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Edmonton Alberta T5K 2J6

December 11, 2015

RE: October 2015 Ambient Air Monitoring Monthly Reports

Attached are the monthly ambient air monitoring reports for the LICA Airshed Zone's Cold Lake South, Maskwa, St. Lina, and Elk Point continuous stations.

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

Respectfully,

Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

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AMBIENT AIR MONITORING MONTHLY DATA REPORT

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

COLD LAKE SOUTH SITE

JOB #:2833-2015-10-01- C

OCTOBER 2015

Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
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Attention: MIKE BISAGA

DATE: **December 1, 2015**

Prepared by:

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Reviewed by:

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Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In OCTOBER 2015, 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 Bonnyville, Alberta. 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 and AMD2006.

The operational uptime for all analyzers and meteorological system was above the 90% requirement, except PM 2.5 (89.4%).

PM 2.5: Seventy-nine hours of data were invalidated as the data were below –3 ug/m3 this month. The operational uptime is 89.4%. AE reference #: 306212.

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 (%)
						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	2	10, 28	VAR	VAR	VAR	0.4	10	100.0
TRS (PPB)	-	-	-	-	0	0	ALL	ALL	VAR	VAR	0.0	ALL	100.0
THC (PPM)	-	-	-	-	2.2	4.3	22	19	1	SW	2.6	8	100.0
NO2 (PPB)	159	-	0	-	3.8	17.1	10	21	1.3	ENE	7.0	24	100.0
NO (PPB)	-	-	-	-	1.0	47.4	6	7	1.3	ENE	5.5	6	100.0
NOX (PPB)	-	-	-	-	4.8	61.1	6	7	1.3	ENE	10.2	6	100.0
O3 (PPB)	82	-	0	-	21	41	10	19	1.1	E	31.4	14	100.0
PM2.5 (UG/M3)	-	30	-	0	6.3	48.0	27	11	13.8	NW	12.6	8	89.4
RELATIVE HUMIDITY (%)	-	-	-	-	69.1	98	12	9	6.2	SSE	89.8	12	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	5.9	24.6	10	15	10.4	WSW	13.9	1	100.0
VECTOR WS (KPH)	-	-	-	-	6.0	21.7	20	14	-	WNW	12.7	27	100.0
VECTOR WD (DEG)	-	-	-	-	W	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

SO_2 24- Hour Exceedences

No Exceedences Recorded During the Month

NO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences

No Exceedences Recorded During the Month

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
OCTOBER 3, 2015	2.9	ACETONE
OCTOBER 9, 2015	3.7	ACETONE AND ETHANOL
OCTOBER 15, 2015	1.4	ACETONE
OCTOBER 21, 2015	1.5	ACETONE
OCTOBER 27, 2015	1.5	NAPHTHALENE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
OCTOBER 3, 2015	0.08	PHENANTHRENE
OCTOBER 9, 2015	0.31	2-METHYLNAPHTHALENE
OCTOBER 15, 2015	0.09	ACENAPHTHYLENE
OCTOBER 21, 2015	0.15	PERYLENE
OCTOBER 27, 2015	0.20	PERYLENE

Note: NA

Partisol Sampler Summary

Sample Collected Date	Concentration (mg)
OCTOBER 3, 2015	0.004
OCTOBER 9, 2015	0.083
OCTOBER 15, 2015	0.031
OCTOBER 21, 2015	0.035
OCTOBER 27, 2015	0.016

Note: NA

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1.0 Discussion

This monthly report consists of data for parameters SO2, TRS, THC, NOx, NO, NO2, O3, PM2.5, WS, WD, RH and Ambient Temperature. It also includes results for non-continuous parameters VOC, PAH and Partisol.

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.

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.

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 15%).

Hourly data is corrected using daily zero information.

Trailer inspection was completed on October 5. No issues were identified.

SULPHUR DIOXIDE (SO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 5.

TOTAL REDUCED SULPHUR (TRS)
The analyzer was working well throughout the month. The routine monthly calibration was performed on October 6. The channel was put into Maintenance On October 27 at hour 9 while an external zero air generator was being verified.

TOTAL HYDROCARBONS (THC)
The analyzer was working well throughout the month. The routine monthly calibration was performed on October 5. The Hydrogen gas cylinder was replaced on October 1 and the span gas cylinder was replaced on October 26.

NITROGEN DIOXIDE (NO2)
The routine monthly calibration was performed on October 5. The analyzer started spanning high, but still within acceptance limits after the calibration, as the expected span value was not set correctly. An as found points check was completed on October 28. The expected span value was then adjusted. No further issues were identified.

OZONE (O3)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 5.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)
Two audits were performed this month: one was completed on October 6, and the other audit was performed on October 26. The sample pump was replaced on October 6. Both the inlet filter and the FDMS filter were replaced on October 26. 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. Seventy-nine hours of data were invalidated as the data were below –3 ug/m3 this month. The operational uptime is 89.4%. AE reference #: 306212

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.

RELATIVE HUMIDITY (RH)
The humidity sensor was working well throughout the month.

AMBIENT TEMPERATURE (TPX)
The temperature sensor was working well throughout the month.

PASSIVE SAMPLES

No passive results are included in this monthly report as the sampling program is based on a two-month sample collection period.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs were reported in ppb.
Samples were collected on October 3, 9, 15, 21 and 27. Analytical results are included in this report.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported in µg.
Samples were collected on October 3, 9, 15, 21 and 27. Analytical results are included in this report.

PARTISOL SAMPLES

The routine monthly audit was performed on October 1. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the Partisol were reported in mg.
Samples were collected on October 3, 9, 15, 21 and 27. 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 personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

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

The operational uptime for all analyzers and meteorological system was above the 90% requirement, except PM 2.5 (89.4%).

4.0 Calculations and Results

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

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/NOx 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 Flourescent Analyzer
Total Reduced Sulphur - Thermo 450i UV Flourescent Analyzer
Total Hydrocarbons - Thermo 51C FID Analyzer
Oxides of Nitrogen - Thermo 42C Chemiluminescent Analyzer
Ozone - Thermo 49i Photometric Analyzer
Particulate Matter (PM2.5) - R&P 1405F Teom Unit
Wind System - Met One Unit
Relative Humidity - Met One Unit
Ambient Temperature - Met One Unit
Datalogger - ESC 8832
Partisol - R&P 2000H Unit

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

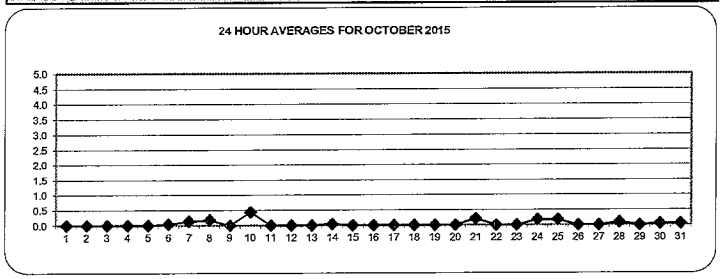
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
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	24
2	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	24
3	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
4	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	24
5	0	0	0	0	0	0	0	0	0	C	C	C	C	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	1	0	0	0	0	0	0	0	0	S	0	0	1	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	S	0	0	0	1	0.1	24
8	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	S	0	0	0	0	1	0.2	24
9	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
10	0	0	0	0	0	0	0	0	0	0	1	*2*	*2*	*2*	*2*	1	0	S	0	0	0	0	0	0	*2*	*0.4*	24
11	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	24
12	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	24
13	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
14	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	1	0.0	24
15	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
16	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	24
17	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	S	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	S	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	S	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	S	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	0	1	0.2	24
22	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	24
23	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
24	0	0	0	S	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0.2	24
25	0	0	S	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
26	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	24
27	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*2*	0	0	0	0	0	0	S	0	*2*	0.1	24
29	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	24
30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	S	0	0	0	1	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	1	0.0	24
HOURLY MAX	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	1	1	0	1	1	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	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

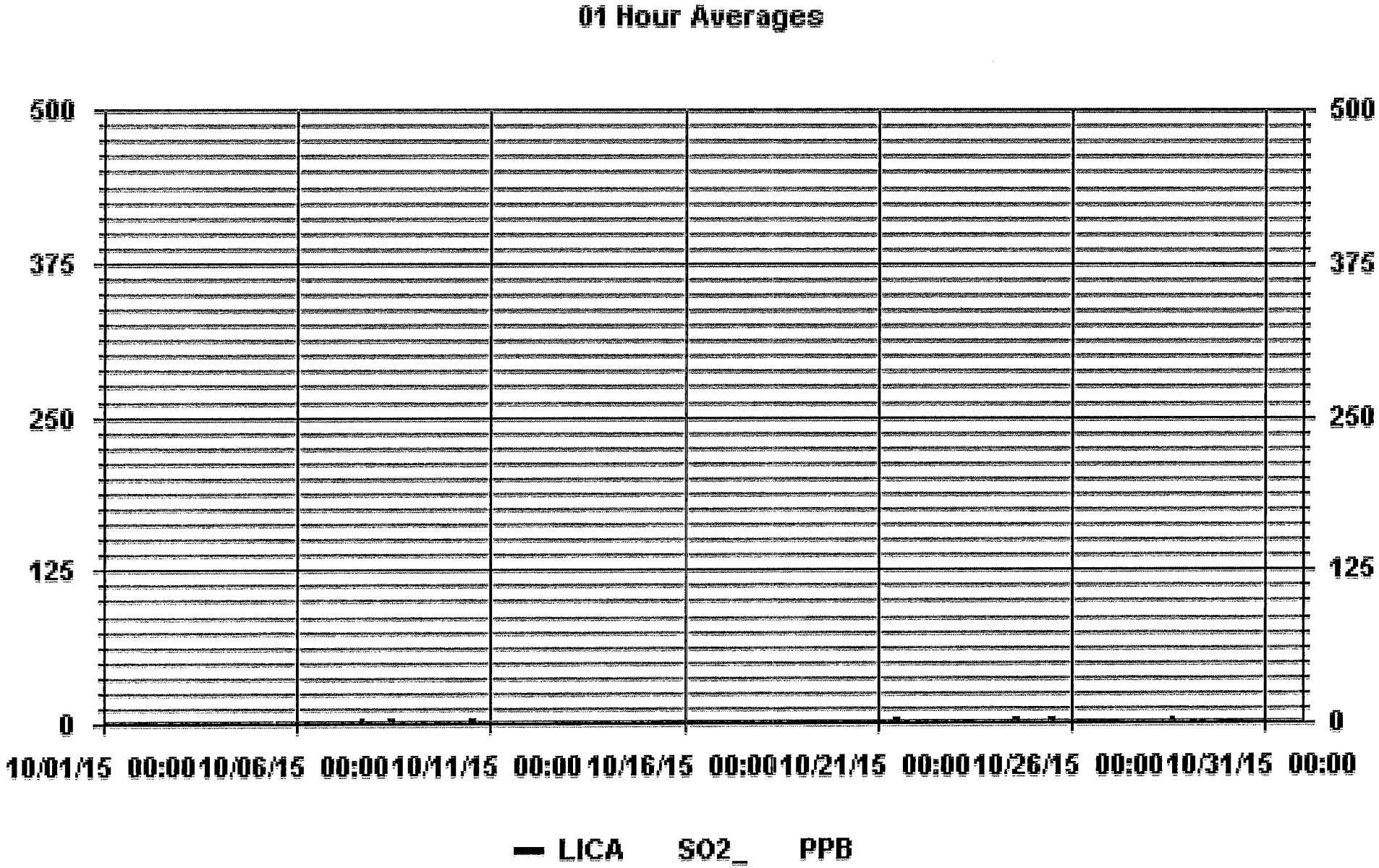
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	31					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	10 , 28
MAXIMUM 24-HR AVERAGE:	0.4	PPB			ON DAY(S) VAR-VARIOUS	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744 HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	0.25		MONTHLY AVERAGE:			0 PPB


01 Hour Averages
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA SO2_ PPB

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Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

SULPHUR DIOXIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0	S	1	2	0.9	24
2	1	0	1	1	0	1	1	1	1	0	0	0	1	1	1	0	1	1	0	1	1	S	1	0	1	0.7	24
3	0	0	1	0	1	0	1	0	1	1	0	0	0	0	0	1	0	1	1	1	S	1	1	1	1	0.5	24
4	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	S	1	1	1	1	1	0.9	24
5	0	1	1	1	1	1	1	1	C	C	C	C	C	C	1	1	1	1	1	0	1	1	S	1	1	0.9	24
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	S	1	0	0	2	1.0	24
8	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0.9	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1.0	24
10	1	0	1	1	0	1	1	1	1	1	2	2	3	3	3	2	1	S	1	2	1	1	1	1	3	1.3	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	1	1.0	24
12	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	0.9	24
13	0	0	0	1	0	0	1	1	1	1	1	0	0	1	S	1	1	0	1	1	1	0	0	1	1	0.6	24
14	1	1	0	1	1	1	1	1	1	0	0	1	1	S	1	1	0	1	1	1	2	1	1	1	2	0.9	24
15	1	0	1	1	0	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
16	1	1	0	1	0	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
17	1	1	1	1	1	0	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
18	1	1	1	1	0	0	1	0	1	S	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0.7	24
19	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20	1	1	0	1	1	0	0	S	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	0	1	0.7	24
21	1	0	1	1	0	1	S	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1.0	24
22	1	1	0	0	1	S	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	0.8	24
23	1	1	1	1	S	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
24	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25	1	1	S	1	1	1	1	1	1	1	1	2	1	2	2	2	1	1	1	0	1	1	1	1	2	1.1	24
26	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1.0	24
27	S	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	S	1	0.8	24
28	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	*11*	1	3	1	0	1	1	S	1	*11*	1.4	24
29	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
30	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	S	1	1	1	2	1.0	24
31	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	3	4	1	1	S	0	1	1	1	4	1.0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	11	4	3	1	2	2	1	1	1			
HOURLY AVG	0.9	0.7	0.7	0.8	0.7	0.8	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.4	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 615

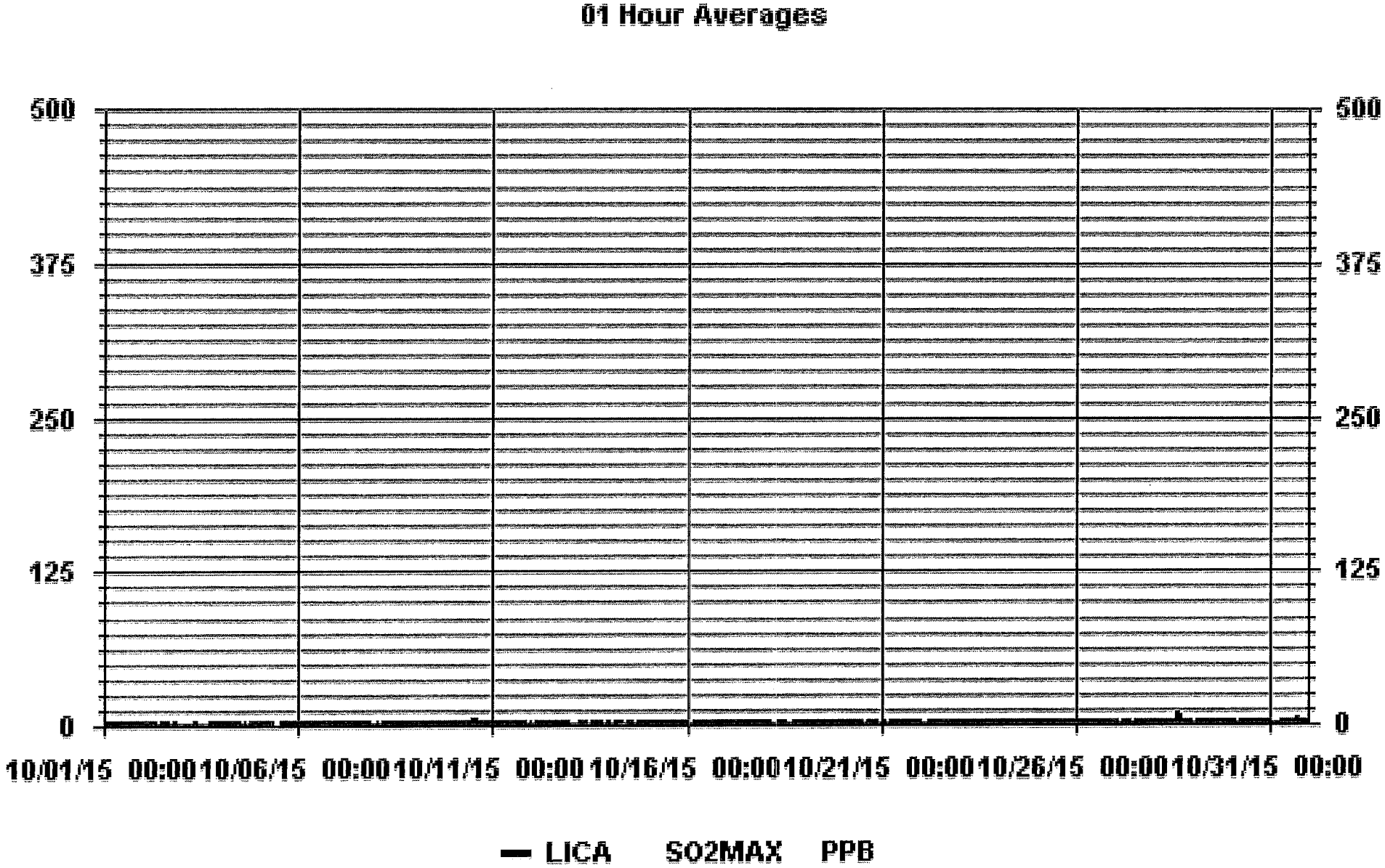
MAXIMUM INSTANTANEOUS VALUE: 11 PPB @ HOUR(S) 15 ON DAY(S) 28

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 0.57


01 Hour Averages
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA SO2MAX PPB

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	3.53	1.55	2.54	3.81	4.94	5.08	18.92	5.50	3.38	3.24	5.36	15.96	11.01	5.50	7.90	1.69	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.53	1.55	2.54	3.81	4.94	5.08	18.92	5.50	3.38	3.24	5.36	15.96	11.01	5.50	7.90	1.69	

Calm : .00 %

Total # Operational Hours : 708

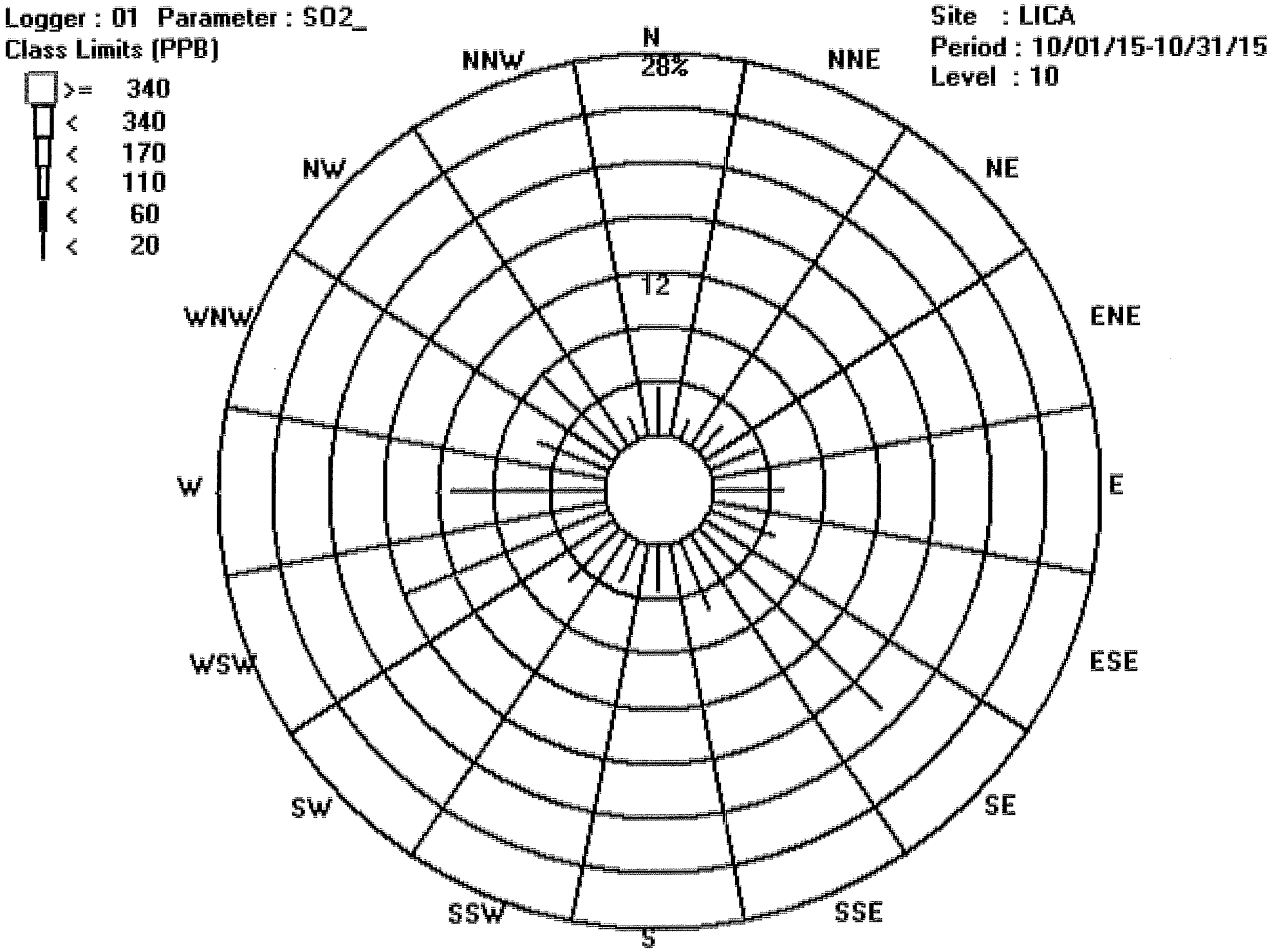
Distribution By Samples

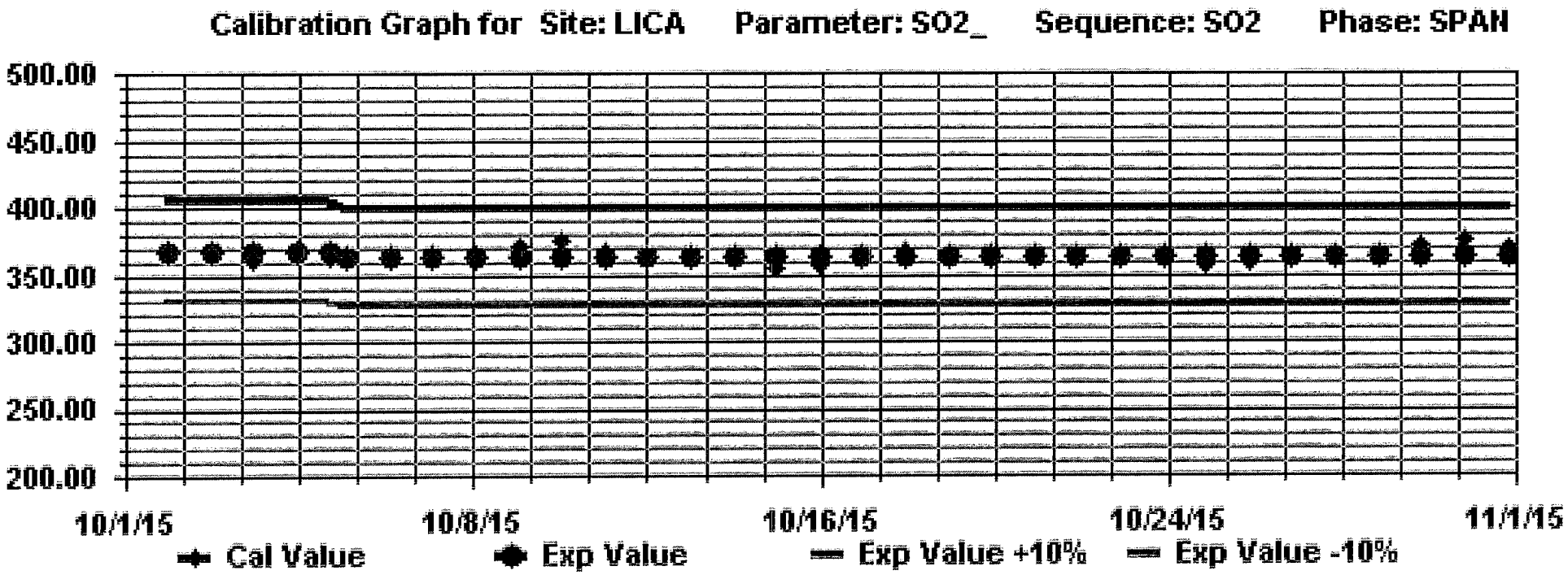
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	25	11	18	27	35	36	134	39	24	23	38	113	78	39	56	12	708
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	25	11	18	27	35	36	134	39	24	23	38	113	78	39	56	12	

Calm : .00 %

Total # Operational Hours : 708


Logger : 01 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

TOTAL REDUCED SULPHUR

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

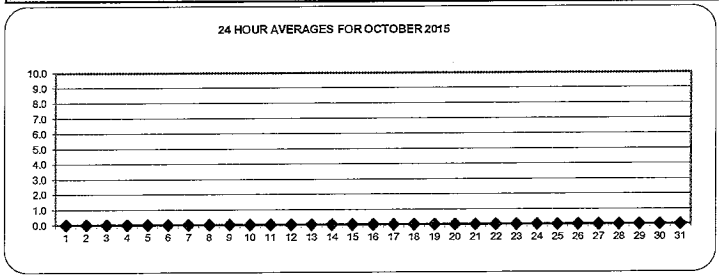
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

MST

HOUR START / HOUR END / DAY	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
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	24
2	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	24
3	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
4	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	24
5	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	C	C	C	C	C	0	0	0	0	0	0	0	0	0	S	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	24
8	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	24
9	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
10	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	24
11	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	24
12	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	24
13	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
14	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	24
15	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
16	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	24
17	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	S	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	S	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	S	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	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	S	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	S	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	S	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	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
26	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	24
27	S	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	S	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	S	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	S	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	S	0	0	0	0	0.0	24
HOURLY MAX	0	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			

STATUS FLAG CODES

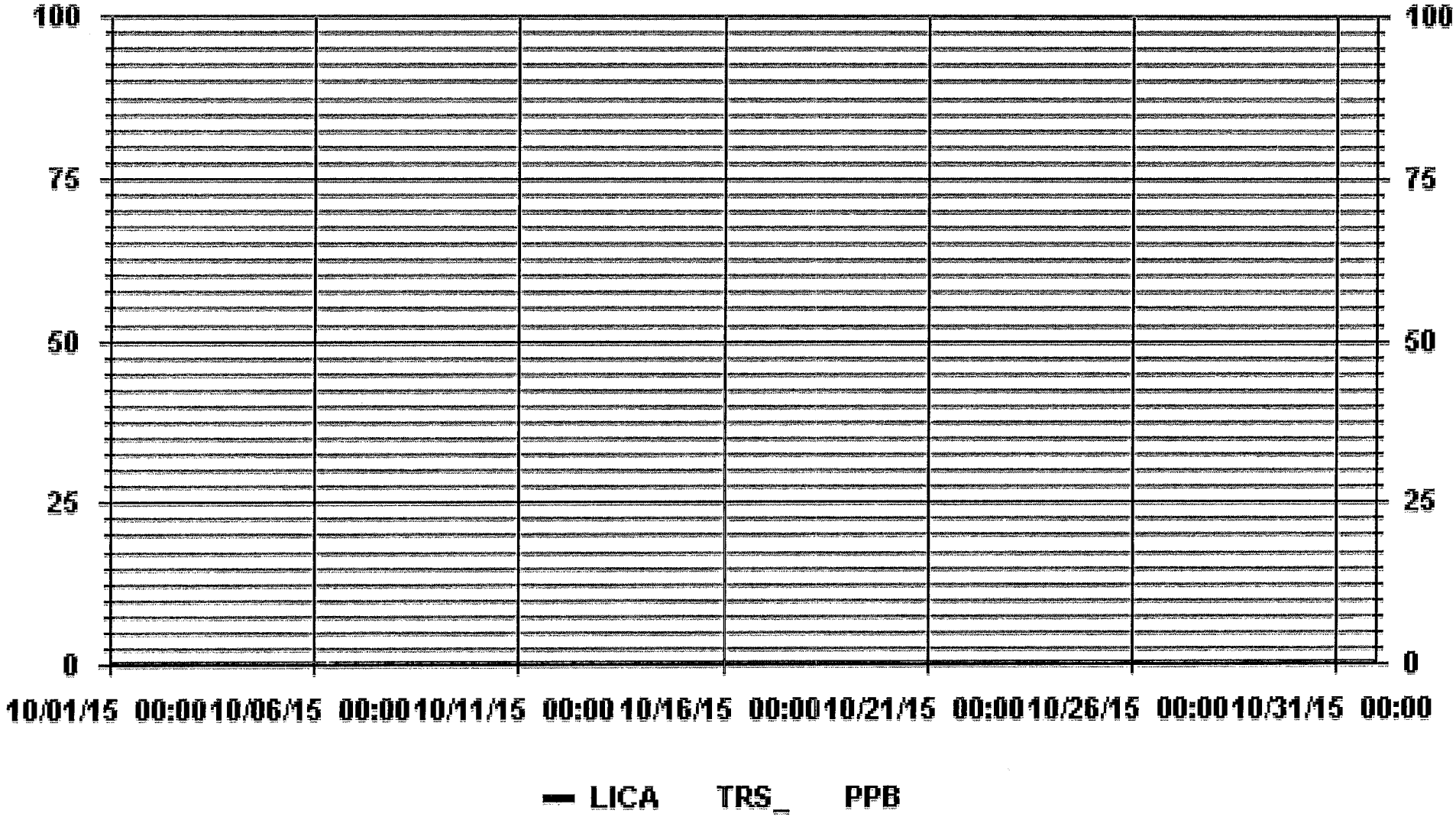
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			0				
MAXIMUM 1-HR AVERAGE:	0	PPB	@ HOUR(S)	ALL	ON DAY(S)	ALL	
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S) VAR-VARIOUS	ALL	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:			0	PPB

01 Hour Averages



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

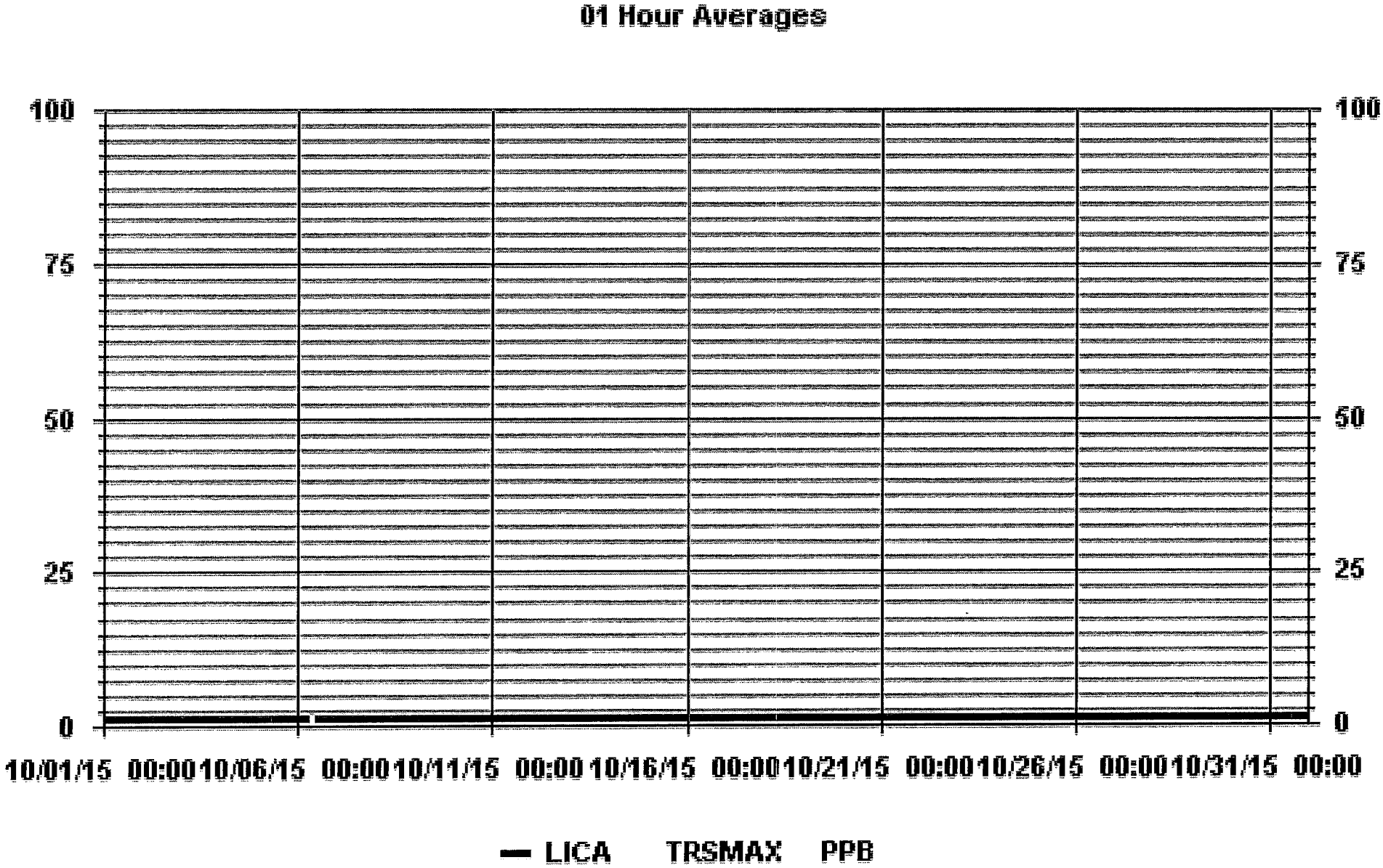
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
6	1	1	1	1	1	1	1	C	C	C	C	C	C	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1.0	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1.0	24
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1.0	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1.0	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1.0	24
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1.0	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
16	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
17	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
18	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
19	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
21	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
22	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
23	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
24	1	1	1	S	1	1	S	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
26	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
27	S	1	1	1	1	1	1	1	1	C	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703						
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	ALL	ON DAY(S)	VAR-VARIOUS	ALL
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	7	HRS					
STANDARD DEVIATION:	0.00						


01 Hour Averages
100
75
50
25
0
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA TRSMAX PPB

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : TRS_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	3.54	1.56	2.55	3.68	4.82	4.96	18.58	5.53	3.40	3.26	5.39	16.31	11.34	5.53	7.80	1.70	100.00
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.54	1.56	2.55	3.68	4.82	4.96	18.58	5.53	3.40	3.26	5.39	16.31	11.34	5.53	7.80	1.70	

Calm : .00 %

Total # Operational Hours : 705

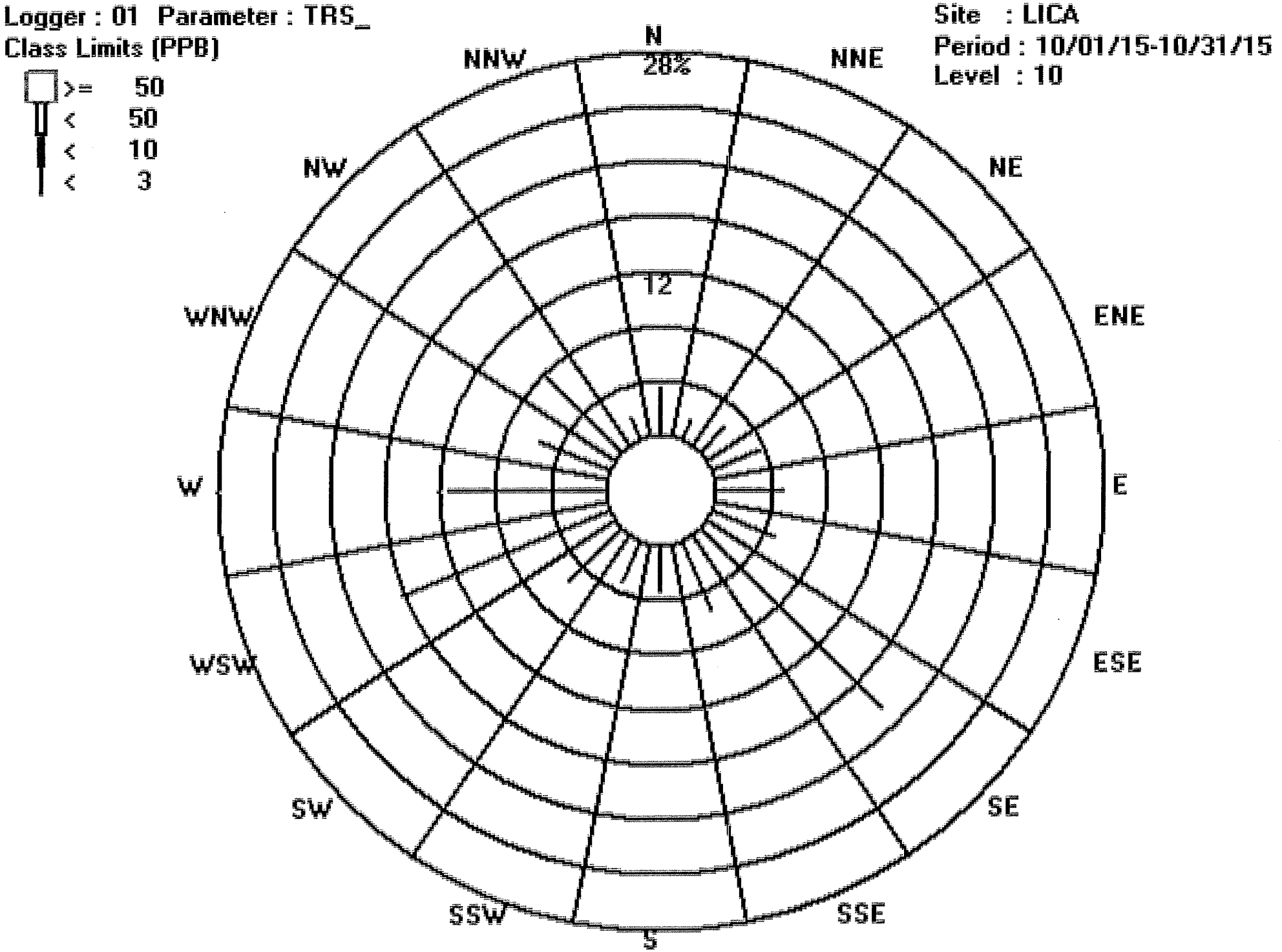
Distribution By Samples

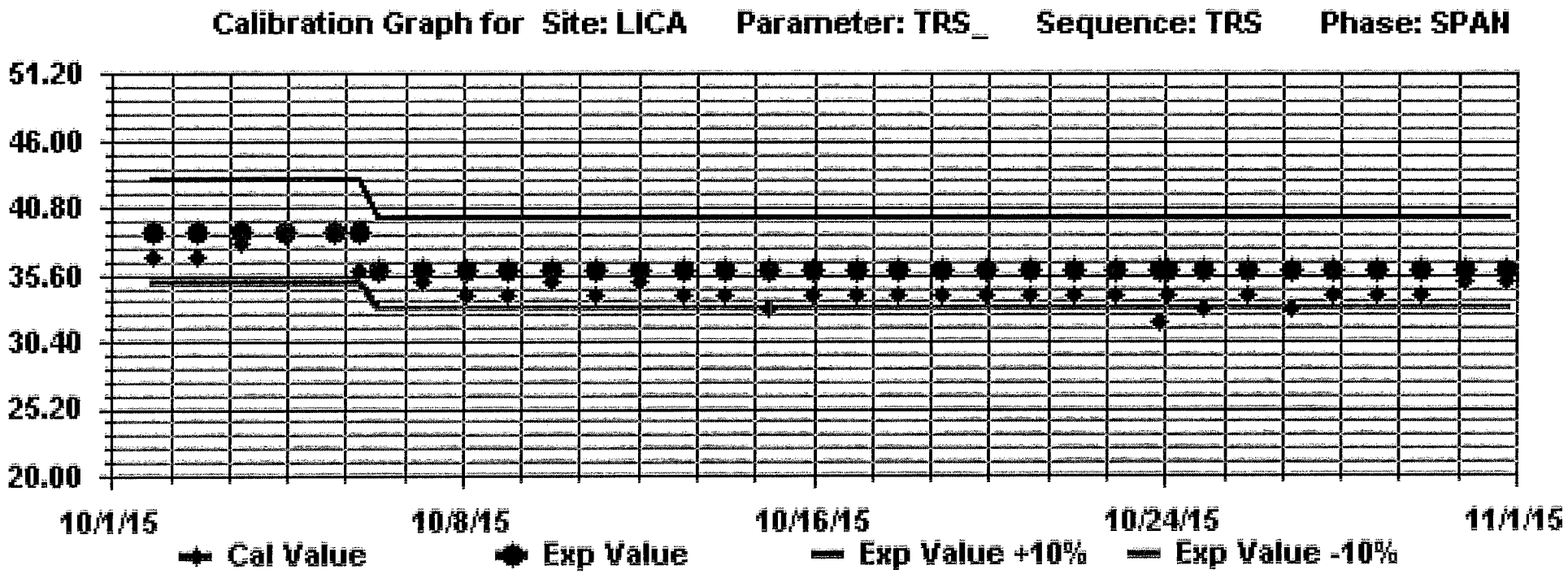
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	25	11	18	26	34	35	131	39	24	23	38	115	80	39	55	12	705
<	10																	
<	50																	
>=	50																	
	Totals	25	11	18	26	34	35	131	39	24	23	38	115	80	39	55	12	

Calm : .00 %

Total # Operational Hours : 705


Logger : 01 Parameter : TRS_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN
51.20
46.00
40.80
35.60
30.40
25.20
20.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

TOTAL HYDROCARBON

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

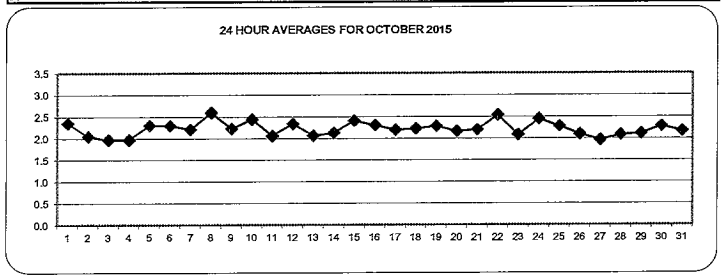
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.5	2.5	2.7	2.7	2.6	3.0	2.8	2.4	2.5	2.5	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.0	2.0	S	2.0	3.0	2.3	24
2	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	S	1.9	1.9	2.2	2.0	24
3	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	24
4	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	S	1.9	2.0	2.1	2.0	2.1	2.0	24
5	2.1	2.2	2.2	2.2	2.5	2.4	2.6	2.6	2.4	C	C	C	C	C	2.2	2.1	2.1	2.2	2.3	2.3	2.3	2.4	S	2.2	2.6	2.3	24
6	2.4	2.5	2.5	2.6	2.6	2.7	2.8	3.1	2.6	2.1	2.1	2.1	2.0	2.1	2.0	1.9	2.2	2.2	2.1	2.1	2.0	S	2.0	2.0	3.1	2.3	24
7	2.0	2.0	2.1	2.1	2.3	2.2	2.5	2.3	2.4	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.3	S	2.5	2.4	2.4	2.5	2.2	24
8	2.4	2.4	2.7	2.9	3.1	3.2	3.3	3.4	3.4	2.8	2.6	2.2	2.2	2.1	2.1	2.3	2.2	2.2	2.3	S	2.3	2.4	2.5	2.6	3.4	***2.6***	24
9	2.5	2.4	2.4	2.3	2.6	2.6	2.4	2.6	2.3	2.0	2.0	2.0	1.9	1.8	1.8	1.8	1.9	1.9	S	2.1	2.1	2.3	2.4	3.0	3.0	2.2	24
10	3.1	3.2	2.6	2.8	2.7	2.6	2.7	2.6	2.5	2.4	2.3	2.1	2.0	2.0	1.9	1.9	1.9	S	2.0	2.2	2.1	2.4	3.0	3.0	3.2	2.4	24
11	2.5	2.0	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	S	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.5	2.1	24
12	2.3	2.4	2.5	2.6	2.6	2.7	2.5	2.5	2.6	2.4	2.4	2.4	2.4	2.4	2.3	S	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.7	2.3	24
13	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.0	2.0	S	2.0	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	24
14	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	S	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.3	2.1	24
15	2.4	2.4	2.8	2.8	2.8	2.8	2.7	2.9	2.8	2.5	2.5	2.4	S	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.9	2.4	24
16	2.4	2.4	2.7	2.8	2.8	2.8	2.9	2.3	2.1	2.2	2.2	S	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.9	2.3	24
17	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.3	2.2	2.1	S	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.3	2.4	2.4	2.2	24
18	2.6	2.6	2.6	2.6	2.4	2.3	2.6	2.7	2.6	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.2	2.2	2.2	2.7	2.2	24
19	2.3	2.3	2.4	2.4	2.6	2.8	2.8	2.8	S	2.6	2.3	2.2	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.3	24
20	2.3	2.2	2.1	2.0	2.1	2.6	2.7	S	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.2	2.2	2.7	2.2	24
21	2.2	2.3	2.2	2.2	2.3	2.4	S	2.4	2.3	2.3	2.4	2.2	2.0	2.1	2.2	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.1	2.4	2.2	24
22	2.1	2.1	2.2	2.2	2.2	S	2.4	2.7	3.1	3.1	2.3	2.3	2.1	2.0	2.0	2.1	2.1	2.8	3.5	***4.3***	3.8	2.3	2.3	2.2	***4.3***	2.5	24
23	2.3	2.4	2.4	2.4	S	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.1	2.2	2.2	2.4	2.1	24
24	2.4	2.5	2.6	S	2.7	2.7	2.9	3.0	3.1	3.1	2.7	2.2	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.4	2.4	3.1	2.4	24
25	2.5	2.5	S	2.4	2.6	2.7	2.7	2.6	2.6	2.6	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.7	2.3	24
26	2.0	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.1	24
27	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.0	1.9	1.9	S	2.1	2.0	24
28	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	S	2.0	2.2	2.1	24
29	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.0	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.3	S	2.6	2.5	2.6	2.1	24
30	2.6	2.7	2.5	2.8	2.5	2.2	2.2	2.4	2.3	2.2	2.2	2.1	2.0	1.9	1.9	2.0	2.1	2.3	2.3	2.3	S	2.2	2.4	2.2	2.8	2.3	24
31	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.0	2.0	2.0	2.0	2.5	2.2	24
HOURLY MAX	3.1	3.2	2.8	2.9	3.1	3.2	3.3	3.4	3.4	3.1	2.7	2.4	2.4	2.4	2.3	2.3	2.2	2.8	3.5	4.3	3.8	2.5	3.0	3.0			
HOURLY AVG	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2			

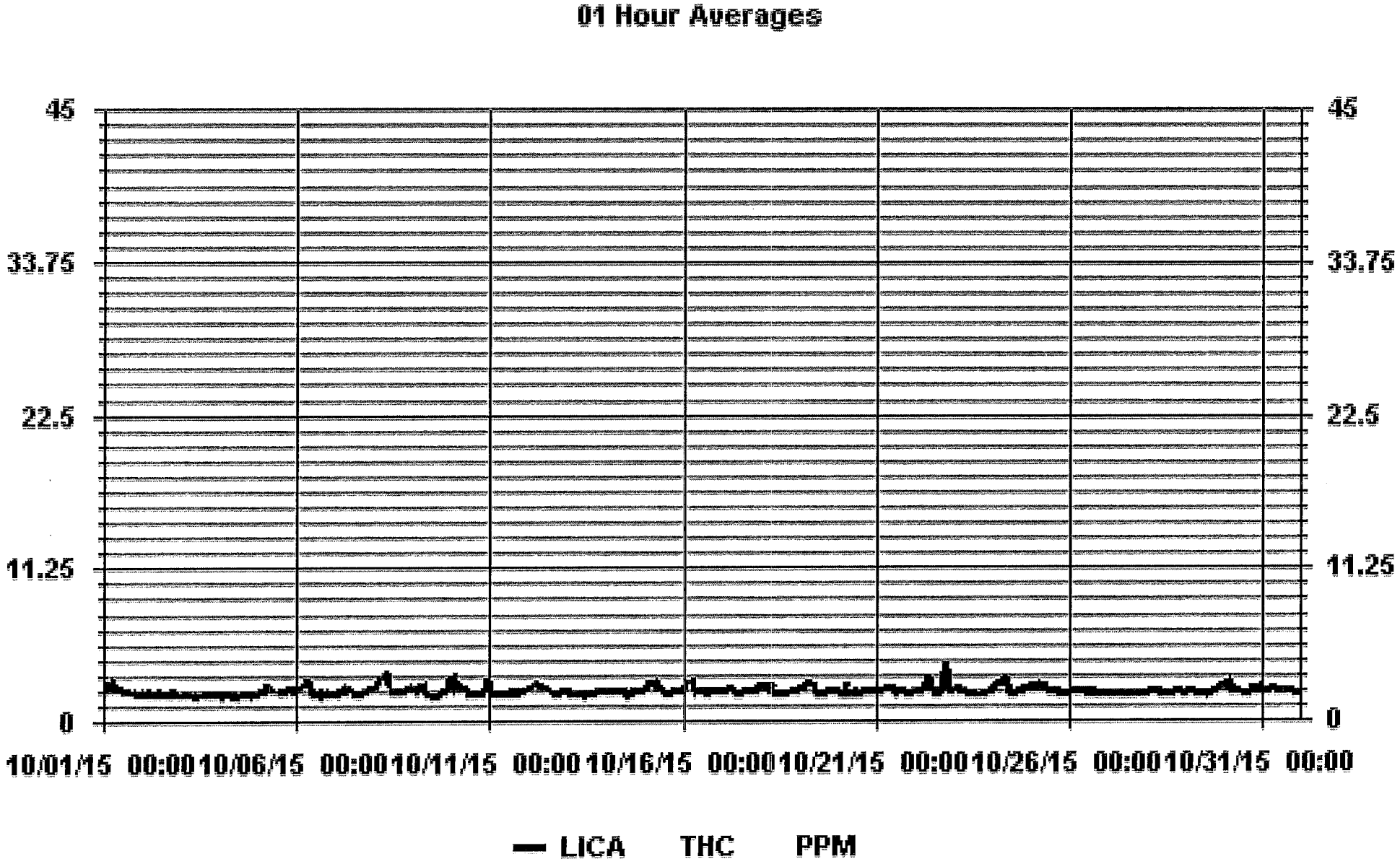
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		707					
MAXIMUM 1-HR AVERAGE:	4.3	PPM	@ HOUR(S)	19	ON DAY(S)	22	
MAXIMUM 24-HR AVERAGE:	2.6	PPM			ON DAY(S)	8	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.29		MONTHLY AVERAGE:			2.2	PPM


01 Hour Averages
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA THC PPM

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

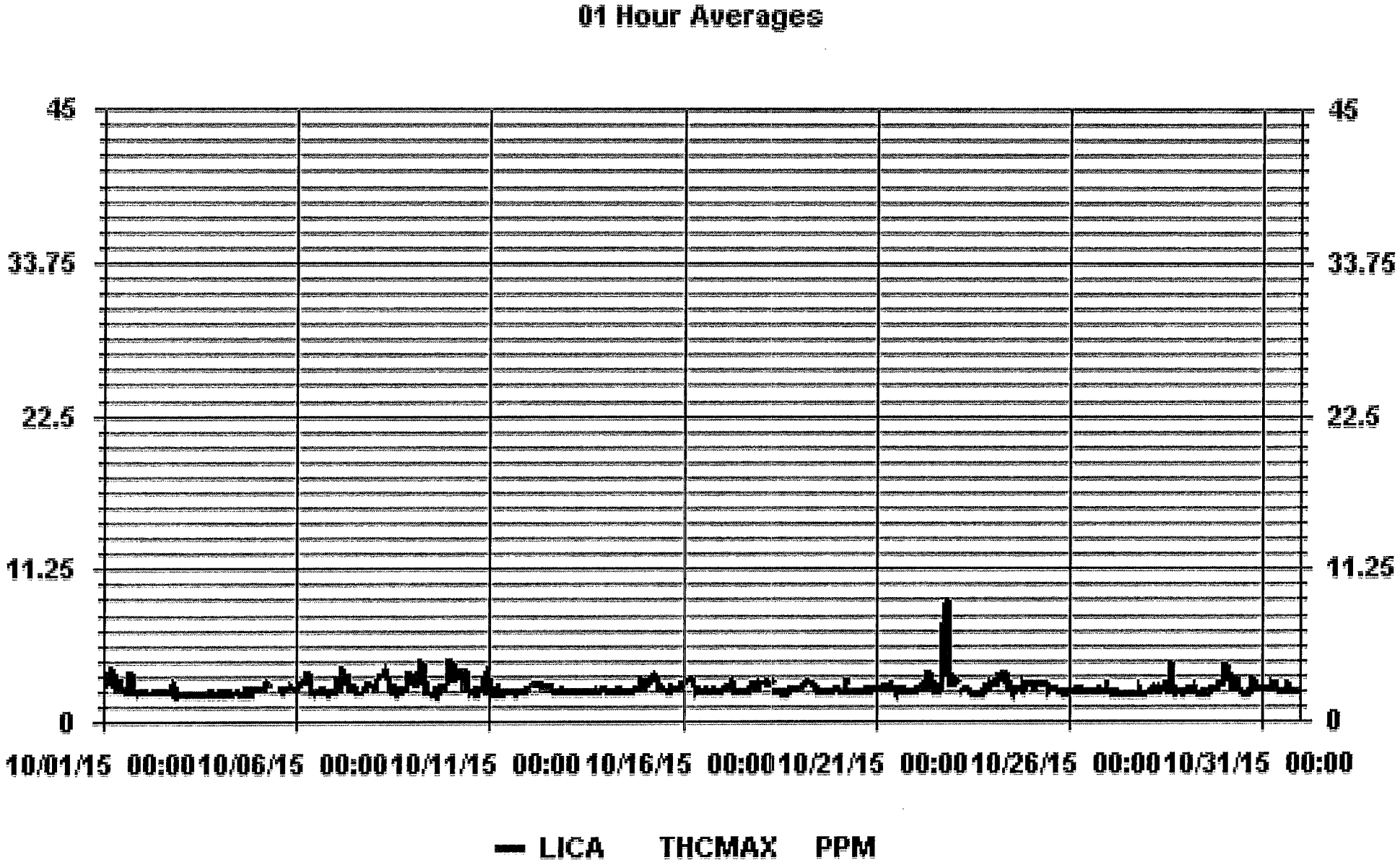
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.6	2.7	3.4	3.4	2.8	4.1	3.7	2.7	2.6	2.7	3.2	2.4	2.4	2.3	2.3	2.2	2.2	3.7	3.0	2.4	2.2	2.1	S	2.2	4.1	2.8	24
2	2.2	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.7	2.5	S	1.9	2.0	2.7	2.2	24
3	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.1	S	2.1	2.0	2.1	2.1	2.0	24
4	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.4	2.5	S	2.1	2.3	2.3	2.4	2.5	2.1	24
5	2.3	2.3	2.4	2.4	2.7	2.7	2.9	2.8	C	C	C	C	C	C	2.3	2.3	2.2	2.4	2.4	2.5	2.7	2.6	S	2.4	2.9	2.5	24
6	2.5	2.6	2.7	2.8	3.0	2.9	3.0	3.6	3.3	2.2	2.2	2.3	2.1	2.2	2.1	2.1	2.4	2.4	2.2	2.2	2.1	S	2.1	2.1	3.6	2.5	24
7	2.1	2.5	3.3	2.3	4.1	2.6	3.3	2.9	3.5	2.4	2.4	2.4	2.8	2.2	2.2	2.2	2.1	2.2	2.4	2.6	S	2.8	2.8	2.7	4.1	2.6	24
8	2.5	2.5	3.1	3.2	3.3	3.4	3.5	3.8	3.5	3.2	2.8	2.5	2.3	2.2	2.6	2.5	2.4	2.3	2.5	S	2.4	3.4	3.7	3.3	3.8	2.9	24
9	2.9	2.7	2.7	3.3	3.1	4.7	2.6	4.2	3.2	2.2	2.2	2.2	2.1	2.0	1.9	2.4	2.5	2.1	S	2.5	2.6	2.7	3.0	4.6	4.7	2.8	24
10	4.2	4.2	2.9	3.6	3.7	3.1	3.4	2.7	2.8	3.8	2.7	2.3	2.1	2.2	2.3	2.0	2.0	S	2.5	2.4	2.3	3.3	3.6	3.3	4.2	2.9	24
11	2.9	2.3	2.0	2.0	2.4	2.5	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	S	2.1	2.2	2.2	2.2	2.2	2.4	2.4	2.9	2.2	24
12	2.4	2.6	2.6	2.7	2.8	2.8	2.7	2.7	2.8	2.5	2.5	2.5	2.5	2.5	2.5	S	2.1	2.1	2.2	2.3	2.4	2.2	2.3	2.2	2.8	2.5	24
13	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.3	2.3	2.2	2.3	2.4	2.3	2.4	2.2	24
14	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.3	2.3	2.2	2.2	S	2.1	2.1	2.1	2.2	2.3	2.3	2.5	2.2	3.3	2.4	3.3	2.3	24
15	2.6	2.6	3.0	2.9	3.1	3.1	3.4	3.3	3.1	2.6	2.7	2.6	S	2.3	2.1	2.1	2.1	2.5	2.5	2.4	2.5	2.4	2.5	2.5	3.4	2.6	24
16	3.0	2.6	3.0	3.0	3.0	3.1	3.1	2.7	2.2	2.3	2.3	S	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2.3	2.3	2.2	2.2	2.3	3.1	2.5	24
17	2.2	2.3	2.3	2.5	2.5	2.5	2.8	2.5	2.3	2.2	S	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.6	2.9	2.5	2.5	2.9	2.9	2.4	24
18	2.8	2.8	2.8	2.9	2.6	2.6	2.7	2.9	3.0	S	2.1	2.1	2.1	2.2	2.0	2.1	2.1	2.0	2.2	2.4	2.5	2.4	2.3	2.4	3.0	2.4	24
19	2.4	2.5	2.6	2.6	2.8	3.0	3.0	2.9	S	2.7	2.5	2.5	2.2	2.3	2.2	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.3	2.3	3.0	2.4	24
20	2.5	2.4	2.2	2.2	2.3	2.9	2.9	S	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.9	2.3	24
21	2.3	2.4	2.3	2.4	2.4	2.6	S	2.6	2.7	2.4	2.5	2.4	2.1	2.4	2.3	2.2	2.4	2.5	2.3	2.2	2.1	2.1	2.1	2.2	2.7	2.3	24
22	2.2	2.3	2.3	2.3	2.6	S	2.5	3.0	3.4	3.4	2.6	3.1	2.5	2.2	2.2	2.4	2.7	4.3	7.2	8.6	***9.1***	3.4	2.8	2.5	***9.1***	3.5	24
23	3.3	3.2	3.0	2.9	S	2.3	2.4	2.3	2.3	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.8	2.4	2.6	2.9	3.3	2.4	24
24	2.8	2.9	2.7	S	3.3	2.9	3.2	3.1	3.6	3.3	3.1	2.4	2.4	2.1	2.3	2.3	2.3	2.5	2.4	2.9	2.7	2.5	2.6	2.7	3.6	2.7	24
25	2.8	2.8	S	2.6	2.8	2.8	2.8	2.9	2.8	2.7	2.7	2.2	2.3	2.4	2.3	2.3	2.6	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.9	2.5	24
26	2.1	S	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.3	2.2	2.2	2.5	2.1	2.1	2.1	2.7	2.7	2.2	24
27	S	2.2	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.1	2.0	2.0	S	2.4	2.1	24
28	2.1	2.2	2.2	2.2	2.5	2.3	2.2	2.2	2.5	2.3	2.4	2.1	2.9	2.1	2.1	4.4	2.2	2.6	2.2	2.3	2.2	2.2	S	2.1	4.4	2.4	24
29	2.2	2.3	2.3	2.2	2.2	2.5	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.4	2.4	2.3	2.3	2.7	S	2.9	2.6	2.9	2.3	24
30	3.0	4.3	2.9	3.7	3.3	2.5	2.5	3.4	2.6	2.5	2.3	2.2	2.1	2.0	2.0	2.1	2.3	3.1	3.0	2.4	S	2.4	2.5	2.3	4.3	2.7	24
31	2.3	2.4	2.3	2.3	2.4	2.8	2.6	2.7	3.0	2.5	2.2	2.2	2.2	2.2	2.2	2.9	2.6	2.2	2.2	S	2.1	2.1	2.1	2.1	3.0	2.4	24
HOURLY MAX	4.2	4.3	3.4	3.7	4.1	4.7	3.7	4.2	3.6	3.8	3.2	3.1	2.9	2.5	2.6	4.4	2.7	4.3	7.2	8.6	9.1	3.4	3.7	4.6			
HOURLY AVG	2.5	2.6	2.5	2.6	2.7	2.7	2.7	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.2	2.4	2.5	2.6	2.6	2.4	2.5	2.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		706					
MAXIMUM INSTANTANEOUS VALUE:	9.1	PPM	@ HOUR(S)	20	ON DAY(S)	VAR-VARIOUS	22
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:				744 HRS
MONTHLY CALIBRATION TIME:	6	HRS					
STANDARD DEVIATION:	0.58						


01 Hour Averages
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA THCMAX PPM

LICA
THC / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : THC
Units : PPM

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	3.53	1.55	2.40	3.67	4.66	4.80	18.95	5.51	3.25	3.25	5.09	14.99	10.46	5.37	7.92	1.69	97.17
<	10.0	.00	.00	.14	.14	.28	.28	.00	.00	.14	.00	.28	.99	.42	.14	.00	.00	2.82
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.53	1.55	2.54	3.81	4.95	5.09	18.95	5.51	3.39	3.25	5.37	15.98	10.89	5.51	7.92	1.69	

Calm : .00 %

Total # Operational Hours : 707

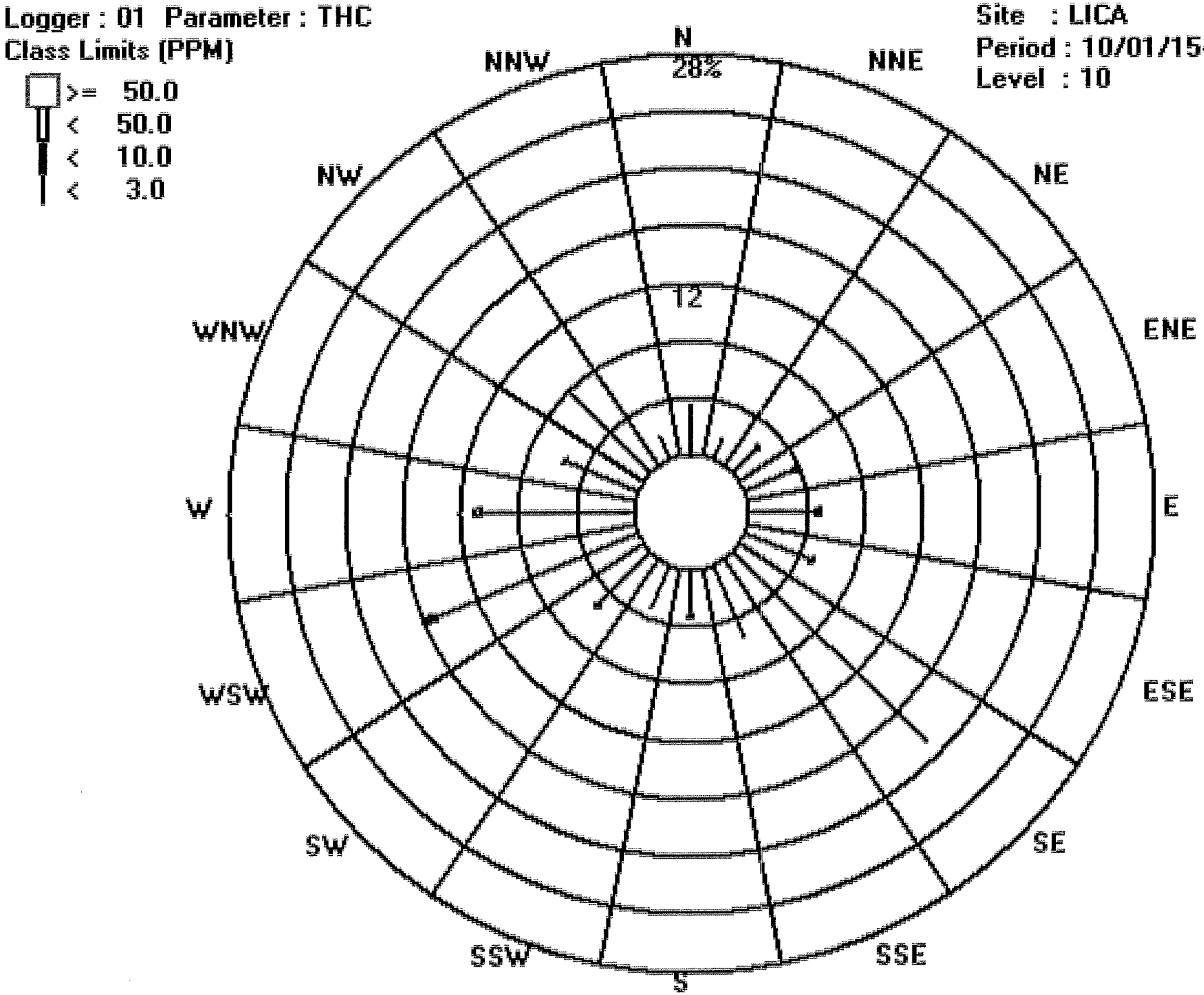
Distribution By Samples

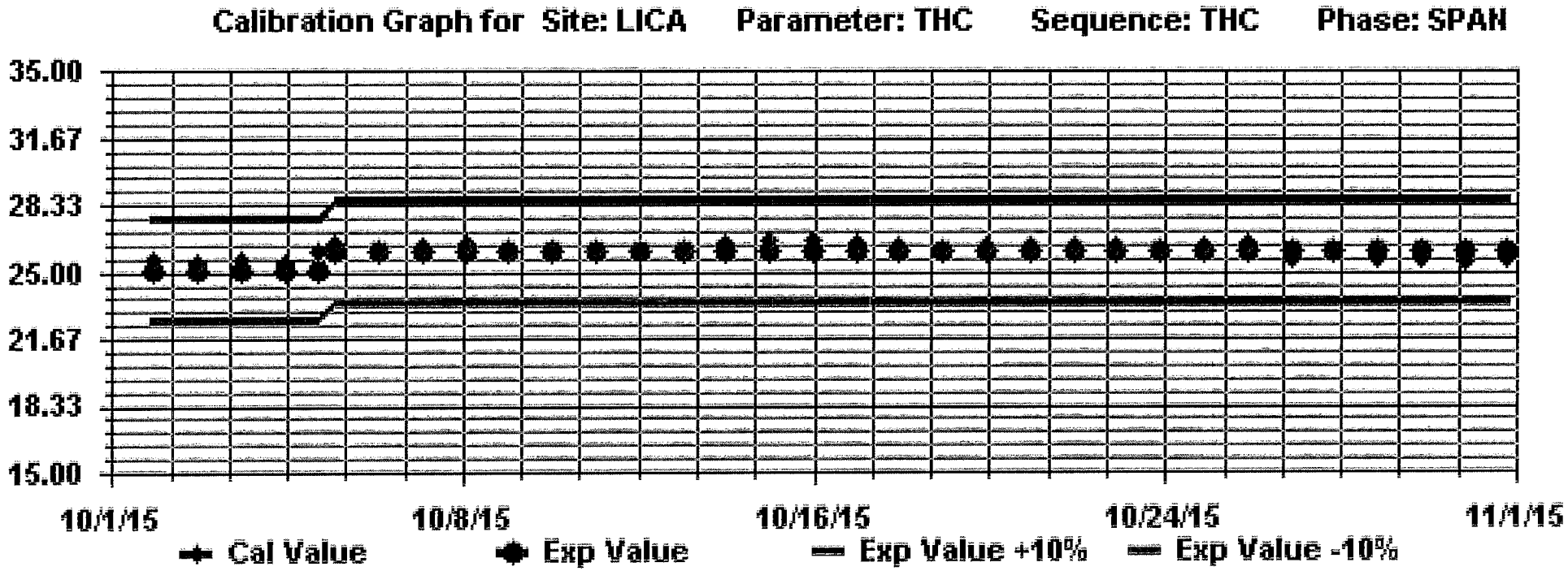
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	25	11	17	26	33	34	134	39	23	23	36	106	74	38	56	12	687
<	10.0			1	1	2	2			1		2	7	3	1			20
<	50.0																	
>=	50.0																	
	Totals	25	11	18	27	35	36	134	39	24	23	38	113	77	39	56	12	

Calm : .00 %

Total # Operational Hours : 707


Logger : 01 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN
35.00
31.67
28.33
25.00
21.67
18.33
15.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OXIDES OF NITROGEN

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

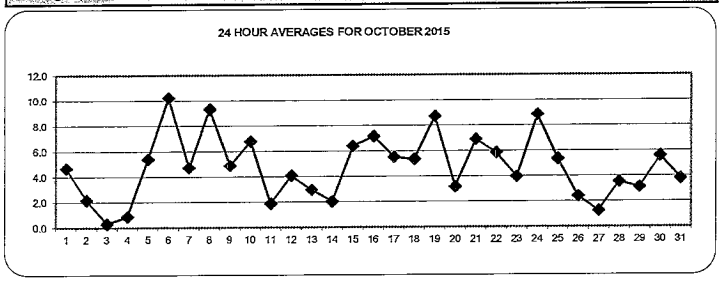
OXIDES OF NITROGEN (NOx) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7.5	5.5	3.7	4.8	5.3	8.8	14.6	8.8	4.8	3.6	3.5	2.8	2.1	1.5	2.7	3.3	4.1	3.4	5.2	6.0	2.7	1.3	S	1.4	14.6	4.7	24
2	1.5	1.6	1.5	1.9	1.8	1.8	1.6	1.4	1.2	1.6	1.4	1.2	1.7	1.1	1.1	1.4	2.0	3.9	6.4	5.8	6.3	S	1.2	0.6	6.4	2.2	24
3	0.4	0.3	0.2	0.3	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.3	0.1	0.2	0.2	0.1	0.0	0.2	S	0.7	1.0	1.0	1.0	0.3	24
4	0.7	1.1	1.0	0.9	1.2	1.6	0.9	1.1	0.6	1.9	0.9	0.7	0.4	0.4	0.3	0.6	0.8	0.1	1.0	S	0.6	1.1	1.3	0.8	1.9	0.9	24
5	1.4	2.8	2.5	3.0	4.8	6.3	16.7	11.6	4.2	C	C	C	C	C	C	1.3	1.0	1.0	6.4	6.2	8.1	6.4	S	8.3	16.7	5.4	24
6	5.2	8.7	6.4	12.5	12.7	26.8	21.5	*61.1*	45.6	2.4	2.8	2.6	1.7	1.5	1.4	1.2	2.3	3.8	7.4	3.1	2.6	S	1.3	0.8	*61.1*	*10.2*	24
7	1.0	2.0	2.8	3.9	3.7	4.0	9.5	9.8	5.5	6.0	4.9	5.6	4.2	1.7	1.8	1.7	2.8	3.6	7.3	8.7	S	7.0	5.6	5.2	9.8	4.7	24
8	4.9	4.1	6.0	6.8	6.8	13.1	26.6	39.2	23.5	23.0	15.6	4.5	3.5	1.8	1.9	1.9	2.0	5.8	13.8	S	2.7	2.1	1.7	3.5	39.2	9.3	24
9	4.0	2.5	2.7	3.6	4.6	4.4	11.1	7.9	6.1	4.7	4.5	3.1	1.7	1.4	0.7	1.1	7.2	9.6	S	9.2	7.4	6.2	4.7	4.2	11.1	4.9	24
10	3.4	4.1	5.3	5.2	4.4	5.3	7.0	6.6	6.0	6.8	6.1	5.6	4.9	4.6	4.4	3.1	0.8	S	3.0	8.5	11.7	19.0	17.2	12.6	19.0	6.8	24
11	8.3	2.4	1.5	2.1	1.6	0.8	S	S	1.0	0.7	0.5	0.7	0.6	0.9	1.8	2.6	S	2.1	0.8	0.9	0.8	3.4	3.2	2.7	8.3	1.9	24
12	3.4	3.2	5.8	3.7	9.3	6.6	4.3	4.3	5.2	3.5	3.5	3.1	2.6	3.2	3.9	S	2.7	2.3	4.2	5.2	4.0	2.7	3.4	3.7	9.3	4.1	24
13	3.2	2.2	2.1	1.8	1.2	2.4	7.4	8.8	4.1	5.4	1.6	0.9	0.7	0.9	S	0.9	1.1	1.6	3.5	4.1	3.3	4.1	3.1	3.6	8.8	3.0	24
14	4.4	2.4	2.3	1.7	1.9	1.8	3.1	4.0	4.0	3.6	1.5	0.4	0.6	S	0.7	0.5	0.6	1.0	1.2	1.5	2.1	1.9	3.1	2.6	4.4	2.0	24
15	5.3	6.5	9.1	8.6	8.2	9.9	13.4	12.5	11.7	8.8	7.0	3.7	S	2.0	1.0	0.4	0.5	3.7	10.5	5.2	6.7	3.5	3.8	4.9	13.4	6.4	24
16	5.4	4.2	12.0	17.3	15.8	29.8	30.5	11.6	6.3	3.3	3.0	S	2.0	1.3	1.6	1.7	1.7	2.7	3.8	1.6	1.6	2.2	2.1	3.0	30.5	7.2	24
17	2.4	2.9	3.1	5.2	5.0	5.9	9.2	3.9	3.0	4.4	S	2.4	1.4	2.0	1.6	1.6	1.7	4.7	7.8	9.3	8.4	6.8	13.8	20.6	20.6	5.5	24
18	16.8	10.3	7.7	6.0	6.3	6.6	11.8	14.9	10.4	S	2.7	1.1	0.8	0.6	0.5	0.5	0.6	1.9	4.1	3.3	3.1	4.0	4.3	5.0	16.8	5.4	24
19	5.7	4.7	5.5	3.7	7.5	17.2	28.1	25.3	S	11.9	7.9	6.4	3.5	4.1	2.3	2.5	9.7	12.2	12.5	10.9	3.8	3.1	5.8	6.3	28.1	8.7	24
20	8.7	8.3	3.6	2.4	2.7	10.2	11.6	S	1.9	0.6	0.4	0.3	0.4	0.3	0.2	0.4	0.4	1.5	2.8	3.8	3.6	2.8	2.8	3.4	11.6	3.2	24
21	3.2	3.3	3.4	2.7	10.0	19.0	S	33.1	24.3	9.3	6.9	4.4	2.4	4.2	3.8	2.6	5.0	4.4	3.0	3.6	2.4	2.0	2.4	3.2	33.1	6.9	24
22	4.2	4.0	3.6	2.8	4.7	S	9.2	15.1	19.2	17.4	5.5	4.3	2.3	1.1	1.1	1.7	2.1	3.7	6.3	5.2	5.5	6.1	5.4	4.0	19.2	5.8	24
23	3.6	2.8	2.8	3.7	S	3.7	5.2	6.6	9.0	5.3	3.7	2.9	1.6	1.7	1.5	1.3	1.9	2.6	4.9	6.2	4.8	7.0	4.3	4.3	9.0	4.0	24
24	4.3	3.9	8.0	S	9.0	10.6	10.1	13.1	19.7	20.5	16.1	8.8	5.0	4.3	4.0	3.7	5.3	6.1	6.4	10.5	12.0	10.1	6.9	5.2	20.5	8.9	24
25	6.0	4.4	S	6.1	7.6	7.8	7.7	8.1	7.6	11.3	7.1	5.1	4.9	4.5	3.2	3.2	5.1	9.3	9.0	1.9	1.3	0.9	0.7	0.7	11.3	5.4	24
26	0.7	S	1.1	1.2	1.6	1.8	1.9	2.0	2.1	2.4	1.6	1.8	1.6	1.6	2.0	3.5	3.3	3.7	1.8	5.3	3.3	4.2	2.9	3.9	5.3	2.4	24
27	S	2.8	2.0	0.9	0.9	0.7	0.6	1.6	0.8	1.4	1.1	0.5	0.5	0.5	0.9	0.5	0.8	1.1	1.9	2.9	2.3	1.2	2.1	S	2.9	1.3	24
28	3.4	1.9	3.1	3.7	4.2	6.7	7.7	S	6.5	C	C	C	2.3	2.8	3.0	3.2	2.8	3.1	4.2	4.4	2.0	1.0	S	1.3	7.7	3.5	24
29	1.5	2.1	1.8	1.5	1.5	2.0	1.7	2.2	1.9	2.1	2.3	2.2	2.2	2.5	3.2	4.0	4.7	5.1	4.7	5.6	5.2	S	6.5	5.4	6.5	3.1	24
30	4.3	5.1	5.8	3.5	3.9	5.3	5.5	8.5	12.8	7.9	6.9	4.1	2.1	1.6	2.2	3.2	7.4	6.9	9.5	7.4	S	4.8	5.6	4.2	12.8	5.6	24
31	3.5	3.5	4.1	4.1	5.3	6.2	7.7	6.5	5.5	3.7	1.8	2.4	1.8	1.7	1.8	3.0	4.4	4.8	3.7	S	3.5	3.2	2.8	2.5	7.7	3.8	24
HOURLY MAX	16.8	10.3	12.0	17.3	15.8	29.8	30.5	61.1	45.6	23.0	16.1	8.8	5.0	4.6	4.4	4.0	9.7	12.2	13.8	10.9	12.0	19.0	17.2	20.6			
HOURLY AVG	4.3	3.8	4.0	4.2	5.1	7.6	9.9	11.8	8.5	6.2	4.3	2.9	2.1	1.9	1.9	1.9	2.8	3.9	5.2	5.2	4.4	4.2	4.3	4.3			

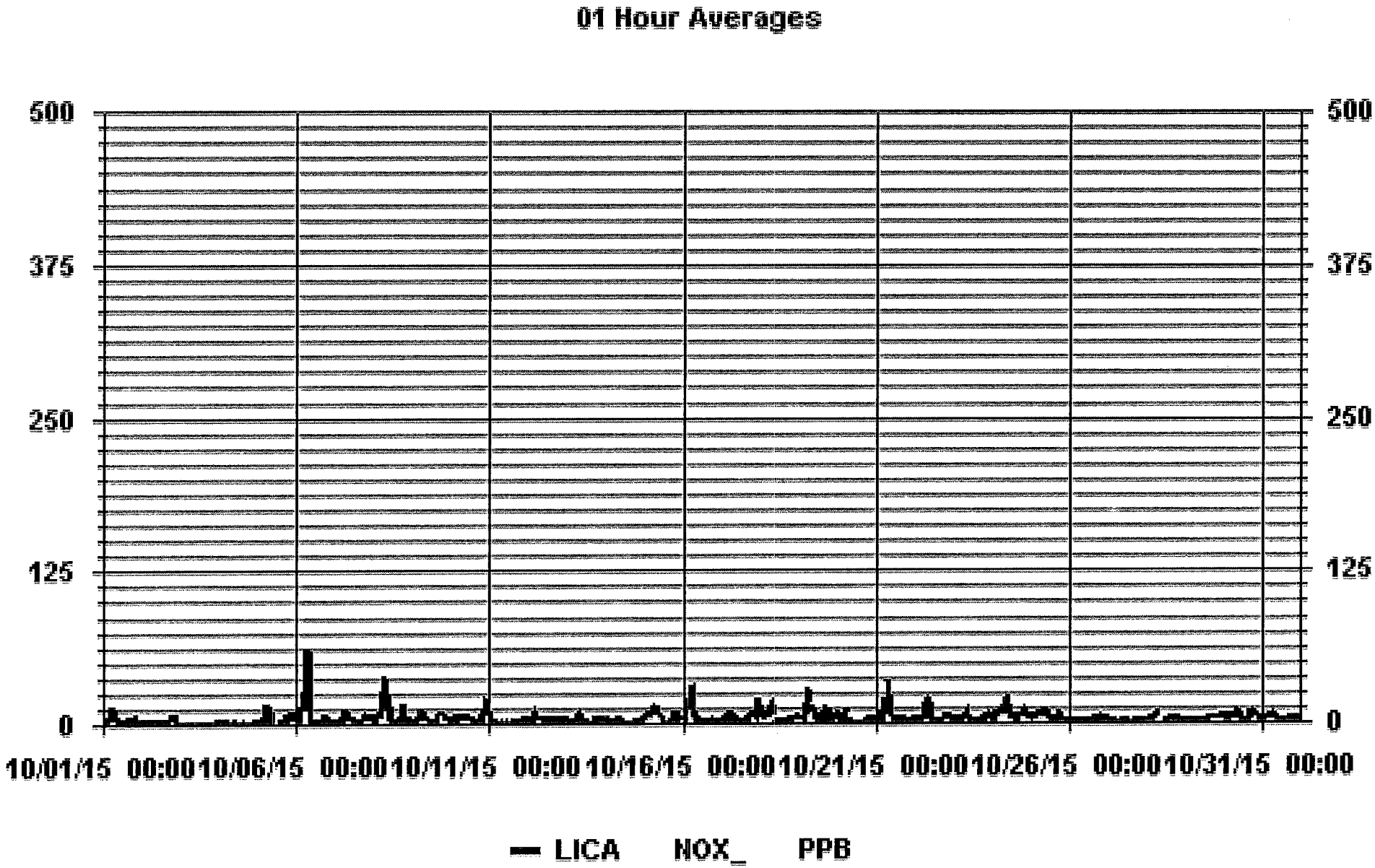
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			699			
MAXIMUM 1-HR AVERAGE:	61.1	PPB	@ HOUR(S)	7	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	10.2	PPB			ON DAY(S)	6
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	5.41		MONTHLY AVERAGE:		4.8	PPB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375
250
125
0
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA NOX_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

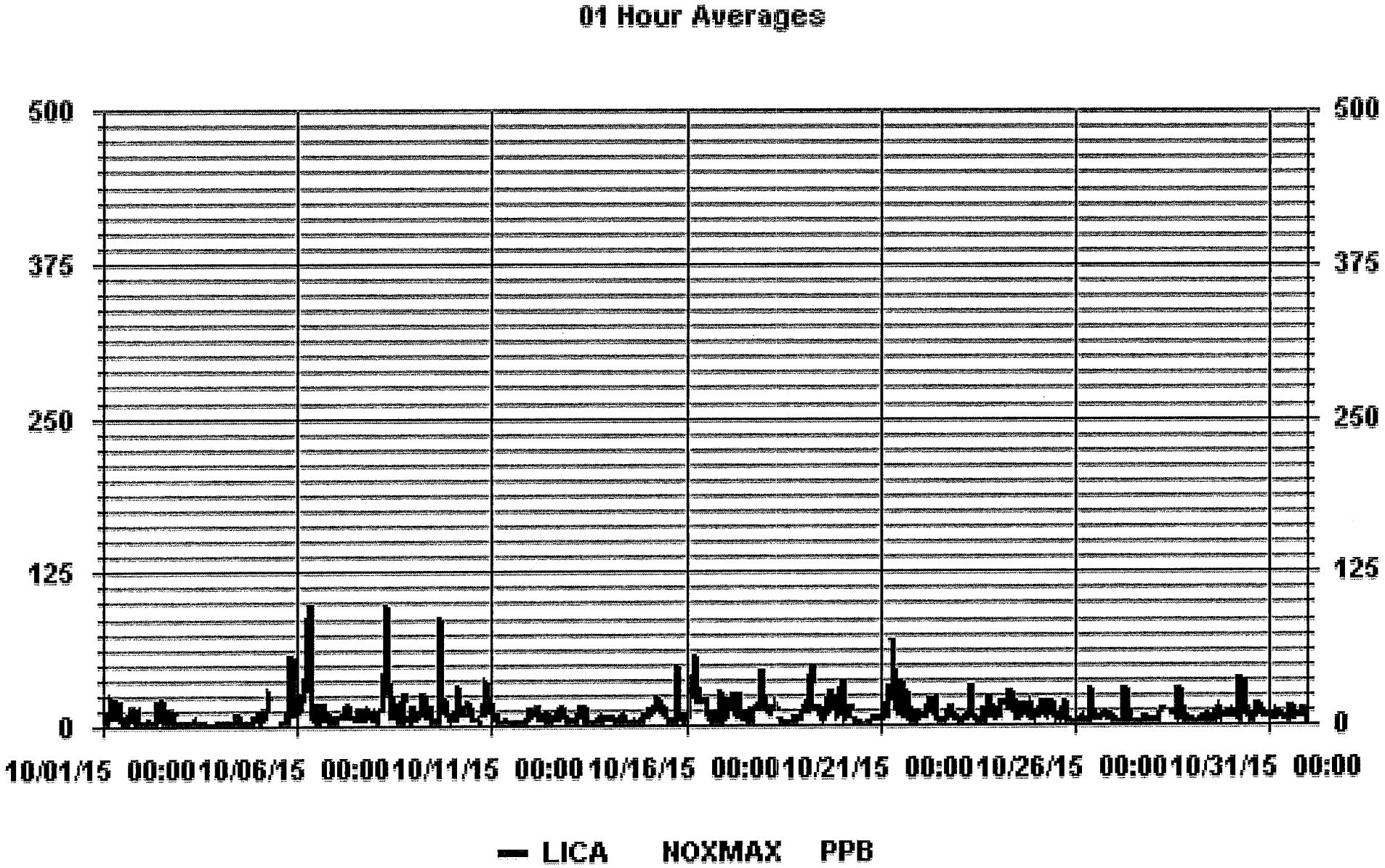
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	12.0	6.9	5.5	8.0	7.5	22.0	20.5	21.0	7.4	5.0	21.4	7.4	5.5	2.0	5.5	4.5	10.5	8.0	16.5	9.0	11.0	1.5	S	2.0	22.0	9.6	24
2	1.5	2.0	2.0	3.0	4.5	3.5	2.4	3.0	1.5	12.5	20.0	2.4	23.0	5.5	5.0	4.0	13.5	9.0	11.0	8.5	11.5	S	2.5	1.4	23.0	6.7	24
3	0.5	0.9	0.9	0.9	0.4	1.9	0.9	0.9	3.5	0.9	0.9	1.4	0.9	0.9	0.9	2.4	1.9	0.4	0.4	1.4	S	1.5	2.0	2.5	3.5	1.3	24
4	1.0	1.5	1.5	1.5	2.0	2.0	1.5	2.5	2.5	3.0	11.0	3.9	6.9	0.9	1.4	2.0	2.4	0.5	2.0	S	1.0	6.0	5.5	3.0	11.0	2.8	24
5	12.5	5.0	4.0	5.0	11.9	12.0	24.9	22.9	C	C	C	C	C	C	C	2.0	2.0	1.9	12.9	8.4	56.9	9.9	S	19.9	56.9	13.3	24
6	10.4	12.9	13.4	19.0	26.9	37.9	32.0	88.9	98.4	5.5	18.0	5.0	2.5	4.5	18.0	3.0	18.5	7.5	12.0	6.0	5.0	S	3.5	1.4	98.4	19.6	24
7	5.5	5.5	6.4	7.4	8.4	7.9	15.4	18.5	9.5	7.9	6.9	7.4	7.0	3.5	13.9	9.0	4.0	7.0	12.5	14.4	S	9.0	7.4	10.0	18.5	8.9	24
8	6.0	5.0	11.9	13.0	10.9	25.4	42.4	***99.9***	35.4	30.9	26.4	8.9	8.5	11.5	18.5	2.9	2.9	20.0	25.0	S	4.7	4.7	2.6	15.6	***99.9***	18.8	24
9	6.6	8.1	6.1	7.1	11.2	18.7	26.6	13.1	8.6	5.7	15.6	3.7	3.1	3.2	1.2	1.7	88.1	15.6	S	19.6	12.1	8.6	6.1	8.6	88.1	13.0	24
10	5.6	5.6	11.6	32.5	10.6	11.6	13.5	7.5	16.1	21.1	7.1	17.1	5.6	6.1	5.1	4.6	2.0	S	10.5	18.0	34.5	33.0	24.5	20.4	34.5	14.1	24
11	12.0	6.9	7.5	8.0	4.0	2.5	S	S	4.1	1.6	1.1	1.5	1.0	1.5	3.0	3.6	S	3.1	1.5	2.5	1.5	5.1	6.1	3.6	12.0	3.9	24
12	14.0	8.0	14.0	7.5	17.0	12.6	6.1	5.6	7.0	4.1	11.6	3.6	3.0	5.1	6.1	S	10.9	3.5	12.5	15.4	9.9	7.0	4.5	5.0	17.0	8.4	24
13	5.5	4.5	5.5	4.0	2.5	6.0	10.5	17.0	7.0	15.4	3.0	2.5	2.0	2.0	S	1.5	2.5	2.0	5.5	6.9	4.0	6.0	5.5	5.0	17.0	5.5	24
14	6.0	4.5	5.0	5.0	4.0	3.5	5.5	7.0	5.5	7.9	3.0	0.9	1.5	S	2.0	1.0	3.0	1.5	2.0	2.4	3.5	3.5	8.9	5.0	8.9	4.0	24
15	10.0	9.4	14.4	10.9	12.5	15.9	23.4	20.9	13.0	11.5	14.9	9.9	S	5.5	4.0	1.0	1.5	6.9	49.9	11.4	10.4	6.0	5.0	6.9	49.9	12.0	24
16	7.0	6.9	21.9	24.9	40.4	57.9	41.4	32.9	18.0	20.5	20.4	S	21.0	8.0	13.0	2.5	5.0	4.0	13.0	3.0	3.9	29.0	3.5	4.5	57.9	17.5	24
17	5.5	9.5	12.5	22.5	12.5	14.9	26.4	8.4	4.5	24.5	S	9.5	3.0	13.0	3.0	2.5	3.0	13.0	13.5	13.4	17.0	16.0	34.0	45.5	45.5	14.2	24
18	26.0	17.0	13.5	11.5	10.5	12.0	13.5	17.5	14.5	S	4.5	1.5	1.5	2.0	1.0	1.0	1.5	4.0	7.0	6.5	4.5	7.0	6.0	11.0	26.0	8.5	24
19	11.5	15.0	12.0	11.4	13.9	41.9	48.9	36.4	S	16.0	12.6	10.1	5.6	7.6	15.1	7.6	22.6	28.1	18.6	22.1	10.0	24.1	8.0	9.1	48.9	17.7	24
20	30.6	36.6	7.6	9.1	6.1	14.1	14.6	S	4.0	1.0	0.9	0.9	1.9	0.9	0.5	1.0	1.0	2.4	3.5	5.5	5.0	6.0	5.0	5.0	36.6	7.1	24
21	7.5	5.5	6.0	6.0	18.5	30.4	S	68.4	46.4	21.4	13.5	11.5	7.5	37.5	10.5	4.0	28.0	8.0	4.0	15.0	4.0	3.0	6.0	5.5	68.4	16.0	24
22	10.9	7.4	9.0	4.0	15.0	S	11.5	20.5	21.0	22.0	8.4	5.5	4.0	2.0	2.0	3.0	5.0	6.4	11.4	17.0	10.0	10.0	6.5	7.0	22.0	9.5	24
23	6.5	3.5	3.5	6.0	S	6.0	8.9	11.4	33.4	8.4	7.5	5.0	2.4	4.5	4.0	3.0	13.4	5.5	9.0	25.0	12.0	15.5	8.0	6.4	33.4	9.1	24
24	7.9	7.4	18.5	S	17.5	17.4	15.4	18.5	28.9	22.9	21.9	11.5	6.0	5.5	6.0	6.9	19.0	11.0	9.0	14.5	18.0	14.5	9.9	7.4	28.9	13.7	24
25	10.4	7.9	S	8.9	21.4	11.4	9.4	13.9	11.9	19.9	10.5	6.9	9.5	7.0	5.5	7.4	14.5	18.0	16.5	3.0	4.0	4.0	1.5	2.5	21.4	9.8	24
26	2.0	S	3.5	3.0	3.0	5.5	2.9	3.5	3.5	30.4	3.5	14.9	6.9	4.5	4.5	6.0	6.0	7.9	7.4	11.4	6.9	7.9	6.0	6.9	30.4	6.9	24
27	S	3.5	3.0	1.4	1.4	0.9	1.4	29.9	10.5	11.0	4.0	0.9	0.9	0.9	1.4	0.9	1.4	1.9	3.5	7.9	3.5	2.0	4.0	S	29.9	4.4	24
28	4.5	3.4	5.0	4.5	10.0	12.5	S	S	8.9	C	C	C	9.9	9.9	7.0	10.0	30.5	12.9	8.4	9.9	3.4	2.4	S	2.9	30.5	8.7	24
29	2.9	3.5	2.4	1.9	2.4	4.9	2.9	3.9	6.0	7.4	3.9	5.5	3.5	7.0	4.5	8.0	12.0	9.0	6.5	9.0	8.0	S	10.5	9.5	12.0	5.9	24
30	6.0	12.0	11.0	9.0	7.5	38.9	11.4	13.9	37.4	14.9	10.0	7.0	4.0	3.5	6.0	9.5	19.0	16.5	14.0	10.5	S	7.5	7.5	8.0	38.9	12.4	24
31	5.5	7.0	7.0	6.0	11.0	9.5	11.0	9.5	7.5	6.5	5.0	3.0	3.5	15.5	3.5	8.5	8.5	7.5	7.0	S	8.5	13.0	7.0	4.0	15.5	7.6	24
HOURLY MAX	30.6	36.6	21.9	32.5	40.4	57.9	48.9	99.9	98.4	30.9	26.4	17.1	23.0	37.5	18.5	10.0	88.1	28.1	49.9	25.0	56.9	33.0	34.0	45.5			
HOURLY AVG	8.5	7.8	8.2	8.8	10.8	15.4	15.9	22.0	16.4	12.9	10.3	6.0	5.6	6.3	5.9	4.2	11.8	8.1	10.9	10.6	10.2	9.4	7.4	8.2			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
Z	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698					
MAXIMUM INSTANTANEOUS VALUE:	99.9	PPB	@ HOUR(S)	7	ON DAY(S)	8
						VAR-VARIOUS
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:			744 HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	10.97					


01 Hour Averages
500
375
250
125
0
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA NOXMAX PPB

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : NOX_
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.57	1.57	2.42	3.57	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	99.85
<	110.0	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.57	1.57	2.42	3.71	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	

Calm : .00 %

Total # Operational Hours : 700

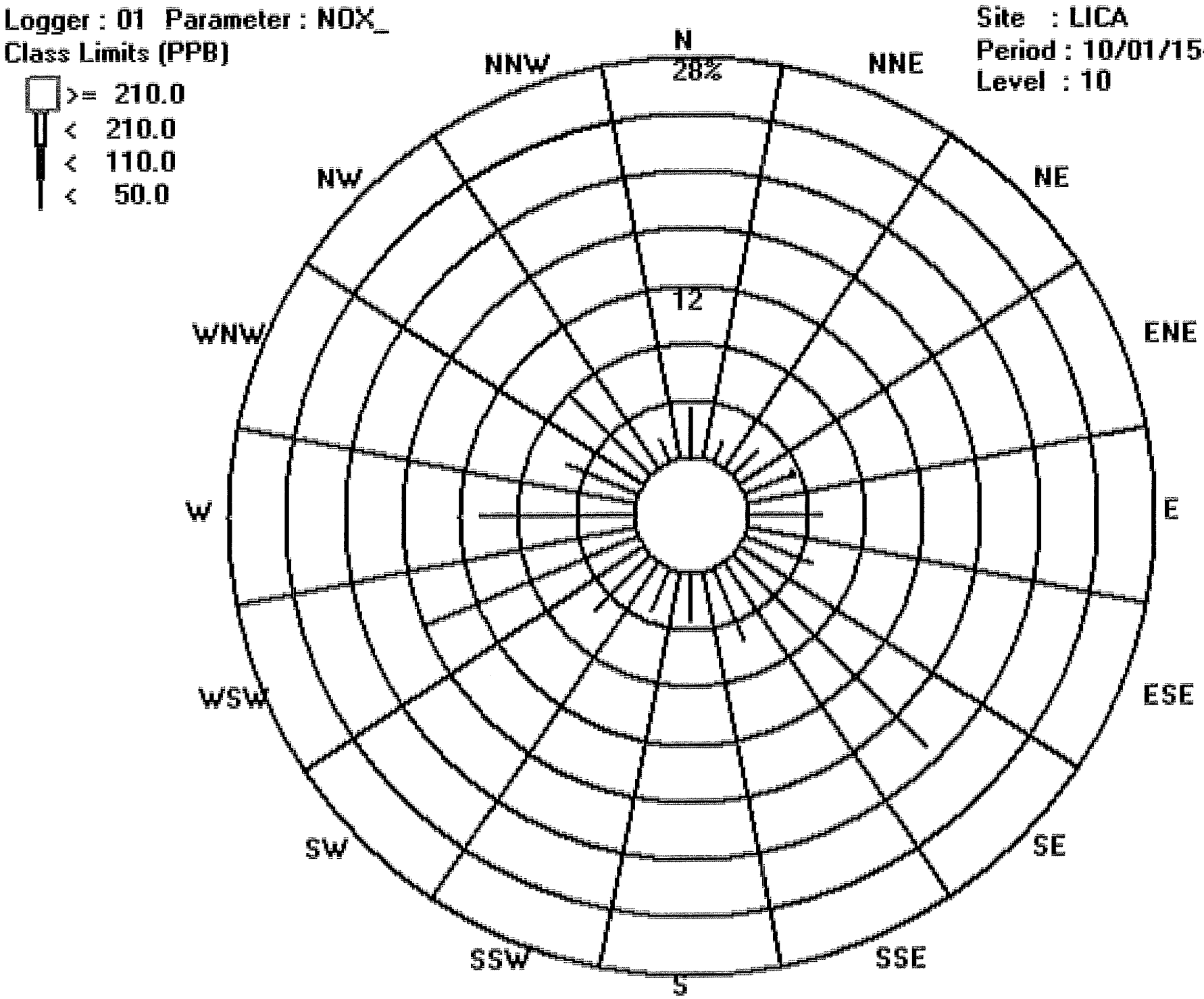
Distribution By Samples

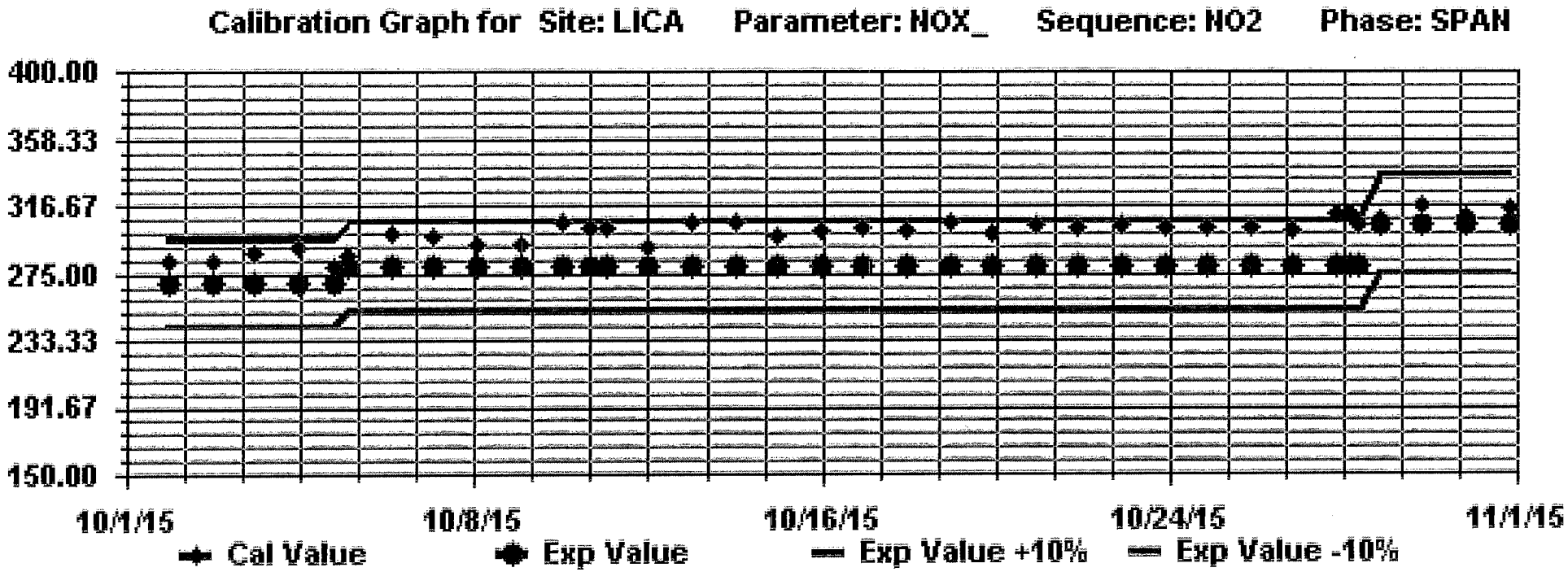
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	11	17	25	35	36	134	39	24	23	38	113	74	38	55	12	699
<	110.0				1													1
<	210.0																	
>=	210.0																	
	Totals	25	11	17	26	35	36	134	39	24	23	38	113	74	38	55	12	

Calm : .00 %

Total # Operational Hours : 700


Logger : 01 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN
400.00
358.33
316.67
275.00
233.33
191.67
150.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

NITRIC OXIDES

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

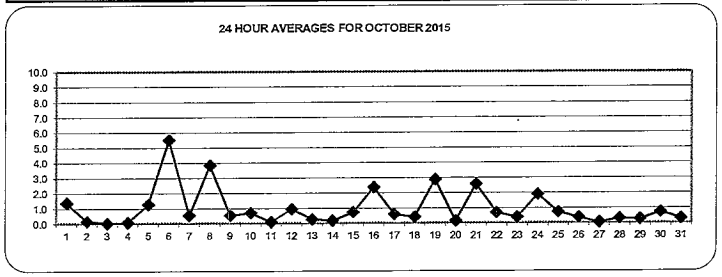
NITRIC OXIDE (NO) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.9	0.7	0.4	1.3	1.8	5.5	10.1	3.2	1.4	1.0	1.7	0.6	0.4	0.1	0.5	0.5	0.4	0.2	0.1	0.1	0.1	0.1	S	0.0	10.1	1.4	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	0.2	0.4	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	S	0.0	0.0	0.9	0.1	24
3	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	S	0.0	0.0	0.0	0.1	0.0	24
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	S	0.0	0.0	0.1	0.0	0.3	0.0	24
5	0.2	0.1	0.0	0.2	0.7	0.7	8.7	5.7	1.4	C	C	C	C	C	C	0.2	0.0	0.0	0.0	0.1	2.3	0.2	S	0.8	8.7	1.3	24
6	0.3	1.3	0.4	4.4	5.0	17.3	12.6	*47.4*	33.1	0.6	1.1	0.8	0.3	0.2	0.3	0.2	0.4	0.3	0.3	0.1	0.1	S	0.0	0.0	*47.4*	*5.5*	24
7	0.1	0.0	0.1	0.0	0.0	0.1	1.0	1.9	1.4	1.8	1.6	1.7	1.1	0.2	0.1	0.1	0.2	0.0	0.0	0.1	S	0.1	0.1	0.2	1.9	0.5	24
8	0.2	0.1	0.3	0.8	1.0	5.6	17.3	29.0	11.7	11.2	6.2	1.3	0.9	0.4	0.4	0.1	0.0	0.2	0.7	S	0.2	0.0	0.0	0.2	29.0	3.8	24
9	0.1	0.0	0.1	0.0	0.1	0.1	1.1	1.1	1.5	1.4	1.4	0.7	0.3	0.2	0.0	0.0	2.7	0.2	S	0.2	0.2	0.1	0.1	0.2	2.7	0.5	24
10	0.1	0.1	0.1	0.6	0.2	0.3	0.9	0.5	1.0	1.0	1.3	1.3	1.4	1.0	0.8	0.4	0.0	S	0.0	0.2	1.0	1.9	1.0	0.6	1.9	0.7	24
11	0.3	0.0	0.1	0.1	0.0	0.0	S	S	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	S	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.1	24
12	0.7	0.3	1.0	0.7	4.9	2.1	0.4	0.8	1.7	1.5	1.2	0.9	0.4	0.4	0.5	S	0.5	0.0	0.5	1.3	1.1	0.3	0.1	0.1	4.9	0.9	24
13	0.1	0.0	0.1	0.0	0.1	0.1	0.7	1.7	0.8	1.5	0.4	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.2	24
14	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.4	0.7	0.8	0.3	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	0.2	24
15	0.1	0.0	0.1	0.2	0.3	0.4	1.1	2.0	3.5	2.9	2.4	1.1	S	0.4	0.2	0.0	0.0	0.0	1.4	0.1	0.0	0.0	0.0	0.1	3.5	0.7	24
16	0.3	0.1	2.5	4.3	5.0	17.1	17.3	2.8	1.3	1.0	1.1	S	0.6	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	17.3	2.4	24
17	0.0	0.0	0.2	0.7	0.2	0.3	1.2	0.4	0.6	1.5	S	0.6	0.2	0.6	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2	2.4	3.8	3.8	0.6	24
18	2.8	0.6	0.4	0.4	0.2	0.2	0.4	1.4	1.6	S	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	2.8	0.4	24
19	0.4	0.6	0.7	0.2	2.3	10.2	19.1	17.8	S	5.1	2.4	1.5	0.6	0.7	0.5	0.3	1.1	1.1	0.3	0.7	0.2	0.1	0.0	0.0	19.1	2.9	24
20	1.0	1.0	0.1	0.1	0.1	0.3	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	0.1	0.1	1.0	0.1	24
21	0.2	0.1	0.3	0.1	2.0	6.9	S	22.0	15.5	3.7	2.9	1.4	0.8	0.8	0.8	0.2	0.4	0.0	0.0	0.4	0.1	0.0	0.0	0.0	22.0	2.5	24
22	0.1	0.0	0.1	0.0	0.3	S	0.2	1.6	4.4	5.3	1.1	0.8	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.3	5.3	0.7	24
23	0.2	0.0	0.0	0.0	S	0.1	0.3	0.7	2.2	1.2	1.0	0.7	0.3	0.5	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.4	0.1	0.1	2.2	0.4	24
24	0.3	0.2	0.8	S	1.4	0.5	0.4	3.4	9.0	8.7	7.3	3.5	1.4	0.8	0.7	0.5	0.5	0.0	0.1	0.8	1.2	1.0	0.3	0.2	9.0	1.9	24
25	0.6	0.2	S	0.2	0.6	0.3	0.2	0.6	1.2	3.1	2.5	1.4	1.2	1.2	0.6	0.4	0.5	0.5	0.8	0.1	0.0	0.3	0.0	0.0	3.1	0.7	24
26	0.0	S	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.7	0.4	0.8	0.5	0.3	0.3	0.6	0.3	0.4	0.1	0.8	0.3	0.4	0.2	0.3	0.8	0.4	24
27	S	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	S	0.3	0.0	24
28	0.1	0.0	0.1	0.0	0.4	0.1	0.5	S	0.7	C	C	C	0.4	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.0	0.0	S	0.1	0.7	0.3	24
29	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.6	0.4	0.4	0.5	0.6	0.6	0.2	0.1	0.1	0.1	S	0.1	0.1	0.6	0.2	24
30	0.1	0.5	0.3	0.4	0.2	1.2	0.3	1.2	5.3	2.5	1.8	1.1	0.3	0.1	0.0	0.1	0.3	0.0	0.2	0.0	S	0.2	0.0	0.1	5.3	0.7	24
31	0.2	0.1	0.2	0.2	0.5	0.3	0.2	0.3	0.5	0.5	0.1	0.2	0.1	0.3	0.1	0.5	0.6	0.2	0.2	S	0.4	0.6	0.4	0.0	0.6	0.3	24
HOURLY MAX	2.8	1.3	2.5	4.4	5.0	17.3	19.1	47.4	33.1	11.2	7.3	3.5	1.4	1.2	0.8	0.6	2.7	1.1	1.4	1.3	2.3	1.9	2.4	3.8			
HOURLY AVG	0.3	0.2	0.3	0.5	0.9	2.3	3.3	5.2	3.4	2.1	1.4	0.8	0.4	0.3	0.3	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.2	0.3			

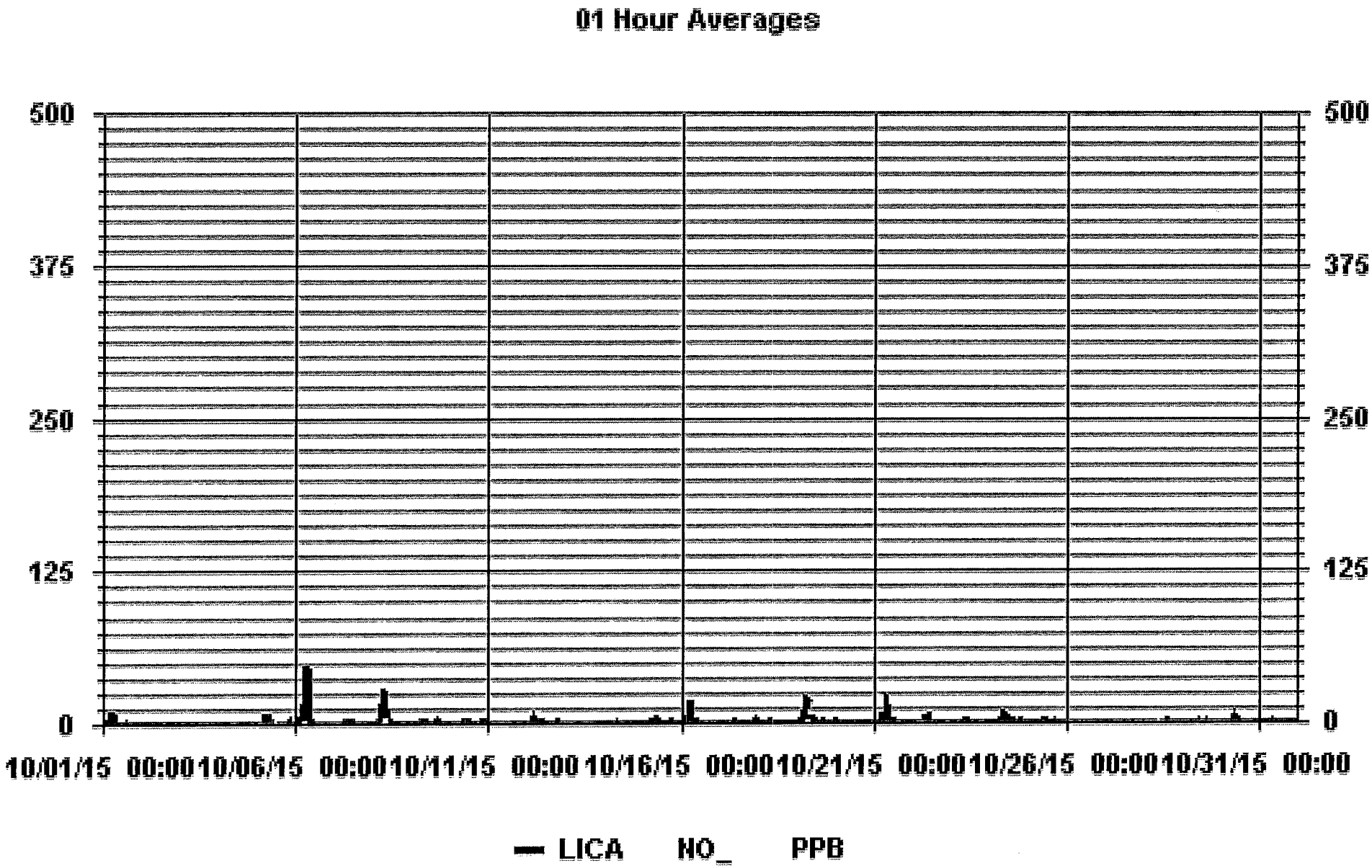
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			497				
MAXIMUM 1-HR AVERAGE:	47.4	PPB	@ HOUR(S)	7	ON DAY(S)	6	
MAXIMUM 24-HR AVERAGE:	5.5	PPB			ON DAY(S)	6	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.33		MONTHLY AVERAGE:			1.0	PPB


01 Hour Averages
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA NO_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

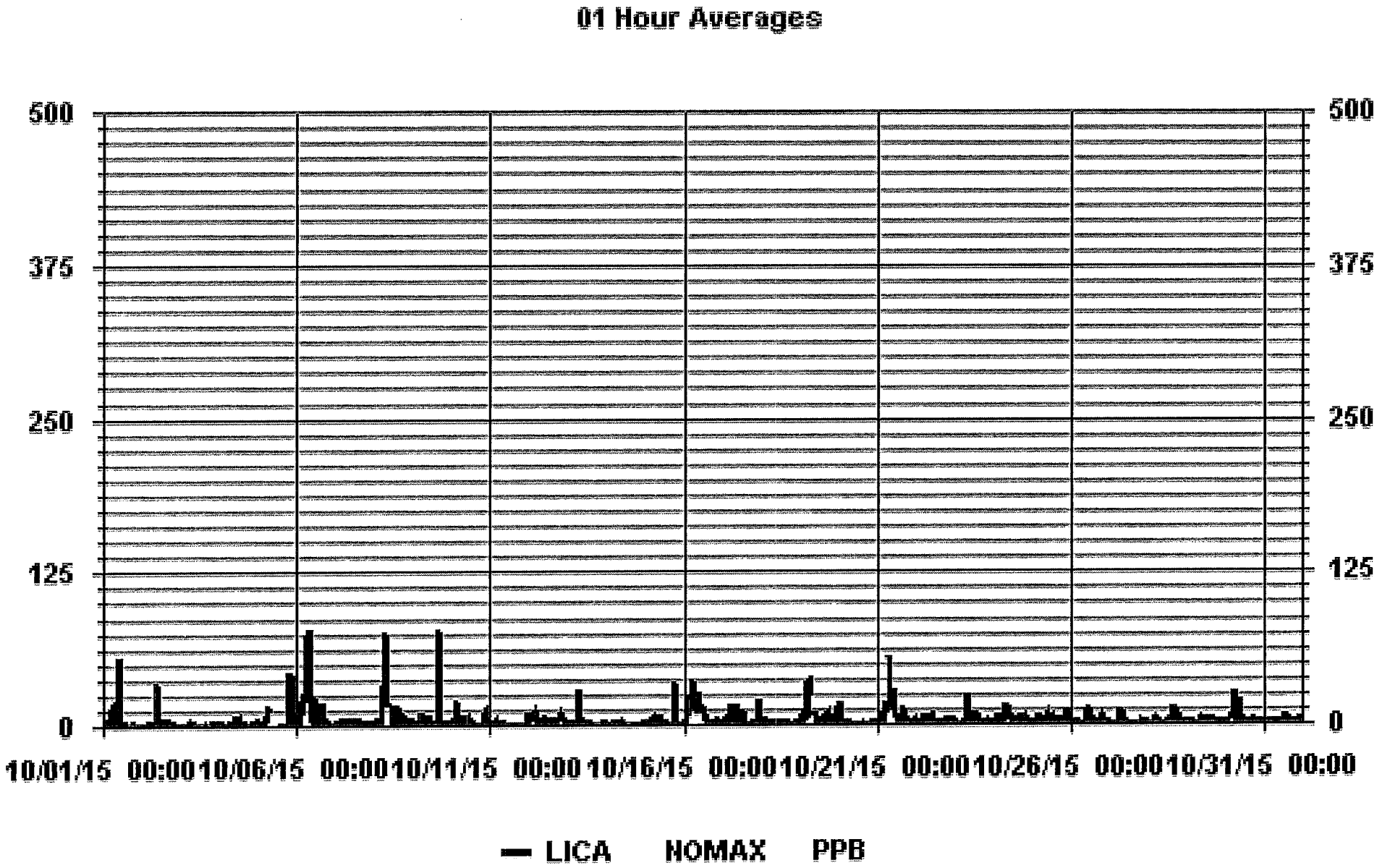
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.6	1.0	1.1	4.1	3.1	14.1	16.6	14.6	2.5	2.1	56.1	2.5	2.0	0.5	2.0	1.0	1.5	0.6	0.6	2.1	1.1	0.1	S	0.5	56.1	5.8	24
2	0.0	0.0	0.0	0.5	0.5	1.4	0.9	0.9	0.5	34.0	4.0	0.9	5.0	4.4	4.4	1.0	6.0	2.0	2.5	0.5	1.5	S	0.5	0.4	34.0	3.1	24
3	0.4	0.4	0.4	0.4	0.4	2.9	0.9	0.4	1.9	0.4	0.4	0.4	0.4	0.4	0.4	1.4	1.4	0.4	0.4	0.4	S	0.5	0.5	0.0	2.9	0.7	24
4	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	7.4	2.4	5.4	0.9	0.9	0.9	1.9	0.0	0.0	S	0.0	1.5	2.5	0.4	7.4	1.2	24
5	5.5	0.4	0.9	1.4	5.4	5.0	14.4	13.9	C	C	C	C	C	C	C	0.4	0.5	0.0	0.4	0.4	43.5	1.4	S	7.9	43.5	6.3	24
6	2.4	3.4	2.9	9.4	19.9	26.9	22.4	74.5	*77.4*	1.9	25.5	3.5	1.0	2.4	11.5	4.0	18.5	1.5	3.5	0.9	0.9	S	0.9	0.4	*77.4*	13.7	24
7	2.4	1.4	2.9	0.9	1.4	0.9	4.0	5.0	3.5	2.4	4.0	2.4	2.0	0.9	3.4	3.5	0.4	0.5	1.0	2.9	S	0.4	0.5	1.9	5.0	2.1	24
8	0.4	0.4	3.4	4.0	3.4	14.9	32.0	76.5	19.9	18.4	16.9	3.4	4.5	12.9	12.9	0.9	0.4	7.5	6.0	S	1.0	1.0	0.4	4.9	76.5	10.7	24
9	1.4	1.4	1.9	0.4	2.9	7.4	7.4	3.4	2.4	2.0	8.4	1.4	1.4	0.9	0.4	0.4	*77.4*	1.4	S	2.0	1.0	0.5	0.5	2.5	*77.4*	5.6	24
10	0.5	0.9	2.9	19.9	1.4	3.4	4.4	1.5	7.5	3.0	1.5	5.0	1.5	1.4	1.4	1.4	0.9	S	0.5	2.0	10.0	11.5	3.5	3.5	19.9	3.9	24
11	3.5	1.9	3.0	4.5	0.5	0.5	S	S	2.0	0.5	0.5	0.4	0.4	0.4	0.4	0.4	S	0.4	0.0	0.9	0.4	0.4	2.0	0.4	4.5	1.1	24
12	9.9	4.0	7.4	4.0	10.0	7.4	1.4	1.4	2.4	2.5	7.5	1.4	0.9	1.4	1.4	S	5.0	0.4	4.5	8.4	5.0	5.5	0.5	1.0	10.0	4.1	24
13	2.0	1.0	2.0	1.0	1.5	0.5	1.5	29.0	1.5	5.5	0.9	0.5	0.5	0.5	S	0.5	0.5	0.0	0.5	0.4	0.4	0.9	0.9	1.0	29.0	2.3	24
14	1.0	1.0	1.0	2.0	1.0	1.0	1.5	1.0	1.4	3.5	0.9	0.4	0.5	S	0.5	0.0	1.5	0.5	0.4	0.0	0.4	0.4	1.4	3.0	3.5	1.1	24
15	1.5	0.9	2.4	2.9	1.4	4.4	6.9	4.4	5.4	4.0	5.5	3.4	S	0.9	2.0	1.0	0.0	0.5	35.5	1.4	0.4	0.9	0.4	0.5	35.5	3.8	24
16	1.0	0.9	6.9	14.4	24.5	36.4	23.9	19.5	14.5	10.0	24.5	S	14.5	4.0	7.5	1.0	2.0	0.0	2.0	0.9	0.4	4.5	0.5	0.5	36.4	9.3	24
17	1.5	2.0	4.5	8.0	1.9	2.9	16.4	0.9	1.4	13.5	S	4.5	1.5	12.9	1.0	0.5	0.5	1.0	0.5	0.5	0.5	3.0	8.5	21.0	21.0	4.7	24
18	8.5	3.0	4.0	3.5	3.5	2.5	2.0	2.5	2.5	S	1.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	2.0	8.5	1.8	24
19	2.5	6.5	3.5	4.0	6.0	34.4	35.4	26.9	S	9.4	5.0	3.5	2.5	1.5	6.5	3.5	6.5	8.5	1.5	8.0	2.4	6.5	0.9	1.4	35.4	8.1	24
20	14.9	19.0	1.5	1.5	2.5	3.0	2.5	S	0.5	0.5	0.4	0.0	0.9	0.4	0.0	0.5	0.5	0.0	0.0	0.5	0.0	2.0	1.5	1.5	19.0	2.4	24
21	2.5	2.0	3.0	2.0	9.4	16.9	S	52.9	28.9	13.4	28.0	9.5	7.5	5.0	7.5	0.5	14.0	0.5	1.0	5.0	1.0	1.0	1.5	0.4	52.9	9.3	24
22	3.4	0.5	2.0	0.5	6.5	S	1.5	4.0	6.5	7.5	1.9	1.9	1.5	0.5	0.5	0.5	0.5	0.5	1.4	6.5	2.0	1.0	0.5	3.0	7.5	2.4	24
23	3.0	0.5	0.5	1.4	S	0.9	2.4	3.4	23.9	2.9	2.5	1.5	0.9	9.0	1.5	0.5	3.4	1.4	1.5	1.5	0.5	3.5	1.5	0.9	23.9	3.0	24
24	1.4	2.4	6.5	S	6.0	4.0	2.9	7.9	16.4	10.9	9.4	5.0	2.0	1.0	1.5	3.4	7.4	0.5	0.5	2.5	6.0	3.0	1.9	0.9	16.4	4.5	24
25	1.9	0.9	S	1.4	8.9	3.9	2.9	4.9	4.4	7.9	4.0	3.5	3.0	5.5	1.9	1.4	3.5	3.0	5.0	1.5	0.5	12.5	0.5	0.5	12.5	3.6	24
26	0.5	S	1.6	1.1	1.1	1.0	1.0	0.5	1.0	13.0	1.0	14.0	7.5	2.5	1.5	2.0	1.0	1.5	1.5	6.0	3.0	2.0	2.0	2.0	14.0	3.0	24
27	S	0.4	0.4	0.4	0.4	0.0	0.4	11.9	8.5	3.0	1.5	0.4	0.4	0.4	0.0	0.4	0.0	0.0	0.9	2.9	1.0	0.5	1.5	S	11.9	1.6	24
28	1.4	0.4	1.4	0.4	4.4	2.4	S	S	1.9	C	C	C	4.0	3.4	1.5	4.5	14.4	7.4	1.9	3.9	0.4	0.4	S	0.5	14.4	3.0	24
29	0.5	0.5	0.5	0.5	0.5	0.5	1.5	0.5	3.5	1.0	2.0	3.5	0.6	2.6	0.6	3.6	5.1	3.6	1.0	1.6	1.6	S	1.0	2.5	5.1	1.7	24
30	0.5	3.5	5.5	4.0	4.0	25.9	2.9	3.4	20.4	5.9	4.0	2.5	1.5	0.9	1.0	2.5	3.5	1.0	2.5	0.5	S	3.0	1.0	2.0	25.9	4.4	24
31	2.0	2.0	2.5	2.0	3.0	2.5	2.0	2.5	2.0	2.0	1.0	0.5	1.0	6.9	2.0	4.5	3.0	2.5	1.0	S	3.5	4.5	2.5	1.0	6.9	2.5	24
HOURLY MAX	14.9	19.0	7.4	19.9	24.5	36.4	35.4	76.5	77.4	34.0	56.1	14.0	14.5	12.9	12.9	4.5	77.4	8.5	35.5	8.4	43.5	12.5	8.5	21.0			
HOURLY AVG	2.7	2.1	2.6	3.4	4.5	7.6	7.6	13.2	9.1	6.5	8.1	2.8	2.6	2.9	2.6	1.6	6.1	1.6	2.6	2.3	3.2	2.6	1.4	2.3			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	673					
MAXIMUM INSTANTANEOUS VALUE:	77.4	PPB	@ HOUR(S)	8, 16	ON DAY(S)	6, 9
				VAR-VARIOUS		
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	8.39					


01 Hour Averages
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375
250
125
0
500
375
250
125
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA NOMAX PPB

LICA
NO_ / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : NO_
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.57	1.57	2.42	3.71	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.57	1.57	2.42	3.71	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	

Calm : .00 %

Total # Operational Hours : 700

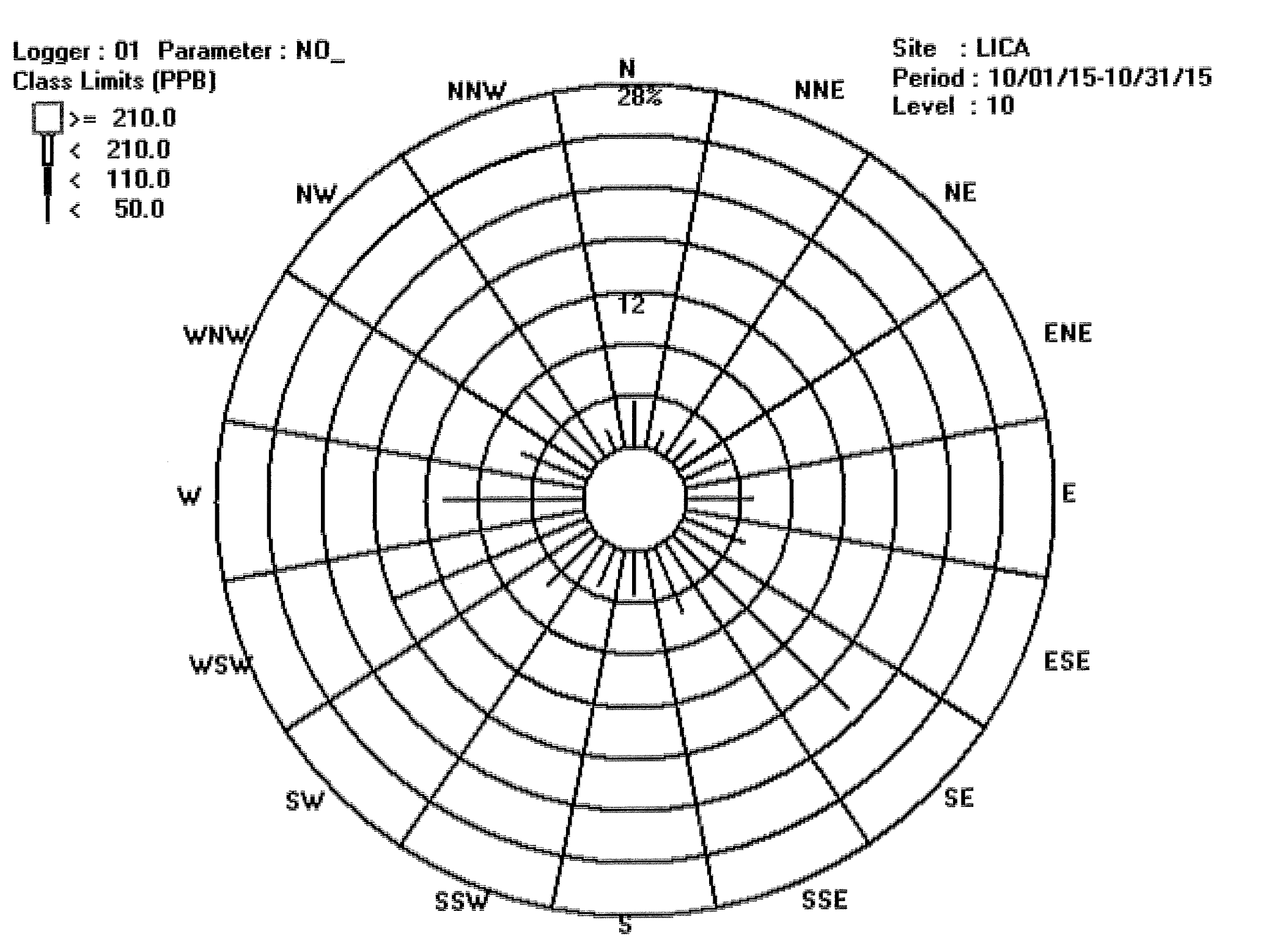
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	11	17	26	35	36	134	39	24	23	38	113	74	38	55	12	700
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	11	17	26	35	36	134	39	24	23	38	113	74	38	55	12	

Calm : .00 %

Total # Operational Hours : 700


Logger : 01 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12

NITROGEN DIOXIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

NITROGEN DIOXIDE (NO2) hourly averages in ppb

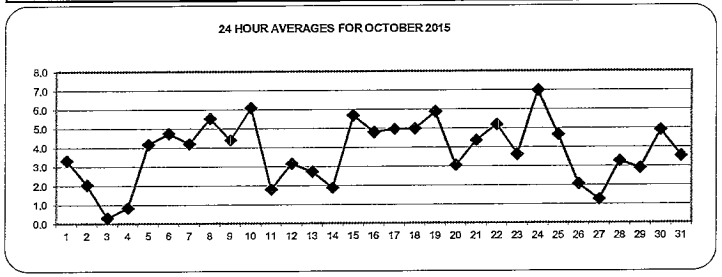
MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	6.6	4.8	3.3	3.5	3.5	3.3	4.5	5.6	3.4	2.6	1.8	2.2	1.7	1.4	2.2	2.8	3.7	3.2	5.1	5.9	2.6	1.2	S	1.4	6.6	3.3	24
2	1.5	1.6	1.5	1.9	1.8	1.8	1.6	1.4	1.2	0.7	1.2	1.0	1.3	1.0	1.0	1.2	1.8	3.8	6.2	5.7	6.1	S	1.2	0.6	6.2	2.0	24
3	0.4	0.3	0.2	0.3	0.1	0.1	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.3	0.1	0.2	0.2	0.1	0.0	0.2	S	0.7	1.0	1.0	1.0	0.3	24
4	0.7	1.1	1.0	0.9	1.2	1.6	0.9	1.1	0.6	1.6	0.6	0.5	0.3	0.4	0.3	0.6	0.7	0.1	1.0	S	0.6	1.1	1.2	0.8	1.6	0.8	24
5	1.2	2.7	2.5	2.8	4.1	5.6	8.0	5.9	2.8	C	C	C	C	C	C	1.1	1.0	1.0	6.4	6.1	5.8	6.2	S	7.5	8.0	4.2	24
6	4.9	7.4	6.0	8.1	7.7	9.5	8.9	13.7	12.5	1.8	1.7	1.8	1.4	1.3	1.1	1.0	1.9	3.5	7.1	3.0	2.5	S	1.3	0.8	13.7	4.7	24
7	0.9	2.0	2.7	3.9	3.7	3.9	8.5	7.9	4.1	4.2	3.3	3.9	3.1	1.5	1.7	1.6	2.6	3.6	7.3	8.6	S	6.9	5.5	5.0	8.6	4.2	24
8	4.7	4.0	5.7	6.0	5.8	7.5	9.3	10.2	11.8	11.8	9.4	3.2	2.6	1.4	1.5	1.8	2.0	5.6	13.1	S	2.5	2.1	1.7	3.3	13.1	5.5	24
9	3.9	2.5	2.6	3.6	4.5	4.3	10.0	6.8	4.6	3.3	3.1	2.4	1.4	1.2	0.7	1.1	4.5	9.4	S	9.0	7.2	6.1	4.6	4.0	10.0	4.4	24
10	3.3	4.0	5.2	4.6	4.2	5.0	6.1	6.1	5.0	5.8	4.8	4.3	3.5	3.6	3.6	2.7	0.8	S	3.0	8.3	10.7	***17.1***	16.2	12.0	***17.1***	6.1	24
11	8.0	2.4	1.4	2.0	1.6	0.8	S	S	1.0	0.7	0.5	0.7	0.6	0.9	1.6	2.3	S	2.1	0.8	0.9	0.8	3.4	3.0	2.4	8.0	1.8	24
12	2.7	2.9	4.8	3.0	4.4	4.5	3.9	3.5	3.5	2.0	2.3	2.2	2.2	2.8	3.4	S	2.2	2.3	3.7	3.9	2.9	2.4	3.3	3.6	4.8	3.1	24
13	3.1	2.2	2.0	1.8	1.1	2.3	6.7	7.1	3.3	3.9	1.2	0.8	0.7	0.9	S	0.9	1.1	1.6	3.5	4.1	3.3	4.1	3.1	3.5	7.1	2.7	24
14	4.3	2.2	2.1	1.5	1.7	1.7	2.9	3.6	3.3	2.8	1.2	0.4	0.6	S	0.7	0.5	0.6	1.0	1.2	1.5	2.1	1.9	3.0	2.5	4.3	1.9	24
15	5.2	6.5	9.0	8.4	7.9	9.5	12.3	10.5	8.2	5.9	4.6	2.6	S	1.6	0.8	0.4	0.5	3.7	9.1	5.1	6.7	3.5	3.8	4.8	12.3	5.7	24
16	5.1	4.1	9.5	13.0	10.8	12.7	13.2	8.8	5.0	2.3	1.9	S	1.4	1.2	1.4	1.6	1.7	2.7	3.7	1.5	1.6	2.0	2.1	3.0	13.2	4.8	24
17	2.4	2.9	2.9	4.5	4.8	5.6	8.0	3.5	2.4	2.9	S	1.8	1.2	1.4	1.4	1.6	1.7	4.7	7.8	9.2	8.3	6.6	11.4	16.8	16.8	4.9	24
18	14.0	9.7	7.3	5.6	6.1	6.4	11.4	13.5	8.8	S	2.2	1.1	0.8	0.6	0.5	0.5	0.6	1.9	4.1	3.3	3.1	3.9	4.3	4.7	14.0	5.0	24
19	5.3	4.1	4.8	3.5	5.2	7.0	9.0	7.5	S	6.8	5.5	4.9	2.9	3.4	1.8	2.2	8.6	11.1	12.2	10.2	3.6	3.0	5.8	6.3	12.2	5.9	24
20	7.7	7.3	3.5	2.3	2.6	9.9	11.2	S	1.9	0.6	0.4	0.3	0.4	0.3	0.2	0.4	0.4	1.5	2.8	3.8	3.6	2.8	2.7	3.3	11.2	3.0	24
21	3.0	3.2	3.1	2.6	8.0	12.1	S	11.1	8.8	5.6	4.0	3.0	1.6	3.4	3.0	2.4	4.6	4.4	3.0	3.2	2.3	2.0	2.4	3.2	12.1	4.3	24
22	4.1	4.0	3.5	2.8	4.4	S	9.0	13.5	14.8	12.1	4.4	3.5	1.7	1.1	1.1	1.6	2.1	3.7	6.3	4.9	5.4	6.0	5.4	3.7	14.8	5.2	24
23	3.4	2.8	2.8	3.7	S	3.6	4.9	5.9	6.8	4.1	2.7	2.2	1.3	1.2	1.4	1.2	1.7	2.5	4.8	6.1	4.8	6.6	4.2	4.2	6.8	3.6	24
24	4.0	3.7	7.2	S	7.6	10.1	9.7	9.7	10.7	11.8	8.8	5.3	3.6	3.5	3.3	3.2	4.8	6.1	6.3	9.7	10.8	9.1	6.6	5.0	11.8	***7.0***	24
25	5.4	4.2	S	5.9	7.0	7.5	7.5	7.5	6.4	8.2	4.6	3.7	3.7	3.3	2.6	2.8	4.6	8.8	8.2	1.8	1.3	0.6	0.7	0.7	8.8	4.7	24
26	0.7	S	0.9	1.0	1.3	1.6	1.7	1.8	1.7	1.7	1.2	1.0	1.1	1.3	1.7	2.9	3.0	3.3	1.7	4.5	3.0	3.8	2.7	3.6	4.5	2.1	24
27	S	2.8	2.0	0.9	0.9	0.7	0.6	1.3	0.7	1.2	1.1	0.5	0.5	0.5	0.9	0.5	0.8	1.1	1.9	2.9	2.2	1.2	2.1	S	2.9	1.2	24
28	3.3	1.9	3.0	3.7	3.8	6.6	7.2	S	5.8	C	C	C	1.9	2.3	2.5	2.7	2.3	2.8	3.9	4.1	2.0	1.0	S	1.2	7.2	3.3	24
29	1.4	2.0	1.7	1.5	1.4	1.9	1.6	2.1	1.7	1.8	1.7	1.6	1.8	2.1	2.7	3.4	4.1	4.9	4.6	5.5	5.1	S	6.4	5.3	6.4	2.9	24
30	4.2	4.6	5.5	3.1	3.7	4.1	5.2	7.3	7.5	5.4	5.1	3.0	1.8	1.5	2.2	3.1	7.1	6.9	9.3	7.4	S	4.6	5.6	4.1	9.3	4.9	24
31	3.3	3.4	3.9	3.9	4.8	5.9	7.5	6.2	5.0	3.2	1.7	2.2	1.7	1.4	1.7	2.5	3.8	4.6	3.5	S	3.1	2.6	2.4	2.5	7.5	3.5	24
HOURLY MAX	14.0	9.7	9.5	13.0	10.8	12.7	13.2	13.7	14.8	12.1	9.4	5.3	3.7	3.6	3.6	3.4	8.6	11.1	13.1	10.2	10.8	17.1	16.2	16.8			
HOURLY AVG	4	4	4	4	4	5	7	7	5	4	3	2	2	2	2	2	3	4	5	5	4	4	4	4			

STATUS FLAG CODES

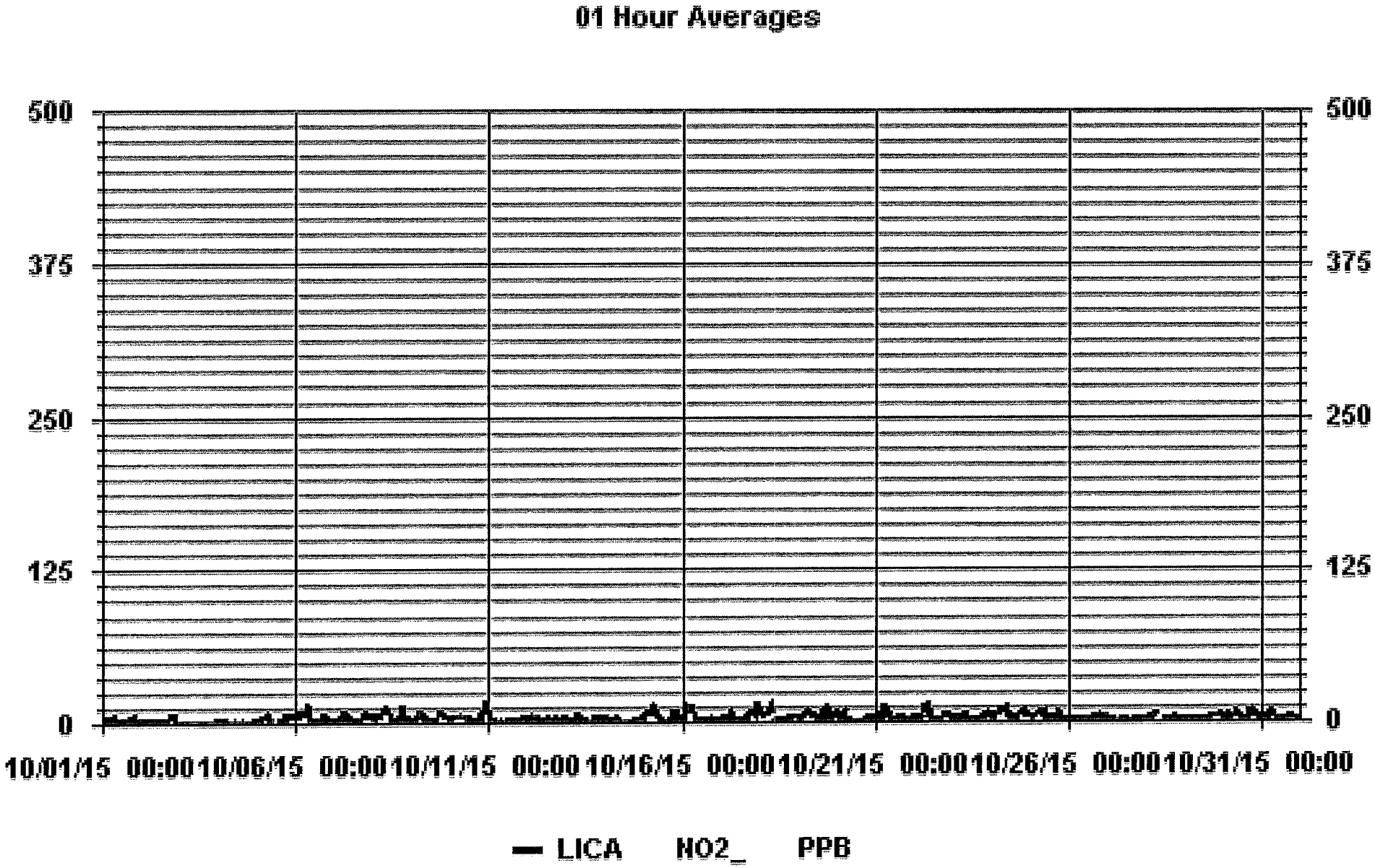
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			699				
MAXIMUM 1-HR AVERAGE:	17.1	PPB	@ HOUR(S)	21	ON DAY(S)	10	
MAXIMUM 24-HR AVERAGE:	7.0	PPB			ON DAY(S)	24	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.03		MONTHLY AVERAGE:			3.8	PPB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250
125
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500
375
250
125
0
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA NO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

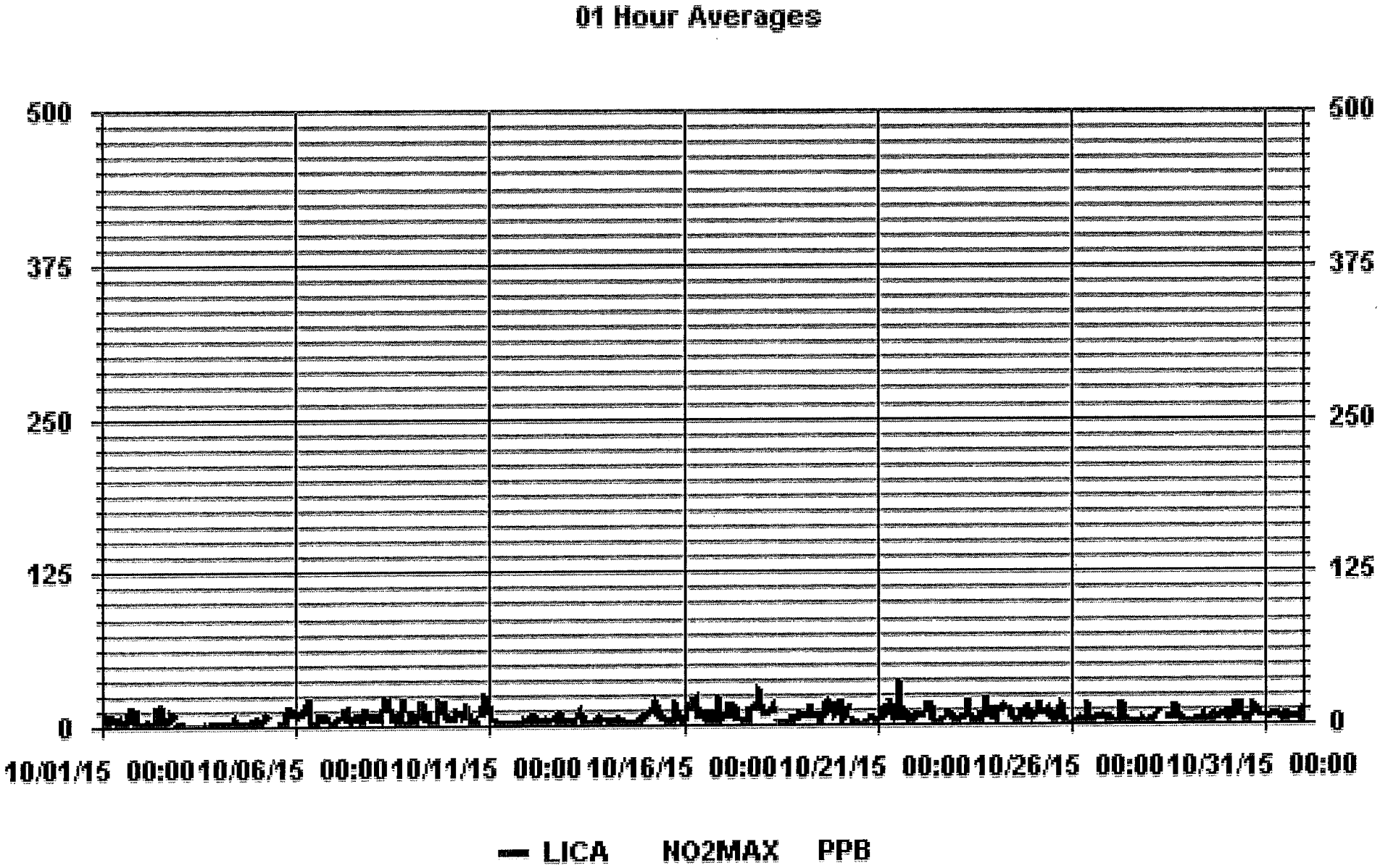
HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	8.9	5.9	5.4	4.9	4.4	8.9	9.4	8.9	5.4	3.4	3.3	6.3	3.8	1.8	3.8	3.8	8.8	7.4	15.9	8.9	10.4	1.9	S	2.0	15.9	6.2	24
2	1.5	2.0	2.0	2.5	4.0	2.4	1.9	2.4	1.5	8.0	16.0	2.4	18.0	2.5	3.9	3.0	7.5	6.9	10.5	8.0	10.0	S	2.0	1.4	18.0	5.2	24
3	0.4	0.9	0.9	0.9	0.4	0.4	0.9	0.4	1.4	0.4	0.4	0.9	0.4	0.4	0.4	1.4	0.9	0.4	0.4	0.9	S	1.4	1.4	2.4	2.4	0.8	24
4	0.9	1.4	1.4	1.4	1.9	1.9	1.4	1.4	1.9	2.4	5.4	1.8	2.8	0.8	0.8	0.8	1.3	0.3	1.9	S	1.1	4.6	3.6	2.0	5.4	1.9	24
5	7.5	4.5	3.5	4.5	7.5	7.5	10.5	9.0	C	C	C	C	C	C	C	1.4	1.5	1.9	12.4	8.4	15.4	8.9	S	12.4	15.4	7.3	24
6	7.4	9.9	10.4	9.9	9.4	11.9	12.4	18.4	22.9	3.4	2.9	2.5	2.0	3.4	10.0	2.5	5.5	6.0	10.4	4.4	4.4	S	3.0	1.5	22.9	7.6	24
7	3.5	5.0	5.5	6.5	7.5	7.0	12.5	13.5	6.1	5.5	4.5	5.5	5.1	2.5	11.0	6.1	3.5	6.6	12.1	13.0	S	8.4	6.9	7.9	13.5	7.2	24
8	5.5	4.9	8.4	9.4	7.4	11.4	13.4	24.9	15.9	18.9	15.4	6.0	6.4	3.0	10.4	2.4	2.9	12.9	20.9	S	3.7	4.2	2.1	12.1	24.9	9.7	24
9	6.6	6.1	4.1	6.1	9.6	11.1	19.6	11.6	6.6	4.2	11.6	2.6	2.1	3.1	1.1	1.6	23.1	15.6	S	19.1	11.7	8.2	5.7	6.1	23.1	8.6	24
10	5.2	5.2	8.6	13.6	9.1	9.1	10.1	7.1	9.2	18.6	5.7	13.1	4.1	4.6	4.1	3.6	1.6	S	10.5	16.0	26.0	23.0	20.9	16.9	26.0	10.7	24
11	11.4	4.4	4.5	4.5	4.0	2.0	S	S	2.7	1.2	1.2	1.1	1.1	1.6	2.6	3.1	S	3.0	1.0	2.0	1.5	5.0	4.0	3.0	11.4	3.1	24
12	5.0	5.0	9.0	4.5	7.0	5.5	5.0	4.0	5.0	3.0	5.1	2.5	2.5	4.0	5.0	S	6.0	3.4	8.4	9.9	6.4	3.5	4.0	4.5	9.9	5.1	24
13	5.0	3.9	3.9	3.0	1.5	5.5	9.5	11.5	5.5	10.4	1.9	2.0	1.5	1.5	S	1.5	2.0	2.0	5.5	6.9	3.9	4.9	4.9	4.4	11.5	4.5	24
14	5.5	3.9	4.5	4.0	3.0	3.0	5.0	6.0	4.5	4.9	2.4	0.4	1.5	S	1.5	1.0	2.0	1.5	1.9	1.9	3.4	2.9	8.4	4.0	8.4	3.4	24
15	9.0	9.4	11.9	9.9	11.4	14.4	19.4	16.9	9.4	7.4	9.4	6.4	S	4.4	2.4	0.9	1.5	6.9	20.9	9.9	10.4	6.0	4.9	6.4	20.9	9.1	24
16	6.4	6.0	14.9	15.9	16.4	22.4	18.9	20.9	10.0	11.5	6.9	S	6.5	4.1	12.1	2.6	3.6	4.1	11.6	3.1	3.0	25.1	3.6	4.1	25.1	10.2	24
17	5.1	8.6	10.6	17.1	11.0	13.0	18.5	7.5	3.5	11.6	S	5.0	2.5	6.0	2.0	2.0	2.5	13.0	13.4	13.4	16.5	13.4	28.5	27.0	28.5	10.9	24
18	18.0	14.0	10.5	9.5	9.5	10.0	12.9	15.5	12.0	S	3.5	1.5	1.0	1.5	1.0	1.0	1.5	4.0	7.0	6.4	4.4	6.9	6.0	9.5	18.0	7.3	24
19	10.0	8.5	8.5	7.4	7.4	9.9	14.9	9.9	S	8.1	7.6	7.6	4.1	6.0	10.1	5.6	17.1	19.5	17.6	16.6	8.0	18.0	8.0	9.0	19.5	10.4	24
20	17.5	19.5	6.0	7.6	4.6	13.6	14.6	S	4.0	1.0	0.9	0.4	1.4	0.9	0.5	0.9	1.0	2.4	3.4	5.5	5.0	6.0	4.5	4.0	19.5	5.4	24
21	5.0	4.5	5.0	5.5	13.9	14.9	S	20.0	17.5	8.5	5.1	7.0	3.6	***36.1***	6.1	3.6	15.0	7.6	4.1	10.6	3.6	2.6	5.1	5.5	***36.1***	9.1	24
22	7.5	7.5	8.1	4.1	8.6	S	10.9	16.4	17.4	15.4	5.8	4.3	2.9	1.4	1.4	2.4	4.4	6.3	9.8	10.4	9.4	9.4	5.9	6.3	17.4	7.7	24
23	4.4	3.4	3.3	5.9	S	5.4	7.9	9.9	20.9	6.4	5.5	4.0	1.9	3.0	3.0	3.0	10.4	4.5	8.5	23.5	12.0	12.5	6.9	5.4	23.5	7.5	24
24	6.4	5.4	12.4	S	11.5	14.5	12.5	12.5	13.5	13.0	12.5	7.0	4.1	4.6	5.1	4.0	11.5	11.1	9.1	13.5	14.5	12.6	8.5	6.1	14.5	9.8	24
25	8.5	7.5	S	8.4	17.9	9.4	8.9	9.9	9.4	11.9	6.9	5.0	6.9	4.5	3.4	5.4	11.0	16.0	13.4	2.5	3.5	1.5	1.5	2.0	17.9	7.6	24
26	1.5	S	2.0	2.5	2.5	4.9	2.9	2.9	2.9	17.9	2.4	4.9	2.9	2.9	3.9	4.4	5.4	6.4	5.9	7.4	5.9	6.4	4.9	6.0	17.9	4.8	24
27	S	3.5	3.0	1.5	1.5	1.0	1.5	18.0	2.6	8.1	2.6	1.0	1.0	1.0	1.5	1.0	1.5	2.0	3.0	5.5	3.5	2.1	2.6	S	18.0	3.1	24
28	4.0	3.0	4.5	4.5	7.5	10.5	S	S	7.9	C	C	C	5.9	6.4	6.0	5.5	16.4	7.4	7.4	6.9	3.4	2.4	S	2.5	16.4	6.2	24
29	2.5	3.0	2.0	2.0	2.0	4.0	2.5	3.5	4.5	7.0	2.5	2.5	3.1	5.1	3.6	5.6	8.1	5.6	5.6	7.5	7.0	S	9.9	6.9	9.9	4.6	24
30	5.4	10.9	6.8	5.4	5.9	18.3	10.3	10.8	18.3	9.3	7.4	4.4	2.9	2.4	4.9	7.9	16.4	15.3	12.8	9.9	S	6.9	6.4	7.0	18.3	9.0	24
31	5.0	6.0	5.0	5.5	9.0	8.0	9.4	8.0	6.4	5.5	4.0	3.0	3.0	10.4	3.0	6.4	6.9	6.0	6.0	S	6.1	8.6	4.6	4.1	10.4	6.1	24
HOURLY MAX	18.0	19.5	14.9	17.1	17.9	22.4	19.6	24.9	22.9	18.9	16.0	13.1	18.0	36.1	12.1	7.9	23.1	19.5	20.9	23.5	26.0	25.1	28.5	27.0			
HOURLY AVG	6.4	6.1	6.2	6.3	7.2	8.7	9.9	10.8	8.6	8.1	5.7	4.0	3.6	4.5	4.3	3.1	6.7	6.9	9.0	9.0	7.6	7.8	6.4	6.4			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698						
MAXIMUM INSTANTANEOUS VALUE:	36.1	PPB	@ HOUR(S)	13	ON DAY(S)	VAR-VARIOUS	21
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:				744 HRS
MONTHLY CALIBRATION TIME:	10	HRS					
STANDARD DEVIATION:	5.23						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10/16/15 00:00
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10/26/15 00:00
10/31/15 00:00
LICA NO2MAX PPB

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : NO2_
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.57	1.57	2.42	3.71	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.57	1.57	2.42	3.71	5.00	5.14	19.14	5.57	3.42	3.28	5.42	16.14	10.57	5.42	7.85	1.71	

Calm : .00 %

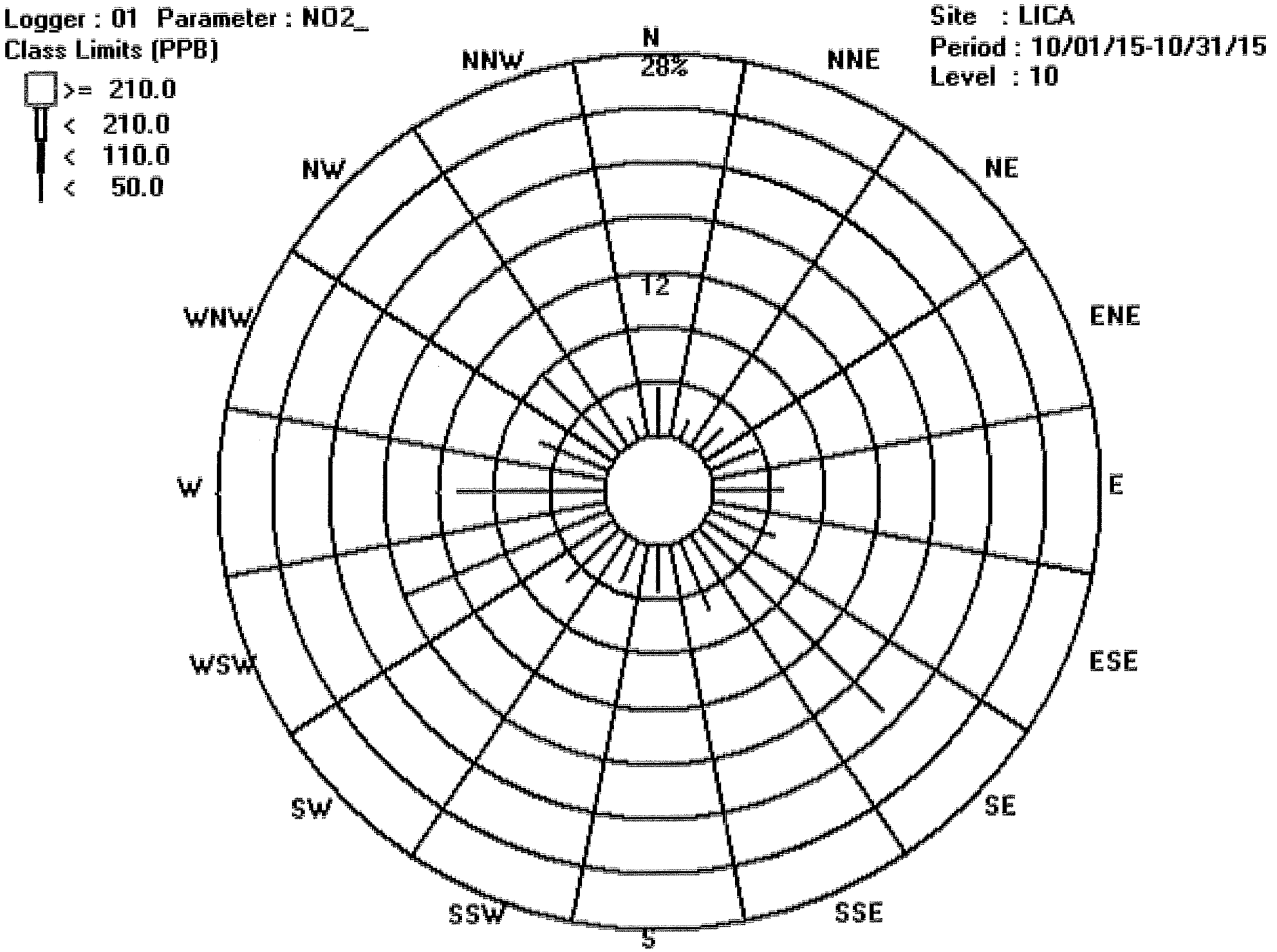
Total # Operational Hours : 700

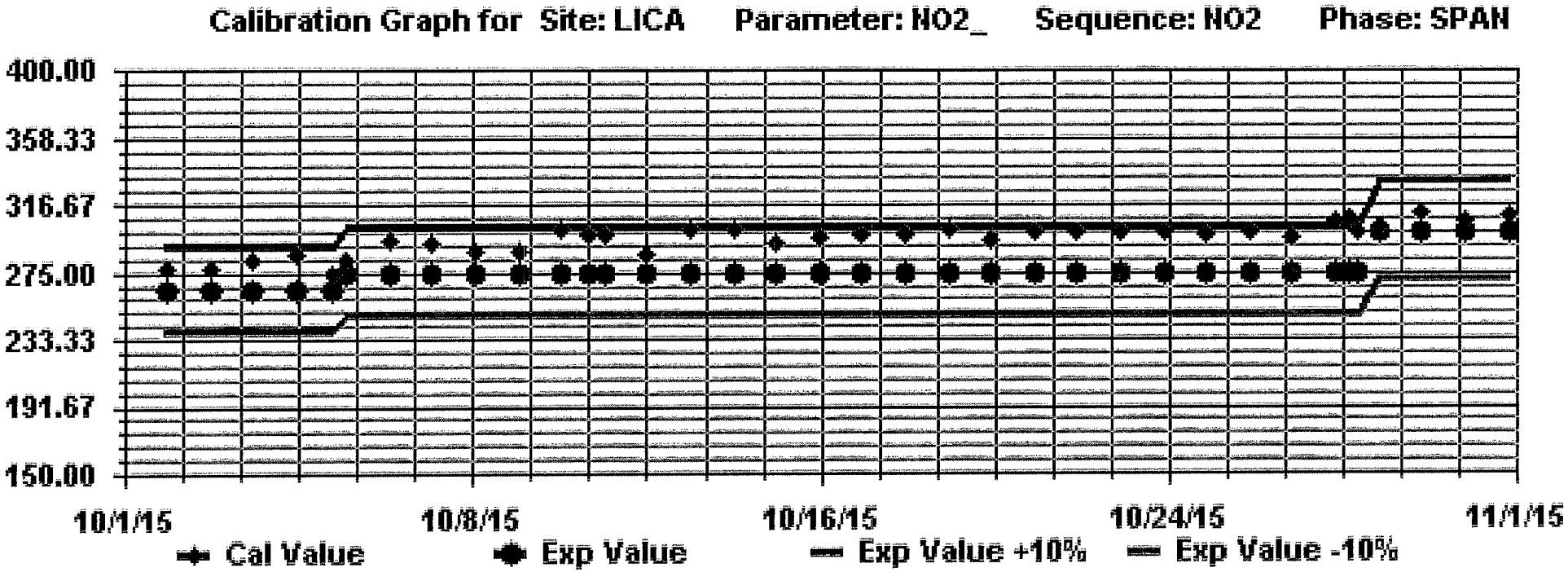
Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	11	17	26	35	36	134	39	24	23	38	113	74	38	55	12	700
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	11	17	26	35	36	134	39	24	23	38	113	74	38	55	12	

Calm : .00 %

Total # Operational Hours : 700


Logger : 01 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12
5


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN
400.00
358.33
316.67
275.00
233.33
191.67
150.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OZONE

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

OZONE (O3) hourly averages in ppb

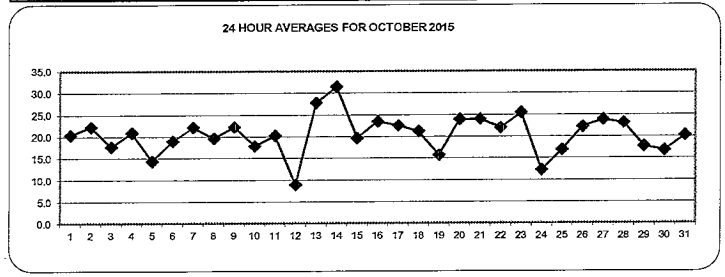
MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	2	1	1	1	0	0	1	11	17	23	28	29	33	38	36	34	30	32	28	23	34	35	S	30	38	20.3	24
2	27	24	23	20	18	19	20	21	22	24	26	28	29	31	31	31	29	24	20	15	10	S	10	9	31	22.2	24
3	11	13	14	14	15	16	16	17	17	18	19	19	19	19	19	20	20	20	20	21	S	20	19	19	21	17.6	24
4	19	19	19	21	19	17	20	19	22	22	24	25	27	27	26	26	25	25	20	S	20	16	11	11	27	20.9	24
5	8	6	7	5	5	2	1	7	15	17	18	21	22	22	27	29	31	30	20	15	11	6	S	5	31	14.3	24
6	6	3	3	1	0	0	0	C	C	C	C	C	C	33	34	35	32	31	26	30	30	S	29	29	35	18.9	24
7	28	26	22	20	16	14	7	11	17	21	24	26	30	36	36	36	36	33	24	16	S	10	11	9	36	22.1	24
8	8	8	6	3	2	1	1	2	9	14	22	31	34	37	38	39	39	31	11	S	35	32	28	20	39	19.6	24
9	22	27	26	22	20	19	14	16	19	21	25	29	32	34	35	33	27	20	S	17	16	12	15	10	35	22.2	24
10	9	8	13	8	7	7	9	15	17	18	21	26	30	33	35	38	*41*	S	29	18	14	5	5	4	*41*	17.8	24
11	12	24	29	30	27	33	37	39	36	32	27	16	16	14	13	12	S	10	11	13	15	11	5	2	39	20.2	24
12	2	2	2	1	1	2	5	6	7	10	11	12	20	19	17	S	19	20	10	5	2	8	10	14	20	8.9	24
13	17	18	20	22	22	22	19	20	24	27	32	35	38	39	S	40	39	37	32	30	30	24	23	27	40	27.7	24
14	26	28	30	32	31	28	26	25	27	30	34	38	39	S	37	37	38	35	34	33	32	31	26	25	39	*31.4*	24
15	22	20	15	16	13	12	11	12	16	21	24	29	S	33	34	36	35	28	15	17	12	12	11	8	36	19.7	24
16	6	6	3	2	1	1	1	18	24	28	28	S	34	38	38	38	38	36	33	36	35	34	32	30	38	23.5	24
17	30	22	18	17	9	11	12	19	24	24	S	31	36	36	37	38	38	31	25	18	17	15	7	3	38	22.5	24
18	2	3	5	6	13	15	11	11	17	S	33	37	39	39	39	38	39	36	30	24	18	12	11	9	39	21.2	24
19	7	5	4	4	2	1	1	1	S	15	24	29	31	29	31	31	22	17	15	16	24	26	15	11	31	15.7	24
20	8	12	18	14	13	11	11	S	23	29	29	29	32	35	36	36	35	33	30	28	26	25	19	19	36	24.0	24
21	19	15	19	16	5	1	S	1	4	17	21	27	31	33	36	40	37	35	35	34	33	33	32	29	40	24.0	24
22	24	19	15	14	11	S	14	9	9	12	24	27	32	36	37	38	38	30	21	16	15	21	20	24	38	22.0	24
23	24	23	18	21	S	22	21	20	21	26	30	33	36	38	38	37	36	33	28	25	20	14	12	9	38	25.4	24
24	7	5	6	S	2	6	S	2	4	9	13	20	27	29	30	28	25	17	13	5	6	4	5	6	30	12.2	24
25	3	4	S	5	4	7	9	12	11	10	17	27	27	30	29	28	27	19	15	19	19	21	22	23	30	16.9	24
26	22	S	20	20	20	19	19	18	20	22	24	25	28	29	30	22	23	27	29	20	20	19	19	16	30	22.2	24
27	S	19	17	11	11	17	17	18	22	26	28	29	30	31	33	32	30	30	27	22	23	27	25	S	33	23.9	24
28	24	26	25	22	18	16	16	17	17	19	23	27	29	29	28	29	26	25	22	22	24	24	S	24	29	23.1	24
29	23	24	24	24	23	22	22	20	19	19	19	20	20	20	18	16	14	12	12	11	9	S	8	8	24	17.7	24
30	5	5	6	3	9	14	13	8	8	16	21	27	33	37	36	32	21	15	13	16	S	16	15	17	37	16.8	24
31	17	15	14	14	13	11	10	13	17	20	23	26	26	27	27	26	26	25	23	S	24	24	23	20	27	20.2	24
HOURLY MAX	30	28	30	32	31	33	37	39	36	32	34	38	39	39	39	40	41	37	35	36	35	35	32	30			
HOURLY AVG	14.7	14.3	14.7	13.6	11.7	12.2	12.6	14.1	17.4	20.3	23.9	26.8	29.7	31.0	31.4	31.8	30.5	26.6	22.4	20.2	20.5	19.2	16.7	15.7			

STATUS FLAG CODES

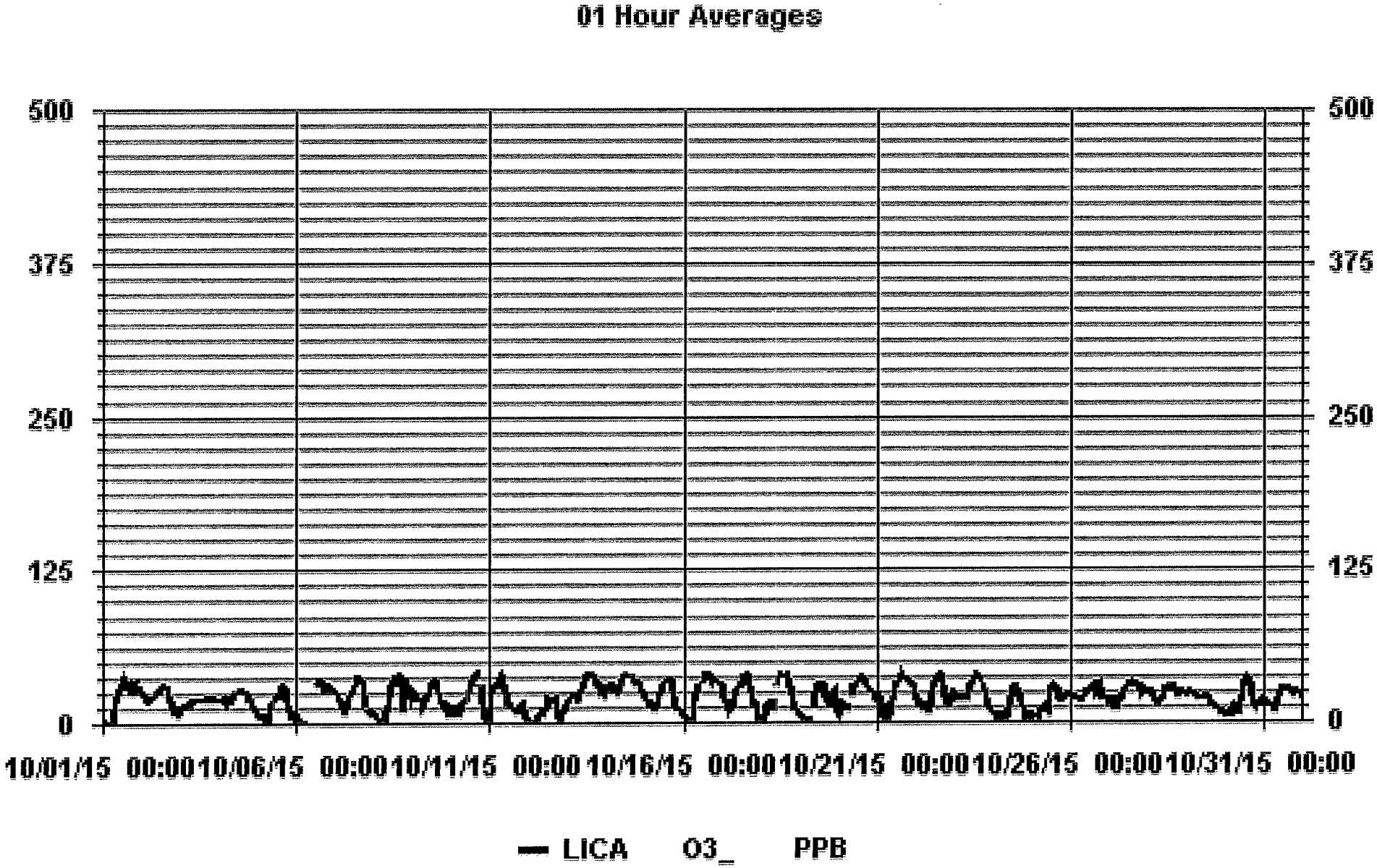
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	700					
MAXIMUM 1-HR AVERAGE:	41	PPB	@ HOUR(S)	19	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:	31.4	PPB			ON DAY(S)	14
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	10.29		MONTHLY AVERAGE:		21	PPB


01 Hour Averages
500
375
250
125
0
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA O3_ PPB

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

OZONE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	4	2	4	3	1	1	7	15	19	28	29	32	37	41	41	36	34	37	36	30	37	37	S	33	41	23.7	24
2	29	26	25	22	20	20	22	22	24	25	28	29	30	32	32	32	31	25	24	19	19	S	10	10	32	24.2	24
3	12	14	15	15	17	17	18	18	18	19	20	20	20	20	20	20	20	21	21	22	S	21	20	20	22	18.6	24
4	20	20	20	23	22	18	22	21	23	25	25	28	29	28	27	27	26	27	24	S	22	20	17	15	29	23.0	24
5	12	11	9	7	7	4	2	14	17	18	20	23	23	26	29	30	32	32	29	18	14	8	S	10	32	17.2	24
6	9	6	8	4	1	1	1	C	C	C	C	C	C	35	36	36	34	32	30	31	31	S	31	30	36	20.9	24
7	29	28	26	22	20	20	13	16	20	23	26	28	35	37	37	37	37	36	31	24	S	15	15	11	37	25.5	24
8	13	11	8	4	3	1	2	4	14	22	27	34	36	39	39	41	40	39	19	S	36	35	32	27	41	22.9	24
9	29	29	28	26	24	25	20	22	20	24	27	30	34	35	36	35	33	26	S	26	25	20	22	14	36	26.5	24
10	15	14	15	13	11	10	15	17	18	20	24	28	32	35	38	40	***42***	S	38	29	18	10	9	7	***42***	21.7	24
11	20	29	31	31	30	38	39	40	39	33	33	19	18	16	14	13	S	11	13	15	16	14	10	4	40	22.9	24
12	4	4	4	2	1	4	6	7	9	11	12	18	21	21	19	S	22	24	17	11	4	14	14	16	24	11.5	24
13	18	20	21	23	23	23	22	25	27	31	34	36	39	39	S	40	40	38	36	32	32	27	28	28	40	29.7	24
14	28	29	31	33	33	30	28	27	29	33	38	39	40	S	38	39	39	37	35	34	33	32	30	28	40	33.2	24
15	25	23	18	18	16	15	14	16	19	23	27	32	S	35	36	37	36	34	24	22	16	16	15	12	37	23.0	24
16	10	13	6	3	2	1	4	22	28	29	30	S	38	40	39	39	39	38	36	37	36	35	34	32	40	25.7	24
17	32	28	26	26	14	19	21	24	25	26	S	37	37	37	38	39	39	36	31	25	22	23	15	6	39	27.2	24
18	4	6	9	11	16	17	13	13	23	S	36	38	40	40	40	39	40	39	35	28	25	20	14	15	40	24.4	24
19	10	10	6	7	3	2	2	2	S	23	29	32	33	32	32	33	30	22	20	23	29	30	23	15	33	19.5	24
20	11	18	22	19	16	16	17	S	27	31	30	31	34	36	37	37	36	34	32	30	29	29	22	22	37	26.8	24
21	22	20	20	19	10	4	S	2	6	21	25	32	33	35	41	***42***	40	37	37	35	34	34	34	32	***42***	26.7	24
22	28	22	18	17	16	S	16	12	10	20	26	30	36	37	39	40	40	38	27	25	23	24	23	26	40	25.8	24
23	26	26	22	23	S	23	22	23	26	28	33	35	38	39	40	38	38	36	33	32	26	20	16	15	40	28.6	24
24	11	7	10	S	5	7	S	4	7	10	19	29	29	30	31	31	27	23	17	10	12	8	8	11	31	15.7	24
25	4	9	S	6	6	14	12	17	13	12	28	30	31	33	30	34	29	27	21	20	21	23	24	24	34	20.3	24
26	23	S	22	21	20	20	19	19	23	23	25	27	29	31	31	25	30	30	32	29	21	21	21	18	32	24.3	24
27	S	21	19	14	12	20	19	19	25	28	30	31	31	33	33	33	31	31	29	26	26	28	26	S	33	25.7	24
28	26	27	26	25	21	20	18	20	20	22	25	30	30	30	30	***42***	28	28	24	23	25	24	S	25	***42***	25.6	24
29	25	25	25	24	24	23	23	21	20	20	20	20	22	21	20	17	16	14	13	12	11	S	10	9	25	18.9	24
30	8	9	9	10	13	17	16	12	13	21	23	31	37	38	38	34	29	18	16	19	S	17	16	18	38	20.1	24
31	18	16	15	15	14	12	13	16	19	23	28	28	28	29	29	30	32	29	25	S	27	25	26	23	32	22.6	24
HOURLY MAX	32	29	31	33	33	38	39	40	39	33	38	39	40	41	41	42	42	39	38	37	37	37	34	33			
HOURLY AVG	17.5	17.4	17.3	16.2	14.0	14.7	15.4	16.9	20.0	23.2	26.8	29.6	31.7	32.7	33.0	33.9	33.0	30.0	26.8	24.5	23.9	22.5	20.2	18.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 705

MAXIMUM INSTANTANEOUS VALUE: 42 PPB @ HOUR(S) VAR ON DAY(S) VAR

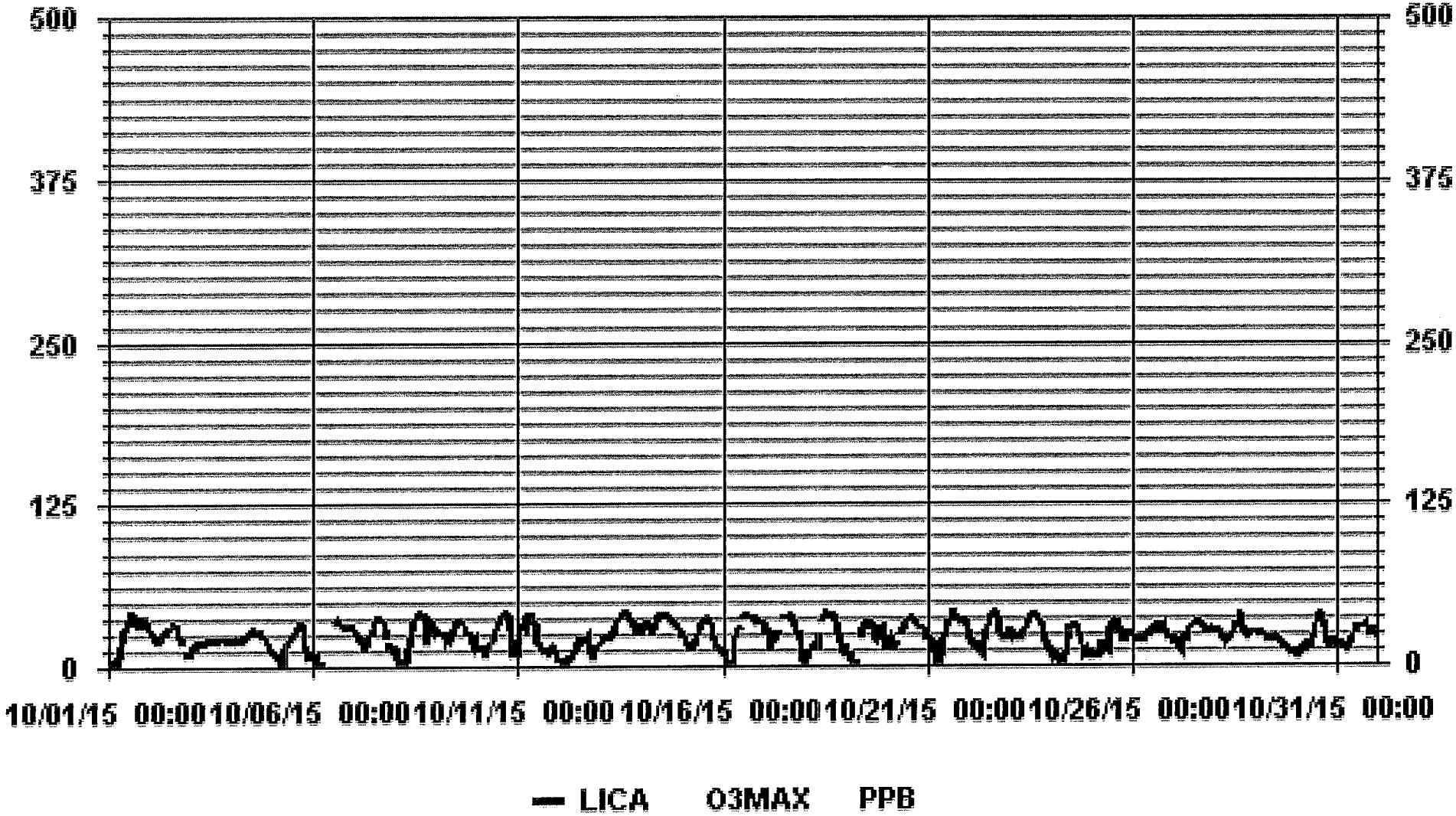
VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 10.04

01 Hour Averages



LICA
O3_ / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : O3_
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.54	1.56	2.55	3.68	4.96	4.96	18.43	5.53	3.40	3.26	5.39	16.17	11.34	5.53	7.94	1.70	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.54	1.56	2.55	3.68	4.96	4.96	18.43	5.53	3.40	3.26	5.39	16.17	11.34	5.53	7.94	1.70	

Calm : .00 %

Total # Operational Hours : 705

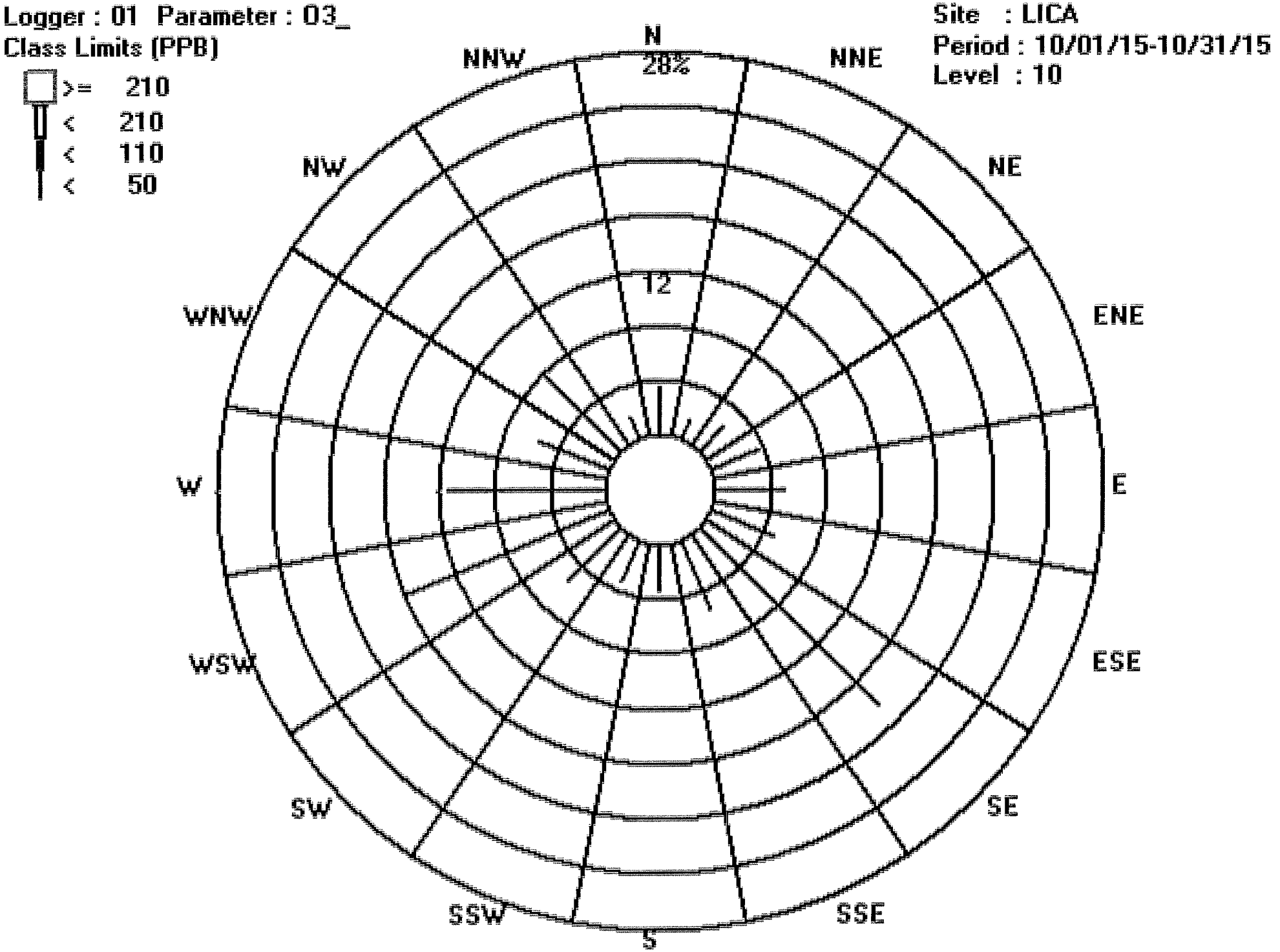
Distribution By Samples

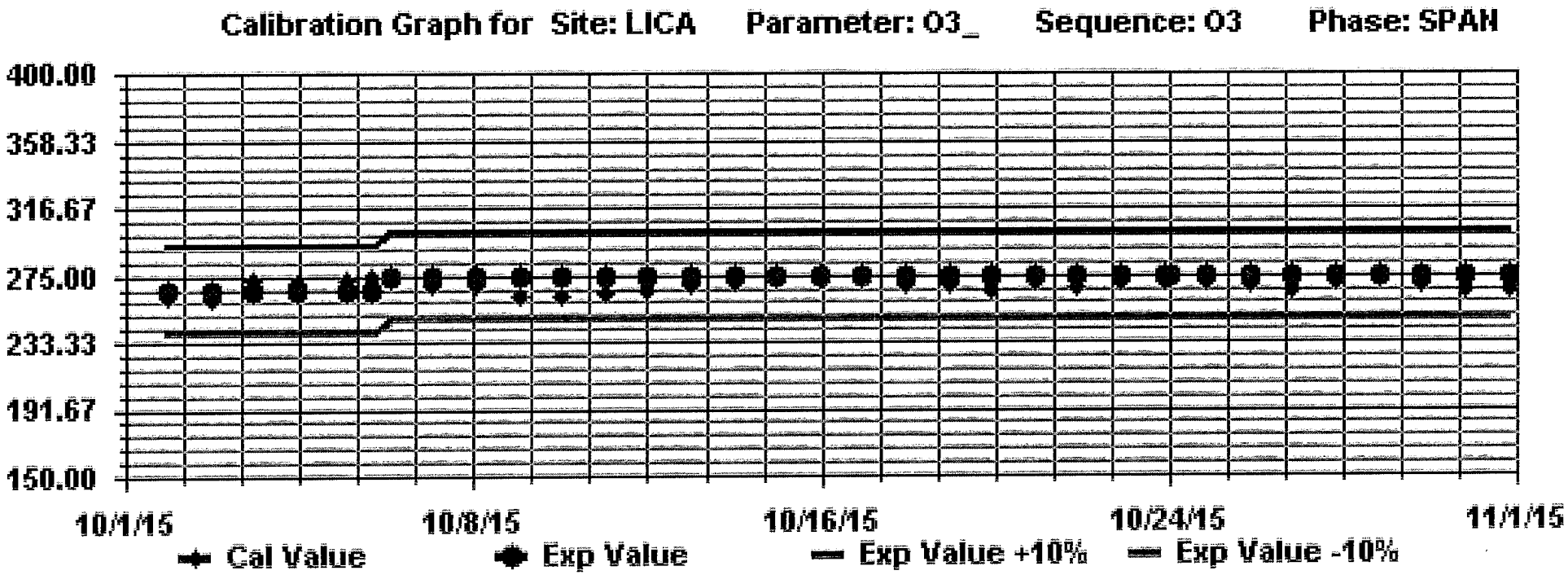
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	25	11	18	26	35	35	130	39	24	23	38	114	80	39	56	12	705
<	110																	
<	210																	
>=	210																	
	Totals	25	11	18	26	35	35	130	39	24	23	38	114	80	39	56	12	

Calm : .00 %

Total # Operational Hours : 705


Logger : 01 Parameter : 03_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN
400.00
358.33
316.67
275.00
233.33
191.67
150.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

PARTICULATE MATTER 2.5

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

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

MST

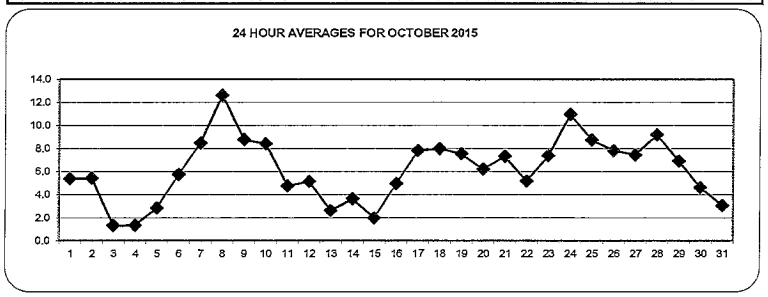
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3	0	4	4	6	5	4	6	5	0	7	9	4	5	6	8	7	12	0	3	5	9	7	10	12	5.4	24
2	4	4	6	4	7	4	7	3	5	4	1	5	0	6	4	10	4	5	9	14	15	5	2	2	15	5.4	24
3	4	0	0	0	0	2	2	2	3	0	0	0	X	3	3	0	0	2	0	0	1	3	5	0	5	1.3	23
4	X	0	1	X	3	2	0	0	1	1	4	X	3	1	0	0	3	0	2	0	1	1	3	2	4	1.3	21
5	0	5	1	0	0	0	3	4	0	2	4	7	8	2	4	2	3	2	6	2	1	2	4	6	8	2.8	24
6	7	3	0	2	4	3	2	3	7	0	2	C	C	20	36	X	X	X	2	2	0	10	3	3	36	5.7	21
7	X	3	1	4	12	1	8	6	X	35	3	X	X	X	0	19	10	7	4	13	4	9	10	12	35	8.5	19
8	12	14	15	10	14	14	19	16	16	7	33	10	2	X	X	27	X	0	4	18	7	5	9	13	33	***12.6***	21
9	8	9	6	5	17	11	8	11	0	0	7	0	X	X	X	1	0	23	26	26	5	12	5	4	26	8.8	21
10	1	8	7	11	8	14	9	9	8	2	4	6	X	3	5	14	16	1	24	8	11	16	X	0	24	8.4	22
11	5	0	7	0	6	4	0	4	0	11	11	19	3	0	14	3	9	0	0	4	0	X	X	X	19	4.8	21
12	1	7	4	1	4	2	13	12	9	11	3	3	2	1	5	7	10	3	3	2	5	5	X	X	13	5.1	22
13	X	X	20	X	4	X	0	2	4	0	0	X	0	0	3	0	4	X	X	0	X	X	0	X	20	2.6	14
14	3	X	4	1	4	4	6	1	3	3	3	1	X	X	0	16	3	8	0	5	0	X	2	6	16	3.7	20
15	0	X	4	1	X	X	8	7	0	4	3	1	0	X	0	1	0	3	0	0	2	0	3	3	8	2.0	20
16	3	3	0	9	7	2	5	0	4	10	1	X	0	0	X	10	2	9	8	12	0	10	12	2	12	5.0	22
17	3	8	12	14	1	0	X	6	4	10	7	18	2	3	X	6	8	12	11	9	9	9	4	16	18	7.8	22
18	10	9	9	14	13	10	8	11	6	7	11	1	X	0	17	9	20	3	0	9	10	3	0	4	20	8.0	23
19	0	X	3	2	13	9	18	12	X	7	11	4	4	0	0	6	1	9	10	12	10	7	15	13	18	7.5	22
20	16	16	9	9	6	8	6	0	4	1	10	2	2	6	12	7	7	2	0	3	0	9	11	3	16	6.2	24
21	9	X	3	3	6	X	4	11	5	9	2	7	5	0	0	9	3	7	6	12	15	17	14	14	17	7.3	22
22	5	1	12	5	10	10	12	3	10	8	4	2	0	4	1	X	0	5	0	2	X	10	9	1	12	5.2	22
23	6	3	7	0	2	3	4	7	5	12	4	0	10	5	10	9	8	9	8	14	14	13	14	10	14	7.4	24
24	10	9	7	10	15	18	21	16	17	14	10	9	14	10	0	X	10	10	14	8	8	10	6	6	21	11.0	23
25	9	6	8	14	11	15	15	9	9	13	12	0	2	X	9	19	0	8	9	9	7	10	6	1	19	8.7	23
26	6	4	0	11	17	4	12	12	7	12	C	5	7	4	13	0	0	8	4	15	12	13	0	14	17	7.8	24
27	11	3	2	8	7	11	4	X	0	X	6	***48***	15	X	11	2	0	2	8	2	X	4	5	0	***48***	7.5	20
28	X	7	1	1	X	5	5	12	14	15	18	23	12	14	13	13	3	4	0	6	13	3	11	X	23	9.2	21
29	8	17	9	2	10	19	10	9	9	12	13	18	3	0	X	3	1	0	2	1	1	5	0	X	19	6.9	22
30	0	4	9	0	7	14	6	7	3	7	14	X	10	0	0	X	X	6	3	0	3	2	0	2	14	4.6	21
31	10	3	8	2	4	4	3	0	0	X	X	X	X	2	X	X	X	3	1	X	X	0	X	X	10	3.1	13
HOURLY MAX	16	17	20	14	17	19	21	16	17	35	33	48	15	20	36	27	20	23	26	26	15	17	15	16			
HOURLY AVG	5.7	5.6	5.8	5.1	7.5	7.1	7.4	6.7	5.4	7.5	7.2	8.3	4.7	3.7	6.6	7.7	4.9	5.6	5.5	7.0	5.9	7.2	5.9	5.9			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

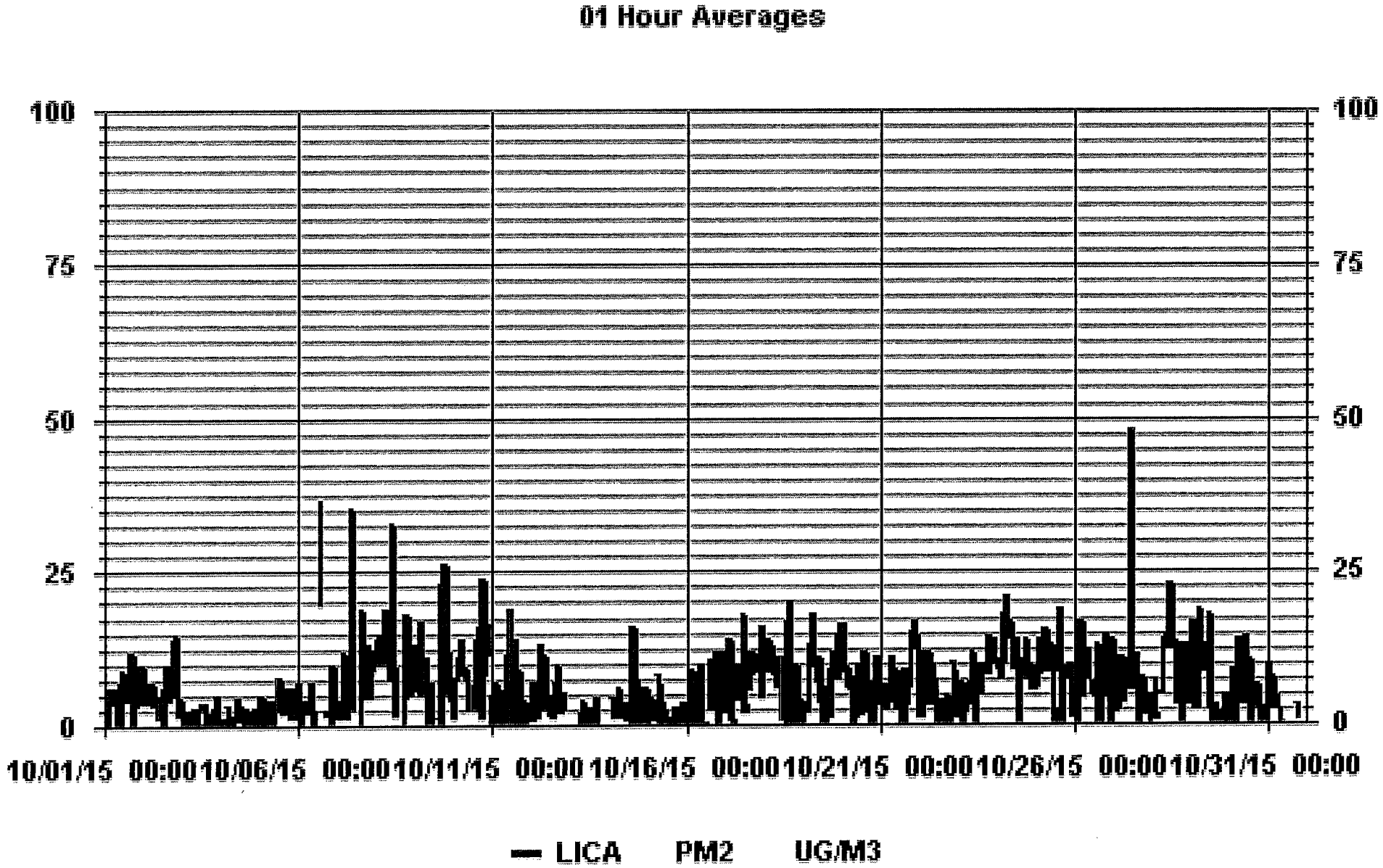
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			S52				
MAXIMUM 1-HR AVERAGE:	48	ug/m3	@ HOUR(S)	11	ON DAY(S)	27	
MAXIMUM 24-HR AVERAGE:	12.6	ug/m3			ON DAY(S)	8	
					VAR-VARIOUS		
			OPERATIONAL TIME:			665	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:			89.4	%
STANDARD DEVIATION:	5.83		MONTHLY AVERAGE:			6.3	ug/m3


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA PM2 UG/M3

LICA
PM2 / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : PM2
Units : UG/M3

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	3.62	1.66	2.41	3.92	4.38	5.13	19.93	5.89	3.47	3.17	4.98	15.10	11.02	5.28	7.70	1.66	99.39
<	60	.00	.00	.00	.00	.15	.00	.15	.00	.00	.00	.00	.15	.00	.00	.15	.00	.60
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.62	1.66	2.41	3.92	4.53	5.13	20.09	5.89	3.47	3.17	4.98	15.25	11.02	5.28	7.85	1.66	

Calm : .00 %

Total # Operational Hours : 662

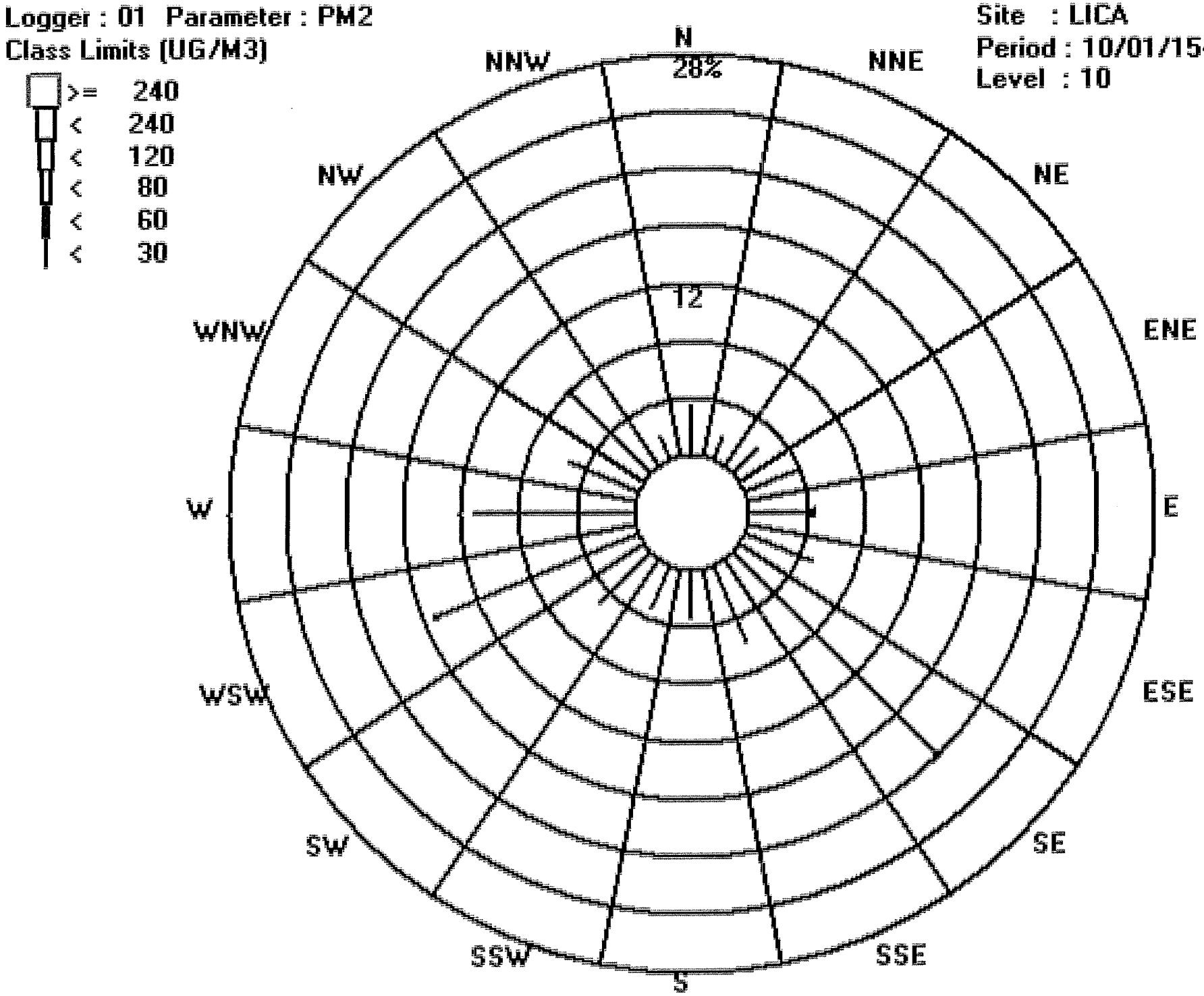
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	24	11	16	26	29	34	132	39	23	21	33	100	73	35	51	11	658
<	60					1		1					1			1		4
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	24	11	16	26	30	34	133	39	23	21	33	101	73	35	52	11	

Calm : .00 %

Total # Operational Hours : 662


Logger : 01 Parameter : PM2
Class Limits (UG/M3)
>= 240
< 240
< 120
< 80
< 60
< 30
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12

WIND SPEED

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

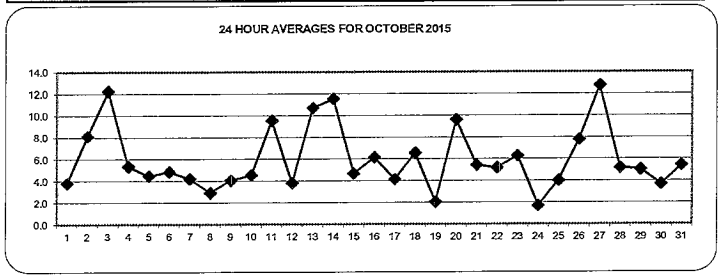
WIND SPEED (WS) hourly averages in km/hr

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	24-HOUR	
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	MAX.	AVG.	RDGS.
DAY																											
1	1.4	0.4	0.3	0.7	0.3	0.7	2.0	6.0	5.6	2.1	3.6	5.8	5.6	6.2	3.3	6.4	2.6	4.4	2.6	3.5	5.7	6.9	8.4	7.0	8.4	3.8	24
2	3.2	4.4	7.9	6.4	7.0	9.1	9.9	10.1	11.2	13.3	11.8	10.5	8.3	9.6	7.6	6.1	5.5	2.9	1.8	1.1	1.3	14.5	16.4	14.4	16.4	8.1	24
3	16.2	17.4	14.8	15.4	15.0	14.7	12.2	13.4	13.9	14.7	13.5	11.6	11.8	11.4	13.0	12.3	11.0	13.5	10.3	10.1	9.7	5.5	6.2	6.1	17.4	12.2	24
4	6.7	8.7	9.7	9.6	9.9	7.6	6.4	7.3	7.5	6.4	6.7	6.4	5.9	5.9	4.4	2.8	3.0	2.9	2.7	2.1	2.7	1.4	0.4	1.2	9.9	5.3	24
5	0.8	0.7	0.5	1.0	0.8	0.7	0.9	1.0	3.6	7.6	9.0	8.8	10.1	11.0	13.0	11.2	11.4	7.1	2.7	1.9	1.8	0.4	0.8	0.7	13.0	4.5	24
6	0.1	0.7	0.6	0.5	0.1	0.6	0.2	1.3	3.4	7.2	5.3	5.0	6.9	8.3	11.6	11.2	9.7	5.5	4.0	4.8	5.5	5.6	8.7	9.9	11.6	4.9	24
7	7.4	2.5	1.2	1.6	1.0	0.2	1.3	0.4	1.7	5.5	5.5	7.7	8.6	12.7	11.2	10.1	10.8	6.0	2.2	0.9	0.5	0.1	1.1	0.5	12.7	4.2	24
8	0.8	1.8	0.8	1.0	0.2	0.5	1.0	1.8	1.8	2.0	4.2	3.7	4.1	3.6	5.3	5.8	6.2	2.4	1.7	5.4	7.7	4.2	3.0	0.8	7.7	2.9	24
9	3.1	3.7	3.7	2.2	3.5	2.8	2.5	2.4	6.1	8.1	8.2	8.5	7.1	8.9	8.4	5.3	0.9	2.4	2.0	3.3	2.5	0.8	0.5	0.6	8.9	4.1	24
10	0.5	2.1	3.9	1.8	2.7	0.5	2.9	2.4	1.7	2.8	6.1	8.7	12.0	11.1	11.3	10.4	14.2	7.5	1.6	1.1	0.8	1.3	1.0	0.9	14.2	4.6	24
11	2.6	5.9	4.6	3.4	1.1	7.1	11.0	13.5	4.3	9.5	16.7	19.9	17.2	14.5	14.5	15.4	13.9	9.2	13.0	14.8	9.3	5.2	1.1	0.8	19.9	9.5	24
12	0.7	3.4	0.4	0.3	1.0	0.8	5.4	4.5	5.6	6.2	6.4	6.7	4.4	6.5	6.6	4.6	3.4	4.1	0.7	0.8	1.1	4.4	5.6	7.5	7.5	3.8	24
13	6.8	7.3	5.9	7.7	8.2	7.9	9.0	7.9	9.0	14.1	17.5	20.3	19.7	18.3	19.0	18.5	15.0	8.5	4.8	6.8	6.2	5.3	5.2	7.5	20.3	10.7	24
14	7.1	7.3	9.0	8.1	8.3	8.4	8.4	8.9	12.0	14.2	13.9	16.9	16.6	18.3	19.0	17.2	15.8	17.6	11.2	13.6	10.1	5.5	4.0	5.2	19.0	11.5	24
15	5.3	5.5	4.5	5.2	4.6	4.7	5.0	3.7	4.0	5.6	6.1	8.4	8.0	9.3	8.8	10.7	7.7	2.0	1.2	0.8	0.2	0.4	0.4	0.2	10.7	4.7	24
16	0.1	0.6	1.5	1.6	1.1	1.4	1.8	4.6	5.4	12.4	9.1	11.8	10.6	11.5	10.0	10.0	8.7	5.6	4.7	8.1	8.3	7.9	5.6	5.1	12.4	6.1	24
17	4.1	1.3	1.7	1.5	1.2	2.1	2.3	5.8	9.3	8.3	7.2	7.2	6.8	6.5	8.7	6.9	6.7	3.4	2.3	1.4	0.6	0.5	1.4	2.3	9.3	4.1	24
18	0.9	0.9	0.7	4.5	6.5	6.0	6.9	7.5	7.4	8.5	13.2	14.4	14.7	14.2	13.3	11.1	9.1	6.3	5.0	3.0	1.0	0.5	0.9	0.5	14.7	6.5	24
19	1.2	0.2	0.5	0.4	0.7	0.5	1.0	0.1	1.0	0.2	1.3	3.5	4.2	5.2	6.4	3.6	2.3	2.5	1.9	3.0	4.4	1.9	1.7	1.7	6.4	2.1	24
20	1.5	1.9	1.9	1.0	3.9	5.5	7.2	10.0	10.4	18.0	17.4	16.0	17.7	19.1	***21.7***	18.0	13.7	9.9	8.0	6.0	5.7	5.0	5.0	6.2	***21.7***	9.6	24
21	5.9	5.1	6.5	3.4	0.9	0.8	1.4	0.5	0.6	2.5	5.5	6.8	8.6	9.1	8.5	8.3	5.9	7.2	8.4	7.3	8.4	9.2	6.6	2.9	9.2	5.4	24
22	2.2	1.2	0.7	1.8	1.9	3.7	3.5	5.3	5.0	5.2	9.1	7.3	10.2	14.3	12.1	8.5	8.2	1.5	1.3	1.0	4.0	5.5	5.2	5.9	14.3	5.2	24
23	4.8	5.4	4.9	5.1	6.1	6.2	7.1	6.5	6.8	8.5	11.1	10.6	11.6	12.8	10.8	7.5	6.0	4.4	6.1	1.7	3.3	1.1	1.5	1.0	12.8	6.3	24
24	0.8	1.1	1.6	0.6	1.0	4.3	1.3	0.6	0.5	3.7	2.1	5.2	2.5	0.8	2.0	3.3	3.6	1.8	0.8	0.4	1.1	0.6	0.6	0.7	5.2	1.7	24
25	0.3	1.5	2.0	2.0	2.4	3.8	2.8	3.4	2.2	1.1	2.4	0.7	1.3	2.4	5.1	3.3	2.6	3.0	4.7	6.2	10.3	11.1	10.9	11.2	11.2	4.0	24
26	9.6	8.9	8.1	9.4	10.0	8.0	8.0	11.0	9.9	9.0	11.7	12.4	11.7	9.8	9.3	9.0	4.8	3.6	5.5	4.3	4.4	4.8	3.2	0.5	12.4	7.8	24
27	5.2	16.3	17.1	18.2	15.6	16.2	13.3	15.6	16.5	17.2	14.5	13.8	15.0	16.8	16.6	14.5	11.9	7.8	5.7	2.3	5.8	10.4	8.8	10.4	18.2	***12.7***	24
28	9.2	9.5	6.9	1.6	3.4	5.2	4.9	3.9	4.4	5.6	5.6	3.1	2.0	2.0	4.6	4.5	6.2	6.2	2.9	3.4	6.0	8.5	8.5	6.2	9.5	5.2	24
29	4.7	6.1	7.9	10.1	8.1	7.7	9.3	7.1	8.5	8.4	4.1	4.7	6.0	3.7	4.9	4.4	2.9	2.0	2.4	1.1	0.2	2.8	2.4	1.3	10.1	5.0	24
30	0.6	3.7	2.0	2.9	3.7	5.7	4.7	3.8	0.2	2.5	3.5	3.0	4.3	6.4	7.0	3.5	0.8	1.4	3.8	7.0	1.5	5.7	4.8	6.2	7.0	3.7	24
31	6.4	5.9	5.8	6.4	7.0	5.4	4.4	5.7	5.7	6.2	5.6	7.3	5.4	3.3	3.2	4.3	4.7	4.3	4.7	6.1	5.4	5.6	5.1	6.3	7.3	5.4	24
HOURLY MAX	16.2	17.4	17.1	18.2	15.6	16.2	13.3	15.6	16.5	18.0	17.5	20.3	19.7	19.1	21.7	18.5	15.8	17.6	13.0	14.8	10.3	14.5	16.4	14.4			
HOURLY AVG	3.9	4.6	4.4	4.4	4.4	4.8	5.1	5.7	6.0	7.6	8.3	8.9	9.0	9.5	9.7	8.7	7.4	5.4	4.2	4.3	4.4	4.6	4.4	4.2			

STATUS FLAG CODES

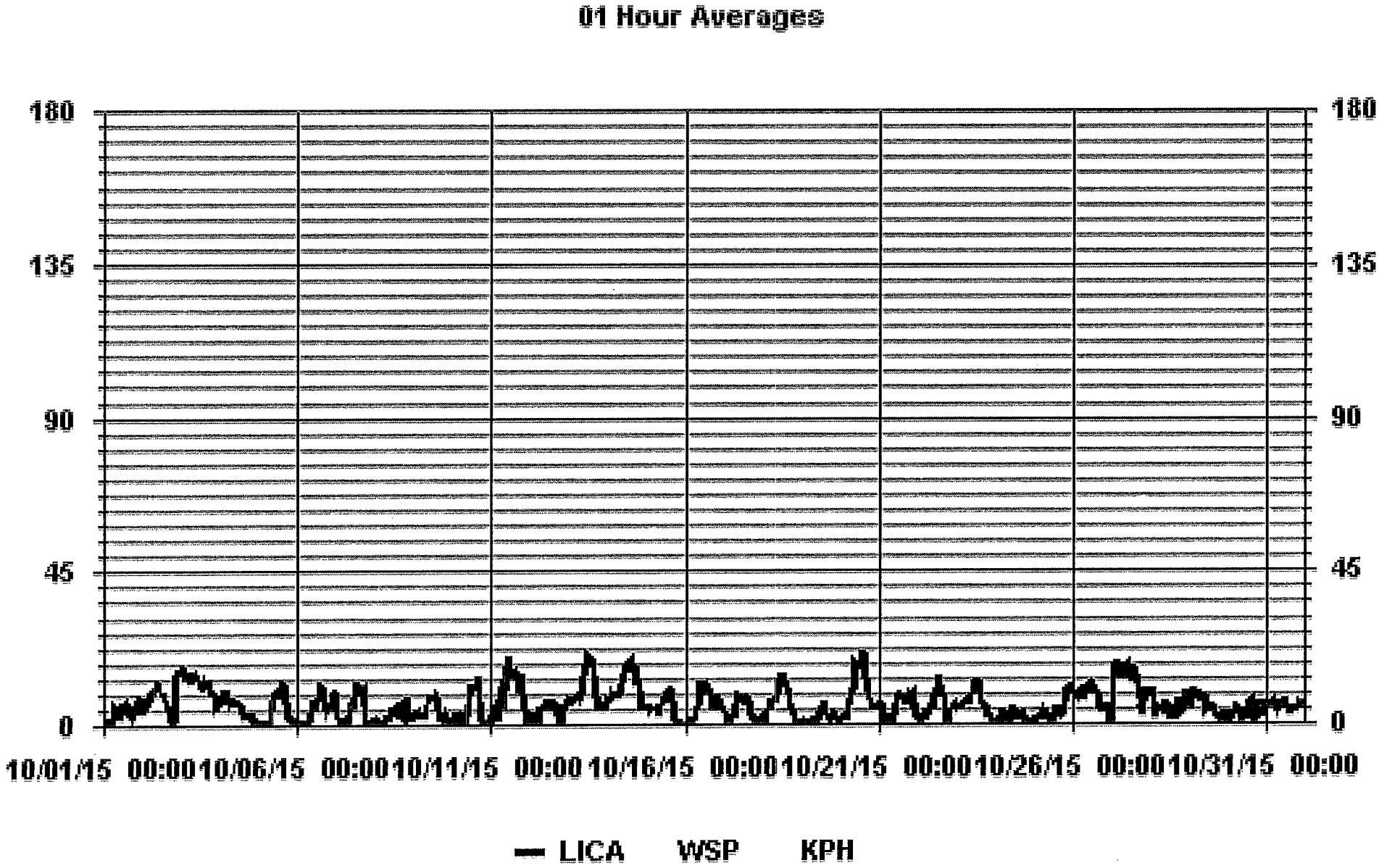
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744					
MAXIMUM 1-HR AVERAGE:	21.7	KPH	@ HOUR(S)	14	ON DAY(S)	20	
MAXIMUM 24-HR AVERAGE:	12.7	KPH			ON DAY(S)	27	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	4.59		MONTHLY AVERAGE:			6.0	KPH


01 Hour Averages
180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA WSP KPH

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

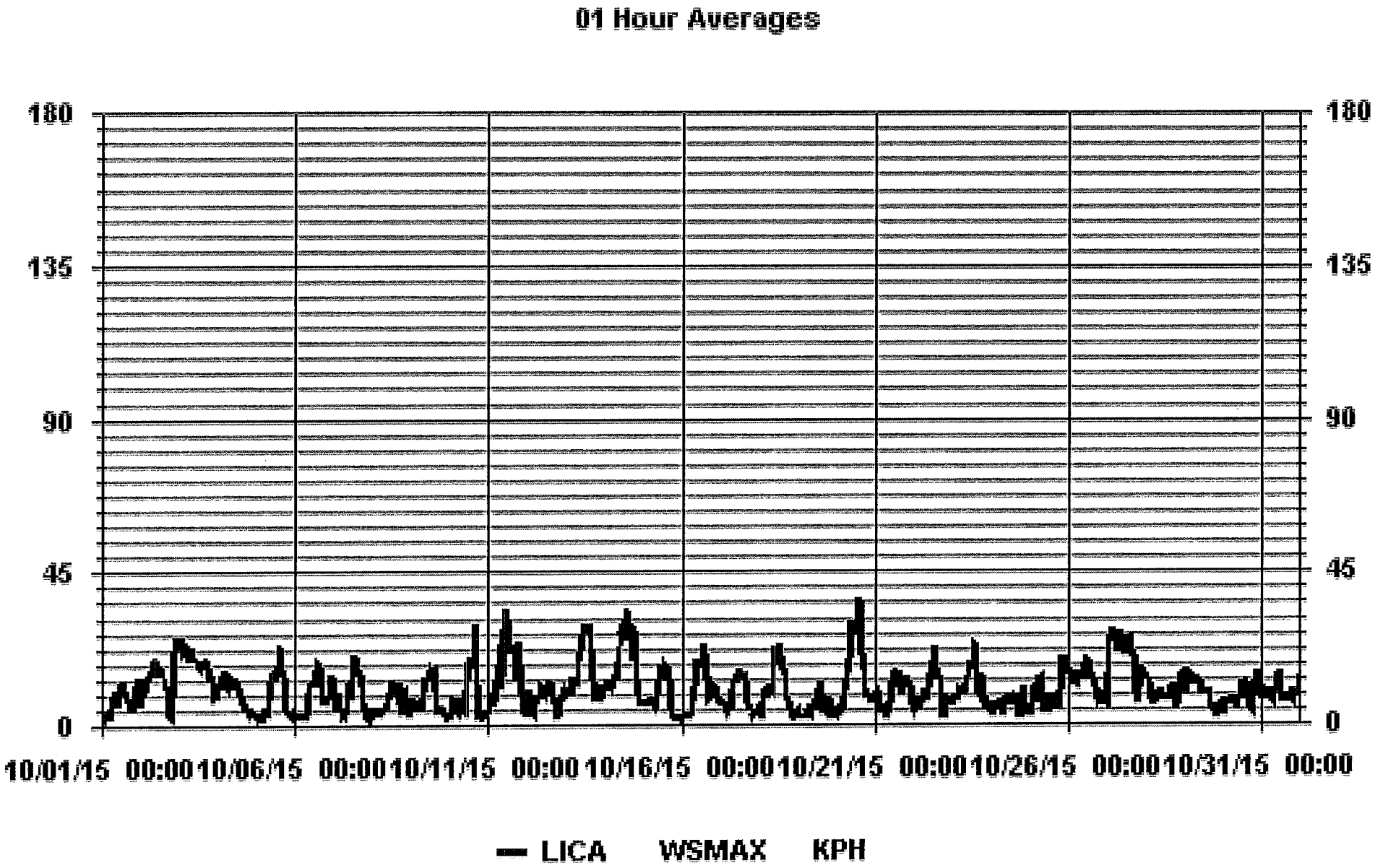
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.4	1.5	2.4	2.6	2.9	1.7	5.0	8.8	10.3	5.4	7.7	12.2	12.5	13.5	11.1	9.7	8.0	7.7	5.1	5.0	9.8	9.2	12.4	13.9	13.9	7.5	24
2	5.6	9.1	11.8	9.7	14.0	14.5	15.5	14.5	18.9	19.3	18.9	18.3	14.6	16.5	15.0	11.3	11.1	6.0	3.2	2.7	8.6	22.5	25.8	24.2	25.8	13.8	24
3	24.6	24.9	21.7	22.4	24.3	21.8	19.3	20.5	22.8	20.7	19.6	17.9	18.2	17.4	18.8	18.7	19.7	19.5	17.9	14.0	15.2	8.2	8.4	8.4	24.9	18.5	24
4	10.3	12.7	13.9	13.5	16.6	12.0	11.4	15.2	11.5	11.5	12.1	13.7	11.3	11.2	9.7	7.3	6.7	5.4	4.7	3.8	4.6	4.6	3.9	3.1	16.6	9.6	24
5	2.8	1.7	2.6	2.3	3.5	5.3	2.3	4.2	7.9	12.9	15.2	13.3	15.9	17.6	23.4	18.5	16.7	14.8	4.6	4.4	3.6	3.0	4.2	4.6	23.4	8.6	24
6	3.7	3.0	3.1	2.6	2.4	2.7	2.5	3.2	9.7	12.6	11.2	12.8	11.2	16.5	18.3	17.7	15.6	9.5	6.1	7.5	8.0	9.2	14.0	14.9	18.3	9.1	24
7	11.9	4.9	4.8	9.8	5.0	3.3	3.9	3.1	5.2	10.5	9.9	13.0	17.9	21.0	18.0	16.8	15.1	12.0	4.4	6.3	2.7	2.0	5.0	2.7	21.0	8.7	24
8	3.3	3.7	3.5	5.0	3.4	3.2	3.7	4.1	4.7	6.5	7.7	9.6	13.5	10.7	12.8	10.8	11.2	6.6	3.1	9.2	10.2	8.8	5.4	2.7	13.5	6.8	24
9	6.4	7.6	5.8	6.4	6.6	7.1	3.9	6.9	10.1	13.3	13.6	15.3	16.7	15.5	16.0	10.4	4.0	3.9	3.9	5.6	4.2	3.3	2.2	2.5	16.7	8.0	24
10	2.6	8.0	7.6	5.0	4.4	3.9	7.8	6.2	5.3	4.8	10.6	13.5	18.1	19.6	17.5	17.5	29.7	12.4	2.9	3.0	2.5	3.5	3.8	3.7	29.7	8.9	24
11	4.1	9.8	7.2	5.7	7.2	13.5	17.4	23.5	10.9	14.3	28.1	33.7	31.5	22.9	21.2	23.7	22.2	13.7	24.5	23.8	18.5	9.9	3.9	2.4	33.7	16.4	24
12	4.5	10.0	5.8	4.3	3.6	6.1	8.8	7.4	11.5	10.8	9.4	10.1	9.2	10.3	13.5	10.1	8.5	7.0	2.9	2.8	3.2	6.8	8.5	10.6	13.5	7.7	24
13	9.9	11.2	8.2	11.9	11.2	13.4	13.6	11.4	18.9	21.8	26.3	27.7	29.3	27.0	28.9	28.7	23.3	13.1	6.5	9.7	8.8	7.8	8.1	11.5	29.3	16.2	24
14	10.5	11.1	12.4	12.6	11.4	12.8	13.8	12.7	18.4	22.9	28.0	27.4	24.3	30.9	34.3	28.9	25.6	29.5	18.9	27.3	14.3	9.0	6.3	6.5	34.3	18.7	24
15	6.6	7.0	6.6	7.2	6.7	7.2	7.1	5.6	6.6	9.4	13.4	17.6	15.3	17.9	17.1	17.0	14.3	4.5	2.7	2.3	1.9	1.6	1.7	2.2	17.9	8.3	24
16	1.6	2.3	2.7	2.6	2.6	2.9	3.8	6.8	11.0	19.3	17.1	18.1	18.3	24.0	21.7	19.4	13.9	7.5	8.0	11.9	11.2	11.2	9.0	6.8	24.0	10.6	24
17	6.7	5.5	7.0	4.5	3.4	4.1	4.9	10.1	12.8	13.0	14.3	14.2	16.2	15.0	14.6	14.9	13.1	6.7	5.1	4.4	2.5	3.4	3.4	4.6	16.2	8.5	24
18	3.3	3.2	2.9	9.7	10.4	8.0	9.3	10.8	10.2	17.3	23.1	22.0	21.7	23.5	20.9	16.5	15.2	8.7	7.5	5.2	2.8	2.5	3.5	3.3	23.5	10.9	24
19	4.2	3.0	2.6	2.3	2.3	2.7	4.4	3.6	3.0	5.1	5.4	7.4	8.2	10.3	12.1	9.7	4.4	4.6	3.9	5.2	8.3	5.8	3.2	3.5	12.1	5.2	24
20	2.8	4.3	5.4	3.6	7.7	9.9	12.9	14.9	19.3	30.0	29.8	26.1	27.7	30.1	***37.0***	27.7	21.2	16.5	11.2	7.6	8.7	8.4	6.3	8.0	***37.0***	15.7	24
21	8.9	10.5	9.9	6.6	3.4	4.7	5.0	2.0	3.3	6.3	12.5	13.5	15.2	16.3	12.9	13.6	9.1	10.8	11.7	11.7	14.1	12.8	11.6	6.3	16.3	9.7	24
22	4.3	5.0	8.1	3.8	6.0	7.2	7.4	10.0	7.2	10.7	15.1	12.8	18.5	22.8	17.3	12.9	14.4	5.6	3.1	3.0	7.9	7.9	6.8	7.4	22.8	9.4	24
23	6.9	8.2	8.4	7.3	10.0	9.3	9.9	9.0	11.6	13.8	17.4	17.1	18.6	23.1	22.5	13.2	8.9	7.9	14.9	7.1	5.0	5.1	6.5	5.6	23.1	11.1	24
24	4.0	2.6	6.4	3.7	5.7	7.0	5.1	2.5	5.3	7.7	6.3	9.1	7.5	5.2	8.0	7.3	7.7	2.7	2.6	2.8	11.2	5.4	5.6	3.7	11.2	5.6	24
25	3.7	3.5	10.9	6.2	11.9	13.7	12.6	13.3	9.4	4.7	4.9	4.6	3.7	6.6	8.6	7.3	5.2	4.4	9.3	10.1	19.7	18.8	19.2	17.7	19.7	9.6	24
26	14.0	16.1	11.4	12.9	12.8	12.2	13.3	15.7	13.8	13.7	17.9	19.9	18.7	17.4	15.3	14.0	11.5	7.0	10.6	6.8	7.3	9.3	6.4	6.2	19.9	12.7	24
27	14.5	23.8	25.7	28.0	25.0	26.2	21.1	22.6	27.5	25.3	23.5	20.0	23.2	25.5	25.7	22.2	20.4	12.2	9.7	6.4	10.3	16.8	12.9	15.4	28.0	***20.2***	24
28	14.4	13.6	12.7	7.8	5.1	7.8	8.7	7.6	8.1	9.8	8.6	6.9	8.3	6.7	9.5	8.8	10.8	12.2	5.7	6.1	10.7	14.7	15.2	11.0	15.2	9.6	24
29	8.9	10.7	13.4	14.8	14.1	12.6	12.8	11.7	14.0	13.0	9.8	10.1	10.2	8.3	10.5	9.2	5.8	4.8	5.1	3.3	2.2	4.6	6.2	4.0	14.8	9.2	24
30	2.7	7.4	5.7	7.4	6.1	7.7	6.5	5.9	4.0	7.0	7.8	9.1	12.3	12.7	12.0	7.8	4.8	4.1	9.1	12.8	9.4	15.4	7.4	9.6	15.4	8.1	24
31	8.2	9.4	8.3	8.9	10.4	8.0	7.1	9.4	10.2	11.1	14.3	15.4	9.4	6.9	6.8	8.0	8.0	8.2	7.4	10.5	9.2	8.4	7.6	13.3	15.4	9.4	24
HOURLY MAX	24.6	24.9	25.7	28.0	25.0	26.2	21.1	23.5	27.5	30.0	29.8	33.7	31.5	30.9	37.0	28.9	29.7	29.5	24.5	27.3	19.7	22.5	25.8	24.2			
HOURLY AVG	7.0	8.2	8.4	8.1	8.4	8.8	9.1	9.8	11.1	13.0	14.8	15.6	16.0	16.9	17.1	14.8	13.1	9.3	7.6	7.8	8.3	8.4	7.9	7.8			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	37.0	KPH	@ HOUR(S)	14	ON DAY(S)	20
				VAR-VARIOUS		
OPERATIONAL TIME:					744	HRS


01 Hour Averages
180
135
90
45
0
180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : WSP
Units : KPH

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	.26	.80	2.01	3.22	4.16	4.70	7.66	3.49	2.82	2.95	4.56	9.81	4.43	1.88	1.20	.13	54.16
<	12.0	.80	.53	.13	.26	.26	.26	10.75	2.01	.13	.13	.40	5.77	4.70	1.47	3.62	.80	32.12
<	20.0	2.41	.13	.13	.00	.00	.00	.40	.00	.00	.00	.00	.13	2.01	2.01	2.95	.80	11.02
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.26
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.49	1.47	2.28	3.49	4.43	4.97	18.81	5.51	2.95	3.09	4.97	15.72	11.15	5.64	7.79	1.74	

Calm : 2.41 %

Total # Operational Hours : 744

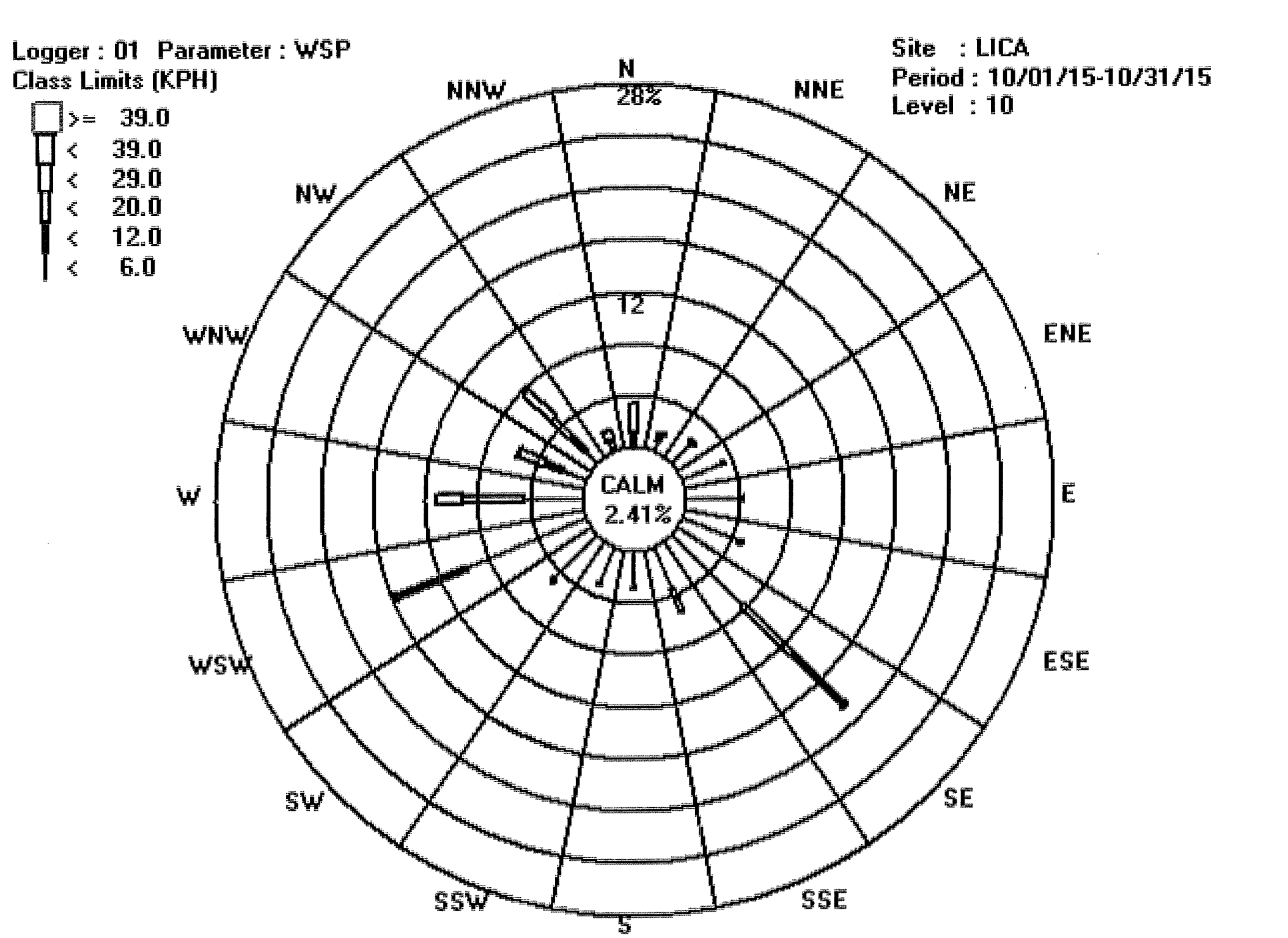
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	2	6	15	24	31	35	57	26	21	22	34	73	33	14	9	1	403
<	12.0	6	4	1	2	2	2	80	15	1	1	3	43	35	11	27	6	239
<	20.0	18	1	1				3					1	15	15	22	6	82
<	29.0														2			2
<	39.0																	
>=	39.0																	
	Totals	26	11	17	26	33	37	140	41	22	23	37	117	83	42	58	13	

Calm : 2.41 %

Total # Operational Hours : 744


Logger : 01 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNW
NNE
NW
NE
12
WNW
ENE
W
E
CALM
2.41%
WSW
ESE
SW
SE
SSW
SSE
S

WIND DIRECTION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

WIND DIRECTION (WD) hourly averages

MST

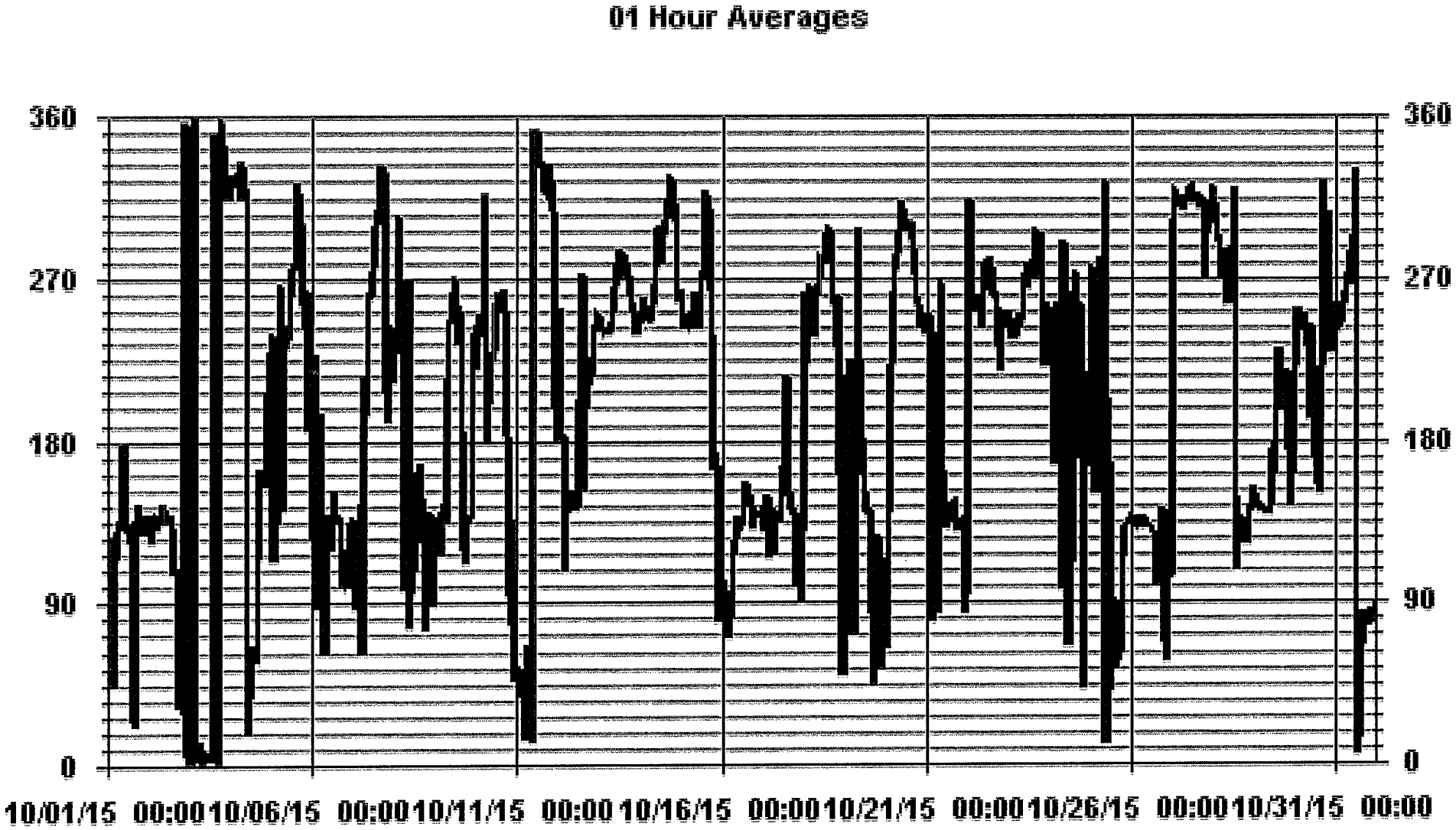
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00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

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	86.82		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	W	


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA WDR DEG

STANDARD DEVIATION WIND DIRECTION

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

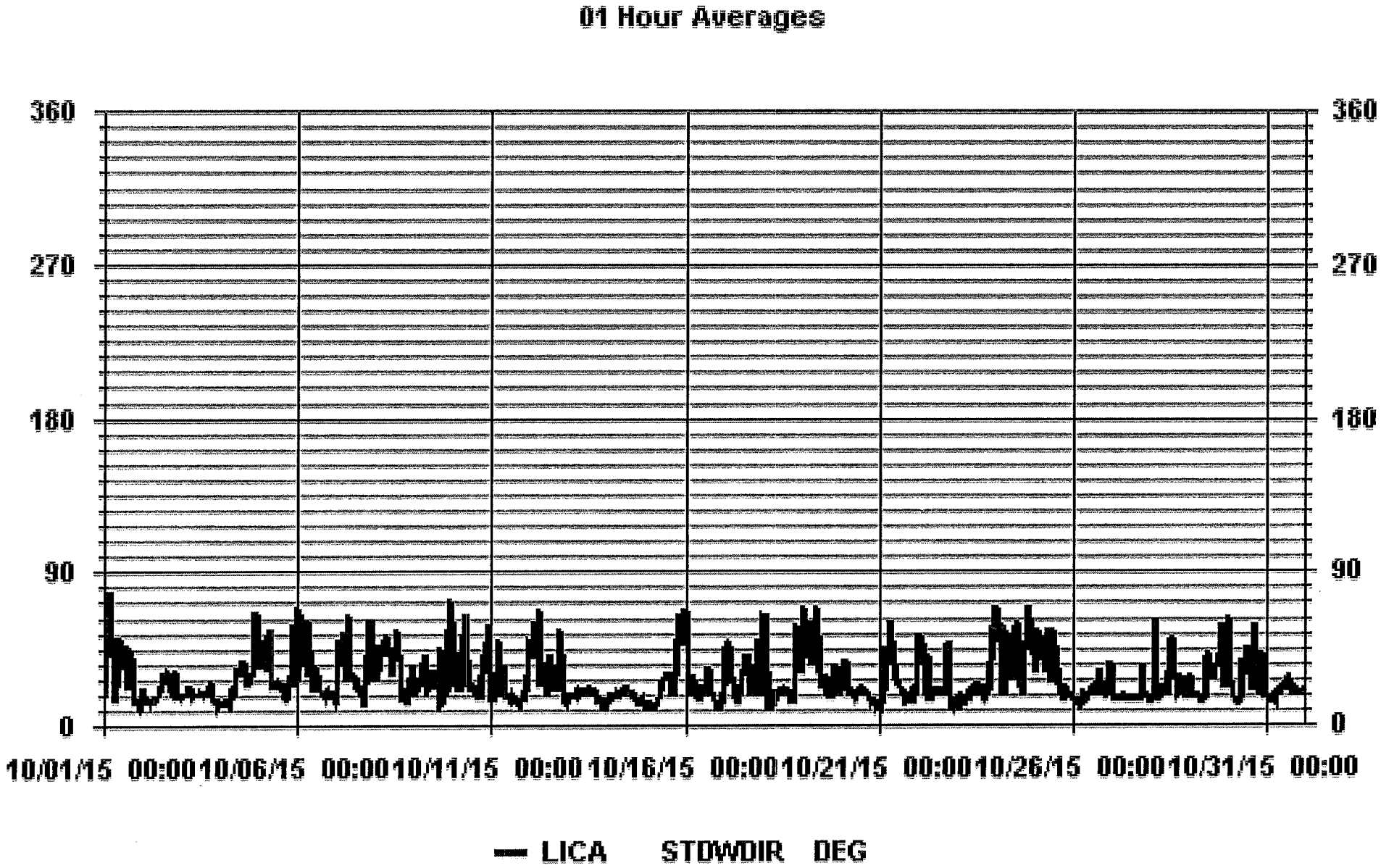
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	18	59	47	60	79	40	43	13	22	52	42	34	36	33	47	21	45	41	23	13	15	15	12	14
2	22	17	12	17	16	14	16	15	17	18	22	22	31	24	26	31	30	25	21	17	33	17	17	18
3	17	18	18	19	22	22	18	19	18	18	18	20	19	19	18	19	21	18	27	18	16	15	12	14
4	13	13	14	15	14	13	20	19	16	24	31	33	29	32	37	37	33	23	25	30	31	58	66	39
5	33	38	50	36	46	53	32	57	28	22	25	26	24	24	22	25	17	15	19	30	23	60	38	26
6	69	66	52	35	43	47	63	28	45	20	33	33	28	28	22	19	18	21	18	20	18	19	17	14
7	16	34	51	48	36	55	25	65	52	28	31	28	30	23	22	22	18	11	24	42	40	63	46	25
8	41	26	31	46	46	50	52	52	41	44	29	43	46	56	42	39	24	14	16	16	12	25	24	36
9	19	23	21	23	28	37	33	42	21	22	27	24	33	25	24	23	46	14	15	18	20	57	74	61
10	59	37	22	43	19	38	38	54	65	40	24	21	21	23	22	19	17	17	30	41	36	49	59	33
11	16	16	17	20	51	23	20	19	36	20	18	16	19	17	15	16	14	13	15	16	14	20	29	49
12	48	39	46	60	50	68	23	38	25	28	22	19	41	21	23	28	35	19	57	43	37	14	13	16
13	17	17	17	18	20	17	18	20	20	20	20	21	22	21	21	20	20	18	15	14	13	12	11	15
14	15	19	16	17	18	20	19	18	19	19	22	23	22	21	20	19	17	16	14	15	14	16	13	12
15	13	12	13	12	11	12	12	16	24	23	27	28	31	28	31	20	17	22	29	51	65	58	46	59
16	68	53	21	20	30	25	27	21	20	14	24	20	21	27	34	27	21	18	15	12	13	12	17	16
17	22	45	48	47	25	30	25	17	12	18	24	29	33	41	33	41	27	18	36	31	23	50	47	17
18	64	63	63	33	10	12	12	18	17	20	21	21	20	22	21	21	19	14	14	21	59	57	53	42
19	30	69	39	49	51	61	35	60	53	69	54	32	30	21	24	30	19	17	17	19	19	35	20	21
20	19	25	34	38	29	20	17	21	20	16	17	21	21	22	20	21	20	18	15	13	14	14	10	11
21	10	15	13	19	46	43	34	61	50	37	28	27	24	23	21	18	14	15	15	18	16	13	18	23
22	35	53	49	48	36	16	42	14	18	22	21	21	20	21	20	21	17	47	39	49	15	11	10	12
23	15	16	11	12	12	17	15	15	20	22	21	22	23	23	20	18	19	16	17	23	20	37	58	62
24	70	52	51	60	38	18	47	55	42	28	42	27	57	61	56	41	22	17	43	49	70	63	54	45
25	46	30	57	37	52	51	39	30	47	56	24	57	36	47	34	24	19	16	16	24	18	19	18	18
26	15	15	13	13	12	16	20	13	15	17	18	18	22	24	23	19	33	24	19	21	18	19	27	37
27	21	14	16	16	16	16	17	17	15	15	16	17	16	16	16	16	16	16	18	36	19	17	17	13
28	16	16	20	63	17	15	20	24	22	20	18	31	50	52	37	27	18	19	29	24	18	15	18	28
29	30	20	17	17	18	18	14	14	15	16	40	43	33	37	27	30	36	33	41	52	59	21	41	59
30	64	26	23	17	15	15	14	16	25	39	29	44	46	30	20	32	59	36	29	16	43	18	17	17
31	15	16	15	17	14	13	18	18	21	22	23	20	27	28	27	23	19	23	21	19	19	18	18	21

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION:	April 1, 2015

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744 HRS


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA STDWDIR DEG

RELATIVE HUMIDITY

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

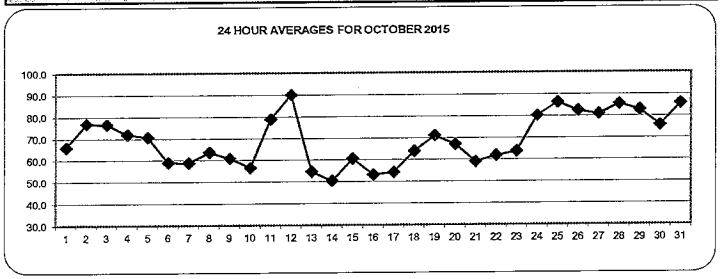
RELATIVE HUMIDITY (RH) hourly averages in %

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	87	88	91	91	92	93	92	87	72	57	50	46	43	38	39	44	49	47	53	63	58	61	66	72	93	65.8	24
2	79	83	85	90	93	94	93	91	87	82	73	65	60	56	54	52	54	69	73	78	82	80	83	83	94	76.6	24
3	82	81	80	81	82	77	79	86	83	79	75	81	74	72	69	65	65	68	69	72	76	79	80	79	86	76.4	24
4	78	80	81	77	80	82	78	83	75	70	67	62	58	55	55	55	56	58	69	74	74	81	85	89	89	71.8	24
5	90	89	88	88	88	89	89	88	81	75	67	59	53	48	44	42	36	39	53	68	76	80	82	82	90	70.6	24
6	85	84	86	85	86	86	87	83	69	59	52	47	41	34	32	32	36	38	42	45	47	51	51	51	87	58.7	24
7	54	57	61	64	71	73	76	74	65	58	49	44	40	36	34	35	36	40	54	67	71	80	82	85	85	58.6	24
8	85	89	89	88	89	89	88	87	79	64	53	41	36	33	32	33	37	46	63	59	54	58	62	69	89	63.5	24
9	67	65	67	70	73	74	79	78	67	58	50	45	42	41	38	42	46	52	58	61	65	71	71	76	79	60.7	24
10	80	82	76	82	84	84	77	67	60	55	48	40	32	27	25	24	23	28	42	52	58	65	69	73	84	56.4	24
11	76	75	73	69	72	64	72	69	78	82	81	87	86	89	87	83	79	79	79	75	75	79	88	92	92	78.7	24
12	93	94	94	94	94	94	93	94	97	*98*	89	83	70	70	84	86	80	82	91	94	95	96	97	94	*98*	*89.8*	24
13	86	83	78	73	72	71	69	67	59	49	44	39	35	32	31	29	30	35	43	48	50	60	65	59	86	54.5	24
14	57	59	56	56	58	64	66	68	59	54	45	36	34	32	35	33	31	36	41	45	52	57	65	67	68	50.3	24
15	66	70	73	73	78	81	82	81	70	60	53	46	40	38	37	32	33	43	55	61	65	67	71	74	82	60.4	24
16	76	79	79	77	78	82	82	70	63	51	46	39	33	27	26	29	29	33	39	41	44	47	50	51	82	53.0	24
17	54	64	71	73	77	76	76	72	60	52	44	35	27	27	27	27	29	37	46	55	60	67	70	73	77	54.1	24
18	75	77	80	84	79	78	74	72	68	60	52	45	40	36	37	38	39	48	56	68	76	80	82	85	85	63.7	24
19	86	89	88	90	89	88	88	90	83	65	56	52	52	53	49	49	53	61	73	69	66	64	72	76	90	70.9	24
20	78	77	76	81	84	91	96	92	86	75	67	60	50	41	37	37	40	46	52	57	61	67	77	79	96	67.0	24
21	79	84	82	83	85	87	89	89	81	64	55	46	40	35	31	28	29	36	41	45	48	50	52	55	89	58.9	24
22	60	66	70	73	74	73	71	73	71	65	58	54	49	43	41	38	36	49	61	70	75	70	72	69	75	61.7	24
23	71	72	79	75	77	74	75	75	68	60	52	46	42	39	39	41	43	49	58	64	76	82	84	87	87	63.7	24
24	88	89	91	90	89	91	90	91	89	82	75	71	63	61	58	55	60	73	80	83	85	87	90	91	91	80.1	24
25	91	92	94	94	93	93	94	95	94	94	86	70	71	63	66	68	69	79	85	90	95	97	96	95	97	86.0	24
26	94	94	95	93	92	92	92	91	87	82	79	75	67	63	61	69	69	64	73	82	83	90	93	95	95	82.3	24
27	97	93	90	90	89	85	87	83	82	73	74	76	79	71	69	75	76	76	78	81	80	76	78	80	97	80.8	24
28	82	83	84	85	88	89	89	89	89	88	85	81	80	78	77	80	82	84	87	88	88	89	91	90	91	85.3	24
29	89	88	88	88	88	88	87	86	85	82	76	72	70	74	80	77	77	79	79	80	83	90	89	88	90	82.6	24
30	91	94	92	94	92	90	88	89	84	70	61	48	40	37	38	42	55	68	73	86	94	96	96	96	96	75.6	24
31	96	96	96	96	95	94	95	94	91	87	84	80	79	76	76	79	77	77	80	80	79	81	81	84	96	85.5	24
HOURLY MAX	97	96	96	96	95	94	96	95	97	98	89	87	86	89	87	86	82	84	91	94	95	97	97	96			
HOURLY AVG	79.7	81.2	81.7	82.2	83.3	83.4	83.6	82.4	76.8	69.4	62.8	57.1	52.5	49.2	48.6	49.0	50.1	55.5	62.8	67.8	70.7	74.1	77.1	78.7			

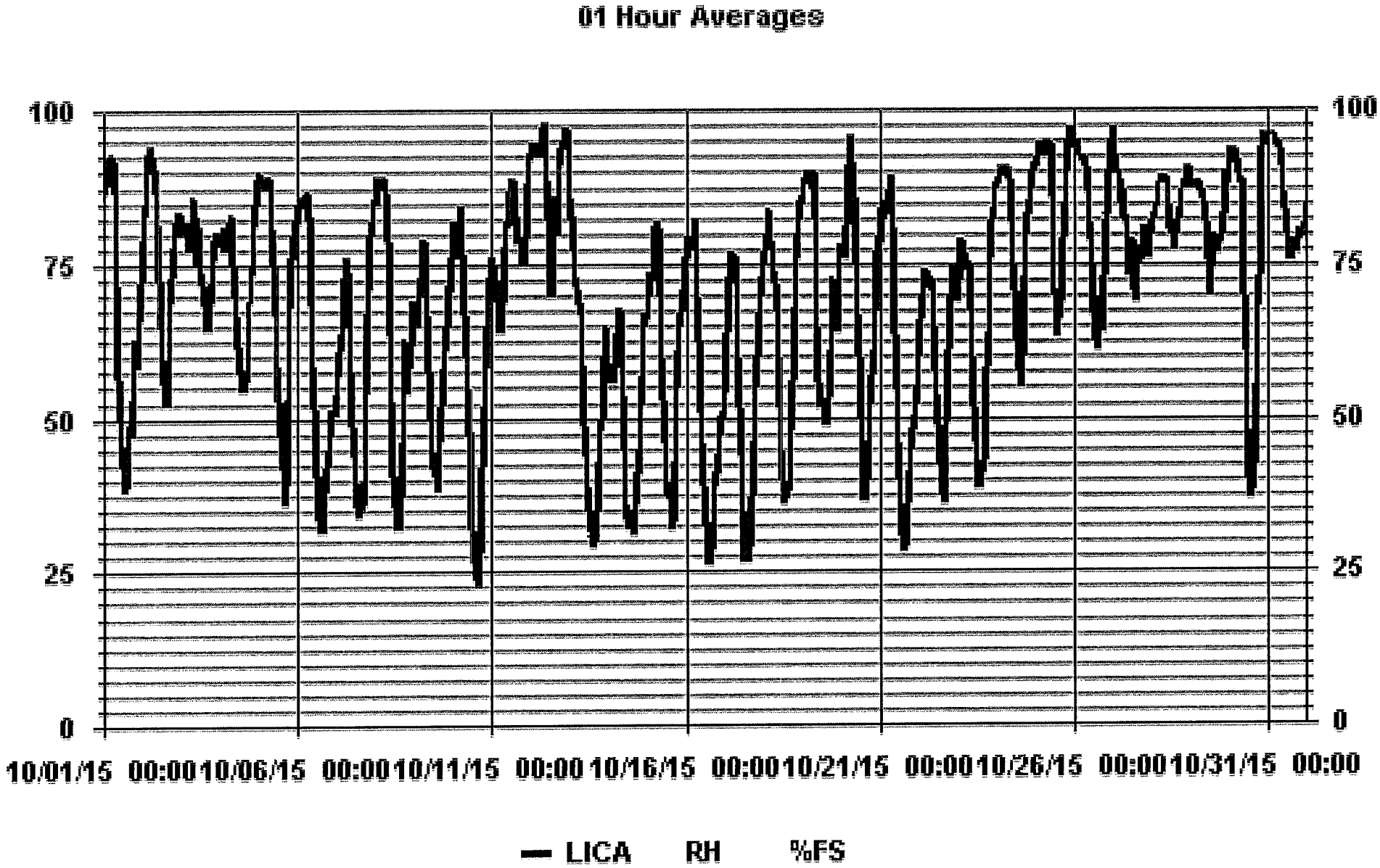
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR(S)	9	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	89.8	%			ON DAY(S)	12
					VAR-VARIOUS	
			OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	18.80		MONTHLY AVERAGE:		69	%


01 Hour Averages
100
75
50
25
0
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA RH %FS

AMBIENT TEMPERATURE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

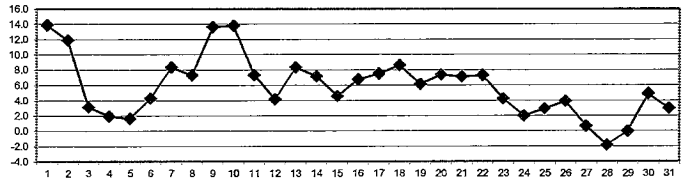
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.0	6.9	5.9	5.3	4.7	4.2	4.3	8.1	12.2	16.6	18.2	20.1	21.8	23.4	23.5	22.2	20.8	19.5	16.9	14.0	15.2	15.0	13.9	12.8	23.5	***13.9***	24
2	11.5	10.7	10.4	9.4	8.7	8.7	9.0	9.2	9.8	10.5	12.4	14.2	15.5	16.6	17.1	17.8	17.4	14.3	13.0	12.2	11.3	10.2	8.3	7.3	17.8	11.9	24
3	6.5	5.5	5.2	4.4	3.3	3.2	3.0	2.2	2.2	2.4	2.6	2.4	2.8	3.4	3.7	4.1	4.4	3.6	3.2	2.6	1.7	0.8	0.5	0.9	6.5	3.1	24
4	1.2	1.1	1.0	1.1	0.9	0.7	0.9	0.6	1.4	2.2	3.0	3.7	3.9	4.5	4.9	4.9	4.8	4.4	2.4	1.3	1.3	-0.2	-1.6	-2.6	4.9	1.9	24
5	-3.3	-4.0	-4.6	-5.0	-5.5	***-6.1***	***-6.1***	-4.1	-0.1	1.9	4.5	7.3	8.7	10.0	11.1	11.5	11.0	9.3	5.5	1.9	0.0	-1.0	-1.9	-2.5	11.5	1.6	24
6	-3.2	-3.6	-4.3	-4.8	-5.3	-5.6	-5.8	-4.1	2.2	5.5	7.5	9.2	10.6	11.4	12.1	12.0	11.3	10.3	8.9	8.4	8.1	7.1	7.4	7.8	12.1	4.3	24
7	7.6	7.2	6.5	6.0	5.0	4.2	3.9	4.4	6.7	9.3	11.5	13.3	15.0	15.7	16.3	16.2	15.4	13.2	9.3	5.6	4.1	2.3	1.2	0.3	16.3	8.3	24
8	-0.6	-1.4	-1.6	-2.1	-2.5	-2.8	-3.1	-2.1	3.1	7.2	10.2	12.9	14.7	16.1	16.9	17.8	17.2	14.6	10.2	10.3	11.6	10.7	9.7	8.2	17.8	7.3	24
9	8.6	9.3	9.4	8.7	8.2	8.4	7.6	8.3	11.7	14.5	17.2	18.9	20.1	20.9	21.5	20.3	19.7	17.8	16.0	14.4	13.0	11.5	11.3	10.0	21.5	13.6	24
10	8.9	8.2	9.7	8.0	7.0	7.4	8.9	11.4	13.3	14.7	16.8	18.7	21.4	23.5	24.5	***24.6***	23.8	21.2	15.9	12.3	10.1	8.3	7.1	5.9	***24.6***	13.8	24
11	7.1	9.6	10.5	11.2	10.9	11.7	11.4	11.7	11.2	10.0	9.5	7.9	6.5	5.5	5.2	5.3	5.5	5.7	5.8	5.3	4.4	3.2	1.0	-0.5	11.7	7.3	24
12	-1.1	-1.1	-1.1	-1.8	-1.4	0.1	1.4	1.8	2.7	4.4	6.7	8.3	10.2	10.5	9.3	9.3	10.1	8.6	5.3	3.9	2.5	2.9	3.6	4.9	10.5	4.2	24
13	4.9	4.6	4.3	4.9	4.9	4.6	4.7	5.2	7.6	10.3	12.0	13.1	13.9	14.5	14.4	14.3	13.6	11.8	9.4	7.9	7.1	4.3	3.0	4.3	14.5	8.3	24
14	4.4	3.9	4.0	4.1	4.0	3.3	3.1	3.1	5.9	8.1	10.1	11.2	12.0	12.3	11.8	11.5	11.2	10.1	8.8	8.2	7.3	6.2	4.3	3.1	12.3	7.2	24
15	2.6	1.4	0.2	-0.2	-1.0	-1.3	-1.2	-0.9	2.5	5.6	7.9	10.0	11.3	11.6	11.5	12.3	11.4	8.6	5.3	3.7	3.1	2.6	1.7	1.2	12.3	4.6	24
16	1.1	0.2	-0.4	0.3	0.4	-0.7	-0.8	2.1	4.3	6.8	8.9	11.0	12.9	14.4	14.9	14.4	13.9	12.1	9.8	8.9	8.1	7.2	6.3	6.0	14.9	6.8	24
17	5.5	2.5	0.8	0.5	-0.6	-0.5	-0.1	1.4	5.0	7.7	10.1	13.6	16.5	17.7	18.0	17.7	16.7	13.7	10.3	7.6	6.1	4.1	3.1	2.7	18.0	7.5	24
18	2.2	1.9	1.6	0.8	2.7	3.6	4.9	6.8	8.8	12.0	14.5	15.8	16.8	17.5	17.7	17.6	16.6	14.0	11.5	7.6	5.1	3.4	2.2	1.4	17.7	8.6	24
19	0.6	-0.3	-0.8	-1.4	-1.7	-2.0	-2.2	-2.1	1.4	8.2	10.8	11.0	11.5	11.6	13.1	13.3	12.8	11.2	9.2	9.2	9.4	9.8	8.1	7.3	13.3	6.2	24
20	6.8	7.2	7.4	6.2	5.9	6.3	6.6	7.2	7.5	7.7	8.4	9.5	10.6	11.5	11.8	11.7	10.8	9.2	7.7	6.1	4.7	3.6	1.5	1.1	11.8	7.4	24
21	1.0	-0.2	0.9	0.7	-0.3	-1.1	-1.2	-1.4	1.0	6.1	8.6	10.8	12.6	14.1	15.4	15.8	14.5	12.6	11.4	10.9	10.2	10.0	9.4	8.8	15.8	7.1	24
22	8.0	6.8	6.2	6.0	5.6	5.7	6.1	5.8	6.8	8.8	10.4	11.4	12.6	13.4	13.0	13.1	12.3	8.5	4.6	2.4	1.4	2.4	1.6	2.2	13.4	7.3	24
23	1.9	1.7	-0.3	0.4	-0.1	0.5	0.0	0.2	2.2	5.0	7.6	9.7	11.0	12.0	11.1	10.3	9.6	7.8	5.7	5.1	1.7	0.2	-0.4	-0.8	12.0	4.3	24
24	-2.0	-2.5	-2.1	-2.0	-1.6	-1.4	-1.8	-1.8	-0.8	1.8	4.7	6.5	8.1	8.3	8.9	9.9	8.5	4.7	2.2	1.0	0.8	-0.1	-0.7	-1.2	9.9	2.0	24
25	-1.6	-1.4	-1.3	-0.7	-0.5	0.3	0.9	1.2	1.6	2.7	5.1	7.2	6.6	8.5	8.3	7.5	6.6	4.1	2.6	2.7	2.3	2.2	2.3	2.2	8.5	2.9	24
26	2.1	1.6	0.9	0.4	-0.1	-0.4	-0.5	-0.5	0.5	1.6	2.9	4.7	7.1	8.3	9.1	8.0	7.8	8.1	7.1	6.1	5.5	4.9	4.6	4.6	9.1	3.9	24
27	4.5	3.8	2.3	0.8	0.5	0.4	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.3	0.4	0.4	0.3	0.1	0.3	0.5	0.0	-0.8	4.5	0.6	24
28	-1.6	-2.1	-2.5	-2.9	-3.7	-4.1	-4.0	-3.5	-2.8	-2.0	-1.1	-0.2	-0.2	0.2	0.5	-0.1	-0.5	-1.0	-1.7	-2.2	-2.3	-2.4	-2.4	-2.0	0.5	-1.9	24
29	-1.8	-1.9	-1.8	-1.8	-1.8	-1.7	-1.8	-1.9	-1.7	-1.1	0.1	1.0	1.5	1.6	1.3	1.4	1.4	0.9	0.9	0.9	0.9	0.7	1.1	1.6	1.6	-0.1	24
30	0.9	0.0	0.1	-1.1	-1.0	-0.1	0.4	-0.1	2.0	5.2	7.4	10.7	12.1	12.2	11.9	11.2	9.4	7.1	6.6	5.5	5.0	4.6	4.0	3.5	12.2	4.9	24
31	3.1	2.3	1.9	1.8	1.3	0.9	0.7	1.5	2.3	3.2	3.9	4.2	4.3	4.5	4.7	4.3	4.1	3.8	3.5	3.3	3.1	2.7	2.8	2.8	4.7	3.0	24
HOURLY MAX	11.5	10.7	10.5	11.2	10.9	11.7	11.4	11.7	13.3	16.6	18.2	20.1	21.8	23.5	24.5	24.6	23.8	21.2	16.9	14.4	15.2	15.0	13.9	12.8			
HOURLY AVG	3.0	2.5	2.2	1.8	1.5	1.5	1.6	2.3	4.2	6.4	8.1	9.6	10.7	11.5	11.7	11.6	11.0	9.4	7.3	6.0	5.3	4.4	3.6	3.2			

STATUS FLAG CODES

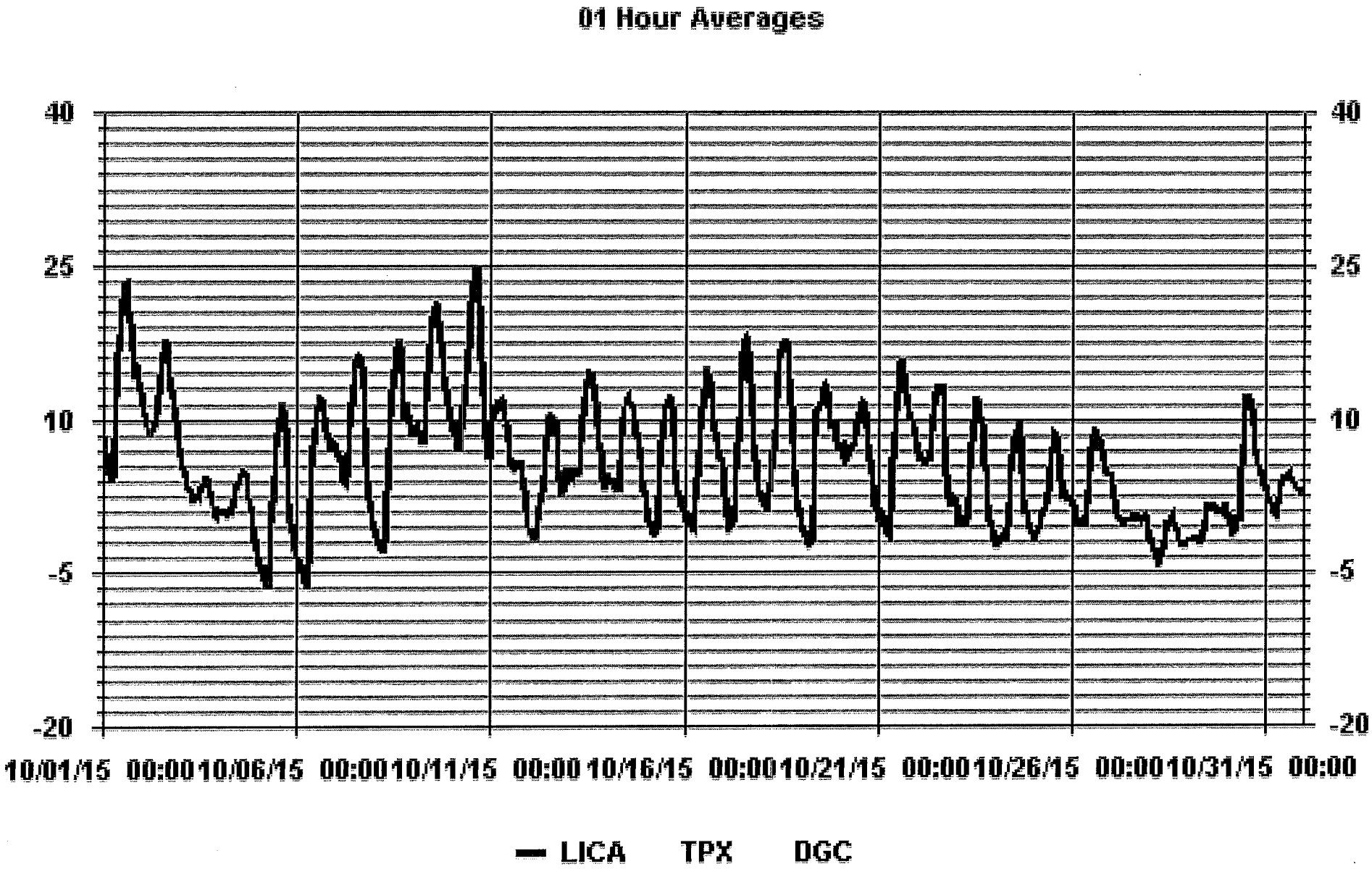
C	- CALIBRATION	Q	- QUALITY ASSURANCE
V	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-6.1	°C	@ HOUR(S)	5 , 6	ON DAY(S)	5 , 5	
MAXIMUM 1-HR AVERAGE:	24.6	°C	@ HOUR(S)	15	ON DAY(S)	10	
MAXIMUM 24-HR AVERAGE:	13.9	°C			ON DAY(S)	1	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	5.98		MONTHLY AVERAGE:			5.9	°C


01 Hour Averages
40
25
10
-5
-20
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA
TPX
DGC

APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 15100117-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 3, 2015

Priority: Normal

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VOC Sample Collection Data Sheet

Client: LICA

Location: Cold Lake South

Station ID: LICA 01

Field Sample ID: LICA/VOC/CLS/~~Sept~~ A.V. Oct 3, 2015

Sampler S/N: 6167

Canister ID: 1685

Canister Installation Date/Time: Oct 1, 2015 @ 10:51

Canister Removal Date/Time: Oct 5, 2015 @ 15:39

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 3, 2015	00:00 Oct 3, 2015	00:00 Oct 4, 2015	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	652	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	23.2

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:

Technician Signiture: Sample in - by Alex Yakunov

Sample out - by Alex Yakunov

Date: Oct 5, 2015

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Volatile Organics Data Results

Date: OCTOBER 3, 2015
Canister ID: 1685

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
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
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.01
trans-1,2-Dichloroethylene	< 0.01
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.01
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
Methyl tert butyl ether	< 0.03
Methylcyclohexane	< 0.01
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.10
n-Decane	< 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
Isobutane	0.06
Isopentane	0.08
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
Ethylbenzene	< 0.01
Freon-11	0.30
Freon-113	0.08
Freon-114	0.02
Freon-12	0.68
Hexachloro-1,3-butadiene	< 0.50
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Volatile Organics Data Results

Date: OCTOBER 3, 2015
Canister ID: 1685

PARAMETERS	CONCENTRATION (PPB)
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.7
Ethyl acetate	< 0.4
Chloroethane	0.04
Chloroform	0.03
Chloromethane	0.69
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.51
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	< 0.01
Acetone	2.9
Acrolein	< 0.3
Benzene	0.02
Benzyl chloride	< 0.4
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	< 0.01
3-Methylheptane	< 0.02
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	< 0.02
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
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.01
1,2-Dichloropropane	< 0.01

Sample ID: 15100172-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 9, 2015

Priority: Normal

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VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/Oct 9, 2015

Sampler S/N: 6167
Canister ID: ~~4695~~ A-Y. 35625
Canister Installation Date/Time: Oct 5, 2015 @ 15:41
Canister Removal Date/Time: Oct 13, 2015 @ 08:40

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 9, 2015	00:00 Oct 9, 2015	00:00 Oct 10, 2015	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	25.4

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:

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

Date: Oct 13, 2015

Volatile Organics Data Results

Date: OCTOBER 9, 2015
Canister ID: S5625

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	0.01
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	0.06
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.06
2,3-Dimethylpentane	0.05
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.01
2-Methylhexane	0.04
2-Methylpentane	0.15
3-Methylheptane	< 0.02
3-Methylhexane	0.05
3-Methylpentane	0.09
Acetone	3.7
Acrolein	< 0.3
Benzene	0.08
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	0.03
Chloromethane	0.67
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	0.03
Dibromochloromethane	< 0.01
Ethanol	3.7
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.29

Volatile Organics Data Results

Date: OCTOBER 9, 2015
Canister ID: S5625

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.64
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.53
Isopentane	0.68
Isoprene	0.03
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
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	0.08
Methylcyclopentane	0.07
Methylene chloride	< 0.3
n-Butane	1.06
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.14
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.4
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.03
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.20
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.03
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15100277-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 15, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/Oct 15, 2015

Sampler S/N: 6167
Canister ID: 17130
Canister Installation Date/Time: Oct 13, 2015 @ 08:41
Canister Removal Date/Time: Oct 19, 2015 @ 15:05

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 15, 2015	00:00 Oct 15, 2015	00:00 Oct 16, 2015	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	23.0

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:

Technician Signiture: Sample in - by Alex Yacupor
Sample out - by Alex Yacupor
Date: Oct 19, 2015

Volatile Organics Data Results

Date: OCTOBER 15, 2015
Canister ID: 17130

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	< 0.01
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	0.04
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	0.04
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.01
2-Methylpentane	0.04
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	1.4
Acrolein	< 0.3
Benzene	0.18
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.02
Carbon tetrachloride	0.06
Chlorobenzene	0.06
Chloroethane	< 0.02
Chloroform	0.04
Chloromethane	0.50
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.07
Cyclopentane	0.04
Dibromochloromethane	< 0.01
Ethanol	1.1
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.20

Volatile Organics Data Results

Date: OCTOBER 15, 2015
Canister ID: 17130

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.05
Freon-114	< 0.02
Freon-12	0.46
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.19
Isopentane	0.19
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	0.07
Methylcyclopentane	0.06
Methylene chloride	< 0.3
n-Butane	0.32
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.04
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.1
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	0.03
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: 15100333-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 21, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/ Oct 21, 2015

Sampler S/N: 6167
Canister ID: 14719
Canister Installation Date/Time: Oct 19, 2015 @ 15:06
Canister Removal Date/Time: Oct 26, 2015 @ 09:36

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 21, 2015	00:00 Oct 21, 2015	00:00 Oct 22, 2015	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	23.0

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:

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

Date: Oct 26, 2015

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Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Volatile Organics Data Results

Date: OCTOBER 21, 2015
Canister ID: 14719

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	0.01
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	0.03
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.02
2-Methylpentane	0.07
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.04
Acetone	1.5
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.06
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.51
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	0.9
Ethyl acetate	< 0.4
Ethylbenzene	0.01
Freon-11	0.22

Volatile Organics Data Results

Date: OCTOBER 21, 2015
Canister ID: 14719

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	< 0.02
Freon-12	0.49
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.46
Isopentane	0.45
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	0.04
Methylcyclopentane	0.04
Methylene chloride	< 0.3
n-Butane	0.95
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.06
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	0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.09
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: 15110004-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 27, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/voc/CLS/Oct 27, 2015

Sampler S/N: 6167
Canister ID: 17114
Canister Installation Date/Time: Oct 26, 2015 @ 09:37
Canister Removal Date/Time: Oct 28, 2015 @ 09:12

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 26, 27, 2015 A.Y.	00:00 Oct 27, 2015	00:00 Oct 28, 2015	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	23.7

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:

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

Date: Oct 28, 2015

Volatile Organics Data Results

Date: OCTOBER 27, 2015
Canister ID: 17114

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	0.01
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	< 0.02
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	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.04
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	0.8
Acrolein	< 0.3
Benzene	0.54
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.05
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.71
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	< 0.3
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.28

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Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Volatile Organics Data Results

Date: OCTOBER 27, 2015
Canister ID: 17114

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.05
Freon-114	0.02
Freon-12	0.56
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.24
Isopentane	0.14
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	0.04
Methylcyclopentane	0.02
Methylene chloride	< 0.3
n-Butane	0.34
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.05
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.5
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	0.03
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: 15100117-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 3, 2015

Priority: Normal

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Location: Cold lake South

Station ID: LICA 01

Field Sample ID: LICA/PUF/CLS/Oct 3, 2015

Puf+ S/N: ~~9702~~ A.Y. P13-01

Motor S/N: 100-1020

Installation Date/Time: Oct 1, 2015 @ 11:43

Removal Date/Time: Oct 5, 2015 @ 15:30

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 3, 2015	00:00 Oct 3, 2015	00:00 Oct 4, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
721	229	3.7°	330.17

Time set correctly prior to sampling? (YES) / NO

Timer set correctly prior to sampling? (YES) NO

Sampling data saved to memory card after sampling? YES (NO)

Comments:

Technician Signiture: Sample in - by Alex Yakupov

Sample out - by Alex Yakupov

Date: Oct 5, 2015

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 3, 2015
PUF S/N: P1301

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Phenanthrene	0.08
Pyrene	0.03
Retene	0.02
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 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
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01

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Sample ID: 15100172-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 9, 2015

Priority: Normal

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/Oct 9, 2015

Puf+ S/N: A 13-02
Motor S/N: 100-1020
Installation Date/Time: Oct 5, 2015 @ 15:31
Removal Date/Time: Oct 13, 2015 @ approx 15:30

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 9, 2015	00:00 Oct 9, 2015	00:00 Oct 10, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 05- May - 10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
704	229	15.0°	330.23

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES / (NO)

Comments:

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

Date: Oct 13, 2015

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Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 9, 2015
PUF S/N: A1302

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.16
2-Methylnaphthalene	0.31
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
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,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.06
Fluorene	0.14
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.12
Perylene	< 0.01
Phenanthrene	0.30
Pyrene	0.07
Retene	0.03

Sample ID: 15100277-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 15, 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/Oct 15, 2015

Puf+ S/N: TE-11
Motor S/N: 100-1020
Installation Date/Time: Oct 13, 2015 @ 08:39
Removal Date/Time: Oct 19, 2015 @ 14:47

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 15, 2015	00:00 Oct 15, 2015	00:00 Oct 16, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
722	229	5.6°	330.19

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES / (NO)

Comments:

Technician Signiture: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: Oct 19, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 15, 2015
PUF S/N: TE11

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.06
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	0.09
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	0.03
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	0.05
Perylene	0.02
Phenanthrene	0.08
Pyrene	0.04
Retene	< 0.01

Sample ID: 15100333-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 21, 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/Oct 21, 2015

Puf+ S/N: TE-09
Motor S/N: 1138 / 100-1020
Installation Date/Time: Oct 19, 2015 @ 14:48
Removal Date/Time: Oct 26, 2015 @ 09:23

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 21, 2015	00:00 Oct 21, 2015	00:00 Oct 22, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
n/a	n/a	n/a	n/a

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
712	229	7.8°	330.21

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

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

Date : Oct 26, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 21, 2015
PUF S/N: TE09

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.07
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	0.04
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	0.02
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	0.11
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.09
Perylene	0.15
Phenanthrene	0.13
Pyrene	0.04
Retene	0.03

Sample ID: 15110004-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 27, 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/Oct 27, 2015

Puf+ S/N: TE-03
Motor S/N: 1138 / 100-1020
Installation Date/Time: Oct 26, 2015 @ 09:24
Removal Date/Time: Oct 28, 2015 @ 08:07

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 27, 2015	00:00 Oct 27, 2015	00:00 Oct 28, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
n/a	n/a	n/a	n/a

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
711	229	1.2°	330.19

Time set correctly prior to sampling? (YES) NO
Timer set correctly prior to sampling? (YES) NO
Sampling data saved to memory card after sampling? (YES) NO

Comments: Data retrieved from the internal data log.

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

Date: Oct 28, 2015

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Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 27, 2015
PUF S/N: TE03

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.12
2-Methylnaphthalene	0.19
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	0.03
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	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	0.20
Phenanthrene	0.07
Pyrene	0.03
Retene	< 0.01

PARTISOL RESULTS

Sample ID: 15100118-001

Customer ID: LICA

Cust Samp ID: LICA P5010239

Priority: Normal

AIR FCD-01318/2

Partisol Sample Data Sheet

Date Sampled: Oct 3, 2015

Location: LICA cold lake South

Parameter: TSP PM10 (PM2.5)

Filter #: LICA P5010239

Start Time 00:00 Oct 3, 2015

End Time 00:00 Oct 4, 2015

Status OK

Std Vol 24.617

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

Technician Signature: Aler Yakupov

Date: Oct 5, 2015

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

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Sample ID: 15100174-001

Customer ID: LICA

Cust Samp ID: LICA P5010246

Priority: Normal

Partisol Sample Data Sheet

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AIR FCD-01318/2
OCT 15 2015

Date Sampled: Oct 9, 2015

Location: LICA Cold Lake South

Parameter: TSP PM10 (PM2.5)

Filter #: LICA P 501 02 46

Start Time 00:00 Oct 9, 2015

End Time 00:00 Oct 10, 2015

Status OK

Std Vol 23.152

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

Technician Signature: Alex Vakupov

Date: Oct. 13, 2015

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: 15100275-001

Customer ID: LICA

Cust Samp ID: LICA P5010247

AIR FCD-01318/2

Priority: Normal

Partisol Sample Data Sheet

Date Sampled: Oct 15, 2015

Location: LICA / Cold Lake South

Parameter: TSP PM10 PM2.5

Filter #: LICA P5010247

RECEIVED
OCT 22 2015

Start Time 00:00 Oct 15, 2015

End Time 00:00 Oct 16, 2015

Status OK

Std Vol 24.457

Valid Time 24:00

Total Time 24:0

Comments: Weather Conditions, etc.

Technician Signature: Alex Yakupov

Date: Oct 19, 2015

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: 15100332-001

Customer ID: LICA

Cust Samp ID: LICA P5010249

Priority: Normal

AIR FCD-01316/2

RECEIVED
OCT 28 2015
Alberta Innovates - Technology Futures

Partisol Sample Data Sheet

Date Sampled: Oct 21, 2015

Location: LICA Cold Lake South

Parameter: TSP PM10 PM2.5

Filter #: LICA P5010249

Start Time 00:00 Oct 21, 2015

End Time 00:00 Oct 22, 2015

Status OK

Std Vol 23.878

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

Technician Signature: Alev Yakupov

Date: Oct 26, 2015

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: 15110005-001

Customer ID: LICA

Cust Samp ID: LICA P5011117

Priority: Normal

Partisol Sample Data Sheet

RECEIVED
NOV 03 2015

Date Sampled: Oct 27, 2015

Location: LICA Cold Lake South

Parameter: TSP PM10 (PM2.5)

Filter #: LICA P501 1117

Start Time 00:00 Oct 27, 2015

End Time 00:00 Oct 28, 2015

Status OK

Std Vol 24.541

Valid Time 24:00

Total Time 24.0

Comments: Weather Conditions, etc.

Technician Signature: Alex Yakupov

Date: Oct 28, 2015

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

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - OCTOBER 2015
JOB # 2833-2015-10-01- C

Partisol Sampler Results

Date	Filter NO.	Concentration (mg)
OCTOBER 3	P5010239	0.004
OCTOBER 9	P5010246	0.083
OCTOBER 15	P5010247	0.031
OCTOBER 21	P5010249	0.035
JANUARY 27	P5011117	0.016

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	October 5, 2015	Barometric Pressure:	28.14 inHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly clear
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	8:49	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	13:03	Cal Gas Expiry Date:	March 12, 2019
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	806S28242	Range ppb:	500
Last Calibration Date:	September 23, 2015	As Found C.F.:	0.998
Previous C.F.:	0.999	New C.F.:	1.001

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	BLM002073
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	Sulphur Dioxide Standard Calibration Points
High	380
Mid	180
Low	90

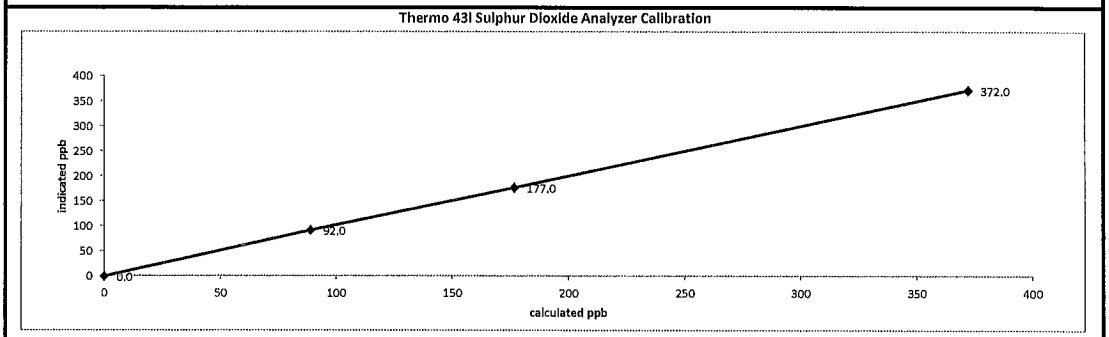
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

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	0.0	N/A
as found high	4976	37.70	5014	372.2	373.0	0.998
adjusted high	4976	37.70	5014	372.2	372.0	1.001
mid	4997	17.90	5015	176.7	177.0	0.998
low	5004	9.00	5013	88.9	92.0	0.966
calibrator zero	5012	0.00	5012	0.0	0.0	n/a
					Average C.F.=	0.988

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.003	.95-1.05
b (Intercept as % of full scale)=	-0.27%	± 3% F.S.
% change in C.F. from last cal=	0.11%	± 10%

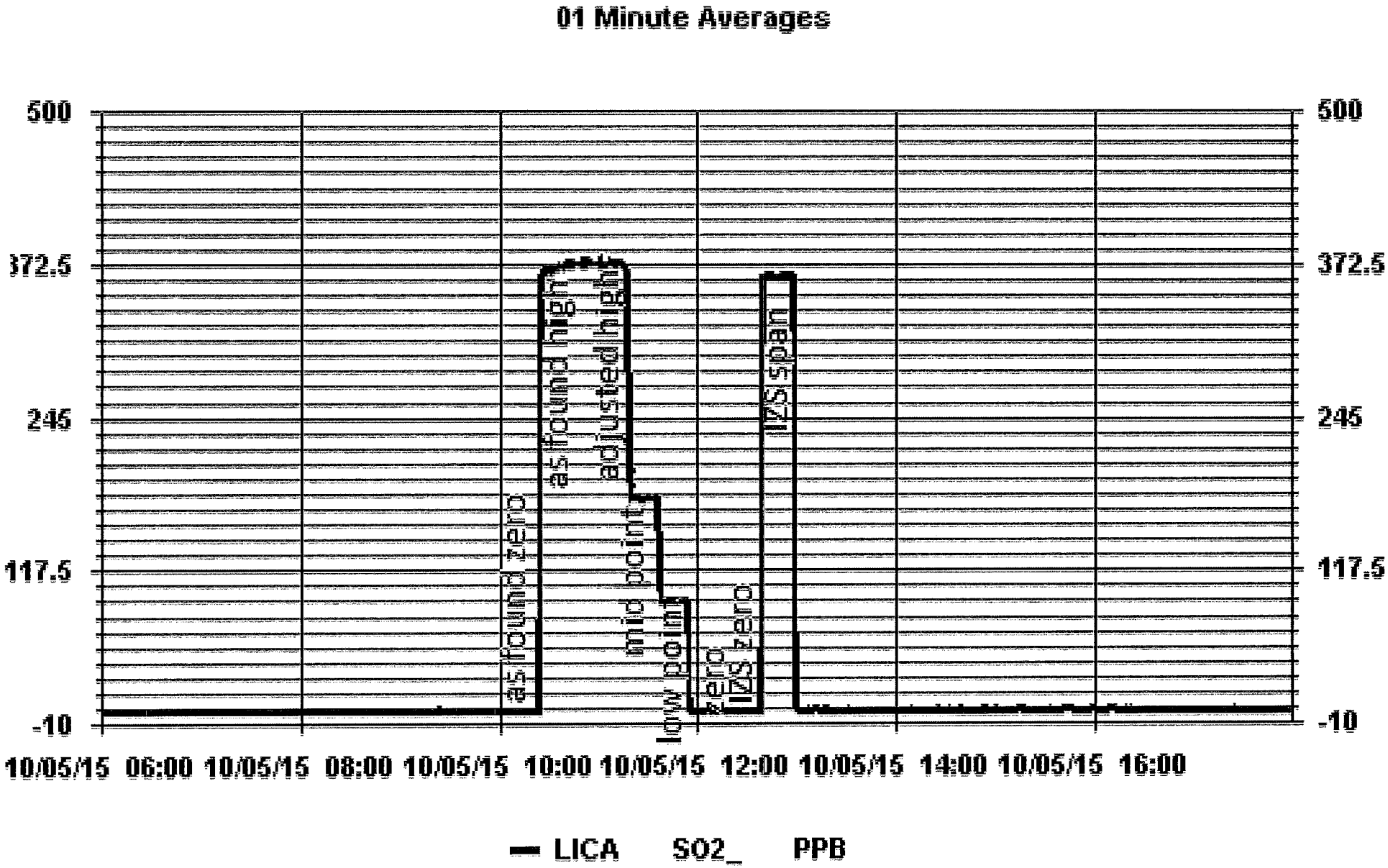
Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
BKG:	7.1	BKG:	7.0
COEF:	1.098	COEF:	1.084
PMT:	-632.0	PMT:	-632.0
FLASH:	709	FLASH:	710
INTERNAL:	28.2	INTERNAL:	28.1
CHAMBER:	45.2	CHAMBER:	44.9
PERM OVEN GAS:	45.0	PERM OVEN GAS:	45.0
PERM OVEN HEATER:	44.19	PERM OVEN HEATER:	44.19
PRESSURE:	682.8	PRESSURE:	682.5
SAMPLE FLOW:	0.477	SAMPLE FLOW:	0.477
LAMP INTENSITY:	76	LAMP INTENSITY:	76
CONVERTER:	n/a	CONVERTER:	n/a
CONVERTER SET:	n/a	CONVERTER SET:	n/a
Internal Span:	368	Internal Span:	363

Comments:

Sample filter changed. No ZERO adjustment made.


01 Minute Averages
500
372.5
245
117.5
-10
as found zero
as found high
adjusted high
mid point
low point
zero
span
10/05/15 06:00
10/05/15 08:00
10/05/15 10:00
10/05/15 12:00
10/05/15 14:00
10/05/15 16:00
LICA SO2_ PPB

TOTAL REDUCED SULPHUR

Thermo 450i Total Reduced Sulphur Analyzer Calibration

Date:	October 6, 2015	Barometric Pressure:	28.14 InHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Clear
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	7:43	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	12:06	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CDNova CDN-101 #501

Analyzer:

Serial Number:	812728560	Range ppb:	100
Last Calibration Date:	September 23, 2015	As Found C.F.:	0.951
Previous C.F.:	0.999	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

Point	Total Reduced Sulphur Standard Calibration Points
High	78
Mid	38
Low	19

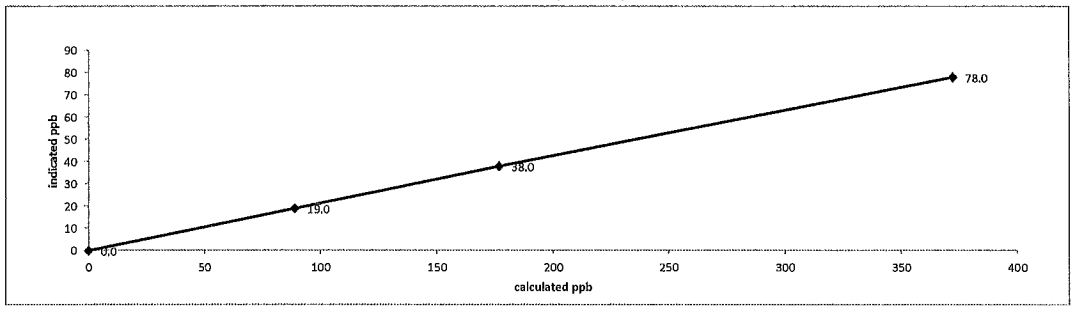
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7496	0.00	7496	0.0	0.0	N/A
as found high	7441	58.50	7500	78.0	82.0	0.951
adjusted zero	7496	0.00	7496	0.0	0.0	n/a
adjusted high	7441	58.50	7500	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	38.0	1.000
low	7486	14.30	7500	19.1	19.0	1.003
calibrator zero	7496	0.00	7496	0.0	0.0	n/a
					Average C.F.=	1.001

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	0.02%	± 3% F.S.
% change in C.F. from last cal=	4.78%	± 10%

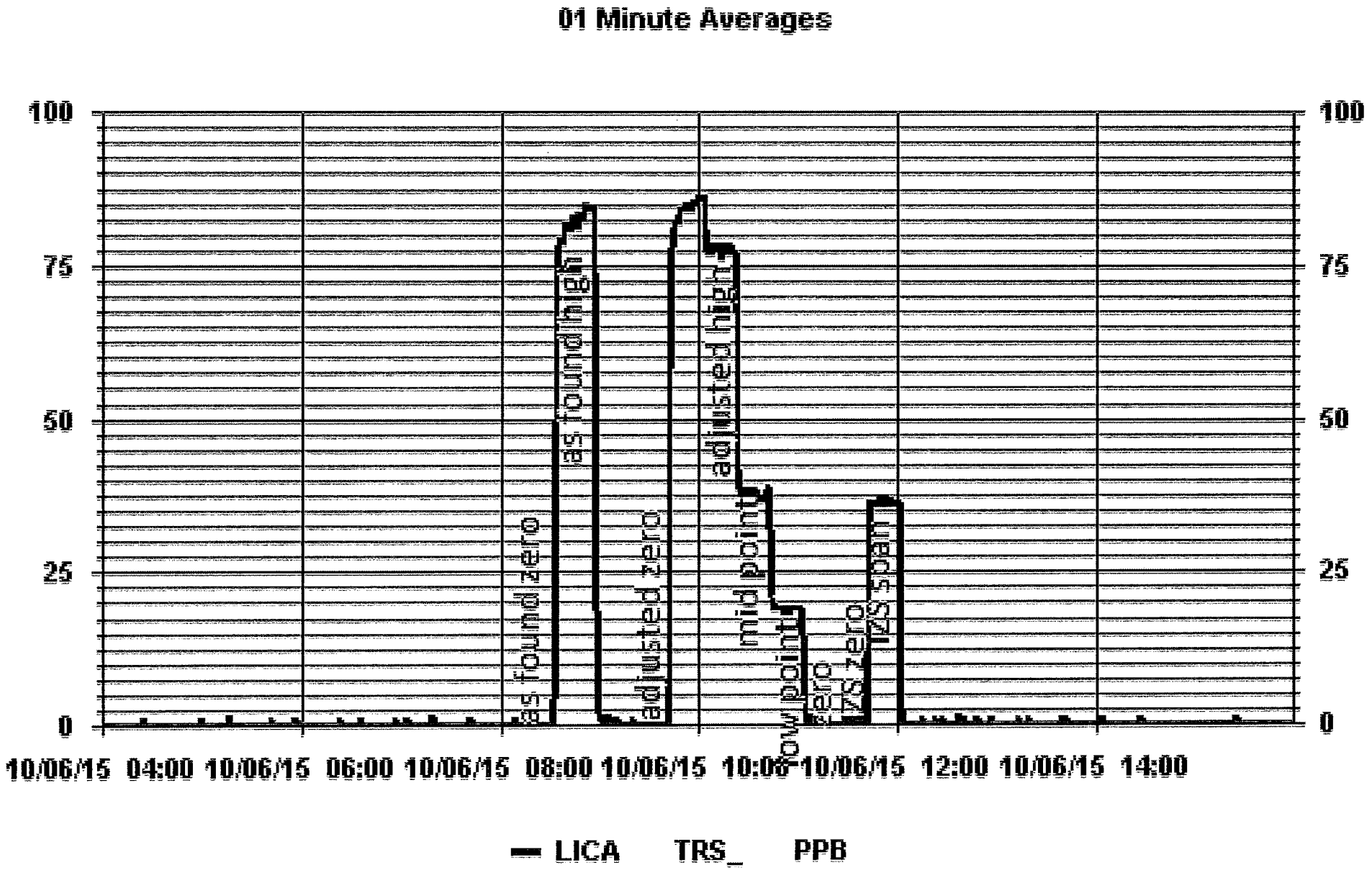
Thermo 450i Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
BKG:	14.6	BKG:	13.0
COEF:	1.047	COEF:	0.993
PMT:	-650.8	PMT:	-650.8
FLASH:	739	FLASH:	738
INTERNAL:	31.3	INTERNAL:	32.6
CHAMBER:	45.0	CHAMBER:	45.0
CONVERTER TEMP:	327.3	CONVERTER TEMP:	326.8
CONVERTER SET:	325.0	CONVERTER SET:	325.0
PERM OVEN GAS:	45.0	PERM OVEN GAS:	45.0
PERM OVEN HTR:	44.38	PERM OVEN HTR:	44.38
PRESSURE:	661.1	PRESSURE:	660.5
SAMPLE FLOW:	0.513	SAMPLE FLOW:	0.513
LAMP INTENSITY:	92	LAMP INTENSITY:	92
Internal Span:	39	Internal Span:	36.3

Comments:

Sample filter changed.


01 Minute Averages
100
75
50
25
0
as found zero
as found span
adjusted zero
adjusted high
mid point
low point
10/06/15 04:00
10/06/15 06:00
10/06/15 08:00
10/06/15 10:00
10/06/15 12:00
10/06/15 14:00
LICA
TRS_
PPB

TOTAL HYDROCARBON

Thermo 51C Total Hydrocarbon Analyzer Calibration

Date:	October 5, 2015	Barometric Pressure:	28.14 inHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly clear
Parameter:	Total Hydrocarbon	Calibration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	8:49 / 13:37	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	August 12, 2017

Analyzer:

Serial Number:	427408718	Range ppm:	50
Last Calibration Date:	September 23, 2015	As Found C.F.:	1.034
Previous Cal High Point C.F.:	1.000	New C.F.:	1.004

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	API 700	
Serial #:	830	
Cal Gas Cylinder I.D. # :	LL33674	
CH_4/C_3H_8 Cylinder Conc. (ppm):	601.4	202.0
CH_4 as propane/total CH_4 equivilants (ppm):	555.5	1156.9

Standard Calibration Points for a Range of: 50 ppm

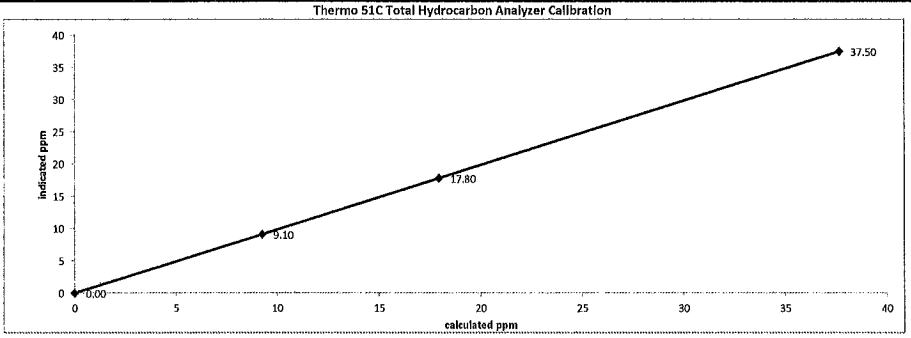
Point	Target ppm
High	38
Mid	18
Low	9

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

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1999	0.00	1999	0.0	-0.20	n/a
as found high	1932	65.00	1997	37.66	36.20	1.034
adjusted zero	1999	0.00	1999	0.00	0.00	n/a
adjusted high	1932	65.00	1997	37.66	37.50	1.004
mid	1969	31.00	2000	17.93	17.80	1.007
low	1984	16.00	2000	9.26	9.10	1.017
calibrator zero	1999	0.00	1999	0.0	0.00	n/a
					Average C.F.=	1.010

Linear Regression/Calibration Results:

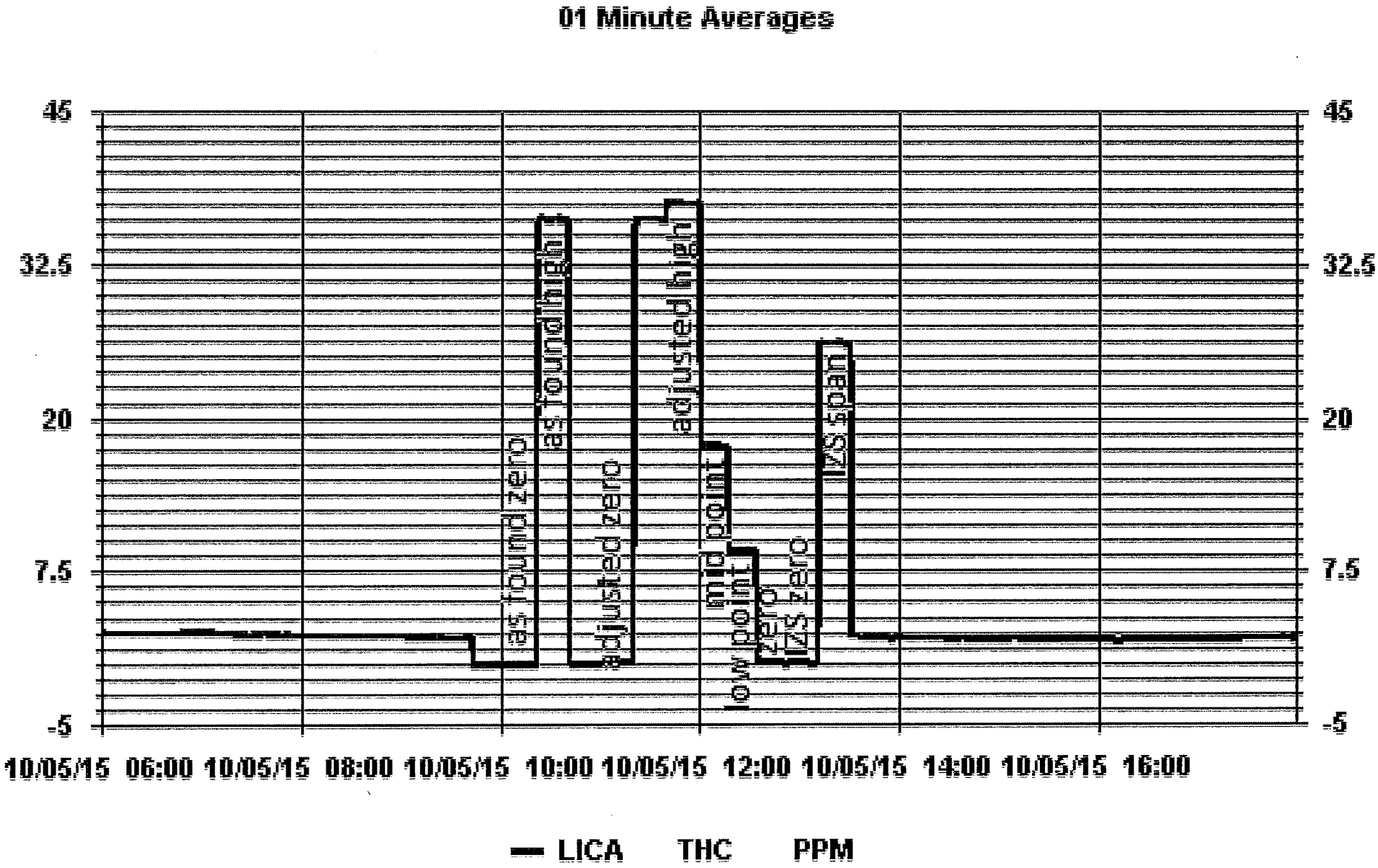
		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.003	.95-1.05
b (Intercept as % of full scale)=	0.12%	± 3% F.S.
% change in C.F. from last cal=	-3.45%	± 10%



As found:		As left:	
H2 cylinder (psi):	1800	H2 cylinder (psi):	1800
H2 cylinder reg set (psi):	22	H2 cylinder reg set (psi):	22
Span Cylinder (psi):	600	Span Cylinder (psi):	600
Span Cylinder Reg Set (psi):	30	Span Cylinder Reg Set (psi):	30
Zero Air Gen Pressure:	34	Zero Air Gen Pressure:	34
measurement alarms:	None	measurement alarms:	None
service alarms:	None	service alarms:	None
cnt:	1411	cnt:	1409
rng:	1	rng:	1
try:	0	try:	0
flm:	183.5	flm:	183.8
det:	125.4	det:	125.3
Flame:	183	Flame:	183
Filter:	125	Filter:	125
Base:	125	Base:	125
Sample psi:	06.51	Sample psi:	06.51
Internal Air Pressure:	20	Internal Air	20
Internal Fuel Pressure:	14	Internal Fuel Pressure:	14
Intenal Pressure Gauge psi:	26	Intenal Pressure Gauge psi:	26
Internal Span:	25.1	Internal Span:	26.0

Comments:

Sample filter changed.


01 Minute Averages
45
32.5
20
7.5
-5
as found zero
as found high
adjusted zero
adjusted high
low point
mid point
zero
span
10/05/15 06:00
10/05/15 08:00
10/05/15 10:00
10/05/15 12:00
10/05/15 14:00
10/05/15 16:00
LICA THC PPM

NITROGEN DIOXIDE

Thermo 42C NO-NO2-NOx Analyzer Calibration

Date:	October 5, 2015	Barometric Pressure:	28.14 in Hg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly clear
Start/End Time 24 hr. (mst):	8:49 / 14:48	Calibration Purpose:	routine monthly
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date:	March 12, 2019

Analyzer:

Serial Number:	427408716
Last Calibration Date:	September 23, 2015
Range ppb:	500

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	0.991	0.999
NO_2 =	1.000	1.000	1.000
NOx =	1.000	0.991	0.999

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	SABIO 2010 D	
Serial #:	11900613	
Cal Gas Cylinder I.D. # :	BLM002073	
NO/NOx Gas Conc. (ppm):	50.6	50.6

Standard Calibration Points for a Range of: 500 ppb

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

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	0.0	0.0	n/a	n/a
as found high	4976	37.7	5014	380.5	380.5	384.0	384.0	0.991	0.991
adjusted high	4976	37.70	5014	380.5	380.5	381.0	381.0	0.999	0.999
mid	4997	17.90	5015	180.6	180.6	181.0	181.0	0.998	0.998
low	5004	9.00	5013	90.8	90.8	91.0	91.0	0.998	0.998
callbrator zero	5012	0.00	5012	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.998	0.998

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

Callbrator Flow Rates (cc/min)				Callbrator 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	4976	37.70	5014	0.0	381.0	381.0	0.0	0.0	0.0	
as found high NO2	4976	37.70	5014	250.0	144.0	381.0	237.0	237.0	237.0	1.000
gpt mid	4976	37.70	5014	135.0	249.0	381.0	132.0	132.0	132.0	1.000
gpt low	4976	37.70	5014	45.0	332.0	380.0	48.0	49.0	48.0	1.021
									Average NO_2 C.F.=	1.007

Linear Regression/Calibration Results:

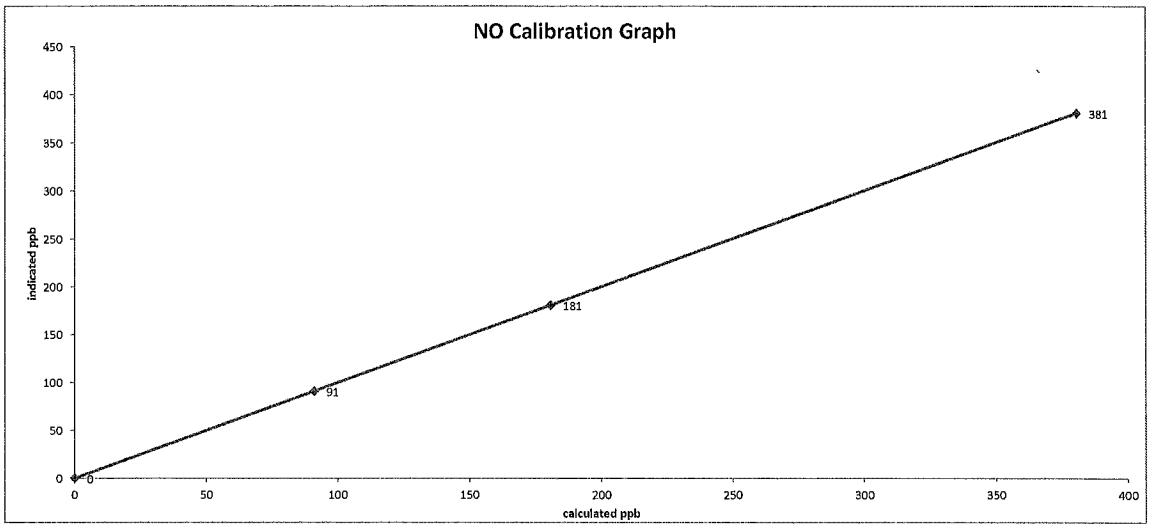
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	0.999	0.998	.95-1.05
b (Intercept as % of full scale)=	0.01%	0.01%	-0.09%	± 3% F.S.
% change in C.F. from last cal=	0.92%	0.92%	0.00%	± 10%
NO2 converter effeciency			1.00	0.96 to 1.04

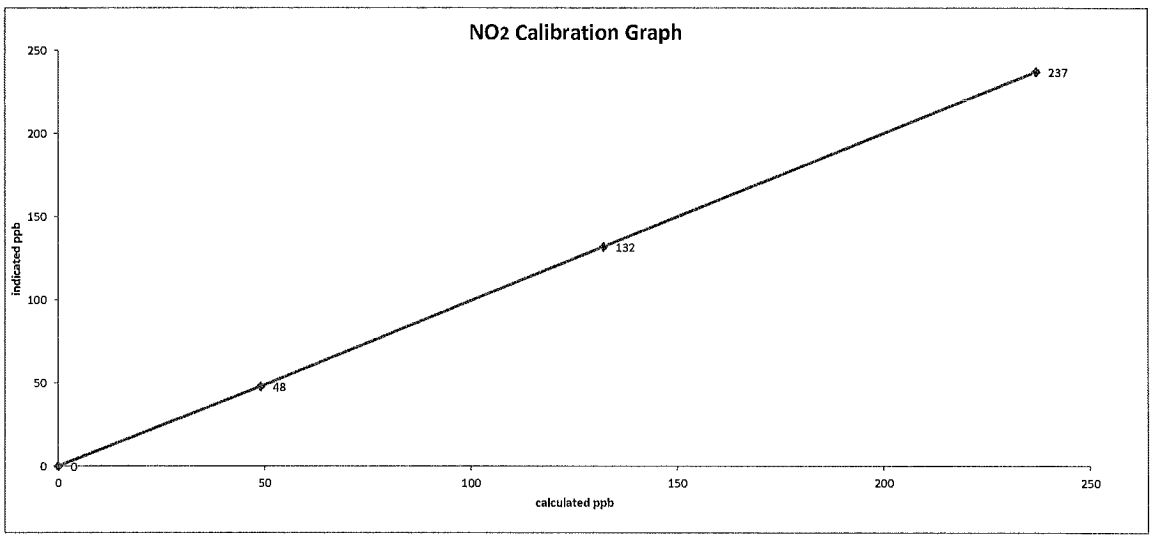
As found:		As left:	
NO Bkg ppb:	5.5	NO Bkg ppb:	5.5
NOx Bkg ppb:	5.7	NOx Bkg ppb:	5.7
NO Coef:	1.110	NO Coef:	1.100
NOx Coef:	1.013	NOx Coef:	1.014
NO2 Coef:	1.003	NO2 Coef:	1.003
PMT:	-850	PMT:	-850
Battery:	3.2	Battery:	3.2
Internal:	26.6	Internal:	26.8
Chamber:	49.6	Chamber:	49.6
Cooler:	-2.5	Cooler:	-2.5
Converter:	318	Converter:	317
Converter Set:	319	Converter Set:	319
Pressure:	206.9	Pressure:	211.4
Sample Flow:	0.493	Sample Flow:	0.485
Ozonator Flow:	OK	Ozonator Flow:	OK
Internal Span NO:	4.5	Internal Span NO:	4.0
Internal Span NO2:	264	Internal Span NO2:	275
Internal Span NOx:	269	Internal Span NOx:	279

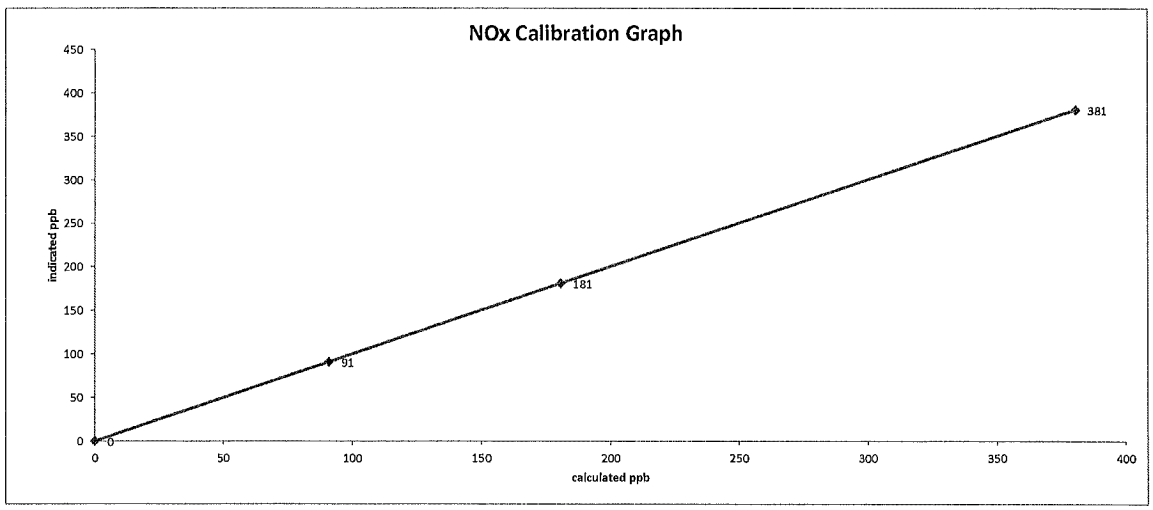
Comments:

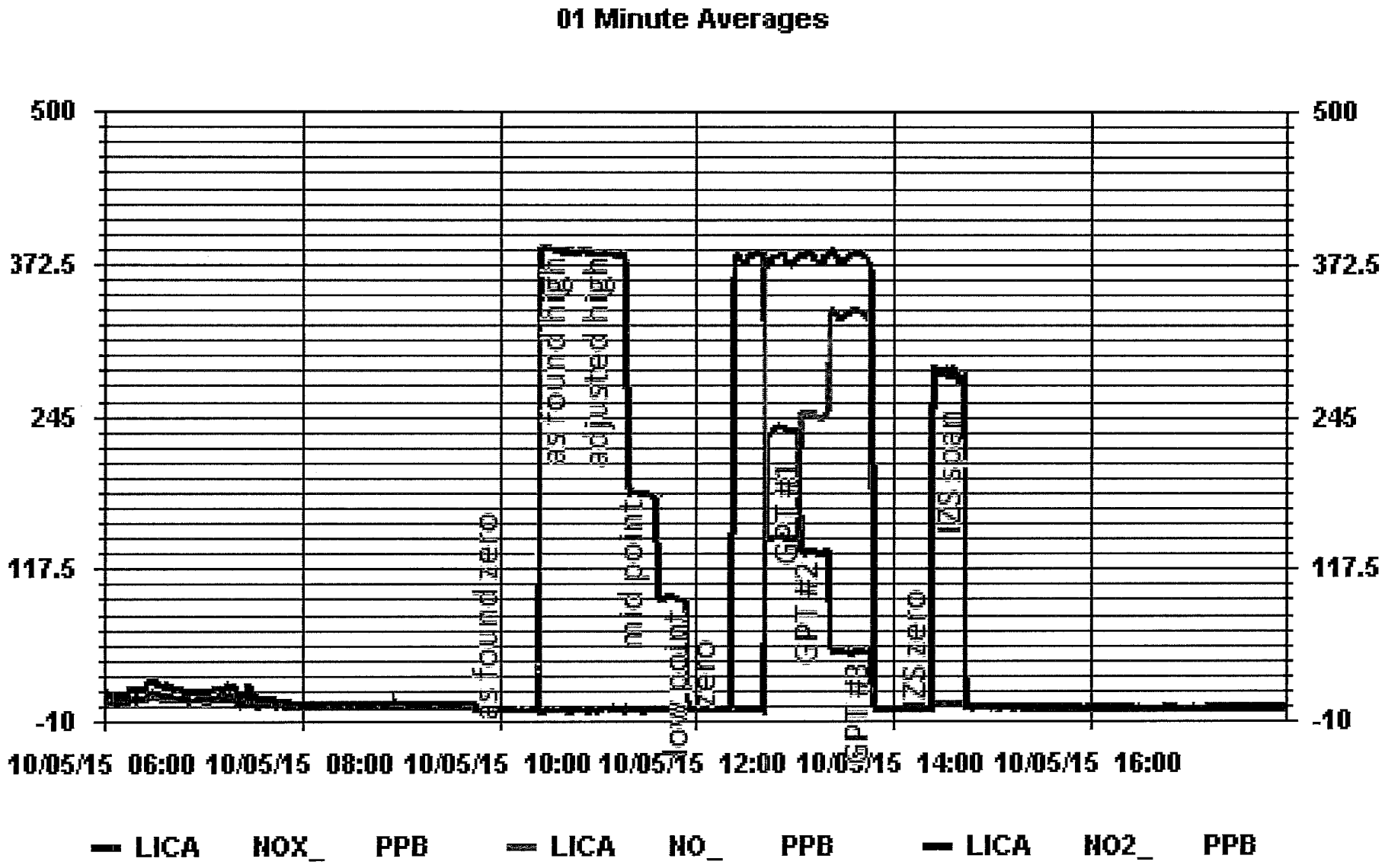
Sample filter changed. No ZERO adjustment made. No NO2 adjustment made.

Date:	October 5, 2015	Start/End Time 24 hr. (mst):	8:49 / 14:48
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Cold Lake South	Calibration Method:	Gas Dilution & Varying UV Lamp Power








01 Minute Averages
500
372.5
245
117.5
-10
as found zero
as found high
adjusted high
mid point
low point
zero
GPT #2
GPT #3
GPT #4
25 zero
125 span
10/05/15 06:00
10/05/15 08:00
10/05/15 10:00
10/05/15 12:00
10/05/15 14:00
10/05/15 16:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Thermo 42C NO-NO2-NOx Analyzer Calibration

Maxxam — A Bureau Veritas Group Company

Date:	October 28, 2015	Barometric Pressure:	0.939 atm
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	A few clouds
Start/End Time 24 hr. (mst):	9:35 / 11:35	Calibration Purpose:	as found
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date:	March 12, 2019

Analyzer:

Serial Number:	427408716
Last Calibration Date:	October 5, 2015
Range ppb:	500

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	0.999	0.949	n/a
NO_2 =	1.000	1.000	n/a
NOx =	0.999	0.949	n/a

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	SABIO 2010 D	
Serial #:	11900613	
Cal Gas Cylinder I.D. # :	BLM002073	
NO/NOx Gas Conc. (ppm):	50.6	50.6

Standard Calibration Points for a Range of: 500 ppb

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

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	0.0	0.0	n/a	n/a
as found high	4976	37.7	5014	380.5	380.5	401.0	401.0	0.949	0.949
							Average C.F.=	n/a	n/a

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	4976	37.70	5014	0.0	401.0	401.0	0.0	0.0	0.0	
as found high NO2	4976	37.70	5014	250.0	145.0	401.0	256.0	256.0	256.0	1.000
								Average NO_2 C.F.=		n/a

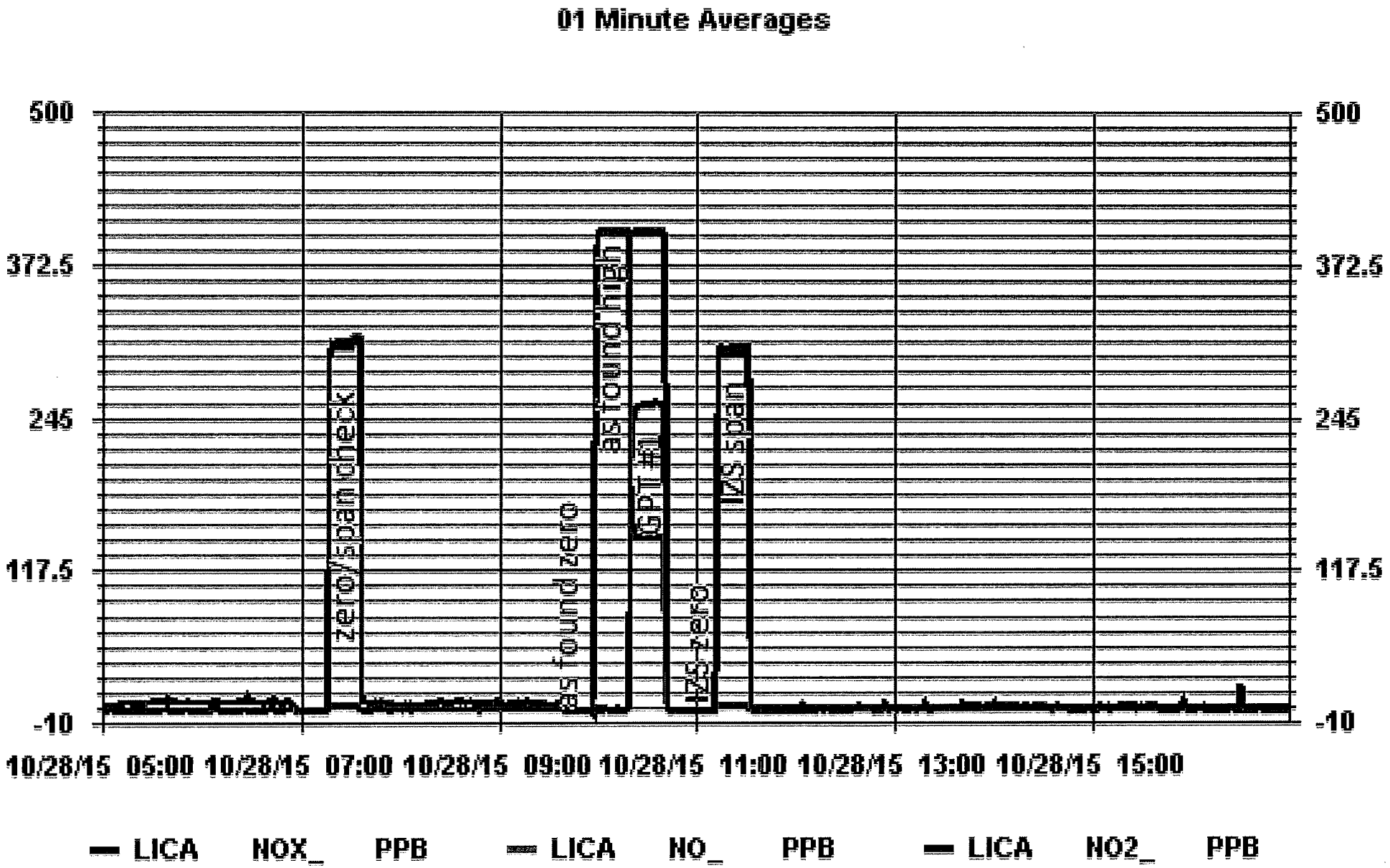
Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
% change in C.F. from last cal=	5.02%	0.00%	5.02%	± 10%
NO2 converter effeciency			1.00	0.96 to 1.04

As found:		As left:	
NO Bkg ppb:	5.5	NO Bkg ppb:	5.5
NOx Bkg ppb:	5.7	NOx Bkg ppb:	5.7
NO Coef:	1.100	NO Coef:	1.100
NOx Coef:	1.014	NOx Coef:	1.014
NO2 Coef:	1.003	NO2 Coef:	1.003
PMT:	-850	PMT:	-850
Battery:	3.2	Battery:	3.2
Internal:	26.7	Internal:	27.0
Chamber:	49.6	Chamber:	49.5
Cooler:	-2.5	Cooler:	-2.5
Converter:	317	Converter:	317
Converter Set:	319	Converter Set:	319
Pressure:	203.6	Pressure:	203.3
Sample Flow:	0.495	Sample Flow:	0.496
Ozonator Flow:	OK	Ozonator Flow:	OK
Internal Span NO:	4.0	Internal Span NO:	4.4
Internal Span NO2:	275	Internal Span NO2:	300.5
Internal Span NOx:	279	Internal Span NOx:	305.1

Comments:

As Found calibration. Reason: SPAN drift during Z5 check was over 10%. No ZERO adjustment made. No High point adjustment made. No NO2 adjustment made.


01 Minute Averages
500
372.5
245
117.5
-10
zero/span check
as found zero
as found high
GPT #1
IZS zero
IZS span
10/28/15 05:00 10/28/15 07:00 10/28/15 09:00 10/28/15 11:00 10/28/15 13:00 10/28/15 15:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

OZONE

Maxxam A Bureau Veritas Group Company — Thermo 49i Ozone Analyzer Calibration

Date:	October 6, 2015	Barometric Pressure:	28.19 inHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Clear
Start/End Time 24 hr. (mst):	7:43 / 12:23	Calibration Purpose:	routine monthly
Ozone Calibration Method:	Varying UV Lamp Power	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
G.P.T. Date:	n/a-done by Varying UV Lamp Power	Cal Gas Expiry Date:	n/a

Analyzer:

Serial Number:	700419951	Ozone Range ppb:	500
Last Calibration Date:	September 23, 2015	As Found C.F.:	1.008
Previous Cal High Point C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	n/a

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-75 ppb

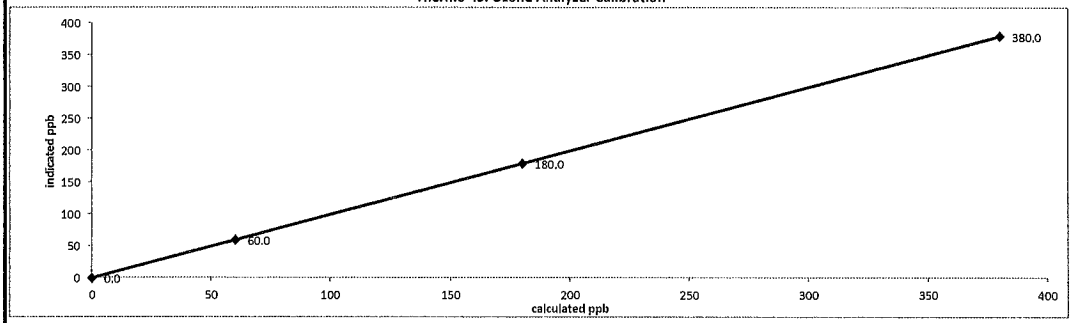
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Conentration:	Indicated Concentration:	Correction Factors:
Point	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	0.0	n/a
as found high	5013	5013	380.0	380.0	377.0	1.008
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	180.0	1.000
low	5013	5013	60.0	60.0	60.0	1.000
calibrator zero	5013	5013	0.0	n/a	0.0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	0.00%	± 3% F.S.
% change in C.F. from last cal=	-0.80%	± 10%

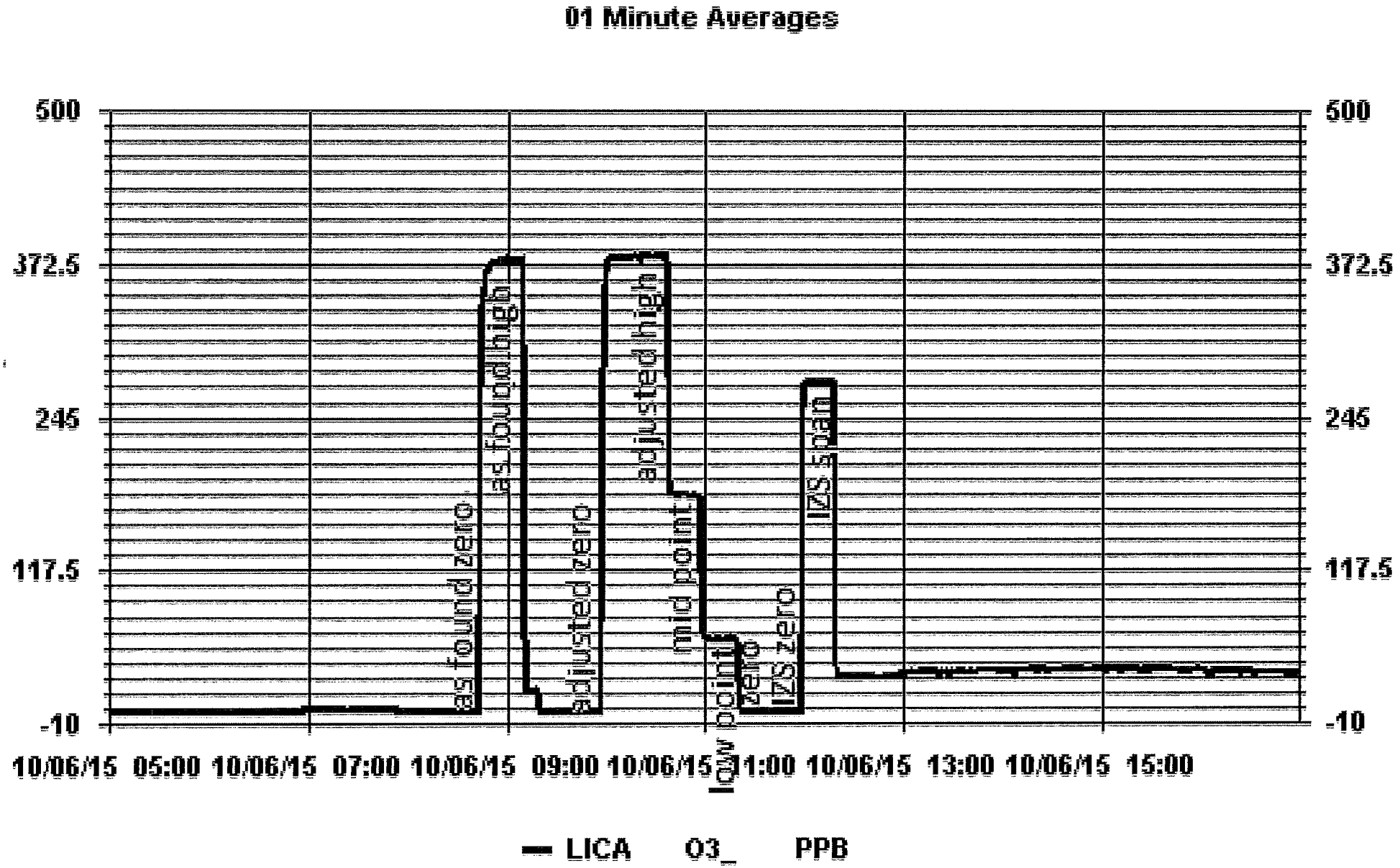
Thermo 49I Ozone Analyzer Calibration



As found:		As left:	
O3 Bkg:	0.4	O3 Bkg:	-0.1
O3 Coef:	1.004	O3 Coef:	1.007
Photo Lamp	8.7	Photo Lamp	8.7
O3 Lamp	9.0	O3 Lamp	9.0
Bench:	26.9	Bench:	28.2
Bench Lamp:	53.4	Bench Lamp:	53.5
O3 Lamp:	67.3	O3 Lamp:	67.3
Pressure:	707.1	Pressure:	706.2
Cell A lpm:	0.716	Cell A lpm:	0.716
Cell B lpm:	0.754	Cell B lpm:	0.754
O3 ppb:	-0.4	O3 ppb:	0.4
Cell A ppb:	5.3	Cell A ppb:	-14.3
Cell B ppb:	-6.1	Cell B ppb:	15.0
Cell A Int:	57865	Cell A Int:	57857
Cell B Int:	56305	Cell B Int:	56327
Internal Span:	266	Internal Span:	274

Comments:

Sample filter changed.


01 Minute Averages
500
372.5
245
117.5
-10
as found zero
as found high
adjusted zero
adjusted high
mid point
zero
span
10/06/15 05:00
10/06/15 07:00
10/06/15 09:00
10/06/15 11:00
10/06/15 13:00
10/06/15 15:00
LICA O3_ PPB

PARTICULATE MATTER

AIR FCD -00055/1

TEOM 1405F_1006_Bi-Monthly

Maxxam

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 6, 2015	**Performed By/Reviewer:**	Alex Yakupov / Trina Whitsitt
Company:	LICA	**Start Time (mst):**	11:42
Station Name/Location:	Cold Lake South	**End Time (mst):**	13:59
Previous Audit Date:	September 25, 2015	**Calibration Purpose:**	Bi-monthly #1
Parameter:	PM 2.5	**Weather Conditions:**	Mix of sun and clouds

1400A Information and Status:

Serial Number:	1405A201620804	**As Found Filter Loading %:**	29.20
Ko Factor:	14578	**As Left Filter Loading %:**	28.59
Ambient Temperature °C:	13.32	**As Found Noise:**	0.006
Ambient Pressure atm:	0.944	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.30
Aux Flow Reading lpm:	16.67	**Warnings:**	None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB 1291	FB 1291
Serial Number:	NA	130168457	130168457
Calibration Date:	NA	18-Mar-15	18-Mar-15

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	
Bypass Flow	actual	0.04	-0.10	0.04	-0.10
	limit	0.60		0.60	

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.16	0.02	0.16
	limit	0.15		0.15	
Bypass Flow	actual	0.07	-0.10	0.05	-0.10
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	13.3	**1405F pressure atm:**	0.944
reference temperature °C:	13.5	**reference pressure:**	0.944
difference °C:	0.2	**difference :**	0.000

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	13.5	**1405F pressure atm:**	0.944
reference temperature °C:	13.5	**reference pressure:**	0.944
difference °C:	0.0	**difference :**	0.000

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.01	**reference total/aux flow lpm:**	16.81
difference lpm:	0.01	**difference lpm:**	0.14

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.00	**reference total/aux flow lpm:**	16.76
difference lpm:	0.00	**difference lpm:**	0.09

K_o Audit:

Last K_o audit date:	16-Jul-15
1405F K_o factor:	14578
Measured K_o factor:	14760.7000
% difference:	1.25

Comments:

47 mm filter changed. A new sampling pump installed.

AIR FCD -00055/1

TEOM 1405F_1026_Bi-Monthly

Maxxam

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 26, 2015	**Performed By/Reviewer:**	Alex Yakupov / Trina Whitsitt
Company:	LICA	**Start Time (mst):**	10:28
Station Name/Location:	Cold Lake South	**End Time (mst):**	11:26
Previous Audit Date:	October 6, 2015	**Calibration Purpose:**	Bi-monthly #2
Parameter:	PM 2.5	**Weather Conditions:**	Mainly cloudy with clear breaks

1400A Information and Status:

Serial Number:	1405A201620804	**As Found Filter Loading %:**	35.74
Ko Factor:	14578	**As Left Filter Loading %:**	19.81
Ambient Temperature °C:	6.22	**As Found Noise:**	0.009
Ambient Pressure atm:	0.941	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.31
Aux Flow Reading lpm:	16.67	**Warnings:**	None

Reference Standards:

	Flow:	**Pressure:**	**Temperature:**
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB 1291	FB 1291
Serial Number:	n/a	130168457	130168457
Calibration Date:	n/a	18-Mar-15	18-Mar-15

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.03	0.15	0.02	0.16
	limit	0.15		0.15	
Bypass Flow	actual	0.09	-0.10	0.07	-0.10
	limit	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	0.16	0.02	0.16
	limit	0.15		0.15	
Bypass Flow	actual	0.09	-0.10	0.07	-0.10
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	6.2	**1405F pressure atm:**	0.941
reference temperature °C:	6.3	**reference pressure:**	0.941
difference °C:	0.1	**difference :**	0.000

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	6.3	**1405F pressure atm:**	0.941
reference temperature °C:	6.3	**reference pressure:**	0.941
difference °C:	0.0	**difference :**	0.000

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.00	**reference total/aux flow lpm:**	16.77
difference lpm:	0.00	**difference lpm:**	0.10

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.00	**reference total/aux flow lpm:**	16.77
difference lpm:	0.00	**difference lpm:**	0.10

K_o Audit:

Last K_o audit date:	16-Jul-15
1405F K_o factor:	14578
Measured K_o factor:	14760.7000
% difference:	1.25

Comments:

a TEOM sampling filter and 47 mm FDMS filter changed.

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: AJ2 **Inspection Date:** APR 0 3 2015

New Unit [ ] **Repair/Adjust** [X] **Re-Calibration** [X] **As Found** [ ]

Unit Within Tolerance as Found [ ] **Unit Within Tolerance as Left** [X]

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)
30	.084	30.3	.3	3.06	.059	2.96	-.1
60	.165	59.3	-.7	3.07	.059	2.94	-.13
120	.334	120.2	.2	3.08	.059	2.94	-.14
150	.415	149.5	-.5	3.07	.059	2.94	-.13
210	.583	210	0	3.08	.059	2.95	-.12
240	.668	240.3	.3	3.08	.06	2.98	-.1
300	.834	300.4	.4	3.07	.06	3.02	-.04
330	.916	329.8	-.2	3.09	.059	2.97	-.12

Output Type:

0 to 1 volt	X
0 to 2.5 volt	
0 to 5 volt	
RS-232	X
SDI-12	
RS-422	
RS-485	

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)
30	.081	29.3	-.7	11.79	.235	11.76	-.04
60	.165	59.5	-.5	11.85	.237	11.87	.01
120	.331	119.1	-.9	11.85	.236	11.81	-.03
150	.415	149.3	-.7	11.88	.236	11.8	-.08
210	.582	209.5	-.5	11.81	.236	11.79	-.02
240	.666	239.9	-.1	11.88	.235	11.73	-.16
300	.833	299.7	-.3	11.87	.235	11.73	-.13
330	.915	329.6	-.4	11.84	.238	11.9	.06

Test Items:

Array Alignment	✓
Jumper Config	✓
Firmware Config	✓
Zero Calibration	✓
Low Speed Test OK	✓
High Speed Test OK	✓
Sensor Function	✓
Physical Inspection	✓

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 hereon, 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

PARTISOL SAMPLER

AIR FCD -00055/1

~~Partisol_Audit~~

PARTISOL 2000

Date:	October 1, 2015	**Reference Standard:**	Streamline FTS / 091001	
Company:	LICA	**Reference Standard s/n:**	FB61291 / 130168457	
Station:	Cold Lake South	**Weather Conditions:**	Clear	
Parameter:	PM 2.5	**Start/End Time (mst):**	07:51/08:58	
Calibration Purpose:	routine monthly	**Performed By/Reviewer:**	Alex Yakupov	Tom Bourque

Sampler		**Instrument Data**	
Make/Model:	R & P	**Temperature (°C)**	11.7
Unit #	# 1517	**Pressure (ATM)**	0.94
S/N:	2000A204009710	**Set Flow (l/min)**	16.7

Calibration Constants

Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.001	NA	0.0008	NA	0.9915	NA
Temperature	11.7	NA			1.0007	NA
Pressure	0.943	NA			0.9939	NA
Flow	-0.10	NA	-0.0436	NA	0.9989	NA

Interface Board Calibration

Item	Acceptable	Pre Calibration	Post Calibration
R21	6.000 VDC (±0.05 V)	NA	NA
R44	10.000 VDC (±0.002 V)	NA	NA

Analog Input Calibration

Item	Acceptable	Pre Calibration	Post Calibration
"AO" Offset	0.050 - 0.150 VDC (±0.005 V)	NA	NA
"AO" Span	4.800 - 4.900 VDC (±0.002 V)	NA	NA

Temperature/Pressure Calibration

Reference Temperature: (±2 °C)	11.4	Δ °C	-0.3
Reference Pressure: (±0.02 ATM)	0.943	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	14.0	13.5	7	6.75

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	16.69

Other Checks:

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

Comments:

Calibration Performed By: Alex Yakupov

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-002A

Company Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	Sabio 2010D	Make/Model	N/A
Serial Number	11900613	Serial Number	N/A
Last Verification Date	NEW	Temperature (°C)	N/A
NO Cylinder S/N	BLM003914	Barometric Pressure	N/A
NO/NOX Concentration	50.8/50.8		

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5013	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	78.9	0.800	0.800	0.842	-0.016	0.826	5%	3%
5013	39.6	0.400	0.400	0.426	-0.008	0.418	6%	4%
5014	19.8	0.200	0.200	0.217	-0.004	0.213	8%	6%
					Absolute Average Percent Difference		7%	5%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0504	**0.90-1.10**	m (Slope)=	1.0304
b (Intercept % of FS)=	0.3600	**± 3% F.S.**	b (Intercept % of FS)=	0.3600

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5015	0.000	0.000	0.843	-0.017	0.826	NO_2	% Diff. Limit
5015	0.520	0.527	0.316	0.485	0.802	-5%	± 10%
5015	0.280	0.286	0.557	0.262	0.819	-2%	± 10%
5015	0.100	0.104	0.739	0.089	0.827	2%	± 10%
				Absolute Average Percent Difference		2%	± 10%

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

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9495	**0.90-1.10**
b (Intercept % of FS)=	-1.2915	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42I
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	April 1, 2015
		Full Scale (ppm)	1.0

COMMENTS: Cylinder contains 49.7 ppm SO2.

Auditor: Al Clark Date: April 1, 2015

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	API 700	Make/Model	N/A
Serial Number	830	Serial Number	N/A
Last Verification Date	Oct 2013	Temperature (°C)	N/A
SO_2 Cylinder Conc.	50.3	Barometric Pressure	N/A
SO_2 Cylinder S/N	LL42475		

Flow Measurements

Pt. No. 1 79.5 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
		Absolute Average Percent Difference	0%	± 10%

LINEAR REGRESSION ANALYSIS

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

SO_2		LIMITS
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9971	**0.90-1.10**
b (Intercept % of FS)=	0.0000	**± 3% F.S.**

AENV Standards		**SO_2 Analyzer**	
Audit Calibrator		Make/Model	Teco 43C
Make/Model	R&R MFC 201	Serial/AMU Number	AMU 1623
Serial/AMU Number	AMU 1690	Last Calibration Date	Dec 15/14
		Full Scale (ppm)	1.0

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamnation inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Form No. F-GAS-002
Version No. 1.1

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam **Operator's Name:** Limin Li

Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp.°C: 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
Last Calibration: Date: Mar 31/15 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	0.000			
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
				Average Cylinder Concentration:	**48.0**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **3.0**

Meets Manufacturer Tolerance, Use manufacturers stated concentration [ ] **COMMENTS:**

<=5% Outside Manufacturer Tolerance, Use manufacturers concentration [X]

> 5% Outside Manufacturer Tolerance, **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Form No. F-GAS-002
Version No. 1.1

Alberta Government

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	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.0000			
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 [X] COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

PRAXAIR

Praxair Canada, Inc.
9501-34th Street
Edmonton, AB T6B 2X6
Tel: 780-449-0778
Fax: 780-449-5302

03/27/2014

MAXXAM ANALYTICS INC "NA"
9372 49TH ST
EDMONTON AB T6B 2L7

Work Order No. 20248656
Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS

Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance~ID2ax/USA~~ Hewlett-Packard (Agilent)~6890~~GC-FID

Cylinder Style: AQ
Cylinder Pressure @70F: 2200 psig
Cylinder Volume: 82.0 ft3
Valve Outlet Connection: CGA-350
Cylinder No(s): LL33874

Filling Method: Gravimetric
Date of Fill: 03/28/2014
Expiration Date: 03/26/2017

Analyst: Todd Hryniw

The gas calibration [illegible] standard prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard prepared is certified against Praxair Canada, Inc. Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada or [illegible] NIST Standard Reference Materials where available.

[illegible]

[illegible]

[illegible]

[illegible]

Form No. F-GAS-003
Version No 1.1

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam **Operators name:** Limin Li

Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model	Teco 146i		
Serial Number	AMU 1809		
Last Verification Date	March 31, 2015		
Gas Type	NO	Conc.	48.79
Cylinder Number	CAL018024		

Flow Measurement Device:

Make/Model	Bios DC2
Serial Number	AMU 1659
Temp.°C	22.5 C
B.P.	690 mmhg

Reference Analyzer:

Make/Model	Teco 42i			Serial/AMU Number:	1868
Instrument Settings	Zero: 4.2		Span: 1.008	Range:	1.0
Last Calibration:	Date: Mar 31/15		C.F. 1.000	Done By:	Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
					Average Cylinder Concentration:	**52.0**	**51.3**

	NO	NOx
Previous Stated Concentration PPM:	50.6	50.6
Percent variance from Stated:	**2.8**	**1.4**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X] Contains 49.5 ppm SO2 in cylinder

> 5% Outside Manufacturer Tolerance, **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Location: McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

VOCS SAMPLES

Alberta Innovates Technology Futures
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Oct 3, 2015
CANISTER ID: 1685
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
1-Butene	I	0.08	ppbv	0.02	AC-058	17-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

Alberta Innovates Technology Futures
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Oct 3, 2015
CANISTER ID: 1685
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
3-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Acetone		2.9	ppbv	0.4	AC-058	17-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
Benzene	I	0.02	ppbv	0.01	AC-058	17-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Carbon disulfide		0.51	ppbv	0.01	AC-058	17-Oct-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	17-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Chloroethane	I	0.04	ppbv	0.02	AC-058	17-Oct-15
Chloroform	I	0.03	ppbv	0.02	AC-058	17-Oct-15
Chloromethane		0.69	ppbv	0.02	AC-058	17-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
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I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

Alberta Innovates Technology Futures
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ENVIRONMENTAL ANALYTICAL SERVICES

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REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.7	ppbv	0.3	AC-058	17-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Freon-11		0.30	ppbv	0.02	AC-058	17-Oct-15
Freon-113	I	0.08	ppbv	0.01	AC-058	17-Oct-15
Freon-114	I	0.02	ppbv	0.02	AC-058	17-Oct-15
Freon-12		0.68	ppbv	0.02	AC-058	17-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	17-Oct-15
Isobutane	I	0.06	ppbv	0.02	AC-058	17-Oct-15
Isopentane	I	0.08	ppbv	0.03	AC-058	17-Oct-15
Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	17-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	17-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
n-Butane	I	0.10	ppbv	0.03	AC-058	17-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Oct-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
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ENVIRONMENTAL ANALYTICAL SERVICES

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REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
n-Hexane	I	0.01	ppbv	0.01	AC-058	17-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	17-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Toluene	I	0.01	ppbv	0.01	AC-058	17-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
trans-2-Butene	I	0.02	ppbv	0.01	AC-058	17-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Oct 9, 2015
CANISTER ID: S5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	16-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	16-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
1-Butene	I	0.06	ppbv	0.02	AC-058	16-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
2,2,4-Trimethylpentane	I	0.06	ppbv	0.01	AC-058	16-Oct-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	16-Oct-15
2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	16-Oct-15
2,3-Dimethylbutane	I	0.06	ppbv	0.02	AC-058	16-Oct-15
2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	16-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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LABORATORY SAMPLE ID: 15100172-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Oct 9, 2015
CANISTER ID: S5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.01	ppbv	0.01	AC-058	16-Oct-15
2-Methylhexane	I	0.04	ppbv	0.01	AC-058	16-Oct-15
2-Methylpentane	I	0.15	ppbv	0.01	AC-058	16-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
3-Methylhexane	I	0.05	ppbv	0.02	AC-058	16-Oct-15
3-Methylpentane	I	0.09	ppbv	0.01	AC-058	16-Oct-15
Acetone		3.7	ppbv	0.4	AC-058	16-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
Benzene	I	0.08	ppbv	0.01	AC-058	16-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	16-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Chloroform	I	0.03	ppbv	0.02	AC-058	16-Oct-15
Chloromethane		0.67	ppbv	0.02	AC-058	16-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Cyclopentane	I	0.03	ppbv	0.01	AC-058	16-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15

Qualifiers

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		3.7	ppbv	0.3	AC-058	16-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	16-Oct-15
Freon-11	I	0.29	ppbv	0.02	AC-058	16-Oct-15
Freon-113	I	0.07	ppbv	0.01	AC-058	16-Oct-15
Freon-114	I	0.02	ppbv	0.02	AC-058	16-Oct-15
Freon-12		0.64	ppbv	0.02	AC-058	16-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	16-Oct-15
Isobutane		0.53	ppbv	0.02	AC-058	16-Oct-15
Isopentane		0.68	ppbv	0.03	AC-058	16-Oct-15
Isoprene	I	0.03	ppbv	0.01	AC-058	16-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
m,p-Xylene	I	0.08	ppbv	0.03	AC-058	16-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	16-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	16-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
Methylcyclohexane	I	0.08	ppbv	0.01	AC-058	16-Oct-15
Methylcyclopentane	I	0.07	ppbv	0.02	AC-058	16-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
n-Butane		1.06	ppbv	0.03	AC-058	16-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Oct-15

Qualifiers

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CANISTER ID: S5625
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DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
n-Hexane	I	0.14	ppbv	0.01	AC-058	16-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
n-Pentane		0.4	ppbv	0.1	AC-058	16-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
o-Xylene	I	0.03	ppbv	0.01	AC-058	16-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Toluene	I	0.20	ppbv	0.01	AC-058	16-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
trans-2-Pentene	I	0.03	ppbv	0.02	AC-058	16-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2015	17130	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100277-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	29-Oct-15
15100277-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-001	1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	1-Butene	I	0.04	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2,3-Dimethylbutane	I	0.04	ppbv	0.02	AC-058	29-Oct-15
15100277-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2015	17130	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Cold Lake South
REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-001	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2-Methylhexane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	2-Methylpentane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100277-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	3-Methylpentane	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Acetone		1.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-001	Benzene	I	0.18	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Carbon disulfide	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Chlorobenzene	I	0.06	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Chloroform	I	0.04	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Chloromethane		0.50	ppbv	0.02	AC-058	29-Oct-15
15100277-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Cyclohexane	I	0.07	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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LICA/VOC/CLS/Oct 15, 2015	17130	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-001	Cyclopentane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Ethanol		1.1	ppbv	0.3	AC-058	29-Oct-15
15100277-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Freon-11	I	0.20	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Freon-113	I	0.05	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Freon-12		0.46	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100277-001	Isobutane	I	0.19	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Isopentane	I	0.19	ppbv	0.03	AC-058	29-Oct-15
15100277-001	Isoprene	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Oct-15
15100277-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100277-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100277-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-001	Methylcyclohexane	I	0.07	ppbv	0.01	AC-058	29-Oct-15
15100277-001	Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2015	17130	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-001	n-Butane		0.32	ppbv	0.03	AC-058	29-Oct-15
15100277-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Oct-15
15100277-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	n-Hexane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100277-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	n-Pentane	I	0.1	ppbv	0.1	AC-058	29-Oct-15
15100277-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100277-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100277-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100277-001	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100277-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Toluene	I	0.03	ppbv	0.01	AC-058	29-Oct-15
15100277-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-001	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2015	17130	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2015	14719	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100333-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	29-Oct-15
15100333-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-001	1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	1-Butene	I	0.06	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	29-Oct-15
15100333-001	2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2015	14719	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-001	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2-Methylhexane	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100333-001	2-Methylpentane	I	0.07	ppbv	0.01	AC-058	29-Oct-15
15100333-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	3-Methylpentane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Acetone		1.5	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-001	Benzene	I	0.08	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Chloroform	I	0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Chloromethane		0.51	ppbv	0.02	AC-058	29-Oct-15
15100333-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2015	14719	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-001	Cyclopentane	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Ethanol		0.9	ppbv	0.3	AC-058	29-Oct-15
15100333-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Ethylbenzene	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Freon-11	I	0.22	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Freon-113	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Freon-12		0.49	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100333-001	Isobutane		0.46	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Isopentane		0.45	ppbv	0.03	AC-058	29-Oct-15
15100333-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Oct-15
15100333-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100333-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100333-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-001	Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100333-001	Methylcyclopentane	I	0.04	ppbv	0.02	AC-058	29-Oct-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2015	14719	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-001	n-Butane		0.95	ppbv	0.03	AC-058	29-Oct-15
15100333-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Oct-15
15100333-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	n-Hexane	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	n-Pentane	I	0.3	ppbv	0.1	AC-058	29-Oct-15
15100333-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100333-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100333-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100333-001	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	o-Xylene	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100333-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Toluene	I	0.09	ppbv	0.01	AC-058	29-Oct-15
15100333-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-001	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2015	14719	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2015	17114	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Nov-15
15110004-001	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	05-Nov-15
15110004-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-001	1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	05-Nov-15
15110004-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

Inquiries: (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2015	17114	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-001	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	2-Methylpentane	I	0.04	ppbv	0.01	AC-058	05-Nov-15
15110004-001	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	3-Methylpentane	I	0.02	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Acetone		0.8	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-001	Benzene		0.54	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Carbon disulfide	I	0.05	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Chloroform	I	0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Chloromethane		0.71	ppbv	0.02	AC-058	05-Nov-15
15110004-001	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Cyclohexane	I	0.03	ppbv	0.02	AC-058	05-Nov-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2015	17114	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-001	Cyclopentane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Ethanol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Freon-11	I	0.28	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Freon-113	I	0.05	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Freon-114	I	0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Freon-12		0.56	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	05-Nov-15
15110004-001	Isobutane	I	0.24	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Isopentane	I	0.14	ppbv	0.03	AC-058	05-Nov-15
15110004-001	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Nov-15
15110004-001	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	05-Nov-15
15110004-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Nov-15
15110004-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-001	Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	05-Nov-15
15110004-001	Methylcyclopentane	I	0.02	ppbv	0.02	AC-058	05-Nov-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2015	17114	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-001	n-Butane		0.34	ppbv	0.03	AC-058	05-Nov-15
15110004-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Nov-15
15110004-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	n-Hexane	I	0.05	ppbv	0.01	AC-058	05-Nov-15
15110004-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	05-Nov-15
15110004-001	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Nov-15
15110004-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Nov-15
15110004-001	Naphthalene		1.5	ppbv	0.5	AC-058	05-Nov-15
15110004-001	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Nov-15
15110004-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Toluene	I	0.03	ppbv	0.01	AC-058	05-Nov-15
15110004-001	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-001	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-001	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2015	17114	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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PAHS SAMPLES

Alberta Innovates Technology Futures
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 3, 2015
CANISTER ID: P13-01
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.08	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.03	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 3, 2015
CANISTER ID: P13-01
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.02	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

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AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 9, 2015
CANISTER ID: A13-02
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.16	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.31	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.06	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.14	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.12	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.30	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.07	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
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Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 9, 2015
CANISTER ID: A13-02
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Adewunmi Adekanmbi
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INVOICE: Charmaine Code 780 812-2182
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CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
LICA/PUF/CLS/Oct 15, 2015	TE-11	Air Filter	Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 15-Oct-15 0:00
REPORT CREATED: 24-Nov-15
DATE RECEIVED: 22-Oct-15
REPORT NUMBER: 15100277
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-002	1-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	2-Methylnaphthalene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Acenaphthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Acenaphthylene		0.09	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Anthracene		0.02	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(a)anthracene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Chrysene		0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 15, 2015	TE-11	Air Filter	15-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Fluorene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Naphthalene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Perylene		0.02	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Phenanthrene		0.08	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Pyrene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100277-002	Retene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Calgary
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INVOICE: Charmaine Code 780 812-2182
PO Box 8237
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Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
LICA/PUF/CLS/Oct 21, 2015	TE-09	Air Filter	Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 21-Oct-15 0:00
REPORT CREATED: 24-Nov-15
DATE RECEIVED: 28-Oct-15
REPORT NUMBER: 15100333
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-002	1-Methylnaphthalene		0.07	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	2-Methylnaphthalene		0.10	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Acenaphthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Anthracene		0.02	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(a)anthracene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Chrysene		0.02	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 21, 2015	TE-09	Air Filter	21-Oct-15 0:00

DESCRIPTION: Cold Lake South
REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Fluoranthene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Fluorene		0.11	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Naphthalene		0.09	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Perylene		0.15	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Phenanthrene		0.13	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Pyrene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100333-002	Retene		0.03	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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AB T2E 6P8

INVOICE: Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
LICA/PUF/CLS/Oct 27, 2015	TE-03	Air Filter	Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 27-Oct-15 0:00

REPORT CREATED: 24-Nov-15

DATE RECEIVED: 03-Nov-15

REPORT NUMBER: 15110004

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-002	1-Methylnaphthalene		0.12	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	2-Methylnaphthalene		0.19	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Acenaphthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(a)anthracene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Chrysene		0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 27, 2015	TE-03	Air Filter	27-Oct-15 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Fluorene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Naphthalene		0.08	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Perylene		0.20	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Phenanthrene		0.07	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Pyrene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15110004-002	Retene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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PARTISOL SAMPLES

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100118-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA P5010239
CANISTER ID:
DESCRIPTION: LICA Cold Lake South
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 22-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.004	mg	0.004	AC-029	14-Oct-15

Qualifiers

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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INVOICE TO:
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LABORATORY SAMPLE ID: 15100174-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA P5010246
CANISTER ID:
DESCRIPTION: LICA Cold Lake South
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 30-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.083	mg	0.004	AC-029	27-Oct-15

Qualifiers

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Adewunmi Adekanmbi
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4000, 19 St NE
Calgary
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INVOICE: Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	GROUP SAMPLE ID	PROJECT NUMBER
LICA P5010247		
STATION ID	**SAMPLER ID**	**Matrix**
	AY	Air Filter

STATION DESCRIPTION:

DATE SAMPLED: 15-Oct-15 0:00 **DATE RECEIVED:** 22-Oct-15
REPORT CREATED: 20-Nov-15 **REPORT NUMBER:** 15100275
VERSION: Version 01

AGENCY	MATRIX	TYPE	COLLECTION

Lab ID	Parameter	Qualifier	Result	Units	RDL	VMV	Method	Analysis Date
15100275-001	Particulate Weight		0.031	mg	0.004		AC-029	27-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: Friday, November 20, 2015 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Adewunmi Adekanmbi
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Calgary
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INVOICE: Charmaine Code 780 812-2182
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CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
LICA P5010249		Air Filter	Normal

DESCRIPTION: LICA Cold Lake South

DATE SAMPLED: 21-Oct-15 0:00
REPORT CREATED: 20-Nov-15
DATE RECEIVED: 28-Oct-15
REPORT NUMBER: 15100332
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100332-001	Particulate Weight		0.035	mg	0.004	AC-029	03-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: Friday, November 20, 2015

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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CLIENT SAMPLE ID	CANISTER ID	Matrix	Priority
LICA P5011117		Air Filter	Normal

DESCRIPTION: LICA Cold Lake South

DATE SAMPLED: 27-Oct-15 0:00
REPORT CREATED: 01-Dec-15
DATE RECEIVED: 03-Nov-15
REPORT NUMBER: 15110005
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110005-001	Particulate Weight		0.016	mg	0.004	AC-029	09-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: December-01-15

Inquiries: (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

APPENDIX V
CHAIN OF CUSTODY

Maxxam Analytics - Air Services Group
Project Chain of Custody

Client:	Lakeland Industry & Community Association	**Project #:**	2833-2015-10-01- C
Site:	Cold Lake South Site	**Contact:**	Mike Bisaga

QA Check Complete	[illegible]	**Date**	24-Nov-2015
QA Check Review	[illegible]	**Date**	24-Nov-2015
Report Complete	[illegible]	**Date**	01-Dec-2015
Report Reviewed	[signature]	**Date**	1-Dec-2015
Report Shipped		**Date**	

Notes

maxxam.ca

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Fax 403-219-3673

(REVISION)

AMBIENT AIR MONITORING MONTHLY DATA REPORT

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

ELK POINT AIRPORT SITE

JOB #:2833-2015-10-35- C

OCTOBER 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **January 19, 2016**

This report supersedes all previous reports with the same Maxxam project number.

Prepared by:

Wunmi Adekanmbi, M.Sc.
Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:

Lily Lin, B.Sc.
Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In OCTOBER 2015, 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 Bonnyville, Alberta. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the Project Coordinator.

This is a revised report. The lab results for the canister event that occurred on October 30 were not included in the previous issue. Maxxam has reviewed and revised the October 2015 report with updates on the NMHC canister lab results.

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

The operational uptime for all analyzers and meteorological system was above the 90% requirement, except Ozone (88.2%).

Ozone: Eighty-five hours of data were discarded due to the failure of the valve for the zero/span system. Operational uptime is 88.2%. AE reference #: 306216.

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							
						1-HOUR					24-HOUR		OPERATIONAL TIME (%)
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	2	30, 30	15, 16	6.3 4.5	SSW SW	0.4	9	100.0
H2S (PPB)	10	3	0	0	0	2	13, 19	14, 18	39 6.3	WNW ESE	1.0	1	100.0
THC (PPM)	-	-	-	-	2.6	7.3	8	9	5.2	E	4.3	19	100.0
CH4 (PPM)	-	-	-	-	2.6	6.5	6	3	1	S	4.3	19	100.0
NMHC (PPM)	-	-	-	-	0.01	2.90	8	9	5.2	E	0.18	8	100.0
NO2 (PPB)	159	-	0	-	8.8	25.1	7	20	6.3	WNW	14.2	19	100.0
NO (PPB)	-	-	-	-	3.8	53.9	19	7	0.6	NNE	19.0	19	100.0
NOX (PPB)	-	-	-	-	12.2	68	19	7	0.6	NNE	33.0	19	100.0
O3 (PPB)	82	-	0	-	15	37	1	15	15.4	ESE	25.4	14	88.2
PM2.5 (UG/M3)	-	30	-	0	4.0	44.0	5	7	3.4	ESE	9.1	2	98.9
VECTOR WS (KPH)	-	-	-	-	11.1	39.0	13	14	-	WNW	24.6	27	100.0
VECTOR WD (DEG)	-	-	-	-	S	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO_2 1- Hour Exceedences
No Exceedences Recorded During the Month

SO_2 24- Hour Exceedences
No Exceedences Recorded During the Month

H_2S 1- Hour Exceedences
No Exceedences Recorded During the Month

H_2S 24- Hour Exceedences
No Exceedences Recorded During the Month

NO_2 1- Hour Exceedences
No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences
No Exceedences Recorded During the Month

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
OCTOBER 3, 2015	1.7	ACETONE
OCTOBER 9, 2015	1.9	ETHANOL
OCTOBER 15, 2015	1.9	ACETONE
OCTOBER 21, 2015	1.6	ACETONE
OCTOBER 27, 2015	4.9	METHYL CHLORIDE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
OCTOBER 3, 2015	0.05	PHENANTHRENE
OCTOBER 9, 2015	0.16	PHENANTHRENE
OCTOBER 15, 2015	0.08	PHENANTHRENE
OCTOBER 21, 2015	0.16	PHENANTHRENE
OCTOBER 27, 2015	0.23	2-METHYL NAPHTHALENE

Note: NA

Volatile Organics (VOCs) Data Summary - NMHC Canister System

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
OCTOBER 6	21.1	ACETONE
OCTOBER 8	9.8	ACETONE
OCTOBER 30	11.6	ACETONE

Note: NA

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	Nitric Oxides	
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Appendix IV — **Analytical Results**
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1.0 Discussion

This monthly report consists of data for parameters SO2, H2S, THC, CH4, NMHC, NOx, NO, NO2, O3, PM2.5, WS and WD. It also includes results for non-continuous parameters VOC, PAH and NMHC canister.

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.

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.

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 15%).

Hourly data is corrected using daily zero information.

SULPHUR DIOXIDE (SO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 7.

HYDROGEN SULPHIDE (H2S)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 8.

TOTAL HYDROCARBONS (THC), METHANE (CH4), and NON-METHANE HYDROCARBONS (NMHC)
The analyzer was working well throughout the month. The routine monthly calibration was performed on October 8. The gas cylinders were replaced on October 1 and October 13.

NITROGEN DIOXIDE (NO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 7.

OZONE (O3)
The routine monthly calibration was performed on October 8. The analyzer did not return to sampling mode after the daily zero/span check on October 2. The valve was reset remotely on October 3. The valve got stuck again after the daily zero/span checks on October 9, October 18 and October 20. The issue was fixed remotely. On October 22, the zero/span calibration was reconfigured by adding an extra step, "Pause Phase", to avoid any future recurrenece of the valve failure. No further issues were identified. Eighty-five hours of data were discarded due to these stuck valve events. The operational uptime is 88.2%. AE reference #: 306216.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)
The Teom unit was working well throughout the month. Two audits were performed this month: one was completed on October 8, and the other audit was performed on October 22. Both the inlet filter and the FDMS filter were replaced during the audits. The pump was rebuilt on October 22. Data was corrected using Alberta Air Quality Guidelines. 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. Eight 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.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs were reported in ppb.
Samples were collected on October 3, 9, 15, 21 and 27. Analytical results are included in this report.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported in µg.
Samples were collected on October 3, 9, 15, 21 and 27. Analytical results are included in this report.

NMHC CANISTER SAMPLES

The sampler is triggered when the 5-min average concentration of NMHC is above 0.30ppm.
Three canister events were recorded this month: concentrations of 0.3ppm on October 6 at 03:00, 12.6ppm on October 8 at 08:55 and 0.3ppm on October 30 at 06:45. 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 team consisted of Alexander Yakupov and Christopher Wesson.

3.0 Plant Monthly Required AMD Summary

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

The operational uptime for all analyzers and meteorological system was above the 90% requirement, except Ozone (88.2%).

4.0 Calculations and Results

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

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/NOx 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 - API 100E UV Flourescent Analyzer
Hydrogen Sulphide - API 101E UV Flourescent Analyzer
Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
Ozone - Thermo 49i Photometric Analyzer
Particulate Matter (PM2.5) - R&P 1405F Teom Unit
Wind System - RM Young Unit
Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

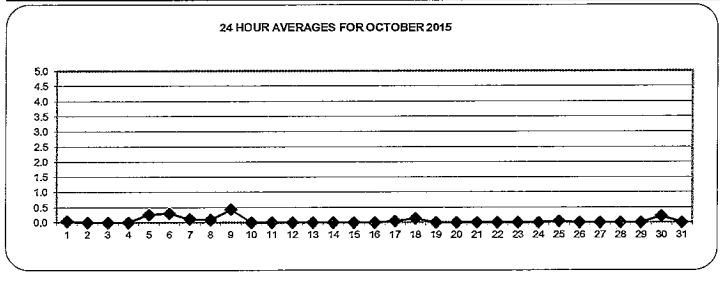
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	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	24
3	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	24
4	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
5	0	0	0	S	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3	24
6	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0.3	24
7	1	S	0	0	0	0	0	0	0	0	C	C	C	C	C	1	0	0	0	0	0	0	0	0	1	0.1	24
8	S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.1	24
9	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	S	0	1	*0.4*	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0	24
11	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
12	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	24
13	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
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24
15	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
16	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	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	1	0.0	24
18	0	0	1	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1	24
19	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	24
20	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	S	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	S	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	S	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	S	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	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0	24
26	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	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	24
29	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	*2*	*2*	1	0	0	0	0	0	0	*2*	0.2	24
31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
HOURLY MAX	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1			
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	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1			

STATUS FLAG CODES

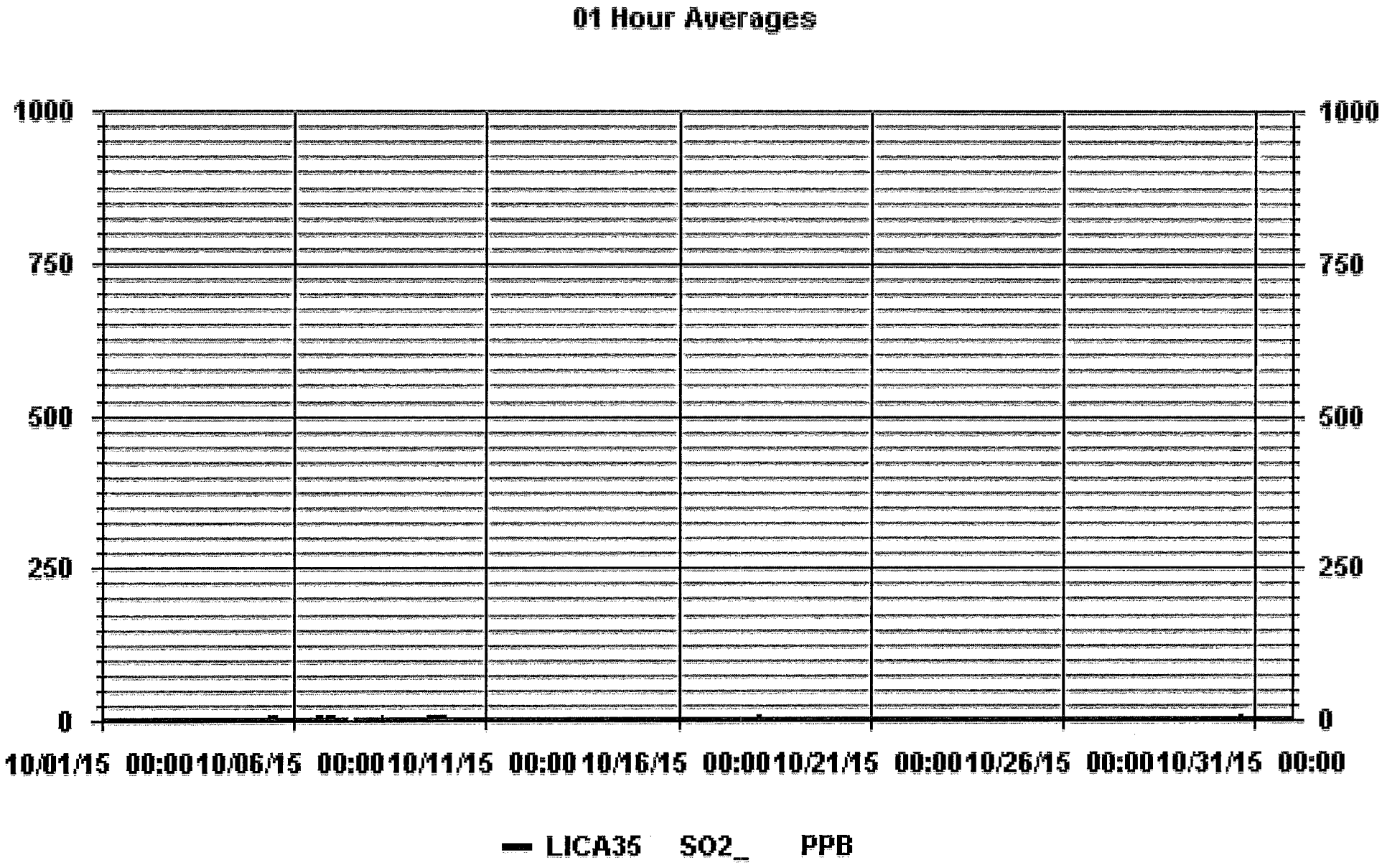
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	36						
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	15 , 16	ON DAY(S)	30 , 30	
MAXIMUM 24-HR AVERAGE:	0.4	PPB			ON DAY(S)	9	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CAUBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE:			0	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 SO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

SULPHUR DIOXIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	1	1	0	0	0	0	S	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1.3	24
2	1	1	1	2	2	2	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
3	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
4	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
5	1	1	1	S	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1.5	24
6	1	1	S	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	24
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8	S	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	1.8	24
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12	0	1	0	0	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	S	1	1	0	1	1	0.6	24
13	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	0.3	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	0	0	0	0	1	0.8	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	0.3	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	2	2	2	2	2	2	1.3	24
17	2	2	2	2	2	2	2	2	2	2	1	2	1	1	S	1	1	2	2	2	2	2	2	2	2	1.8	24
18	2	2	2	2	2	2	2	2	2	2	2	2	2	S	0	0	0	0	1	1	1	1	1	1	2	1.4	24
19	1	1	1	1	1	1	1	2	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
20	1	1	0	1	1	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
21	1	1	1	1	1	1	2	1	1	1	S	1	2	1	2	2	1	1	2	2	2	2	2	2	2	1.4	24
22	2	2	2	2	2	2	2	2	2	S	0	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.9	24
23	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
24	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
25	1	1	1	1	1	1	S	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	2	1.2	24
26	1	1	1	1	1	S	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1.4	24
27	2	2	2	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
28	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	1.1	24
29	2	2	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	1.3	24
30	2	S	1	1	1	1	1	1	1	1	1	2	2	2	2	*4*	*4*	3	1	1	1	1	1	1	*4*	1.6	24
31	S	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	1	1	1	S	1	0.8	24
HOURLY MAX	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	3	3	2	2	2	2	2			
HOURLY AVG	1.0	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.0	1.0	0.9	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1.2	1.1	1.2	1.1	1.0	1.0			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 539

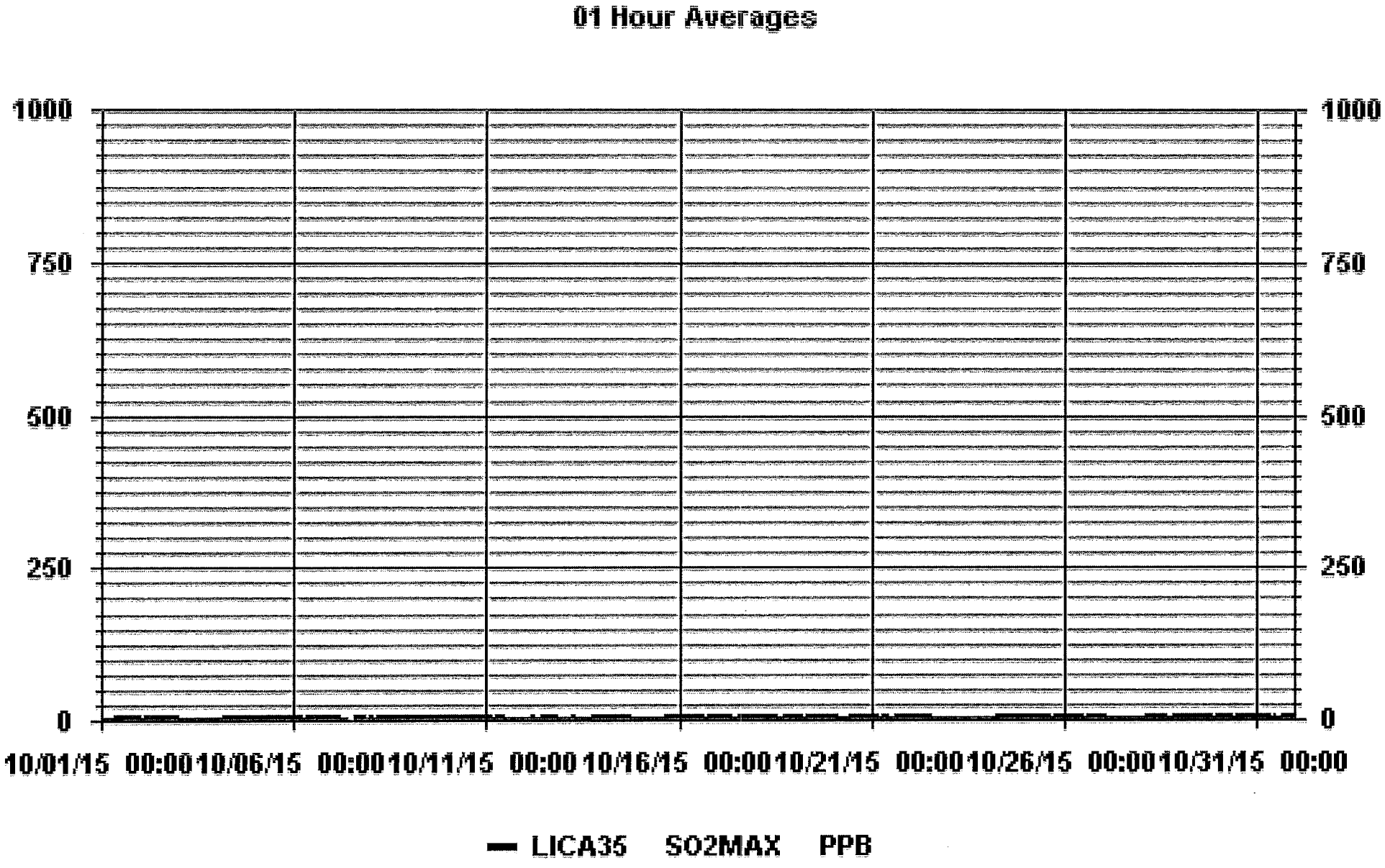
MAXIMUM INSTANTANEOUS VALUE: 4 PPB @ HOUR(S) 15, 16 ON DAY(S) 30, 30

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 0.74


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 SO2MAX PPB

LICA-ELK
SO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	1.84	.84	.70	1.41	9.06	18.13	8.07	2.83	1.84	1.98	2.69	11.18	12.74	15.58	6.79	4.24	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.84	.84	.70	1.41	9.06	18.13	8.07	2.83	1.84	1.98	2.69	11.18	12.74	15.58	6.79	4.24	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	13	6	5	10	64	128	57	20	13	14	19	79	90	110	48	30	706
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	48	30	

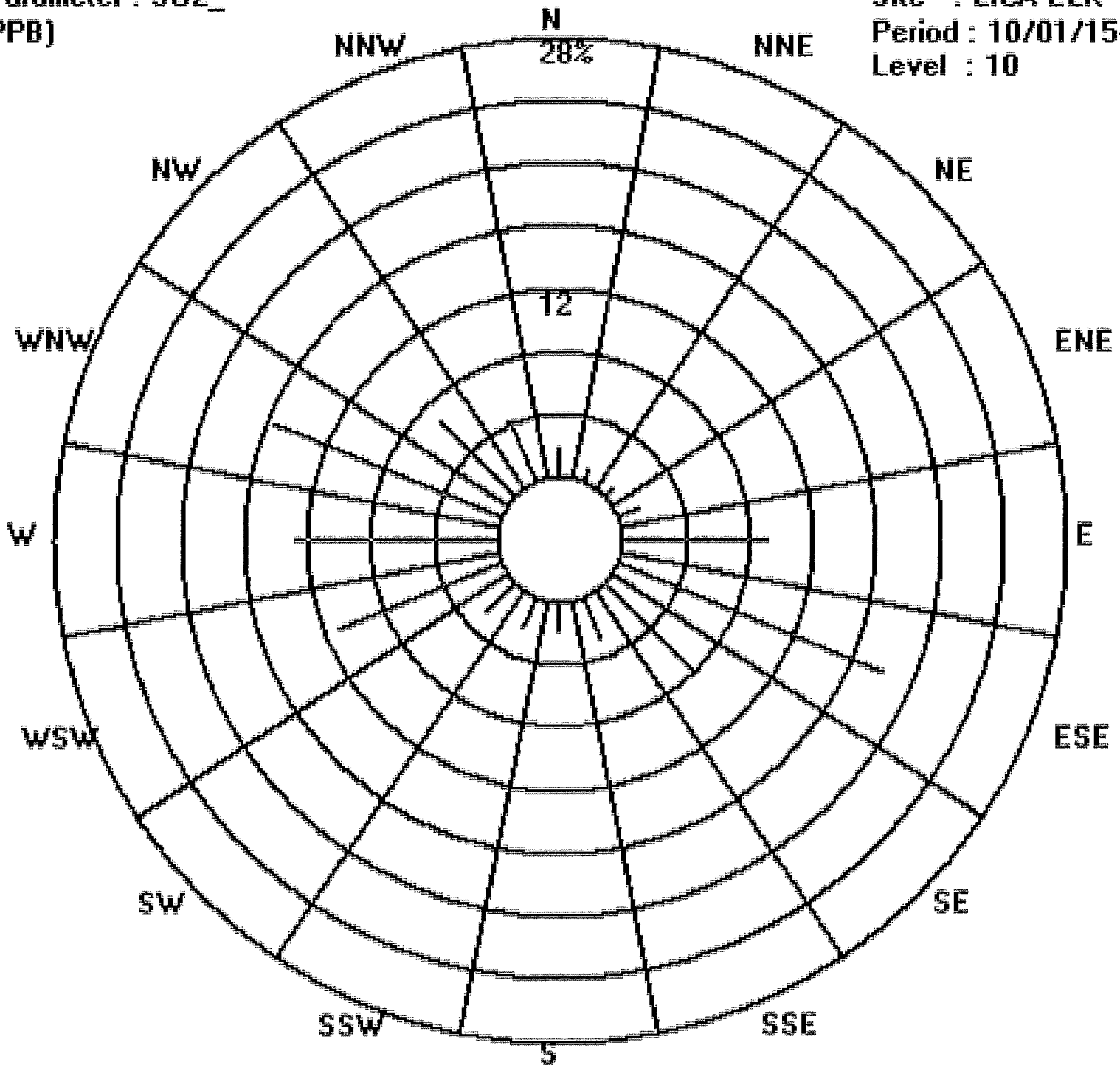
Calm : .00 %

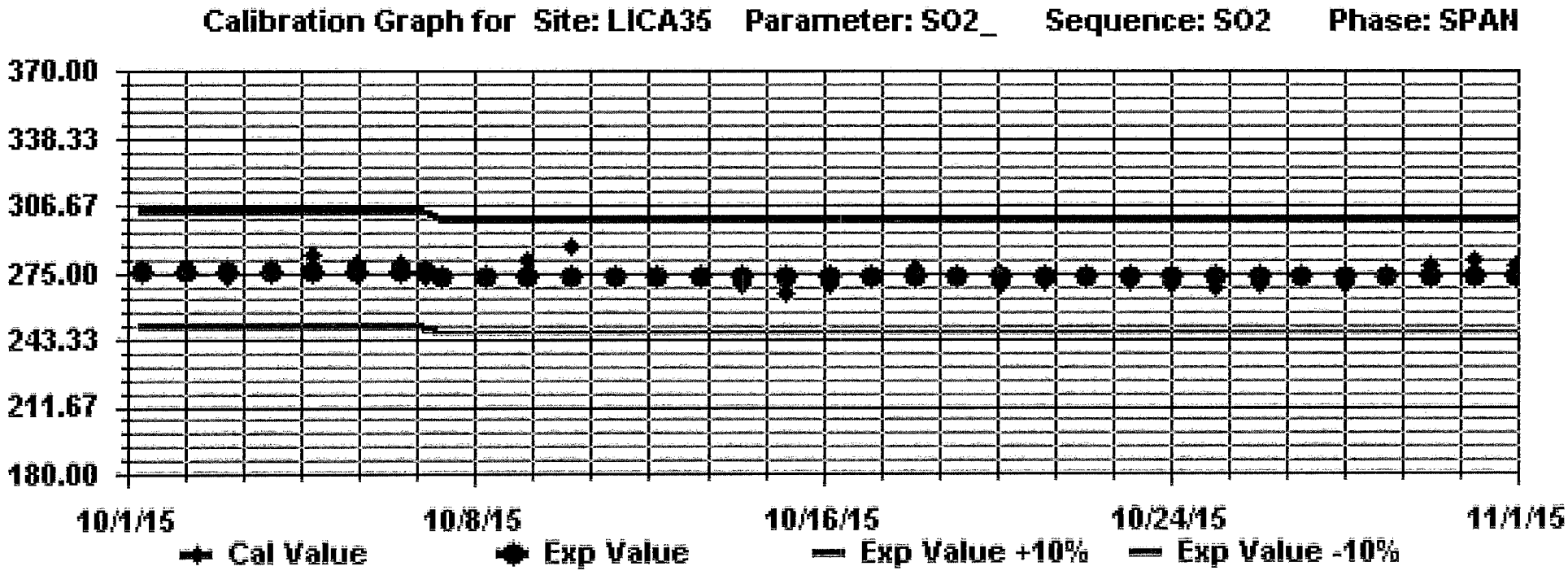
Total # Operational Hours : 706

Logger : 35 Parameter : SO2_
Class Limits (PPB)

>=	340
<	340
<	170
<	110
<	60
<	20

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN
370.00
338.33
306.67
275.00
243.33
211.67
180.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

HYDROGEN SULPHIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

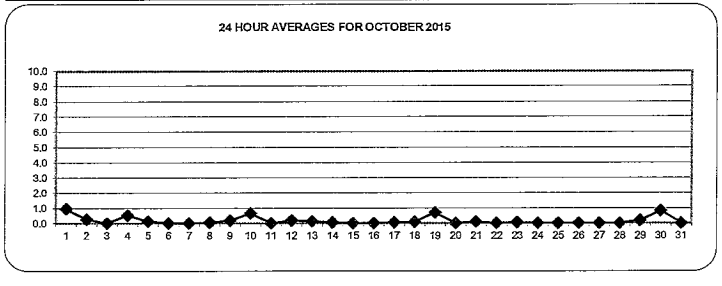
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	*1.0*	24
2	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
3	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	24
4	0	0	0	0	S	0	0	0	1	0	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	0.5	24
5	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
6	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
7	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	24
8	S	0	0	0	0	0	1	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	S	1	0.1	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	S	1	1	0.2	24
10	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	1	1	1	1	S	0	0	1	0.7	24
11	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
12	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.2	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*2*	0	0	0	S	0	0	0	0	0	*2*	0.1	24
14	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.0	24
15	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
16	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	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	0	0	1	0.0	24
18	0	0	0	1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	0.1	24
19	1	1	1	1	1	1	1	1	1	0	1	1	S	0	0	0	0	1	*2*	1	1	0	0	0	*2*	0.7	24
20	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
21	1	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
22	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	24
23	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
24	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	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	24
29	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	1	0.2	24
30	0	S	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1			
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2			

STATUS FLAG CODES

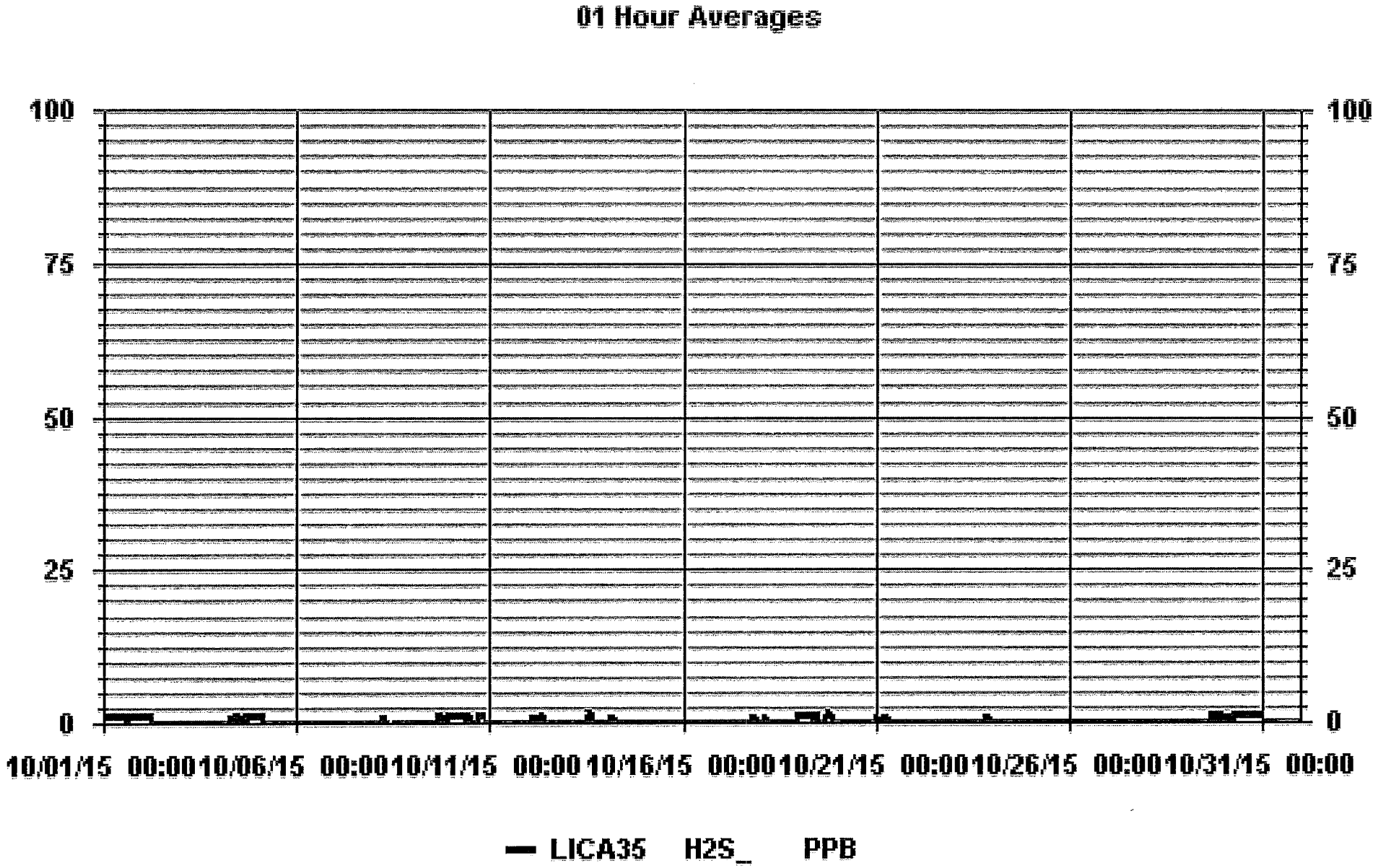
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	114					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	14 , 18	ON DAY(S)	13 , 19
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.38		MONTHLY AVERAGE:		0	PPB


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 H2S_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

HYDROGEN SULPHIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	S	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1.2	24
2	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
3	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	24
4	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
5	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
6	0	0	S	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
7	0	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
8	S	0	0	0	0	0	1	1	1	C	C	C	C	0	0	0	0	0	0	0	0	0	0	S	1	0.2	24
9	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	S	1	1	0.6	24
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	1	0.9	24
11	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.0	24
12	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	S	1	0	0	0	1	0.8	24
13	0	0	1	1	0	1	1	0	1	0	0	0	0	0	4	4	0	0	0	S	0	0	0	0	4	0.6	24
14	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	4	0.3	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	S	2	0	0	1	1	0	3	0.3	24
16	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	S	0	0	0	0	0	1	1	1	0.2	24
17	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	S	1	0	0	0	1	1	1	1	1	0.4	24
18	1	1	1	1	1	1	1	1	0	0	0	0	0	0	S	0	1	0	0	0	1	0	0	1	1	0.5	24
19	1	1	1	1	1	1	2	1	2	1	2	2	S	1	1	0	1	1	4	2	2	1	0	0	4	1.3	24
20	0	0	1	0	1	0	0	0	0	0	1	S	0	0	0	0	0	0	1	0	0	0	0	0	1	0.2	24
21	5	1	1	0	1	1	1	1	0	0	S	0	0	0	1	0	0	0	0	0	0	0	0	1	1	5	0.6	24
22	1	0	0	1	1	0	0	0	0	S	0	0	0	0	0	0	0	2	0	1	0	0	0	1	2	0.3	24
23	0	0	0	0	0	0	1	0	S	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	0.3	24
24	0	1	1	0	0	0	1	S	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0.2	24
25	1	1	1	1	1	1	S	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.5	24
26	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0.2	24
27	1	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.1	24
28	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	0.2	24
29	1	1	S	0	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.8	24
30	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
HOURLY MAX	5	3	1	1	4	1	2	1	2	2	2	2	1	4	4	1	1	2	4	2	2	1	2	2			
HOURLY AVG	0.6	0.5	0.4	0.4	0.6	0.5	0.5	0.3	0.5	0.4	0.4	0.3	0.2	0.4	0.6	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 272

MAXIMUM INSTANTANEOUS VALUE: 5 PPB @ HOUR(S) 0 ON DAY(S) 21

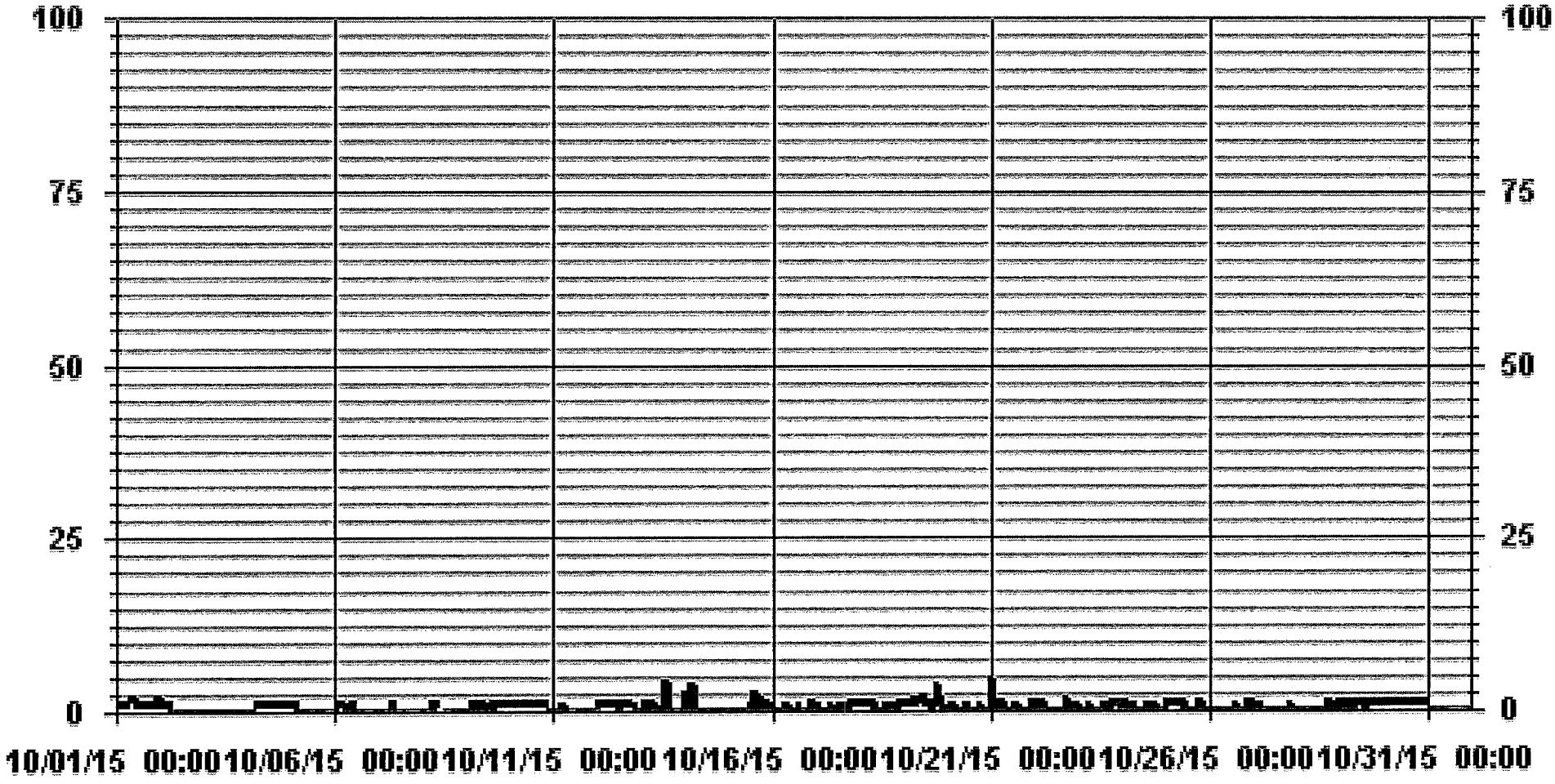
VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 4 HRS

STANDARD DEVIATION: 0.63

01 Hour Averages



LICA-ELK
H2S_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	1.83	.84	.70	1.41	8.91	17.82	7.92	2.82	1.83	1.98	2.68	11.17	12.72	15.70	7.35	4.24	100.00
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.83	.84	.70	1.41	8.91	17.82	7.92	2.82	1.83	1.98	2.68	11.17	12.72	15.70	7.35	4.24	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	13	6	5	10	63	126	56	20	13	14	19	79	90	111	52	30	707
<	10																	
<	50																	
>=	50																	
	Totals	13	6	5	10	63	126	56	20	13	14	19	79	90	111	52	30	

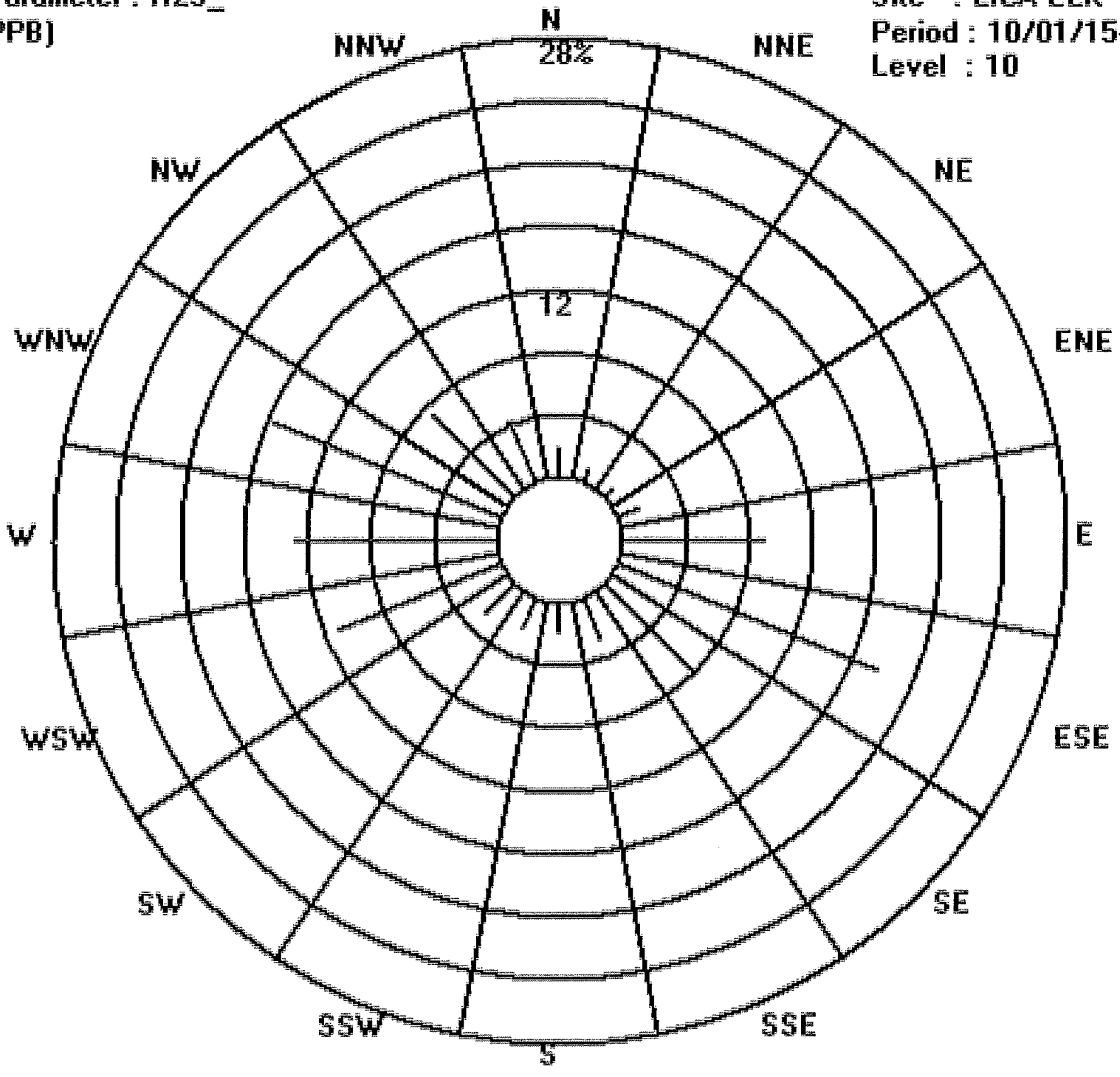
Calm : .00 %

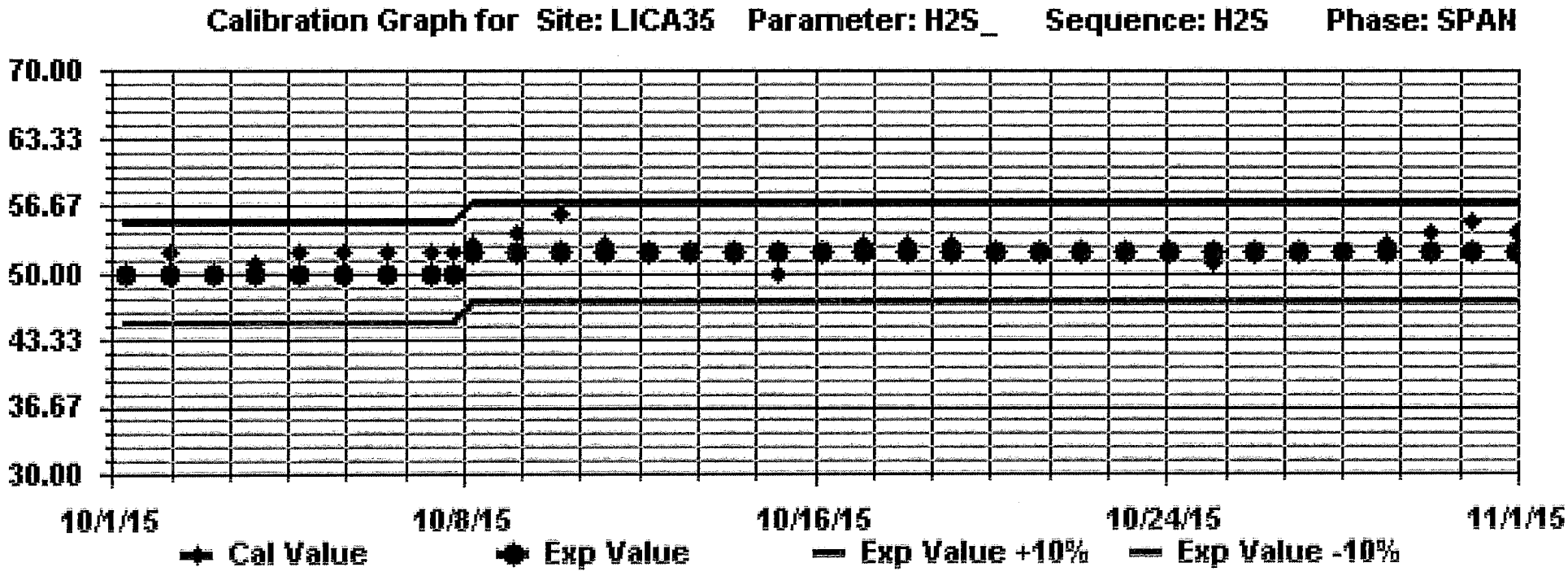
Total # Operational Hours : 707

Logger : 35 Parameter : H2S_
Class Limits (PPB)

>=	50	
<	50	
<	10	
<	3	

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN
70.00
63.33
56.67
50.00
43.33
36.67
30.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

TOTAL HYDROCARBON

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

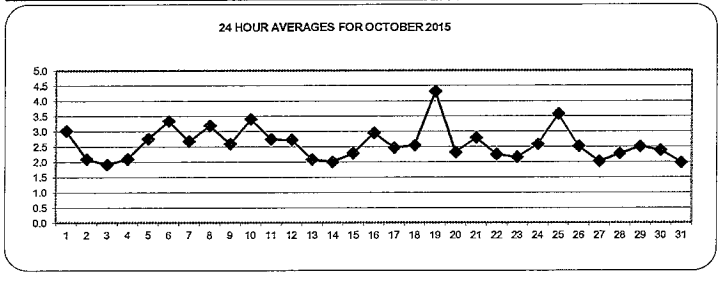
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.9	3.2	3.4	3.8	4.0	4.3	4.5	S	4.0	4.0	3.3	2.8	2.6	2.3	2.3	2.2	2.1	2.2	2.9	2.9	2.4	2.3	2.4	2.4	4.5	3.0	24
2	2.4	2.3	2.2	2.2	2.2	2.1	S	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.9	2.4	2.1	24
3	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
4	1.9	1.9	1.9	1.9	S	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.3	2.5	2.9	2.9	2.4	2.9	2.1	24
5	2.4	2.5	2.5	S	3.9	4.3	4.8	4.3	3.9	3.0	2.5	2.4	2.0	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.4	2.5	3.1	4.8	2.7	24
6	3.9	3.3	S	6.7	5.8	5.3	5.0	4.7	5.0	4.5	3.6	2.8	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	6.7	3.3	24
7	2.5	S	2.5	2.4	2.5	2.7	3.5	4.3	3.3	2.6	C	C	C	C	2.0	2.0	2.0	2.0	2.3	2.7	2.7	2.4	2.7	3.6	4.3	2.7	24
8	5	3.6	3.1	3.5	3.1	3.1	3.3	3.7	5.7	*7.3*	3.6	3.1	2.6	2.2	2.2	2.2	2.1	2.4	2.7	2.6	2.5	2.6	2.8	S	*7.3*	3.2	24
9	2.8	2.8	2.8	2.9	2.8	3.0	2.9	2.5	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.3	2.6	2.9	3.0	3.0	2.8	3.0	S	3.7	3.7	2.6	24
10	3.6	5.2	4.9	5.8	4.8	5.0	4.5	4.2	4.1	3.4	3.5	2.3	2.0	1.9	1.9	1.9	2.0	2.1	2.2	2.4	2.9	S	3.7	3.7	5.8	3.4	24
11	4.1	4.3	4.1	4.3	4.5	5.2	3.3	2.4	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	S	2.1	2.4	2.3	5.2	2.7	24
12	2.6	3.0	3.3	3.4	3.8	3.6	3.9	3.6	3.2	3.1	2.9	2.4	2.0	2.0	2.0	2.1	2.0	2.1	2.2	S	2.7	2.3	2.1	2.1	3.9	2.7	24
13	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	S	2.3	2.4	2.3	2.2	2.3	2.4	2.1	24
14	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	2.0	2.1	2.0	2.4	2.0	24
15	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	S	2.1	2.3	2.6	2.9	2.8	3.0	3.4	3.4	2.3	24
16	3.6	3.7	3.3	3.5	3.8	3.8	3.9	4.0	3.7	3.3	2.8	2.5	2.1	2.0	2.0	S	2.0	2.1	2.9	2.5	2.5	2.6	2.5	2.6	4.0	2.9	24
17	2.6	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.5	2.2	2.1	2.1	2.1	S	2.0	2.0	2.2	2.6	2.6	2.8	2.7	2.7	2.9	2.9	2.5	24
18	3.0	3.1	3.1	3.7	3.4	2.6	2.3	2.1	2.0	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	2.6	3.1	2.4	2.2	2.5	3.5	3.5	3.7	2.5	24
19	3.9	4.6	5.3	5.2	5.0	5.2	5.9	6.2	5.9	5.9	5.5	4.9	S	3.3	2.9	2.9	3.1	3.4	3.5	3.6	3.4	3.4	3.1	2.9	6.2	*4.3*	24
20	2.6	2.6	2.9	3.6	3.8	2.2	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.3	2.6	2.5	2.4	3.8	2.3	24
21	2.2	2.7	3.1	3.0	3.2	3.3	3.9	3.7	3.7	3.2	S	2.6	2.3	2.2	2.0	2.0	2.3	3.2	2.5	2.8	2.5	2.5	2.5	2.6	3.9	2.8	24
22	2.6	2.6	2.7	3.2	3.0	2.5	2.3	2.3	2.1	S	2.0	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.1	2.0	2.0	2.2	2.1	2.1	3.2	2.2	24
23	2.5	2.3	2.2	2.1	2.0	2.2	2.2	2.1	S	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.5	2.6	2.8	2.8	2.1	24
24	3.3	2.8	2.4	2.7	2.5	2.5	2.8	S	2.9	2.2	2.1	2.1	2.0	1.9	1.9	1.9	2.1	2.1	2.5	2.5	2.9	4.1	3.5	3.3	4.1	2.6	24
25	4.5	4.7	4.6	4.3	4.0	4.1	S	5.0	4.5	4.4	4.0	2.8	2.3	2.2	2.1	2.1	2.4	2.7	3.4	3.3	3.3	3.9	3.7	3.6	5.0	3.6	24
26	3.4	3.4	3.3	3.3	3.0	S	2.8	2.6	2.6	2.4	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.3	2.8	3.4	2.5	24
27	2.1	2.0	1.9	2.0	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.8	2.1	2.1	2.3	2.8	2.0	24
28	2.3	2.4	2.4	S	2.1	2.2	2.6	2.3	2.4	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.2	2.4	2.7	2.4	2.3	2.3	2.3	2.3	2.7	2.3	24
29	2.3	2.4	S	2.3	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.5	2.8	2.8	3.2	2.9	3.1	3.0	2.8	3.2	2.5	24
30	3.1	S	2.4	2.1	2.4	2.3	2.6	2.7	2.6	2.8	3.0	2.8	2.2	2.1	2.1	2.2	2.1	2.6	2.2	2.0	2.2	2.0	2.0	2.0	3.1	2.4	24
31	S	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	S	2.1	2.0	24
HOURLY MAX	4.5	5.2	5.3	6.7	5.8	5.3	5.9	6.2	5.9	7.3	5.5	4.9	2.6	3.3	2.9	2.9	3.1	3.4	3.5	3.6	3.4	4.1	3.7	3.7			
HOURLY AVG	2.8	2.9	2.9	3.1	3.1	3.0	3.0	3.0	3.0	2.8	2.5	2.3	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.5	2.5	2.5	2.6	2.7			

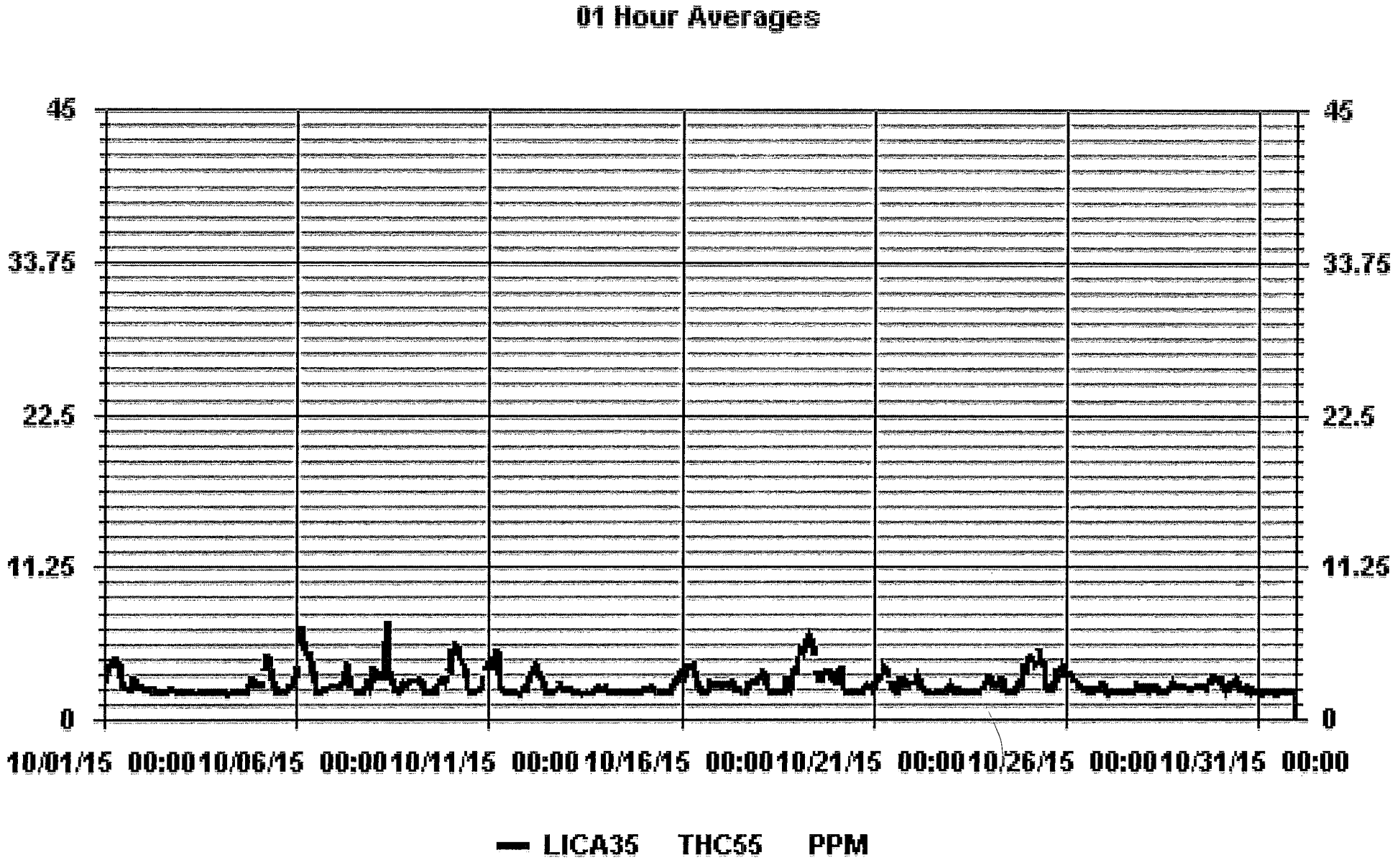
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		707					
MAXIMUM 1-HR AVERAGE:	7.3	PPM	@ HOUR(S)	9	ON DAY(S)	8	
MAXIMUM 24-HR AVERAGE:	4.3	PPM			ON DAY(S)	19	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.85		MONTHLY AVERAGE:			2.6	PPM


01 Hour Averages
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 THC55 PPM

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.1	3.4	3.7	4.2	4.4	4.8	4.8	S	4.2	4.3	3.7	2.9	3.0	2.5	2.4	2.3	2.2	2.6	3.6	3.6	2.5	2.6	2.5	2.5	4.8	3.3	24
2	2.5	2.3	2.3	2.2	2.2	2.2	S	2.2	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	1.9	2.5	2.1	24
3	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.1	1.9	24
4	2.0	2.0	2.0	1.9	S	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.4	2.8	3.5	3.0	2.5	2.5	3.5	2.2	24
5	2.5	2.7	2.7	S	4.6	5.5	5.2	5.3	4.0	3.8	2.6	2.7	2.1	2.0	1.9	1.9	1.9	2.1	2.7	2.5	2.7	2.5	2.7	4.0	5.5	3.1	24
6	4.9	3.8	S	7.5	6.6	6.7	5.3	4.9	5.5	4.8	4.5	2.9	2.4	2.0	2.1	2.0	2.3	2.2	2.3	2.3	2.6	2.6	2.5	2.5	7.5	3.7	24
7	2.6	S	2.6	2.6	2.9	3.2	4.0	5.0	4.7	C	C	C	C	C	2.2	2.3	2.3	2.0	3.3	2.8	2.9	2.7	3.2	4.3	5.0	3.1	24
8	S	3.9	3.5	4.6	3.2	3.4	3.6	4.0	***23.0***	19.4	4.1	3.6	3.6	2.3	2.3	2.3	2.2	2.9	3.0	2.7	2.7	2.8	3.1	S	***23.0***	4.8	24
9	3.1	3.0	3.1	3.0	3.0	3.5	3.2	3.2	2.2	2.0	2.1	2.0	1.9	1.9	2.0	3.2	3.4	3.3	3.4	3.4	2.9	3.5	S	4.2	4.2	2.9	24
10	6.0	6.2	5.8	6.3	5.7	6.0	4.7	4.6	4.3	3.8	4.1	3.2	2.2	2.0	2.0	1.9	2.2	2.3	2.4	2.7	3.4	S	4.3	4.0	6.3	3.9	24
11	4.9	4.6	4.4	4.8	4.8	6.7	4.3	2.7	2.6	2.3	2.1	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	S	2.5	2.5	2.5	6.7	3.0	24
12	2.7	3.1	4.2	3.7	3.9	3.7	4.2	3.8	3.4	3.2	3.1	2.8	2.0	2.1	2.2	2.3	2.2	2.2	2.6	S	2.8	2.6	2.3	2.3	4.2	2.9	24
13	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.1	2.3	1.9	1.9	1.9	1.9	2.0	2.0	S	2.5	2.5	2.5	2.3	2.4	2.5	2.1	24
14	2.6	2.5	2.2	2.0	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	2.2	2.1	2.1	2.6	2.1	24
15	2.3	2.2	2.2	2.1	2.1	2.2	2.6	2.5	2.2	2.2	2.1	2.0	2.0	1.9	1.9	2.0	S	2.4	3.2	3.0	3.1	2.9	3.2	3.7	3.7	2.4	24
16	3.8	3.9	3.5	3.7	4.0	3.9	4.2	4.1	4.1	3.5	3.1	2.7	2.2	2.1	2.1	S	2.1	2.2	3.2	3.2	2.6	2.7	2.8	2.6	4.2	3.1	24
17	2.7	2.5	2.6	2.6	2.6	2.6	2.6	2.8	2.9	2.7	2.3	2.2	2.1	2.1	S	2.1	2.1	2.4	2.9	2.8	3.1	2.9	2.8	3.1	3.1	2.6	24
18	3.1	3.3	3.4	4.4	4.3	3.0	2.4	2.2	2.0	2.0	2.0	1.9	1.9	S	1.9	1.9	2.1	4.5	4.3	2.7	2.3	3.2	4.5	3.9	4.5	2.9	24
19	4.5	5.6	6.2	5.8	5.2	5.6	7.0	6.5	6.4	6.4	5.8	5.5	S	3.6	3.0	3.0	3.4	3.6	3.9	4.2	3.7	3.7	3.2	3.1	7.0	4.7	24
20	3.0	2.9	4.0	4.2	5.3	2.6	2.0	1.9	2.0	1.9	1.9	S	1.9	1.9	2.0	1.9	2.0	2.2	2.3	2.5	2.4	2.8	2.7	2.7	5.3	2.6	24
21	2.4	4.4	4.7	3.4	3.4	3.6	4.3	4.0	3.8	3.6	S	2.7	2.5	2.4	2.1	2.0	3.3	5.1	2.7	3.3	2.7	2.6	2.6	2.7	5.1	3.2	24
22	2.7	2.7	2.9	3.5	3.2	3.0	2.5	2.5	2.3	S	2.0	1.9	1.9	2.2	2.0	1.9	1.9	2.1	2.3	2.2	2.1	2.3	2.2	2.3	3.5	2.4	24
23	2.7	2.3	2.3	2.2	2.1	2.4	2.4	2.2	S	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	2.0	2.1	2.3	2.3	3.3	3.2	3.3	3.3	2.3	24
24	3.5	3.1	2.6	2.8	2.6	2.7	2.9	S	3.3	2.7	2.2	2.2	2.1	2.0	1.9	1.9	3.1	2.3	2.8	2.7	3.5	5.7	3.9	3.8	5.7	2.9	24
25	5.0	4.9	4.9	4.4	4.3	4.2	S	5.2	5.0	5.0	4.6	3.6	2.4	2.3	2.2	2.2	2.7	3.4	3.5	3.5	3.5	4.1	4.1	3.7	5.2	3.9	24
26	3.6	3.5	3.5	3.3	3.2	S	2.8	2.7	2.6	2.6	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.3	2.4	3.3	3.6	2.6	24
27	2.3	2.0	2.0	2.0	S	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.8	3.6	2.4	2.2	2.5	3.6	2.1	24
28	2.4	2.5	2.5	S	2.2	2.9	3.0	2.4	2.6	2.2	2.2	2.0	2.0	2.2	2.1	2.1	2.4	2.6	2.9	2.4	2.4	2.3	2.3	2.4	3.0	2.4	24
29	2.4	2.5	S	2.4	2.2	2.2	2.2	2.2	2.4	2.5	2.4	2.4	2.3	2.4	2.5	2.5	2.8	3.3	3.1	3.4	3.0	3.3	3.3	2.9	3.4	2.6	24
30	3.5	S	3.2	2.2	2.8	2.6	3.2	3.1	2.9	3.3	3.4	3.4	2.4	2.1	2.2	2.6	2.7	3.0	2.4	2.3	2.4	2.2	2.1	2.0	3.5	2.7	24
31	S	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.2	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	1.9	S	2.2	2.0	24
HOURLY MAX	6.0	6.2	6.2	7.5	6.6	6.7	7.0	6.5	23.0	19.4	5.8	5.5	3.6	3.6	3.0	3.2	3.4	5.1	4.3	4.2	3.7	5.7	4.5	4.3			
HOURLY AVG	3.1	3.2	3.2	3.4	3.4	3.4	3.3	3.2	3.8	3.5	2.7	2.5	2.1	2.1	2.1	2.1	2.3	2.6	2.7	2.7	2.7	2.8	2.8	2.9			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

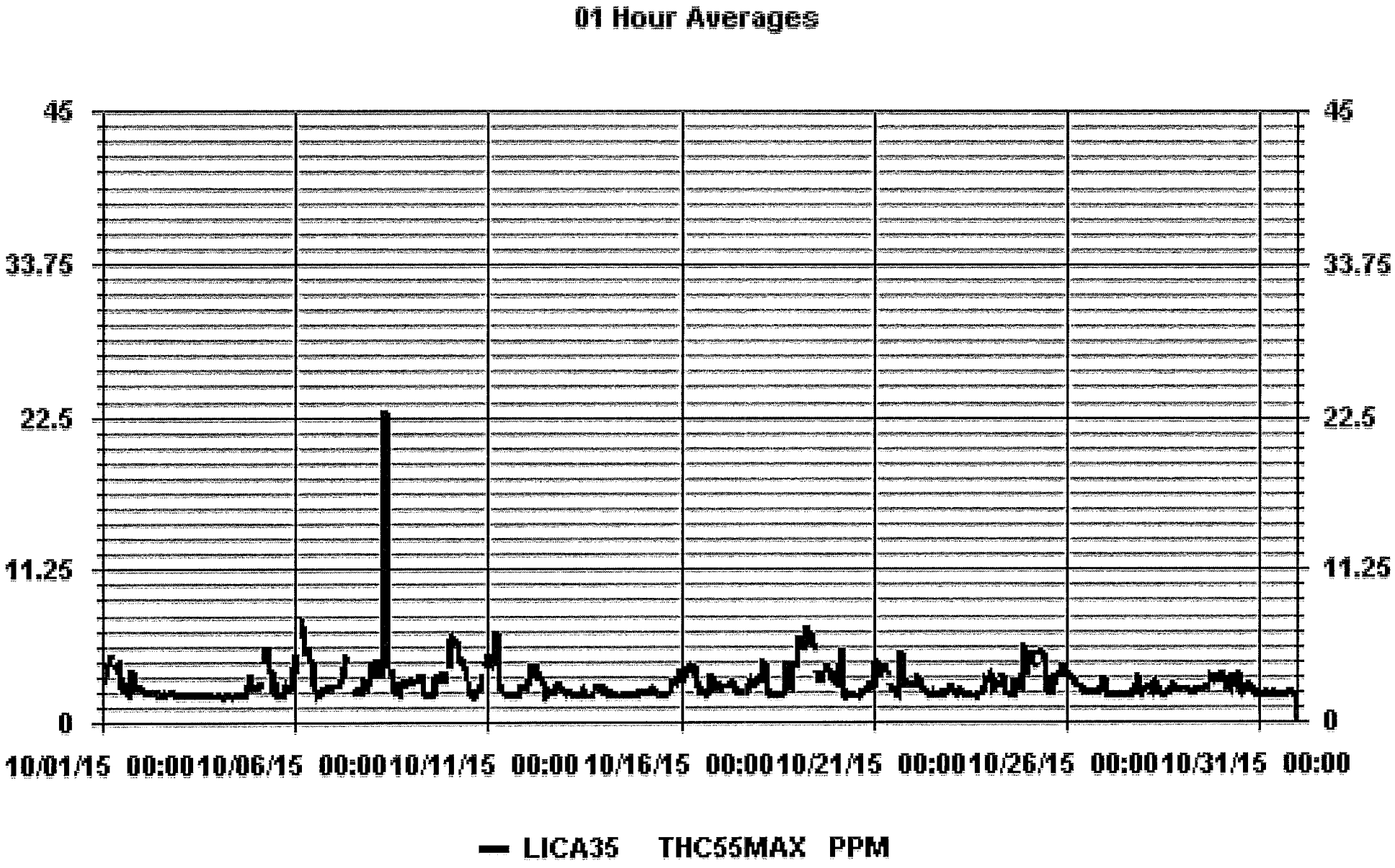
NUMBER OF NON-ZERO READINGS: 706

MAXIMUM INSTANTANEOUS VALUE: 23.0 PPM @ HOUR(S) 8 ON DAY(S) 8

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS
MONTHLY CALIBRATION TIME: 5 HRS
STANDARD DEVIATION: 1.41

OPERATIONAL TIME: 744 HRS


01 Hour Averages
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 THC55MAX PPM

LICA35
THC55 / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA35
Parameter : THC55
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	1.83	.14	.28	.56	4.38	11.73	7.21	2.40	1.41	1.69	1.98	9.61	11.31	12.87	6.36	3.81	77.65
<	10.0	.00	.70	.42	.84	4.66	6.36	.84	.42	.42	.28	.70	1.55	1.41	2.68	.56	.42	22.34
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.83	.84	.70	1.41	9.05	18.10	8.06	2.82	1.83	1.98	2.68	11.17	12.72	15.55	6.93	4.24	

Calm : .00 %

Total # Operational Hours : 707

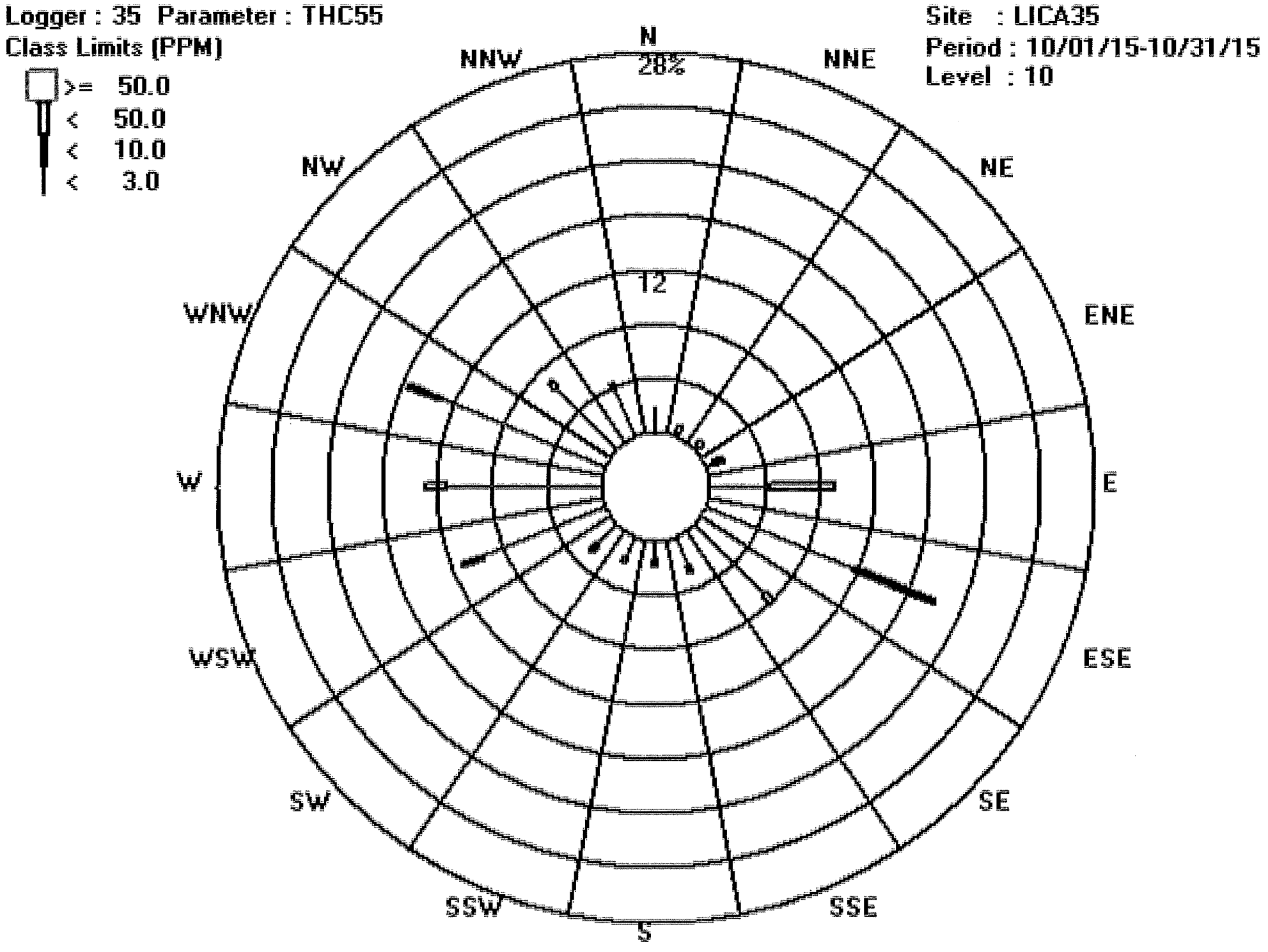
Distribution By Samples

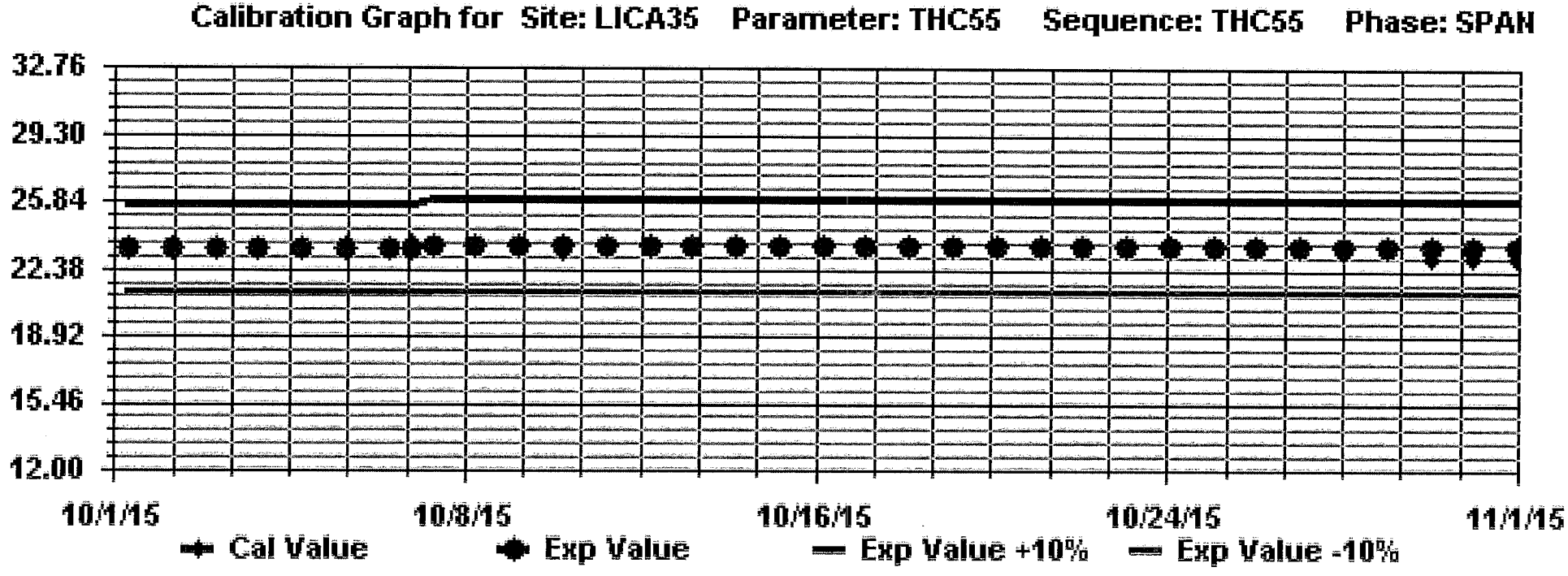
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	13	1	2	4	31	83	51	17	10	12	14	68	80	91	45	27	549
<	10.0		5	3	6	33	45	6	3	3	2	5	11	10	19	4	3	158
<	50.0																	
>=	50.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	49	30	

Calm : .00 %

Total # Operational Hours : 707


Logger : 35 Parameter : THC55
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA35
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNW
NNE
NW
NE
12
WNW
ENE
W
E
WSW
ESE
SW
SE
SSW
SSE
S


Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN
32.76
29.30
25.84
22.38
18.92
15.46
12.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

METHANE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

METHANE (CH4) hourly averages in ppm

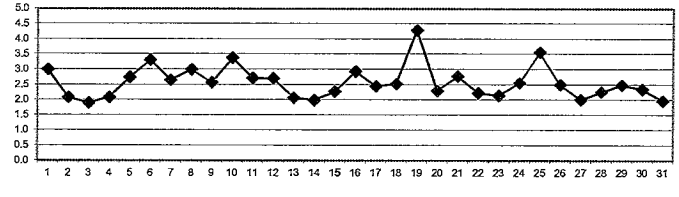
MST

HOUR START / HOUR END / DAY	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	2.9	3.2	3.4	3.8	4.0	4.3	4.5	S	4.0	4.0	3.3	2.8	2.6	2.3	2.3	2.2	2.1	2.2	2.9	2.9	2.4	2.3	2.4	2.4	4.5	3.0	24
2	2.4	2.3	2.2	2.2	2.2	2.1	S	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	1.9	2.4	2.1	24
3	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
4	1.9	1.9	1.9	1.9	S	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.3	2.5	2.9	2.9	2.4	2.4	2.9	2.1	24
5	2.4	2.5	2.5	S	3.9	4.3	4.8	4.3	3.9	3.0	2.5	2.4	2.0	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.4	2.5	3.1	4.8	2.7	24
6	3.9	3.3	S	*6.5*	5.7	5.3	5.0	4.7	5.0	4.5	3.6	2.8	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	*6.5*	3.3	24
7	2.5	S	2.5	2.4	2.5	2.7	3.5	4.3	3.3	2.6	C	C	C	C	2.0	2.0	2.0	2.0	2.3	2.7	2.7	2.4	2.7	3.5	4.3	2.7	24
8	S	3.6	3.1	3.5	3.1	3.1	3.3	3.7	4.6	4.4	3.6	3.1	2.6	2.2	2.2	2.2	2.1	2.4	2.7	2.6	2.5	2.6	2.8	S	4.6	3.0	24
9	2.8	2.8	2.8	2.9	2.8	3.0	2.9	2.5	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.3	2.6	2.9	3.0	3.0	2.8	2.9	S	3.7	3.7	2.6	24
10	3.6	5.2	4.9	5.7	4.7	5.0	4.5	4.2	4.1	3.4	3.5	2.3	2.0	1.9	1.9	1.9	2.0	2.1	2.2	2.4	2.9	S	3.7	3.7	5.7	3.4	24
11	4.1	4.3	4.1	4.2	4.5	5.2	3.3	2.4	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	S	2.1	2.4	2.3	5.2	2.7	24
12	2.6	3.0	3.3	3.4	3.8	3.6	3.9	3.6	3.2	3.1	2.9	2.4	2.0	2.0	2.0	2.1	2.0	2.1	2.2	S	2.7	2.3	2.1	2.1	3.9	2.7	24
13	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	S	2.3	2.4	2.3	2.2	2.3	2.4	2.1	24
14	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	2.0	2.1	2.0	2.4	2.0	24
15	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	S	2.1	2.3	2.6	2.9	2.8	3.0	3.4	3.4	2.3	24
16	3.6	3.7	3.3	3.5	3.8	3.8	3.9	4.0	3.7	3.3	2.8	2.5	2.1	2.0	2.0	S	2.0	2.1	2.9	2.5	2.5	2.6	2.5	2.6	4.0	2.9	24
17	2.6	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.5	2.2	2.1	2.1	2.1	S	2.0	2.0	2.2	2.6	2.6	2.8	2.7	2.7	2.9	2.9	2.5	24
18	3.0	3.0	3.1	3.7	3.4	2.6	2.3	2.1	2.0	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	2.6	3.1	2.4	2.2	2.5	3.5	3.5	3.7	2.5	24
19	3.9	4.6	5.3	5.1	4.9	5.1	5.9	6.2	5.9	5.9	5.5	4.9	S	3.3	2.9	2.9	3.1	3.4	3.5	3.6	3.4	3.4	3.1	2.9	6.2	*4.3*	24
20	2.6	2.6	2.9	3.6	3.8	2.2	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.3	2.6	2.5	2.4	3.8	2.3	24
21	2.2	2.7	3.1	3.0	3.2	3.3	3.9	3.7	3.7	3.2	S	2.6	2.3	2.2	2.0	2.0	2.3	3.2	2.5	2.8	2.5	2.5	2.5	2.6	3.9	2.8	24
22	2.6	2.6	2.7	3.2	3.0	2.5	2.3	2.3	2.1	S	2.0	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.1	2.0	2.0	2.2	2.1	2.1	3.2	2.2	24
23	2.5	2.3	2.2	2.1	2.0	2.2	2.2	2.1	S	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.5	2.6	2.8	2.8	2.1	24
24	3.3	2.8	2.4	2.7	2.5	2.5	2.8	S	2.9	2.2	2.1	2.1	2.0	1.9	1.9	1.9	2.1	2.1	2.5	2.5	2.9	4.1	3.4	3.3	4.1	2.6	24
25	4.5	4.7	4.6	4.3	4.0	4.1	S	5.0	4.5	4.4	4.0	2.8	2.3	2.2	2.1	2.1	2.4	2.7	3.4	3.3	3.3	3.9	3.7	3.6	5.0	3.6	24
26	3.4	3.4	3.3	3.3	3.0	S	2.8	2.6	2.6	2.4	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.3	2.8	3.4	2.5	24
27	2.1	2.0	1.9	2.0	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.8	2.1	2.1	2.3	2.8	2.0	24
28	2.3	2.4	2.4	S	2.1	2.2	2.6	2.3	2.4	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.2	2.4	2.7	2.4	2.3	2.3	2.3	2.3	2.7	2.3	24
29	2.3	2.4	S	2.3	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.5	2.8	2.8	3.2	2.9	3.1	3.0	2.8	3.2	2.5	24
30	3.1	S	2.4	2.1	2.4	2.3	2.5	2.6	2.6	2.7	2.9	2.8	2.2	2.1	2.1	2.2	2.1	2.6	2.2	2.0	2.2	2.0	2.0	2.0	3.1	2.4	24
31	S	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	S	2.1	2.0	24
HOURLY MAX	4.5	5.2	5.3	6.5	5.7	5.3	5.9	6.2	5.9	5.9	5.5	4.9	2.6	3.3	2.9	2.9	3.1	3.4	3.5	3.6	3.4	4.1	3.7	3.7			
HOURLY AVG	2.8	2.9	2.9	3.1	3.1	3.0	3.0	2.9	2.9	2.7	2.5	2.3	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.5	2.5	2.5	2.6	2.7			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

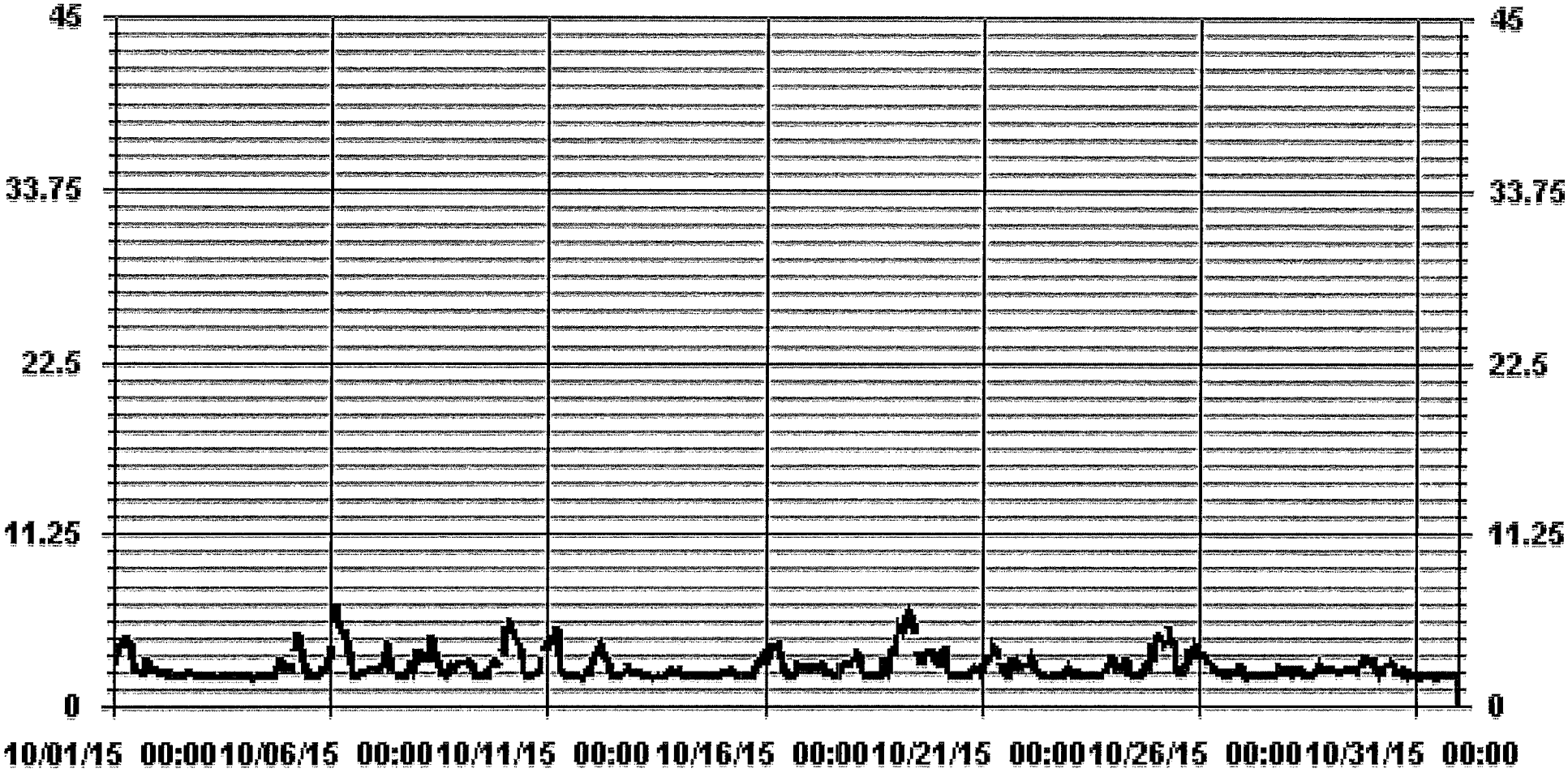
24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		707					
MAXIMUM 1-HR AVERAGE:	6.5	PPM	@ HOUR(S)	3	ON DAY(S)	6	
MAXIMUM 24-HR AVERAGE:	4.3	PPM			ON DAY(S) VAR-VARIOUS	19	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	0.82		MONTHLY AVERAGE:		2.6	PPM	

01 Hour Averages



Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

METHANE MAX instantaneous maximum in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.0	3.4	3.6	4.1	4.3	4.8	4.8	S	4.2	4.2	3.7	2.9	2.9	2.5	2.4	2.3	2.2	2.6	3.6	3.6	2.5	2.6	2.5	2.5	4.8	3.3	24
2	2.5	2.3	2.3	2.3	2.2	2.2	S	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0	1.9	2.5	2.1	24
3	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.1	1.9	24
4	2.0	2.0	2.0	1.9	S	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.4	2.7	3.3	3.1	2.5	2.4	3.3	2.2	24
5	2.5	2.7	2.7	S	4.6	5.5	5.2	5.3	4.0	3.8	2.7	2.7	2.1	2.0	1.9	1.9	1.9	2.1	2.7	2.5	2.7	2.5	2.7	4.0	5.5	3.1	24
6	4.9	3.8	S	*7.3*	6.5	6.6	5.4	4.9	5.4	4.8	4.5	2.9	2.4	2.0	2.1	2.0	2.3	2.2	2.3	2.3	2.6	2.6	2.5	2.5	*7.3*	3.7	24
7	2.6	S	2.6	2.6	2.9	3.3	3.9	5.0	4.7	C	C	C	C	C	2.2	2.3	2.3	2.0	3.3	2.8	2.9	2.7	3.2	4.2	5.0	3.1	24
8	S	3.8	3.5	4.6	3.2	3.4	3.6	4.0	6.0	4.8	4.0	3.6	3.5	2.3	2.3	2.3	2.2	2.9	3.0	2.7	2.7	2.8	3.0	S	6.0	3.4	24
9	3.1	3.0	3.1	3.0	3.0	3.5	3.1	3.2	2.2	2.0	2.0	2.0	1.9	1.9	1.9	3.1	3.4	3.3	3.4	3.4	2.9	3.4	S	4.1	4.1	2.9	24
10	5.9	6.0	5.6	6.2	5.6	6.0	4.7	4.5	4.3	3.8	4.0	3.2	2.1	2.0	1.9	1.9	2.2	2.3	2.4	2.7	3.4	S	4.3	4.0	6.2	3.9	24
11	4.9	4.5	4.4	4.5	4.7	6.7	4.3	2.7	2.6	2.3	2.1	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	S	2.5	2.5	2.5	6.7	3.0	24
12	2.7	3.1	4.2	3.7	3.9	3.7	4.2	3.8	3.4	3.2	3.1	2.8	2.0	2.1	2.2	2.3	2.2	2.2	2.6	S	2.8	2.6	2.3	2.3	4.2	2.9	24
13	2.1	2.2	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.3	1.9	1.9	1.9	1.9	2.0	2.0	S	2.5	2.5	2.5	2.3	2.4	2.5	2.1	24
14	2.6	2.5	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	2.2	2.2	2.1	2.6	2.1	24
15	2.3	2.3	2.2	2.1	2.2	2.2	2.6	2.5	2.2	2.2	2.1	2.0	2.0	1.9	1.9	2.0	S	2.4	3.2	3.1	3.1	2.9	3.2	3.7	3.7	2.4	24
16	3.8	3.9	3.4	3.7	4.0	3.9	4.2	4.1	4.1	3.5	3.1	2.7	2.2	2.1	2.1	S	2.1	2.2	3.2	3.2	2.6	2.7	2.8	2.6	4.2	3.1	24
17	2.7	2.5	2.6	2.6	2.6	2.6	2.6	2.8	2.8	2.7	2.3	2.2	2.1	2.1	S	2.1	2.1	2.4	2.9	2.8	3.1	2.9	2.8	3.1	3.1	2.6	24
18	3.1	3.1	3.4	4.3	4.2	3.0	2.4	2.2	2.0	2.0	2.0	1.9	1.9	S	1.9	1.9	2.1	4.4	4.3	2.7	2.3	3.2	4.5	3.9	4.5	2.9	24
19	4.5	5.5	6.0	5.7	5.2	5.6	6.9	6.5	6.4	6.2	5.7	5.5	S	3.6	3.0	3.0	3.4	3.6	3.9	4.2	3.7	3.7	3.2	3.1	6.9	4.7	24
20	2.9	2.9	4.0	4.0	5.3	2.6	2.0	1.9	2.0	1.9	1.9	S	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.4	2.8	2.7	2.7	5.3	2.6	24
21	2.4	4.4	4.7	3.4	3.4	3.6	4.3	4.0	3.8	3.6	S	2.7	2.5	2.4	2.1	2.1	3.3	5.1	2.7	3.3	2.8	2.6	2.6	2.7	5.1	3.2	24
22	2.6	2.7	2.9	3.5	3.2	2.9	2.5	2.5	2.3	S	2.0	1.9	1.9	2.2	2.1	1.9	1.9	2.1	2.3	2.2	2.1	2.3	2.2	2.3	3.5	2.4	24
23	2.7	2.4	2.3	2.2	2.1	2.4	2.4	2.2	S	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.3	2.4	3.3	3.2	3.3	3.3	2.3	24
24	3.5	3.2	2.6	2.8	2.6	2.7	2.9	S	3.3	2.7	2.2	2.2	2.1	2.0	1.9	1.9	3.1	2.3	2.8	2.7	3.5	5.7	3.8	3.8	5.7	2.9	24
25	5.0	4.9	4.8	4.4	4.3	4.2	S	5.2	5.0	5.0	4.6	3.6	2.4	2.3	2.2	2.2	2.7	3.4	3.5	3.5	3.5	4.1	4.0	3.7	5.2	3.8	24
26	3.6	3.5	3.5	3.3	3.2	S	2.8	2.7	2.6	2.6	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.3	2.4	3.4	3.6	2.6	24
27	2.3	2.0	2.0	2.0	S	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.8	3.6	2.4	2.2	2.4	3.6	2.1	24
28	2.4	2.5	2.5	S	2.2	2.9	3.0	2.4	2.6	2.2	2.2	2.0	2.0	2.2	2.1	2.1	2.4	2.6	2.9	2.4	2.4	2.3	2.3	2.4	3.0	2.4	24
29	2.4	2.5	S	2.4	2.2	2.2	2.2	2.2	2.4	2.5	2.4	2.4	2.3	2.4	2.5	2.5	2.8	3.3	3.1	3.4	3.0	3.3	3.3	2.9	3.4	2.6	24
30	3.5	S	3.2	2.2	2.8	2.5	2.9	3.0	2.7	3.0	3.1	3.1	2.4	2.2	2.2	2.6	2.7	3.0	2.4	2.3	2.4	2.2	2.1	2.0	3.5	2.6	24
31	S	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.2	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.0	1.9	S	2.2	2.0	24
HOURLY MAX	5.9	6.0	6.0	7.3	6.5	6.7	6.9	6.5	6.4	6.2	5.7	5.5	3.5	3.6	3.0	3.1	3.4	5.1	4.3	4.2	3.7	5.7	4.5	4.2			
HOURLY AVG	3.1	3.2	3.2	3.3	3.4	3.4	3.3	3.2	3.2	2.9	2.7	2.5	2.1	2.1	2.1	2.1	2.3	2.6	2.7	2.7	2.7	2.8	2.8	2.9			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 706

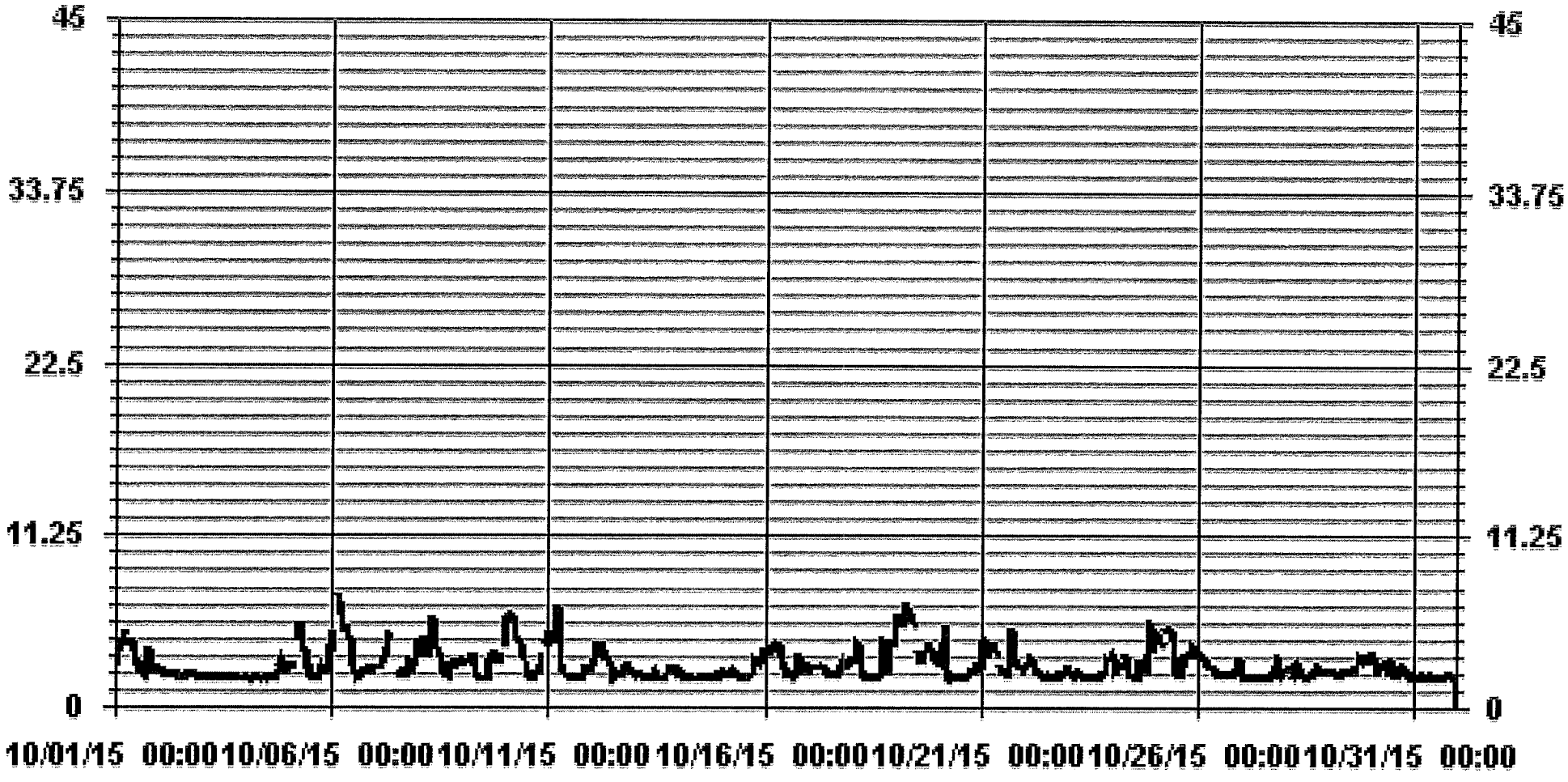
MAXIMUM INSTANTANEOUS VALUE: 7.3 PPM @ HOUR(S) 3 ON DAY(S) 6

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS
MONTHLY CALIBRATION TIME: 5 HRS
STANDARD DEVIATION: 1.00

OPERATIONAL TIME: 744 HRS

01 Hour Averages



LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA35
Parameter : METHANE
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	1.83	.14	.28	.56	4.52	11.88	7.21	2.40	1.41	1.69	1.98	9.61	11.31	12.87	6.36	3.81	77.93
<	10.0	.00	.70	.42	.84	4.52	6.22	.84	.42	.42	.28	.70	1.55	1.41	2.68	.56	.42	22.06
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.83	.84	.70	1.41	9.05	18.10	8.06	2.82	1.83	1.98	2.68	11.17	12.72	15.55	6.93	4.24	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	13	1	2	4	32	84	51	17	10	12	14	68	80	91	45	27	551
<	10.0		5	3	6	32	44	6	3	3	2	5	11	10	19	4	3	156
<	50.0																	
>=	50.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	49	30	

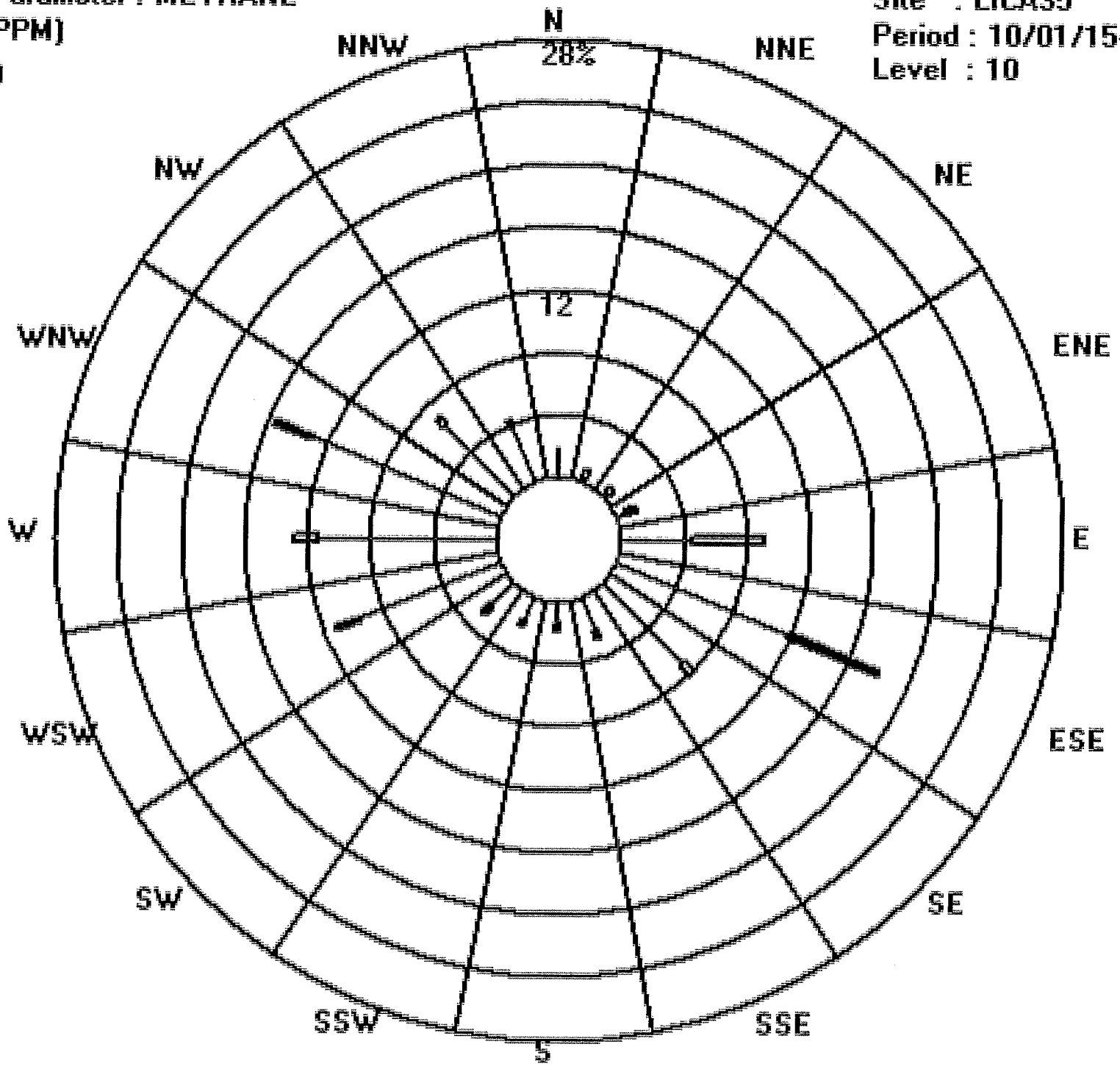
Calm : .00 %

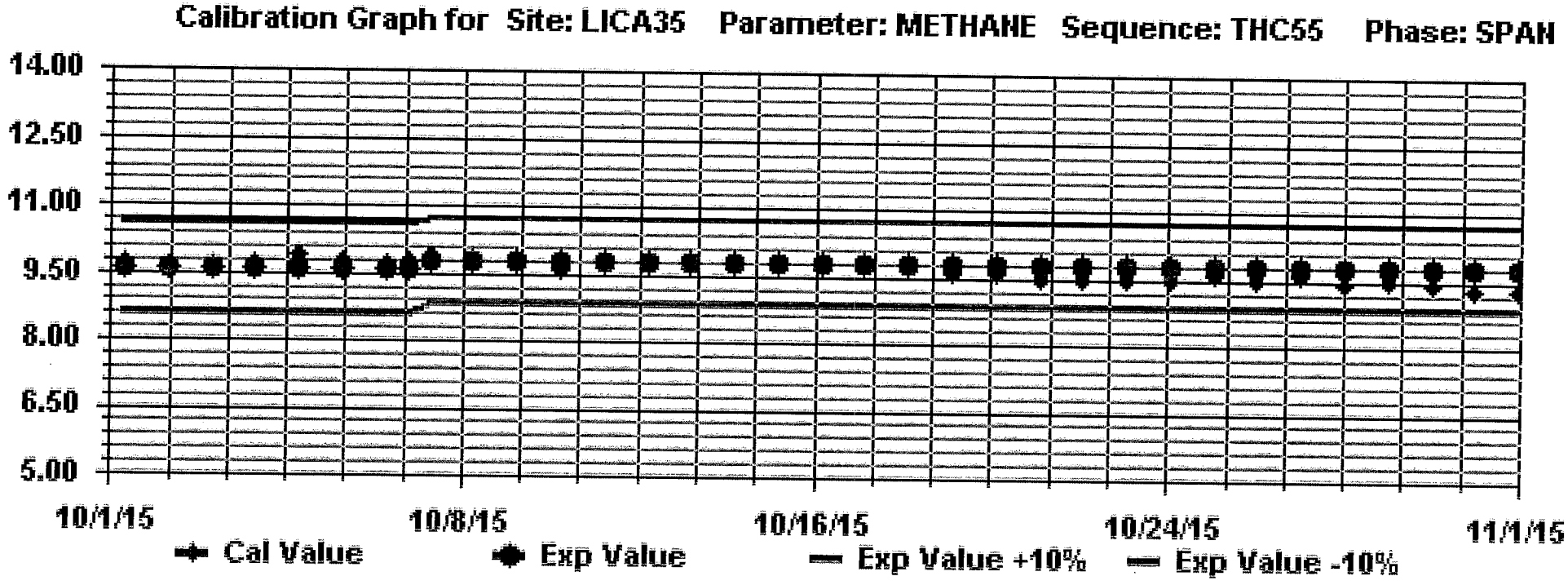
Total # Operational Hours : 707

Logger : 35 Parameter : METHANE
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN
14.00
12.50
11.00
9.50
8.00
6.50
5.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

NON-METHANE HYDROCARBON

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

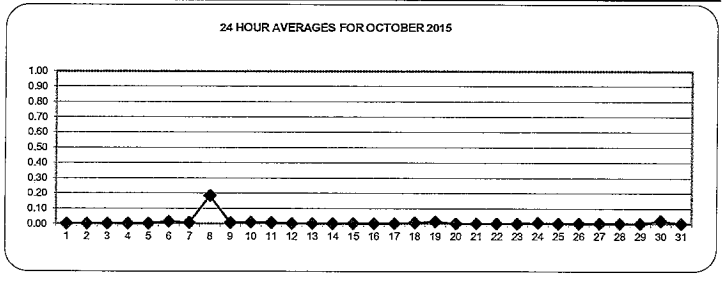
NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
2	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	S	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.01	24
7	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	24
8	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	***2.90***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	***2.90***	***0.18***	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	S	0.00	0.10	0.00	24
10	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.10	0.01	24
11	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.10	0.00	24
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	24
18	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	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	0.10	0.00	24
19	0.00	0.00	0.00	0.10	0.10	0.10	0.00	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	0.00	0.10	0.01	24
20	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	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	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	24
25	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	S	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02	24
31	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	24
HOURLY MAX	0.00	0.10	0.00	0.20	0.10	0.10	0.10	0.10	1.10	2.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10			
HOURLY AVG	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.04	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

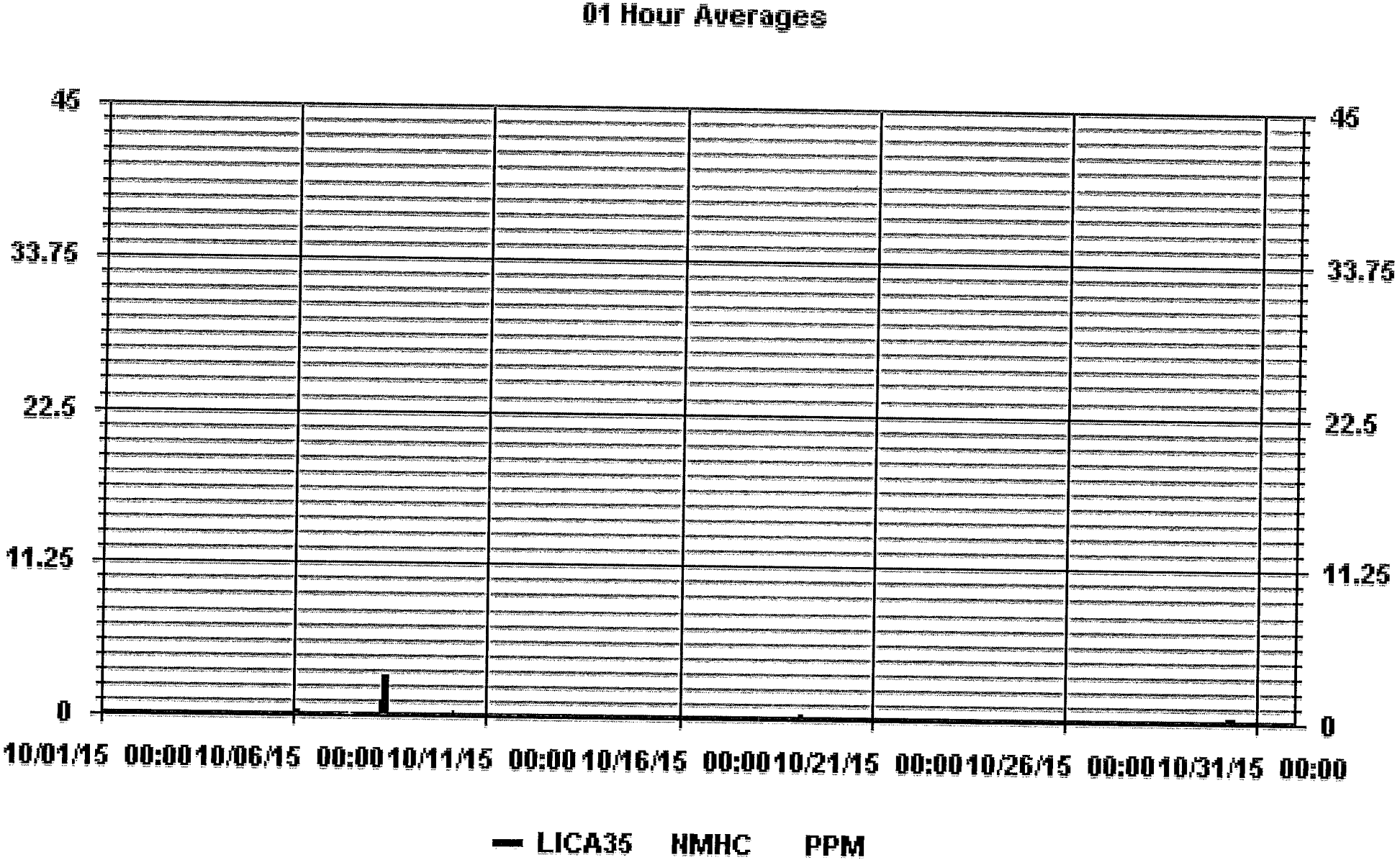
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		18					
MAXIMUM 1-HR AVERAGE:	2.90	PPM	@ HOUR(S)	9	ON DAY(S)	8	
MAXIMUM 24-HR AVERAGE:	0.18	PPM			ON DAY(S) VAR-VARIOUS	8	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.12		MONTHLY AVERAGE:			0.01	PPM


01 Hour Averages
45
33.75
22.5
11.25
0
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NMHC PPM

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.19	0.00	0.00	0.15	0.17	0.20	0.15	S	0.09	0.13	0.19	0.00	0.13	0.00	0.11	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.20	0.07	24
2	0.12	0.00	0.00	0.01	0.00	0.00	S	0.13	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.02	24
3	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	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	0.00	0.00	0.00	0.00	0.09	0.18	0.00	0.00	0.14	0.18	0.02	24
5	0.00	0.00	0.00	S	0.08	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	24
6	0.05	0.00	S	0.39	0.25	0.14	0.16	0.06	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.05	24
7	0.00	S	0.00	0.00	0.00	0.00	0.07	0.20	0.15	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.09	0.23	0.04	24
8	S	0.12	0.00	0.06	0.06	0.00	0.19	0.15	***18.29***	14.74	0.14	0.08	0.10	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.15	S	***18.29***	1.56	24
9	0.00	0.09	0.08	0.00	0.11	0.00	0.12	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.09	0.12	0.14	0.04	0.13	0.12	0.11	0.34	S	0.19	0.34	0.08	24
10	0.20	0.24	0.25	0.29	0.32	0.18	0.17	0.15	0.13	0.14	0.23	0.09	0.14	0.09	0.09	0.00	0.00	0.11	0.23	0.16	0.18	S	0.16	0.00	0.32	0.15	24
11	0.13	0.19	0.14	0.25	0.16	0.16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.25	0.05	24
12	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.08	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.14	0.01	24
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	24
16	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.06	0.00	0.00	0.08	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.12	0.01	0.00	0.00	0.00	0.00	S	0.09	0.00	0.00	0.00	0.00	0.12	0.12	0.09	0.11	0.12	0.03	24
18	0.08	0.22	0.13	0.14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.13	0.00	0.12	0.00	0.00	0.00	0.00	0.22	0.04	24
19	0.00	0.16	0.25	0.23	0.24	0.23	0.14	0.16	0.22	0.25	0.16	0.00	S	0.02	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.25	0.10	24
20	0.13	0.00	0.00	0.46	0.14	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.04	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.05	0.01	24
22	0.08	0.00	0.00	0.09	0.08	0.06	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	0.00	0.00	0.00	0.00	0.09	0.01	24
23	0.00	0.00	0.00	0.00	0.00	0.11	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	0.00	0.00	0.00	0.00	0.00	0.11	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.04	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.24	0.13	0.24	0.02	24
25	0.13	0.15	0.09	0.12	0.05	0.05	S	0.17	0.06	0.14	0.18	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	24
26	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	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	0.00	0.11	0.00	0.12	0.13	0.13	0.10	0.10	0.08	0.15	0.13	0.15	0.05	24
30	0.11	S	0.08	0.00	0.10	0.22	0.40	0.28	0.32	0.39	0.36	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.11	24
31	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	24
HOURLY MAX	0.20	0.24	0.25	0.46	0.32	0.23	0.40	0.28	18.29	14.74	0.36	0.28	0.14	0.09	0.11	0.12	0.14	0.13	0.23	0.16	0.18	0.34	0.24	0.19			
HOURLY AVG	0.04	0.04	0.04	0.08	0.07	0.05	0.06	0.05	0.66	0.54	0.05	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.03	0.02	0.04	0.03			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 171

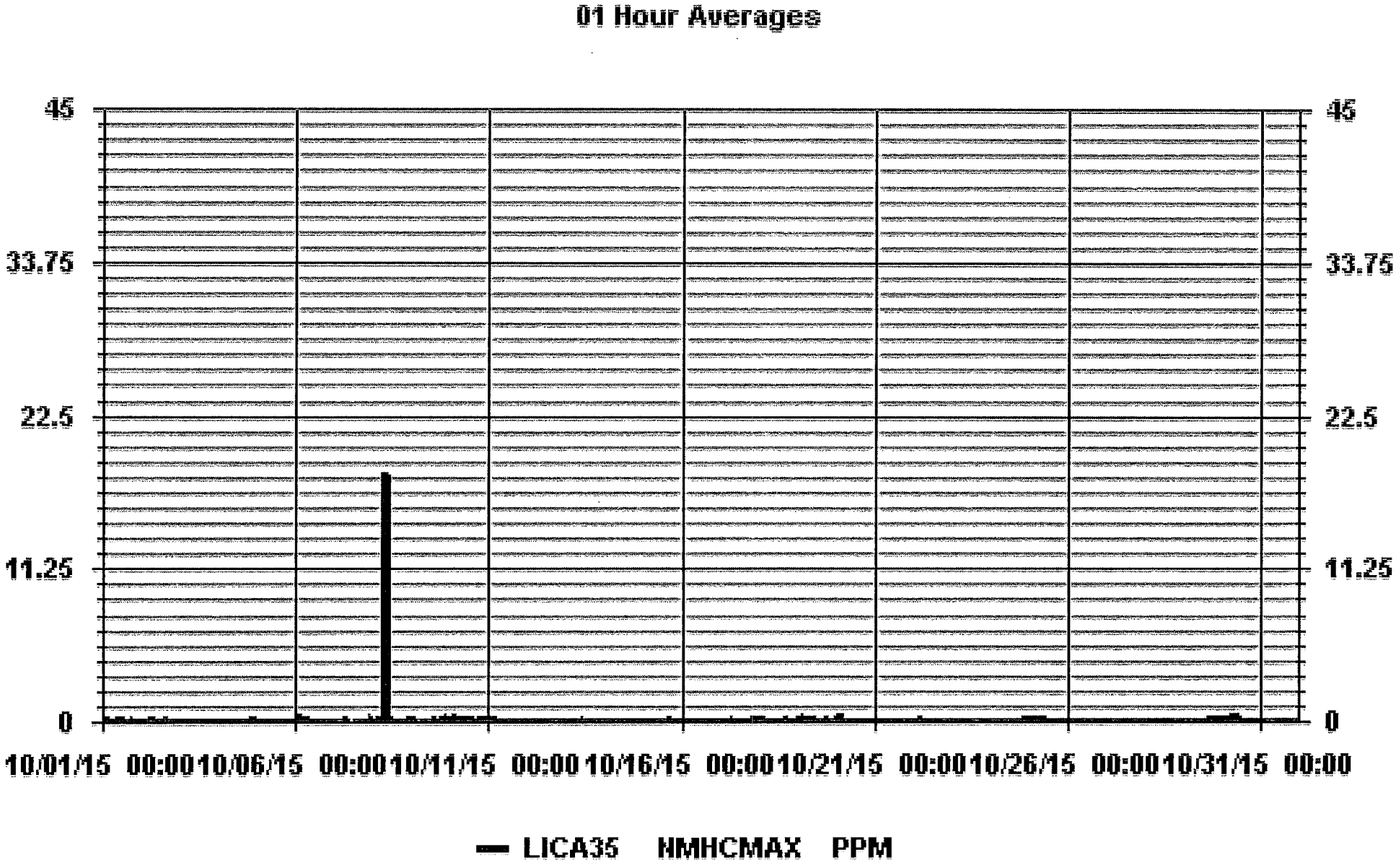
MAXIMUM INSTANTANEOUS VALUE: 18.29 PPM @ HOUR(S) 8 ON DAY(S) 8

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.88


01 Hour Averages
45
33.75
22.5
11.25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NMHCMAX PPM

LICA35
NMHC / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA35
Parameter : NMHC
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	.2	1.83	.84	.70	1.41	8.91	17.96	8.06	2.82	1.83	1.98	2.68	11.17	12.72	15.55	6.93	4.24	99.71
<	.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	2.0	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
<	4.0	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
>=	4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.83	.84	.70	1.41	9.05	18.10	8.06	2.82	1.83	1.98	2.68	11.17	12.72	15.55	6.93	4.24	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	.2	13	6	5	10	63	127	57	20	13	14	19	79	90	110	49	30	705
<	.5																	
<	1.0																	
<	2.0						1											1
<	4.0					1												1
>=	4.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	49	30	

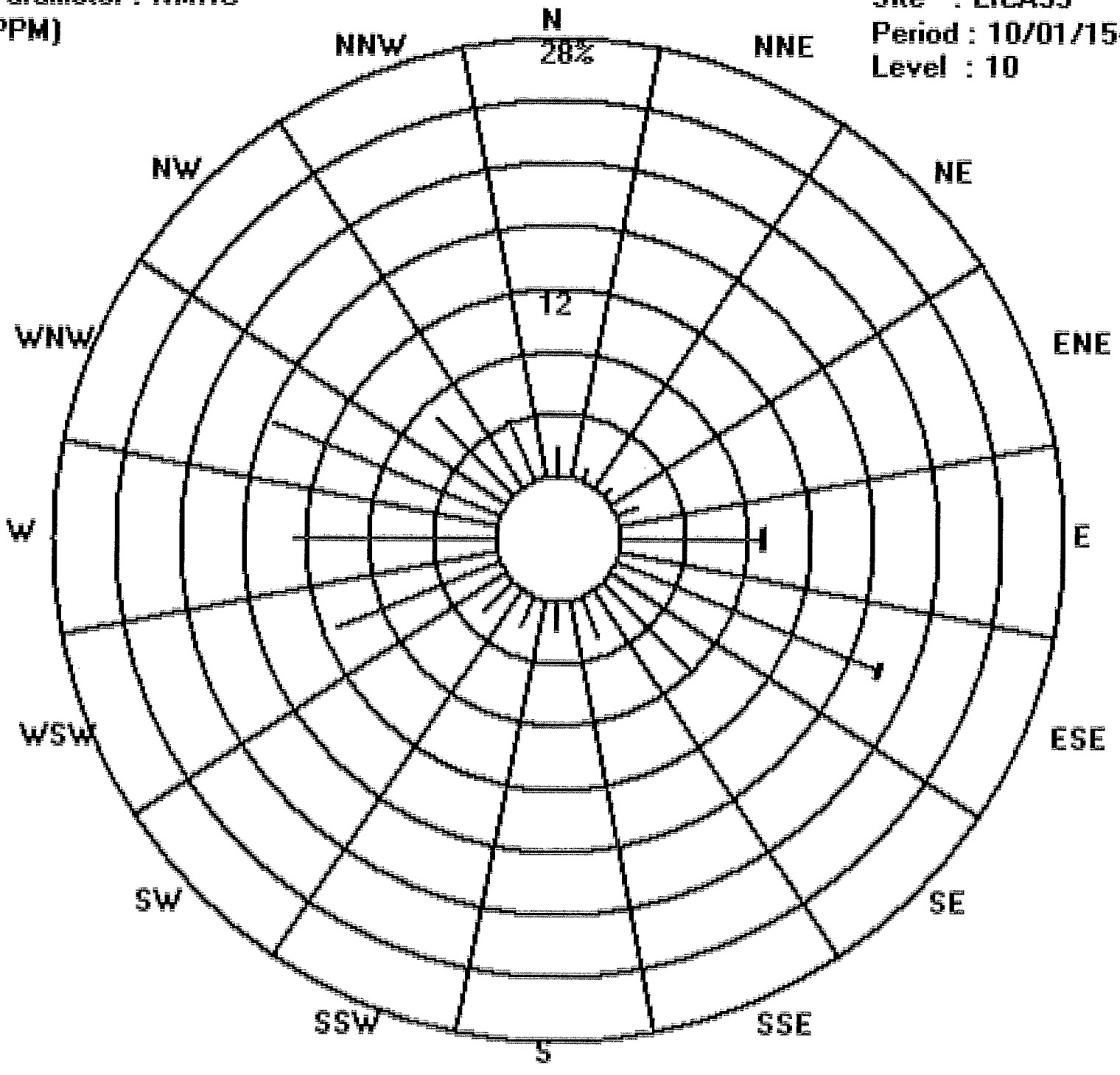
Calm : .00 %

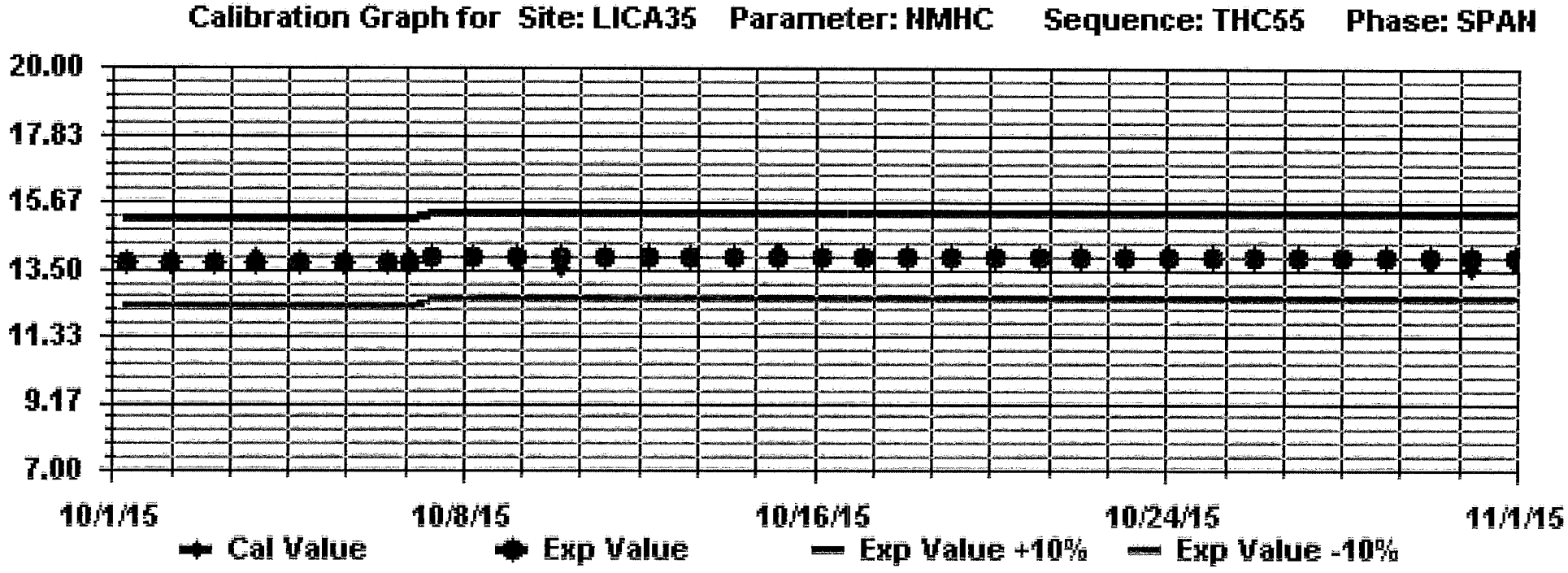
Total # Operational Hours : 707

Logger : 35 Parameter : NMHC
Class Limits (PPM)

>=	4.0
<	4.0
<	2.0
<	1.0
<	.5
<	.2

Site : LICA35
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN
20.00
17.83
15.67
13.50
11.33
9.17
7.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OXIDES OF NITROGEN

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

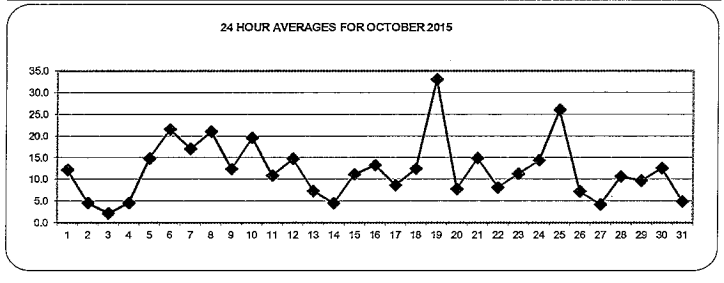
OXIDES OF NITROGEN (NOx) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	11.1	19.4	23.3	19.8	22.6	26.4	19.8	S	14.2	13.3	9.9	6.7	6.3	4.4	4.1	4.3	4.7	7.4	16.6	13.5	9.8	10.8	8.4	5.7	26.4	12.3	24
2	6.6	6.2	5.5	5.7	5.9	4.9	S	5.4	4.8	5.3	4.7	4.2	4.0	3.6	3.3	3.4	4.0	3.5	3.3	5.9	3.6	4.2	4.6	3.5	6.6	4.6	24
3	3.0	3.1	2.7	2.1	1.9	S	2.4	2.1	2.4	2.2	1.9	2.1	2.3	2.2	2.0	1.9	1.8	1.9	2.4	2.9	1.9	2.0	2.0	2.4	3.1	2.2	24
4	2.5	2.4	2.2	2.2	S	2.1	2.3	2.4	2.2	1.8	2.6	2.5	2.3	2.1	2.3	3.0	3.4	4.8	7.8	11.3	14.9	13.6	7.7	7.2	14.9	4.6	24
5	7.8	7.9	10.2	S	19.8	25.0	34.1	36.5	26.4	19.4	13.1	12.2	4.8	3.2	2.7	2.3	2.3	2.5	6.7	14.2	23.6	24.1	17.3	25.5	36.5	14.9	24
6	35.3	33.1	S	45.0	60.8	61.8	44.7	43.0	40.8	32.2	21.1	10.4	3.6	2.8	3.1	3.4	4.2	6.1	6.3	6.8	10.0	7.5	7.4	6.3	61.8	21.6	24
7	7.5	S	8.1	6.9	10.3	15.3	26.8	41.5	24.9	9.5	C	C	C	C	C	C	C	3.4	10.3	21.7	27.2	25.1	16.1	19.4	41.5	17.1	24
8	S	32.8	20.9	29.1	20.8	23.5	35.8	65.3	58.2	36.3	28.5	16.8	9.0	3.9	4.5	4.2	4.7	12.7	15.3	11.4	10.5	9.3	10.8	S	65.3	21.1	24
9	9.9	10.7	10.5	9.3	9.6	11.0	16.7	10.8	5.9	6.3	6.0	4.3	4.0	5.9	6.7	11.8	12.9	23.2	31.0	21.4	19.3	17.3	S	21.8	31.0	12.4	24
10	22.5	35.4	35.3	41.0	37.0	42.2	25.6	22.4	23.0	18.5	18.9	9.2	5.0	4.3	3.4	3.4	4.6	6.2	11.9	16.3	21.2	S	27.4	17.4	42.2	19.7	24
11	20.7	26.8	22.1	25.9	21.5	38.0	20.1	8.4	7.3	5.6	3.5	2.7	2.5	2.6	3.5	2.9	2.2	2.4	2.9	2.2	S	4.1	11.9	11.5	38.0	10.9	24
12	20.0	30.1	27.7	25.7	30.7	25.0	31.5	18.1	13.8	14.5	11.5	7.2	3.8	4.6	4.7	7.6	5.9	7.0	8.8	S	16.8	9.2	7.2	9.1	31.5	14.8	24
13	8.1	8.4	9.8	6.1	6.0	6.4	7.4	8.1	10.5	5.0	3.8	2.9	2.7	2.6	2.5	2.6	4.1	3.9	S	16.2	17.4	11.8	9.7	14.0	17.4	7.4	24
14	12.8	10.6	6.1	4.8	6.1	5.6	6.4	6.3	4.7	2.7	1.9	1.5	1.8	1.7	1.5	1.6	2.0	S	3.3	2.6	4.0	4.3	7.2	4.9	12.8	4.5	24
15	6.7	7.3	7.7	6.7	7.7	9.8	12.6	10.6	8.1	7.0	4.4	3.6	2.2	1.5	1.6	1.6	S	13.9	19.2	26.2	28.7	27.2	19.9	23.9	28.7	11.2	24
16	26.1	19.4	14.4	17.2	18.8	22.9	23.3	23.3	16.3	10.1	8.1	5.8	3.1	2.7	3.0	S	4.4	5.7	22.7	13.0	9.4	12.4	10.3	14.1	26.1	13.3	24
17	13.1	7.9	7.4	8.1	7.2	8.8	11.8	12.1	9.5	8.7	5.2	4.3	3.9	4.1	S	3.7	3.2	5.8	15.9	13.7	12.4	11.1	9.4	12.9	15.9	8.7	24
18	12.5	11.8	17.0	22.3	26.0	14.3	10.4	7.3	2.5	2.0	3.6	2.7	2.4	S	1.7	1.7	2.2	9.8	19.3	25.8	17.6	18.0	29.3	26.7	29.3	12.5	24
19	42.3	47.2	40.5	47.3	47.3	61.7	58.5	***68.0***	62.8	45.2	35.7	37.1	S	16.1	13.4	10.2	10.9	22.3	22.4	19.0	13.7	20.4	9.8	7.9	***68.0***	***33.0***	24
20	7.7	6.9	8.5	18.6	26.1	4.9	3.4	3.0	3.1	2.3	2.2	S	1.6	1.7	1.9	1.7	2.0	7.2	12.9	14.0	10.8	13.4	14.0	12.4	26.1	7.8	24
21	9.4	15.3	19.6	18.2	24.6	31.2	41.1	33.3	23.9	18.2	S	11.2	7.5	5.8	4.1	4.3	8.4	18.4	9.4	12.5	9.2	6.1	6.3	6.4	41.1	15.0	24
22	6.8	6.5	6.8	16.1	18.4	10.5	9.0	12.2	7.0	S	3.7	2.4	2.3	2.5	1.9	3.0	4.2	11.7	18.4	9.5	7.1	7.5	11.7	9.7	18.4	8.2	24
23	12.9	12.4	9.9	10.1	7.5	12.0	23.7	17.1	S	8.9	7.1	4.7	3.2	3.6	2.7	2.7	3.6	5.4	6.8	15.0	18.5	26.0	24.9	21.8	26.0	11.3	24
24	25.3	21.1	15.3	14.1	13.2	20.4	28.9	S	20.4	11.1	6.7	7.1	4.6	2.5	1.6	1.5	3.1	6.6	19.6	16.9	17.8	23.0	23.8	28.0	28.9	14.5	24
25	35.0	42.5	43.7	37.1	33.7	35.8	S	42.0	40.6	44.4	32.6	16.4	8.6	8.4	6.8	8.0	13.3	17.9	20.3	34.2	23.5	17.7	19.1	17.1	44.4	26.0	24
26	13.1	12.0	12.5	10.5	9.5	S	10.0	7.5	8.8	8.0	5.3	4.1	4.5	4.3	3.7	4.4	4.8	4.1	5.6	4.5	4.9	5.1	6.8	13.0	13.1	7.3	24
27	4.0	3.3	2.1	2.3	S	2.4	2.3	2.2	2.3	1.9	2.1	2.0	1.7	1.8	1.9	1.6	2.0	4.8	10.8	11.3	15.9	4.8	5.8	8.5	15.9	4.3	24
28	7.1	8.5	8.2	S	8.5	11.3	21.8	19.3	22.9	11.9	9.3	5.7	5.2	5.3	6.1	6.2	8.7	12.0	23.4	9.4	11.1	8.2	7.0	8.1	23.4	10.7	24
29	8.8	10.5	S	7.0	5.9	8.5	7.4	7.1	7.7	8.8	7.9	6.7	6.8	7.1	7.9	8.5	11.6	14.3	14.9	12.5	12.5	15.7	13.4	12.5	15.7	9.7	24
30	16.9	S	12.8	8.5	11.0	11.1	18.1	21.6	20.9	20.3	17.6	16.3	8.3	6.3	6.0	11.4	14.7	23.0	10.8	6.0	7.7	7.5	6.3	7.5	23.0	12.6	24
31	S	7.3	5.9	6.7	8.8	8.8	9.1	8.7	9.9	6.4	3.1	1.7	2.0	1.8	2.6	3.9	3.1	3.2	3.2	3.3	3.2	3.2	2.3	S	9.9	4.9	24
HOURLY MAX	42.3	47.2	43.7	47.3	60.8	61.8	58.5	68.0	62.8	45.2	35.7	37.1	9.0	16.1	13.4	11.8	14.7	23.2	31.0	34.2	28.7	27.2	29.3	28.0			
HOURLY AVG	14.3	16.1	14.4	16.4	18.2	19.4	19.5	19.5	16.9	12.9	9.7	7.4	4.1	4.1	3.8	4.4	5.4	9.0	12.7	13.1	13.5	12.4	11.9	13.1			

STATUS FLAG CODES

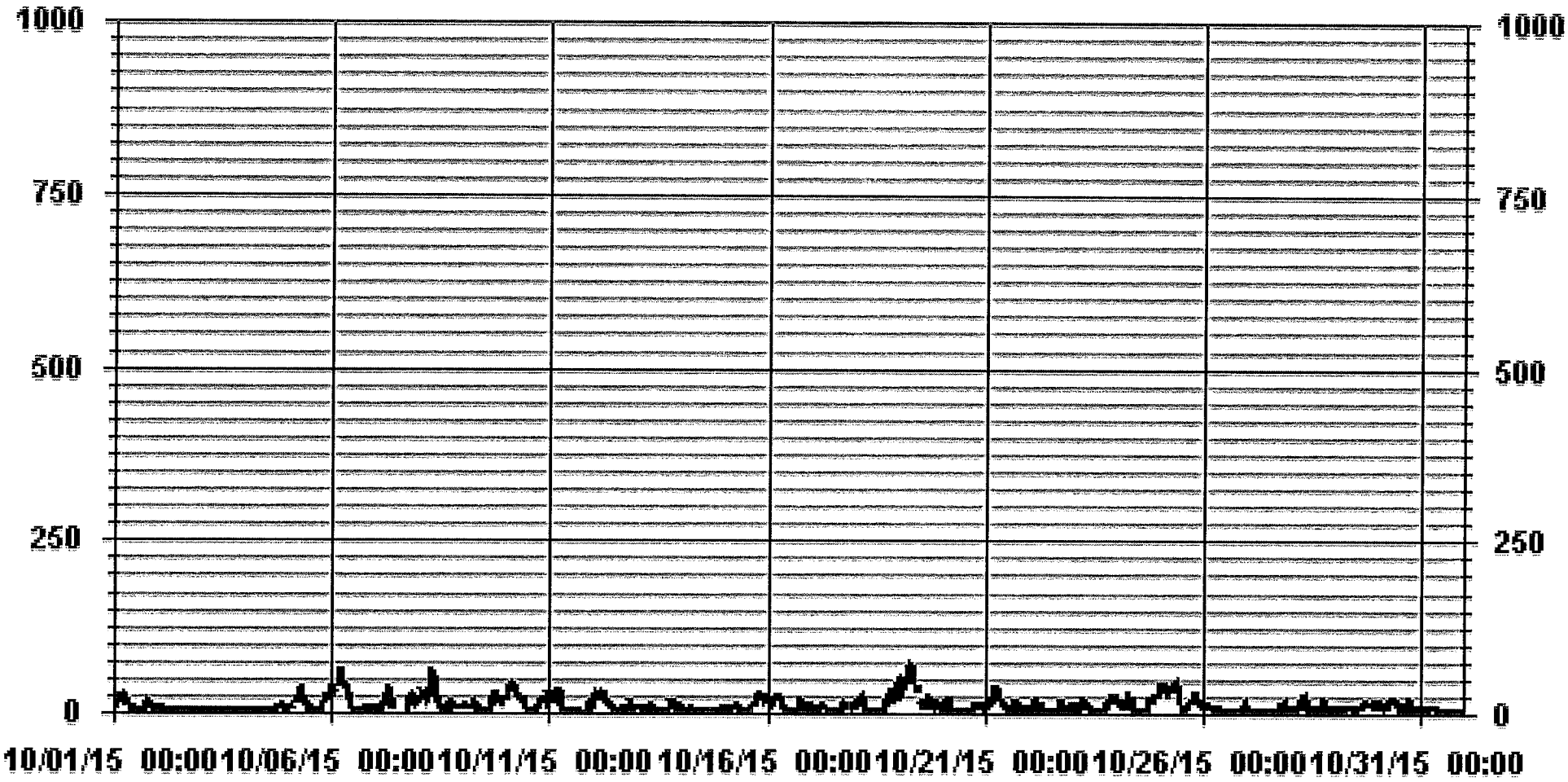
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		704				
MAXIMUM 1-HR AVERAGE:	68.0	PPB	@ HOUR(S)	7	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	33.0	PPB			ON DAY(S)	19
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CAUBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	11.15		MONTHLY AVERAGE:		12.2	PPB

01 Hour Averages



Maxxam
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

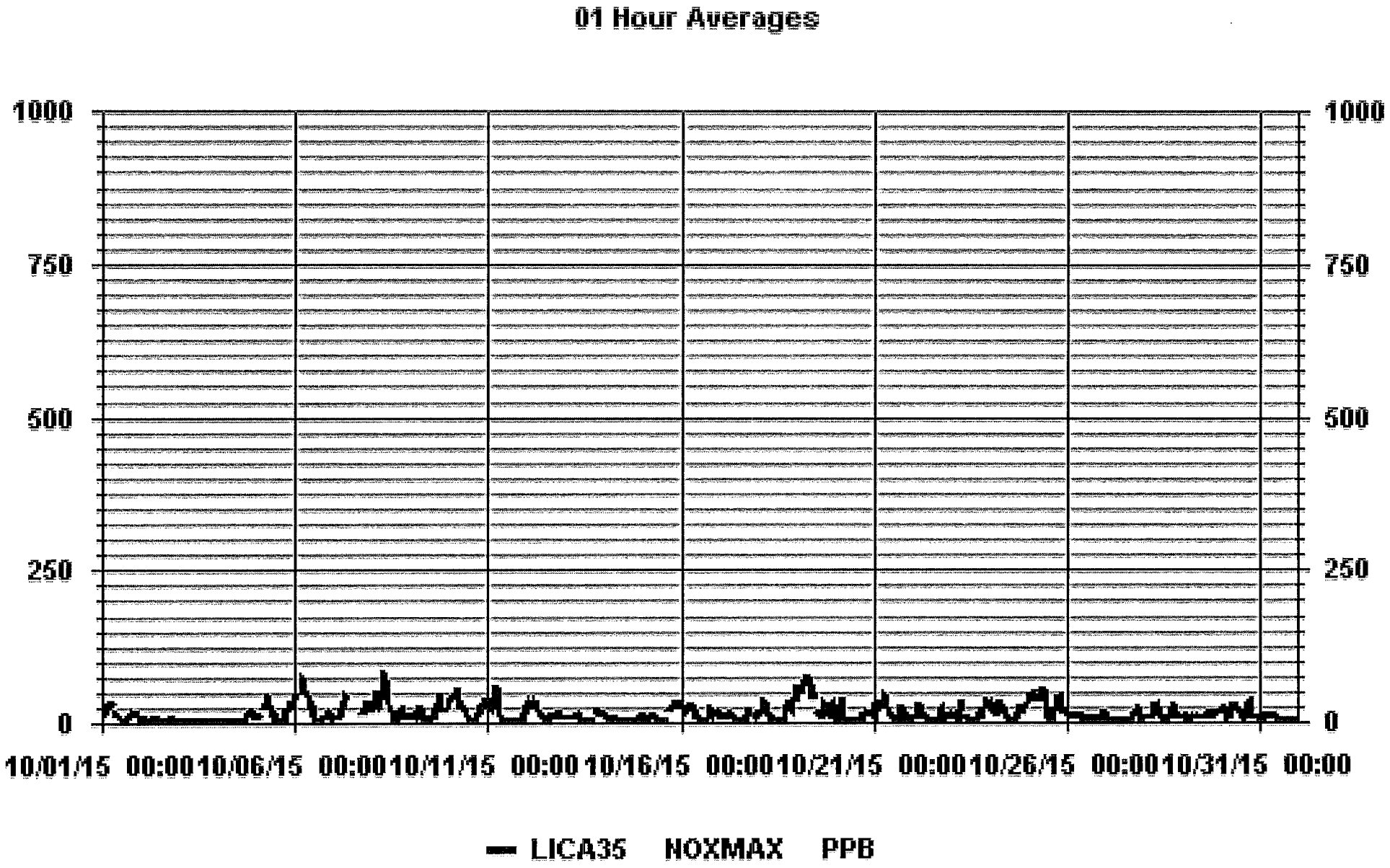
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14.4	29.5	30.1	25.4	30.6	33.3	32.1	S	15.3	15.5	13.4	8.0	8.0	5.9	4.8	5.9	7.3	15.3	20.8	17.5	16.9	17.2	13.3	6.6	33.3	16.8	24
2	9.9	7.6	6.7	6.8	7.1	5.8	S	6.6	6.1	6.4	6.4	5.5	5.1	4.4	4.4	4.4	5.4	4.5	4.5	12.3	4.6	5.7	5.5	4.5	12.3	6.1	24
3	4.0	3.8	3.8	2.8	2.7	S	3.3	3.4	3.2	3.2	2.6	2.8	2.9	3.0	3.1	2.6	2.5	2.6	3.2	4.0	3.0	3.0	2.8	3.4	4.0	3.1	24
4	3.1	3.2	3.1	2.8	S	2.7	3.1	3.2	2.7	2.7	3.7	3.7	3.1	2.7	3.4	4.2	4.2	5.8	13.1	17.7	19.8	20.4	8.8	8.4	20.4	6.3	24
5	10.8	10.1	13.1	S	26.8	30.7	43.5	43.2	33.5	24.7	15.6	16.2	7.7	4.2	3.3	3.0	3.3	4.7	21.7	22.2	31.1	29.5	22.2	36.2	43.5	19.9	24
6	45.0	44.9	S	50.3	71.8	67.8	53.8	50.4	47.7	39.7	31.8	12.8	7.6	3.6	4.2	4.8	6.0	7.7	9.5	10.0	16.6	12.2	10.4	7.7	71.8	26.8	24
7	11.4	S	9.5	9.0	12.5	25.8	37.6	46.5	42.6	C	C	C	C	C	C	C	C	C	18.0	23.9	35.0	33.9	23.1	22.1	46.5	25.1	24
8	S	35.0	31.4	51.4	25.3	37.3	52.4	*85.1*	72.5	41.8	33.0	20.5	20.4	5.0	5.7	5.4	6.7	19.8	23.1	14.6	14.3	11.7	12.4	S	*85.1*	28.4	24
9	11.2	14.5	16.0	11.2	16.3	14.3	26.4	15.4	8.7	7.4	7.3	6.1	6.3	7.6	8.7	19.4	19.8	34.0	47.1	25.7	24.1	22.7	S	26.6	47.1	17.3	24
10	37.8	41.6	47.0	46.2	44.7	57.8	38.4	28.6	26.8	22.4	23.2	15.8	6.9	5.6	4.4	4.2	5.6	10.1	14.4	26.5	29.6	S	35.7	22.5	57.8	25.9	24
11	28.0	33.5	27.5	33.6	28.1	63.3	32.8	12.8	10.9	7.9	5.2	3.3	3.1	3.4	4.4	4.3	3.2	3.1	3.6	3.1	S	6.4	19.4	15.4	63.3	15.5	24
12	22.4	35.0	30.9	28.4	34.8	26.3	38.5	21.3	15.7	16.0	13.7	10.3	5.3	6.1	10.2	10.3	10.6	9.9	10.7	S	19.5	12.5	10.0	11.0	38.5	17.8	24
13	9.3	9.8	11.6	9.5	8.9	8.7	10.2	9.7	13.2	8.3	4.6	4.2	3.6	3.6	3.4	3.6	5.2	6.4	S	21.6	20.5	15.8	14.4	16.0	21.6	9.7	24
14	15.1	12.7	10.9	5.7	8.2	7.0	8.4	7.1	6.2	4.0	2.8	2.4	2.8	2.2	2.1	2.5	2.7	S	4.6	4.9	5.6	8.2	11.2	8.4	15.1	6.3	24
15	9.7	9.9	9.9	7.7	8.6	12.2	15.3	14.0	10.6	8.2	6.1	4.9	3.4	2.1	2.6	2.5	S	23.2	28.0	31.7	33.7	34.8	23.1	28.8	34.8	14.4	24
16	29.8	25.1	16.4	18.7	20.2	28.2	26.8	26.8	22.8	11.6	9.9	7.2	4.5	3.7	4.3	S	6.4	9.4	27.4	19.7	13.2	17.8	17.2	20.3	29.8	16.8	24
17	16.3	10.6	8.8	9.0	8.7	13.2	16.9	16.1	12.7	12.8	7.0	5.0	4.6	4.9	S	4.5	4.0	10.6	25.4	18.4	16.1	14.5	11.1	15.7	25.4	11.6	24
18	15.2	14.5	19.6	36.1	35.0	21.2	13.1	12.3	3.3	3.3	5.7	4.4	3.8	S	2.9	2.6	4.3	23.7	23.6	37.5	22.7	20.3	40.3	35.3	40.3	17.4	24
19	56.0	55.7	50.2	51.6	61.4	67.3	73.9	74.6	70.2	63.4	40.2	46.1	S	17.7	15.6	11.7	13.1	31.3	28.3	25.3	25.7	29.7	11.0	9.5	74.6	40.4	24
20	9.8	8.6	12.6	29.4	41.9	7.1	5.1	3.9	4.1	2.9	3.2	S	3.0	2.4	2.7	2.5	3.1	14.1	14.9	19.5	17.2	16.1	16.0	15.6	41.9	11.1	24
21	11.4	30.2	31.8	25.6	27.5	37.4	45.7	42.8	27.2	22.0	S	12.8	10.2	7.5	5.6	5.0	11.7	28.0	11.9	15.4	12.9	7.9	7.6	7.7	45.7	19.4	24
22	8.5	8.1	9.8	29.9	29.0	13.1	14.6	15.3	11.7	S	4.7	3.3	3.3	3.4	3.0	4.3	5.7	19.5	24.9	17.3	8.6	9.2	13.8	12.2	29.9	11.9	24
23	14.2	14.1	12.2	12.4	9.1	18.4	38.1	22.9	S	10.2	9.3	6.1	3.9	4.6	3.8	4.7	5.9	12.3	11.7	22.0	23.7	35.2	35.0	28.7	38.1	15.6	24
24	32.1	24.3	17.6	16.8	15.1	23.1	33.4	S	24.4	19.2	10.1	9.0	7.0	4.8	2.7	2.1	7.7	15.4	23.6	22.7	21.4	24.3	28.1	31.4	33.4	18.1	24
25	41.7	47.5	49.7	39.3	38.1	40.1	S	51.7	44.4	57.1	38.2	27.9	10.7	9.2	7.7	9.3	21.1	22.2	40.8	43.0	28.6	19.9	20.2	18.9	57.1	31.6	24
26	15.5	13.4	15.5	13.0	11.9	S	11.7	10.3	11.3	12.0	6.5	4.9	5.4	5.9	4.9	6.8	7.1	5.0	8.1	5.9	6.3	7.8	10.5	20.4	20.4	9.6	24
27	6.7	4.5	3.1	3.1	S	3.3	3.1	3.2	3.1	2.6	2.7	2.7	2.7	2.4	2.6	2.4	3.2	11.4	13.4	20.7	29.2	7.8	7.7	10.8	29.2	6.6	24
28	9.0	10.5	9.8	S	10.7	28.0	27.6	25.5	28.3	15.7	12.1	6.8	6.6	7.0	7.4	7.9	10.1	22.1	32.4	11.9	12.8	9.1	8.3	9.7	32.4	14.3	24
29	10.5	12.8	S	9.2	8.5	11.5	10.0	8.8	9.8	10.1	9.3	8.2	8.0	8.8	9.5	10.4	16.0	18.6	16.6	13.7	16.6	18.1	16.3	16.2	18.6	12.1	24
30	21.7	S	23.2	11.1	13.9	12.7	27.6	27.1	24.2	26.5	19.8	20.1	12.0	7.2	7.8	16.2	29.1	32.2	16.3	10.4	9.1	10.6	9.0	8.2	32.2	17.2	24
31	S	9.0	7.0	10.4	11.4	10.3	10.9	10.4	12.3	12.2	5.3	2.6	3.9	3.4	3.7	5.1	3.9	4.2	4.1	4.2	4.1	4.2	3.5	S	12.3	6.6	24
HOURLY MAX	56.0	55.7	50.2	51.6	71.8	67.8	73.9	85.1	72.5	63.4	40.2	46.1	20.4	17.7	15.6	19.4	29.1	34.0	47.1	43.0	35.0	35.2	40.3	36.2			
HOURLY AVG	18.3	20.0	18.6	20.9	23.1	25.1	26.0	24.1	20.9	16.9	12.2	9.8	6.1	5.3	5.1	6.0	8.1	14.7	18.2	18.1	18.1	16.2	15.6	16.5			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702						
MAXIMUM INSTANTANEOUS VALUE:	85.1	PPB	@ HOUR(S)	7	ON DAY(S)	8	
				VAR-VARIOUS			
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	9	HRS					
STANDARD DEVIATION:	13.81						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750
500
250
0
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NOXMAX PPB

LICA-ELK
NOX_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : NOX_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	1.84	.71	.71	1.42	9.09	17.89	7.81	2.69	1.56	1.98	2.69	11.22	12.78	15.62	6.53	4.26	98.86
<	110.0	.00	.14	.00	.00	.00	.28	.28	.14	.28	.00	.00	.00	.00	.00	.00	.00	1.13
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.84	.85	.71	1.42	9.09	18.18	8.09	2.84	1.84	1.98	2.69	11.22	12.78	15.62	6.53	4.26	

Calm : .00 %

Total # Operational Hours : 704

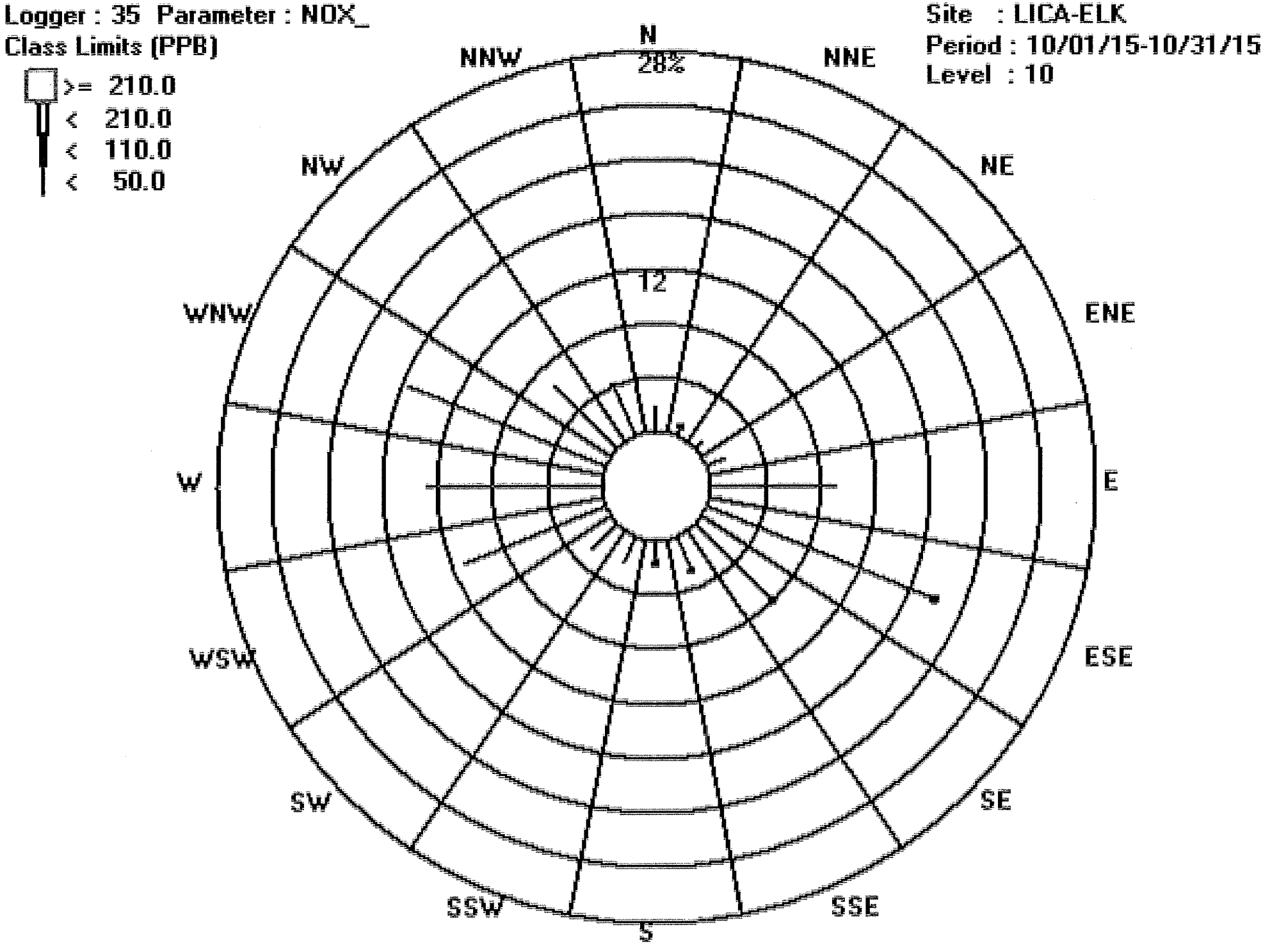
Distribution By Samples

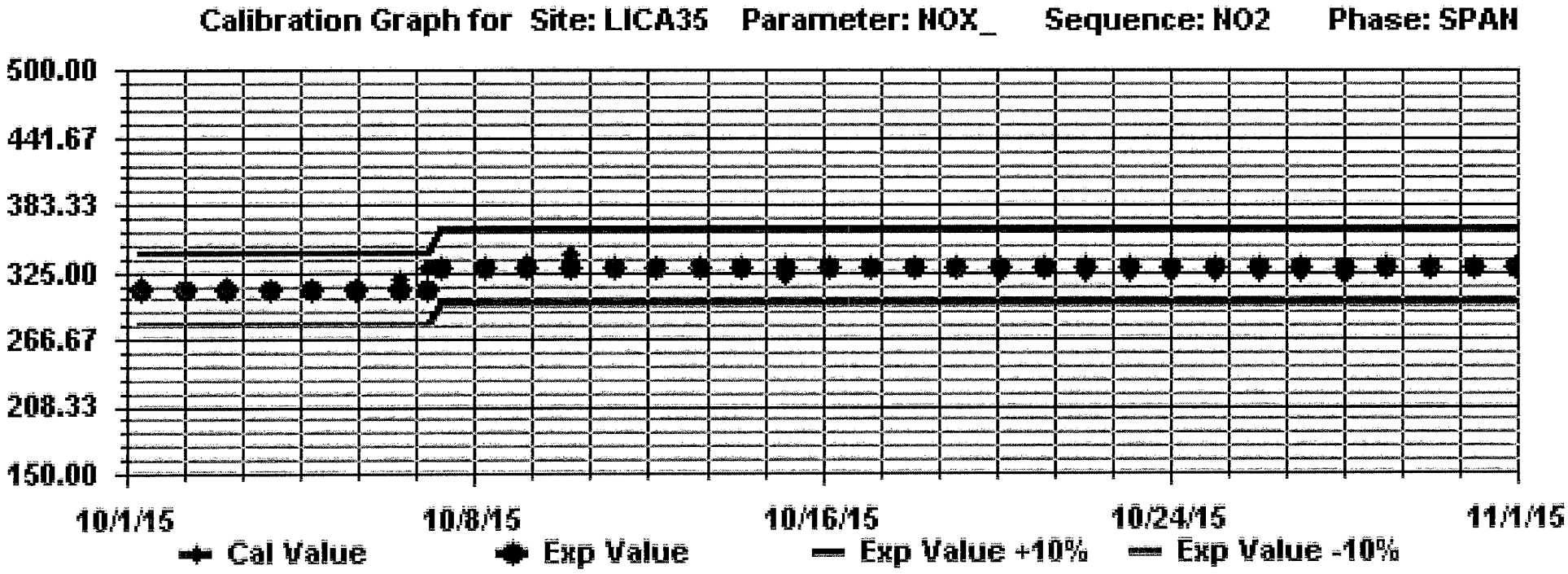
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	13	5	5	10	64	126	55	19	11	14	19	79	90	110	46	30	696
<	110.0		1				2	2	1	2								8
<	210.0																	
>=	210.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	46	30	

Calm : .00 %

Total # Operational Hours : 704


Logger : 35 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12


Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN
500.00
441.67
383.33
325.00
266.67
208.33
150.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

NITRIC OXIDES

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

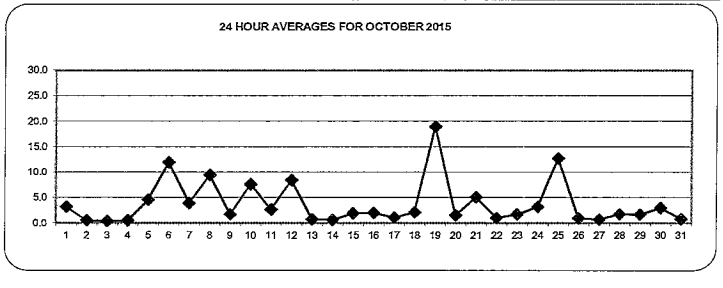
NITRIC OXIDE (NO) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.7	6.1	9.4	6.0	8.5	12.2	8.3	S	5.8	4.4	2.2	1.0	1.0	0.4	0.6	0.7	0.6	0.6	1.3	0.7	0.7	0.9	0.7	0.5	12.2	3.2	24
2	0.7	0.6	0.6	0.7	0.8	0.5	S	0.9	0.4	0.5	0.7	0.6	0.8	0.7	0.5	0.2	0.3	0.1	0.1	0.6	0.4	0.2	0.5	0.4	0.9	0.5	24
3	0.4	0.4	0.5	0.3	0.2	S	0.8	0.5	0.5	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.1	0.2	0.2	0.2	0.8	0.4	24
4	0.3	0.2	0.2	0.2	S	0.5	0.2	0.3	0.3	0.1	0.4	0.4	0.4	0.3	0.4	0.5	0.2	0.6	0.6	1.1	2.2	1.3	0.6	0.5	2.2	0.5	24
5	0.4	0.6	1.1	S	6.3	11.5	19.5	21.2	13.4	6.8	3.7	3.7	0.8	0.4	0.4	0.4	0.3	0.1	0.8	0.9	3.1	3.0	1.0	6.0	21.2	4.6	24
6	14.9	14.3	S	29.5	46.1	46.3	30.6	30.4	27.0	18.5	8.5	2.4	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.9	0.3	0.5	0.5	46.3	12.0	24
7	0.7	S	0.8	0.4	0.9	3.3	9.5	22.1	9.9	2.0	C	C	C	C	C	C	C	1.1	0.8	1.4	3.0	3.9	1.4	1.7	22.1	3.9	24
8	S	14.2	5.0	13.3	4.4	9.5	21.7	51.2	43.4	20.3	12.3	3.4	1.6	0.6	0.7	0.5	0.5	0.9	1.3	0.6	0.6	0.5	0.6	S	51.2	9.4	24
9	1.0	0.6	1.0	0.7	0.8	0.6	2.7	1.4	1.0	1.1	0.9	0.6	0.5	0.8	0.8	1.3	1.3	4.4	8.3	2.1	1.5	1.6	S	3.9	8.3	1.7	24
10	5.0	16.1	19.3	25.8	20.3	25.6	11.5	8.6	10.9	6.9	7.9	1.8	0.5	0.4	0.3	0.5	0.4	0.6	1.1	2.1	3.1	S	5.5	1.2	25.8	7.6	24
11	3.2	6.0	3.7	6.4	3.4	18.1	4.6	0.9	0.8	0.4	0.2	0.5	0.5	0.4	0.7	0.5	0.5	0.3	0.4	0.4	S	1.0	4.5	4.3	18.1	2.7	24
12	13.1	22.9	21.6	19.8	25.9	19.8	25.5	11.2	7.0	8.1	6.1	2.5	0.7	0.5	0.7	1.1	1.0	0.9	0.8	S	1.8	0.8	0.7	0.7	25.9	8.4	24
13	0.6	0.6	0.8	0.5	0.5	0.6	0.9	0.8	1.3	0.9	0.7	0.4	0.6	0.4	0.4	0.4	0.6	0.6	S	1.6	1.1	0.9	1.0	1.0	1.6	0.7	24
14	0.9	0.9	0.8	0.7	0.6	0.6	0.5	0.8	0.8	0.5	0.5	0.4	0.6	0.5	0.5	0.5	0.5	S	0.8	0.6	0.6	0.6	0.5	0.5	0.9	0.6	24
15	0.7	0.7	0.7	0.6	0.6	0.8	0.9	0.9	1.2	1.2	1.0	0.9	0.5	0.5	0.5	0.3	S	2.2	2.7	4.7	8.2	8.8	2.6	3.0	8.8	1.9	24
16	5.5	1.7	0.9	1.4	1.5	4.3	4.9	6.3	3.5	2.0	1.6	1.2	0.6	0.4	0.4	S	0.9	0.6	3.0	0.9	0.8	1.3	0.9	1.6	6.3	2.0	24
17	1.2	0.9	0.8	0.7	0.8	1.2	1.6	1.7	1.9	1.7	1.1	1.0	0.7	0.9	S	0.9	0.4	0.5	1.9	1.2	1.0	0.8	1.0	1.3	1.9	1.1	24
18	1.3	1.2	3.5	6.9	8.0	1.3	0.9	1.0	0.4	0.3	0.8	0.6	0.6	S	0.7	0.5	0.4	0.8	1.5	4.1	0.9	1.2	7.3	5.2	8.0	2.1	24
19	20.0	30.2	24.7	32.2	34.0	46.9	43.9	***53.9***	49.4	31.6	22.7	21.1	S	3.6	2.2	1.6	1.3	5.1	3.6	2.1	1.5	4.0	0.8	0.7	***53.9***	***19.0***	24
20	0.9	0.8	1.1	5.5	11.8	0.6	0.6	0.6	0.6	0.4	0.8	S	0.9	0.7	0.8	0.7	0.6	0.7	1.2	1.7	0.9	1.0	1.2	1.1	11.8	1.5	24
21	0.9	3.4	4.5	3.9	7.8	16.9	27.2	18.7	12.0	7.2	S	3.2	1.6	0.9	0.8	0.5	1.1	2.2	0.8	1.3	0.9	0.4	0.5	0.6	27.2	5.1	24
22	0.5	0.6	0.8	3.8	3.9	1.1	0.9	1.2	0.8	S	1.1	0.7	0.5	0.7	0.6	0.7	0.5	0.8	1.1	0.8	0.5	0.7	0.7	0.7	3.9	1.0	24
23	1.0	1.0	0.9	1.1	0.6	1.4	8.3	2.6	S	2.1	1.6	1.0	0.8	0.7	0.6	0.5	0.4	0.6	0.7	1.3	1.3	3.5	4.5	3.4	8.3	1.7	24
24	5.3	2.7	1.5	1.3	1.2	3.3	10.8	S	6.5	2.2	1.4	1.7	1.1	0.7	0.6	0.4	0.6	0.9	1.8	2.5	2.6	5.6	7.9	11.6	11.6	3.2	24
25	19.9	28.1	30.8	25.4	22.8	25.9	S	32.6	28.2	29.6	16.3	4.3	1.5	1.6	1.0	1.0	1.8	1.6	3.4	10.4	3.2	1.3	1.5	1.3	32.6	12.8	24
26	1.0	0.8	1.4	0.9	1.1	S	1.8	1.3	1.5	1.1	1.1	0.7	0.9	0.8	0.7	0.8	0.6	0.7	0.8	0.6	0.5	0.4	0.6	1.9	1.9	1.0	24
27	0.5	0.7	0.6	0.6	S	0.9	0.6	0.5	0.6	0.5	0.6	0.5	0.4	0.4	0.6	0.4	0.3	0.5	0.8	1.1	2.9	0.7	0.6	0.9	2.9	0.7	24
28	0.7	0.7	0.7	S	1.3	2.3	4.0	3.2	6.0	1.8	1.6	1.0	0.9	1.0	1.0	1.1	1.0	1.4	6.3	0.9	1.4	1.0	0.8	0.9	6.3	1.8	24
29	1.1	1.5	S	1.5	1.0	1.1	1.1	0.9	1.2	1.8	1.6	1.1	1.2	1.3	1.5	1.3	2.1	2.4	2.5	1.5	1.9	4.2	2.3	2.9	4.2	1.7	24
30	6.8	S	2.4	0.9	1.2	1.0	5.5	7.0	8.3	8.0	6.4	5.2	1.6	1.0	0.8	1.6	2.0	4.3	1.2	0.8	0.8	0.9	0.9	0.7	8.3	3.0	24
31	S	1.3	0.8	1.0	1.1	1.0	0.9	1.8	1.0	0.8	0.5	0.6	0.4	0.8	0.9	0.7	0.6	0.5	0.6	0.5	0.7	0.4	S	1.8	0.8	24	
HOURLY MAX	20.0	30.2	30.8	32.2	46.1	46.9	43.9	53.9	49.4	31.6	22.7	21.1	1.6	3.6	2.2	1.6	2.1	5.1	8.3	10.4	8.2	8.8	7.9	11.6			
HOURLY AVG	3.8	5.5	4.9	6.6	7.5	8.9	8.6	9.8	8.2	5.5	3.6	2.2	0.8	0.8	0.7	0.7	0.8	1.2	1.7	1.6	1.6	1.7	1.7	2.0			

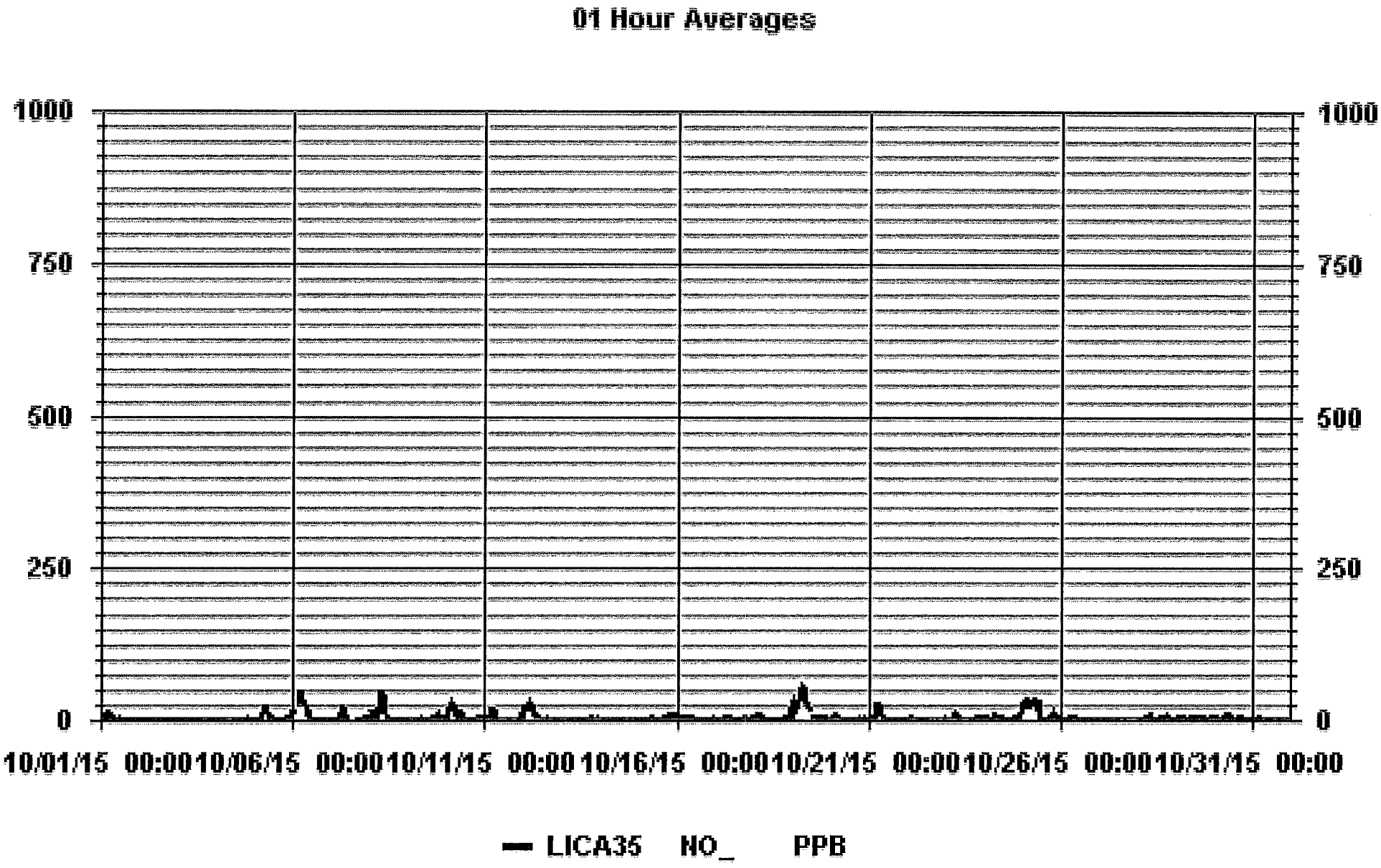
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		704					
MAXIMUM 1-HR AVERAGE:	53.9	PPB	@ HOUR(S)	7	ON DAY(S)	19	
MAXIMUM 24-HR AVERAGE:	19.0	PPB			ON DAY(S) VAR-VARIOUS	19	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	7.63		MONTHLY AVERAGE:			3.8	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NO_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

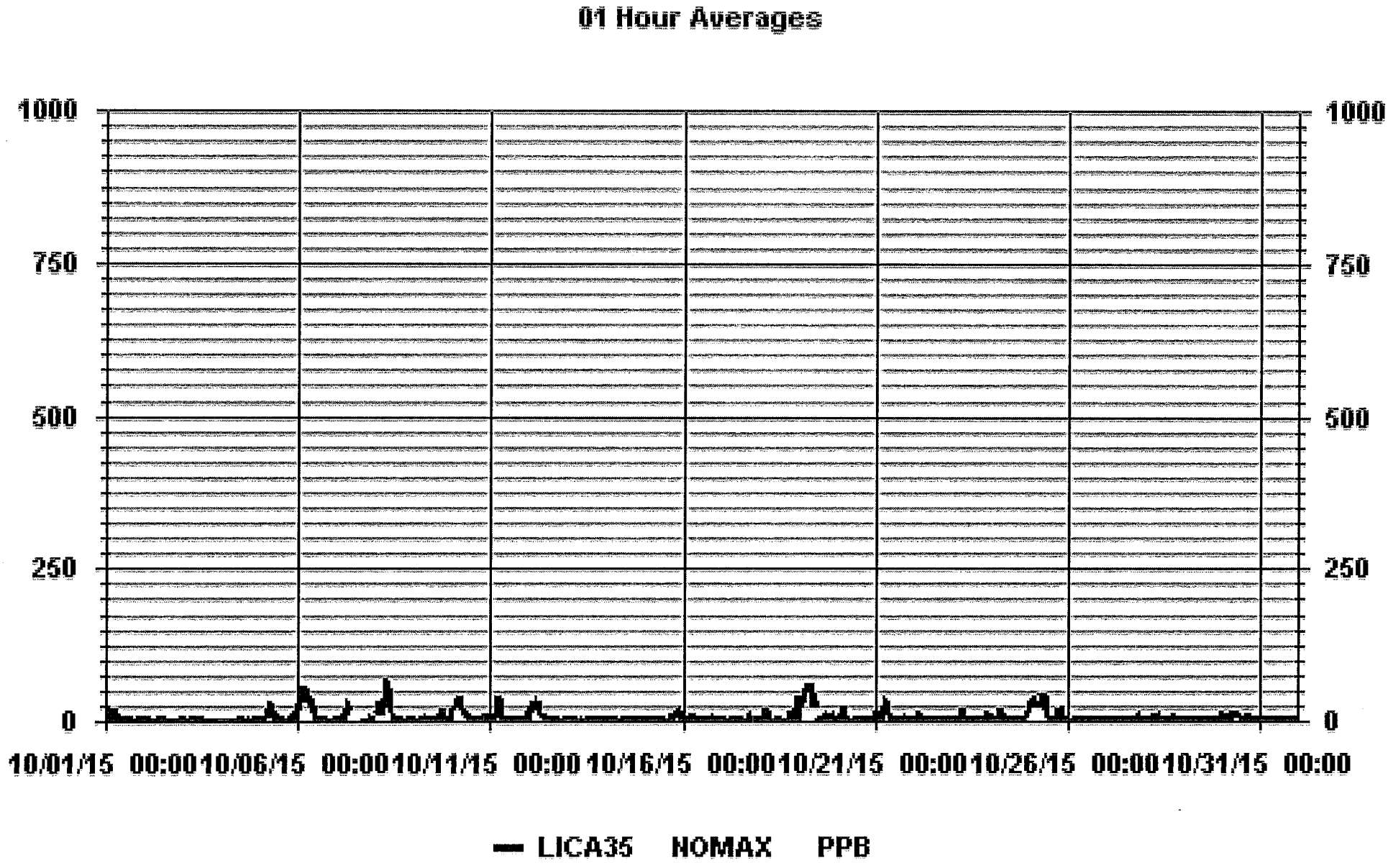
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.2	14.5	15.0	10.5	16.0	19.3	18.3	S	7.0	6.3	4.3	1.9	1.9	1.1	1.3	1.4	1.4	1.6	2.8	1.5	2.0	2.1	1.8	1.1	19.3	5.9	24
2	1.7	1.4	1.5	1.5	1.5	1.1	S	1.8	1.1	1.2	1.5	1.2	1.8	1.5	1.3	0.8	1.0	0.8	0.8	2.2	1.1	0.8	1.2	1.0	2.2	1.3	24
3	1.4	1.1	1.1	0.9	0.9	S	1.7	1.2	1.1	1.5	1.1	1.1	1.1	1.1	1.1	0.9	0.9	1.1	0.8	0.9	1.0	0.8	0.8	0.9	1.7	1.1	24
4	1.0	0.8	0.7	0.9	S	1.5	0.9	0.8	0.9	0.7	1.1	1.0	1.1	1.0	1.1	1.0	0.7	1.3	1.2	2.4	S.S	3.9	1.3	1.2	5.5	1.4	24
5	1.8	1.4	2.4	S	12.7	17.6	28.6	27.8	18.2	12.1	5.9	6.1	1.7	1.0	1.0	1.0	1.0	0.7	3.9	3.7	7.0	6.4	2.4	15.9	28.6	7.8	24
6	23.8	23.5	S	36.6	56.7	52.3	38.2	37.6	32.1	25.3	16.7	3.3	1.8	1.2	1.1	1.2	1.3	1.2	1.5	1.3	2.9	0.9	1.5	1.2	56.7	15.8	24
7	1.4	S	1.8	1.3	2.1	9.5	18.3	27.1	23.2	C	C	C	C	C	C	C	C	C	1.6	2.7	5.6	5.5	3.6	3.6	27.1	7.7	24
8	S	16.3	11.6	34.4	8.8	22.7	37.6	***70.2***	57.0	26.8	16.7	5.4	5.0	1.3	1.5	1.2	1.2	2.8	2.8	1.5	1.4	1.0	1.0	S	***70.2***	14.9	24
9	1.7	1.7	2.4	1.1	1.9	1.4	6.7	2.3	1.9	1.9	1.9	1.2	1.5	1.4	1.5	2.9	3.0	10.6	19.0	3.9	2.8	3.9	S	7.5	19.0	3.7	24
10	18.2	21.7	31.6	30.3	29.2	39.8	22.7	14.9	14.1	10.6	11.5	5.7	1.3	1.1	1.1	1.1	0.9	2.2	3.2	9.6	8.4	S	11.0	2.4	39.8	12.7	24
11	7.8	10.5	8.4	13.6	8.5	42.4	11.1	2.0	1.8	1.2	1.0	1.1	1.1	1.2	1.4	1.1	1.2	1.0	1.1	1.1	S	2.2	10.3	7.7	42.4	6.0	24
12	16.1	26.9	24.3	23.3	29.1	21.7	32.7	14.8	9.1	9.6	7.4	5.2	1.5	1.1	1.6	2.4	2.9	1.8	1.9	S	2.9	1.5	1.5	1.5	32.7	10.5	24
13	1.4	1.1	1.8	1.4	1.5	1.2	1.5	1.4	2.6	1.5	1.6	0.9	1.2	1.1	1.1	1.2	1.2	1.3	S	3.5	2.0	1.5	2.0	1.7	3.5	1.6	24
14	1.6	1.7	1.3	1.5	1.6	1.4	1.2	1.6	1.7	0.9	1.0	1.0	1.2	1.2	1.2	1.1	1.2	S	1.5	1.2	1.4	1.2	1.3	1.5	1.7	1.3	24
15	1.6	1.3	1.5	1.4	1.3	1.4	1.7	1.8	1.9	1.7	1.6	1.5	1.2	1.3	1.2	0.9	S	6.4	6.5	8.3	12.9	16.3	6.4	8.8	16.3	3.9	24
16	9.7	3.7	2.0	2.0	2.6	8.8	8.0	9.2	6.8	2.6	2.6	1.9	1.4	0.9	1.1	S	1.5	1.6	5.4	1.8	1.4	2.8	2.4	4.3	9.7	3.7	24
17	2.2	1.5	1.5	1.3	1.4	2.8	3.4	2.8	3.3	3.4	1.8	1.7	1.5	1.5	S	1.7	1.0	1.2	7.1	2.6	1.7	1.5	1.8	2.4	7.1	2.2	24
18	2.0	2.0	6.2	17.9	16.3	3.5	1.7	1.8	1.0	0.9	1.5	1.3	1.2	S	1.9	1.1	1.0	2.1	2.6	15.4	2.0	2.1	15.1	12.6	17.9	4.9	24
19	35.8	35.9	32.9	36.3	46.7	50.9	59.0	60.0	57.4	48.0	25.6	29.9	S	5.4	3.2	2.6	2.1	10.4	7.2	4.4	6.5	9.1	1.7	1.5	60.0	24.9	24
20	1.8	1.5	3.2	13.0	25.4	1.4	1.2	1.1	1.2	1.0	1.6	S	2.1	1.3	1.5	1.4	1.2	1.7	2.0	5.3	2.2	1.8	1.8	1.9	25.4	3.3	24
21	1.5	11.9	13.5	7.8	12.1	22.3	31.9	27.8	14.8	9.7	S	4.7	2.9	1.7	1.4	1.3	2.1	5.6	1.7	2.3	2.0	1.2	1.2	1.1	31.9	7.9	24
22	1.1	1.5	2.9	11.7	10.6	1.8	1.7	1.9	1.8	S	2.0	1.5	1.1	1.3	1.1	1.6	1.2	2.4	2.1	1.5	1.2	1.3	1.3	1.3	11.7	2.4	24
23	2.0	1.6	1.7	2.0	1.4	3.6	18.4	6.2	S	3.0	2.7	1.7	1.4	1.3	1.4	1.2	1.2	1.5	1.6	2.1	2.0	10.3	10.2	7.7	18.4	3.7	24
24	9.9	4.3	2.5	2.0	2.0	4.4	16.0	S	10.9	4.4	2.2	2.5	2.3	1.5	1.0	1.1	1.5	1.8	3.4	4.1	4.1	7.2	10.7	14.5	16.0	5.0	24
25	26.6	31.9	35.2	27.2	26.7	28.0	S	41.3	30.1	43.0	22.8	9.4	2.3	2.2	1.8	1.7	4.9	4.3	16.6	18.6	5.5	2.2	2.3	2.0	43.0	16.8	24
26	1.5	1.5	3.5	1.7	2.3	S	2.9	2.1	2.6	2.6	2.1	1.4	1.5	2.0	1.5	1.8	1.5	1.3	1.7	1.2	1.3	1.2	1.3	4.2	4.2	1.9	24
27	1.0	1.3	1.3	1.5	S	1.9	1.3	1.4	1.2	1.1	1.3	1.1	1.1	1.1	1.3	1.0	1.0	1.2	1.7	4.5	8.0	1.3	1.3	1.5	8.0	1.7	24
28	1.6	1.3	1.3	S	2.1	9.2	8.4	5.9	10.2	3.0	2.6	1.7	1.8	1.8	1.7	1.8	2.0	5.5	12.5	2.0	2.2	1.6	1.3	1.6	12.5	3.6	24
29	1.9	2.6	S	2.8	1.7	1.8	2.0	1.9	2.3	2.5	2.6	2.0	2.2	2.1	2.4	2.1	4.1	4.2	3.4	2.1	4.7	6.5	4.4	5.8	6.5	3.0	24
30	11.6	S	10.2	1.8	2.4	1.7	12.5	12.7	11.3	13.1	8.7	8.8	3.1	1.8	1.5	3.7	6.5	7.8	2.7	1.5	1.3	1.5	1.5	1.5	13.1	5.6	24
31	S	2.3	1.5	1.8	2.6	1.5	1.8	1.6	2.9	2.6	1.8	1.3	1.2	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.1	S	2.9	1.6	24
HOURLY MAX	35.8	35.9	35.2	36.6	56.7	52.3	59.0	70.2	57.4	48.0	25.6	29.9	5.0	5.4	3.2	3.7	6.5	10.6	19.0	18.6	12.9	16.3	15.1	15.9			
HOURLY AVG	6.7	7.9	7.8	10.0	11.3	13.0	13.5	13.2	11.1	8.4	5.4	3.7	1.7	1.5	1.4	1.5	1.8	3.0	4.1	3.8	3.5	3.4	3.5	4.1			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		702					
MAXIMUM INSTANTANEOUS VALUE:		70.2	PPB	@ HOUR(S)	7	ON DAY(S)	8
						VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	9	HRS					
STANDARD DEVIATION:	9.89						


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NOMAX PPB

LICA-ELK
NO_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : NO_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	1.84	.71	.71	1.42	9.09	18.18	7.95	2.84	1.84	1.98	2.69	11.22	12.78	15.62	6.53	4.26	99.71
<	110.0	.00	.14	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.84	.85	.71	1.42	9.09	18.18	8.09	2.84	1.84	1.98	2.69	11.22	12.78	15.62	6.53	4.26	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Direction

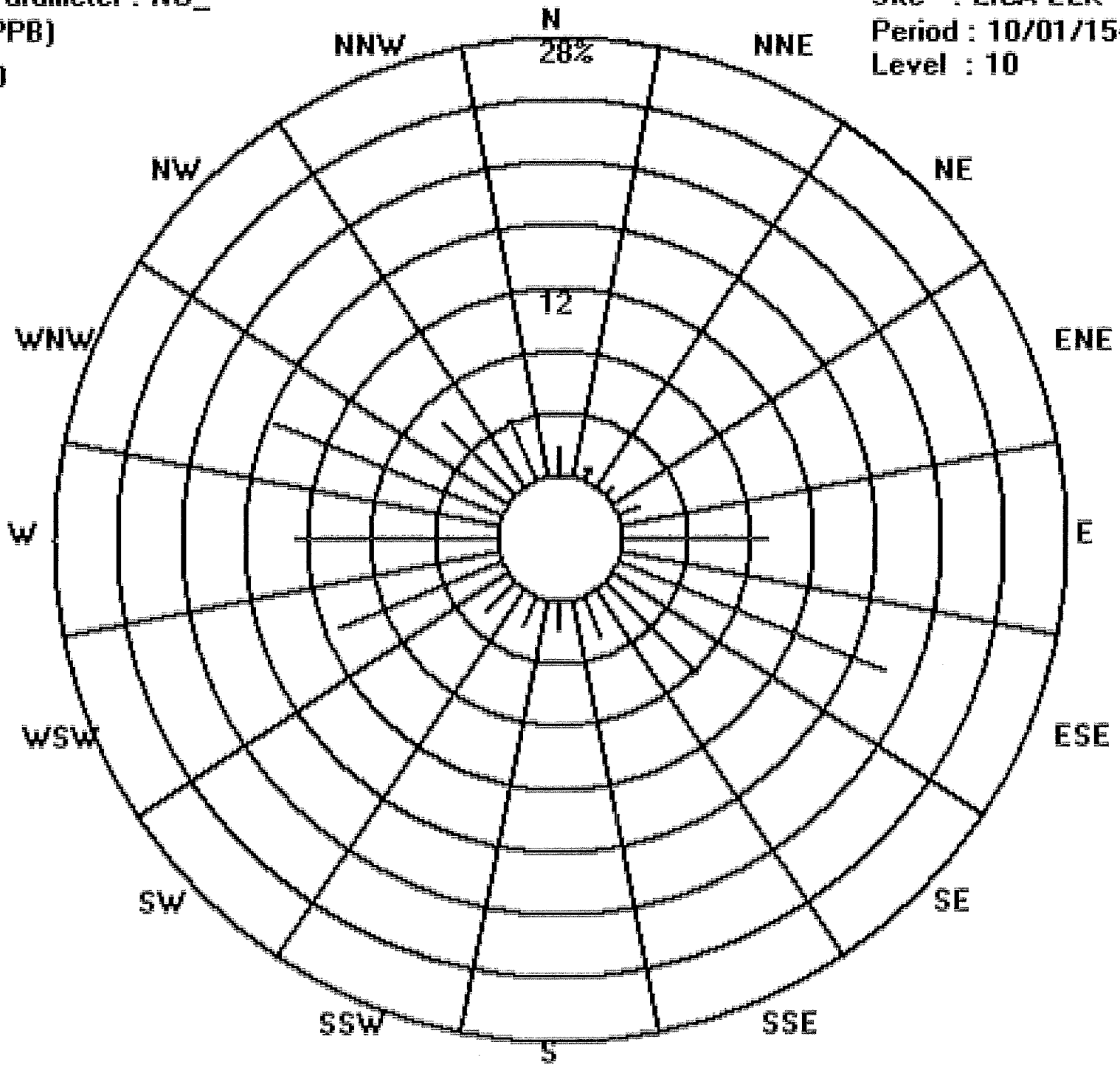
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	13	5	5	10	64	128	56	20	13	14	19	79	90	110	46	30	702
<	110.0		1					1										2
<	210.0																	
>=	210.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	46	30	

Calm : .00 %

Total # Operational Hours : 704

Logger : 35 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10



NITROGEN DIOXIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

NITROGEN DIOXIDE (NO2) hourly averages in ppb

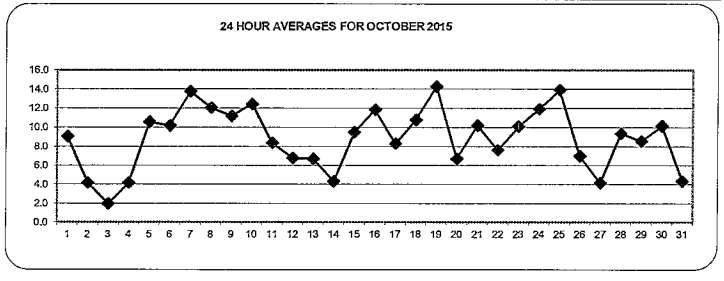
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	10.2	13.2	13.7	13.7	14.0	14.1	11.4	S	8.4	8.9	7.7	5.7	5.3	4.0	3.6	3.7	4.2	6.8	15.4	12.7	9.1	10.0	7.7	5.1	15.4	9.1	24
2	5.9	5.6	4.8	5.0	5.1	4.3	S	4.5	4.4	4.7	4.3	3.7	3.4	3.1	2.9	3.2	3.7	3.3	3.2	5.3	3.3	4.2	4.3	3.4	5.9	4.2	24
3	2.8	2.8	2.3	2.0	1.8	S	1.8	1.7	2.1	1.8	1.7	1.9	1.9	1.7	1.7	1.5	1.6	1.7	2.3	2.6	1.9	1.8	1.8	2.1	2.8	2.0	24
4	2.0	2.2	2.0	1.9	S	1.7	2.1	2.2	1.9	1.7	2.4	2.3	2.1	1.9	2.1	2.6	3.2	4.3	7.2	10.2	12.8	12.3	7.1	6.8	12.8	4.1	24
5	7.2	7.1	8.9	S	13.8	13.7	14.8	15.4	13.3	13.0	9.8	8.9	4.5	3.3	2.8	2.4	2.5	2.8	6.3	13.6	20.8	21.4	16.6	19.8	21.4	10.6	24
6	20.6	19.1	S	15.9	15.0	15.7	14.6	13.2	14.6	14.5	13.3	8.7	3.8	3.0	3.2	3.6	4.4	6.2	6.6	7.0	9.7	7.7	7.5	6.4	20.6	10.2	24
7	7.4	S	7.7	6.9	9.9	12.4	17.6	19.6	15.4	7.9	C	C	C	C	C	C	C	2.9	10.2	21.0	***25.1***	22.0	15.5	18.4	***25.1***	13.7	24
8	S	18.7	16.2	16.0	16.5	14.3	14.3	14.4	15.3	16.4	16.6	13.8	7.8	3.7	4.2	4.1	4.5	12.2	14.4	11.2	10.3	9.2	10.6	S	18.7	12.0	24
9	9.2	10.5	9.9	9.1	9.2	10.8	14.3	9.7	5.2	5.5	5.5	4.2	4.0	5.6	6.4	11.0	11.9	19.2	23.0	19.7	18.2	16.1	S	18.3	23.0	11.2	24
10	17.9	19.7	16.3	15.5	17.0	16.9	14.5	14.2	12.6	12.1	11.6	7.8	4.8	4.3	3.6	3.3	4.7	6.1	11.3	14.7	18.7	S	21.9	16.1	21.9	12.4	24
11	17.5	20.8	18.5	19.5	18.2	19.9	15.6	7.4	6.5	5.1	3.3	2.1	2.1	2.3	2.8	2.6	1.8	2.1	2.6	1.9	S	3.6	7.8	7.7	20.8	8.3	24
12	7.4	7.7	6.6	6.3	S.3	5.5	6.4	7.3	7.2	6.8	5.8	5.1	3.6	4.6	4.4	6.9	5.4	6.5	8.4	S	15.1	8.4	6.5	8.3	15.1	6.8	24
13	7.4	7.7	8.9	5.4	5.4	5.7	6.6	7.3	9.2	4.1	3.0	2.4	2.0	2.0	1.9	2.2	3.4	3.3	S	15.2	16.7	11.4	9.2	13.5	16.7	6.7	24
14	12.3	10.2	5.8	4.6	5.9	5.5	6.4	5.9	4.4	2.6	1.8	1.6	1.8	1.7	1.5	1.7	1.9	S	2.5	2.0	3.3	3.8	6.8	4.5	12.3	4.3	24
15	6.1	6.8	7.1	6.3	7.1	9.1	11.7	9.8	7.1	5.9	3.6	3.0	1.8	1.0	1.1	1.3	S	12.0	16.8	21.9	20.9	18.8	17.7	21.3	21.9	9.5	24
16	21.0	18.0	13.8	16.1	17.6	18.9	18.8	17.4	13.2	8.4	6.9	4.9	2.8	2.5	2.9	S	4.2	5.8	20.6	12.9	9.5	11.9	10.2	13.4	21.0	11.8	24
17	12.7	7.7	7.4	8.3	7.1	8.4	11.1	11.2	8.3	7.7	4.9	4.0	4.0	3.9	S	3.2	3.3	5.7	14.4	13.1	11.9	10.8	9.1	12.3	14.4	8.3	24
18	11.9	11.2	14.2	15.9	18.6	13.6	10.0	6.8	2.7	2.3	3.4	2.7	2.4	S	1.1	1.2	1.9	9.0	18.1	22.0	17.0	17.0	22.3	21.8	22.3	10.7	24
19	22.5	17.1	15.9	15.2	13.5	15.0	14.9	14.4	13.6	13.8	13.1	16.2	S	12.7	11.5	8.9	9.9	17.5	19.2	17.1	12.4	16.6	9.1	7.3	22.5	***14.2***	24
20	7.0	6.3	7.6	13.3	14.5	4.5	2.9	2.5	2.6	1.9	1.7	S	1.3	1.5	1.7	1.5	1.9	7.1	12.3	12.8	10.5	12.9	13.5	11.8	14.5	6.7	24
21	9.1	12.4	15.6	14.8	17.3	14.7	14.4	15.2	12.5	11.6	S	8.2	6.0	5.0	3.4	3.7	7.4	16.4	8.9	11.5	8.6	5.8	5.9	6.0	17.3	10.2	24
22	6.5	6.1	6.2	12.6	14.9	9.7	8.4	11.3	6.4	S	3.1	2.2	2.4	2.3	1.8	2.8	4.1	11.3	17.9	9.1	7.1	7.2	11.6	9.6	17.9	7.6	24
23	12.5	12.0	9.6	9.6	7.3	11.1	15.9	15.0	S	7.3	6.1	4.2	3.0	3.3	2.5	2.5	3.5	5.1	6.6	14.3	17.8	23.1	20.9	18.7	23.1	10.1	24
24	20.5	18.8	14.3	13.2	12.5	17.6	18.5	S	14.7	9.6	6.0	6.1	4.2	2.5	1.8	1.7	3.2	6.6	18.7	15.2	16.0	18.1	16.6	17.1	20.5	11.9	24
25	15.8	15.2	13.7	12.5	11.6	10.5	S	9.9	13.0	15.4	16.9	12.8	7.6	7.4	6.2	7.4	12.0	16.9	17.5	24.4	20.9	17.0	18.3	16.5	24.4	13.9	24
26	12.7	11.8	11.6	10.2	8.9	S	9.0	7.0	8.0	7.6	4.9	4.0	4.2	4.2	3.6	4.3	4.9	4.2	5.6	4.7	5.0	5.3	6.9	11.7	12.7	7.0	24
27	4.2	3.4	2.3	2.4	S	2.2	2.3	2.1	2.2	1.9	2.0	2.0	1.8	1.9	1.9	1.8	2.2	4.9	10.6	10.8	13.5	4.6	5.8	8.2	13.5	4.1	24
28	7.0	8.5	8.1	S	7.6	9.4	18.3	16.8	17.4	10.7	8.2	5.3	4.7	4.6	5.6	5.5	8.0	11.1	17.6	8.9	10.2	7.7	6.6	7.5	18.3	9.4	24
29	8.1	9.4	S	6.0	5.5	7.9	6.9	6.7	6.9	7.5	6.7	6.1	6.1	6.4	7.0	7.7	10.1	12.5	12.8	11.6	11.2	12.0	11.5	10.2	12.8	8.6	24
30	10.7	S	10.9	8.1	10.3	10.7	13.1	15.1	13.1	12.9	11.8	11.7	7.2	5.8	5.7	10.3	13.2	19.2	10.1	5.6	7.5	7.1	5.9	7.3	19.2	10.1	24
31	S	6.2	5.2	5.8	8.0	8.1	8.3	8.0	8.4	5.6	2.4	1.4	1.6	1.6	2.1	3.3	2.6	2.9	3.0	2.9	2.8	2.6	2.0	S	8.4	4.3	24
HOURLY MAX	22.5	20.8	18.5	19.5	18.6	19.9	18.8	19.6	17.4	16.4	16.9	16.2	7.8	12.7	11.5	11.0	13.2	19.2	23.0	24.4	25.1	23.1	22.3	21.8			
HOURLY AVG	11	11	10	10	11	11	11	10	9	8	7	6	4	4	3	4	5	8	11	12	12	11	11	11			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

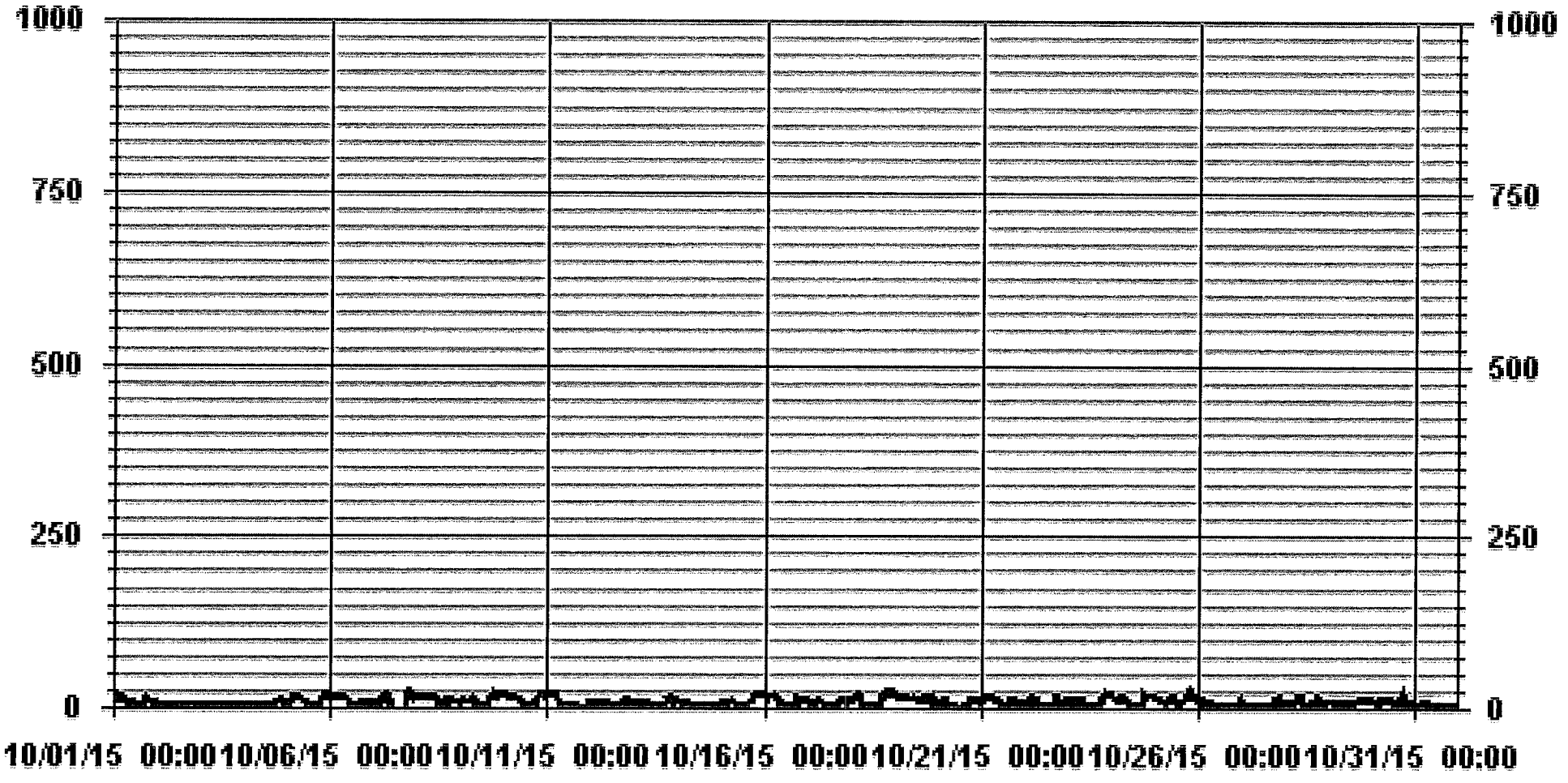
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			704				
MAXIMUM 1-HR AVERAGE:	25.1	PPB	@ HOUR(S)	20	ON DAY(S)	7	
MAXIMUM 24-HR AVERAGE:	14.2	PPB			ON DAY(S)	19	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CAUBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	5.59		MONTHLY AVERAGE:			8.8	PPB

01 Hour Averages



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

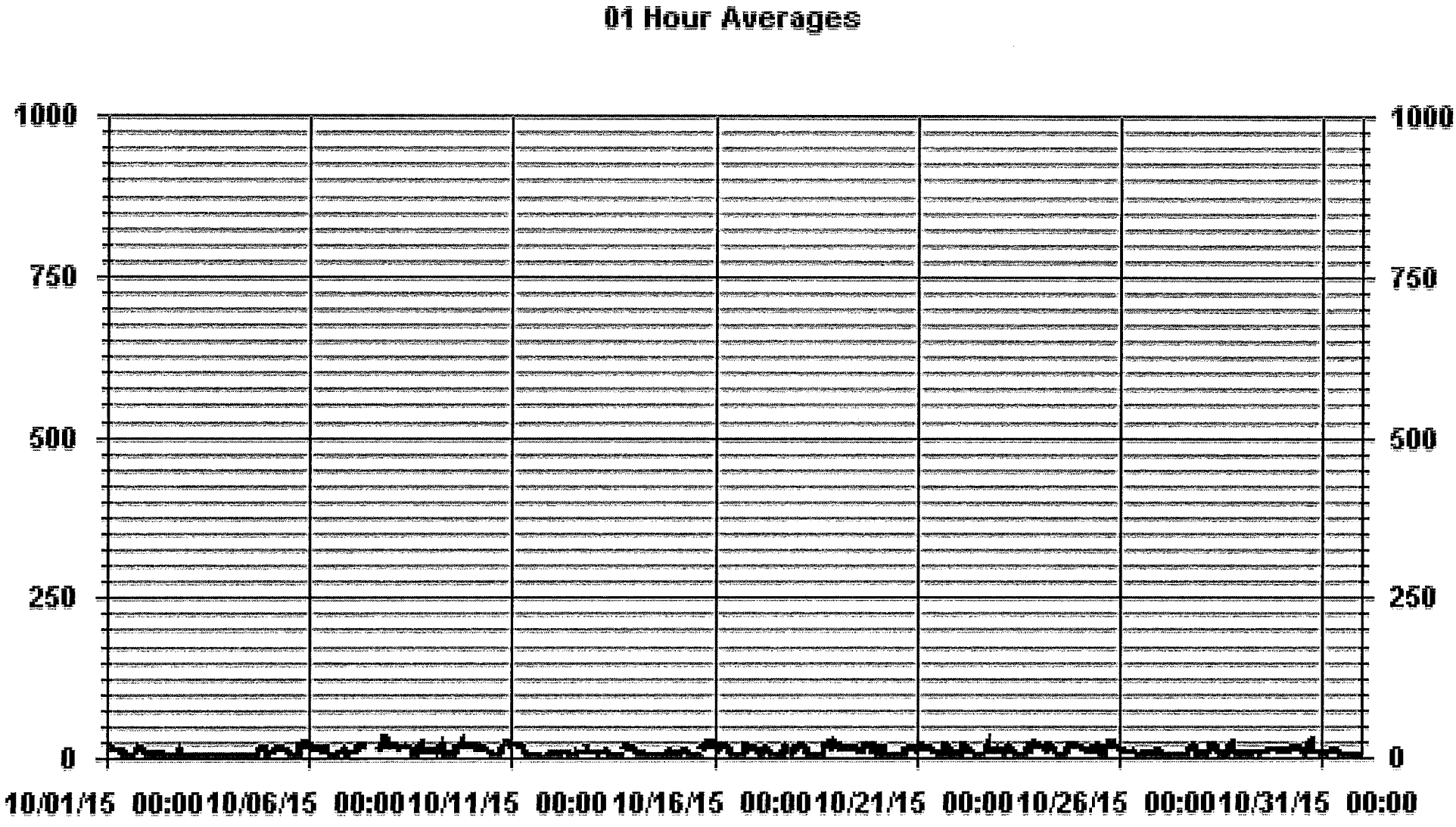
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	11.8	16.3	15.4	15.3	15.1	15.3	14.0	S	9.2	9.9	9.9	6.7	6.5	5.2	4.2	5.3	6.7	14.3	19.2	16.9	15.2	15.5	12.0	6.2	19.2	11.6	24
2	8.7	6.8	5.6	5.6	6.2	5.2	S	5.6	5.5	5.8	5.5	5.0	4.3	4.0	4.0	4.2	4.9	4.3	4.6	11.5	4.4	5.4	5.4	4.4	11.5	5.5	24
3	3.4	3.7	3.1	2.7	2.4	S	3.0	2.8	2.7	2.7	2.3	2.7	2.6	2.5	2.3	2.2	2.2	2.2	3.1	3.7	2.8	2.5	2.5	3.2	3.7	2.8	24
4	2.8	2.8	2.7	2.6	S	2.5	3.1	2.8	2.6	2.6	3.1	3.2	2.8	2.5	3.2	3.7	4.2	5.2	12.4	15.8	16.7	17.1	8.1	7.8	17.1	5.7	24
5	9.3	9.0	11.2	S	15.7	14.9	16.1	16.5	15.7	15.1	12.8	11.2	6.6	4.2	3.5	3.1	3.4	5.3	18.6	19.1	24.6	23.6	21.0	22.0	24.6	13.2	24
6	22.4	22.0	S	18.7	16.3	17.3	17.0	14.1	16.7	15.5	16.6	10.6	6.7	3.7	4.3	4.9	6.1	7.6	9.4	9.9	15.9	12.5	10.1	7.7	22.4	12.4	24
7	10.9	S	9.0	9.2	11.5	17.2	20.1	21.2	20.3	C	C	C	C	C	C	C	C	C	17.7	23.1	***30.5***	***30.5***	20.6	21.0	***30.5***	18.8	24
8	S	20.5	20.4	17.8	18.5	16.0	15.8	16.1	16.6	18.0	18.8	16.3	16.4	4.9	5.6	5.2	6.7	18.2	21.3	14.1	13.9	11.5	12.4	S	21.3	14.8	24
9	10.7	13.7	14.3	10.9	15.4	13.8	20.5	13.7	7.7	6.6	6.6	5.7	5.9	7.4	8.1	17.3	17.8	24.4	28.5	22.9	21.9	19.5	S	20.4	28.5	14.5	24
10	21.0	21.3	18.0	16.7	19.1	18.3	16.3	15.4	14.1	13.4	13.1	10.9	6.4	5.5	4.5	4.3	5.8	8.5	13.9	19.0	22.4	S	25.4	20.7	25.4	14.5	24
11	21.7	23.1	20.7	20.9	20.0	23.6	21.9	11.2	9.4	7.2	4.7	2.8	2.8	3.1	3.9	3.8	2.6	3.0	3.7	2.5	S	5.4	10.1	9.1	23.6	10.3	24
12	8.8	9.0	7.8	7.9	6.6	6.6	7.8	8.4	7.9	7.6	7.1	7.3	4.9	5.9	9.2	9.2	8.5	9.1	9.7	S	16.8	11.5	9.2	10.0	16.8	8.6	24
13	8.4	9.1	10.4	8.9	7.8	8.0	9.0	8.8	11.2	7.1	3.9	3.5	2.7	2.7	2.9	3.3	4.4	5.5	S	20.3	19.2	15.1	13.4	15.3	20.3	8.7	24
14	14.8	12.1	10.5	5.6	8.1	7.2	8.6	6.9	5.3	3.9	2.6	2.4	2.4	2.4	2.1	2.4	2.8	S	3.6	4.4	4.7	7.6	10.9	7.4	14.8	6.0	24
15	8.7	9.1	9.5	6.9	8.0	11.6	14.0	13.1	9.5	7.1	5.0	4.3	2.7	1.9	2.0	2.5	S	17.5	22.4	24.2	23.2	20.7	19.7	23.4	24.2	11.6	24
16	23.4	21.8	15.0	17.7	18.8	20.5	20.0	19.5	16.9	9.9	8.3	6.1	3.7	3.3	4.1	S	6.5	9.0	24.9	19.3	13.5	16.2	16.1	17.9	24.9	14.5	24
17	15.7	10.6	8.8	9.4	8.5	11.5	14.7	14.2	10.6	10.8	6.3	4.8	4.8	4.6	S	4.1	4.0	10.0	19.6	17.1	15.1	14.0	10.8	15.2	19.6	10.7	24
18	14.6	13.7	16.7	20.3	19.9	18.9	12.4	11.5	3.8	3.8	5.5	4.3	3.9	S	1.8	1.9	4.1	22.3	21.6	24.4	21.3	19.1	26.0	23.4	26.0	13.7	24
19	24.0	20.4	17.9	18.3	15.9	17.4	16.8	15.7	15.8	15.9	15.3	17.3	S	14.1	13.2	10.6	11.8	21.8	22.0	21.5	19.3	21.4	10.5	8.8	24.0	16.8	24
20	9.7	8.4	9.9	17.3	18.7	6.7	4.7	3.5	3.8	2.7	2.7	S	2.1	2.2	2.5	2.2	2.9	13.6	13.9	16.1	15.9	15.4	15.5	14.9	18.7	8.9	24
21	11.0	19.3	19.2	18.9	18.7	16.2	15.6	16.2	14.8	13.8	S	9.4	8.0	6.3	4.9	4.8	10.8	22.8	11.5	14.3	11.8	7.4	7.4	7.1	22.8	12.6	24
22	8.0	7.6	8.2	19.0	18.9	12.2	13.8	14.6	10.9	S	4.0	3.1	3.3	3.2	2.9	4.0	5.7	18.0	24.3	16.6	8.7	9.0	13.6	12.0	24.3	10.5	24
23	13.5	13.7	12.0	11.8	9.1	15.7	21.2	18.3	S	9.2	7.6	5.3	3.9	4.2	3.2	4.8	5.6	11.9	11.4	20.8	23.0	25.9	25.5	21.7	25.9	13.0	24
24	23.1	21.2	16.6	15.9	13.6	19.8	20.3	S	16.3	15.9	9.4	8.2	5.8	4.2	2.7	2.5	7.5	14.9	22.1	21.2	19.3	20.4	18.6	18.8	23.1	14.7	24
25	18.1	16.8	16.0	14.2	13.4	13.3	S	11.6	15.8	16.6	19.3	19.7	10.4	8.1	7.3	8.7	18.1	19.7	25.6	26.1	24.0	19.1	19.3	18.0	26.1	16.5	24
26	15.3	12.8	13.2	12.4	10.7	S	10.7	9.3	10.2	10.7	6.6	5.0	5.2	5.3	4.6	6.3	6.6	5.1	7.7	6.3	6.2	7.6	10.4	17.3	17.3	8.9	24
27	6.7	4.8	3.1	3.1	S	2.9	3.1	2.9	3.1	2.7	2.8	2.9	2.7	2.6	2.7	2.6	3.4	11.4	12.8	17.0	22.0	7.6	7.4	10.4	22.0	6.1	24
28	9.0	10.5	9.4	S	9.9	19.9	20.8	20.5	19.3	13.9	10.9	6.4	6.1	6.6	7.1	7.2	9.9	17.3	20.8	11.5	11.6	8.5	7.8	8.9	20.8	11.9	24
29	9.5	11.0	S	7.8	7.9	10.6	9.3	8.1	8.8	8.6	8.4	7.2	7.5	7.9	8.7	9.6	13.2	15.6	14.1	12.5	13.0	13.1	13.7	11.6	15.6	10.3	24
30	12.2	S	14.0	10.6	12.9	12.6	16.7	16.5	15.1	14.7	14.2	14.1	10.0	6.6	7.2	13.5	23.3	25.5	14.6	9.8	9.2	10.2	8.3	8.1	25.5	13.0	24
31	S	7.4	6.3	9.2	10.1	9.5	10.1	9.7	10.4	10.4	4.7	2.4	3.3	2.8	3.6	4.4	3.5	3.8	4.0	3.7	3.6	3.7	3.1	S	10.4	5.9	24
HOURLY MAX	24.0	23.1	20.7	20.9	20.0	23.6	21.9	21.2	20.3	18.0	19.3	19.7	16.4	14.1	13.2	17.3	23.3	25.5	28.5	26.1	30.5	30.5	26.0	23.4			
HOURLY AVG	13.0	13.1	11.9	12.3	13.0	13.3	13.7	12.0	11.0	9.7	8.2	7.2	5.3	4.8	4.7	5.5	7.3	12.7	15.3	15.5	15.7	13.9	13.2	13.5			

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM INSTANTANEOUS VALUE:	30.5	PPB	@ HOUR(S)	20, 21	ON DAY(S)	7, 7
				VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	6.47					


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 NO2MAX PPB

LICA-ELK
NO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	1.84	.85	.71	1.42	9.09	18.18	8.09	2.84	1.84	1.98	2.69	11.22	12.78	15.62	6.53	4.26	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.84	.85	.71	1.42	9.09	18.18	8.09	2.84	1.84	1.98	2.69	11.22	12.78	15.62	6.53	4.26	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

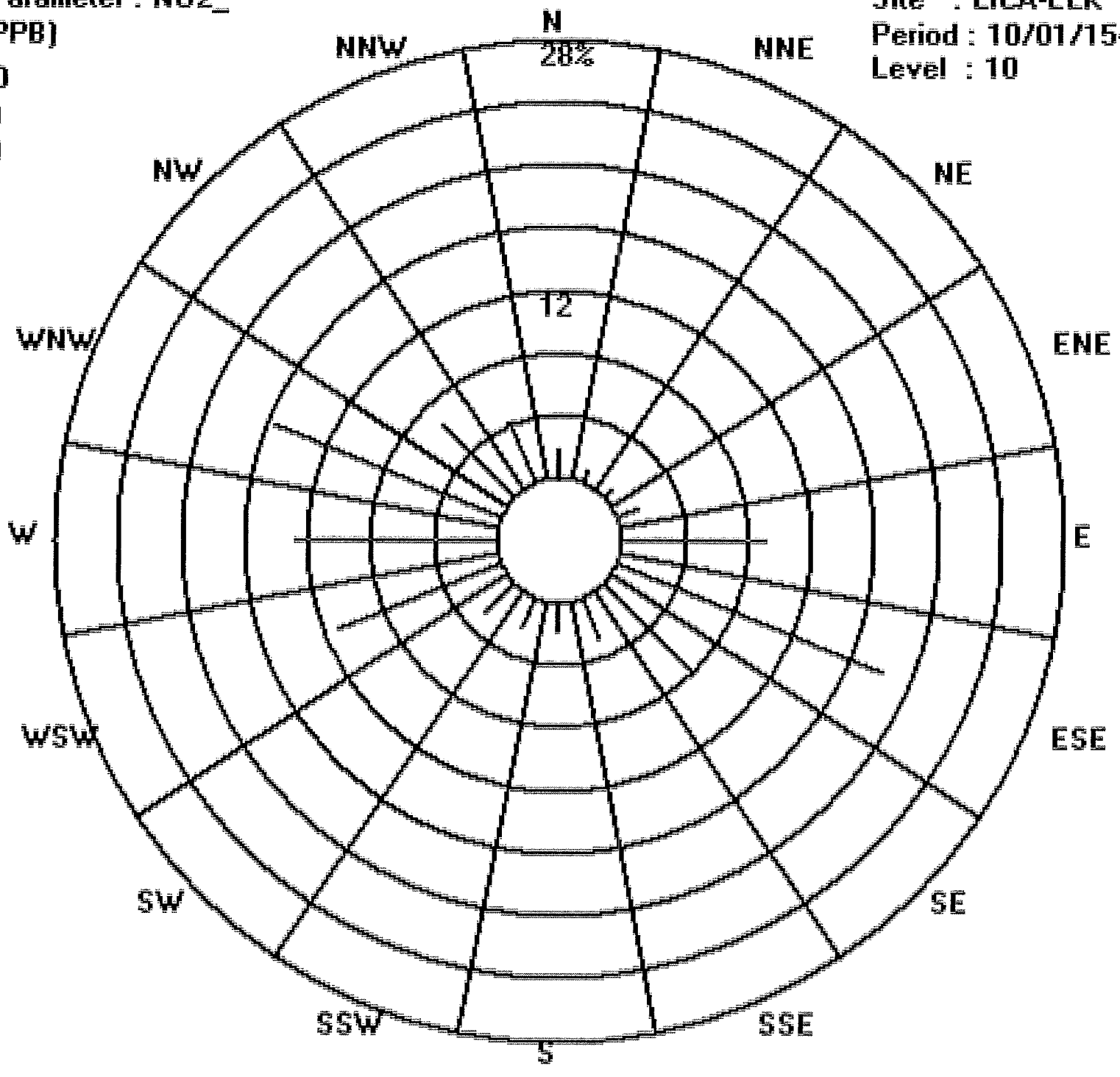
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	13	6	5	10	64	128	57	20	13	14	19	79	90	110	46	30	704
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	13	6	5	10	64	128	57	20	13	14	19	79	90	110	46	30	

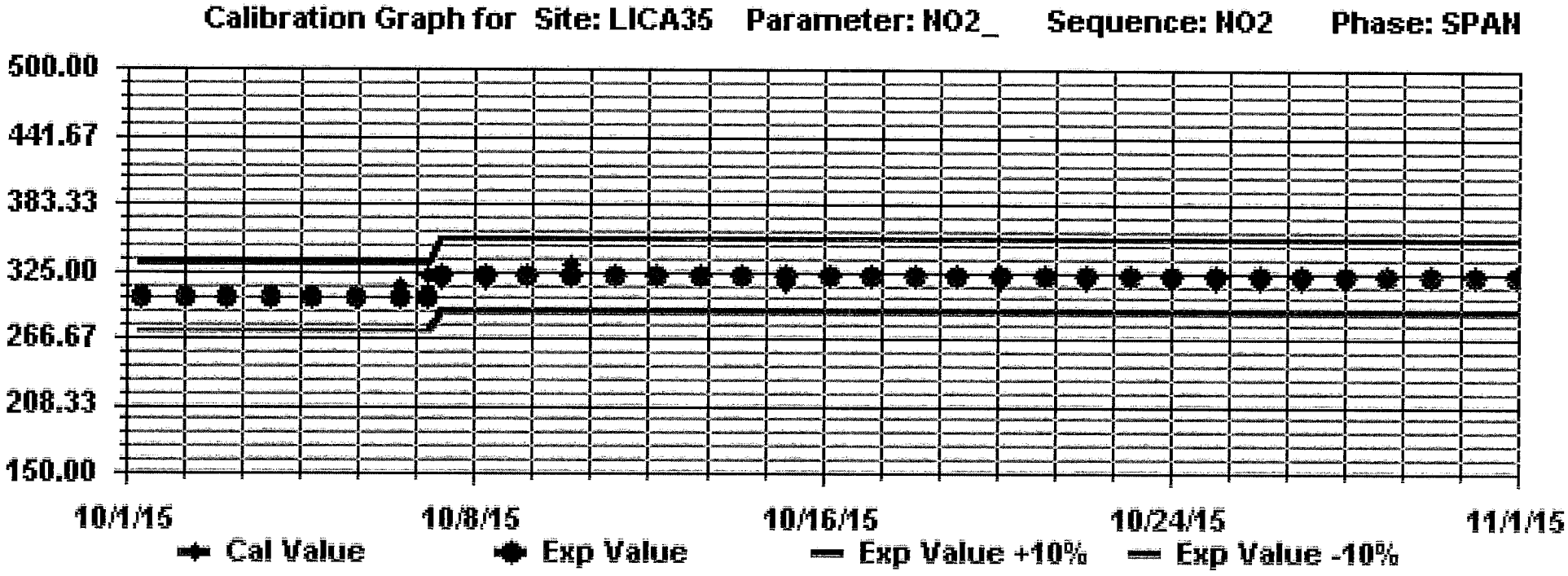
Calm : .00 %

Total # Operational Hours : 704

Logger : 35 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN
500.00
441.67
383.33
325.00
266.67
208.33
150.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OZONE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

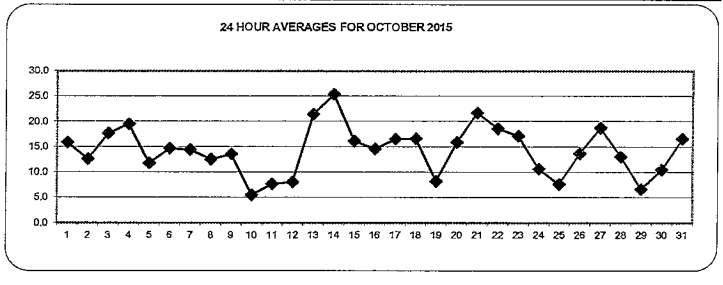
OZONE (O3) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	5	2	1	1	1	1	1	S	6	9	16	22	25	32	35	***37***	34	26	16	17	22	19	20	18	***37***	15.9	24
2	14	12	11	11	13	15	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15	12.7	7
3	X	X	X	X	X	X	X	X	X	X	S	14	15	16	16	18	19	20	18	17	19	20	20	19	20	17.8	14
4	19	19	19	20	S	22	22	21	22	23	22	22	23	24	24	24	23	21	17	12	9	10	16	15	24	19.5	24
5	12	10	7	S	1	1	1	2	5	7	10	12	20	23	25	26	26	26	20	13	6	7	10	2	26	11.8	24
6	1	1	S	1	1	1	1	2	3	4	11	17	28	30	30	30	29	26	24	22	18	20	19	20	30	14.7	24
7	18	S	15	15	10	6	2	2	6	13	16	19	22	23	25	27	30	31	21	11	6	3	8	4	31	14.5	24
8	S	1	4	2	2	1	1	1	2	C	C	C	C	C	28	32	32	21	19	19	18	17	14	S	32	12.6	24
9	12	12	12	14	10	9	6	12	16	17	18	21	23	21	23	19	20	8	6	8	7	5	S	X	23	13.6	23
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S	4	7	7	5.5	3
11	4	1	2	2	1	1	8	14	11	17	23	17	11	12	9	7	8	8	7	7	S	6	1	0	23	7.7	24
12	0	0	0	0	0	0	0	0	1	2	3	14	22	21	18	15	19	15	15	S	6	11	13	11	22	8.1	24
13	13	13	10	16	17	18	17	18	18	25	26	28	30	31	32	32	32	33	S	17	15	20	18	15	33	21.5	24
14	15	18	23	23	21	21	19	21	23	26	28	32	33	32	32	32	32	S	29	28	26	25	22	23	33	***25.4***	24
15	21	20	18	18	17	14	12	13	16	18	21	24	29	32	32	32	S	17	10	2	0	1	3	2	32	16.2	24
16	1	3	5	3	2	1	1	2	8	14	19	25	31	33	33	S	33	29	11	18	20	16	17	11	33	14.6	24
17	11	15	16	14	12	10	7	6	10	14	19	24	26	29	S	31	32	29	17	14	13	14	11	7	32	16.6	24
18	8	5	2	1	2	9	16	22	28	30	28	32	34	S	X	X	X	X	X	X	X	X	X	X	34	16.7	14
19	X	X	X	X	X	X	X	Y	0	1	1	3	S	11	15	17	14	6	5	8	10	7	13	13	17	8.3	16
20	17	14	8	1	5	16	19	24	23	23	25	S	X	X	X	X	X	X	X	X	X	X	X	X	25	15.9	12
21	X	X	X	X	X	X	X	S	S	S	S	16	23	27	34	33	26	16	21	17	19	18	17	15	34	21.7	17
22	14	13	10	5	5	11	13	12	18	S	28	30	30	Y	Y	31	30	24	15	23	24	23	16	16	31	18.6	22
23	12	11	13	13	12	7	5	5	S	18	23	29	32	32	33	33	31	27	25	15	11	4	2	2	33	17.2	24
24	2	3	5	5	5	2	0	5	4	12	19	19	23	29	30	30	27	20	6	3	1	0	0	0	30	10.7	24
25	0	0	0	0	0	0	S	0	1	2	3	15	24	25	28	27	19	10	5	2	3	4	4	4	28	7.7	24
26	5	5	4	5	7	S	7	9	8	11	16	18	20	21	23	22	22	22	20	20	17	15	12	7	23	13.7	24
27	15	14	11	8	S	15	16	18	21	24	23	24	26	26	28	28	26	20	14	13	10	19	17	15	28	18.7	24
28	15	13	14	S	14	12	3	5	3	11	16	21	22	25	22	20	16	11	3	10	9	12	13	11	25	13.1	24
29	9	7	S	11	12	10	9	9	8	5	8	9	10	10	10	9	6	4	2	2	2	0	1	1	12	6.7	24
30	0	S	4	9	S	7	3	1	2	5	7	11	21	23	24	18	12	7	11	16	14	14	14	13	24	10.5	24
31	S	11	12	11	9	9	8	9	8	13	22	24	25	26	24	21	20	18	20	18	18	19	21	S	26	16.6	24
HOURLY MAX	21	20	23	23	21	22	22	24	28	30	28	32	34	33	35	37	34	33	29	28	26	25	22	23			
HOURLY AVG	9.7	8.9	9.0	8.4	7.4	8.4	7.9	9.5	10.4	13.8	17.3	20.1	24.2	24.6	25.3	25.0	23.8	19.0	14.5	13.5	12.4	12.2	12.1	10.0			

STATUS FLAG CODES

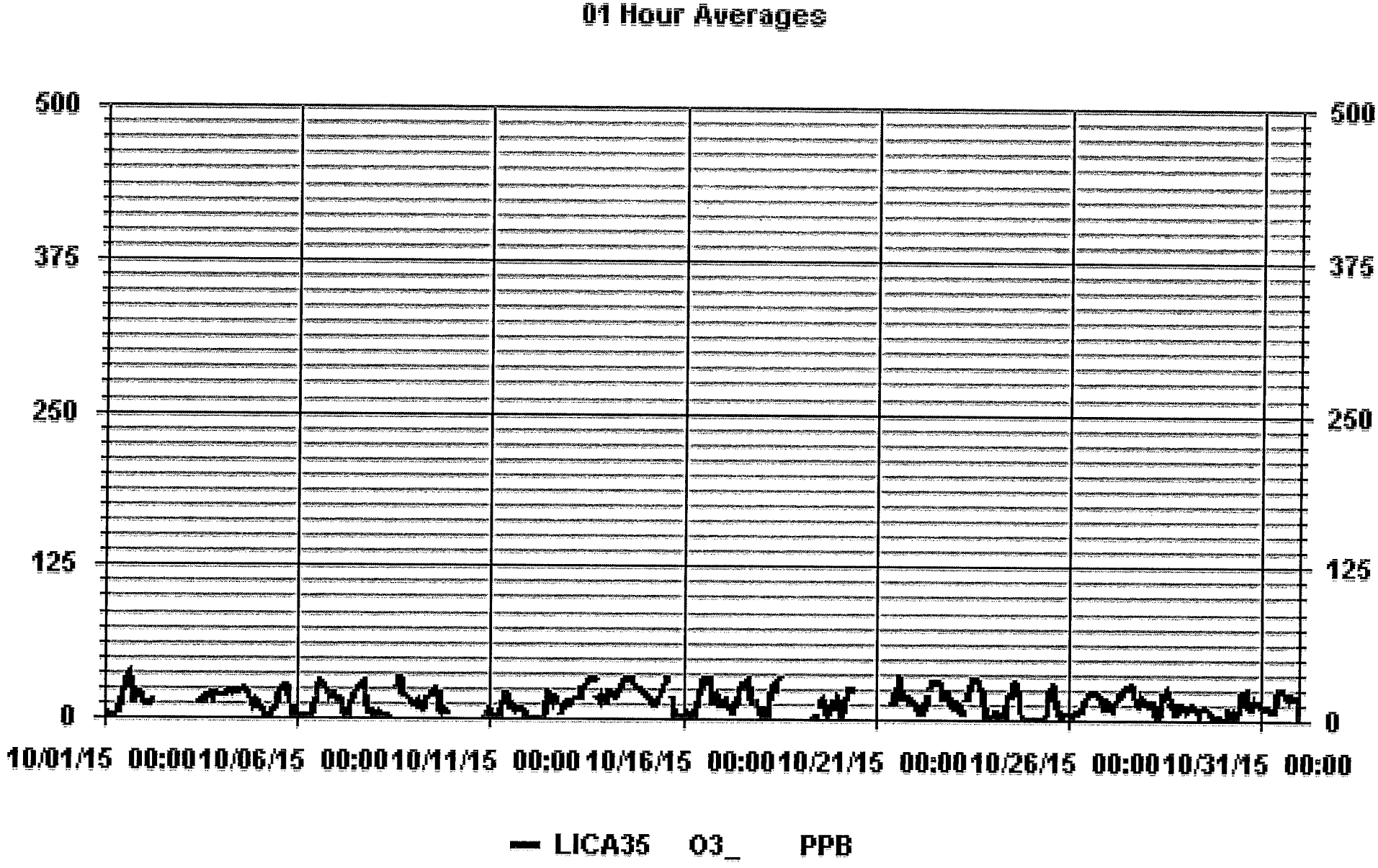
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			591				
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	15	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	25.4	PPB			ON DAY(S)	14	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:			656	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			88.2	%
STANDARD DEVIATION:	9.36		MONTHLY AVERAGE:			15	PPB


01 Hour Averages
500
375
250
125
0
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 O3_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

OZONE MAX instantaneous maximum in ppb

MST

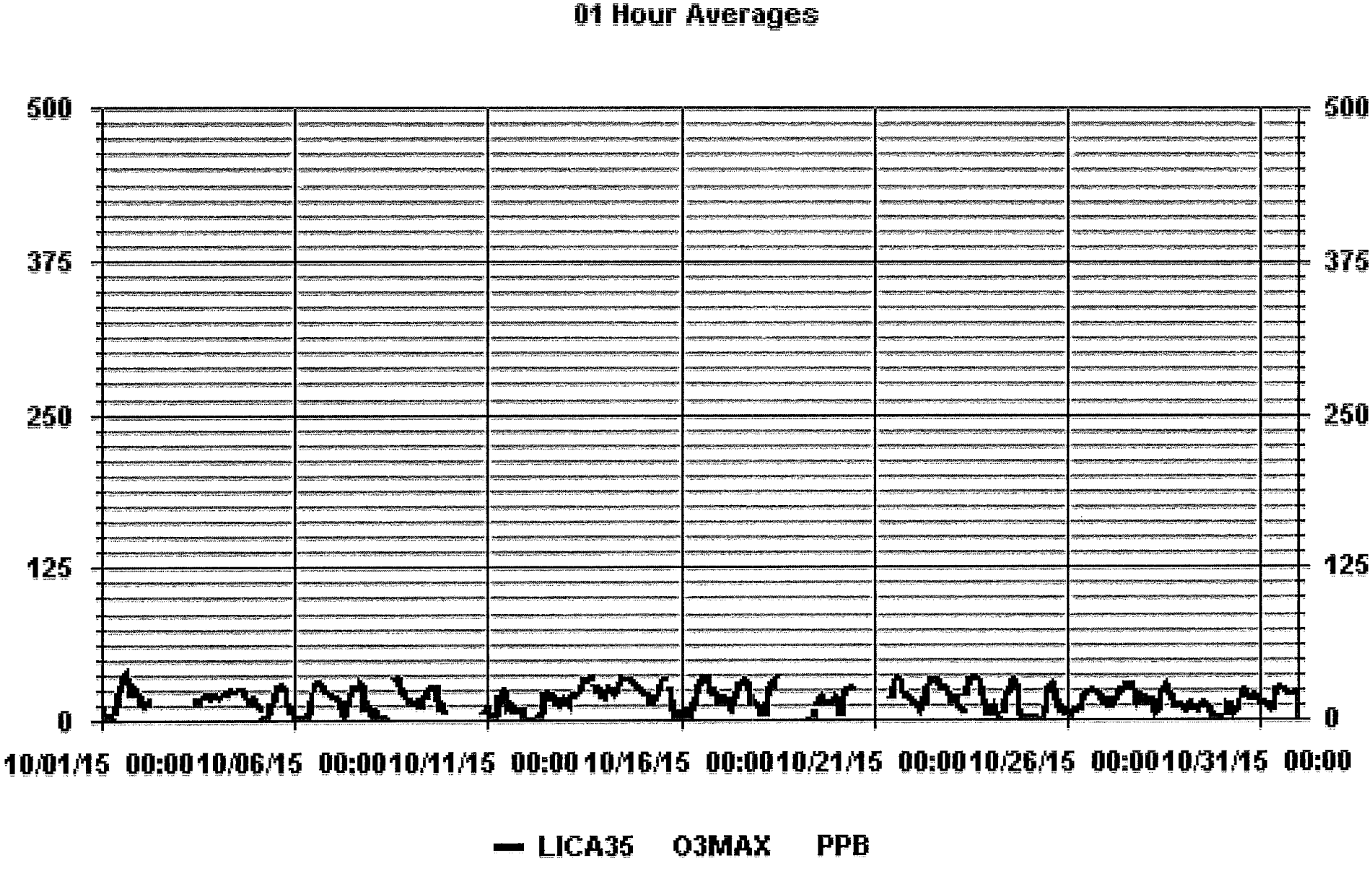
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	9	3	3	3	1	1	2	S	8	13	21	23	29	36	37	***39***	36	33	20	23	26	26	22	21	***39***	18.9	24
2	16	14	12	13	15	17	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17	14.5	7
3	X	X	X	X	X	X	X	X	X	X	S	16	16	17	18	19	20	21	20	19	21	21	21	20	21	19.2	14
4	20	19	20	22	S	23	23	22	24	24	23	23	25	25	25	25	25	22	20	15	15	16	17	17	25	21.3	24
5	15	13	10	S	2	1	1	3	6	12	13	15	23	26	26	28	28	27	26	16	9	10	13	6	28	14.3	24
6	1	1	S	1	1	1	1	3	3	6	16	23	30	32	31	31	31	28	27	24	23	22	21	22	32	16.5	24
7	21	S	19	17	13	12	6	2	13	13	20	22	26	26	28	29	33	32	30	12	13	6	11	6	33	17.8	24
8	S	3	6	4	4	2	1	2	3	C	C	C	C	C	34	35	35	30	24	24	21	20	17	S	35	15.6	24
9	15	15	14	16	14	12	9	17	18	19	23	26	28	27	26	25	26	18	11	12	9	8	S	X	28	17.6	23
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S	7	10	10	8.5	3
11	10	3	5	4	3	4	18	18	13	23	24	21	12	14	12	8	9	9	9	8	S	8	4	2	24	10.5	24
12	0	0	0	1	0	0	1	1	3	3	5	22	23	23	21	19	21	20	17	S	13	15	17	14	23	10.4	24
13	15	16	14	20	21	21	20	21	22	27	27	32	32	32	33	34	34	34	S	26	21	25	23	20	34	24.8	24
14	19	23	27	26	25	24	22	24	24	27	31	34	34	33	33	33	33	S	31	31	29	28	26	26	34	28.0	24
15	25	23	21	21	21	12	15	17	19	20	23	28	32	33	33	33	S	25	19	8	2	4	6	4	33	19.3	24
16	2	7	8	4	4	3	3	7	13	18	22	29	32	34	34	S	35	32	24	23	24	21	21	15	35	18.0	24
17	16	18	19	17	15	15	10	9	12	18	22	25	29	30	S	32	33	32	25	18	19	17	15	13	33	20.0	24
18	11	10	6	5	5	15	20	27	30	31	30	34	36	S	X	X	X	X	X	X	X	X	X	X	36	20.0	14
19	X	X	X	X	X	X	X	Y	1	2	2	7	S	15	17	19	17	16	14	14	15	14	15	17	19	12.3	16
20	21	20	14	3	14	19	23	25	25	25	27	S	X	X	X	X	X	X	X	X	X	X	X	X	27	19.6	12
21	X	X	X	X	X	X	X	S	S	S	S	20	27	33	35	34	33	23	23	20	21	20	19	17	35	25.0	17
22	16	16	14	11	9	13	16	15	24	S	30	32	32	Y	Y	34	31	29	27	28	26	25	21	21	34	22.4	22
23	17	16	17	18	14	12	10	8	S	22	27	33	34	34	34	34	34	33	29	22	17	13	4	8	34	21.3	24
24	3	6	10	7	6	3	1	S	8	16	21	22	26	31	32	32	30	28	10	6	4	2	1	1	32	13.3	24
25	1	1	1	0	1	1	S	1	2	7	7	23	25	28	30	28	26	17	12	8	9	9	5	5	30	10.7	24
26	5	6	5	7	8	S	9	10	10	16	20	21	22	23	24	24	24	24	23	22	21	18	16	14	24	16.2	24
27	16	15	15	11	S	16	17	19	23	25	24	25	28	27	29	30	29	26	16	14	16	20	20	17	30	20.8	24
28	18	15	15	S	16	16	5	7	8	12	22	23	26	28	24	23	21	17	9	12	12	13	14	13	28	16.0	24
29	10	9	S	13	14	11	10	10	10	9	11	12	13	13	13	12	10	8	4	3	3	1	3	2	14	8.9	24
30	0	S	6	11	9	14	9	4	5	9	10	17	24	25	25	21	19	18	17	18	21	21	17	15	25	14.6	24
31	S	14	15	14	12	11	9	12	11	19	26	27	27	27	25	24	22	22	22	21	21	22	23	S	27	19.4	24
HOURLY MAX	25	23	27	26	25	24	23	27	30	31	31	34	36	36	37	39	36	34	31	31	29	28	26	26			
HOURLY AVG	12.1	11.4	11.8	10.8	9.9	10.7	10.4	11.8	13.0	16.6	20.3	23.5	26.6	26.9	27.2	27.1	26.7	24.0	19.6	17.2	16.6	15.7	14.8	13.0			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	608					
MAXIMUM INSTANTANEOUS VALUE:	39	PPB	@ HOUR(S)	15	ON DAY(S)	1
				VAR-VARIOUS		
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		656	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	9.47					


01 Hour Averages
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 O3MAX PPB

LICA-ELK
O3_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : O3_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	1.62	.48	.65	1.46	9.91	18.69	7.96	2.76	1.78	2.27	2.43	11.05	13.00	15.28	7.64	2.92	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.62	.48	.65	1.46	9.91	18.69	7.96	2.76	1.78	2.27	2.43	11.05	13.00	15.28	7.64	2.92	

Calm : .00 %

Total # Operational Hours : 615

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	10	3	4	9	61	115	49	17	11	14	15	68	80	94	47	18	615
<	110																	
<	210																	
>=	210																	
	Totals	10	3	4	9	61	115	49	17	11	14	15	68	80	94	47	18	

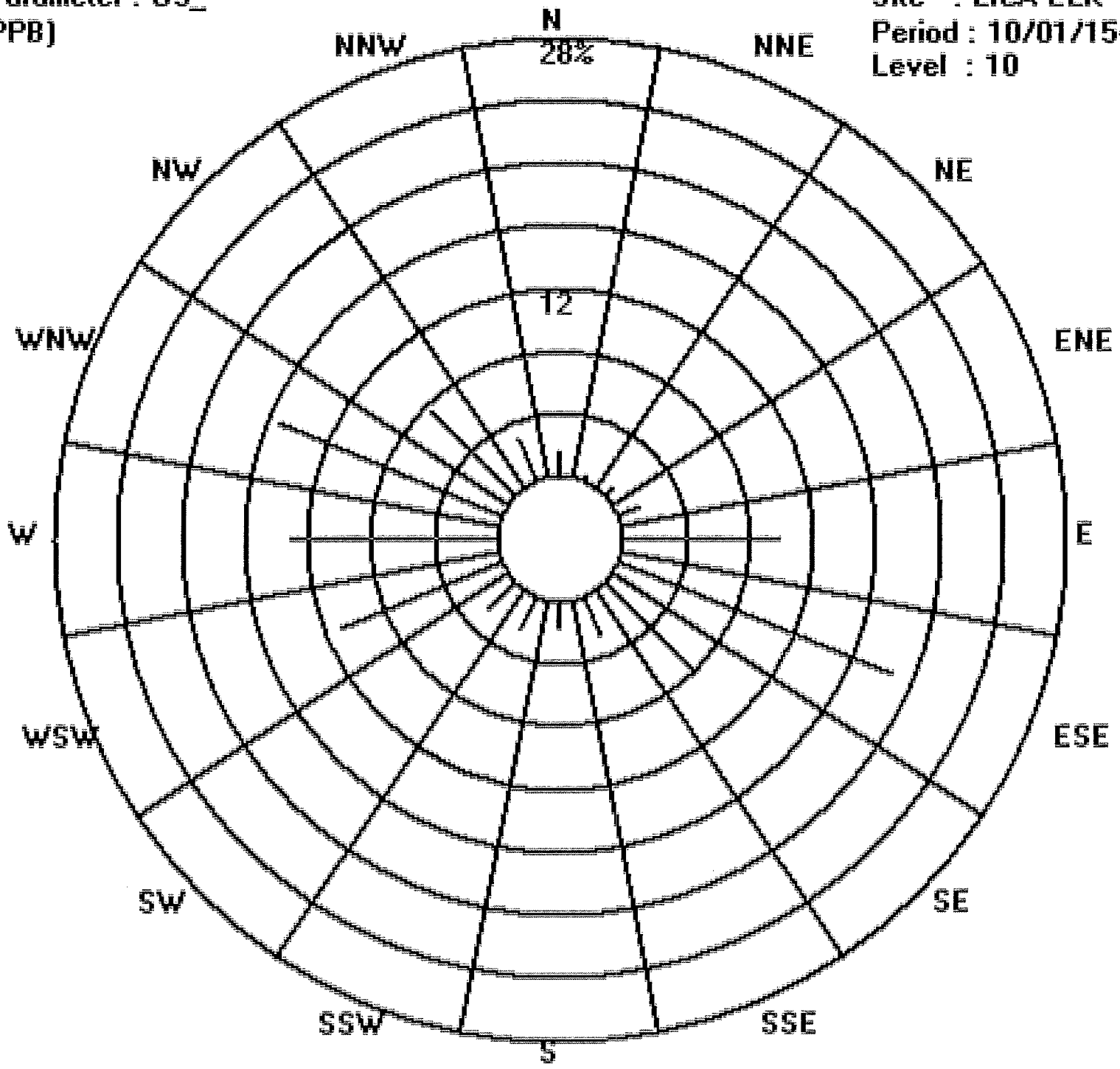
Calm : .00 %

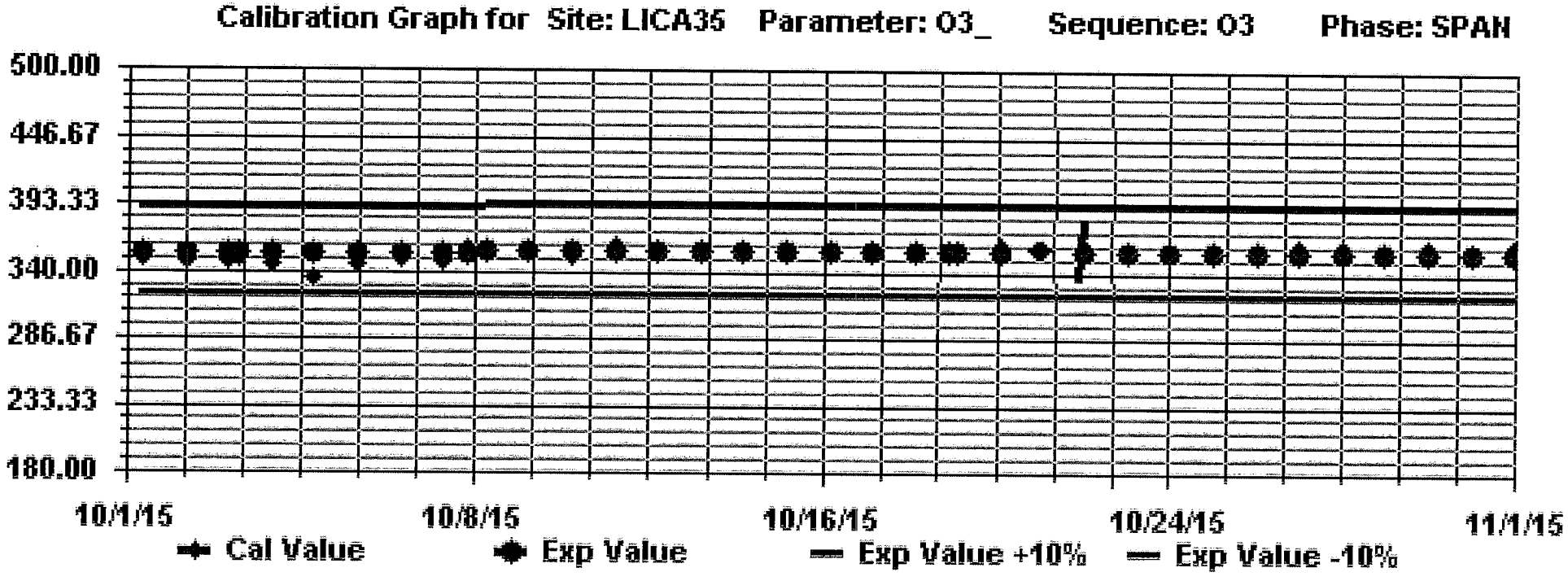
Total # Operational Hours : 615

Logger : 35 Parameter : O3_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN
500.00
446.67
393.33
340.00
286.67
233.33
180.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

PARTICULATE MATTER 2.5

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

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

MST

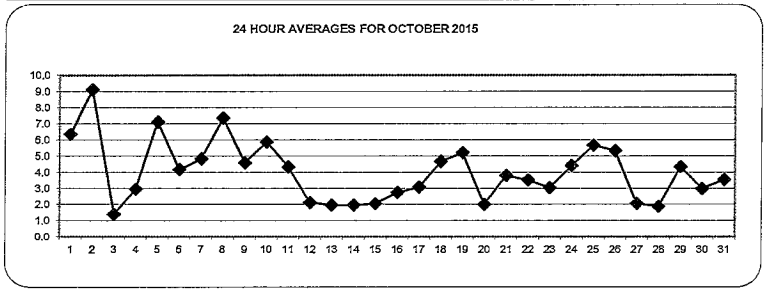
HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	5	5	3	5	X	0	2	8	6	6	8	7	5	9	7	11	8	1	8	8	7	8	10	9	11	6.3	23
2	9	7	9	8	10	5	9	9	14	16	11	14	13	12	8	5	11	9	7	8	9	8	6	2	16	***9.1***	24
3	8	0	2	3	0	0	2	X	0	X	0	1	X	2	4	0	1	1	0	0	0	3	1	1	8	1.4	21
4	X	1	1	0	9	1	3	3	5	0	3	2	5	1	5	9	2	0	2	4	3	4	3	2	9	3.0	23
5	1	5	8	11	12	9	11	***44***	1	8	7	10	7	2	5	3	4	1	3	6	5	6	0	2	***44***	7.1	24
6	6	2	3	8	9	8	9	3	5	4	3	1	2	3	3	3	5	9	2	1	5	2	2	2	9	4.2	24
7	5	5	2	5	5	8	5	0	8	8	5	7	9	6	4	1	2	2	2	6	7	11	0	3	11	4.8	24
8	17	3	7	7	7	4	0	9	6	8	7	4	7	C	0	10	9	9	5	12	12	9	9	8	17	7.3	24
9	9	0	5	7	10	2	4	5	6	5	0	1	0	7	0	5	9	7	3	5	6	4	6	4	10	4.6	24
10	9	8	7	9	11	10	9	3	4	4	3	3	6	3	3	2	3	5	4	9	2	7	10	7	11	5.9	24
11	10	11	10	8	5	11	2	11	9	2	3	3	0	0	2	4	2	0	2	2	0	2	3	2	11	4.3	24
12	4	1	0	0	0	6	1	5	3	1	0	3	2	1	3	3	4	2	2	0	1	3	3	3	6	2.1	24
13	4	5	0	2	2	1	3	0	6	3	2	1	3	0	2	1	0	0	2	3	3	X	1	1	6	2.0	23
14	0	6	1	2	2	1	2	3	5	3	1	0	3	4	0	1	2	3	4	0	X	0	0	2	6	2.0	23
15	0	3	2	2	0	0	3	3	X	3	0	0	0	0	0	1	3	4	6	1	1	5	3	7	7	2.0	23
16	3	2	8	5	0	4	4	0	3	2	0	3	2	0	4	0	3	3	2	1	4	5	5	3	8	2.8	24
17	2	2	0	5	1	5	5	6	1	2	2	2	1	3	2	1	3	0	9	2	5	3	6	6	9	3.1	24
18	9	6	4	4	9	7	3	6	3	2	3	5	9	7	5	9	5	4	1	0	2	0	1	8	9	4.7	24
19	2	0	0	6	6	6	9	5	6	10	6	8	10	8	6	4	5	3	8	6	4	0	2	5	10	5.2	24
20	5	2	8	3	0	0	4	0	2	0	0	1	1	0	0	0	0	0	8	5	0	3	1	5	8	2.0	24
21	3	4	4	10	0	2	0	1	1	2	8	7	6	5	2	0	1	5	4	4	4	5	8	5	10	3.8	24
22	2	10	8	3	7	9	8	4	7	2	0	3	4	C	0	2	3	3	0	1	0	5	0	0	10	3.5	24
23	4	1	0	0	1	1	2	4	4	1	4	6	1	1	1	4	0	4	6	4	4	6	6	8	8	3.0	24
24	4	3	6	0	4	7	9	10	5	7	3	3	3	6	4	6	6	3	1	0	1	5	7	3	10	4.4	24
25	5	3	4	5	3	5	4	6	8	3	6	9	6	5	5	6	7	8	2	5	8	3	8	12	12	5.7	24
26	11	9	7	9	7	7	6	7	4	4	4	2	6	6	4	7	4	4	1	2	2	1	5	9	11	5.3	24
27	5	0	1	0	0	1	0	3	5	3	0	2	5	2	1	4	1	6	3	0	3	1	3	0	6	2.0	24
28	0	0	0	0	1	3	0	0	0	1	0	2	0	1	0	3	1	0	2	1	4	11	7	8	11	1.9	24
29	3	6	7	4	6	9	8	2	5	8	5	5	4	2	2	0	1	4	5	4	4	3	4	3	9	4.3	24
30	1	4	8	2	0	0	0	0	3	8	0	0	4	1	2	3	7	0	12	0	1	5	6	5	12	3.0	24
31	7	9	1	6	7	8	3	5	5	0	0	0	0	8	2	5	0	7	3	2	0	4	0	3	9	3.5	24
HOURLY MAX	17	11	10	11	12	11	11	44	14	16	11	14	13	12	8	11	11	9	12	12	12	11	10	12			
HOURLY AVG	5.1	4.0	4.1	4.5	4.5	4.5	4.2	5.5	4.7	4.2	3.0	3.7	4.1	3.6	2.8	3.6	3.6	3.5	3.8	3.3	3.6	4.4	4.1	4.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

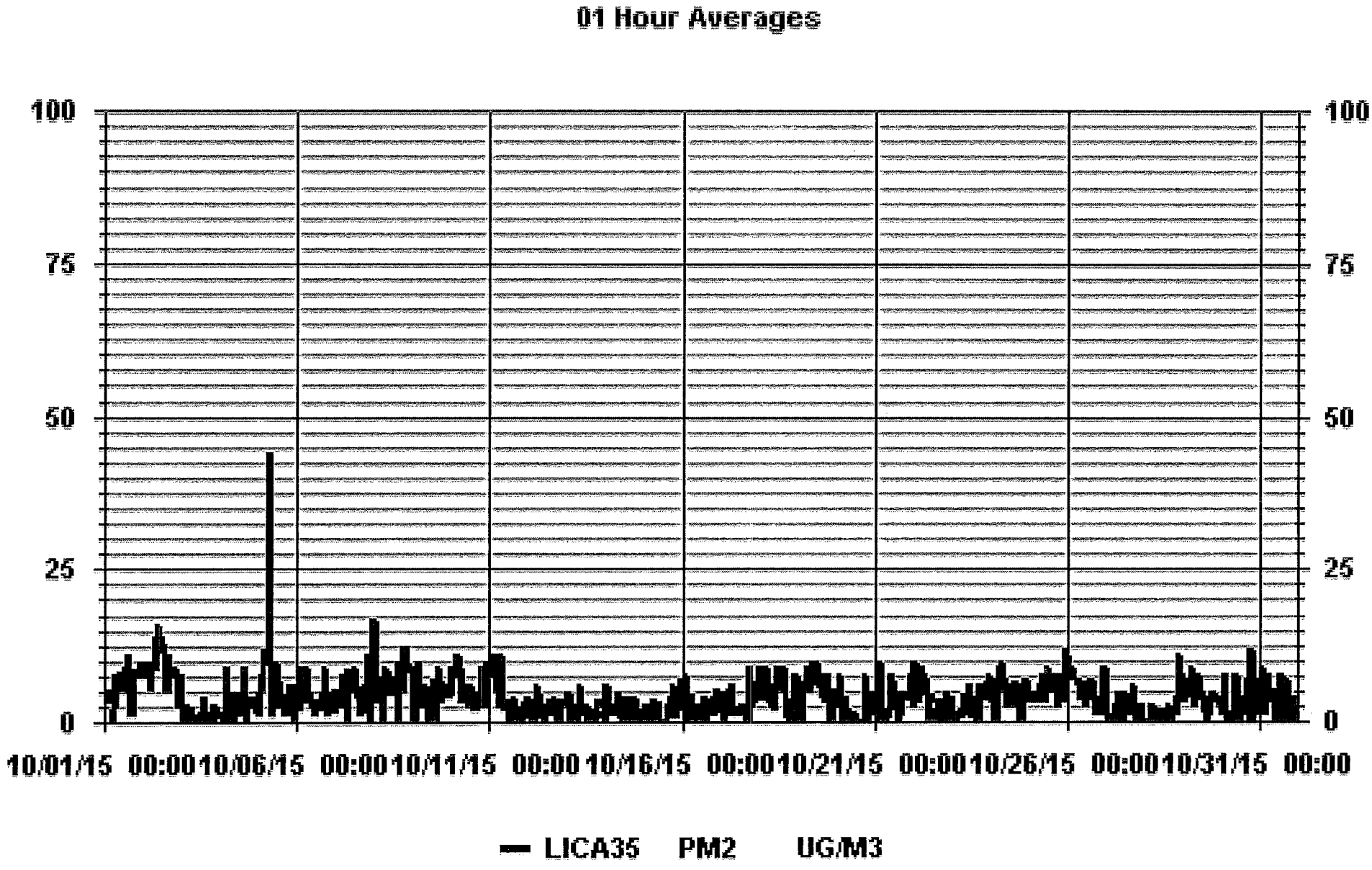
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	613					
MAXIMUM 1-HR AVERAGE:	44	ug/m3	@ HOUR(S)	7	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	9.1	ug/m3			ON DAY(S)	2
					VAR-VARIOUS	
			OPERATIONAL TIME:		736	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:		98.9	%
STANDARD DEVIATION:	3.52		MONTHLY AVERAGE:		4.0	ug/m3


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 PM2 UG/M3

LICA-ELK
PM2 / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : PM2
Units : UG/M3

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	1.77	.81	.68	1.77	9.26	17.71	8.03	2.86	1.90	1.90	2.72	10.62	12.94	15.66	7.35	3.81	99.86
<	60	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.77	.81	.68	1.77	9.26	17.84	8.03	2.86	1.90	1.90	2.72	10.62	12.94	15.66	7.35	3.81	

Calm : .00 %

Total # Operational Hours : 734

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	13	6	5	13	68	130	59	21	14	14	20	78	95	115	54	28	733
<	60						1											1
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	13	6	5	13	68	131	59	21	14	14	20	78	95	115	54	28	

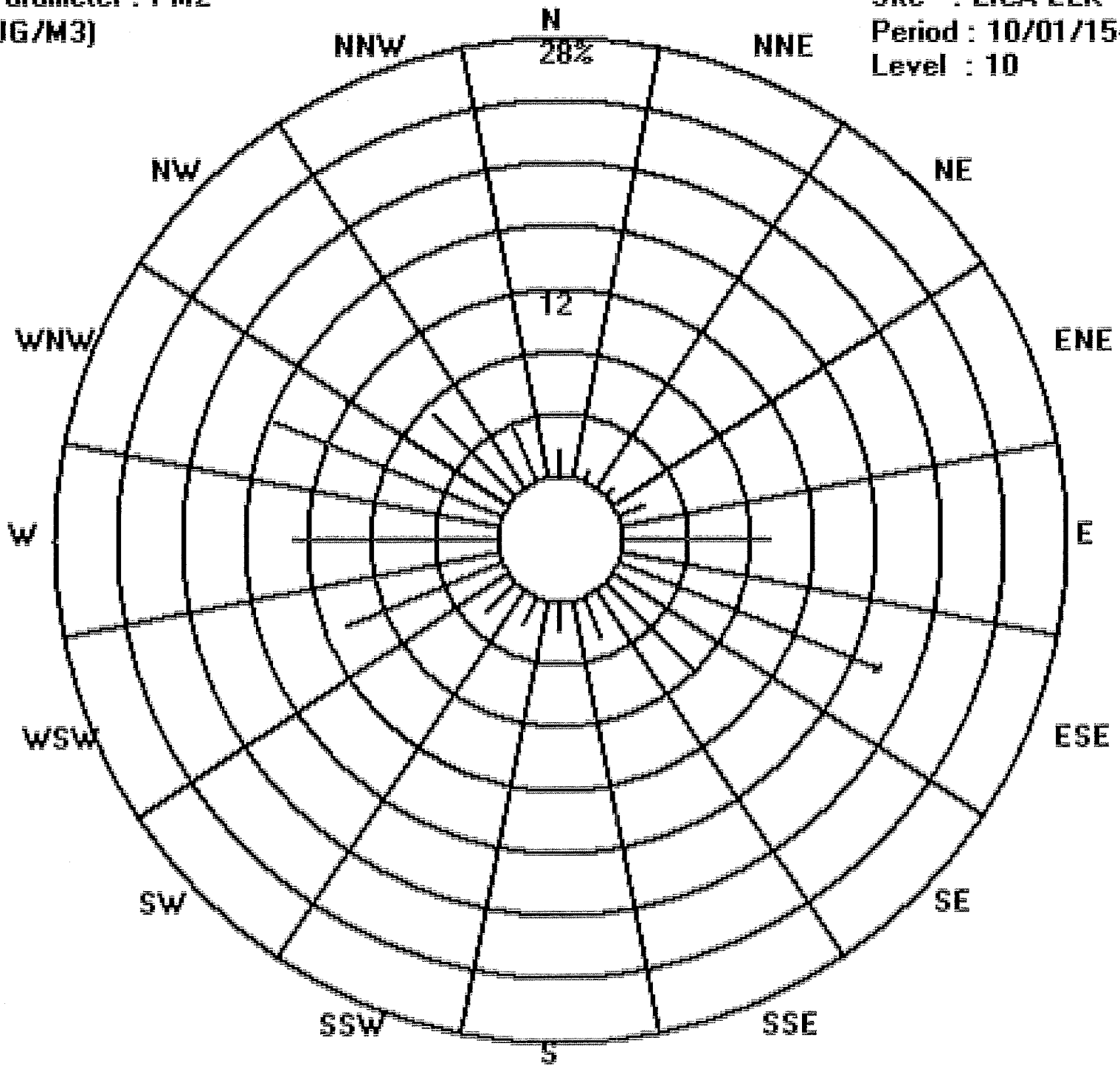
Calm : .00 %

Total # Operational Hours : 734

Logger : 35 Parameter : PM2
Class Limits (UG/M3)

>=	240
<	240
<	120
<	80
<	60
<	30

Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10



WIND SPEED

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

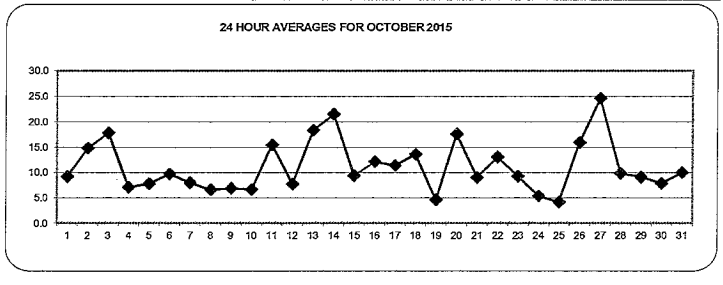
WIND SPEED (WS) hourly averages in km/hr

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	24-HOUR	
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	MAX.	AVG.	RDGS.
DAY																											
1	1.8	3.8	4.7	5.1	3.3	5.4	8.4	7.6	8.1	8.5	10.4	9.3	9.9	9.3	14.1	15.4	15.0	9.4	7.6	10.6	15.0	15.0	11.8	10.6	15.4	9.2	24
2	11.4	10.4	14.6	13.4	13.7	15.4	15.3	17.7	15.6	20.3	20.0	18.6	15.2	16.2	15.6	16.0	12.8	4.7	8.8	1.9	12.0	22.9	22.9	19.5	22.9	14.8	24
3	20.4	21.1	23.4	22.8	24.1	23.1	18.2	20.0	19.4	19.7	20.6	17.3	19.1	16.6	17.4	16.3	16.1	16.4	10.3	12.3	14.4	15.5	11.4	11.2	24.1	17.8	24
4	9.4	9.2	11.2	11.4	11.9	8.9	4.9	9.5	9.0	9.5	7.5	6.5	3.6	1.8	2.5	2.8	3.6	6.4	6.0	6.2	6.3	5.5	9.5	7.1	11.9	7.1	24
5	1.6	2.0	0.2	2.8	3.4	4.1	3.6	3.4	1.0	4.8	5.7	8.2	15.0	18.2	20.3	18.4	18.4	14.0	9.0	6.9	6.3	9.4	7.5	2.9	20.3	7.8	24
6	3.6	3.2	0.5	1.0	1.3	3.6	4.2	4.3	4.8	6.2	9.9	9.8	17.2	19.3	19.9	22.5	16.4	16.9	14.3	12.9	11.8	11.1	9.9	8.2	22.5	9.7	24
7	7.9	5.1	4.3	1.9	1.9	2.1	3.8	2.4	2.6	4.8	10.9	12.4	16.5	21.0	18.7	18.9	13.7	10.8	8.2	4.7	6.3	5.0	2.1	5.0	21.0	8.0	24
8	4.1	4.5	3.2	3.8	3.0	1.2	1.5	1.7	2.1	5.2	4.5	9.2	10.0	13.1	14.5	12.9	11.5	7.4	10.6	8.5	7.0	6.6	6.3	6.0	14.5	6.6	24
9	7.3	8.1	9.3	6.6	4.4	1.3	2.5	10.6	10.8	11.9	11.8	13.7	9.1	10.2	9.2	5.5	7.1	7.5	5.8	3.9	1.1	2.6	1.3	3.4	13.7	6.9	24
10	6.3	5.0	2.4	2.6	0.7	6.4	2.0	1.0	1.5	0.1	0.4	8.3	11.9	16.6	23.4	22.2	15.7	5.9	5.5	0.3	3.9	5.4	7.7	4.2	23.4	6.6	24
11	4.7	2.4	0.8	2.6	2.1	11.6	14.5	17.2	16.4	20.0	27.0	34.8	29.4	30.5	31.1	29.6	23.9	17.1	12.9	10.4	12.4	9.7	3.1	6.6	34.8	15.5	24
12	5.6	3.6	2.5	0.7	2.4	3.4	4.7	8.1	8.8	9.3	7.5	10.9	16.6	17.1	9.3	4.2	7.8	8.0	10.3	11.9	6.8	8.0	9.0	9.2	17.1	7.7	24
13	12.3	5.0	1.5	11.6	14.6	11.9	8.6	15.9	15.3	28.2	24.0	33.4	37.5	36.4	***39.0***	32.1	31.9	22.5	12.0	5.8	11.4	10.5	8.4	10.3	***39.0***	18.3	24
14	8.6	11.2	17.4	14.5	12.5	15.5	13.3	19.2	27.0	27.8	24.5	25.5	27.4	32.3	38.6	35.1	26.8	27.6	24.3	16.2	15.8	18.3	19.0	17.5	38.6	21.5	24
15	14.2	11.0	13.3	12.6	12.5	13.9	10.7	9.8	8.5	9.9	8.5	10.9	15.3	16.0	15.0	14.3	9.8	3.7	5.5	2.3	0.2	0.2	2.6	4.1	16.0	9.4	24
16	3.5	6.6	5.0	6.2	8.0	6.7	9.7	9.9	12.7	10.3	15.8	17.4	19.2	19.4	18.3	17.9	13.5	10.3	11.7	12.0	15.2	15.9	13.0	11.9	19.4	12.1	24
17	10.1	7.9	8.2	6.7	7.0	9.4	8.4	9.3	12.3	14.5	14.8	16.6	18.0	18.9	18.2	19.2	14.7	11.9	8.6	11.0	8.5	6.2	5.8	6.7	19.2	11.4	24
18	5.1	3.0	1.7	5.5	17.6	11.5	8.1	14.2	14.1	21.1	21.4	24.3	29.7	27.3	26.9	26.0	19.5	13.3	6.6	7.4	7.1	5.0	3.8	5.4	29.7	13.6	24
19	5.1	3.1	0.6	0.6	1.2	1.3	1.3	0.6	1.1	3.6	6.3	7.2	5.6	6.2	9.0	8.5	6.9	3.9	6.3	9.9	9.5	5.6	2.7	4.0	9.9	4.6	24
20	6.5	1.0	3.8	4.1	13.2	17.2	25.2	26.7	19.9	29.3	32.9	27.5	31.2	32.7	29.5	28.7	19.6	8.6	10.1	10.8	10.4	10.6	9.8	12.1	32.9	17.6	24
21	6.7	6.7	7.0	4.7	0.9	3.4	2.4	3.1	6.7	8.8	8.1	10.5	13.5	13.0	14.5	13.0	9.6	12.7	11.1	12.8	12.0	12.4	12.3	10.5	14.5	9.0	24
22	8.9	1.0	2.8	7.3	14.9	14.8	10.4	14.0	16.7	17.7	23.6	24.1	25.5	22.1	15.9	13.3	9.3	9.2	10.3	11.7	13.1	13.0	7.6	4.9	25.5	13.0	24
23	4.0	3.9	4.9	6.4	4.7	2.6	2.4	3.7	9.4	7.6	10.1	15.6	17.7	20.2	23.1	19.9	15.6	15.9	6.1	5.7	8.4	4.3	4.9	3.7	23.1	9.2	24
24	7.1	6.9	5.4	6.3	5.5	4.8	3.7	3.8	4.5	6.2	3.2	3.8	5.5	5.5	10.7	9.3	10.3	8.4	5.2	3.8	2.8	2.2	1.5	1.7	10.7	5.3	24
25	1.0	1.2	1.5	2.2	3.1	0.2	2.0	1.8	4.1	3.5	4.0	4.6	3.3	3.2	3.8	4.9	3.9	4.4	5.7	6.3	7.9	8.9	10.0	9.2	10.0	4.2	24
26	10.8	10.5	11.3	6.5	11.1	14.2	15.7	15.1	17.1	20.6	23.8	22.6	24.0	24.2	27.0	24.3	19.6	19.5	14.8	13.7	7.8	9.1	3.6	15.5	27.0	15.9	24
27	27.6	31.3	32.8	32.9	33.1	33.0	31.7	34.0	35.1	30.4	31.7	29.5	30.0	30.3	24.1	14.8	14.4	9.6	9.4	12.1	16.2	17.4	16.8	11.9	35.1	***24.6***	24
28	11.8	14.8	15.6	9.8	9.4	13.3	8.8	7.4	5.7	4.9	2.2	1.4	0.3	2.8	9.2	11.5	10.8	10.4	11.0	10.9	15.9	15.5	14.1	17.4	17.4	9.8	24
29	14.8	14.0	17.2	16.9	13.7	10.2	11.1	12.1	11.5	10.1	7.0	10.3	10.6	6.1	6.7	7.4	7.2	4.8	4.8	6.2	5.9	4.9	2.7	1.7	17.2	9.1	24
30	2.7	5.1	7.1	14.1	4.8	7.1	0.9	3.2	1.1	4.8	6.0	10.2	12.3	11.0	8.6	6.3	4.5	11.6	13.1	14.5	12.4	7.6	8.6	10.5	14.5	7.8	24
31	11.0	7.9	8.3	3.3	7.5	10.5	11.6	9.1	8.4	10.8	12.1	9.9	5.5	4.5	10.0	12.6	10.6	9.8	11.6	9.9	10.0	14.9	16.3	12.8	16.3	10.0	24
HOURLY MAX	27.6	31.3	32.8	32.9	33.1	33.0	31.7	34.0	35.1	30.4	32.9	34.8	37.5	36.4	39.0	35.1	31.9	27.6	24.3	16.2	16.2	22.9	22.9	19.5			
HOURLY AVG	8.3	7.4	7.8	8.0	8.6	9.3	8.7	10.2	10.7	12.6	13.4	15.0	16.3	16.8	17.6	16.3	13.6	11.1	9.6	8.8	9.5	9.7	8.6	8.6			

STATUS FLAG CODES

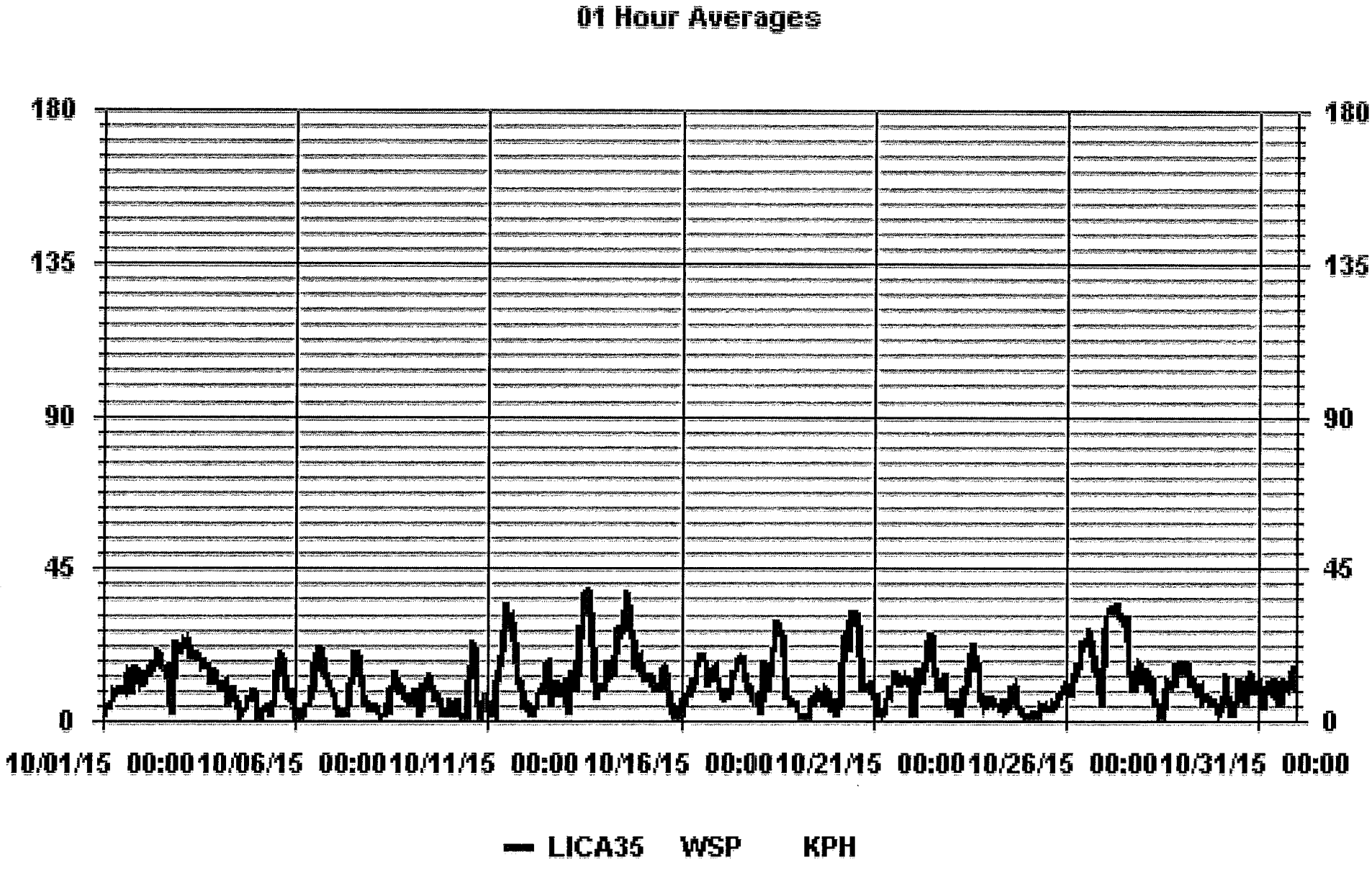
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



LAST CALIBRATION:	February 21, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744					
MAXIMUM 1-HR AVERAGE:	39.0	KPH	@ HOUR(S)	14	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	24.6	KPH			ON DAY(S)	27	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	7.75		MONTHLY AVERAGE:			11.1	KPH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180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 WSP KPH

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

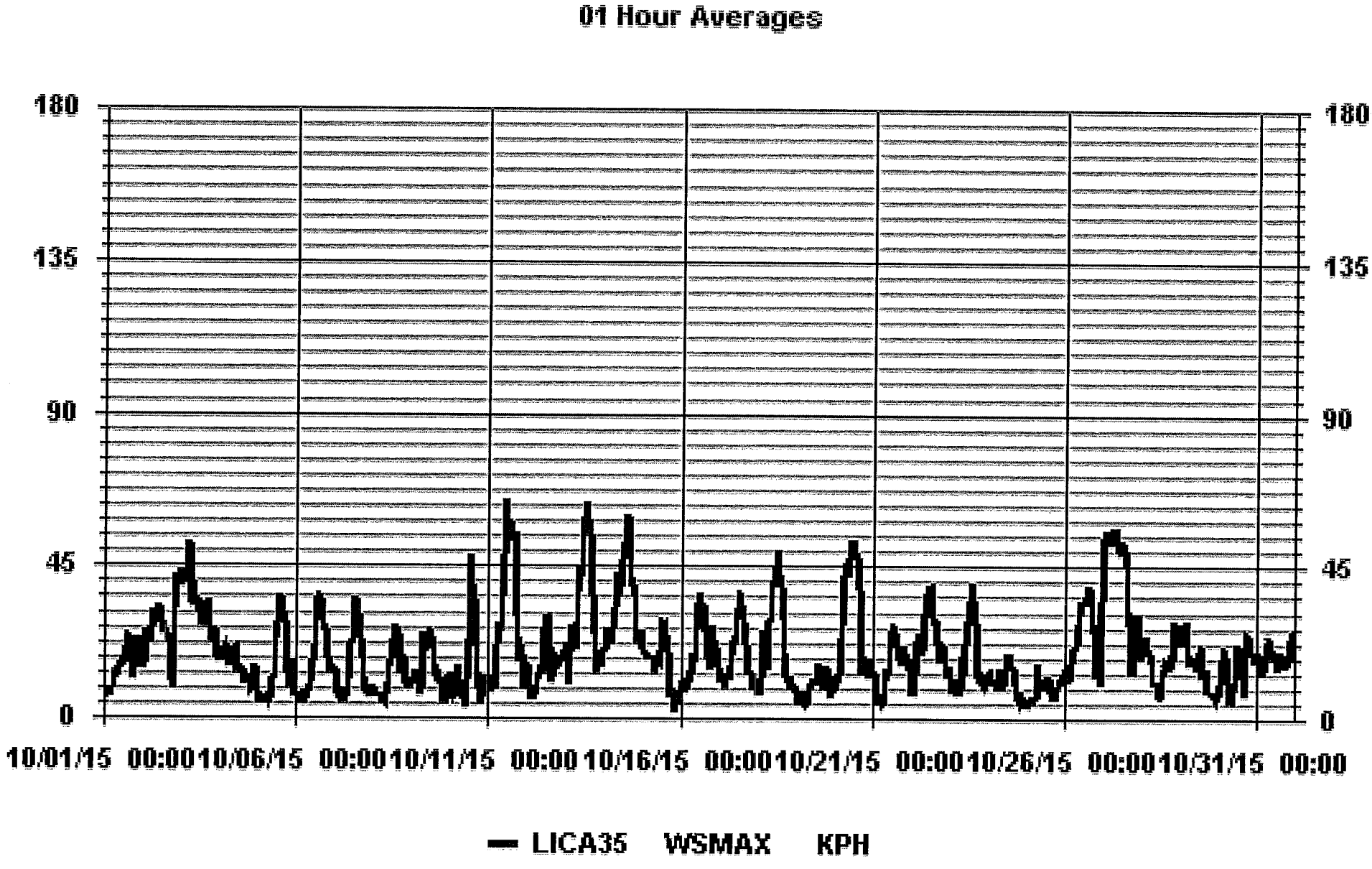
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	6.1	6.8	7.6	8.1	6.6	8.2	12.6	12.0	12.5	14.5	15.6	14.7	17.9	21.0	24.4	24.3	24.1	16.8	11.4	17.8	22.0	23.8	21.9	14.3	24.4	15.2	24
2	17.1	15.9	26.0	25.3	21.7	26.6	27.4	31.5	27.4	31.8	33.3	28.9	24.7	28.4	26.5	25.3	22.6	10.2	14.1	8.5	31.6	41.3	41.0	40.6	41.3	26.2	24
3	43.8	39.3	41.8	43.6	39.5	51.8	33.8	40.6	32.7	34.1	35.8	31.5	32.2	26.9	28.9	29.3	29.6	34.8	23.4	22.9	25.3	27.0	18.3	18.2	51.8	32.7	24
4	16.4	20.2	17.6	20.6	21.7	20.2	14.9	20.8	19.1	19.9	20.5	14.1	15.3	14.3	15.1	9.9	12.7	11.8	10.6	8.8	9.6	11.2	15.3	14.1	21.7	15.6	24
5	7.4	5.1	3.8	6.2	5.7	6.2	5.2	6.5	5.2	11.6	12.6	23.1	27.9	35.2	35.2	31.4	31.3	28.6	13.4	11.6	9.0	17.3	16.5	6.2	35.2	15.1	24
6	7.0	6.1	5.9	6.5	3.8	6.3	6.2	7.9	9.2	10.6	16.7	21.6	34.4	34.0	37.1	35.2	29.2	27.6	26.2	17.7	15.6	16.3	14.3	14.3	37.1	17.1	24
7	13.1	14.5	8.0	6.8	6.1	4.6	9.2	6.2	8.8	11.2	22.2	23.1	31.3	35.7	29.9	31.2	23.9	17.6	12.2	8.4	8.0	7.5	8.2	9.6	35.7	14.9	24
8	6.4	8.2	7.6	6.7	6.7	4.5	6.0	5.1	7.1	10.2	15.0	17.0	22.6	25.7	27.3	24.2	25.2	12.7	16.9	18.2	10.5	9.6	10.1	10.2	27.3	13.1	24
9	10.4	11.8	13.6	11.2	10.8	7.3	8.4	24.9	20.9	20.7	22.0	26.4	24.4	21.4	16.4	12.4	14.4	11.4	10.7	11.9	5.8	5.7	5.9	12.4	26.4	14.2	24
10	13.5	10.3	6.8	7.5	11.0	15.3	7.1	6.4	6.4	3.1	10.9	22.1	22.1	48.0	40.0	35.2	29.1	14.1	10.1	4.7	8.5	8.1	12.8	8.0	48.0	15.0	24
11	12.9	8.0	9.4	12.3	8.1	21.3	28.5	26.9	25.6	36.0	48.3	***64.2***	53.4	58.5	57.3	53.7	53.9	30.6	24.2	16.8	22.4	18.9	8.6	10.8	***64.2***	29.6	24
12	16.1	12.7	10.4	5.6	7.8	9.0	8.6	11.4	13.2	15.2	13.2	26.4	30.2	30.5	21.8	10.9	14.9	14.2	15.4	17.1	16.2	17.0	17.9	19.5	30.5	15.6	24
13	21.8	20.7	9.9	19.7	27.1	24.1	20.0	28.1	36.9	44.8	42.0	53.9	59.1	63.9	58.9	57.3	54.9	37.0	25.2	13.3	17.3	17.5	14.9	19.7	63.9	32.8	24
14	20.4	20.8	26.8	23.9	21.4	25.9	26.5	32.6	42.7	41.7	36.7	39.0	46.5	52.1	58.8	60.4	47.9	42.3	39.6	36.1	24.4	25.0	25.0	25.3	60.4	35.1	24
15	21.3	19.7	19.5	18.8	18.6	17.9	17.9	18.8	13.5	17.5	16.7	19.7	29.3	26.6	27.5	25.4	20.1	6.3	9.4	7.6	2.0	3.8	5.5	5.8	29.3	16.2	24
16	8.3	10.7	8.7	9.0	12.0	10.2	13.8	12.4	18.9	16.7	26.8	34.0	36.7	33.2	33.8	33.6	25.9	18.5	14.5	18.3	27.2	23.9	21.5	16.1	36.7	20.2	24
17	15.0	11.5	11.3	9.6	11.0	12.6	12.4	15.5	18.7	22.9	24.7	29.4	32.5	37.6	32.3	33.4	28.8	22.3	14.1	14.3	13.6	8.5	9.8	9.3	37.6	18.8	24
18	11.7	7.0	7.9	12.3	25.9	15.5	15.4	29.0	29.8	40.8	40.0	39.0	45.2	49.7	42.7	39.1	29.7	19.9	13.1	11.9	12.0	9.7	9.4	9.5	49.7	23.6	24
19	8.2	7.1	4.1	5.5	4.8	8.0	5.6	4.5	4.8	9.5	9.9	11.9	10.4	10.4	16.0	15.8	10.9	8.3	9.9	14.2	15.2	10.1	6.0	7.9	16.0	9.1	24
20	12.1	12.4	11.3	12.8	24.0	27.7	42.5	44.3	43.7	47.7	52.2	52.0	52.9	49.0	47.9	44.2	38.9	13.7	14.5	14.1	16.4	15.5	13.9	17.8	52.9	30.1	24
21	13.7	12.4	14.1	8.1	3.6	6.8	5.1	5.9	11.5	14.5	14.7	20.7	25.9	27.9	24.8	24.4	17.3	19.1	15.7	21.8	20.2	17.0	18.4	14.9	27.9	15.8	24
22	13.8	6.8	7.9	13.8	23.2	24.8	19.2	20.1	31.1	30.0	37.0	38.7	39.0	35.6	28.5	28.6	22.6	16.7	18.6	16.8	21.1	20.5	14.6	12.1	39.0	22.5	24
23	15.4	7.7	10.4	10.8	10.0	6.5	9.6	8.8	18.7	12.9	22.0	29.0	30.4	35.0	39.7	35.3	28.4	26.3	12.7	10.3	14.3	10.6	9.5	10.0	39.7	17.7	24
24	12.8	13.4	9.8	11.5	11.1	10.5	8.9	8.9	14.5	11.4	9.5	14.4	19.2	15.3	19.0	15.4	15.1	10.8	6.9	5.9	7.8	5.0	5.8	5.9	19.2	11.2	24
25	3.5	4.7	5.3	5.9	6.0	5.6	6.3	16.2	10.0	8.3	11.8	10.8	10.0	11.8	12.1	11.1	7.3	7.7	7.3	9.6	10.8	10.7	13.6	12.4	16.2	9.1	24
26	14.1	13.8	15.0	10.9	16.5	20.2	21.0	21.6	28.1	31.5	34.3	34.5	35.5	34.6	38.0	39.5	34.0	28.5	26.4	20.0	12.4	15.3	10.0	34.7	39.5	24.6	24
27	53.3	55.3	54.0	54.7	52.7	51.5	53.6	55.8	55.5	48.9	51.4	48.6	52.8	50.4	45.8	27.4	32.0	13.8	13.8	16.2	22.4	25.3	30.8	18.0	55.8	***41.0***	24
28	18.8	20.1	23.6	23.8	21.6	19.8	17.2	11.1	10.8	10.6	7.3	6.9	7.9	15.0	16.7	15.7	16.9	15.5	15.8	17.6	28.7	27.7	23.6	28.2	28.7	17.5	24
29	23.5	21.5	24.5	28.2	29.0	15.6	18.4	18.3	17.0	16.8	14.1	16.8	20.2	22.5	12.4	13.2	13.7	8.8	8.4	7.6	7.8	6.8	5.9	8.0	29.0	15.8	24
30	6.9	10.6	18.0	21.2	14.2	18.5	8.6	5.9	5.6	9.5	11.1	17.3	22.2	19.8	18.5	13.0	6.8	20.6	25.2	24.8	19.3	19.2	16.4	20.3	25.2	15.6	24
31	18.5	14.7	18.4	12.9	14.4	18.9	22.6	24.3	18.0	19.5	20.8	17.8	14.0	18.7	17.5	19.9	15.6	16.4	18.3	17.1	17.7	23.4	26.1	19.6	26.1	18.5	24
HOURLY MAX	53.3	55.3	54.0	54.7	52.7	51.8	53.6	55.8	55.5	48.9	52.2	64.2	59.1	63.9	58.9	60.4	54.9	42.3	39.6	36.1	31.6	41.3	41.0	40.6			
HOURLY AVG	15.6	14.5	14.8	15.3	16.0	16.8	16.5	18.8	19.9	21.8	24.2	27.3	29.9	31.9	30.7	28.2	25.1	18.8	16.1	14.9	16.0	16.1	15.2	15.3			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	64.2	KPH	@ HOUR(S)	11	ON DAY(S) 11
					VAR-VARIOUS
OPERATIONAL TIME:					744 HRS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180
135
90
45
0
180
135
90
45
0
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 WSMAX KPH

LICA-ELK
WSP / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	.53	.80	.53	1.20	4.03	3.49	1.20	.67	1.20	1.07	1.34	2.95	4.43	3.49	1.34	.53	28.89
<	12.0	.53	.00	.13	.53	4.56	8.87	2.15	.53	.67	.67	1.34	5.64	4.56	2.28	1.20	1.07	34.81
<	20.0	.53	.00	.00	.00	.53	4.43	4.16	1.74	.00	.13	.00	2.15	2.01	4.97	2.28	1.34	24.32
<	29.0	.13	.00	.00	.00	.00	.94	.40	.00	.00	.00	.00	.00	1.20	2.28	1.47	1.07	7.52
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.53	2.55	.94	.26	4.30
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.13
	Totals	1.74	.80	.67	1.74	9.13	17.74	7.93	2.95	1.88	1.88	2.68	10.75	12.76	15.72	7.25	4.30	

Calm : .00 %

Total # Operational Hours : 744

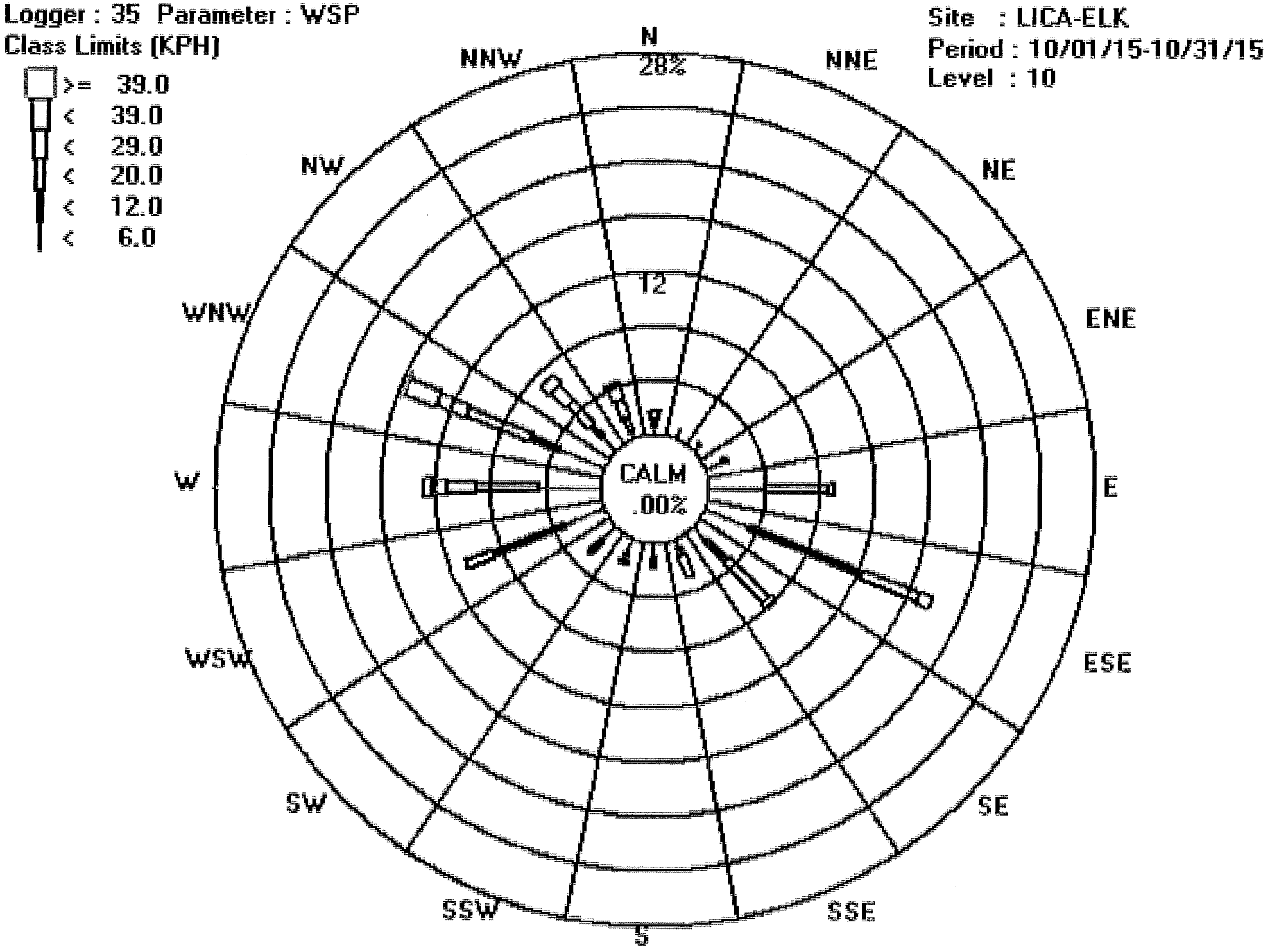
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	4	6	4	9	30	26	9	5	9	8	10	22	33	26	10	4	215
<	12.0	4		1	4	34	66	16	4	5	5	10	42	34	17	9	8	259
<	20.0	4				4	33	31	13		1		16	15	37	17	10	181
<	29.0	1					7	3						9	17	11	8	56
<	39.0													4	19	7	2	32
>=	39.0														1			1
	Totals	13	6	5	13	68	132	59	22	14	14	20	80	95	117	54	32	

Calm : .00 %

Total # Operational Hours : 744


Logger : 35 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA-ELK
Period : 10/01/15-10/31/15
Level : 10
N
28%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
12
CALM
.00%

WIND DIRECTION

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

WIND DIRECTION (WD) hourly averages

MST

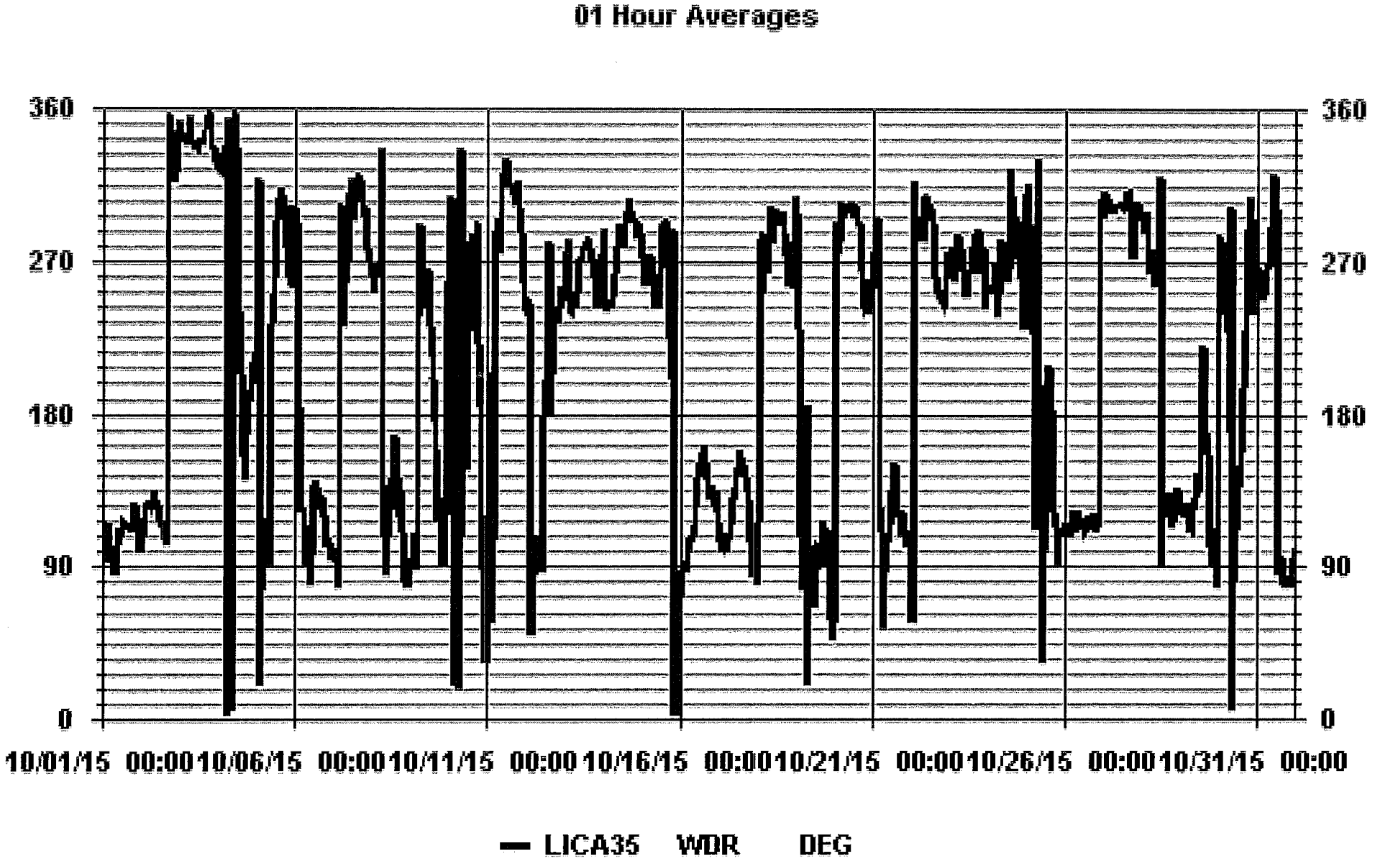
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00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

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

LAST CALIBRATION:	February 21, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	89.69		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	S	


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 WDR DEG

STANDARD DEVIATION WIND DIRECTION

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

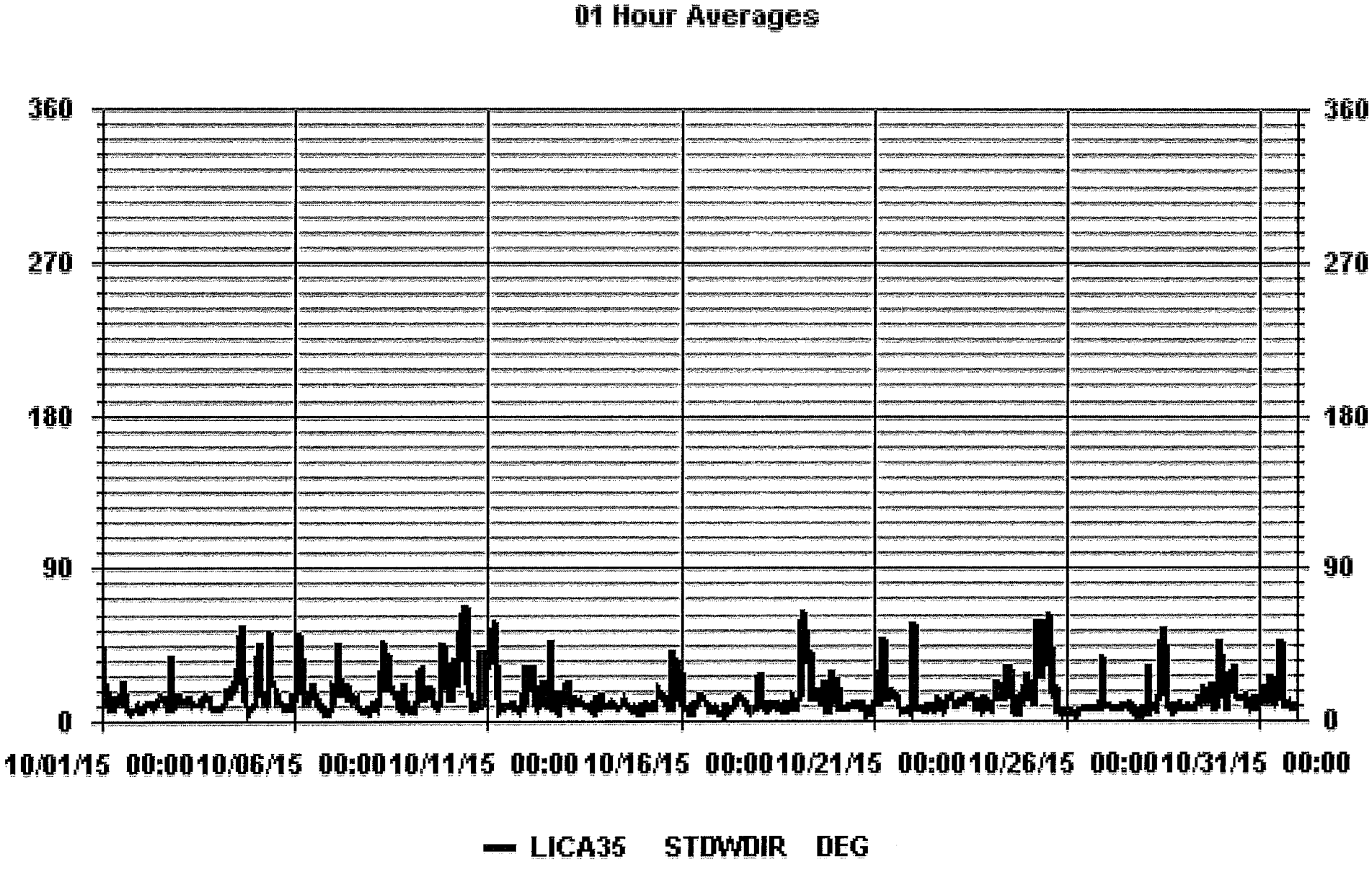
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	43	13	22	8	18	11	5	9	9	15	12	13	16	23	18	9	7	6	5	6	6	6	8	5
2	5	6	8	10	9	9	10	9	12	9	10	12	14	14	13	13	9	15	5	38	7	9	10	15
3	15	11	11	11	11	12	15	11	9	10	9	9	10	12	10	12	15	14	13	13	8	8	7	7
4	7	7	8	9	10	14	19	12	16	21	20	21	31	50	39	56	26	12	10	5	6	7	9	9
5	38	21	46	19	15	11	10	12	54	23	23	21	13	14	12	10	10	8	9	7	6	6	12	16
6	13	15	31	52	38	17	11	11	15	14	15	22	17	15	14	10	8	9	7	4	4	6	6	9
7	20	19	18	46	27	17	15	19	20	20	11	14	16	10	12	9	9	7	3	6	6	5	9	7
8	10	9	11	9	12	16	29	48	28	20	40	17	20	17	15	16	12	8	7	11	22	9	10	7
9	5	5	5	10	12	29	30	14	14	12	16	13	20	14	13	10	9	8	12	28	46	20	24	20
10	12	12	34	29	37	19	51	53	64	34	68	23	16	15	10	7	5	11	6	41	39	8	13	41
11	30	44	55	41	59	34	13	6	7	9	9	8	9	9	10	9	10	7	7	6	9	5	16	9
12	32	19	19	29	32	22	10	8	10	10	13	24	11	10	7	48	11	7	7	6	18	11	13	11
13	11	22	24	9	8	11	15	9	12	8	11	9	9	9	8	8	7	6	11	14	5	11	10	16
14	11	10	6	9	10	7	11	10	8	7	8	9	12	10	9	9	9	7	6	8	6	4	4	4
15	9	9	10	9	8	5	9	10	9	12	19	18	17	15	13	10	7	7	5	42	10	37	24	12
16	30	10	9	7	7	8	4	4	7	12	10	14	14	15	15	13	11	9	3	7	8	6	7	5
17	4	5	4	6	10	5	6	6	8	9	12	13	14	14	13	12	12	10	7	5	6	7	7	5
18	19	26	28	13	8	7	9	7	12	8	9	10	8	9	9	7	5	5	12	10	9	15	14	11
19	5	11	14	59	65	55	34	42	33	42	11	16	17	14	14	9	11	24	8	5	5	9	30	15
20	9	25	20	7	7	7	7	7	8	8	8	10	10	9	10	8	6	11	7	4	6	5	9	5
21	12	10	10	8	29	30	49	22	11	13	19	16	13	17	13	13	8	5	6	6	6	3	6	5
22	12	58	22	10	5	7	7	6	8	9	7	8	8	7	10	13	12	8	9	6	7	10	15	13
23	14	12	8	8	10	10	12	12	11	14	15	13	13	14	12	7	7	10	13	6	7	14	6	8
24	8	7	11	13	11	24	16	13	13	13	24	33	29	29	14	14	5	3	3	9	16	10	21	28
25	15	24	13	10	10	41	60	42	24	31	59	36	55	63	44	16	13	21	7	8	7	4	5	3
26	3	3	5	6	6	5	4	6	6	6	7	7	7	8	7	7	7	7	7	7	12	5	38	7
27	9	9	8	8	8	7	8	7	7	7	8	8	8	9	11	7	6	7	4	3	5	4	6	
28	9	4	4	32	10	6	8	7	13	13	26	47	54	46	15	8	7	8	5	6	6	9	10	7
29	7	7	7	9	9	7	7	7	8	10	14	11	13	21	18	18	12	10	22	6	6	8	18	47
30	40	18	14	5	24	27	30	15	32	14	13	13	14	13	14	11	13	8	6	7	7	15	12	10
31	8	13	13	20	13	10	13	26	12	10	11	14	26	48	13	8	8	8	10	8	9	9	7	7

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION: February 21, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA35 STDWDIR DEG

APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 15100117-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 3, 2015

Priority: Normal

AIR FCD-01320/2

RECEIVED
OCT 13 2015
Alberta Innovates - Technology Futures

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Oct 3, 2015

Sampler S/N: 6200
Canister ID: H 2821
Canister Installation Date/Time: Oct 1, 2015 @ 14:00
Canister Removal Date/Time: Oct 7, 2015 @ 13:19

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 3, 2015	00:00 Oct 3, 2015	00:00 Oct 4, 2015	24

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	19.9

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:

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

Date: Oct. 7, 2015

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 3, 2015
Canister ID: H2821

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
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
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.01
trans-1,2-Dichloroethylene	< 0.01
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.02
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.01
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.14
n-Decane	< 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
Isobutane	0.07
Isopentane	0.17
Isoprene	0.03
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
Ethylbenzene	< 0.01
Freon-11	0.31
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.68
Hexachloro-1,3-butadiene	< 0.50
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 3, 2015
Canister ID: H2821

PARAMETERS	CONCENTRATION (PPB)
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.5
Ethyl acetate	< 0.4
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.10
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	< 0.01
Acetone	1.7
Acrolein	< 0.3
Benzene	0.02
Benzyl chloride	< 0.4
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.02
3-Methylheptane	< 0.02
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	< 0.02
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	0.04
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	0.01
1,2-Dichloropropane	< 0.01

Sample ID: 15100172-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 9, 2015

Priority: Normal

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VOC Sample Collection Data Sheet

AIR-ECD-01320/7
RECEIVED
OCT 15 2015
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Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/ Oct 9, 2015

Sampler S/N: 6200
Canister ID: 2485
Canister Installation Date/Time: Oct 7, 2015 @ 13:20
Canister Removal Date/Time: Oct 13, 2015 @ 11:09

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 9, 2015	00:00 Oct 9, 2015	00:00 Oct 10, 2015	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	+ 19.5

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:

Technician Signiture: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: Oct 13, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 9, 2015
Canister ID: 2485

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	0.01
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	0.04
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.12
2,3-Dimethylpentane	0.07
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.02
2-Methylhexane	0.03
2-Methylpentane	0.14
3-Methylheptane	< 0.02
3-Methylhexane	0.03
3-Methylpentane	0.07
Acetone	3.0
Acrolein	< 0.3
Benzene	0.05
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.30
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	< 0.02
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	0.03
Dibromochloromethane	< 0.01
Ethanol	1.9
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.29

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 9, 2015
Canister ID: 2485

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.64
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.63
Isopentane	0.65
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	0.19
Methylcyclopentane	0.08
Methylene chloride	< 0.3
n-Butane	0.91
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.14
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
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	0.09
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: 15100277-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 15, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Oct 15, 2015

Sampler S/N: 6200
Canister ID: 5619
Canister Installation Date/Time: Oct 13, 2015 @ 11:10
Canister Removal Date/Time: Oct 19, 2015 @ 09:20

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 15, 2015	00:00 Oct 15, 2015	00:00 Oct 16, 2015	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	18.3

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:

Technician Signiture: Sample in - by Alex Vakeyov
Sample out - by Alex Vakeyov

Date: Oct 19, 2015

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 15, 2015
Canister ID: S5619

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	< 0.01
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	0.04
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.01
2-Methylpentane	0.05
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	1.9
Acrolein	< 0.3
Benzene	0.04
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.06
Carbon tetrachloride	0.06
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	< 0.02
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	0.6
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.20

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 15, 2015
Canister ID: S5619

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	< 0.02
Freon-12	0.47
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.32
Isopentane	0.28
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	0.06
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.47
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.05
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	0.04
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: 15100333-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 21, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/voc/ELK/ Oct 21, 2015

Sampler S/N: 6200
Canister ID: 8 A.Y. 2471
Canister Installation Date/Time: Oct 19, 2015 @ 09:21
Canister Removal Date/Time: Oct 22, 2015 @ 14:30

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 21, 2015	00:00 Oct 21, 2015	00:00 Oct 22, 2015	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	19.3

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:

Technician Signiture: Sample in - by Alex Yampov
Sample out - by Alex Yampov

Date: Oct 22, 2015

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 21, 2015
Canister ID: 2471

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	0.01
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	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.11
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.03
2-Methylpentane	0.11
3-Methylheptane	< 0.02
3-Methylhexane	0.03
3-Methylpentane	0.06
Acetone	1.6
Acrolein	< 0.3
Benzene	0.07
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.45
Carbon tetrachloride	0.06
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.08
Cyclopentane	0.04
Dibromochloromethane	< 0.01
Ethanol	0.6
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.21

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 21, 2015
Canister ID: 2471

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	< 0.02
Freon-12	0.48
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.83
Isopentane	0.61
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	0.15
Methylcyclopentane	0.07
Methylene chloride	< 0.3
n-Butane	1.26
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.12
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.5
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	0.06
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: 15110004-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 27, 2015

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Oct 27, 2015

Sampler S/N: 6200
Canister ID: 17124
Canister Installation Date/Time: Oct 22, 2015 @ 14:31
Canister Removal Date/Time: Oct 29, 2015 @ 09:42

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 27, 2015	00:00 Oct 27, 2015	00:00 Oct 28, 2015	24.0

A.Y.

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	17.8

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:

Technician Signiture: Sample in- by Alex Yanevpor
Sample out by Alex Yanevpor
Date: Oct 29, 2015

Volatile Organics Data Results

Date: OCTOBER 27, 2015
Canister ID: 17124

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	0.03
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadlene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	0.02
2,2,4-Trimethylpentane	0.03
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.04
2,3-Dimethylpentane	0.03
2,4-Dimethylpentane	0.04
2-Methylheptane	0.01
2-Methylhexane	0.05
2-Methylpentane	0.17
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.27
Acetone	1.8
Acrolein	< 0.3
Benzene	0.20
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.01
Carbon tetrachloride	0.15
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.07
Chloromethane	0.86
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.08
Cyclopentane	0.04
Dibromochloromethane	< 0.01
Ethanol	2.5
Ethyl acetate	< 0.4
Ethylbenzene	0.03
Freon-11	0.41

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results

Date: OCTOBER 27, 2015
Canister ID: 17124

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.02
Freon-12	0.53
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.76
Isopentane	0.76
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
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	0.07
Methylcyclopentane	0.23
Methylene chloride	4.9
n-Butane	1.94
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.05
n-Hexane	1.19
n-Nonane	< 0.01
n-Octane	0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.8
o-Ethyltoluene	< 0.01
o-Xylene	0.03
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.14
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: 15100117-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Oct 3, 2015

Priority: Normal

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/ELK/Oct 3, 2015

Puf+ S/N: TE-04
Motor S/N: 1139
Installation Date/Time: Oct 1, 2015 @ 13:55
Removal Date/Time: Oct 7, 2015 @ 14:36

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 3, 2015	00:00 Oct 3, 2015	00:00 Oct 4, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: Sept 25, 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
716	229	2.5°	330.22

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES / (NO)

Comments:

Technician Signiture: Sample in - by Alex Yamupor
Sample out - by Alex Yamupor

Date: Oct 7, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 3, 2015
PUF S/N: TE04

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	< 0.01
2-Methylnaphthalene	0.02
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Phenanthrene	0.05
Pyrene	0.02
Retene	0.02
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.01
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 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
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01

Sample ID: 15100172-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Oct 9, 2015

Priority: Normal

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Hi-Vol PUF+ Sample Collection Data Sheet

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Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/ELK/Oct 9, 2015

Puf+ S/N: TE-08
Motor S/N: 1139
Installation Date/Time: Oct 7, 2015 @ 14:37
Removal Date/Time: Oct 13, 2015 @ 11:05

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 9, 2015	00:00 Oct 9, 2015	00:00 Oct 10, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: Sept 25, 2014

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
701	229	13.5 °	330.21

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES / (NO)

Comments:

Technician Signiture: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: Oct 8, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 9, 2015
PUF S/N: TE08

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.07
2-Methylnaphthalene	0.13
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
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	0.04
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.16
Pyrene	0.06
Retene	0.05

Sample ID: 15100277-004

AIR FCD-01321/2

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Oct 1[illegible] 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/ELK/ Oct 15, 2015

Puf+ S/N: TE-05
Motor S/N: 1139 / 100-1015
Installation Date/Time: Oct 13, 2015 @ 11:06
Removal Date/Time: Oct 19, 2015 @ 09:28

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 15, 2015	00:00 Oct 15, 2015	00:00 Oct 16, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: Sept 25, 2014

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
718	229	5.0 °	330.18

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

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

Date: Oct 19, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 15, 2015
PUF S/N: TE05

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.04
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	< 0.01
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	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.03
Retene	< 0.01

Sample ID: 15100333-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Oct 21, 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/ELK/Oct 21, 2015

Puf+ S/N: ~~TE-0~~ A.Y. 9801
Motor S/N: 1139 / 100-1015
Installation Date/Time: Oct 19, 2015 @ 08:29
Removal Date/Time: Oct 22, 2015 @ 14:36

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 21, 2015	00:00 Oct 21, 2015	00:00 Oct 22, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
n/a	n/a	n/a	n/a

Set Flow Rate (slpm): 230

Date of Last Calibration: Sept 25, 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
708	229	6.6°	330.20

Time set correctly prior to sampling? (YES) / NO
Timer set correctly prior to sampling? (YES) / NO
Sampling data saved to memory card after sampling? YES / (NO)

Comments: (no PUF tag)

Technician Signiture: Sample in - by Alex Yanupov
Sample out - by Alex Yanupov

Date: Oct 22, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 21, 2015
PUF S/N: 9801

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.09
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.03
Benzo(a)anthracene	0.04
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	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.06
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.10
Perylene	0.04
Phenanthrene	0.16
Pyrene	0.06
Retene	0.03

Sample ID: 15110004-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Oct 27, 2015

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/ELK/Oct 27, 2015

Puf+ S/N: TE-07
Motor S/N: 1139 / 100-1015
Installation Date/Time: Oct 22, 2015 @ 14:37
Removal Date/Time: Oct 29, 2015 @ 09:36

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 27, 2015	00:00 Oct 27, 2015	00:00 Oct 28, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
n/a	n/a	n/a	n/a

Set Flow Rate (slpm): 230

Date of Last Calibration: Sept 25, 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
707	229	-0.1°	330.21

Time set correctly prior to sampling? (YES) NO
Timer set correctly prior to sampling? (YES) NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out: by Alex Yakupov
Date: Oct 29, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: OCTOBER 27, 2015
PUF S/N: TE07

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.14
2-Methylnaphthalene	0.23
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	0.03
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	0.04
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.16
Perylene	0.05
Phenanthrene	0.15
Pyrene	0.05
Retene	< 0.01

NMHC CANISTER RESULTS

Sample ID: 15100117-005

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 6, 2015

Priority: Normal

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Oct 6, 2015

Sampler S/N: n/a
Canister ID: 55602
Canister Installation Date/Time: August 17, 2015 @ 15:17
Canister Removal Date/Time: October 7, 2015 @ 13:29

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 6, 2015	03:00	n/a	n/a

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
- 28.0	- 6.0

Canister valve open prior to sampling?: (YES) / NO
Timer set to 0.00 minutes prior to sampling? YES / NO – n/a
Canister valve closed prior to disconnection?: (YES) / NO

Comments: NMHC - canister

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: October 7, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 6, 2015
Canister ID: S5602

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
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.04
Trichloroethylene	< 0.04
Vinyl acetate	0.9
Vinyl chloride	< 0.02
p-Ethyltoluene	< 0.08
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.99
trans-1,2-Dichloroethylene	0.02
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.05
p-Diethylbenzene	< 0.04
n-Dodecane	< 0.4
n-Heptane	0.41
n-Hexane	0.89
n-Nonane	< 0.01
n-Octane	0.20
n-Pentane	1.8
Methyl tert butyl ether	< 0.03
Methylcyclohexane	1.17
Methylcyclopentane	0.55
Methylene chloride	< 0.3
n-Butane	3.40
n-Decane	< 0.07
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.09
Methyl butyl ketone	< 0.54
Methyl ethyl ketone	0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.08
Isobutane	3.05
Isopentane	7.00
Isoprene	0.10
Isopropyl alcohol	0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.20
Ethylbenzene	0.09
Freon-11	0.32
Freon-113	0.09
Freon-114	< 0.02
Freon-12	0.60
Hexachloro-1,3-butadiene	< 0.54
cis-2-Pentene	< 0.02
Cyclohexane	0.66

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 6, 2015
Canister ID: S5602

PARAMETERS	CONCENTRATION (PPB)
Cyclopentane	0.24
Dibromochloromethane	< 0.01
Ethanol	2.6
Ethyl acetate	< 0.4
Chloroethane	0.04
Chloroform	0.03
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.04
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.02
Carbon disulfide	0.27
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
3-Methylhexane	0.24
3-Methylpentane	0.38
Acetone	21.1
Acrolein	< 0.3
Benzene	0.31
Benzyl chloride	< 0.4
2,3-Dimethylpentane	0.21
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.11
2-Methylhexane	0.21
2-Methylpentane	0.63
3-Methylheptane	0.08
1-Hexene	< 0.02
1-Pentene	0.07
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	0.56
2,3-Dimethylbutane	0.58
1,3,5-Trimethylbenzene	0.03
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	14.0
1,2,4-Trichlorobenzene	< 0.9
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.03
1,2-Dichloropropane	< 0.01

Sample ID: 15100117-006

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 8, 2015

Priority: Normal

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/ELK/Oct 8, 2015

Sampler S/N: n/a
Canister ID: S 5666
Canister Installation Date/Time: October 7, 2015 @ 13:31
Canister Removal Date/Time: October 8, 2015 @ 14:46

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
October 8, 2015	08:55 Oct 8, 2015	n/a	n/a

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28.0	-1.0

Canister valve open prior to sampling?: (YES) / NO
Timer set to 0.00 minutes prior to sampling? YES / NO – n/a
Canister valve closed prior to disconnection?: (YES) / NO

Comments: NMHC - Canister (VOC)

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

Date: October 8, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 8, 2015
Canister ID: S5666

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
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
p-Ethyltoluene	< 0.08
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.29
trans-1,2-Dichloroethylene	< 0.01
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	2.0
o-Ethyltoluene	< 0.01
o-Xylene	0.03
p-Diethylbenzene	< 0.04
n-Dodecane	< 0.4
n-Heptane	0.18
n-Hexane	0.36
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.9
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.79
Methylcyclopentane	0.30
Methylene chloride	< 0.3
n-Butane	2.15
n-Decane	< 0.06
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.09
Methyl butyl ketone	< 0.54
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.08
Isobutane	2.04
Isopentane	1.39
Isoprene	0.69
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
Ethylbenzene	0.04
Freon-11	0.34
Freon-113	0.09
Freon-114	< 0.02
Freon-12	0.64
Hexachloro-1,3-butadiene	< 0.54
cis-2-Pentene	< 0.02
Cyclohexane	0.37

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 8, 2015
Canister ID: S5666

PARAMETERS	CONCENTRATION (PPB)
Cyclopentane	0.11
Dibromochloromethane	< 0.01
Ethanol	2.1
Ethyl acetate	< 0.4
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.10
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
3-Methylhexane	0.13
3-Methylpentane	0.17
Acetone	9.8
Acrolein	< 0.3
Benzene	0.11
Benzyl chloride	< 0.4
2,3-Dimethylpentane	0.22
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.06
2-Methylhexane	0.10
2-Methylpentane	0.33
3-Methylheptane	0.03
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	0.08
2,3-Dimethylbutane	0.40
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	0.55
1,2,4-Trichlorobenzene	< 0.9
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

Sample ID: 15110054-005

Customer ID: LICA

Cust Samp ID: LICA/VOC/ELK/Oct 30, 2015

AIR FCD-01320/2

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VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 95
Field Sample ID: LICA/VOC/ELK/Oct 30, 2015

Sampler S/N: n/a
Canister ID: H 2831
Canister Installation Date/Time: October 08, 2015 @ 14:47
Canister Removal Date/Time: November 06, 2015 @ 11:33

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Oct 30, 2015	06:45	n/a	n/a

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28.0	-2.0

Canister valve open prior to sampling?: (YES) / NO
Timer set to 0.00 minutes prior to sampling? YES / NO - n/a
Canister valve closed prior to disconnection?: (YES) / NO

Comments: (NMHC) - canister.

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

Date: Nov 6, 2015

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Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 30, 2015
Canister ID: H2831

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	0.04
1,1,2,2-Tetrachloroethane	0.04
1,1,2-Trichloroethane	0.04
1,1-Dichloroethane	0.04
1,1-Dichloroethylene	< 0.05
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.9
1,2,4-Trimethylbenzene	0.15
1,2-Dibromoethane	0.04
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.06
1,2-Dichloropropane	0.05
1,3,5-Trimethylbenzene	0.09
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.5
1,4-Dioxane	< 0.5
1-Butene	4.19
1-Hexene	0.27
1-Pentene	0.27
2,2,4-Trimethylpentane	0.61
2,2-Dimethylbutane	0.11
2,3,4-Trimethylpentane	0.39
2,3-Dimethylbutane	0.79
2,3-Dimethylpentane	0.64
2,4-Dimethylpentane	0.51
2-Methylheptane	0.24
2-Methylhexane	0.39
2-Methylpentane	2.01
3-Methylheptane	0.17
3-Methylhexane	0.67
3-Methylpentane	1.17
Acetone	11.6
Acrolein	< 0.3
Benzene	0.59
Benzyl chloride	< 0.5
Bromodichloromethane	0.04
Bromoform	0.03
Bromomethane	0.04
Carbon disulfide	0.17
Carbon tetrachloride	0.15
Chlorobenzene	0.04
Chloroethane	0.04
Chloroform	0.06
Chloromethane	< 0.02
cis-1,2-Dichloroethene	0.03
cis-1,3-Dichloropropene	< 0.05
cis-2-Butene	0.27
cis-2-Pentene	0.32
Cyclohexane	0.57
Cyclopentane	0.19
Dibromochloromethane	0.03
Ethanol	11.3
Ethyl acetate	< 0.5
Ethylbenzene	0.26
Freon-11	0.37

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - OCTOBER 2015
JOB # 2833-2015-10-35- C

Volatile Organics Data Results (NMHC Canister System)

Date: OCTOBER 30, 2015
Canister ID: H2831

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.11
Freon-114	< 0.02
Freon-12	0.40
Hexachloro-1,3-butadiene	< 0.58
Isobutane	1.37
Isopentane	8.10
Isoprene	< 0.01
Isopropyl alcohol	< 0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.72
m-Diethylbenzene	< 0.05
m-Ethyltoluene	0.11
Methyl butyl ketone	< 0.58
Methyl ethyl ketone	0.6
Methyl isobutyl ketone	< 0.5
Methyl methacrylate	< 0.08
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.95
Methylcyclopentane	1.24
Methylene chloride	< 0.3
n-Butane	7.21
n-Decane	< 0.07
n-Dodecane	4.5
n-Heptane	0.61
n-Hexane	1.55
n-Nonane	0.14
n-Octane	0.24
n-Pentane	< 0.1
n-Propylbenzene	< 0.06
n-Undecane	< 0.6
Naphthalene	< 0.6
o-Ethyltoluene	0.04
o-Xylene	0.24
p-Diethylbenzene	< 0.05
p-Ethyltoluene	0.08
Styrene	0.09
Tetrachloroethylene	0.05
Tetrahydrofuran	< 0.5
Toluene	1.44
trans-1,2-Dichloroethylene	0.04
trans-1,3-Dichloropropylene	< 0.05
trans-2-Butene	0.29
trans-2-Pentene	0.62
Trichloroethylene	< 0.05
Vinyl acetate	1.4
Vinyl chloride	< 0.02

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100E Sulphur Dioxide Analyzer Calibration

Date:	October 7, 2015	Barometric Pressure:	27.70 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Elk Point	Weather Conditions:	Mainly cloudy with sunny breaks
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	9:46	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	15:08	Cal Gas Expiry Date:	March 12, 2019
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	467	Range ppb:	1000
Last Calibration Date:	September 24, 2015	As Found C.F.:	0.992
Previous C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	BLM002073
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	Sulphur Dioxide Standard Calibration Points
High	780
Mid	380
Low	190

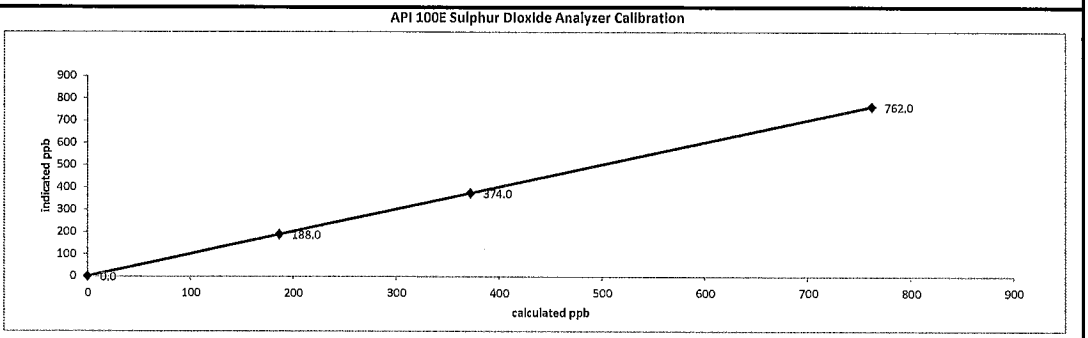
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.00	5013	0.0	2.0	N/A
as found high	4938	77.20	5015	762.0	770.0	0.992
adjusted zero	5013	0.00	5013	0.0	0.0	n/a
adjusted high	4938	77.20	5015	762.0	762.0	1.000
mid	4976	37.70	5014	372.2	374.0	0.995
low	4994	18.90	5013	186.6	188.0	0.993
calibrator zero	5013	0.00	5013	0.0	0.0	n/a
					Average C.F.=	0.996

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.09%	± 3% F.S.
% change in C.F. from last cal=	0.79%	± 10%

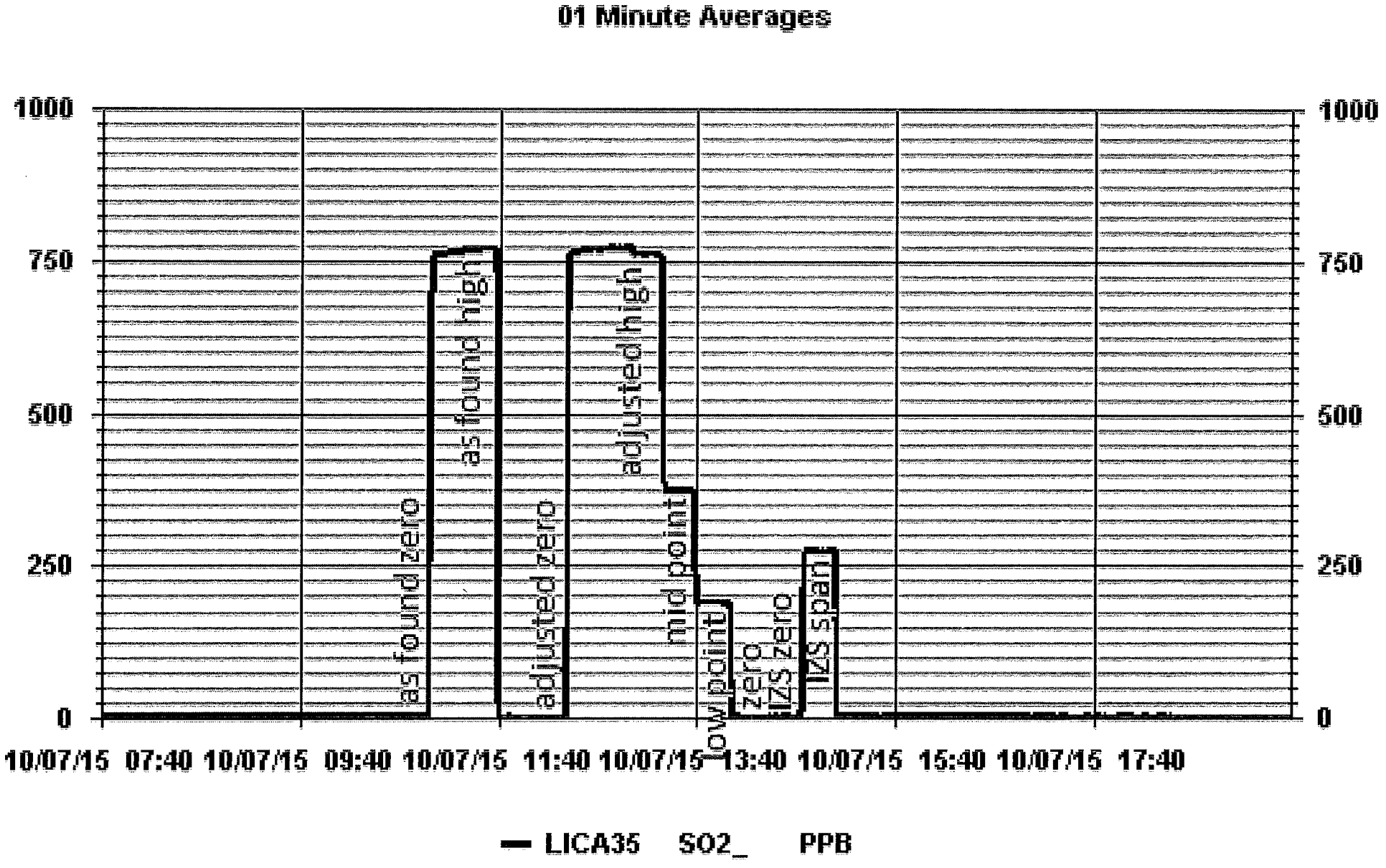
API 100E Sulphur Dioxide Analyzer Calibration



	As found:	As left:
SLOPE:	1.064	1.054
OFFSET:	114.3	119.1
HVPS:	512	512
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.3	31.7
PMT TEMP:	8.1	8.1
IZS TEMP:	45.0	45.0
PRES:	24.5	24.5
SAMP FL:	620	619
NORM PMT:	114.9	115.7
UV LAMP:	3124.2	3121.6
LAMP RATIO:	103.9	103.8
STR. LGT	60.8	62.7
DRK PMT:	14.1	14.2
DRK LMP:	2.9	2.9
Internal Span:	276	273

Comments:

Sample filter changed.


01 Minute Averages
1000
750
500
250
0
as found zero
as found high
adjusted zero
adjusted high
mid point
low point
zero
HZS zero
HZS span
10/07/15 07:40
10/07/15 09:40
10/07/15 11:40
10/07/15 13:40
10/07/15 15:40
10/07/15 17:40
LICA35 SO2_ PPB

HYDROGEN SULPHIDE

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 8, 2015	Barometric Pressure:	27.98 In Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Elk Point	Weather Conditions:	Clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	9:36	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	12:53	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	510	Range ppb:	100
Last Calibration Date:	September 24, 2015	As Found C.F.:	1.018
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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

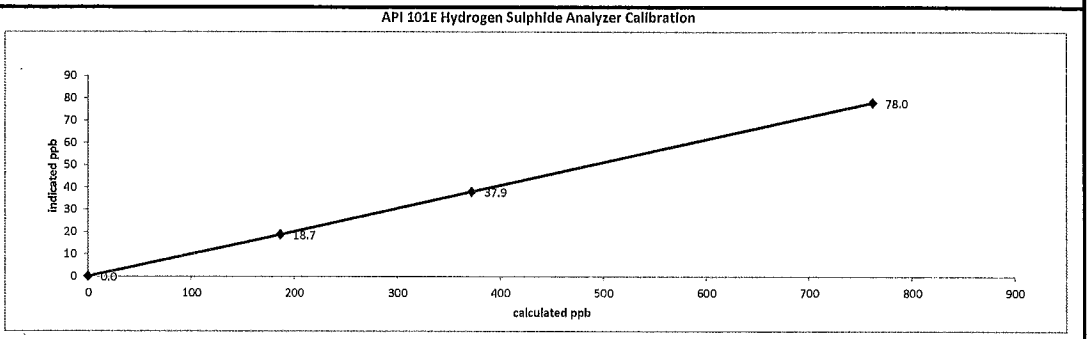
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7496	0.00	7496	0.0	0.0	N/A
as found high	7441	58.50	7500	78.0	76.6	1.018
adjusted high	7441	58.50	7500	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	37.9	1.003
low	7486	14.30	7500	19.1	18.7	1.020
calibrator zero	7496	0.00	7496	0.0	0.0	n/a
					Average C.F.=	1.007

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	0.999	.95-1.05
b (Intercept as % of full scale)=	0.17%	± 3% F.S.
% change in C.F. from last cal=	-1.83%	± 10%

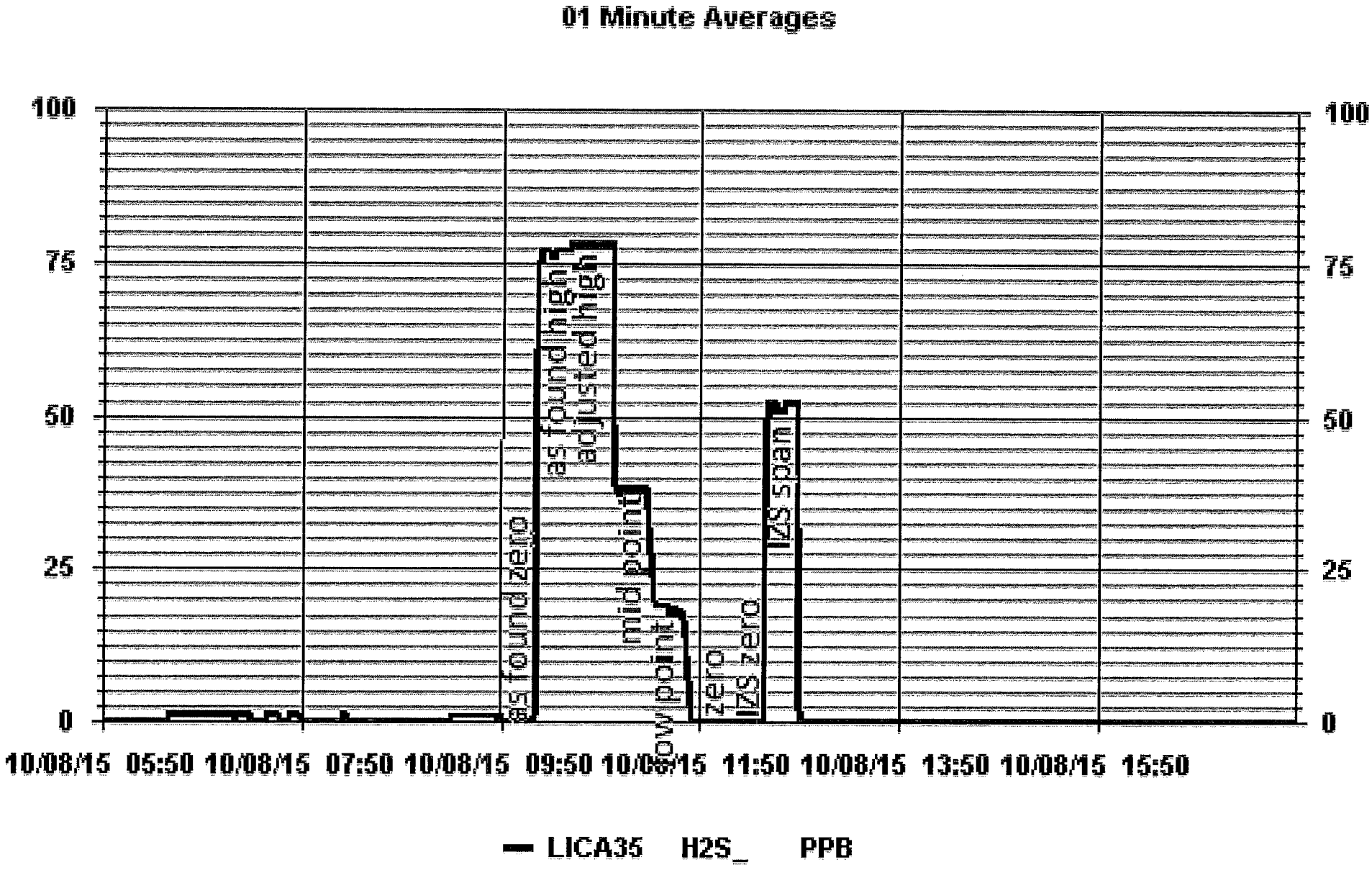
API 101E Hydrogen Sulphide Analyzer Calibration



	As found:	As left:
SLOPE:	1.129	1.144
OFFSET:	28.8	28.8
HVPS:	526	526
RCELL TEMP:	50.0	50.0
BOX TEMP:	32.2	33.1
PMT TEMP:	8.3	8.3
IZS TEMP:	45.0	45.0
Converter Temp:	315.1	315.2
PRES:	22.2	22.1
SAMP FL:	575	574
UV LAMP:	2911.2	2909.6
LAMP RATIO:	91.7	91.7
STR. LGT	16.3	16.5
DRK PMT:	34.8	35.3
DRK LMP:	-1.7	-1.9
Internal Span:	50.1	51.7

Comments:

Sample filter changed. No ZERO adjustment made.


01 Minute Averages
100
75
50
25
0
as found zero
as found high
adjusted high
mid point
low point
zero
H2S zero
H2S span
10/08/15 05:50
10/08/15 07:50
10/08/15 09:50
10/08/15 11:50
10/08/15 13:50
10/08/15 15:50
LICA35 H2S_ PPB

TOTAL HYDROCARBON

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	October 7, 2015	Barometric Pressure:	27.70 In Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Elk Point	Weather Conditions:	Mainly cloudy with sunny breaks
Parameter:	CH_4 / NMHC / THC	Calibration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	9:46 / 13:36	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	March 26, 2017

Analyzer:

Serial Number:	1236656107
Last Calibration Date:	September 24, 2015
Range ppm:	20 CH4/20 NMHC/40 THC

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	0.998	1.013	1.003
NMHC =	1.001	1.018	1.002
THC =	0.999	1.004	1.004

Calibrator:

Flow Meter ID's:	n/a		
Make & Model:	API 700		
Serial #:	830		
Cal Gas Cylinder I.D. # :	LL33674		
CH4 Cylinder Conc.=	601.4	202.0	=C_3H_8 Cylinder Conc.
CH_4 as C_3H_8=	555.5	1156.9	=total CH_4 equivilant

Standard Calibration Points for Analyzer Range of 20/20/40 ppm

Point	CH4	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
as found zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2000	48.00	2048	14.10	13.02	27.11	13.91	12.79	27.00	1.013	1.018	1.004
adjusted high	2000	48.00	2048	14.10	13.02	27.11	14.05	13.00	27.00	1.003	1.002	1.004
mid	2000	25.00	2025	7.42	6.86	14.28	7.44	6.89	14.00	0.998	0.995	1.020
low	2000	12.00	2012	3.59	3.31	6.90	3.60	3.39	7.00	0.996	0.977	0.986
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.=	0.999	0.991	1.003

Linear Regression/Calibration Results:

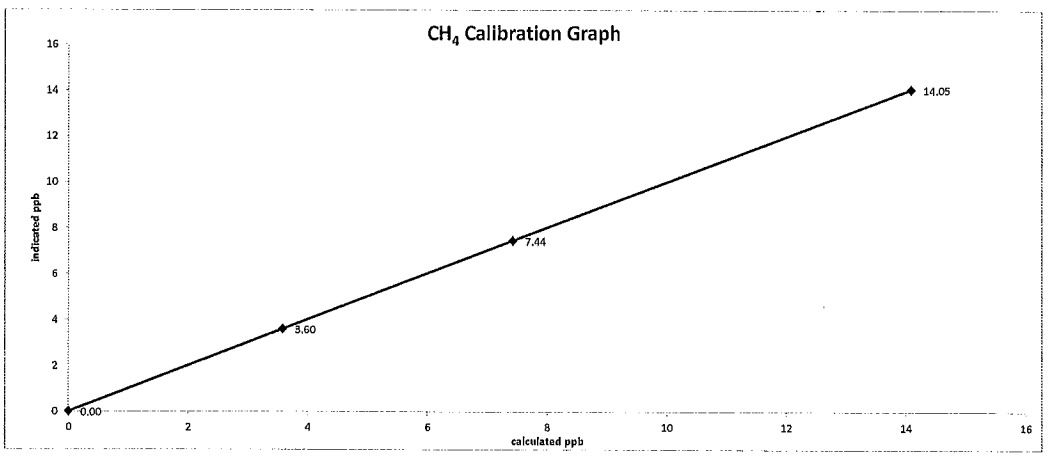
	CH_4	NMHC	THC	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.997	0.997	0.993	.95-1.05
b (Intercept as % of full scale)=	0.09%	0.20%	0.03%	± 3% F.S.
% change in C.F. from last cal=	-1.54%	-1.69%	-0.53%	± 10%

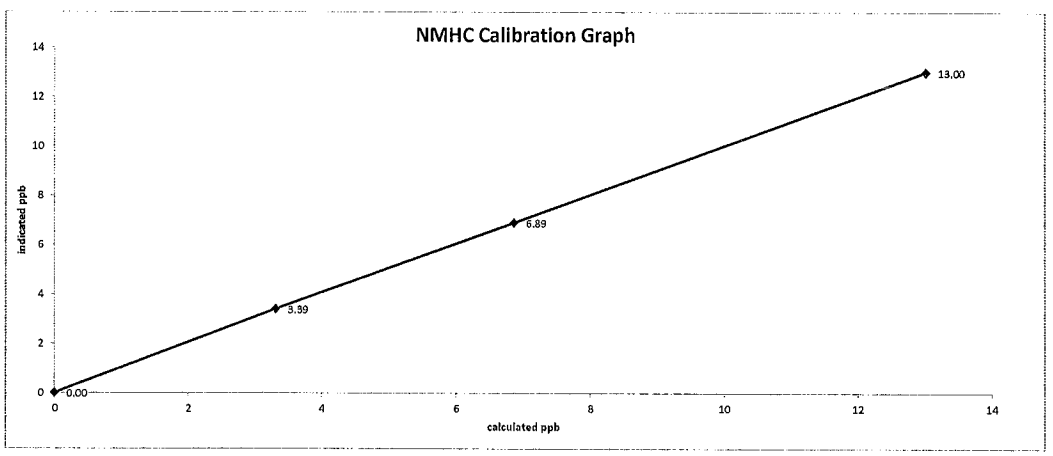
		As found:				As left:
Interface Board Voltages:	Bias Supply:	-292.9		Calibration History cnt'd:	NM Peak Area:	93335
Temperatures:	Detector Oven:	175.1		Crucial Settings:	Methane Start:	NA
	Filter:	175.0			Methane End:	NA
	Column Oven:	75.0			Backflush:	NA
	Internal:	32.0			NMHV Start:	NA
Cylinder Pressures/reg.:	Carrier:	1800	50		NMHC End:	NA
	Fuel:	500	50	Run History>1:	Date:	October 7, 2015
	Span Gas:	1100	22		Time:	12:26
	Zero Air Generator:	45/32.4			CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.1			CH_4 RT:	8.0
	Fuel:	40.3			CH_4 Baseline:	2394
	Air:	32.4			CH_4 LOD:	70
FID Status:	Status:	LIT			CH_4 SD:	23
	Counts:	26055			CH_4 CONC:	0.00
	Flame:	380.6			NM PK HT:	0
	Det Base:	175.1			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	May 5, 2015			NM CONC:	0.00
	Flameouts:	40			NM Base Start:	2210
	Det Oven at Start:	170.1			NM Base End:	2219
	Col Oven at Start:	74.5			NM LOD:	9
Calibration History:	Time:	September 24, 2015			NM Start IDX:	17
	Type:	SPAN			NM End IDX:	89
	Status:	GOOD			NM Max Slope:	6.8e-01
	Check/Adjust:	ADJUST			NM Min Slope:	-4.2e-01
	CH_4 Span Conc:	14.66			NM PT Count:	0
	CH_4 SP Ratio:	0.000736		Daily Zero/Span Values:	Previous CH4:	9.61
	CH_4 RT:	12.2			Previous NMHC	13.7
	CH_4 PK IDX:	21			Previous THC:	23.4
	CH_4 PK HT:	19930			New CH4:	9.75
	NM Span Conc:	13.93			New NMHC	13.9
	NM SP Ratio:	0.000149			New THC:	23.6

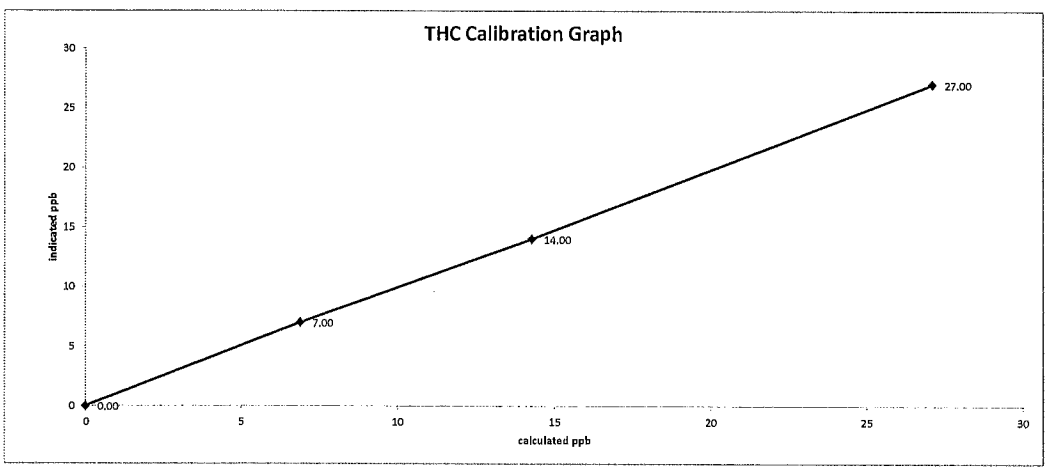
Comments:

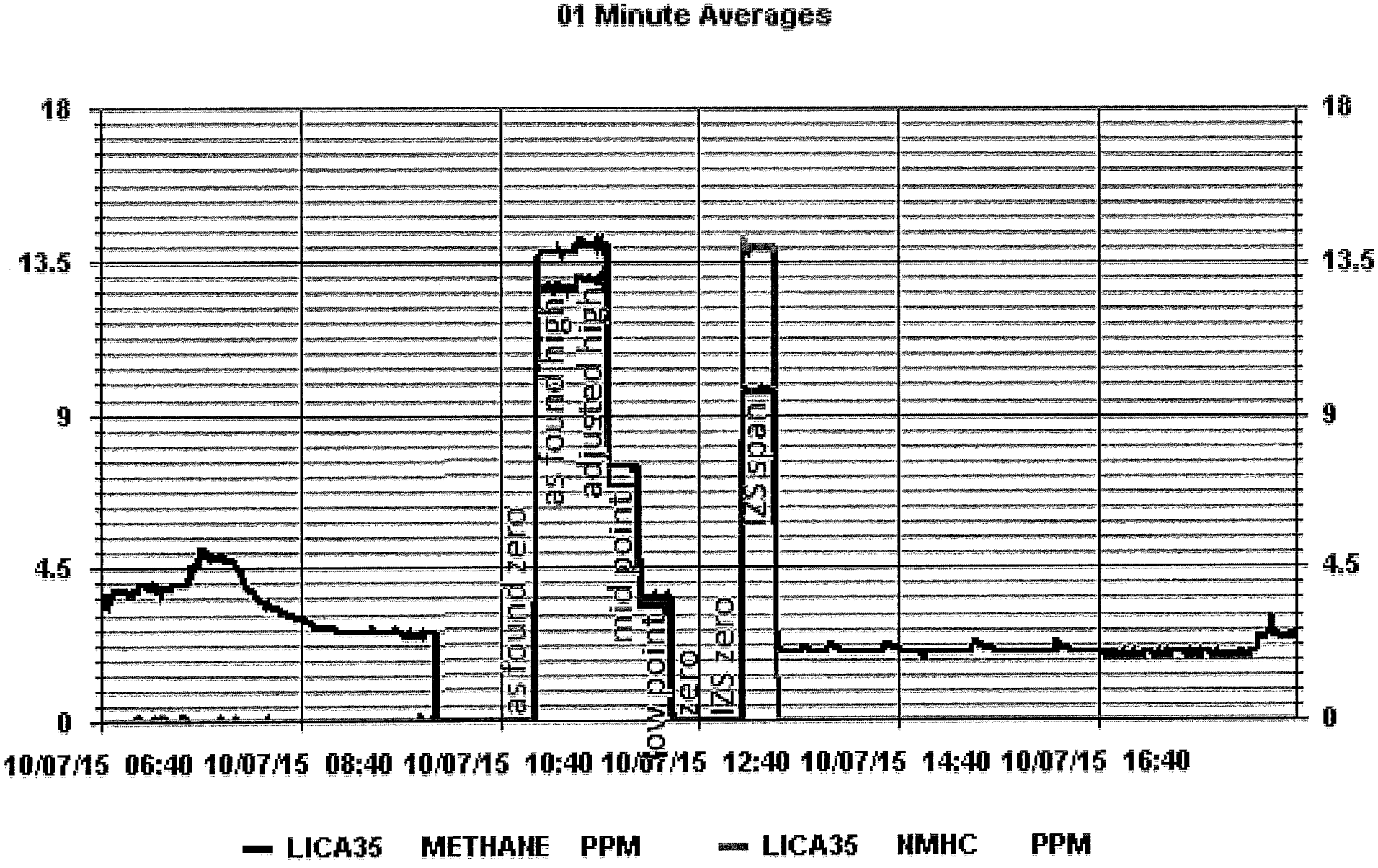
Sample filter changed. No ZERO adjustment made.

Date:	October 7, 2015	Start/End Time 24 hr. (mst):	9:46 / 13:36
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Elk Point	Calibration Method:	Gas Dilution








01 Minute Averages
18
13.5
9
4.5
0
as found zero
as found high
adjusted high
mid point
low point
zero
IZS zero
IZS span
10/07/15 06:40
10/07/15 08:40
10/07/15 10:40
10/07/15 12:40
10/07/15 14:40
10/07/15 16:40
LICA35 METHANE PPM
LICA35 NMHC PPM

NITROGEN DIOXIDE

Maxxam
A Bureau Veritas Group Company

API 200E NO-NO2-NOx Analyzer Calibration

Date:	October 7, 2015	Barometric Pressure:	27.70 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Elk Point	Weather Conditions:	Mainly cloudy with sunny breaks
Start/End Time 24 hr. (mst):	9:46 / 17:00	Calibration Purpose:	routine monthly
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date:	March 12, 2019

Analyzer:

Serial Number:	592
Last Calibration Date:	September 24, 2015
Range ppb:	1000

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	0.999	1.028	0.999
NO_2 =	1.000	1.000	1.000
NOx =	0.994	1.037	0.999

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	SABIO 2010 D	
Serial #:	11900613	
Cal Gas Cylinder I.D. # :	BLM002073	
NO/NOx Gas Conc. (ppm):	50.6	50.6

Standard Calibration Points for a Range of: 1000 ppb

Point	Target NO (ppb)	Target NO_2 (ppb)	Cc Ozone ?
High	780	500	n/a
Mid	380	276	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	5013	0.0	5013	0	0	0.0	0.0	n/a	n/a
as found high	4938	77.2	5015	778.9	778.9	758.0	751.0	1.028	1.037
adjusted zero	5013	0.00	5013	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4938	77.20	5015	778.9	778.9	780.0	780.0	0.999	0.999
mid	4976	37.70	5014	380.5	380.5	387.0	385.0	0.983	0.988
low	4994	18.90	5013	190.8	190.8	195.0	197.0	0.978	0.968
calibrator zero	5013	0.00	5013	0	0	1.0	1.0	n/a	n/a
							Average C.F.=	0.987	0.985

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	4938	77.20	5015	0.0	779.0	781.0	3.0	0.0	3.0	
as found high NO2	4938	77.20	5015	500.0	303.0	781.0	479.0	476.0	476.0	1.000
gpt mid	4938	77.20	5015	275.0	510.0	781.0	272.0	269.0	269.0	1.000
gpt low	4938	77.20	5015	100.0	679.0	781.0	103.0	100.0	100.0	1.000
									Average NO_2 C.F.=	1.000

Linear Regression/Calibration Results:

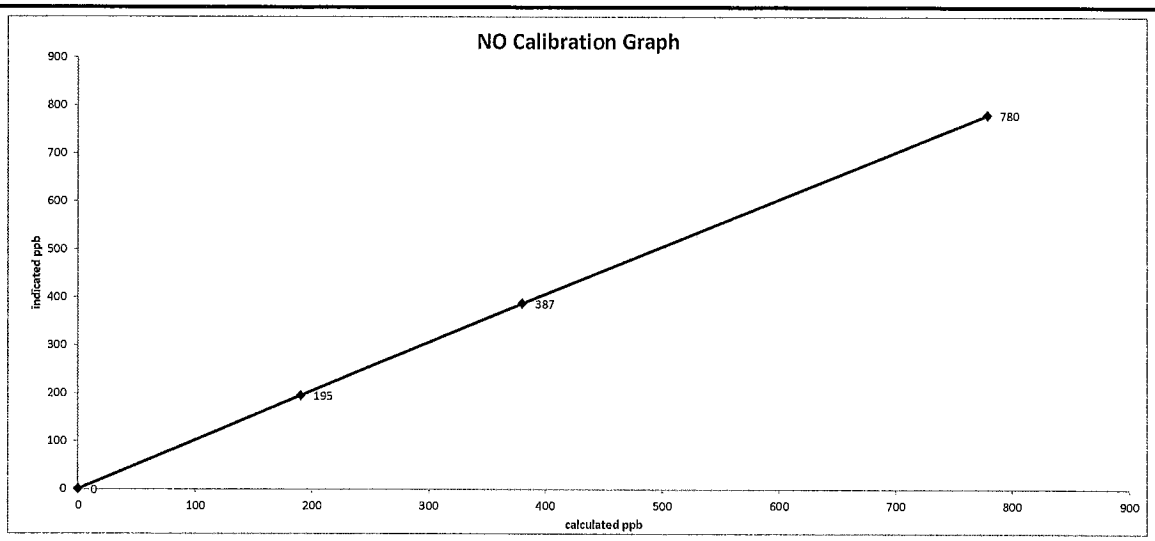
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	1.001	1.005	.95-1.05
b (Intercept as % of full scale)=	0.28%	0.32%	0.18%	± 3% F.S.
% change in C.F. from last cal=	-2.86%	-4.34%	0.00%	± 10%
NO2 converter effeciency			1.00	0.96 to 1.04

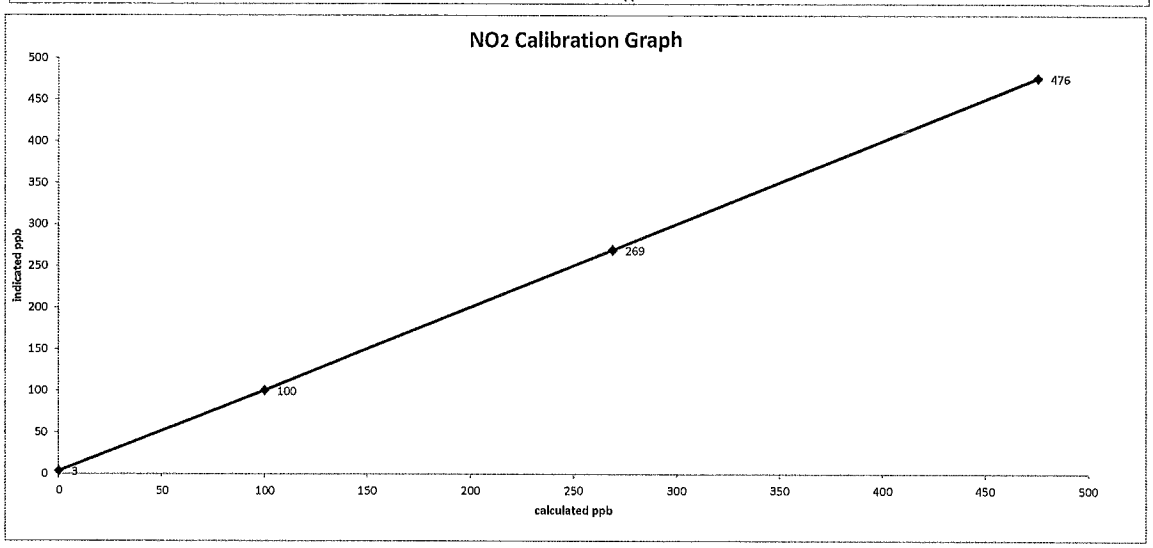
As found:		As left:	
NOx SLOPE:	1.283	NOx SLOPE:	1.330
NOx OFFS:	1.6	NOx OFFS:	0.6
NO SLOPE:	1.288	NO SLOPE:	1.324
NO OFFS:	0.6	NO OFFS:	0.4
SAMP FLW:	484	SAMP FLW:	484
OZONE FL:	74	OZONE FL:	74
PMT:	15.2	PMT:	15.1
NORM PMT:	1.8	NORM PMT:	0.3
AZERO:	17.4	AZERO:	17.2
HVPS:	637	HVPS:	637
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	29.1	BOX TEMP:	29.6
PMT TEMP:	6.9	PMT TEMP:	6.9
IZS TEMP:	40.2	IZS TEMP:	40.0
MOLY TEMP:	313.9	MOLY TEMP:	313.9
RCEL:	5.5	RCEL:	5.5
SAMP:	26.7	SAMP:	26.8
Internal Span NO:	9	Internal Span NO:	9.6
Internal Span NO2:	302	Internal Span NO2:	321
Internal Span NOx:	310	Internal Span NOx:	329

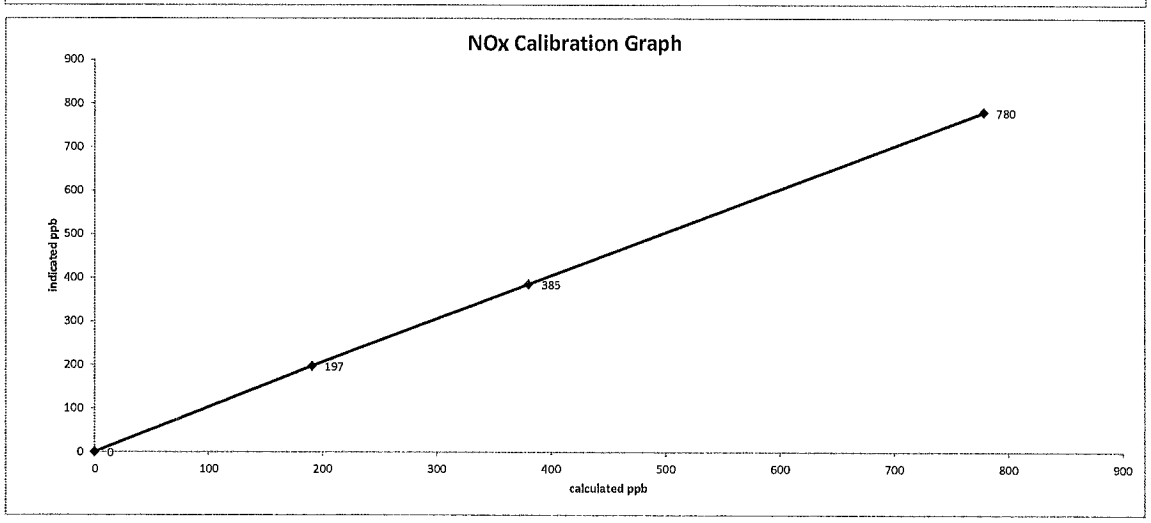
Comments:

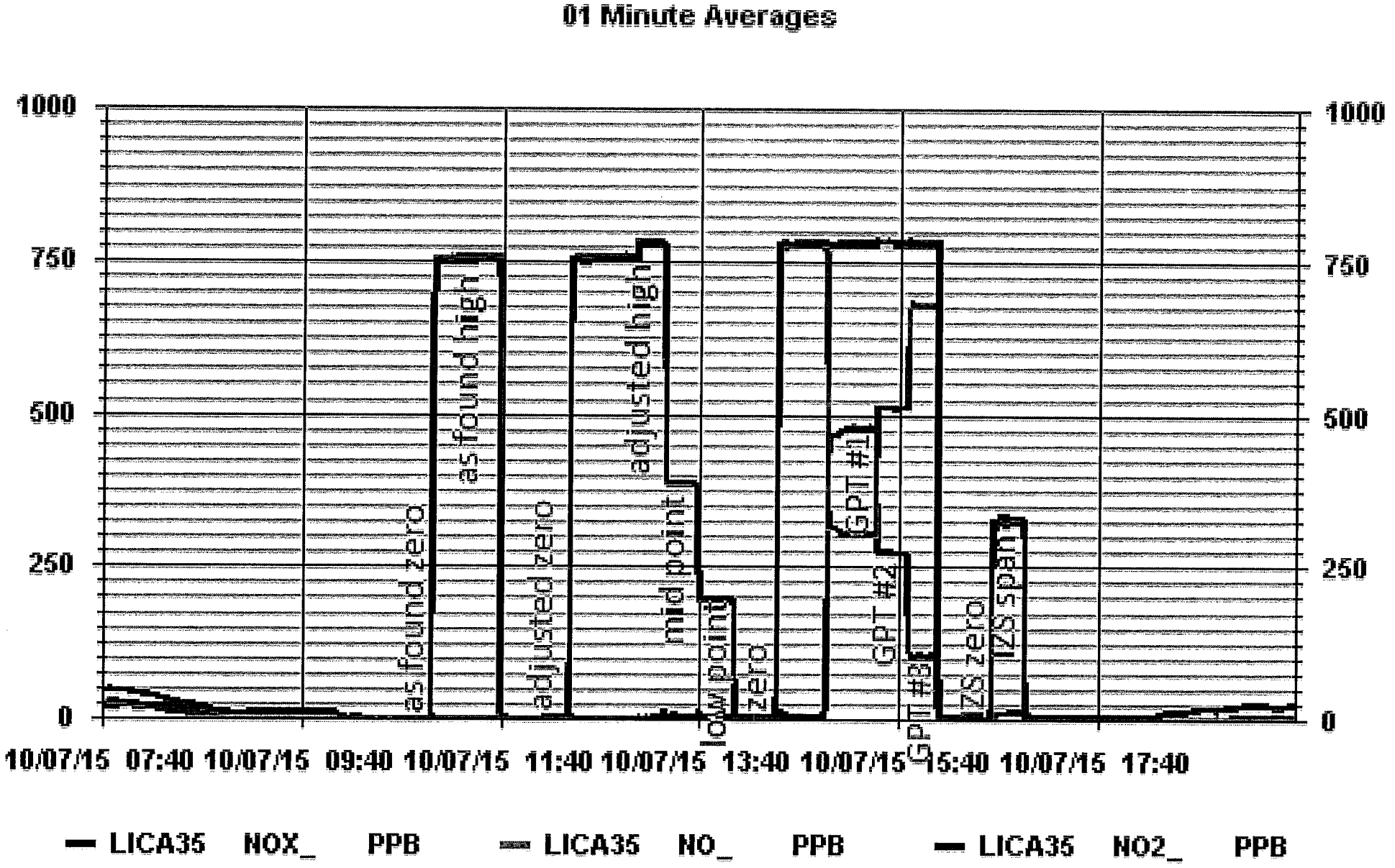
Sample filter changed. No NO2 adjustment made.

Date:	October 7, 2015	Start/End Time 24 hr. (mst):	9:46 / 17:00
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Elk Point	Calibration Method:	Gas Dilution & Varying UV Lamp Power








01 Minute Averages
1000
750
500
250
0
as found zero
as found high
adjusted zero
adjusted high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
ZS zero
ZS span
10/07/15 07:40
10/07/15 09:40
10/07/15 11:40
10/07/15 13:40
10/07/15 15:40
10/07/15 17:40
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

OZONE

Maxxam — A Bureau Veritas Group Company — Thermo 49i Ozone Analyzer Calibration

Date:	October 8, 2015	Barometric Pressure:	27.98 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Elk Point	Weather Conditions:	Clear
Start/End Time 24 hr. (mst):	9:36 / 13:57	Calibration Purpose:	routine monthly
Ozone Calibration Method:	Varying UV Lamp Power	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
G.P.T. Date:	n/a-done by Varying UV Lamp Power	Cal Gas Expiry Date:	n/a

Analyzer:

Serial Number:	1002240372	Ozone Range ppb:	500
Last Calibration Date:	September 24, 2015	As Found C.F.:	1.004
Previous Cal High Point C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	5ABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	n/a

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-75 ppb

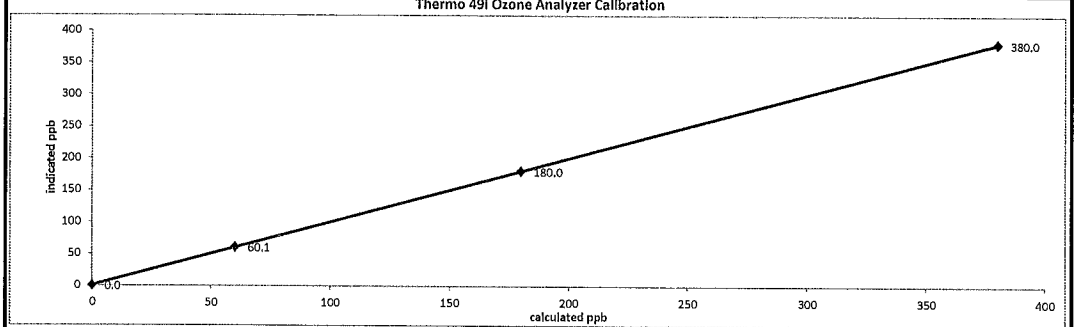
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Conentration:	Indicated Concentration:	Correction Factors:
Point	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	0.6	n/a
as found high	5013	5013	380.0	380.0	379.0	1.004
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	180.0	1.000
low	5013	5013	60.0	60.0	60.1	0.998
calibrator zero	5013	5013	0.0	n/a	0.0	n/a
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.01%	± 3% F.S.
% change in C.F. from last cal=	-0.42%	± 10%

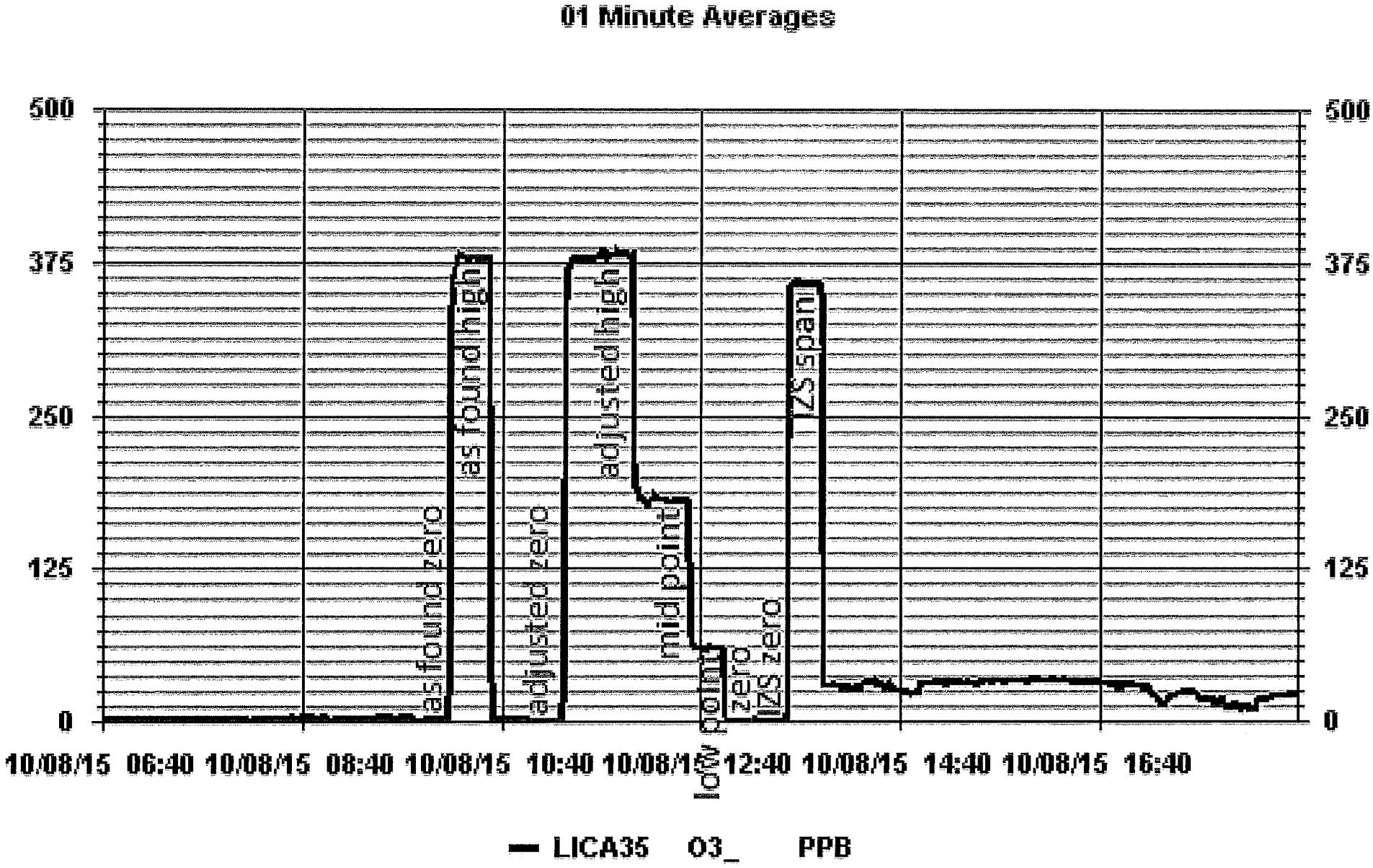
Thermo 49i Ozone Analyzer Calibration



As found:		As left:	
O3 Bkg:	-0.7	O3 Bkg:	-0.1
O3 Coef:	0.990	O3 Coef:	0.997
Photo Lamp	14.2	Photo Lamp	14.2
O3 Lamp	9.4	O3 Lamp	9.4
Bench:	28.3	Bench:	30.0
Bench Lamp:	54.0	Bench Lamp:	54.1
O3 Lamp:	68.1	O3 Lamp:	68.1
Pressure:	701.5	Pressure:	701.2
Cell A lpm:	0.751	Cell A lpm:	0.751
Cell B lpm:	0.756	Cell B lpm:	0.754
O3 ppb:	0.5	O3 ppb:	0.2
Cell A ppb:	2.6	Cell A ppb:	2.7
Cell B ppb:	-1.7	Cell B ppb:	-2.3
Cell A int:	103591	Cell A int:	103526
Cell B int:	101367	Cell B int:	101303
Internal Span:	355	Internal Span:	357

Comments:

Sample filter changed.


01 Minute Averages
500
375
250
125
0
as found zero
as found high
adjusted zero
adjusted high
mid point
zero
IZS zero
IZS span
10/08/15 06:40
10/08/15 08:40
10/08/15 10:40
10/08/15
12:40
10/08/15 14:40
10/08/15 16:40
LICA35 O3_ PPB

PARTICULATE MATTER

AIR FCD -00055/1

TEOM 1405F_1008_Bi-monthly_1

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 8, 2015	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Company:	LICA	Start Time (mst):	13:15
Station Name/Location:	Elk Point	End Time (mst):	14:01
Previous Audit Date:	September 25, 2015	Calibration Purpose:	Bi-monthly #1
Parameter:	PM 2.5	Weather Conditions:	Clear

1400A Information and Status:

Serial Number:	1405A207691003	As Found Filter Loading %:	37.58
Ko Factor:	15635	As Left Filter Loading %:	38.09
Ambient Temperature °C:	17.1	As Found Noise:	0.005
Ambient Pressure atm:	0.936	As Left Noise:	0.000
Main Flow Reading lpm:	3.00	Pump Vacuum:	0.40
Aux Flow Reading lpm:	13.67	Warnings:	Pump Vacuum (Intermittent)

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB1291	FB 1291
Serial Number:	n/a	130168457	130168457
Calibration Date:	n/a	18-Mar-15	18-Mar-15

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.02	0.58	0.00	0.56
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-0.72	0.00	-0.72
	limit	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	0.58	0.00	0.56
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-0.72	0.00	-0.72
	limit	0.60		0.60	

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	17.1	1405F pressure atm:	0.936
reference temperature °C:	16.3	reference pressure:	0.938
difference °C:	-0.8	difference :	-0.002

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	16.3	1405F pressure atm:	0.938
reference temperature °C:	16.3	reference pressure:	0.938
difference °C:	0.0	difference :	0.000

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:	3.00	1400A total/aux flow lpm:	16.67
reference main flow lpm:	2.99	reference total/aux flow lpm:	16.68
difference lpm:	-0.01	difference lpm:	0.01

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:	3.00	1400A total/aux flow lpm:	16.67
reference main flow lpm:	2.99	reference total/aux flow lpm:	16.68
difference lpm:	-0.01	difference lpm:	0.01

K_o Audit:

Last K_o audit date:	16-Jul-15
1405F K_o factor:	15635
Measured K_o factor:	15757.7000
% difference:	0.79

Comments:

47 mm FDMS filter changed and bypass FDMS filter changed.

AIR FCD -00055/1

TEOM 1405F_1022_Bi-monthly_2

Maxxam

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 22, 2015	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Company:	LICA	Start Time (mst):	13:18
Station Name/Location:	Elk Point	End Time (mst):	14:01
Previous Audit Date:	October 8, 2015	Calibration Purpose:	Bi-monthly #2
Parameter:	PM 2.5	Weather Conditions:	Mainly cloudy with clear breaks

1400A Information and Status:

Serial Number:	1405A207691003	As Found Filter Loading %:	40.23
Ko Factor:	15635	As Left Filter Loading %:	18.99
Ambient Temperature °C:	12.03	As Found Noise:	0.003
Ambient Pressure atm:	0.930	As Left Noise:	0.000
Main Flow Reading lpm:	3.00	Pump Vacuum:	0.30
Aux Flow Reading lpm:	13.67	Warnings:	None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB1291	FB 1291
Serial Number:	n/a	130168457	130168457
Calibration Date:	n/a	18-Mar-15	18-Mar-15

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.02	0.58	0.00	0.56
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-0.72	0.00	-0.72
	limit	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	0.57	0.01	0.56
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-0.72	0.00	-0.72
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	12.0	1405F pressure atm:	0.930
reference temperature °C:	12.2	reference pressure:	0.930
difference °C:	0.2	difference :	0.000

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

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	12.2	1405F pressure atm:	0.930
reference temperature °C:	12.2	reference pressure:	0.930
difference °C:	0.0	difference :	0.000

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:	3.00	1400A total/aux flow lpm:	16.67
reference main flow lpm:	2.98	reference total/aux flow lpm:	16.69
difference lpm:	-0.02	difference lpm:	0.02

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:	3.00	1400A total/aux flow lpm:	16.67
reference main flow lpm:	3.00	reference total/aux flow lpm:	16.66
difference lpm:	0.00	difference lpm:	-0.01

K_o Audit:

Last K_o audit date:	16-Jul-15
1405F K_o factor:	15635
Measured K_o factor:	15757.7000
% difference:	0.79

Comments:

47 mm FDMS filter changed and TEOM sampling filter changed. The pump was rebuilt.

WIND SYSTEM

MaxXam
A Burgeon Verline Group Company

Meteorological Sensor Audit

Station Information

Company:	LICA	Performed By:	Chris Wesson/Kevin Hope
Location:	Elk Point	Reason:	Bi-annual audit
Audit Date:	21-Feb-14	Start Time (mst):	15:10
Previous Audit Date:	24-Nov-11	End Time (mst):	15:40

Wind Speed

Sensor make:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Callbrator:	RM Young	Variable speed motor:	CA 03309
Voltage range:	0 - 1	Output signal range:	0 - 200 KPH

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.02	0.03	-
1000	17.6	17.79	17.76	0.99
2000	35.28	35.64	35.63	0.99
3000	52.92	53.29	53.31	0.99
4000	70.56	71.08	71.08	0.99
5000	88.2	88.88	88.91	0.99
6000	105.84	106.6	106.7	0.99
7000	123.48	124.4	124.5	0.99
8000	141.12	142.2	142.2	0.99
9000	158.76	160	160.1	0.99
10000	176.4	177.8	177.8	0.99
			Average Correction Factor:	0.99

Wind Direction

Sensor make:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Callbrator:	RM Young	Variable speed motor:	CA03309
Voltage range:	0 - 1	Output signal range:	0 - 360

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	355.0	NA
45	43.1	1.04
90	89.5	1.01
135	135.5	1.00
180	181.2	0.99
225	226.1	1.00
270	270.1	1.00
315	312.3	1.01
360	354.7	1.01
	Average Correction Factor:	1.01

Remarks:

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-002A

Company Maxxam **Operator:** Limin Li

Calibrator:	
Make/Model	Sabio 2010D
Serial Number	11900613
Last Verification Date	NEW
NO Cylinder S/N	BLM003914
NO/NOX Concentration	50.8/50.8

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

Dilution Flow (sccm)
Pt. #1 5000 Pt. #2 5000 Pt. #3 5000
Gas Flow (sccm)
Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5013	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	78.9	0.800	0.800	0.842	-0.016	0.826	5%	3%
5013	39.6	0.400	0.400	0.426	-0.008	0.418	6%	4%
5014	19.8	0.200	0.200	0.217	-0.004	0.213	8%	6%
					Absolute Average Percent Difference		7%	5%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	≥ 0.990	Correlation=	1.0000
m (Slope)=	1.0504	0.90-1.10	m (Slope)=	1.0304
b (Intercept % of FS)=	0.3600	± 3% F.S.	b (Intercept % of FS)=	0.3600

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.843	-0.017	0.826	-5%	± 10%
5015	0.520	0.527	0.316	0.485	0.802	-2%	± 10%
5015	0.280	0.286	0.557	0.262	0.819	2%	± 10%
5015	0.100	0.104	0.739	0.089	0.827	2%	± 10%
				Absolute Average Percent Difference		2%	± 10%

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

NO_2		**LIMITS**
Correlation=	0.9998	≥ 0.995
m (Slope)=	0.9496	0.90-1.10
b (Intercept % of FS)=	-1.2915	± 3% F.S.

AENV Standards Audit Calibrator	
Make/Model	Teco 146I
Serial/AMU Number	AMU 1809

NO_X Analyzer	
Make/Model	Teco 42I
Serial/AMU Number	AMU 1868
Last Calibration Date	April 1, 2015
Full Scale (ppm)	1.0

COMMENTS: Cylinder contains 49.7 ppm SO2.

Auditor: Al Clark Date: April 1, 2015

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	API 700	Make/Model	N/A
Serial Number	830	Serial Number	N/A
Last Verification Date	Oct 2013	Temperature (°C)	N/A
SO_2 Cylinder Conc.	50.3	Barometric Pressure	N/A
SO_2 Cylinder S/N	LL42475		

Flow Measurements

Pt. No. 1 79.6 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference vs Audit Gas	% Difference % Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
		Absolute Average Percent Difference	0%	± 10%

LINEAR REGRESSION ANALYSIS

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

SO_2		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		**SO_2 Analyzer**	
Audit Calibrator		Make/Model	Teco 43C
Make/Model	R&R MFC 201	Serial/AMU Number	AMU 1623
Serial/AMU Number	AMU 1690	Last Calibration Date	Dec 15/14
		Full Scale (ppm)	1.0

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamnation inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Form No. F-GAS-002
Version No. 1.1

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam **Operator's Name:** Limin Li

Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp.°C: 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1628
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
Last Calibration: Date: Mar 31/15 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	0.000			
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
				Average Cylinder Concentration:	**48.0**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **3.0**

Meets Manufacturer Tolerance, Use manufacturers stated concentration [ ] COMMENTS:
<=5% Outside Manufacturer Tolerance, Use manufacturers concentration [X]
> 5% Outside Manufacturer Tolerance, **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015
Operator Signature: Al Clark Location: McIntyre Center Edmonton

Form No. F-GAS-002
Version No. 1.1

Alberta Government

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 16, 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			
5099	38.5	0.0764	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 [X] COMMENTS:

<= 5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance, DO NOT USE this cylinder [ ]

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

PRAXAIR

Praxair Canada, Inc.
9501-34th Street
Edmonton, AB T6B 2X6
Tel: 780-449-0778
Fax: 780-449-5302

03/27/2014

MAXXAM ANALYTICS INC *NA*
9372 49TH ST
EDMONTON, AB T6B 2L7

Work Order No. 20248656
Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance~ID2sx/USA~~
Hewlett-Packard (Agilent)~6890~~GC-FID

Cylinder Style: AQ
Cylinder Pressure @70F: 2200 psig
Cylinder Volume: 82.0 ft3
Valve Outlet Connection: CGA-350
Cylinder No(s): LL33874

Filling Method: Gravimetric
Date of Fill: 03/26/2014
Expiration Date: 03/26/2017

Analyst: Todd Hryniw

The gas calibration cylinder standard prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard provided is certified against Praxair Canada, Inc. Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada, or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted.

Key to Analytical Techniques:

A - Flame Ionization with Methanizer	E - Gas Chromatography with Discharge Ionization Detector	G - Gas Chromatography with Electrolytic Conductivity Detector	D - Gas Chromatography with Flame Ionization Detector
E - Gas Chromatography with Flame Photometric Detector	F - Gas Chromatography with Helium Ionization Detector	G - Gas Chromatography with Methanizer Carbonizer	H - Gas Chromatography with Photoionization Detector
I - Gas Chromatography with Reduction Gas Analyzer	J - Gas Chromatography with Thermal Conductivity Detector	K - Binary Gas Analyzer with Thermal Conductivity Detector	L - Infrared - FTIR or NDIR
M - Mass Spectrometry / MS or GC-MS	N - By Difference of Typical Impurities	O - Paramagnetic	P - Specific Water Analyzer
Q - Total Reduction Analyzer	R - Wet Chemical	S - Detector Tube	T - Other
U - Gravimetric Analyzer	V - Electrochemical	W - Gas Chromatography with Chemiluminescence Detector	

IMPORTANT
The information contained herein has been prepared at your request by personnel within Praxair Canada, Inc. While we believe the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Canada, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.

Form No. F-GAS-003
Version No 1.1

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam **Operators name:** Limin Li

Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model	Teco 146I
Serial Number	AMU 1809
Last Verification Date	March 31, 2015
Gas Type	NO Conc. 48.79
Cylinder Number	CAL018024

Flow Measurement Device:

Make/Model	Bios DC2
Serial Number	AMU 1669
Temp.°C	22.5 C
B.P.	690 mmhg

Reference Analyzer:

Make/Model: Teco 42I Serial/AMU Number: 1868

Instrument Settings: Zero: 4.2 Span: 1.008 Range: 1.0

Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
					Average Cylinder Concentration:	**52.0**	**51.3**

	NO	NOx
Previous Stated Concentration PPM:	50.6	50.6
Percent variance from Stated:	**2.8**	**1.4**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [X] Contains 49.5 ppm SO2 in cylinder

> 5% Outside Manufacturer Tolerance. DO NOT USE this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Location: McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

VOCS SAMPLES

Alberta Innovates Technology Futures
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 3, 2015
CANISTER ID: H2821
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	17-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
1-Butene	I	0.04	ppbv	0.02	AC-058	17-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

Alberta Innovates Technology Futures
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Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

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4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 3, 2015
CANISTER ID: H2821
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
2-Methylpentane	I	0.02	ppbv	0.01	AC-058	17-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
3-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Acetone		1.7	ppbv	0.4	AC-058	17-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
Benzene	I	0.02	ppbv	0.01	AC-058	17-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Carbon disulfide	I	0.10	ppbv	0.01	AC-058	17-Oct-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	17-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Chloroform	I	0.02	ppbv	0.02	AC-058	17-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15

Qualifiers

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T Value reported is less than the laboratory method detection limit
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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

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4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 3, 2015
CANISTER ID: H2821
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.5	ppbv	0.3	AC-058	17-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
Freon-11		0.31	ppbv	0.02	AC-058	17-Oct-15
Freon-113	I	0.08	ppbv	0.01	AC-058	17-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Freon-12		0.68	ppbv	0.02	AC-058	17-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	17-Oct-15
Isobutane	I	0.07	ppbv	0.02	AC-058	17-Oct-15
Isopentane	I	0.17	ppbv	0.03	AC-058	17-Oct-15
Isoprene	I	0.03	ppbv	0.01	AC-058	17-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	17-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	17-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Oct-15
Methylcyclohexane	I	0.01	ppbv	0.01	AC-058	17-Oct-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Oct-15
n-Butane	I	0.14	ppbv	0.03	AC-058	17-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Oct-15

Qualifiers

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PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 3, 2015
CANISTER ID: H2821
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
n-Hexane	I	0.02	ppbv	0.01	AC-058	17-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	17-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Toluene	I	0.01	ppbv	0.01	AC-058	17-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	17-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	17-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Oct-15

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5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 9, 2015
CANISTER ID: 2485
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	16-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	16-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
1-Butene	I	0.04	ppbv	0.02	AC-058	16-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
2,2-Dimethylbutane	I	0.04	ppbv	0.01	AC-058	16-Oct-15
2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	16-Oct-15
2,3-Dimethylbutane	I	0.12	ppbv	0.02	AC-058	16-Oct-15
2,3-Dimethylpentane	I	0.07	ppbv	0.02	AC-058	16-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 9, 2015
CANISTER ID: 2485
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.02	ppbv	0.01	AC-058	16-Oct-15
2-Methylhexane	I	0.03	ppbv	0.01	AC-058	16-Oct-15
2-Methylpentane	I	0.14	ppbv	0.01	AC-058	16-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
3-Methylhexane	I	0.03	ppbv	0.02	AC-058	16-Oct-15
3-Methylpentane	I	0.07	ppbv	0.01	AC-058	16-Oct-15
Acetone		3.0	ppbv	0.4	AC-058	16-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
Benzene	I	0.05	ppbv	0.01	AC-058	16-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
Carbon disulfide	I	0.30	ppbv	0.01	AC-058	16-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	16-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Cyclopentane	I	0.03	ppbv	0.01	AC-058	16-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
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ENVIRONMENTAL ANALYTICAL SERVICES

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Ethanol		1.9	ppbv	0.3	AC-058	16-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
Freon-11	I	0.29	ppbv	0.02	AC-058	16-Oct-15
Freon-113	I	0.07	ppbv	0.01	AC-058	16-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Freon-12		0.64	ppbv	0.02	AC-058	16-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	16-Oct-15
Isobutane		0.63	ppbv	0.02	AC-058	16-Oct-15
Isopentane		0.65	ppbv	0.03	AC-058	16-Oct-15
Isoprene	I	0.01	ppbv	0.01	AC-058	16-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
m,p-Xylene	I	0.03	ppbv	0.03	AC-058	16-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	16-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	16-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Oct-15
Methylcyclohexane	I	0.19	ppbv	0.01	AC-058	16-Oct-15
Methylcyclopentane	I	0.08	ppbv	0.02	AC-058	16-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Oct-15
n-Butane		0.91	ppbv	0.03	AC-058	16-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Oct-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
n-Hexane	I	0.14	ppbv	0.01	AC-058	16-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	16-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
o-Xylene	I	0.01	ppbv	0.01	AC-058	16-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Toluene	I	0.09	ppbv	0.01	AC-058	16-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	16-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Oct-15

Qualifiers

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 15, 2015	S5619	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100277-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	29-Oct-15
15100277-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-003	1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	1-Butene	I	0.04	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	29-Oct-15
15100277-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 15, 2015	S5619	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-003	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2-Methylhexane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	2-Methylpentane	I	0.05	ppbv	0.01	AC-058	29-Oct-15
15100277-003	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	3-Methylpentane	I	0.03	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Acetone		1.9	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-003	Benzene	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Bromomethane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Carbon disulfide	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

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15100277-003	Cyclopentane	I	0.02	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Ethanol		0.6	ppbv	0.3	AC-058	29-Oct-15
15100277-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Freon-11	I	0.20	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Freon-113	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Freon-12		0.47	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100277-003	Isobutane		0.32	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Isopentane	I	0.28	ppbv	0.03	AC-058	29-Oct-15
15100277-003	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Oct-15
15100277-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100277-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100277-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100277-003	Methylcyclohexane	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100277-003	Methylcyclopentane	I	0.03	ppbv	0.02	AC-058	29-Oct-15

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DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

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15100277-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100277-003	n-Butane		0.47	ppbv	0.03	AC-058	29-Oct-15
15100277-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Oct-15
15100277-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	n-Hexane	I	0.05	ppbv	0.01	AC-058	29-Oct-15
15100277-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	n-Pentane	I	0.2	ppbv	0.1	AC-058	29-Oct-15
15100277-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100277-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100277-003	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100277-003	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100277-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Toluene	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100277-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100277-003	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100277-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100277-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 15, 2015	S5619	Ambient Air	15-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100277-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 21, 2015	2471	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100333-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	29-Oct-15
15100333-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-003	1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	1-Butene	I	0.05	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2,2-Dimethylbutane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2,3-Dimethylbutane	I	0.11	ppbv	0.02	AC-058	29-Oct-15
15100333-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 21, 2015	2471	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-003	2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2-Methylhexane	I	0.03	ppbv	0.01	AC-058	29-Oct-15
15100333-003	2-Methylpentane	I	0.11	ppbv	0.01	AC-058	29-Oct-15
15100333-003	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	29-Oct-15
15100333-003	3-Methylpentane	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Acetone		1.6	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-003	Benzene	I	0.07	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Carbon disulfide		0.45	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Cyclohexane	I	0.08	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 21, 2015	2471	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-003	Cyclopentane	I	0.04	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Ethanol		0.6	ppbv	0.3	AC-058	29-Oct-15
15100333-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Freon-11	I	0.21	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Freon-113	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Freon-12		0.48	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100333-003	Isobutane		0.83	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Isopentane		0.61	ppbv	0.03	AC-058	29-Oct-15
15100333-003	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Oct-15
15100333-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	29-Oct-15
15100333-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100333-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Oct-15
15100333-003	Methylcyclohexane	I	0.15	ppbv	0.01	AC-058	29-Oct-15
15100333-003	Methylcyclopentane	I	0.07	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 21, 2015	2471	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Oct-15
15100333-003	n-Butane		1.26	ppbv	0.03	AC-058	29-Oct-15
15100333-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Oct-15
15100333-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	n-Hexane	I	0.12	ppbv	0.01	AC-058	29-Oct-15
15100333-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	n-Pentane		0.5	ppbv	0.1	AC-058	29-Oct-15
15100333-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Oct-15
15100333-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100333-003	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Oct-15
15100333-003	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Oct-15
15100333-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Toluene	I	0.06	ppbv	0.01	AC-058	29-Oct-15
15100333-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15
15100333-003	trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	29-Oct-15
15100333-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15
15100333-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 21, 2015	2471	Ambient Air	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Oct-15
15100333-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Oct-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 27, 2015	17124	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Nov-15
15110004-003	1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	05-Nov-15
15110004-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-003	1,2-Dichloroethane	I	0.03	ppbv	0.01	AC-058	05-Nov-15
15110004-003	1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	1-Pentene	I	0.02	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2,2,4-Trimethylpentane	I	0.03	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2,3-Dimethylbutane	I	0.04	ppbv	0.02	AC-058	05-Nov-15
15110004-003	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 27, 2015	17124	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-003	2,4-Dimethylpentane	I	0.04	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2-Methylheptane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2-Methylhexane	I	0.05	ppbv	0.01	AC-058	05-Nov-15
15110004-003	2-Methylpentane	I	0.17	ppbv	0.01	AC-058	05-Nov-15
15110004-003	3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	05-Nov-15
15110004-003	3-Methylpentane	I	0.27	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Acetone		1.8	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-003	Benzene	I	0.20	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Bromomethane	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Carbon disulfide	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Carbon tetrachloride	I	0.15	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Chloroform	I	0.07	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Chloromethane		0.86	ppbv	0.02	AC-058	05-Nov-15
15110004-003	cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Cyclohexane	I	0.08	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 27, 2015	17124	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-003	Cyclopentane	I	0.04	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Ethanol		2.5	ppbv	0.3	AC-058	05-Nov-15
15110004-003	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Ethylbenzene	I	0.03	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Freon-11		0.41	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Freon-113	I	0.10	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Freon-12		0.53	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.50	AC-058	05-Nov-15
15110004-003	Isobutane		0.76	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Isopentane		0.76	ppbv	0.03	AC-058	05-Nov-15
15110004-003	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	m,p-Xylene	I	0.08	ppbv	0.03	AC-058	05-Nov-15
15110004-003	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Nov-15
15110004-003	Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.50	AC-058	05-Nov-15
15110004-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Nov-15
15110004-003	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Nov-15
15110004-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Nov-15
15110004-003	Methylcyclohexane	I	0.07	ppbv	0.01	AC-058	05-Nov-15
15110004-003	Methylcyclopentane	I	0.23	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 27, 2015	17124	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-003	Methylene chloride		4.9	ppbv	0.3	AC-058	05-Nov-15
15110004-003	n-Butane		1.94	ppbv	0.03	AC-058	05-Nov-15
15110004-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Nov-15
15110004-003	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	n-Heptane	I	0.05	ppbv	0.01	AC-058	05-Nov-15
15110004-003	n-Hexane		1.19	ppbv	0.01	AC-058	05-Nov-15
15110004-003	n-Octane	I	0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	05-Nov-15
15110004-003	n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Nov-15
15110004-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Nov-15
15110004-003	Naphthalene		1.8	ppbv	0.5	AC-058	05-Nov-15
15110004-003	n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	o-Xylene	I	0.03	ppbv	0.01	AC-058	05-Nov-15
15110004-003	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Nov-15
15110004-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Toluene	I	0.14	ppbv	0.01	AC-058	05-Nov-15
15110004-003	trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15
15110004-003	trans-2-Butene	I	0.01	ppbv	0.01	AC-058	05-Nov-15
15110004-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15
15110004-003	Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 27, 2015	17124	Ambient Air	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-003	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Nov-15
15110004-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

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PAHS SAMPLES

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Oct 3, 2015
CANISTER ID: TE-04
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.02	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Oct 3, 2015
CANISTER ID: TE-04
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 03-Oct-15 0:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.02	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
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ENVIRONMENTAL ANALYTICAL SERVICES

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5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Oct 9, 2015
CANISTER ID: TE-08
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.07	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.13	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.08	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.16	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.06	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100172-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Oct 9, 2015
CANISTER ID: TE-08
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 09-Oct-15 0:00
DATE RECEIVED: 15-Oct-15
REPORT CREATED: 23-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.05	ug/Filter	0.01	NA-017	18-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 15, 2015	TE-05	Air Filter	15-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-004	1-Methylnaphthalene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	2-Methylnaphthalene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Acenaphthene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Fluorene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Naphthalene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Phenanthrene		0.08	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15

Inquiries: (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 15, 2015	TE-05	Air Filter	15-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100277 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100277-004	Pyrene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100277-004	Retene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 21, 2015	9801	Air Filter	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-004	1-Methylnaphthalene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	2-Methylnaphthalene		0.09	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Acenaphthene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Anthracene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(a)anthracene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Chrysene		0.02	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Fluoranthene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Fluorene		0.09	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Naphthalene		0.10	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Perylene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Phenanthrene		0.16	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 21, 2015	9801	Air Filter	21-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15100333 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15100333-004	Pyrene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15100333-004	Retene		0.03	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 27, 2015	TE-07	Air Filter	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-004	1-Methylnaphthalene		0.14	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	2-Methylnaphthalene		0.23	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Acenaphthene		0.06	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(a)anthracene		0.03	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Chrysene		0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Fluoranthene		0.04	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Fluorene		0.09	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Naphthalene		0.16	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Perylene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Phenanthrene		0.15	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/ELK/Oct 27, 2015	TE-07	Air Filter	27-Oct-15 0:00

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110004 **REPORT CREATED:** 24-Nov-15 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110004-004	Pyrene		0.05	ug/Filter	0.01	NA-017	17-Nov-15
15110004-004	Retene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: November-24-15 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

NMHC CANISTER SAMPLES

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 6, 2015
CANISTER ID: S5602
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 06-Oct-15 3:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.9	ppbv	0.8	AC-058	22-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
1,2-Dichloroethane	I	0.03	ppbv	0.01	AC-058	22-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
1,3,5-Trimethylbenzene	I	0.03	ppbv	0.02	AC-058	22-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
1-Butene		14.0	ppbv	0.02	AC-058	22-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1-Pentene	I	0.07	ppbv	0.01	AC-058	22-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
2,3,4-Trimethylpentane		0.56	ppbv	0.01	AC-058	22-Oct-15
2,3-Dimethylbutane		0.58	ppbv	0.02	AC-058	22-Oct-15
2,3-Dimethylpentane	I	0.21	ppbv	0.02	AC-058	22-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Adewunmi Adekanmbi
Lakeland Industry and Community Assn
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 6, 2015
CANISTER ID: S5602
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 06-Oct-15 3:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.11	ppbv	0.01	AC-058	22-Oct-15
2-Methylhexane	I	0.21	ppbv	0.01	AC-058	22-Oct-15
2-Methylpentane		0.63	ppbv	0.01	AC-058	22-Oct-15
3-Methylheptane	I	0.08	ppbv	0.02	AC-058	22-Oct-15
3-Methylhexane	I	0.24	ppbv	0.02	AC-058	22-Oct-15
3-Methylpentane		0.38	ppbv	0.01	AC-058	22-Oct-15
Acetone		21.1	ppbv	0.4	AC-058	22-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
Benzene	I	0.31	ppbv	0.01	AC-058	22-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Bromomethane	I	0.02	ppbv	0.01	AC-058	22-Oct-15
Carbon disulfide	I	0.27	ppbv	0.01	AC-058	22-Oct-15
Carbon tetrachloride	I	0.11	ppbv	0.01	AC-058	22-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Chloroethane	I	0.04	ppbv	0.02	AC-058	22-Oct-15
Chloroform	I	0.03	ppbv	0.02	AC-058	22-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
cis-2-Butene	I	0.04	ppbv	0.02	AC-058	22-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Cyclohexane		0.66	ppbv	0.02	AC-058	22-Oct-15
Cyclopentane	I	0.24	ppbv	0.01	AC-058	22-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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LABORATORY SAMPLE ID: 15100117-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 6, 2015
CANISTER ID: S5602
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 06-Oct-15 3:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.6	ppbv	0.3	AC-058	22-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Ethylbenzene	I	0.09	ppbv	0.01	AC-058	22-Oct-15
Freon-11	I	0.32	ppbv	0.02	AC-058	22-Oct-15
Freon-113	I	0.09	ppbv	0.01	AC-058	22-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Freon-12		0.60	ppbv	0.02	AC-058	22-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Oct-15
Isobutane		3.05	ppbv	0.02	AC-058	22-Oct-15
Isopentane		7.00	ppbv	0.03	AC-058	22-Oct-15
Isoprene	I	0.10	ppbv	0.01	AC-058	22-Oct-15
Isopropyl alcohol		0.5	ppbv	0.4	AC-058	22-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
m,p-Xylene	I	0.20	ppbv	0.03	AC-058	22-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
m-Ethyltoluene	K, T, U	< 0.09	ppbv	0.08	AC-058	22-Oct-15
Methyl butyl ketone	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Oct-15
Methyl ethyl ketone		0.3	ppbv	0.3	AC-058	22-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Methyl methacrylate	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
Methylcyclohexane		1.17	ppbv	0.01	AC-058	22-Oct-15
Methylcyclopentane		0.55	ppbv	0.02	AC-058	22-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
n-Butane		3.40	ppbv	0.03	AC-058	22-Oct-15
n-Decane	K, T, U	< 0.07	ppbv	0.06	AC-058	22-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
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Certified By: Graham Knox, Team Lead
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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INVOICE TO:
Charmaine Code 780 812-2182
PO Box 8237
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 6, 2015
CANISTER ID: S5602
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 06-Oct-15 3:00
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
n-Heptane		0.41	ppbv	0.01	AC-058	22-Oct-15
n-Hexane		0.89	ppbv	0.01	AC-058	22-Oct-15
n-Octane	I	0.20	ppbv	0.02	AC-058	22-Oct-15
n-Pentane		1.8	ppbv	0.1	AC-058	22-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
o-Xylene	I	0.05	ppbv	0.01	AC-058	22-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
p-Ethyltoluene	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Toluene		0.99	ppbv	0.01	AC-058	22-Oct-15
trans-1,2-Dichloroethylene	I	0.02	ppbv	0.01	AC-058	22-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
trans-2-Pentene	I	0.04	ppbv	0.02	AC-058	22-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Vinyl acetate		0.9	ppbv	0.4	AC-058	22-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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4000, 19 St NE

Calgary
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INVOICE TO:
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PO Box 8237
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15100117-006
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 8, 2015
CANISTER ID: S5666
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 08-Oct-15 8:55
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.9	ppbv	0.8	AC-058	22-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	22-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
1-Butene		0.55	ppbv	0.02	AC-058	22-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
2,3,4-Trimethylpentane	I	0.08	ppbv	0.01	AC-058	22-Oct-15
2,3-Dimethylbutane		0.40	ppbv	0.02	AC-058	22-Oct-15
2,3-Dimethylpentane	I	0.22	ppbv	0.02	AC-058	22-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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LABORATORY SAMPLE ID: 15100117-006
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Oct 8, 2015
CANISTER ID: S5666
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 08-Oct-15 8:55
DATE RECEIVED: 13-Oct-15
REPORT CREATED: 28-Oct-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.06	ppbv	0.01	AC-058	22-Oct-15
2-Methylhexane	I	0.10	ppbv	0.01	AC-058	22-Oct-15
2-Methylpentane		0.33	ppbv	0.01	AC-058	22-Oct-15
3-Methylheptane	I	0.03	ppbv	0.02	AC-058	22-Oct-15
3-Methylhexane	I	0.13	ppbv	0.02	AC-058	22-Oct-15
3-Methylpentane	I	0.17	ppbv	0.01	AC-058	22-Oct-15
Acetone		9.8	ppbv	0.4	AC-058	22-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
Benzene	I	0.11	ppbv	0.01	AC-058	22-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Bromomethane	I	0.01	ppbv	0.01	AC-058	22-Oct-15
Carbon disulfide	I	0.10	ppbv	0.01	AC-058	22-Oct-15
Carbon tetrachloride	I	0.11	ppbv	0.01	AC-058	22-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Chloroform	I	0.03	ppbv	0.02	AC-058	22-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Cyclohexane		0.37	ppbv	0.02	AC-058	22-Oct-15
Cyclopentane	I	0.11	ppbv	0.01	AC-058	22-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.1	ppbv	0.3	AC-058	22-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Ethylbenzene	I	0.04	ppbv	0.01	AC-058	22-Oct-15
Freon-11		0.34	ppbv	0.02	AC-058	22-Oct-15
Freon-113	I	0.09	ppbv	0.01	AC-058	22-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Freon-12		0.64	ppbv	0.02	AC-058	22-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Oct-15
Isobutane		2.04	ppbv	0.02	AC-058	22-Oct-15
Isopentane		1.39	ppbv	0.03	AC-058	22-Oct-15
Isoprene		0.69	ppbv	0.01	AC-058	22-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
m,p-Xylene	I	0.08	ppbv	0.03	AC-058	22-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
m-Ethyltoluene	K, T, U	< 0.09	ppbv	0.08	AC-058	22-Oct-15
Methyl butyl ketone	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Methyl methacrylate	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Oct-15
Methylcyclohexane		0.79	ppbv	0.01	AC-058	22-Oct-15
Methylcyclopentane	I	0.30	ppbv	0.02	AC-058	22-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Oct-15
n-Butane		2.15	ppbv	0.03	AC-058	22-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Oct-15

Qualifiers

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REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
n-Heptane	I	0.18	ppbv	0.01	AC-058	22-Oct-15
n-Hexane		0.36	ppbv	0.01	AC-058	22-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
n-Pentane		0.9	ppbv	0.1	AC-058	22-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Oct-15
Naphthalene		2.0	ppbv	0.5	AC-058	22-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
o-Xylene	I	0.03	ppbv	0.01	AC-058	22-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
p-Ethyltoluene	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Toluene	I	0.29	ppbv	0.01	AC-058	22-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Oct-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 30, 2015	H2831	Ambient Air	30-Oct-15 6:45

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110054 **REPORT CREATED:** 05-Jan-16 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110054-005	1,1,1-Trichloroethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,1,2,2-Tetrachloroethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,1,2-Trichloroethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,1-Dichloroethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,1-Dichloroethylene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Nov-15
15110054-005	1,2,4-Trichlorobenzene	K, T, U	< 0.9	ppbv	0.9	AC-058	17-Nov-15
15110054-005	1,2,4-Trimethylbenzene	I	0.15	ppbv	0.03	AC-058	17-Nov-15
15110054-005	1,2-Dibromoethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Nov-15
15110054-005	1,2-Dichloroethane	I	0.06	ppbv	0.01	AC-058	17-Nov-15
15110054-005	1,2-Dichloropropane	I	0.05	ppbv	0.01	AC-058	17-Nov-15
15110054-005	1,3,5-Trimethylbenzene	I	0.09	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Nov-15
15110054-005	1,4-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	1-Butene		4.19	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1-Hexene	I	0.27	ppbv	0.02	AC-058	17-Nov-15
15110054-005	1-Pentene	I	0.27	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2,2,4-Trimethylpentane		0.61	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2,2-Dimethylbutane	I	0.11	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2,3,4-Trimethylpentane		0.39	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2,3-Dimethylbutane		0.79	ppbv	0.02	AC-058	17-Nov-15
15110054-005	2,3-Dimethylpentane		0.64	ppbv	0.02	AC-058	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: January 5, 2016 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 30, 2015	H2831	Ambient Air	30-Oct-15 6:45

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110054 **REPORT CREATED:** 05-Jan-16 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110054-005	2,4-Dimethylpentane		0.51	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2-Methylheptane	I	0.24	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2-Methylhexane		0.39	ppbv	0.01	AC-058	17-Nov-15
15110054-005	2-Methylpentane		2.01	ppbv	0.01	AC-058	17-Nov-15
15110054-005	3-Methylheptane	I	0.17	ppbv	0.02	AC-058	17-Nov-15
15110054-005	3-Methylhexane		0.67	ppbv	0.02	AC-058	17-Nov-15
15110054-005	3-Methylpentane		1.17	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Acetone		11.6	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Nov-15
15110054-005	Benzene		0.59	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Benzyl chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Bromodichloromethane		0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Bromoform	I	0.03	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Bromomethane	I	0.04	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Carbon disulfide	I	0.17	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Carbon tetrachloride	I	0.15	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Chlorobenzene	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Chloroethane	I	0.04	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Chloroform	I	0.06	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Nov-15
15110054-005	cis-1,2-Dichloroethene	I	0.03	ppbv	0.01	AC-058	17-Nov-15
15110054-005	cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	cis-2-Butene	I	0.27	ppbv	0.02	AC-058	17-Nov-15
15110054-005	cis-2-Pentene	I	0.32	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Cyclohexane		0.57	ppbv	0.02	AC-058	17-Nov-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 30, 2015	H2831	Ambient Air	30-Oct-15 6:45

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110054 **REPORT CREATED:** 05-Jan-16 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110054-005	Cyclopentane	I	0.19	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Dibromochloromethane	I	0.03	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Ethanol		11.3	ppbv	0.3	AC-058	17-Nov-15
15110054-005	Ethyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Ethylbenzene	I	0.26	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Freon-11		0.37	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Freon-113	I	0.11	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Freon-12		0.40	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Hexachloro-1,3-butadiene	K, T, U	< 0.58	ppbv	0.58	AC-058	17-Nov-15
15110054-005	Isobutane		1.37	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Isopentane		8.10	ppbv	0.03	AC-058	17-Nov-15
15110054-005	Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	17-Nov-15
15110054-005	m,p-Xylene		0.72	ppbv	0.03	AC-058	17-Nov-15
15110054-005	m-Diethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	m-Ethyltoluene	I	0.11	ppbv	0.09	AC-058	17-Nov-15
15110054-005	Methyl butyl ketone	K, T, U	< 0.58	ppbv	0.58	AC-058	17-Nov-15
15110054-005	Methyl ethyl ketone		0.6	ppbv	0.3	AC-058	17-Nov-15
15110054-005	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	17-Nov-15
15110054-005	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Nov-15
15110054-005	Methylcyclohexane		0.95	ppbv	0.01	AC-058	17-Nov-15
15110054-005	Methylcyclopentane		1.24	ppbv	0.02	AC-058	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: January 5, 2016 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/ELK/Oct 30, 2015	H2831	Ambient Air	30-Oct-15 6:45

DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110054 **REPORT CREATED:** 05-Jan-16 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110054-005	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	17-Nov-15
15110054-005	n-Butane		7.21	ppbv	0.03	AC-058	17-Nov-15
15110054-005	n-Decane	K, T, U	< 0.07	ppbv	0.07	AC-058	17-Nov-15
15110054-005	n-Dodecane		4.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	n-Heptane		0.61	ppbv	0.01	AC-058	17-Nov-15
15110054-005	n-Hexane		1.55	ppbv	0.01	AC-058	17-Nov-15
15110054-005	n-Octane	I	0.24	ppbv	0.02	AC-058	17-Nov-15
15110054-005	n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	17-Nov-15
15110054-005	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Nov-15
15110054-005	n-Undecane	K, T, U	< 0.6	ppbv	0.6	AC-058	17-Nov-15
15110054-005	Naphthalene	K, T, U	< 0.6	ppbv	0.6	AC-058	17-Nov-15
15110054-005	n-Nonane	I	0.14	ppbv	0.01	AC-058	17-Nov-15
15110054-005	o-Ethyltoluene	I	0.04	ppbv	0.01	AC-058	17-Nov-15
15110054-005	o-Xylene	I	0.24	ppbv	0.01	AC-058	17-Nov-15
15110054-005	p-Diethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	p-Ethyltoluene	I	0.08	ppbv	0.08	AC-058	17-Nov-15
15110054-005	Styrene	I	0.09	ppbv	0.05	AC-058	17-Nov-15
15110054-005	Tetrachloroethylene	I	0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	Tetrahydrofuran	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Toluene		1.44	ppbv	0.01	AC-058	17-Nov-15
15110054-005	trans-1,2-Dichloroethylene	I	0.04	ppbv	0.01	AC-058	17-Nov-15
15110054-005	trans-1,3-Dichloropropylene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15
15110054-005	trans-2-Butene	I	0.29	ppbv	0.01	AC-058	17-Nov-15
15110054-005	trans-2-Pentene		0.62	ppbv	0.02	AC-058	17-Nov-15
15110054-005	Trichloroethylene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: January 5, 2016 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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DESCRIPTION: Elk Point Airport

REPORT NUMBER: 15110054 **REPORT CREATED:** 05-Jan-16 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
15110054-005	Vinyl acetate		1.4	ppbv	0.5	AC-058	17-Nov-15
15110054-005	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	17-Nov-15

Report certified by: Graham Knox, Team Lead **On behalf of:** PJ Pretorius, Manager, Analysis and Testing Services

Date: January 5, 2016 **Inquiries:** (780) 632 8455 **E-mail:** EAS.Results@albertainnovates.ca

APPENDIX V
CHAIN OF CUSTODY

Maxxam Analytics - Air Services Group
Project Chain of Custody

Client: Lakeland Industry & Community Association
Site: Elk Point Airport Site
Project #: 2833-2015-10-35- C
Contact: Mike Bisaga

QA Check Complete	[illegible]	Date	25 - Nov - 2015
QA Check Review	[illegible]	Date	25 - Nov - 2015
Report Complete	[illegible]	Date	19 - Jan - 2016
Report Reviewed	[illegible]	Date	20 - Jan - 16
Report Shipped		Date	

Notes

Maxxam
A Bureau Veritas Group Company

maxxam.ca

MAXXAM ANALYTICS
#1 2080 39 Ave. NE. Calgary
AB T2E 6P7

Toll Free 800-386-7247
Fax 403-219-3673

AMBIENT AIR MONITORING MONTHLY DATA REPORT

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

MASKWA SITE

JOB #:2833-2015-10-30- C

OCTOBER 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **November 23, 2015**

Prepared by:

Wunmi Adekanmbi, M.Sc.
Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:

Lily Lin, B.Sc.
Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In OCTOBER 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Maskwa Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. 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 and AMD2006.

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

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 Maskwa Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
						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	1	12	27, 28	VAR	VAR	VAR	5.5	27	100.0
H2S (PPB)	10	3	0	0	0	7	10	23	2.3	ENE	0.7	VAR	100.0
THC (PPM)	-	-	-	-	2.1	2.8	10	5	5.5	SSW	2.3	VAR	100.0
NO2 (PPB)	159	-	0	-	3.2	20.7	15	7	4	W	7.0	27	100.0
NO (PPB)	-	-	-	-	0.6	13.0	1	6	0.8	SSE	4.5	27	100.0
NOX (PPB)	-	-	-	-	3.9	29.2	15	7	4	W	11.5	27	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	69.4	92	VAR	VAR	VAR	VAR	87.3	12	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	940	957	15, 15	10, 11	4.8 5.9	W W	954	15	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	5.6	24.2	10	15	7.8	W	13.8	10	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	2.1	26	19	1.9	E	0.3	26	100.0
VECTOR WS (KPH)	-	-	-	-	5.0	15.6	13	12	-	WNW	9.5	3	100.0
VECTOR WD (DEG)	-	-	-	-	SW	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

Exceedence Summary Report

SO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

SO_2 24- Hour Exceedences

No Exceedences Recorded During the Month

H_2S 1- Hour Exceedences

No Exceedences Recorded During the Month

H_2S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters SO2, H2S, THC, NOx, NO, NO2, WS, WD, RH, BP, Precipitation and Ambient Temperature.

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.

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.

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 15%).

Hourly data is corrected using daily zero information.

Trailer inspection was performed on October 15. No issues were identified.

SULPHUR DIOXIDE (SO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 15.

HYDROGEN SULPHIDE (H2S)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 15.

TOTAL HYDROCARBONS (THC)
The analyzer was working well throughout the month.
The routine monthly calibration was performed and the Hydrogen gas cylinder was replaced on October 15.

NITROGEN DIOXIDE (NO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 15.

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.

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
The rain gauge system was 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 personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

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

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, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

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

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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

Maxxam
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

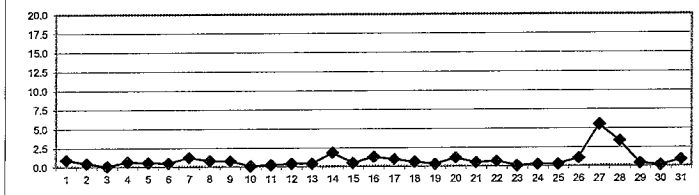
HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	S	1	0	0	0	0	1	1	0	1	1	1	1	1	1	3	1	1	1	1	1	1	1	S	3	0.9	24
2	0	1	1	1	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	S	0	1	0.4	24
3	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	24
4	0	0	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	0	S	0	0	0	1	0.6	24
5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	2	5	0	S	0	0	1	0	5	0.5	24
6	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	1	0	0	S	1	0	0	0	0	2	0.4	24
7	1	1	1	1	0	0	0	0	1	2	3	2	2	2	2	2	1	S	1	1	1	1	1	1	3	1.2	24
8	1	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	S	3	1	0	0	1	1	1	3	0.7	24
9	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	2	0	0	0	2	0.7	24
10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	2	0	0	0	2	0	0	2	0.2	24
12	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	0	1	0	0	1	0.3	24
13	0	0	1	1	1	1	1	1	1	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	1	0.3	24
14	0	1	1	1	0	1	1	0	1	1	S	2	0	0	4	1	3	2	9	0	6	5	2	1	9	1.8	24
15	0	0	0	0	0	0	0	2	3	C	C	C	C	1	0	0	0	0	0	1	0	0	S	1	3	0.4	24
16	0	1	1	0	0	0	0	1	4	1	1	3	3	2	1	1	1	1	2	3	1	S	1	1	4	1.3	24
17	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	2	0.9	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	5	0	1	0	S	0	0	0	0	5	0.6	24
19	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	S	0	1	0	0	0	1	0.3	24
20	0	0	0	0	0	0	0	0	3	4	4	2	3	3	4	1	1	S	0	0	0	0	0	0	4	1.1	24
21	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	S	1	1	1	1	1	1	1	1	0.5	24
22	1	0	0	0	1	1	2	1	1	1	1	1	1	1	0	S	0	0	1	1	0	0	0	1	2	0.7	24
23	0	0	0	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	1	S	1	1	1	1	0	0	0	0	0	0	1	0.2	24
25	0	0	0	0	0	0	0	0	0	0	0	1	S	1	1	1	0	0	0	0	1	0	0	0	1	0.2	24
26	0	0	0	0	0	0	1	0	0	0	1	S	0	2	5	6	3	2	1	0	0	1	1	1	6	1.0	24
27	2	1	6	6	8	9	8	8	3	2	S	5	8	9	5	6	***12***	8	9	3	7	0	0	1	***12***	***5.5***	24
28	3	8	***12***	4	0	0	0	0	0	S	6	6	6	***12***	9	4	1	1	1	1	0	0	1	1	***12***	3.3	24
29	1	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
30	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0.1	24
31	0	0	0	0	0	0	S	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	0.9	24
HOURLY MAX	3	8	12	6	8	9	8	8	4	4	6	6	8	12	9	6	12	8	9	3	7	5	2	1			
HOURLY AVG	0.4	0.5	0.8	0.6	0.5	0.5	0.6	0.6	0.8	0.7	1.1	1.1	1.2	1.7	1.6	1.4	1.1	1.1	1.1	0.6	0.8	0.5	0.4	0.4			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

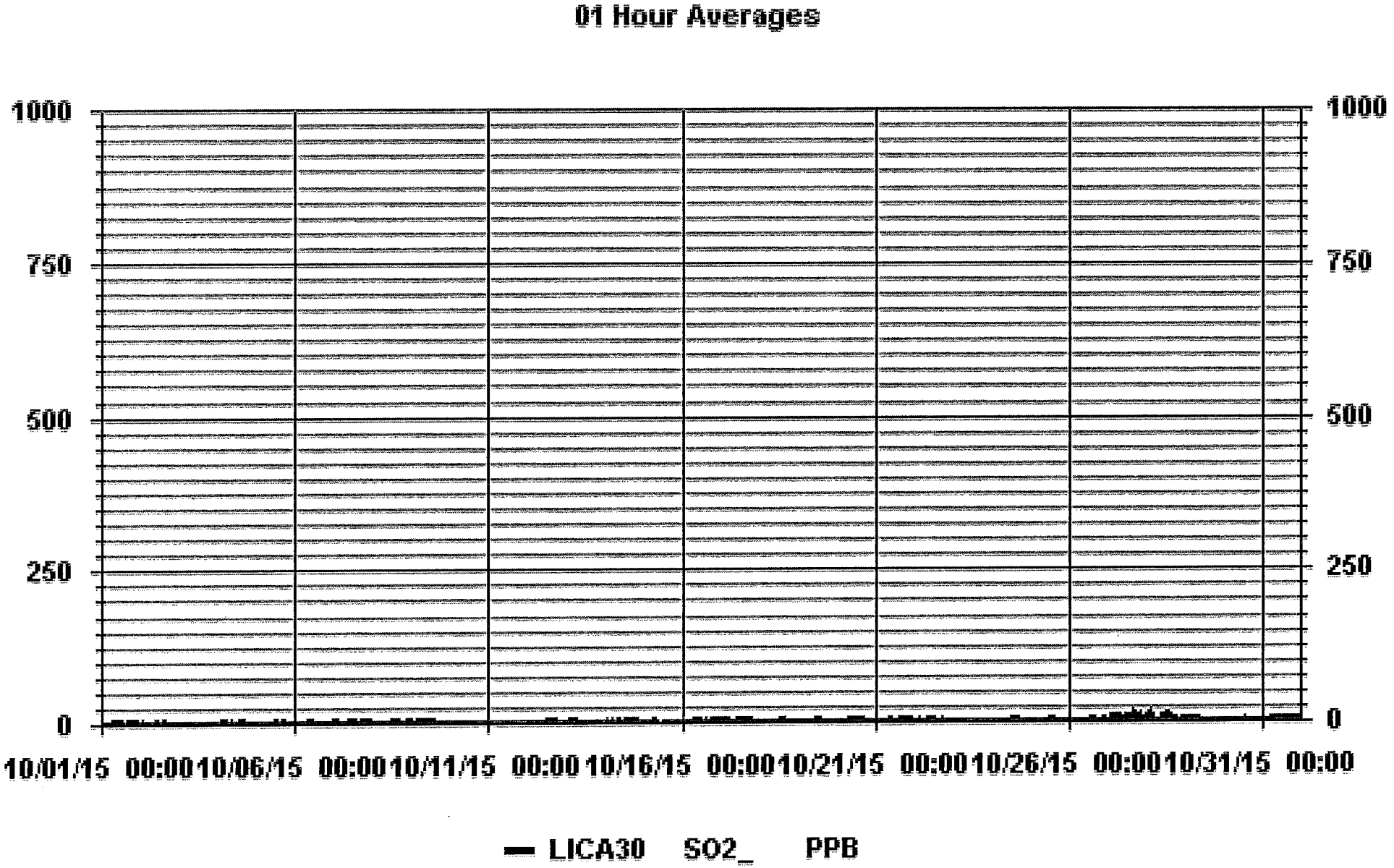
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 48 PPB

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	312					
MAXIMUM 1-HR AVERAGE:	12	PPB	@ HOUR(S)	VAR	ON DAY(S)	27 , 28
MAXIMUM 24-HR AVERAGE:	5.5	PPB			ON DAY(S) VAR-VARIOUS	27
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744 HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	1.62		MONTHLY AVERAGE:			1 PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 SO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

SULPHUR DIOXIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	1	1	1	1	0	1	1	1	1	2	1	1	1	1	6	1	1	1	1	1	1	1	S	6	1.2	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	0	0	0	0	0	S	0	3	0.9	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	0.1	24
4	1	1	1	1	1	1	1	1	5	3	1	1	1	1	3	3	2	1	1	1	S	0	0	0	5	1.3	24
5	0	0	0	0	0	0	0	0	0	0	0	0	3	6	4	2	7	11	0	S	1	1	1	1	11	1.6	24
6	0	0	1	0	0	0	1	1	1	1	1	1	1	5	6	2	1	1	S	1	1	1	1	1	6	1.2	24
7	1	2	1	1	1	1	1	1	1	8	13	3	6	6	9	6	6	S	1	1	1	1	1	1	13	3.2	24
8	1	1	1	1	1	1	0	0	1	2	4	2	2	1	1	1	S	5	3	1	1	1	1	1	5	1.4	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	3	1	0	0	3	0.8	24
10	0	0	0	0	1	0	0	0	0	0	0	1	1	1	S	0	0	0	0	0	0	0	0	0	1	0.2	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	2	0	10	4	0	0	6	2	0	10	1.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
13	1	1	1	1	1	1	1	1	1	1	1	S	1	1	0	1	1	1	1	1	0	1	1	1	1	0.9	24
14	1	1	1	1	1	1	1	1	1	3	S	6	0	0	10	6	11	16	22	2	13	12	8	3	22	5.3	24
15	0	0	0	0	0	0	0	3	C	C	C	C	C	1	1	2	1	1	1	1	1	0	S	1	3	0.7	24
16	1	1	1	1	0	1	0	3	7	1	1	9	7	4	1	1	1	1	6	5	1	S	2	1	9	2.4	24
17	1	1	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1	S	0	0	0	2	1.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	2	15	13	18	0	4	1	S	0	0	0	0	18	2.3	24
19	0	0	0	0	0	0	0	1	0	0	0	2	2	2	2	2	1	0	S	3	4	0	0	0	4	0.8	24
20	0	0	0	0	0	1	0	3	10	9	7	6	8	12	10	5	2	S	0	0	0	0	0	0	12	3.2	24
21	0	0	0	0	0	0	0	0	0	3	4	2	0	0	2	2	S	1	1	1	1	1	1	1	4	0.9	24
22	1	1	1	1	1	3	3	2	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	3	1.2	24
23	1	1	1	1	0	0	1	1	1	1	1	0	1	1	S	3	0	0	0	0	0	0	0	0	3	0.6	24
24	0	0	0	0	0	0	0	0	0	0	4	0	2	S	1	2	1	1	1	1	1	1	1	1	4	0.7	24
25	0	0	0	1	1	1	0	0	0	1	1	3	S	3	3	1	1	0	0	0	1	1	0	1	3	0.8	24
26	1	1	1	1	1	1	1	1	0	1	1	S	1	3	8	7	5	4	4	1	1	2	1	1	8	2.1	24
27	4	1	10	10	12	13	14	13	9	4	S	13	13	16	11	13	20	19	19	14	*23*	6	1	6	*23*	11.5	24
28	8	22	22	12	0	0	0	0	0	S	8	7	15	17	14	6	2	1	1	1	1	1	1	1	22	6.1	24
29	1	1	1	1	1	1	1	1	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
30	0	0	0	0	0	0	0	S	0	0	0	0	0	2	2	1	0	0	1	1	0	0	0	0	2	0.3	24
31	0	0	0	0	0	0	S	1	1	1	12	1	1	1	1	1	1	1	1	1	2	1	1	1	12	1.3	24
HOURLY MAX	8	22	22	12	12	13	14	13	10	9	13	13	15	17	14	18	20	19	22	14	23	12	8	6			
HOURLY AVG	0.8	1.2	1.5	1.2	0.8	0.9	1.0	1.3	1.5	1.6	2.3	2.3	2.6	3.6	3.8	3.4	2.4	2.8	2.5	1.4	2.0	1.4	0.9	0.8			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 454

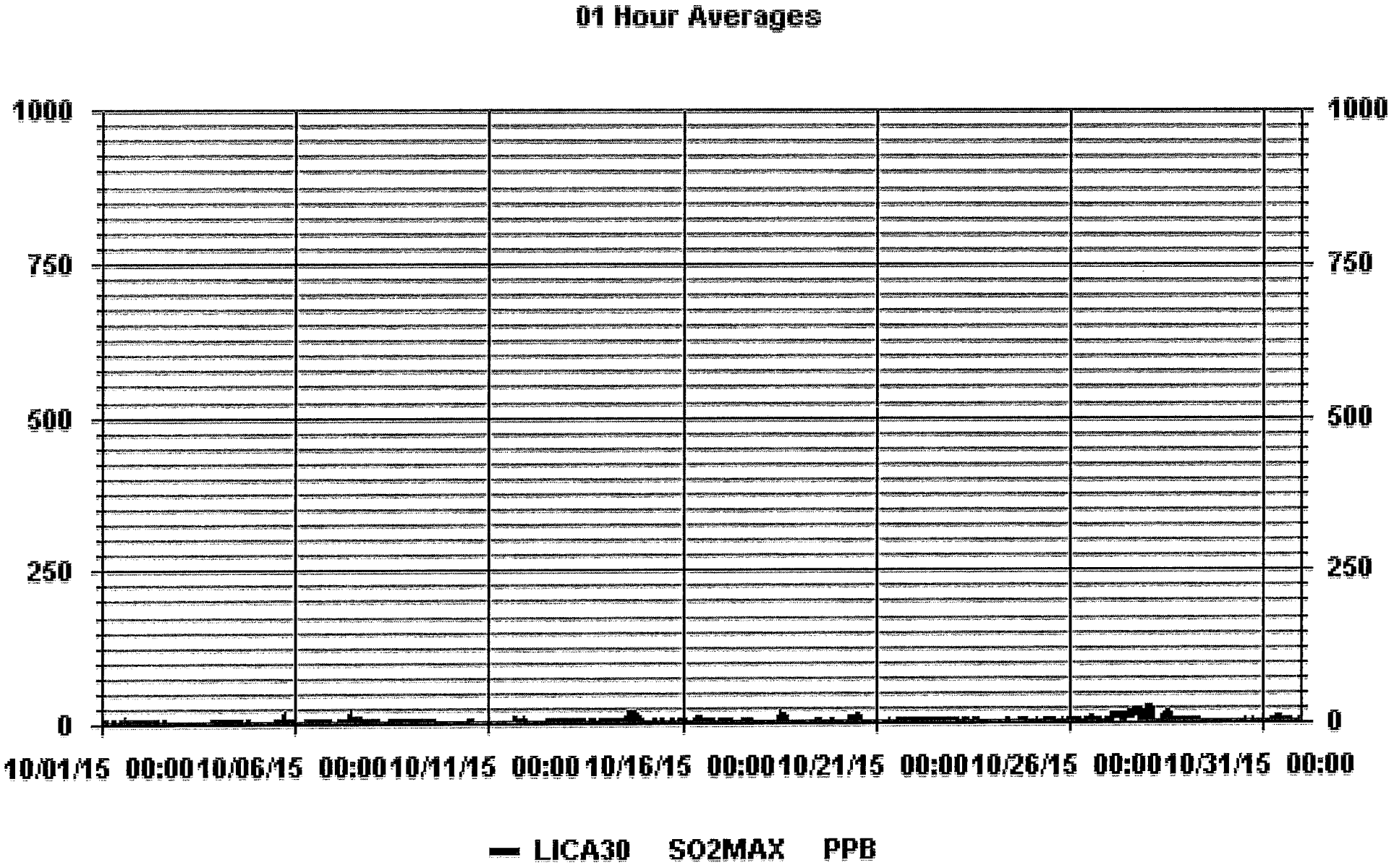
MAXIMUM INSTANTANEOUS VALUE: 23 PPB @ HOUR(S) 20 ON DAY(S) 27

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 3.47


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 SO2MAX PPB

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	4.80	4.09	2.68	4.37	4.09	6.21	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.80	4.09	2.68	4.37	4.09	6.21	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	

Calm : .00 %

Total # Operational Hours : 708

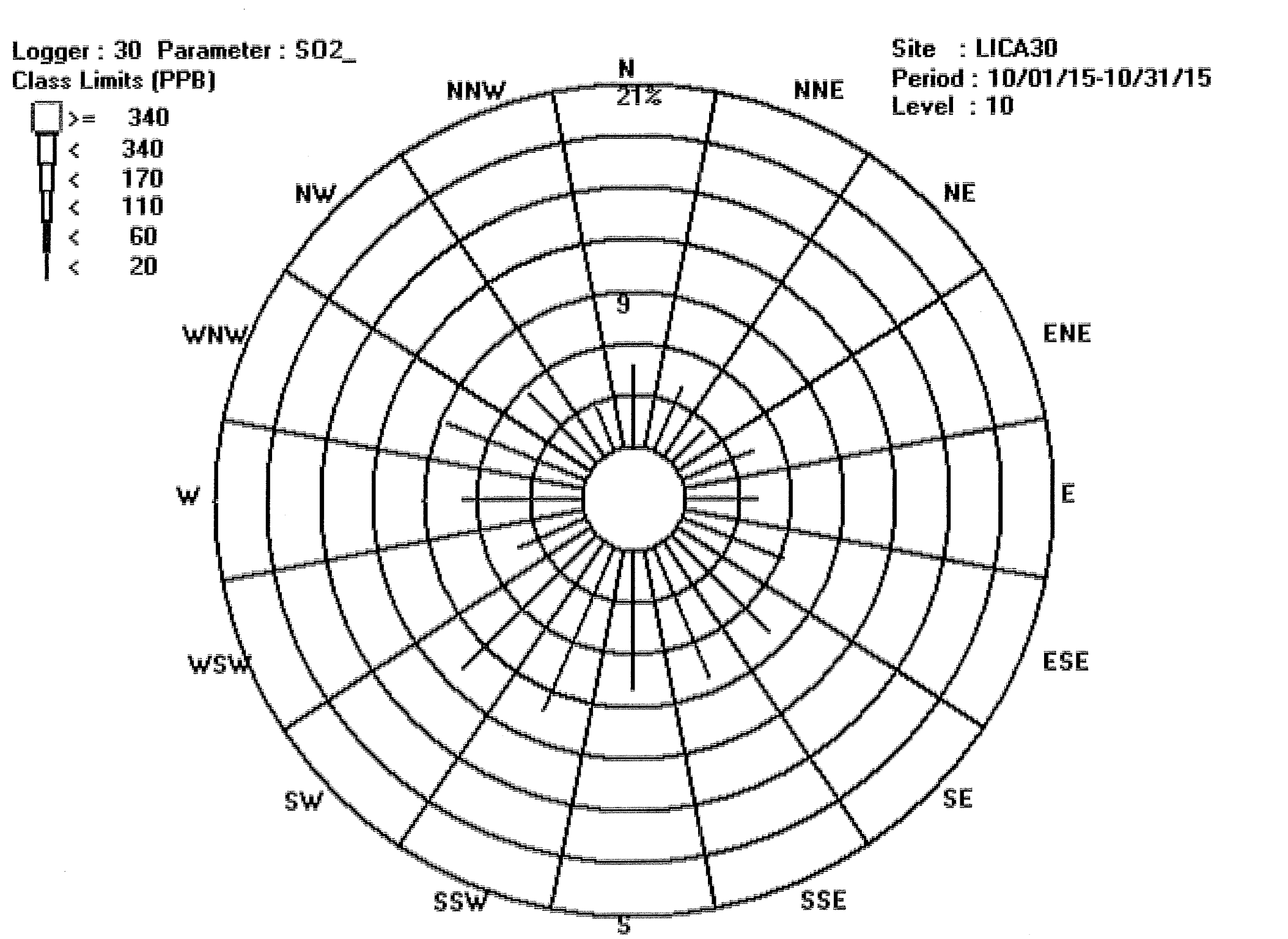
Distribution By Samples

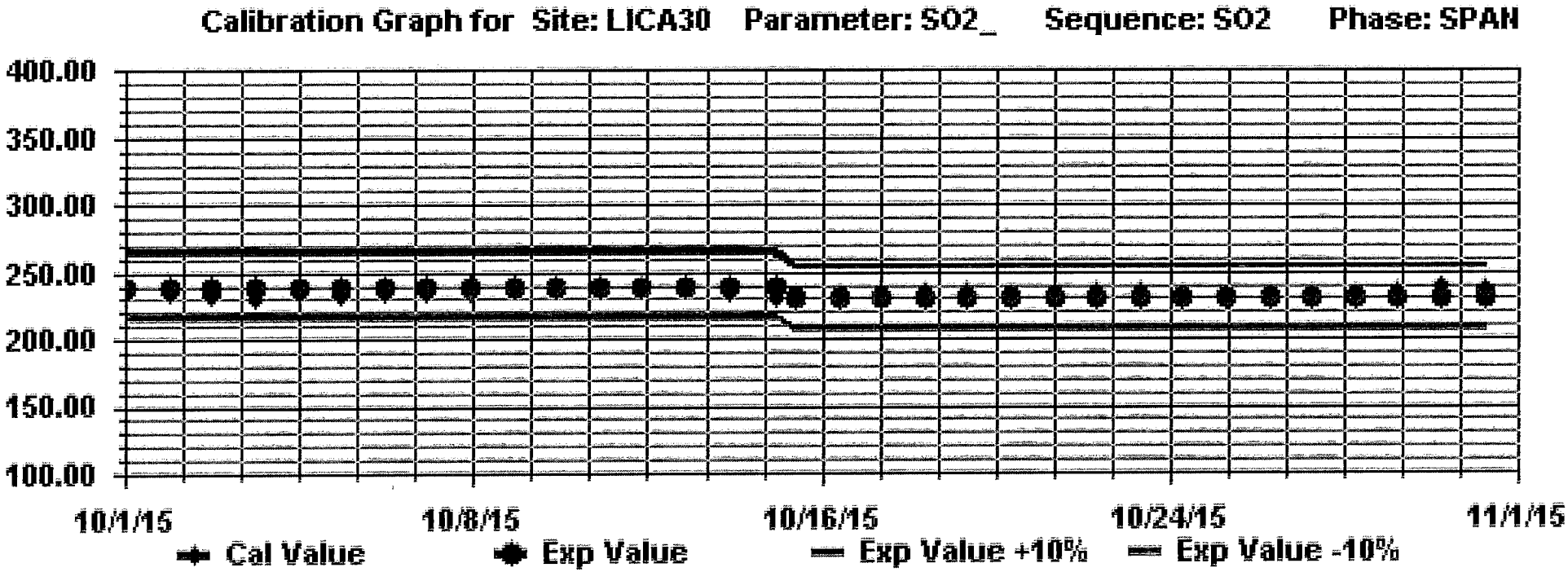
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	34	29	19	31	29	44	57	59	57	73	77	30	48	61	40	20	708
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	48	61	40	20	

Calm : .00 %

Total # Operational Hours : 708


Logger : 30 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA30
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN
400.00
350.00
300.00
250.00
200.00
150.00
100.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

HYDROGEN SULPHIDE

Maxxam
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

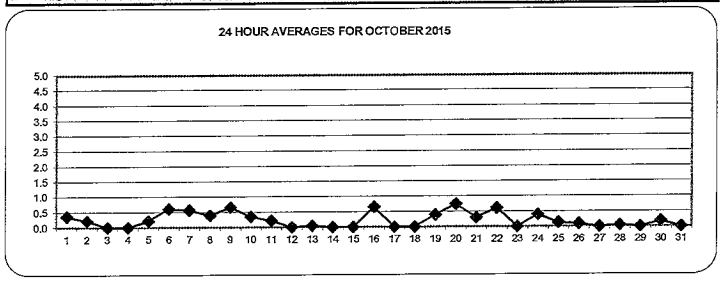
MST

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

STATUS FLAG CODES

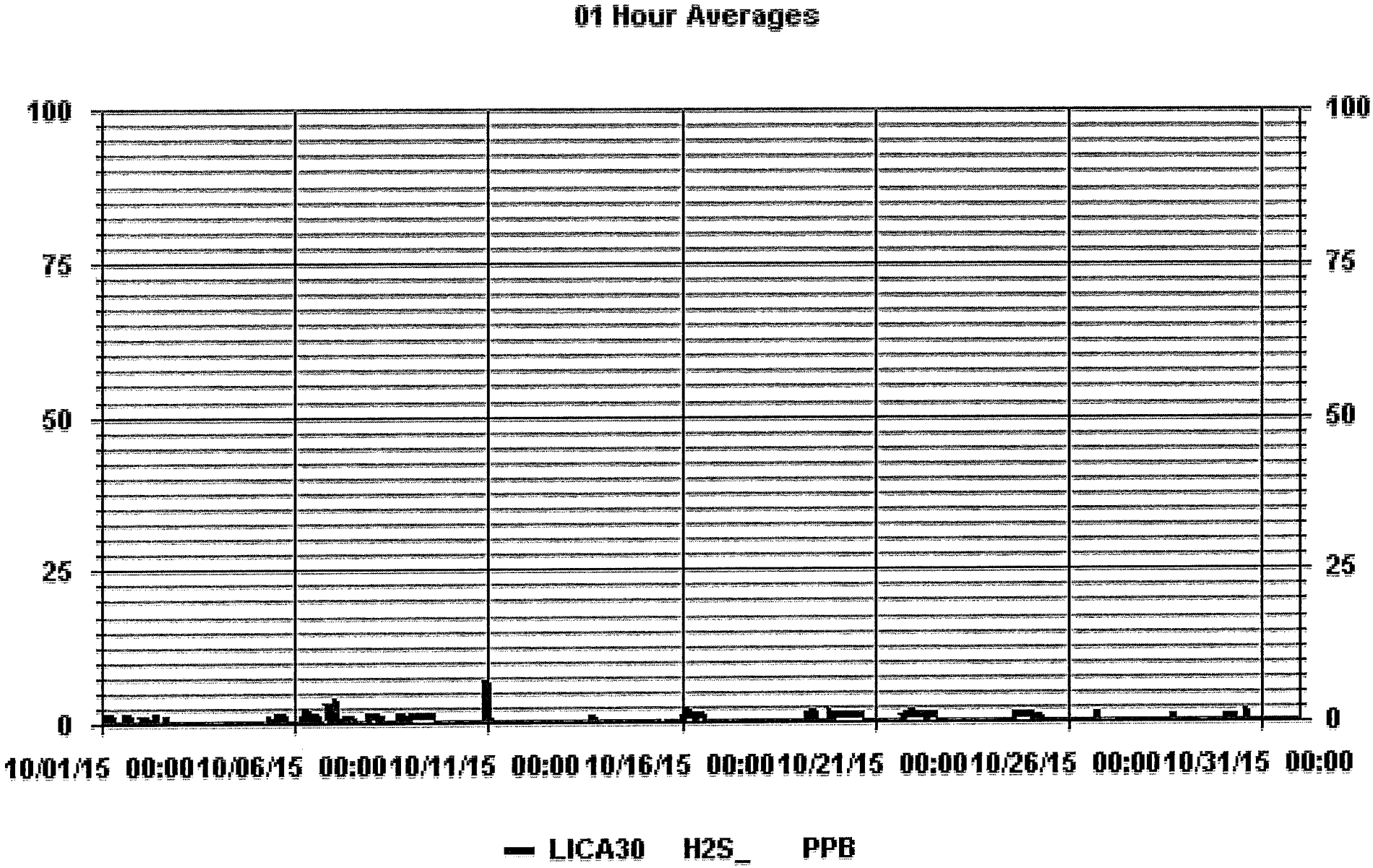
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	138						
MAXIMUM 1-HR AVERAGE:	7	PPB	@ HOUR(S)	23	ON DAY(S)	10	
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S) VAR-VARIOUS	VAR	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.56		MONTHLY AVERAGE:			0	PPB


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 H2S_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

HYDROGEN SULPHIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	1	1	1	1	1	2	1	2	1	1	1	0	1	1	2	2	2	1	1	1	3	1	S	3	1.3	24
2	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	0	1	S	1	3	1.0	24
3	1	1	1	1	1	1	0	1	1	1	0	0	1	1	0	0	1	1	0	1	1	S	1	1	1	0.7	24
4	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	S	1	1	1	1	0.9	24
5	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	3	1	S	0	1	1	1	3	1.2	24	
6	1	1	1	1	1	5	4	2	2	2	1	1	1	1	1	1	1	1	S	6	2	1	2	3	6	1.8	24
7	6	6	2	1	0	1	1	1	1	1	3	1	2	0	1	1	1	S	1	1	1	1	1	1	6	1.5	24
8	3	3	1	1	1	1	2	1	1	1	1	1	1	1	1	1	S	2	2	2	1	1	1	1	3	1.3	24
9	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	S	0	0	2	0	1	0	0	0	2	1.0	24
10	0	0	2	0	0	1	1	1	1	1	1	1	0	1	S	1	1	1	1	1	1	1	2	*11*	*11*	1.3	24
11	6	3	1	1	1	0	0	1	1	0	0	0	0	S	0	0	0	1	0	0	0	0	0	0	6	0.7	24
12	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
13	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	24
14	0	0	0	0	0	1	0	0	0	1	S	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0.2	24
15	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	1	1	1	1	1	1	S	1	1	0.4	24
16	1	3	6	4	3	1	1	1	4	2	2	2	2	2	1	1	1	1	1	1	1	S	0	0	6	1.8	24
17	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	S	1	0	1	1	0.3	24
18	0	1	1	1	1	0	0	1	0	1	0	0	0	1	1	1	1	1	0	S	0	0	0	0	1	0.5	24
19	1	0	0	0	0	0	3	2	1	1	4	2	1	0	0	0	0	1	S	2	2	1	2	2	4	1.1	24
20	2	1	2	2	2	1	1	1	3	2	1	1	1	1	1	2	1	S	0	0	0	0	0	0	3	1.1	24
21	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	S	3	1	1	1	1	3	3	3	0.7	24
22	2	2	1	1	1	2	2	2	1	1	1	1	2	2	2	S	0	0	0	0	1	0	0	0	2	1.0	24
23	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
24	0	1	0	0	0	0	1	1	0	3	0	0	0	S	1	1	1	1	1	1	1	1	1	1	3	0.7	24
25	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	1	0	0	0	0	0	1	1	0	1	0.7	24
26	0	0	0	0	0	0	0	2	0	0	0	S	1	2	0	0	1	3	2	1	1	1	1	1	3	0.7	24
27	1	0	0	1	1	1	0	1	1	0	S	1	1	0	0	0	1	0	0	0	1	0	0	1	1	0.5	24
28	0	1	1	0	0	0	0	0	0	S	0	0	1	1	1	1	1	3	0	0	0	0	0	0	3	0.4	24
29	0	0	1	0	0	0	0	1	S	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24
30	1	1	1	1	1	1	1	S	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	3	0.6	24
31	0	0	0	0	0	0	S	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0.6	24
HOURLY MAX	6	6	6	4	3	5	4	2	4	3	4	2	2	2	3	2	3	3	2	6	2	3	3	11			
HOURLY AVG	1.0	1.0	0.9	0.7	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.8	1.0	0.7	0.8	0.7	0.7	0.7	1.1			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 413

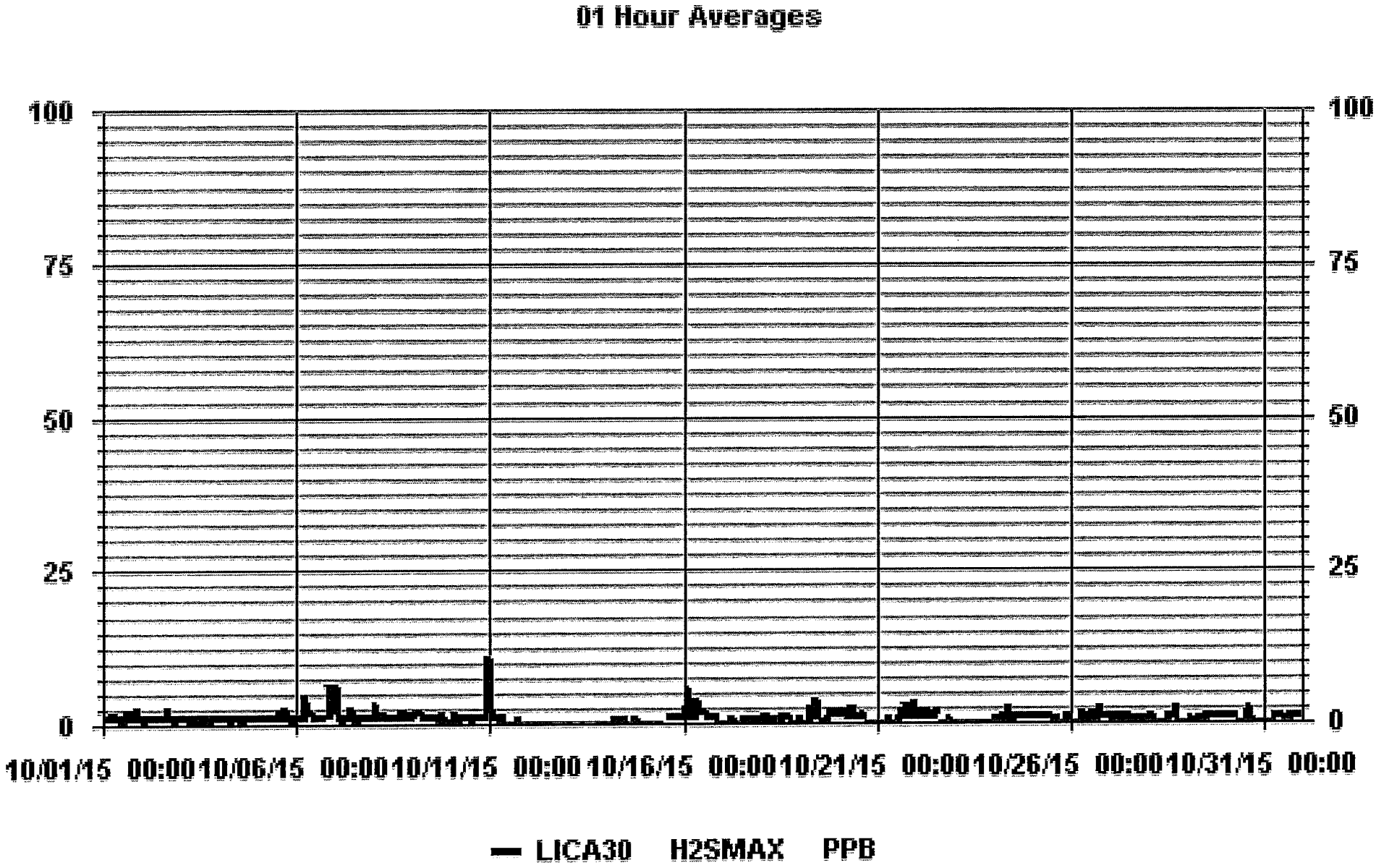
MAXIMUM INSTANTANEOUS VALUE: 11 PPB @ HOUR(5) 23 ON DAY(S) 10

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CAUBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.98


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 H2SMAX PPB

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	4.80	4.09	2.68	4.23	3.95	5.79	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	99.29
<	10	.00	.00	.00	.14	.14	.42	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.70
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.80	4.09	2.68	4.37	4.09	6.21	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	34	29	19	30	28	41	57	59	57	73	77	30	48	61	40	20	703
<	10				1	1	3											5
<	50																	
>=	50																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	48	61	40	20	

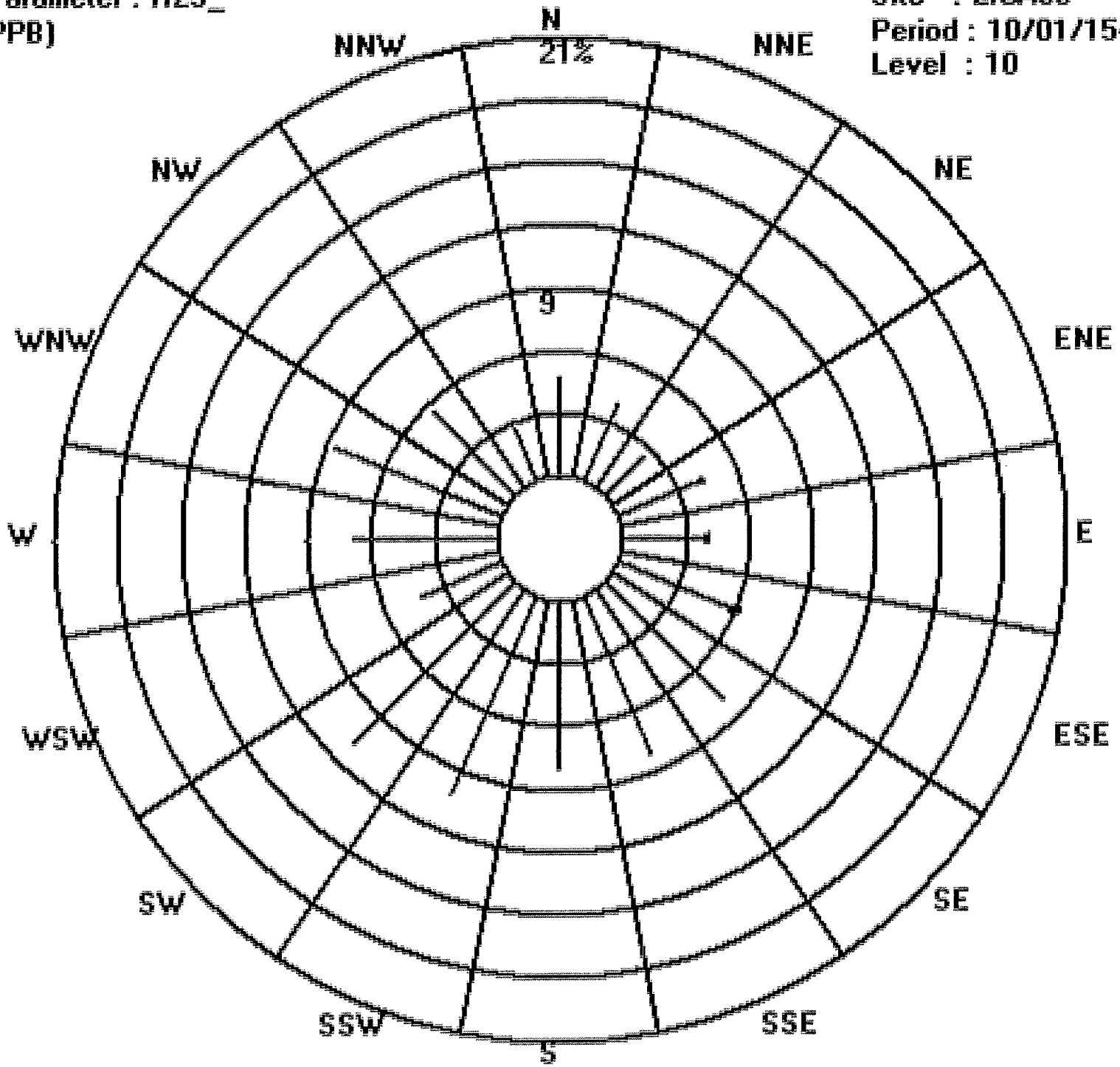
Calm : .00 %

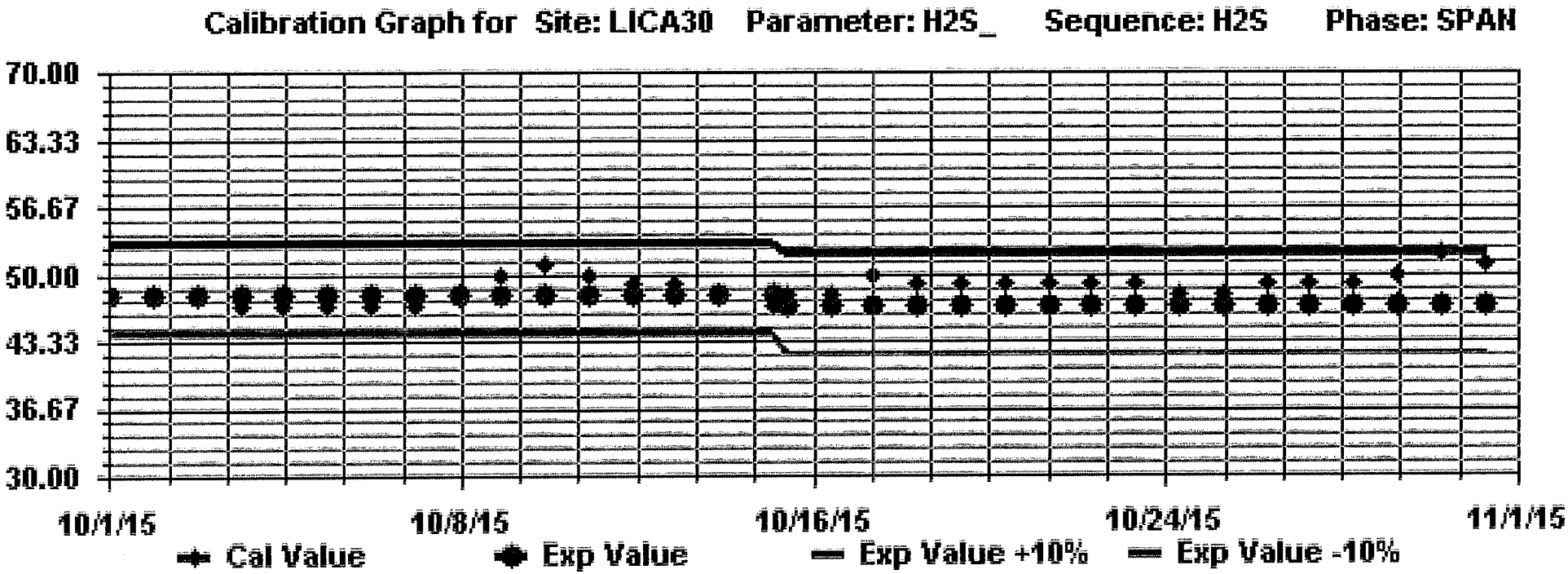
Total # Operational Hours : 708

Logger : 30 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA30
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN
70.00
63.33
56.67
50.00
43.33
36.67
30.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

TOTAL HYDROCARBON

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

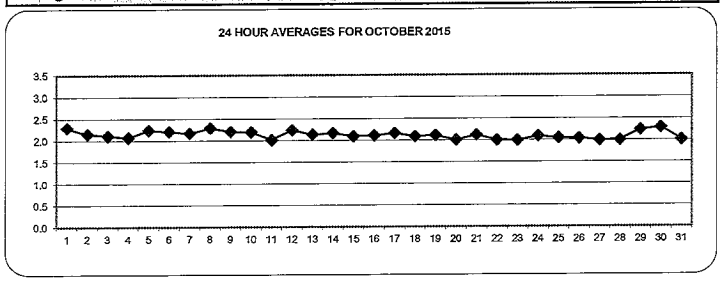
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	2.3	2.3	2.2	2.2	2.3	2.5	2.5	2.5	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	S	2.5	***2.3***	24
2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.2	2.1	24
3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	S	2.1	2.1	2.2	2.1	24
4	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.1	2.2	2.3	2.3	2.1	24
5	2.4	2.4	2.4	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.1	S	2.1	2.2	2.2	2.2	2.4	2.2	24
6	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	S	2.3	2.2	2.1	2.1	2.1	2.3	2.2	24
7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	S	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	24
8	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.6	***2.3***	24
9	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.2	2.1	2.1	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.4	2.2	24
10	2.2	2.3	2.4	2.4	2.4	***2.8***	2.6	2.4	2.3	2.3	2.2	2.1	2.0	2.0	S	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.2	2.1	***2.8***	2.2	24
11	2.2	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	S	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.2	2.1	2.1	2.2	2.0	24
12	2.1	2.1	2.1	2.3	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.4	S	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.2	24
13	2.2	2.3	2.2	2.5	2.5	2.5	2.3	2.1	2.1	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.5	2.1	24
14	2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	S	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	24
15	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	S	2.1	2.3	2.1	24
16	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.2	2.1	24
17	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	S	2.2	2.2	2.2	2.2	2.2	24
18	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	S	2.0	2.0	2.0	2.0	2.3	2.1	24
19	2.1	2.2	2.3	2.1	2.0	2.1	2.1	2.1	2.3	2.4	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.1	S	2.1	2.0	2.1	2.0	2.0	2.4	2.1	24
20	2.1	2.0	2.0	2.2	2.1	2.1	2.0	1.9	2.0	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	24
21	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.0	2.0	2.0	2.0	2.0	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	24
22	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	24
23	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	S	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.0	24
24	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
25	2.1	2.2	2.0	2.0	2.0	2.0	2.1	2.3	2.2	2.1	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.0	24
26	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	24
27	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.1	2.0	24
28	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	24
29	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.2	24
30	2.4	2.4	2.5	2.4	2.5	2.4	2.6	S	2.7	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.7	***2.3***	24
31	2.0	2.0	2.0	2.0	2.0	2.0	S	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	2.0	24
HOURLY MAX	2.6	2.4	2.5	2.5	2.5	2.8	2.6	2.5	2.7	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5			
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1			

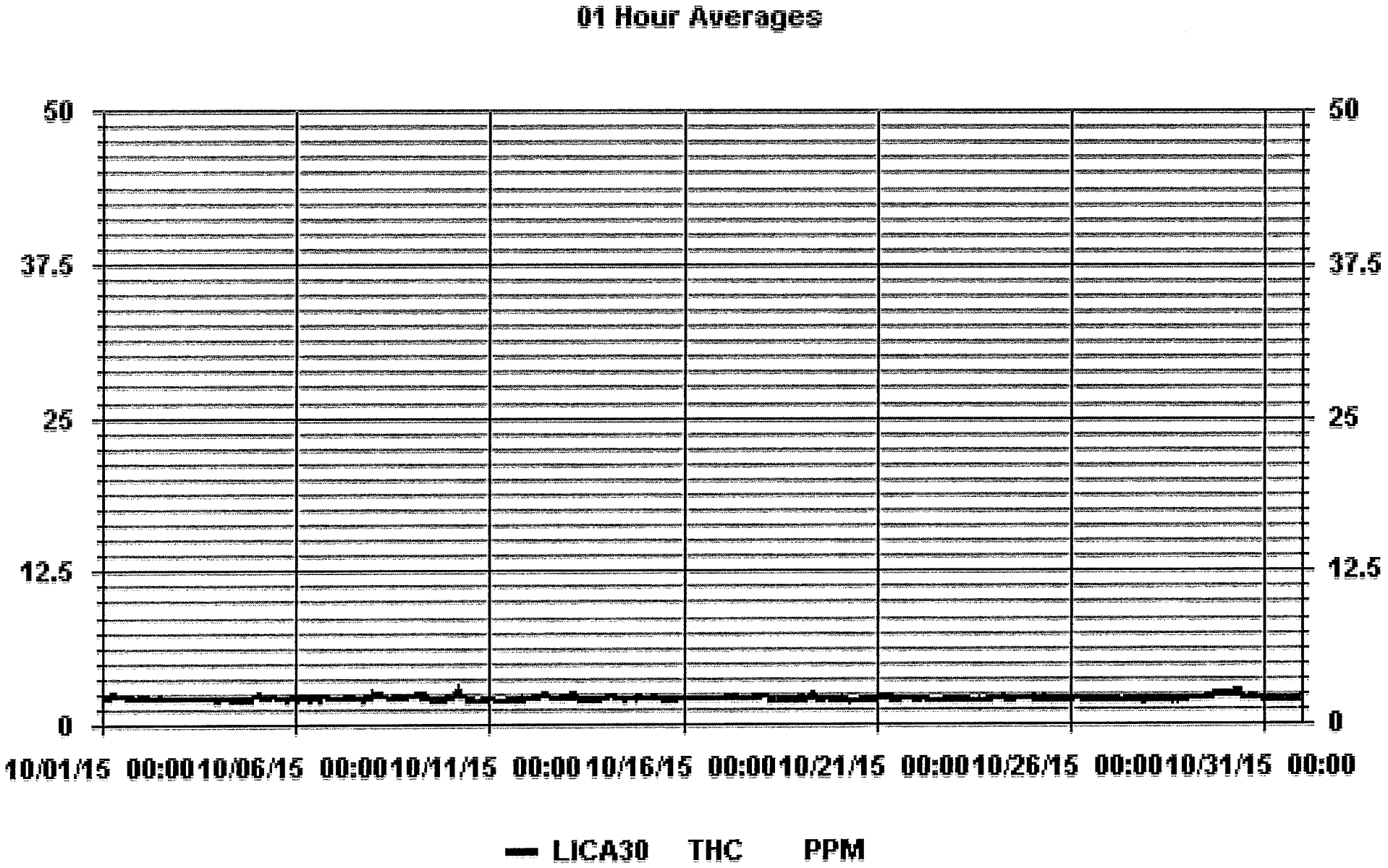
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708				
MAXIMUM 1-HR AVERAGE:	2.8	PPM	@ HOUR(S)	5	ON DAY(S)	10	
MAXIMUM 24-HR AVERAGE:	2.3	PPM			ON DAY(S)	VAR	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.14		MONTHLY AVERAGE:			2.1	PPM


01 Hour Averages
50
37.5
25
12.5
0
50
37.5
25
12.5
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 THC PPM

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

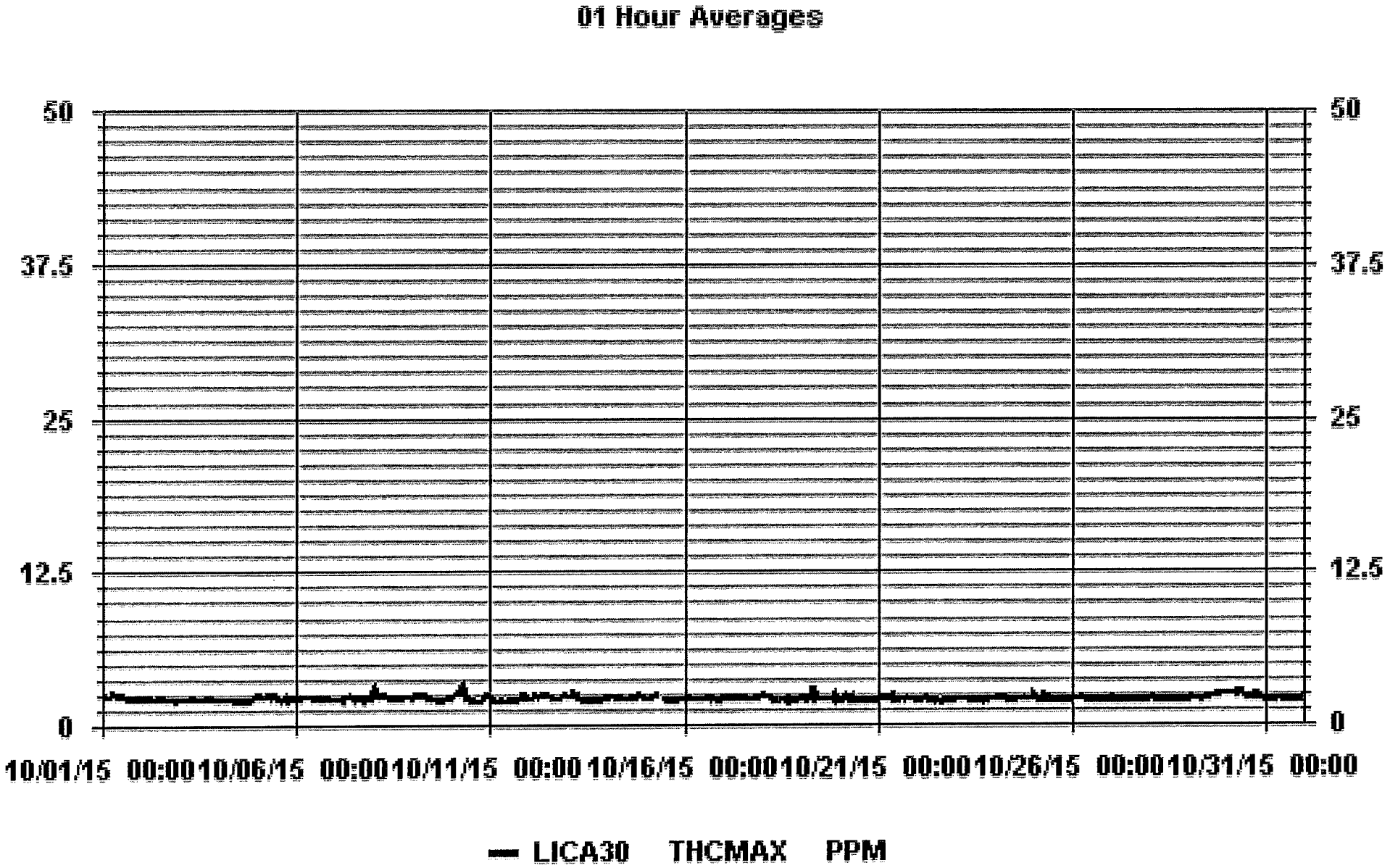
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	2.4	2.4	2.3	2.3	2.4	2.7	2.7	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.7	2.4	24
2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	S	2.1	2.2	2.2	24
3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	S	2.1	2.1	2.2	2.1	24
4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.2	2.3	2.4	2.4	2.1	24
5	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.5	2.4	2.2	2.2	2.2	2.1	2.2	2.4	2.1	S	2.2	2.2	2.2	2.2	2.5	2.3	24
6	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	S	2.3	2.2	2.2	2.1	2.1	2.4	2.2	24
7	2.1	2.2	2.1	2.1	2.2	2.1	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.1	2.2	2.2	2.2	S	2.1	2.2	2.2	2.2	2.3	2.6	2.6	2.2	24
8	3.0	2.7	2.5	2.4	2.5	2.5	2.5	2.4	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.2	S	2.2	2.3	2.3	2.3	2.3	2.3	2.4	3.0	2.4	24
9	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.1	2.1	S	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.4	2.2	24
10	2.3	2.3	2.4	2.5	2.7	3.0	2.8	*3.1*	2.7	2.3	2.2	2.2	2.0	2.1	S	2.0	1.9	1.9	1.9	2.0	2.3	2.3	2.4	2.5	*3.1*	2.3	24
11	2.2	2.2	2.1	2.1	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0	S	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.6	2.2	2.6	2.1	24
12	2.1	2.1	2.2	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5	S	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.5	2.3	24
13	2.3	2.3	2.3	2.7	2.7	2.5	2.4	2.2	2.1	2.1	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.7	2.2	24
14	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.2	S	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.1	2.6	2.3	2.3	2.3	2.6	2.3	24
15	2.3	2.1	2.1	2.1	2.3	2.3	2.4	2.4	C	C	C	C	C	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	S	2.1	2.4	2.1	24
16	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.3	2.2	2.1	2.2	2.2	2.1	S	2.2	2.1	2.3	2.2	24
17	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	S	2.2	2.2	2.3	2.3	2.2	24
18	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.5	2.0	S	2.0	2.0	2.1	2.1	2.5	2.2	24
19	2.2	2.3	2.4	2.3	2.1	2.2	2.2	2.1	*3.1*	2.8	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.4	2.0	2.1	*3.1*	2.2	24
20	2.1	2.0	2.2	2.4	2.2	2.2	2.0	2.0	2.3	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	S	2.0	2.0	2.0	2.1	2.1	2.0	2.4	2.1	24
21	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.1	2.0	2.0	2.1	2.1	2.1	S	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.4	2.2	24
22	2.0	2.1	2.0	2.1	2.1	2.2	2.3	2.2	2.1	2.0	2.0	1.9	2.0	2.0	1.9	S	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.0	24
23	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	24
24	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	S	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	24
25	2.5	2.3	2.2	2.0	2.0	2.0	2.4	2.4	2.3	2.2	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.1	24
26	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	24
27	2.2	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	S	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.2	2.0	24
28	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	24
29	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.1	S	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.3	24
30	2.5	2.5	2.5	2.5	2.6	2.5	2.7	S	2.8	2.6	2.3	2.3	2.2	2.1	2.1	2.1	2.5	2.4	2.4	2.4	2.2	2.1	2.1	2.1	2.8	2.4	24
31	2.0	2.0	2.0	2.0	2.0	2.0	S	2.1	2.1	2.1	2.1	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	2.1	2.0	24
HOURLY MAX	3.0	2.7	2.5	2.7	2.7	3.0	2.8	3.1	3.1	2.8	2.5	2.5	2.4	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.6	2.6	2.5	2.6			
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	3.1	PPM	@ HOUR(S)	7, 8	ON DAY(S)	10, 19
				VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744 HRS
MONTHLY CAUBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.17					


01 Hour Averages
50
37.5
25
12.5
0
50
37.5
25
12.5
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 THCMAX PPM

LICA30
THC / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : THC
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4.80	4.09	2.68	4.37	4.09	6.21	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	100.00
<	10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.80	4.09	2.68	4.37	4.09	6.21	8.05	8.33	8.05	10.31	10.87	4.23	6.77	8.61	5.64	2.82	

Calm : .00 %

Total # Operational Hours : 708

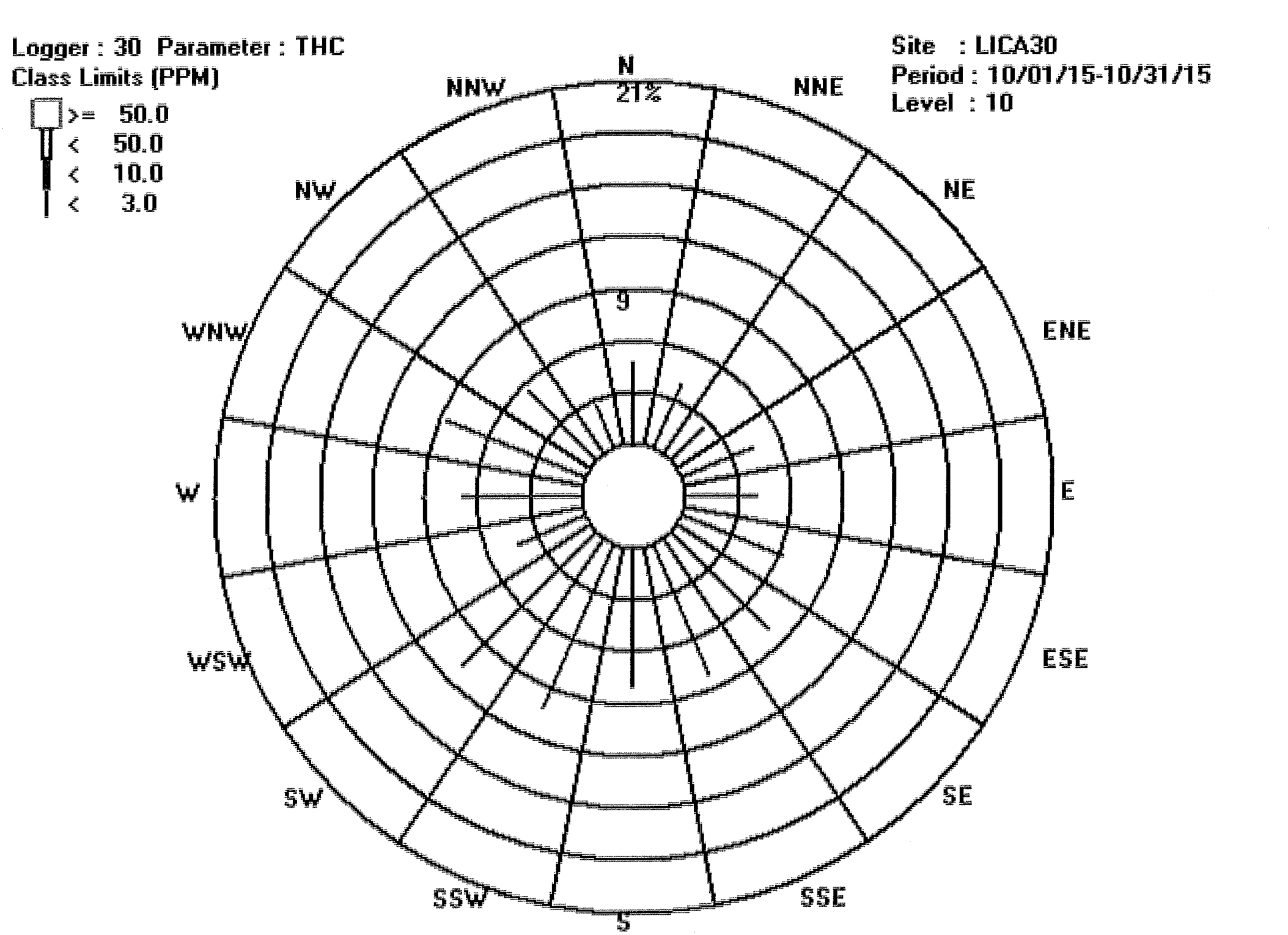
Distribution By Samples

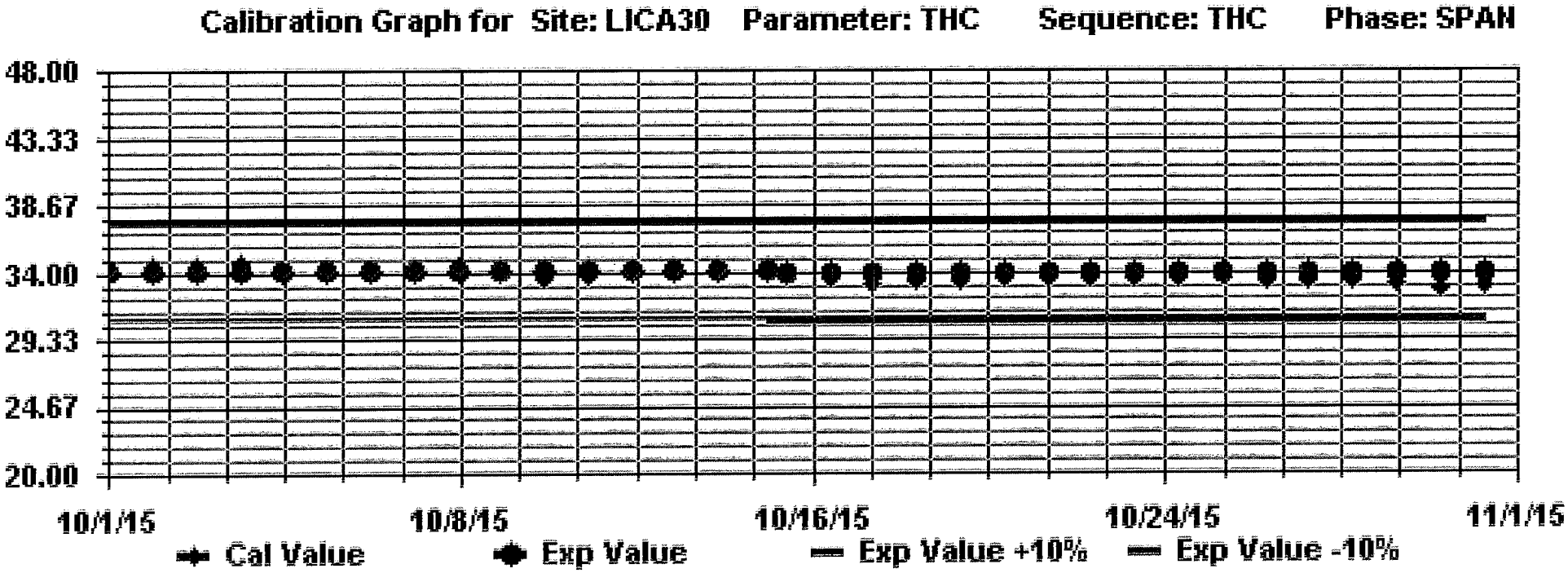
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	34	29	19	31	29	44	57	59	57	73	77	30	48	61	40	20	708
<	10.0																	
<	50.0																	
>=	50.0																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	48	61	40	20	

Calm : .00 %

Total # Operational Hours : 708


Logger : 30 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA30
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
5
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN
48.00
43.33
38.67
34.00
29.33
24.67
20.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OXIDES OF NITROGEN

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

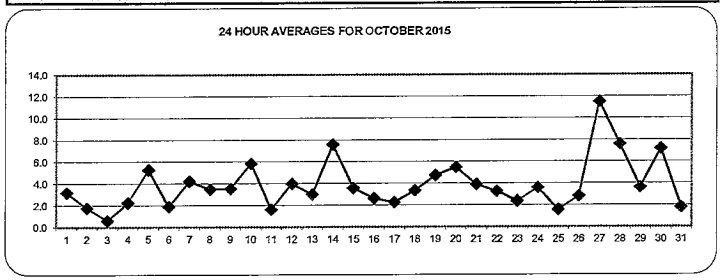
OXIDES OF NITROGEN (NOx) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	1.8	1.8	1.3	1.0	1.7	16.0	3.5	3.5	5.0	3.9	3.7	3.4	1.9	2.1	4.6	1.3	0.9	1.4	2.1	3.1	2.7	3.4	S	16.0	3.2	24
2	2.5	2.4	2.2	1.6	1.4	1.4	1.7	1.4	1.3	1.3	1.4	1.4	1.2	1.4	1.7	5.8	4.8	0.6	0.4	0.3	1.8	1.4	S	1.4	5.8	1.8	24
3	1.2	0.6	0.5	0.4	0.4	0.2	0.3	0.0	0.1	0.0	0.2	0.3	0.3	0.3	0.6	0.8	0.6	0.4	0.5	0.7	1.1	S	2.4	1.8	2.4	0.6	24
4	1.5	2.4	3.4	3.8	2.8	2.8	2.6	1.8	4.1	4.9	1.9	0.9	1.0	1.0	1.6	2.3	1.7	1.2	0.8	0.8	S	2.5	2.4	3.4	4.9	2.2	24
5	4.1	4.1	3.4	2.5	3.5	7.5	6.0	6.0	4.2	6.3	5.6	5.0	7.3	7.2	6.2	2.0	7.8	12.4	4.3	S	3.7	4.3	4.4	3.2	12.4	5.3	24
6	1.8	1.2	1.4	1.4	1.1	1.0	1.3	1.1	3.0	2.4	3.1	4.4	2.4	3.5	4.5	1.9	0.8	0.8	S	2.1	1.1	0.9	1.1	1.1	4.5	1.9	24
7	1.2	2.7	1.0	0.9	0.9	2.1	3.0	6.9	5.6	11.0	10.0	10.7	4.5	5.0	3.5	2.9	3.0	S	2.1	3.5	3.8	4.5	4.2	3.8	11.0	4.2	24
8	3.9	3.4	3.4	3.0	2.0	3.1	4.2	7.6	5.8	5.4	4.4	3.2	2.8	2.8	2.2	1.7	S	6.8	4.1	2.6	1.4	1.5	2.7	2.0	7.6	3.5	24
9	2.5	2.4	1.8	2.3	3.1	6.7	3.1	6.2	7.1	6.3	4.5	2.2	2.4	2.3	1.7	S	2.6	2.2	2.1	2.3	5.3	3.8	3.8	4.5	7.1	3.5	24
10	5.6	7.9	8.3	11.5	10.7	15.5	13.5	10.8	7.8	7.3	7.4	5.7	5.0	4.1	S	3.0	1.3	0.7	1.0	2.2	1.8	1.1	0.9	1.1	15.5	5.8	24
11	1.1	1.0	0.6	0.6	0.2	0.2	0.1	0.3	0.3	0.4	0.3	0.5	0.6	S	2.7	2.4	0.8	7.9	1.2	0.6	1.0	7.2	3.7	3.6	7.9	1.6	24
12	3.1	1.6	1.1	5.3	5.8	4.0	3.1	4.6	4.2	4.2	4.1	4.4	S	4.6	3.9	3.8	3.1	2.7	2.6	2.4	4.9	5.6	6.9	5.7	6.9	4.0	24
13	2.5	3.3	3.1	12.2	11.9	11.3	7.7	3.6	1.2	0.7	0.9	S	1.6	1.6	1.5	1.2	0.4	0.3	0.3	0.2	0.2	0.5	0.9	1.7	12.2	3.0	24
14	2.1	5.4	9.8	7.7	6.8	7.6	9.3	5.9	1.8	8.2	S	8.6	0.8	1.1	12.5	7.4	7.2	5.5	19.9	0.4	12.7	12.2	9.2	12.1	19.9	7.6	24
15	2.9	0.0	1.5	1.7	1.7	8.1	6.7	***29.2***	C	C	C	C	C	C	C	0.5	0.0	0.0	0.0	0.0	0.9	1.9	S	2.0	***29.2***	3.6	24
16	1.2	1.2	1.0	0.8	1.0	1.1	0.9	2.1	8.8	2.3	2.3	6.4	7.2	3.5	1.1	1.5	1.2	1.4	3.7	4.6	2.4	S	3.0	1.8	8.8	2.6	24
17	1.6	1.6	1.5	2.2	2.3	2.4	3.1	3.2	3.6	2.8	2.6	2.8	2.0	1.7	1.8	1.8	1.8	1.7	1.6	1.6	S	3.3	2.6	2.5	3.6	2.3	24
18	2.5	2.8	3.2	4.0	4.8	3.6	3.0	2.2	1.6	1.3	1.6	0.9	1.5	9.8	7.4	9.4	0.5	3.8	3.0	S	1.7	1.4	2.9	4.1	9.8	3.3	24
19	3.8	7.1	8.1	3.7	1.6	1.1	1.4	13.3	5.3	5.2	7.0	4.9	3.6	4.9	5.0	6.3	4.9	3.1	S	4.2	6.1	3.8	1.6	2.6	13.3	4.7	24
20	1.9	1.3	7.7	2.0	1.9	8.2	5.1	8.0	14.3	10.8	10.3	6.9	8.5	10.3	10.8	5.7	4.6	S	1.6	1.3	1.1	1.2	1.4	1.3	14.3	5.5	24
21	1.5	1.8	1.8	4.1	4.2	6.5	3.5	8.9	11.6	10.1	4.2	4.4	2.7	2.4	2.3	3.4	S	3.0	2.3	2.0	1.7	1.7	2.6	2.9	11.6	3.9	24
22	1.5	1.4	1.4	0.9	1.4	10.0	16.2	13.8	4.2	6.9	1.8	3.3	1.8	0.5	0.7	S	1.4	0.7	0.7	0.8	0.7	0.9	0.9	3.7	16.2	3.3	24
23	4.4	2.6	1.8	1.7	1.6	2.4	2.6	2.4	3.5	1.6	2.7	0.4	0.8	0.7	S	3.4	1.0	0.7	1.4	2.7	4.6	3.7	4.0	3.7	4.6	2.4	24
24	2.6	2.2	2.3	6.3	4.4	4.8	4.6	6.2	4.0	2.0	4.1	2.1	5.2	S	6.8	6.2	5.0	4.0	3.7	2.5	1.3	1.0	0.9	0.7	6.8	3.6	24
25	0.8	0.7	0.9	0.2	0.7	0.7	1.6	4.4	2.9	2.5	1.8	3.7	S	3.2	2.8	1.9	0.6	0.5	0.4	0.4	2.8	1.2	0.8	0.7	4.4	1.6	24
26	0.8	0.8	0.9	0.9	1.0	1.4	1.5	1.6	1.9	1.3	1.1	S	2.1	5.7	10.8	12.7	6.1	3.8	3.2	1.2	1.3	2.5	1.0	1.2	12.7	2.8	24
27	7.5	0.9	18.8	16.3	19.5	20.1	15.7	18.4	3.8	2.6	S	13.9	18.9	16.7	9.0	10.5	21.1	15.0	11.8	4.3	15.0	1.0	0.5	3.1	21.1	***11.5***	24
28	8.1	17.9	18.8	4.6	0.7	1.7	1.1	2.1	1.9	S	12.4	14.0	17.0	27.6	25.1	11.1	3.2	1.6	1.0	1.0	0.7	0.6	0.8	2.0	27.6	7.6	24
29	1.3	2.2	1.6	2.5	2.2	1.5	2.9	2.1	S	3.4	2.0	2.1	2.4	2.9	3.4	4.2	4.5	5.7	5.1	5.5	7.2	7.0	6.1	5.6	7.2	3.6	24
30	5.6	7.6	10.3	9.8	10.4	10.3	14.0	S	12.9	8.8	5.9	5.2	4.4	4.8	5.5	4.1	4.7	9.7	7.4	7.4	9.1	2.9	2.4	2.0	14.0	7.2	24
31	1.2	0.6	0.6	0.3	0.6	1.9	S	7.4	6.3	4.8	8.8	0.5	1.0	1.4	1.0	0.9	0.7	0.9	0.6	0.5	1.0	0.1	0.2	0.3	8.8	1.8	24
HOURLY MAX	8.1	17.9	18.8	16.3	19.5	20.1	16.2	29.2	14.3	11.0	12.4	14.0	18.9	27.6	25.1	12.7	21.1	15.0	19.9	7.4	15.0	12.2	9.2	12.1			
HOURLY AVG	2.7	3.0	4.0	3.8	3.6	4.9	5.2	6.2	4.7	4.5	4.2	4.4	4.0	4.7	4.9	4.3	3.3	3.4	3.0	2.1	3.4	2.8	2.7	2.9			

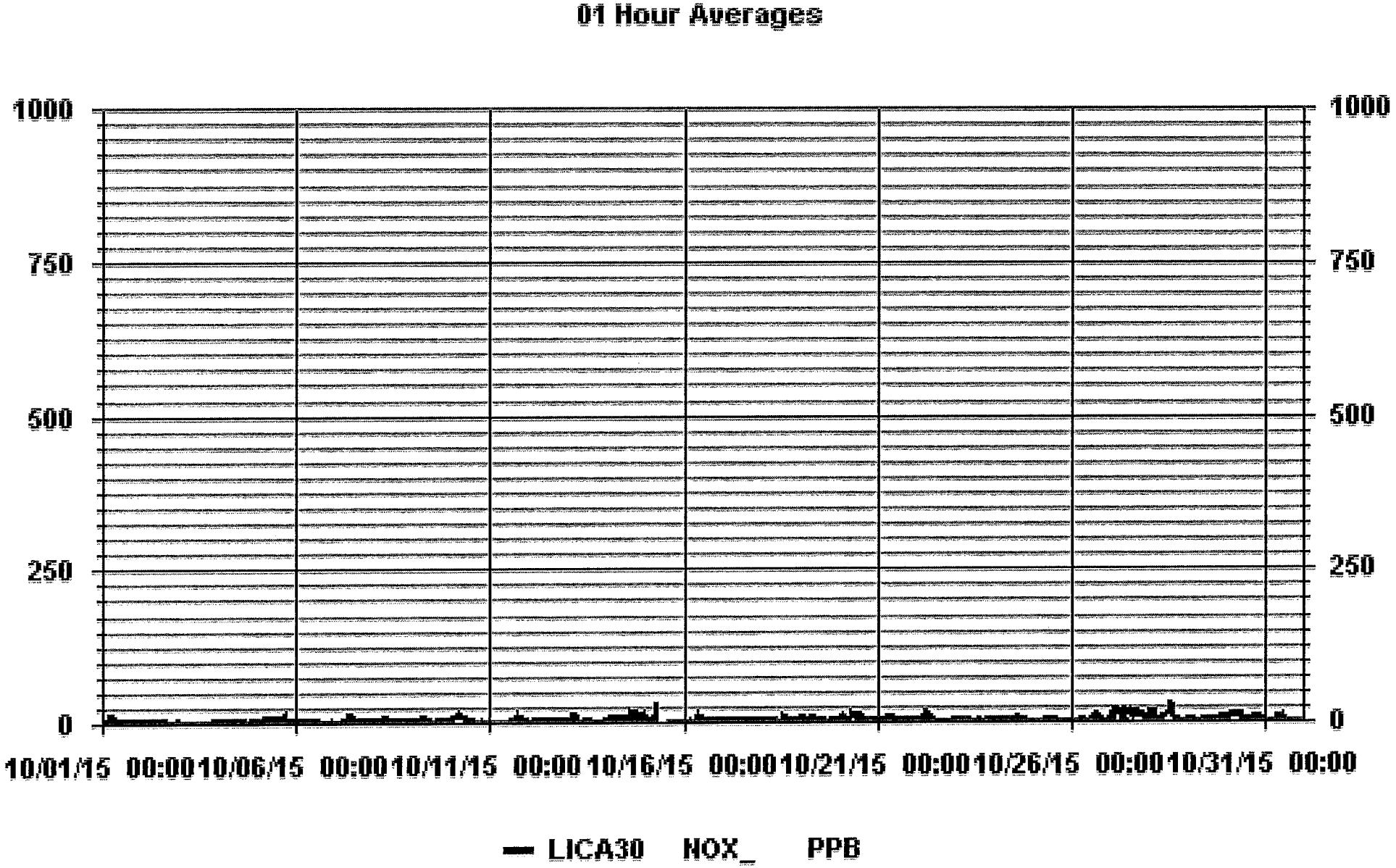
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
V	- MAINTENANCE	R	- RECOVERY
Z	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		698				
MAXIMUM 1-HR AVERAGE:	29.2	PPB	@ HOUR(S)	7	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	11.5	PPB			ON DAY(S)	27
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.00		MONTHLY AVERAGE:		3.9	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NOX_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

OXIDES OF NITROGEN MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	2.9	2.9	2.0	1.8	25.6	63.4	6.7	5.3	6.4	5.7	4.7	4.2	2.9	3.6	9.1	1.7	1.6	3.1	3.0	4.8	4.2	4.3	S	63.4	7.7	24
2	3.2	3.2	3.3	2.2	1.8	1.8	2.2	2.1	1.7	1.8	2.3	2.2	1.8	2.5	6.3	8.8	7.6	2.1	0.9	0.9	2.8	2.4	S	2.7	8.8	2.9	24
3	2.3	1.0	1.0	0.7	0.7	1.0	0.9	0.6	0.6	0.4	0.7	0.7	0.9	0.9	1.2	2.0	1.2	1.1	1.1	1.2	2.0	S	4.0	2.7	4.0	1.3	24
4	2.5	2.9	4.2	4.6	3.8	3.8	3.5	2.5	12.1	48.7	3.0	1.7	1.3	2.4	6.0	5.3	3.9	1.9	1.4	1.3	S	3.8	2.9	4.3	48.7	5.6	24
5	4.8	4.8	4.2	3.9	6.2	42.3	10.5	8.3	5.5	12.0	7.1	7.6	16.1	18.4	14.3	5.0	19.6	27.7	7.5	S	4.7	6.2	6.6	4.0	42.3	10.8	24
6	2.6	1.7	2.1	1.8	1.5	1.9	2.4	1.7	4.7	4.2	4.4	5.5	4.1	11.0	10.2	4.4	1.3	1.3	S	3.4	1.6	1.5	1.5	1.5	11.0	3.3	24
7	2.0	5.4	1.5	1.2	1.4	4.6	6.5	9.8	7.6	23.6	30.4	16.3	13.5	14.5	14.8	12.8	13.9	S	3.5	5.3	5.0	5.9	5.2	4.8	30.4	9.1	24
8	4.9	4.6	4.3	3.8	2.9	4.7	8.0	22.6	9.0	6.2	8.4	5.6	4.2	3.5	3.2	2.4	S	9.0	7.3	3.3	2.4	2.3	3.3	2.9	22.6	5.6	24
9	3.6	3.0	2.7	3.1	4.3	23.7	5.4	12.0	8.3	7.1	5.7	3.9	5.0	3.2	3.8	S	3.9	2.7	3.1	3.1	7.9	5.1	4.7	5.2	23.7	5.7	24
10	6.4	9.1	12.4	12.9	15.6	19.4	15.1	13.7	9.0	8.1	8.3	7.4	6.3	5.5	S	6.7	3.2	1.8	3.2	3.4	2.7	2.2	1.5	1.7	19.4	7.6	24
11	1.4	1.4	1.1	1.1	0.7	0.8	0.6	0.9	1.0	1.2	0.9	1.3	1.4	S	4.7	8.8	3.2	24.4	14.8	1.8	1.7	16.1	9.6	6.2	24.4	4.6	24
12	5.3	2.4	1.8	7.6	7.0	5.4	4.9	5.5	4.9	4.9	4.8	5.3	S	5.7	5.1	4.6	4.4	3.6	3.4	3.2	7.8	7.8	8.9	8.2	8.9	5.3	24
13	4.3	4.4	6.8	15.7	16.9	16.3	13.2	8.3	1.9	1.6	22.2	S	2.9	3.3	13.1	4.9	0.9	0.8	0.8	0.8	0.7	1.2	2.7	4.4	22.2	6.4	24
14	4.4	11.5	11.6	11.1	10.1	13.0	44.7	30.3	7.0	15.2	S	19.2	8.8	5.2	26.9	14.4	26.4	37.7	47.6	2.4	27.1	24.5	16.8	17.0	47.6	18.8	24
15	6.1	0.6	8.7	6.0	6.1	20.2	20.1	41.1	C	C	C	C	C	C	C	3.9	0.5	0.3	0.3	0.3	2.5	2.7	S	3.5	41.1	7.7	24
16	1.8	1.6	1.5	1.4	1.6	1.4	1.4	8.3	14.3	2.9	3.7	17.8	13.1	6.3	1.9	1.9	2.0	2.1	8.6	7.5	3.2	S	5.0	2.4	17.8	4.9	24
17	2.0	2.3	2.0	3.1	3.2	3.3	4.3	3.8	4.3	3.7	3.4	3.5	2.6	2.2	2.3	2.4	2.2	2.1	2.1	2.2	S	5.0	3.0	3.1	5.0	3.0	24
18	3.1	3.7	4.1	4.6	6.1	5.2	4.5	4.5	2.4	2.5	3.2	2.4	6.6	25.9	21.4	26.6	2.4	8.3	7.8	S	2.9	1.7	5.3	6.2	26.6	7.0	24
19	5.3	10.0	10.3	7.3	2.4	1.7	2.2	112.0	11.2	9.8	13.3	7.1	6.1	5.9	6.9	7.5	6.9	4.2	S	11.2	14.0	12.2	2.1	10.3	112.0	12.2	24
20	4.0	2.0	***130.5***	8.8	4.7	12.1	15.2	29.2	27.4	23.0	20.0	16.3	18.0	47.3	22.2	12.8	12.7	S	6.8	7.0	1.6	1.8	1.9	2.1	***130.5***	18.6	24
21	2.2	2.7	2.7	6.3	6.3	11.4	4.7	73.4	14.8	16.0	8.7	5.9	3.8	3.7	6.1	6.1	S	4.7	2.8	2.7	2.2	2.2	4.3	4.3	73.4	8.6	24
22	2.2	2.4	2.0	1.4	3.4	19.6	21.7	22.9	7.2	12.3	3.4	6.6	5.0	1.1	3.4	S	3.1	1.4	1.1	1.4	1.2	1.2	1.7	6.3	22.9	5.7	24
23	6.6	3.4	2.8	2.6	2.2	3.9	4.9	3.1	5.2	3.9	20.8	1.2	1.6	2.4	S	14.0	2.6	1.3	2.2	4.6	5.5	5.8	4.7	5.5	20.8	4.8	24
24	3.2	3.1	3.9	8.0	6.6	6.2	5.5	12.6	5.1	3.5	11.1	3.3	8.5	S	8.8	8.0	8.0	5.4	4.4	4.3	1.8	1.8	1.4	1.2	12.6	5.5	24
25	1.3	1.2	1.8	0.7	1.7	1.7	3.9	6.8	3.5	3.2	5.4	10.3	S	7.1	8.3	2.9	1.1	1.0	0.8	0.8	9.5	7.8	1.5	1.1	10.3	3.6	24
26	1.3	1.3	1.3	1.5	1.5	1.9	1.9	2.7	2.7	1.9	1.6	S	3.1	10.6	17.8	15.9	10.2	10.5	10.1	3.0	2.9	7.7	1.7	1.9	17.8	5.0	24
27	19.0	2.1	33.8	33.6	35.6	32.2	31.4	31.7	16.9	28.4	S	29.1	31.1	30.8	18.8	21.4	33.5	28.7	25.1	18.7	50.2	7.4	2.1	9.5	50.2	24.8	24
28	15.1	33.6	31.7	14.7	1.4	3.0	1.7	3.8	2.5	S	15.3	15.3	32.2	34.9	33.0	15.6	5.0	2.4	1.7	1.6	1.1	1.1	2.2	3.2	34.9	11.8	24
29	2.0	3.0	2.6	3.1	3.2	2.1	3.9	3.1	S	4.8	2.6	2.9	2.9	3.8	5.0	6.3	6.2	6.9	5.6	6.7	8.0	8.2	7.7	6.3	8.2	4.6	24
30	6.1	11.4	11.6	11.3	12.3	13.9	14.9	S	16.3	10.6	7.5	6.5	6.5	6.1	7.1	5.4	44.1	88.9	9.3	16.9	18.2	3.5	3.2	2.7	88.9	14.5	24
31	2.1	1.1	1.4	0.8	2.0	5.3	S	13.9	12.5	11.6	26.3	1.2	1.5	2.1	1.8	1.8	1.4	1.7	1.1	1.6	4.0	0.7	0.7	0.8	26.3	4.2	24
HOURLY MAX	19.0	33.6	130.5	33.6	35.6	42.3	63.4	112.0	27.4	48.7	30.4	29.1	32.2	47.3	33.0	26.6	44.1	88.9	47.6	18.7	50.2	24.5	16.8	17.0			
HOURLY AVG	4.4	4.6	10.1	6.0	5.6	10.0	10.8	16.6	7.8	9.6	8.9	7.5	7.6	9.6	9.9	8.3	8.0	9.8	6.5	4.3	6.9	5.3	4.2	4.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 705

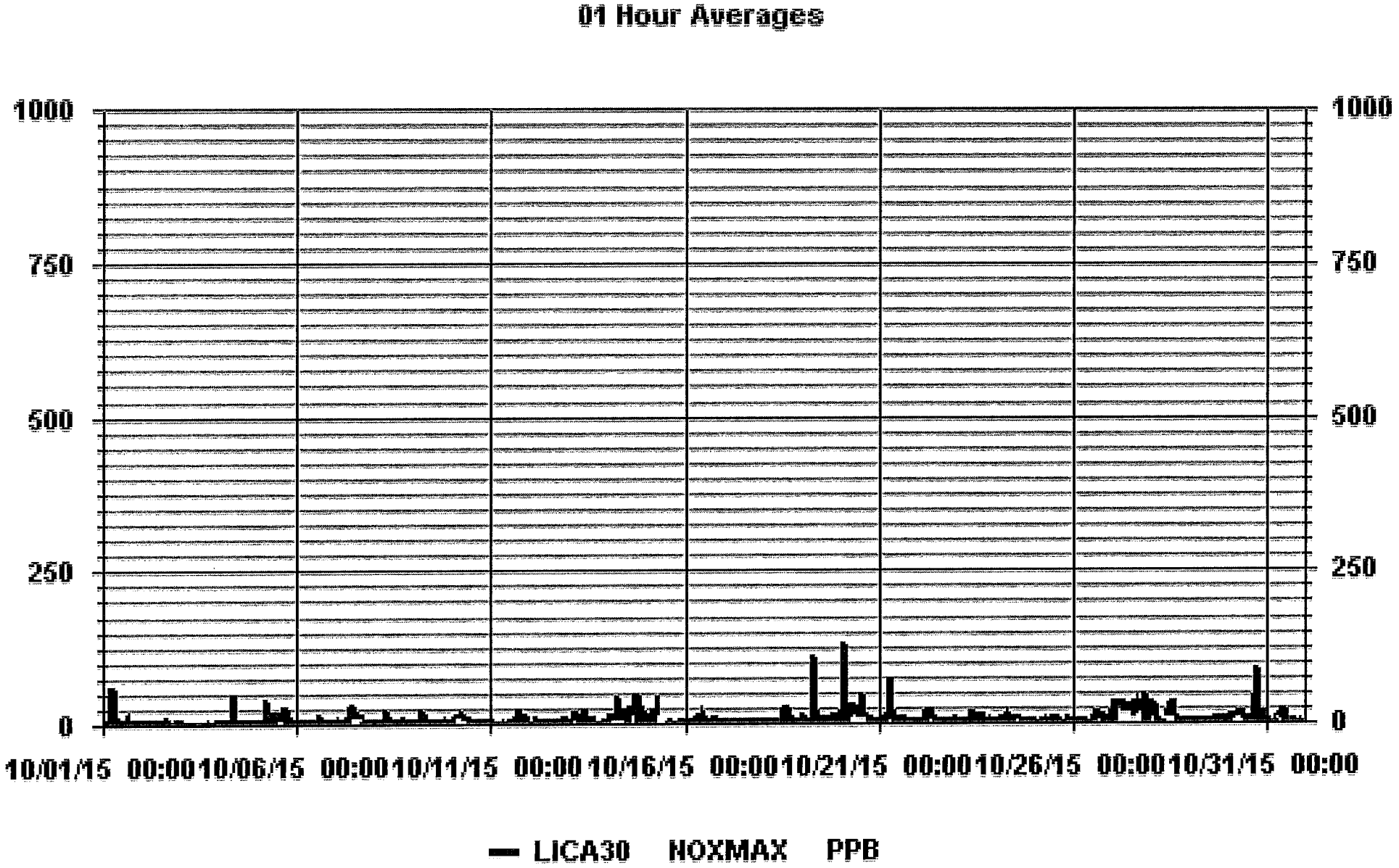
MAXIMUM INSTANTANEOUS VALUE: 130.5 PPB @ HOUR(S) 2 ON DAY(S) 20

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 11.11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750
500
250
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NOXMAX PPB

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NOX_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	

Calm : .00 %

Total # Operational Hours : 705

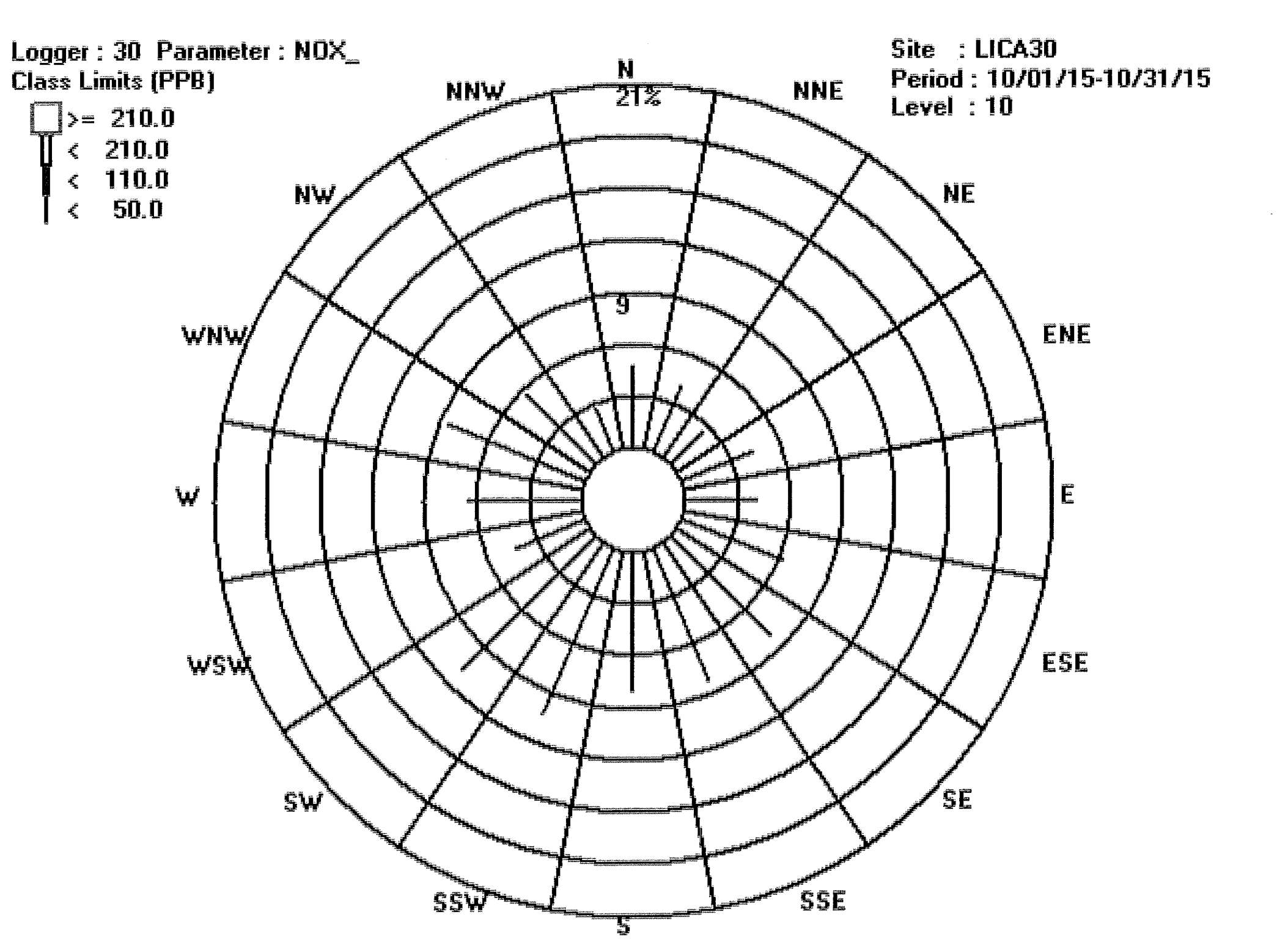
Distribution By Samples

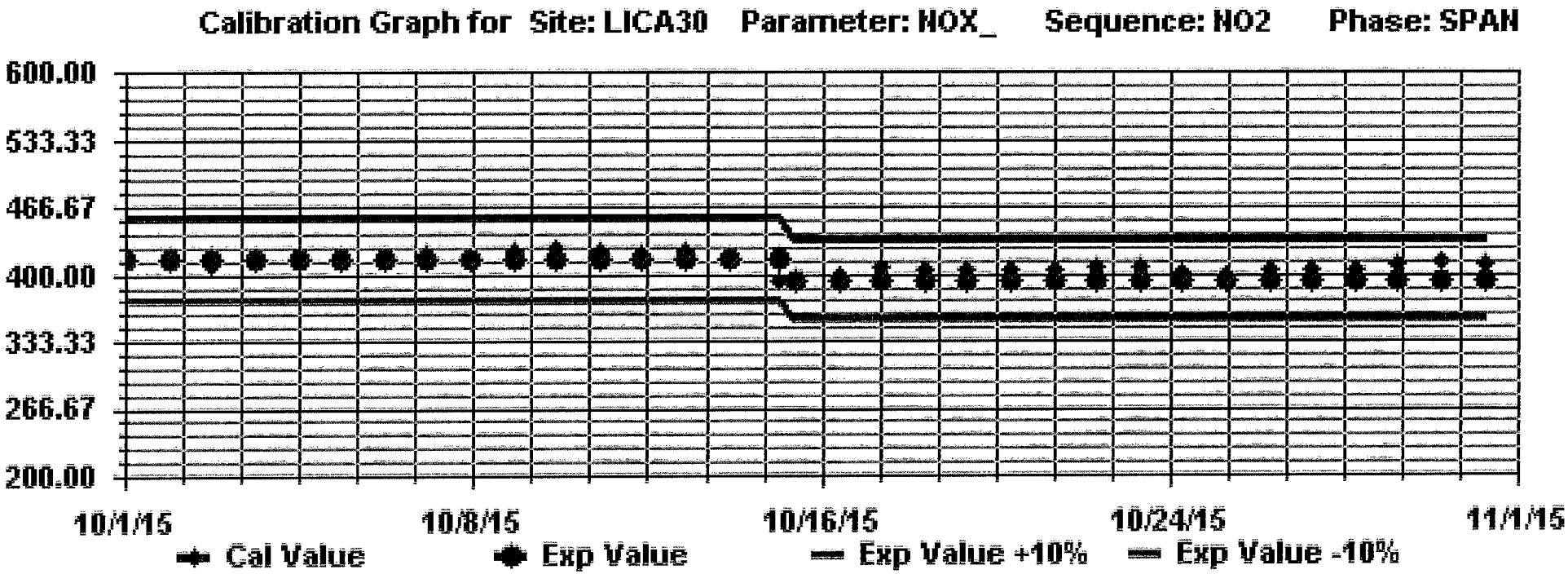
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	

Calm : .00 %

Total # Operational Hours : 705


Logger : 30 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA30
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

NITRIC OXIDES

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

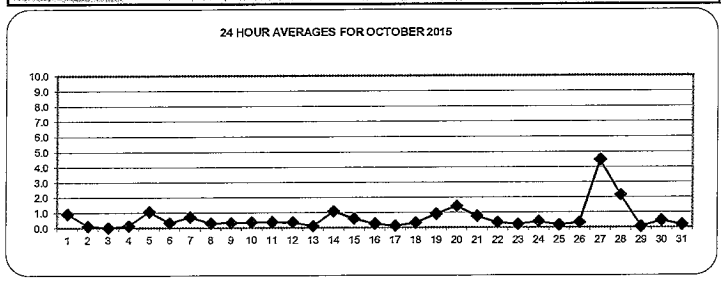
NITRIC OXIDE (NO) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	0.0	0.0	0.0	0.0	0.4	***13.0***	2.1	1.5	1.2	0.6	0.4	0.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	***13.0***	0.9	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	0.8	1.2	0.5	0.0	0.0	0.0	0.0	0.0	S	0.0	1.2	0.1	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	S	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	0.9	1.4	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	S	0.1	0.0	0.0	1.4	0.1	24
5	0.0	0.0	0.0	0.0	0.0	2.1	0.7	1.1	1.0	2.6	2.2	1.8	3.0	2.9	2.2	0.3	1.9	2.2	0.0	S	0.2	0.0	0.0	0.0	3.0	1.1	24
6	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.3	0.8	1.0	1.2	0.4	0.9	1.1	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	1.3	0.3	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	4.0	3.8	3.5	1.0	1.1	0.4	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.7	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.5	1.1	0.6	0.3	0.1	0.0	0.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	24
9	0.0	0.0	0.0	0.0	0.0	1.5	0.0	1.2	1.5	1.6	1.0	0.2	0.2	0.0	0.1	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	24
10	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.6	0.5	0.9	1.8	1.7	1.5	1.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.4	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	S	0.2	0.5	0.0	4.6	0.3	0.0	0.0	2.3	0.6	0.0	4.6	0.4	24
12	0.0	0.0	0.0	0.1	0.3	0.1	0.2	0.7	1.4	1.6	1.1	1.2	S	0.3	0.3	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	24
13	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.4	0.0	0.0	0.0	S	0.1	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24
14	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.3	2.2	S	2.7	0.0	0.0	3.7	1.2	1.6	1.0	4.6	0.0	1.7	1.8	0.5	0.7	4.6	1.1	24
15	0.0	0.0	0.0	0.0	0.0	0.3	0.6	8.5	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	8.5	0.6	24
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	0.2	0.3	1.7	1.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.0	1.8	0.3	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.0	0.0	0.6	0.1	24
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	3.1	1.8	2.0	0.0	0.0	0.0	S	0.3	0.0	0.0	0.0	3.1	0.3	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	2.5	2.6	3.0	1.1	0.6	0.5	0.5	0.4	0.1	0.0	S	0.2	0.1	0.3	0.0	0.2	8.2	0.9	24
20	0.0	0.0	2.7	0.0	0.0	0.4	0.0	1.2	4.6	4.1	4.3	2.5	3.2	4.0	3.6	1.1	0.2	S	0.5	0.1	0.0	0.0	0.0	0.0	4.6	1.4	24
21	0.0	0.0	0.0	0.0	0.1	0.8	0.0	3.8	4.9	3.4	1.3	1.1	0.6	0.3	0.2	0.2	S	0.3	0.0	0.0	0.0	0.0	0.0	0.2	4.9	0.7	24
22	0.0	0.0	0.0	0.0	0.0	0.7	1.2	1.5	0.6	1.3	0.4	0.7	0.3	0.0	0.0	S	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.2	1.5	0.3	24
23	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.3	0.7	0.6	1.0	0.2	0.2	0.2	S	0.7	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	1.0	0.2	24
24	0.0	0.1	0.0	0.2	0.2	0.2	0.1	1.0	0.8	0.4	1.5	0.7	1.4	S	1.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.4	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.5	1.0	S	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.0	0.2	24
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	S	0.3	1.3	2.5	2.8	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	2.8	0.3	24
27	1.8	0.0	11.7	10.3	11.9	10.2	7.1	9.0	1.1	0.6	S	4.2	5.9	5.4	2.4	2.5	6.3	3.7	3.3	0.7	4.6	0.0	0.0	0.2	11.9	***4.5***	24
28	0.8	4.5	5.4	0.7	0.0	0.0	0.0	0.0	0.0	S	2.5	3.3	6.0	12.7	10.8	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	2.1	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.3	0.1	0.1	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	2.2	2.1	1.2	1.4	0.8	0.4	0.1	0.0	0.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.4	24
31	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	0.4	0.5	2.6	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.2	24
HOURLY MAX	1.8	4.5	11.7	10.3	11.9	10.2	13.0	9.0	4.9	4.1	4.3	4.2	6.0	12.7	10.8	2.8	6.3	4.6	4.6	0.7	4.6	2.3	0.6	0.7			
HOURLY AVG	0.1	0.2	0.6	0.4	0.4	0.6	0.8	1.5	1.1	1.2	1.2	1.1	1.0	1.3	1.2	0.6	0.4	0.5	0.3	0.0	0.3	0.2	0.0	0.1			

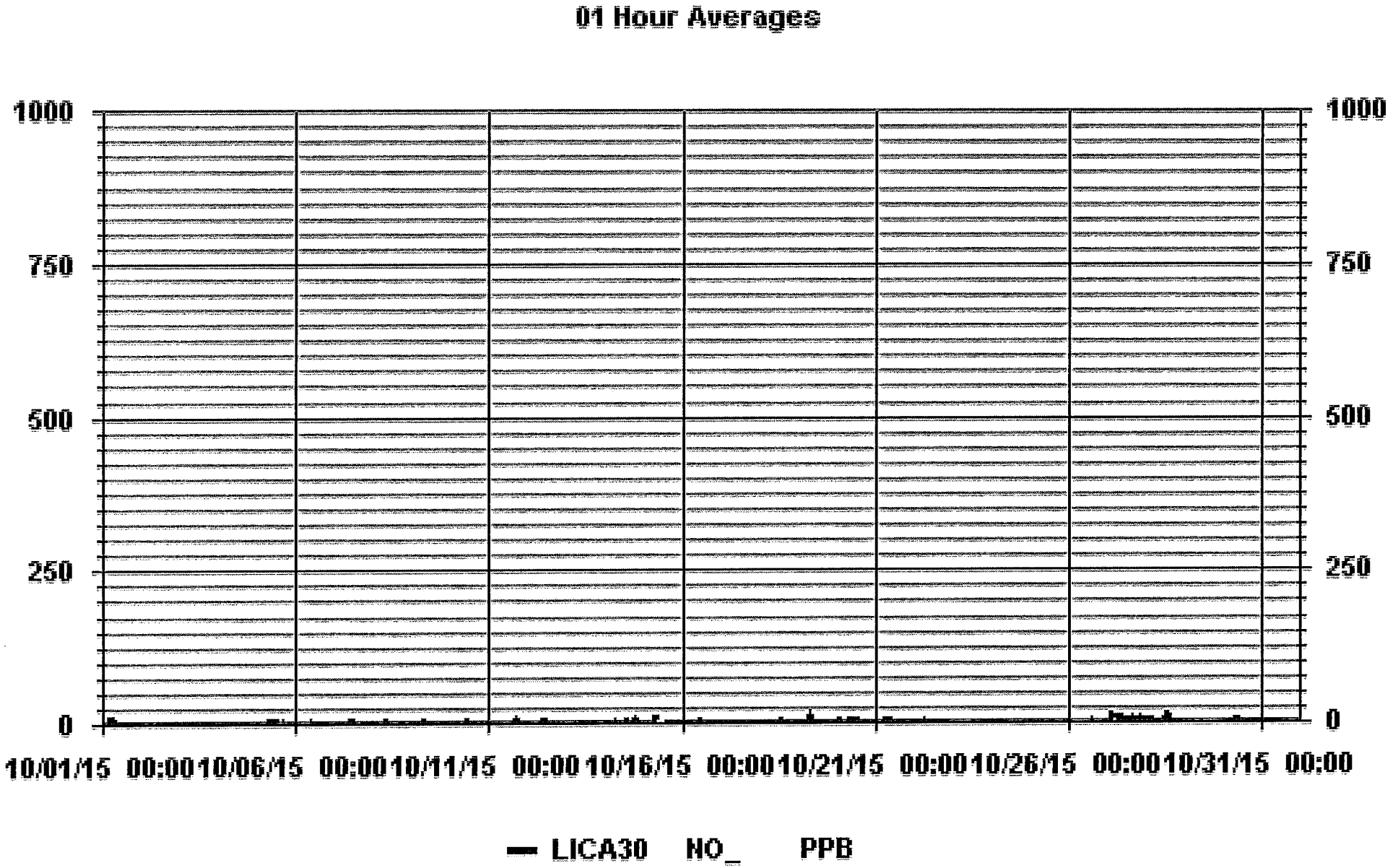
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			294				
MAXIMUM 1-HR AVERAGE:	13.0	PPB	@ HOUR(S)	6	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	4.5	PPB			ON DAY(S)	27	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	1.58		MONTHLY AVERAGE:			0.6	PPB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1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NO_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

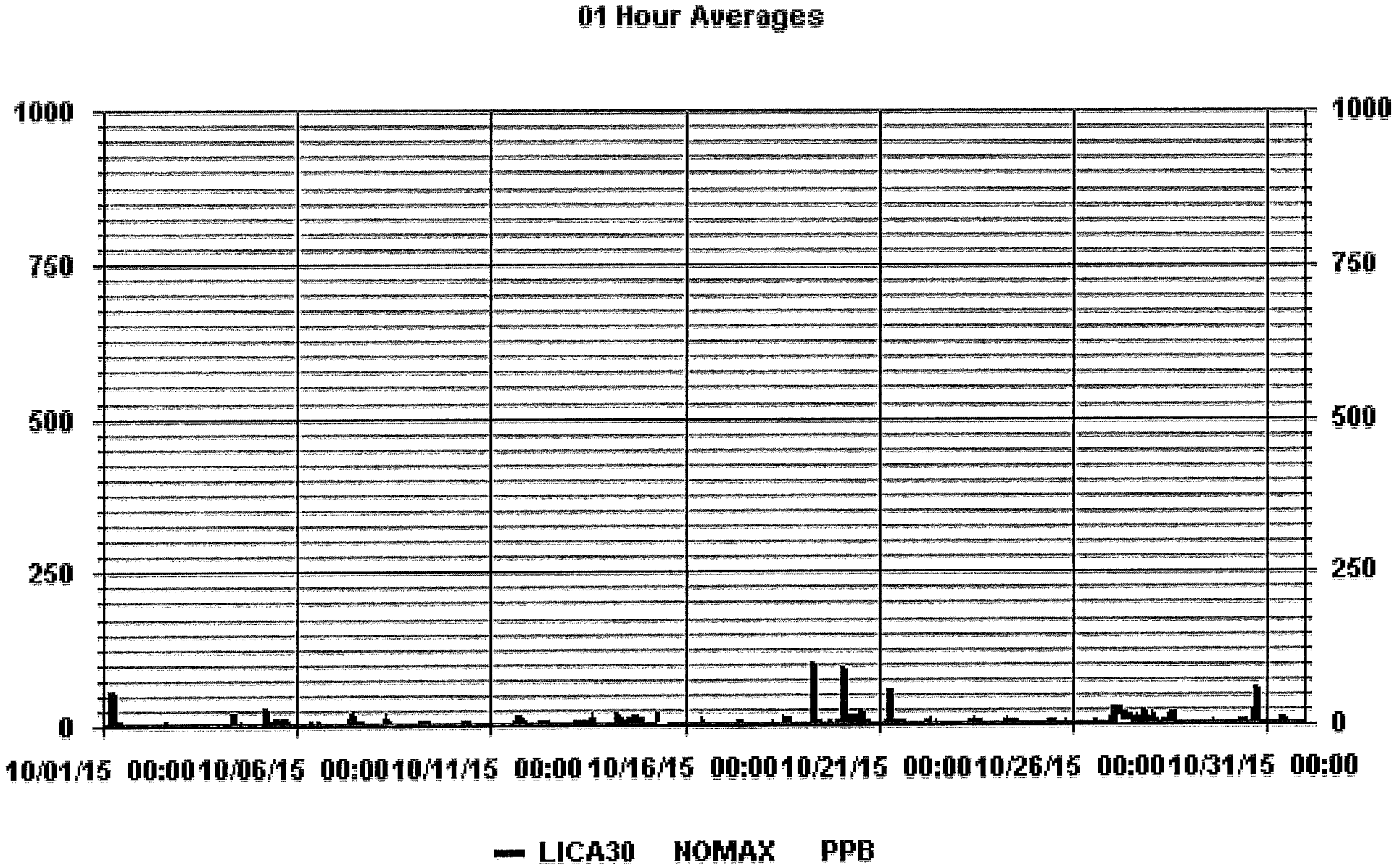
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	0.5	0.1	0.3	0.5	20.9	58.4	5.0	2.8	1.8	1.5	1.1	1.1	0.6	0.4	1.7	0.3	0.2	0.2	0.1	0.3	0.0	0.0	S	58.4	4.4	24
2	0.7	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.4	0.4	0.8	0.6	0.4	0.7	1.5	2.3	1.6	0.5	0.2	0.4	0.4	0.1	S	0.4	2.3	0.6	24
3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.2	0.3	0.5	0.2	0.3	0.4	1.0	0.3	0.2	0.3	0.4	0.2	S	0.6	0.1	1.0	0.3	24
4	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.4	4.8	21.6	1.0	0.6	0.3	0.5	1.4	1.3	0.7	0.1	0.2	0.1	S	0.8	0.5	0.4	21.6	1.6	24
5	0.2	0.6	0.3	0.3	0.6	28.9	3.2	3.0	2.0	6.6	3.1	3.3	7.6	8.7	6.3	1.5	6.4	7.0	0.5	S	0.7	0.3	0.6	0.4	28.9	4.0	24
6	0.4	0.5	0.5	0.4	0.4	0.3	0.5	0.9	2.4	1.9	1.5	1.8	1.1	3.7	3.6	0.7	0.5	0.3	S	0.5	0.3	0.2	0.2	0.2	3.7	1.0	24
7	0.2	0.5	0.3	0.4	0.1	0.2	0.4	2.1	2.0	10.6	14.5	6.1	4.5	4.9	4.7	2.8	2.9	S	0.6	0.2	0.3	0.5	0.3	0.2	14.5	2.6	24
8	0.1	0.3	0.3	0.2	0.2	0.2	0.5	9.1	3.1	2.3	2.5	2.1	1.1	0.5	0.6	0.3	S	0.7	0.5	0.5	0.4	0.2	0.4	0.5	9.1	1.2	24
9	0.5	0.6	0.3	0.4	0.2	9.0	0.8	3.5	2.4	2.1	2.0	1.0	1.4	0.7	1.2	S	0.8	0.2	0.3	0.2	0.2	0.2	0.3	0.3	9.0	1.2	24
10	0.3	0.5	0.5	0.6	0.4	0.9	0.7	1.1	1.3	1.7	3.0	2.5	2.4	1.8	S	1.3	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.4	3.0	0.9	24
11	0.3	0.3	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.4	0.2	0.2	0.3	S	1.1	4.5	1.4	16.1	8.3	0.3	0.2	6.8	2.8	0.5	16.1	1.9	24
12	0.3	0.3	0.1	0.7	1.8	0.9	1.3	1.6	2.0	2.2	1.8	1.7	S	1.0	0.9	1.3	0.8	0.4	0.1	0.2	0.2	0.2	0.3	0.3	2.2	0.9	24
13	0.1	0.3	0.4	0.6	0.6	3.8	3.7	2.4	0.2	0.3	5.6	S	0.8	2.0	9.2	1.9	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.4	9.2	1.4	24
14	0.4	0.5	0.5	0.5	0.3	2.7	20.4	15.3	1.9	5.2	S	7.0	3.2	0.6	9.8	3.4	7.7	10.6	17.0	0.6	4.6	7.3	2.8	3.6	20.4	5.5	24
15	0.4	0.1	1.0	0.6	0.3	2.0	5.1	17.2	C	C	C	C	C	C	C	0.3	0.0	0.0	0.0	0.0	0.0	0.0	S	0.7	17.2	1.7	24
16	0.3	0.4	0.5	0.4	0.6	0.5	0.2	1.5	3.0	0.8	0.9	6.3	3.9	1.4	0.3	0.4	0.4	0.1	0.3	0.3	0.3	S	0.9	0.4	6.3	1.0	24
17	0.3	0.6	0.6	0.5	0.6	0.5	0.5	0.6	1.3	1.0	1.4	1.3	1.1	0.6	0.6	0.6	0.4	0.4	0.4	0.4	S	0.8	0.5	0.5	1.4	0.7	24
18	0.5	0.4	0.5	0.4	0.5	0.4	1.0	1.0	0.5	0.5	0.9	0.6	2.0	9.8	7.3	8.2	0.5	0.5	0.5	S	1.3	0.5	0.6	0.6	9.8	1.7	24
19	0.5	0.5	0.4	0.3	0.5	0.4	0.6	*102.2*	5.2	5.8	6.9	2.3	1.6	1.1	1.2	0.9	0.7	0.5	S	1.2	1.2	2.7	0.4	3.2	*102.2*	6.1	24
20	0.6	0.5	95.4	1.0	0.5	1.4	1.1	17.1	10.6	9.8	9.5	6.9	8.0	23.7	9.4	3.5	1.0	S	2.8	2.8	0.4	0.4	0.4	0.4	95.4	9.0	24
21	0.5	0.4	0.5	0.5	0.5	3.1	0.6	59.2	6.4	6.0	3.2	1.9	1.2	1.2	1.4	1.3	S	1.3	0.5	0.5	0.5	0.6	0.7	0.8	59.2	4.0	24
22	0.6	0.7	0.6	0.5	0.5	2.9	2.9	6.6	1.5	2.7	1.1	1.9	1.5	0.5	1.5	S	1.2	0.6	0.6	0.7	0.7	0.7	0.7	0.8	6.6	1.4	24
23	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	1.4	2.1	6.1	1.7	1.0	0.8	S	4.1	0.5	0.4	0.5	0.6	0.6	0.6	0.5	0.8	6.1	1.2	24
24	0.4	0.5	0.5	0.7	0.6	0.9	0.8	5.5	1.6	1.3	4.9	1.4	3.3	S	2.6	1.3	0.7	0.3	0.3	0.3	0.4	0.3	0.3	0.3	5.5	1.3	24
25	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.8	1.3	2.0	3.8	S	2.1	2.5	0.3	0.4	0.2	0.4	0.5	1.3	1.3	0.5	0.4	3.8	0.9	24
26	0.3	0.1	0.3	0.3	0.3	0.4	0.2	0.4	0.5	0.6	0.5	S	1.0	3.0	5.3	4.5	1.9	0.9	0.6	0.4	0.5	0.9	0.3	0.3	5.3	1.0	24
27	6.8	0.4	23.7	23.4	24.4	18.2	16.9	18.1	7.0	13.9	S	10.6	11.4	11.8	5.9	5.7	11.6	9.2	8.9	5.4	22.7	1.9	0.3	1.7	24.4	11.3	24
28	2.8	13.0	10.7	2.9	0.4	0.3	0.3	0.3	0.4	S	3.6	4.1	15.3	17.4	15.8	4.9	0.9	0.5	0.4	0.3	0.4	0.4	0.3	0.5	17.4	4.2	24
29	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	S	1.0	0.7	0.8	0.4	0.6	1.4	1.3	0.8	0.3	0.2	0.2	0.2	0.2	0.1	0.1	1.4	0.5	24
30	0.0	0.9	0.9	0.5	0.3	0.3	0.4	S	3.2	2.8	2.7	2.1	2.1	0.9	0.8	0.4	24.6	60.3	0.7	2.0	2.4	0.0	0.0	0.0	60.3	4.7	24
31	0.0	0.0	0.1	0.1	0.2	1.0	S	1.5	1.8	2.6	9.9	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.2	0.5	0.5	9.9	1.0	24
HOURLY MAX	6.8	13.0	95.4	23.4	24.4	28.9	58.4	102.2	10.6	21.6	14.5	10.6	15.3	23.7	15.8	8.2	24.6	60.3	17.0	5.4	22.7	7.3	2.8	3.6			
HOURLY AVG	0.6	0.8	4.6	1.2	1.2	3.3	4.1	9.3	2.4	3.8	3.3	2.7	2.8	3.6	3.5	2.1	2.4	3.9	1.6	0.7	1.4	1.0	0.6	0.7			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			688				
MAXIMUM INSTANTANEOUS VALUE:			102.2	PPB	@ HOUR(S)	7	ON DAY(S) 19
						VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:			744 HRS
MONTHLY CALIBRATION TIME:	7	HRS					
STANDARD DEVIATION:	7.46						


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NOMAX PPB

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	

Calm : .00 %

Total # Operational Hours : 705

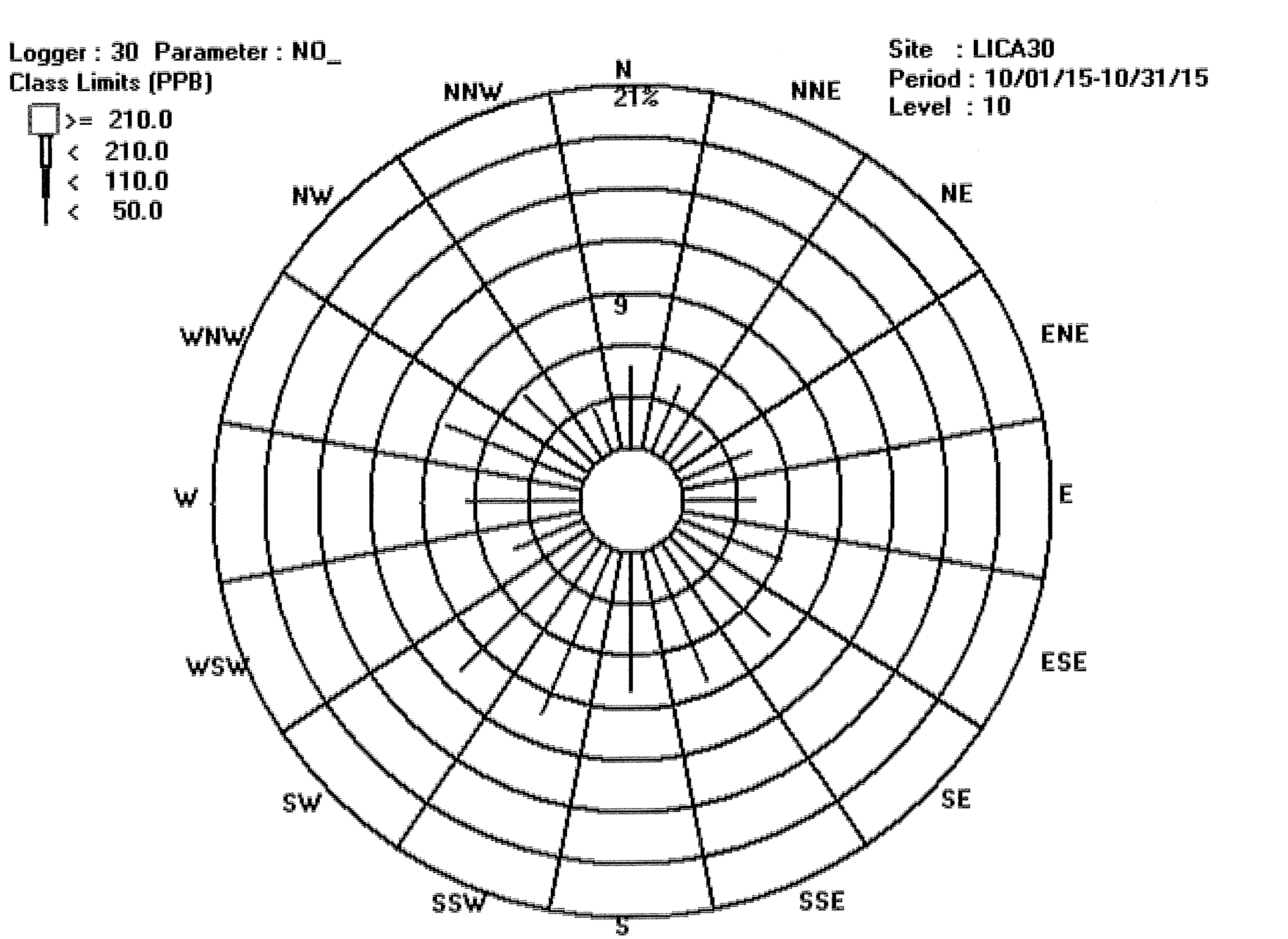
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	

Calm : .00 %

Total # Operational Hours : 705


Logger : 30 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA30
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

NITROGEN DIOXIDE

Maxxam
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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

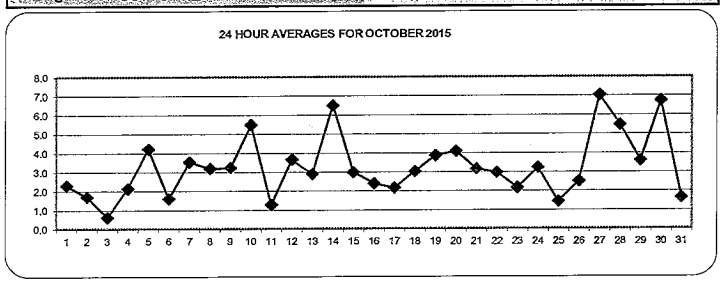
NITROGEN DIOXIDE (NO2) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	S	1.8	1.8	1.3	1.0	1.3	3.0	1.4	2.0	3.8	3.3	3.3	3.0	1.9	2.1	4.1	1.3	0.9	1.4	2.1	3.1	2.7	3.4	S	4.1	2.3	24
2	2.5	2.4	2.2	1.6	1.4	1.4	1.7	1.4	1.3	1.3	1.4	1.4	1.2	1.4	0.9	4.6	4.3	0.6	0.4	0.3	1.8	1.4	S	1.4	4.6	1.7	24
3	1.2	0.6	0.5	0.4	0.4	0.2	0.3	0.0	0.1	0.0	0.2	0.3	0.3	0.3	0.6	0.8	0.6	0.4	0.5	0.7	1.1	S	2.4	1.8	2.4	0.6	24
4	1.5	2.4	3.4	3.8	2.8	2.8	2.6	1.8	3.2	3.5	1.6	0.9	1.0	1.0	1.6	2.1	1.7	1.2	0.8	0.8	S	2.4	2.4	3.4	3.8	2.1	24
5	4.1	4.1	3.4	2.5	3.5	5.4	5.3	4.9	3.2	3.7	3.4	3.2	4.3	4.3	4.0	1.7	5.9	10.2	4.3	S	3.5	4.3	4.4	3.2	10.2	4.2	24
6	1.8	1.1	1.3	1.4	1.1	1.0	1.3	0.8	1.7	1.6	2.1	3.2	2.0	2.6	3.4	1.8	0.8	0.8	S	2.1	1.1	0.9	1.1	1.1	3.4	1.6	24
7	1.2	2.7	1.0	0.9	0.9	2.1	3.0	6.1	4.3	7.0	6.2	7.2	3.5	3.9	3.1	2.8	3.0	S	2.1	3.5	3.8	4.5	4.2	3.8	7.2	3.5	24
8	3.9	3.4	3.4	3.0	2.0	3.1	4.2	6.0	4.2	3.9	3.3	2.6	2.5	2.7	2.2	1.7	S	6.7	4.1	2.6	1.4	1.5	2.7	2.0	6.7	3.2	24
9	2.5	2.4	1.8	2.3	3.1	5.2	3.1	5.0	5.6	4.7	3.5	2.0	2.2	2.3	1.6	S	2.5	2.2	2.1	2.3	5.3	3.8	3.8	4.5	5.6	3.2	24
10	5.6	7.9	8.3	11.5	10.7	15.4	13.4	10.2	7.3	6.4	5.6	4.0	3.5	3.1	S	2.9	1.3	0.7	1.0	2.2	1.8	1.1	0.9	1.1	15.4	5.5	24
11	1.1	1.0	0.6	0.6	0.2	0.2	0.1	0.3	0.3	0.4	0.3	0.5	0.6	S	2.5	1.9	0.8	3.3	0.9	0.6	1.0	4.9	3.1	3.6	4.9	1.3	24
12	3.1	1.6	1.1	5.2	5.5	3.9	2.9	3.9	2.8	2.6	3.0	3.2	S	4.3	3.6	3.2	3.0	2.7	2.6	2.4	4.9	5.6	6.9	5.7	6.9	3.6	24
13	2.5	3.3	3.1	12.2	11.8	10.9	7.1	3.2	1.2	0.7	0.9	S	1.5	1.2	1.2	1.1	0.4	0.3	0.3	0.2	0.2	0.5	0.9	1.7	12.2	2.9	24
14	2.1	5.4	9.8	7.7	6.8	7.6	7.9	4.5	1.5	6.0	S	5.9	0.8	1.1	8.8	6.2	5.6	4.5	15.3	0.4	11.0	10.4	8.7	11.4	15.3	6.5	24
15	2.9	0.0	1.5	1.7	1.7	7.8	6.1	***20.7***	C	C	C	C	C	C	C	0.5	0.0	0.0	0.0	0.0	0.9	1.9	S	1.9	***20.7***	3.0	24
16	1.2	1.2	1.0	0.8	1.0	1.1	0.9	2.0	7.5	2.1	2.0	4.7	5.4	3.0	1.1	1.5	1.2	1.4	3.7	4.6	2.4	S	2.9	1.8	7.5	2.4	24
17	1.6	1.6	1.5	2.2	2.3	2.4	3.1	3.2	3.1	2.2	2.0	2.2	1.7	1.7	1.8	1.8	1.8	1.7	1.6	1.6	S	3.2	2.6	2.5	3.2	2.1	24
18	2.5	2.8	3.2	4.0	4.8	3.6	3.0	2.2	1.6	1.2	1.5	0.9	1.4	6.7	5.6	7.4	0.5	3.8	3.0	S	1.4	1.4	2.9	4.1	7.4	3.0	24
19	3.8	7.1	8.1	3.7	1.6	1.1	1.4	5.1	2.8	2.6	4.0	3.8	3.0	4.4	4.5	5.9	4.8	3.1	S	4.0	6.0	3.5	1.6	2.4	8.1	3.8	24
20	1.9	1.3	5.0	2.0	1.9	7.8	5.1	6.8	9.7	6.7	6.0	4.4	5.3	6.3	7.2	4.6	4.4	S	1.1	1.2	1.1	1.2	1.4	1.3	9.7	4.1	24
21	1.5	1.8	1.8	4.1	4.1	5.7	3.5	5.1	6.7	6.7	2.9	3.3	2.1	2.1	2.1	3.2	S	2.7	2.3	2.0	1.7	1.7	2.6	2.7	6.7	3.1	24
22	1.5	1.4	1.4	0.9	1.4	9.3	15.0	12.3	3.6	5.6	1.4	2.6	1.5	0.5	0.7	S	1.2	0.7	0.7	0.7	0.6	0.7	0.8	3.5	15.0	3.0	24
23	4.3	2.6	1.7	1.7	1.6	2.2	2.4	2.1	2.8	1.0	1.7	0.2	0.6	0.5	S	2.7	0.9	0.7	1.4	2.5	4.4	3.7	4.0	3.7	4.4	2.1	24
24	2.6	2.1	2.3	6.1	4.2	4.6	4.5	5.2	3.2	1.6	2.6	1.4	3.8	S	5.3	5.5	4.9	4.0	3.7	2.5	1.3	1.0	0.9	0.7	6.1	3.2	24
25	0.8	0.7	0.9	0.2	0.7	0.7	1.6	4.3	2.6	2.0	1.3	2.7	S	2.5	2.4	1.9	0.6	0.5	0.4	0.4	2.7	1.2	0.8	0.7	4.3	1.4	24
26	0.8	0.8	0.9	0.9	1.0	1.4	1.5	1.6	1.9	1.2	1.1	S	1.8	4.4	8.3	9.9	5.7	3.8	3.2	1.2	1.3	2.4	1.0	1.2	9.9	2.5	24
27	5.7	0.9	7.1	6.0	7.6	9.9	8.6	9.4	2.7	2.0	S	9.7	13.0	11.3	6.6	8.0	14.8	11.3	8.5	3.6	10.4	1.0	0.5	2.9	14.8	***7.0***	24
28	7.3	13.4	13.4	3.9	0.7	1.7	1.1	2.1	1.9	S	9.9	10.7	11.0	14.9	14.3	8.5	3.2	1.6	1.0	1.0	0.7	0.6	0.8	2.0	14.9	5.5	24
29	1.3	2.2	1.6	2.5	2.2	1.5	2.9	2.1	S	3.1	1.9	2.0	2.4	2.9	3.2	3.9	4.5	5.7	5.1	5.5	7.2	7.0	6.1	5.6	7.2	3.6	24
30	5.6	7.6	10.3	9.8	10.4	10.3	14.0	S	10.7	6.7	4.7	3.8	3.6	4.4	5.4	4.1	4.4	7.9	7.4	7.4	9.1	2.9	2.4	2.0	14.0	6.7	24
31	1.2	0.6	0.6	0.3	0.6	1.9	S	7.0	5.9	4.3	6.2	0.5	0.9	1.3	0.9	0.9	0.7	0.9	0.6	0.5	1.0	0.1	0.2	0.3	7.0	1.6	24
HOURLY MAX	7.3	13.4	13.4	12.2	11.8	15.4	15.0	20.7	10.7	7.0	9.9	10.7	13.0	14.9	14.3	9.9	14.8	11.3	15.3	7.4	11.0	10.4	8.7	11.4			
HOURLY AVG	3	3	3	3	3	4	4	5	4	3	3	3	3	3	4	4	3	3	3	2	3	3	3	3			

STATUS FLAG CODES

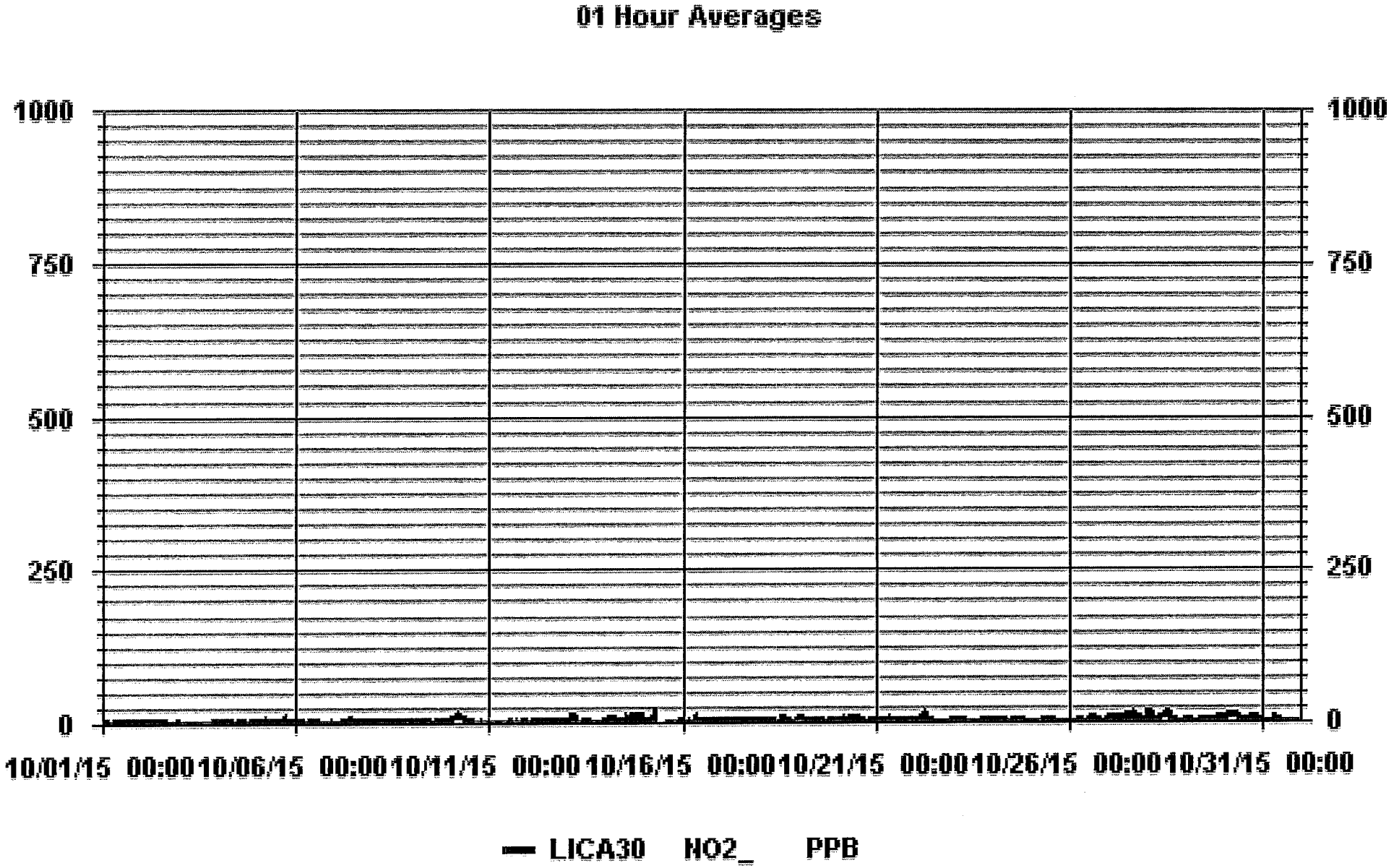
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			698				
MAXIMUM 1-HR AVERAGE:	20.7	PPB	@ HOUR(S)	7	ON DAY(S)	15	
MAXIMUM 24-HR AVERAGE:	7.0	PPB			ON DAY(S)	27	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	2.92		MONTHLY AVERAGE:			3.2	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY 1	S	2.1	2.4	1.6	1.4	5.7	5.8	2.4	2.5	4.6	3.9	3.5	3.1	2.2	3.2	7.1	1.5	1.3	2.6	2.8	4.4	3.9	4.2	S	7.1	3.3	24
2	2.7	3.1	3.2	1.9	1.8	1.7	1.9	1.9	1.6	1.6	1.5	1.8	1.5	1.9	4.6	6.6	5.9	1.9	0.7	0.8	2.6	2.4	S	2.2	6.6	2.4	24
3	2.1	0.9	0.9	0.8	0.7	0.8	0.8	0.5	0.5	0.6	0.6	0.5	0.8	0.6	1.1	1.0	1.0	0.9	1.0	1.3	1.9	S	3.3	2.6	3.3	1.1	24
4	2.3	2.9	4.0	4.5	3.9	3.4	3.4	2.4	7.4	26.8	2.1	1.2	1.0	1.6	4.4	3.8	2.8	1.7	1.4	1.4	S	3.0	2.6	4.2	26.8	4.0	24
5	4.5	4.5	3.8	3.6	5.7	16.9	7.0	6.2	4.0	5.1	4.2	4.1	8.2	9.7	7.9	3.4	12.7	20.5	7.4	S	4.2	6.0	6.3	4.1	20.5	7.0	24
6	2.6	1.7	1.9	1.9	1.4	1.9	2.3	1.2	2.6	2.5	3.5	4.0	2.9	7.2	6.9	3.6	1.1	1.1	S	2.7	1.4	1.2	1.3	1.5	7.2	2.5	24
7	2.0	4.9	1.2	1.3	1.3	4.5	6.2	7.9	5.8	12.6	15.6	10.0	8.5	8.9	9.6	9.5	10.4	S	2.9	5.2	4.8	5.6	5.0	4.8	15.6	6.5	24
8	4.7	4.6	4.1	4.0	2.9	4.6	7.4	13.2	5.9	4.4	5.8	3.9	3.1	2.7	2.7	2.3	S	8.5	7.2	3.1	1.9	2.2	3.2	2.5	13.2	4.6	24
9	3.5	2.8	2.8	2.8	4.2	14.4	4.9	8.6	6.4	5.1	4.0	2.8	3.6	2.6	2.8	S	3.1	2.4	2.8	2.8	7.4	4.7	4.4	4.9	14.4	4.5	24
10	6.2	8.7	12.1	12.6	14.9	18.3	14.2	12.5	7.9	6.9	6.2	4.7	4.0	3.6	S	5.2	3.0	1.5	3.3	3.3	2.6	2.0	1.4	1.6	18.3	6.8	24
11	1.3	1.3	1.0	1.0	0.6	0.9	0.7	0.8	0.8	0.7	0.7	1.0	1.2	S	3.3	4.2	1.6	8.2	6.2	1.9	1.6	8.9	6.9	5.8	8.9	2.6	24
12	5.0	2.4	1.6	7.3	6.7	5.0	3.9	4.8	3.7	2.9	3.2	3.7	S	5.0	4.3	3.7	3.4	3.5	3.4	3.1	7.7	7.6	8.5	8.0	8.5	4.7	24
13	4.1	4.3	6.5	15.3	16.2	12.7	10.9	5.6	1.8	1.3	17.6	S	1.9	1.6	3.7	2.9	0.6	0.8	0.8	0.8	0.8	1.3	2.3	4.0	17.6	5.1	24
14	4.1	11.4	11.6	10.7	9.8	10.0	27.5	17.5	5.1	9.7	S	11.9	5.6	4.3	17.0	10.7	18.5	27.1	30.3	1.9	22.8	21.3	14.7	13.8	30.3	13.8	24
15	5.8	0.7	8.0	5.7	6.2	18.1	14.9	25.2	C	C	C	C	C	C	C	3.7	1.4	1.3	1.3	1.4	3.7	3.8	S	2.3	25.2	6.5	24
16	1.3	1.1	1.1	0.9	1.1	1.0	0.9	6.3	10.8	1.9	2.5	11.1	8.8	4.2	1.1	1.4	1.5	1.6	7.7	6.8	2.4	S	3.9	1.9	11.1	3.5	24
17	1.7	1.7	1.6	2.7	2.8	2.7	3.9	3.4	3.2	2.6	2.2	2.4	1.7	1.5	1.9	1.6	2.0	1.7	1.7	1.5	S	3.9	2.7	2.7	3.9	2.3	24
18	2.7	3.3	3.6	4.2	5.6	4.7	3.7	3.4	1.8	1.9	2.3	1.7	4.3	15.7	13.9	17.9	1.7	7.6	7.4	S	1.6	1.4	4.8	5.9	17.9	5.3	24
19	4.7	9.4	9.7	6.9	1.9	1.5	2.0	14.3	6.2	4.1	6.1	4.7	4.5	4.8	5.7	6.4	6.1	3.7	S	8.8	11.8	8.4	0.6	5.7	14.3	6.0	24
20	2.1	0.4	33.7	6.7	3.3	9.9	13.2	16.3	15.7	11.7	9.2	8.2	8.5	23.2	11.8	7.9	10.7	S	3.7	4.0	1.3	1.4	1.6	1.7	33.7	9.0	24
21	1.9	2.3	2.3	6.0	5.9	8.1	4.3	18.8	8.3	9.7	5.6	4.0	2.6	2.4	4.6	4.7	S	3.5	2.4	2.2	1.9	1.9	4.1	3.9	18.8	4.8	24
22	1.8	2.1	1.7	1.1	2.8	16.6	18.9	16.4	5.7	9.6	2.6	4.6	3.6	0.6	1.8	S	1.7	0.7	0.9	0.9	0.9	0.9	1.3	5.6	18.9	4.5	24
23	5.9	3.0	2.2	2.2	1.8	3.6	4.6	2.5	3.8	1.9	14.8	0.3	0.7	1.5	S	9.8	2.1	1.0	2.0	4.2	5.0	5.5	4.5	5.0	14.8	3.8	24
24	3.0	2.8	3.5	7.5	6.1	5.7	5.3	7.4	4.2	2.3	6.2	2.2	6.3	S	5.9	6.9	7.0	5.0	4.1	3.7	1.4	1.4	1.2	0.9	7.5	4.3	24
25	1.1	0.8	1.5	0.4	1.4	1.1	3.5	6.3	2.7	2.3	3.2	6.2	S	4.5	5.4	2.3	0.6	0.7	0.6	0.5	8.1	6.6	1.2	0.8	8.1	2.7	24
26	0.8	0.9	0.9	0.9	1.2	1.5	1.8	2.0	2.3	1.3	1.1	S	1.8	7.1	12.2	11.7	7.8	9.4	9.3	2.6	2.6	6.4	1.2	1.5	12.2	3.8	24
27	11.8	1.4	9.9	9.9	11.0	13.6	14.9	14.4	9.6	14.1	S	17.8	19.0	18.7	12.7	15.3	21.5	19.5	15.8	13.3	27.8	4.9	1.5	7.6	27.8	13.3	24
28	12.2	20.1	20.9	11.3	1.0	2.6	1.2	3.2	2.1	S	11.6	11.1	16.5	17.2	16.5	10.8	4.1	1.8	1.3	1.0	0.9	0.6	1.9	2.6	20.9	7.5	24
29	1.7	2.6	2.2	2.9	3.0	1.6	3.5	2.8	S	3.7	1.8	2.1	2.4	3.1	3.2	4.5	5.2	6.6	5.2	6.3	8.2	8.0	7.3	6.0	8.2	4.1	24
30	5.9	10.2	10.6	10.6	11.8	13.2	14.5	S	13.0	7.6	5.1	4.0	4.0	4.9	6.1	4.6	23.7	***35.3***	8.2	14.1	15.3	3.1	2.9	2.5	***35.3***	10.1	24
31	1.7	1.0	1.2	0.5	1.5	4.9	S	12.6	10.7	8.6	15.8	0.6	1.0	1.4	1.3	1.3	0.8	1.2	0.9	0.9	3.3	0.3	0.3	0.3	15.8	3.1	24
HOURLY MAX	12.2	20.1	33.7	15.3	16.2	18.3	27.5	25.2	15.7	26.8	17.6	17.8	19.0	23.2	17.0	17.9	23.7	35.3	30.3	14.1	27.8	21.3	14.7	13.8			
HOURLY AVG	3.7	3.9	5.5	4.8	4.5	6.8	6.9	8.0	5.4	5.8	5.7	4.8	4.7	5.8	6.3	6.0	5.6	6.2	4.9	3.6	5.5	4.4	3.6	3.9			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 705

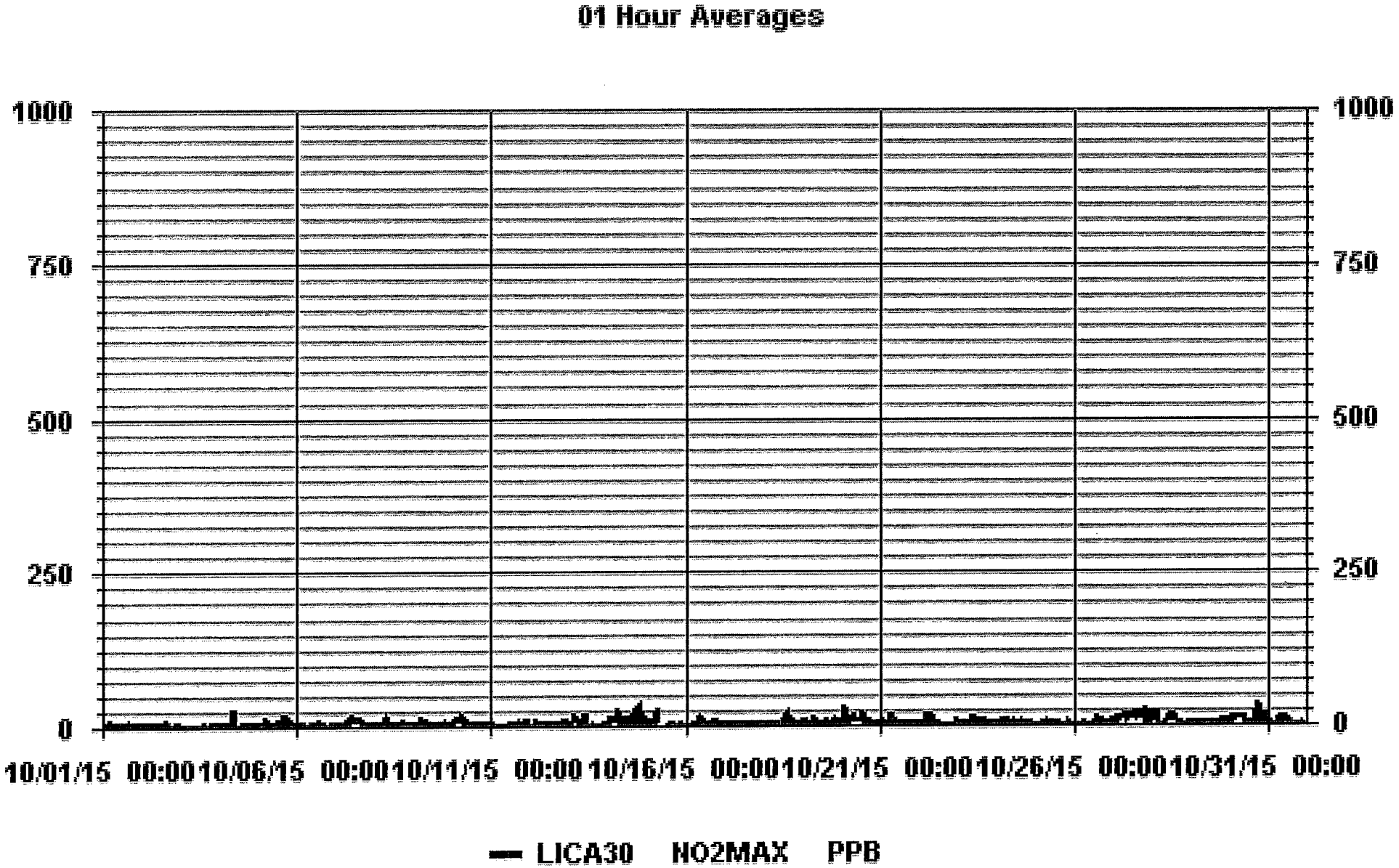
MAXIMUM INSTANTANEOUS VALUE: 35.3 PPB @ HOUR(S) 17 ON DAY(S) 30

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 5.22


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 NO2MAX PPB

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.82	4.11	2.69	4.39	4.11	6.24	8.08	8.36	8.08	10.35	10.92	4.25	6.52	8.51	5.67	2.83	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	34	29	19	31	29	44	57	59	57	73	77	30	46	60	40	20	

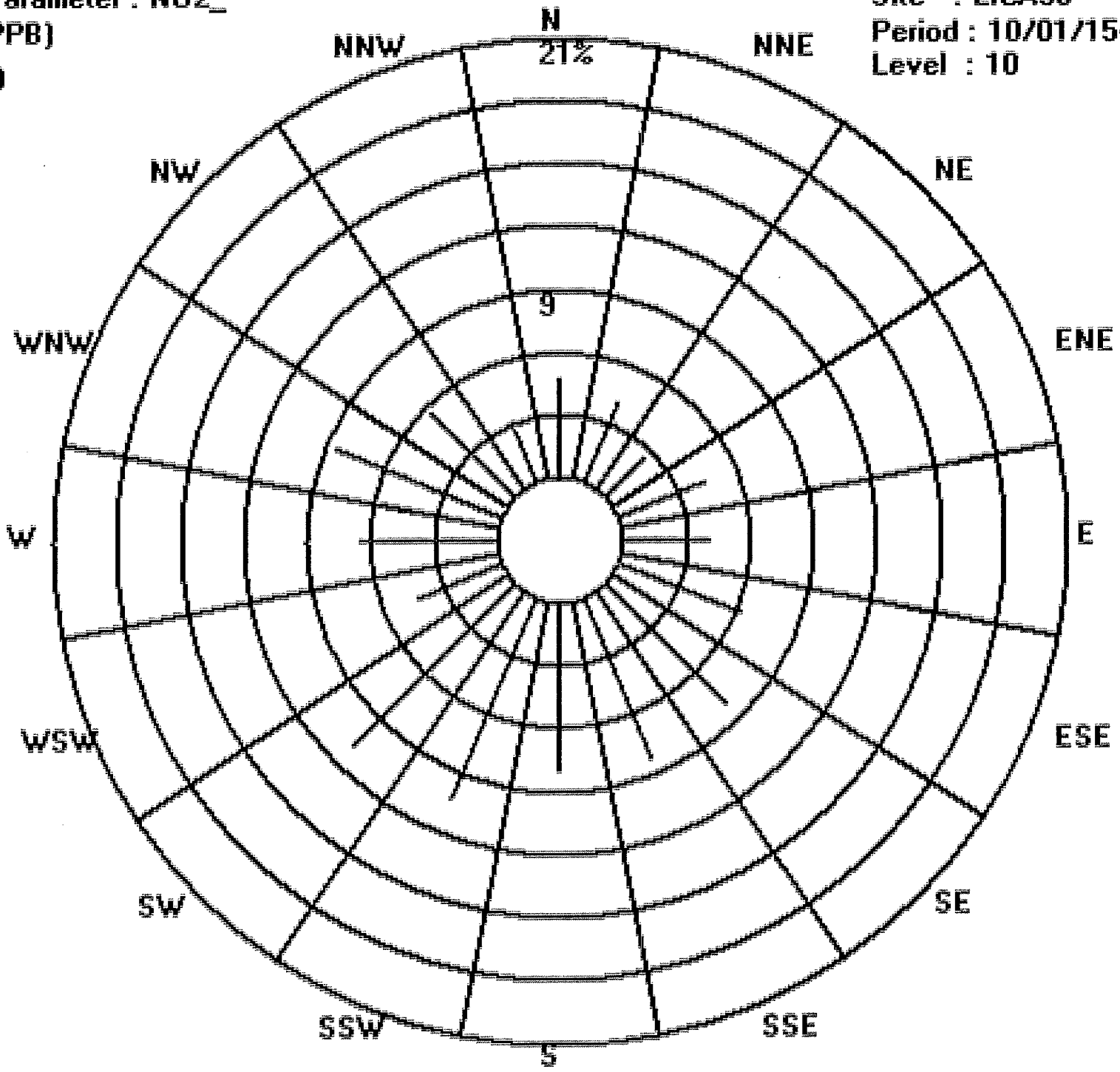
Calm : .00 %

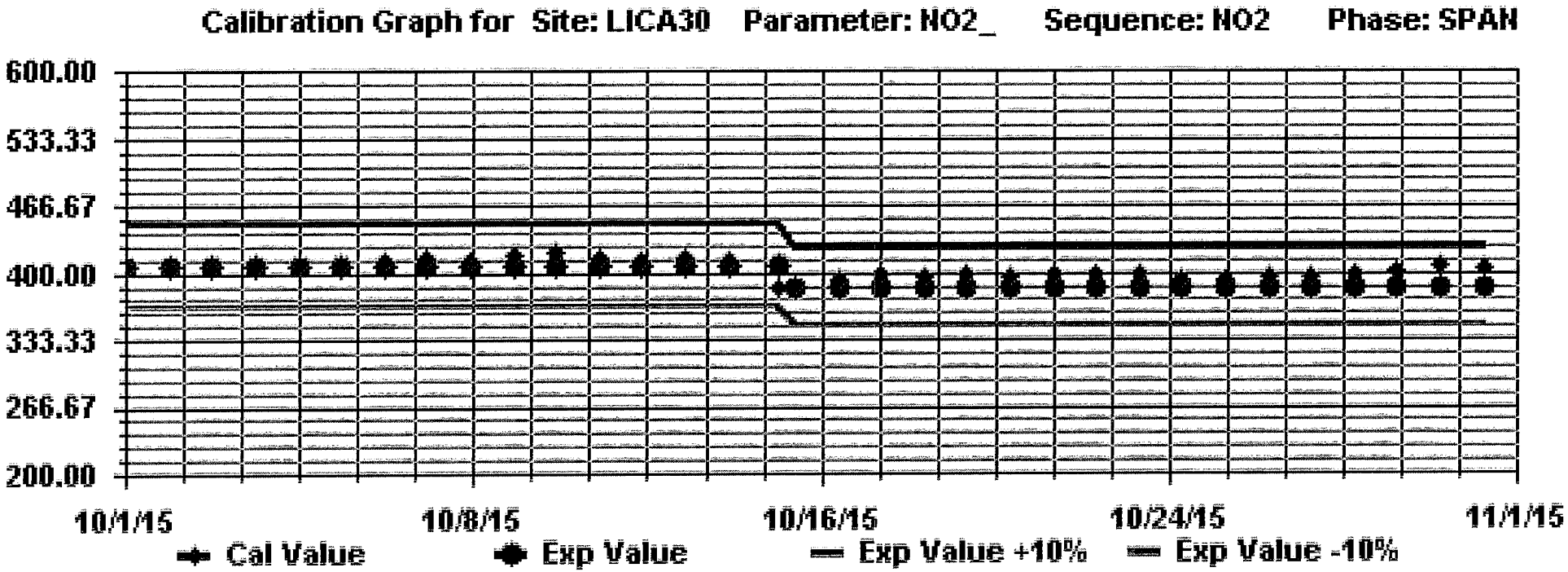
Total # Operational Hours : 705

Logger : 30 Parameter : NO2_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

WIND SPEED

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

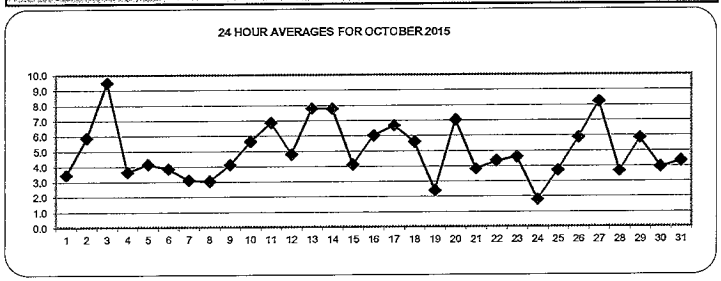
WIND SPEED (WS) hourly averages in km/hr

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	24-HOUR	
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	MAX.	AVG.	RDGS.
DAY																											
1	3.3	0.4	0.6	0.7	0.6	0.1	0.8	0.8	1.3	2.4	3.9	4.4	5.7	5.5	5.0	5.4	3.5	2.9	2.7	6.8	7.7	7.6	7.2	3.1	7.7	3.4	24
2	2.7	2.7	3.7	4.0	5.0	6.2	6.7	6.6	6.7	7.3	6.9	6.3	5.7	6.5	5.8	5.3	3.6	3.1	2.1	1.1	9.9	10.4	10.4	11.8	11.8	5.9	24
3	13.1	12.9	11.8	13.4	12.9	11.8	8.5	11.0	11.5	12.5	10.8	11.9	9.8	9.5	9.3	9.3	9.6	8.0	7.4	4.8	4.2	4.2	4.5	5.1	13.4	***9.5***	24
4	2.9	3.5	3.9	4.4	3.7	3.1	4.2	4.0	4.6	3.2	3.1	3.5	4.0	1.5	3.0	3.0	3.0	4.5	4.2	3.2	3.0	3.9	3.8	5.7	5.7	3.6	24
5	4.3	4.1	3.5	3.0	3.3	2.4	3.9	4.1	5.1	5.4	5.2	5.5	7.0	7.6	7.4	7.8	6.0	4.4	1.7	2.1	2.0	2.0	0.8	1.0	7.8	4.2	24
6	1.0	1.0	1.3	0.3	0.7	1.1	0.4	1.3	2.1	3.9	4.2	5.7	7.6	5.4	5.2	7.0	7.1	5.4	4.4	5.4	5.7	5.9	5.3	4.6	7.6	3.8	24
7	4.2	3.5	2.9	2.5	0.9	0.4	1.1	1.3	3.0	4.1	3.9	5.5	6.2	6.6	6.5	6.0	4.6	2.7	0.7	1.6	1.8	1.4	1.6	1.0	6.6	3.1	24
8	1.6	2.3	2.0	1.8	1.5	2.2	1.8	0.2	0.7	2.8	3.3	4.8	5.8	5.1	6.6	5.7	4.9	3.5	3.8	3.3	1.6	2.0	3.9	1.3	6.6	3.0	24
9	2.2	2.8	1.7	2.3	2.0	0.9	0.3	4.8	4.0	4.7	5.3	5.1	6.7	8.6	5.8	4.0	2.3	3.2	3.7	4.7	5.5	4.7	7.2	6.0	8.6	4.1	24
10	6.4	6.0	6.0	4.5	6.8	5.5	4.6	10.5	9.3	7.1	9.0	7.9	8.4	7.1	8.1	7.8	7.9	3.6	2.0	1.6	0.9	0.9	0.8	2.3	10.5	5.6	24
11	3.5	4.4	5.3	6.2	7.0	7.5	9.0	7.0	3.7	9.9	11.5	10.3	10.6	9.5	9.8	9.2	7.3	6.8	7.3	6.6	3.8	3.2	3.8	1.7	11.5	6.9	24
12	2.9	2.4	2.1	4.5	2.9	3.6	3.0	4.9	4.8	4.8	6.1	4.8	5.0	3.3	3.2	7.4	7.5	5.0	8.1	6.9	6.0	5.5	5.5	4.8	8.1	4.8	24
13	4.5	5.4	4.7	7.0	6.2	5.7	5.3	5.4	6.4	8.5	12.7	13.7	***15.6***	15.2	12.4	13.0	11.0	7.3	4.9	6.0	4.6	3.7	3.9	4.1	***15.6***	7.8	24
14	4.4	6.4	6.4	5.7	5.6	6.9	5.2	4.6	9.5	12.6	10.7	10.3	11.7	12.5	13.0	13.5	10.3	7.1	6.2	6.2	3.9	4.9	4.6	4.2	13.5	7.8	24
15	3.6	3.5	4.5	4.7	3.3	2.7	3.8	4.0	2.3	3.0	4.8	5.9	7.0	6.3	6.2	7.5	6.0	3.1	1.3	2.6	4.5	2.7	4.6	0.8	7.5	4.1	24
16	1.2	1.9	1.4	2.2	3.2	3.1	4.0	3.4	6.4	7.9	7.5	7.7	8.2	7.2	9.8	7.9	8.6	6.6	7.4	7.4	7.6	6.8	8.5	8.4	9.8	6.0	24
17	6.7	6.2	3.4	4.3	4.8	5.2	3.3	4.1	5.5	8.1	7.8	8.2	9.7	10.0	10.2	9.5	8.4	8.4	5.1	6.3	6.1	7.9	8.2	2.7	10.2	6.7	24
18	3.1	3.2	3.3	3.6	3.8	4.7	6.6	6.6	9.0	9.6	9.7	9.4	9.3	9.4	10.1	8.1	6.8	3.1	3.0	3.2	2.8	2.7	1.4	1.6	10.1	5.6	24
19	2.6	2.4	0.8	1.3	0.4	1.5	1.7	0.5	0.7	1.8	1.7	2.7	4.5	5.7	5.0	3.3	1.9	2.5	2.3	3.5	1.3	2.8	4.7	1.9	5.7	2.4	24
20	1.3	2.8	1.5	1.5	4.1	5.9	6.4	9.7	11.1	10.7	10.0	11.6	13.0	14.6	14.4	13.7	11.0	4.5	3.6	4.0	4.0	3.3	2.9	3.1	14.6	7.0	24
21	2.5	2.3	3.2	4.0	1.6	1.3	1.3	0.4	1.5	4.2	3.9	4.4	7.0	6.1	6.0	5.0	4.5	4.6	5.3	6.6	5.7	4.2	3.1	2.8	7.0	3.8	24
22	2.1	1.1	0.8	0.4	1.6	2.3	2.1	3.0	5.1	5.6	7.3	7.2	9.8	10.4	7.4	6.1	5.1	2.7	3.3	3.1	2.9	3.3	4.2	7.2	10.4	4.3	24
23	4.5	3.2	2.8	4.2	3.9	3.2	4.0	3.3	2.9	4.8	6.4	8.2	6.3	8.4	8.6	9.5	7.7	5.4	5.9	2.5	1.2	1.3	1.1	0.9	9.5	4.6	24
24	1.6	1.5	2.0	0.8	0.8	1.3	1.4	0.4	1.1	2.3	3.3	2.8	2.5	5.2	3.3	0.6	3.6	2.1	0.7	2.4	1.1	1.0	0.4	0.4	5.2	1.8	24
25	0.7	0.6	5.5	1.9	2.9	1.5	1.9	1.3	2.5	3.2	4.3	2.7	3.1	3.6	4.9	3.9	7.9	5.1	4.9	4.7	4.2	5.5	5.9	6.4	7.9	3.7	24
26	6.8	4.5	4.4	5.3	5.5	5.4	6.5	4.3	6.2	9.5	10.6	10.0	10.0	8.9	8.6	8.0	5.1	3.5	4.3	1.9	4.3	2.8	1.6	2.6	10.6	5.9	24
27	7.3	9.2	10.2	10.9	9.6	9.7	9.3	9.3	8.4	8.3	8.4	8.6	9.1	11.1	9.8	7.4	7.3	6.7	5.9	4.3	7.4	6.7	6.3	6.1	11.1	8.2	24
28	6.7	5.9	5.3	3.5	3.2	3.0	2.7	2.3	2.7	1.2	1.8	1.9	1.2	2.1	3.0	3.8	4.2	3.2	5.0	3.6	4.8	4.8	6.3	5.8	6.7	3.7	24
29	5.3	5.7	6.5	6.5	5.8	6.6	5.9	6.2	4.5	5.6	6.9	6.7	6.3	4.9	5.8	5.6	5.4	5.1	5.1	4.4	4.7	7.2	6.9	6.0	7.2	5.8	24
30	3.1	6.0	4.4	5.1	5.0	5.6	5.7	3.8	5.9	5.0	5.8	4.5	5.3	4.7	3.8	1.1	1.3	0.7	2.1	3.1	2.4	3.5	3.0	3.7	6.0	3.9	24
31	3.7	4.5	4.8	3.7	4.8	5.2	5.7	4.5	4.5	6.0	5.7	5.8	5.3	2.7	2.6	3.5	3.3	3.2	4.0	3.0	3.3	4.4	5.9	3.6	6.0	4.3	24
HOURLY MAX	13.1	12.9	11.8	13.4	12.9	11.8	9.3	11.0	11.5	12.6	12.7	13.7	15.6	15.2	14.4	13.7	11.0	8.4	8.1	7.4	9.9	10.4	10.4	11.8			
HOURLY AVG	3.9	3.9	3.9	4.0	4.0	4.1	4.1	4.3	4.9	6.0	6.5	6.7	7.3	7.3	7.1	6.7	6.0	4.5	4.1	4.1	4.2	4.2	4.5	3.9			

STATUS FLAG CODES

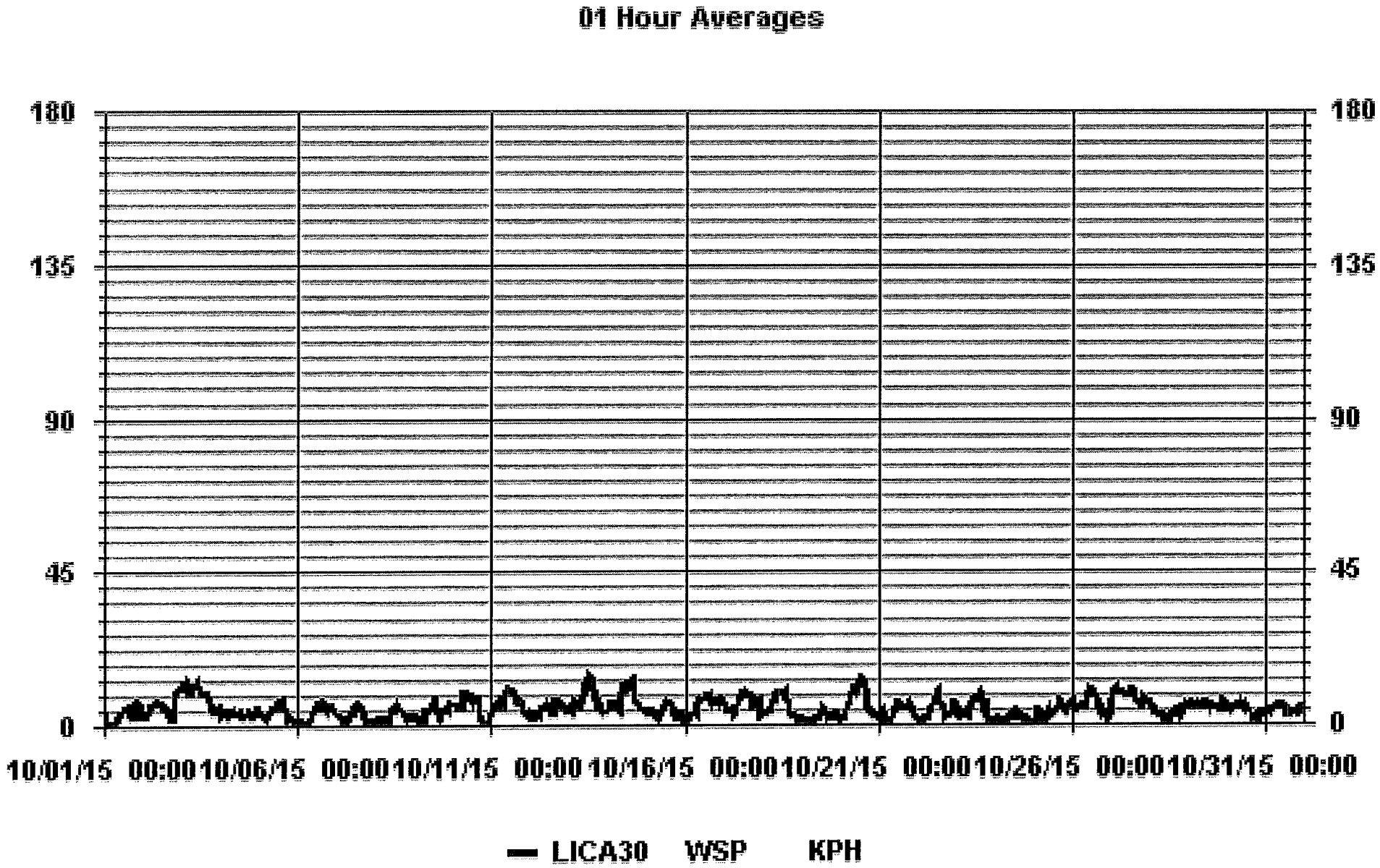
C	- CALIBRATION	Q	- QUALITY ASSURANCE
M	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



LAST CALIBRATION:	March 4, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744					
MAXIMUM 1-HR AVERAGE:	15.6	KPH	@ HOUR(S)	12	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	9.5	KPH			ON DAY(S)	3	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	2.95		MONTHLY AVERAGE:			5.0	KPH


01 Hour Averages
180
135
90
45
0
180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 WSP KPH

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

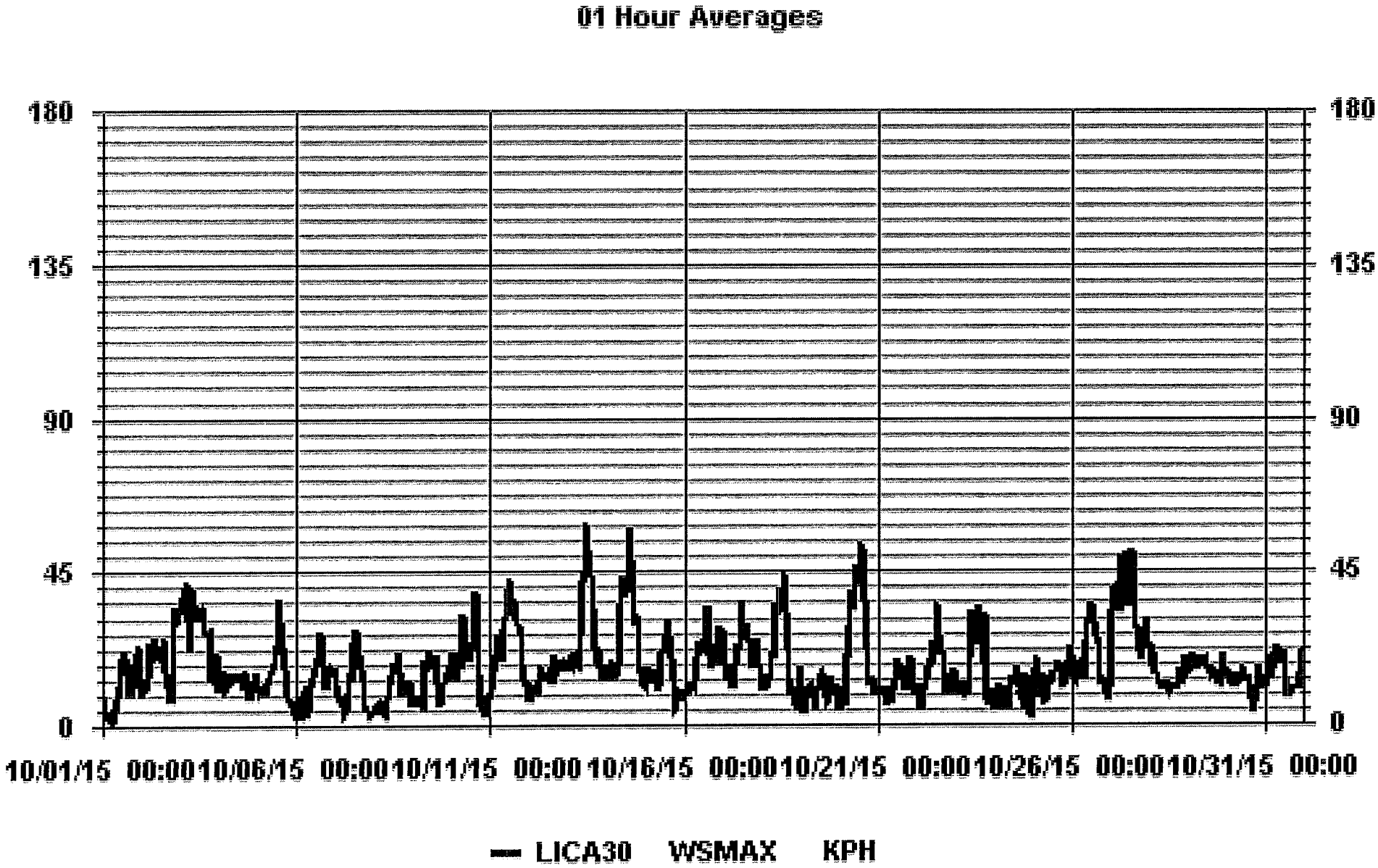
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.7	5.0	3.0	3.0	3.0	2.1	3.9	3.2	5.0	8.0	11.5	15.2	19.8	22.5	17.9	18.5	11.3	8.9	11.3	18.5	19.9	19.2	24.0	12.2	24.0	11.5	24
2	9.3	12.1	11.2	11.4	13.9	24.7	19.0	22.0	26.0	23.8	22.9	20.3	18.8	20.1	26.0	16.3	12.8	13.1	6.7	9.1	28.8	34.6	30.2	33.3	34.6	19.4	24
3	34.3	35.0	37.5	40.9	42.2	31.3	21.4	40.5	31.5	35.9	33.0	30.8	32.8	34.1	32.9	28.0	27.4	26.9	27.3	12.9	16.6	13.9	14.2	21.6	42.2	29.3	24
4	9.8	13.5	14.7	16.5	10.9	11.5	13.7	13.3	15.0	13.3	15.0	13.7	15.3	13.5	11.6	11.7	16.2	11.4	9.1	7.8	10.7	13.3	11.3	15.7	16.5	12.9	24
5	11.5	10.0	11.0	11.6	10.4	9.4	12.9	12.9	15.3	16.4	18.6	20.7	23.6	36.8	30.5	29.8	23.4	16.8	9.3	8.3	7.8	6.1	6.1	4.1	36.8	15.1	24
6	2.8	4.1	9.1	1.7	8.9	10.2	2.1	11.8	3.9	11.5	14.1	17.2	20.1	18.1	17.4	27.6	23.2	16.4	10.7	16.8	17.4	16.8	14.4	15.7	27.6	13.0	24
7	17.0	12.4	9.3	7.6	6.1	3.0	3.6	4.8	9.8	13.8	13.1	24.8	22.5	28.4	21.8	21.0	17.0	13.5	4.5	5.6	4.8	3.2	3.4	3.6	28.4	11.4	24
8	4.1	5.4	6.1	3.5	5.5	6.5	4.1	3.6	7.6	8.9	11.8	15.0	18.5	16.6	18.5	21.4	16.1	9.6	9.8	11.5	9.3	12.4	13.7	5.6	21.4	10.2	24
9	8.8	8.3	5.7	8.7	6.5	6.3	6.1	19.6	15.9	16.8	22.0	20.5	20.1	20.1	20.3	12.4	7.4	5.8	9.1	12.2	14.8	14.4	17.7	16.1	22.0	13.2	24
10	13.9	21.8	18.5	13.3	16.8	18.3	16.7	32.7	21.0	19.1	20.5	20.3	22.2	24.2	26.4	39.1	28.6	15.9	6.5	5.4	2.8	3.9	3.6	8.3	39.1	17.5	24
11	9.1	10.4	15.5	20.3	21.0	26.4	25.3	18.6	28.4	31.5	39.7	39.5	42.7	35.2	32.4	36.7	31.3	29.9	29.1	27.5	18.3	13.7	11.8	13.1	42.7	25.3	24
12	7.0	8.4	10.7	10.4	11.6	13.1	9.3	17.7	14.4	12.6	15.7	14.4	15.0	17.2	12.0	21.1	19.1	14.2	18.3	18.3	15.9	16.8	18.3	17.5	21.1	14.5	24
13	15.7	18.6	17.9	21.2	19.0	17.5	17.3	21.9	25.9	42.0	44.4	***59.1***	52.0	45.0	44.2	43.7	35.2	23.4	17.7	22.9	17.2	13.7	14.8	12.9	***59.1***	27.6	24
14	14.6	17.5	16.6	19.6	13.5	15.5	13.9	17.5	35.9	44.0	42.6	37.6	39.8	40.0	58.2	48.6	47.9	28.8	32.8	29.5	17.2	15.5	16.7	12.2	58.2	28.2	24
15	11.5	13.3	16.8	14.4	14.8	12.2	15.9	14.4	10.0	11.6	21.0	22.1	22.6	26.4	31.0	26.9	19.9	13.1	5.0	5.6	9.6	8.9	9.1	6.7	31.0	15.1	24
16	9.6	10.4	10.0	11.1	11.9	12.2	11.3	13.1	19.9	24.0	23.8	24.2	23.1	24.7	35.2	30.8	24.7	16.4	22.7	21.2	19.0	18.3	28.6	25.0	35.2	19.6	24
17	28.0	17.9	12.6	14.8	17.2	18.1	10.7	15.5	18.3	23.6	21.4	24.7	36.5	29.9	27.5	29.3	25.1	24.9	16.6	19.7	17.1	25.4	18.6	17.0	36.5	21.3	24
18	10.2	11.8	9.8	13.5	12.9	15.0	20.7	20.5	35.4	32.8	33.4	36.9	39.6	35.6	44.8	33.4	22.9	14.1	8.5	10.9	7.8	8.6	7.0	3.9	44.8	20.4	24
19	17.2	7.6	3.4	4.8	8.5	10.4	11.1	7.4	9.6	4.8	9.9	11.0	14.6	15.3	13.1	8.7	6.1	6.5	8.5	13.9	10.0	10.7	11.1	10.9	17.2	9.8	24
20	4.1	6.5	7.1	5.2	21.0	19.7	29.1	39.0	33.8	37.7	47.0	42.9	40.7	53.4	52.0	47.5	36.9	22.0	12.4	12.6	12.2	13.9	8.7	10.0	53.4	25.6	24
21	8.3	10.3	10.4	10.2	10.2	5.0	11.3	8.5	5.9	10.0	13.5	12.4	19.0	17.9	17.4	16.1	13.5	9.9	16.2	17.5	19.9	11.1	10.2	8.3	19.9	12.2	24
22	11.1	11.1	5.2	3.9	11.5	11.3	12.9	16.6	18.8	17.0	24.5	20.7	35.0	34.6	26.9	20.2	21.5	8.9	14.6	13.5	10.7	10.9	10.7	16.4	35.0	16.2	24
23	12.9	8.9	11.5	9.3	9.1	12.2	10.3	8.3	10.2	19.7	33.2	29.1	23.4	31.5	34.8	31.0	24.9	17.0	32.8	6.5	10.9	5.2	10.0	4.0	34.8	16.9	24
24	5.4	4.3	12.0	11.3	9.8	10.2	4.8	9.3	4.3	8.1	11.2	14.2	11.1	15.9	15.9	11.5	10.0	7.8	4.1	14.6	6.9	3.9	4.3	2.1	15.9	8.9	24
25	7.2	16.4	19.9	10.4	8.5	7.6	14.6	7.1	7.4	12.2	12.4	12.6	15.0	15.3	17.9	18.0	17.7	17.2	11.8	12.0	15.7	18.4	19.4	22.7	22.7	14.1	24
26	20.3	14.4	13.5	15.8	18.2	15.0	19.2	12.4	24.3	29.5	30.8	32.4	35.4	30.8	29.9	26.0	23.8	11.5	14.0	12.0	13.3	9.3	6.9	10.7	35.4	19.6	24
27	33.5	36.1	39.6	40.5	40.9	33.0	42.0	50.0	43.1	36.1	50.6	34.8	36.1	51.0	49.5	28.9	28.6	21.3	23.7	19.0	25.8	27.8	31.5	21.6	51.0	***35.2***	24
28	23.8	18.6	19.2	14.5	15.7	12.7	12.4	10.2	11.6	10.0	11.3	12.2	9.7	10.4	10.7	11.1	10.0	12.0	15.9	11.6	14.0	14.0	20.0	17.3	23.8	13.7	24
29	15.9	16.6	19.7	20.8	15.9	19.9	18.1	19.7	17.6	18.1	18.8	16.8	15.7	16.2	14.6	15.5	15.3	15.0	12.4	12.0	13.5	21.0	16.8	15.7	21.0	16.7	24
30	14.6	15.5	11.1	13.5	10.9	14.5	12.1	12.0	13.1	16.6	15.5	12.2	13.1	13.3	12.0	7.4	3.4	5.9	9.8	17.0	11.0	9.7	12.0	13.1	17.0	12.1	24
31	12.6	19.2	19.7	13.1	18.6	17.7	19.0	22.7	17.5	19.1	20.0	21.8	14.4	7.6	8.7	10.9	9.6	10.4	10.7	11.1	10.0	15.0	21.2	13.8	22.7	15.2	24
HOURLY MAX	34.3	36.1	39.6	40.9	42.2	33.0	42.0	50.0	43.1	44.0	50.6	59.1	52.0	53.4	58.2	48.6	47.9	29.9	32.8	29.5	28.8	34.6	31.5	33.3			
HOURLY AVG	13.3	13.6	13.8	13.4	14.4	14.3	14.3	17.0	17.9	20.3	23.3	23.6	24.8	25.9	26.2	24.2	20.3	15.1	14.3	14.1	13.8	13.9	14.4	13.3			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	59.1	KPH	@ HOUR(S)	11	ON DAY(S)	13
					VAR-VARIOUS	
OPERATIONAL TIME:					744	HRS


01 Hour Averages
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135
90
45
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 WSMAX KPH

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	2.95	1.88	2.15	3.89	3.89	5.37	5.24	5.24	4.97	8.06	9.27	3.89	5.77	2.28	1.47	1.34	67.74
<	12.0	2.01	1.47	.40	.26	.00	1.20	2.55	3.09	2.95	2.41	1.47	.13	1.61	4.70	3.89	1.47	29.70
<	20.0	.00	.67	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.74	.13	.00	2.55
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.97	4.03	2.55	4.16	3.89	6.58	7.79	8.33	7.93	10.48	10.75	4.03	7.39	8.73	5.51	2.82	

Calm : .00 %

Total # Operational Hours : 744

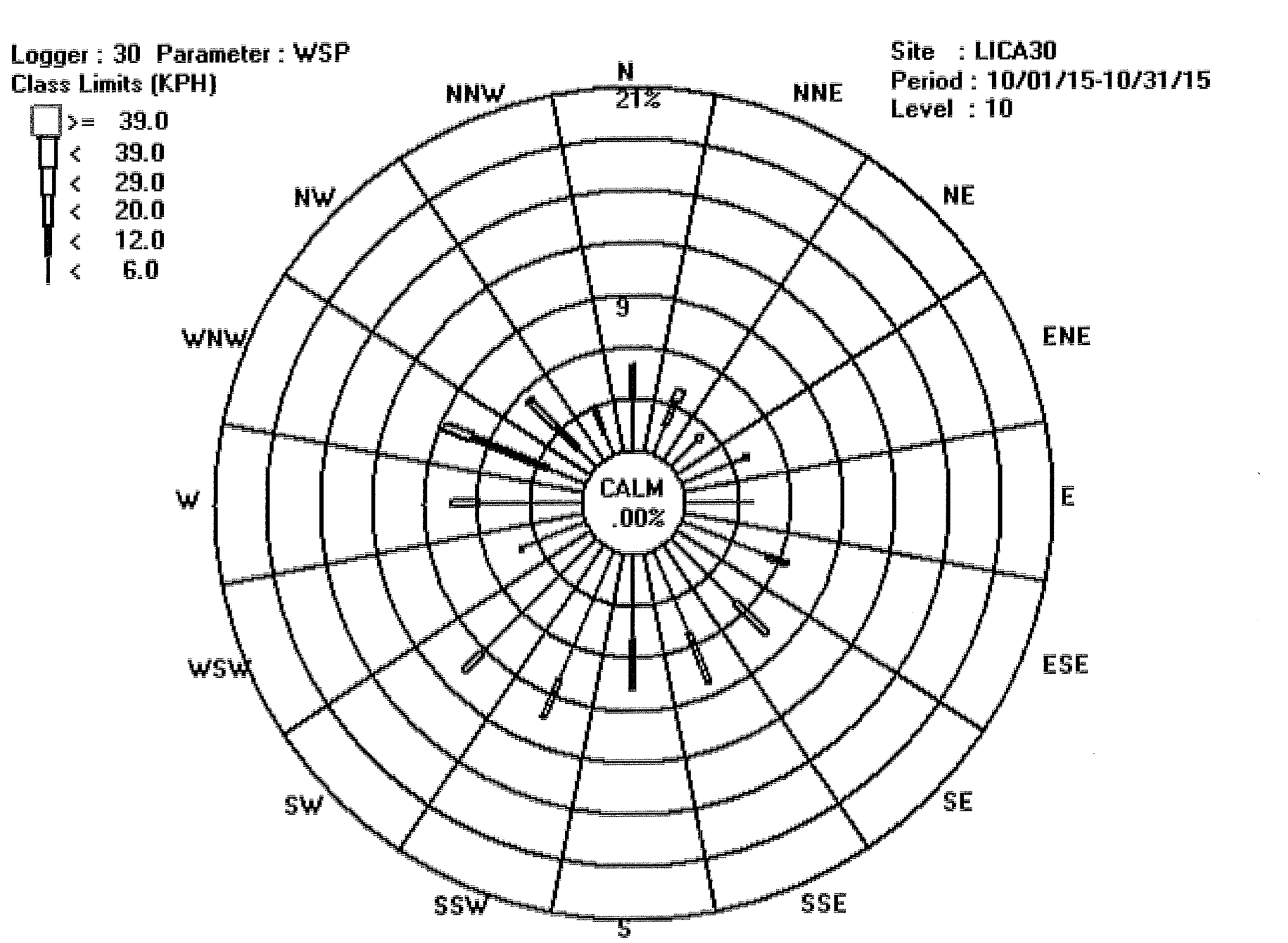
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	22	14	16	29	29	40	39	39	37	60	69	29	43	17	11	10	504
<	12.0	15	11	3	2		9	19	23	22	18	11	1	12	35	29	11	221
<	20.0		5												13	1		19
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	37	30	19	31	29	49	58	62	59	78	80	30	55	65	41	21	

Calm : .00 %

Total # Operational Hours : 744


Logger : 30 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA30
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
CALM
.00%

WIND DIRECTION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

WIND DIRECTION (WD) hourly averages

MST

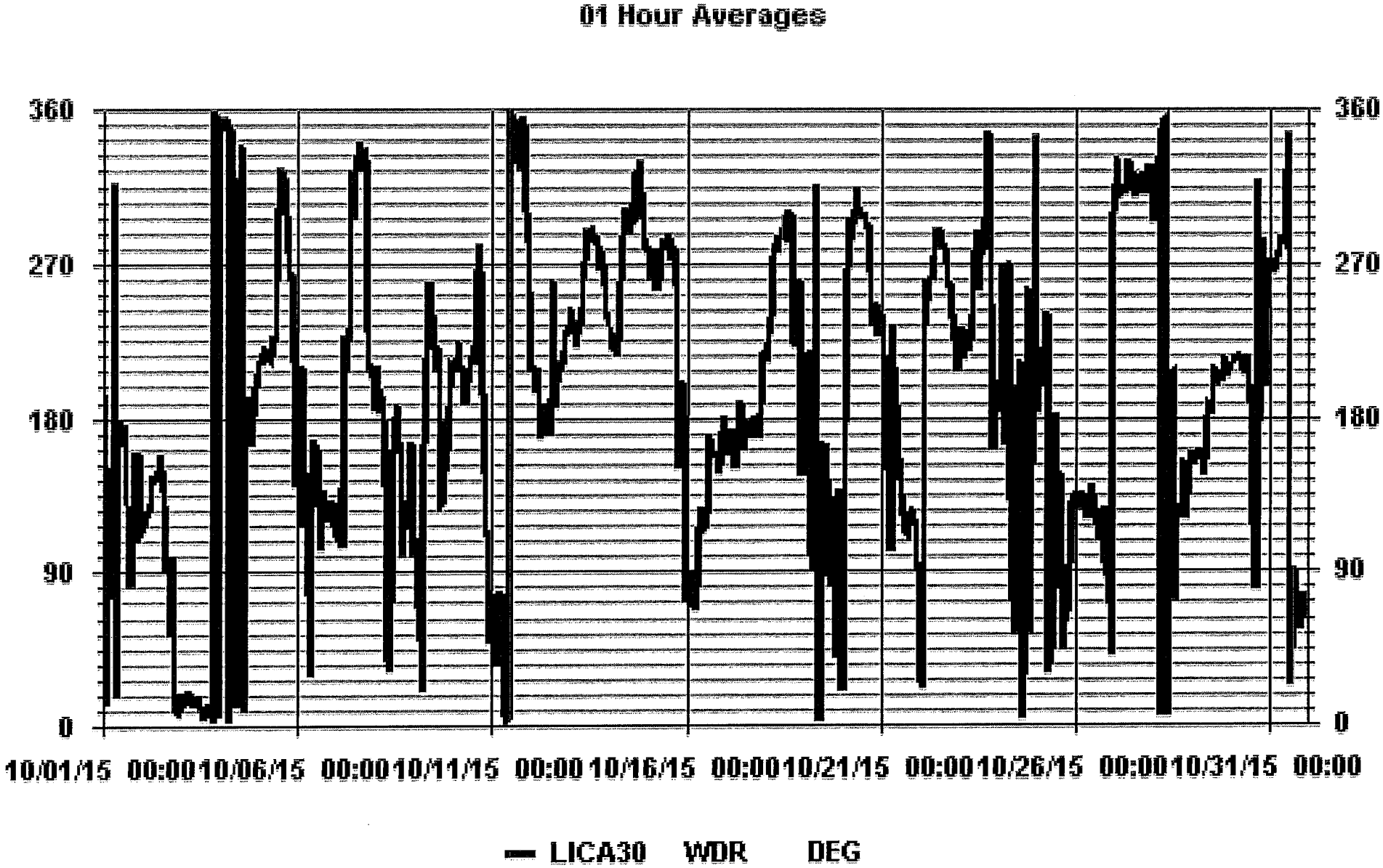
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00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

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

LAST CALIBRATION:	March 4, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	90.11		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	SW	


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 WDR DEG

STANDARD DEVIATION WIND DIRECTION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

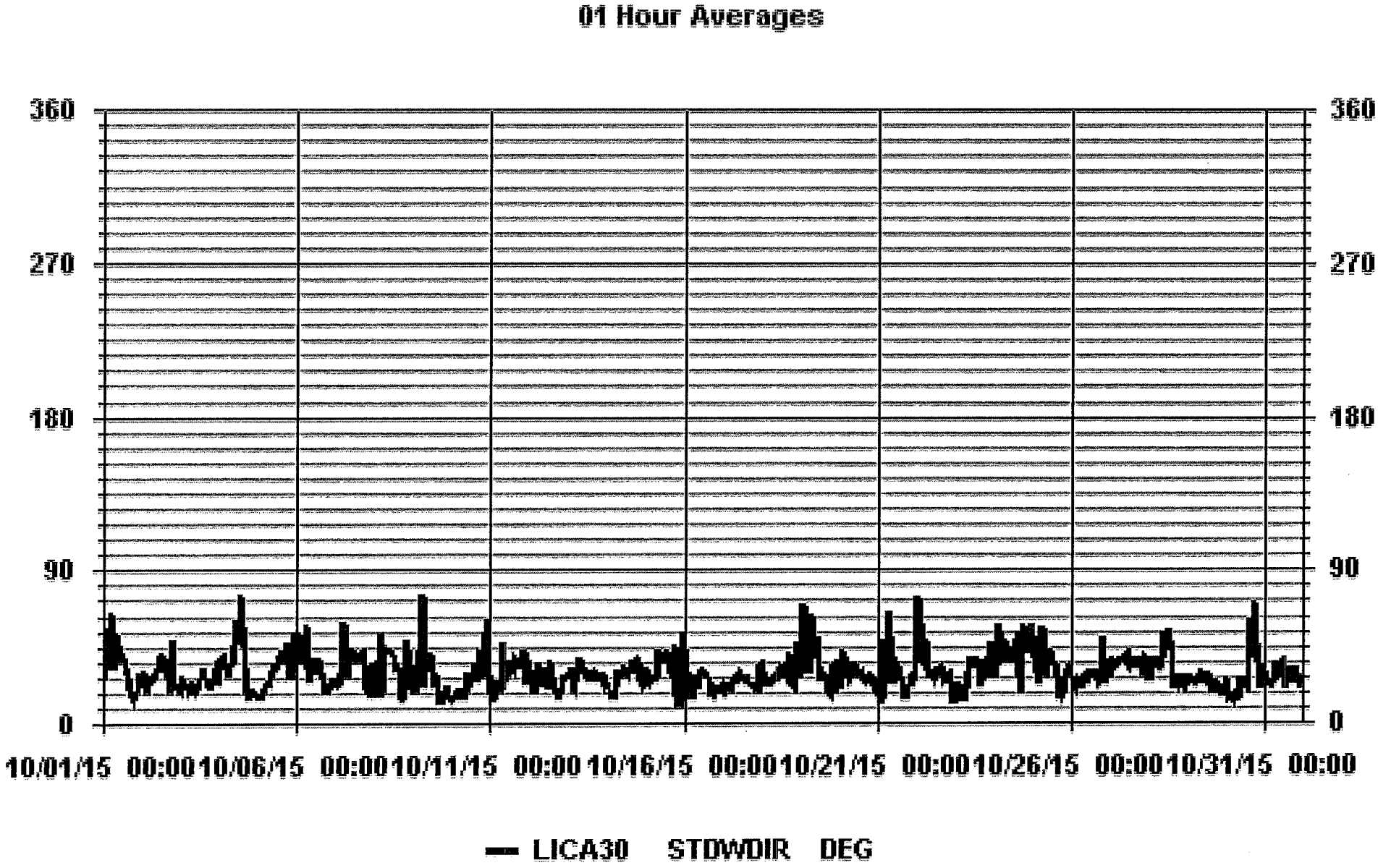
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	28	52	54	55	41	66	32	51	51	47	36	43	38	38	33	30	28	21	17	15	18	19	21	28
2	28	31	22	19	23	26	26	28	28	31	31	40	42	36	40	35	28	21	19	49	24	23	22	21
3	20	28	24	21	21	19	20	23	22	20	22	20	26	27	33	28	23	23	22	22	26	27	33	23
4	37	38	39	34	33	36	27	36	34	46	61	50	49	75	46	56	34	19	15	17	18	19	17	16
5	17	16	16	21	18	23	21	25	27	30	33	33	35	39	43	39	38	36	48	31	28	26	36	53
6	47	54	34	45	35	40	58	33	24	39	35	34	29	34	38	31	28	21	17	22	21	21	22	27
7	25	23	24	29	54	59	35	28	30	36	44	36	38	40	40	39	41	42	35	21	19	23	15	36
8	25	20	37	15	53	18	43	46	42	42	44	40	40	37	32	32	23	16	13	20	49	44	27	32
9	34	18	24	32	43	55	76	21	35	35	38	41	31	21	29	23	19	11	13	15	19	22	16	15
10	14	15	16	19	14	21	17	16	16	30	18	22	25	31	30	35	27	25	41	40	35	53	61	29
11	19	18	13	20	21	25	22	19	47	25	27	37	29	32	31	38	37	34	39	32	36	43	23	38
12	24	29	31	16	24	22	36	22	26	25	24	33	26	37	28	21	18	21	15	17	21	28	26	27
13	29	28	32	20	19	24	29	36	36	33	29	30	28	25	29	28	26	24	30	29	26	30	25	22
14	24	21	17	18	17	15	21	31	26	28	31	33	29	28	32	29	36	37	34	38	37	25	22	23
15	23	32	28	25	27	26	26	28	41	41	39	38	36	41	40	34	30	26	46	16	10	13	9	53
16	44	31	30	16	16	15	15	28	20	25	30	31	31	29	29	27	23	18	17	20	18	18	22	20
17	23	21	24	20	20	20	23	26	27	26	30	29	26	26	25	26	24	23	22	22	20	21	18	33
18	34	26	29	23	23	25	25	27	26	26	29	32	30	32	29	32	25	42	24	23	22	27	37	47
19	27	42	70	39	49	28	37	64	55	43	37	50	34	25	29	26	26	19	18	17	33	34	17	25
20	26	20	43	34	35	27	25	26	29	33	33	30	29	29	30	26	25	27	28	25	25	28	23	20
21	22	23	12	14	47	47	34	65	52	22	39	36	30	34	28	25	20	14	19	22	26	25	30	24
22	39	74	49	60	37	36	49	31	26	29	30	27	29	29	32	33	31	25	26	28	29	24	17	11
23	21	22	24	12	18	17	13	20	30	33	38	31	39	35	35	28	22	24	37	25	38	32	48	37
24	26	42	33	58	54	44	35	49	41	40	39	45	40	36	49	54	29	17	58	40	57	47	48	58
25	37	50	29	45	22	55	55	35	27	43	37	42	40	33	36	29	18	19	16	18	27	30	32	29
26	28	24	23	21	24	22	20	25	27	25	25	29	29	29	27	28	31	24	25	50	23	25	36	26
27	36	37	35	33	34	35	37	37	37	39	40	35	33	35	36	36	34	32	36	38	27	38	37	33
28	24	32	33	37	37	37	34	31	37	53	47	49	55	42	47	30	20	25	26	22	23	22	26	26
29	27	25	26	26	25	24	26	26	31	25	25	25	25	29	23	19	19	22	20	23	22	17	17	20
30	27	15	16	14	13	15	13	19	14	26	24	23	22	27	40	61	37	71	37	46	36	20	31	30
31	24	24	24	24	23	26	26	35	31	30	35	36	20	25	32	24	30	27	22	32	25	23	24	27

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION:	March 4, 2014

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 STOWDIR DEG

RELATIVE HUMIDITY

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

RELATIVE HUMIDITY (RH) hourly averages in %

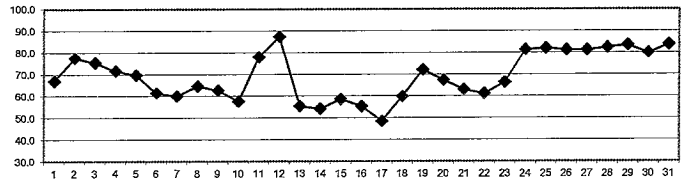
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	82	87	91	91	***92***	***92***	***92***	***92***	82	59	49	46	45	41	44	42	45	56	67	59	57	61	64	74	***92***	67.1	24
2	83	87	88	89	91	91	***92***	91	89	85	78	67	59	56	54	54	59	67	76	80	78	82	82	82	***92***	77.5	24
3	82	80	79	78	78	82	84	79	78	74	73	71	69	68	68	67	68	69	74	77	79	78	77	78	84	75.4	24
4	82	82	82	83	82	82	82	83	76	68	64	59	53	52	52	49	52	62	71	77	82	81	81	82	83	71.6	24
5	84	87	88	88	89	89	89	89	85	75	65	57	50	48	46	39	39	45	58	65	68	75	76	80	89	69.8	24
6	83	86	86	87	87	87	87	86	75	54	44	44	42	44	43	37	37	44	51	51	52	54	56	58	87	61.5	24
7	58	62	63	65	71	75	80	81	66	54	46	43	40	39	38	37	40	47	61	69	74	76	78	80	81	60.1	24
8	84	86	88	88	88	89	89	89	71	54	41	36	36	37	36	36	41	53	61	69	71	73	64	71	89	64.6	24
9	76	76	76	77	78	85	89	85	68	57	49	44	45	44	43	46	50	58	61	61	57	57	60	63	89	62.7	24
10	66	69	72	73	70	74	76	68	63	61	54	44	37	32	29	25	27	37	51	60	69	73	74	79	79	57.6	24
11	75	70	71	63	62	82	78	76	74	72	82	87	86	85	84	80	78	81	77	76	79	83	85	88	88	78.1	24
12	90	91	91	91	91	***92***	***92***	91	89	86	82	81	79	79	87	84	83	87	88	88	90	89	89	85	***92***	***87.3***	24
13	79	76	74	74	77	75	71	66	57	51	45	41	38	37	36	34	38	44	48	48	49	55	56	60	79	55.4	24
14	59	58	60	62	65	67	70	70	61	52	43	37	34	40	37	34	38	45	49	55	63	66	67	70	70	54.3	24
15	72	73	72	72	75	79	81	77	66	55	49	43	41	36	34	33	37	45	54	59	58	64	62	70	81	58.6	24
16	75	78	78	78	83	84	87	86	67	48	40	40	40	38	29	32	33	37	41	42	45	48	48	50	87	55.3	24
17	53	56	59	61	62	62	68	69	58	51	45	40	34	31	31	33	35	37	41	43	46	48	48	54	69	48.5	24
18	64	63	69	72	69	70	68	64	61	58	53	45	41	39	40	40	44	50	59	65	70	74	76	82	82	59.8	24
19	85	85	89	90	90	90	90	90	89	79	61	49	42	46	46	50	56	65	70	75	73	76	72	74	90	72.2	24
20	79	81	82	84	85	90	90	87	80	76	69	60	51	44	40	38	40	50	60	61	62	65	71	73	90	67.4	24
21	77	80	87	83	84	87	88	88	82	63	50	41	39	40	41	43	49	56	52	50	52	56	61	65	88	63.1	24
22	66	72	75	77	77	74	74	73	69	64	58	52	47	48	42	38	41	52	56	60	63	63	64	65	77	61.3	24
23	66	71	77	73	75	77	80	78	68	57	51	46	43	41	39	42	50	57	68	79	86	89	90	91	91	66.4	24
24	91	91	91	91	91	91	91	91	91	88	76	63	60	60	57	59	67	78	86	85	87	90	90	90	91	81.5	24
25	90	90	90	89	90	89	90	90	90	82	71	65	65	63	60	62	75	84	88	90	89	89	89	90	90	82.1	24
26	89	89	90	91	90	89	88	88	83	73	69	65	63	65	67	72	75	77	80	88	90	90	90	91	91	81.3	24
27	90	88	88	88	86	85	87	85	80	78	78	79	75	73	75	78	77	80	80	81	80	80	80	81	90	81.3	24
28	83	83	84	84	85	85	85	85	84	82	81	81	78	73	69	69	80	85	85	86	88	88	88	88	88	82.5	24
29	88	88	87	87	87	86	86	86	84	82	78	77	78	80	80	79	81	83	82	82	84	87	86	86	88	83.5	24
30	88	89	89	88	87	84	85	87	83	78	70	62	53	55	60	68	73	82	88	89	90	90	91	91	91	80.0	24
31	91	91	91	90	91	91	89	87	86	84	81	79	79	77	78	79	80	80	79	81	80	82	83	83	91	83.8	24
HOURLY MAX	91	91	91	91	92	92	92	92	91	88	82	87	86	85	87	84	83	87	88	90	90	90	91	91			
HOURLY AVG	78.4	79.5	80.9	80.9	81.5	83.1	83.8	82.5	76.0	67.7	61.1	56.3	53.0	52.0	51.1	50.9	54.5	61.1	66.5	69.4	71.3	73.6	74.1	76.6			

STATUS FLAG CODES

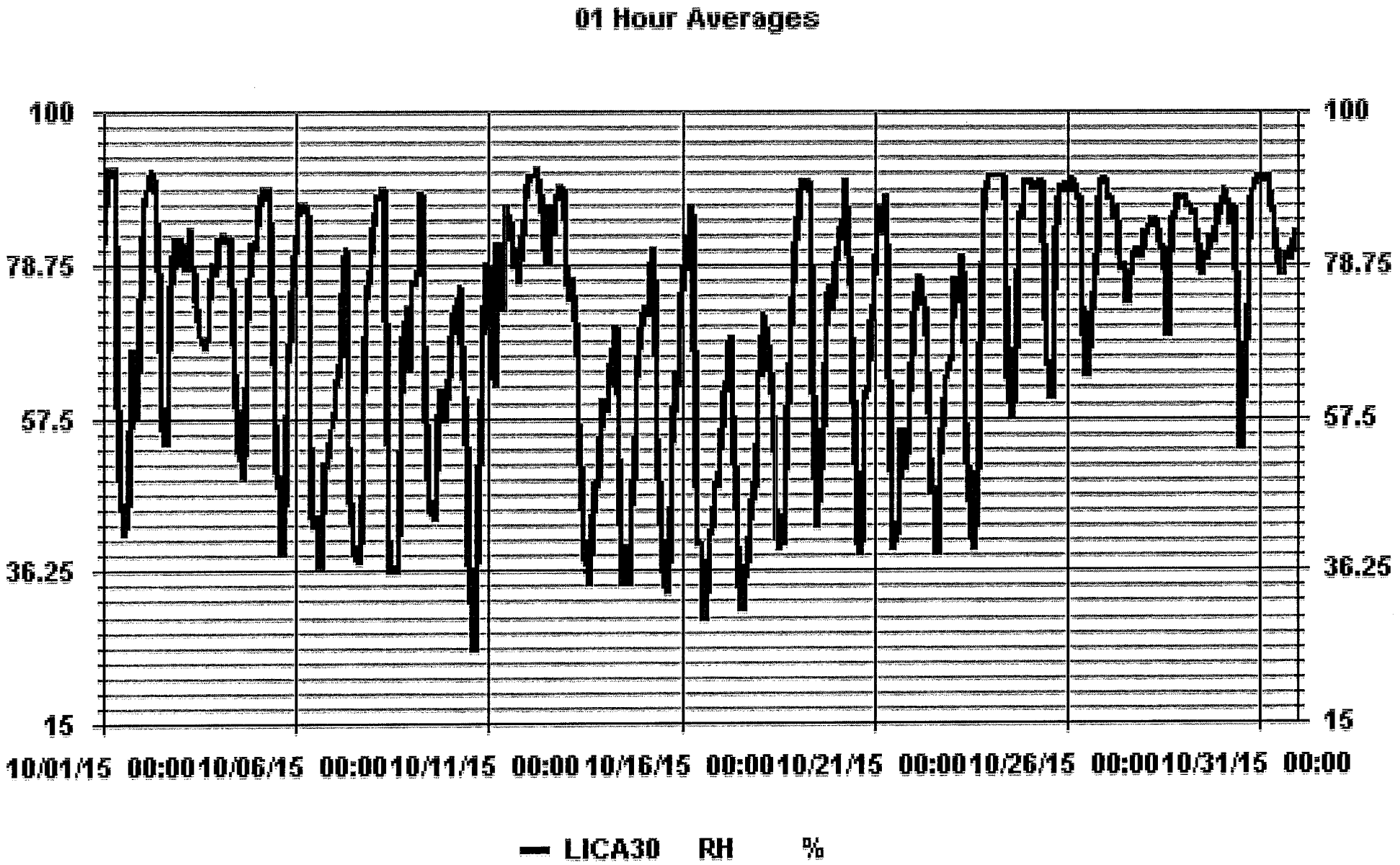
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	92	%	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	87.3	%			ON DAY(S)	12	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	17.27		MONTHLY AVERAGE:			69	%


01 Hour Averages
100
78.75
57.5
36.25
15
100
78.75
57.5
36.25
15
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 RH %

BAROMETRIC PRESSURE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

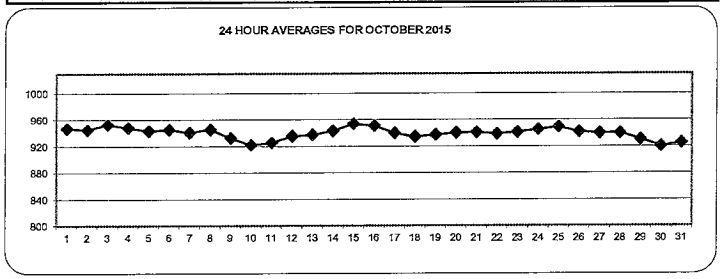
BAROMETRIC PRESSURE (BP) hourly averages in millibar

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	945	945	945	945	945	946	946	947	948	949	949	949	949	949	948	948	948	948	947	947	947	947	947	947	949	947	24
2	946	946	946	945	945	945	945	944	944	944	944	944	944	944	944	944	944	945	945	945	947	948	948	949	949	945	24
3	949	950	950	951	952	952	952	953	953	953	953	953	954	953	954	954	954	954	954	954	954	954	953	953	954	953	24
4	953	952	952	952	952	951	951	951	951	951	950	949	949	948	947	947	946	945	945	944	944	943	943	943	953	948	24
5	942	942	942	942	942	942	941	942	942	942	943	943	944	944	944	944	945	945	945	945	945	946	946	946	946	944	24
6	946	947	947	947	947	947	947	947	948	948	949	948	947	947	946	945	944	943	943	942	942	942	941	941	949	945	24
7	940	940	940	939	939	939	939	939	940	940	941	941	941	941	941	942	942	942	942	942	943	943	944	944	944	941	24
8	944	944	945	945	946	946	946	946	947	948	949	949	949	948	948	947	946	945	944	944	943	942	942	942	949	946	24
9	941	939	939	937	936	936	934	934	934	934	935	934	933	932	932	931	931	930	929	928	927	927	926	926	941	933	24
10	926	925	925	925	924	924	924	924	924	924	924	924	924	923	922	922	921	921	920	919	918	918	917	917	926	922	24
11	916	916	915	915	915	915	915	916	918	920	923	925	926	928	931	933	934	935	936	937	937	938	939	939	939	926	24
12	938	938	938	938	937	937	937	936	936	936	936	935	935	935	934	933	934	934	934	934	934	935	935	935	938	936	24
13	936	936	936	936	936	936	936	936	937	938	938	938	938	938	938	938	938	938	938	939	939	939	939	939	939	938	24
14	939	939	939	939	939	939	940	940	941	942	943	943	943	944	944	944	945	946	946	948	948	949	949	950	950	943	24
15	951	951	951	952	952	953	954	954	955	956	***957***	***957***	956	956	956	956	955	955	954	954	954	954	953	953	***957***	***954***	24
16	953	953	953	953	952	952	952	952	953	953	953	953	953	952	951	951	950	950	949	949	948	948	948	948	953	951	24
17	947	946	946	945	945	944	943	943	943	943	942	942	941	940	939	938	937	936	935	934	933	933	932	932	947	940	24
18	931	931	931	931	931	932	932	933	934	935	935	936	936	936	936	937	937	937	937	937	937	937	937	937	937	935	24
19	937	937	937	937	937	937	937	937	938	938	939	939	939	939	938	938	938	937	937	937	937	937	937	937	939	938	24
20	937	937	937	937	937	938	938	939	939	940	941	941	942	942	942	942	942	942	943	943	943	943	943	943	943	940	24
21	943	943	943	943	943	943	943	943	943	943	943	943	942	942	941	941	940	939	938	938	938	937	937	936	943	941	24
22	936	937	937	937	937	937	938	938	939	939	940	940	940	940	940	940	940	940	940	940	940	940	940	941	941	939	24
23	941	941	941	941	941	941	941	941	942	942	943	942	942	942	941	941	941	941	941	941	941	941	941	942	943	941	24
24	942	942	942	943	943	943	944	944	945	946	946	947	947	947	947	947	947	947	947	947	947	947	947	947	947	945	24
25	947	947	948	948	948	948	948	949	949	950	951	951	950	950	950	950	950	949	949	949	949	949	949	949	951	949	24
26	948	948	947	946	946	945	944	944	944	944	943	943	942	941	940	939	939	939	938	938	937	937	936	936	948	942	24
27	936	937	937	938	938	939	939	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	940	24
28	941	941	941	941	941	941	941	941	941	942	942	942	942	941	941	941	940	939	939	938	938	937	937	937	942	940	24
29	937	936	935	935	934	934	933	933	932	932	932	931	930	930	929	929	928	928	927	927	927	926	926	925	937	931	24
30	925	924	924	923	923	923	922	922	922	921	921	921	920	919	918	918	918	919	919	920	920	920	921	921	925	921	24
31	922	922	923	923	923	924	925	926	926	927	927	927	927	927	927	927	927	926	927	927	927	926	926	926	927	926	24
HOURLY MAX	953	953	953	953	952	953	954	954	955	956	957	957	956	956	956	956	955	955	954	954	954	954	953	953			
HOURLY AVG	940	940	940	940	940	940	940	940	940	941	941	941	941	941	940	940	940	940	940	940	940	939	939	939			

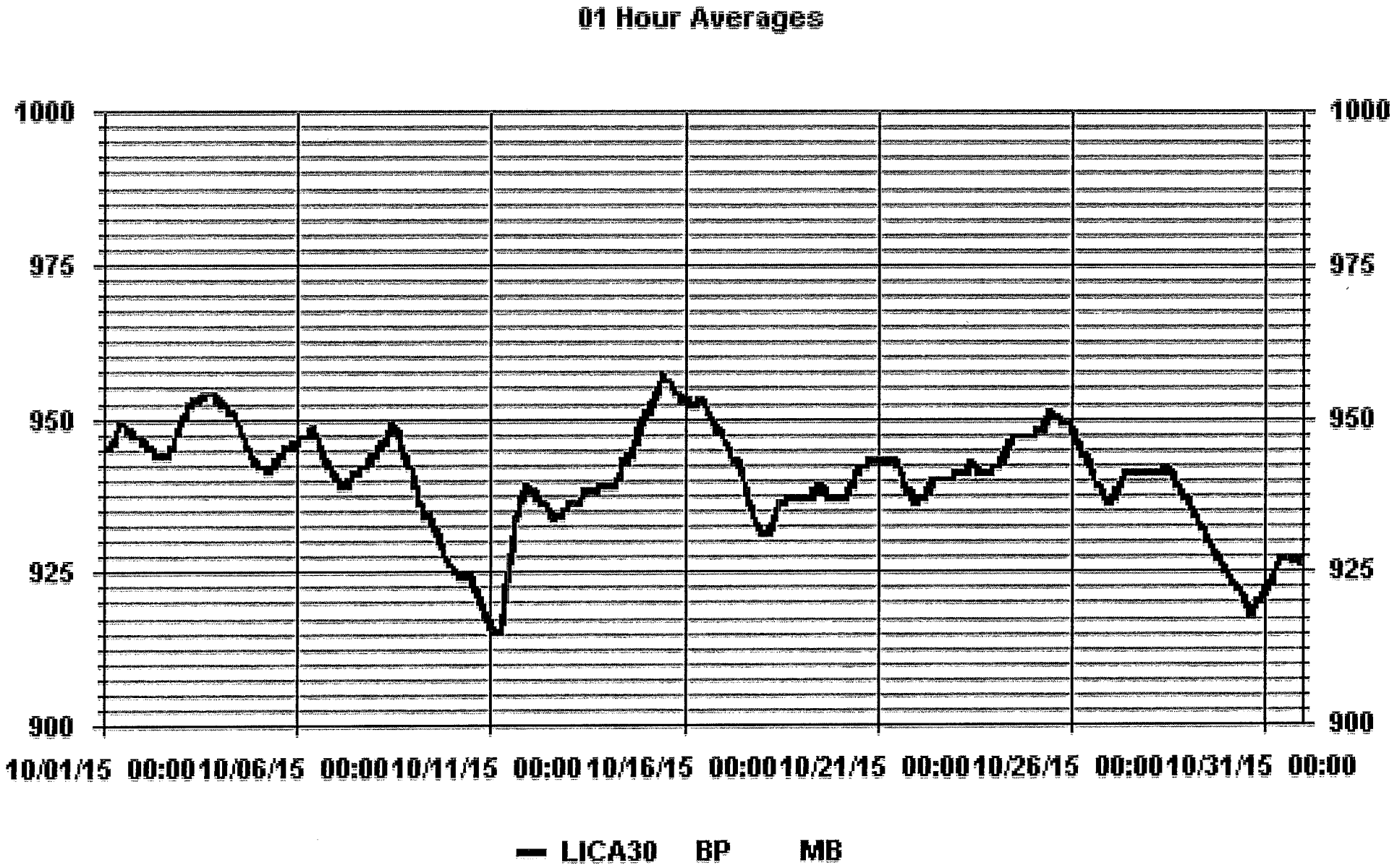
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	957	MB	@ HOUR(5)	10 , 11	ON DAY(5)	15 , 15	
MAXIMUM 24-HR AVERAGE:	954	MB			ON DAY(5)	15	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	8.74		MONTHLY AVERAGE:			940	MB


01 Hour Averages
1000
975
950
925
900
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 BP MB

AMBIENT TEMPERATURE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

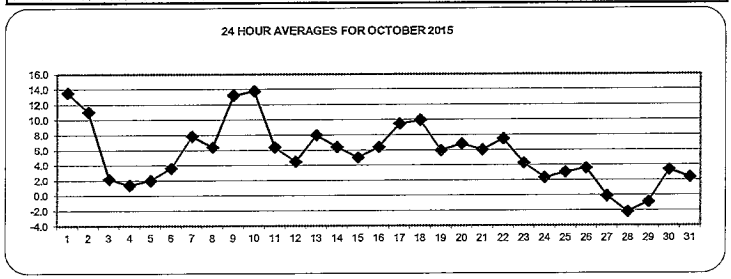
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.4	6.4	5.8	5.1	4.0	3.4	3.0	4.3	9.7	16.8	19.6	20.8	22.1	23.6	22.8	23.5	21.9	18.0	14.6	15.4	15.6	15.1	14.2	11.5	23.6	13.6	24
2	9.0	8.6	8.8	8.0	7.7	7.8	8.0	8.4	8.8	9.7	11.1	14.2	16.6	17.6	18.6	18.4	16.6	14.2	11.8	11.0	10.2	7.7	6.5	5.7	18.6	11.0	24
3	4.8	4.2	3.7	2.9	2.5	1.6	1.4	1.7	1.5	1.8	2.0	2.6	3.2	3.7	3.7	3.7	3.1	2.6	1.5	0.0	-0.4	-0.2	0.3	0.3	4.8	2.2	24
4	-0.4	0.0	0.1	-0.1	-0.2	-0.2	-0.3	-0.4	0.7	2.6	3.3	4.3	5.6	5.9	6.0	7.0	6.1	3.1	0.6	-1.3	-2.7	-2.0	-2.0	-2.0	7.0	1.4	24
5	-2.3	-3.0	-3.3	-3.6	-3.9	-4.6	-4.2	-2.9	-0.8	2.3	5.2	8.2	10.5	11.1	11.2	11.3	10.1	7.7	3.7	1.5	0.5	-1.2	-1.9	-3.2	11.3	2.0	24
6	-3.8	-4.7	-5.2	-5.9	-6.2	***-6.6***	***-6.6***	-4.9	0.8	7.0	9.7	9.6	10.2	10.7	11.6	11.8	11.0	8.7	6.2	6.7	6.8	6.5	6.5	6.6	11.8	3.6	24
7	6.6	6.1	6.2	5.7	4.2	3.3	1.8	2.1	6.6	10.3	12.9	14.8	15.8	15.9	16.0	15.7	14.1	11.1	6.8	4.6	3.2	2.4	1.6	0.2	16.0	7.8	24
8	-1.2	-1.6	-2.2	-2.6	-2.9	-3.2	-3.2	-1.7	3.9	9.1	12.8	14.4	14.9	15.7	16.6	17.1	15.3	11.0	8.1	5.9	5.2	5.6	9.7	7.1	17.1	6.4	24
9	6.3	7.0	6.8	7.5	7.4	5.4	4.0	6.2	11.4	15.2	18.1	20.1	19.9	20.3	20.3	19.5	18.5	16.2	14.7	14.2	15.1	15.2	14.4	13.6	20.3	13.2	24
10	12.6	11.8	11.2	10.7	11.1	10.3	9.7	11.5	12.2	12.9	15.3	18.5	21.0	22.8	23.7	***24.2***	22.6	18.5	13.3	10.5	8.1	6.7	6.0	5.0	***24.2***	***13.8***	24
11	6.0	7.4	7.4	10.3	11.5	9.5	10.0	10.3	10.5	10.0	7.9	6.5	5.3	4.8	4.8	4.9	5.2	5.2	5.1	4.5	2.9	2.0	1.1	-0.4	11.5	6.4	24
12	-1.3	-1.2	-1.5	-0.4	0.1	1.2	1.7	1.9	3.2	4.6	6.0	7.2	8.4	8.7	8.0	8.9	8.6	7.1	6.7	6.3	5.8	6.0	5.8	5.3	8.9	4.5	24
13	5.0	4.9	4.4	3.9	3.1	3.2	3.7	4.9	7.8	10.7	12.5	13.4	13.6	13.9	13.8	13.3	12.1	10.0	8.3	7.6	6.9	5.2	4.9	4.1	13.9	8.0	24
14	3.9	4.2	3.2	2.6	1.9	1.7	1.3	2.4	6.4	8.9	10.5	11.9	12.5	11.2	11.4	10.8	10.1	8.2	7.2	6.9	5.5	4.5	3.8	2.5	12.5	6.4	24
15	1.5	0.5	0.4	0.3	-0.5	-1.3	-1.6	-0.2	3.6	7.6	10.2	11.6	11.6	13.0	13.3	12.6	10.7	7.5	4.8	3.1	3.9	2.9	3.3	1.7	13.3	5.0	24
16	0.2	-0.9	-0.9	-0.8	-1.9	-2.0	-1.8	-0.3	4.7	8.8	10.9	11.9	12.8	13.3	14.5	14.2	13.0	10.9	9.6	9.2	7.7	6.8	7.2	6.9	14.5	6.4	24
17	6.2	5.5	4.2	3.7	3.6	3.6	2.2	2.3	5.7	8.2	10.6	12.8	15.1	16.3	16.9	16.7	15.3	13.7	12.0	11.6	10.7	10.8	10.7	8.9	16.9	9.5	24
18	6.0	6.7	5.1	4.6	5.6	5.8	7.8	9.8	11.6	12.9	14.3	16.3	17.2	17.7	17.6	17.3	15.2	11.7	8.6	7.5	6.5	5.5	4.4	2.7	17.7	9.9	24
19	1.6	1.8	0.1	-0.6	-1.3	-2.2	-2.6	-2.3	-0.1	3.9	10.5	13.4	15.6	14.4	14.2	13.0	11.7	9.7	7.8	6.1	6.7	6.4	7.9	7.1	15.6	6.0	24
20	5.8	5.7	5.4	4.9	5.9	6.6	6.6	6.5	6.7	6.9	8.1	9.7	11.0	11.6	11.7	11.5	9.8	7.2	5.4	5.3	4.7	3.3	1.7	1.3	11.7	6.8	24
21	0.4	-0.6	-2.1	-0.4	-0.9	-2.0	-2.6	-2.8	0.9	6.0	9.7	12.3	13.4	14.1	14.3	13.1	10.9	8.8	9.1	10.1	9.4	8.8	7.5	6.7	14.3	6.0	24
22	7.1	6.3	5.8	5.2	5.3	5.7	5.7	6.1	7.4	9.0	10.5	12.2	13.3	12.6	12.9	13.0	10.8	7.1	5.6	4.4	3.7	3.3	3.2	3.0	13.3	7.5	24
23	2.5	1.1	0.0	0.6	0.1	-0.3	-0.9	-0.5	2.6	7.1	9.4	10.9	11.6	11.9	12.1	11.1	8.5	6.5	6.2	3.4	1.2	-0.3	-1.3	-1.6	12.1	4.2	24
24	-1.9	-2.1	-1.4	-0.8	-1.3	-1.1	-1.5	-1.0	0.5	2.7	5.7	8.5	9.1	9.3	9.9	9.3	7.4	4.3	1.8	1.5	-0.2	-0.8	-0.9	-1.0	9.9	2.3	24
25	-1.0	-1.1	1.7	2.6	2.2	1.8	0.7	0.0	0.4	3.6	6.3	7.3	7.6	8.0	8.9	8.0	4.8	2.0	0.5	0.4	2.2	2.6	1.9	1.9	8.9	3.1	24
26	1.8	1.2	0.2	-0.2	-0.4	-0.8	-0.8	-1.0	0.7	3.6	4.7	6.3	7.6	7.7	7.5	6.8	6.3	6.1	5.8	4.9	4.7	4.7	4.4	4.3	7.7	3.6	24
27	4.0	2.4	0.8	0.1	-0.1	-0.3	-0.6	-0.7	-0.9	-0.8	-0.6	-0.5	-0.1	-0.1	-0.1	-0.2	0.0	-0.4	-0.2	-0.1	-0.1	-0.7	-1.2	-1.8	4.0	-0.1	24
28	-2.6	-3.1	-3.4	-3.7	-4.2	-4.4	-3.9	-3.4	-2.7	-2.2	-1.8	-1.5	-0.6	1.0	2.1	2.0	-0.9	-2.1	-1.4	-2.6	-3.2	-3.3	-3.0	-3.2	2.1	-2.2	24
29	-2.9	-2.7	-2.6	-2.5	-2.4	-2.4	-2.3	-2.2	-1.9	-1.4	-0.7	-0.3	-0.1	0.1	0.2	0.4	0.1	-0.2	0.0	0.3	0.4	0.5	0.6	0.7	0.7	-0.9	24
30	0.4	0.1	0.0	0.1	-0.2	0.1	-0.2	-1.0	0.8	2.7	4.9	7.4	9.5	9.8	8.6	7.4	5.5	4.5	3.9	4.0	3.5	3.2	2.9	2.7	9.8	3.4	24
31	1.9	1.3	1.6	0.7	0.3	0.6	1.6	2.2	2.4	2.8	3.5	3.6	3.7	3.8	3.9	3.6	3.1	2.6	2.6	2.2	2.3	2.0	2.3	2.3	3.9	2.4	24
HOURLY MAX	12.6	11.8	11.2	10.7	11.5	10.3	10.0	11.5	12.2	16.8	19.6	20.8	22.1	23.6	23.7	24.2	22.6	18.5	14.7	15.4	15.6	15.2	14.4	13.6			
HOURLY AVG	2.7	2.3	1.9	1.9	1.6	1.3	1.2	1.8	4.0	6.6	8.5	9.9	10.9	11.3	11.5	11.3	9.9	7.8	6.2	5.3	4.7	4.2	4.0	3.2			

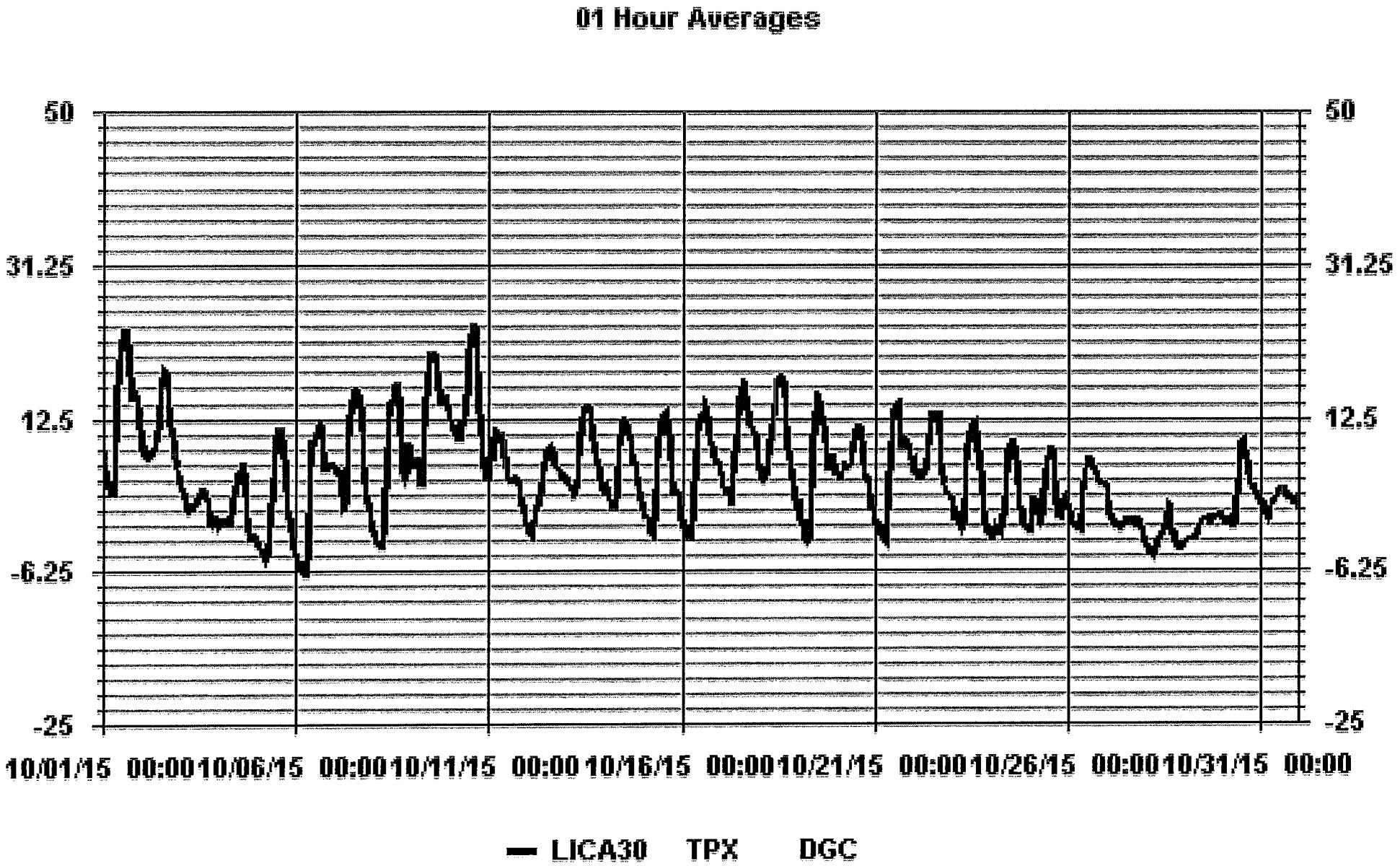
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:		-6.6	°C	@ HOUR(S)	5 , 6	ON DAY(S)	6 , 6
MAXIMUM 1-HR AVERAGE:		24.2	°C	@ HOUR(S)	15	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:		13.8	°C			ON DAY(S)	10
						VAR-VARIOUS	
				OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:		5.97		MONTHLY AVERAGE:		5.6	°C


01 Hour Averages
50
31.25
12.5
-6.25
-25
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 TPX DGC

PRECIPITATION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - OCTOBER 2015
JOB # 2833-2015-10-30- C

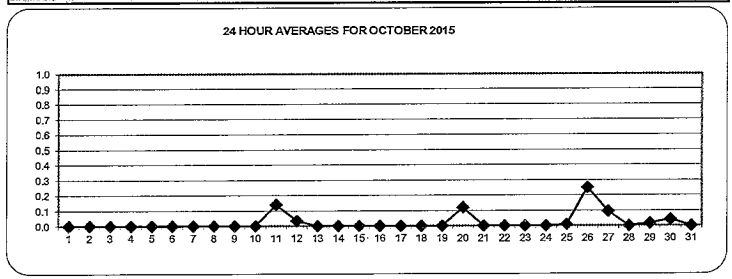
PRECIPITATION hourly averages (mm)

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	24-HOUR	
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	MAX.	AVG.	RDGS.
DAY																											
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	0.0	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	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	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	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	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	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	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	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	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	24
11	0.0	0.0	0.0	0.0	1.1	0.5	0.0	0.0	0.0	0.2	0.2	0.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	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	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	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	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	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	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	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	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	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	24
20	0.0	0.0	0.0	0.0	1.2	1.6	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	1.6	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	0.0	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	0.0	0.0	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	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	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	0.2	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	0.2	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	0.9	***2.1***	0.6	0.4	0.9	1.1	***2.1***	***0.3***	24
27	1.2	0.2	0.3	0.1	0.0	0.0	0.2	0.1	0.1	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	1.2	0.1	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	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	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	0.1	0.4	0.5	0.0	0.0	0.0	0.0	0.5	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	24
HOURLY MAX	1.2	0.2	0.3	0.1	1.2	1.6	0.2	0.1	0.1	0.2	0.2	0.6	0.8	0.4	0.4	0.0	0.0	0.1	0.9	2.1	0.6	0.4	0.9	1.1			
HOURLY AVG	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	0.1	0.0	0.0	0.0	0.0			

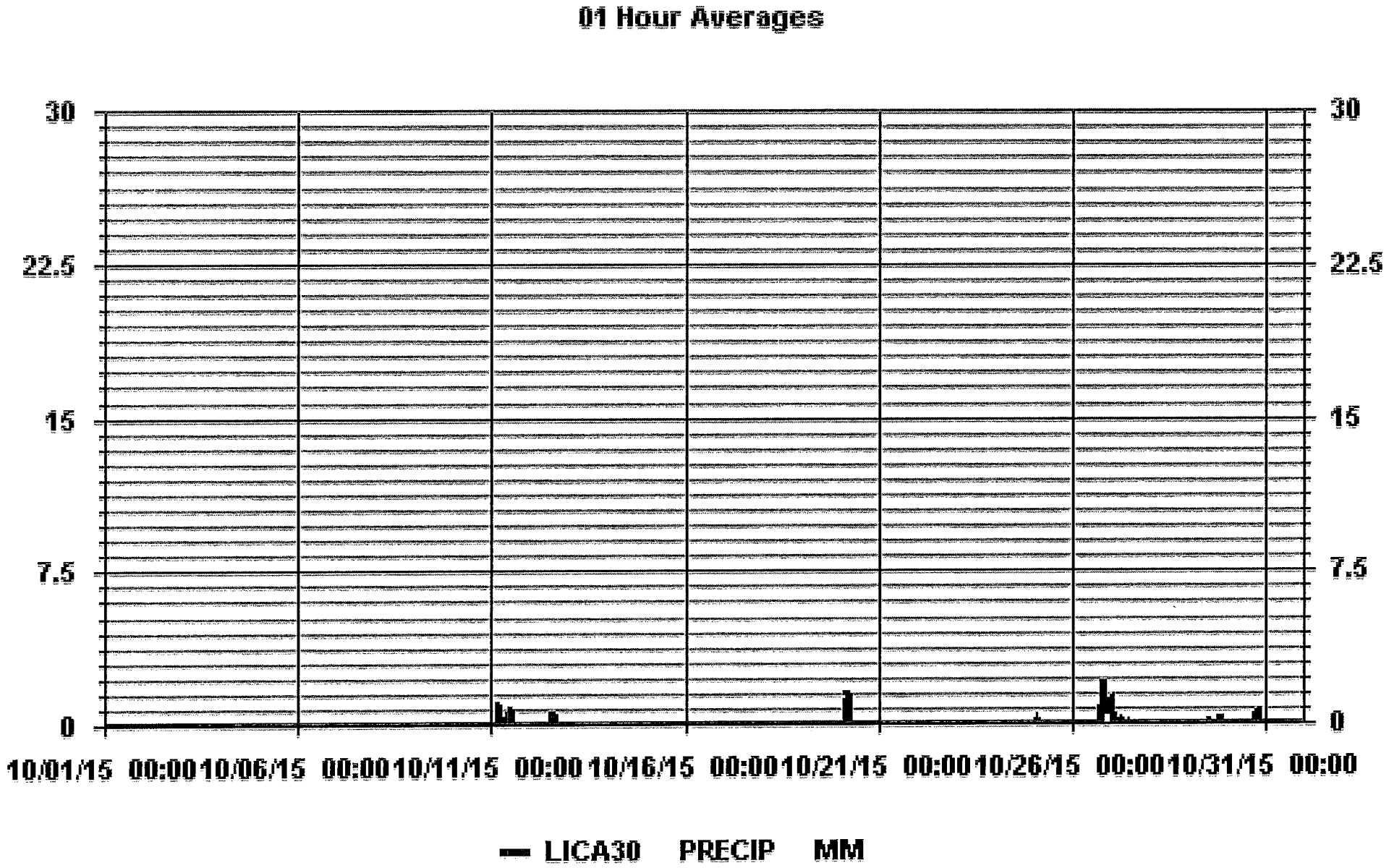
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		2.1	MM	@ HOUR(S)	19	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:		0.3	MM			ON DAY(S)	26
MONTHLY TOTAL	17.0	MM				VAR-VARIOUS	
				OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.15			MONTHLY AVERAGE:		0.0	MM


01 Hour Averages
30
22.5
15
7.5
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA30 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100A Sulphur Dioxide Analyzer Calibration

Date:	October 15, 2015	Barometric Pressure:	28.15 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Maskwa	Weather Conditions:	Clear
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	8:47	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	12:47	Cal Gas Expiry Date:	March 12, 2019
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	1124	Range ppb:	1000
Last Calibration Date:	September 1, 2015	As Found C.F.:	1.003
Previous C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	BLM002073
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	Sulphur Dioxide Standard Calibration Points
High	780
Mid	380
Low	190

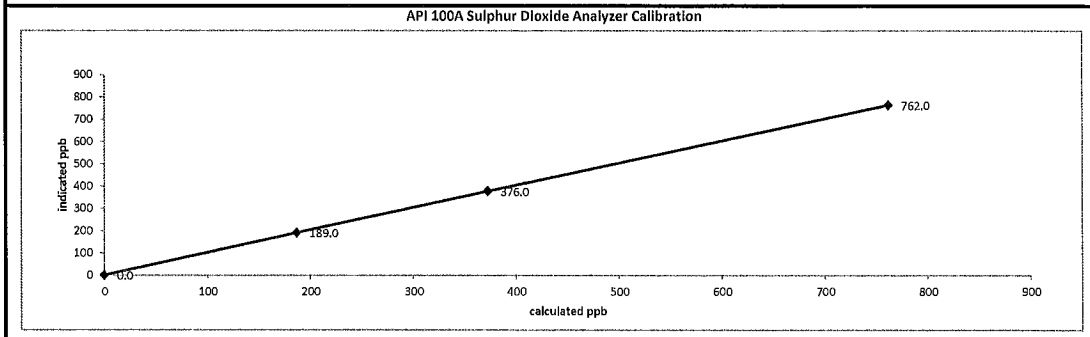
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.00	5013	0.0	0.0	N/A
as found high	4938	77.20	5015	762.0	760.0	1.003
adjusted zero	5013	0.00	5013	0.0	0.0	n/a
adjusted high	4938	77.20	5015	762.0	762.0	1.000
mid	4976	37.70	5014	372.2	376.0	0.990
low	4994	18.90	5013	186.6	189.0	0.987
calibrator zero	5013	0.00	5013	0.0	0.0	n/a
					Average C.F.=	0.992

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.17%	± 3% F.S.
% change in C.F. from last cal=	-0.26%	± 10%

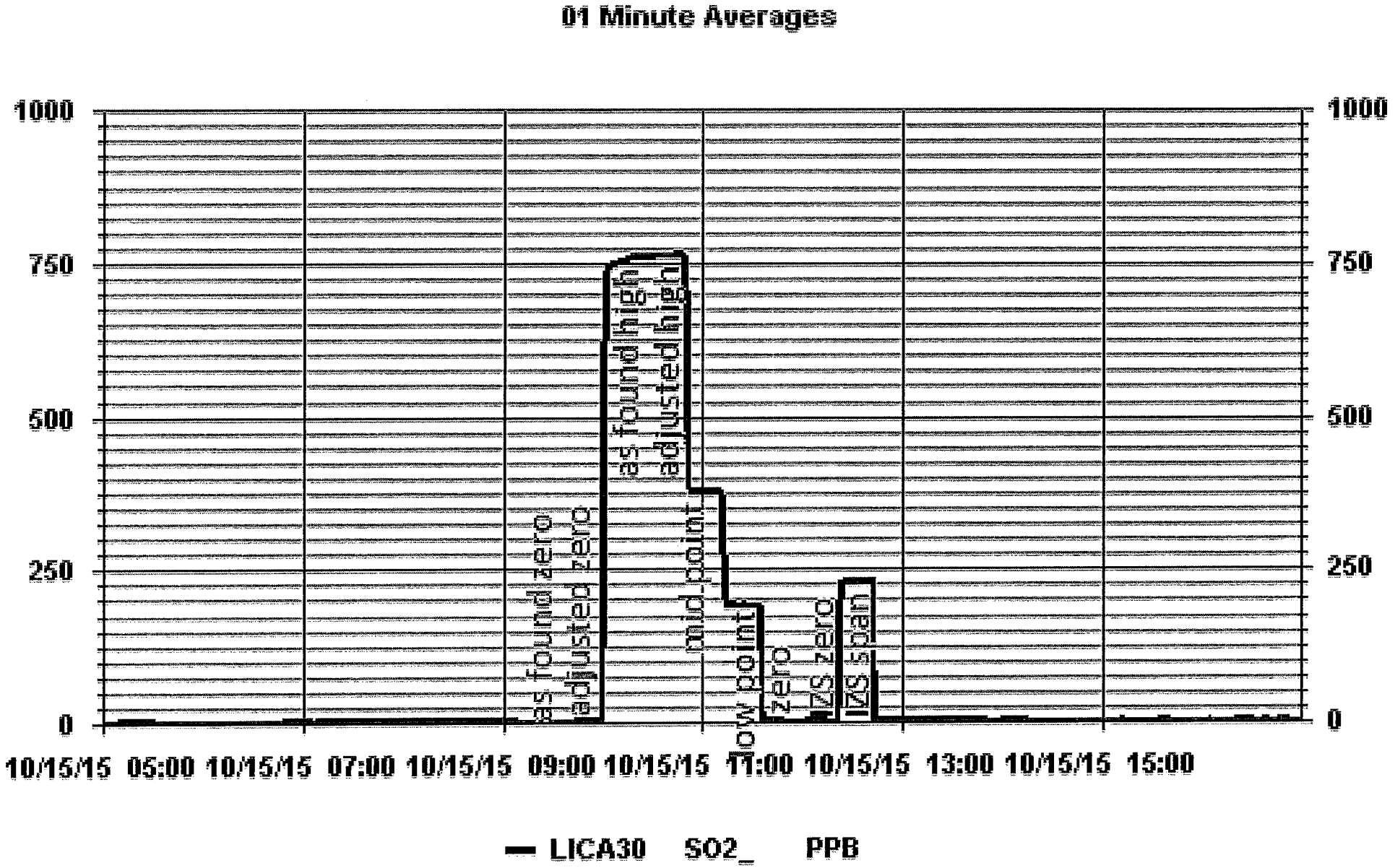
API 100A Sulphur Dioxide Analyzer Calibration



	As found:	As left:
SLOPE:	0.962	0.962
OFFSET:	23.6	23.5
HVPS:	782	782
DCPS:	2566	2566
RCELL TEMP:	50.0	50.0
BOX TEMP:	28.4	28.7
PMT TEMP:	7.2	7.3
IZS TEMP:	45.0	45.0
Converter Temp:	n/a	n/a
PRES:	25.5	25.5
SAMP FL:	682	682
PMT:	50.1	55.5
UV LAMP:	2349.3	2356.6
LAMP RATIO:	118.1	118.1
STR. LGT	11.4	11.3
DRK PMT:	32.3	33.1
DRK LMP:	-12.0	-12.0
Internal Span:	239.9	230

Comments:

Sample filter changed.


01 Minute Averages
1000
750
500
250
0
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
IZS zero
IZS span
10/15/15 05:00 10/15/15 07:00 10/15/15 09:00 10/15/15 11:00 10/15/15 13:00 10/15/15 15:00
LICA30 SO2_ PPB

HYDROGEN SULPHIDE

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 15, 2015	Barometric Pressure:	28.15 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Maskwa	Weather Conditions:	Clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	11:41	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	15:06	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:	September 1, 2015	As Found C.F.:	1.004
Previous C.F.:	0.999	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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

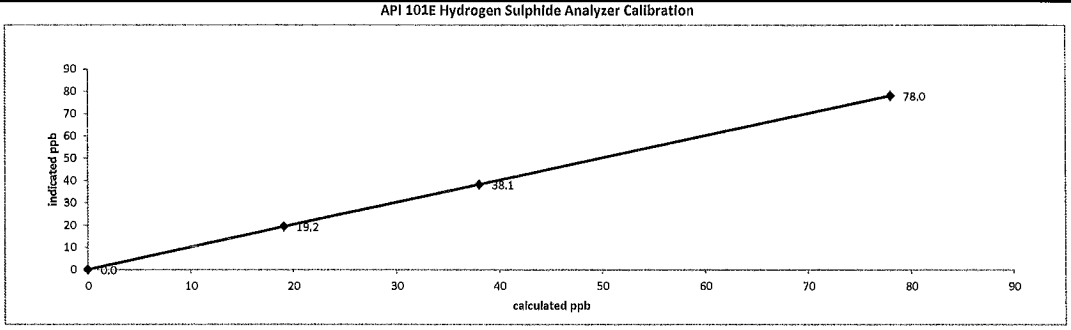
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.00	7497	0.0	-0.1	N/A
as found high	7442	58.50	7501	78.0	77.6	1.004
adjusted zero	7497	0.00	7497	0.0	0.0	n/a
adjusted high	7442	58.50	7501	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	38.1	0.997
low	7486	14.30	7500	19.1	19.2	0.993
calibrator zero	7497	0.00	7497	0.0	0.0	n/a
					Average C.F.=	0.997

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.07%	± 3% F.S.
% change in C.F. from last cal=	-0.48%	± 10%

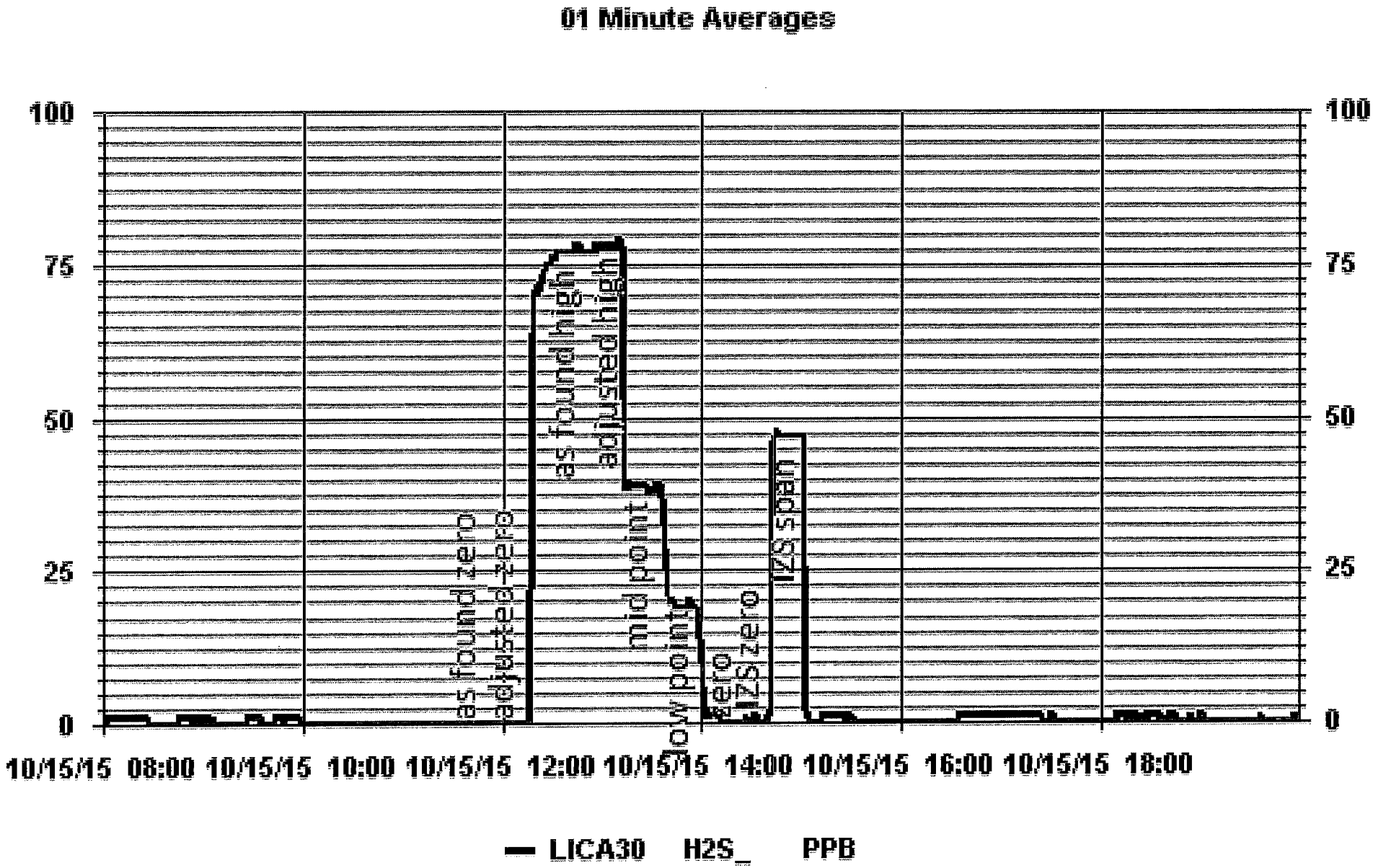
API 101E Hydrogen Sulphide Analyzer Calibration



As found:		As left:	
SLOPE:	0.837	SLOPE:	0.843
OFFSET:	50.8	OFFSET:	50.1
HVPS:	616	HVPS:	616
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	31.2	BOX TEMP:	30.9
PMT TEMP:	7.9	PMT TEMP:	7.9
IZS TEMP:	45.0	IZS TEMP:	45.0
Converter Temp:	314.5	Converter Temp:	315.5
PRES:	29.5	PRES:	29.5
SAMP FL:	663	SAMP FL:	662
UV LAMP:	2574.0	UV LAMP:	2574.9
LAMP RATIO:	82.8	LAMP RATIO:	82.8
STR. LGT	21.2	STR. LGT	21.1
DRK PMT:	32.7	DRK PMT:	32.5
DRK LMP:	5.4	DRK LMP:	5.3
Internal Span:	48.38	Internal Span:	47.1

Comments:

Sample filter changed.


01 Minute Averages
100
75
50
25
0
10/15/15 08:00
10/15/15 10:00
10/15/15 12:00
10/15/15 14:00
10/15/15 16:00
10/15/15 18:00
LICA30 H2S_ PPB

TOTAL HYDROCARBON

AIR FCD-00055/1
THC 1015 monthly

Maxxam — Thermo 51C Total Hydrocarbon Analyzer Calibration

Date:	October 15, 2015	Barometric Pressure:	28.15 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Maskwa	Weather Conditions:	Clear
Parameter:	Total Hydrocarbon	Calibration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	8:47 / 12:25	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	March 26, 2017

Analyzer:

Serial Number:	436609738	Range ppm:	50
Last Calibration Date:	September 1, 2015	As Found C.F.:	0.981
Previous Cal High Point C.F.:	1.000	New C.F.:	1.001

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	API 700	
Serial #:	830	
Cal Gas Cylinder I.D. # :	LL33674	
CH_4/C_3H_8 Cylinder Conc. (ppm):	601.4	202.0
CH_4 as propane/total CH_4 equivilants (ppm):	555.5	1156.9

Standard Calibration Points for a Range of 50 ppm

Point	Target ppm
High	38
Mid	18
Low	9

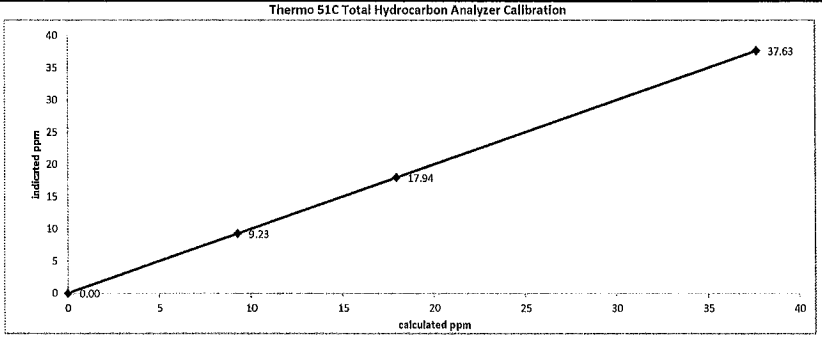
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1999	0.00	1999	0.0	0.07	n/a
as found high	1932	65.00	1997	37.66	38.44	0.981
adjusted zero	1999	0.00	1999	0.00	0.00	n/a
adjusted high	1932	65.00	1997	37.66	37.63	1.001
mid	1969	31.00	2000	17.93	17.94	1.000
low	1984	16.00	2000	9.26	9.23	1.003
calibrator zero	1999	0.00	1999	0.0	0.00	n/a
					Average C.F.=	1.001

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	0.01%	± 3% F.S.
% change in C.F. from last cal=	1.86%	± 10%

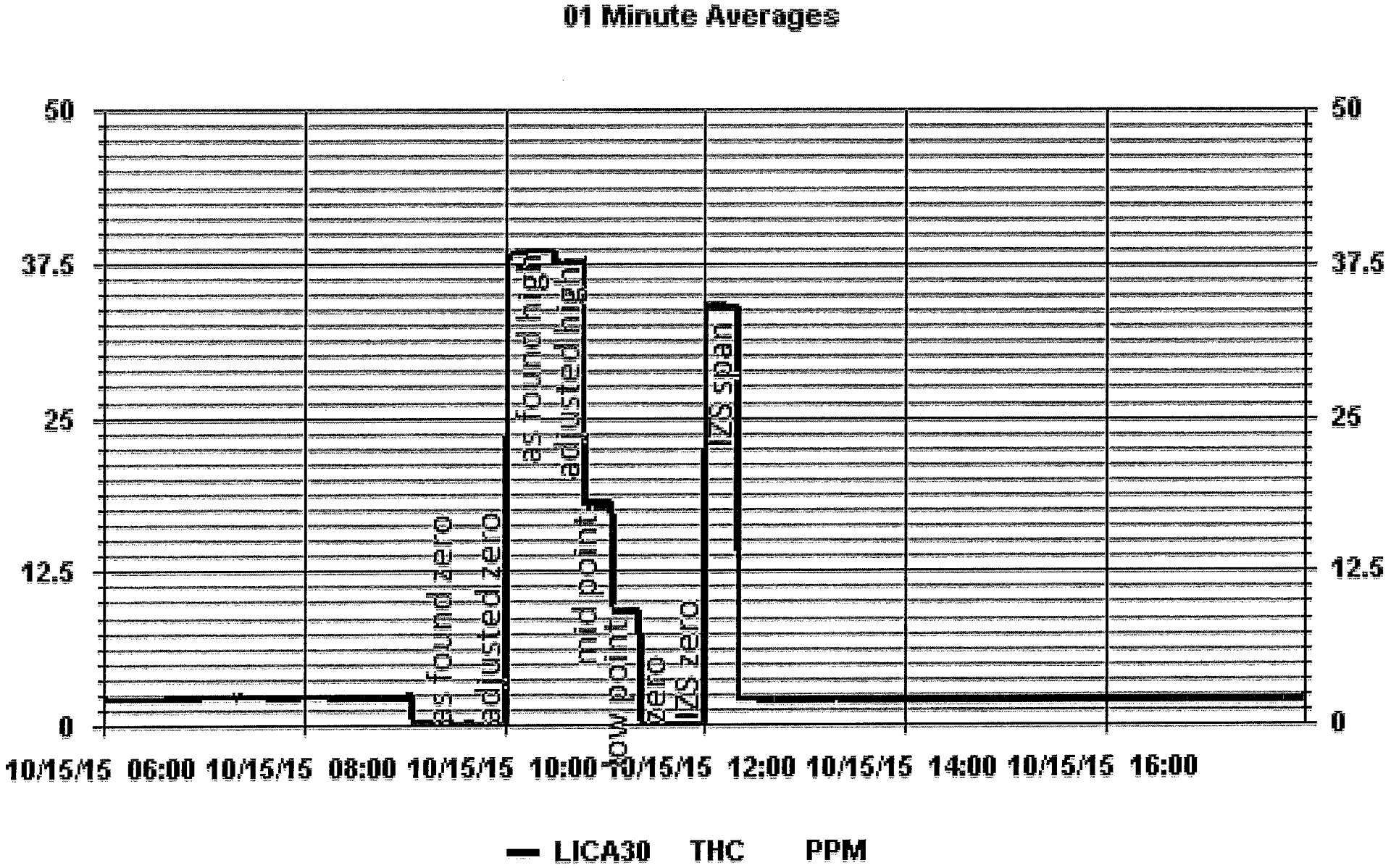
Thermo 51C Total Hydrocarbon Analyzer Calibration



As found:		As left:	
H2 cylinder (psi):	2000	H2 cylinder (psi):	2000
H2 cylinder reg set (psi):	30	H2 cylinder reg set (psi):	30
Span Cylinder (psi):	850	Span Cylinder (psi):	850
Span Cylinder Reg Set (psi):	21	Span Cylinder Reg Set (psi):	21
Zero Air Gen Pressure:	35	Zero Air Gen Pressure:	35
measurement alarms:	None	measurement alarms:	None
service alarms:	None	service alarms:	None
cnt:	896	cnt:	927
rng:	1	rng:	1
try:	0	try:	0
flm:	181.2	flm:	181.2
det:	125.2	det:	125.5
Flame:	181	Flame:	181
Filter:	125	Filter:	125
Base:	125	Base:	125
Sample psi:	07.53	Sample psi:	07.53
Internal Air Pressure:	20	Internal Air	20
Internal Fuel Pressure:	10	Internal Fuel Pressure:	10
Intenal Pressure Gauge psi:	14	Intenal Pressure Gauge psi:	14
Internal Span:	34.13	Internal Span:	34.0

Comments:

Sample filter changed.


01 Minute Averages
50
37.5
25
12.5
0
10/15/15 06:00
10/15/15 08:00
10/15/15 10:00
10/15/15 12:00
10/15/15 14:00
10/15/15 16:00
as found zero
as adjusted zero
as found span
as adjusted span
mid point
zero point
span point
LICA30 THC PPM

NITROGEN DIOXIDE

Maxxam
A Bureau Veritas Group Company

API 200E NO-NO2-NOx Analyzer Calibration

Date:	October 15, 2015	Barometric Pressure:	28.15 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	Maskwa	Weather Conditions:	Clear
Start/End Time 24 hr. (mst):	8:47 / 14:22	Calibration Purpose:	routine monthly
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date:	March 12, 2019

Analyzer:

Serial Number:	593
Last Calibration Date:	September 15, 2015
Range ppb:	1000

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	1.000	0.957	1.000
NO_2 =	1.000	1.000	1.000
NOx =	1.000	0.955	1.000

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	SABIO 2010 D	
Serial #:	11900613	
Cal Gas Cylinder I.D. # :	BLM002073	
NO/NOx Gas Conc. (ppm):	50.6	50.6

Standard Calibration Points for a Range of: 1000 ppb

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	5013	0.0	5013	0	0	1.0	-1.0	n/a	n/a
as found high	4938	77.2	5015	778.9	778.9	815.0	815.0	0.957	0.955
adjusted zero	5013	0.00	5013	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4938	77.20	5015	778.9	778.9	779.0	779.0	1.000	1.000
mid	4976	37.70	5014	380.5	380.5	385.0	385.0	0.988	0.988
low	4994	18.90	5013	190.8	190.8	195.0	195.0	0.978	0.978
calibrator zero	5013	0.00	5013	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.989	0.989

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	4938	77.20	5015	0.0	779.0	780.0	1.0	0.0	1.0	
as found high NO2	4938	77.20	5015	500.0	295.0	780.0	485.0	484.0	484.0	1.000
gpt mid	4938	77.20	5015	275.0	507.0	782.0	275.0	272.0	274.0	0.993
gpt low	4938	77.20	5015	100.0	676.0	781.0	105.0	103.0	104.0	0.990
									Average NO_2 C.F.=	0.994

Linear Regression/Calibration Results:

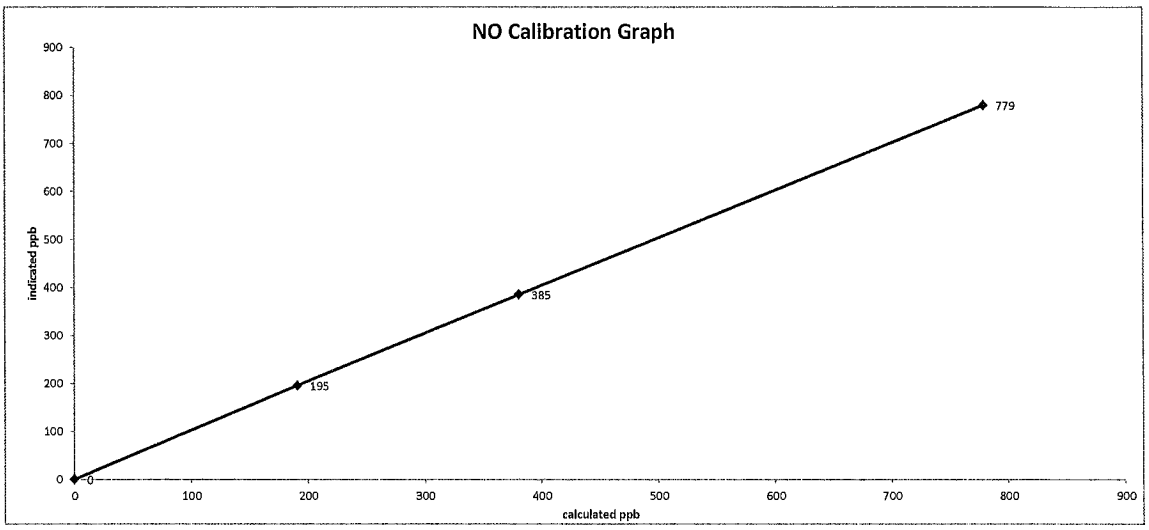
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	1.002	.95-1.05
b (Intercept as % of full scale)=	0.26%	0.26%	0.13%	± 3% F.S.
% change in C.F. from last cal=	4.31%	4.55%	0.00%	± 10%
NO2 converter effeciency			0.99	0.96 to 1.04

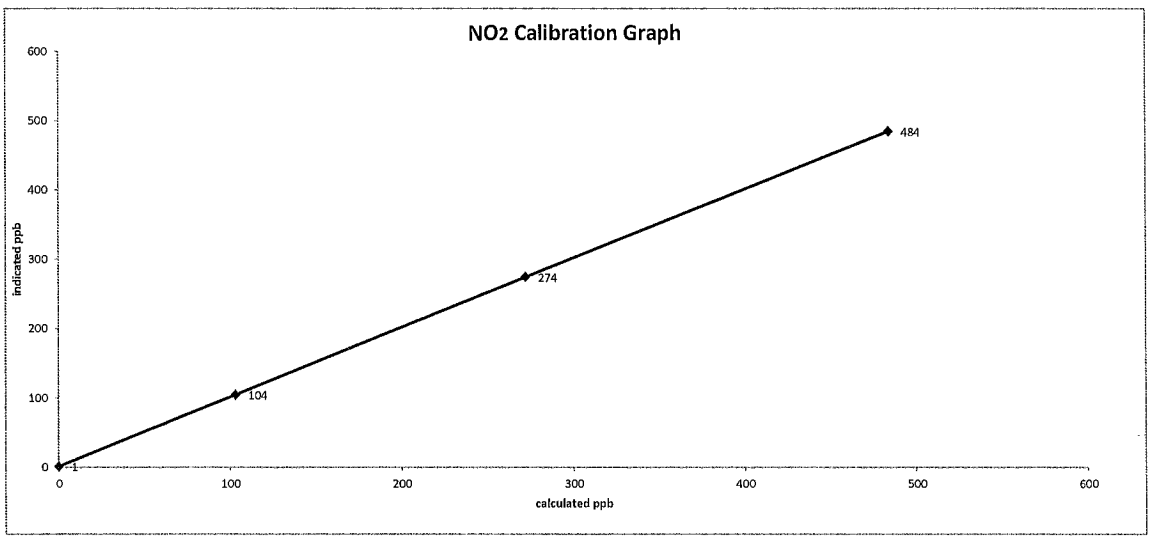
As found:		As left:	
NOx SLOPE:	1.017	NOx SLOPE:	0.972
NOx OFFS:	2.6	NOx OFFS:	0.0
NO SLOPE:	1.022	NO SLOPE:	0.976
NO OFFS:	-0.7	NO OFFS:	-0.3
SAMP FLW:	484	SAMP FLW:	484
OZONE FL:	79	OZONE FL:	79
PMT:	9.3	PMT:	9.7
NORM PMT:	0.4	NORM PMT:	1.0
AZERO:	7.4	AZERO:	7.6
HVPS:	662	HVPS:	662
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	29.5	BOX TEMP:	30.4
PMT TEMP:	6.7	PMT TEMP:	6.7
IZS TEMP:	38.7	IZS TEMP:	38.7
MOLY TEMP:	316.0	MOLY TEMP:	314.9
RCEL:	4.4	RCEL:	4.4
SAMP:	27.2	SAMP:	27.6
Internal Span NO:	7.3	Internal Span NO:	7.5
Internal Span NO2:	407.2	Internal Span NO2:	385.9
Internal Span NOx:	414.4	Internal Span NOx:	393.5

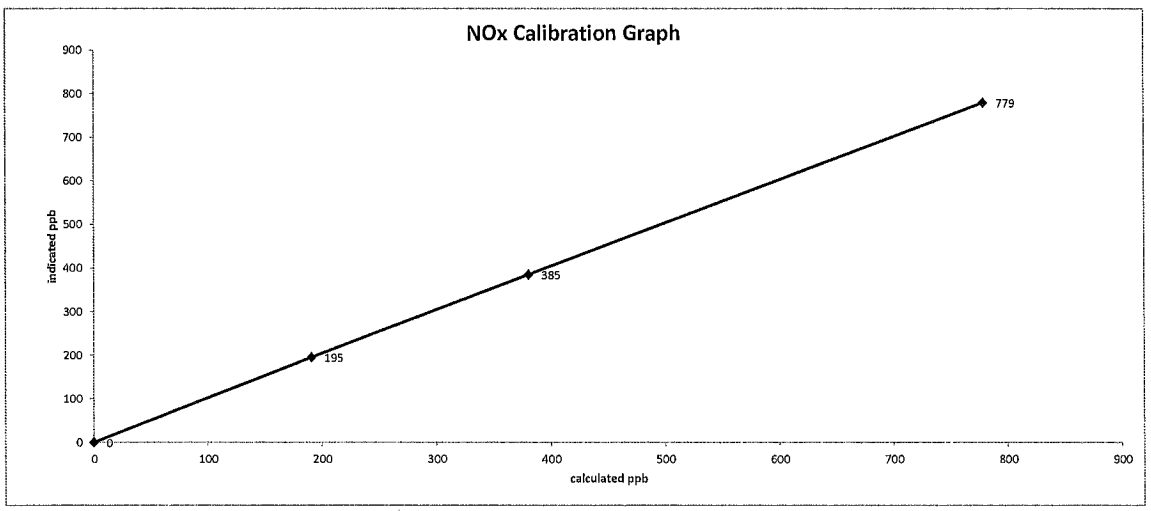
Comments:

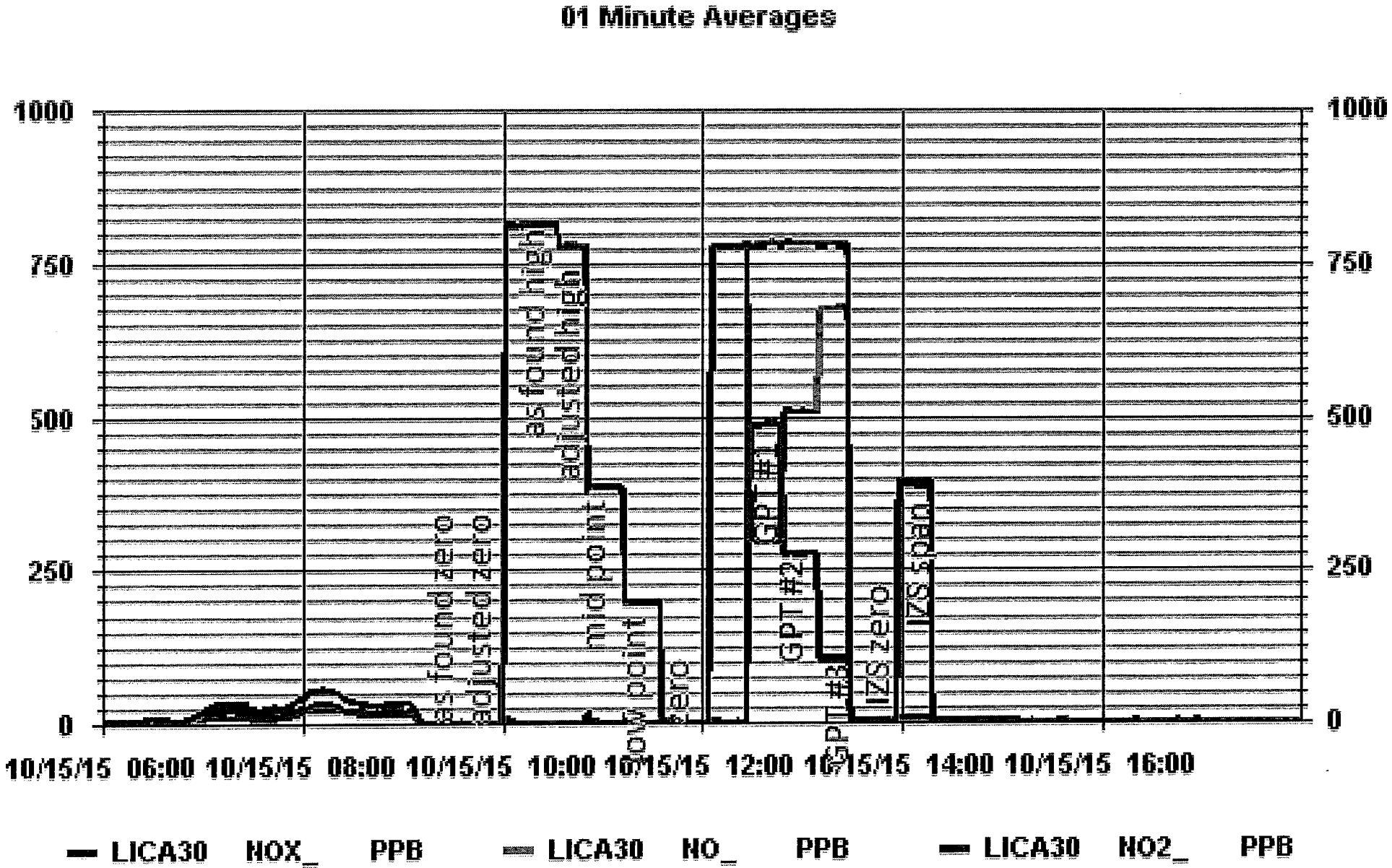
Sample filter changed. No NO2 adustment made.

Date:	October 15, 2015	Start/End Time 24 hr. (mst):	8:47 / 14:22
Company/Alrshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Maskwa	Calibration Method:	Gas Dilution & Varying UV Lamp Power








01 Minute Averages
1000
750
500
250
0
10/15/15 06:00
10/15/15 08:00
10/15/15 10:00
10/15/15 12:00
10/15/15 14:00
10/15/15 16:00
LICA30 NOX_ PPB
LICA30 NO_ PPB
LICA30 NO2_ PPB

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 Fant 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: Lynn Paxton Date: 3/10/14

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution) File No. 2014-258A

Company: Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	API 700	Make/Model	N/A
Serial Number	830	Serial Number	N/A
Last Verification Date	Oct 2013	Temperature (°C)	N/A
SO_2 Cylinder Conc.	50.3	Barometric Pressure	N/A
SO_2 Cylinder S/N	LL42475		

Flow Measurements

Pt. No. 1 79.5 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference vs Audit Gas	% Difference Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
		Absolute Average Percent Difference	0%	± 10%

LINEAR REGRESSION ANALYSIS

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

SO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9971	**0.90-1.10**
b (Intercept % of FS)=	0.0000	**± 3% F.S.**

AENV Standards		**SO_2 Analyzer**	
Audit Calibrator		Make/Model	Teco 43C
Make/Model	R&R MFC 201	Serial/AMU Number	AMU 1623
Serial/AMU Number	AMU 1690	Last Calibration Date	Dec 15/14
		Full Scale (ppm)	1.0

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamnation inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

OZONE

File No. 2015-030A

Company: Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	Sabio 2010D	Make/Model	N/A
Serial Number	11900613	Serial Number	N/A
Oven Temperature	N/A	Temperature (°C)	N/A
Last Verification Date	N/A	Barometric Pressure	N/A

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	% Difference Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
		Absolute Average Percent Difference	1%	± 10%

LINEAR REGRESSION ANALYSIS

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

	O_3	**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	1.0163	**0.90-1.10**
b (Intercept % of FS)=	0.0800	**± 3% F.S.**

AENV Standards		**Ozone Analyzer**	
Audit Calibrator		Make/Model	Teco 49i
Make/Model	Teco 49i PS	Serial/AMU Number	AMU 1843
Serial/AMU Number	AMU 1808	Last Calibration Date	May 21, 2015
Ozone Standard	Primary	Full Scale (ppm)	0.5

COMMENTS:

Auditor: Al Clark Date: May 21, 2015

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Form No. F-GAS-002
Version No. 1.1

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam **Operator's Name:** Limin Li

Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp.°C: 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	0.000			
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
				Average Cylinder Concentration:	**48.0**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **3.0**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] **COMMENTS:**

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Form No. F-GAS-002
Version No. 1.1

Alberta Government

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 16, 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			
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 [X] COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

PRAXAIR.

Praxair Canada, Inc.
9501-34th Street
Edmonton, AB T6B 2X6
Tel: 780-449-0778
Fax: 780-449-5202

03/27/2014

MAXXAM ANALYTICS INC *NA*
9372 49TH ST
EDMONTON, AB T6B 2L7

Work Order No. 20248656
Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS

Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance~ID2sx/USA~~
Hewlett-Packard (Agilent)~6890~~GC-FID

Cylinder Style: AQ
Cylinder Pressure @70F: 2200 psig
Cylinder Volume: 82.0 ft3
Valve Outlet Connection: CGA-350
Cylinder No(s): LL33874

Filling Method: Gravimetric
Date of Fill: 03/26/2014
Expiration Date: 03/26/2017

Analyst: Todd Hryniw

The gas calibration cylinder standard prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard provided is certified against Praxair Canada, Inc. Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada, or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted.

Key to Analytical Techniques:

A Flame Ionization with Methanizer	B Gas Chromatography with Discharge Ionization Detector	C Gas Chromatography with Electrolytic Conductivity Detector	D Gas Chromatography with Flame Ionization Detector
E Gas Chromatography with Flame Photometric Detector	F Gas Chromatography with Helium Ionization Detector	G Gas Chromatography with Methanizer Carbonizer	H Gas Chromatography with Photoionization Detector
I Gas Chromatography with Reduction Gas Analyzer	J Gas Chromatography with Thermal Conductivity Detector	K Binary Gas Analyzer with Thermal Conductivity Detector	L Infrared - FTIR or NDIR
M Mass Spectrometry - MS or GCMS	N By Difference N Typical Impurities	O Paramagnetic	P Specific Water Analyzer
Q Total Hydrocarbon Analyzer	R Wet Chemical	S Detector Tube	T Odor
U Gravimetric Methane	V Electrochemical	W Gas Chromatography with Chemiluminescence Detector	

IMPORTANT
The information contained herein has been prepared at your request by personnel within Praxair Canada, Inc. While we believe the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analytics performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Canada, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.

Form No. F-GAS-003
Version No 1.1

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam **Operators name:** Limin Li

Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model	Teco 146I		
Serial Number	AMU 1809		
Last Verification Date	March 31, 2015		
Gas Type	NO	Conc.	48.79
Cylinder Number	CAL018024		

Flow Measurement Device:

Make/Model	Bios DC2
Serial Number	AMU 1659
Temp.°C	22.5 C
B.P.	690 mmhg

Reference Analyzer:

Make/Model	Teco 42i			Serial/AMU Number:	1868
Instrument Settings	Zero: 4.2		Span: 1.008	Range:	1.0
Last Calibration:	Date: Mar 31/15		C.F. 1.000	Done By:	Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
				Average Cylinder Concentration:		**52.0**	**51.3**

	NO	NOx
Previous Stated Concentration PPM:	50.6	50.6
Percent variance from Stated:	**2.8**	**1.4**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration		**COMMENTS:**
< =5% Outside Manufacturer Tolerance. Use manufacturers concentration	X	Contains 49.5 ppm SO2 in cylinder
> 5% Outside Manufacturer Tolerance, **DO NOT USE** this cylinder		

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Location: McIntyre Center Edmonton

APPENDIX III
CHAIN OF CUSTODY

Maxxam
A Bureau Veritas Group Company

Maxxam Analytics - Air Services Group
Project Chain of Custody

Client: Lakeland Industry & Community Association
Project #: 2833-2015-10-30- C
Site: Maskwa Site
Contact: Mike Bisaga

QA Check Complete	[illegible]	**Date**	20-Nov-2015
QA Check Review	[illegible]	**Date**	20-Nov-2015
Report Complete	[illegible]	**Date**	23-Nov-2015
Report Reviewed	E. Tangang	**Date**	24-Nov-15
Report Shipped		**Date**	

Notes

Maxxam
A Bureau Veritas Group Company

maxxam.ca

MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary
AB T2E 6P7

Toll Free 800-386-7247
Fax 403-219-3673

AMBIENT AIR MONITORING MONTHLY DATA REPORT

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

ST. LINA SITE

JOB #:2833-2015-10-31- C

OCTOBER 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **November 26, 2015**

Prepared by:

Wunmi Adekanmbi, M.Sc.
Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:

Lily Lin, B.Sc.
Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In OCTOBER 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the St. Lina Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. 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 and AMD2006.

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

H2S: Twenty-one hours of data are invalid this month due to a zero drift issue.

PM 2.5: Twenty-one hours of data were invalidated as the data were below –3 ug/m3 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, 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 St. Lina Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
						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	6	10	3	13.9	WSW	1.6	10	100.0
H2S (PPB)	10	3	0	0	1	3	VAR	VAR	VAR	VAR	2.3	21, 22	97.2
THC (PPM)	-	-	-	-	1.9	3.2	19	17	9	ESE	2.2	19, 26	100.0
NO2 (PPB)	159	-	0	-	1.9	16.7	11	3	5	ENE	4.9	19	100.0
NO (PPB)	-	-	-	-	0.0	1.5	10, 10	11, 12	17.8 20.7	SW WSW	0.2	VAR	100.0
NOX (PPB)	-	-	-	-	1.9	16.7	11	3	5	ENE	5.1	19	100.0
O3 (PPB)	82	-	0	-	28	45	1	VAR	VAR	VAR	36.7	18	100.0
PM2.5 (UG/M3)	-	30	-	0	2.9	13.0	26	2	10.6	ESE	S.8	2	97.2
RELATIVE HUMIDITY (%)	-	-	-	-	62.3	91	2	6	7.4	SE	84.0	29	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	928	945	15	VAR	VAR	VAR	942	15	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	7.0	24.8	1	14	7.4	SSW	16.9	10	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	2.4	11	10	22.9	NW	0.3	11, 26	100.0
VECTOR WS (KPH)	-	-	-	-	10.5	27.5	13	12	-	W	16.3	27	100.0
VECTOR WD (DEG)	-	-	-	-	SW	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

SO_2 24- Hour Exceedences

No Exceedences Recorded During the Month

H_2S 1- Hour Exceedences

No Exceedences Recorded During the Month

H_2S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO_2 1- Hour Exceedences

No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters SO2, H2S, THC, NOx, NO, NO2, O3, PM2.5, WS, WD, RH, BP, Precipitation and Ambient Temperature.

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.

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.

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 15%).

Hourly data is corrected using daily zero information, except for H2S. Due to issues on the zero/span system, zero correction was not applied to H2S hourly data.

SULPHUR DIOXIDE (SO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 14.

HYDROGEN SULPHIDE (H2S)
The routine monthly calibration was performed on October 14. Hourly data started to record higher than historical on October 17. An as found points check was performed on October 23. The result was within acceptance limits. As a precaution, a full calibration was completed after the as found points check. All the points check passed the AMD calibration requirements. There was a zero drift after the calibration on October 23. The drift was within acceptance limits. Another as found points check was completed on October 28. The result was good. Following the as found points check, the zero air charcoal filter for the zero/span system was renewed. As the zero drift continued, the analyzer was attempted to be replaced on October 29. However, the replacement analyzer did not respond properly. The original API 101E, S/N: 509, analyzer was therefore reinstalled on October 30, following a pump replacement. The installation calibration was completed on October 30. Twenty-one hours of data are invalid during this service. As the analyzer passed all calibrations and as found points checks, it was concluded that the issue causing the zero drift was from the zero/span system. As a result, hourly data was considered valid and no daily zero correction was performed on the data. The issue was resolved in November.

TOTAL HYDROCARBONS (THC)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 14.

NITROGEN DIOXIDE (NO2)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 14.

OZONE (O3)
The analyzer was working well throughout the month.
The routine monthly calibration was performed on October 14.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)
The Teom unit was working well throughout the month. Two Teom audits were performed this month: one was completed on October 13, and the other audit was performed on October 23. Both the inlet filter and the FDMS filter were replaced on October 13. 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. Twenty-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.

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
The rain gauge system was 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 personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

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

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, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

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

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/NOx 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 Flourescent Analyzer
Hydrogen Sulphide - API 101E UV Flourescent Analyzer
Total Hydrocarbons - Thermo 51C FID Analyzer
Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
Ozone - Thermo 49i Photometric Analyzer
Particulate Matter (PM2.5) - R&P 1405F Teom Unit
Wind System - Met One Unit
Relative Humidity - Met One Unit
Barometric Pressure - Met One Unit
Ambient Temperature - Met One Unit
Precipitation - Met One Unit
Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

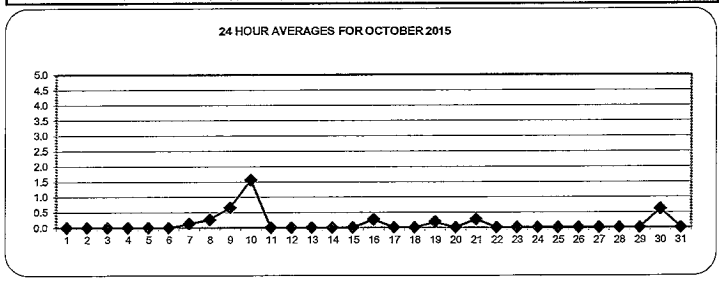
SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
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	24
2	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	24
3	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
4	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	24
5	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
6	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	24
7	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	S	0	0	0	0	0	0	0	1	0.1	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	0	0	0	1	0.3	24
9	0	0	0	1	1	1	1	1	1	1	1	0	1	1	S	0	0	0	0	0	1	1	1	2	2	0.7	24
10	1	2	3	*6*	4	3	2	1	2	3	3	3	3	S	0	0	0	0	0	0	0	0	0	0	*6*	*1.6*	24
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	24
12	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	24
13	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
14	0	0	0	0	0	0	S	S	0	S	C	C	C	0	0	0	S	S	0	0	0	0	0	0	0	0.0	24
15	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
16	0	0	0	0	0	0	0	S	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.3	24
17	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	S	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	S	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
20	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	24
21	0	0	S	0	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	3	0.3	24
22	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	24
23	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
24	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
25	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	24
26	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
27	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	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	24
29	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	24
30	0	0	0	0	0	0	1	1	0	1	2	2	1	1	1	1	1	1	1	0	S	0	0	0	2	0.6	24
31	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	24
HOURLY MAX	1	2	3	6	4	3	2	1	2	3	3	3	3	2	3	1	1	1	1	1	1	1	1	2			
HOURLY AVG	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1			

STATUS FLAG CODES

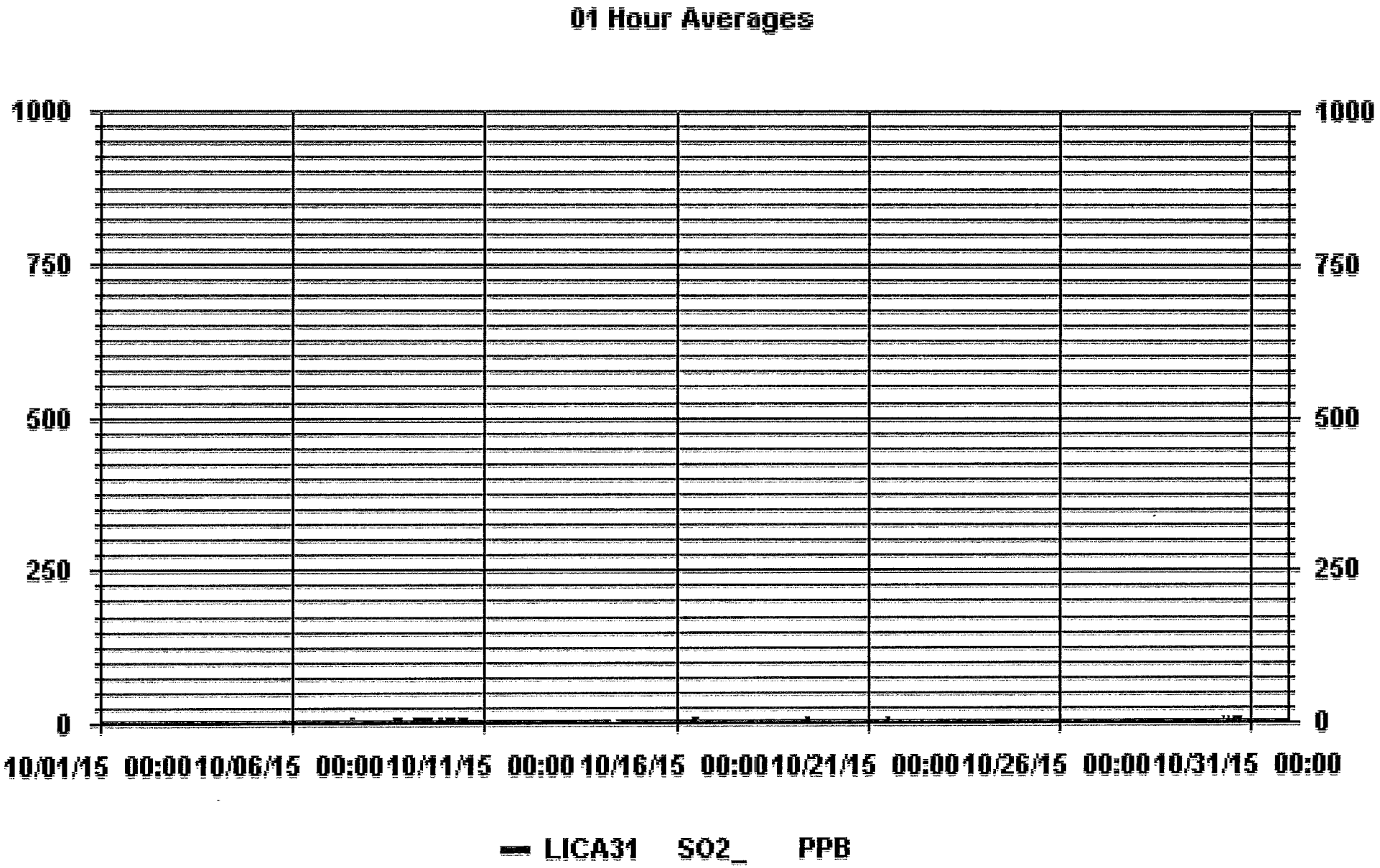
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	61					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	3	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:	1.6	PPB			ON DAY(S) VAR-VARIOUS	10
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.50		MONTHLY AVERAGE:		0	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 SO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

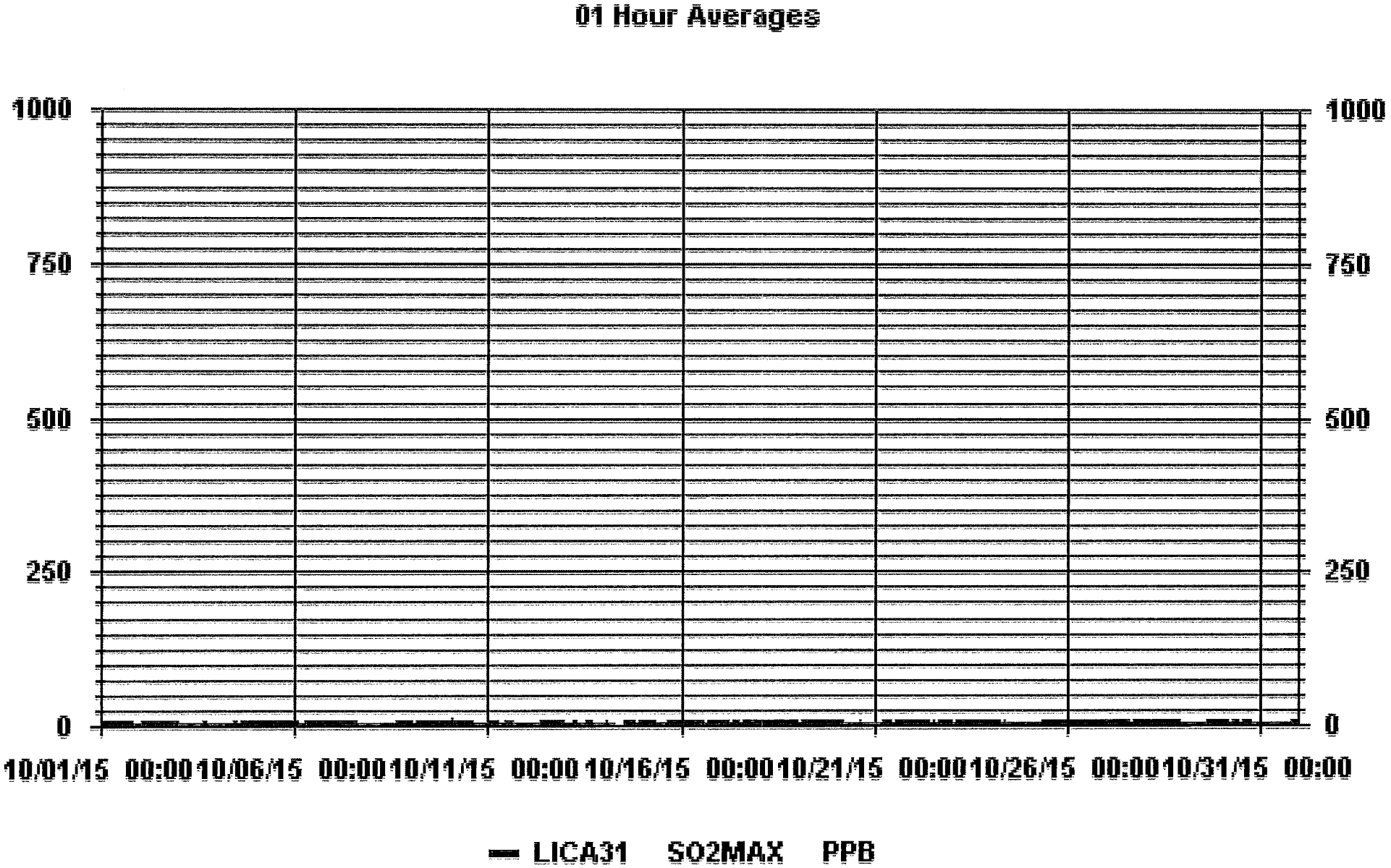
HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	S	1	1	1.0	24
2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
3	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	S	0	0	0	1	0.2	24
4	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	S	1	1	1	1	1	0.5	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1.0	24
6	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0.8	24
7	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	S	0	0	0	0	0	0	0	2	0.9	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	2	2	2	2	2	2	2	1	2	0.7	24
9	1	1	1	2	2	2	2	2	2	2	2	2	2	2	S	2	1	1	1	1	2	3	2	3	3	1.8	24
10	3	3	6	7	5	5	4	2	3	4	5	5	4	S	1	0	0	0	0	1	0	0	0	0	7	2.5	24
11	0	1	1	1	1	1	1	1	0	0	0	0	S	1	1	1	1	0	0	1	0	0	0	0	1	0.5	24
12	0	0	0	0	0	0	0	0	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
13	0	1	0	1	0	1	1	1	0	0	S	1	0	1	1	1	1	1	0	0	0	0	0	0	1	0.5	24
14	0	0	1	1	0	0	S	S	0	S	C	C	C	C	1	1	S	S	1	1	1	2	1	1	2	0.7	24
15	1	1	1	1	1	1	1	1	S	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0.8	24
16	1	1	1	1	1	1	1	S	1	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	3	1.3	24
17	1	1	1	1	1	1	S	0	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	2	1.2	24
18	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
19	1	1	0	0	S	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.2	24
20	1	1	1	S	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.3	24
21	0	0	S	0	0	1	1	1	1	1	1	1	2	5	5	3	1	1	1	1	1	1	1	1	5	1.3	24
22	1	S	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	0.9	24
23	S	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	0.9	24
24	1	1	0	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	S	0	1	0.4	24
25	0	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0.7	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	S	1	1	1	1	2	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	1	1.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	S	1	1	1	0.4	24
30	1	1	1	1	1	1	2	2	1	2	3	4	2	2	2	2	2	2	2	1	S	0	0	0	4	1.5	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	0.2	24
HOURLY MAX	3	3	6	7	5	5	4	2	3	4	5	5	4	5	5	3	2	2	2	2	2	3	2	3			
HOURLY AVG	0.7	0.8	0.8	0.9	0.8	0.9	0.9	0.8	0.8	1.0	1.1	1.1	1.0	1.1	1.0	1.0	1.0	0.9	0.8	0.9	0.9	0.8	0.8	0.8			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	514						
MAXIMUM INSTANTANEOUS VALUE:	7	PPB	@ HOUR(S)	3	ON DAY(S)	VAR-VARIOUS	10
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:				744 HRS
MONTHLY CAUBRATION TIME:	4	HRS					
STANDARD DEVIATION:	0.81						


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 SO2MAX PPB

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.63	6.66	3.54	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.63	6.66	3.54	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	24	7	7	16	24	31	49	81	76	53	49	82	52	82	47	25	705
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	52	82	47	25	

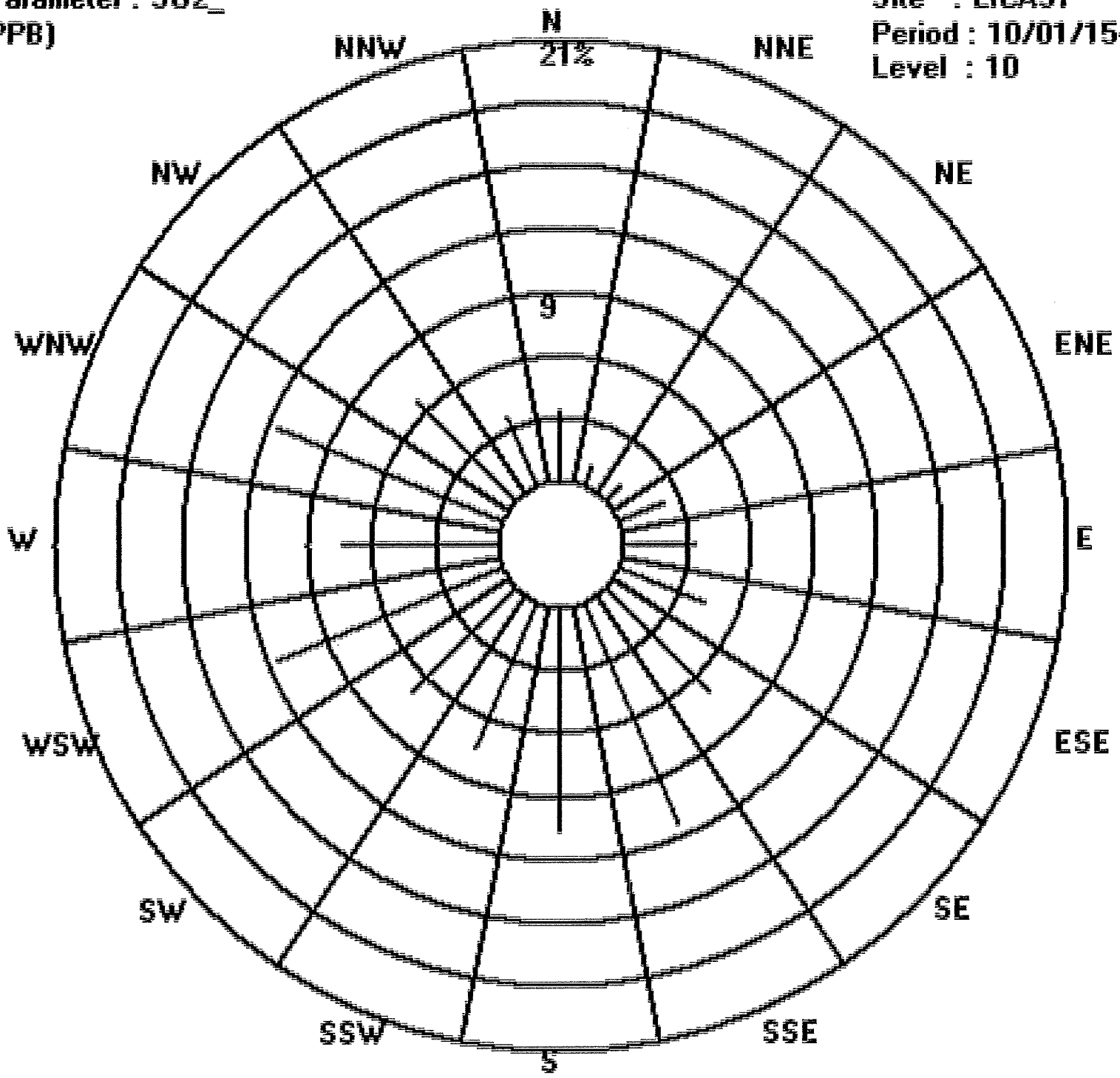
Calm : .00 %

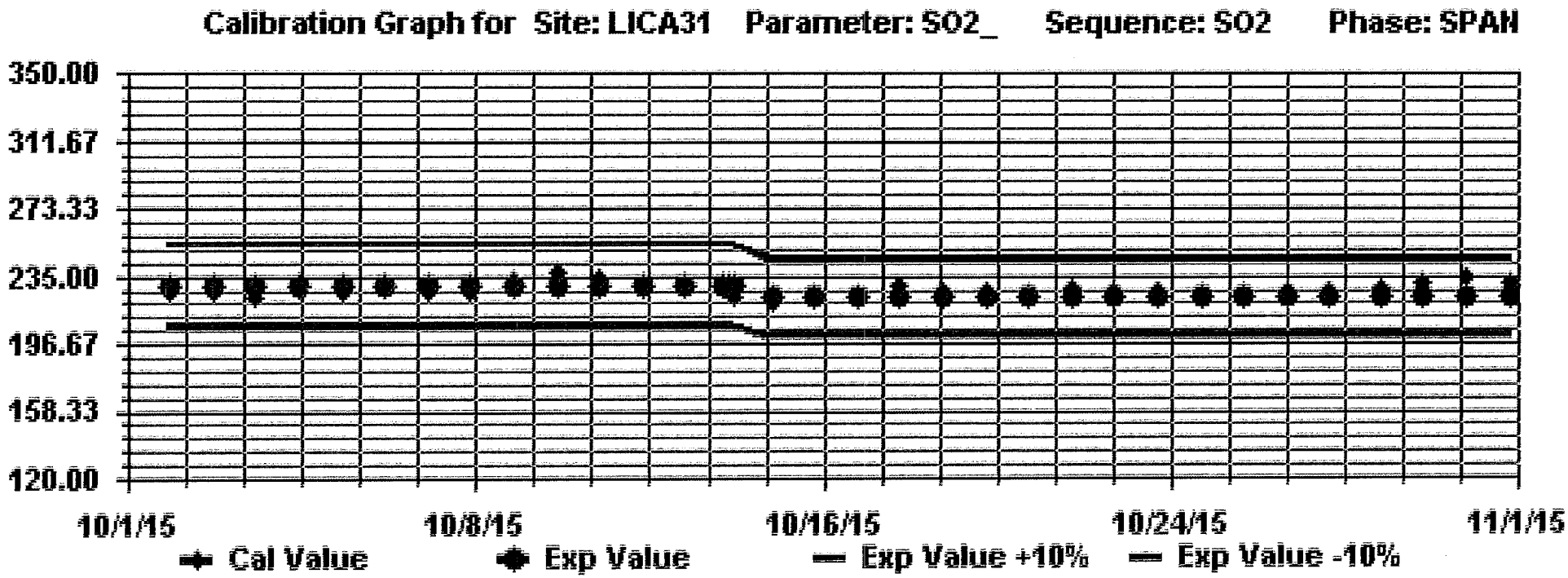
Total # Operational Hours : 705

Logger : 31 Parameter : SO2_
Class Limits (PPB)

>= 340
< 340
< 170
< 110
< 60
< 20

Site : LICA31
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN
350.00
311.67
273.33
235.00
196.67
158.33
120.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

HYDROGEN SULPHIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

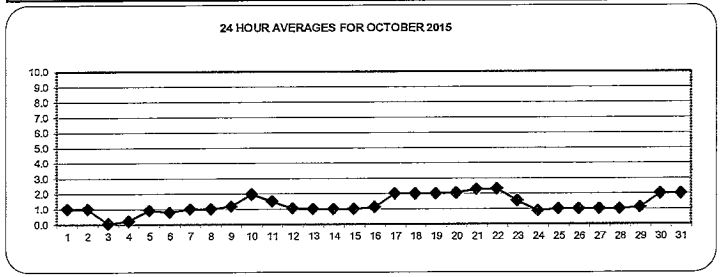
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	1	1	1	1	1	0.2	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	0	1	0.9	24
6	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0.8	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1.0	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	2	2	2	2	1.2	24
10	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	1	2	2	2	2	2	2	2	2	2.0	24
11	2	2	2	2	2	2	2	2	2	2	2	2	S	1	1	1	1	1	1	1	1	1	1	1	2	1.5	24
12	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	1	1	1	1	1	1	1	2	1.0	24
13	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	1	1	1	1	1	1	S	S	1	S	1	1	C	C	C	C	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
16	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1.1	24
17	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
18	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
19	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
20	2	2	*3*	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*3*	2.0	24
21	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	*3*	*3*	2	2	*3*	*3*	*3*	*3*	*3*	*2.3*	24
22	*3*	S	*3*	*3*	*3*	*3*	*3*	*3*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*3*	*2.3*	24
23	S	2	2	2	2	2	2	2	2	2	C	C	C	C	C	1	1	1	1	1	1	1	1	S	2	1.5	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	S	1	1	0.9	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
26	1	1	1	1	1	1	S	S	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	1	1	1	1	S	1	1	1	1	1.0	24
29	1	1	1	1	1	1	1	S	1	1	2	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	1.1	15
30	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	2	2	2	S	2	2	2	2	2.0	12
31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2.0	24
HOURLY MAX	3	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	2	2	3	3	3	3			
HOURLY AVG	1.3	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.4	1.4	1.3	1.3			

STATUS FLAG CODES

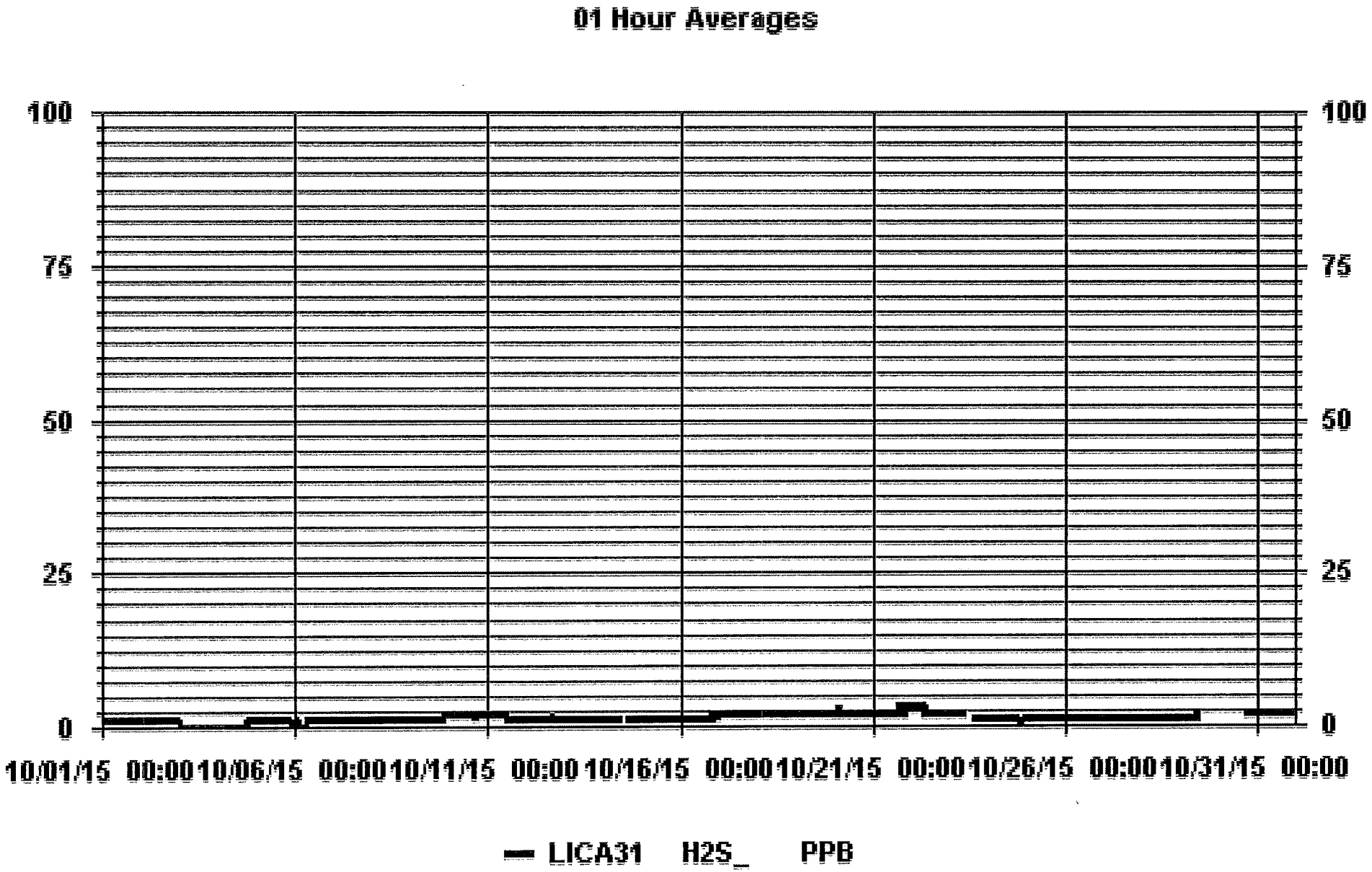
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	617					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.3	PPB			ON DAY(S) VAR-VARIOUS	21, 22
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		723	HRS
MONTHLY CALIBRATION TIME:	20	HRS	AMD OPERATION UPTIME:		97.2	%
STANDARD DEVIATION:	0.63		MONTHLY AVERAGE:		1	PPB


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 H2S_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

HYDROGEN SULPHIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	1.2	24
3	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0	1	S	1	0	0	1	0.7	24
4	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0.8	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1.0	24
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1.0	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1.0	24
9	1	1	1	1	1	2	2	2	2	1	2	1	1	1	S	2	2	2	2	2	2	2	2	2	2	1.6	24
10	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2.0	24
11	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	1	1	1	1	1	2	1.7	24
12	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	1	2	2	2.0	24
13	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	1	1	1	1	1	1	S	S	1	S	1	1	C	C	C	C	2	2	1	1	2	1	1	1	2	1.2	24
15	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1.0	24
16	1	1	1	1	2	1	1	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	24
17	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
18	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
19	2	2	2	2	S	2	*3*	*3*	2	2	2	2	2	2	2	2	2	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	2.4	24
20	*3*	*3*	*3*	S	*3*	*3*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*3*	2.2	24
21	2	2	S	2	2	2	2	*3*	*3*	2	2	*3*	2	*3*	2	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	2.6	24
22	*3*	S	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	2	2	*3*	*3*	*3*	*3*	2.9	24
23	S	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	C	C	C	C	C	C	1	1	1	1	1	1	1	S	*3*	2.1	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
25	*3*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	*3*	1.1	24
26	1	1	1	1	1	1	S	S	1	1	1	1	1	1	1	1	1	2	2	2	S	2	2	1	2	1.2	24
27	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	2	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	C	1	1	1	1	1	S	2	2	1.1	24
29	2	2	2	2	2	2	S	S	2	2	2	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	2.0	15
30	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	2	2	S	2	2	2	2	2.0	12
31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2.0	24
HOURLY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
HOURLY AVG	1.5	1.4	1.5	1.4	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.5	1.4	1.5	1.6	1.6	1.6	1.5	1.5	1.6	1.5	1.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 650

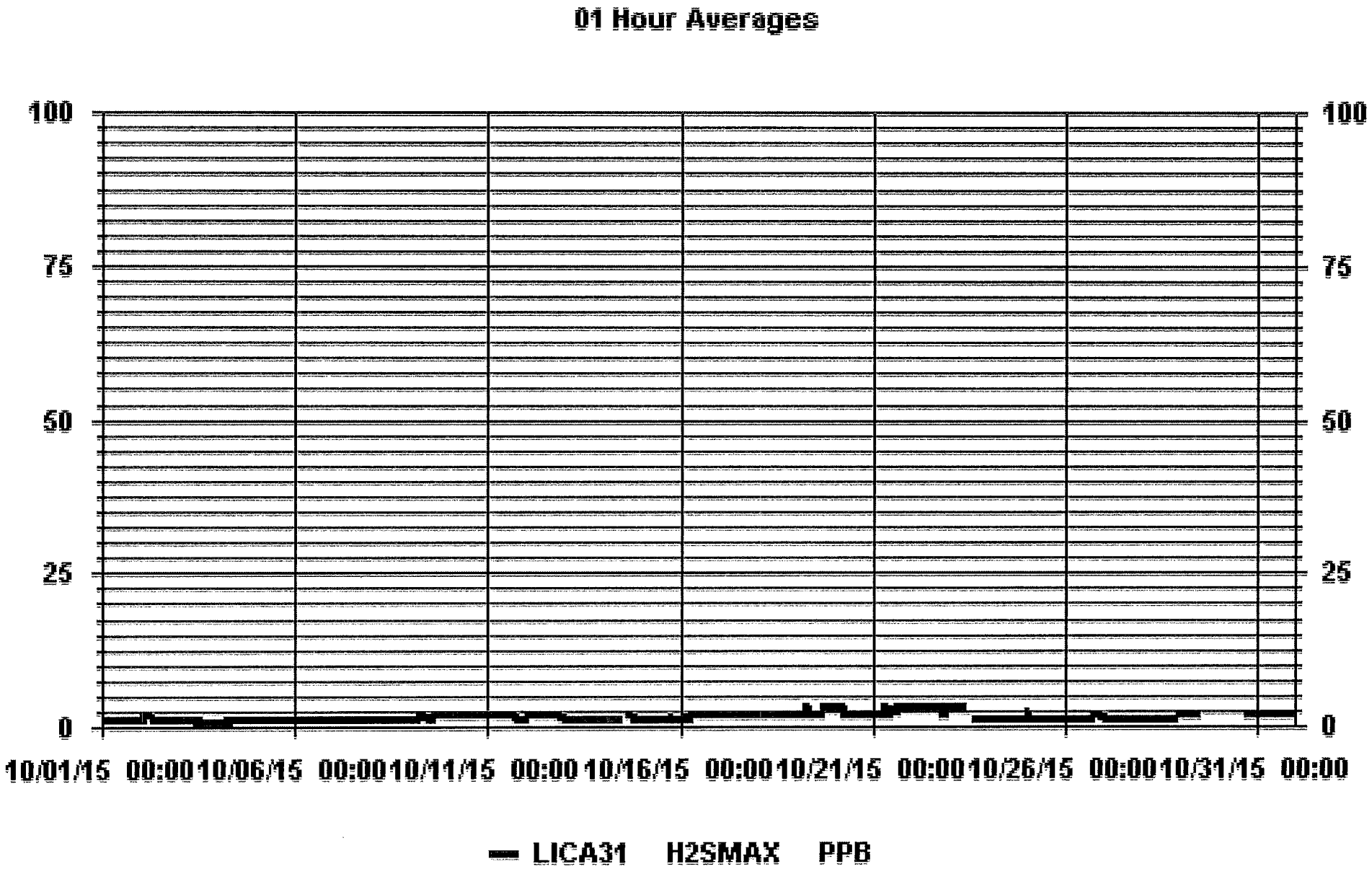
MAXIMUM INSTANTANEOUS VALUE: 3 PPB @ HOUR(S) VAR ON DAY(S) VAR

VAR-VARIOUS

IZS CALIBRATION TIME: 37 HRS OPERATIONAL TIME: 723 HRS

MONTHLY CALIBRATION TIME: 23 HRS

STANDARD DEVIATION: 0.68


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 H2SMAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	3.59	1.04	1.04	2.39	3.59	4.49	6.59	11.39	10.04	6.14	7.04	11.09	7.64	11.09	6.89	3.74	97.90
<	10	.00	.00	.00	.00	.00	.00	.29	.44	.00	.14	.00	.00	.00	.89	.29	.00	2.09
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.59	1.04	1.04	2.39	3.59	4.49	6.89	11.84	10.04	6.29	7.04	11.09	7.64	11.99	7.19	3.74	

Calm : .00 %

Total # Operational Hours : 667

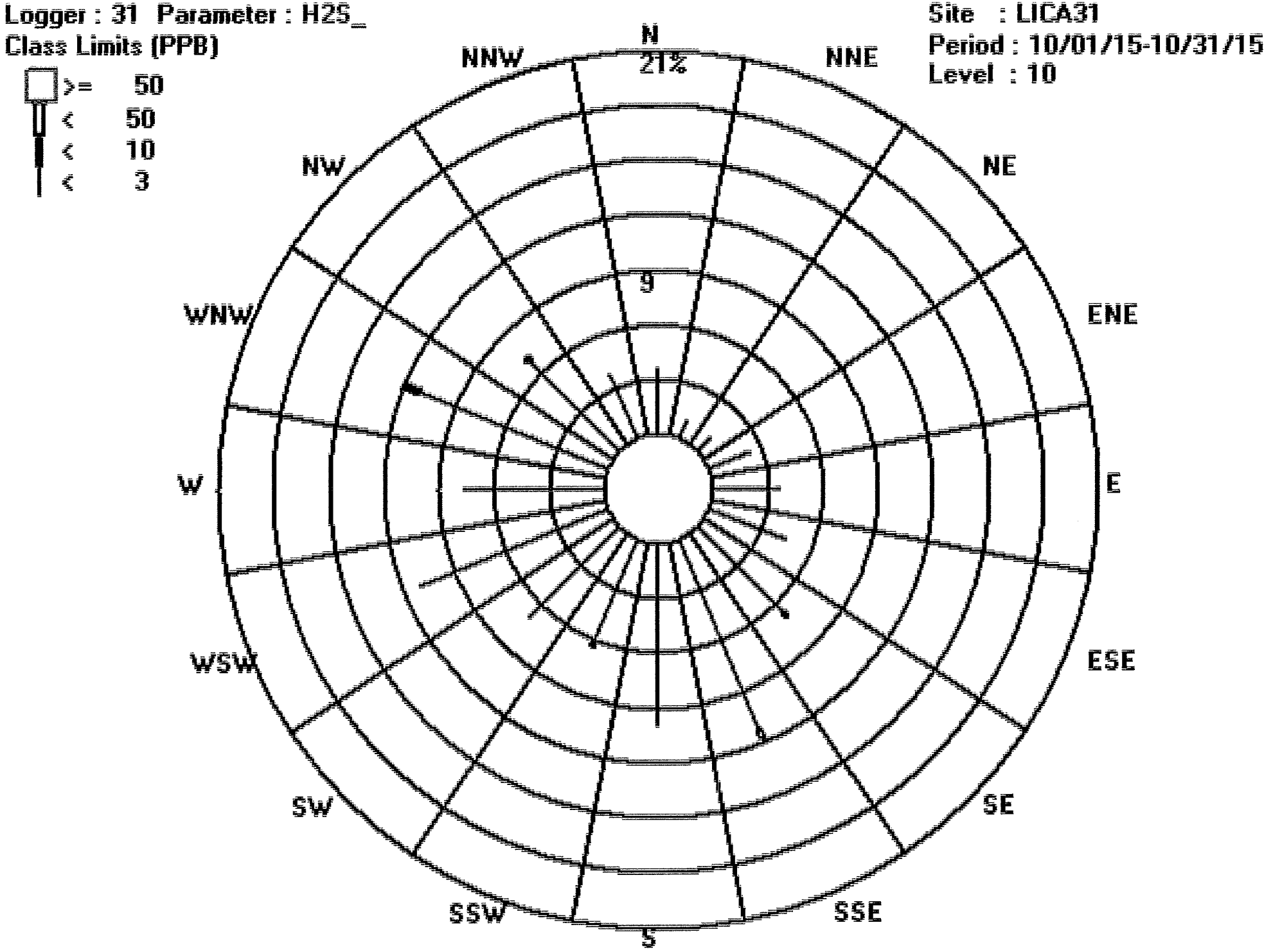
Distribution By Samples

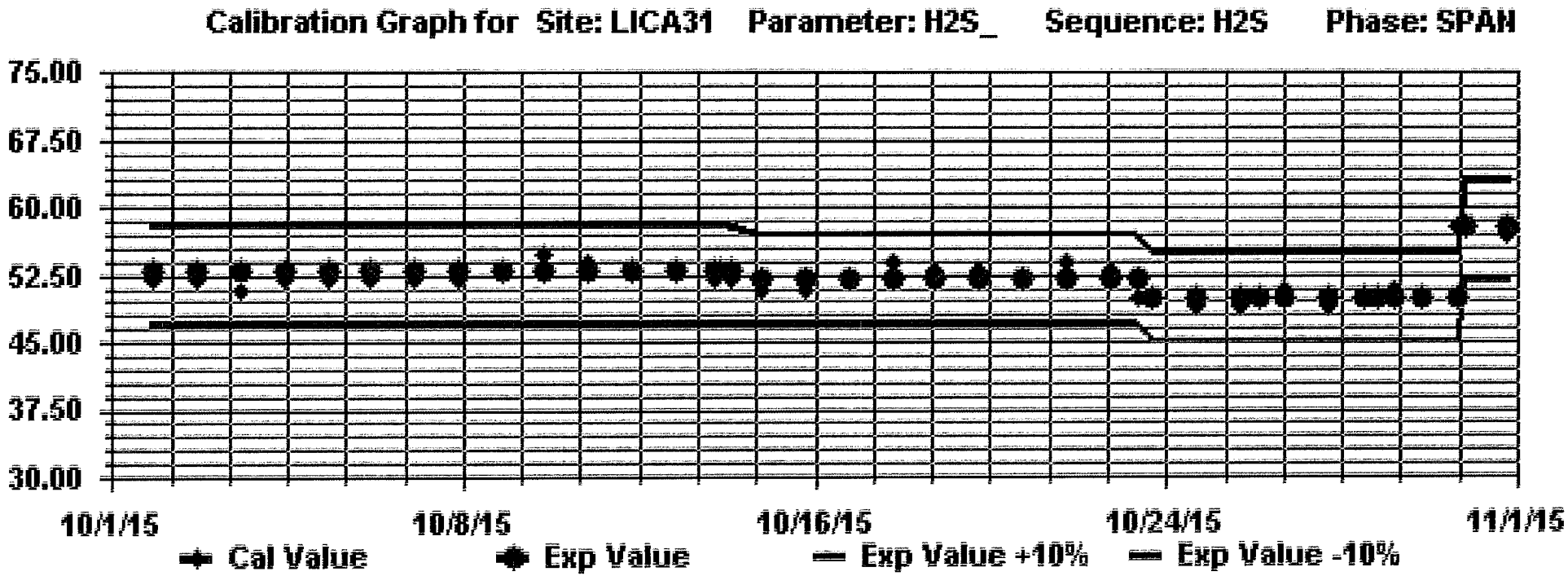
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	24	7	7	16	24	30	44	76	67	41	47	74	51	74	46	25	653
<	10							2	3		1				6	2		14
<	50																	
>=	50																	
	Totals	24	7	7	16	24	30	46	79	67	42	47	74	51	80	48	25	

Calm : .00 %

Total # Operational Hours : 667


Logger : 31 Parameter : H2S_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN
75.00
67.50
60.00
52.50
45.00
37.50
30.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

TOTAL HYDROCARBON

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

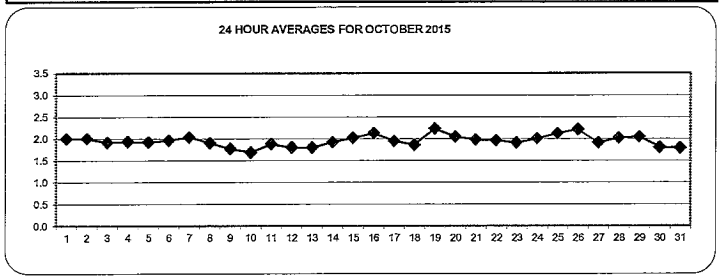
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.2	2.1	2.1	2.1	S	2.1	2.2	2.0	24
2	2.1	2.0	2.1	2.1	2.1	2.1	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	S	1.9	2.1	2.0	24
3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	S	1.9	1.9	2.0	1.9	24
4	1.9	2.0	1.9	1.9	2.0	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	2.4	1.9	24
5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	S	1.9	1.9	2.0	1.9	1.9	2.2	1.9	24
6	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	S	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.0	24
7	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	S	1.8	1.9	1.9	1.9	2.0	2.0	1.9	2.2	2.0	24
8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	1.9	24
9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.7	S	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.9	1.8	24
10	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	S	1.6	1.6	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.8	1.7	24
11	1.7	1.7	2.5	2.7	2.0	1.9	1.8	1.8	1.6	1.6	1.6	1.7	S	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.1	2.0	1.9	2.7	1.9	24
12	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	S	1.7	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	24
13	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
14	1.8	1.8	1.8	1.8	1.8	1.8	S	S	1.8	S	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	24
15	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	24
16	2.0	2.0	2.1	2.3	2.4	2.3	2.3	S	2.4	2.4	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.4	2.1	24
17	2.0	2.0	2.0	2.1	2.1	2.1	S	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	2.1	1.9	24
18	1.8	1.8	1.8	1.9	1.9	S	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.8	1.9	1.8	1.8	1.8	1.9	1.9	2.0	1.9	24
19	1.9	1.8	1.9	1.9	S	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.9	1.9	2.3	*3.2*	3.1	2.9	2.8	2.9	2.8	2.8	*3.2*	*2.2*	24
20	2.9	3.1	3.1	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.1	2.0	24
21	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.2	2.2	2.0	24
22	2.2	S	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	24
23	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	S	2.0	1.9	24
24	2.0	1.9	1.9	2.0	2.1	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.0	2.0	2.0	S	1.9	2.2	2.0	24
25	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.3	S	2.4	2.5	2.5	2.1	24
26	2.7	2.7	2.6	2.7	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	1.9	2.7	*2.2*	24
27	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	S	1.9	1.9	1.9	1.9	2.0	1.9	24
28	1.9	2.0	2.1	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.2	2.3	S	2.2	2.3	2.0	24
29	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	S	1.9	1.8	2.2	2.0	24
30	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.9	1.8	1.8	1.9	S	1.7	1.7	1.7	1.9	1.8	24
31	1.7	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	S	1.8	1.8	1.8	1.8	1.8	1.8	24
HOURLY MAX	2.9	3.1	3.1	2.7	2.5	2.4	2.3	2.2	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.0	2.3	3.2	3.1	2.9	2.8	2.9	2.8	2.8			
HOURLY AVG	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0			

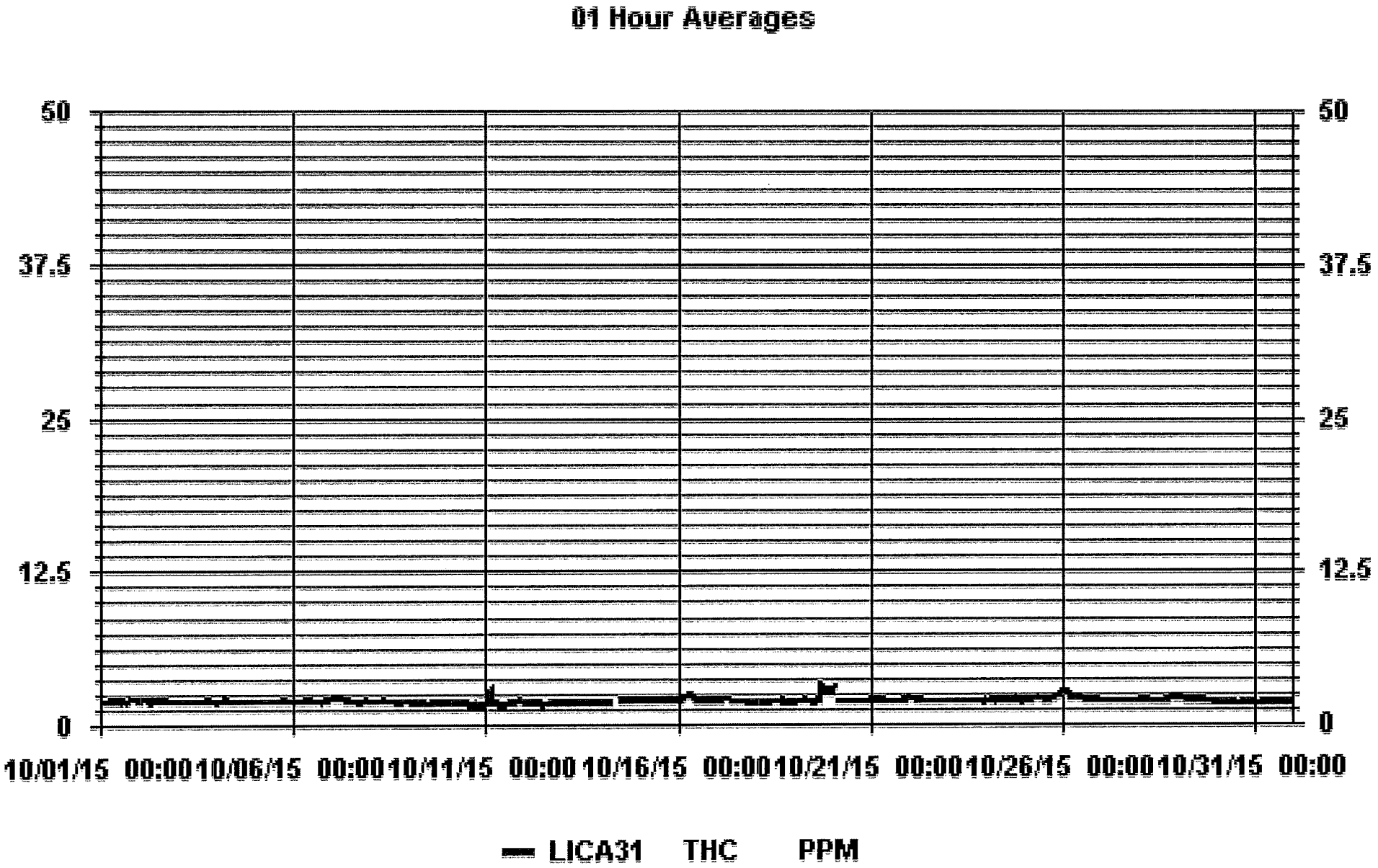
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			707				
MAXIMUM 1-HR AVERAGE:	3.2	PPM	@ HOUR(S)	17	ON DAY(S)	19	
MAXIMUM 24-HR AVERAGE:	2.2	PPM			ON DAY(S) VAR-VARIOUS	19, 26	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.19		MONTHLY AVERAGE:			1.9	PPM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37.5
25
12.5
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 THC PPM

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	1.9	2.3	2.3	2.2	2.1	2.2	S	2.2	2.3	2.0	24
2	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.4	2.0	S	1.9	1.9	2.4	2.1	24
3	1.9	1.9	1.9	1.9	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	S	2.0	2.0	2.0	2.0	2.0	24
4	2.0	3.5	2.0	2.0	3.4	5.1	2.0	1.9	3.1	2.0	2.3	2.4	2.2	2.1	2.0	2.2	2.0	2.1	1.9	S	1.9	1.9	1.9	1.9	5.1	2.3	24
5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.6	2.5	2.2	2.3	2.2	2.3	3.9	S	4.5	1.9	3.3	4.3	3.4	4.5	2.5	24
6	1.9	2.9	1.9	2.2	2.1	2.2	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.9	S	1.9	2.0	2.5	2.1	2.1	2.1	2.9	2.1	24
7	2.7	2.5	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.5	2.8	2.4	2.5	2.5	2.2	2.4	S	1.9	1.9	1.9	1.9	4.4	5.3	1.9	5.3	2.5	24
8	2.3	2.6	1.9	1.9	1.9	2.0	2.0	2.5	2.6	2.1	2.0	2.0	2.0	1.9	1.9	S	1.9	1.9	1.9	1.8	2.1	1.9	1.9	1.9	2.6	2.0	24
9	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	S	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.8	24
10	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.8	1.7	S	1.6	1.6	2.2	2.4	2.6	1.6	1.6	1.6	1.8	1.7	2.6	1.8	24
11	2.1	2.0	2.8	3.5	2.4	4.2	1.9	2.4	1.6	1.8	1.8	1.7	S	1.9	2.1	2.0	2.1	2.2	1.8	3.0	3.4	5.5	6.7	2.4	6.7	2.7	24
12	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.8	24
13	1.8	1.8	2.4	1.8	1.8	1.8	1.8	1.8	1.8	2.0	S	2.0	1.9	2.0	2.1	2.2	2.5	1.9	1.8	1.8	1.8	1.8	1.8	1.9	2.5	1.9	24
14	1.8	1.8	1.8	1.9	1.9	1.9	S	S	2.0	S	C	C	C	2.1	2.4	2.2	2.4	2.3	2.4	2.4	2.8	2.0	2.0	2.0	2.8	2.1	24
15	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	S	2.1	2.1	2.3	2.4	2.1	2.7	2.2	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.7	2.1	24
16	2.1	2.1	2.3	2.4	2.4	2.4	2.4	S	2.5	2.5	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.5	2.2	24
17	2.0	2.1	2.1	2.1	2.1	2.1	S	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	24
18	1.9	1.9	1.9	2.3	2.1	S	2.2	2.2	2.4	2.2	2.3	2.1	2.1	2.1	2.2	2.2	2.8	2.3	2.5	2.2	2.0	2.5	3.3	1.9	3.3	2.2	24
19	1.9	1.9	1.9	2.0	S	2.0	2.0	2.4	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	3.1	3.4	3.6	3.3	2.9	3.0	2.9	3.7	3.7	2.4	24
20	4.0	***13.6***	4.1	S	2.8	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.5	1.9	1.9	1.9	1.9	1.9	2.6	2.2	***13.6***	2.9	24
21	2.0	2.0	S	2.0	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.1	2.1	2.1	3.9	3.9	2.1	24
22	3.2	S	2.8	2.8	3.3	2.6	2.5	2.3	2.3	2.1	2.9	2.5	2.5	2.6	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.3	2.3	24
23	S	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	2.1	2.0	2.2	2.1	2.3	2.5	2.1	1.9	2.0	1.9	2.8	2.7	S	2.8	2.1	24
24	3.1	2.7	2.1	3.5	5.0	2.9	2.4	2.0	2.1	2.7	2.3	2.2	2.6	3.3	2.4	2.7	3.9	7.6	6.4	3.3	7.3	4.2	S	2.0	7.6	3.4	24
25	2.0	2.5	3.3	2.0	2.1	4.5	2.1	2.8	3.9	2.3	2.2	2.2	2.3	2.3	2.0	2.0	3.7	2.4	2.3	2.5	2.6	S	2.9	2.9	4.5	2.6	24
26	3.0	3.1	3.2	3.2	2.5	2.4	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.0	2.2	2.2	2.0	S	2.9	2.3	2.0	3.2	2.4	24
27	2.1	2.2	2.2	2.4	2.3	2.3	2.3	2.2	2.3	2.2	2.4	2.1	2.1	2.3	2.2	2.5	2.3	2.3	2.2	S	2.3	2.3	2.6	2.7	2.7	2.3	24
28	1.9	3.2	2.7	3.0	2.6	3.1	3.3	2.5	2.2	2.4	2.1	1.9	1.9	1.9	2.2	2.0	2.8	2.4	2.3	2.4	2.3	2.3	S	2.3	3.3	2.4	24
29	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	S	1.9	1.8	2.3	2.1	24
30	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	2.2	2.7	2.6	S	1.7	1.7	1.8	2.7	1.9	24
31	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.4	1.8	1.8	1.9	2.0	2.1	2.1	2.1	2.0	S	2.0	2.1	2.0	2.0	2.4	1.9	24
HOURLY MAX	4.0	13.6	4.1	3.5	5.0	5.1	3.3	2.8	3.9	2.7	2.9	2.6	2.6	3.3	2.7	2.7	3.9	7.6	6.4	4.5	7.3	5.5	6.7	3.9			
HOURLY AVG	2.2	2.6	2.2	2.2	2.3	2.4	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.3	2.3	2.3	2.4	2.5	2.2			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 707

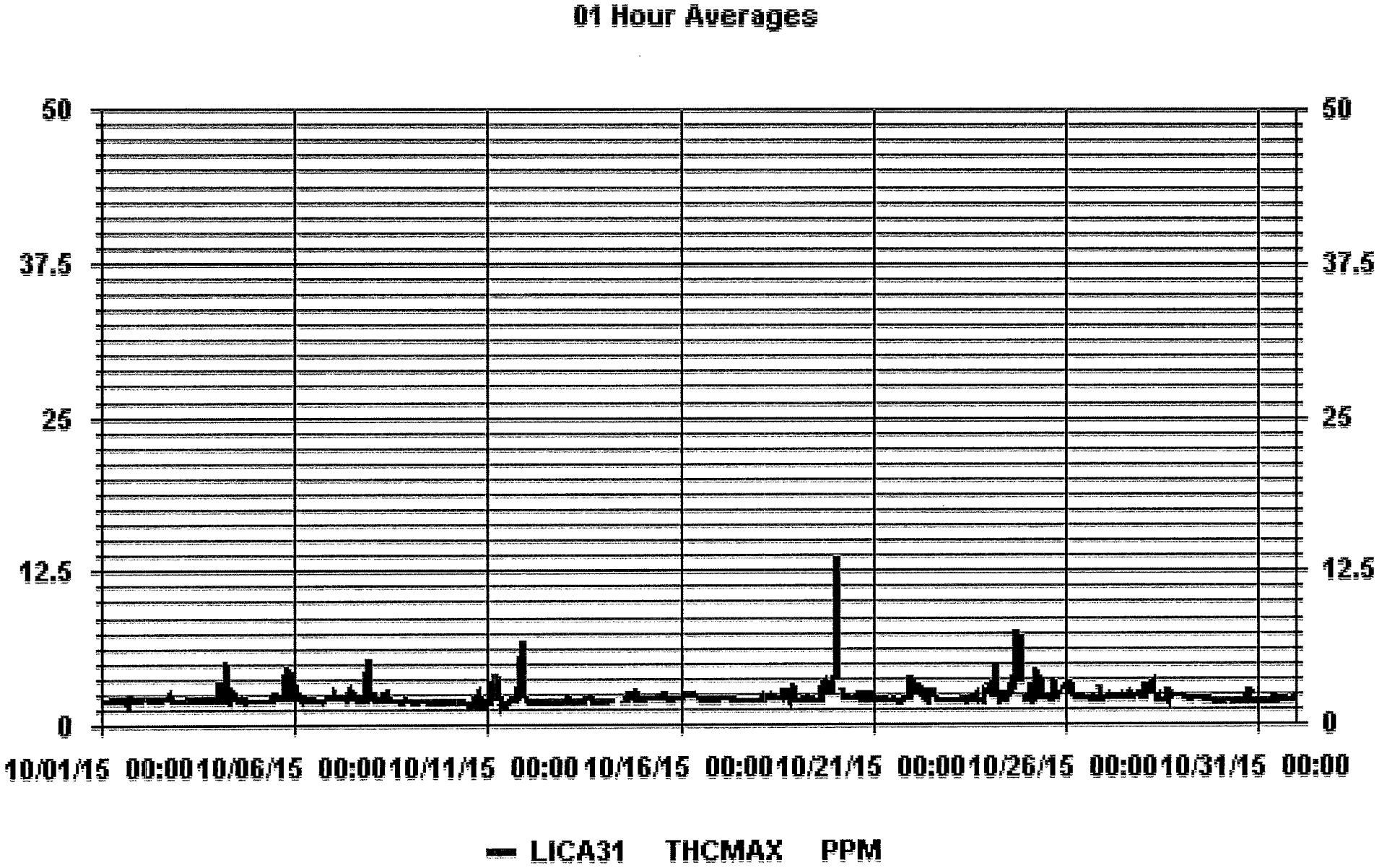
MAXIMUM INSTANTANEOUS VALUE: 13.6 PPM @ HOUR(S) 1 ON DAY(S) 20

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 3 HRS

STANDARD DEVIATION: 0.75


01 Hour Averages
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37.5
25
12.5
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10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 THCMAX PPM

LICA31
THC / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : THC
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	3.39	.99	.99	2.26	3.39	4.10	6.93	11.45	10.74	7.49	6.93	11.59	7.21	11.59	6.78	3.53	99.43
<	10.0	.00	.00	.00	.00	.00	.28	.00	.00	.00	.00	.00	.00	.14	.14	.00	.00	.56
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.39	.99	.99	2.26	3.39	4.38	6.93	11.45	10.74	7.49	6.93	11.59	7.35	11.73	6.78	3.53	

Calm : .00 %

Total # Operational Hours : 707

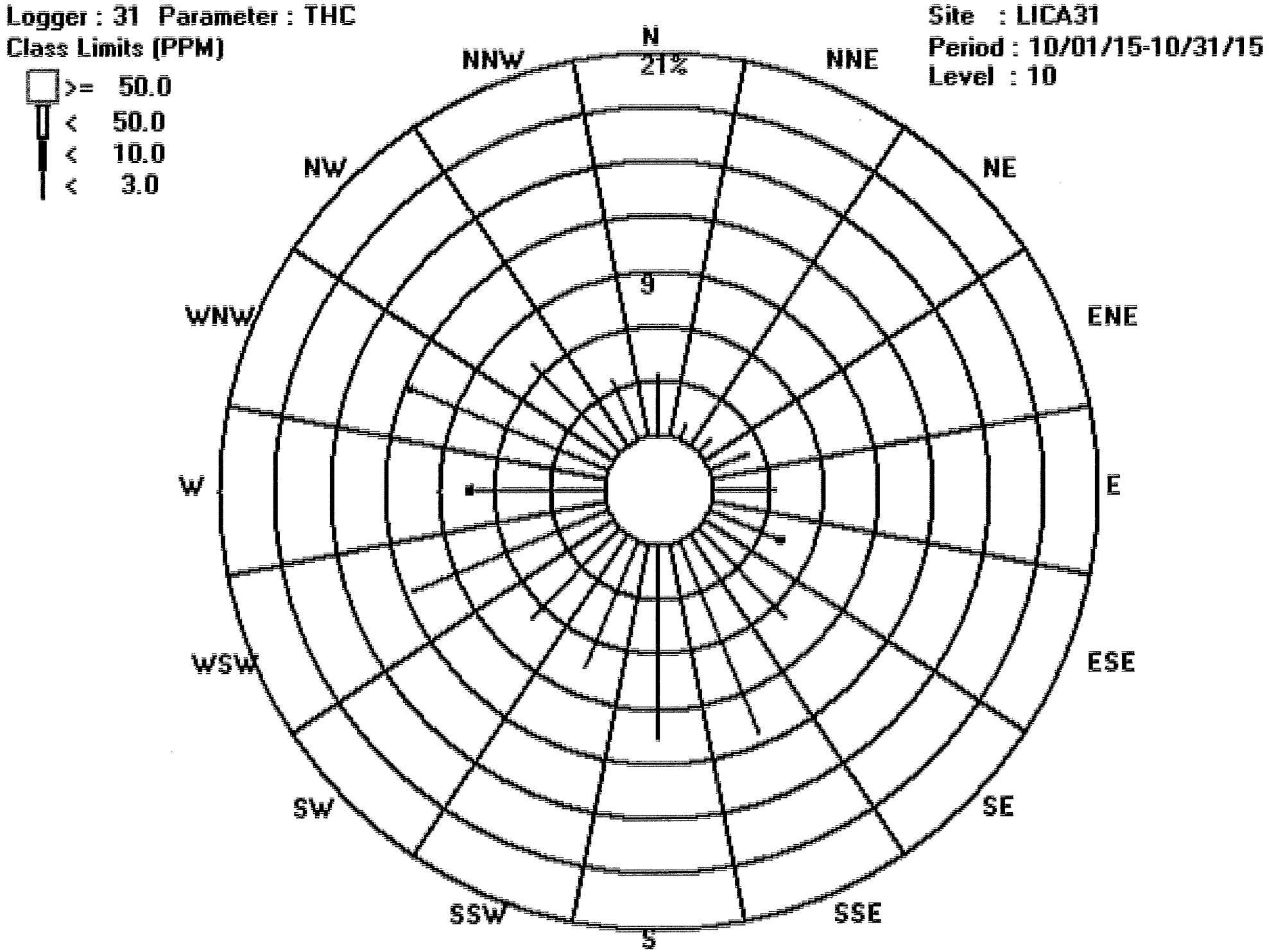
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	24	7	7	16	24	29	49	81	76	53	49	82	51	82	48	25	703
<	10.0						2							1	1			4
<	50.0																	
>=	50.0																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	52	83	48	25	

Calm : .00 %

Total # Operational Hours : 707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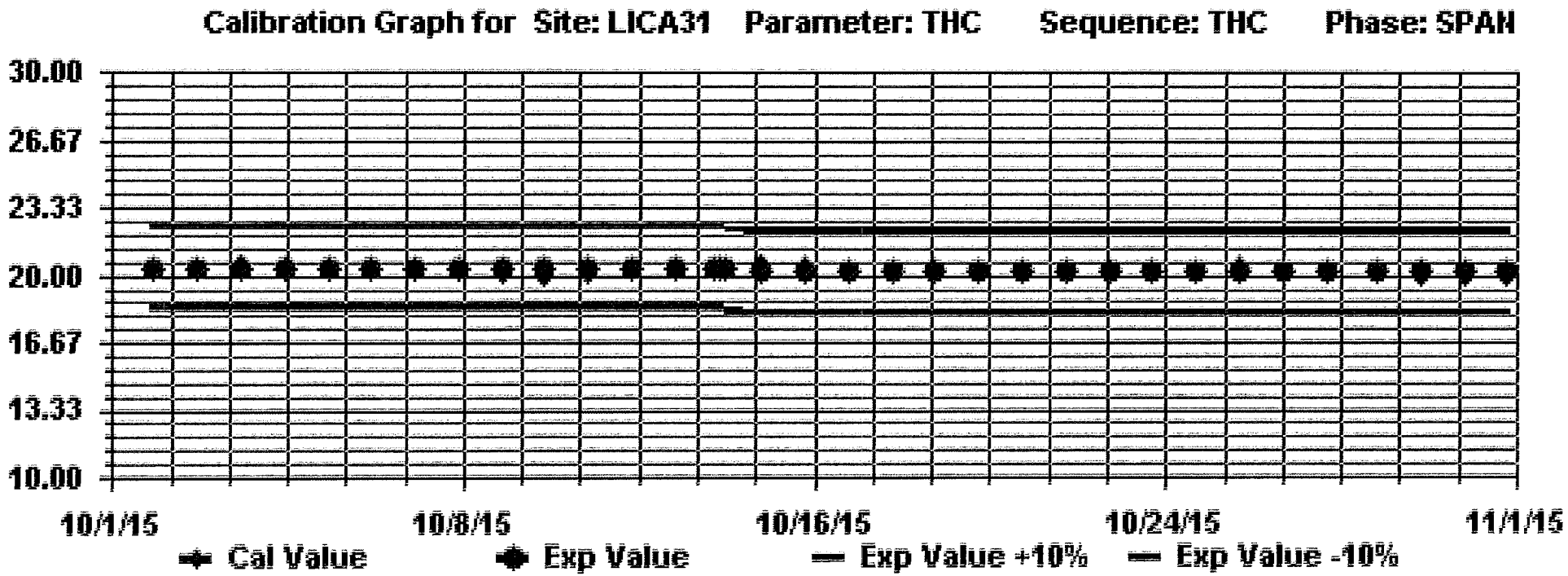
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAN
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26.67
23.33
20.00
16.67
13.33
10.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OXIDES OF NITROGEN

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

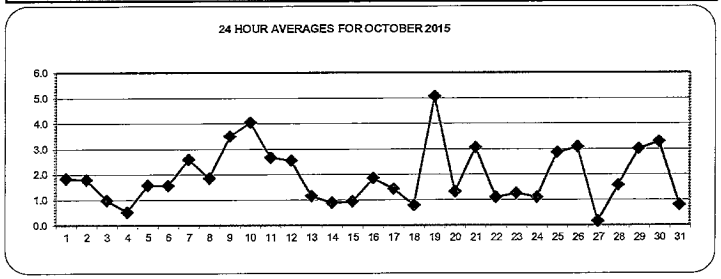
OXIDES OF NITROGEN (NOx) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.7	1.7	1.6	1.5	1.2	1.3	1.9	2.4	2.5	2.8	2.6	1.0	1.4	0.9	0.9	1.2	0.3	1.9	2.9	1.9	2.4	3.2	S	2.8	3.2	1.8	24
2	2.4	2.0	2.5	2.4	2.4	2.1	1.6	1.4	1.8	1.6	1.4	1.2	1.1	1.4	1.3	1.5	1.8	2.7	1.8	1.6	1.5	S	1.6	1.8	2.7	1.8	24
3	1.4	0.9	1.3	1.4	1.4	0.7	0.5	0.3	0.7	1.0	0.5	0.9	1.0	0.7	0.8	0.8	1.1	1.1	1.3	1.2	S	1.3	0.8	1.3	1.4	1.0	24
4	0.6	0.2	0.2	0.2	0.2	0.9	0.6	0.2	0.1	0.0	0.0	0.1	0.0	0.4	0.5	0.6	0.9	0.8	1.0	S	1.1	1.3	1.0	1.0	1.3	0.5	24
5	1.6	1.5	1.4	2.0	1.7	1.8	3.3	2.3	2.1	2.8	2.8	3.0	2.1	1.1	0.6	0.6	0.3	0.2	S	0.1	3.1	0.9	0.3	0.3	3.3	1.6	24
6	0.2	0.9	0.4	0.6	1.3	0.5	0.6	1.7	2.0	3.0	1.8	1.1	1.2	0.6	0.5	0.8	0.8	S	1.7	2.3	3.2	3.2	3.7	3.7	3.7	1.6	24
7	3.7	4.0	3.8	3.8	3.4	3.1	2.8	2.8	3.0	3.8	4.2	3.4	2.6	2.6	2.0	1.8	S	1.2	1.4	1.6	1.0	0.7	1.1	1.5	4.2	2.6	24
8	0.3	0.7	1.1	1.5	2.3	1.2	1.4	1.6	1.1	1.5	1.3	1.7	1.1	0.8	1.2	S	2.5	2.7	3.0	3.2	3.0	3.4	3.0	2.8	3.4	1.8	24
9	3.1	2.7	2.3	2.2	2.5	3.2	3.9	5.9	5.4	3.8	4.1	3.3	1.8	1.3	S	3.4	2.4	2.2	2.5	3.2	3.8	5.0	5.4	6.9	6.9	3.5	24
10	7.5	8.2	8.6	9.1	8.3	7.2	6.1	4.7	5.7	6.2	6.4	7.1	7.4	S	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.1	4.0	24
11	0.5	2.9	15.0	***16.7***	5.8	3.4	2.5	3.3	0.4	0.8	0.7	1.2	S	1.8	0.7	0.4	0.5	0.5	1.2	0.7	0.4	0.7	0.3	0.8	***16.7***	2.7	24
12	0.7	0.7	0.6	0.6	1.0	1.3	1.5	1.8	1.5	1.5	2.1	S	3.1	3.6	4.0	3.8	4.0	4.6	3.9	4.2	4.7	4.2	2.7	2.3	4.7	2.5	24
13	1.5	1.3	1.2	1.2	1.8	1.4	1.3	1.2	1.3	1.0	S	1.0	0.9	1.0	1.1	0.8	0.9	0.8	1.0	0.9	1.3	1.1	1.2	1.1	1.8	1.1	24
14	1.0	1.4	1.4	1.1	1.0	1.3	S	S	0.9	S	C	C	C	C	C	0.3	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.4	0.9	24
15	1.1	0.9	0.9	0.9	1.1	0.8	1.7	1.7	S	1.2	1.3	0.6	0.0	0.2	0.0	0.0	0.0	0.2	2.4	1.3	0.8	1.2	1.9	1.2	2.4	0.9	24
16	0.8	0.5	1.1	2.2	2.8	2.1	2.3	S	4.5	5.1	3.3	1.7	1.9	1.0	1.1	1.1	0.8	1.0	1.2	1.3	1.7	1.7	1.7	1.4	5.1	1.8	24
17	1.3	1.3	1.2	1.3	1.5	1.3	S	2.1	2.3	2.1	1.7	1.3	1.3	1.0	1.1	0.9	1.2	1.1	1.5	1.5	1.4	1.4	1.4	1.7	2.3	1.4	24
18	2.3	2.0	2.0	2.6	1.9	S	0.8	0.5	0.4	0.4	0.8	0.2	0.1	0.2	0.0	0.2	0.3	0.4	0.4	0.5	0.0	0.4	0.2	1.6	2.6	0.8	24
19	1.7	0.9	0.8	1.8	S	3.1	4.3	5.3	5.0	6.2	5.5	4.9	4.4	3.7	2.0	2.6	6.7	14.4	12.3	8.5	6.1	5.8	5.4	5.2	14.4	***5.1***	24
20	4.6	5.0	5.7	S	1.2	0.7	0.6	0.4	0.5	0.6	0.6	0.1	0.8	0.2	0.3	0.5	0.4	0.5	0.6	1.3	1.4	1.5	1.4	1.5	5.7	1.3	24
21	2.2	2.3	S	2.0	2.4	4.4	5.5	4.9	4.5	3.5	3.6	2.5	2.3	2.9	3.3	2.0	2.2	2.4	2.5	2.7	2.6	3.0	3.1	3.4	5.5	3.1	24
22	3.0	S	2.2	2.8	2.2	1.6	1.4	1.8	1.0	1.0	0.9	0.2	0.1	0.0	0.4	0.2	0.2	0.4	0.5	0.8	1.1	1.0	1.2	1.1	3.0	1.1	24
23	S	1.4	1.3	1.1	1.1	1.3	1.3	1.8	2.3	1.9	1.8	1.4	1.4	1.0	1.0	0.6	0.7	0.6	1.1	0.8	1.1	2.0	0.5	S	2.3	1.3	24
24	0.7	0.8	0.7	0.5	1.0	0.8	1.2	1.3	1.6	1.7	1.5	1.8	1.5	1.3	1.0	1.2	0.9	0.7	1.0	0.9	0.7	0.9	S	1.5	1.8	1.1	24
25	1.8	1.1	1.2	0.7	0.7	1.2	1.2	2.4	3.1	6.3	4.1	2.7	5.1	4.4	2.7	1.5	1.6	2.5	2.7	3.1	3.2	S	6.0	6.5	6.5	2.9	24
26	7.5	6.6	4.7	5.1	3.2	2.6	2.1	1.9	2.3	2.4	2.8	2.8	2.8	2.7	3.1	2.7	1.8	2.5	2.2	2.2	S	2.3	2.0	2.4	7.5	3.1	24
27	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	0.1	0.0	0.0	S	0.6	0.6	0.5	0.5	1.0	0.1	24
28	0.8	0.4	0.6	0.1	0.7	0.6	0.9	1.9	0.8	0.7	0.1	0.7	0.4	0.5	0.8	0.9	1.1	2.4	4.8	5.5	3.8	4.2	S	3.3	5.5	1.6	24
29	2.7	2.5	2.2	2.0	2.0	1.8	1.4	1.8	1.9	2.4	2.1	2.9	3.5	2.8	3.2	3.9	4.1	4.2	3.8	4.8	4.3	S	5.5	3.2	5.5	3.0	24
30	2.3	1.5	1.6	2.4	2.8	3.5	5.1	4.7	3.7	3.7	4.7	4.4	2.8	3.3	3.9	3.7	4.7	4.4	4.0	4.0	S	1.3	1.5	1.5	5.1	3.3	24
31	1.2	1.0	0.9	0.9	1.0	0.8	0.7	0.9	1.1	1.0	0.6	0.4	0.2	0.2	0.4	0.6	0.9	0.9	0.8	S	1.4	1.2	0.8	0.3	1.4	0.8	24
HOURLY MAX	7.5	8.2	15.0	16.7	8.3	7.2	6.1	5.9	5.7	6.3	6.4	7.1	7.4	4.4	4.0	3.9	6.7	14.4	12.3	8.5	6.1	5.8	6.0	6.9			
HOURLY AVG	2.0	1.9	2.3	2.4	2.0	1.9	2.0	2.2	2.1	2.3	2.2	1.8	1.8	1.4	1.3	1.3	1.5	1.9	2.1	2.2	2.0	1.9	2.0	2.1			

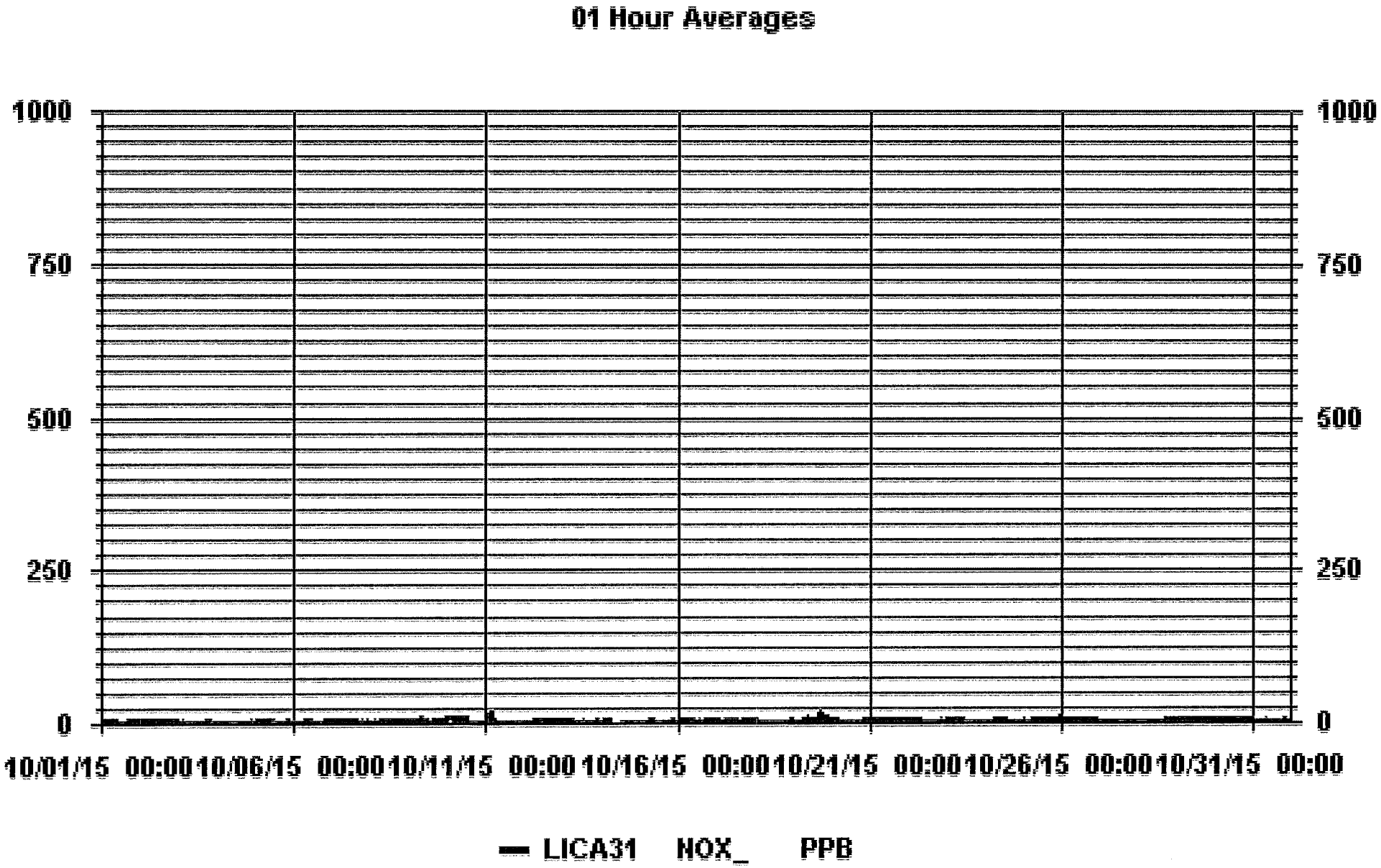
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	- RECOVERY
S	DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			670				
MAXIMUM 1-HR AVERAGE:	16.7	PPB	@ HOUR(S)	3	ON DAY(S)	11	
MAXIMUM 24-HR AVERAGE:	5.1	PPB			ON DAY(S) VAR-VARIOUS	19	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	1.86		MONTHLY AVERAGE:			1.9	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NOX_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

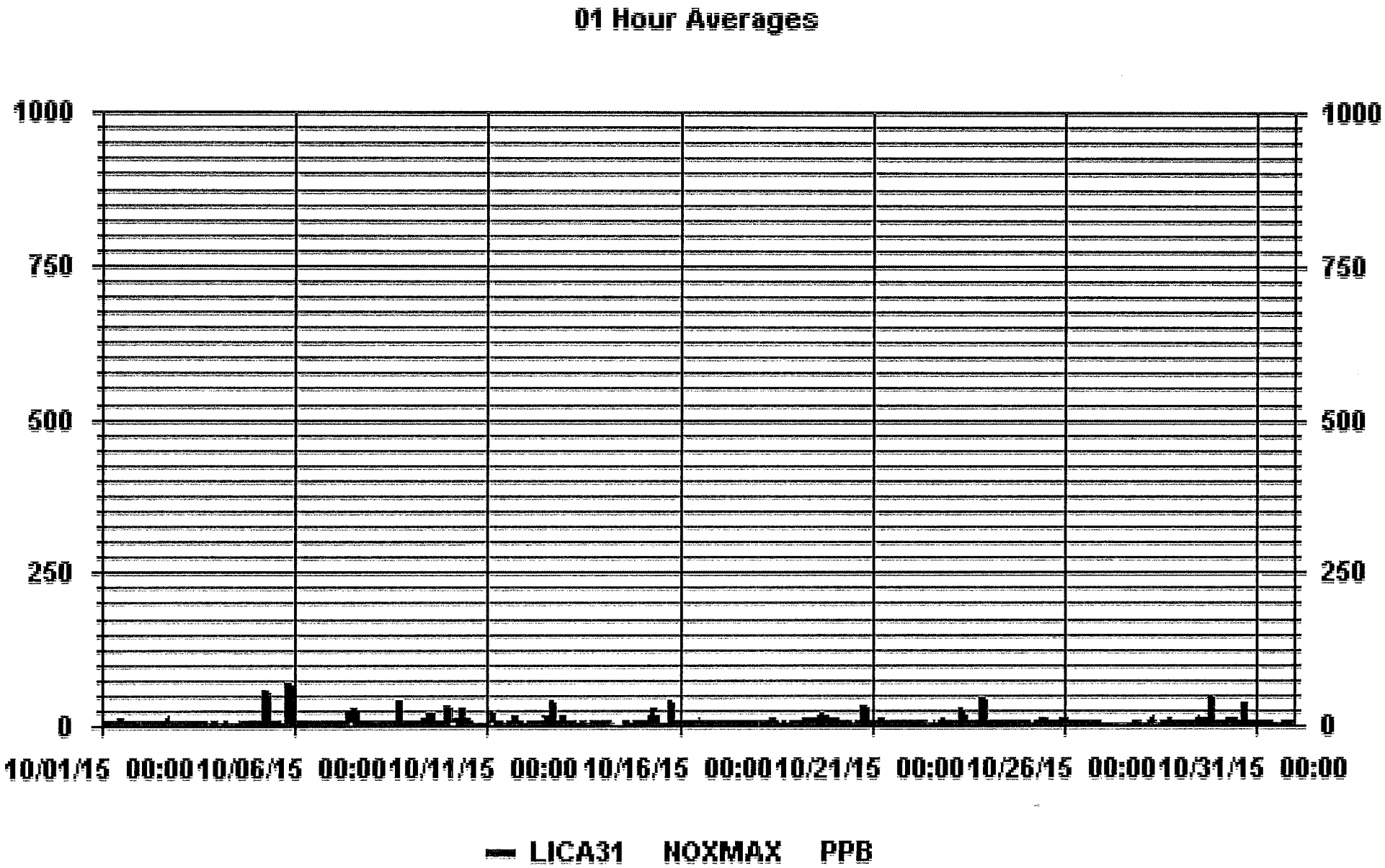
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.5	2.6	2.2	2.1	1.8	1.8	3.1	3.6	3.2	3.7	3.5	2.5	10.6	3.7	2.3	3.7	1.3	3.7	4.8	2.6	3.4	4.0	S	4.1	10.6	3.3	24
2	3.2	2.7	3.1	3.1	3.1	3.1	2.4	2.0	2.4	2.3	2.1	1.9	1.9	2.1	2.1	2.3	2.5	8.0	3.4	3.0	2.5	S	2.2	2.3	8.0	2.8	24
3	2.3	1.6	1.9	2.1	2.0	1.5	1.2	1.2	1.8	1.7	1.2	1.4	1.9	1.6	1.4	1.4	2.2	1.8	2.2	1.7	S	1.9	1.4	2.2	2.3	1.7	24
4	2.0	0.8	0.9	0.9	0.8	4.8	1.2	1.1	0.8	0.7	0.5	1.6	0.7	1.7	1.3	1.5	1.6	1.6	1.8	S	1.8	1.9	1.9	1.6	4.8	1.5	24
5	2.4	2.2	1.9	2.8	2.6	2.7	57.7	3.2	3.3	4.5	3.4	5.2	3.3	1.7	1.6	1.8	0.9	1.1	S	0.8	***69.9***	32.3	1.1	0.9	***69.9***	9.0	24
6	0.7	2.0	1.1	1.5	2.2	1.4	1.6	2.3	2.8	3.6	3.0	1.7	2.0	1.3	1.2	1.4	1.6	S	2.4	3.5	4.1	4.0	4.3	4.4	4.4	2.4	24
7	4.3	4.6	4.4	4.3	4.0	3.8	3.7	4.2	4.2	6.1	25.9	13.1	4.5	27.0	3.2	2.9	S	2.1	2.4	2.4	1.7	1.3	1.9	2.5	27.0	5.8	24
8	1.3	1.8	1.8	3.3	4.9	2.5	2.2	2.2	2.0	2.1	2.7	3.1	1.9	1.8	2.6	S	3.2	42.8	8.0	7.9	4.0	4.1	3.9	3.5	42.8	4.9	24
9	3.8	3.4	3.0	3.0	3.3	4.3	5.1	7.2	6.6	5.0	5.0	17.7	18.2	2.9	S	4.8	3.5	3.1	3.2	4.0	4.8	7.1	6.3	34.6	34.6	7.0	24
10	8.4	9.3	9.6	10.4	9.2	8.6	7.2	5.5	27.9	9.3	7.5	8.2	8.8	S	2.5	1.5	0.4	2.8	0.1	0.7	0.4	0.2	0.4	1.0	27.9	6.1	24
11	1.9	9.5	21.3	21.1	10.9	4.8	3.4	5.5	1.7	2.6	2.9	2.3	S	3.8	1.3	2.1	2.3	17.6	4.4	4.3	1.5	1.4	2.0	2.8	21.3	5.7	24
12	1.4	1.5	1.3	1.3	1.7	2.1	2.2	2.6	2.4	2.7	2.9	S	12.4	4.9	7.2	6.4	41.5	5.9	4.7	5.7	7.6	6.0	3.6	17.5	41.5	6.3	24
13	2.4	2.0	2.0	1.9	2.7	2.2	2.2	1.7	2.2	1.7	S	1.9	1.5	2.3	2.0	1.2	2.0	1.9	2.8	1.7	3.9	1.7	1.9	1.7	3.9	2.1	24
14	1.6	2.0	1.9	1.9	1.7	2.1	S	S	1.8	S	C	C	C	C	C	1.4	1.4	1.1	1.9	1.5	1.6	1.4	1.5	2.4	2.4	1.7	24
15	1.7	1.7	1.5	1.7	1.7	1.4	17.2	25.2	S	14.5	3.7	2.3	0.7	1.1	0.7	2.6	1.0	2.8	40.7	3.2	1.5	2.0	2.7	2.0	40.7	5.8	24
16	1.5	1.0	2.3	3.2	3.5	2.7	2.9	S	5.5	6.1	5.0	2.6	5.9	1.7	1.9	1.8	1.5	1.9	2.0	1.9	2.3	2.3	2.2	2.0	6.1	2.8	24
17	2.0	1.9	1.8	2.0	2.1	2.0	S	2.7	3.0	3.8	2.5	1.9	2.1	1.8	2.2	1.6	2.2	1.9	2.1	2.2	3.4	2.1	2.0	2.4	3.8	2.2	24
18	3.0	3.0	3.0	3.2	3.1	S	1.5	1.3	1.1	1.6	11.8	0.7	1.3	1.3	0.4	1.1	2.0	2.0	2.3	1.3	0.4	1.3	1.0	2.6	11.8	2.2	24
19	2.6	1.8	1.7	2.9	S	3.9	6.1	7.5	6.3	9.7	6.5	5.4	5.4	5.3	3.4	3.6	13.7	16.1	13.5	11.2	6.9	6.9	6.2	5.9	16.1	6.6	24
20	5.3	5.8	6.5	S	2.1	1.3	1.3	1.0	1.2	1.3	1.3	1.2	2.6	0.8	1.2	1.2	1.3	1.2	1.4	34.2	2.1	2.1	2.1	2.3	34.2	3.5	24
21	5.3	3.0	S	2.9	3.5	5.9	6.3	5.7	5.2	4.4	4.3	4.1	3.9	4.2	4.7	3.3	3.0	3.3	3.0	3.3	3.5	3.8	3.8	4.1	6.3	4.1	24
22	3.5	S	3.1	3.4	3.2	2.4	2.0	3.3	2.4	2.4	3.3	0.8	1.0	0.9	1.3	1.1	0.8	1.6	1.4	1.6	9.4	1.6	1.8	1.7	9.4	2.3	24
23	S	2.1	1.8	1.7	1.7	2.6	2.4	28.0	7.4	10.5	2.7	2.4	4.5	2.3	2.1	1.5	3.6	1.4	2.9	1.6	3.0	45.5	1.0	S	45.5	6.0	24
24	1.2	1.5	1.4	1.2	1.6	1.4	2.0	2.1	2.3	2.8	2.4	2.7	2.4	1.9	1.6	2.9	1.6	1.4	1.7	1.8	1.4	2.1	S	4.3	4.3	2.0	24
25	3.3	2.1	2.2	1.4	1.3	2.5	1.9	3.9	4.7	7.4	6.5	4.0	6.0	5.5	3.7	2.2	2.3	3.1	3.4	3.8	3.7	S	7.2	7.2	7.4	3.9	24
26	8.7	8.0	5.5	6.5	4.3	3.4	3.0	2.8	3.1	3.0	3.6	3.7	3.6	3.4	3.8	3.5	2.3	3.2	3.0	2.9	S	3.8	2.8	3.4	8.7	4.0	24
27	1.5	1.1	0.3	0.6	0.3	0.4	0.6	0.8	0.5	0.6	0.1	0.2	0.4	0.2	0.5	0.4	2.3	0.6	0.7	S	1.3	1.4	1.6	1.4	2.3	0.8	24
28	1.5	1.0	1.6	0.8	1.3	1.1	3.1	7.7	2.9	1.6	0.8	1.9	1.1	1.2	1.4	1.7	2.3	3.1	7.7	7.6	4.8	5.0	S	3.9	7.7	2.8	24
29	3.4	3.5	2.8	2.6	2.7	2.3	2.0	2.6	2.8	3.3	3.1	9.0	5.7	5.7	5.2	5.5	5.6	5.5	4.9	51.2	5.0	S	6.4	4.7	51.2	6.3	24
30	3.5	2.3	2.5	3.3	4.0	6.2	6.4	8.7	8.5	5.1	7.0	6.3	3.7	4.5	5.5	5.6	35.5	5.3	4.8	4.7	S	2.3	2.0	2.1	35.5	6.1	24
31	2.0	1.7	1.6	1.7	1.6	1.3	1.3	1.6	2.9	1.8	1.3	1.3	0.9	0.9	0.9	1.2	1.5	1.5	1.5	S	1.9	1.8	1.5	0.9	2.9	1.5	24
HOURLY MAX	8.7	9.5	21.3	21.1	10.9	8.6	57.7	28.0	27.9	14.5	25.9	17.7	18.2	27.0	7.2	6.4	41.5	42.8	40.7	51.2	69.9	45.5	7.2	34.6			
HOURLY AVG	2.9	2.9	3.2	3.3	3.0	2.9	5.3	5.1	4.1	4.2	4.4	3.8	4.1	3.4	2.4	2.4	4.9	5.0	4.6	6.2	5.6	5.4	2.7	4.4			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM INSTANTANEOUS VALUE:	69.9	PPB	@ HOUR(S)	20	ON DAY(S)	5
				VAR-VARIOUS		
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			744 HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	6.22					


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NOXMAX PPB

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NOX_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	

Calm : .00 %

Total # Operational Hours : 705

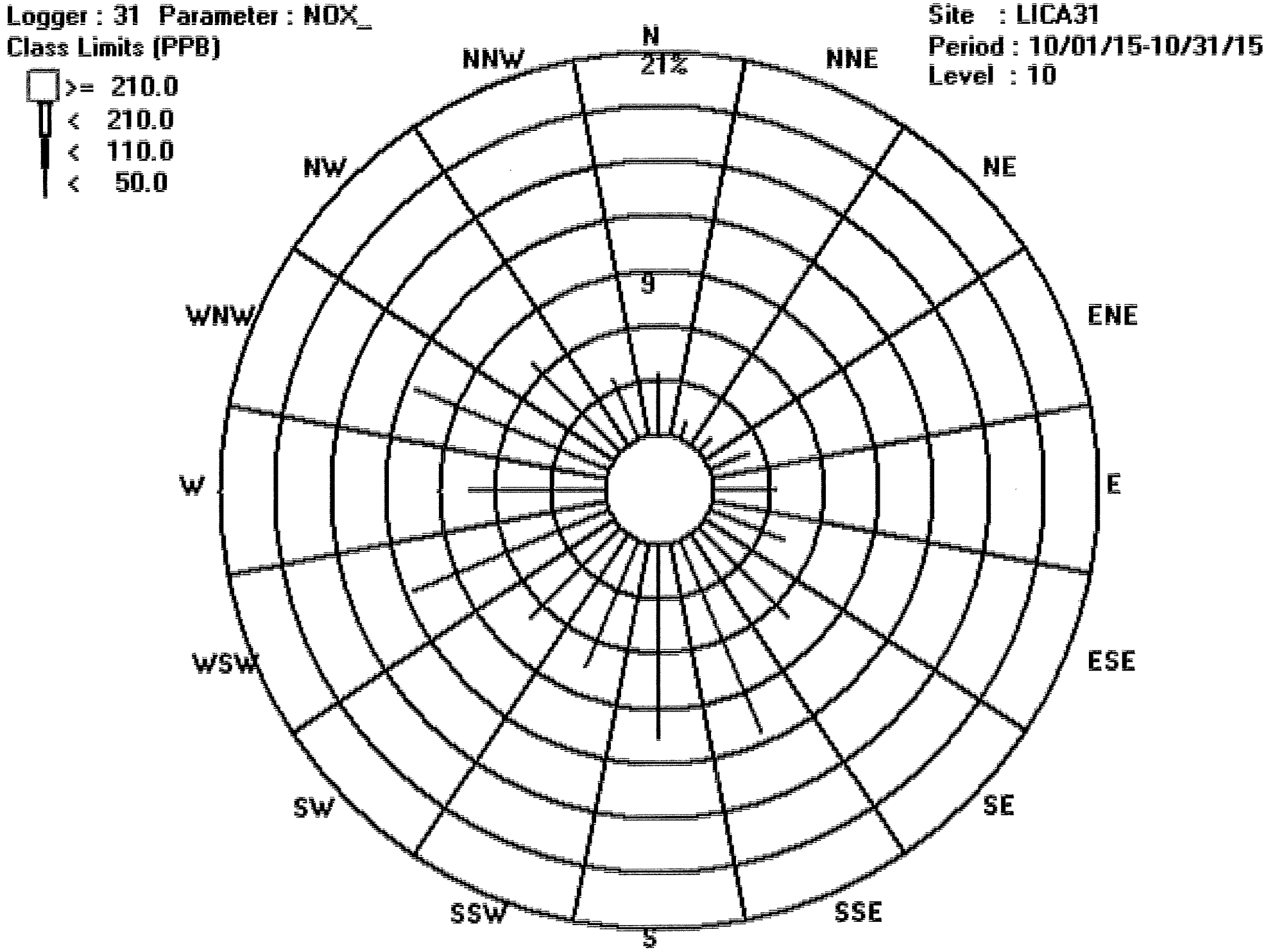
Distribution By Samples

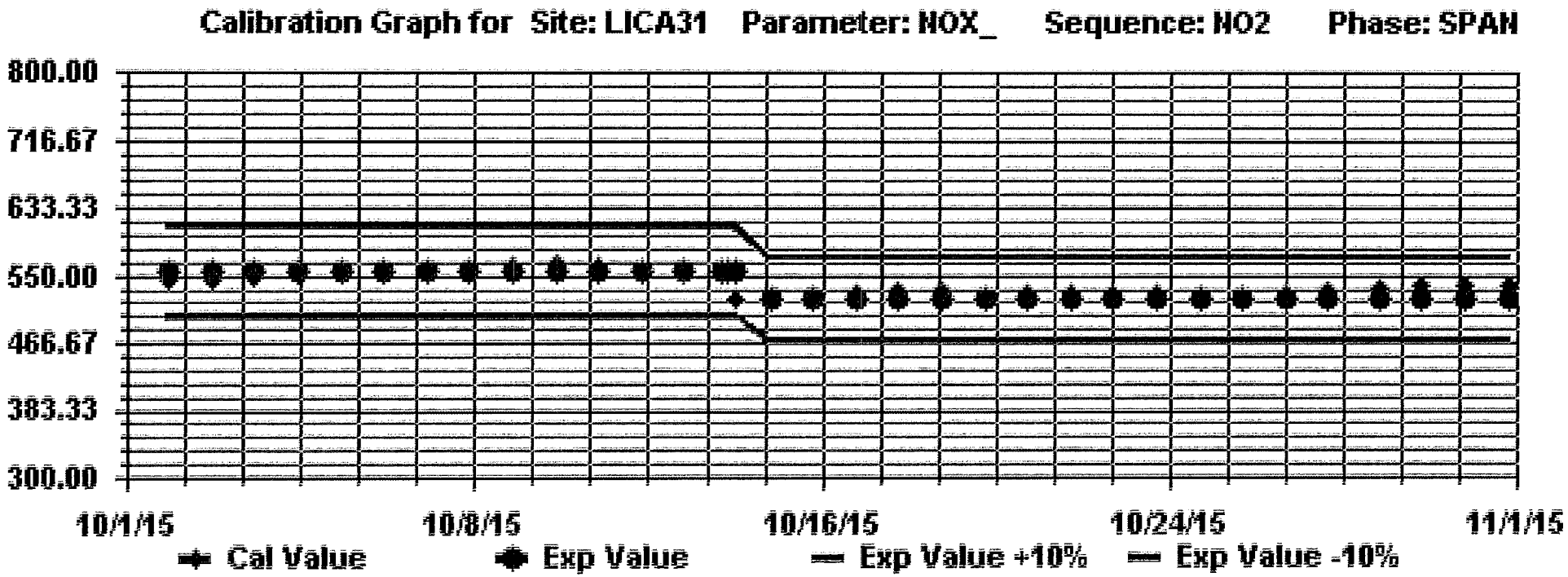
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	

Calm : .00 %

Total # Operational Hours : 705


Logger : 31 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9


Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN
800.00
716.67
633.33
550.00
466.67
383.33
300.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

NITRIC OXIDES

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

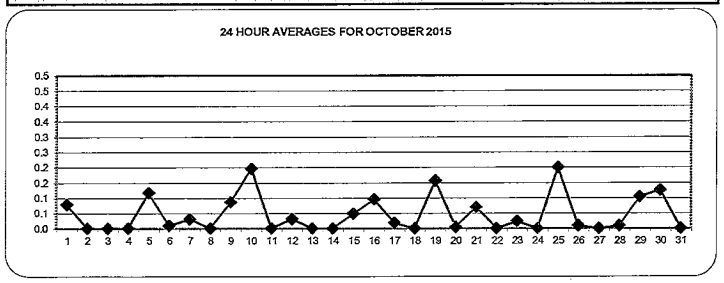
NITRIC OXIDE (NO) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.5	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	0.7	0.1	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	S	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	0.0	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	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	0.5	0.0	0.0	0.4	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.8	0.0	0.0	0.0	0.8	0.1	24
6	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	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	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	0.6	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	S	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	0.2	0.7	0.5	0.4	0.2	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	*1.5*	*1.5*	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*1.5*	*0.2*	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	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
12	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	0.2	0.2	0.3	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	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
14	0.0	0.0	0.0	0.0	0.0	0.0	S	S	0.0	S	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	24
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	1.1	0.5	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	1.1	0.1	24
17	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.2	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	0.2	0.0	24
18	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
19	0.0	0.0	0.0	0.0	S	0.0	0.0	0.1	0.6	1.1	0.6	0.5	0.4	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	*0.2*	24
20	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	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	S	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24
22	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
23	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	S	0.3	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.8	0.4	1.2	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	1.2	*0.2*	24
26	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	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.2	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	S	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	0.2	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	S	0.0	0.2	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	0.4	0.6	0.2	0.3	0.6	0.0	0.0	0.0	0.3	0.0	S	0.0	0.0	0.6	0.1	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	1.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	1.1	0.1	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	S	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.7	1.1	1.1	1.5	1.5	0.8	0.3	0.6	0.3	0.1	0.2	0.3	0.8	0.3	0.0	0.0			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	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			

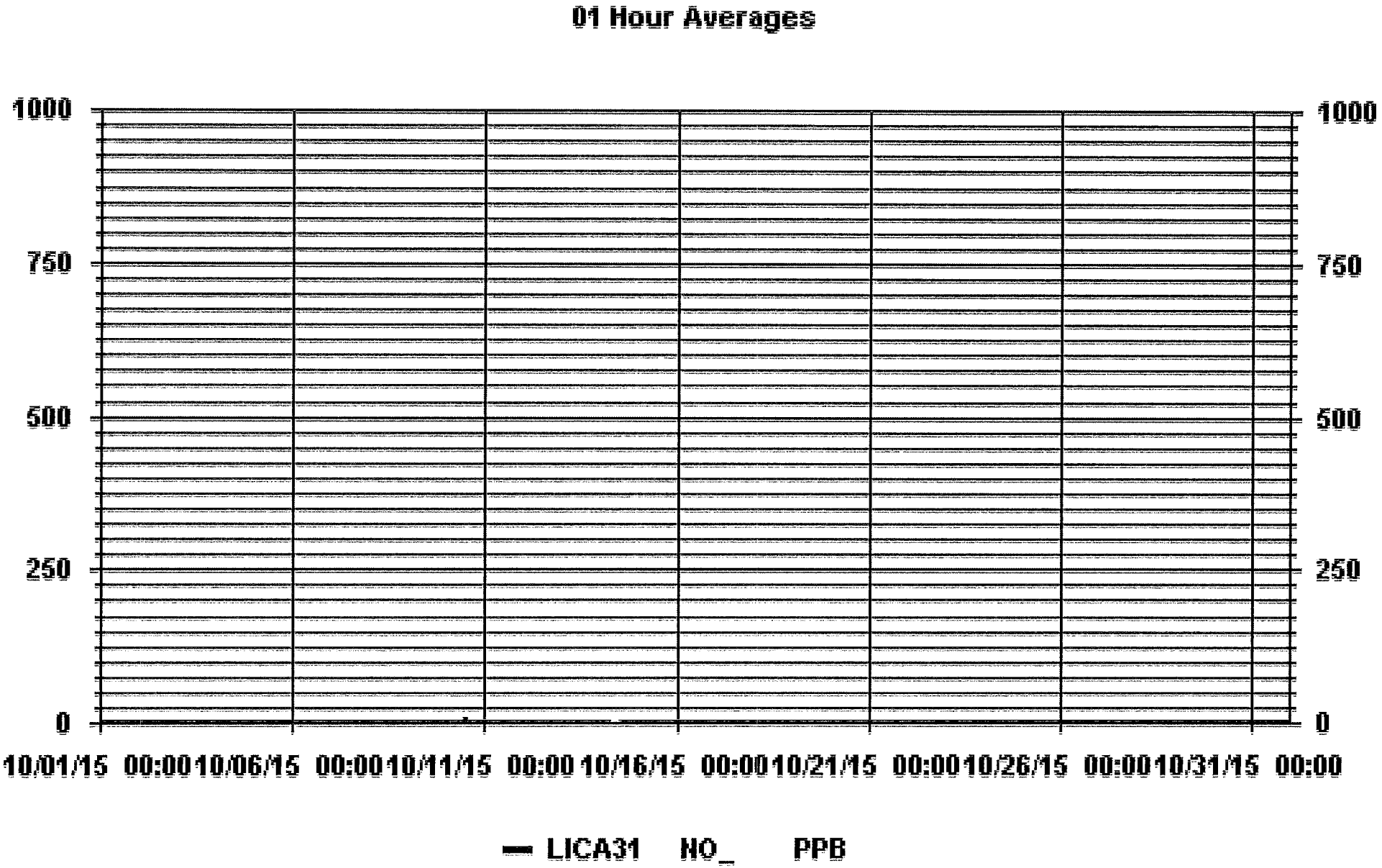
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		72				
MAXIMUM 1-HR AVERAGE:	1.5	PPB	@ HOUR(S)	11 , 12	ON DAY(S)	10 , 10
MAXIMUM 24-HR AVERAGE:	0.2	PPB			ON DAY(S)	VAR
					VAR-VARIOUS	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.17		MONTHLY AVERAGE:		0.0	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NO_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

NITRIC OXIDE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.7	0.7	0.4	0.4	0.2	0.3	0.4	0.9	1.1	1.2	1.2	0.6	9.1	1.8	0.6	1.5	0.4	0.1	0.4	0.4	0.7	0.6	S	0.4	9.1	1.0	24
2	0.2	0.2	0.1	0.3	0.2	0.0	0.2	0.0	0.0	0.3	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.6	S	0.5	0.2	0.6	0.2	24
3	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	S	0.2	0.1	0.0	0.3	0.1	24
4	0.1	0.0	0.0	0.0	0.0	1.5	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.4	0.0	0.4	0.0	0.2	S	0.0	0.2	0.3	0.0	1.5	0.2	24
S	0.2	0.0	0.0	0.5	0.2	0.5	40.1	0.5	0.8	1.5	1.0	2.3	0.9	0.1	0.2	0.5	0.0	0.0	S	0.3	***41.5***	14.8	0.0	0.0	***41.5***	4.6	24
6	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.5	0.7	0.5	0.2	0.2	0.2	0.0	0.2	0.1	S	0.2	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24
7	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.7	0.7	1.2	18.6	6.2	0.8	14.3	0.2	0.4	S	0.1	0.2	0.0	0.0	0.0	0.2	0.2	18.6	1.9	24
8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	S	0.3	15.9	0.0	0.0	0.1	0.2	0.0	0.0	15.9	0.8	24
9	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.3	1.4	1.3	1.1	12.1	7.6	0.2	S	0.7	0.2	0.2	0.0	0.0	0.0	0.5	0.0	18.9	18.9	2.0	24
10	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	19.3	3.4	1.5	2.3	2.3	S	0.5	0.9	0.0	0.9	0.0	0.0	0.0	0.0	0.1	0.1	19.3	1.4	24
11	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.7	0.2	0.7	0.8	0.2	S	0.4	0.4	0.9	1.4	9.9	0.0	0.0	0.0	0.0	0.5	0.8	9.9	0.8	24
12	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.3	0.5	0.4	S	15.0	0.8	2.0	1.9	26.7	1.0	0.0	0.5	1.2	0.1	0.2	8.1	26.7	2.6	24
13	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	S	0.2	0.3	0.3	0.6	0.0	0.6	0.2	0.2	0.0	1.2	0.0	0.0	0.0	1.2	0.2	24
14	0.0	0.2	0.0	0.0	0.0	0.0	S	S	0.2	S	C	C	C	C	C	1.2	0.6	0.2	0.4	0.3	0.2	0.0	0.2	0.6	1.2	0.3	24
15	0.3	0.3	0.0	0.3	0.2	0.0	11.2	15.8	S	13.8	1.6	2.0	0.2	0.6	0.3	0.8	0.2	0.7	20.5	0.0	0.0	0.2	0.2	0.2	20.5	3.0	24
16	0.3	0.0	0.4	0.3	0.5	0.4	0.2	S	1.3	1.9	1.4	0.5	2.3	0.2	0.5	0.4	0.2	0.0	0.1	0.2	0.1	0.2	0.2	0.2	2.3	0.5	24
17	0.3	0.2	0.3	0.3	0.3	0.3	S	0.5	0.8	1.4	0.6	0.4	0.5	0.2	0.5	0.2	0.6	0.2	0.2	0.2	0.2	0.0	0.0	0.2	1.4	0.4	24
18	0.1	0.2	0.2	0.2	0.3	S	0.4	0.2	0.3	0.5	8.8	0.4	0.5	0.4	0.1	0.6	0.5	0.5	0.4	0.2	0.0	0.1	0.0	0.1	8.8	0.7	24
19	0.2	0.2	0.2	0.5	S	0.5	0.6	1.3	1.3	2.6	1.3	1.1	1.0	0.9	0.4	0.6	0.7	0.9	0.1	0.3	0.2	0.2	0.2	0.4	2.6	0.7	24
20	0.0	0.2	0.2	S	0.2	0.3	0.3	0.3	0.6	0.5	0.3	0.1	1.5	0.2	0.4	0.5	0.3	0.1	0.2	25.8	0.0	0.3	0.1	0.2	25.8	1.4	24
21	2.3	0.2	S	0.4	0.2	0.2	0.6	0.3	1.0	0.9	1.1	1.1	0.8	0.9	1.1	1.0	0.3	0.3	0.2	0.2	0.3	0.4	0.0	0.0	2.3	0.6	24
22	0.0	S	0.2	0.3	0.3	0.2	0.1	1.3	0.6	0.8	1.0	0.3	0.3	0.5	0.6	0.3	0.4	0.8	0.4	0.3	5.0	0.2	0.1	0.2	5.0	0.6	24
23	S	0.2	0.0	0.0	0.2	1.3	0.8	16.0	3.6	7.5	0.6	1.4	1.9	0.6	0.8	0.5	1.0	0.0	0.6	0.3	0.6	33.1	0.0	S	33.1	3.2	24
24	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.4	0.5	0.7	0.8	0.6	0.8	0.5	0.3	0.8	0.3	0.0	0.3	0.2	0.2	0.2	S	0.3	0.8	0.4	24
25	0.2	0.0	0.2	0.0	0.0	0.4	0.4	0.2	1.3	2.0	1.8	1.1	2.1	1.7	0.9	0.3	0.3	0.4	0.3	0.3	0.3	S	0.2	0.6	2.1	0.7	24
26	0.4	0.2	0.0	0.2	0.0	0.1	0.2	0.2	0.5	0.5	0.8	0.7	0.5	0.8	0.6	0.5	0.2	0.2	0.0	0.5	S	0.5	0.5	0.5	0.8	0.4	24
27	0.3	0.2	0.0	0.2	0.0	0.2	0.2	0.4	0.2	0.5	0.0	0.2	0.2	0.2	0.2	0.3	0.8	0.6	0.1	S	0.6	0.8	0.7	0.3	0.8	0.3	24
28	0.2	0.2	0.6	0.1	0.2	0.2	0.8	3.4	0.9	0.4	0.4	0.8	0.2	0.3	0.3	0.2	0.8	0.2	0.3	0.1	0.1	0.4	S	0.3	3.4	0.5	24
29	0.6	0.2	0.2	0.3	0.3	0.3	0.0	0.2	0.4	0.4	0.4	4.5	2.0	2.0	1.9	2.0	1.6	1.9	0.2	33.6	0.2	S	0.6	0.3	33.6	2.4	24
30	0.4	0.3	0.3	0.2	0.8	0.8	0.9	2.8	2.5	1.7	2.4	1.8	0.6	0.6	0.6	1.6	20.3	0.6	0.5	0.6	S	0.9	0.1	0.2	20.3	1.8	24
31	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.6	1.3	0.6	0.6	0.5	0.3	0.3	0.3	0.6	0.3	0.4	0.2	S	0.4	0.3	0.5	0.0	1.3	0.4	24
HOURLY MAX	2.3	0.7	0.6	0.5	0.8	1.5	40.1	16.0	19.3	13.8	18.6	12.1	15.0	14.3	2.0	2.0	26.7	15.9	20.5	33.6	41.5	33.1	0.7	18.9			
HOURLY AVG	0.3	0.2	0.1	0.2	0.2	0.3	2.0	1.7	1.4	1.6	1.7	1.5	1.8	1.0	0.5	0.7	2.0	1.2	0.9	2.3	1.9	1.9	0.2	1.1			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 550

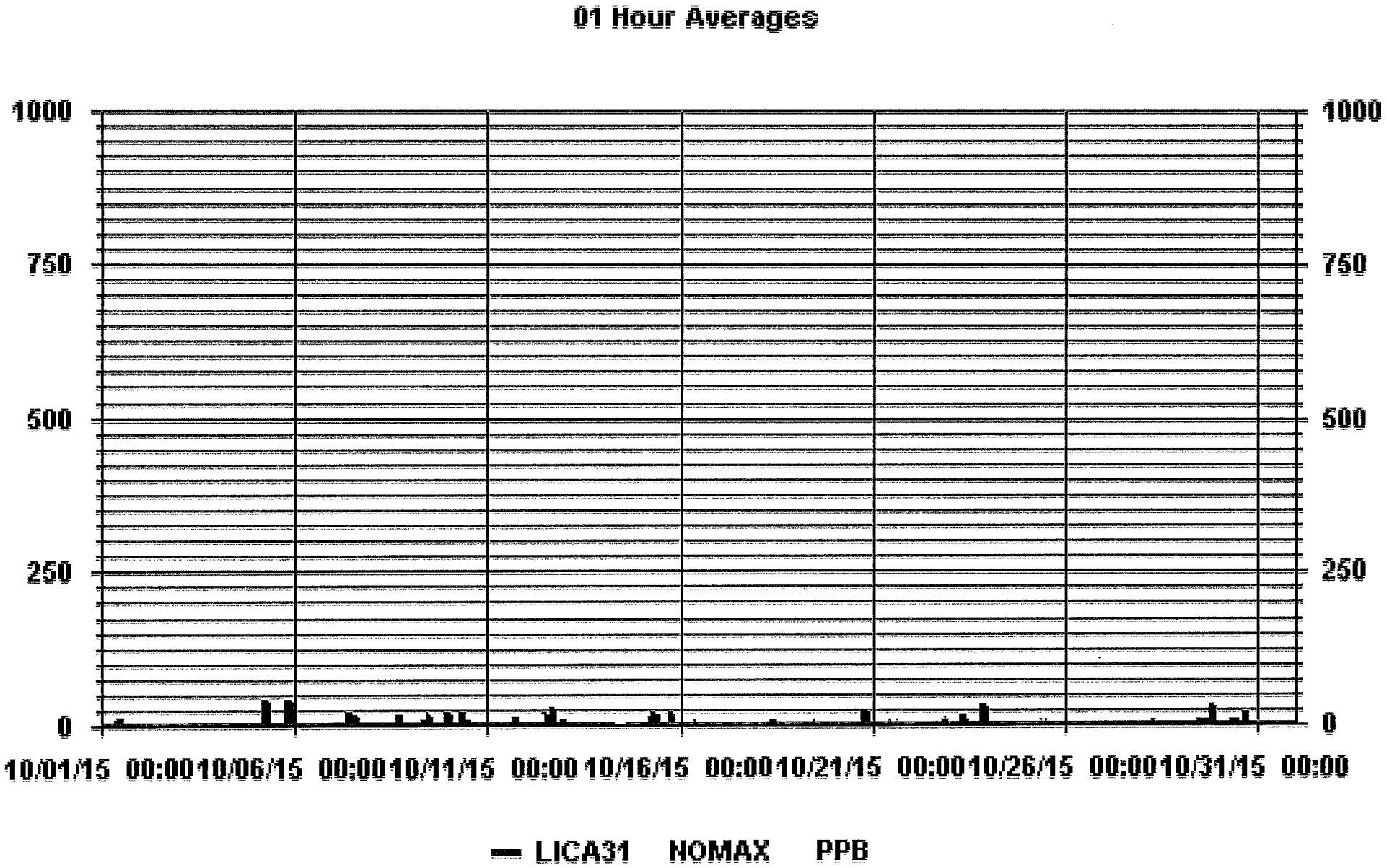
MAXIMUM INSTANTANEOUS VALUE: 41.5 PPB @ HOUR(S) 20 ON DAY(S) 5

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 3.89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500
250
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10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NOMAX PPB

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	

Calm : .00 %

Total # Operational Hours : 705

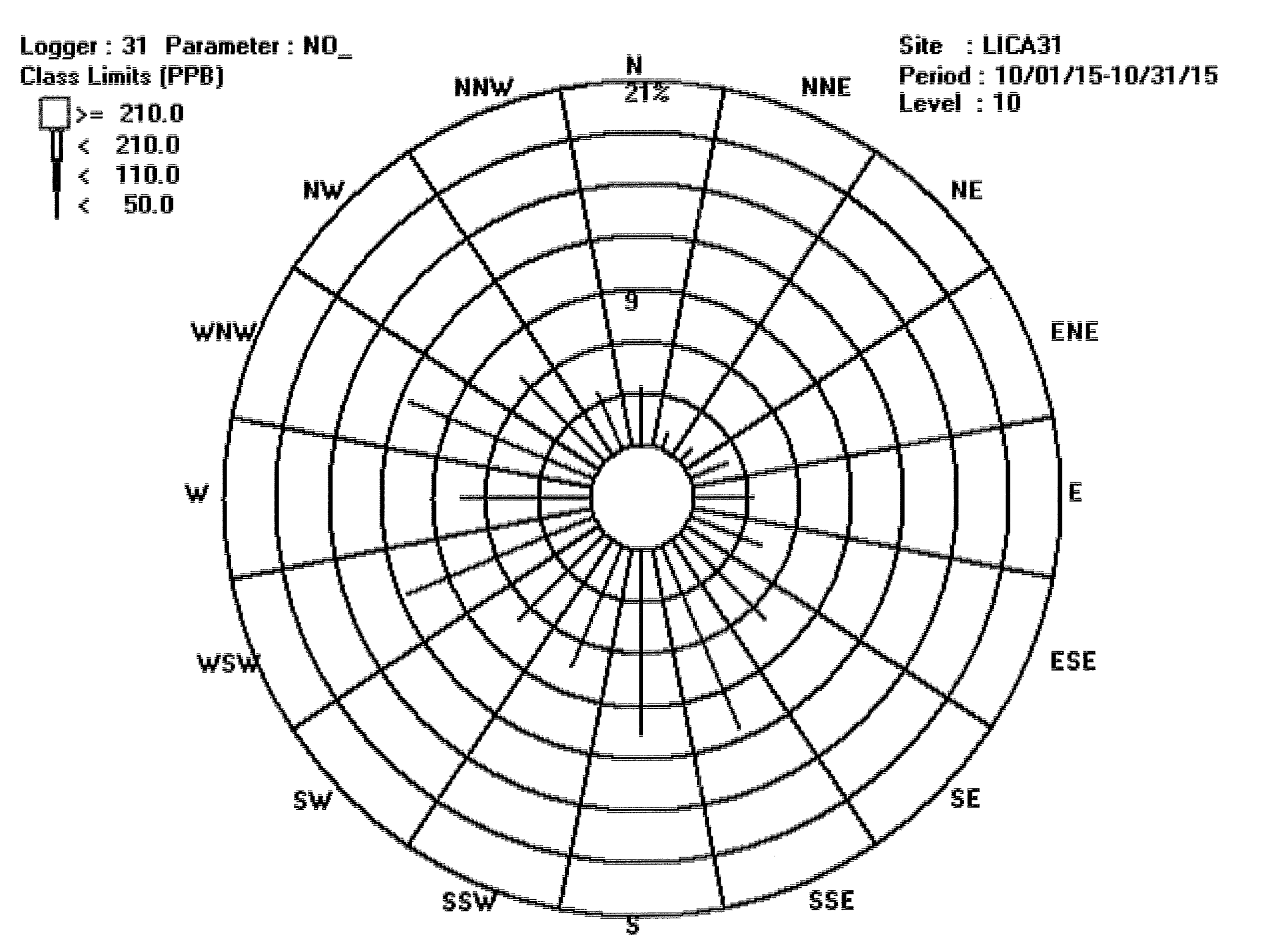
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	

Calm : .00 %

Total # Operational Hours : 705


Logger : 31 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
21%
9
5

NITROGEN DIOXIDE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

NITROGEN DIOXIDE (NO2) hourly averages in ppb

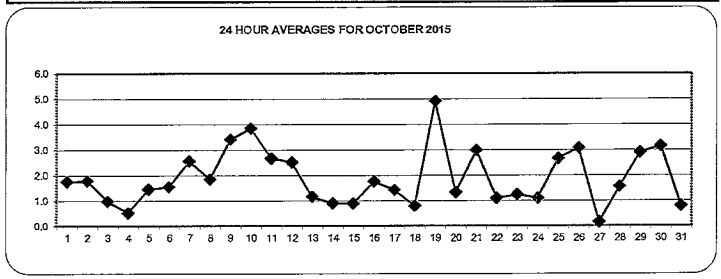
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.7	1.7	1.6	1.5	1.2	1.3	1.9	2.4	2.0	2.1	2.1	1.0	1.3	0.9	0.9	1.2	0.3	1.9	2.9	1.9	2.4	3.2	S	2.8	3.2	1.7	24
2	2.4	2.0	2.5	2.4	2.4	2.1	1.6	1.4	1.8	1.6	1.4	1.2	1.1	1.4	1.3	1.5	1.8	2.7	1.8	1.6	1.5	S	1.6	1.8	2.7	1.8	24
3	1.4	0.9	1.3	1.4	1.4	0.7	0.5	0.3	0.7	1.0	0.5	0.9	1.0	0.7	0.8	0.8	1.1	1.1	1.3	1.2	S	1.3	0.8	1.3	1.4	1.0	24
4	0.6	0.2	0.2	0.2	0.2	0.9	0.6	0.2	0.1	0.0	0.0	0.1	0.0	0.4	0.5	0.6	0.9	0.8	1.0	S	1.1	1.3	1.0	1.0	1.3	0.5	24
5	1.6	1.5	1.4	2.0	1.7	1.8	2.8	2.3	2.1	2.4	2.4	2.4	2.1	1.1	0.6	0.6	0.3	0.2	S	0.1	2.3	0.9	0.3	0.3	2.8	1.4	24
6	0.2	0.9	0.4	0.6	1.3	0.5	0.6	1.7	2.0	2.8	1.8	1.1	1.2	0.6	0.5	0.8	0.8	S	1.7	2.3	3.2	3.2	3.7	3.7	3.7	1.5	24
7	3.7	4.0	3.8	3.8	3.4	3.1	2.8	2.8	3.0	3.8	3.6	3.3	2.6	2.6	2.0	1.8	S	1.2	1.4	1.6	1.0	0.7	1.1	1.5	4.0	2.5	24
8	0.3	0.7	1.1	1.5	2.3	1.2	1.4	1.6	1.1	1.5	1.3	1.7	1.1	0.8	1.2	S	2.5	2.7	3.0	3.2	3.0	3.4	3.0	2.8	3.4	1.8	24
9	3.1	2.7	2.3	2.2	2.5	3.2	3.9	5.7	4.7	3.3	3.7	3.1	1.8	1.3	S	3.4	2.4	2.2	2.5	3.2	3.8	5.0	5.4	6.9	6.9	3.4	24
10	7.5	8.2	8.6	9.1	8.3	7.2	6.1	4.7	5.7	5.4	5.7	5.6	5.9	S	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.1	3.8	24
11	0.5	2.9	15.0	***16.7***	5.8	3.4	2.5	3.3	0.4	0.8	0.7	1.2	S	1.8	0.7	0.4	0.5	0.5	1.2	0.7	0.4	0.7	0.3	0.8	***16.7***	2.7	24
12	0.7	0.7	0.6	0.6	1.0	1.3	1.5	1.8	1.5	1.5	2.1	S	3.1	3.6	3.8	3.6	3.7	4.6	3.9	4.2	4.7	4.2	2.7	2.3	4.7	2.5	24
13	1.5	1.3	1.2	1.2	1.8	1.4	1.3	1.2	1.3	1.0	S	1.0	0.9	1.0	1.1	0.8	0.9	0.8	1.0	0.9	1.3	1.1	1.2	1.1	1.8	1.1	24
14	1.0	1.4	1.4	1.1	1.0	1.3	S	S	0.9	S	C	C	C	C	C	0.3	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.4	0.9	24
15	1.1	0.9	0.9	0.9	1.1	0.8	1.7	1.7	S	0.7	1.0	0.5	0.0	0.2	0.0	0.0	0.0	0.2	2.2	1.3	0.8	1.2	1.9	1.2	2.2	0.9	24
16	0.8	0.5	1.1	2.2	2.8	2.1	2.3	S	4.1	4.0	2.8	1.7	1.7	1.0	1.1	1.1	0.8	1.0	1.2	1.3	1.7	1.7	1.7	1.4	4.1	1.7	24
17	1.3	1.3	1.2	1.3	1.5	1.3	S	2.1	2.1	1.9	1.7	1.3	1.3	1.0	1.1	0.9	1.2	1.1	1.5	1.5	1.4	1.4	1.4	1.7	2.1	1.4	24
18	2.3	2.0	2.0	2.6	1.9	S	0.8	0.5	0.4	0.4	0.8	0.2	0.1	0.2	0.0	0.2	0.3	0.4	0.4	0.5	0.0	0.4	0.2	1.6	2.6	0.8	24
19	1.7	0.9	0.8	1.8	S	3.1	4.3	5.2	4.4	5.1	4.9	4.4	4.0	3.5	2.0	2.6	6.7	14.3	12.3	8.5	6.1	5.8	5.4	5.2	14.3	***4.9***	24
20	4.6	5.0	5.7	S	1.2	0.7	0.6	0.4	0.5	0.6	0.6	0.1	0.7	0.2	0.3	0.5	0.4	0.5	0.6	1.3	1.4	1.5	1.4	1.5	5.7	1.3	24
21	2.2	2.3	S	2.0	2.4	4.4	5.5	4.9	4.3	3.2	3.2	2.3	2.2	2.7	3.1	2.0	2.2	2.4	2.5	2.7	2.6	3.0	3.1	3.4	5.5	3.0	24
22	3.0	S	2.2	2.8	2.2	1.6	1.4	1.8	1.0	1.0	0.9	0.2	0.1	0.0	0.4	0.2	0.2	0.4	0.5	0.8	1.1	1.0	1.2	1.1	3.0	1.1	24
23	S	1.4	1.3	1.1	1.1	1.3	1.3	1.8	2.2	1.9	1.8	1.3	1.4	1.0	1.0	0.6	0.7	0.6	1.1	0.8	1.1	1.7	0.5	S	2.2	1.2	24
24	0.7	0.8	0.7	0.5	1.0	0.8	1.2	1.3	1.6	1.7	1.5	1.8	1.5	1.3	1.0	1.2	0.9	0.7	1.0	0.9	0.7	0.9	S	1.5	1.8	1.1	24
25	1.8	1.1	1.2	0.7	0.7	1.2	1.2	2.4	2.9	5.3	3.3	2.3	3.9	3.6	2.5	1.5	1.6	2.5	2.7	3.1	3.2	S	6.0	6.5	6.5	2.7	24
26	7.5	6.6	4.7	5.1	3.2	2.6	2.1	1.9	2.3	2.4	2.6	2.8	2.8	2.7	3.1	2.7	1.8	2.5	2.2	2.2	S	2.3	2.0	2.4	7.5	3.1	24
27	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	0.1	0.0	0.0	S	0.6	0.6	0.5	0.5	1.0	0.1	24
28	0.8	0.4	0.6	0.1	0.7	0.6	0.9	1.7	0.8	0.7	0.1	0.7	0.4	0.5	0.8	0.9	1.1	2.4	4.8	5.5	3.8	4.2	S	3.3	5.5	1.6	24
29	2.7	2.5	2.2	2.0	2.0	1.8	1.4	1.8	1.9	2.4	2.1	2.5	2.9	2.6	2.9	3.3	4.1	4.2	3.8	4.5	4.3	S	5.5	3.2	5.5	2.9	24
30	2.3	1.5	1.6	2.4	2.8	3.5	5.1	4.7	3.3	3.0	3.6	3.7	2.8	3.3	3.9	3.7	4.7	4.4	4.0	4.0	S	1.3	1.5	1.5	5.1	3.2	24
31	1.2	1.0	0.9	0.9	1.0	0.8	0.7	0.9	1.1	1.0	0.6	0.4	0.2	0.2	0.4	0.6	0.9	0.9	0.8	S	1.4	1.2	0.8	0.3	1.4	0.8	24
HOURLY MAX	7.5	8.2	15.0	16.7	8.3	7.2	6.1	5.7	5.7	5.4	5.7	5.6	5.9	3.6	3.9	3.7	6.7	14.3	12.3	8.5	6.1	5.8	6.0	6.9			
HOURLY AVG	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2			

STATUS FLAG CODES

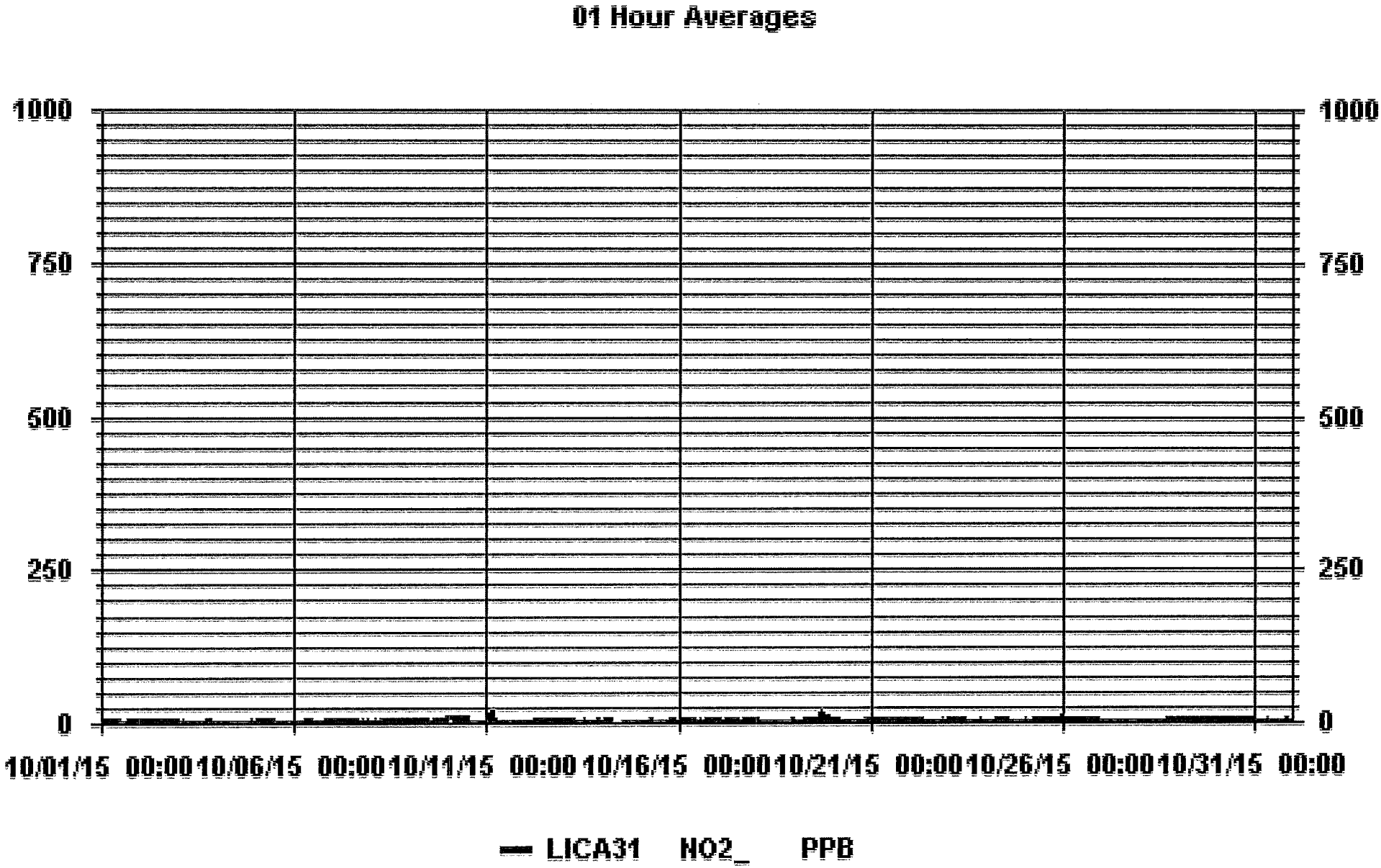
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			670				
MAXIMUM 1-HR AVERAGE:	16.7	PPB	@ HOUR(S)	3	ON DAY(S)	11	
MAXIMUM 24-HR AVERAGE:	4.9	PPB			ON DAY(S) VAR-VARIOUS	19	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	1.81		MONTHLY AVERAGE:			1.9	PPB


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NO2_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

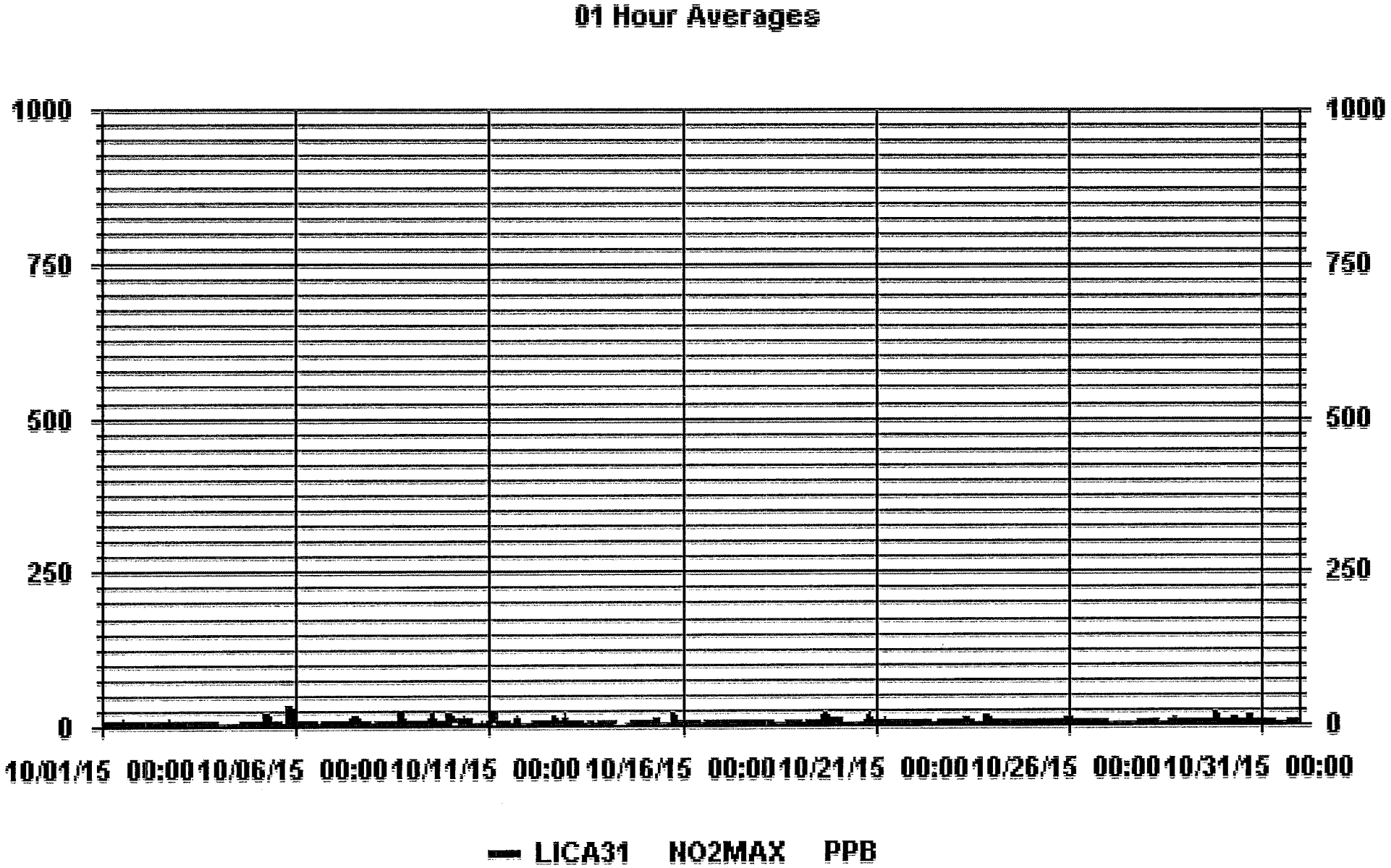
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.3	2.4	2.3	2.0	1.9	2.8	3.4	2.4	2.9	2.6	2.0	5.8	2.2	2.0	2.2	1.2	3.9	4.8	2.5	3.3	3.9	S	3.3	5.8	2.8	24
2	3.0	2.6	3.1	3.2	3.2	3.0	2.3	2.3	2.3	2.1	2.1	1.9	1.8	1.7	1.9	2.2	2.3	7.6	3.6	2.7	3.0	S	1.9	2.3	7.6	2.7	24
3	2.0	1.3	1.8	1.8	1.9	1.3	1.1	1.0	1.7	1.5	1.2	1.2	1.4	1.2	1.4	1.2	1.9	1.7	1.9	1.7	S	1.9	1.4	2.1	2.1	1.5	24
4	1.9	0.9	0.9	1.1	0.9	3.2	1.2	1.1	0.8	0.8	0.6	1.0	0.8	1.3	1.2	1.4	1.2	1.6	1.8	S	2.1	2.1	1.5	1.6	3.2	1.3	24
5	2.4	2.2	2.1	2.6	2.4	2.3	18.8	2.9	2.6	2.6	2.4	2.4	2.2	1.5	1.3	1.1	0.9	0.9	S	0.8	*33.1*	17.2	1.2	1.1	*33.1*	4.7	24
6	0.9	2.2	1.2	1.2	1.9	1.4	1.5	2.3	2.2	2.8	2.5	1.4	1.6	1.1	1.0	1.4	1.6	S	1.9	3.0	3.6	3.8	3.8	3.9	3.9	2.1	24
7	3.9	4.1	4.1	4.1	3.9	3.6	3.1	3.0	3.1	4.3	8.5	6.0	2.7	17.4	2.2	1.8	S	2.2	2.1	2.4	1.8	1.5	1.9	2.3	17.4	3.9	24
8	1.2	2.0	1.9	3.3	5.2	2.5	2.2	2.2	2.1	1.9	2.1	2.7	1.6	1.5	2.1	S	2.8	26.2	7.8	7.8	3.5	3.8	3.6	3.3	26.2	4.1	24
9	3.6	3.4	3.1	2.8	3.2	3.8	5.1	5.8	5.3	3.7	3.9	7.5	12.9	2.4	S	4.1	3.2	3.0	3.4	3.9	4.7	6.9	6.1	17.9	17.9	5.2	24
10	8.4	9.5	9.5	10.2	9.3	8.9	7.2	5.5	10.9	6.2	6.1	6.0	6.5	S	2.0	0.7	0.6	1.9	0.5	1.5	1.1	0.6	0.6	1.5	10.9	5.0	24
11	2.1	9.5	21.4	21.5	11.3	5.0	3.6	5.2	1.7	2.0	2.0	2.1	S	2.8	0.9	0.7	0.7	8.5	4.0	3.7	0.9	1.0	1.0	2.2	21.5	4.9	24
12	1.1	1.4	1.0	1.2	1.4	1.6	2.1	2.1	1.8	1.7	2.3	S	3.3	3.1	4.1	3.6	13.8	4.7	4.4	4.4	5.5	4.6	2.8	9.2	13.8	3.5	24
13	1.5	1.2	1.4	1.2	1.6	1.5	1.5	1.0	1.0	1.0	S	1.0	0.9	1.2	1.0	1.0	1.0	1.0	1.7	0.9	1.9	1.5	1.2	1.2	1.9	1.2	24
14	1.1	1.1	1.2	1.1	1.1	1.4	S	S	1.2	S	C	C	C	C	C	1.1	1.6	1.6	1.8	1.8	1.8	1.7	1.7	2.2	2.2	1.5	24
15	2.0	2.2	2.1	2.0	2.0	2.2	6.9	11.1	S	3.3	2.1	0.9	0.7	0.9	0.6	1.7	0.9	2.0	21.8	3.2	1.9	2.2	2.6	2.0	21.8	3.4	24
16	1.4	1.3	2.4	3.1	3.5	2.9	3.0	S	4.4	4.5	3.5	2.2	3.5	1.6	1.5	1.7	1.3	1.9	1.8	1.7	2.7	2.4	2.4	2.1	4.5	2.5	24
17	1.7	1.9	1.8	1.9	1.9	2.1	S	2.3	2.4	2.3	2.1	1.5	1.8	1.7	1.5	1.5	1.5	2.0	2.1	2.2	3.0	2.0	2.3	2.3	3.0	2.0	24
18	3.2	2.9	2.7	3.2	2.9	S	1.4	1.1	1.1	1.1	2.9	0.9	0.9	1.1	0.7	0.9	1.3	1.3	1.7	1.1	0.7	1.1	1.0	2.7	3.2	1.6	24
19	2.4	1.9	1.4	2.7	S	3.8	6.0	7.5	5.3	7.4	5.8	5.1	4.5	4.7	3.5	3.2	13.1	15.7	13.6	11.7	6.9	6.9	6.3	6.3	15.7	6.3	24
20	5.9	6.3	6.6	S	1.7	1.0	0.7	0.6	0.6	0.6	0.8	0.7	0.9	0.5	0.9	0.5	0.8	0.8	1.1	8.9	2.0	1.7	1.5	1.6	8.9	2.0	24
21	2.8	2.7	S	2.0	3.2	5.4	5.5	5.1	4.2	3.1	3.1	2.6	2.6	2.7	3.2	2.4	2.5	2.7	2.7	2.9	2.7	3.1	3.5	3.7	5.5	3.2	24
22	3.4	S	2.8	3.4	3.1	2.6	2.1	2.3	2.1	1.6	2.4	0.8	0.8	0.9	1.0	1.1	1.1	1.1	1.3	1.6	4.4	1.7	1.8	1.6	4.4	2.0	24
23	S	1.9	1.6	1.6	1.5	1.7	1.5	13.4	5.4	2.7	2.0	1.8	3.0	1.7	1.8	1.0	2.2	1.2	2.1	1.0	2.1	13.9	1.2	S	13.9	3.0	24
24	1.2	1.2	1.2	1.0	1.4	1.5	1.6	1.7	1.7	1.9	1.7	2.0	1.7	1.5	1.3	2.2	1.4	1.3	1.5	1.8	1.3	1.8	S	4.1	4.1	1.7	24
25	3.8	2.2	2.0	1.7	1.5	2.0	1.8	3.6	4.2	5.8	4.7	2.7	4.5	4.2	3.0	2.2	2.1	3.0	3.4	3.8	4.0	S	7.3	7.3	7.3	3.5	24
26	9.0	8.6	6.1	6.8	4.8	4.0	3.2	3.2	3.0	3.0	3.2	3.6	3.4	3.5	3.6	3.6	2.8	3.7	3.6	3.1	S	3.7	2.9	3.6	9.0	4.2	24
27	1.9	1.4	0.9	0.9	0.8	0.7	1.0	0.7	0.8	0.5	0.5	0.5	0.6	0.7	0.5	0.6	2.0	0.8	0.9	S	1.0	1.0	1.0	1.2	2.0	0.9	24
28	1.5	1.0	1.2	1.0	1.2	1.1	2.2	4.0	1.7	0.9	0.7	1.4	0.9	0.8	1.5	1.5	2.3	3.2	7.8	7.7	4.8	4.7	S	3.6	7.8	2.5	24
29	3.2	3.2	2.7	2.7	2.4	2.4	2.1	2.3	2.3	2.8	2.8	4.5	3.8	3.4	3.4	3.9	4.5	4.7	4.8	19.3	4.8	S	6.1	4.9	19.3	4.2	24
30	3.2	2.1	2.6	3.4	3.6	5.7	5.9	6.1	6.3	3.6	4.8	4.7	3.1	3.9	4.9	4.4	16.2	5.0	5.0	4.5	S	1.6	1.9	1.9	16.2	4.5	24
31	1.6	1.2	1.4	1.4	1.4	1.1	1.2	1.4	1.8	1.1	0.9	1.0	0.7	0.6	0.7	0.9	1.2	1.2	1.2	S	1.7	1.7	1.2	1.0	1.8	1.2	24
HOURLY MAX	9.0	9.5	21.4	21.5	11.3	8.9	18.8	13.4	10.9	7.4	8.5	7.5	12.9	17.4	4.9	4.4	16.2	26.2	21.8	19.3	33.1	17.2	7.3	17.9			
HOURLY AVG	2.8	2.9	3.2	3.2	2.9	2.7	3.4	3.6	2.9	2.7	2.8	2.5	2.7	2.5	1.9	1.9	3.0	3.9	3.9	4.0	3.9	3.6	2.6	3.5			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705						
MAXIMUM INSTANTANEOUS VALUE:	33.1	PPB	@ HOUR(S)	20	ON DAY(S)	VAR-VARIOUS	5
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:				744 HRS
MONTHLY CAUBRATION TIME:	5	HR5					
STANDARD DEVIATION:	3.18						


01 Hour Averages
1000
750
500
250
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 NO2MAX PPB

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.40	.99	.99	2.26	3.40	4.39	6.95	11.48	10.78	7.51	6.95	11.63	7.37	11.48	6.80	3.54	

Calm : .00 %

Total # Operational Hours : 705

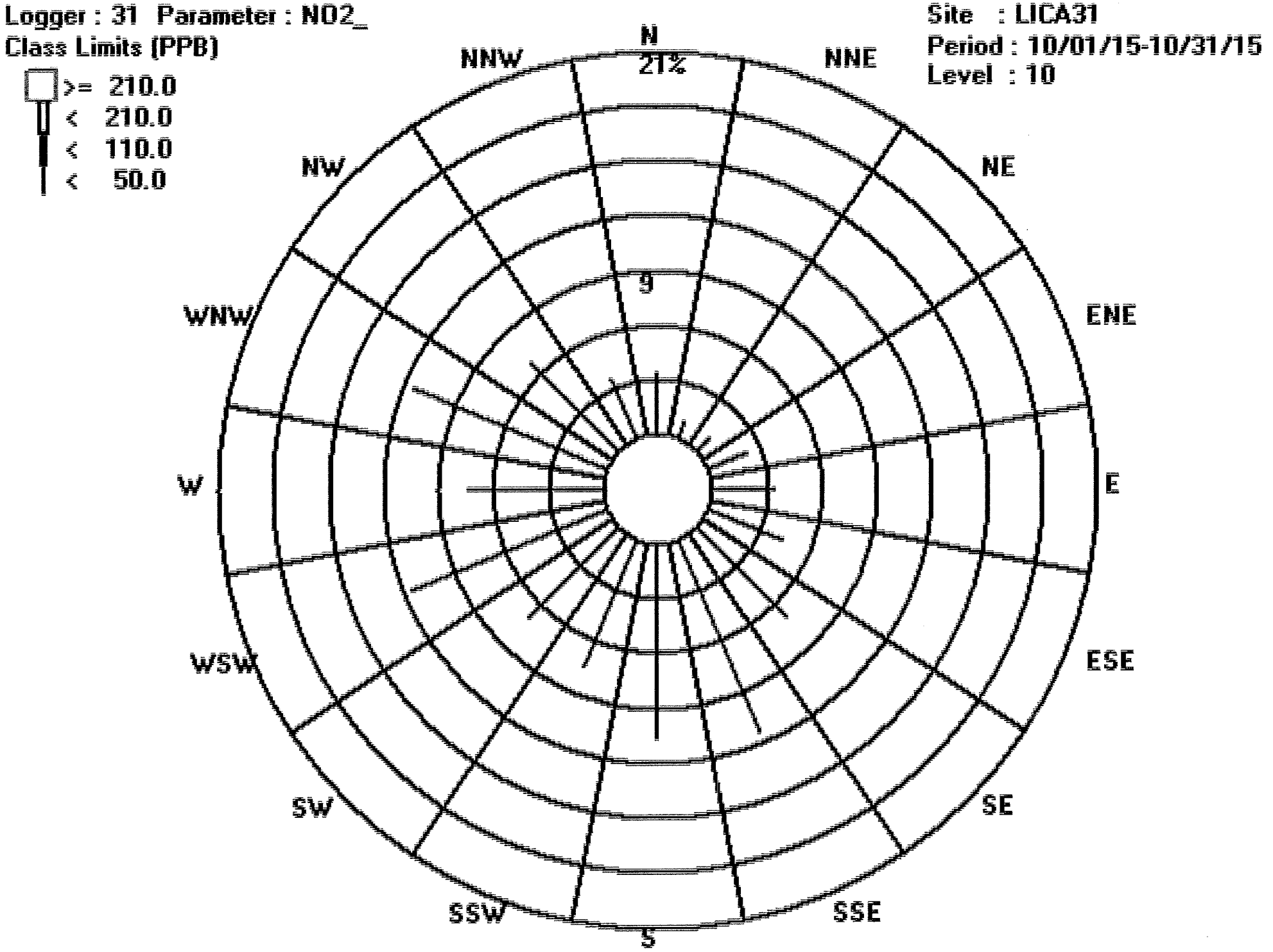
Distribution By Samples

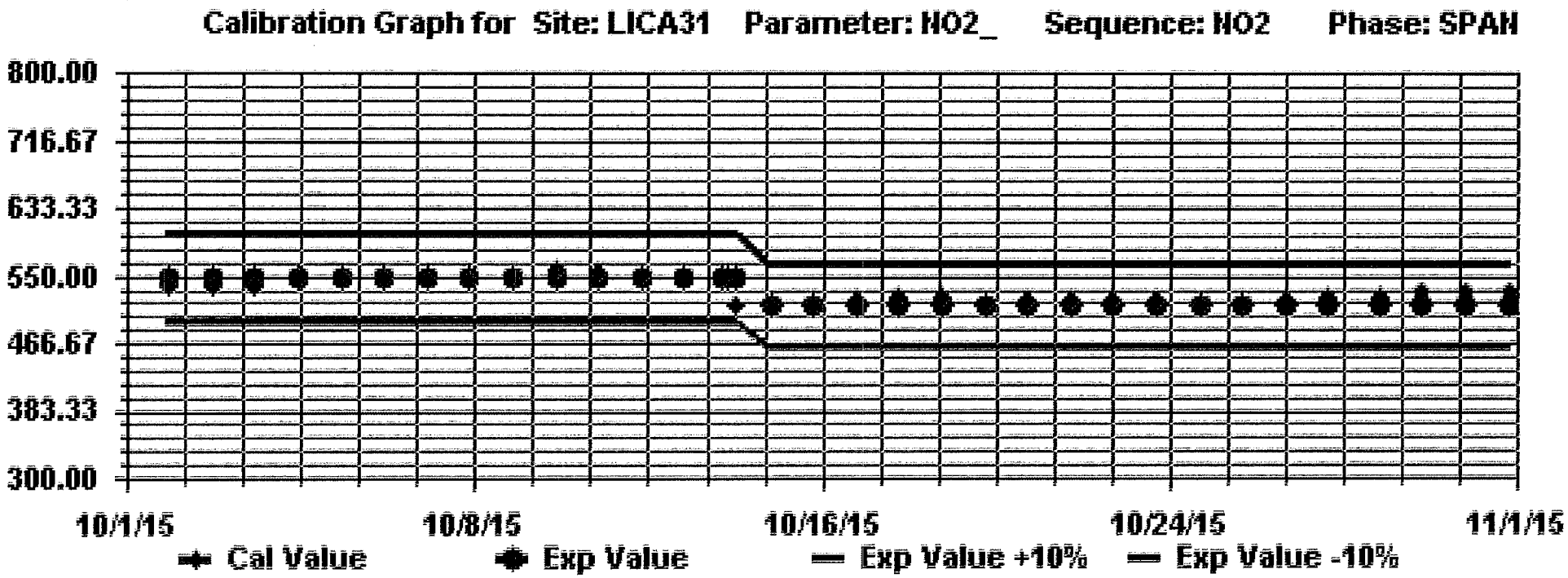
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	52	81	48	25	

Calm : .00 %

Total # Operational Hours : 705


Logger : 31 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
5


Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN
800.00
716.67
633.33
550.00
466.67
383.33
300.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

OZONE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

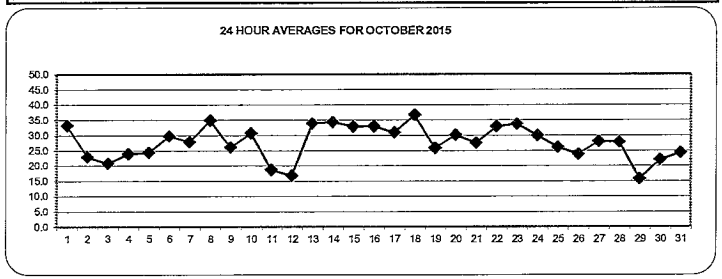
OZONE (O3) hourly averages in ppb

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	28	28	27	27	27	27	26	24	24	25	31	37	40	43	***45***	***45***	***45***	42	40	38	35	32	S	29	***45***	33.3	24
2	28	26	23	19	16	15	16	19	20	21	24	26	28	29	32	32	32	30	25	18	15	S	17	18	32	23.0	24
3	17	14	14	14	14	16	16	18	19	20	22	22	22	23	26	27	27	28	27	27	S	23	22	20	28	20.8	24
4	21	21	22	22	21	18	20	20	23	26	27	27	27	28	29	29	29	28	27	S	23	22	21	20	29	24.0	24
5	19	19	19	18	18	18	17	17	17	17	17	20	25	27	31	32	32	32	S	32	31	33	35	34	35	24.3	24
6	34	27	31	31	30	31	29	26	25	25	29	31	31	34	35	34	34	S	33	31	28	26	25	24	35	29.7	24
7	23	21	21	20	19	19	19	21	22	22	24	28	31	33	3S	35	S	34	34	35	37	37	35	36	37	27.9	24
8	37	36	36	35	34	35	35	33	28	30	33	34	36	38	40	S	40	38	37	36	35	32	32	31	40	34.8	24
9	29	29	29	28	25	21	18	16	19	24	25	29	33	34	S	30	32	31	30	28	26	23	21	19	34	26.0	24
10	19	17	17	19	19	21	21	21	23	24	26	29	33	S	42	42	42	42	42	42	42	42	42	40	42	30.7	24
11	37	31	16	14	25	27	27	28	33	29	22	15	S	11	9	9	13	13	11	11	11	12	13	12	37	18.7	24
12	6	7	9	10	9	9	11	15	16	18	19	S	20	19	19	19	22	22	22	23	22	21	23	24	24	16.7	24
13	26	26	27	28	28	29	30	30	31	32	S	37	39	39	39	39	40	39	38	38	38	36	35	35	40	33.9	24
14	36	36	34	33	32	28	S	S	31	S	35	37	S	37	C	C	C	C	C	36	36	35	34	34	37	34.3	24
15	33	33	32	32	31	31	30	29	S	28	29	32	33	34	36	37	37	36	34	34	35	33	32	34	37	32.8	24
16	34	34	31	29	28	30	29	S	26	26	30	33	34	37	38	39	38	38	36	36	34	33	32	32	39	32.9	24
17	31	30	28	26	25	24	S	22	23	26	29	32	35	36	37	38	38	36	35	34	33	32	31	29	38	30.9	24
18	28	28	27	26	29	S	36	36	37	37	37	39	42	41	42	42	41	40	41	40	41	40	40	33	42	***36.7***	24
19	32	35	32	29	S	24	23	22	21	23	26	28	31	32	38	36	28	15	15	19	22	20	21	21	38	25.8	24
20	20	18	15	S	28	29	30	31	29	29	32	34	35	36	37	37	37	35	34	32	30	29	28	28	37	30.1	24
21	24	22	S	25	20	18	17	19	24	29	29	34	34	33	35	37	35	34	32	31	29	26	24	22	37	27.5	24
22	22	S	24	23	23	24	26	28	31	32	34	38	38	40	41	42	41	40	39	37	35	34	32	32	42	32.9	24
23	S	31	30	31	30	29	29	28	27	29	32	37	36	38	40	39	37	37	37	37	36	35	36	S	40	33.7	24
24	33	32	32	32	31	32	30	26	22	25	27	28	29	29	30	32	31	32	31	32	32	31	S	29	33	29.9	24
25	29	28	29	30	27	22	20	20	15	15	22	26	27	29	34	36	36	31	29	28	26	S	21	21	36	26.1	24
26	17	18	21	19	24	26	27	27	27	27	27	26	27	28	26	26	26	23	22	22	S	19	21	21	28	23.8	24
27	21	13	15	18	20	22	24	27	31	31	30	32	32	33	34	35	35	34	33	S	32	31	31	29	35	28.0	24
28	29	29	29	29	29	28	28	27	26	28	31	33	34	36	36	36	30	23	20	18	21	19	S	20	36	27.8	24
29	19	19	18	18	18	18	18	17	17	17	17	16	15	15	15	14	12	11	11	11	11	S	15	20	20	15.7	24
30	23	26	24	18	16	17	17	18	17	20	24	29	29	26	24	22	21	22	22	20	S	26	23	22	29	22.0	24
31	22	22	23	22	22	21	21	20	18	23	27	30	30	30	28	28	26	25	25	S	23	24	24	24	30	24.3	24
HOURLY MAX	37	36	36	35	34	35	36	36	37	37	37	39	42	43	45	45	45	42	42	42	42	42	42	40			
HOURLY AVG	25.9	25.2	24.5	24.2	23.9	23.6	23.8	23.6	24.1	25.3	27.2	30.0	31.2	31.6	32.9	32.7	32.3	30.7	29.7	29.5	29.3	28.8	27.4	26.4			

STATUS FLAG CODES

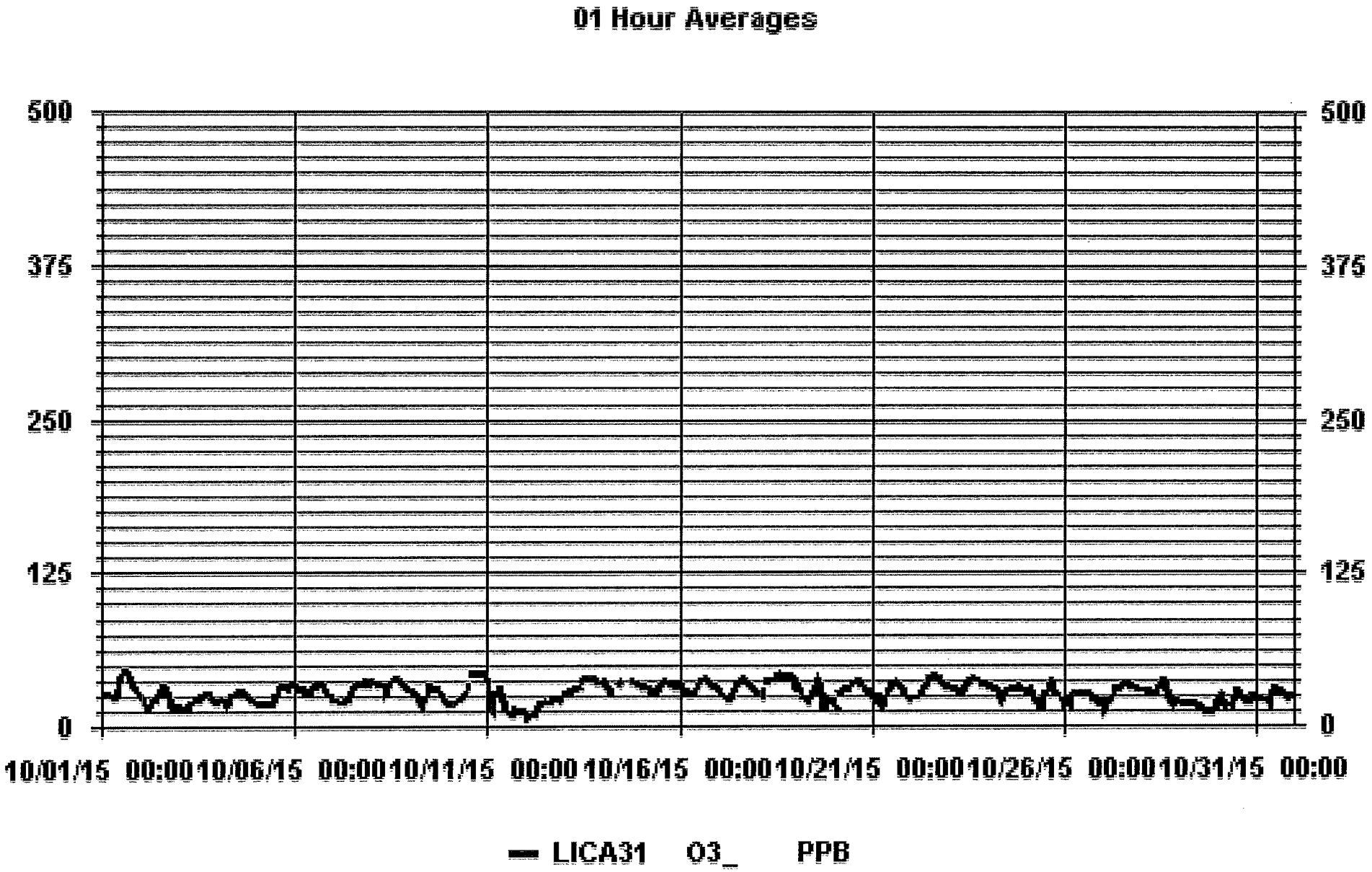
C	- CALIBRATION	Q	- QUALITY ASSURANCE
V	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:			0				
NUMBER OF NON-ZERO READINGS:			704				
MAXIMUM 1-HR AVERAGE:	45	PPB	@ HOUR(S)	VAR	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	36.7	PPB			ON DAY(S) VAR-VARIOUS	18	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	7.63		MONTHLY AVERAGE:			28	PPB


01 Hour Averages
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 O3_ PPB

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

OZONE MAX instantaneous maximum 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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	29	29	28	28	28	28	27	25	25	28	35	40	44	46	***47***	***47***	***47***	44	41	39	36	34	S	29	***47***	35.0	24
2	28	27	25	21	18	16	18	20	22	23	25	28	29	32	34	33	34	32	30	20	16	S	18	19	34	24.7	24
3	20	15	16	15	15	16	18	20	20	23	23	22	22	25	27	28	28	28	28	27	S	25	24	21	28	22.0	24
4	23	23	24	23	23	23	22	22	26	28	27	28	29	30	30	30	30	30	28	S	25	23	22	21	30	25.7	24
5	20	20	19	19	19	19	18	18	17	18	18	22	27	29	33	33	32	32	S	33	33	35	35	35	35	25.4	24
6	34	34	33	32	31	32	31	26	26	27	31	32	34	36	36	36	34	S	33	32	30	27	26	25	36	31.2	24
7	24	22	22	21	20	20	21	23	23	24	26	31	32	34	36	36	S	35	35	36	38	38	37	37	38	29.2	24
8	38	38	37	36	36	37	36	35	32	32	36	36	38	39	42	S	41	39	39	37	36	34	32	32	42	36.4	24
9	30	30	30	29	27	22	20	17	22	25	27	32	35	36	S	32	33	32	31	29	27	25	22	20	36	27.5	24
10	20	19	18	20	20	23	23	22	24	26	29	31	35	S	43	43	43	43	43	43	43	43	43	42	43	32.1	24
11	39	35	22	21	27	30	29	32	35	32	27	17	S	12	10	10	16	15	13	12	12	13	14	15	39	21.2	24
12	8	8	11	11	10	11	14	16	18	19	20	S	21	21	21	23	24	24	24	25	23	23	24	26	26	18.5	24
13	27	27	28	30	29	29	31	31	32	34	S	39	40	40	39	40	41	40	39	38	39	37	37	36	41	34.9	24
14	37	36	36	34	33	30	S	S	32	S	37	37	C	C	C	C	C	C	C	37	36	36	35	35	37	35.1	24
15	34	33	33	32	32	32	31	30	S	29	31	34	35	35	37	38	38	37	36	35	36	35	33	35	38	34.0	24
16	35	35	33	30	29	32	30	S	27	28	33	34	35	39	40	40	40	39	37	37	35	33	33	33	40	34.2	24
17	33	31	29	28	26	25	S	23	25	28	31	33	36	37	39	39	39	38	36	35	34	32	32	31	39	32.2	24
18	29	29	28	27	33	S	37	37	37	37	39	41	42	42	42	42	42	41	41	41	41	41	41	37	42	37.7	24
19	33	36	34	32	S	27	25	27	23	26	30	30	34	35	40	38	36	17	16	23	23	21	21	22	40	28.2	24
20	22	20	19	S	28	31	32	33	30	30	33	35	37	37	37	38	38	36	35	35	31	29	30	30	38	31.6	24
21	27	23	S	27	22	18	17	22	28	31	32	37	37	35	37	37	37	35	34	32	31	28	25	23	37	29.3	24
22	23	S	25	24	24	25	27	30	32	33	38	39	39	42	43	43	43	42	39	38	37	35	33	32	43	34.2	24
23	S	32	31	31	31	30	30	29	28	31	35	38	38	39	41	41	38	38	37	37	37	36	36	S	41	34.7	24
24	34	33	33	33	33	33	32	27	27	28	28	30	31	31	32	33	32	32	32	33	33	32	S	34	34	31.6	24
25	30	30	30	31	30	24	22	23	16	19	27	29	29	32	36	38	38	35	30	28	27	S	22	22	38	28.2	24
26	19	21	22	24	25	27	28	28	27	28	28	27	29	30	27	28	28	24	23	23	S	20	25	23	30	25.4	24
27	23	19	19	20	22	24	25	29	32	32	31	33	33	34	36	36	35	35	34	S	32	32	32	30	36	29.5	24
28	30	30	30	30	29	28	29	29	27	32	33	35	36	37	37	37	35	24	24	20	22	21	S	20	37	29.3	24
29	20	19	19	18	19	18	18	18	18	18	17	17	16	15	16	15	13	12	11	11	12	S	19	22	22	16.6	24
30	28	29	25	20	17	18	19	21	19	22	26	31	31	27	25	24	22	25	25	22	S	27	24	23	31	23.9	24
31	23	23	24	23	23	22	22	21	20	26	29	31	31	31	30	29	27	26	26	S	24	24	24	25	31	25.4	24
HOURLY MAX	39	38	37	36	36	37	37	37	37	37	39	41	44	46	47	47	47	44	43	43	43	43	43	42			
HOURLY AVG	27.3	26.9	26.1	25.7	25.3	25.0	25.2	25.3	25.7	27.2	29.4	31.6	32.9	33.0	34.2	34.0	33.9	32.1	31.0	30.6	30.3	30.0	28.5	27.8			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 703

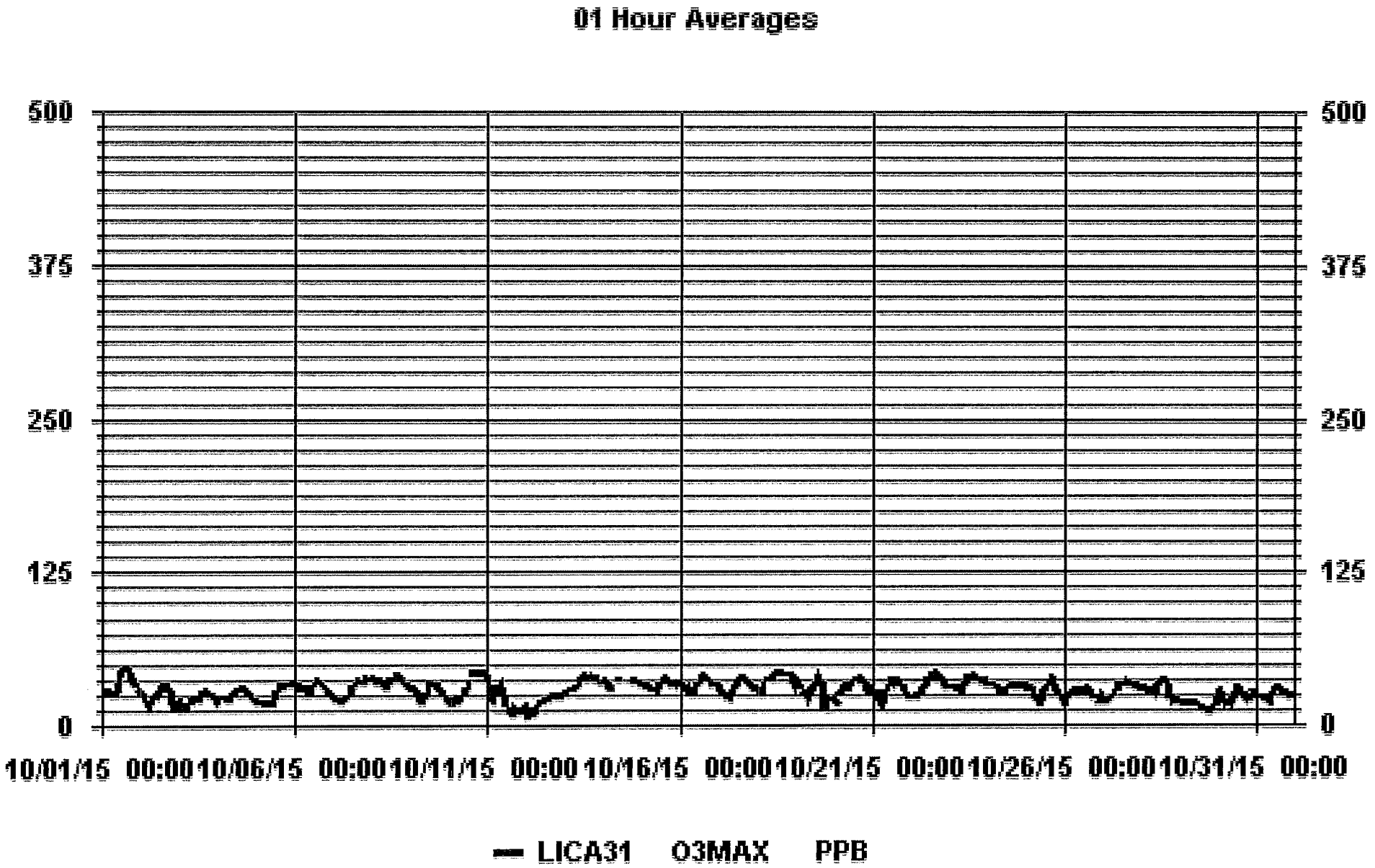
MAXIMUM INSTANTANEOUS VALUE: 47 PPB @ HOUR(S) VAR ON DAY(S) 1

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 7.54


01 Hour Averages
500
375
250
125
0
500
375
250
125
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 O3MAX PPB

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : O3_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.40	.99	.99	2.27	3.40	4.40	6.96	11.50	10.79	7.52	6.96	11.64	7.52	11.36	6.67	3.55	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.40	.99	.99	2.27	3.40	4.40	6.96	11.50	10.79	7.52	6.96	11.64	7.52	11.36	6.67	3.55	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	24	7	7	16	24	31	49	81	76	53	49	82	53	80	47	25	704
<	110																	
<	210																	
>=	210																	
	Totals	24	7	7	16	24	31	49	81	76	53	49	82	53	80	47	25	

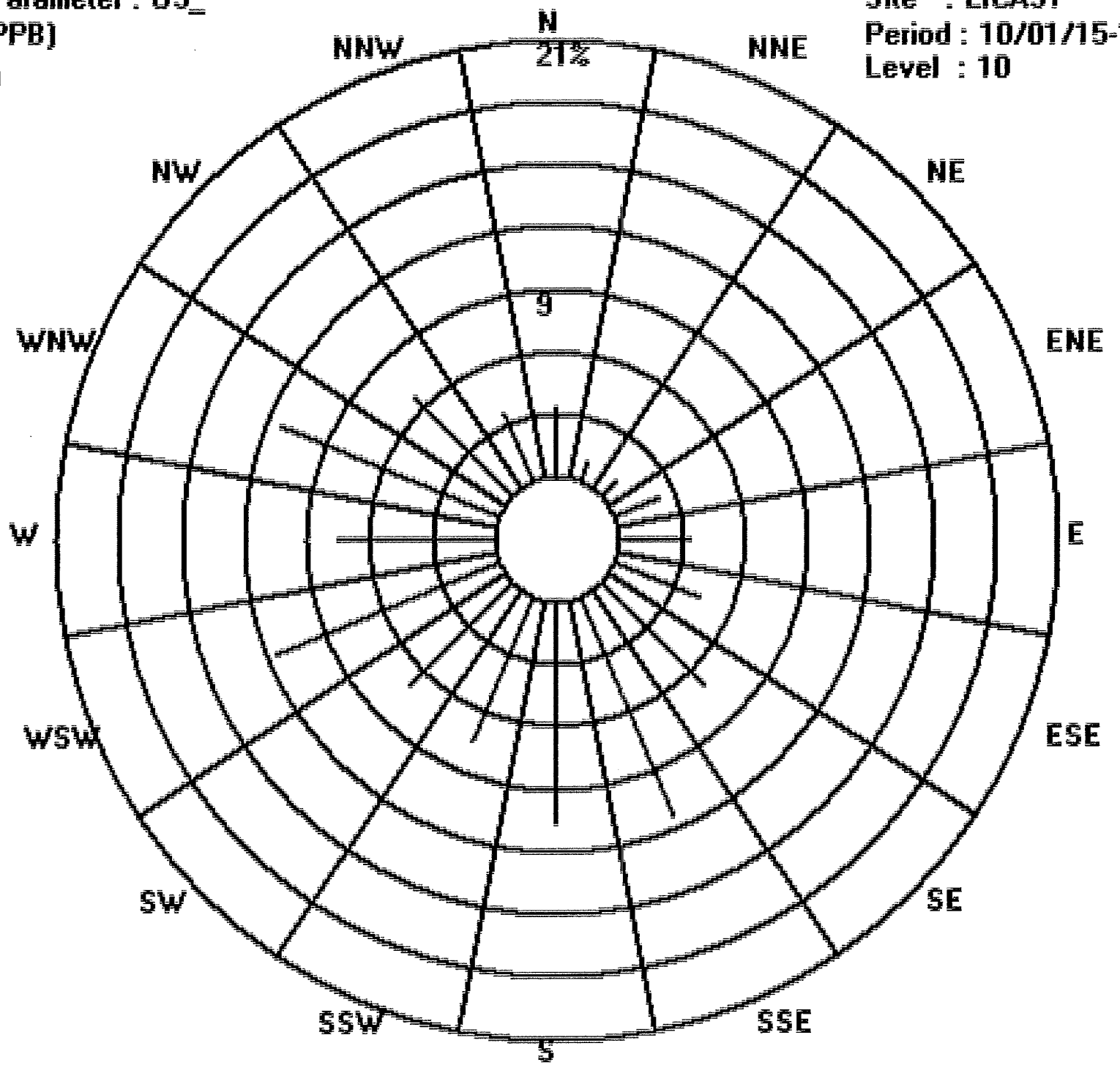
Calm : .00 %

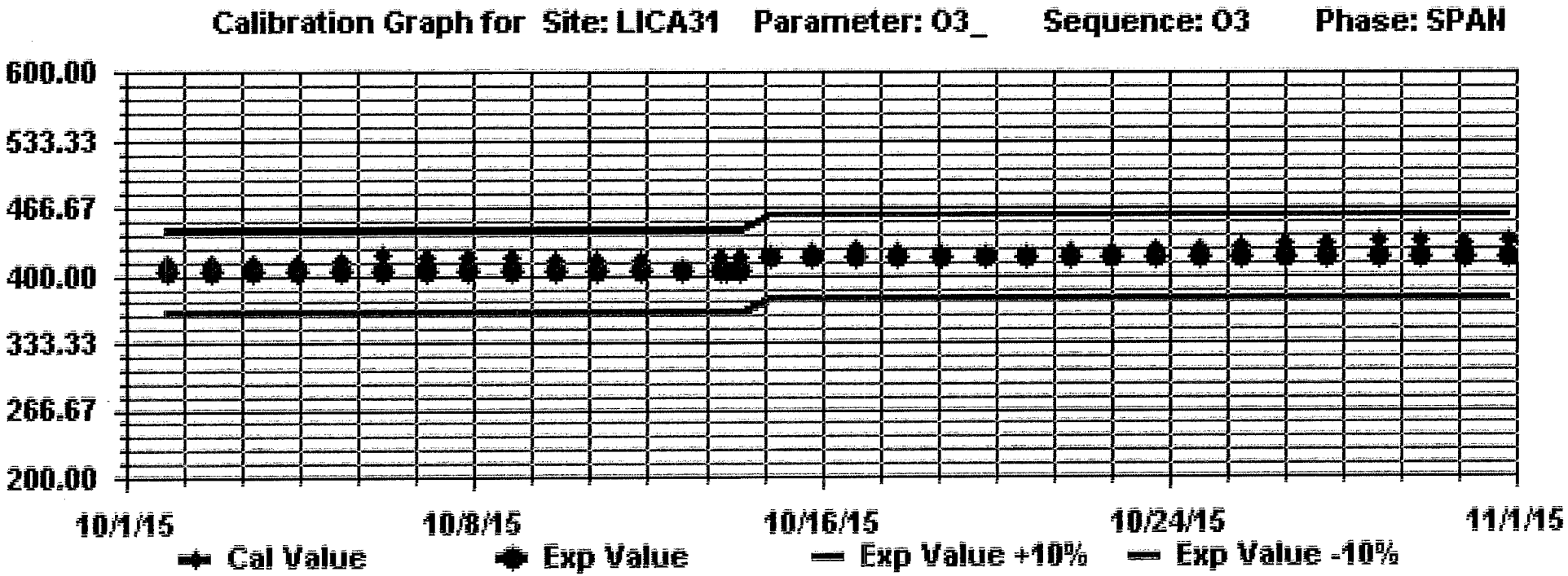
Total # Operational Hours : 704

Logger : 31 Parameter : O3_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA31
Period : 10/01/15-10/31/15
Level : 10




Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: O3 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
10/1/15
10/8/15
10/16/15
10/24/15
11/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

PARTICULATE MATTER 2.5

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

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

MST

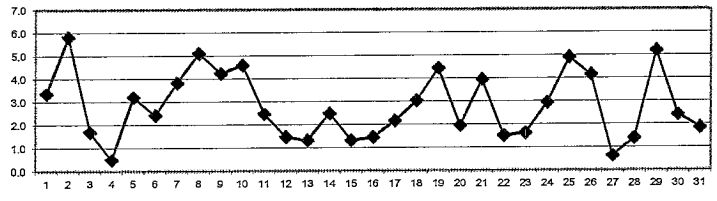
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END / DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	4	4	3	1	4	1	3	1	6	7	3	1	1	5	3	2	0	4	5	3	5	4	5	6	7	3.4	24
2	6	5	2	5	2	6	3	4	7	9	5	10	1	10	8	10	12	6	10	5	5	2	2	5	12	***5.8***	24
3	2	0	2	0	3	1	0	0	0	X	0	1	0	0	1	5	2	6	6	6	2	0	2	0	6	1.7	23
4	2	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	1	1	1	1	0	0	2	3	0.5	24
5	1	3	3	7	6	3	0	5	5	5	3	9	8	1	5	4	1	0	1	4	0	0	0	3	9	3.2	24
6	0	3	0	0	1	0	3	4	5	5	1	0	0	4	4	0	5	5	3	3	2	5	2	3	5	2.4	24
7	4	3	2	3	1	2	1	2	4	2	7	5	8	8	4	3	3	5	5	1	3	8	4	4	8	3.8	24
8	3	0	5	10	4	1	5	5	7	9	4	6	0	3	3	12	3	3	4	6	7	9	7	7	12	5.1	24
9	4	3	5	7	7	5	4	9	7	2	4	0	4	1	4	4	3	2	4	4	2	5	6	6	9	4.3	24
10	3	7	6	3	9	1	7	5	1	4	5	6	5	5	2	3	0	4	X	7	8	8	3	4	9	4.6	23
11	6	4	6	4	7	1	2	0	4	3	3	2	5	1	X	0	0	2	5	2	0	0	0	0	7	2.5	23
12	2	1	1	0	2	1	0	X	3	0	2	0	2	4	1	0	3	0	3	2	0	4	2	1	4	1.5	23
13	0	X	2	5	3	0	2	0	2	1	0	3	X	2	0	C	0	0	1	2	5	0	0	0	5	1.3	22
14	1	0	0	2	0	0	2	0	1	6	7	0	9	5	11	0	7	2	0	1	4	0	1	1	11	2.5	24
15	3	7	1	1	0	3	1	0	0	0	0	1	2	1	1	2	0	0	0	2	0	0	7	0	7	1.3	24
16	0	X	X	0	0	1	0	0	6	1	0	1	0	3	0	3	0	3	0	0	2	5	6	1	6	1.5	22
17	0	2	3	4	0	0	5	5	X	0	2	0	0	3	2	6	5	3	2	4	1	3	0	0	6	2.2	23
18	1	6	6	6	3	4	3	0	0	4	3	8	2	0	X	1	4	4	4	2	2	0	2	5	8	3.0	23
19	6	5	4	1	2	2	10	10	5	9	4	6	5	0	0	2	5	4	2	9	3	6	1	6	10	4.5	24
20	6	8	7	3	3	1	2	1	3	X	0	2	1	0	0	0	1	2	0	0	0	3	2	0	8	2.0	23
21	5	4	9	0	4	5	10	9	11	7	1	5	0	6	0	1	6	3	2	3	2	0	0	2	11	4.0	24
22	5	4	7	0	1	1	3	3	0	3	1	3	0	1	0	0	0	0	0	1	0	X	0	2	7	1.5	23
23	3	0	0	5	1	2	1	4	2	C	0	2	0	4	X	2	0	4	0	0	2	0	2	2	5	1.6	23
24	4	6	2	2	3	1	3	5	0	3	0	3	2	3	2	6	2	4	8	0	3	2	2	5	8	3.0	24
25	3	4	2	6	5	1	2	6	7	11	6	2	6	5	7	4	5	4	7	5	4	4	7	5	11	4.9	24
26	4	9	***13***	5	7	4	3	0	5	4	7	0	5	3	2	2	3	5	0	4	5	3	4	3	***13***	4.2	24
27	0	1	0	X	6	4	0	X	0	0	0	X	0	0	0	0	0	0	X	0	0	0	2	0	6	0.7	20
28	1	0	0	0	0	1	0	1	0	1	0	0	0	0	7	2	3	X	2	2	4	X	4	3	7	1.4	22
29	8	3	0	4	6	4	1	10	10	7	2	10	2	2	7	8	6	3	3	5	6	6	6	6	10	5.2	24
30	1	1	3	3	3	6	3	2	2	3	2	2	1	1	3	0	2	5	1	0	0	1	7	6	7	2.4	24
31	7	4	1	0	2	3	4	X	2	3	0	0	2	0	0	1	4	1	X	0	1	4	0	2	7	1.9	22
HOURLY MAX	8	9	13	10	9	6	10	10	11	11	7	10	9	10	11	12	12	6	10	9	8	9	7	7			
HOURLY AVG	3.1	3.3	3.2	2.9	3.1	2.1	2.7	3.3	3.5	3.9	2.3	2.9	2.5	2.6	2.8	2.8	2.7	2.8	2.8	2.7	2.5	2.8	2.8	2.9			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

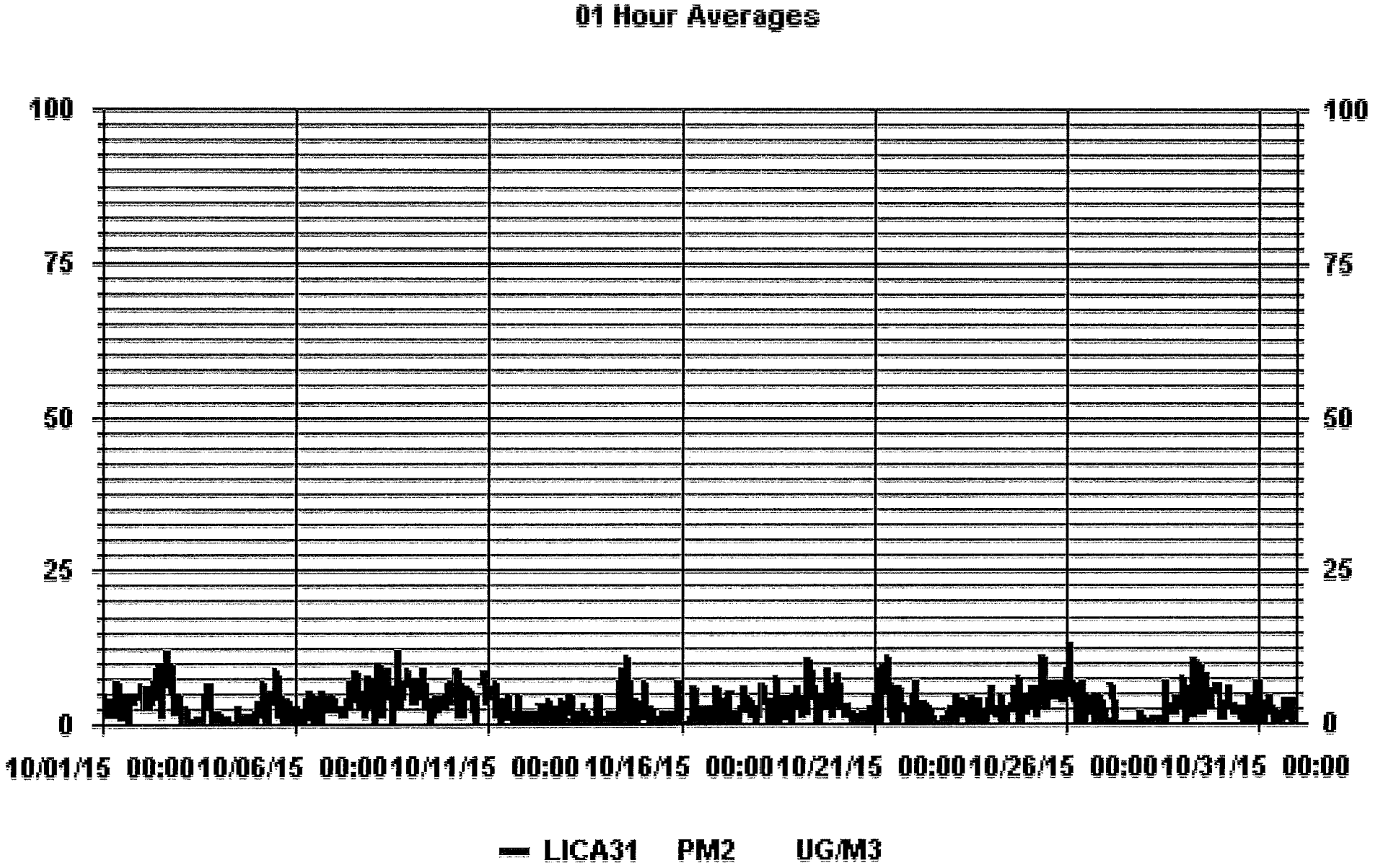
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 24-HR 30 ug/m3

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	535					
MAXIMUM 1-HR AVERAGE:	13	ug/m3	@ HOUR(S)	2	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	5.8	ug/m3			ON DAY(S)	2
					VAR-VARIOUS	
			OPERATIONAL TIME:		723	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:		97.2	%
STANDARD DEVIATION:	2.66		MONTHLY AVERAGE:		2.9	ug/m3


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 PM2 UG/M3

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : PM2
Units : UG/M3

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	3.19	.97	1.10	2.21	3.32	4.57	6.93	11.09	10.67	7.76	7.21	11.51	7.48	11.37	6.51	4.02	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.19	.97	1.10	2.21	3.32	4.57	6.93	11.09	10.67	7.76	7.21	11.51	7.48	11.37	6.51	4.02	

Calm : .00 %

Total # Operational Hours : 721

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	23	7	8	16	24	33	50	80	77	56	52	83	54	82	47	29	721
<	60																	
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	23	7	8	16	24	33	50	80	77	56	52	83	54	82	47	29	

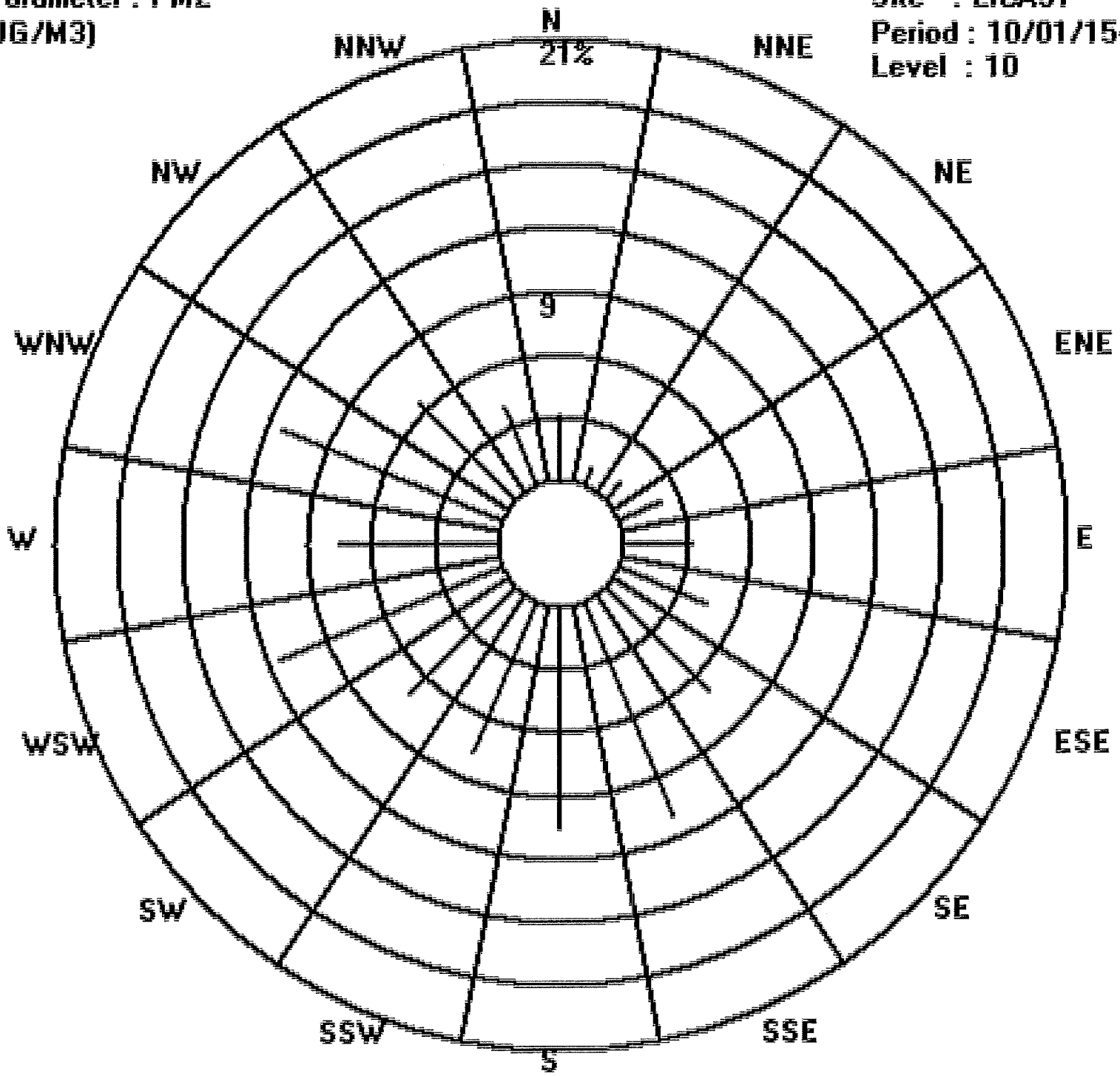
Calm : .00 %

Total # Operational Hours : 721

Logger : 31 Parameter : PM2
Class Limits (UG/M3)

>= 240
< 240
< 120
< 80
< 60
< 30

Site : LICA31
Period : 10/01/15-10/31/15
Level : 10



WIND SPEED

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

WIND SPEED (WS) hourly averages in km/hr

MST

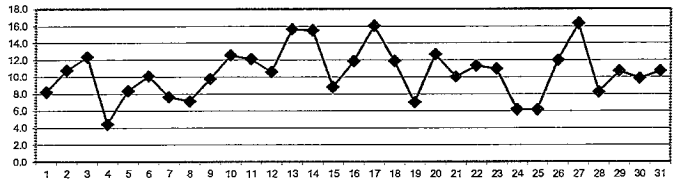
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MAX.	AVG.	RDGS.
DAY																											
1	8.9	8.8	9.4	8.8	8.4	8.3	9.0	9.3	7.8	4.6	4.4	6.9	6.1	5.5	7.4	6.9	4.4	7.9	11.8	12.6	11.4	8.4	9.2	10.5	12.6	8.2	24
2	11.4	12.4	12.6	12.9	13.5	11.4	7.4	10.5	13.4	11.1	10.8	8.3	9.4	8.0	5.6	4.9	3.2	3.4	7.7	13.0	16.2	17.7	18.5	15.4	18.5	10.8	24
3	14.9	15.0	17.4	18.4	16.1	13.4	12.7	13.5	14.7	13.7	13.8	13.8	13.0	11.7	12.5	12.7	11.8	12.2	9.9	9.5	8.3	6.9	5.8	4.5	18.4	12.3	24
4	2.9	2.8	4.3	4.9	2.8	2.9	3.0	2.4	2.8	3.7	3.2	2.5	3.2	1.9	0.9	2.6	3.3	4.8	7.8	7.8	8.7	9.3	9.1	7.8	9.3	4.4	24
5	7.8	9.3	9.1	11.1	9.3	7.0	7.3	8.8	9.3	7.6	7.6	8.9	11.9	12.6	14.9	12.3	10.1	6.2	5.3	5.0	5.1	5.4	4.8	3.2	14.9	8.3	24
6	2.5	2.2	4.9	7.3	8.3	10.0	9.7	10.2	10.0	10.6	12.3	13.9	15.5	15.3	16.0	14.5	12.6	7.9	10.0	11.0	9.5	10.6	8.2	8.3	16.0	10.1	24
7	6.1	4.3	6.8	7.4	8.6	8.5	8.1	8.2	6.3	7.8	8.1	11.6	11.7	11.2	11.9	10.0	7.6	5.5	4.9	6.4	7.1	5.4	4.8	4.9	11.9	7.6	24
8	1.2	2.2	4.9	6.6	6.9	6.0	4.9	4.0	3.2	3.9	8.4	8.4	9.2	12.1	11.9	9.9	9.0	7.3	6.2	7.0	8.6	8.8	9.9	10.1	12.1	7.1	24
9	11.2	12.1	11.7	10.7	12.7	10.8	11.4	11.0	11.1	9.9	8.6	9.9	10.0	10.3	8.9	5.7	7.0	7.5	8.7	9.1	7.2	8.2	9.9	10.6	12.7	9.8	24
10	12.0	8.1	11.8	13.9	11.1	9.7	8.7	12.3	13.7	15.4	17.7	17.8	20.7	19.5	21.4	23.0	14.9	8.1	5.3	4.2	5.3	6.0	10.6	9.9	23.0	12.5	24
11	9.6	10.1	12.0	5.0	11.9	1.2	6.4	12.7	16.5	17.2	22.9	24.7	21.1	22.4	23.8	17.4	15.4	12.6	9.0	5.7	5.1	3.0	4.0	0.7	24.7	12.1	24
12	6.7	7.7	11.3	9.6	9.2	9.1	12.4	12.3	12.6	13.8	14.5	13.1	14.0	7.4	5.6	10.4	11.0	16.4	13.4	10.3	7.8	7.3	7.7	10.5	16.4	10.6	24
13	12.0	11.7	13.9	16.1	18.8	18.8	19.0	16.1	15.9	18.3	20.3	23.0	***27.5***	24.3	21.5	17.5	16.5	10.9	8.8	8.4	8.0	7.9	9.5	10.8	***27.5***	15.6	24
14	12.5	16.3	15.0	14.8	16.0	15.4	14.2	13.1	12.1	14.2	17.6	17.6	21.6	24.3	25.0	20.3	20.3	18.3	12.7	10.3	10.1	10.3	10.1	10.2	25.0	15.5	24
15	11.6	12.0	11.1	10.5	10.7	10.1	7.7	6.8	8.4	7.5	8.1	7.9	8.7	9.0	8.0	9.4	11.7	7.0	6.8	6.1	6.3	7.1	8.9	9.7	12.0	8.8	24
16	8.3	8.7	9.4	10.2	9.5	10.5	8.5	8.2	10.5	10.2	12.1	15.0	14.7	14.5	15.0	15.6	11.5	11.7	12.5	12.7	12.4	14.5	13.3	14.4	15.6	11.8	24
17	13.6	12.8	13.2	13.7	15.1	15.8	15.1	13.9	14.9	18.5	18.4	19.2	21.7	18.0	18.9	19.4	12.8	12.7	14.2	16.4	19.7	17.7	15.7	13.3	21.7	16.0	24
18	11.3	8.7	9.8	15.7	17.8	16.7	12.2	14.1	14.8	15.1	15.5	15.1	17.6	16.4	14.9	13.9	9.1	6.9	8.1	7.1	5.8	5.2	5.9	7.3	17.8	11.9	24
19	6.6	6.3	7.5	8.8	8.4	8.9	9.1	7.6	7.0	4.5	1.7	3.0	5.1	6.0	6.9	6.7	8.9	9.0	5.6	10.7	9.9	8.8	6.8	4.0	10.7	7.0	24
20	1.8	3.4	8.0	10.5	12.0	16.5	16.7	15.5	15.5	16.7	17.7	20.2	18.1	19.0	19.0	16.6	13.6	8.3	9.5	10.8	10.0	8.1	7.8	8.1	20.2	12.6	24
21	8.2	7.7	7.5	5.9	8.4	8.6	8.9	8.0	8.2	9.7	10.1	13.8	15.4	11.8	12.1	12.6	10.2	13.2	12.1	10.6	12.4	12.5	8.9	3.2	15.4	10.0	24
22	5.0	7.4	9.5	9.6	10.2	9.9	12.7	12.4	9.9	8.1	8.7	11.2	14.1	10.5	11.9	21.3	18.2	13.3	13.2	14.3	12.2	8.9	9.7	9.1	21.3	11.3	24
23	10.5	10.8	9.5	9.5	11.4	11.8	8.9	10.7	11.6	11.7	14.1	15.9	18.0	16.5	17.1	11.9	8.8	6.6	7.3	7.6	7.9	8.1	7.5	8.9	18.0	10.9	24
24	7.4	7.2	8.2	9.4	7.2	9.5	7.7	6.6	6.2	5.3	4.5	4.9	6.5	7.9	4.8	5.8	4.4	4.4	6.4	4.7	3.1	4.5	4.6	5.1	9.5	6.1	24
25	6.2	4.9	1.2	4.1	6.1	4.1	4.1	4.0	3.2	1.7	4.6	6.1	6.9	6.3	3.6	4.7	4.2	7.8	10.7	10.6	11.0	10.8	10.2	9.3	11.0	6.1	24
26	8.9	9.7	10.6	11.1	12.3	12.2	12.9	14.5	14.3	13.7	13.4	14.9	15.6	17.3	15.3	8.4	9.3	9.5	8.3	7.5	5.1	8.9	12.2	21.0	21.0	12.0	24
27	19.5	24.4	24.9	20.5	21.9	18.8	19.7	18.4	20.4	18.6	15.2	17.9	17.9	15.6	17.2	15.4	12.9	12.6	11.9	10.2	8.8	11.6	8.6	7.6	24.9	***16.3***	24
28	10.0	8.3	7.9	9.6	10.5	8.3	8.2	3.5	3.9	1.0	2.6	4.1	4.0	6.5	7.1	8.7	10.5	12.2	10.5	12.2	11.8	12.1	13.2	10.3	13.2	8.2	24
29	11.1	11.8	11.1	10.9	12.4	11.7	11.1	9.2	8.2	9.6	10.4	8.8	9.3	12.5	10.2	11.5	13.0	12.3	10.8	9.1	8.8	8.9	12.7	11.1	13.0	10.7	24
30	12.3	11.2	7.7	7.5	10.0	10.9	10.1	9.6	8.9	8.3	9.0	13.0	13.5	10.3	6.6	9.4	9.9	9.3	7.2	6.6	10.7	10.9	10.0	12.6	13.5	9.8	24
31	12.7	13.0	11.1	10.7	9.6	10.0	9.0	7.2	6.1	7.0	6.4	3.0	4.1	6.3	8.7	11.0	14.1	13.6	15.5	14.5	16.4	17.7	15.9	12.4	17.7	10.7	24
HOURLY MAX	19.5	24.4	24.9	20.5	21.9	18.8	19.7	18.4	20.4	18.6	22.9	24.7	27.5	24.3	25.0	23.0	20.3	18.3	15.5	16.4	19.7	17.7	18.5	21.0			
HOURLY AVG	9.2	9.4	10.1	10.5	11.2	10.5	10.2	10.1	10.4	10.3	11.1	12.1	13.1	12.6	12.4	11.9	10.7	9.7	9.4	9.4	9.4	9.4	9.5	9.2			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

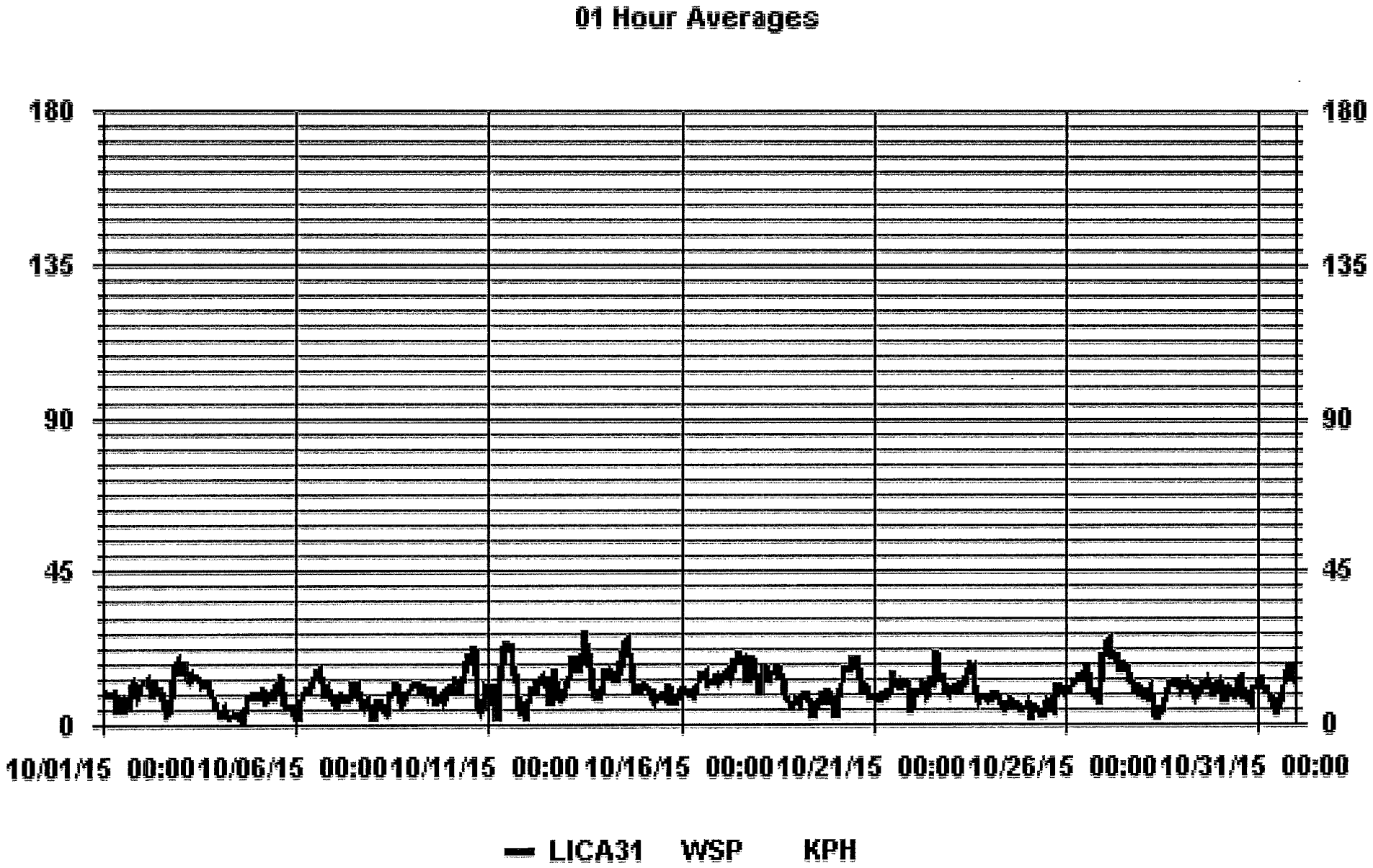
LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			744				
MAXIMUM 1-HR AVERAGE:	27.5	KPH	@ HOUR(S)	12	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	16.3	KPH			ON DAY(S) VAR-VARIOUS	27	
			OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	4.57		MONTHLY AVERAGE:			10.5	KPH


01 Hour Averages
180
135
90
45
0
180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 WSP KPH

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

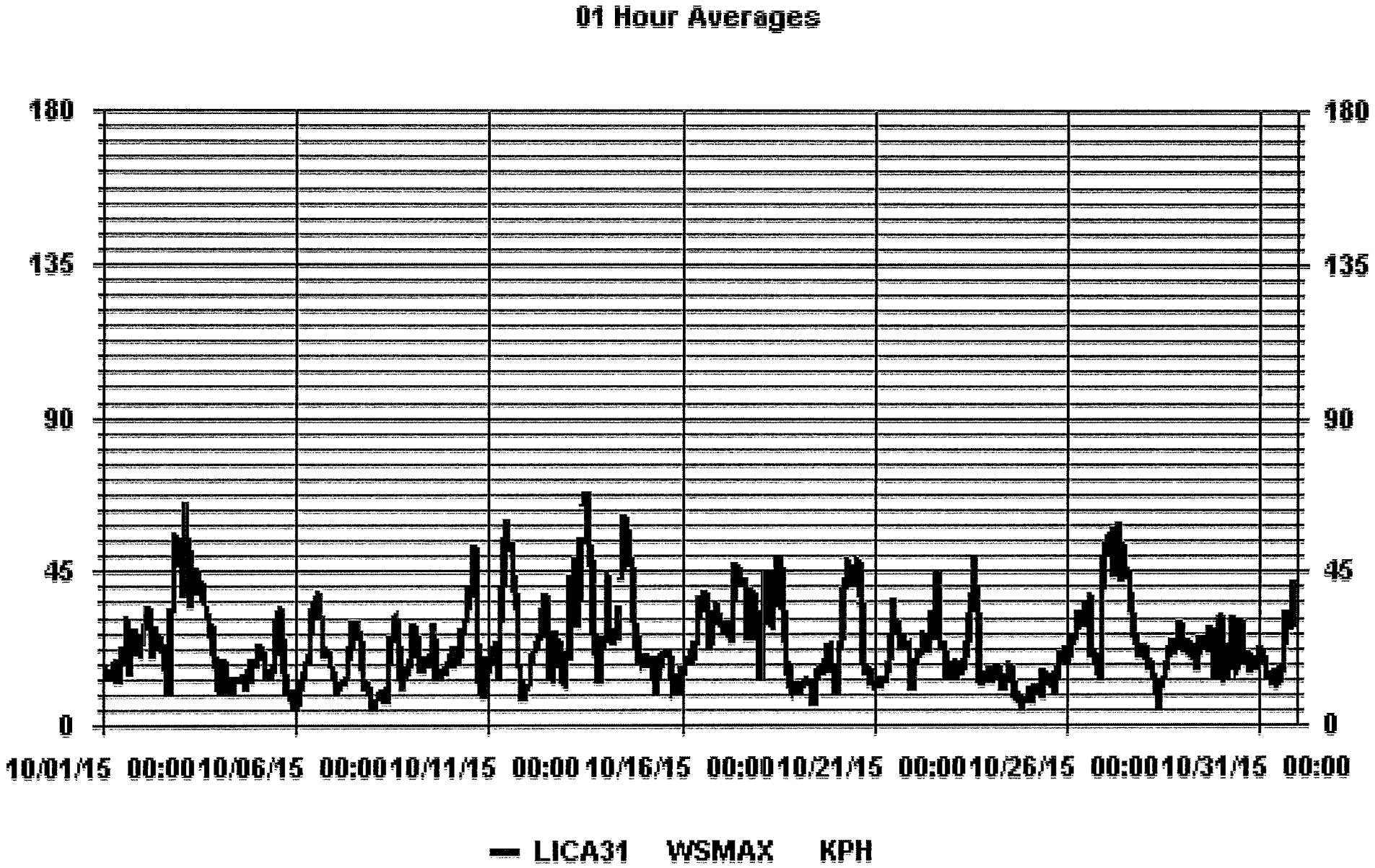
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG.	RDGS.
DAY																											
1	17.6	16.3	15.4	15.7	14.7	13.6	18.0	17.8	19.4	12.9	12.2	17.9	22.9	22.0	31.8	27.9	14.4	20.3	25.2	28.3	27.2	21.5	21.2	23.5	31.8	19.9	24
2	25.7	28.1	29.4	32.3	35.1	28.3	19.5	24.3	28.9	24.6	26.3	22.9	24.2	21.5	17.2	16.1	10.0	9.9	34.4	33.3	56.5	46.4	54.5	51.9	56.5	29.2	24
3	49.0	37.0	54.7	65.5	55.3	51.6	34.3	41.0	43.2	38.3	46.1	44.2	38.0	42.0	36.7	35.7	31.9	32.1	27.5	28.1	29.3	20.7	17.1	14.7	65.5	38.1	24
4	10.6	9.4	18.1	18.1	11.3	12.9	10.2	9.3	9.4	14.2	12.3	13.6	13.8	13.2	12.1	15.1	11.0	9.7	14.8	14.3	19.1	17.1	17.5	17.5	19.1	13.5	24
5	19.5	23.4	19.5	21.9	19.5	17.0	13.7	16.2	15.3	14.7	17.5	20.2	30.7	32.9	35.0	32.6	25.7	15.4	9.9	9.2	8.5	10.3	8.3	5.5	35.0	18.4	24
6	4.5	8.3	7.7	10.1	13.2	15.1	18.3	19.9	19.5	26.3	33.8	35.7	36.6	37.9	39.3	31.6	31.4	23.7	19.5	22.6	21.7	21.3	17.3	16.3	39.3	22.2	24
7	14.1	9.0	12.5	11.2	11.8	12.5	11.2	12.7	14.2	18.9	22.6	30.5	28.1	28.3	30.3	27.7	25.0	16.7	10.3	11.9	12.5	11.4	9.4	8.1	30.5	16.7	24
8	4.1	6.8	7.1	8.8	8.4	10.1	8.1	7.2	7.2	11.1	18.1	26.1	24.4	31.2	31.8	29.3	23.9	14.5	9.9	13.4	16.5	16.7	16.2	18.7	31.8	15.4	24
9	19.8	29.7	27.7	23.9	24.5	18.8	15.2	16.5	19.3	19.1	16.3	19.4	20.7	29.9	26.2	13.2	14.9	14.1	14.1	16.5	14.3	16.3	16.9	19.2	29.9	19.4	24
10	18.5	16.3	22.4	22.4	17.6	18.9	19.9	28.0	26.5	30.7	29.8	33.8	41.1	39.9	48.2	52.6	37.7	24.2	12.6	9.3	7.8	11.5	15.4	19.9	52.6	25.2	24
11	15.1	21.1	23.0	18.2	24.8	23.5	13.3	30.0	40.9	39.8	54.8	59.7	53.1	51.0	53.6	44.2	39.1	34.1	17.9	17.0	13.9	6.6	9.6	10.5	59.7	29.8	24
12	11.4	12.1	20.7	19.9	21.0	22.3	24.5	26.4	25.1	32.4	31.9	38.7	31.3	13.8	13.6	19.5	21.4	27.1	21.2	25.3	17.0	13.3	12.8	17.3	38.7	21.7	24
13	21.7	19.0	27.4	43.6	38.8	43.5	48.8	28.0	36.7	53.6	42.0	65.1	***68.3***	67.1	53.5	45.8	48.6	27.4	21.2	14.9	12.9	12.0	21.9	26.1	***68.3***	37.0	24
14	24.1	43.4	42.9	26.9	26.3	23.2	28.0	24.3	33.7	41.7	43.9	45.4	61.4	60.5	57.4	46.4	48.4	46.8	30.2	22.3	26.5	17.9	19.5	18.0	61.4	35.8	24
15	18.8	19.7	20.7	17.7	17.7	18.3	13.3	9.2	14.1	12.8	16.3	20.4	20.6	21.0	19.4	22.5	20.8	13.2	9.6	10.1	10.5	10.3	14.9	16.7	22.5	16.2	24
16	14.1	15.6	18.4	19.7	19.5	22.3	20.6	18.4	23.8	24.1	30.9	37.7	33.0	36.8	39.5	35.8	33.8	22.2	23.2	29.3	31.4	36.6	31.6	32.4	39.5	27.1	24
17	28.5	30.0	26.1	28.3	29.8	29.6	26.5	23.8	35.5	47.5	41.4	43.9	45.9	40.8	41.9	42.8	35.5	24.8	29.2	39.7	38.8	38.1	34.2	25.0	47.5	34.5	24
18	20.0	13.2	25.6	35.5	45.1	36.4	30.0	29.6	45.5	40.7	34.0	36.7	50.0	48.3	46.5	34.3	24.8	14.3	18.2	11.2	9.9	10.8	10.8	11.6	50.0	28.5	24
19	11.6	9.0	10.8	11.0	12.7	12.9	13.1	12.2	13.1	9.7	5.5	10.6	12.9	16.1	16.7	14.0	16.4	19.5	14.7	23.3	23.5	16.7	16.9	8.4	23.5	13.8	24
20	9.3	13.4	21.5	24.4	34.6	39.6	42.6	49.2	44.0	44.5	40.5	45.1	46.5	48.4	47.8	38.1	35.9	18.1	14.5	17.7	16.0	17.1	12.4	12.5	49.2	30.6	24
21	11.4	11.9	11.7	10.7	13.5	13.3	13.6	13.4	15.4	18.7	27.0	35.3	37.0	31.8	28.6	29.0	21.9	27.0	23.5	23.5	23.3	23.7	18.0	11.3	37.0	20.6	24
22	11.1	17.4	18.9	19.7	22.1	19.9	27.2	25.4	23.7	21.1	25.2	27.4	33.1	24.3	34.7	45.4	35.7	23.0	21.6	24.1	21.9	14.9	15.0	13.6	45.4	23.6	24
23	17.1	17.7	13.1	15.1	18.2	17.7	14.8	16.2	18.9	19.5	24.1	32.4	35.5	38.6	50.0	41.5	33.6	13.1	11.6	13.0	13.0	15.8	12.5	16.1	50.0	21.6	24
24	16.9	12.4	15.1	14.3	14.2	17.5	15.3	12.2	9.6	15.1	13.5	12.1	17.5	17.1	11.9	13.6	8.7	7.7	9.2	7.2	4.0	7.5	6.2	7.7	17.5	11.9	24
25	10.3	10.5	5.8	8.3	10.7	10.7	9.4	9.0	8.9	16.3	13.0	12.8	14.5	14.3	14.6	11.7	9.1	12.7	16.7	19.5	21.7	18.3	22.8	20.9	22.8	13.4	24
26	17.4	20.0	20.3	23.0	26.3	24.9	27.8	33.5	32.2	30.6	28.7	36.6	31.4	35.7	38.6	19.7	22.6	21.6	19.0	14.9	12.5	19.3	39.4	49.4	49.4	26.9	24
27	53.1	55.1	54.0	56.0	58.0	43.0	50.5	43.0	59.3	41.8	53.1	42.2	46.4	44.0	45.5	39.5	33.7	25.5	27.3	23.6	19.2	22.3	21.0	20.1	59.3	***40.7***	24
28	24.0	19.5	15.7	18.3	18.3	15.2	14.6	12.4	9.0	4.2	10.3	12.9	13.6	15.5	18.5	19.5	22.9	25.3	20.5	25.1	24.2	23.8	30.2	22.1	30.2	18.2	24
29	23.2	22.1	21.9	21.2	24.2	23.8	22.5	19.4	16.0	20.3	25.1	24.7	24.4	26.0	24.7	22.7	21.3	28.6	23.8	17.5	13.6	14.4	31.7	21.2	31.7	22.3	24
30	32.6	24.7	13.6	13.8	17.7	17.0	17.7	31.8	19.1	16.5	17.3	29.2	31.4	20.0	17.4	19.9	20.3	21.2	15.5	16.2	20.1	18.2	17.7	21.2	32.6	20.4	24
31	20.6	23.2	20.8	18.6	16.2	14.5	14.2	13.1	11.8	16.0	16.2	12.1	12.4	15.4	17.4	23.0	33.1	31.1	27.6	29.1	32.9	42.5	32.9	29.4	42.5	21.8	24
HOURLY MAX	53.1	55.1	54.7	65.5	58.0	51.6	50.5	49.2	59.3	53.6	54.8	65.1	68.3	67.1	57.4	52.6	48.6	46.8	34.4	39.7	56.5	46.4	54.5	51.9			
HOURLY AVG	19.2	19.8	21.4	22.4	23.3	22.2	21.2	21.7	23.8	25.1	26.8	30.5	32.3	31.8	32.3	29.4	26.2	21.4	19.2	19.7	20.0	19.1	20.2	19.6			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	68.3	KPH	@ HOUR(S)	12	ON DAY(S)	13
					VAR-VARIOUS	
OPERATIONAL TIME:					744	HRS


01 Hour Averages
180
135
90
45
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 WSMAX KPH

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

October 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.61	.94	.80	.67	.67	.67	.40	.80	.94	1.34	.80	.40	1.20	1.20	1.20	.80	14.51
<	12.0	.53	.00	.13	.53	2.55	2.82	4.56	5.37	6.04	5.51	5.37	6.58	3.89	4.43	2.41	1.34	52.15
<	20.0	1.07	.00	.13	1.07	.13	.94	1.88	4.83	3.22	.80	.80	4.16	1.74	5.37	1.74	1.61	29.56
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.53	.80	.80	1.20	.13	3.62
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.22	.94	1.07	2.28	3.36	4.43	6.85	11.02	10.34	7.66	6.98	11.69	7.66	11.82	6.58	3.89	

Calm : .13 %

Total # Operational Hours : 744

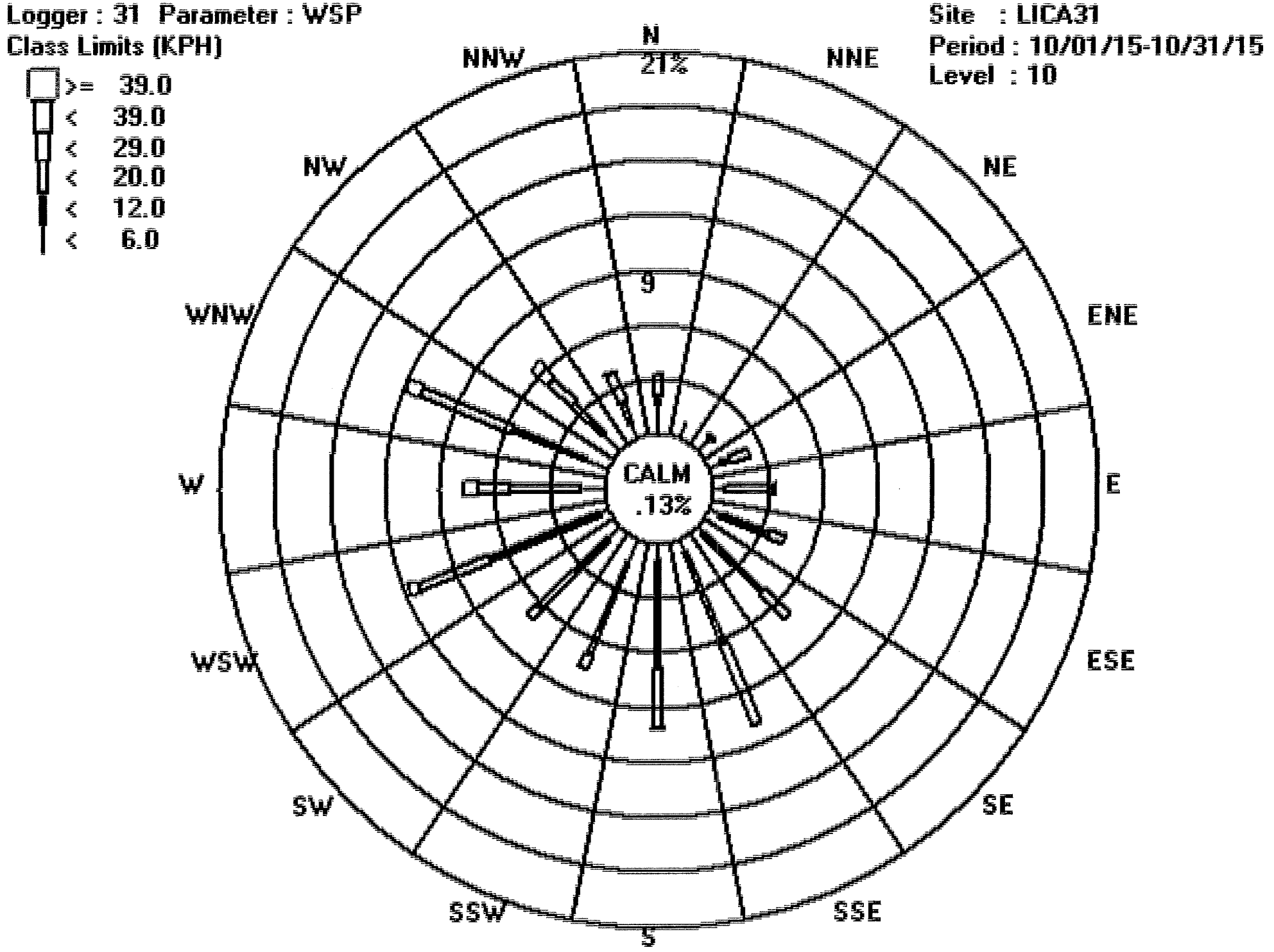
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	12	7	6	5	5	5	3	6	7	10	6	3	9	9	9	6	108
<	12.0	4		1	4	19	21	34	40	45	41	40	49	29	33	18	10	388
<	20.0	8		1	8	1	7	14	36	24	6	6	31	13	40	13	12	220
<	29.0									1			4	6	6	9	1	27
<	39.0																	
>=	39.0																	
	Totals	24	7	8	17	25	33	51	82	77	57	52	87	57	88	49	29	

Calm : .13 %

Total # Operational Hours : 744


Logger : 31 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA31
Period : 10/01/15-10/31/15
Level : 10
N
21%
NNW
NNE
NW
NE
9
WNW
ENE
W
E
CALM
.13%
WSW
ESE
SW
SE
SSW
SSE
5

WIND DIRECTION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

WIND DIRECTION (WD) hourly averages

MST

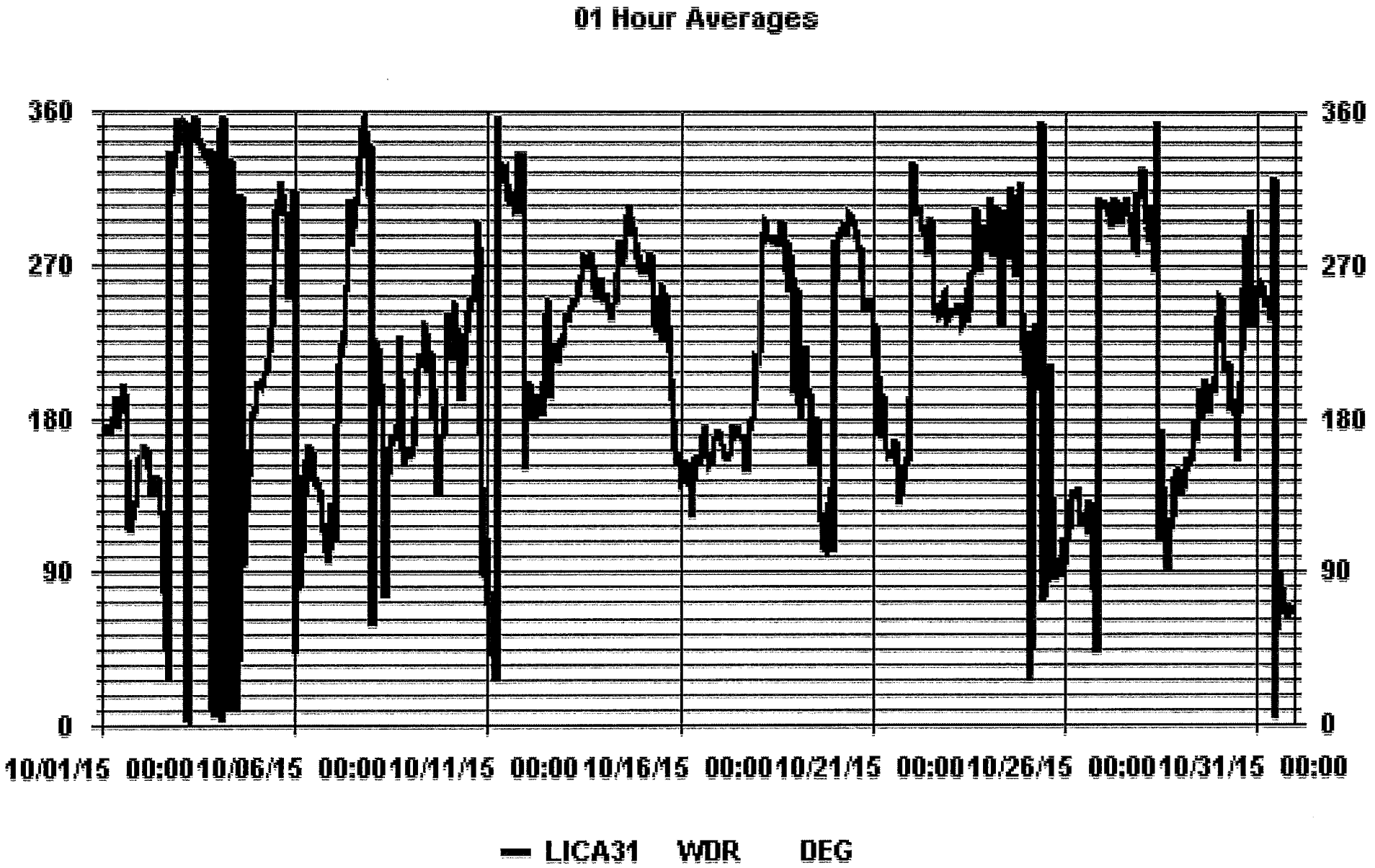
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00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

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
M	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	79.04		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	SW	


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 WDR DEG

STANDARD DEVIATION WIND DIRECTION

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

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
HOUR END	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	0:00
DAY																								
1	12	10	9	9	9	9	11	14	18	20	28	28	28	35	38	29	26	12	14	16	16	16	15	15
2	14	12	13	13	13	15	20	19	17	20	20	26	25	26	32	29	24	16	18	17	18	18	19	20
3	21	19	24	18	20	20	18	23	18	20	20	19	22	24	21	21	20	19	19	21	20	20	19	22
4	25	22	22	20	21	24	21	27	33	38	48	50	42	53	51	42	28	13	10	11	11	12	13	13
5	14	13	12	11	12	12	9	9	9	12	18	24	20	20	17	19	17	12	8	8	7	11	9	11
6	9	28	8	5	6	7	11	11	12	14	18	19	18	20	19	17	17	17	12	12	12	13	13	12
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8	25	36	6	6	3	6	8	11	17	23	23	26	24	21	19	20	16	7	7	10	9	9	8	10
9	11	10	11	12	8	6	4	5	8	11	13	13	21	19	13	15	13	11	8	9	9	10	6	8
10	7	10	7	7	8	11	14	10	10	9	8	11	12	11	12	11	14	12	11	17	7	12	4	11
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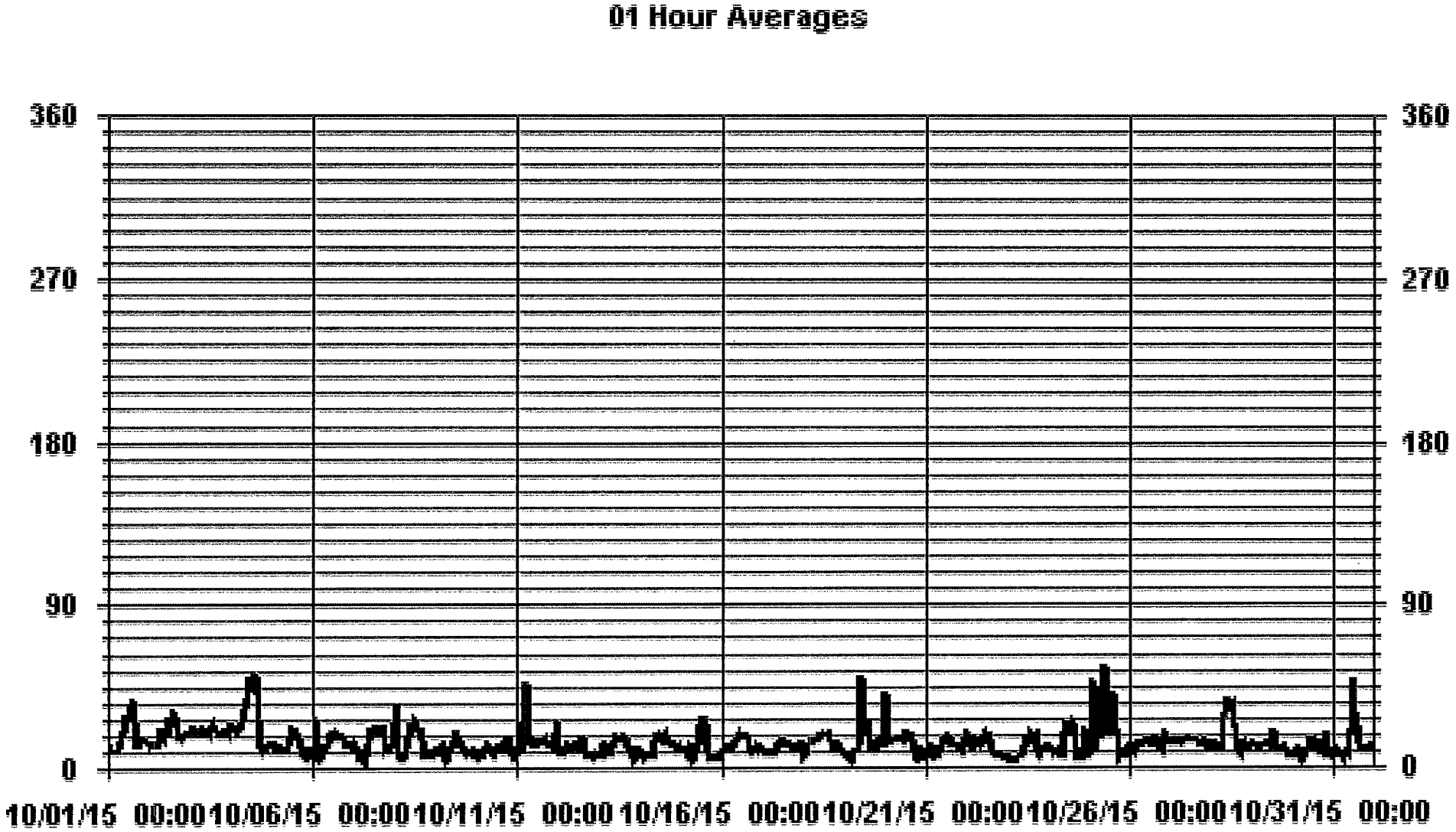
14	8	9	9	6	7	7	7	7	15	17	17	19	18	17	16	18	15	15	15	13	13	11	12	9
15	9	9	10	10	8	11	9	4	5	10	13	24	28	19	28	25	9	5	5	6	5	5	7	8
16	9	9	11	11	11	13	14	12	14	16	19	17	18	17	17	17	13	10	9	10	12	10	11	11
17	10	9	9	8	8	8	8	8	11	12	14	15	14	15	14	13	13	12	11	11	10	10	10	14
18	6	7	8	13	14	14	15	15	15	17	17	19	18	18	19	16	15	12	11	14	8	12	11	9
19	8	5	8	5	4	6	9	9	9	12	51	21	20	21	26	16	12	11	13	12	14	12	13	11
20	42	17	13	15	15	15	16	16	17	16	17	16	21	18	17	18	16	10	6	5	7	11	9	7
21	6	7	5	13	7	6	7	7	8	12	15	15	17	18	17	13	13	12	12	12	10	9	11	16
22	20	11	13	12	18	12	12	13	12	13	17	19	17	18	16	10	8	6	6	7	8	7	6	5
23	5	5	4	5	4	5	6	6	8	8	11	17	13	19	18	17	18	9	7	9	9	11	9	9
24	13	10	10	8	9	9	10	7	7	19	24	23	23	18	25	24	8	9	7	4	11	22	11	8
25	6	17	49	12	8	45	15	43	29	56	22	21	17	20	41	17	22	5	6	6	6	10	11	12
26	10	11	12	10	13	13	13	14	15	15	15	15	14	15	13	17	13	11	11	10	21	16	14	14
27	14	14	14	15	15	15	14	15	15	15	16	15	15	15	15	15	15	14	13	13	14	12	13	12
28	13	12	13	11	10	10	10	28	30	38	34	34	35	25	23	16	10	8	11	11	13	11	12	12
29	13	12	12	12	11	12	12	12	13	14	13	21	16	21	12	11	8	11	12	10	7	7	9	8
30	9	8	9	11	6	4	6	8	10	11	14	14	15	11	11	10	13	13	14	19	5	7	7	6
31	9	10	8	7	7	5	8	9	8	18	21	49	31	23	14	11	11	10	10	10	10	11	11	12

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION:	August 28, 2014

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS


01 Hour Averages
360
270
180
90
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 STDWDIR DEG

RELATIVE HUMIDITY

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

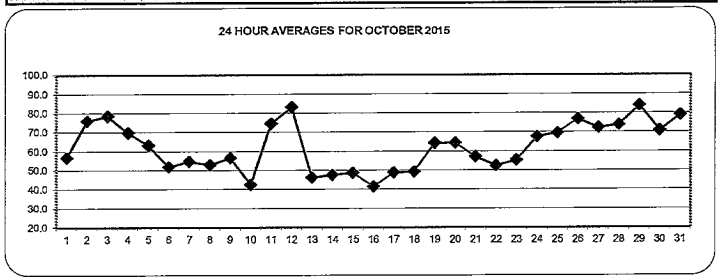
RELATIVE HUMIDITY (RH) hourly averages in %

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	71	72	73	73	73	73	74	71	65	56	47	41	37	34	32	33	34	45	53	53	57	63	67	68	74	56.9	24
2	71	75	80	85	88	90	***91***	90	88	84	78	71	67	63	58	57	59	66	71	76	79	78	80	80	***91***	76.0	24
3	82	85	83	83	88	88	87	85	83	81	75	74	73	71	70	68	68	69	71	73	76	85	85	85	88	78.7	24
4	81	79	78	77	78	80	80	79	74	68	64	62	58	53	52	50	52	59	66	70	75	78	81	83	83	69.9	24
5	84	85	86	86	86	86	87	81	75	69	64	59	51	49	43	41	40	43	47	52	55	52	50	48	87	63.3	24
6	47	66	60	61	61	59	65	65	63	60	48	43	41	36	36	39	42	43	45	48	51	55	57	59	66	52.1	24
7	63	65	65	68	69	70	71	69	66	60	50	44	40	37	35	35	38	46	54	54	51	52	59	57	71	54.9	24
8	53	56	60	64	61	63	65	60	61	53	46	41	38	38	40	41	43	45	48	51	59	63	62	62	65	53.0	24
9	61	60	62	64	69	73	76	73	63	55	50	47	42	40	43	44	44	49	52	55	57	59	63	60	76	56.7	24
10	58	62	61	55	54	54	56	59	55	51	45	37	29	26	23	23	25	30	33	34	36	38	40	39	62	42.6	24
11	42	49	58	59	58	61	66	63	71	84	87	86	87	86	86	84	77	76	80	84	85	87	86	87	87	74.5	24
12	89	90	90	89	89	90	90	90	86	83	79	75	75	83	83	79	73	78	83	84	85	83	78	72	90	83.2	24
13	67	65	65	62	60	59	58	54	49	44	40	35	32	31	31	29	29	34	39	41	43	47	49	48	67	46.3	24
14	48	48	50	56	59	65	66	64	54	50	46	40	36	33	33	32	33	36	39	45	45	51	56	58	66	47.6	24
15	61	62	62	64	65	64	68	65	61	54	49	43	39	36	33	30	31	37	39	40	40	42	43	43	68	48.8	24
16	43	44	46	47	49	47	49	53	49	45	39	34	33	30	28	28	30	34	39	41	45	47	48	50	53	41.6	24
17	52	56	60	64	66	67	68	67	60	51	43	37	33	32	30	30	31	39	42	43	45	48	52	56	68	48.8	24
18	58	62	65	61	60	59	60	58	55	52	47	39	32	34	33	34	36	43	43	47	46	49	48	63	65	49.3	24
19	65	62	69	71	73	77	76	73	69	63	63	63	57	52	46	47	56	63	65	64	64	67	68	70	77	64.3	24
20	73	76	78	84	88	83	80	78	76	70	62	54	46	44	43	41	41	49	54	58	63	67	69	69	88	64.4	24
21	77	79	71	70	77	74	75	72	66	54	52	44	39	38	35	36	41	45	48	50	53	57	60	62	79	57.3	24
22	64	66	63	64	64	64	63	63	62	60	53	46	43	39	33	33	35	42	45	45	48	52	56	58	66	52.5	24
23	59	60	63	64	65	66	69	67	61	53	46	41	40	37	36	40	50	55	57	57	59	59	62	65	69	55.5	24
24	69	72	75	73	76	74	77	81	79	69	60	60	58	58	54	51	60	64	67	67	65	70	71	72	81	67.6	24
25	76	80	81	82	82	84	84	81	83	80	69	62	56	51	45	40	45	59	64	68	73	75	76	76	84	69.7	24
26	80	80	77	79	76	75	75	75	73	70	68	68	67	64	65	68	78	84	86	86	88	89	89	87	89	77.0	24
27	87	86	82	83	80	79	79	78	74	74	73	69	69	68	63	59	58	61	63	66	70	69	71	75	87	72.3	24
28	77	79	81	82	82	84	84	83	73	65	64	62	58	55	54	55	66	76	78	82	81	83	84	84	84	73.8	24
29	84	84	84	84	83	83	83	83	82	82	84	85	85	86	85	84	87	87	87	86	86	86	82	74	87	***84.0***	24
30	72	69	73	80	83	78	75	75	71	62	54	49	50	54	56	59	61	65	76	85	88	89	89	88	89	70.9	24
31	86	84	83	83	83	85	85	85	78	72	70	67	65	65	71	74	79	82	82	82	84	84	85	84	86	79.1	24
HOURLY MAX	89	90	90	89	89	90	91	90	88	84	87	86	87	86	86	84	87	87	87	86	88	89	89	88			
HOURLY AVG	67.7	69.6	70.5	71.5	72.4	72.7	73.6	72.3	68.5	63.7	58.5	54.1	50.8	49.1	47.6	47.2	49.7	55.0	58.6	60.9	63.0	65.3	66.6	67.2			

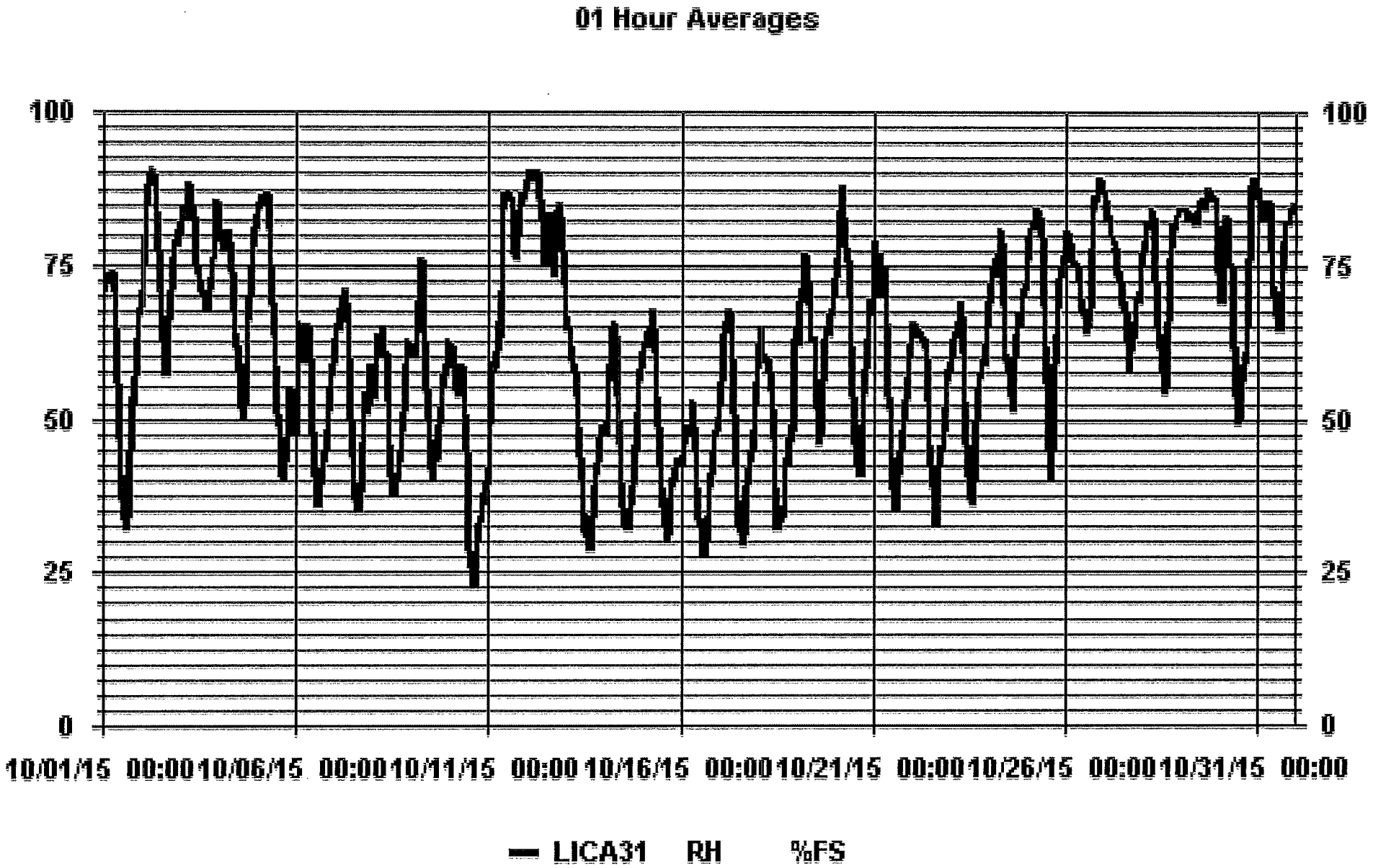
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	6	ON DAY(S)	2	
MAXIMUM 24-HR AVERAGE:	84.0	%			ON DAY(S)	29	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	16.57		MONTHLY AVERAGE:			62	%


01 Hour Averages
100
75
50
25
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 RH %FS

BAROMETRIC PRESSURE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

BAROMETRIC PRESSURE (BP) hourly averages in millibar

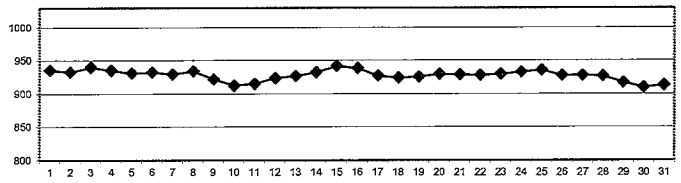
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	934	934	934	934	934	935	935	936	936	937	938	938	938	938	938	938	938	937	937	936	936	935	935	935	938	936	24
2	934	934	934	933	932	932	932	931	931	931	932	932	932	932	932	933	934	934	934	935	935	936	936	937	937	933	24
3	937	938	938	939	939	940	940	940	941	941	941	941	941	941	941	941	941	941	942	942	942	941	941	940	942	940	24
4	940	940	940	939	939	939	938	938	938	938	937	937	936	936	935	935	934	933	932	931	931	931	930	929	940	936	24
5	929	928	928	928	928	928	928	928	929	930	931	932	933	933	933	934	934	934	934	934	934	934	934	935	935	931	24
6	935	934	934	934	934	934	934	934	935	935	935	935	935	934	933	932	931	931	930	930	929	929	928	928	935	933	24
7	927	927	927	927	927	927	927	927	928	929	930	930	931	931	931	932	932	932	931	931	932	932	932	933	933	930	24
8	933	933	934	934	934	934	934	935	936	936	937	937	937	937	936	936	935	935	934	933	932	932	931	930	937	934	24
9	929	928	927	926	925	925	924	923	924	924	924	924	923	922	922	921	920	919	918	918	917	917	916	916	929	922	24
10	916	915	915	915	915	914	914	914	914	914	914	914	914	914	914	913	912	911	911	910	909	908	907	907	916	913	24
11	906	905	904	904	903	904	905	906	908	910	912	915	917	918	920	922	923	924	924	925	926	926	927	927	927	915	24
12	927	926	926	925	925	924	924	924	924	923	923	923	923	923	922	922	923	923	923	923	923	924	924	925	927	924	24
13	925	925	925	925	925	926	926	926	927	927	928	928	928	928	928	928	928	928	928	928	928	928	928	929	929	927	24
14	929	929	929	929	929	929	929	929	931	932	932	933	933	933	934	934	935	935	936	937	937	938	938	939	939	933	24
15	939	940	940	940	941	941	942	942	943	944	944	***945***	***945***	***945***	***945***	944	944	943	942	942	942	942	941	941	***945***	***942***	24
16	941	941	941	940	940	940	939	939	939	940	940	940	940	940	940	939	939	938	937	936	936	936	935	935	941	939	24
17	934	933	932	932	931	930	930	929	929	929	929	929	929	928	927	927	926	925	923	922	922	921	920	920	934	927	24
18	920	920	920	921	921	922	923	923	924	925	925	926	926	927	927	927	927	927	927	927	926	926	926	926	927	925	24
19	926	926	926	926	925	925	925	925	926	926	927	927	927	927	927	927	926	925	925	925	925	925	925	925	927	926	24
20	926	926	926	926	927	927	928	928	929	930	930	931	932	932	932	932	932	932	932	932	932	932	932	932	932	930	24
21	931	931	932	931	931	930	930	930	930	930	930	930	930	930	929	929	928	927	927	926	926	925	925	925	932	929	24
22	925	925	926	926	927	927	927	928	928	928	929	930	930	930	930	930	930	929	929	929	929	930	930	930	930	928	24
23	930	930	930	929	929	929	929	929	930	930	931	931	931	930	930	930	930	930	930	930	930	930	930	930	931	930	24
24	930	930	930	931	931	931	931	932	932	933	934	935	935	935	935	935	935	935	935	935	935	935	935	935	935	933	24
25	935	935	935	935	935	935	935	935	936	936	937	938	938	938	938	938	937	936	936	935	935	935	934	934	938	936	24
26	933	933	932	931	931	931	930	929	929	929	929	928	928	927	926	926	926	925	925	924	924	924	925	925	933	928	24
27	925	926	926	927	927	927	928	928	929	929	929	929	929	929	929	930	929	929	929	929	929	929	929	929	930	928	24
28	929	929	929	929	929	928	928	927	928	929	929	929	929	928	928	927	926	925	925	924	924	923	923	923	929	927	24
29	922	921	921	920	920	919	919	918	918	918	918	918	917	917	916	916	916	915	915	914	914	914	914	914	922	917	24
30	914	913	913	912	912	911	911	910	909	909	909	908	908	907	907	907	907	908	908	909	909	909	910	910	914	910	24
31	911	911	912	912	912	913	913	913	914	915	915	915	915	915	915	914	913	913	913	913	913	912	912	913	915	913	24
HOURLY MAX	941	941	941	940	941	941	942	942	943	944	944	945	945	945	945	944	944	943	942	942	942	942	941	941			
HOURLY AVG	928	928	928	928	928	928	928	928	928	929	929	929	929	929	929	929	929	928	928	928	928	928	928	928			

STATUS FLAG CODES

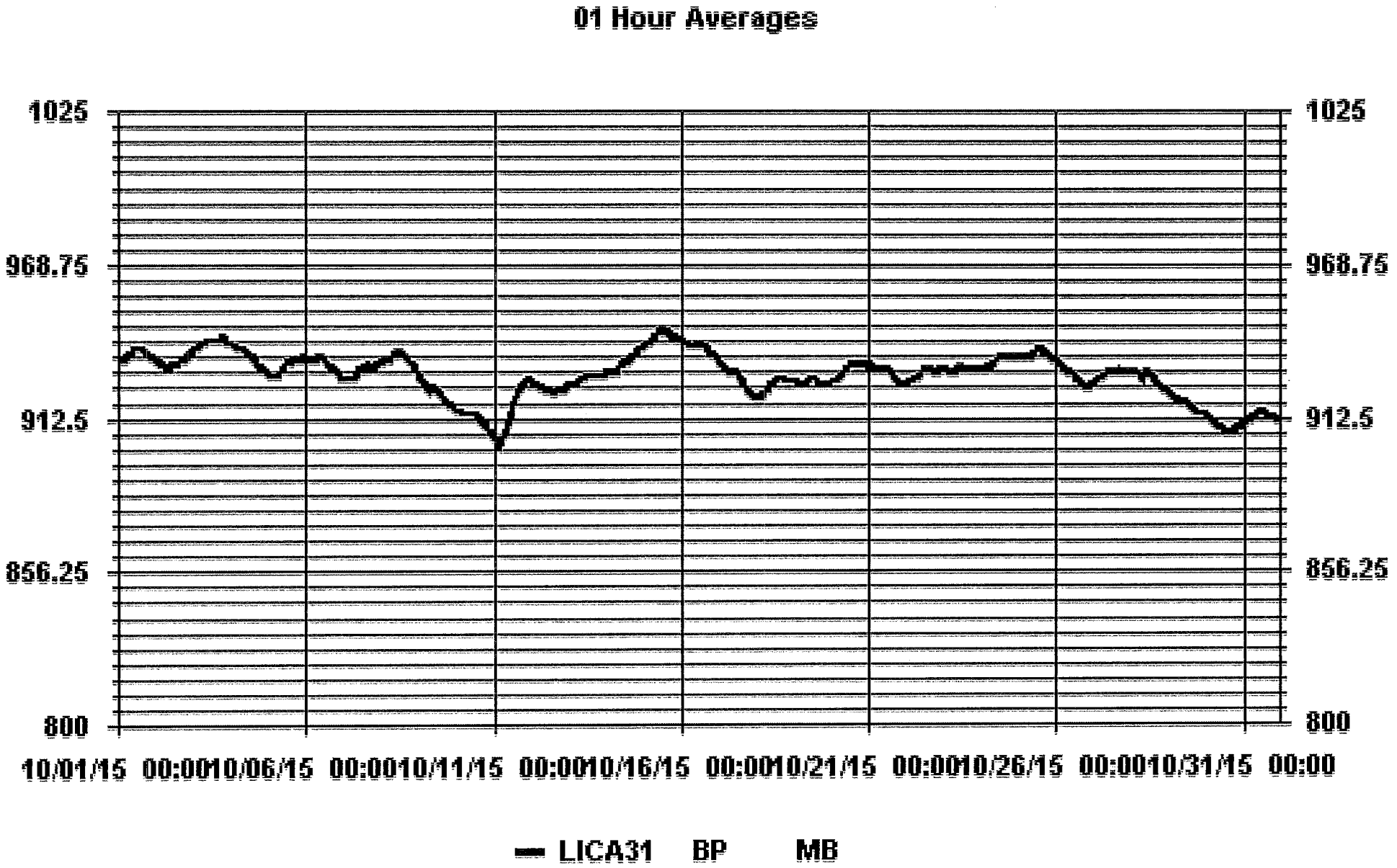
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	945	MB	@ HOUR(S)	VAR	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	942	MB			ON DAY(S)	15
					VAR-VARIOUS	
			OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	8.43		MONTHLY AVERAGE:		928	MB


01 Hour Averages
1025
968.75
912.5
856.25
800
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 BP MB

AMBIENT TEMPERATURE

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

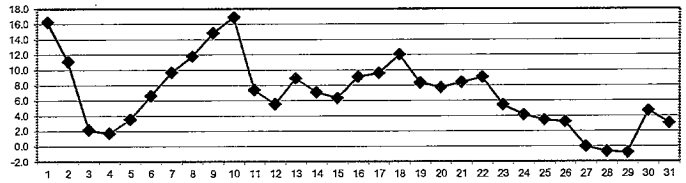
MST

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	24-HOUR	
HOUR END	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	0:00	MAX.	AVG.	RDGS.
DAY																											
1	12.0	11.8	11.3	11.0	11.0	10.7	10.3	11.1	13.0	16.6	19.4	21.8	22.9	23.6	***24.8***	24.1	23.1	19.7	17.9	17.0	16.0	14.5	13.5	13.2	***24.8***	16.3	24
2	12.5	11.6	10.4	9.5	8.9	7.9	7.9	7.9	8.4	9.4	10.8	13.2	14.7	15.8	17.0	17.7	16.6	14.5	12.9	10.2	8.7	7.3	6.2	5.6	17.7	11.1	24
3	4.9	3.7	3.4	2.7	1.7	1.3	1.2	1.2	1.3	1.6	2.4	3.0	2.9	3.2	3.1	3.4	3.1	2.4	2.0	1.6	0.9	0.1	0.0	-0.1	4.9	2.1	24
4	-0.3	-0.3	-0.2	-0.3	-0.3	-0.4	-0.3	-0.1	0.7	1.7	3.1	3.9	5.2	6.4	6.7	7.1	6.4	4.0	1.6	0.5	-0.5	-1.0	-1.6	-2.1	7.1	1.7	24
5	-2.6	-2.9	-3.1	-3.2	-3.5	-3.8	-4.0	-2.3	-0.1	3.2	6.1	8.0	9.6	10.5	10.6	10.5	10.6	8.8	6.8	5.7	4.8	4.6	4.4	4.9	10.6	3.5	24
6	4.5	1.7	2.0	1.4	1.4	1.9	1.5	2.2	3.4	5.2	8.0	10.2	11.1	11.8	11.7	11.6	10.9	10.4	9.7	8.7	7.6	7.2	7.1	7.1	11.8	6.6	24
7	6.7	6.1	6.4	6.1	5.7	5.6	5.5	5.9	7.0	9.2	12.8	14.1	15.1	15.9	16.3	16.3	15.1	11.8	9.4	9.2	9.0	8.3	7.1	7.0	16.3	9.7	24
8	7.0	6.6	6.5	5.7	5.7	5.3	5.6	7.4	8.5	11.3	13.6	15.3	16.7	17.6	18.4	18.8	18.6	16.4	15.3	14.0	12.8	11.9	11.8	11.7	18.8	11.8	24
9	11.8	12.1	12.0	11.7	10.5	9.2	8.1	9.1	12.4	15.8	18.0	19.1	20.6	20.8	19.4	19.6	19.0	17.8	16.6	15.8	15.1	14.4	13.4	13.8	20.8	14.8	24
10	14.1	12.8	12.7	14.2	14.0	13.8	12.9	12.2	13.4	14.6	16.5	19.5	22.2	23.3	23.8	23.9	22.2	19.7	18.5	17.7	16.8	15.7	15.1	15.6	23.9	***16.9***	24
11	14.5	12.2	9.8	9.9	10.5	10.3	9.8	10.6	10.4	8.9	7.9	6.6	5.4	5.1	5.1	5.8	6.9	6.4	5.0	4.0	3.6	3.0	2.9	2.2	14.5	7.4	24
12	1.9	1.9	1.5	1.8	1.4	1.2	1.5	2.8	4.4	5.5	6.7	8.4	8.4	7.9	8.2	9.3	10.6	8.9	7.6	7.4	6.9	6.5	6.0	5.5	10.6	5.5	24
13	5.2	5.1	5.1	5.3	5.7	5.7	5.6	6.6	8.9	11.2	12.7	13.5	13.7	13.9	14.2	14.6	13.5	11.2	9.2	8.0	7.4	6.0	5.4	5.2	14.6	8.9	24
14	5.4	5.1	5.1	4.2	3.8	2.4	2.5	3.4	7.3	9.1	10.0	11.3	11.9	12.0	11.4	12.0	10.8	9.0	8.0	6.7	5.8	4.7	4.0	3.4	12.0	7.1	24
15	3.1	2.6	2.3	1.7	1.1	1.5	0.5	1.0	2.8	5.8	8.2	10.4	11.3	12.0	12.6	12.6	11.3	8.6	7.6	7.4	7.1	6.5	6.2	6.6	12.6	6.3	24
16	6.5	6.4	6.0	6.0	5.4	6.0	5.6	4.9	6.5	8.5	10.8	12.3	13.1	14.4	15.0	15.1	14.3	12.2	10.3	9.4	8.2	7.6	7.1	6.5	15.1	9.1	24
17	5.9	4.8	4.0	3.2	2.7	2.5	2.4	2.7	4.9	8.3	11.2	13.6	15.2	16.5	17.4	17.4	17.0	14.3	12.6	12.0	11.7	10.8	10.0	8.8	17.4	9.6	24
18	8.3	7.3	6.7	8.0	9.5	11.2	11.3	11.7	12.2	13.0	14.4	16.0	17.1	17.2	17.7	17.3	16.3	13.5	12.2	10.6	10.6	9.6	9.9	6.3	17.7	12.0	24
19	6.2	6.8	5.1	4.6	4.3	3.0	3.5	4.1	5.7	8.6	8.4	8.5	11.1	13.1	14.7	14.4	11.6	10.1	9.5	9.5	9.6	9.1	9.1	8.8	14.7	8.3	24
20	8.2	7.7	7.5	7.1	7.1	7.0	6.7	6.5	7.1	8.2	8.9	9.8	10.9	11.4	11.2	11.4	10.7	8.4	6.8	5.6	5.0	4.2	3.5	3.3	11.4	7.7	24
21	1.7	1.2	2.7	2.8	1.3	1.2	1.2	1.8	3.6	7.9	10.5	13.2	14.4	15.3	16.0	15.6	13.9	12.7	11.9	11.3	10.9	10.4	9.8	9.3	16.0	8.4	24
22	8.7	8.1	8.6	8.3	8.3	8.5	8.4	7.9	8.1	7.9	10.3	11.9	12.6	12.9	14.3	13.8	12.3	9.4	7.9	7.4	6.7	5.8	4.7	3.9	14.3	9.0	24
23	3.5	2.9	2.1	1.8	1.4	1.0	0.5	0.7	2.6	5.9	8.7	10.7	11.1	11.6	11.4	9.9	8.4	6.7	5.9	5.6	5.1	5.2	4.0	3.4	11.6	5.4	24
24	2.4	1.9	1.2	2.0	1.0	1.8	0.8	-0.3	0.1	3.3	6.7	7.2	7.5	7.7	8.7	9.7	6.4	5.3	4.7	4.7	5.1	4.0	3.6	3.4	9.7	4.1	24
25	2.6	1.5	0.9	1.1	0.9	-0.2	-0.3	0.0	0.1	1.1	5.0	6.8	8.3	9.4	10.1	10.0	8.4	5.2	4.0	3.0	1.8	1.1	0.7	0.9	10.1	3.4	24
26	-0.7	-0.7	0.1	-1.0	0.1	0.3	0.5	1.0	2.1	3.4	4.4	5.4	6.4	7.2	6.8	6.8	5.6	4.9	4.6	4.4	4.3	4.1	4.0	2.6	7.2	3.2	24
27	1.9	-0.1	-0.6	-0.8	-1.1	-1.2	-1.0	-0.9	-0.9	-0.8	-0.3	0.0	0.3	0.9	1.9	2.5	2.3	1.3	0.6	-0.2	-0.9	-0.9	-1.4	-2.2	2.5	-0.1	24
28	-2.4	-2.9	-3.3	-3.5	-3.6	-4.0	***-4.1***	***-4.1***	-1.2	1.9	2.6	2.8	4.0	4.3	4.5	4.1	1.7	-0.6	-1.3	-1.8	-2.0	-2.6	-2.9	-2.9	4.5	-0.7	24
29	-3.3	-3.4	-3.7	-3.9	-3.8	-3.7	-3.7	-3.7	-3.3	-2.6	-2.2	-1.5	-1.0	-0.7	0.2	1.3	0.8	1.0	1.2	1.5	2.1	2.7	4.1	4.9	4.9	-0.9	24
30	4.6	4.3	3.1	2.0	1.0	1.0	1.4	1.3	2.2	4.8	7.4	9.3	9.3	8.6	8.3	7.7	6.8	6.2	5.2	4.3	3.7	3.6	3.0	2.5	9.3	4.7	24
31	2.2	2.6	2.6	2.5	2.0	1.0	0.7	0.6	2.3	4.5	5.5	6.5	7.1	7.3	5.9	4.8	3.0	2.2	2.0	1.7	1.4	1.2	1.3	1.4	7.3	3.0	24
HOURLY MAX	14.5	12.8	12.7	14.2	14.0	13.8	12.9	12.2	13.4	16.6	19.4	21.8	22.9	23.6	24.8	24.1	23.1	19.7	18.5	17.7	16.8	15.7	15.1	15.6			
HOURLY AVG	5.1	4.5	4.1	3.9	3.7	3.5	3.3	3.7	5.0	6.9	8.7	10.0	10.9	11.5	11.9	11.9	10.9	9.1	7.9	7.2	6.6	6.0	5.5	5.2			

STATUS FLAG CODES

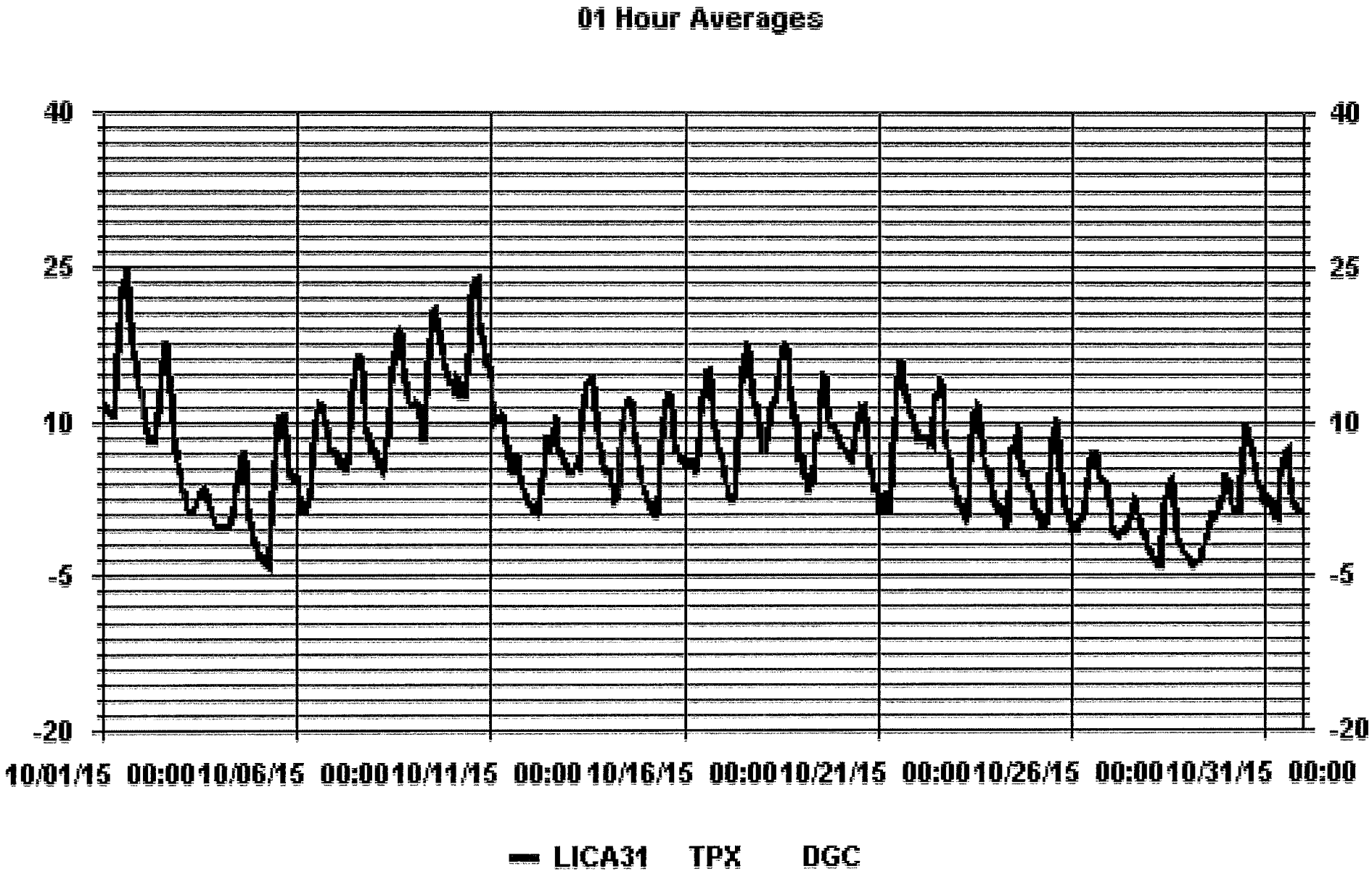
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR OCTOBER 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-4.1	°C	@ HOUR(S)	6 , 7	ON DAY(S)	28 , 28	
MAXIMUM 1-HR AVERAGE:	24.8	°C	@ HOUR(S)	14	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	16.9	°C			ON DAY(S)	10	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	5.73		MONTHLY AVERAGE:			7.0	°C


01 Hour Averages
40
25
10
-5
-20
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 TPX DGC

PRECIPITATION

Maxxam
A Bureau Veritas Group Company

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - OCTOBER 2015
JOB # 2833-2015-10-31- C

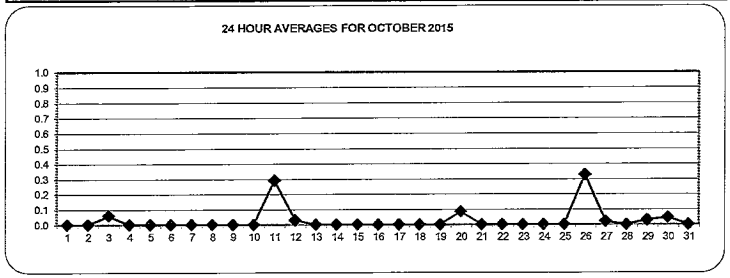
PRECIPITATION hourly averages (mm)

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	24-HOUR	
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	MAX.	AVG.	RDGS.
DAY																											
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	0.0	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	24
3	0.0	0.0	0.0	0.1	0.8	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	0.4	0.0	0.0	0.8	0.1	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	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	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	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	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	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	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	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	***2.4***	2.3	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	***2.4***	***0.3***	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	0.5	0.2	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
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	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	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	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	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	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	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	24
20	0.0	0.0	0.0	1.0	0.9	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	1.0	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	0.0	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	0.0	0.0	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	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	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	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	0.1	1.4	0.8	0.2	0.2	0.9	1.8	2.0	0.5	2.0	***0.3***	24
27	0.5	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	0.5	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	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	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	0.3	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	0.4	0.6	0.0	0.0	0.0	0.1	0.6	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	24
HOURLY MAX	0.5	0.0	0.0	1.0	0.9	0.1	0.0	0.0	0.0	0.9	2.4	2.3	1.2	0.2	0.0	0.1	1.4	0.8	0.4	0.6	0.9	1.8	2.0	0.5			
HOURLY AVG	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0			

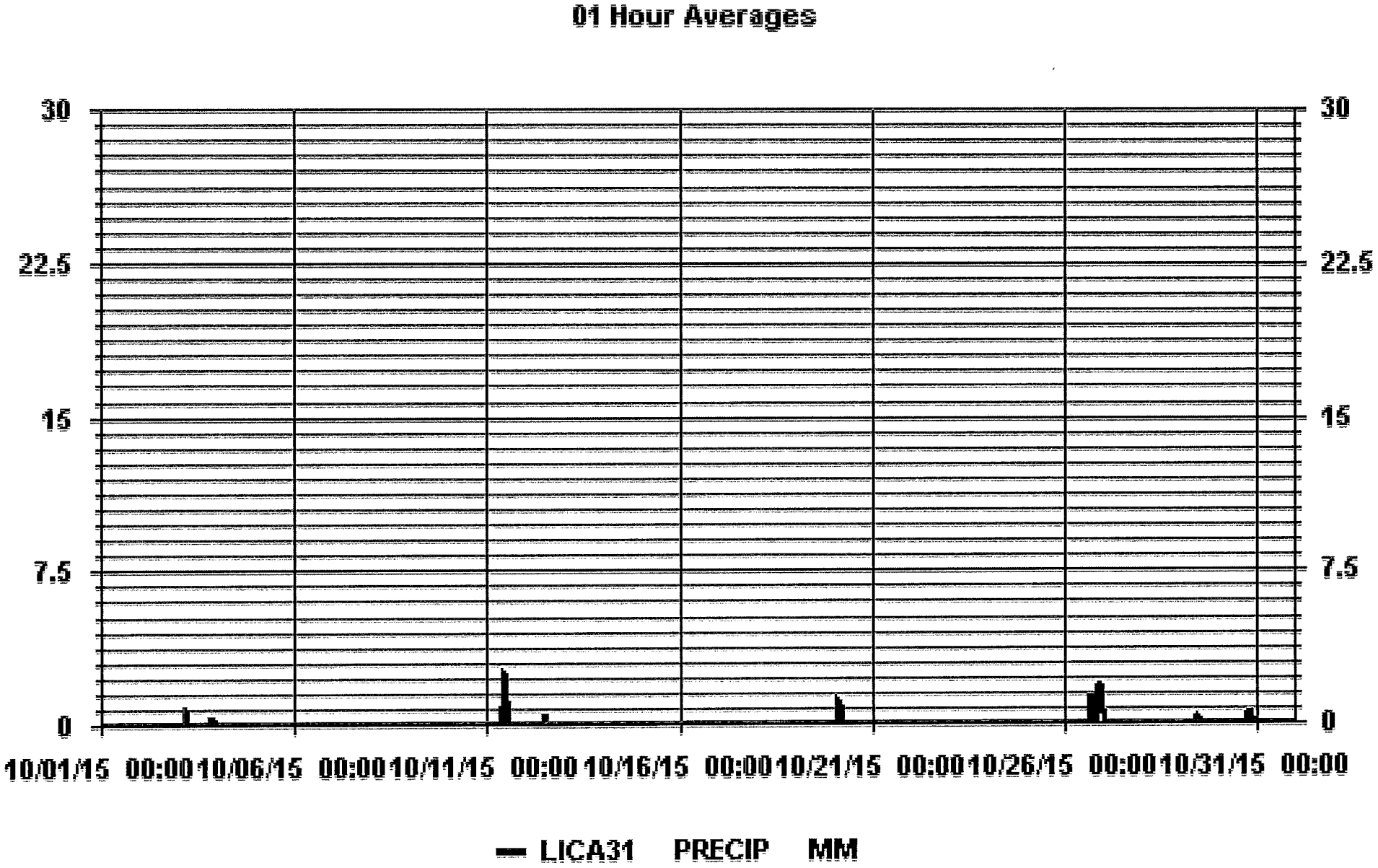
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		2.4	MM	@ HOUR(S)	10	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:		0.3	MM			ON DAY(S)	11, 26
MONTHLY TOTAL	21.3	MM				VAR-VARIOUS	
				OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:		0.19		MONTHLY AVERAGE:		0.0	MM


01 Hour Averages
30
22.5
15
7.5
0
10/01/15 00:00
10/06/15 00:00
10/11/15 00:00
10/16/15 00:00
10/21/15 00:00
10/26/15 00:00
10/31/15 00:00
LICA31 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

MaxXam
A Bureau Veritas Group Company

API 100E Sulphur Dioxide Analyzer Calibration

Date:	October 14, 2015	Barometric Pressure:	27.73 In Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	9:29	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	13:11	Cal Gas Expiry Date:	March 12, 2019
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	468	Range ppb:	1000
Last Calibration Date:	September 17, 2015	As Found C.F.:	0.991
Previous C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	BLM002073
Cal Gas Conc. (ppm):	49.5

Standard Calibration Points for Ranges

Point	Sulphur Dioxide Standard Calibration Points
High	780
Mid	380
Low	190

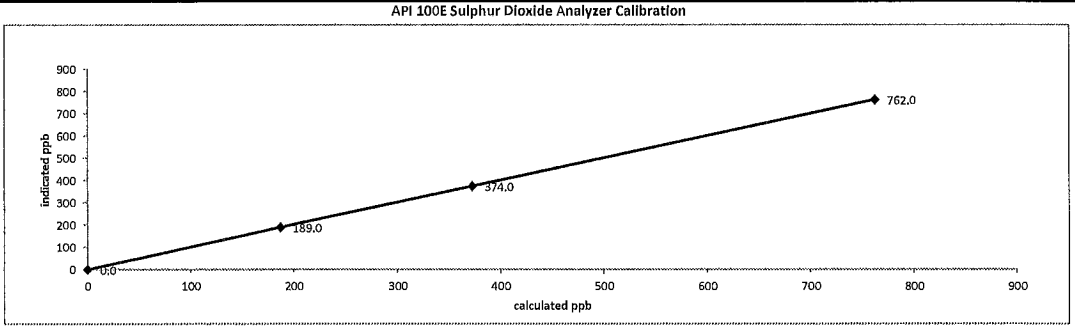
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

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	4938	77.20	5015	762.0	770.0	0.991
adjusted zero	5012	0.00	5012	0.0	0.0	n/a
adjusted high	4938	77.20	5015	762.0	762.0	1.000
mid	4976	37.70	5014	372.2	374.0	0.995
low	4994	18.90	5013	186.6	189.0	0.987
calibrator zero	5012	0.00	5012	0.0	0.0	n/a
					Average C.F.=	0.994

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> 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=	0.92%	± 10%

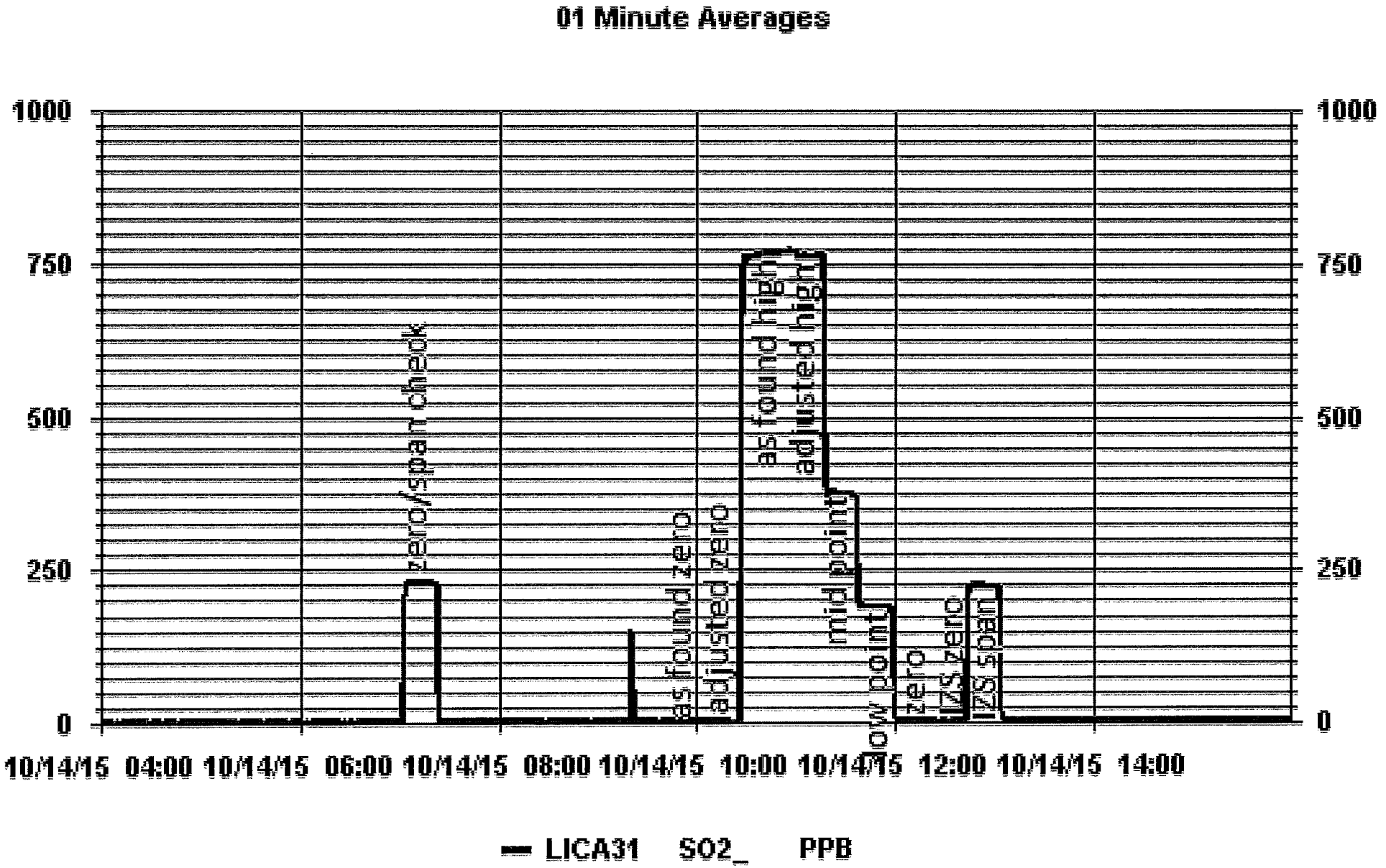
API 100E Sulphur Dioxide Analyzer Calibration



As found:		As left:	
SLOPE:	0.923	SLOPE:	0.910
OFFSET:	84.8	OFFSET:	84.8
HVPS:	532	HVPS:	532
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	29.6	BOX TEMP:	28.1
PMT TEMP:	7.8	PMT TEMP:	7.8
IZS TEMP:	40.0	IZS TEMP:	40.0
PRES:	24.1	PRES:	24.1
SAMP FL:	578	SAMP FL:	581
NORM PMT:	84.9	NORM PMT:	85.3
UV LAMP:	1855.3	UV LAMP:	1854.5
LAMP RATIO:	75.0	LAMP RATIO:	75.0
STR. LGT	38.9	STR. LGT	38.6
DRK PMT:	16.9	DRK PMT:	16.7
DRK LMP:	3.5	DRK LMP:	3.6
Internal Span:	230.4	Internal Span:	223

Comments:

Sample filter changed.


01 Minute Averages
1000
750
500
250
0
zero/span check
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
span
10/14/15 04:00
10/14/15 06:00
10/14/15 08:00
10/14/15 10:00
10/14/15 12:00
10/14/15 14:00
LICA31 SO2_ PPB

HYDROGEN SULPHIDE

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 14, 2015	Barometric Pressure:	27.73 In Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	12:01	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	15:39	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	509	Range ppb:	100
Last Calibration Date:	September 17, 2015	As Found C.F.:	1.016
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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

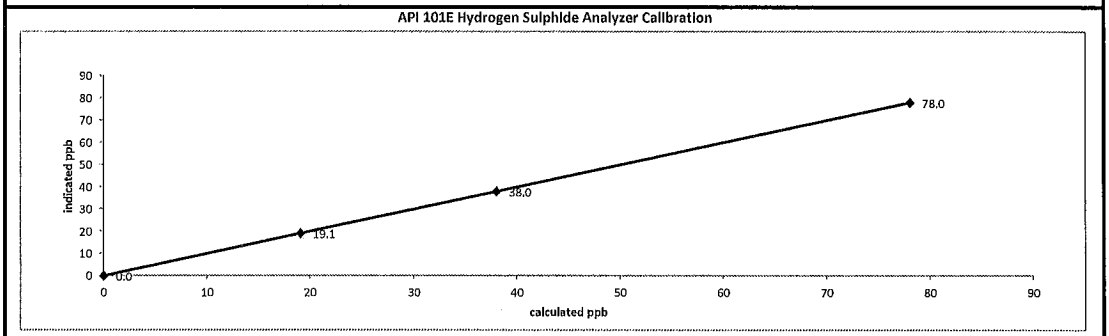
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.00	7497	0.0	0.6	N/A
as found high	7440	58.50	7499	78.0	77.4	1.016
adjusted zero	7497	0.00	7497	0.0	0.0	n/a
adjusted high	7440	58.50	7499	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	38.0	1.000
low	7486	14.30	7500	19.1	19.1	0.998
calibrator zero	7497	0.00	7497	0.0	0.2	n/a
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.02%	± 3% F.S.
% change in C.F. from last cal=	-1.58%	± 10%

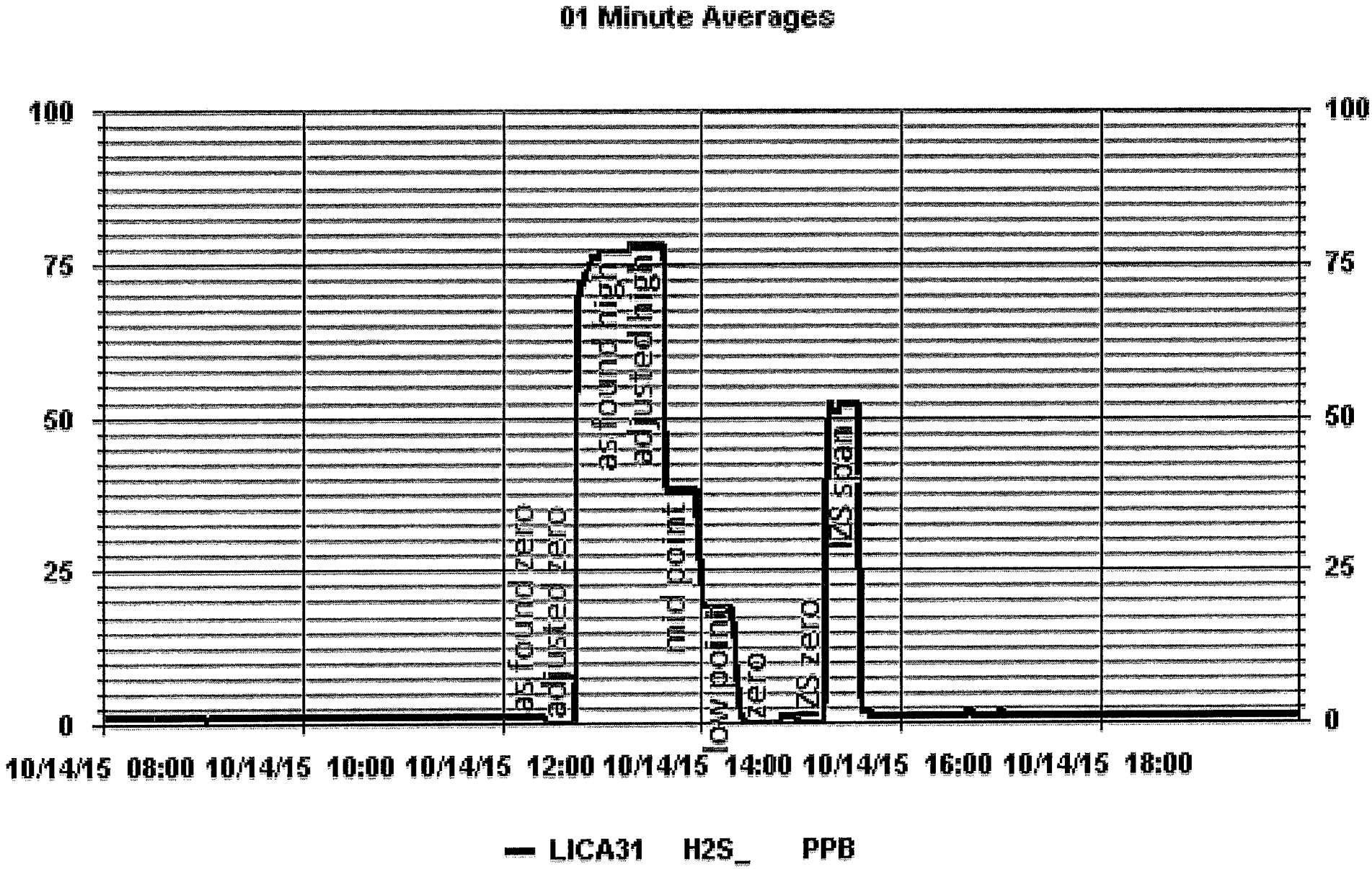
API 101E Hydrogen Sulphide Analyzer Calibration



As found:		As left:	
SLOPE:	1.062	SLOPE:	1.072
OFFSET:	36.8	OFFSET:	35.9
HVPS:	488	HVPS:	488
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	29.0	BOX TEMP:	29.3
PMT TEMP:	8.0	PMT TEMP:	7.9
IZS TEMP:	48.0	IZS TEMP:	48.0
Converter Temp:	314.0	Converter Temp:	315.0
PRES:	18.8	PRES:	19.0
SAMP FL:	516	SAMP FL:	519
UV LAMP:	2931.9	UV LAMP:	2934.2
LAMP RATIO:	88.4	LAMP RATIO:	88.4
STR. LGT	19.5	STR. LGT	20.2
DRK PMT:	8.7	DRK PMT:	8.7
DRK LMP:	0.7	DRK LMP:	0.7
Internal Span:	52.7	Internal Span:	51.7

Comments:

Sample filter changed.


01 Minute Averages
100
75
50
25
0
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
H2S zero
H2S span
10/14/15 08:00
10/14/15 10:00
10/14/15 12:00
10/14/15 14:00
10/14/15 16:00
10/14/15 18:00
LICA31 H2S_ PPB

AIR FCD-00055/1
H2S 1023 Repeat

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 23, 2015	Barometric Pressure:	27.58 in Hg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	St. Lina	Weather Conditions:	Clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	repeat
Start Time 24 hr. (mst):	11:38	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	15:10	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	509	Range ppb:	100
Last Calibration Date:	October 14, 2015	As Found C.F.:	0.988
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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

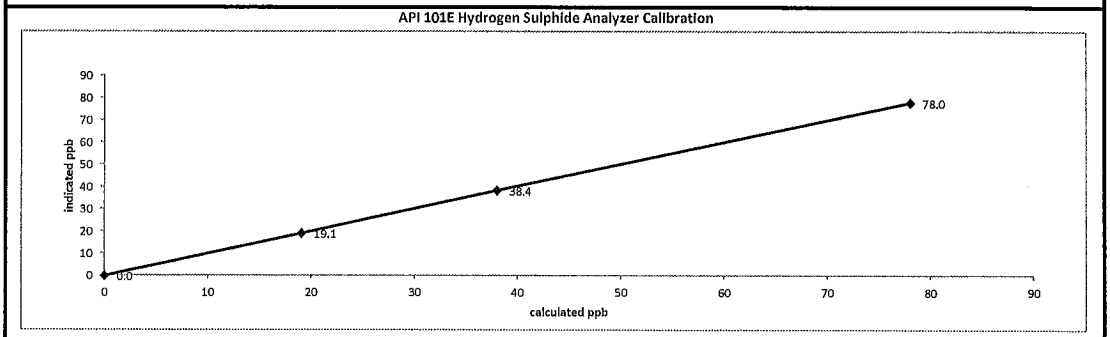
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.00	7497	0.0	2.0	N/A
as found high	7440	58.50	7499	78.0	81.0	0.988
adjusted zero	7497	0.00	7497	0.0	0.0	n/a
adjusted high	7440	58.50	7499	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	38.4	0.990
low	7486	14.30	7500	19.1	19.1	0.998
calibrator zero	7497	0.00	7497	0.0	0.0	n/a
					Average C.F.=	0.996

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.10%	± 3% F.S.
% change in C.F. from last cal=	1.25%	± 10%

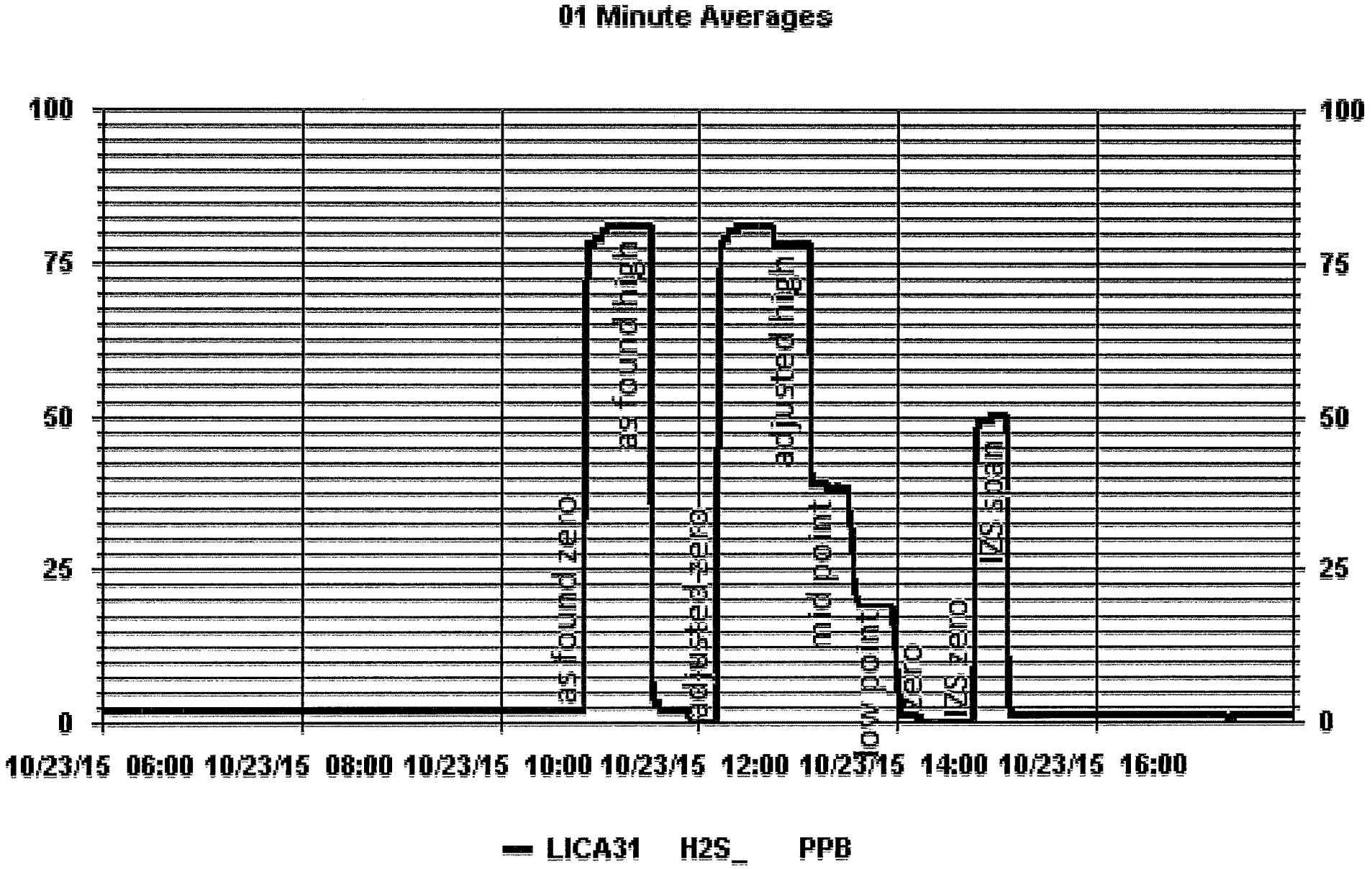
API 101E Hydrogen Sulphide Analyzer Calibration



As found:		As left:	
SLOPE:	n/a	SLOPE:	1.044
OFFSET:	n/a	OFFSET:	39.4
HVPS:	n/a	HVPS:	488
RCELL TEMP:	n/a	RCELL TEMP:	50.0
BOX TEMP:	n/a	BOX TEMP:	30.0
PMT TEMP:	n/a	PMT TEMP:	7.9
IZS TEMP:	n/a	IZS TEMP:	48.0
Converter Temp:	n/a	Converter Temp:	315.9
PRES:	n/a	PRES:	18.1
SAMP FL:	n/a	SAMP FL:	501
UV LAMP:	n/a	UV LAMP:	2915.3
LAMP RATIO:	n/a	LAMP RATIO:	88.0
STR. LGT	n/a	STR. LGT	20.6
DRK PMT:	n/a	DRK PMT:	8.8
DRK LMP:	n/a	DRK LMP:	0.6
Internal Span:	n/a	Internal Span:	49.6

Comments:

"Repeat" calibration followed the "As Found" calibration because of 2 ppb ZERO drift.


01 Minute Averages
100
75
50
25
0
as found zero
as found high
adjusted zero
adjusted high
mid point
low point
zero span
H2S span
10/23/15 06:00
10/23/15 08:00
10/23/15 10:00
10/23/15 12:00
10/23/15 14:00
10/23/15 16:00
LICA31 H2S_ PPB

AIR FCD-00055/1
H2S 1028 As Found

MaxXam
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API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 28, 2015	Barometric Pressure:	0.918 atm
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	St. Lina	Weather Conditions:	Clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	as found
Start Time 24 hr. (mst):	13:58	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	16:02	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	509	Range ppb:	100
Last Calibration Date:	October 14, 2015	As Found C.F.:	1.022
Previous C.F.:	1.000	New C.F.:	n/a

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

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	7496	0.00	7496	0.0	0.7	N/A
as found high	7440	58.50	7499	78.0	77.0	1.022
					Average C.F.=	n/a

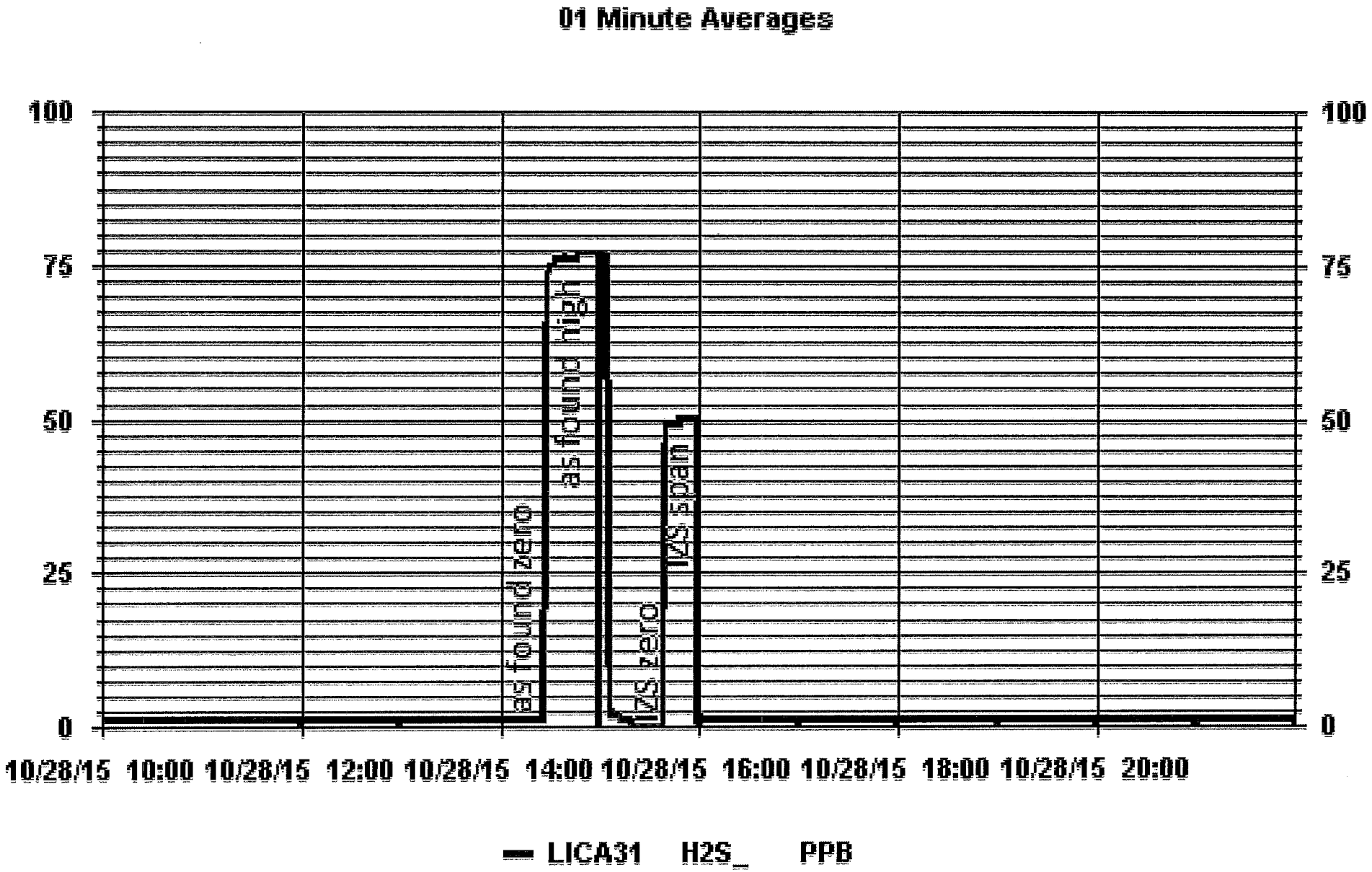
Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	#DIV/0!	> or = 0.995
Slope =	#DIV/0!	.95-1.05
b (Intercept as % of full scale)=	#DIV/0!	± 3% F.S.
% change in C.F. from last cal=	-2.25%	± 10%

	As found:	As left:
SLOPE:	1.044	1.044
OFFSET:	39.4	39.4
HVPS:	488	488
RCELL TEMP:	50.0	50.0
BOX TEMP:	30.2	29.8
PMT TEMP:	7.9	7.9
IZS TEMP:	48.0	48.0
Converter Temp:	315.7	315.4
PRES:	17.5	17.6
SAMP FL:	488	490
UV LAMP:	2904.4	2904.1
LAMP RATIO:	87.6	87.6
STR. LGT	20.6	20.6
DRK PMT:	9.0	8.9
DRK LMP:	0.6	0.7
Internal Span:	49.6	49.6

Comments:

"As Found" calibration required because, according to the daily report, H2S hourly data baseline was 1ppb, daily zero -2 ppb. ZERO Air filter was rebuilt.


01 Minute Averages
100
75
50
25
0
as found zero
as found high
H2S zero
H2S span
10/28/15 10:00 10/28/15 12:00 10/28/15 14:00 10/28/15 16:00 10/28/15 18:00 10/28/15 20:00
LICA31 H2S_ PPB

AIR FCD-00055/1
1029 H2S ShutDown

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 29, 2015	Barometric Pressure:	0.910 atm
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	St. Lina	Weather Conditions:	A few clouds and light rain showers
Parameter:	Hydrogen Sulphide	Calibration Purpose:	shut down
Start Time 24 hr. (mst):	11:36	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	14:02	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	509	Range ppb:	100
Last Calibration Date:	October 23, 2015	As Found C.F.:	1.022
Previous C.F.:	1.000	New C.F.:	n/a

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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

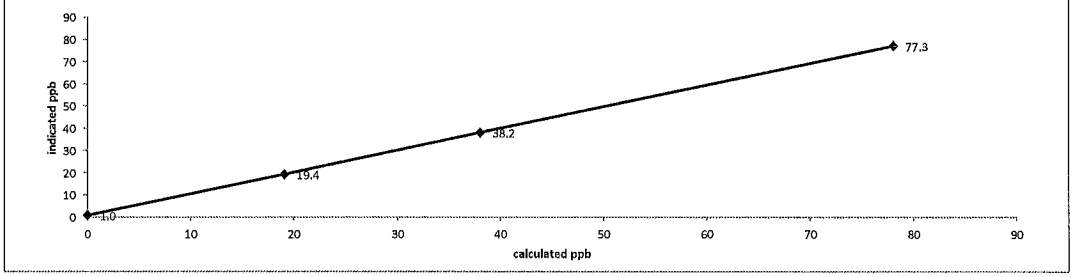
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.00	7497	0.0	1.0	N/A
as found high	7440	58.50	7499	78.0	77.3	1.022
mid	7472	28.50	7501	38.0	38.2	1.021
low	7486	14.30	7500	19.1	19.4	1.036
					Average C.F.=	1.027

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffeclent =	1.000	> or = 0.995
Slope =	1.021	0.90-1.10
b (Intercept as % of full scale)=	-0.93%	± 3% F.S.
% change in C.F. from last cal=	-2.25%	± 10%

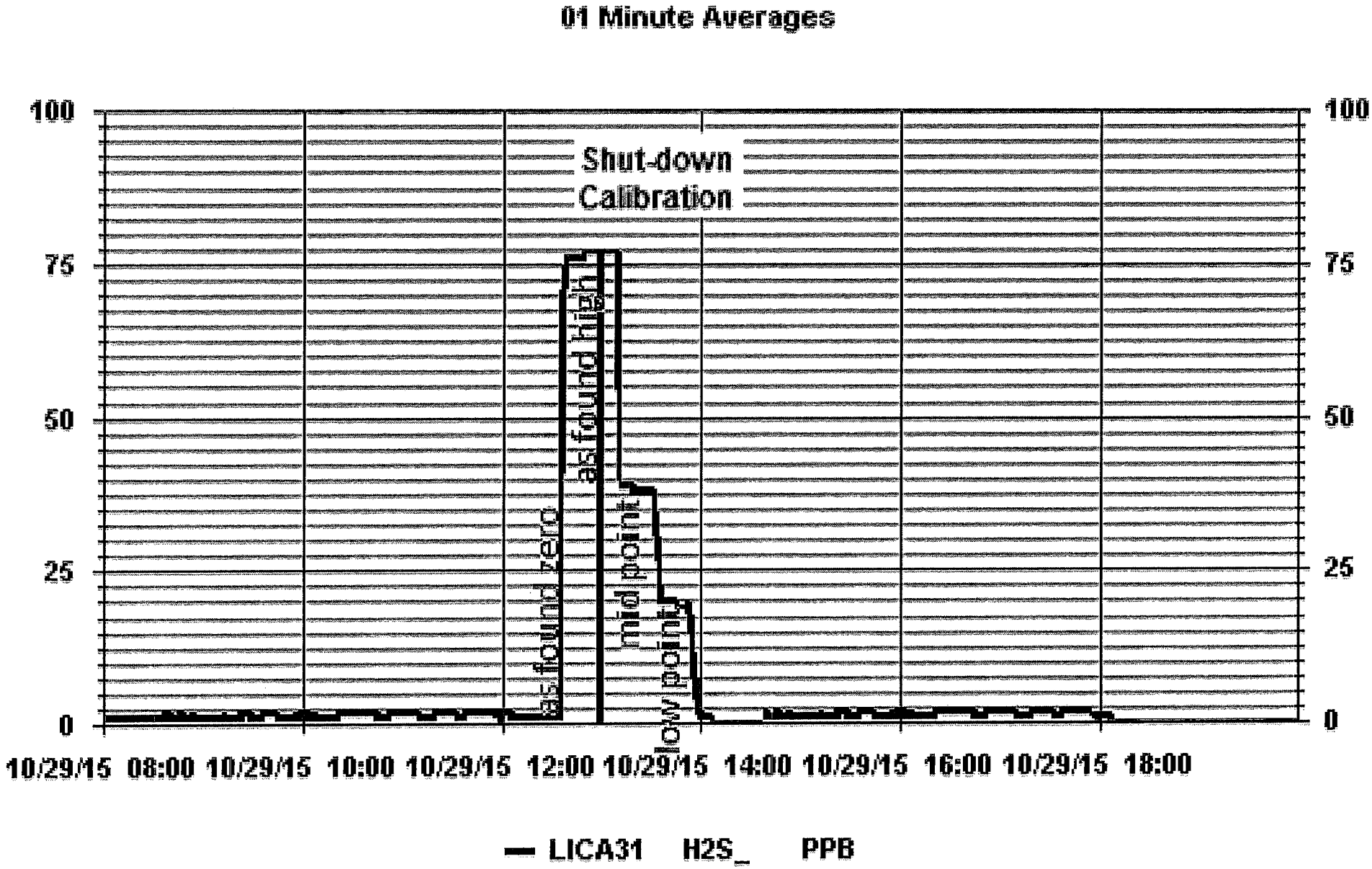
API 101E Hydrogen Sulphide Analyzer Calibration



As found:		As left:	
SLOPE:	1.044	SLOPE:	n/a
OFFSET:	39.4	OFFSET:	n/a
HVPS:	488	HVPS:	n/a
RCELL TEMP:	50.0	RCELL TEMP:	n/a
BOX TEMP:	29.0	BOX TEMP:	n/a
PMT TEMP:	8.0	PMT TEMP:	n/a
IZS TEMP:	48.0	IZS TEMP:	n/a
Converter Temp:	315.4	Converter Temp:	n/a
PRES:	17.2	PRES:	n/a
SAMP FL:	482	SAMP FL:	n/a
UV LAMP:	2900.6	UV LAMP:	n/a
LAMP RATIO:	87.5	LAMP RATIO:	n/a
STR. LGT	20.6	STR. LGT	n/a
DRK PMT:	8.8	DRK PMT:	n/a
DRK LMP:	0.8	DRK LMP:	n/a
Internal Span:	49.6	Internal Span:	n/a

Comments:

Shutdown calibration was performed to conduct maintenance (cleaning) of a ZERO Air valve of the analyzer. Reason: ZERO readings during ZS daily check are around -1.5 ppb.


01 Minute Averages
100
75
50
25
0
Shut-down
Calibration
as-found zero
as-found high
mid point
low point
10/29/15 08:00
10/29/15 10:00
10/29/15 12:00
10/29/15 14:00
10/29/15 16:00
10/29/15 18:00
LICA31 H2S_ PPB

MaxXam
A Bureau Veritas Group Company

API 101E Hydrogen Sulphide Analyzer Calibration

Date:	October 30, 2015	Barometric Pressure:	0.902 atm
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Parameter:	Hydrogen Sulphide	Calibration Purpose:	Installation
Start Time 24 hr. (mst):	13:34	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
End Time 24 hr. (mst):	16:50	Cal Gas Expiry Date:	July 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a

Analyzer:

Serial Number:	509	Range ppb:	100
Last Calibration Date:	n/a	As Found C.F.:	n/a
Previous C.F.:	n/a	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

Point	Hydrogen Sulphide Standard Calibration Points
High	78
Mid	38
Low	19

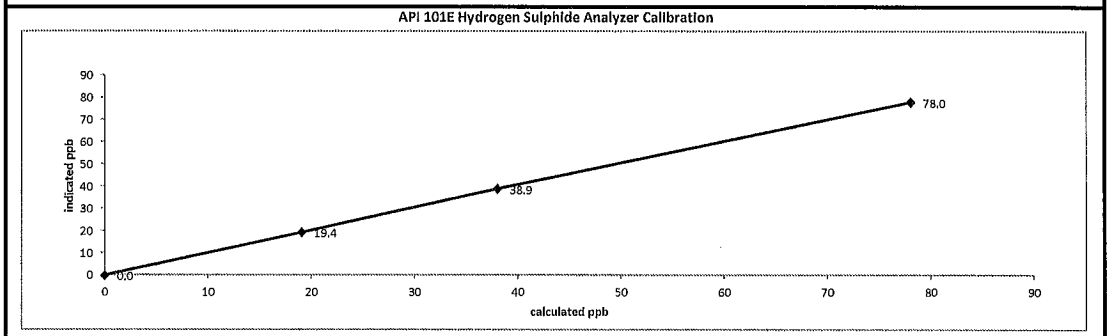
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	7497	0.00	7497	0.0	0.0	N/A
adjusted high	7440	58.50	7499	78.0	78.0	1.000
mid	7472	28.50	7501	38.0	38.9	0.977
low	7486	14.30	7500	19.1	19.4	0.983
calibrator zero	7497	0.00	7497	0.0	1.0	n/a
					Average C.F.=	0.987

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.32%	± 3% F.S.
% change in C.F. from last cal=	n/a	± 10%

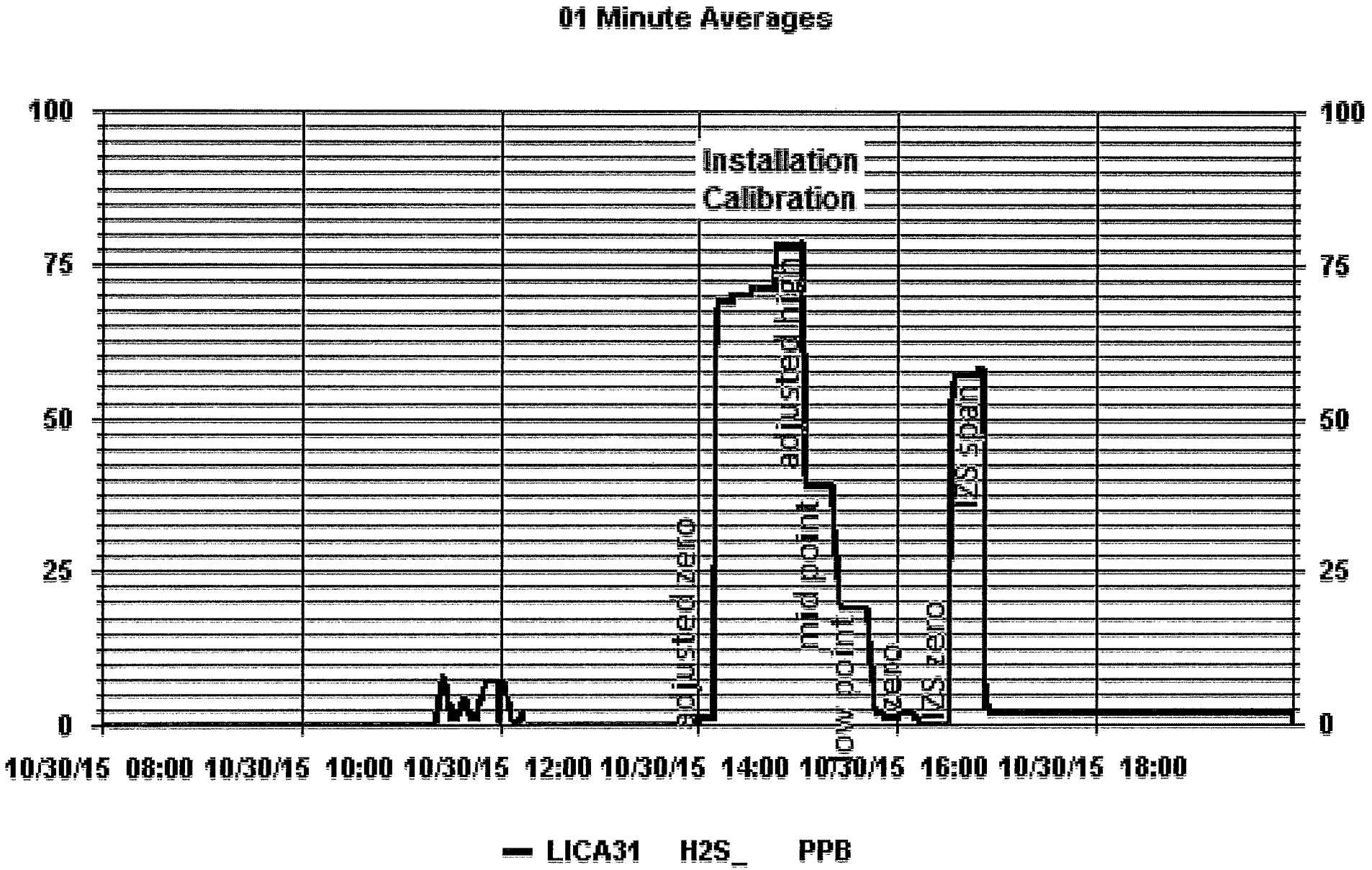
API 101E Hydrogen Sulphide Analyzer Calibration



As found:		As left:	
SLOPE:	n/a	SLOPE:	1.143
OFFSET:	n/a	OFFSET:	38.1
HVPS:	n/a	HVPS:	488
RCELL TEMP:	n/a	RCELL TEMP:	50.0
BOX TEMP:	n/a	BOX TEMP:	29.6
PMT TEMP:	n/a	PMT TEMP:	8.0
IZS TEMP:	n/a	IZS TEMP:	48.0
Converter Temp:	n/a	Converter Temp:	315.3
PRES:	n/a	PRES:	17.3
SAMP FL:	n/a	SAMP FL:	445
UV LAMP:	n/a	UV LAMP:	2854.5
LAMP RATIO:	n/a	LAMP RATIO:	86.0
STR. LGT	n/a	STR. LGT	21.8
DRK PMT:	n/a	DRK PMT:	17.1
DRK LMP:	n/a	DRK LMP:	0.7
Internal Span:	n/a	Internal Span:	57.5

Comments:

The analyzer #509 was re-installed back because the replacement analyzer was not working properly. Sampling pump rebuilt. Sample filter changed.


01 Minute Averages
100
75
50
25
0
Installation
Calibration
adjusted zero
adjusted high
mid point
low point
zero gas
span gas
10/30/15 08:00
10/30/15 10:00
10/30/15 12:00
10/30/15 14:00
10/30/15 16:00
10/30/15 18:00
LICA31 H2S_ PPB

TOTAL HYDROCARBON

AIR FCD-00055/1
THC_1014 monthly

MaxXam — Thermo 51C Total Hydrocarbon Analyzer Calibration

Date:	October 14, 2015	Barometric Pressure:	27.73 In Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Parameter:	Total Hydrocarbon	Calibration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	9:27 / 12:46	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	March 26, 2017

Analyzer:

Serial Number:	51CLT-77021-384	Range ppm:	50
Last Calibration Date:	September 8, 2015	As Found C.F.:	0.999
Previous Cal High Point C.F.:	0.999	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	API 700	
Serial #:	830	
Cal Gas Cylinder I.D. # :	LL33674	
CH_4/C_3H_8 Cylinder Conc. (ppm):	601.4	202.0
CH_4 as propane/total CH_4 equivilants (ppm):	555.5	1156.9

Standard Calibration Points for a Range of: 50 ppm

Point	Target ppm
High	38
Mid	18
Low	9

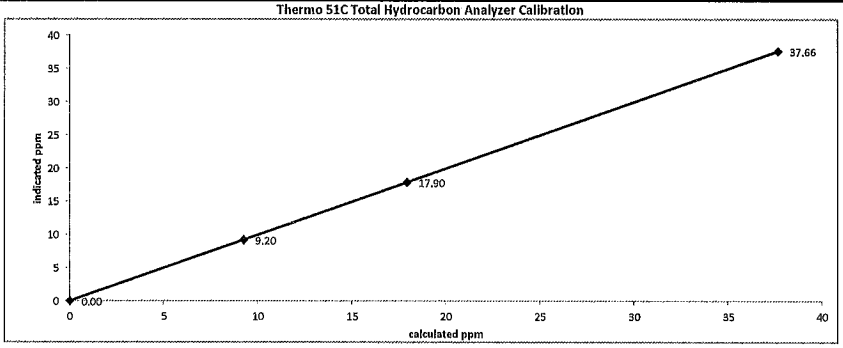
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1999	0.00	1999	0.0	-0.10	n/a
as found high	1932	65.00	1997	37.66	37.60	0.999
adjusted zero	1999	0.00	1999	0.00	0.00	n/a
adjusted high	1932	65.00	1997	37.66	37.66	1.000
mid	1969	31.00	2000	17.93	17.90	1.002
low	1984	16.00	2000	9.26	9.20	1.006
calibrator zero	1999	0.00	1999	0.0	0.00	n/a
					Average C.F.=	1.003

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	0.999	.95-1.05
b (Intercept as % of full scale)=	0.06%	± 3% F.S.
% change in C.F. from last cal=	0.02%	± 10%

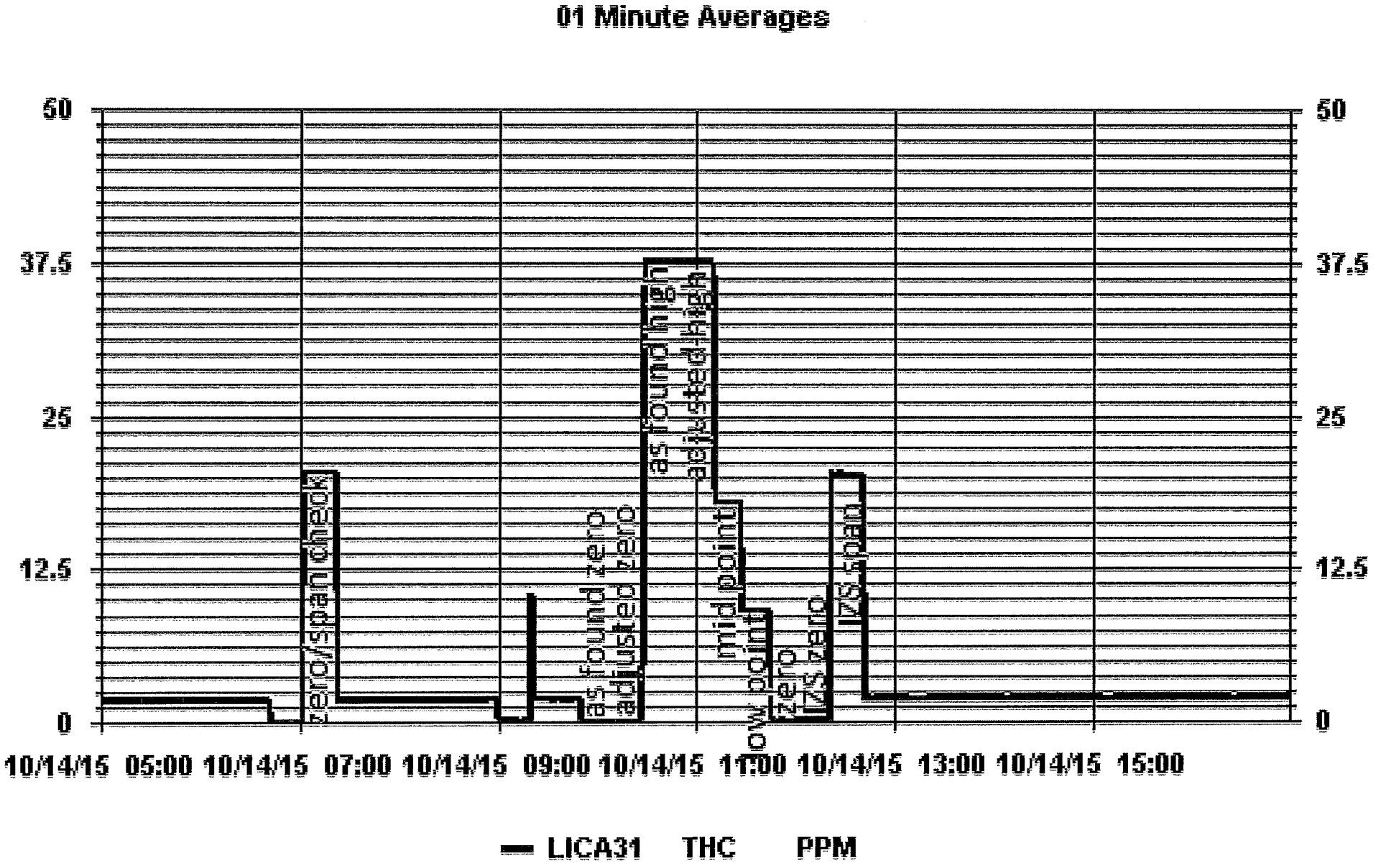
Thermo 51C Total Hydrocarbon Analyzer Calibration



As found:		As left:	
H2 cylinder (psi):	1400	H2 cylinder (psi):	1400
H2 cylinder reg set (psi):	30	H2 cylinder reg set (psi):	30
Span Cylinder (psi):	1200	Span Cylinder (psi):	1200
Span Cylinder Reg Set (psi):	19	Span Cylinder Reg Set (psi):	19
Zero Air Gen Pressure:	40	Zero Air Gen Pressure:	40
measurement alarms:	None	measurement alarms:	None
service alarms:	None	service alarms:	None
cnt:	1620	cnt:	1667
rng:	1	rng:	1
try:	1	try:	1
flm:	186.7	flm:	188.3
det:	125.3	det:	125.5
Flame:	186	Flame:	188
Filter:	125	Filter:	125
Base:	125	Base:	125
Sample psi:	06.90	Sample psi:	06.90
Internal Air Pressure:	14	Internal Air	14
Internal Fuel Pressure:	19	Internal Fuel Pressure:	19
Intenal Pressure Gauge psi:	18	Intenal Pressure Gauge psi:	18
Internal Span:	20.4	Internal Span:	20.2

Comments:

Sample filter changed.


01 Minute Averages
50
37.5
25
12.5
0
zero/span check
as found zero
as found span
adjusted zero
adjusted span
mid point
low point
zero
span
10/14/15 05:00
10/14/15 07:00
10/14/15 09:00
10/14/15 11:00
10/14/15 13:00
10/14/15 15:00
LICA31 THC PPM

NITROGEN DIOXIDE

API 200E NO-NO2-NOx Analyzer Calibration

MaxXam — A Bureau Veritas Group Company

Date:	October 14, 2015	Barometric Pressure:	27.73 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Start/End Time 24 hr. (mst):	9:29 / 14:46	Calibration Purpose:	routine monthly
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
Calibration Method:	Gas Dilution & Varying UV Lamp Power	Cal Gas Expiry Date:	March 12, 2019

Analyzer:

Serial Number:	594
Last Calibration Date:	September 17, 2015
Range ppb:	1000

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
NO =	0.999	0.952	1.000
NO_2 =	0.998	1.002	1.002
NOx =	0.998	0.951	1.000

Calibrator:

Flow Meter ID's:	n/a	
Make & Model:	SABIO 2010 D	
Serial #:	11900613	
Cal Gas Cylinder I.D. # :	BLM002073	
NO/NOx Gas Conc. (ppm):	50.6	50.6

Standard Calibration Points for a Range of: 1000 ppb

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	0.0	1.0	n/a	n/a
as found high	4938	77.2	5015	778.9	778.9	818.0	820.0	0.952	0.951
adjusted zero	5012	0.00	5012	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	4938	77.20	5015	778.9	778.9	779.0	779.0	1.000	1.000
mid	4976	37.70	5014	380.5	380.5	384.0	385.0	0.991	0.988
low	4994	18.90	5013	190.8	190.8	194.0	194.0	0.983	0.983
calibrator zero	5013	0.00	5013	0	0	0.0	0.0	n/a	n/a
							Average C.F.=	0.991	0.991

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	4938	77.20	5015	0.0	779.0	781.0	1.0	0.0	1.0	
as found high NO2	4938	77.20	5015	500.0	303.0	781.0	476.0	476.0	475.0	1.002
gpt mid	4938	77.20	5015	275.0	510.0	781.0	270.0	269.0	269.0	1.000
gpt low	4938	77.20	5015	100.0	677.0	781.0	103.0	102.0	102.0	1.000
								Average NO_2 C.F.=		1.001

Linear Regression/Calibration Results:

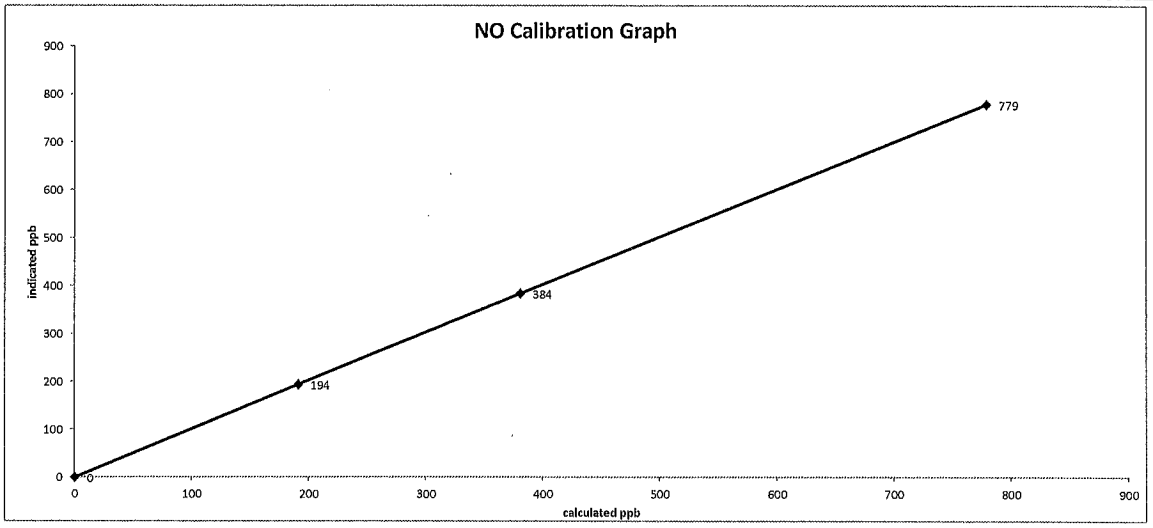
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	1.004	.95-1.05
b (Intercept as % of full scale)=	0.20%	0.22%	0.08%	± 3% F.S.
% change in C.F. from last cal=	4.69%	4.71%	-0.41%	± 10%
NO2 converter effeciency			1.00	0.96 to 1.04

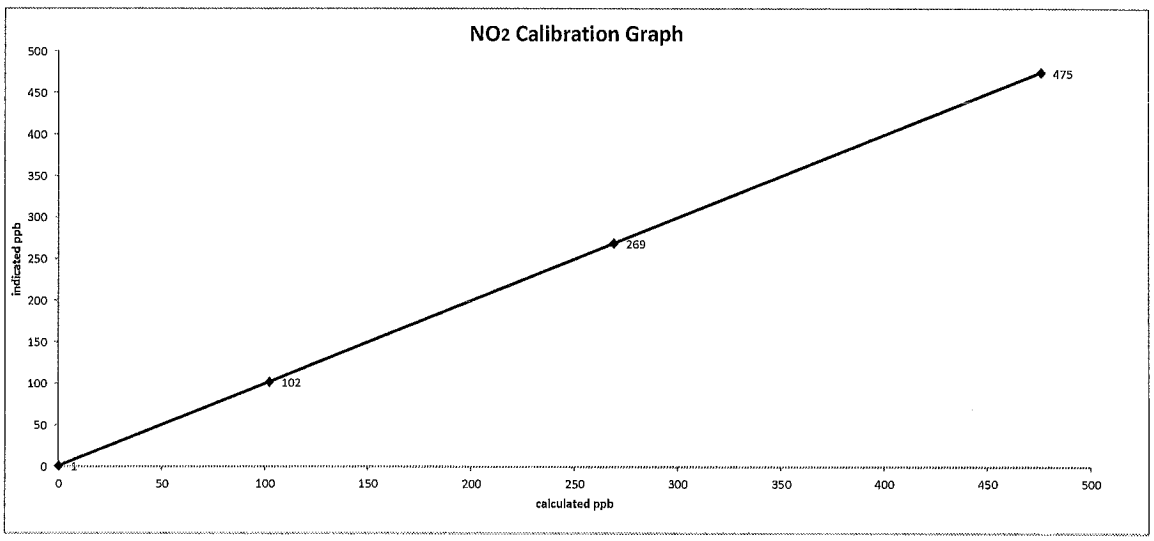
As found:		As left:	
NOx SLOPE:	0.984	NOx SLOPE:	0.936
NOx OFFS:	1.1	NOx OFFS:	0.7
NO SLOPE:	0.980	NO SLOPE:	0.933
NO OFFS:	0.1	NO OFFS:	-0.3
SAMP FLW:	456	SAMP FLW:	456
OZONE FL:	79	OZONE FL:	79
PMT:	15.0	PMT:	12.9
NORM PMT:	-1.4	NORM PMT:	-1.5
AZERO:	16.8	AZERO:	16.5
HVPS:	771	HVPS:	771
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	28.7	BOX TEMP:	27.3
PMT TEMP:	6.7	PMT TEMP:	6.6
IZS TEMP:	45.2	IZS TEMP:	45.2
MOLY TEMP:	316.0	MOLY TEMP:	316.6
RCEL:	7.0	RCEL:	7.0
SAMP:	26.8	SAMP:	26.8
Internal Span NO:	8.35	Internal Span NO:	7.6
Internal Span NO2:	547.5	Internal Span NO2:	513
Internal Span NOx:	556	Internal Span NOx:	521

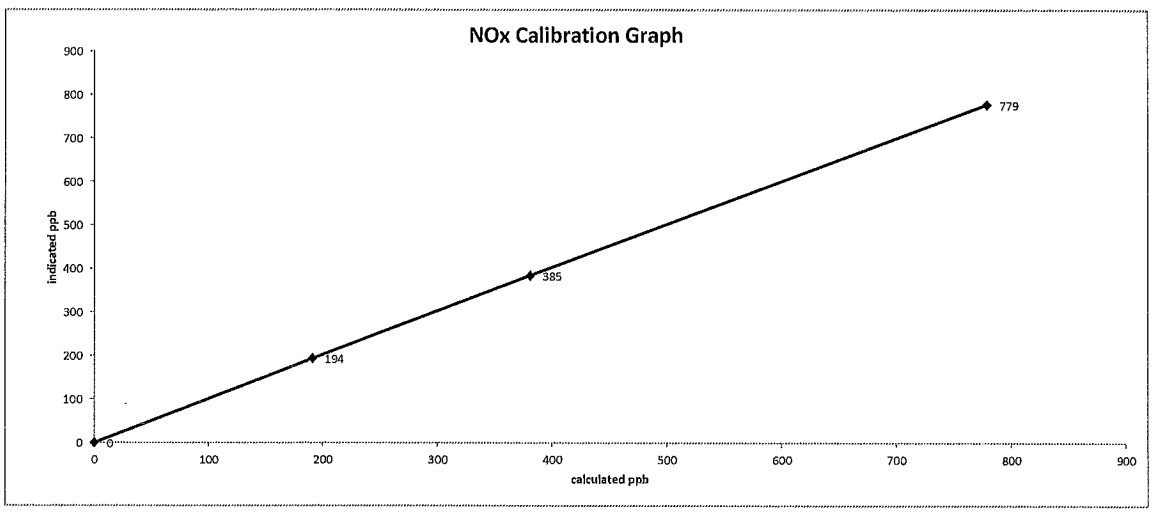
Comments:

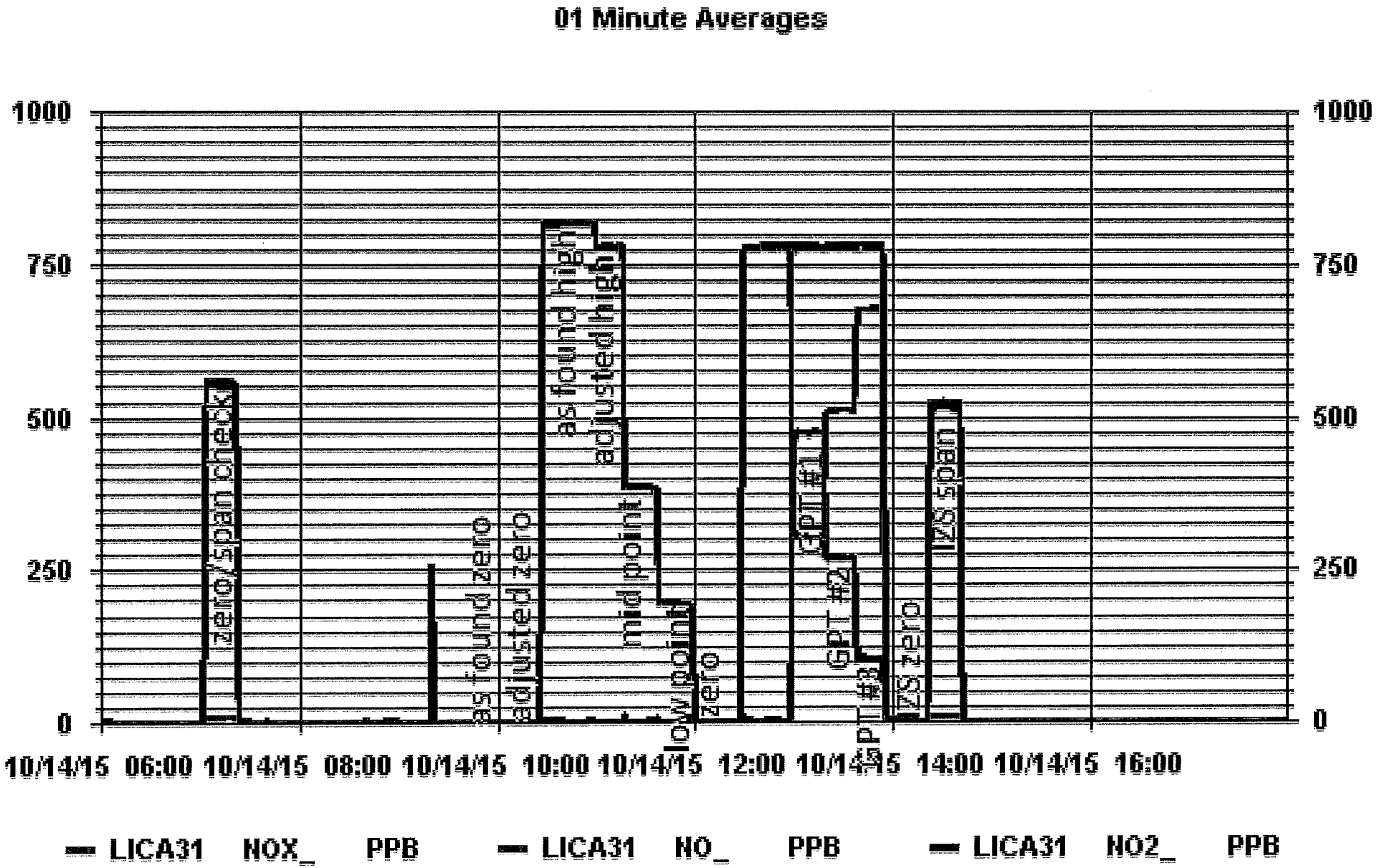
Sample filter changed. No NO2 adjustment made.

Date:	October 14, 2015	Start/End Time 24 hr. (mst):	9:29 / 14:46
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	St. Lina	Calibration Method:	Gas Dilution & Varying UV Lamp Power








01 Minute Averages
1000
750
500
250
0
zero/span check
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
span #1
span #2
as zero
as span
10/14/15 06:00
10/14/15 08:00
10/14/15 10:00
10/14/15 12:00
10/14/15 14:00
10/14/15 16:00
LICA31 NOX_ PPB
LICA31 NO_ PPB
LICA31 NO2_ PPB

OZONE

Maxxam A Bureau Veritas Group Company — Thermo 49i Ozone Analyzer Calibration

Date:	October 14, 2015	Barometric Pressure:	27.73 in Hg
Company/Airshed:	LICA	Station Temperature °C:	20
Location/Station Name:	St. Lina	Weather Conditions:	Mainly clear
Start/End Time 24 hr. (mst):	14:01 / 17:11	Calibration Purpose:	routine monthly
Ozone Calibration Method:	Varying UV Lamp Power	Performed By/Reviewer:	Alex Yakupov / Trina Whitsitt
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:	September 8, 2015	As Found C.F.:	1.005
Previous Cal High Point C.F.:	1.000	New C.F.:	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	SABIO 2010 D
Serial #:	11900613
Cal Gas Cylinder I.D. # :	n/a

Point	AMD Required Range of Ozone Calibration Points
High	300-400 ppb
Mid	150-200 ppb
Low	50-75 ppb

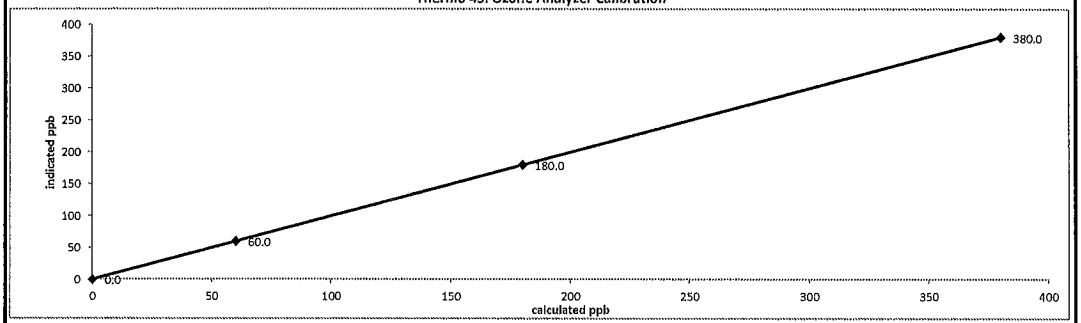
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

	Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Conentration:	Indicated Concentration:	Correction Factors:
Point	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	0.0	n/a
as found high	5013	5013	380.0	380.0	378.0	1.005
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	180.0	1.000
low	5013	5013	60.0	60.0	60.0	1.000
calibrator zero	5013	5013	0.0	n/a	0.0	n/a
					Average C.F.=	1.000

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	1.000	> or = 0.995
Slope =	1.000	.95-1.05
b (Intercept as % of full scale)=	0.00%	± 3% F.S.
% change in C.F. from last cal=	-0.53%	± 10%

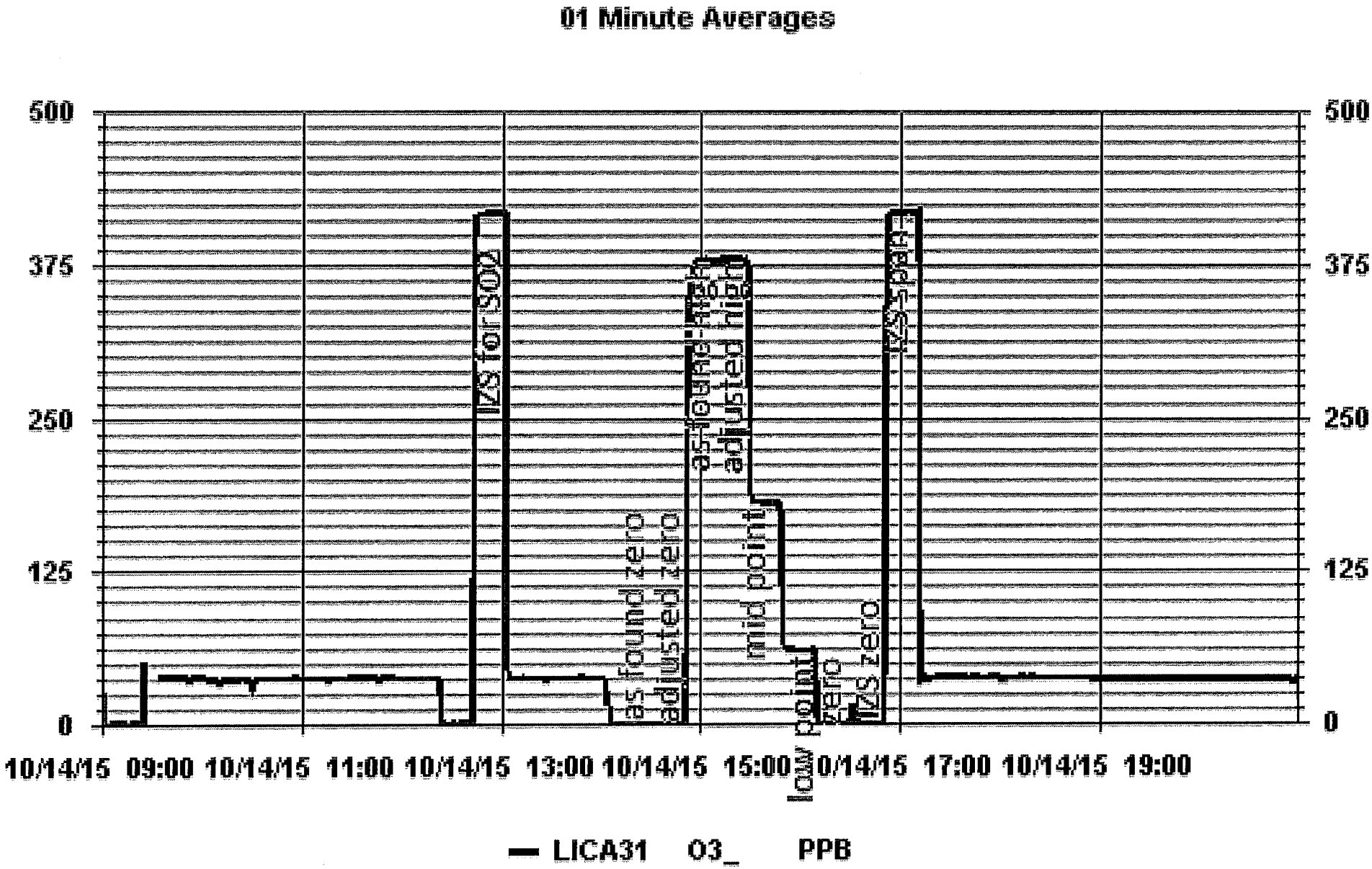
Thermo 49i Ozone Analyzer Calibration



As found:		As left:	
O3 Bkg:	-0.6	O3 Bkg:	-0.3
O3 Coef:	0.971	O3 Coef:	0.973
Photo Lamp	9.4	Photo Lamp	9.4
O3 Lamp	8.3	O3 Lamp	8.3
Bench:	27.9	Bench:	28.1
Bench Lamp:	53.6	Bench Lamp:	53.6
O3 Lamp:	67.8	O3 Lamp:	67.8
Pressure:	678.2	Pressure:	678.5
Cell A lpm:	0.728	Cell A lpm:	0.728
Cell B lpm:	0.723	Cell B lpm:	0.722
O3 ppb:	-3.1	O3 ppb:	-0.1
Cell A ppb:	-6.2	Cell A ppb:	2.6
Cell B ppb:	0.1	Cell B ppb:	-2.7
Cell A int:	58086	Cell A int:	58102
Cell B int:	70856	Cell B int:	70875
Internal Span:	403.6	Internal Span:	417

Comments:

Sample filter changed.


01 Minute Averages
500
375
250
125
0
500
375
250
125
0
IZS for SO2
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
span
IZS zero
IZS span
10/14/15 09:00
10/14/15 11:00
10/14/15 13:00
10/14/15 15:00
10/14/15 17:00
10/14/15 19:00
LICA31 O3_ PPB

PARTICULATE MATTER

AIR FCD -00055/1

TEOM 1405F_1013_Bi-monthly #1

Maxxam

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 13, 2015	**Performed By/Reviewer:**	Alex Yakupov / Trina Whitsitt
Company:	LICA	**Start Time (mst):**	15:00
Station Name/Location:	St. Lina	**End Time (mst):**	15:39
Previous Audit Date:	September 17, 2015	**Calibration Purpose:**	Bi-monthly #1
Parameter:	PM 2.5	**Weather Conditions:**	Mainly clear

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	35.33
Ko Factor:	13125.0	**As Left Filter Loading %:**	21.03
Ambient Temperature °C:	12.21	**As Found Noise:**	0.007
Ambient Pressure atm:	0.918	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.26
Aux Flow Reading lpm:	13.67	**Warnings:**	None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB 1291	FB 1291
Serial Number:	n/a	130168457	130168457
Calibration Date:	n/a	18-Mar-15	18-Mar-15

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	-0.08	0.00	-0.09
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-1.67	0.00	-1.67
	limit	0.60		0.60	

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	-0.08	0.00	-0.09
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-1.67	0.00	-1.67
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	12.2	**1405F pressure atm:**	0.918
reference temperature °C:	11.7	**reference pressure:**	0.917
difference °C:	-0.5	**difference :**	0.001

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	11.7	**1405F pressure atm:**	0.917
reference temperature °C:	11.7	**reference pressure:**	0.917
difference °C:	0.0	**difference :**	0.000

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.04	**reference total/aux flow lpm:**	16.99
difference lpm:	0.04	**difference lpm:**	0.32

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.04	**reference total/aux flow lpm:**	16.99
difference lpm:	0.04	**difference lpm:**	0.32

K_o Audit:

Last K_o audit date:	17-Jul-15
1405F K_o factor:	13125.0
Measured K_o factor:	13184.8000
% difference:	0.46

Comments:

TEOM filter chanhed and 47 mm FDMS filter changed.

AIR FCD -00055/1

TEOM 1405F_1023_Bi-monthly #2

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	October 23, 2015	**Performed By/Reviewer:**	Alex Yakupov / Trina Whitsitt
Company:	LICA	**Start Time (mst):**	9:45
Station Name/Location:	St. Lina	**End Time (mst):**	10:19
Previous Audit Date:	October 13, 2015	**Calibration Purpose:**	Bi-monthly #2
Parameter:	PM 2.5	**Weather Conditions:**	Clear

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	25.53
Ko Factor:	13125.0	**As Left Filter Loading %:**	25.91
Ambient Temperature °C:	5.1	**As Found Noise:**	0.006
Ambient Pressure atm:	0.921	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.26
Aux Flow Reading lpm:	13.67	**Warnings:**	None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB 1291	FB 1291
Serial Number:	n/a	130168457	130168457
Calibration Date:	n/a	18-Mar-15	18-Mar-15

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	-0.08	-0.01	-0.08
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-1.67	0.00	-1.67
	limit	0.60		0.60	

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	-0.08	-0.01	-0.08
	limit	0.15		0.15	
Bypass Flow	actual	0.00	-1.67	0.00	-1.67
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	5.1	**1405F pressure atm:**	0.921
reference temperature °C:	5.4	**reference pressure:**	0.922
difference °C:	0.3	**difference :**	-0.001

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	5.4	**1405F pressure atm:**	0.922
reference temperature °C:	5.4	**reference pressure:**	0.922
difference °C:	0.0	**difference :**	0.000

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	2.97	**reference total/aux flow lpm:**	16.62
difference lpm:	-0.03	**difference lpm:**	-0.05

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:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	2.97	**reference total/aux flow lpm:**	16.62
difference lpm:	-0.03	**difference lpm:**	-0.05

K_o Audit:

Last K_o audit date:	17-Jul-15
1405F K_o factor:	13125.0
Measured K_o factor:	13184.8000
% difference:	0.46

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. 50.18 Serial No. 1263

Average wind speed this test in mps 11.18

WD Reading Degrees	WD Output Volts	WD Reading Degrees	WD Error +/- 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error +/- 0.34 MPS
30.0	0.082	29.4	0.4	11.21	0.224	11.19	-0.02
60.0	0.164	58.6	-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	151.1	1.1	11.20	0.222	11.11	-0.10
210.0	0.582	209.3	-0.7	11.25	0.223	11.16	-0.09
240.0	0.665	239.1	-0.9	11.18	0.226	11.32	0.14
300.0	0.833	300.5	0.5	11.18	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 Reading 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	0.082	29.3	-0.7	2.18	0.012	2.08	-0.10
60.0	0.165	58.5	-1.5	2.20	0.013	2.11	-0.09
120.0	0.333	119.6	-0.4	2.21	0.012	2.08	-0.13
150.0	0.421	150.1	0.1	2.22	0.012	2.07	-0.15
210.0	0.583	210.1	0.1	2.20	0.012	2.12	-0.08
240.0	0.666	240.1	0.1	2.23	0.012	2.10	-0.13
300.0	0.833	300.0	0.0	2.22	0.013	2.18	-0.04
330.0	0.917	330.0	0.0	2.21	0.013	2.17	-0.04

Pre-Inspection As Found As Left

Sensor Model No. 50.18 Sensor Serial No. H12635

Sensor Output Range 0 - 50 MPS

Calibrated By [illegible] Calibration No. 16H703

Calibration Date [illegible] Calibration Due 08/20/2014

Post Inspection [illegible]

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-002A

Company Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	Sabio 2010D	Make/Model	N/A
Serial Number	11900613	Serial Number	N/A
Last Verification Date	NEW	Temperature (°C)	N/A
NO Cylinder S/N	BLM003914	Barometric Pressure	N/A
NO/NOX Concentration	50.8/50.8		

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5013	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5015	78.9	0.800	0.800	0.842	-0.016	0.826	5%	3%
5013	39.6	0.400	0.400	0.426	-0.008	0.418	6%	4%
5014	19.8	0.200	0.200	0.217	-0.004	0.213	8%	6%
						Absolute Average Percent Difference	7%	5%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0504	**0.90-1.10**	m (Slope)=	1.0304
b (Intercept % of FS)=	0.3600	**± 3% F.S.**	b (Intercept % of FS)=	0.3600

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
5015	0.000	0.000	0.843	-0.017	0.826		
5015	0.520	0.527	0.316	0.485	0.802	-5%	± 10%
5015	0.280	0.286	0.557	0.262	0.819	-2%	± 10%
5015	0.100	0.104	0.739	0.089	0.827	2%	± 10%
					Absolute Average Percent Difference	2%	± 10%

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

NO_2		**LIMITS**
Correlation=	0.9998	**≥ 0.995**
m (Slope)=	0.9495	**0.90-1.10**
b (Intercept % of FS)=	-1.2915	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	April 1, 2015
		Full Scale (ppm)	1.0

COMMENTS: Cylinder contains 49.7 ppm SO2.

Auditor: Al Clark Date: April 1, 2015

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Maxxam **Operator:** Limin Li

Calibrator:		**Flow Measurement Device:**	
Make/Model	API 700	Make/Model	N/A
Serial Number	830	Serial Number	N/A
Last Verification Date	Oct 2013	Temperature (°C)	N/A
SO_2 Cylinder Conc.	50.3	Barometric Pressure	N/A
SO_2 Cylinder S/N	LL42475		

Flow Measurements

Pt. No. 1 79.5 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference vs Audit Gas	% Difference % Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
		Absolute Average Percent Difference	0%	± 10%

LINEAR REGRESSION ANALYSIS

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

SO_2		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		**SO_2 Analyzer**	
Audit Calibrator		Make/Model	Teco 43C
Make/Model	R&R MFC 201	Serial/AMU Number	AMU 1623
Serial/AMU Number	AMU 1690	Last Calibration Date	Dec 15/14
		Full Scale (ppm)	1.0

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamnation inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Form No. F-GAS-002
Version No. 1.1

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam **Operator's Name:** Limin Li

Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp.°C: 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
Last Calibration: Date: Mar 31/15 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	0.000			
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
				Average Cylinder Concentration:	**48.0**

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: **3.0**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] **COMMENTS:**

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [X]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Form No. F-GAS-002
Version No. 1.1

Alberta Government

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			
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 [X] COMMENTS:

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ]

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: December 16, 2014

Operator Signature: Location: McIntyre Center Edmonton

PRAXAIR

Praxair Canada, Inc.
3601-34th Street
Edmonton, AB T6B 2X8
Tel: 780-449-0778
Fax: 780-449-5302

03/27/2014

MAXXAM ANALYTICS INC.(NAT
9331 49TH ST
EDMONTON AB T6B 2L7

Work Order No.: 20246656
Customer Reference No.:

Product Lot/Batch No.: Z582 4 085 02
Product Part No.: NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

(Component)	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance-ID2ex/USA---
Hewlett-Packard (Agilent)-6890---GC-FID

Cylinder Style: AQ
Cylinder Pressure @70F: 2200 psig
Cylinder Volume: 52.0 ft3
Valve Outlet Connection: CGA350
Cylinder No(s): CC338774

Filling Method: Gravimetric
Date of Fill: 03/26/2014
Expiration Date: 03/26/2017

Approved: Todd Hornby

Praxair Canada, Inc. is accredited as a certified reference material producer by Measurement Canada in accordance with ISO Guide 34 and ISO/IEC 17025. This certification is performed using [illegible] which are traceable to the National Institute of Standards and Technology (NIST). Measurement Canada is a signatory to the [illegible] Arrangement (MRA) with all the NMIs as listed in [illegible] Appendix C.

Unless otherwise noted, all certified concentrations are reported on a [illegible] basis at 101.325 kPa and 15°C (59°F).

Analytical Principle Key:
U - Gas Chromatography with Thermal Conductivity Detector
V - Gas Chromatography with Flame Ionization Detector
W - Gas Chromatography with Methanizer Detector
X - Gas Chromatography with Photoionization Detector
Y - Gas Chromatography with Electron Capture Detector
Z - Gas Chromatography with Discharge Ionization Detector
A - Gas Chromatography with Mass Spectrometer
B - Gas Chromatography with Thermal Conductivity Detector
C - Gas Chromatography with Flame Ionization Detector
D - Gas Chromatography with Methanizer and Flame Ionization Detector
E - Gas Chromatography with Photoionization Detector
F - Gas Chromatography with Electron Capture Detector
G - Gas Chromatography with Discharge Ionization Detector
H - Gas Chromatography with Mass Spectrometer
I - Gas Chromatography with Thermal Conductivity Detector
J - Gas Chromatography with Flame Ionization Detector
K - Mass Spectrometer with Thermal Conductivity Detector
L - Infrared - FTIR or NDIR
M - Paramagnetic
N - Chemiluminescence
O - Electrochemical
P - Specific Ionic Analyzer
Q - Gas Chromatography with Photoionization Detector
R - Color

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Form No. F-GAS-003
Version No 1.1

Alberta Government

Calibration Gas Audit

NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam **Operators name:** Limin Li

Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model	Teco 146I		
Serial Number	AMU 1809		
Last Verification Date	March 31, 2015		
Gas Type	NO	Conc.	48.79
Cylinder Number	CAL018024		

Flow Measurement Device:

Make/Model	Bios DC2
Serial Number	AMU 1659
Temp.°C	22.5 C
B.P.	690 mmhg

Reference Analyzer:

Make/Model	Teco 42I			Serial/AMU Number:	1868
Instrument Settings	Zero: 4.2		Span: 1.008	Range:	1.0
Last Calibration:	Date: Mar 31/15		C.F. 1.000	Done By:	Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
				Average Cylinder Concentration:		**52.0**	**51.3**

	NO	NOx
Previous Stated Concentration PPM:	50.6	50.6
Percent variance from Stated:	**2.8**	**1.4**

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration [ ] **COMMENTS:**

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration [X] Contains 49.5 ppm SO2 in cylinder

> 5% Outside Manufacturer Tolerance, **DO NOT USE** this cylinder [ ]

Auditor: Al Clark Date: March 31, 2015

Operator Signature: Location: McIntyre Center Edmonton

APPENDIX III
CHAIN OF CUSTODY

Maxxam Analytics - Air Services Group
Project Chain of Custody

Client: Lakeland Industry & Community Association
Site: St. Lina Site
Project #: 2833-2015-10-31- C
Contact: Mike Bisaga

QA Check Complete	[illegible]	**Date**	25-Nov-2015
QA Check Review	[illegible]	**Date**	25-Nov-2015
Report Complete	[illegible]	**Date**	26-Nov-2015
Report Reviewed	E. Tangang	**Date**	30-Nov-15
Report Shipped		**Date**	

Notes