0	0	0	0	2.07
E	1.18	0	0	0	0	1.18
ESE	1.18	0	0	0	0	1.18
SE	2.22	0	0	0	0	2.22
SSE	4.43	0	0	0	0	4.43
S	6.5	0	0	0	0	6.5
SSW	9.45	0	0	0	0	9.45
SW	10.93	0	0	0	0	10.93
WSW	7.09	0	0	0	0	7.09
W	13.15	0	0	0	0	13.15
WNW	11.23	0	0	0	0	11.23
NW	3.55	0	0	0	0	3.55
NNW	5.02	0	0	0	0	5.02
Summary	100	0	0	0	0	100

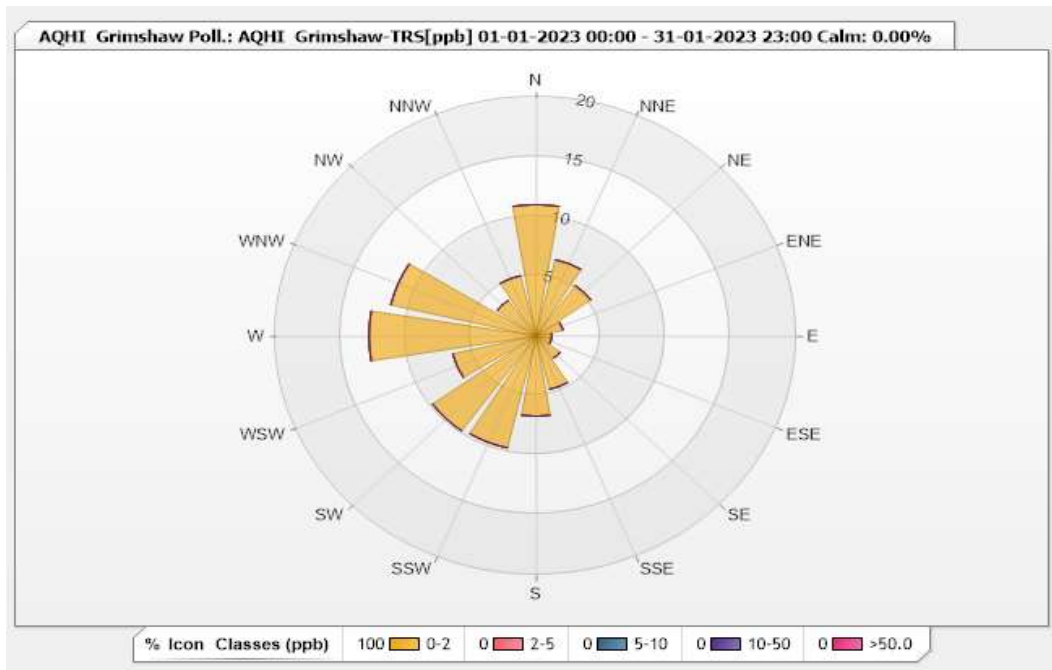


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-TRS[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 88.04% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-50	>50.0	Total
N	10.99	0	0	0	0	10.99
NNE	6.56	0	0	0	0	6.56
NE	5.19	0	0	0	0	5.19
ENE	2.14	0	0	0	0	2.14
E	1.22	0	0	0	0	1.22
ESE	1.22	0	0	0	0	1.22
SE	2.29	0	0	0	0	2.29
SSE	4.58	0	0	0	0	4.58
S	6.72	0	0	0	0	6.72
SSW	9.62	0	0	0	0	9.62
SW	9.77	0	0	0	0	9.77
WSW	6.56	0	0	0	0	6.56
W	12.82	0	0	0	0	12.82
WNW	11.45	0	0	0	0	11.45
NW	3.66	0	0	0	0	3.66
NNW	5.19	0	0	0	0	5.19
Summary	100	0	0	0	0	100

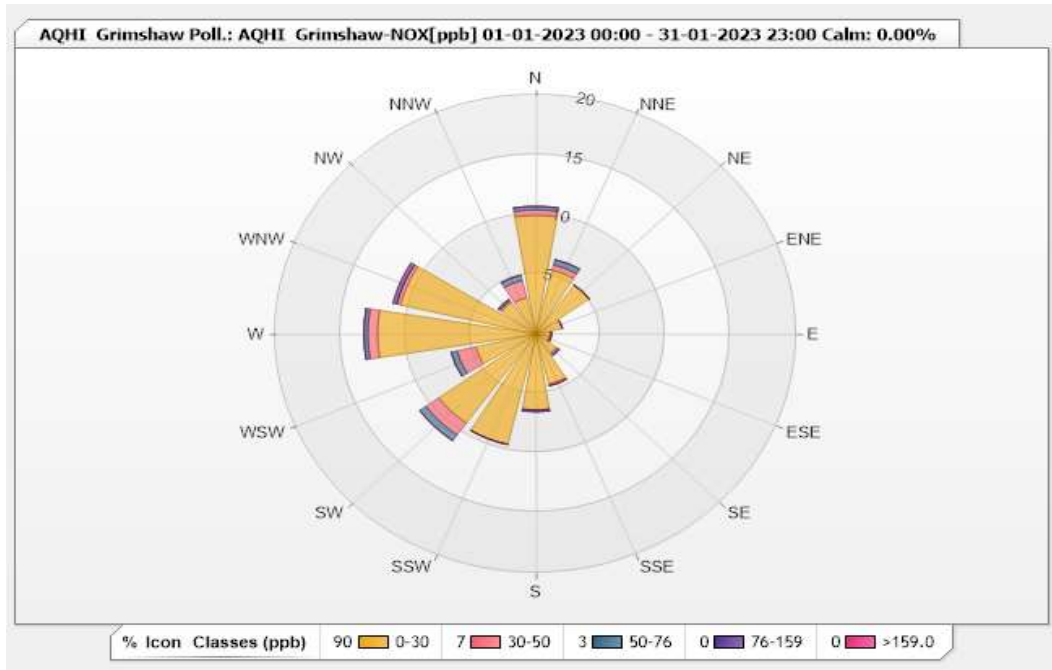


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-NOX[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	9.94	0.45	0.3	0	0	10.69
NNE	5.49	0.45	0.45	0	0	6.39
NE	5.04	0	0	0	0	5.04
ENE	2.08	0	0	0	0	2.08
E	1.19	0	0	0	0	1.19
ESE	1.04	0.15	0	0	0	1.19
SE	1.93	0.15	0.15	0	0	2.23
SSE	4.3	0.15	0	0	0	4.45
S	6.38	0	0	0.15	0	6.53
SSW	9.5	0	0	0	0	9.5
SW	9.2	1.19	0.59	0	0	10.98
WSW	4.75	1.48	0.45	0	0	6.68
W	12.17	0.74	0.3	0	0	13.21
WNW	10.68	0.3	0	0.3	0	11.28
NW	3.26	0.15	0.15	0	0	3.56
NNW	3.12	1.48	0.45	0	0	5.05
Summary	90.07	6.69	2.84	0.45	0	100

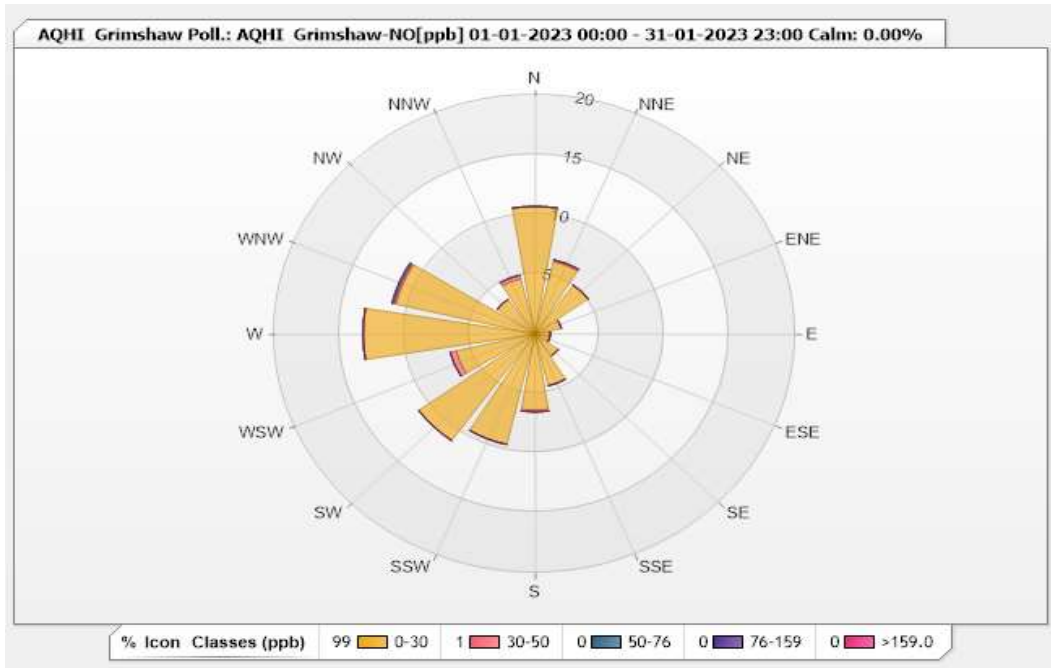


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-NO[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.68	0	0	0	0	10.68
NNE	6.23	0.15	0	0	0	6.38
NE	5.04	0	0	0	0	5.04
ENE	2.08	0	0	0	0	2.08
E	1.19	0	0	0	0	1.19
ESE	1.19	0	0	0	0	1.19
SE	2.23	0	0	0	0	2.23
SSE	4.45	0	0	0	0	4.45
S	6.38	0.15	0	0	0	6.53
SSW	9.5	0	0	0	0	9.5
SW	10.98	0	0	0	0	10.98
WSW	6.23	0.45	0	0	0	6.68
W	13.2	0	0	0	0	13.2
WNW	10.98	0.15	0.15	0	0	11.28
NW	3.56	0	0	0	0	3.56
NNW	4.75	0.3	0	0	0	5.05
Summary	98.67	1.2	0.15	0	0	100



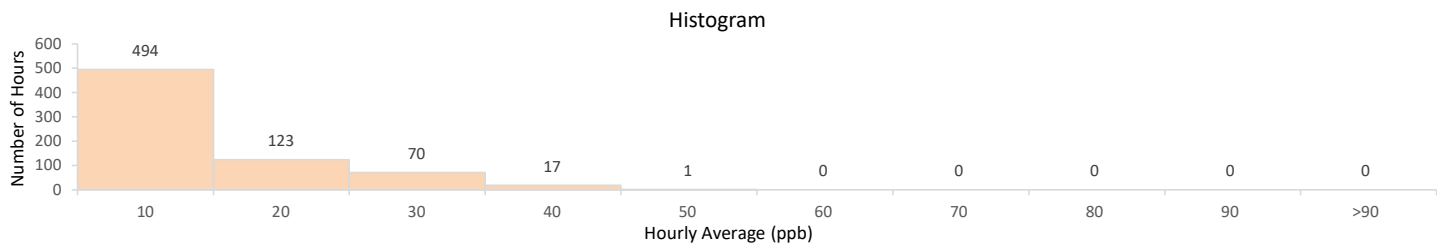
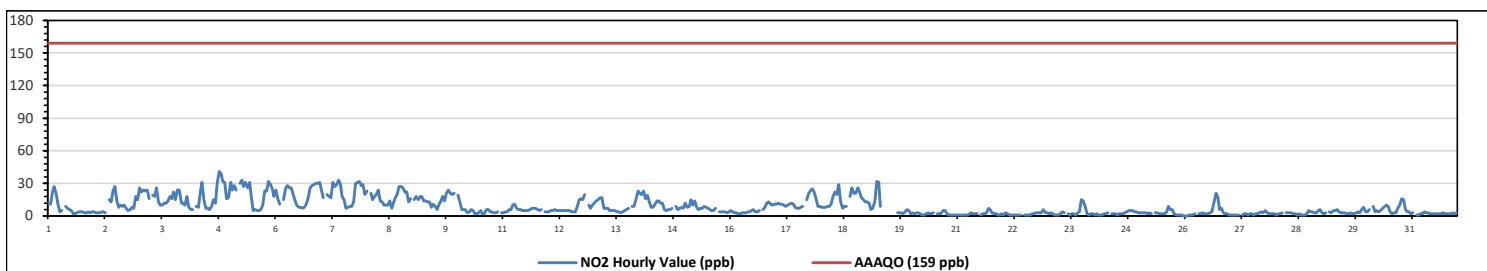
Peace River Area Monitoring Program
AQHI - Grimshaw Station - January 2023
Summary of Hourly Averages
NITROGEN DIOXIDE (NO₂) in ppb

Alberta Ambient Air Quality Objectives (AAQO): 1-Hour 159 ppb	
Number of 1-Hour Exceedances:	0
Maximum Hourly Value:	41 ppb on January 4 at hour 18
Maximum Daily Value:	21.4 ppb on January 7
Minimum Hourly Value:	0 ppb on January 25 at hour 23
Minimum Daily Value:	2.0 ppb on January 22
Monthly Average:	8.8 ppb
Hours in Service:	744
Hours of Data:	705
Hours of Missing Data:	0
Hours of Calibration:	39
Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																								Daily Minimum	Daily Maximum	Daily Average	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
Jan 1	12	11	22	27	21	11	4	5	S	9	7	6	5	2	2	3	4	4	3	3	4	3	4	2	27	7.7		
Jan 2	4	3	3	3	4	4	3	S	15	13	23	27	14	8	10	9	10	7	5	6	8	7	18	15	3	27	9.5	
Jan 3	26	22	24	23	24	16	S	19	18	26	13	10	10	12	12	14	18	16	22	15	24	24	12	12	10	26	17.9	
Jan 4	10	18	8	6	6	S	9	8	22	31	15	7	7	6	9	15	12	31	41	39	32	31	16	17	6	41	17.2	
Jan 5	31	24	28	24	S	30	33	27	31	26	31	16	5	6	5	5	6	10	23	23	32	29	26	18	5	33	21.3	
Jan 6	24	16	11	S	15	25	28	26	26	21	15	10	8	8	7	8	11	17	26	28	29	30	30	31	7	31	19.6	
Jan 7	23	17	S	20	18	17	31	27	29	33	29	18	15	7	8	9	9	13	30	31	32	28	29	20	7	33	21.4	
Jan 8	23	S	21	15	18	20	24	14	13	10	10	10	14	7	12	17	20	27	27	26	22	22	13	16	7	27	17.4	
Jan 9	S	15	18	15	18	18	14	14	13	13	8	11	9	6	11	14	18	14	21	24	21	20	21	S	6	24	15.3	
Jan 10	19	13	6	6	6	3	4	6	5	2	2	3	5	2	2	6	6	4	4	3	3	4	S	3	2	19	5.1	
Jan 11	3	4	4	6	6	10	11	7	6	6	5	5	5	5	6	7	7	7	6	5	6	S	4	4	3	11	5.9	
Jan 12	4	5	5	6	5	5	5	5	5	5	4	4	4	4	9	15	16	15	20	S	10	7	10	4	4	20	7.6	
Jan 13	12	14	15	17	17	7	7	7	5	5	5	4	4	4	3	4	5	6	7	S	9	9	15	23	3	23	8.9	
Jan 14	21	20	23	16	19	13	8	8	11	14	14	12	12	6	5	6	6	7	S	9	6	7	8	7	5	23	11.2	
Jan 15	12	8	9	15	10	14	8	6	7	7	9	8	7	6	5	5	7	S	4	4	4	4	3	4	3	15	7.2	
Jan 16	5	4	3	3	2	2	3	3	3	4	4	5	6	4	4	5	S	6	8	12	13	11	10	11	2	13	5.7	
Jan 17	11	12	11	11	10	9	10	11	12	11	8	7	7	8	9	S	15	21	23	25	22	16	9	9	7	25	12.5	
Jan 18	8	8	8	9	9	11	18	22	20	29	13	7	9	9	9	S	18	26	21	21	26	22	17	15	13	7	29	15.6
Jan 19	13	12	6	7	14	32	31	9	C	C	C	C	C	C	C	C	C	3	3	2	4	6	5	2	2	32	NA	
Jan 20	3	2	3	3	2	1	1	2	3	2	2	3	S	2	2	2	2	5	5	2	1	1	1	1	1	1	5	2.2
Jan 21	1	1	1	1	1	1	2	3	2	2	2	S	1	2	2	3	7	6	3	2	2	1	1	1	2	1	7	2.1
Jan 22	1	3	2	1	1	1	1	1	1	1	S	1	1	1	1	2	2	3	3	3	3	6	3	3	1	6	2.0	
Jan 23	2	3	2	1	1	1	2	4	3	S	2	1	2	2	1	3	4	15	14	9	2	1	2	2	1	15	3.4	
Jan 24	1	2	1	1	1	2	2	3	S	2	2	2	1	2	2	2	3	4	5	5	5	4	4	3	1	5	2.6	
Jan 25	3	3	3	3	2	3	2	S	3	3	2	2	2	2	4	9	6	6	2	1	1	1	1	0	0	9	2.8	
Jan 26	0	0	1	1	1	2	S	2	2	3	2	2	2	2	3	4	13	21	17	6	7	3	2	2	1	0	21	4.2
Jan 27	1	1	1	1	1	S	1	2	2	1	2	2	1	2	2	3	4	3	5	3	2	2	2	2	1	5	2.0	
Jan 28	1	2	2	3	S	3	3	3	3	2	2	1	2	1	1	2	5	4	4	3	3	5	6	1	6	2.7		
Jan 29	3	2	3	S	4	3	5	5	6	4	3	3	2	2	3	2	2	3	4	3	6	8	4	2	8	3.6		
Jan 30	4	6	S	9	4	5	4	5	7	9	10	9	4	2	3	7	10	16	15	6	4	4	2	2	16	6.4		
Jan 31	3	S	1	1	2	2	4	3	3	2	2	2	2	2	2	3	2	2	2	2	3	2	3	1	4	2.3		
Diurnal Maximum	31	24	28	27	24	32	33	27	31	33	31	27	15	12	12	18	26	31	41	39	32	31	30	31				
Diurnal Average	9.5	8.7	8.4	8.8	8.3	9.3	9.6	8.9	9.9	10.2	8.5	6.9	5.8	4.4	4.8	6.9	8.8	10.3	11.8	11.9	10.8	10.4	9.3	8.3				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X InValid Data (Equipment Malfunction/Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

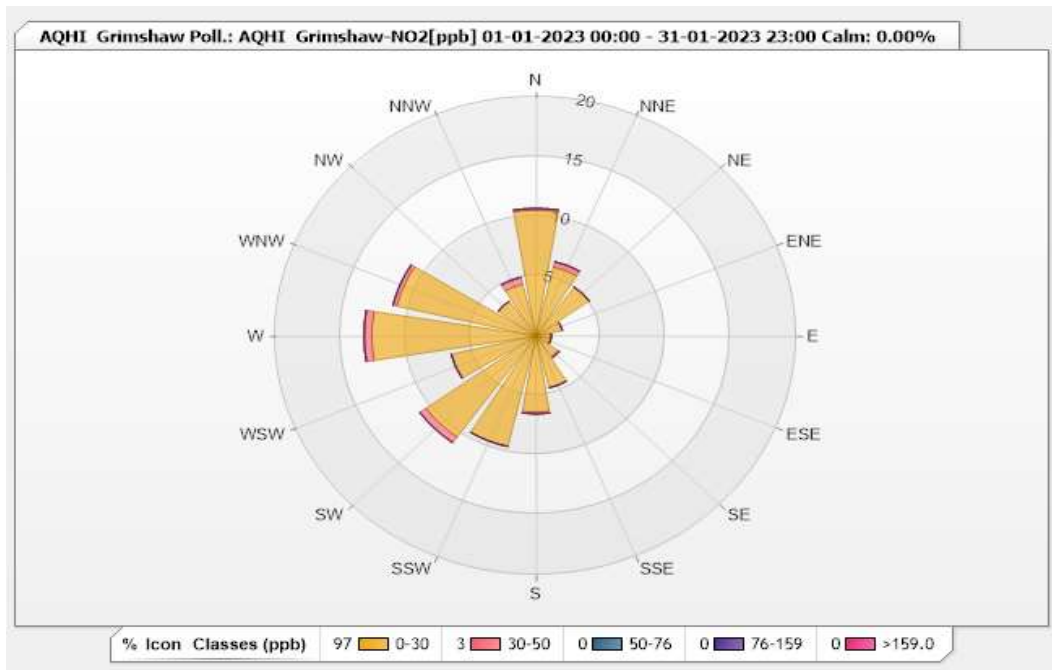


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-NO2[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 90.59% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	10.53	0.15	0	0	0	10.68
NNE	5.93	0.45	0	0	0	6.38
NE	5.04	0	0	0	0	5.04
ENE	2.08	0	0	0	0	2.08
E	1.19	0	0	0	0	1.19
ESE	1.19	0	0	0	0	1.19
SE	2.08	0.15	0	0	0	2.23
SSE	4.45	0	0	0	0	4.45
S	6.38	0.15	0	0	0	6.53
SSW	9.5	0	0	0	0	9.5
SW	10.39	0.59	0	0	0	10.98
WSW	6.68	0	0	0	0	6.68
W	12.61	0.59	0	0	0	13.2
WNW	10.98	0.3	0	0	0	11.28
NW	3.56	0	0	0	0	3.56
NNW	4.45	0.59	0	0	0	5.04
Summary	97.04	2.97	0	0	0	100

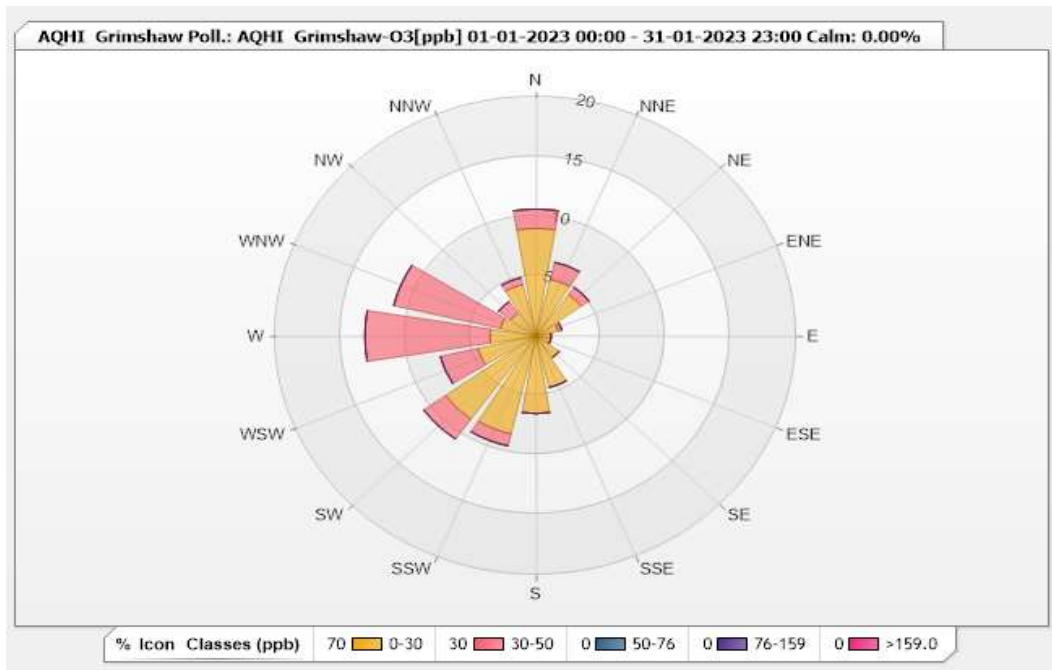


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-O3[ppb] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 91.13% Calm Avg: 0.00 [ppm]

Direction	0-30	30-50	50-76	76-159	>159.0	Total
N	9	1.62	0	0	0	10.62
NNE	4.87	1.47	0	0	0	6.34
NE	4.28	0.74	0	0	0	5.02
ENE	1.77	0.29	0	0	0	2.06
E	1.18	0	0	0	0	1.18
ESE	1.18	0	0	0	0	1.18
SE	2.21	0	0	0	0	2.21
SSE	4.42	0	0	0	0	4.42
S	6.49	0	0	0	0	6.49
SSW	8.41	1.03	0	0	0	9.44
SW	8.55	2.06	0	0	0	10.61
WSW	4.57	2.95	0	0	0	7.52
W	3.54	9.59	0	0	0	13.13
WNW	2.8	8.41	0	0	0	11.21
NW	2.36	1.18	0	0	0	3.54
NNW	4.42	0.59	0	0	0	5.01
Summary	70.05	29.93	0	0	0	100

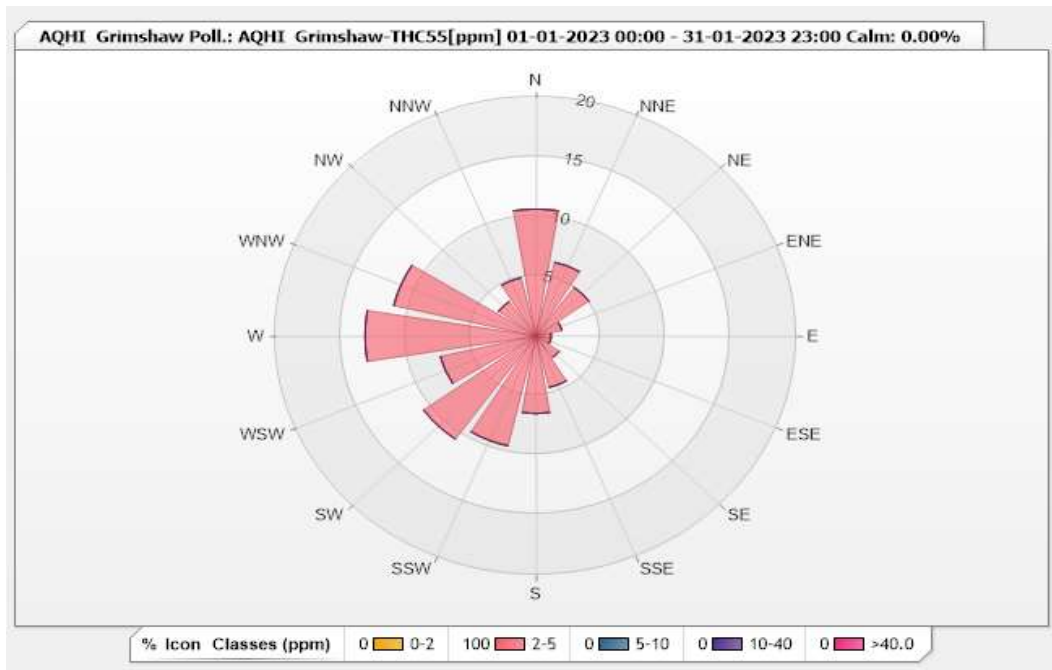


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-THC55[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 91.13% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-40	>40.0	Total
N	0	10.62	0	0	0	10.62
NNE	0	6.34	0	0	0	6.34
NE	0	5.01	0	0	0	5.01
ENE	0	2.06	0	0	0	2.06
E	0	1.18	0	0	0	1.18
ESE	0	1.18	0	0	0	1.18
SE	0	2.21	0	0	0	2.21
SSE	0	4.42	0	0	0	4.42
S	0	6.49	0	0	0	6.49
SSW	0	9.44	0	0	0	9.44
SW	0	10.62	0	0	0	10.62
WSW	0	7.52	0	0	0	7.52
W	0.29	12.83	0	0	0	13.12
WNW	0	11.21	0	0	0	11.21
NW	0	3.54	0	0	0	3.54
NNW	0	5.01	0	0	0	5.01
Summary	0.29	100	0	0	0	100

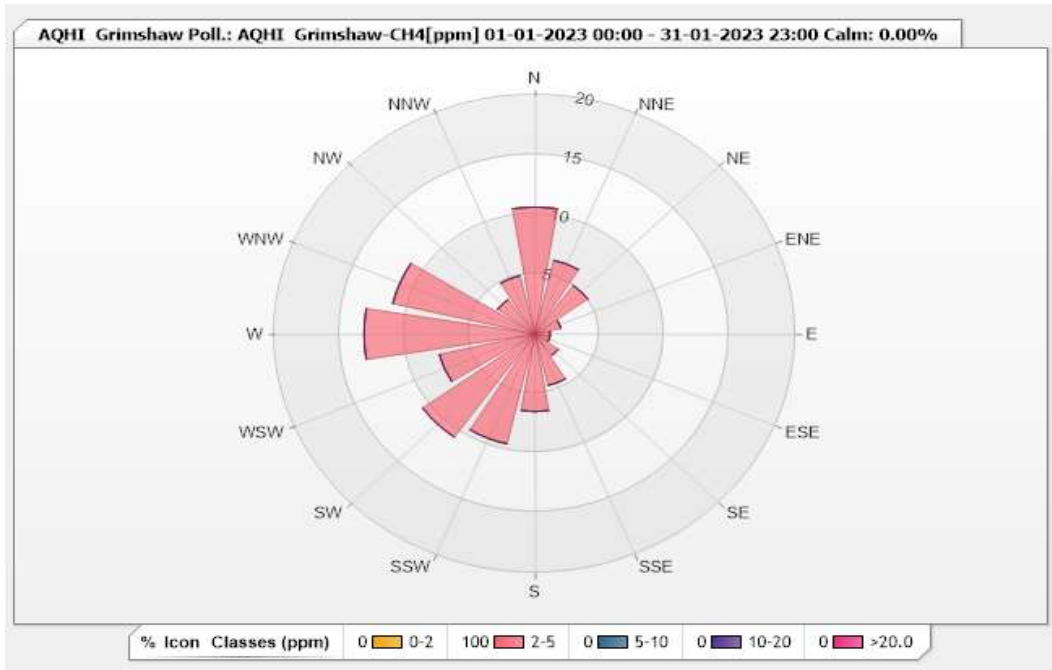


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-CH4[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 91.13% Calm Avg: 0.00 [ppm]

Direction	0-2	2-5	5-10	10-20	>20.0	Total
N	0	10.62	0	0	0	10.62
NNE	0	6.34	0	0	0	6.34
NE	0	5.01	0	0	0	5.01
ENE	0	2.06	0	0	0	2.06
E	0	1.18	0	0	0	1.18
ESE	0	1.18	0	0	0	1.18
SE	0	2.21	0	0	0	2.21
SSE	0	4.42	0	0	0	4.42
S	0	6.49	0	0	0	6.49
SSW	0	9.44	0	0	0	9.44
SW	0	10.62	0	0	0	10.62
WSW	0	7.52	0	0	0	7.52
W	0.29	12.83	0	0	0	13.12
WNW	0	11.21	0	0	0	11.21
NW	0	3.54	0	0	0	3.54
NNW	0	5.01	0	0	0	5.01
Summary	0.29	100	0	0	0	100

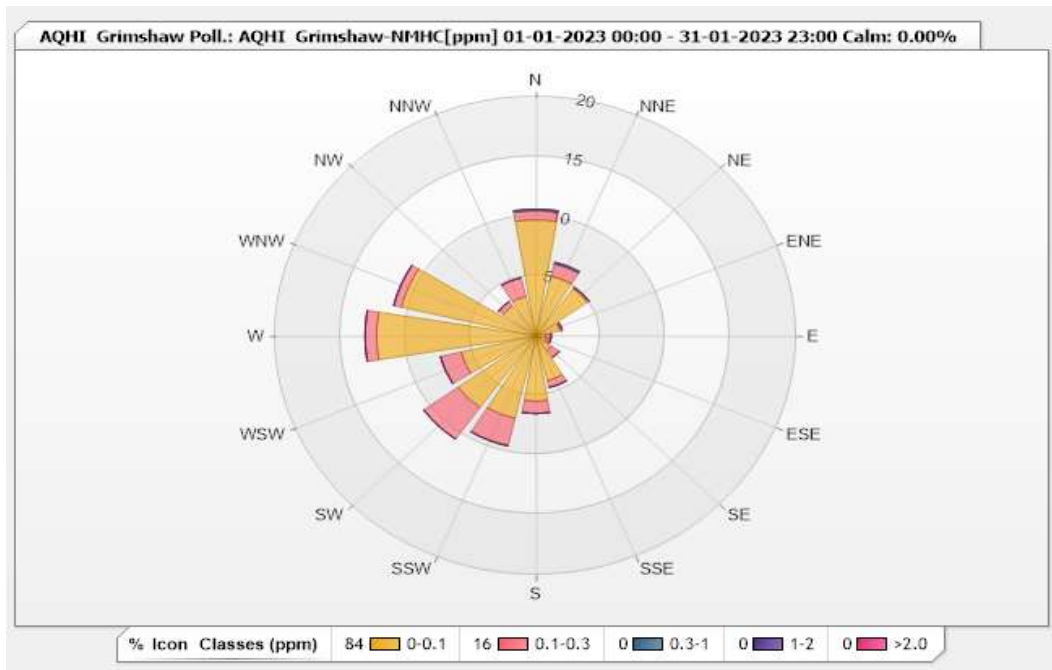


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-NMHC[ppm] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 91.13% Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	9.73	0.74	0.15	0	0	10.62
NNE	5.16	1.03	0.15	0	0	6.34
NE	4.87	0.15	0	0	0	5.02
ENE	1.92	0.15	0	0	0	2.07
E	0.74	0.44	0	0	0	1.18
ESE	0.88	0.29	0	0	0	1.17
SE	1.47	0.74	0	0	0	2.21
SSE	3.83	0.59	0	0	0	4.42
S	5.46	1.03	0	0	0	6.49
SSW	7.08	2.36	0	0	0	9.44
SW	7.37	3.24	0	0	0	10.61
WSW	5.9	1.62	0	0	0	7.52
W	12.24	0.88	0	0	0	13.12
WNW	10.62	0.59	0	0	0	11.21
NW	3.1	0.44	0	0	0	3.54
NNW	3.39	1.62	0	0	0	5.01
Summary	83.76	15.91	0.3	0	0	100

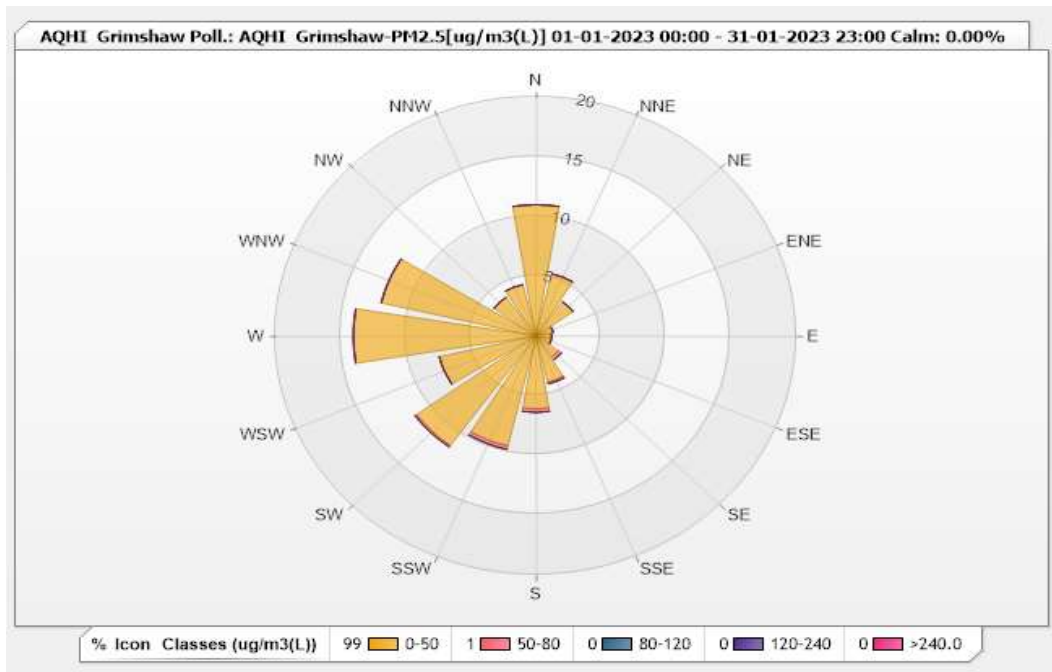


Station: AQHI Grimshaw Poll.: AQHI Grimshaw-PM2.5[ug/m3(L)] Monthly: 01-2023

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

Calm: 0.00% Valid Data: 88.17% Calm Avg: 0.00 [ppm]

Direction	0-50	50-80	80-120	120-240	>240.0	Total
N	10.98	0	0	0	0	10.98
NNE	5.34	0	0	0	0	5.34
NE	3.51	0	0	0	0	3.51
ENE	1.37	0	0	0	0	1.37
E	1.22	0	0	0	0	1.22
ESE	1.22	0	0	0	0	1.22
SE	2.13	0.3	0	0	0	2.43
SSE	3.96	0.15	0	0	0	4.11
S	6.1	0.3	0	0	0	6.4
SSW	9.45	0.3	0	0	0	9.75
SW	11.28	0.15	0	0	0	11.43
WSW	7.62	0	0	0	0	7.62
W	14.02	0	0	0	0	14.02
WNW	12.2	0	0	0	0	12.2
NW	3.96	0	0	0	0	3.96
NNW	4.42	0	0	0	0	4.42
Summary	98.78	1.2	0	0	0	100



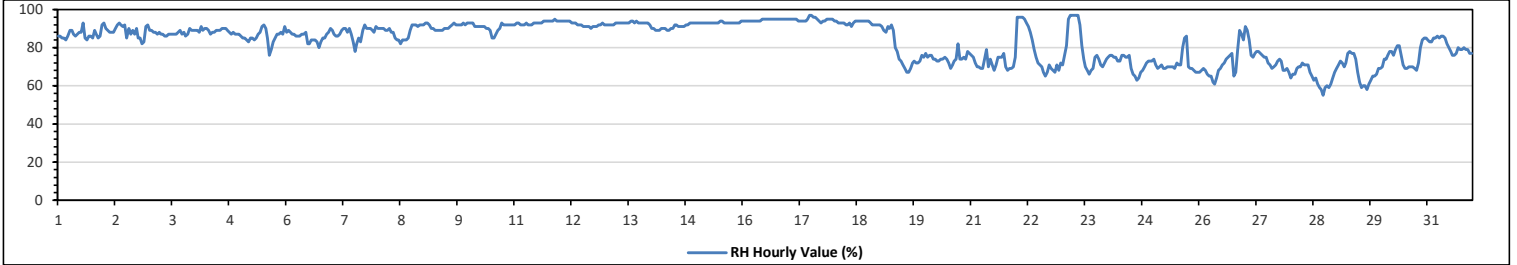
Peace River Area Monitoring Program
AQHI - Grimshaw Station - January 2023
Summary of Hourly Averages
RELATIVE HUMIDITY (RH) in %

Maximum Hourly Value:	97	%	on January 17 at hour 11	Hours in Service:	744
Maximum Daily Value:	94.8	%	on January 17	Hours of Data:	744
Minimum Hourly Value:	55	%	on January 28 at hour 17	Hours of Missing Data:	0
Minimum Daily Value:	64.7	%	on January 28	Hours of Calibration:	0
Monthly Average:	83.5	%		Operational Uptime:	100.0

Day	Hourly Period Starting at (MST)																							Daily Minimum	Daily Maximum	Daily Average		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				23	
Jan 1	86	86	85	85	84	86	89	89	87	86	87	88	88	93	85	84	86	86	85	89	87	85	86	92	84	93	86.8	
Jan 2	93	90	89	88	88	88	90	92	93	92	91	92	85	90	87	89	87	90	85	85	82	83	91	92	82	93	88.8	
Jan 3	89	89	88	88	87	88	87	87	86	86	87	87	87	87	87	88	89	87	88	86	87	90	89	89	86	90	87.6	
Jan 4	89	89	88	91	89	90	90	89	87	88	88	89	89	89	90	90	90	89	88	87	88	87	87	87	87	91	88.7	
Jan 5	86	85	85	84	83	85	85	84	85	87	88	91	92	90	85	76	79	83	85	87	87	88	87	91	76	92	85.8	
Jan 6	88	89	88	87	87	86	86	86	87	87	88	82	82	84	84	84	83	80	83	85	85	87	88	90	80	90	85.7	
Jan 7	89	87	86	86	87	89	90	90	88	90	88	90	87	83	78	82	85	83	89	92	90	90	89	88	91	78	92	87.5
Jan 8	90	90	90	90	89	89	90	88	88	85	84	84	82	84	84	84	85	89	92	92	92	91	92	92	82	92	88.2	
Jan 9	92	93	93	92	90	90	89	89	89	89	89	90	90	90	91	92	93	92	92	92	92	93	92	93	89	93	91.1	
Jan 10	93	93	93	91	91	91	91	91	91	90	90	89	85	85	87	89	90	93	92	92	92	92	92	92	85	93	90.6	
Jan 11	92	93	93	92	92	93	92	92	92	93	93	93	93	93	93	94	94	94	94	94	94	95	94	94	92	95	93.1	
Jan 12	94	94	94	94	94	94	93	93	93	92	92	92	91	91	91	91	90	91	91	91	91	92	92	93	92	90	94	92.3
Jan 13	92	92	92	92	92	93	93	93	93	93	93	93	93	93	94	93	94	93	93	93	93	93	93	92	92	94	92.9	
Jan 14	90	90	89	89	89	90	90	90	89	89	90	90	92	92	91	91	91	91	92	92	93	93	93	93	89	93	90.8	
Jan 15	93	93	93	93	93	93	93	93	93	93	93	93	93	94	94	93	93	93	93	93	93	93	93	94	93	94	93.1	
Jan 16	94	94	94	94	94	94	94	94	94	94	95	95	95	95	95	95	95	95	95	95	95	95	95	95	94	95	94.6	
Jan 17	95	95	95	95	95	94	94	94	94	94	95	97	97	96	96	95	94	93	94	94	95	95	95	95	93	97	94.8	
Jan 18	94	94	93	93	93	93	92	92	93	91	93	94	94	94	94	94	94	94	94	93	92	92	92	92	91	94	93.1	
Jan 19	92	91	89	88	91	90	92	89	80	78	74	73	71	69	67	67	69	72	73	72	72	73	76	75	67	92	78.5	
Jan 20	77	75	76	76	74	74	73	73	74	74	75	74	72	69	71	73	74	82	74	74	75	74	78	77	69	82	74.5	
Jan 21	76	75	72	70	70	69	69	74	79	70	74	71	68	71	75	75	75	77	70	68	69	69	70	75	68	79	72.1	
Jan 22	96	96	96	96	95	93	91	88	84	79	75	72	71	70	67	65	67	71	69	68	67	71	68	72	65	96	78.6	
Jan 23	71	76	81	95	97	97	97	97	97	81	74	70	68	66	68	69	75	76	74	71	70	72	74	66	97	79.5		
Jan 24	75	76	76	75	75	73	73	76	76	75	75	76	69	66	65	63	64	67	68	70	72	73	73	73	63	76	71.8	
Jan 25	74	71	69	70	71	69	69	70	70	70	69	72	71	71	80	85	86	70	69	69	68	67	67	67	67	86	71.5	
Jan 26	67	68	69	68	66	65	65	62	61	64	68	69	71	72	74	75	76	77	65	67	79	89	87	84	61	89	71.2	
Jan 27	91	89	84	76	75	77	78	78	77	76	75	75	72	71	69	70	71	73	74	73	68	68	69	67	67	91	74.8	
Jan 28	64	66	66	69	70	70	72	71	71	71	67	65	63	64	61	59	58	55	59	60	59	61	64	67	55	72	64.7	
Jan 29	69	71	73	72	70	72	77	78	77	77	74	67	62	59	60	58	61	63	65	65	66	69	69	58	78	68.1		
Jan 30	70	74	74	76	78	78	76	79	81	81	76	71	69	69	70	70	69	68	72	80	84	85	85	68	85	75.2		
Jan 31	84	83	83	85	85	86	85	86	86	85	82	80	78	76	76	77	80	79	79	80	79	79	77	77	76	86	81.1	
Diurnal Maximum	96	96	96	96	97	97	97	97	97	94	95	97	97	96	96	95	95	95	95	95	95	95	95	95	95	95	95	
Diurnal Average	85.3	85.4	85.0	85.2	85.0	85.1	85.4	85.4	85.0	84.2	83.5	82.5	81.1	81.2	80.8	80.9	81.7	82.9	81.7	82.0	83.4	83.2	83.7	84.5				

C Monthly Calibration	S Daily Zero-Span Check	Q Quality Assurance
K Collection Error	ND No Data (Machine Not in Service)	Y Routine Maintenance
X Invalid Data (Equipment Malfunction /Recovery)	NRM UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)	P Power Failure

Daily Average is shown "-" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "-" if minimum data completeness criteria of 75% of days per month is not met.

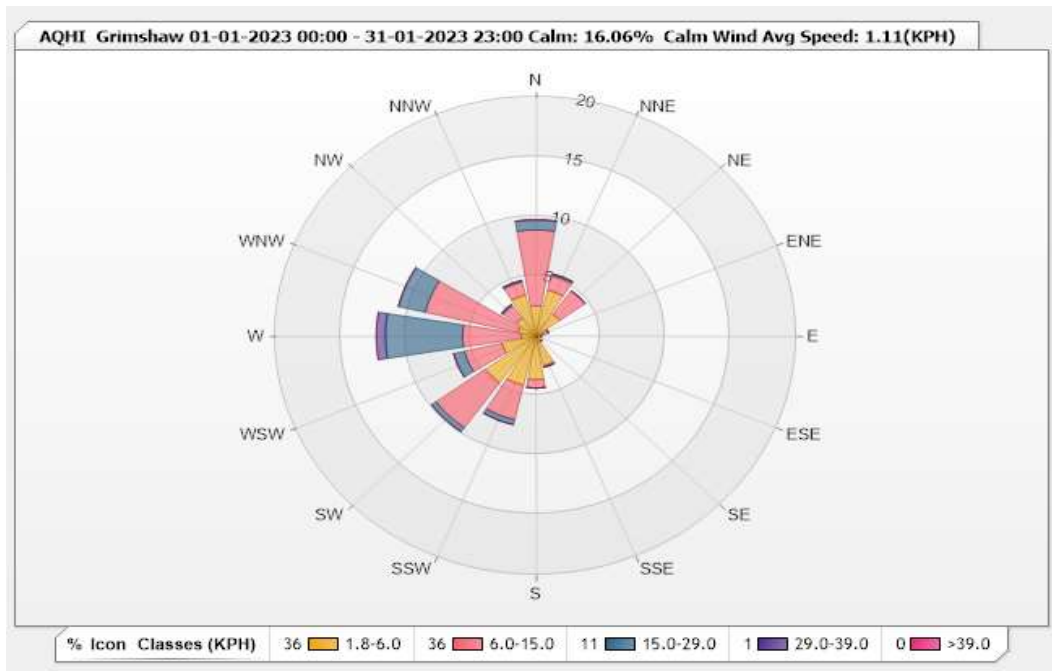


Station: AQHI Grimshaw Monitor: WDS [KPH] Monthly: 01-2023

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

Calm (WS<1.8kph): 16.06% Valid Data: 95.43%

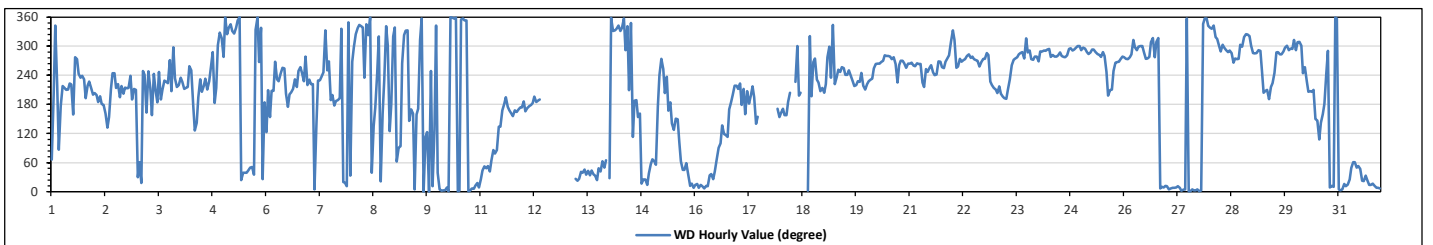
Direction	1.8-6.0	6.0-15.0	15.0-29.0	29.0-39.0	>39.0	Total
N	2.54	6.34	0.85	0	0	9.73
NNE	3.94	1.27	0.14	0	0	5.35
NE	2.25	2.39	0	0	0	4.64
ENE	0.56	0.42	0	0	0	0.98
E	0.42	0	0	0	0	0.42
ESE	0.14	0	0	0	0	0.14
SE	0.56	0	0	0	0	0.56
SSE	2.54	0.14	0	0	0	2.68
S	3.66	0.7	0	0	0	4.36
SSW	4.23	2.96	0.42	0	0	7.61
SW	4.79	4.65	0.42	0	0	9.86
WSW	2.68	2.96	0.85	0	0	6.49
W	1.13	4.51	5.92	0.7	0	12.26
WNW	1.41	7.32	2.11	0	0	10.84
NW	1.83	1.27	0.14	0	0	3.24
NNW	3.52	1.13	0.14	0	0	4.79
Summary	36.2	36.06	10.99	0.7	0	83.95



Peace River Area Monitoring Program
AQHI - Grimshaw Station - January 2023
Summary of Hourly Averages
WIND DIRECTION (VWD) in sector

Monthly Average:		273 (W) degree										Hours in Service: 744										218 SW																					
												Hours of Data: 710										202 SSW																					
												Hours of Missing Data: 34										224 SW																					
												Hours of Calibration: 0										227 SW																					
												Operational Uptime: 95.4										360 N																					
Day	Hourly Period Starting at (MST)																							Daily Average																			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Degree	Quadrant																	
Jan 1	ENE	SSW	NNW	SW	E	S	SW	SSW	SSW	SSW	SW	SW	SSE	W	W	WSW	SW	WSW	SW	S	SW	SW	SSW	SSW	218	SW																	
Jan 2	SSW	SSW	S	SSW	S	S	SSE	SE	SSE	SSW	WSW	WSW	SSW	SW	SSW	SW	SSW	SSW	SSW	SSW	WSW	S	SSW	SSW	202	SSW																	
Jan 3	NNE	ENE	NNE	WSW	WSW	SSE	WSW	SSW	SSE	WSW	SSW	S	WSW	S	SSW	SW	W	SSW	WNW	SW	SW	SW	SW	SW	224	SW																	
Jan 4	SW	SW	SSW	SSW	SW	WSW	WSW	S	SE	SE	SSW	SW	SSW	SW	SSW	SW	WSW	WNW	S	SSW	WNW	NNW	NW	NW	227	SW																	
Jan 5	W	N	NW	NNW	NNW	NNW	NW	NNW	N	N	NNE	NE	NE	NE	NE	NE	NE	NW	N	W	NNW	NNE	S	S	360	N																	
Jan 6	ESE	SSW	SSE	SSW	SSW	W	SW	SW	WSW	WSW	WSW	SSW	S	SSW	SSW	SSW	SW	SW	WSW	WSW	WSW	SW	W	SW	223	SW																	
Jan 7	SW	SW	SW	N	SE	SW	SW	SW	WSW	NNW	WSW	W	S	SSW	S	S	S	NNW	NNE	NNE	NNE	NNW	NNE	NNE	242	WSW																	
Jan 8	W	WNW	NW	NNW	NNW	NNW	NNW	SW	NNW	NW	N	NE	SE	S	WSW	NW	NNE	SSE	SW	NNW	WNW	SE	S	NW	315	NW																	
Jan 9	NNW	ENE	E	E	W	NW	NNW	NNW	SE	SSE	N	SSE	S	NW	N	N	ESE	ESE	N	WSW	NNE	SE	NNW	32	NNE																		
Jan 10	NE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	NNE	NNE	N	4	N																
Jan 11	NNE	NE	NE	NE	NE	NE	ENE	E	ENE	E	SE	SE	SSE	S	SSW	S	SSE	SSE	SSE	SSE	SSE	SSE	S	S	126	SE																	
Jan 12	S	SSE	S	S	S	S	SSW	S	S	S	X	SE	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA																	
Jan 13	X	X	X	X	X	X	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NNE	NNE	NE	NE	ENE	NE	ENE	X	X	40	NE																	
Jan 14	NNE	N	NNW	NNW	NNW	NNW	NNW	NNW	N	WNW	NNW	SSW	NNW	ESE	S	SSE	SSE	NNE	NNE	NNE	NNE	NE	ENE	1	N																		
Jan 15	ENE	ENE	NE	S	WSW	W	WSW	SSW	SW	SSE	S	SE	SSE	SSE	ESE	ENE	NE	ENE	NE	ENE	NE	NNE	NNE	N	98	E																	
Jan 16	NNE	NNE	N	NNE	NNE	N	NNE	NNE	NE	NE	NNE	NE	ENE	E	E	SE	ESE	ESE	ESE	S	SSW	SW	SW	61	ENE																		
Jan 17	SSW	SW	S	SSW	SSE	SSW	S	SSW	SW	SSW	SE	SSE	X	X	X	X	X	X	X	X	X	X	X	S	SSE	NA	NA																
Jan 18	SSE	S	SSE	SSE	S	SSW	X	X	SW	WNW	SSW	SSW	X	X	X	N	NW	SSW	W	W	SW	SW	SSW	SSW	215	SSW																	
Jan 19	SSW	SW	W	WNW	SW	NNW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	WSW	WSW	SSW	240	WSW																	
Jan 20	SW	SW	SW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	260	WSW																	
Jan 21	W	W	WSW	WSW	W	W	W	SW	SW	WSW	WSW	WSW	W	WSW	WSW	W	W	WSW	WSW	W	W	W	W	W	259	WSW																	
Jan 22	NNW	NW	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	270	W																	
Jan 23	SSW	SSW	SW	SSW	SSW	S	S	SSW	SW	W	W	W	W	W	W	WNW	WNW	W	NW	WNW	WNW	W	W	W	254	WSW																	
Jan 24	W	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	287	WNW																	
Jan 25	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WNW	W	WSW	SSW	SSW	SSW	SSW	W	W	W	W	W	272	W																	
Jan 26	W	W	W	W	W	NW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	NW	NW	W	NW	NW	N	N	N	N	N	302	WNW																	
Jan 27	NNE	N	N	N	N	N	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	2	N																
Jan 28	NNW	NNW	NNW	NW	NW	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	W	W	W	WNW	WNW	NNW	NNW	NNW	NNW	NNW	303	WNW																	
Jan 29	WNW	WNW	WNW	WNW	WSW	SSW	SSW	SSW	S	SW	SW	WSW	WNW	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	269	W																	
Jan 30	WNW	NW	NW	WNW	WSW	WSW	SW	SSW	SSW	SSW	SSE	SE	ESE	SE	SSE	S	WSW	WNW	N	NNE	N	N	N	N	247	WSW																	
Jan 31	N	N	N	NNE	NNE	NNE	NNE	ENE	ENE	ENE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	24	NNE																	
C	Monthly Calibration										S	Daily Zero-Span Check										Q	Quality Assurance																				
K	Collection Error										ND	No Data (Machine Not in Service)										Y	Routine Maintenance										P	Power Failure									
X	Invalid Data (Machine Malfunction/Recovery)										NRM	UnitMaint (Repeat Calibration / Repeat Daily Zero-Span Check / Non-Routine Maintenance)																															

Daily Average is shown "*" if minimum data completeness criteria of 75% or 18 hours per day is not met.
 Monthly Average is shown "*" if minimum data completeness criteria of 75% of days per month is not met.



END OF REPORT

This page, 145 of 145, ends the January 2023 Monthly Ambient Air Quality Monitoring Report.



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring Calibration Report

- 842b STATION-

CAL-PRAMP-202301-01561

Operation and Maintenance:

Bureau Veritas Canada

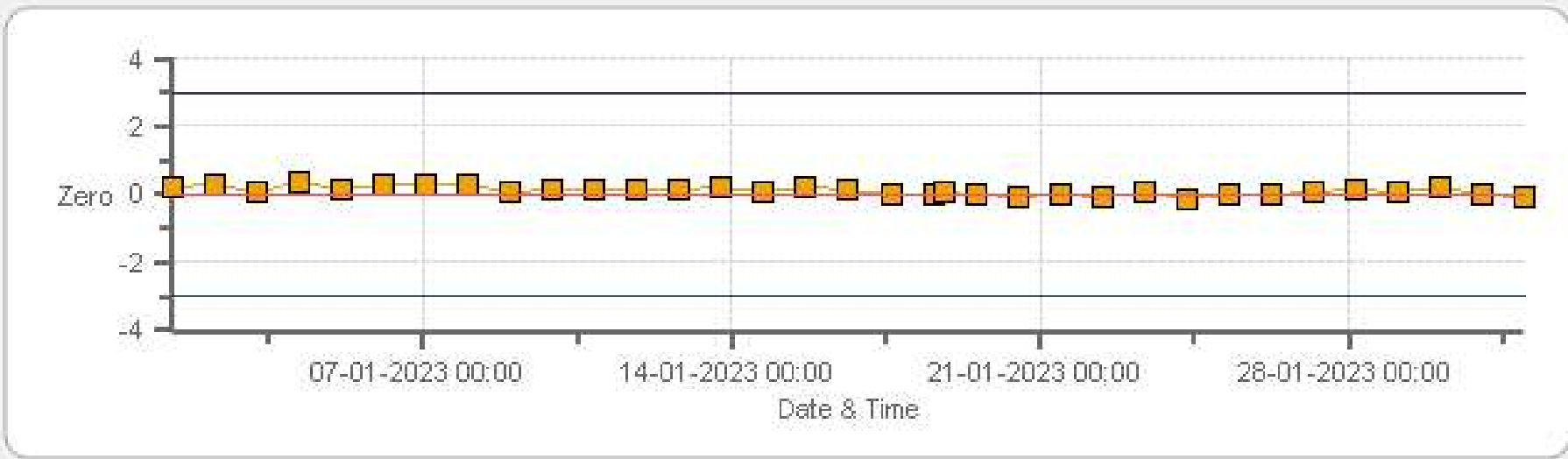
Data Validation and Report:

Bureau Veritas Canada

February 7, 2023

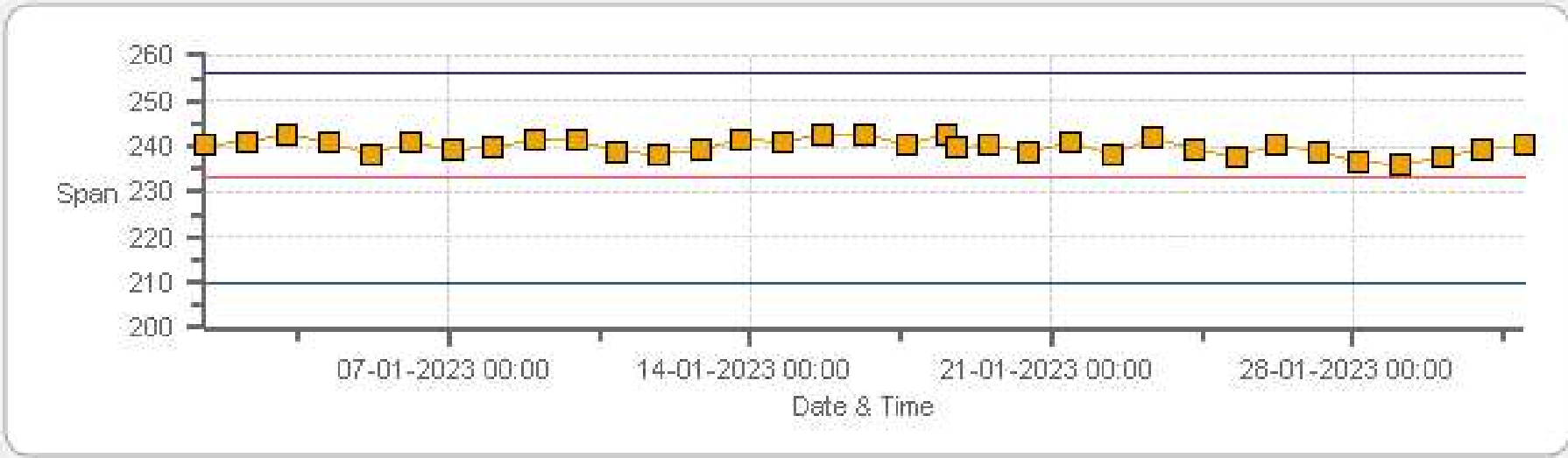
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Zero



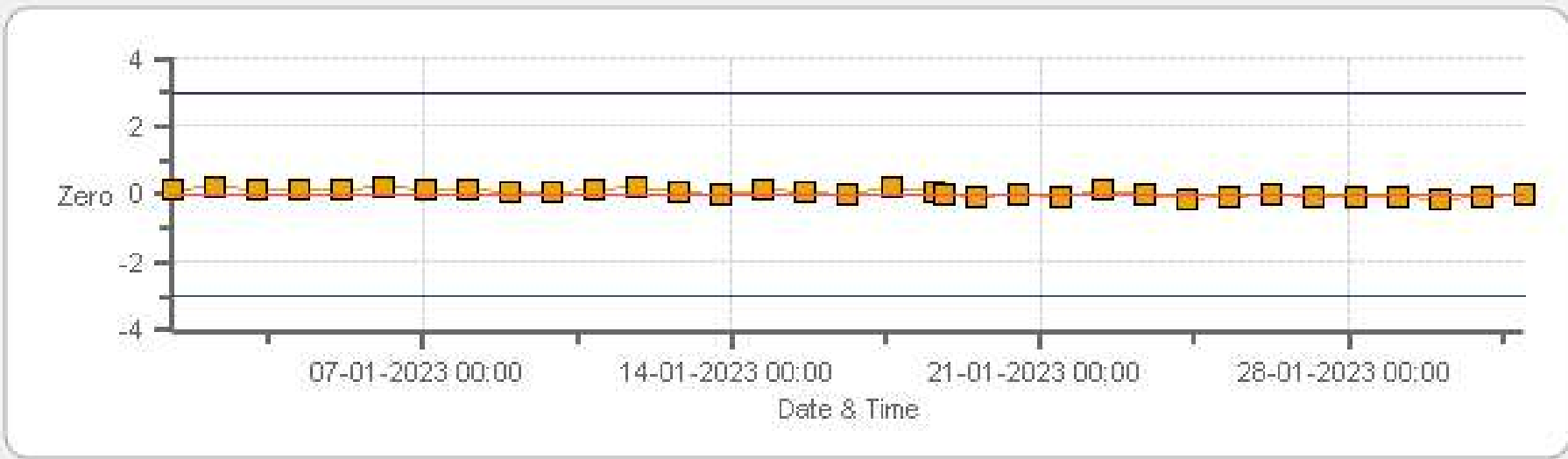
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Span



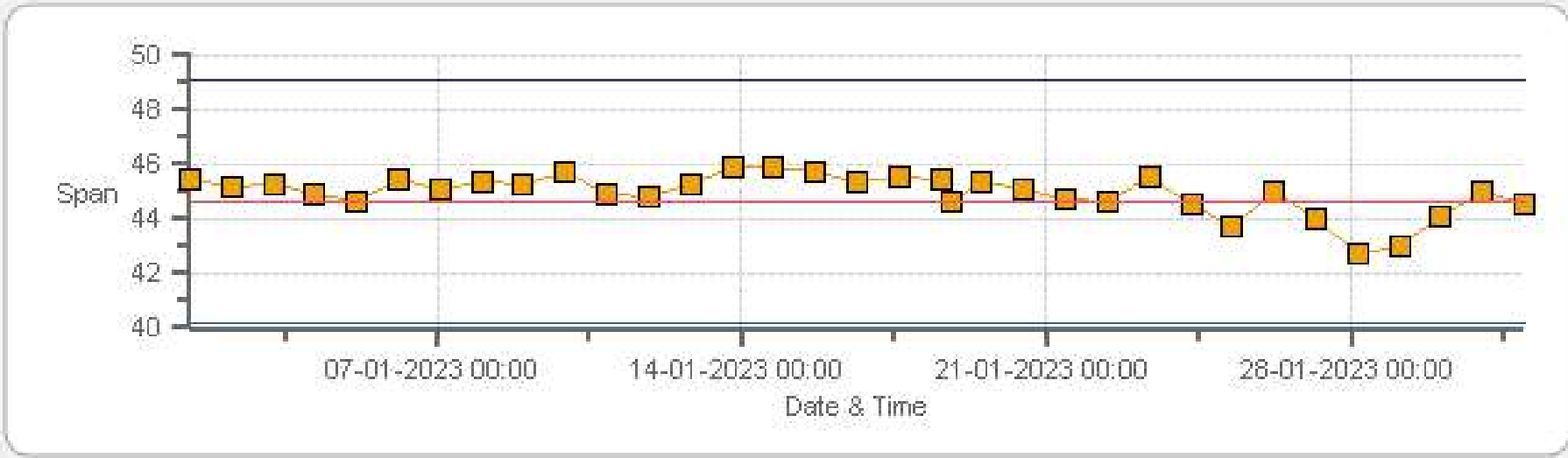
Span SpanRef Span Low Span High

TRS[ppb] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Zero



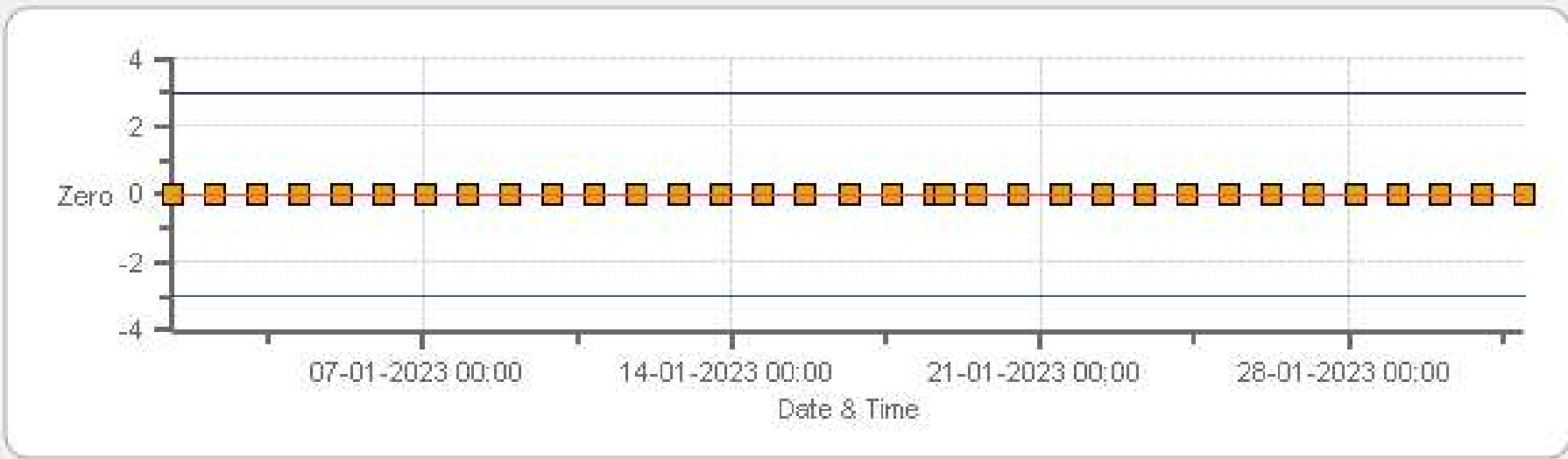
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Span



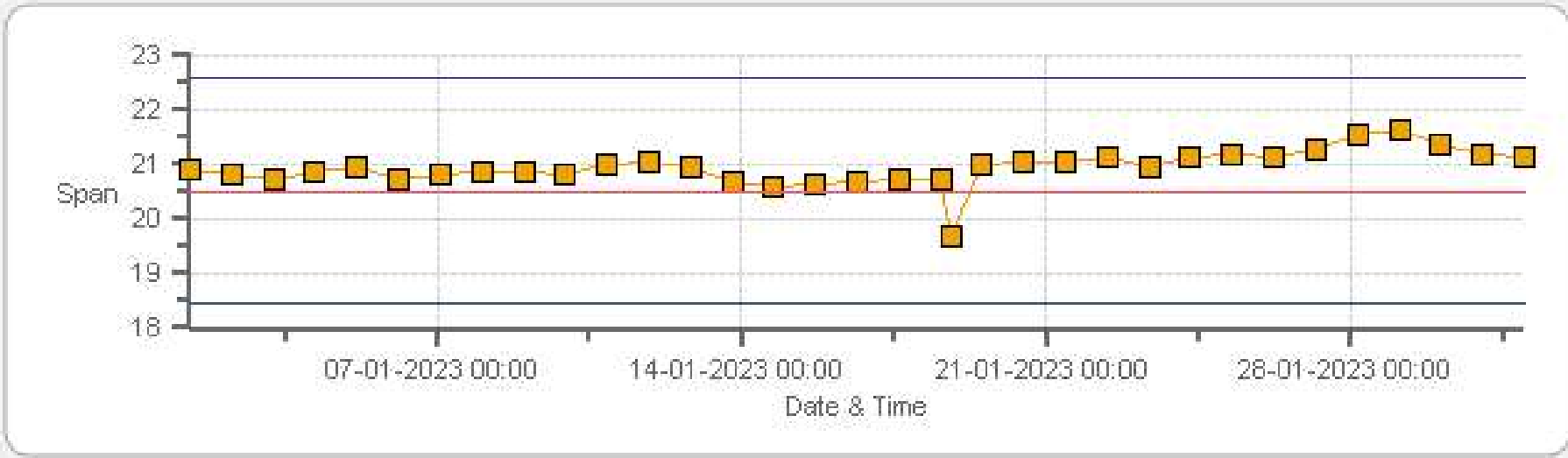
Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Zero



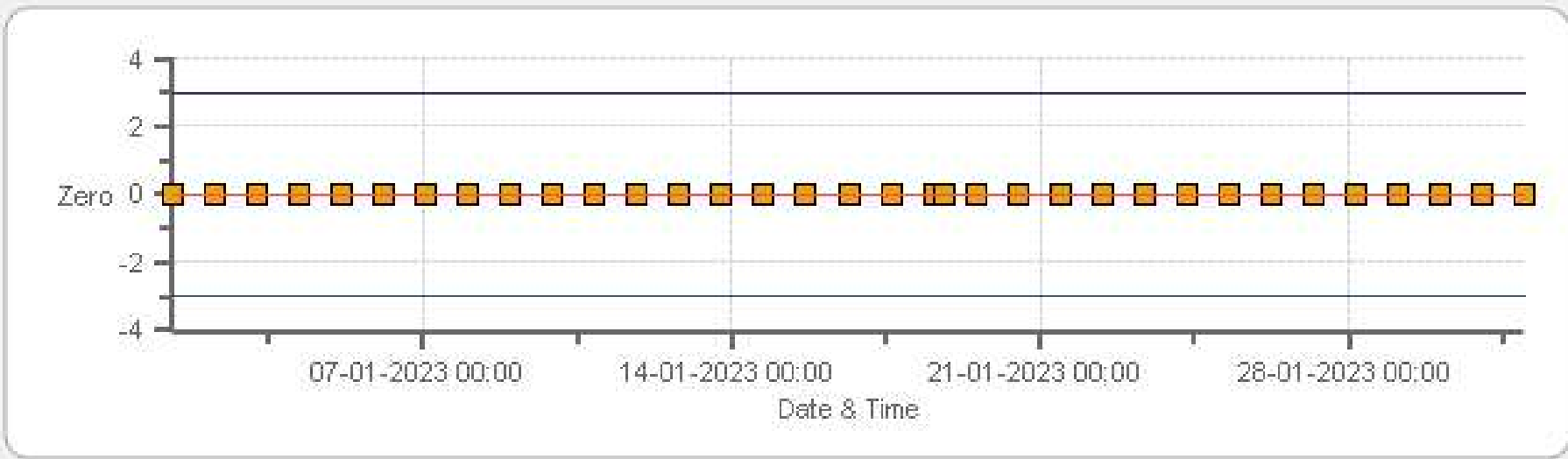
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Span



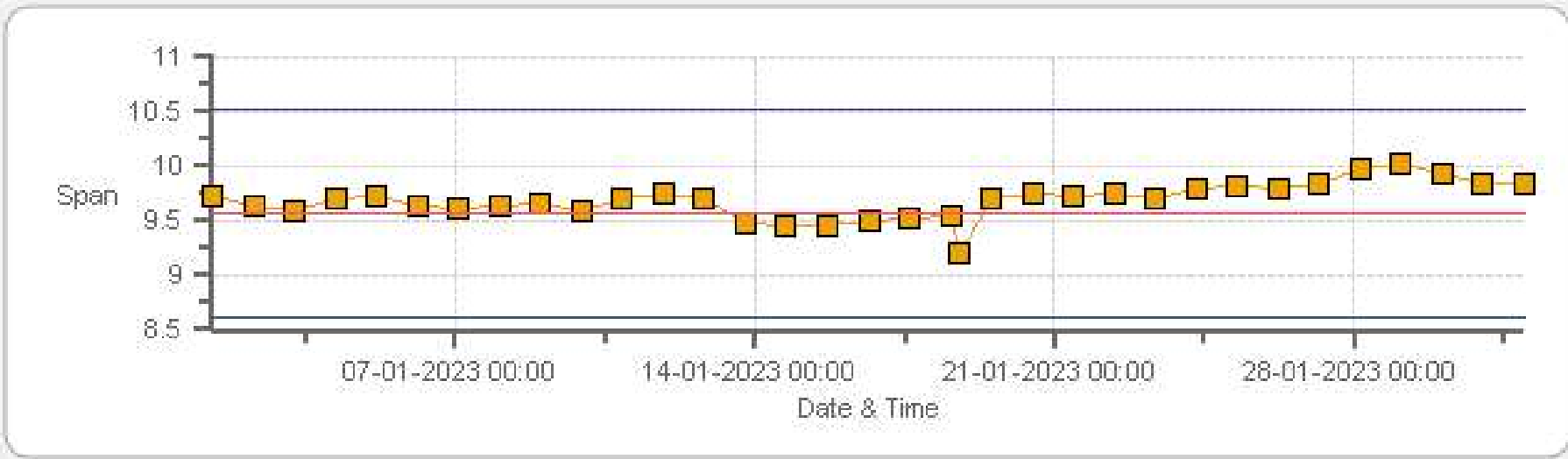
Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Zero



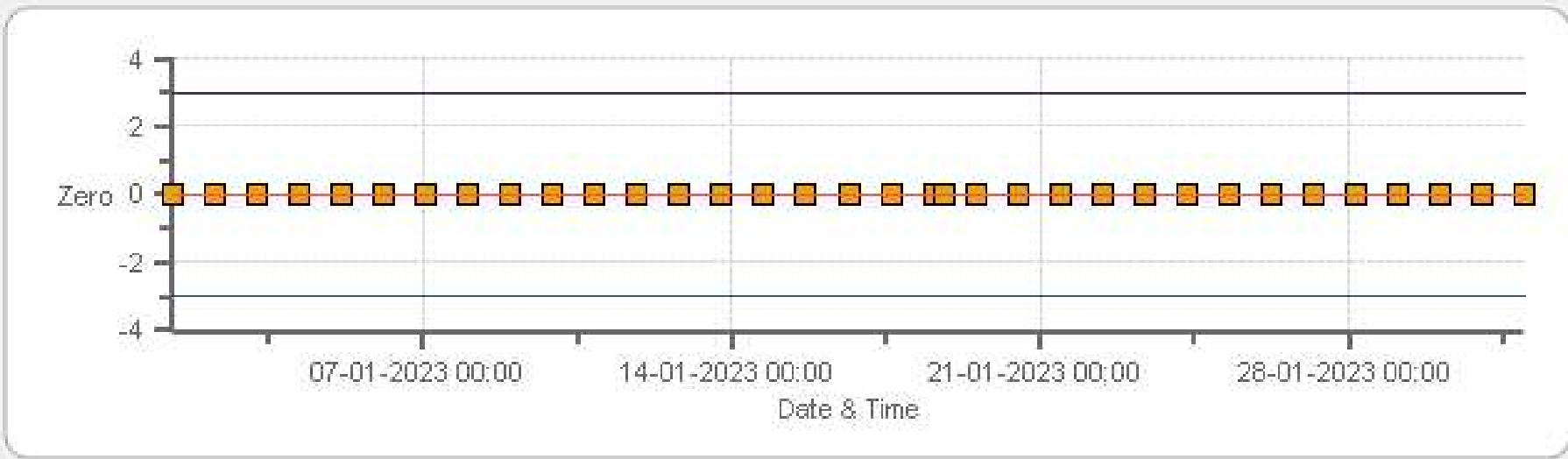
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Span



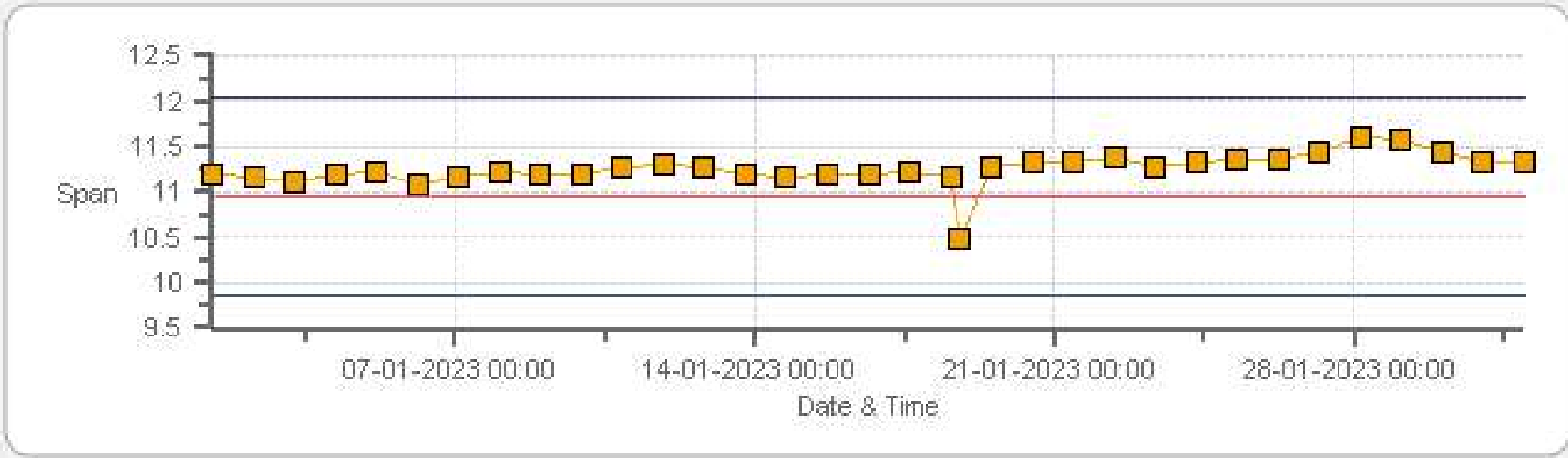
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 842-B Monthly: 01-2023 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	18-Jan-2023	PREVIOUS CALIBRATION DATE:	06-Dec-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	21.7
LOCATION:	842b	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	14:33
PERFORMED BY:	Chris Wesson	END TIME (MST):	19:09

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1200736629	FLOW (mL/min)	420
INITIAL		FINAL	
BKG/OFFSET	8.5	BKG/OFFSET	8.6
COEF/SLOPE	1.103	COEF/SLOPE	1.11
Expected (reference) Value	233	Expected (reference) Value	233

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0001923	HIGH ID	n/a
CONC (ppm):	25.10	EXPIRY DATE	n/a
CYLINDER (psi):	1850	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

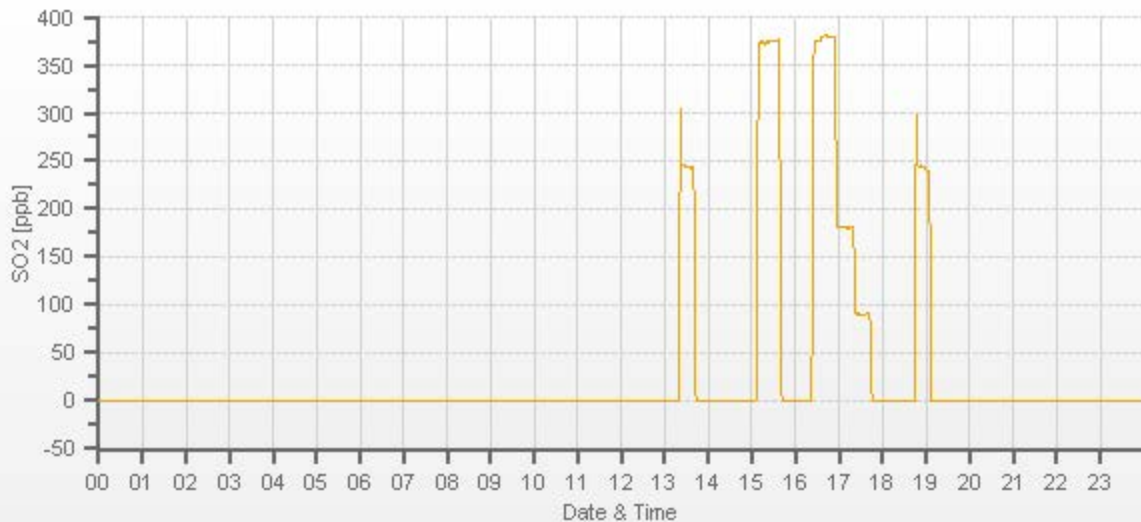
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4001	 	4001	0.00	-0.1	0	 	
3941	60.60	4002	380.07	375.3	380.3	1.012	0.999
3966	28.70	3995	180.32	n/a	180.6	n/a	0.998
3981	14.30	3995	89.84	n/a	90.4	n/a	0.994

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample filter changed.



TRS Analyzer Calibration by Dilution



DATE:	18-Jan-2023	PREVIOUS CALIBRATION DATE:	06-Dec-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	21.7
LOCATION:	842b	BAROMETRIC (mBar):	927
PURPOSE:	Routine	START TIME (MST):	14:33
PERFORMED BY:	Chris Wesson	END TIME (MST):	19:09

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1200736630	FLOW (mL/min)	371
INITIAL		FINAL	
BKG/OFFSET	12.8	BKG/OFFSET	13.3
COEF/SLOPE	0.869	COEF/SLOPE	0.889
Expected (reference) Value	44.6	Expected (reference) Value	44.6

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1400	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

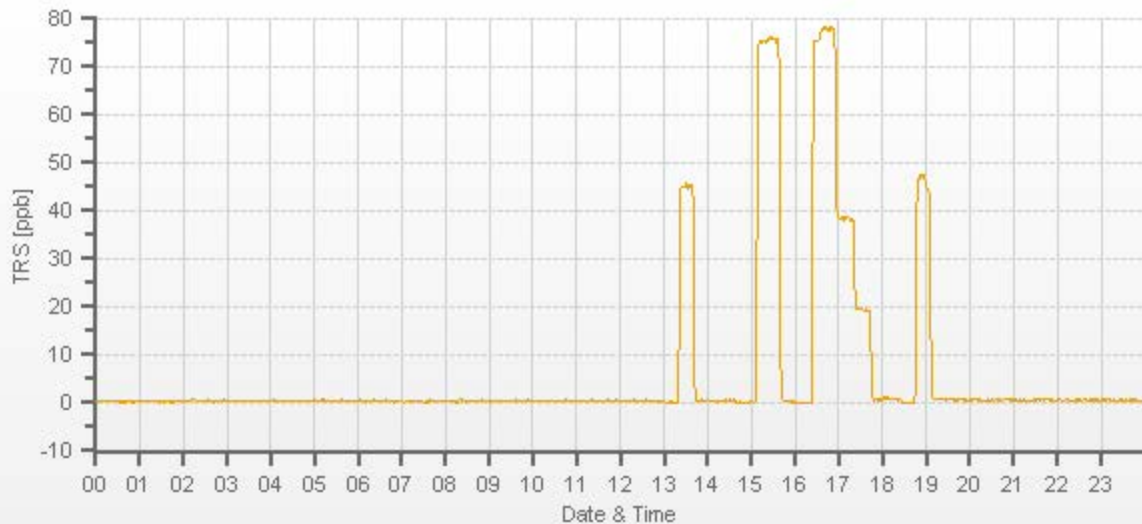
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4001	 	4001	0.00	0.29	0	 	
3969	33.20	4002	78.06	75.99	77.79	1.031	1.004
3979	16.20	3995	38.16	n/a	38.65	n/a	0.987
3987	8.10	3995	19.08	n/a	19.33	n/a	0.987

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.3%

COMMENTS:

TRS Converter CDNOVA CDN #583



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	18-Jan-2023	PREVIOUS CALIBRATION DATE:	06-Dec-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	21.7		Thermo 55i	12208316589	1146
LOCATION:	842b	BAROMETRIC (mBar):	927	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	14:33	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	19:09	PREVIOUS CF:	0.999	1.001	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	900	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	558.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1166.3

EXPECTED (REFERENCE) VALUE:

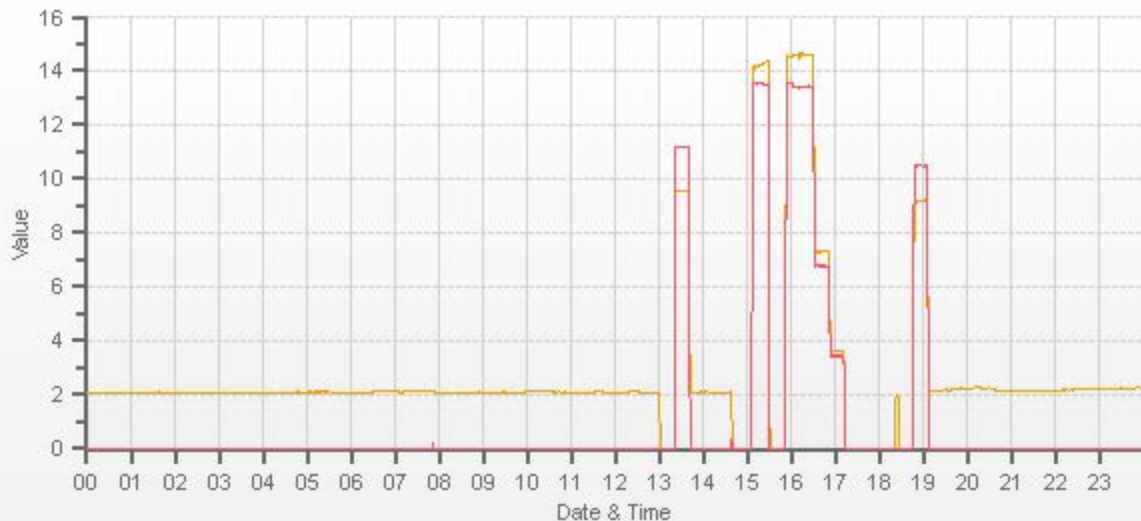
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.57	10.94	20.52		9.57	10.94	20.52

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3000	X	3000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
2927	72.00	2999	14.60	13.40	28.00	14.28	13.51	27.79	14.61	13.42	28.03	1.022	0.992	1.008	0.999	0.999	0.999
2963	36.00	2999	7.30	6.70	14.00	n/a	n/a	n/a	7.31	6.76	14.07	n/a	n/a	n/a	0.998	0.991	0.995
2981	18.00	2999	3.65	3.35	7.00	n/a	n/a	n/a	3.65	3.44	7.09	n/a	n/a	n/a	1.000	0.974	0.987

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:	
CH ₄	1.000	1.001	0.0%	Sample filter changed	
NMHC	1.000	1.000	0.2%		
THC	1.000	1.000	0.1%		
				Use Zero Chrom?	No



CAL-PRAMP-202301-01561

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CH4 [ppm] NMHC [ppm]

Meteorological System Checklist



Date:	January 18, 2023
Technician:	Chris Wesson
Station:	PRAMP 842b

Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 15878
Temperature Sensor:	Rotronic	HC2A-S3	20370767
Barometric Pressure Sensor:	MetOne	92	Y23362
Relative Humidity Sensor:	Rotronic	HC2A-S3	20370767
Anemometer:	RM Young	05305AQ	174802

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Previous check date:	December 6, 2022	Bucket found frozen, defrosted
Is the sensor Level?	yes	
Is the heater operating properly?	yes	
Are the bucket drain holes clean?	no	Drain holes blocked by ice. Defrosted
Is the screen on the housing? (screen should be on between July and September)	no	
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

TIP TEST - Slowly pour water until 10 tips are heard. (10 tips = 1 ml)

# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml
10	1.0	0.00

Previous check date:	December 6, 2022
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	F.S. 11745843 expires June 14, 2023
Reference Temperature (°C):	-5.1
Station - Ambient Temperature (°C):	-4.6
Temperature Difference (°C):	-0.5

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	December 6, 2022		
Reference Barometer ID:	BRUNTON #05535, Expire: Feb 27, 2023		
Reference Pressure - Units/Reading:	millibar		927.9
Station Pressure - Units/Reading:	millibar		927.1
Pressure Tolerance +/- 15% of error:	789 - 1067		0.09%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	December 6, 2022		
Reference Hygrometer ID:	F.S. 11745843 expires June 14, 2023		
Reference Hygrometer % RH- Reading:	82.50		
Station Hygrometer % RH- Reading:	86.40		
RH Tolerance +/- 15% of difference:	70.13 - 94.88		-4.7%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	December 6, 2022	Previous check date:	December 6, 2022
Wind Speed Observed (kph):	0	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	0	Wind Direction on Data Logger:	SW
		Wind Direction Pass/Fail?:	Pass

Comments

Found precip gauge found blocked by ice. Defrosted and then tested.



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Limin Li
Audit Location:	842b	Reviewed By:	Chris Wesson
Audit Date:	August 3, 2022	Start/End Time (mst):	16:30/17:58
Calibration Purpose:	routine annual	Weather Conditions:	Mainly sunny

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-200
Serial #:	174802	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	July 4, 2022	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 07, 2023

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data ****+/- 3° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.0	0.0	0.5
30	330	29	334	1.0	-4.0	2.5
60	300	58	305	2.0	-5.0	3.5
90	270	88	275	2.0	-5.0	3.5
120	240	119	244	1.0	-4.0	2.5
150	210	149	212	1.0	-2.0	1.5
180	180	180	180	0.0	0.0	0.0
210	150	211	150	-1.0	0.0	0.5
240	120	243	119	-3.0	1.0	2.0
270	90	275	88	-5.0	2.0	3.5
300	60	305	59	-5.0	1.0	3.0
330	30	333	30	-3.0	0.0	1.5
355	0	355	1	0.0	1.0	0.5
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.9

Comments:

Physical inspection completed. No issues.



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring Calibration Report

- 986c STATION-

CAL-PRAMP-202301-01562

Operation and Maintenance:

Bureau Veritas Canada

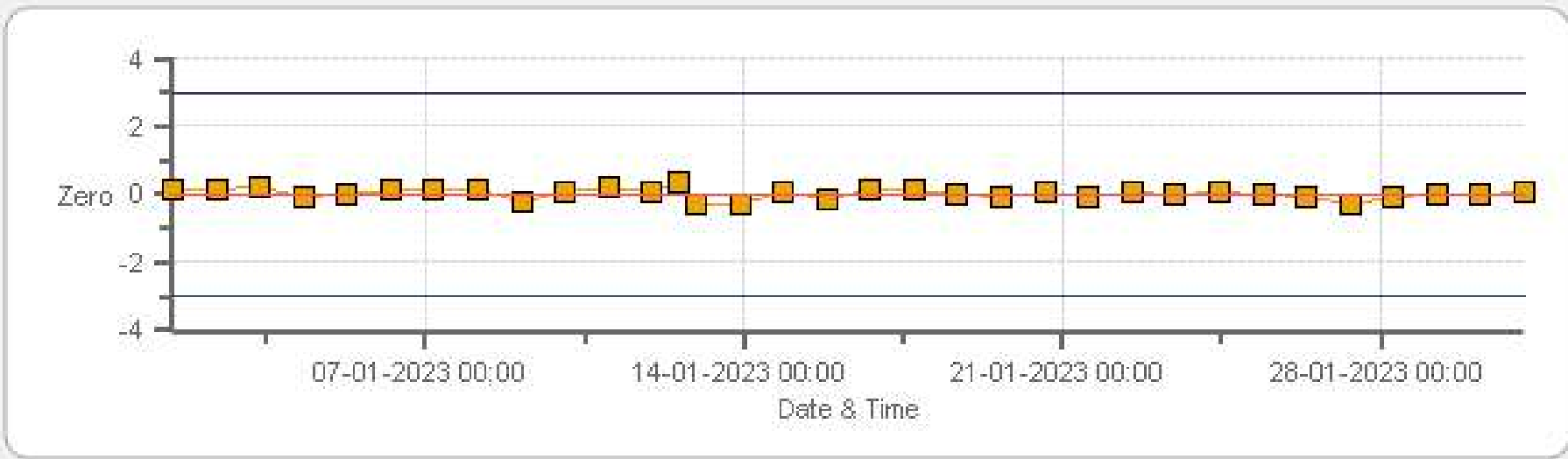
Data Validation and Report:

Bureau Veritas Canada

February 7, 2023

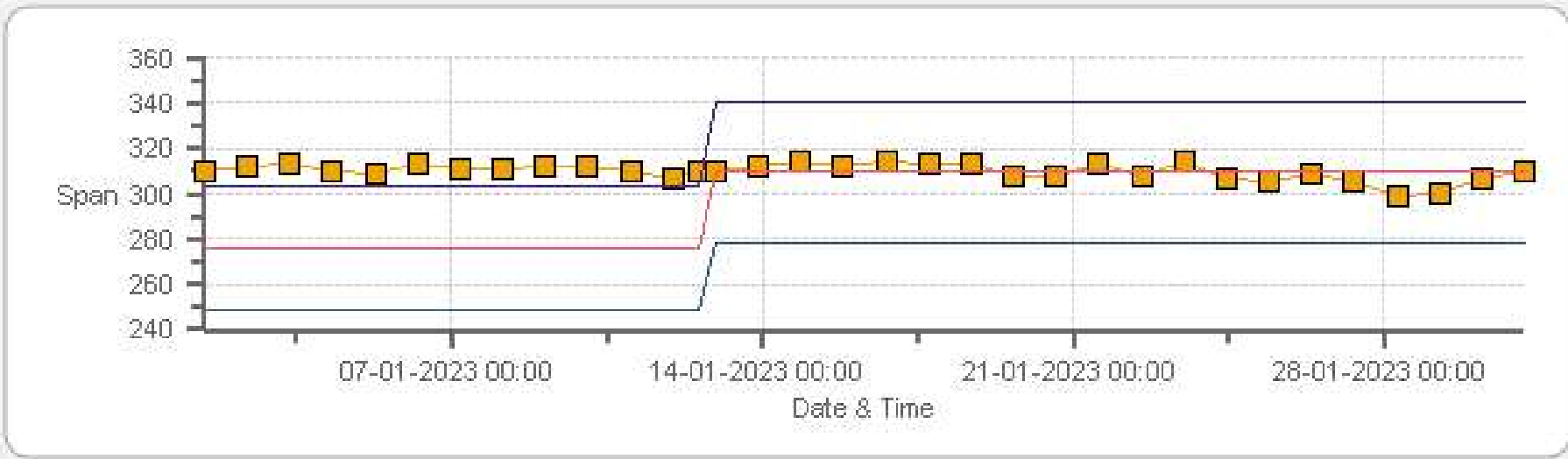
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Zero



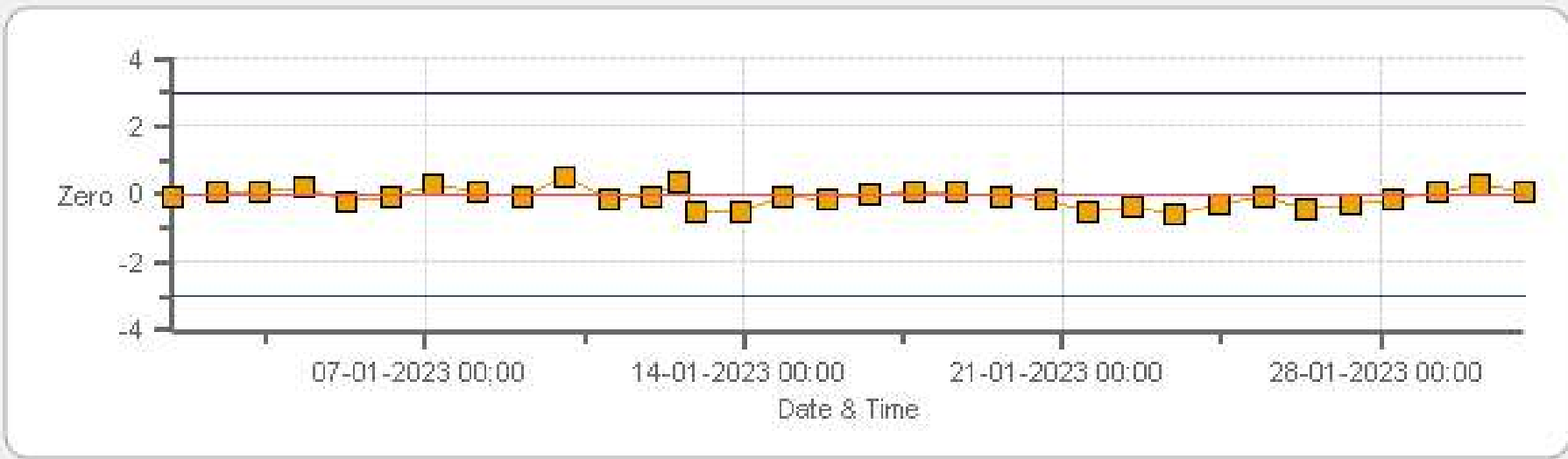
■ Zero
 — Zero Ref
 — Zero Low
 — Zero High

SO2[ppb] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Span



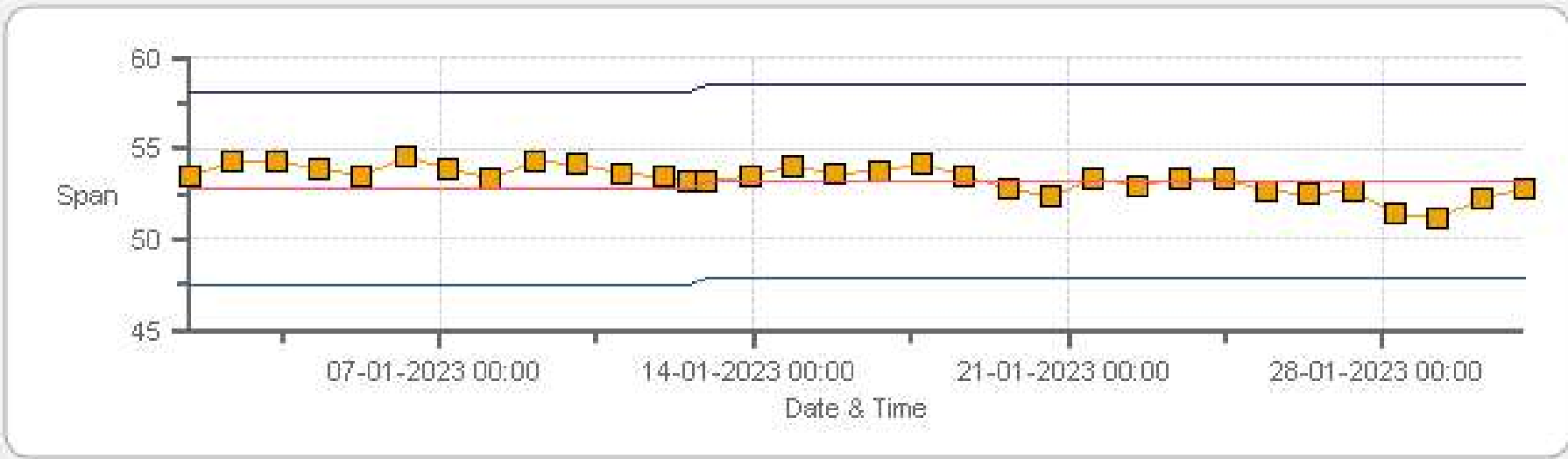
■ Span
 — SpanRef
 — Span Low
 — Span High

TRS[ppb] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Zero



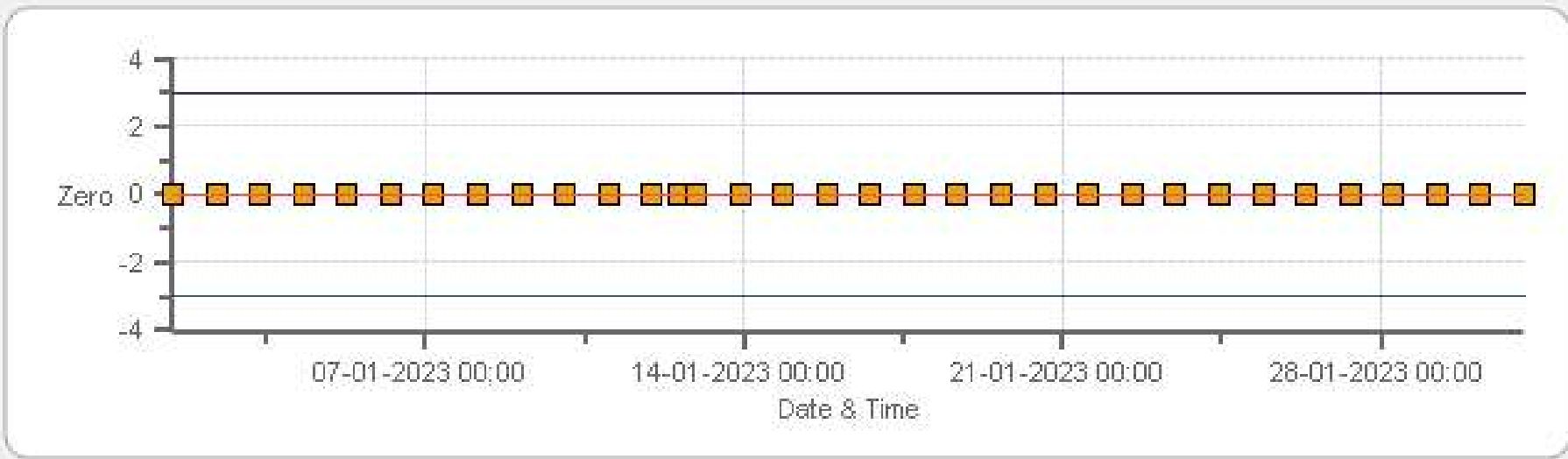
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Span



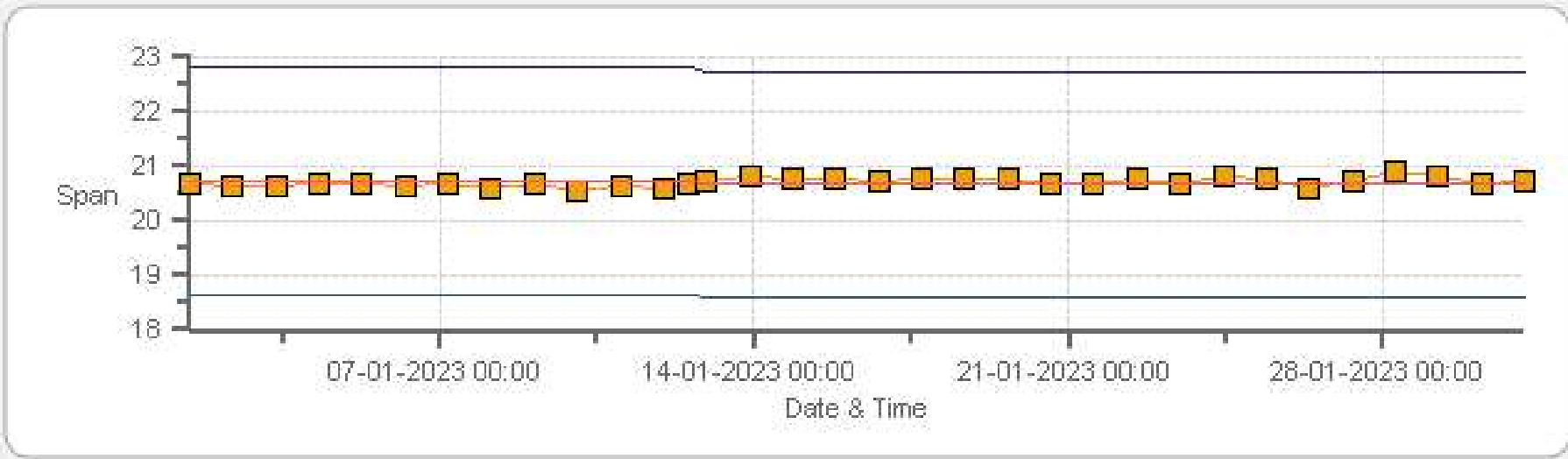
Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Zero



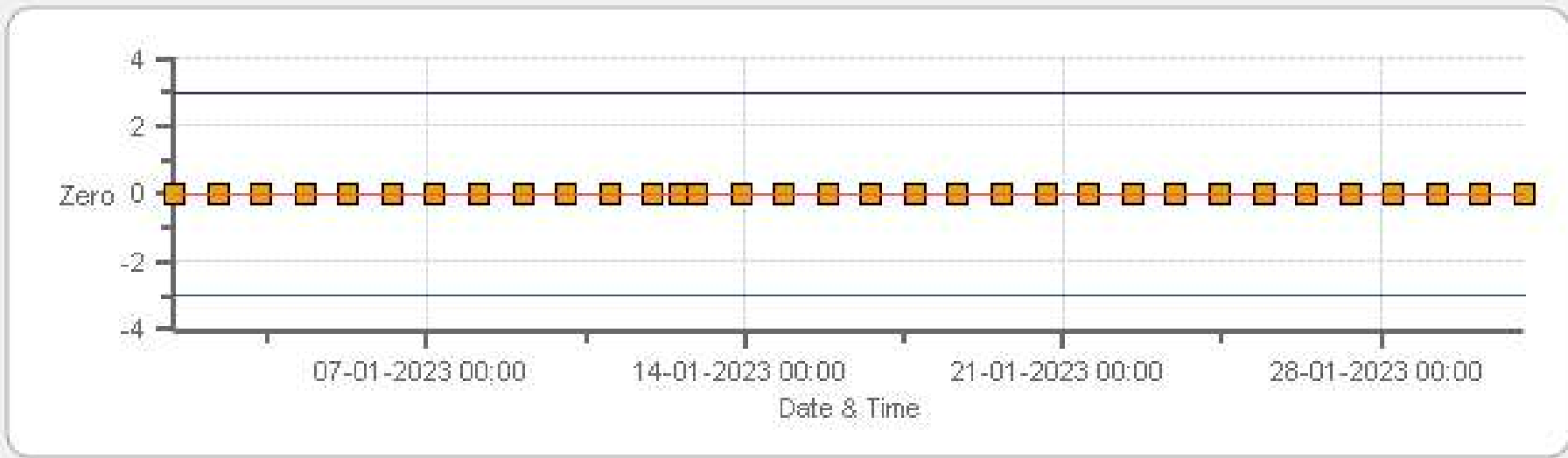
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Span



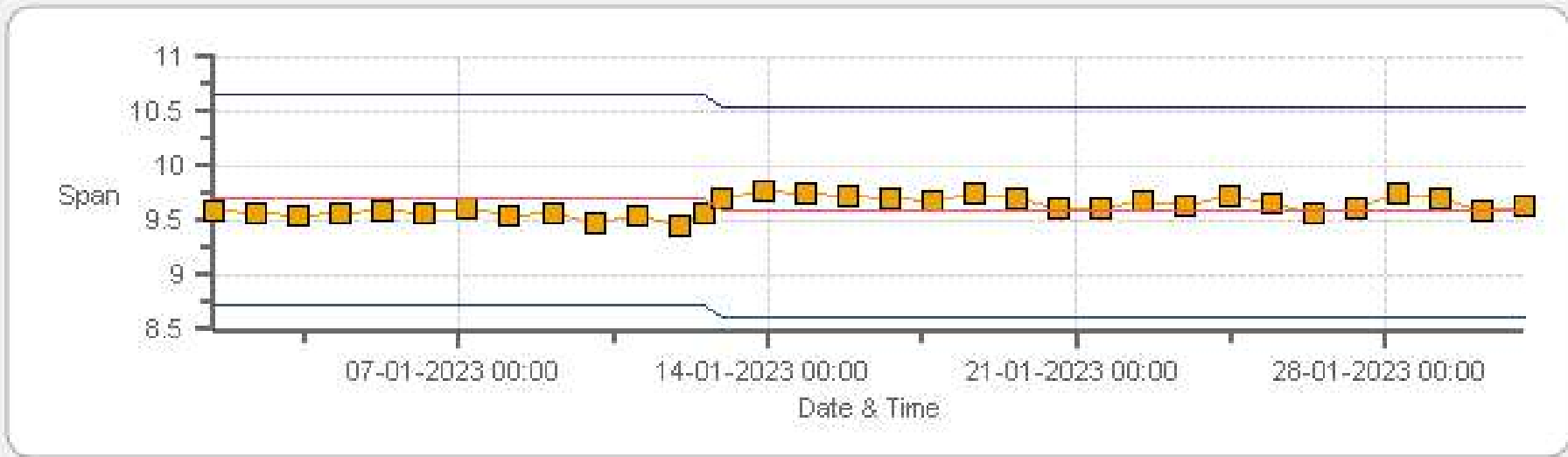
Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Zero



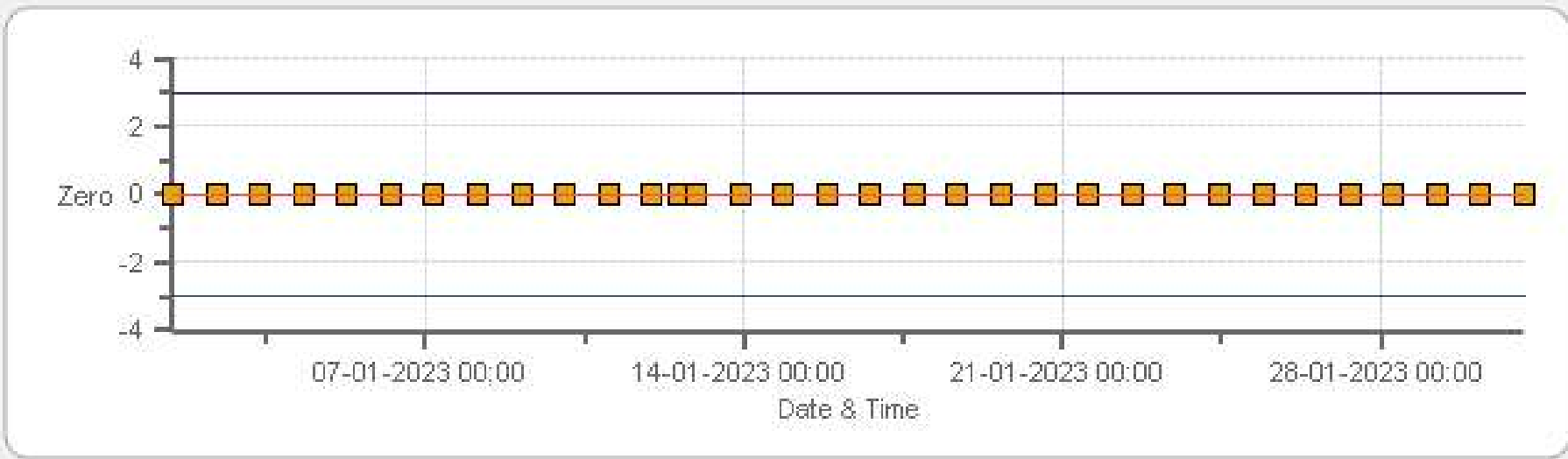
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Span



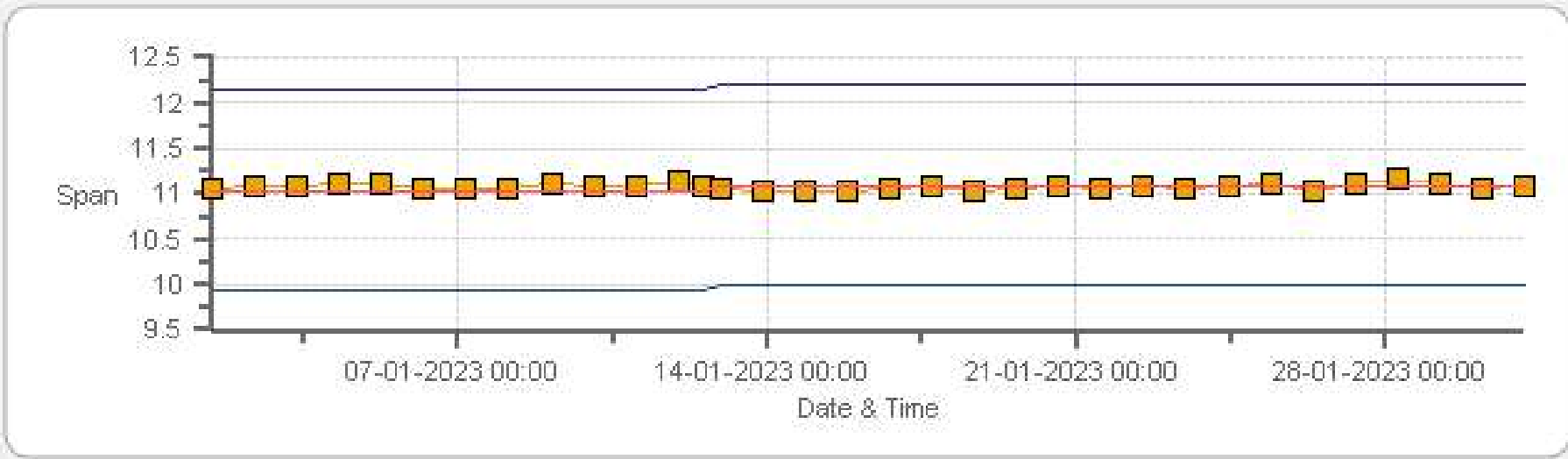
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP 986-C Monthly: 01-2023 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	12-Jan-2023	PREVIOUS CALIBRATION DATE:	05-Dec-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	23.4
LOCATION:	842b	BAROMETRIC (mBar):	941
PURPOSE:	Routine	START TIME (MST):	09:38
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:39

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	1193585646	FLOW (mL/min)	433
INITIAL		FINAL	
BKG/OFFSET	16.3	BKG/OFFSET	16.4
COEF/SLOPE	1.061	COEF/SLOPE	1.058
Expected (reference) Value	275.8	Expected (reference) Value	309.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0001923	HIGH ID	n/a
CONC (ppm):	25.10	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

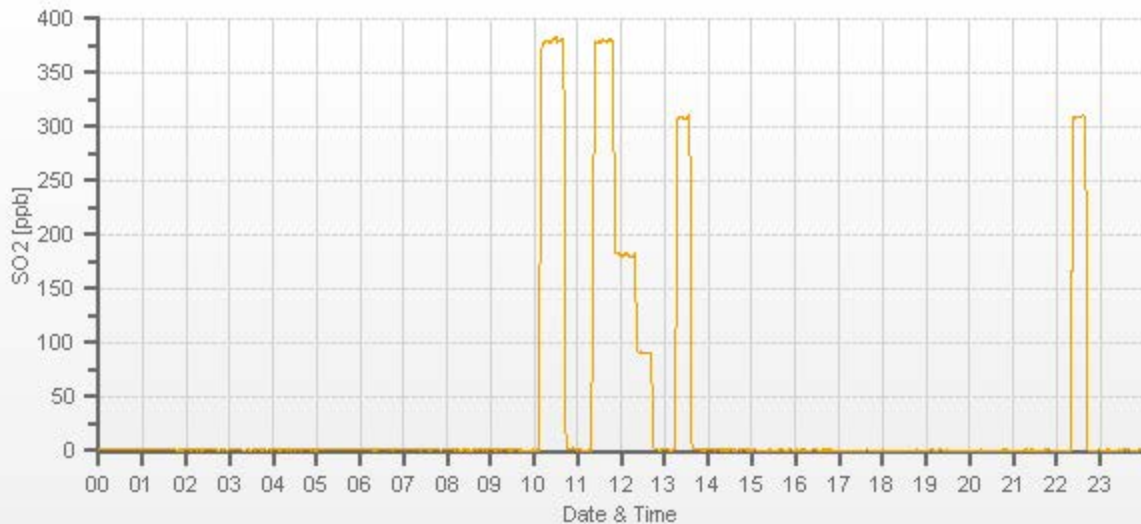
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3996	60.60	3996	0.00	0.1	0	1.000	1.002
3942	60.60	4003	379.98	380.2	379.4	1.000	1.002
3966	28.70	3995	180.32	n/a	180	n/a	1.002
3984	14.30	3998	89.78	n/a	90.3	n/a	0.994

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.998	0.1%

COMMENTS:

Sample filter changed.



TRS Analyzer Calibration by Dilution



DATE:	12-Jan-2023	PREVIOUS CALIBRATION DATE:	05-Dec-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	PRAMP	TEMPERATURE (°C):	23.4
LOCATION:	986C	BAROMETRIC (mBar):	941
PURPOSE:	Routine	START TIME (MST):	09:38
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:39

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	1191833341	FLOW (mL/min)	424
INITIAL		FINAL	
BKG/OFFSET	14.9	BKG/OFFSET	14.7
COEF/SLOPE	0.93	COEF/SLOPE	0.917
Expected (reference) Value	52.75	Expected (reference) Value	53.22

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

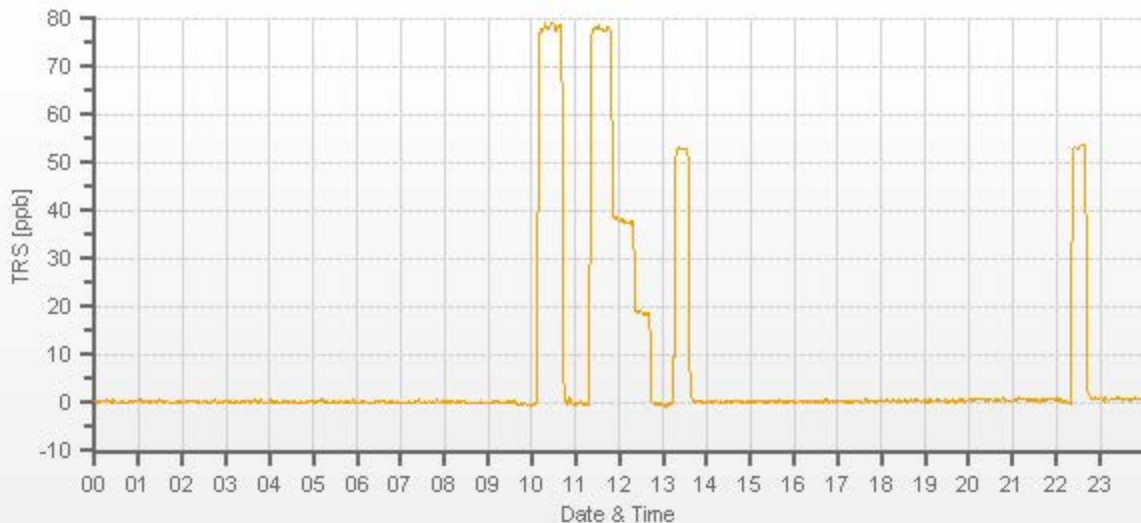
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3996	33.20	3996	0.00	-0.06	0	0.992	1.001
3970	33.20	4003	78.04	78.64	77.99	0.992	1.001
3979	16.20	3995	38.16	n/a	37.8	n/a	1.009
3990	8.10	3998	19.06	n/a	18.85	n/a	1.011

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	-0.1%

COMMENTS:

TRS Converter BV's CDNOVA CDN #552



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	12-Jan-2023	PREVIOUS CALIBRATION DATE:	06-Dec-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.4		Thermo 55i	1433563261	1150
LOCATION:	986C	BAROMETRIC (mBar):	941	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	09:38	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:19	PREVIOUS CF:	1.000	0.999	1.000

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	900	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	558.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1166.3

EXPECTED (REFERENCE) VALUE:

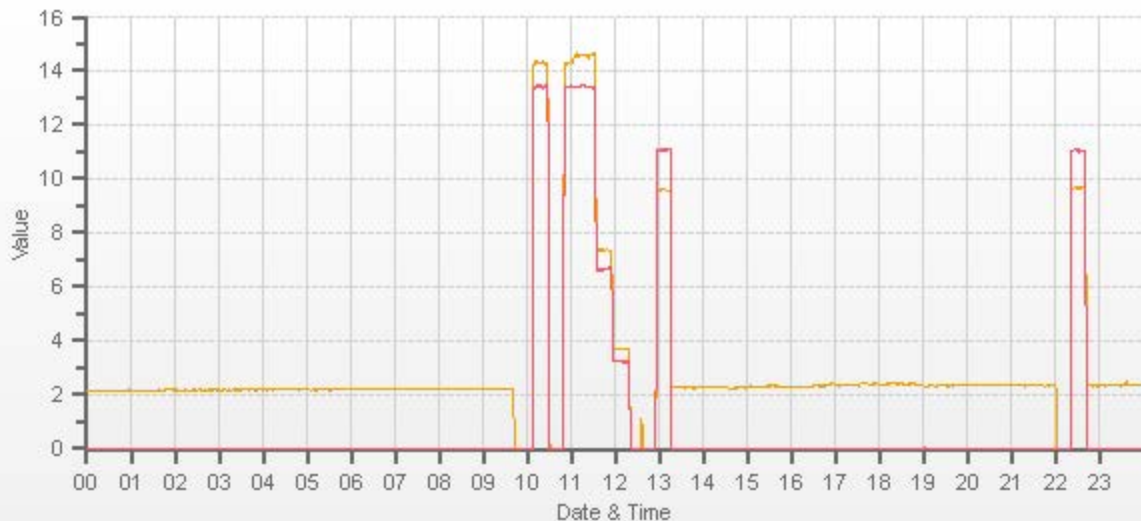
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.70	11.03	20.73		9.58	11.09	20.67

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3001	X	3001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
2928	72.00	3000	14.59	13.40	27.99	14.31	13.42	27.73	14.57	13.40	27.98	1.020	0.998	1.009	1.002	1.000	1.000
2963	36.00	2999	7.30	6.70	14.00	n/a	n/a	n/a	7.36	6.67	14.02	n/a	n/a	n/a	0.992	1.005	0.999
2982	18.00	3000	3.65	3.35	7.00	n/a	n/a	n/a	3.69	3.23	6.92	n/a	n/a	n/a	0.989	1.037	1.011

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH ₄	1.000	0.998	0.2%	Sample filter changed
NMHC	1.000	1.003	-0.3%	
THC	1.000	1.001	-0.1%	
				Use Zero Chrom? No



CAL-PRAMP-202301-01562

Page 14 of 17
CH4 [ppm] NMHC [ppm]

Meteorological System Checklist



Date:	January 12, 2023		
Technician:	Chris Wesson		
Station:	PRAMP 986c		
Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 16325
Temperature Sensor:	Rotronic	HC2-S3	20357528
Barometric Pressure Sensor:	MetOne	092	Y23358
Relative Humidity Sensor:	Rotronic	HC2-S3	20357528
Anemometer:	RM Young	05305AQ	180340
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	December 5, 2022		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	F.S. 160348895 expires Sep 4, 2022		
Reference Temperature (°C):	-10.4		
Station - Ambient Temperature (°C):	-10.6		
Temperature Difference (°C):	0.2		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	December 5, 2022		
Reference Barometer ID:	Brunton 05535 Expires Feb 22, 2023		
Reference Pressure - Units/Reading:	millibar	941.1	
Station Pressure - Units/Reading:	millibar	940.8	
Pressure Tolerance +/- 15% of error:	800 - 1082	0.03%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	December 5, 2022		
Reference Hygrometer ID:	F.S. 160348895 expires Sep 4, 2022		
Reference Hygrometer % RH- Reading:	88.30		
Station Hygrometer % RH- Reading:	100.00		
RH Tolerance +/- 15% of difference:	75.06 - 101.55	-13.3%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	December 5, 2022	Previous check date:	December 5, 2022
Wind Speed Observed (kph):	~5-10	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	4.6	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass
Comments			
Hoar frost collecting on wind system			

Meteorological System Checklist



Date:	January 12, 2023
Technician:	Chris Wesson
Station:	PRAMP 986c

Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 16325
Temperature Sensor:	Rotronic	HC2-S3	60837897
Barometric Pressure Sensor:	MetOne	092	Y23358
Relative Humidity Sensor:	Rotronic	HC2-S3	60837897
Anemometer:	RM Young	05305AQ	180340

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Previous check date:	November 9, 2022	Tip test fails:bucket/drain blocked by ice
Is the sensor Level?	yes	
Is the heater operating properly?	yes	Yes, melts snow in collection funnel.
Are the bucket drain holes clean?	no	Mechanism and drain holes frozen
Is the screen on the housing? (screen should be on between July and September)	no	
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

TIP TEST - Slowly pour water until 10 tips are heard. (10 tips = 1 ml)

# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml
10	0.0	1.00

AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	December 5, 2022
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Temperature (°C):	-10.6
Station - Ambient Temperature (°C):	-10.4
Temperature Difference (°C):	-0.2

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	December 5, 2022
Reference Hygrometer ID:	F.S. 160348895 expires Sep 4, 2022
Reference Hygrometer % RH- Reading:	89.80
Station Hygrometer % RH- Reading:	86.60
RH Tolerance +/- 15% of difference:	76.33 - 103.27 3.6%

Comments

Tipping bucket non-functional due to internal ice build-up



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Limin Li
Audit Location:	986C	Reviewed By:	Chris Wesson
Audit Date:	August 5, 2022	Start/End Time (mst):	09:37/10:32
Calibration Purpose:	routine annual	Weather Conditions:	A few clouds

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-180
Serial #:	180340	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	July 3, 2021	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 07, 2023

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data ****+/- 3° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	2	354	2.0	1.0	1.5
30	330	32	333	-2.0	-3.0	2.5
60	300	61	303	-1.0	-3.0	2.0
90	270	90	273	0.0	-3.0	1.5
120	240	120	242	0.0	-2.0	1.0
150	210	150	210	0.0	0.0	0.0
180	180	180	179	0.0	1.0	0.5
210	150	210	149	0.0	1.0	0.5
240	120	242	120	-2.0	0.0	1.0
270	90	273	90	-3.0	0.0	1.5
300	60	303	61	-3.0	-1.0	2.0
330	30	332	32	-2.0	-2.0	2.0
355	0	354	2	1.0	2.0	1.5
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.3

Comments:

Magnetic declination = 15Deg(E)



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring Calibration Report

- RENO STATION-

CAL-PRAMP-202301-01563

Operation and Maintenance:

Bureau Veritas Canada

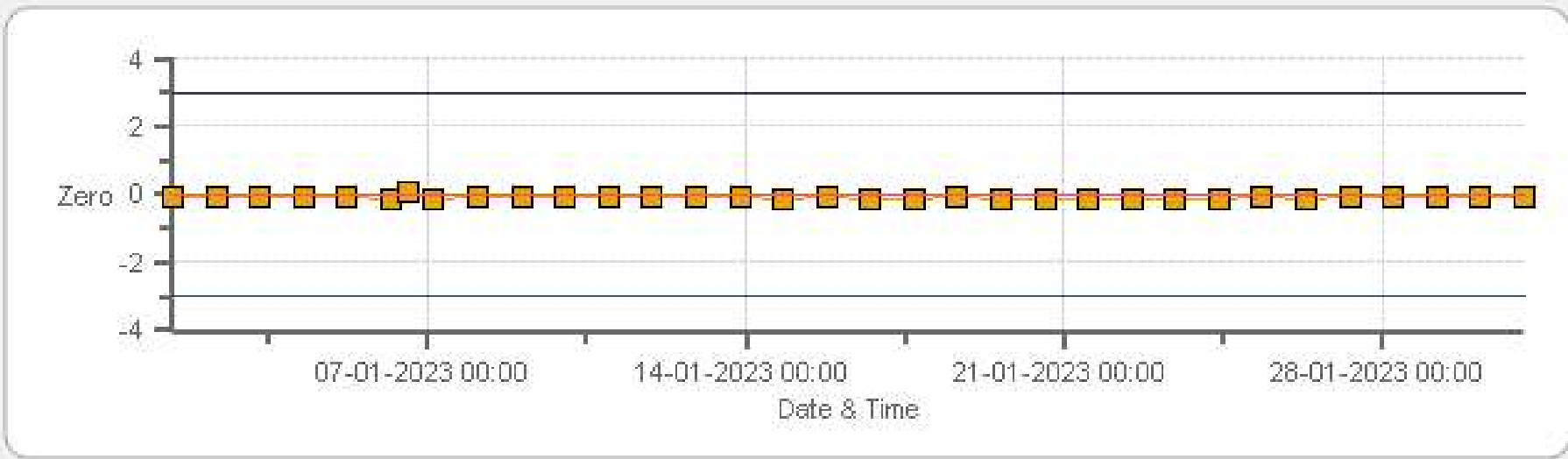
Data Validation and Report:

Bureau Veritas Canada

February 7, 2023

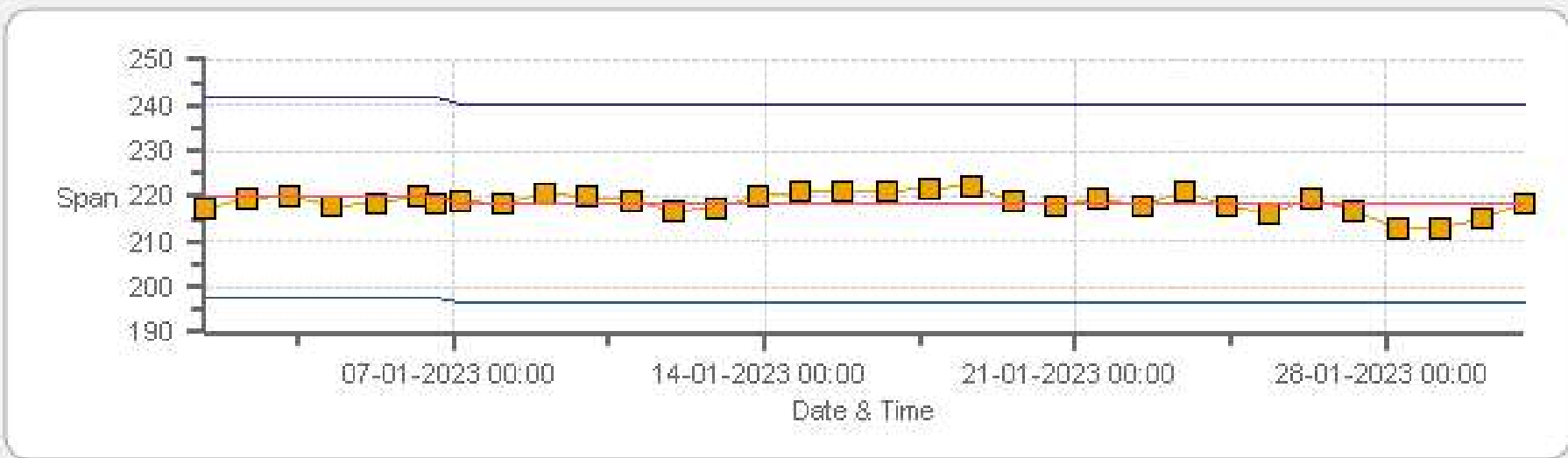
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Zero



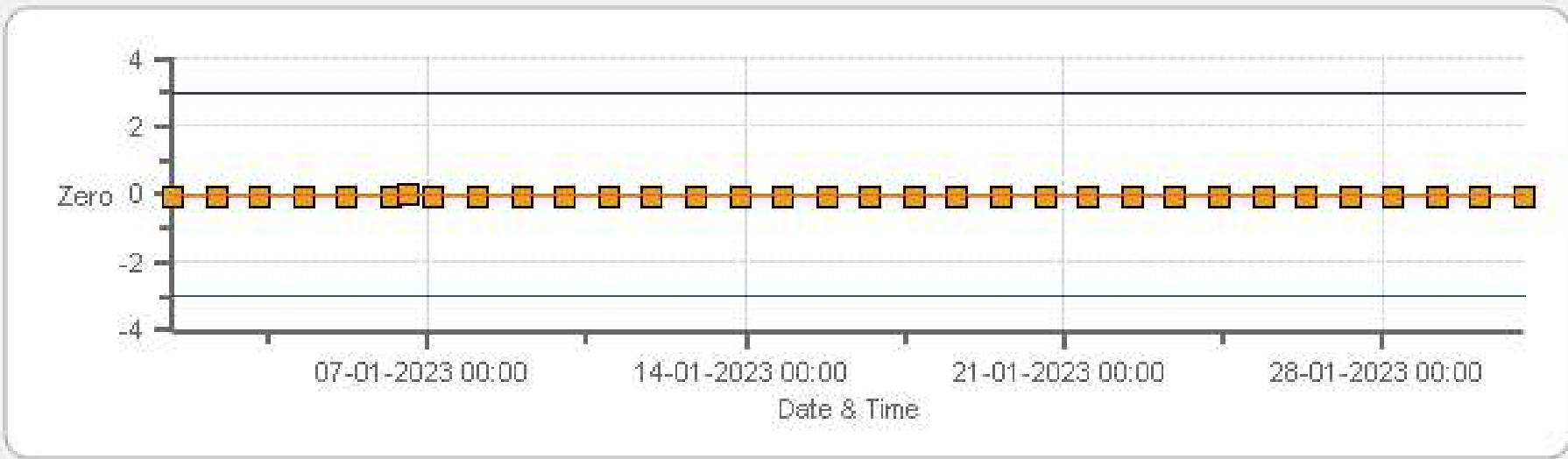
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Span



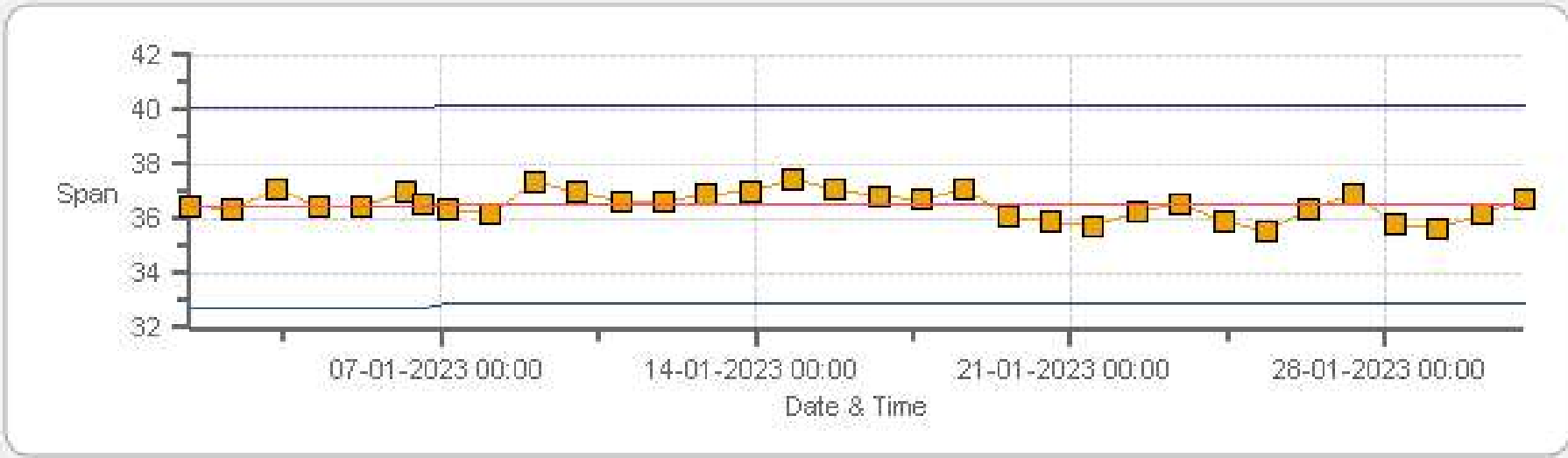
Span Span Ref Span Low Span High

TRS[ppb] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Zero



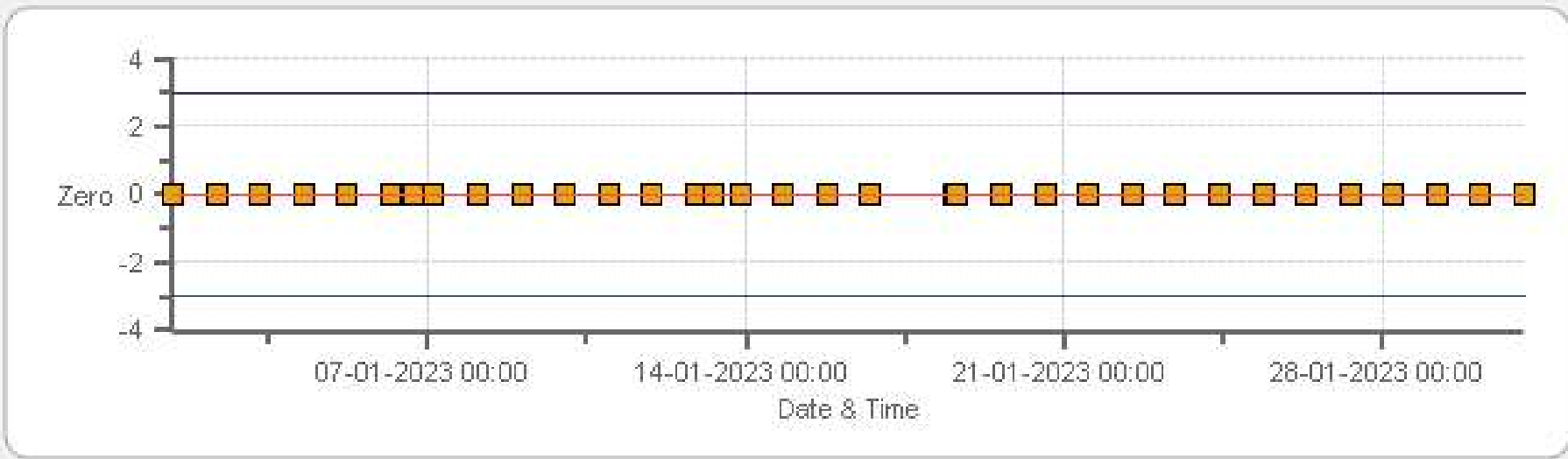
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Span



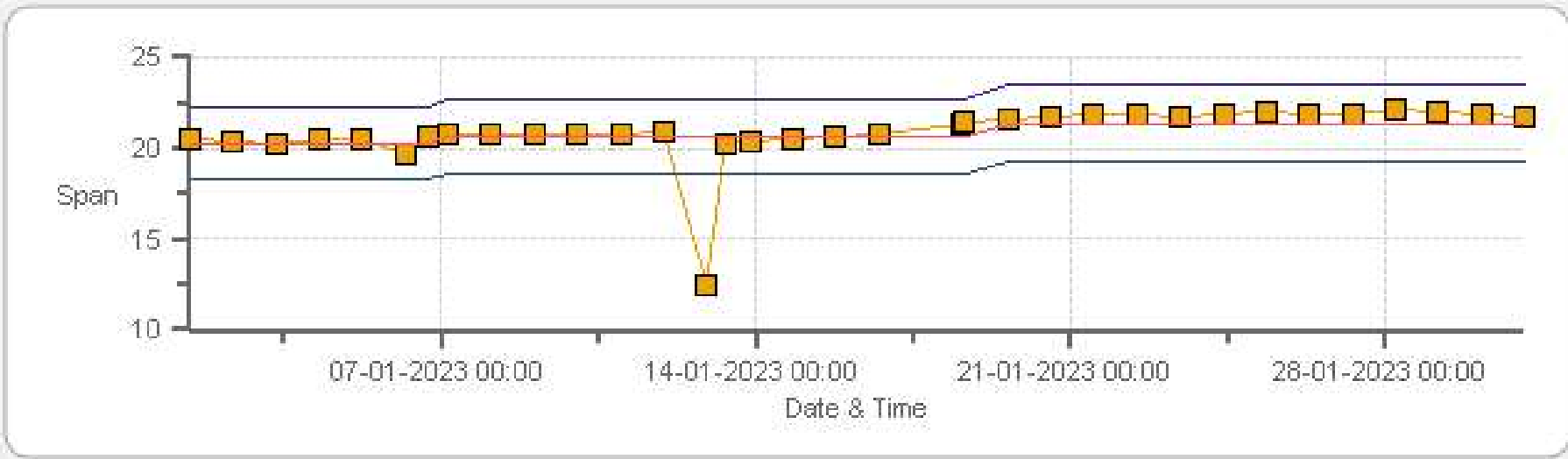
Span Span Ref Span Low Span High

THC55[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Zero



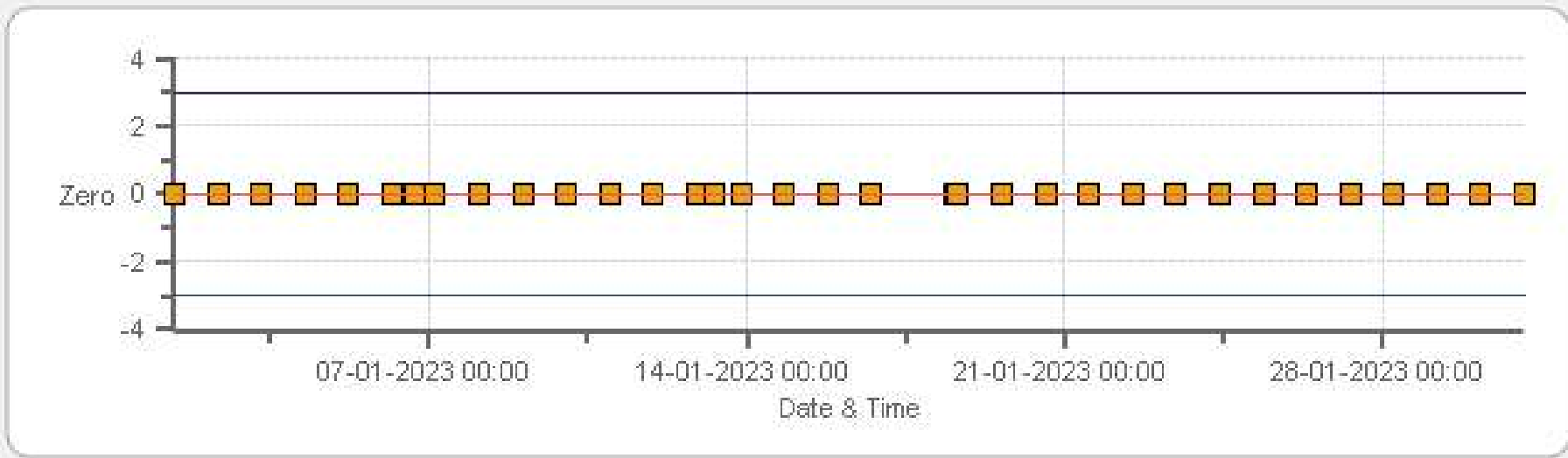
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Span



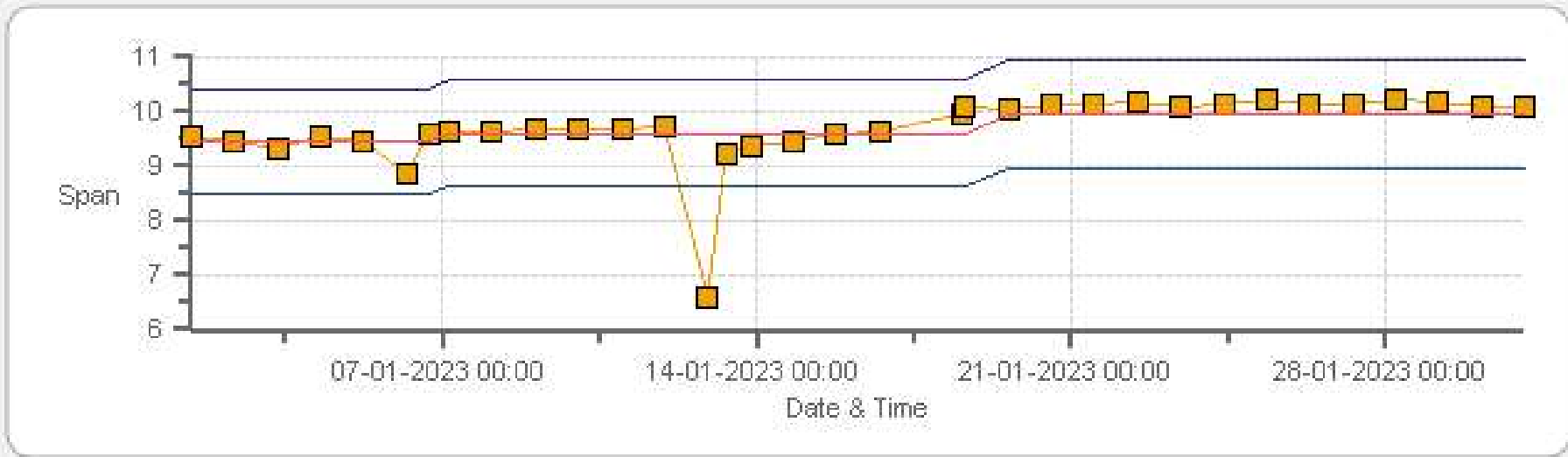
Span Span Ref Span Low Span High

CH4[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Zero



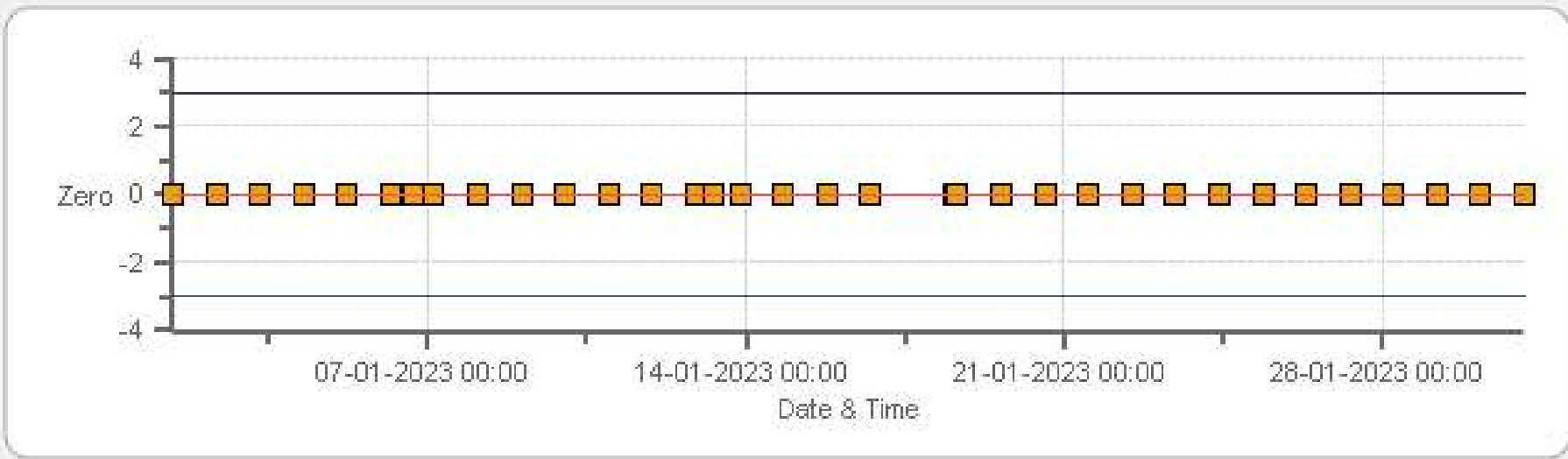
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Span



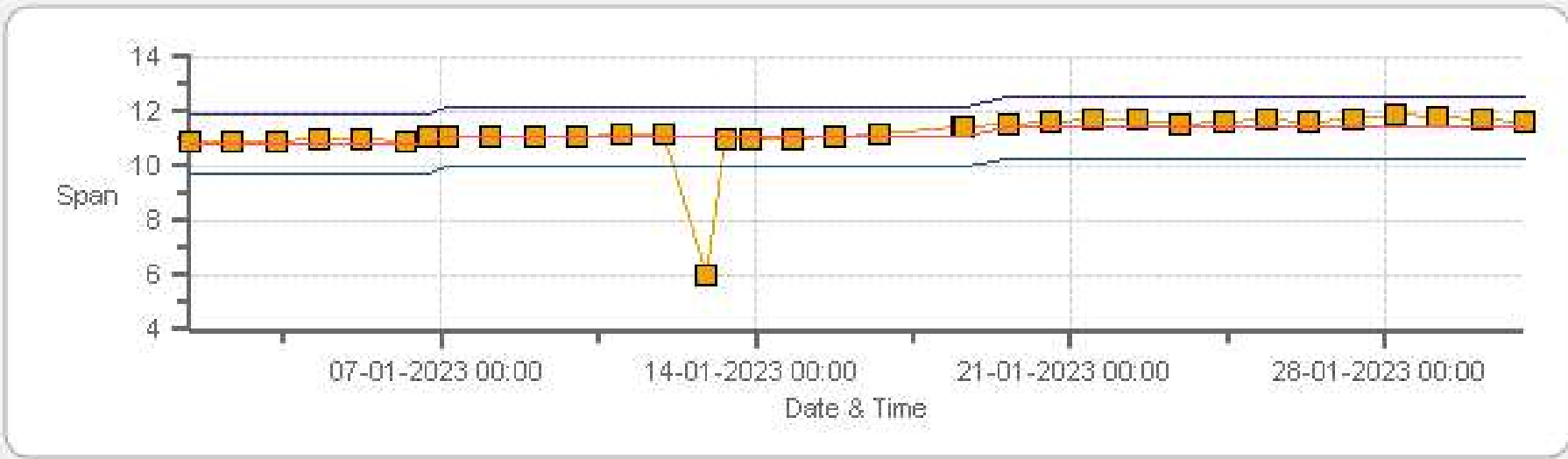
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: PRAMP RENO-B Monthly: 01-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	06-Jan-2023	PREVIOUS CALIBRATION DATE:	07-Dec-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.6
LOCATION:	Reno-B	BAROMETRIC (mBar):	932
PURPOSE:	Routine	START TIME (MST):	10:21
PERFORMED BY:	Chris Wesson	END TIME (MST):	14:10

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	500 ppb
SERIAL #	12101910505	FLOW (mL/min)	439
INITIAL		FINAL	
BKG/OFFSET	1.17	BKG/OFFSET	1.17
COEF/SLOPE	0.931	COEF/SLOPE	0.931
Expected (reference) Value	219.8	Expected (reference) Value	218.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0001923	HIGH ID	n/a
CONC (ppm):	25.10	EXPIRY DATE	n/a
CYLINDER (psi):	1100	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

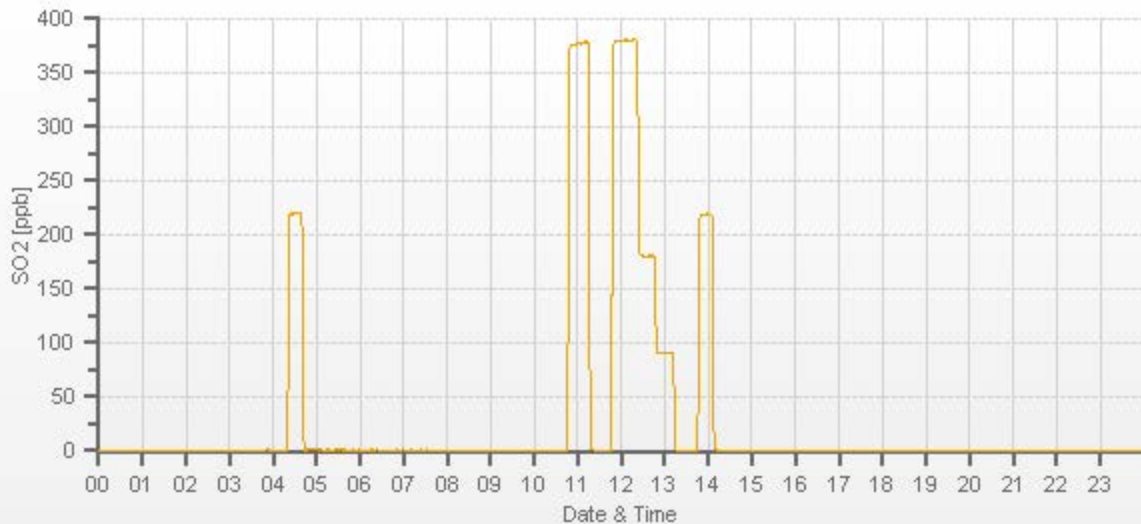
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3995	60.60	3995	0.00	-0.1	0	1.007	1.001
3941	60.60	4002	380.07	377.2	379.8	1.007	1.001
3973	28.70	4002	180.00	n/a	180.8	n/a	0.996
3988	14.30	4002	89.69	n/a	89.9	n/a	0.998

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.1%

COMMENTS:

sample filter changed



TRS Analyzer Calibration by Dilution



DATE:	06-Jan-2023	PREVIOUS CALIBRATION DATE:	07-Dec-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.000
CLIENT:	PRAMP	TEMPERATURE (°C):	22.6
LOCATION:	Reno-B	BAROMETRIC (mBar):	932
PURPOSE:	Routine	START TIME (MST):	10:22
PERFORMED BY:	Chris Wesson	END TIME (MST):	14:10

ANALYZER:

MAKE/MODEL	Thermo 43iQTL	RANGE	100 ppb
SERIAL #	12101910504	FLOW (mL/min)	397
INITIAL		FINAL	
BKG/OFFSET	0.95	BKG/OFFSET	0.95
COEF/SLOPE	0.864	COEF/SLOPE	0.869
Expected (reference) Value	36.41	Expected (reference) Value	36.53

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1500	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

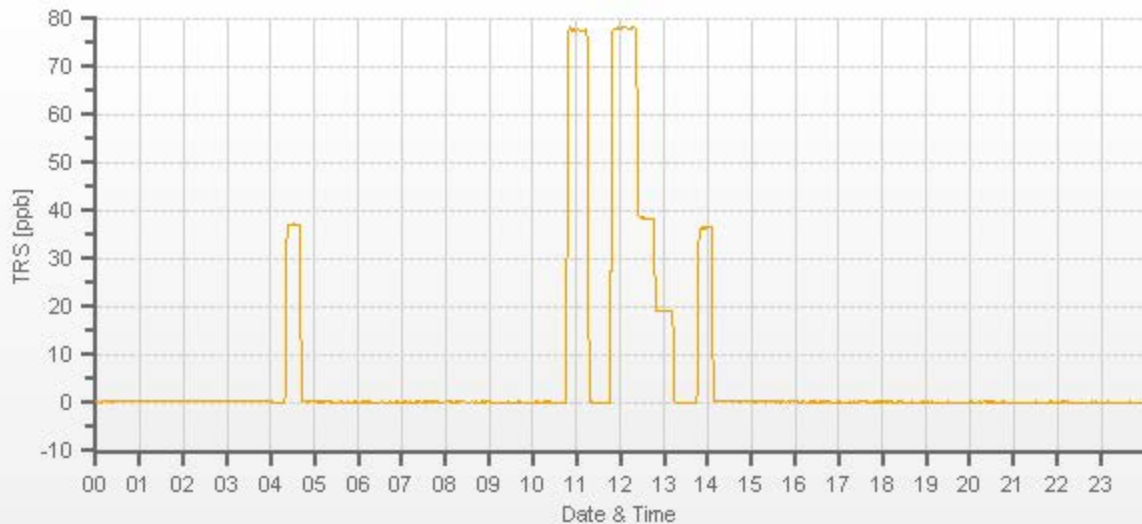
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3995	33.20	3995	0.00	-0.06	0	1.006	1.002
3969	33.20	4002	78.06	77.52	77.9	1.006	1.002
3986	16.20	4002	38.09	n/a	37.19	n/a	1.024
3994	8.10	4002	19.05	n/a	19.12	n/a	0.996

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	-0.1%

COMMENTS:

TRS Converter CDNOVA CDN-101 #590.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	06-Jan-2023	PREVIOUS CALIBRATION DATE:	07-Dec-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	22.6		Thermo 55i	12101910497	1082
LOCATION:	Reno-B	BAROMETRIC (mBar):	932	PARAMETER:	CH4	NMHC	THC
PURPOSE	Removal/Shut-down	START TIME (MST):	10:21	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:03	PREVIOUS CF:	1.001	1.000	1.001

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:

POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE	
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄	558.3
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄	1166.3

EXPECTED (REFERENCE) VALUE:

INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.45	10.83	20.28		n/a	n/a	n/a

CALIBRATION:

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3000	72.00	3000	0.00	0.00	0.00	0.02	0.00	0.00	n/a	n/a	n/a	1.013	1.009	1.012	n/a	n/a	n/a
2927	72.00	2999	14.60	13.40	28.00	14.41	13.28	27.68	n/a	n/a	n/a	1.013	1.009	1.012	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT	Comments:
CH ₄	1.000	0.986	0.1%	Shutdown due to bad injections. Unable to achieve 15mins stability at mid-point, calibration terminated
NMHC	1.000	0.991	0.0%	
THC	1.000	0.989	0.0%	
Use Zero Chrom?				No

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	06-Jan-2023	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.0		Thermo 55i	12101910497	1082
LOCATION:	Reno-B	BAROMETRIC (mBar):	932	PARAMETER:	CH4	NMHC	THC
PURPOSE	Install/Post-Repair	START TIME (MST):	14:08	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:41	PREVIOUS CF:	n/a	n/a	n/a

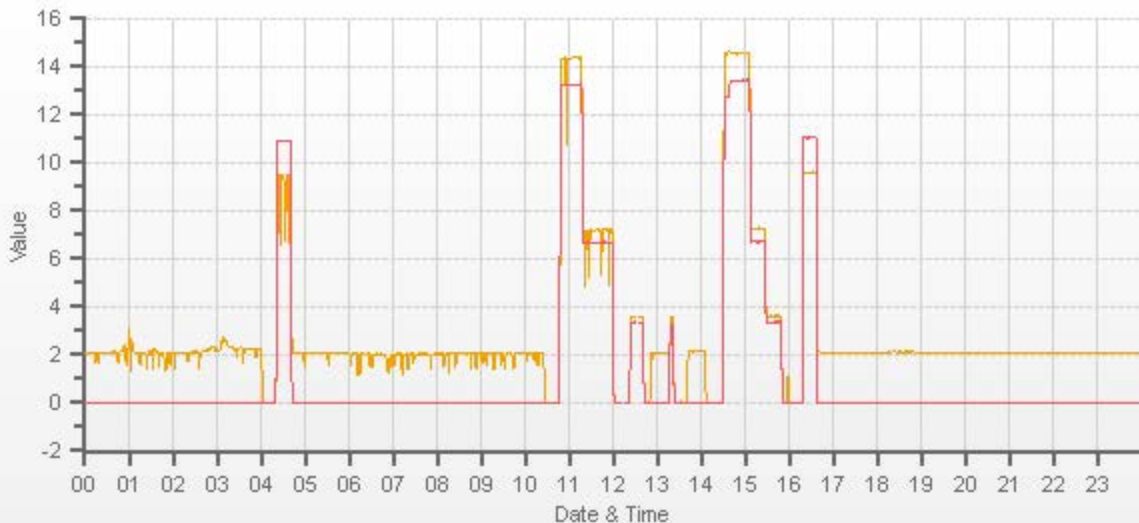
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:							
POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE			
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄		558.3	
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄		1166.3	

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.45	10.83	20.28		9.61	11.07	20.67

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3000	X	3000	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	X	X	X	X	X	X
2927	72.00	2999	14.60	13.40	28.00	n/a	n/a	n/a	14.60	13.45	28.05	n/a	n/a	n/a	1.000	0.996	0.998
2963	36.00	2999	7.30	6.70	14.00	n/a	n/a	n/a	7.29	6.71	14.00	n/a	n/a	n/a	1.001	0.999	1.000
2982	18.00	3000	3.65	3.35	7.00	n/a	n/a	n/a	3.61	3.37	6.98	n/a	n/a	n/a	1.011	0.994	1.003

LINEAR REGRESSION ANALYSIS:				Comments:			
	CORRELATION	SLOPE	INTERCEPT	sample filter changed			
CH ₄	1.000	1.001	-0.1%				
NMHC	1.000	1.003	0.0%				
THC	1.000	1.002	0.0%	Use Zero Chrom?	Yes		



CAL-PRAMP-202301-01563

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CH4 [ppm] NMHC [ppm]

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	17-Jan-2023	PREVIOUS CALIBRATION DATE:	06-Jan-2023	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	24.0		Thermo 55i	12101910497	1054
LOCATION:	Reno-B	BAROMETRIC (mBar):	930	PARAMETER:	CH4	NMHC	THC
PURPOSE	Removal/Shut-down	START TIME (MST):	09:36	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	11:33	PREVIOUS CF:	1.000	0.996	0.998

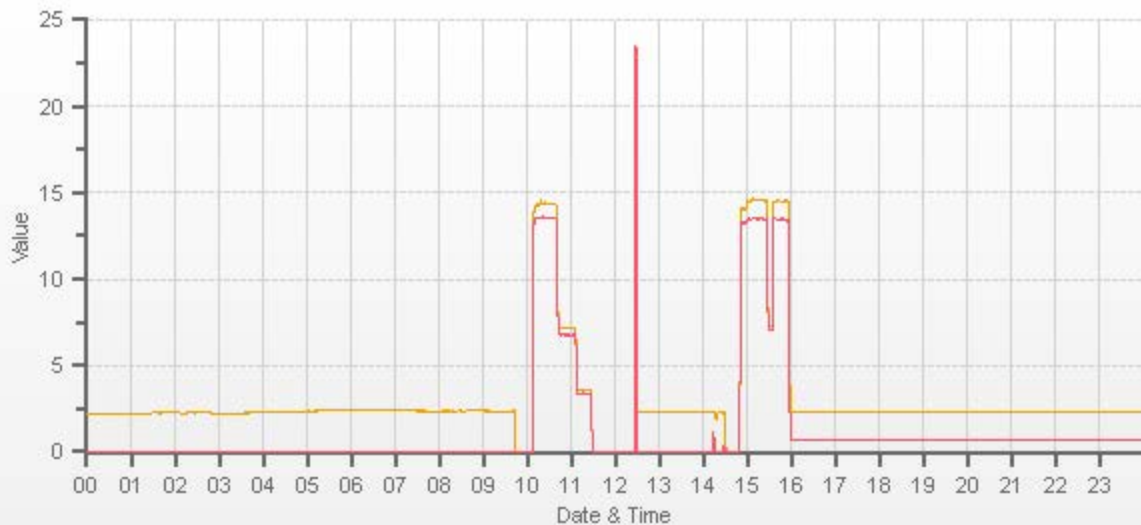
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:							
POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE			
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄		558.3	
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄		1166.3	

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.61	11.07	20.67		n/a	n/a	n/a

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3001	3001	3001	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	1.018	0.988	1.003	n/a	n/a	n/a
2928	72.00	3000	14.59	13.40	27.99	14.34	13.56	27.90	n/a	n/a	n/a	1.018	0.988	1.003	n/a	n/a	n/a
2963	36.00	2999	7.30	6.70	14.00	7.15	6.78	13.93	n/a	n/a	n/a	1.021	0.988	1.005	n/a	n/a	n/a
2981	18.10	2999	3.67	3.37	7.04	3.57	3.37	6.94	n/a	n/a	n/a	1.028	1.000	1.014	n/a	n/a	n/a

LINEAR REGRESSION ANALYSIS:				Comments:			
	CORRELATION	SLOPE	INTERCEPT	sample filter changed			
CH ₄	1.000	0.983	-0.1%				
NMHC	1.000	1.013	-0.1%				
THC	1.000	0.998	-0.1%	Use Zero Chrom?		Yes	



CAL-PRAMP-202301-01563

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CH4 [ppm] NMHC [ppm]

Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	18-Jan-2023	PREVIOUS CALIBRATION DATE:	n/a	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	22.6		Thermo 55i	1505664392	1085
LOCATION:	Reno-B	BAROMETRIC (mBar):	927	PARAMETER:	CH4	NMHC	THC
PURPOSE:	Install/Post-Repair	START TIME (MST):	10:59	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:19	PREVIOUS CF:	n/a	n/a	n/a

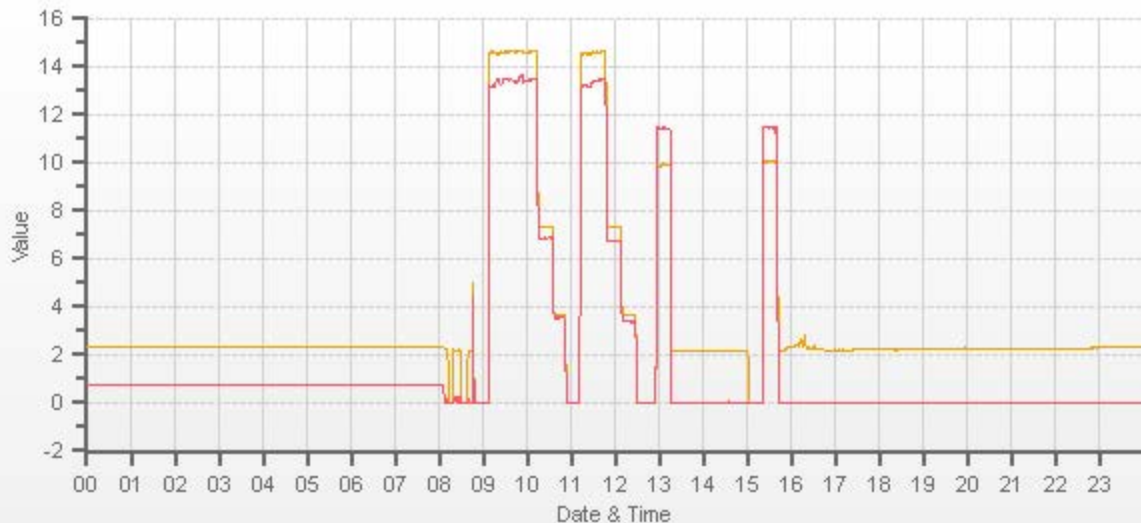
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE:	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:							
POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE			
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄		558.3	
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄		1166.3	

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.61	11.07	20.67		n/a	n/a	n/a

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3000	X	3000	0.00	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	X	X	X	X	X	X
2927	72.00	2999	14.60	13.40	28.00	n/a	n/a	n/a	14.62	13.43	28.06	n/a	n/a	n/a	0.998	0.998	0.998
2963	36.00	2999	7.30	6.70	14.00	n/a	n/a	n/a	7.34	6.76	14.10	n/a	n/a	n/a	0.994	0.991	0.993
2983	18.00	3001	3.65	3.35	7.00	n/a	n/a	n/a	3.68	3.40	7.07	n/a	n/a	n/a	0.991	0.985	0.989

LINEAR REGRESSION ANALYSIS:				Comments: 1st calibration attempt failed. Changed Zero chrom to YES and restarted
	CORRELATION	SLOPE	INTERCEPT	
CH ₄	1.000	1.001	0.1%	
NMHC	1.000	1.001	0.1%	
THC	1.000	1.002	0.1%	
				Use Zero Chrom? Yes



CAL-PRAMP-202301-01563

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CH4 [ppm] NMHC [ppm]

Meteorological System Checklist



Date:	January 6, 2023
Technician:	Chris Wesson
Station:	PRAMP Reno

Unit:	Make:	Model:	Serial #:
Precipitation Sampler:	RM Young	52202	TB 15877
Temperature Sensor:	Rotronic	HC2-S3	20467597
Barometric Pressure Sensor:	MetOne	92	A17940
Relative Humidity Sensor:	Rotronic	HC2-S3	20467597
Anemometer:	RM Young	05305AQ	174795

PRECIPITATION SENSOR CHECK

Checklist:	Reply:	Comments:
Previous check date:	December 7, 2022	Audit: 15:26-16:04. Fail. Mechanism/drains blocked by ice.
Is the sensor Level?	yes	
Is the heater operating properly?	yes	Tested with snow
Are the bucket drain holes clean?	no	Blocked by ice
Is the screen on the housing? (screen should be on between July and September)	no	
Is the housing clean?	yes	
Is the area around the housing clean and free from obstacles?	yes	

TIP TEST - Slowly pour water until 10 tip are heard. (10 tips = 1 ml)

# of Tips	Data Logger Response (ml):	Manual Specification = +/- 0.1 ml
0	0.00	n/a

AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	December 7, 2022
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	FS 160459244 expires June 14, 2023
Reference Temperature (°C):	-7.8
Station - Ambient Temperature (°C):	-7.8
Temperature Difference (°C):	0.0

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	December 7, 2022
Reference Barometer ID:	Brunton 05535 expires Feb 22, 2023
Reference Pressure - Units/Reading:	millibar 932.6
Station Pressure - Units/Reading:	millibar 932.6
Pressure Tolerance +/- 15% of error:	793 - 1072 0.00%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	December 7, 2022
Reference Hygrometer ID:	FS 160459244 expires June 14, 2023
Reference Hygrometer % RH- Reading:	83.90
Station Hygrometer % RH- Reading:	82.70
RH Tolerance +/- 15% of difference:	71.32 - 96.49 1.4%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	December 7, 2022	Previous check date:	December 7, 2022
Wind Speed Observed (kph):	5~10	Wind Direction Observed:	S
Wind speed on Data Logger (kph):	7.6	Wind Direction on Data Logger:	S
		Wind Direction Pass/Fail?:	Pass

Comments

PRECIP invalid due to ice build-up. Will try to clear next week?



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	Reno-B	Reviewed By:	Limin Li
Audit Date:	November 23, 2022	Start/End Time (mst):	15:40 / 16:44
Calibration Purpose:	installation	Weather Conditions:	Mainly cloudy with clear breaks

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-200
Serial #:	174795	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	n/a	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# R9133 expires Oct 18, 2024

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data ****+/- 3° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.0	2.0	1.0
30	330	28	327	2.0	3.0	2.5
60	300	58	298	2.0	2.0	2.0
90	270	89	271	1.0	-1.0	1.0
120	240	119	238	1.0	2.0	1.5
150	210	149	208	1.0	2.0	1.5
180	180	179	178	1.0	2.0	1.5
210	150	208	149	2.0	1.0	1.5
240	120	237	119	3.0	1.0	2.0
270	90	267	89	3.0	1.0	2.0
300	60	297	58	3.0	2.0	2.5
330	30	329	28	1.0	2.0	1.5
355	0	353	0	2.0	0.0	1.0
The audit meets AMD requirements.				Average Absolute Degrees Difference=		1.7

Comments:

Declination = 15 deg East
Output via RMY 32400 serial interface



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring Calibration Report

- AQHI - GRIMSHAW STATION-

CAL-PRAMP-202301-01689

Operation and Maintenance:

Bureau Veritas Canada

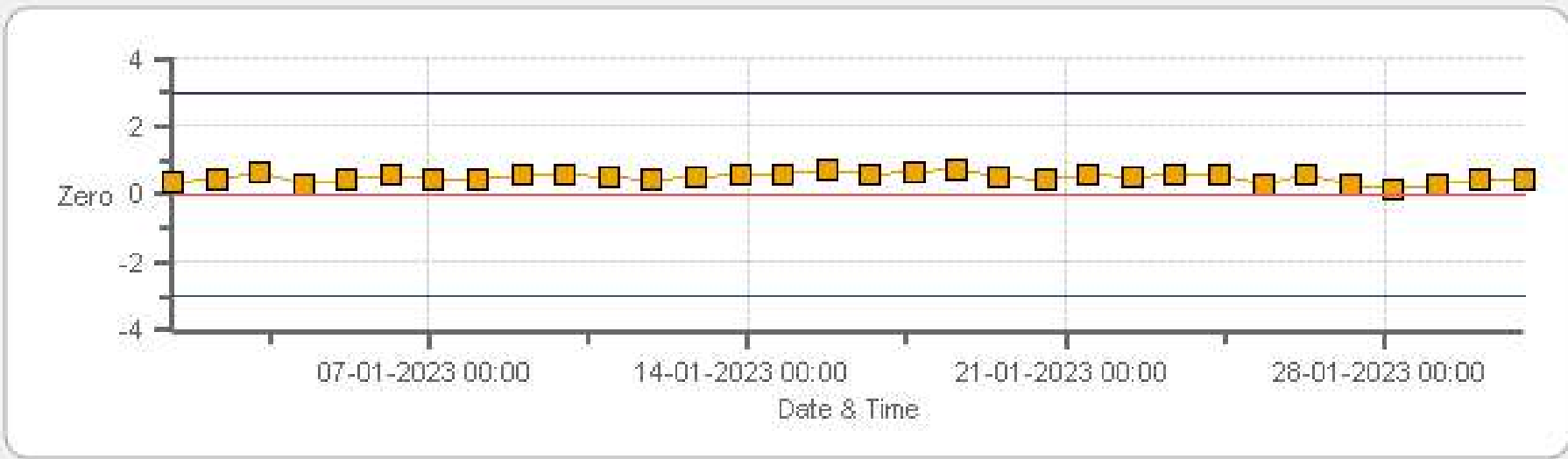
Data Validation and Report:

Bureau Veritas Canada

February 7, 2023

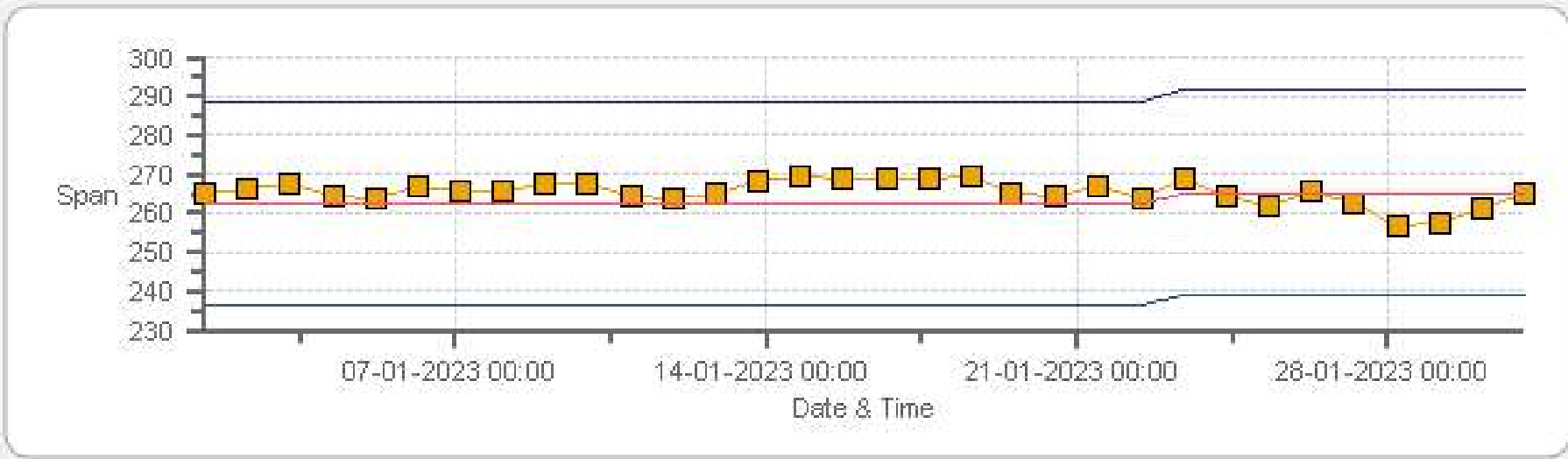
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



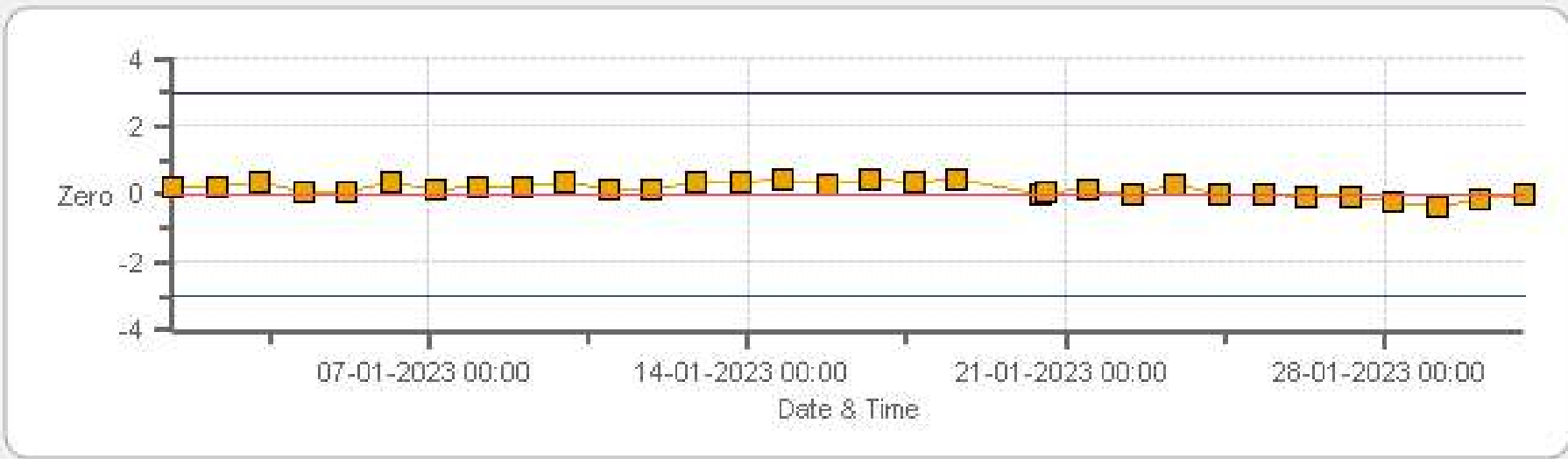
Zero Zero Ref Zero Low Zero High

SO2[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



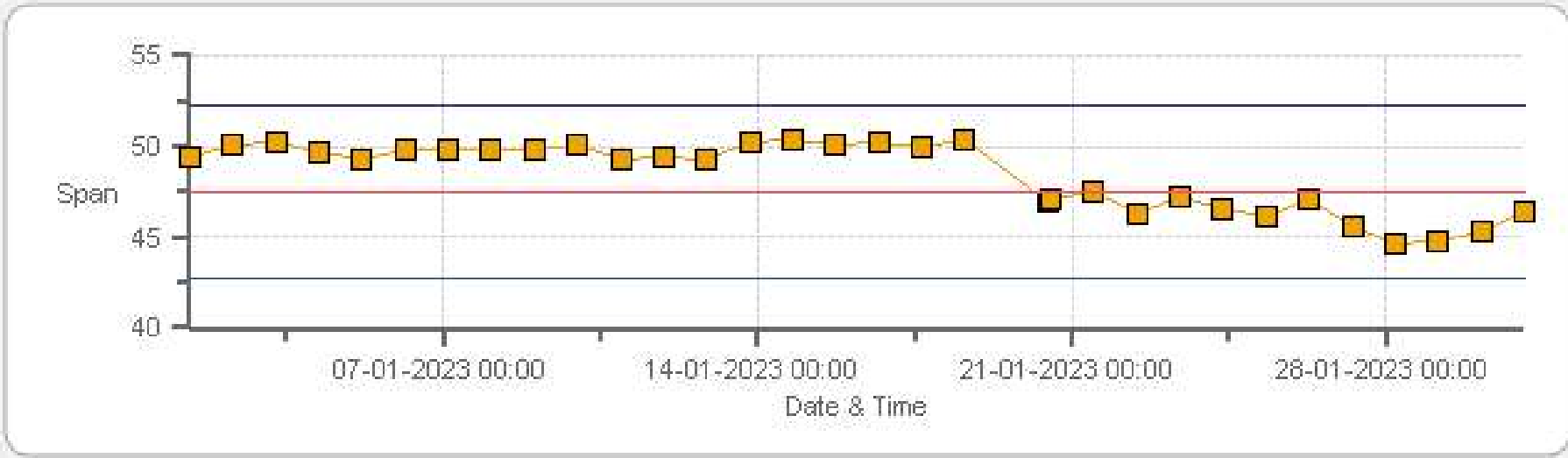
Span SpanRef Span Low Span High

TRS[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



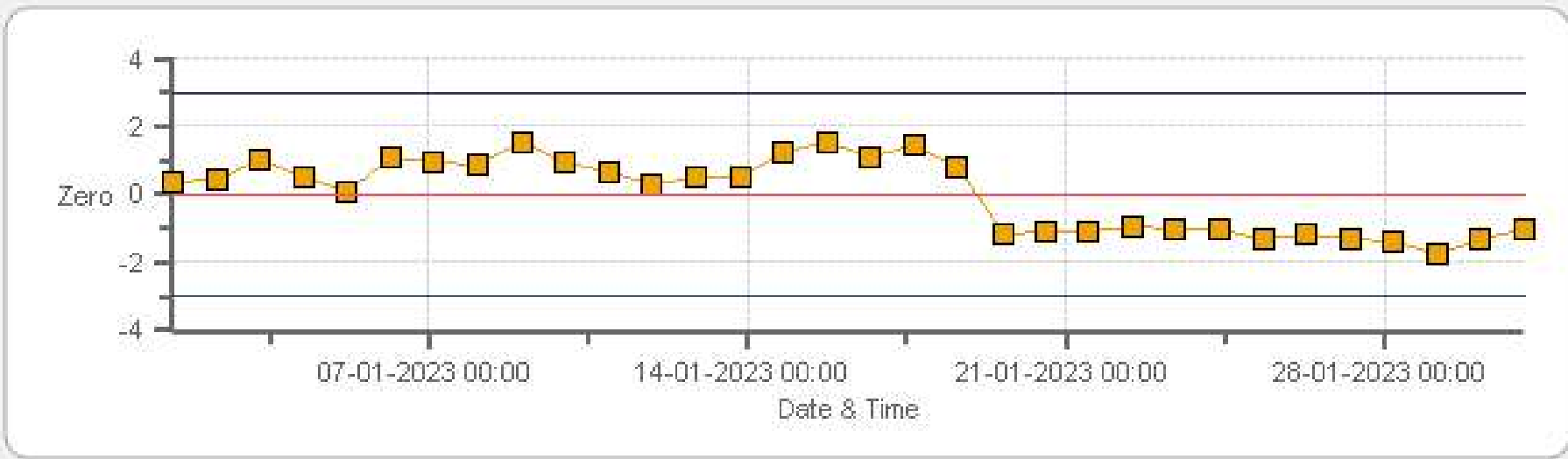
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



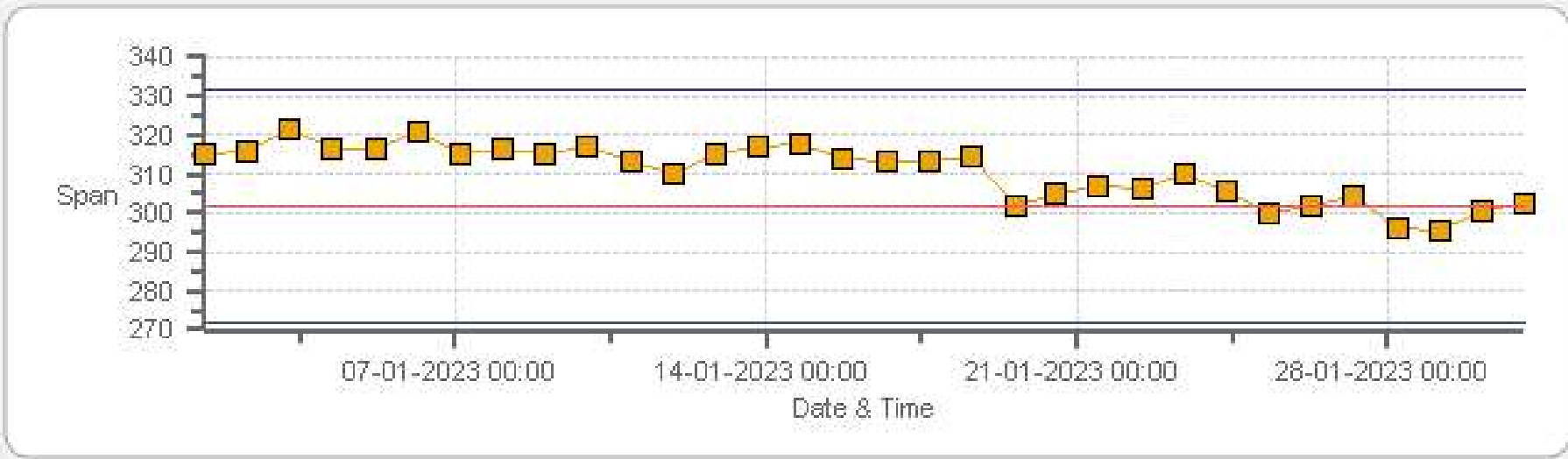
Span Span Ref Span Low Span High

NOX[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



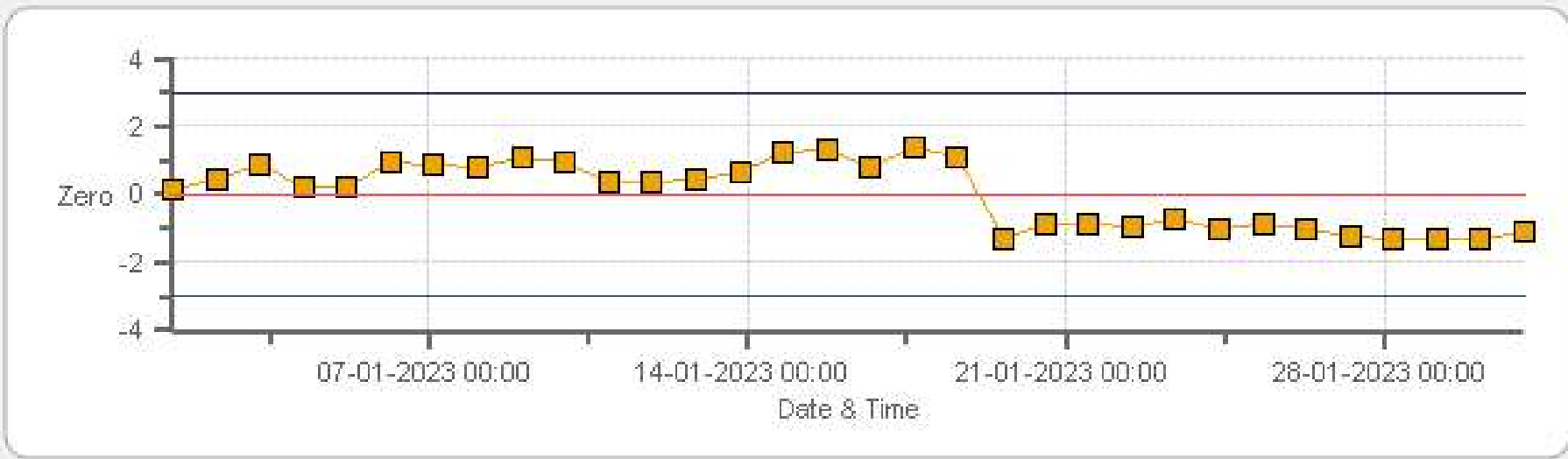
Zero Zero Ref Zero Low Zero High

NOX[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



Span SpanRef Span Low Span High

NO2[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



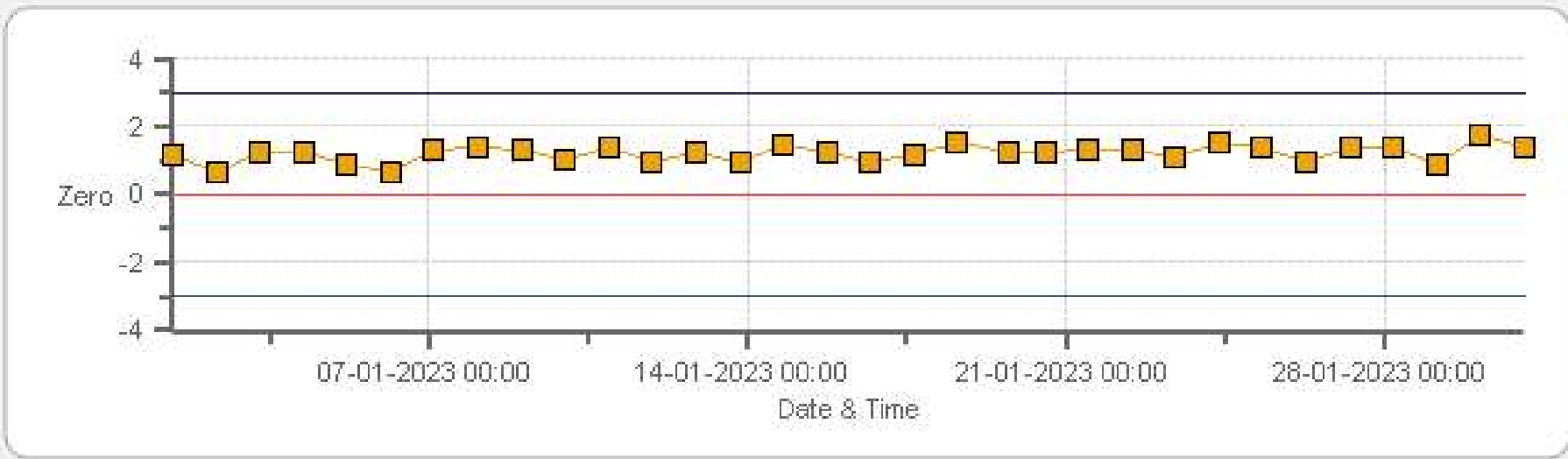
Zero Zero Ref Zero Low Zero High

NO2[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



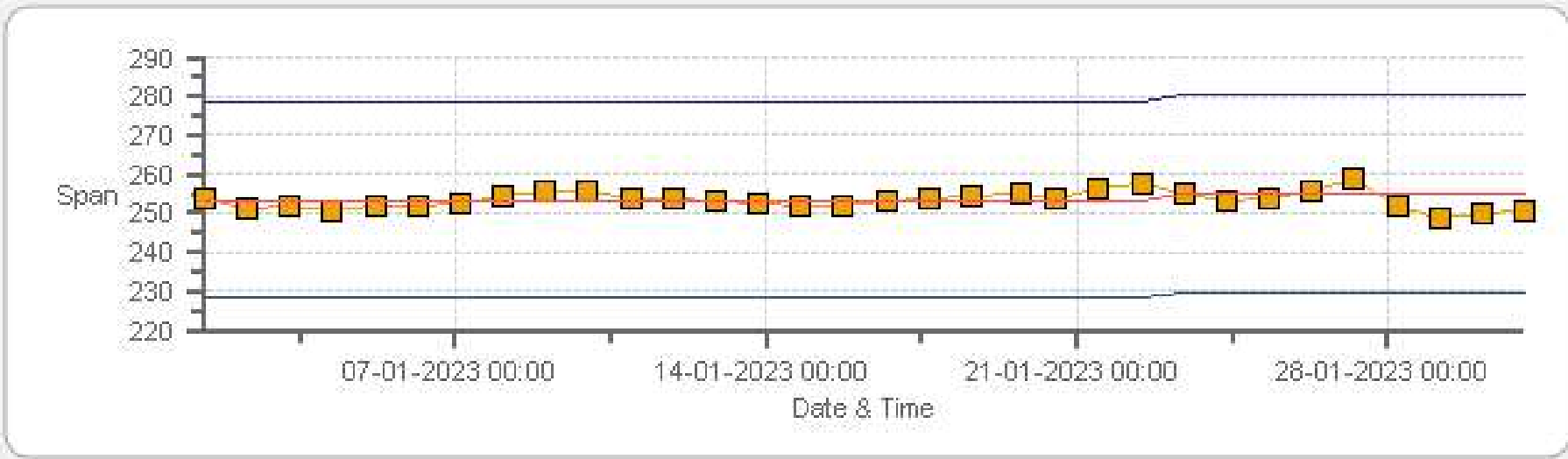
Span Span Ref Span Low Span High

O3[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero -Zero



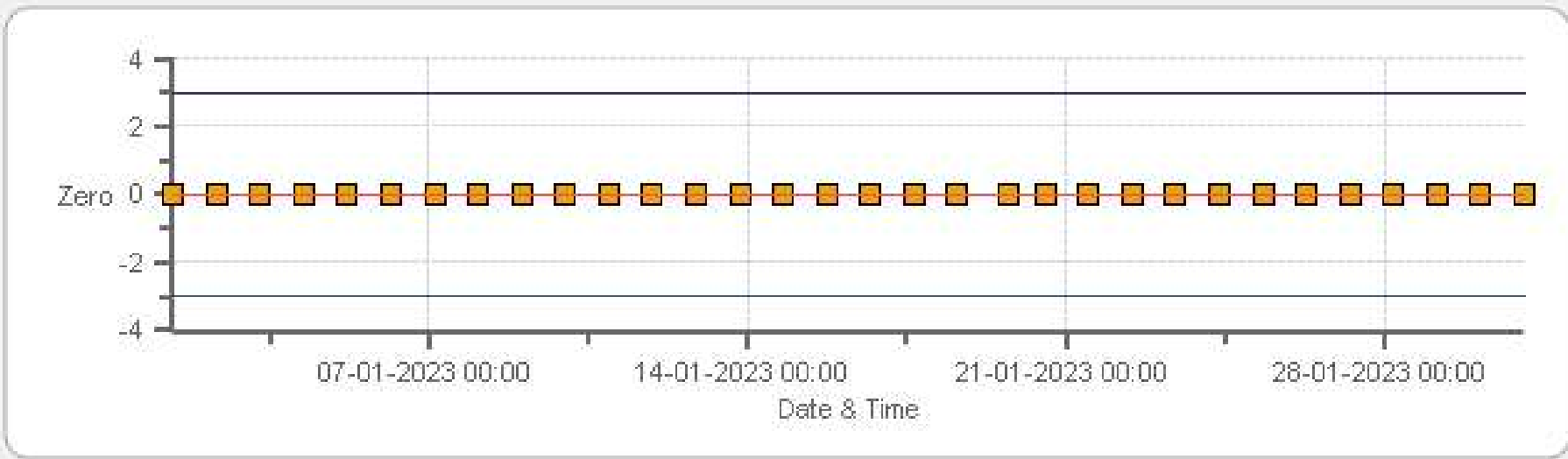
Zero Zero Ref Zero Low Zero High

O3[ppb] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero -Span



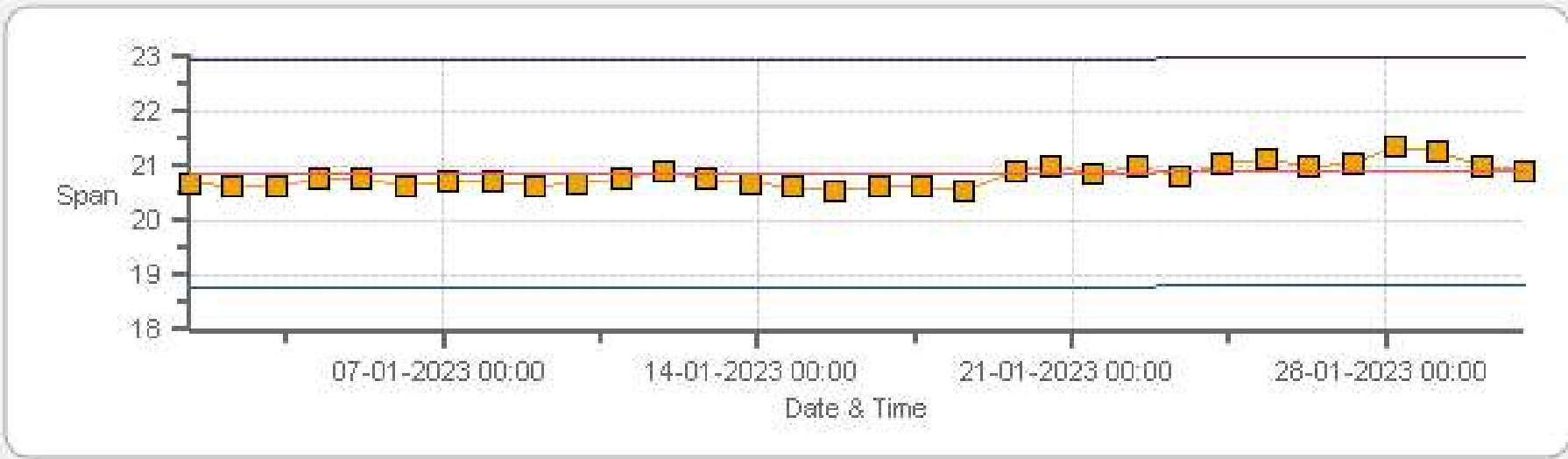
Span Span Ref Span Low Span High

THC55[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



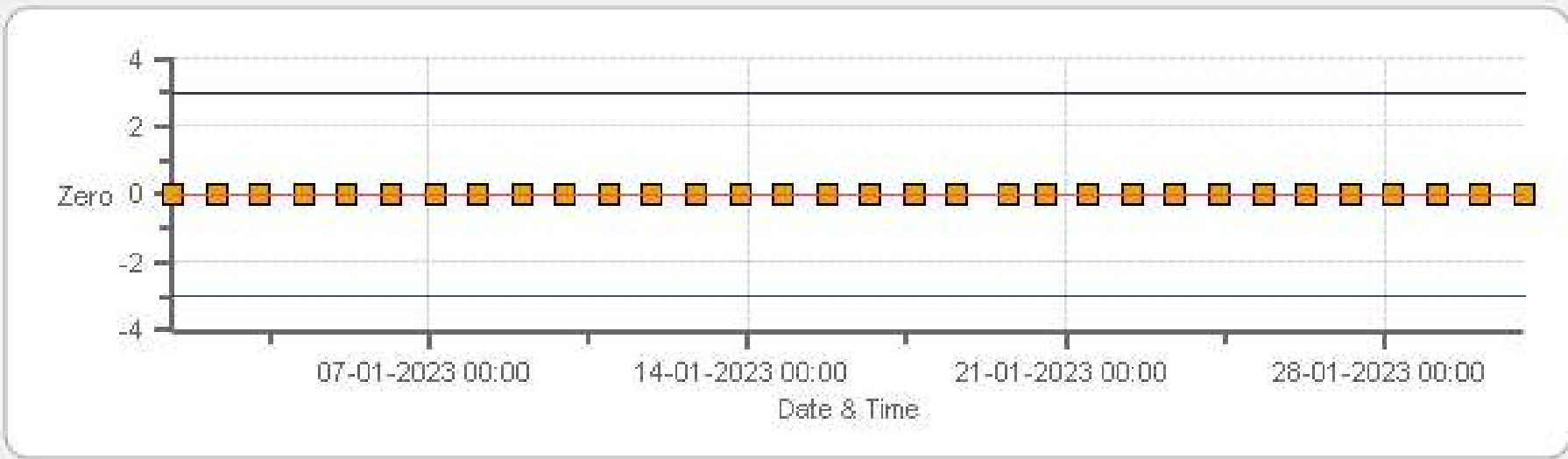
Zero Zero Ref Zero Low Zero High

THC55[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



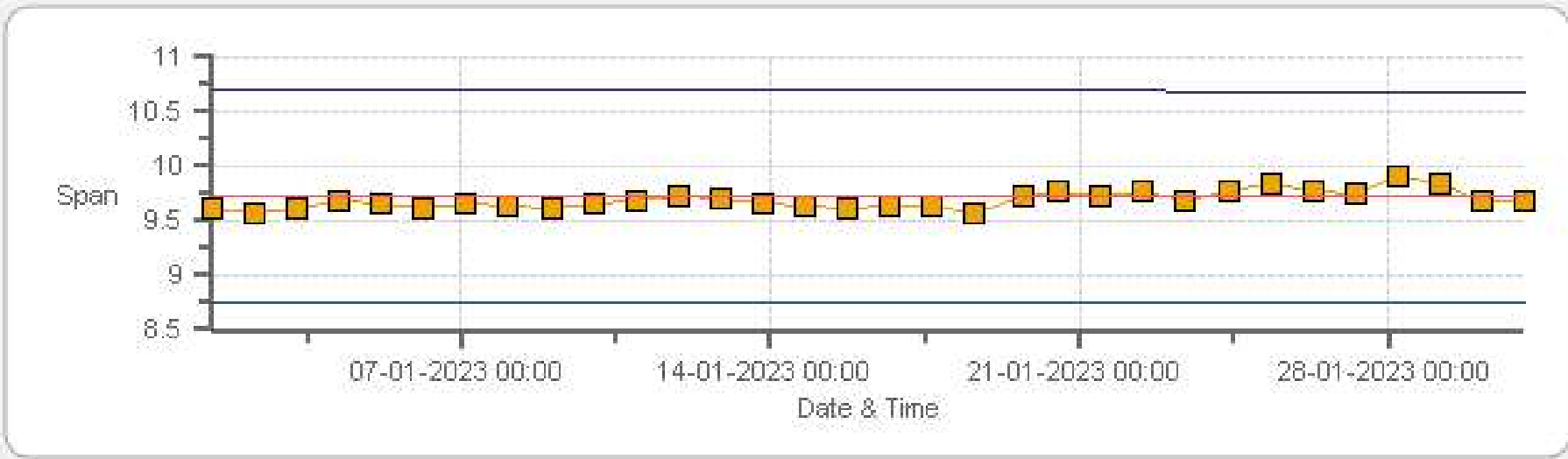
Span Span Ref Span Low Span High

CH4[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



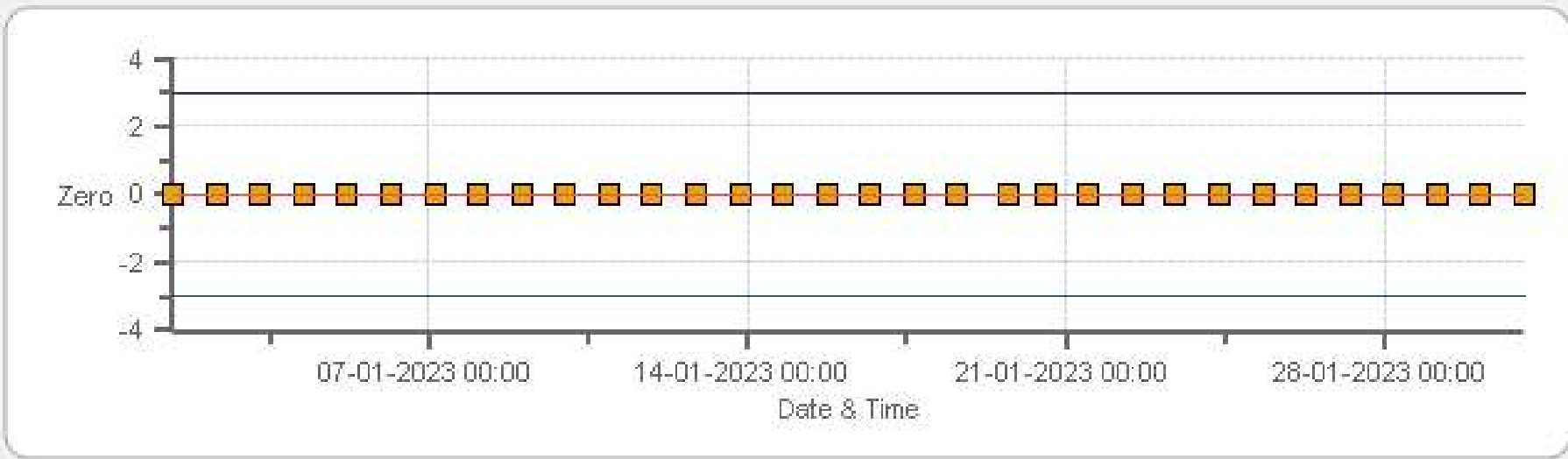
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



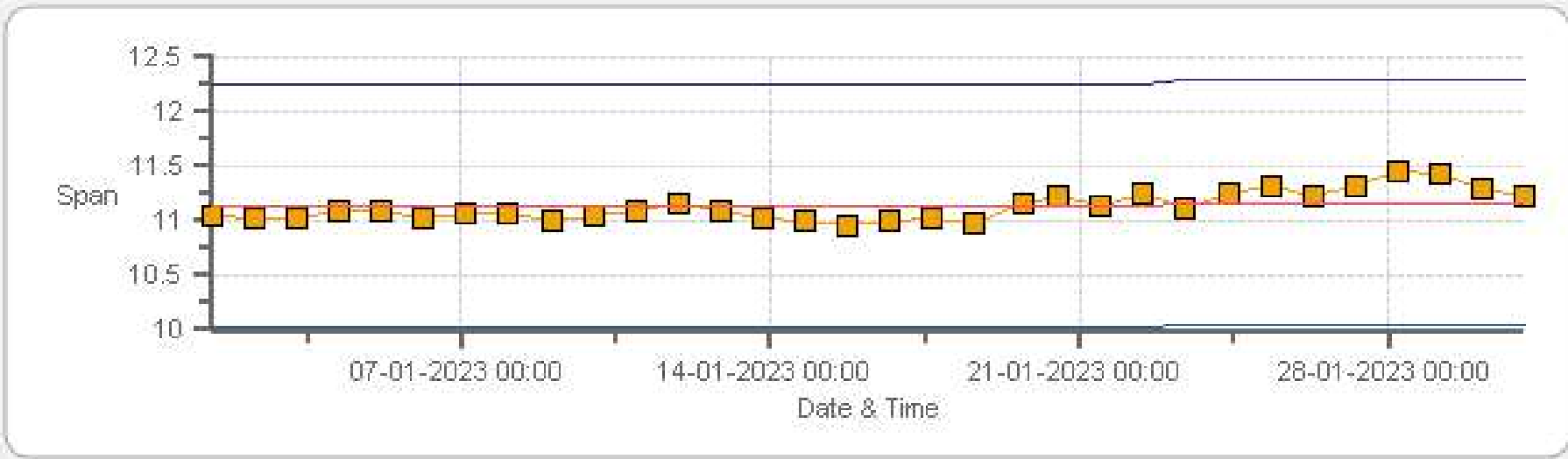
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: AQHI Grimshaw Monthly: 01-2023 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	19-Jan-2023	PREVIOUS CALIBRATION DATE:	13-Dec-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	24.2
LOCATION:	Grimshaw	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	08:20
PERFORMED BY:	Chris Wesson	END TIME (MST):	12:34

ANALYZER:

MAKE/MODEL	Teledyne T100	RANGE	500 ppb
SERIAL #	722	FLOW (mL/min)	517
INITIAL		FINAL	
BKG/OFFSET	27.6	BKG/OFFSET	27.6
COEF/SLOPE	0.922	COEF/SLOPE	0.922
Expected (reference) Value	262.5	Expected (reference) Value	265.3

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0001923	HIGH ID	n/a
CONC (ppm):	25.1	EXPIRY DATE	n/a
CYLINDER (psi):	1700	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

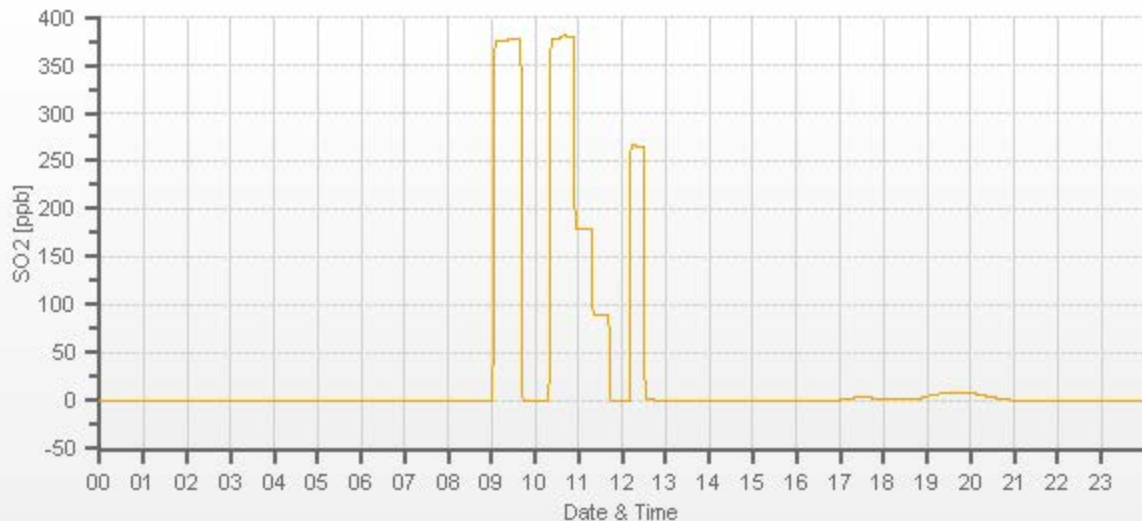
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
4000	 	4000	0.00	0.3	0	 	
3941	60.60	4002	380.07	378.4	380.2	1.005	1.000
3971	28.70	4000	180.09	n/a	179.9	n/a	1.001
3987	14.30	4001	89.71	n/a	90.4	n/a	0.992

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.000	0.0%

COMMENTS:

Sample filter changed.



TRS Analyzer Calibration by Dilution



DATE:	19-Jan-2023	PREVIOUS CALIBRATION DATE:	13-Dec-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	24.2
LOCATION:	Grimshaw	BAROMETRIC (mBar):	938
PURPOSE:	Routine	START TIME (MST):	08:20
PERFORMED BY:	Chris Wesson	END TIME (MST):	13:48

ANALYZER:

MAKE/MODEL	Teledyne T100U	RANGE	100 ppb
SERIAL #	132	FLOW (mL/min)	535
INITIAL		FINAL	
BKG/OFFSET	27.9	BKG/OFFSET	28.9
COEF/SLOPE	1.203	COEF/SLOPE	1.171
Expected (reference) Value	47.51	Expected (reference) Value	47.51

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

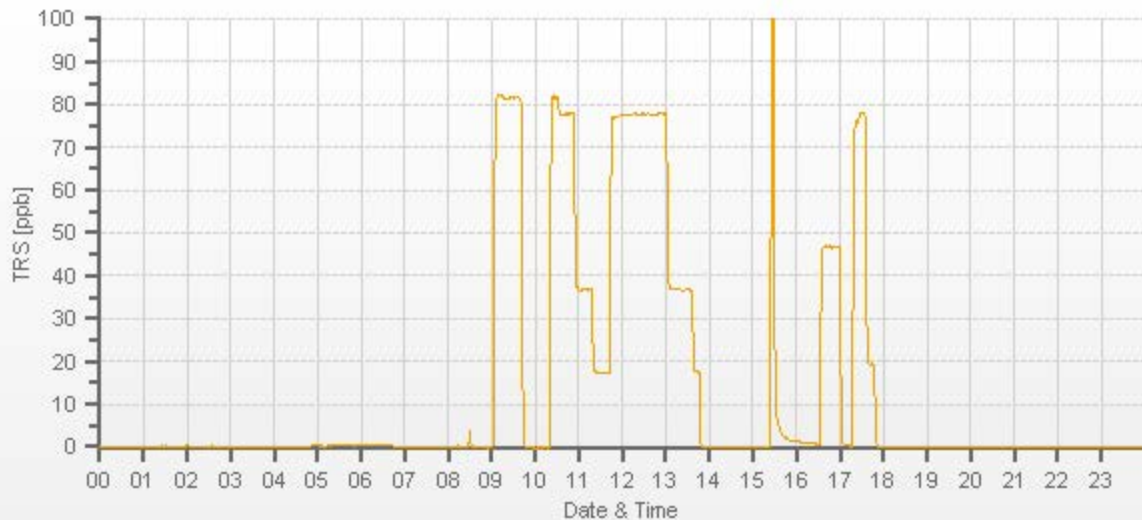
FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
4004	33.20	4004	0.00	0.02	0	0.955	1.001
3969	33.20	4002	78.06	81.8	77.98	0.955	1.001
3981	16.20	3997	38.14	n/a	36.91	n/a	1.033
3992	8.10	4000	19.06	n/a	17.8	n/a	1.071

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.003	-0.7%

COMMENTS:

<p>Converter, CDNova CDN-101 #576</p> <p>1st attempt fails at low point; adjusted point repeated</p> <p>2nd attempt fails again. Troubleshooting started at 13:49</p>



TRS Analyzer Calibration by Dilution



DATE:	20-Jan-2023	PREVIOUS CALIBRATION DATE:	n/a
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	n/a
CLIENT:	PRAMP	TEMPERATURE (°C):	22.5
LOCATION:	Grimshaw	BAROMETRIC (mBar):	941
PURPOSE:	Install/Post-Repair	START TIME (MST):	08:03
PERFORMED BY:	Chris Wesson	END TIME (MST):	10:53

ANALYZER:

MAKE/MODEL	Teledyne T100U	RANGE	100 ppb
SERIAL #	132	FLOW (mL/min)	539
INITIAL		FINAL	
BKG/OFFSET	28.9	BKG/OFFSET	28.2
COEF/SLOPE	1.171	COEF/SLOPE	1.153
Expected (reference) Value	47.51	Expected (reference) Value	47.51

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1200	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

FLOW RATES			CONCENTRATION (ppb)			CORRECTION FACTOR	
(mL/min)			ACTUAL	INDICATED		Initial	Final
DILUENT	GAS	TOTAL		Initial	Final		
4000	33.20	4000	0.00	n/a	0	n/a	0.999
3970	33.20	4003	78.04	n/a	78.16	n/a	0.999
3986	16.20	4002	38.09	n/a	38.67	n/a	0.985
3994	8.10	4002	19.05	n/a	19.36	n/a	0.984

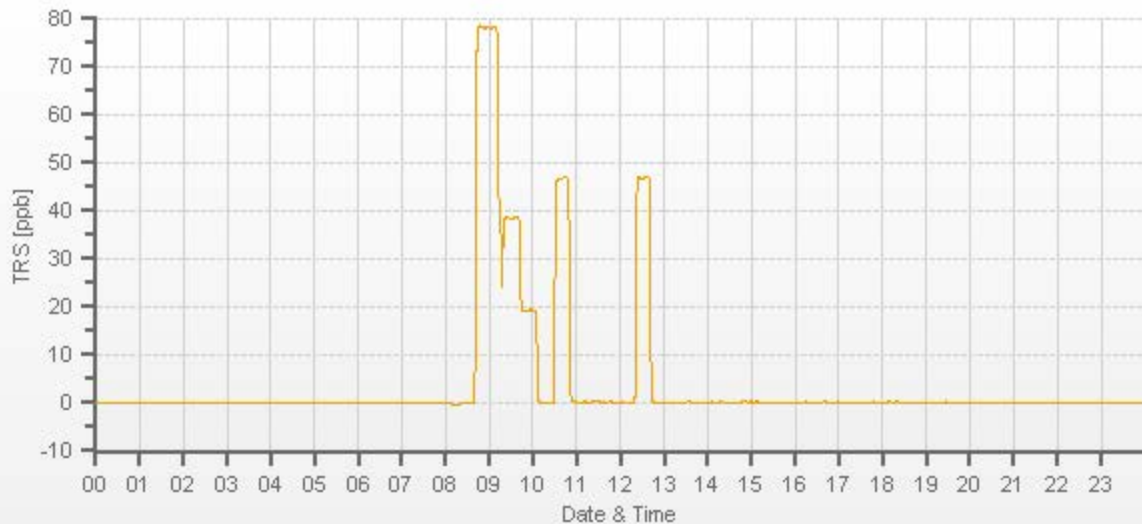
LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	1.001	0.2%

COMMENTS:

<p>Converter, CDNova CDN-101 #576</p> <p>Post-repair following converter maintenance</p> <p>09:16-09:20 = user error. Mid-point restarted.</p>
--

TRS[ppb] Station: AQHI Grimshaw Daily: 20-01-2023 Type: AVG 1 Min. [1 Min.]



CAL-PRAMP-202301-01689

NOx Calibration by Dilution/Gas-Phase Titration



CALIBRATION:				ANALYZER:			
DATE:	19-Jan-2023	PREVIOUS CALIBRATION DATE:	13-Dec-2022	MAKE/MODEL:	Teledyne T200	PREVIOUS CF.	
CLIENT:	PRAMP	TEMPERATURE (°C):	24.2	SERIAL #:	837	NOx	1.002
LOCATION:	Grimshaw	BAROMETRIC (mBar):	938	FLOW (mL/min):	437	NO	1.000
PURPOSE:	Routine	START TIME (MST):	08:20	RANGE (ppb):	500	NO2	1.003
PERFORMED BY:	Chris Wesson	END TIME (MST):	15:24	GPT FOR O3?		Yes	

CALIBRATION SYSTEM:							
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	SABIO	MAKE:	Teledyne	CYLINDER ID:	EY 0001013	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	NO/NOx (PPM):	49.2 49.4	HIGH EXPIRY:	n/a
ID:	26701218	ID:	4568	CYLINDER (psi):	1800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	n/a	EXPIRY DATE:	11-Nov-2029	LOW EXPIRY:	n/a

CALIBRATION SETTINGS:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
BKG/OFFSET:	0.4	-0.5	n/a	BKG/OFFSET:	2.1	-0.1	n/a
SLOPE/COEF/CE:	1.145	1.141	0.997	SLOPE/COEF/CE:	1.16	1.156	0.997

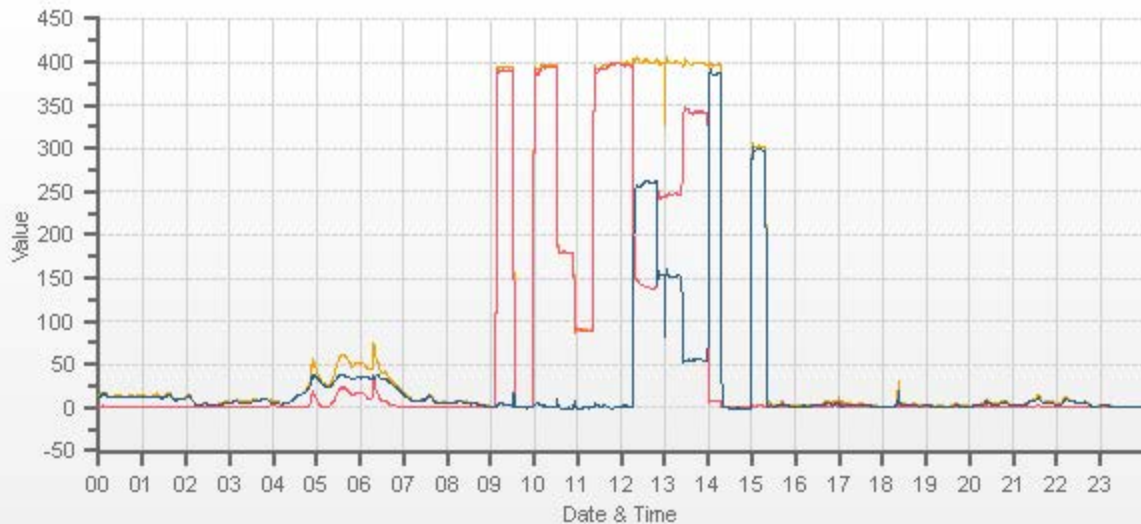
EXPECTED (REFERENCE) VALUE:							
INITIAL	NOx	NO	NO2	FINAL	NOx	NO	NO2
	301.8	3.1	298.7		301.8	2.5	299.0

CALIBRATION PARAMETERS:				
POINT	NO TARGET (PPB)	NO2 TARGET (PPB)	NO2 RANGE	O3 POINT
HIGH	395	250	240-275	n/a
MID	180	154	150-157	Mid
LOW	90	54	50-58	Low
EXTRA 1	n/a	340	300-370	High

FLOW RATE			CONCENTRATION (ppb)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2	NO	NOx	NO2
4999	40.10	4999	0.0	0.0	0.0	0.1	1.6	1.5	0.0	0.0	0.0	1.014	1.012	0.987	1.002	1.001	0.993
4959	40.10	4999	394.7	396.3	1.6	389.4	393.0	3.7	394.0	395.9	1.9	1.014	1.012	0.987	1.002	1.001	0.993
4982	18.30	5000	180.1	180.8	0.7	n/a	n/a	n/a	180.1	179.3	-0.5	n/a	n/a	0.987	1.000	1.008	0.993
4989	9.00	4998	88.6	89.0	0.4	n/a	n/a	n/a	89.8	89.6	-0.1	n/a	n/a	0.987	0.987	0.993	0.993

GPT CALIBRATION:											
Point	CALIBRATOR			INDICATED (ppb)			NO DROP / O3 Conc (ppb)	NO2 GAIN (ppb)	NO2 Corr. FACTOR	CONV. EFFICIENCY	
	GAS	TOTAL	O3 SETPOINT	NO	NOx	NO2					
REFERENCE	40.10	5000	0	395.5	396.2	0.7	257.2	259.2	0.992	100.78%	
AS-FOUND HIGH	40.10	5000	255	138.3	398.2	259.9	257.2	259.2	0.992	100.78%	
ADJUSTED HIGH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MID	40.10	5000	150	247.4	399.9	152.5	148.1	151.8	0.976	102.50%	
LOW	40.10	5000	54	342.4	397.9	55.5	53.1	54.8	0.969	103.20%	
NO2 COEF/CONVERTER EFFICIENCY ADJUSTED									AVERAGE:	102.85%	

LINEAR REGRESSION ANALYSIS:				COMMENTS: Extra GPT point for O3: Setpoint = 375, NO drop (O3) = 386.2 13:00=daily ZS. GPT mid-point restarted
	CORRELATION	SLOPE	INTERCEPT	
NO	1.000	0.997	0.12%	
NOx	1.000	0.998	0.00%	
NO2	1.000	1.021	0.12%	



CAL-PRAMP-202301-01689

NOX [ppb] NO [ppb] NO2 [ppb]

Ozone Calibration by Direct GPT



DATE:	19-Jan-2023	PREVIOUS CALIBRATION DATE:	13-Dec-2022
PARAMETER:	O3	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	PRAMP	TEMPERATURE (°C):	20.9
LOCATION:	Grimshaw	BAROMETRIC (mBar):	2714
PURPOSE:	Routine	START TIME (MST):	14:38
PERFORMED BY:	Chris Wesson	END TIME (MST):	17:44

ANALYZER:

MAKE/MODEL	Teledyne T400	RANGE	500 ppb
SERIAL #	824	FLOW (mL/min)	764
INITIAL		FINAL	
BKG/OFFSET	-1.7	BKG/OFFSET	-1.7
COEF/SLOPE	1.035	COEF/SLOPE	1.039
Expected (reference) Value	253.4	Expected (reference) Value	254.9

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	SABIO	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	26701218	ID:	4568
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION METHOD:		Direct GPT	
GPT DATE:	19-Jan-2023	GPT END TIME:	14:36

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
RANGE	300 - 400	150 - 200	50 - 100

CALIBRATION:

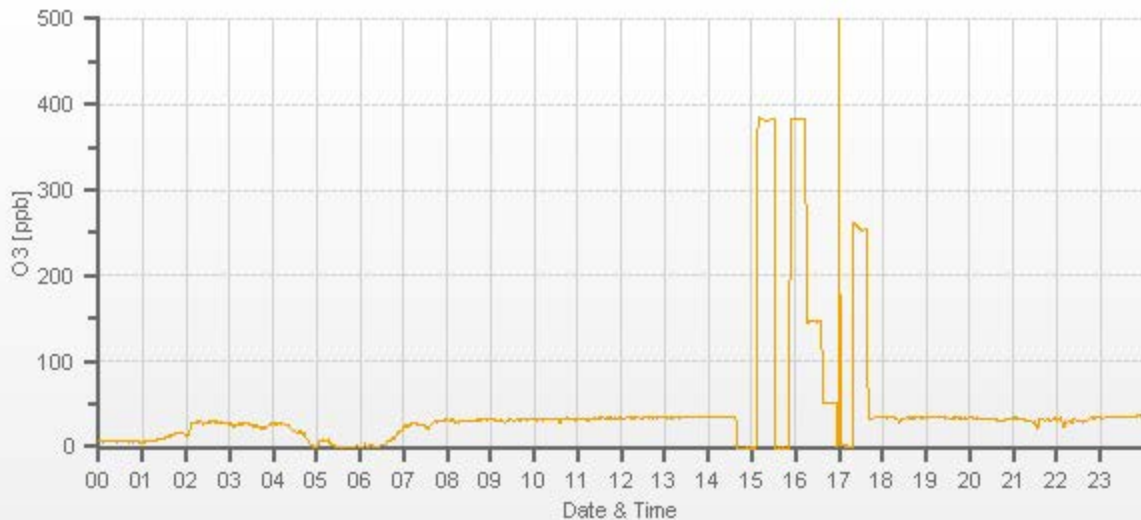
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
5000	XXXXXX	5000	0.0	0.0	0.0	XXXXXX	XXXXXX
5000	XXXXXX	5000	386.2	384.7	384.6	1.004	1.004
5000	XXXXXX	5000	148.1	n/a	147.8	n/a	1.002
5000	XXXXXX	5000	53.1	n/a	52.8	n/a	1.006

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.996	0.0%

COMMENTS:

Sample filter changed



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	19-Jan-2023	PREVIOUS CALIBRATION DATE:	13-Dec-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	-2.0		Thermo 55i	1191032505	1115
LOCATION:	Grimshaw	BAROMETRIC (mBar):	2713	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	14:09	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	17:37	PREVIOUS CF:	1.001	1.000	1.000

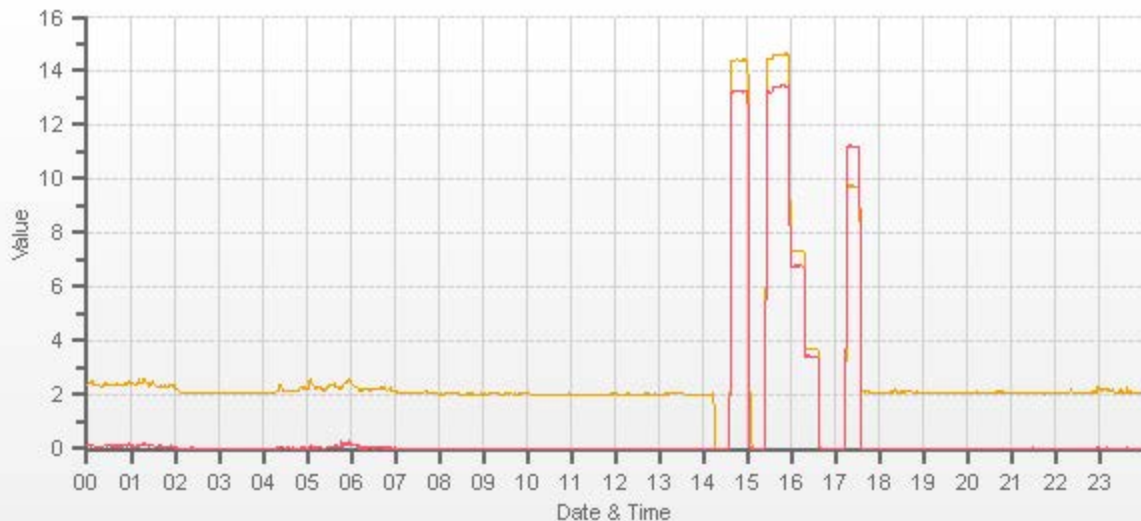
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	58100720	ID:	4568	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	18-Aug-2029	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:							
POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE			
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄		558.3	
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄		1166.3	

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.73	11.13	20.87		9.72	11.17	20.89

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3253	78.00	3253	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.013	1.012	1.012	0.997	0.997	0.998
3174	78.00	3252	14.58	13.39	27.97	14.40	13.23	27.63	14.62	13.43	28.04	1.013	1.012	1.012	0.997	0.997	0.998
3213	39.00	3252	7.29	6.69	13.99	n/a	n/a	n/a	7.36	6.78	14.14	n/a	n/a	n/a	0.991	0.987	0.989
3234	19.50	3253	3.64	3.35	6.99	n/a	n/a	n/a	3.71	3.41	7.12	n/a	n/a	n/a	0.982	0.981	0.982

LINEAR REGRESSION ANALYSIS:				Comments: No issues. Swapped N2
	CORRELATION	SLOPE	INTERCEPT	
CH ₄	1.000	1.002	0.2%	
NMHC	1.000	1.002	0.2%	
THC	1.000	1.002	0.2%	
				Use Zero Chrom? Yes



CAL-PRAMP-202301-01689



Teledyne T640 Audit/Calibration

Date/Previous Audit Date:	January 19, 2023	December 13, 2022	Weather Conditions:		Mix of sun and clouds
Company:	PRAMP		Start Time (mst):		13:25
Station:	Grimshaw		End Time (mst):		14:40
Parameter:	PM 2.5		Performed By/Reviewer:		Chris Wesson Limin Li
Instrument Data:					
Make/Model:	Teledyne T640		Serial Number:		318
Owner:	PRAMP		Alarms (detail in comments):		No
Reference Standards/I.D./Expiry Date:					
Flow Standard: DeltaCal DC1 S/N 206578 / Sept 21, 2023			Temperature: DeltaCal DC1 S/N 206578 / Sept 21, 2023		
Digital Manometer: DeltaCal DC1 S/N 206578 / Sept 21, 2023			Pressure: DeltaCal DC1 S/N 206578 / Sept 21, 2023		
DIAGNOSTICS:					
Ambient Pressure (mmHg)	705.8	Ambient Temp (°C)	-2.1	ASC Heater Duty (%)	0.0
Box Temp (°C)	25.6	Current PMT HV (V)	1536	LED Temp (°C)	34.13
P3 Value	48	PMT Setting (V)	1542	Pump PWM (%)	40
Sample Flow (L/min)	5.02	Sample RH (%RH)	13.0	Sample Temp (°C)	23.7
Item:	As-found		As-left		Tolerance
	Reference	T640x	Reference	T640x	
Zero Test (Leak Check)	PM10	0.0	0	0.0	0.0 to 0.2
	PM2.5	0.0	0	0.0	
Ambient Pressure (mmHg)	705.2	705.9	705.2	705.9	+/- 10 mm Hg
Ambient Temperature (°C)	-1.20	-1.4	n/a		+/- 2°C
Sample Flow (L/min)	5.03	5.01	5.03	5.01	+/-5% of T640x (e.g., 4.75 – 5.25 lpm)
Additional Monthly Maintenance :					Completed
Inlet cleaned?					Yes
Sample tubing inspected (inner and outer)?					Yes
Comments:					
No issues					

Meteorological System Checklist



Date:	January 19, 2023
Technician:	Chris Wesson
Station:	PRAMP Grimshaw

Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Vaisala	HMP155	N2910506
Barometric Pressure Sensor:	MetOne	92	A2397
Relative Humidity Sensor:	Vaisala	HMP155	N2910506
Anemometer:	RM Young	05305AQ	174801

AMBIENT TEMPERATURE SENSOR CHECK

Previous check date:	December 13, 2022
Parameter:	Temperature @ 2 metres
Reference Thermometer ID:	FS 160459244 expires June 14, 2023
Reference Temperature (°C):	-2.6
Station - Ambient Temperature (°C):	-2.5
Temperature Difference (°C):	-0.1

BAROMETRIC PRESSURE SENSOR CHECK

Previous check date:	December 13, 2022		
Reference Barometer ID:	BRUNTON #05535, Expire: Feb 22, 2023		
Reference Pressure - Units/Reading:	millibar		938.9
Station Pressure - Units/Reading:	millibar		939
Pressure Tolerance +/- 15% of error:	798 - 1080		-0.01%

RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK

Previous check date:	December 13, 2022		
Reference Hygrometer ID:	FS 160459244 expires June 14, 2023		
Reference Hygrometer % RH- Reading:	70.60		
Station Hygrometer % RH- Reading:	68.90		
RH Tolerance +/- 15% of difference:	60.01 - 81.19		2.4%

ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK

WIND SPEED		WIND DIRECTION	
Previous check date:	December 13, 2022	Previous check date:	December 13, 2022
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	SW
Wind speed on Data Logger (kph):	12.4	Wind Direction on Data Logger:	SW
		Wind Direction Pass/Fail?:	Pass

Comments

No issues



Meteorological Sensor Audit/Calibration

Location Information

Company: Bureau Veritas **Performed By:** Ferdinand Roy
Audit Location: Grimshaw **Reviewed By:** Chris Wesson
Audit Date: July 12, 2022 **Start/End Time (mst):** 13:57 / 16:52
Calibration Purpose: routine annual **Weather Conditions:** Cloudy/Overcast

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	n/a
Sensor Model:	05305AQ	Velocity Unit Output Range:	0-200
Serial #:	174801	Direction Voltage Output Range:	n/a
Previous Cal/Audit Date:	n/a	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18801 id# CA01648 expires August 6, 2022

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	18.4	18.3	18.3	1.007
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.003
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.8	165.8	1.000
10000	184.3	184.2	184.2	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data ****+/- 3° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	354	0.2	0.8	0.5
30	330	27	331	3.3	-0.6	2.0
60	300	56	300	3.8	-0.3	2.1
90	270	87	268	2.8	1.9	2.3
120	240	117	236	3.3	4.0	3.7
150	210	147	204	2.6	5.6	4.1
180	180	177	175	3.3	4.6	4.0
210	150	207	145	3.1	4.8	4.0
240	120	238	115	2.4	5.0	3.7
270	90	270	85	0.3	5.1	2.7
300	60	300	57	-0.3	3.1	1.7
330	30	330	26	-0.3	3.6	2.0
355	0	354	0	0.8	0.1	0.5
The audit meets AMD requirements.				Average Absolute Degrees Difference=		2.5

Comments:

Output via RMY32400 serial interface



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring Calibration Report

- PEACE RIVER COMPLEX (PRC) STATION-

CAL-PRAMP-202301-01698

Operation and Maintenance:

Bureau Veritas Canada

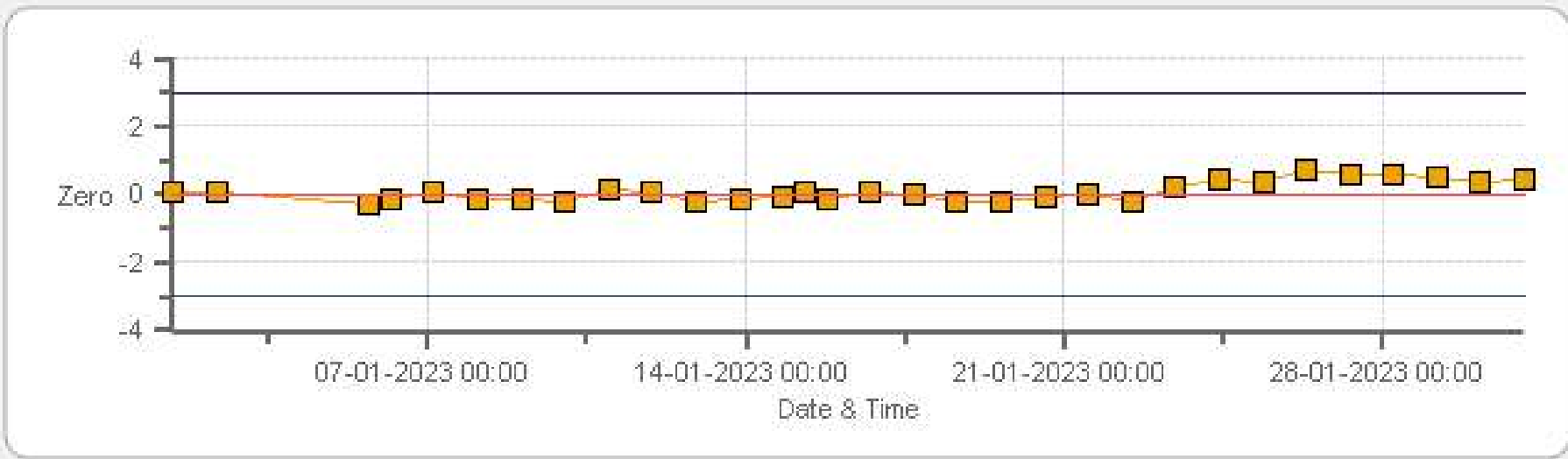
Data Validation and Report:

Bureau Veritas Canada

February 7, 2023

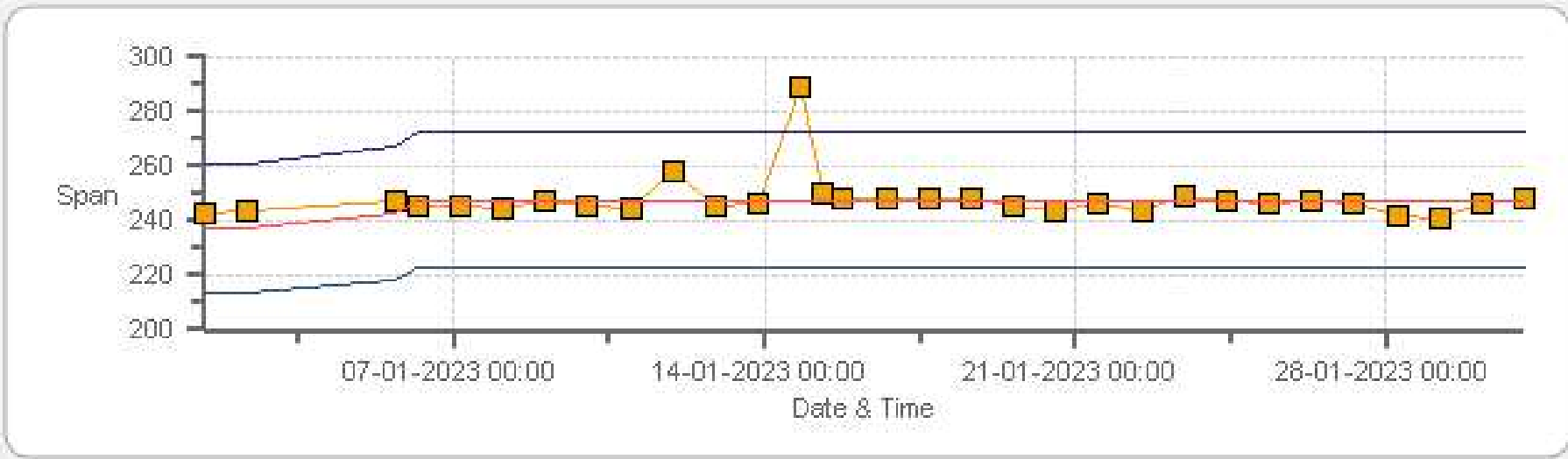
DAILY INTERNAL ZERO-SPAN CALIBRATION RECORDS

SO2[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



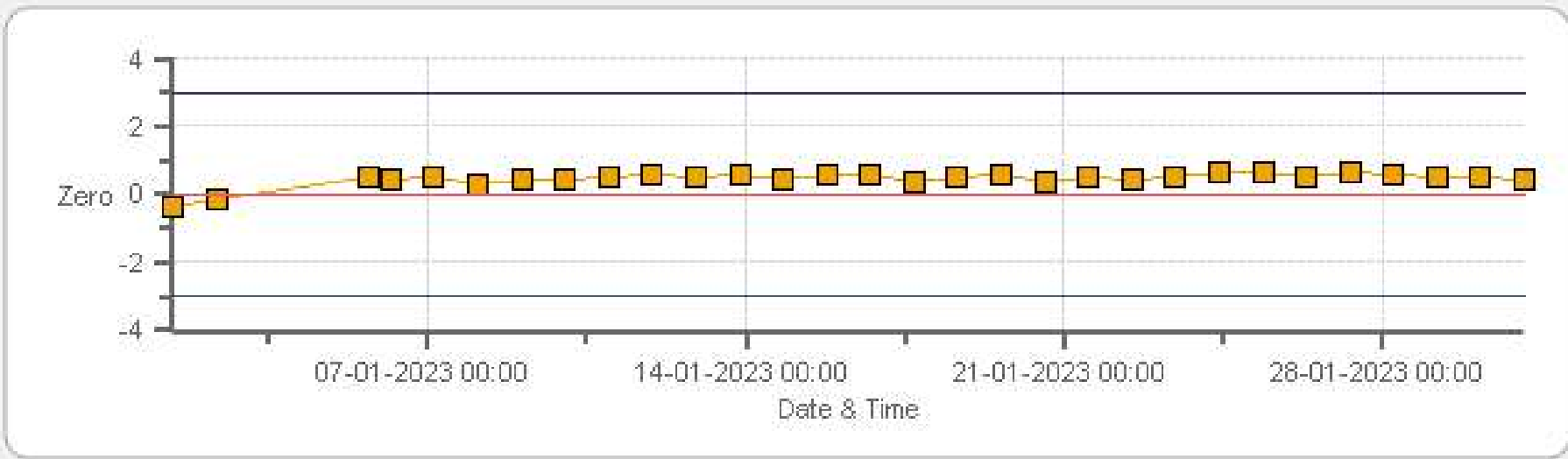
■ Zero
 — Zero Ref
 — Zero Low
 — Zero High

SO2[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



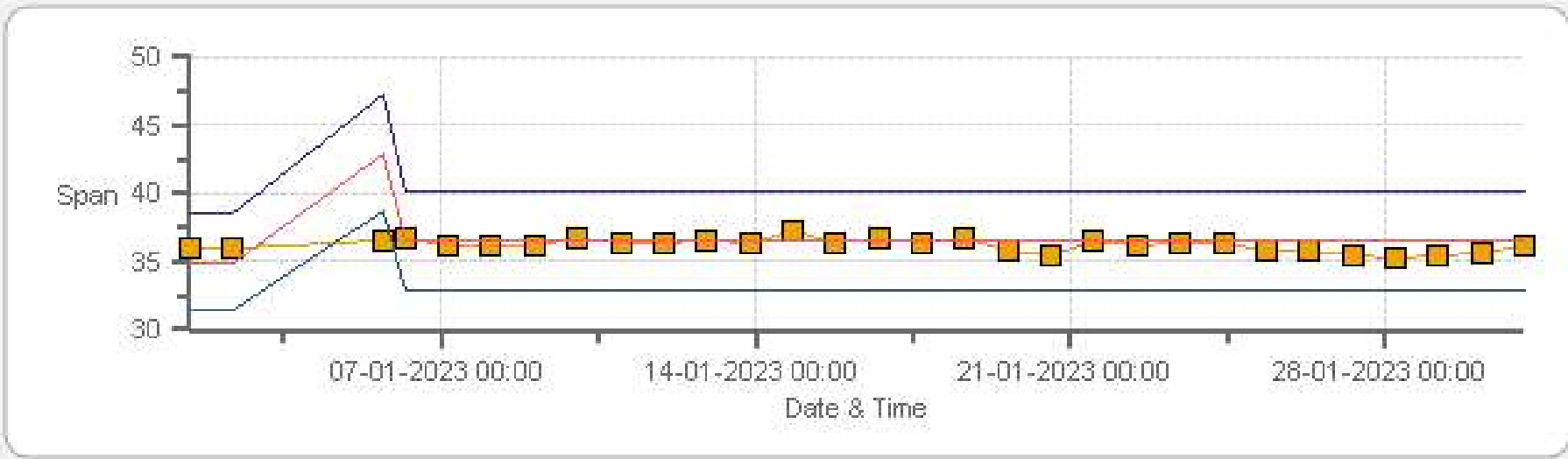
■ Span
 — SpanRef
 — Span Low
 — Span High

H2S[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



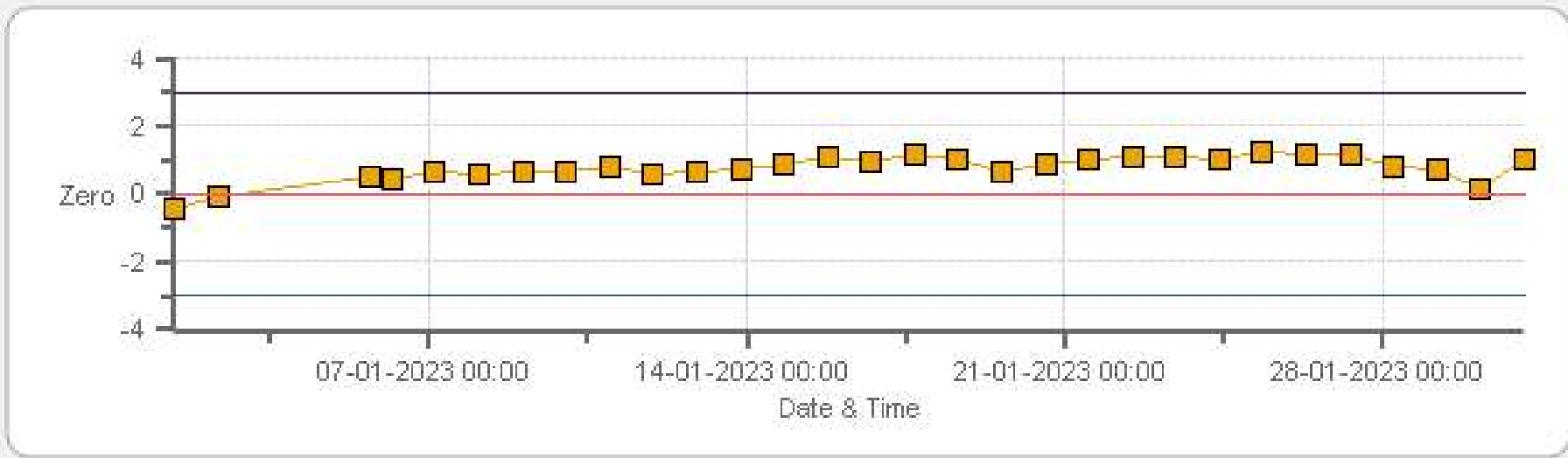
Zero Zero Ref Zero Low Zero High

H2S[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



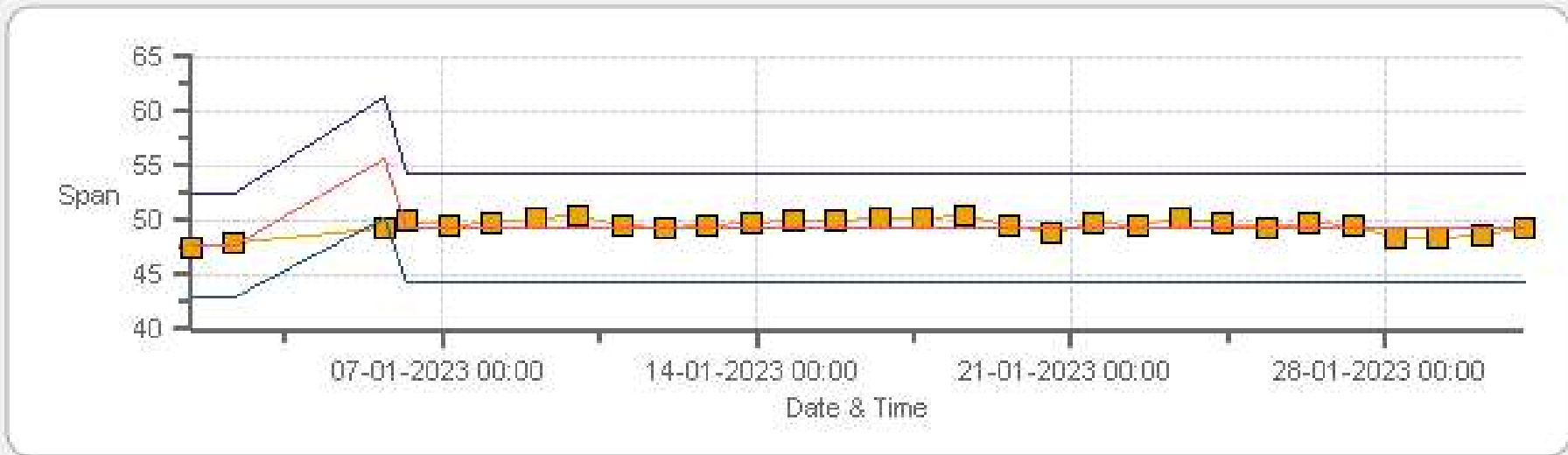
Span SpanRef Span Low Span High

TRS[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



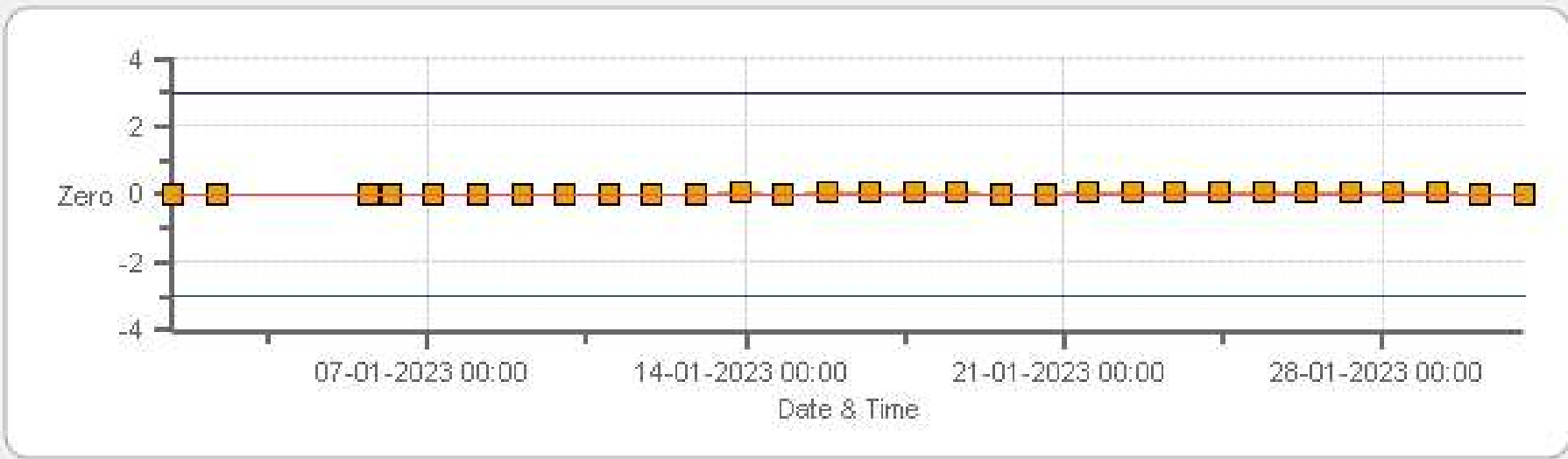
Zero Zero Ref Zero Low Zero High

TRS[ppb] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



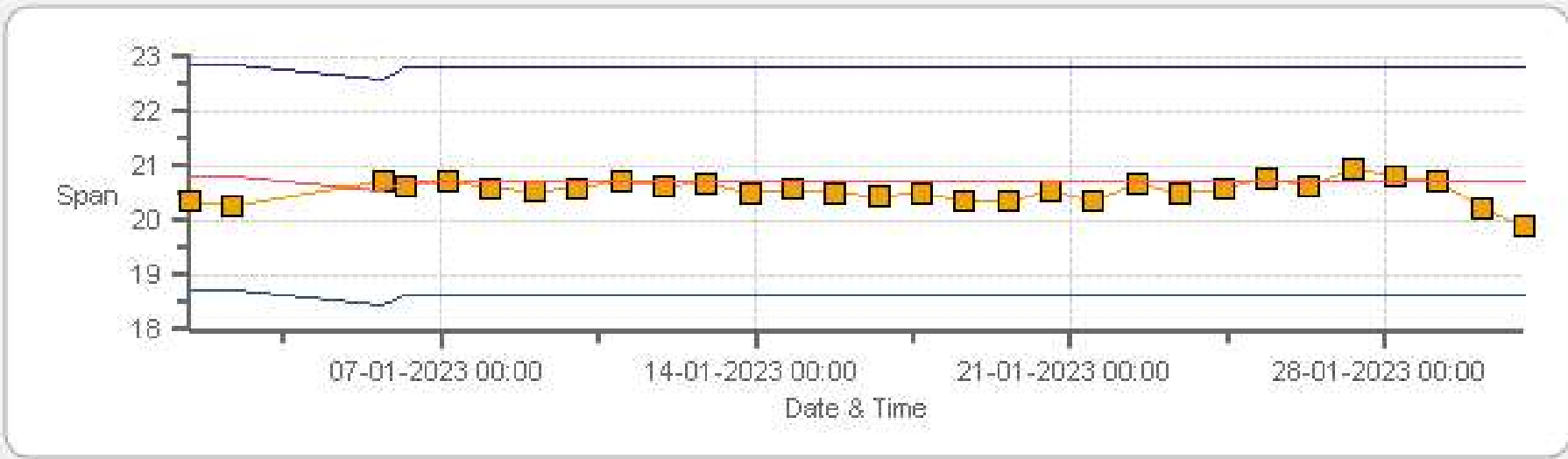
Span SpanRef Span Low Span High

THC55(ppm) Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



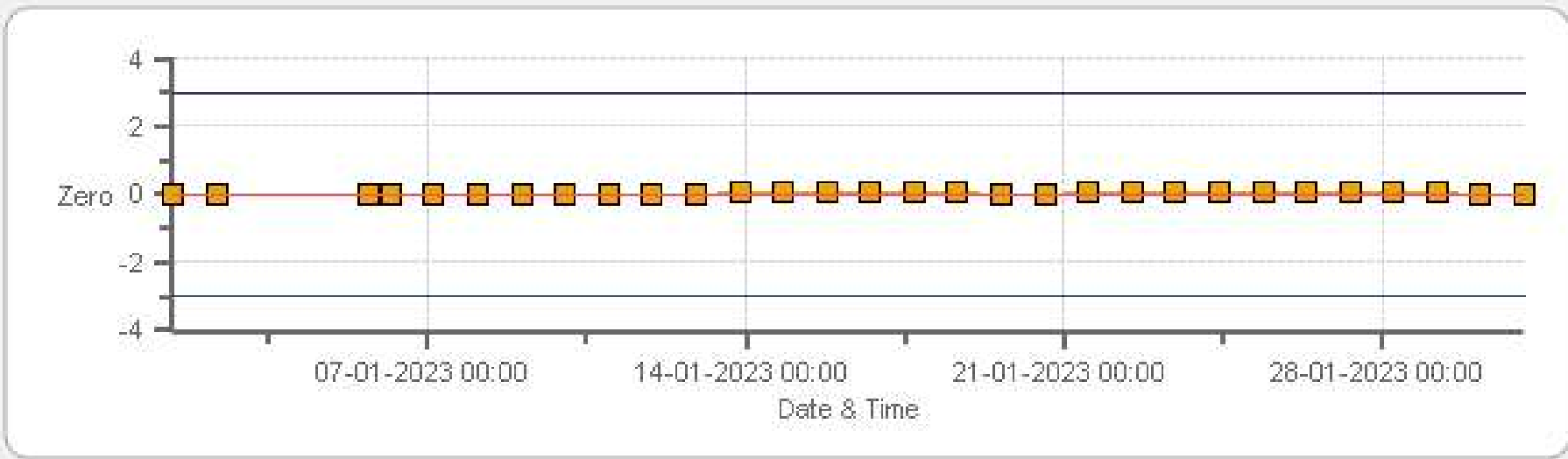
Zero Zero Ref Zero Low Zero High

THC55(ppm) Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



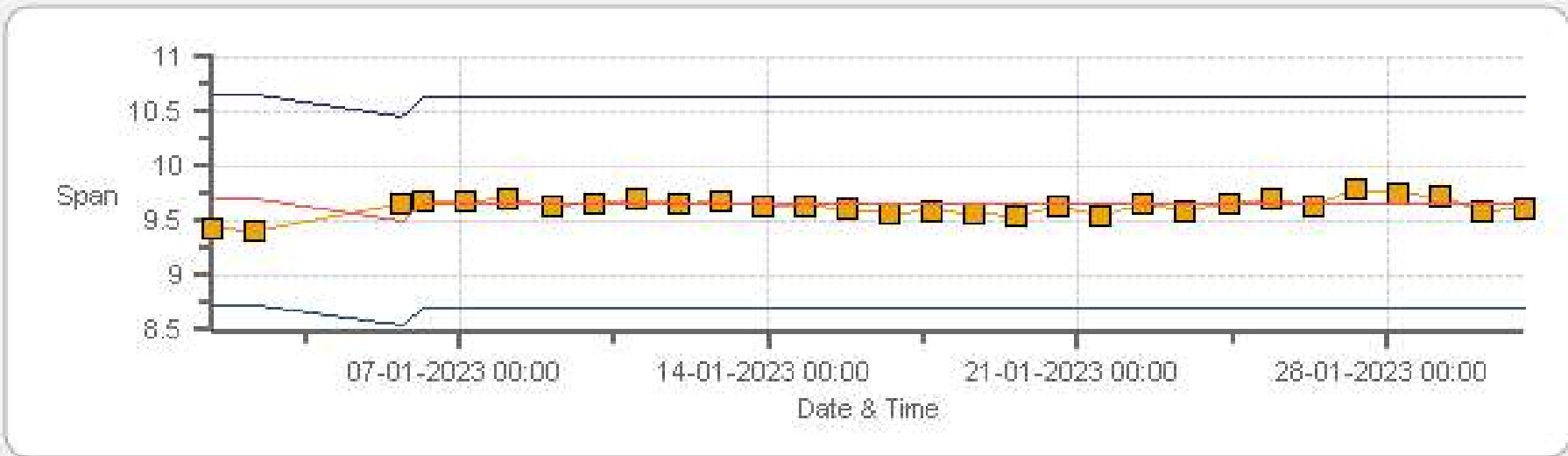
Span Span Ref Span Low Span High

CH4[ppm] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



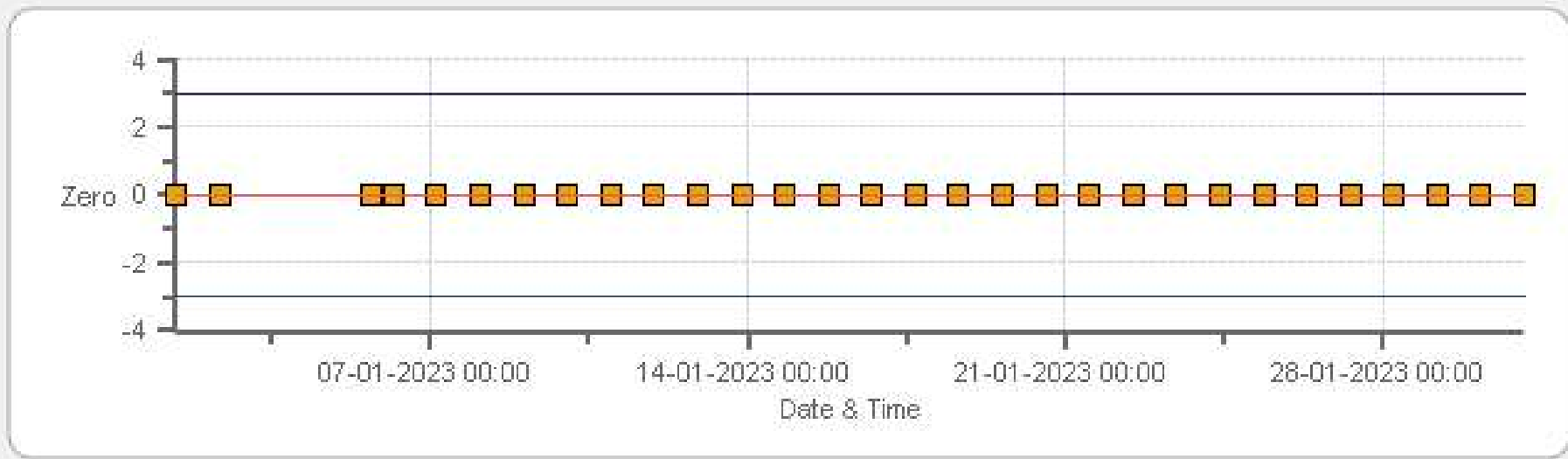
Zero Zero Ref Zero Low Zero High

CH4[ppm] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



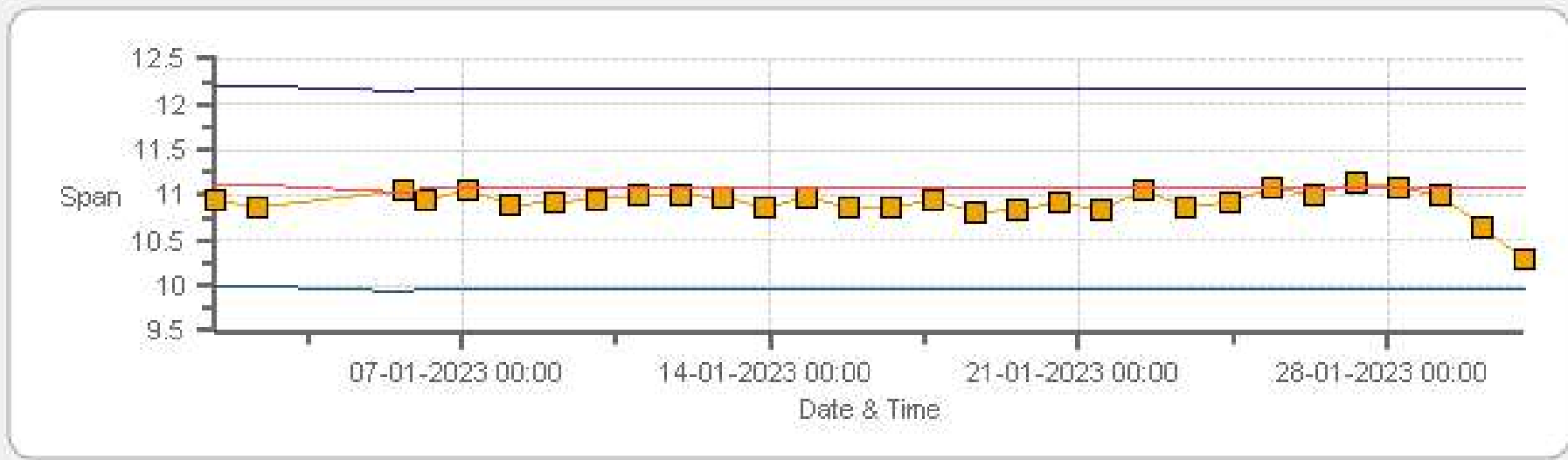
Span Span Ref Span Low Span High

NMHC[ppm] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Zero



Zero Zero Ref Zero Low Zero High

NMHC[ppm] Calibration: Peace River Complex [PRC] Monthly: 01-2023 Type: SpanAndZero - Span



Span Span Ref Span Low Span High

MULTI-POINT CALIBRATION RECORDS

SO2 Analyzer Calibration by Dilution



DATE:	05-Jan-2023	PREVIOUS CALIBRATION DATE:	14-Dec-2022
PARAMETER:	SO2	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5
LOCATION:	Peace River Compliance	BAROMETRIC (mBar):	934
PURPOSE:	Routine	START TIME (MST):	13:31
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:57

ANALYZER:

MAKE/MODEL	Thermo 43i	RANGE	500 ppb
SERIAL #	1034746225	FLOW (mL/min)	441
INITIAL		FINAL	
BKG/OFFSET	19.1	BKG/OFFSET	19.3
COEF/SLOPE	1.095	COEF/SLOPE	1.109
Expected (reference) Value	237.4	Expected (reference) Value	247.7

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0001923	HIGH ID	n/a
CONC (ppm):	25.10	EXPIRY DATE	n/a
CYLINDER (psi):	1800	LOW ID	n/a
EXPIRY DATE	02-Nov-2025	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	390	190	95
RANGE	300 - 400	150 - 200	50 - 100

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

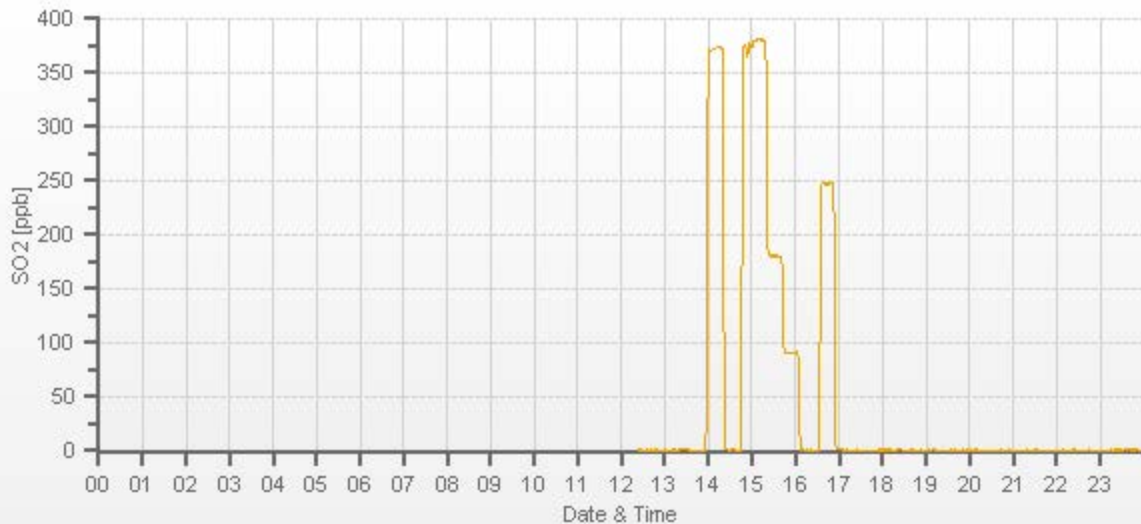
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3998	60.60	3998	0.00	0	0	1.017	1.000
3942	60.60	4003	379.98	373.5	380	1.017	1.000
3967	28.70	3996	180.27	n/a	179.6	n/a	1.004
3987	14.30	4001	89.71	n/a	90.4	n/a	0.992

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.0%

COMMENTS:

Sample filter changed.



H2S Analyzer Calibration by Dilution



DATE:	05-Jan-2023	PREVIOUS CALIBRATION DATE:	22-Dec-2022
PARAMETER:	H2S	PREVIOUS CORRECTION FACTOR:	0.999
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5
LOCATION:	Peace River Compliance	BAROMETRIC (mBar):	934
PURPOSE:	Routine	START TIME (MST):	13:31
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:57

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	1308857354	FLOW (mL/min)	943
INITIAL		FINAL	
BKG/OFFSET	13.9	BKG/OFFSET	13.5
COEF/SLOPE	1.001	COEF/SLOPE	1.001
Expected (reference) Value	35	Expected (reference) Value	36.5

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

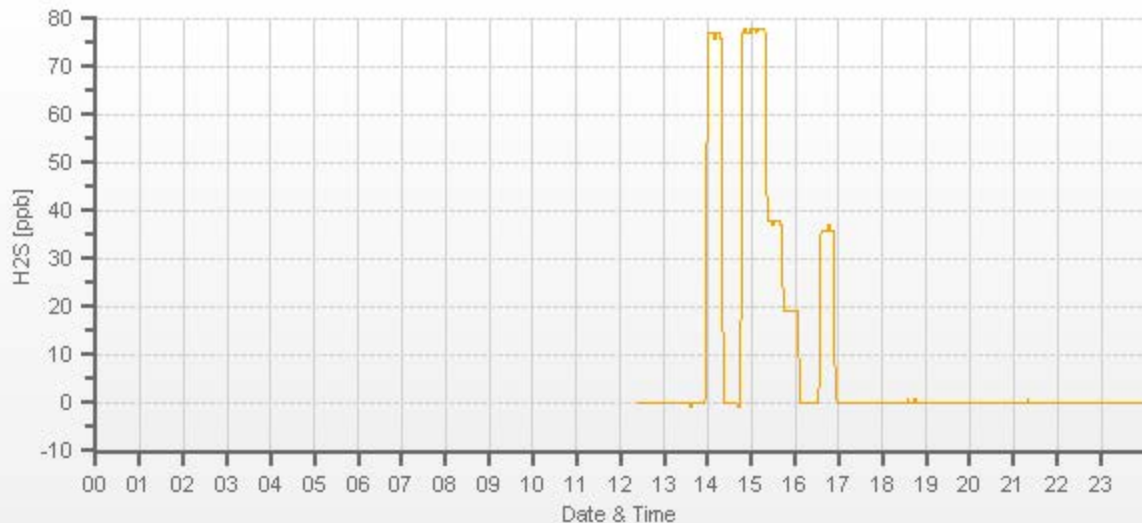
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3998	33.20	3998	0.00	-0.1	0	1.014	0.999
3970	33.20	4003	78.04	76.9	78.1	1.014	0.999
3980	16.20	3996	38.15	n/a	38.1	n/a	1.001
3993	8.10	4001	19.05	n/a	19.5	n/a	0.977

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.999	0.2%

COMMENTS:

Sample filter changed



TRS Analyzer Calibration by Dilution



DATE:	05-Jan-2023	PREVIOUS CALIBRATION DATE:	14-Dec-2022
PARAMETER:	TRS	PREVIOUS CORRECTION FACTOR:	1.001
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5
LOCATION:	Peace River Compliance	BAROMETRIC (mBar):	934
PURPOSE:	Routine	START TIME (MST):	13:31
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:57

ANALYZER:

MAKE/MODEL	Thermo 450i	RANGE	100 ppb
SERIAL #	1034746224	FLOW (mL/min)	715
INITIAL		FINAL	
BKG/OFFSET	24.2	BKG/OFFSET	23.7
COEF/SLOPE	1.009	COEF/SLOPE	1.022
Expected (reference) Value	47.77	Expected (reference) Value	49.31

CALIBRATION SYSTEM:

CALIBRATOR:		ZERO AIR:	
MAKE:	Sabio	MAKE:	Teledyne
MODEL:	2010	MODEL:	M701
ID:	58100720	ID:	4568
MFC CALIBRATION DATE:	15-Sep-2022	OXIDIZER ID:	n/a
CALIBRATION GAS:		FLOWMETERS (if applicable):	
CYLINDER ID:	EY0002519	HIGH ID	n/a
CONC (ppm):	9.41	EXPIRY DATE	n/a
CYLINDER (psi):	1600	LOW ID	n/a
EXPIRY DATE	10-Nov-2023	EXPIRY DATE	n/a

CALIBRATION PARAMETERS:

POINT	HIGH	MID	LOW
TARGET	78	38	19
RANGE	60 - 80	30 - 40	10 - 20

SCRUBBER CHECK (15 MINS; TRS/H2S ONLY):

START TIME:	n/a	SO2 Conc (ppb)	n/a
END TIME:	n/a	Analyzer Response (ppb)	n/a

CALIBRATION:

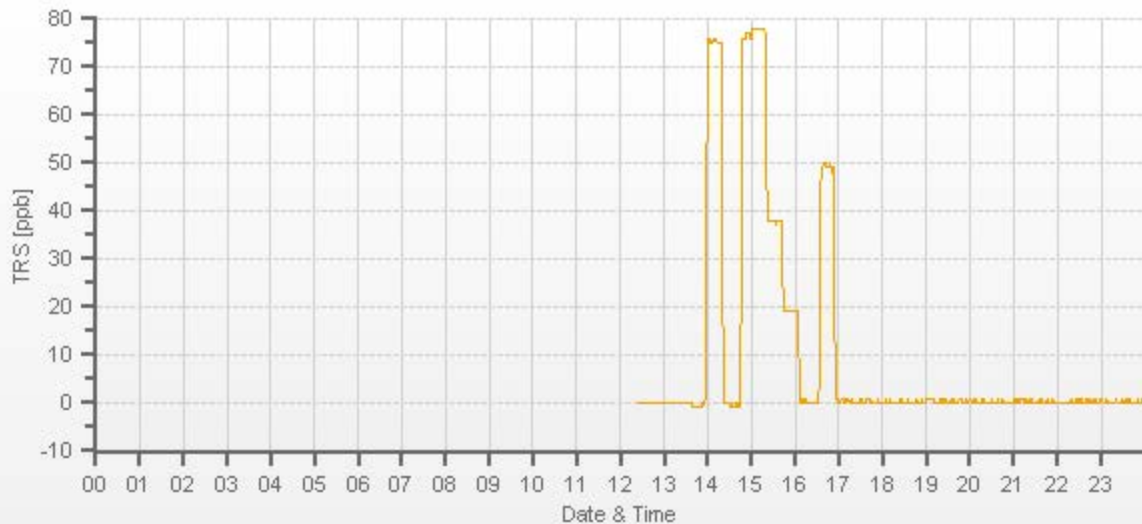
FLOW RATES (mL/min)			CONCENTRATION (ppb)			CORRECTION FACTOR	
DILUENT	GAS	TOTAL	ACTUAL	INDICATED		Initial	Final
				Initial	Final		
3998	33.20	3998	0.00	-0.27	0	1.026	1.000
3970	33.20	4003	78.04	75.82	78.01	1.026	1.000
3980	16.20	3996	38.15	n/a	38.3	n/a	0.996
3993	8.10	4001	19.05	n/a	19.59	n/a	0.972

LINEAR REGRESSION ANALYSIS:

	CORRELATION	SLOPE	INTERCEPT
VALUE	1.000	0.997	0.3%

COMMENTS:

TRS Converter CDNOVA CDN-101 #506.



Methane/Non-Methane Analyzer Calibration by Dilution



CALIBRATION:				ANALYZER:			
DATE:	05-Jan-2023	PREVIOUS CALIBRATION DATE:	14-Dec-2022	VALUE	MAKE/MODEL	SERIAL	FLOW (mL/min)
CLIENT:	PRAMP	TEMPERATURE (°C):	23.5		Thermo 55i	1022143392	1093
LOCATION:	Peace River Compliance	BAROMETRIC (mBar):	934	PARAMETER:	CH4	NMHC	THC
PURPOSE	Routine	START TIME (MST):	13:32	RANGE (ppm):	20	20	40
PERFORMED BY:	Chris Wesson	END TIME (MST):	16:45	PREVIOUS CF:	0.999	0.999	0.999

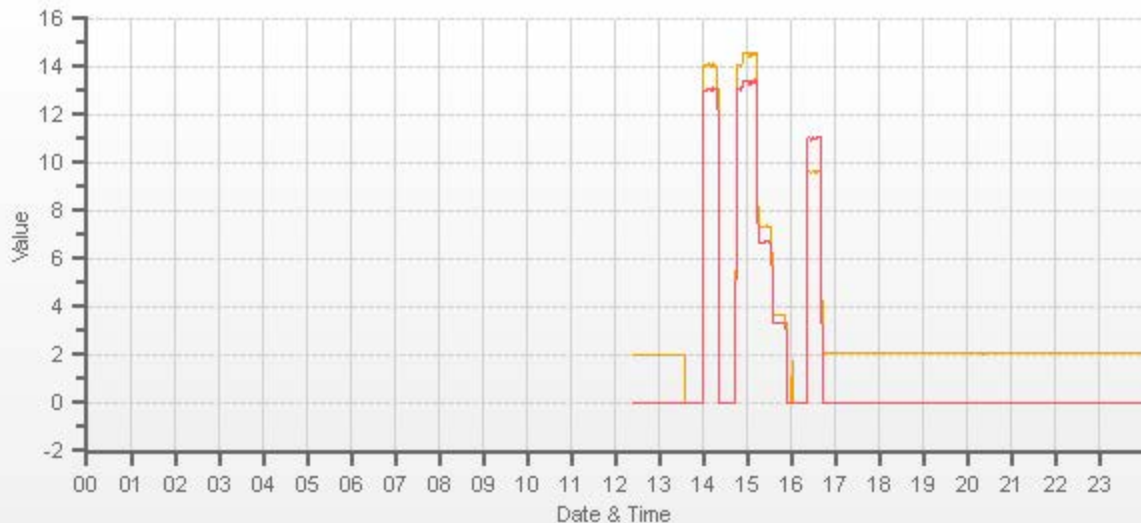
CALIBRATOR:		ZERO AIR:		CALIBRATION GAS:		FLOWMETERS (if applicable):	
MAKE:	Sabio	MAKE:	Teledyne	CYLINDER ID:	LL28583	HIGH ID:	n/a
MODEL:	2010	MODEL:	M701	CH ₄ /C ₃ H ₈ (ppm):	608.0 203.0	HIGH EXPIRY:	n/a
ID:	26701218	ID:	916	CYLINDER (psi):	800	LOW ID:	n/a
MFC CALIBRATION DATE:	13-Sep-2022	OXIDIZER ID:	Internal	EXPIRY DATE	22-Dec-2028	LOW EXPIRY:	n/a

CALIBRATION PARAMETERS:							
POINT (CH ₄ /NMHC)	HIGH	MID	LOW	CH ₄ EQUIVILANCE			
TARGET	14	7	3.5	C ₃ H ₈ as CH ₄		558.3	
RANGE	12 - 16	6 - 8	2 - 4	THC as CH ₄		1166.3	

EXPECTED (REFERENCE) VALUE:							
INITIAL	CH ₄	NMHC	THC	FINAL	CH ₄	NMHC	THC
	9.70	11.10	20.80		9.66	11.07	20.73

FLOW RATE			CONCENTRATION (PPM)									CORRECTION FACTOR (CF.)					
(mL/min)			CALCULATED			INITIAL INDICATED			FINAL INDICATED			INITIAL			FINAL		
DILUENT	GAS	TOTAL	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC	CH ₄	NMHC	THC
3001	X	3001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X
2928	72.00	3000	14.59	13.40	27.99	14.09	13.08	27.17	14.56	13.37	27.94	1.036	1.024	1.030	1.002	1.002	1.002
2963	36.00	2999	7.30	6.70	14.00	n/a	n/a	n/a	7.36	6.71	14.07	n/a	n/a	n/a	0.992	0.999	0.995
2982	18.00	3000	3.65	3.35	7.00	n/a	n/a	n/a	3.66	3.34	7.00	n/a	n/a	n/a	0.997	1.003	1.000

LINEAR REGRESSION ANALYSIS:				Comments:			
	CORRELATION	SLOPE	INTERCEPT	Sample filter changed			
CH ₄	1.000	0.998	0.1%				
NMHC	1.000	0.998	0.0%				
THC	1.000	0.998	0.1%	Use Zero Chrom?		No	



CAL-PRAMP-202301-01698

Meteorological System Checklist



Date:	January 5, 2023		
Technician:	Chris Wesson		
Station:	Peace River Compliance		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Rotronic	HC2-S3	20558318
Barometric Pressure Sensor:	MetOne	092	B19577
Relative Humidity Sensor:	Rotronic	HC2-S3	20558318
Anemometer:	RM Young	05305VK	129612
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	December 14, 2022		
Parameter:	Temperature @ 2 metres		
Reference Thermometer ID:	FS #160459244 expires June 14, 2023		
Reference Temperature (°C):	-9.5		
Station - Ambient Temperature (°C):	-9.8		
Temperature Difference (°C):	0.3		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	December 14, 2022		
Reference Barometer ID:	Brunton #05535 expires Feb 22, 2023		
Reference Pressure - Units/Reading:	millibar	930.5	
Station Pressure - Units/Reading:	millibar	933	
Pressure Tolerance +/- 15% of error:	791 - 1070	-0.27%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	December 14, 2022		
Reference Hygrometer ID:	FS #160459244 expires June 14, 2023		
Reference Hygrometer % RH- Reading:	83.20		
Station Hygrometer % RH- Reading:	86.40		
RH Tolerance +/- 15% of difference:	70.72 - 95.68	-3.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	December 14, 2022	Previous check date:	December 14, 2022
Wind Speed Observed (kph):	10~20	Wind Direction Observed:	NE
Wind speed on Data Logger (kph):	14.5	Wind Direction on Data Logger:	NE
		Wind Direction Pass/Fail?:	Pass
Comments			
No issues.			



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Ferdinand Roy
Audit Location:	Peace River Compliance	Reviewed By:	Chris Wesson
Audit Date:	August 17, 2022	Start/End Time (mst):	8:15/9:20
Calibration Purpose:	routine annual	Weather Conditions:	Mainly clear

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	129612	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	June 16, 2021	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires June 7, 2023

Wind Speed Audit Data ****+/- 2% of the average correction factor is the limit****

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.5	18.5	0.996
2000	36.9	36.9	37.0	0.998
3000	55.3	55.4	55.4	0.998
4000	73.7	73.9	73.9	0.998
5000	92.2	92.4	92.4	0.997
6000	110.6	110.9	110.9	0.997
7000	129.0	129.5	129.5	0.996
8000	147.4	148.0	148.0	0.996
9000	165.9	166.6	166.6	0.996
10000	184.3	185.1	185.2	0.995
The audit meets AMD requirements.			Average Correction Factor=	0.997

Wind Direction Audit Data ****+/- 3° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	354	1.0	1.0	1.0
30	330	29	329	1.0	1.0	1.0
60	300	59	300	1.0	0.0	0.5
90	270	89	271	1.0	-1.0	1.0
120	240	119	241	1.0	-1.0	1.0
150	210	151	212	-1.0	-2.0	1.5
180	180	181	181	-1.0	-1.0	1.0
210	150	211	151	-1.0	-1.0	1.0
240	120	241	120	-1.0	0.0	0.5
270	90	271	89	-1.0	1.0	1.0
300	60	300	59	0.0	1.0	0.5
330	30	329	29	1.0	1.0	1.0
355	0	354	1	1.0	1.0	1.0
The audit meets AMD requirements.				Average Absolute Degrees Difference=		0.9

Comments:

Physical inspection completed - no issues.

List of SOPs

MONITOR	SOP
SULPHUR DIOXIDE (SO ₂)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
HYDROGEN SULPHIDE (H ₂ S)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
TOTAL REDUCED SULPHUR (TRS)	Bureau Veritas EMS SOP-00209: Ambient Sulphur Monitoring
TOTAL HYDROCARBONS (THC), METHANE (CH ₄), NON-METHANE(NMHC)	Bureau Veritas EMS SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring
OXIDES OF NITROGEN (NO _x), NITRIC OXIDE (NO) & NITROGEN DIOXIDE (NO ₂)	Bureau Veritas EMS SOP-00213: Ambient NO/NO ₂ /NO _x Monitoring
OZONE (O ₃)	Bureau Veritas EMS SOP-00212: Ambient O ₃ Monitoring
PARTICULATE MATTER < 2.5 MICRONS (PM _{2.5})	Bureau Veritas EMS SOP-00015: Teledyne API PM Monitor Model T640
WIND SPEED (WS) & WIND DIRECTION (WD)	Bureau Veritas EMS SOP-00013: RM Young Wind Monitor Calibration



Peace River Area Monitoring Program

JANUARY 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

PRAMP-202301-INTEGRATED

February 24, 2023

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Peace River Area Monitoring Program
Suite 91, 305 – 4625 Varsity Drive NW
Calgary, AB, T3A 0Z9
Phone #: 780-226-7068 / 587-225-2248
E-mail: prampotech@prampairshed.ca
www.prampairshed.ca

February 24, 2023

Alberta Environment and Protected Areas (EPA)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6

RE: PRAMP –January 2023 Monthly Ambient Air Quality Monitoring Integrated Sampling Report

Enclosed is the January 2023 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Peace River Area Monitoring Program's (PRAMP) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods, including volatile organic compounds (NMHC canister sampling program), hydrogen sulphide, and sulphur dioxide (passive sampling program).

The representative of the Person Responsible for this monitoring program is

PRAMP Airshed
Michael Bisaga / Lily Lin, Technical Program Managers
Suite 91, 305 – 4625 Varsity Drive NW
Calgary, AB, T3A 0Z9
Phone #: 780-226-7068 / 587-225-2248
E-mail: prampotech@prampairshed.ca

This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the PRAMP Airshed. This report is also submitted on behalf of the industrial member companies to satisfy the requirements of the facility Operating Approvals.

NETWORK STATION SUMMARY

Listing of Integrated Sampling Stations

- 986-C Station
- 842-B Station
- Reno-B Station
- Peace River Complex (PRC) Station

Station Name	986-C	842-B	Reno-B	PRC
Station ID	1562	1561	1563	1698
Coordinates	56.36980, -116.92500	56.27406, -116.98129	55.86936, -117.05739	56.38257, -116.769283
NMHC Canister (VOCs)	√	√	√	
Passives: 2-Month exposure (PACs)	√			
Passives: 1-Month Exposure (H ₂ S, SO ₂)				√

Listing of Passives: 1-Month Exposure Sampling Sites

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

List of Contractors who performed the air monitoring activities

Sampling Program	Monitoring Activities Conducted By	Sample Analysis Conducted By	Data/Report Prepared By	Electronic Submission Conducted By
NMHC Canister (VOCs)	Bureau Veritas	InnoTech Alberta Inc	PRAMP	PRAMP
Passives: PACs	PRAMP	ECCC	AEP	AEP
Passives: H ₂ S, SO ₂	PRAMP	Bureau Veritas	PRAMP	PRAMP

Monitoring Notes during the Month of January 2023

- **NMHC Canister Sampling Program - Volatile Organic Compounds (VOCs)**
 - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm for non-methane hydrocarbons. The trigger point is based on real-time monitoring data that are averaged over a 5-minute period.
 - One canister was collected at the Reno-B station this month, on January 5 at 06:45, at concentration of 0.39ppm.

- **Passive Polycyclic Aromatic Compounds (PACs) Sampling Program**
 - The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
 - The sample media for sampling period of January and February were installed on January 10. They are scheduled to be replaced by the end of February.

- **Passives H₂S, SO₂ Sampling Program**
 - The passive sample filters were installed at the stations on December 30 and were removed on February 1.

Revisions to Alberta's Ambient Air Quality Data Warehouse

No revisions to historical data previously submitted to the Alberta's Ambient Air Quality Data Warehouse were made this month.

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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



Lily Lin, Technical Program Manager, PRAMP Airshed

The 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. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta ETS as required by the AMD.



Michael Bisaga, Technical Program Manager, PRAMP Airshed

February 24, 2023

INTEGRATED SAMPLING RESULTS SUMMARY

- NMHC analytical results**

Sample Date/Time	2023-01-05 @06:45							
Canister Sample	Non-methane Hydrocarbon							
Canister ID	55650							
Method	NA-025		Method	NA-024		Method	AC-058	
Maximum Reading (ppmv)	2.6	Methane	Maximum Reading (ppmv)	4.3	Dimethyl sulphide	Maximum Reading (ppmv)	4.25	n-Butane

Sample Date/Time	2023-01-05 @06:45							
Canister Sample	Non-methane Hydrocarbon - BLANK							
Canister ID	28913							
Method	NA-025		Method	NA-024		Method	AC-058	
Maximum Reading (ppmv)	-	-	Maximum Reading (ppmv)	-	-	Maximum Reading (ppmv)	0.12	n-Butane

- Passive analytical results**

	H ₂ S		SO ₂	
Minimum (ppb)	0.15	#1	0.2	#9
Maximum (ppb)	0.29	#12	0.6	#3
Average (ppb)	0.21	-	0.40	-

ANALYTICAL SAMPLING RESULTS

NMHC Canisters – VOCs



Highway 16A & 75 Street
 PO Bag 4000
 Vegreville, AB, T9C 1T4
 Environmental Analytical Services
 Phone: (780) 632-8403 Fax: (780) 632-8620

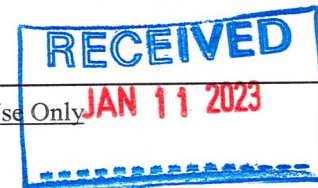
EAS CANISTER

Sample ID: 23010065-001 Priority: Normal



Customer ID: PRAMP
 Cust Samp ID: PRAMP-Reno-B-20230109

Date Received- Lab Use Only **JAN 11 2023**



Client Contact Details:

Contact: Karla Ressor, Michael Bisaga/ Lily Lin
 Company: PRAMP Airshed
 PO#: 842b Station 986c Station Reno Station
 Address: 842b (Lat. 56.27406N, Long. 116.98129W)
 986c (Lat. 56.36988N, Long. 116.925636W)
 Reno (Lat. 55.86936N, Long. 117.05739W)
 Telephone: 403-8072995, 780-2667068/587-2252248
 Email: karla@prampairshed.ca, pramptech@prampairshed.ca

RUSH (Surcharge)

Invoice Instructions:

Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,
 pramptech@prampairshed.ca Attention: PRAMP Office Manager
 Any correspondence related to canister analysis, send the information to
 karla@prampairshed.ca and pramptech@prampairshed.ca

InnoTech Contact: Graham Knox Phone: 780-632-8403 Cell: 780-632-1519
 Email: Graham.Knox@innotechalberta.ca

Sample ID (PRAMP_station_yyyymmdd) (Find Sample ID from BV's email)	Canister ID (Find canister ID from canister tag)	Sample Description	Date/Time Canister Triggered (Find Date/Time from BV's email)		Analysis Requested
			Date (yyyy/mm/dd)	Time (24 Hr) (MST)	
PRAMP_842b- _____	55650	<input type="checkbox"/> Methane Trigger	2023/01/09	06:50	* C1C4 Air, VOC Full, RSC Air * Unknowns to be reported * Carbon Isotopic Analysis (if sample is collected from Methane trigger)
PRAMP_986c- _____		<input checked="" type="checkbox"/> NMHC Trigger			
PRAMP_Reno- <u>R-20230109</u>		<input type="checkbox"/> Methane Blank <input type="checkbox"/> NMHC Blank <input type="checkbox"/> Expired Canister – No further analysis is required.			

Sample Collection:

Collected By Dwayne (Name) of _____ (Company) on Jan 9/2023 (Date/Time) (MST).



Highway 16A & 75 Street
 PO Bag 4000
 Vegreville, AB, T9C 1T4
 Environmental Analytical Services
 Phone: (780) 632-8403 Fax: (780) 632-8620

EAS CANISTER

Sample ID: 23010065-002 Priority: Normal



Customer ID: PRAMP
 Cust Samp ID: PRAMP-Reno-B-Blank

Date Received- Lab Use Only



Client Contact Details:

Contact: Karla Ressor, Michael Bisaga/ Lily Lin
 Company: PRAMP Airshed
 PO#: 842b Station 986c Station Reno Station
 Address: 842b (Lat. 56.27406N, Long. 116.98129W)
 986c (Lat. 56.36988N, Long. 116.925636W)
 Reno (Lat. 55.86936N, Long. 117.05739W)
 Telephone: 403-8072995, 780-2667068/587-2252248
 Email: karla@prampairshed.ca, pramptech@prampairshed.ca

RUSH (Surcharge)

Invoice Instructions:

Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,
 pramptech@prampairshed.ca Attention: PRAMP Office Manager
 Any correspondence related to canister analysis, send the information to
 karla@prampairshed.ca and pramptech@prampairshed.ca

InnoTech Contact: Graham Knox Phone: 780-632-8403 Cell: 780-632-1519

Email: Graham.Knox@innotechalberta.ca

Sample ID (PRAMP_station_yyyymmdd) (Find Sample ID from BV's email)	Canister ID (Find canister ID from canister tag)	Sample Description	Date/Time Canister Triggered (Find Date/Time from BV's email)		Analysis Requested
			Date (yyyy/mm/dd)	Time (24 Hr) (MST)	
PRAMP_842b- _____		<input type="checkbox"/> Methane Trigger			* C1C4 Air, VOC Full, RSC Air
PRAMP_986c- _____		<input type="checkbox"/> NMHC Trigger			* Unknowns to be reported
PRAMP_Reno- <u>B-Blank</u>	<u>28913</u>	<input type="checkbox"/> Methane Blank			* Carbon Isotopic Analysis (if sample is collected from Methane trigger)
		<input checked="" type="checkbox"/> NMHC Blank	<u>2023/01/09</u>	<u>06:50</u>	
		<input type="checkbox"/> Expired Canister – No further analysis is required.			

Sample Collection:

Collected By Dwayne (Name) of _____ (Company) on Jan 9/2023 (Date/Time) (MST).



Canister ID: S5650

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: DEC 02 2022

Evacuated: DEC 09 2022 Recertified: 02

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: PRAMP-Reno-B 20230109

Sampled By: Dwayne

Starting Vacuum:

-27.1 "Hg

End Vacuum: -6" Hg JWP

-5 "Hg/psig



Canister ID: 28913

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: NOV 08 2022

Evacuated: DEC 19 2022 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: PRAMP-Reno-B-Blank

Sampled By: Dwayne

Starting Vacuum:

-27.2 "Hg

End Pressure: -28" Hg JWP

-28 "Hg/psig

Sample ID: 23010065-001 Priority: Normal



Customer ID: PRAMP

Cust Samp ID: PRAMP-Reno-B-20230109

<p>RESULTS: Karla Reesor 403 807 2995 Peace River Area Monitoring Program Committee</p> <p>INVOICE: Office Manager</p>	<p style="text-align: center;">CLIENT SAMPLE ID PRAMP-Reno-B-20230109</p> <p>MATRIX: Ambient Air</p> <p>CANISTER ID: S5650 PRIORITY: Normal DESCRIPTION: NMHC Trigger</p> <p>DATE SAMPLED: 09-Jan-23 6:50 DATE RECEIVED: 11-Jan-23 REPORT CREATED: 18-Jan-23 REPORT NUMBER: 23010065</p> <p style="text-align: right;">VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	1-Butene	K, T, U	< 0.16	ppmv	0.16	NA-025	13-Jan-23
23010065-001	Acetylene	K, T, U	< 0.12	ppmv	0.12	NA-025	13-Jan-23
23010065-001	n-Butane	K, T, U	< 0.3	ppmv	0.3	NA-025	13-Jan-23
23010065-001	cis-2-Butene	K, T, U	< 0.06	ppmv	0.06	NA-025	13-Jan-23
23010065-001	Ethane	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-001	Ethylacetylene	K, T, U	< 0.09	ppmv	0.09	NA-025	13-Jan-23
23010065-001	Ethylene	K, T, U	< 0.11	ppmv	0.11	NA-025	13-Jan-23
23010065-001	Isobutane	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-001	Isobutylene	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-001	Methane		2.6	ppmv	0.2	NA-025	13-Jan-23
23010065-001	n-Propane	K, T, U	< 0.11	ppmv	0.11	NA-025	13-Jan-23
23010065-001	Propylene	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-001	Propyne	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-001	trans-2-Butene	K, T, U	< 0.14	ppmv	0.14	NA-025	13-Jan-23
23010065-001	2,5-Dimethylthiophene	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	2-Ethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	2-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	3-Methylthiophene	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Butyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Carbon disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	Carbonyl sulphide		0.7	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Dimethyl disulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	Dimethyl sulphide		4.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	Ethyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Ethyl sulphide	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Hydrogen sulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-001	Isobutyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Isopropyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-001	Methyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	Pentyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	11-Jan-23
23010065-001	Propyl mercaptan	K, T, U	< 0.6	ppbv	0.6	NA-024	11-Jan-23
23010065-001	tert-Butyl mercaptan	K, T, U	< 0.5	ppbv	0.5	NA-024	11-Jan-23
23010065-001	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	11-Jan-23
23010065-001	1,2,4-Trichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> PRAMP-202301-INTEGRATED

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	1,2-Dichlorobenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dichloroethane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dichloropropane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3-Butadiene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	1,4-Dioxane	K, T, U	< 0.8	ppbv	0.8	AC-058	11-Jan-23
23010065-001	1-Butene/Isobutylene	I	0.12	ppbv	0.09	AC-058	11-Jan-23
23010065-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	11-Jan-23
23010065-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,2-Dimethylbutane	I	0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	11-Jan-23
23010065-001	2,3-Dimethylpentane	I	0.07	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2-Methylhexane	I	0.11	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2-Methylpentane		0.21	ppbv	0.03	AC-058	11-Jan-23
23010065-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	3-Methylhexane	I	0.12	ppbv	0.03	AC-058	11-Jan-23
23010065-001	3-Methylpentane		0.22	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Acetone		1.5	ppbv	0.6	AC-058	11-Jan-23
23010065-001	Acrolein	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	Benzene		0.44	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Benzyl chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Bromodichloromethane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Carbon tetrachloride	I	0.11	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloromethane		0.50	ppbv	0.06	AC-058	11-Jan-23
23010065-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Cyclohexane	I	0.18	ppbv	0.06	AC-058	11-Jan-23
23010065-001	Cyclopentane	I	0.15	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Ethanol		2.7	ppbv	0.8	AC-058	11-Jan-23
23010065-001	Ethyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Ethylbenzene	I	0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Freon-11		0.23	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Freon-113	I	0.07	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Freon-114	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Freon-12		0.46	ppbv	0.05	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	Hexachloro-1,3-butadiene	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Isobutane		2.35	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Isopentane		1.38	ppbv	0.06	AC-058	11-Jan-23
23010065-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010065-001	m,p-Xylene	I	0.13	ppbv	0.06	AC-058	11-Jan-23
23010065-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	Methyl ethyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	11-Jan-23
23010065-001	Methyl tert butyl ether	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Methylcyclohexane		0.22	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Methylcyclopentane		0.23	ppbv	0.08	AC-058	11-Jan-23
23010065-001	Methylene chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Butane		4.25	ppbv	0.03	AC-058	11-Jan-23
23010065-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23
23010065-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Heptane	I	0.15	ppbv	0.06	AC-058	11-Jan-23
23010065-001	n-Hexane		0.43	ppbv	0.05	AC-058	11-Jan-23
23010065-001	n-Octane	I	0.06	ppbv	0.03	AC-058	11-Jan-23
23010065-001	n-Pentane		1.30	ppbv	0.06	AC-058	11-Jan-23
23010065-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	11-Jan-23
23010065-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010065-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	o-Xylene	I	0.06	ppbv	0.05	AC-058	11-Jan-23
23010065-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010065-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010065-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Tetrahydrofuran	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Toluene		0.39	ppbv	0.05	AC-058	11-Jan-23
23010065-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23
23010065-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Vinyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

Date: January 18, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> PRAMP-202301-INTEGRATED

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Blank		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	1-Butene	K, T, U	< 0.10	ppmv	0.10	NA-025	13-Jan-23
23010065-002	Acetylene	K, T, U	< 0.08	ppmv	0.08	NA-025	13-Jan-23
23010065-002	n-Butane	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-002	cis-2-Butene	K, T, U	< 0.04	ppmv	0.04	NA-025	13-Jan-23
23010065-002	Ethane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Ethylacetylene	K, T, U	< 0.06	ppmv	0.06	NA-025	13-Jan-23
23010065-002	Ethylene	K, T, U	< 0.07	ppmv	0.07	NA-025	13-Jan-23
23010065-002	Isobutane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Isobutylene	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Methane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	n-Propane	K, T, U	< 0.07	ppmv	0.07	NA-025	13-Jan-23
23010065-002	Propylene	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Propyne	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	trans-2-Butene	K, T, U	< 0.09	ppmv	0.09	NA-025	13-Jan-23
23010065-002	2,5-Dimethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	2-Ethylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	2-Methylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	3-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Carbon disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Carbonyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Dimethyl disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Dimethyl sulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Ethyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Ethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23	6:50
DESCRIPTION:	NMHC Blank			
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	Hydrogen sulphide	K, T, U	< 0.1	ppbv	0.1	NA-024	11-Jan-23
23010065-002	Isobutyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Isopropyl mercaptan	K, T, U	< 0.1	ppbv	0.1	NA-024	11-Jan-23
23010065-002	Methyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Pentyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	11-Jan-23
23010065-002	Propyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	11-Jan-23
23010065-002	tert-Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jan-23
23010065-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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DESCRIPTION:	NMHC Blank			
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Jan-23
23010065-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Jan-23
23010065-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	12-Jan-23
23010065-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Acetone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

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REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23
23010065-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Isopentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23

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DESCRIPTION:	NMHC Blank			
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Jan-23
23010065-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jan-23
23010065-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Butane		0.12	ppbv	0.02	AC-058	12-Jan-23
23010065-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23
23010065-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23

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DESCRIPTION:	NMHC Blank		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-002	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Jan-23
23010065-002	Toluene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jan-23
23010065-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	12-Jan-23
23010065-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jan-23
23010065-002	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Jan-23
23010065-002	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23010065	01	18-Jan-23	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier Translation

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments

23010065

Unknowns to be reported. Send results to pramptech@prampairshed.c



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*

Passives



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Bureau Veritas Job Number:

PASSIVE AIR CHAIN OF CUSTODY

Page ___ of ___

Invoice To
 Company Name _____
 Contact Name _____
 Address _____
 City/Postal Code _____
 Phone/Fax# _____

Report To
 Name & Email Address

Service Requested
 RUSH
 (Please contact for TAT)
 REGULAR

Company Name
Peace River
 Project Name/LSD
Peace River

ANALYTICAL INFORMATION

Sample ID or Location (LSD)	Sample Start Date (DD/MM/YY)	Time (24 hrs) (HH:MM)	Sample End Date (DD/MM/YY)	Time (HH:MM)	Volume (m3) PM/TSP Only	Analysis Required																
						SO2	H2S	NO2	O3	NH3	PM2.5	PM10	TSP	Dustfall								
1	01/01/23		02/01/23	7:30 am		X	X															
2	[Vertical Line]		[Vertical Line]			X	X															
3						X	X															
4						X	X															
7						X	X															
8						X	X															
9						X	X															
10						X	X															
11						X	X															
12						X	X															
13						X	X															
14						X	X															
Blank								X	X													
Blank								X	X													
						11:31 am		X	X													

Notes/Comments: Client 12521 / Scenario 18009

Sampled By _____ Phone/Email _____ Received By [Signature] Date/Time Feb 2/23 Project # _____
 Date Shipped _____ Signature [Signature] @ 07:30 PO# _____
14 SO2 14 H2S



Your Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX

Attention: Michael and Lily

Peace River Area Monitoring Program Committee
Three Creeks
Suite 91, 305 –
4625 Varsity Drive NW
Calgary, AB
CANADA T3A0Z9

Report Date: 2023/02/14
Report #: R3299507
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C307736

Received: 2023/02/02, 07:30

Sample Matrix: Air
Samples Received: 12

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis	12	2023/02/07	2023/02/13	PTC SOP-00150	Passive H2S in ATM
SO2 Passive Analysis	12	2023/02/03	2023/02/13	PTC SOP-00149	Passive SO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Belma Elefante
Customer Service Associate
14 Feb 2023 08:26:45

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BLG106	BLG107	BLG108	BLG109	BLG110	BLG111	BLG112		
Sampling Date		2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00		
	UNITS	1	2	3	4	7	8	9	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.15	0.22	0.23	0.17	0.19	0.24	0.18	0.02	A874385
Calculated SO2	ppb	0.4	0.5	0.6	0.4	0.5	0.4	0.2	0.1	A872337
RDL = Reportable Detection Limit										

Bureau Veritas ID		BLG113	BLG114	BLG115	BLG116	BLG117		
Sampling Date		2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00		
	UNITS	10	11	12	13	14	RDL	QC Batch
Passive Monitoring								
Calculated H2S	ppb	0.21	0.28	0.29	0.20	0.16	0.02	A874385
Calculated SO2	ppb	0.4	0.3	0.4	0.4	0.3	0.1	A872337
RDL = Reportable Detection Limit								



**BUREAU
VERITAS**

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

GENERAL COMMENTS

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

QUALITY ASSURANCE REPORT

QA/QC									
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits	
A872337	OZ	Spiked Blank	Calculated SO2			101	%	90 - 110	
A872337	OZ	Method Blank	Calculated SO2		<0.1		ppb		
A874385	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.



BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Yang Liu, Analyst II

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

End of Report



Peace River Area Monitoring Program

JANUARY 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-PRAMP-202301

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Report:

Peace River Area Monitoring Program

February 7, 2023

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NMHC Canister Analytical Results



Highway 16A & 75 Street
 PO Bag 4000
 Vegreville, AB, T9C 1T4
 Environmental Analytical Services
 Phone: (780) 632-8403 Fax: (780) 632-8620

EAS CANISTER

Sample ID: 23010065-001 **Priority:** Normal



Customer ID: PRAMP
Cust Samp ID: PRAMP-Reno-B-20230109

RECEIVED
 Date Received- Lab Use Only **JAN 11 2023**

Client Contact Details:
Contact: Karla Ressor, Michael Bisaga/ Lily Lin
Company: PRAMP Airshed
PO#: 842b Station 986c Station Reno Station
Address: 842b (Lat. 56.27406N, Long. 116.98129W)
 986c (Lat. 56.36988N, Long. 116.925636W)
 Reno (Lat. 55.86936N, Long. 117.05739W)
Telephone: 403-8072995, 780-2667068/587-2252248
Email: karla@prampairshed.ca, pramptech@prampairshed.ca

RUSH (Surcharge)
Invoice Instructions:
 Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,
 pramptech@prampairshed.ca Attention: PRAMP Office Manager
 Any correspondence related to canister analysis, send the information to
 karla@prampairshed.ca and pramptech@prampairshed.ca
InnoTech Contact: Graham Knox Phone: 780-632-8403 Cell: 780-632-1519
Email: Graham.Knox@innotechalberta.ca

Sample ID (PRAMP_station_yyyymmdd) (Find Sample ID from BV's email)	Canister ID (Find canister ID from canister tag)	Sample Description	Date/Time Canister Triggered (Find Date/Time from BV's email)		Analysis Requested
			Date (yyyy/mm/dd)	Time (24 Hr) (MST)	
PRAMP_842b- _____	55650	<input type="checkbox"/> Methane Trigger	2023/01/09	06:50	* C1C4 Air, VOC Full, RSC Air * Unknowns to be reported * Carbon Isotopic Analysis (if sample is collected from Methane trigger)
PRAMP_986c- _____		<input checked="" type="checkbox"/> NMHC Trigger			
PRAMP_Reno- <u>R: 20230109</u>		<input type="checkbox"/> Methane Blank <input type="checkbox"/> NMHC Blank <input type="checkbox"/> Expired Canister – No further analysis is required.			

Sample Collection:
 Collected By Dwayne (Name) of _____ (Company) on Jan 9/2023 (Date/Time) (MST).



Highway 16A & 75 Street
 PO Bag 4000
 Vegreville, AB, T9C 1T4
 Environmental Analytical Services
 Phone: (780) 632-8403 Fax: (780) 632-8620

EAS CANISTER

Sample ID: 23010065-002 **Priority:** Normal



Customer ID: PRAMP
Cust Samp ID: PRAMP-Reno-B-Blank

Date Received- Lab Use Only



Client Contact Details:

Contact: Karla Ressor, Michael Bisaga/ Lily Lin
Company: PRAMP Airshed
PO#: 842b Station 986c Station Reno Station
Address: 842b (Lat. 56.27406N, Long. 116.98129W)
 986c (Lat. 56.36988N, Long. 116.925636W)
 Reno (Lat. 55.86936N, Long. 117.05739W)
Telephone: 403-8072995, 780-2667068/587-2252248
Email: karla@prampairshed.ca, pramptech@prampairshed.ca

RUSH (Surcharge)

Invoice Instructions:

Send to: officemanager@prampairshed.ca, karla@prampairshed.ca,
 pramptech@prampairshed.ca Attention: PRAMP Office Manager
 Any correspondence related to canister analysis, send the information to
 karla@prampairshed.ca and pramptech@prampairshed.ca

InnoTech Contact: Graham Knox Phone: 780-632-8403 Cell: 780-632-1519

Email: Graham.Knox@innotechalberta.ca

Sample ID (PRAMP_station_yyyymmdd) (Find Sample ID from BV's email)	Canister ID (Find canister ID from canister tag)	Sample Description	Date/Time Canister Triggered (Find Date/Time from BV's email)		Analysis Requested
			Date (yyyy/mm/dd)	Time (24 Hr) (MST)	
PRAMP_842b- _____		<input type="checkbox"/> Methane Trigger			* C1C4 Air, VOC Full, RSC Air
PRAMP_986c- _____		<input type="checkbox"/> NMHC Trigger			* Unknowns to be reported
PRAMP_Reno- <u>B-Blank</u>	<u>28913</u>	<input type="checkbox"/> Methane Blank			* Carbon Isotopic Analysis (if sample is collected from Methane trigger)
		<input checked="" type="checkbox"/> NMHC Blank	<u>2023/01/09</u>	<u>06:50</u>	
		<input type="checkbox"/> Expired Canister – No further analysis is required.			

Sample Collection:

Collected By Dwayne (Name) of _____ (Company) on Jan 9/2023 (Date/Time) (MST).



Canister ID: S5650

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: DEC 02 2022

Evacuated: DEC 09 2022 Recertified: 02

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: PRAMP-Reno-B-20230109

Sampled By: Dwayne

Starting Vacuum:

-27.1 "Hg

End Vacuum: -6" Hg JWP

-5 "Hg/psig



Canister ID: 28913

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: NOV 08 2022

Evacuated: DEC 19 2022 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: PRAMP-Reno-B-Blank

Sampled By: Dwayne

Starting Vacuum:

-27.2 "Hg

End Pressure: -28" Hg JWP

-28 "Hg/psig

Sample ID: 23010065-001 Priority: Normal



Customer ID: PRAMP

Cust Samp ID: PRAMP-Reno-B-20230109

<p>RESULTS: Karla Reesor 403 807 2995 Peace River Area Monitoring Program Committee</p> <p>INVOICE: Office Manager</p>	<p style="text-align: center;">CLIENT SAMPLE ID PRAMP-Reno-B-20230109</p> <p>MATRIX: Ambient Air</p> <p>CANISTER ID: S5650 PRIORITY: Normal DESCRIPTION: NMHC Trigger</p> <p>DATE SAMPLED: 09-Jan-23 6:50 DATE RECEIVED: 11-Jan-23 REPORT CREATED: 18-Jan-23 REPORT NUMBER: 23010065</p> <p style="text-align: right;">VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-001	1-Butene	K, T, U	< 0.16 ppmv	0.16	NA-025	13-Jan-23
23010065-001	Acetylene	K, T, U	< 0.12 ppmv	0.12	NA-025	13-Jan-23
23010065-001	n-Butane	K, T, U	< 0.3 ppmv	0.3	NA-025	13-Jan-23
23010065-001	cis-2-Butene	K, T, U	< 0.06 ppmv	0.06	NA-025	13-Jan-23
23010065-001	Ethane	K, T, U	< 0.2 ppmv	0.2	NA-025	13-Jan-23
23010065-001	Ethylacetylene	K, T, U	< 0.09 ppmv	0.09	NA-025	13-Jan-23
23010065-001	Ethylene	K, T, U	< 0.11 ppmv	0.11	NA-025	13-Jan-23
23010065-001	Isobutane	K, T, U	< 0.2 ppmv	0.2	NA-025	13-Jan-23
23010065-001	Isobutylene	K, T, U	< 0.2 ppmv	0.2	NA-025	13-Jan-23
23010065-001	Methane		2.6 ppmv	0.2	NA-025	13-Jan-23
23010065-001	n-Propane	K, T, U	< 0.11 ppmv	0.11	NA-025	13-Jan-23
23010065-001	Propylene	K, T, U	< 0.2 ppmv	0.2	NA-025	13-Jan-23
23010065-001	Propyne	K, T, U	< 0.2 ppmv	0.2	NA-025	13-Jan-23
23010065-001	trans-2-Butene	K, T, U	< 0.14 ppmv	0.14	NA-025	13-Jan-23
23010065-001	2,5-Dimethylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	2-Ethylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	2-Methylthiophene	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-001	3-Methylthiophene	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Carbon disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	Carbonyl sulphide		0.7 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Dimethyl disulphide	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	Dimethyl sulphide		4.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	Ethyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Ethyl sulphide	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Hydrogen sulphide	K, T, U	< 0.2 ppbv	0.2	NA-024	11-Jan-23
23010065-001	Isobutyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Isopropyl mercaptan	K, T, U	< 0.2 ppbv	0.2	NA-024	11-Jan-23
23010065-001	Methyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	Pentyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	11-Jan-23
23010065-001	Propyl mercaptan	K, T, U	< 0.6 ppbv	0.6	NA-024	11-Jan-23
23010065-001	tert-Butyl mercaptan	K, T, U	< 0.5 ppbv	0.5	NA-024	11-Jan-23
23010065-001	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.3 ppbv	0.3	NA-024	11-Jan-23
23010065-001	1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,1-Dichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	11-Jan-23
23010065-001	1,2,4-Trichlorobenzene	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

Date: January 18, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> LAB-PRAMP-202301

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	1,2-Dichlorobenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dichloroethane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,2-Dichloropropane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3-Butadiene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	1,4-Dioxane	K, T, U	< 0.8	ppbv	0.8	AC-058	11-Jan-23
23010065-001	1-Butene/Isobutylene	I	0.12	ppbv	0.09	AC-058	11-Jan-23
23010065-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	11-Jan-23
23010065-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,2-Dimethylbutane	I	0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	11-Jan-23
23010065-001	2,3-Dimethylpentane	I	0.07	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	2-Methylhexane	I	0.11	ppbv	0.05	AC-058	11-Jan-23
23010065-001	2-Methylpentane		0.21	ppbv	0.03	AC-058	11-Jan-23
23010065-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	3-Methylhexane	I	0.12	ppbv	0.03	AC-058	11-Jan-23
23010065-001	3-Methylpentane		0.22	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Acetone		1.5	ppbv	0.6	AC-058	11-Jan-23
23010065-001	Acrolein	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> LAB-PRAMP-202301

CLIENT SAMPLE ID PRAMP-Reno-B-20230109	CANISTER ID S5650	Matrix Ambient Air	DATE SAMPLED 09-Jan-23 6:50
DESCRIPTION: NMHC Trigger			
REPORT NUMBER: 23010065	REPORT CREATED: 18-Jan-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-001	Benzene		0.44 ppbv	0.05	AC-058	11-Jan-23
23010065-001	Benzyl chloride	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	Bromodichloromethane	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	Bromoform	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Bromomethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Carbon disulfide	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Carbon tetrachloride	I	0.11 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Chloromethane		0.50 ppbv	0.06	AC-058	11-Jan-23
23010065-001	cis-1,2-Dichloroethene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	cis-1,3-Dichloropropene	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	cis-2-Butene	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Cyclohexane	I	0.18 ppbv	0.06	AC-058	11-Jan-23
23010065-001	Cyclopentane	I	0.15 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Dibromochloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Ethanol		2.7 ppbv	0.8	AC-058	11-Jan-23
23010065-001	Ethyl acetate	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	Ethylbenzene	I	0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	Freon-11		0.23 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Freon-113	I	0.07 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Freon-114	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	Freon-12		0.46 ppbv	0.05	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

Date: January 18, 2023

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> LAB-PRAMP-202301

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-001	Hexachloro-1,3-butadiene	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Isobutane		2.35	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Isopentane		1.38	ppbv	0.06	AC-058	11-Jan-23
23010065-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010065-001	m,p-Xylene	I	0.13	ppbv	0.06	AC-058	11-Jan-23
23010065-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010065-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	11-Jan-23
23010065-001	Methyl ethyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	11-Jan-23
23010065-001	Methyl tert butyl ether	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010065-001	Methylcyclohexane		0.22	ppbv	0.03	AC-058	11-Jan-23
23010065-001	Methylcyclopentane		0.23	ppbv	0.08	AC-058	11-Jan-23
23010065-001	Methylene chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Butane		4.25	ppbv	0.03	AC-058	11-Jan-23
23010065-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23
23010065-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Heptane	I	0.15	ppbv	0.06	AC-058	11-Jan-23
23010065-001	n-Hexane		0.43	ppbv	0.05	AC-058	11-Jan-23
23010065-001	n-Octane	I	0.06	ppbv	0.03	AC-058	11-Jan-23
23010065-001	n-Pentane		1.30	ppbv	0.06	AC-058	11-Jan-23
23010065-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-20230109	S5650	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Trigger		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-001	n-Undecane	K, T, U	< 0.8 ppbv	0.8	AC-058	11-Jan-23
23010065-001	Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	n-Nonane	K, T, U	< 0.06 ppbv	0.06	AC-058	11-Jan-23
23010065-001	o-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	o-Xylene	I	0.06 ppbv	0.05	AC-058	11-Jan-23
23010065-001	p-Diethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	p-Ethyltoluene	K, T, U	< 0.06 ppbv	0.06	AC-058	11-Jan-23
23010065-001	Styrene	K, T, U	< 0.06 ppbv	0.06	AC-058	11-Jan-23
23010065-001	Tetrachloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Tetrahydrofuran	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	Toluene		0.39 ppbv	0.05	AC-058	11-Jan-23
23010065-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09 ppbv	0.09	AC-058	11-Jan-23
23010065-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	trans-2-Butene	K, T, U	< 0.05 ppbv	0.05	AC-058	11-Jan-23
23010065-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Trichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23
23010065-001	Vinyl acetate	K, T, U	< 0.5 ppbv	0.5	AC-058	11-Jan-23
23010065-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Jan-23

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Blank		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	1-Butene	K, T, U	< 0.10	ppmv	0.10	NA-025	13-Jan-23
23010065-002	Acetylene	K, T, U	< 0.08	ppmv	0.08	NA-025	13-Jan-23
23010065-002	n-Butane	K, T, U	< 0.2	ppmv	0.2	NA-025	13-Jan-23
23010065-002	cis-2-Butene	K, T, U	< 0.04	ppmv	0.04	NA-025	13-Jan-23
23010065-002	Ethane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Ethylacetylene	K, T, U	< 0.06	ppmv	0.06	NA-025	13-Jan-23
23010065-002	Ethylene	K, T, U	< 0.07	ppmv	0.07	NA-025	13-Jan-23
23010065-002	Isobutane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Isobutylene	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Methane	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	n-Propane	K, T, U	< 0.07	ppmv	0.07	NA-025	13-Jan-23
23010065-002	Propylene	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	Propyne	K, T, U	< 0.1	ppmv	0.1	NA-025	13-Jan-23
23010065-002	trans-2-Butene	K, T, U	< 0.09	ppmv	0.09	NA-025	13-Jan-23
23010065-002	2,5-Dimethylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	2-Ethylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	2-Methylthiophene	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	3-Methylthiophene	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Carbon disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Carbonyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Dimethyl disulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Dimethyl sulphide	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Ethyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Ethyl sulphide	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> LAB-PRAMP-202301

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23	6:50
DESCRIPTION:	NMHC Blank			
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	Hydrogen sulphide	K, T, U	< 0.1	ppbv	0.1	NA-024	11-Jan-23
23010065-002	Isobutyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Isopropyl mercaptan	K, T, U	< 0.1	ppbv	0.1	NA-024	11-Jan-23
23010065-002	Methyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	Pentyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	11-Jan-23
23010065-002	Propyl mercaptan	K, T, U	< 0.4	ppbv	0.4	NA-024	11-Jan-23
23010065-002	tert-Butyl mercaptan	K, T, U	< 0.3	ppbv	0.3	NA-024	11-Jan-23
23010065-002	Thiophene/sec-Butyl mercaptan	K, T, U	< 0.2	ppbv	0.2	NA-024	11-Jan-23
23010065-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jan-23
23010065-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

Inquiries: (780) 632 8403

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CLIENT SAMPLE ID	PRAMP-Reno-B-Blank	CANISTER ID	28913	Matrix	Ambient Air	DATE SAMPLED	09-Jan-23 6:50
DESCRIPTION:	NMHC Blank						
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION:	Version 01		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Jan-23
23010065-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Jan-23
23010065-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	12-Jan-23
23010065-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Acetone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23	6:50
DESCRIPTION:	NMHC Blank			
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23
23010065-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Freon-11	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Isopentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23	6:50
DESCRIPTION:	NMHC Blank			
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010065-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jan-23
23010065-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Jan-23
23010065-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jan-23
23010065-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Butane		0.12	ppbv	0.02	AC-058	12-Jan-23
23010065-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jan-23
23010065-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jan-23
23010065-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jan-23
23010065-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jan-23
23010065-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jan-23
23010065-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23
23010065-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator

Date: January 18, 2023

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at <https://directory.cala.ca/> LAB-PRAMP-202301

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PRAMP-Reno-B-Blank	28913	Ambient Air	09-Jan-23 6:50
DESCRIPTION:	NMHC Blank		
REPORT NUMBER:	23010065	REPORT CREATED:	18-Jan-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23010065-002	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Jan-23
23010065-002	Toluene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jan-23
23010065-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	12-Jan-23
23010065-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jan-23
23010065-002	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23
23010065-002	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Jan-23
23010065-002	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jan-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23010065	01	18-Jan-23	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-024	Analysis for Reduced Sulfur Compounds in Air Samples
NA-025	Determination of Light Hydrocarbons (C1C4) in Ambient Air by Gas Chromatography Flame Ionization Detector

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier Translation

B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments

23010065

Unknowns to be reported. Send results to pramptech@prampairshed.c



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*

Passive Sampling Analytical Results



6744 - 50 St. Edmonton AB Canada T6B 3M9

Ph (780) 378-8500, Toll free (800) 386-7247, Fax (780) 378-8699

Bureau Veritas Job Number:

PASSIVE AIR CHAIN OF CUSTODY

Page ___ of ___

Invoice To
 Company Name _____
 Contact Name _____
 Address _____
 City/Postal Code _____
 Phone/Fax# _____

Report To
 Name & Email Address

Service Requested
 RUSH
 (Please contact for TAT)
 REGULAR

Company Name
Peace River
 Project Name/LSD
Peace River

ANALYTICAL INFORMATION

Sample ID or Location (LSD)	Sample Start Date (DD/MM/YY)	Time (24 hrs) (HH:MM)	Sample End Date (DD/MM/YY)	Time (HH:MM)	Volume (m3) PM/TSP Only	Analysis Required																
						SO2	H2S	NO2	O3	NH3	PM2.5	PM10	TSP	Dustfall								
1	01/01/23		02/01/23	7:30 am		X	X															
2	[Handwritten mark]		[Handwritten mark]			X	X															
3							X	X														
4							X	X														
7							X	X														
8							X	X														
9							X	X														
10							X	X														
11							X	X														
12							X	X														
13							X	X														
14							X	X														
Blank							X	X														
Blank							X	X														
						11:31 am		X	X													

Notes/Comments: Client 12521 / Scenario 18009

Sampled By _____ Phone/Email _____ Received By [Signature] Date/Time Feb 2/23 Project # _____
 Date Shipped _____ Signature [Signature] @ 07:30 PO# _____
14 SO2 14 H2S



Your Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX

Attention: Michael and Lily

Peace River Area Monitoring Program Committee
Three Creeks
Suite 91, 305 –
4625 Varsity Drive NW
Calgary, AB
CANADA T3A0Z9

Report Date: 2023/02/14
Report #: R3299507
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C307736

Received: 2023/02/02, 07:30

Sample Matrix: Air
Samples Received: 12

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis	12	2023/02/07	2023/02/13	PTC SOP-00150	Passive H2S in ATM
SO2 Passive Analysis	12	2023/02/03	2023/02/13	PTC SOP-00149	Passive SO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Belma Elefante
Customer Service Associate
14 Feb 2023 08:26:45

Please direct all questions regarding this Certificate of Analysis to:
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

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BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BLG106	BLG107	BLG108	BLG109	BLG110	BLG111	BLG112		
Sampling Date		2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00		
	UNITS	1	2	3	4	7	8	9	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.15	0.22	0.23	0.17	0.19	0.24	0.18	0.02	A874385
Calculated SO2	ppb	0.4	0.5	0.6	0.4	0.5	0.4	0.2	0.1	A872337
RDL = Reportable Detection Limit										

Bureau Veritas ID		BLG113	BLG114	BLG115	BLG116	BLG117		
Sampling Date		2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00	2023/01/01 00:00		
	UNITS	10	11	12	13	14	RDL	QC Batch
Passive Monitoring								
Calculated H2S	ppb	0.21	0.28	0.29	0.20	0.16	0.02	A874385
Calculated SO2	ppb	0.4	0.3	0.4	0.4	0.3	0.1	A872337
RDL = Reportable Detection Limit								



**BUREAU
VERITAS**

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

GENERAL COMMENTS

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

QUALITY ASSURANCE REPORT

QA/QC									
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits	
A872337	OZ	Spiked Blank	Calculated SO2			101	%	90 - 110	
A872337	OZ	Method Blank	Calculated SO2		<0.1		ppb		
A874385	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.



BUREAU
VERITAS

Bureau Veritas Job #: C307736
Report Date: 2023/02/14

Peace River Area Monitoring Program Committee
Client Project #: 2023/01/01 - 2023/02/01
Site Location: PEACE RIVER COMPLEX
Sampler Initials: BG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Yang Liu, Analyst II

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End of Report