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May 2, 2016

RE: March 2016 Ambient Air Monitoring Monthly Reports

Attached are the monthly continuous ambient air monitoring reports for the LICA Airshed Zone's Cold Lake South, Maskwa, St. Lina, and Portable Air Monitoring System (located at Elk Point) stations. These reports also contain complete data tables, sample log sheets, and chain of custody documents for the integrated monitoring programs including volatile organic compounds, polycyclic aromatic hydrocarbons, Partisol sampler (particulate matter mass), and passive samplers.

Should you have any questions, please don't hesitate to contact me directly at (780) 266-7068.

Respectfully,

A handwritten signature in blue ink that reads "Michael Bisaga".

Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
COLD LAKE SOUTH SITE

JOB #:2833-2016-03-1- C

MARCH 2016

Prepared for:

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Attention: MIKE BISAGA

DATE: **April 29, 2016**

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SUMMARY

In March 2016, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Cold Lake South Site at Lakeland Industry & Community Association, near Cold Lake. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the Project Coordinator.

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

All gas parameters: The channels were put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzers and wind system were recovering from short power outages.

THC: The internal pump of the analyzer failed on March 3. The pump was replaced and a post-repair calibration was completed on the same day. Data was invalidated back to the last daily calibration before the pump failure which was on March 2. Sixteen hours of data were discarded due to this event.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Cold Lake South Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association Cold Lake South Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR					24-HOUR		
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0.2	2.4	15	10	8.1	NW	0.9	17	99.9
TRS (PPB)	-	-	-	-	0.2	0.7	13, 19	9, 7	7.6 2.3	WNW NE	0.4	13	99.9
THC (PPM)	-	-	-	-	2.18	2.81	2	22	1.1	ESE	2.39	3	97.4
NO2 (PPB)	159	-	0	-	4.2	29.9	1	19	2.2	ENE	10.3	2	99.9
NO (PPB)	-	-	-	-	0.7	14.7	2	8	1.1	ENE	2.2	2	99.9
NOX (PPB)	-	-	-	-	4.9	37.0	27	3	1.5	NE	12.5	2	99.9
O3 (PPB)	82	-	0	-	31.4	51.1	29	15	12.1	SW	40.5	22	99.9
PM2.5 (UG/M3)	-	30	-	0	10.1	69.0	9	9	5.4	SW	18.9	5	93.1
RELATIVE HUMIDITY (%)	-	-	-	-	72.0	99	6	8, 9	7.8 9.3	NE NE	91.1	6	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-1.5	11.1	30	VAR	VAR	VAR	6.9	30	100.0
VECTOR WS (KPH)	-	-	-	-	5.8	17.5	30	12	-	NNW	9.5	21	100.0
VECTOR WD (DEG)	-	-	-	-	-	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

No Exceedences Recorded During the Month

O₃ 1- Hour Exceedences

No Exceedences Recorded During the Month

Passive Sampler Summary

	Sulphur Dioxide (in ppb)
Mean	0.6
Minimum	0.2
Maximum	1.3

Note: Access to station #11 was blocked by snow. Access papers for stations #12 and #25 were not provided . As a result, samples were not changed out in these stations.

	Hydrogen Sulphide (in ppb)
Mean	0.12
Minimum	0.08
Maximum	0.12

Note: Access to station #11 was blocked by snow. Access papers for stations #12 and #25 were not provided . As a result, samples were not changed out in these stations.

	Nitrogen Dioxide (in ppb)
Mean	1.0
Minimum	<0.1
Maximum	3.9

Note: Access to station #11 was blocked by snow. Access papers for station #12 was not provided . As a result, samples were not changed out in these stations.

	Ozone (in ppb)
Mean	39.85
Minimum	32.63
Maximum	49.31

Note: Access to station #11 was blocked by snow. Access papers for station #12 was not provided . As a result, samples were not changed out in these stations.

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MARCH 1, 2016	1.55	n - Butane
MARCH 7, 2016	2.1	Acetone
MARCH 13, 2016	2.4	Acetone
MARCH 19, 2016	2.7	Acetone
MARCH 25, 2016	4.20	Acetone

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MARCH 13, 2016	0.17	Naphthalene
MARCH 19, 2016	0.11	Naphthalene
MARCH 25, 2016	0.14	Phenanthrene

Note: Samples were not collected on March 1 and March 7 as the sampler was in repair.

Partisol Sampler Summary

Sample Collected Date	Concentration (mg)
MARCH 1, 2016	0.200
MARCH 7, 2016	0.072
MARCH 13, 2016	0.058
MARCH 19, 2016	0.062
MARCH 25, 2016	0.164

Note: NA

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1.0 Discussion

This monthly report consists of data for parameters Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Oxides of Nitrogen (NO_x), Nitric Oxides (NO), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter 2.5 (PM_{2.5}), Relative Humidity (RH), Ambient Temperature (AmbTPX), Wind Speed (WS), Wind Direction (WD) and Standard Deviation Wind Direction (STDWD). The results for the non-continuous Partisol, VOCs, PAHs and Passive monitoring program are also included in this report.

Sample filters for all continuous air monitors are changed before the calibration begins. The sample manifold is cleaned during the site visit each month.

Control checks, consisting of a zero and span, are conducted daily on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinders) is used for zero checks, and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibrations are done a minimum of once a month for each continuous air monitor. An additional calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the additional calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as downtime (Data is flagged as S). If an extra zero/span check is performed, the time during the additional check is considered as downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality for Verification and Validation of Continuous Ambient Air Quality Data. The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purposes and has not undergone zero correction.

Hourly/minute data have been reviewed based on daily zero/span results and multi-point calibration results. Data may be considered invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor occurs (greater than 10%).

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 8. The channel was put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power outages.

TOTAL REDUCED SULPHUR (TRS)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 8. The channel was put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power outages.

TOTAL HYDROCARBONS (THC)

The internal pump of the analyzer failed on March 3. The pump was replaced and a post-repair calibration was completed on the same day. Data was invalidated back to the last daily calibration before the pump failure which was on March 2. Sixteen hours of data were discarded due to this event. The channel was put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power outages.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 8. The channel was put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power outages.

OZONE (O₃)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 9. The channel was put into Maintenance mode on March 18 at hour 10 while the sample manifold was being cleaned. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power outages.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM_{2.5})

Two Teom audits were performed this month: one was completed on March 9, and the other audit was performed March 18. Both the inlet filter and the FDMS filter were replaced during the audits. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m³, the data was corrected to 0 ug/m³. If the data was below -3ug/m³, the data was invalidated. Fifty-one hours of data were invalidated as the data were below -3 ug/m³ this month.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The wind system was working well throughout the month. Maximum instantaneous data collected on March 2 at hour 14 and on March 16 at hour 7 were invalidated as the analyzer was recovering from short power

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle.

Samples were collected on March 1, 7, 13, 19 and 25. Analytical results are included in this report. The VOC values are reported in ppb.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle.

Samples were collected on March 13, 19 and 25. Analytical results are included in this report. Samples were not collected on March 1 and March 7 as the sampler was in repair. The PAH values are reported in μg .

The routine PUF sampler audit was completed on March 28.

PARTISOL SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle.

Samples were collected on March 1, 7, 13, 19 and 25. Analytical results are included in this report. The Partisol values are reported in mg.

The routine Partisol sampler audit was completed on March 18.

PASSIVE SAMPLES

Samples were collected over the months of February and March. Samples were collected at all designated stations, except stations #11, #12 and #25. Access documents for stations #12 and #25 were not provided by client, and access to station #11 was blocked by snow. Analytical results are included in this report.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling technician was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006) as well as AMD 2015.

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00210: Ambient TRS Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer
- Total Reduced Sulphur - Thermo 450i UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - Thermo 42i Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - Met One Unit
- Relative Humidity - Met One Unit
- Ambient Temperature - Met One Unit
- Datalogger - ESC 8832
- PUF Sampler - Dwyer 457 Mark III unit
- Partisol - R&P 2000H Unit

The following steps were used to complete the data verification and validation process:

Level 0 Preliminary Verification

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation

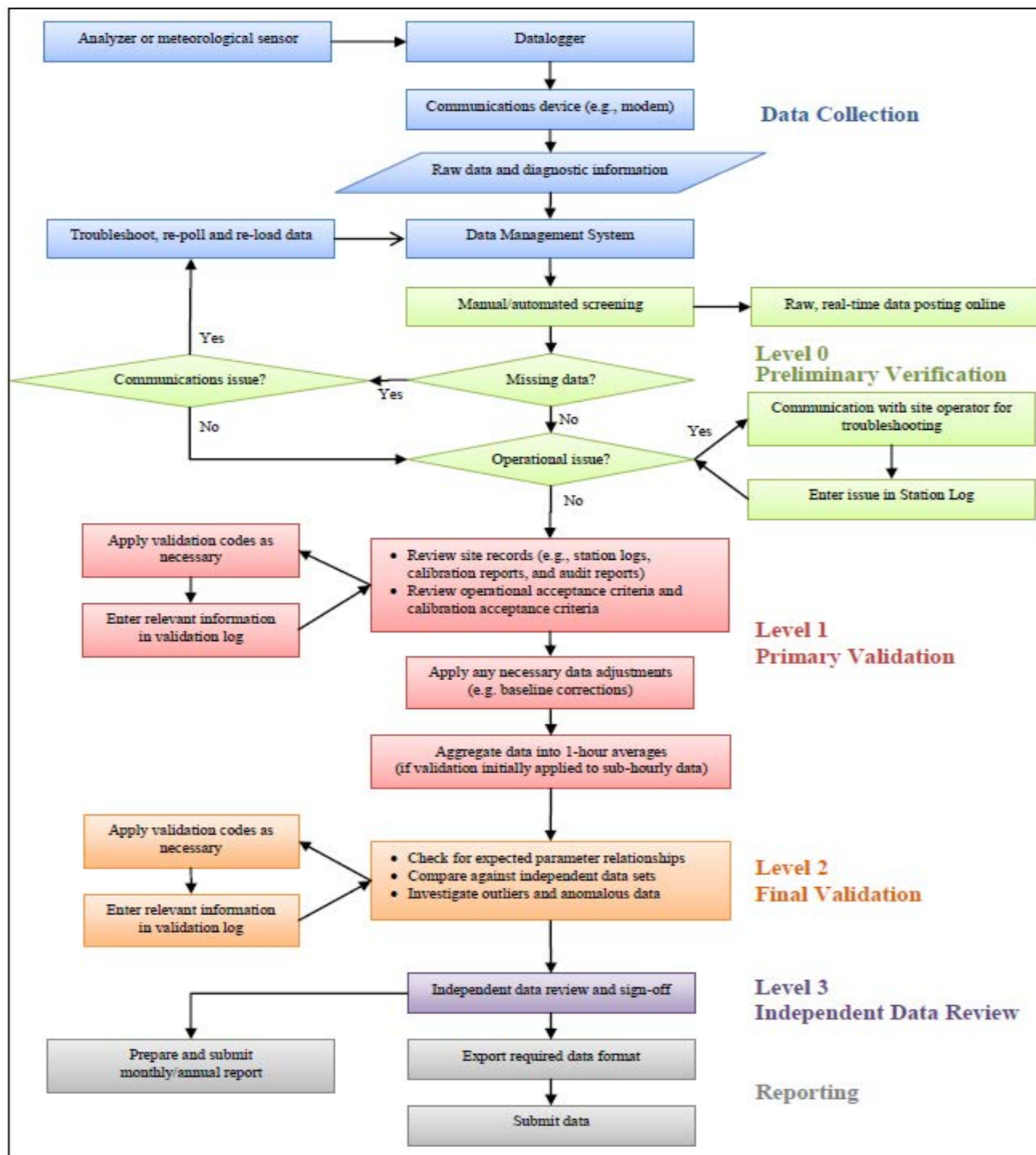
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

Level 3 validation is the last step of data review, and it is completed by someone independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data are submitted to Alberta Environment.

Post-Final Validation

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: AMD Chapter 6: Ambient Data Quality for verification and validation of continuous ambient air quality data; Figure 1 Data Collection and Management Process Flow Chart

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST																								DAILY	DAILY	24-HOUR	RDGS.		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MIN.	MAX.	AVG.		
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	0.2	S	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.8	0.8	0.7	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.3	24
2	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	S	0.0	0.4	0.2	24	
3	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	S	0.1	0.0	0.2	0.1	24	
4	0.0	0.1	0.2	0.8	0.7	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	S	0.2	0.1	0.0	0.8	0.2	24	
5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.5	0.6	0.4	0.2	S	0.3	0.3	0.1	0.0	0.6	0.2	24	
6	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
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	0.1	0.1	0.1	0.1	S	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	24	
8	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	0.1	0.1	0.1	0.0	0.0	0.1	0.1	S	0.0	0.1	0.1	24	
9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	S	0.1	0.0	0.1	0.1	24	
10	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	S	0.1	0.1	0.0	0.2	0.1	24	
11	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	S	0.2	0.2	0.1	0.0	0.2	0.1	24	
12	0.1	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	0.3	0.3	0.3	0.3	0.5	S	0.5	0.4	0.3	0.2	0.1	0.5	0.2	24	
13	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	1.1	0.8	0.4	0.3	0.1	0.1	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.2	24	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.6	0.6	0.3	0.8	1.2	0.7	0.4	S	0.2	0.2	0.2	0.1	0.1	0.0	0.0	1.2	0.3	24	
15	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.5	1.9	2.4	1.8	1.1	0.7	0.6	0.7	S	0.6	0.5	0.2	0.1	0.4	0.6	1.0	0.0	2.4	0.6	24	
16	1.7	1.7	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	S	0.3	0.5	0.7	0.7	0.7	0.8	0.7	0.6	0.1	1.7	0.5	24		
17	0.4	0.5	0.4	0.6	1.9	1.9	1.6	1.5	1.8	1.4	0.8	0.9	1.1	1.2	S	0.9	0.8	0.4	0.4	0.4	0.5	0.2	0.2	0.2	0.2	1.9	0.9	24	
18	0.2	0.4	0.9	0.8	0.7	0.5	0.5	0.6	0.7	0.5	Y	1.6	1.6	S	1.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	1.6	0.5	23	
19	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.2	24	
20	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.4	0.5	0.4	0.5	0.4	0.0	0.5	0.1	24	
21	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	S	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.1	24	
22	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	S	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	24	
23	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	S	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1	24	
24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	S	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
25	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.3	0.1	0.1	24	
26	0.1	0.1	0.1	0.1	0.0	S	0.0	0.1	0.3	0.7	0.7	0.9	0.9	0.6	0.6	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	24	
27	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	24	
28	0.0	0.1	0.0	S	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.3	0.1	24	
29	0.2	0.1	S	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.1	0.1	0.3	0.1	24	
30	0.0	S	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.8	1.6	1.0	0.8	0.7	0.7	0.5	0.6	0.4	0.2	0.5	0.5	0.5	0.6	0.1	0.0	1.6	0.5	24	
31	S	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.7	0.7	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.1	S	0.0	0.7	0.2	24		
HOURLY MAX	1.7	1.7	0.9	0.8	1.9	1.9	1.6	1.5	1.8	1.9	2.4	1.8	1.6	1.2	1.2	0.9	0.8	0.6	0.7	0.7	0.7	0.8	0.7	1.0					
HOURLY AVG	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

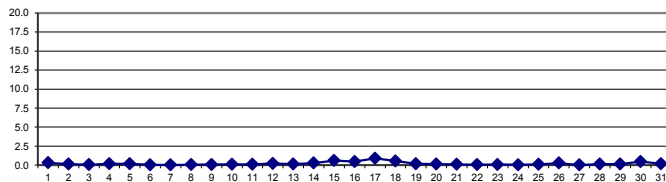
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	512					
MINIMUM 1-HR AVERAGE	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	2.4	PPB	@ HOUR(S)	10	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	17
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:	0.2	PPB	

24 HOUR AVERAGES FOR MARCH 2016







SULPHUR DIOXIDE MAX instantaneous maximum in ppb

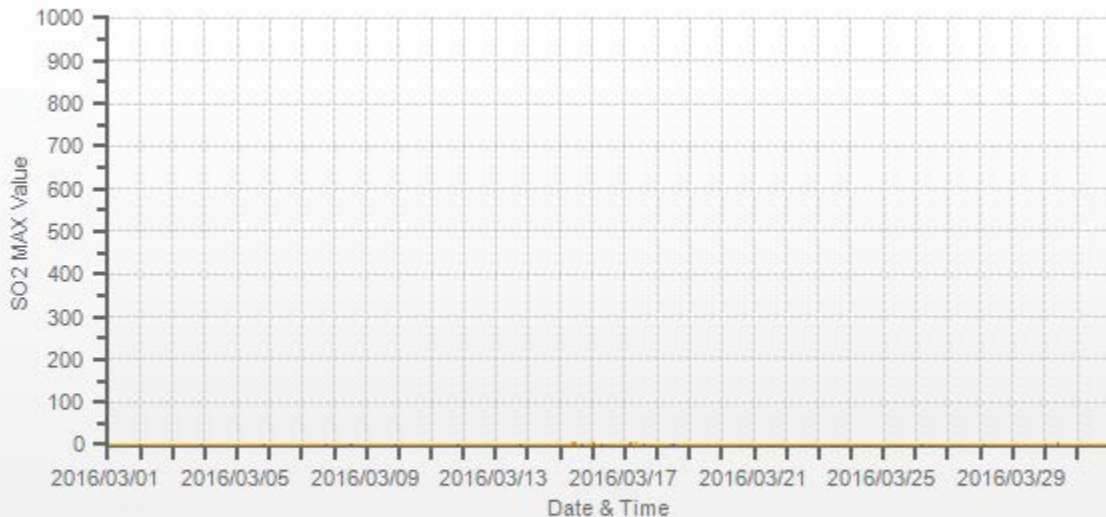
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
DAY	MIN.	MAX.	AVG.	RDGS.																										
1	0.7	S	1.0	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.9	1.3	1.0	1.4	1.3	1.3	1.0	1.2	1.0	0.9	0.9	0.7	1.0	0.7	0.7	0.6	1.4	0.9	24	
2	S	0.7	0.6	0.6	0.7	0.9	0.9	0.6	1.0	0.6	0.7	0.9	1.0	1.0	R	1.0	1.0	0.9	0.9	0.7	0.7	0.8	0.7	S	0.6	1.0	0.8	23		
3	0.6	0.7	0.6	0.7	0.6	0.6	0.8	0.7	0.8	0.7	0.7	0.6	0.7	0.7	0.9	0.6	0.6	0.6	0.7	0.6	0.7	0.6	S	0.9	0.6	0.9	0.7	24		
4	0.6	0.7	0.9	1.5	1.5	0.9	0.9	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.9	0.7	0.9	S	0.8	0.7	0.6	1.5	0.8	24		
5	0.7	0.6	0.7	0.6	0.6	0.6	0.8	0.6	0.6	0.8	0.6	0.9	1.0	1.2	0.9	0.9	1.2	1.4	1.1	0.9	S	1.1	0.9	0.7	0.6	1.4	0.8	24		
6	0.7	0.7	0.8	0.6	0.9	0.8	0.9	0.6	0.7	0.9	0.7	0.7	0.7	0.7	0.6	0.9	0.7	0.7	0.9	S	0.7	0.7	0.6	0.6	0.6	0.9	0.7	24		
7	0.9	0.6	0.9	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	S	0.7	0.6	0.6	0.7	0.9	0.6	0.9	0.7	24		
8	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.7	1.0	C	C	C	C	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	S	0.6	1.0	0.7	24		
9	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.9	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	S	0.7	0.6	0.9	0.7	24		
10	0.6	0.4	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.7	0.7	S	0.6	0.6	0.4	0.7	0.6	24	
11	0.6	0.7	0.6	0.7	0.8	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	S	0.8	0.6	0.7	0.6	0.8	0.6	24		
12	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.7	1.0	0.7	1.1	1.1	0.7	1.0	1.1	S	1.2	0.9	0.7	0.7	0.6	1.2	0.8	24		
13	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.8	2.2	1.5	1.2	0.9	0.9	0.7	0.7	0.7	0.7	S	0.7	0.6	0.8	0.6	0.4	0.4	2.2	0.8	24		
14	0.4	0.7	0.6	0.4	0.4	0.7	0.6	0.6	1.0	1.2	1.3	1.3	1.6	1.8	1.8	1.2	S	0.7	0.9	0.9	0.7	0.9	0.7	0.4	1.8	0.9	24			
15	0.7	0.7	0.7	0.7	0.9	0.7	0.7	1.0	1.6	3.2	3.9	2.7	2.3	1.3	1.4	1.8	S	1.3	1.3	0.9	0.9	1.0	1.3	2.1	0.7	3.9	1.4	24		
16	2.8	2.9	1.5	0.8	0.9	0.9	0.7	R	0.7	0.7	0.7	0.9	1.0	0.7	0.7	S	1.0	1.3	1.3	1.5	1.2	1.6	1.5	1.5	0.7	2.9	1.2	23		
17	1.3	1.3	1.2	2.0	2.9	2.5	2.3	2.3	2.6	2.3	1.6	1.7	1.8	2.0	S	2.0	1.5	1.2	1.3	1.2	1.0	1.2	1.0	0.9	0.9	2.9	1.7	24		
18	0.7	1.5	1.6	1.5	1.8	1.2	1.2	1.2	1.4	1.2	Y	Y	2.2	S	1.7	0.9	0.7	0.7	1.0	0.7	0.6	0.9	0.7	0.6	2.2	1.1	22			
19	0.6	0.7	0.6	0.6	0.6	0.7	0.7	0.9	0.7	0.7	0.7	0.7	S	0.7	0.9	0.8	0.9	0.6	0.8	0.9	0.7	0.7	0.9	0.7	0.6	0.9	0.7	24		
20	0.6	0.7	0.6	0.9	0.7	0.7	0.7	0.6	0.7	0.6	0.7	S	0.7	0.7	0.7	0.8	0.8	1.1	1.4	1.4	1.2	1.2	1.2	1.2	0.6	1.4	0.9	24		
21	0.9	0.9	0.7	0.7	0.9	0.6	0.7	0.7	0.7	0.7	S	0.7	0.7	0.9	0.7	0.9	0.9	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.9	0.7	24		
22	0.6	0.7	0.7	0.7	0.7	0.9	0.6	0.9	0.6	S	0.7	0.7	0.9	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.9	0.7	24	
23	0.6	0.8	0.6	0.6	0.7	0.7	0.4	0.6	S	0.8	0.8	0.7	0.6	0.6	0.8	0.8	0.8	0.8	0.6	0.9	0.6	0.7	0.8	0.7	0.4	0.9	0.7	24		
24	0.7	0.8	0.7	0.6	0.8	0.6	0.6	S	0.9	1.1	0.9	0.8	0.6	0.6	0.8	0.7	0.9	0.7	0.6	0.7	0.6	0.7	0.8	0.6	0.6	1.1	0.7	24		
25	0.6	0.7	0.8	0.8	0.7	0.8	S	0.6	0.7	0.6	0.9	1.1	0.8	0.9	0.9	0.8	1.1	1.1	1.1	0.7	0.8	0.7	0.7	0.9	0.6	1.1	0.8	24		
26	0.6	0.9	0.7	0.9	0.8	S	0.6	0.9	1.2	1.5	1.7	1.6	1.8	1.6	1.2	1.4	1.1	1.2	0.8	0.7	0.9	0.6	0.8	0.9	0.6	1.8	1.1	24		
27	0.9	0.6	0.6	1.1	S	0.6	0.9	0.8	0.9	0.9	0.9	1.1	1.1	0.8	0.8	0.7	0.6	0.7	0.8	0.7	0.8	0.7	0.6	0.8	0.6	0.7	0.6	1.1	0.8	24
28	0.9	0.9	0.8	S	0.7	0.6	0.6	0.8	0.7	0.6	0.8	0.8	0.8	0.7	0.8	1.1	0.8	0.9	0.6	0.9	1.2	0.6	0.8	0.6	0.6	1.2	0.8	24		
29	0.6	0.8	S	0.7	0.6	0.6	0.7	0.7	0.9	0.9	0.8	0.7	0.8	0.6	0.6	0.7	0.7	0.7	0.9	0.7	1.2	0.7	0.9	0.8	0.6	1.2	0.8	24		
30	0.9	S	0.7	0.7	0.6	0.9	0.6	0.8	2.1	1.8	3.7	1.8	1.7	1.7	1.7	1.4	1.4	1.1	0.9	1.2	1.4	1.4	1.4	0.9	0.6	3.7	1.3	24		
31	S	0.7	0.7	0.7	0.7	0.9	0.6	0.9	0.6	0.7	0.7	1.2	1.5	1.9	0.9	0.7	0.9	0.9	1.1	0.7	1.1	0.6	0.7	S	0.6	1.9	0.9	24		
HOURLY MAX	2.8	2.9	1.6	2.0	2.9	2.5	2.3	2.3	2.6	3.2	3.9	2.7	2.3	2.0	1.8	2.0	1.5	1.4	1.4	1.5	1.4	1.6	1.5	2.1						
HOURLY AVG	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8						

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

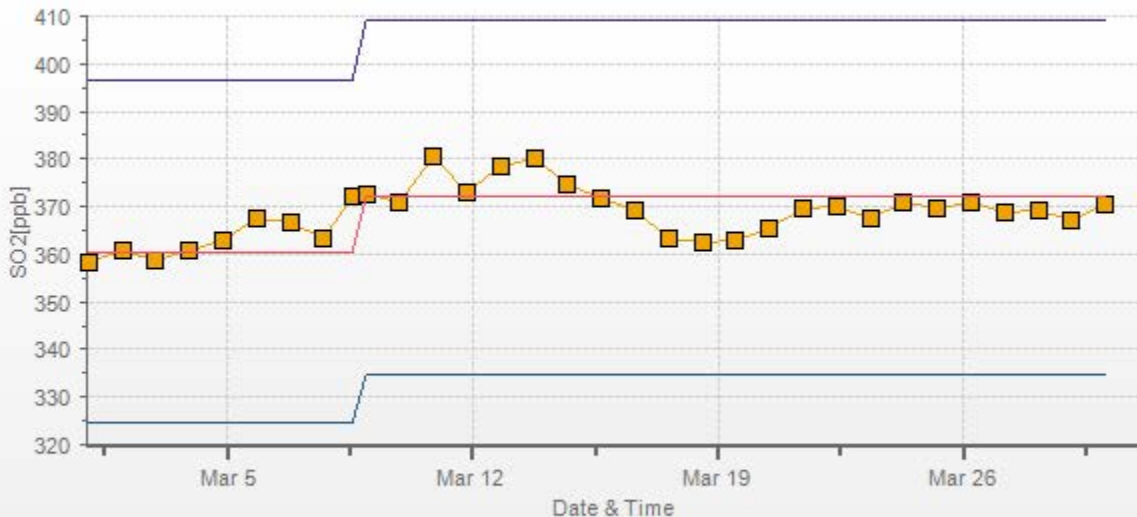
NUMBER OF NON-ZERO READINGS:	703
MAXIMUM INSTANTANEOUS VALUE:	3.9 PPB @ HOUR(S) 10 ON DAY(S) 15
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.40
OPERATIONAL TIME:	740 HRS



Wind: LICA COLD LAKE SOUTH Monitor: SO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 88.39% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-20.0	20.0-60.0	60.0-110.0	110.0-170.0	170.0-340.0	>340.0	Total
N	4.25	0	0	0	0	0	4.25
NE	0.57	0	0	0	0	0	0.57
E	0.57	0	0	0	0	0	0.57
SE	0.28	0	0	0	0	0	0.28
S	0	0	0	0	0	0	0
SW	0.28	0	0	0	0	0	0.28
W	0.57	0	0	0	0	0	0.57
NW	5.1	0	0	0	0	0	5.1
Summary	11.62	0	0	0	0	0	11.62

SO2[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: Span



TOTAL REDUCED SULPHUR

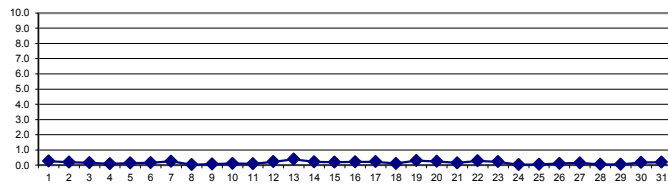
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	HOURLY MAX	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1	0.2	S	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	24	
2	S	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	S	0.1	0.3	24	
3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	S	0.2	0.1	0.2	0.2	24	
4	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	S	0.1	0.1	0.0	0.3	0.1	24	
5	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	S	0.2	0.2	0.2	0.0	0.3	0.1	24	
6	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	S	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
7	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	S	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.4	0.2	24	
8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	S	0.0	0.2	0.0	24	
9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	S	0.1	0.0	0.1	0.1	24	
10	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	S	0.1	0.2	0.0	0.2	24	
11	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.1	0.2	0.0	0.2	0.1	24
12	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	S	0.4	0.4	0.4	0.5	0.1	0.5	0.2	24
13	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	S	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.7	0.4	24
14	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	S	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.3	0.2	0.2	24
15	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	S	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.3	0.2	24
16	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	S	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.2	24
17	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	S	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2	24
18	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	Y	0.1	0.1	S	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.1	23
19	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.3	0.3	0.3	0.3	0.3	S	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.7	0.3	24
20	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	S	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.4	0.2	24
21	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	S	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.1	24
22	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	S	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.4	0.3	24
23	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	S	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	24
24	0.2	0.1	0.1	0.1	0.1	0.0	0.1	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	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.1	0.1	S	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	24
26	0.1	0.1	0.1	0.1	0.1	S	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	24
27	0.1	0.2	0.2	0.3	S	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	24
28	0.1	0.1	0.1	S	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	24
29	0.0	0.0	S	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.1	24
30	0.2	S	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.2	24
31	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	S	0.1	0.3	0.2	24
HOURLY MAX	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.5	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5				
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				

STATUS FLAG CODES

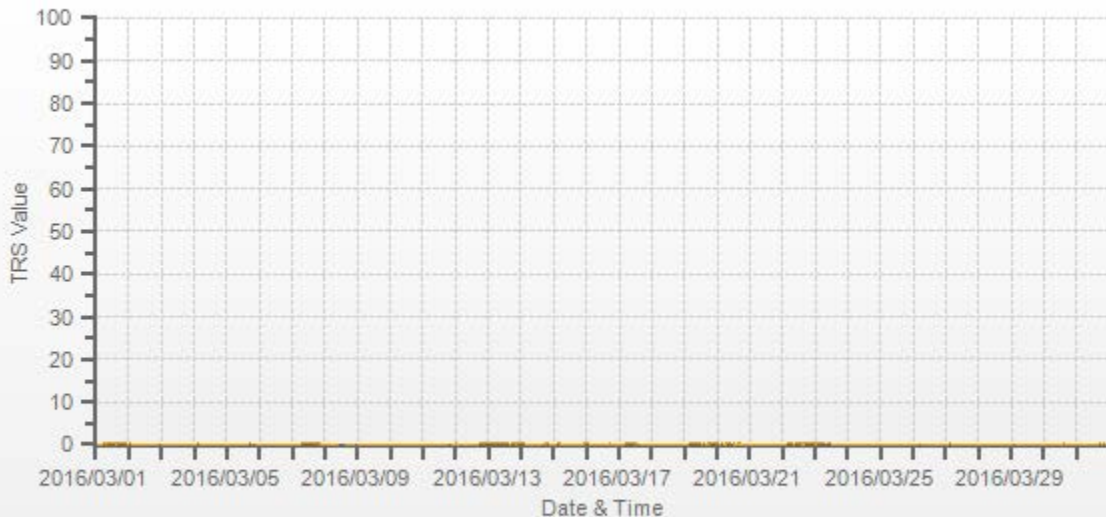
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

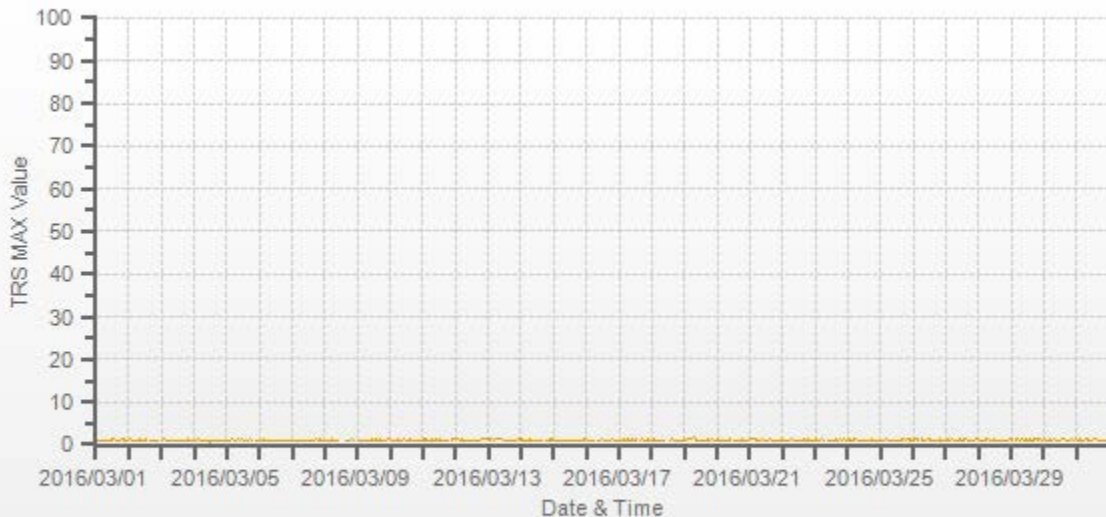
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

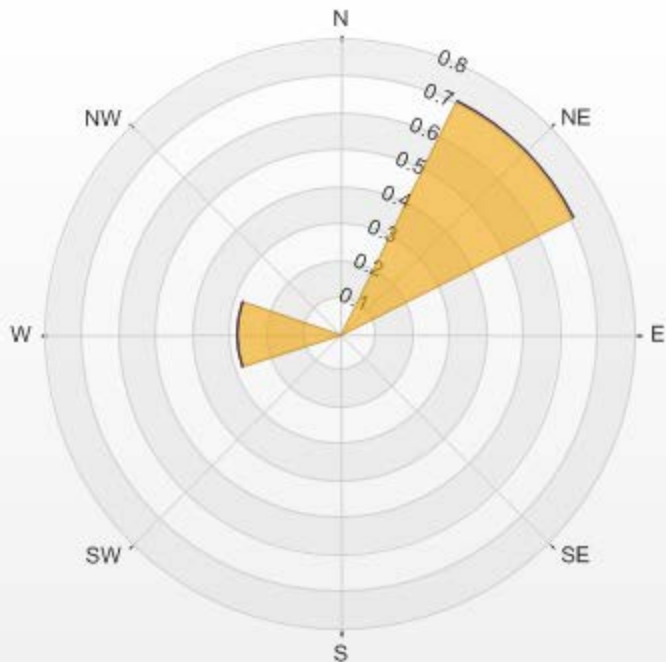
NUMBER OF NON-ZERO READINGS:	613			
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S) VAR
MAXIMUM 1-HR AVERAGE:	0.7	PPB @ HOUR(S)	9 , 7	ON DAY(S) 13 , 19
MAXIMUM 24-HR AVERAGE:	0.4	PPB		ON DAY(S) 13
				VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9
				%
STANDARD DEVIATION:	0.11		MONTHLY AVERAGE:	0.2
				PPB





Wind: LICA COLD LAKE SOUTH Monitor: TRS [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 99.01% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	0	0	0	0	0
NE	0.71	0	0	0	0.71
E	0	0	0	0	0
SE	0	0	0	0	0
S	0	0	0	0	0
SW	0	0	0	0	0
W	0.28	0	0	0	0.28
NW	0	0	0	0	0
Summary	0.99	0	0	0	0.99



% Icon	Classes (ppb)	1.0	0.5-3.0	0.0	3.0-10.0	0.0	10.0-50.0	0.0	>50.0
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TRS[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: Span



TOTAL HYDROCARBON

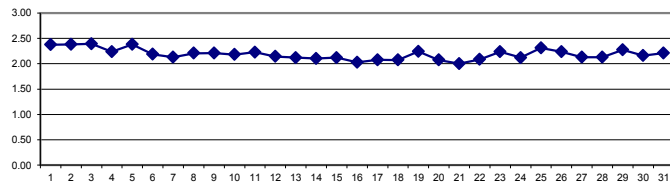
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.
DAY	MIN.	MAX.	AVG.																										
1	2.33	S	2.39	2.46	2.48	2.49	2.52	2.53	2.55	2.49	2.34	2.30	2.26	2.27	2.25	2.26	2.27	2.26	2.40	2.48	2.43	2.37	2.25	2.20	2.20	2.20	2.25	2.37	2.4
2	S	2.19	2.25	2.31	2.24	2.30	2.41	2.36	2.30	2.22	2.18	2.23	2.31	2.32	2.37	2.39	2.40	2.43	2.44	2.58	2.59	2.70	2.81	S	2.18	2.18	2.81	2.38	24
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	C	C	C	C	2.28	2.36	S	2.53	2.28	2.53	2.39	8	
4	2.60	2.72	2.58	2.27	2.22	2.18	2.17	2.19	2.20	2.18	2.18	2.19	2.20	2.18	2.16	2.13	2.11	2.11	2.11	2.17	S	2.20	2.20	2.11	2.72	2.24	24		
5	2.24	2.25	2.28	2.26	2.28	2.36	2.35	2.38	2.35	2.38	2.54	2.52	2.47	2.39	2.38	2.37	2.35	2.33	2.54	2.47	S	2.42	2.41	2.41	2.24	2.54	2.38	24	
6	2.41	2.35	2.30	2.22	2.22	2.21	2.21	2.19	2.19	2.16	2.17	2.16	2.17	2.15	2.14	2.17	2.17	2.17	2.17	S	2.11	2.10	2.09	2.07	2.07	2.41	2.19	24	
7	2.05	2.07	2.06	2.07	2.10	2.11	2.13	2.13	2.15	2.15	2.14	2.12	2.10	2.09	2.11	2.12	2.13	2.13	S	2.20	2.21	2.22	2.19	2.17	2.05	2.22	2.13	24	
8	2.17	2.16	2.15	2.18	2.21	2.24	2.20	2.16	2.20	2.20	2.26	2.25	2.19	2.24	2.23	2.17	2.16	2.20	2.23	2.31	2.26	2.25	2.13	S	2.13	2.31	2.21	24	
9	2.09	2.11	2.13	2.13	2.13	2.12	2.14	2.13	2.20	2.17	S1	S1	2.24	2.28	2.27	2.27	2.24	2.23	2.32	2.26	2.31	2.29	S	2.34	2.09	2.34	2.21	22	
10	2.26	2.28	2.29	2.30	2.40	2.29	2.29	2.17	2.12	2.17	2.11	2.15	2.14	2.08	2.11	2.02	2.09	2.15	2.03	2.12	2.10	S	2.18	2.28	2.02	2.40	2.18	24	
11	2.16	2.19	2.39	2.45	2.51	2.39	2.43	2.32	2.20	2.20	2.10	2.05	2.08	2.05	2.04	2.10	2.04	2.04	2.11	2.11	S	2.35	2.34	2.55	2.04	2.55	2.23	24	
12	2.51	2.48	2.38	2.21	2.19	2.25	2.14	2.16	2.17	2.11	2.15	2.10	2.12	2.05	2.01	2.04	2.07	2.01	2.05	S	2.01	2.03	2.03	2.00	2.00	2.51	2.14	24	
13	2.03	2.10	2.06	2.16	2.24	2.22	2.19	2.21	2.15	2.05	2.06	2.15	2.02	2.08	2.05	2.11	2.15	2.10	S	2.15	2.12	2.10	2.12	2.12	2.02	2.24	2.12	24	
14	2.09	2.17	2.13	2.06	2.11	2.12	2.09	2.11	2.10	2.07	2.09	2.03	2.06	2.10	2.05	2.06	2.11	S	2.07	2.18	2.16	2.07	2.10	2.17	2.03	2.18	2.10	24	
15	2.24	2.31	2.35	2.22	2.16	2.14	2.11	2.12	2.07	2.16	2.18	2.06	2.08	2.09	2.04	2.10	S	2.00	2.06	2.05	2.00	2.09	2.07	2.05	2.00	2.35	2.12	24	
16	2.10	2.04	1.98	2.00	1.95	1.98	2.01	1.96	2.01	2.02	1.98	2.02	2.03	1.98	2.05	S	2.01	2.07	2.07	2.05	2.10	2.07	2.05	2.08	1.95	2.10	2.03	24	
17	2.06	2.08	2.11	2.09	2.11	2.16	2.11	2.11	2.13	2.07	2.08	2.10	2.06	2.06	S	2.06	2.02	2.07	2.06	2.02	2.07	2.05	2.00	2.04	2.00	2.16	2.07	24	
18	2.04	2.02	2.05	2.08	2.03	2.00	2.07	1.99	1.95	2.04	Y	2.01	2.04	S	1.99	2.04	2.07	2.06	2.10	2.17	2.21	2.23	2.20	2.23	1.95	2.23	2.07	23	
19	2.33	2.36	2.36	2.40	2.42	2.31	2.29	2.35	2.29	2.30	2.35	2.34	S	2.05	2.02	2.01	2.05	2.06	2.18	2.31	2.24	2.18	2.19	2.15	2.01	2.42	2.24	24	
20	2.10	2.14	2.11	2.08	2.09	2.13	2.13	2.14	2.16	2.18	2.13	S	2.11	2.04	1.99	1.97	1.97	1.98	2.04	2.05	2.02	2.04	2.05	2.04	1.97	2.18	2.07	24	
21	2.02	2.05	2.02	2.01	2.01	2.01	2.00	1.99	1.99	2.01	S	1.99	1.99	1.99	2.00	1.98	1.97	2.00	2.02	2.04	2.02	1.97	1.98	1.97	1.97	2.05	2.00	24	
22	2.01	2.02	2.00	1.99	2.02	2.03	2.03	2.04	2.02	S	2.07	2.09	2.12	2.13	2.11	2.12	2.11	2.12	2.11	2.11	2.18	2.17	2.19	2.22	1.99	2.22	2.09	24	
23	2.22	2.28	2.31	2.26	2.25	2.34	2.41	2.44	S	2.28	2.31	2.50	2.24	2.14	2.12	2.12	2.10	2.11	2.14	2.21	2.20	2.20	2.18	2.12	2.10	2.50	2.24	24	
24	2.16	2.16	2.11	2.09	2.08	2.08	2.10	S	2.03	2.04	2.07	2.08	2.09	2.09	2.10	2.12	2.10	2.11	2.12	2.15	2.16	2.17	2.22	2.32	2.03	2.32	2.12	24	
25	2.30	2.33	2.37	2.38	2.38	2.35	S	2.17	2.17	2.26	2.27	2.21	2.23	2.33	2.28	2.22	2.28	2.27	2.28	2.34	2.38	2.46	2.47	2.47	2.17	2.47	2.31	24	
26	2.48	2.44	2.32	2.35	2.38	S	2.52	2.64	2.26	2.14	2.08	2.07	2.06	2.06	2.03	2.01	2.01	2.06	2.20	2.30	2.30	2.31	2.37	2.01	2.64	2.23	24		
27	2.40	2.31	2.37	2.28	S	2.23	2.21	2.19	2.20	2.24	2.13	2.06	1.97	1.97	1.98	1.97	1.96	1.96	1.95	1.98	2.08	2.16	2.20	2.13	1.95	2.40	2.13	24	
28	2.10	2.08	2.06	S	2.06	2.10	2.14	2.16	2.14	2.11	2.07	2.05	2.01	1.99	2.05	2.16	2.15	2.15	2.16	2.14	2.17	2.19	2.29	2.45	1.99	2.45	2.13	24	
29	2.39	2.31	S	2.43	2.54	2.62	2.67	2.63	2.51	2.32	2.25	2.20	2.12	2.11	2.10	2.13	2.11	2.10	2.04	2.04	2.08	2.09	2.27	2.27	2.04	2.67	2.28	24	
30	2.27	S	2.19	2.24	2.40	2.51	2.49	2.34	2.18	2.09	2.06	2.06	2.05	2.07	2.08	2.07	2.07	2.07	2.09	2.10	2.11	2.04	2.04	2.09	2.04	2.51	2.16	24	
31	S	2.22	2.26	2.24	2.24	2.24	2.23	2.25	2.26	2.27	2.30	2.25	2.22	2.19	2.14	2.11	2.10	2.13	2.13	2.19	2.23	2.21	2.22	S	2.10	2.30	2.21	24	
HOURLY MAX	2.60	2.72	2.58	2.46	2.54	2.62	2.67	2.64	2.55	2.49	2.54	2.52	2.47	2.39	2.38	2.39	2.40	2.43	2.54	2.58	2.59	2.70	2.81	2.55					
HOURLY AVG	2.22	2.22	2.22	2.21	2.22	2.22	2.23	2.23	2.18	2.18	2.17	2.15	2.13	2.12	2.11	2.12	2.12	2.12	2.15	2.18	2.18	2.20	2.20	2.22					

STATUS FLAG CODES

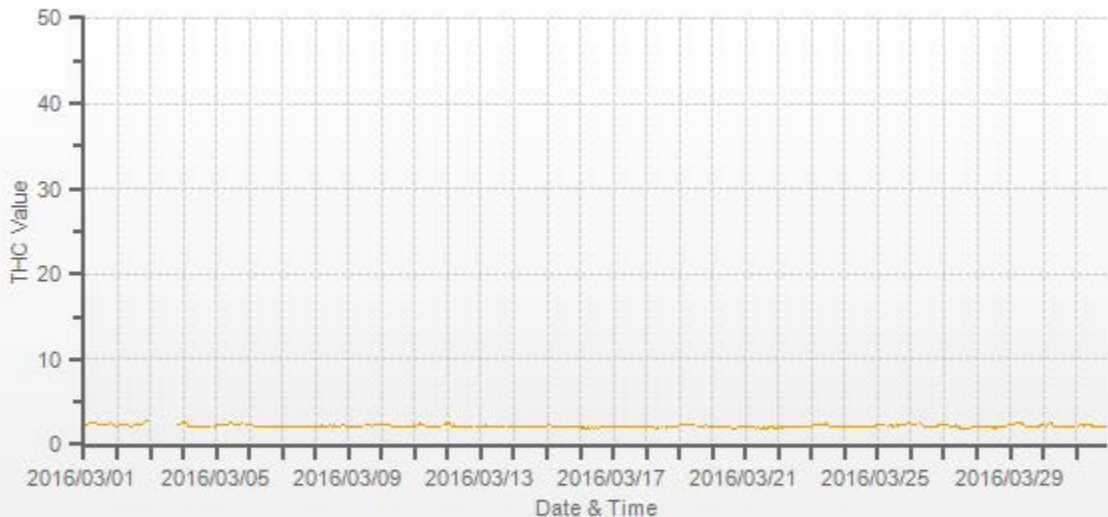
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	688				
MINIMUM 1-HR AVERAGE:	1.95	PPM	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	2.81	PPM	@ HOUR(S)	22	2
MAXIMUM 24-HR AVERAGE:	2.39	PPM			3
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	725	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	97.4	%
STANDARD DEVIATION:	0.14		MONTHLY AVERAGE:	2.18	PPM





TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																													
1		2.40	S	2.49	2.55	2.55	2.62	2.83	2.61	2.65	2.58	2.45	2.40	2.34	2.74	2.49	2.36	2.39	2.34	2.74	2.58	2.55	2.45	2.28	2.27	2.27	2.83	2.51	24
2		S	2.24	2.43	2.48	2.37	2.43	3.20	2.49	2.46	2.34	2.25	2.31	2.39	2.37	R	2.64	2.52	2.55	2.55	5.34	2.74	2.95	3.14	S	2.24	5.34	2.68	23
3		X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	C	C	C	C	2.40	2.46	S	2.62	2.40	2.62	2.49	8
4		2.76	2.81	2.77	2.37	2.34	2.43	2.27	2.28	2.30	2.27	2.25	2.25	2.26	2.52	2.25	2.23	2.19	2.19	2.18	2.18	2.28	S	2.34	2.24	2.18	2.81	2.35	24
5		2.31	2.31	2.33	2.29	2.34	2.43	2.48	2.43	2.37	2.46	2.57	2.50	2.46	2.37	2.36	2.40	2.34	2.31	2.55	2.43	S	2.46	2.42	2.43	2.29	2.57	2.41	24
6		2.57	2.34	3.02	2.24	2.21	2.18	2.18	2.18	2.27	2.15	2.22	2.15	2.15	2.13	2.18	2.16	2.15	2.24	2.16	S	2.12	2.13	2.12	2.10	2.10	3.02	2.23	24
7		2.09	2.09	2.09	2.09	2.12	2.15	2.15	2.37	2.22	2.18	2.18	2.16	2.15	2.13	2.13	2.98	2.19	2.15	S	2.24	2.27	2.30	2.25	2.23	2.09	2.98	2.21	24
8		2.24	2.22	2.24	2.27	2.29	2.31	2.34	2.22	2.49	2.31	2.37	2.40	2.28	2.40	2.31	2.31	2.49	2.45	2.37	2.40	2.41	2.37	2.30	S	2.22	2.49	2.34	24
9		2.18	2.21	2.22	2.24	2.22	2.22	2.23	2.24	2.32	2.47	S1	S1	2.45	2.42	2.46	2.43	2.42	2.44	2.54	2.46	2.55	2.52	S	2.58	2.18	2.58	2.37	22
10		2.50	2.49	2.49	2.55	2.58	2.49	2.46	2.35	2.32	2.27	2.29	2.28	2.18	2.21	2.12	2.27	3.43	2.09	2.18	2.16	S	2.27	2.41	2.09	3.43	2.38	24	
11		2.35	2.32	2.52	2.62	2.66	2.52	2.56	2.46	2.34	2.32	2.25	2.24	2.24	2.31	6.26	2.26	2.25	2.41	2.31	2.30	S	2.60	2.64	2.86	2.24	6.26	2.59	24
12		2.77	2.77	2.60	2.49	2.38	2.41	2.32	2.32	2.32	2.26	2.29	2.24	2.55	2.16	2.13	2.15	2.19	2.26	2.13	S	2.12	2.09	2.12	2.08	2.08	2.77	2.31	24
13		2.13	2.20	2.19	2.27	2.35	2.43	2.47	2.46	2.23	2.10	2.34	2.24	2.08	2.15	2.12	2.15	2.29	2.13	S	2.18	2.18	2.15	2.18	2.19	2.08	2.47	2.23	24
14		2.16	2.26	2.24	2.18	2.21	2.24	2.21	2.27	2.25	2.21	2.71	2.18	2.22	2.29	2.23	2.24	2.29	S	2.28	2.40	2.56	2.44	2.34	2.37	2.16	2.71	2.29	24
15		2.46	2.65	2.61	2.47	2.41	2.43	2.35	2.37	2.34	2.43	2.43	2.37	2.40	2.37	2.32	2.38	S	2.31	2.36	2.35	2.38	2.43	2.40	2.37	2.31	2.65	2.41	24
16		2.40	2.37	2.29	2.32	2.27	2.31	2.34	R	2.37	2.38	2.32	2.37	2.40	2.36	2.41	S	2.38	2.46	2.46	2.46	2.49	2.47	2.44	2.50	2.27	2.50	2.39	23
17		2.49	2.52	2.55	2.56	2.56	2.61	2.58	2.58	2.61	2.55	2.75	2.58	2.55	2.56	S	2.60	2.57	2.60	2.60	2.58	2.60	2.64	2.57	2.60	2.49	2.75	2.58	24
18		2.62	2.60	2.66	2.69	2.65	2.61	2.68	2.66	2.60	2.66	Y	Y	3.03	S	2.67	2.64	2.67	2.65	2.74	2.89	2.98	2.94	2.87	2.99	2.60	3.03	2.74	22
19		3.05	3.11	2.95	3.14	3.06	2.89	2.87	3.15	2.89	2.83	2.86	2.86	S	2.58	2.51	2.49	2.55	2.55	2.73	2.78	2.74	2.68	2.67	2.64	2.49	3.15	2.81	24
20		2.56	2.61	2.59	2.55	2.55	2.58	2.56	2.58	2.59	2.61	2.57	S	2.52	2.46	2.41	2.37	2.40	2.39	2.46	2.47	2.41	2.44	2.46	2.46	2.37	2.61	2.50	24
21		2.46	2.49	2.49	2.43	2.43	2.42	2.46	2.42	2.43	2.43	S	2.41	2.40	2.40	2.41	2.43	2.52	2.43	2.43	2.49	2.47	2.44	2.40	2.43	2.40	2.52	2.44	24
22		2.43	2.44	2.43	2.43	2.46	2.49	2.99	2.61	2.44	S	2.49	2.50	2.54	2.55	2.52	2.50	2.83	2.52	2.47	2.50	2.59	2.57	2.55	2.58	2.43	2.99	2.54	24
23		2.59	2.64	2.69	2.68	2.60	2.71	2.75	2.84	S	2.68	2.69	3.05	2.61	2.61	3.05	2.58	2.42	2.40	2.45	2.52	2.52	2.52	2.52	2.43	2.40	3.05	2.63	24
24		2.49	2.48	2.43	2.39	2.39	2.39	2.58	S	2.34	2.36	2.37	2.39	2.39	2.38	2.39	2.46	2.40	2.41	2.43	2.49	2.48	2.51	2.58	2.68	2.34	2.68	2.44	24
25		2.64	2.71	2.76	2.73	2.74	2.67	S	2.52	2.49	2.56	2.55	2.49	2.61	2.61	2.58	2.48	2.55	2.55	2.55	2.61	2.64	2.74	2.75	2.74	2.48	2.76	2.62	24
26		2.76	2.74	2.61	2.64	2.65	S	2.89	2.92	2.74	2.43	2.34	2.33	2.34	2.31	2.33	2.27	2.28	2.31	2.39	2.52	2.65	2.64	2.64	2.71	2.27	2.92	2.54	24
27		2.81	2.64	2.77	2.71	S	2.58	2.52	2.49	2.52	2.55	2.49	2.37	2.31	2.30	2.31	2.31	2.30	2.31	2.30	2.37	2.43	2.52	2.56	2.52	2.30	2.81	2.48	24
28		2.52	2.51	2.45	S	2.45	2.51	2.56	2.58	2.58	2.55	2.48	2.40	2.40	2.36	2.46	2.64	2.80	2.52	2.52	2.52	2.52	2.52	2.58	2.70	2.88	2.88	2.54	24
29		2.80	2.67	S	2.80	2.92	2.98	3.02	3.14	2.86	2.74	2.62	2.53	2.88	2.40	2.39	2.42	2.37	2.36	2.27	2.28	2.31	2.33	2.52	2.48	2.27	3.14	2.61	24
30		2.51	S	2.42	2.53	2.64	2.73	2.73	2.61	2.42	2.34	2.30	2.27	2.27	2.31	2.33	2.30	2.31	2.31	2.34	2.34	2.36	2.30	2.29	2.34	2.27	2.73	2.40	24
31		S	2.49	2.52	2.52	2.50	2.52	2.54	2.52	2.56	2.56	2.55	2.55	2.47	2.46	2.42	2.39	2.37	2.40	2.40	2.49	2.51	2.53	2.71	S	2.37	2.71	2.50	24
HOURLY MAX		3.05	3.11	3.02	3.14	3.06	2.98	3.20	3.15	2.89	2.83	2.86	3.05	3.03	2.74	6.26	2.98	2.83	3.43	2.74	5.34	2.98	2.95	3.14	2.99				
HOURLY AVG		2.50	2.50	2.51	2.49	2.48	2.49	2.56	2.52	2.46	2.44	2.44	2.40	2.41	2.39	2.52	2.40	2.40	2.43	2.42	2.55	2.46	2.49	2.48	2.49				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

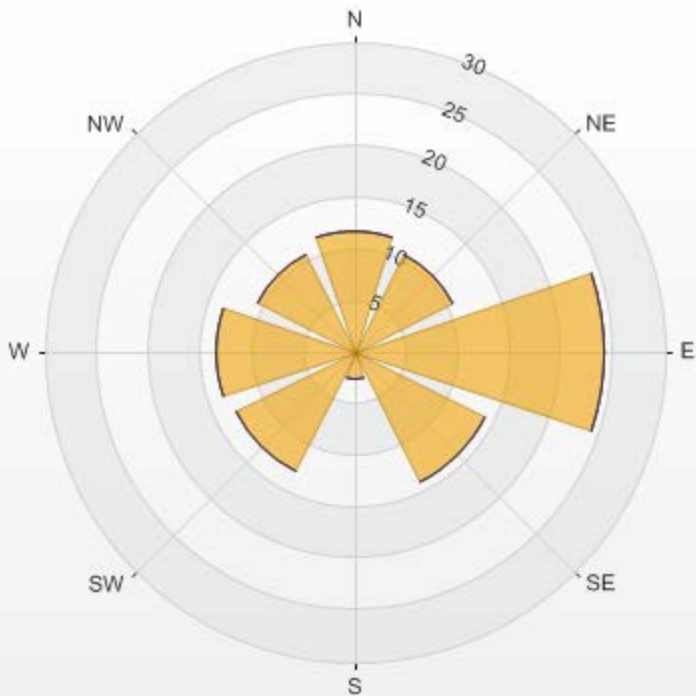
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685				
MAXIMUM INSTANTANEOUS VALUE:	6.26	PPM	@ HOUR(S)	14	ON DAY(S) 11
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	722	HRS
MONTHLY CALIBRATION TIME:	4	HRS			
STANDARD DEVIATION:	0.28				



Wind: LICA COLD LAKE SOUTH Monitor: THC [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 92.47% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	11.63	0	0	0	11.63
NE	10.61	0	0	0	10.61
E	24.13	0	0	0	24.13
SE	14.1	0	0	0	14.1
S	2.62	0	0	0	2.62
SW	12.94	0	0	0	12.94
W	13.52	0	0	0	13.52
NW	10.47	0	0	0	10.47
Summary	100	0	0	0	100



% Icon Classes (ppm)	100	0.5-3.0	0	3.0-10.0	0	10.0-50.0	0	>50.0
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THC[ppm] Calibration: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: Span



OXIDES OF NITROGEN

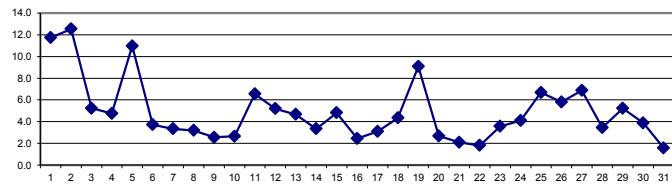
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	3.3	S	4.3	5.3	5.4	5.8	9.0	15.6	14.6	8.3	9.4	10.8	10.1	9.5	7.8	9.9	11.7	13.6	26.9	34.7	27.3	17.7	5.0	3.9	3.3	3.3	34.7	11.7	24
2	S	8.1	9.2	10.2	12.7	19.3	27.4	20.3	26.9	14.5	6.7	7.7	4.2	4.0	4.5	4.5	4.7	5.5	6.6	8.8	18.7	26.5	24.6	S	4.0	4.0	27.4	12.5	24
3	20.2	6.0	4.7	4.3	4.3	4.5	5.5	4.1	3.7	4.0	2.7	2.1	1.9	2.0	2.0	2.9	4.6	3.1	5.2	7.7	6.6	7.5	S	10.9	1.9	20.2	5.2	24	
4	10.1	12.7	11.6	9.4	5.7	2.9	3.3	3.2	5.6	2.4	1.5	1.6	1.4	1.1	2.1	2.9	3.9	4.4	3.9	4.1	5.2	S	5.1	5.1	1.1	12.7	4.7	24	
5	5.9	8.3	10.9	6.3	4.8	12.4	10.7	13.5	11.0	8.2	7.7	8.7	8.3	10.0	11.4	12.3	11.3	13.5	24.3	15.4	S	15.1	11.5	10.7	4.8	24.3	11.0	24	
6	10.6	7.9	7.8	3.8	5.0	4.6	3.1	2.5	2.8	3.2	2.9	2.5	2.8	2.3	2.4	2.4	2.5	2.8	3.3	S	3.0	3.2	2.2	2.0	2.0	10.6	3.7	24	
7	1.9	1.9	1.7	2.0	2.7	4.0	5.1	8.8	7.1	2.3	1.6	1.8	2.2	2.4	3.2	3.9	3.3	2.3	S	5.1	4.6	4.0	2.6	2.3	1.6	8.8	3.3	24	
8	2.3	2.8	2.0	2.2	2.1	3.0	2.4	2.3	5.6	6.0	2.6	C	C	C	C	C	3.8	3.8	3.6	3.8	4.0	3.2	2.1	S	2.0	6.0	3.2	24	
9	1.8	1.8	1.7	2.0	1.7	1.7	1.8	2.1	2.4	2.1	2.5	2.9	4.1	3.2	3.8	2.9	2.8	3.3	4.5	3.0	2.0	2.3	S	2.4	1.7	4.5	2.6	24	
10	2.1	1.7	1.7	1.5	1.8	1.7	2.5	2.3	2.0	2.0	2.2	2.3	2.1	2.3	2.0	1.7	2.8	4.3	5.5	3.8	3.8	S	3.0	6.0	1.5	6.0	2.7	24	
11	5.7	3.5	7.8	8.0	6.8	6.1	6.3	5.3	3.5	3.2	2.8	2.1	1.3	1.2	1.3	1.9	1.6	2.0	2.3	2.8	S	23.2	19.3	32.5	1.2	32.5	6.5	24	
12	28.2	18.6	11.2	5.9	4.0	3.0	2.6	2.2	2.4	2.6	2.2	1.8	2.4	2.0	2.1	1.4	2.4	3.1	3.8	S	4.7	3.8	3.6	5.7	1.4	28.2	5.2	24	
13	5.3	6.3	6.3	6.3	8.6	8.7	6.1	4.7	3.7	9.0	5.0	6.9	3.7	2.9	2.9	3.8	3.2	2.4	S	2.9	2.5	2.4	1.8	1.9	1.8	9.0	4.7	24	
14	1.4	3.3	2.1	0.9	1.1	1.6	3.6	5.3	2.9	3.5	3.8	3.2	2.5	3.6	4.1	3.3	3.0	S	4.9	6.1	6.4	3.3	2.8	4.3	0.9	6.4	3.3	24	
15	6.9	6.3	7.8	5.2	3.5	4.3	3.3	4.8	3.9	8.7	9.8	5.7	3.8	2.7	2.7	2.9	S	3.2	2.8	1.8	2.3	5.4	6.7	6.3	1.8	9.8	4.8	24	
16	6.7	5.7	2.6	5.1	1.5	1.8	0.7	1.1	1.4	1.4	1.5	1.4	1.3	1.1	0.9	S	2.1	3.2	3.2	2.8	2.9	2.7	2.9	2.6	0.7	6.7	2.5	24	
17	2.6	2.7	2.0	2.8	6.1	6.1	6.5	6.6	6.2	5.0	6.4	1.9	2.0	2.0	S	2.2	1.7	1.2	1.1	1.3	1.4	1.3	1.5	0.8	0.8	6.6	3.1	24	
18	0.9	3.0	5.1	4.7	3.5	2.2	3.9	2.6	1.7	1.8	Y	3.6	3.2	S	3.2	1.8	1.6	2.6	4.8	5.7	8.6	14.5	6.4	10.2	0.9	14.5	4.3	23	
19	13.0	12.0	13.2	11.6	20.9	24.8	25.4	32.4	16.0	6.2	5.5	4.2	S	1.4	1.4	1.5	1.4	2.0	2.9	2.9	2.4	2.0	2.4	3.5	1.4	32.4	9.1	24	
20	2.9	3.1	4.6	3.8	3.5	2.9	3.6	4.8	3.5	2.6	1.8	S	1.9	1.5	1.6	1.9	2.0	2.2	2.4	2.4	2.7	2.2	1.8	2.0	1.5	4.8	2.7	24	
21	1.9	2.1	1.9	1.8	2.3	2.1	2.4	2.7	2.1	1.9	S	2.0	1.5	1.8	2.3	1.9	2.5	2.4	3.0	3.1	2.8	1.6	1.3	1.1	1.1	3.1	2.1	24	
22	1.3	1.6	1.5	3.5	2.9	3.2	3.6	3.9	2.2	S	1.7	1.2	1.1	1.0	1.4	1.0	2.2	1.4	1.4	0.9	1.4	1.2	1.0	1.1	0.9	3.9	1.8	24	
23	1.3	2.5	2.8	2.1	1.8	2.0	2.7	4.3	S	6.6	5.0	7.8	3.5	2.1	2.3	2.1	1.7	1.6	1.5	5.6	6.9	4.5	7.1	4.5	1.3	7.8	3.6	24	
24	6.2	4.6	3.3	5.9	2.6	2.6	2.9	S	2.3	2.5	1.8	1.5	1.4	1.6	1.4	1.2	1.4	1.9	3.4	4.8	8.7	8.7	9.5	14.2	1.2	14.2	4.1	24	
25	10.2	9.7	10.4	11.7	25.6	24.7	S	14.7	5.4	2.5	2.8	2.2	1.9	2.2	1.9	1.7	2.7	3.2	2.8	3.1	3.1	3.5	3.5	4.4	1.7	25.6	6.7	24	
26	4.0	5.3	5.4	5.4	5.8	S	10.6	12.0	3.7	2.2	1.9	1.9	1.9	1.9	1.8	1.8	1.6	1.9	5.3	8.1	14.1	14.4	12.1	10.5	1.6	14.4	5.8	24	
27	12.7	10.3	15.2	37.0	S	17.0	18.0	4.7	2.6	1.4	1.9	1.6	1.5	1.2	1.1	0.9	1.3	1.7	2.4	2.2	8.2	6.3	7.1	1.7	0.9	37.0	6.9	24	
28	1.1	2.1	1.7	S	2.6	5.9	11.6	11.6	4.3	1.4	2.2	1.6	1.6	1.1	1.6	2.4	3.0	2.8	3.2	3.0	3.1	3.3	3.8	4.5	1.1	11.6	3.5	24	
29	4.0	3.9	S	6.0	8.2	9.1	10.5	12.3	10.8	9.5	7.5	5.1	2.7	2.8	2.0	1.6	1.9	2.0	1.7	1.2	3.9	4.6	4.5	4.2	1.2	12.3	5.2	24	
30	4.1	S	5.0	5.3	8.7	11.9	12.7	9.5	6.7	3.3	2.7	2.5	1.9	1.3	1.5	1.4	1.6	1.4	1.2	1.3	1.6	1.4	1.5	0.9	0.9	12.7	3.9	24	
31	S	0.7	0.7	0.6	0.7	0.9	0.9	1.0	0.7	0.6	0.8	1.1	2.0	2.0	1.7	1.3	1.6	1.3	1.9	2.8	4.0	4.2	2.9	S	0.6	4.2	1.6	24	
HOURLY MAX	28.2	18.6	15.2	37.0	25.6	24.8	27.4	32.4	26.9	14.5	9.8	10.8	10.1	10.0	11.4	12.3	11.7	13.6	26.9	34.7	27.3	26.5	24.6	32.5					
HOURLY AVG	6.2	5.5	5.5	6.0	5.6	6.7	7.0	7.4	5.6	4.3	3.7	3.4	2.8	2.6	2.7	2.8	3.1	3.3	4.8	5.2	5.8	6.7	5.5	5.7					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

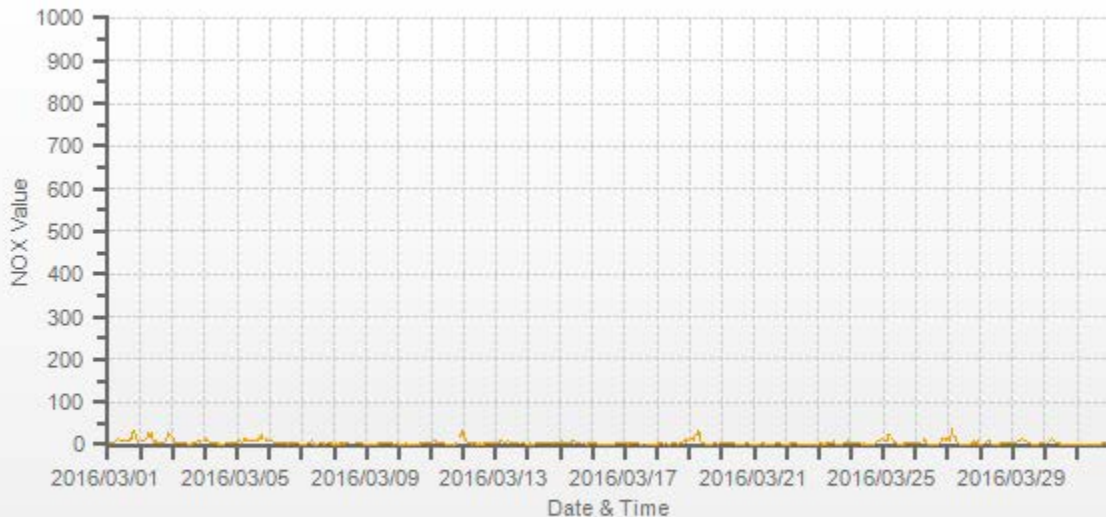
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705		
MINIMUM 1-HR AVERAGE:	0.6 PPB	@ HOUR(S)	3 , 9 ON DAY(S) 31
MAXIMUM 1-HR AVERAGE:	37.0 PPB	@ HOUR(S)	3 ON DAY(S) 27
MAXIMUM 24-HR AVERAGE:	12.5 PPB		ON DAY(S) 2
			VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	5.11	MONTHLY AVERAGE:	4.9 PPB

NOX[ppb] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	4.6	S	5.1	6.5	7.0	7.2	24.0	27.4	24.5	9.9	10.5	20.5	12.9	11.4	9.1	17.1	40.3	23.2	68.6	66.4	43.1	33.3	10.1	6.5	4.6	68.6	21.3	24	
2	S	14.1	13.1	15.7	20.6	33.8	57.5	39.4	175.2	22.3	17.4	15.0	6.9	7.9	R	8.1	13.9	13.9	8.3	15.6	31.9	41.3	34.9	S	6.9	175.2	28.9	23	
3	28.5	11.2	9.1	7.6	5.9	8.0	8.0	10.4	7.8	12.1	4.1	5.1	3.8	4.5	3.1	18.7	13.3	5.4	8.7	11.6	10.9	9.6	S	13.9	3.1	28.5	9.6	24	
4	11.7	17.3	13.5	11.0	9.0	6.7	8.4	9.6	26.2	12.6	3.8	4.3	2.7	2.6	16.2	9.3	8.5	12.6	12.9	7.0	12.9	S	7.8	8.0	2.6	26.2	10.2	24	
5	12.5	12.0	14.3	12.5	12.5	22.6	20.8	18.2	15.5	10.5	10.5	11.0	13.4	13.0	24.5	20.0	19.2	22.1	34.7	23.3	S	28.2	19.6	25.5	10.5	34.7	18.1	24	
6	21.6	16.3	15.3	8.9	9.5	14.7	7.1	3.7	4.6	7.4	5.8	5.0	19.2	5.1	4.5	4.0	4.3	4.3	5.4	S	5.8	10.0	5.1	4.2	3.7	21.6	8.3	24	
7	4.4	3.7	2.7	5.5	7.0	9.1	14.6	65.5	12.1	6.4	4.6	6.9	4.2	4.6	6.1	5.7	5.7	3.6	S	7.2	7.0	7.7	5.5	4.5	2.7	65.5	8.9	24	
8	4.1	4.7	3.8	5.0	4.1	5.4	10.4	17.0	8.9	31.0	4.5	C	C	C	C	C	C	12.0	4.1	4.7	5.1	5.5	4.1	S	3.8	31.0	7.9	24	
9	3.3	3.3	3.2	5.2	5.9	4.5	3.2	8.1	5.0	5.2	15.0	4.8	6.3	4.9	44.0	5.6	3.8	6.3	8.0	4.2	2.8	3.7	S	3.7	2.8	44.0	7.0	24	
10	3.3	2.7	3.4	2.5	3.0	2.9	11.4	6.7	5.4	19.3	4.0	5.4	3.6	3.8	5.6	4.0	7.6	16.6	17.6	11.3	7.4	S	5.5	10.8	2.5	19.3	7.1	24	
11	10.8	7.5	11.2	10.6	8.9	8.3	9.7	8.8	5.1	4.2	3.8	5.3	2.7	2.7	2.5	8.3	3.3	6.2	3.4	5.8	S	119.9	28.1	46.7	2.5	119.9	14.1	24	
12	43.4	27.0	22.5	15.2	6.8	5.8	4.3	5.5	6.8	5.2	4.7	2.8	4.1	3.7	4.9	5.5	6.9	5.5	9.7	S	9.4	7.5	10.4	9.6	2.8	43.4	9.9	24	
13	10.0	21.4	11.3	19.0	17.8	14.6	8.5	10.1	5.1	13.0	9.1	9.4	4.6	5.4	4.3	4.8	10.0	3.8	S	4.0	4.0	3.4	4.0	4.0	3.4	21.4	8.8	24	
14	4.5	8.0	3.6	3.3	2.0	2.4	10.4	11.8	4.6	9.5	46.2	6.5	3.7	8.5	4.7	4.7	4.8	S	8.9	10.4	17.1	6.8	4.6	6.2	2.0	46.2	8.4	24	
15	8.7	9.5	12.6	7.2	5.5	5.6	5.4	6.7	7.7	11.0	12.7	9.7	4.9	3.3	7.3	3.7	S	4.2	3.7	2.4	4.2	7.1	7.4	7.4	2.4	12.7	6.9	24	
16	8.0	6.8	3.8	29.9	4.3	9.3	1.2	R	7.6	2.4	2.4	1.9	2.5	3.7	1.9	S	3.2	4.3	3.6	3.2	4.0	3.1	4.0	2.9	1.2	29.9	5.2	23	
17	3.3	3.3	2.5	6.3	7.6	6.9	7.3	7.0	6.7	19.4	75.5	2.3	2.7	2.8	S	3.0	2.7	1.8	1.9	2.8	5.0	2.3	7.2	2.6	1.8	75.5	8.0	24	
18	1.8	5.1	5.5	5.9	5.8	4.2	5.8	4.7	2.8	6.7	Y	Y	6.8	S	8.1	3.1	2.3	4.1	12.1	15.4	20.0	35.7	11.3	15.9	1.8	35.7	8.7	22	
19	24.8	22.6	18.8	20.8	49.1	41.2	74.3	50.6	48.7	10.2	12.3	5.9	S	2.4	2.1	3.6	4.3	15.3	6.3	4.6	5.0	4.0	4.7	7.2	2.1	74.3	19.1	24	
20	6.7	8.0	9.7	9.2	6.2	5.1	5.9	12.9	6.8	5.5	13.1	S	5.2	3.3	4.2	4.5	3.4	3.8	3.8	3.8	4.3	3.7	2.9	3.8	2.9	13.1	5.9	24	
21	3.6	3.5	3.1	3.2	4.1	3.3	7.7	6.0	13.2	3.7	S	3.8	4.2	5.5	5.0	4.0	20.4	4.3	5.9	6.0	32.2	4.3	2.8	2.9	2.8	32.2	6.6	24	
22	3.6	4.7	2.9	30.4	5.2	5.8	13.4	7.8	5.6	S	3.0	5.8	3.2	4.3	3.7	2.6	13.4	3.3	2.9	2.0	12.0	2.2	1.6	2.9	1.6	30.4	6.2	24	
23	2.9	3.7	4.5	3.4	3.2	2.5	3.8	7.2	S	11.2	8.1	11.8	6.4	7.4	11.6	6.2	2.6	2.3	1.9	67.5	16.0	9.9	13.9	14.6	1.9	67.5	9.7	24	
24	15.3	9.1	5.9	30.7	4.5	4.8	6.4	S	4.5	9.9	4.4	2.9	3.0	6.4	3.4	2.4	2.9	8.9	28.2	10.1	15.7	14.4	14.1	32.5	2.4	32.5	10.5	24	
25	15.9	18.7	18.4	19.4	38.6	27.9	S	43.9	8.7	6.9	4.2	3.0	2.7	2.8	2.4	2.2	3.7	3.6	4.2	4.6	10.7	5.5	7.1	6.7	2.2	43.9	11.4	24	
26	5.0	6.3	8.7	9.6	7.2	S	13.9	15.0	9.3	3.8	3.0	2.7	8.5	4.4	3.7	3.7	4.7	5.0	62.3	29.5	44.4	20.1	24.0	15.8	2.7	62.3	13.5	24	
27	25.5	19.2	37.8	198.6	S	22.2	21.8	15.7	6.3	2.5	13.2	2.4	2.8	2.6	2.0	1.4	2.8	2.7	4.6	3.6	43.5	44.8	10.6	6.5	1.4	198.6	21.4	24	
28	2.4	5.3	3.5	S	5.9	16.4	20.0	22.0	10.9	2.7	11.5	3.5	3.6	1.8	4.9	5.0	17.4	3.2	4.1	4.2	3.7	6.7	5.7	8.2	1.8	22.0	7.5	24	
29	6.1	6.8	S	9.9	10.7	16.4	12.1	17.5	12.9	16.4	19.0	11.2	6.9	8.7	5.0	3.1	4.6	2.7	2.6	1.9	5.4	9.5	5.2	4.8	1.9	19.0	8.7	24	
30	5.8	S	7.6	9.7	13.7	17.4	14.7	16.8	9.1	6.1	3.6	6.9	2.4	1.8	1.8	1.9	2.4	2.8	2.7	2.1	2.6	1.8	2.1	2.0	1.8	17.4	6.0	24	
31	S	1.4	1.9	1.2	1.2	1.7	1.7	2.7	1.8	1.3	1.5	1.6	5.0	3.6	18.6	1.9	5.3	1.7	3.1	5.3	12.0	7.6	4.4	S	1.2	18.6	3.9	24	
HOURLY MAX	43.4	27.0	37.8	198.6	49.1	41.2	74.3	65.5	175.2	31.0	75.5	20.5	19.2	13.0	44.0	20.0	40.3	23.2	68.6	67.5	44.4	119.9	34.9	46.7					
HOURLY AVG	10.4	9.8	9.3	17.5	9.8	11.2	13.8	16.5	15.6	9.6	11.4	6.3	5.5	4.9	7.7	5.8	8.2	7.0	11.9	11.7	13.7	15.8	9.3	10.0					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

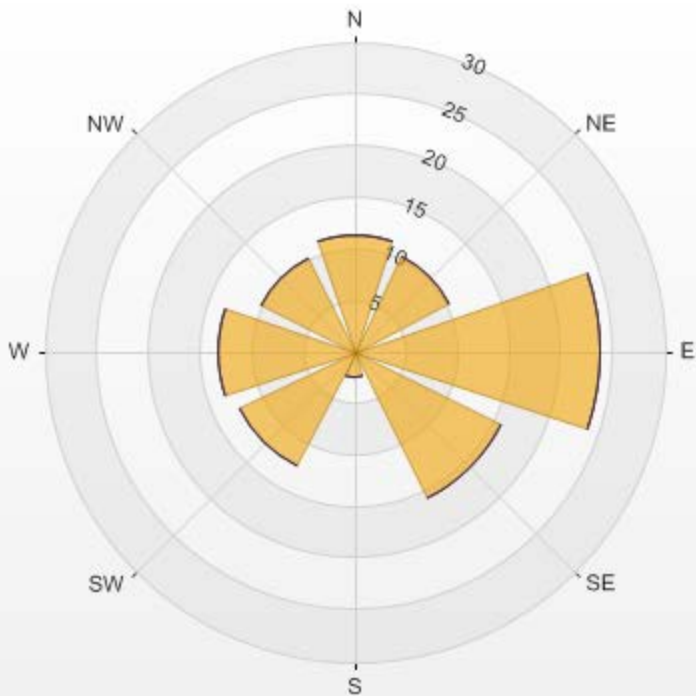
NUMBER OF NON-ZERO READINGS:	701
MAXIMUM INSTANTANEOUS VALUE:	198.6 PPB @ HOUR(S) 3 ON DAY(S) 27
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	14.77
OPERATIONAL TIME:	740 HRS

NOX MAX[ppb] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



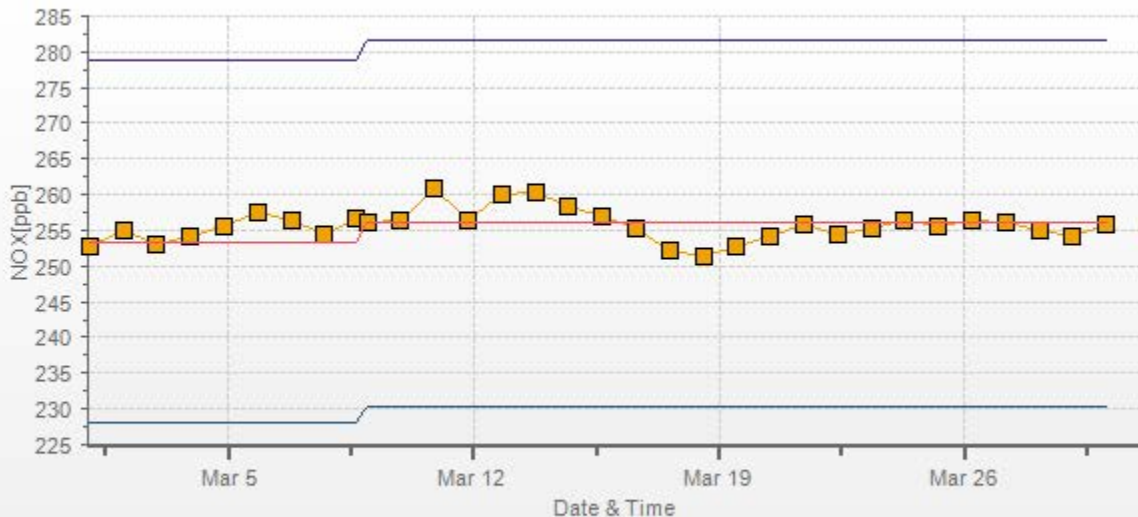
Wind: LICA COLD LAKE SOUTH Monitor: NOX [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	11.35	0	0	0	11.35
NE	10.35	0	0	0	10.35
E	23.83	0	0	0	23.83
SE	15.89	0	0	0	15.89
S	2.55	0	0	0	2.55
SW	12.48	0	0	0	12.48
W	13.33	0	0	0	13.33
NW	10.21	0	0	0	10.21
Summary	100	0	0	0	100



% Icon Classes (ppb)	
100	0.5-50.0
0	50.0-110.0
0	110.0-210.0
0	>210.0

NOX[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: Span



NITRIC OXIDES

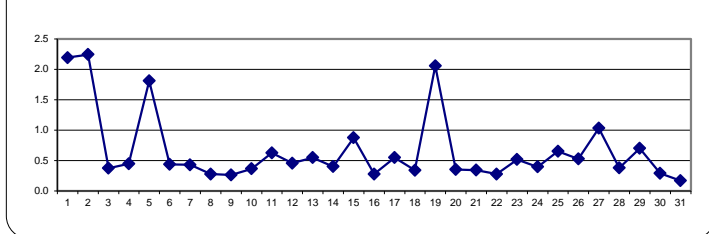
NITRIC OXIDE (NO) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	0.1	S	0.1	0.1	0.1	0.1	0.3	2.4	4.8	3.0	3.8	4.8	4.2	3.7	2.5	3.1	2.9	1.5	3.0	4.8	3.0	1.5	0.3	0.3	0.1	4.8	2.2	24	
2	S	0.4	0.2	0.6	0.8	1.3	6.8	4.3	14.7	5.2	2.4	2.9	1.3	1.2	1.2	1.0	0.7	0.4	0.1	0.1	0.5	1.6	1.6	S	0.1	14.7	2.2	24	
3	0.8	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.7	0.5	0.4	0.3	0.3	0.2	0.8	0.7	0.3	0.3	0.4	0.2	0.3	S	0.3	0.2	0.8	0.4	24	
4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.3	1.5	0.8	0.5	0.4	0.3	0.2	0.7	0.9	0.9	0.6	0.5	0.3	0.4	S	0.4	0.4	0.1	1.5	0.4	24	
5	0.5	0.2	0.1	0.1	0.2	1.3	0.8	1.9	3.0	2.9	3.5	4.1	3.8	4.3	4.3	3.4	2.2	1.0	1.7	0.5	S	1.1	0.4	0.3	0.1	4.3	1.8	24	
6	0.8	0.3	0.5	0.2	0.4	0.8	0.4	0.2	0.4	0.7	0.6	0.5	0.8	0.4	0.4	0.4	0.4	0.3	0.4	S	0.3	0.4	0.3	0.2	0.2	0.8	0.4	24	
7	0.3	0.2	0.2	0.3	0.3	0.6	0.4	1.4	1.1	0.4	0.3	0.3	0.3	0.5	0.7	0.7	0.5	0.2	S	0.3	0.2	0.3	0.2	0.2	0.2	1.4	0.4	24	
8	0.1	0.3	0.1	0.2	0.0	0.1	0.1	0.3	0.7	1.5	0.4	C	C	C	C	C	0.5	0.3	0.0	0.0	0.1	0.1	0.2	S	0.0	1.5	0.3	24	
9	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.5	0.9	0.7	0.6	0.5	0.4	0.4	0.1	0.0	0.0	0.0	S	0.0	0.0	0.9	0.3	24	
10	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.2	0.8	0.5	0.6	0.5	0.7	0.5	0.3	0.6	0.7	1.3	0.3	0.3	S	0.1	0.1	0.0	1.3	0.4	24	
11	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.7	0.8	0.8	0.8	0.7	0.2	0.2	0.2	0.4	0.3	0.2	0.0	0.0	S	2.3	0.6	4.8	0.0	4.8	0.6	24	
12	3.7	0.4	0.6	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.3	0.5	0.2	0.2	S	0.2	0.2	0.2	0.2	0.1	3.7	0.5	24	
13	0.2	0.2	0.4	0.2	0.3	0.4	0.1	0.4	0.6	3.5	1.7	1.4	0.4	0.4	0.5	0.7	0.4	0.2	S	0.1	0.1	0.1	0.1	0.1	0.2	0.1	3.5	0.5	24
14	0.1	0.4	0.1	0.1	0.1	0.0	0.2	0.5	0.4	0.7	1.0	0.8	0.6	0.9	1.0	0.6	0.4	S	0.4	0.3	0.4	0.1	0.0	0.1	0.0	1.0	0.4	24	
15	0.1	0.2	0.4	0.1	0.1	0.1	0.1	0.7	1.2	4.2	5.4	2.9	1.7	0.8	0.7	0.6	S	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.4	0.9	24	
16	0.1	0.1	0.2	1.6	0.2	0.3	0.1	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.2	S	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.6	0.3	24	
17	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	1.4	1.7	4.9	0.6	0.6	0.6	S	0.4	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	4.9	0.5	24
18	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.4	Y	1.1	1.0	S	0.9	0.4	0.3	0.3	0.1	0.1	0.4	1.2	0.2	0.4	0.0	1.2	0.3	23	
19	0.6	0.6	0.7	0.6	2.8	5.2	6.5	14.6	7.0	2.4	2.2	1.6	S	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.3	0.1	14.6	2.1	24	
20	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.8	0.9	0.7	0.5	S	0.4	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.9	0.4	24
21	0.2	0.2	0.2	0.1	0.3	0.2	0.3	0.6	0.6	0.5	S	0.5	0.4	0.4	0.6	0.4	0.5	0.3	0.2	0.2	0.7	0.3	0.1	0.1	0.1	0.7	0.3	24	
22	0.2	0.2	0.2	0.8	0.2	0.3	0.4	0.6	0.5	S	0.4	0.3	0.3	0.2	0.4	0.3	0.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.8	0.3	24	
23	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.5	S	1.6	1.6	3.1	1.1	0.4	0.4	0.8	0.2	0.1	0.0	0.9	0.1	0.1	0.3	0.2	0.0	3.1	0.5	24	
24	0.2	0.2	0.2	1.3	0.3	0.4	0.5	S	0.4	0.8	0.5	0.4	0.3	0.5	0.3	0.2	0.2	0.3	0.6	0.4	0.3	0.1	0.1	0.6	0.1	1.3	0.4	24	
25	0.1	0.3	0.3	0.3	4.2	1.5	S	3.0	1.4	0.7	0.8	0.6	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.1	0.0	4.2	0.7	24	
26	0.0	0.1	0.3	0.1	0.1	S	0.8	3.1	1.0	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.7	0.2	0.9	0.3	0.2	0.3	0.0	3.1	0.5	24	
27	0.9	0.2	1.2	12.7	S	0.9	2.0	0.8	0.6	0.2	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	1.0	0.9	0.1	0.1	0.1	12.7	1.0	24	
28	0.0	0.2	0.1	S	0.1	0.2	0.8	2.6	0.9	0.3	0.6	0.4	0.3	0.2	0.3	0.4	0.5	0.3	0.1	0.0	0.0	0.1	0.1	0.2	0.0	2.6	0.4	24	
29	0.1	0.1	S	0.1	0.1	0.1	0.8	2.5	3.1	2.9	2.3	1.5	0.6	0.6	0.3	0.2	0.3	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.0	3.1	0.7	24	
30	0.0	S	0.1	0.1	0.1	0.2	0.6	1.1	1.1	0.6	0.7	0.7	0.5	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.3	24	
31	S	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.6	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.1	S	0.0	0.6	0.2	24
HOURLY MAX		3.7	0.6	1.2	12.7	4.2	5.2	6.8	14.6	14.7	5.2	5.4	4.8	4.2	4.3	4.3	3.4	2.9	1.5	3.0	4.8	3.0	2.3	1.6	4.8				
HOURLY AVG		0.4	0.2	0.3	0.7	0.4	0.5	0.8	1.5	1.7	1.3	1.3	1.1	0.8	0.7	0.7	0.6	0.5	0.3	0.4	0.3	0.4	0.4	0.2	0.4				

STATUS FLAG CODES

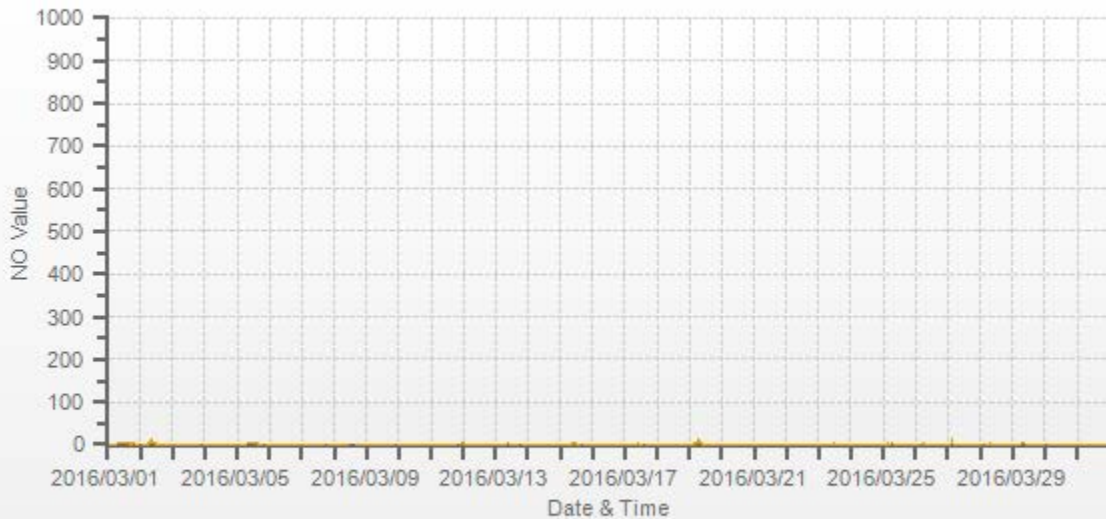
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	657			
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	14.7	PPB @ HOUR(S)	8	2
MAXIMUM 24-HR AVERAGE:	2.2	PPB		1, 2
				VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.9
				%
STANDARD DEVIATION:	1.30		MONTHLY AVERAGE:	0.7
				PPB





NITRIC OXIDE MAX instantaneous maximum in ppb

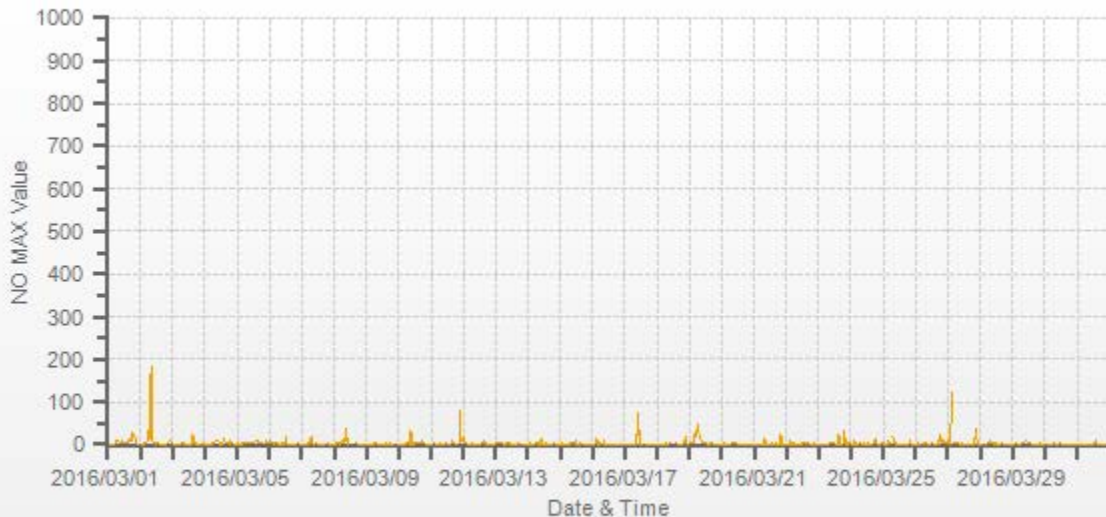
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	0.5	S	0.5	1.1	0.4	0.1	7.7	8.2	9.6	3.5	4.4	8.2	5.8	4.6	3.0	5.6	12.6	7.5	27.8	24.2	20.8	7.1	2.2	1.2	0.1	27.8	7.2	24	
2	S	1.7	1.3	4.5	3.8	7.8	33.9	14.0	184.2	8.6	6.9	6.2	2.2	4.1	R	2.1	1.7	2.2	1.0	0.9	3.0	6.9	7.6	S	0.9	184.2	14.5	23	
3	4.3	1.4	0.9	0.6	0.9	1.8	1.1	3.4	2.3	3.6	0.9	1.4	1.0	2.3	0.5	24.2	5.0	2.2	2.7	1.4	1.0	1.8	S	1.7	0.5	24.2	2.9	24	
4	2.9	2.0	1.2	0.9	0.9	1.7	4.5	5.3	10.1	8.8	9.5	1.7	1.0	1.4	14.1	4.4	4.1	2.7	9.7	1.0	6.9	S	1.4	2.2	0.9	14.1	4.3	24	
5	3.4	1.3	0.6	2.2	2.5	4.5	3.9	5.5	3.8	4.0	4.8	5.4	6.4	5.9	10.5	8.7	5.9	3.1	5.1	3.0	S	9.6	3.0	4.6	0.6	10.5	4.7	24	
6	10.6	3.8	3.8	0.8	4.0	6.1	2.5	0.7	1.4	2.2	2.9	1.8	18.7	1.4	1.5	1.2	1.3	1.1	1.9	S	1.4	3.6	1.5	1.7	0.7	18.7	3.3	24	
7	1.8	1.0	0.9	2.1	2.2	3.1	5.2	19.9	3.1	1.3	3.5	3.1	1.1	0.9	2.3	1.2	1.2	1.1	S	2.7	1.3	1.8	1.4	1.1	0.9	19.9	2.8	24	
8	0.8	2.4	1.0	2.9	0.1	4.1	3.3	13.3	2.5	35.7	0.8	C	C	C	C	C	C	4.0	0.3	0.1	0.4	0.9	2.3	S	0.1	35.7	4.4	24	
9	1.5	1.3	0.9	1.9	2.2	2.7	1.8	4.2	1.7	1.8	1.9	1.1	2.2	1.4	2.8	1.8	2.2	4.4	0.8	0.5	0.3	0.4	S	0.3	0.3	4.4	1.7	24	
10	0.4	0.4	0.6	0.3	0.5	0.6	4.1	4.9	1.7	32.0	1.0	3.6	1.4	5.0	2.4	2.4	2.5	5.5	8.8	2.5	1.8	S	1.0	1.6	0.3	32.0	3.7	24	
11	2.0	1.8	2.4	2.3	0.9	1.3	2.2	2.4	2.2	1.5	1.2	4.3	0.6	0.7	1.5	5.1	7.1	5.3	0.1	0.5	S	81.9	4.4	13.2	0.1	81.9	6.3	24	
12	16.8	2.6	3.6	0.9	0.6	1.4	1.0	5.3	1.9	1.0	1.8	1.1	1.0	0.9	2.9	2.6	9.2	0.4	1.2	S	1.7	1.6	1.4	1.8	0.4	16.8	2.7	24	
13	2.7	5.7	2.9	3.3	2.5	3.1	0.6	2.8	1.3	5.4	3.8	2.2	1.3	0.7	1.4	1.7	3.7	1.3	S	0.9	0.9	0.9	1.3	2.0	0.6	5.7	2.3	24	
14	1.3	3.3	1.8	2.3	1.1	0.3	2.4	2.6	0.9	2.3	16.2	2.1	1.1	3.0	1.4	1.1	1.3	S	1.8	2.8	3.2	0.6	0.4	0.6	0.3	16.2	2.3	24	
15	0.4	1.7	3.6	0.3	1.8	0.6	0.6	1.7	3.2	5.8	7.0	8.1	2.2	1.1	2.8	0.9	S	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	8.1	1.9	24	
16	0.2	0.1	2.4	12.6	1.5	2.6	0.5	R	10.2	0.6	0.9	0.8	0.9	1.3	0.5	S	0.9	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.1	12.6	1.7	23	
17	0.2	0.2	0.2	0.2	0.2	0.4	1.3	1.7	25.3	75.3	0.9	1.0	1.0	S	1.1	0.5	0.5	0.1	0.2	1.1	0.5	1.3	0.6	0.1	75.3	5.0	24		
18	0.2	0.1	0.2	0.2	0.2	0.4	0.6	2.6	0.7	2.8	Y	Y	2.6	S	4.1	1.0	0.4	0.8	0.6	1.4	5.3	16.7	2.5	2.3	0.1	16.7	2.2	22	
19	5.9	5.6	3.5	5.2	24.1	17.5	46.1	28.2	25.0	3.9	5.7	2.5	S	2.8	0.5	1.3	2.7	2.5	0.8	0.5	0.8	0.6	1.0	2.0	0.5	46.1	8.2	24	
20	1.3	1.7	3.2	1.2	1.5	1.4	1.5	4.1	3.2	2.6	4.5	S	1.9	1.3	1.0	2.0	0.8	2.3	0.7	0.5	1.0	0.9	1.0	1.0	0.5	4.5	1.8	24	
21	0.6	1.5	1.2	0.6	1.4	0.9	2.3	2.3	13.6	1.4	S	1.1	1.0	3.4	1.9	1.1	7.0	1.1	1.3	1.1	25.5	1.9	0.6	1.0	0.6	25.5	3.2	24	
22	1.1	0.9	1.0	9.1	0.8	1.1	6.1	2.2	1.8	S	1.1	1.2	2.7	2.5	1.8	4.6	6.9	0.9	1.1	0.2	3.6	0.2	0.2	0.4	0.2	9.1	2.2	24	
23	0.2	0.4	0.4	0.2	0.6	0.2	0.2	2.3	S	3.8	3.1	6.5	2.4	1.3	1.8	22.5	0.8	0.3	0.1	33.0	0.6	0.5	2.4	3.1	0.1	33.0	3.8	24	
24	4.2	2.0	1.4	9.7	1.7	1.3	2.5	S	1.6	6.9	1.7	1.2	1.2	3.5	1.1	0.5	0.9	4.6	15.3	3.1	1.7	0.8	0.7	5.9	0.5	15.3	3.2	24	
25	0.5	4.5	2.1	2.2	11.7	5.6	S	16.9	2.5	3.8	1.8	0.9	0.5	0.6	0.4	0.3	0.4	0.4	0.9	0.5	7.9	0.8	1.3	0.6	0.3	16.9	2.9	24	
26	0.1	0.7	2.6	1.4	1.1	S	2.3	4.7	2.8	1.7	1.9	0.8	3.9	1.0	1.6	1.0	1.3	2.6	25.2	6.2	13.5	3.0	2.6	2.6	0.1	25.2	3.7	24	
27	8.0	2.2	16.6	121.2	S	3.1	4.2	3.0	3.1	0.9	2.5	0.7	2.1	1.0	0.6	0.4	0.5	0.4	0.5	1.2	13.5	39.0	1.0	0.6	0.4	121.2	9.8	24	
28	0.2	1.6	0.8	S	0.7	1.2	3.9	8.5	5.6	2.6	4.8	1.2	3.4	0.4	1.2	1.2	5.7	0.4	0.3	0.3	0.1	1.7	0.8	2.3	0.1	8.5	2.1	24	
29	1.4	1.2	S	2.4	1.3	1.6	1.6	4.9	4.0	6.5	8.1	5.2	3.0	2.5	1.4	0.8	2.0	0.3	0.1	0.1	1.6	3.8	0.4	0.3	0.1	8.1	2.4	24	
30	0.6	S	1.2	2.1	0.9	1.6	2.1	2.7	1.7	1.2	1.0	3.1	3.0	0.4	0.4	0.5	0.6	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.3	0.1	3.1	1.1	24
31	S	0.1	0.6	0.1	0.2	0.2	0.4	1.0	0.4	0.5	0.5	0.6	2.0	3.8	8.8	0.5	1.5	0.2	0.3	0.9	1.6	1.7	0.8	S	0.1	8.8	1.2	24	
HOURLY MAX	16.8	5.7	16.6	121.2	24.1	17.5	46.1	28.2	184.2	35.7	75.3	8.2	18.7	5.9	14.1	24.2	12.6	7.5	27.8	33.0	25.5	81.9	7.6	13.2					
HOURLY AVG	2.6	1.8	2.1	6.5	2.4	2.6	5.0	6.2	10.3	6.1	6.2	2.8	2.7	2.1	2.7	3.5	3.1	2.0	3.8	3.1	4.2	6.5	1.6	2.0					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

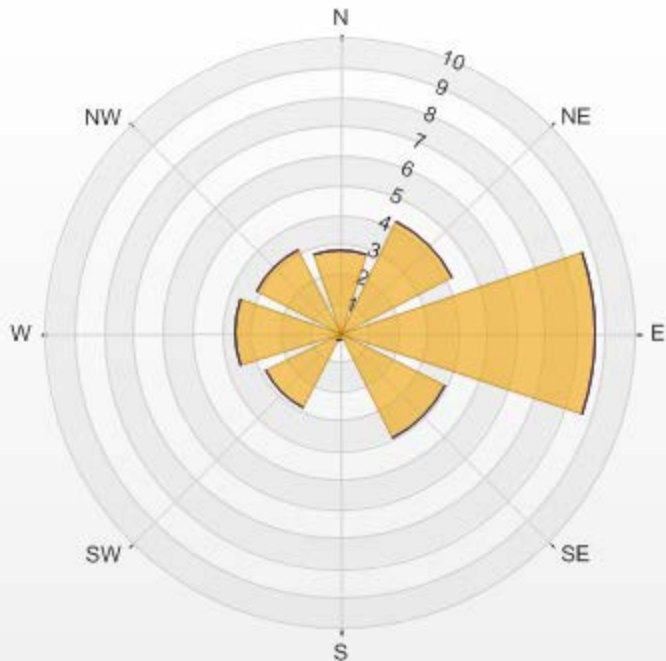
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701
MAXIMUM INSTANTANEOUS VALUE:	184.2 PPB @ HOUR(S) 8 ON DAY(S) 2
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	10.42
OPERATIONAL TIME:	740 HRS



Wind: LICA COLD LAKE SOUTH Monitor: NO [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 70.50% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.84	0	0	0	2.84
NE	4.26	0	0	0	4.26
E	8.65	0	0	0	8.65
SE	3.97	0	0	0	3.97
S	0.28	0	0	0	0.28
SW	2.84	0	0	0	2.84
W	3.55	0	0	0	3.55
NW	3.12	0	0	0	3.12
Summary	29.51	0	0	0	29.51



NITROGEN DIOXIDE

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.		
DAY	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	RDGS.
1	3.3	S	4.2	5.2	5.4	5.8	8.7	13.2	9.8	5.3	5.6	6.1	5.8	5.9	5.3	6.9	8.8	12.1	23.9	29.9	24.2	16.2	4.6	3.6	3.3	3.3	29.9	9.6	24		
2	S	7.7	9.0	9.6	11.8	18.0	20.6	16.0	12.2	9.3	4.2	4.8	3.0	2.9	3.3	3.5	4.1	5.1	6.5	8.7	18.2	24.8	23.0	S	2.9	24.8	10.3	24			
3	19.4	5.8	4.6	4.2	4.1	4.2	5.2	3.8	3.3	3.3	2.2	1.7	1.7	1.7	1.8	2.1	3.9	2.8	4.9	7.3	6.3	7.2	S	10.6	1.7	19.4	4.9	24			
4	9.7	12.4	11.5	9.3	5.6	2.8	3.2	2.9	4.1	1.6	1.0	1.1	1.1	0.9	1.4	2.1	3.0	3.8	3.4	3.8	4.8	S	4.8	4.7	0.9	12.4	4.3	24			
5	5.4	8.2	10.8	6.2	4.6	11.2	9.9	11.7	8.0	5.3	4.2	4.6	4.5	5.7	7.1	8.8	9.1	12.5	22.6	15.0	S	14.1	11.0	10.4	4.2	22.6	9.2	24			
6	9.9	7.6	7.3	3.6	4.6	3.8	2.7	2.3	2.4	2.5	2.3	2.0	2.0	1.8	2.0	2.0	2.2	2.5	2.9	S	2.8	2.7	1.9	1.7	1.7	9.9	3.3	24			
7	1.6	1.7	1.5	1.7	2.3	3.4	4.7	7.3	6.0	1.9	1.3	1.5	1.9	2.0	2.4	3.1	2.9	2.1	S	4.8	4.4	3.8	2.4	2.2	1.3	7.3	2.9	24			
8	2.2	2.5	2.0	2.1	2.1	2.9	2.3	2.0	5.0	4.5	2.2	C	C	C	C	C	3.3	3.4	3.6	3.8	4.0	3.1	1.8	S	1.8	5.0	2.9	24			
9	1.7	1.8	1.6	1.8	1.6	1.6	1.7	1.9	2.1	1.9	2.2	2.3	3.3	2.5	3.3	2.4	2.3	3.0	4.3	3.0	2.0	2.3	S	2.4	1.6	4.3	2.3	24			
10	2.1	1.7	1.6	1.5	1.8	1.6	2.3	2.0	1.8	1.2	1.7	1.8	1.6	1.6	1.5	1.4	2.2	3.6	4.2	3.4	3.5	S	2.9	5.8	1.2	5.8	2.3	24			
11	5.4	3.3	7.6	7.7	6.7	5.9	6.0	4.7	2.7	2.4	2.0	1.4	1.0	1.0	1.0	1.5	1.3	1.8	2.3	2.8	S	20.9	18.7	27.7	1.0	27.7	5.9	24			
12	24.5	18.2	10.6	5.7	3.9	2.8	2.4	1.9	2.1	2.2	1.8	1.4	2.0	1.7	1.6	1.2	1.9	2.9	3.6	S	4.4	3.7	3.4	5.5	1.2	24.5	4.8	24			
13	5.0	6.1	5.9	6.1	8.4	8.3	6.0	4.3	3.0	5.5	3.3	5.5	3.2	2.5	2.5	3.1	2.8	2.2	S	2.8	2.4	2.3	1.8	1.7	1.7	8.4	4.1	24			
14	1.3	2.9	2.0	0.9	1.1	1.6	3.4	4.7	2.4	2.7	2.8	2.4	2.0	2.7	3.1	2.7	2.6	S	4.5	5.7	6.0	3.3	2.8	4.2	0.9	6.0	2.9	24			
15	6.8	6.2	7.4	5.1	3.3	4.2	3.1	4.1	2.7	4.5	4.5	2.8	2.1	1.9	1.9	2.3	S	3.0	2.7	1.8	2.2	5.3	6.6	6.2	1.8	7.4	3.9	24			
16	6.6	5.7	2.4	3.4	1.3	1.4	0.6	0.8	0.9	1.1	1.1	1.0	0.9	0.8	0.7	S	1.8	2.9	3.1	2.7	2.8	2.7	2.9	2.5	0.6	6.6	2.2	24			
17	2.5	2.6	1.9	2.8	6.0	6.0	6.3	5.9	4.8	3.3	1.5	1.4	1.4	1.3	S	1.7	1.5	1.1	1.0	1.3	1.3	1.2	1.4	0.8	0.8	6.3	2.6	24			
18	0.8	3.0	5.1	4.6	3.5	2.2	3.8	2.4	1.5	1.3	Y	2.5	2.2	S	2.3	1.4	1.3	2.3	4.7	5.6	8.2	13.3	6.2	9.8	0.8	13.3	4.0	23			
19	12.5	11.4	12.5	11.0	18.2	19.6	18.9	17.8	9.0	3.8	3.3	2.6	S	1.1	1.1	1.2	1.2	1.8	2.7	2.8	2.3	1.9	2.2	3.2	1.1	19.6	7.0	24			
20	2.7	2.8	4.3	3.6	3.2	2.6	3.3	4.0	2.6	1.9	1.3	S	1.5	1.2	1.3	1.5	1.7	1.9	2.2	2.2	2.5	2.0	1.7	1.8	1.2	4.3	2.3	24			
21	1.7	1.9	1.7	1.6	2.0	1.8	2.1	2.2	1.5	1.5	S	1.6	1.2	1.3	1.7	1.4	1.9	2.1	2.8	2.9	2.1	1.3	1.1	0.9	0.9	2.9	1.8	24			
22	1.1	1.4	1.3	2.6	2.7	2.9	3.1	3.3	1.6	S	1.3	1.0	0.8	0.8	1.0	0.8	1.6	1.2	1.2	0.9	1.3	1.2	1.0	1.1	0.8	3.3	1.5	24			
23	1.3	2.4	2.8	2.0	1.7	2.0	2.6	3.8	S	5.0	3.3	4.7	2.4	1.7	1.9	1.3	1.5	1.5	1.5	4.8	6.8	4.4	6.8	4.3	1.3	6.8	3.1	24			
24	6.0	4.4	3.1	4.7	2.3	2.2	2.5	S	1.9	1.7	1.3	1.2	1.1	1.1	1.1	1.0	1.2	1.6	2.9	4.4	8.5	8.6	9.4	13.6	1.0	13.6	3.7	24			
25	10.1	9.4	10.1	11.3	21.4	23.2	S	11.8	4.0	1.8	1.9	1.7	1.6	1.9	1.7	1.6	2.5	3.0	2.7	3.1	3.0	3.4	3.5	4.4	1.6	23.2	6.0	24			
26	4.0	5.2	5.1	5.3	5.7	S	9.7	8.9	2.7	1.7	1.4	1.4	1.4	1.5	1.3	1.4	1.3	1.7	4.6	7.9	13.2	14.1	11.9	10.3	1.3	14.1	5.3	24			
27	11.8	10.2	14.0	24.3	S	16.1	16.0	3.9	2.0	1.2	1.5	1.3	1.2	1.0	1.0	0.8	1.1	1.5	2.2	2.1	7.2	5.4	7.0	1.6	0.8	24.3	5.8	24			
28	1.1	1.9	1.6	S	2.5	5.7	10.8	9.0	3.3	1.1	1.5	1.3	1.3	1.0	1.3	2.0	2.5	2.6	3.1	2.9	3.1	3.2	3.7	4.4	1.0	10.8	3.1	24			
29	3.9	3.8	S	5.9	8.1	9.0	9.7	9.8	7.7	6.6	5.2	3.7	2.1	2.2	1.6	1.4	1.6	1.9	1.7	1.2	3.9	4.4	4.5	4.2	1.2	9.8	4.5	24			
30	4.1	S	4.9	5.2	8.6	11.7	12.1	8.4	5.5	2.7	2.1	1.8	1.4	1.1	1.2	1.2	1.5	1.3	1.2	1.3	1.6	1.4	1.5	0.9	0.9	12.1	3.6	24			
31	S	0.7	0.6	0.6	0.7	0.9	0.9	0.6	0.5	0.6	0.8	1.4	1.4	1.3	1.1	1.4	1.3	1.8	2.7	3.8	3.9	2.8	S	0.5	3.9	1.4	24				
HOURLY MAX	24.5	18.2	14.0	24.3	21.4	23.2	20.6	17.8	12.2	9.3	5.6	6.1	5.8	5.9	7.1	8.8	9.1	12.5	23.9	29.9	24.2	24.8	23.0	27.7							
HOURLY AVG	5.8	5.3	5.3	5.3	5.2	6.2	6.2	5.9	3.9	3.0	2.4	2.3	2.0	1.9	2.0	2.2	2.5	3.0	4.4	4.9	5.4	6.3	5.3	5.4							

STATUS FLAG CODES

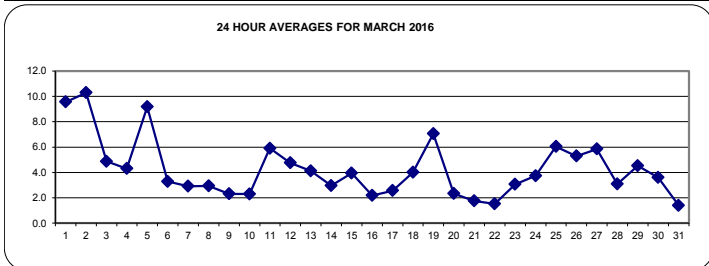
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT:

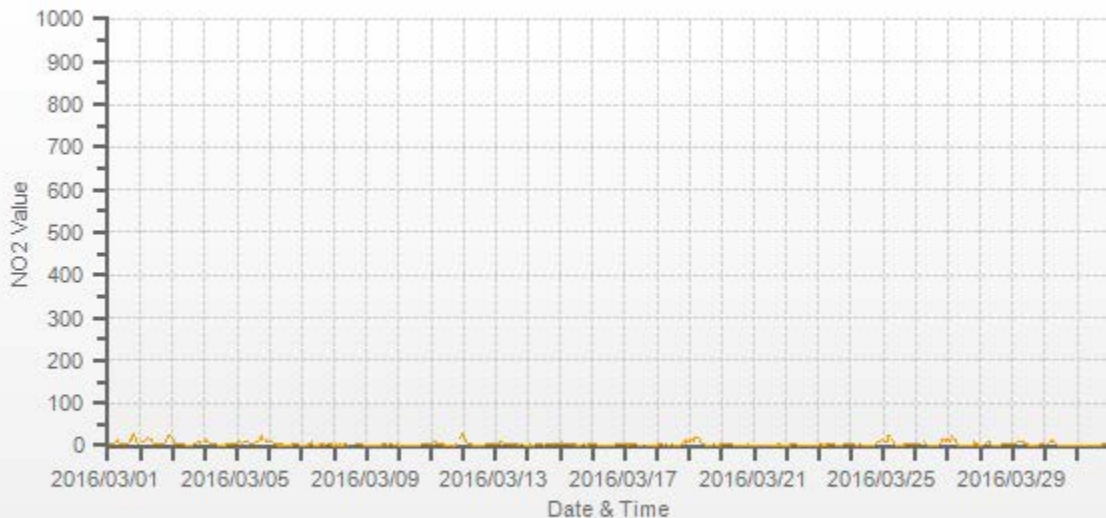
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	705					
MINIMUM 1-HR AVERAGE:	0.5	PPB	@ HOUR(S)	9	ON DAY(S)	31
MAXIMUM 1-HR AVERAGE:	29.9	PPB	@ HOUR(S)	19	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	10.3	PPB			ON DAY(S)	2
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	4.35		MONTHLY AVERAGE:	4.2	PPB	



NO2[ppb] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	HOUR START	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1	4.1	S	4.8	6.2	6.7	7.2	16.2	19.8	16.6	6.4	6.4	12.7	7.3	6.9	6.5	11.5	35.0	18.7	45.8	42.6	31.9	27.1	7.8	5.5	4.1	45.8	15.4	24	
2	S	12.5	12.8	15.0	18.3	25.9	28.0	26.4	19.4	14.0	13.3	8.7	4.8	4.6	R	6.7	13.1	13.1	8.0	15.4	29.4	35.3	30.6	S	4.6	35.3	16.9	23	
3	26.6	10.7	8.1	7.6	5.7	7.3	7.6	7.2	5.8	8.4	3.2	4.1	3.1	4.0	2.5	6.4	10.6	4.2	7.6	10.4	10.1	9.4	S	13.1	2.5	26.6	8.0	24	
4	11.4	15.0	13.0	10.6	8.3	5.1	4.6	5.8	16.0	7.2	2.8	2.9	1.6	1.8	8.2	4.9	6.6	9.9	10.0	6.4	7.7	S	6.6	7.0	1.6	16.0	7.5	24	
5	10.2	11.4	13.9	12.4	10.1	18.3	17.0	15.5	12.1	6.5	6.0	5.9	6.9	7.2	15.9	12.0	13.4	20.2	30.0	22.3	S	21.8	17.0	22.4	5.9	30.0	14.3	24	
6	14.8	12.6	12.5	8.3	7.2	10.2	4.7	3.1	3.5	5.2	3.6	3.2	6.9	4.0	3.5	2.9	3.2	3.6	4.2	S	5.1	8.0	3.5	2.7	2.7	14.8	5.9	24	
7	2.8	3.0	2.3	3.5	5.9	6.1	9.3	45.4	9.6	5.2	2.7	4.3	2.9	3.8	3.9	4.4	4.7	3.0	S	6.0	6.1	6.5	4.9	3.5	2.3	45.4	6.5	24	
8	3.5	4.0	3.1	3.7	3.9	4.6	7.3	9.3	7.2	12.6	3.6	C	C	C	C	C	C	8.0	4.0	4.6	5.1	5.2	3.1	S	3.1	12.6	5.5	24	
9	2.7	2.4	2.7	3.7	5.6	2.5	2.2	7.6	4.1	3.3	13.0	3.6	4.5	3.8	41.1	4.9	3.1	4.5	7.4	4.0	2.5	3.3	S	3.3	2.2	41.1	5.9	24	
10	3.1	2.4	2.8	2.3	2.5	2.5	7.3	2.9	4.9	5.1	2.8	3.2	2.2	2.4	5.1	2.4	6.6	11.6	11.8	8.9	6.0	S	5.2	10.3	2.2	11.8	5.0	24	
11	10.1	6.5	10.3	9.0	8.7	7.3	8.6	7.1	4.1	2.8	2.7	2.1	1.9	1.8	1.6	4.9	2.4	3.1	3.3	5.6	S	46.6	25.4	33.2	1.6	46.6	9.1	24	
12	32.2	25.2	19.3	15.0	6.6	4.4	3.7	3.7	4.9	4.3	3.6	2.3	3.1	3.1	3.5	4.7	4.6	5.3	8.7	S	9.1	6.3	9.2	8.5	2.3	32.2	8.3	24	
13	7.4	15.8	9.7	15.8	15.8	12.7	8.5	8.0	4.2	7.6	5.9	7.7	3.9	5.0	3.3	3.7	7.3	2.9	S	3.9	3.6	2.7	2.9	2.9	2.7	15.8	7.0	24	
14	3.5	6.7	2.9	1.6	1.6	2.2	9.6	10.7	3.7	7.1	30.1	4.5	2.8	5.5	3.5	3.6	4.0	S	7.4	8.9	15.3	6.1	4.5	5.7	1.6	30.1	6.6	24	
15	8.5	8.9	9.4	6.9	5.2	5.3	4.8	5.9	4.4	5.7	5.7	3.6	2.8	2.4	4.6	3.1	S	3.8	3.5	2.3	4.2	7.1	7.5	7.5	2.3	9.4	5.4	24	
16	8.0	6.6	3.9	19.8	3.2	6.9	1.0	R	3.1	1.6	1.6	1.2	1.6	2.5	1.5	S	2.7	3.7	3.3	3.1	3.5	2.8	3.8	2.8	1.0	19.8	4.0	23	
17	3.2	3.1	2.3	6.2	7.6	6.9	7.2	6.2	5.5	8.6	37.5	1.5	1.6	1.8	S	2.4	2.2	1.4	1.6	2.4	4.0	1.9	6.1	1.9	1.4	37.5	5.4	24	
18	1.6	5.2	5.5	5.7	5.5	3.9	5.2	4.4	2.0	3.9	Y	Y	4.2	S	4.6	2.4	1.9	3.5	11.7	14.0	17.4	25.6	10.7	14.2	1.6	25.6	7.3	22	
19	19.1	19.1	16.8	15.7	25.4	23.7	39.5	25.8	25.6	6.4	6.9	3.6	S	1.9	1.5	3.2	2.3	12.7	6.0	4.5	4.2	3.5	3.6	6.0	1.5	39.5	12.0	24	
20	5.4	6.4	6.6	8.3	5.3	4.6	4.9	9.9	5.1	2.9	9.2	S	3.5	2.1	3.2	3.1	2.6	2.6	3.5	3.2	4.0	2.9	2.4	3.1	2.1	9.9	4.6	24	
21	3.1	3.1	2.4	2.5	3.3	2.8	5.3	3.7	5.7	2.5	S	2.7	3.1	2.2	3.1	3.1	13.6	3.3	4.8	5.0	10.1	2.8	2.4	1.9	1.9	13.6	4.0	24	
22	2.4	3.9	2.4	21.7	4.5	5.3	8.1	6.1	3.7	S	2.7	4.5	2.3	2.2	2.0	2.2	6.7	2.3	2.2	1.6	8.9	2.0	1.5	2.4	1.5	21.7	4.4	24	
23	2.7	3.5	4.1	3.3	2.5	2.4	3.6	5.6	S	8.4	4.9	6.2	3.9	6.2	10.3	3.9	1.8	2.1	1.8	38.7	15.3	9.7	11.4	11.8	1.8	38.7	7.1	24	
24	11.2	7.7	5.2	22.3	3.1	3.4	4.3	S	3.6	6.2	3.1	1.8	1.9	3.1	2.1	1.8	2.0	4.4	13.0	8.3	14.3	13.9	13.5	26.7	1.8	26.7	7.7	24	
25	15.9	14.5	16.2	17.8	27.5	25.7	S	28.7	6.4	3.2	2.3	2.1	2.2	2.2	2.2	1.9	3.4	3.2	3.6	4.6	5.0	4.7	5.9	6.2	1.9	28.7	8.9	24	
26	5.0	6.1	7.6	8.1	6.8	S	12.0	11.4	6.5	2.7	2.4	1.8	4.6	3.5	2.6	2.6	3.5	3.2	38.4	24.7	32.9	18.2	21.4	14.3	1.8	38.4	10.4	24	
27	19.1	16.9	23.3	78.7	S	19.9	19.6	12.6	4.0	1.9	11.8	1.8	2.1	1.7	1.5	1.1	2.3	2.3	4.2	3.4	33.5	12.2	10.4	6.4	1.1	78.7	12.6	24	
28	2.0	4.6	3.1	S	5.5	15.8	19.1	14.0	6.4	1.8	8.3	2.2	3.0	1.4	4.0	3.8	11.8	2.8	4.0	4.2	3.6	6.0	5.4	6.6	1.4	19.1	6.1	24	
29	5.0	6.2	S	7.8	10.3	14.9	11.2	13.5	8.7	11.0	14.3	6.0	4.2	6.2	3.5	2.2	2.6	2.3	2.5	1.8	5.4	7.0	5.1	4.7	1.8	14.9	6.8	24	
30	5.5	S	7.5	8.0	13.4	15.6	14.2	14.2	7.6	4.9	2.6	3.8	1.8	1.5	1.4	1.5	1.9	2.5	2.5	1.8	2.4	1.7	1.7	1.8	1.4	15.6	5.2	24	
31	S	1.3	1.4	1.1	1.1	1.4	1.4	2.3	1.4	1.0	1.0	1.1	2.9	2.2	13.3	1.6	3.6	1.6	2.7	4.3	10.5	6.5	4.0	S	1.0	13.3	3.1	24	
HOURLY MAX	32.2	25.2	23.3	78.7	27.5	25.9	39.5	45.4	25.6	14.0	37.5	12.7	7.3	7.2	41.1	12.0	35.0	20.2	45.8	42.6	33.5	46.6	30.6	33.2					
HOURLY AVG	8.6	8.5	7.9	11.6	7.9	9.2	9.9	11.6	7.2	5.6	7.4	3.9	3.4	3.3	5.7	3.9	6.2	5.5	8.9	9.2	10.7	10.6	8.2	8.4					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

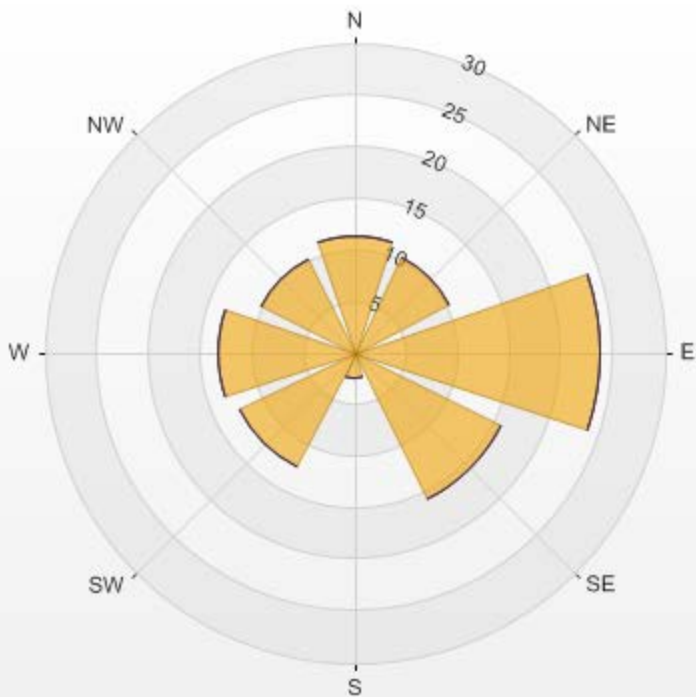
NUMBER OF NON-ZERO READINGS:	701
MAXIMUM INSTANTANEOUS VALUE:	78.7 PPB @ HOUR(S) 3 ON DAY(S) 27
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	7.87
OPERATIONAL TIME:	740 HRS

NO2 MAX[ppb] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]

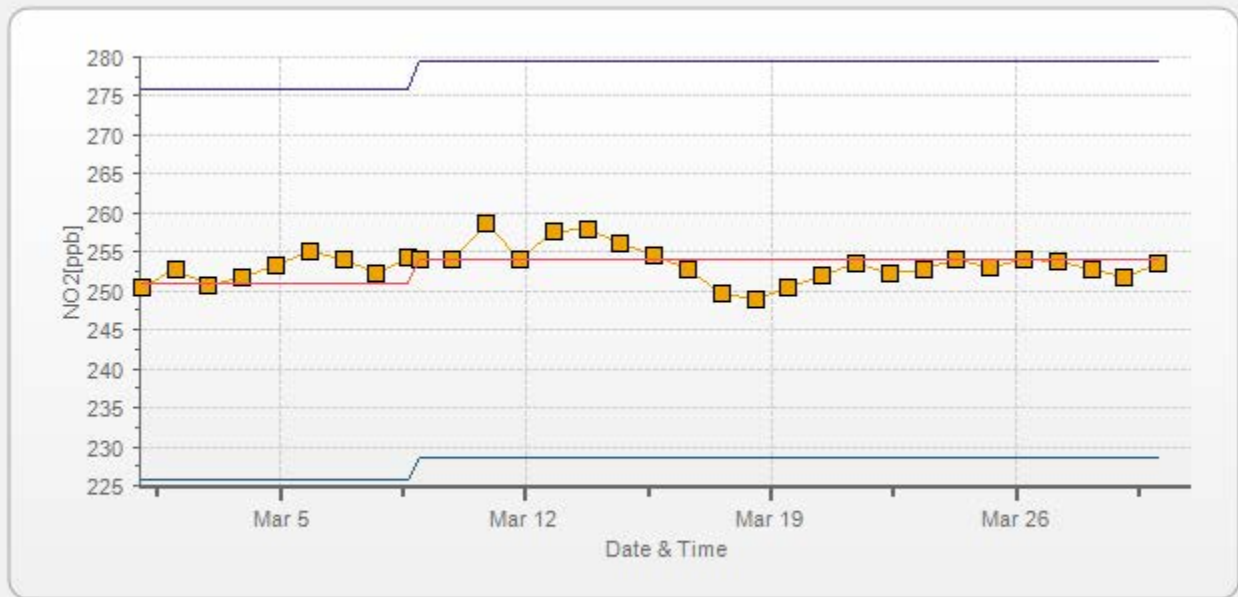


Wind: LICA COLD LAKE SOUTH Monitor: NO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	11.35	0	0	0	11.35
NE	10.35	0	0	0	10.35
E	23.83	0	0	0	23.83
SE	15.89	0	0	0	15.89
S	2.55	0	0	0	2.55
SW	12.48	0	0	0	12.48
W	13.33	0	0	0	13.33
NW	10.21	0	0	0	10.21
Summary	100	0	0	0	100



% Icon Classes (ppb)	
100	0.5-50.0
0	50.0-110.0
0	110.0-210.0
0	>210.0



OZONE

OZONE (O3) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1	1	30.0	S	27.9	26.3	25.2	23.5	18.7	13.6	17.9	24.5	25.2	26.2	27.5	28.4	30.4	30.1	29.1	25.3	12.2	4.8	7.4	16.9	31.5	31.3	4.8	31.5	23.2	24
2	2	S	23.8	18.0	17.5	17.0	10.1	4.5	8.8	14.0	24.2	29.6	30.4	34.0	35.3	36.0	36.5	35.8	33.9	30.8	25.9	14.6	8.5	7.0	S	4.5	36.5	22.6	24
3	3	11.0	28.6	30.0	30.3	30.3	30.4	29.3	31.5	32.9	33.1	34.7	34.4	35.5	35.0	34.0	32.8	31.0	31.9	29.2	26.5	27.6	25.1	S	19.0	11.0	35.5	29.7	24
4	4	18.4	14.6	13.5	17.1	24.0	32.2	33.9	33.9	33.8	38.8	38.9	39.1	39.6	40.0	39.8	39.3	37.9	37.4	37.5	35.8	31.8	S	30.8	30.4	13.5	40.0	32.1	24
5	5	28.7	24.7	19.0	17.0	14.7	7.6	10.5	10.8	17.2	21.6	21.5	21.6	22.5	23.4	24.0	23.7	23.9	19.8	9.1	15.5	S	15.0	18.0	15.6	7.6	28.7	18.5	24
6	6	15.2	19.7	20.3	25.0	24.9	25.1	26.3	25.5	25.3	25.7	26.6	28.1	28.8	29.4	29.6	29.4	28.8	28.6	28.0	S	28.5	27.3	27.9	29.0	15.2	29.6	26.2	24
7	7	29.2	29.3	29.2	28.3	27.3	25.8	24.3	22.6	23.6	29.5	30.3	30.6	29.6	28.8	27.6	25.9	24.2	25.3	S	23.3	23.8	24.1	26.2	27.8	22.6	30.6	26.8	24
8	8	27.9	27.3	28.3	28.5	28.6	27.9	28.5	29.5	27.0	27.2	30.0	32.1	32.6	31.7	32.1	32.8	32.1	31.3	30.0	28.2	27.7	28.7	31.7	S	27.0	32.8	29.6	24
9	9	32.8	32.3	33.0	33.4	33.6	33.1	33.3	33.2	32.6	C	C	C	C	34.7	34.1	34.6	34.9	33.0	30.1	30.0	32.6	32.5	S	30.9	30.0	34.9	32.9	24
10	10	30.4	31.1	31.6	32.3	31.6	31.8	31.6	32.4	31.7	31.6	31.6	31.7	31.9	32.4	34.1	35.7	35.6	33.5	30.0	29.7	28.7	S	22.8	18.6	18.6	35.7	31.0	24
11	11	18.7	22.1	20.0	21.0	21.8	23.1	25.9	30.0	31.1	32.6	34.4	38.4	39.6	39.3	40.5	42.8	45.1	45.1	43.6	39.8	S	14.8	12.6	3.4	3.4	45.1	29.8	24
12	12	7.1	14.8	27.9	34.8	37.8	39.6	40.0	39.7	39.3	39.0	40.4	41.7	42.0	42.3	41.4	40.5	38.6	37.0	36.3	S	35.8	36.5	36.0	31.2	7.1	42.3	35.6	24
13	13	31.2	26.7	25.2	22.1	13.6	15.0	21.9	26.5	28.6	27.2	30.5	27.8	30.8	31.7	29.0	27.2	27.5	27.2	S	27.5	30.5	30.7	28.3	25.7	13.6	31.7	26.6	24
14	14	23.9	21.0	20.3	24.7	25.1	23.6	20.9	19.4	23.2	23.9	25.6	26.4	26.4	27.4	27.1	27.5	27.5	S	26.6	25.1	23.4	22.0	18.0	15.4	15.4	27.5	23.6	24
15	15	16.0	15.1	14.7	14.4	16.9	16.2	20.7	20.7	22.7	20.8	20.7	23.6	25.4	26.4	25.4	25.1	S	24.6	24.7	25.7	24.4	20.5	20.2	20.5	14.4	26.4	21.1	24
16	16	20.0	20.6	27.6	32.0	33.3	34.3	37.9	38.0	38.0	38.3	38.0	38.4	39.1	39.9	40.1	S	37.7	33.1	33.4	34.8	34.4	35.5	34.8	35.7	20.0	40.1	34.6	24
17	17	34.6	34.6	36.0	34.6	30.3	29.3	27.7	27.4	28.0	28.9	30.5	31.5	32.2	33.2	S	34.9	37.8	37.9	37.8	37.2	36.3	35.8	35.3	35.8	27.4	37.9	33.4	24
18	18	35.4	32.7	30.1	30.1	31.5	33.8	31.3	34.2	36.4	36.9	Y	33.7	36.3	S	37.0	38.3	38.7	37.8	34.5	30.0	26.6	20.2	23.0	17.9	17.9	38.7	32.1	23
19	19	13.1	12.3	8.9	9.2	4.8	3.0	4.6	9.6	24.5	30.5	32.1	34.2	S	41.9	42.7	42.8	43.5	43.3	41.2	40.2	41.7	42.2	41.0	39.0	3.0	43.5	28.1	24
20	20	38.9	38.6	36.2	36.6	36.2	36.5	35.5	33.9	35.0	35.8	36.8	S	37.4	38.3	39.1	39.4	39.2	39.6	40.2	39.9	39.3	39.3	39.5	39.4	33.9	40.2	37.9	24
21	21	39.5	38.8	38.2	37.7	36.9	36.6	36.0	35.5	36.3	36.3	S	36.4	37.2	37.4	37.1	37.6	37.6	37.5	36.9	37.0	38.4	39.6	40.2	40.4	35.5	40.4	37.6	24
22	22	40.4	40.2	40.5	39.5	39.0	38.8	38.7	38.5	40.0	S	40.7	41.0	41.0	41.1	40.9	41.2	41.0	40.9	40.6	41.2	41.4	41.3	41.9	41.3	38.5	41.9	40.5	24
23	23	40.6	39.0	37.9	37.2	36.6	36.2	35.3	34.0	S	33.4	35.1	33.1	35.9	38.0	38.8	40.1	40.4	40.4	38.6	30.5	26.7	29.6	26.5	29.2	26.5	40.6	35.4	24
24	24	28.0	31.4	31.7	31.1	32.1	30.0	30.5	S	36.3	37.0	37.8	38.7	39.5	40.0	40.5	40.8	40.9	40.5	39.5	37.4	32.7	27.7	20.4	14.4	14.4	40.9	33.9	24
25	25	16.0	14.5	12.0	9.9	5.1	6.4	S	25.4	33.3	36.3	36.0	37.8	40.0	41.0	42.1	42.7	39.7	37.5	38.0	36.7	35.3	33.4	31.7	28.9	5.1	42.7	29.6	24
26	26	22.3	25.8	26.1	24.8	22.8	S	19.0	21.6	30.7	35.5	39.5	40.3	41.6	43.3	44.1	44.0	43.3	42.9	38.4	28.1	20.0	18.6	16.8	15.5	15.5	44.1	30.7	24
27	27	13.0	16.7	9.7	6.5	S	11.8	13.0	34.1	36.6	37.8	38.9	41.6	44.3	44.6	45.1	45.2	44.7	43.0	41.3	40.4	32.2	32.5	30.0	41.8	6.5	45.2	32.4	24
28	28	42.0	40.0	39.2	S	37.6	32.6	23.8	28.5	35.9	38.1	37.8	39.0	40.6	43.6	46.2	46.0	46.0	45.3	42.4	41.8	41.7	40.6	37.1	35.6	23.8	46.2	39.2	24
29	29	35.2	34.2	S	27.1	23.8	18.5	19.3	28.8	32.5	37.6	41.0	44.5	49.2	50.2	50.8	51.1	49.3	47.0	45.4	45.3	41.1	36.1	36.9	37.0	18.5	51.1	38.3	24
30	30	36.6	S	36.0	34.1	29.1	24.9	25.4	30.4	35.0	38.3	41.2	43.9	45.8	46.8	47.3	47.1	47.0	45.8	43.7	42.9	42.3	42.0	41.2	39.9	24.9	47.3	39.4	24
31	31	S	39.8	39.0	39.1	39.4	39.0	38.9	39.6	40.0	39.8	40.3	41.8	41.2	42.1	44.0	44.8	44.2	42.1	39.3	37.0	35.5	35.4	36.4	S	35.4	44.8	39.9	24
HOURLY MAX		42.0	40.2	40.5	39.5	39.4	39.6	40.0	39.7	40.0	39.8	41.2	44.5	49.2	50.2	50.8	51.1	49.3	47.0	45.4	45.3	42.3	42.2	41.9	41.8				
HOURLY AVG		26.8	27.3	26.9	26.7	27.0	25.9	26.2	27.9	30.6	32.4	33.8	34.7	36.1	36.9	37.4	37.3	37.4	36.3	34.5	32.4	31.1	29.4	29.1	28.2				

STATUS FLAG CODES

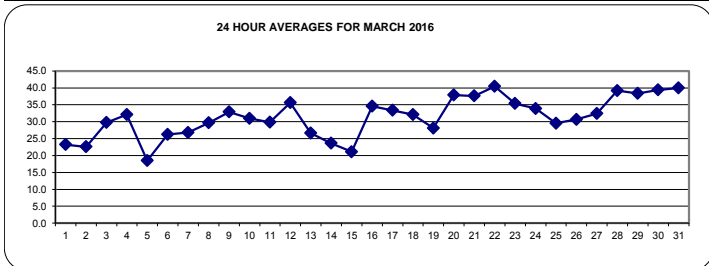
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	706					
MINIMUM 1-HR AVERAGE:	3.0	PPB	@ HOUR(S)	5	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	51.1	PPB	@ HOUR(S)	15	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	40.5	PPB			ON DAY(S)	22
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	9.16		MONTHLY AVERAGE:	31.4	PPB	



O3[ppb] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MARCH 2016

OZONE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	31.0	S	28.3	27.5	25.9	24.8	22.2	17.4	24.2	25.2	25.7	27.2	28.6	29.5	32.0	32.4	31.1	29.2	23.0	9.0	12.5	29.3	32.5	31.9	9.0	32.5	26.1	24	
2	S	26.9	21.0	22.2	20.3	15.1	10.8	18.7	19.9	28.4	31.6	33.0	35.5	36.0	R	37.1	36.9	35.1	33.3	29.9	23.4	22.2	14.2	S	10.8	37.1	26.3	23	
3	26.2	30.8	30.8	31.3	31.6	31.8	30.3	33.2	34.0	34.3	35.4	35.2	36.0	35.9	34.5	36.2	33.0	32.7	30.8	28.3	28.9	26.2	S	20.6	20.6	36.2	31.7	24	
4	19.8	16.7	15.2	19.9	29.8	34.4	35.1	35.1	36.2	39.6	39.5	39.7	40.0	40.8	40.9	40.3	38.8	39.0	38.7	37.4	33.6	S	31.6	31.6	15.2	40.9	33.6	24	
5	31.0	27.4	22.9	19.3	16.7	15.0	15.3	12.9	20.8	23.3	22.4	22.2	23.3	24.4	26.2	26.1	26.4	25.5	16.1	22.9	S	19.1	21.5	20.0	12.9	31.0	21.8	24	
6	19.4	22.4	23.4	27.0	27.0	26.4	26.9	26.2	25.6	26.5	27.2	28.6	29.5	29.9	30.1	29.8	29.5	29.0	28.9	S	29.5	28.3	28.6	29.5	19.4	30.1	27.4	24	
7	29.7	29.8	29.7	28.9	28.0	27.1	25.7	24.5	26.6	30.9	31.4	31.1	30.2	29.6	28.3	26.7	25.7	26.5	S	25.3	25.0	25.7	27.8	29.3	24.5	31.4	28.0	24	
8	29.3	28.6	29.0	29.5	29.2	29.3	29.9	31.1	30.4	28.4	31.1	33.3	33.3	33.3	33.3	33.6	33.3	32.2	31.3	29.6	28.9	30.9	34.0	S	28.4	34.0	31.0	24	
9	33.7	33.1	33.7	34.8	34.8	34.0	34.2	33.9	C	C	C	C	C	C	35.7	35.0	35.6	35.6	34.7	32.7	30.9	34.6	33.9	S	32.5	30.9	35.7	34.1	24
10	31.1	32.3	32.5	33.0	32.5	32.5	33.3	33.6	33.1	32.5	32.4	32.5	32.5	33.6	35.4	37.1	37.1	36.8	31.5	31.7	30.2	S	25.9	21.9	21.9	37.1	32.4	24	
11	22.1	23.7	22.1	22.2	24.4	24.7	29.3	31.6	33.0	33.9	35.7	39.9	40.3	40.1	42.3	44.2	47.0	46.1	45.8	44.2	S	26.3	20.1	6.8	6.8	47.0	32.4	24	
12	15.0	28.7	33.0	40.8	40.7	40.6	41.3	40.6	40.5	40.2	41.5	42.7	43.3	43.3	42.5	41.1	40.5	39.1	37.9	S	37.4	37.9	37.7	34.1	15.0	43.3	38.3	24	
13	33.6	31.5	29.2	27.1	20.3	24.8	24.8	30.3	30.5	29.9	32.0	31.5	31.8	33.3	31.0	28.1	28.3	28.4	S	29.8	31.7	31.9	30.5	27.2	20.3	33.6	29.5	24	
14	25.7	23.3	23.6	26.2	26.3	25.2	23.3	23.0	24.8	25.5	27.1	26.6	27.4	28.3	27.8	29.3	29.3	S	28.4	28.0	26.5	26.6	23.1	17.8	17.8	29.3	25.8	24	
15	17.4	16.9	16.6	16.8	19.3	19.8	22.1	23.0	23.9	23.4	22.7	25.0	27.1	27.4	26.6	26.1	S	25.6	25.3	26.4	25.6	22.2	21.5	21.8	16.6	27.4	22.7	24	
16	21.3	23.0	33.4	34.0	34.3	38.4	38.8	R	39.6	39.3	39.1	39.2	40.5	40.6	40.9	S	39.9	34.3	34.6	35.9	35.9	36.8	36.2	36.8	21.3	40.9	36.0	23	
17	35.4	36.5	36.9	36.3	31.7	31.3	28.7	28.1	29.2	31.0	32.0	32.2	33.1	34.5	S	37.1	38.9	38.7	38.5	38.2	37.4	36.6	36.5	36.5	28.1	38.9	34.6	24	
18	36.9	35.7	31.0	31.7	33.3	35.4	34.5	36.8	37.1	38.0	Y	Y	37.1	S	38.1	39.1	39.6	40.0	40.3	35.1	31.4	28.9	29.9	26.3	26.3	40.3	35.1	22	
19	16.2	16.9	12.2	12.6	9.6	6.7	7.0	12.9	30.2	31.7	33.9	36.2	S	43.2	43.6	43.8	44.4	44.2	43.2	41.8	43.0	43.1	42.2	41.2	6.7	44.4	30.4	24	
20	40.0	39.7	38.8	38.1	37.8	37.4	37.4	35.2	36.0	37.1	37.7	S	38.1	39.6	40.0	40.3	40.2	40.5	41.3	40.9	40.6	40.2	40.5	40.5	35.2	41.3	39.0	24	
21	40.4	39.9	39.1	38.6	37.8	37.5	37.2	36.8	37.5	37.5	S	37.2	37.9	38.2	38.0	38.4	38.8	38.7	38.1	39.3	40.0	41.2	41.2	41.5	36.8	41.5	38.7	24	
22	41.4	41.4	41.5	41.3	40.6	40.3	40.3	40.5	40.9	S	41.5	41.7	41.7	41.9	41.9	41.9	42.4	41.8	41.7	41.9	42.3	42.2	42.7	42.4	40.3	42.7	41.6	24	
23	41.6	40.2	39.6	38.5	37.7	37.2	36.8	35.2	S	34.8	36.6	35.4	37.4	39.2	40.8	41.7	41.3	41.4	41.0	38.3	31.7	35.1	31.2	31.2	31.2	41.7	37.6	24	
24	33.3	33.8	33.5	33.9	33.2	32.3	32.2	S	37.7	38.2	38.8	39.9	40.5	40.9	41.2	41.6	41.8	41.6	41.4	40.0	36.2	37.1	27.0	25.3	25.3	41.8	36.6	24	
25	24.1	21.1	16.7	12.2	9.3	12.8	S	33.2	35.0	37.7	37.4	39.0	41.0	41.9	43.6	43.8	43.2	38.1	39.4	38.4	37.1	35.1	33.3	31.3	9.3	43.8	32.4	24	
26	27.2	27.1	27.6	26.3	25.2	S	21.8	25.6	35.3	36.8	40.8	41.9	43.5	44.5	44.9	44.9	44.2	44.2	42.4	35.9	28.5	24.1	28.8	21.1	21.1	44.9	34.0	24	
27	18.0	23.6	14.9	14.7	S	14.6	17.7	36.5	38.0	39.1	40.3	43.6	45.9	45.4	46.0	46.3	45.8	45.5	42.4	41.8	39.9	39.3	37.9	44.0	14.6	46.3	35.7	24	
28	43.4	42.0	40.5	S	39.1	38.8	32.2	36.9	38.7	38.9	38.8	40.8	42.2	45.2	47.5	47.4	47.5	47.2	44.8	44.6	43.0	42.3	40.2	38.0	32.2	47.5	41.7	24	
29	36.9	35.3	S	30.7	28.0	24.8	26.7	31.4	35.3	40.5	44.1	48.0	51.0	51.6	51.9	52.4	51.0	49.5	46.8	46.4	44.9	42.1	39.0	38.7	24.8	52.4	41.2	24	
30	38.7	S	37.4	36.8	32.6	28.3	29.4	34.2	36.5	40.3	43.3	45.5	47.1	47.8	48.3	48.1	48.1	47.2	45.5	43.8	43.9	43.2	42.1	41.3	28.3	48.3	41.3	24	
31	S	40.7	40.0	40.5	40.5	39.8	40.3	40.9	40.9	40.5	41.5	43.4	43.1	43.9	45.4	46.1	45.4	43.9	41.5	38.5	37.6	37.9	38.7	S	37.6	46.1	41.4	24	
HOURLY MAX	43.4	42.0	41.5	41.3	40.7	40.6	41.3	40.9	40.9	40.5	44.1	48.0	51.0	51.6	51.9	52.4	51.0	49.5	46.8	46.4	44.9	43.2	42.7	44.0					
HOURLY AVG	29.6	30.0	29.1	29.3	28.7	28.9	30.3	32.8	33.9	35.1	36.2	37.2	38.0	38.6	38.6	38.8	37.9	36.8	35.0	33.8	33.3	32.3	30.8						

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

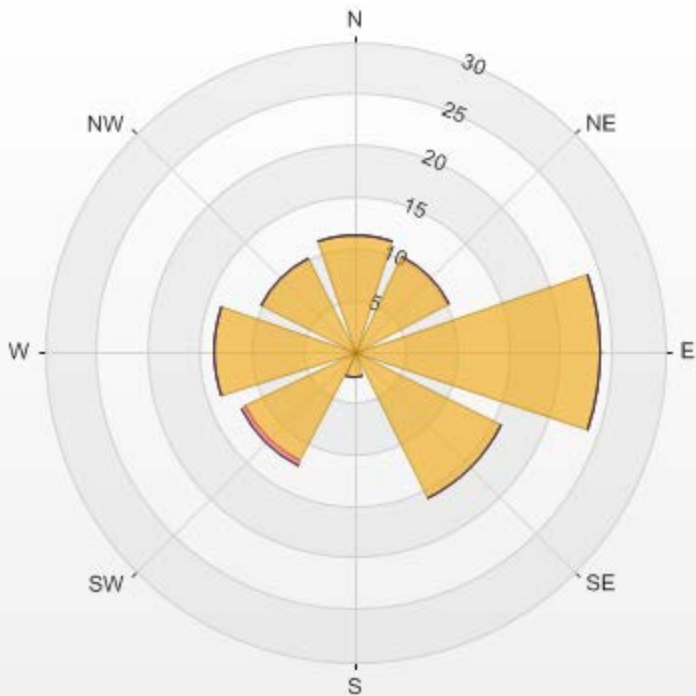
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM INSTANTANEOUS VALUE:	52.4	PPB	@ HOUR(S)	15	ON DAY(S)	29
	VAR-VARIOUS					
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	8.25					



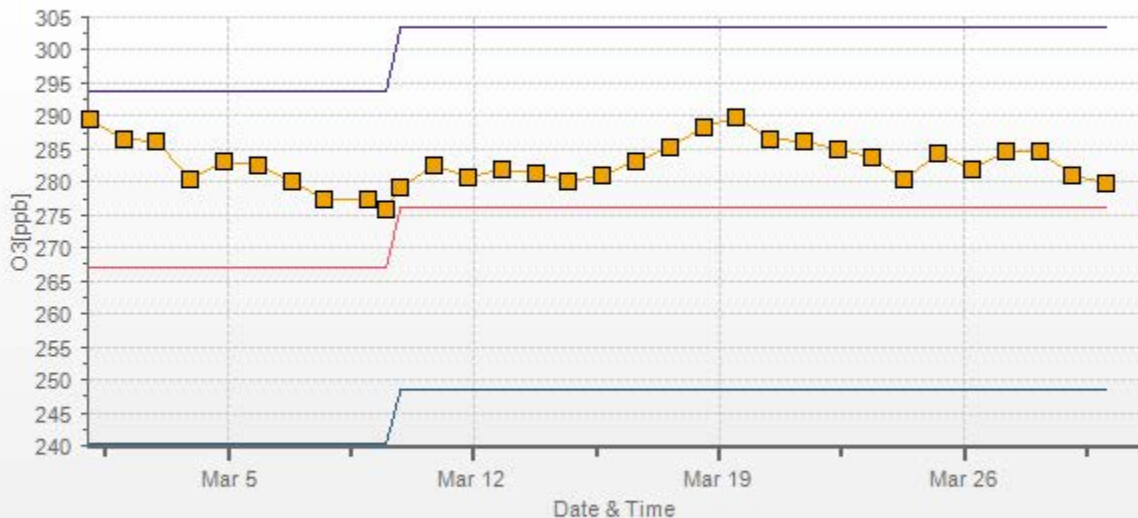
Wind: LICA COLD LAKE SOUTH Monitor: O3 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	11.33	0	0	0	11.33
NE	10.34	0	0	0	10.34
E	23.8	0	0	0	23.8
SE	15.86	0	0	0	15.86
S	2.55	0	0	0	2.55
SW	11.9	0.42	0	0	12.32
W	13.6	0	0	0	13.6
NW	10.2	0	0	0	10.2
Summary	100	0.42	0	0	100



% Icon Classes (ppb)	
100	0.5-50.0
0	50.0-110.0
0	110.0-210.0
0	>210.0

O3[ppb] Calibration: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: Span



PARTICULATE MATTER 2.5

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	1	9.9	16.4	17.4	12.9	7.5	2.9	4.9	15.5	15.4	15.9	26.4	27.9	17.0	11.4	14.9	15.9	10.4	18.9	17.4	21.4	17.9	33.9	14.9	7.9	2.9	33.9	15.6	24
2	2	5.9	12.0	9.4	12.9	3.4	18.9	2.4	17.0	15.9	8.9	11.9	5.9	7.9	21.0	6.9	14.4	11.4	17.0	20.5	29.9	14.9	18.9	12.4	17.0	2.4	29.9	13.2	24
3	3	11.9	14.4	X	27.9	31.0	X	13.0	7.9	2.4	10.9	X	5.9	10.9	13.5	0.0	0.0	7.1	7.0	13.5	9.8	8.6	15.5	21.0	18.4	0.0	31.0	11.9	21
4	4	19.5	12.4	17.1	9.7	24.1	1.6	1.4	6.5	4.2	14.1	29.6	12.1	X	X	X	1.3	1.2	3.3	5.2	6.1	15.8	5.6	7.7	18.2	1.2	29.6	10.3	21
5	5	28.0	27.2	31.5	17.4	3.6	5.9	0.0	12.8	15.4	19.4	23.4	7.9	43.3	28.0	25.9	16.0	20.1	22.0	22.9	14.9	13.9	16.9	18.9	18.1	0.0	43.3	18.9	24
6	6	24.7	25.5	14.7	10.4	5.5	23.1	14.2	13.5	11.2	1.9	13.7	13.4	8.9	11.5	11.9	8.4	21.2	18.0	14.4	14.9	14.4	12.0	11.9	9.4	1.9	25.5	13.7	24
7	7	22.0	23.4	12.5	8.4	10.4	14.4	18.0	4.4	3.9	11.9	5.4	6.4	9.9	5.5	5.5	6.0	7.9	13.5	10.9	7.5	9.4	8.4	15.4	11.4	3.9	23.4	10.5	24
8	8	2.9	10.9	1.4	22.4	9.9	13.9	12.4	8.4	22.4	11.9	8.9	8.9	0.0	7.9	4.9	10.9	24.5	13.5	21.4	16.4	14.0	12.4	4.9	9.4	0.0	24.5	11.4	24
9	9	15.9	9.4	12.9	5.9	8.9	17.0	22.4	8.9	4.4	69.0	19.5	0.0	C	14.0	0.0	10.1	X	11.3	X	6.4	8.6	14.6	11.7	11.3	0.0	69.0	13.4	22
10	10	4.4	0.6	16.1	0.0	27.3	10.0	6.8	0.0	0.0	6.9	5.3	X	0.0	8.7	0.6	0.0	9.3	37.4	3.6	7.6	2.7	9.4	11.1	6.1	0.0	37.4	7.6	23
11	11	10.0	9.8	12.4	8.2	7.7	8.4	9.1	11.9	X	0.0	0.0	15.8	15.7	29.2	X	X	X	X	6.0	3.0	9.8	9.9	3.5	15.6	0.0	29.2	9.8	19
12	12	12.4	9.4	5.8	4.4	X	X	X	5.3	X	4.2	0.4	X	0.7	0.0	X	26.9	19.6	X	6.0	10.9	30.0	9.9	9.3	6.5	0.0	30.0	9.5	17
13	13	6.5	X	1.0	0.0	8.9	10.4	13.5	26.4	16.4	11.4	0.5	X	X	3.9	3.9	10.9	2.4	1.0	2.4	2.4	0.0	0.0	1.9	0.0	0.0	26.4	5.9	21
14	14	6.9	8.4	2.9	3.4	9.4	4.9	0.0	20.0	3.4	0.0	0.0	7.7	3.6	X	0.0	0.0	13.1	15.7	3.8	9.9	11.6	9.1	4.0	9.2	0.0	20.0	6.4	23
15	15	5.8	0.5	13.8	4.4	14.1	10.9	10.2	12.2	47.6	5.2	6.7	6.3	X	29.2	11.9	15.2	X	6.8	12.1	9.1	8.8	21.7	34.3	X	0.5	47.6	13.7	21
16	16	24.4	0.0	19.9	8.1	12.4	3.0	2.1	0.0	5.5	19.3	13.3	6.4	4.8	27.1	17.1	X	5.2	17.2	0.0	9.6	1.0	4.9	0.9	4.5	0.0	27.1	9.0	23
17	17	11.2	4.7	6.5	15.5	8.8	7.3	10.2	10.7	0.0	7.7	15.6	1.1	4.8	20.3	X	3.0	13.2	15.9	5.8	0.5	10.7	7.4	2.6	3.5	0.0	20.3	8.1	23
18	18	10.3	12.5	9.2	5.2	16.6	3.3	15.8	0.0	C	C	X	X	X	X	0.0	X	0.2	0.0	5.5	12.0	7.4	5.8	0.0	8.1	0.0	16.6	6.6	19
19	19	0.4	4.1	11.6	0.4	5.2	8.6	10.6	14.6	17.0	4.3	3.8	4.4	8.3	2.1	9.6	0.0	0.0	5.2	4.8	2.5	6.7	7.5	5.7	8.8	0.0	17.0	6.1	24
20	20	8.4	9.2	18.9	21.0	4.2	X	X	8.0	2.7	14.5	5.5	15.5	10.8	10.1	6.9	10.5	3.9	14.1	3.7	3.4	6.7	12.8	3.0	4.3	2.7	21.0	9.0	22
21	21	6.5	11.4	5.9	11.3	20.5	2.6	21.7	15.4	6.9	11.6	3.4	8.4	12.4	9.4	2.9	2.4	7.4	0.0	5.0	4.4	3.9	X	7.5	X	0.0	21.7	8.2	22
22	22	7.9	17.0	1.9	1.9	3.2	2.9	9.4	0.0	3.9	2.4	3.9	10.4	5.9	0.0	1.9	3.9	11.9	5.9	1.4	1.9	3.9	2.9	11.9	9.4	0.0	17.0	5.2	24
23	23	1.9	8.9	13.9	10.4	X	X	3.9	0.0	14.0	2.9	X	20.5	5.4	2.9	6.0	17.5	7.5	6.0	7.0	10.9	6.9	7.9	7.9	5.5	0.0	20.5	8.0	21
24	24	0.0	0.0	X	2.5	8.4	7.9	3.4	13.0	9.4	5.5	7.9	7.9	3.4	10.9	6.4	0.0	14.4	7.5	4.4	4.4	26.0	10.9	10.9	7.9	0.0	26.0	7.5	23
25	25	20.5	12.0	6.0	9.9	10.5	9.9	13.5	16.0	13.5	2.4	3.4	11.5	12.0	7.5	17.0	18.0	15.5	18.5	15.0	13.5	14.5	14.5	14.4	13.0	2.4	20.5	12.6	24
26	26	18.0	9.4	20.5	20.0	14.5	19.5	19.0	17.9	4.9	3.9	0.4	4.4	16.0	8.4	4.4	13.5	12.0	9.9	13.5	12.0	5.9	12.0	9.4	17.0	0.4	20.5	11.9	24
27	27	4.4	9.9	18.5	9.0	9.0	12.0	15.5	0.0	4.9	8.9	3.9	15.5	13.5	2.5	X	2.9	21.5	13.0	11.5	10.9	8.4	10.5	7.5	11.4	0.0	21.5	9.8	23
28	28	4.4	14.0	22.4	1.0	14.5	9.0	22.0	10.9	2.9	9.9	13.0	27.4	1.0	1.9	11.5	7.9	5.0	3.4	6.5	14.5	6.0	9.4	6.5	12.0	1.0	27.4	9.9	24
29	29	14.0	13.0	9.9	11.9	13.0	6.5	5.5	5.9	1.4	30.4	32.0	45.5	0.0	5.0	2.5	X	0.0	6.5	12.0	5.0	11.5	9.4	4.0	9.4	0.0	45.5	11.1	23
30	30	3.4	13.5	9.0	2.5	7.0	7.0	4.4	5.0	6.5	11.5	X	X	X	4.4	17.0	15.0	7.0	9.9	3.4	7.9	9.4	0.0	10.9	13.5	0.0	17.0	8.0	21
31	31	15.0	7.0	7.9	3.4	0.4	10.4	X	2.9	0.0	X	2.4	8.4	11.9	2.9	X	20.0	2.9	6.5	7.5	2.9	4.4	7.9	3.4	8.4	0.0	20.0	6.5	21
HOURLY MAX		28.0	27.2	31.5	27.9	31.0	23.1	22.4	26.4	47.6	69.0	32.0	45.5	43.3	29.2	25.9	26.9	24.5	37.4	22.9	29.9	30.0	33.9	34.3	18.4				
HOURLY AVG		10.9	10.9	12.1	9.1	11.0	9.3	10.2	9.4	9.1	11.3	9.6	11.8	9.1	10.7	7.6	9.3	9.9	11.2	8.9	9.2	10.1	10.7	9.3	10.2				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

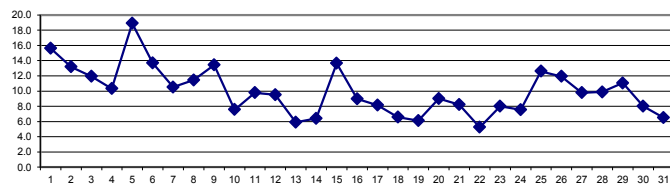
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR 30 ug/m3

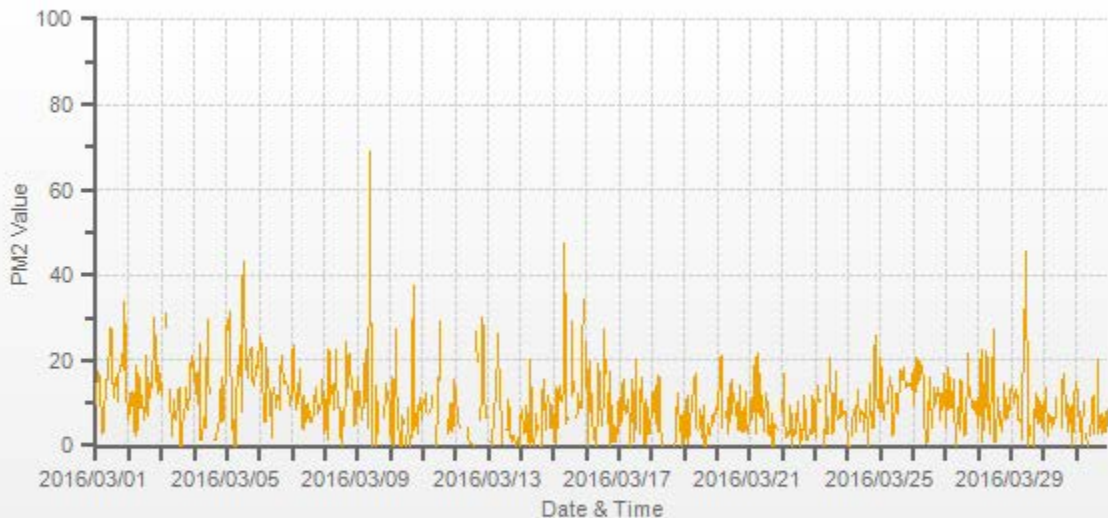
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	645			
MINIMUM 1-HR AVERAGE:	0.0 ug/m3 @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	69.0 ug/m3 @ HOUR(S)	9	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	18.9 ug/m3		ON DAY(S)	5
			VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	3 HRS	OPERATIONAL TIME:	693 HRS	
		AMD OPERATION UPTIME:	93.1 %	
STANDARD DEVIATION:	7.64	MONTHLY AVERAGE:	10.1 ug/m3	

24 HOUR AVERAGES FOR MARCH 2016

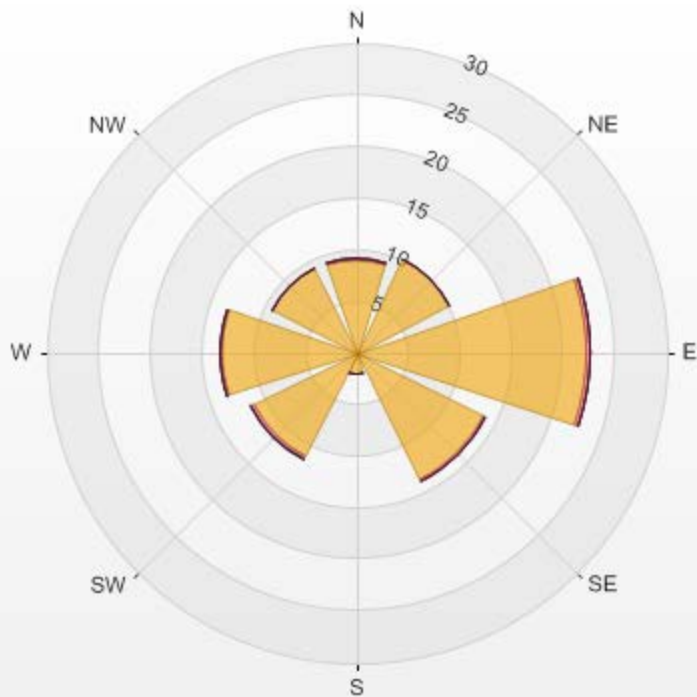


PM2[ug/m3(L)] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA COLD LAKE SOUTH Monitor: PM2 [ug/m3(L)] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 7.81% Valid Data: 92.88% Calm Avg: 0.00 [ppb]

Direction	0.5-30.0	30.0-60.0	60.0-80.0	80.0-120.0	120.0-240.0	>240.0	Total
N	8.97	0.14	0	0	0	0	9.11
NE	10.13	0	0	0	0	0	10.13
E	22.29	0.43	0	0	0	0	22.72
SE	13.75	0.14	0	0	0	0	13.89
S	2.17	0	0	0	0	0	2.17
SW	11.14	0.29	0.14	0	0	0	11.57
W	13.02	0.29	0	0	0	0	13.31
NW	9.12	0.14	0	0	0	0	9.26
Summary	90.59	1.43	0.14	0	0	0	92.16



% Icon Classes (ug/m3(L))	91	0.5-30.0	1	30.0-60.0	0	60.0-80.0	0	80.0-120.0	0	120.0-240.0	0	>240.0

WIND SPEED

WIND SPEED (WS) hourly averages in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR
DAY	MIN.	MAX.	AVG.	RDGS.																								
1	2.0	1.3	2.2	2.3	1.1	0.7	0.7	0.0	3.3	4.4	3.5	0.9	4.4	3.7	2.8	1.4	3.6	2.1	1.8	2.2	3.2	4.2	6.7	5.7	0.0	6.7	2.7	24
2	2.7	2.1	0.7	2.1	1.8	1.1	0.8	0.5	1.1	2.4	3.7	3.1	3.8	4.1	3.9	4.7	6.5	5.2	2.6	0.6	1.5	1.0	1.1	1.6	0.5	6.5	2.4	24
3	2.2	3.9	6.4	6.9	5.8	5.8	5.1	7.6	9.4	6.8	8.1	10.8	11.8	8.8	7.1	4.2	1.5	1.6	3.3	4.6	5.2	7.0	4.4	3.6	1.5	11.8	5.9	24
4	4.9	3.1	5.2	8.3	7.0	6.2	4.4	2.5	2.5	5.3	3.5	4.0	3.2	5.4	5.1	6.1	4.8	6.1	6.0	5.5	6.2	4.1	3.8	4.5	2.5	8.3	4.9	24
5	3.3	2.2	1.4	0.7	0.5	0.8	0.9	0.3	1.1	1.0	4.1	0.8	1.5	4.5	3.1	2.6	2.7	1.1	2.1	1.7	1.4	1.8	2.1	0.2	0.2	4.5	1.7	24
6	1.9	1.0	3.0	5.1	4.9	6.2	7.2	7.8	7.8	9.3	8.5	11.1	8.7	9.3	8.3	8.3	9.7	6.6	7.4	7.5	7.1	6.0	8.2	9.7	1.0	11.1	7.1	24
7	10.6	10.2	9.5	7.4	6.1	5.1	3.3	3.1	3.0	4.7	3.4	1.1	4.7	6.4	5.3	5.1	4.2	5.4	5.2	4.9	4.8	4.7	5.5	4.9	1.1	10.6	5.4	24
8	4.9	4.7	2.4	2.8	0.8	0.5	1.7	1.2	2.1	2.3	3.5	4.0	4.7	5.8	6.3	5.7	5.4	4.1	3.4	3.7	4.8	7.1	8.0	7.8	0.5	8.0	4.1	24
9	6.2	4.6	5.6	5.7	5.1	4.0	4.4	4.6	4.9	5.4	5.5	3.5	5.2	5.1	4.4	7.8	5.1	4.6	4.4	2.0	3.9	3.8	5.3	5.9	2.0	7.8	4.9	24
10	4.6	7.4	8.3	8.8	7.5	9.7	9.6	10.8	11.1	11.4	9.9	9.6	10.4	9.9	9.7	9.4	7.9	9.3	6.7	4.8	6.1	2.3	1.8	3.3	1.8	11.4	7.9	24
11	3.6	5.1	6.1	5.8	8.3	7.4	10.0	7.7	10.4	11.2	11.8	14.6	15.4	13.1	12.2	10.5	10.2	7.3	5.3	2.8	0.9	1.8	0.3	1.7	0.3	15.4	7.6	24
12	2.7	2.9	3.2	4.2	4.0	6.7	7.4	8.4	9.2	10.9	13.5	10.9	8.7	7.4	10.4	13.5	7.1	5.0	4.7	3.9	4.9	5.5	4.7	3.1	2.7	13.5	6.8	24
13	2.8	1.7	3.0	1.1	1.1	1.4	2.8	3.0	4.9	7.6	8.9	7.8	11.1	11.5	11.1	12.8	11.6	12.5	12.5	12.2	10.5	9.2	6.0	7.6	1.1	12.8	7.3	24
14	5.1	3.7	3.3	7.2	6.1	3.5	2.2	3.5	5.0	5.2	6.4	5.1	6.0	5.8	6.6	5.3	5.5	4.2	3.1	2.3	1.3	0.3	1.1	0.9	0.3	7.2	4.1	24
15	2.1	1.1	1.1	1.3	3.7	3.2	3.1	4.5	5.0	5.7	8.1	9.6	8.6	13.2	13.0	13.7	12.8	12.7	11.8	10.1	6.8	11.3	13.3	11.0	1.1	13.7	7.8	24
16	11.8	10.8	5.4	5.9	4.5	8.1	11.6	9.5	6.5	8.0	8.9	9.6	9.3	10.1	10.1	9.6	7.9	8.0	9.0	8.0	6.2	7.5	5.9	7.1	4.5	11.8	8.3	24
17	8.1	8.9	7.3	8.3	8.9	7.6	5.5	7.2	8.8	9.5	10.0	10.6	11.1	11.2	12.0	11.8	10.8	11.7	11.1	7.6	4.2	4.4	4.1	4.5	4.1	12.0	8.6	24
18	4.5	4.7	5.9	5.8	5.7	4.5	3.6	6.0	6.1	5.8	4.7	4.9	2.9	2.0	2.5	4.2	5.3	3.0	1.7	2.4	2.7	1.8	0.5	0.6	0.5	6.1	3.8	24
19	0.8	1.1	1.3	0.9	1.5	1.5	1.8	2.3	3.1	4.4	4.4	5.3	6.0	8.1	8.4	9.7	10.9	6.6	5.4	5.0	7.8	7.4	4.1	3.4	0.8	10.9	4.6	24
20	4.4	4.9	4.2	5.8	6.2	6.4	6.1	4.4	5.2	5.9	7.5	7.2	7.6	7.2	7.2	9.3	9.2	10.6	9.5	8.0	7.6	8.7	7.5	8.6	4.2	10.6	7.1	24
21	7.7	8.2	9.3	9.2	9.6	10.2	10.0	9.4	10.9	10.2	9.2	8.7	9.5	12.2	11.1	13.3	12.4	7.9	5.5	5.9	7.5	9.6	9.8	10.9	5.5	13.3	9.5	24
22	9.0	7.5	8.6	7.1	5.3	7.2	7.4	7.2	7.3	5.6	6.5	7.3	6.5	6.5	7.0	6.8	6.5	5.7	6.5	8.1	5.5	5.6	5.7	3.0	3.0	9.0	6.6	24
23	3.4	3.9	3.0	1.2	1.1	1.9	3.2	3.7	5.2	6.6	7.8	8.6	8.1	5.9	6.4	8.1	7.0	6.6	2.2	0.6	1.1	1.3	1.6	1.0	0.6	8.6	4.1	24
24	1.4	2.7	2.8	3.8	5.4	6.5	6.9	8.5	9.2	9.9	9.6	10.6	8.9	10.3	9.1	8.6	7.6	5.6	4.6	2.9	1.3	0.5	0.2	0.8	0.2	10.6	5.7	24
25	0.7	0.6	0.2	0.2	1.4	1.3	2.3	1.9	3.1	4.8	4.5	7.2	6.4	4.6	6.9	6.7	6.0	5.7	2.1	2.0	3.3	1.9	3.6	2.2	0.2	7.2	3.3	24
26	2.5	4.9	4.1	4.4	4.3	5.3	4.3	4.6	7.0	7.2	11.1	10.4	8.6	9.5	8.8	8.2	5.6	4.8	2.6	1.2	1.8	1.7	0.2	0.7	0.2	11.1	5.2	24
27	1.2	0.7	0.9	1.5	1.0	1.4	1.9	3.6	7.4	9.6	7.0	8.2	8.5	8.7	8.6	8.5	6.5	8.1	7.5	4.1	2.2	2.6	1.9	5.7	0.7	9.6	4.9	24
28	5.1	4.3	4.1	3.2	3.1	1.9	2.1	2.5	3.4	7.6	4.8	6.6	4.1	6.7	7.7	8.9	7.3	6.6	4.5	4.2	7.4	4.9	2.5	5.1	1.9	8.9	4.9	24
29	5.2	5.7	2.9	3.6	3.2	2.2	3.8	5.9	5.9	6.0	8.9	9.9	10.9	11.4	11.9	12.1	10.4	6.0	9.9	8.8	4.3	4.2	5.3	4.4	2.2	12.1	6.8	24
30	4.5	5.0	5.0	3.5	3.5	4.6	3.5	2.5	5.8	5.4	8.5	13.0	17.5	15.8	15.5	11.8	9.2	7.1	6.9	8.4	6.0	10.7	11.2	13.5	2.5	17.5	8.3	24
31	10.7	11.6	7.0	6.0	9.0	10.0	8.7	11.9	11.4	11.2	10.5	8.9	7.3	3.4	6.9	8.4	9.0	6.3	3.9	4.8	4.3	4.5	2.1	1.8	1.8	11.9	7.5	24
HOURLY MAX	11.8	11.6	9.5	9.2	9.6	10.2	11.6	11.9	11.4	11.4	13.5	14.6	17.5	15.8	15.5	13.7	12.8	12.7	12.5	12.2	10.5	11.3	13.3	13.5				
HOURLY AVG	4.5	4.5	4.3	4.5	4.4	4.6	4.7	5.1	6.0	6.8	7.3	7.5	7.8	8.0	8.0	8.3	7.4	6.4	5.6	4.9	4.6	4.8	4.5	4.7				

STATUS FLAG CODES

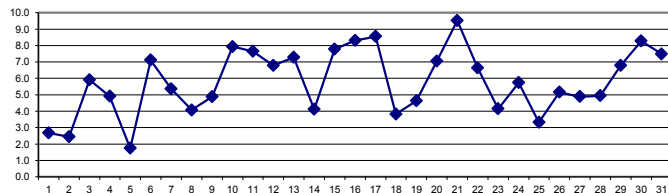
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	April 1, 2015
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	743
MINIMUM 1-HR AVERAGE:	0.0 KPH @ HOUR(S) 7 ON DAY(S) 1
MAXIMUM 1-HR AVERAGE:	17.5 KPH @ HOUR(S) 12 ON DAY(S) 30
MAXIMUM 24-HR AVERAGE:	9.5 KPH ON DAY(S) 21
	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS OPERATIONAL TIME: 744 HRS
	AMD OPERATION UPTIME: 100.0 %
STANDARD DEVIATION:	3.31 MONTHLY AVERAGE: 5.8 KPH

24 HOUR AVERAGES FOR MARCH 2016







VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
DAY																													
1		4.6	3.0	5.6	5.3	2.4	2.8	1.9	2.3	10.1	8.4	6.5	7.7	9.3	8.2	6.8	5.8	7.1	4.3	4.9	5.8	5.3	7.2	13.0	9.5	1.9	13.0	6.2	24
2		5.5	5.0	1.9	4.6	2.8	2.5	2.1	3.8	3.0	4.1	6.6	5.5	8.1	8.4	R	8.8	10.0	8.4	5.3	3.1	3.9	2.9	3.2	3.7	1.9	10.0	4.9	23
3		5.5	7.9	9.4	10.7	9.7	11.1	7.6	13.5	15.0	11.7	14.4	16.7	18.3	12.5	10.9	7.7	4.1	3.9	6.3	6.4	8.5	9.6	7.7	6.5	3.9	18.3	9.8	24
4		9.0	5.2	10.4	13.1	10.6	9.5	8.9	4.7	6.7	10.4	6.6	6.8	9.5	8.8	8.5	10.4	7.5	12.4	9.2	9.6	8.8	7.5	6.4	6.5	4.7	13.1	8.6	24
5		5.4	4.5	3.1	3.4	2.5	2.8	8.1	3.9	3.7	4.7	8.3	5.1	7.5	7.6	5.5	4.9	4.6	3.3	6.2	6.2	6.1	12.1	9.1	4.7	2.5	12.1	5.6	24
6		5.5	11.9	6.2	10.5	7.6	11.1	11.7	12.4	11.5	14.0	12.7	14.1	14.5	13.4	12.8	13.0	15.2	11.4	12.5	13.9	13.8	10.2	13.7	14.6	5.5	15.2	12.0	24
7		14.5	17.6	13.2	13.3	8.4	8.6	6.4	5.3	6.7	9.4	5.9	5.9	10.5	11.1	8.7	8.8	7.9	9.6	9.3	7.9	7.0	6.8	8.7	8.6	5.3	17.6	9.2	24
8		11.2	8.7	6.5	7.9	4.2	3.0	4.1	3.9	4.9	4.4	8.5	9.6	8.9	12.5	9.5	10.0	8.2	6.3	5.6	5.4	7.5	15.1	12.2	12.8	3.0	15.1	8.0	24
9		10.1	8.5	8.3	9.2	10.1	6.7	8.7	7.5	8.8	15.5	10.1	9.4	12.6	12.2	9.6	13.5	8.8	7.2	8.4	4.8	9.9	9.7	8.1	8.5	4.8	15.5	9.4	24
10		10.1	11.9	12.7	13.4	13.9	15.9	16.7	17.4	16.7	18.9	16.6	15.2	15.6	21.7	17.5	19.7	15.0	14.7	11.3	10.8	15.5	8.3	5.1	6.6	5.1	21.7	14.2	24
11		5.8	8.9	9.3	9.2	13.5	12.0	14.7	11.1	18.6	17.2	17.5	27.8	23.2	18.8	20.5	16.8	16.0	11.1	8.9	5.7	3.3	4.7	3.6	4.8	3.3	27.8	12.6	24
12		5.5	5.4	5.4	7.1	7.3	9.2	10.6	12.3	13.8	19.1	20.2	19.8	12.8	12.5	21.1	20.5	15.2	12.2	8.8	7.6	8.6	9.3	8.8	4.8	4.8	21.1	11.6	24
13		5.2	4.0	4.6	4.0	3.4	9.7	9.6	12.3	11.9	12.5	14.9	12.5	16.6	18.2	16.4	19.4	18.9	18.5	19.3	17.4	14.8	16.8	11.5	10.1	3.4	19.4	12.6	24
14		10.6	7.4	9.5	14.1	10.6	6.6	4.2	11.6	10.7	11.6	14.1	9.1	11.0	10.2	10.6	10.4	11.8	8.5	6.9	4.2	4.3	3.0	3.1	2.8	2.8	14.1	8.6	24
15		3.6	2.7	2.5	3.5	5.6	6.1	4.6	7.6	8.2	10.4	15.4	15.7	16.5	19.9	19.5	22.7	20.4	20.2	19.1	16.8	10.2	16.9	20.2	16.0	2.5	22.7	12.7	24
16		16.1	15.7	15.1	10.1	7.3	17.3	17.6	R	11.2	12.4	15.8	17.2	14.7	15.3	15.2	14.7	12.1	12.9	14.0	11.8	10.2	13.7	11.4	10.5	7.3	17.6	13.6	23
17		15.8	13.4	13.4	11.4	13.3	11.9	7.9	11.1	12.9	14.4	16.0	15.1	17.4	16.9	17.2	18.2	18.5	17.0	19.0	13.1	6.5	7.8	8.4	7.3	6.5	19.0	13.5	24
18		7.6	7.9	9.0	9.2	10.2	7.6	6.4	9.5	9.7	9.3	9.1	8.4	5.7	8.9	9.2	9.0	8.5	7.0	4.1	3.8	4.4	3.4	3.4	3.1	3.1	10.2	7.3	24
19		2.0	2.5	2.5	2.1	2.8	2.1	3.0	4.6	6.3	6.4	7.2	9.8	11.0	13.7	14.8	15.4	18.5	11.2	7.7	11.5	13.6	12.4	9.9	6.4	2.0	18.5	8.2	24
20		7.0	7.4	6.8	9.0	8.8	9.9	10.4	7.0	8.3	10.1	12.0	11.9	13.5	12.7	12.5	13.5	15.9	15.6	15.4	12.0	12.8	13.6	13.0	12.1	6.8	15.9	11.3	24
21		13.3	12.3	15.1	14.2	15.5	15.6	13.9	15.7	16.9	16.3	17.9	13.0	16.1	20.0	18.3	20.3	18.3	12.6	11.3	10.4	12.0	18.1	16.9	19.3	10.4	20.3	15.6	24
22		13.3	12.4	13.3	11.8	10.9	14.7	13.0	11.4	11.5	9.0	10.8	11.6	13.0	11.1	11.7	14.7	10.7	10.5	10.7	13.1	10.7	11.1	12.5	6.3	6.3	14.7	11.7	24
23		7.3	7.2	5.0	3.0	4.4	4.6	6.1	6.7	8.4	10.7	12.8	14.1	14.0	13.1	12.7	12.9	10.3	9.8	7.2	2.7	3.7	3.8	3.4	2.6	2.6	14.1	7.8	24
24		3.1	4.4	4.8	5.9	7.4	9.5	9.7	12.5	13.5	13.9	13.5	14.6	13.9	14.7	13.8	12.0	11.2	9.4	8.3	6.0	2.9	2.9	2.5	2.1	2.1	14.7	8.9	24
25		2.3	2.4	2.5	1.6	2.1	3.0	4.7	4.3	5.0	7.3	7.7	12.6	12.4	10.9	13.1	12.3	10.3	11.2	5.1	4.2	6.0	5.1	6.6	5.2	1.6	13.1	6.6	24
26		5.7	7.6	6.2	6.7	7.9	8.4	6.7	10.0	14.3	11.9	17.9	17.0	14.5	15.4	16.1	12.5	11.3	8.0	6.1	3.3	4.6	3.3	2.0	3.1	2.0	17.9	9.2	24
27		3.8	2.7	2.7	3.7	3.2	3.1	4.5	6.2	13.1	14.9	10.6	12.4	14.0	13.1	16.0	14.6	13.6	14.0	10.8	9.5	3.9	4.7	4.8	8.3	2.7	16.0	8.7	24
28		8.5	6.9	7.8	6.4	5.7	3.7	4.6	5.2	7.7	10.3	8.5	9.7	10.5	10.8	12.3	12.7	11.1	9.6	7.6	6.4	13.7	10.2	4.6	7.9	3.7	13.7	8.4	24
29		8.0	8.0	8.1	8.4	5.4	3.8	6.1	9.0	8.3	9.2	13.0	15.1	16.4	17.0	18.1	17.1	16.9	17.1	13.7	12.0	8.8	6.0	7.8	6.4	3.8	18.1	10.8	24
30		6.9	8.2	7.4	5.8	5.6	7.1	6.3	5.8	11.6	11.3	16.1	23.4	26.3	25.4	21.6	19.8	17.3	10.8	12.4	13.7	18.4	18.3	16.6	20.5	5.6	26.3	14.0	24
31		19.0	18.6	12.6	13.6	13.2	13.7	13.0	17.1	17.2	16.2	16.0	17.6	15.2	17.9	11.5	15.2	15.6	12.5	7.2	8.2	6.9	7.7	5.6	4.4	4.4	19.0	13.2	24
HOURLY MAX		19.0	18.6	15.1	14.2	15.5	17.3	17.6	17.4	18.6	19.1	20.2	27.8	26.3	25.4	21.6	22.7	20.4	20.2	19.3	17.4	18.4	18.3	20.2	20.5				
HOURLY AVG		8.1	8.1	7.8	8.1	7.6	8.2	8.2	8.9	10.5	11.5	12.4	13.0	13.7	14.0	13.7	13.8	12.6	11.0	9.8	8.7	8.6	9.1	8.5	7.9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	27.8	KPH	@ HOUR(S)	11	ON DAY(S)	11
					VAR-VARIOUS	
OPERATIONAL TIME:				742	HRS	

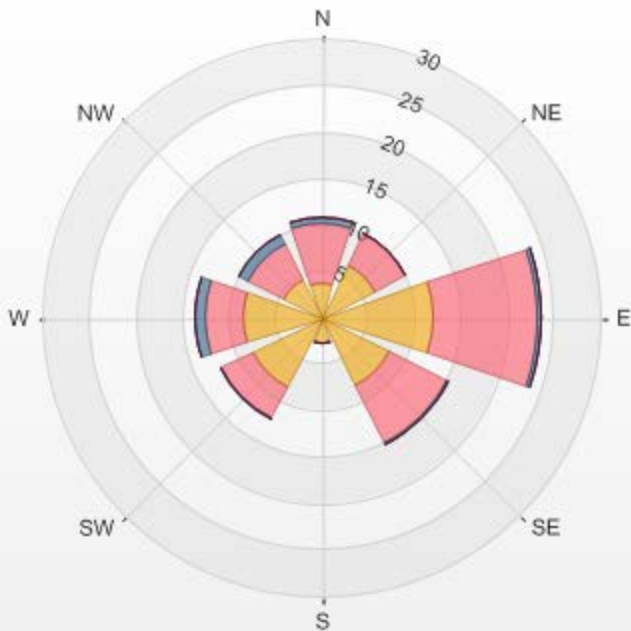
WS MAX[kph] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA COLD LAKE SOUTH Monitor: WSP [kph] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 1.61% Valid Data: 100.00% Calm Avg: 0.00 [ppb]

Direction	0.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	3.76	6.45	0.67	0	0	0	10.88
NE	6.45	3.76	0	0	0	0	10.21
E	12.1	11.02	0.54	0	0	0	23.66
SE	8.2	6.85	0.13	0	0	0	15.18
S	2.69	0	0	0	0	0	2.69
SW	8.33	3.76	0.13	0	0	0	12.22
W	8.47	4.03	1.08	0	0	0	13.58
NW	4.7	4.3	0.94	0	0	0	9.94
Summary	54.7	40.17	3.49	0	0	0	98.36

LICA COLD LAKE SOUTH 2016/03/01 12:00 AM - 2016/03/31 11:00 PM Calm: 1.61% Calm Wind Avg Speed: 0.28(kph)



% Icon	Classes (kph)	40	6.0-12.0	3	0.5-6.0	20.0-29.0	20.0-29.0	JOB #:	2833-2016-03-01-0	>39.0
55	0.5-6.0									

WIND DIRECTION



WIND DIRECTION (WD) hourly averages

MST																									24-HOUR AVG		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	QUADRANT	RDGS.	
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59			
DAY																											
1	S	S	SSW	SW	S	S	SSE	NNE	SW	WSW	WSW	WNW	W	WSW	W	NNE	ESE	SE	ENE	ENE	ENE	E	ESE	E	S	24	
2	ENE	ENE	NE	ENE	ENE	E	ENE	W	ENE	NE	ENE	ESE	WNW	W	W	WSW	SW	WSW	NW	ESE	ESE	ESE	E	ENE	ENE	24	
3	SE	SE	SE	SE	SE	ESE	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	ESE	ESE	W	W	W	W	W	W	WSW	SSE	24	
4	W	WSW	NW	N	N	N	NNW	NW	N	NE	ENE	ENE	ESE	SE	ESE	E	NE	E	ESE	ESE	ESE	ESE	E	E	ENE	24	
5	E	ENE	ESE	WNW	SW	ENE	N	SE	NW	WSW	WNW	W	WNW	E	E	E	SE	ENE	ENE	NNE	W	E	E	E	ENE	24	
6	NE	N	ENE	NNE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ESE	E	ESE	E	E	ENE	E	E	E	ENE	24	
7	E	E	E	E	E	E	E	ENE	ESE	SE	SE	WSW	WNW	WNW	W	WNW	NW	NW	WNW	W	W	W	W	W	W	24	
8	W	WSW	WNW	W	SW	SE	SSE	SE	ESE	ESE	S	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	W	SW	24	
9	WSW	WSW	WSW	W	W	WSW	WSW	SW	WSW	SW	SW	S	SW	SSW	S	SE	SE	SSE	S	S	S	SE	SE	SE	SSW	24	
10	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	E	ENE	E	SE	WNW	W	SE	24	
11	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	W	W	W	W	W	WSW	SW	SW	SW	SW	SW	ESE	E	SW	E	WSW	24
12	ENE	ESE	ENE	ESE	ENE	E	E	ESE	ESE	E	E	ESE	ESE	ESE	SE	SE	SE	SE	E	ESE	E	E	ENE	ESE	ESE	24	
13	ENE	ENE	NE	ENE	NE	W	NNW	NNE	W	WNW	W	W	W	W	W	W	W	W	W	W	W	W	W	WNW	W	WNW	24
14	WNW	W	WNW	WNW	WNW	NW	W	WNW	NW	NNW	NNW	NNW	NNW	NNW	N	N	NNE	NE	ENE	ENE	SE	WNW	WNW	NNW	NNW	24	
15	NNW	WNW	NE	N	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	24
16	NW	NW	N	NE	NNE	NNE	N	NNE	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	24
17	NNW	NNW	NNW	NW	NW	NW	WNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	24
18	NW	NW	NW	NW	NW	NNW	NW	NNW	N	NNE	NE	ENE	ENE	ESE	SE	WSW	WSW	SSE	SE	SE	ESE	ESE	NNE	NNE	NNE	24	
19	NE	E	ENE	ENE	ENE	NE	NE	NE	ESE	E	E	ESE	ESE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	ESE	ESE	ESE	24	
20	E	E	ENE	E	E	E	E	ENE	ENE	E	E	ESE	E	ESE	E	E	E	E	E	E	E	E	ESE	E	E	24	
21	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	24
22	E	E	E	E	E	E	E	E	E	ESE	ESE	SE	ESE	ESE	ESE	SE	E	SE	SE	SE	S	SW	SW	S	ESE	24	
23	SSE	SE	SSE	SSE	S	SSW	SW	WSW	WSW	WSW	W	W	WSW	W	WSW	WSW	WSW	WSW	WSW	SW	E	ESE	ESE	NE	NE	SSW	24
24	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NE	NE	ENE	NE	ESE	E	NE	24	
25	NE	SE	SE	ESE	ENE	ENE	ENE	E	ESE	SE	SE	SE	SE	S	SW	SW	SW	SW	S	SSE	S	SW	SW	WSW	SSE	24	
26	SW	SW	WSW	WSW	WSW	WSW	WSW	NNW	N	N	NNE	NNE	NNE	ENE	ENE	ENE	ESE	E	E	E	ENE	E	E	ENE	NE	24	
27	ENE	NNE	ENE	NE	ENE	NE	ENE	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	E	ESE	ESE	ESE	ESE	ENE	SE	E	ENE	24	
28	SE	ESE	SE	ESE	SE	ESE	NNE	E	SE	SE	SE	SE	SSE	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	W	WSW	S	24	
29	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SW	W	NW	NW	W	WSW	WSW	SW	WSW	24	
30	WSW	SW	WSW	WSW	WSW	WSW	WSW	NW	NNW	NNW	NNW	NNW	NNW	N	NNW	N	N	NNW	NNW	NNW	NNW	NNW	N	N	NW	24	
31	NNE	NNE	NNE	N	NNW	NNW	N	NNW	N	N	N	NNW	NNW	WNW	SW	SW	SW	SW	WSW	WSW	WSW	W	WSW	SW	NW	24	

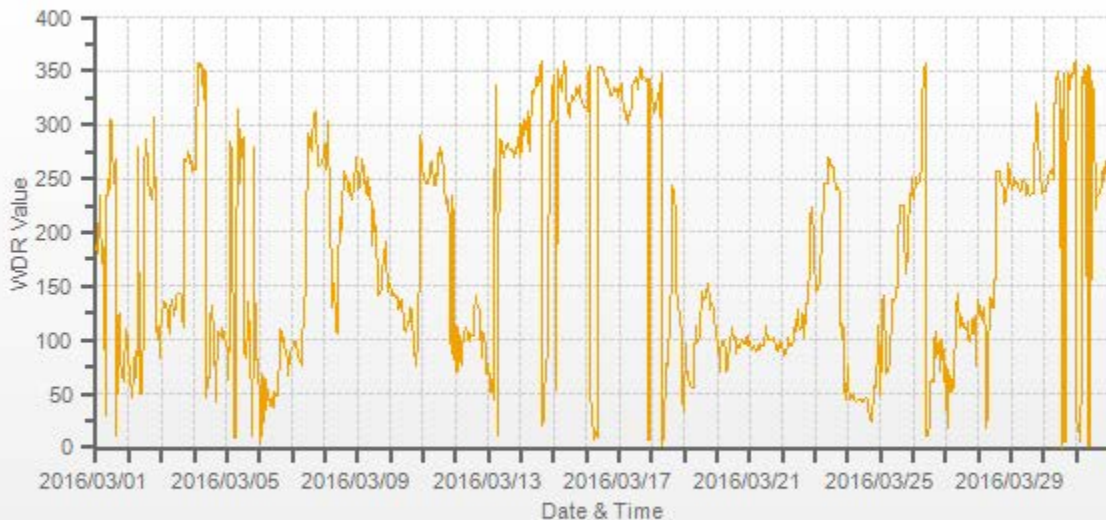
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	April 1, 2015
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	102.33		AMD OPERATION UPTIME:	100.0	%

WDR[Deg] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Site - MARCH 2016

JOB # 2833-2016-03-1- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.	
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59		
DAY																											
1		42	43	35	31	41	48	42	73	36	27	29	50	34	38	37	59	20	30	49	40	16	19	22	22	24	
2		27	30	58	14	24	26	64	51	63	25	24	31	45	33	28	23	16	17	21	57	26	60	30	24	24	
3		42	19	14	17	20	19	21	20	18	23	22	19	15	16	15	20	38	48	17	16	19	17	17	19	24	
4		19	20	18	16	16	22	25	28	23	29	30	25	42	26	26	25	20	19	21	20	18	25	22	18	24	
5		19	24	34	56	57	59	53	52	41	56	25	59	46	21	32	21	18	32	54	46	47	72	64	66	24	
6		37	43	23	23	16	21	17	19	20	19	20	18	19	19	20	22	18	22	18	19	18	19	20	20	24	
7		19	20	20	21	20	19	20	20	23	22	28	36	20	20	23	22	18	15	21	19	17	16	18	20	24	
8		25	18	32	23	46	57	38	41	27	27	38	43	36	31	21	21	19	18	19	16	15	18	20	20	24	
9		20	20	20	20	22	22	22	24	28	27	28	47	38	39	42	19	34	20	19	44	39	36	19	19	24	
10		29	18	16	16	17	16	20	20	17	20	24	22	24	23	25	23	22	20	24	26	39	34	41	25	24	
11		18	16	19	17	17	15	16	16	19	19	19	21	21	21	22	21	18	17	19	26	45	35	53	35	24	
12		29	24	14	19	20	20	19	22	24	22	20	23	22	21	18	15	19	17	21	16	19	16	23	20	24	
13		24	51	18	38	31	35	43	40	28	23	22	20	18	19	18	18	20	20	19	18	20	19	21	18	24	
14		21	21	21	20	21	23	21	20	26	27	24	25	20	25	24	28	21	24	25	20	44	64	54	53	24	
15		25	47	29	23	13	18	15	15	18	25	20	22	28	17	16	15	16	15	14	16	13	15	13	15	24	
16		13	15	25	17	19	19	17	16	23	19	19	19	19	19	18	17	16	15	13	13	14	15	13	13	24	
17		15	15	17	13	14	13	16	13	15	15	16	16	15	18	16	17	17	16	15	19	14	17	22	16	24	
18		13	14	12	12	12	14	19	18	19	23	30	24	47	52	70	43	26	34	26	13	19	35	56	61	24	
19		44	27	23	34	25	24	19	15	28	19	22	24	27	24	22	18	15	24	18	20	18	19	24	23	24	
20		22	19	17	15	16	17	17	17	21	25	23	25	24	25	24	20	19	17	18	19	19	17	21	18	24	
21		19	19	20	20	20	20	21	22	21	21	20	23	24	21	23	20	19	19	22	21	21	20	21	19	24	
22		19	19	19	19	21	20	18	20	21	27	26	22	29	28	28	28	24	25	18	15	25	27	28	39	24	
23		30	24	23	47	59	46	31	20	20	20	25	24	27	31	22	20	22	17	28	55	33	33	32	35	24	
24		25	16	19	19	17	19	19	19	19	19	19	19	21	21	20	22	19	19	19	22	23	58	49	31	24	
25		58	51	66	75	21	20	21	24	22	22	27	22	31	40	26	27	27	23	39	31	35	45	22	26	24	
26		18	16	17	19	15	14	11	20	20	26	20	23	28	22	20	19	31	22	25	25	25	30	47	50	24	
27		44	47	33	35	41	22	18	23	20	15	22	23	24	24	23	22	24	18	17	23	22	18	35	17	24	
28		17	20	22	21	26	42	28	29	27	14	23	19	24	26	21	18	20	18	14	20	18	20	24	15	24	
29		13	14	27	25	14	20	15	15	19	21	20	19	20	18	18	17	18	27	12	14	16	12	14	13	24	
30		15	13	15	16	16	12	15	43	18	27	29	17	17	19	17	16	18	16	13	14	13	15	15	16	24	
31		20	17	18	20	16	14	17	16	19	19	22	26	35	40	31	25	20	21	22	19	19	20	24	23	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: April 1, 2015

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS



RELATIVE HUMIDITY

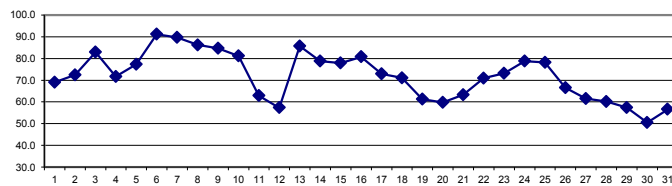
RELATIVE HUMIDITY (RH) hourly averages in %

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
HOURLY START	HOURLY END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
DAY																													
1		70	76	78	76	78	78	82	82	78	73	65	62	58	53	52	52	55	58	67	71	75	75	70	72	52	82	69.0	24
2		76	80	83	84	85	84	82	80	78	78	76	68	62	57	53	49	52	59	66	71	73	78	82	83	49	85	72.5	24
3		82	84	85	84	85	85	84	82	79	79	77	78	80	81	82	84	85	83	84	86	85	85	86	86	77	86	83.0	24
4		87	89	88	84	82	79	80	82	78	73	71	66	59	55	51	51	56	56	59	64	72	77	79	82	51	89	71.7	24
5		85	87	89	89	87	86	87	88	90	91	85	68	61	61	58	59	59	65	71	73	77	79	76	83	58	91	77.3	24
6		87	86	90	94	95	97	97	98	99	99	97	94	91	89	86	82	82	82	84	85	87	94	96	96	82	99	91.1	24
7		96	96	96	96	94	94	96	97	97	94	91	89	90	83	79	80	86	85	83	87	88	87	85	83	79	97	89.7	24
8		84	86	87	87	89	90	92	92	91	88	85	83	81	81	79	79	81	83	85	87	89	90	90	90	79	92	86.2	24
9		90	89	88	87	88	89	90	92	91	90	88	83	79	75	76	75	69	70	77	86	88	89	90	92	69	92	84.6	24
10		93	93	92	93	95	96	94	94	91	87	82	78	74	69	60	55	56	63	71	74	79	80	88	91	55	96	81.2	24
11		92	91	87	84	84	83	77	72	66	56	52	41	39	38	36	33	35	40	46	54	67	74	79	82	33	92	62.8	24
12		82	78	70	65	64	58	56	56	53	53	51	48	46	43	39	41	46	50	54	59	61	63	67	73	39	82	57.3	24
13		79	84	87	89	90	91	90	89	85	76	67	69	77	90	94	95	92	90	87	87	86	87	89	87	67	95	85.7	24
14		86	89	90	87	87	87	87	88	80	76	74	72	73	71	71	70	71	71	73	73	74	77	81	83	70	90	78.8	24
15		82	82	83	86	89	88	83	80	76	69	65	67	63	62	64	67	73	75	79	84	91	91	86	85	62	91	77.9	24
16		87	87	88	89	90	89	87	88	88	87	86	82	77	70	67	67	68	74	76	78	79	78	79	77	67	90	80.8	24
17		76	75	76	77	80	80	80	79	77	75	73	72	69	64	64	65	64	67	67	70	74	75	75	75	64	80	72.9	24
18		76	80	81	81	79	73	75	74	71	68	67	65	64	63	60	54	55	55	64	73	78	80	84	85	54	85	71.0	24
19		85	85	84	82	81	80	80	77	75	69	60	53	45	33	31	29	33	39	47	53	59	62	63	66	29	85	61.3	24
20		66	67	71	70	70	70	71	72	69	61	56	53	50	46	44	46	48	48	51	55	58	62	65	66	44	72	59.8	24
21		69	71	71	70	70	70	70	69	68	66	63	61	60	58	57	56	56	57	57	57	56	58	55	61	55	71	63.3	24
22		67	69	69	76	80	81	80	78	76	73	69	67	64	62	60	60	60	61	65	70	75	74	80	86	60	86	70.9	24
23		87	88	89	89	88	86	85	84	83	80	72	68	60	55	55	56	54	57	60	66	70	71	75	78	54	89	73.2	24
24		85	91	93	94	94	95	94	91	87	84	78	75	71	68	65	61	61	61	62	65	69	77	84	86	61	95	78.8	24
25		86	86	85	84	85	85	85	82	75	70	66	69	71	67	68	70	72	73	76	79	84	86	86	85	66	86	78.1	24
26		87	88	87	88	90	90	91	84	73	58	48	46	44	44	42	41	42	43	48	63	70	72	77	80	41	91	66.5	24
27		82	81	85	84	85	84	83	74	69	62	54	48	42	40	37	35	35	39	46	54	61	66	68	62	35	85	61.5	24
28		65	69	73	75	74	76	81	74	68	64	58	54	50	41	39	42	44	43	47	50	56	62	68	71	39	81	60.2	24
29		76	79	83	86	86	87	85	70	60	48	43	41	37	37	36	36	38	40	43	46	48	55	57	61	36	87	57.4	24
30		62	63	63	62	62	63	64	62	56	54	50	44	38	36	33	33	33	35	38	40	43	59	60	60	33	64	50.5	24
31		67	69	69	68	66	66	65	62	58	55	49	42	39	39	41	40	47	52	57	57	56	61	65	68	39	69	56.6	24
HOURLY MAX		96	96	96	96	95	97	97	98	99	99	97	94	91	90	94	95	92	90	87	87	91	94	96	96				
HOURLY AVG		80.5	81.9	82.6	82.6	83.0	82.6	82.4	80.4	77.0	72.8	68.4	64.8	61.8	59.1	57.4	56.9	58.3	60.4	64.2	68.3	71.9	75.0	76.9	78.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
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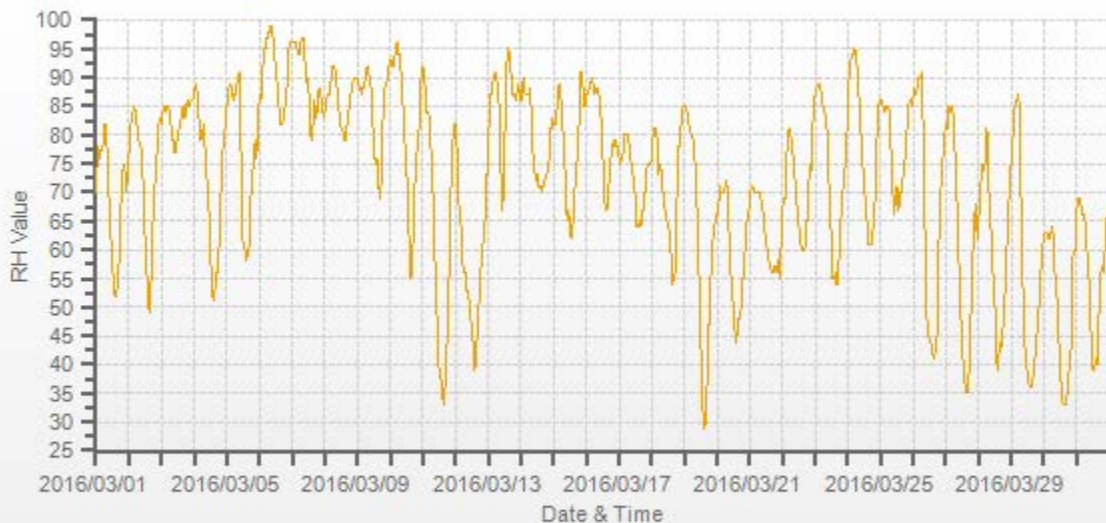
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	29	%	@ HOUR(S)	15	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	99	%	@ HOUR(S)	8, 9	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	91.1	%			ON DAY(S)	6
					VAR-VARIOUS	
OPERATIONAL TIME:						744 HRS
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	15.61					MONTHLY AVERAGE: 72 %

RH[%RH] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



AMBIENT TEMPERATURE

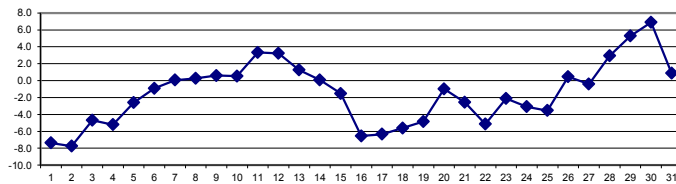
AMBIENT TEMPERATURE (AmbTPX) hourly averages in Degrees Celsius

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	-13.4	-13.2	-13.0	-12.6	-12.6	-12.7	-14.3	-15.6	-12.9	-9.5	-6.2	-4.1	-2.3	-0.3	0.7	1.3	0.3	-0.4	-3.2	-5.2	-6.8	-7.2	-6.3	-7.6	-15.6	1.3	-7.4	24	
2	-8.7	-10.5	-12.4	-13.9	-14.5	-14.7	-15.8	-16.0	-13.0	-9.7	-8.1	-5.5	-2.9	-1.5	-0.2	1.1	0.4	-1.7	-4.1	-5.6	-5.7	-6.9	-8.1	-8.0	-16.0	1.1	-7.8	24	
3	-7.6	-6.6	-6.3	-6.4	-6.2	-6.4	-7.1	-7.2	-6.7	-6.0	-5.1	-3.8	-3.2	-3.1	-3.0	-2.8	-2.5	-2.2	-2.5	-3.5	-3.6	-3.6	-3.6	-3.5	-7.6	-2.2	-4.7	24	
4	-3.9	-3.9	-3.6	-4.9	-5.9	-7.1	-8.5	-9.7	-9.2	-8.3	-7.5	-6.5	-5.1	-3.9	-2.6	-1.9	-2.8	-3.1	-4.0	-4.4	-4.5	-4.7	-4.8	-4.5	-9.7	-1.9	-5.2	24	
5	-5.0	-6.2	-7.4	-9.6	-10.7	-11.4	-11.9	-10.1	-8.0	-5.8	-4.1	-0.2	2.1	3.1	4.1	4.3	4.5	4.1	2.7	1.7	0.3	0.7	1.3	-0.7	-11.9	4.5	-2.6	24	
6	-2.0	-2.0	-2.5	-2.9	-2.9	-1.9	-1.0	-0.9	-1.3	-1.7	-1.7	-1.5	-0.9	-0.6	0.1	1.3	1.1	0.7	0.3	0.2	-0.1	-0.7	-0.5	-0.6	-2.9	1.3	-0.9	24	
7	-0.9	-1.0	-1.2	-1.3	-1.3	-1.3	-1.2	-0.9	-0.5	-0.1	0.5	0.9	1.4	2.0	2.1	1.8	1.4	1.1	0.5	0.3	0.3	0.1	-0.1	-1.3	2.1	0.1	24		
8	-0.4	-0.6	-0.8	-0.9	-1.1	-1.2	-1.3	-1.1	-0.9	-0.4	0.4	0.9	1.1	1.3	1.7	1.7	1.6	1.4	1.2	0.9	0.8	0.8	0.8	0.4	-1.3	1.7	0.3	24	
9	0.2	0.4	0.4	0.3	0.1	-0.1	-0.4	-0.6	-0.5	-0.3	0.0	1.0	1.4	2.1	2.2	2.3	3.4	3.3	1.5	-0.3	-0.5	-0.4	-0.6	-0.6	-0.6	3.4	0.6	24	
10	-0.6	-0.8	-1.0	-1.4	-1.3	-1.4	-1.6	-2.0	-1.8	-1.1	-0.5	0.1	0.7	1.9	3.9	5.4	5.6	4.2	2.5	2.1	1.5	0.9	-1.2	-1.7	-2.0	5.6	0.5	24	
11	-1.6	-0.8	-0.2	0.2	0.3	0.6	1.5	2.5	3.6	5.6	6.3	8.2	8.8	9.1	9.5	9.6	8.8	7.4	5.3	3.0	-0.1	-1.6	-2.8	-3.5	-3.5	9.6	3.3	24	
12	-3.9	-3.6	-2.6	-1.5	-1.4	-0.3	0.0	0.3	1.4	1.8	3.4	4.7	5.9	7.2	8.9	9.2	8.3	7.8	7.1	6.1	5.6	5.0	4.5	3.3	-3.9	9.2	3.2	24	
13	2.4	0.9	0.1	-0.9	-1.6	-1.5	-0.7	0.0	1.1	3.3	4.7	4.3	2.8	1.4	0.8	1.2	1.7	1.7	1.7	1.6	1.7	1.5	1.1	0.9	-1.6	4.7	1.3	24	
14	0.0	-0.5	-1.1	-0.8	-0.8	-0.8	-0.8	-0.8	-0.2	0.2	0.3	0.8	0.9	1.0	1.1	1.3	1.1	0.8	0.4	0.3	0.2	-0.1	-0.4	-0.6	-1.1	1.3	0.1	24	
15	-0.7	-0.6	-0.8	-1.4	-2.1	-2.4	-2.9	-2.7	-2.0	-1.0	-0.6	-0.4	0.2	0.0	-0.4	-0.5	-1.0	-1.2	-1.7	-2.2	-2.5	-2.7	-3.4	-3.7	-3.7	0.2	-1.5	24	
16	-4.1	-4.2	-5.5	-7.3	-7.3	-7.4	-8.2	-8.6	-8.2	-7.8	-7.4	-7.0	-6.5	-6.1	-5.5	-5.4	-5.3	-5.6	-6.0	-6.4	-6.6	-6.8	-7.0	-7.3	-8.6	-4.1	-6.6	24	
17	-7.6	-7.7	-7.9	-8.1	-8.5	-8.5	-8.5	-8.2	-7.6	-7.0	-6.1	-5.7	-5.2	-4.5	-4.3	-4.5	-4.6	-4.8	-5.1	-5.3	-5.5	-5.6	-5.7	-5.8	-8.5	-4.3	-6.3	24	
18	-6.2	-6.5	-6.8	-7.1	-7.2	-7.2	-7.2	-7.0	-6.7	-6.0	-5.7	-5.3	-4.6	-3.6	-2.6	-0.6	-0.7	-0.5	-2.6	-5.4	-7.0	-7.8	-9.8	-10.6	-10.6	-0.5	-5.6	24	
19	-11.5	-12.6	-13.4	-14.5	-15.0	-15.6	-15.8	-13.2	-8.0	-5.5	-2.7	0.2	2.1	3.7	4.3	4.4	4.1	2.7	0.6	-1.0	-1.6	-2.1	-2.7	-3.0	-15.8	4.4	-4.9	24	
20	-3.3	-3.9	-4.9	-4.6	-4.7	-4.5	-4.9	-5.3	-4.4	-2.7	-1.1	0.0	1.3	3.1	4.0	4.1	3.8	3.0	2.1	1.3	0.5	-0.2	-0.9	-1.5	-5.3	4.1	-1.0	24	
21	-2.2	-2.6	-2.9	-3.0	-3.2	-3.7	-4.3	-4.3	-4.3	-4.0	-3.3	-2.4	-1.9	-1.6	-1.1	-0.9	-1.0	-1.0	-1.1	-1.4	-1.6	-2.4	-3.2	-4.4	-4.4	-0.9	-2.6	24	
22	-5.4	-5.8	-6.3	-6.9	-7.3	-7.9	-8.5	-8.4	-8.0	-7.1	-6.1	-5.2	-4.0	-3.1	-2.4	-2.1	-2.0	-2.0	-2.7	-3.2	-3.6	-4.3	-5.4	-5.9	-8.5	-2.0	-5.2	24	
23	-6.2	-6.4	-6.4	-6.7	-6.5	-6.3	-6.1	-5.5	-4.8	-3.8	-1.9	-0.8	1.0	2.3	2.2	2.4	2.5	1.7	1.1	0.2	0.0	-0.5	-1.2	-1.3	-6.7	2.5	-2.1	24	
24	-1.5	-2.0	-2.1	-2.3	-2.4	-2.5	-3.1	-3.2	-3.5	-3.4	-3.0	-2.6	-2.1	-1.7	-1.4	-0.8	-0.8	-1.1	-1.7	-3.0	-4.6	-6.6	-8.6	-10.1	-10.1	-0.8	-3.1	24	
25	-11.3	-12.3	-12.9	-11.9	-11.2	-10.1	-9.1	-7.7	-5.8	-3.3	-0.9	0.3	0.8	1.5	1.5	1.6	1.7	1.7	1.3	0.8	0.2	0.0	0.1	-12.9	1.7	-3.5	24		
26	-0.3	0.1	0.5	0.2	-0.9	-0.8	-1.8	-0.2	1.0	2.2	2.5	3.0	3.3	3.3	3.5	3.7	3.5	3.3	2.1	-1.0	-2.6	-3.3	-4.6	-5.9	-5.9	3.7	0.5	24	
27	-7.0	-7.8	-8.3	-8.7	-8.9	-8.9	-8.0	-4.2	-2.3	-0.6	2.1	3.9	5.6	6.3	6.7	7.0	7.2	6.4	4.7	2.7	0.9	0.2	0.0	1.1	-8.9	7.2	-0.4	24	
28	0.3	-0.6	-1.3	-2.0	-2.2	-2.9	-4.1	-2.7	-0.5	0.5	2.9	4.7	6.6	9.0	9.6	9.3	8.8	8.6	7.1	5.3	4.8	3.8	2.5	2.6	-4.1	9.6	2.9	24	
29	2.4	2.1	0.8	-0.4	-1.2	-2.4	-2.2	0.5	2.9	6.2	8.0	8.6	9.7	10.1	10.5	10.6	10.2	9.6	9.0	7.9	7.5	6.0	5.4	4.7	-2.4	10.6	5.3	24	
30	4.4	4.3	4.2	4.3	4.1	4.0	3.6	4.5	5.8	6.9	8.2	9.8	11.1	11.1	11.1	10.8	10.9	10.1	9.0	7.6	6.3	5.3	4.6	3.5	3.5	11.1	6.9	24	
31	0.9	-1.1	-1.4	-1.1	-1.4	-2.0	-1.8	-1.7	-1.6	-1.1	-0.1	1.1	2.3	3.5	3.6	4.2	3.1	2.8	2.6	2.4	2.4	2.0	1.8	1.5	-2.0	4.2	0.9	24	
HOURLY MAX	4.4	4.3	4.2	4.3	4.1	4.0	3.6	4.5	5.8	6.9	8.2	9.8	11.1	11.1	11.1	10.8	10.9	10.1	9.0	7.9	7.5	6.0	5.4	4.7					
HOURLY AVG	-3.4	-3.7	-4.1	-4.5	-4.7	-4.8	-5.0	-4.5	-3.5	-2.3	-1.1	0.0	1.0	1.7	2.2	2.6	2.4	1.9	0.9	-0.1	-0.8	-1.3	-1.9	-2.3					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-16.0 °C	@ HOUR(S)	7	ON DAY(S)	2
MAXIMUM 1-HR AVERAGE:	11.1 °C	@ HOUR(S)	VAR	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	6.9 °C			ON DAY(S)	30
				VAR-VARIOUS	
OPERATIONAL TIME:				744	HRS
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	4.99	MONTHLY AVERAGE:		-1.5	°C

TPX[C°] Station: LICA COLD LAKE SOUTH Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



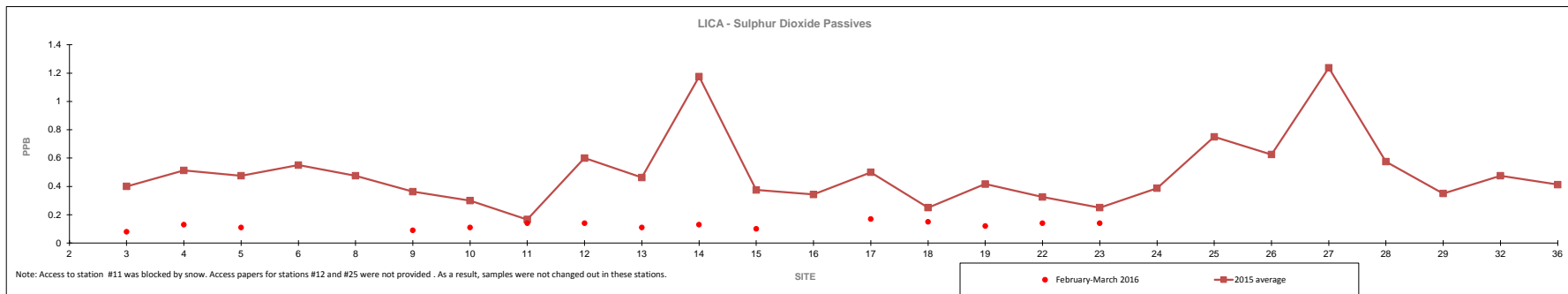
APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

PASSIVE RESULTS

Passive Summary Results for February - March 2016

Lakeland Industry & Community Association

	Sulphur Dioxide ppb																																February - March 2016	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	36	Reading	Site					
Mean	NA	0.4	0.5	0.5	0.6	0.5	0.4	0.3	0.2	0.6	0.5	1.2	0.4	0.3	0.5	0.3	0.4	0.3	0.3	0.4	0.8	0.6	1.2	0.6	0.4	0.5	0.4	0.6	-					
Minimum	NA	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.5	0.2	0.5	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.7	0.3	0.5	0.3	0.1	0.2	0.1	0.2	#23					
Maximum	NA	0.7	1.1	0.9	1.1	0.8	0.6	0.5	0.3	0.7	0.8	1.7	0.7	0.6	0.8	0.5	0.7	0.6	0.4	0.6	0.8	1.1	2.0	1.0	0.5	0.9	0.8	1.3	VAR					



Lakeland Industry & Community Association SO₂ Passive Bubble Map

FEBRUARY - MARCH 2016

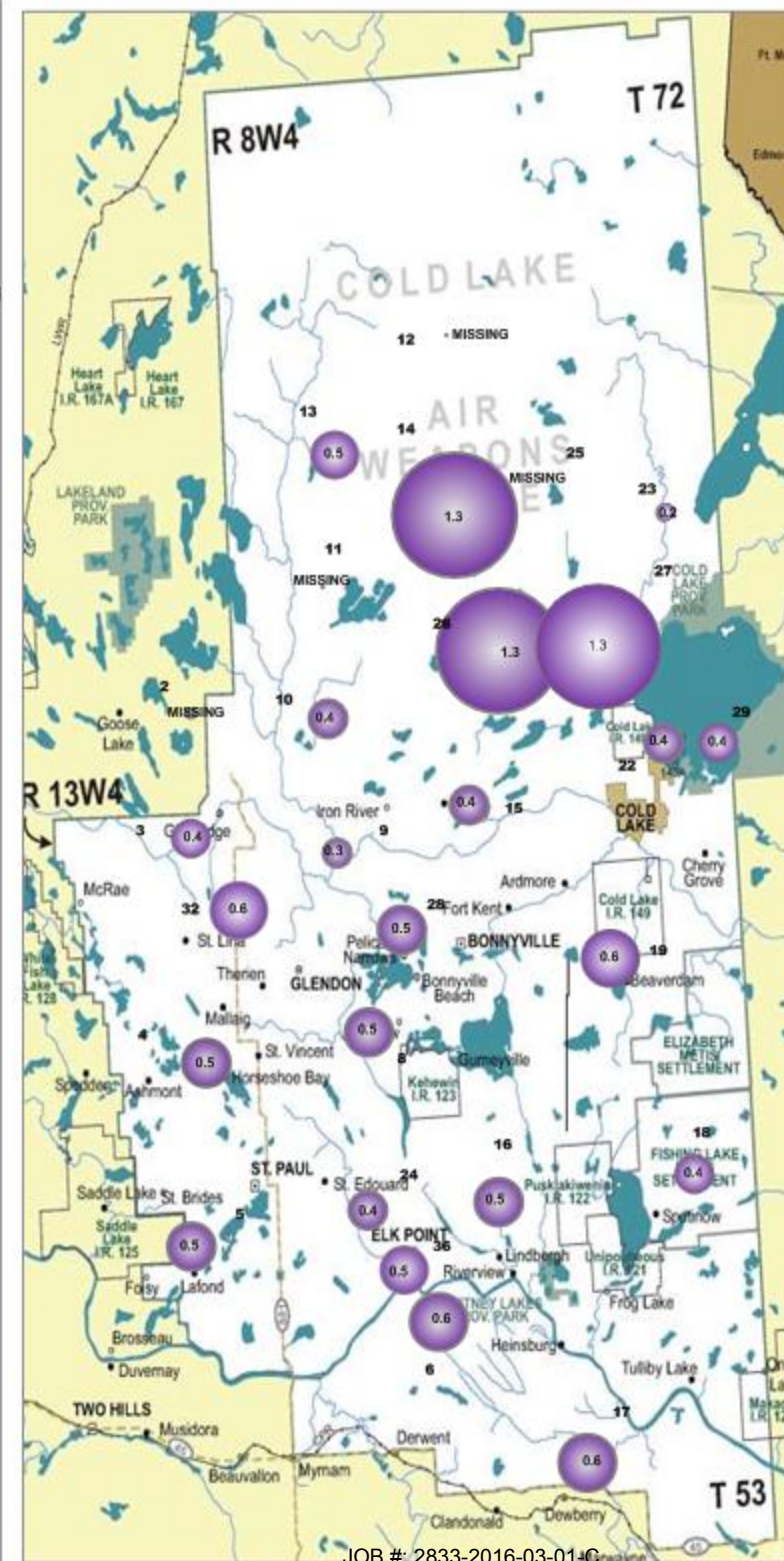
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	0.4 PPB	NA
4 – Flat Lake	0.5 PPB	NA
5 – Lake Eliza	0.5 PPB	NA
6 – Telegraph Creek	0.6 PPB	NA
8 – Muriel-Kehewin	0.5 PPB	NA
9 – Dupre	0.3 PPB	NA
10 – La Corey	0.4 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	MISSING	NA
13 – Primrose	0.5 PPB	NA
14 – Maskwa	1.3 PPB	NA
15 – Ardmore	0.4 PPB	NA
16 – Frog Lake	0.5 PPB	NA
17 – Clear Range	0.6 PPB	NA
18 – Fishing Lake	0.4 PPB	NA
19 – Beaverdam	0.6 PPB	NA
22 – Cold Lake South	0.4 PPB	NA
23 – Medley-Martineau	0.2 PPB	NA
24 – Fort George	0.4 PPB	0.4 PPB
25 – Burnt Lake	MISSING	NA
26 – Mahikan	1.3 PPB	1.2 PPB
27 – Mahkeses	1.3 PPB	1.3 PPB
28 – Town of Bonnyville	0.5 PPB	NA
29 – Cold Lake South 2	0.4 PPB	NA
32 – St. Lina	0.6 PPB	NA
36 – Elk Point	0.5 PPB	NA



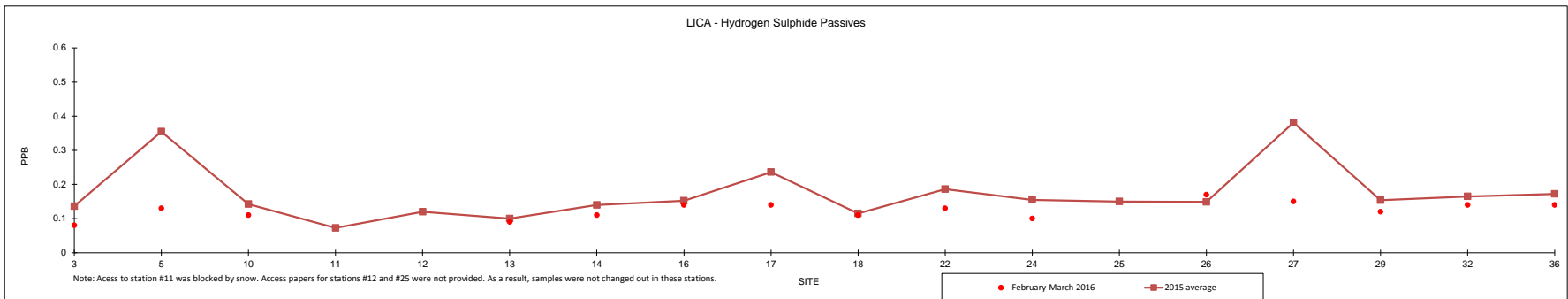
Summary

Minimum : 0.2 PPB – Medley-Martineau
Maximum: 1.3 PPB – Various stations
Average: 0.6 PPB *Includes Duplicates



Passive Summary Results for February - March 2016 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb																February - March 2016			
	3	5	10	11	12	13	14	2015 16	17	18	22	24	25	26	27	29	32	36	Reading	Site
Mean	0.14	0.36	0.14	0.07	0.12	0.10	0.14	0.15	0.24	0.12	0.19	0.16	0.15	0.15	0.38	0.15	0.17	0.17	0.12	-
Minimum	0.09	0.13	0.10	0.05	0.09	0.07	0.11	0.10	0.15	0.08	0.10	0.11	0.12	0.08	0.15	0.09	0.08	0.11	0.08	#3
Maximum	0.22	0.86	0.20	0.10	0.15	0.14	0.19	0.22	0.46	0.15	0.43	0.25	0.18	0.24	0.87	0.27	0.30	0.28	0.17	#26

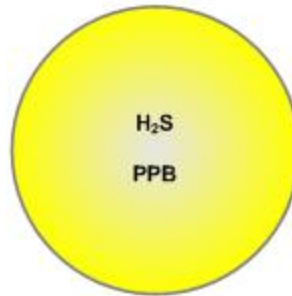


Lakeland Industry & Community Association H₂S Passive Bubble Map

FEBRUARY - MARCH 2016

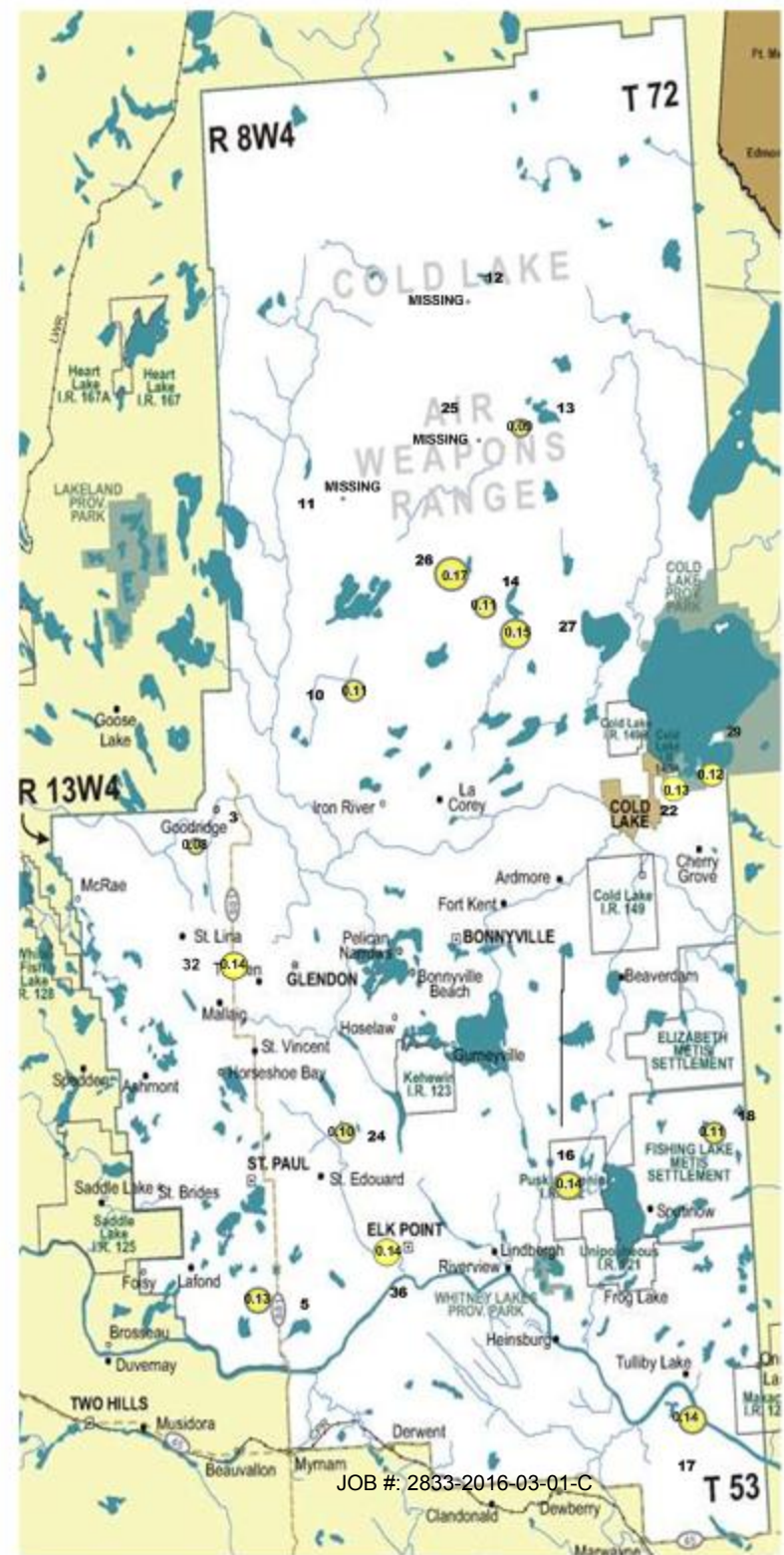
PASSIVE STATIONS

Station Number	Concentration	Status	Duplicate
3 - Therien	0.08 PPB	NA	NA
5 - Lake Eliza	0.13 PPB	NA	NA
10 - La Corey	0.11 PPB	NA	NA
11 - Wolf Lake	MISSING	NA	NA
12 - Foster Creek	MISSING	NA	NA
13 - Primrose	0.09 PPB	NA	NA
14 - Maskwa	0.11 PPB	NA	NA
16 - Frog Lake	0.14 PPB	NA	NA
17 - Clear Range	0.14 PPB	NA	NA
18 - Fishing Lake	0.11 PPB	NA	NA
22 - Cold Lake South	0.13 PPB	NA	NA
24 - Fort George	0.10 PPB	NA	NA
25 - Burnt Lake	MISSING	NA	NA
26 - Mahihkan	0.17 PPB	NA	NA
27 - Mahkeses	0.15 PPB	NA	NA
29 - Cold Lake South 2	0.12 PPB	NA	NA
32 - St. Lina	0.14 PPB	NA	NA
36 - Elk Point	0.14 PPB	NA	NA

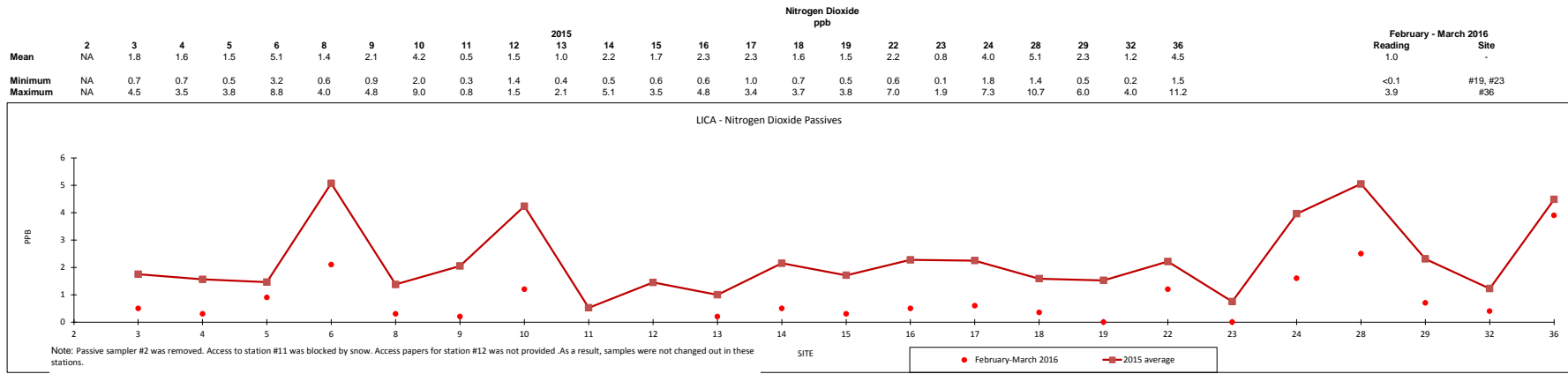


Summary

Minimum : 0.08 PPB - Therien
Maximum: 0.17 PPB - Mahihkan
Average: 0.12 PPB



Passive Summary Results for February - March 2016 Lakeland Industry & Community Association

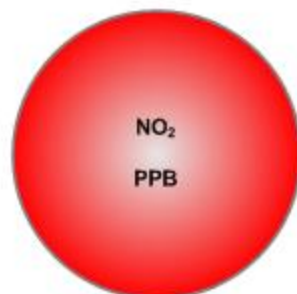


Lakeland Industry & Community Association NO₂ Passive Bubble Map

FEBRUARY - MARCH 2016

PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.3 PPB	NA
5 – Lake Eliza	0.9 PPB	NA
6 – Telegraph Creek	2.1 PPB	NA
8 – Muriel-Kehewin	0.3 PPB	NA
9 – Dupre	0.2 PPB	NA
10 – La Corey	1.2 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	MISSING	NA
13 – Primrose	0.2 PPB	NA
14 – Maskwa	0.5 PPB	NA
15 – Ardmore	0.3 PPB	NA
16 – Frog Lake	0.5 PPB	NA
17 – Clear Range	0.6 PPB	NA
18 – Fishing Lake	0.2 PPB	0.5 PPB
19 – Beaverdam	<0.1 PPB	<0.1 PPB
22 – Cold Lake South	1.2 PPB	NA
23 – Medley-Martineau	<0.1 PPB	NA
24 – Fort George	1.6 PPB	NA
28 – Town of Bonnyville	2.5 PPB	NA
29 – Cold Lake South 2	0.7 PPB	NA
32 – St. Lina	0.4 PPB	NA
36 – Elk Point	3.9 PPB	NA



Summary

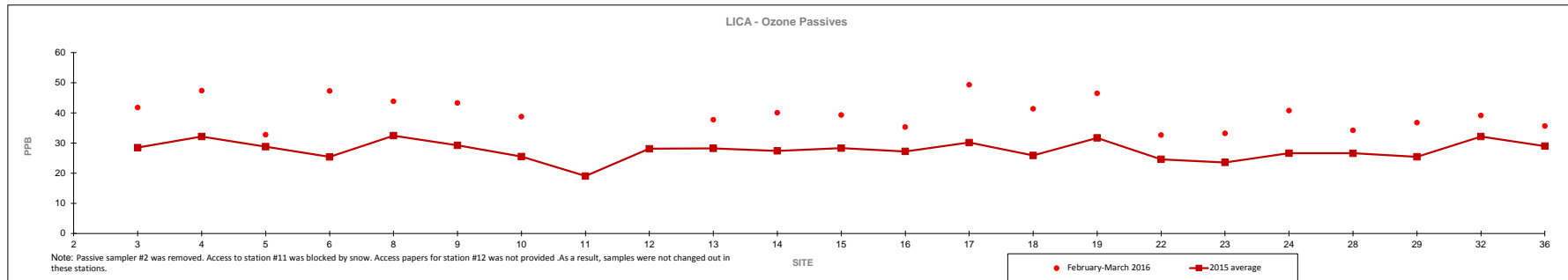
Minimum : <0.1 PPB – Beaverdam and Medley-Martineau
Maximum: 3.9 PPB – Elk Point

Average: 1.0 PPB *Includes Duplicates



Passive Summary Results for February - March 2016 Lakeland Industry & Community Association

		Ozone ppb																				February - March 2016					
	2	3	4	5	6	8	9	10	11	12	2015	13	14	15	16	17	18	19	22	23	24	28	29	32	36	Reading	Site
Mean	NA	28.5	32.2	28.8	25.4	32.5	29.2	25.5	19.0	28.1	28.2	27.4	28.3	27.2	30.1	25.9	31.7	24.6	23.6	26.6	26.6	25.4	32.2	29.0	39.85		
Minimum	NA	21.1	24.8	20.5	17.3	25.5	18.4	16.6	14.5	28.1	20.4	20.3	18.2	19.2	20.6	16.3	24.6	18.7	15.0	17.6	17.7	19.0	24.4	18.6	32.63	#22	
Maximum	NA	36.5	39.1	36.3	35.3	42.3	40.1	35.6	22.9	28.1	37.2	33.5	39.3	42.4	42.2	36.9	36.8	29.5	31.9	34.0	40.5	33.0	42.2	37.6	49.31	#17	

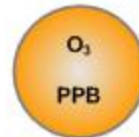


Lakeland Industry & Community Association O₃ Passive Bubble Map

FEBRUARY - MARCH 2016

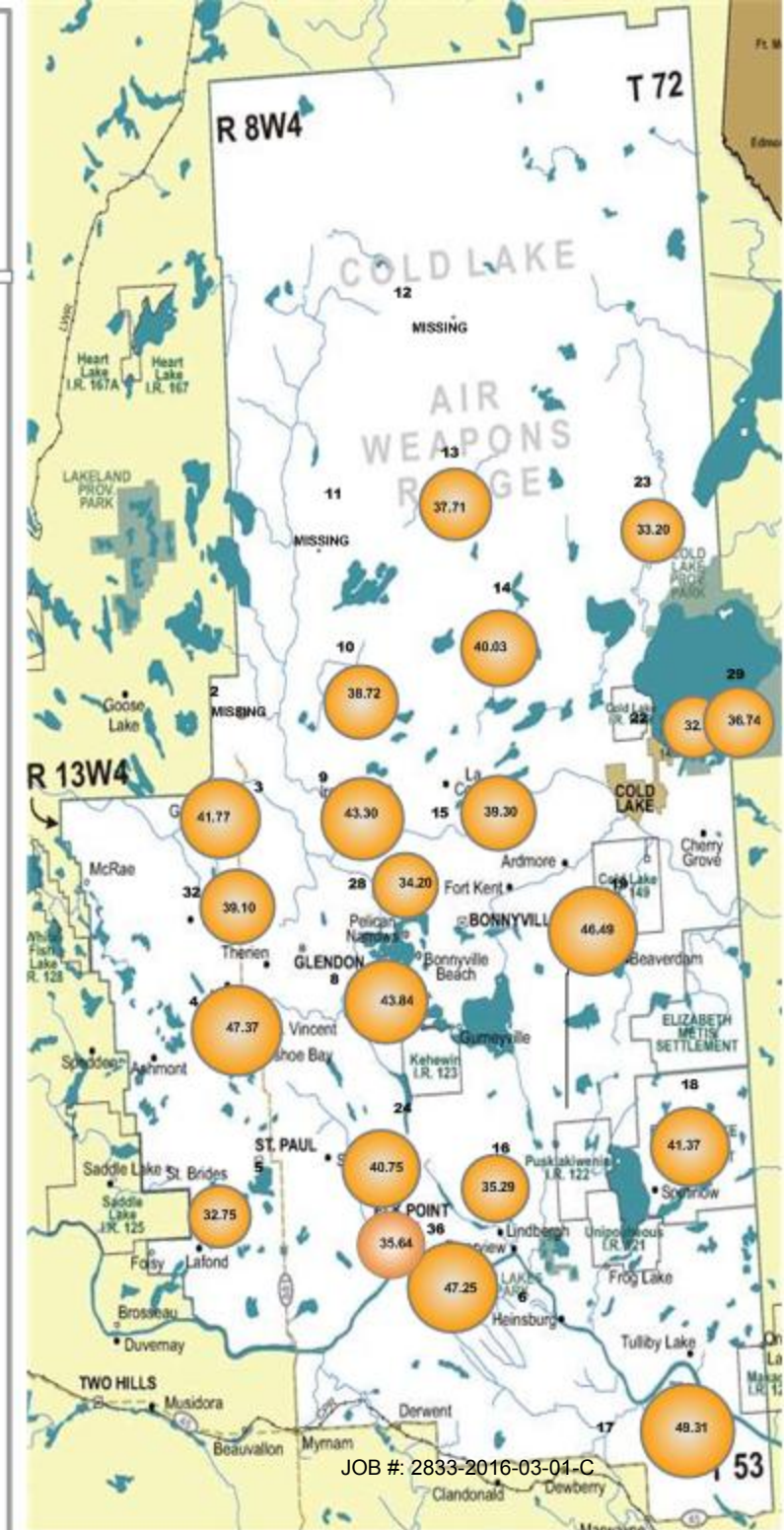
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	41.77 PPB	NA
4 – Flat Lake	47.37 PPB	NA
5 – Lake Eliza	32.75 PPB	NA
6 – Telegraph Creek	47.25 PPB	NA
8 – Muriel-Kehewin	43.24 PPB	NA
9 – Dupre	43.30 PPB	NA
10 – La Corey	38.72 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	MISSING	NA
13 – Primrose	37.71 PPB	NA
14 – Maskwa	40.03 PPB	NA
15 – Ardmore	39.30 PPB	NA
16 – Frog Lake	35.29 PPB	NA
17 – Clear Range	49.31 PPB	NA
18 – Fishing Lake	41.72 PPB	41.01 PPB
19 – Beaverdam	45.02 PPB	47.96 PPB
22 – Cold Lake South	32.63 PPB	NA
23 – Medley-Martineau	33.20 PPB	NA
24 – Fort George	40.75 PPB	NA
28 – Town of Bonnyville	34.20 PPB	NA
29 – Cold Lake South 2	36.74 PPB	NA
32 – St. Lina	39.10 PPB	NA
36 – Elk Point	35.64 PPB	NA



Summary

Minimum : 32.63 PPB – Cold Lake South
 Maximum: 49.31 PPB – Clear Range
 Average: 39.85 PPB *Includes Duplicates



VOC RESULTS

Sample ID: 16030073-003

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Mar 1, 2016

Priority: Normal

Maxxam



VOC Sample Collection Data Sheet

Client: LICA

Sampler S/N: 6167

Location: Cold Lake South

Canister ID: 2643

Station ID: LICA 01

Canister Installation Date/Time: Feb 26, 2016 / 11:07

Field Sample ID: LICA/VOC/CLS/Mar 01, 2016

Canister Removal Date/Time: Mar 03, 2016 / 16:58

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 01, 2016	00:00 Mar 01, 2016	00:00 Mar 02, 2016	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	6.52	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28.0	+24.0

Canister valve open prior to sampling?: YES / NO

Timer set to 0.00 minutes prior to sampling? YES / NO

Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov

Sample out - by Alex Yakupov

Date: March 3, 2016

Volatile Organics Data Results

Date: MARCH 1, 2016
Canister ID: 2643

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.04
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.06
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.08
2,3-Dimethylpentane	0.07
2,4-Dimethylpentane	0.04
2-Methylheptane	0.04
2-Methylhexane	0.07
2-Methylpentane	0.29
3-Methylheptane	0.03
3-Methylhexane	0.09
3-Methylpentane	0.14
Acetone	1.1
Acrolein	< 0.3
Benzene	0.21
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.03
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.53
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.13
Cyclopentane	0.07
Dibromochloromethane	< 0.01
Ethanol	< 0.3
Ethyl acetate	< 0.4
Ethylbenzene	0.05
Freon-11	0.18

Volatile Organics Data Results

Date: MARCH 1, 2016
Canister ID: 2643

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.85
Isopentane	0.47
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.13
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.18
Methylcyclopentane	0.18
Methylene chloride	< 0.3
n-Butane	1.55
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.11
n-Hexane	0.23
n-Nonane	0.03
n-Octane	0.04
n-Pentane	0.7
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.01
o-Xylene	0.06
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.22
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030162-005

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/March 7, 2016

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: Cold Lake South
 Station ID: LICA 01
 Field Sample ID: LICA/VOC/CLS/Mar 7, 2016

Sampler S/N: 6167
 Canister ID: 17126
 Canister Installation Date/Time: Mar 03/2016 / 16:59
 Canister Removal Date/Time: Mar 09/2016 / 13:45

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 7, 2016	00:00 Mar 7, 2016	00:00 Mar 8, 2016	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	6.52	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28.0	+23.1



Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov

Sample out - by Alex Yakupov

Date: March 09, 2016

Volatile Organics Data Results

Date: MARCH 7, 2016
Canister ID: 17126

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	0.08
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.11
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.08
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.09
1-Hexene	0.08
1-Pentene	0.08
2,2,4-Trimethylpentane	0.13
2,2-Dimethylbutane	0.10
2,3,4-Trimethylpentane	0.10
2,3-Dimethylbutane	0.11
2,3-Dimethylpentane	0.13
2,4-Dimethylpentane	0.11
2-Methylheptane	0.11
2-Methylhexane	0.15
2-Methylpentane	0.19
3-Methylheptane	0.09
3-Methylhexane	0.13
3-Methylpentane	0.16
Acetone	2.1
Acrolein	< 0.3
Benzene	0.33
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.01
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.64
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.06
cis-2-Pentene	0.09
Cyclohexane	0.15
Cyclopentane	0.13
Dibromochloromethane	< 0.01
Ethanol	0.9
Ethyl acetate	< 0.4
Ethylbenzene	0.10
Freon-11	0.29

Volatile Organics Data Results

Date: MARCH 7, 2016
Canister ID: 17126

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	0.02
Freon-12	0.54
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.77
Isopentane	< 0.03
Isoprene	0.08
Isopropyl alcohol	< 0.4
Isopropylbenzene	0.08
m,p-Xylene	0.15
m-Diethylbenzene	0.06
m-Ethyltoluene	0.09
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.15
Methylcyclopentane	0.18
Methylene chloride	< 0.3
n-Butane	1.16
n-Decane	0.11
n-Dodecane	0.4
n-Heptane	0.14
n-Hexane	0.19
n-Nonane	0.10
n-Octane	0.12
n-Pentane	0.5
n-Propylbenzene	0.08
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.08
o-Xylene	0.11
p-Diethylbenzene	0.07
p-Ethyltoluene	0.09
Styrene	0.08
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.22
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.07
trans-2-Pentene	0.09
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030162-007

Customer ID: LICA

AIR FCD-01320/2

Cust Samp ID: LICA/VOC/CLS/March 13, 2016

Maxxam

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6167
 Location: Cold Lake South Canister ID: 17119
 Station ID: LICA 01 Canister Installation Date/Time: Mar 09, 2016 / 13:46
 Field Sample ID: LICA/VOC/CLS/Mar 13, 2016 Canister Removal Date/Time: Mar 14, 2016 / 08:58
A.Y.

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 13, 2016</u>	<u>00:00</u> <u>Mar 13, 2016</u>	<u>00:00</u> <u>Mar 14, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>6.52</u>	<u>24</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>-28.0</u>	<u>+23.2</u>



Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: March 14, 2016

Volatile Organics Data Results

Date: MARCH 13 , 2016
Canister ID: 17119

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	0.09
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.11
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.09
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.14
1-Hexene	0.09
1-Pentene	0.09
2,2,4-Trimethylpentane	0.11
2,2-Dimethylbutane	0.09
2,3,4-Trimethylpentane	0.09
2,3-Dimethylbutane	0.11
2,3-Dimethylpentane	0.12
2,4-Dimethylpentane	0.11
2-Methylheptane	0.10
2-Methylhexane	< 0.01
2-Methylpentane	0.18
3-Methylheptane	0.09
3-Methylhexane	0.14
3-Methylpentane	0.17
Acetone	2.4
Acrolein	< 0.3
Benzene	0.29
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.02
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	0.05
Chloroform	0.03
Chloromethane	0.74
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.09
cis-2-Pentene	0.08
Cyclohexane	0.14
Cyclopentane	0.11
Dibromochloromethane	< 0.01
Ethanol	0.8
Ethyl acetate	< 0.4
Ethylbenzene	0.10
Freon-11	0.29

Volatile Organics Data Results

Date: MARCH 13 , 2016
Canister ID: 17119

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.02
Freon-12	0.62
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.98
Isopentane	< 0.03
Isoprene	0.08
Isopropyl alcohol	< 0.4
Isopropylbenzene	0.09
m,p-Xylene	0.12
m-Diethylbenzene	0.08
m-Ethyltoluene	0.09
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.15
Methylcyclopentane	0.21
Methylene chloride	< 0.3
n-Butane	1.08
n-Decane	0.10
n-Dodecane	0.9
n-Heptane	0.14
n-Hexane	0.36
n-Nonane	0.10
n-Octane	0.11
n-Pentane	0.4
n-Propylbenzene	0.09
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.09
o-Xylene	0.10
p-Diethylbenzene	0.08
p-Ethyltoluene	0.09
Styrene	0.07
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.19
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.09
trans-2-Pentene	0.09
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030271-001

Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Mar 19, 2016

Maxxam



VOC Sample Collection Data Sheet

Client: LICA
 Location: Cold Lake South
 Station ID: LICA 01
 Field Sample ID: LICA/VOC/CLS/Mar 19, 2016

Sampler S/N: 6167
 Canister ID: H2831
 Canister Installation Date/Time: Mar 14, 2016 / 08:59
 Canister Removal Date/Time: Mar 22, 2016 / 07:47

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 19, 2016</u>	<u>00:00 Mar 19, 2016</u>	<u>00:00 Mar 20, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>6.52</u>	<u>24</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>-28.0</u>	<u>+24.8</u>

Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: Mar 22, 2016

Volatile Organics Data Results

Date: MARCH 19, 2016
Canister ID: H2831

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.08
1-Hexene	< 0.02
1-Pentene	0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	0.05
2,4-Dimethylpentane	0.01
2-Methylheptane	0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.13
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.06
Acetone	2.7
Acrolein	< 0.3
Benzene	0.11
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.12
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.97
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.02
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	1.8
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.36

Volatile Organics Data Results

Date: MARCH 19, 2016
Canister ID: H2831

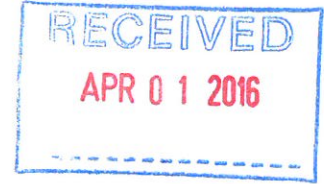
PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.03
Freon-12	0.83
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.08
Isopentane	0.69
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.06
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.04
Methylcyclopentane	0.06
Methylene chloride	< 0.3
n-Butane	2.06
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.03
n-Hexane	0.12
n-Nonane	0.01
n-Octane	< 0.02
n-Pentane	0.3
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.02
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.11
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.02
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16040006-001

AIR FCD-01320/2

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Mar 25, 2016

Maxxam



VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6167
 Location: Cold Lake South Canister ID: H3284
 Station ID: LICA 01 Canister Installation Date/Time: Mar 23, 2016 / 09:18
 Field Sample ID: LICA/VOC/CLS/Mar 25, 2016 Canister Removal Date/Time: Mar 28, 2016 / 09:08

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 25, 2016</u>	<u>00:00</u> <u>Mar 25, 2016</u>	<u>00:00</u> <u>Mar 26, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (scm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>6.52</u>	<u>24</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>- 28.0</u>	<u>+ 22.8</u>

Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Volatile Organics Data Results

Date: MARCH 25, 2016
Canister ID: H3284

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.11
1-Hexene	0.03
1-Pentene	0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	0.04
2,4-Dimethylpentane	0.01
2-Methylheptane	0.01
2-Methylhexane	0.11
2-Methylpentane	< 0.01
3-Methylheptane	< 0.02
3-Methylhexane	0.10
3-Methylpentane	0.12
Acetone	4.2
Acrolein	2.9
Benzene	0.11
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.51
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.03
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.03
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	72.1
Ethyl acetate	< 0.4
Ethylbenzene	0.01
Freon-11	0.30

Volatile Organics Data Results

Date: MARCH 25, 2016
Canister ID: H3284

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.03
Freon-12	0.17
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.66
Isopentane	0.60
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.9
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.09
Methylcyclopentane	0.21
Methylene chloride	< 0.3
n-Butane	1.13
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.18
n-Hexane	0.64
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.2
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.24
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

PAH RESULTS

Sample ID: 16030073-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Mar 1, 2016



Priority: Normal

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-01</u>
Location:	<u>Cold Lake South</u>	Motor S/N:	<u>1138/100-1020</u>
Station ID:	<u>LICA 01</u>	Installation Date/Time:	<u>Feb 26, 2016/11:17</u>
Field Sample ID:	<u>LICA/PUF/CLS/Mar 01, 2016</u>	Removal Date/Time:	<u>Feb Mar 3, 2016/16:51 A.X.</u>

Sample Data Collection Information

Sample Date:	<u>Mar 01, 2016</u>	Average Pressure (mmHg)	<u>n/a</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>n/a</u>
End Time (mst):	<u>00:00/Mar 02, 2016</u>	Average Temperature (°C)	<u>n/a</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>n/a</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	YES	NO	<u>- n/a</u>
Average temperature appears correct?	YES	NO	<u>- n/a</u>
Average pressure appears correct?	YES	NO	<u>- n/a</u>
Any error messages? (if yes list below)	YES	NO	<u>- n/a</u>
Sample duration 24 hours?	YES	NO	<u>- n/a</u>
Date of last calibration/audit:	<u>Dec 22, 2015</u>		
Other observations?	<u>No sampling done. PUF sampler is out of order. Repair is in progress. PUF filter DOES NOT require analysis.</u>		
Deployed By:	<u>Alex Yakupov</u>		
Collected By:	<u>Alex Yakupov</u>	Date:	<u>Mar 3, 2016</u>

Sample ID: 16030162-006

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/March 7, 2016

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-09</u>
Location:	<u>Cold Lake South</u>	Motor S/N:	<u>1138/100-1020</u>
Station ID:	<u>LICA 01</u>	Installation Date/Time:	<u>Mar 3, 2016/16:52</u>
Field Sample ID:	<u>LICA/PUF/CLS/Mar 7, 2016</u>	Removal Date/Time:	<u>Mar 9, 2016/13:54</u>

Sample Data Collection Information

Sample Date:	<u>Mar 7, 2016</u>	Average Pressure (mmHg)	<u>n/a</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>n/a</u>
End Time (mst):	<u>00:00 / Mar 8, 2016</u>	Average Temperature (°C)	<u>n/a</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>n/a</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	YES	NO	<u>- n/a</u>
Average temperature appears correct?	YES	NO	<u>- n/a</u>
Average pressure appears correct?	YES	NO	<u>- n/a</u>
Any error messages? (if yes list below)	YES	NO	<u>- n/a</u>
Sample duration 24 hours?	YES	NO	<u>- n/a</u>
Date of last calibration/audit:	<u>Dec 22, 2015</u>		

Other observations? A repaired key pad was installed back.

The sampler was reset for scheduled sampling as usual
TE-09 filter DOES NOT require analysis.
For TE-09 PUF filter-NO sampling was done.

Deployed By: Alex Yakupov

Collected By: Alex Yakupov

Date: Mar 09, 2016



Sample ID: 16030162-008

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/March 13, 2016

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-03</u>
Location:	<u>Cold Lake South</u>	Motor S/N:	<u>1138/100-1020</u>
Station ID:	<u>LICA 01</u>	Installation Date/Time:	<u>Mar 9, 2016/13:55</u>
Field Sample ID:	<u>LICA/PUF/CLS/Mar 13, 2016</u>	Removal Date/Time:	<u>Mar 14, 2016/08:55</u>

Sample Data Collection Information

Sample Date:	<u>Mar 13, 2016</u>	Average Pressure (mmHg)	<u>695</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00/Mar 14, 2016</u>	Average Temperature (°C)	<u>2.4°</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>330.19</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Date of last calibration/audit:	<u>Dec 22, 2015</u>	
Other observations?	<u>n/a</u>	

Deployed By: Alex Yakupov

Collected By: Alex Yakupov Date: Mar 14, 2016

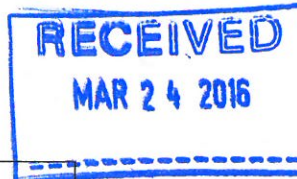


Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 13 , 2016
PUF S/N: TE03

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.14
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.02
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.17
Perylene	< 0.01
Phenanthrene	0.02
Pyrene	0.01
Retene	0.02

Customer ID: LICA
 Cust Samp ID: LICA/PUF/CLS/Mar 19, 2016



TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>A13-02</u>
Location:	<u>Cold Lake South</u>	Motor S/N:	<u>1138/100-1020</u>
Station ID:	<u>LICA 01</u>	Installation Date/Time:	<u>Mar 14, 2016/08:56</u>
Field Sample ID:	<u>LICA/PUF/CLS/Mar 19, 2016</u>	Removal Date/Time:	<u>Mar 23, 2016/09:03</u>

Sample Data Collection Information

Sample Date:	<u>Mar 19, 2016</u>	Average Pressure (mmHg)	<u>720</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 Mar 20, 2016</u>	Average Temperature (°C)	<u>-3.8°</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>330.17</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	NO
Any error messages? (if yes list below)	YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	NO
Date of last calibration/audit:	<u>Dec 22, 2015</u>	
Other observations?	<u>n/a</u>	

Deployed By: Alex Yakupov

Collected By: Alex Yakupov Date: Mar 23, 2016

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

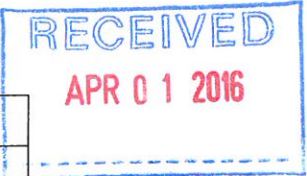
Date: MARCH 19 , 2016
PUF S/N: A1302

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.04
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.11
Perylene	< 0.01
Phenanthrene	0.10
Pyrene	0.03
Retene	0.09

Sample ID: 16040006-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Mar 25, 2016



TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-06</u>
Location:	<u>Cold Lake South</u>	Motor S/N:	<u>1138/100-1020</u>
Station ID:	<u>LICA 01</u>	Installation Date/Time:	<u>Mar 23, 2016/09:04</u>
Field Sample ID:	<u>LICA/PUF/CLS/Mar 25, 2016</u>	Removal Date/Time:	<u>Mar 28, 2016/09:16</u>

Sample Data Collection Information

Sample Date:	<u>Mar 25, 2016</u>	Average Pressure (mmHg)	<u>712</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 Mar 26, 2016</u>	Average Temperature (°C)	<u>-2.1°</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>330.21</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Date of last calibration/audit:	<u>Dec 22, 2015</u>	
Other observations?	<u>n/a</u>	

Deployed By: Alex Yakupov

Collected By: Alex Yakupov Date: Mar 28, 2016

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 25 , 2016
PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	0.02
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.07
Perylene	< 0.01
Phenanthrene	0.14
Pyrene	0.02
Retene	0.04

PARTISOL RESULTS

Sample ID: 16030074-001

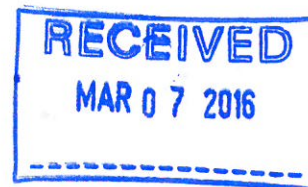
AIR FCD-01318/2

Customer ID: LICA

Partisol Sample Data Sheet

Cust Samp ID: LICA P5013880

Priority: Normal



Date Sampled: Mar 01, 2016

Location: Cold Lake South

Parameter: TSP PM10

PM2.5

Filter #: LICA P5013880

Start Time 00:00 Mar 01, 2016

End Time 00:00 Mar 02, 2016

Status OK

Std Vol 25.293

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

n/a

Technician Signature: Alex Yakupov

Date: Mar 3, 2016

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 16030161-001

Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: LICA P5013878

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: March 7, 2016

Location: Cold Lake South

Parameter: TSP PM10

PM2.5

Filter #: LICA P5013878

Start Time 00:00 March 7, 2016

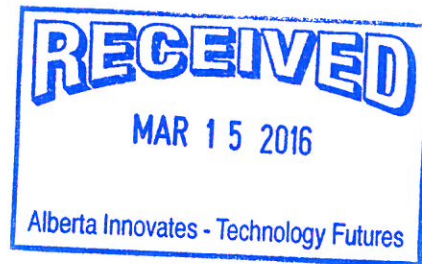
End Time 00:00 March 8, 2016

Status OK

Std Vol 24.407

Valid Time 24:00

Total Time 24.0



Comments: Weather Conditions, etc.

n/a

Technician Signature: Alex Yakupov

Date: March 09, 2016

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 16030161-002

Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: LICA P5013879

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: March 13, 2016

Location: Cold Lake South

Parameter: TSP PM10

PM2.5

Filter #: LICA P5013879

Start Time 00:00 March 13, 2016

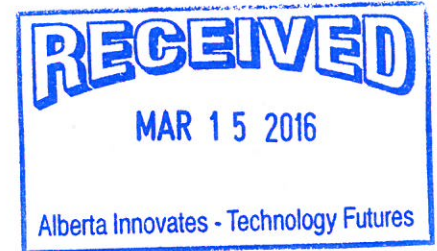
End Time 00:00 March 14, 2016

Status OK

Std Vol 23.987

Valid Time 24:00

Total Time 24.0



Comments: Weather Conditions, etc.

n/a

Technician Signature: Alex Yakupov

Date: Mar 14, 2016
09:22

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 16030270-001

Customer ID: LICA

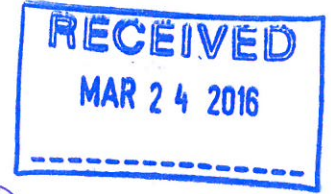
Cust Samp ID: LICA P5099825

AIR FCD-01318/2

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: March 19, 2016
Location: Cold Lake South
Parameter: TSP PM10
Filter #: LICA P509 98 25



PM2.5

Start Time 00:00 Mar 19, 2016
End Time 00:00 Mar 20, 2016
Status OK
Std Vol 25.351
Valid Time 24:00
Total Time 24.0

Comments: Weather Conditions, etc.

n/a

Technician Signature: Alex Yakupov

Date: Mar 23, 2016
08:58

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 16040004-001

AIR FCD-01318/2

Customer ID: LICA

Cust Samp ID: LICA P5099826

Particulate Matter Sample Data Sheet

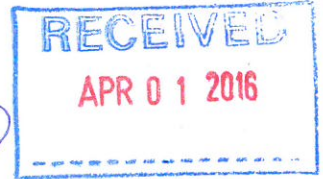
Priority: Normal

Date Sampled: March 25, 2016

Location: Cold Lake, South

Parameter: TSP PM10

PM2.5



Filter #: LICA P50 99 826

Start Time 00:00 Mar 25, 2016

End Time 00:00 Mar 26, 2016

Status OK

Std Vol 24.972

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

n/a

Technician Signature: Alex Yakupov
Date: Mar 28, 2016

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Partisol Sampler Results

Date	Filter NO.	Concentration (mg)
MARCH 1	P5013880	0.200
MARCH 7	P5013878	0.072
MARCH 13	P5013879	0.058
MARCH 19	P5099825	0.062
MARCH 25	P5099826	0.164

APPENDIX III
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	March 8, 2016	Barometric Pressure:	0.930 atm
Company/Airshed:	LUCA	Station Temperature °C:	21
Location/Station Name:	Cold Lake South	Weather Conditions:	A few clouds
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	11:09	Performed By/Reviewer:	Alex Yakupov Trina Whitsitt
End Time 24 hr. (mst):	14:26	Cal Gas Expiry Date:	December 2, 2023
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:	Serial Number:	806528242	Range ppb:	500
	Last Calibration Date:	February 9, 2016	As Found C.F.:	1.024
	Previous C.F.:	1.001	New C.F.:	1.000

Calibrator:	Flow Meter ID's:	n/a	<table border="1"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>380</td> </tr> <tr> <td>Mid</td> <td>180</td> </tr> <tr> <td>Low</td> <td>90</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	380	Mid	180	Low	90
Point	Sulphur Dioxide Standard Calibration Points										
High	380										
Mid	180										
Low	90										
	Make & Model:	SABIO 2010 D									
	Serial #:	11900613									
	Cal Gas Cylinder I.D. #:	LL119346									
	Cal Gas Conc. (ppm):	50.0									

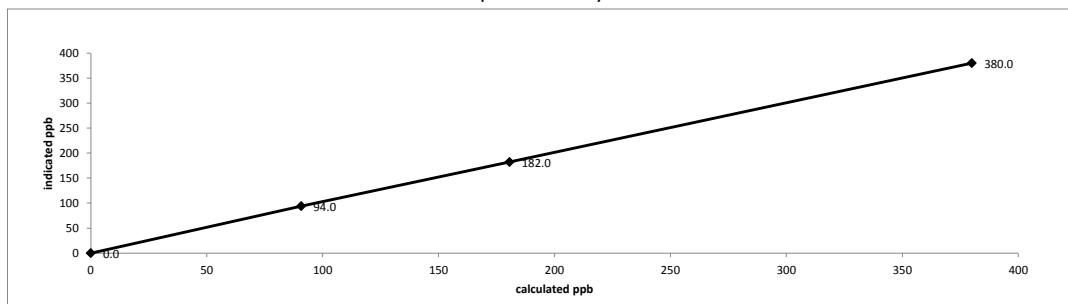
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.00	5013	0.0	0.0	N/A
as found high	4975	38.10	5013	380.0	371.0	1.024
adjusted high	4975	38.10	5013	380.0	380.0	1.000
mid	4993	18.10	5011	180.6	182.0	0.992
low	5003	9.10	5012	90.8	94.0	0.966
calibrator zero	5013	0.00	5013	0.0	0.0	n/a
Average C.F.=						0.986

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS
Slope =	1.003	> or = 0.995
b (Intercept as % of full scale)=	-0.31%	.95-1.05
% change in C.F. from last cal=	-2.32%	± 3% F.S.
		± 10%

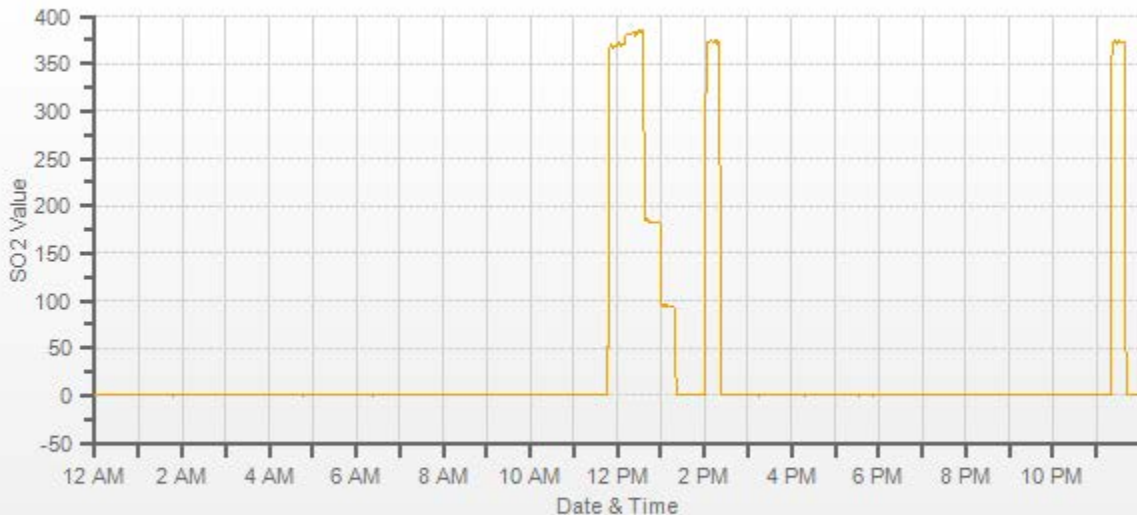
Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:	BKG:	7.0	As left:	BKG:	7.2
	COEF:	1.087		COEF:	1.117
	PMT:	-632.0		PMT:	-632.0
	FLASH:	707		FLASH:	706
	INTERNAL:	28.0		INTERNAL:	28.5
	CHAMBER:	45.0		CHAMBER:	45.0
	PERM OVEN GAS:	45.0		PERM OVEN GAS:	45.0
	PERM OVEN HEATER:	44.19		PERM OVEN HEATER:	44.20
	PRESSURE:	675.6		PRESSURE:	675.6
	SAMPLE FLOW:	0.473		SAMPLE FLOW:	0.473
	LAMP INTENSITY:	77		LAMP INTENSITY:	77
	CONVERTER:	n/a		CONVERTER:	n/a
	CONVERTER SET:	n/a		CONVERTER SET:	n/a
	Internal Span:	360.5		Internal Span:	372

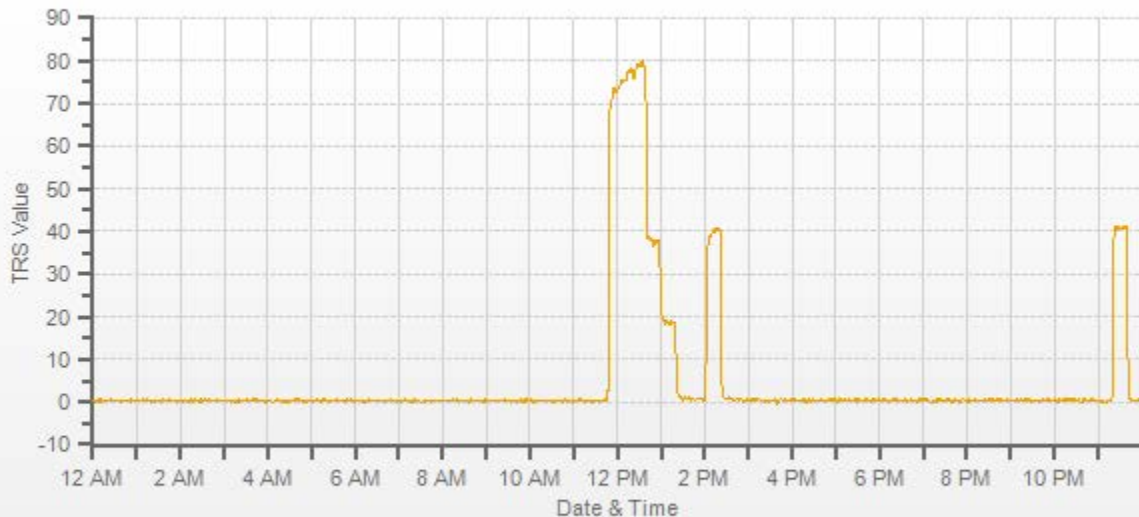
Comments:

Sample filter changed. No ZERO adjustment made.



TOTAL REDUCED SULPHUR

Thermo 450i Total Reduced Sulphur Analyzer Calibration																																																																
Date: March 8, 2016 Company/Airshed: LUCA Location/Station Name: Cold Lake South Parameter: Total Reduced Sulphur Start Time 24 hr. (mst): 11:09 End Time 24 hr. (mst): 14:26 Calibration Method: Gas Dilution	Barometric Pressure: 0.930 atm Station Temperature °C: 21 Weather Conditions: A few clouds Calibration Purpose: routine monthly Performed By/Reviewer: Alex Yakupov / Trina Whitsitt Cal Gas Expiry Date: July 15, 2017 Converter Model & s/n (if applicable): CDNova CDN-101 #501																																																															
Analyzer: Serial Number: 812728560 Range ppb: 100 Last Calibration Date: February 10, 2016 As Found C.F.: 1.013 Previous C.F.: 1.000 New C.F.: 1.000																																																																
Calibrator: Flow Meter ID's: n/a Make & Model: API 700 Serial #: 830 Cal Gas Cylinder I.D. # : LL36837 Cal Gas Conc. (ppm): 10.0																																																																
Standard Calibration Points for Ranges																																																																
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TOTAL HYDROCARBON



Thermo 51C Total Hydrocarbon Analyzer Calibration

Date:	March 3, 2016	Barometric Pressure:	0.931 atm
Company/Airshed:	LICA	Station Temperature °C:	21
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly cloudy with snow
Parameter:	Total Hydrocarbon	Calibration Purpose:	post repair
Start/End Time 24 hr. (mst):	16:27 / 19:25	Performed By/Reviewer:	Alex Yakupov / Tom Bourque
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	November 25, 2023

Analyzer:	Serial Number:	427408718	Range ppm:	50
	Last Calibration Date:	n/a	As Found C.F.:	n/a
	Previous Cal High Point C.F.:	n/a	New C.F.:	1.000

Calibrator:	Flow Meter ID's:	n/a	Standard Calibration Points for a Range of:	50 ppm
	Make & Model:	API 700		
	Serial #:	830		
	Cal Gas Cylinder I.D. #:	LL165372		
	CH ₄ /C ₂ H ₆ Cylinder Conc. (ppm):	606.0 / 212.0		
	CH ₄ as propane/total CH _x equivalents (ppm):	583.0 / 1189.0		

Point	Target ppm
High	38
Mid	18
Low	9

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppm)	Indicated Concentration (ppm)	Correction Factors
	Diluent	Cal Gas	Total			
adjusted zero	1999	0.00	1999	0.0	0.00	n/a
adjusted high	1931	65.00	1996	38.72	38.73	1.000
mid	1969	31.00	2000	18.43	18.25	1.010
low	1984	16.00	2000	9.51	9.32	1.021
calibrator zero	1999	0.00	1999	0.00	0.00	n/a

Average C.F. = 1.010

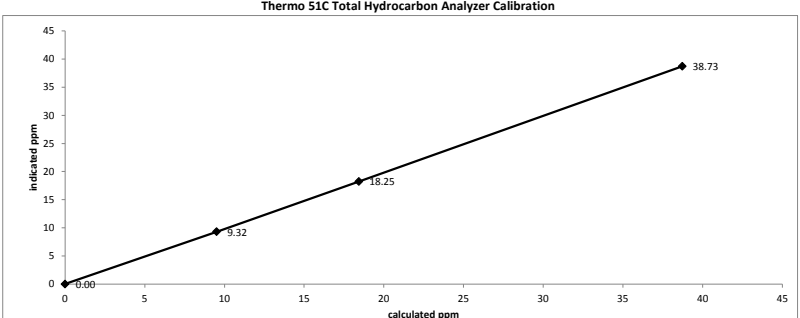
Linear Regression/Calibration Results:

Correlation Coefficient = 1.000 LIMITS > or = 0.995

Slope = 0.998 .95-1.05

b (Intercept as % of full scale) = 0.23% ± 3% F.S.

% change in C.F. from last cal = n/a ± 10%




As found:	As left:
H2 cylinder (psi): 500	H2 cylinder (psi): 500
H2 cylinder reg set (psi): 22	H2 cylinder reg set (psi): 22
Span Cylinder (psi): 1400	Span Cylinder (psi): 1400
Span Cylinder Reg Set (psi): 22	Span Cylinder Reg Set (psi): 22
Zero Air Gen Pressure: 34	Zero Air Gen Pressure: 34
measurement alarms: n/a	measurement alarms: None
service alarms: n/a	service alarms: None
cnt: n/a	cnt: 1351
rng: n/a	rng: 1
try: n/a	try: 0
flm: n/a	flm: 181.5
det: n/a	det: 125.8
Flame: n/a	Flame: 181
Filter: n/a	Filter: 125
Base: n/a	Base: 125
Sample psi: n/a	Sample psi: 06.51
Internal Air Pressure: n/a	Internal Air Pressure: 20
Internal Fuel Pressure: n/a	Internal Fuel Pressure: 14
Intenal Pressure Gauge psi: n/a	Intenal Pressure Gauge psi: 27
Internal Span: n/a	Internal Span: 26.4

Comments: Post-repair calibration performed after the internal pump had been replaced. No shutdown calibration performed as the analyzer failed on March 3, at 3.00. Sample filter changed.

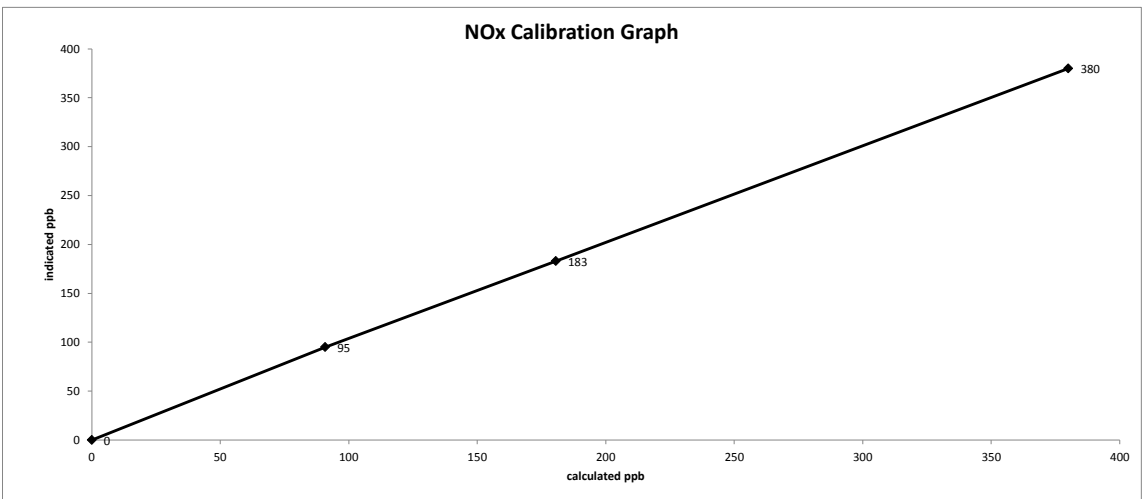
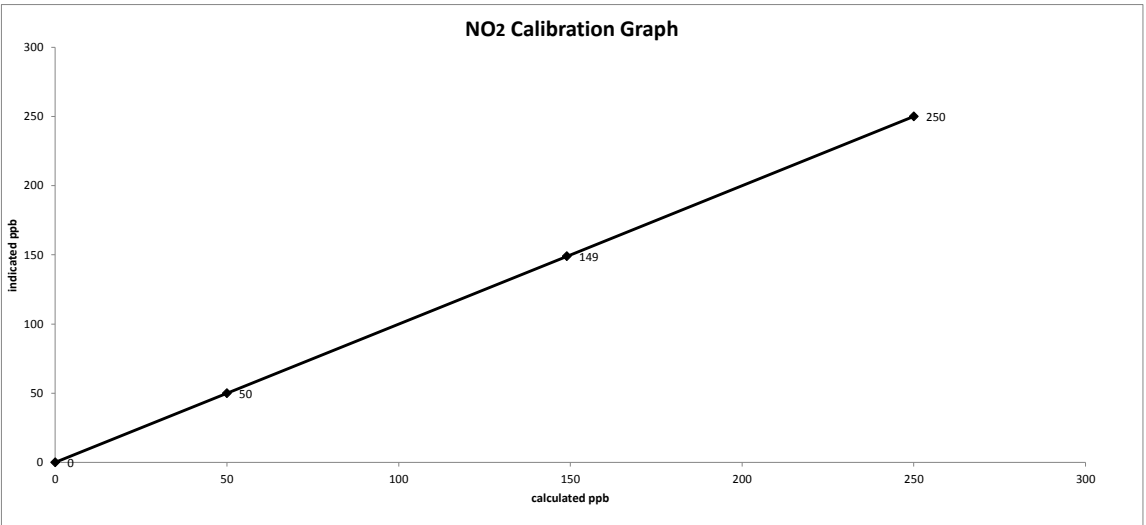
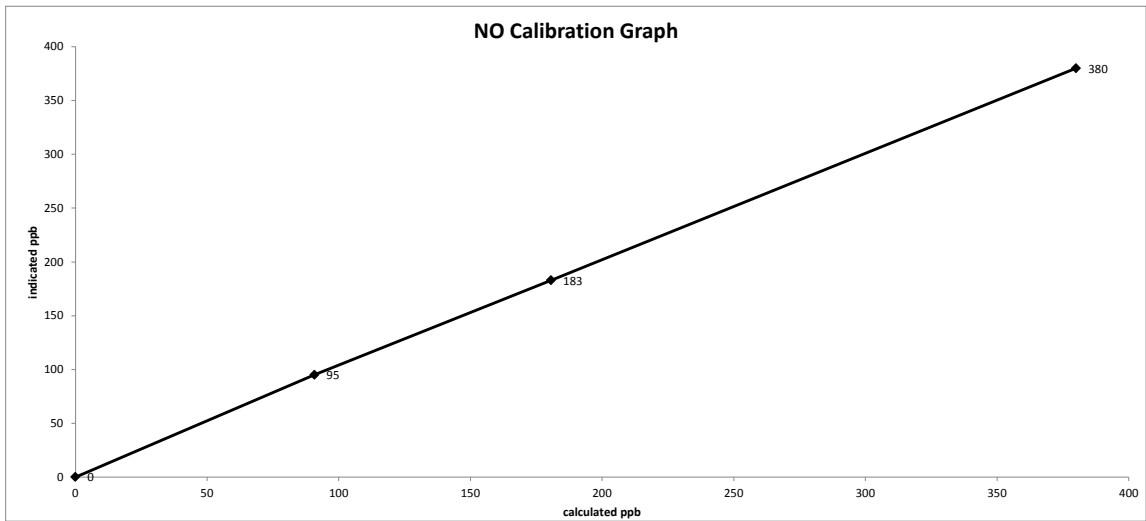


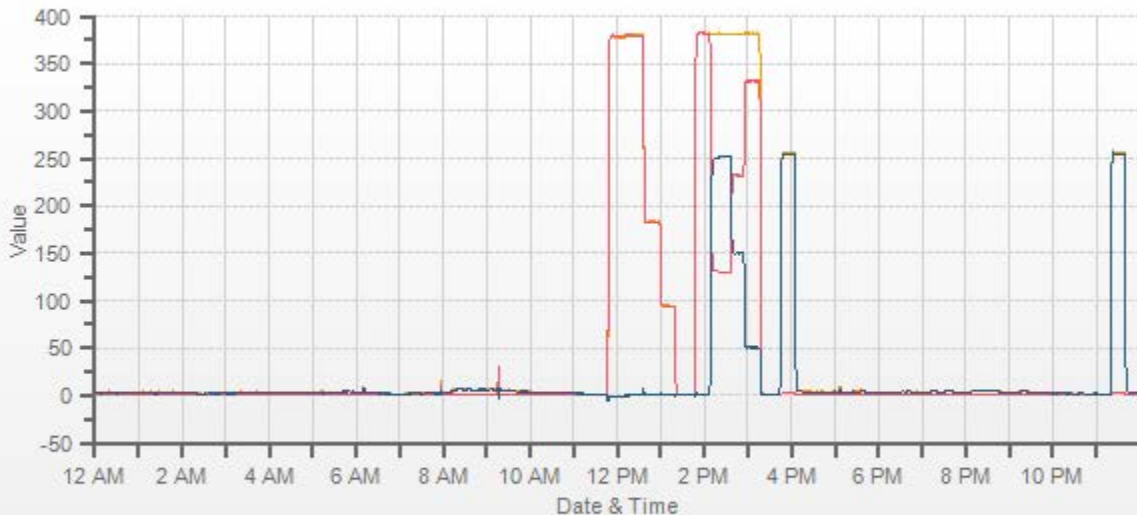
NITROGEN DIOXIDE

 Thermo 42i NO-NO2-NOx Analyzer Calibration																																																																																											
Date: March 8, 2016 Company/Airshed: LICA Location/Station Name: Cold Lake South Start/End Time 24 hr. (mst): 11:09 / 16:10 G.P.T. to be used for Ozone? No Calibration Method: Gas Dilution & Varying UV Lamp Power	Barometric Pressure: 0.930 atm Station Temperature °C: 21 Weather Conditions: A few clouds Calibration Purpose: routine monthly Performed By/Reviewer: Alex Yakupov / Trina Whitsitt Cal Gas Expiry Date: December 2, 2023																																																																																										
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Serial Number: 1505664393 Last Calibration Date: February 9, 2016 Range ppb: 500	Correction Factors: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Previous C.F.:</th> <th>As Found C.F.:</th> <th>New C.F.:</th> </tr> </thead> <tbody> <tr> <td>NO =</td> <td>1.001</td> <td>1.003</td> <td>1.000</td> </tr> <tr> <td>NO₂ =</td> <td>1.000</td> <td>1.000</td> <td>1.000</td> </tr> <tr> <td>NOx =</td> <td>1.001</td> <td>1.005</td> <td>1.000</td> </tr> </tbody> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	NO =	1.001	1.003	1.000	NO ₂ =	1.000	1.000	1.000	NOx =	1.001	1.005	1.000																																																																										
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Flow Meter ID's: n/a Make & Model: SABIO 2010 D Serial #: 11900613 Cal Gas Cylinder I.D. #: LL119346 NO/NOx Gas Conc. (ppm): 50.0 50.0	Standard Calibration Points for a Range of: 500 ppb <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Point</th> <th>Target NO (ppb)</th> <th>Target NO₂ (ppb)</th> <th>Cc Ozone ?</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>380</td> <td>250</td> <td>n/a</td> </tr> <tr> <td>Mid</td> <td>180</td> <td>145</td> <td>n/a</td> </tr> <tr> <td>Low</td> <td>90</td> <td>50</td> <td>n/a</td> </tr> <tr> <td>Extra Point #1</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Extra Point #2</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </tbody> </table>	Point	Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?	High	380	250	n/a	Mid	180	145	n/a	Low	90	50	n/a	Extra Point #1	n/a	n/a	n/a	Extra Point #2	n/a	n/a	n/a																																																																		
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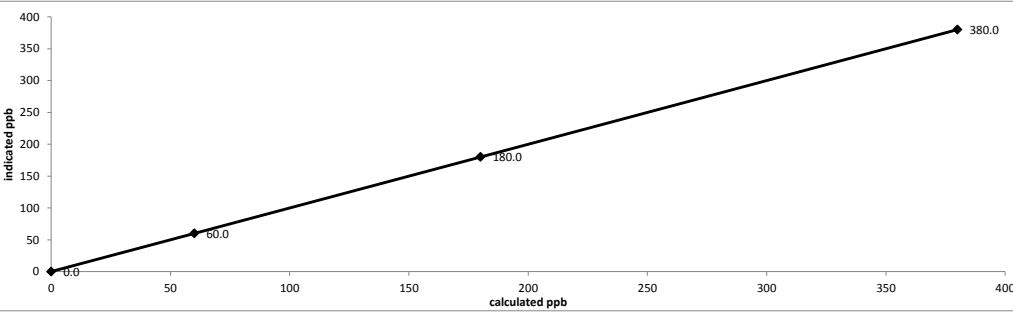
Date: March 8, 2016
Company/Airshed: LICA
Location/Station Name: Cold Lake South

Start/End Time 24 hr. (mst): 11:09 / 16:10
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution & Varying UV Lamp Power





OZONE

 Thermo 49i Ozone Analyzer Calibration																																																																					
Date: <u>March 9, 2016</u> Company/Airshed: <u>LICA</u> Location/Station Name: <u>Cold Lake South</u> Start/End Time 24 hr. (mst): <u>8:51 / 12:49</u> Ozone Calibration Method: <u>Varying UV Lamp Power</u> G.P.T. Date: <u>n/a-done by Varying UV Lamp Power</u>	Barometric Pressure: <u>0.934 atm</u> Station Temperature °C: <u>21</u> Weather Conditions: <u>A few clouds</u> Calibration Purpose: <u>routine monthly</u> Performed By/Reviewer: <u>Alex Yakupov</u> <u>Trina Whitsitt</u> Cal Gas Expiry Date: <u>n/a</u>																																																																				
Analyzer: Serial Number: <u>700419951</u> Ozone Range ppb: <u>500</u> Last Calibration Date: <u>February 10, 2016</u> As Found C.F.: <u>1.019</u> Previous Cal High Point C.F.: <u>1.000</u> New C.F.: <u>1.000</u>																																																																					
Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>n/a</u>																																																																					
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PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 9, 2016
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: February 22, 2016
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Tom Bourque
 Start Time (mst): 12:05
 End Time (mst): 13:09
 Calibration Purpose: Bi-monthly #1
 Weather Conditions: A few clouds

1400A Information and Status:

Serial Number: 1405A201620804 As Found Filter Loading %: 25.32
 Ko Factor: 14578 As Left Filter Loading %: 17.97
 Ambient Temperature °C: 1.66 As Found Noise: 0.008
 Ambient Pressure atm: 0.933 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.32
 Aux Flow Reading lpm: 16.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB1291</u>	<u>FB 1291</u>
Serial Number:	<u>#2</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>January 15, 2016</u>	<u>March 18, 2015</u>	<u>March 18, 2015</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.02	0.16	0.02	0.16
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.09	-0.10	0.05	-0.10
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.02	0.16	0.02	0.16
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.09	-0.10	0.05	-0.10
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>1.7</u>	1405F pressure atm: <u>0.933</u>
reference temperature °C: <u>1.4</u>	reference pressure: <u>0.932</u>
difference °C: <u>-0.3</u>	difference: <u>0.001</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>1.4</u>	1405F pressure atm: <u>0.932</u>
reference temperature °C: <u>1.4</u>	reference pressure: <u>0.932</u>
difference °C: <u>0.0</u>	difference: <u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.08</u>	reference total/aux flow lpm: <u>14.34</u>
difference lpm: <u>0.08</u>	difference lpm: <u>0.67</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.00</u>	reference total/aux flow lpm: <u>13.67</u>
difference lpm: <u>0.00</u>	difference lpm: <u>0.00</u>

K_o Audit:

Last K_o audit date: February 10, 2016
 1405F K_o factor: 14578
 Measured K_o factor: 14752.6000
 % difference: 1.20

Comments:

47 mm FDMS filter changed and TEOM sample filter changed. Flows were calibrated.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 18, 2016
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: March 9, 2016
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Trina Whitsitt
 Start Time (mst): 8:29
 End Time (mst): 9:22
 Calibration Purpose: Bi-monthly #2
 Weather Conditions: Mainly cloudy with snow

1400A Information and Status:

Serial Number: 1405A201620804 As Found Filter Loading %: 23.08
 Ko Factor: 14578 As Left Filter Loading %: 19.79
 Ambient Temperature °C: -7.07 As Found Noise: 0.010
 Ambient Pressure atm: 0.950 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.33
 Aux Flow Reading lpm: 16.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Partisol 2000</u>	<u>HC-S3</u>
Model:	<u>475 Mark III</u>	<u>R & P</u>	<u>Pt100 RTD</u>
Serial Number:	<u>#2</u>	<u>2000B206140102</u>	<u>n/a</u>
Calibration Date:	<u>15-Jan-16</u>	<u>26-Feb-16</u>	<u>n/a</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.02	0.10	0.02	0.10
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.09	-0.07	0.05	-0.07
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.02	0.10	0.02	0.10
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.09	-0.07	0.05	-0.07
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-7.1</u>	1405F pressure atm: <u>0.950</u>
reference temperature °C: <u>-6.8</u>	reference pressure: <u>0.952</u>
difference °C: <u>0.3</u>	difference: <u>-0.002</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-7.1</u>	1405F pressure atm: <u>0.950</u>
reference temperature °C: <u>-6.8</u>	reference pressure: <u>0.952</u>
difference °C: <u>0.3</u>	difference: <u>0.002</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.00</u>	reference total/aux flow lpm: <u>16.69</u>
difference lpm: <u>0.00</u>	difference lpm: <u>0.02</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.00</u>	reference total/aux flow lpm: <u>16.69</u>
difference lpm: <u>0.00</u>	difference lpm: <u>0.02</u>

K_o Audit:

Last K_o audit date: February 10, 2016
 1405F K_o factor: 14578
 Measured K_o factor: 14752.6000
 % difference: 1.20

Comments:

47 mm FDMS filter changed and TEOM sample filter changed. PM 2.5 sample head was cleaned.

WIND SYSTEM



Met One Instruments
1600 NW Washington Blvd.
Grants Pass, Oregon 97526
Telephone 541-471-7111
Facsimile 541-471-7116

Regional Service
3206 Main St. Suite 106
Rowlett, Texas 75088
Telephone 972-412-4715
Facsimile 972-412-4716

Sonic Wind Sensor Certificate of Calibration

Sensor Model No: 50.5H Sonic Sensor Serial No: F1644
 Customer: _____ P.O. No: _____ Sales Order: _____
 Final Calibration By: Kevin Ricks Calibration Date: 04-01-15
 Quality Control Inspected By: AJR Inspection Date: APR 03 2015
 New Unit Repair/Adjust Re-Calibration As Found
 Unit Within Tolerance as Found Unit Within Tolerance as Left

Calibration Equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Due
Digital Multimeter 1	Agilent/HP	34401A	MY41039534	4/11/2015
Digital Multimeter 2	Agilent/HP	34401A	US36094551	8/26/2015
Frequency Counter	Agilent/HP	53131A	MY40009285	5/22/2015
Standard Sensor	MOI	010C-1	P22383	7/11/2017
Temperature Probe	MOI	920005/PC8340	E3402	9/03/2015

Test 1: Average Wind Tunnel Speed: 3.08 Meters per Second FirmwareVersion: 3194-01 R2.62

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .20 m/s)	Output Type:
30	.084	30.3	.3	3.06	.059	2.96	-.1	0 to 1 volt <input checked="" type="checkbox"/>
60	.165	59.3	-.7	3.07	.059	2.94	-.13	0 to 2.5 volt <input type="checkbox"/>
120	.334	120.2	.2	3.08	.059	2.94	-.14	0 to 5 volt <input type="checkbox"/>
150	.415	149.5	-.5	3.07	.059	2.94	-.13	RS-232 <input checked="" type="checkbox"/>
210	.583	210	0	3.08	.059	2.95	-.12	SDI-12 <input type="checkbox"/>
240	.668	240.3	.3	3.08	.06	2.98	-.1	RS-422 <input type="checkbox"/>
300	.834	300.4	.4	3.07	.06	3.02	-.04	RS-485 <input type="checkbox"/>
330	.916	329.8	-.2	3.09	.059	2.97	-.12	<input type="checkbox"/>

Test 2: Average Wind Tunnel Speed: 11.85 Meters per Second Output Range: 0-50 m/s

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .24 m/s)	Test Items:
30	.081	29.3	-.7	11.79	.235	11.76	-.04	Array Alignment <input checked="" type="checkbox"/>
60	.165	59.5	-.5	11.85	.237	11.87	.01	Jumper Config <input checked="" type="checkbox"/>
120	.331	119.1	-.9	11.85	.236	11.81	-.03	Firmware Config <input checked="" type="checkbox"/>
150	.415	149.3	-.7	11.88	.236	11.8	-.08	Zero Calibration <input checked="" type="checkbox"/>
210	.582	209.5	-.5	11.81	.236	11.79	-.02	Low Speed Test OK <input checked="" type="checkbox"/>
240	.666	239.9	-.1	11.88	.235	11.73	-.16	High Speed Test OK <input checked="" type="checkbox"/>
300	.833	299.7	-.3	11.87	.235	11.73	-.13	Sensor Function <input checked="" type="checkbox"/>
330	.915	329.6	-.4	11.84	.238	11.9	.06	Physical Inspection <input checked="" type="checkbox"/>

The standards used for this calibration have accuracies equal to or greater than the instruments tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated herein, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A. Calibration performed by direct comparison to the above standard following test procedure: 50.5-6100 Rev E

PUF SAMPLER



TISCH PUF PLUS SAMPLER AUDIT

Date:	March 28, 2016	PUF PLUS Serial #:	100-1020
Company/Airshed:	LICA	Performed By/Reviewer:	Alex Yakupov Trina Whitsitt
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly clear
Reference Standards:	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher Scientific	Fisher Scientific
Model:	475 Mark III	FB61291	FB61291
Serial Number:	#2	130168457	130168457
Calibration Date:	January 15, 2016	February 7, 2016	February 7, 2016

TISCH PUF PLUS PRESSURE AND TEMPERATURE AUDIT

AS FOUND Reference Barometric Pressure (mmHg):	714	AS FOUND Reference Temperature (°C):	5.8
AS FOUND PUF PLUS Barometric Pressure (mmHg):	715	AS FOUND PUF PLUS Temperature (°C):	6.2
% Difference (+/- 2% max.):	-0.14%	% Difference (+/- 2 °C max.):	-0.4
IF THE PRESSURE DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED		**IF THE TEMPERATURE DEVIATES BY MORE THAN +/- 2 °C A FLOW CALIBRATION IS REQUIRED**	

TISCH PUF PLUS FLOW AUDIT

Flow Audit Calculations:

Calibrated Orifice Certification Date:	October 12, 2015
Enter Barometric Pressure from reference (inHg)	28.11
Barometric Pressure (mmHg)	714.0
Enter Ambient Temperature from reference °C	5.8
Enter "m" variable from calibrated orifice	6.07570
Enter "b" variable from calibrated orifice	-0.03578
Enter Δp in. H ₂ O	1.92
Standardized Flow lpm=	234.37
Flow Set Point lpm=	230.00
% Difference (+/- 2% max.)=	-1.90%
IF THE FLOW DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED	

TISCH PUF PLUS PRESSURE CALIBRATION

Reference Barometric Pressure AFTER CALIBRATION (mmHg):	n/a
PUF Barometric Pressure AFTER CALIBRATION (mmHg):	n/a
% Difference:	n/a
Max 2.0%	

Calibration Point (mmHg):	Δp (in. H ₂ O) required for target barometric pressure:	As Found barometric pressure (mmHg):	As Left barometric pressure (mmHg):	% Difference vs. Calibration Target:
754	1.57	n/a	n/a	n/a
734	0.79	n/a	n/a	n/a
714	0.00	n/a	n/a	n/a
694	-0.79	n/a	n/a	n/a
674	-1.57	n/a	n/a	n/a
% Difference (+/- 2% max.)=				n/a

TISCH PUF PLUS TEMPERATURE CALIBRATION

Temperature Calibrator Certification Date:	n/a
Reference Temperature AFTER CALIBRATION (°C):	n/a
TISCH PUF PLUS Temperature AFTER CALIBRATION (°C):	n/a
Difference (°C):	#VALUE!
Max 2.0 °C	

Calibration Point (°C):	As Found (°C)	As Left (°C)	+/- Difference (°C)
20	n/a	n/a	n/a
-20	n/a	n/a	n/a
40	n/a	n/a	n/a
0	n/a	n/a	n/a
-30	n/a	n/a	n/a
% Difference (+/- 2 °C max.)			n/a

TISCH PUF PLUS FLOW CALIBRATION

Flow Calibration Calculations:

Calibrated Orifice Certification Date:	October 12, 2015
Enter Barometric Pressure from reference (inHg)	28.11
Barometric Pressure (mmHg)	714.0
Enter Ambient Temperature from reference °C	5.8
Enter "m" variable from calibrated orifice	6.07570
Enter "b" variable from calibrated orifice	-0.03578
Enter Δp in. H ₂ O	1.87
Standardized Flow lpm=	231.37
Flow Set Point lpm=	230.00
% Difference (+/- 2% max.)=	-0.60%
IF THE FLOW DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED	

R, A1 and A0 Factors:

	As Found/As Left Pressure:	As Found/As Left Temperature:	As Found/As Left Flow:
A0	14823.1796	-6613.4765	0.4134/0.2879
A1	22.8942	0.1641	16.7042/16.8673
R	0.0000	0.0000	0.0000

Notes:

Flow was calibrated. Flow Calibration R=0.9999

PARTISOL SAMPLER

PARTISOL 2000

Date: March 18, 2016	Reference Standard: Streamline FTS / #2
Company: LICA	Reference Standard s/n: Orifice #2
Station: Cold Lake South	Weather Conditions: Mainly cloudy with snow
Parameter: PM 2.5	Start/End Time (mst): 09:39 / 10:37
Calibration Purpose: routine monthly	Performed By/Reviewer: Alex Yakupov Tom Bourque

Sampler	Instrument Data
Make/Model: R &P	Temperature (°C): -4.8
Unit #: #2873	Pressure (ATM): 0.95
S/N: 2000B206140102	Set Flow (l/min): 16.7

Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.000	n/a	-0.0019	n/a	0.9987	n/a
Temperature	-4.8	n/a	XXXXXXXXXX	XXXXXXXXXX	0.9967	n/a
Pressure	0.952	n/a	XXXXXXXXXX	XXXXXXXXXX	1.0003	n/a
Flow	0.10	n/a	-0.0098	n/a	1.0028	n/a

Temperature/Pressure Calibration			
Reference Temperature: (±2 °C)	-5.1	Δ °C	-0.3
Reference Pressure: (±0.02 ATM)	0.952	Δ ATM	0.000

Leak Check				
Unit	Flow Controller Valve Closed (V1) in Hg	Pump Valve Closed after 10 Secs. (V2) in Hg	VL=1/2*V1 in Hg	Leakage Calculation (V2 > VL) After 10 Secs in Hg
Hub	23.5	23.5	11.75	11.75

Flow Calibration			
Item	Acceptable	Calculated	Actual
"Zero" Offset	0.1 lpm to -0.1 lpm	0.0	0.1
"Flow" Span	±7.0 % Adjust to 16.7 L	16.7	16.37

Other Checks:					
Condition	Condition	Condition	Condition	Condition	Condition
Rubber Seals: OK	Inlet: OK	Inline Filter: OK	Status: OK		

Comments:

Monthly audit performed. Ambient air filter of the pump compartment cleaned.

Calibration Performed By: Alex Yakupov

CALIBRATORS



Calibrator Performance Audit

OZONE

File No. 2015-163

Company: Maxxam

Operator: Chris Wesson

Calibrator:
 Make/Model Sabio 2010D
 Serial Number 11900613
 Oven Temperature 49.8
 Last Verification Date May 21, 2015

Flow Measurement Device:
 Make/Model NA
 Serial Number NA
 Temperature (°C) 24
 Barometric Pressure 700 mmHg

Flow Measurements

Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
4999	0.000	-0.001		
5000	0.381	0.385	1%	± 10%
5000	0.180	0.182	2%	± 10%
5000	0.090	0.091	2%	± 10%
Absolute Average Percent Difference			2%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

O₃	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 1.0119	0.90-1.10
b (Intercept % of FS)= -0.0724	± 3% F.S.

AENV Standards	Ozone Analyzer
Audit Calibrator	Make/Model <u>Thermo 49i</u>
Make/Model <u>Thermo 49i PS</u>	Serial/AMU Number <u>1843</u>
Serial/AMU Number <u>1808</u>	Last Calibration Date <u>March 30, 2016</u>
Ozone Standard <u>Thermo 49i PS 1808</u>	Full Scale (ppm) <u>0.5</u>

COMMENTS: _____

Auditor: Shea Beaton
 Operator Signature: _____

Date: March 30, 2016
 Location: McIntyre Center Edmonton



Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2016-093A

Company: Maxxam

Operator: Christopher Wesson

Calibrator:
 Make/Model API 700
 Serial Number 830
 Last Verification Date December 2014
 SO₂ Cylinder Conc. 50.3
 SO₂ Cylinder S/N LL42475

Flow Measurement Device:
 Make/Model N/A
 Serial Number N/A
 Temperature (°C) N/A
 Barometric Pressure N/A

Flow Measurements

Pt. No. 1 77.5 **Pt. No. 2** 37.8 **Pt. No. 3** 18.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4998	0.780	0.746	-4%	± 10%
5002	0.380	0.365	-4%	± 10%
4997	0.190	0.182	-4%	± 10%
Absolute Average Percent Difference			4%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>SO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9565	0.90-1.10
b (Intercept % of FS)=	0.0436	± 3% F.S.

<u>AENV Standards</u>	<u>SO₂ Analyzer</u>
Audit Calibrator	Make/Model <u>Teco 43C</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1623</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>January 19, 2016</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: Gas was check for accuracy - 1% low from stated cylinder gas concentration.
Flows are not measured at each pt - AMD not being followed as per section 5.0.
Checked SO2 high pt using a Sabio 2010 - found a significantly higher response.
Both MFC's need to be re-calibrated.

Auditor: Al Clark Date: January 19, 2016
 Operator Signature: *Christopher Wesson* Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-116CGA

Company: Maxxam **Operator's Name:** Chris Wesson
Cylinder #: LL119346 **Concentration PPM:** 50.0 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>Thermo146i</u>	Make/Model: <u>Bios DC-2</u>
Serial Number: <u>1809</u>	Serial Number: <u>Bios D</u>
Last Verification Date: <u>February 2, 2016</u>	Temp. °C: <u>24.5</u>
Gas Type: <u>SO2</u> Conc. <u>98.07</u>	B.P. <u>702mmHg</u>
Cylinder Number: <u>CAL016625</u>	

Reference Analyzer:
 Make/Model: Thermo 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
 Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4952	0.0	0.000	0.01608	62.183	49.3
4946	79.54	0.793	0.01608	62.183	49.3
4941	39.35	0.396	0.00796	125.565	49.7
4940	19.57	0.195	0.00396	252.427	49.2
Average Cylinder Concentration:					49.4

Previous Stated Concentration PPM: 50.0
 Percent variance from Stated: 1.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO blend 50.0ppm NO
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
 Operator Signature: *[Signature]*

Date: February 2, 2016
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:
 Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015106

Flow Measurement Device:
 Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 23.0 C
 B.P.: 702 mmhg

Reference Analyzer:
 Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
 Last Calibration: Date: Dec15/14 C.F.: 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	100.000	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-092CGA

Company: Maxxam Operators name: Chris Wesson
Cylinder #: LL165372 Conc CH4 (PPM) 606/212 Tolerance (%) 0.5 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1698
Last Verification Date January 18, 2016
Gas Type CH4 Conc. 999.2
Cylinder Number D751932
Gas Type C3H8 Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC-2
Serial Number Blos D
Temp. °C 24.5
B.P. 688mmHg

Reference Analyzer:

Make/Model Thermo 55C Serial/AMU Number: 1643
Instrument Settings Zero: NA Span: NA Range: 20.0
Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
2568	0.00	0.00	0.00	0.02140	46.722	607	214
2630	56.29	12.99	12.62	0.02140	46.722	607	214
2588	19.73	4.62	4.50	0.00762	131.171	606	215
2580	9.69	2.29	2.24	0.00376	266.254	610	217
Average Cylinder Concentration:						608	215

CH4	C3H8
Previous Stated Concentration PPM: <u>606</u>	<u>212</u>
Percent variance from Stated: <u>0.3</u>	<u>1.6</u>

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration C3H8 manufacturers tolerance 1.1%
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
Operator Signature: _____

Date: January 19, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-115CGA

Company: Maxxam **Operators name:** Chris Wesson
Cylinder #: LL119346 **Conc (PPM)** 50.0/50.0 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Thermo 146i</u>			Make/Model	<u>Bios DC-2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>Bios D</u>
Last Verification Date	<u>February 2, 2016</u>			Temp. °C	<u>24.5</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702mmHg</u>
Cylinder Number	<u>CAL018024</u>				

Reference Analyzer:

Make/Model	<u>Thermo 42i</u>	Serial/AMU Number:	<u>1868</u>
Instrument Settings	Zero: <u>4.2</u>	Span:	<u>1.014</u> Range: <u>1.0</u>
Last Calibration:	Date: <u>02-Feb-16</u>	C.F.	<u>1.000</u> Done By: <u>SB</u>

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
4952	0.0	0.000	0.000				
4946	79.54	0.809	0.809	0.01608	62.183	50.3	50.3
4941	39.35	0.403	0.402	0.00796	125.565	50.6	50.5
4940	19.57	0.200	0.200	0.00396	252.427	50.5	50.5
Average Cylinder Concentration:						50.5	50.4

NO	NOx
Previous Stated Concentration PPM: <u>50.0</u>	<u>50.0</u>
Percent variance from Stated: <u>0.9</u>	<u>0.8</u>

Cylinder gas tolerances based on NO only

- Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS: SO2/NO Blend 50.0PPM SO2**
- < =5% Outside Manufacturer Tolerance. Use manufacturers concentration
- > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton Date: February 2, 2016
 Operator Signature: [Signature] Location: McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

PASSIVE SAMPLES

Your Project #: 2016/02/01 - 2016/03/29

Site Location: LICA

Attention: MICHAEL BISAGA

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
PO BOX 8237
5107W- 50TH STREET
BONNYVILLE, AB
CANADA T9N 2J5

Report Date: 2016/04/18

Report #: R2158067

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B624912

Received: 2016/04/05, 14:17

Sample Matrix: Air
Samples Received: 33

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	21	2016/04/13	2016/04/18	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	20	2016/04/13	2016/04/18	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	5	2016/04/14	2016/04/18	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2016/04/07	2016/04/18	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	29	2016/04/12	2016/04/18	PTC SOP-00149	Passive SO2 in Air

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Project Manager

Email: LManchak@maxxam.ca

Phone# (780)468-3536

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B624912
Report Date: 2016/04/18

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2016/02/01 - 2016/03/29
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		OJ8686	OJ8687	OJ8688	OJ8689	OJ8690	OJ8691	OJ8692		
Sampling Date		2016/02/01 18:01	2016/02/02 13:39	2016/02/02 14:24	2016/02/02 16:19	2016/02/02 12:34	2016/02/02 10:49	2016/02/01 16:54		
	UNITS	3	4	5	6	8	9	10	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.08		0.13				0.11	0.02	8241350
Calculated NO2	ppb	0.5	0.3	0.9	2.1	0.3	0.2	1.2	0.1	8240323
Calculated O3	ppb	41.77	47.37	32.75	47.25	43.84	43.30	38.72	0.1	8235753
Calculated SO2	ppb	0.4	0.5	0.5	0.6	0.5	0.3	0.4	0.1	8240053
RDL = Reportable Detection Limit										

Maxxam ID		OJ8693	OJ8694	OJ8695	OJ8696		OJ8697	OJ8698		
Sampling Date		2016/02/01	2016/03/27 17:36	2016/02/01 14:18	2016/02/01 13:12		2016/02/02 09:21	2016/02/03 11:37		
	UNITS	11	12	13	14	QC Batch	15	16	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	MISSING	MISSING	0.09	0.11	8241350		0.14	0.02	8241350
Calculated NO2	ppb	MISSING	MISSING	0.2	0.5	8240323	0.3	0.5	0.1	8240323
Calculated O3	ppb	MISSING	MISSING	37.71	40.03	8235753	39.30	35.29	0.1	8235753
Calculated SO2	ppb	MISSING	MISSING	0.5	1.3	8240053	0.4	0.5	0.1	8240056
RDL = Reportable Detection Limit										

Maxxam ID		OJ8699	OJ8700	OJ8701		OJ8702		OJ8703		
Sampling Date		2016/02/02 17:22	2016/02/02 18:57	2016/02/03 10:36		2016/02/01 10:22		2016/02/01 11:36		
	UNITS	17	18	19	QC Batch	22	QC Batch	23	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.14	0.11	MISSING	8241350	0.13	8241352		0.02	8241352
Calculated NO2	ppb	0.6	0.2	<0.1	8240323	1.2	8240323	<0.1	0.1	8240323
Calculated O3	ppb	49.31	41.72	45.02	8235753	32.63	8235753	33.20	0.1	8235772
Calculated SO2	ppb	0.6	0.4	0.6	8240056	0.4	8240056	0.2	0.1	8240056
RDL = Reportable Detection Limit										

Maxxam ID		OJ8704	OJ8705	OJ8706	OJ8707	OJ8708	OJ8709	OJ8710		
Sampling Date		2016/02/02 15:37	2016/02/27 18:58	2016/02/01 13:41	2016/02/01 12:51	2016/02/02 10:15	2016/02/01 10:28	2016/02/01 19:02		
	UNITS	24	25	26	27	28	29	32	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.10	MISSING	0.17	0.15		0.12	0.14	0.02	8241352
Calculated NO2	ppb	1.6				2.5	0.7	0.4	0.1	8241465
Calculated O3	ppb	40.75				34.20	36.74	39.10	0.1	8235772
Calculated SO2	ppb	0.4	MISSING	1.3	1.3	0.5	0.4	0.6	0.1	8240056
RDL = Reportable Detection Limit										

Maxxam Job #: B624912
Report Date: 2016/04/18

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2016/02/01 - 2016/03/29
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		OJ8711		OJ8714	OJ8715	OJ8716	OJ8718	OJ8719		
Sampling Date		2016/02/02 15:12		2016/02/02 18:57	2016/02/03 10:36	2016/02/02 15:37	2016/02/01 13:41	2016/02/03 08:51		
	UNITS	36	QC Batch	18 DUP	19 DUP	24 DUP	26 DUP	27 DUP	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.14	8241352						0.02	8241352
Calculated NO2	ppb	3.9	8241465	0.5	<0.1				0.1	8240323
Calculated O3	ppb	35.64	8235772	41.01	47.96				0.1	8235772
Calculated SO2	ppb	0.5	8240056			0.4	1.2	1.3	0.1	8240056

RDL = Reportable Detection Limit

Maxxam ID		OJ8720	OJ8840		
Sampling Date		2016/02/01 10:28	2016/02/01 19:02		
	UNITS	29 DUP	32 DUP	RDL	QC Batch

Passive Monitoring					
Calculated H2S	ppb	0.10	0.12	0.02	8241352

RDL = Reportable Detection Limit

Maxxam Job #: B624912
Report Date: 2016/04/18

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2016/02/01 - 2016/03/29
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B624912
Report Date: 2016/04/18

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2016/02/01 - 2016/03/29
Site Location: LICA
Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8235753	OZ	Spiked Blank	Calculated O3			100.5	%	90 - 110
8235753	OZ	Method Blank	Calculated O3		<0.1		ppb	
8235772	OZ	Spiked Blank	Calculated O3			100.0	%	90 - 110
8235772	OZ	Method Blank	Calculated O3		<0.1		ppb	
8240053	YL6	Spiked Blank	Calculated SO2	2016/04/12		101	%	90 - 110
8240053	YL6	Method Blank	Calculated SO2	2016/04/12	<0.1		ppb	
8240056	YL6	Spiked Blank	Calculated SO2	2016/04/12		105	%	90 - 110
8240056	YL6	Method Blank	Calculated SO2	2016/04/12	<0.1		ppb	
8240323	SS6	Spiked Blank	Calculated NO2	2016/04/13		95	%	90 - 110
8240323	SS6	Method Blank	Calculated NO2	2016/04/13	<0.1		ppb	
8241350	LCH	Spiked Blank	Calculated H2S	2016/04/15		100	%	N/A
8241352	LCH	Spiked Blank	Calculated H2S	2016/04/15		100	%	N/A
8241465	SS6	Spiked Blank	Calculated NO2	2016/04/14		99	%	90 - 110
8241465	SS6	Method Blank	Calculated NO2	2016/04/14	<0.1		ppb	

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.

Maxxam Job #: B624912
Report Date: 2016/04/18

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2016/02/01 - 2016/03/29
Site Location: LICA
Sampler Initials: WA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

VOCS SAMPLES

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 1, 2016	2643	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Mar-16
16030073-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	08-Mar-16
16030073-003	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	08-Mar-16
16030073-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Mar-16
16030073-003	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	08-Mar-16
16030073-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	1-Butene	I	0.06	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2,3-Dimethylbutane	I	0.08	ppbv	0.02	AC-058	08-Mar-16
16030073-003	2,3-Dimethylpentane	I	0.07	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 1, 2016	2643	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-003	2,4-Dimethylpentane	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2-Methylheptane	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2-Methylhexane	I	0.07	ppbv	0.01	AC-058	08-Mar-16
16030073-003	2-Methylpentane	I	0.29	ppbv	0.01	AC-058	08-Mar-16
16030073-003	3-Methylheptane	I	0.03	ppbv	0.02	AC-058	08-Mar-16
16030073-003	3-Methylhexane	I	0.09	ppbv	0.02	AC-058	08-Mar-16
16030073-003	3-Methylpentane	I	0.14	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Acetone		1.1	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-003	Benzene	I	0.21	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Carbon disulfide	I	0.03	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Chloroform	I	0.03	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Chloromethane		0.53	ppbv	0.02	AC-058	08-Mar-16
16030073-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Cyclohexane	I	0.13	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 1, 2016	2643	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-003	Cyclopentane	I	0.07	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Ethanol	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Ethylbenzene	I	0.05	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Freon-11	I	0.18	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Freon-113	I	0.10	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Freon-12		0.59	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	08-Mar-16
16030073-003	Isobutane		0.85	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Isopentane		0.47	ppbv	0.03	AC-058	08-Mar-16
16030073-003	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	m,p-Xylene	I	0.13	ppbv	0.03	AC-058	08-Mar-16
16030073-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	08-Mar-16
16030073-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	08-Mar-16
16030073-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Mar-16
16030073-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Mar-16
16030073-003	Methylcyclohexane	I	0.18	ppbv	0.01	AC-058	08-Mar-16
16030073-003	Methylcyclopentane	I	0.18	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 1, 2016	2643	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-003	n-Butane		1.55	ppbv	0.03	AC-058	08-Mar-16
16030073-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Mar-16
16030073-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	n-Heptane	I	0.11	ppbv	0.01	AC-058	08-Mar-16
16030073-003	n-Hexane	I	0.23	ppbv	0.01	AC-058	08-Mar-16
16030073-003	n-Octane	I	0.04	ppbv	0.02	AC-058	08-Mar-16
16030073-003	n-Pentane		0.7	ppbv	0.1	AC-058	08-Mar-16
16030073-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Mar-16
16030073-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Mar-16
16030073-003	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Mar-16
16030073-003	n-Nonane	I	0.03	ppbv	0.01	AC-058	08-Mar-16
16030073-003	o-Ethyltoluene	I	0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	o-Xylene	I	0.06	ppbv	0.01	AC-058	08-Mar-16
16030073-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Mar-16
16030073-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Toluene	I	0.22	ppbv	0.01	AC-058	08-Mar-16
16030073-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-003	trans-2-Butene	I	0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 1, 2016	2643	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 7, 2016	17126	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-005	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-005	1,2,3-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	17-Mar-16
16030162-005	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Mar-16
16030162-005	1,2,4-Trimethylbenzene	I	0.11	ppbv	0.03	AC-058	17-Mar-16
16030162-005	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-005	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	17-Mar-16
16030162-005	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	1,3,5-Trimethylbenzene	I	0.08	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-005	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	1-Butene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1-Hexene	I	0.08	ppbv	0.02	AC-058	17-Mar-16
16030162-005	1-Pentene	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2,2,4-Trimethylpentane	I	0.13	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2,2-Dimethylbutane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2,3,4-Trimethylpentane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2,3-Dimethylbutane	I	0.11	ppbv	0.02	AC-058	17-Mar-16
16030162-005	2,3-Dimethylpentane	I	0.13	ppbv	0.02	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 7, 2016	17126	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-005	2,4-Dimethylpentane	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2-Methylheptane	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2-Methylhexane	I	0.15	ppbv	0.01	AC-058	17-Mar-16
16030162-005	2-Methylpentane	I	0.19	ppbv	0.01	AC-058	17-Mar-16
16030162-005	3-Methylheptane	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-005	3-Methylhexane	I	0.13	ppbv	0.02	AC-058	17-Mar-16
16030162-005	3-Methylpentane	I	0.16	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Acetone		2.1	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-005	Benzene		0.33	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Carbon disulfide	I	0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Chloroform	I	0.03	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Chloromethane		0.64	ppbv	0.02	AC-058	17-Mar-16
16030162-005	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-005	cis-2-Butene	I	0.06	ppbv	0.02	AC-058	17-Mar-16
16030162-005	cis-2-Pentene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Cyclohexane	I	0.15	ppbv	0.02	AC-058	17-Mar-16

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LICA/VOC/CLS/March 7, 2016	17126	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-005	Cyclopentane	I	0.13	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Ethanol		0.9	ppbv	0.3	AC-058	17-Mar-16
16030162-005	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Ethylbenzene	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Freon-11	I	0.29	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Freon-113	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Freon-114	I	0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Freon-12		0.54	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-005	Isobutane		0.77	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Isopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-005	Isoprene	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Isopropylbenzene	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-005	m,p-Xylene	I	0.15	ppbv	0.03	AC-058	17-Mar-16
16030162-005	m-Diethylbenzene	I	0.06	ppbv	0.04	AC-058	17-Mar-16
16030162-005	m-Ethyltoluene	I	0.09	ppbv	0.08	AC-058	17-Mar-16
16030162-005	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-005	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-005	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Mar-16
16030162-005	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-005	Methylcyclohexane	I	0.15	ppbv	0.01	AC-058	17-Mar-16
16030162-005	Methylcyclopentane	I	0.18	ppbv	0.02	AC-058	17-Mar-16

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LICA/VOC/CLS/March 7, 2016	17126	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-005	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-005	n-Butane		1.16	ppbv	0.03	AC-058	17-Mar-16
16030162-005	n-Decane	I	0.11	ppbv	0.06	AC-058	17-Mar-16
16030162-005	n-Dodecane		0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	n-Heptane	I	0.14	ppbv	0.01	AC-058	17-Mar-16
16030162-005	n-Hexane	I	0.19	ppbv	0.01	AC-058	17-Mar-16
16030162-005	n-Octane	I	0.12	ppbv	0.02	AC-058	17-Mar-16
16030162-005	n-Pentane		0.5	ppbv	0.1	AC-058	17-Mar-16
16030162-005	n-Propylbenzene	I	0.08	ppbv	0.05	AC-058	17-Mar-16
16030162-005	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-005	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-005	n-Nonane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-005	o-Ethyltoluene	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-005	o-Xylene	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-005	p-Diethylbenzene	I	0.07	ppbv	0.04	AC-058	17-Mar-16
16030162-005	p-Ethyltoluene	I	0.09	ppbv	0.07	AC-058	17-Mar-16
16030162-005	Styrene	I	0.08	ppbv	0.04	AC-058	17-Mar-16
16030162-005	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-005	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Toluene	I	0.22	ppbv	0.01	AC-058	17-Mar-16
16030162-005	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-005	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-005	trans-2-Butene	I	0.07	ppbv	0.01	AC-058	17-Mar-16
16030162-005	trans-2-Pentene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-005	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 7, 2016	17126	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-005	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-005	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 13, 2016	17119	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-007	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-007	1,2,3-Trimethylbenzene	I	0.09	ppbv	0.05	AC-058	17-Mar-16
16030162-007	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Mar-16
16030162-007	1,2,4-Trimethylbenzene	I	0.11	ppbv	0.03	AC-058	17-Mar-16
16030162-007	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-007	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	17-Mar-16
16030162-007	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	1,3,5-Trimethylbenzene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-007	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	1-Butene	I	0.14	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1-Hexene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-007	1-Pentene	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2,2,4-Trimethylpentane	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2,2-Dimethylbutane	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2,3,4-Trimethylpentane	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2,3-Dimethylbutane	I	0.11	ppbv	0.02	AC-058	17-Mar-16
16030162-007	2,3-Dimethylpentane	I	0.12	ppbv	0.02	AC-058	17-Mar-16

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LICA/VOC/CLS/March 13, 2016	17119	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-007	2,4-Dimethylpentane	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2-Methylheptane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	2-Methylpentane	I	0.18	ppbv	0.01	AC-058	17-Mar-16
16030162-007	3-Methylheptane	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-007	3-Methylhexane	I	0.14	ppbv	0.02	AC-058	17-Mar-16
16030162-007	3-Methylpentane	I	0.17	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Acetone		2.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-007	Benzene	I	0.29	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Bromomethane	I	0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Carbon disulfide	I	0.02	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Chloroethane	I	0.05	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Chloroform	I	0.03	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Chloromethane		0.74	ppbv	0.02	AC-058	17-Mar-16
16030162-007	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-007	cis-2-Butene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-007	cis-2-Pentene	I	0.08	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Cyclohexane	I	0.14	ppbv	0.02	AC-058	17-Mar-16

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LICA/VOC/CLS/March 13, 2016	17119	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-007	Cyclopentane	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Ethanol		0.8	ppbv	0.3	AC-058	17-Mar-16
16030162-007	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Ethylbenzene	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Freon-11	I	0.29	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Freon-113	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Freon-114	I	0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Freon-12		0.62	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-007	Isobutane		0.98	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Isopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-007	Isoprene	I	0.08	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Isopropylbenzene	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	m,p-Xylene	I	0.12	ppbv	0.03	AC-058	17-Mar-16
16030162-007	m-Diethylbenzene	I	0.08	ppbv	0.04	AC-058	17-Mar-16
16030162-007	m-Ethyltoluene	I	0.09	ppbv	0.08	AC-058	17-Mar-16
16030162-007	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-007	Methyl ethyl ketone		0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-007	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Mar-16
16030162-007	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-007	Methylcyclohexane	I	0.15	ppbv	0.01	AC-058	17-Mar-16
16030162-007	Methylcyclopentane	I	0.21	ppbv	0.02	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 13, 2016	17119	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-007	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-007	n-Butane		1.08	ppbv	0.03	AC-058	17-Mar-16
16030162-007	n-Decane	I	0.10	ppbv	0.06	AC-058	17-Mar-16
16030162-007	n-Dodecane		0.9	ppbv	0.4	AC-058	17-Mar-16
16030162-007	n-Heptane	I	0.14	ppbv	0.01	AC-058	17-Mar-16
16030162-007	n-Hexane		0.36	ppbv	0.01	AC-058	17-Mar-16
16030162-007	n-Octane	I	0.11	ppbv	0.02	AC-058	17-Mar-16
16030162-007	n-Pentane		0.4	ppbv	0.1	AC-058	17-Mar-16
16030162-007	n-Propylbenzene	I	0.09	ppbv	0.05	AC-058	17-Mar-16
16030162-007	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-007	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-007	n-Nonane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-007	o-Ethyltoluene	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	o-Xylene	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-007	p-Diethylbenzene	I	0.08	ppbv	0.04	AC-058	17-Mar-16
16030162-007	p-Ethyltoluene	I	0.09	ppbv	0.07	AC-058	17-Mar-16
16030162-007	Styrene	I	0.07	ppbv	0.04	AC-058	17-Mar-16
16030162-007	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-007	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Toluene	I	0.19	ppbv	0.01	AC-058	17-Mar-16
16030162-007	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-007	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-007	trans-2-Butene	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-007	trans-2-Pentene	I	0.09	ppbv	0.02	AC-058	17-Mar-16
16030162-007	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/March 13, 2016	17119	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-007	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-007	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 19, 2016	H2831	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	30-Mar-16
16030271-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	30-Mar-16
16030271-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-001	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	1-Butene	I	0.08	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	1-Pentene	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	30-Mar-16
16030271-001	2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 19, 2016	H2831	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-001	2,4-Dimethylpentane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2-Methylheptane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	2-Methylpentane	I	0.13	ppbv	0.01	AC-058	30-Mar-16
16030271-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	30-Mar-16
16030271-001	3-Methylpentane	I	0.06	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Acetone		2.7	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-001	Benzene	I	0.11	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Bromomethane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Carbon tetrachloride	I	0.12	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Chloroform	I	0.03	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Chloromethane		0.97	ppbv	0.02	AC-058	30-Mar-16
16030271-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Cyclohexane	I	0.02	ppbv	0.02	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 19, 2016	H2831	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-001	Cyclopentane	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Ethanol		1.8	ppbv	0.3	AC-058	30-Mar-16
16030271-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Ethylbenzene	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Freon-11		0.36	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Freon-113	I	0.09	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Freon-114	I	0.03	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Freon-12		0.83	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	30-Mar-16
16030271-001	Isobutane		1.08	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Isopentane		0.69	ppbv	0.03	AC-058	30-Mar-16
16030271-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	m,p-Xylene	I	0.06	ppbv	0.03	AC-058	30-Mar-16
16030271-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	30-Mar-16
16030271-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	30-Mar-16
16030271-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Mar-16
16030271-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-001	Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	30-Mar-16
16030271-001	Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 19, 2016	H2831	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-001	n-Butane		2.06	ppbv	0.03	AC-058	30-Mar-16
16030271-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Mar-16
16030271-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	n-Heptane	I	0.03	ppbv	0.01	AC-058	30-Mar-16
16030271-001	n-Hexane	I	0.12	ppbv	0.01	AC-058	30-Mar-16
16030271-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	n-Pentane	I	0.3	ppbv	0.1	AC-058	30-Mar-16
16030271-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	30-Mar-16
16030271-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Mar-16
16030271-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Mar-16
16030271-001	n-Nonane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	o-Xylene	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Mar-16
16030271-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Toluene	I	0.11	ppbv	0.01	AC-058	30-Mar-16
16030271-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-001	trans-2-Butene	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 19, 2016	H2831	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 25, 2016	H3284	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	06-Apr-16
16040006-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-001	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	1-Butene	I	0.11	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1-Hexene	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-001	1-Pentene	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-001	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 25, 2016	H3284	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-001	2,4-Dimethylpentane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2-Methylheptane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2-Methylhexane	I	0.11	ppbv	0.01	AC-058	06-Apr-16
16040006-001	2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	3-Methylhexane	I	0.10	ppbv	0.02	AC-058	06-Apr-16
16040006-001	3-Methylpentane	I	0.12	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Acetone		4.2	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Acrolein		2.9	ppbv	0.3	AC-058	06-Apr-16
16040006-001	Benzene	I	0.11	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Bromomethane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Carbon disulfide		0.51	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Chloroform	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Chloromethane	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Cyclohexane	I	0.03	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 25, 2016	H3284	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-001	Cyclopentane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Ethanol		72.1	ppbv	1.8	AC-058	07-Apr-16
16040006-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Ethylbenzene	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Freon-11		0.30	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Freon-113	I	0.09	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Freon-114	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Freon-12	I	0.17	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	06-Apr-16
16040006-001	Isobutane		0.66	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Isopentane		0.60	ppbv	0.03	AC-058	06-Apr-16
16040006-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Apr-16
16040006-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	06-Apr-16
16040006-001	Methyl ethyl ketone		0.9	ppbv	0.3	AC-058	06-Apr-16
16040006-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Apr-16
16040006-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-001	Methylcyclohexane	I	0.09	ppbv	0.01	AC-058	06-Apr-16
16040006-001	Methylcyclopentane	I	0.21	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 25, 2016	H3284	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-001	n-Butane		1.13	ppbv	0.03	AC-058	06-Apr-16
16040006-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Apr-16
16040006-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	n-Heptane	I	0.18	ppbv	0.01	AC-058	06-Apr-16
16040006-001	n-Hexane		0.64	ppbv	0.01	AC-058	06-Apr-16
16040006-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	n-Pentane	I	0.2	ppbv	0.1	AC-058	06-Apr-16
16040006-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-001	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Apr-16
16040006-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Toluene	I	0.24	ppbv	0.01	AC-058	06-Apr-16
16040006-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-001	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

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E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/Mar 25, 2016	H3284	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

PAHS SAMPLES

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/March 13, 2016</p> <p>CANISTER ID TE-03</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 13-Mar-16 0:00</p> <p>REPORT CREATED: 19-Apr-16</p> <p>DATE RECEIVED: 15-Mar-16</p> <p>REPORT NUMBER: 16030162</p> <p>VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-008	1-Methylnaphthalene		0.09	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	2-Methylnaphthalene		0.14	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Acenaphthene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(b,j,k)fluoranthene		0.05	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/CLS/March 13, 2016	TE-03	Air Filter	13-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-008	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Fluoranthene		0.05	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Fluorene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Naphthalene		0.17	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Phenanthrene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Pyrene		0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-008	Retene		0.02	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Mar 19, 2016</p> <p>CANISTER ID A13-02</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 19-Mar-16 0:00</p> <p>REPORT CREATED: 19-Apr-16</p> <p>DATE RECEIVED: 24-Mar-16</p> <p>REPORT NUMBER: 16030271</p> <p>VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-002	1-Methylnaphthalene		0.06	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	2-Methylnaphthalene		0.10	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Acenaphthene		0.03	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(b,j,k)fluoranthene		0.05	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/CLS/Mar 19, 2016	A13-02	Air Filter	19-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Fluoranthene		0.04	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Fluorene		0.06	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Naphthalene		0.11	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Phenanthrene		0.10	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Pyrene		0.03	ug/puf	0.01	NA-017	31-Mar-16
16030271-002	Retene		0.09	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

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JOB #: 2833-2016-03-01-C

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Mar 25, 2016</p> <p>CANISTER ID TE-06</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 25-Mar-16 0:00</p> <p>REPORT CREATED: 22-Apr-16</p> <p>DATE RECEIVED: 01-Apr-16</p> <p>REPORT NUMBER: 16040006</p> <p>VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-002	1-Methylnaphthalene		0.06	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	2-Methylnaphthalene		0.10	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Acenaphthene		0.03	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Anthracene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(a)anthracene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/CLS/Mar 25, 2016	TE-06	Air Filter	25-Mar-16	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Fluoranthene		0.03	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Fluorene		0.05	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Naphthalene		0.07	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Phenanthrene		0.14	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Pyrene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-002	Retene		0.04	ug/puf	0.01	NA-017	16-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

PARTISOL SAMPLES

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA P5013880</p> <p>CANISTER ID</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 01-Mar-16 0:00</p> <p>REPORT CREATED: 05-Apr-16</p> <p>DATE RECEIVED: 07-Mar-16</p> <p>REPORT NUMBER: 16030074</p> <p>VERSION: Version 01</p>
--	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
16030074-001	Particulate Weight		0.200 mg	0.004	AC-029	09-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 5, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA P5013878</p> <p>CANISTER ID</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 07-Mar-16 0:00</p> <p>REPORT CREATED: 06-Apr-16</p> <p>DATE RECEIVED: 15-Mar-16</p> <p>REPORT NUMBER: 16030161</p> <p>VERSION: Version 01</p>
--	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
16030161-001	Particulate Weight		0.072 mg	0.004	AC-029	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 6, 2016

CLIENT SAMPLE ID LICA P5013879	CANISTER ID	Matrix Air Filter	DATE SAMPLED 13-Mar-16 0:00	
DESCRIPTION: Cold Lake South				
REPORT NUMBER: 16030161	REPORT CREATED: 06-Apr-16		VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
16030161-002	Particulate Weight		0.058 mg	0.004	AC-029	30-Mar-16

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA P5099825</p> <p>CANISTER ID</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 19-Mar-16 0:00</p> <p>REPORT CREATED: 06-Apr-16</p> <p>DATE RECEIVED: 24-Mar-16</p> <p>REPORT NUMBER: 16030270</p> <p>VERSION: Version 01</p>
--	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
16030270-001	Particulate Weight		0.062 mg	0.004	AC-029	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 6, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-01-C

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA P5099826</p> <p>CANISTER ID</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 25-Mar-16 0:00</p> <p>REPORT CREATED: 27-Apr-16</p>	<p>Matrix Air Filter</p> <p>DATE RECEIVED: 01-Apr-16</p> <p>REPORT NUMBER: 16040004</p> <p>VERSION: Version 01</p>	<p>Priority Normal</p>
--	--	--	-----------------------------------

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
16040004-001	Particulate Weight		0.164 mg	0.004	AC-029	05-Apr-16

***APPENDIX V
REPORT CERTIFICATION FORM***

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Lakeland Industry & Community Association	Cold Lake South Site
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager Assistant, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.

Wunmi Adekanmbi

Signature of the Representative of the Person
Responsible / External Person Certifying the Report

29-April-2016

Report Issued Date (dd-mm-yyyy)

APPENDIX VI
DATA VALIDATION CERTIFICATION FORM



Validation Certificate Form

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2016-03-1- C</u>
Site: <u>Cold Lake South Site</u>	Contact: <u>Mike Bisaga</u>

Level 0 Preliminary Verification	<u>msolmth</u>	Date <u>16 - April - 2016</u>
Level 1 Primary Validation	<u>msolmth</u>	Date <u>16 - April - 2016</u>
Level 2 Final Validation	<u>msolmth</u>	Date ^{msolmth} <u># 29 - April - 2016</u>
Level 3 Independent Data Review	<u>msolmth</u> for Tom Bourque	Date <u>29 - April - 2016</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
MASKWA SITE

JOB #:2833-2016-03-30- C

MARCH 2016


Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5

Attention: MIKE BISAGA

DATE: **April 26, 2016**

Prepared by:



Wunmi Adékanmbi, M.Sc.
Project Manager Assistant, Customer Service, Air Services

Reviewed by:

 for:

Lily Lin, B.Sc.
Senior Project Manager, Customer Service, Air Services

SUMMARY

In MARCH 2016, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Maskwa Site at Lakeland Industry & Community Association, near Cold Lake. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the Project Coordinator.

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

All gas analyzer channels were put into Maintenance mode on March 24 at hour 11 while the sample manifold maintenance was being done.

The MetOne wind system, S/N: H10703, was uninstalled on March 24 and sent to the manufacturer for routine calibration. A maxxam-supplied replacement, RM Young S/N: 110980, was temporarily installed.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Maskwa Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
Maskwa Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0.4	11.1	29	18	5.5	WNW	1.7	29	99.9
H2S (PPB)	10	3	0	0	0.1	1.4	1	7	2.1	SW	0.3	1, 25	99.9
THC (PPM)	-	-	-	-	2.20	2.65	19	3	1.7	NE	2.43	1	99.9
NO2 (PPB)	159	-	0	-	2.1	25.3	29	5	0.6	SW	7.2	29	99.7
NO (PPB)	-	-	-	-	0.4	12.3	5	10	1.3	WSW	1.9	1	99.7
NOX (PPB)	-	-	-	-	2.5	26.0	29	5	0.6	SW	8.0	29	99.7
RELATIVE HUMIDITY (%)	-	-	-	-	68.9	90	6, 10	VAR	VAR	VAR	85.7	7	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	937	954	18	VAR	VAR	VAR	953	18	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-1.5	14.3	29	14	6	NW	6.9	30	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	2.6	13	13	7.5	WNW	0.4	13	100.0
VECTOR WS (KPH)	-	-	-	-	5.2	14.2	11	11	-	WNW	9.2	21	99.7
VECTOR WD (DEG)	-	-	-	-	-	-	-	-	-	-	-	-	99.7

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H2S 1- Hour Exceedences

No Exceedences Recorded During the Month

H2S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters Sulphur Dioxide (SO₂), Hydrogen Sulphide (H₂S), Total Hydrocarbon (THC), Oxides of Nitrogen (NO_x), Nitric Oxides (NO), Nitrogen Dioxide (NO₂), Relative Humidity (RH), Barometric Pressure (BP), Precipitation, Ambient Temperature (AmbTPX), Wind Speed (WS), Wind Direction (WD) and Standard Deviation Wind Direction (STDWD).

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered a downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as a downtime (Data is flagged as S). If extra zero/span check is performed, the time during the check is considered as a downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality for verification and validation of continuous ambient air quality data. The descriptions of the data verification and validation process can be found in Section 5 of this report.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 10%).

Trailer/Fire extinguisher inspection was completed on March 15.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 15. The analyzer was put into Maintenance mode on March 24 at hour 11 while the sample manifold maintenance was being done.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 15. The analyzer was put into Maintenance mode on March 24 at hour 11 while the sample manifold maintenance was being done.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. During the routine monthly calibration on March 15, the Hydrogen cylinder was replaced and the Maxxam-supplied zero air generator was replaced with the LICA-owned zero air generator that was earlier repaired at Maxxam shop.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 15. The analyzer spanned high on March 14. The span check was repeated and the result was good. No further issues were identified. The analyzer was put into Maintenance mode on March 24 at hour 11 while the sample manifold maintenance was being done.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The MetOne wind system, S/N: H10703, was uninstalled on March 24 and sent to the manufacturer for routine calibration. A maxxam-supplied replacement, RM Young S/N: 110980, was temporarily installed. Maximum instantaneous data collected on March 2 at hour 14 is invalid as the wind system was recovering from a short power outage.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month.

PRECIPITATION

Both the rain gauge system and heating system were working well throughout the month.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling technician was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006) as well as AMD 2015.

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H2S Monitoring
- Maxxam AIR SOP-00211: Ambient SO2 Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO2/NOx Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200A Chemiluminescent Analyzer
- Wind System - Met One and RM Young Units
- Relative Humidity - Met One Unit
- Barometric Pressure - Met One Unit
- Ambient Temperature - Met One Unit
- Precipitation - Met One Unit
- Datalogger - ESC 8832

The following steps were used to complete the data verification and validation process:

Level 0 Preliminary Verification

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation

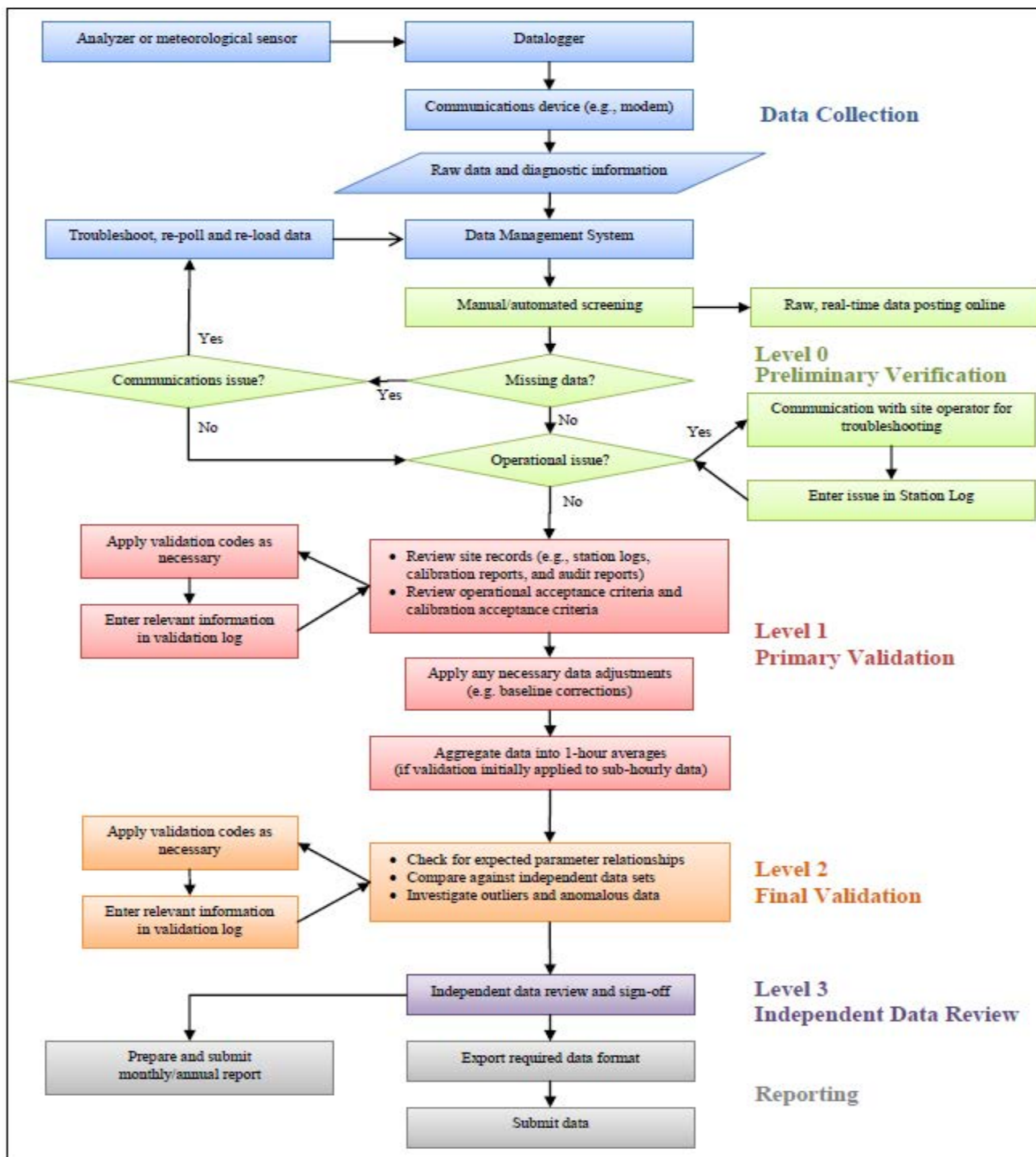
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

Level 3 validation is the last step of data review, and it is completed by someone independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data are submitted to Alberta Environment.

Post-Final Validation

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: AMD Chapter 6: Ambient Data Quality for verification and validation of continuous ambient air quality data; Figure 1 Data Collection and Management Process Flow Chart

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.	
DAY	MIN.	MAX.	AVG.																											
1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	4.1	3.4	0.0	0.0	S	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.4	24
2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3	1.2	0.7	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.2	24
3	0.0	0.0	0.0	0.0	0.0	3.1	0.9	0.1	0.0	0.0	1.7	1.4	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.7	0.0	3.1	0.5	24	
4	0.7	0.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	S	0.0	0.0	0.0	1.3	3.3	2.4	5.1	1.6	0.0	0.0	0.0	0.0	5.1	0.7	24	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	6.1	S	1.9	2.7	2.9	2.3	2.6	1.3	0.6	0.7	0.6	2.2	4.1	0.9	0.0	6.1	1.3	24	
6	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
7	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	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	24	
8	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
9	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
10	0.0	0.0	0.0	0.0	0.0	0.0	S	0.2	0.0	0.0	0.0	0.8	1.8	1.3	2.0	2.1	1.0	0.2	0.2	0.2	0.0	0.0	0.3	0.0	0.0	0.0	2.1	0.4	24	
11	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	0.0	0.0	0.0	0.0	S	0.0	0.0	0.3	3.7	2.9	2.5	3.9	4.4	4.0	5.5	1.9	0.0	0.0	0.0	0.0	1.4	3.0	0.0	0.0	0.0	0.0	5.5	1.5	24	
13	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	1.3	1.9	4.2	2.0	4.8	3.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	0.0	4.8	0.9	24	
14	0.3	1.2	S	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.1	24	
15	0.0	S	0.0	0.0	0.0	0.0	0.0	1.1	0.8	0.7	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.1	0.2	24	
16	S	2.0	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.2	0.2	0.1	0.2	S	0.0	2.0	0.2	24		
17	0.0	0.0	0.0	0.3	0.5	1.1	0.0	0.9	1.7	0.0	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	1.7	0.2	24		
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	1.6	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	1.6	0.2	24		
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	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	1.0	1.1	0.0	1.1	0.1	24	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.2	1.7	2.3	2.3	3.1	2.7	0.0	2.2	1.9	S	5.4	4.2	3.8	1.7	0.0	5.4	1.5	24		
21	0.7	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	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	24	
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	1.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.1	24		
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.0	0.4	0.1	1.5	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.2	24		
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	Y	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	23	
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	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	0.0	24
26	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.1	0.4	0.2	0.0	0.5	S	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	1.2	0.1	24		
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	S	0.0	0.0	0.1	0.4	0.6	1.2	1.8	0.0	0.0	0.0	0.0	0.0	1.8	0.2	24		
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	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	0.0	0.7	0.0	24	
29	0.0	0.0	0.0	2.9	1.5	1.4	0.0	0.0	0.0	0.0	S	0.0	3.6	0.4	1.4	0.3	1.9	0.9	11.1	7.5	5.1	0.0	0.0	0.0	0.0	11.1	1.7	24		
30	0.0	0.0	0.0	0.0	3.1	5.1	5.3	0.7	0.1	S	1.8	1.3	0.3	0.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	5.3	0.8	24		
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.8	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	24		
HOURLY MAX	0.7	2.0	1.3	2.9	3.1	5.1	5.3	1.1	3.7	2.9	6.1	4.1	4.8	4.0	5.5	2.7	2.6	3.3	11.1	7.5	5.4	4.2	4.1	2.7						
HOURLY AVG	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.1	0.3	0.4	0.7	0.7	1.1	0.7	0.6	0.4	0.2	0.3	0.6	0.6	0.5	0.2	0.4	0.3						

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

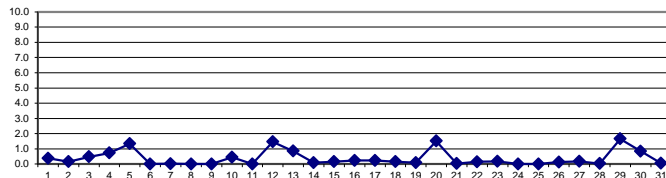
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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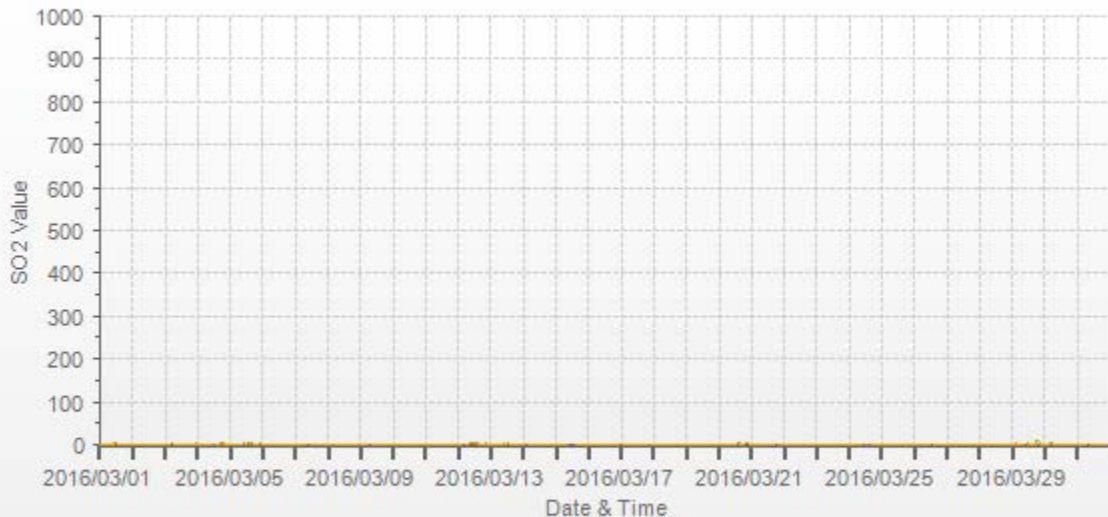
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	171					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	11.1	PPB	@ HOUR(S)	18	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	1.7	PPB			ON DAY(S)	29
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	1.04		MONTHLY AVERAGE:	0.4	PPB	

24 HOUR AVERAGES FOR MARCH 2016



SO2[ppb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	1.3	1.2	1.4	1.4	1.4	1.4	1.3	1.3	1.7	2.4	2.4	16.1	10.0	2.6	2.4	S	2.0	2.5	2.5	1.9	2.3	1.8	1.6	2.7	1.2	16.1	2.9	24	
2	2.8	1.5	1.6	1.6	1.4	1.4	1.4	1.3	1.4	1.4	3.4	3.7	3.2	2.6	S	2.0	1.8	1.4	1.3	1.2	1.3	1.4	1.4	1.2	1.2	3.7	1.8	24	
3	1.3	1.3	1.3	1.5	2.5	8.5	4.7	2.8	2.6	10.4	10.4	1.8	1.8	S	1.8	1.9	1.8	1.8	1.6	1.6	1.9	1.6	6.2	9.7	1.3	10.4	3.5	24	
4	6.7	3.8	4.0	2.7	1.5	1.2	1.0	1.2	1.3	1.4	1.4	5.4	S	2.6	2.9	4.8	6.8	8.9	5.3	10.9	6.6	3.6	2.1	2.5	1.0	10.9	3.9	24	
5	2.1	2.0	2.0	2.1	1.8	2.0	2.2	2.2	2.8	8.2	19.8	S	6.6	10.7	11.3	6.3	5.9	4.7	3.6	3.5	4.6	7.5	8.8	4.6	1.8	19.8	5.4	24	
6	2.8	2.4	2.4	2.1	2.1	2.1	2.2	2.2	2.2	2.2	S	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.0	2.8	2.2	24	
7	2.0	2.2	2.2	2.2	2.2	2.0	2.2	2.2	2.5	S	2.3	2.3	2.4	3.4	5.0	2.1	7.0	2.0	2.0	3.8	2.0	2.0	1.8	1.8	1.8	7.0	2.6	24	
8	1.7	1.6	1.8	2.3	2.3	2.5	1.6	2.3	S	1.8	1.8	1.9	1.8	1.9	1.8	1.9	1.9	2.0	1.9	2.1	2.0	1.9	1.8	1.8	1.6	2.5	1.9	24	
9	1.8	1.8	1.8	1.9	2.2	2.2	2.1	S	1.6	1.6	1.6	1.8	1.6	1.8	1.9	1.8	2.7	2.7	2.1	2.2	1.6	1.8	1.7	1.6	1.6	2.7	1.9	24	
10	1.8	1.9	1.9	1.9	2.0	2.1	S	4.3	2.1	2.4	7.1	5.3	4.9	6.5	6.9	5.7	3.5	3.7	4.6	2.7	2.9	4.8	2.9	3.0	1.8	7.1	3.7	24	
11	2.9	2.7	2.7	2.8	2.5	S	2.5	2.4	2.3	2.1	2.2	2.2	2.2	3.4	2.9	2.1	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3.4	2.3	24	
12	2.1	1.9	1.9	1.9	S	2.0	3.4	9.0	10.1	11.1	8.6	11.5	13.3	9.0	12.9	8.8	3.0	2.8	4.1	8.8	9.1	3.5	3.0	3.0	1.9	13.3	6.3	24	
13	3.0	3.0	3.0	S	3.0	3.3	3.3	3.2	7.4	13.4	16.4	8.1	13.7	12.1	4.6	3.3	3.2	3.1	3.2	3.0	3.0	3.6	8.8	7.5	3.0	16.4	5.9	24	
14	5.9	11.9	S	4.3	3.7	3.2	7.2	5.0	3.0	3.5	3.2	3.4	3.2	3.0	3.1	2.7	2.6	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	11.9	3.8	24	
15	2.5	S	2.4	2.2	2.4	2.4	2.6	3.6	4.4	4.1	C	C	C	C	2.0	1.6	1.5	1.3	1.5	1.5	1.4	1.4	2.0	2.8	1.3	4.4	2.3	24	
16	S	7.0	3.1	2.8	1.5	1.0	1.0	1.0	1.0	1.3	1.3	1.0	1.3	1.1	1.3	1.5	1.5	1.6	1.3	1.4	1.3	1.1	1.3	S	1.0	7.0	1.7	24	
17	0.8	0.7	1.0	1.7	1.8	3.7	2.8	4.5	4.5	1.0	1.0	1.0	1.2	1.0	0.6	0.6	0.7	0.0	0.0	0.0	0.1	0.0	S	0.0	0.0	4.5	1.2	24	
18	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.4	5.2	4.5	3.9	0.1	0.3	0.1	0.0	0.0	0.7	S	0.0	0.0	0.0	5.2	0.7	24	
19	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.5	0.4	0.1	0.5	0.8	2.8	0.9	0.4	0.8	0.8	0.4	S	1.2	2.8	3.3	0.0	3.3	0.7	24	
20	0.8	0.4	0.3	0.5	0.5	0.5	0.4	0.5	0.6	6.4	5.3	4.3	5.6	5.6	6.5	6.4	1.5	5.6	4.3	S	11.3	8.8	9.4	6.5	0.3	11.3	4.0	24	
21	3.1	1.0	1.0	0.8	1.0	0.8	0.8	0.8	0.9	0.7	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	S	0.8	0.8	0.8	0.6	0.8	0.6	3.1	0.9	24	
22	0.7	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	1.8	3.2	5.0	3.2	1.9	3.4	0.7	S	0.9	0.8	0.6	0.7	0.8	0.5	0.5	5.0	1.3	24	
23	0.8	0.8	0.8	0.7	0.8	0.7	0.7	1.3	1.0	1.3	2.1	4.2	7.4	2.9	2.9	8.4	S	1.8	1.0	1.1	1.1	1.1	1.1	1.1	0.7	8.4	2.0	24	
24	1.1	1.1	1.0	1.0	1.0	1.2	1.3	1.3	1.3	1.3	1.0	Y	1.0	1.0	1.0	S	0.9	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	1.3	1.0	23	
25	0.7	0.8	0.8	0.8	0.8	0.6	0.7	0.7	1.0	1.0	0.8	0.9	0.8	0.9	S	1.0	1.2	1.3	1.2	1.0	1.1	1.1	1.0	1.2	0.6	1.3	0.9	24	
26	1.2	1.1	1.2	1.2	1.4	1.2	5.9	1.6	1.9	2.4	2.0	3.0	4.5	S	1.6	1.9	2.0	1.9	2.1	1.3	1.0	3.1	3.0	1.0	1.0	5.9	2.1	24	
27	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.6	1.8	1.5	1.3	S	1.7	1.6	3.0	3.4	3.9	4.0	5.2	1.8	1.0	1.0	1.0	1.0	5.2	1.8	24	
28	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.4	1.2	2.6	1.6	S	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.0	2.3	1.5	1.0	1.0	1.0	2.6	1.2	24	
29	1.4	1.1	1.9	8.4	8.4	4.3	1.2	1.4	1.9	1.0	S	3.2	10.0	9.4	8.3	4.2	7.7	10.1	22.2	15.5	13.4	2.1	1.2	1.5	1.0	22.2	6.1	24	
30	1.4	1.7	1.9	1.3	8.3	9.0	11.6	8.1	2.1	S	4.0	3.5	2.4	2.7	3.0	2.0	1.6	3.0	1.1	1.8	1.8	1.6	1.9	1.6	1.1	11.6	3.4	24	
31	0.8	0.8	0.8	0.8	0.9	1.0	1.2	0.8	S	1.3	1.3	5.0	3.2	1.2	1.5	3.6	1.1	1.2	1.3	1.0	0.8	0.8	1.0	1.0	0.8	5.0	1.4	24	
HOURLY MAX	6.7	11.9	4.0	8.4	8.4	9.0	11.6	9.0	10.1	13.4	19.8	16.1	13.7	12.1	12.9	8.8	7.7	10.1	22.2	15.5	13.4	8.8	9.4	9.7					
HOURLY AVG	1.9	2.0	1.6	1.8	2.0	2.1	2.3	2.3	2.3	3.1	3.8	3.6	4.2	3.6	3.5	3.0	2.4	2.6	2.7	2.7	2.8	2.2	2.5	2.3					

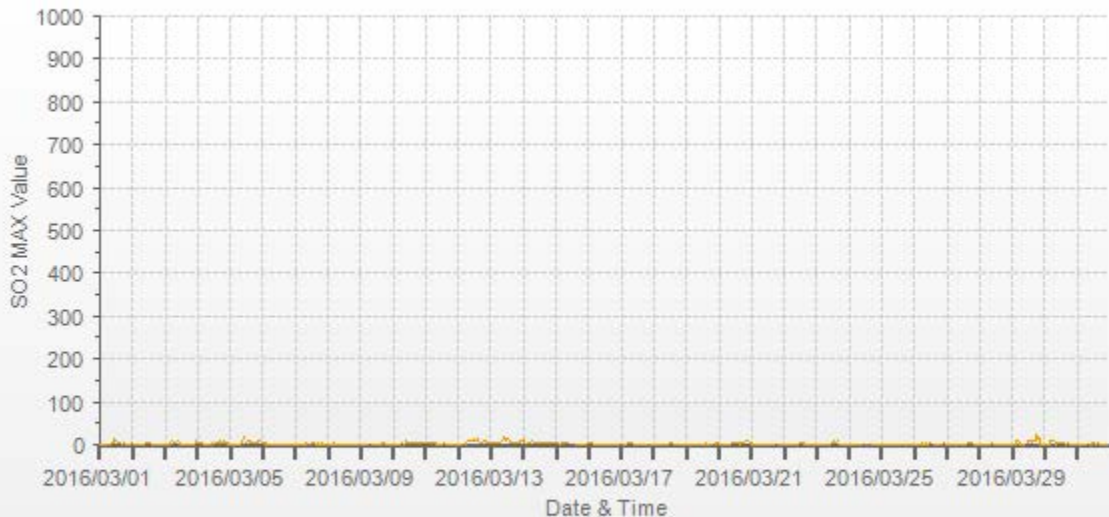
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

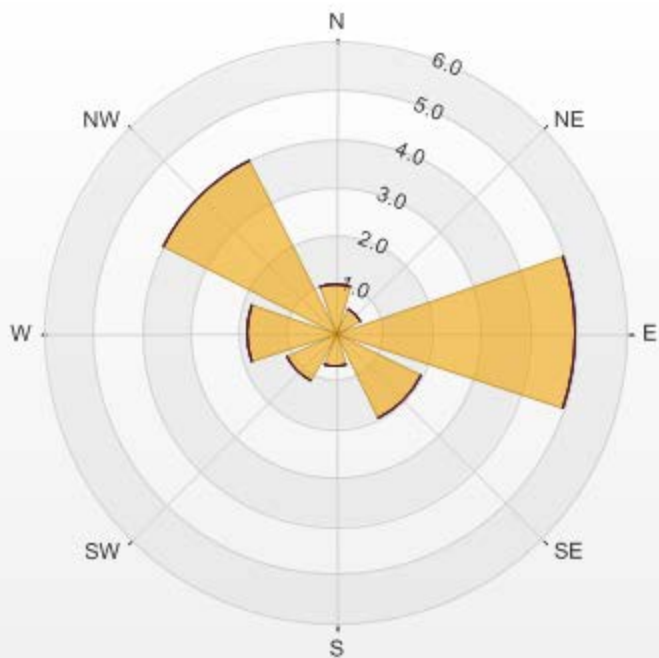
NUMBER OF NON-ZERO READINGS:	686
MAXIMUM INSTANTANEOUS VALUE:	22.2 PPB @ HOUR(S) 18 ON DAY(S) 29
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	2.74

SO2 MAX[ppb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA MASKWA Monitor: SO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 83.83% Valid Data: 94.76% Calm Avg: 0.00 [ppb]

Direction	0.5-20.0	20.0-60.0	60.0-110.0	110.0-170.0	170.0-340.0	>340.0	Total
N	0.99	0	0	0	0	0	0.99
NE	0.57	0	0	0	0	0	0.57
E	4.96	0	0	0	0	0	4.96
SE	1.99	0	0	0	0	0	1.99
S	0.71	0	0	0	0	0	0.71
SW	1.13	0	0	0	0	0	1.13
W	1.84	0	0	0	0	0	1.84
NW	3.97	0	0	0	0	0	3.97
Summary	16.16	0	0	0	0	0	16.16



% Icon Classes (ppb)	0.0	20.0-60.0	Page 19 of 114	170.0	0.0	JOB# 2833-2016-03-30	>340.0
16.2	0.5-20.0	60.0-110.0					

SO2[ppb] Calibration: LICA MASKWA Monthly: 03/2016 Type: Span



HYDROGEN SULPHIDE

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	HR	START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	MIN.	MAX.	AVG.	RDGS.
1	1	0.0	0.0	0.0	0.0	0.2	0.6	0.8	1.4	0.6	0.6	0.7	0.4	0.4	0.0	0.2	S	0.0	0.1	0.5	0.5	0.2	0.3	0.1	0.3	0.0	1.4	0.3	24
2	2	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24
3	3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.2	0.0	0.1	0.0	S	0.1	0.2	0.0	0.0	0.3	0.0	0.0	0.1	0.5	0.3	0.0	0.5	0.1	24
4	4	0.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	S	0.0	0.3	0.5	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.5	0.1	24
5	5	0.0	0.0	0.1	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	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	24
6	6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	S	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.4	0.1	24
7	7	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.5	0.6	S	0.1	0.5	0.1	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24
8	8	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	24
9	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24
10	10	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	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	24
11	11	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	12	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.1	0.0	0.0	0.4	0.0	24
13	13	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24
14	14	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	15	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	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	24
16	16	S	0.0	0.1	0.2	0.2	0.0	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.3	0.1	24
17	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	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	S	0.2	0.0	0.2	24
18	18	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	S	0.3	0.0	0.0	0.3	0.0	24
19	19	0.0	0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.2	0.3	0.0	0.4	0.1	24
20	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	S	0.4	0.0	0.0	0.0	0.0	0.4	0.0	24
21	21	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24
22	22	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.2	0.2	0.0	0.2	0.0	0.0	0.2	0.0	24
23	23	0.0	0.1	0.1	0.2	0.0	0.0	0.2	0.2	0.0	0.3	0.3	0.0	0.1	0.0	0.4	0.4	S	0.2	0.3	0.2	0.4	0.0	0.2	0.0	0.0	0.4	0.2	24
24	24	0.0	0.3	0.4	0.2	0.0	0.1	0.4	0.1	0.1	0.8	0.4	Y	0.6	0.7	0.2	S	0.1	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.8	0.2	23	
25	25	0.6	0.5	0.1	0.4	0.5	0.5	0.0	0.3	0.6	0.4	0.4	0.3	0.0	0.0	S	0.2	0.0	0.3	0.1	0.3	0.5	0.3	0.0	0.2	0.0	0.6	0.3	24
26	26	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24
27	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	S	0.0	0.0	0.0	0.0	0.6	0.6	0.2	0.0	0.1	0.0	0.0	0.6	0.1	24
28	28	0.1	0.4	0.2	0.0	0.0	0.2	0.4	0.2	0.6	0.2	0.0	S	0.1	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.6	0.2	24
29	29	0.0	0.0	0.0	0.3	0.2	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24
30	30	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	S	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24
31	31	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	24
HOURLY MAX		0.6	0.5	0.4	0.4	0.5	0.6	0.8	1.4	0.6	0.8	0.7	0.5	0.6	0.7	0.4	0.5	0.1	0.3	0.6	0.6	0.5	0.4	0.5	0.3				
HOURLY AVG		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

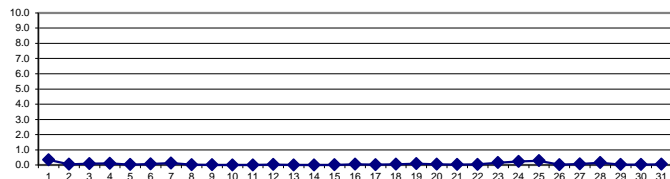
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	198
MINIMUM 1-HR AVERAGE:	0.0 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 1-HR AVERAGE:	1.4 PPB @ HOUR(S) 7 ON DAY(S) 1
MAXIMUM 24-HR AVERAGE:	0.3 PPB ON DAY(S) 1, 25 VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	3 HRS AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	0.15 MONTHLY AVERAGE: 0.1 PPB

24 HOUR AVERAGES FOR MARCH 2016







HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

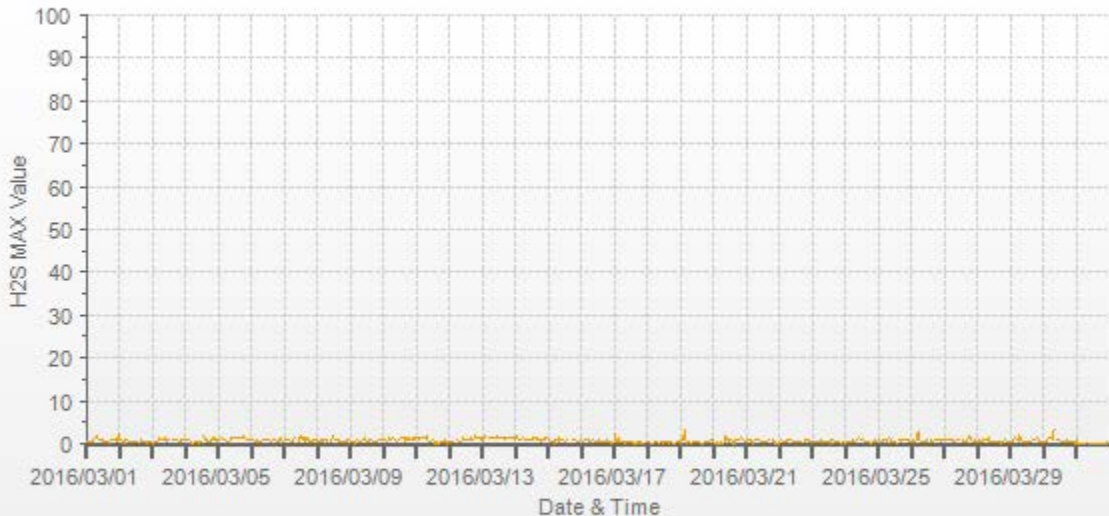
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	0.6	0.3	0.4	0.3	0.6	1.1	1.2	2.0	1.3	1.0	0.8	0.7	0.9	0.7	0.7	S	0.0	0.8	0.8	0.9	0.8	0.8	0.6	2.2	0.0	2.2	0.8	24	
2	0.8	0.9	0.7	0.1	0.9	0.9	0.5	0.6	0.7	0.5	0.7	0.7	0.6	S	0.8	0.3	0.6	0.7	0.1	0.5	0.7	0.5	0.6	0.1	0.9	0.6	24		
3	0.2	0.4	0.5	0.5	1.1	1.6	0.8	1.0	1.0	1.3	0.7	0.9	0.8	S	0.9	1.0	0.8	1.0	1.0	0.6	0.5	0.8	1.1	1.1	0.2	1.6	0.9	24	
4	0.8	0.9	0.8	0.4	0.2	0.2	0.3	0.3	0.4	0.1	0.4	0.6	S	2.1	1.0	1.0	0.7	0.4	0.4	1.0	1.3	1.2	0.7	1.0	0.1	2.1	0.7	24	
5	0.8	1.2	1.2	1.1	1.0	1.0	0.7	0.3	0.5	1.4	1.5	S	1.2	1.4	1.4	1.2	1.2	1.2	2.1	1.5	0.9	1.1	1.1	1.1	0.3	2.1	1.1	24	
6	1.1	1.0	0.6	0.7	0.8	0.6	0.6	0.7	1.0	1.1	S	1.1	0.9	0.8	0.5	0.9	1.0	0.9	0.7	0.8	1.4	0.7	0.5	0.5	1.4	0.8	24		
7	0.8	0.8	1.1	0.9	0.5	0.6	0.4	1.3	1.4	S	0.7	1.6	1.7	1.0	1.3	0.7	1.2	1.1	0.6	0.5	0.5	0.8	0.8	0.8	0.4	1.7	0.9	24	
8	0.4	0.5	0.9	0.7	0.8	0.9	0.8	0.7	S	0.7	1.0	2.1	0.9	1.0	1.1	0.6	0.9	0.6	0.4	0.5	0.7	0.6	0.8	0.8	0.4	2.1	0.8	24	
9	0.7	0.7	0.7	0.0	1.0	0.9	0.6	S	0.5	1.1	1.3	0.8	0.5	0.6	1.0	1.0	0.4	0.5	0.5	0.6	0.8	0.8	0.9	0.9	0.0	1.3	0.7	24	
10	1.1	1.0	0.6	0.6	1.2	1.0	S	1.3	1.0	0.7	0.7	1.0	1.2	1.2	1.4	1.2	0.7	1.3	1.4	1.1	1.0	1.4	1.1	1.3	0.6	1.4	1.1	24	
11	1.2	1.2	1.1	1.4	1.2	S	1.5	2.0	0.9	0.7	0.5	0.5	0.9	0.6	0.1	0.3	0.1	0.3	0.6	0.7	0.5	0.8	0.2	0.6	0.1	2.0	0.8	24	
12	0.5	0.5	0.6	0.7	S	1.0	0.9	0.3	0.5	1.1	1.2	1.1	1.1	1.0	1.1	1.3	1.1	1.1	1.2	2.0	1.6	1.6	1.5	1.2	0.3	2.0	1.1	24	
13	0.7	1.3	1.7	S	1.6	1.4	1.2	1.5	1.3	1.5	1.5	1.7	1.4	1.4	1.5	1.6	1.1	1.6	1.2	1.2	1.2	1.5	1.6	1.4	0.7	1.7	1.4	24	
14	1.1	1.7	S	1.1	1.0	1.4	1.2	1.0	0.9	0.8	0.8	0.9	0.9	1.2	1.2	1.0	1.5	0.8	0.4	0.8	0.9	0.8	1.2	1.2	0.4	1.7	1.0	24	
15	0.9	S	0.7	0.5	0.2	1.0	1.0	1.3	0.6	1.0	0.9	0.8	0.5	1.0	C	C	C	C	1.1	1.1	0.7	0.6	0.6	0.8	0.2	1.3	0.8	24	
16	S	0.4	0.8	1.0	1.0	0.4	0.9	0.7	0.8	1.0	0.7	0.7	0.6	0.8	0.6	0.3	0.4	0.6	1.0	0.5	0.5	0.0	0.6	S	0.0	1.0	0.7	24	
17	2.5	0.5	0.6	1.2	0.7	0.4	0.4	0.2	0.4	0.6	0.5	0.3	0.4	0.3	0.1	0.2	0.4	0.2	0.3	0.0	0.3	0.0	S	0.3	0.0	2.5	0.5	24	
18	0.3	0.3	0.1	0.1	0.2	0.5	0.3	0.4	0.2	0.0	0.3	0.1	0.3	0.4	0.4	0.4	0.1	0.6	0.2	0.1	0.0	S	0.5	0.5	0.0	0.6	0.3	24	
19	0.2	1.0	0.8	3.5	0.8	0.0	0.5	0.0	0.2	0.5	0.4	0.4	0.5	0.5	0.6	0.0	0.1	0.0	0.5	0.6	S	0.3	0.9	1.0	0.0	3.5	0.6	24	
20	0.3	0.0	0.2	0.6	0.2	0.6	0.2	0.2	0.3	2.0	1.0	0.9	0.5	0.9	0.6	0.0	0.9	0.9	0.8	S	1.2	0.9	0.9	0.6	0.0	2.0	0.6	24	
21	0.7	0.9	1.0	0.8	0.6	0.0	0.8	0.8	0.9	1.1	0.6	0.7	0.6	0.4	0.4	0.5	0.8	1.0	S	0.6	0.8	0.0	0.2	0.2	0.0	1.1	0.6	24	
22	0.5	0.8	0.4	0.3	0.7	0.6	0.8	0.8	0.8	1.1	0.5	0.4	0.3	0.5	0.4	0.3	0.6	S	0.4	0.8	0.9	0.6	0.8	0.3	0.3	1.1	0.6	24	
23	0.4	0.7	0.5	0.6	0.6	0.3	0.9	0.6	0.5	0.6	0.7	0.3	0.5	0.1	1.1	0.8	S	0.5	0.6	0.7	0.7	0.2	0.4	0.3	0.1	1.1	0.5	24	
24	0.2	0.6	0.7	0.6	0.4	0.4	0.8	0.6	0.8	1.1	1.2	Y	0.9	0.9	0.5	S	0.7	0.6	0.5	0.2	0.7	0.8	0.7	0.6	0.2	1.2	0.7	23	
25	1.0	1.0	0.6	0.6	0.8	0.9	0.4	0.8	1.2	0.8	0.7	0.6	0.5	0.1	S	0.8	0.7	0.8	1.0	0.8	1.1	1.0	0.6	1.0	0.1	1.2	0.8	24	
26	0.6	0.6	0.8	0.5	1.0	3.0	1.1	0.7	0.7	0.6	0.6	0.7	0.8	S	0.9	0.6	0.7	1.0	1.0	1.0	1.1	0.7	1.1	0.9	0.5	3.0	0.9	24	
27	0.8	0.9	1.0	0.9	0.9	0.9	0.9	0.4	0.6	0.9	0.8	1.0	S	0.9	0.7	0.7	0.6	1.1	2.0	1.6	0.9	0.6	0.8	0.6	0.4	2.0	0.9	24	
28	0.7	0.9	0.6	0.5	0.6	0.8	0.9	0.8	1.4	0.6	0.4	S	0.4	0.6	0.3	0.7	0.5	0.3	0.2	0.6	1.1	0.9	0.4	0.6	0.2	1.4	0.6	24	
29	0.7	0.6	0.6	1.5	1.4	1.0	0.5	2.1	0.9	0.5	S	0.4	0.4	0.4	0.4	0.5	1.0	0.9	1.1	1.2	1.3	0.5	0.5	0.7	0.4	2.1	0.8	24	
30	0.6	0.3	0.7	0.7	1.3	1.2	1.2	0.8	3.1	S	0.9	0.9	1.1	0.6	0.7	0.4	0.7	0.8	0.7	0.7	0.7	0.5	0.3	0.2	0.2	3.1	0.8	24	
31	0.8	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	24
HOURLY MAX	2.5	1.7	1.7	3.5	1.6	3.0	1.5	2.1	3.1	2.0	1.5	2.1	1.7	2.1	1.5	1.6	1.5	1.6	2.1	2.0	1.6	1.6	1.6	2.2					
HOURLY AVG	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.8					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

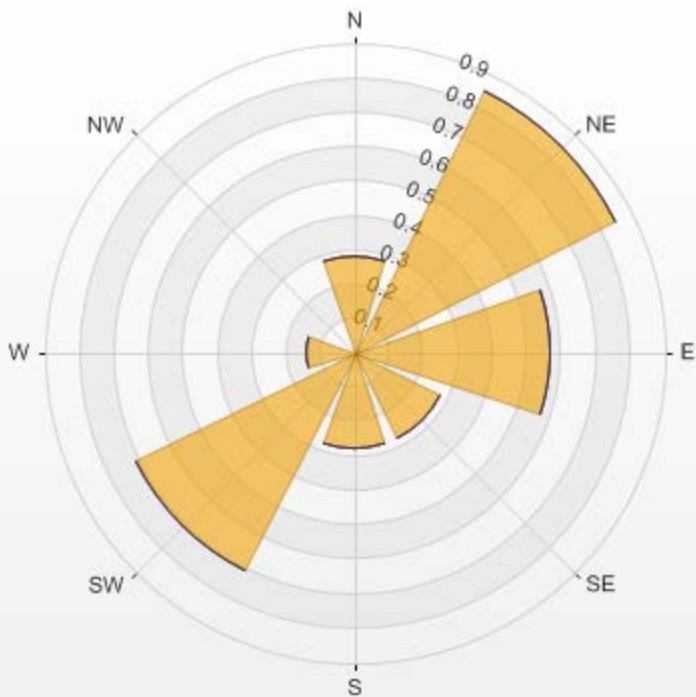
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	670
MAXIMUM INSTANTANEOUS VALUE:	3.5 PPB @ HOUR(S) 3 ON DAY(S) 19
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.44
OPERATIONAL TIME:	743 HRS



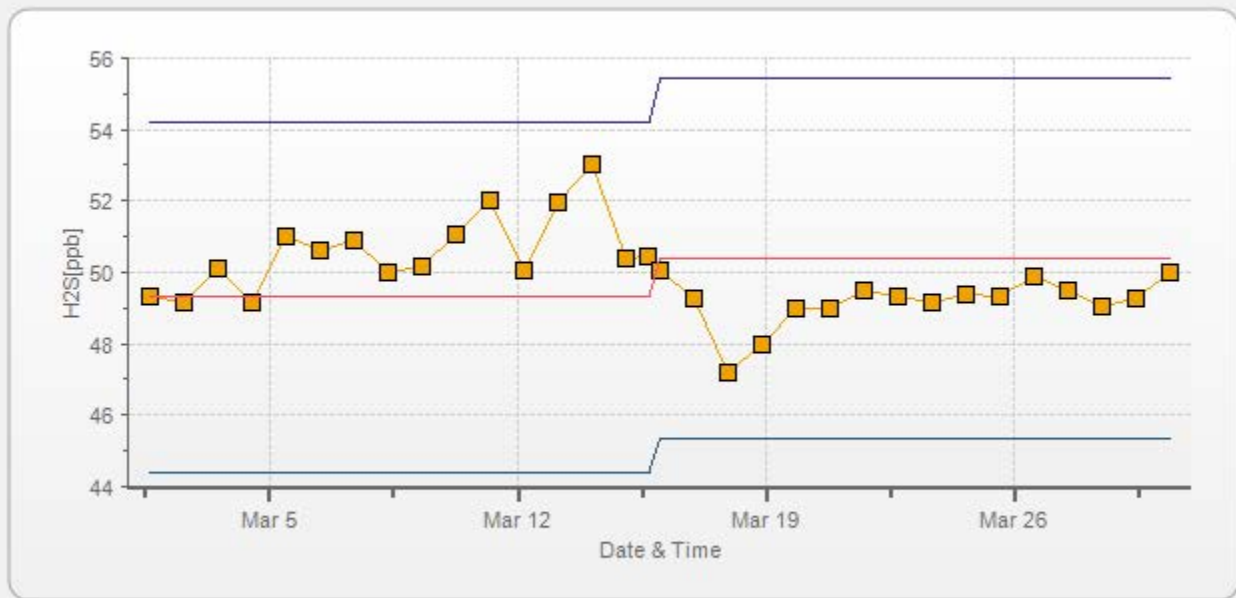
Wind: LICA MASKWA Monitor: H2S [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
Calm: 96.88% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	0.28	0	0	0	0.28
NE	0.85	0	0	0	0.85
E	0.57	0	0	0	0.57
SE	0.28	0	0	0	0.28
S	0.28	0	0	0	0.28
SW	0.71	0	0	0	0.71
W	0.14	0	0	0	0.14
NW	0	0	0	0	0
Summary	3.11	0	0	0	3.11



% Icon Classes (ppb)	3.1	0.5-3.0	0.0	3.0-10.0	0.0	10.0-50.0	0.0	>50.0

H2S[ppb] Calibration: LICA MASKWA Monthly: 03/2016 Type: Span



TOTAL HYDROCARBON

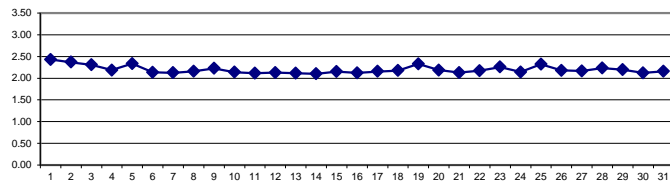
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1	1	2.42	2.40	2.43	2.46	2.47	2.49	2.54	2.62	2.60	2.51	2.46	2.41	2.40	2.45	2.49	S	2.39	2.34	2.35	2.33	2.30	2.31	2.32	2.35	2.30	2.62	2.43	24	
2	2	2.31	2.28	2.29	2.28	2.28	2.26	2.25	2.24	2.25	2.30	2.28	2.28	2.54	2.32	S	2.31	2.33	2.42	2.48	2.58	2.57	2.52	2.53	2.56	2.24	2.58	2.37	24	
3	3	2.60	2.57	2.52	2.42	2.44	2.46	2.40	2.35	2.29	2.25	2.22	2.18	2.16	S	2.13	2.15	2.14	2.15	2.18	2.21	2.25	2.31	2.35	2.36	2.13	2.60	2.31	24	
4	4	2.33	2.31	2.26	2.19	2.15	2.16	2.16	2.16	2.16	2.16	2.13	2.13	S	2.10	2.10	2.13	2.12	2.16	2.18	2.18	2.20	2.25	2.27	2.28	2.10	2.33	2.19	24	
5	5	2.29	2.29	2.29	2.30	2.28	2.31	2.32	2.33	2.43	2.48	2.54	S	2.34	2.28	2.27	2.25	2.35	2.41	2.40	2.30	2.30	2.37	2.33	2.26	2.25	2.54	2.34	24	
6	6	2.22	2.18	2.18	2.18	2.18	2.17	2.16	2.15	2.13	2.12	S	2.10	2.09	2.09	2.08	2.27	2.09	2.09	2.10	2.10	2.11	2.10	2.11	2.10	2.08	2.27	2.13	24	
7	7	2.09	2.10	2.10	2.10	2.11	2.11	2.11	2.11	2.11	S	2.11	2.12	2.15	2.15	2.16	2.14	2.15	2.14	2.13	2.17	2.13	2.12	2.12	2.11	2.09	2.17	2.12	24	
8	8	2.11	2.11	2.12	2.12	2.12	2.16	2.19	2.18	S	2.15	2.17	2.23	2.26	2.22	2.26	2.20	2.17	2.19	2.15	2.12	2.10	2.10	2.11	2.13	2.10	2.26	2.16	24	
9	9	2.16	2.16	2.18	2.18	2.19	2.19	2.15	S	2.20	2.17	2.14	2.13	2.15	2.28	2.35	2.31	2.29	2.29	2.29	2.26	2.27	2.27	2.29	2.29	2.13	2.35	2.23	24	
10	10	2.27	2.24	2.21	2.23	2.26	2.32	S	2.23	2.17	2.12	2.09	2.11	2.09	2.07	2.07	2.06	2.04	2.05	2.06	2.06	2.04	2.06	2.13	2.17	2.04	2.32	2.14	24	
11	11	2.14	2.10	2.11	2.17	2.18	S	2.10	2.08	2.09	2.06	2.06	2.11	2.04	2.07	2.06	2.03	2.05	2.06	2.06	2.12	2.19	2.19	2.25	2.31	2.03	2.31	2.11	24	
12	12	2.30	2.22	2.36	2.30	S	2.14	2.14	2.10	2.07	2.09	2.10	2.10	2.05	2.04	2.06	2.02	2.01	2.02	2.06	2.09	2.12	2.18	2.25	2.16	2.01	2.36	2.13	24	
13	13	2.17	2.10	2.17	S	2.21	2.14	2.13	2.13	2.10	2.11	2.10	2.09	2.10	2.14	2.14	2.08	2.08	2.08	2.08	2.09	2.08	2.09	2.12	2.13	2.08	2.21	2.12	24	
14	14	2.12	2.13	S	2.12	2.12	2.10	2.11	2.09	2.08	2.08	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.10	2.11	2.13	2.12	2.11	2.12	2.13	2.08	2.13	2.10	24	
15	15	2.14	S	2.15	2.13	2.13	2.13	2.13	2.16	2.16	C	C	C	C	C	C	2.12	2.16	2.13	2.13	2.14	2.17	2.19	2.19	2.19	2.12	2.19	2.15	24	
16	16	S	2.16	2.15	2.14	2.12	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.11	2.12	2.12	2.13	2.12	2.14	2.14	2.14	2.13	S	2.09	2.16	2.12	24	
17	17	2.15	2.15	2.15	2.15	2.15	2.17	2.16	2.17	2.17	2.17	2.17	2.16	2.16	2.15	2.14	2.14	2.14	2.15	2.14	2.14	2.16	2.16	S	2.16	2.14	2.17	2.15	24	
18	18	2.16	2.16	2.16	2.17	2.16	2.19	2.16	2.15	2.15	2.15	2.14	2.13	2.14	2.14	2.13	2.13	2.17	2.24	2.21	2.18	2.18	S	2.28	2.33	2.13	2.33	2.17	24	
19	19	2.33	2.33	2.39	2.65	2.35	2.34	2.31	2.39	2.61	2.39	2.30	2.30	2.26	2.26	2.25	2.22	2.22	2.21	2.23	2.31	S	2.33	2.27	2.27	2.21	2.65	2.33	24	
20	20	2.29	2.30	2.21	2.21	2.21	2.19	2.18	2.17	2.21	2.16	2.16	2.16	2.15	2.13	2.14	2.15	2.14	2.17	2.16	S	2.22	2.20	2.19	2.16	2.13	2.30	2.19	24	
21	21	2.15	2.14	2.13	2.13	2.12	2.11	2.10	2.11	2.12	2.12	2.12	2.11	2.10	2.11	2.11	2.11	2.11	2.14	S	2.16	2.17	2.16	2.15	2.16	2.10	2.17	2.13	24	
22	22	2.18	2.18	2.19	2.18	2.20	2.20	2.17	2.17	2.16	2.15	2.14	2.14	2.14	2.13	2.12	2.14	2.15	S	2.14	2.14	2.15	2.27	2.26	2.25	2.12	2.27	2.17	24	
23	23	2.27	2.28	2.28	2.33	2.36	2.38	2.39	2.40	2.39	2.38	2.30	2.22	2.19	2.16	2.18	2.17	S	2.16	2.17	2.18	2.16	2.19	2.15	2.19	2.15	2.40	2.26	24	
24	24	2.12	2.17	2.18	2.16	2.16	2.15	2.12	2.12	2.12	2.12	2.12	2.12	Y	2.13	2.12	2.12	S	2.12	2.12	2.12	2.14	2.15	2.16	2.17	2.22	2.12	2.14	23	
25	25	2.23	2.22	2.26	2.28	2.35	2.34	2.24	2.22	2.21	2.22	2.21	2.26	2.31	2.38	S	2.54	2.47	2.43	2.42	2.38	2.35	2.35	2.38	2.39	2.21	2.54	2.32	24	
26	26	2.41	2.38	2.26	2.23	2.18	2.13	2.20	2.14	2.14	2.13	2.13	2.12	2.13	S	2.11	2.11	2.11	2.13	2.14	2.14	2.16	2.18	2.24	2.20	2.11	2.41	2.18	24	
27	27	2.18	2.18	2.18	2.18	2.19	2.19	2.19	2.20	2.23	2.21	2.18	2.16	S	2.13	2.12	2.10	2.10	2.12	2.15	2.19	2.14	2.16	2.17	2.16	2.10	2.23	2.17	24	
28	28	2.16	2.17	2.18	2.18	2.18	2.19	2.20	2.19	2.19	2.19	2.18	S	2.16	2.17	2.20	2.19	2.17	2.20	2.30	2.38	2.44	2.38	2.37	2.38	2.16	2.44	2.23	24	
29	29	2.45	2.42	2.38	2.35	2.32	2.29	2.23	2.16	2.13	2.14	S	2.15	2.11	2.08	2.08	2.11	2.13	2.08	2.20	2.24	2.19	2.10	2.09	2.13	2.08	2.45	2.20	24	
30	30	2.16	2.18	2.27	2.15	2.18	2.18	2.18	2.09	2.09	S	2.08	2.07	2.06	2.07	2.08	2.07	2.07	2.07	2.07	2.09	2.11	2.11	2.11	2.12	2.14	2.06	2.27	2.12	24
31	31	2.15	2.15	2.17	2.17	2.16	2.17	2.17	2.17	S	2.18	2.17	2.17	2.16	2.15	2.13	2.15	2.16	2.15	2.15	2.16	2.16	2.16	2.16	2.17	2.13	2.18	2.16	24	
HOURLY MAX		2.60	2.57	2.52	2.65	2.47	2.49	2.54	2.62	2.61	2.51	2.54	2.41	2.54	2.45	2.49	2.54	2.47	2.43	2.48	2.58	2.57	2.52	2.53	2.56					
HOURLY AVG		2.24	2.23	2.23	2.23	2.22	2.22	2.20	2.20	2.20	2.20	2.18	2.16	2.17	2.16	2.15	2.16	2.16	2.16	2.17	2.18	2.20	2.19	2.21	2.22	2.23				

STATUS FLAG CODES

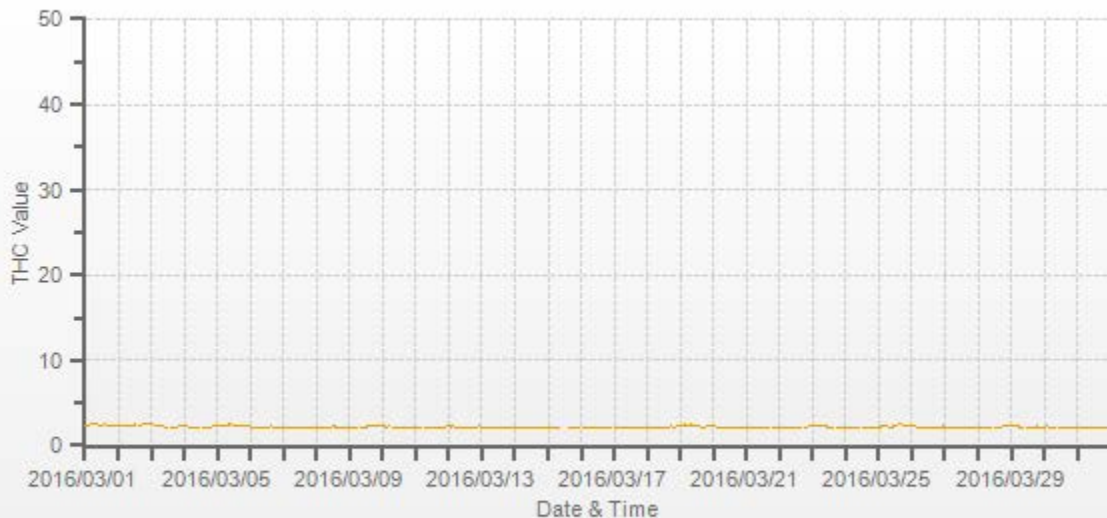
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705		
MINIMUM 1-HR AVERAGE:	2.01 PPM	@ HOUR(S)	16 ON DAY(S) 12
MAXIMUM 1-HR AVERAGE:	2.65 PPM	@ HOUR(S)	3 ON DAY(S) 19
MAXIMUM 24-HR AVERAGE:	2.43 PPM		1 ON DAY(S) 1
			VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.11	MONTHLY AVERAGE:	2.20 PPM





TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																														
1		2.44	2.44	2.48	2.49	2.51	2.52	2.60	2.69	2.69	2.54	2.52	2.46	2.46	2.46	2.52	S	2.41	2.35	2.38	2.35	2.32	2.33	2.35	2.36	2.32	2.69	2.46	24	
2		2.35	2.31	2.32	2.32	2.32	2.31	2.27	2.26	2.28	2.60	2.38	2.32	3.24	2.36	S	2.38	2.38	2.45	2.51	2.66	2.64	2.57	2.55	2.63	2.26	3.24	2.45	24	
3		2.67	2.60	2.58	2.48	2.46	2.51	2.44	2.38	2.35	2.27	2.26	2.20	2.17	S	2.15	2.17	2.15	2.17	2.24	2.24	2.26	2.33	2.43	2.41	2.15	2.67	2.34	24	
4		2.38	2.35	2.29	2.24	2.17	2.17	2.17	2.18	2.18	2.17	2.17	2.20	S	2.12	2.12	2.30	2.12	2.20	2.20	2.20	2.23	2.26	2.26	2.26	2.12	2.38	2.21	24	
5		2.26	2.26	2.32	2.32	2.26	2.41	2.38	2.32	2.41	2.43	2.75	S	2.32	2.27	2.27	2.23	2.35	2.38	2.38	2.35	2.35	2.41	2.36	2.29	2.23	2.75	2.35	24	
6		2.23	2.17	2.17	2.17	2.17	2.17	2.15	2.14	2.12	2.11	S	2.10	2.09	2.07	2.07	2.07	2.07	2.08	2.09	2.09	2.10	2.09	2.09	2.09	2.07	2.23	2.12	24	
7		2.08	2.08	2.08	2.09	2.09	2.09	2.09	2.09	2.09	S	2.11	2.17	2.15	2.20	2.20	2.12	2.17	2.14	2.17	2.23	2.14	2.12	2.12	2.11	2.08	2.23	2.13	24	
8		2.11	2.12	2.12	2.12	2.12	2.20	2.20	2.20	S	2.17	2.21	2.29	2.29	2.27	2.32	2.23	2.20	2.23	2.18	2.15	2.12	2.12	2.12	2.15	2.11	2.32	2.18	24	
9		2.18	2.18	2.20	2.21	2.21	2.23	2.18	S	2.23	2.20	2.17	2.15	2.20	2.35	2.38	2.35	2.30	2.30	2.32	2.29	2.29	2.27	2.29	2.29	2.15	2.38	2.25	24	
10		2.29	2.26	2.21	2.24	2.27	2.32	S	2.42	2.18	2.12	2.11	2.14	2.17	2.08	2.09	2.07	2.04	2.07	2.08	2.12	2.02	2.07	2.18	2.23	2.02	2.42	2.16	24	
11		2.20	2.09	2.09	2.20	2.20	S	2.08	2.07	2.07	2.04	2.07	2.09	2.05	2.20	2.12	2.06	2.07	2.07	2.07	2.14	2.20	2.20	2.30	2.52	2.04	2.52	2.14	24	
12		2.64	2.57	2.68	2.54	S	2.35	2.29	2.18	2.10	2.17	2.21	2.12	2.07	2.04	2.09	2.03	1.99	2.01	2.07	2.09	2.09	2.57	2.46	2.46	1.99	2.68	2.25	24	
13		2.36	2.18	2.41	S	2.41	2.30	2.12	2.17	2.11	2.12	2.14	2.12	2.12	2.12	2.14	2.04	2.02	2.02	2.04	2.04	2.02	2.09	2.20	2.17	2.02	2.41	2.15	24	
14		2.17	2.15	S	2.09	2.11	2.11	2.14	2.07	2.04	2.04	2.04	2.05	2.07	2.07	2.07	2.07	2.07	2.11	2.10	2.17	2.17	2.10	2.11	2.17	2.04	2.17	2.10	24	
15		2.15	S	2.21	2.14	2.12	2.14	2.15	2.26	2.32	C	C	C	C	C	C	C	C	2.17	2.15	2.17	2.20	2.20	2.20	2.21	2.12	2.32	2.19	24	
16		S	2.20	2.18	2.18	2.18	2.14	2.14	2.14	2.15	2.17	2.17	2.17	2.15	2.15	2.17	2.20	2.20	2.20	2.20	2.20	2.21	2.21	2.23	S	2.14	2.23	2.18	24	
17		2.24	2.23	2.23	2.24	2.24	2.28	2.26	2.27	2.26	2.26	2.26	2.26	2.26	2.26	2.24	2.24	2.24	2.26	2.26	2.26	2.27	2.26	S	2.27	2.23	2.28	2.25	24	
18		2.27	2.28	2.29	2.29	2.29	2.31	2.29	2.26	2.26	2.26	2.26	2.26	2.26	2.26	2.26	2.32	2.35	2.35	2.29	2.30	S	2.43	2.44	2.26	2.44	2.30	24		
19		2.46	2.44	2.84	3.05	2.67	2.63	2.57	2.81	2.96	2.63	2.41	2.39	2.38	2.35	2.35	2.32	2.29	2.29	2.35	2.41	S	2.44	2.36	2.43	2.29	3.05	2.51	24	
20		2.51	2.57	2.29	2.31	2.29	2.27	2.26	2.23	2.26	2.33	2.27	2.24	2.23	2.20	2.21	2.21	2.20	2.24	2.23	S	2.31	2.29	2.27	2.24	2.20	2.57	2.28	24	
21		2.23	2.18	2.17	2.17	2.17	2.15	2.15	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	S	2.20	2.20	2.20	2.23	2.15	2.23	2.18	24	
22		2.23	2.24	2.23	2.23	2.26	2.26	2.23	2.21	2.23	2.20	2.20	2.23	2.18	2.17	2.17	2.17	2.18	S	2.17	2.17	2.26	2.31	2.31	2.29	2.17	2.31	2.22	24	
23		2.31	2.31	2.32	2.38	2.38	2.41	2.41	2.42	2.41	2.42	2.36	2.27	2.29	2.20	2.24	2.23	S	2.20	2.20	2.26	2.21	2.35	2.23	2.26	2.20	2.42	2.31	24	
24		2.14	2.26	2.20	2.20	2.17	2.18	2.15	2.17	2.17	2.15	2.15	Y	2.17	2.12	2.14	S	2.12	2.14	2.14	2.17	2.20	2.17	2.18	2.44	2.12	2.44	2.18	23	
25		2.31	2.26	2.31	2.32	2.48	2.44	2.32	2.24	2.24	2.24	2.24	2.30	2.33	2.46	S	2.58	2.51	2.45	2.44	2.41	2.38	2.38	2.41	2.41	2.24	2.58	2.37	24	
26		2.44	2.44	2.32	2.24	2.23	2.15	2.17	2.15	2.15	2.15	2.14	2.14	2.17	S	2.12	2.12	2.12	2.15	2.17	2.17	2.26	2.27	2.31	2.23	2.12	2.44	2.21	24	
27		2.20	2.18	2.20	2.20	2.20	2.20	2.20	2.21	2.26	2.21	2.20	2.17	S	2.14	2.12	2.11	2.11	2.17	2.18	2.26	2.15	2.17	2.17	2.17	2.11	2.26	2.18	24	
28		2.18	2.18	2.20	2.20	2.20	2.23	2.21	2.23	2.21	2.20	2.21	S	2.18	2.20	2.23	2.21	2.20	2.23	2.36	2.41	2.55	2.41	2.39	2.42	2.18	2.55	2.26	24	
29		2.49	2.48	2.46	2.52	2.48	2.36	2.27	2.20	2.17	2.26	S	2.36	2.21	2.17	2.15	2.46	2.39	2.14	2.57	2.42	2.38	2.12	2.11	2.17	2.11	2.57	2.32	24	
30		2.17	2.24	2.31	2.24	2.30	2.27	2.27	2.12	2.11	S	2.11	2.08	2.07	2.09	2.09	2.09	2.08	2.09	2.11	2.12	2.12	2.12	2.14	2.17	2.07	2.31	2.15	24	
31		2.17	2.17	2.17	2.17	2.17	2.18	2.18	2.20	S	2.20	2.18	2.20	2.17	2.17	2.15	2.20	2.17	2.17	2.17	2.17	2.18	2.20	2.18	2.17	2.17	2.15	2.20	2.18	24
HOURLY MAX		2.67	2.60	2.84	3.05	2.67	2.63	2.60	2.81	2.96	2.63	2.75	2.46	3.24	2.46	2.52	2.58	2.51	2.45	2.57	2.66	2.64	2.57	2.55	2.63					
HOURLY AVG		2.30	2.28	2.30	2.29	2.27	2.28	2.24	2.25	2.25	2.24	2.23	2.21	2.24	2.20	2.19	2.20	2.19	2.20	2.23	2.24	2.24	2.25	2.26	2.29					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

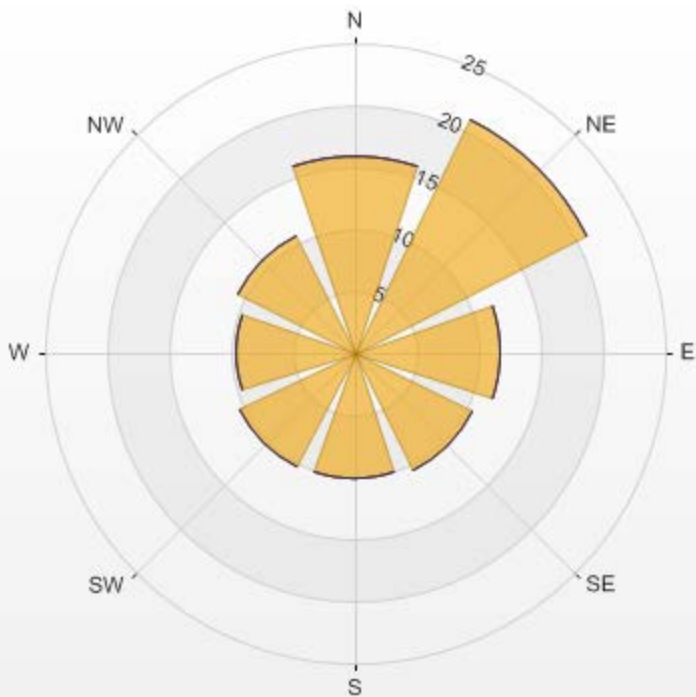
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703				
MAXIMUM INSTANTANEOUS VALUE:	3.24	PPM	@ HOUR(S)	12	ON DAY(S) 2
				VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	8	HRS			
STANDARD DEVIATION:	0.15				



Wind: LICA MASKWA Monitor: THC [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 94.62% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	15.91	0	0	0	15.91
NE	21.02	0	0	0	21.02
E	11.79	0	0	0	11.79
SE	10.65	0	0	0	10.65
S	10.23	0	0	0	10.23
SW	10.37	0	0	0	10.37
W	9.52	0	0	0	9.52
NW	10.51	0	0	0	10.51
Summary	100	0	0	0	100



% Icon Classes (ppm)	100	0.5-3.0	0	3.0-10.0	0	10.0-50.0	0	>50.0
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THC[ppm] Calibration: LICA MASKWA Monthly: 03/2016 Type: Span



OXIDES OF NITROGEN

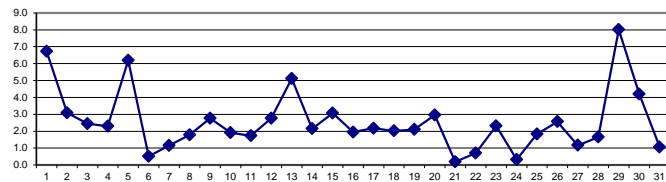
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.	
1	1	2.5	2.9	3.3	4.3	4.8	4.7	6.3	9.9	10.8	9.9	9.8	16.0	14.4	7.9	8.7	S	8.0	7.2	6.6	4.9	4.6	3.6	2.2	1.5	1.5	16.0	6.7	24	
2	2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	3.5	3.1	3.7	5.2	3.7	S	4.0	2.8	4.7	5.1	6.5	7.0	3.8	3.3	2.9	0.0	10.3	3.1	24	
3	3	2.7	2.4	1.9	1.2	1.2	5.5	2.3	1.1	0.9	2.8	3.2	0.3	0.6	S	2.5	1.9	1.8	2.2	1.5	0.9	1.7	1.3	6.8	9.6	0.3	9.6	2.4	24	
4	4	5.9	6.9	7.5	1.6	0.0	3.4	1.6	1.4	0.0	0.7	0.3	0.9	S	1.6	0.7	1.0	2.3	3.8	3.0	5.9	2.4	0.9	0.5	0.7	0.0	7.5	2.3	24	
5	5	0.6	0.5	0.3	0.2	0.0	0.0	0.6	2.3	3.7	10.6	19.8	S	14.3	9.1	9.4	9.2	9.4	8.1	6.1	5.2	5.5	10.3	11.6	5.8	0.0	19.8	6.2	24	
6	6	2.7	0.8	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	S	2.1	0.9	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	2.7	0.5	24	
7	7	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3	S	2.4	2.0	2.3	3.2	4.9	0.9	2.6	0.9	0.8	3.5	1.4	0.4	0.3	0.3	0.0	4.9	1.2	24	
8	8	0.3	0.3	0.4	1.0	1.5	2.2	1.7	2.8	S	3.0	2.2	3.0	2.8	2.5	3.4	2.6	1.9	2.1	1.5	1.6	0.9	1.0	1.2	1.3	0.3	3.4	1.8	24	
9	9	1.3	1.5	1.9	2.0	2.6	3.5	3.7	S	4.5	3.6	2.5	2.3	2.4	3.4	4.4	4.2	3.9	4.0	3.3	2.4	1.8	1.3	1.4	1.7	1.3	4.5	2.8	24	
10	10	1.4	1.2	1.2	0.7	0.7	0.7	S	4.8	1.7	1.7	4.0	4.2	2.5	3.6	3.8	2.2	0.8	0.8	0.9	0.3	0.6	2.7	1.9	1.6	0.3	4.8	1.9	24	
11	11	4.4	3.0	1.8	1.8	1.7	S	3.6	3.6	2.1	1.3	0.8	0.7	0.7	0.9	2.4	0.6	0.4	0.2	0.2	1.2	2.0	2.0	2.1	2.3	0.2	4.4	1.7	24	
12	12	1.7	1.6	1.1	0.7	S	2.1	1.6	1.5	6.2	4.4	3.4	4.2	5.0	6.4	6.1	3.3	1.0	1.2	1.2	3.0	5.1	1.3	0.8	0.6	0.6	6.4	2.8	24	
13	13	0.6	0.6	0.6	S	2.8	2.5	5.0	1.7	9.1	10.9	12.7	7.6	16.0	16.0	8.2	2.8	1.7	1.1	1.0	0.5	0.6	4.2	4.9	6.7	0.5	16.0	5.1	24	
14	14	3.3	6.2	S	4.7	2.9	1.1	5.8	S1	3.0	1.6	2.6	2.4	1.9	1.3	1.4	1.3	0.8	0.9	0.8	1.1	1.1	1.1	1.1	1.1	0.8	6.2	2.2	23	
15	15	1.1	S	4.2	1.8	1.6	1.1	1.4	11.6	5.6	2.3	C	C	C	C	C	C	2.2	1.3	1.8	2.6	2.9	3.5	3.3	3.8	1.1	11.6	3.1	24	
16	16	S	7.2	3.5	2.3	1.0	0.0	0.0	0.2	0.2	0.9	1.3	0.6	0.7	0.6	1.7	3.4	3.8	3.5	2.6	2.8	2.4	2.1	2.1	S	0.0	7.2	2.0	24	
17	17	3.3	2.3	1.9	1.8	1.2	3.3	2.7	5.3	6.4	2.5	2.4	1.8	1.8	1.7	1.9	1.6	1.8	0.6	0.6	0.6	1.0	0.7	S	2.8	0.6	6.4	2.2	24	
18	18	2.2	1.3	1.3	1.9	0.8	1.4	1.2	0.8	1.1	0.8	1.0	1.8	5.4	6.2	3.7	0.9	1.8	2.8	1.9	1.5	1.3	S	3.3	2.0	0.8	6.2	2.0	24	
19	19	1.3	1.5	1.2	1.0	1.0	1.0	11.7	4.3	1.6	2.6	2.2	1.7	1.8	2.2	1.8	0.8	0.5	0.4	0.9	1.1	S	2.6	3.0	2.4	0.4	11.7	2.1	24	
20	20	1.0	0.4	0.2	0.1	0.1	0.0	0.1	0.2	5.1	3.6	3.9	5.0	4.7	5.4	4.2	0.5	3.4	3.1	S	10.2	7.4	6.5	3.0	0.0	10.2	3.0	24		
21	21	1.9	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	1.2	0.2	0.2	0.0	0.0	0.0	1.9	0.2	24	
22	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	4.3	3.5	0.5	0.7	0.0	S	1.8	0.7	0.4	1.2	0.8	0.6	0.0	4.3	0.7	24
23	23	0.6	0.6	0.6	0.6	1.1	2.2	2.6	6.6	4.7	4.2	4.2	1.9	4.9	2.2	3.6	4.7	S	3.6	1.3	1.0	0.7	0.7	0.5	0.2	0.2	6.6	2.3	24	
24	24	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.0	0.0	0.0	0.0	Y	0.0	0.0	0.0	S	1.7	0.9	0.5	0.5	0.5	0.3	0.3	0.4	0.0	1.7	0.3	23	
25	25	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	1.4	1.0	1.6	1.2	1.3	S	4.7	3.7	3.7	3.4	3.5	3.4	3.2	3.8	5.2	0.0	5.2	1.8	24	
26	26	5.5	4.1	5.1	1.8	1.2	1.1	8.3	1.4	1.1	1.7	1.5	1.7	3.1	S	2.7	2.2	1.9	1.8	1.9	1.0	1.0	3.9	4.3	0.7	0.7	8.3	2.6	24	
27	27	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.9	1.3	0.7	0.2	S	2.6	1.3	2.0	2.1	2.4	4.0	5.7	0.8	0.2	0.2	0.2	0.2	5.7	1.2	24	
28	28	0.2	0.5	0.3	0.3	0.3	0.5	0.5	1.0	1.4	3.1	1.4	S	2.8	1.5	1.8	1.6	1.5	1.0	2.4	3.4	4.7	2.8	2.2	2.9	0.2	4.7	1.7	24	
29	29	5.5	4.8	4.6	11.6	25.8	26.0	14.7	4.2	2.9	1.1	S	3.6	9.1	3.1	4.2	2.0	5.3	3.1	22.1	16.2	11.6	1.5	0.5	0.9	0.5	26.0	8.0	24	
30	30	1.7	2.5	4.5	1.5	20.0	22.0	18.8	4.9	2.6	S	4.3	2.7	1.2	1.1	1.5	0.9	0.6	1.0	0.1	0.6	1.2	1.0	1.3	0.7	0.1	22.0	4.2	24	
31	31	0.2	0.0	0.0	0.0	0.3	0.6	0.9	1.2	S	2.4	1.7	3.1	2.1	1.1	1.6	3.2	0.7	1.1	1.0	0.6	0.5	0.6	0.6	0.9	0.0	3.2	1.1	24	
HOURLY MAX		5.9	7.2	7.5	11.6	25.8	26.0	18.8	11.6	10.8	10.9	19.8	16.0	16.0	16.0	9.4	9.2	9.4	8.1	22.1	16.2	11.6	10.3	11.6	9.6					
HOURLY AVG		1.8	1.8	1.6	1.5	2.5	2.9	3.2	2.5	2.8	2.9	3.3	2.8	4.0	3.3	3.1	2.4	2.2	2.3	2.7	2.7	2.6	2.2	2.4	2.1					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

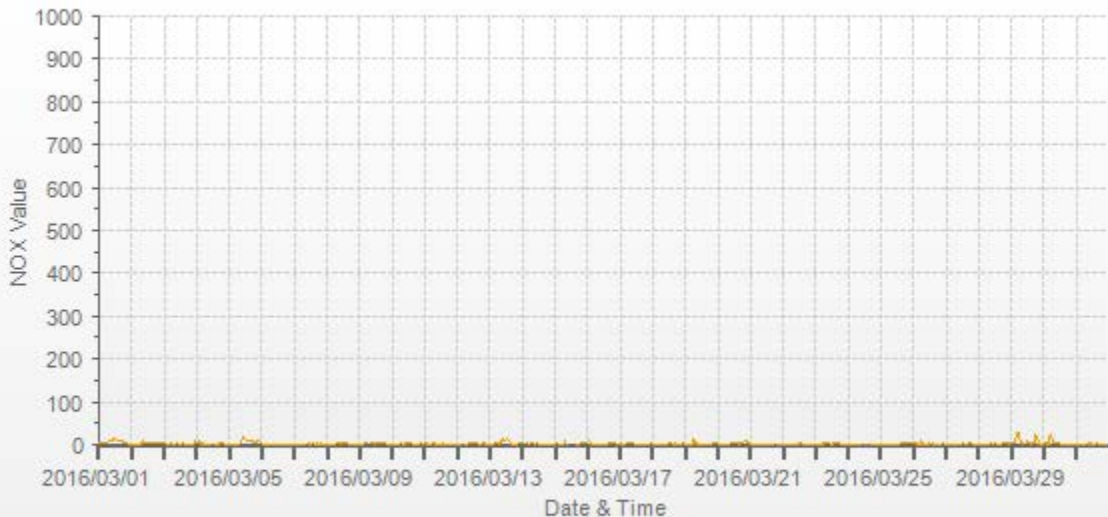
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	644			
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S) VAR
MAXIMUM 1-HR AVERAGE:	26.0	PPB @ HOUR(S)	5	ON DAY(S) 29
MAXIMUM 24-HR AVERAGE:	8.0	PPB		ON DAY(S) 29
				VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7
				%
STANDARD DEVIATION:	3.29		MONTHLY AVERAGE:	2.5
				PPB

NOX[ppb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	3.6	3.6	4.7	5.3	5.9	5.9	9.4	14.1	13.0	12.4	13.0	29.4	22.9	10.0	11.2	S	12.3	8.8	8.8	6.5	5.9	5.3	4.1	3.6	3.6	29.4	9.6	24	
2	4.1	1.3	1.2	0.6	0.6	0.6	0.6	0.6	41.6	9.4	7.0	6.5	7.1	4.7	S	6.4	4.1	6.4	6.5	9.4	9.4	5.3	4.7	4.1	0.6	41.6	6.2	24	
3	3.6	3.6	3.0	2.4	2.4	9.4	4.7	3.0	2.4	9.4	10.6	1.2	1.2	S	5.3	3.0	2.4	4.1	4.7	1.8	3.5	3.0	14.1	19.4	1.2	19.4	5.1	24	
4	15.8	11.8	11.8	5.9	0.6	44.5	27.5	8.2	0.6	1.8	1.3	3.0	S	5.3	2.4	3.5	4.7	7.1	4.7	10.0	7.1	4.7	1.3	1.8	0.6	44.5	8.1	24	
5	1.8	1.8	1.2	1.8	0.6	0.6	2.4	5.3	7.6	15.8	44.6	S	21.2	16.4	20.0	25.8	10.6	10.0	8.2	5.9	8.8	15.2	15.2	10.0	0.6	44.6	10.9	24	
6	4.7	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	S	4.1	1.2	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.8	24	
7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.6	S	5.3	4.1	3.5	5.9	8.2	1.2	8.8	0.6	1.8	5.9	4.1	0.6	0.1	0.0	0.0	8.8	2.2	24	
8	0.0	0.0	0.6	1.8	1.8	3.0	1.8	4.7	S	4.1	2.4	3.5	3.0	3.5	6.5	3.5	2.4	2.4	1.8	2.4	1.2	1.2	1.8	1.2	0.0	6.5	2.4	24	
9	1.2	1.8	2.4	3.0	4.1	4.1	4.7	S	6.5	6.4	3.0	3.0	3.0	4.1	4.7	5.3	4.7	4.7	3.5	3.5	1.8	1.8	1.8	1.8	1.2	6.5	3.5	24	
10	1.8	1.2	1.8	1.3	1.2	1.2	S	9.4	1.8	2.4	6.5	5.9	3.5	5.3	5.9	4.7	1.2	1.8	2.4	0.0	0.6	4.1	2.4	2.4	0.0	9.4	3.0	24	
11	5.9	5.3	1.8	1.8	1.8	S	14.6	5.2	2.4	2.4	0.6	0.6	0.6	2.4	5.9	2.9	0.1	0.0	0.0	1.2	1.8	2.4	1.8	1.8	0.0	14.6	2.8	24	
12	1.2	1.2	1.2	0.6	S	3.5	2.4	4.7	7.6	7.7	5.2	6.5	7.1	7.1	7.6	5.9	0.6	0.6	1.2	5.9	6.5	1.2	0.6	0.0	0.0	7.7	3.7	24	
13	0.0	0.0	0.0	S	4.7	4.7	5.9	3.0	20.0	18.2	24.7	11.8	27.5	29.4	13.5	4.7	1.8	0.6	0.6	0.0	1.2	5.9	17.6	15.8	0.0	29.4	9.2	24	
14	9.4	32.9	S	6.5	4.7	2.4	S1	S1	7.1	2.4	3.0	2.4	2.4	1.3	1.2	1.3	0.6	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	32.9	3.9	22	
15	0.6	S	6.4	1.8	1.2	1.2	4.1	14.7	10.6	4.1	C	C	C	C	C	C	5.9	1.8	3.0	3.6	3.6	4.1	4.1	0.6	14.7	4.4	24		
16	S	13.5	4.1	3.6	2.4	0.6	0.0	0.6	0.6	1.2	1.8	1.3	1.2	1.2	3.0	4.1	4.1	4.7	3.0	3.0	2.4	2.4	2.4	S	0.0	13.5	2.8	24	
17	4.1	3.0	2.4	3.0	1.8	7.1	7.1	10.6	10.6	3.0	3.0	1.8	1.8	1.8	4.1	2.4	2.4	0.6	0.6	0.6	1.8	1.2	S	4.1	0.6	10.6	3.4	24	
18	3.0	1.8	1.8	2.4	1.2	1.8	2.4	1.2	1.8	1.2	1.8	2.4	9.4	8.8	8.2	1.2	3.0	3.0	3.0	1.8	3.0	S	5.3	3.0	1.2	9.4	3.2	24	
19	1.8	1.8	1.8	1.2	1.3	1.3	56.9	20.0	2.4	3.6	3.0	2.4	2.4	3.0	4.7	1.8	1.2	1.8	1.8	1.8	S	5.3	4.7	4.7	1.2	56.9	5.7	24	
20	3.6	1.2	1.3	0.6	0.6	0.6	0.6	0.6	1.2	8.8	8.2	6.4	8.8	8.8	7.1	7.6	2.4	5.9	5.3	S	17.0	12.4	12.4	8.2	0.6	17.0	5.6	24	
21	4.1	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.1	0.0	0.0	0.1	0.6	0.1	0.1	0.0	0.0	0.0	S	3.6	0.6	0.6	0.6	0.6	0.0	4.1	0.7	24	
22	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.6	1.8	4.1	7.1	6.4	3.0	4.7	0.7	S	4.1	1.8	1.8	1.8	1.8	1.2	0.0	7.1	1.9	24	
23	1.2	1.2	1.2	1.3	1.8	5.9	5.3	10.0	20.0	19.4	20.0	6.4	11.8	7.1	49.2	10.0	S	7.1	2.4	1.8	1.3	1.3	1.2	1.2	1.2	49.2	8.2	24	
24	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6	Y	0.1	0.0	0.6	S	3.0	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.0	3.0	0.7	23	
25	0.6	0.6	0.1	0.0	0.1	0.0	0.6	0.6	1.2	2.4	1.8	2.4	2.4	2.4	S	7.1	4.1	4.1	4.1	5.3	4.1	3.6	5.3	5.9	0.0	7.1	2.6	24	
26	5.9	5.3	12.4	2.4	1.8	1.8	18.8	2.4	1.8	2.4	2.4	4.1	6.4	S	5.3	2.4	2.4	3.0	3.0	1.8	1.8	9.4	9.4	3.0	1.8	18.8	4.8	24	
27	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	2.4	2.4	2.4	0.6	S	4.7	2.4	4.1	4.1	5.9	7.1	10.0	3.0	0.6	0.6	0.6	0.6	10.0	2.4	24	
28	0.6	1.2	0.6	0.6	1.2	1.2	1.2	3.0	3.0	4.7	3.0	S	5.3	2.4	2.4	2.4	2.4	1.3	3.0	4.1	7.1	5.9	2.4	4.1	0.6	7.1	2.7	24	
29	5.9	5.3	5.9	21.1	37.0	33.4	25.9	5.9	5.9	1.8	S	5.3	14.1	13.0	11.8	4.7	11.2	26.3	34.0	27.0	24.7	3.0	1.2	1.8	1.2	37.0	14.2	24	
30	1.8	3.5	5.9	3.0	31.1	31.1	39.9	22.3	4.7	S	7.1	3.5	2.4	1.8	1.8	1.3	1.2	4.1	0.6	1.8	1.8	1.2	1.8	1.2	0.6	39.9	7.6	24	
31	0.6	0.0	0.0	0.6	0.6	1.2	1.8	1.8	S	3.6	3.0	8.2	4.1	1.2	2.4	7.7	1.2	1.2	1.2	1.2	0.6	0.6	0.6	1.2	0.0	8.2	1.9	24	
HOURLY MAX	15.8	32.9	12.4	21.1	37.0	44.5	56.9	22.3	41.6	19.4	44.6	29.4	27.5	29.4	49.2	25.8	12.3	26.3	34.0	27.0	24.7	15.2	17.6	19.4					
HOURLY AVG	3.0	3.6	2.5	2.5	3.8	5.7	8.3	5.3	6.2	5.2	6.7	4.9	6.5	5.7	7.1	4.7	3.5	4.0	4.1	4.1	4.3	3.5	4.0	3.6					

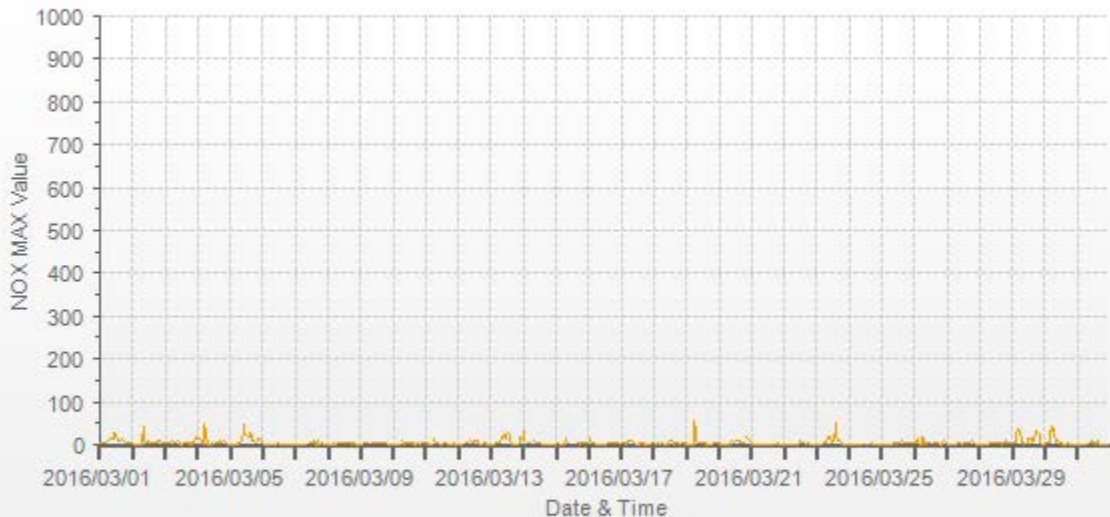
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

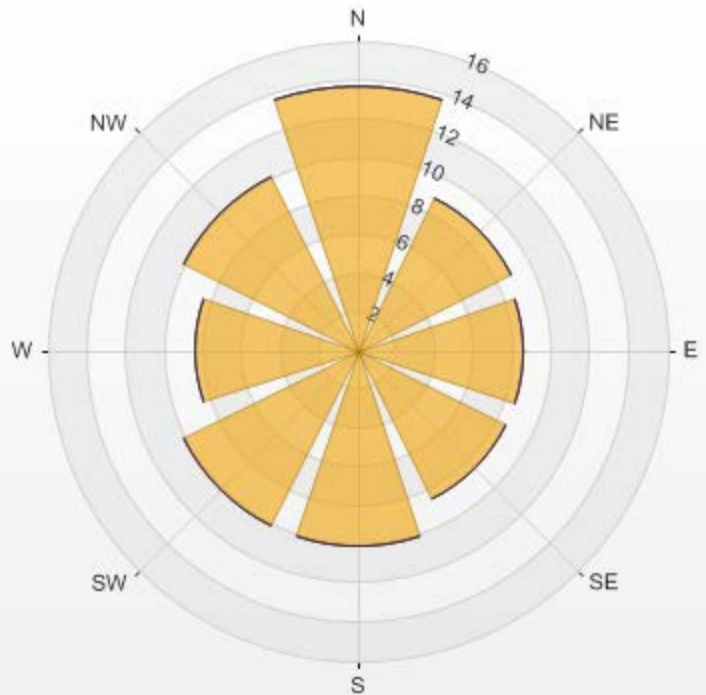
NUMBER OF NON-ZERO READINGS:	659
MAXIMUM INSTANTANEOUS VALUE:	56.9 PPB @ HOUR(S) 6 ON DAY(S) 19
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	741 HRS
STANDARD DEVIATION:	6.76

NOX MAX[ppb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



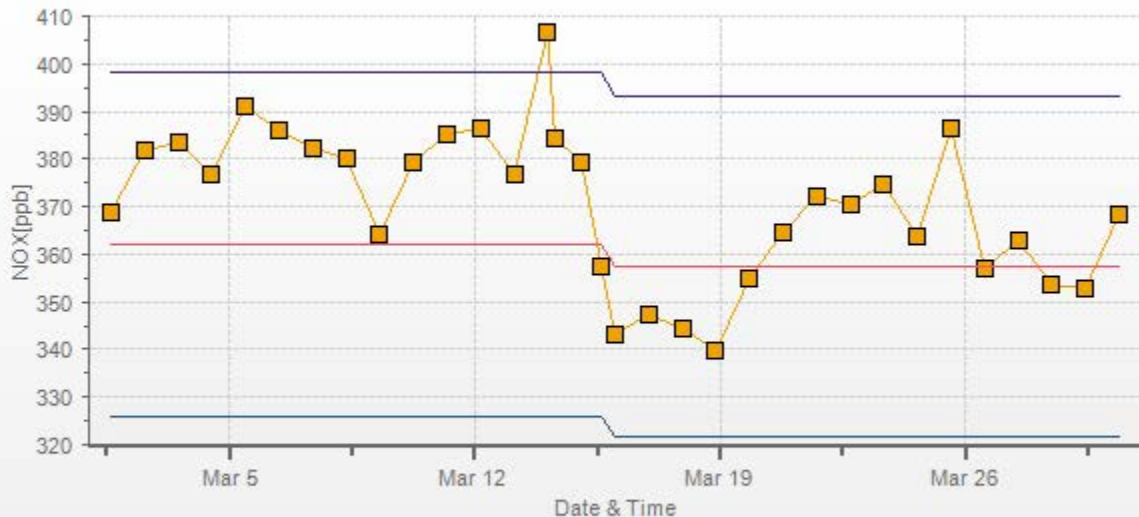
Wind: LICA MASKWA Monitor: NOX [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 21.65% Valid Data: 94.35% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	13.68	0	0	0	13.68
NE	8.83	0	0	0	8.83
E	8.55	0	0	0	8.55
SE	8.55	0	0	0	8.55
S	10.11	0	0	0	10.11
SW	10.11	0	0	0	10.11
W	8.4	0	0	0	8.4
NW	10.11	0	0	0	10.11
Summary	78.34	0	0	0	78.34



% Icon Classes (ppb)	78	0	0	0
	 0.5-50.0	 50.0-110.0	 110.0-210.0	 >210.0

NOX[ppb] Calibration: LICA MASKWA Monthly: 03/2016 Type: Span



NITRIC OXIDES

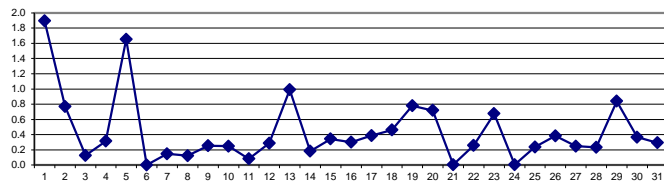
NITRIC OXIDE (NO) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY																													
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	3.6	4.7	5.3	9.3	8.3	4.3	4.1	S	1.8	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	1.9	24
2	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	1.7	2.0	2.2	2.9	2.2	S	0.9	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.8	24
3	3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.7	0.0	0.0	S	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.1	0.0	1.1	0.1	24	
4	4	0.7	0.0	0.0	0.0	0.0	1.4	0.8	0.2	0.0	0.6	0.3	0.8	S	0.4	0.3	0.5	0.7	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.3	24
5	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1	5.0	12.3	S	6.9	3.8	3.8	2.8	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	1.7	24
6	6	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.2	0.6	0.9	1.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.1	24
8	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.5	0.7	0.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	24
9	9	0.0	0.0	0.0	0.0	0.0	0.1	S	0.3	0.4	0.0	0.3	0.5	0.9	1.2	1.1	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.3	24	
10	10	0.0	0.0	0.0	0.0	0.0	S	0.2	0.0	0.1	1.0	1.0	0.7	1.2	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.2	24	
11	11	0.0	0.0	0.0	0.0	0.0	S	0.2	0.2	0.3	0.2	0.0	0.1	0.0	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24	
12	12	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.7	0.5	0.4	0.8	0.9	1.4	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.3	24	
13	13	0.0	0.0	0.0	S	0.0	0.0	0.1	0.0	2.2	2.6	4.1	2.3	4.7	4.4	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.0	4.7	1.0	24	
14	14	0.4	1.5	S	0.1	0.0	0.0	0.6	S1	0.0	0.1	0.4	0.5	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.2	23	
15	15	0.0	S	0.0	0.0	0.0	0.0	0.0	2.6	2.0	1.0	C	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.3	24	
16	16	S	1.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.5	0.4	0.4	0.5	0.6	1.0	0.8	0.6	0.1	0.1	0.0	0.1	S	0.0	1.0	0.3	24		
17	17	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.9	1.7	0.7	0.8	0.6	0.6	0.6	0.7	0.6	0.5	0.0	0.0	0.0	0.2	0.0	S	0.1	0.0	1.7	0.4	24	
18	18	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.1	0.4	0.4	0.6	0.7	1.9	2.3	1.4	0.6	0.6	0.6	0.2	0.0	0.2	S	0.1	0.0	2.3	0.5	24		
19	19	0.2	0.0	0.1	0.1	0.1	0.1	6.6	2.0	0.9	1.5	1.2	0.6	1.0	1.2	0.8	0.5	0.4	0.4	0.2	0.0	S	0.0	0.0	0.0	6.6	0.8	24		
20	20	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.2	2.0	1.7	1.7	2.4	2.2	1.9	1.3	0.2	0.6	0.3	S	0.4	0.4	0.4	0.2	0.0	2.4	0.7	24	
21	21	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
22	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	2.0	1.7	0.5	0.4	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.3	24	
23	23	0.0	0.1	0.0	0.0	0.1	0.2	0.4	1.3	1.3	1.5	1.9	1.0	2.4	1.1	1.9	1.8	S	0.3	0.1	0.0	0.0	0.1	0.0	0.0	2.4	0.7	24		
24	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Y	0.0	0.0	0.0	S	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	23		
25	25	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.6	0.6	0.6	0.5	0.4	S	0.6	0.6	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.2	24	
26	26	0.0	0.0	0.2	0.1	0.0	0.0	1.1	0.4	0.6	0.7	0.7	0.8	1.4	S	0.6	0.6	0.6	0.5	0.1	0.1	0.0	0.1	0.1	0.1	0.1	1.4	0.4	24	
27	27	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.6	0.7	0.4	0.2	S	0.5	0.4	0.6	0.6	0.7	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.2	24	
28	28	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.7	1.2	0.6	S	0.5	0.3	0.6	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.2	24	
29	29	0.0	0.0	0.2	0.1	1.5	0.8	1.2	0.7	0.9	0.4	S	0.8	3.3	1.0	1.4	0.5	1.4	0.5	3.5	0.8	0.3	0.0	0.0	0.0	0.0	3.5	0.8	24	
30	30	0.0	0.0	0.0	0.0	0.3	0.8	2.6	0.8	0.7	S	1.0	0.7	0.3	0.3	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.4	24	
31	31	0.0	0.0	0.0	0.0	0.0	0.1	0.5	S	0.6	0.7	1.3	0.9	0.6	0.6	0.9	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.3	0.3	24	
HOURLY MAX		0.7	1.5	0.2	0.3	1.5	1.4	6.6	2.6	4.7	5.0	12.3	9.3	8.3	4.4	4.1	2.8	1.8	0.8	3.5	0.8	0.4	0.4	0.7	1.1					
HOURLY AVG		0.1	0.1	0.0	0.0	0.1	0.1	0.5	0.4	0.8	1.0	1.3	1.0	1.6	1.2	1.0	0.6	0.4	0.3	0.2	0.0	0.0	0.0	0.1	0.1					

STATUS FLAG CODES

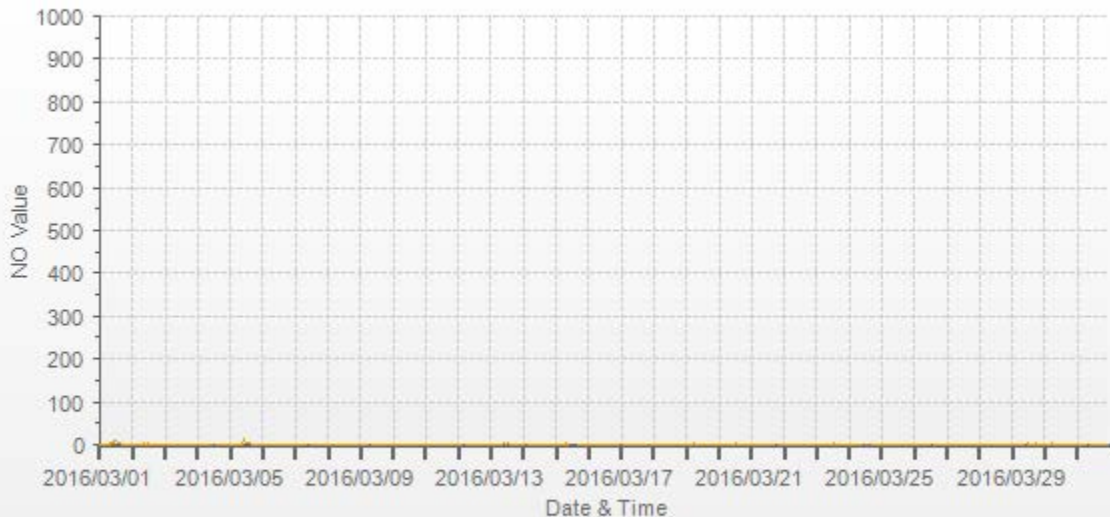
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	325			
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	12.3	PPB @ HOUR(S)	10	5
MAXIMUM 24-HR AVERAGE:	1.9	PPB		1
				VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7
				%
STANDARD DEVIATION:	1.04		MONTHLY AVERAGE:	0.4
				PPB





NITRIC OXIDE MAX instantaneous maximum in ppb

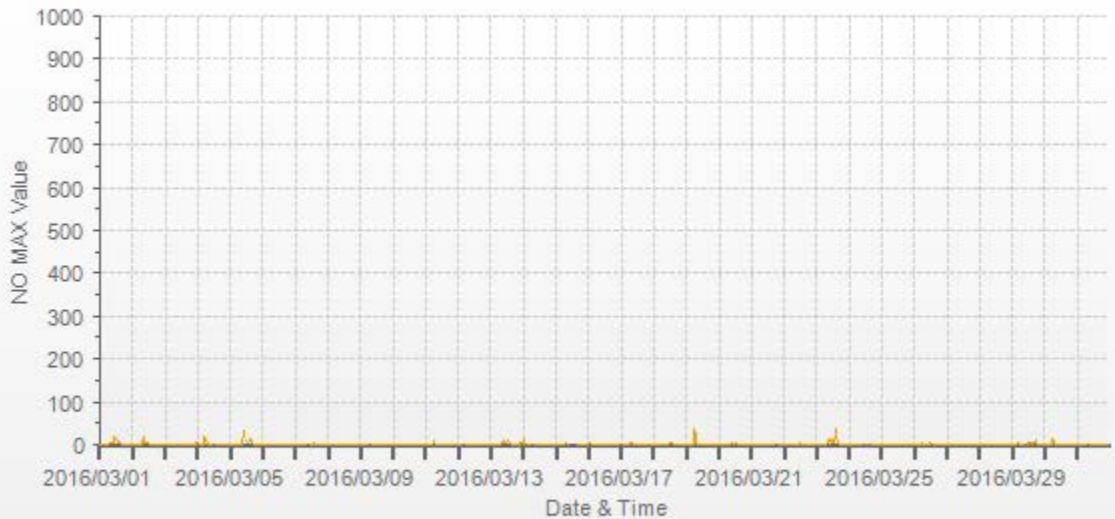
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
DAY	MIN.	MAX.	AVG.	RDGS.																										
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	4.5	5.8	6.3	17.4	12.8	4.6	4.6	S	2.3	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4	2.7	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	3.4	3.4	3.4	3.4	2.3	S	1.1	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	1.6	24
3	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.7	2.3	0.5	0.0	S	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.1	5.1	0.0	5.1	0.5	24	
4	3.4	0.5	0.0	0.0	0.0	21.0	16.3	2.8	0.5	0.5	1.1	1.7	S	1.1	0.5	1.1	1.1	1.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	21.0	2.3	24	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.3	8.1	31.5	S	11.0	6.9	8.1	12.2	2.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	3.7	24	
6	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	1.1	1.1	1.7	2.8	0.0	2.3	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	2.8	0.4	24	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.5	1.1	1.1	1.1	2.3	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.3	24	
9	0.0	0.0	0.0	0.0	0.0	0.5	S	1.7	1.7	0.5	0.5	0.5	1.1	1.7	1.1	1.1	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.5	24	
10	0.0	0.0	0.0	0.0	0.0	0.0	S	0.5	0.0	0.5	1.7	1.1	1.1	1.7	1.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.4	24	
11	0.0	0.0	0.0	0.0	0.0	0.0	S	8.1	1.1	1.1	1.1	0.0	0.5	1.1	2.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	0.7	24	
12	0.0	0.0	0.0	0.0	S	0.0	0.0	0.5	1.1	1.1	0.5	1.1	1.1	1.7	1.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.4	24	
13	0.0	0.0	0.0	S	0.0	0.0	0.5	0.0	5.1	6.9	10.5	4.6	9.9	10.5	2.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	2.8	0.0	10.5	2.5	24	
14	1.7	12.8	S	0.5	0.0	0.0	S1	S1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.9	22	
15	0.0	S	0.0	0.0	0.0	0.0	0.0	3.9	3.4	1.7	C	C	C	C	C	C	C	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.6	24	
16	S	2.8	0.0	0.5	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.0	2.8	0.5	24	
17	0.0	0.5	0.0	0.0	0.5	1.1	1.1	2.8	2.8	1.1	1.1	0.5	0.5	0.5	1.1	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.0	S	0.5	2.8	0.7	24	
18	0.0	0.0	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	1.1	3.4	3.4	2.8	0.5	0.5	0.5	0.5	0.5	0.0	0.5	S	0.5	0.0	0.0	3.4	0.7	24	
19	0.5	0.0	0.5	0.5	0.5	0.5	38.6	11.0	1.1	1.7	1.1	1.1	1.1	1.1	1.7	0.5	0.5	0.5	0.5	0.0	S	0.0	0.0	0.0	0.0	0.0	38.6	2.7	24	
20	0.5	0.5	0.5	0.0	0.5	0.0	0.5	0.0	0.5	2.8	3.4	2.3	3.9	3.9	2.3	1.7	0.5	1.1	0.5	S	0.5	0.5	0.5	0.5	0.5	0.0	3.9	1.2	24	
21	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.5	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	0.5	0.1	24	
22	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5	1.7	2.8	2.3	1.1	1.7	0.5	S	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.6	24	
23	0.5	0.5	0.0	0.5	0.5	1.1	0.5	2.3	10.4	11.0	12.2	2.8	4.6	2.8	35.6	3.4	S	0.5	0.5	0.5	0.5	0.0	0.5	0.0	0.0	0.0	35.6	3.9	24	
24	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0	0.5	Y	0.0	0.0	0.0	S	0.0	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.2	23	
25	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.3	24	
26	0.0	0.0	0.5	0.5	0.0	0.0	3.4	0.5	0.5	1.1	1.1	1.7	2.8	S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	3.4	0.7	24	
27	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	1.1	1.1	0.5	0.5	S	0.5	0.5	1.1	1.1	1.1	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.1	0.5	24	
28	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5	1.1	1.7	1.1	S	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.3	24	
29	0.0	0.5	0.5	0.5	5.1	1.7	2.3	1.1	1.7	0.5	S	1.7	5.7	5.1	4.5	1.1	3.3	7.5	6.9	1.7	0.5	0.0	0.0	0.0	0.0	0.0	7.5	2.3	24	
30	0.0	0.0	0.0	0.0	0.5	1.7	12.8	4.6	1.1	S	1.7	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	1.2	24	
31	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	3.4	12.8	0.5	0.5	5.1	21.0	38.6	11.0	19.8	11.0	31.5	17.4	12.8	10.5	35.6	12.2	3.3	7.5	6.9	1.7	0.5	0.5	3.9	5.1						
HOURLY AVG	0.2	0.6	0.1	0.2	0.3	0.9	3.0	1.3	2.2	1.9	3.0	1.8	2.5	2.0	2.9	1.2	0.8	0.6	0.4	0.2	0.1	0.1	0.2	0.3						

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

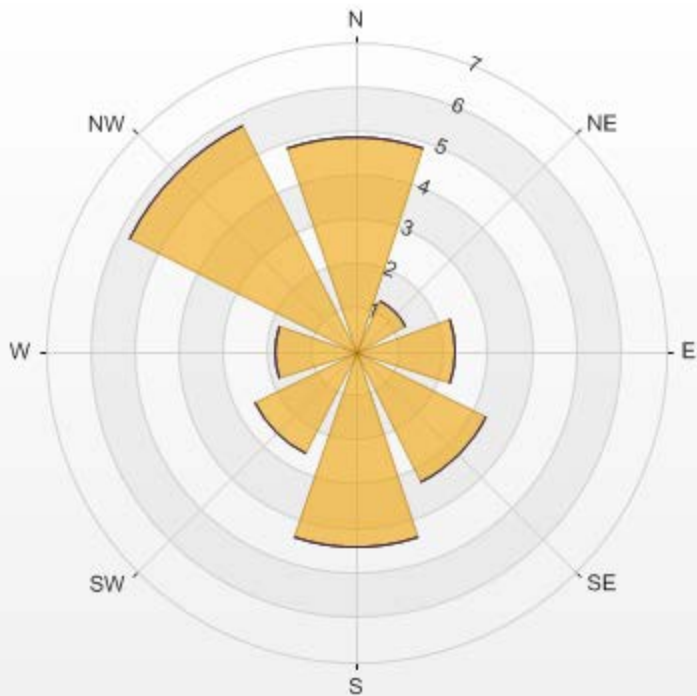
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	355
MAXIMUM INSTANTANEOUS VALUE:	38.6 PPB @ HOUR(S) 6 ON DAY(S) 19
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	3.20
OPERATIONAL TIME:	741 HRS



Wind: LICA MASKWA Monitor: NO [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 73.79% Valid Data: 94.35% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	4.84	0	0	0	4.84
NE	1.28	0	0	0	1.28
E	2.28	0	0	0	2.28
SE	3.28	0	0	0	3.28
S	4.42	0	0	0	4.42
SW	2.56	0	0	0	2.56
W	1.85	0	0	0	1.85
NW	5.7	0	0	0	5.7
Summary	26.21	0	0	0	26.21



% Icon Classes (ppb)	26	0	0	0
0.5-50.0	50.0-110.0	110.0-210.0	>210.0	

NITROGEN DIOXIDE

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	1	2.5	2.9	3.3	4.3	4.8	4.7	6.3	8.6	7.2	5.3	4.5	6.6	6.1	3.6	4.6	S	6.2	6.4	6.5	4.9	4.6	3.6	2.2	1.5	1.5	8.6	4.8	24
2	2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	1.8	1.2	1.5	2.3	1.5	S	3.1	2.2	4.2	5.1	6.5	7.0	3.8	3.2	2.9	0.0	7.0	2.3	24
3	3	2.7	2.4	1.9	1.2	1.2	5.4	2.3	1.1	0.9	2.3	2.5	0.3	0.6	S	2.4	1.9	1.7	2.2	1.5	0.9	1.7	1.3	6.5	8.5	0.3	8.5	2.3	24
4	4	5.2	6.9	7.5	1.6	0.0	2.1	0.8	1.2	0.0	0.1	0.0	0.2	S	1.2	0.5	0.5	1.6	3.5	3.0	5.8	2.4	0.9	0.5	0.7	0.0	7.5	2.0	24
5	5	0.6	0.5	0.3	0.2	0.0	0.0	0.6	2.0	2.6	5.7	7.5	S	7.4	5.3	5.6	6.4	7.7	7.8	6.1	5.2	5.5	10.3	11.6	5.8	0.0	11.6	4.6	24
6	6	2.7	0.8	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	S	2.1	0.9	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	2.7	0.5	24
7	7	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3	S	2.4	1.8	1.7	2.3	3.6	0.9	2.2	0.9	0.8	3.5	1.3	0.4	0.3	0.3	0.0	3.6	1.0	24
8	8	0.3	0.3	0.4	1.0	1.5	2.2	1.7	2.8	S	3.0	2.1	2.5	2.1	2.1	2.6	2.3	1.8	2.1	1.5	1.5	0.9	1.0	1.2	1.3	0.3	3.0	1.7	24
9	9	1.3	1.5	1.9	2.0	2.5	3.5	3.6	S	4.2	3.2	2.4	2.0	1.9	2.5	3.2	3.1	3.2	3.6	3.2	2.4	1.7	1.3	1.4	1.7	1.3	4.2	2.5	24
10	10	1.4	1.2	1.2	0.7	0.7	0.7	S	4.6	1.7	1.6	3.0	3.2	1.8	2.4	2.7	1.7	0.8	0.8	0.9	0.3	0.6	2.7	1.9	1.6	0.3	4.6	1.7	24
11	11	4.4	2.9	1.8	1.8	1.7	S	3.3	3.4	1.9	1.1	0.8	0.7	0.7	0.7	1.7	0.6	0.4	0.2	0.2	1.2	2.0	2.0	2.1	2.2	0.2	4.4	1.6	24
12	12	1.7	1.6	1.1	0.6	S	2.1	1.6	1.5	5.5	3.9	3.0	3.4	4.1	5.1	4.9	2.6	1.0	1.1	1.2	3.0	5.0	1.3	0.8	0.6	0.6	5.5	2.5	24
13	13	0.6	0.6	0.6	S	2.8	2.5	4.8	1.7	6.9	8.2	8.5	5.3	11.3	11.5	6.8	2.7	1.7	1.1	0.9	0.5	0.6	4.2	4.2	6.5	0.5	11.5	4.1	24
14	14	3.0	4.6	S	4.6	2.9	1.1	5.1	S1	3.0	1.5	2.2	1.9	1.7	1.3	1.2	1.3	0.8	0.8	0.9	0.8	1.1	1.1	1.1	1.1	0.8	5.1	2.0	23
15	15	1.1	S	4.2	1.8	1.6	1.1	1.4	9.0	3.6	1.4	C	C	C	C	C	C	2.0	1.2	1.8	2.6	2.9	3.5	3.3	3.8	1.1	9.0	2.7	24
16	16	S	6.2	3.5	2.3	1.0	0.0	0.0	0.1	0.1	0.7	0.7	0.2	0.3	0.1	1.1	2.3	3.0	2.9	2.5	2.8	2.4	2.1	2.0	S	0.0	6.2	1.7	24
17	17	3.3	2.3	1.9	1.8	1.2	2.8	2.4	4.4	4.7	1.8	1.6	1.2	1.2	1.1	1.1	1.0	1.3	0.6	0.5	0.5	0.8	0.7	S	2.6	0.5	4.7	1.8	24
18	18	2.2	1.3	1.3	1.6	0.7	1.4	1.0	0.7	0.7	0.3	0.5	1.2	3.4	3.9	2.2	0.4	1.2	2.2	1.7	1.5	1.1	S	3.3	2.0	0.3	3.9	1.6	24
19	19	1.2	1.4	1.1	0.9	0.9	0.9	5.2	2.3	0.7	1.1	1.0	1.1	0.8	1.0	1.0	0.3	0.1	0.0	0.7	1.1	S	2.6	2.9	2.4	0.0	5.2	1.3	24
20	20	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.0	3.1	1.9	2.2	2.7	2.5	3.4	2.9	0.3	2.8	2.8	S	9.9	7.0	6.0	2.8	0.0	9.9	2.3	24
21	21	1.8	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	1.2	0.2	0.2	0.0	0.0	0.0	1.8	0.2	24
22	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3	1.9	0.0	0.3	0.0	S	1.8	0.7	0.4	1.2	0.8	0.6	0.0	2.3	0.4	24
23	23	0.6	0.5	0.6	0.6	1.1	2.0	2.2	5.3	3.4	2.7	2.3	0.9	2.5	1.1	1.7	2.8	S	3.3	1.2	1.0	0.7	0.7	0.5	0.2	0.2	5.3	1.6	24
24	24	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.0	0.0	0.0	0.0	Y	0.0	0.0	0.0	S	1.7	0.9	0.5	0.5	0.4	0.3	0.3	0.4	0.0	1.7	0.3	23
25	25	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.4	1.0	0.7	0.9	S	4.1	3.1	3.1	3.2	3.4	3.4	3.2	3.8	5.2	0.0	5.2	1.6	24
26	26	5.5	4.1	4.9	1.7	1.2	1.0	7.2	1.1	0.5	1.0	0.8	0.9	1.7	S	2.1	1.6	1.3	1.3	1.8	0.9	1.0	3.7	4.1	0.6	0.5	7.2	2.2	24
27	27	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.3	0.5	0.3	0.0	S	2.1	0.9	1.4	1.5	1.7	3.6	5.7	0.8	0.1	0.2	0.2	0.0	0.0	5.7	0.9	24
28	28	0.2	0.4	0.2	0.3	0.3	0.5	0.5	0.8	0.7	2.0	0.8	S	2.3	1.3	1.2	1.1	1.1	1.0	2.4	3.4	4.6	2.8	2.2	2.9	0.2	4.6	1.4	24
29	29	5.5	4.7	4.4	11.5	24.3	25.3	13.5	3.5	2.0	0.8	S	2.8	5.8	2.2	2.8	1.6	3.9	2.6	18.6	15.4	11.3	1.5	0.5	0.9	0.5	25.3	7.2	24
30	30	1.7	2.5	4.5	1.5	19.7	21.2	16.2	4.2	1.9	S	3.3	2.0	0.9	0.8	0.9	0.7	0.5	0.9	0.1	0.6	1.1	1.0	1.3	0.7	0.1	21.2	3.8	24
31	31	0.2	0.0	0.0	0.0	0.3	0.6	0.9	0.7	S	1.8	1.1	1.9	1.3	0.5	1.0	2.2	0.6	0.9	1.0	0.6	0.5	0.4	0.6	0.9	0.0	2.2	0.8	24
HOURLY MAX		5.5	6.9	7.5	11.5	24.3	25.3	16.2	9.0	7.2	8.2	8.5	6.6	11.3	11.5	6.8	6.4	7.7	7.8	18.6	15.4	11.3	10.3	11.6	8.5				
HOURLY AVG		1.8	1.7	1.6	1.4	2.4	2.7	2.7	2.1	2.0	1.9	2.0	1.7	2.4	2.1	2.1	1.8	1.8	2.0	2.5	2.6	2.5	2.2	2.3	2.0				

STATUS FLAG CODES

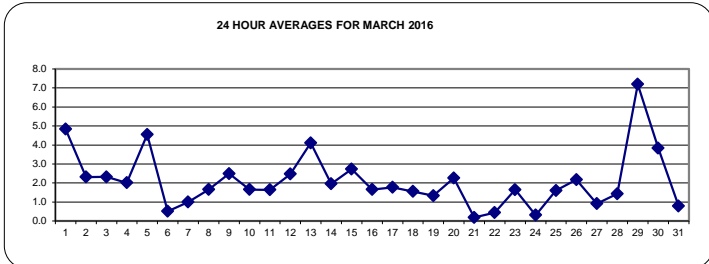
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

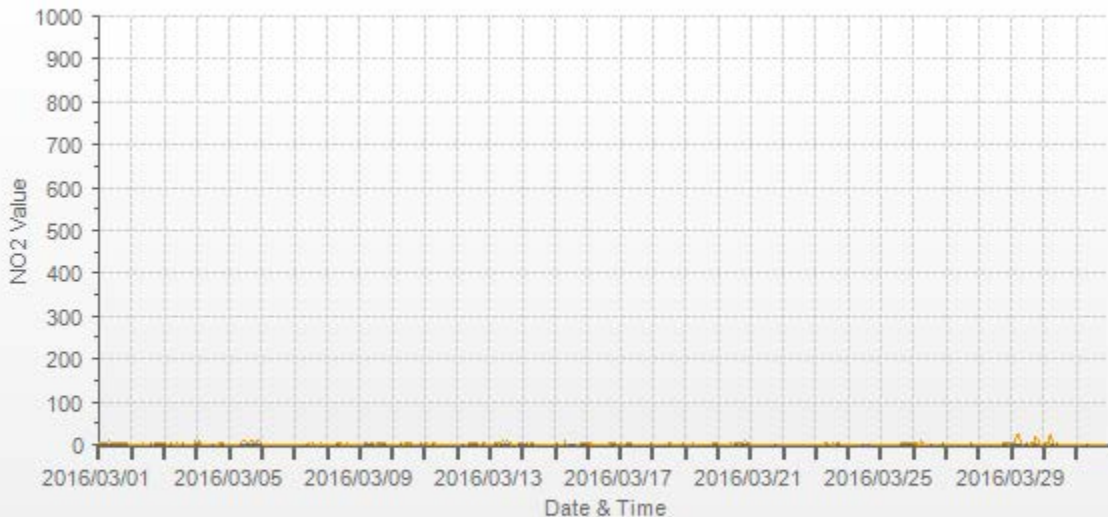
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	633				
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	25.3	PPB	@ HOUR(S)	5	29
MAXIMUM 24-HR AVERAGE:	7.2	PPB			29
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION:	2.75		MONTHLY AVERAGE:	2.1	PPB







NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	3.3	3.9	4.4	5.6	5.6	5.6	9.1	11.5	9.7	7.3	6.8	12.7	10.3	5.6	6.7	S	9.7	8.5	8.5	6.7	6.2	5.6	3.8	3.3	3.3	12.7	7.0	24	
2	3.8	0.9	0.9	0.9	0.9	0.9	0.9	0.3	21.5	6.2	4.4	3.3	3.8	3.3	S	5.6	3.8	5.6	6.7	9.1	9.1	5.6	4.4	3.8	0.3	21.5	4.6	24	
3	3.8	3.8	3.3	2.1	2.7	9.7	5.0	2.7	2.7	7.9	8.5	0.9	1.5	S	5.0	3.3	2.1	4.4	4.4	1.5	3.8	2.7	13.3	14.4	0.9	14.4	4.8	24	
4	12.7	12.1	12.1	5.6	0.9	25.6	13.3	5.0	0.9	0.9	0.9	1.5	S	4.4	1.5	2.7	3.8	6.2	4.4	9.7	6.7	4.9	1.5	2.1	0.9	25.6	6.1	24	
5	2.1	2.1	1.5	2.1	0.9	0.9	2.7	4.4	5.6	9.1	13.9	S	10.3	9.7	12.1	15.5	9.7	9.1	8.5	6.2	9.1	15.0	15.6	9.7	0.9	15.6	7.6	24	
6	5.0	1.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	S	4.4	1.5	0.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	5.0	1.0	24
7	0.3	0.3	0.0	0.3	0.0	0.3	0.3	0.3	0.3	S	5.0	3.3	3.2	4.4	5.6	0.9	6.7	0.9	1.5	6.2	3.8	0.3	0.3	0.3	0.0	6.7	1.9	24	
8	0.3	0.3	0.9	2.1	2.1	3.3	2.1	5.0	S	4.4	2.1	3.3	2.1	3.3	4.4	2.7	2.1	2.7	2.1	2.7	0.9	1.5	2.1	1.5	0.3	5.0	2.3	24	
9	1.5	2.1	2.7	2.7	4.4	4.4	4.4	S	5.6	5.0	2.7	2.1	2.7	3.3	3.8	3.8	3.8	3.3	3.3	2.1	1.5	1.5	2.1	1.5	5.6	3.2	24		
10	2.1	1.5	2.1	1.5	1.5	1.5	S	8.5	2.1	2.7	4.4	4.4	2.7	3.3	4.4	3.8	0.9	1.5	2.7	0.3	0.9	3.8	2.1	2.7	0.3	8.5	2.7	24	
11	6.2	5.0	2.1	2.1	1.5	S	7.9	3.8	2.1	1.5	0.3	0.3	0.3	1.5	3.8	2.1	0.3	0.3	0.0	1.5	2.1	2.1	2.1	2.1	0.0	7.9	2.2	24	
12	1.5	1.5	0.9	0.3	S	3.8	2.7	4.4	6.7	6.7	4.4	5.0	5.6	5.6	6.2	4.4	0.3	0.9	1.5	6.2	6.7	1.5	0.9	0.3	0.3	6.7	3.4	24	
13	0.3	0.3	0.3	S	4.4	5.0	6.2	3.3	15.0	13.3	15.0	7.3	17.9	19.1	10.3	4.4	1.5	0.9	0.9	0.3	0.9	6.2	13.9	12.7	0.3	19.1	6.9	24	
14	7.9	20.3	S	6.2	4.4	2.7	S1	S1	6.7	2.1	2.7	2.1	1.5	0.9	0.9	1.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	20.3	3.2	22
15	0.9	S	6.7	2.1	1.5	1.5	3.8	11.5	7.3	2.7	C	C	C	C	C	C	4.4	1.5	2.7	3.3	3.3	3.3	3.8	3.8	0.9	11.5	3.8	24	
16	S	10.4	3.8	3.3	2.7	0.3	0.3	0.3	0.3	0.9	0.9	0.9	0.9	0.3	2.1	3.3	3.3	3.8	2.7	2.7	2.7	2.7	2.7	S	0.3	10.4	2.3	24	
17	4.4	2.7	2.7	2.7	1.5	6.2	6.2	7.3	7.9	2.1	2.1	1.5	1.5	1.5	2.7	1.5	2.1	0.9	0.9	0.9	2.1	1.5	S	3.8	0.9	7.9	2.9	24	
18	3.3	2.1	2.1	2.1	0.9	1.5	2.1	0.9	1.5	0.9	0.9	1.5	6.2	6.2	5.6	0.9	2.1	2.7	2.1	2.1	3.3	S	5.0	2.7	0.9	6.2	2.6	24	
19	1.5	2.1	1.5	0.9	1.5	1.5	20.3	9.1	1.5	2.1	2.1	1.5	1.5	2.1	3.3	1.5	0.9	1.5	2.1	1.5	S	5.0	4.4	4.4	0.9	20.3	3.2	24	
20	3.3	0.9	0.9	0.9	0.3	0.3	0.3	0.3	0.9	5.6	5.0	3.8	5.0	5.0	5.0	6.2	2.1	5.0	5.0	S	16.7	11.5	11.5	7.3	0.3	16.7	4.5	24	
21	3.8	0.9	0.9	0.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	3.3	0.9	0.3	0.3	0.3	0.3	3.8	0.7	24
22	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	2.1	4.4	3.8	2.1	3.3	0.9	S	4.4	1.5	1.5	2.1	1.5	1.5	0.3	4.4	1.4	24	
23	1.5	1.5	0.9	1.5	1.5	5.0	5.0	7.9	10.3	9.7	11.5	3.3	6.7	4.4	17.9	6.7	S	6.7	2.1	1.5	1.5	0.9	0.9	0.9	0.9	17.9	4.8	24	
24	0.9	0.9	0.9	0.3	0.9	0.9	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	S	2.7	0.9	0.9	0.3	0.3	0.3	0.3	0.9	0.3	2.7	0.6	24	
25	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	1.5	0.9	1.5	1.5	2.1	S	6.2	3.8	3.8	3.8	5.0	3.8	3.8	5.0	6.2	0.3	6.2	2.3	24	
26	5.6	5.6	12.1	2.1	1.5	2.1	15.0	2.1	1.5	1.5	1.5	2.7	3.8	S	4.4	2.1	2.1	2.1	2.7	1.5	1.5	9.1	9.1	2.7	1.5	15.0	4.1	24	
27	0.9	0.3	0.9	0.9	0.9	0.9	0.3	0.3	1.5	1.5	1.5	0.9	S	4.4	2.1	3.2	3.2	5.0	6.7	9.7	2.7	0.9	0.9	0.9	0.3	9.7	2.2	24	
28	0.9	0.9	0.9	0.9	0.9	0.9	1.5	2.7	2.7	3.3	2.1	S	5.0	2.1	2.1	1.5	2.1	1.5	3.3	3.8	7.3	5.6	2.7	4.4	0.9	7.3	2.6	24	
29	6.2	5.6	5.6	21.4	32.0	31.4	25.0	5.6	4.4	1.5	S	4.4	9.1	7.9	7.3	3.8	7.9	19.1	27.3	26.1	23.8	3.3	0.9	2.1	0.9	32.0	12.2	24	
30	2.1	3.3	5.6	3.3	30.3	30.3	28.5	17.9	3.8	S	5.0	2.7	1.5	1.5	1.5	0.9	0.9	3.8	0.9	2.1	2.1	0.9	2.1	1.5	0.9	30.3	6.6	24	
31	0.3	0.3	0.3	0.3	0.3	0.9	1.5	1.5	S	3.8	2.1	5.0	2.7	0.9	1.5	6.2	0.9	1.5	0.9	0.9	0.9	0.9	0.9	1.5	0.3	6.2	1.6	24	
HOURLY MAX	12.7	20.3	12.1	21.4	32.0	31.4	28.5	17.9	21.5	13.3	15.0	12.7	17.9	19.1	17.9	15.5	9.7	19.1	27.3	26.1	23.8	15.0	15.6	14.4					
HOURLY AVG	2.9	3.1	2.6	2.6	3.6	5.0	5.7	4.1	4.3	3.7	3.9	3.1	4.1	3.9	4.4	3.5	2.9	3.5	3.8	4.0	4.3	3.5	3.8	3.4					

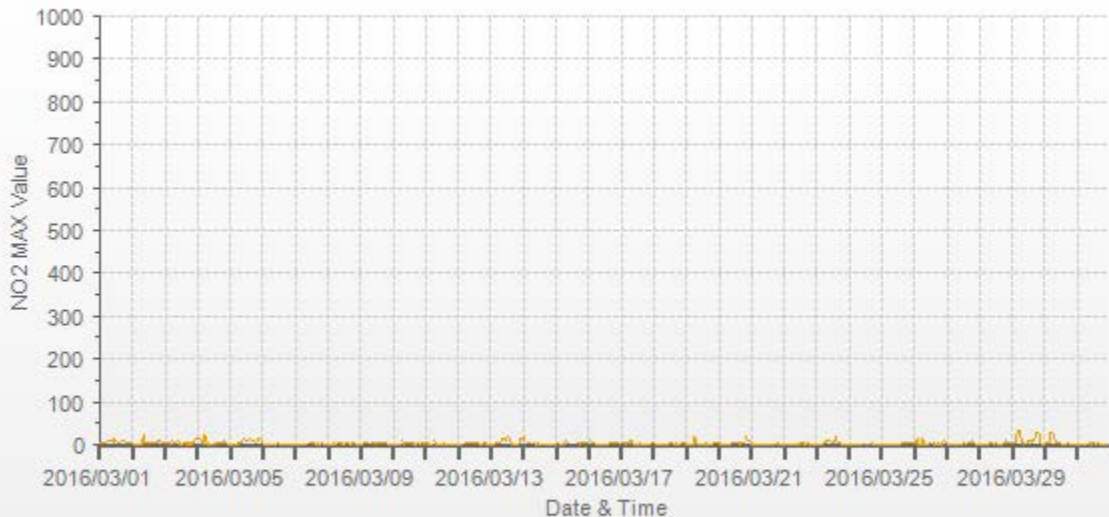
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

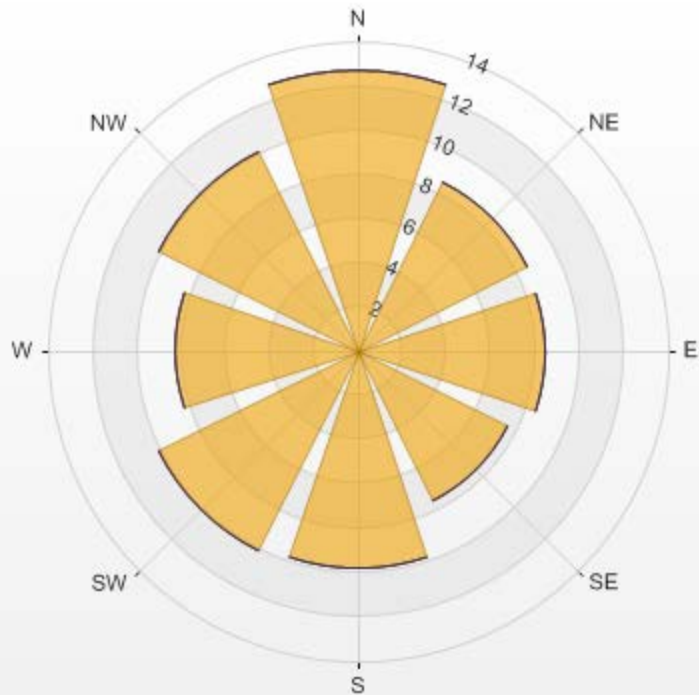
NUMBER OF NON-ZERO READINGS:	700
MAXIMUM INSTANTANEOUS VALUE:	32.0 PPB @ HOUR(S) 4 ON DAY(S) 29
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	4.61
OPERATIONAL TIME:	742 HRS

NO2 MAX[ppb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA MASKWA Monitor: NO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 24.50% Valid Data: 94.35% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	12.68	0	0	0	12.68
NE	8.55	0	0	0	8.55
E	8.4	0	0	0	8.4
SE	7.55	0	0	0	7.55
S	9.83	0	0	0	9.83
SW	10.11	0	0	0	10.11
W	8.26	0	0	0	8.26
NW	10.11	0	0	0	10.11
Summary	75.49	0	0	0	75.49



% Icon	Classes (ppb)	75	0	0	0
	0.5-50.0	0		50.0-110.0	0
	110.0-210.0	0		>210.0	0

NO2[ppb] Calibration: LICA MASKWA Monthly: 03/2016 Type: Span



WIND SPEED

WIND SPEED (WS) hourly averages in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	3.6	4.0	4.3	3.9	3.1	2.7	2.2	2.1	3.9	3.0	2.5	0.3	4.7	6.5	7.0	5.6	5.6	3.6	2.0	3.3	2.6	3.6	3.9	2.7	0.3	7.0	3.6	24	
2	3.2	3.8	3.8	3.6	4.1	4.0	3.9	3.1	2.2	1.9	2.3	3.5	1.7	3.6	5.9	8.2	7.2	6.4	5.6	5.2	2.9	1.3	1.0	1.0	1.0	8.2	3.7	24	
3	1.3	2.3	2.2	2.5	5.3	4.2	5.7	6.2	6.7	5.9	7.0	8.2	6.4	5.8	3.8	1.3	0.9	1.6	2.7	2.6	2.4	3.3	2.9	3.0	0.9	8.2	3.9	24	
4	4.9	6.1	5.4	4.5	6.2	3.8	3.5	1.8	2.6	5.0	2.4	2.3	4.5	5.7	4.6	5.6	6.1	6.2	5.1	6.4	7.3	6.5	6.7	6.7	1.8	7.3	5.0	24	
5	4.7	3.3	2.5	1.2	0.4	1.4	1.2	1.7	2.0	1.7	1.3	1.2	2.8	0.8	2.4	4.5	3.4	1.8	2.7	0.8	1.5	3.9	3.1	3.9	0.4	4.7	2.3	24	
6	6.0	4.3	4.9	6.3	6.7	7.2	7.5	7.6	8.5	9.5	8.2	10.7	9.0	9.9	10.3	10.6	11.9	9.1	8.5	8.1	8.9	8.7	7.6	8.3	4.3	11.9	8.3	24	
7	8.3	6.8	5.8	5.2	4.7	4.5	3.7	2.8	2.4	1.9	2.2	1.6	2.0	3.1	4.1	4.6	3.8	2.5	4.4	3.7	1.2	1.8	3.4	3.0	1.2	8.3	3.6	24	
8	3.2	3.0	1.9	3.1	3.8	3.8	3.3	2.4	4.1	4.6	5.6	7.0	8.3	8.6	6.0	5.0	5.8	5.3	5.0	6.0	6.3	5.3	3.9	3.1	1.9	8.6	4.8	24	
9	3.6	3.4	2.7	3.3	2.6	1.9	3.0	3.0	5.1	6.4	5.8	5.5	7.2	7.4	6.7	4.3	4.1	4.7	2.0	3.8	5.5	6.6	4.4	4.6	1.9	7.4	4.5	24	
10	5.1	5.4	6.6	7.9	6.7	6.0	6.3	7.8	8.1	8.5	10.2	9.9	8.3	8.2	8.3	7.1	7.0	7.2	4.6	5.0	5.1	0.6	1.2	2.7	0.6	10.2	6.4	24	
11	2.5	3.5	4.0	2.9	5.7	6.9	9.2	6.5	7.4	13.7	14.0	14.2	10.8	13.1	11.2	9.1	8.1	4.8	3.1	5.5	3.3	0.9	1.9	2.4	0.9	14.2	6.9	24	
12	3.9	3.6	3.8	5.0	5.1	5.9	5.3	5.5	11.0	10.5	10.1	11.2	9.1	8.6	8.6	8.5	9.6	6.2	4.4	4.9	3.2	3.7	3.5	4.3	3.2	11.2	6.5	24	
13	2.7	3.3	3.0	2.7	3.6	1.3	0.4	5.4	2.7	4.8	4.7	6.4	7.4	7.5	9.2	6.5	9.6	10.6	9.2	7.8	7.4	5.9	4.6	5.6	0.4	10.6	5.5	24	
14	4.4	6.0	4.2	4.4	3.0	2.8	4.1	4.1	5.0	4.4	5.5	4.8	4.3	5.0	6.2	6.4	6.0	4.7	2.3	2.9	2.5	1.9	0.6	1.1	0.6	6.4	4.0	24	
15	2.0	2.6	1.9	2.4	2.8	3.1	4.1	4.2	5.4	5.1	4.9	5.7	6.6	7.0	7.3	7.4	7.6	7.2	6.7	6.0	6.4	8.0	7.5	6.9	1.9	8.0	5.4	24	
16	6.2	6.8	7.4	7.6	8.8	8.8	8.9	8.4	6.2	6.5	8.0	8.5	7.5	9.0	5.7	5.9	5.1	5.7	5.0	4.6	4.3	4.9	5.6	5.5	4.3	9.0	6.7	24	
17	4.1	4.4	4.9	5.1	5.9	5.6	4.7	4.8	5.3	6.1	6.7	7.0	6.6	7.0	6.9	6.8	6.2	5.7	5.4	4.6	3.9	3.9	4.1	3.6	3.6	7.0	5.4	24	
18	2.7	3.3	2.5	3.3	2.2	3.2	3.8	4.4	5.6	6.1	3.5	2.2	1.5	3.1	2.6	3.1	4.7	6.6	5.9	3.8	4.3	2.5	3.8	2.7	1.5	6.6	3.6	24	
19	0.5	1.4	1.3	1.7	1.2	1.1	0.1	2.2	3.5	1.6	7.7	8.3	8.1	7.7	7.1	7.6	7.2	6.0	3.8	5.3	5.2	5.0	4.4	4.1	0.1	8.3	4.3	24	
20	3.4	3.4	3.6	3.6	4.1	4.1	4.0	5.3	5.3	5.8	6.9	7.5	7.7	7.9	7.7	7.1	7.2	6.5	4.6	5.4	5.8	6.6	6.3	6.6	3.4	7.9	5.7	24	
21	7.0	6.6	7.7	6.6	8.0	7.2	7.2	8.3	8.9	9.7	11.1	10.8	10.8	10.7	10.6	10.8	10.6	10.7	9.6	10.4	10.9	9.9	9.7	7.3	6.6	11.1	9.2	24	
22	8.5	7.5	6.5	6.6	5.5	6.0	4.9	5.3	6.3	6.5	6.3	6.0	6.5	7.4	6.6	6.0	5.9	5.3	4.6	3.6	4.6	7.9	8.2	6.2	3.6	8.5	6.2	24	
23	5.1	4.3	3.2	3.2	4.2	4.4	3.2	3.2	3.8	4.1	6.9	7.6	7.1	5.2	5.2	3.8	2.0	2.2	3.1	2.7	3.2	3.1	3.9	3.8	2.0	7.6	4.1	24	
24	3.0	4.9	5.5	6.2	7.4	9.4	9.6	9.7	10.8	Y	Y	11.8	10.0	11.4	7.9	6.6	5.4	6.0	4.1	2.8	1.8	0.5	0.0	0.2	0.0	11.8	6.1	22	
25	0.9	0.5	0.8	0.1	0.3	1.1	1.4	1.0	0.6	4.3	4.8	5.4	5.7	7.2	9.1	9.3	8.8	8.5	5.0	6.9	6.6	5.3	5.6	3.9	0.1	9.3	4.3	24	
26	3.2	2.3	3.6	2.4	4.5	5.1	4.7	4.8	6.3	6.4	6.8	6.4	6.1	5.5	7.1	5.6	6.4	5.6	3.0	2.7	1.7	3.6	1.3	1.2	1.2	7.1	4.4	24	
27	1.1	2.4	1.4	3.7	4.1	3.6	3.0	2.6	2.5	5.4	7.5	7.8	7.4	8.9	8.2	7.3	7.7	5.6	4.2	4.2	3.5	3.0	3.0	4.9	1.1	8.9	4.7	24	
28	5.4	3.7	3.8	4.1	1.8	0.6	2.8	2.2	4.2	2.9	4.4	5.5	8.1	8.9	10.6	7.5	8.6	8.6	6.3	7.7	3.4	6.8	7.1	5.5	0.6	10.6	5.4	24	
29	3.5	2.9	1.9	3.2	1.5	0.6	2.3	3.6	3.2	4.8	6.9	7.6	8.2	6.8	6.0	6.5	6.5	8.1	5.5	3.5	1.8	1.7	2.0	3.0	0.6	8.2	4.2	24	
30	2.9	3.2	2.8	4.9	4.1	3.2	3.9	4.1	4.5	5.4	6.1	8.5	11.8	12.7	10.3	9.2	8.9	6.7	5.8	4.1	8.0	5.7	5.5	10.3	2.8	12.7	6.4	24	
31	12.5	6.5	8.2	5.7	8.0	8.2	6.7	9.0	8.9	6.2	6.4	4.9	6.0	5.9	5.4	5.0	4.6	4.0	1.9	2.6	3.6	2.2	0.9	2.2	0.9	12.5	5.6	24	
HOURLY MAX	12.5	7.5	8.2	7.9	8.8	9.4	9.6	9.7	11.0	13.7	14.0	14.2	11.8	13.1	11.2	10.8	11.9	10.7	9.6	10.4	10.9	9.9	9.7	10.3					
HOURLY AVG	4.2	4.0	3.9	4.1	4.4	4.2	4.3	4.6	5.3	5.6	6.2	6.7	6.8	7.3	7.1	6.5	6.5	5.9	4.7	4.7	4.5	4.3	4.1	4.2					

STATUS FLAG CODES

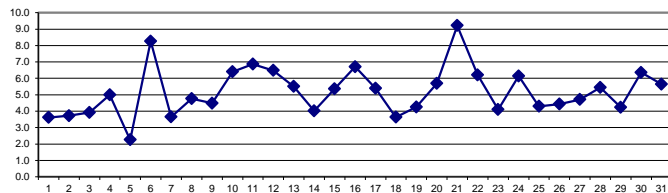
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	November 23, 2015
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	741
MINIMUM 1-HR AVERAGE:	0.0 KPH @ HOUR(S) 22 ON DAY(S) 24
MAXIMUM 1-HR AVERAGE:	14.2 KPH @ HOUR(S) 11 ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	9.2 KPH ON DAY(S) 21
	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS OPERATIONAL TIME: 742 HRS
	AMD OPERATION UPTIME: 99.7 %
STANDARD DEVIATION:	2.60 MONTHLY AVERAGE: 5.2 KPH

24 HOUR AVERAGES FOR MARCH 2016





VECTOR WIND SPEED MAX instantaneous maximum in km/hr

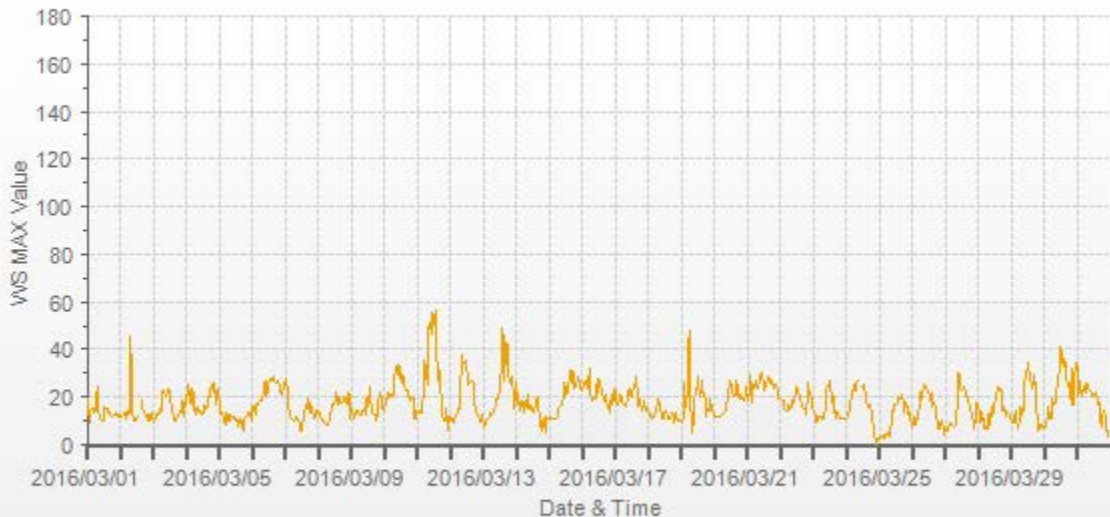
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
DAY																													
1		19.3	9.1	14.0	15.1	15.1	13.5	19.3	24.1	13.1	10.9	9.8	10.5	16.1	14.8	15.5	13.8	13.3	11.8	11.6	12.4	12.4	13.7	11.6	11.6	9.1	24.1	13.9	24
2		12.9	12.0	13.1	13.5	11.1	14.0	13.3	45.1	19.7	10.0	10.9	10.5	12.0	11.6	R	18.4	15.3	13.7	11.7	13.0	10.5	9.8	13.7	10.9	9.8	45.1	14.2	23
3		9.6	11.1	12.3	12.7	15.5	13.5	23.0	23.0	22.1	20.1	23.7	22.5	17.5	16.4	12.4	10.5	10.2	12.0	12.7	14.2	13.5	18.6	11.8	20.3	9.6	23.7	15.8	24
4		20.8	25.4	21.2	17.1	23.8	19.7	12.4	15.5	15.9	13.3	14.7	12.9	13.7	16.6	14.8	16.4	19.9	23.4	23.2	25.6	25.9	16.9	23.4	22.5	12.4	25.9	19.0	24
5		13.5	12.9	13.1	9.8	8.3	13.1	10.0	9.8	12.9	11.6	11.6	11.1	11.2	7.2	11.0	9.3	10.4	6.3	11.3	11.8	12.2	13.3	13.7	9.8	6.3	13.7	11.1	24
6		16.4	15.7	12.2	17.1	18.0	18.4	18.8	19.7	23.2	26.9	20.3	24.5	27.5	27.8	26.9	28.4	26.7	26.0	27.1	25.8	21.6	20.8	23.2	26.1	12.2	28.4	22.5	24
7		27.8	24.3	15.7	12.4	11.3	10.9	10.2	11.1	11.6	11.2	8.7	6.1	8.0	11.1	15.5	16.2	19.0	13.5	17.7	14.4	12.4	11.2	13.9	13.7	6.1	27.8	13.7	24
8		14.6	13.3	10.0	10.7	9.1	8.7	9.4	11.1	14.4	17.2	17.0	18.6	22.1	16.6	19.0	17.7	17.9	18.8	20.4	18.8	17.2	21.8	11.1	8.7	22.1	15.2	24	
9		15.5	12.6	11.3	14.2	13.9	13.1	12.5	12.9	13.9	15.1	12.9	19.2	15.9	24.7	17.5	13.3	12.4	12.4	10.3	12.4	20.8	21.6	16.6	14.4	10.3	24.7	15.0	24
10		16.4	19.5	19.2	22.1	20.6	20.1	20.8	26.7	32.4	29.5	33.7	32.8	26.4	29.1	27.3	22.4	23.9	22.7	18.8	19.9	19.4	19.9	11.1	14.6	11.1	33.7	22.9	24
11		13.7	13.3	14.7	13.3	20.3	35.0	32.2	24.9	49.9	51.0	46.6	55.3	50.1	56.0	35.4	27.1	31.5	19.9	12.4	10.1	9.9	15.5	6.1	10.9	6.1	56.0	27.3	24
12		11.8	10.9	9.6	11.3	11.6	13.7	15.5	21.8	37.6	34.4	34.8	35.2	29.5	24.9	26.2	27.3	26.7	25.1	13.3	13.1	12.7	10.5	9.6	12.4	9.6	37.6	20.0	24
13		7.8	8.3	10.2	10.9	11.8	13.1	12.4	13.6	14.0	19.4	19.2	20.8	24.3	32.6	49.2	27.3	38.5	42.9	30.2	25.8	27.2	28.7	14.8	25.8	7.8	49.2	22.0	24
14		18.8	21.6	14.2	17.5	18.4	13.7	17.9	15.6	21.2	15.5	17.2	15.7	13.5	13.9	17.7	20.3	14.8	11.3	6.1	10.5	10.9	5.0	11.6	10.7	5.0	21.6	14.7	24
15		10.9	12.0	10.7	10.9	11.1	11.2	12.7	15.9	16.2	17.7	19.5	26.4	20.8	22.1	26.3	31.5	26.2	30.9	23.2	25.6	26.5	28.9	25.8	23.0	10.7	31.5	20.3	24
16		23.9	25.6	27.1	24.9	23.8	32.2	21.0	18.9	19.7	19.7	25.2	21.9	27.5	24.1	23.6	20.6	18.8	21.2	16.2	15.1	13.3	21.0	16.7	23.8	13.3	32.2	21.9	24
17		22.7	17.5	17.0	18.4	20.7	17.6	17.0	16.2	15.7	21.0	23.8	20.9	20.4	24.1	25.4	28.9	21.2	16.4	19.0	14.7	15.7	18.1	14.6	15.5	14.6	28.9	19.3	24
18		14.6	13.1	10.7	12.1	12.0	13.5	15.7	19.0	17.3	14.6	11.2	11.2	13.3	14.2	11.3	10.7	11.6	13.5	12.4	8.9	13.6	10.2	10.0	9.8	8.9	19.0	12.7	24
19		9.6	9.6	26.0	15.7	20.4	41.8	48.2	9.9	5.4	13.1	22.5	22.1	28.6	21.2	20.3	26.9	20.5	20.3	11.6	15.1	14.6	19.4	14.0	13.5	5.4	48.2	19.6	24
20		12.0	12.0	12.0	11.6	12.1	12.2	12.9	13.3	14.2	17.7	19.2	26.9	26.4	23.9	20.2	20.8	26.9	23.6	19.7	21.4	19.4	19.0	18.8	24.5	11.6	26.9	18.4	24
21		20.1	18.9	29.3	17.7	25.8	23.6	26.7	24.3	23.2	27.8	30.5	30.1	22.5	24.3	26.4	28.6	25.8	27.8	26.2	23.8	25.6	25.5	23.0	19.0	17.7	30.5	24.9	24
22		19.5	18.8	18.4	15.1	14.4	14.4	16.6	14.8	16.2	18.8	17.9	22.6	24.5	22.5	21.4	18.4	15.7	15.3	14.6	12.2	26.0	22.6	21.6	16.8	12.2	26.0	18.3	24
23		13.5	13.3	9.6	10.0	11.6	11.6	11.8	11.1	13.5	15.1	25.4	24.3	27.1	20.8	17.5	20.2	10.7	13.9	13.7	12.0	10.7	11.1	11.3	11.1	9.6	27.1	14.6	24
24		11.1	11.9	14.4	16.2	22.7	22.3	25.4	22.3	26.7	Y	Y	Y	24.5	25.1	19.9	18.0	15.8	16.7	15.5	9.9	6.9	2.2	0.1	2.7	0.1	26.7	15.7	21
25		3.1	2.9	3.2	2.9	3.9	3.5	4.7	3.9	3.1	12.2	14.3	16.5	16.8	17.3	19.8	19.2	20.6	20.8	13.2	16.8	17.4	12.7	13.2	9.9	2.9	20.8	11.3	24
26		7.3	8.4	12.0	8.7	13.2	15.2	22.2	19.6	24.8	25.5	24.4	22.7	22.0	18.9	21.5	16.0	17.7	15.2	10.8	6.9	6.8	10.1	10.0	4.3	4.3	25.5	15.2	24
27		6.1	6.8	5.8	8.2	9.5	8.0	7.5	7.6	13.2	16.0	29.9	23.3	22.8	23.2	24.2	20.3	20.4	18.3	14.7	13.7	11.1	6.9	10.0	17.3	5.8	29.9	14.4	24
28		15.2	14.0	9.2	13.5	9.1	6.4	7.3	6.9	13.4	8.6	16.4	13.6	17.3	18.3	23.6	24.0	22.4	22.8	13.9	16.3	11.9	14.0	13.3	11.8	6.4	24.0	14.3	24
29		10.1	9.0	9.2	14.5	9.2	7.0	9.8	15.9	12.9	14.5	26.8	27.4	34.6	31.1	28.4	23.4	25.6	29.3	22.2	11.2	6.1	8.3	7.5	8.7	6.1	34.6	16.8	24
30		7.0	7.5	9.7	15.7	13.0	11.2	19.3	16.9	17.9	22.5	27.2	30.1	41.2	37.5	32.6	35.8	28.3	25.2	24.4	19.7	32.2	16.6	26.8	34.8	7.0	41.2	23.0	24
31		33.1	20.2	26.7	20.1	23.1	24.8	22.1	26.3	24.5	22.8	22.3	19.8	21.4	21.0	21.5	17.0	18.0	9.7	7.7	14.0	13.6	12.5	3.5	5.7	3.5	33.1	18.8	24
HOURLY MAX		33.1	25.6	29.3	24.9	25.8	41.8	48.2	45.1	49.9	51.0	46.6	55.3	50.1	56.0	49.2	35.8	38.5	42.9	30.2	25.8	32.2	28.9	26.8	34.8				
HOURLY AVG		14.8	13.9	14.3	14.0	15.0	16.0	17.0	17.3	18.6	19.0	21.3	21.8	22.5	22.5	22.3	21.0	20.2	19.3	16.3	15.7	16.1	15.5	14.3	15.1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

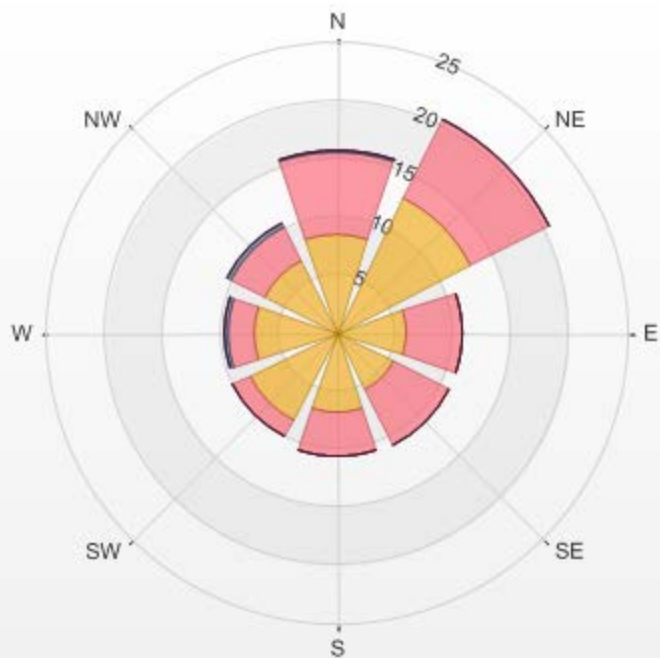
MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	56.0	KPH	@ HOUR(S)	13	ON DAY(S)	11
					VAR-VARIOUS	
OPERATIONAL TIME:				740	HRS	




Wind: LICA MASKWA Monitor: WSP [kph] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 1.35% Valid Data: 99.73% Calm Avg: 0.00 [ppb]

Direction	0.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	8.49	7.01	0.27	0	0	0	15.77
NE	12.94	7.55	0	0	0	0	20.49
E	6.06	4.72	0	0	0	0	10.78
SE	5.53	5.26	0	0	0	0	10.79
S	6.87	3.77	0	0	0	0	10.64
SW	8.36	1.62	0	0	0	0	9.98
W	7.14	2.29	0.27	0	0	0	9.7
NW	7.01	3.23	0.27	0	0	0	10.51
Summary	62.4	35.45	0.81	0	0	0	98.66




% Icon Classes (kph)

35  6.0-12.0

1  0.5-6.0

62  0.5-6.0

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JOB #: 2836-2016-03-30-00  >39.0

WIND DIRECTION



WIND DIRECTION (WD) hourly averages

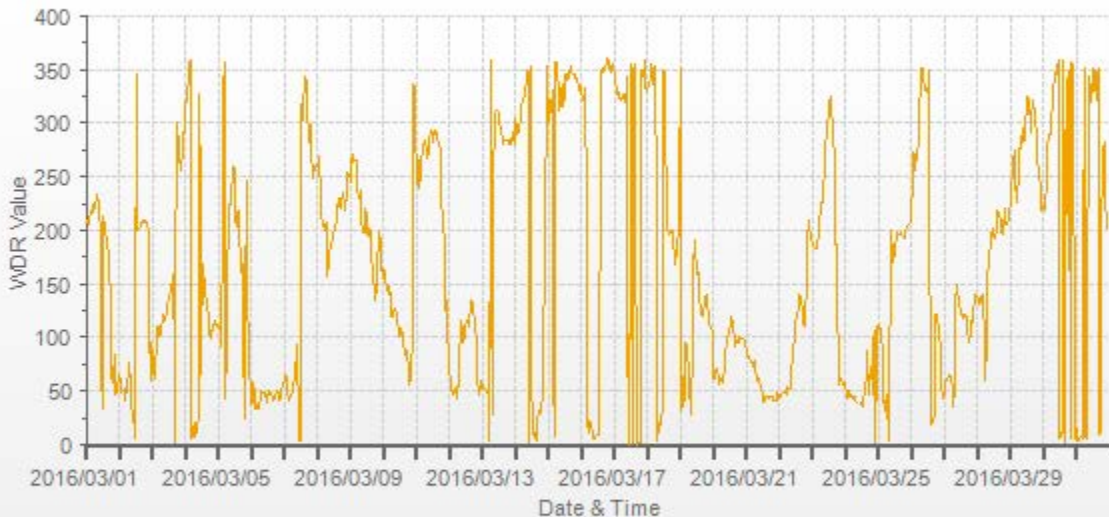
MST																									24-HOUR AVG	RDGS.	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	QUADRANT	RDGS.	
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59			
DAY																											
1	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SSW	SSW	NE	SSW	SSW	S	S	SE	ENE	ENE	E	NE	NE	ENE	S	24		
2	ENE	NE	NE	NE	NE	ENE	ENE	ENE	NE	NNE	NNE	N	NNW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	ENE	E	24		
3	ENE	ENE	ENE	ESE	ESE	E	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	N	WNW	WNW	W	WSW	W	WNW	WNW	ESE	24	
4	NW	NNW	NNW	N	N	N	NNE	N	NNE	NNE	NNW	ENE	SSE	SSE	SE	SE	SE	E	E	ESE	ESE	ESE	ESE	ESE	ENE	24	
5	ESE	ESE	E	NW	N	NE	S	S	SW	SW	WSW	WSW	SSW	SSW	SW	SSW	SSE	SSE	ENE	NNE	WSW	ESE	ENE	NE	SSE	24	
6	NE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	NE	24	
7	ENE	ENE	NE	NE	NE	NE	NE	ENE	ENE	E	NNE	N	NW	WNW	NNW	NNW	NNW	WNW	W	WNW	WSW	WSW	WSW	WSW	N	24	
8	W	W	SW	SSW	SSW	SSW	SSE	S	S	S	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	SW	24	
9	WSW	W	W	W	W	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	SSE	SE	SSE	S	SSW	S	SSE	SSW	24	
10	SSE	SSE	SE	SSE	SE	SE	ESE	SE	SE	ESE	ESE	E	ESE	ESE	E	E	E	E	ENE	ENE	E	E	NNW	W	ESE	24	
11	W	WSW	W	WSW	W	W	WNW	W	W	WNW	WNW	WNW	W	WNW	WNW	W	W	W	W	SSW	SSW	SE	SE	E	W	24	
12	ENE	NE	NE	NE	NE	NE	ENE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	ESE	ENE	NE	NE	ENE	E	24		
13	NE	NE	NE	NE	NE	N	N	NNE	W	NW	NW	NW	NW	WNW	WNW	W	WNW	WNW	WNW	W	WNW	W	WNW	W	NW	24	
14	WNW	WNW	WNW	WNW	NW	NW	NW	NNW	NNW	NNW	N	N	N	NNE	NNE	N	NNE	NNE	NE	NE	S	WSW	N	NNW	NNW	24	
15	WNW	NW	NW	NNW	N	N	NNW	NW	NW	NNW	NW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	24
16	NW	NW	NW	NNW	NNE	NNE	NNE	NNE	N	N	N	N	N	NNE	NNW	N	NNW	N	N	N	N	NNW	N	N	N	24	
17	NNW	NNW	NNW	NNW	NW	NW	NNW	NW	NW	NNW	N	N	N	N	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NNW	24
18	NNW	NNW	NNW	N	NNW	NNW	N	N	NNE	NNE	NNE	NE	N	WNW	SW	SSW	SSW	SSW	SSW	S	SSE	S	SSW	NW	24		
19	N	NNE	ENE	NE	E	ENE	ENE	NE	NNE	ESE	S	S	SSE	SSE	SE	ESE	ESE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	24	
20	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	ESE	ESE	ESE	ESE	ESE	E	E	E	E	E	E	E	E	E	24	
21	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	24	
22	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	E	ESE	ESE	SE	SE	SE	SE	ESE	ESE	SSE	SSW	SSW	SSW	E	24	
23	S	S	S	S	S	SSW	SW	SW	SW	W	WNW	WNW	NW	NW	NW	WNW	W	S	S	NE	ENE	ENE	ENE	ENE	SW	24	
24	ENE	NE	NE	NE	NE	NE	NE	NE	NE	Y	Y	NE	NE	NE	NE	NE	ENE	E	NE	ENE	ENE	NE	ESE	N	ESE	22	
25	ESE	ESE	ESE	E	NE	NNE	NE	NNE	N	SSW	S	SSE	S	S	SSW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSE	24	
26	SSW	WSW	W	WSW	W	W	NW	N	N	NNW	NNW	NNW	NNW	NNE	NNE	NNE	NNE	ESE	ESE	ESE	E	NE	NE	NE	NNW	24	
27	NE	ENE	ENE	ENE	ENE	ENE	NE	NE	SE	SSE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	E	ESE	ESE	SE	SE	E	24		
28	SE	SE	SE	SE	SE	ESE	ENE	E	SSE	S	S	SSW	SSW	S	SSW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24	
29	SW	WSW	WSW	W	WSW	SW	WSW	W	W	WNW	W	WNW	NW	NW	NW	WNW	NW	NW	WNW	WNW	W	WSW	WSW	SW	W	24	
30	SW	SW	SW	W	WNW	WNW	WNW	NW	NNW	NNW	NNW	N	N	NNE	NNE	N	N	NNW	NNW	N	N	N	N	N	NNW	24	
31	NNE	N	N	N	N	N	N	N	N	NNW	NNW	NW	NNW	N	NNW	NW	N	N	NNE	W	W	W	SSW	SSW	NNW	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	November 23, 2015
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	742	HRS
STANDARD DEVIATION:	111.59		AMD OPERATION UPTIME:	99.7	%



STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - MARCH 2016

JOB # 2833-2016-03-30- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.	
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59		
DAY																											
1		31	19	25	23	26	27	24	36	25	30	35	71	32	23	22	24	20	22	30	15	23	27	26	32	24	
2		22	14	15	18	13	20	14	25	39	32	33	22	64	42	35	20	17	15	15	16	34	57	39	41	24	
3		36	20	31	35	28	27	25	27	25	29	31	25	28	30	34	57	43	36	30	35	39	34	32	49	24	
4		34	35	36	30	27	32	19	30	38	31	51	68	42	36	40	31	32	25	22	24	28	22	25	21	24	
5		20	21	33	33	65	55	40	31	49	58	46	62	42	78	50	30	28	45	48	55	62	30	45	18	24	
6		16	22	19	18	21	19	20	25	22	22	22	18	25	22	22	18	22	23	22	20	19	22	24	24	24	
7		23	23	21	17	18	18	21	23	27	38	52	48	43	40	33	37	39	38	33	30	55	39	31	35	24	
8		38	38	43	32	19	22	23	24	30	29	25	23	21	21	28	37	30	27	36	33	26	32	36	37	24	
9		36	35	37	36	40	38	33	41	24	24	22	29	22	25	23	31	31	20	38	19	23	25	32	23	24	
10		27	31	26	27	25	29	30	30	30	29	28	25	29	34	31	33	27	26	44	29	30	65	48	27	24	
11		39	25	28	25	25	27	26	32	35	29	28	28	32	30	25	30	35	36	21	9	33	54	35	38	24	
12		19	18	17	17	16	12	21	28	24	27	25	26	28	28	27	30	27	31	20	21	28	20	20	19	24	
13		42	21	24	20	22	33	65	26	43	33	35	33	31	32	28	28	25	26	26	26	25	28	31	30	24	
14		42	28	35	35	43	37	35	35	37	39	28	36	33	29	23	27	20	18	20	22	27	23	46	46	24	
15		30	28	46	32	25	26	24	31	30	33	37	33	37	36	34	31	35	34	36	37	35	35	37	24	24	
16		38	36	37	34	20	21	16	18	26	25	25	22	26	21	39	32	36	30	27	23	29	32	31	28	24	
17		37	37	38	36	34	33	34	36	32	35	33	29	29	29	35	32	29	27	25	31	33	35	29	35	24	
18		39	36	40	33	37	37	32	29	28	22	33	51	60	41	42	45	27	17	14	14	17	31	16	30	24	
19		56	34	31	22	22	32	55	25	6	42	27	30	30	31	33	31	29	22	16	22	28	29	30	27	24	
20		19	18	18	21	17	19	19	19	26	33	30	32	32	31	30	29	30	27	29	28	28	26	28	29	24	
21		25	26	27	26	25	25	28	25	24	23	24	27	20	20	23	22	21	19	20	21	20	19	19	20	24	
22		19	19	22	22	21	20	23	21	23	30	32	37	37	34	36	36	33	32	28	29	25	20	20	19	24	
23		20	25	34	23	25	23	37	32	27	33	32	30	36	37	36	44	44	52	22	27	18	20	19	20	24	
24		20	16	20	24	20	18	21	20	20	Y	Y	22	23	20	27	32	31	27	23	19	10	18	0	30	22	
25		13	6	9	7	15	17	14	6	14	42	26	33	30	23	17	19	19	17	17	15	18	17	18	16	24	
26		16	26	27	25	23	25	31	32	32	39	38	39	38	44	30	33	23	21	20	17	21	20	31	12	24	
27		14	12	15	13	12	14	15	17	40	32	31	30	35	29	32	29	28	28	24	19	17	13	19	21	24	
28		26	28	20	26	55	26	21	27	27	50	39	29	23	20	17	30	24	22	16	13	32	15	13	15	24	
29		16	24	29	32	36	32	25	29	43	36	38	35	37	42	38	37	36	36	32	28	24	29	28	17	24	
30		17	13	23	26	31	28	30	34	36	32	35	34	31	25	26	31	30	38	34	31	27	27	29	23	24	
31		21	23	24	22	24	26	31	27	27	41	36	45	38	39	39	41	33	19	14	29	31	30	16	23	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: November 23, 2015

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 890 HRS



RELATIVE HUMIDITY

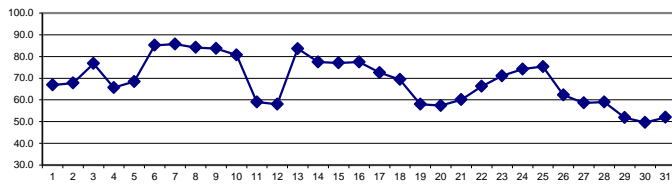
RELATIVE HUMIDITY (RH) hourly averages in %

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
DAY																													
1		71	73	74	75	76	77	79	78	76	65	56	48	49	49	48	50	59	68	70	76	79	79	81	48	81	66.9	24	
2		82	81	81	81	80	80	81	80	77	75	64	55	46	45	45	48	52	58	62	63	67	73	75	75	45	82	67.8	24
3		75	77	77	80	79	79	79	78	74	71	71	69	71	71	72	72	74	77	81	83	83	82	83	84	69	84	76.8	24
4		84	81	79	77	77	77	82	81	78	67	57	47	45	43	38	42	47	54	59	63	69	74	76	79	38	84	65.7	24
5		84	86	86	84	84	83	84	85	85	83	71	54	47	40	39	43	48	55	60	64	67	69	66	75	39	86	68.4	24
6		81	83	87	87	88	90	90	90	89	87	86	85	82	81	79	79	80	82	83	84	86	87	88	89	79	90	85.1	24
7		89	89	88	89	89	89	89	89	89	88	86	84	80	76	76	79	80	82	87	88	88	88	88	86	76	89	85.7	24
8		85	85	86	86	87	87	87	86	84	85	82	82	81	81	80	80	81	84	85	85	85	85	85	85	80	87	84.1	24
9		85	86	86	87	87	88	89	89	89	89	88	83	81	76	71	67	65	75	84	89	88	88	88	89	65	89	83.6	24
10		89	90	90	89	89	89	89	89	88	85	79	78	71	65	65	62	65	70	73	77	83	84	88	89	62	90	80.7	24
11		89	87	84	84	83	78	72	70	60	50	45	43	38	39	37	34	31	34	40	47	55	67	73	77	31	89	59.0	24
12		75	76	76	72	71	69	66	58	50	50	48	44	41	40	40	37	40	47	55	60	63	69	72	72	37	76	58.0	24
13		77	81	86	87	85	85	85	83	73	72	70	74	84	87	88	89	87	87	87	89	88	88	88	87	70	89	83.6	24
14		85	84	84	85	85	85	84	81	76	74	75	72	71	69	69	68	67	70	73	76	76	81	84	85	67	85	77.5	24
15		85	86	86	85	82	80	81	83	78	75	70	63	65	66	67	70	71	75	77	80	83	81	80	80	63	86	77.0	24
16		82	82	82	83	83	81	82	82	81	81	79	77	74	68	67	70	71	75	77	77	77	77	76	75	67	83	77.5	24
17		76	76	77	78	78	78	78	77	73	72	69	67	64	64	65	65	69	71	73	72	74	75	75	76	64	78	72.6	24
18		76	76	78	74	73	76	76	72	69	68	65	62	60	58	55	56	56	61	66	73	77	77	81	80	55	81	69.4	24
19		80	81	79	78	78	77	77	76	70	56	51	46	40	36	33	32	30	36	47	52	53	59	62	64	30	81	58.0	24
20		67	71	73	74	75	74	74	71	61	53	46	43	39	35	39	41	43	47	53	56	58	60	62	63	35	75	57.4	24
21		65	67	68	68	68	67	67	66	65	63	59	53	53	54	53	54	54	56	57	58	56	56	56	60	53	68	60.1	24
22		61	67	69	71	75	76	77	76	72	64	58	54	52	52	51	53	57	60	64	68	72	79	80	82	51	82	66.3	24
23		82	82	83	84	83	83	83	81	79	71	66	63	53	50	52	51	54	59	63	67	73	79	81	84	50	84	71.1	24
24		85	86	87	87	87	86	85	84	81	77	74	71	68	63	58	55	52	56	59	64	71	79	82	83	52	87	74.2	24
25		82	81	80	78	78	77	74	61	65	66	64	66	70	72	73	75	76	78	80	83	84	84	84	61	84	75.3	24	
26		86	85	84	84	84	83	84	78	62	50	43	39	36	35	36	37	41	46	52	62	69	68	71	78	35	86	62.2	24
27		80	82	83	83	83	82	81	74	60	49	44	39	36	35	34	33	34	38	46	56	61	66	64	63	33	83	58.6	24
28		63	67	71	74	76	80	80	72	61	59	49	44	42	42	41	38	38	43	51	60	63	64	67	72	38	80	59.0	24
29		74	77	80	79	79	83	81	60	47	37	29	27	27	27	25	26	31	41	48	52	52	54	55	54	25	83	51.9	24
30		55	54	56	56	57	60	62	59	58	54	45	39	36	35	34	33	32	35	40	43	55	65	65	64	32	65	49.7	24
31		68	69	68	67	65	65	64	61	56	48	41	37	33	30	28	33	36	40	45	49	53	61	64	66	28	69	52.0	24
HOURLY MAX		89	90	90	89	89	90	90	90	89	89	88	85	84	87	88	89	87	87	87	89	89	88	88	89				
HOURLY AVG		78.0	79.0	79.6	79.5	79.5	79.5	79.5	76.9	71.7	67.2	62.3	58.3	55.8	54.3	53.5	53.8	55.2	59.6	64.3	67.9	71.1	74.1	75.4	76.8				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	25 %	@ HOUR(S)	14	ON DAY(S)	29
MAXIMUM 1-HR AVERAGE:	90 %	@ HOUR(S)	VAR	ON DAY(S)	6 , 10
MAXIMUM 24-HR AVERAGE:	85.7 %			ON DAY(S)	7
				VAR-VARIOUS	
OPERATIONAL TIME:				744	HRS
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	15.89	MONTHLY AVERAGE:		69	%

RH[%RH] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



BAROMETRIC PRESSURE

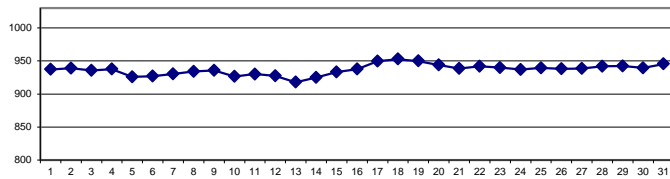
BAROMETRIC PRESSURE (BP) hourly averages in millibar

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR			
DAY	MIN.	MAX.	AVG.	RDGS.																											
1	940	940	940	940	939	939	938	938	938	938	938	938	938	938	937	937	936	935	935	935	935	934	934	934	934	934	934	940	937	24	
2	935	935	935	935	935	936	936	937	938	939	940	940	941	941	942	941	941	942	942	942	941	941	941	935	942	939	24				
3	940	940	939	938	938	937	937	936	936	935	935	934	933	933	933	933	933	934	934	935	935	935	935	935	935	935	933	940	935	24	
4	936	937	938	938	939	940	940	940	941	941	941	941	941	940	940	939	938	936	935	934	933	932	931	930	930	930	930	941	938	24	
5	929	928	927	927	926	926	926	926	926	926	926	926	926	926	926	926	925	925	924	924	925	925	924	924	924	924	924	929	926	24	
6	925	925	925	926	926	927	927	927	928	928	928	928	928	928	927	927	927	927	927	927	928	928	928	928	927	927	925	928	927	24	
7	927	927	927	927	928	928	928	929	929	930	930	931	931	931	931	932	932	933	933	933	934	934	934	934	934	927	934	930	24		
8	935	935	935	935	935	934	935	935	935	934	934	934	934	934	933	933	933	933	933	933	933	933	933	933	933	933	933	935	934	24	
9	934	934	934	934	934	935	935	935	936	936	936	936	937	937	937	937	937	936	936	936	936	936	936	936	936	935	934	937	936	24	
10	935	934	933	933	932	932	931	930	929	928	927	926	925	925	924	924	922	921	921	921	920	920	920	920	920	920	920	920	920	920	24
11	921	922	923	923	924	925	927	928	929	930	931	932	933	933	934	934	934	934	934	934	934	935	934	934	934	934	921	935	930	24	
12	934	934	933	933	932	932	931	931	930	930	929	927	927	926	925	925	924	924	923	922	922	921	921	920	920	920	920	920	920	920	24
13	919	919	918	918	917	917	917	916	916	915	916	916	916	916	917	917	918	919	919	920	920	920	920	920	920	920	915	920	918	24	
14	920	920	921	921	921	921	922	922	923	924	924	925	925	925	926	926	927	928	928	929	929	930	930	930	930	931	920	931	925	24	
15	931	931	932	932	932	933	933	933	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	933	931	934	933	24	
16	933	933	933	933	934	934	935	935	936	936	937	937	938	938	939	940	940	941	942	942	943	943	943	944	944	943	944	938	24		
17	944	945	946	946	946	947	948	948	949	949	950	950	951	951	951	952	952	952	952	953	953	953	953	953	953	953	944	953	950	24	
18	953	953	953	953	953	953	953	953	953	953	954	954	954	954	953	953	953	953	953	953	952	952	951	951	951	951	951	954	953	24	
19	951	951	951	951	950	950	951	951	951	951	952	951	951	951	950	949	949	948	948	948	947	947	947	947	947	947	947	947	947	947	24
20	946	946	946	945	945	945	945	945	945	945	945	944	944	944	943	943	942	942	941	941	941	941	941	941	940	940	946	944	24		
21	940	940	939	939	939	938	938	938	938	938	938	939	938	938	938	938	938	938	938	938	939	939	939	939	939	939	938	940	939	24	
22	940	939	939	940	940	940	941	941	941	942	943	943	943	943	943	943	943	943	943	942	942	942	942	942	942	939	943	942	24		
23	942	941	941	940	940	940	940	940	940	941	941	941	941	941	940	940	939	939	939	938	938	937	937	937	937	937	937	942	940	24	
24	936	936	935	935	935	935	935	935	936	936	936	936	937	937	937	938	938	938	939	939	939	939	939	939	939	935	939	937	24		
25	940	940	940	940	940	940	940	940	941	941	941	941	940	940	940	939	939	939	939	938	938	938	938	937	937	937	941	939	24		
26	937	936	937	936	936	936	936	937	938	938	939	940	940	940	939	939	939	939	939	938	938	938	938	938	938	936	940	938	24		
27	938	938	938	937	937	937	937	938	938	939	939	939	939	939	939	939	939	939	938	938	938	939	939	939	939	937	939	938	24		
28	940	940	940	940	940	941	941	942	942	943	944	944	943	943	943	942	942	942	942	942	942	943	943	943	943	940	944	942	24		
29	943	943	943	943	943	943	943	943	944	944	944	944	943	943	942	942	941	941	941	941	941	941	940	940	940	940	940	944	942	24	
30	939	938	938	937	937	937	936	937	937	938	939	939	939	940	940	940	941	941	941	941	942	942	943	943	943	936	943	939	24		
31	944	944	945	945	946	946	946	947	947	948	948	947	947	946	946	945	945	944	944	944	944	943	943	943	943	943	943	948	945	24	
HOURLY MAX	953	953	953	953	953	953	953	953	953	953	954	954	954	954	953	953	953	953	953	953	952	953	953	953	953	953	953	953	953	953	
HOURLY AVG	936	936	936	936	936	936	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	936	936	936	936	936	936	936	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

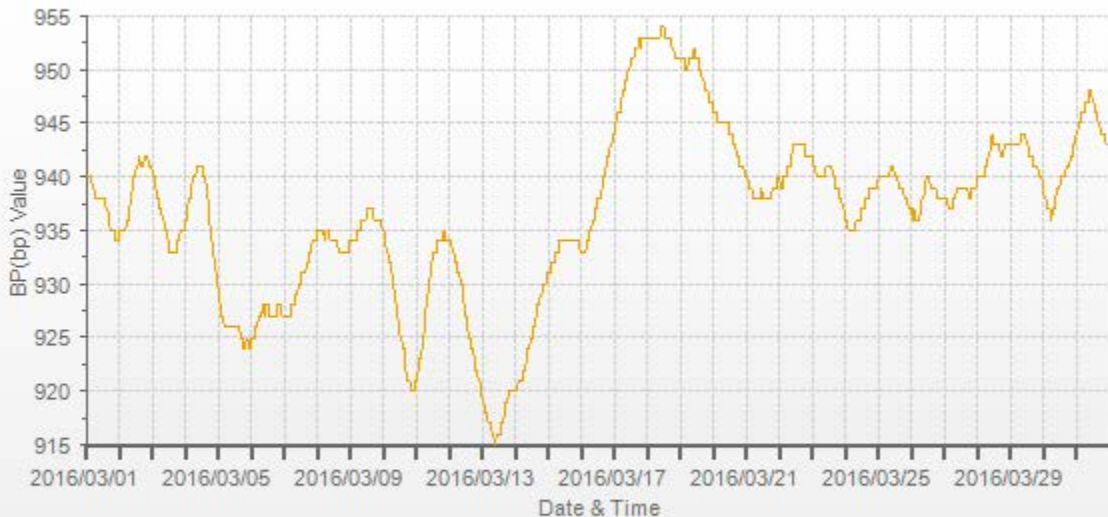
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	915	MB	@ HOUR(S)	9	ON DAY(S)	13
MAXIMUM 1-HR AVERAGE:	954	MB	@ HOUR(S)	VAR	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	953	MB			ON DAY(S)	18
					VAR-VARIOUS	
					OPERATIONAL TIME:	744 HRS
					AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	8.07				MONTHLY AVERAGE:	937 MB

BP(bp)[mb] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



AMBIENT TEMPERATURE

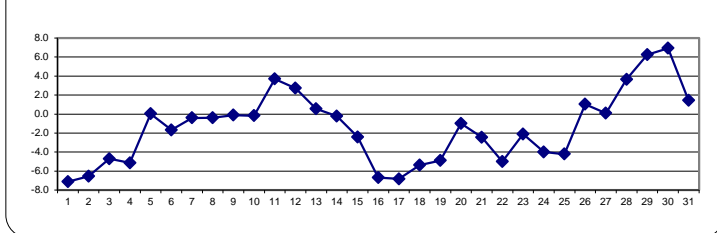
AMBIENT TEMPERATURE (AmbTPX) hourly averages in Degrees Celsius

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.
DAY	MIN.	MAX.	AVG.																										
1	-13.9	-13.8	-13.7	-13.6	-13.7	-13.8	-15.5	-15.9	-12.0	-6.8	-2.6	1.7	2.1	1.6	2.1	3.2	2.4	-1.3	-4.4	-5.7	-7.3	-9.2	-9.4	-11.0	-15.9	3.2	-7.1	24	
2	-11.8	-12.5	-13.5	-13.8	-13.1	-13.9	-14.6	-14.5	-12.7	-9.2	-4.4	-1.2	2.5	3.5	3.5	2.4	1.1	-1.6	-3.1	-3.5	-4.6	-6.5	-7.7	-7.6	-14.6	3.5	-6.5	24	
3	-8.0	-8.6	-7.9	-6.7	-6.3	-6.5	-6.7	-6.8	-6.3	-5.2	-4.3	-3.6	-3.0	-2.1	-1.8	-1.5	-1.8	-2.5	-3.4	-4.3	-4.2	-4.0	-3.6	-3.8	-8.6	-1.5	-4.7	24	
4	-3.3	-4.0	-5.7	-7.1	-8.5	-9.7	-12.5	-13.1	-10.6	-7.6	-4.3	-1.6	-0.7	-0.6	0.5	0.4	-0.7	-3.4	-5.1	-5.6	-5.1	-5.2	-5.0	-4.7	-13.1	0.5	-5.1	24	
5	-5.1	-5.8	-7.3	-9.7	-10.5	-10.7	-8.8	-7.6	-6.0	-3.4	1.7	6.5	9.2	11.5	11.4	9.8	7.5	4.9	3.4	2.6	2.2	2.2	2.5	0.1	-10.7	11.5	0.0	24	
6	-1.1	-1.5	-2.1	-1.3	-1.1	-1.0	-0.9	-1.4	-2.1	-2.2	-2.2	-2.1	-1.5	-1.1	-1.0	-1.2	-1.4	-1.7	-1.7	-1.9	-2.3	-2.8	-2.4	-2.1	-2.8	-0.9	-1.7	24	
7	-2.0	-2.2	-2.5	-2.5	-2.4	-2.4	-2.1	-1.7	-1.0	-0.2	0.3	1.2	2.6	3.0	2.3	1.7	1.1	0.8	-0.1	-0.3	-0.6	-0.7	-0.9	-1.2	-2.5	3.0	-0.4	24	
8	-1.3	-1.5	-1.6	-1.7	-1.8	-2.0	-2.1	-1.6	-0.8	-0.4	0.3	0.6	0.8	0.6	1.2	1.1	0.7	0.2	0.0	-0.1	0.0	0.0	0.0	-0.1	-2.1	1.2	-0.4	24	
9	-0.2	-0.5	-0.7	-0.8	-1.1	-1.2	-1.4	-1.5	-1.4	-1.0	-0.7	0.3	0.8	2.1	3.3	4.1	4.6	1.9	-0.9	-2.3	-2.0	-1.5	-1.5	-1.3	-2.3	4.6	-0.1	24	
10	-1.2	-1.3	-1.5	-1.8	-2.0	-2.0	-2.0	-2.1	-2.1	-1.5	0.0	0.0	1.9	3.1	3.1	4.0	3.3	1.9	1.3	1.0	0.2	-0.9	-2.8	-2.7	-2.8	4.0	-0.2	24	
11	-2.5	-1.7	-0.9	-0.7	-0.2	1.0	2.4	2.8	5.4	7.4	8.6	9.4	10.8	10.4	10.8	10.8	9.8	7.7	4.5	2.6	0.8	-2.0	-3.8	-4.7	-4.7	10.8	3.7	24	
12	-4.6	-4.9	-4.7	-3.7	-3.2	-2.9	-2.1	0.1	2.8	3.7	4.7	6.3	7.2	8.2	8.7	10.7	10.2	8.1	6.0	5.1	3.9	2.3	1.5	2.0	-4.9	10.7	2.7	24	
13	0.8	-0.1	-1.6	-1.8	-1.5	-1.6	-1.1	-0.4	2.7	2.9	4.2	3.9	1.7	1.1	0.6	0.7	1.1	1.0	0.7	0.6	0.5	0.1	-0.6	-0.8	-1.8	4.2	0.5	24	
14	-0.7	-0.9	-1.0	-1.2	-1.2	-1.4	-1.4	-0.9	-0.2	0.4	0.3	0.6	0.8	1.2	1.4	1.1	1.2	0.5	0.1	-0.3	-0.5	-0.9	-1.2	-1.2	-1.4	1.4	-0.2	24	
15	-1.3	-1.3	-2.5	-3.4	-3.6	-3.7	-4.5	-5.6	-3.7	-2.4	-1.0	0.7	-0.1	-0.2	-0.6	-1.1	-1.4	-2.0	-2.4	-2.5	-3.1	-3.8	-4.1	-4.4	-5.6	0.7	-2.4	24	
16	-4.7	-4.9	-5.3	-5.6	-6.5	-7.4	-8.1	-8.7	-8.5	-8.0	-7.5	-6.7	-5.3	-5.2	-4.6	-5.3	-5.6	-6.4	-7.0	-7.3	-7.4	-7.8	-8.1	-8.3	-8.7	-4.6	-6.7	24	
17	-8.5	-8.7	-9.0	-9.6	-9.7	-9.6	-9.5	-9.0	-7.5	-6.6	-5.9	-5.2	-4.2	-4.1	-4.3	-4.3	-4.8	-5.4	-5.9	-6.1	-6.3	-6.5	-6.9	-9.7	-4.1	-6.8	24		
18	-7.2	-7.5	-7.6	-7.7	-7.9	-7.8	-7.8	-7.3	-6.5	-5.7	-4.3	-2.8	-1.6	-0.7	0.9	0.3	0.2	-1.6	-3.4	-5.6	-6.9	-7.8	-10.6	-12.2	-12.2	0.9	-5.4	24	
19	-14.0	-15.0	-15.7	-16.8	-17.2	-17.7	-18.2	-15.1	-9.1	-1.3	0.6	2.5	4.3	5.7	6.6	6.2	5.6	2.8	-0.6	-1.0	-1.2	-1.9	-3.1	-3.8	-18.2	6.6	-4.9	24	
20	-5.0	-6.3	-6.9	-7.1	-7.4	-6.8	-6.8	-5.9	-2.9	0.1	2.4	3.4	5.0	6.3	5.0	4.9	4.4	3.1	1.0	-0.2	-0.5	-1.0	-1.3	-1.5	-7.4	6.3	-1.0	24	
21	-2.1	-2.5	-3.0	-3.1	-3.3	-3.3	-3.6	-3.5	-3.4	-2.8	-1.5	0.3	0.1	-0.4	0.1	0.0	-0.2	-1.2	-2.5	-3.3	-4.0	-4.6	-5.2	-5.7	-5.7	0.3	-2.4	24	
22	-6.6	-7.6	-8.2	-8.6	-9.0	-9.4	-9.7	-9.1	-7.9	-5.5	-3.4	-1.5	-0.2	0.1	0.6	-0.1	-1.4	-2.2	-3.5	-4.6	-4.3	-5.1	-6.0	-6.5	-9.7	0.6	-5.0	24	
23	-6.7	-6.8	-7.4	-7.4	-7.1	-7.1	-6.9	-6.0	-5.0	-1.9	0.0	1.1	3.9	3.8	3.3	3.7	2.6	1.4	0.2	-0.5	-1.4	-2.2	-2.1	-2.3	-7.4	3.9	-2.1	24	
24	-2.5	-2.5	-2.6	-3.0	-3.4	-4.0	-4.8	-4.9	-4.5	-3.6	-3.2	-2.8	-2.3	-1.7	-0.5	-0.1	0.2	-1.3	-2.8	-4.8	-7.2	-9.7	-11.3	-12.6	-12.6	0.2	-4.0	24	
25	-13.6	-14.4	-14.2	-13.4	-12.6	-11.8	-11.3	-9.3	-4.3	-1.3	0.2	1.4	1.1	1.1	0.8	1.0	0.9	0.9	0.4	-0.1	-0.6	-0.7	-0.6	-0.7	-14.4	1.4	-4.2	24	
26	-1.1	-0.6	0.1	-0.3	-0.2	-0.6	-1.2	-0.2	1.7	3.5	4.8	5.9	6.9	6.8	6.1	6.3	5.1	3.3	0.8	-2.2	-4.0	-3.8	-5.0	-7.1	-7.1	6.9	1.0	24	
27	-8.1	-8.9	-9.5	-9.3	-9.2	-9.0	-8.6	-5.5	0.2	3.8	5.5	6.7	8.6	8.8	9.1	9.1	8.3	6.5	3.6	1.1	-0.3	-1.3	-0.1	0.7	-9.5	9.1	0.1	24	
28	0.6	-0.1	-1.2	-1.7	-2.6	-4.3	-4.4	-2.1	1.9	3.3	7.4	9.0	9.8	10.0	10.1	10.3	9.9	8.6	6.3	4.4	3.7	3.7	2.9	1.8	-4.4	10.3	3.6	24	
29	1.2	0.3	-1.0	-1.1	-1.8	-3.2	-2.7	3.0	7.0	10.5	12.4	13.1	13.1	13.4	14.3	13.9	12.4	9.6	7.4	6.4	6.1	5.2	5.0	5.3	-3.2	14.3	6.2	24	
30	5.0	5.0	4.5	4.6	4.6	4.0	3.6	4.6	5.5	7.2	10.2	11.7	11.8	11.7	11.7	11.1	11.2	9.8	7.8	6.3	5.1	4.0	3.2	1.9	1.9	11.8	6.9	24	
31	-0.6	-1.9	-1.9	-2.3	-2.6	-2.7	-2.5	-1.4	0.5	2.3	4.4	5.5	6.4	7.3	6.1	5.1	4.2	3.0	2.2	2.1	1.4	0.8	0.6	-2.7	7.3	1.4	24		
HOURLY MAX	5.0	5.0	4.5	4.6	4.6	4.0	3.6	4.6	7.0	10.5	12.4	13.1	13.1	13.4	14.3	13.9	12.4	9.8	7.8	6.4	6.1	5.2	5.0	5.3					
HOURLY AVG	-4.2	-4.6	-5.0	-5.2	-5.3	-5.6	-5.7	-4.9	-3.0	-1.1	0.7	2.0	3.0	3.4	3.6	3.5	3.0	1.5	0.0	-1.0	-1.6	-2.3	-2.8	-3.3					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-18.2 °C	@ HOUR(S)	6	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	14.3 °C	@ HOUR(S)	14	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	6.9 °C			ON DAY(S)	30
				VAR-VARIOUS	
OPERATIONAL TIME:				744	HRS
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	5.61	MONTHLY AVERAGE:		-1.5	°C

TPX[C°] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



PRECIPITATION

PRECIP[mm] Station: LICA MASKWA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100E Sulphur Dioxide Analyzer Calibration

Date: <u>March 15, 2016</u>	Barometric Pressure: <u>0.921 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>Maskwa</u>	Weather Conditions: <u>Mix of sun and clouds</u>
Parameter: <u>Sulphur Dioxide</u>	Calibration Purpose: <u>routine monthly</u>
Start Time 24 hr. (mst): <u>9:55</u>	Performed By/Reviewer: <u>Alex Yakupov</u> <u>Tom Bourque</u>
End Time 24 hr. (mst): <u>14:31</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	Range ppb: <u>1000</u>
Serial Number: <u>508</u>	As Found C.F.: <u>1.004</u>
Last Calibration Date: <u>February 23, 2016</u>	New C.F.: <u>0.999</u>
Previous C.F.: <u>1.000</u>	

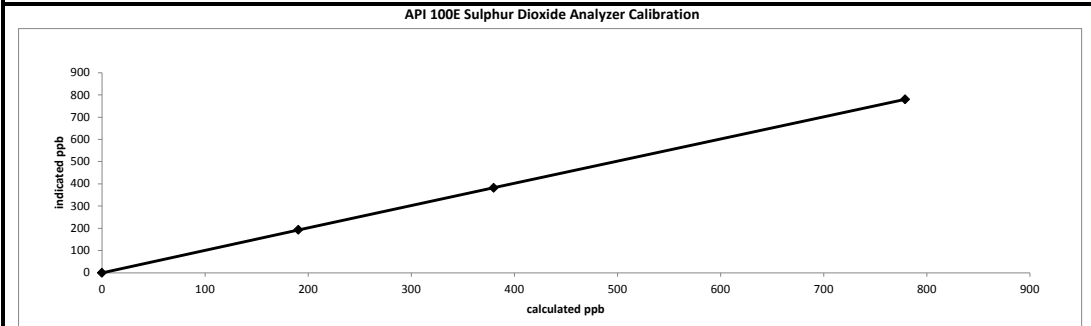
Calibrator:	Standard Calibration Points for Ranges								
Flow Meter ID's: <u>n/a</u>	<table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td style="text-align: center;">780</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">380</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">190</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190
Point		Sulphur Dioxide Standard Calibration Points							
High		780							
Mid		380							
Low		190							
Make & Model: <u>SABIO 2010 D</u>									
Serial #: <u>11900613</u>									
Cal Gas Cylinder I.D. #: <u>LL119346</u>									
Cal Gas Conc. (ppm): <u>50.0</u>									

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5012	0.00	5012	0.0	1.0	N/A
as found high	4935	78.10	5013	779.0	777.0	1.004
adjusted zero	5012	0.00	5012	0.0	0.0	n/a
adjusted high	4935	78.10	5013	779.0	780.0	0.999
mid	4976	38.10	5014	379.9	382.0	0.995
low	4994	19.10	5013	190.5	193.0	0.987
calibrator zero	5012	0.00	5012	0.0	0.0	n/a
Average C.F.=						0.993

Linear Regression/Calibration Results:

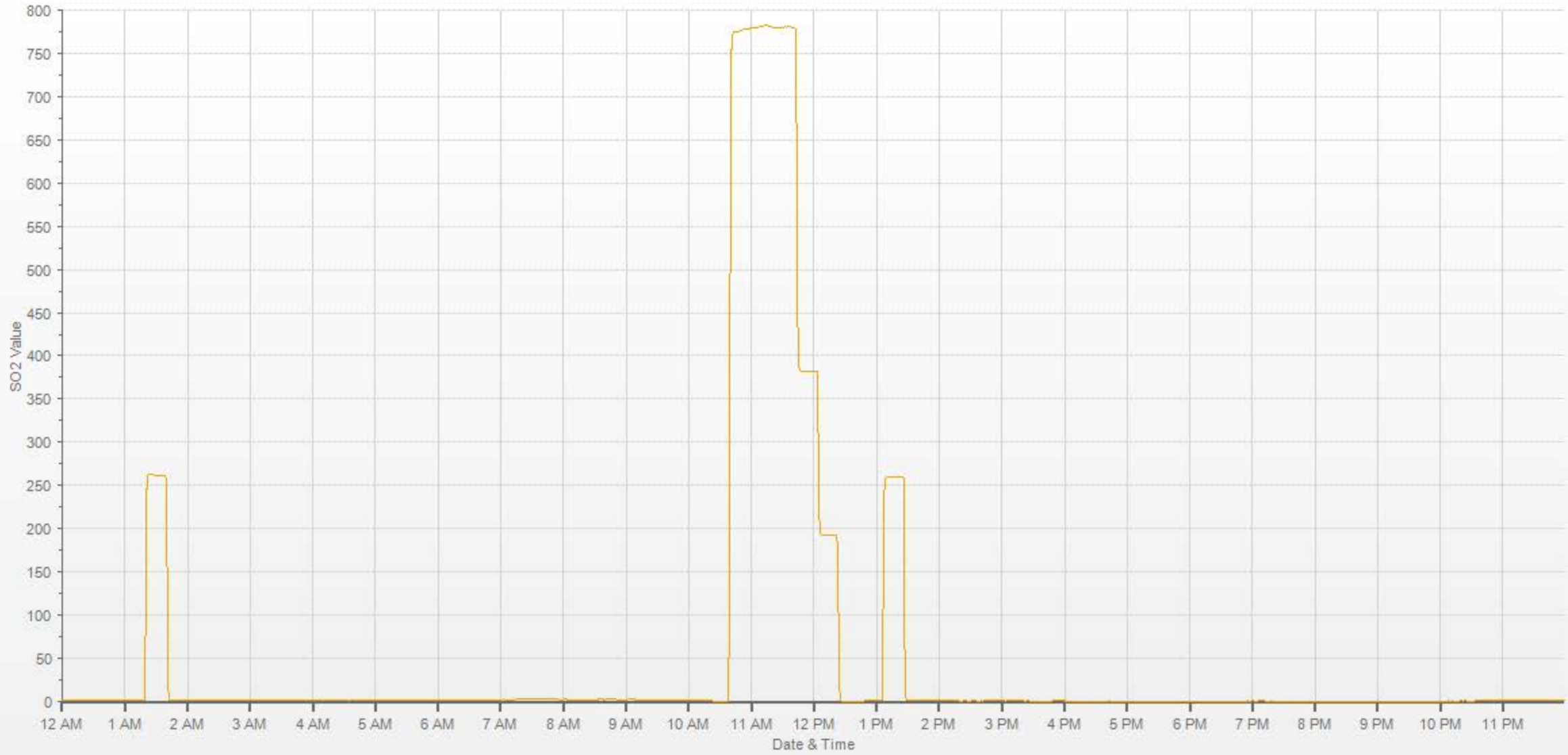
Correlation Coefficient = <u>1.000</u>	LIMITS
Slope = <u>0.999</u>	> or = 0.995
b (Intercept as % of full scale) = <u>-0.12%</u>	.95-1.05
% change in C.F. from last cal = <u>-0.38%</u>	± 3% F.S.
	± 10%



As found:	As left:
SLOPE: <u>1.002</u>	SLOPE: <u>0.999</u>
OFFSET: <u>92.2</u>	OFFSET: <u>93.9</u>
HVPS: <u>479</u>	HVPS: <u>479</u>
RCCELL TEMP: <u>50.0</u>	RCCELL TEMP: <u>50.0</u>
BOX TEMP: <u>30.2</u>	BOX TEMP: <u>31.1</u>
PMT TEMP: <u>7.7</u>	PMT TEMP: <u>7.7</u>
IZS TEMP: <u>45.0</u>	IZS TEMP: <u>45.0</u>
PRES: <u>n/a</u>	PRES: <u>n/a</u>
SAMP FL: <u>24.5</u>	SAMP FL: <u>24.5</u>
NORM PMT: <u>589</u>	NORM PMT: <u>589</u>
UV LAMP: <u>3495.0</u>	UV LAMP: <u>3487.4</u>
LAMP RATIO: <u>99.9</u>	LAMP RATIO: <u>99.8</u>
STR. LGT: <u>46.2</u>	STR. LGT: <u>46.9</u>
DRK PMT: <u>9.8</u>	DRK PMT: <u>10.5</u>
DRK LMP: <u>-0.8</u>	DRK LMP: <u>-0.8</u>
Internal Span: <u>252.7</u>	Internal Span: <u>260</u>

Comments:

Sample filter changed.



HYDROGEN SULPHIDE



API 101E Hydrogen Sulphide Analyzer Calibration

Date: March 15, 2016	Barometric Pressure: 0.921 atm
Company/Airshed: LICA	Station Temperature °C: 22
Location/Station Name: Maskwa	Weather Conditions: Mix of sun and clouds
Parameter: Hydrogen Sulphide	Calibration Purpose: routine monthly
Start Time 24 hr. (mst): 14:15	Performed By/Reviewer: Alex Yakupov Tom Bourque
End Time 24 hr. (mst): 17:15	Cal Gas Expiry Date: July 15, 2017
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): n/a

Analyzer:	
Serial Number: 511	Range ppb: 100
Last Calibration Date: February 23, 2016	As Found C.F.: 0.999
Previous C.F.: 1.005	New C.F.: 0.999

Calibrator:	Standard Calibration Points for Ranges								
Flow Meter ID's: n/a	<table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Hydrogen Sulphide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>78</td> </tr> <tr> <td>Mid</td> <td>38</td> </tr> <tr> <td>Low</td> <td>19</td> </tr> </tbody> </table>	Point	Hydrogen Sulphide Standard Calibration Points	High	78	Mid	38	Low	19
Point		Hydrogen Sulphide Standard Calibration Points							
High		78							
Mid		38							
Low	19								
Make & Model: API 700									
Serial #: 830									
Cal Gas Cylinder I.D. #: LL36837									
Cal Gas Conc. (ppm): 10.0									

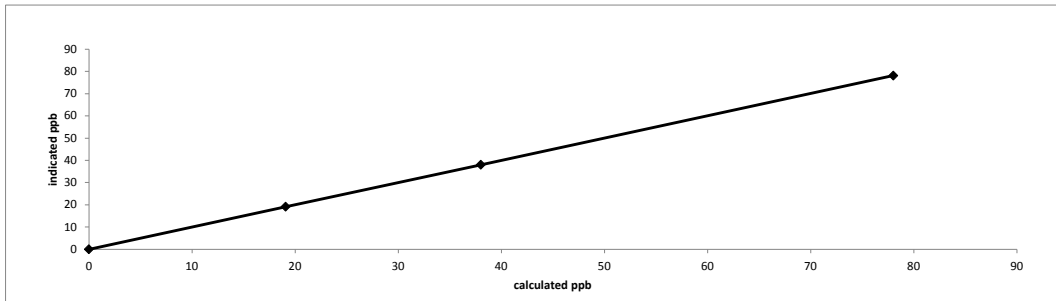
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7498	0.00	7498	0.0	0.0	N/A
as found high	7439	58.50	7498	78.0	78.1	0.999
mid	7470	28.50	7499	38.0	38.0	1.000
low	7482	14.30	7496	19.1	19.1	0.999
calibrator zero	7498	0.00	7498	0.0	0.0	n/a
Average C.F.=						0.999

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS
Slope = 0.999	> or = 0.995
b (Intercept as % of full scale) = 0.01%	.95-1.05
% change in C.F. from last cal = 0.59%	± 3% F.S.
	± 10%

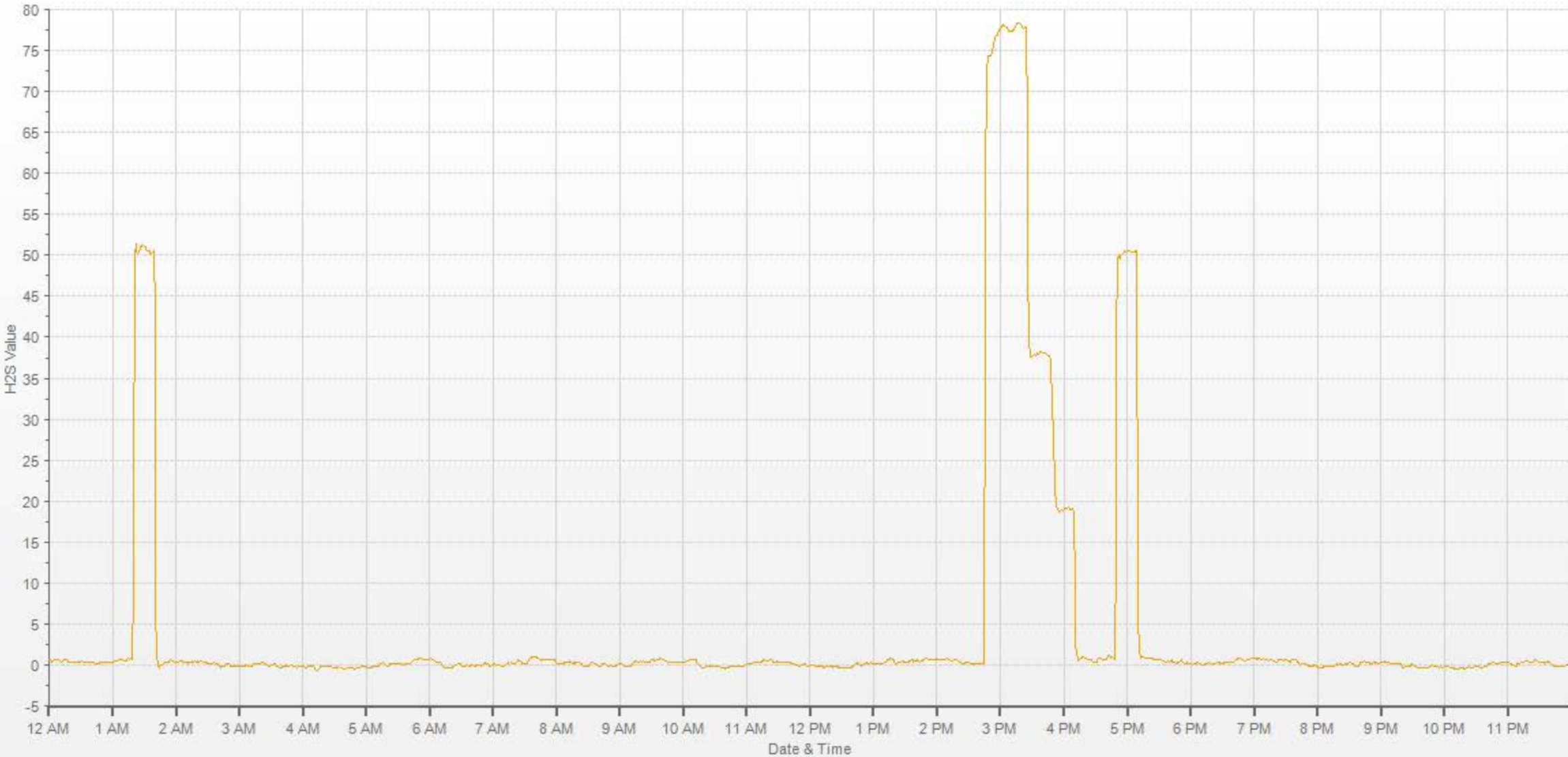
API 101E Hydrogen Sulphide Analyzer Calibration



As found:	As left:
SLOPE: 0.953	SLOPE: 0.953
OFFSET: 48.5	OFFSET: 48.5
HVPS: 616	HVPS: 616
RCELL TEMP: 50.0	RCELL TEMP: 50.0
BOX TEMP: 31.9	BOX TEMP: 31.9
PMT TEMP: 7.9	PMT TEMP: 7.9
IZS TEMP: 45.0	IZS TEMP: 45.0
Converter Temp: 314.5	Converter Temp: 314.7
PRES: 27.1	PRES: 27.1
SAMP FL: 638	SAMP FL: 638
UV LAMP: 3183.6	UV LAMP: 3181.3
LAMP RATIO: 99.4	LAMP RATIO: 99.4
STR. LGT: 23.1	STR. LGT: 23.1
DRK PMT: 36.7	DRK PMT: 36.5
DRK LMP: 7.1	DRK LMP: 7.2
Internal Span: 49.3	Internal Span: 50.4

Comments:

Sample filter changed. No ZERO adjustment made. No High Point adjustment made.



TOTAL HYDROCARBON



Thermo 51C Total Hydrocarbon Analyzer Calibration

Date: March 15, 2016
Company/Airshed: LICA
Location/Station Name: Maskwa
Parameter: Total Hydrocarbon
Start/End Time 24 hr. (mst): 9:55 / 11:18
Calibration Method: Gas Dilution
Barometric Pressure: 0.921 atm
Station Temperature °C: 22
Weather Conditions: Mix of sun and clouds
Calibration Purpose: shut down
Performed By/Reviewer: Alex Yakupov / Tom Bourque
Cal Gas Expiry Date: November 25, 2023

Analyzer:
Serial Number: 436609738
Last Calibration Date: February 17, 2016
Previous Cal High Point C.F.: 1.007
Range ppm: 50
As Found C.F.: 1.010
New C.F.: n/a

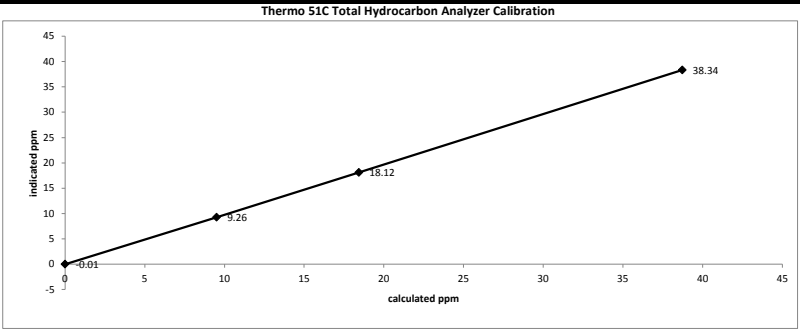
Calibrator:
Flow Meter ID's: n/a
Make & Model: API 700
Serial #: 830
Cal Gas Cylinder I.D. #: LL165372
CH₄/C₂H₆ Cylinder Conc. (ppm): 606.0 / 212.0
CH₄ as propane/total CH₄ equivalents (ppm): 583.0 / 1189.0
Standard Calibration Points for a Range of: 50 ppm

Point	Target ppm
High	38
Mid	18
Low	9

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration:	Indicated Concentration:	Correction Factors:
	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1999	0.00	1999	0.0	-0.01	n/a
as found high	1931	65.00	1996	38.72	38.34	1.010
mid	1969	31.00	2000	18.43	18.12	1.017
low	1984	16.00	2000	9.51	9.26	1.026
Average C.F. =						1.017

Linear Regression/Calibration Results:
LIMITS
 Correlation Coefficient = 1.000 > or = 0.995
 Slope = 1.009 .95-1.05
 b (Intercept as % of full scale) = 0.19% ± 3% F.S.
 % change in C.F. from last cal = -0.26% ± 10%



As found: H2 cylinder (psi): 200 H2 cylinder reg set (psi): 25 Span Cylinder (psi): 1250 Span Cylinder Reg Set (psi): 22 Zero Air Gen Pressure: 35 measurement alarms: None service alarms: None cnt: 1060 rng: 1 try: 0 flm: 186.6 det: 125.5 Flame: 186 Filter: 125 Base: 125 Sample psi: 07.52 Internal Air Pressure: 20 Internal Fuel Pressure: 12 Intenal Pressure Gauge psi: 28 Internal Span: 32.2	As left: H2 cylinder (psi): n/a H2 cylinder reg set (psi): n/a Span Cylinder (psi): n/a Span Cylinder Reg Set (psi): n/a Zero Air Gen Pressure: n/a measurement alarms: n/a service alarms: n/a cnt: n/a rng: n/a try: n/a flm: n/a det: n/a Flame: n/a Filter: n/a Base: n/a Sample psi: n/a Internal Air Pressure: n/a Internal Fuel Pressure: n/a Intenal Pressure Gauge psi: n/a Internal Span: n/a
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Comments:
 Sample filter changed. Shutdown calibration performed to change Maxxam's ZERO Air generator #80 with a LICA's one #1804, which came back after repair.



Thermo 51C Total Hydrocarbon Analyzer Calibration

Date:	March 15, 2016	Barometric Pressure:	0.921 atm
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Maskwa	Weather Conditions:	Mix of sun and clouds
Parameter:	Total Hydrocarbon	Calibration Purpose:	post repair
Start/End Time 24 hr. (mst):	11:58 / 15:00	Performed By/Reviewer:	Alex Yakupov / Tom Bourque
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	November 25, 2023

Analyzer:	Serial Number: 436609738	Range ppm: 50
	Last Calibration Date: February 17, 2016	As Found C.F.: n/a
	Previous Cal High Point C.F.: n/a	New C.F.: 0.998

Calibrator:	Flow Meter ID's: n/a	Standard Calibration Points for a Range of: 50 ppm
	Make & Model: API 700	
	Serial #: 830	
	Cal Gas Cylinder I.D. #: LL165372	
CH ₄ /C ₂ H ₆ Cylinder Conc. (ppm):	606.0	212.0
CH ₄ as propane/total CH ₄ equivalents (ppm):	583.0	1189.0

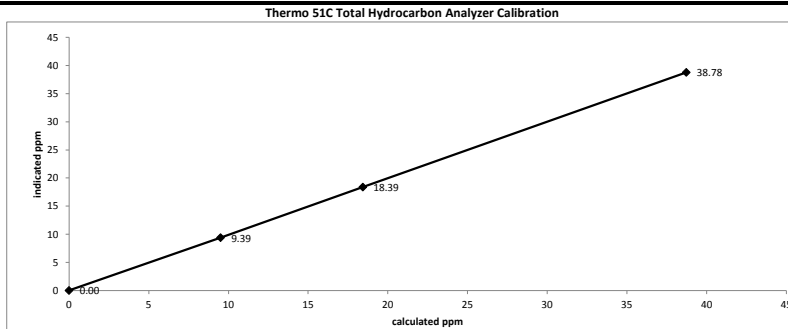
Point	Target ppm
High	38
Mid	18
Low	9

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration:	Indicated Concentration:	Correction Factors:
	Diluent	Cal Gas	Total	(ppm)	(ppm)	
adjusted zero	1999	0.00	1999	0.0	0.00	n/a
adjusted high	1931	65.00	1996	38.72	38.78	0.998
mid	1969	31.00	2000	18.43	18.39	1.002
low	1984	16.00	2000	9.51	9.39	1.013
calibrator zero	1999	0.00	1999	0.00	0.00	n/a
Average C.F. =						1.005

Linear Regression/Calibration Results:

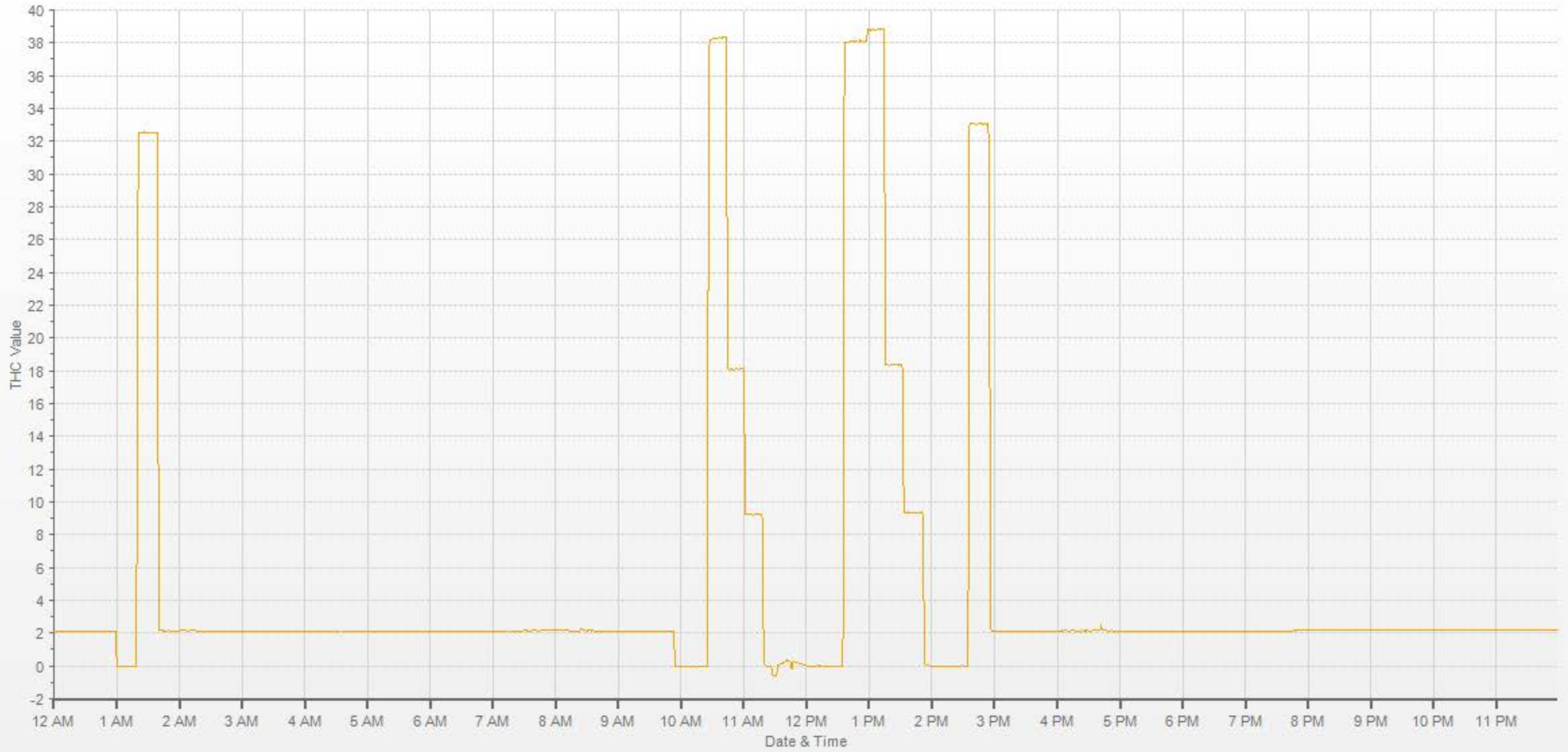
Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.997		.95-1.05
b (Intercept as % of full scale) =	0.14%		± 3% F.S.
% change in C.F. from last cal =	n/a		± 10%



As found:	As left:
H2 cylinder (psi): n/a	H2 cylinder (psi): 2000
H2 cylinder reg set (psi): n/a	H2 cylinder reg set (psi): 22
Span Cylinder (psi): n/a	Span Cylinder (psi): 1250
Span Cylinder Reg Set (psi): n/a	Span Cylinder Reg Set (psi): 22
Zero Air Gen Pressure: n/a	Zero Air Gen Pressure: 35
measurement alarms: n/a	measurement alarms: None
service alarms: n/a	service alarms: None
cnt: n/a	cnt: 1115
rng: n/a	rng: 1
try: n/a	try: 0
flm: n/a	flm: 186.7
det: n/a	det: 125.7
Flame: n/a	Flame: 186
Filter: n/a	Filter: 125
Base: n/a	Base: 125
Sample psi: n/a	Sample psi: 07.52
Internal Air Pressure: n/a	Internal Air Pressure: 20
Internal Fuel Pressure: n/a	Internal Fuel Pressure: 12
Intenal Pressure Gauge psi: n/a	Intenal Pressure Gauge psi: 28
Internal Span: n/a	Internal Span: 33.05

Comments:

Sample filter changed and a new H2 cylinder connected after shutdown calibration.



NITROGEN DIOXIDE



API 200A NO-NO2-NOx Analyzer Calibration

Date: March 15, 2016	Barometric Pressure: 0.921 atm
Company/Airshed: LICA	Station Temperature °C: 22
Location/Station Name: Maskwa	Weather Conditions: Mix of sun and clouds
Start/End Time 24 hr. (mst): 9:55 / 16:25	Calibration Purpose: routine monthly
G.P.T. to be used for Ozone? No	Performed By/Reviewer: Alex Yakupov Tom Bourque
Calibration Method: Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date: December 2, 2023

Analyzer:	Correction Factors:																
Serial Number: 1899	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 33%;"></td> <td style="text-align: center;">Previous C.F.:</td> <td style="text-align: center;">As Found C.F.:</td> <td style="text-align: center;">New C.F.:</td> </tr> <tr> <td>NO =</td> <td style="text-align: center;">1.000</td> <td style="text-align: center;">0.986</td> <td style="text-align: center;">1.000</td> </tr> <tr> <td>NO₂ =</td> <td style="text-align: center;">0.998</td> <td style="text-align: center;">1.000</td> <td style="text-align: center;">1.000</td> </tr> <tr> <td>NOx =</td> <td style="text-align: center;">0.997</td> <td style="text-align: center;">0.985</td> <td style="text-align: center;">1.000</td> </tr> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	NO =	1.000	0.986	1.000	NO₂ =	0.998	1.000	1.000	NOx =	0.997	0.985	1.000
	Previous C.F.:	As Found C.F.:	New C.F.:														
NO =	1.000	0.986	1.000														
NO₂ =	0.998	1.000	1.000														
NOx =	0.997	0.985	1.000														
Last Calibration Date: February 17, 2016																	
Range ppb: 1000																	

Calibrator:	Standard Calibration Points for a Range of: 1000 ppb																								
Flow Meter ID's: n/a	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Point</th> <th>Target NO (ppb)</th> <th>Target NO₂ (ppb)</th> <th>Cc Ozone ?</th> </tr> <tr> <td>High</td> <td style="text-align: center;">780</td> <td style="text-align: center;">500</td> <td style="text-align: center;">n/a</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">380</td> <td style="text-align: center;">275</td> <td style="text-align: center;">n/a</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">190</td> <td style="text-align: center;">100</td> <td style="text-align: center;">n/a</td> </tr> <tr> <td>Extra Point #1</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">n/a</td> </tr> <tr> <td>Extra Point #2</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">n/a</td> </tr> </table>	Point	Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?	High	780	500	n/a	Mid	380	275	n/a	Low	190	100	n/a	Extra Point #1	n/a	n/a	n/a	Extra Point #2	n/a	n/a	n/a
Point		Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?																					
High		780	500	n/a																					
Mid		380	275	n/a																					
Low		190	100	n/a																					
Extra Point #1		n/a	n/a	n/a																					
Extra Point #2	n/a	n/a	n/a																						
Make & Model: SABIO 2010 D																									
Serial #: 11900613																									
Cal Gas Cylinder I.D. #: LL119346																									
NO/NOx Gas Conc. (ppm): 50.0 50.0																									

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5012	0.0	5012	0	0	-0.1	-0.5	n/a	n/a
as found high	4935	78.1	5013	779.0	779.0	790.0	790.0	0.986	0.985
adjusted zero	5012	0.00	5012	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4935	78.10	5013	779.0	779.0	779.0	779.0	1.000	1.000
mid	4976	38.10	5014	379.9	379.9	377.0	377.0	1.008	1.008
low	4994	19.10	5013	190.5	190.5	188.0	188.0	1.013	1.013
calibrator zero	5012	0.00	5012	0	0	0.0	0.0	n/a	n/a
Average C.F.=								1.007	1.007

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ gain	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4935	78.10	5013	0.0	777.0	777.0	0.0	0.0	0.0	n/a
as found high NO2	4935	78.10	5013	515.0	277.0	777.0	500.0	500.0	500.0	1.000
gpt mid	4935	78.10	5013	275.0	501.0	776.0	276.0	276.0	276.0	1.000
gpt low	4935	78.10	5013	100.0	668.0	777.0	109.0	109.0	109.0	1.000
Average NO₂ C.F.=										1.000

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	0.999	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.16%	-0.16%	0.00%	± 3% F.S.
% change in C.F. from last cal=	1.41%	1.16%	-0.20%	± 10%
NO2 converter efficiency	n/a	n/a	1.00	0.96 to 1.04

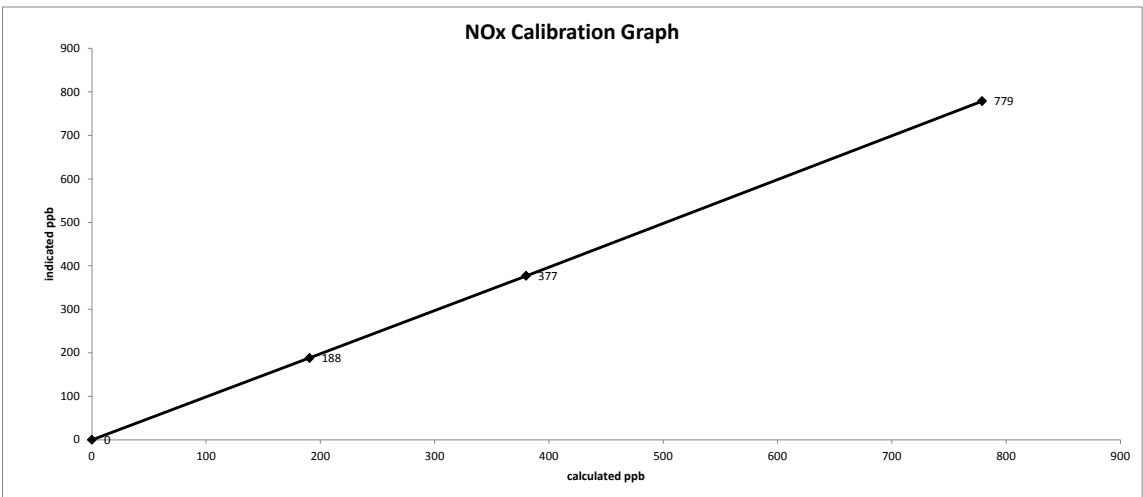
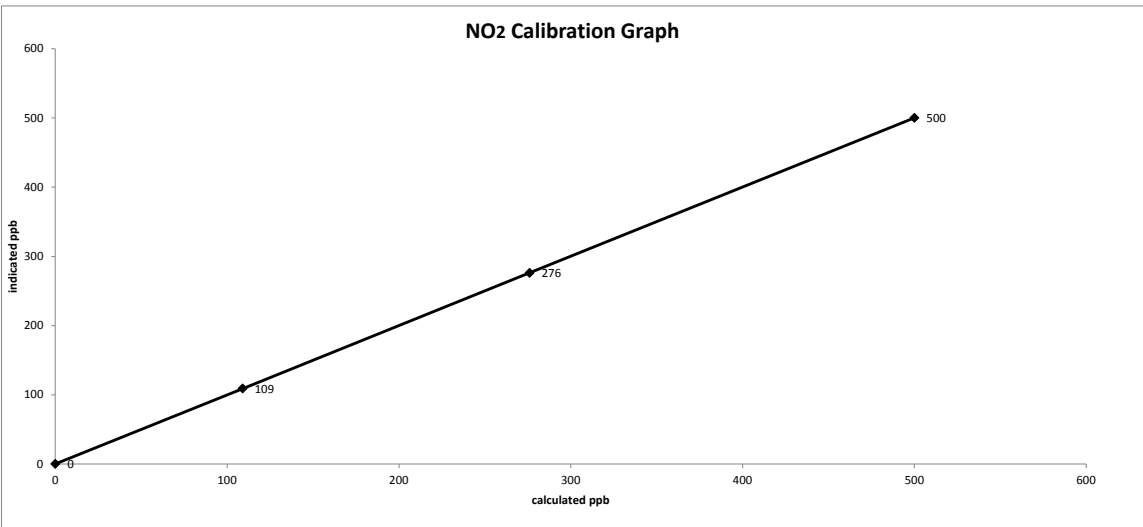
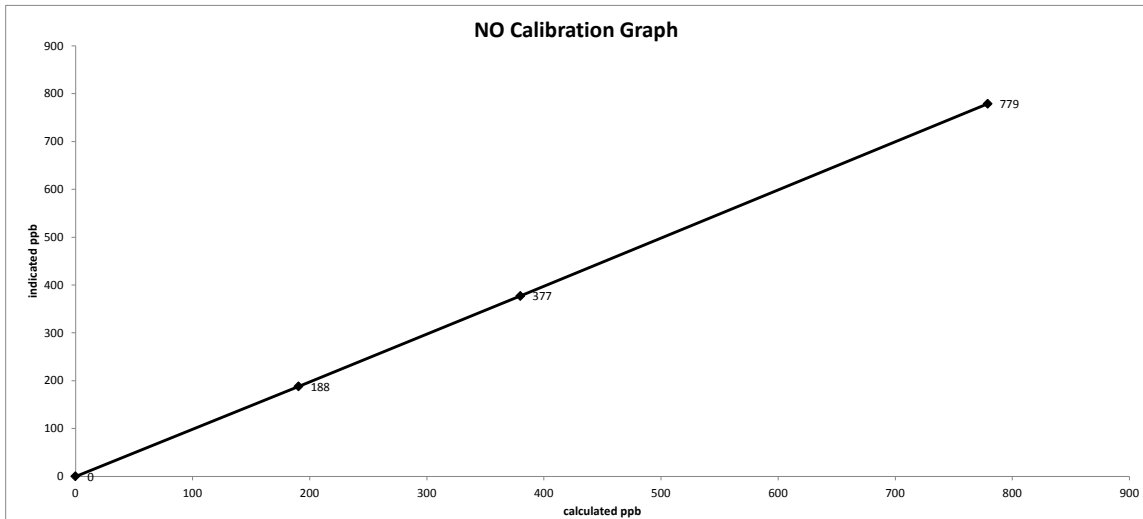
As found:	As left:
NOx SLOPE: 0.931	NOx SLOPE: 0.914
NOx OFFS: 0.5	NOx OFFS: -1.2
NO SLOPE: 0.939	NO SLOPE: 0.923
NO OFFS: -1.8	NO OFFS: -2.3
SAMP FLW: 551	SAMP FLW: 550
OZONE FL: 78	OZONE FL: 77
NORM PMT: -0.9	NORM PMT: -2.4
AZERO: 23.3	AZERO: 23.5
HVPS: 682	HVPS: 682
DCPS: 2573	DCPS: 2579
RCELL: 50.7	RCELL: 50.1
BOX TEMP: 28.7	BOX TEMP: 30.9
IZS TEMP: 40.2	IZS TEMP: 40.0
MOLY TEMP: 314.8	MOLY TEMP: 314.9
RCEL: 5.4	RCEL: 5.4
SAMP: 25.8	SAMP: 26.4
Internal Span NO: 2.8	Internal Span NO: 3.3
Internal Span NO2: 259	Internal Span NO2: 354.3
Internal Span NOx: 362	Internal Span NOx: 357.6

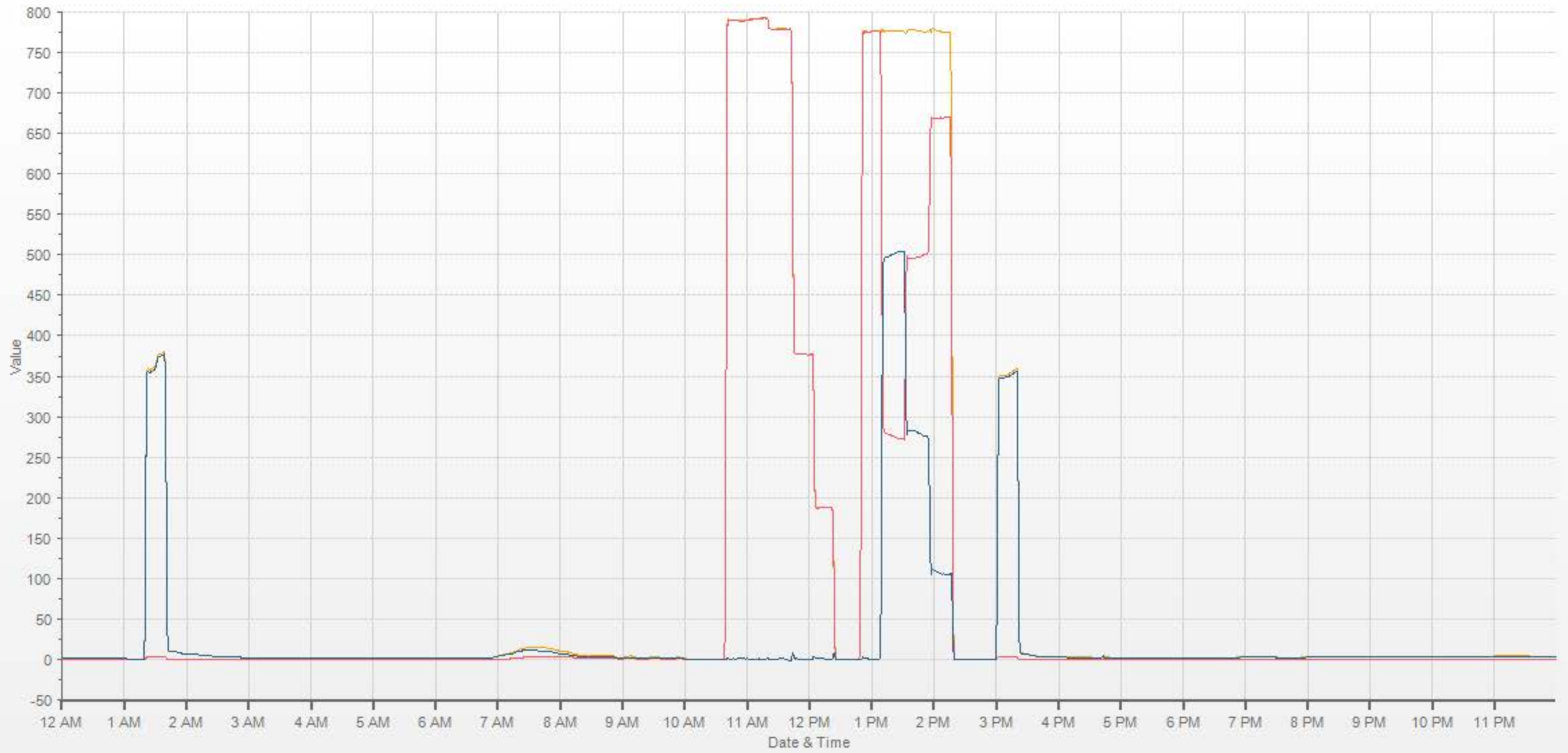
Comments:

Sample filter changed. No NO2 adjustment made.

Date: March 15, 2016
Company/Airshed: LICA
Location/Station Name: Maskwa

Start/End Time 24 hr. (mst): 9:55 / 16:25
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution & Varying UV Lamp Power





WIND SYSTEM

**Met One Instruments Inc.
Certificate of Calibration**

Instrument: Sonic Wind Sensor

Model No.: 50.5H

Manufacturer: Met One Instruments Inc.

Serial No.: H10703

Sales Order No.: 101530

Customer: Maxxam Analytics

Tested per P.O. No.: 35-54786

Instrument Condition Within Tolerance: As Found () As Left (X)
 Corrective Action: No Adjustment () Adjust (X) Repair ()
 Preventative Maintenance ()

Quality Control Manual Revision: September 16, 2013 MP42201Rev. G

All Work Performed per Customers Purchase Order Requirements

Calibration Document No. 50.5-6100

Date (As Found): n/a

Date (As Left Test): 3/4/2014

Calibrated by: Dan Fied

Date: 3/4/14

Test Equipment Used for Calibration of Instruments

Description	Manufacturer	Model No.	Serial No.	Cal Date	Cal Due	Accuracy
Digital Multimeter	keithley	197A	490833	3/8/2013	3/8/2014	+/- .02% of input
Counter	Hewlett Packard	5245L	71616181	3/8/2013	3/8/2014	+/- 0.0001%
Standard Cup Assembly	Met One Instruments	170.41	3309	4/24/2012	4/24/2017	<.15mph or 1% ws

Environmental Data: Temperature 65 to 80 DegF

Vibration none

Humidity 20 to 70 %

Radiation none

The standards used for calibration have accuracies equal to or greater than the instruments tested. These standards are on record and are traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated hereon, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A (8/1/88). Instruments accuracy meets the requirements of Regulatory Guide 1.23 (2/72). Compliant with ISO 9001:2008 requirements.

QC Inspection by: Byron Fanson

Date: 3/10/14



Meteorological Sensor Audit

Station Information

Company:	<u>Maxxam/LICA</u>	Performed By:	<u>Angie Noonan</u>
Location:	<u>Edmonton</u>	Reason:	<u>Pre-Installation</u>
Audit Date:	<u>23-Nov-15</u>	Start Time (mst):	<u>14:45</u>
Previous Audit Date:	<u>n/a</u>	End Time (mst):	<u>15:30</u>

Wind Speed

Sensor make:	<u>R. M. Young</u>	Sensor height:	<u>n/a</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>110980</u>
Calibrator:	<u>Young 18802</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0-1</u>	Output signal range:	<u>200</u>

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.04747	0.04747	-
1000	17.6	17.67	17.65	1.00
2000	35.28	35.3	35.3	1.00
3000	52.92	52.93	52.91	1.00
4000	70.56	70.53	70.54	1.00
5000	88.2	88.18	88.18	1.00
6000	105.84	105.8	105.8	1.00
7000	123.48	123.4	123.4	1.00
8000	141.12	141.1	141.1	1.00
9000	158.76	158.7	158.7	1.00
10000	176.4	176.3	176.3	1.00
Average Correction Factor:				1.00

Wind Direction

Sensor make:	<u>R. M. Young</u>	Sensor height:	<u>n/a</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>110980</u>
Calibrator:	<u>Young 18802</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0-1</u>	Output signal range:	<u>200</u>

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	0.2	NA
45	44.9	1.00
90	89.4	1.01
135	134.3	1.01
180	179.5	1.00
225	224.3	1.00
270	269.6	1.00
315	315.1	1.00
360	354.8	1.01
Average Correction Factor:		1.00

Remarks: Pre-installation calibration.

Audit Performed by: Angie Noonan

CALIBRATORS



Calibrator Performance Audit

OZONE

File No. 2015-163

Company: Maxxam

Operator: Chris Wesson

Calibrator:
 Make/Model Sabio 2010D
 Serial Number 11900613
 Oven Temperature 49.8
 Last Verification Date May 21, 2015

Flow Measurement Device:
 Make/Model NA
 Serial Number NA
 Temperature (°C) 24
 Barometric Pressure 700 mmHg

Flow Measurements
 Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000

Calibrator Flow (scm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
4999	0.000	-0.001		
5000	0.381	0.385	1%	± 10%
5000	0.180	0.182	2%	± 10%
5000	0.090	0.091	2%	± 10%
Absolute Average Percent Difference			2%	± 10%

LINEAR REGRESSION ANALYSIS
 $y=mx+b$ (where x=calculated concentration, y=indicated concentration)

<u>O₃</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0119	0.90-1.10
b (Intercept % of FS)=	-0.0724	± 3% F.S.

AENV Standards		Ozone Analyzer	
Audit Calibrator		Make/Model	<u>Thermo 49i</u>
Make/Model	<u>Thermo 49i PS</u>	Serial/AMU Number	<u>1843</u>
Serial/AMU Number	<u>1808</u>	Last Calibration Date	<u>March 30, 2016</u>
Ozone Standard	<u>Thermo 49i PS 1808</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: _____

Auditor: Shea Beaton
 Operator Signature: _____

Date: March 30, 2016
 Location: McIntyre Center Edmonton



Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2016-093A

Company: Maxxam

Operator: Christopher Wesson

Calibrator:
 Make/Model API 700
 Serial Number 830
 Last Verification Date December 2014
 SO₂ Cylinder Conc. 50.3
 SO₂ Cylinder S/N LL42475

Flow Measurement Device:
 Make/Model N/A
 Serial Number N/A
 Temperature (°C) N/A
 Barometric Pressure N/A

Flow Measurements

Pt. No. 1 77.5 **Pt. No. 2** 37.8 **Pt. No. 3** 18.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4998	0.780	0.746	-4%	± 10%
5002	0.380	0.365	-4%	± 10%
4997	0.190	0.182	-4%	± 10%
Absolute Average Percent Difference			4%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>SO₂</u>	<u>LIMITS</u>
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9565	0.90-1.10
b (Intercept % of FS)= 0.0436	± 3% F.S.

<u>AENV Standards</u>	<u>SO₂ Analyzer</u>
Audit Calibrator	Make/Model <u>Teco 43C</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1623</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>January 19, 2016</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: Gas was check for accuracy - 1% low from stated cylinder gas concentration.
Flows are not measured at each pt - AMD not being followed as per section 5.0.
Checked SO2 high pt using a Sabio 2010 - found a significantly higher response.
Both MFC's need to be re-calibrated.

Auditor: Al Clark Date: January 19, 2016
 Operator Signature: *Christopher Wesson* Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-116CGA

Company: Maxxam **Operator's Name:** Chris Wesson
Cylinder #: LL119346 **Concentration PPM:** 50.0 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>Thermo146i</u>	Make/Model: <u>Bios DC-2</u>
Serial Number: <u>1809</u>	Serial Number: <u>Bios D</u>
Last Verification Date: <u>February 2, 2016</u>	Temp. °C: <u>24.5</u>
Gas Type: <u>SO2</u> Conc. <u>98.07</u>	B.P. <u>702mmHg</u>
Cylinder Number: <u>CAL016625</u>	

Reference Analyzer:
 Make/Model: Thermo 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
 Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4952	0.0	0.000	0.01608	62.183	49.3
4946	79.54	0.793	0.01608	62.183	49.3
4941	39.35	0.396	0.00796	125.565	49.7
4940	19.57	0.195	0.00396	252.427	49.2
Average Cylinder Concentration:					49.4

Previous Stated Concentration PPM: 50.0

Percent variance from Stated: 1.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO blend 50.0ppm NO
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
 Operator Signature: *[Signature]*

Date: February 2, 2016
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:
 Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015106

Flow Measurement Device:
 Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 23.0 C
 B.P.: 702 mmhg

Reference Analyzer:
 Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
 Last Calibration: Date: Dec15/14 C.F.: 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	100.000	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-092CGA

Company: Maxxam Operators name: Chris Wesson
Cylinder #: LL165372 Conc CH4 (PPM) 606/212 Tolerance (%) 0.5 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1698
Last Verification Date January 18, 2016
Gas Type CH4 Conc. 999.2
Cylinder Number D751932
Gas Type C3H8 Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC-2
Serial Number Bios D
Temp. °C 24.5
B.P. 688mmHg

Reference Analyzer:

Make/Model Thermo 55C Serial/AMU Number: 1643
Instrument Settings Zero: NA Span: NA Range: 20.0
Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
2568	0.00	0.00	0.00	0.02140	46.722	607	214
2630	56.29	12.99	12.62	0.02140	46.722	607	214
2588	19.73	4.62	4.50	0.00762	131.171	606	215
2580	9.69	2.29	2.24	0.00376	266.254	610	217
Average Cylinder Concentration:						608	215

CH4	C3H8
Previous Stated Concentration PPM: <u>606</u>	<u>212</u>
Percent variance from Stated: <u>0.3</u>	<u>1.6</u>

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration C3H8 manufacturers tolerance 1.1%
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
Operator Signature: _____

Date: January 19, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-115CGA

Company: Maxxam **Operators name:** Chris Wesson
Cylinder #: LL119346 **Conc (PPM)** 50.0/50.0 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Thermo 146i</u>			Make/Model	<u>Bios DC-2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>Bios D</u>
Last Verification Date	<u>February 2, 2016</u>			Temp. °C	<u>24.5</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702mmHg</u>
Cylinder Number	<u>CAL018024</u>				

Reference Analyzer:
Make/Model Thermo 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.2 **Span:** 1.014 **Range:** 1.0
Last Calibration: **Date:** 02-Feb-16 **C.F.** 1.000 **Done By:** SB

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
4952	0.0	0.000	0.000				
4946	79.54	0.809	0.809	0.01608	62.183	50.3	50.3
4941	39.35	0.403	0.402	0.00796	125.565	50.6	50.5
4940	19.57	0.200	0.200	0.00396	252.427	50.5	50.5
Average Cylinder Concentration:						50.5	50.4

	<u>NO</u>		<u>NOx</u>
Previous Stated Concentration PPM:	<u>50.0</u>		<u>50.0</u>
Percent variance from Stated:	<u>0.9</u>		<u>0.8</u>

Cylinder gas tolerances based on NO only

- Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO Blend 50.0PPM SO2
- < =5% Outside Manufacturer Tolerance. Use manufacturers concentration
- > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton **Date:** February 2, 2016
Operator Signature: [Signature] **Location:** McIntyre Center Edmonton

***APPENDIX III
REPORT CERTIFICATION FORM***

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Lakeland Industry & Community Association	Maskwa Site
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager Assistant, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.

Wunmi Adekanmbi

Signature of the Representative of the Person Responsible / External Person Certifying the Report

26-April-2016





Report Issued Date (dd-mm-yyyy)

***APPENDIX IV
DATA VALIDATION CERTIFICATION FORM***



Validation Certificate Form

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2016-03-30- C</u>
Site: <u>Maskwa Site</u>	Contact: <u>Mike Bisaga</u>

Level 0 Preliminary Verification	<u></u>	Date <u>10-April-2016</u>
Level 1 Primary Validation	<u></u>	Date <u>10-April-2016</u>
Level 2 Final Validation	<u></u>	Date <u>26-April-2016</u>
Level 3 Independent Data Review	<u></u>	Date <u>April 26, 2016</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.

**AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ST. LINA SITE**

JOB #:2833-2016-03-31- C

MARCH 2016

Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5**

Attention: MIKE BISAGA

DATE: **April 27, 2016**

Prepared by:



Wunmi Adekanmbi, M.Sc.
Project Manager Assistant, Customer Service, Air Services

Reviewed by:



Lily Lin, B.Sc.
Senior Project Manager, Customer Service, Air Services

SUMMARY

In March 2016, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the St. Lina Site at Lakeland Industry & Community Association, near St. Paul. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the Project Coordinator.

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

SO₂: The analyzer spanned high on March 5 as the sample pump was due for maintenance. The pump was rebuilt on March 7. As the analyzer passed the shut-down calibration, data collected between March 5 and March 7 are considered valid. The analyzer failed on March 29. The LICA owned, API 100E, S/N 468, was removed and the API 100A, S/N 838, was installed on March 30. Data was invalidated back to the last good calibration, which was March 28. A total of 46 hours of data was discarded due to this event.

All gas parameters: Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the Maintenance mode while the manifold was being cleaned.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, St. Lina Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
St. Lina Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0.0	0.9	5	16	8.1	ENE	0.4	5	91.7
H2S (PPB)	10	3	0	0	0.0	0.5	13, 13	5, 6	2.4 7.1	SSW WSW	0.1	10, 13	99.6
THC (PPM)	-	-	-	-	2.04	2.72	27	5	8.1	E	2.30	2	100.0
NO2 (PPB)	159	-	0	-	1.6	9.1	5	18	9	NE	4.5	5	100.0
NO (PPB)	-	-	-	-	0.2	4.2	1	11	8.5	SSW	0.9	1	100.0
NOX (PPB)	-	-	-	-	1.8	9.4	1	9	11.8	SW	5.2	5	100.0
O3 (PPB)	82	-	0	-	35.5	52.2	27	15	16.1	E	45.7	29	98.3
PM2.5 (UG/M3)	-	30	-	0	4.4	37.4	6	1	4.1	NW	14.9	5	96.0
RELATIVE HUMIDITY (%)	-	-	-	-	69.6	89	9, 9	22, 23	12.2 12	SE SE	85.2	6	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	924	941	18	VAR	VAR	VAR	939	18	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-0.7	12.2	29	12	9.6	SW	6.7	30	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	1.5	6	21	20.1	ENE	0.4	16	100.0
VECTOR WS (KPH)	-	-	-	-	10.8	28.5	11	15	-	SW	17.5	21	100.0
VECTOR WD (DEG)	-	-	-	-	-	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H2S 1- Hour Exceedences

No Exceedences Recorded During the Month

H2S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters Sulphur Dioxide (SO₂), Hydrogen Sulphide (H₂S), Total Hydrocarbon (THC), Oxides of Nitrogen (NO_x), Nitric Oxides (NO), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter 2.5 (PM_{2.5}), Relative Humidity (RH), Barometric Pressure (BP), Precipitation, Ambient Temperature (AmbTPX), Wind Speed (WS), Wind Direction (WD) and Standard Deviation of Wind Direction (STDWD).

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered as downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as downtime (Data is flagged as S). If extra zero/span check is performed, the time during the check is considered as downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality for verification and validation of continuous ambient air quality data. The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purpose and has not undergone zero correction.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 10%).

The trailer inspection and the fire extinguisher inspection were performed on March 16. No issue was identified during the inspections.

SULPHUR DIOXIDE (SO₂)

The analyzer spanned high on March 5 as the sample pump was due for maintenance. A shut-down calibration was performed on March 7 before the pump was rebuilt. A post-repair calibration was performed afterwards. As the analyzer passed the shut-down calibration, data collected between March 5 and March 7 are considered valid. Another full calibration was performed on March 16 to ensure the analyzer's functionality. The analyzer passed the calibration requirements. The SO₂ channel was put into the Maintenance mode for two hours on March 17 during the O₃ analyzer being calibrated. The analyzer failed on March 29. The LICA owned, API 100E, S/N 468, was removed and the API 100A, S/N 838, was installed following an installation calibration on March 30. The API 100E was brought back to Maxxam shop for repair. Data was invalidated back to the last good calibration, which was March 28. A total of 46 hours of data was discarded due to this event. Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the Maintenance mode while the manifold was being cleaned.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 17. Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the maintenance mode while the manifold was being cleaned.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 16. Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the maintenance mode while the manifold was being cleaned.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 16. Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the maintenance mode while the manifold was being cleaned.

OZONE (O3)

The analyzer was working well throughout the month. The O3 channel was put into the maintenance mode during the time maintenance was performing on the SO2 analyzer on March 7, March 16 and March 30. The routine monthly calibration was performed on March 17. Hourly maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage. Hourly maximum data collected on March 24 hour 14 was also discarded as the analyzer was put into the maintenance mode while the manifold was being cleaned.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)

Two audits were performed on this month: one was completed on March 7, and the other audit was performed on March 24. Both the inlet filter and the FDMS filter were replaced before the audits were performed. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m^3 , the data was corrected to 0 ug/m^3 . If the data was below -3 ug/m^3 , the data was invalidated. 30 hours of data were invalidated as the data were below -3 ug/m^3 this month.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system was working well throughout the month. Hourly WS maximum data collected on March 2 hour 14 was invalidated as the analyzer was recovering from a small power outage.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month.

PRECIPITATION

Both the rain gauge system and heating system were working well throughout the month.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling technician was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989, AMD2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006) as well as AMD 2015.

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer and API 100A UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - MetOne Unit
- Relative Humidity - MetOne Unit
- Barometric Pressure - MetOne Unit
- Ambient Temperature - MetOne Unit
- Precipitation - MetOne Unit
- Datalogger - ESC 8832

The following steps were used to complete the data verification and validation process:

Level 0 Preliminary Verification

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation

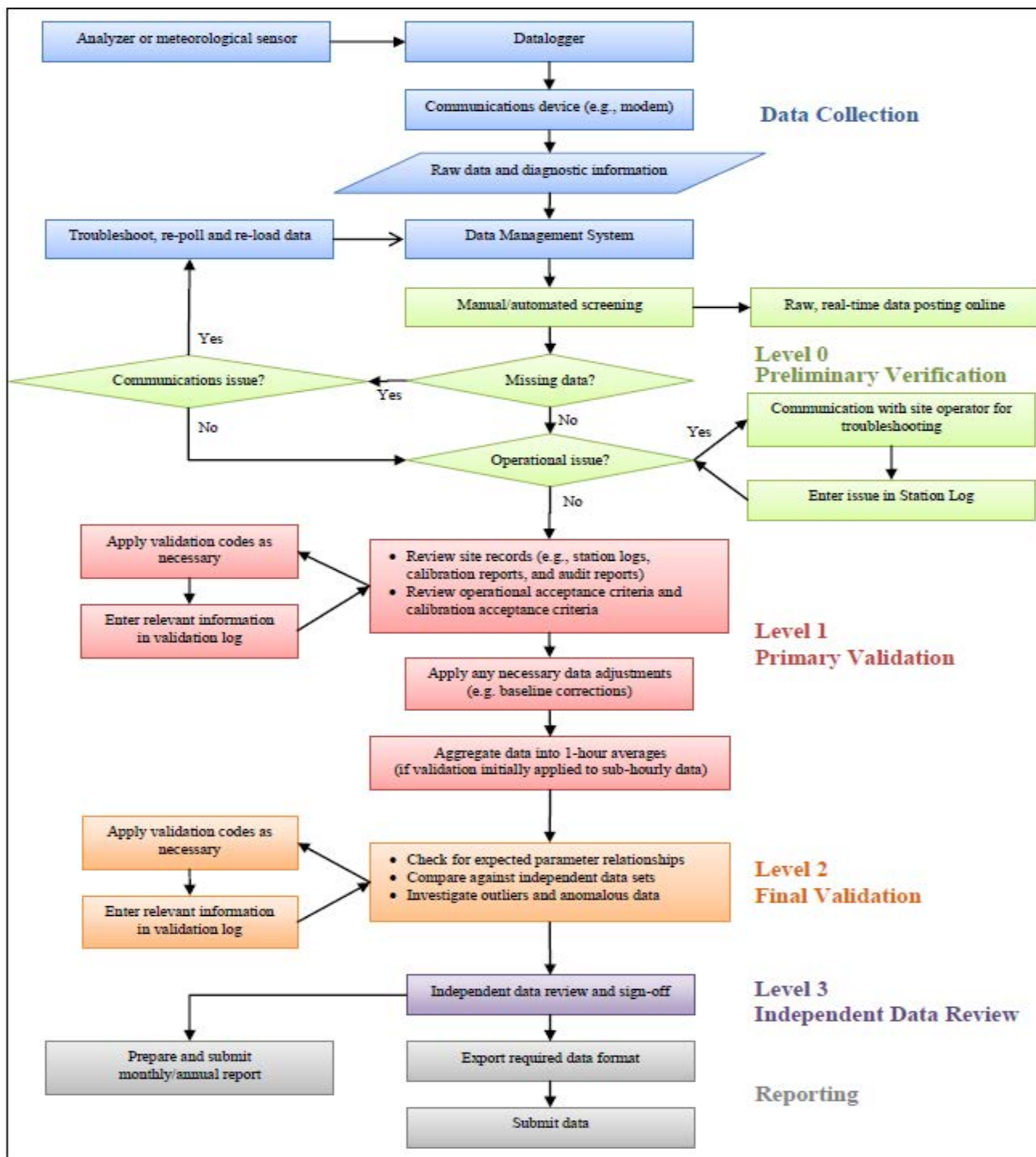
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

Level 3 validation is the last step of data review, and it is completed by someone independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data are submitted to Alberta Environment.

Post-Final Validation

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: AMD Chapter 6: Ambient Data Quality for verification and validation of continuous ambient air quality data; Figure 1 Data Collection and Management Process Flow Chart

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.				
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.					
DAY																																
1	0.0	0.0	0.0	0.0	S	0.0	0.0	0.3	0.5	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24		
2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24		
3	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24		
4	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24		
5	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.7	0.6	0.7	0.7	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.0	S	0.0	0.9	0.4	24			
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S1	0.0	0.0	0.0	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	0.0	0.0	23			
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	C	C	C	Y	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	23			
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24		
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	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	24		
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	0.0	0.0	0.0	S	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24		
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	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	24		
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	0.3	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24		
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	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	24		
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	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	24		
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	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	0.0	24		
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	C1	C1	C1	C1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	20			
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	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	22			
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	0.2	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.2	0.0	24			
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.8	0.0	24			
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	0.0	0.0	0.0	0.0	S	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.0	24			
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	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	24		
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	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	24		
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	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	24		
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24			
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	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	0.0	24		
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	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	0.0	24		
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	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	0.0	0.0	24		
28	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0	0.4	0.1		
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	X	X	X	X	X	0		
30	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	C1	C1	C1	0.0	0.0	0.0	0.0	0.0	S1	0.0	0.0	0.0	0.0	0.0	0.0	7		
31	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.3	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	0.0	0.0	0.5	0.1	24		
HOURLY MAX	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.5	0.8	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.9	0.7	0.6	0.6	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

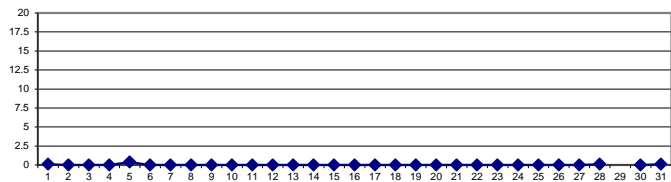
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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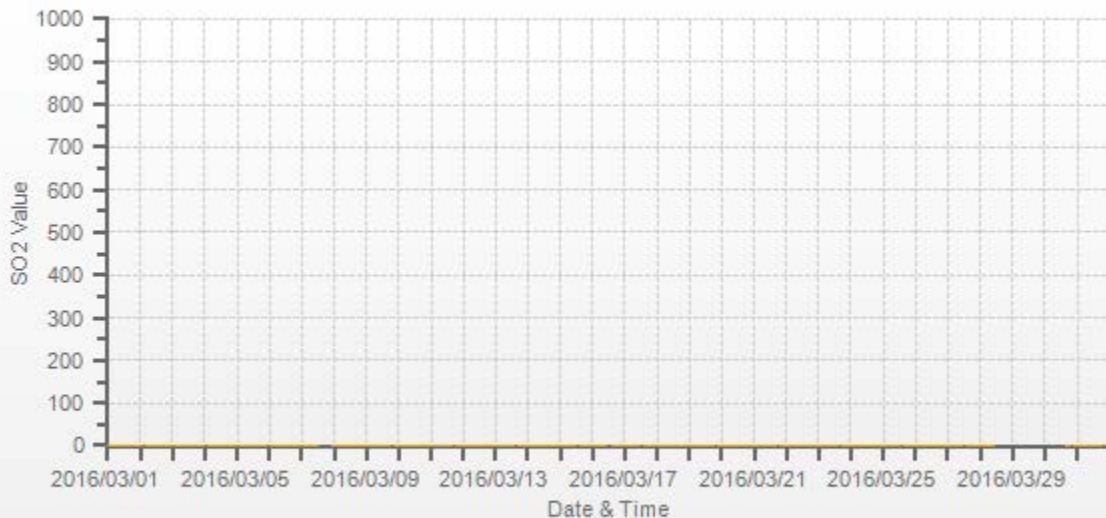
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	33			
MINIMUM 1-HR AVERAGE:	0.0 PPB @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	0.9 PPB @ HOUR(S)	16	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	0.4 PPB		ON DAY(S)	5
			VAR-VARIOUS	
IZS CALIBRATION TIME:	28 HRS	OPERATIONAL TIME:	682 HRS	
MONTHLY CALIBRATION TIME:	8 HRS	AMD OPERATION UPTIME:	91.7 %	
STANDARD DEVIATION:	0.11	MONTHLY AVERAGE:	0.0 PPB	

24 HOUR AVERAGES FOR MARCH 2016



SO2[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	2.2	2.1	2.2	2.1	S	2.1	2.5	3.0	3.3	3.3	2.9	2.6	2.4	2.3	2.3	2.3	2.2	2.1	2.3	2.7	2.8	3.0	2.5	2.1	3.3	2.5	2.4		
2	2.3	2.3	2.4	S	2.3	2.4	2.1	2.3	2.1	2.4	2.3	2.3	2.2	R	2.2	6.2	2.1	1.8	2.1	2.1	2.3	2.1	1.9	1.8	6.2	2.4	2.3		
3	2.1	2.1	S	2.1	2.1	1.9	2.0	2.0	2.1	2.1	2.2	2.1	2.3	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.0	1.9	2.3	2.1	2.4	
4	2.1	S	1.9	2.2	2.2	2.1	2.1	1.8	2.0	2.1	2.0	2.0	2.0	2.0	2.2	2.5	2.6	2.3	2.2	2.6	2.7	2.5	2.5	2.6	1.8	2.7	2.2	2.4	
5	S	2.6	2.7	2.9	2.7	2.7	2.7	2.8	2.7	3.4	3.7	3.7	3.5	3.7	3.5	3.5	3.9	3.6	3.4	3.6	3.6	3.5	3.5	S	2.6	3.9	3.3	2.4	
6	1.0	1.1	0.8	0.9	0.6	0.7	0.5	S1	S1	0.7	0.4	0.4	0.6	0.4	0.4	0.4	0.7	0.4	0.4	0.2	0.5	0.4	S	0.5	0.2	1.1	0.6	2.2	
7	0.4	0.5	0.4	0.5	0.4	0.4	0.2	0.2	0.5	0.2	0.5	0.1	0.1	C	C	C	Y	C	C	C	C	C	C	1.0	1.0	0.1	1.0	0.4	2.3
8	1.3	1.1	1.3	1.3	1.0	1.1	1.3	1.3	1.3	1.2	1.3	1.3	1.0	1.2	1.2	1.3	1.2	1.2	1.2	S	1.1	1.2	1.3	1.0	1.3	1.2	1.2	2.4	
9	1.2	1.2	1.2	1.3	1.3	1.2	1.4	1.1	1.1	1.3	1.1	1.2	1.3	1.0	1.3	1.6	1.6	1.2	1.2	S	1.2	1.2	1.0	1.1	1.0	1.6	1.2	2.4	
10	1.2	1.2	1.2	1.2	1.5	1.8	1.6	1.7	1.7	1.7	2.1	2.0	2.1	2.1	2.5	2.3	2.4	2.4	S	2.3	2.4	2.2	2.3	2.1	1.2	2.5	1.9	2.4	
11	2.0	2.2	2.1	2.1	1.9	1.8	1.9	1.8	1.7	1.7	1.5	1.3	1.6	1.3	1.4	1.5	1.7	S	1.1	1.3	1.3	1.4	1.4	1.5	1.1	2.2	1.6	2.4	
12	1.5	1.6	1.8	2.1	1.9	1.8	2.1	1.8	2.1	1.9	2.0	2.1	2.8	3.1	3.0	2.7	S	2.6	2.4	2.4	2.7	2.5	2.7	2.7	1.5	3.1	2.3	2.4	
13	2.7	2.7	2.6	2.6	2.7	2.6	2.6	2.6	2.8	2.6	2.7	2.6	2.6	2.6	2.4	S	2.4	2.5	2.5	2.4	2.8	2.4	2.5	2.4	2.4	2.8	2.6	2.4	
14	2.4	2.5	2.3	2.4	2.2	2.3	2.5	2.3	2.1	2.2	2.1	1.9	2.1	2.0	S	1.8	1.8	1.8	2.0	1.7	1.7	1.6	1.7	1.6	1.6	2.5	2.0	2.4	
15	1.7	1.8	1.7	1.6	1.6	1.8	1.7	1.6	1.8	2.1	2.1	2.2	1.6	S	1.8	1.8	1.9	1.7	1.5	1.7	1.7	1.6	1.8	2.0	1.5	2.2	1.8	2.4	
16	1.9	1.5	1.5	1.5	1.5	1.4	1.3	1.4	1.3	1.4	1.5	C1	C1	C1	C1	1.5	1.4	1.5	1.5	1.5	1.5	1.2	1.2	S	1.2	1.9	1.4	2.0	
17	1.5	1.7	1.6	1.6	1.3	1.4	1.2	1.1	1.0	1.0	1.0	1.0	Y	Y	1.0	0.8	0.8	0.7	0.9	0.7	0.9	0.8	S	0.5	0.5	1.7	1.1	2.2	
18	0.4	0.7	0.7	0.7	0.7	0.8	0.7	0.6	0.7	0.9	1.1	1.1	1.1	1.0	1.4	1.7	1.4	1.4	1.5	1.3	1.4	S	1.1	1.5	0.4	1.7	1.0	2.4	
19	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.3	2.9	1.7	1.1	1.2	1.0	1.2	1.3	1.3	1.3	1.6	1.4	1.5	S	1.3	1.5	1.6	1.0	2.9	1.3	2.4	
20	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	S	2.7	2.7	2.5	2.4	1.5	2.7	1.7	2.4	
21	2.2	2.1	2.1	2.1	1.9	1.9	2.0	1.9	1.9	1.8	1.8	1.8	1.9	2.2	2.3	1.9	2.0	1.9	S	1.8	1.9	1.9	1.9	1.9	1.8	2.3	2.0	2.4	
22	1.9	1.9	1.9	2.0	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.5	1.6	1.5	1.6	1.9	S	1.5	1.5	1.8	1.8	1.7	1.8	1.5	2.0	1.7	2.4		
23	1.6	1.6	1.7	1.9	1.8	1.8	1.7	2.0	1.9	1.9	1.8	1.6	1.6	1.8	1.9	2.1	S	1.9	1.9	2.2	2.3	2.3	2.5	1.6	2.5	1.9	2.4		
24	2.2	2.2	1.9	2.2	2.1	2.2	2.4	2.6	2.7	3.0	2.5	2.9	2.5	2.5	Y	S	2.1	2.3	2.0	2.1	1.9	1.9	1.9	1.9	1.9	3.0	2.3	2.3	
25	1.8	1.8	2.0	2.0	1.8	1.8	1.8	1.9	1.9	2.1	2.1	2.2	2.5	2.6	S	2.6	2.3	2.0	2.1	2.1	2.3	2.2	2.5	2.5	1.8	2.6	2.1	2.4	
26	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.3	2.1	1.9	2.1	1.9	2.0	S	2.1	1.9	2.2	2.1	2.1	2.0	2.1	2.0	2.0	1.9	2.3	2.1	2.1	2.4	
27	2.3	2.2	2.2	2.5	2.4	2.2	2.4	2.4	2.4	2.4	2.3	2.5	S	2.4	2.4	2.4	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.5	2.3	2.4	
28	2.2	2.2	2.5	2.3	2.2	2.3	2.2	2.0	2.3	2.5	2.2	S	X	X	X	X	X	X	X	X	X	X	X	X	2.0	2.5	2.3	12	
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	0.0			0	
30	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	0.2	0.2	0.2	S1	0.2	0.2	0.2	0.2	6	
31	0.2	0.2	0.2	0.2	0.2	0.8	0.8	0.8	0.8	0.8	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.4	2.4	
HOURLY MAX	2.7	2.7	2.7	2.9	2.7	2.7	2.7	3.0	3.3	3.4	3.7	3.7	3.5	3.7	3.5	3.5	6.2	3.6	3.4	3.6	3.6	3.5	3.5	2.7					
HOURLY AVG	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.8	1.7	1.8	1.9	1.8	1.8	2.0	1.8	1.7	1.7	2.0	1.8	1.9	1.7					

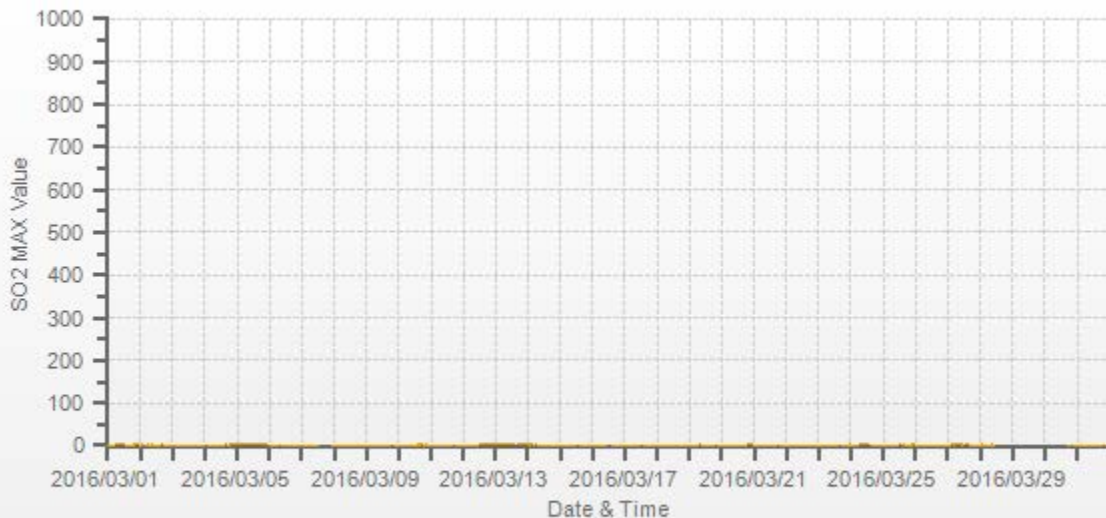
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

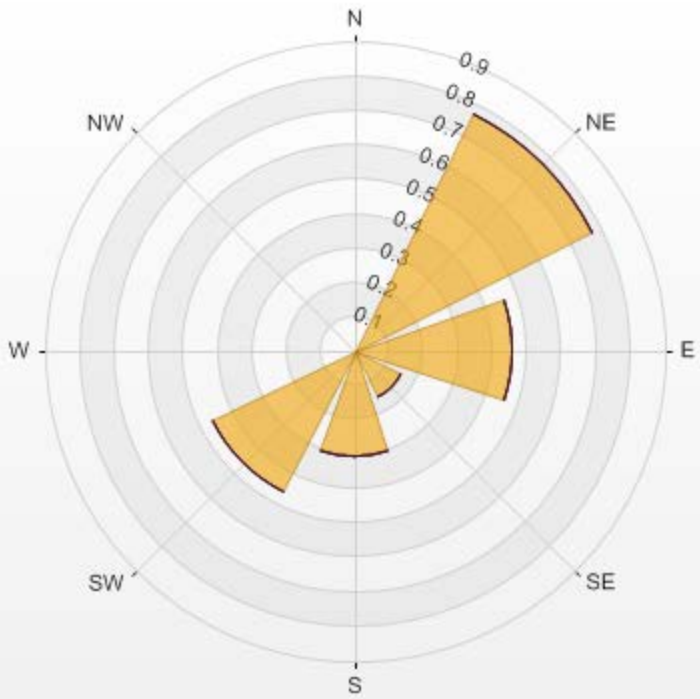
NUMBER OF NON-ZERO READINGS:	642
MAXIMUM INSTANTANEOUS VALUE:	6.2 PPB @ HOUR(S) 16 ON DAY(S) 2
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	679 HRS
STANDARD DEVIATION:	0.73

SO2 MAX[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



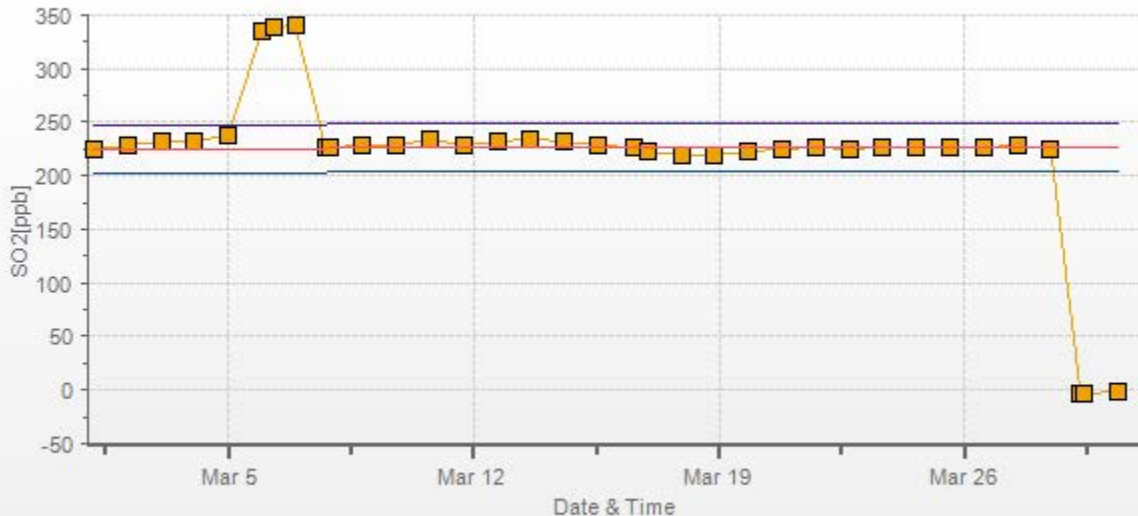
Wind: LICA ST. LINA Monitor: SO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 97.83% Valid Data: 86.83% Calm Avg: 0.00 [ppb]

Direction	0.5-20.0	20.0-60.0	60.0-110.0	110.0-170.0	170.0-340.0	>340.0	Total
N	0	0	0	0	0	0	0
NE	0.77	0	0	0	0	0	0.77
E	0.46	0	0	0	0	0	0.46
SE	0.15	0	0	0	0	0	0.15
S	0.31	0	0	0	0	0	0.31
SW	0.46	0	0	0	0	0	0.46
W	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
Summary	2.15	0	0	0	0	0	2.15



% Icon	Classes (ppb)	2.2		0.5-20.0	0.0		20.0-60.0	0.0		60.0-110.0	0.0		110.0-170.0	0.0		170.0-340.0	0.0		>340.0
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SO2[ppb] Calibration: LICA ST. LINA Monthly: 03/2016 Type: Span



HYDROGEN SULPHIDE

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.																					
DAY																																																		
1		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																					
2		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																					
3		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																					
4		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																					
5		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	24																					
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	24																					
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	24																					
8		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	24																					
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	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	24																					
10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.2	0.1	24																				
11		0.0	0.1	0.1	0.0	0.0	0.0	0.0	S1	S1	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	0.0	0.0	0.0	0.1	0.0	22																				
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	S	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.0	0.2	0.0	0.0	24																				
13		0.2	0.2	0.2	0.1	0.3	0.5	0.5	0.3	0.1	0.1	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	0.0	0.5	0.1	24																				
14		0.0	0.0	0.0	0.0	0.0	0.0	0.0	S1	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	0.0	0.0	0.0	0.0	0.0	0.0	23																				
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	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	24																				
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	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	24																				
17		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.1	0.0	0.0	24																				
18		0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.1	0.0	0.0	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
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	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	24																				
28		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																				
29		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																				
30		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24																				
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	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	24																				
HOURLY MAX		0.2	0.2	0.2	0.1	0.3	0.5	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0																					
HOURLY AVG		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					

STATUS FLAG CODES

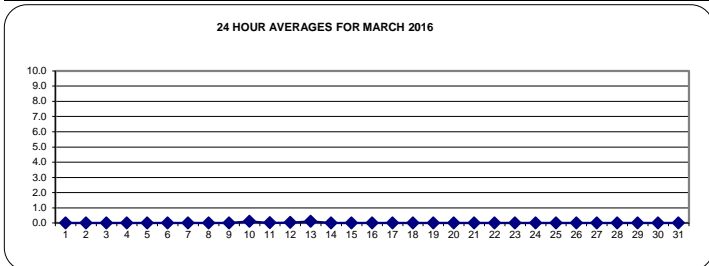
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

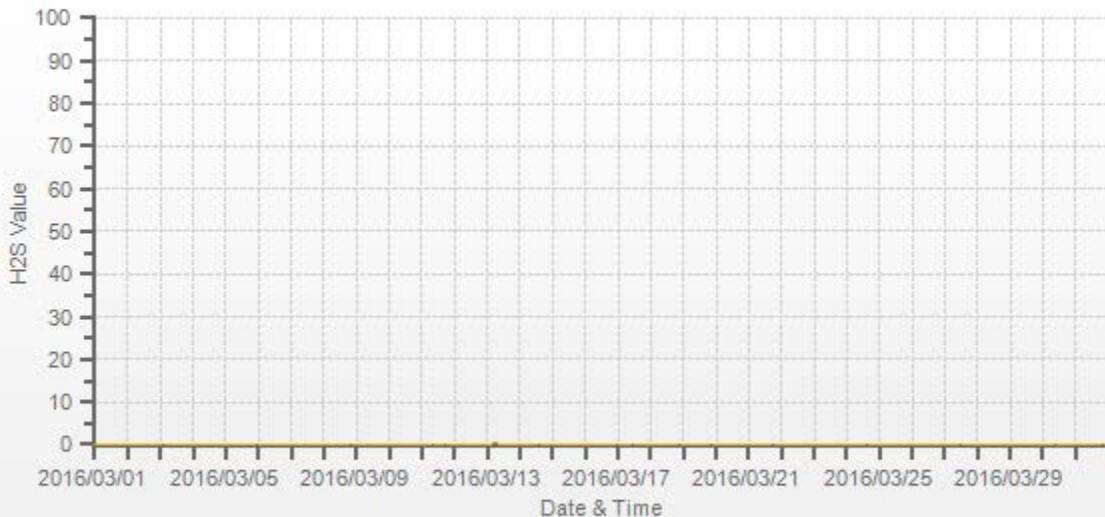
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	34					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	0.5	PPB	@ HOUR(S)	5 , 6	ON DAY(S)	13 , 13
MAXIMUM 24-HR AVERAGE:	0.1	PPB			ON DAY(S)	10, 13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.0	PPB	







HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	0.6	0.5	0.5	0.6	S	0.5	0.6	0.7	0.8	0.8	0.8	1.2	0.7	0.8	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.7	0.8	0.5	1.2	0.7	24	
2	0.8	0.9	0.8	S	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	R	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.9	0.7	23
3	0.7	0.7	S	0.7	0.7	0.7	0.7	0.9	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.9	0.8	24	
4	0.8	S	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.9	1.1	1.1	1.1	1.0	1.0	0.5	1.1	0.7	24	
5	S	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	S	1.0	1.3	1.2	24		
6	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	1.1	1.0	S	1.0	1.0	1.2	1.1	24
7	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	0.9	0.8	0.9	0.9	0.8	0.8	0.9	0.8	0.8	S	0.8	0.8	0.8	1.1	0.9	24	
8	0.7	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	0.8	0.9	0.8	0.9	S	0.9	0.9	0.8	0.7	0.9	0.8	24	
9	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	S	0.8	0.8	0.8	0.8	0.7	0.9	0.8	24		
10	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.2	1.3	1.2	1.3	1.3	1.3	S	1.2	1.3	1.3	1.3	1.3	0.8	1.3	1.1	24	
11	1.2	1.2	1.2	1.1	1.1	0.9	1.0	S1	S1	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.7	S	0.7	0.8	0.7	0.7	0.8	0.8	0.7	1.2	0.9	22	
12	0.9	0.9	0.8	0.9	1.1	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.2	1.3	1.3	1.3	S	1.3	1.3	1.5	1.6	1.5	1.4	1.6	0.8	1.6	1.2	24	
13	1.6	1.5	1.5	1.5	1.9	1.9	2.0	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.3	S	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.2	2.0	1.4	24	
14	1.3	1.2	1.2	1.2	1.2	1.2	S1	S1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	S	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.1	0.9	1.3	1.1	22
15	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	S	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.9	0.8	24	
16	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.7	0.8	0.7	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.6	S	0.5	0.9	0.7	24	
17	0.4	0.5	0.5	0.5	0.6	0.7	0.5	0.7	0.7	0.4	C	C	C	C	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	S	0.3	0.2	0.7	0.4	24	
18	0.3	0.3	0.3	0.4	0.3	0.5	0.7	0.5	0.9	0.3	0.9	1.0	0.6	0.3	0.3	0.3	0.4	0.5	0.3	0.3	0.4	S	0.4	0.3	0.3	1.0	0.5	24	
19	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.5	S	0.5	0.5	0.6	0.3	0.6	0.4	24	
20	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	S	0.7	0.7	0.6	0.8	0.7	0.5	0.8	0.7	24	
21	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.7	S	0.7	0.7	0.6	0.7	0.7	0.6	0.8	0.8	24	
22	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	S	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.6	24	
23	0.6	0.6	0.6	0.7	0.6	0.8	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.7	0.7	S	0.7	0.8	0.7	0.8	0.9	0.8	0.9	0.6	0.9	0.7	24	
24	0.8	0.8	0.8	1.0	1.1	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.8	Y	S	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	1.1	0.8	23	
25	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.9	0.8	0.8	0.8	S	0.8	0.8	0.7	0.8	0.7	0.8	0.9	1.1	0.8	0.6	1.1	0.8	24	
26	0.8	1.2	1.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	S	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2	0.8	24	
27	0.7	0.8	0.8	0.9	1.0	1.1	0.9	0.9	1.0	0.9	0.9	0.8	S	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.7	1.1	0.8	24	
28	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	S	0.6	0.9	0.7	0.7	0.7	0.8	0.7	0.8	0.7	0.7	0.7	0.7	0.6	0.9	0.8	24	
29	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.6	S	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.6	0.8	0.6	0.7	0.7	0.7	0.5	0.8	0.6	24	
30	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	S	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.8	0.7	24
31	0.6	0.7	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.5	0.6	0.5	0.6	0.6	0.7	0.6	S	0.7	0.6	0.7	0.5	0.8	0.6	24	
HOURLY MAX	1.6	1.5	1.5	1.5	1.9	1.9	2.0	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.5	1.6	1.5	1.4	1.6				
HOURLY AVG	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	

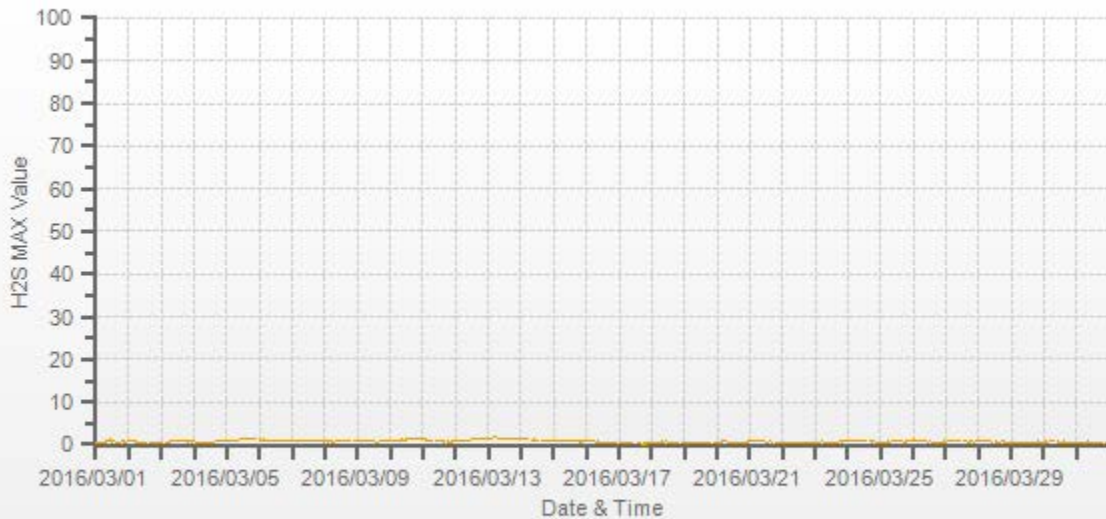
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

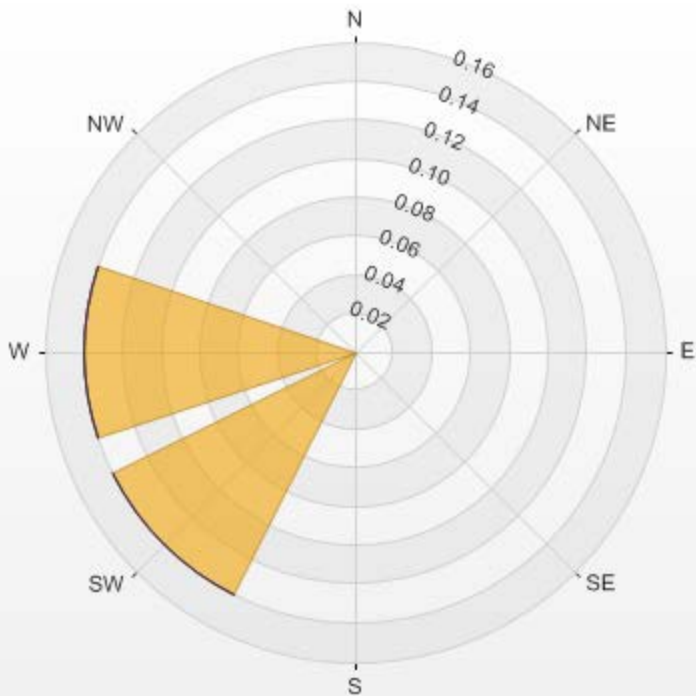
NUMBER OF NON-ZERO READINGS:	702
MAXIMUM INSTANTANEOUS VALUE:	2.0 PPB @ HOUR(S) 6 ON DAY(S) 13
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	738 HRS
STANDARD DEVIATION:	0.25




H2S MAX[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA ST. LINA Monitor: H2S [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 99.72% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	0	0	0	0	0
NE	0	0	0	0	0
E	0	0	0	0	0
SE	0	0	0	0	0
S	0	0	0	0	0
SW	0.14	0	0	0	0.14
W	0.14	0	0	0	0.14
NW	0	0	0	0	0
Summary	0.28	0	0	0	0.28



% Icon Classes (ppb)	0.28	0.5-3.0	0.00	3.0-10.0	0.00	10.0-50.0	0.00	>50.0
								

H2S[ppb] Calibration: LICA ST. LINA Monthly: 03/2016 Type: Span



TOTAL HYDROCARBON

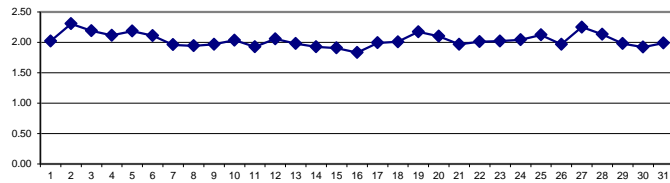
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1		2.04	2.05	2.05	2.05	S	2.04	2.07	2.09	2.11	2.16	2.11	2.05	2.01	1.98	1.95	1.93	1.91	1.90	1.98	1.97	1.98	1.97	1.97	2.07	1.90	2.16	2.02	24
2		2.28	2.36	2.45	S	2.43	2.39	2.31	2.32	2.31	2.26	2.24	2.22	2.22	2.23	2.22	2.25	2.26	2.36	2.31	2.33	2.28	2.32	2.32	2.22	2.45	2.30	24	
3		2.35	2.22	S	2.24	2.33	2.33	2.34	2.41	2.38	2.28	2.28	2.17	2.14	2.10	2.07	2.08	2.04	2.02	2.05	2.10	2.10	2.11	2.11	2.12	2.02	2.41	2.19	24
4		2.15	S	2.05	2.00	1.98	2.00	2.03	2.07	2.09	2.01	2.00	2.02	2.00	2.00	2.01	2.08	2.16	2.19	2.23	2.34	2.38	2.37	2.30	2.16	1.98	2.38	2.11	24
5		S	2.14	2.16	2.13	2.12	2.10	2.10	2.12	2.10	2.10	2.14	2.12	2.16	2.17	2.17	2.20	2.16	2.30	2.34	2.35	2.33	2.26	2.31	S	2.10	2.35	2.19	24
6		2.32	2.29	2.26	2.27	2.16	2.10	2.17	2.25	2.27	2.18	2.09	2.04	2.04	2.02	2.02	2.01	2.00	2.01	2.02	2.00	2.00	1.99	S	1.98	1.98	2.32	2.11	24
7		1.98	1.97	1.96	1.96	1.95	1.95	1.98	1.97	1.96	1.97	1.99	1.99	1.98	1.97	1.96	1.95	1.94	1.93	1.98	1.94	1.94	S	1.92	1.93	1.92	1.99	1.96	24
8		1.93	1.94	1.94	1.93	1.93	1.94	1.95	1.94	1.93	1.93	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.94	1.94	1.94	S	1.91	1.92	1.92	1.91	1.97	1.94	24
9		1.91	1.92	1.92	1.92	1.92	1.94	1.97	1.97	1.96	1.95	1.97	1.98	1.98	1.96	1.97	1.96	1.97	1.98	2.02	S	2.03	2.03	2.00	2.00	1.91	2.03	1.97	24
10		2.00	2.02	2.02	2.02	2.06	2.12	2.09	2.01	2.03	2.03	2.03	2.05	2.03	2.03	2.06	2.05	2.05	2.06	S	2.01	2.02	1.99	2.02	2.00	1.99	2.12	2.03	24
11		2.00	2.00	2.02	1.97	1.94	1.98	1.98	1.95	1.93	1.91	1.90	1.89	1.88	1.87	1.87	1.87	S	1.89	1.91	1.94	1.90	1.93	1.90	1.87	2.02	1.93	24	
12		2.05	2.08	2.22	2.28	2.29	2.15	2.04	1.98	1.99	1.99	1.95	1.96	1.96	1.96	1.97	1.99	S	2.04	2.06	2.06	2.08	2.12	2.05	2.05	1.95	2.29	2.06	24
13		2.04	2.06	2.07	2.07	2.11	2.10	2.11	2.08	1.98	1.95	1.94	1.94	1.95	1.93	1.93	S	1.92	1.92	1.91	1.90	1.91	1.89	1.90	1.91	1.89	2.11	1.98	24
14		1.91	1.90	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.93	1.93	1.93	1.93	1.92	S	1.92	1.92	1.93	1.95	1.94	1.95	1.94	1.94	1.94	1.90	1.95	1.92	24
15		1.92	1.94	1.94	1.93	1.92	1.93	1.92	1.93	1.95	1.95	1.95	1.95	1.94	S	1.92	1.92	1.89	1.89	1.87	1.86	1.85	1.84	1.82	1.81	1.81	1.95	1.91	24
16		1.80	1.79	1.76	1.75	1.74	1.73	1.72	1.74	1.75	1.74	1.79	C	C	C	C	1.94	1.96	1.92	1.93	1.94	1.93	1.93	1.95	S	1.72	1.96	1.83	24
17		1.96	1.98	1.99	2.00	2.01	2.03	2.05	2.05	2.04	2.06	2.01	1.99	2.00	1.99	1.95	1.95	1.96	1.97	1.97	1.96	1.96	1.95	S	1.95	1.95	2.06	1.99	24
18		1.95	1.96	1.98	1.98	1.98	2.01	2.02	2.01	1.99	1.99	2.00	2.01	2.01	2.02	2.02	2.03	2.03	2.03	2.06	2.03	2.05	S	1.99	2.02	1.95	2.06	2.01	24
19		2.04	2.05	2.06	2.10	2.10	2.13	2.19	2.26	2.24	2.16	2.11	2.14	2.19	2.21	2.23	2.21	2.19	2.24	2.28	2.33	S	2.20	2.16	2.14	2.04	2.33	2.17	24
20		2.14	2.12	2.16	2.15	2.18	2.13	2.12	2.12	2.15	2.15	2.15	2.15	2.13	2.08	2.05	2.03	2.03	2.06	2.09	S	2.01	2.03	2.03	2.06	2.01	2.18	2.10	24
21		2.02	2.01	2.01	1.99	1.96	1.95	1.95	1.96	1.95	1.96	1.95	1.95	1.95	1.97	1.97	1.96	1.96	1.98	S	1.95	1.95	1.96	1.96	1.96	1.95	2.02	1.97	24
22		1.96	1.94	1.94	1.97	1.94	1.95	1.97	1.99	1.98	1.99	1.99	1.99	2.01	2.00	2.01	2.02	2.03	S	2.00	2.08	2.11	2.13	2.11	2.10	1.94	2.13	2.01	24
23		2.07	2.08	2.06	2.05	2.06	2.06	2.04	2.02	1.98	1.98	1.99	1.99	1.99	2.00	2.00	2.00	S	1.97	1.99	2.00	2.01	2.00	2.03	2.01	1.97	2.08	2.02	24
24		2.01	2.10	2.10	2.23	2.46	2.21	2.02	2.01	1.99	1.99	1.98	1.97	1.99	2.00	1.99	S	2.00	2.00	1.99	1.98	1.99	1.97	2.02	1.97	1.97	2.46	2.04	24
25		2.00	2.01	2.05	2.08	2.18	2.24	2.32	2.28	2.27	2.28	2.26	2.22	2.18	2.13	S	2.06	2.04	2.00	1.99	2.00	2.02	2.05	2.06	2.05	1.99	2.32	2.12	24
26		2.01	1.99	1.96	1.95	1.93	1.93	1.94	1.95	1.95	1.95	1.94	1.94	S	1.91	1.94	1.95	1.97	1.98	2.00	2.00	2.02	2.01	2.09	1.91	2.09	1.97	24	
27		2.23	2.39	2.45	2.39	2.40	2.72	2.61	2.56	2.49	2.35	2.30	2.17	S	2.08	2.07	2.07	2.05	2.04	2.04	2.03	2.05	2.07	2.08	2.09	2.03	2.72	2.25	24
28		2.14	2.19	2.18	2.17	2.17	2.19	2.20	2.21	2.24	2.22	2.18	S	2.16	2.17	2.19	2.13	2.04	2.02	2.01	2.03	2.02	2.03	2.06	2.06	2.01	2.24	2.13	24
29		2.01	2.02	2.01	2.00	1.99	1.99	1.99	1.98	2.01	1.99	S	2.00	2.03	1.94	1.97	1.95	1.95	1.95	1.95	1.98	1.97	1.96	1.95	1.96	1.94	2.03	1.98	24
30		1.96	1.94	1.95	1.94	1.92	1.91	1.90	1.91	1.91	S	1.88	1.91	1.93	1.93	1.92	1.93	1.92	1.92	1.93	1.91	1.91	1.91	1.91	1.92	1.88	1.96	1.92	24
31		1.93	1.95	1.96	1.97	1.98	1.98	1.99	2.01	2.01	2.02	2.01	2.01	2.00	1.99	1.99	1.99	1.98	1.96	2.00	2.10	S	1.96	1.97	1.94	1.93	2.10	1.99	24
HOURLY MAX		2.35	2.39	2.45	2.39	2.46	2.72	2.61	2.56	2.49	2.35	2.30	2.24	2.22	2.22	2.23	2.22	2.25	2.30	2.36	2.35	2.38	2.37	2.32	2.32				
HOURLY AVG		2.04	2.05	2.05	2.05	2.07	2.07	2.07	2.07	2.06	2.05	2.04	2.03	2.02	2.02	2.01	2.01	2.00	2.01	2.03	2.03	2.03	2.03	2.03	2.01				

STATUS FLAG CODES

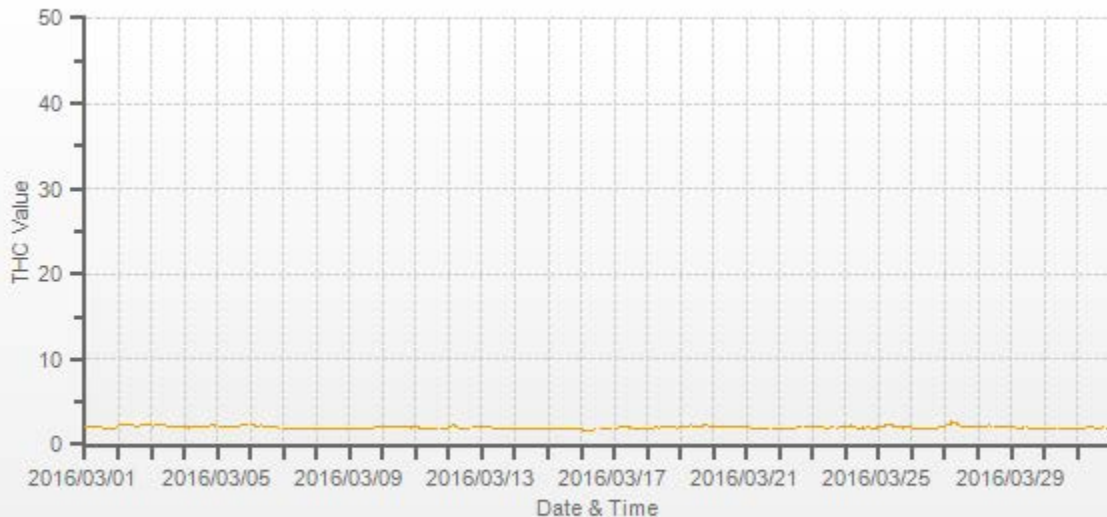
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708		
MINIMUM 1-HR AVERAGE:	1.72 PPM	@ HOUR(S)	6 ON DAY(S) 16
MAXIMUM 1-HR AVERAGE:	2.72 PPM	@ HOUR(S)	5 ON DAY(S) 27
MAXIMUM 24-HR AVERAGE:	2.30 PPM		ON DAY(S) 2
			VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.13	MONTHLY AVERAGE:	2.04 PPM





TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

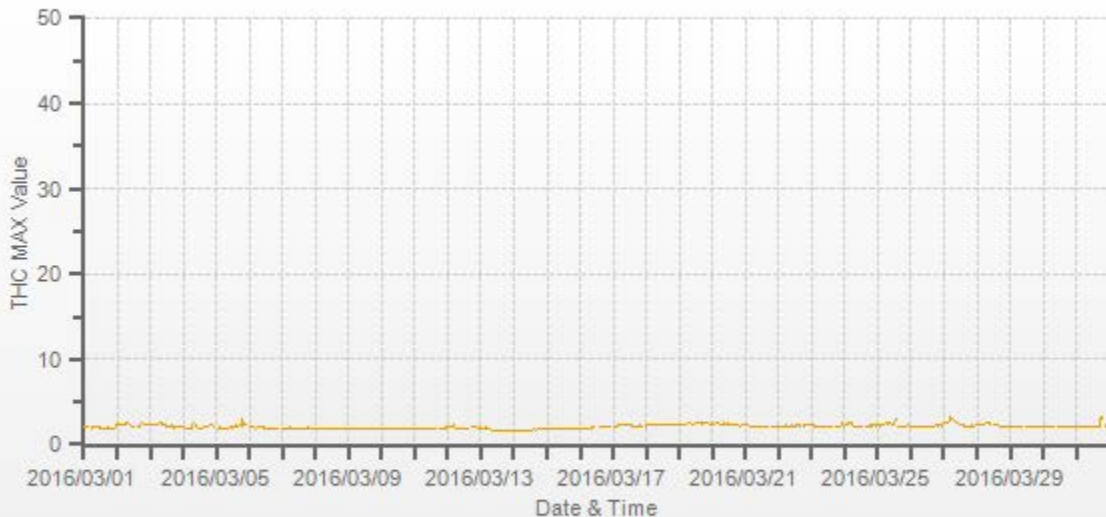
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.	
DAY																														
1		2.01	2.02	2.03	2.01	S	1.99	2.04	2.06	2.08	2.11	2.08	2.01	1.96	1.92	1.89	1.89	1.85	1.83	2.09	1.92	1.95	1.94	1.95	2.01	1.83	2.11	1.98	24	
2		2.65	2.32	2.38	S	2.38	2.32	2.47	2.42	2.48	2.33	2.26	2.20	2.23	2.18	R	2.20	2.23	2.27	2.47	2.32	2.32	2.32	2.32	2.33	2.18	2.65	2.34	23	
3		2.38	2.24	S	2.26	2.35	2.35	2.38	2.47	2.44	2.50	2.36	2.35	2.23	2.17	2.17	2.21	2.26	1.98	2.01	2.05	2.05	2.08	2.06	2.06	1.98	2.50	2.24	24	
4		2.11	S	1.98	1.98	1.92	1.95	1.98	2.39	2.63	2.02	1.98	1.97	1.95	1.93	1.99	2.04	2.05	2.09	2.15	2.27	2.29	2.24	2.20	2.04	1.92	2.63	2.09	24	
5		S	1.99	2.03	1.98	1.97	1.95	1.95	1.97	1.94	1.95	2.01	1.99	2.06	2.06	2.18	2.26	2.15	2.45	2.18	2.97	2.40	2.29	2.27	S	1.94	2.97	2.14	24	
6		2.17	2.12	2.14	2.17	2.01	1.94	2.17	2.17	2.12	2.12	2.02	1.94	1.91	1.92	1.92	1.96	1.86	1.89	1.89	1.85	1.91	1.86	S	1.83	1.83	2.17	2.00	24	
7		1.88	1.83	1.88	1.86	1.83	1.92	2.08	1.96	1.83	1.85	1.89	1.88	1.91	1.86	1.85	1.86	1.85	1.85	2.02	1.86	1.86	S	1.85	1.85	1.83	2.08	1.88	24	
8		1.86	1.86	1.86	1.86	1.85	1.86	1.86	1.85	1.85	1.85	1.89	1.86	1.88	1.88	1.88	1.86	1.88	1.86	1.86	1.85	S	1.83	1.83	1.83	1.83	1.89	1.86	24	
9		1.83	1.83	1.83	1.83	1.83	1.86	1.89	1.89	1.89	1.86	1.88	1.89	1.89	1.89	1.88	1.89	1.92	1.92	1.95	S	1.94	1.92	1.91	1.89	1.83	1.95	1.88	24	
10		1.89	1.91	1.91	1.91	1.93	1.99	1.96	1.86	1.86	1.89	1.86	1.91	1.85	1.85	1.86	1.89	1.88	1.89	S	1.95	1.99	1.80	1.83	1.83	1.80	1.99	1.89	24	
11		1.83	1.83	1.86	1.83	1.80	1.86	1.86	1.83	1.82	1.82	1.80	1.80	1.80	1.80	1.80	1.80	1.83	S	1.83	1.89	1.86	1.82	2.02	1.80	1.80	2.02	1.83	24	
12		2.05	2.06	2.11	2.23	2.27	2.15	1.95	1.85	1.89	1.90	1.79	1.79	1.79	1.78	1.79	1.79	S	2.11	2.01	2.09	2.03	2.18	1.98	2.15	1.78	2.27	1.99	24	
13		1.99	1.91	1.86	2.08	1.91	1.89	1.89	1.92	1.76	1.71	1.71	1.70	1.71	1.70	1.70	S	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.70	1.69	2.08	1.78	24	
14		1.69	1.69	1.70	1.70	1.72	1.71	1.71	1.73	1.73	1.74	1.76	1.75	1.76	1.76	S	1.77	1.76	1.77	1.80	1.80	1.80	1.80	1.80	1.80	1.69	1.80	1.75	24	
15		1.80	1.80	1.83	1.80	1.82	1.82	1.82	1.83	1.85	1.86	1.88	1.86	1.86	S	1.86	1.86	1.86	1.86	1.85	1.86	1.86	1.85	1.83	1.83	1.80	1.88	1.84	24	
16		1.85	1.83	1.83	1.80	1.80	1.80	1.80	1.87	1.86	2.01	2.04	C	C	C	C	2.23	2.23	2.11	2.12	2.14	2.12	2.14	2.14	S	1.80	2.23	1.99	24	
17		2.17	2.18	2.22	2.22	2.24	2.26	2.27	2.29	2.29	2.38	2.28	2.26	2.32	2.26	2.23	2.21	2.23	2.23	2.23	2.25	2.23	2.23	S	2.23	2.17	2.38	2.25	24	
18		2.25	2.25	2.26	2.26	2.26	2.30	2.29	2.26	2.25	2.26	2.29	2.29	2.27	2.36	2.29	2.29	2.29	2.32	2.35	2.29	2.32	S	2.26	2.28	2.25	2.36	2.28	24	
19		2.29	2.29	2.32	2.38	2.35	2.41	2.47	2.53	2.51	2.44	2.38	2.41	2.47	2.48	2.48	2.48	2.45	2.51	2.57	2.60	S	2.47	2.41	2.41	2.29	2.60	2.44	24	
20		2.48	2.42	2.60	2.57	2.60	2.41	2.33	2.33	2.47	2.44	2.44	2.47	2.39	2.35	2.32	2.29	2.30	2.29	2.29	S	2.20	2.33	2.29	2.38	2.20	2.60	2.39	24	
21		2.33	2.32	2.40	2.20	2.14	2.14	2.14	2.14	2.11	2.11	2.11	2.09	2.12	2.14	2.15	2.14	2.12	2.14	S	2.14	2.17	2.14	2.18	2.11	2.09	2.40	2.16	24	
22		2.11	2.14	2.11	2.20	2.15	2.14	2.26	2.20	2.23	2.23	2.24	2.20	2.30	2.20	2.26	2.28	2.22	S	2.23	2.27	2.30	2.32	2.29	2.29	2.11	2.32	2.22	24	
23		2.26	2.26	2.23	2.23	2.23	2.23	2.23	2.20	2.20	2.14	2.15	2.15	2.15	2.17	2.17	2.17	S	2.14	2.17	2.17	2.17	2.17	2.17	2.51	2.18	2.14	2.51	2.20	24
24		2.17	2.30	2.33	2.50	2.66	2.51	2.18	2.15	2.14	2.14	2.20	2.14	2.14	2.17	Y	S	2.20	2.20	2.32	2.14	2.42	2.26	2.41	2.20	2.14	2.66	2.27	23	
25		2.30	2.20	2.28	2.29	2.39	2.40	2.50	2.48	2.44	2.47	2.44	2.41	2.36	3.14	S	2.23	2.23	2.20	2.18	2.17	2.20	2.23	2.25	2.23	2.17	3.14	2.35	24	
26		2.20	2.17	2.15	2.11	2.11	2.09	2.09	2.11	2.11	2.11	2.11	2.11	2.11	S	2.08	2.11	2.11	2.14	2.38	2.18	2.32	2.32	2.23	2.28	2.08	2.38	2.16	24	
27		2.48	2.60	2.61	2.57	2.83	3.20	3.06	2.92	2.67	2.57	2.54	2.38	S	2.25	2.26	2.23	2.20	2.20	2.20	2.20	2.26	2.21	2.23	2.24	2.20	3.20	2.47	24	
28		2.35	2.38	2.36	2.32	2.44	2.44	2.63	2.61	2.63	2.63	2.36	S	2.32	2.35	2.35	2.33	2.20	2.18	2.17	2.20	2.20	2.20	2.23	2.23	2.17	2.63	2.35	24	
29		2.18	2.20	2.17	2.18	2.17	2.17	2.15	2.15	2.23	2.17	S	2.22	2.21	2.18	2.17	2.14	2.12	2.14	2.14	2.17	2.15	2.14	2.14	2.14	2.12	2.23	2.17	24	
30		2.14	2.12	2.14	2.12	2.11	2.11	2.09	2.10	2.11	S	2.08	2.11	2.11	2.13	2.12	2.14	2.13	2.11	2.12	2.11	2.11	2.11	2.11	2.13	2.08	2.14	2.12	24	
31		2.13	2.17	2.17	2.18	2.18	2.17	2.20	2.22	2.23	2.22	2.23	2.21	2.20	2.20	2.20	2.20	2.18	2.18	3.37	3.04	S	2.20	2.26	2.17	2.13	3.37	2.28	24	
HOURLY MAX		2.65	2.60	2.61	2.57	2.83	3.20	3.06	2.92	2.67	2.63	2.54	2.47	2.47	3.14	2.48	2.48	2.45	2.51	3.37	3.04	2.42	2.47	2.51	2.41					
HOURLY AVG		2.13	2.11	2.12	2.12	2.14	2.14	2.15	2.15	2.15	2.13	2.10	2.08	2.08	2.11	2.07	2.09	2.08	2.09	2.16	2.15	2.11	2.11	2.12	2.08					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

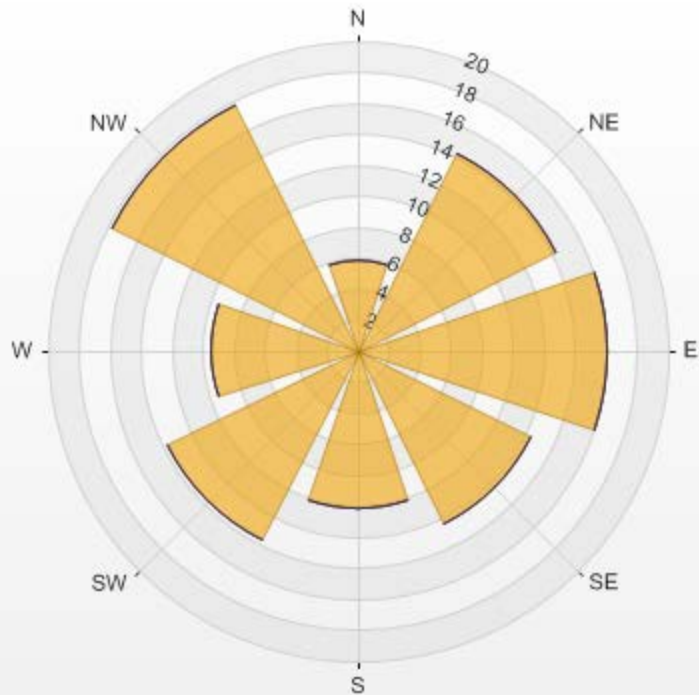
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706				
MAXIMUM INSTANTANEOUS VALUE:	3.37	PPM	@ HOUR(S)	18	ON DAY(S) 31
				VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	4	HRS			
STANDARD DEVIATION:	0.24				

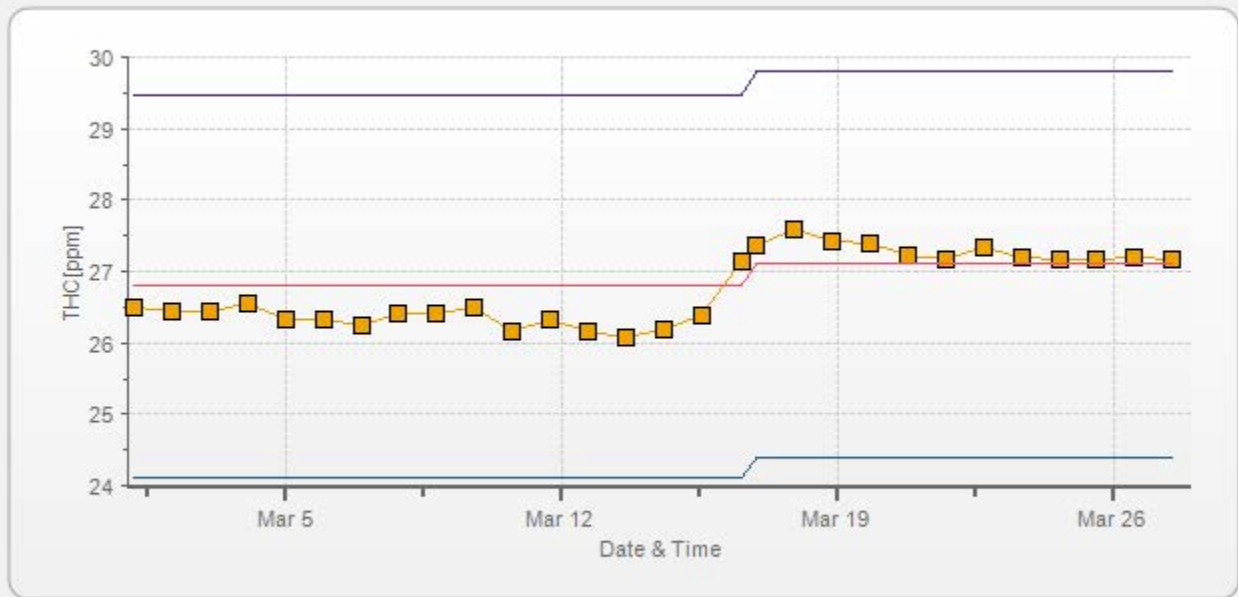


Wind: LICA ST. LINA Monitor: THC [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 95.16% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	5.93	0	0	0	5.93
NE	14.27	0	0	0	14.27
E	16.1	0	0	0	16.1
SE	12.57	0	0	0	12.57
S	10.17	0	0	0	10.17
SW	13.7	0	0	0	13.7
W	9.46	0	0	0	9.46
NW	17.8	0	0	0	17.8
Summary	100	0	0	0	100



THC[ppm] Calibration: LICA ST. LINA Monthly: 03/2016 Type: Span



OXIDES OF NITROGEN

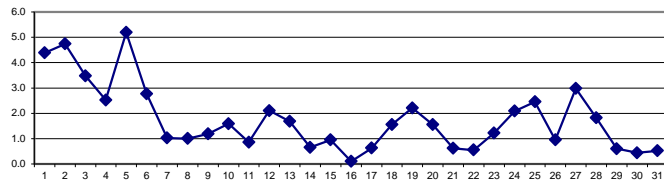
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	1	2.0	1.7	1.8	1.9	S	3.1	4.3	6.0	7.8	9.4	9.1	9.2	6.4	4.7	3.9	2.6	1.6	1.4	1.2	2.3	3.0	6.8	5.6	5.1	1.2	9.4	4.4	24
2	2	8.0	7.4	5.0	S	5.0	6.2	5.2	3.6	3.4	4.2	4.5	4.6	4.2	4.5	4.2	4.0	4.1	4.2	5.2	4.8	4.1	4.1	4.1	4.3	3.4	8.0	4.7	24
3	3	4.0	3.0	S	4.0	4.8	4.4	3.7	4.1	4.5	4.0	4.5	3.2	3.0	2.7	2.7	2.8	2.8	3.2	2.6	4.6	2.9	2.5	2.6	3.4	2.5	4.8	3.5	24
4	4	3.1	S	4.7	2.3	0.7	0.3	0.3	0.3	1.0	0.7	0.7	1.1	0.6	1.3	1.4	2.7	4.3	5.3	4.7	5.7	5.8	4.2	3.7	3.1	0.3	5.8	2.5	24
5	5	S	2.9	2.5	2.4	2.5	2.7	2.8	3.0	3.0	4.1	6.0	5.8	5.7	5.9	5.8	6.0	7.0	8.2	9.2	8.7	7.2	6.3	6.5	S	2.4	9.2	5.2	24
6	6	6.7	6.1	5.9	5.5	4.0	2.6	3.3	5.6	5.0	4.3	2.4	1.5	1.0	1.0	0.8	0.9	1.1	0.8	0.9	0.9	0.8	0.9	S	1.5	0.8	6.7	2.8	24
7	7	1.0	0.6	0.6	0.6	0.5	0.6	0.7	1.2	1.1	1.1	1.4	1.4	1.5	1.3	1.2	1.5	0.9	1.2	1.2	0.9	0.8	S	1.4	1.0	0.5	1.5	1.0	24
8	8	0.6	0.7	0.5	0.6	0.6	0.8	0.6	0.9	1.0	1.0	2.1	1.3	1.0	1.1	1.3	1.8	1.5	1.3	1.3	1.1	S	0.8	0.6	0.6	0.5	2.1	1.0	24
9	9	0.4	0.4	0.5	0.5	1.1	1.0	1.1	1.1	1.2	1.4	1.7	2.0	1.5	1.4	1.1	1.9	2.3	1.7	1.1	S	1.8	1.0	0.7	0.5	0.4	2.3	1.2	24
10	10	0.8	0.8	1.1	1.1	0.8	1.3	1.5	1.1	1.1	1.7	1.6	1.8	1.8	2.1	2.2	2.1	1.8	1.8	S	1.8	2.3	2.2	2.1	1.7	0.8	2.3	1.6	24
11	11	1.7	1.9	2.1	1.5	1.6	1.6	1.9	1.5	1.2	0.8	0.5	0.3	0.3	0.2	0.3	0.2	0.2	S	0.5	0.3	0.5	0.2	0.1	0.3	0.1	2.1	0.9	24
12	12	3.0	3.3	3.4	3.1	2.3	1.7	1.6	1.1	1.3	1.4	1.2	1.3	1.6	2.1	1.9	2.0	S	2.3	2.2	2.1	2.4	2.3	2.4	2.4	1.1	3.4	2.1	24
13	13	2.4	2.6	3.0	3.9	3.3	2.8	2.7	3.1	1.8	1.6	1.2	1.6	2.1	0.9	0.6	S	0.7	0.6	0.6	0.7	0.8	0.7	0.6	0.4	0.4	3.9	1.7	24
14	14	0.6	0.6	0.4	0.8	0.4	0.5	0.6	0.7	0.6	0.6	0.7	0.9	0.8	0.8	S	0.6	0.5	0.5	0.8	1.0	0.7	0.7	0.7	0.6	0.4	1.0	0.7	24
15	15	0.6	0.6	0.7	0.8	0.7	0.6	1.2	1.0	1.3	1.5	1.8	1.6	1.2	S	1.5	1.3	0.9	1.1	0.8	0.5	0.6	0.5	0.4	0.6	0.4	1.8	0.9	24
16	16	0.5	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	C	C	C	C	C	C	0.3	0.0	0.1	0.1	0.1	0.3	S	0.0	0.5	0.1	24
17	17	0.7	0.8	1.0	1.1	1.1	0.7	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.2	0.4	0.4	0.8	0.5	0.2	0.4	0.5	0.5	S	0.4	0.2	1.1	0.6	24
18	18	0.2	0.3	0.3	0.6	0.8	1.1	0.8	1.2	1.2	0.4	4.4	3.5	2.4	1.6	2.5	3.3	2.5	1.9	1.5	1.2	1.5	S	1.3	1.2	0.2	4.4	1.6	24
19	19	1.2	1.3	1.3	1.1	1.4	1.9	2.1	2.6	3.5	2.2	1.6	1.9	3.1	3.1	3.1	2.6	2.4	2.6	2.8	2.7	S	2.3	2.2	1.8	1.1	3.5	2.2	24
20	20	1.8	1.8	1.5	1.6	1.8	1.7	1.5	2.2	2.0	1.9	2.2	2.3	2.0	1.3	0.8	1.2	0.8	1.1	1.5	S	1.4	1.3	1.0	1.1	0.8	2.3	1.6	24
21	21	1.1	0.9	1.3	1.2	0.6	0.5	0.6	0.7	0.3	0.7	0.4	0.4	0.4	0.6	0.9	0.7	0.3	0.6	S	0.5	0.5	0.2	0.5	0.3	0.2	1.3	0.6	24
22	22	0.4	0.2	0.1	0.6	0.0	0.0	0.3	0.5	0.6	0.4	0.5	0.4	0.5	0.5	0.3	0.5	1.4	S	1.0	0.7	1.0	1.3	0.9	0.6	0.0	1.4	0.6	24
23	23	0.5	0.2	0.4	0.5	0.8	1.3	1.8	3.3	1.7	1.2	0.6	0.6	0.7	0.4	0.8	1.1	S	1.3	0.6	1.2	1.9	2.2	2.6	2.5	0.2	3.3	1.2	24
24	24	1.6	3.3	3.1	3.7	7.7	5.5	3.3	2.6	2.5	2.3	1.6	1.5	1.1	1.3	1.1	S	0.8	0.6	0.9	0.8	0.9	0.5	0.7	0.6	0.5	7.7	2.1	24
25	25	0.8	0.8	0.9	1.2	2.5	3.1	3.3	3.3	2.7	3.0	2.6	2.8	3.3	4.4	S	3.8	2.7	1.4	1.2	1.7	1.9	2.6	3.4	3.0	0.8	4.4	2.5	24
26	26	2.6	1.9	1.3	1.1	0.8	0.9	0.8	1.7	0.8	0.7	0.7	0.5	0.8	S	0.6	0.5	0.6	0.5	0.4	0.5	0.4	0.2	0.7	2.8	0.2	2.8	0.9	24
27	27	4.2	6.3	6.4	4.4	3.6	5.4	5.1	5.4	5.1	3.7	3.6	2.1	S	2.1	1.4	1.3	1.0	1.1	0.8	0.9	1.0	0.9	1.2	1.5	0.8	6.4	3.0	24
28	28	1.8	1.9	1.9	2.3	1.9	1.9	1.5	1.8	2.4	2.3	2.4	S	2.2	3.5	2.6	1.7	0.7	0.8	1.0	1.0	1.4	1.8	1.7	1.5	0.7	3.5	1.8	24
29	29	0.8	0.6	0.5	0.4	0.4	0.8	0.5	0.6	0.7	1.0	S	1.1	1.2	0.9	0.4	0.3	0.0	0.4	0.9	0.6	0.5	0.5	0.4	0.4	0.0	1.2	0.6	24
30	30	1.0	0.8	0.5	0.4	0.2	0.6	0.7	0.6	0.6	S	0.9	0.6	0.4	0.5	0.5	0.2	0.2	0.2	0.3	0.4	0.4	0.1	0.1	0.1	0.0	1.0	0.4	24
31	31	0.1	0.2	0.2	0.0	0.1	0.6	0.9	1.1	0.9	0.7	0.9	0.5	0.4	0.2	0.4	0.3	0.6	0.5	0.7	0.5	S	0.8	0.5	0.9	0.0	1.1	0.5	24
HOURLY MAX		8.0	7.4	6.4	5.5	7.7	6.2	5.2	6.0	7.8	9.4	9.1	9.2	6.4	5.9	5.8	6.0	7.0	8.2	9.2	8.7	7.2	6.8	6.5	5.1				
HOURLY AVG		1.8	1.8	1.8	1.6	1.7	1.8	1.8	2.0	2.0	2.0	2.1	1.9	1.8	1.8	1.6	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

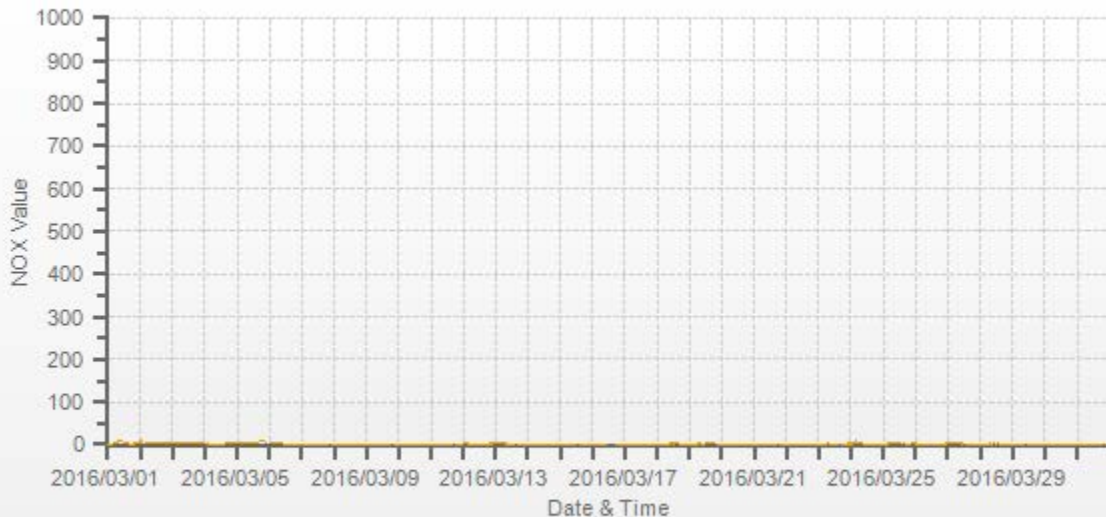
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	693			
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	9.4	PPB @ HOUR(S)	9	1
MAXIMUM 24-HR AVERAGE:	5.2	PPB		5
				VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0
				%
STANDARD DEVIATION:	1.67		MONTHLY AVERAGE:	1.8
				PPB

NOX[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	HOUR START	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1		2.8	2.7	2.8	3.0	S	4.3	6.3	9.4	10.2	11.0	10.5	94.3	8.3	7.2	7.2	4.8	7.5	3.7	2.4	3.9	5.8	13.4	14.1	6.4	2.4	94.3	10.5	24
2		9.9	9.4	6.4	S	6.3	7.9	7.3	5.1	4.9	6.0	6.0	6.0	5.5	5.9	R	5.7	5.7	5.7	6.9	6.9	5.8	5.8	5.6	6.1	4.9	9.9	6.4	23
3		6.3	4.9	S	6.0	6.7	6.7	5.4	6.6	6.7	5.7	6.4	5.4	4.8	4.4	4.4	4.7	4.7	7.4	5.3	8.3	6.5	4.2	6.1	8.0	4.2	8.3	5.9	24
4		6.9	S	6.9	5.1	2.8	2.1	2.1	2.6	2.9	2.6	2.4	3.2	2.4	3.2	3.2	6.0	6.8	7.7	7.1	8.8	9.0	5.9	5.7	4.8	2.1	9.0	4.8	24
5		S	4.8	4.3	4.3	4.2	4.6	4.6	7.9	15.0	6.9	20.0	8.2	9.0	8.2	7.8	8.3	9.5	10.7	11.9	11.5	9.6	8.8	9.7	S	4.2	20.0	8.6	24
6		9.2	8.7	8.2	8.1	6.1	4.8	7.7	9.0	7.1	6.7	4.2	3.4	2.7	2.5	2.5	2.2	2.2	1.9	2.1	2.3	1.8	1.8	S	2.4	1.8	9.2	4.7	24
7		1.8	1.3	1.5	1.5	1.5	1.4	1.6	5.0	4.3	2.1	3.0	2.4	4.7	2.4	2.2	2.4	1.8	2.2	2.6	2.4	1.4	S	3.8	3.0	1.3	5.0	2.4	24
8		1.5	1.5	1.3	1.5	1.5	1.8	1.5	2.2	1.9	1.9	41.6	2.9	2.1	2.6	3.7	21.4	3.7	3.1	22.6	14.6	S	2.3	2.3	2.0	1.3	41.6	6.2	24
9		2.0	1.9	2.2	2.0	44.4	2.5	3.5	3.2	3.0	3.0	3.5	3.5	3.1	3.0	2.9	3.7	4.2	3.5	3.0	S	3.3	2.4	2.1	2.3	1.9	44.4	4.7	24
10		2.3	2.3	2.6	2.4	2.1	2.7	3.0	2.3	2.4	2.9	2.6	2.9	3.0	3.2	3.2	3.2	3.0	2.9	S	2.9	3.7	3.9	4.0	2.7	2.1	4.0	2.9	24
11		2.7	3.0	3.2	3.0	2.6	2.6	3.0	2.6	2.3	1.9	1.5	1.1	1.3	1.5	1.6	1.1	1.8	S	1.9	1.5	1.5	1.1	1.0	1.3	1.0	3.2	2.0	24
12		5.2	4.6	4.1	3.9	3.2	2.6	2.4	1.8	2.1	2.0	1.9	1.9	2.3	2.8	2.5	2.6	S	3.1	3.0	2.7	3.3	3.0	3.2	3.2	1.8	5.2	2.9	24
13		3.0	3.3	4.3	5.1	5.0	3.5	3.8	4.0	3.3	2.2	2.2	2.7	3.1	2.2	1.3	S	1.5	1.5	1.5	1.3	1.5	1.3	1.2	1.0	1.0	5.1	2.6	24
14		1.1	1.0	1.0	1.3	1.1	1.0	1.4	2.9	2.2	1.1	1.5	2.8	1.3	1.4	S	1.5	1.0	1.4	1.8	3.3	2.5	1.3	1.1	1.0	1.0	3.3	1.6	24
15		1.0	1.2	1.1	1.5	1.3	1.3	2.8	2.7	2.1	4.4	4.3	4.0	3.8	S	2.7	2.2	1.6	2.2	1.6	1.3	1.6	1.3	1.4	1.5	1.0	4.4	2.1	24
16		1.3	1.0	0.9	1.0	1.7	1.7	1.6	0.8	1.0	1.3	0.7	C	C	C	C	C	C	1.1	1.0	0.8	1.2	0.7	0.7	S	0.7	1.7	1.1	24
17		1.4	1.3	1.4	1.5	1.9	1.2	2.6	1.3	1.8	3.0	0.8	1.0	1.0	0.5	2.0	1.1	4.0	1.0	0.8	1.3	4.0	3.7	S	1.5	0.5	4.0	1.7	24
18		0.8	1.1	0.6	1.4	1.5	3.3	2.4	3.5	4.8	1.0	106.3	134.1	85.9	7.8	3.8	4.9	4.1	2.8	2.4	1.9	2.4	S	2.1	2.0	0.6	134.1	16.6	24
19		2.1	1.9	2.1	2.0	2.3	2.8	3.3	4.1	5.7	3.6	2.8	3.5	4.4	4.4	4.3	3.9	3.9	4.2	3.9	4.1	S	3.5	3.5	3.2	1.9	5.7	3.5	24
20		3.0	2.8	2.7	2.7	2.9	2.8	2.8	3.3	3.2	2.9	3.2	3.5	3.2	2.8	1.7	2.2	1.8	2.0	2.6	S	2.4	2.2	1.9	1.9	1.7	3.5	2.6	24
21		1.9	2.0	2.4	2.2	1.5	1.6	1.6	1.0	1.9	1.1	1.1	1.0	1.6	1.6	1.3	1.0	1.3	S	1.3	1.1	0.8	1.3	1.3	0.8	2.4	1.5	24	
22		1.3	1.0	0.9	1.6	0.8	1.0	1.3	1.5	1.4	1.2	1.6	1.2	1.4	1.3	1.0	1.8	2.4	S	2.5	1.6	2.1	2.2	1.9	1.6	0.8	2.5	1.5	24
23		1.5	1.0	1.3	1.4	1.7	30.9	6.0	6.2	5.9	2.2	2.4	2.2	3.0	1.4	2.3	3.0	S	25.6	1.8	2.1	5.1	5.0	4.1	4.0	1.0	30.9	5.2	24
24		2.4	5.4	4.0	5.5	9.3	8.0	4.1	3.6	3.4	3.0	2.5	2.2	2.1	2.1	Y	S	1.6	1.3	1.8	1.7	1.8	1.1	1.4	1.3	1.1	9.3	3.2	23
25		1.4	1.5	1.6	1.9	3.9	4.1	4.1	4.2	3.5	4.2	3.9	3.8	4.7	17.8	S	6.1	4.4	2.4	2.3	27.1	4.0	4.1	4.2	3.7	1.4	27.1	5.2	24
26		4.3	2.6	2.1	2.0	1.4	1.4	1.3	28.9	1.9	1.1	1.3	0.9	1.6	S	1.1	1.1	1.4	1.6	1.1	1.3	1.3	0.8	2.6	3.7	0.8	28.9	2.9	24
27		5.9	7.8	8.1	5.4	4.7	6.5	6.1	6.4	6.6	5.0	5.2	3.7	S	3.3	2.5	2.4	2.0	1.9	1.9	1.9	1.9	1.8	2.2	2.7	1.8	8.1	4.2	24
28		2.7	3.0	3.0	3.3	3.0	3.2	2.7	3.2	3.5	3.2	3.6	S	3.6	36.0	4.1	3.6	1.8	1.6	2.7	2.2	2.4	2.8	2.8	2.5	1.6	36.0	4.4	24
29		2.2	1.8	1.4	1.5	1.3	2.7	2.6	6.8	2.4	2.0	S	2.3	3.0	2.8	1.7	1.6	0.7	2.4	6.0	1.7	1.8	1.4	1.1	1.4	0.7	6.8	2.3	24
30		2.0	1.5	1.6	1.1	0.9	1.5	1.8	1.3	1.2	S	2.4	2.4	1.2	1.3	15.3	1.0	1.1	0.8	1.6	0.8	1.1	1.7	1.5	0.6	0.6	15.3	2.0	24
31		0.9	0.9	0.7	0.6	0.7	1.6	1.6	1.9	1.7	1.7	1.7	1.4	0.9	1.3	1.9	1.1	1.8	1.7	3.0	1.0	S	1.2	1.1	1.4	0.6	3.0	1.4	24
HOURLY MAX		9.9	9.4	8.2	8.1	44.4	30.9	7.7	28.9	15.0	11.0	106.3	134.1	85.9	36.0	15.3	21.4	9.5	25.6	22.6	27.1	9.6	13.4	14.1	8.0				
HOURLY AVG		3.0	2.9	2.8	2.8	4.3	4.0	3.3	4.7	3.9	3.3	8.4	10.6	6.0	4.8	3.4	3.7	3.1	3.7	3.8	4.2	3.2	3.1	3.2	2.7				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

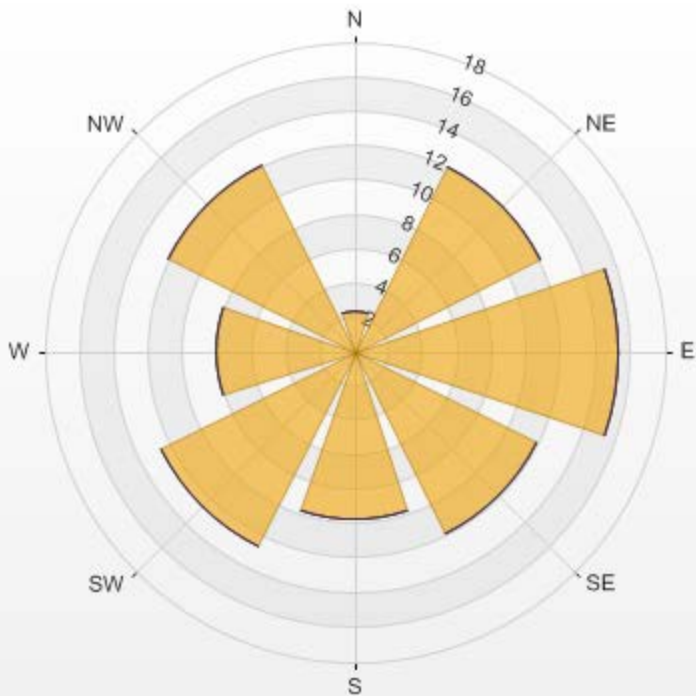
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	134.1 PPB @ HOUR(S) 11 ON DAY(S) 18
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	8.75
OPERATIONAL TIME:	742 HRS



Wind: LICA ST. LINA Monitor: NOX [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 15.72% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.41	0	0	0	2.41
NE	12.04	0	0	0	12.04
E	15.3	0	0	0	15.3
SE	11.9	0	0	0	11.9
S	9.77	0	0	0	9.77
SW	12.61	0	0	0	12.61
W	8.07	0	0	0	8.07
NW	12.18	0	0	0	12.18
Summary	84.28	0	0	0	84.28



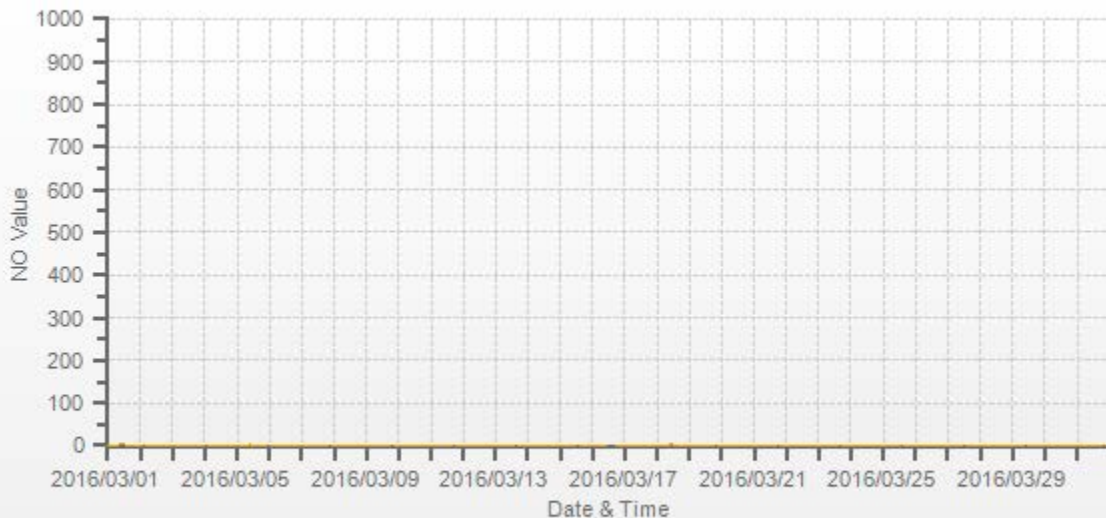
% Icon Classes (ppb)	84	0	0	0
0.5-50.0	84	0	0	0
50.0-110.0	0	0	0	0
110.0-210.0	0	0	0	0
>210.0	0	0	0	0

NOX[ppb] Calibration: LICA ST. LINA Monthly: 03/2016 Type: Span



NITRIC OXIDES

NO[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





NITRIC OXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
DAY	MIN.	MAX.	AVG.	RDGS.																										
1	0.0	0.0	0.2	0.0	S	0.3	0.5	1.7	3.3	4.6	4.0	65.7	2.8	2.0	2.8	1.0	2.3	1.1	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	65.7	4.0	24
2	0.1	0.3	0.1	S	0.2	0.1	0.0	0.0	0.8	1.2	1.4	1.5	1.3	1.5	R	1.0	0.7	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5	23
3	0.1	0.0	S	0.4	0.1	0.2	0.3	0.0	0.1	0.4	0.9	0.6	0.9	0.6	0.8	0.4	0.4	2.0	0.0	0.0	0.0	0.0	0.3	2.5	0.0	2.5	0.5	24		
4	0.8	S	0.2	0.1	0.0	0.0	0.0	0.4	0.4	0.6	0.8	0.9	0.5	0.6	0.8	1.1	1.4	0.4	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	1.4	0.4	24	
5	S	0.2	0.1	0.0	0.0	0.0	0.2	1.9	10.4	2.2	12.5	2.7	2.7	2.1	1.7	1.4	0.7	0.6	0.3	0.1	0.0	0.0	0.2	S	0.0	12.5	1.8	24		
6	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.2	0.7	0.7	0.3	0.3	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	0.0	0.7	0.2	24	
7	0.1	0.0	0.1	0.0	0.0	0.0	0.0	1.3	1.7	0.4	0.6	0.4	1.8	0.2	0.0	0.0	0.0	0.1	0.0	0.4	0.0	S	0.9	0.1	0.0	1.8	0.4	24		
8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	23.1	0.4	0.0	0.2	0.6	15.8	1.1	0.3	10.4	2.7	S	0.2	0.1	0.1	0.0	23.1	2.4	24		
9	0.0	0.0	0.0	0.0	23.3	0.1	0.6	0.1	0.0	0.0	0.4	0.4	0.1	0.4	0.0	0.2	0.2	0.1	0.0	S	0.2	0.0	0.0	0.0	0.0	0.0	23.3	1.1	24	
10	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.7	0.6	0.6	0.5	0.4	0.2	0.1	S	0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.7	0.2	24	
11	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.3	1.0	0.3	0.0	0.1	0.1	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	24	
12	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.7	0.3	0.4	S	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24	
13	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.4	0.5	0.4	0.0	S	0.4	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.2	0.2	1.0	0.2	0.1	S	0.1	0.0	0.2	0.1	0.4	0.4	0.2	0.1	0.0	0.0	0.0	1.0	0.2	24	
15	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.2	1.8	2.0	1.4	1.4	S	1.0	0.6	0.4	0.6	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.0	0.4	24	
16	0.0	0.0	0.0	0.0	0.4	0.7	0.2	0.0	0.0	0.4	0.0	C	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	S	0.0	0.7	0.1	24		
17	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.5	0.3	1.7	0.1	0.0	0.0	0.0	0.0	S	0.0	0.0	1.7	0.2	24		
18	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.3	1.0	0.0	71.8	133.0	48.6	1.2	0.8	1.5	0.9	0.2	0.0	0.0	0.0	S	0.0	0.0	0.0	133.0	11.3	24		
19	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.4	1.1	0.5	0.6	0.6	1.2	0.9	0.9	0.5	0.4	0.0	0.0	0.1	S	0.1	0.0	0.0	0.0	0.0	1.2	0.3	24	
20	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1	24	
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	0.1	0.0	0.0	0.0	0.0	0.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
23	0.0	0.0	0.0	0.0	0.0	24.9	0.9	1.9	6.2	0.5	0.5	0.2	0.7	0.0	0.3	0.4	S	11.2	0.0	0.0	0.1	0.4	0.0	0.0	0.0	24.9	2.1	24		
24	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.7	0.5	0.2	0.1	0.1	Y	S	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.7	0.1	23	
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.7	0.7	0.4	0.6	4.0	S	1.7	1.0	0.0	0.0	8.9	0.8	0.0	0.0	0.0	0.0	0.0	8.9	0.8	24	
26	0.3	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.1	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	0.0	0.0	17.0	0.8	24	
27	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.2	1.2	0.9	0.8	0.6	S	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.3	24	
28	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.5	S	0.4	26.7	0.6	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.7	1.3	24	
29	0.0	0.0	0.0	0.0	0.0	0.4	0.3	2.3	0.3	0.0	S	0.6	1.1	0.2	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.3	24	
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	0.1	0.0	0.0	11.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.5	24	
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24
HOURLY MAX	0.8	0.3	0.4	0.4	23.3	24.9	0.9	17.0	10.4	4.6	71.8	133.0	48.6	26.7	11.2	15.8	2.3	11.2	10.4	8.9	0.8	0.4	0.9	2.5						
HOURLY AVG	0.1	0.0	0.0	0.0	0.8	0.9	0.2	1.0	1.0	0.6	4.1	7.4	2.3	1.6	0.9	1.0	0.4	0.6	0.5	0.5	0.1	0.0	0.1	0.1						

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

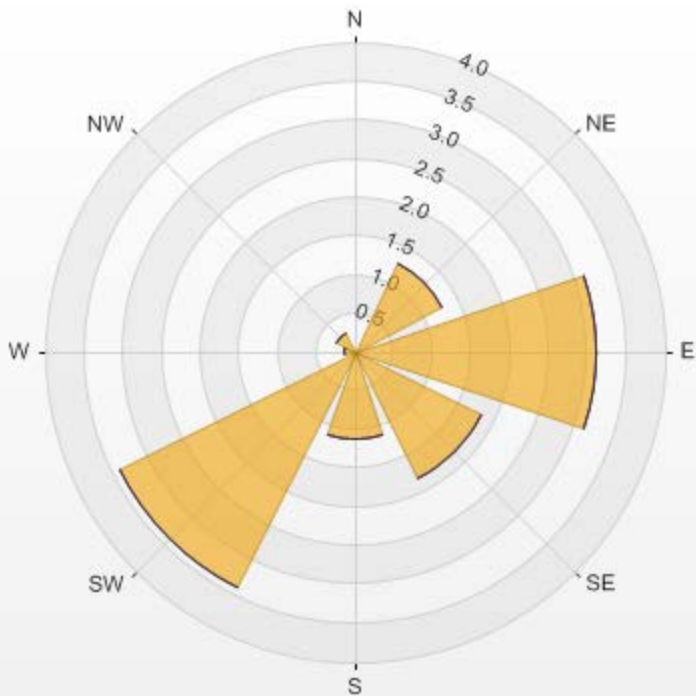
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	326
MAXIMUM INSTANTANEOUS VALUE:	133.0 PPB @ HOUR(S) 11 ON DAY(S) 18
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	6.82
OPERATIONAL TIME:	742 HRS



Wind: LICA ST. LINA Monitor: NO [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 88.81% Valid Data: 94.89% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	0	0	0	0	0
NE	1.27	0	0	0	1.27
E	3.12	0	0	0	3.12
SE	1.84	0	0	0	1.84
S	1.13	0	0	0	1.13
SW	3.4	0	0	0	3.4
W	0.14	0	0	0	0.14
NW	0.28	0	0	0	0.28
Summary	11.18	0	0	0	11.18



% Icon Classes (ppb)	11.2	0.5-50.0	0.0	50.0-110.0	0.0	110.0-210.0	0.0	>210.0
								

NITROGEN DIOXIDE

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1	1	2.0	1.7	1.8	1.9	S	3.1	4.2	5.8	5.9	5.8	5.4	5.0	4.0	3.3	2.9	2.1	1.2	1.4	1.2	2.3	3.0	6.7	5.6	5.1	1.2	6.7	3.5	24
2	2	7.9	7.2	5.0	S	4.8	6.2	5.2	3.6	2.9	3.1	3.2	3.1	3.0	3.2	3.2	3.3	3.6	4.2	5.2	4.8	4.1	4.1	4.1	4.3	2.9	7.9	4.3	24
3	3	4.0	3.0	S	4.0	4.8	4.4	3.7	4.1	4.4	3.9	3.9	2.6	2.3	2.2	2.3	2.5	2.6	2.8	2.6	4.6	2.9	2.5	2.6	2.9	2.2	4.8	3.3	24
4	4	3.0	S	4.6	2.2	0.7	0.3	0.3	0.3	0.7	0.2	0.2	0.4	0.3	0.8	0.9	2.0	3.6	5.1	4.7	5.7	5.8	4.2	3.7	3.1	0.2	5.8	2.3	24
5	5	S	2.9	2.5	2.4	2.5	2.7	2.8	2.9	2.4	2.7	3.2	3.6	3.8	4.0	4.3	4.9	6.3	7.6	9.1	8.7	7.1	6.3	6.5	S	2.4	9.1	4.5	24
6	6	6.6	6.1	5.6	5.5	3.9	2.6	3.3	5.3	4.3	3.4	1.8	1.0	0.8	0.7	0.6	0.7	0.8	0.6	0.8	0.8	0.7	0.8	S	1.0	0.6	6.6	2.5	24
7	7	0.6	0.5	0.4	0.5	0.4	0.5	0.7	0.6	0.7	0.6	0.9	0.8	1.0	0.9	0.9	1.1	0.8	0.9	1.0	0.7	0.8	S	1.0	0.7	0.4	1.1	0.8	24
8	8	0.6	0.6	0.4	0.4	0.5	0.7	0.6	0.7	0.8	0.8	1.4	0.9	0.9	0.9	1.0	1.2	1.0	0.9	0.7	0.6	S	0.4	0.4	0.4	0.4	1.4	0.7	24
9	9	0.3	0.4	0.5	0.4	0.7	0.7	1.0	0.9	1.1	1.2	1.3	1.5	1.0	0.8	0.8	1.5	1.8	1.4	1.1	S	1.4	0.9	0.5	0.5	0.3	1.8	0.9	24
10	10	0.5	0.5	0.8	0.9	0.7	1.2	1.4	1.0	1.0	1.2	0.9	1.0	1.1	1.4	1.4	1.5	1.4	1.5	S	1.8	2.3	2.2	2.0	1.7	0.5	2.3	1.3	24
11	11	1.6	1.9	2.1	1.5	1.4	1.5	1.9	1.5	0.9	0.5	0.4	0.3	0.3	0.2	0.3	0.2	0.2	S	0.5	0.3	0.5	0.2	0.1	0.3	0.1	2.1	0.8	24
12	12	3.0	3.3	3.3	3.1	2.3	1.7	1.6	1.1	1.3	1.2	1.0	1.2	1.3	1.4	1.5	1.6	S	2.1	2.2	2.1	2.4	2.3	2.4	2.4	1.0	3.3	2.0	24
13	13	2.4	2.6	3.0	3.7	3.3	2.8	2.7	3.0	1.7	1.3	1.1	1.4	1.7	0.9	0.6	S	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.4	3.7	1.6	24
14	14	0.6	0.6	0.4	0.8	0.4	0.5	0.6	0.7	0.6	0.5	0.6	0.7	0.6	0.6	S	0.6	0.5	0.5	0.8	0.9	0.7	0.7	0.7	0.6	0.4	0.9	0.6	24
15	15	0.6	0.6	0.7	0.8	0.6	0.6	1.2	1.0	1.1	1.1	1.1	1.1	0.9	S	1.0	0.9	0.8	0.9	0.8	0.5	0.6	0.5	0.4	0.6	0.4	1.2	0.8	24
16	16	0.5	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	C	C	C	C	C	C	0.1	0.0	0.1	0.1	0.1	0.3	S	0.0	0.5	0.1	24
17	17	0.7	0.8	1.0	1.1	1.1	0.7	0.9	0.7	0.6	0.6	0.6	0.5	0.4	0.2	0.4	0.3	0.4	0.4	0.2	0.4	0.5	0.5	S	0.4	0.2	1.1	0.6	24
18	18	0.2	0.3	0.3	0.4	0.5	0.9	0.8	1.0	0.9	0.3	2.0	0.5	1.2	0.8	1.6	2.1	1.8	1.6	1.5	1.2	1.5	S	1.2	1.2	0.2	2.1	1.0	24
19	19	S	1.1	1.1	1.1	1.3	1.9	2.1	2.4	2.7	1.6	1.1	1.4	2.0	2.1	2.3	2.2	2.2	2.6	2.8	2.7	S	2.3	2.2	1.8	1.1	2.8	2.0	24
20	20	1.8	1.8	1.5	1.6	1.8	1.7	1.5	2.2	1.8	1.6	1.7	1.7	1.6	1.3	0.8	1.2	0.8	1.1	1.5	S	1.4	1.3	1.0	1.1	0.8	2.2	1.5	24
21	21	1.1	0.9	1.3	1.2	0.6	0.5	0.6	0.7	0.3	0.7	0.4	0.4	0.4	0.6	0.9	0.7	0.3	0.6	S	0.5	0.5	0.2	0.5	0.3	0.2	1.3	0.6	24
22	22	0.4	0.2	0.1	0.6	0.0	0.0	0.3	0.5	0.6	0.4	0.5	0.4	0.5	0.5	0.3	0.5	1.3	S	1.0	0.7	1.0	1.3	0.9	0.6	0.0	1.3	0.5	24
23	23	0.5	0.2	0.4	0.5	0.8	1.3	1.8	3.1	1.5	1.1	0.6	0.6	0.7	0.4	0.8	1.1	S	1.2	0.6	1.2	1.9	2.2	2.6	2.5	0.2	3.1	1.2	24
24	24	1.6	3.3	3.1	3.7	7.7	5.5	3.3	2.6	2.3	2.0	1.5	1.4	1.1	1.3	1.1	S	0.8	0.6	0.9	0.8	0.9	0.5	0.7	0.6	0.5	7.7	2.1	24
25	25	0.8	0.8	0.9	1.2	2.5	3.1	3.3	3.2	2.5	2.2	2.5	2.9	3.5	S	2.8	2.4	1.4	1.2	1.7	1.9	2.6	3.4	3.0	0.8	3.5	2.3	24	
26	26	2.6	1.9	1.3	1.1	0.8	0.9	0.8	1.4	0.8	0.7	0.7	0.5	0.8	S	0.6	0.5	0.6	0.5	0.4	0.5	0.4	0.2	0.7	2.8	0.2	2.8	0.9	24
27	27	4.2	6.3	6.4	4.4	3.6	5.4	5.1	4.9	4.0	3.0	2.8	1.8	S	1.6	1.4	1.3	1.0	1.1	0.8	0.9	1.0	0.9	1.2	1.5	0.8	6.4	2.8	24
28	28	1.8	1.9	1.9	2.3	1.9	1.9	1.5	1.8	S	2.1	2.0	S	1.8	2.6	2.2	1.7	0.7	0.8	1.0	1.0	1.4	1.8	1.7	1.5	0.7	2.6	1.7	24
29	29	0.8	0.6	0.5	0.4	0.4	0.8	0.5	0.6	0.7	1.0	S	0.9	1.0	0.9	0.4	0.3	0.0	0.4	0.8	0.6	0.5	0.5	0.4	0.4	0.0	1.0	0.6	24
30	30	1.0	0.8	0.5	0.4	0.2	0.6	0.7	S	0.6	S	0.8	0.6	0.4	0.5	0.5	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.1	0.1	0.0	1.0	0.4	24
31	31	0.1	0.2	0.2	0.0	0.1	0.6	0.9	1.0	0.9	0.7	0.9	0.5	0.4	0.2	0.4	0.3	0.6	0.5	0.7	0.5	S	0.8	0.5	0.9	0.0	1.0	0.5	24
HOURLY MAX		7.9	7.2	6.4	5.5	7.7	6.2	5.2	5.8	5.9	5.8	5.4	5.0	4.0	4.0	4.3	4.9	6.3	7.6	9.1	8.7	7.1	6.7	6.5	5.1				
HOURLY AVG		1.8	1.8	1.7	1.6	1.7	1.8	1.8	2.0	1.7	1.5	1.5	1.3	1.3	1.4	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.7	1.5				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

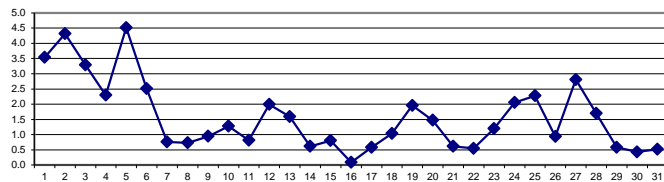
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	690					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	9.1	PPB	@ HOUR(S)	18	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	4.5	PPB			ON DAY(S)	5
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.51		MONTHLY AVERAGE:	1.6	PPB	

24 HOUR AVERAGES FOR MARCH 2016



NO2[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





NITROGEN DIOXIDE MAX instantaneous maximum in ppb

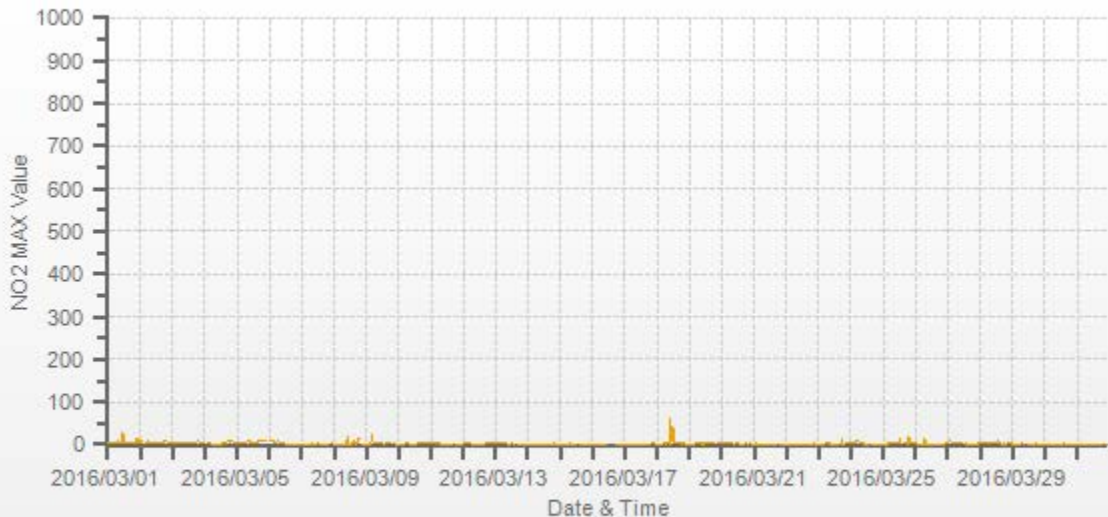
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	2.5	2.7	2.6	2.8	S	3.7	5.8	7.1	6.8	6.6	6.3	29.1	5.3	4.7	4.1	3.3	5.4	2.6	2.5	3.3	5.4	12.9	13.7	6.4	2.5	29.1	6.3	24	
2	9.8	9.4	6.2	S	5.9	7.6	6.9	5.0	3.8	4.4	4.3	4.3	4.0	4.4	R	4.7	4.8	6.0	7.2	7.1	6.0	5.7	5.6	6.0	3.8	9.8	5.9	23	
3	5.7	4.6	S	5.6	6.3	6.4	5.0	6.1	6.2	5.3	5.3	4.4	3.7	3.8	3.8	4.1	4.2	5.6	5.3	8.1	6.5	4.1	5.4	5.5	3.7	8.1	5.3	24	
4	5.5	S	6.4	5.1	2.5	1.9	1.9	2.0	2.2	1.7	1.5	2.0	1.7	2.4	2.5	4.5	5.2	7.3	6.9	8.6	8.7	6.1	5.5	4.8	1.5	8.7	4.2	24	
5	S	4.1	4.1	4.1	4.3	4.4	4.4	5.5	9.4	4.8	7.4	5.3	5.9	5.7	6.4	6.9	8.5	10.0	11.6	11.2	9.8	8.8	9.7	S	4.1	11.6	6.9	24	
6	8.9	8.1	7.8	8.2	6.1	4.6	7.6	9.0	6.5	5.5	3.4	3.0	2.2	2.1	2.0	2.1	2.2	1.8	2.0	2.3	1.9	1.9	S	2.0	1.8	9.0	4.4	24	
7	1.7	1.6	1.4	1.7	1.4	1.4	1.5	3.2	1.9	1.5	1.8	1.7	2.5	2.0	1.7	2.1	1.5	1.9	2.2	1.9	1.6	S	2.5	2.5	1.4	3.2	1.9	24	
8	1.7	1.5	1.2	1.4	1.5	1.5	1.7	2.3	2.0	1.9	19.0	2.1	2.0	2.2	2.7	10.8	2.3	2.5	12.0	11.9	S	1.9	1.9	1.9	1.2	19.0	3.9	24	
9	1.9	2.2	1.9	1.7	25.6	2.4	2.7	2.8	2.8	2.9	2.8	2.9	2.6	2.3	2.5	3.1	3.5	3.2	2.8	S	3.2	2.6	2.0	2.2	1.7	25.6	3.6	24	
10	2.3	1.9	2.3	2.3	2.0	2.6	3.0	2.5	2.3	2.3	2.0	2.3	2.3	2.3	2.6	2.7	2.4	2.6	S	3.0	3.9	3.3	3.0	2.6	1.9	3.9	2.5	24	
11	2.7	3.4	3.2	3.0	2.4	2.7	2.9	2.3	1.7	1.4	1.2	0.9	1.1	1.2	1.2	1.0	1.5	S	1.5	1.2	1.3	1.0	1.1	1.1	0.9	3.4	1.8	24	
12	5.1	4.5	4.2	3.8	3.3	2.7	2.2	1.8	1.8	1.7	1.7	1.9	1.9	2.0	2.1	2.1	S	2.8	2.6	2.6	2.9	2.9	3.3	3.0	1.7	5.1	2.7	24	
13	2.9	3.4	4.0	4.8	4.9	3.6	3.5	3.8	2.5	2.1	1.9	2.2	2.6	1.5	1.2	S	0.9	1.4	1.2	1.0	1.2	1.0	1.2	1.0	0.9	4.9	2.3	24	
14	1.2	1.3	1.1	1.2	1.1	0.9	1.3	2.1	1.5	1.0	1.0	1.6	1.0	0.9	S	0.9	0.7	0.9	1.4	2.7	1.7	1.2	1.2	1.2	0.7	2.7	1.3	24	
15	1.1	1.0	1.2	1.5	1.0	1.0	2.2	2.4	1.6	2.1	2.0	2.0	1.7	S	1.4	1.5	1.3	1.5	1.5	1.3	1.3	1.0	1.2	1.4	1.0	2.4	1.5	24	
16	1.4	1.0	0.9	0.8	0.7	0.8	1.2	1.0	0.9	0.8	0.7	C	C	C	C	C	C	C	0.9	1.0	0.8	1.5	0.9	0.9	S	0.7	1.5	1.0	24
17	1.2	1.2	1.3	1.6	1.8	1.3	1.6	1.3	1.2	1.7	1.0	0.8	0.8	0.7	1.2	1.0	2.0	1.2	1.0	1.2	3.3	3.2	S	1.3	0.7	3.3	1.4	24	
18	0.7	1.2	0.8	1.3	1.5	2.5	1.5	2.8	3.6	1.0	60.7	9.0	36.9	6.6	2.6	3.1	2.7	2.5	2.4	2.0	2.6	S	2.0	1.9	0.7	60.7	6.6	24	
19	1.9	2.1	2.1	2.1	2.1	3.0	3.2	3.4	4.2	2.6	2.0	2.6	2.8	2.8	3.1	3.2	3.2	3.9	4.3	3.8	S	3.3	3.6	3.1	1.9	4.3	3.0	24	
20	3.1	3.0	2.8	2.8	3.0	2.7	2.8	2.9	2.8	2.3	2.5	2.5	2.6	2.1	1.9	1.9	2.1	2.0	2.5	S	2.3	2.5	2.0	2.1	1.9	3.1	2.5	24	
21	1.9	1.9	2.5	2.3	1.5	1.5	1.7	1.7	1.2	1.4	1.2	1.1	1.3	1.3	1.3	1.6	1.2	1.5	S	0.9	1.0	0.9	1.2	1.4	0.9	2.5	1.5	24	
22	1.5	1.2	1.3	1.4	1.0	0.9	1.7	1.9	1.3	1.3	1.6	1.1	1.3	1.3	1.3	1.8	2.1	S	1.9	1.5	2.4	2.1	2.0	1.6	0.9	2.4	1.5	24	
23	1.5	1.3	1.3	1.5	1.7	6.9	4.7	5.3	3.5	1.9	1.7	1.6	2.0	1.5	1.9	2.3	S	13.9	1.9	2.1	4.5	4.2	4.0	4.0	1.3	13.9	3.3	24	
24	2.5	5.7	4.3	6.0	9.3	8.3	3.8	3.1	2.9	2.4	1.9	1.9	1.6	1.5	Y	S	1.3	1.3	1.5	1.6	1.6	1.4	1.3	1.3	1.3	9.3	3.0	23	
25	1.8	1.7	1.5	2.3	3.7	3.8	4.3	4.0	3.2	3.3	2.9	3.1	3.9	15.1	S	3.9	3.3	2.7	2.3	18.2	2.8	4.3	4.2	4.0	1.5	18.2	4.4	24	
26	3.5	2.6	2.3	2.0	1.8	1.6	1.4	15.2	1.4	1.3	1.2	1.2	1.3	S	1.0	1.0	1.3	1.5	1.3	1.3	1.5	1.0	2.5	4.1	1.0	15.2	2.3	24	
27	6.0	8.0	8.2	5.5	4.6	6.7	5.9	5.9	5.1	4.0	3.7	2.6	S	2.4	2.3	2.3	1.9	2.1	1.8	2.0	2.3	1.8	2.2	2.5	1.8	8.2	3.9	24	
28	2.8	3.2	3.1	3.4	3.2	2.9	2.7	2.9	3.3	2.8	2.7	S	2.8	10.8	3.2	3.2	1.9	1.7	2.4	2.1	2.6	2.6	3.2	2.7	1.7	10.8	3.1	24	
29	2.3	1.9	1.6	1.6	1.5	2.0	1.9	3.9	1.8	1.8	S	1.8	2.0	2.0	1.3	1.5	1.0	2.0	3.4	1.5	2.0	1.5	1.3	1.3	1.0	3.9	1.9	24	
30	1.7	1.6	1.5	1.5	1.2	1.3	1.5	1.5	1.3	S	1.6	1.6	1.2	1.3	6.8	1.0	1.0	0.9	1.2	0.8	1.0	1.3	1.3	0.8	0.8	6.8	1.5	24	
31	0.9	1.0	1.0	0.9	0.9	1.3	1.7	1.5	1.3	1.3	1.3	1.3	1.0	1.3	1.5	1.0	1.7	1.8	2.3	1.0	S	1.3	1.2	1.3	0.9	2.3	1.3	24	
HOURLY MAX	9.8	9.4	8.2	8.2	25.6	8.3	7.6	15.2	9.4	6.6	60.7	29.1	36.9	15.1	6.8	10.8	8.5	13.9	12.0	18.2	9.8	12.9	13.7	6.4					
HOURLY AVG	2.9	2.9	2.8	2.8	3.6	3.1	3.0	3.7	3.0	2.5	4.9	3.4	3.5	3.2	2.4	2.8	2.5	3.1	3.2	3.7	3.1	3.0	3.1	2.6					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

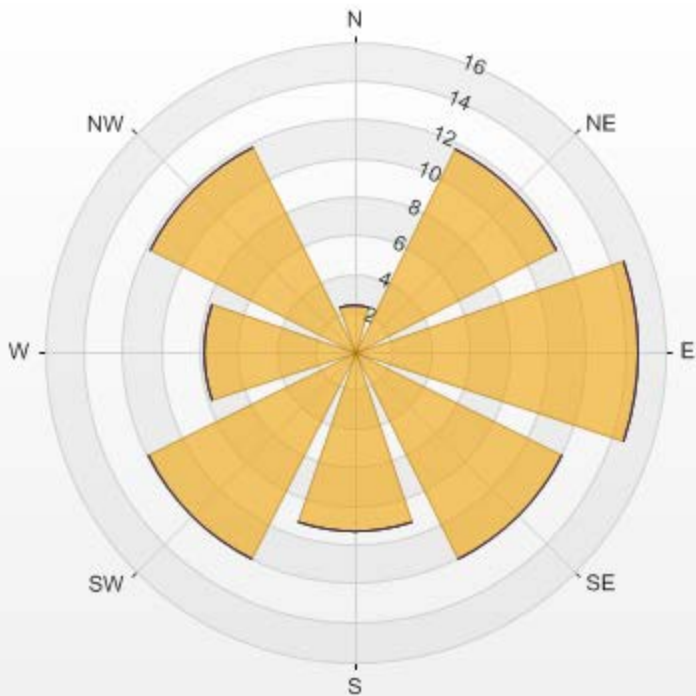
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	60.7 PPB @ HOUR(S) 10 ON DAY(S) 18
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	3.69
OPERATIONAL TIME:	742 HRS



Wind: LICA ST. LINA Monitor: NO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 18.38% Valid Data: 94.35% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.42	0	0	0	2.42
NE	11.68	0	0	0	11.68
E	14.67	0	0	0	14.67
SE	11.97	0	0	0	11.97
S	9.26	0	0	0	9.26
SW	11.97	0	0	0	11.97
W	7.83	0	0	0	7.83
NW	11.82	0	0	0	11.82
Summary	81.62	0	0	0	81.62



% Icon Classes (ppb)	82	0	0	0
0.5-50.0				
50.0-110.0				
110.0-210.0				
>210.0				

NO2[ppb] Calibration: LICA ST. LINA Monthly: 03/2016 Type: Span



OZONE

OZONE (O3) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.		
DAY	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	RDGS.
1	31.5	31.2	30.6	29.6	S	27.5	25.4	23.1	22.6	22.9	24.9	28.2	31.4	36.6	39.4	41.1	43.7	43.5	43.2	41.3	39.5	33.6	34.3	31.5	22.6	43.7	32.9	24			
2	25.7	24.9	26.3	S	26.3	24.6	25.7	27.5	28.2	31.0	32.4	32.3	34.1	35.2	36.6	37.6	37.5	36.3	33.8	34.3	33.9	34.1	33.6	33.0	24.6	37.6	31.5	24			
3	32.9	33.1	S	30.7	28.6	28.5	28.8	28.1	28.6	29.2	29.8	31.8	31.6	32.0	32.0	31.9	31.8	31.1	30.4	27.5	29.0	28.3	27.3	27.0	27.0	33.1	30.0	24			
4	24.8	S	20.3	27.0	31.2	32.1	32.7	32.3	32.3	35.6	36.6	36.6	37.9	39.0	38.7	35.1	30.5	27.8	27.6	26.4	26.0	27.3	26.9	26.7	20.3	39.0	30.9	24			
5	S	24.3	23.1	22.1	21.2	20.7	20.1	19.6	19.4	18.7	19.1	22.1	25.6	27.4	28.6	30.1	30.4	26.3	23.4	23.0	24.7	25.4	25.0	S	18.7	30.4	23.7	24			
6	24.3	22.7	21.3	19.6	18.6	21.3	20.0	S1	22.4	25.3	27.8	29.0	28.8	28.5	28.2	29.0	30.4	30.1	28.7	28.6	28.9	29.1	S	28.5	18.6	30.4	26.0	23			
7	28.1	28.6	29.2	28.8	28.6	27.9	27.4	26.6	26.1	26.7	26.3	25.3	27.3	28.0	29.7	31.3	32.6	31.8	Y	Y	Y	Y	Y	30.6	31.3	25.3	32.6	28.6	20		
8	31.5	32.0	33.1	34.3	35.1	35.0	34.2	34.5	34.1	34.2	33.6	33.1	33.3	33.2	33.7	33.1	32.9	33.4	34.3	33.8	S	34.7	35.3	35.4	31.5	35.4	33.8	24			
9	35.4	34.7	34.5	35.0	33.9	33.4	32.1	31.7	31.9	31.9	31.2	31.5	32.8	34.5	35.6	35.2	34.1	35.0	33.0	S	30.6	30.4	30.3	29.1	29.1	35.6	32.9	24			
10	29.4	29.9	30.6	30.3	31.5	31.1	30.4	31.9	31.2	30.7	31.0	31.9	32.9	34.0	34.3	34.8	34.7	34.7	S	33.6	32.9	32.5	30.5	30.4	29.4	34.8	32.0	24			
11	30.7	29.3	28.2	31.8	32.3	30.5	29.6	32.4	36.1	38.1	41.4	43.9	45.2	46.6	47.1	47.8	47.9	S	47.1	47.1	46.4	47.8	46.7	46.8	28.2	47.9	40.0	24			
12	40.9	40.6	38.7	38.8	39.0	40.7	41.8	42.9	42.8	42.6	41.6	40.1	39.8	38.0	37.8	37.9	S	37.7	35.7	35.0	34.5	33.8	33.3	33.5	33.3	42.9	38.6	24			
13	33.4	32.6	31.4	30.0	27.4	27.0	25.7	27.4	32.4	35.0	36.4	33.5	32.3	34.1	35.3	S	38.6	39.4	38.5	37.0	36.8	35.6	35.5	34.7	25.7	39.4	33.5	24			
14	33.7	32.9	32.2	32.0	30.9	29.7	28.8	29.0	29.3	29.2	28.8	28.2	29.0	31.6	S	31.4	33.1	31.9	30.0	28.7	30.2	29.4	28.7	27.7	27.7	33.7	30.3	24			
15	27.9	27.6	26.7	26.7	28.8	27.4	26.0	24.8	26.0	25.5	26.6	28.0	28.8	S	28.8	30.4	30.8	29.5	30.2	29.6	29.4	29.9	30.3	29.1	24.8	30.8	28.2	24			
16	29.0	30.1	31.5	32.3	32.8	35.1	34.8	31.7	31.3	31.3	32.3	32.3	33.0	32.2	Y	34.1	34.3	34.6	34.1	34.0	34.5	34.7	34.5	S	29.0	35.1	32.9	23			
17	39.4	39.3	38.3	37.3	36.9	36.2	35.4	34.7	34.4	34.4	C	C	C	C	C	39.3	38.8	38.4	38.6	38.6	38.1	38.1	S	37.5	34.4	39.4	37.4	24			
18	37.5	37.5	37.0	36.6	36.3	34.3	34.8	36.0	35.7	38.1	38.3	38.4	40.3	41.1	40.9	40.6	41.0	41.7	41.8	41.3	39.4	S	38.0	37.4	34.3	41.8	38.4	24			
19	36.6	36.1	35.6	34.6	33.4	32.5	31.5	30.6	31.3	34.1	35.7	36.6	35.8	36.2	37.3	39.1	40.5	40.6	40.4	40.9	S	39.6	39.3	39.1	30.6	40.9	36.4	24			
20	38.3	36.9	36.4	35.9	35.6	35.5	35.1	35.0	35.3	35.0	35.3	36.5	37.8	40.7	43.2	43.1	42.5	43.2	43.6	S	44.3	43.3	42.6	41.3	35.0	44.3	39.0	24			
21	41.0	39.4	38.9	39.8	39.7	38.8	38.1	37.6	37.6	37.1	37.7	38.4	38.9	39.2	39.2	39.0	39.0	38.5	S	39.1	39.5	40.0	39.8	40.1	37.1	41.0	39.0	24			
22	40.3	40.9	40.9	40.7	41.5	41.3	40.7	40.6	41.0	41.3	41.8	42.6	43.6	44.8	45.6	45.3	42.7	S	43.6	45.0	44.9	44.3	43.9	43.1	40.3	45.6	42.6	24			
23	41.8	40.6	39.6	38.8	37.9	36.7	35.5	34.5	35.7	36.2	36.4	37.2	38.0	40.4	42.4	42.0	S	40.0	39.6	39.2	39.4	39.9	40.0	38.4	34.5	42.4	38.7	24			
24	37.7	35.5	35.0	30.6	24.8	29.0	30.0	30.6	32.7	35.4	37.2	38.2	39.3	40.1	40.5	S	41.0	41.6	41.3	41.0	40.7	40.7	40.6	41.0	24.8	41.6	36.7	24			
25	40.6	40.1	39.3	37.3	33.8	33.3	32.7	34.1	35.1	35.0	35.1	35.1	35.1	33.6	31.4	S	34.4	38.2	40.2	39.5	38.3	36.6	33.1	31.2	31.1	40.6	35.6	24			
26	32.7	32.6	33.0	34.0	35.9	35.6	36.0	35.4	35.4	37.8	39.8	41.1	42.4	S	45.1	45.4	46.1	45.8	45.7	45.3	45.6	45.6	44.7	42.0	32.6	46.1	40.1	24			
27	39.4	35.6	35.1	38.4	40.1	35.6	35.8	37.2	39.5	41.6	42.6	45.6	S	49.1	51.8	52.2	50.5	48.9	47.4	46.2	45.5	45.3	43.6	39.9	35.1	52.2	42.9	24			
28	37.6	36.3	35.2	34.7	34.6	34.9	34.8	34.4	34.2	35.1	35.9	S	39.4	41.1	42.5	44.5	46.3	47.0	45.7	44.4	41.9	41.1	40.0	39.9	34.2	47.0	39.2	24			
29	42.1	42.0	42.3	42.6	42.0	42.8	43.7	S1	41.3	44.0	S	46.4	46.3	48.6	49.9	49.5	49.5	49.0	47.8	47.8	47.8	47.8	47.5	47.0	46.3	41.3	49.9	45.7	23		
30	44.8	45.0	44.5	44.1	42.4	40.7	40.0	39.2	39.2	S	36.4	Y	Y	Y	Y	Y	Y	45.6	45.1	44.0	44.5	S1	45.2	45.0	44.3	36.4	45.6	42.9	18		
31	42.7	41.0	41.4	40.9	39.9	38.6	37.5	38.2	38.6	39.3	39.9	41.1	42.4	43.6	44.5	44.7	44.1	43.8	43.4	42.0	S	41.9	42.1	41.1	37.5	44.7	41.4	24			
HOURLY MAX	44.8	45.0	44.5	44.1	42.4	42.8	43.7	42.9	42.8	44.0	42.6	46.4	46.3	49.1	51.8	52.2	50.5	49.0	47.8	47.8	47.8	47.8	47.8	47.0	46.8						
HOURLY AVG	35.1	34.4	33.7	33.8	33.4	32.8	32.4	32.5	33.0	33.7	34.2	35.2	35.8	37.3	38.8	38.6	38.9	38.2	38.3	37.6	37.0	37.0	36.6	36.1							

STATUS FLAG CODES

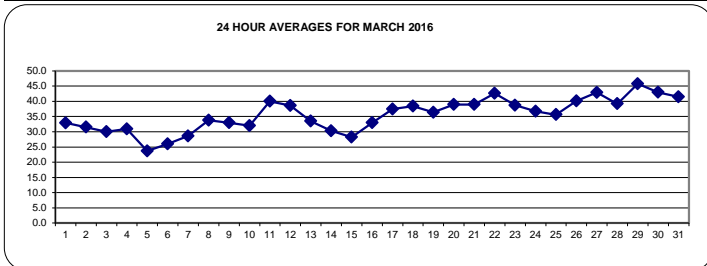
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

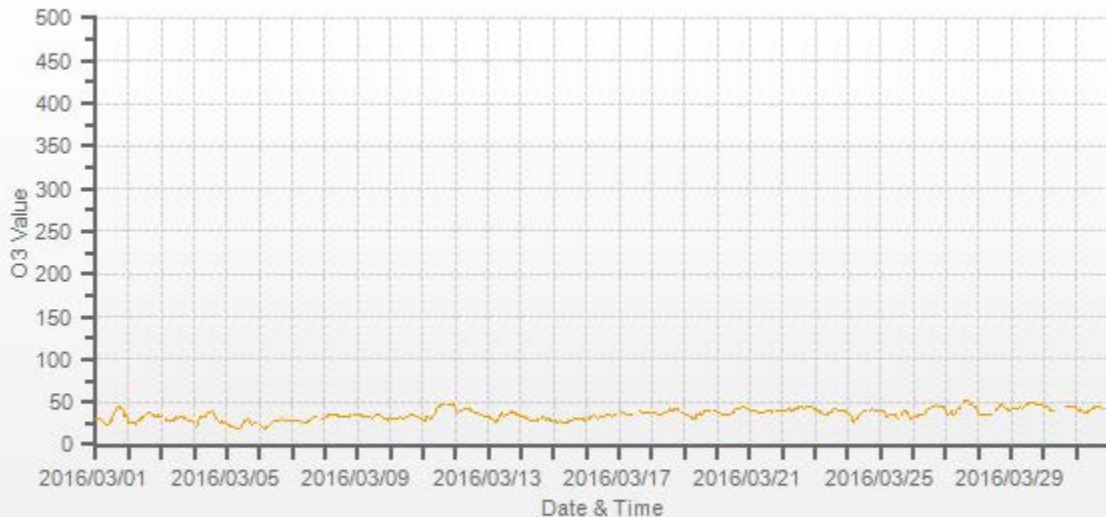
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	695			
MINIMUM 1-HR AVERAGE:	18.6	PPB	@ HOUR(S)	4
MAXIMUM 1-HR AVERAGE:	52.2	PPB	@ HOUR(S)	15
MAXIMUM 24-HR AVERAGE:	45.7	PPB		
			ON DAY(S)	6
			ON DAY(S)	27
			ON DAY(S)	29
			VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	731
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.3
STANDARD DEVIATION:	6.35		MONTHLY AVERAGE:	35.5
				PPB







OZONE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	32.5	32.1	31.5	30.8	S	28.8	27.6	24.4	23.5	24.2	27.2	30.6	33.6	39.7	40.7	43.8	44.6	44.8	45.1	42.4	43.5	36.0	36.3	33.7	23.5	45.1	34.7	24	
2	30.6	26.9	27.3	S	27.4	26.5	27.2	29.3	30.3	32.6	33.5	33.2	36.1	36.7	R	38.6	38.9	38.2	35.1	35.1	35.1	34.9	34.8	34.0	26.5	38.9	32.8	23	
3	34.1	34.0	S	32.1	30.5	29.6	30.0	29.2	29.7	30.0	31.6	32.5	32.5	32.7	32.7	32.6	32.6	32.4	31.8	30.2	30.2	29.6	28.5	28.4	28.4	34.1	31.2	24	
4	27.6	S	21.5	31.2	32.5	34.0	38.2	33.4	35.1	37.6	37.6	38.2	39.2	39.8	39.7	38.5	32.5	28.9	28.6	27.8	27.7	28.1	27.8	28.0	21.5	39.8	32.8	24	
5	S	25.7	24.4	23.2	22.2	21.7	21.1	20.9	20.2	19.5	20.5	25.3	30.1	31.8	32.7	31.3	32.1	30.0	25.4	24.2	26.5	26.2	26.1	S	19.5	32.7	25.5	24	
6	30.6	24.6	22.7	21.4	22.6	23.0	22.6	S1	S1	28.5	29.0	30.2	29.7	29.3	29.1	30.8	31.5	31.4	29.8	29.4	29.8	30.0	S	29.3	21.4	31.5	27.9	22	
7	29.0	29.8	30.1	29.7	29.4	29.1	28.2	28.2	27.6	27.8	28.0	27.2	28.4	29.6	30.8	33.1	33.7	32.9	Y	Y	Y	Y	32.6	32.9	27.2	33.7	29.9	20	
8	32.6	33.1	34.4	35.3	36.1	36.1	35.4	35.3	34.9	35.4	35.1	34.0	34.0	34.3	35.1	35.2	34.0	35.3	35.8	34.9	S	36.5	36.1	36.3	32.6	36.5	35.0	24	
9	36.5	36.0	35.8	35.8	35.2	34.7	33.2	33.0	32.9	32.9	32.6	32.7	34.0	36.1	36.6	36.2	35.8	36.1	34.7	S	31.8	31.1	31.2	30.2	30.2	36.6	34.1	24	
10	30.8	31.3	31.3	31.5	32.7	32.3	31.9	32.7	32.2	31.5	32.1	33.0	34.0	34.9	35.1	35.7	35.4	35.6	S	35.1	34.0	33.5	31.5	31.7	30.8	35.7	33.0	24	
11	32.1	30.6	29.8	33.5	33.4	32.5	31.5	34.4	38.6	39.9	43.5	45.1	46.3	48.1	48.3	48.6	48.7	S	48.3	48.5	47.1	49.0	48.3	47.6	29.8	49.0	41.5	24	
12	45.8	42.5	40.2	39.8	40.2	41.9	42.8	43.6	43.6	43.1	40.9	40.6	39.0	38.6	38.6	S	38.6	37.6	35.7	35.3	34.7	34.1	34.7	34.1	34.7	34.1	45.8	39.8	24
13	34.3	33.5	32.6	31.6	30.1	28.8	27.5	30.8	33.9	36.8	37.9	34.8	33.6	35.7	36.7	S	39.4	40.3	40.3	37.7	37.6	36.5	36.5	36.2	27.5	40.3	34.9	24	
14	35.1	34.0	33.5	33.5	32.9	30.6	30.2	30.1	30.4	30.1	30.0	29.6	30.8	32.7	S	32.7	34.4	33.8	31.4	30.1	31.1	30.6	30.1	29.2	29.2	35.1	31.6	24	
15	28.8	28.8	28.1	30.2	30.0	28.6	27.7	26.1	27.3	27.3	29.0	29.3	29.7	S	30.6	32.3	32.3	30.8	31.0	30.6	30.2	30.8	31.1	30.4	26.1	32.3	29.6	24	
16	30.1	31.0	33.1	33.2	34.3	36.3	36.1	34.9	32.1	32.5	33.4	34.7	33.9	33.2	Y	35.2	35.1	35.8	34.9	34.9	35.5	35.4	35.4	S	30.1	36.3	34.1	23	
17	40.7	40.3	39.5	38.8	38.0	37.6	36.9	35.9	36.3	36.1	C	C	C	C	C	41.0	40.6	40.5	40.2	40.1	40.1	39.8	S	39.2	35.9	41.0	39.0	24	
18	39.1	39.3	38.5	38.1	38.2	36.8	37.0	38.5	39.7	40.5	40.6	40.3	42.0	42.6	42.6	42.0	42.6	43.6	43.3	42.7	41.8	S	39.3	38.9	36.8	43.6	40.3	24	
19	38.0	37.5	37.0	36.3	34.9	34.2	33.0	32.1	33.9	36.2	37.1	38.0	37.2	37.7	39.4	41.0	42.2	42.3	41.8	42.4	S	41.3	40.7	40.6	32.1	42.4	38.0	24	
20	39.9	38.8	38.0	37.2	37.3	37.0	36.6	36.5	36.8	36.6	36.8	38.4	40.2	43.5	45.0	45.1	44.2	44.7	45.5	S	46.0	45.1	44.8	42.7	36.5	46.0	40.7	24	
21	42.6	41.1	40.6	41.3	41.4	40.3	39.8	39.2	38.8	38.4	39.4	39.8	40.2	40.5	40.5	40.3	40.1	S	40.5	40.9	41.5	41.3	41.5	38.4	42.6	40.5	24		
22	42.0	42.3	42.0	42.3	42.7	42.7	42.7	42.2	42.5	42.8	43.2	44.3	45.4	46.6	47.1	47.1	45.7	S	46.1	46.4	46.7	46.0	45.4	44.8	42.0	47.1	44.3	24	
23	43.4	42.3	41.3	40.5	39.4	38.6	37.3	36.9	37.6	37.6	38.0	38.9	39.6	43.9	44.4	44.2	S	42.2	41.1	41.0	41.8	41.4	42.0	41.4	36.9	44.4	40.6	24	
24	40.1	38.6	37.5	33.3	28.3	32.6	32.4	32.4	35.7	38.1	38.8	40.2	41.1	41.5	Y	S	42.5	43.2	42.7	42.6	42.2	42.0	42.0	42.6	28.3	43.2	38.7	23	
25	42.2	41.5	40.9	39.3	36.7	34.9	34.3	35.8	36.5	36.2	36.2	36.5	35.6	33.9	S	37.5	41.4	42.0	42.0	40.2	39.2	37.5	32.9	33.2	32.9	42.2	37.7	24	
26	34.7	34.5	35.8	36.2	38.0	37.3	38.0	37.6	37.9	41.0	42.2	43.4	44.9	S	46.8	47.6	48.1	47.9	47.5	47.1	47.5	47.3	46.9	44.0	34.5	48.1	42.3	24	
27	42.3	38.0	38.9	40.2	42.3	37.5	38.1	39.5	41.8	43.9	45.1	48.2	S	52.8	53.9	54.5	52.4	51.3	49.1	48.0	47.3	47.4	46.3	43.1	37.5	54.5	45.3	24	
28	39.4	38.2	37.1	36.6	36.1	36.6	36.3	35.9	35.6	37.0	37.9	S	42.2	42.8	45.2	46.7	48.6	48.6	47.3	46.6	44.2	42.7	41.9	42.0	35.6	48.6	41.1	24	
29	43.6	44.2	43.9	44.0	43.6	44.4	45.2	S1	S1	46.1	S	49.1	48.6	50.9	51.4	50.8	50.9	50.7	50.4	54.1	49.1	49.2	48.6	48.1	43.6	54.1	47.9	22	
30	46.8	46.4	45.8	45.5	44.8	42.3	41.5	40.7	41.1	Y	Y	Y	Y	Y	46.7	46.9	S	S	46.4	45.6	46.1	S1	46.7	46.5	45.9	40.7	46.9	45.0	19
31	44.7	42.7	42.8	42.5	41.5	40.3	39.3	39.7	39.9	40.7	41.9	43.1	44.2	45.5	46.1	46.1	45.9	45.4	45.2	43.5	S	43.9	43.9	42.7	39.3	46.1	43.1	24	
HOURLY MAX	46.8	46.4	45.8	45.5	44.8	44.4	45.2	43.6	43.6	46.1	45.1	49.1	48.6	52.8	53.9	54.5	52.4	51.3	50.4	54.1	49.1	49.2	48.6	48.1					
HOURLY AVG	37.0	36.0	35.2	35.5	35.1	34.4	34.2	34.1	34.7	35.4	35.8	36.8	37.4	39.4	40.6	40.3	40.2	39.8	39.9	39.2	38.5	38.4	38.0	37.7					

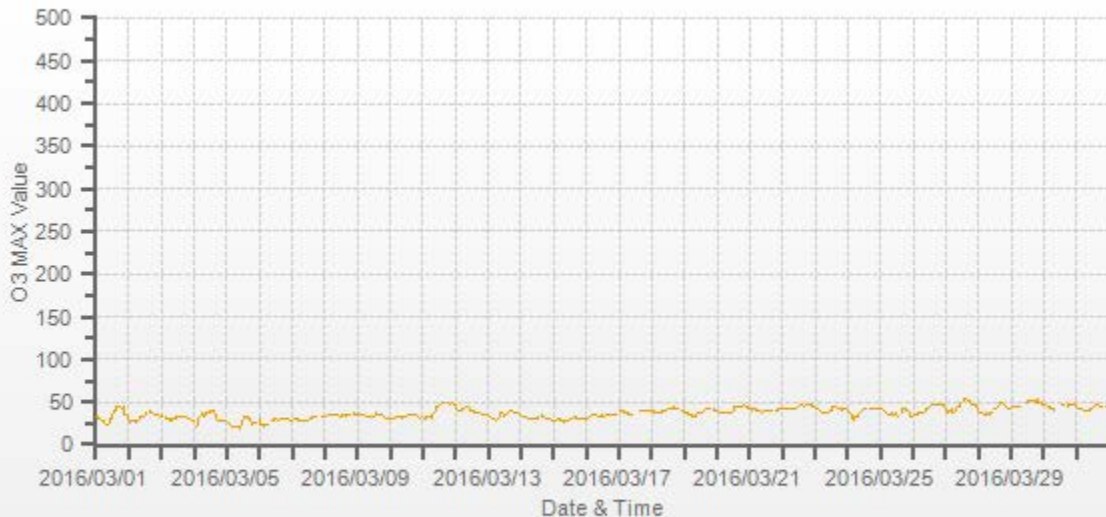
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

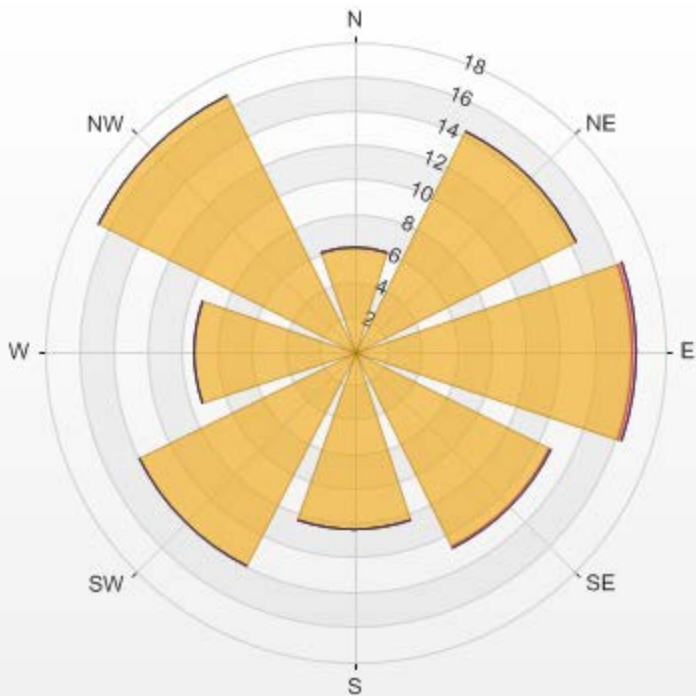
NUMBER OF NON-ZERO READINGS:	691
MAXIMUM INSTANTANEOUS VALUE:	54.5 PPB @ HOUR(S) 15 ON DAY(S) 27
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	6.46
OPERATIONAL TIME:	728 HRS

O3 MAX[ppb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA ST. LINA Monitor: O3 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 93.41% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	6.04	0	0	0	6.04
NE	14.39	0	0	0	14.39
E	16.12	0.29	0	0	16.41
SE	12.66	0.14	0	0	12.8
S	10.36	0	0	0	10.36
SW	13.96	0	0	0	13.96
W	9.35	0	0	0	9.35
NW	16.69	0	0	0	16.69
Summary	100	0.43	0	0	100



% Icon Classes (ppb)	100	0.5-50.0	0	50.0-110.0	0	110.0-210.0	0	>210.0
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PARTICULATE MATTER 2.5

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1	1	2.9	0.0	11.4	5.9	9.4	6.9	7.9	12.9	11.4	12.4	10.9	9.9	5.9	11.4	5.0	0.0	6.4	0.4	6.9	X	12.9	0.4	12.9	0.4	0.0	12.9	7.2	23	
2	2	9.4	10.4	6.4	9.4	9.4	10.4	10.4	11.9	9.9	8.4	11.9	9.4	10.4	9.0	9.9	7.9	10.4	X	22.4	10.4	5.0	9.9	9.0	9.4	5.0	22.4	10.0	23	
3	3	11.4	9.4	10.9	13.4	14.9	18.9	15.9	14.9	12.4	11.9	9.9	8.4	8.4	4.4	9.9	9.9	13.4	11.9	9.4	14.9	11.4	14.9	14.0	13.9	4.4	18.9	12.0	24	
4	4	14.5	9.9	2.9	0.9	5.0	1.9	5.4	5.9	2.9	5.0	5.9	0.0	3.9	0.0	X	1.9	23.9	22.9	19.9	19.9	16.9	14.9	10.4	9.9	0.0	23.9	8.9	23	
5	5	9.0	10.4	12.9	14.0	10.9	14.0	6.4	11.4	13.4	4.4	12.9	21.4	11.4	15.4	15.4	21.0	22.4	18.4	15.9	16.4	15.4	18.9	17.4	29.4	4.4	29.4	14.9	24	
6	6	18.4	37.4	15.4	10.9	9.9	9.4	9.0	7.5	10.4	5.9	21.4	7.5	0.0	0.0	1.4	11.4	0.9	X	X	X	X	1.9	11.9	X	0.0	37.4	10.0	19	
7	7	3.4	4.4	0.0	0.0	X	5.4	X	0.0	5.0	1.9	4.4	X	1.4	7.5	0.0	3.9	4.4	C	2.4	1.4	0.4	2.4	1.4	X	0.0	7.5	2.6	20	
8	8	1.9	0.0	2.9	4.0	2.4	3.4	2.9	5.0	10.9	4.4	5.4	7.5	5.4	8.4	6.4	5.4	3.9	5.4	2.4	1.4	2.4	4.4	5.4	1.9	0.0	10.9	4.3	24	
9	9	9.9	5.4	1.9	3.4	3.4	5.4	1.9	1.4	6.9	11.9	10.9	9.4	10.4	4.4	6.9	10.4	12.9	10.4	2.9	2.4	5.4	5.4	0.0	1.4	0.0	12.9	6.0	24	
10	10	0.4	0.9	2.9	0.0	4.0	4.4	5.9	4.0	1.9	2.9	1.9	5.9	2.4	5.4	7.9	5.0	4.9	5.0	2.9	2.9	2.4	5.0	6.4	3.9	0.0	7.9	3.7	24	
11	11	2.4	3.9	4.4	1.4	1.9	2.4	3.4	4.4	4.0	0.0	1.4	0.0	2.9	0.9	X	1.4	0.0	2.4	0.0	0.0	0.0	2.4	0.0	0.0	0.0	4.4	1.7	23	
12	12	X	X	2.9	3.9	0.0	0.0	4.9	1.4	X	2.9	0.0	0.4	0.9	0.0	0.0	2.4	2.4	5.0	4.4	3.4	0.0	7.5	0.0	0.4	0.0	0.0	7.5	2.0	21
13	13	6.4	7.9	6.9	3.9	6.9	9.4	6.4	5.0	0.0	0.9	1.4	1.4	0.9	0.4	1.9	2.9	1.4	8.4	0.9	3.4	1.4	4.4	0.0	2.9	0.0	9.4	3.6	24	
14	14	2.4	2.4	2.9	2.9	0.0	X	0.0	0.0	1.9	1.9	0.0	0.4	0.0	X	0.9	0.9	0.0	0.0	4.4	0.0	0.9	1.4	0.0	0.9	0.0	4.4	1.1	22	
15	15	0.0	1.4	5.0	0.4	0.0	0.4	1.9	0.4	1.9	1.4	0.0	0.4	1.9	6.4	0.4	5.0	0.0	0.0	0.0	2.4	0.0	1.4	0.0	3.4	0.0	6.4	1.4	24	
16	16	0.0	0.9	0.0	2.4	0.0	0.0	0.0	0.0	0.0	1.4	X	0.0	0.9	2.9	3.4	1.9	0.0	0.9	1.9	0.4	0.0	0.4	0.0	0.0	0.0	3.4	0.8	23	
17	17	0.0	2.9	0.9	1.4	0.0	X	0.4	0.9	2.9	0.0	1.4	2.4	0.0	0.0	0.0	0.0	0.4	X	X	0.4	0.0	0.0	0.0	2.9	0.0	2.9	0.8	21	
18	18	0.0	0.9	2.9	1.4	0.0	0.9	0.0	0.0	0.9	0.0	0.0	1.4	0.9	0.0	5.0	5.4	3.4	4.4	2.9	0.0	4.9	2.4	1.9	4.4	0.0	5.4	1.8	24	
19	19	4.4	2.4	3.9	5.0	4.4	3.4	9.9	3.9	2.9	3.5	3.9	1.9	2.9	3.9	2.4	3.9	5.0	5.9	7.5	5.9	2.4	1.9	5.0	5.4	1.9	9.9	4.2	24	
20	20	0.4	0.4	0.9	2.4	1.9	1.4	2.9	2.9	0.0	3.9	3.9	3.4	5.9	1.9	3.4	3.9	1.4	0.0	2.4	5.4	5.9	2.4	0.0	3.9	0.0	5.9	2.5	24	
21	21	0.0	4.4	3.9	3.4	3.9	3.4	X	0.9	5.0	3.9	3.4	0.9	5.9	1.9	2.9	3.4	0.0	2.9	0.0	1.4	0.9	X	0.0	2.9	0.0	5.9	2.5	22	
22	22	3.9	3.4	0.9	0.9	0.4	1.9	0.0	4.4	0.4	1.4	0.0	3.4	0.0	1.9	1.9	0.0	1.4	0.4	3.4	X	0.4	2.9	1.4	6.4	0.0	6.4	1.8	23	
23	23	5.0	3.5	4.4	0.4	7.5	6.9	7.5	6.9	8.4	8.4	5.0	4.4	3.4	7.5	3.4	5.9	7.9	2.9	5.9	3.4	4.4	5.9	9.4	6.9	0.4	9.4	5.6	24	
24	24	2.9	9.4	6.4	6.9	2.9	2.4	3.9	0.4	0.0	0.0	1.9	3.4	5.9	1.4	C	0.0	3.4	0.4	0.9	1.4	6.4	5.4	0.4	2.4	0.0	9.4	3.0	24	
25	25	1.4	5.0	2.9	3.4	6.9	4.4	2.9	6.9	5.0	9.4	7.9	9.0	10.4	14.5	16.9	10.9	8.4	6.9	3.9	1.4	7.9	10.4	11.4	14.0	1.4	16.9	7.6	24	
26	26	6.9	5.9	4.4	0.9	0.4	0.0	0.0	1.9	0.0	3.4	0.4	2.9	X	0.0	1.4	0.0	0.4	5.4	1.4	2.4	3.4	5.9	0.0	1.4	0.0	6.9	2.1	23	
27	27	1.9	0.0	2.4	2.4	4.4	9.0	4.9	5.9	5.0	2.9	4.9	0.4	0.0	0.9	5.0	5.9	5.4	5.9	1.9	2.9	5.4	5.0	2.9	5.4	0.0	9.0	3.8	24	
28	28	3.4	3.4	6.9	3.9	5.0	9.0	5.4	6.9	2.4	2.4	1.9	5.0	3.4	7.5	9.0	5.4	5.4	0.9	3.9	0.4	4.4	3.9	3.9	5.9	0.4	9.0	4.6	24	
29	29	5.4	5.4	0.9	3.4	0.0	1.4	0.0	0.0	0.9	0.0	X	0.9	3.4	1.9	0.0	0.0	2.4	0.0	0.0	1.9	2.9	0.0	X	2.4	0.0	5.4	1.5	22	
30	30	2.4	2.4	2.9	0.4	0.4	X	0.0	2.9	0.9	3.9	0.0	0.0	0.0	X	0.0	0.0	0.0	2.4	1.9	0.4	1.9	0.0	0.0	0.0	0.0	3.9	1.0	22	
31	31	0.4	0.0	0.0	0.4	2.4	0.9	0.9	0.0	0.9	1.9	0.4	2.9	5.9	0.0	3.4	0.4	2.9	2.4	3.4	0.4	0.0	2.9	0.4	0.0	0.0	0.0	5.9	1.4	24
HOURLY MAX		18.4	37.4	15.4	14.0	14.9	18.9	15.9	14.9	13.4	12.4	21.4	21.4	11.4	15.4	16.9	21.0	23.9	22.9	22.4	19.9	16.9	18.9	17.4	29.4					
HOURLY AVG		4.4	5.1	4.3	3.7	4.0	4.9	4.2	4.2	4.3	4.0	4.6	4.1	3.8	4.1	4.4	4.4	5.0	4.9	4.7	3.8	4.2	4.8	4.2	4.9					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

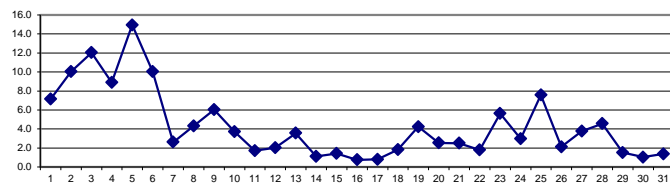
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	588			
MINIMUM 1-HR AVERAGE:	0.0 ug/m3 @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	37.4 ug/m3 @ HOUR(S)	1	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	14.9 ug/m3		ON DAY(S)	5
			VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	2 HRS	OPERATIONAL TIME:	714 HRS	
STANDARD DEVIATION:	4.75	AMD OPERATION UPTIME:	96.0 %	
		MONTHLY AVERAGE:	4.4 ug/m3	

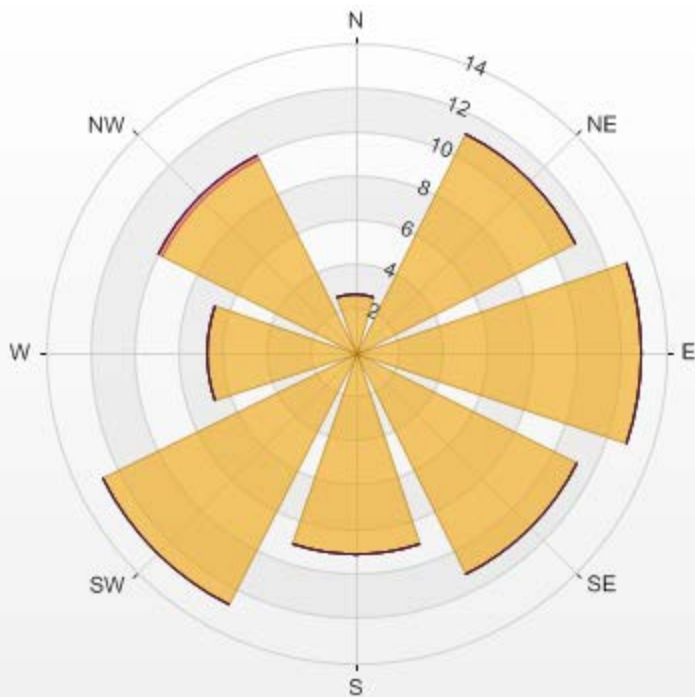
24 HOUR AVERAGES FOR MARCH 2016





Wind: LICA ST. LINA Monitor: PM2 [ug/m3(L)] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 23.56% Valid Data: 95.83% Calm Avg: 0.00 [ppb]

Direction	0.5-30.0	30.0-60.0	60.0-80.0	80.0-120.0	120.0-240.0	>240.0	Total
N	2.66	0	0	0	0	0	2.66
NE	11.08	0	0	0	0	0	11.08
E	12.9	0	0	0	0	0	12.9
SE	11.22	0	0	0	0	0	11.22
S	9.12	0	0	0	0	0	9.12
SW	12.76	0	0	0	0	0	12.76
W	6.73	0	0	0	0	0	6.73
NW	9.82	0.14	0	0	0	0	9.96
Summary	76.29	0.14	0	0	0	0	76.43



WIND SPEED

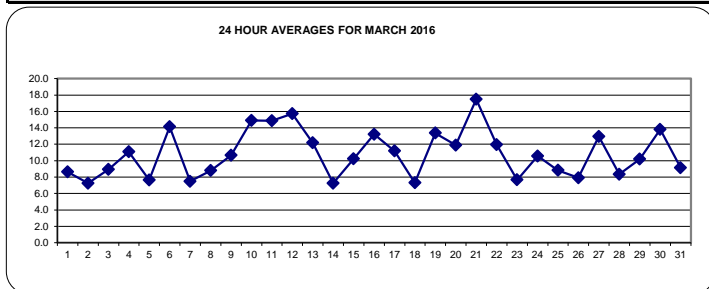
WIND SPEED (WS) hourly averages in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR				
DAY	MIN.	MAX.	AVG.	RDGS.																									MIN.	MAX.	AVG.	RDGS.
1	9.3	11.6	10.6	8.6	8.5	9.8	11.6	11.8	11.4	11.8	10.5	8.5	7.9	9.1	9.2	8.2	10.8	4.4	3.6	4.9	4.9	4.2	6.7	9.0	3.6	11.8	8.6	24				
2	9.7	11.1	11.7	13.1	11.9	9.1	7.1	8.3	6.1	5.1	4.8	0.3	0.5	2.6	3.2	2.8	4.3	4.9	6.5	10.3	10.4	8.9	10.4	10.8	0.3	13.1	7.2	24				
3	11.7	13.8	14.3	14.2	11.7	10.8	11.3	13.2	12.7	10.0	11.5	11.1	10.3	8.6	6.0	4.4	1.8	3.6	3.9	7.2	6.3	5.2	5.4	5.5	1.8	14.3	8.9	24				
4	7.5	8.0	11.0	9.0	7.2	7.6	5.0	5.3	7.4	11.2	9.0	10.6	13.6	11.4	11.6	14.7	14.7	16.5	13.9	14.6	12.4	14.2	14.7	14.7	5.0	16.5	11.1	24				
5	12.6	10.4	10.2	9.8	7.7	9.0	8.9	8.1	8.3	7.5	5.5	4.0	1.5	2.1	3.2	6.4	8.1	9.9	9.0	6.9	7.4	9.8	8.4	9.0	1.5	12.6	7.7	24				
6	6.4	4.1	7.4	7.0	10.5	8.9	9.3	10.0	11.2	11.2	14.4	16.2	19.2	19.9	20.7	17.8	16.9	17.3	15.7	16.6	19.3	20.1	20.3	18.6	4.1	20.7	14.1	24				
7	13.9	13.3	12.0	9.1	9.1	6.8	5.6	2.1	5.9	8.0	9.5	9.9	9.0	9.4	7.6	8.5	7.7	6.1	6.1	4.7	2.5	2.8	4.0	5.9	2.1	13.9	7.5	24				
8	3.7	3.6	6.9	6.3	4.5	5.1	3.8	7.9	8.2	9.0	8.6	10.2	9.6	10.1	9.5	8.3	10.6	10.7	10.1	10.0	13.4	13.1	13.6	14.4	3.6	14.4	8.8	24				
9	14.7	13.5	13.0	9.6	5.6	5.3	9.4	10.2	9.9	12.6	12.4	10.1	11.0	9.5	7.5	10.2	9.4	7.7	8.9	13.2	14.3	13.5	12.2	12.0	5.3	14.7	10.7	24				
10	14.0	12.9	15.3	13.6	14.1	16.7	18.1	18.5	19.1	19.4	19.7	17.3	21.3	19.6	20.2	18.0	16.3	13.5	8.9	10.2	3.9	3.1	13.3	10.5	3.1	21.3	14.9	24				
11	12.3	10.2	10.7	12.7	12.2	13.5	12.7	14.2	19.3	23.0	23.2	20.9	17.5	17.7	21.7	28.5	20.1	12.8	10.2	7.1	7.7	5.6	9.2	13.4	5.6	28.5	14.9	24				
12	17.5	17.6	18.1	19.5	17.6	19.6	22.7	27.0	20.2	18.6	20.3	16.5	19.1	16.6	15.4	14.8	10.6	9.0	10.6	10.1	10.3	8.7	8.9	7.6	7.6	27.0	15.7	24				
13	8.4	3.0	6.5	7.0	6.9	2.4	7.1	12.4	15.6	19.1	22.2	20.6	19.2	16.4	18.3	17.7	17.5	17.4	12.7	8.7	9.3	9.0	8.8	6.4	2.4	22.2	12.2	24				
14	6.3	5.9	5.0	4.3	9.6	9.9	8.9	9.0	8.3	5.3	7.9	7.9	9.2	9.2	9.3	9.7	11.0	7.2	3.7	4.5	6.0	4.1	5.3	6.5	3.7	11.0	7.3	24				
15	6.0	4.7	3.9	4.5	4.6	6.1	4.5	3.5	6.4	8.1	9.5	11.1	11.3	14.1	13.9	17.5	15.6	14.0	12.9	14.7	15.4	15.2	13.1	15.0	3.5	17.5	10.2	24				
16	13.7	16.7	18.6	18.6	15.9	17.6	16.2	15.1	17.6	13.2	12.9	16.8	16.2	10.1	12.5	13.4	11.8	10.4	8.6	7.5	8.6	7.8	6.6	10.8	6.6	18.6	13.2	24				
17	13.9	9.4	7.4	7.7	8.7	9.2	9.5	8.4	10.1	13.4	14.3	15.6	13.9	14.8	16.0	15.3	15.7	15.8	14.2	13.0	9.5	5.3	3.5	3.7	3.5	16.0	11.2	24				
18	3.7	4.6	3.6	3.9	3.9	4.2	4.8	3.8	3.3	5.3	9.3	6.9	6.5	10.2	11.3	11.1	9.3	7.1	7.1	8.4	11.1	11.4	12.4	12.0	3.3	12.4	7.3	24				
19	11.3	12.0	11.6	12.0	13.9	14.0	14.1	14.7	13.2	12.4	11.5	13.1	13.4	15.4	15.6	16.1	13.4	13.6	12.6	13.9	13.0	13.4	13.3	13.2	11.3	16.1	13.4	24				
20	14.1	13.7	12.3	12.0	12.0	10.1	10.9	10.5	10.9	10.5	11.4	12.3	11.5	12.6	13.5	10.2	9.1	9.7	11.2	15.0	14.0	13.1	13.4	11.3	9.1	15.0	11.9	24				
21	11.1	11.7	11.8	13.9	19.0	17.8	17.2	16.9	21.5	20.9	21.9	21.0	20.1	18.0	18.0	20.5	18.1	17.8	16.3	17.4	16.7	18.3	17.1	16.5	11.1	21.9	17.5	24				
22	18.0	18.1	16.8	15.3	15.7	14.4	13.6	14.3	14.1	11.8	8.9	8.7	6.9	7.0	8.3	9.4	11.1	11.6	12.6	13.2	11.6	8.8	8.6	7.9	6.9	18.1	11.9	24				
23	8.5	7.1	7.9	7.4	8.7	8.4	7.8	6.4	7.8	12.2	13.0	8.2	5.0	7.4	8.7	10.0	8.9	10.9	5.6	6.1	6.4	5.6	1.3	4.6	1.3	13.0	7.7	24				
24	5.7	7.7	8.4	8.8	10.8	11.0	11.8	12.2	14.7	15.4	14.9	14.1	14.2	14.8	12.9	11.0	10.7	8.9	5.6	6.7	7.2	7.5	9.4	9.2	5.6	15.4	10.6	24				
25	6.6	5.9	5.5	6.2	6.9	8.7	9.0	9.5	9.4	8.9	7.7	7.3	7.6	12.9	10.6	12.0	13.0	12.2	10.8	7.8	7.7	7.8	8.4	9.3	5.5	13.0	8.8	24				
26	9.2	9.6	8.5	8.6	9.4	9.7	9.1	9.9	9.0	8.2	8.9	7.6	6.1	8.7	7.1	7.1	4.1	3.5	3.3	5.5	7.0	8.9	10.5	10.5	3.3	10.5	7.9	24				
27	10.1	11.6	10.7	10.3	9.1	8.1	10.1	10.4	9.6	11.8	14.8	19.8	19.1	17.7	16.1	16.1	14.8	14.6	13.8	11.6	14.3	11.8	10.9	13.4	8.1	19.8	12.9	24				
28	12.3	10.9	9.6	9.6	6.7	5.8	5.7	5.4	3.2	5.6	4.3	5.4	6.1	7.8	8.9	10.0	13.5	13.5	7.7	6.5	9.5	10.6	10.8	10.9	3.2	13.5	8.3	24				
29	9.4	9.4	10.9	11.1	10.0	9.8	9.3	9.5	9.1	10.2	11.6	11.2	9.6	13.8	14.2	13.6	13.2	8.9	6.8	8.2	7.3	8.2	8.8	10.4	6.8	14.2	10.2	24				
30	9.5	9.0	9.7	10.2	13.1	12.0	12.7	12.6	11.2	12.4	13.2	12.5	16.4	17.1	14.6	14.3	14.5	15.8	16.2	17.4	18.5	16.4	15.7	16.5	9.0	18.5	13.8	24				
31	15.9	14.6	11.8	13.3	11.6	11.5	11.2	11.7	12.2	11.9	8.9	7.5	8.5	6.1	6.8	8.7	6.9	2.3	0.7	5.7	8.3	6.6	7.9	8.3	0.7	15.9	9.1	24				
HOURLY MAX	18.0	18.1	18.6	19.5	19.0	19.6	22.7	27.0	21.5	23.0	23.2	21.0	21.3	19.9	21.7	28.5	20.1	17.8	16.3	17.4	19.3	20.1	20.3	18.6								
HOURLY AVG	10.5	10.2	10.4	10.2	10.2	10.1	10.3	10.7	11.2	11.7	12.1	11.7	11.7	12.0	12.0	12.5	11.7	10.7	9.3	9.9	10.1	9.6	10.1	10.6								

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

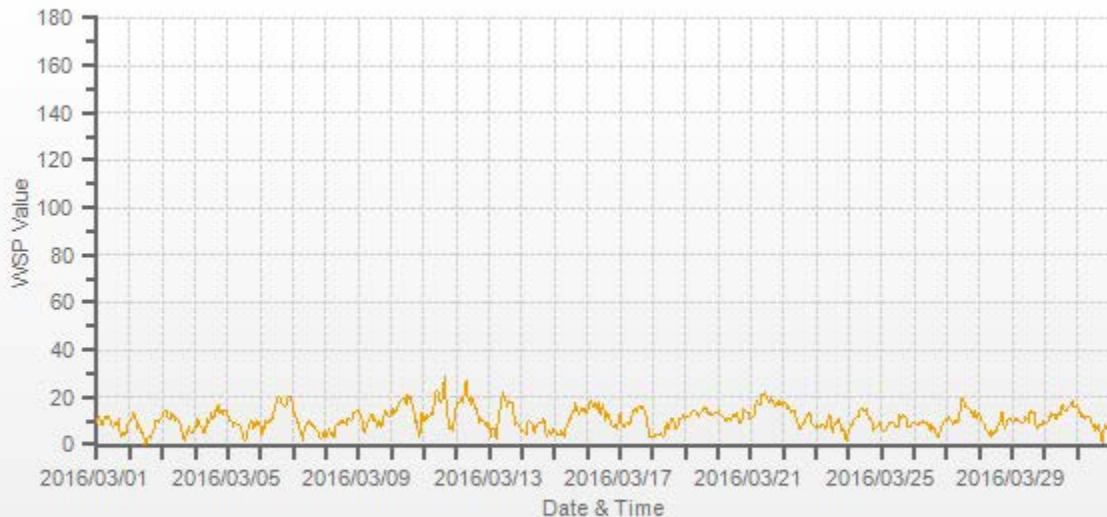
LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	744
MINIMUM 1-HR AVERAGE:	0.3 KPH @ HOUR(S) 11 ON DAY(S) 2
MAXIMUM 1-HR AVERAGE:	28.5 KPH @ HOUR(S) 15 ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	17.5 KPH ON DAY(S) 21
	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	4.46
MONTHLY AVERAGE:	10.8 KPH

WSP[kph] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.	
DAY																														
1		15.5	17.7	16.8	13.5	14.6	16.8	15.3	15.7	14.5	14.9	16.3	11.1	13.4	18.0	18.0	14.5	19.0	11.6	8.8	8.4	10.4	7.0	11.3	13.0	13.0	7.0	19.0	14.0	24
2		18.0	16.9	22.1	22.4	20.8	20.2	16.8	18.1	16.6	14.1	15.1	11.1	11.3	10.6	R	10.4	9.7	11.4	14.0	19.2	17.6	21.0	23.9	25.6	9.7	25.6	16.8	23	
3		25.0	27.7	30.8	32.6	28.5	24.9	23.0	27.4	24.0	22.8	28.3	22.6	22.6	18.6	16.5	14.7	11.2	10.6	13.2	17.0	18.1	14.3	13.4	13.2	10.6	32.6	20.9	24	
4		15.3	21.0	22.8	24.1	17.3	18.6	44.4	12.5	20.0	25.9	22.4	24.8	32.2	24.3	32.9	32.2	36.8	35.2	26.9	30.0	25.6	27.8	28.1	28.7	12.5	44.4	26.2	24	
5		24.0	21.1	21.5	18.9	16.2	14.5	14.5	17.2	13.1	12.8	11.0	11.5	11.5	11.1	10.5	11.5	14.1	17.6	18.7	21.1	18.0	25.5	17.2	32.9	10.5	32.9	16.9	24	
6		19.4	14.0	16.0	22.8	24.3	15.8	17.8	20.4	24.8	27.6	38.1	39.9	51.3	41.4	50.3	38.3	36.4	38.4	40.1	34.6	39.4	41.2	44.9	40.4	14.0	51.3	32.4	24	
7		32.2	25.2	23.7	18.8	18.2	13.4	9.7	11.0	14.0	20.5	22.3	24.3	20.6	23.4	17.1	17.7	17.7	13.8	13.6	14.7	11.9	11.2	13.0	13.7	9.7	32.2	17.6	24	
8		11.9	11.9	14.1	15.2	12.3	15.4	15.2	23.6	22.1	23.2	18.2	23.3	21.4	24.1	17.1	16.5	18.8	19.7	19.3	18.9	22.5	23.0	22.5	24.6	11.9	24.6	19.0	24	
9		22.8	22.6	22.1	15.9	13.0	13.3	18.2	17.6	30.0	28.5	27.8	25.9	27.0	26.8	16.9	24.6	25.2	17.1	18.7	25.2	32.4	28.5	29.5	29.5	13.0	32.4	23.3	24	
10		27.3	27.5	36.9	28.1	29.7	34.3	39.3	41.2	44.5	47.6	44.1	39.3	50.0	41.9	48.2	47.1	42.4	32.1	30.1	22.9	13.8	17.1	24.6	20.2	13.8	50.0	34.6	24	
11		27.4	19.5	19.1	23.5	22.4	22.1	19.7	27.9	49.8	57.5	57.9	62.9	48.3	47.7	41.8	49.8	50.7	24.2	17.0	14.1	11.7	9.4	16.7	25.1	9.4	62.9	31.9	24	
12		31.6	38.2	41.3	53.9	47.8	45.6	49.8	59.6	52.4	42.9	42.2	33.8	45.0	36.7	35.6	31.2	21.8	20.6	23.9	20.6	18.5	16.1	15.0	14.1	14.1	59.6	34.9	24	
13		13.4	11.7	10.2	13.9	23.8	23.4	14.3	33.7	38.3	46.9	52.3	48.8	44.0	48.6	52.5	46.5	41.6	46.4	35.9	19.1	19.0	16.9	18.2	15.3	10.2	52.5	30.6	24	
14		17.6	14.3	14.0	13.4	29.6	24.5	26.2	24.9	28.5	14.9	23.4	22.3	19.7	22.8	21.4	21.2	29.8	23.4	10.5	13.1	17.7	11.9	12.0	14.8	10.5	29.8	19.7	24	
15		11.2	8.6	12.0	15.8	15.1	11.8	11.8	12.7	19.9	17.5	20.8	25.0	26.7	31.8	33.7	43.3	35.2	32.2	28.4	31.9	33.4	33.8	30.7	29.6	8.6	43.3	23.9	24	
16		28.4	38.5	39.6	42.7	38.3	41.8	40.9	52.7	44.6	32.5	37.0	42.5	37.2	26.8	35.0	36.6	31.1	29.1	22.7	22.5	25.6	22.8	19.9	35.5	19.9	52.7	34.3	24	
17		43.1	24.5	15.4	17.3	18.4	21.6	19.0	18.5	29.1	30.9	32.8	38.6	35.9	42.3	34.4	35.9	36.8	35.6	32.2	35.2	29.3	18.4	12.9	13.6	12.9	43.1	28.0	24	
18		11.0	14.7	11.4	13.4	14.2	12.0	10.5	11.0	10.8	15.4	15.6	14.3	18.0	18.7	19.6	24.0	18.5	14.8	13.4	15.0	23.7	29.2	25.2	25.0	10.5	29.2	16.6	24	
19		23.9	24.1	21.7	23.2	26.3	25.0	25.0	29.3	29.4	32.0	24.2	27.2	29.7	32.3	30.5	31.6	24.6	35.5	21.9	28.4	26.5	27.0	23.3	23.7	21.7	35.5	26.9	24	
20		28.3	25.3	26.5	23.5	26.1	22.6	19.1	23.1	27.2	23.3	25.0	28.1	24.6	30.8	36.0	24.8	20.0	22.4	23.5	32.2	29.0	26.8	29.9	21.6	19.1	36.0	25.8	24	
21		21.3	25.9	22.2	30.3	40.3	37.9	34.0	39.4	46.0	41.6	46.0	49.5	47.6	47.0	43.8	43.6	38.1	35.9	40.3	43.1	52.0	46.5	35.1	35.1	21.3	52.0	39.3	24	
22		44.3	45.6	36.4	35.5	34.0	30.0	26.9	29.8	30.4	33.9	20.4	17.0	18.2	16.9	20.0	19.6	23.5	27.8	32.9	32.0	28.1	23.2	23.2	21.1	16.9	45.6	27.9	24	
23		21.5	17.3	18.9	16.4	14.2	11.6	14.4	14.7	17.5	27.2	38.9	17.9	16.5	17.4	21.3	20.2	17.8	16.3	15.4	13.1	12.6	11.9	12.4	10.8	10.8	38.9	17.3	24	
24		12.6	15.4	16.5	16.7	21.5	21.0	26.1	26.5	34.2	30.0	31.2	30.1	28.8	31.0	24.2	25.2	21.0	18.7	14.7	10.1	14.0	15.1	15.2	15.6	10.1	34.2	21.5	24	
25		14.2	11.2	11.6	12.3	13.4	18.7	17.5	19.9	23.0	22.5	20.8	15.1	18.2	21.4	20.0	19.1	21.9	23.7	19.2	13.4	13.6	13.9	11.9	12.6	11.2	23.7	17.0	24	
26		14.1	15.2	17.6	13.6	18.7	18.0	16.6	20.4	18.7	19.6	29.2	22.2	15.9	19.9	19.4	15.0	13.3	10.7	7.9	12.1	11.9	16.5	20.2	18.9	7.9	29.2	16.9	24	
27		16.7	24.4	25.2	19.8	19.3	15.4	19.7	20.4	20.7	26.6	31.3	41.9	42.3	41.1	35.6	33.0	30.1	30.8	26.8	21.7	28.3	27.5	20.6	26.3	15.4	42.3	26.9	24	
28		22.0	18.9	19.3	18.2	17.2	12.3	15.5	13.6	13.4	12.6	11.6	12.6	14.2	17.5	17.9	18.1	25.5	22.0	14.8	14.7	15.2	18.3	14.3	15.6	11.6	25.5	16.5	24	
29		17.8	14.6	18.7	19.1	17.8	16.9	15.6	14.8	16.6	18.5	20.7	21.6	20.2	23.1	25.3	29.0	31.8	27.2	14.3	13.4	11.9	13.7	16.5	16.8	11.9	31.8	19.0	24	
30		14.4	11.7	15.6	21.7	24.6	26.3	26.1	25.4	25.2	25.5	32.5	28.5	39.6	39.9	31.1	30.3	31.2	34.0	34.3	37.9	39.9	39.8	37.7	44.9	11.7	44.9	29.9	24	
31		41.8	36.8	30.4	34.8	29.4	27.1	25.6	32.2	30.2	30.4	22.8	23.3	20.6	17.6	19.8	20.2	15.8	10.8	9.9	10.5	16.8	13.4	23.6	17.6	9.9	41.8	23.4	24	
HOURLY MAX		44.3	45.6	41.3	53.9	47.8	45.6	49.8	59.6	52.4	57.5	57.9	62.9	51.3	48.6	52.5	49.8	50.7	46.4	40.3	43.1	52.0	46.5	44.9	44.9					
HOURLY AVG		22.2	21.4	21.6	22.3	22.8	21.7	22.2	24.4	26.8	27.1	28.4	27.6	28.1	28.1	28.2	27.3	26.2	24.2	21.4	21.5	22.2	21.6	21.4	22.4					

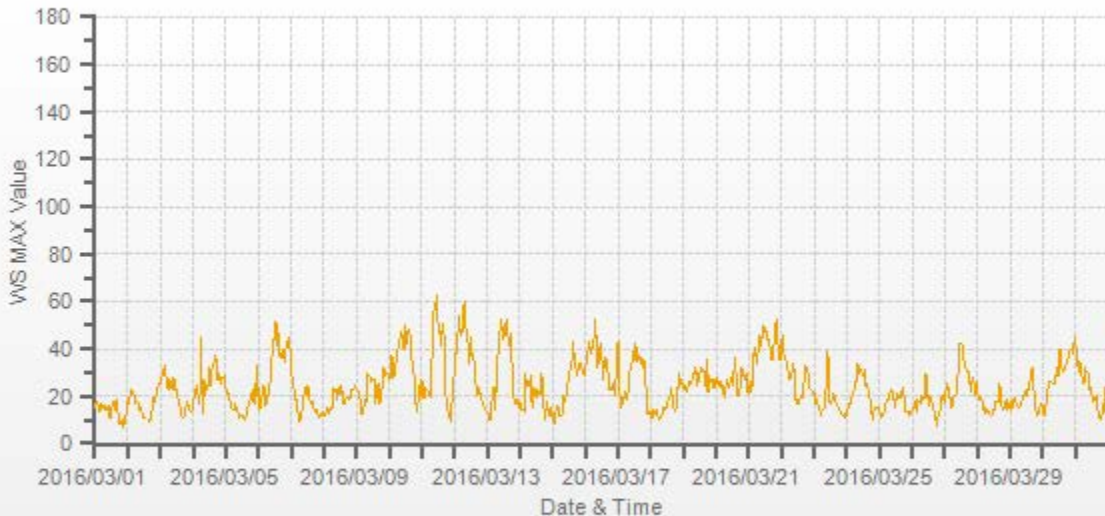
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

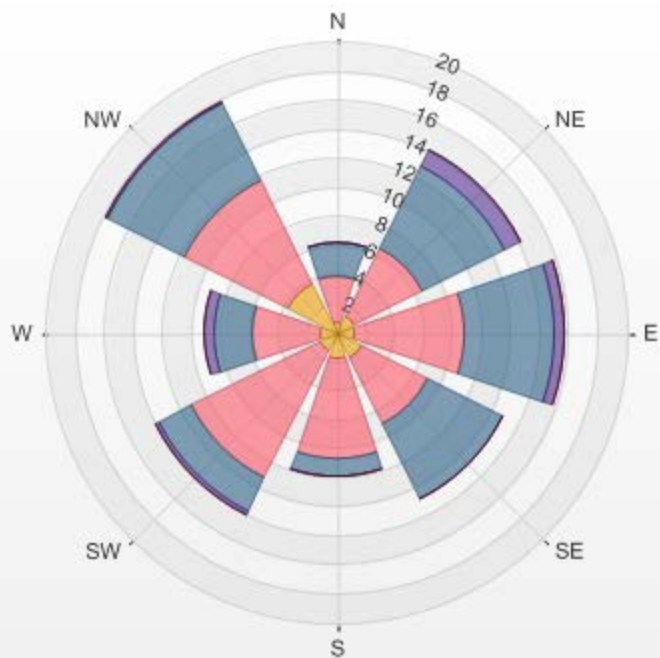
MAXIMUM INSTANTANEOUS VALUE:	62.9	KPH	@ HOUR(S)	11	ON DAY(S)	11
					VAR-VARIOUS	
OPERATIONAL TIME:					743	HRS

WS MAX[kph] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



Wind: LICA ST. LINA Monitor: WSP [kph] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.13% Valid Data: 100.00% Calm Avg: 0.00 [ppb]

Direction	0.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	0.81	3.09	2.42	0	0	0	6.32
NE	1.34	5.24	6.32	1.21	0	0	14.11
E	1.21	7.53	6.18	0.81	0	0	15.73
SE	1.88	5.11	5.78	0	0	0	12.77
S	1.75	6.85	1.34	0	0	0	9.94
SW	1.34	9.81	2.55	0.27	0	0	13.97
W	1.21	4.7	2.55	0.67	0	0	9.13
NW	3.76	8.06	5.91	0.13	0	0	17.86
Summary	13.3	50.39	33.05	3.09	0	0	100



% Icon Classes (kph)	50	6.0-12.0	33	20.0-29.0	JOB #:	2833-2016-03-31-C	>39.0
	13	0.5-6.0					

WIND DIRECTION



WIND DIRECTION (WD) hourly averages

MST																									24-HOUR AVG	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	QUADRANT	RDGS.
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59		
DAY																										
1	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SE	SSE	SE	SE	NE	NE	SSW	24	
2	ENE	NE	NE	NE	NE	NE	ENE	ENE	ENE	SE	ESE	ENE	NE	SW	SSW	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	SSE	ESE	24
3	SSE	SSE	SSE	SE	SE	SE	ESE	ESE	ESE	E	E	E	E	E	E	E	NE	NW	W	W	WNW	NW	WNW	W	ESE	24
4	WNW	WNW	NW	NNW	NNW	N	N	ENE	ENE	ENE	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	E	24
5	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	SW	WSW	WSW	SSE	S	NE	ENE	ENE	ENE	NE	ENE	ENE	ENE	ESE	SW	SSE	24
6	NW	NW	NW	NNW	N	NNE	NNE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	24
7	ENE	ENE	ENE	NE	ENE	ENE	NE	NW	WNW	WNW	WNW	WNW	NW	WNW	NW	W	WNW	WNW	NW	WNW	W	WNW	W	WSW	NW	24
8	WSW	WSW	SSW	SSW	S	SSE	S	S	S	S	SSW	SSW	SSW	SSW	SW	SSW	SW	SSW	SW	SSW	SSW	SW	SW	SW	SSW	24
9	SW	SW	SW	SW	SSW	S	SW	SW	S	S	S	S	S	S	S	S	SSE	SSE	SE	SE	SSE	SSE	SE	SE	S	24
10	SE	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	E	ESE	ESE	ESE	ESE	E	E	E	NE	ENE	E	SSW	WSW	WNW	ESE	24
11	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	SW	SW	WSW	SW	SSW	SSE	SE	ESE	ESE	SW	24
12	ESE	ESE	E	E	E	E	E	E	ESE	ESE	ESE	E	ESE	ESE	E	ESE	ESE	E	ENE	ENE	E	ENE	ENE	ENE	E	24
13	E	ENE	NE	NE	WNW	SSW	WSW	W	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	WNW	W	W	W	W	WNW	24
14	WNW	WNW	WNW	WNW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	NW	NW	NW	WNW	NW	NW	24
15	NW	WNW	NW	NNE	N	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	24
16	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	N	N	NNW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNW	N	NNW	NNW	N	NNW	24
17	NNW	NNW	NW	WNW	WNW	WNW	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NW	24
18	WNW	NW	NW	NNW	NW	WNW	WNW	WNW	SSW	SW	SSW	SW	SSW	SW	SSW	S	SE	SSE	SSE	SSE	SSE	S	S	SSW	24	
19	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SE	ESE	SE	ESE	ESE	ESE	E	E	E	ESE	E	E	E	SE	24
20	E	E	E	E	ENE	ENE	ENE	ENE	ENE	E	E	ENE	E	ENE	E	ENE	E	ESE	SE	ESE	ESE	E	E	E	E	24
21	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
22	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	ESE	E	ESE	SE	SE	SSE	S	SSE	SSE	S	S	S	E	24
23	S	S	S	SSW	SSW	SW	WSW	W	WSW	W	WNW	WSW	WNW	SW	SW	SW	SSW	SW	S	S	S	S	SSE	NNE	SW	24
24	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ESE	E	E	E	E	E	ENE	24
25	E	ESE	SE	SE	SE	SE	SSE	SSE	S	S	S	S	S	S	SW	SSW	SW	SSW	SW	SW	SSW	SSW	SW	SW	S	24
26	WSW	WSW	WSW	WSW	W	W	WNW	WNW	NNW	NNW	N	NNW	NW	NW	NNW	N	SE	SE	SE	SE	ESE	SE	SE	W	24	
27	SSE	SSE	SSE	SE	ESE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	E	E	E	E	ESE	ESE	ESE	24
28	ESE	SE	ESE	ESE	ESE	NE	E	ENE	ENE	E	S	SSW	SSW	S	SSW	SSW	SW	SW	S	SW	SW	SW	WSW	S	24	
29	W	W	W	W	W	W	W	WSW	WSW	WSW	SW	SW	SW	SW	SW	WNW	WNW	WNW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	24
30	WSW	WSW	WSW	W	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	WNW	24
31	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW	N	NNW	NW	NW	NW	NW	WNW	WNW	NW	NNW	ENE	ENE	E	SE	SSE	S	NNW	24

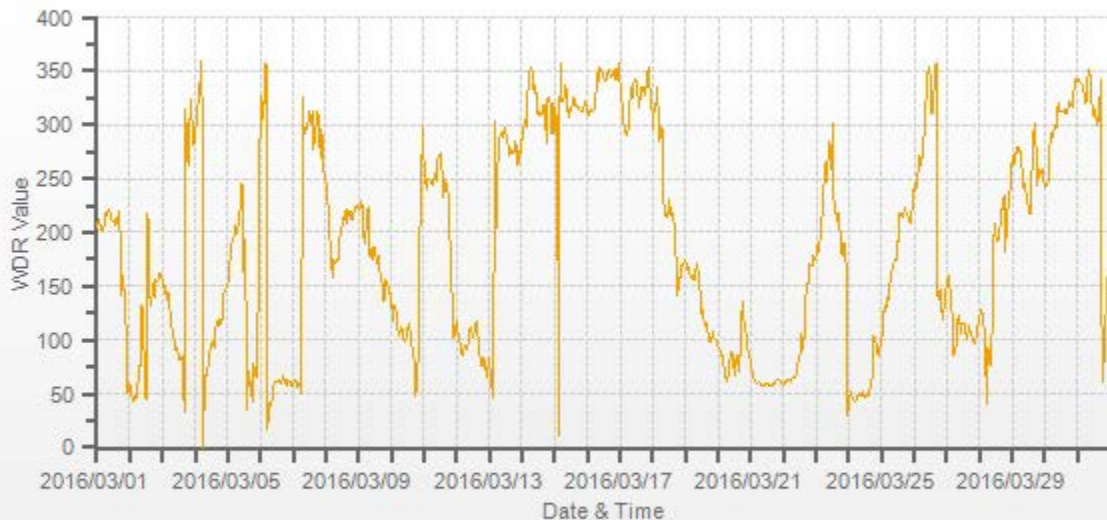
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	98.37		AMD OPERATION UPTIME:	100.0	%

WDR[Deg] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2016

JOB # 2833-2016-03-31- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.	
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59		
DAY																											
1		7	6	6	7	6	6	4	3	3	4	5	5	7	12	10	10	7	12	21	10	17	11	11	7	24	
2		22	8	8	9	8	9	8	13	18	22	27	47	49	39	20	30	22	14	11	10	10	12	11	11	24	
3		11	12	13	14	13	13	13	13	12	13	12	13	13	13	15	15	21	16	12	10	13	13	16	15	24	
4		15	15	13	18	11	13	29	8	10	12	15	15	13	15	14	13	15	12	13	13	11	12	12	12	24	
5		11	9	10	9	7	6	5	12	5	5	9	18	40	45	27	9	9	10	17	53	48	12	13	22	24	
6		16	17	15	17	13	8	10	11	11	16	13	12	12	11	12	11	12	11	11	12	10	10	10	10	24	
7		11	11	10	11	11	11	15	33	16	16	18	16	16	17	18	17	18	15	14	20	29	24	22	17	24	
8		22	32	13	15	18	20	17	14	16	16	15	14	15	13	12	13	11	10	10	10	10	8	10	8	24	
9		7	10	11	11	17	17	15	8	17	16	15	18	17	19	24	16	17	16	11	10	11	12	14	13	24	
10		14	14	13	14	14	12	13	13	12	12	12	13	14	15	13	13	12	11	21	12	37	19	10	13	24	
11		12	10	5	7	9	7	6	8	10	9	14	17	17	16	11	8	10	8	9	18	7	8	8	9	24	
12		11	11	11	10	10	10	10	11	10	11	14	15	14	14	15	15	13	10	9	9	9	9	10	12	24	
13		10	49	9	8	40	56	14	13	14	15	16	15	15	16	16	16	16	15	15	15	15	10	12	18	24	
14		17	14	20	21	17	16	17	20	25	21	17	19	16	24	18	15	16	17	15	16	14	13	12	12	24	
15		10	9	18	15	17	11	11	16	16	16	14	14	15	13	18	15	14	14	14	13	13	14	14	13	24	
16		14	14	13	14	15	13	13	16	15	17	16	16	16	17	20	16	17	15	18	16	16	15	15	16	24	
17		14	14	11	12	12	13	13	12	16	15	16	18	17	16	14	18	16	15	14	16	20	15	16	14	24	
18		14	13	18	17	13	16	14	17	12	16	8	13	26	16	12	13	13	16	10	9	8	9	9	9	24	
19		7	6	6	6	7	7	7	9	12	14	15	16	16	15	14	15	14	11	10	11	12	10	9	9	24	
20		10	9	8	8	8	9	9	10	10	11	13	13	14	13	13	14	13	14	12	12	12	11	10	10	24	
21		10	10	10	11	11	11	10	11	11	11	11	11	11	12	12	11	11	11	11	11	11	11	10	11	24	
22		11	11	11	11	10	10	9	10	11	14	15	17	23	22	18	18	16	15	13	14	13	13	12	13	24	
23		12	11	11	10	7	4	7	14	12	19	20	22	42	22	19	17	16	7	13	8	9	9	33	9	24	
24		9	10	10	10	11	11	12	12	12	12	13	12	13	13	12	15	14	14	12	7	4	3	4	8	24	
25		9	9	9	10	12	13	12	12	13	15	15	18	16	9	11	9	10	8	8	8	9	7	5	5	24	
26		6	6	8	6	10	8	11	14	14	17	17	20	26	22	19	28	42	17	13	15	12	9	13	24		
27		9	9	10	11	13	9	9	10	15	15	14	15	15	16	13	15	12	11	11	10	10	9	10	24		
28		9	10	9	8	13	18	32	14	26	20	25	17	17	15	15	12	8	6	20	7	6	5	4	5	24	
29		10	7	9	10	9	10	9	8	9	12	9	12	15	9	10	14	17	15	15	6	6	7	7	4	24	
30		5	4	4	10	13	13	13	13	15	15	15	15	14	14	15	14	14	12	12	12	13	14	20	15	24	
31		15	16	15	18	14	14	13	17	20	16	22	34	22	29	32	18	17	34	34	8	10	13	12	11	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: August 28, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

STDWD[Deg] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



RELATIVE HUMIDITY

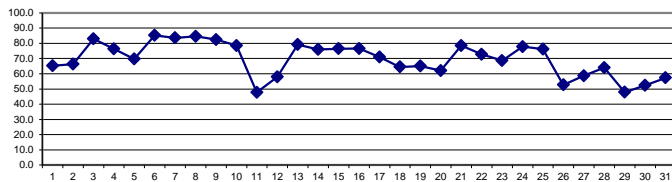
RELATIVE HUMIDITY (RH) hourly averages in %

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1	1	75	77	79	79	80	80	80	80	77	72	64	54	48	48	46	45	48	49	56	59	61	64	69	76	45	80	65.3	24
2	2	80	80	78	78	79	80	81	81	75	66	59	47	46	41	43	47	50	56	62	65	71	74	76	76	41	81	66.3	24
3	3	78	79	80	81	83	85	85	85	84	84	84	83	82	81	81	82	81	82	84	85	85	86	86	85	78	86	83.0	24
4	4	86	86	84	81	81	82	83	81	71	65	61	60	60	59	59	64	76	83	84	84	85	85	86	87	59	87	76.4	24
5	5	87	87	87	87	87	87	86	86	84	76	60	47	42	42	45	55	62	62	63	66	65	67	68	73	42	87	69.6	24
6	6	74	78	79	82	84	85	86	87	87	87	87	86	84	85	87	87	86	87	87	88	88	88	88	88	74	88	85.2	24
7	7	88	88	88	88	88	88	88	88	88	88	87	87	84	77	74	74	75	77	79	81	82	83	83	83	74	88	83.6	24
8	8	84	84	85	86	87	88	88	88	88	87	84	82	80	79	79	80	82	84	85	86	86	86	85	85	79	88	84.5	24
9	9	86	87	88	88	88	88	88	88	88	88	86	81	77	70	68	65	67	71	80	85	86	88	89	89	65	89	82.5	24
10	10	88	88	88	88	88	88	88	88	87	87	84	74	69	63	64	66	67	70	72	74	77	81	80	63	88	78.4	24	
11	11	79	79	78	73	70	71	71	62	48	43	35	30	26	24	28	33	30	31	38	39	42	37	40	40	24	79	47.8	24
12	12	47	47	56	58	60	59	57	53	53	51	47	49	50	51	51	53	58	62	67	68	70	73	75	76	47	76	58.0	24
13	13	77	79	83	82	82	83	84	79	70	64	73	80	81	81	77	74	74	79	81	82	84	84	85	85	64	85	79.1	24
14	14	85	84	84	83	82	83	82	82	79	76	74	72	69	62	62	64	63	65	68	72	77	82	85	86	62	86	75.9	24
15	15	86	87	87	86	85	85	85	83	80	74	71	69	72	68	68	66	65	69	72	73	75	76	76	76	65	87	76.4	24
16	16	76	76	75	77	80	81	82	81	78	77	77	76	76	77	77	77	79	81	82	83	82	23	83	81	23	83	76.5	24
17	17	75	77	79	81	82	82	82	81	77	70	65	58	57	57	59	59	61	65	68	69	71	74	77	77	57	82	71.0	24
18	18	78	77	78	78	78	79	79	74	68	62	59	49	43	45	47	48	50	51	59	63	67	70	72	74	43	79	64.5	24
19	19	77	77	77	77	76	76	77	71	62	53	46	43	45	48	52	55	58	64	67	69	71	73	73	72	43	77	65.0	24
20	20	72	73	75	76	76	76	78	75	67	60	56	54	51	46	46	48	48	52	55	56	60	63	62	64	46	78	62.0	24
21	21	66	70	74	74	75	76	75	74	73	78	80	81	80	79	80	80	81	83	84	84	85	84	84	84	66	85	78.5	24
22	22	84	83	83	82	81	81	81	80	77	70	62	59	56	56	58	60	63	66	69	73	79	80	81	82	56	84	72.8	24
23	23	82	83	83	83	83	84	84	82	74	62	56	49	47	51	49	51	52	57	63	69	70	72	76	83	47	84	68.5	24
24	24	86	86	87	87	87	87	86	85	82	80	75	71	70	69	68	69	69	67	71	76	78	80	78	73	67	87	77.8	24
25	25	72	73	79	83	84	85	85	84	81	78	75	74	75	73	68	62	64	67	70	73	77	82	83	82	62	85	76.2	24
26	26	79	79	79	77	75	76	74	66	59	50	44	38	33	30	28	29	28	36	42	47	46	47	50	52	28	79	52.7	24
27	27	54	56	61	63	64	70	72	65	56	49	48	47	47	48	48	49	50	54	60	64	66	69	72	76	47	76	58.7	24
28	28	79	81	82	84	83	83	84	80	73	61	49	44	45	47	44	42	43	49	54	66	71	73	73	42	84	64.0	24	
29	29	66	67	66	63	65	64	59	50	49	42	36	35	33	35	33	31	30	34	42	49	49	50	49	51	30	67	47.8	24
30	30	52	52	54	54	56	59	60	60	59	54	52	47	42	41	39	37	37	40	45	49	59	64	69	75	37	75	52.3	24
31	31	75	71	66	68	71	73	73	66	59	56	49	45	42	38	36	39	42	45	46	54	62	69	68	63	36	75	57.3	24
HOURLY MAX		88	88	88	88	88	88	88	88	88	88	87	87	84	85	87	87	86	87	87	88	88	88	89	89				
HOURLY AVG		76.5	77.1	78.1	78.3	78.7	79.5	79.5	76.9	72.7	68.1	64.0	60.4	58.5	57.1	57.1	57.9	59.3	62.1	66.0	68.9	71.5	71.6	74.9	75.7				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	23 %	@ HOUR(S)	21	ON DAY(S)	16
MAXIMUM 1-HR AVERAGE:	89 %	@ HOUR(S)	22 , 23	ON DAY(S)	9 , 9
MAXIMUM 24-HR AVERAGE:	85.2 %			ON DAY(S)	6
				VAR-VARIOUS	
			OPERATIONAL TIME:	744	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	15.29		MONTHLY AVERAGE:	70	%

RH[%RH] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



BAROMETRIC PRESSURE

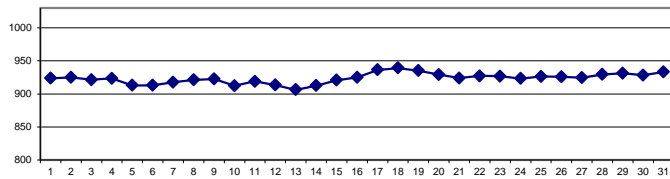
BAROMETRIC PRESSURE (BP) hourly averages in millibar

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.	
1	1	925	926	926	925	925	924	924	924	924	924	924	925	925	925	924	924	924	923	923	922	921	921	920	920	920	926	924	24	
2	2	920	920	920	920	920	921	921	922	923	924	925	927	928	928	929	929	929	929	929	929	928	928	928	927	927	920	929	925	24
3	3	926	925	925	923	923	922	922	921	920	920	919	919	919	919	919	920	920	920	921	921	922	922	922	922	923	919	926	921	24
4	4	923	924	925	925	925	925	926	926	926	926	927	927	926	925	925	924	923	922	921	919	918	917	917	916	916	916	927	923	24
5	5	915	915	914	914	913	913	913	913	913	913	913	913	914	914	914	913	912	912	912	912	912	911	911	911	911	911	915	913	24
6	6	912	912	912	912	913	913	913	913	913	914	914	914	914	913	913	913	913	913	913	913	913	913	913	913	913	912	914	913	24
7	7	913	913	913	913	914	914	915	915	916	917	917	918	918	919	919	919	920	920	921	921	921	921	921	921	922	913	922	918	24
8	8	922	922	922	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	920	922	921	24
9	9	921	921	921	921	921	921	922	922	922	922	923	923	924	924	924	924	924	924	924	923	922	922	922	922	921	921	924	922	24
10	10	921	920	919	918	918	917	915	915	914	913	912	912	911	910	910	909	908	908	908	907	907	907	907	908	909	907	921	912	24
11	11	910	911	912	913	914	915	916	917	918	919	920	921	922	922	922	923	923	923	923	923	923	922	922	922	921	910	923	919	24
12	12	921	920	920	919	918	917	916	915	915	915	915	914	913	912	912	912	911	910	909	909	909	908	907	907	907	907	921	914	24
13	13	906	906	905	905	905	905	904	905	904	905	905	905	905	906	906	907	908	908	909	909	908	908	908	908	908	904	909	906	24
14	14	908	908	908	908	908	909	909	910	910	911	912	912	912	913	914	914	915	915	916	916	917	917	917	917	918	908	918	913	24
15	15	918	918	918	919	919	919	920	920	921	921	922	922	922	921	922	922	922	922	922	922	922	922	922	921	921	918	922	921	24
16	16	921	921	921	921	921	921	922	922	923	923	924	924	925	925	926	926	927	927	928	928	929	929	930	931	921	931	925	24	
17	17	931	932	932	932	933	933	934	934	935	936	937	937	938	938	938	939	939	939	939	939	939	939	939	939	939	931	939	936	24
18	18	939	939	939	939	939	939	939	939	939	940	940	941	941	941	940	940	940	940	940	939	938	937	937	937	937	937	941	939	24
19	19	937	937	936	936	936	936	936	936	936	936	937	937	937	936	936	935	935	934	934	933	933	932	932	932	932	932	937	935	24
20	20	931	931	930	930	930	930	930	929	930	930	931	930	930	930	930	929	928	928	927	927	926	926	926	926	926	926	931	929	24
21	21	926	925	925	924	923	923	923	923	923	923	923	923	923	924	924	924	924	924	924	924	924	924	924	924	925	923	926	924	24
22	22	924	924	924	925	925	925	925	926	926	927	927	928	929	929	930	929	930	929	929	928	928	928	928	928	927	924	930	927	24
23	23	927	927	926	926	926	926	926	927	927	928	929	929	929	929	929	928	927	927	926	925	925	924	924	923	923	923	929	927	24
24	24	923	922	922	921	921	921	921	921	921	921	922	922	923	923	924	924	925	925	925	925	925	925	925	925	926	921	926	923	24
25	25	926	926	926	926	926	926	926	926	926	926	927	927	927	927	927	928	928	927	926	926	926	925	925	925	925	925	928	926	24
26	26	925	925	924	924	924	924	924	924	925	926	927	927	928	928	928	928	928	928	926	925	925	925	925	925	924	924	928	926	24
27	27	925	924	924	924	924	923	923	923	924	924	925	925	925	925	925	925	926	925	925	925	925	925	925	925	925	923	926	925	24
28	28	925	925	925	925	926	927	927	927	928	929	931	931	931	932	932	932	932	932	932	931	931	931	931	931	931	925	932	929	24
29	29	931	931	931	931	931	931	931	931	932	932	933	933	933	933	932	932	931	931	931	930	930	929	929	928	928	928	933	931	24
30	30	928	927	926	926	926	925	925	926	926	927	928	928	929	929	930	930	930	930	930	930	931	931	931	932	925	932	928	24	
31	31	932	932	932	932	933	933	933	934	934	935	935	935	935	935	934	934	934	933	932	932	931	930	930	930	930	930	935	933	24
HOURLY MAX		939	939	939	939	939	939	939	939	939	940	940	941	941	941	940	940	940	940	939	939	939	939	939	939	939	939	939	939	24
HOURLY AVG		923	923	923	923	923	923	923	923	923	924	924	924	924	924	925	925	924	924	924	924	923	923	923	923	923	930	935	933	24

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

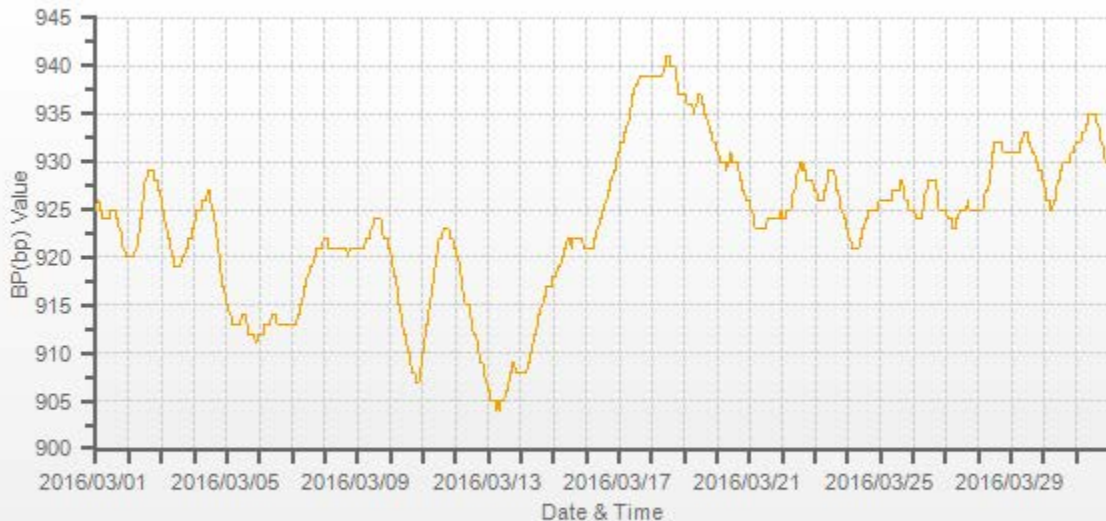
24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	904	MB	@ HOUR(S)	6 , 8	ON DAY(S)	13 , 13
MAXIMUM 1-HR AVERAGE:	941	MB	@ HOUR(S)	VAR	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	939	MB			ON DAY(S)	18
					VAR-VARIOUS	
			OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	7.89		MONTHLY AVERAGE:		924	MB

BP(bp)[mb] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



AMBIENT TEMPERATURE

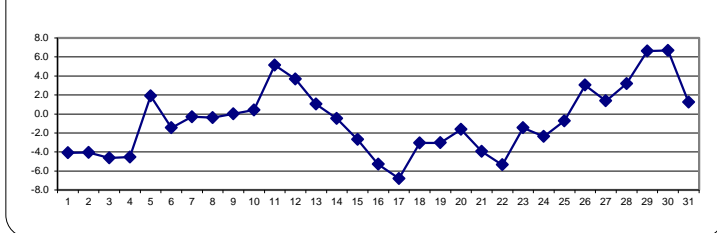
AMBIENT TEMPERATURE (AmbTPX) hourly averages in Degrees Celsius

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	-12.8	-12.3	-11.8	-11.3	-11.6	-11.7	-11.7	-11.2	-9.0	-6.0	-2.6	1.0	3.4	3.9	4.8	5.3	4.1	3.5	0.8	-0.7	-1.3	-1.6	-3.4	-5.6	-12.8	5.3	-4.1	24	
2	-7.2	-8.4	-9.1	-10.0	-10.3	-11.1	-11.6	-10.6	-9.1	-4.6	-2.1	1.3	2.4	4.5	3.9	2.7	1.6	-0.7	-2.5	-2.7	-3.2	-3.6	-3.7	-3.6	-11.6	4.5	-4.1	24	
3	-3.9	-3.4	-3.5	-3.9	-4.8	-5.3	-5.6	-6.1	-6.4	-6.2	-5.8	-5.3	-4.7	-4.1	-3.6	-3.7	-3.2	-3.8	-5.0	-5.2	-4.6	-4.6	-4.2	-4.2	-6.4	-3.2	-4.6	24	
4	-4.3	-4.5	-5.1	-6.1	-7.8	-8.8	-9.4	-9.1	-5.7	-4.2	-3.4	-3.6	-3.2	-2.4	-1.9	-2.5	-3.4	-3.3	-4.0	-4.3	-3.1	-2.7	-2.3	-9.4	-1.9	-4.5	24		
5	-2.4	-2.7	-3.1	-3.4	-3.8	-4.0	-4.3	-4.2	-2.6	1.4	5.8	9.7	11.3	11.2	10.2	6.7	4.2	3.4	2.8	2.4	2.7	2.2	1.6	0.5	-4.3	11.3	1.9	24	
6	-0.1	-1.3	-1.4	-2.3	-3.2	-3.5	-3.6	-3.4	-2.6	-1.2	-0.7	-0.4	-0.2	-0.4	-0.6	-0.7	-0.7	-0.8	-0.9	-1.1	-1.2	-1.4	-1.6	-1.8	-3.6	-0.1	-1.5	24	
7	-1.8	-1.6	-1.6	-1.7	-1.7	-1.7	-1.6	-1.5	-0.8	0.5	0.5	1.0	1.4	1.7	1.5	1.3	0.8	0.1	-0.1	-0.3	-0.6	-0.7	-0.8	-1.8	1.7	-0.3	24		
8	-0.7	-0.8	-1.0	-1.3	-1.7	-1.9	-1.7	-1.7	-1.4	-1.1	-0.5	0.1	0.6	1.2	1.2	1.2	1.2	0.7	0.3	0.0	-0.1	-0.2	-0.2	-0.4	-1.9	1.2	-0.4	24	
9	-0.7	-1.0	-1.4	-1.8	-1.9	-2.0	-1.8	-1.3	-0.9	-0.4	-0.1	1.0	1.5	3.1	3.6	4.4	4.0	2.7	0.1	-1.1	-1.4	-1.5	-1.4	-1.4	-2.0	4.4	0.0	24	
10	-1.5	-1.9	-1.7	-1.6	-1.4	-1.6	-1.9	-2.5	-2.2	-1.6	-0.2	1.8	2.3	3.8	3.9	4.0	3.6	3.2	2.3	1.8	1.2	0.5	-0.3	-0.1	-2.5	4.0	0.4	24	
11	0.2	0.8	1.4	2.7	2.8	1.8	1.0	2.5	5.6	7.1	9.0	9.5	10.6	10.8	9.5	8.0	8.6	7.9	5.1	4.3	3.3	4.2	3.2	3.2	0.2	10.8	5.1	24	
12	3.0	3.2	1.4	1.2	0.4	0.8	1.6	2.4	3.3	4.5	6.2	6.4	6.3	6.4	7.0	6.8	5.5	4.5	3.5	3.4	3.2	2.7	2.2	2.0	0.4	7.0	3.7	24	
13	1.7	1.1	0.2	0.0	-0.2	-0.2	-0.8	0.5	1.9	3.4	2.8	1.4	1.6	1.7	1.8	2.0	2.5	2.4	1.6	1.3	0.7	-0.3	-0.9	-1.4	-1.4	3.4	1.0	24	
14	-1.0	-0.7	-0.7	-0.7	-0.9	-1.7	-2.1	-2.1	-1.8	-0.9	-0.3	0.3	0.6	1.8	1.9	1.4	1.2	0.8	0.4	0.0	-0.6	-1.6	-2.3	-2.5	-2.5	1.9	-0.5	24	
15	-3.0	-3.3	-3.2	-3.2	-3.3	-3.4	-3.5	-2.7	-2.3	-1.5	-0.9	-0.6	-1.1	-1.1	-1.1	-1.2	-2.2	-2.9	-3.4	-3.7	-3.9	-4.2	-4.4	-4.6	-4.6	-0.6	-2.7	24	
16	-4.7	-4.8	-4.9	-4.9	-5.0	-5.1	-5.2	-5.4	-5.4	-5.2	-4.9	-5.2	-5.5	-4.3	-4.1	-4.3	-4.7	-5.2	-5.8	-6.1	-6.2	-6.5	-6.5	-6.9	-6.9	-4.1	-5.3	24	
17	-8.4	-9.3	-9.9	-9.9	-10.1	-10.2	-9.8	-9.2	-7.4	-6.5	-5.4	-3.9	-3.3	-3.1	-3.6	-3.8	-4.4	-5.2	-6.0	-6.3	-6.5	-6.8	-7.0	-7.0	-10.2	-3.1	-6.8	24	
18	-7.1	-7.0	-7.1	-7.2	-7.2	-7.4	-7.2	-6.2	-4.6	-3.0	-2.0	1.5	3.3	2.6	2.2	2.3	1.6	1.3	-1.5	-2.5	-3.6	-4.5	-4.7	-5.4	-7.4	3.3	-3.1	24	
19	-6.4	-6.7	-7.0	-7.4	-7.5	-7.9	-8.5	-7.1	-4.4	-1.4	1.0	2.1	2.6	2.5	2.2	1.8	1.2	-0.7	-2.2	-2.9	-3.0	-3.7	-4.4	-5.0	-8.5	2.6	-3.0	24	
20	-5.4	-5.6	-6.3	-6.7	-7.1	-7.4	-7.8	-6.8	-4.1	-1.3	0.1	1.3	2.6	4.4	4.6	3.9	3.9	2.1	0.7	0.0	-0.6	-0.9	-1.1	-1.4	-7.8	4.6	-1.6	24	
21	-1.8	-2.3	-3.0	-3.6	-4.2	-4.6	-4.9	-4.7	-4.8	-4.8	-4.6	-4.3	-3.2	-2.3	-2.3	-3.1	-3.6	-4.0	-4.4	-4.6	-4.7	-4.7	-5.0	-5.4	-5.4	-1.8	-4.0	24	
22	-6.0	-6.7	-7.3	-7.9	-8.3	-8.7	-8.9	-8.5	-6.9	-4.6	-3.5	-2.2	-0.8	-0.8	-0.9	-1.3	-2.8	-3.6	-4.8	-5.8	-6.7	-7.0	-7.2	-7.2	-8.9	-0.8	-5.4	24	
23	-7.2	-7.5	-7.3	-7.0	-6.7	-6.4	-6.0	-5.1	-2.6	0.0	1.7	3.8	4.2	3.3	4.2	3.5	2.4	1.1	0.4	-0.2	-0.4	-0.6	-1.0	-1.5	-7.5	4.2	-1.5	24	
24	-1.9	-2.1	-2.3	-2.5	-2.8	-3.0	-3.0	-2.9	-2.5	-1.9	-1.1	-0.1	-0.1	0.4	0.2	-0.4	-1.1	-1.4	-3.0	-4.5	-5.1	-5.4	-5.3	-5.0	-5.4	0.4	-2.4	24	
25	-4.9	-4.8	-4.9	-5.1	-4.9	-4.5	-4.5	-3.8	-2.5	-1.4	-0.2	0.8	1.3	1.9	3.0	4.3	4.0	2.9	2.2	1.8	1.1	0.3	0.2	0.3	-5.1	4.3	-0.7	24	
26	0.6	0.6	0.3	0.2	0.1	-0.7	-0.6	1.7	3.6	5.7	6.3	7.7	8.5	8.2	8.3	7.8	7.6	5.2	2.4	1.0	0.4	-0.3	-0.9	-1.1	-1.1	8.5	3.0	24	
27	-1.5	-1.7	-1.9	-1.5	-1.5	-3.3	-4.1	-2.2	1.6	4.1	4.9	5.5	5.9	6.1	6.4	6.0	5.6	4.1	2.1	1.0	0.3	-0.4	-1.1	-1.4	-4.1	6.4	1.4	24	
28	-2.0	-2.5	-3.0	-3.8	-3.8	-4.1	-4.0	-2.7	-0.4	3.6	7.5	9.4	9.0	8.8	9.2	10.1	9.7	8.9	7.1	5.8	4.2	3.9	3.0	2.6	-4.1	10.1	3.2	24	
29	2.9	2.0	1.4	1.5	0.8	0.9	2.2	4.7	5.6	8.4	9.9	10.8	12.2	10.8	11.0	12.0	12.0	10.8	8.2	6.7	6.3	6.0	6.0	5.5	0.8	12.2	6.6	24	
30	5.4	5.3	4.9	5.0	5.0	4.6	4.5	5.0	5.8	7.0	7.5	8.3	9.2	9.9	11.1	11.3	11.1	9.5	7.6	6.5	5.3	4.1	3.5	2.7	2.7	11.3	6.7	24	
31	2.2	0.9	-0.6	-1.8	-2.4	-3.1	-3.4	-2.2	-0.2	0.4	2.4	3.8	4.3	5.4	6.2	4.9	3.9	3.0	2.3	1.5	0.8	0.2	0.3	0.5	-3.4	6.2	1.2	24	
HOURLY MAX	5.4	5.3	4.9	5.0	5.0	4.6	4.5	5.0	5.8	8.4	9.9	10.8	12.2	11.2	11.1	12.0	10.8	8.2	6.7	6.3	6.0	6.0	5.5						
HOURLY AVG	-2.6	-2.9	-3.2	-3.4	-3.7	-4.0	-4.1	-3.4	-2.0	-0.4	0.9	2.0	2.7	3.1	3.2	3.0	2.4	1.5	0.2	-0.5	-0.9	-1.3	-1.6	-1.9					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-12.8 °C	@ HOUR(S)	0	ON DAY(S)	1
MAXIMUM 1-HR AVERAGE:	12.2 °C	@ HOUR(S)	12	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	6.7 °C			ON DAY(S)	30
				VAR-VARIOUS	
OPERATIONAL TIME:				744	HRS
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	4.65	MONTHLY AVERAGE:		-0.7	°C

TPX[C°] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



PRECIPITATION

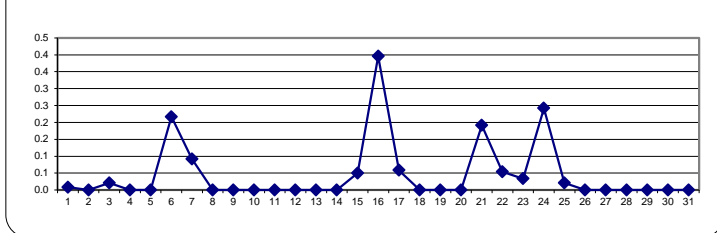
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.	
DAY	MIN.	MAX.	AVG.																											
1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	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	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.4	1.2	1.5	1.2	0.9	0.0	1.5	0.2	24	
7	0.5	0.1	0.1	0.3	0.3	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24	
16	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.8	0.1	0.7	0.7	0.6	0.7	0.9	1.0	0.7	0.7	0.5	0.1	0.2	0.1	0.2	0.4	0.2	0.0	1.0	0.4	24		
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.1	24	
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.5	0.5	0.4	0.1	0.4	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.0	0.7	0.2	24	
22	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.2	0.1	24		
23	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.7	0.0	24
24	1.1	0.8	0.8	0.8	0.3	0.2	0.2	0.4	0.3	0.4	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	0.0	0.0	1.1	0.2	24		
25	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	24	
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	1.1	0.8	0.8	0.8	0.3	0.3	0.5	0.8	1.2	0.7	0.7	0.7	0.7	0.9	1.0	0.7	0.7	0.5	0.3	0.4	1.2	1.5	1.2	0.9	0.0	0.0	0.0	0.0	24	
HOURLY AVG	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	24

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	0.0	MM	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	1.5	MM	@ HOUR(S)	21	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	0.4	MM			ON DAY(S)	16
MONTHLY TOTAL	33.2	MM			VAR-VARIOUS	
OPERATIONAL TIME:					744	HRS
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	0.16				MONTHLY AVERAGE:	0.0
						MM

PRECIP[mm] Station: LICA ST. LINA Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100E Sulphur Dioxide Analyzer Calibration

Date: <u>March 7, 2016</u>	Barometric Pressure: <u>0.918 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>A few clouds</u>
Parameter: <u>Sulphur Dioxide</u>	Calibration Purpose: <u>shut down</u>
Start Time 24 hr. (mst): <u>13:23</u>	Performed By/Reviewer: <u>Alex Yakupov</u> / <u>Trina Whitsitt</u>
End Time 24 hr. (mst): <u>15:12</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	
Serial Number: <u>468</u>	Range ppb: <u>1000</u>
Last Calibration Date: <u>February 19, 2016</u>	As Found C.F.: <u>1.016</u>
Previous C.F.: <u>0.999</u>	New C.F.: <u>n/a</u>

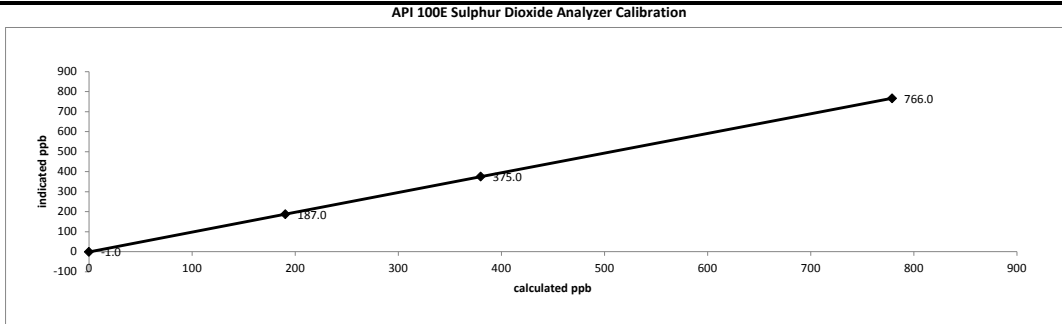
Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>LL119346</u> Cal Gas Conc. (ppm): <u>50.0</u>	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td style="text-align: center;">780</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">380</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">190</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190
Point	Sulphur Dioxide Standard Calibration Points								
High	780								
Mid	380								
Low	190								

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5012	0.00	5012	0.0	-1.0	N/A
as found high	4935	78.10	5013	779.0	766.0	1.016
mid	4976	38.10	5014	379.9	375.0	1.010
low	4994	19.10	5013	190.5	187.0	1.013
Average C.F.=						1.013

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS > or = 0.995
Slope = <u>1.016</u>	<u>0.90-1.10</u>
b (Intercept as % of full scale) = <u>0.04%</u>	<u>± 3% F.S.</u>
% change in C.F. from last cal = <u>-1.66%</u>	<u>± 10%</u>



As found: SLOPE: <u>0.968</u> OFFSET: <u>101.0</u> HVPS: <u>647</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>31.1</u> PMT TEMP: <u>7.8</u> IZS TEMP: <u>40.0</u> PRES: <u>25.2</u> SAMP FL: <u>367</u> NORM PMT: <u>96.4</u> UV LAMP: <u>3224.8</u> LAMP RATIO: <u>92.4</u> STR. LGT: <u>48.9</u> DRK PMT: <u>5.5</u> DRK LMP: <u>6.7</u> Internal Span: <u>225</u>	As left: SLOPE: <u>n/a</u> OFFSET: <u>n/a</u> HVPS: <u>n/a</u> RCELL TEMP: <u>n/a</u> BOX TEMP: <u>n/a</u> PMT TEMP: <u>n/a</u> IZS TEMP: <u>n/a</u> PRES: <u>n/a</u> SAMP FL: <u>n/a</u> NORM PMT: <u>n/a</u> UV LAMP: <u>n/a</u> LAMP RATIO: <u>n/a</u> STR. LGT: <u>n/a</u> DRK PMT: <u>n/a</u> DRK LMP: <u>n/a</u> Internal Span: <u>n/a</u>
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Comments:

Shutdown calibration performed to rebuild a pump.



API 100E Sulphur Dioxide Analyzer Calibration

Date: <u>March 7, 2016</u>	Barometric Pressure: <u>0.921 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>A few clouds</u>
Parameter: <u>Sulphur Dioxide</u>	Calibration Purpose: <u>post repair</u>
Start Time 24 hr. (mst): <u>15:50</u>	Performed By/Reviewer: <u>Alex Yakupov</u> / <u>Trina Whitsitt</u>
End Time 24 hr. (mst): <u>19:10</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	
Serial Number: <u>468</u>	Range ppb: <u>1000</u>
Last Calibration Date: <u>n/a</u>	As Found C.F.: <u>n/a</u>
Previous C.F.: <u>n/a</u>	New C.F.: <u>1.000</u>

Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>LL119346</u> Cal Gas Conc. (ppm): <u>50.0</u>	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td style="text-align: center;">780</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">380</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">190</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190
Point	Sulphur Dioxide Standard Calibration Points								
High	780								
Mid	380								
Low	190								

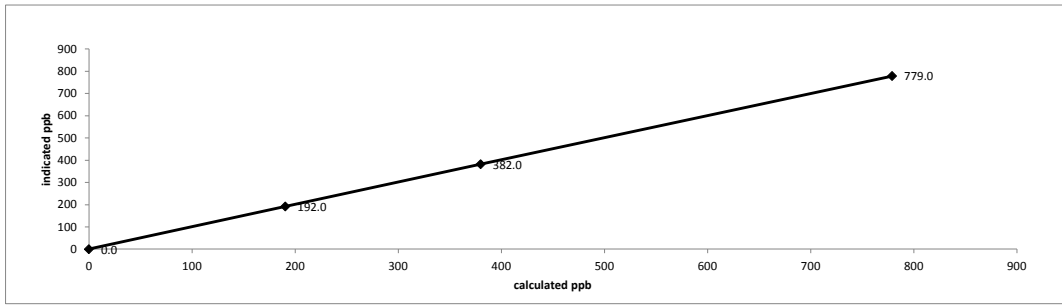
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	5012	0.00	5012	0.0	0.0	N/A
adjusted high	4935	78.10	5013	779.0	779.0	1.000
mid	4976	38.10	5014	379.9	382.0	0.995
low	4994	19.10	5013	190.5	192.0	0.992
calibrator zero	5012	0.00	5012	0.0	0.0	n/a
Average C.F.=						0.996

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS > or = 0.995
Slope = <u>1.000</u>	.95-1.05
b (Intercept as % of full scale) = <u>-0.10%</u>	± 3% F.S.
% change in C.F. from last cal = <u>n/a</u>	± 10%

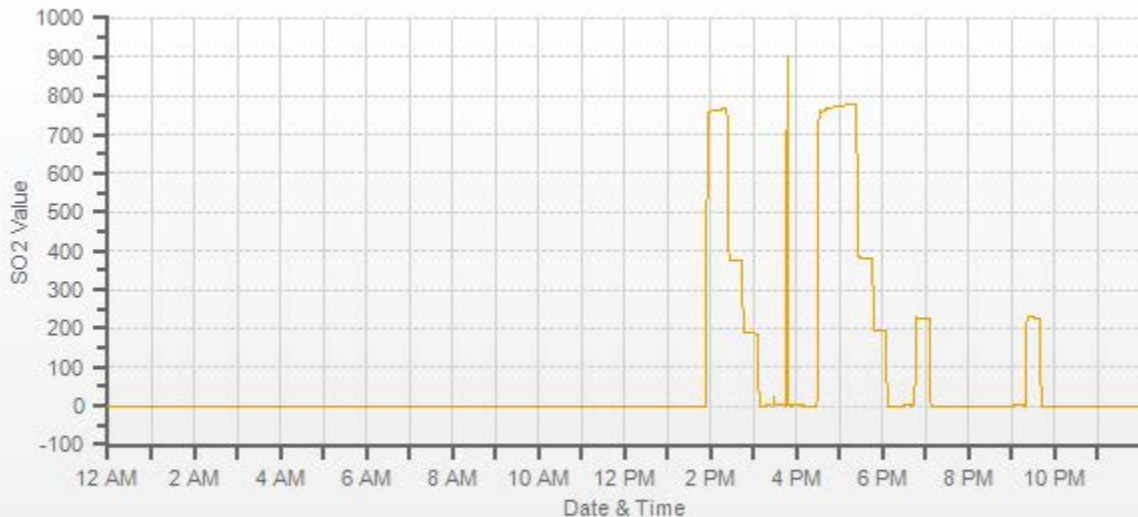
API 100E Sulphur Dioxide Analyzer Calibration



As found: SLOPE: <u>n/a</u> OFFSET: <u>n/a</u> HVPS: <u>n/a</u> RCELL TEMP: <u>n/a</u> BOX TEMP: <u>n/a</u> PMT TEMP: <u>n/a</u> IZS TEMP: <u>n/a</u> PRES: <u>n/a</u> SAMP FL: <u>n/a</u> NORM PMT: <u>n/a</u> UV LAMP: <u>n/a</u> LAMP RATIO: <u>n/a</u> STR. LGT: <u>n/a</u> DRK PMT: <u>n/a</u> DRK LMP: <u>n/a</u> Internal Span: <u>n/a</u>	As left: SLOPE: <u>0.977</u> OFFSET: <u>102.3</u> HVPS: <u>647</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>30.8</u> PMT TEMP: <u>7.9</u> IZS TEMP: <u>40.0</u> PRES: <u>23.8</u> SAMP FL: <u>569</u> NORM PMT: <u>102.4</u> UV LAMP: <u>3229.0</u> LAMP RATIO: <u>92.3</u> STR. LGT: <u>50.0</u> DRK PMT: <u>6.2</u> DRK LMP: <u>6.7</u> Internal Span: <u>227</u>
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Comments:

Sample flow was 232 cc/m. Sample filter changed. Sample pump rebuilt. Output voltage was calibrated.





API 100E Sulphur Dioxide Analyzer Calibration

Date: <u>March 16, 2016</u>	Barometric Pressure: <u>0.924 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>Mainly cloudy with snow</u>
Parameter: <u>Sulphur Dioxide</u>	Calibration Purpose: <u>routine monthly</u>
Start Time 24 hr. (mst): <u>11:11</u>	Performed By/Reviewer: <u>Alex Yakupov</u> <u>Trina Whitsitt</u>
End Time 24 hr. (mst): <u>14:57</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	
Serial Number: <u>468</u>	Range ppb: <u>1000</u>
Last Calibration Date: <u>March 7, 2016</u>	As Found C.F.: <u>1.004</u>
Previous C.F.: <u>1.000</u>	New C.F.: <u>1.000</u>

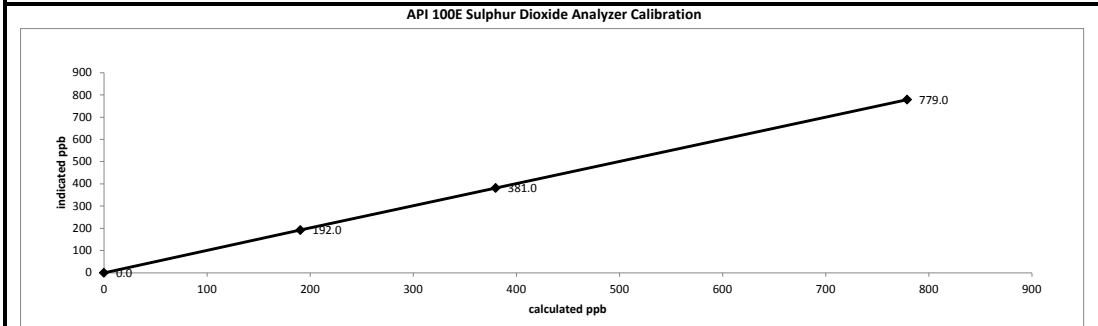
Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>LL119346</u> Cal Gas Conc. (ppm): <u>50.0</u>	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td style="text-align: center;">780</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">380</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">190</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190
Point	Sulphur Dioxide Standard Calibration Points								
High	780								
Mid	380								
Low	190								

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors (C.F.):
	Diluent	Cal Gas	Total			
as found zero	5012	0.00	5012	0.0	-0.2	N/A
as found high	4935	78.10	5013	779.0	776.0	1.004
adjusted zero	5012	0.00	5012	0.0	0.0	n/a
adjusted high	4935	78.10	5013	779.0	779.0	1.000
mid	4976	38.10	5014	379.9	381.0	0.997
low	4994	19.10	5013	190.5	192.0	0.992
calibrator zero	5012	0.00	5012	0.0	0.0	n/a
Average C.F.=						0.996

Linear Regression/Calibration Results:

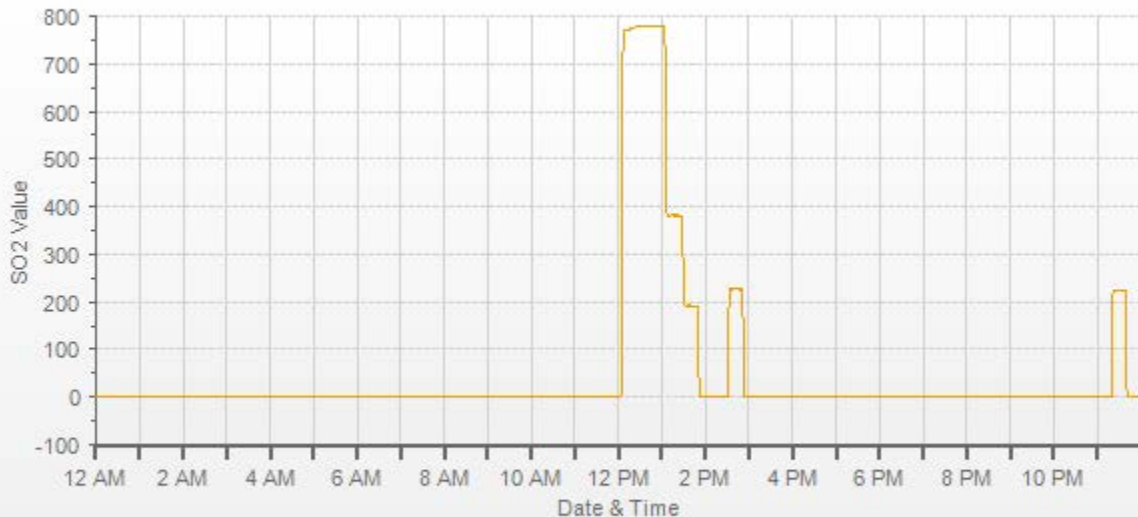
Correlation Coefficient = <u>1.000</u>	LIMITS
Slope = <u>1.000</u>	> or = 0.995
b (Intercept as % of full scale) = <u>-0.08%</u>	.95-1.05
% change in C.F. from last cal = <u>-0.36%</u>	± 3% F.S.
	± 10%



As found:	As left:
SLOPE: <u>0.977</u>	SLOPE: <u>0.975</u>
OFFSET: <u>102.3</u>	OFFSET: <u>101.6</u>
HVPS: <u>647</u>	HVPS: <u>647</u>
RCCELL TEMP: <u>50.0</u>	RCCELL TEMP: <u>50.0</u>
BOX TEMP: <u>29.6</u>	BOX TEMP: <u>29.3</u>
PMT TEMP: <u>7.8</u>	PMT TEMP: <u>7.8</u>
IZS TEMP: <u>40.0</u>	IZS TEMP: <u>40.0</u>
PRES: <u>24.0</u>	PRES: <u>24.0</u>
SAMP FL: <u>572</u>	SAMP FL: <u>573</u>
NORM PMT: <u>101.9</u>	NORM PMT: <u>102.5</u>
UV LAMP: <u>3215.3</u>	UV LAMP: <u>3219.5</u>
LAMP RATIO: <u>92.0</u>	LAMP RATIO: <u>92.0</u>
STR. LGT: <u>50.0</u>	STR. LGT: <u>49.5</u>
DRK PMT: <u>5.3</u>	DRK PMT: <u>5.6</u>
DRK LMP: <u>6.7</u>	DRK LMP: <u>6.8</u>
Internal Span: <u>227</u>	Internal Span: <u>226</u>

Comments:

Sample filtre changed.





API 100A Sulphur Dioxide Analyzer Calibration

Date: <u>March 30, 2016</u>	Barometric Pressure: <u>0.916 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>A few clouds</u>
Parameter: <u>Sulphur Dioxide</u>	Calibration Purpose: <u>installation</u>
Start Time 24 hr. (mst): <u>9:40</u>	Performed By/Reviewer: <u>Alex Yakupov</u> <u>Trina Whitsitt</u>
End Time 24 hr. (mst): <u>16:05</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer: Serial Number: <u>838</u>	Range ppb: <u>1000</u>
Last Calibration Date: <u>March 16, 2016</u>	As Found C.F.: <u>n/a</u>
Previous C.F.: <u>1.000</u>	New C.F.: <u>0.999</u>

Calibrator: Flow Meter ID's: <u>n/a</u>	Standard Calibration Points for Ranges								
Make & Model: <u>API</u>	<table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>780</td> </tr> <tr> <td>Mid</td> <td>380</td> </tr> <tr> <td>Low</td> <td>190</td> </tr> </tbody> </table>	Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190
Point		Sulphur Dioxide Standard Calibration Points							
High		780							
Mid		380							
Low	190								
Serial #: <u>830</u>									
Cal Gas Cylinder I.D. #: <u>LL119346</u>									
Cal Gas Conc. (ppm): <u>50.0</u>									

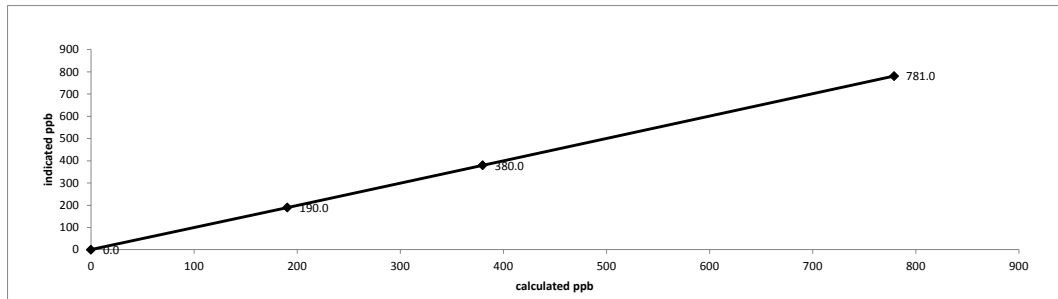
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	4996	0.00	4996	0.0	0.0	N/A
adjusted high	4919	78.00	4997	780.5	781.0	0.999
mid	4960	38.00	4998	380.2	380.0	1.000
low	4980	19.00	4999	190.0	190.0	1.000
calibrator zero	4996	0.00	4996	0.0	0.0	n/a
Average C.F.=						1.000

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS > or = 0.995
Slope = <u>0.999</u>	.95-1.05
b (Intercept as % of full scale) = <u>0.02%</u>	± 3% F.S.
% change in C.F. from last cal = <u>n/a</u>	± 10%

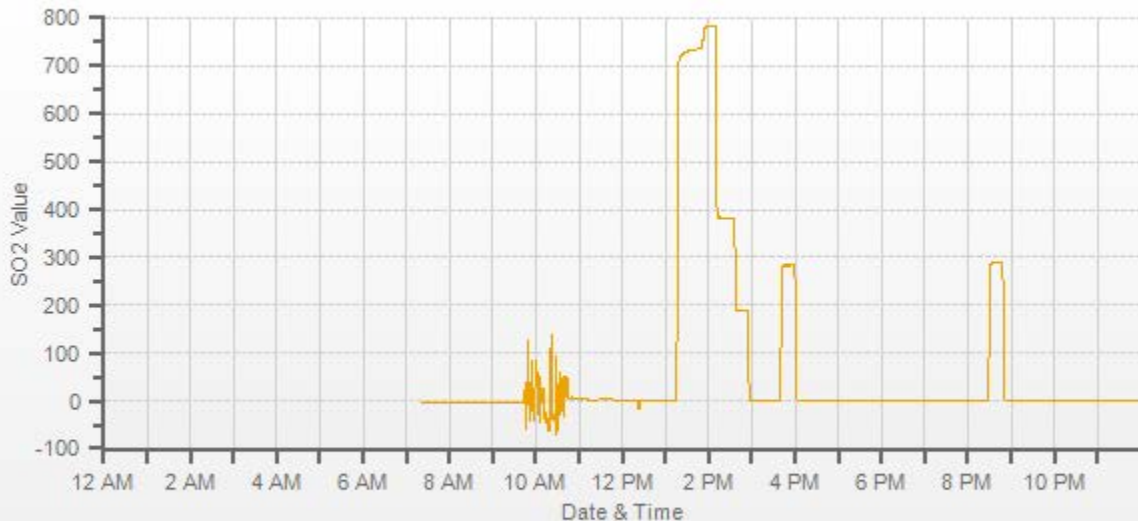
API 100A Sulphur Dioxide Analyzer Calibration



As found:	As left:
SLOPE: <u>n/a</u>	SLOPE: <u>1.050</u>
OFFSET: <u>n/a</u>	OFFSET: <u>20.0</u>
HVPS: <u>n/a</u>	HVPS: <u>657</u>
DCPS: <u>n/a</u>	DCPS: <u>2543</u>
RCELL TEMP: <u>n/a</u>	RCELL TEMP: <u>50.2</u>
BOX TEMP: <u>n/a</u>	BOX TEMP: <u>26.9</u>
PMT TEMP: <u>n/a</u>	PMT TEMP: <u>7.3</u>
IZS TEMP: <u>n/a</u>	IZS TEMP: <u>60.0</u>
Converter Temp: <u>n/a</u>	Converter Temp: <u>n/a</u>
PRES: <u>n/a</u>	PRES: <u>26.3</u>
SAMP FL: <u>n/a</u>	SAMP FL: <u>639</u>
PMT: <u>n/a</u>	PMT: <u>62.7</u>
UV LAMP: <u>n/a</u>	UV LAMP: <u>2553.8</u>
LAMP RATIO: <u>n/a</u>	LAMP RATIO: <u>73.1</u>
STR. LGT: <u>n/a</u>	STR. LGT: <u>10.5</u>
DRK PMT: <u>n/a</u>	DRK PMT: <u>43.1</u>
DRK LMP: <u>n/a</u>	DRK LMP: <u>-6.4</u>
Internal Span: <u>n/a</u>	Internal Span: <u>288</u>

Comments:

Installation calibration performed to replace SO2 analyzer (# 468 Model 100E) for repair. No shut-down calibration possible due to analyzer failure.



HYDROGEN SULPHIDE



API 101E Hydrogen Sulphide Analyzer Calibration

Date: <u>March 17, 2016</u>	Barometric Pressure: <u>0.936 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>20</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>light snow</u>
Parameter: <u>Hydrogen Sulphide</u>	Calibration Purpose: <u>routine monthly</u>
Start Time 24 hr. (mst): <u>10:12</u>	Performed By/Reviewer: <u>Alex Yakupov</u> / <u>Trina Whitsitt</u>
End Time 24 hr. (mst): <u>13:02</u>	Cal Gas Expiry Date: <u>July 15, 2017</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	
Serial Number: <u>509</u>	Range ppb: <u>100</u>
Last Calibration Date: <u>February 12, 2016</u>	As Found C.F.: <u>1.017</u>
Previous C.F.: <u>0.999</u>	New C.F.: <u>1.000</u>

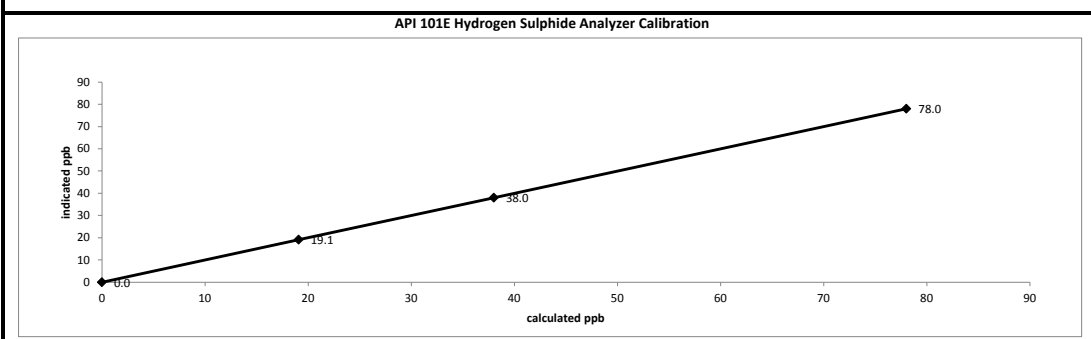
Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>API 700</u> Serial #: <u>830</u> Cal Gas Cylinder I.D. #: <u>LL36837</u> Cal Gas Conc. (ppm): <u>10.0</u>	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <tr> <th>Point</th> <th>Hydrogen Sulphide Standard Calibration Points</th> </tr> <tr> <td>High</td> <td style="text-align: center;">78</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">38</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">19</td> </tr> </table>	Point	Hydrogen Sulphide Standard Calibration Points	High	78	Mid	38	Low	19
Point	Hydrogen Sulphide Standard Calibration Points								
High	78								
Mid	38								
Low	19								

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7498	0.00	7498	0.0	0.0	N/A
as found high	7439	58.50	7498	78.0	76.7	1.017
adjusted high	7439	58.50	7498	78.0	78.0	1.000
mid	7470	28.50	7499	38.0	38.0	1.000
low	7480	14.30	7494	19.1	19.1	0.999
calibrator zero	7498	0.00	7498	0.0	0.0	n/a
Average C.F. =						1.000

Linear Regression/Calibration Results:

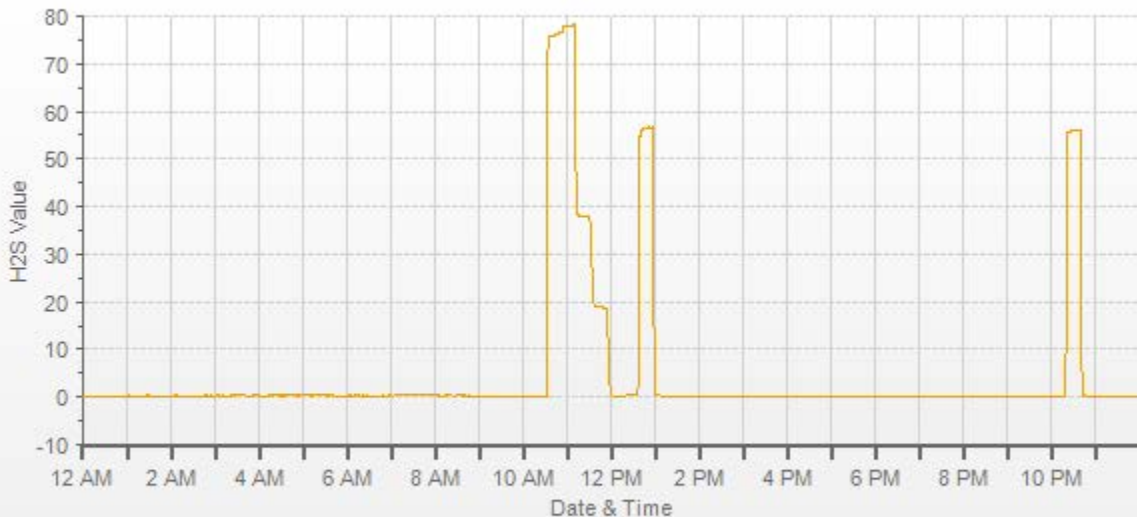
Correlation Coefficient = <u>1.000</u>	LIMITS > or = 0.995
Slope = <u>1.000</u>	.95-1.05
b (Intercept as % of full scale) = <u>-0.01%</u>	± 3% F.S.
% change in C.F. from last cal = <u>-1.83%</u>	± 10%



As found:	As left:
SLOPE: <u>1.107</u>	SLOPE: <u>1.122</u>
OFFSET: <u>35.5</u>	OFFSET: <u>35.5</u>
HVPS: <u>651</u>	HVPS: <u>651</u>
RCELL TEMP: <u>50.0</u>	RCELL TEMP: <u>50.0</u>
BOX TEMP: <u>28.8</u>	BOX TEMP: <u>30.1</u>
PMT TEMP: <u>7.9</u>	PMT TEMP: <u>7.9</u>
IZS TEMP: <u>48.0</u>	IZS TEMP: <u>48.0</u>
Converter Temp: <u>315.7</u>	Converter Temp: <u>515.2</u>
PRES: <u>20.8</u>	PRES: <u>20.8</u>
SAMP FL: <u>526</u>	SAMP FL: <u>526</u>
UV LAMP: <u>3344.7</u>	UV LAMP: <u>3342.6</u>
LAMP RATIO: <u>95.5</u>	LAMP RATIO: <u>95.5</u>
STR. LGT: <u>19.7</u>	STR. LGT: <u>19.9</u>
DRK PMT: <u>0.1</u>	DRK PMT: <u>0.1</u>
DRK LMP: <u>0.6</u>	DRK LMP: <u>0.4</u>
Internal Span: <u>55</u>	Internal Span: <u>56.6</u>

Comments:

Sample filter changed. No ZERO adjustment made.



TOTAL HYDROCARBON



Thermo 51C Total Hydrocarbon Analyzer Calibration

Date: March 16, 2016
Company/Airshed: LICA
Location/Station Name: St. Lina
Parameter: Total Hydrocarbon
Start/End Time 24 hr. (mst): 11:11 / 14:25
Calibration Method: Gas Dilution
Barometric Pressure: 0.924 atm
Station Temperature °C: 22
Weather Conditions: Mainly cloudy with snow
Calibration Purpose: routine monthly
Performed By/Reviewer: Alex Yakupov / Trina Whitsitt
Cal Gas Expiry Date: November 25, 2023

Analyzer:
Serial Number: 51CLT-77021-384
Last Calibration Date: February 11, 2016
Previous Cal High Point C.F.: 1.001
Range ppm: 50
As Found C.F.: 1.014
New C.F.: 1.000

Calibrator:
Flow Meter ID's: n/a
Make & Model: API 700
Serial #: 830
Cal Gas Cylinder I.D. #: LL165372
CH₄/C₂H₆ Cylinder Conc. (ppm): 606.0 / 212.0
CH₄ as propane/total CH₄ equivalents (ppm): 583.0 / 1189.0
Standard Calibration Points for a Range of 50 ppm

Point	Target ppm
High	38
Mid	18
Low	9

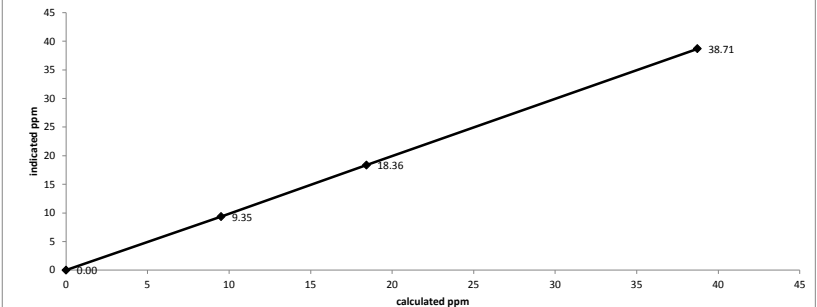
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppm)	Indicated Concentration: (ppm)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	1999	0.00	1999	0.0	-0.20	n/a
as found high	1931	65.00	1996	38.72	38.00	1.014
adjusted zero	1999	0.00	1999	0.00	0.00	n/a
adjusted high	1931	65.00	1996	38.72	38.71	1.000
mid	1969	31.00	2000	18.43	18.36	1.004
low	1984	16.00	2000	9.51	9.35	1.017
calibrator zero	1999	0.00	1999	0.0	0.00	n/a

Average C.F.= 1.007

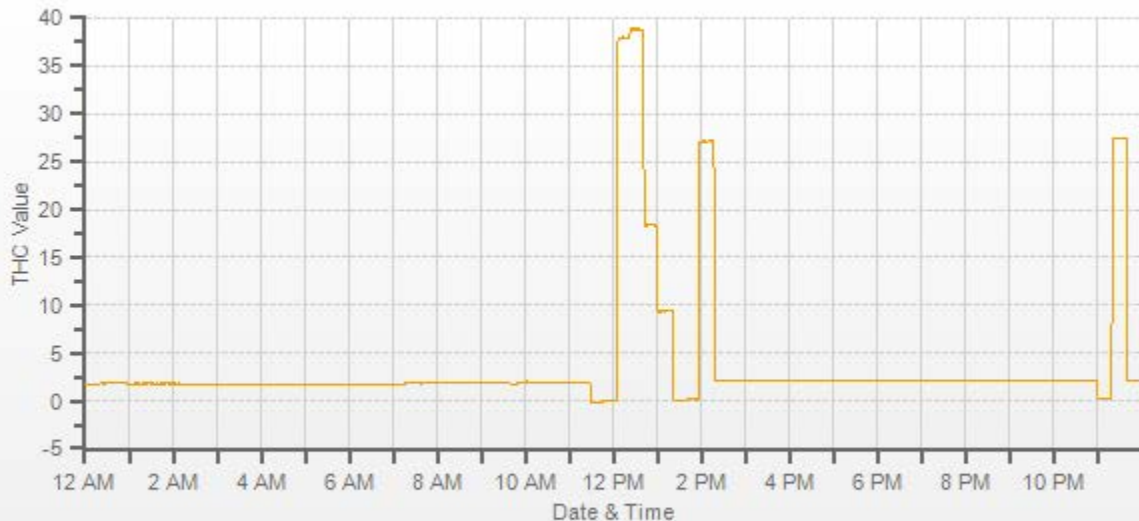
Linear Regression/Calibration Results:
 Correlation Coefficient = 1.000
 Slope = 0.999
 b (Intercept as % of full scale) = 0.15%
 % change in C.F. from last cal = -1.26%
LIMITS
 > or = 0.995
 .95-1.05
 ± 3% F.S.
 ± 10%

Thermo 51C Total Hydrocarbon Analyzer Calibration



As found: H2 cylinder (psi): 500 H2 cylinder reg set (psi): 25 Span Cylinder (psi): 1000 Span Cylinder Reg Set (psi): 22 Zero Air Gen Pressure: 42 measurement alarms: None service alarms: None cnt: 1541 rng: 1 try: 1 flm: 186.5 det: 125.3 Flame: 186 Filter: 125 Base: 125 Sample psi: 06.91 Internal Air Pressure: 19 Internal Fuel Pressure: 13 Intenal Pressure Gauge psi: 27 Internal Span: 26.8	As left: H2 cylinder (psi): 500 H2 cylinder reg set (psi): 25 Span Cylinder (psi): 1000 Span Cylinder Reg Set (psi): 22 Zero Air Gen Pressure: 42 measurement alarms: None service alarms: None cnt: 1568 rng: 1 try: 1 flm: 187.7 det: 125.4 Flame: 187 Filter: 125 Base: 125 Sample psi: 06.92 Internal Air Pressure: 19 Internal Fuel Pressure: 13 Intenal Pressure Gauge psi: 27 Internal Span: 27.1
--	---

Comments:
Sample filter changed.



NITROGEN DIOXIDE



API 200E NO-NO2-NOx Analyzer Calibration

Date: <u>March 16, 2016</u>	Barometric Pressure: <u>0.924 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>St. Lina</u>	Weather Conditions: <u>Mainly cloudy with snow</u>
Start/End Time 24 hr. (mst): <u>11:11 / 17:50</u>	Calibration Purpose: <u>routine monthly</u>
G.P.T. to be used for Ozone? <u>No</u>	Performed By/Reviewer: <u>Alex Yakupov Trina Whitsitt</u>
Calibration Method: <u>Gas Dilution & Varying UV Lamp Power</u>	Cal Gas Expiry Date: <u>December 2, 2023</u>

Analyzer: Serial Number: <u>594</u> Last Calibration Date: <u>February 11, 2016</u> Range ppb: <u>1000</u>	Correction Factors: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Previous C.F.:</th> <th>As Found C.F.:</th> <th>New C.F.:</th> </tr> </thead> <tbody> <tr> <td>NO =</td> <td>0.999</td> <td>1.016</td> <td>1.000</td> </tr> <tr> <td>NO₂ =</td> <td>1.002</td> <td>1.002</td> <td>1.002</td> </tr> <tr> <td>NOx =</td> <td>0.999</td> <td>1.017</td> <td>1.000</td> </tr> </tbody> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	NO =	0.999	1.016	1.000	NO ₂ =	1.002	1.002	1.002	NOx =	0.999	1.017	1.000
	Previous C.F.:	As Found C.F.:	New C.F.:														
NO =	0.999	1.016	1.000														
NO ₂ =	1.002	1.002	1.002														
NOx =	0.999	1.017	1.000														

Calibrator: Flow Meter ID's: <u>n/a</u> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>LL119346</u> NO/NOx Gas Conc. (ppm): <u>50.0 50.0</u>	Standard Calibration Points for a Range of: 1000 ppb <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>Target NO (ppb)</th> <th>Target NO₂ (ppb)</th> <th>Cc Ozone ?</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>780</td> <td>500</td> <td>n/a</td> </tr> <tr> <td>Mid</td> <td>380</td> <td>275</td> <td>n/a</td> </tr> <tr> <td>Low</td> <td>190</td> <td>100</td> <td>n/a</td> </tr> <tr> <td>Extra Point #1</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Extra Point #2</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </tbody> </table>	Point	Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?	High	780	500	n/a	Mid	380	275	n/a	Low	190	100	n/a	Extra Point #1	n/a	n/a	n/a	Extra Point #2	n/a	n/a	n/a
Point	Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?																						
High	780	500	n/a																						
Mid	380	275	n/a																						
Low	190	100	n/a																						
Extra Point #1	n/a	n/a	n/a																						
Extra Point #2	n/a	n/a	n/a																						

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5012	0.0	5012	0	0	-1.0	0.0	n/a	n/a
as found high	4935	78.1	5013	779.0	779.0	766.0	766.0	1.016	1.017
adjusted zero	5012	0.00	5012	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4935	78.10	5013	779.0	779.0	779.0	779.0	1.000	1.000
mid	4976	38.10	5014	379.9	379.9	381.0	382.0	0.997	0.995
low	4994	19.10	5013	190.5	190.5	192.0	192.0	0.992	0.992
calibrator zero	5012	0.00	5012	0	0	0.0	0.0	n/a	n/a
Average C.F.=								0.996	0.996

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ gain	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4935	78.10	5013	0.0	779.0	780.0	0.0	0.0	0.0	
as found high NO2	4935	78.10	5013	525.0	277.0	779.0	501.0	502.0	501.0	1.002
gpt mid	4935	78.10	5013	285.0	503.0	778.0	274.0	276.0	274.0	1.007
gpt low	4935	78.10	5013	102.0	677.0	780.0	102.0	102.0	102.0	1.000
Average NO₂ C.F.=										1.003

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.000	1.003	.95-1.05
b (Intercept as % of full scale)=	0.08%	0.10%	-0.02%	± 3% F.S.
% change in C.F. from last cal=	-1.66%	-1.79%	0.00%	± 10%
NO2 converter efficiency			1.00	0.96 to 1.04

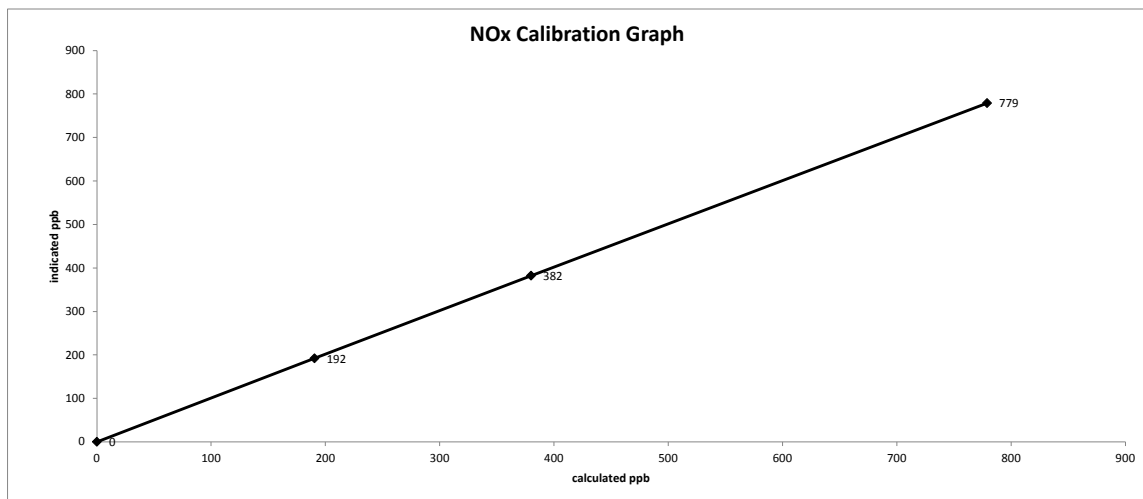
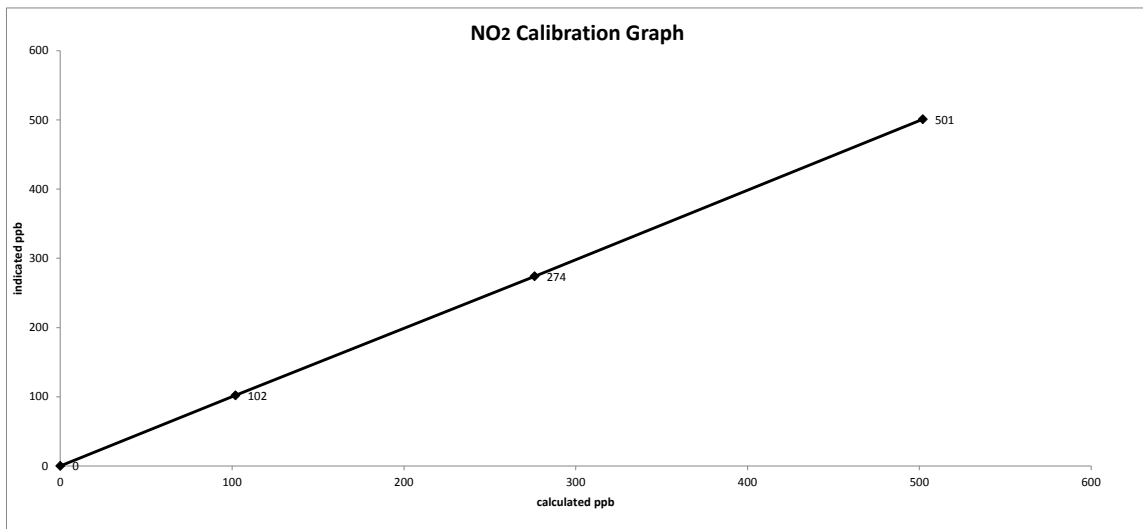
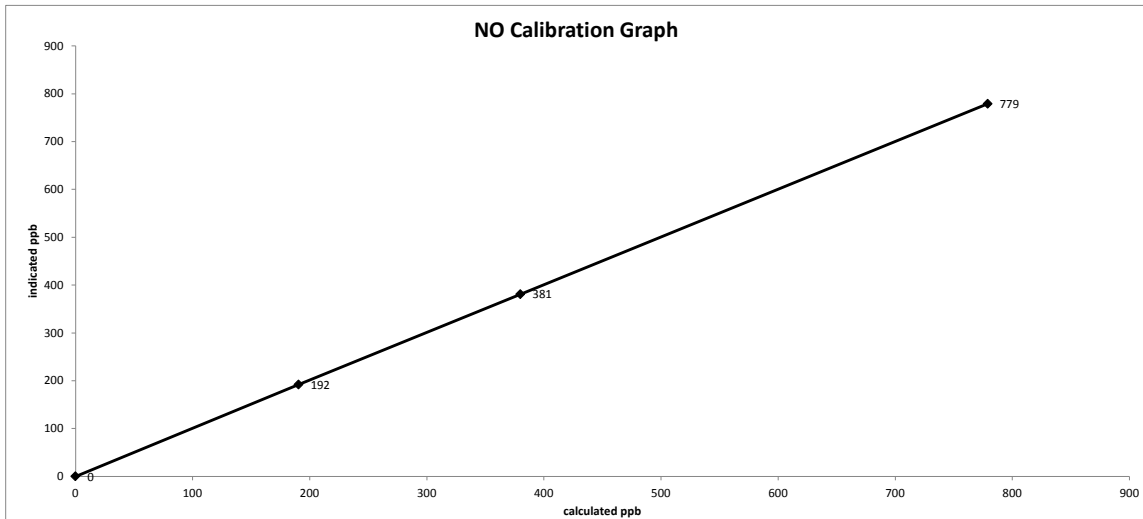
As found: NOx SLOPE: <u>0.937</u> NOx OFFS: <u>0.8</u> NO SLOPE: <u>0.942</u> NO OFFS: <u>0.1</u> SAMP FLW: <u>452</u> OZONE FL: <u>78</u> PMT: <u>20.2</u> NORM PMT: <u>0.7</u> AZERO: <u>18.9</u> HVPS: <u>771</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>36.6</u> PMT TEMP: <u>6.8</u> IZS TEMP: <u>45.2</u> MOLY TEMP: <u>314.0</u> RCEL: <u>5.6</u> SAMP: <u>26.6</u> Internal Span NO: <u>6.5</u> Internal Span NO2: <u>516</u> Internal Span NOx: <u>523</u>	As left: NOx SLOPE: <u>0.954</u> NOx OFFS: <u>0.8</u> NO SLOPE: <u>0.956</u> NO OFFS: <u>0.4</u> SAMP FLW: <u>453</u> OZONE FL: <u>78</u> PMT: <u>22.4</u> NORM PMT: <u>-0.3</u> AZERO: <u>18.8</u> HVPS: <u>771</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>36.1</u> PMT TEMP: <u>7.8</u> IZS TEMP: <u>45.2</u> MOLY TEMP: <u>315.8</u> RCEL: <u>6.5</u> SAMP: <u>26.8</u> Internal Span NO: <u>7.4</u> Internal Span NO2: <u>506.5</u> Internal Span NOx: <u>514</u>
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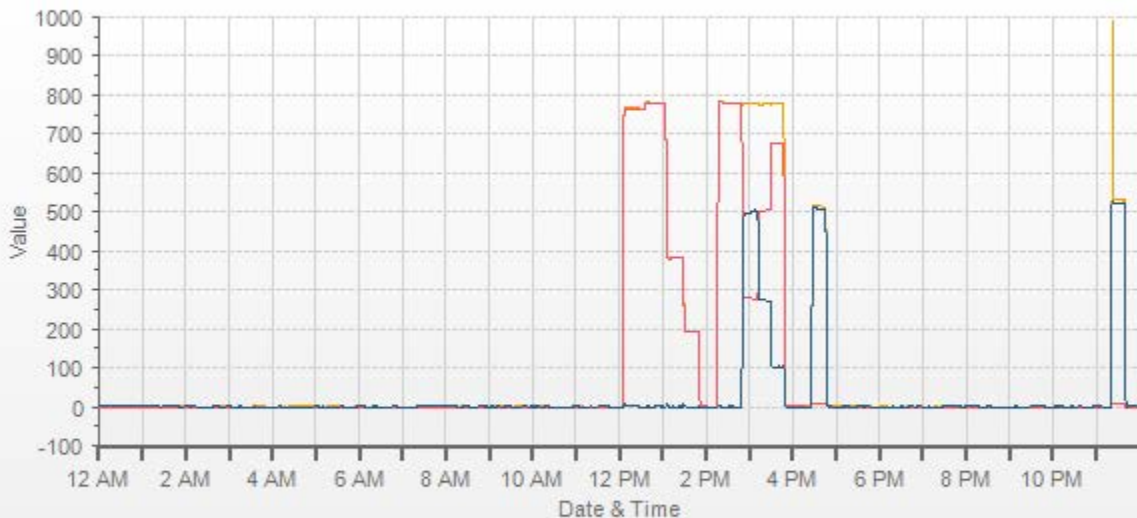
Comments:

Sample filter changed. No NO2 adjustment made.

Date: March 16, 2016
Company/Airshed: LICA
Location/Station Name: St. Lina

Start/End Time 24 hr. (mst): 11:11 / 17:50
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution & Varying UV Lamp Power





OZONE



Thermo 49i Ozone Analyzer Calibration

Date:	March 17, 2016	Barometric Pressure:	0.936 atm
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Light snow
Start/End Time 24 hr. (mst):	10:12 / 13:19	Calibration Purpose:	routine monthly
Ozone Calibration Method:	Varying UV Lamp Power	Performed By/Reviewer:	Alex Yakupov Tom Bourque
G.P.T. Date:	n/a-done by Varying UV Lamp Power	Cal Gas Expiry Date:	n/a

Analyzer:	Serial Number:	1002240371	Ozone Range ppb:	500
	Last Calibration Date:	February 12, 2016	As Found C.F.:	0.999
	Previous Cal High Point C.F.:	1.000	New C.F.:	1.000

Calibrator:	Flow Meter ID's:	n/a	Point	AMD Required Range of Ozone Calibration Points
	Make & Model:	SABIO 2010 D	High	300-400 ppb
	Serial #:	11900613	Mid	150-200 ppb
	Cal Gas Cylinder I.D. #:	n/a	Low	50-75 ppb

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

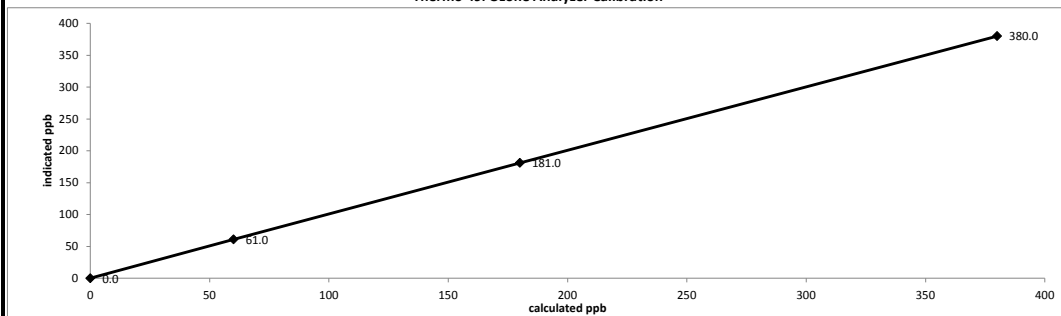
Point	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:
	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	-0.3	n/a
as found high	5013	5013	380.0	380.0	380.0	0.999
adjusted zero	5013	5013	0.0	0.0	0.0	n/a
adjusted high	5013	5013	380.0	380.0	380.0	1.000
mid	5013	5013	180.0	180.0	181.0	0.994
low	5013	5013	60.0	60.0	61.0	0.984
calibrator zero	5013	5013	0.0	n/a	0.0	n/a

Average C.F. = 0.993

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.001		.95-1.05
b (Intercept as % of full scale) =	-0.13%		± 3% F.S.
% change in C.F. from last cal =	0.08%		± 10%

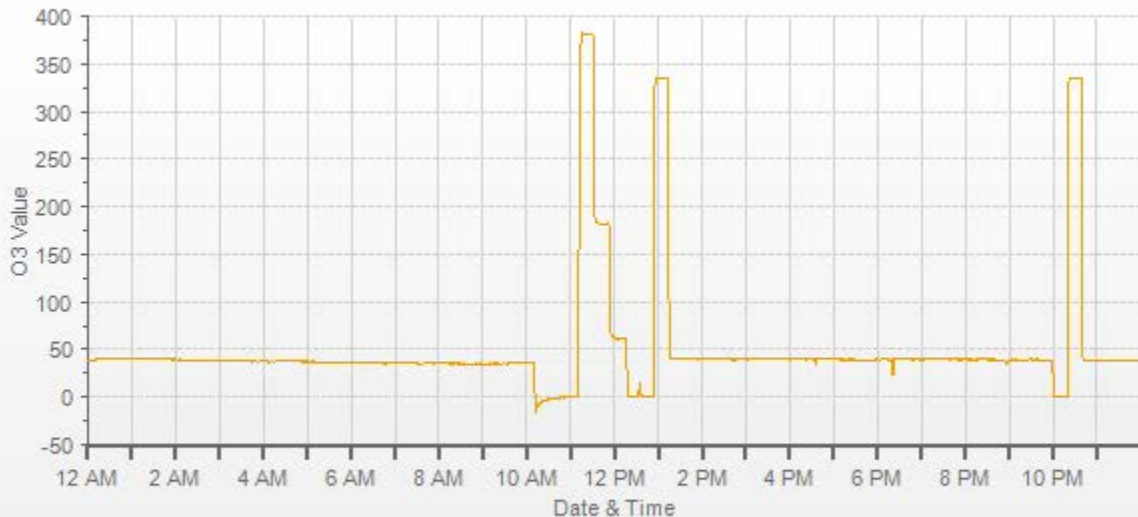
Thermo 49i Ozone Analyzer Calibration



As found:	As left:
O3 Bkg: -0.3	O3 Bkg: -0.9
O3 Coef: 0.976	O3 Coef: 0.976
Photo Lamp: 9.4	Photo Lamp: 9.4
O3 Lamp: 7.8	O3 Lamp: 7.8
Bench: 25.3	Bench: 27.1
Bench Lamp: 53.6	Bench Lamp: 53.6
O3 Lamp: 67.8	O3 Lamp: 67.8
Pressure: 682.9	Pressure: 683.8
Cell A lpm: 0.730	Cell A lpm: 0.728
Cell B lpm: 0.725	Cell B lpm: 0.726
O3 ppb: -5.4	O3 ppb: 0.9
Cell A ppb: -4.4	Cell A ppb: 0.9
Cell B ppb: -6.4	Cell B ppb: -1.2
Cell A int: 55237	Cell A int: 55232
Cell B int: 68610	Cell B int: 68612
Internal Span: 333.8	Internal Span: 334.4

Comments:

Sample filter changed. No High Point adjustment made.



PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 7, 2016
Company: LICA
Station Name/Location: St. Lina
Previous Audit Date: February 23, 2016
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Trina Whitsitt
Start Time (mst): 16:03
End Time (mst): 17:04
Calibration Purpose: Bi-monthly #1
Weather Conditions: A few clouds

1400A Information and Status:

Serial Number: <u>1405A208301003</u>	As Found Filter Loading %: <u>29.82</u>
Ko Factor: <u>13125.0</u>	As Left Filter Loading %: <u>30.21</u>
Ambient Temperature °C: <u>0.88</u>	As Found Noise: <u>0.006</u>
Ambient Pressure atm: <u>0.921</u>	As Left Noise: <u>0.000</u>
Main Flow Reading lpm: <u>3.00</u>	Pump Vacuum: <u>0.26</u>
Aux Flow Reading lpm: <u>13.67</u>	Warnings: <u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB 1291</u>	<u>FB 1291</u>
Serial Number:	<u>#2</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>January 15, 2016</u>	<u>February 17, 2016</u>	<u>February 17, 2016</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.17	-0.01	-0.16
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.66	0.00	-1.66
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.17	-0.01	-0.16
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.66	0.00	-1.66
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>0.9</u>	1405F pressure atm: <u>0.921</u>
reference temperature °C: <u>1.5</u>	reference pressure: <u>0.922</u>
difference °C: <u>0.6</u>	difference : <u>-0.001</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>1.5</u>	1405F pressure atm: <u>0.922</u>
reference temperature °C: <u>1.5</u>	reference pressure: <u>0.922</u>
difference °C: <u>0.0</u>	difference : <u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.09</u> difference lpm: <u>0.09</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>17.31</u> difference lpm: <u>0.64</u>
--	---

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.01</u> difference lpm: <u>0.01</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>16.97</u> difference lpm: <u>0.30</u>
--	---

K_o Audit:

Last K_o audit date: 12-Feb-16
1405F K_o factor: 13125.0
Measured K_o factor: 13177.1000
% difference: 0.40

Comments:

47 mm FDMS filter changed.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 24, 2016
Company: LICA
Station Name/Location: St. Lina
Previous Audit Date: March 7, 2016
Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Trina Whitsitt
Start Time (mst): 14:02
End Time (mst): 14:46
Calibration Purpose: routine monthly
Weather Conditions: Mainly cloudy with snow

1400A Information and Status:

Serial Number: <u>1405A208301003</u>	As Found Filter Loading %: <u>28.74</u>
Ko Factor: <u>13125.0</u>	As Left Filter Loading %: <u>30.02</u>
Ambient Temperature °C: <u>-0.5</u>	As Found Noise: <u>0.007</u>
Ambient Pressure atm: <u>0.915</u>	As Left Noise: <u>0.000</u>
Main Flow Reading lpm: <u>3.00</u>	Pump Vacuum: <u>0.26</u>
Aux Flow Reading lpm: <u>13.67</u>	Warnings: <u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB 1291</u>	<u>FB 1291</u>
Serial Number:	<u>#2</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>January 15, 2016</u>	<u>February 17, 2016</u>	<u>February 17, 2016</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.18	0.00	-0.18
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.66	0.00	-1.66
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.18	0.00	-0.18
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.66	0.00	-1.66
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-0.5</u>	1405F pressure atm: <u>0.915</u>
reference temperature °C: <u>-0.2</u>	reference pressure: <u>0.916</u>
difference °C: <u>0.3</u>	difference : <u>-0.001</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-0.2</u>	1405F pressure atm: <u>0.916</u>
reference temperature °C: <u>-0.2</u>	reference pressure: <u>0.916</u>
difference °C: <u>0.0</u>	difference : <u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>2.99</u> difference lpm: <u>-0.01</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>16.86</u> difference lpm: <u>0.19</u>
---	---

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>2.99</u> difference lpm: <u>-0.01</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>16.86</u> difference lpm: <u>0.19</u>
---	---

K_o Audit:

Last K_o audit date: 12-Feb-16
1405F K_o factor: 13125.0
Measured K_o factor: 13177.1000
% difference: 0.40

Comments:

47 mm FDMS filter changed.

WIND SYSTEM

Met One Instruments

3206 Main St., Suite 106
Regional Service Center
Rowlett, TX. 75088

Wind Tunnel Calibration Data Sheet

50.5-6100

NIST Cup Model No. 170.41

Serial No. 3309

NIST Sensor Model No. 50.1B

Serial No. 1263

Average wind speed this test in mps 11.19

WD Setting Degrees	WD Output Volts	WD Reading Degrees	WD Error +/- 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error +/- 0.24 MPS
30.0	0.082	29.6	-0.4	11.21	0.224	11.19	-0.02
60.0	0.164	59.0	-1.0	11.17	0.227	11.33	0.16
120.0	0.331	119.1	-0.9	11.08	0.221	11.06	-0.02
150.0	0.420	151.3	1.3	11.29	0.222	11.11	-0.18
210.0	0.582	209.4	-0.6	11.25	0.223	11.16	-0.09
240.0	0.665	239.4	-0.6	11.18	0.226	11.32	0.14
300.0	0.835	300.5	0.5	11.16	0.224	11.18	0.02
330.0	0.917	330.0	0.0	11.18	0.223	11.15	-0.03

Average wind speed this test in mps 2.21

WD Setting Degrees	WD Output Volts	WD Reading Degrees	WD Error +/- 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error +/- 0.20 MPS
30.0	0.081	29.3	-0.7	2.18	0.042	2.08	-0.10
60.0	0.163	58.5	-1.5	2.20	0.043	2.14	-0.06
120.0	0.332	119.6	-0.4	2.21	0.042	2.08	-0.13
150.0	0.417	150.3	0.3	2.22	0.042	2.07	-0.15
210.0	0.584	210.1	0.1	2.20	0.042	2.12	-0.08
240.0	0.666	239.8	-0.2	2.23	0.042	2.10	-0.13
300.0	0.835	300.6	0.6	2.22	0.043	2.18	-0.04
330.0	0.917	330.0	0.0	2.21	0.043	2.17	-0.04

Instrument Test Condition As Found As Left

Sensor Model No.: 50.5H

Sensor Serial No.: H12635

Sensor Output Swing: 0V - 1.0V

Sensor Output Range 0 - 50 MPS

Customer: Maxxam Analytics

Sales Order No.: 104703

Tested per PO: 35-56587

Calibration Date: 08/28/2014

Calibrated by: David Frith *DF*

QC Inspection

Dylan Dawson

CALIBRATORS



Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-165

Company Maxxam Operator: Chris Wesson

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>None</u>
Serial Number	<u>11900613</u>	Serial Number	<u>None</u>
Last Verification Date	<u>April 1, 2015</u>	Temperature (°C)	<u>23.5</u>
NO Cylinder S/N	<u>LL119317</u>	Barometric Pressure	<u>706 mmHg</u>
NO/NOx Concentration	<u>50.3ppm/50.3ppm</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5001</u>	Pt. #2	<u>5000</u>
		Pt. #3	<u>5000</u>
Gas Flow (sccm)			
Pt. #1	<u>77.5</u>	Pt. #2	<u>37.8</u>
		Pt. #3	<u>18.9</u>

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4999	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5001	77.5	0.779	0.779	0.775	0.000	0.775	-1%	-1%
5000	37.8	0.380	0.380	0.376	0.001	0.377	-1%	-1%
5000	18.9	0.190	0.190	0.188	0.001	0.189	-1%	-1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO</u>		<u>LIMITS</u>		<u>NOx</u>			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	0.9950	0.90-1.10		m (Slope)=	0.9946		
b (Intercept % of FS)=	-0.0773	± 3% F.S.		b (Intercept % of FS)=	-0.0167		

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
5001	0	0.000	0.772	0.000	0.772	NO ₂	% Diff. Limit
5001	0.51	0.507	0.265	0.506	0.772	0%	± 10%
5001	0.25	0.252	0.520	0.254	0.773	1%	± 10%
5001	0.1	0.110	0.662	0.109	0.772	-1%	± 10%
Absolute Average Percent Difference						0.1%	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO₂</u>		<u>LIMITS</u>					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	0.9992	0.90-1.10					
b (Intercept % of FS)=	0.0171	± 3% F.S.					

AENV Standards		NO _x Analyzer	
Audit Calibrator			
Make/Model	<u>Thermo 146i</u>	Make/Model	<u>Thermo 42i</u>
Serial/AMU Number	<u>1809</u>	Serial/AMU Number	<u>1868</u>
		Last Calibration Date	<u>March 28, 2016</u>
		Full Scale (ppm)	<u>1</u>

COMMENTS: NO Cyl has 49.9ppb SO2 - Flows Not Manually Measured

Auditor: Shea Beaton
 Operator Signature: [Signature]

Date: March 31, 2016
 Location: McIntyre Center Edmonton

Company: Maxxam
Operator: Christopher Wesson

Calibrator:	Flow Measurement Device:
Make/Model <u>API 700</u>	Make/Model <u>N/A</u>
Serial Number <u>830</u>	Serial Number <u>N/A</u>
Last Verification Date <u>December 2014</u>	Temperature (°C) <u>N/A</u>
SO ₂ Cylinder Conc. <u>50.3</u>	Barometric Pressure <u>N/A</u>
SO ₂ Cylinder S/N <u>LL42475</u>	

Flow Measurements

Pt. No. 1 77.5 **Pt. No. 2** 37.8 **Pt. No. 3** 18.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4998	0.780	0.746	-4%	± 10%
5002	0.380	0.365	-4%	± 10%
4997	0.190	0.182	-4%	± 10%
Absolute Average Percent Difference			4%	± 10%

LINEAR REGRESSION ANALYSIS

y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>SO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9565	0.90-1.10
b (Intercept % of FS)=	0.0436	± 3% F.S.

AENV Standards

Audit Calibrator
 Make/Model R&R MFC 201
 Serial/AMU Number AMU 1690

SO₂ Analyzer

 Make/Model Teco 43C
 Serial/AMU Number AMU 1623
 Last Calibration Date January 19, 2016
 Full Scale (ppm) 1.0
COMMENTS:

Gas was check for accuracy - 1% low from stated cylinder gas concentration.

Flows are not measured at each pt - AMD not being followed as per section 5.0.

Checked SO₂ high pt using a Sabio 2010 - found a significantly higher response.

Both MFC's need to be re-calibrated.

 Auditor: Al Clark

 Date: January 19, 2016

 Operator Signature: 

 Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-115CGA

Company: Maxxam **Operators name:** Chris Wesson
Cylinder #: LL119346 **Conc (PPM)** 50.0/50.0 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Thermo 146i</u>			Make/Model	<u>Bios DC-2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>Bios D</u>
Last Verification Date	<u>February 2, 2016</u>			Temp. °C	<u>24.5</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702mmHg</u>
Cylinder Number	<u>CAL018024</u>				

Reference Analyzer:

Make/Model Thermo 42i Serial/AMU Number: 1868
Instrument Settings Zero: 4.2 Span: 1.014 Range: 1.0
Last Calibration: Date: 02-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
4952	0.0	0.000	0.000				
4946	79.54	0.809	0.809	0.01608	62.183	50.3	50.3
4941	39.35	0.403	0.402	0.00796	125.565	50.6	50.5
4940	19.57	0.200	0.200	0.00396	252.427	50.5	50.5
Average Cylinder Concentration:						50.5	50.4

NO	NOx
Previous Stated Concentration PPM: <u>50.0</u>	<u>50.0</u>
Percent variance from Stated: <u>0.9</u>	<u>0.8</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO Blend 50.0PPM SO2

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton Date: February 2, 2016
Operator Signature: [Signature] Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 23.0 C
 B.P.: 702 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
 Last Calibration: Date: Dec15/14 C.F.: 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	100.000	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-092CGA

Company: Maxxam Operators name: Chris Wesson
Cylinder #: LL165372 Conc CH4 (PPM) 606/212 Tolerance (%) 0.5 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1698
Last Verification Date January 18, 2016
Gas Type CH4 Conc. 999.2
Cylinder Number D751932
Gas Type C3H8 Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC-2
Serial Number Blos D
Temp. °C 24.5
B.P. 688mmHg

Reference Analyzer:

Make/Model Thermo 55C Serial/AMU Number: 1643
Instrument Settings Zero: NA Span: NA Range: 20.0
Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

Calibrator Flows (scem)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
2568	0.00	0.00	0.00	0.02140	46.722	607	214
2630	56.29	12.99	12.62	0.02140	46.722	607	214
2588	19.73	4.62	4.50	0.00762	131.171	606	215
2580	9.69	2.29	2.24	0.00376	266.254	610	217
Average Cylinder Concentration:						608	215

CH4	C3H8
Previous Stated Concentration PPM: <u>606</u>	<u>212</u>
Percent variance from Stated: <u>0.3</u>	<u>1.6</u>

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration C3H8 manufacturers tolerance 1.1%
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
Operator Signature: _____

Date: January 19, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-115CGA

Company: Maxxam **Operators name:** Chris Wesson
Cylinder #: LL119346 **Conc (PPM)** 50.0/50.0 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Thermo 146i</u>			Make/Model	<u>Bios DC-2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>Bios D</u>
Last Verification Date	<u>February 2, 2016</u>			Temp. °C	<u>24.5</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702mmHg</u>
Cylinder Number	<u>CAL018024</u>				

Reference Analyzer:
Make/Model Thermo 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.2 **Span:** 1.014 **Range:** 1.0
Last Calibration: **Date:** 02-Feb-16 **C.F.** 1.000 **Done By:** SB

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
4952	0.0	0.000	0.000				
4946	79.54	0.809	0.809	0.01608	62.183	50.3	50.3
4941	39.35	0.403	0.402	0.00796	125.565	50.6	50.5
4940	19.57	0.200	0.200	0.00396	252.427	50.5	50.5
Average Cylinder Concentration:						50.5	50.4

NO	NOx
Previous Stated Concentration PPM: <u>50.0</u>	<u>50.0</u>
Percent variance from Stated: <u>0.9</u>	<u>0.8</u>

Cylinder gas tolerances based on NO only

- Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS: SO2/NO Blend 50.0PPM SO2**
- < =5% Outside Manufacturer Tolerance. Use manufacturers concentration
- > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton **Date:** February 2, 2016
Operator Signature: [Signature] **Location:** McIntyre Center Edmonton

***APPENDIX III
REPORT CERTIFICATION FORM***

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Lakeland Industry & Community Association	St. Lina Site
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager Assistant, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.

Wunmi Adekanmbi

Signature of the Representative of the Person Responsible / External Person Certifying the Report

27 - April - 2016

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM



Validation Certificate Form

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2016-03-31- C</u>
Site: <u>St. Lina Site</u>	Contact: <u>Mike Bisaga</u>

Level 0 Preliminary Verification



Date 15 - April - 2016

Level 1 Primary Validation



Date 15 - April - 2016

Level 2 Final Validation



Date 27 - April - 2016

Level 3 Independent Data Review



Date 27 - April - 2016

Post-Final Validation

NA

Date NA

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.



maxxam.ca

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Fax 403-219-3673

AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ELK POINT AIRPORT SITE

JOB #:2833-2016-03-35- C

MARCH 2016

Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5

Attention: MIKE BISAGA

DATE: **April 29, 2016**

Prepared by:



Wunmi Adekanmbi, M.Sc.
Project Manager Assistant, Customer Service, Air Services

Reviewed by:



Lily Lin, B.Sc.
Senior Project Manager, Customer Service, Air Services

SUMMARY

In March 2016, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Elk Point Airport Site at Lakeland Industry & Community Association, near Elk Point. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the Project Coordinator.

All data collected this month were within the objectives outlined in the AMD 1989, AMD 2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

All Parameters: Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzers and wind system were recovering from a power failure.

H2S: The analyzer sample pump failed on March 26. The pump was rebuilt on March 27 followed by a post-repair calibration. Data was invalidated back to the last daily calibration before the pump failure which was on March 26. Twenty-seven hours of data are invalid due to this event.

NOX/NO/NO2: The LICA owned API 200E analyzer (S/N: 592) was replaced with another LICA owned API 200E analyzer (S/N: 593) for maintenance purposes. Nine hours of data are invalid due to this analyzer replacement event. The channel was put into Maintenance mode for four hours on March 27 while reference points were being generated for Ozone calibration.

THC/CH4/NMHC: The LICA-owned Thermo 55i analyzer (S/N: 1236656107) was removed on February 29 for a major maintenance. A Maxxam-supplied replacement Thermo 55i analyzer (S/N: 1433563261) was installed. A power failure prevented the installation calibration from being done on March 1 after the column conditioning was run overnight. The installation calibration was completed on March 2. Thirty-three hours of data collected between March 1 and March 2 are invalid due to these events.

PM2.5: Ten hours of data were invalidated as the data were below -3 ug/m^3 this month.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Elk Point Airport Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association Elk Point Airport Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR					24-HOUR		
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0.0	0.6	1	10	0.2	NE	0.1	1	99.5
H2S (PPB)	10	3	0	0	0.1	1.5	1	8	0.9	WNW	0.9	1	95.8
THC (PPM)	-	-	-	-	2.30	5.19	6	4	1	ESE	3.12	5	95.6
CH4 (PPM)	-	-	-	-	2.25	4.89	6	4	1	ESE	2.97	5	95.6
NMHC (PPM)	-	-	-	-	0.05	0.30	6	4	1	ESE	0.15	5	95.6
NO2 (PPB)	159	-	0	-	5.5	33.3	28	23	5.4	WNW	17.4	1	97.8
NO (PPB)	-	-	-	-	1.9	40.1	6	4	1	ESE	9.3	1	97.8
NOX (PPB)	-	-	-	-	7.3	63.9	6	4	1	ESE	26.7	1	97.8
O3 (PPB)	82	-	0	-	29.5	47.0	27	14	24.8	ESE	38.6	22	99.6
PM2.5 (UG/M3)	-	30	-	0	4.8	20.6	6, 5	4, 21	1 9.6	ESE ENE	11.6	5	98.3
VECTOR WS (KPH)	-	-	-	-	11.6	35.3	12	9	-	ESE	20.5	10	99.6
VECTOR WD (DEG)	-	-	-	-	-	-	-	-	-	-	-	-	99.6

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H2S 1- Hour Exceedences

No Exceedences Recorded During the Month

H2S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MARCH 1, 2016	3.41	n - Hexane
MARCH 7, 2016	36.1	Acetone
MARCH 13, 2016	6.4	n - Pentane
MARCH 19, 2016	33.3	n- Butane
MARCH 25, 2016	2.6	Acetone

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MARCH 1, 2016	0.46	2-Methylnaphthalene
MARCH 7, 2016	0.08	Fluoranthene
MARCH 13, 2016	0.14	2-Methylnaphthalene
MARCH 19, 2016	0.13	2-Methylnaphthalene
MARCH 25, 2016	0.17	2-Methylnaphthalene

Note: NA

Volatiles Organics (VOCs) Data Summary - NMHC Canister System

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MARCH 24, 2016	4.1	Acetone

Note: NA

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1.0 Discussion

This monthly report consists of data for parameters Sulphur Dioxide (SO₂), Hydrogen Sulphide (H₂S), Total Hydrocarbon (THC), Methane (CH₄), Non-Methane Hydrocarbon (NMHC), Oxides of Nitrogen (NO_x), Nitric Oxides (NO), Nitrogen Dioxide (NO₂), Ozone (O₃), Wind Speed (WS), Wind Direction (WD) and Standard Deviation Wind Direction (STDWD). The results for the non-continuous VOC, PAH and NMHC canister monitoring programs are also included in this report.

Sample filters for all continuous air monitors are changed before the calibration begins. The sample manifold is cleaned during the site visit each month.

Control checks, consisting of a zero and span, are conducted daily on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinders) is used for zero checks, and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibrations are done a minimum of once a month for each continuous air monitor. An additional calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the additional calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as downtime (Data is flagged as S). If an extra zero/span check is performed, the time during the additional check is considered as downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality for Verification and Validation of Continuous Ambient Air Quality Data. The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purposes and has not undergone zero correction.

Hourly/minute data have been reviewed based on daily zero/span results and multi-point calibration results. Data may be considered invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor occurs (greater than 10%).

Trailer inspection was conducted on March 1. No issues were identified.

SULPHUR DIOXIDE (SO₂)

Following a shut-down calibration on March 2, an output voltage calibration was performed. A post-repair calibration was then completed. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure, data collected at hour 15 was invalidated as the analyzer was recovering from the power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure. Maximum instantaneous data collected on March 10 at hour 13 was discarded as the channel was erroneously put into Maintenance mode for a few minutes.

HYDROGEN SULPHIDE (H₂S)

The routine monthly calibration was performed on March 11. The daily span result on March 26 was high as a result of a pump failure. The pump was rebuilt on March 27 and was followed by a post-repair calibration. Data was invalidated back to the last daily calibration before the pump failure which was on March 26. Twenty-seven hours of data are invalid due to this event. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure, data collected at hour 15 was invalidated as the analyzer was recovering from the power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure.

TOTAL HYDROCARBONS (THC), METHANE (CH₄), and NON-METHANE HYDROCARBONS (NMHC)

The LICA owned Thermo 55i analyzer (S/N: 1236656107) was removed on February 29 for a major maintenance. A Maxxam supplied replacement Thermo 55i analyzer (S/N: 1433563261) was installed. A power failure prevented the installation calibration from being done on March 1 after the column conditioning was run overnight. The installation calibration was completed on March 2. Thirty-three hours of data collected between March 1 and March 2 are invalid due to these events. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure.

NITROGEN DIOXIDE (NO₂)

The routine monthly calibration was performed on March 2. Following a shut-down calibration on March 10, the LICA owned API 200E analyzer (S/N: 592) was removed for maintenance purposes. An installation calibration was then completed on another LICA owned API 200E replacement analyzer (S/N: 593). Nine hours of data are invalid due to this analyzer replacement event. The channel was put into Maintenance mode for four hours on March 27 while reference points were being generated for Ozone calibration. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure.

OZONE (O3)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 11. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)

Two Teom audits were performed this month: one was completed on March 10, and the other audit was performed on March 18. Both the inlet filter and the FDMS filter were replaced on March 18. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m^3 , the data was corrected to 0 ug/m^3 . If the data was less than -3 ug/m^3 , the data was invalidated. Ten hours of data were invalidated as a result of hourly averages being less than -3 ug/m^3 this month. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The wind system was working well throughout the month. Three hours of data are missing on March 1 from hour 12 to hour 14 due to a power failure. Maximum instantaneous data collected on March 7 at hour 10 was invalidated as the analyzer was recovering from a power failure.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle.

Samples were collected on March 1, 7, 13, 19 and 25. Analytical results are included in this report. The VOC values are reported in ppb.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle.

Samples were collected on March 1, 7, 13, 19 and 25. Analytical results are included in this report. The PAH values are reported in μg .

NMHC CANISTER SAMPLES

The NMHC canister sampler is programmed to trigger a sample-collection event when the 5-minute average concentration of NMHC is above 0.30 ppm . A one-hour of sample is collected when the canister is triggered.

One canister event was recorded this month: concentration of 0.32 ppm on March 24 at 23:40. Analytical results are included in this report. The NMHC canister values are reported in ppb.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling technicians were Alexander Yakupov and Michael Espiritu.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD 1989, AMD 2006 and AMD 2015.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006) as well as AMD 2015.

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00001 - Methane, Non-Methane Hydrocarbon Analyzer Monitoring
- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00215: Team Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Team Unit
- Wind System - RM Young Unit
- Datalogger - ESC 8832

The following steps were used to complete the data verification and validation process:

Level 0 Preliminary Verification

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

Level 1 Primary Validation

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

Level 2 Final Validation

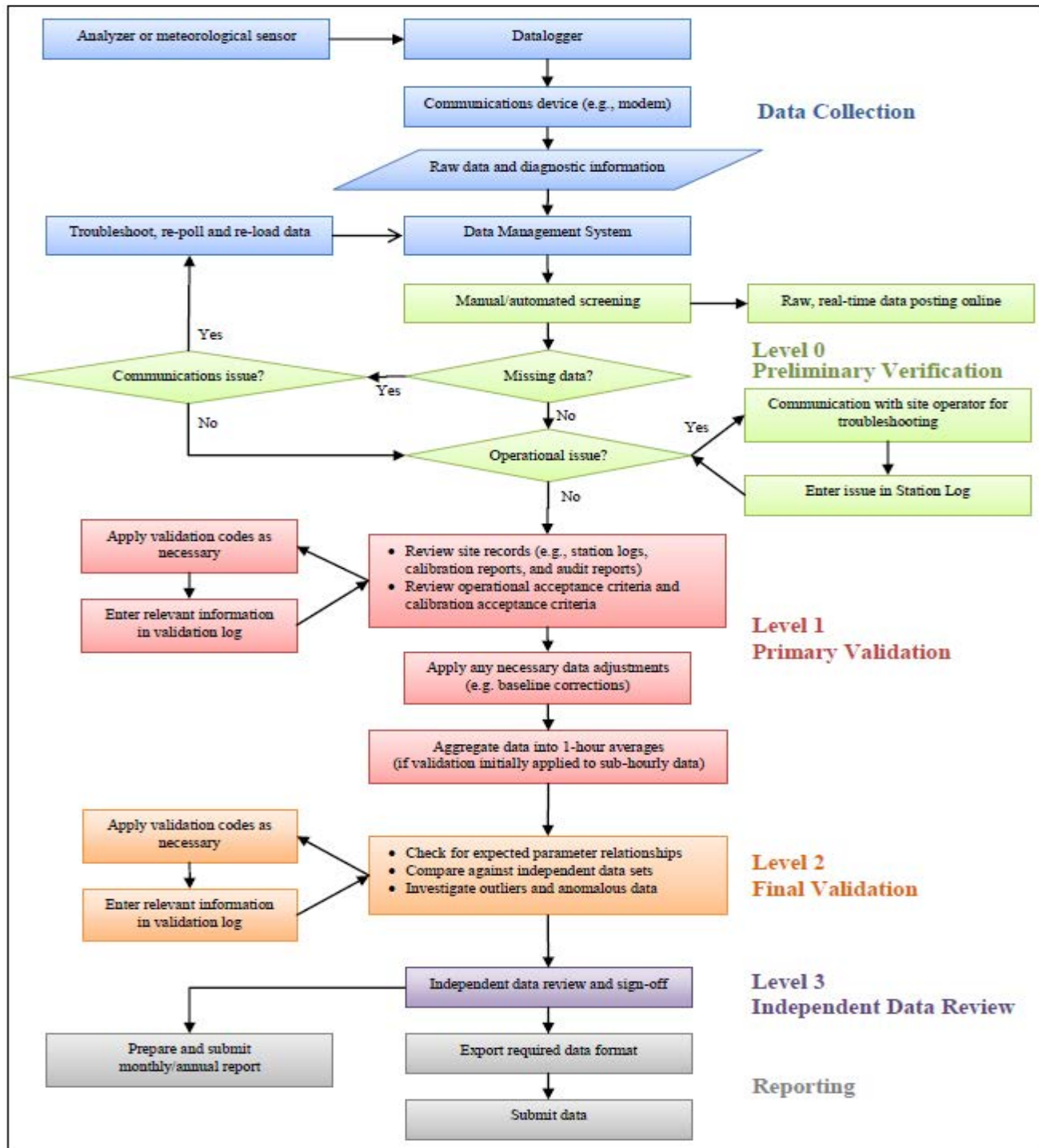
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

Level 3 validation is the last step of data review, and it is completed by an individual that is independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data is submitted to Alberta Environment.

Post-Final Validation

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: AMD Chapter 6: Ambient Data Quality for Verification and Validation of Continuous Ambient Air Quality Data; Figure 1 Data Collection and Management Process Flow Chart

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.			
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.				
DAY																															
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.6	0.4	P	P	P	R	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	20		
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	24	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	24	
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	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	24	
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	0.0	0.4	0.3	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24	
6	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24	
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	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	24	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
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	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	24	
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	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	24	
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	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	24	
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	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	24	
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	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	24
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	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	24
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	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	24
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	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	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	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	0.4	0.0	24	
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	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	0.0	24
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	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	0.0	0.0	24
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	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	0.0	0.0	24
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	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	0.0	0.0	0.0	24
22	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
24	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
27	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
28	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
30	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
31	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.6	0.4	0.3	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

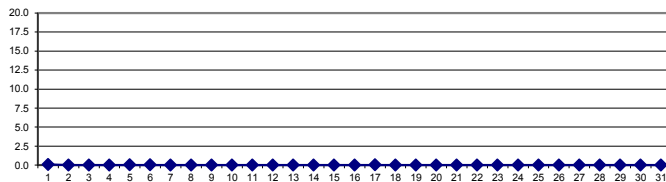
OBJECTIVE LIMIT:

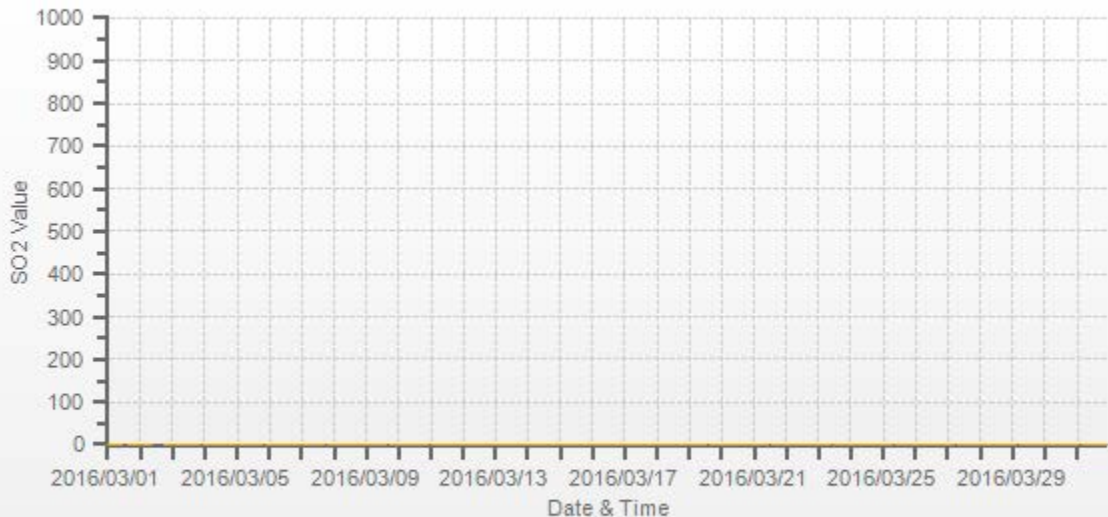
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	10					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	0.6	PPB	@ HOUR(S)	10	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	0.1	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.5	%	
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.0	PPB	

24 HOUR AVERAGES FOR MARCH 2016







SULPHUR DIOXIDE MAX instantaneous maximum in ppb

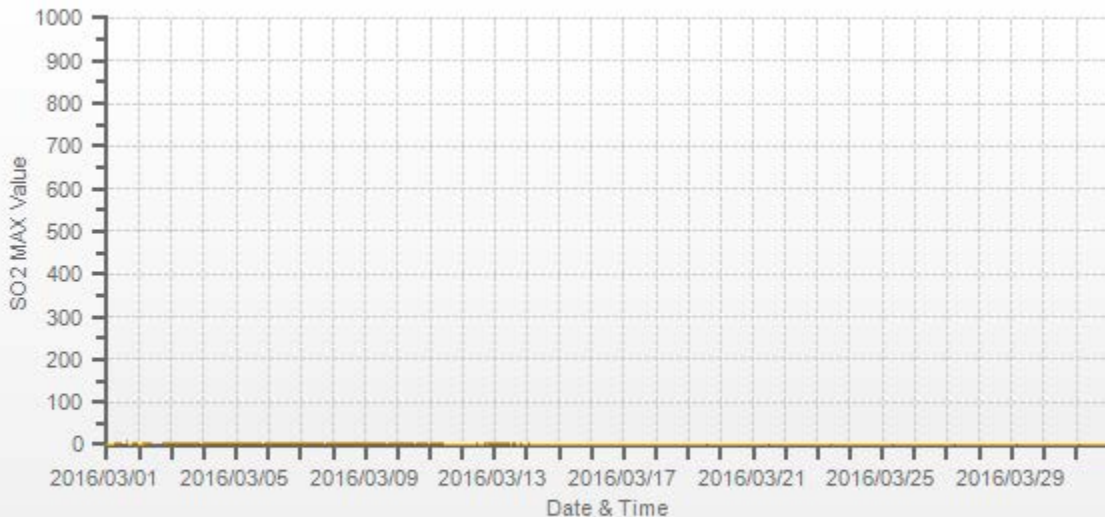
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	1.6	1.7	1.7	1.8	1.8	1.8	2.5	2.8	3.1	2.9	3.2	P	P	P	P	R	1.9	2.0	2.3	S	2.5	2.7	2.7	2.4	1.6	3.2	2.3	19	
2	2.3	2.3	2.3	2.6	2.7	2.5	2.5	2.4	2.5	C	C	C	C	C	C	C	C	C	C	2.8	2.7	2.6	2.7	2.9	S	2.3	2.9	2.6	24
3	2.9	2.8	2.6	3.0	3.3	3.1	3.1	3.1	3.3	3.7	3.2	3.4	3.4	3.4	3.6	3.6	3.6	3.4	3.2	3.4	3.3	3.4	S	3.0	2.6	3.7	3.3	24	
4	3.1	3.1	3.1	3.0	3.1	3.3	3.5	3.4	3.1	3.7	3.7	3.0	3.0	3.3	3.2	3.3	3.0	3.6	3.7	3.5	3.8	S	3.9	4.0	3.0	4.0	3.4	24	
5	4.1	4.1	4.0	3.9	4.1	4.1	4.2	4.7	4.6	4.3	4.6	5.1	4.5	4.7	4.5	4.7	5.4	5.8	4.7	4.3	S	4.9	4.9	4.6	3.9	5.8	4.6	24	
6	4.3	4.5	5.3	5.6	5.2	4.9	5.2	5.1	4.7	4.3	4.1	4.1	4.3	4.1	4.1	3.9	3.9	4.0	4.0	S	4.1	4.1	4.3	4.2	3.9	5.6	4.4	24	
7	4.5	4.3	4.4	4.2	4.3	4.3	4.1	4.1	4.0	4.1	R	3.7	3.7	3.9	4.0	3.6	3.6	3.7	S	3.4	3.5	3.5	3.3	3.5	3.3	4.5	3.9	23	
8	3.2	3.5	3.5	3.5	3.3	3.1	3.1	3.1	3.5	3.5	3.3	3.3	3.4	3.4	3.5	3.6	3.4	S	3.3	3.4	3.4	3.5	3.6	3.4	3.1	3.6	3.4	24	
9	3.4	3.5	3.5	3.5	3.3	3.5	3.5	3.2	3.2	3.3	3.3	3.2	3.3	3.3	3.4	3.2	S	3.1	3.2	3.3	3.2	3.3	3.5	3.4	3.1	3.5	3.3	24	
10	3.3	3.5	3.6	3.7	3.8	3.8	3.8	3.7	3.9	4.2	4.4	4.4	4.3	Y	3.4	3.7	3.7	4.0	4.0	3.7	3.6	3.5	3.7	S	3.3	4.4	3.8	23	
11	3.5	3.4	3.4	3.6	3.1	2.9	2.9	2.9	2.8	2.7	2.9	1.2	0.9	1.0	0.9	0.8	0.8	1.1	1.0	1.1	1.0	S	1.2	0.8	3.6	2.0	24		
12	1.3	1.5	1.3	2.0	2.2	2.2	1.7	1.5	1.4	1.7	2.0	2.5	2.2	2.2	2.2	2.3	2.3	2.4	2.2	2.5	S	2.6	2.5	1.3	2.6	2.1	24		
13	2.5	2.6	2.6	2.7	2.7	2.8	3.3	3.0	2.8	2.8	2.9	2.6	2.0	2.5	2.5	2.6	2.2	2.1	2.2	2.5	S	2.3	2.2	2.1	2.0	3.3	2.5	24	
14	2.2	2.4	2.4	2.2	2.3	2.3	2.3	2.2	1.9	1.8	2.0	2.1	1.9	1.6	1.7	1.7	1.6	1.5	1.3	S	1.3	1.4	1.4	1.3	1.3	2.4	1.9	24	
15	1.3	1.3	1.3	1.4	1.1	1.2	1.3	2.1	1.2	1.2	1.2	1.3	1.3	1.3	1.1	1.0	1.2	1.3	S	1.3	1.1	1.3	1.2	1.3	1.0	2.1	1.3	24	
16	1.2	1.3	1.4	1.2	1.1	1.2	1.0	1.3	1.1	0.9	1.0	1.0	1.3	1.5	1.3	0.9	1.2	S	0.8	0.7	0.4	0.3	0.6	0.3	0.3	1.5	1.0	24	
17	0.7	0.8	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.9	0.9	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	24	
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	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
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	S	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.0	24	
20	0.1	0.0	0.3	0.4	0.2	0.0	0.2	0.2	0.2	0.4	0.4	0.5	0.3	S	0.2	0.5	0.8	1.1	1.3	1.3	1.2	1.0	1.0	0.9	0.0	1.3	0.5	24	
21	0.8	0.7	0.6	0.6	0.5	0.6	0.7	0.8	0.6	0.7	0.7	1.0	S	0.8	0.8	0.6	0.4	0.6	0.4	0.6	0.6	0.6	0.4	0.6	0.4	1.0	0.6	24	
22	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.2	S	0.2	0.4	0.3	0.2	0.3	0.4	0.1	0.3	0.3	0.2	0.2	0.3	0.1	0.5	0.3	24	
23	0.2	0.1	0.3	0.3	0.5	0.4	0.4	0.5	0.4	0.5	S	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.5	0.6	0.6	0.7	0.7	0.8	0.1	0.8	0.4	24	
24	0.9	0.8	1.0	1.0	1.1	1.1	1.2	1.0	1.0	S	1.0	1.0	0.7	0.5	0.5	0.4	0.6	0.4	0.5	0.7	0.6	0.4	0.4	0.4	0.4	1.2	0.7	24	
25	0.5	0.5	0.4	0.4	0.1	0.4	0.4	0.4	S	0.6	0.6	0.6	0.4	0.6	0.5	0.6	0.8	0.6	0.6	0.7	0.6	0.9	0.8	0.8	0.1	0.9	0.6	24	
26	0.8	1.3	1.1	1.3	1.4	1.2	1.2	S	0.7	0.6	0.9	0.6	0.6	0.5	0.7	0.6	0.6	0.5	0.4	0.8	0.9	0.8	0.7	0.8	0.4	1.4	0.8	24	
27	0.8	0.9	0.8	0.8	0.9	1.0	S	1.1	1.2	1.6	1.8	1.7	1.2	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.4	0.4	1.8	0.9	24	
28	0.6	0.4	0.6	0.3	0.5	S	0.5	0.6	0.5	0.4	0.4	0.4	0.2	0.2	0.4	0.3	0.4	0.5	0.5	0.3	0.2	0.3	0.4	0.4	0.2	0.6	0.4	24	
29	0.5	0.4	0.5	0.5	S	0.1	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.7	0.6	0.1	0.8	0.5	24	
30	0.6	0.7	0.8	S	0.9	0.8	0.9	1.0	1.0	1.2	0.9	0.9	0.8	0.7	0.7	0.8	0.6	0.8	0.4	0.5	0.4	0.4	0.3	0.4	0.3	1.2	0.7	24	
31	0.3	0.4	S	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.2	0.3	0.3	0.3	0.0	0.4	0.2	24	
HOURLY MAX	4.5	4.5	5.3	5.6	5.2	4.9	5.2	5.1	4.7	4.3	4.6	5.1	4.5	4.7	4.5	4.7	5.4	5.8	4.7	4.3	4.1	4.9	4.9	4.6					
HOURLY AVG	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.5					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

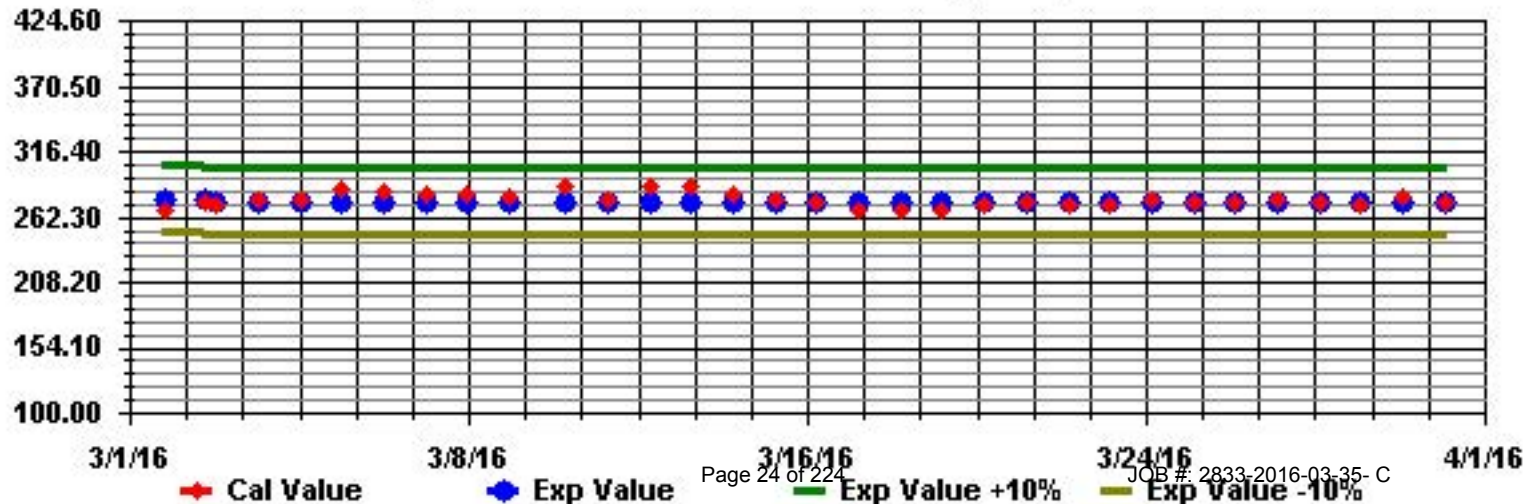
NUMBER OF NON-ZERO READINGS:	636
MAXIMUM INSTANTANEOUS VALUE:	5.8 PPB @ HOUR(S) 17 ON DAY(S) 5
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	9 HRS
OPERATIONAL TIME:	737 HRS
STANDARD DEVIATION:	1.46



Wind: LICA ELK POINT AIRPORT Monitor: SO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 99.72% Valid Data: 94.61% Calm Avg: 0.00 [ppb]

Direction	0.5-20.0	20.0-60.0	60.0-110.0	110.0-170.0	170.0-340.0	>340.0	Total
N	0	0	0	0	0	0	0
NE	0.14	0	0	0	0	0	0.14
E	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
W	0.14	0	0	0	0	0	0.14
NW	0	0	0	0	0	0	0
Summary	0.28	0	0	0	0	0	0.28

Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: S02 Phase: SPAN



HYDROGEN SULPHIDE

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	0.2	0.5	0.4	0.4	0.6	0.7	1.0	1.0	1.5	1.3	1.3	1.1	P	P	P	R	1.4	1.0	0.6	S	0.9	0.9	1.0	0.9	0.2	1.5	0.9	20	
2	0.9	0.9	1.0	0.8	0.8	0.8	0.6	0.6	0.4	0.5	0.5	0.4	0.4	0.3	0.2	0.1	0.3	0.1	0.1	0.2	0.0	0.1	0.0	S	0.0	1.0	0.4	24	
3	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	S	0.0	0.0	0.1	0.0	24	
4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.2	S	0.2	0.2	0.0	0.2	0.1	24	
5	0.2	0.1	0.3	0.2	0.2	0.4	0.4	0.6	0.6	0.5	0.6	0.7	0.5	0.6	0.7	0.5	0.3	0.3	0.3	0.2	S	0.3	0.3	0.4	0.1	0.7	0.4	24	
6	0.4	0.4	0.8	1.1	1.1	1.0	1.0	0.5	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	S	0.0	0.0	0.0	0.1	0.0	1.1	0.3	24	
7	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.3	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	0.0	0.3	0.0	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.3	0.1	S	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.1	24	
9	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.1	S	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2	0.1	24
10	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.2	0.2	0.3	0.2	0.1	0.0	0.2	0.1	0.3	S	0.0	0.4	0.2	24
11	0.2	0.1	0.4	0.6	0.4	0.6	0.7	0.8	0.9	0.7	C	C	C	C	0.3	0.1	0.1	0.1	0.2	0.3	0.4	0.4	S	0.2	0.1	0.9	0.4	24	
12	0.0	0.3	0.3	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.3	0.1	24
13	0.0	0.0	0.2	0.2	0.3	0.2	0.5	0.4	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.1	0.0	0.5	0.1	24	
14	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	S	0.0	0.0	0.1	0.0	0.2	0.1	24	
15	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
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	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	24
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	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	24
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	0.1	0.0	0.0	S	0.0	0.1	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.3	0.0	24	
19	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.3	0.3	0.3	0.5	0.1	0.1	0.1	S	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.1	24	
20	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	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
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	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	0.0	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	S	0.2	0.3	0.3	0.0	0.0	0.1	0.1	0.3	0.4	0.3	0.4	0.5	0.0	0.5	0.2	24	
23	0.4	0.5	0.5	0.5	0.6	0.3	0.6	0.7	1.0	0.7	S	0.6	0.3	0.2	0.1	0.2	0.4	0.5	0.3	0.5	0.4	0.6	0.5	0.5	0.1	1.0	0.5	24	
24	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.2	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	24	
25	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.3	S	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	24	
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0	0.0	8	
27	X	X	X	X	X	X	X	Y	Y	Y	Y	C1	C1	C1	C1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	
28	0.1	0.1	0.0	0.2	0.2	S	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	24	
29	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
30	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.0	24	
31	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	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.2	0.0	0.0	24	
HOURLY MAX	0.9	0.9	1.0	1.1	1.1	1.0	1.0	1.0	1.5	1.3	1.3	1.1	0.5	0.6	0.7	0.5	1.4	1.0	0.6	0.5	0.9	0.9	1.0	0.9					
HOURLY AVG	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

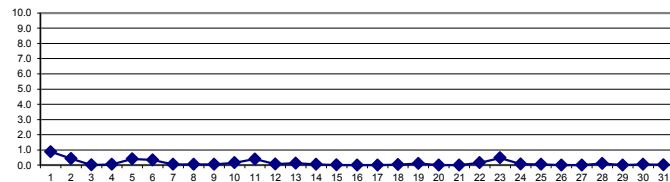
OBJECTIVE LIMIT:

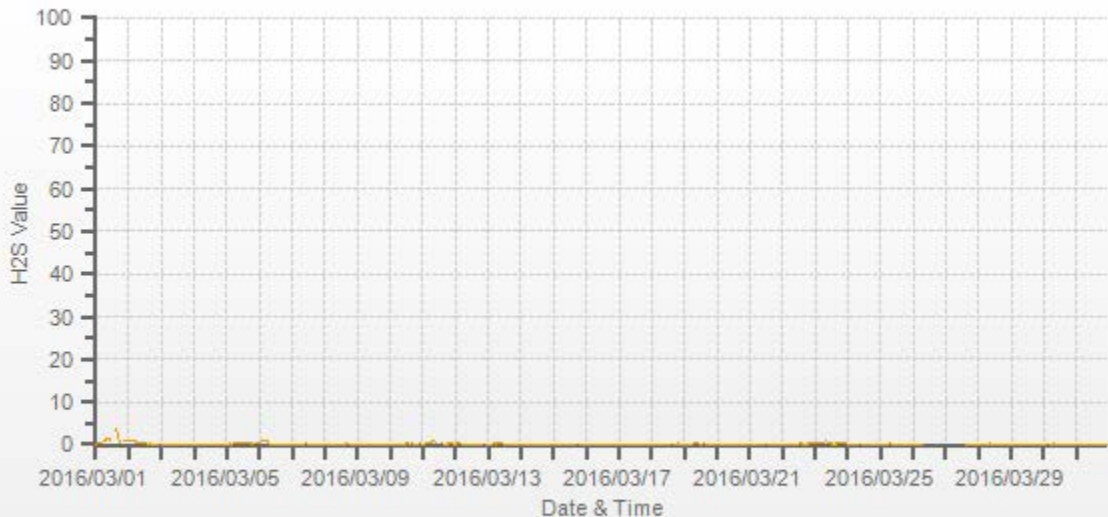
ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	290					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	1.5	PPB	@ HOUR(S)	8	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	709	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	95.3	%	
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE:	0.1	PPB	

24 HOUR AVERAGES FOR MARCH 2016







HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

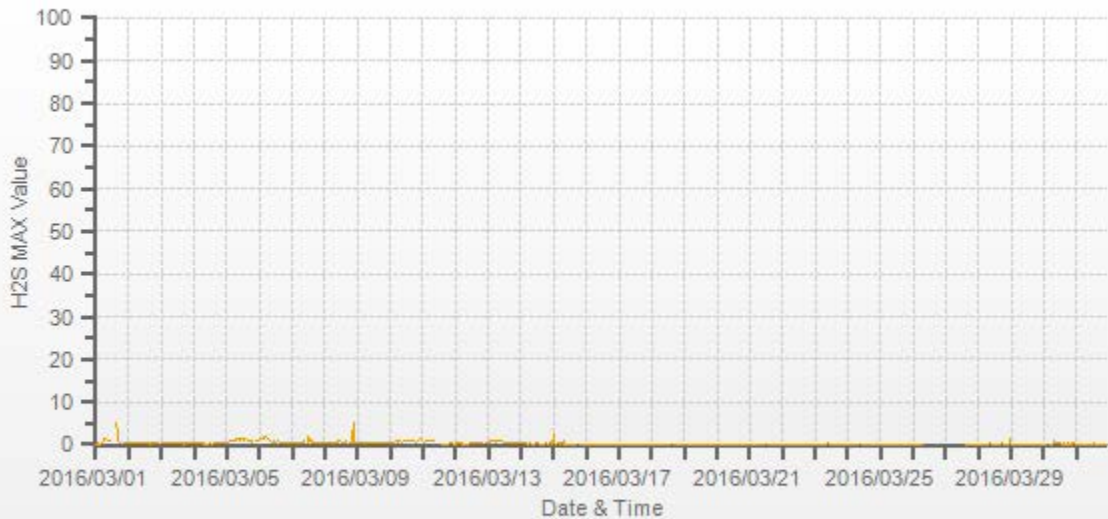
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR				
DAY	MIN.	MAX.	AVG.	RDGS.																												
1	0.2	0.4	0.2	0.2	0.4	0.4	1.4	1.3	1.4	1.0	1.0	P	P	P	P	R	1.5	0.5	0.5	S	0.5	0.3	0.5	0.6	0.2	1.5	0.7	19				
2	0.5	0.7	0.6	0.5	0.6	0.6	0.5	0.5	0.3	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.4	0.7	0.4	0.4	0.3	0.3	0.3	S	0.2	0.7	0.4	24				
3	0.3	0.3	0.3	0.4	0.4	0.5	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.2	0.6	0.4	0.6	0.5	0.6	S	0.4	0.2	0.6	0.4	24				
4	0.5	0.6	0.4	0.5	0.7	0.7	0.5	0.3	0.1	0.1	0.1	0.3	0.3	0.1	0.3	0.5	0.3	0.5	0.6	0.5	0.5	S	0.5	0.6	0.1	0.7	0.4	24				
5	0.6	0.5	0.8	0.8	0.8	0.9	0.8	1.2	1.3	1.0	1.3	1.6	1.0	1.2	1.3	1.0	0.9	1.0	0.8	0.7	S	0.8	0.8	0.9	0.5	1.6	1.0	24				
6	1.2	1.3	1.6	1.6	1.7	1.8	1.6	1.6	0.8	0.6	0.7	0.8	0.7	0.9	0.9	0.6	0.7	0.7	0.6	S	0.5	0.5	0.6	0.7	0.5	1.8	1.0	24				
7	0.7	0.5	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.8	R	0.7	1.9	0.9	0.9	0.6	0.5	0.5	S	0.5	0.5	0.5	0.5	0.5	0.5	1.9	0.7	23				
8	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.7	0.5	0.8	0.8	0.6	0.7	0.7	0.8	0.6	S	0.6	0.7	0.6	5.2	0.5	0.6	0.4	5.2	0.8	24				
9	0.5	0.4	0.6	0.4	0.5	0.6	0.5	0.5	0.5	0.7	0.7	0.5	0.6	0.6	0.5	S	0.3	0.6	0.5	0.4	0.4	0.7	0.7	0.3	0.7	0.5	24					
10	0.6	0.5	0.6	0.6	0.8	0.6	0.8	0.8	0.7	0.7	0.8	0.8	1.1	1.1	0.8	0.9	0.9	0.9	0.8	0.7	0.9	0.9	1.3	S	0.5	1.3	0.8	24				
11	0.9	0.6	0.9	0.9	0.8	0.8	0.9	0.9	0.9	S	C	C	C	C	0.1	0.0	0.0	0.1	0.0	0.1	0.5	0.6	S	0.1	0.0	0.9	0.5	24				
12	0.0	0.4	0.6	0.4	0.4	0.2	0.2	0.1	0.1	0.2	C	0.3	0.5	0.3	0.5	0.3	0.4	0.4	0.5	0.4	0.7	S	0.3	0.5	0.0	0.7	0.3	24				
13	0.6	0.5	0.8	0.8	0.8	0.7	1.1	1.1	0.8	0.8	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.5	0.4	S	0.4	0.3	0.6	0.3	1.1	0.6	24				
14	0.5	0.5	0.3	0.4	0.6	0.1	0.3	0.3	0.1	0.2	0.2	0.4	0.6	0.3	0.2	0.2	0.2	0.1	0.3	S	0.0	0.3	0.3	0.0	0.0	0.6	0.3	24				
15	2.3	0.0	0.2	0.4	0.1	0.3	0.5	1.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.2	S	0.0	0.0	0.0	0.2	0.0	0.0	2.3	0.2	24				
16	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24				
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	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24				
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	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24				
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24			
20	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	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	0.1	0.0	24			
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	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	0.0	24			
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	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	0.0	0.0	24			
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	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	0.0	0.0	0.4	0.0	24			
24	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24			
25	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24			
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0	0.0	7			
27	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9			
28	0.0	0.0	0.0	0.1	0.1	S	0.0	0.0	0.3	0.4	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.5	0.2	0.1	0.1	0.0	0.1	1.5	0.0	1.5	0.2	24				
29	0.0	0.0	0.0	0.0	S	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.1	24				
30	0.0	0.0	0.0	S	0.0	0.1	0.1	0.6	0.8	0.3	0.5	0.3	0.5	0.1	0.4	0.2	0.1	0.3	0.0	0.0	0.3	0.1	0.3	0.2	0.0	0.8	0.2	24				
31	0.0	0.0	S	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.3	0.0	24				
HOURLY MAX	2.3	1.3	1.6	1.6	1.7	1.8	1.6	1.6	1.4	1.0	1.3	1.6	1.9	1.2	1.3	1.0	1.5	1.0	0.8	0.7	0.9	5.2	1.3	1.5								
HOURLY AVG	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.3								

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

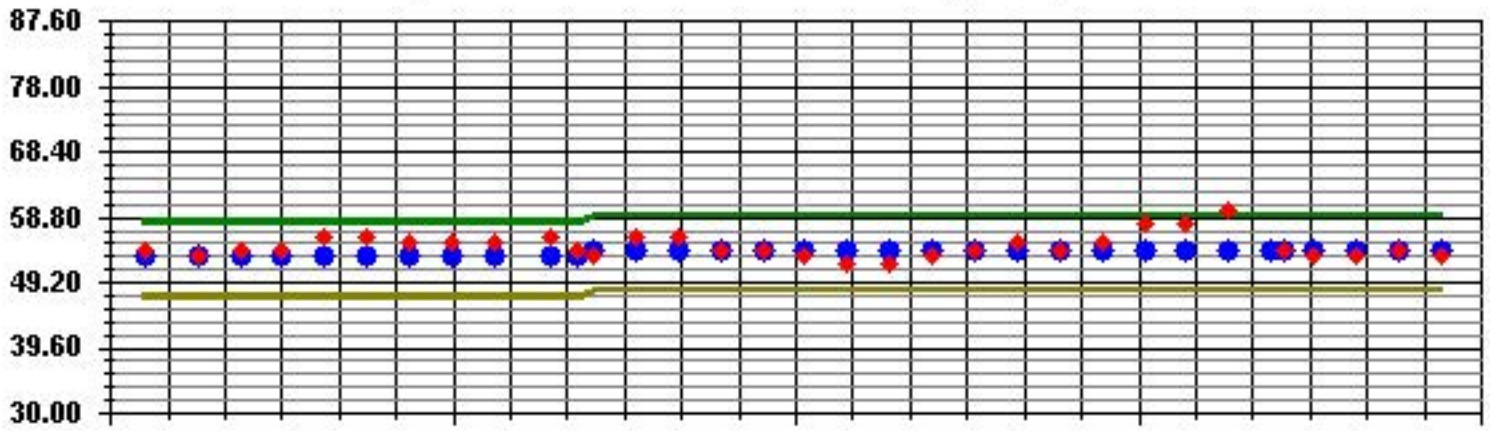
NUMBER OF NON-ZERO READINGS:	369
MAXIMUM INSTANTANEOUS VALUE:	5.2 PPB @ HOUR(S) 21 ON DAY(S) 8
	VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	706 HRS
STANDARD DEVIATION:	0.42



Wind: LICA ELK POINT AIRPORT Monitor: H2S [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 91.57% Valid Data: 91.11% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	0.3	0	0	0	0.3
NE	0.3	0	0	0	0.3
E	3.4	0	0	0	3.4
SE	1.33	0	0	0	1.33
S	0.3	0	0	0	0.3
SW	0.59	0	0	0	0.59
W	1.78	0.15	0	0	1.93
NW	0.3	0	0	0	0.3
Summary	8.3	0.15	0	0	8.45

Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN



3/1/16

3/8/16

3/16/16

3/24/16

4/1/16

◆ Cal Value

◆ Exp Value

— Exp Value +10%

— Exp Value -10%

TOTAL HYDROCARBON



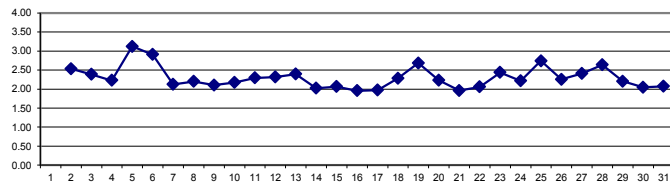
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.			
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.			
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y							
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.35	2.34	2.41	2.43	2.56	2.67	2.72	2.56	2.71	2.56	S	2.34	2.72	2.53	15
3	2.61	2.59	2.68	2.73	2.78	2.67	2.49	2.48	2.32	2.26	2.24	2.19	2.13	2.11	2.13	2.15	2.11	2.14	2.15	2.50	2.52	2.39	S	2.49	2.11	2.78	2.39	2.4	24			
4	2.56	2.38	2.38	2.34	2.20	2.14	2.03	2.01	2.02	2.03	2.01	2.03	2.05	2.12	2.08	2.11	2.16	2.28	2.42	2.48	2.49	S	2.46	2.43	2.01	2.56	2.23	24	24			
5	2.43	2.47	2.52	2.68	2.79	2.74	3.30	3.36	3.19	3.53	3.63	3.27	3.42	3.49	3.51	3.07	2.72	3.06	3.25	3.27	S	3.22	3.36	3.48	2.43	3.63	3.12	24	24			
6	3.66	3.98	4.61	4.62	5.19	4.55	4.43	3.78	2.56	2.21	2.14	2.11	2.11	2.12	2.09	2.09	2.07	2.12	2.11	S	2.10	2.07	2.08	2.05	2.05	5.19	2.91	24	24			
7	2.05	2.06	2.08	2.13	2.11	2.16	2.22	2.19	2.39	2.30	2.30	2.10	2.06	2.06	2.06	2.03	2.05	2.05	S	2.05	2.15	2.11	2.07	2.03	2.03	2.39	2.12	24	24			
8	2.04	2.02	2.01	2.10	2.10	2.16	2.26	2.18	2.20	2.30	2.21	2.21	2.14	2.19	2.27	2.28	2.37	S	2.58	2.54	2.20	2.16	2.03	2.01	2.01	2.58	2.20	24	24			
9	1.99	1.99	1.97	1.98	2.00	2.03	2.08	2.10	2.22	2.17	2.19	2.17	2.16	2.14	2.13	2.13	S	2.12	2.18	2.12	2.10	2.12	2.15	2.14	1.97	2.22	2.10	24	24			
10	2.18	2.19	2.25	2.25	2.19	2.07	2.08	2.04	2.08	2.09	2.06	2.07	2.09	2.16	2.13	2.14	2.12	2.18	2.12	2.21	2.39	2.88	S	2.04	2.88	2.18	2.4	24	24			
11	2.36	2.18	2.21	2.21	2.10	2.15	2.15	2.16	2.11	2.05	2.24	2.09	1.97	1.98	1.99	1.96	1.98	2.03	2.15	2.32	3.61	3.49	S	3.21	1.96	3.61	2.29	24	24			
12	2.93	3.16	3.09	3.01	2.59	2.18	2.10	2.05	2.06	1.97	1.97	2.01	2.02	2.03	2.04	2.06	2.10	2.12	2.22	2.21	2.46	S	2.37	2.57	1.97	3.16	2.32	24	24			
13	2.67	2.55	3.06	2.95	3.10	3.08	3.74	2.75	2.23	2.11	2.12	2.00	2.01	2.01	1.98	1.97	1.97	2.00	1.96	2.07	S	2.41	2.17	2.10	1.96	3.74	2.39	24	24			
14	2.15	2.15	2.02	2.04	2.08	1.93	1.92	1.94	1.96	1.93	1.93	1.95	1.97	1.96	1.97	1.94	1.96	1.95	1.94	S	2.11	2.12	2.36	2.20	1.92	2.36	2.02	24	24			
15	2.07	2.19	2.20	2.22	2.05	2.21	2.48	2.43	2.15	2.02	1.95	1.95	1.96	1.97	1.96	1.96	1.95	1.96	S	1.96	1.95	1.96	1.97	1.98	1.95	2.48	2.07	24	24			
16	1.99	2.00	1.98	1.99	1.95	1.94	1.96	1.94	1.93	1.94	1.93	1.94	1.92	1.94	1.94	1.95	1.94	S	1.95	1.96	1.99	1.98	1.97	1.98	1.92	2.00	1.96	24	24			
17	1.98	1.98	1.95	1.97	1.97	1.98	2.16	2.05	1.96	1.94	1.96	2.00	1.96	1.96	1.95	1.94	S	1.94	1.93	1.93	1.94	1.96	1.95	1.95	1.93	2.16	1.97	24	24			
18	1.94	1.93	2.06	2.15	2.18	2.22	2.24	2.20	2.11	1.98	2.04	2.06	1.98	1.97	1.95	S	1.97	2.79	2.16	2.63	3.04	3.18	2.79	2.93	1.93	3.18	2.28	24	24			
19	2.98	2.73	3.26	3.08	3.15	3.14	3.16	3.24	3.22	2.88	2.62	2.55	2.44	2.41	S	2.37	2.40	2.45	2.34	2.35	2.32	2.18	2.21	2.25	2.18	3.26	2.68	24	24			
20	2.31	2.26	2.30	2.32	2.39	2.59	2.91	2.59	2.54	2.17	2.09	2.04	2.02	S	2.00	2.00	2.09	2.03	2.05	2.04	2.23	2.14	2.08	2.12	2.00	2.91	2.23	24	24			
21	2.04	2.10	2.03	2.01	1.98	1.94	1.96	1.94	1.95	1.95	1.94	1.93	S	1.93	1.94	1.93	1.94	1.95	1.94	1.94	1.93	1.94	1.93	1.93	1.93	2.10	1.96	24	24			
22	1.93	1.94	1.93	1.94	1.97	2.02	2.07	2.01	1.96	1.94	1.95	S	2.02	2.04	1.96	1.99	1.99	2.05	2.07	2.12	2.23	2.20	2.28	2.71	1.93	2.71	2.06	24	24			
23	2.59	2.50	2.80	2.62	2.72	2.77	2.96	2.79	2.87	2.71	S	2.04	2.02	1.99	1.99	1.97	2.08	2.18	2.15	2.28	2.26	2.66	2.72	2.39	1.97	2.96	2.44	24	24			
24	2.44	2.37	2.65	2.64	2.44	2.41	2.31	2.17	2.16	S	2.08	2.07	2.02	2.00	1.99	1.97	1.99	1.97	1.98	1.97	2.04	2.30	2.42	2.61	1.97	2.65	2.22	24	24			
25	2.78	2.80	2.96	3.23	3.30	3.47	3.73	3.78	S	2.75	2.39	2.26	2.31	2.20	2.18	2.20	2.28	2.36	2.70	3.08	2.83	2.23	2.30	2.92	2.18	3.78	2.74	24	24			
26	2.68	2.19	2.12	2.11	2.11	2.16	2.25	S	2.14	1.99	1.96	1.98	1.98	1.95	2.06	1.94	2.09	2.01	2.08	2.30	2.67	2.92	3.03	3.11	1.94	3.11	2.25	24	24			
27	3.06	2.80	2.77	2.76	3.03	3.16	S	2.98	2.55	2.39	2.27	2.15	2.06	2.04	2.01	2.02	2.04	2.05	2.13	2.15	2.21	2.36	2.24	2.23	2.01	3.16	2.41	24	24			
28	2.26	2.31	2.30	2.62	2.48	S	2.37	2.29	2.23	2.33	2.35	2.36	2.39	2.34	2.22	2.19	2.23	2.82	2.81	2.81	3.19	3.20	4.62	3.96	2.19	4.62	2.64	24	24			
29	2.41	2.13	2.19	2.08	S	2.17	2.10	2.44	2.22	2.06	2.00	2.10	2.20	2.22	2.25	2.26	2.03	2.25	2.04	2.08	2.73	2.27	2.24	2.20	2.00	2.73	2.20	24	24			
30	2.18	2.21	2.30	S	2.11	2.35	2.13	2.04	2.07	1.98	1.95	1.97	2.01	1.93	1.99	1.97	2.01	1.93	1.92	1.94	2.08	2.07	1.95	1.95	1.92	2.35	2.05	24	24			
31	1.92	1.93	S	1.95	1.94	1.95	1.96	1.97	1.98	1.97	1.95	1.94	1.98	1.99	1.99	1.99	1.96	1.99	2.03	2.43	2.19	2.33	2.49	2.84	1.92	2.84	2.07	24	24			
HOURLY MAX	3.66	3.98	4.61	4.62	5.19	4.55	4.43	3.78	3.22	3.53	3.63	3.27	3.42	3.49	3.51	3.07	2.72	3.06	3.25	3.27	3.61	3.49	4.62	3.96								
HOURLY AVG	2.39	2.35	2.45	2.45	2.46	2.44	2.48	2.43	2.26	2.21	2.16	2.13	2.12	2.12	2.11	2.10	2.11	2.19	2.22	2.30	2.37	2.40	2.42	2.46								

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677				
MINIMUM 1-HR AVERAGE:	1.92	PPM @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	5.19	PPM @ HOUR(S)	4	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	3.12	PPM		ON DAY(S)	5
				VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	711	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	95.6	%
STANDARD DEVIATION:	0.45		MONTHLY AVERAGE:	2.30	PPM





TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
		0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
DAY																													
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y				
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.52	2.49	2.70	2.82	3.39	3.15	3.08	2.99	2.90	2.82	S	2.49	3.39	2.89	15	
3	2.84	2.90	2.88	2.89	3.08	2.91	2.70	2.67	2.46	2.41	2.38	2.41	2.30	2.22	2.29	2.28	2.22	2.30	2.36	2.87	2.70	2.56	S	2.66	2.22	3.08	2.58	24	
4	2.99	2.71	2.62	2.63	2.41	2.33	2.16	2.14	2.13	2.21	2.18	2.15	2.21	2.24	2.21	2.28	2.35	2.43	2.59	2.70	2.63	S	2.59	2.63	2.13	2.99	2.42	24	
5	2.63	2.70	2.77	3.41	3.06	3.18	3.94	3.59	3.98	4.01	4.59	3.52	3.74	3.75	3.80	3.26	3.14	3.54	3.68	4.21	S	3.54	4.34	3.78	2.63	4.59	3.57	24	
6	4.90	5.82	6.48	5.18	5.93	5.32	5.23	5.52	3.21	2.48	2.29	2.22	2.25	2.26	2.24	2.24	2.21	2.26	2.21	S	2.24	2.22	2.21	2.17	2.17	6.48	3.44	24	
7	2.17	2.24	2.28	2.26	2.24	2.39	2.41	2.41	3.00	2.63	R	2.47	2.24	2.24	2.24	2.21	2.20	2.69	S	2.22	2.48	2.33	2.29	2.21	2.17	3.00	2.36	23	
8	2.21	2.29	2.15	2.48	2.35	2.48	2.65	2.42	2.52	2.83	2.38	3.16	2.29	2.38	2.88	2.42	2.69	S	4.17	3.09	2.70	2.47	2.20	2.14	2.14	4.17	2.58	24	
9	2.13	2.13	2.16	2.15	2.13	2.21	2.28	2.31	2.79	2.42	3.10	2.39	2.41	2.44	2.39	2.42	S	2.35	2.41	2.29	2.31	2.33	2.39	2.33	2.13	3.10	2.36	24	
10	2.39	2.37	2.44	2.44	2.35	2.24	2.26	2.21	2.18	2.18	2.23	2.19	2.20	2.23	2.34	2.29	2.29	2.29	2.47	2.29	2.59	2.63	4.53	S	2.18	4.53	2.42	24	
11	3.10	2.42	2.37	2.48	2.40	2.29	2.36	2.31	2.23	2.25	2.87	2.65	2.18	2.31	2.15	2.05	2.10	2.39	2.43	9.84	9.84	4.10	S	3.85	2.05	9.84	3.17	24	
12	3.07	3.86	3.68	3.61	3.16	2.35	2.23	2.23	2.26	2.10	2.11	2.18	2.15	2.15	2.19	2.28	2.25	2.51	2.54	2.48	2.74	S	2.64	3.10	2.10	3.86	2.60	24	
13	3.60	2.88	5.13	3.38	3.55	5.84	5.22	3.83	2.40	2.37	2.36	2.25	2.26	2.22	2.17	2.13	2.13	2.17	2.14	2.46	S	3.35	2.65	2.52	2.13	5.84	3.00	24	
14	2.71	2.82	2.33	2.34	3.09	2.12	2.12	2.15	2.14	2.14	2.08	2.15	2.13	2.18	2.11	2.10	2.11	2.13	2.11	S	2.39	2.46	2.83	2.88	2.08	3.09	2.33	24	
15	2.26	2.52	2.41	2.48	2.21	3.09	3.22	3.41	2.46	2.16	2.09	2.15	2.14	2.12	2.12	2.16	2.12	2.16	S	2.12	2.08	2.09	2.12	2.11	2.08	3.41	2.34	24	
16	2.13	2.09	2.11	2.15	2.11	2.06	2.08	2.09	2.07	2.11	2.06	2.07	2.05	2.08	2.12	2.08	2.08	S	2.08	2.07	2.15	2.10	2.08	2.12	2.05	2.15	2.09	24	
17	2.12	2.11	2.12	2.11	2.09	2.11	2.69	2.23	2.07	2.05	2.12	2.15	2.09	2.09	2.07	2.07	S	2.04	2.05	2.06	2.09	2.08	2.11	2.07	2.04	2.69	2.12	24	
18	2.05	2.03	2.24	2.40	2.41	2.43	2.55	2.42	2.34	2.14	2.16	2.25	2.10	2.12	2.14	S	2.09	6.03	2.53	3.11	3.95	3.56	3.11	3.46	2.03	6.03	2.68	24	
19	3.52	3.18	4.07	3.61	3.50	3.53	3.44	3.53	3.60	3.35	2.86	2.68	2.62	2.68	S	2.61	2.59	2.59	2.48	2.70	2.38	2.45	2.47	2.38	4.07	3.01	24		
20	2.56	2.49	2.66	2.51	3.18	3.07	4.19	3.44	3.10	2.42	2.26	2.20	2.20	S	2.16	2.16	2.35	2.25	2.34	2.29	2.84	2.52	2.26	2.87	2.16	4.19	2.62	24	
21	2.20	2.29	2.20	2.19	2.15	2.07	2.09	2.09	2.17	2.12	2.08	2.06	S	2.07	2.08	2.05	2.06	2.14	2.05	2.05	2.07	2.11	2.07	2.05	2.05	2.29	2.11	24	
22	2.06	2.08	2.04	2.06	2.11	2.14	2.22	2.22	2.17	2.09	2.13	S	2.15	2.17	2.11	2.13	2.15	2.18	2.19	2.30	2.92	2.95	2.46	3.39	2.04	3.39	2.28	24	
23	3.19	3.09	5.30	3.40	3.49	3.36	3.33	3.12	3.44	3.50	S	2.40	2.21	2.27	2.20	2.08	3.72	2.91	2.26	2.46	2.40	3.11	3.14	2.56	2.08	5.30	3.00	24	
24	2.84	2.56	2.80	2.90	2.64	2.59	2.56	2.28	2.29	S	2.20	2.22	2.15	2.11	2.14	2.10	2.13	2.10	2.18	2.09	2.25	3.66	2.85	4.05	2.09	4.05	2.51	24	
25	3.51	3.37	3.41	3.78	3.62	3.86	4.12	4.31	S	2.92	2.80	2.71	2.97	2.33	2.43	2.37	2.46	2.52	3.09	3.57	3.20	2.62	2.49	4.75	2.33	4.75	3.18	24	
26	3.28	2.34	2.29	2.38	2.21	2.33	2.57	S	2.69	2.27	2.09	2.12	2.09	2.07	2.53	2.43	2.63	2.22	2.38	2.80	3.08	3.22	3.48	3.57	2.07	3.57	2.57	24	
27	3.51	3.48	3.26	3.18	3.78	3.82	S	3.37	2.82	2.59	2.56	2.34	2.22	2.16	2.13	2.17	2.19	2.18	2.42	2.38	2.41	2.57	2.46	2.41	2.13	3.82	2.71	24	
28	2.48	2.76	2.59	3.92	3.15	S	2.66	2.46	2.35	2.56	2.60	2.58	2.82	2.55	2.56	2.47	2.43	4.08	3.25	3.00	3.91	3.47	7.51	4.58	2.35	7.51	3.16	24	
29	3.36	2.26	2.40	2.27	S	2.35	2.25	3.07	2.41	2.24	2.16	2.51	2.66	2.61	2.74	2.72	2.23	4.55	2.17	2.61	4.34	2.41	2.63	2.39	2.16	4.55	2.67	24	
30	2.51	2.51	2.99	S	2.34	2.99	2.40	2.16	2.42	2.25	2.11	2.22	2.23	2.16	2.20	2.25	2.32	2.13	2.04	2.27	2.70	2.29	2.11	2.14	2.04	2.99	2.34	24	
31	2.07	2.08	S	2.08	2.05	2.03	2.06	2.11	2.11	2.13	2.08	2.09	2.16	2.15	2.26	2.29	2.28	2.20	2.24	3.35	2.42	2.88	3.12	3.30	2.03	3.35	2.33	24	
HOURLY MAX		4.90	5.82	6.48	5.18	5.93	5.84	5.23	5.52	3.98	4.01	4.59	3.52	3.74	3.75	3.80	3.26	3.72	6.03	4.17	9.84	9.84	4.10	7.51	4.75				
HOURLY AVG		2.77	2.70	2.94	2.81	2.81	2.84	2.86	2.79	2.56	2.46	2.40	2.37	2.33	2.31	2.33	2.30	2.37	2.67	2.50	2.88	2.97	2.75	2.86	2.88				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

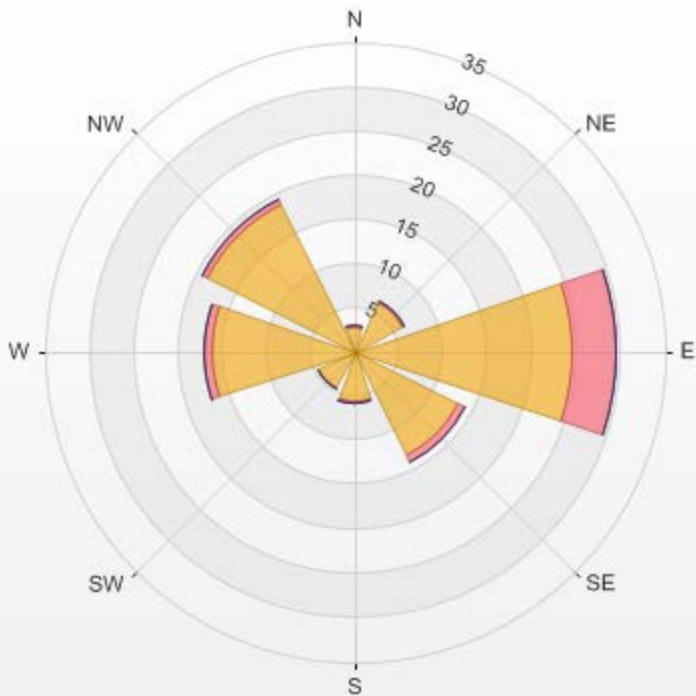
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	676
MAXIMUM INSTANTANEOUS VALUE:	9.84 PPM @ HOUR(S) 19, 20 ON DAY(S) 11, 11
	VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	710 HRS
STANDARD DEVIATION:	0.80



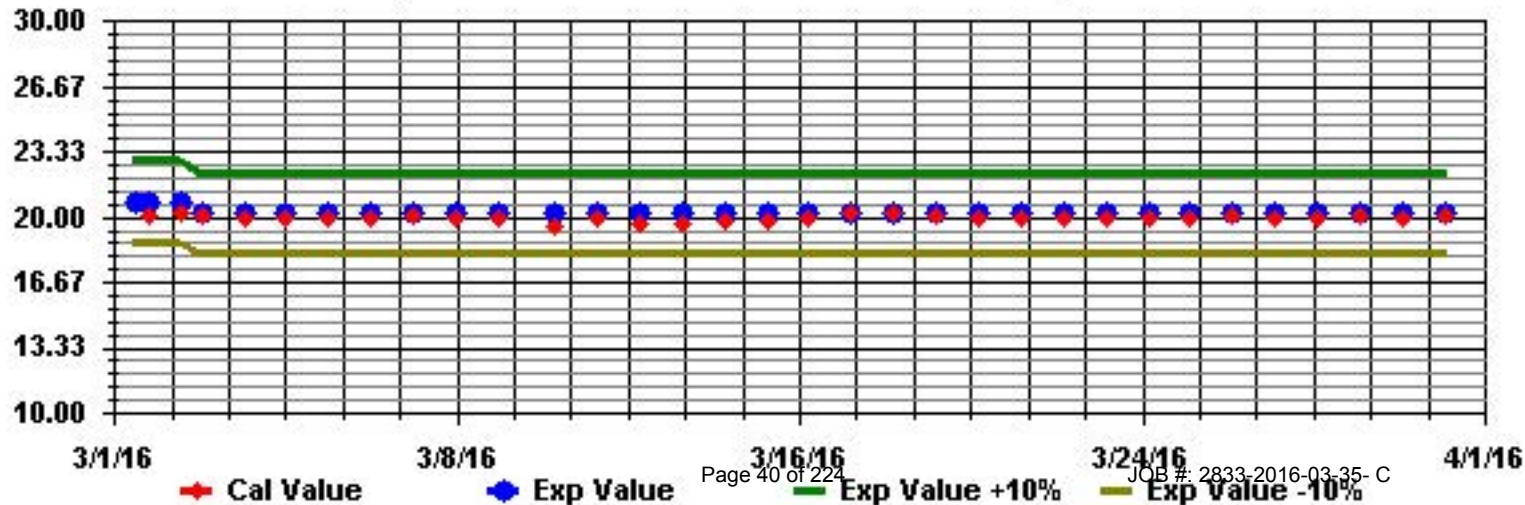
Wind: LICA ELK POINT AIRPORT Monitor: THC55 [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr
 Calm: 0.00% Valid Data: 91.24% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	2.81	0.15	0	0	2.96
NE	6.2	0.15	0	0	6.35
E	24.52	5.02	0	0	29.54
SE	13	1.03	0	0	14.03
S	5.61	0.3	0	0	5.91
SW	4.58	0.15	0	0	4.73
W	16.1	1.03	0	0	17.13
NW	18.61	0.74	0	0	19.35
Summary	91.43	8.57	0	0	100



% Icon	Classes (ppm)	91		0.5-3.0	9		3.0-10.0	0		10.0-50.0	0		>50.0
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Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN



METHANE

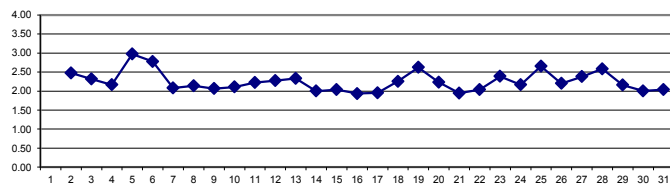
METHANE (CH4) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y					
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.30	2.30	2.35	2.38	2.50	2.61	2.65	2.49	2.65	2.49	S	2.30	2.65	2.47	15
3		2.53	2.51	2.61	2.64	2.68	2.57	2.40	2.39	2.26	2.19	2.18	2.14	2.09	2.07	2.09	2.09	2.08	2.09	2.11	2.42	2.43	2.33	S	2.39	2.07	2.68	2.32	24	
4		2.46	2.28	2.28	2.27	2.13	2.08	1.99	1.97	1.97	1.99	1.98	2.00	2.01	2.08	2.05	2.06	2.11	2.22	2.35	2.40	2.42	S	2.36	2.33	1.97	2.46	2.16	24	
5		2.34	2.37	2.41	2.58	2.66	2.63	3.14	3.21	3.05	3.35	3.42	3.11	3.25	3.31	3.34	2.93	2.59	2.92	3.08	3.12	S	3.07	3.18	3.30	2.34	3.42	2.97	24	
6		3.46	3.74	4.33	4.36	4.89	4.29	4.19	3.58	2.45	2.13	2.07	2.04	2.05	2.04	2.02	2.02	2.02	2.04	2.06	S	2.04	2.02	2.02	2.00	2.00	4.89	2.78	24	
7		2.01	2.03	2.03	2.08	2.06	2.12	2.17	2.14	2.32	2.24	2.24	2.06	2.03	2.03	2.02	1.99	2.00	2.00	S	2.00	2.09	2.07	2.04	2.00	1.99	2.32	2.08	24	
8		2.01	1.97	1.97	2.05	2.05	2.09	2.19	2.14	2.15	2.22	2.14	2.15	2.08	2.12	2.18	2.19	2.28	S	2.49	2.45	2.14	2.11	1.99	1.96	1.96	2.49	2.14	24	
9		1.95	1.95	1.94	1.96	1.97	1.98	2.04	2.06	2.18	2.14	2.15	2.13	2.12	2.10	2.09	2.09	S	2.08	2.13	2.08	2.06	2.08	2.11	2.09	1.94	2.18	2.06	24	
10		2.13	2.14	2.16	2.15	2.11	2.02	2.03	2.04	2.01	2.03	2.04	2.01	2.01	2.03	2.04	2.05	2.08	2.06	2.11	2.05	2.15	2.31	2.73	S	2.01	2.73	2.11	24	
11		2.30	2.11	2.13	2.12	2.04	2.06	2.05	2.06	2.03	1.99	2.18	2.04	1.93	1.95	1.94	1.92	1.94	2.00	2.10	2.27	3.46	3.37	S	3.13	1.92	3.46	2.22	24	
12		2.86	3.09	3.02	2.95	2.54	2.16	2.08	2.03	2.03	1.96	1.96	1.98	1.98	2.00	2.01	2.02	2.06	2.08	2.16	2.14	2.37	S	2.26	2.46	1.96	3.09	2.27	24	
13		2.57	2.45	2.93	2.86	2.98	2.97	3.57	2.64	2.16	2.08	2.09	1.97	1.99	1.97	1.95	1.94	1.94	1.98	1.94	2.05	S	2.36	2.14	2.07	1.94	3.57	2.33	24	
14		2.12	2.12	2.01	2.03	2.06	1.92	1.90	1.90	1.93	1.91	1.91	1.92	1.95	1.94	1.93	1.93	1.94	1.93	1.92	S	2.09	2.09	2.33	2.17	1.90	2.33	2.00	24	
15		2.05	2.16	2.18	2.19	2.03	2.18	2.46	2.39	2.13	1.99	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.93	S	1.93	1.93	1.93	1.94	1.95	1.93	2.46	2.04	24	
16		1.96	1.96	1.96	1.96	1.93	1.93	1.93	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.93	1.92	S	1.92	1.94	1.96	1.96	1.95	1.96	1.91	1.96	1.93	24	
17		1.96	1.95	1.93	1.95	1.95	1.96	2.14	2.03	1.94	1.93	1.95	1.97	1.94	1.94	1.94	1.93	S	1.93	1.93	1.92	1.93	1.94	1.94	1.93	1.92	2.14	1.95	24	
18		1.93	1.93	2.05	2.14	2.16	2.20	2.20	2.18	2.10	1.97	2.03	2.04	1.96	1.96	1.94	S	1.96	2.76	2.12	2.59	2.96	3.10	2.73	2.85	1.93	3.10	2.25	24	
19		2.91	2.67	3.19	3.02	3.10	3.07	3.10	3.17	3.13	2.81	2.58	2.50	2.37	2.36	S	2.31	2.31	2.30	2.22	2.27	2.28	2.16	2.20	2.24	2.16	3.19	2.62	24	
20		2.28	2.25	2.28	2.32	2.37	2.57	2.89	2.59	2.54	2.19	2.10	2.05	2.03	S	2.02	2.02	2.10	2.03	2.05	2.05	2.23	2.15	2.08	2.11	2.02	2.89	2.23	24	
21		2.04	2.10	2.03	2.00	1.97	1.94	1.95	1.93	1.93	1.93	1.93	1.92	S	1.91	1.91	1.92	1.93	1.93	1.93	1.92	1.91	1.92	1.92	1.92	1.91	2.10	1.95	24	
22		1.92	1.93	1.91	1.92	1.94	2.00	2.05	1.99	1.94	1.93	1.94	S	2.00	2.01	1.94	1.96	1.97	2.02	2.05	2.09	2.20	2.18	2.24	2.66	1.91	2.66	2.03	24	
23		2.55	2.46	2.75	2.58	2.66	2.70	2.88	2.70	2.80	2.64	S	2.00	1.99	1.97	1.96	1.94	2.05	2.14	2.11	2.22	2.22	2.59	2.65	2.34	1.94	2.88	2.39	24	
24		2.37	2.33	2.57	2.55	2.38	2.35	2.25	2.13	2.12	S	2.04	2.03	1.98	1.95	1.96	1.94	1.94	1.93	1.94	1.95	2.01	2.23	2.36	2.50	1.93	2.57	2.17	24	
25		2.71	2.74	2.87	3.13	3.19	3.36	3.60	3.67	S	2.67	2.35	2.21	2.25	2.15	2.13	2.14	2.21	2.29	2.60	2.95	2.73	2.15	2.22	2.75	2.13	3.67	2.66	24	
26		2.57	2.12	2.06	2.05	2.06	2.11	2.17	S	2.08	1.95	1.92	1.94	1.95	1.91	2.02	1.91	2.05	1.97	2.05	2.26	2.61	2.85	2.97	3.03	1.91	3.03	2.20	24	
27		3.01	2.75	2.73	2.72	2.97	3.10	S	2.94	2.51	2.36	2.25	2.12	2.03	2.01	2.00	1.99	2.01	2.03	2.12	2.13	2.18	2.32	2.22	2.20	1.99	3.10	2.38	24	
28		2.23	2.28	2.28	2.57	2.44	S	2.34	2.27	2.20	2.29	2.31	2.33	2.34	2.30	2.18	2.16	2.19	2.73	2.76	2.76	3.06	3.13	4.46	3.82	2.16	4.46	2.58	24	
29		2.37	2.08	2.14	2.05	S	2.12	2.07	2.38	2.18	2.03	1.97	2.06	2.17	2.18	2.20	2.21	1.99	2.20	2.00	2.03	2.66	2.21	2.17	2.14	1.97	2.66	2.16	24	
30		2.12	2.17	2.24	S	2.06	2.28	2.08	1.99	2.03	1.93	1.91	1.94	1.97	1.91	1.95	1.94	1.97	1.89	1.89	1.92	2.04	2.03	1.92	1.92	1.89	2.28	2.00	24	
31		1.90	1.91	S	1.92	1.92	1.93	1.94	1.95	1.94	1.92	1.91	1.95	1.95	1.96	1.96	1.93	1.96	2.00	2.36	2.16	2.28	2.43	2.75	1.90	2.75	2.04	24		
HOURLY MAX		3.46	3.74	4.33	4.36	4.89	4.29	4.19	3.67	3.13	3.35	3.42	3.11	3.25	3.31	3.34	2.93	2.59	2.92	3.08	3.12	3.46	3.37	4.46	3.82					
HOURLY AVG		2.33	2.29	2.39	2.40	2.40	2.38	2.42	2.37	2.22	2.17	2.12	2.09	2.08	2.08	2.07	2.06	2.07	2.14	2.17	2.25	2.31	2.34	2.36	2.39					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677		
MINIMUM 1-HR AVERAGE:	1.89 PPM	@ HOUR(S)	17 , 18 ON DAY(S) 30 , 30
MAXIMUM 1-HR AVERAGE:	4.89 PPM	@ HOUR(S)	4 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	2.97 PPM		ON DAY(S) 5
			VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS	OPERATIONAL TIME:	711 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	95.6 %
STANDARD DEVIATION:	0.42	MONTHLY AVERAGE:	2.25 PPM





METHANE MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
DAY	MIN.	MAX.	AVG.	RDGS.																										
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	2.38	2.41	2.52	2.64	3.22	3.01	2.88	2.79	2.76	2.59	S	2.38	3.22	2.72	15		
3	2.65	2.77	2.68	2.70	2.98	2.67	2.54	2.50	2.32	2.25	2.27	2.23	2.17	2.11	2.13	2.13	2.10	2.13	2.24	2.79	2.54	2.47	S	2.49	2.10	2.98	2.43	24		
4	2.81	2.52	2.45	2.56	2.23	2.14	2.03	1.99	2.02	2.04	2.03	2.04	2.07	2.19	2.16	2.11	2.17	2.29	2.43	2.50	2.53	S	2.41	2.40	1.99	2.81	2.27	24		
5	2.42	2.55	2.64	3.19	2.86	3.02	3.77	3.38	3.67	3.75	4.26	3.30	3.54	3.50	3.54	3.13	2.92	3.30	3.43	3.96	S	3.36	4.02	3.59	2.42	4.26	3.35	24		
6	4.66	5.44	5.96	4.90	5.60	4.99	4.94	5.26	3.07	2.33	2.10	2.07	2.09	2.07	2.06	2.05	2.05	2.07	2.08	S	2.06	2.05	2.07	2.02	2.02	5.96	3.22	24		
7	2.04	2.11	2.13	2.25	2.18	2.20	2.28	2.26	2.91	2.45	R	2.43	2.11	2.18	2.22	2.04	2.11	2.56	S	2.07	2.23	2.21	2.20	2.07	2.04	2.91	2.24	23		
8	2.09	2.26	2.04	2.32	2.17	2.27	2.53	2.34	2.42	2.62	2.23	3.00	2.26	2.16	2.82	2.29	2.57	S	4.17	3.03	2.60	2.34	2.07	2.01	2.01	4.17	2.46	24		
9	2.04	2.01	1.98	2.06	2.04	2.07	2.13	2.30	2.66	2.38	2.88	2.25	2.24	2.30	2.23	2.26	S	2.25	2.32	2.17	2.17	2.16	2.28	2.22	1.98	2.88	2.23	24		
10	2.31	2.24	2.25	2.24	2.21	2.10	2.09	2.08	2.06	2.06	2.08	2.03	2.03	2.06	2.10	2.14	2.14	2.14	2.34	2.17	2.52	2.50	4.49	S	2.03	4.49	2.28	24		
11	2.96	2.29	2.21	2.37	2.36	2.11	2.12	2.18	2.06	2.18	2.74	2.65	2.13	2.22	2.07	1.94	1.97	2.27	2.30	9.50	9.50	3.86	S	3.63	1.94	9.50	3.03	24		
12	2.95	3.70	3.57	3.47	2.99	2.27	2.13	2.07	2.12	2.01	2.00	2.02	2.03	2.03	2.04	2.09	2.12	2.41	2.41	2.40	2.58	S	2.44	2.97	2.00	3.70	2.47	24		
13	3.43	2.67	4.83	3.17	3.37	5.63	4.92	3.60	2.25	2.27	2.30	2.13	2.24	2.00	1.98	1.96	2.03	2.10	2.00	2.39	S	3.22	2.63	2.42	1.96	5.63	2.85	24		
14	2.64	2.79	2.19	2.30	2.97	1.95	1.93	1.93	1.96	1.93	1.94	1.95	1.97	1.95	1.96	1.94	2.05	1.99	1.95	S	2.23	2.33	2.74	2.77	1.93	2.97	2.19	24		
15	2.15	2.40	2.38	2.35	2.08	2.94	3.16	3.40	2.44	2.03	2.00	1.98	2.01	2.08	1.97	1.96	1.97	1.95	S	1.95	1.94	1.95	1.97	1.98	1.94	3.40	2.22	24		
16	2.00	2.00	2.02	2.01	1.96	1.95	1.95	1.93	1.93	1.94	1.93	1.94	1.92	1.93	1.93	1.96	1.94	S	1.94	1.96	1.99	1.97	1.98	2.00	1.92	2.02	1.96	24		
17	1.98	1.96	1.95	2.01	2.03	2.08	2.66	2.15	1.96	1.95	1.98	1.99	1.97	1.96	1.95	S	1.94	1.94	1.93	1.95	1.96	1.96	1.95	1.93	2.66	2.01	24			
18	1.94	1.95	2.24	2.38	2.38	2.31	2.52	2.29	2.32	2.02	2.15	2.14	2.06	2.02	2.08	S	2.01	6.00	2.42	3.10	3.81	3.44	2.99	3.34	1.94	6.00	2.60	24		
19	3.41	3.07	3.90	3.58	3.41	3.46	3.26	3.39	3.50	3.14	2.79	2.57	2.57	2.53	S	2.45	2.39	2.42	2.31	2.53	2.49	2.26	2.30	2.42	2.26	3.90	2.88	24		
20	2.53	2.37	2.55	2.46	3.03	3.02	4.10	3.33	2.94	2.29	2.18	2.12	2.08	S	2.11	2.11	2.23	2.14	2.27	2.17	2.78	2.50	2.21	2.50	2.08	4.10	2.52	24		
21	2.18	2.26	2.16	2.03	2.01	1.96	2.00	1.97	1.95	1.96	1.95	1.94	S	1.93	1.94	1.95	1.98	1.95	1.96	1.94	1.93	1.94	1.95	1.94	1.93	2.26	1.99	24		
22	1.93	1.94	1.93	1.94	1.99	2.08	2.12	2.07	1.97	1.96	1.96	S	2.03	2.06	1.99	2.00	2.02	2.08	2.11	2.23	2.92	2.82	2.37	3.22	1.93	3.22	2.16	24		
23	3.14	3.00	5.10	3.39	3.37	3.27	3.20	2.99	3.35	3.37	S	2.36	2.18	2.25	2.07	2.00	3.56	2.78	2.17	2.32	2.32	3.02	3.10	2.42	2.00	5.10	2.90	24		
24	2.73	2.42	2.70	2.73	2.51	2.54	2.38	2.16	2.17	S	2.06	2.05	2.01	1.97	2.00	1.96	1.97	1.95	1.96	1.97	2.11	3.39	2.68	3.62	1.95	3.62	2.35	24		
25	3.46	3.22	3.29	3.75	3.49	3.75	3.97	4.14	S	2.80	2.65	2.54	2.81	2.22	2.29	2.32	2.30	2.34	2.95	3.57	2.99	2.50	2.41	4.45	2.22	4.45	3.05	24		
26	3.11	2.22	2.13	2.19	2.13	2.22	2.43	S	2.55	2.18	1.99	1.95	2.03	2.02	2.39	2.32	2.56	2.19	2.22	2.67	2.92	3.13	3.36	3.49	1.95	3.49	2.45	24		
27	3.37	3.33	3.17	3.04	3.61	3.67	S	3.22	2.72	2.51	2.55	2.21	2.10	2.06	2.02	2.08	2.09	2.09	2.35	2.21	2.27	2.52	2.43	2.29	2.02	3.67	2.60	24		
28	2.47	2.65	2.57	3.83	3.11	S	2.57	2.35	2.27	2.49	2.49	2.48	2.61	2.43	2.37	2.29	2.31	3.94	3.11	2.83	3.69	3.33	7.30	4.34	2.27	7.30	3.04	24		
29	3.29	2.15	2.25	2.09	S	2.19	2.13	2.88	2.39	2.08	2.04	2.32	2.50	2.42	2.61	2.57	2.16	4.43	2.09	2.61	4.15	2.28	2.48	2.24	2.04	4.43	2.54	24		
30	2.31	2.37	2.90	S	2.20	2.90	2.28	2.03	2.33	2.09	1.98	2.11	2.18	2.03	2.06	2.23	2.25	1.93	1.93	2.11	2.57	2.29	1.95	1.94	1.93	2.90	2.22	24		
31	1.92	1.93	S	1.93	1.93	1.94	1.95	1.96	1.97	1.98	1.94	1.96	2.11	2.07	2.21	2.20	2.17	2.17	2.09	3.17	2.39	2.73	2.89	3.27	1.92	3.27	2.21	24		
HOURLY MAX	4.66	5.44	5.96	4.90	5.60	5.63	4.94	5.26	3.67	3.75	4.26	3.30	3.54	3.50	3.54	3.13	3.56	6.00	4.17	9.50	9.50	3.86	7.30	4.45						
HOURLY AVG	2.65	2.57	2.79	2.69	2.70	2.72	2.65	2.44	2.32	2.28	2.24	2.22	2.18	2.20	2.17	2.24	2.54	2.38	2.75	2.82	2.62	2.72	2.71							

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

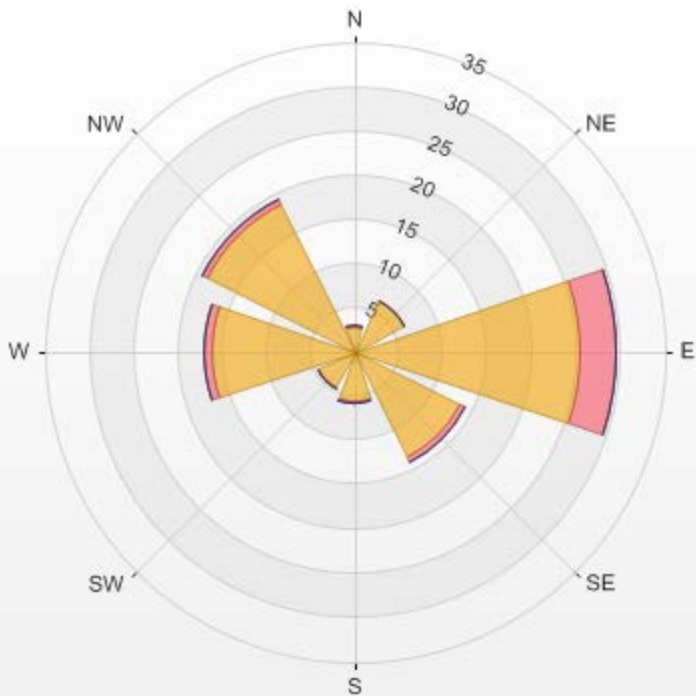
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	676
MAXIMUM INSTANTANEOUS VALUE:	9.50 PPM @ HOUR(S) 19, 20 ON DAY(S) 11, 11
	VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	710 HRS
STANDARD DEVIATION:	0.78



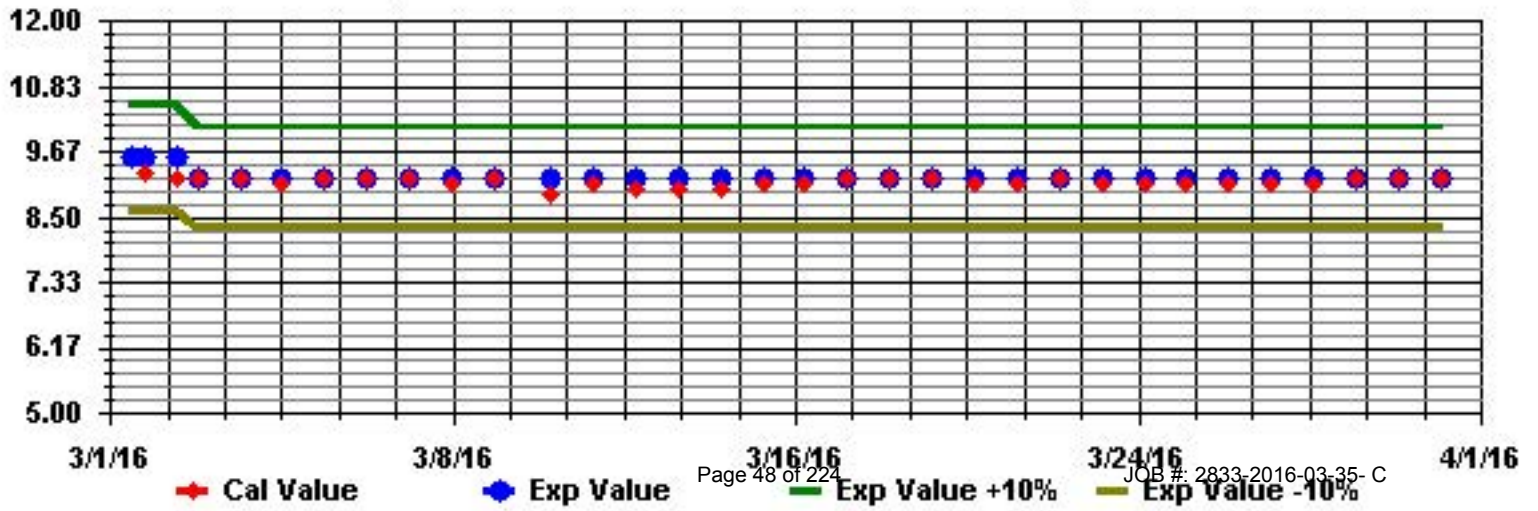
Wind: LICA ELK POINT AIRPORT Monitor: CH4 [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.00% Valid Data: 91.24% Calm Avg: 0.00 [ppb]

Direction	0.5-3.0	3.0-10.0	10.0-50.0	>50.0	Total
N	2.81	0.15	0	0	2.96
NE	6.35	0	0	0	6.35
E	25.41	4.14	0	0	29.55
SE	13.29	0.74	0	0	14.03
S	5.61	0.3	0	0	5.91
SW	4.58	0.15	0	0	4.73
W	16.25	0.89	0	0	17.14
NW	18.61	0.74	0	0	19.35
Summary	92.91	7.11	0	0	100



% Icon	Classes (ppm)	93	7	0	0
	0.5-3.0				
	3.0-10.0				
	10.0-50.0				
	>50.0				

Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN



NON-METHANE HYDROCARBON

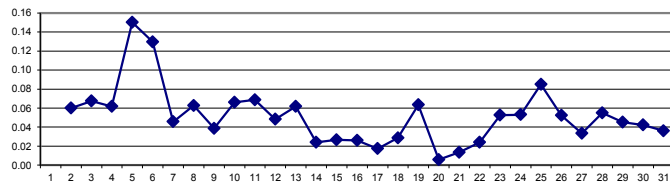
NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y					
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	0.05	0.04	0.06	0.06	0.06	0.06	0.06	0.08	0.06	0.07	S	0.04	0.08	0.06	15
3	0.08	0.07	0.07	0.09	0.10	0.10	0.09	0.08	0.06	0.06	0.06	0.04	0.04	0.04	0.04	0.04	0.06	0.04	0.05	0.04	0.08	0.09	0.07	S	0.10	0.04	0.10	0.07	24	
4	0.10	0.10	0.10	0.07	0.07	0.06	0.04	0.04	0.05	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.05	0.05	0.06	0.07	0.08	0.07	S	0.11	0.10	0.03	0.11	0.06	24	
5	0.09	0.11	0.11	0.10	0.13	0.12	0.15	0.16	0.15	0.19	0.22	0.16	0.17	0.18	0.18	0.14	0.13	0.14	0.17	0.14	S	0.15	0.18	0.18	0.09	0.22	0.15	24		
6	0.20	0.24	0.28	0.26	0.30	0.26	0.24	0.19	0.12	0.08	0.07	0.07	0.06	0.07	0.07	0.06	0.05	0.08	0.05	S	0.06	0.05	0.07	0.05	0.05	0.05	0.30	0.13	24	
7	0.04	0.03	0.05	0.05	0.05	0.04	0.05	0.05	0.07	0.06	0.06	0.04	0.03	0.03	0.04	0.03	0.05	0.05	S	0.05	0.06	0.04	0.04	0.04	0.03	0.07	0.05	24		
8	0.03	0.05	0.04	0.05	0.05	0.07	0.07	0.05	0.05	0.07	0.07	0.06	0.06	0.07	0.09	0.09	0.09	S	0.09	0.09	0.06	0.05	0.05	0.04	0.03	0.09	0.06	24		
9	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.03	0.05	0.03	0.04	0.04	0.04	0.03	0.04	0.04	S	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.05	0.03	0.05	0.04	24	
10	0.05	0.05	0.09	0.10	0.08	0.05	0.04	0.04	0.03	0.05	0.05	0.05	0.06	0.05	0.12	0.07	0.06	0.06	0.07	0.07	0.06	0.08	0.14	S	0.03	0.14	0.07	24		
11	0.07	0.07	0.08	0.09	0.06	0.09	0.09	0.10	0.08	0.06	0.06	0.05	0.04	0.03	0.05	0.04	0.04	0.04	0.05	0.05	0.14	0.12	S	0.08	0.03	0.14	0.07	24		
12	0.07	0.07	0.07	0.05	0.05	0.02	0.02	0.02	0.03	0.02	0.01	0.03	0.04	0.03	0.03	0.03	0.04	0.04	0.06	0.07	0.10	S	0.10	0.11	0.01	0.11	0.05	24		
13	0.11	0.10	0.13	0.10	0.12	0.11	0.17	0.11	0.07	0.03	0.03	0.03	0.02	0.04	0.03	0.02	0.03	0.03	0.02	0.02	S	0.05	0.03	0.02	0.02	0.02	0.17	0.06	24	
14	0.03	0.03	0.02	0.01	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	S	0.02	0.02	0.01	S	0.02	0.03	0.03	0.04	0.01	0.04	0.02	24
15	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.04	0.02	0.03	0.01	0.03	0.02	0.03	0.03	0.03	0.02	0.04	S	0.03	0.02	0.03	0.02	0.03	0.02	0.03	0.01	0.04	0.03	24
16	0.03	0.04	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.04	0.02	0.02	0.02	0.03	0.02	S	0.03	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.04	0.03	24	
17	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.02	0.01	0.02	0.02	S	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.03	0.02	24	
18	0.01	0.00	0.02	0.02	0.02	0.02	0.04	0.03	0.02	0.00	0.01	0.02	0.02	0.01	0.01	S	0.02	0.02	0.04	0.04	0.08	0.07	0.06	0.08	0.00	0.08	0.03	24		
19	0.07	0.05	0.07	0.06	0.05	0.07	0.06	0.07	0.09	0.08	0.04	0.05	0.07	0.06	S	0.06	0.09	0.15	0.12	0.07	0.04	0.02	0.01	0.01	0.01	0.01	0.15	0.06	24	
20	0.03	0.01	0.02	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.01	24	
21	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.01	0.01	S	0.02	0.03	0.01	0.01	0.03	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.03	0.01	24		
22	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.02	0.02	0.02	0.02	S	0.02	0.03	0.02	0.03	0.02	0.03	0.02	0.03	0.03	0.03	0.04	0.05	0.01	0.05	0.02	24		
23	0.04	0.04	0.05	0.05	0.05	0.07	0.08	0.08	0.08	0.07	S	0.04	0.03	0.03	0.04	0.03	0.03	0.05	0.04	0.07	0.04	0.07	0.07	0.06	0.03	0.08	0.05	24		
24	0.06	0.05	0.08	0.09	0.06	0.06	0.06	0.04	0.05	S	0.04	0.04	0.05	0.05	0.03	0.02	0.05	0.04	0.04	0.03	0.04	0.07	0.06	0.11	0.02	0.11	0.05	24		
25	0.07	0.06	0.09	0.10	0.11	0.11	0.13	0.11	S	0.08	0.04	0.05	0.06	0.05	0.05	0.06	0.06	0.07	0.10	0.13	0.10	0.07	0.08	0.17	0.04	0.17	0.08	24		
26	0.11	0.07	0.05	0.06	0.06	0.05	0.08	S	0.06	0.04	0.04	0.04	0.03	0.04	0.04	0.03	0.03	0.04	0.03	0.04	0.06	0.07	0.06	0.07	0.03	0.11	0.05	24		
27	0.05	0.05	0.04	0.04	0.06	0.06	S	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.02	0.01	0.03	0.03	0.03	0.02	0.03	0.01	0.06	0.03	24		
28	0.03	0.03	0.01	0.05	0.04	S	0.03	0.02	0.02	0.04	0.04	0.03	0.05	0.04	0.05	0.04	0.04	0.09	0.05	0.06	0.13	0.08	0.15	0.14	0.01	0.15	0.05	24		
29	0.04	0.05	0.05	0.03	S	0.06	0.03	0.05	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.05	0.03	0.05	0.04	0.05	0.07	0.06	0.06	0.06	0.03	0.07	0.05	24		
30	0.06	0.05	0.06	S	0.06	0.07	0.05	0.05	0.04	0.05	0.04	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.07	0.04	24		
31	0.03	0.03	S	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.03	0.04	0.07	0.04	0.05	0.07	0.09	0.02	0.09	0.04	24		
HOURLY MAX	0.20	0.24	0.28	0.26	0.30	0.26	0.24	0.19	0.15	0.19	0.22	0.16	0.17	0.18	0.18	0.14	0.13	0.15	0.17	0.14	0.14	0.15	0.18	0.18						
HOURLY AVG	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.05	0.06	0.06					

STATUS FLAG CODES

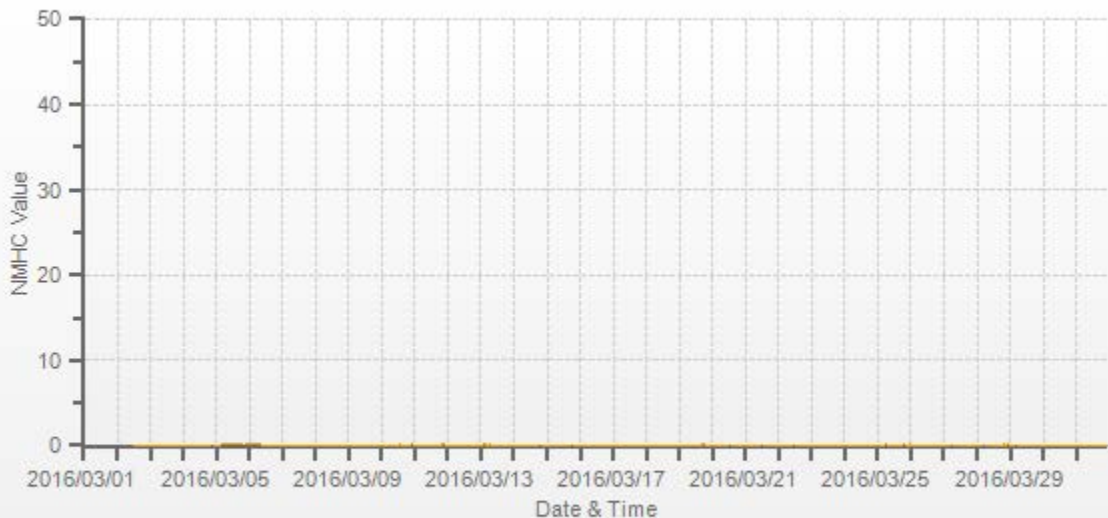
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	658				
MINIMUM 1-HR AVERAGE:	0.00	PPM @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	0.30	PPM @ HOUR(S)	4	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	0.15	PPM		ON DAY(S)	5
				VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	711	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	95.6	%
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.05	PPM





NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

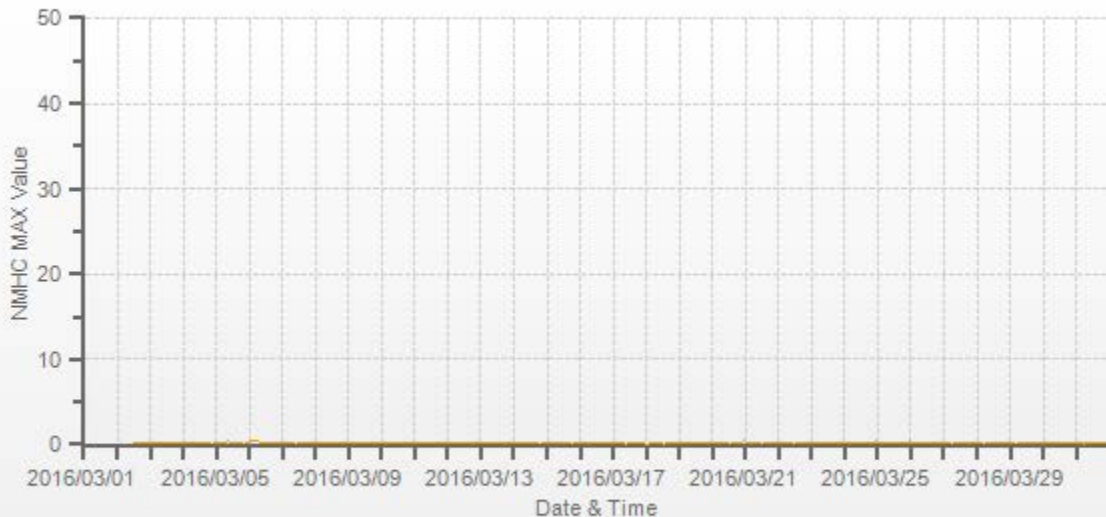
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR			
DAY	MIN.	MAX.	AVG.	RDGS.																											
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.18	0.25	0.22	15	
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	0.22	0.18	0.24	0.20	0.25	0.21	0.24	0.20	0.19	0.23	S	0.18	0.25	0.15	0.27	0.20	24	
3	0.20	0.20	0.23	0.25	0.24	0.27	0.19	0.20	0.19	0.20	0.20	0.18	0.16	0.15	0.19	0.17	0.15	0.20	0.18	0.24	0.19	0.21	S	0.25	0.15	0.27	0.20	24			
4	0.23	0.21	0.21	0.23	0.19	0.19	0.15	0.17	0.15	0.23	0.17	0.14	0.18	0.20	0.13	0.19	0.17	0.19	0.19	0.22	0.19	S	0.21	0.23	0.13	0.23	0.19	24			
5	0.23	0.23	0.22	0.26	0.25	0.23	0.25	0.27	0.36	0.51	0.34	0.24	0.28	0.30	0.28	0.24	0.24	0.26	0.29	0.28	S	0.24	0.32	0.28	0.22	0.51	0.28	24			
6	0.29	0.41	0.53	0.39	0.44	0.37	0.37	0.32	0.26	0.21	0.20	0.18	0.22	0.20	0.20	0.22	0.19	0.20	0.16	S	0.21	0.20	0.18	0.16	0.16	0.53	0.27	24			
7	0.15	0.16	0.21	0.21	0.18	0.22	0.18	0.19	0.23	0.21	R	0.18	0.19	0.20	0.21	0.23	0.20	0.23	S	0.20	0.25	0.17	0.15	0.18	0.15	0.25	0.20	23			
8	0.18	0.20	0.17	0.21	0.21	0.27	0.22	0.18	0.18	0.21	0.20	0.17	0.18	0.23	0.23	0.22	0.21	S	0.24	0.25	0.22	0.19	0.20	0.16	0.16	0.27	0.21	24			
9	0.19	0.18	0.19	0.19	0.15	0.18	0.21	0.16	0.22	0.21	0.22	0.18	0.20	0.21	0.20	0.20	S	0.22	0.21	0.18	0.21	0.19	0.19	0.21	0.15	0.22	0.20	24			
10	0.21	0.20	0.23	0.22	0.19	0.19	0.21	0.18	0.16	0.15	0.22	0.17	0.19	0.19	0.30	0.23	0.20	0.21	0.21	0.23	0.20	0.25	0.26	S	0.15	0.30	0.21	24			
11	0.16	0.22	0.23	0.26	0.22	0.22	0.25	0.24	0.19	0.19	0.22	0.22	0.18	0.16	0.20	0.15	0.14	0.23	0.17	0.33	0.34	0.30	S	0.22	0.14	0.34	0.22	24			
12	0.19	0.24	0.22	0.20	0.19	0.14	0.14	0.14	0.19	0.18	0.14	0.12	0.19	0.17	0.15	0.17	0.22	0.17	0.20	0.18	0.19	0.26	S	0.24	0.21	0.12	0.26	0.19	24		
13	0.25	0.26	0.29	0.28	0.25	0.25	0.33	0.24	0.20	0.18	0.19	0.19	0.15	0.26	0.21	0.17	0.19	0.17	0.18	0.22	S	0.22	0.25	0.22	0.15	0.33	0.22	24			
14	0.17	0.20	0.19	0.17	0.20	0.21	0.21	0.23	0.18	0.23	0.15	0.23	0.16	0.24	0.17	0.17	0.17	0.19	0.18	S	0.18	0.16	0.18	0.19	0.15	0.24	0.19	24			
15	0.16	0.16	0.19	0.17	0.15	0.15	0.17	0.17	0.17	0.18	0.15	0.17	0.18	0.16	0.17	0.22	0.17	0.22	S	0.21	0.15	0.15	0.17	0.16	0.15	0.22	0.17	24			
16	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.17	0.16	0.19	0.14	0.17	0.14	0.18	0.21	0.14	0.14	S	0.15	0.12	0.20	0.12	0.13	0.15	0.12	0.21	0.15	24			
17	0.14	0.15	0.16	0.14	0.15	0.17	0.14	0.12	0.13	0.10	0.16	0.18	0.15	0.14	0.12	0.14	S	0.12	0.12	0.12	0.15	0.15	0.17	0.13	0.10	0.18	0.14	24			
18	0.10	0.08	0.12	0.15	0.20	0.12	0.12	0.16	0.14	0.12	0.13	0.14	0.16	0.11	0.15	S	0.15	0.15	0.21	0.19	0.23	0.18	0.19	0.18	0.08	0.23	0.15	24			
19	0.19	0.19	0.22	0.22	0.19	0.22	0.19	0.21	0.19	0.20	0.17	0.16	0.19	0.17	S	0.22	0.23	0.27	0.24	0.21	0.21	0.12	0.14	0.14	0.12	0.27	0.20	24			
20	0.19	0.20	0.17	0.17	0.17	0.17	0.20	0.19	0.16	0.13	0.16	0.14	0.17	S	0.16	0.16	0.14	0.19	0.16	0.16	0.18	0.14	0.13	0.36	0.13	0.36	0.17	24			
21	0.17	0.16	0.16	0.16	0.16	0.12	0.14	0.15	0.24	0.20	0.14	0.13	S	0.16	0.16	0.12	0.14	0.19	0.13	0.14	0.15	0.18	0.14	0.12	0.12	0.24	0.15	24			
22	0.12	0.14	0.12	0.12	0.15	0.14	0.16	0.16	0.21	0.16	0.19	S	0.15	0.14	0.14	0.15	0.15	0.17	0.15	0.15	0.14	0.17	0.15	0.18	0.12	0.21	0.15	24			
23	0.21	0.17	0.20	0.16	0.16	0.20	0.21	0.27	0.21	0.18	S	0.15	0.18	0.20	0.18	0.13	0.16	0.16	0.16	0.16	0.16	0.21	0.20	0.17	0.13	0.27	0.18	24			
24	0.19	0.17	0.19	0.22	0.17	0.18	0.20	0.14	0.17	S	0.15	0.19	0.18	0.15	0.17	0.16	0.20	0.17	0.24	0.15	0.16	0.31	0.23	0.44	0.14	0.44	0.20	24			
25	0.20	0.18	0.22	0.24	0.23	0.22	0.24	0.21	S	0.17	0.18	0.20	0.18	0.17	0.18	0.17	0.22	0.22	0.20	0.30	0.22	0.19	0.20	0.40	0.17	0.40	0.21	24			
26	0.23	0.23	0.18	0.21	0.16	0.16	0.22	S	0.19	0.17	0.17	0.18	0.14	0.17	0.15	0.14	0.15	0.14	0.17	0.16	0.18	0.24	0.20	0.20	0.14	0.24	0.18	24			
27	0.19	0.23	0.17	0.21	0.22	0.24	S	0.20	0.19	0.21	0.17	0.16	0.15	0.16	0.14	0.17	0.12	0.13	0.12	0.18	0.19	0.18	0.15	0.15	0.12	0.24	0.18	24			
28	0.16	0.16	0.15	0.19	0.19	S	0.16	0.15	0.14	0.18	0.18	0.19	0.25	0.17	0.19	0.20	0.18	0.24	0.22	0.20	0.28	0.20	0.29	0.32	0.14	0.32	0.20	24			
29	0.20	0.16	0.18	0.19	S	0.21	0.16	0.20	0.15	0.21	0.20	0.20	0.17	0.22	0.17	0.17	0.18	0.19	0.20	0.19	0.21	0.17	0.20	0.17	0.15	0.22	0.19	24			
30	0.21	0.21	0.21	S	0.17	0.20	0.16	0.17	0.18	0.19	0.19	0.17	0.19	0.15	0.20	0.14	0.14	0.20	0.15	0.16	0.16	0.16	0.19	0.20	0.14	0.21	0.18	24			
31	0.16	0.17	S	0.16	0.12	0.10	0.12	0.17	0.14	0.18	0.16	0.17	0.17	0.18	0.12	0.17	0.18	0.15	0.26	0.18	0.15	0.22	0.33	0.23	0.10	0.33	0.17	24			
HOURLY MAX	0.29	0.41	0.53	0.39	0.44	0.37	0.37	0.32	0.36	0.51	0.34	0.24	0.28	0.30	0.30	0.24	0.24	0.27	0.29	0.33	0.34	0.31	0.33	0.44							
HOURLY AVG	0.19	0.19	0.20	0.20	0.19	0.20	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.20	0.20	0.19	0.20	0.21							

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

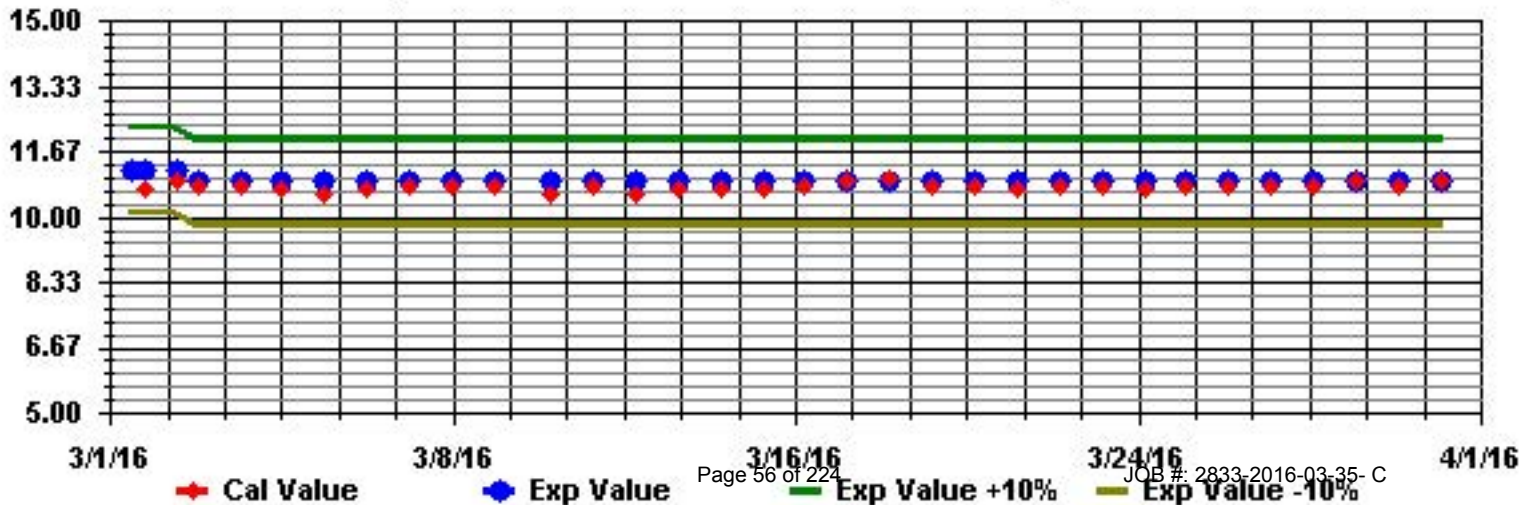
NUMBER OF NON-ZERO READINGS:	676
MAXIMUM INSTANTANEOUS VALUE:	0.53 PPM @ HOUR(S) 2 ON DAY(S) 6
	VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.05
OPERATIONAL TIME:	710 HRS



Wind: LICA ELK POINT AIRPORT Monitor: NMHC [ppm] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 1.48% Valid Data: 91.24% Calm Avg: 0.00 [ppb]

Direction	0.0-0.3	0.3-0.5	0.5-1.0	1.0-2.0	2.0-4.0	>4.0	Total
N	2.95	0	0	0	0	0	2.95
NE	6.35	0	0	0	0	0	6.35
E	28.51	0.15	0	0	0	0	28.66
SE	13.44	0	0	0	0	0	13.44
S	5.91	0	0	0	0	0	5.91
SW	4.73	0	0	0	0	0	4.73
W	16.69	0.44	0	0	0	0	17.13
NW	19.35	0	0	0	0	0	19.35
Summary	97.93	0.59	0	0	0	0	98.52

Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN



OXIDES OF NITROGEN

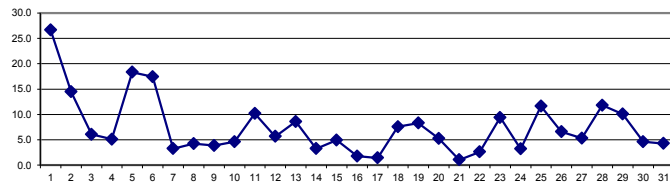
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	1	15.7	25.9	15.8	14.9	15.2	22.3	42.0	43.0	59.7	50.2	42.6	25.4	P	P	P	14.1	18.5	16.4	27.1	S	26.3	15.7	21.7	20.5	14.1	59.7	26.7	21
2	2	23.5	23.6	22.8	17.8	15.8	19.7	12.8	13.6	12.4	C	C	C	C	C	C	6.0	12.8	14.4	15.5	12.9	7.9	7.8	6.3	S	6.0	23.6	14.4	24
3	3	6.3	5.4	5.4	4.6	7.2	4.8	4.8	5.8	3.6	3.2	3.8	3.4	3.0	3.0	3.6	3.7	3.0	3.6	6.4	15.6	12.9	9.8	S	16.4	3.0	16.4	6.1	24
4	4	15.6	8.9	8.4	7.2	7.2	5.1	2.4	1.8	1.1	1.8	1.8	2.1	3.1	4.2	4.4	3.4	3.4	6.1	8.1	6.3	6.1	S	5.0	3.9	1.1	15.6	5.1	24
5	5	4.2	5.0	6.1	5.8	8.6	11.2	16.5	26.0	26.3	27.9	29.9	32.0	19.9	27.9	28.7	22.1	14.4	19.2	17.5	17.0	S	15.8	17.4	22.1	4.2	32.0	18.3	24
6	6	29.4	29.8	48.3	57.9	63.9	56.4	56.1	27.4	7.8	3.1	2.6	2.1	1.6	1.4	1.0	1.2	1.3	2.1	1.9	S	1.7	1.8	1.1	0.8	0.8	63.9	17.4	24
7	7	1.0	0.8	1.1	1.8	2.1	2.7	4.6	9.4	6.6	8.7	9.9	2.8	1.4	2.3	3.0	1.1	1.7	1.7	S	2.4	2.7	3.1	2.1	2.1	0.8	9.9	3.3	24
8	8	2.2	0.8	1.2	2.8	1.7	3.0	5.4	4.6	4.3	4.4	4.8	5.3	3.3	4.6	4.9	4.6	7.4	S	11.9	12.2	2.8	2.6	1.7	1.3	0.8	12.2	4.3	24
9	9	0.9	1.0	1.1	1.9	3.2	3.0	3.6	4.0	4.7	5.1	4.7	4.7	4.8	5.6	4.2	4.4	S	3.7	5.4	4.7	4.3	4.2	4.8	4.6	0.9	5.6	3.9	24
10	10	5.0	2.6	3.9	3.5	4.1	3.0	2.6	3.3	3.0	3.0	C1	C1	C1	C1	C1	C1	C1	C1	2.2	3.6	7.4	17.4	S	2.2	17.4	4.6	15	
11	11	10.9	4.4	7.4	7.8	5.0	6.5	7.5	8.4	8.1	3.2	Y	Y	Y	Y	C1	2.2	3.4	7.1	15.6	17.8	26.4	28.2	S	20.5	2.2	28.2	10.2	20
12	12	12.9	17.9	15.0	9.1	6.3	3.2	3.1	2.9	4.4	2.8	2.3	2.1	2.4	2.2	2.8	2.8	4.5	4.1	4.5	4.9	5.9	S	6.9	7.2	2.1	17.9	5.7	24
13	13	7.4	9.7	15.7	13.5	12.8	13.8	28.4	15.8	5.5	5.1	6.6	3.0	4.3	3.1	2.3	2.4	2.2	2.3	2.5	6.3	S	15.5	11.2	7.9	2.2	28.4	8.6	24
14	14	9.2	7.4	5.0	5.1	5.6	1.2	0.7	1.0	1.1	1.0	1.1	1.1	1.3	1.2	1.0	1.0	1.6	1.3	0.7	S	5.2	4.7	9.8	7.3	0.7	9.8	3.2	24
15	15	3.6	7.0	9.6	8.1	3.0	7.0	20.6	22.6	7.3	2.4	1.5	1.2	2.2	2.2	1.6	1.6	1.5	1.1	S	1.9	1.5	1.8	1.8	1.9	1.1	22.6	4.9	24
16	16	1.9	2.7	2.6	2.5	1.1	0.8	0.8	1.2	1.1	1.2	1.1	1.1	1.1	1.8	1.1	1.9	5.9	S	1.9	1.9	2.1	1.7	1.7	1.7	0.8	5.9	1.8	24
17	17	1.8	1.8	1.1	1.0	1.1	1.5	8.3	3.9	0.8	0.6	1.3	1.9	1.1	0.5	1.4	0.4	S	0.9	0.7	0.4	0.6	0.9	0.6	0.2	0.2	8.3	1.4	24
18	18	0.4	0.3	3.5	6.3	6.3	7.7	6.1	8.0	5.7	1.6	3.7	4.1	1.2	1.5	1.2	S	2.9	9.0	8.7	16.9	28.3	15.5	18.3	16.9	0.3	28.3	7.6	24
19	19	15.2	11.7	14.1	11.2	14.7	15.9	15.5	14.8	13.6	9.0	6.7	5.3	4.4	4.2	S	4.8	4.2	3.8	4.1	3.8	3.9	3.3	3.1	3.5	3.1	15.9	8.3	24
20	20	4.0	3.9	4.2	4.5	4.3	13.9	14.7	9.8	12.3	4.8	2.9	2.4	2.2	S	2.5	2.3	3.2	3.4	8.1	2.4	5.7	3.9	2.7	2.3	2.2	14.7	5.2	24
21	21	1.9	2.1	1.4	1.3	1.5	1.0	1.0	1.1	1.0	0.8	0.6	0.7	S	1.3	0.8	0.8	0.8	0.7	0.7	1.2	1.1	0.9	0.7	0.6	0.6	2.1	1.0	24
22	22	0.9	0.9	0.7	0.5	0.7	1.0	1.8	1.4	0.6	0.4	0.6	S	2.6	2.5	1.8	2.6	2.7	2.4	2.1	5.0	4.3	5.3	5.3	13.6	0.4	13.6	2.6	24
23	23	11.1	10.9	11.2	13.6	10.0	12.6	15.3	15.2	21.2	25.7	S	4.0	3.5	2.3	1.6	1.5	3.4	6.8	5.2	7.3	6.3	10.5	9.2	7.7	1.5	25.7	9.4	24
24	24	7.0	5.5	6.3	6.4	4.3	4.3	4.2	3.0	2.7	S	2.1	1.4	1.1	0.8	0.8	0.6	0.6	0.8	0.7	0.5	2.2	3.2	6.2	8.6	0.5	8.6	3.2	24
25	25	9.1	7.5	15.4	14.2	19.2	22.4	19.8	18.3	S	12.5	6.7	5.5	4.6	5.2	5.6	6.5	9.5	8.2	12.2	22.9	15.2	6.5	8.5	11.7	4.6	22.9	11.6	24
26	26	13.0	6.4	7.0	6.2	11.2	11.4	12.2	S	6.3	1.5	0.9	1.3	1.3	0.4	5.7	0.5	5.9	2.5	5.9	8.9	12.3	11.1	9.7	9.6	0.4	13.0	6.6	24
27	27	9.1	8.3	9.3	8.5	11.6	19.2	S	11.4	5.9	4.3	3.2	3.0	1.7	1.0	0.8	1.4	1.8	1.9	2.9	3.3	3.2	3.9	3.3	3.2	0.8	19.2	5.3	24
28	28	3.0	3.1	4.1	8.0	9.5	S	8.7	4.5	4.4	6.3	6.9	8.0	9.4	10.6	7.3	5.7	5.5	18.7	21.0	21.2	27.7	15.7	27.0	35.4	3.0	35.4	11.8	24
29	29	11.9	6.2	8.9	6.0	S	13.8	10.4	14.3	11.8	5.3	3.6	5.5	10.6	12.6	12.2	10.3	1.6	9.1	7.0	7.5	19.6	19.4	13.4	10.5	1.6	19.6	10.1	24
30	30	8.3	7.7	11.9	S	8.0	13.4	7.1	4.8	4.5	2.3	1.6	2.9	4.2	2.1	4.1	4.0	5.9	0.7	0.4	1.4	4.1	4.6	0.8	0.8	0.4	13.4	4.6	24
31	31	0.6	0.6	S	1.5	0.6	0.7	0.8	1.2	1.4	1.3	0.8	0.6	1.5	1.6	1.8	2.2	1.7	3.4	9.2	17.7	9.6	9.0	14.4	16.0	0.6	17.7	4.3	24
HOURLY MAX		29.4	29.8	48.3	57.9	63.9	56.4	56.1	43.0	59.7	50.2	42.6	32.0	19.9	27.9	28.7	22.1	18.5	19.2	27.1	22.9	28.3	28.2	27.0	35.4				
HOURLY AVG		8.0	7.4	9.0	8.5	8.9	10.1	11.3	10.1	8.3	6.9	5.7	4.9	3.8	4.1	4.0	4.0	4.7	5.6	7.4	8.1	8.7	8.1	8.0	8.9				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691		
MINIMUM 1-HR AVERAGE:	0.2 PPB	@ HOUR(S)	23 ON DAY(S)
MAXIMUM 1-HR AVERAGE:	63.9 PPB	@ HOUR(S)	4 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	26.7 PPB		1 ON DAY(S)
			VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	728 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME:	97.8 %
STANDARD DEVIATION:	8.53	MONTHLY AVERAGE:	7.3 PPB

NOX[ppb] Station: LICA ELK POINT AIRPORT Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR					
DAY	HOUR START	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.				
1		22.5	33.2	26.2	18.2	16.9	30.1	87.3	105.9	100.5	59.6	56.4	P	P	P	P	32.7	60.8	35.1	34.8	S	35.4	20.2	30.2	26.6	16.9	105.9	43.8	20				
2		29.7	29.9	28.4	24.0	25.5	25.7	23.3	29.6	19.0	C	C	C	C	C	C	8.6	21.9	42.2	23.0	53.0	10.9	10.7	8.4	S	8.4	53.0	24.3	24				
3		7.9	8.0	46.0	6.8	15.3	30.5	9.7	11.4	5.7	7.5	5.6	5.5	5.4	5.3	5.6	4.4	5.7	11.2	21.6	19.5	13.3	S	20.7	4.4	46.0	12.1	24					
4		24.2	21.4	16.7	17.8	12.6	9.0	4.1	3.4	2.4	4.2	3.8	5.0	5.7	7.4	8.0	5.2	7.9	11.5	12.9	26.8	10.0	S	9.7	5.9	2.4	26.8	10.2	24				
5		5.8	10.5	9.5	8.9	58.8	24.3	27.0	60.8	91.0	38.3	51.2	70.4	24.7	32.2	37.7	27.6	23.1	38.2	60.8	20.3	S	21.5	25.5	25.1	5.8	91.0	34.5	24				
6		50.5	45.2	71.7	70.0	75.1	70.9	71.7	69.0	16.3	5.9	3.7	3.1	2.6	2.3	1.8	2.2	2.1	3.1	2.8	S	2.4	2.7	2.0	1.9	1.8	75.1	25.2	24				
7		1.8	1.7	2.1	2.7	3.5	5.4	9.0	24.8	18.6	15.1	R	7.0	5.1	38.8	32.4	3.2	4.5	10.6	S	6.4	6.5	5.8	5.7	5.9	1.7	38.8	9.8	23				
8		4.5	3.8	3.0	6.8	6.2	5.5	10.5	10.1	8.1	7.4	12.4	12.6	7.7	11.0	9.7	8.8	10.8	S	23.8	34.5	5.8	4.3	5.4	2.6	2.6	34.5	9.4	24				
9		2.3	2.3	2.6	5.1	5.8	6.6	7.1	8.2	7.7	7.6	7.4	6.9	6.8	8.1	6.4	9.7	S	9.8	10.5	7.3	8.5	5.7	6.4	6.0	2.3	10.5	6.7	24				
10		7.2	3.0	5.7	5.1	5.2	5.0	3.3	4.6	3.7	3.3	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	4.1	9.5	38.3	S	3.0	38.3	7.5	14
11		21.9	5.8	8.3	8.2	9.9	7.3	9.4	9.9	9.1	Y	Y	Y	Y	Y	Y	3.1	1.9	5.0	13.4	24.5	53.9	33.8	45.0	S	32.1	1.9	53.9	16.8	19			
12		12.1	61.5	40.3	9.0	7.4	4.1	3.3	3.1	5.3	3.5	1.5	1.8	2.2	1.9	2.7	5.3	4.1	4.5	4.4	5.8	S	6.0	7.9	1.5	61.5	8.7	24					
13		8.8	13.1	52.7	16.5	13.5	23.5	45.1	26.9	7.1	7.3	10.1	6.9	9.6	2.5	1.9	1.8	2.0	2.1	1.9	20.1	S	44.4	15.6	11.2	1.8	52.7	15.0	24				
14		22.2	23.1	9.9	10.5	11.9	0.6	0.0	1.0	0.5	0.3	0.6	0.6	0.7	0.9	0.2	0.2	2.8	2.3	0.2	S	6.4	6.9	11.5	13.1	0.0	23.1	5.5	24				
15		4.3	13.5	14.9	8.6	4.0	32.9	40.3	231.1	19.7	2.2	1.3	1.3	2.3	2.1	1.4	1.2	0.9	0.3	S	1.8	0.6	1.2	1.2	1.3	0.3	231.1	16.9	24				
16		1.6	2.5	3.6	2.2	0.8	0.8	0.4	0.9	0.6	0.9	0.8	0.6	0.8	13.7	0.7	17.1	65.1	S	1.9	1.4	1.8	1.2	1.2	1.3	0.4	65.1	5.3	24				
17		1.3	1.6	0.9	1.1	1.8	3.9	22.9	9.4	0.4	0.2	1.3	1.6	1.1	0.1	17.3	0.0	S	0.9	0.2	0.1	0.1	0.4	0.4	0.0	0.0	22.9	2.9	24				
18		0.1	0.0	5.2	8.0	8.5	11.6	8.8	9.4	13.9	2.2	17.7	6.2	1.6	2.7	3.0	S	4.7	22.6	25.7	62.1	90.8	19.2	21.0	19.6	0.0	90.8	15.9	24				
19		20.2	13.9	16.0	13.2	23.1	21.2	17.9	16.8	17.1	12.7	7.7	7.0	5.6	5.4	S	6.3	5.7	5.1	6.6	6.9	4.1	3.9	3.3	4.0	3.3	23.1	10.6	24				
20		4.1	4.1	4.7	4.7	5.2	50.3	51.1	14.9	21.7	6.0	3.0	4.3	3.4	S	3.7	3.6	5.8	8.2	11.0	3.9	8.5	6.8	3.5	2.4	2.4	51.1	10.2	24				
21		2.2	2.1	1.8	2.0	1.8	0.8	1.1	1.2	0.9	0.7	0.4	0.3	S	1.5	0.6	0.6	0.6	0.5	1.2	0.7	1.0	0.4	0.6	0.3	2.2	1.0	24					
22		0.6	0.6	0.6	0.1	0.5	0.7	1.7	1.4	0.4	0.2	2.6	S	3.0	2.7	2.7	3.1	4.7	3.1	2.7	9.0	9.4	8.4	7.6	21.7	0.1	21.7	3.8	24				
23		15.0	14.1	15.4	56.2	13.0	15.3	22.0	22.9	33.9	34.3	S	9.1	8.0	6.6	3.5	4.2	6.6	13.7	6.9	10.7	10.1	12.9	11.3	8.4	3.5	56.2	15.4	24				
24		8.2	5.8	7.1	7.0	6.2	4.7	4.9	3.4	3.0	S	2.9	1.5	1.1	0.9	0.7	0.6	0.7	1.0	0.7	0.5	5.8	9.7	9.1	13.1	0.5	13.1	4.3	24				
25		33.6	9.8	35.2	51.8	25.6	28.0	25.2	18.9	S	14.7	10.2	7.0	8.6	7.6	7.8	9.0	11.7	11.5	19.0	73.8	18.6	12.9	14.0	15.3	7.0	73.8	20.4	24				
26		25.4	7.7	10.1	7.8	13.6	14.6	18.2	S	15.7	3.6	0.8	1.3	1.5	0.4	15.3	3.2	15.5	7.2	22.4	17.5	35.1	14.0	12.1	10.9	0.4	35.1	11.9	24				
27		9.9	9.0	9.8	9.5	14.5	39.8	S	20.3	7.6	6.2	3.7	5.2	2.8	1.4	1.7	3.4	3.5	3.5	6.0	4.6	3.9	4.4	3.9	3.6	1.4	39.8	7.7	24				
28		3.5	3.6	18.4	13.3	48.4	S	34.7	5.6	5.3	9.5	9.5	11.9	13.2	14.7	12.9	8.9	11.3	44.3	35.6	56.0	44.4	21.8	37.3	41.0	3.5	56.0	22.0	24				
29		29.8	9.9	11.7	7.6	S	17.4	15.4	23.8	21.3	7.4	5.6	13.1	18.9	18.2	30.8	23.1	5.3	49.1	12.9	10.4	32.2	35.2	28.4	12.8	5.3	49.1	19.1	24				
30		11.8	9.4	22.5	S	12.7	26.9	11.0	5.4	6.3	6.2	3.2	5.6	8.8	5.2	8.1	8.9	12.3	3.1	0.3	7.6	12.7	10.9	1.1	0.8	0.3	26.9	8.7	24				
31		0.4	0.6	S	2.0	0.5	0.6	0.7	1.0	1.5	1.4	0.9	0.6	2.5	2.3	3.2	4.3	4.3	6.3	17.1	31.5	13.1	12.3	25.0	23.1	0.4	31.5	6.7	24				
HOURLY MAX		50.5	61.5	71.7	70.0	75.1	70.9	87.3	231.1	100.5	59.6	56.4	70.4	24.7	38.8	37.7	32.7	65.1	49.1	60.8	73.8	90.8	45.0	38.3	41.0								
HOURLY AVG		12.7	12.0	16.7	13.5	14.9	17.3	19.6	25.2	15.5	9.5	8.7	7.6	5.9	7.5	8.2	7.2	11.0	12.8	13.6	20.3	15.2	12.6	11.9	11.7								

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

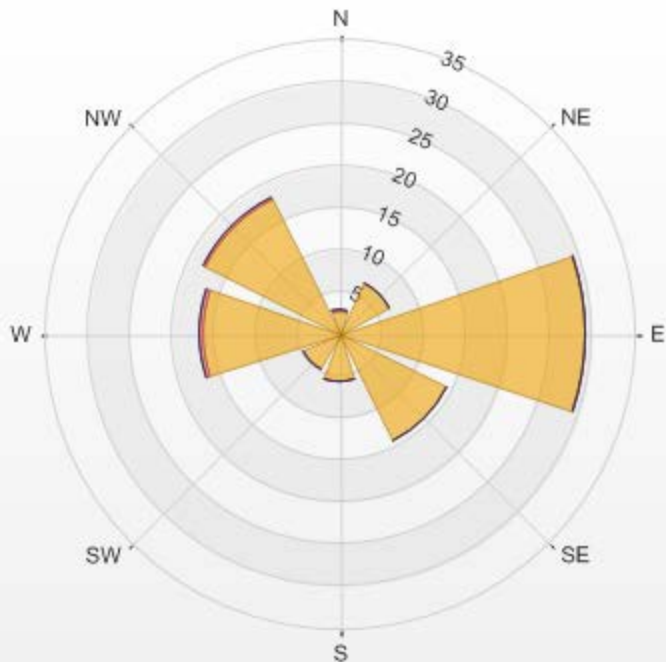
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683
MAXIMUM INSTANTANEOUS VALUE:	231.1 PPB @ HOUR(S) 7 ON DAY(S) 15
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	17.85
OPERATIONAL TIME:	724 HRS

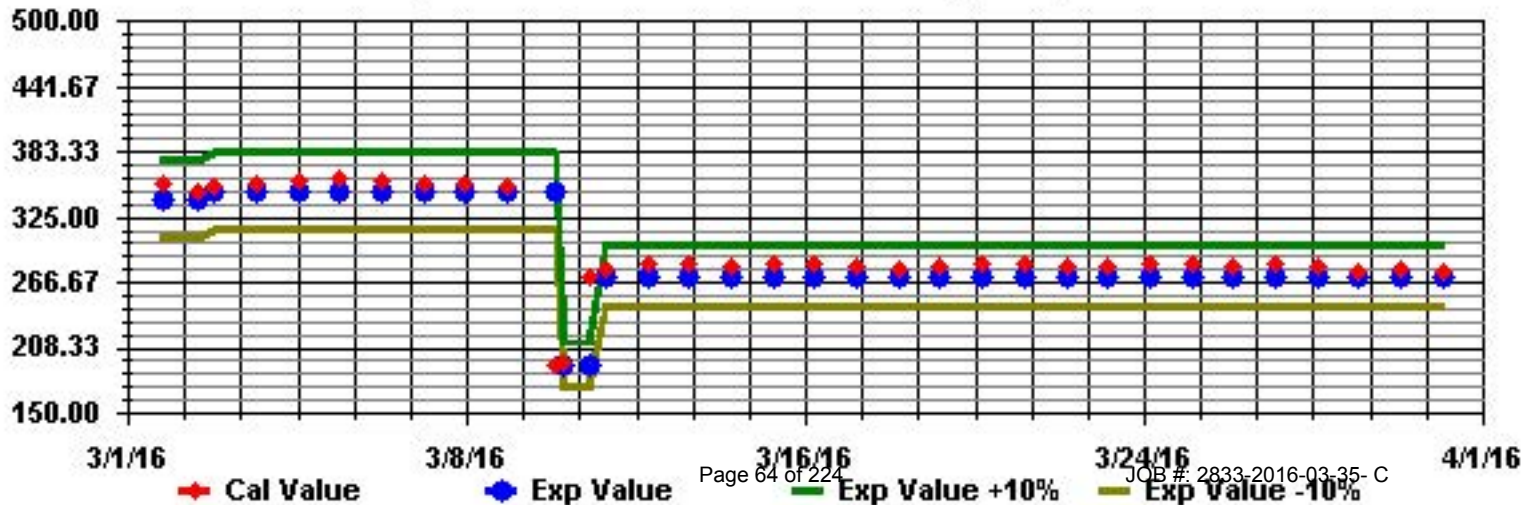


Wind: LICA ELK POINT AIRPORT Monitor: NOX [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 1.59% Valid Data: 93.13% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.75	0.14	0	0	2.89
NE	6.66	0	0	0	6.66
E	29.09	0.14	0	0	29.23
SE	14.33	0	0	0	14.33
S	5.79	0	0	0	5.79
SW	4.78	0	0	0	4.78
W	16.21	0.43	0	0	16.64
NW	17.95	0.14	0	0	18.09
Summary	97.56	0.85	0	0	98.41



Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN



NITRIC OXIDES

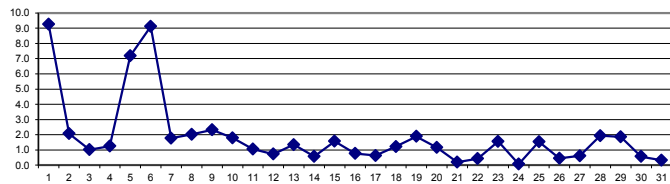
NITRIC OXIDE (NO) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	HR	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1		0.5	2.4	0.5	0.6	0.4	1.9	16.0	19.0	37.7	33.5	28.8	15.1	P	P	P	7.6	6.8	3.2	3.3	S	2.6	1.1	2.4	1.8	0.4	37.7	9.3	21	
2		2.0	2.1	2.0	1.4	1.7	3.1	1.4	3.1	4.7	C	C	C	C	C	C	2.6	3.9	3.6	1.5	1.5	0.2	0.1	0.4	S	0.1	4.7	2.1	24	
3		0.7	0.6	0.7	0.2	1.1	0.6	0.8	1.4	1.2	1.1	1.7	1.6	1.4	1.3	1.4	1.2	0.8	0.6	0.9	0.9	1.0	1.0	S	1.2	0.2	1.7	1.0	24	
4		1.2	0.7	0.7	0.8	1.0	0.8	0.4	0.7	0.8	1.3	1.5	1.6	2.1	2.7	2.5	1.8	1.4	1.8	1.3	0.7	1.0	S	1.2	0.9	0.4	2.7	1.3	24	
5		0.9	1.1	0.8	0.8	2.0	1.7	1.6	9.7	13.9	17.2	20.1	21.8	11.9	17.6	17.3	10.9	4.7	3.9	2.1	1.1	S	0.9	1.6	1.6	0.8	21.8	7.2	24	
6		6.2	6.9	23.9	33.4	40.1	33.8	34.6	13.3	2.9	1.6	1.6	1.4	1.0	0.9	0.8	0.8	0.8	1.0	0.9	S	1.0	1.0	0.8	1.0	0.8	40.1	9.1	24	
7		1.1	0.9	1.1	1.2	1.3	1.1	1.4	3.4	2.7	3.8	4.8	2.2	1.6	1.6	1.9	1.4	1.3	1.2	S	1.4	1.2	1.6	1.2	1.3	0.9	4.8	1.8	24	
8		1.3	1.2	1.0	1.1	1.3	1.4	1.9	1.7	2.1	2.4	2.6	3.2	2.3	3.0	3.2	2.7	3.1	S	2.5	2.7	1.4	1.4	1.3	1.6	1.0	3.2	2.0	24	
9		1.6	1.7	1.7	1.7	1.8	1.8	1.7	1.9	2.6	3.1	3.2	3.2	3.1	3.7	3.1	2.9	S	2.1	2.2	2.2	2.1	1.8	2.0	2.2	1.6	3.7	2.3	24	
10		2.2	1.7	2.1	2.0	2.1	2.3	2.2	2.4	2.5	2.7	C1	C1	C1	C1	C1	C1	C1	C1	C1	0.1	0.0	0.2	2.5	S	0.0	2.7	1.8	15	
11		1.1	0.4	0.3	0.3	0.4	0.1	0.7	1.7	2.8	1.1	Y	Y	Y	Y	C1	0.9	0.5	0.8	0.9	1.4	1.8	1.4	2.5	S	0.8	0.1	2.8	1.0	20
12		0.4	1.7	1.5	0.2	0.3	0.3	0.6	0.7	1.2	0.9	0.9	0.8	0.9	0.8	1.1	0.9	1.5	0.8	0.3	0.2	0.2	S	0.3	0.3	0.2	1.7	0.7	24	
13		0.2	0.3	2.0	0.5	0.6	0.9	8.5	4.6	1.7	1.5	1.9	0.7	0.9	0.6	0.6	0.7	0.6	0.5	0.2	0.8	S	1.6	0.6	0.4	0.2	8.5	1.3	24	
14		0.6	0.8	0.9	0.6	0.8	0.5	0.4	0.4	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.4	0.3	S	0.6	0.5	0.7	0.7	0.3	0.9	0.6	24	
15		0.4	0.9	1.6	0.9	0.5	1.7	5.9	11.1	2.9	1.1	0.9	0.8	1.2	1.3	1.0	0.8	0.7	0.3	S	0.3	0.5	0.4	0.6	0.3	0.3	11.1	1.6	24	
16		0.3	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.6	0.7	0.8	0.8	0.9	1.6	0.9	1.5	3.8	S	0.4	0.4	0.5	0.6	0.5	0.4	0.3	3.8	0.8	24	
17		0.3	0.4	0.4	0.3	0.5	0.3	1.6	1.0	0.7	0.6	0.9	1.3	0.8	0.5	1.3	0.5	S	0.5	0.4	0.4	0.5	0.5	0.5	0.2	0.2	1.6	0.6	24	
18		0.4	0.3	0.6	0.7	0.7	1.0	0.7	1.6	1.9	0.9	1.8	2.1	0.6	0.7	0.6	S	1.0	2.6	1.6	1.5	4.0	0.8	0.9	1.0	0.3	4.0	1.2	24	
19		0.9	0.8	0.8	0.7	1.6	1.2	1.9	5.2	6.9	5.1	4.1	3.2	2.5	2.2	S	2.0	1.3	0.7	0.4	0.3	0.4	0.4	0.4	0.4	0.3	6.9	1.9	24	
20		0.3	0.3	0.4	0.4	0.3	2.3	2.2	2.7	5.5	2.5	1.8	1.4	1.1	S	0.9	0.8	0.9	0.6	1.2	0.2	0.2	0.3	0.3	0.2	0.2	5.5	1.2	24	
21		0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.4	0.4	0.4	0.3	0.3	S	0.5	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.5	0.2	24	
22		0.1	0.2	0.3	0.2	0.2	0.1	0.3	0.4	0.3	0.4	0.3	S	1.1	1.0	0.7	1.1	0.8	0.5	0.2	0.3	0.4	0.3	0.2	0.5	0.1	1.1	0.4	24	
23		0.5	0.4	0.4	1.3	0.3	0.7	1.2	2.9	7.8	11.9	S	2.0	1.7	1.0	0.5	0.4	0.8	1.2	0.3	0.2	0.0	0.1	0.1	0.0	0.0	11.9	1.6	24	
24		0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.5	S	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.5	0.1	24	
25		0.5	0.5	2.0	2.0	1.0	0.9	1.9	5.7	S	4.6	2.2	1.7	1.1	1.1	0.9	1.3	2.4	1.4	0.5	3.3	0.0	0.0	0.2	0.1	0.0	5.7	1.5	24	
26		0.5	0.0	0.0	0.0	0.3	0.1	1.3	S	2.3	0.1	0.0	0.1	0.2	0.0	2.4	0.0	2.1	0.2	0.2	0.0	0.4	0.0	0.0	0.0	0.0	2.4	0.4	24	
27		0.0	0.0	0.0	0.1	0.3	2.3	S	3.3	2.5	1.9	1.4	1.0	0.4	0.0	0.0	0.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.6	24	
28		0.0	0.0	0.1	0.2	0.8	S	0.8	1.2	1.7	2.8	3.4	4.0	4.5	4.7	2.6	1.8	1.5	5.2	3.1	1.7	1.5	0.2	0.6	2.1	0.0	5.2	1.9	24	
29		0.2	0.0	0.2	0.2	S	0.9	1.1	4.4	4.6	2.2	1.5	2.3	4.7	5.7	5.6	4.2	0.4	2.6	0.3	0.0	0.7	0.7	0.2	0.1	0.0	5.7	1.9	24	
30		0.1	0.1	0.4	S	0.3	0.5	0.3	0.7	1.1	0.6	0.4	0.9	1.6	0.8	1.6	1.5	1.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.9	0.6	24	
31		0.0	0.0	S	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.1	0.5	0.5	0.6	0.7	0.4	0.4	0.9	0.5	0.7	0.1	0.4	0.6	0.0	0.0	0.9	0.3	24	
HOURLY MAX		6.2	6.9	23.9	33.4	40.1	33.8	34.6	19.0	37.7	33.5	28.8	21.8	11.9	17.6	17.3	10.9	6.8	5.2	3.3	3.3	4.0	2.5	2.5	2.2					
HOURLY AVG		0.8	0.9	1.6	1.7	2.1	2.1	3.1	3.5	3.9	3.7	3.3	2.8	1.9	2.1	2.0	1.8	1.6	1.3	0.9	0.8	0.8	0.6	0.7	0.7					

STATUS FLAG CODES

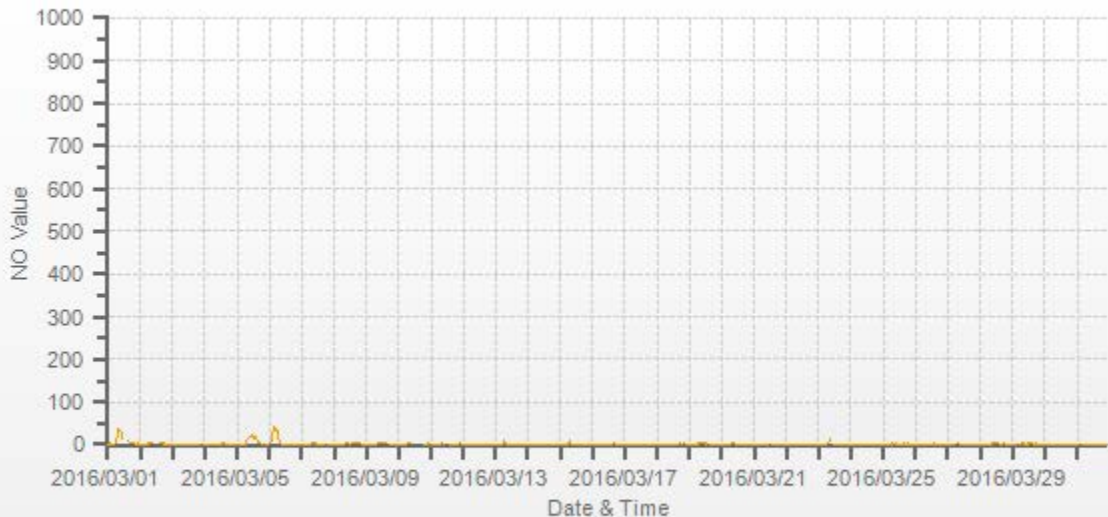
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

24 HOUR AVERAGES FOR MARCH 2016



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	633				
MINIMUM 1-HR AVERAGE:	0.0	PPB @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	40.1	PPB @ HOUR(S)	4	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	9.3	PPB		ON DAY(S)	1
				VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	728	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	97.8	%
STANDARD DEVIATION:	4.21		MONTHLY AVERAGE:	1.9	PPB





NITRIC OXIDE MAX instantaneous maximum in ppb

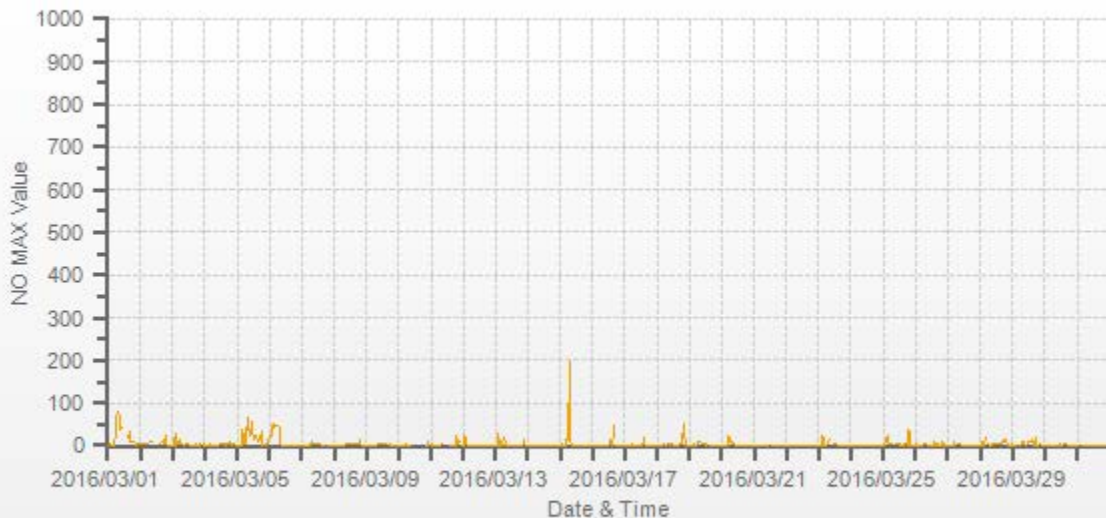
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.	
DAY																														
1		2.0	5.2	2.8	1.9	1.6	6.2	59.9	78.2	74.2	39.9	40.1	P	P	P	P	16.5	32.1	8.4	8.2	S	7.2	2.1	6.3	5.1	1.6	78.2	20.9	20	
2		5.2	6.2	5.4	4.8	5.3	6.7	4.0	10.6	7.8	C	C	C	C	C	C	3.7	7.2	16.3	5.1	22.9	1.0	1.0	1.1	S	1.0	22.9	6.7	24	
3		1.4	1.3	28.2	0.8	3.3	15.8	2.7	2.9	2.0	2.1	3.2	2.5	2.6	2.1	2.2	1.9	1.4	1.1	3.1	1.5	2.4	1.8	S	2.8	0.8	28.2	3.9	24	
4		2.3	1.9	1.9	1.8	2.5	1.3	0.9	1.2	1.3	2.1	1.9	2.5	3.1	4.2	4.0	2.2	2.8	3.3	3.3	11.1	1.9	S	2.5	1.1	0.9	11.1	2.7	24	
5		1.2	1.6	1.2	1.1	35.6	5.8	4.3	37.9	66.6	23.5	35.8	54.0	13.5	20.4	23.9	12.9	10.4	15.6	32.3	1.3	S	1.5	4.3	5.4	1.1	66.6	17.8	24	
6		22.2	18.0	48.1	43.4	50.0	45.3	49.2	46.2	5.8	2.1	1.5	1.3	0.9	0.7	0.5	0.7	0.6	0.8	0.9	S	0.8	0.8	0.6	0.7	0.5	50.0	14.8	24	
7		0.9	0.7	0.8	1.0	1.2	1.0	1.4	10.4	6.6	5.8	R	3.1	2.6	3.3	3.6	1.2	1.5	1.9	S	1.3	1.7	1.5	0.9	1.3	0.7	10.4	2.4	23	
8		1.8	0.8	0.8	0.9	0.9	1.2	1.9	1.3	2.2	2.6	5.4	5.6	2.5	5.7	4.3	3.1	3.6	S	3.7	13.6	0.8	0.8	1.4	1.0	0.8	13.6	2.9	24	
9		1.2	1.0	1.2	1.5	1.5	1.7	1.0	1.4	2.6	2.8	2.9	3.1	3.0	3.6	2.7	3.7	S	2.5	2.3	2.2	1.8	1.1	1.5	1.4	1.0	3.7	2.1	24	
10		1.9	0.8	1.4	1.2	1.2	2.8	1.4	1.7	2.0	1.9	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	0.0	0.0	10.9	S	0.0	10.9	2.1	14	
11		3.4	0.0	0.0	0.0	0.0	0.0	0.1	0.9	2.5	Y	Y	Y	Y	Y	Y	0.0	0.0	0.1	0.5	2.2	21.7	3.0	10.0	S	1.7	0.0	21.7	2.6	19
12		0.0	25.3	10.5	0.0	0.0	0.0	0.0	0.2	0.5	0.2	0.0	0.0	0.0	0.2	0.4	0.2	1.3	0.2	0.0	0.0	0.0	S	0.0	0.0	0.0	25.3	1.7	24	
13		0.0	0.0	25.9	0.0	0.0	3.1	20.5	8.6	2.0	2.1	2.1	0.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	S	12.3	0.0	0.0	0.0	25.9	3.5	24	
14		0.2	1.5	1.2	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	S	0.2	0.0	0.3	0.4	0.0	1.5	0.2	24	
15		0.0	2.3	2.8	0.4	0.0	14.5	18.8	197.9	8.4	0.5	0.2	0.4	0.7	0.7	0.4	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	197.9	10.8	24	
16		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	16.4	0.0	11.2	46.9	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.9	3.3	24	
17		0.0	0.0	0.0	0.0	0.0	0.0	6.3	1.5	0.0	0.0	0.3	0.7	0.5	0.0	17.9	0.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9	1.2	24	
18		0.0	0.0	0.0	0.0	0.0	2.6	0.9	1.8	4.0	0.8	2.4	2.7	0.3	0.9	0.9	S	0.8	5.0	5.6	26.4	53.5	0.8	0.8	1.5	0.0	53.5	4.9	24	
19		0.8	0.3	0.2	0.2	4.5	1.2	3.2	7.2	7.4	6.5	4.1	3.7	2.7	2.1	S	2.1	1.4	0.3	0.9	0.8	0.0	0.0	0.0	0.0	0.0	7.4	2.2	24	
20		0.0	0.0	0.0	0.0	0.0	22.0	21.0	4.0	9.8	2.4	1.5	2.3	1.3	S	0.9	0.8	1.3	0.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	22.0	3.0	24	
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	S	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
22		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	S	1.0	0.9	1.0	1.0	1.8	0.8	0.4	0.2	0.3	0.2	0.1	1.2	0.0	1.8	0.4	24	
23		0.5	0.2	0.0	23.7	0.1	1.2	2.2	3.3	15.1	15.3	S	4.4	3.8	3.6	1.0	1.5	1.8	1.8	0.3	0.8	0.0	0.0	0.0	0.0	0.0	23.7	3.5	24	
24		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	S	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.2	0.0	1.2	0.2	24	
25		2.2	2.8	7.8	22.3	2.9	2.9	3.7	6.4	S	5.8	3.9	2.5	2.4	2.2	1.5	2.1	3.0	2.5	1.1	36.4	0.2	0.0	1.7	0.9	0.0	36.4	5.1	24	
26		5.4	0.4	0.1	0.0	0.9	0.4	3.5	S	6.7	1.0	0.1	0.1	0.3	0.0	7.1	0.7	5.8	0.9	1.3	0.4	10.0	0.0	0.0	0.0	0.0	10.0	2.0	24	
27		0.0	0.0	0.0	0.2	0.3	10.0	S	4.4	2.9	2.5	1.5	2.3	0.7	0.1	0.0	0.9	0.7	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	10.0	1.2	24	
28		0.0	0.0	8.1	0.7	20.5	S	5.0	1.3	1.7	4.1	4.4	6.0	6.6	6.4	5.1	2.8	3.1	15.7	8.0	14.7	6.7	0.3	2.2	4.7	0.0	20.5	5.6	24	
29		1.9	0.0	0.2	0.1	S	1.1	1.8	8.4	7.7	2.8	2.0	5.6	8.6	8.2	15.1	9.4	1.3	18.4	0.4	0.2	4.0	4.3	1.1	0.0	0.0	18.4	4.5	24	
30		0.0	0.1	0.6	S	0.4	1.3	0.0	1.2	1.4	1.4	0.9	1.9	3.5	2.2	3.0	3.6	4.3	0.6	0.0	0.1	0.2	0.7	0.0	0.0	0.0	4.3	1.2	24	
31		0.0	0.0	S	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.0	0.8	0.6	0.9	1.4	0.8	0.3	2.0	0.6	0.9	0.0	0.2	1.6	0.0	2.0	0.5	24	
HOURLY MAX		22.2	25.3	48.1	43.4	50.0	45.3	59.9	197.9	74.2	39.9	40.1	54.0	13.5	20.4	23.9	16.5	46.9	18.4	32.3	36.4	53.5	12.3	10.9	5.4					
HOURLY AVG		1.8	2.3	5.0	3.5	4.4	4.9	7.1	14.6	8.1	4.6	4.5	4.1	2.4	3.3	3.6	2.9	4.8	3.5	2.9	5.8	3.3	1.4	1.3	1.1					

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

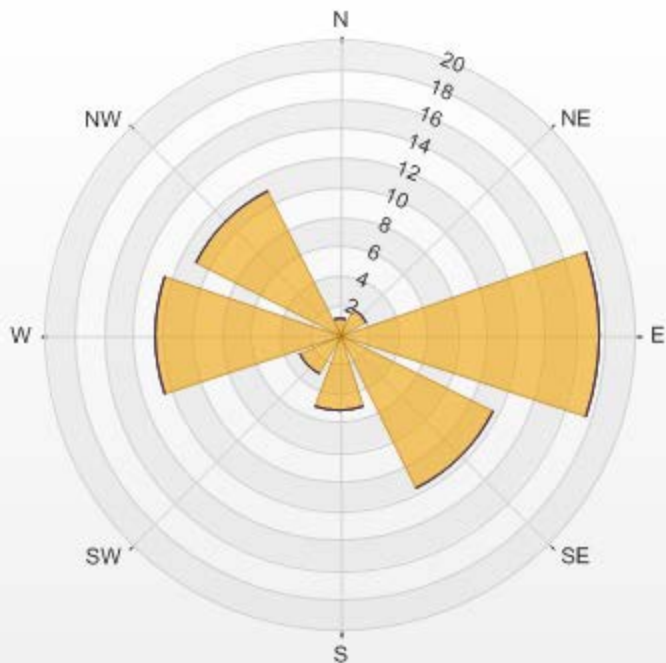
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	490
MAXIMUM INSTANTANEOUS VALUE:	197.9 PPB @ HOUR(S) 7 ON DAY(S) 15
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	11.86
OPERATIONAL TIME:	724 HRS



Wind: LICA ELK POINT AIRPORT Monitor: NO [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 35.75% Valid Data: 93.13% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	1.16	0	0	0	1.16
NE	2.03	0	0	0	2.03
E	17.66	0	0	0	17.66
SE	11.72	0	0	0	11.72
S	5.21	0	0	0	5.21
SW	3.04	0	0	0	3.04
W	12.59	0	0	0	12.59
NW	10.85	0	0	0	10.85
Summary	64.26	0	0	0	64.26



NITROGEN DIOXIDE

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
1	1	15.1	23.6	15.3	14.3	14.8	20.3	26.0	24.0	22.0	16.7	13.8	10.4	P	P	P	6.4	11.7	13.2	23.8	S	23.7	14.6	19.3	18.7	6.4	26.0	17.4	21	
2	2	21.5	21.4	20.8	16.4	14.0	16.7	11.4	10.5	7.7	C	C	C	C	C	C	3.4	9.0	10.8	14.0	11.4	7.6	7.6	5.9	S	3.4	21.5	12.4	24	
3	3	5.7	4.8	4.8	4.5	6.1	4.2	4.0	4.4	2.4	2.1	2.2	1.8	1.6	1.8	2.2	2.5	2.1	2.9	5.4	14.7	11.9	8.8	S	15.2	1.6	15.2	5.0	24	
4	4	14.4	8.1	7.6	6.4	6.2	4.3	2.0	1.1	0.3	0.5	0.3	0.5	1.0	1.5	1.9	1.6	2.0	4.3	6.8	5.6	5.1	S	3.8	3.0	0.3	14.4	3.8	24	
5	5	3.3	3.9	5.3	5.0	6.6	9.5	14.9	16.4	12.5	10.7	9.8	10.2	8.0	10.3	11.5	11.2	9.6	15.3	15.3	15.9	S	14.9	15.8	20.4	3.3	20.4	11.1	24	
6	6	23.2	22.9	24.4	24.5	23.9	22.6	21.5	14.1	5.0	1.5	1.0	0.8	0.6	0.5	0.3	0.4	0.5	1.1	1.0	S	0.7	0.8	0.2	0.0	0.0	24.5	8.3	24	
7	7	0.0	0.0	0.0	0.7	0.8	1.6	3.2	6.0	3.9	4.8	5.1	0.6	0.0	0.7	1.1	0.0	0.4	0.5	S	1.0	1.5	1.6	0.9	0.8	0.0	6.0	1.5	24	
8	8	0.9	0.0	0.1	1.7	0.4	1.5	3.5	2.8	2.2	2.0	2.2	2.0	1.0	1.6	1.7	1.8	4.3	S	9.3	9.5	1.4	1.2	0.3	0.0	0.0	9.5	2.2	24	
9	9	0.0	0.0	0.0	0.1	1.4	1.2	1.9	2.2	2.2	2.0	1.5	1.5	1.6	1.9	1.1	1.5	S	1.6	3.3	2.5	2.2	2.4	2.8	2.5	0.0	3.3	1.6	24	
10	10	2.8	0.9	1.8	1.4	1.9	0.7	0.4	0.9	0.5	0.4	C1	C1	C1	C1	C1	C1	C1	C1	C1	2.1	3.6	7.3	14.9	S	0.4	14.9	2.8	15	
11	11	9.9	4.0	7.1	7.5	4.6	6.4	6.8	6.7	5.3	2.2	Y	Y	Y	Y	Y	2.0	1.7	2.5	6.3	14.2	16.0	25.0	25.7	S	19.7	1.7	25.7	9.1	20
12	12	12.5	16.2	13.5	8.9	6.0	2.8	2.5	2.2	3.2	1.8	1.4	1.3	1.5	1.4	1.7	1.9	3.0	3.3	4.1	4.7	5.7	S	6.6	6.9	1.3	16.2	4.9	24	
13	13	7.2	9.4	13.7	13.0	12.3	12.8	19.9	11.2	3.8	3.6	4.7	2.4	3.4	2.6	1.7	1.8	1.6	1.8	2.3	5.6	S	13.9	10.6	7.5	1.6	19.9	7.3	24	
14	14	8.5	6.6	4.1	4.5	4.9	0.7	0.3	0.6	0.7	0.5	0.4	0.5	0.6	0.6	0.4	0.5	1.0	0.9	0.4	S	4.6	4.3	9.2	6.6	0.3	9.2	2.7	24	
15	15	3.2	6.1	8.0	7.2	2.5	5.3	14.7	11.5	4.3	1.2	0.6	0.5	0.9	0.9	0.6	0.8	0.8	0.8	S	1.5	1.0	1.4	1.2	1.6	0.5	14.7	3.3	24	
16	16	1.7	2.2	2.2	2.0	0.6	0.4	0.4	0.8	0.5	0.5	0.3	0.2	0.2	0.2	0.2	0.4	2.1	S	1.4	1.4	1.6	1.2	1.2	1.3	0.2	2.2	1.0	24	
17	17	1.5	1.5	0.7	0.7	0.6	1.2	6.7	2.9	0.2	0.0	0.4	0.6	0.2	0.0	0.1	0.0	S	0.4	0.3	0.1	0.1	0.5	0.2	0.0	0.0	6.7	0.8	24	
18	18	0.0	0.0	2.9	5.6	5.6	6.7	5.4	6.4	3.8	0.7	1.9	2.0	0.5	0.7	0.6	S	1.9	6.5	7.2	15.4	24.3	14.7	17.3	15.9	0.0	24.3	6.3	24	
19	19	14.3	10.9	13.3	10.5	13.1	14.6	13.6	9.6	6.7	4.0	2.6	2.1	1.9	2.0	S	2.8	2.8	3.1	3.6	3.4	3.5	2.9	2.7	3.1	1.9	14.6	6.4	24	
20	20	3.7	3.6	3.9	4.1	4.0	11.6	12.5	7.1	6.7	2.3	1.2	1.0	1.1	S	1.6	1.5	2.2	2.7	6.9	2.2	5.5	3.7	2.4	2.1	1.0	12.5	4.1	24	
21	21	1.7	1.9	1.1	1.1	1.4	0.9	0.9	0.7	0.6	0.4	0.3	0.4	S	0.8	0.6	0.5	0.7	0.7	0.6	1.0	1.0	0.7	0.5	0.5	0.3	1.9	0.8	24	
22	22	0.8	0.6	0.5	0.3	0.5	1.0	1.6	1.1	0.3	0.0	0.3	S	1.5	1.4	1.1	1.5	1.9	1.9	1.9	4.7	3.9	4.9	5.2	13.1	0.0	13.1	2.2	24	
23	23	10.7	10.5	10.8	12.3	9.7	11.9	14.1	12.3	13.5	13.8	S	2.0	1.8	1.2	1.1	1.0	2.6	5.7	4.9	7.1	6.3	10.3	9.0	7.7	1.0	14.1	7.8	24	
24	24	7.0	5.4	6.3	6.4	4.3	4.3	4.1	2.8	2.2	S	1.7	1.3	1.1	0.8	0.8	0.6	0.6	0.8	0.7	0.5	2.2	3.2	6.1	8.4	0.5	8.4	3.1	24	
25	25	8.6	7.0	13.4	12.2	18.1	21.4	17.8	12.6	S	7.8	4.5	3.8	3.5	4.0	4.6	5.2	7.1	6.8	11.7	19.6	15.2	6.5	8.3	11.6	3.5	21.4	10.1	24	
26	26	12.5	6.4	7.0	6.2	10.9	11.3	10.9	S	4.0	1.4	0.9	1.1	1.1	0.4	3.3	0.5	3.8	2.3	5.7	8.9	11.9	11.1	9.7	9.6	0.4	12.5	6.1	24	
27	27	9.1	8.3	9.3	8.3	11.3	16.9	S	8.1	3.4	2.4	1.8	1.9	1.3	1.0	0.8	1.2	1.4	1.7	2.9	3.3	3.2	3.9	3.2	3.2	0.8	16.9	4.7	24	
28	28	3.0	3.1	4.0	7.8	8.6	S	7.9	3.4	2.7	3.5	3.5	4.1	4.9	5.9	4.6	4.0	4.0	13.5	17.9	19.5	26.2	15.5	26.4	33.3	2.7	33.3	9.9	24	
29	29	11.7	6.2	8.7	5.7	S	12.9	9.3	9.9	7.2	3.1	2.1	3.2	5.8	6.9	6.7	6.1	1.2	6.5	6.6	7.5	18.9	18.6	13.1	10.4	1.2	18.9	8.2	24	
30	30	8.3	7.6	11.4	S	7.7	12.9	6.8	4.0	3.5	1.7	1.3	2.0	2.6	1.4	2.4	2.5	4.0	0.7	0.4	1.4	4.1	4.5	0.8	0.8	0.4	12.9	4.0	24	
31	31	0.6	0.6	S	1.4	0.6	0.7	0.8	1.1	1.0	0.8	0.5	0.6	1.0	1.1	1.2	1.6	1.4	3.0	8.3	17.1	9.0	8.9	13.9	15.3	0.5	17.1	3.9	24	
HOURLY MAX		23.2	23.6	24.4	24.5	23.9	22.6	26.0	24.0	22.0	16.7	13.8	10.4	8.0	10.3	11.5	11.2	11.7	15.3	23.8	19.6	26.2	25.7	26.4	33.3					
HOURLY AVG		7.2	6.6	7.4	6.7	6.8	8.0	8.2	6.6	4.4	3.2	2.5	2.2	1.9	2.0	2.1	2.2	3.1	4.3	6.5	7.3	8.0	7.4	7.3	8.2					

STATUS FLAG CODES

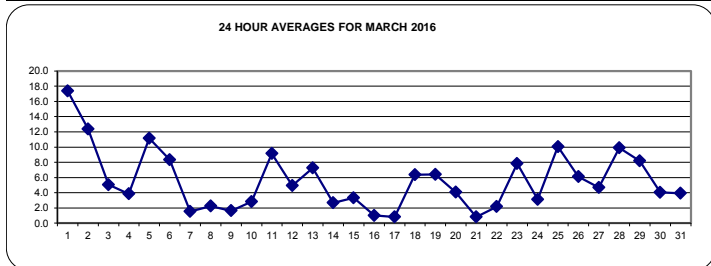
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

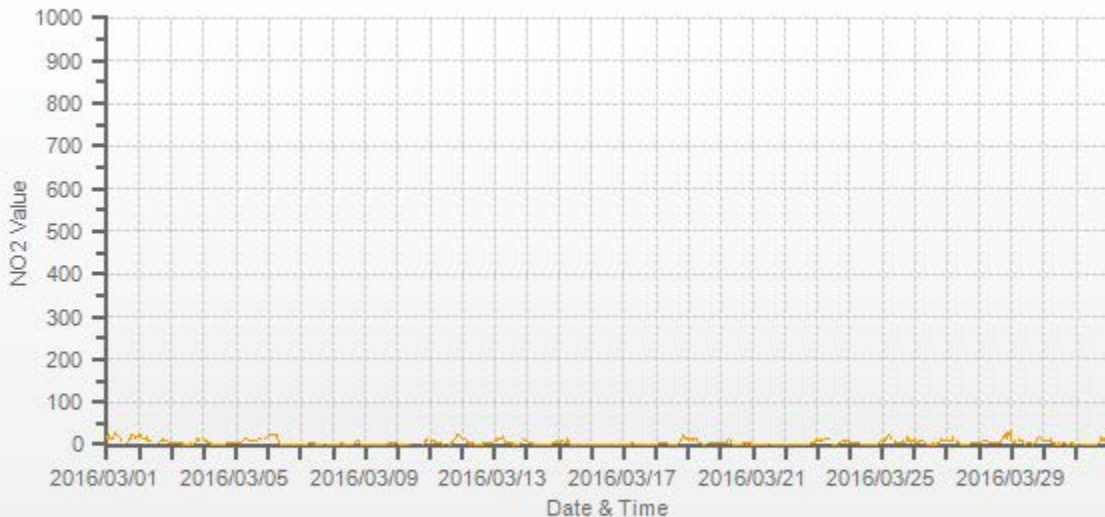
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	673					
MINIMUM 1-HR AVERAGE:	0.0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	33.3	PPB	@ HOUR(S)	23	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	17.4	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	728	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	97.8	%	
STANDARD DEVIATION:	5.90		MONTHLY AVERAGE:	5.5	PPB	







NITROGEN DIOXIDE MAX instantaneous maximum in ppb

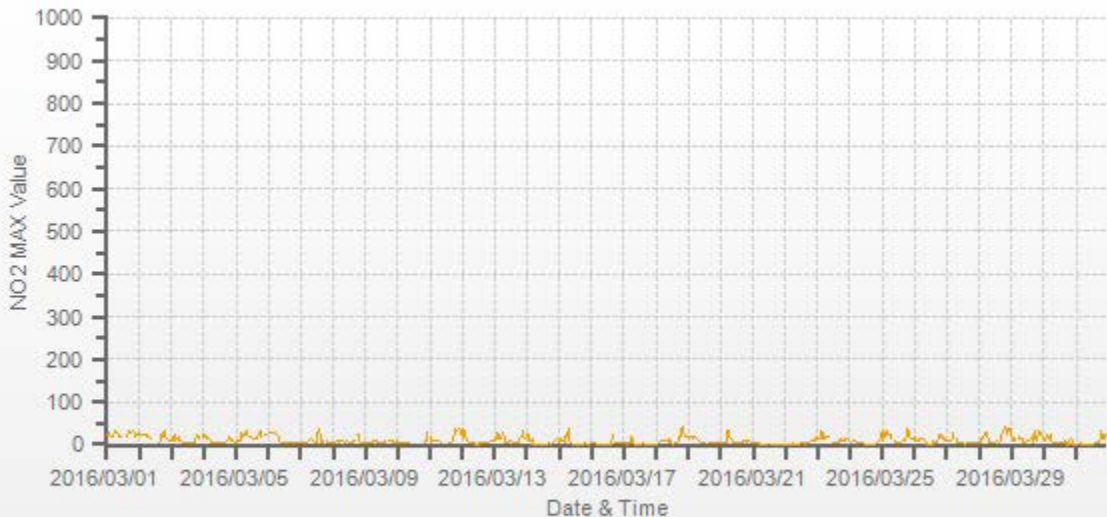
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR			
DAY	MIN.	MAX.	AVG.	RDGS.																											
1	21.5	29.5	24.6	17.8	17.0	25.7	32.5	29.6	28.9	20.8	19.4	P	P	P	P	18.1	32.9	28.4	28.9	S	31.3	20.3	25.5	23.2	17.0	32.9	25.0	20			
2	26.0	25.6	24.9	21.5	22.1	22.1	20.8	20.6	13.4	C	C	C	C	C	6.8	16.2	27.6	20.3	32.1	12.0	11.8	9.4	S	6.8	32.1	19.6	24				
3	8.8	8.5	25.3	7.9	13.9	19.2	9.0	10.1	5.5	5.4	6.3	5.0	4.8	5.2	5.2	5.7	4.8	6.7	12.1	22.3	19.0	13.3	S	20.8	4.8	25.3	10.6	24			
4	24.5	21.4	16.4	18.3	12.1	9.9	5.5	4.5	3.6	3.9	3.7	4.1	4.3	5.2	6.1	4.9	6.8	10.4	11.8	17.1	10.1	S	9.0	6.6	3.6	24.5	9.6	24			
5	6.9	10.7	10.8	9.9	28.7	20.6	24.7	27.4	32.8	16.7	17.1	18.8	12.7	14.9	15.4	15.9	16.7	24.0	30.9	20.9	S	22.2	23.5	24.9	6.9	32.8	19.4	24			
6	30.0	29.4	29.6	28.4	27.9	27.8	25.2	24.3	12.3	5.6	4.0	3.6	3.4	3.1	2.8	3.4	3.3	4.0	4.1	S	3.7	3.8	3.3	2.9	2.8	30.0	12.4	24			
7	3.3	3.1	3.4	3.9	4.5	6.4	9.2	15.9	14.3	10.8	R	5.6	3.9	36.8	32.6	3.6	4.8	9.7	S	7.2	6.7	6.5	6.7	6.1	3.1	36.8	9.3	23			
8	4.9	4.8	4.4	8.3	7.7	6.5	11.1	11.0	8.3	6.9	8.4	8.4	6.8	6.9	7.0	7.3	9.1	S	21.6	24.9	6.8	5.3	5.8	3.4	3.4	24.9	8.5	24			
9	3.2	3.3	3.5	6.3	6.3	6.6	7.9	9.0	7.1	6.8	6.2	6.0	5.9	6.1	5.7	7.6	S	8.4	9.4	7.3	8.5	6.5	7.0	6.4	3.2	9.4	6.6	24			
10	7.2	4.5	6.6	6.1	6.1	5.3	4.0	5.1	4.0	3.5	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	6.0	10.0	27.7	S	3.5	27.7	7.4	14
11	19.3	6.9	9.7	9.6	10.7	8.4	10.5	9.6	7.0	Y	Y	Y	Y	Y	3.6	2.4	4.9	13.7	22.5	35.8	31.0	35.5	S	30.8	2.4	35.8	15.1	19			
12	13.7	38.3	30.5	10.4	8.9	5.0	4.1	3.7	5.4	3.8	2.0	2.2	2.7	2.3	2.7	2.9	5.1	5.1	5.4	5.8	6.9	S	7.2	9.0	2.0	38.3	8.0	24			
13	10.2	14.1	29.2	17.4	14.7	20.9	26.0	18.9	6.1	5.9	8.4	6.0	9.0	3.5	2.6	2.7	2.7	3.3	3.1	19.1	S	34.0	16.3	12.4	2.6	34.0	12.5	24			
14	22.3	23.0	10.5	10.7	12.5	1.9	1.2	2.1	1.7	1.3	1.3	1.5	1.4	1.3	1.2	1.2	3.3	3.1	1.3	S	6.4	7.7	12.5	12.9	1.2	23.0	6.2	24			
15	5.3	11.7	12.7	8.8	5.0	18.5	21.4	37.4	11.4	2.6	1.8	1.6	2.2	1.9	1.6	1.8	1.5	S	2.7	1.8	2.3	2.3	2.5	1.5	1.5	37.4	7.0	24			
16	2.8	3.6	4.4	3.2	1.9	1.9	1.6	2.0	1.8	1.7	1.8	1.3	1.2	2.3	1.3	9.0	21.6	S	2.8	2.7	2.9	2.4	2.4	2.5	1.2	21.6	3.4	24			
17	2.6	2.8	2.0	2.6	3.1	5.0	17.2	9.2	1.3	1.3	1.8	1.7	1.4	1.0	2.5	1.1	S	1.6	1.3	1.0	1.3	1.5	1.3	0.9	0.9	17.2	2.8	24			
18	1.2	1.2	6.1	8.8	9.1	10.7	9.6	9.1	10.3	2.4	16.1	4.2	1.6	2.2	2.5	S	4.4	18.3	20.2	37.1	42.8	19.7	21.4	19.4	1.2	42.8	12.1	24			
19	20.6	14.0	16.7	13.8	19.2	20.4	16.2	12.1	10.3	6.8	4.6	4.1	4.0	4.0	S	4.8	5.0	5.2	6.5	6.7	5.2	4.8	4.4	5.0	4.0	20.6	9.3	24			
20	5.2	5.0	5.6	5.7	6.2	30.7	31.7	12.6	12.3	4.5	2.6	2.8	2.5	S	3.3	3.2	4.9	7.8	10.5	4.7	9.4	7.4	4.3	3.3	2.5	31.7	8.1	24			
21	3.4	2.9	2.7	3.0	2.9	1.7	2.0	2.0	1.5	1.5	1.3	1.3	S	1.7	1.4	1.3	1.4	1.5	1.3	1.9	1.9	1.8	1.3	1.5	1.3	3.4	1.9	24			
22	1.5	1.5	1.5	1.1	1.2	1.8	2.4	2.3	1.2	0.8	2.1	S	2.4	2.5	2.2	2.4	3.2	2.9	3.8	9.4	9.8	8.9	7.9	21.0	0.8	21.0	4.1	24			
23	15.3	14.7	16.1	33.9	13.7	14.8	20.5	20.9	19.1	19.3	S	5.0	4.6	3.6	2.8	3.2	5.9	12.2	7.2	10.3	10.5	13.6	12.0	9.3	2.8	33.9	12.5	24			
24	8.8	6.6	8.0	8.0	7.1	5.6	5.6	4.1	3.5	S	3.1	2.2	1.9	1.7	1.6	1.5	1.6	1.7	1.7	1.5	6.5	10.5	8.8	13.5	1.5	13.5	5.0	24			
25	31.6	9.4	28.0	32.0	23.8	25.7	24.6	14.9	S	9.4	6.8	4.9	6.4	5.9	6.4	7.1	9.1	10.4	18.2	38.2	18.4	13.7	12.7	15.9	4.9	38.2	16.2	24			
26	20.1	8.0	10.9	8.5	13.4	14.9	15.3	S	9.2	3.2	1.4	1.9	1.9	1.3	8.2	2.4	9.7	6.9	21.5	17.3	25.5	14.6	12.8	11.7	1.3	25.5	10.5	24			
27	10.9	9.9	10.7	10.1	15.0	30.3	S	16.4	5.5	4.2	3.1	3.6	2.8	1.8	2.0	3.0	3.3	3.6	6.2	5.4	4.8	5.3	4.8	4.8	1.8	30.3	7.3	24			
28	4.5	4.5	15.5	13.9	30.5	S	29.8	5.1	4.1	5.8	5.2	6.3	6.9	8.6	8.1	6.5	8.9	28.8	28.1	42.5	38.3	21.9	35.5	36.8	4.1	42.5	17.2	24			
29	28.3	10.6	12.3	8.6	S	17.4	14.9	15.5	13.9	5.1	4.1	7.7	10.6	10.3	16.0	13.9	4.4	31.3	13.1	11.1	28.6	31.1	27.7	13.4	4.1	31.3	15.2	24			
30	12.6	10.1	22.2	S	13.1	25.8	11.4	5.1	5.2	5.2	2.8	4.4	5.6	3.7	5.5	5.9	8.3	3.0	1.2	8.0	13.1	11.1	2.0	1.6	1.2	25.8	8.1	24			
31	1.2	1.6	S	2.6	1.4	1.5	1.5	2.0	1.9	1.8	1.3	1.1	2.1	2.3	2.8	3.5	4.0	6.7	15.5	31.8	13.5	13.1	25.3	21.7	1.1	31.8	7.0	24			
HOURLY MAX	31.6	38.3	30.5	33.9	30.5	30.7	32.5	37.4	32.8	20.8	19.4	18.8	12.7	36.8	32.6	18.1	32.9	31.3	30.9	42.5	42.8	35.5	35.5	36.8							
HOURLY AVG	12.2	11.0	13.5	11.4	12.0	13.8	13.9	12.1	8.8	6.0	5.3	4.4	4.3	5.4	5.7	5.3	7.4	10.3	11.8	15.7	13.2	12.4	11.8	11.9							

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

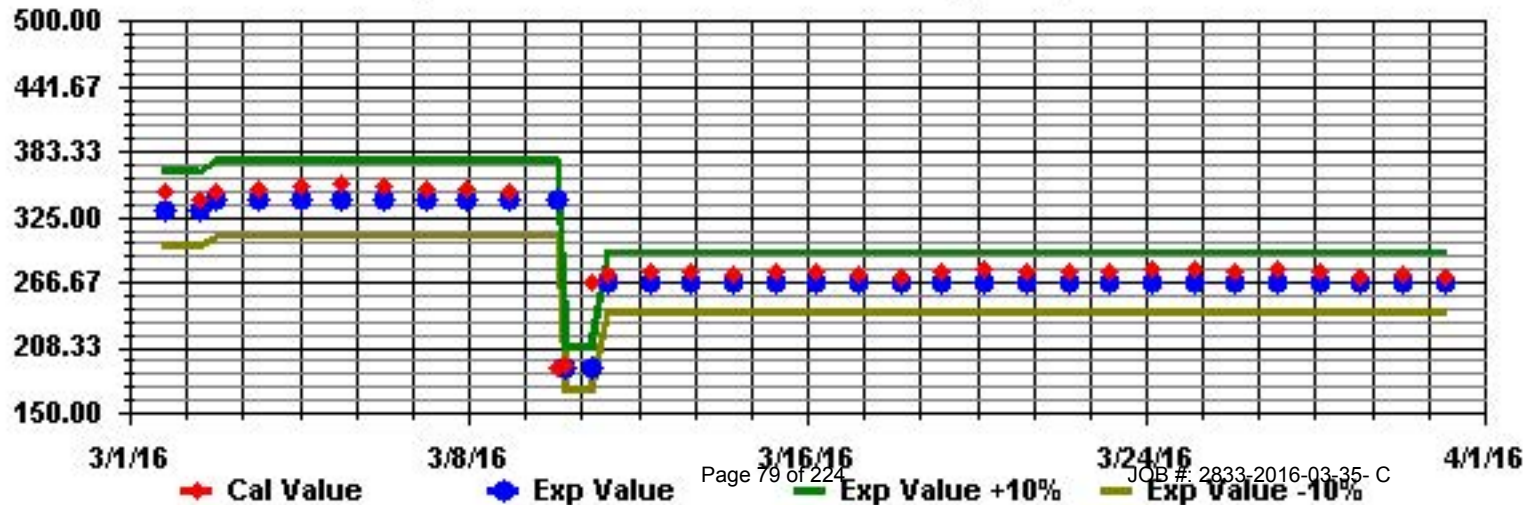
NUMBER OF NON-ZERO READINGS:	687
MAXIMUM INSTANTANEOUS VALUE:	42.8 PPB @ HOUR(S) 20 ON DAY(S) 18
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	9.04
OPERATIONAL TIME:	724 HRS



Wind: LICA ELK POINT AIRPORT Monitor: NO2 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 9.99% Valid Data: 93.13% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.03	0	0	0	2.03
NE	6.22	0	0	0	6.22
E	27.06	0	0	0	27.06
SE	13.89	0	0	0	13.89
S	5.79	0	0	0	5.79
SW	4.05	0	0	0	4.05
W	16.21	0	0	0	16.21
NW	14.76	0	0	0	14.76
Summary	90.01	0	0	0	90.01

Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN



OZONE

OZONE (O3) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	RDGS.
1	1	15.7	6.8	13.9	14.3	13.0	6.8	1.6	3.9	7.2	11.1	14.6	19.0	P	P	P	30.2	28.8	25.2	13.5	S	9.9	16.7	10.7	10.3	1.6	30.2	13.7	21
2	2	6.6	5.5	5.6	9.1	12.3	8.9	16.8	18.7	22.6	26.8	28.7	31.4	32.9	33.5	34.3	34.3	29.8	28.1	23.7	25.6	27.9	27.1	28.0	S	5.5	34.3	22.5	24
3	3	26.5	27.3	27.6	27.9	26.1	27.9	28.4	28.8	30.9	31.1	30.9	31.9	33.2	33.1	32.2	31.5	31.6	30.4	27.0	16.7	19.5	22.4	S	14.1	14.1	33.2	27.7	24
4	4	13.5	19.2	17.8	19.2	15.9	19.1	26.5	30.5	33.2	35.4	36.1	36.5	36.1	35.2	30.8	29.0	28.6	25.6	23.5	24.8	26.0	S	27.7	27.8	13.5	36.5	26.9	24
5	5	26.8	24.6	21.2	20.9	18.3	14.7	9.2	8.0	11.8	13.6	14.9	15.4	16.6	15.2	16.3	17.4	19.5	15.0	15.9	14.4	S	14.1	13.4	8.4	8.0	26.8	15.9	24
6	6	4.1	3.1	1.0	0.3	0.3	0.5	0.4	6.7	18.9	24.1	25.5	27.5	28.5	30.0	31.1	31.0	30.5	28.3	26.7	S	25.9	25.8	26.6	27.8	0.3	31.1	18.5	24
7	7	28.2	28.1	27.8	29.8	30.9	29.9	27.7	25.3	26.9	26.2	25.4	27.8	29.2	29.1	28.1	29.0	28.9	29.7	S	30.8	30.3	30.1	31.2	31.7	25.3	31.7	28.8	24
8	8	30.8	32.8	31.3	28.8	30.9	29.7	28.8	30.3	29.7	28.9	28.5	28.7	29.1	28.9	29.0	28.6	26.1	S	19.4	22.2	28.9	28.6	31.6	32.9	19.4	32.9	28.9	24
9	9	33.8	34.7	35.6	33.4	31.7	32.0	31.0	31.1	30.8	32.0	32.6	32.7	32.0	31.1	31.8	31.7	S	31.7	29.3	29.4	28.9	28.0	27.0	26.8	26.8	35.6	31.3	24
10	10	25.8	28.4	28.6	28.3	28.0	31.0	30.7	29.5	28.7	28.9	27.9	28.7	29.3	30.1	30.5	31.5	30.7	30.7	29.0	29.8	27.7	22.7	13.6	S	13.6	31.5	28.3	24
11	11	19.9	25.4	22.5	22.4	29.4	25.3	22.3	22.5	26.7	35.5	36.4	40.5	42.8	C	C	C	C	C	29.9	25.2	15.4	13.0	S	17.4	13.0	42.8	26.3	24
12	12	22.3	18.7	23.7	28.8	33.0	37.8	39.1	40.0	38.9	39.5	38.8	38.1	36.8	36.0	35.7	34.6	32.7	32.5	31.5	30.2	29.0	S	28.2	25.5	18.7	40.0	32.7	24
13	13	25.0	20.5	14.8	14.6	12.3	10.8	6.4	16.0	25.8	28.7	28.8	33.9	31.1	30.2	31.6	32.5	34.6	34.2	32.4	29.7	S	19.8	23.8	26.6	6.4	34.6	24.5	24
14	14	22.5	26.0	29.1	28.4	27.9	29.5	28.5	28.2	27.1	27.6	28.8	28.6	28.0	28.4	29.0	30.3	30.2	30.0	29.3	S	26.1	25.7	20.5	21.7	20.5	30.3	27.5	24
15	15	24.2	20.7	17.9	18.9	22.8	18.3	9.4	12.5	21.4	26.1	27.9	27.2	28.5	29.2	29.0	27.7	27.9	27.6	S	26.7	27.0	26.6	26.6	26.1	9.4	29.2	23.9	24
16	16	25.6	25.3	25.6	26.4	28.6	28.9	28.5	29.6	34.6	35.0	35.0	35.3	34.4	33.8	34.1	34.8	34.2	S	33.9	33.1	32.1	32.4	33.2	31.7	25.3	35.3	31.6	24
17	17	32.0	33.4	36.5	36.6	36.0	35.2	29.1	32.2	33.5	32.8	32.2	32.3	33.9	35.0	35.9	37.7	S	37.5	37.4	37.5	36.9	36.0	36.0	36.3	29.1	37.7	34.9	24
18	18	36.3	36.3	32.5	29.3	28.6	27.4	28.8	28.2	32.0	36.1	35.2	35.5	38.0	38.5	39.6	S	40.1	34.0	34.2	23.3	14.3	22.2	18.1	17.4	14.3	40.1	30.7	24
19	19	18.9	20.4	17.9	20.7	18.0	15.0	16.6	20.3	24.5	27.6	29.6	31.4	34.2	36.1	S	37.8	38.7	39.4	38.8	37.8	37.8	37.9	36.8	34.8	15.0	39.4	29.2	24
20	20	32.8	31.9	31.0	30.4	29.7	20.3	20.7	25.5	26.5	30.6	32.4	34.0	36.3	S	40.0	41.1	41.9	41.9	37.7	40.9	35.4	35.6	37.3	37.8	20.3	41.9	33.6	24
21	21	36.8	36.0	36.5	36.7	36.2	36.2	35.6	35.7	35.6	35.6	35.8	36.4	S	37.0	37.0	37.0	36.6	36.6	36.7	36.1	37.0	37.3	38.0	38.2	35.6	38.2	36.5	24
22	22	38.1	38.4	38.7	38.9	38.6	38.0	37.1	37.9	38.8	39.3	39.4	S	40.0	40.5	40.6	40.9	41.9	42.6	42.0	39.3	39.1	37.0	35.3	26.0	26.0	42.6	38.6	24
23	23	28.1	27.7	26.6	24.1	25.5	23.2	20.3	21.4	20.2	22.1	S	36.7	38.0	38.9	39.2	39.3	38.5	36.3	37.1	34.7	36.0	30.8	31.2	31.7	20.2	39.3	30.8	24
24	24	32.4	34.0	32.5	32.1	33.8	34.2	34.1	35.8	37.1	S	39.0	39.4	38.2	37.9	38.3	38.1	38.3	38.5	37.7	37.5	35.9	34.2	30.0	26.6	26.6	39.4	35.5	24
25	25	25.4	25.0	16.1	17.0	10.7	9.6	12.7	18.0	S	29.4	35.1	36.7	36.9	37.4	37.4	36.3	33.1	32.7	26.4	17.4	19.6	28.5	24.8	17.7	9.6	37.4	25.4	24
26	26	18.2	24.1	23.2	23.9	20.2	20.6	21.8	S	32.1	36.0	38.1	39.1	41.1	43.3	41.0	43.6	41.2	42.4	38.9	35.4	32.2	29.6	30.8	29.5	18.2	43.6	32.4	24
27	27	28.3	29.1	26.9	27.8	24.4	18.1	S	27.9	32.8	35.3	37.3	41.7	46.0	46.3	47.0	46.0	45.1	44.3	42.4	41.6	40.7	37.4	36.2	35.1	18.1	47.0	36.4	24
28	28	34.9	33.8	32.2	27.5	26.1	S	27.8	31.6	32.2	31.1	31.6	32.5	32.5	33.9	39.8	41.5	41.4	31.0	28.3	24.4	14.7	24.5	12.1	5.6	5.6	41.5	29.2	24
29	29	26.6	31.1	28.3	31.2	S	25.7	30.6	29.6	32.8	36.7	41.0	43.6	43.0	42.4	41.7	41.8	45.8	42.4	40.5	37.7	24.2	25.4	30.9	32.2	24.2	45.8	35.0	24
30	30	33.2	33.1	27.4	S	31.2	26.1	32.7	35.6	36.4	39.6	40.5	41.0	41.4	43.0	41.8	41.5	39.5	42.5	42.1	40.2	36.6	36.2	39.8	39.8	26.1	43.0	37.4	24
31	31	39.8	38.5	S	36.7	37.4	37.1	36.6	36.0	36.3	37.6	39.4	40.7	40.9	41.7	42.8	42.5	41.8	39.1	33.3	23.7	32.9	29.7	24.3	22.2	22.2	42.8	36.1	24
HOURLY MAX		39.8	38.5	38.7	38.9	38.6	38.0	39.1	40.0	38.9	39.6	41.0	43.6	46.0	46.3	47.0	46.0	45.8	44.3	42.4	41.6	40.7	37.9	39.8	39.8				
HOURLY AVG		26.2	26.4	25.0	25.5	25.3	23.9	24.0	25.9	28.9	30.7	32.2	33.5	34.8	34.8	35.2	35.1	34.9	33.9	31.7	30.2	28.5	28.1	27.7	26.2				

STATUS FLAG CODES

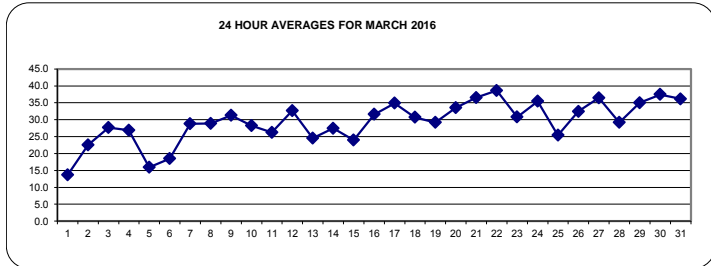
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	705					
MINIMUM 1-HR AVERAGE:	0.3	PPB	@ HOUR(S)	3, 4	ON DAY(S)	6, 6
MAXIMUM 1-HR AVERAGE:	47.0	PPB	@ HOUR(S)	14	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	38.6	PPB			ON DAY(S)	22
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	8.73		MONTHLY AVERAGE:	29.5	PPB	



O3[ppb] Station: LICA ELK POINT AIRPORT Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





OZONE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR	
DAY	MIN.	MAX.	AVG.	RDGS.																									
1	21.3	15.4	17.4	17.5	14.8	12.3	4.8	6.2	10.4	13.2	19.1	P	P	P	P	35.9	34.1	33.5	21.9	S	19.7	20.1	14.9	12.7	4.8	35.9	18.2	20	
2	10.6	9.1	9.3	11.8	17.0	17.4	21.0	23.2	25.4	29.7	30.6	32.9	33.5	34.6	35.3	35.3	34.7	35.0	28.4	30.6	30.2	28.4	29.7	S	9.1	35.3	25.8	24	
3	27.8	28.8	29.3	29.1	29.2	29.6	30.2	31.5	31.8	32.0	31.7	33.4	34.1	34.1	33.2	32.5	32.5	32.2	29.7	21.8	25.1	24.8	S	18.2	18.2	34.1	29.7	24	
4	18.8	24.3	21.6	21.9	20.1	24.5	30.0	33.1	35.0	36.5	36.8	37.5	37.4	36.8	35.5	30.0	30.0	29.0	25.7	27.8	28.2	S	29.3	29.0	18.8	37.5	29.5	24	
5	27.8	26.7	24.6	22.6	22.2	21.9	15.1	14.4	18.5	17.7	17.6	18.1	18.5	16.8	22.2	22.3	21.8	19.1	20.9	21.0	S	19.7	18.8	10.9	10.9	27.8	20.0	24	
6	9.0	11.8	5.4	1.1	0.9	1.7	1.7	12.9	23.1	25.4	26.9	29.0	29.2	31.9	32.2	31.7	31.5	29.3	27.5	S	26.4	26.7	27.8	28.7	0.9	32.2	20.5	24	
7	29.0	29.1	30.0	31.8	32.1	31.6	31.0	29.3	30.6	30.6	R	29.4	31.0	31.5	29.7	30.4	30.9	32.6	S	34.0	32.0	34.4	34.4	33.9	29.0	34.4	31.3	23	
8	33.1	33.7	33.4	31.6	32.5	32.6	32.5	33.4	31.7	31.6	31.0	31.0	30.4	30.9	30.6	28.5	S	26.4	30.6	32.6	30.6	35.0	34.9	26.4	35.0	31.7	24		
9	34.7	36.5	36.6	36.2	33.4	33.7	33.1	33.8	32.9	33.8	33.9	34.6	33.7	33.1	33.4	33.4	S	33.4	32.6	32.2	31.0	30.0	29.2	28.7	28.7	36.6	33.2	24	
10	28.4	30.4	30.7	30.4	31.5	32.3	32.0	30.9	29.6	29.7	29.1	29.7	30.4	31.2	31.6	32.6	31.6	31.3	31.2	30.9	30.7	26.9	23.1	S	23.1	32.6	30.3	24	
11	26.4	27.0	25.7	28.1	31.5	28.7	25.3	25.3	32.0	36.5	39.6	42.6	C	C	C	C	C	C	39.2	35.6	23.4	23.1	S	25.8	23.1	42.6	30.3	24	
12	24.5	22.6	28.1	31.3	36.8	39.5	40.1	41.1	40.8	40.5	39.6	39.3	37.8	36.8	36.6	36.2	34.3	34.0	32.8	31.6	30.4	S	29.3	28.8	22.6	41.1	34.5	24	
13	27.7	25.5	23.1	20.4	17.3	18.0	14.1	25.6	28.2	31.0	32.5	35.8	34.9	31.7	33.1	33.8	36.2	36.1	33.4	34.1	S	27.2	27.5	30.3	14.1	36.2	28.6	24	
14	29.6	30.9	32.9	32.5	32.2	31.2	30.0	29.6	28.4	29.7	29.7	29.9	29.0	29.7	30.3	31.5	31.5	31.2	30.3	S	29.1	29.6	25.8	26.4	25.8	32.9	30.0	24	
15	25.7	25.1	22.9	22.3	24.4	22.8	14.8	16.4	25.6	28.7	29.0	28.8	30.7	30.6	29.7	29.4	29.0	28.2	S	27.4	27.7	27.3	27.5	27.0	14.8	30.7	26.1	24	
16	26.6	27.5	27.3	28.2	29.7	29.6	29.4	34.1	35.6	35.7	35.6	35.7	35.9	34.9	34.9	35.6	35.6	S	34.7	34.0	32.9	34.0	34.1	32.8	26.6	35.9	32.8	24	
17	33.1	35.3	37.8	37.7	36.8	36.6	34.1	34.6	34.4	33.5	34.4	33.2	34.9	35.9	37.4	38.7	S	38.3	38.3	38.4	37.7	36.9	36.8	37.2	33.1	38.7	36.2	24	
18	37.2	37.2	36.5	32.6	32.3	32.0	32.6	31.0	35.9	37.0	36.6	37.6	39.0	39.9	41.0	S	41.7	40.1	38.6	34.1	22.5	26.8	21.0	20.7	20.7	41.7	34.1	24	
19	24.0	22.3	20.4	23.7	21.9	20.0	21.3	21.6	26.9	29.1	31.2	32.8	35.7	37.4	S	39.0	40.1	40.8	40.1	39.2	39.2	38.6	38.1	36.5	20.0	40.8	31.3	24	
20	34.4	32.8	31.9	31.3	30.6	29.6	29.1	29.4	30.1	31.9	33.8	35.7	38.0	S	41.4	42.4	43.9	44.8	42.8	42.8	38.6	37.2	38.8	39.2	29.1	44.8	36.1	24	
21	37.5	36.6	37.5	37.5	37.0	36.8	36.5	36.3	36.3	36.3	36.5	37.0	S	37.8	37.8	37.7	37.5	37.2	37.2	37.0	38.0	38.0	38.8	39.2	36.3	39.2	37.3	24	
22	39.2	39.2	39.8	39.6	39.2	38.7	38.1	39.2	39.6	39.9	40.1	S	41.1	41.6	41.7	42.5	43.5	43.7	43.7	42.3	42.5	39.8	38.1	33.9	33.9	43.7	40.3	24	
23	32.0	32.9	30.4	30.9	28.8	27.8	24.5	24.0	23.8	26.6	S	38.4	40.1	40.2	41.1	40.7	40.5	40.5	39.5	37.7	38.0	36.3	33.7	23.8	41.1	34.0	24		
24	34.1	35.2	33.8	32.9	35.9	35.1	35.6	37.1	39.0	S	39.9	40.2	39.2	38.7	39.2	38.7	39.3	39.3	38.6	38.6	38.6	37.0	34.6	31.6	31.6	40.2	37.1	24	
25	31.0	31.3	26.6	22.2	15.0	12.3	15.6	22.3	S	33.5	38.1	38.6	38.6	39.5	39.9	38.6	36.5	35.3	33.7	25.3	24.4	30.7	29.9	22.2	12.3	39.9	29.6	24	
26	23.5	25.8	26.1	27.0	22.5	25.1	26.0	S	35.1	37.5	39.8	40.2	43.5	44.3	45.6	44.8	45.0	45.2	45.6	40.4	40.8	32.2	33.4	31.9	22.5	45.6	35.7	24	
27	30.6	30.7	28.8	29.9	27.5	23.8	S	31.3	34.7	36.9	39.8	44.8	47.4	47.3	48.1	47.8	46.2	45.9	45.0	43.2	42.6	39.2	37.4	36.8	23.8	48.1	38.5	24	
28	36.2	36.2	34.4	33.7	31.0	S	32.2	33.1	33.4	32.3	33.2	34.7	36.1	39.0	43.5	44.0	43.8	41.7	35.3	34.9	26.6	28.0	26.6	15.4	15.4	44.0	34.1	24	
29	32.1	35.0	32.9	34.3	S	30.2	34.0	34.9	36.9	39.9	44.6	47.8	48.9	48.3	49.1	47.3	47.8	47.5	46.1	41.4	33.2	29.4	38.0	36.1	29.4	49.1	39.8	24	
30	38.7	37.4	34.1	S	35.3	34.0	37.1	37.5	38.7	41.7	41.7	44.0	44.4	44.8	44.4	44.1	43.4	43.4	42.9	42.8	42.3	40.7	40.7	40.8	34.0	44.8	40.6	24	
31	40.8	40.2	S	37.8	38.4	38.0	37.9	37.5	37.8	38.7	40.7	42.6	42.6	43.1	44.3	44.4	44.1	42.2	38.8	33.5	38.3	33.5	35.4	27.0	27.0	44.4	39.0	24	
HOURLY MAX	40.8	40.2	39.8	39.6	39.2	39.5	40.1	41.1	40.8	41.7	44.6	47.8	48.9	48.3	49.1	47.8	47.8	47.5	46.1	43.2	42.6	40.7	40.7	40.8					
HOURLY AVG	29.2	29.4	28.3	28.3	27.9	27.6	27.3	29.0	31.4	32.6	34.2	35.7	36.3	36.5	37.3	37.0	37.0	36.8	35.2	34.4	32.5	31.3	31.3	29.3					

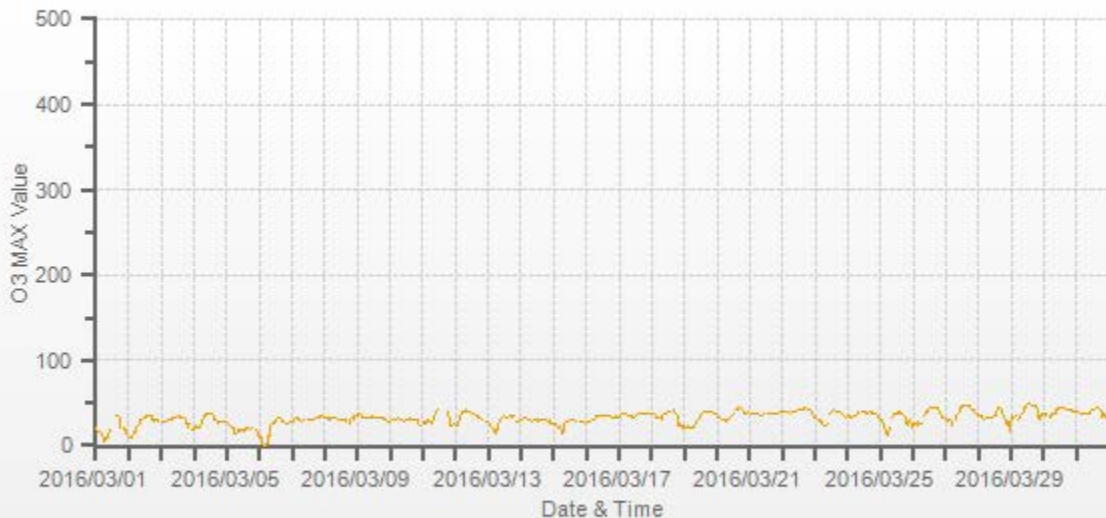
STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

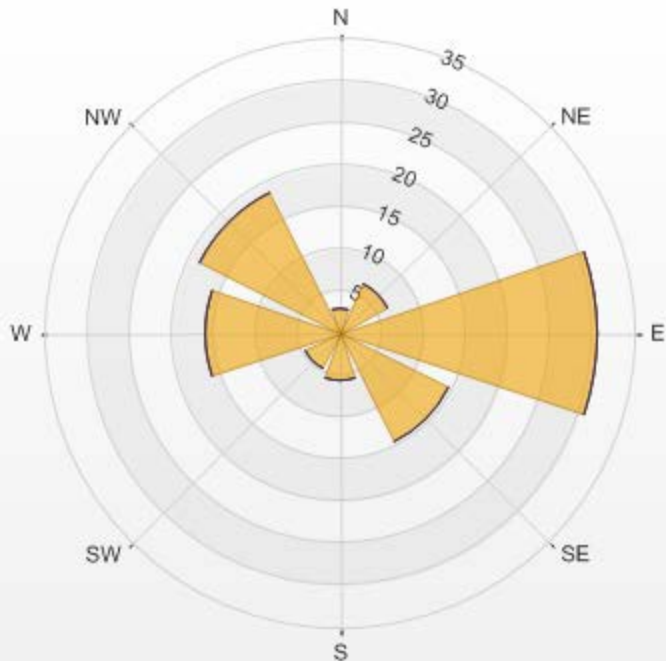
NUMBER OF NON-ZERO READINGS:	702
MAXIMUM INSTANTANEOUS VALUE:	49.1 PPB @ HOUR(S) 14 ON DAY(S) 29
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	7.89
OPERATIONAL TIME:	739 HRS

O3 MAX[ppb] Station: LICA ELK POINT AIRPORT Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]

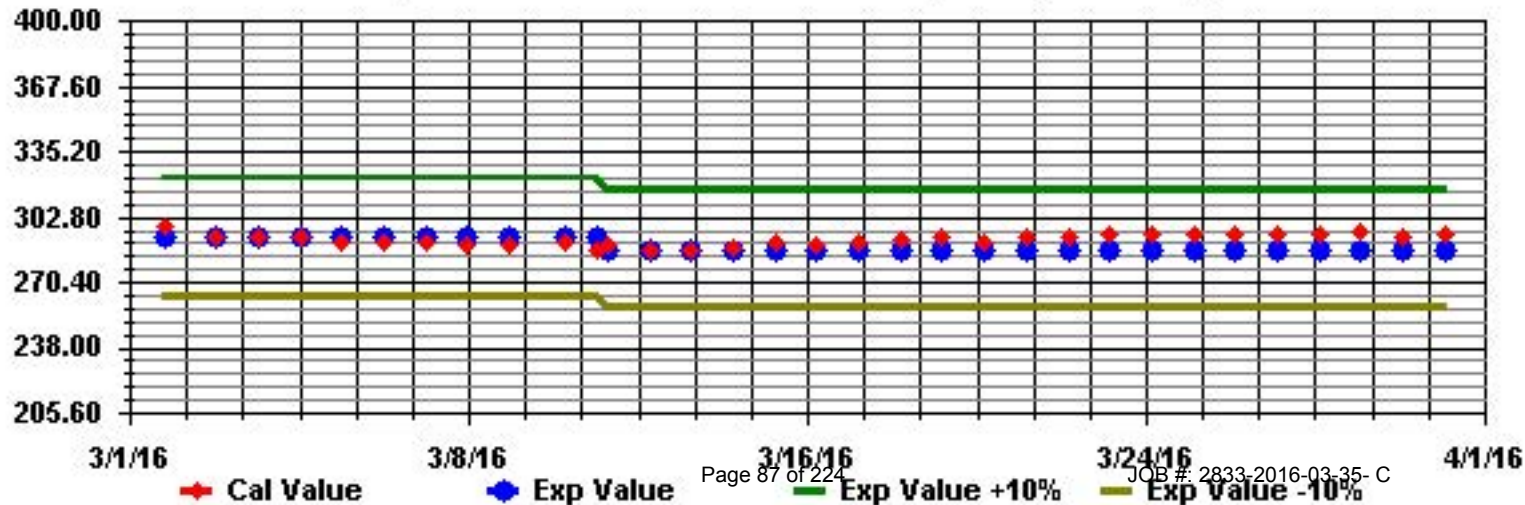


Wind: LICA ELK POINT AIRPORT Monitor: O3 [ppb] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.57% Valid Data: 95.01% Calm Avg: 0.00 [ppb]

Direction	0.5-50.0	50.0-110.0	110.0-210.0	>210.0	Total
N	2.98	0	0	0	2.98
NE	6.52	0	0	0	6.52
E	30.5	0	0	0	30.5
SE	14.47	0	0	0	14.47
S	5.67	0	0	0	5.67
SW	4.68	0	0	0	4.68
W	16.03	0	0	0	16.03
NW	18.58	0	0	0	18.58
Summary	99.43	0	0	0	99.43



Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3_NEW Phase: SPAN



PARTICULATE MATTER 2.5

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	DAY	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
1	1	6.1	0.7	1.1	7.7	3.6	11.1	3.1	6.6	6.6	11.1	11.1	7.2	P	P	P	0.0	4.2	4.8	7.5	7.7	10.9	13.1	15.3	14.3	0.0	15.3	7.3	21
2	2	5.0	12.5	15.4	13.9	12.0	14.8	14.1	11.3	11.3	8.5	13.2	7.7	9.0	10.0	8.5	7.7	8.3	11.8	13.7	10.1	9.8	13.3	11.8	16.3	5.0	16.3	11.3	24
3	3	10.7	8.2	6.0	13.1	11.2	13.5	4.7	9.0	6.0	8.6	10.6	8.1	6.0	10.6	5.2	8.0	12.5	8.3	16.5	11.4	10.3	11.7	12.5	15.7	4.7	16.5	9.9	24
4	4	17.3	17.0	15.2	18.2	7.7	5.8	9.9	5.2	1.8	0.1	2.3	1.9	1.9	1.4	3.7	5.4	6.0	7.3	8.7	13.7	11.1	14.1	13.3	11.2	0.1	18.2	8.3	24
5	5	7.1	5.7	12.7	13.8	13.9	6.7	4.8	5.3	12.7	15.2	15.6	12.1	9.6	9.1	12.9	16.1	13.5	8.7	15.2	13.7	9.7	20.6	10.6	14.2	4.8	20.6	11.6	24
6	6	12.7	13.1	11.7	19.6	20.6	17.7	17.8	18.1	12.1	6.2	9.6	6.2	2.2	0.2	4.2	5.2	8.7	8.7	4.7	5.7	7.8	6.6	1.1	4.7	0.2	20.6	9.4	24
7	7	4.7	4.6	1.1	1.1	2.3	3.7	0.2	3.2	1.1	3.3	6.7	6.2	3.2	3.7	0.0	4.1	2.2	3.7	2.6	5.6	0.7	1.7	0.2	0.0	0.0	6.7	2.7	24
8	8	4.7	1.6	3.2	3.2	5.6	4.1	2.6	7.2	12.1	6.6	3.1	5.7	8.2	1.7	5.1	10.6	2.2	2.7	2.7	6.2	5.7	2.7	6.2	4.2	1.6	12.1	4.9	24
9	9	4.1	1.6	1.6	3.2	7.2	6.2	5.6	7.2	6.6	6.6	7.7	4.7	1.2	11.2	7.7	8.2	6.2	5.7	4.7	8.7	8.2	6.6	6.2	5.1	1.2	11.2	5.9	24
10	10	6.2	5.6	10.6	5.1	9.1	9.7	8.2	5.1	4.1	7.7	5.1	0.0	C	C	1.2	2.2	5.1	4.2	2.2	0.7	8.2	2.7	6.2	2.7	0.0	10.6	5.1	24
11	11	7.7	5.6	5.6	8.2	4.7	1.6	6.7	6.6	2.2	1.7	0.0	0.0	0.0	X	1.7	0.0	1.9	3.5	0.7	0.3	1.2	7.9	0.0	3.0	0.0	8.2	3.1	23
12	12	3.9	0.0	0.0	0.0	1.9	2.5	4.5	0.0	1.8	0.7	0.9	1.4	0.0	0.0	1.7	1.8	4.6	4.7	4.2	4.7	2.9	0.1	2.5	4.7	0.0	4.7	2.1	24
13	13	6.9	4.2	6.9	8.4	3.9	7.1	5.4	13.4	3.8	6.9	1.4	4.0	1.9	0.0	X	0.0	1.9	4.5	0.2	2.4	1.3	3.5	2.4	2.7	0.0	13.4	4.0	23
14	14	4.4	2.9	1.3	4.7	3.0	0.0	2.9	0.5	4.2	0.4	0.0	1.9	0.0	2.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.2	0.0	0.0	4.7	1.4	24
15	15	1.1	2.7	0.9	4.4	0.6	7.2	3.8	1.2	0.5	1.4	0.0	0.7	0.0	1.1	4.5	0.8	4.4	2.5	4.1	2.5	4.1	3.1	3.3	1.5	0.0	7.2	2.4	24
16	16	2.3	1.5	3.3	5.4	X	X	X	1.6	3.0	4.1	0.0	0.0	1.4	3.1	5.5	3.5	1.1	4.3	3.3	X	2.6	6.0	1.1	6.8	0.0	6.8	3.0	20
17	17	3.8	0.0	0.0	0.0	0.0	0.0	3.5	4.3	1.1	1.6	4.5	0.0	2.2	3.8	3.1	0.5	1.8	0.0	0.0	X	0.0	6.4	6.5	1.5	0.0	6.5	1.9	23
18	18	0.0	0.0	0.0	1.5	0.0	5.4	0.0	0.9	X	0.8	0.1	0.0	X	C	0.0	0.0	1.8	0.0	0.2	4.1	4.3	4.2	4.2	3.7	0.0	5.4	1.5	22
19	19	3.1	3.5	8.7	6.3	9.5	10.1	10.6	6.6	7.8	5.3	5.3	3.1	2.6	2.2	2.7	4.6	4.3	4.0	1.8	4.9	0.7	1.5	9.2	6.3	0.7	10.6	5.2	24
20	20	2.3	2.6	0.0	3.1	5.3	6.2	5.1	1.6	3.7	3.5	0.7	5.5	4.3	3.2	4.7	1.3	0.0	3.7	8.5	2.5	5.1	1.8	2.4	4.3	0.0	8.5	3.4	24
21	21	4.3	7.7	1.3	8.7	4.7	5.4	7.0	0.5	4.9	2.2	4.7	3.8	1.4	1.1	0.4	1.1	1.8	1.2	0.9	3.0	5.8	2.9	0.0	0.0	0.0	8.7	3.1	24
22	22	0.0	2.2	4.7	1.8	0.0	X	0.0	2.9	3.9	4.1	0.0	0.4	0.1	1.4	6.7	1.7	1.2	0.0	1.9	5.4	0.0	4.9	0.0	1.4	0.0	6.7	1.9	23
23	23	4.1	1.4	3.6	0.4	3.9	1.4	4.4	8.7	7.7	9.1	6.4	4.2	0.0	0.0	4.1	3.2	2.7	7.7	13.1	12.2	10.1	11.7	7.8	11.2	0.0	13.1	5.8	24
24	24	8.7	9.6	13.1	10.7	10.0	9.2	10.5	7.8	6.5	6.7	0.2	3.6	2.7	3.3	1.2	3.1	7.1	1.7	3.1	4.7	4.4	4.9	3.4	6.0	0.2	13.1	5.9	24
25	25	10.7	5.6	3.2	7.6	5.6	5.2	8.7	6.6	7.2	5.6	4.1	5.4	7.1	6.1	6.5	9.2	8.5	11.8	10.0	9.8	13.7	15.0	14.7	10.6	3.2	15.0	8.3	24
26	26	7.5	11.8	7.0	3.2	0.3	0.5	4.0	0.0	4.5	1.3	0.0	2.5	4.0	0.0	1.6	1.5	0.0	0.0	2.5	4.8	7.2	6.0	4.5	4.4	0.0	11.8	3.3	24
27	27	1.8	2.3	7.3	1.3	5.6	9.7	8.9	7.0	9.3	8.1	7.7	5.8	4.0	2.7	1.0	5.8	5.3	5.5	3.0	1.4	1.9	2.0	4.7	5.9	1.0	9.7	4.9	24
28	28	4.1	5.1	4.3	2.3	4.5	3.5	3.7	4.9	1.4	8.2	9.6	6.2	8.7	8.2	5.6	7.7	8.2	5.4	7.6	10.6	11.2	7.7	7.2	6.4	1.4	11.2	6.3	24
29	29	9.1	5.4	4.2	4.9	3.2	1.4	0.0	3.2	2.9	1.4	1.9	0.9	2.9	1.7	0.2	2.2	1.9	3.2	2.9	1.2	1.2	1.4	2.9	0.0	0.0	9.1	2.5	24
30	30	0.7	1.9	0.2	0.4	2.4	1.7	1.2	0.0	0.0	3.4	4.6	0.0	1.2	0.0	2.2	1.7	0.3	0.0	0.5	0.0	0.2	0.0	0.7	0.7	0.0	4.6	1.0	24
31	31	0.0	0.0	1.8	0.0	3.4	0.0	0.0	1.6	1.8	3.8	3.7	0.0	1.2	0.0	2.1	2.8	4.3	7.0	1.3	1.6	1.3	3.2	0.7	6.0	0.0	7.0	1.9	24
HOURLY MAX		17.3	17.0	15.4	19.6	20.6	17.7	17.8	18.1	12.7	15.2	15.6	12.1	9.6	11.2	12.9	16.1	13.5	11.8	16.5	13.7	13.7	20.6	15.3	16.3				
HOURLY AVG		5.3	4.7	5.0	5.9	5.5	5.9	5.4	5.1	5.1	5.0	4.5	3.5	3.1	3.3	3.6	3.9	4.3	4.4	4.8	5.5	5.2	6.1	5.3	5.7				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

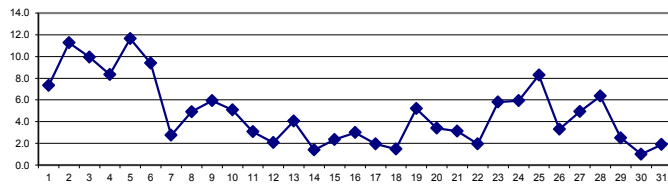
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	645			
MINIMUM 1-HR AVERAGE:	0.0 ug/m3 @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	20.6 ug/m3 @ HOUR(S)	4, 21	ON DAY(S)	6, 5
MAXIMUM 24-HR AVERAGE:	11.6 ug/m3		ON DAY(S)	5
			VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	3 HRS	OPERATIONAL TIME:	731 HRS	
		AMD OPERATION UPTIME:	98.3 %	
STANDARD DEVIATION:	4.19	MONTHLY AVERAGE:	4.8 ug/m3	

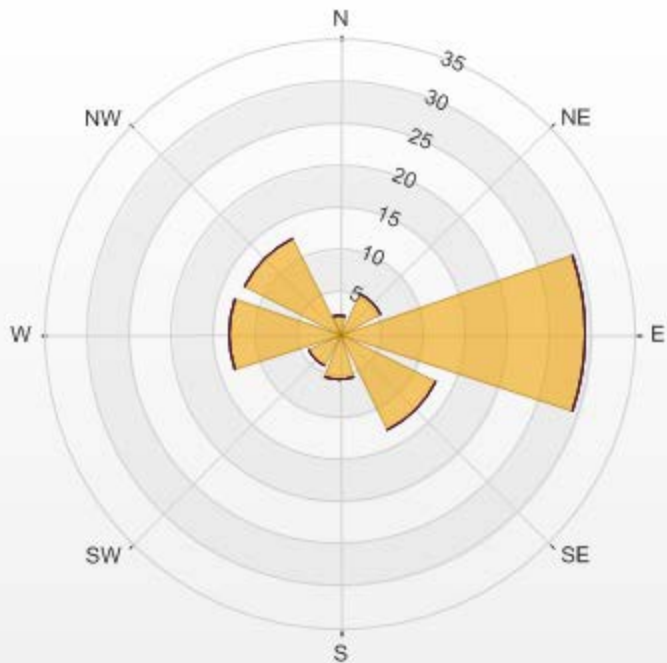
24 HOUR AVERAGES FOR MARCH 2016





Wind: LICA ELK POINT AIRPORT Monitor: PM2 [ug/m3(L)] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 14.56% Valid Data: 98.11% Calm Avg: 0.00 [ppb]

Direction	0.5-30.0	30.0-60.0	60.0-80.0	80.0-120.0	120.0-240.0	>240.0	Total
N	2.2	0	0	0	0	0	2.2
NE	5.36	0	0	0	0	0	5.36
E	29.26	0	0	0	0	0	29.26
SE	12.91	0	0	0	0	0	12.91
S	5.49	0	0	0	0	0	5.49
SW	4.26	0	0	0	0	0	4.26
W	13.19	0	0	0	0	0	13.19
NW	12.77	0	0	0	0	0	12.77
Summary	85.44	0	0	0	0	0	85.44



% Icon	Classes (ug/m3(L))	85		0.5-30.0	0		30.0-60.0	0		60.0-80.0	0		80.0-120.0	0		120.0-240.0	0		>240.0
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WIND SPEED

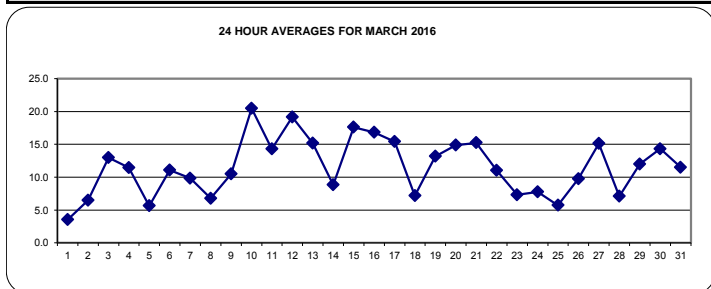
WIND SPEED (WS) hourly averages in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HOUR
DAY	MIN.	MAX.	AVG.	RDGS.																								
1	3.8	2.2	1.2	3.3	2.6	2.3	2.3	3.5	0.9	0.3	0.2	1.0	P	P	P	5.2	0.6	3.8	5.2	6.0	7.8	6.9	7.8	7.5	0.2	7.8	3.5	21
2	4.6	5.9	7.2	6.6	7.3	5.8	7.1	5.5	2.6	3.3	4.0	4.8	3.8	4.5	6.1	8.4	7.8	6.9	7.4	9.5	9.5	6.9	8.9	11.5	2.6	11.5	6.5	24
3	9.5	12.5	12.7	17.2	17.3	16.5	15.3	18.2	18.1	18.0	20.1	19.9	19.0	17.5	14.4	8.7	4.9	1.1	3.6	7.0	12.5	9.9	8.1	9.2	1.1	20.1	13.0	24
4	3.9	10.8	8.1	11.2	15.7	9.3	7.8	7.1	5.0	7.5	7.4	4.7	9.6	12.6	11.3	17.4	19.6	19.7	13.0	12.6	13.3	15.0	16.7	16.0	3.9	19.7	11.5	24
5	14.4	11.5	9.6	6.8	4.9	3.9	0.9	1.0	3.2	1.2	4.5	4.8	3.1	5.1	4.0	5.6	7.4	8.0	7.8	3.1	3.4	9.6	7.1	4.4	0.9	14.4	5.6	24
6	6.1	2.1	5.7	5.9	1.0	8.3	5.5	5.1	4.6	7.3	9.2	13.9	16.2	16.9	19.1	18.4	15.4	16.7	12.2	15.0	15.4	14.6	15.1	15.8	1.0	19.1	11.1	24
7	14.5	10.8	9.1	13.6	10.1	8.5	6.5	3.6	2.5	3.5	6.3	19.9	14.3	16.1	18.5	15.1	13.3	14.3	8.0	8.1	4.9	3.4	4.3	6.9	2.5	19.9	9.8	24
8	6.3	3.9	1.2	4.3	5.7	7.2	9.5	5.7	8.6	5.5	7.6	11.3	8.6	7.2	8.0	4.0	4.1	4.7	6.7	9.1	8.3	7.8	8.8	8.6	1.2	11.3	6.8	24
9	11.3	8.0	8.3	6.3	4.7	4.8	4.9	6.8	10.6	10.6	10.2	12.5	12.1	12.1	13.6	11.7	9.7	10.1	14.5	15.7	14.4	12.2	12.4	14.8	4.7	15.7	10.5	24
10	14.5	17.0	18.3	18.0	19.0	21.9	27.2	29.1	26.9	31.4	31.2	31.6	29.1	27.3	24.6	26.4	23.7	22.5	15.1	6.5	5.8	3.2	7.2	13.5	3.2	31.6	20.5	24
11	17.3	19.0	11.1	10.1	17.7	12.5	15.1	14.5	12.3	22.6	26.2	26.7	28.2	22.9	16.9	16.7	9.7	6.8	6.2	1.3	2.5	7.0	8.4	11.8	1.3	28.2	14.3	24
12	10.6	8.6	13.0	18.0	19.7	25.5	25.9	26.6	27.1	35.3	27.8	23.8	23.7	25.2	24.8	24.4	17.5	16.4	14.8	13.7	11.8	8.3	7.6	9.6	7.6	35.3	19.2	24
13	6.5	4.3	4.2	2.5	0.8	2.9	12.7	11.2	13.5	24.9	24.0	26.4	28.8	26.7	25.7	23.1	25.3	21.6	19.4	19.6	11.6	5.6	10.2	12.8	0.8	28.8	15.2	24
14	8.4	7.5	9.3	7.9	4.8	5.1	9.5	4.3	7.9	7.1	7.5	13.0	15.5	14.3	16.3	13.8	11.5	10.8	7.7	5.1	5.8	3.2	8.2	7.6	3.2	16.3	8.8	24
15	9.4	12.7	12.3	9.6	10.6	8.4	10.0	11.6	11.8	14.8	17.5	19.2	23.7	26.2	24.8	23.6	25.0	22.7	22.8	21.8	20.5	21.4	21.2	21.0	8.4	26.2	17.6	24
16	19.6	24.6	22.9	22.7	23.6	24.3	23.1	19.7	17.0	11.4	12.2	12.2	17.5	20.3	17.2	21.4	16.0	14.8	14.5	10.4	6.8	9.9	12.2	9.3	6.8	24.6	16.8	24
17	14.3	15.8	15.3	15.1	15.8	13.7	13.5	13.1	15.9	17.7	15.9	19.8	20.0	18.6	19.5	20.4	19.7	14.5	15.9	12.7	9.5	9.9	13.1	10.4	9.5	20.4	15.4	24
18	11.4	11.4	8.0	7.0	5.5	7.6	6.3	6.0	7.0	7.8	6.5	5.4	11.2	7.8	8.9	8.5	5.2	8.3	6.6	6.8	6.3	5.2	3.8	4.3	3.8	11.4	7.2	24
19	3.1	5.3	6.8	6.6	7.6	6.5	6.6	5.6	7.8	11.4	14.6	16.2	19.2	21.8	23.1	20.1	20.9	21.3	20.2	16.5	15.1	13.6	13.8	13.0	3.1	23.1	13.2	24
20	13.6	13.0	10.4	10.0	9.0	7.2	8.9	8.0	11.1	16.6	17.2	18.7	20.4	20.9	21.4	24.1	19.5	21.1	18.6	16.4	11.8	15.0	12.5	11.9	7.2	24.1	14.9	24
21	13.6	12.9	10.1	12.4	14.1	15.9	13.4	15.8	14.9	17.7	19.4	17.4	19.1	20.5	18.7	18.0	13.4	14.2	14.0	11.2	14.3	14.0	15.1	15.7	10.1	20.5	15.2	24
22	14.8	14.1	15.6	12.1	7.7	7.9	7.2	10.2	10.4	12.4	11.9	10.8	7.3	7.2	14.4	13.9	12.8	12.5	12.7	11.8	10.2	8.6	8.8	9.5	7.2	15.6	11.0	24
23	8.7	7.4	4.2	4.5	4.7	4.5	2.4	0.2	3.0	7.3	18.6	18.6	12.5	12.1	10.6	6.7	4.4	9.4	6.4	7.2	5.9	4.9	5.6	6.0	0.2	18.6	7.3	24
24	5.0	6.2	6.9	6.3	6.2	7.5	7.1	8.3	9.9	11.2	11.9	11.5	12.2	12.1	11.8	12.4	12.1	8.7	8.4	5.3	2.1	2.6	0.6	0.3	0.3	12.4	7.8	24
25	0.8	1.8	0.0	3.2	5.1	4.7	4.8	6.6	9.6	8.2	9.5	13.9	12.2	11.2	8.8	8.4	4.8	4.3	4.7	5.6	1.3	4.6	2.5	0.8	0.0	13.9	5.7	24
26	5.3	7.5	7.8	9.2	10.1	9.8	12.1	13.6	13.7	13.2	14.9	12.5	13.5	16.8	16.2	13.6	8.6	4.5	0.9	5.9	4.2	5.7	6.3	8.7	0.9	16.8	9.8	24
27	8.6	8.8	7.3	8.0	9.4	9.8	10.0	10.8	12.8	17.8	21.3	22.3	25.2	24.1	24.8	24.7	22.1	20.5	17.1	15.7	13.5	10.7	9.8	8.2	7.3	25.2	15.1	24
28	11.2	10.9	11.0	8.4	8.2	7.8	7.6	7.5	7.9	8.1	8.5	7.8	7.8	7.1	5.6	8.2	8.2	9.3	5.8	1.4	1.7	1.6	3.1	5.4	1.4	11.2	7.1	24
29	10.3	12.4	12.6	11.7	11.6	11.7	9.1	9.8	10.5	10.8	11.8	14.4	17.7	19.9	17.7	16.8	14.4	12.7	10.5	8.9	6.2	6.9	9.9	9.4	6.2	19.9	12.0	24
30	10.2	8.2	6.3	8.1	13.8	15.1	13.7	10.2	10.1	15.2	18.4	15.8	16.4	18.4	21.4	24.9	19.5	15.7	15.8	14.0	12.2	13.9	14.4	12.2	6.3	24.9	14.3	24
31	16.0	17.8	21.4	13.5	11.1	10.7	12.2	10.3	13.8	15.8	16.9	13.1	13.5	9.6	14.1	17.3	16.4	9.5	5.0	5.6	5.8	0.3	3.0	3.3	0.3	21.4	11.5	24
HOURLY MAX	19.6	24.6	22.9	22.7	23.6	25.5	27.2	29.1	27.1	35.3	31.2	31.6	29.1	27.3	25.7	26.4	25.3	22.7	22.8	21.8	20.5	21.4	21.2	21.0				
HOURLY AVG	9.9	10.2	9.6	9.7	9.9	9.9	10.3	10.0	10.7	12.8	14.0	15.0	16.0	16.1	16.1	15.5	13.3	12.5	11.0	10.0	8.9	8.5	9.2	9.7				

STATUS FLAG CODES

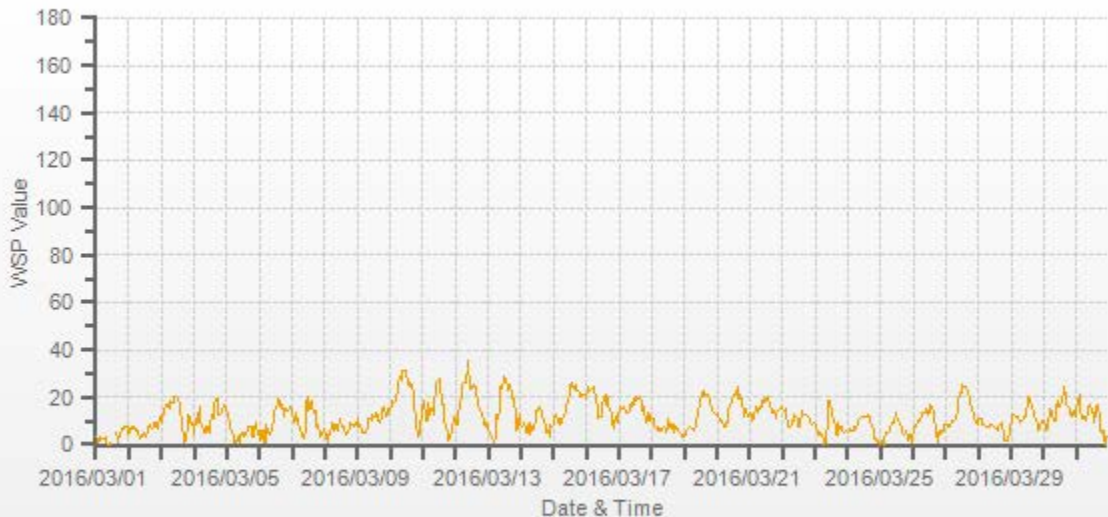
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	January 26, 2016
DECLINATION:	MAGNETIC DECLINATION 19 DEGREE EAST

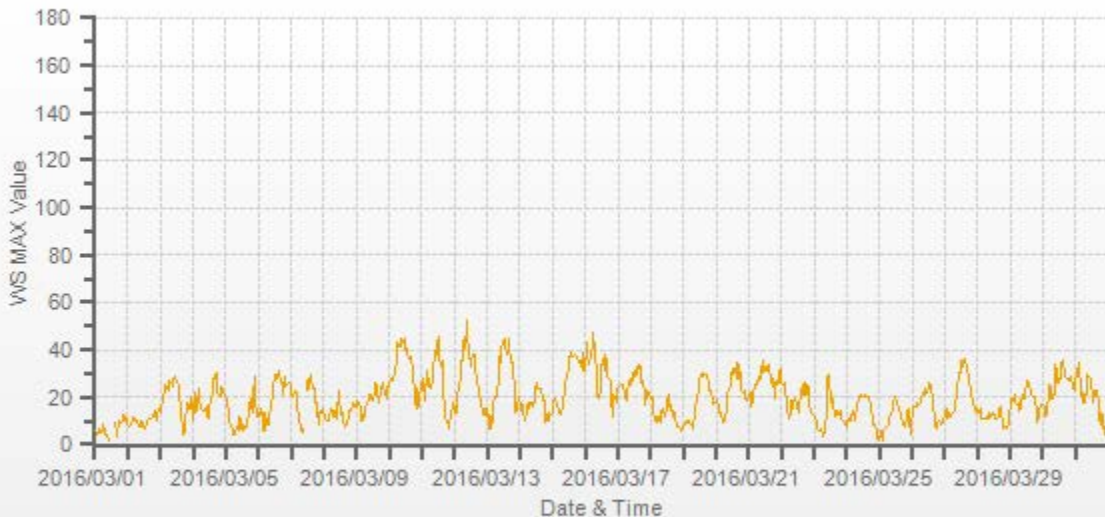


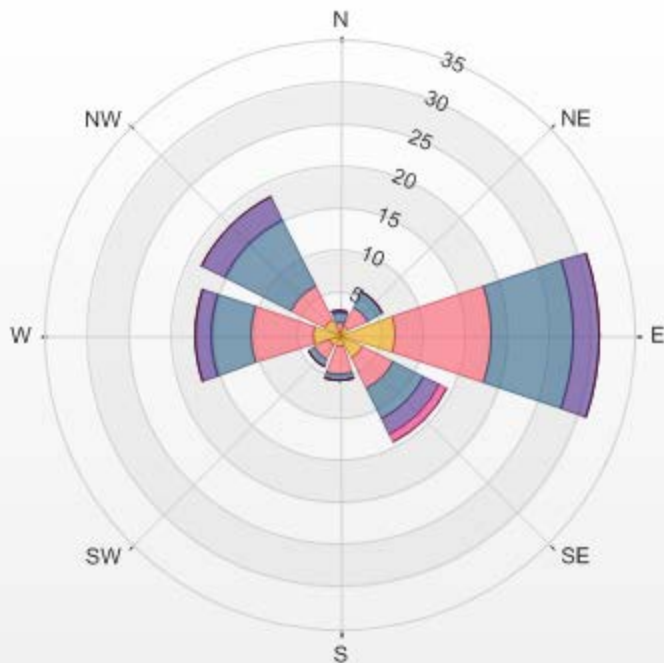
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	740
MINIMUM 1-HR AVERAGE:	0.0 KPH @ HOUR(S) 2 ON DAY(S) 25
MAXIMUM 1-HR AVERAGE:	35.3 KPH @ HOUR(S) 9 ON DAY(S) 12
MAXIMUM 24-HR AVERAGE:	20.5 KPH ON DAY(S) 10
	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS OPERATIONAL TIME: 741 HRS
	AMD OPERATION UPTIME: 99.6 %
STANDARD DEVIATION:	6.45 MONTHLY AVERAGE: 11.6 KPH



WS MAX[kph] Station: LICA ELK POINT AIRPORT Monthly: 03/2016 Type: AVG 1 Hr. [1 Hr.]





Wind: LICA ELK POINT AIRPORT Monitor: WSP [kph] Monthly: 03/2016 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 0.81% Valid Data: 99.87% Calm Avg: 0.00 [ppb]

Direction	0.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	0.4	1.21	1.21	0.13	0	0	2.95
NE	1.21	2.56	2.02	0	0	0	5.79
E	6.75	11.34	9.72	2.97	0	0	30.78
SE	2.97	4.05	4.05	2.29	0.81	0	14.17
S	1.35	3.51	0.67	0	0	0	5.53
SW	1.48	1.89	0.81	0	0	0	4.18
W	3.24	7.29	4.86	1.89	0	0	17.28
NW	2.02	4.59	8.64	3.24	0	0	18.49
Summary	19.42	36.44	31.98	10.52	0.81	0	99.17

WIND DIRECTION



WIND DIRECTION (WD) hourly averages

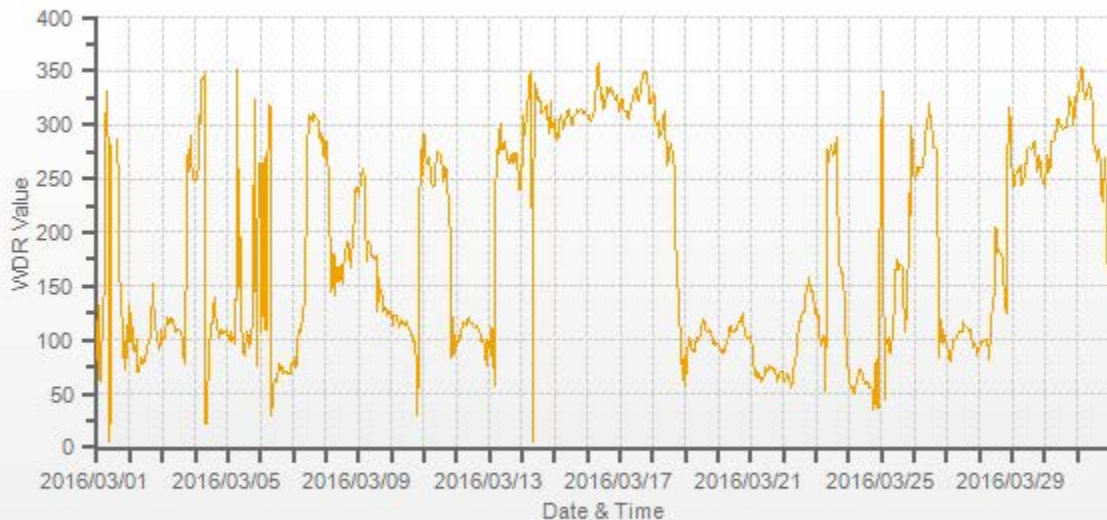
MST																										24-HOUR AVG	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	QUADRANT	RDGS.	
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59			
DAY																											
1	E	SE	ENE	ENE	ESE	SE	WNW	NNW	WNW	N	NE	W	P	P	P	WNW	SW	SE	SE	E	E	ENE	ESE	E	E	21	
2	SE	E	ESE	E	E	E	ENE	ENE	E	E	ENE	E	E	E	ESE	ESE	SSE	SE	ESE	E	E	E	ESE	E	E	24	
3	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ENE	E	W	WSW	W	WNW	WSW	WSW	ESE	24	
4	WSW	WSW	WSW	NW	WNW	NNW	NNW	NNW	NNE	NE	E	ESE	ESE	ESE	SE	SE	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	E	24	
5	ESE	E	ESE	E	ESE	E	SE	N	SSE	SSW	ESE	ESE	E	E	ESE	ESE	E	E	ESE	SW	NW	ENE	SSW	W	ESE	24	
6	W	ESE	WSW	W	ESE	WSW	WNW	NW	NNE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24	
7	ENE	E	ENE	E	ESE	ESE	ESE	SE	SE	SSE	WSW	WNW	NW	NW	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	W	W	NW	24	
8	WNW	WNW	WSW	SSW	SE	SSE	S	SE	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	SSE	S	SSW	SSW	WSW	WSW	S	24	
9	SW	WSW	WSW	WSW	WSW	SSW	S	S	S	S	S	S	S	S	S	SE	SSE	SE	SE	SE	SE	SE	ESE	SE	SE	24	
10	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	NNE	ENE	WSW	W	WSW	ESE	24	
11	WNW	W	W	W	W	WSW	WSW	WSW	WSW	W	W	W	W	W	WSW	WSW	WSW	WSW	SW	SW	E	ESE	E	ESE	WSW	24	
12	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	ENE	E	ESE	24	
13	E	E	ESE	E	ENE	W	W	W	WNW	W	W	WNW	W	W	W	W	W	W	W	W	W	W	WSW	WSW	WSW	W	24
14	W	NW	WNW	WNW	NW	NNW	NNW	NNW	N	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	NW	WNW	NW	24	
15	NW	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	NW	NW	WNW	WNW	NW	NW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	24
16	NW	NW	WNW	WNW	NW	NW	NW	NNW	N	NNW	NW	NNW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	24
17	NW	NW	NW	NW	NW	NW	WNW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	N	NNW	NNW	NW	NW	NW	NW	24
18	NNW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	W	W	W	W	W	W	WSW	S	SSE	SE	ESE	E	ENE	E	WNW	24	
19	ENE	E	E	ESE	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	24	
20	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	ESE	24	
21	ESE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
22	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	ENE	E	E	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	SE	SE	SE	SE	ESE	24	
23	ESE	SE	ESE	E	E	ESE	E	NE	W	W	W	W	W	W	W	WNW	SW	S	SSE	SSE	SSE	SE	E	ENE	SSE	24	
24	ENE	NE	ENE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	E	NE	NE	WSW	ENE	24	
25	WNW	NNW	NE	E	E	E	E	E	ESE	ESE	SSE	S	SSE	S	SSE	SSE	SSE	ESE	ESE	SE	SW	SW	WNW	W	SE	24	
26	WSW	WSW	WSW	WSW	W	W	WSW	W	W	WNW	WNW	NW	WNW	WNW	W	W	W	W	E	E	ESE	E	ESE	E	W	24	
27	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	E	E	24	
28	E	E	E	E	E	E	E	E	ESE	SE	SE	SSE	SSW	S	S	S	S	S	SE	SE	ESE	NW	NW	WNW	SE	24	
29	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	W	W	W	W	W	W	WNW	W	WSW	W	W	WSW	WSW	WSW	W	24	
30	WSW	WSW	W	WSW	W	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	WNW	NW	NW	WNW	24	
31	NNW	NNW	NNW	N	NNW	NW	NW	NNW	NNW	NNW	NW	NW	W	W	W	W	W	WSW	SW	WSW	W	WSW	S	SSE	WNW	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION:	January 26, 2016
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	741	HRS
STANDARD DEVIATION:	97.05		AMD OPERATION UPTIME:	99.6	%



STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2016

JOB # 2833-2016-03-35- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	RDGS.	
HOUR START	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59		
DAY																											
1		13	11	20	17	13	12	23	11	15	24	12	23	P	P	P	7	19	12	16	16	4	6	7	9	21	
2		13	6	6	10	14	12	8	8	12	13	12	15	12	11	8	5	7	15	7	5	4	6	6	5	24	
3		6	5	6	5	5	6	7	6	6	6	5	8	7	8	7	9	10	14	35	11	6	7	12	9	24	
4		21	11	9	11	6	13	14	9	16	17	15	12	10	8	16	9	6	5	7	7	5	6	5	5	24	
5		5	4	4	3	5	12	9	36	13	55	10	12	18	13	8	8	7	8	30	44	40	33	17	14	24	
6		11	38	25	28	22	12	13	8	17	15	14	12	14	11	10	11	10	10	10	9	10	11	10	9	24	
7		9	7	11	8	6	6	7	7	6	5	12	6	9	9	8	9	10	8	10	7	11	17	15	15	24	
8		14	21	28	14	21	11	9	18	12	23	14	13	12	16	10	18	9	6	9	7	10	12	17	16	24	
9		11	13	14	13	21	27	19	23	15	11	14	12	13	13	17	16	14	11	7	7	8	11	9	9	24	
10		8	6	7	8	8	7	7	6	7	6	6	6	6	7	7	6	6	6	9	24	39	53	16	13	24	
11		11	6	11	13	12	14	10	11	12	9	6	6	6	8	11	13	12	8	7	43	23	12	9	4	24	
12		6	11	6	4	4	5	5	7	8	6	6	6	6	6	6	5	6	5	4	3	4	6	8	4	24	
13		26	13	19	30	44	61	14	15	9	6	6	7	6	8	8	10	9	5	9	8	7	11	6	10	24	
14		18	22	9	7	11	18	14	51	16	10	14	11	10	11	9	9	10	9	8	6	17	23	6	6	24	
15		5	9	5	8	7	6	2	3	7	7	9	9	7	7	8	9	9	10	9	9	9	8	9	8	24	
16		8	7	6	6	8	8	9	12	14	10	9	11	10	9	11	9	8	10	8	7	6	8	7	8	24	
17		9	9	8	8	8	7	3	7	9	9	10	10	10	11	10	9	11	11	10	9	11	8	8	8	24	
18		8	8	7	6	7	4	7	8	13	13	10	14	8	13	12	9	10	6	8	4	6	5	8	8	24	
19		23	11	3	4	4	5	3	3	5	5	5	5	7	6	7	7	5	5	5	5	5	4	4	3	24	
20		3	4	4	4	4	4	2	3	5	6	6	6	7	6	7	6	6	5	6	5	4	5	6	5	24	
21		6	5	8	9	10	10	11	10	12	12	11	11	11	11	11	10	11	11	10	10	10	11	10	10	24	
22		10	9	9	10	9	7	5	9	8	8	12	10	12	15	10	10	12	12	12	11	11	10	8	5	24	
23		5	6	9	3	4	7	7	20	28	10	6	6	6	8	8	7	17	8	13	10	12	12	8	8	24	
24		10	7	9	12	13	10	9	10	11	11	13	13	14	15	14	13	12	12	10	14	24	49	38	0	24	
25		15	11	0	15	4	5	8	7	6	8	13	8	11	11	12	12	12	11	8	5	50	30	25	24	24	
26		20	13	14	10	11	10	10	6	7	9	9	11	9	7	9	5	6	11	31	7	15	7	7	3	24	
27		4	6	5	7	4	2	4	5	7	5	5	6	6	6	6	7	7	6	5	5	4	5	7	8	24	
28		5	3	3	4	4	4	11	11	9	6	5	9	18	8	12	7	10	8	8	24	37	51	22	14	24	
29		9	8	8	11	9	10	9	7	9	11	10	5	4	4	4	5	3	7	10	11	6	6	9	10	24	
30		8	14	11	10	9	5	5	8	11	13	8	9	9	8	7	5	5	7	8	9	10	7	8	7	24	
31		7	9	10	11	11	10	10	10	13	15	14	15	10	18	9	5	5	8	9	10	10	24	50	18	24	

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: January 26, 2016

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 741 HRS



APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 16030073-001

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Mar 1, 2016

Priority: Normal

Maxxam



VOC Sample Collection Data Sheet

Client: LICA
 Location: ELK Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/ELK/Mar 01, 2016

Sampler S/N: 6200
 Canister ID: S5594
 Canister Installation Date/Time: Feb 25, 2016 / 11:49
 Canister Removal Date/Time: Mar 02, 2016 / 15:18

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 01, 2016	00:00 Mar 01, 2016	00:00 Mar 02, 2016	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	26

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28.0	+15.8

Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: March 01, 2016 - Power outage affected sampling.
No sampling was done from 11:45 till 14:50. Sampling time - 20 hours 55 min.

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: Mar 02, 2016

Volatile Organics Data Results

Date: MARCH 1, 2016
Canister ID: S5594

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.05
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.03
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.05
1-Hexene	< 0.02
1-Pentene	0.02
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.11
2,3,4-Trimethylpentane	0.04
2,3-Dimethylbutane	0.26
2,3-Dimethylpentane	0.18
2,4-Dimethylpentane	0.09
2-Methylheptane	0.06
2-Methylhexane	0.08
2-Methylpentane	0.39
3-Methylheptane	0.03
3-Methylhexane	0.11
3-Methylpentane	0.82
Acetone	1.9
Acrolein	< 0.3
Benzene	0.19
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.66
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.30
Cyclopentane	0.10
Dibromochloromethane	< 0.01
Ethanol	< 0.3
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.30

Volatile Organics Data Results

Date: MARCH 1 , 2016
Canister ID: S5594

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	< 0.02
Freon-12	0.52
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.17
Isopentane	0.48
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.09
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.47
Methylcyclopentane	1.05
Methylene chloride	0.4
n-Butane	1.89
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.15
n-Hexane	3.41
n-Nonane	0.04
n-Octane	0.06
n-Pentane	0.9
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.01
o-Xylene	0.04
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.36
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.01
trans-2-Pentene	0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030162-001

AIR FCD-01320/2

Customer ID: LICA
Cust Samp ID: LICA/VOC/ELK/March 7, 2016

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: ELK Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/March 7, 2016

Sampler S/N: 6200
Canister ID: 2446
Canister Installation Date/Time: Mar 02, 2016 / 15:19
Canister Removal Date/Time: Mar 10, 2016 / 13:07

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 07, 2016</u>	<u>00:00 Mar 07, 2016</u>	<u>00:00 Mar 08, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>4.94</u>	<u>26</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>- 28.0</u>	<u>+ 18.2</u>



Canister valve open prior to sampling? YES / NO
Timer set to 0.00 minutes prior to sampling? YES / NO
Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in- by Alex Yakupov
Sample out by Alex Yakupov
Date: Mar 10, 2016

Volatile Organics Data Results

Date: MARCH 7, 2016
Canister ID: 2446

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	0.98
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	1.32
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.59
1,3-Butadiene	0.03
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.20
1-Hexene	< 0.02
1-Pentene	0.02
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	0.05
2,4-Dimethylpentane	0.03
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.11
3-Methylheptane	0.02
3-Methylhexane	0.09
3-Methylpentane	0.12
Acetone	36.1
Acrolein	< 0.3
Benzene	0.80
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	1.47
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	0.07
Chloroform	0.02
Chloromethane	0.70
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.06
cis-2-Pentene	0.03
Cyclohexane	0.22
Cyclopentane	0.07
Dibromochloromethane	< 0.01
Ethanol	11.2
Ethyl acetate	1.6
Ethylbenzene	5.47
Freon-11	0.29

Volatile Organics Data Results

Date: MARCH 7, 2016
Canister ID: 2446

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.52
Hexachloro-1,3-butadiene	< 0.50
Isobutane	< 0.02
Isopentane	< 0.03
Isoprene	< 0.01
Isopropyl alcohol	0.6
Isopropylbenzene	0.13
m,p-Xylene	4.76
m-Diethylbenzene	0.24
m-Ethyltoluene	0.53
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	9.1
Methyl isobutyl ketone	1.2
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.32
Methylcyclopentane	0.22
Methylene chloride	< 0.3
n-Butane	0.99
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.07
n-Hexane	0.17
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.5
n-Propylbenzene	0.38
n-Undecane	< 0.5
Naphthalene	7.8
o-Ethyltoluene	0.84
o-Xylene	3.45
p-Diethylbenzene	0.96
p-Ethyltoluene	0.39
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	7.46
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.09
trans-2-Pentene	0.06
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030162-003

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/March 13, 2016

Maxxam

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6200
 Location: ELK POINT Airport Canister ID: 6106
 Station ID: LICA 35 Canister Installation Date/Time: Mar 10, 2016 / 13:08
 Field Sample ID: LICA/VOC/ELK/ March 13, 2016 Canister Removal Date/Time: Mar 14, 2016 / 12:20

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 13, 2016</u>	<u>00:00 Mar 13, 2016</u>	<u>00:00 Mar 14, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>4.94</u>	<u>26</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>-28.0</u>	<u>+19.1</u>



Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: Mar 14, 2016

Volatile Organics Data Results

Date: MARCH 13 , 2016
Canister ID: 6106

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.11
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.03
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.05
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.10
1-Hexene	0.06
1-Pentene	0.07
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.24
2,3,4-Trimethylpentane	0.06
2,3-Dimethylbutane	0.36
2,3-Dimethylpentane	0.22
2,4-Dimethylpentane	0.15
2-Methylheptane	0.17
2-Methylhexane	0.48
2-Methylpentane	1.80
3-Methylheptane	0.12
3-Methylhexane	0.46
3-Methylpentane	1.49
Acetone	5.1
Acrolein	< 0.3
Benzene	0.89
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.09
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.70
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.06
cis-2-Pentene	0.06
Cyclohexane	0.77
Cyclopentane	0.49
Dibromochloromethane	< 0.01
Ethanol	0.7
Ethyl acetate	< 0.4
Ethylbenzene	0.11
Freon-11	0.29

Volatile Organics Data Results

Date: MARCH 13 , 2016
Canister ID: 6106

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.52
Isopentane	8.99
Isoprene	0.05
Isopropyl alcohol	< 0.4
Isopropylbenzene	0.04
m,p-Xylene	0.28
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.75
Methylcyclopentane	1.66
Methylene chloride	0.4
n-Butane	3.13
n-Decane	0.06
n-Dodecane	0.7
n-Heptane	0.70
n-Hexane	4.59
n-Nonane	0.10
n-Octane	0.21
n-Pentane	6.4
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	0.5
o-Ethyltoluene	0.05
o-Xylene	0.11
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.92
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.07
trans-2-Pentene	0.07
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 16030271-003

Customer ID: LICA

Maxxam



Cust Samp ID: LICA/VOC/ELK/Mar 19, 2016

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6200
 Location: ELK POINT Airport Canister ID: 15007
 Station ID: LICA 35 Canister Installation Date/Time: Mar 14, 2016 / 12:21
 Field Sample ID: LICA/VOC/ELK / Mar 19, 2016 Canister Removal Date/Time: Mar 23, 2016 / 12:23

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 19, 2016	00:00	00:00 Mar 20, 2016	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	26

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
- 28.0	+ 20.8

Canister valve open prior to sampling?: YES / NO
 Timer set to 0.00 minutes prior to sampling? YES / NO
 Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: Mar 23, 2016

Volatile Organics Data Results

Date: MARCH 19, 2016
Canister ID: 15007

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.10
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	0.03
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.32
1-Hexene	0.07
1-Pentene	0.14
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.15
2,3-Dimethylpentane	0.17
2,4-Dimethylpentane	0.09
2-Methylheptane	0.05
2-Methylhexane	0.18
2-Methylpentane	0.89
3-Methylheptane	0.02
3-Methylhexane	0.16
3-Methylpentane	9.85
Acetone	< 0.4
Acrolein	< 0.3
Benzene	0.27
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.08
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.69
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.32
cis-2-Pentene	0.12
Cyclohexane	1.02
Cyclopentane	0.07
Dibromochloromethane	< 0.01
Ethanol	3.4
Ethyl acetate	< 0.4
Ethylbenzene	0.06
Freon-11	0.24

Volatile Organics Data Results

Date: MARCH 19, 2016
Canister ID: 15007

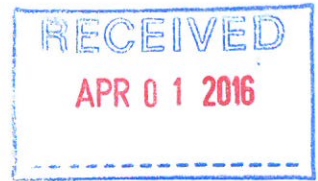
PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	0.02
Freon-12	0.58
Hexachloro-1,3-butadiene	< 0.50
Isobutane	7.75
Isopentane	4.85
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.21
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.5
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.15
Methylcyclopentane	19.5
Methylene chloride	6.2
n-Butane	33.3
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.13
n-Hexane	72.9
n-Nonane	0.02
n-Octane	0.03
n-Pentane	1.5
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.0
o-Ethyltoluene	< 0.01
o-Xylene	0.07
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	0.27
Tetrahydrofuran	< 0.4
Toluene	8.98
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.30
trans-2-Pentene	0.26
Trichloroethylene	< 0.04
Vinyl acetate	0.8
Vinyl chloride	< 0.02

Sample ID: 16040006-003

AIR FCD-01320/2

Customer ID: LICA
Cust Samp ID: LICA/VOC/ELK/Mar 25, 2016

Maxxam



VOC Sample Collection Data Sheet

Client: LICA
Location: ELK POINT AIRPORT
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Mar 25, 2016

Sampler S/N: 6200
Canister ID: S12945
Canister Installation Date/Time: Mar 23, 2016 / 12:24
Canister Removal Date/Time: Mar 30, 2016 / 17:41

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 25, 2016</u>	<u>00:00</u>	<u>00:00 Mar 26, 2016</u>	<u>24.0</u>

Flow Settings		
Meter Reading (scm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>4.94</u>	<u>26</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>-28.0</u>	<u>+19.1</u>

Canister valve open prior to sampling?: YES / NO
Timer set to 0.00 minutes prior to sampling? YES / NO
Canister valve closed prior to disconnection?: YES / NO

Comments: n/a

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: Mar 30, 2016

Volatile Organics Data Results

Date: MARCH 25, 2016
Canister ID: S12945

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.03
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	0.05
2,4-Dimethylpentane	0.02
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	< 0.01
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.04
Acetone	2.6
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.02
Carbon disulfide	< 0.01
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.87
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.06
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	0.5
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.35

Volatile Organics Data Results

Date: MARCH 25, 2016
Canister ID: S12945

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	0.03
Freon-12	0.81
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.96
Isopentane	0.49
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.11
Methylcyclopentane	0.07
Methylene chloride	< 0.3
n-Butane	1.19
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.04
n-Hexane	0.10
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.2
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.05
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

PAH RESULTS

Sample ID: 16030073-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Mar 1, 2016



Priority: Normal

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-11</u>
Location:	<u>ELK Point Airport</u>	Motor S/N:	<u>1139/100-1015</u>
Station ID:	<u>LICA 35</u>	Installation Date/Time:	<u>Feb 25, 2016/14:15</u>
Field Sample ID:	<u>LICA/PUF/ELK/Mar 01, 2016</u>	Removal Date/Time:	<u>Mar 02, 2016/15:25</u>

Sample Data Collection Information

Sample Date:	<u>Mar 01, 2016</u>	Average Pressure (mmHg)	<u>698</u>
Start Time (mst):	<u>00:00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 / Mar 02, 2016</u>	Average Temperature (°C)	<u>-7.8°</u>
Elapsed Time (Hours):	<u>24:00 *</u>	Volume (Vstd m ³)	<u>291.77</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Date of last calibration/audit:	<u>Feb 25, 2016</u>	
Other observations?	<u>*On March 1, 2016 power outage interrupted sampling. from 11:45 till 14:50. Overall sampling time - 20 hours 55 minutes.</u>	
Deployed By:	<u>Alex Yakupov</u>	
Collected By:	<u>Alex Yakupov</u>	<u>Date: Mar 02, 2016</u>

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 1, 2016
PUF S/N: TE11

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.25
2-Methylnaphthalene	0.46
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.07
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.04
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.07
Fluorene	0.10
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.18
Perylene	< 0.01
Phenanthrene	0.12
Pyrene	0.03
Retene	0.03

Sample ID: 16030162-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/March 7, 2016

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>p13-01</u>
Location:	<u>ELK POINT AIRPORT</u>	Motor S/N:	<u>1139/100-1015</u>
Station ID:	<u>LICA 35</u>	Installation Date/Time:	<u>Mar 02, 2016/15:26</u>
Field Sample ID:	<u>LICA/PUF/ELK/Mar 07, 2016</u>	Removal Date/Time:	<u>Mar 10, 2016/13:21</u>

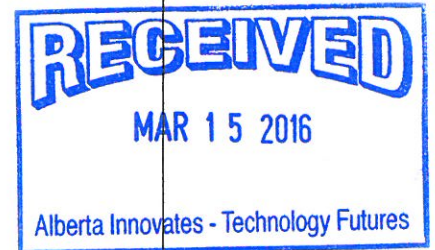
Sample Data Collection Information

Sample Date:	<u>Mar 07, 2016</u>	Average Pressure (mmHg)	<u>692</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 / Mar 08, 2016</u>	Average Temperature (°C)	<u>0.1°</u>
Elapsed Time (Hours):	<u>24:00</u>	Volume (V _{std} m ³)	<u>330.15</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Date of last calibration/audit:	<u>Feb 25, 2016</u>	
Other observations?	<u>n/a</u>	



Deployed By:	<u>Alex Yakupov</u>	
Collected By:	<u>Alex Yakupov</u>	<u>Date: Mar 10, 2016</u>

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 7, 2016
PUF S/N: P1301

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.04
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.08
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.02
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.02
Retene	0.02

Sample ID: 16030162-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/March 13, 2016

TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>TE-04</u>
Location:	<u>ELK POINT AIRPORT</u>	Motor S/N:	<u>1139/100-1015</u>
Station ID:	<u>LICA 35</u>	Installation Date/Time:	<u>Mar 10, 2016 / 13:22</u>
Field Sample ID:	<u>LICA/PUF/ELK/Mar 13, 2016</u>	Removal Date/Time:	<u>Mar 14, 2016 / 12:16</u>

Sample Data Collection Information

Sample Date:	<u>Mar 13, 2016</u>	Average Pressure (mmHg)	<u>683</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 / Mar 14, 2016</u>	Average Temperature (°C)	<u>+0.3°</u>
Elapsed Time (Hours):	<u>24:00</u>	Volume (V _{std} m ³)	<u>330.10</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Date of last calibration/audit:	<u>Feb 25, 2016</u>	
Other observations?	<u>n/a</u>	



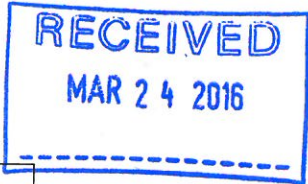
Deployed By:	<u>Alex Yakupov</u>	
Collected By:	<u>Alex Yakupov</u>	Date: <u>Mar 14, 2016</u>

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 13 , 2016
PUF S/N: TE04

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.10
2-Methylnaphthalene	0.14
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.07
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.02
Retene	0.03

Customer ID: LICA
 Cust Samp ID: LICA/PUF/ELK/Mar 19, 2016



TISCH PUF PLUS Sample Collection Data Sheet

Client:	<u>LICA</u>	Puf+ S/N:	<u>9801</u>
Location:	<u>ELK POINT AIRPORT</u>	Motor S/N:	<u>1139/100-1015</u>
Station ID:	<u>LICA 35</u>	Installation Date/Time:	<u>Mar 14, 2016 / 12:17</u>
Field Sample ID:	<u>LICA/PUF/ELK/Mar 19, 2016</u>	Removal Date/Time:	<u>Mar 23, 2016 / 12:37</u>

Sample Data Collection Information

Sample Date:	<u>Mar 19, 2016</u>	Average Pressure (mmHg)	<u>706</u>
Start Time (mst):	<u>00:00</u>	Average Flow (Q _{std})	<u>229</u>
End Time (mst):	<u>00:00 Mar 20, 2016</u>	Average Temperature (°C)	<u>-7.2°</u>
Elapsed Time (Hours):	<u>24.0</u>	Volume (V _{std} m ³)	<u>330.18</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<u>YES</u>	NO
Average temperature appears correct?	<u>YES</u>	NO
Average pressure appears correct?	<u>YES</u>	NO
Any error messages? (if yes list below)	YES	<u>NO</u>
Sample duration 24 hours?	<u>YES</u>	NO
Date of last calibration/audit:	<u>Feb 25, 2016</u>	
Other observations?	<u>n/a</u>	

Deployed By: Alex Yakupov

Collected By: Alex Yakupov Date: Mar 23, 2016

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

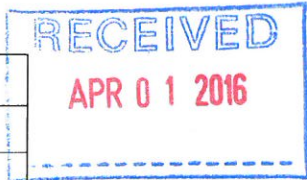
Date: MARCH 19, 2016
PUF S/N: 9801

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.13
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.07
Perylene	< 0.01
Phenanthrene	0.07
Pyrene	0.02
Retene	0.02

Sample ID: 16040006-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Mar 25, 2016



TECH PUF PLUS Sample Collection Data Sheet

Client: <u>LICA</u>	Puf+ S/N: <u>TE-05</u>
Location: <u>ELK POINT AIRPORT</u>	Motor S/N: <u>1139/100-1015</u>
Station ID: <u>LICA 35</u>	Installation Date/Time: <u>Mar 23, 2016/12:38</u>
Field Sample ID: <u>LICA/PUF/ELK/Mar 25, 2016</u>	Removal Date/Time: <u>Mar 30, 2016/17:33</u>

Sample Data Collection Information

Sample Date: <u>Mar 25, 2016</u>	Average Pressure (mmHg): <u>699</u>
Start Time (mst): <u>00:00</u>	Average Flow (Q _{std}): <u>229</u>
End Time (mst): <u>00:00 Mar 26, 2016</u>	Average Temperature (°C): <u>-2.3°</u>
Elapsed Time (Hours): <u>24.0</u>	Volume (V _{std} m ³): <u>330.20</u>

Sample Recovery Checklist

(circle one)

Flow Rate 230 slpm +/- 0.2 slpm ?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average temperature appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Average pressure appears correct?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Any error messages? (if yes list below)	<input type="radio"/> YES	<input checked="" type="radio"/> NO
Sample duration 24 hours?	<input checked="" type="radio"/> YES	<input type="radio"/> NO
Date of last calibration/audit:	<u>Feb 25, 2016</u>	
Other observations?	<u>n/a</u>	

Deployed By:	<u>Alex Yakupov</u>	
Collected By:	<u>Alex Yakupov</u>	<u>Date: Mar 30, 2016</u>

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 25 , 2016
PUF S/N: TE05

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.11
2-Methylnaphthalene	0.17
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	0.02
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.07
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.07
Perylene	< 0.01
Phenanthrene	0.11
Pyrene	0.02
Retene	0.01

NMHC CANISTER RESULTS

Sample ID: 16040006-005

AIR FCD-0132012

Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/Mar 24, 2016

Maxxam

VOC Sample Collection Data Sheet



Client: LICA

Sampler S/N: n/a

Location: Elk Point Airport

Canister ID: S2530

Station ID: LICA 35

Canister Installation Date/Time: March 4, 2016 / 10:06

Field Sample ID: LICAVOC/ELK/Mar 24, 2016

Canister Removal Date/Time: March 27, 2016 / 11:31

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
28.0 24.1	23:40	n/a	n/a

Flow Settings		
Meter Reading (scm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (in Hg)	Final Canister Vacuum (in Hg)
-28.0	-3.0

Canister valve open prior to sampling? YES / NO

Canister valve closed prior to disconnection? YES / NO

Comments:

NMHC sampling canister

Technician Signature:

sample in - by Alex Yakupov Date: March 27, 2016 at 11:31
Sample out - by Alex Yakupov

Volatile Organics Data Results (NMHC Canister System)

Date: MARCH 24, 2016
Canister ID: S2530

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.05
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.9
1,2,4-Trimethylbenzene	0.07
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	0.07
1,2-Dichloroethane	0.03
1,2-Dichloropropane	0.01
1,3,5-Trimethylbenzene	0.07
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.4
1,4-Dichlorobenzene	< 0.5
1,4-Dioxane	< 0.5
1-Butene	0.44
1-Hexene	< 0.02
1-Pentene	0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	0.10
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	0.04
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	< 0.01
3-Methylheptane	0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.04
Acetone	4.1
Acrolein	< 0.4
Benzene	0.13
Benzyl chloride	< 0.5
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.04
Carbon tetrachloride	0.11
Chlorobenzene	0.03
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.88
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.05
cis-2-Butene	0.03
cis-2-Pentene	< 0.02
Cyclohexane	0.05
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	0.8
Ethyl acetate	< 0.5
Ethylbenzene	0.07
Freon-11	0.33

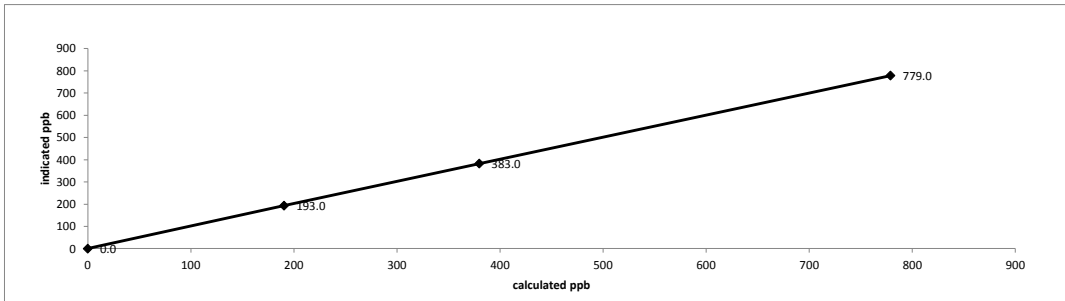
Volatile Organics Data Results (NMHC Canister System)

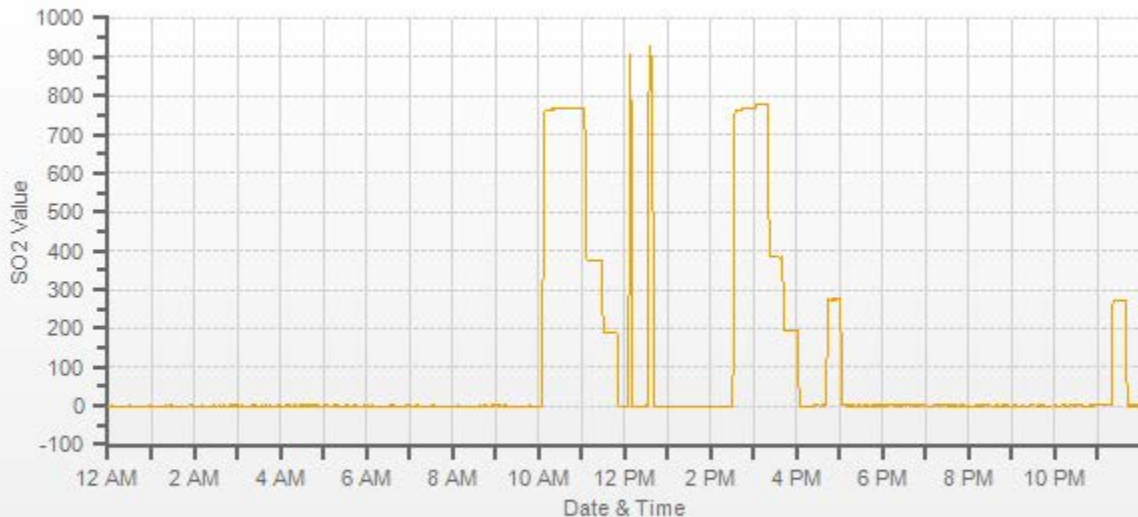
Date: MARCH 24, 2016
Canister ID: S2530

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	0.03
Freon-12	0.68
Hexachloro-1,3-butadiene	< 0.59
Isobutane	0.59
Isopentane	0.69
Isoprene	< 0.01
Isopropyl alcohol	< 0.5
Isopropylbenzene	0.03
m,p-Xylene	0.10
m-Diethylbenzene	< 0.05
m-Ethyltoluene	< 0.09
Methyl butyl ketone	< 0.59
Methyl ethyl ketone	0.7
Methyl isobutyl ketone	< 0.5
Methyl methacrylate	< 0.08
Methyl tert butyl ether	< 0.04
Methylcyclohexane	0.12
Methylcyclopentane	0.06
Methylene chloride	< 0.4
n-Butane	0.64
n-Decane	< 0.07
n-Dodecane	< 0.5
n-Heptane	0.06
n-Hexane	0.06
n-Nonane	0.03
n-Octane	0.05
n-Pentane	0.1
n-Propylbenzene	< 0.06
n-Undecane	< 0.6
Naphthalene	1.2
o-Ethyltoluene	0.02
o-Xylene	0.07
p-Diethylbenzene	< 0.05
p-Ethyltoluene	< 0.08
Styrene	0.05
Tetrachloroethylene	< 0.05
Tetrahydrofuran	< 0.5
Toluene	0.12
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.05
trans-2-Butene	0.03
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.05
Vinyl acetate	< 0.5
Vinyl chloride	< 0.02

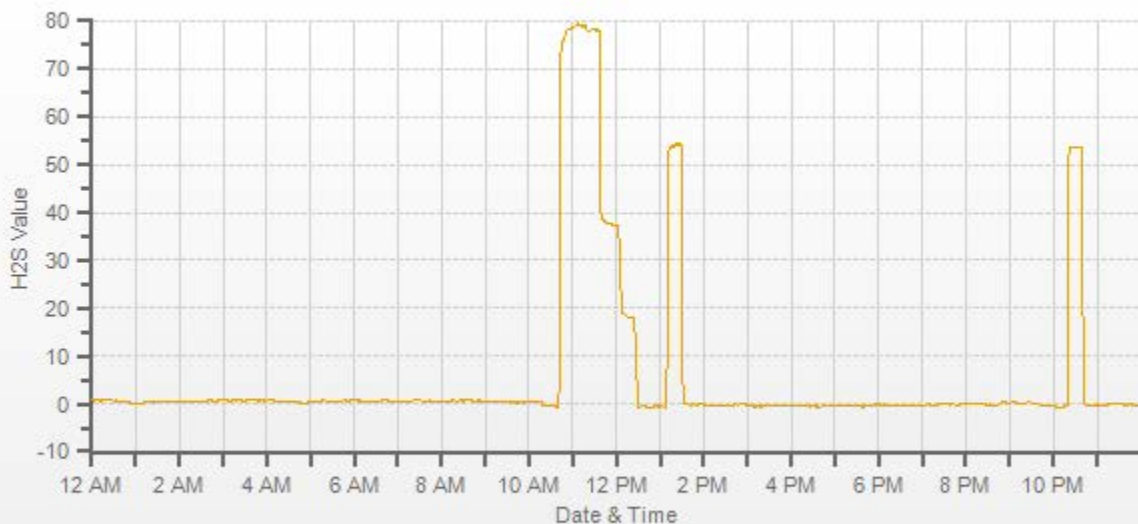
APPENDIX III
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100E Sulphur Dioxide Analyzer Calibration																																																	
Date: <u>March 2, 2016</u> Company/Airshed: <u>LICA</u> Location/Station Name: <u>Elk Point</u> Parameter: <u>Sulphur Dioxide</u> Start Time 24 hr. (mst): <u>13:59</u> End Time 24 hr. (mst): <u>17:07</u> Calibration Method: <u>Gas Dilution</u>	Barometric Pressure: <u>0.940 atm</u> Station Temperature °C: <u>22</u> Weather Conditions: <u>Mainly clear</u> Calibration Purpose: <u>post repair</u> Performed By/Reviewer: <u>Alex Yakupov</u> / <u>Trina Whitsitt</u> Cal Gas Expiry Date: <u>December 2, 2023</u> Converter Model & s/n (if applicable): <u>n/a</u>																																																
Analyzer: Serial Number: <u>467</u> Range ppb: <u>1000</u> Last Calibration Date: <u>February 5, 2016</u> As Found C.F.: <u>n/a</u> Previous C.F.: <u>1.000</u> New C.F.: <u>1.000</u>																																																	
Calibrator: Standard Calibration Points for Ranges Flow Meter ID's: <u>n/a</u> <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><th>Point</th><th>Sulphur Dioxide Standard Calibration Points</th></tr> <tr><td>High</td><td>780</td></tr> <tr><td>Mid</td><td>380</td></tr> <tr><td>Low</td><td>190</td></tr> </table> Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. # : <u>LL119346</u> Cal Gas Conc. (ppm): <u>50.0</u>		Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190																																								
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Linear Regression/Calibration Results: Correlation Coefficient = <u>1.000</u> LIMITS Slope = <u>1.001</u> > or = 0.995 b (Intercept as % of full scale)= <u>-0.16%</u> .95-1.05 % change in C.F. from last cal= <u>n/a</u> ± 3% F.S. ± 10%																																																	
API 100E Sulphur Dioxide Analyzer Calibration																																																	
																																																	
<table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> As found: SLOPE: <u>n/a</u> OFFSET: <u>n/a</u> HVPS: <u>n/a</u> RCELL TEMP: <u>n/a</u> BOX TEMP: <u>n/a</u> PMT TEMP: <u>n/a</u> IZS TEMP: <u>n/a</u> PRES: <u>n/a</u> SAMP FL: <u>n/a</u> NORM PMT: <u>n/a</u> UV LAMP: <u>n/a</u> LAMP RATIO: <u>n/a</u> STR. LGT: <u>n/a</u> DRK PMT: <u>n/a</u> DRK LMP: <u>n/a</u> Internal Span: <u>n/a</u> </td> <td style="width:50%; vertical-align: top;"> As left: SLOPE: <u>1.080</u> OFFSET: <u>116.3</u> HVPS: <u>512</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>33.1</u> PMT TEMP: <u>8.1</u> IZS TEMP: <u>45.0</u> PRES: <u>24.6</u> SAMP FL: <u>618</u> NORM PMT: <u>115.5</u> UV LAMP: <u>2821.5</u> LAMP RATIO: <u>93.9</u> STR. LGT: <u>62.8</u> DRK PMT: <u>15.8</u> DRK LMP: <u>2.7</u> Internal Span: <u>275</u> </td> </tr> </table>		As found: SLOPE: <u>n/a</u> OFFSET: <u>n/a</u> HVPS: <u>n/a</u> RCELL TEMP: <u>n/a</u> BOX TEMP: <u>n/a</u> PMT TEMP: <u>n/a</u> IZS TEMP: <u>n/a</u> PRES: <u>n/a</u> SAMP FL: <u>n/a</u> NORM PMT: <u>n/a</u> UV LAMP: <u>n/a</u> LAMP RATIO: <u>n/a</u> STR. LGT: <u>n/a</u> DRK PMT: <u>n/a</u> DRK LMP: <u>n/a</u> Internal Span: <u>n/a</u>	As left: SLOPE: <u>1.080</u> OFFSET: <u>116.3</u> HVPS: <u>512</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>33.1</u> PMT TEMP: <u>8.1</u> IZS TEMP: <u>45.0</u> PRES: <u>24.6</u> SAMP FL: <u>618</u> NORM PMT: <u>115.5</u> UV LAMP: <u>2821.5</u> LAMP RATIO: <u>93.9</u> STR. LGT: <u>62.8</u> DRK PMT: <u>15.8</u> DRK LMP: <u>2.7</u> Internal Span: <u>275</u>																																														
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Comments: <p style="text-align: center;">Sample filter changed. Output voltage has been calibrated.</p>																																																	



HYDROGEN SULPHIDE





API 101E Hydrogen Sulphide Analyzer Calibration

Date: <u>March 27, 2016</u>	Barometric Pressure: <u>0.937 atm</u>
Company/Airshed: <u>LICA</u>	Station Temperature °C: <u>22</u>
Location/Station Name: <u>Elk Point</u>	Weather Conditions: <u>Mainly clear</u>
Parameter: <u>Hydrogen Sulphide</u>	Calibration Purpose: <u>post repair</u>
Start Time 24 hr. (mst): <u>11:13</u>	Performed By/Reviewer: <u>Alex Yakupov</u> <u>Tom Bourque</u>
End Time 24 hr. (mst): <u>14:21</u>	Cal Gas Expiry Date: <u>July 15, 2017</u>
Calibration Method: <u>Gas Dilution</u>	Converter Model & s/n (if applicable): <u>n/a</u>

Analyzer:	Range ppb: <u>100</u>
Serial Number: <u>510</u>	As Found C.F.: <u>n/a</u>
Last Calibration Date: <u>March 11, 2016</u>	New C.F.: <u>1.000</u>
Previous C.F.: <u>1.000</u>	

Calibrator:	Standard Calibration Points for Ranges								
Flow Meter ID's: <u>n/a</u>	<table border="1" style="margin: auto;"> <thead> <tr> <th>Point</th> <th>Hydrogen Sulphide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td style="text-align: center;">78</td> </tr> <tr> <td>Mid</td> <td style="text-align: center;">38</td> </tr> <tr> <td>Low</td> <td style="text-align: center;">19</td> </tr> </tbody> </table>	Point	Hydrogen Sulphide Standard Calibration Points	High	78	Mid	38	Low	19
Point		Hydrogen Sulphide Standard Calibration Points							
High		78							
Mid		38							
Low		19							
Make & Model: <u>API 700</u>									
Serial #: <u>830</u>									
Cal Gas Cylinder I.D. #: <u>LL36837</u>									
Cal Gas Conc. (ppm): <u>10.0</u>									

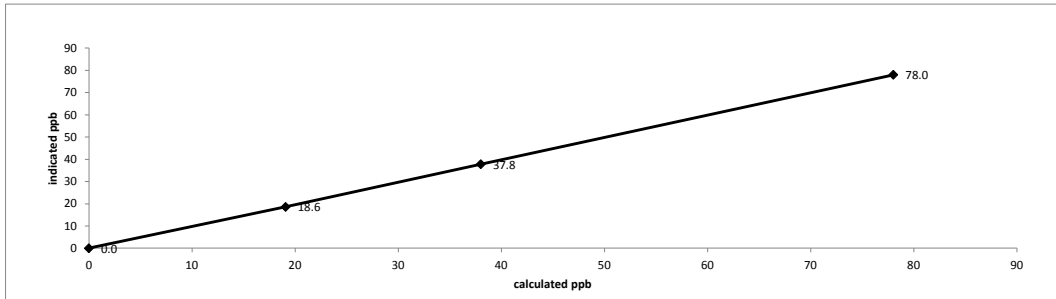
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	7498	0.00	7498	0.0	0.0	N/A
adjusted high	7439	58.50	7498	78.0	78.0	1.000
mid	7470	28.50	7499	38.0	37.8	1.005
low	7480	14.30	7494	19.1	18.6	1.026
calibrator zero	7498	0.00	7498	0.0	0.0	n/a
Average C.F.=						1.011

Linear Regression/Calibration Results:

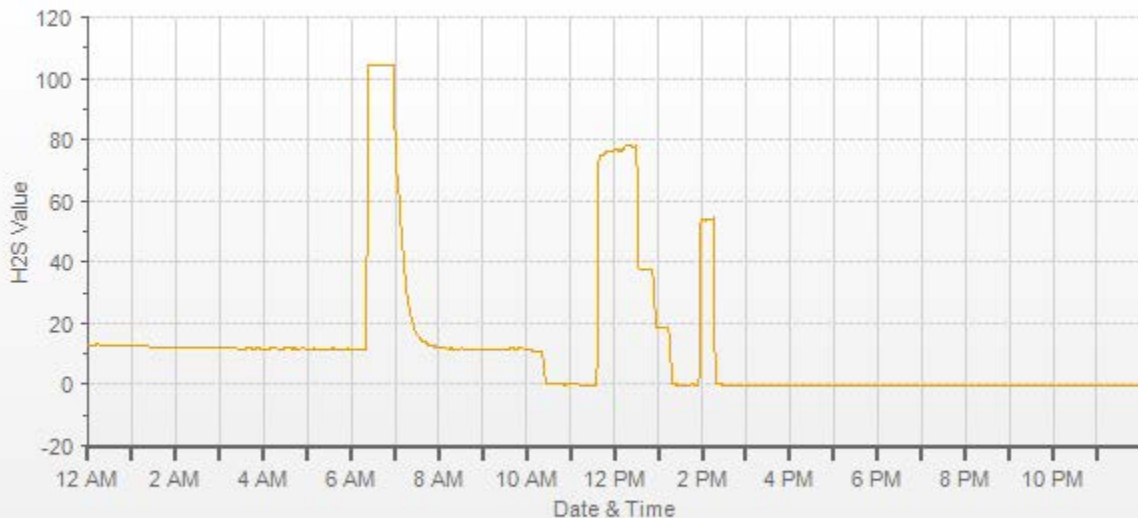
Correlation Coefficient = <u>1.000</u>	LIMITS
Slope = <u>0.998</u>	> or = 0.995
b (Intercept as % of full scale) = <u>0.23%</u>	.95-1.05
% change in C.F. from last cal = <u>n/a</u>	± 3% F.S.
	± 10%

API 101E Hydrogen Sulphide Analyzer Calibration




<p style="text-align: center;">As found:</p> SLOPE: <u>n/a</u> OFFSET: <u>n/a</u> HVPS: <u>n/a</u> RCELL TEMP: <u>n/a</u> BOX TEMP: <u>n/a</u> PMT TEMP: <u>n/a</u> IZS TEMP: <u>n/a</u> Converter Temp: <u>n/a</u> PRES: <u>n/a</u> SAMP FL: <u>16</u> UV LAMP: <u>n/a</u> LAMP RATIO: <u>n/a</u> STR. LGT: <u>n/a</u> DRK PMT: <u>n/a</u> DRK LMP: <u>n/a</u> Internal Span: <u>n/a</u>	<p style="text-align: center;">As left:</p> SLOPE: <u>1.172</u> OFFSET: <u>30.7</u> HVPS: <u>526</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>34.4</u> PMT TEMP: <u>8.4</u> IZS TEMP: <u>45.0</u> Converter Temp: <u>315.0</u> PRES: <u>21.4</u> SAMP FL: <u>558</u> UV LAMP: <u>2647.7</u> LAMP RATIO: <u>83.4</u> STR. LGT: <u>18.0</u> DRK PMT: <u>34.7</u> DRK LMP: <u>-2.1</u> Internal Span: <u>54.2</u>
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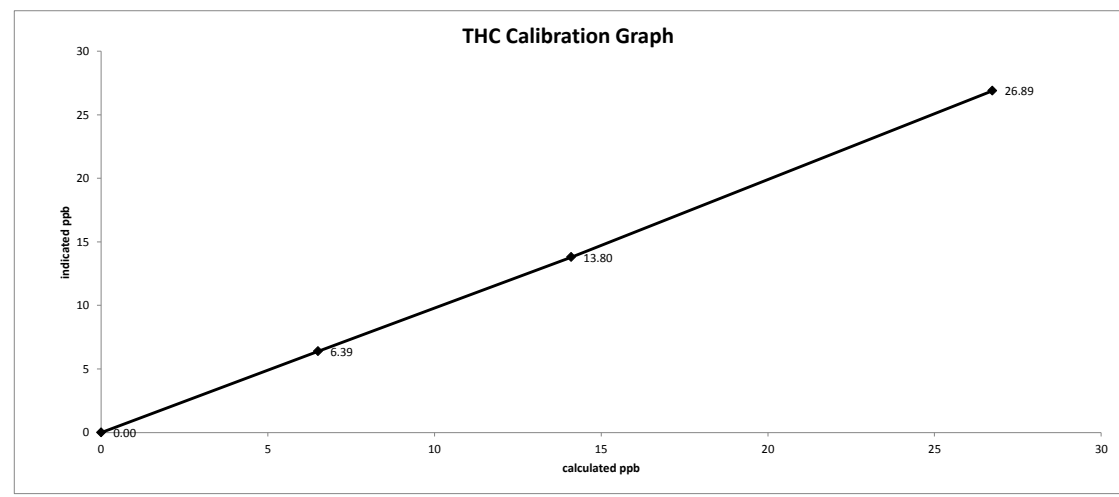
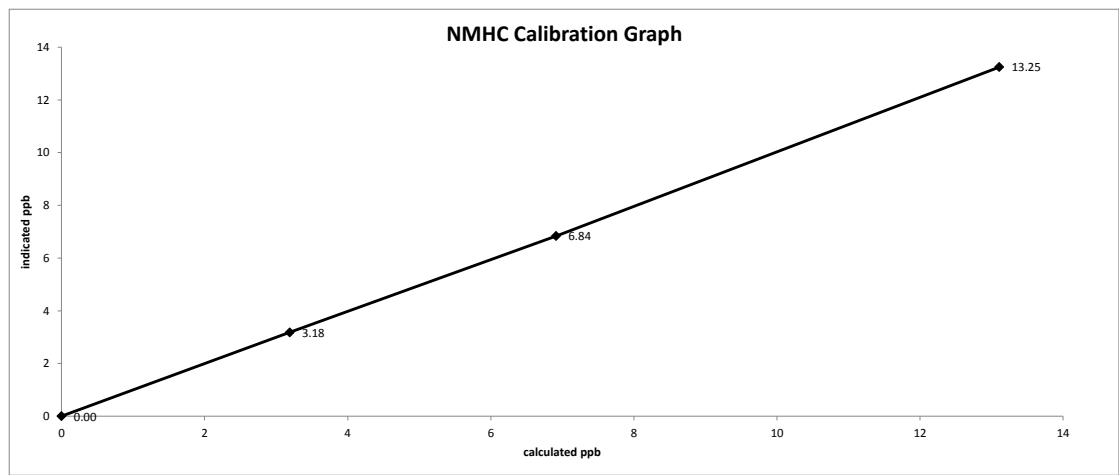
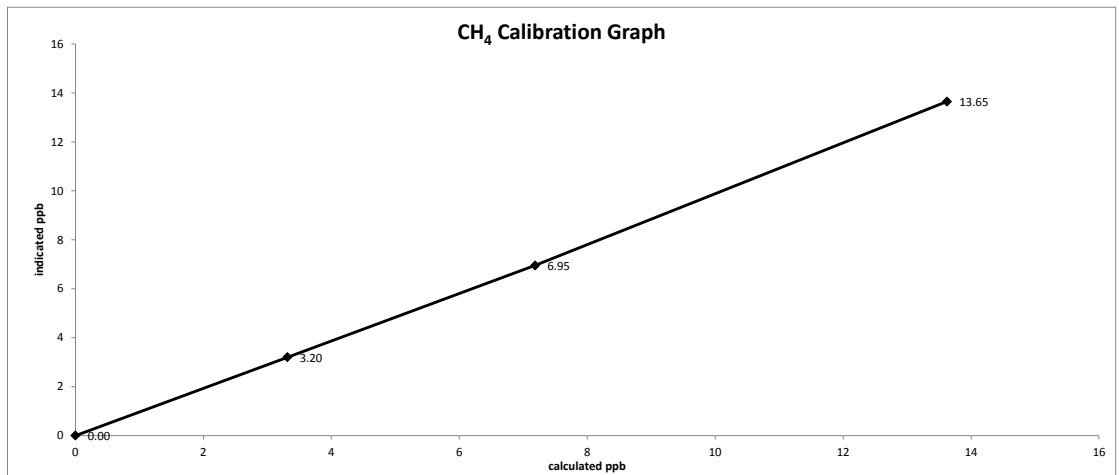
Comments:
No shutdown calibration was performed because of the pump failure. The sample pump was rebuilt. The pump failed on March 26, 2016, at about 18:00. After troubleshooting the post-repair calibration was completed. EV value did not change after calibration and ZS check.

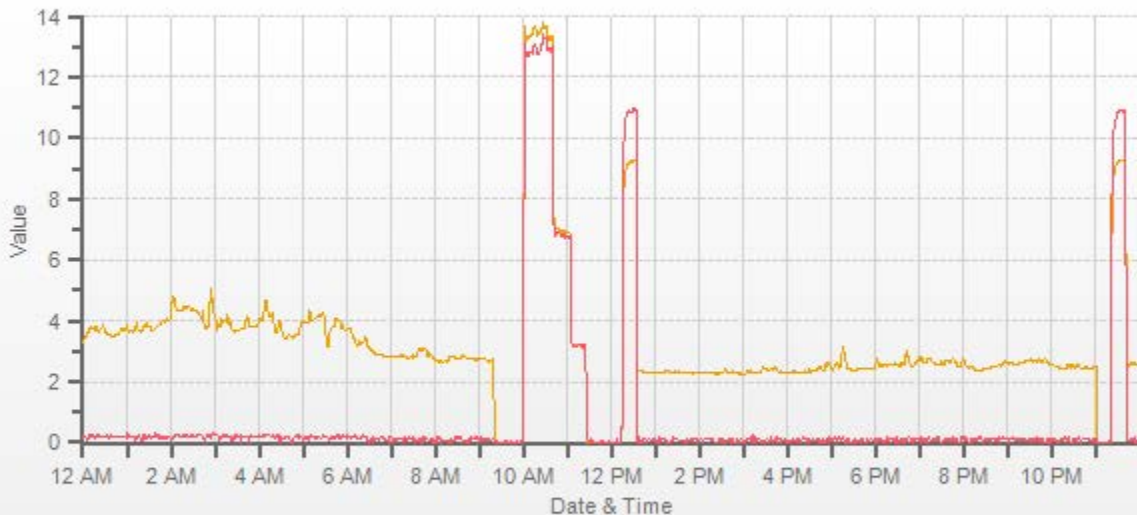


TOTAL HYDROCARBON


 Thermo 55i Methane/Non-Methane Analyzer Calibration																	
Date: March 2, 2016 Company/Airshed: LICA Location/Station Name: Elk Point Parameter: CH ₄ / NMHC / THC Start/End Time 24 hr. (mst): 9:11 / 12:44 Calibration Method: Gas Dilution	Barometric Pressure: 0.938 atm Station Temperature °C: 20 Weather Conditions: Mainly clear Calibration Purpose: installation Performed By/Reviewer: Alex Yakupov / Trina Whitsitt Cal Gas Expiry Date: November 25, 2023																
Analyzer: Serial Number: 1433563261 Last Calibration Date: February 29, 2016 Range ppm: 20 CH ₄ /20 NMHC/40 THC	Correction Factors: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Previous C.F.:</th> <th>As Found C.F.:</th> <th>New C.F.:</th> </tr> </thead> <tbody> <tr> <td>CH₄ =</td> <td>n/a</td> <td>n/a</td> <td>0.998</td> </tr> <tr> <td>NMHC =</td> <td>n/a</td> <td>n/a</td> <td>0.989</td> </tr> <tr> <td>THC =</td> <td>n/a</td> <td>n/a</td> <td>0.994</td> </tr> </tbody> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	CH ₄ =	n/a	n/a	0.998	NMHC =	n/a	n/a	0.989	THC =	n/a	n/a	0.994
	Previous C.F.:	As Found C.F.:	New C.F.:														
CH ₄ =	n/a	n/a	0.998														
NMHC =	n/a	n/a	0.989														
THC =	n/a	n/a	0.994														
Calibrator: Flow Meter ID's: n/a Make & Model: API 700 Serial #: 830 Cal Gas Cylinder I.D. # : LL165372 CH₄ Cylinder Conc.: 606.0 212.0 =C ₃ H ₈ Cylinder Conc. CH₄ as C₃H₈: 583.0 1189.0 =total CH ₄ equivalent	Standard Calibration Points for Analyzer Range of 20/20/40 ppm <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>CH₄</th> <th>NMHC</th> <th>THC</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>13.00</td> <td>13.00</td> <td>26.00</td> </tr> <tr> <td>Mid</td> <td>7.00</td> <td>7.00</td> <td>14.00</td> </tr> <tr> <td>Low</td> <td>3.00</td> <td>3.00</td> <td>6.00</td> </tr> </tbody> </table>	Point	CH ₄	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00
Point	CH ₄	NMHC	THC														
High	13.00	13.00	26.00														
Mid	7.00	7.00	14.00														
Low	3.00	3.00	6.00														
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015																	
Calibrator Flow Rates (cc/min)										Correction Factors:							
Point	Diluent	Cal Gas	Total Flow	Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	CH ₄	NMHC	THC					
adjusted zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a					
adjusted high	2000	46.00	2046	13.62	13.11	26.73	13.65	13.25	26.89	0.998	0.989	0.994					
mid	2000	24.00	2024	7.19	6.91	14.10	6.95	6.84	13.80	1.034	1.011	1.022					
low	2000	11.00	2011	3.31	3.19	6.50	3.20	3.18	6.39	1.036	1.003	1.018					
calibrator zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a					
Average C.F.=										1.023	1.001	1.011					
Linear Regression/Calibration Results:																	
				CH ₄	NMHC	THC	LIMITS										
Correlation Coefficient =				1.000	1.000	1.000	> or = 0.995										
Slope =				1.002	1.010	1.006	.95-1.05										
b (Intercept as % of full scale)=				-0.47%	-0.22%	-0.33%	± 3% F.S.										
% change in C.F. from last cal=				n/a	n/a	n/a	± 10%										
As found:						As left:											
Interface Board Voltages:	Bias Supply:			n/a			Calibration History cnt'd:			NM Peak Area:			n/a				
Temperatures:	Detector Oven:			n/a			Crucial Settings:			Methane Start:			n/a				
	Filter:			n/a						Methane End:			n/a				
	Column Oven:			n/a						Backflush:			n/a				
	Internal:			n/a						NMHV Start:			n/a				
Cylinder Pressures/reg.:	Carrier:		2400	50					NMHC End:			n/a					
	Fuel:		1800	50					Run History>1:			Date:	March 2, 2016				
	Span Gas:		700	22								Time:	09:16				
	Zero Air Generator:			45						CH ₄ PK HT:			0				
Internal Pressures:	Carrier:			n/a						CH ₄ RT:			12.0				
	Fuel:			n/a						CH ₄ Baseline:			1799				
	Air:			n/a						CH ₄ LOD:			33				
FID Status:	Status:			n/a						CH ₄ SD:			11				
	Counts:			n/a						CH ₄ CONC:			0.00				
	Flame:			n/a						NM PK HT:			23				
	Det Base:			n/a						NM Peak Area:			271				
Flame and Power Stats:	Last Power On:			n/a						NM CONC:			0.00				
	Flameouts:			n/a						NM Base Start:			1798				
	Det Oven at Start:			n/a						NM Base End:			1843				
	Col Oven at Start:			n/a						NM LOD:			23				
Calibration History:	Time:			n/a						NM Start IDX:			2				
	Type:			n/a						NM End IDX:			47				
	Status:			n/a						NM Max Slope:			2.0e+00				
	Check/Adjust:			n/a						NM Min Slope:			-5.6e-01				
	CH ₄ Span Conc:			n/a						NM PT Count:			4				
	CH ₄ SP Ratio:			n/a						Daily Zero/Span Values:			Previous CH ₄ :	n/a			
	CH ₄ RT:			n/a									Previous NMHC:	n/a			
	CH ₄ PK IDX:			n/a									Previous THC:	n/a			
	CH ₄ PK HT:			n/a									New CH ₄ :	9.25			
	NM Span Conc:			n/a									New NMHC:	10.94			
	NM SP Ratio:			n/a									New THC:	20.21			
Comments:																	
Sample filter changed. Previous calibration was a removal for maintenance.																	

Date:	March 2, 2016	Start/End Time 24 hr. (mst):	9:11 / 12:44
Company/Airshed:	LICA	Calibration Purpose:	installation
Location/Station Name:	Elk Point	Calibration Method:	Gas Dilution



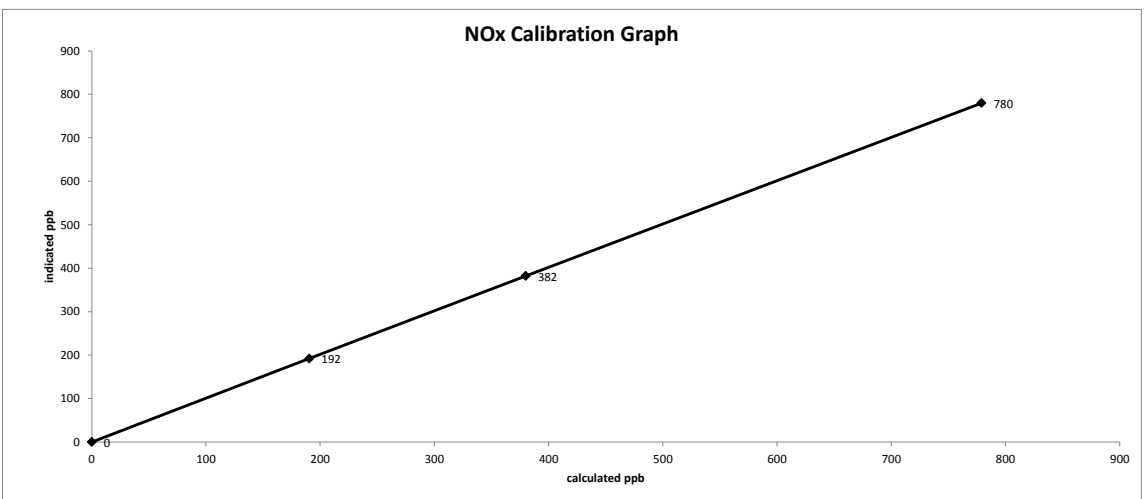
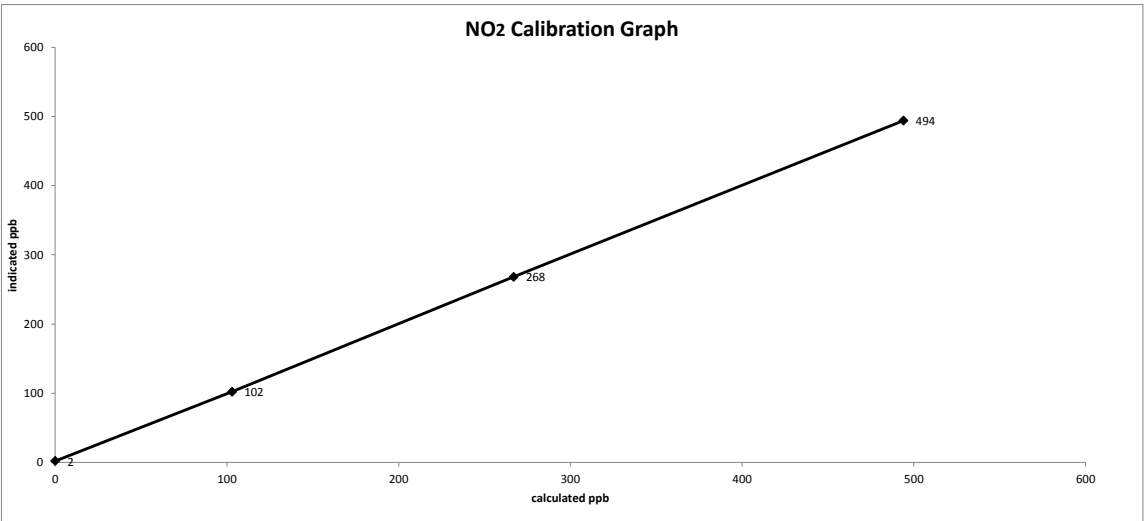
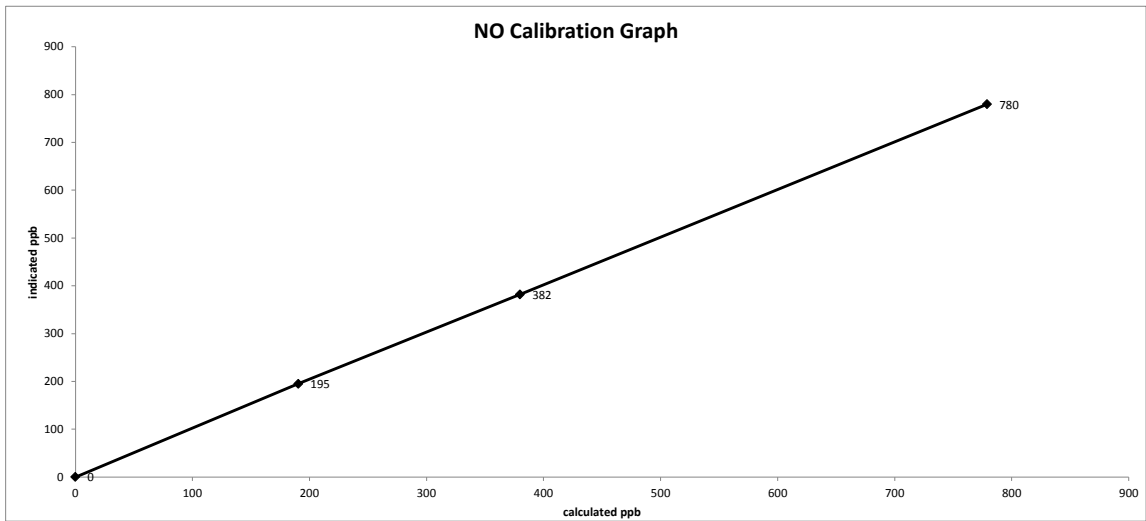


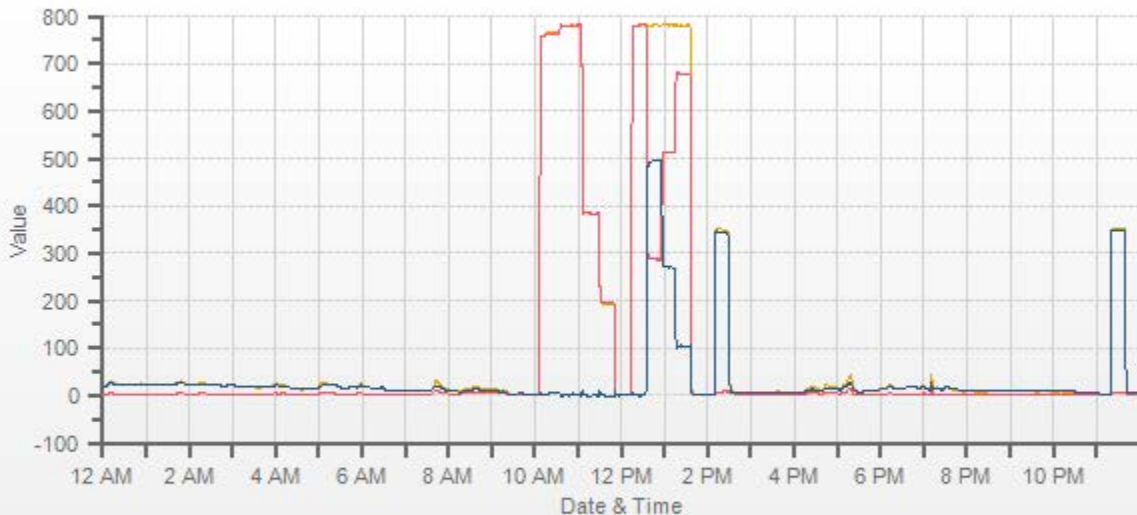
NITROGEN DIOXIDE


 API 200E NO-NO2-NOx Analyzer Calibration																																																																																																					
Date: March 2, 2016 Company/Airshed: LICA Location/Station Name: Elk Point Start/End Time 24 hr. (mst): 9:11/ 14:34 G.P.T. to be used for Ozone? No Calibration Method: Gas Dilution & Varying UV Lamp Power	Barometric Pressure: 0.938 atm Station Temperature °C: 20 Weather Conditions: Mainly clear Calibration Purpose: routine monthly Performed By/Reviewer: Alex Yakupov / Trina Whitsitt Cal Gas Expiry Date: December 2, 2023																																																																																																				
Analyzer: Serial Number: 592 Last Calibration Date: February 24, 2016 Range ppb: 1000	Correction Factors: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Previous C.F.:</th> <th>As Found C.F.:</th> <th>New C.F.:</th> </tr> </thead> <tbody> <tr> <td>NO =</td> <td>1.000</td> <td>1.022</td> <td>0.999</td> </tr> <tr> <td>NO₂ =</td> <td>0.999</td> <td>1.000</td> <td>1.000</td> </tr> <tr> <td>NOx =</td> <td>1.002</td> <td>1.020</td> <td>0.999</td> </tr> </tbody> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	NO =	1.000	1.022	0.999	NO ₂ =	0.999	1.000	1.000	NOx =	1.002	1.020	0.999																																																																																				
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Calibrator: Flow Meter ID's: n/a Make & Model: SABIO 2010 D Serial #: 11900613 Cal Gas Cylinder I.D. #: LL119346 NO/NOx Gas Conc. (ppm): 50.0 50.0	Standard Calibration Points for a Range of: 1000 ppb <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>Target NO (ppb)</th> <th>Target NO₂ (ppb)</th> <th>Cc Ozone ?</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>780</td> <td>500</td> <td>n/a</td> </tr> <tr> <td>Mid</td> <td>380</td> <td>275</td> <td>n/a</td> </tr> <tr> <td>Low</td> <td>190</td> <td>100</td> <td>n/a</td> </tr> <tr> <td>Extra Point #1</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Extra Point #2</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </tbody> </table>	Point	Target NO (ppb)	Target NO ₂ (ppb)	Cc Ozone ?	High	780	500	n/a	Mid	380	275	n/a	Low	190	100	n/a	Extra Point #1	n/a	n/a	n/a	Extra Point #2	n/a	n/a	n/a																																																																												
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Date: March 2, 2016
Company/Airshed: LICA
Location/Station Name: Elk Point

Start/End Time 24 hr. (mst): 9:11/ 14:34
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution & Varying UV Lamp Power

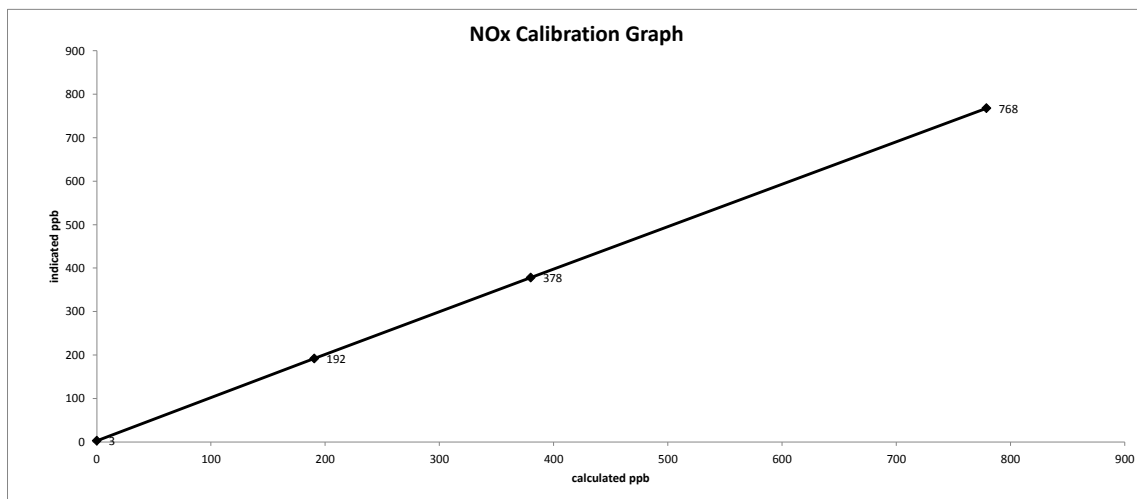
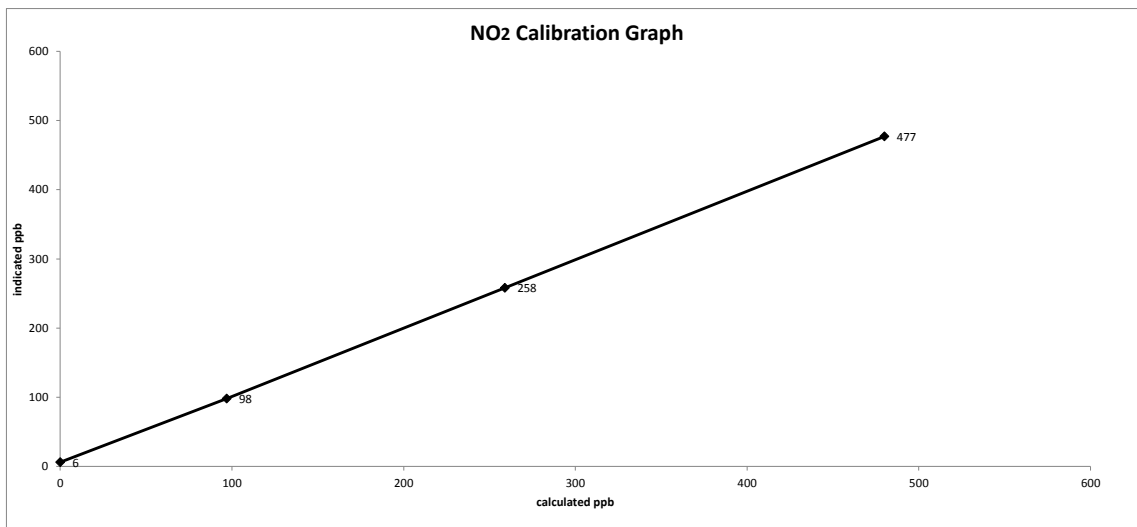
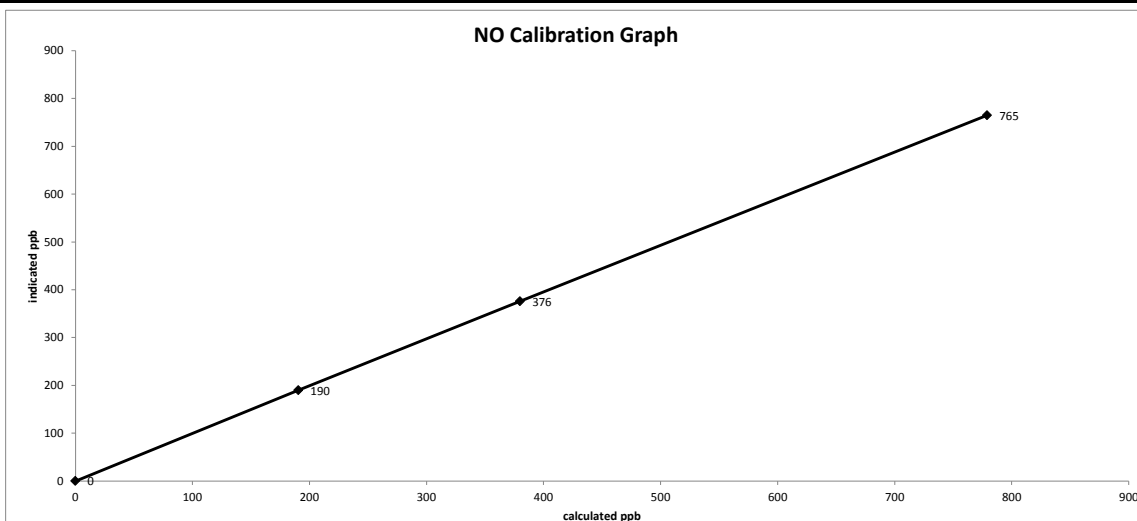





		<h3>API 200E NO-NO2-NOx Analyzer Calibration</h3>																																																																													
Date: March 10, 2016 Company/Airshed: LICA Location/Station Name: Elk Point Start/End Time 24 hr. (mst): 10:13 / 13:25 G.P.T. to be used for Ozone? No Calibration Method: Gas Dilution & Varying UV Lamp Power		Barometric Pressure: 0.926 atm Station Temperature °C: 20 Weather Conditions: A few clouds Calibration Purpose: shut down Performed By/Reviewer: Alex Yakupov Tom Bourque Cal Gas Expiry Date: December 2, 2023																																																																													
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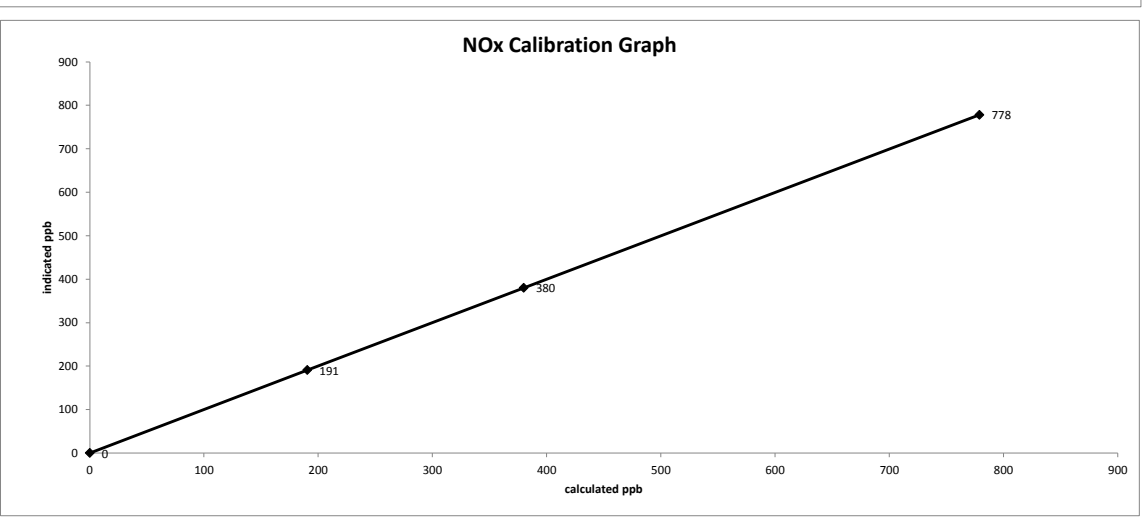
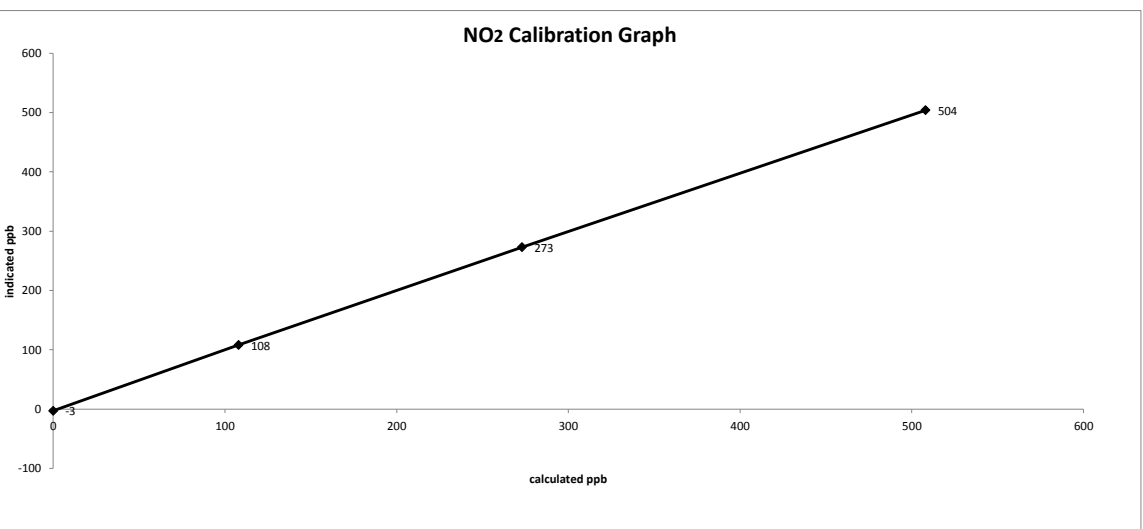
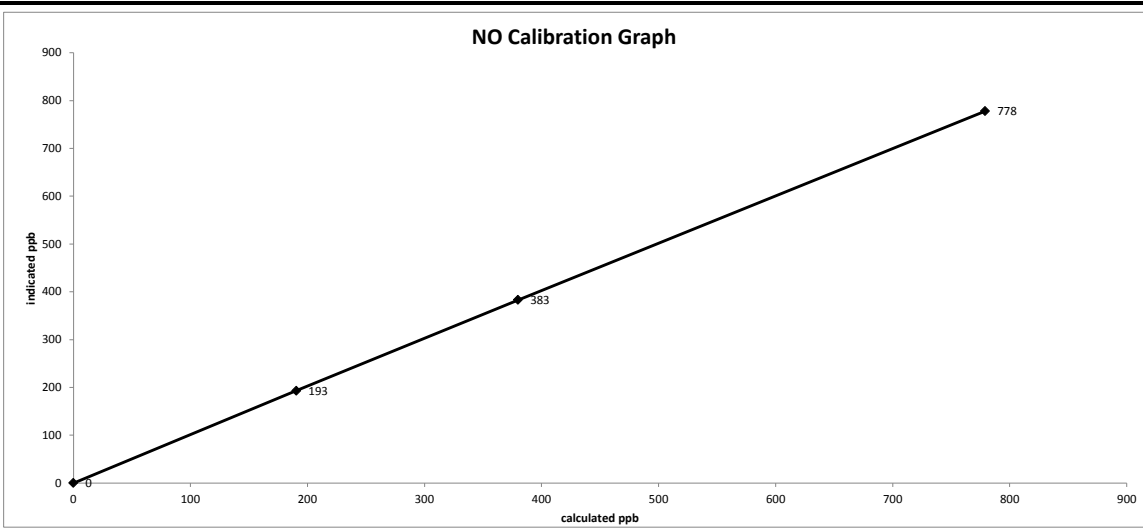
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Company/Airshed: LICA
Location/Station Name: Elk Point

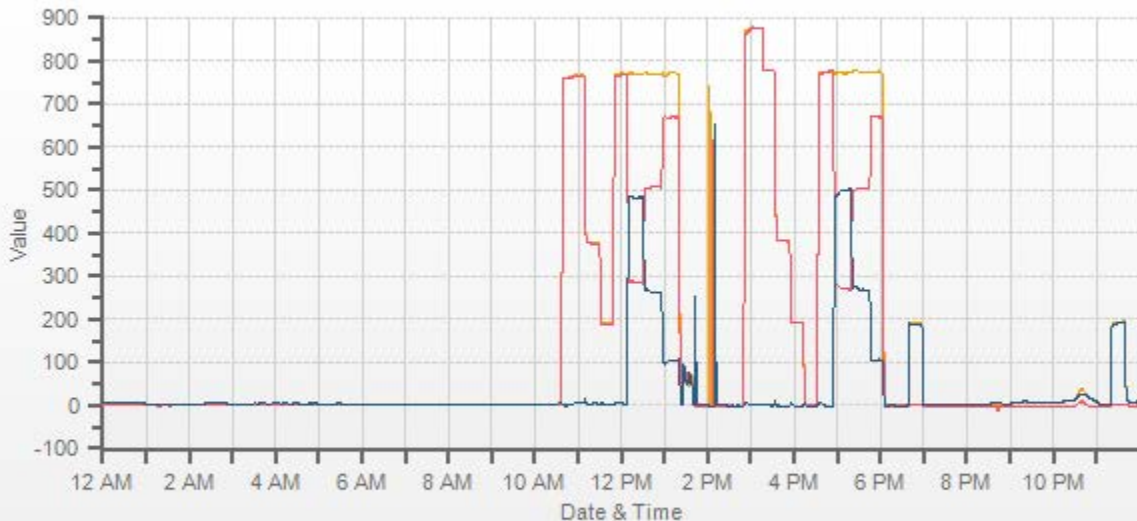
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calibrator zero	5012	0.00	5012	0.0	0.0	0.0	0.0	n/a	n/a																																																																								
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Comments: Sample filter changed. No NO2 adjustment made. Installation calibration performed to replace an analyzer, which required maintenance/repair in shop.																																																																																	

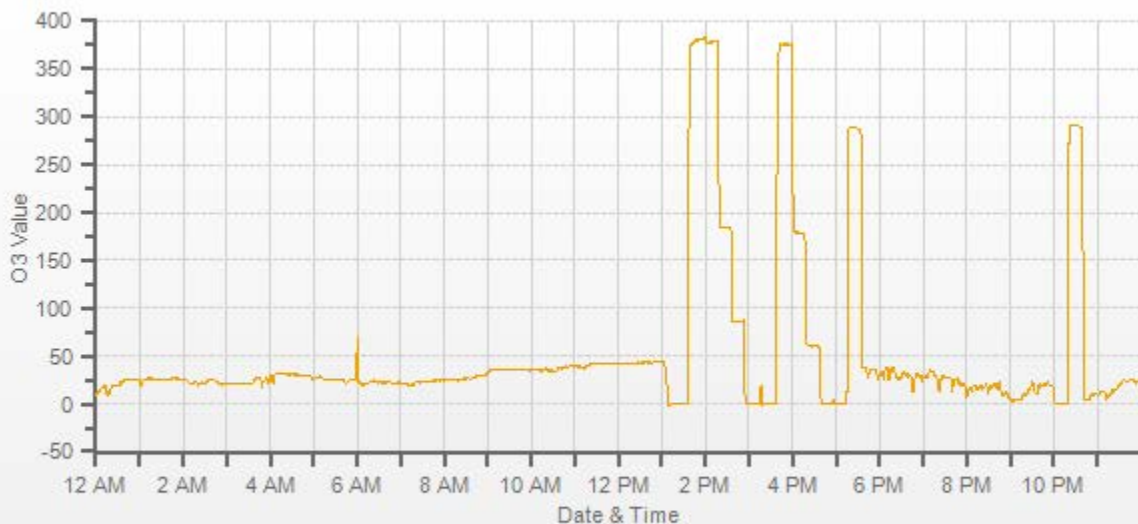
Date:	March 10, 2016	Start/End Time 24 hr. (mst):	14:10 / 19:03
Company/Airshed:	LICA	Calibration Purpose:	installation
Location/Station Name:	Elk Point	Calibration Method:	Gas Dilution & Varying UV Lamp Power





OZONE

Thermo 49i Ozone Analyzer Calibration <small>A Bureau Veritas Group Company</small>																																																																					
Date: <u>March 11, 2016</u>		Barometric Pressure: <u>0.933</u>		Company/Airshed: <u>LICA</u>		Station Temperature °C: <u>22</u>																																																															
Location/Station Name: <u>Elk Point</u>		Weather Conditions: <u>Mainly clear</u>		Start/End Time 24 hr. (mst): <u>12:59 / 15:09</u>		Calibration Purpose: <u>routine monthly</u>																																																															
Ozone Calibration Method: <u>Direct G.P.T.</u>		Performed By/Reviewer: <u>Alex Yakupov Trina Whitsitt</u>		G.P.T. Date: <u>March 11, 2016</u>		Cal Gas Expiry Date: <u>n/a</u>																																																															
Analyzer:																																																																					
Serial Number: <u>1002240372</u>		Ozone Range ppb: <u>500</u>		Last Calibration Date: <u>February 4, 2016</u>		As Found C.F.: <u>0.992</u>																																																															
Previous Cal High Point C.F.: <u>1.000</u>		New C.F.: <u>0.997</u>																																																																			
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Flow Meter ID's: <u>n/a</u>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Point</th> <th style="width: 50%;">AMD Required Range of Ozone Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>300-400 ppb</td> </tr> <tr> <td>Mid</td> <td>150-200 ppb</td> </tr> <tr> <td>Low</td> <td>50-75 ppb</td> </tr> </tbody> </table>		Point	AMD Required Range of Ozone Calibration Points	High	300-400 ppb	Mid	150-200 ppb	Low	50-75 ppb	Make & Model: <u>API 700</u>		Serial #: <u>627</u>																																																							
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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> As found: O3 Bkg: <u>-0.3</u> O3 Coef: <u>0.994</u> Photo Lamp: <u>14.2</u> O3 Lamp: <u>5.8</u> Bench: <u>32.1</u> Bench Lamp: <u>54.1</u> O3 Lamp: <u>68.1</u> Pressure: <u>690.2</u> Cell A lpm: <u>0.731</u> Cell B lpm: <u>0.742</u> O3 ppb: <u>0.0</u> Cell A ppb: <u>1.4</u> Cell B ppb: <u>-1.5</u> Cell A int: <u>96360</u> Cell B int: <u>97416</u> Internal Span: <u>293.1</u> </td> <td style="width: 50%; vertical-align: top;"> As left: O3 Bkg: <u>-0.3</u> O3 Coef: <u>0.979</u> Photo Lamp: <u>14.2</u> O3 Lamp: <u>5.8</u> Bench: <u>32.3</u> Bench Lamp: <u>54.1</u> O3 Lamp: <u>68.2</u> Pressure: <u>690.8</u> Cell A lpm: <u>0.733</u> Cell B lpm: <u>0.742</u> O3 ppb: <u>0.5</u> Cell A ppb: <u>-0.7</u> Cell B ppb: <u>1.8</u> Cell A int: <u>96343</u> Cell B int: <u>94694</u> Internal Span: <u>293.1</u> </td> </tr> </table>							As found: O3 Bkg: <u>-0.3</u> O3 Coef: <u>0.994</u> Photo Lamp: <u>14.2</u> O3 Lamp: <u>5.8</u> Bench: <u>32.1</u> Bench Lamp: <u>54.1</u> O3 Lamp: <u>68.1</u> Pressure: <u>690.2</u> Cell A lpm: <u>0.731</u> Cell B lpm: <u>0.742</u> O3 ppb: <u>0.0</u> Cell A ppb: <u>1.4</u> Cell B ppb: <u>-1.5</u> Cell A int: <u>96360</u> Cell B int: <u>97416</u> Internal Span: <u>293.1</u>	As left: O3 Bkg: <u>-0.3</u> O3 Coef: <u>0.979</u> Photo Lamp: <u>14.2</u> O3 Lamp: <u>5.8</u> Bench: <u>32.3</u> Bench Lamp: <u>54.1</u> O3 Lamp: <u>68.2</u> Pressure: <u>690.8</u> Cell A lpm: <u>0.733</u> Cell B lpm: <u>0.742</u> O3 ppb: <u>0.5</u> Cell A ppb: <u>-0.7</u> Cell B ppb: <u>1.8</u> Cell A int: <u>96343</u> Cell B int: <u>94694</u> Internal Span: <u>293.1</u>																																																													
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Comments: <p style="text-align: center;">Sample filter changed. No ZERO adjustment made. ZS check triggered after O3 photometer verification calibration, which followed.</p>																																																																					



PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 10, 2016
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: February 16, 2016
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Trina Whatsitt
 Start Time (mst): 12:35
 End Time (mst): 13:43
 Calibration Purpose: Bi-monthly #1
 Weather Conditions: Mainly clear

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>32.37</u>
Ko Factor:	<u>15635</u>	As Left Filter Loading %:	<u>34.10</u>
Ambient Temperature °C:	<u>0.53</u>	As Found Noise:	<u>0.003</u>
Ambient Pressure atm:	<u>0.925</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.34</u>
Aux Flow Reading lpm:	<u>13.68</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB1291</u>	<u>FB 1291</u>
Serial Number:	<u>#2</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>15-Jan-16</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.03	0.03	0.05	0.03
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.08	-0.66	0.04	-0.66
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.03	0.03	0.05	0.03
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.08	-0.66	0.04	-0.66
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>0.5</u>	1405F pressure atm:	<u>0.925</u>
reference temperature °C:	<u>0.5</u>	reference pressure:	<u>0.925</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>0.5</u>	1405F pressure atm:	<u>0.925</u>
reference temperature °C:	<u>0.5</u>	reference pressure:	<u>0.925</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.68</u>
reference main flow lpm:	<u>3.16</u>	reference total/aux flow lpm:	<u>14.56</u>
difference lpm:	<u>0.16</u>	difference lpm:	<u>0.88</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.68</u>
reference main flow lpm:	<u>2.99</u>	reference total/aux flow lpm:	<u>13.60</u>
difference lpm:	<u>-0.01</u>	difference lpm:	<u>-0.08</u>

K_o Audit:

Last K_o audit date: Feb 4, 20156
 1405F K_o factor: 15635
 Measured K_o factor: 15719.6000
 % difference: 0.55

Comments:

47 mm FDMS filter changed. Flows were calibrated.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: March 18, 2016
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: March 10, 2016
 Parameter: PM 2.5

Performed By/Reviewer: Alex Yakupov | Trina Whitsitt
 Start Time (mst): 13:57
 End Time (mst): 14:56
 Calibration Purpose: Bi-monthly #2
 Weather Conditions: Mix of sun and clouds

1400A Information and Status:

Serial Number: 1405A207691003 As Found Filter Loading %: 32.67
 Ko Factor: 15635 As Left Filter Loading %: 21.24
 Ambient Temperature °C: -1.5 As Found Noise: 0.003
 Ambient Pressure atm: 0.950 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.32
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>TISCH Environmental</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>Tisch PUF+</u>	<u>14-990A</u>
Serial Number:	<u>#2</u>	<u>100-1015</u>	<u>n/a</u>
Calibration Date:	<u>15-Jan-16</u>	<u>25-Nov-15</u>	<u>n/a</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.05	0.03	0.01	0.03
	limit	0.15	0.03	0.15	0.03
Bypass Flow	actual	0.29	0.03	0.00	0.03
	limit	0.60	0.03	0.60	0.03

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.05	0.03	0.01	0.03
	limit	0.15	0.03	0.15	0.03
Bypass Flow	actual	0.29	0.03	0.00	0.03
	limit	0.60	0.03	0.60	0.03

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-1.5</u>	1405F pressure atm: <u>0.950</u>
reference temperature °C: <u>-1.1</u>	reference pressure: <u>0.950</u>
difference °C: <u>0.4</u>	difference: <u>0.000</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-1.5</u>	1405F pressure atm: <u>0.950</u>
reference temperature °C: <u>-1.1</u>	reference pressure: <u>0.950</u>
difference °C: <u>0.4</u>	difference: <u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>2.94</u>	reference total/aux flow lpm: <u>13.06</u>
difference lpm: <u>-0.06</u>	difference lpm: <u>-0.61</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.00</u>	reference total/aux flow lpm: <u>13.38</u>
difference lpm: <u>0.00</u>	difference lpm: <u>-0.29</u>

K_o Audit:

Last K_o audit date: February 4, 2016
 1405F K_o factor: 15635
 Measured K_o factor: 15719.6000
 % difference: 0.55

Comments:

47 mm FDMS filter changed and TEOM sample filter was changed. Flows were calibrated.

WIND SYSTEM



Meteorological Sensor Audit

Station Information

Company:	<u>LICA</u>	Performed By:	<u>Limin Li</u>
Location:	<u>ELK point (in Calgary shop)</u>	Reason:	<u>Annual maintenance</u>
Audit Date:	<u>26-Jan-16</u>	Start Time (mst):	<u>11:00</u>
Previous Audit Date:	<u>NA</u>	End Time (mst):	<u>15:00</u>

Wind Speed

Sensor make:	<u>R. M. Young</u>	Sensor height:	<u>n/a</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>Young 18802</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0-1</u>	Output signal range:	<u>200KPH</u>

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.032	0.032	-
1000	17.6	17.66	17.64	1.00
2000	35.28	35.3	35.29	1.00
3000	52.92	52.99	52.99	1.00
4000	70.56	70.66	70.65	1.00
5000	88.2	88.35	88.33	1.00
6000	105.84	106	106	1.00
7000	123.48	123.7	123.7	1.00
8000	141.12	141.4	141.3	1.00
9000	158.76	159.1	159.1	1.00
10000	176.4	176.7	176.7	1.00
Average Correction Factor:				1.00

Wind Direction

Sensor make:	<u>R. M. Young</u>	Sensor height:	<u>n/a</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>Young 18802</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0-1</u>	Output signal range:	<u>0-360DEG</u>

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	0.5	NA
45	44.9	1.00
90	92.0	0.98
135	136.5	0.99
180	180.6	1.00
225	224.4	1.00
270	270.3	1.00
315	312.2	1.01
359	355.0	1.01
Average Correction Factor:		1.00

Remarks: Annual maintenance. Changed 05163PG, 05124VG bearings. 05131D, 05133B & 05135D

Audit Performed by: Limin Li

CALIBRATORS



Calibrator Performance Audit

OZONE

File No. 2015-163

Company: Maxxam

Operator: Chris Wesson

Calibrator:
 Make/Model Sabio 2010D
 Serial Number 11900613
 Oven Temperature 49.8
 Last Verification Date May 21, 2015

Flow Measurement Device:
 Make/Model NA
 Serial Number NA
 Temperature (°C) 24
 Barometric Pressure 700 mmHg

Flow Measurements

Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
4999	0.000	-0.001		
5000	0.381	0.385	1%	± 10%
5000	0.180	0.182	2%	± 10%
5000	0.090	0.091	2%	± 10%
Absolute Average Percent Difference			2%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>O₃</u>	<u>LIMITS</u>
Correlation= 1.0000	≥ 0.995
m (Slope)= 1.0119	0.90-1.10
b (Intercept % of FS)= -0.0724	± 3% F.S.

AENV Standards	Ozone Analyzer
Audit Calibrator	Make/Model <u>Thermo 49i</u>
Make/Model <u>Thermo 49i PS</u>	Serial/AMU Number <u>1843</u>
Serial/AMU Number <u>1808</u>	Last Calibration Date <u>March 30, 2016</u>
Ozone Standard <u>Thermo 49i PS 1808</u>	Full Scale (ppm) <u>0.5</u>

COMMENTS: _____

Auditor: Shea Beaton
 Operator Signature: _____

Date: March 30, 2016
 Location: McIntyre Center Edmonton



Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2016-093A

Company: Maxxam

Operator: Christopher Wesson

Calibrator:
 Make/Model API 700
 Serial Number 830
 Last Verification Date December 2014
 SO₂ Cylinder Conc. 50.3
 SO₂ Cylinder S/N LL42475

Flow Measurement Device:
 Make/Model N/A
 Serial Number N/A
 Temperature (°C) N/A
 Barometric Pressure N/A

Flow Measurements

Pt. No. 1 77.5 **Pt. No. 2** 37.8 **Pt. No. 3** 18.9

Calibrator Flow (scm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4998	0.780	0.746	-4%	± 10%
5002	0.380	0.365	-4%	± 10%
4997	0.190	0.182	-4%	± 10%
Absolute Average Percent Difference			4%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>SO₂</u>	<u>LIMITS</u>
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9565	0.90-1.10
b (Intercept % of FS)= 0.0436	± 3% F.S.

<u>AENV Standards</u>	<u>SO₂ Analyzer</u>
Audit Calibrator	Make/Model <u>Teco 43C</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1623</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>January 19, 2016</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: Gas was check for accuracy - 1% low from stated cylinder gas concentration.
Flows are not measured at each pt - AMD not being followed as per section 5.0.
Checked SO2 high pt using a Sabio 2010 - found a significantly higher response.
Both MFC's need to be re-calibrated.

Auditor: Al Clark Date: January 19, 2016
 Operator Signature: *Christopher Wesson* Location: McIntyre Center Edmonton



Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-119

Company <u>Maxxam</u>		Operator: <u>Chris Wesson</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>NA</u>
Serial Number	<u>627</u>	Serial Number	<u>NA</u>
Last Verification Date	<u>April 1 2015</u>	Temperature (°C)	<u>NA</u>
NO Cylinder S/N	<u>LL119317</u>	Barometric Pressure	<u>NA</u>
NO/NOx Concentration	<u>50.3/50.3</u>		

Dilution Flow (sccm)		
Pt. #1 <u>5000</u>	Pt. #2 <u>5000</u>	Pt. #3 <u>5000</u>
Gas Flow (sccm)		
Pt. #1 <u>77.5</u>	Pt. #2 <u>37.8</u>	Pt. #3 <u>18.9</u>

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5007	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5003	77.5	0.779	0.779	0.787	-0.001	0.786	1%	1%
5004	37.8	0.380	0.380	0.383	0.000	0.383	1%	1%
5001	18.9	0.190	0.190	0.191	0.000	0.191	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO		LIMITS		NOx			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0106	0.90-1.10		m (Slope)=	1.0092		
b (Intercept % of FS)=	-0.0566	± 3% F.S.		b (Intercept % of FS)=	-0.0368		

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5003	0	0.000	0.787	0.001	0.788	NO ₂	% Diff. Limit
5003	0.5	0.493	0.294	0.498	0.792	1%	± 10%
5003	0.25	0.256	0.531	0.262	0.792	2%	± 10%
5003	0.1	0.108	0.679	0.110	0.789	1%	± 10%
Absolute Average Percent Difference						1.2%	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO₂		LIMITS					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	1.0089	0.90-1.10					
b (Intercept % of FS)=	0.1591	± 3% F.S.					

AENV Standards	NO_x Analyzer
Audit Calibrator	
Make/Model <u>Thermo 146i</u>	Make/Model <u>Thermo 42i</u>
Serial/AMU Number <u>1809</u>	Serial/AMU Number <u>1868</u>
	Last Calibration Date <u>February 1, 2016</u>
	Full Scale (ppm) <u>1</u>

COMMENTS: Flows not manually measured - calibration system audited as it is currently being operated.

Auditor: Shea Beaton
 Operator Signature: [Signature]

Date: February 3, 2016
 Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-116CGA

Company: Maxxam **Operator's Name:** Chris Wesson
Cylinder #: LL119346 **Concentration PPM:** 50.0 **Tolerance(%):** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>Thermo146i</u>	Make/Model: <u>Bios DC-2</u>
Serial Number: <u>1809</u>	Serial Number: <u>Bios D</u>
Last Verification Date: <u>February 2, 2016</u>	Temp. °C: <u>24.5</u>
Gas Type: <u>SO2</u> Conc. <u>98.07</u>	B.P. <u>702mmHg</u>
Cylinder Number: <u>CAL016625</u>	

Reference Analyzer:
 Make/Model: Thermo 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
 Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4952	0.0	0.000	0.0000	0.000	0.0
4946	79.54	0.793	0.01608	62.183	49.3
4941	39.35	0.396	0.00796	125.565	49.7
4940	19.57	0.195	0.00396	252.427	49.2
Average Cylinder Concentration:					49.4

Previous Stated Concentration PPM: 50.0

Percent variance from Stated: 1.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO blend 50.0ppm NO
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
 Operator Signature: [Signature]

Date: February 2, 2016
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam **Operator's Name:** Limin Li
Cylinder #: LL36837 **Concentration PPM:** 10.0 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 23.0 C
 B.P.: 702 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
 Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	132.442	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-092CGA

Company: Maxxam Operators name: Chris Wesson
Cylinder #: LL165372 Conc CH4 (PPM) 606/212 Tolerance (%) 0.5 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1698
Last Verification Date January 18, 2016
Gas Type CH4 Conc. 999.2
Cylinder Number D751932
Gas Type C3H8 Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC-2
Serial Number Blos D
Temp. °C 24.5
B.P. 688mmHg

Reference Analyzer:

Make/Model Thermo 55C Serial/AMU Number: 1643
Instrument Settings Zero: NA Span: NA Range: 20.0
Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
2568	0.00	0.00	0.00	0.02140	46.722	607	214
2630	56.29	12.99	12.62	0.02140	46.722	607	214
2588	19.73	4.62	4.50	0.00762	131.171	606	215
2580	9.69	2.29	2.24	0.00376	266.254	610	217
Average Cylinder Concentration:						608	215

CH4	C3H8
Previous Stated Concentration PPM: <u>606</u>	<u>212</u>
Percent variance from Stated: <u>0.3</u>	<u>1.6</u>

Cylinder gas tolerances based on CH4 only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration C3H8 manufacturers tolerance 1.1%
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton
Operator Signature: _____

Date: January 19, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-115CGA

Company: Maxxam **Operators name:** Chris Wesson
Cylinder #: LL119346 **Conc (PPM)** 50.0/50.0 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Thermo 146i</u>			Make/Model	<u>Bios DC-2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>Bios D</u>
Last Verification Date	<u>February 2, 2016</u>			Temp. °C	<u>24.5</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702mmHg</u>
Cylinder Number	<u>CAL018024</u>				

Reference Analyzer:
Make/Model Thermo 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.2 **Span:** 1.014 **Range:** 1.0
Last Calibration: **Date:** 02-Feb-16 **C.F.** 1.000 **Done By:** SB

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
4952	0.0	0.000	0.000				
4946	79.54	0.809	0.809	0.01608	62.183	50.3	50.3
4941	39.35	0.403	0.402	0.00796	125.565	50.6	50.5
4940	19.57	0.200	0.200	0.00396	252.427	50.5	50.5
Average Cylinder Concentration:						50.5	50.4

	<u>NO</u>		<u>NOx</u>
Previous Stated Concentration PPM:	<u>50.0</u>		<u>50.0</u>
Percent variance from Stated:	<u>0.9</u>		<u>0.8</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** SO2/NO Blend 50.0PPM SO2
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Shea Beaton **Date:** February 2, 2016
Operator Signature: [Signature] **Location:** McIntyre Center Edmonton

***APPENDIX IV
ANALYTICAL RESULTS***

VOCS SAMPLES

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 1, 2016	S5594	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Mar-16
16030073-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	08-Mar-16
16030073-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	08-Mar-16
16030073-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Mar-16
16030073-001	1,2-Dichloroethane	I	0.03	ppbv	0.01	AC-058	08-Mar-16
16030073-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	1,3,5-Trimethylbenzene	I	0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	1-Butene	I	0.05	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	1-Pentene	I	0.02	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2,2-Dimethylbutane	I	0.11	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2,3,4-Trimethylpentane	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2,3-Dimethylbutane	I	0.26	ppbv	0.02	AC-058	08-Mar-16
16030073-001	2,3-Dimethylpentane	I	0.18	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 1, 2016	S5594	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-001	2,4-Dimethylpentane	I	0.09	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2-Methylheptane	I	0.06	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2-Methylhexane	I	0.08	ppbv	0.01	AC-058	08-Mar-16
16030073-001	2-Methylpentane		0.39	ppbv	0.01	AC-058	08-Mar-16
16030073-001	3-Methylheptane	I	0.03	ppbv	0.02	AC-058	08-Mar-16
16030073-001	3-Methylhexane	I	0.11	ppbv	0.02	AC-058	08-Mar-16
16030073-001	3-Methylpentane		0.82	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Acetone		1.9	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-001	Benzene	I	0.19	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Chloroform	I	0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Chloromethane		0.66	ppbv	0.02	AC-058	08-Mar-16
16030073-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Cyclohexane		0.30	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 1, 2016	S5594	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-001	Cyclopentane	I	0.10	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Ethanol	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Ethylbenzene	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Freon-11		0.30	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Freon-113	I	0.09	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Freon-12		0.52	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	08-Mar-16
16030073-001	Isobutane		1.17	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Isopentane		0.48	ppbv	0.03	AC-058	08-Mar-16
16030073-001	Isoprene	I	0.02	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	m,p-Xylene	I	0.09	ppbv	0.03	AC-058	08-Mar-16
16030073-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	08-Mar-16
16030073-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	08-Mar-16
16030073-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Mar-16
16030073-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Mar-16
16030073-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Mar-16
16030073-001	Methylcyclohexane		0.47	ppbv	0.01	AC-058	08-Mar-16
16030073-001	Methylcyclopentane		1.05	ppbv	0.02	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 1, 2016	S5594	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-001	Methylene chloride		0.4	ppbv	0.3	AC-058	08-Mar-16
16030073-001	n-Butane		1.89	ppbv	0.03	AC-058	08-Mar-16
16030073-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Mar-16
16030073-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	n-Heptane	I	0.15	ppbv	0.01	AC-058	08-Mar-16
16030073-001	n-Hexane		3.41	ppbv	0.01	AC-058	08-Mar-16
16030073-001	n-Octane	I	0.06	ppbv	0.02	AC-058	08-Mar-16
16030073-001	n-Pentane		0.9	ppbv	0.1	AC-058	08-Mar-16
16030073-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Mar-16
16030073-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Mar-16
16030073-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Mar-16
16030073-001	n-Nonane	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-001	o-Ethyltoluene	I	0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	o-Xylene	I	0.04	ppbv	0.01	AC-058	08-Mar-16
16030073-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Mar-16
16030073-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Toluene		0.36	ppbv	0.01	AC-058	08-Mar-16
16030073-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16
16030073-001	trans-2-Butene	I	0.01	ppbv	0.01	AC-058	08-Mar-16
16030073-001	trans-2-Pentene	I	0.02	ppbv	0.02	AC-058	08-Mar-16
16030073-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 1, 2016	S5594	Ambient Air	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Mar-16
16030073-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Mar-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 7, 2016	2446	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16
16030162-001	1,2,3-Trimethylbenzene		0.98	ppbv	0.05	AC-058	16-Mar-16
16030162-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	16-Mar-16
16030162-001	1,2,4-Trimethylbenzene		1.32	ppbv	0.03	AC-058	16-Mar-16
16030162-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Mar-16
16030162-001	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	16-Mar-16
16030162-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	1,3,5-Trimethylbenzene		0.59	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,3-Butadiene	I	0.03	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Mar-16
16030162-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	1-Butene	I	0.20	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	1-Pentene	I	0.02	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	16-Mar-16
16030162-001	2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	16-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 7, 2016	2446	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-001	2,4-Dimethylpentane	I	0.03	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	2-Methylpentane	I	0.11	ppbv	0.01	AC-058	16-Mar-16
16030162-001	3-Methylheptane	I	0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	3-Methylhexane	I	0.09	ppbv	0.02	AC-058	16-Mar-16
16030162-001	3-Methylpentane	I	0.12	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Acetone		36.1	ppbv	0.8	AC-058	17-Mar-16
16030162-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Mar-16
16030162-001	Benzene		0.80	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Carbon disulfide		1.47	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Chloroethane	I	0.07	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Chloroform	I	0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Chloromethane		0.70	ppbv	0.02	AC-058	16-Mar-16
16030162-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16
16030162-001	cis-2-Butene	I	0.06	ppbv	0.02	AC-058	16-Mar-16
16030162-001	cis-2-Pentene	I	0.03	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Cyclohexane	I	0.22	ppbv	0.02	AC-058	16-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 7, 2016	2446	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-001	Cyclopentane	I	0.07	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Ethanol		11.2	ppbv	0.3	AC-058	16-Mar-16
16030162-001	Ethyl acetate		1.6	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Ethylbenzene		5.47	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Freon-11	I	0.29	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Freon-113	I	0.08	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Freon-12		0.52	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	16-Mar-16
16030162-001	Isobutane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Isopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Mar-16
16030162-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Isopropyl alcohol		0.6	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Isopropylbenzene	I	0.13	ppbv	0.01	AC-058	16-Mar-16
16030162-001	m,p-Xylene		4.76	ppbv	0.03	AC-058	16-Mar-16
16030162-001	m-Diethylbenzene	I	0.24	ppbv	0.04	AC-058	16-Mar-16
16030162-001	m-Ethyltoluene		0.53	ppbv	0.08	AC-058	16-Mar-16
16030162-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	16-Mar-16
16030162-001	Methyl ethyl ketone		9.1	ppbv	0.3	AC-058	16-Mar-16
16030162-001	Methyl isobutyl ketone		1.2	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Mar-16
16030162-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Mar-16
16030162-001	Methylcyclohexane		0.32	ppbv	0.01	AC-058	16-Mar-16
16030162-001	Methylcyclopentane	I	0.22	ppbv	0.02	AC-058	16-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 7, 2016	2446	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Mar-16
16030162-001	n-Butane		0.99	ppbv	0.03	AC-058	16-Mar-16
16030162-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Mar-16
16030162-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	n-Heptane	I	0.07	ppbv	0.01	AC-058	16-Mar-16
16030162-001	n-Hexane	I	0.17	ppbv	0.01	AC-058	16-Mar-16
16030162-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16
16030162-001	n-Pentane		0.5	ppbv	0.1	AC-058	16-Mar-16
16030162-001	n-Propylbenzene		0.38	ppbv	0.05	AC-058	16-Mar-16
16030162-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Mar-16
16030162-001	Naphthalene		7.8	ppbv	0.5	AC-058	16-Mar-16
16030162-001	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	o-Ethyltoluene		0.84	ppbv	0.01	AC-058	16-Mar-16
16030162-001	o-Xylene		3.45	ppbv	0.01	AC-058	16-Mar-16
16030162-001	p-Diethylbenzene		0.96	ppbv	0.04	AC-058	16-Mar-16
16030162-001	p-Ethyltoluene		0.39	ppbv	0.07	AC-058	16-Mar-16
16030162-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16
16030162-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16
16030162-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Toluene		7.46	ppbv	0.01	AC-058	16-Mar-16
16030162-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Mar-16
16030162-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16
16030162-001	trans-2-Butene	I	0.09	ppbv	0.01	AC-058	16-Mar-16
16030162-001	trans-2-Pentene	I	0.06	ppbv	0.02	AC-058	16-Mar-16
16030162-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Mar-16

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 7, 2016	2446	Ambient Air	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Mar-16
16030162-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Mar-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 13, 2016	6106	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Mar-16
16030162-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Mar-16
16030162-003	1,2,4-Trimethylbenzene	I	0.11	ppbv	0.03	AC-058	17-Mar-16
16030162-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-003	1,2-Dichloroethane	I	0.03	ppbv	0.01	AC-058	17-Mar-16
16030162-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	1,3,5-Trimethylbenzene	I	0.05	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	1-Butene	I	0.10	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1-Hexene	I	0.06	ppbv	0.02	AC-058	17-Mar-16
16030162-003	1-Pentene	I	0.07	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2,2-Dimethylbutane	I	0.24	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2,3,4-Trimethylpentane	I	0.06	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2,3-Dimethylbutane	I	0.36	ppbv	0.02	AC-058	17-Mar-16
16030162-003	2,3-Dimethylpentane	I	0.22	ppbv	0.02	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 13, 2016	6106	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-003	2,4-Dimethylpentane	I	0.15	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2-Methylheptane	I	0.17	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2-Methylhexane		0.48	ppbv	0.01	AC-058	17-Mar-16
16030162-003	2-Methylpentane		1.80	ppbv	0.01	AC-058	17-Mar-16
16030162-003	3-Methylheptane	I	0.12	ppbv	0.02	AC-058	17-Mar-16
16030162-003	3-Methylhexane		0.46	ppbv	0.02	AC-058	17-Mar-16
16030162-003	3-Methylpentane		1.49	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Acetone		5.1	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-003	Benzene		0.89	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Carbon disulfide	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Chloroform	I	0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Chloromethane		0.70	ppbv	0.02	AC-058	17-Mar-16
16030162-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	cis-2-Butene	I	0.06	ppbv	0.02	AC-058	17-Mar-16
16030162-003	cis-2-Pentene	I	0.06	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Cyclohexane		0.77	ppbv	0.02	AC-058	17-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 13, 2016	6106	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-003	Cyclopentane		0.49	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Ethanol		0.7	ppbv	0.3	AC-058	17-Mar-16
16030162-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Ethylbenzene	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Freon-11	I	0.29	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Freon-113	I	0.09	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Freon-114	I	0.02	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Freon-12		0.59	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-003	Isobutane		1.52	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Isopentane		8.99	ppbv	0.03	AC-058	17-Mar-16
16030162-003	Isoprene	I	0.05	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Isopropylbenzene	I	0.04	ppbv	0.01	AC-058	17-Mar-16
16030162-003	m,p-Xylene	I	0.28	ppbv	0.03	AC-058	17-Mar-16
16030162-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	17-Mar-16
16030162-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	17-Mar-16
16030162-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Mar-16
16030162-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Mar-16
16030162-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Mar-16
16030162-003	Methylcyclohexane		0.75	ppbv	0.01	AC-058	17-Mar-16
16030162-003	Methylcyclopentane		1.66	ppbv	0.02	AC-058	17-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/March 13, 2016	6106	Ambient Air	13-Mar-16 0:00
DESCRIPTION:	Elk Point Airport		
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-003	Methylene chloride		0.4	ppbv	0.3	AC-058	17-Mar-16
16030162-003	n-Butane		3.13	ppbv	0.03	AC-058	17-Mar-16
16030162-003	n-Decane	I	0.06	ppbv	0.06	AC-058	17-Mar-16
16030162-003	n-Dodecane		0.7	ppbv	0.4	AC-058	17-Mar-16
16030162-003	n-Heptane		0.70	ppbv	0.01	AC-058	17-Mar-16
16030162-003	n-Hexane		4.59	ppbv	0.01	AC-058	17-Mar-16
16030162-003	n-Octane	I	0.21	ppbv	0.02	AC-058	17-Mar-16
16030162-003	n-Pentane		6.4	ppbv	0.1	AC-058	17-Mar-16
16030162-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Mar-16
16030162-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-003	Naphthalene		0.5	ppbv	0.5	AC-058	17-Mar-16
16030162-003	n-Nonane	I	0.10	ppbv	0.01	AC-058	17-Mar-16
16030162-003	o-Ethyltoluene	I	0.05	ppbv	0.01	AC-058	17-Mar-16
16030162-003	o-Xylene	I	0.11	ppbv	0.01	AC-058	17-Mar-16
16030162-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Mar-16
16030162-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Toluene		0.92	ppbv	0.01	AC-058	17-Mar-16
16030162-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Mar-16
16030162-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16
16030162-003	trans-2-Butene	I	0.07	ppbv	0.01	AC-058	17-Mar-16
16030162-003	trans-2-Pentene	I	0.07	ppbv	0.02	AC-058	17-Mar-16
16030162-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/March 13, 2016	6106	Ambient Air	13-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Mar-16
16030162-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Mar-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 19, 2016	15007	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	30-Mar-16
16030271-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	30-Mar-16
16030271-003	1,2,4-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-003	1,2-Dichloroethane	I	0.10	ppbv	0.01	AC-058	30-Mar-16
16030271-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,3-Butadiene	I	0.03	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	1-Butene		0.32	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1-Hexene	I	0.07	ppbv	0.02	AC-058	30-Mar-16
16030271-003	1-Pentene	I	0.14	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2,2-Dimethylbutane	I	0.04	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2,3-Dimethylbutane	I	0.15	ppbv	0.02	AC-058	30-Mar-16
16030271-003	2,3-Dimethylpentane	I	0.17	ppbv	0.02	AC-058	30-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 19, 2016	15007	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-003	2,4-Dimethylpentane	I	0.09	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2-Methylheptane	I	0.05	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2-Methylhexane	I	0.18	ppbv	0.01	AC-058	30-Mar-16
16030271-003	2-Methylpentane		0.89	ppbv	0.01	AC-058	30-Mar-16
16030271-003	3-Methylheptane	I	0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	3-Methylhexane	I	0.16	ppbv	0.02	AC-058	30-Mar-16
16030271-003	3-Methylpentane		9.85	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Acetone	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Mar-16
16030271-003	Benzene	I	0.27	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Bromomethane	I	0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Carbon tetrachloride	I	0.08	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Chloroform	I	0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Chloromethane		0.69	ppbv	0.02	AC-058	30-Mar-16
16030271-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	cis-2-Butene		0.32	ppbv	0.02	AC-058	30-Mar-16
16030271-003	cis-2-Pentene	I	0.12	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Cyclohexane		1.02	ppbv	0.02	AC-058	30-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 19, 2016	15007	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-003	Cyclopentane	I	0.07	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Ethanol		3.4	ppbv	0.3	AC-058	30-Mar-16
16030271-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Ethylbenzene	I	0.06	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Freon-11	I	0.24	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Freon-113	I	0.06	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Freon-114	I	0.02	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Freon-12		0.58	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	30-Mar-16
16030271-003	Isobutane		7.75	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Isopentane		4.85	ppbv	0.03	AC-058	30-Mar-16
16030271-003	Isoprene	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	m,p-Xylene	I	0.21	ppbv	0.03	AC-058	30-Mar-16
16030271-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	30-Mar-16
16030271-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	30-Mar-16
16030271-003	Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	30-Mar-16
16030271-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Mar-16
16030271-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Mar-16
16030271-003	Methylcyclohexane	I	0.15	ppbv	0.01	AC-058	30-Mar-16
16030271-003	Methylcyclopentane		19.5	ppbv	0.02	AC-058	30-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 19, 2016	15007	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-003	Methylene chloride		6.2	ppbv	0.3	AC-058	30-Mar-16
16030271-003	n-Butane		33.3	ppbv	0.18	AC-058	31-Mar-16
16030271-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Mar-16
16030271-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	n-Heptane	I	0.13	ppbv	0.01	AC-058	30-Mar-16
16030271-003	n-Hexane		72.9	ppbv	0.06	AC-058	31-Mar-16
16030271-003	n-Octane	I	0.03	ppbv	0.02	AC-058	30-Mar-16
16030271-003	n-Pentane		1.5	ppbv	0.1	AC-058	30-Mar-16
16030271-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	30-Mar-16
16030271-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Mar-16
16030271-003	Naphthalene		1.0	ppbv	0.5	AC-058	30-Mar-16
16030271-003	n-Nonane	I	0.02	ppbv	0.01	AC-058	30-Mar-16
16030271-003	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	o-Xylene	I	0.07	ppbv	0.01	AC-058	30-Mar-16
16030271-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Mar-16
16030271-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	Tetrachloroethylene	I	0.27	ppbv	0.04	AC-058	30-Mar-16
16030271-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Toluene		8.98	ppbv	0.01	AC-058	30-Mar-16
16030271-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	30-Mar-16
16030271-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16
16030271-003	trans-2-Butene	I	0.30	ppbv	0.01	AC-058	30-Mar-16
16030271-003	trans-2-Pentene	I	0.26	ppbv	0.02	AC-058	30-Mar-16
16030271-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Mar-16

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 19, 2016	15007	Ambient Air	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-003	Vinyl acetate		0.8	ppbv	0.4	AC-058	30-Mar-16
16030271-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Mar-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 25, 2016	S12945	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	06-Apr-16
16040006-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-003	1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	1-Butene	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	06-Apr-16
16040006-003	2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	06-Apr-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 25, 2016	S12945	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-003	2,4-Dimethylpentane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	06-Apr-16
16040006-003	3-Methylpentane	I	0.04	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Acetone		2.6	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-003	Benzene	I	0.08	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Bromomethane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Carbon tetrachloride	I	0.11	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Chloroform	I	0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Chloromethane		0.87	ppbv	0.02	AC-058	06-Apr-16
16040006-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Cyclohexane	I	0.06	ppbv	0.02	AC-058	06-Apr-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 25, 2016	S12945	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-003	Cyclopentane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Ethanol		0.5	ppbv	0.3	AC-058	06-Apr-16
16040006-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Freon-11		0.35	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Freon-113	I	0.10	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Freon-114	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Freon-12		0.81	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	06-Apr-16
16040006-003	Isobutane		0.96	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Isopentane		0.49	ppbv	0.03	AC-058	06-Apr-16
16040006-003	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Apr-16
16040006-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	06-Apr-16
16040006-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Apr-16
16040006-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Apr-16
16040006-003	Methylcyclohexane	I	0.11	ppbv	0.01	AC-058	06-Apr-16
16040006-003	Methylcyclopentane	I	0.07	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

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E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 25, 2016	S12945	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Apr-16
16040006-003	n-Butane		1.19	ppbv	0.03	AC-058	06-Apr-16
16040006-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Apr-16
16040006-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	n-Heptane	I	0.04	ppbv	0.01	AC-058	06-Apr-16
16040006-003	n-Hexane	I	0.10	ppbv	0.01	AC-058	06-Apr-16
16040006-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	n-Pentane	I	0.2	ppbv	0.1	AC-058	06-Apr-16
16040006-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-003	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-003	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Apr-16
16040006-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Toluene	I	0.05	ppbv	0.01	AC-058	06-Apr-16
16040006-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-003	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 25, 2016	S12945	Ambient Air	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16

PAHS SAMPLES

<p>RESULTS: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID LICA/PUF/ELK/Mar 1, 2016</p> <p>CANISTER ID TE-11</p> <p>Matrix Air Filter</p> <p>Priority Normal</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 01-Mar-16 0:00</p> <p>REPORT CREATED: 01-Apr-16</p> <p>DATE RECEIVED: 07-Mar-16</p> <p>REPORT NUMBER: 16030073</p> <p>VERSION: Version 01</p>
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-002	1-Methylnaphthalene		0.25	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	2-Methylnaphthalene		0.46	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Acenaphthene		0.07	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Acenaphthylene		0.03	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Anthracene		0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(b,j,k)fluoranthene		0.04	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Chrysene		0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/Mar 1, 2016	TE-11	Air Filter	01-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030073	REPORT CREATED:	01-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030073-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Fluoranthene		0.07	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Fluorene		0.10	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Naphthalene		0.18	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Phenanthrene		0.12	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Pyrene		0.03	ug/PUF	0.01	NA-017	09-Mar-16
16030073-002	Retene		0.03	ug/PUF	0.01	NA-017	09-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 1, 2016

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/March 7, 2016	P13-01	Air Filter	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-002	1-Methylnaphthalene		0.03	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	2-Methylnaphthalene		0.04	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Acenaphthene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(b,j,k)fluoranthene		0.05	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Fluoranthene		0.08	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Fluorene		0.06	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Naphthalene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Phenanthrene		0.09	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/March 7, 2016	P13-01	Air Filter	07-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030162	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030162-002	Pyrene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030162-002	Retene		0.02	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/Mar 19, 2016	9801	Air Filter	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-004	1-Methylnaphthalene		0.09	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	2-Methylnaphthalene		0.13	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Acenaphthene		0.04	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(b,j,k)fluoranthene		0.05	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Fluoranthene		0.03	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Fluorene		0.06	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Naphthalene		0.07	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Phenanthrene		0.07	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/Mar 19, 2016	9801	Air Filter	19-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16030271	REPORT CREATED:	19-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16030271-004	Pyrene		0.02	ug/puf	0.01	NA-017	31-Mar-16
16030271-004	Retene		0.02	ug/puf	0.01	NA-017	31-Mar-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 19, 2016

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 JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/Mar 25, 2016	TE-05	Air Filter	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-004	1-Methylnaphthalene		0.11	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	2-Methylnaphthalene		0.17	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Acenaphthene		0.04	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Acenaphthylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Acridine	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Anthracene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(a)anthracene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Chrysene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Fluoranthene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Fluorene		0.07	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Naphthalene		0.07	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Perylene	K, T, U	< 0.01	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Phenanthrene		0.11	ug/puf	0.01	NA-017	16-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

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JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/ELK/Mar 25, 2016	TE-05	Air Filter	25-Mar-16	0:00
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-004	Pyrene		0.02	ug/puf	0.01	NA-017	16-Apr-16
16040006-004	Retene		0.01	ug/puf	0.01	NA-017	16-Apr-16

NMHC CANISTER SAMPLES

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 24, 2016	2530	Ambient Air	24-Mar-16	23:40
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-005	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,1-Dichloroethylene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Apr-16
16040006-005	1,2,4-Trichlorobenzene	K, T, U	< 0.9	ppbv	0.9	AC-058	06-Apr-16
16040006-005	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.04	AC-058	06-Apr-16
16040006-005	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,2-Dichlorobenzene	I	0.07	ppbv	0.04	AC-058	06-Apr-16
16040006-005	1,2-Dichloroethane	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-005	1,2-Dichloropropane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	1,3,5-Trimethylbenzene	I	0.07	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-005	1,4-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	1-Butene		0.44	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	1-Pentene	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2,3,4-Trimethylpentane	I	0.10	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-005	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	06-Apr-16

Report certified by: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: April 22, 2016

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca
JOB #: 2833-2016-03-35- C

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 24, 2016	2530	Ambient Air	24-Mar-16	23:40
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-005	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	3-Methylheptane	I	0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	3-Methylpentane	I	0.04	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Acetone		4.1	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-005	Benzene	I	0.13	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Benzyl chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Bromomethane	I	0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Carbon disulfide	I	0.04	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Carbon tetrachloride	I	0.11	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Chlorobenzene	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Chloroform	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Chloromethane		0.88	ppbv	0.02	AC-058	06-Apr-16
16040006-005	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	cis-2-Butene	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-005	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Cyclohexane	I	0.05	ppbv	0.02	AC-058	06-Apr-16

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/ELK/Mar 24, 2016	2530	Ambient Air	24-Mar-16	23:40
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-005	Cyclopentane	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Ethanol		0.8	ppbv	0.4	AC-058	06-Apr-16
16040006-005	Ethyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Ethylbenzene	I	0.07	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Freon-11	I	0.33	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Freon-113	I	0.10	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Freon-114	I	0.03	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Freon-12		0.68	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Hexachloro-1,3-butadiene	K, T, U	< 0.59	ppbv	0.59	AC-058	06-Apr-16
16040006-005	Isobutane		0.59	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Isopentane		0.69	ppbv	0.04	AC-058	06-Apr-16
16040006-005	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Isopropylbenzene	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-005	m,p-Xylene	I	0.10	ppbv	0.04	AC-058	06-Apr-16
16040006-005	m-Diethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	m-Ethyltoluene	K, T, U	< 0.09	ppbv	0.09	AC-058	06-Apr-16
16040006-005	Methyl butyl ketone	K, T, U	< 0.59	ppbv	0.59	AC-058	06-Apr-16
16040006-005	Methyl ethyl ketone		0.7	ppbv	0.4	AC-058	06-Apr-16
16040006-005	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Apr-16
16040006-005	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Apr-16
16040006-005	Methylcyclohexane	I	0.12	ppbv	0.01	AC-058	06-Apr-16
16040006-005	Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	06-Apr-16

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DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-005	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Apr-16
16040006-005	n-Butane		0.64	ppbv	0.04	AC-058	06-Apr-16
16040006-005	n-Decane	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Apr-16
16040006-005	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	n-Heptane	I	0.06	ppbv	0.01	AC-058	06-Apr-16
16040006-005	n-Hexane	I	0.06	ppbv	0.01	AC-058	06-Apr-16
16040006-005	n-Octane	I	0.05	ppbv	0.02	AC-058	06-Apr-16
16040006-005	n-Pentane	I	0.1	ppbv	0.1	AC-058	06-Apr-16
16040006-005	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Apr-16
16040006-005	n-Undecane	K, T, U	< 0.6	ppbv	0.6	AC-058	06-Apr-16
16040006-005	Naphthalene		1.2	ppbv	0.6	AC-058	06-Apr-16
16040006-005	n-Nonane	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-005	o-Ethyltoluene	I	0.02	ppbv	0.01	AC-058	06-Apr-16
16040006-005	o-Xylene	I	0.07	ppbv	0.01	AC-058	06-Apr-16
16040006-005	p-Diethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	p-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Apr-16
16040006-005	Styrene	I	0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	Tetrachloroethylene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	Tetrahydrofuran	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Toluene	I	0.12	ppbv	0.01	AC-058	06-Apr-16
16040006-005	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Apr-16
16040006-005	trans-1,3-Dichloropropylene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16
16040006-005	trans-2-Butene	I	0.03	ppbv	0.01	AC-058	06-Apr-16
16040006-005	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16
16040006-005	Trichloroethylene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Apr-16

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LICA/VOC/ELK/Mar 24, 2016	2530	Ambient Air	24-Mar-16	23:40
DESCRIPTION:	Elk Point Airport			
REPORT NUMBER:	16040006	REPORT CREATED:	22-Apr-16	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
16040006-005	Vinyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Apr-16
16040006-005	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Apr-16

APPENDIX VI
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Lakeland Industry & Community Association	Elk Point Airport Site
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager Assistant, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.

Wunmi Adekanmbi

Signature of the Representative of the Person
Responsible / External Person Certifying the Report

29-April-2016





Report Issued Date (dd-mm-yyyy)

APPENDIX VII
DATA VALIDATION CERTIFICATION FORM



Validation Certificate Form

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2016-03-35- C</u>
Site: <u>Elk Point Airport Site</u>	Contact: <u>Mike Bisaga</u>

Level 0 Preliminary Verification	<u></u>	Date <u>15-April-2016</u>
Level 1 Primary Validation	<u></u>	Date <u>15-April-2016</u>
Level 2 Final Validation	<u></u>	Date <u>29-April-2016</u>
Level 3 Independent Data Review	<u></u>	Date <u>29-April-2016</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

Notes
The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.