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May 13, 2015

RE: March 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,

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

Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

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

JOB #:2833-2015-03-01- C

MARCH 2015


Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
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Attention: MIKE BISAGA

DATE: **May 12, 2015**

Prepared by:



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Reviewed by:



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Customer Service Supervisor, Air Services, Maxxam Analytics

SUMMARY

In MARCH 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 were above the 90% requirement.

THC: 9 hours of data were discarded this month due to the flaming out of the analyzer.

PM 2.5: 44 hours of data were invalidated this month as the data were below -3 ug/m^3 .

The summary of results is presented on the following pages.

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

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

Monthly Continuous Data Summary

Lakeland Industry & Community Association Cold Lake South Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR				24-HOUR			
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0	4	4	13	7.1	SSE	0.7	4	100.0
TRS (PPB)	-	-	-	-	0	1	14	22	7.3	WSW	0.0	ALL	100.0
THC (PPM)	-	-	-	-	2.2	4.6	18	0	0.9	ESE	2.6	17	98.8
NO2 (PPB)	159	-	0	-	4.5	29.4	1	8	0.5	E	9.9	17	100.0
NO (PPB)	-	-	-	-	1.0	35.8	1	8	0.5	E	5.2	18	100.0
NOX (PPB)	-	-	-	-	5.5	65.2	1	8	0.5	E	13.7	17	100.0
O3 (PPB)	82	-	0	-	32	50	30, 30	16, 17	10 8.3	W W	40.6	20	100.0
PM2.5 (UG/M3)	-	30	-	0	6.5	33.0	23	13	6.1	SSE	12.5	27	94.1
RELATIVE HUMIDITY (%)	-	-	-	-	64.6	97	27	VAR	VAR	VAR	83.3	26	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-1.6	14.8	14	14	4.4	W	7.8	31	100.0
VECTOR WS (KPH)	-	-	-	-	5.7	23.1	15	4	-	WNW	14.0	2	99.3
VECTOR WD (DEG)	-	-	-	-	W	-	-	-	-	-	-	-	99.3

NA-NOT AVAILABLE VAR-VARIOUS

Passive Sampler Summary

	Sulphur Dioxide (in ppb)
Mean	0.4
Minimum	0.1
Maximum	1.3

Note: There are no results for stations 11, 12 and 25 as the stations were not accessible.

	Hydrogen Sulphide (in ppb)
Mean	0.12
Minimum	0.07
Maximum	0.15

Note: There are no results for stations 11, 12 and 25 as the stations were not accessible.

	Nitrogen Dioxide (in ppb)
Mean	1.6
Minimum	0.3
Maximum	4.1

Note: There are no results for stations 11, 12 and 25 as the stations were not accessible.

	Ozone (in ppb)
Mean	34.70
Minimum	29.49
Maximum	39.12

Note: There are no results for stations 11, 12 and 25 as the stations were not accessible.

Volatilic Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MARCH 1,, 2015	2.59	ETHANOL
MARCH 7,, 2015	42.10	TOLUENE
MARCH 13,, 2015	3.12	ACETONE
MARCH 19,, 2015	10.60	n - HEXANE
MARCH 25, 2015	2.33	ACETONE
MARCH 31, 2015	2.59	ACETONE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MARCH 1,, 2015	1.34	NAPHTHALENE
MARCH 7,, 2015	0.13	PHENANTHRENE
MARCH 13,, 2015	0.32	2 - METHYLNAPHTHALENE
MARCH 19, 2015	0.11	2 - METHYLNAPHTHALENE
MARCH 25, 2015	0.25	NAPHTHALENE
MARCH 31, 2015	0.25	PHENANTHRENE

Note: NA

Partisol Sampler Summary

Sample Collected Date	Concentration (mg)
MARCH 1, 2015	0.057
MARCH 7, 2015	0.037
MARCH 13, 2015	0.074
MARCH 19, 2015	0.085
MARCH 25, 2015	0.145
MARCH 31, 2015	0.071

Note: NA

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

No Exceedences Recorded During the Month

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Analytical Results

Passive Samples

VOCs Samples

PAHs Samples

Partisol Samples

Appendix V

Chain of Custody

1.0 Discussion

This monthly report consists of data for parameters SO₂, TRS, THC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS, WD, RH and Temperature. It also consists of results for non-continuous parameters Passives, VOCs, PAHs 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 conducted on March 9.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 3.

TOTAL REDUCED SULPHUR (TRS)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 3.

TOTAL HYDROCARBONS (THC)

The routine monthly calibration was performed on March 3. The analyzer flamed out on March 26. Troubleshooting was performed on March 27. It was discovered that the hydrogen cylinder's distribution tube valve was closed in error. The valve was opened and the analyzer was back to normal operations. 9 hours of data were discarded due to this event.

NITROGEN DIOXIDE (NO2)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 3.

OZONE (O3)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 3.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)

Two Teom audits were performed this month: one was completed on March 5, and the other audit was performed on March 18. Both the inlet filter and the FDMS filter were replaced during the audits. The Teom unit started generating very low readings on March 23. As there were no warnings on the screen upon Maxxam Field Technician's arrival, no issues could be identified during the site visit on March 24. The unit was re-started and the filter was changed and reloaded on March 24. The Teom unit was then back to normal operations. Data collected between March 23 and March 24 should be used with caution. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m^3 , the data was corrected to 0 ug/m^3 . If the data was below -3 ug/m^3 , the data was invalidated. 44 hours of data were invalidated as the data were below -3 ug/m^3 this month.

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

The wind system 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 LICA-owned MetOne wind system was attempted to be installed on March 12. However, a malfunction was found in the MetOne system. Therefore, the RM Young wind system was not replaced. The MetOne wind system was returned to the manufacturer for repair.

The wind speed range was changed on the datalogger by Maxxam field technician from 200kph to 180kph in an attempt to install the MetOne wind system. However, the range was not changed back to 200kph when the wind system could not be installed. This offset was corrected by multiplying the data collected between 10 am on March 12 and 9am on March 16 by 1.1.

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 MONITORING

Samples were collected at all designated stations, except stations 11, 12 and 25. Sample filter installed at station 11 was not changed as access to the station was blocked by snow/mud. Access to stations 12 and 25 was denied by Cold Lake air weapon range security. Samples were sent to the lab for analysis. Results are included in this report.

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 as ppb in 2 decimal places.

Samples were collected on March 1, 7, 13, 19, 25 and 31. They were sent to the lab for analysis. 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 as μg in 2 decimal places.

Samples were collected on March 1, 7, 13, 19, 25 and 31. They were sent to the lab for analysis. Results are included in this report.

PARTISOL SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the Partisol were reported as mg in 3 decimal places.

Samples were collected on March 1, 7, 13, 19, 25 and 31. They were sent to the lab for analysis. 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 Christopher Wesson, Alexander Yakupov, and Limin Li.

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-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00210: Ambient TRS Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer
- Total Reduced Sulphur - Thermo 450i UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - Thermo 42C Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - RM Young 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



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	RDGS.	
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.		
DAY 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5	1	0	0	0	0	1	0.2	24	
DAY 2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	1	0.1	24	
DAY 3	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	1	5	1	1	1	0	0	0	0	1	0.2	24	
DAY 4	0	0	0	0	0	0	0	0	0	0	0	1	1	4	1	5	1	1	1	2	2	1	1	1	4	0.7	24	
DAY 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	1	1	0.0	24	
DAY 6	1	0	0	0	0	1	0	0	0	0	1	1	1	5	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
DAY 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	24	
DAY 8	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	1	1	1	1	1	0	0	1	0.3	24	
DAY 9	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 10	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24	
DAY 11	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 12	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 13	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0.2	24	
DAY 14	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 15	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 16	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	0.2	24	
DAY 17	0	0	5	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0.2	24	
DAY 18	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0.1	24	
DAY 19	5	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0.1	24	
DAY 20	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	0.0	24	
DAY 21	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	0.0	24	
DAY 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0.0	24	
DAY 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0.0	24	
DAY 24	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	5	0	0	0	0	0	1	0.1	24	
DAY 25	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	5	0	0	0	0	0	0	0	1	0.2	24	
DAY 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	1	0	0	1	0.1	24	
DAY 28	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	1	0	0	0	0	0	0	1	0.1	24	
DAY 29	0	0	0	0	0	0	0	0	1	1	1	2	1	5	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
DAY 30	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
DAY 31	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX	1	0	0	0	0	1	1	1	1	1	1	2	1	4	1	1	1	1	1	1	2	2	1	1	1			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1			

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

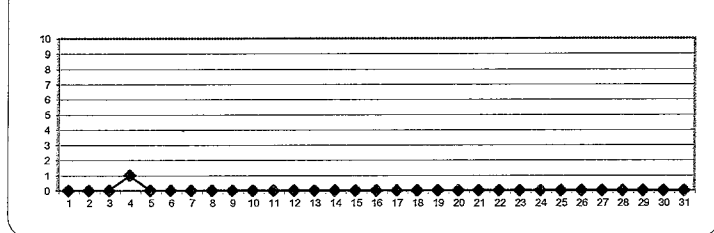
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR: 172 PPB, 24-HR: 48 PPB

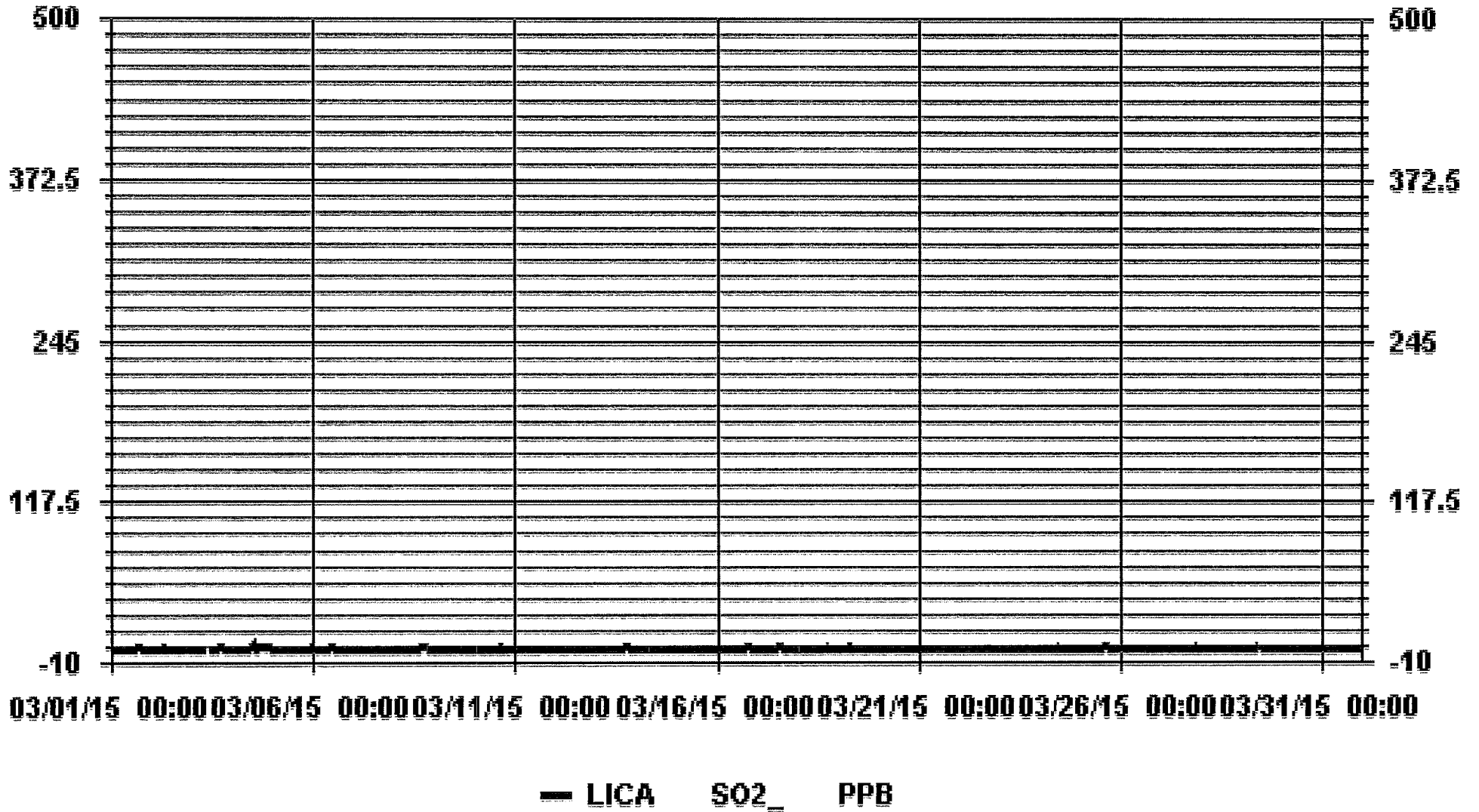
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	72
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) 13 ON DAY(S) 4
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) 4 VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.35
MONTHLY AVERAGE:	0 PPB

24 HOUR AVERAGES FOR MARCH 2015



01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Site - MARCH 2015

JOB # 2833-2015-03-01-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	RDGS.	
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.		
DAY 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	S	1	1	1	1	1	1	2	1.0	24	
2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1.0	24	
3	1	1	1	1	1	1	1	1	C	C	C	C	C	1	1	2	S	1	1	1	1	1	1	0	2	1.0	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	3	6	3	S	2	1	2	3	3	2	2	2	6	1.8	24	
5	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	
6	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	
7	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	
8	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	
9	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0.9	24	
10	0	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	
11	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	
12	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	
13	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1.0	24	
14	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	
15	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	
16	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	2	1.1	24	
17	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	
18	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	
19	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1.0	24	
20	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	
21	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	
22	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	
23	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	
24	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1.1	24	
25	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	
26	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	
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	2	2	1	1	2	1	1.1	24	
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	2	1	1	1	1	1	2	1.0	24	
29	1	1	1	1	1	1	1	1	1	2	2	2	S	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
30	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	0	1	1	0	1	1	1	1	1	1	0.9	24	
31	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	
HOURLY MAX	1	1	1	1	1	1	1	2	1	2	2	2	3	6	3	2	2	2	2	2	3	3	2	2	2			
HOURLY AVG	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0			

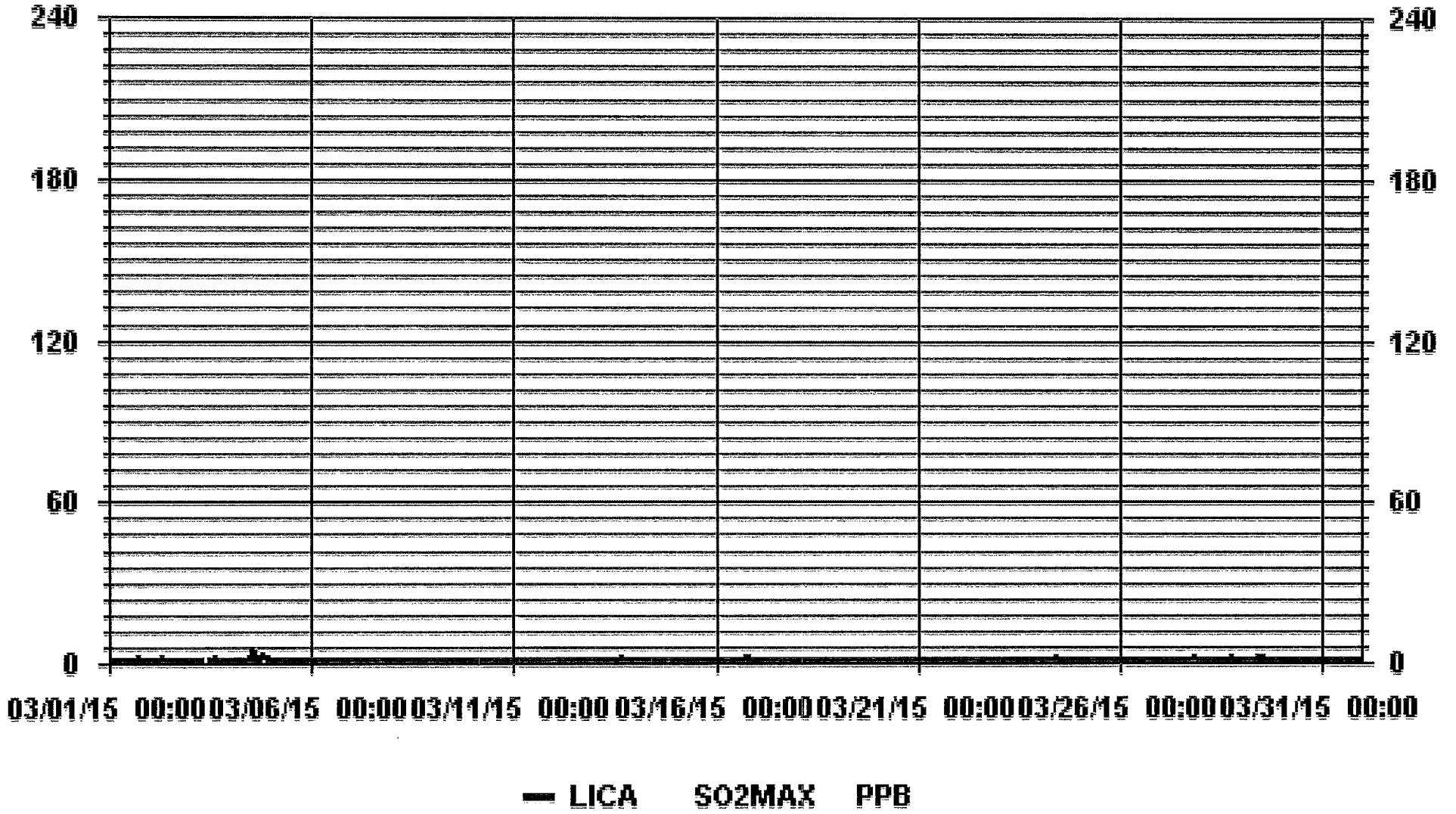
STATUS FLAG CODES

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 OF REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701
MAXIMUM INSTANTANEOUS VALUE:	6 PPB @ HOUR(S) 13 ON DAY(S) 4
VAR-VARIOUS	
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.31

01 Hour Averages



LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2.56	1.85	6.55	4.41	12.10	6.12	8.97	3.56	2.70	2.84	6.83	20.37	13.24	2.99	2.84	1.99	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	2.56	1.85	6.55	4.41	12.10	6.12	8.97	3.56	2.70	2.84	6.83	20.37	13.24	2.99	2.84	1.99	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	18	13	46	31	85	43	63	25	19	20	48	143	93	21	20	14	702
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	18	13	46	31	85	43	63	25	19	20	48	143	93	21	20	14	

Calm : .00 %

Total # Operational Hours : 702

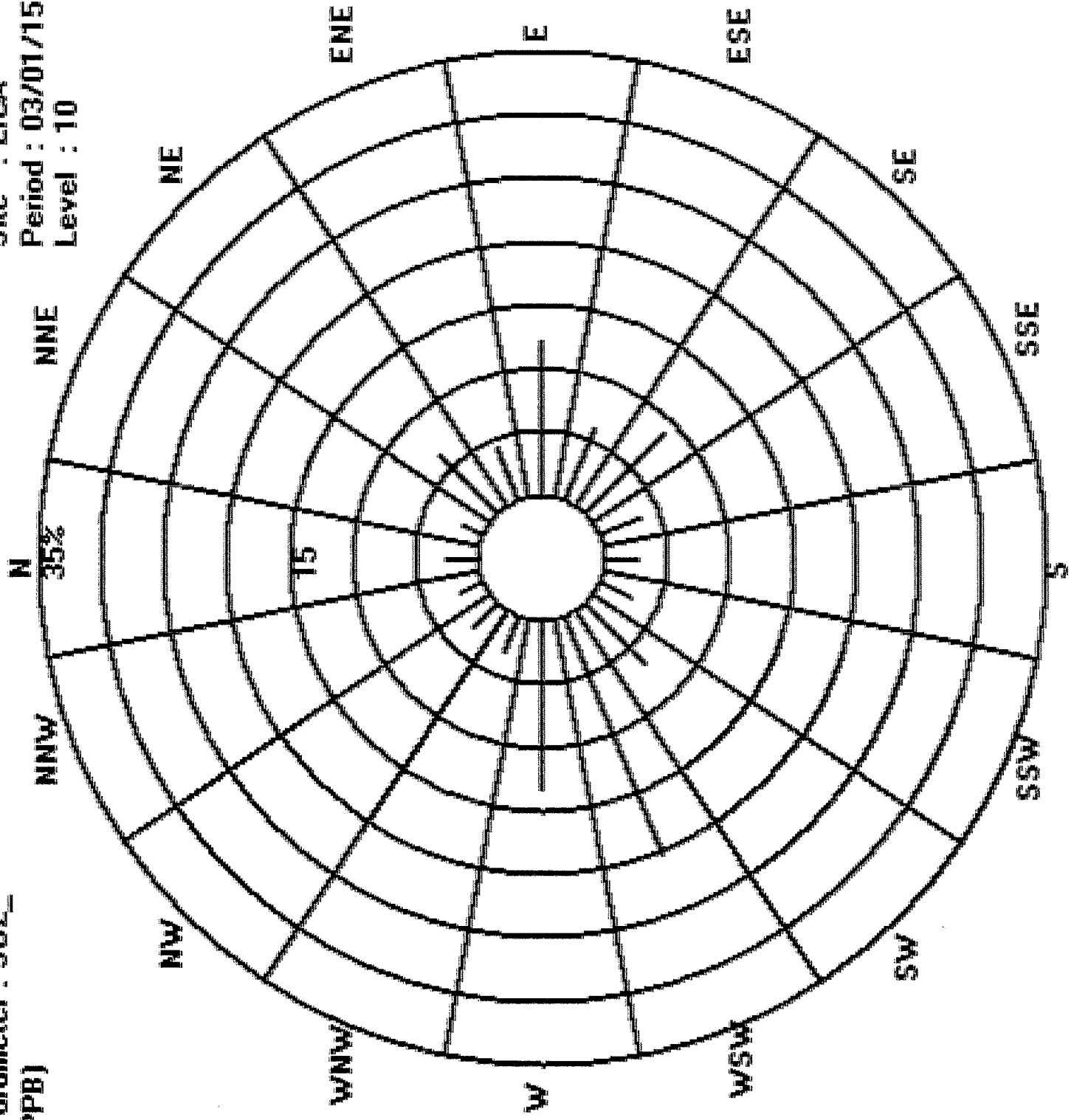
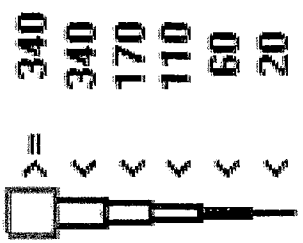
Logger : 01 Parameter : SO2_

Site : LICA

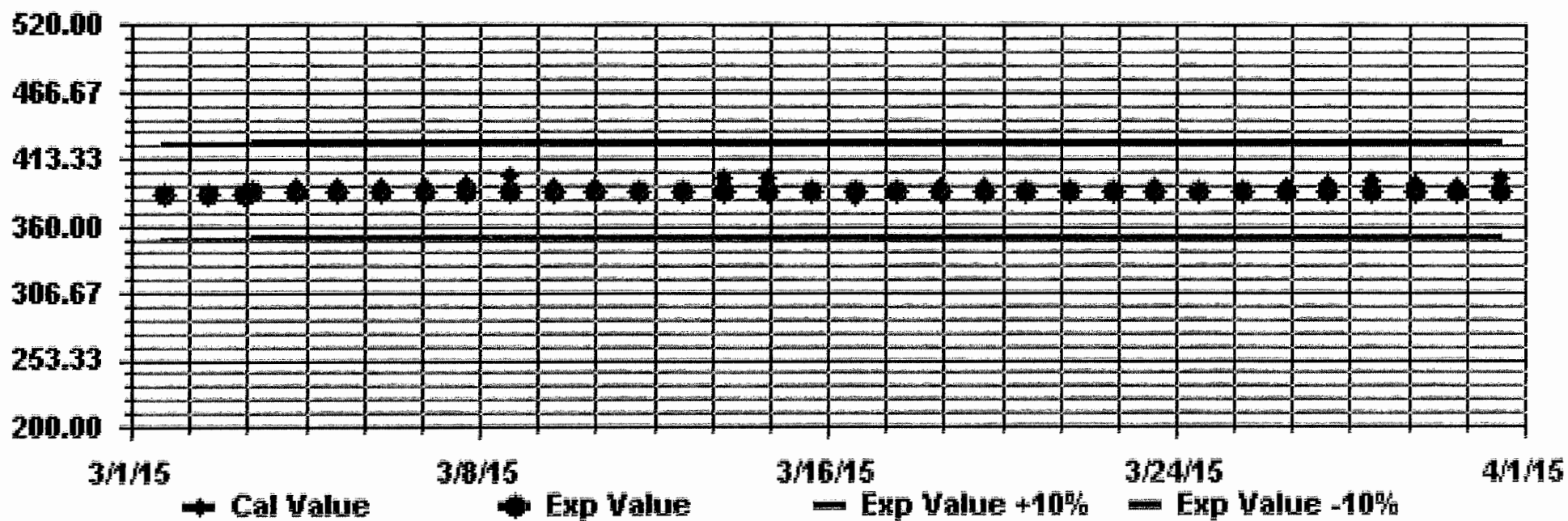
Period : 03/01/15-03/31/15

Level : 10

Class Limits (PPB)



Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN



TOTAL REDUCED SULPHUR



TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

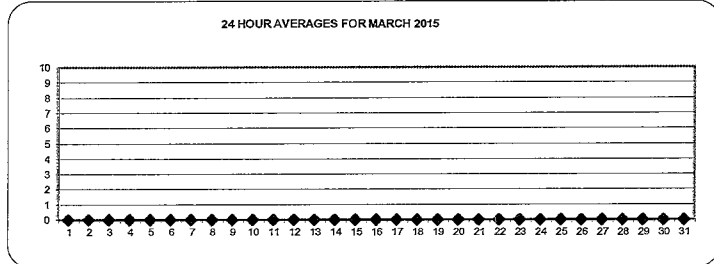
MST

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 MAX.	24-HOUR AVG.	RDGS.	
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	0	0	0	0	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	24
3	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	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	S	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	24	
6	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	
7	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	
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	24	
9	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	
10	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	
11	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	
12	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	
13	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	
14	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	1.0	24	
15	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	
16	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	
17	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	
18	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	
19	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	
20	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	
21	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	
22	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	
23	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	
24	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	
25	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	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0	24	
27	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	
28	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	
29	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	
30	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	
31	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	
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	1	0			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

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

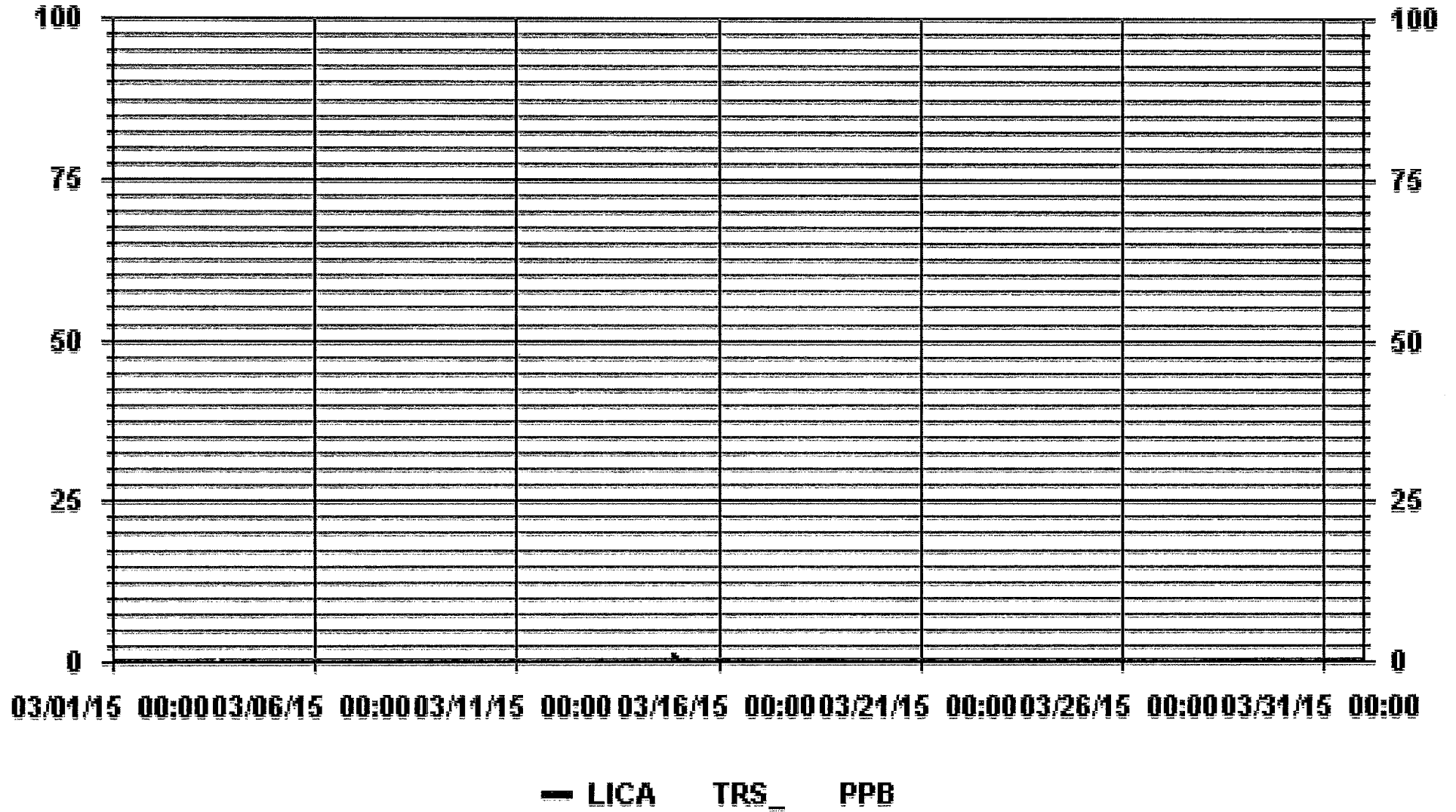
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	1					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	22	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S)	ALL
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0	PPB	

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Site - MARCH 2015

JOB # 2833-2015-03-01- 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	RDGS.			
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.				
DAY 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	1	1.0	24		
2	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	1	1.0	24	
3	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	C	C	1	1	1	1	1	1	1	1	1	1	1.0	24	
4	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	1	1.0	24	
5	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	1	1.0	24	
6	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	1	1.0	24	
7	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	1	1.0	24	
8	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	1	1.0	24	
9	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	1	1.0	24	
10	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	1	1.0	24	
11	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	1	1.0	24	
12	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	1	1.0	24	
13	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	1	1.0	24	
14	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	1	1.0	24	
15	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	1	1.0	24	
16	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	1	1.0	24	
17	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	1	1.0	24	
18	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	1	1.0	24	
19	S	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	
20	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	1	1.0	24	
21	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	1	1.0	24	
22	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	1	1.0	24	
23	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	1	1.0	24	
24	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	1	1.0	24	
25	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	1	1.0	24	
26	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	1	1.0	24	
27	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	1	1.0	24	
28	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	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	1	1	1	1	1.0	24
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	1.0	1.0	1.0	1.0	1.0	24

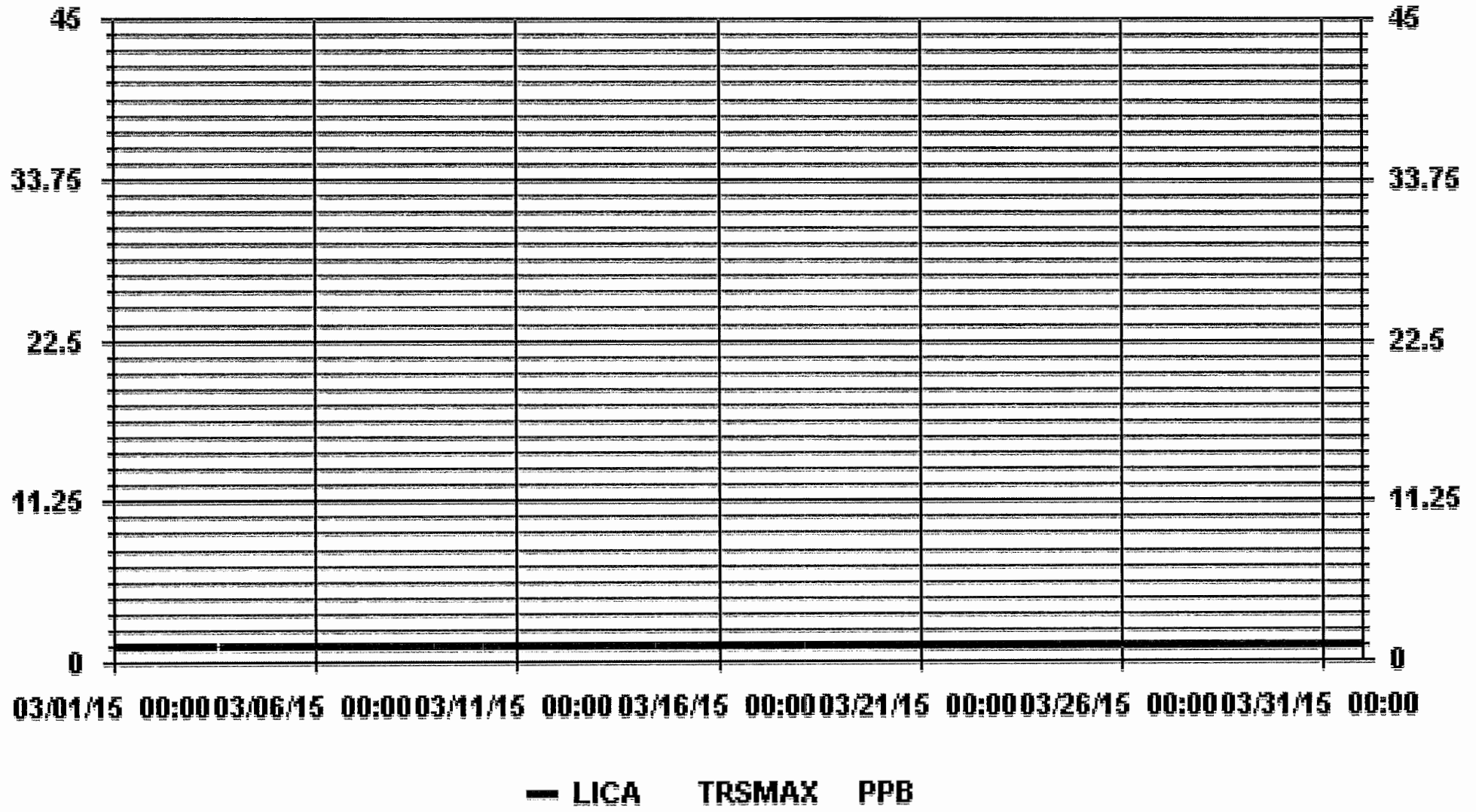
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708
MAXIMUM INSTANTANEOUS VALUE:	1 PPB @ HOUR(S) ALL ON DAY(S) ALL
	VAR-VARIOUS
IJS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.00

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	2.41	1.84	6.54	4.40	12.09	6.11	8.96	3.55	2.70	2.84	6.82	20.34	13.22	3.27	2.84	1.99	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	2.41	1.84	6.54	4.40	12.09	6.11	8.96	3.55	2.70	2.84	6.82	20.34	13.22	3.27	2.84	1.99	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

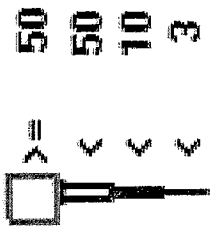
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	17	13	46	31	85	43	63	25	19	20	48	143	93	23	20	14	703
< 10																	
< 50																	
>= 50																	
Totals	17	13	46	31	85	43	63	25	19	20	48	143	93	23	20	14	

Calm : .00 %

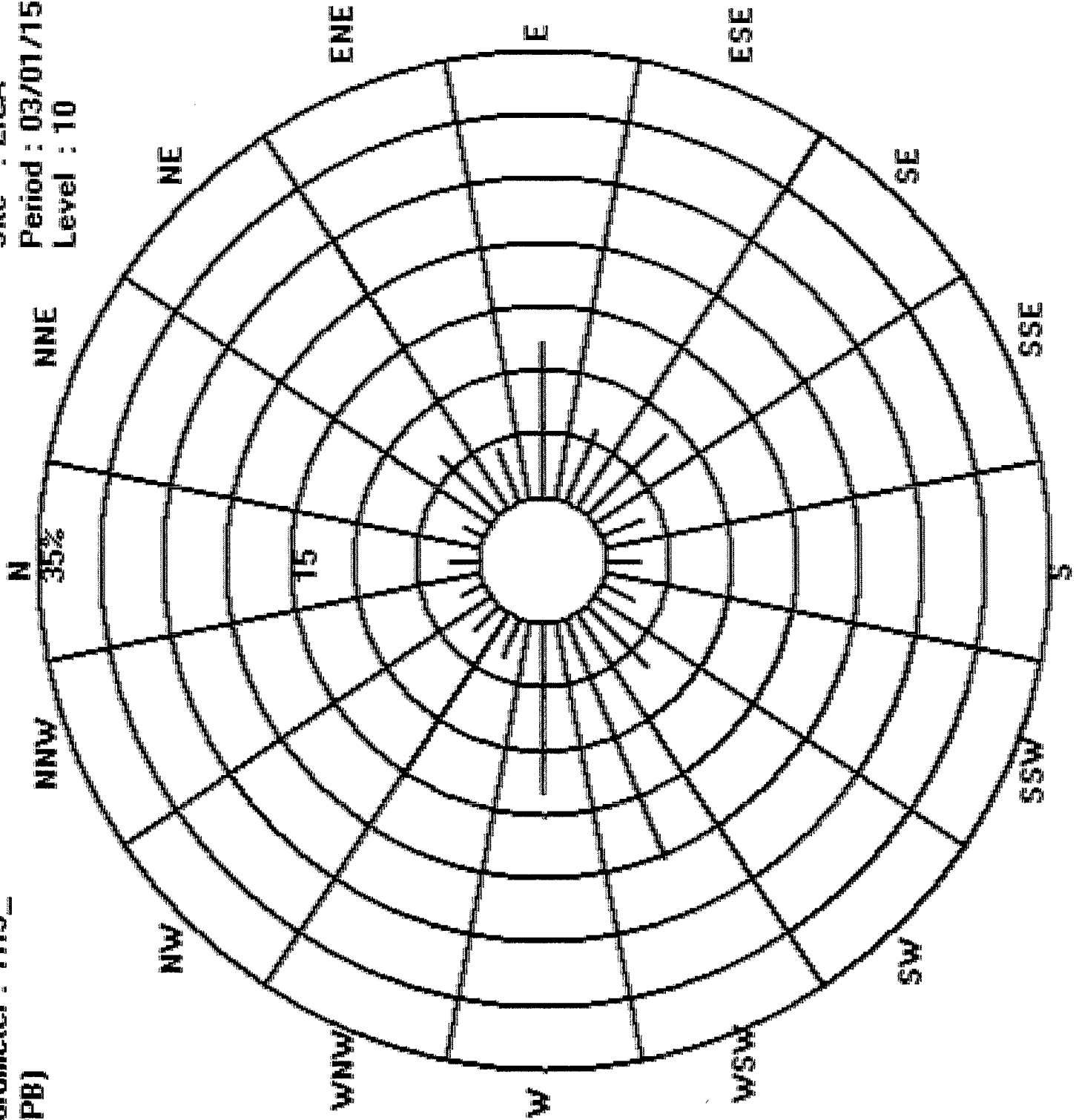
Total # Operational Hours : 703

Logger : 01 Parameter : TRS_

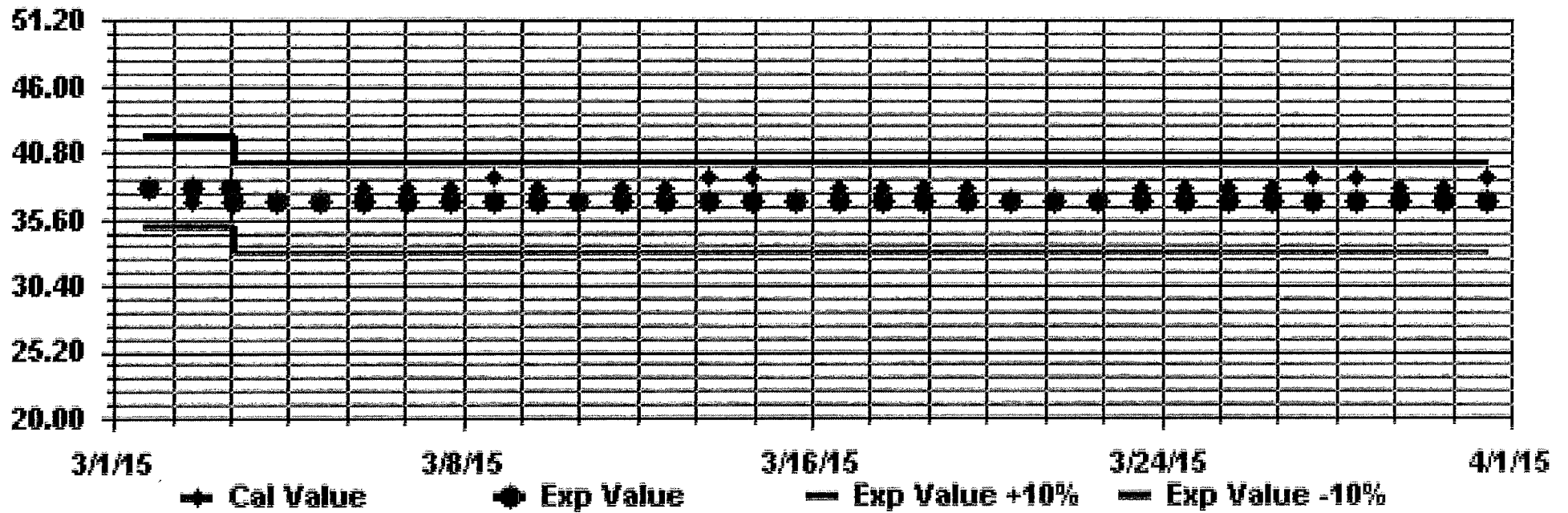
Class Limits (PPB)



Site : LICA
Period : 03/01/15-03/31/15
Level : 10



Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN



TOTAL HYDROCARBON

TOTAL HYDROCARBONS (THC) hourly averages in ppm

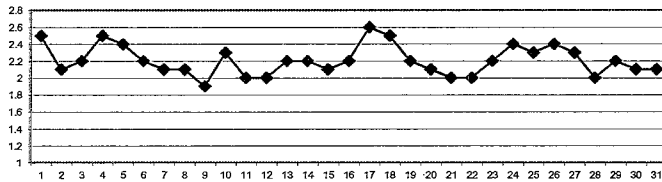
MST

Table with columns for HOUR START, HOUR END, DAY (1-31), and 25 hourly readings. Includes summary rows for HOURLY MAX and HOURLY AVG. Values range from 1.9 to 4.6 ppm.

STATUS FLAG CODES

Legend table for status flag codes: C (CALIBRATION), Y (MAINTENANCE), S (DAILY ZERO/SPAN CHECK), P (POWER FAILURE), G (-OUT FOR REPAIR), Q (QUALITY ASSURANCE), R (RECOVERY), X (MACHINE MALFUNCTION), O (OPERATOR ERROR), K (-COLLECTION ERROR).

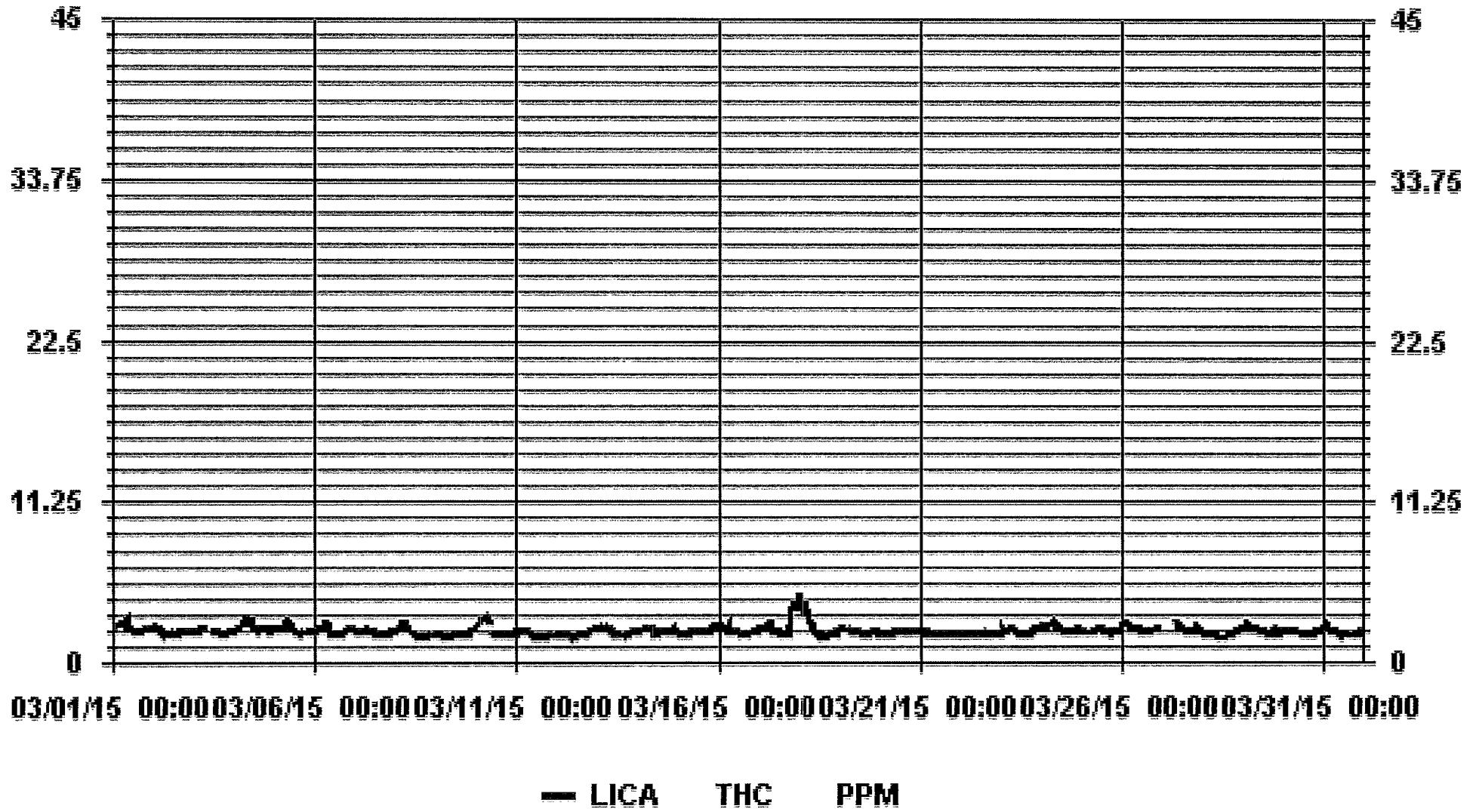
24 HOUR AVERAGES FOR MARCH 2015



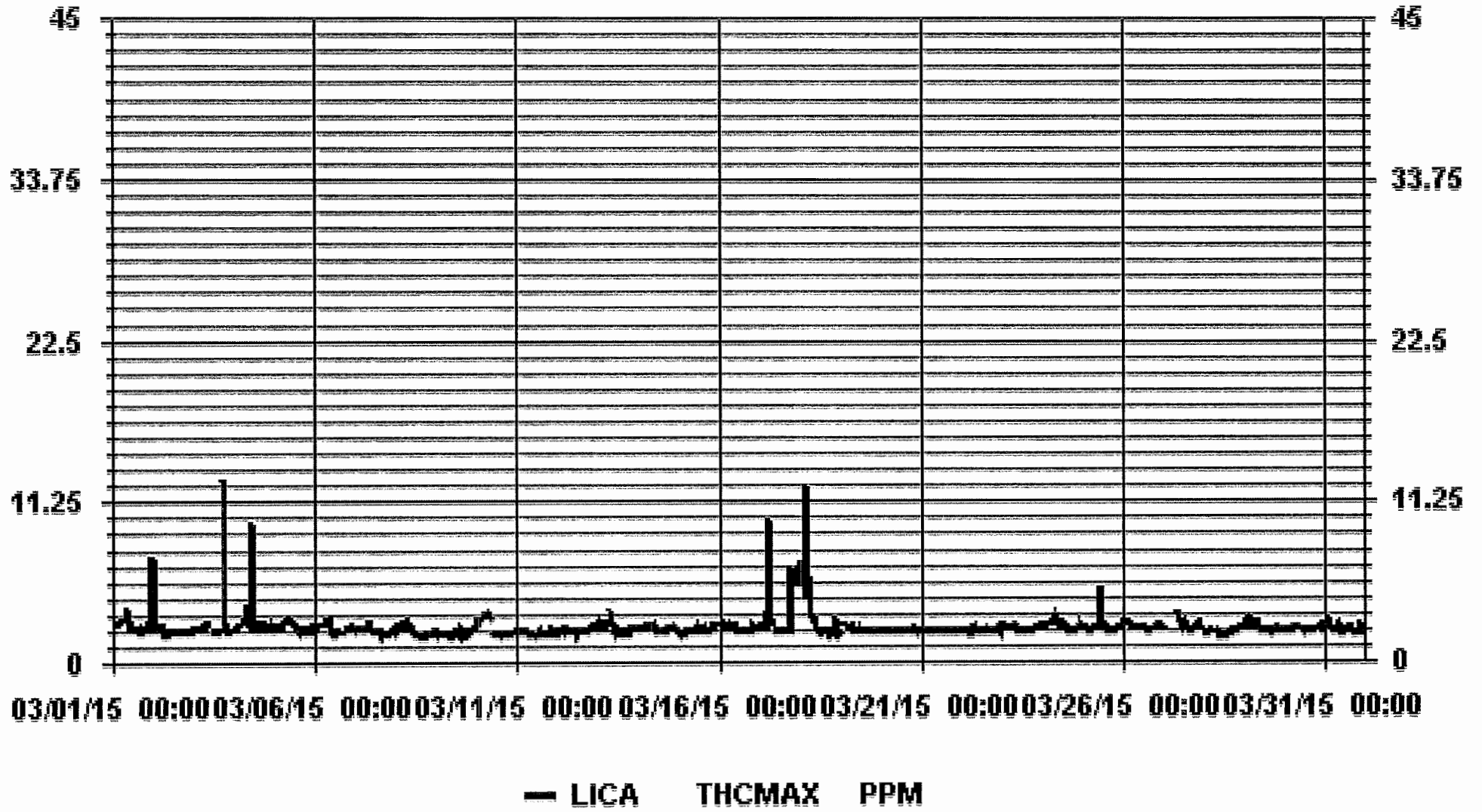
MONTHLY SUMMARY

Summary table with 4 columns: Metric, Value, Unit, and Additional Info. Includes metrics like NUMBER OF NON-ZERO READINGS (698), MAXIMUM 1-HR AVERAGE (4.6 PPM), and MONTHLY AVERAGE (2.2 PPM).

01 Hour Averages



01 Hour Averages



LICA
 THC / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.45	1.87	6.49	4.04	11.68	5.33	8.94	3.46	2.59	2.59	6.49	20.05	13.13	3.03	2.88	2.02	97.11
< 10.0	.00	.00	.00	.28	.57	.72	.14	.00	.14	.14	.14	.43	.28	.00	.00	.00	2.88
< 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	2.45	1.87	6.49	4.32	12.26	6.06	9.09	3.46	2.74	2.74	6.63	20.49	13.41	3.03	2.88	2.02	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	17	13	45	28	81	37	62	24	18	18	45	139	91	21	20	14	673
< 10.0				2	4	5	1		1	1	1	3	2				20
< 50.0																	
>= 50.0																	
Totals	17	13	45	30	85	42	63	24	19	19	46	142	93	21	20	14	

Calm : .00 %

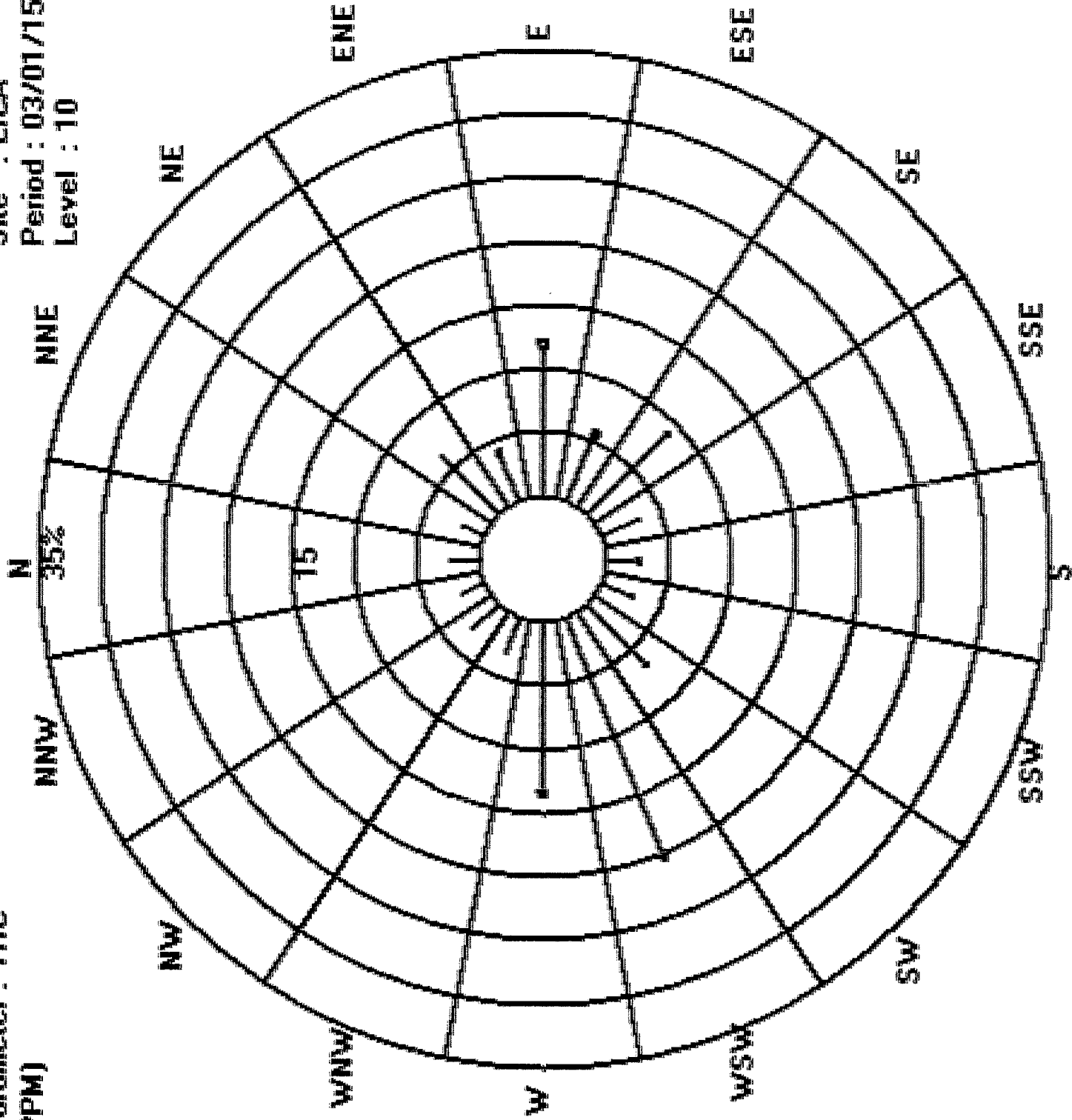
Total # Operational Hours : 693

Logger : 01 Parameter : THC

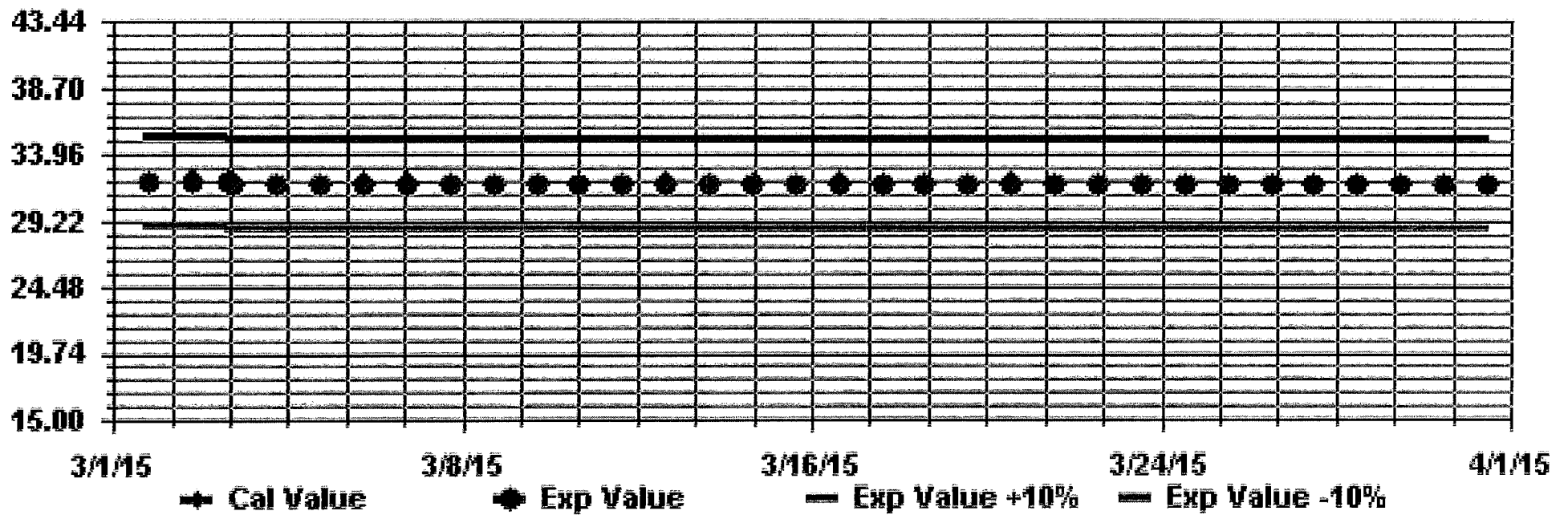
Class Limits (PPM)

-  >= 50.0
-  < 50.0
-  < 10.0
-  < 3.0

Site : LICA
Period : 03/01/15-03/31/15
Level : 10



Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN



OXIDES OF NITROGEN



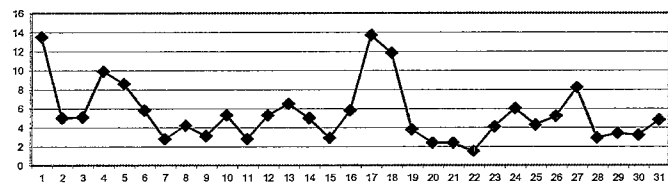
OXIDES OF NITROGEN (NOx) hourly averages in ppb

Table with 24 columns for hours (1:00-24:00) and 31 rows for days (1-31). Includes columns for DAILY MAX, 24-HOUR AVG, and RDGS. The table shows hourly NOx concentrations with status flags like 'S', 'C', and 'Q' indicating specific data conditions.

STATUS FLAG CODES

Legend for status flag codes: C - CALIBRATION, Y - MAINTENANCE, S - DATE/ZERO/SPAN CHECK, P - POWER FAILURE, G - OUT FOR REPAIR, Q - QUALITY ASSURANCE, R - RECOVERY, X - MACHINE MALFUNCTION, O - OPERATOR ERROR, K - COLLECTION ERROR.

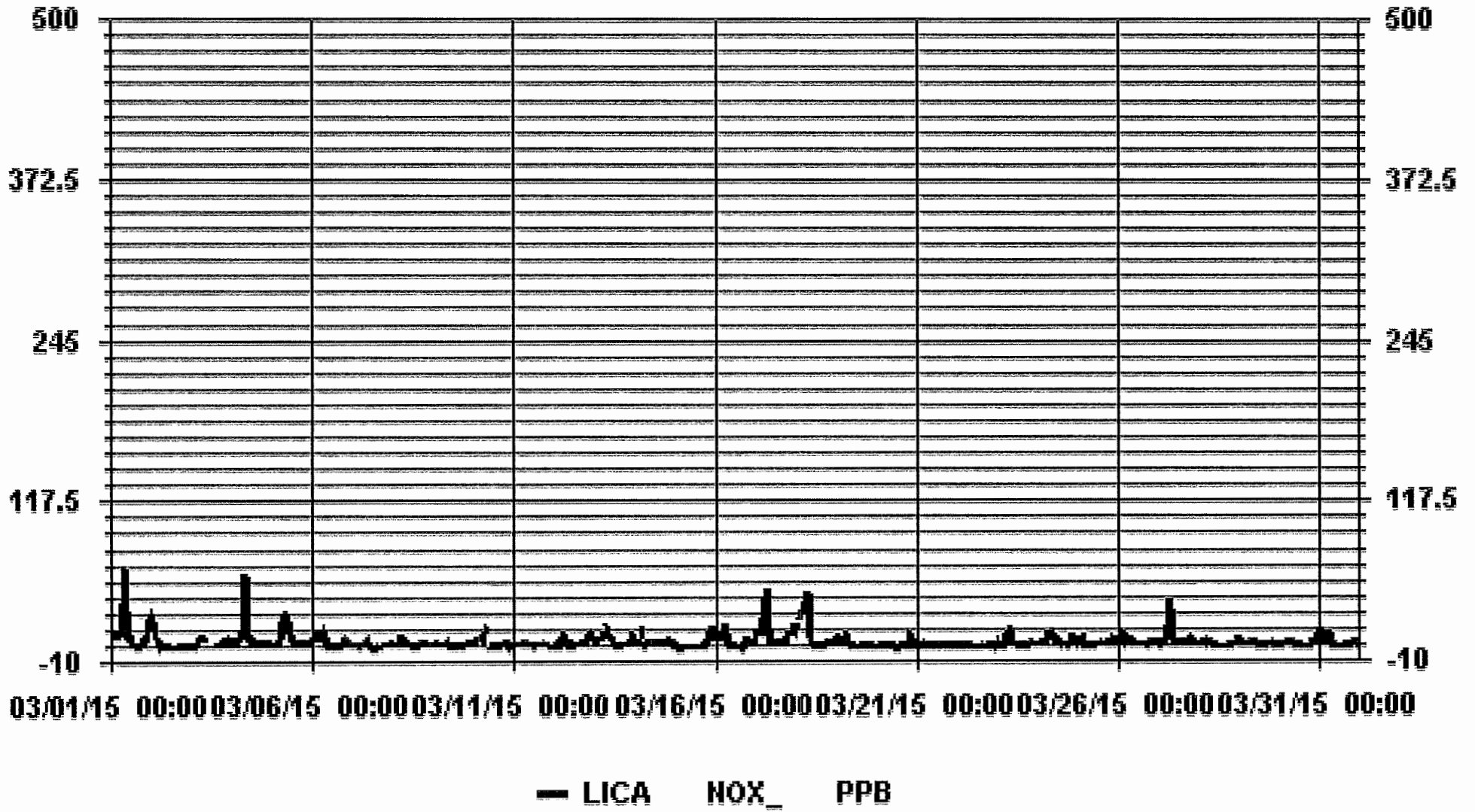
24 HOUR AVERAGES FOR MARCH 2015



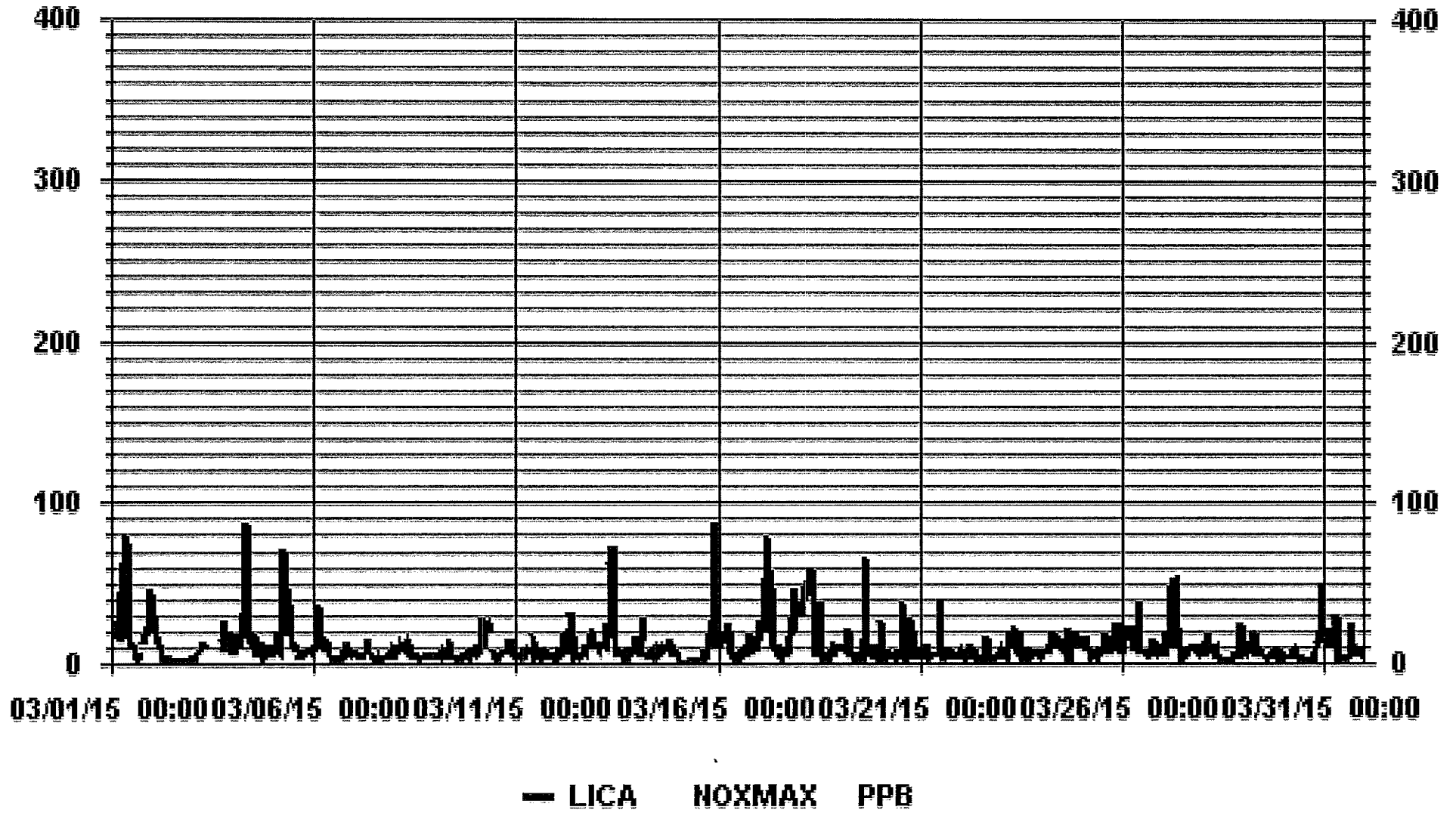
MONTHLY SUMMARY

Summary statistics: NUMBER OF NON-ZERO READINGS: 704; MAXIMUM 1-HR AVERAGE: 65.2 PPB @ HOUR(S) 8 ON DAY(S) 1; MAXIMUM 24-HR AVERAGE: 13.7 PPB ON DAY(S) 17 VAR-VARIOUS; IZS CALIBRATION TIME: 31 HRS; MONTHLY CALIBRATION TIME: 9 HRS; STANDARD DEVIATION: 6.62; OPERATIONAL TIME: 744 HRS; AMD OPERATION UPTIME: 100.0 %; MONTHLY AVERAGE: 5.5 PPB.

01 Hour Averages



01 Hour Averages



LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.28	1.85	6.58	4.43	12.01	6.00	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	99.71
< 110.0	.00	.00	.00	.00	.14	.14	.00	.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	2.28	1.85	6.58	4.43	12.16	6.15	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	16	13	46	31	84	42	63	25	19	20	48	143	93	21	20	13	697
< 110.0					1	1											2
< 210.0																	
>= 210.0																	
Totals	16	13	46	31	85	43	63	25	19	20	48	143	93	21	20	13	

Calm : .00 %

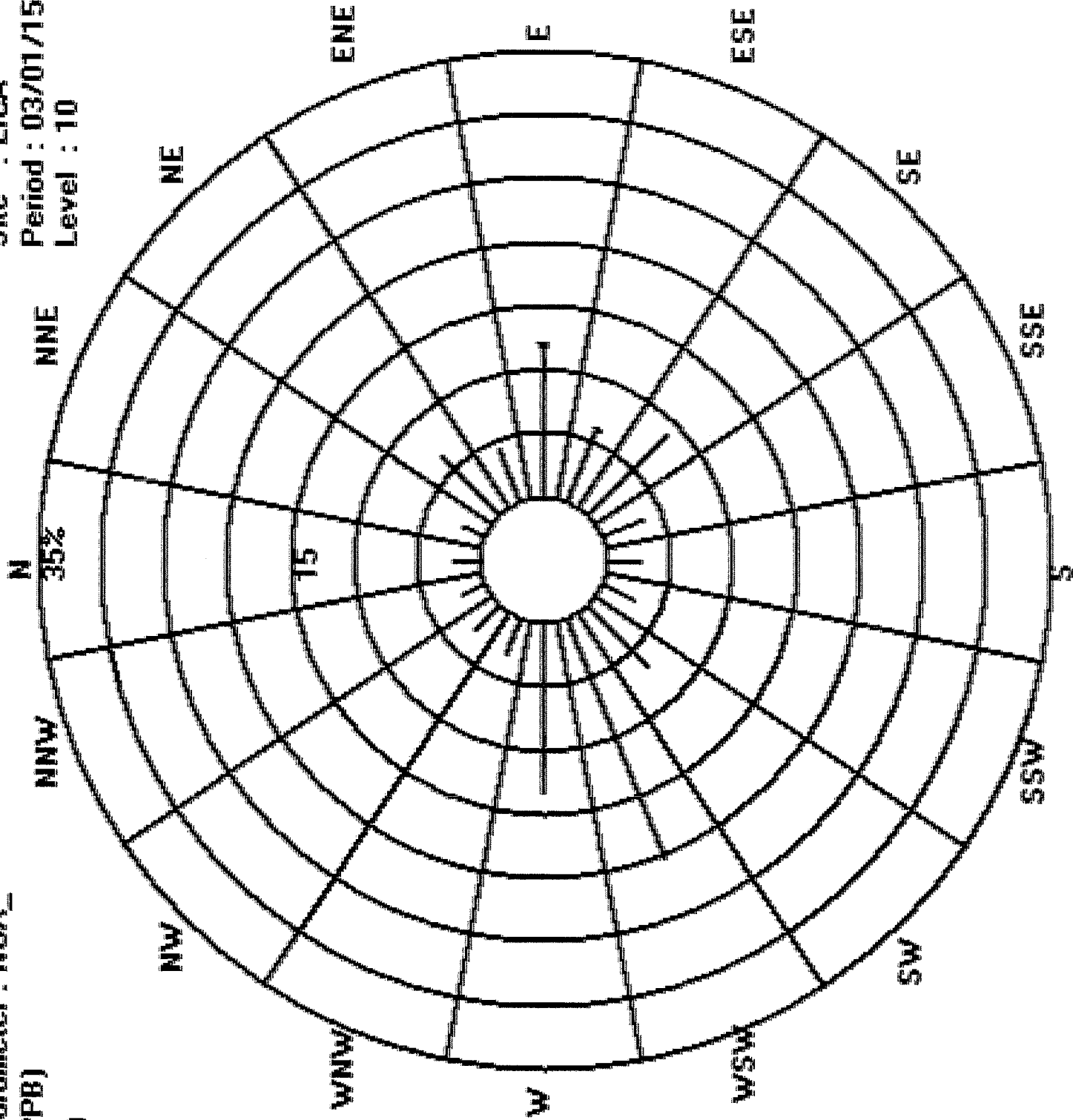
Total # Operational Hours : 699

Logger : 01 Parameter : NOX_

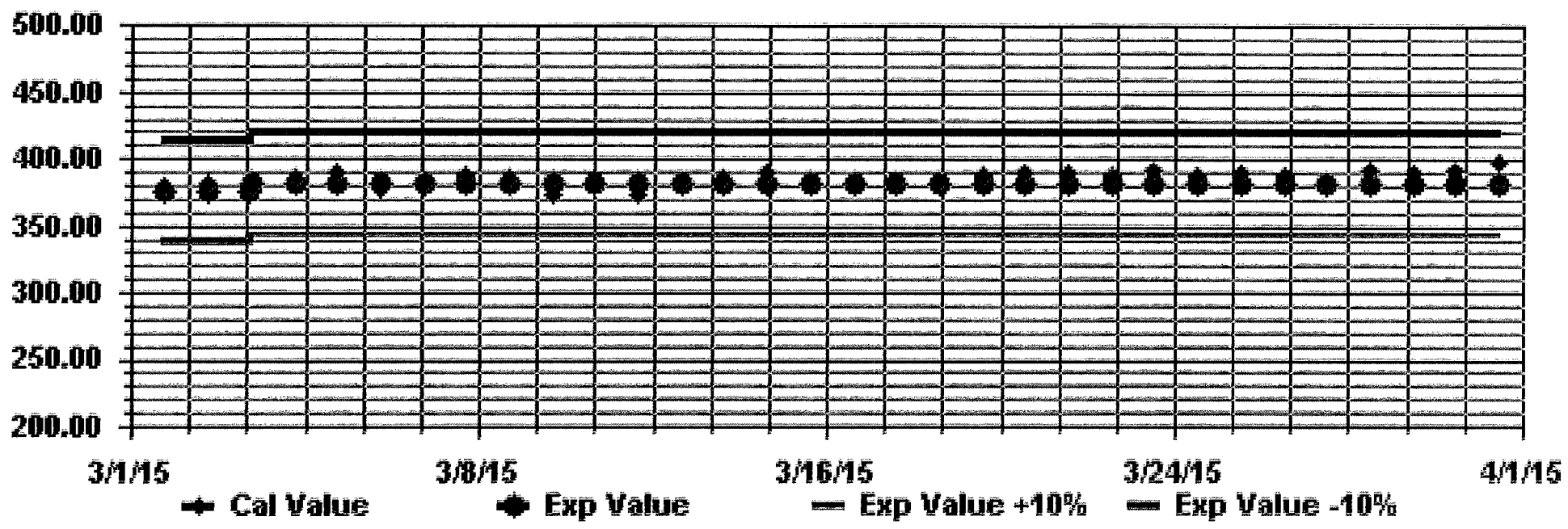
Class Limits (PPB)

-  \geq 210.0
-  $<$ 210.0
-  $<$ 110.0
-  $<$ 50.0

Site : LICA
Period : 03/01/15-03/31/15
Level : 10

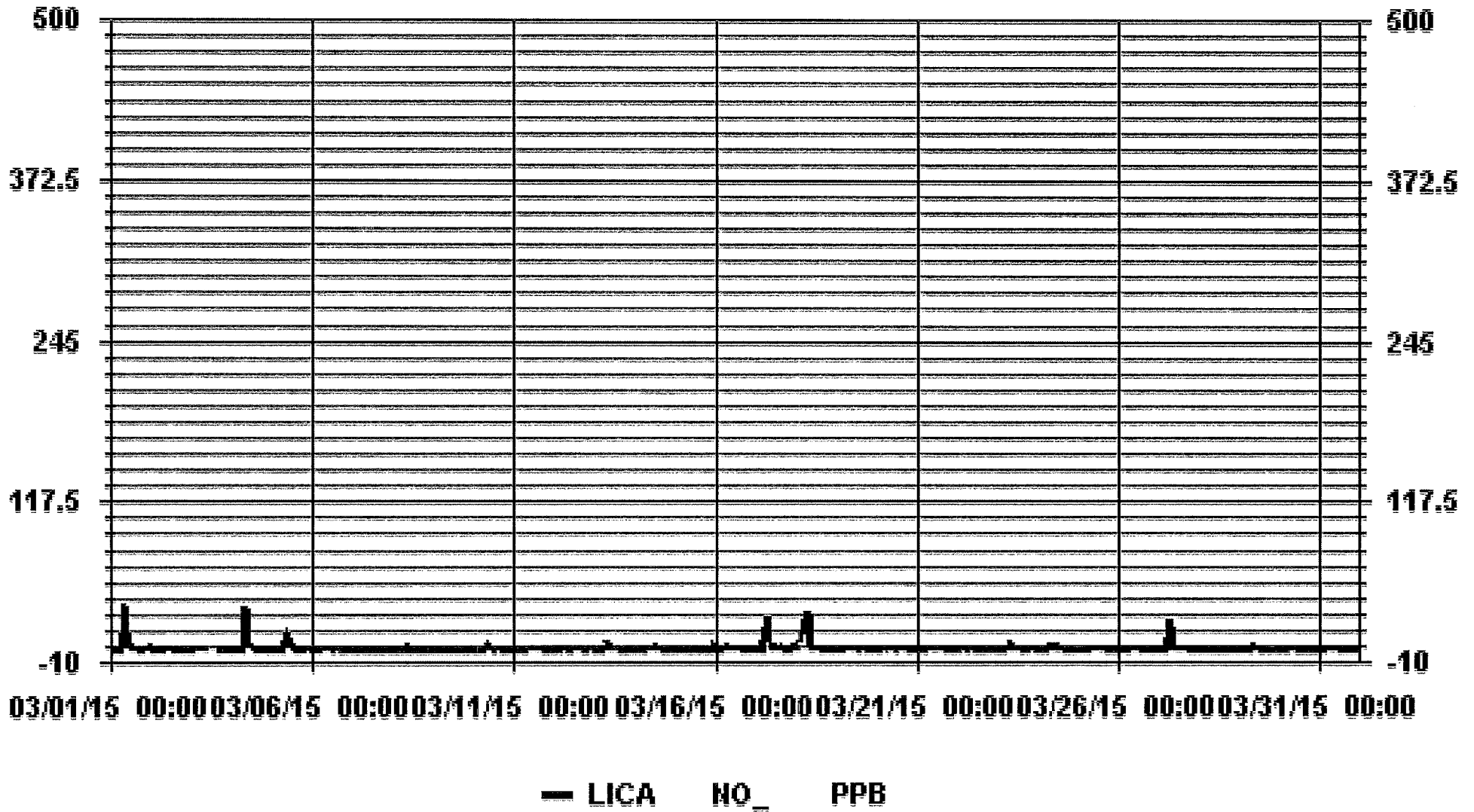


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN

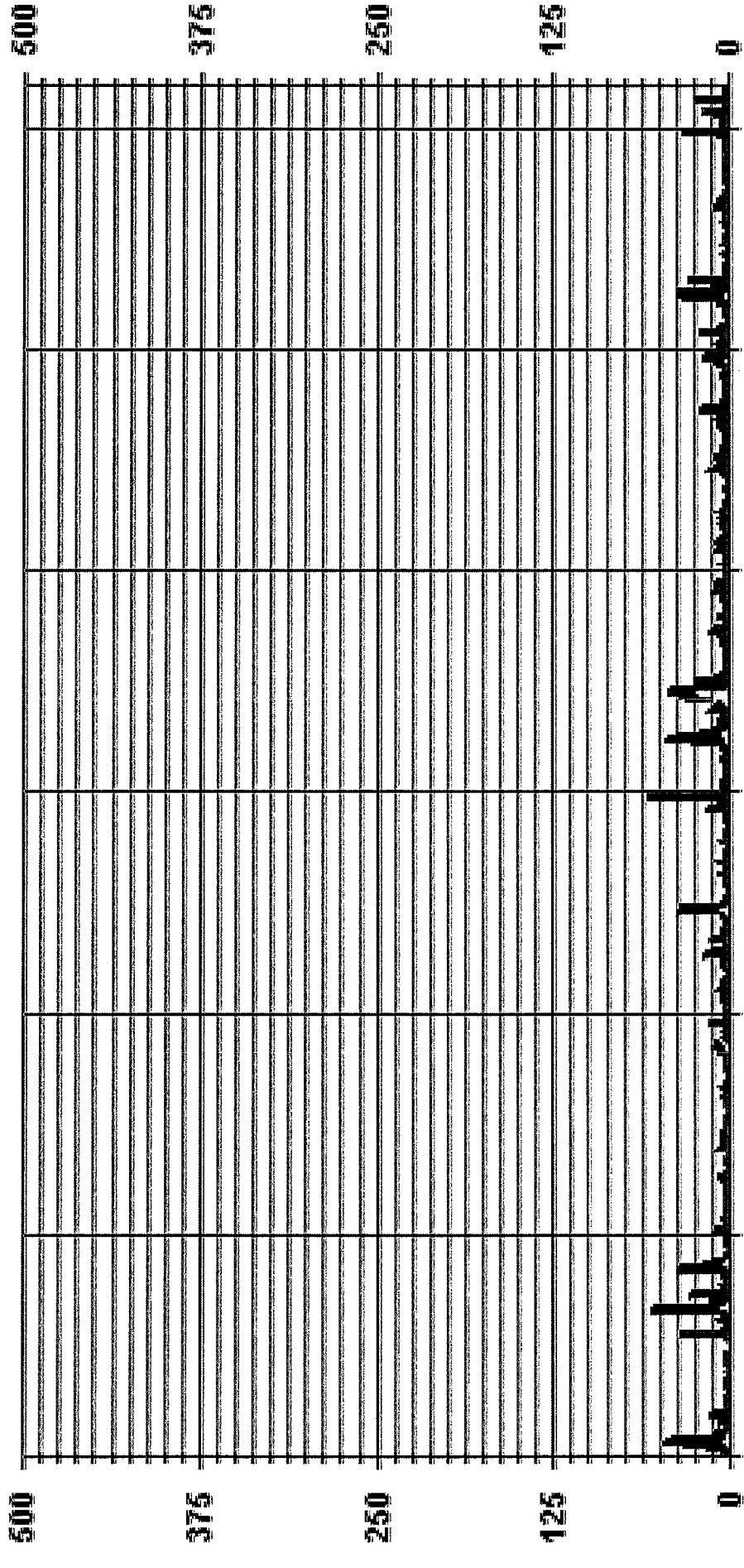


NITRIC OXIDES

01 Hour Averages



01 Hour Averages



03/01/15 00:00:03/06/15 00:00:03/11/15 00:00:03/16/15 00:00:03/21/15 00:00:03/26/15 00:00:03/31/15 00:00:00

— LICA NOMAX PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.28	1.85	6.58	4.43	12.16	6.15	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	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	2.28	1.85	6.58	4.43	12.16	6.15	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

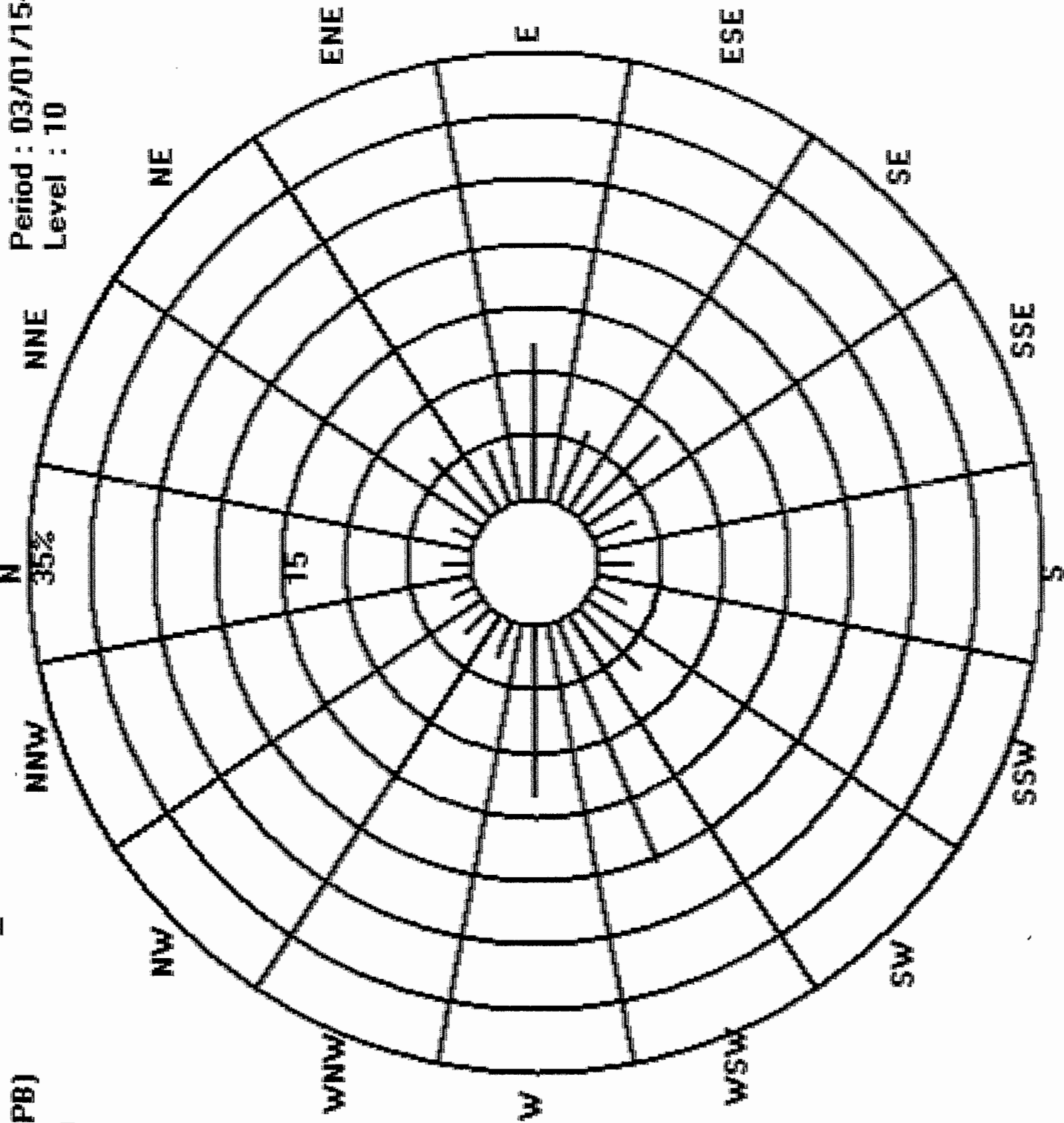
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	16	13	46	31	85	43	63	25	19	20	48	143	93	21	20	13	699
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	16	13	46	31	85	43	63	25	19	20	48	143	93	21	20	13	

Calm : .00 %

Total # Operational Hours : 699

Logger : 01 Parameter : NO_

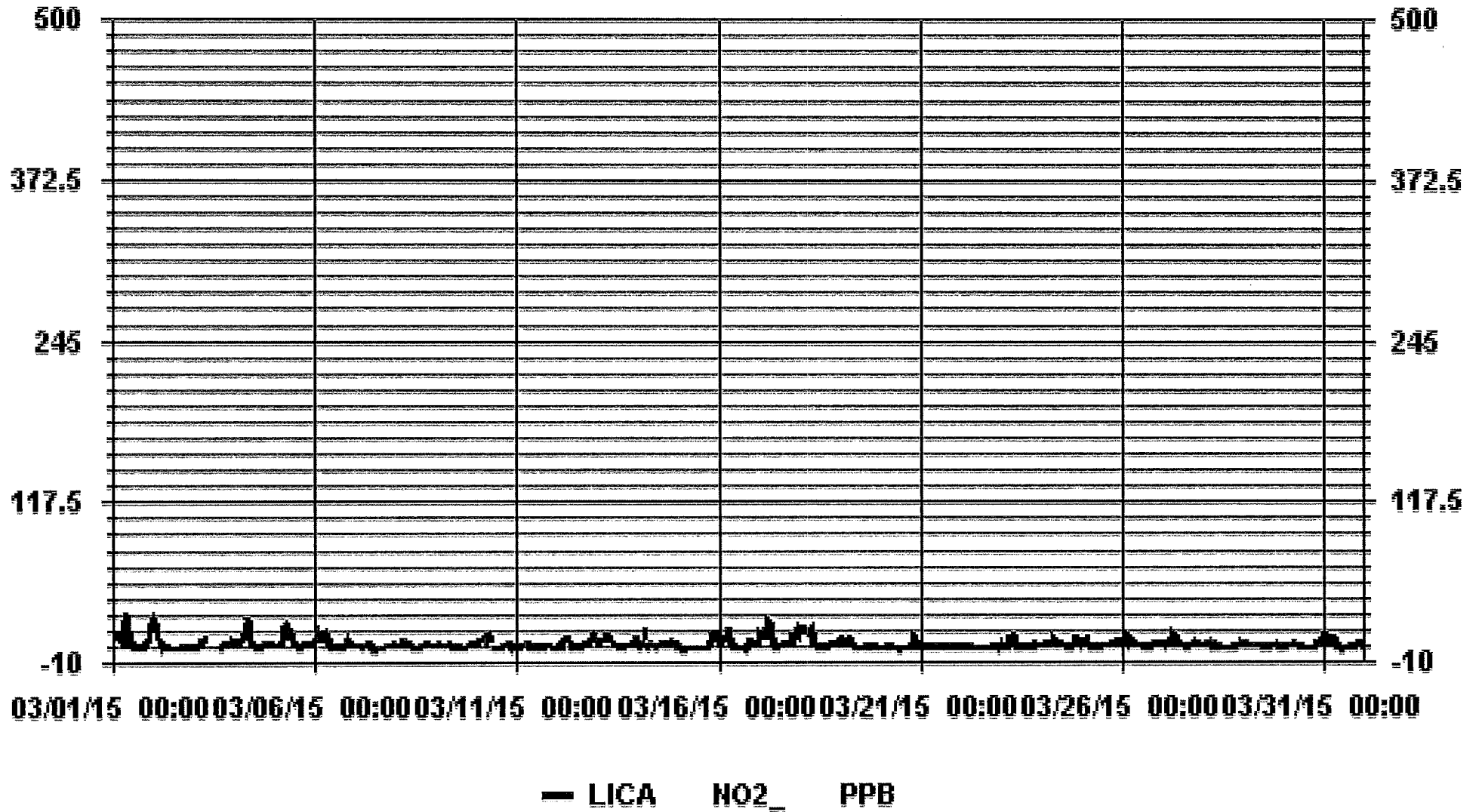
Site : LICA
Period : 03/01/15-03/31/15
Level : 10



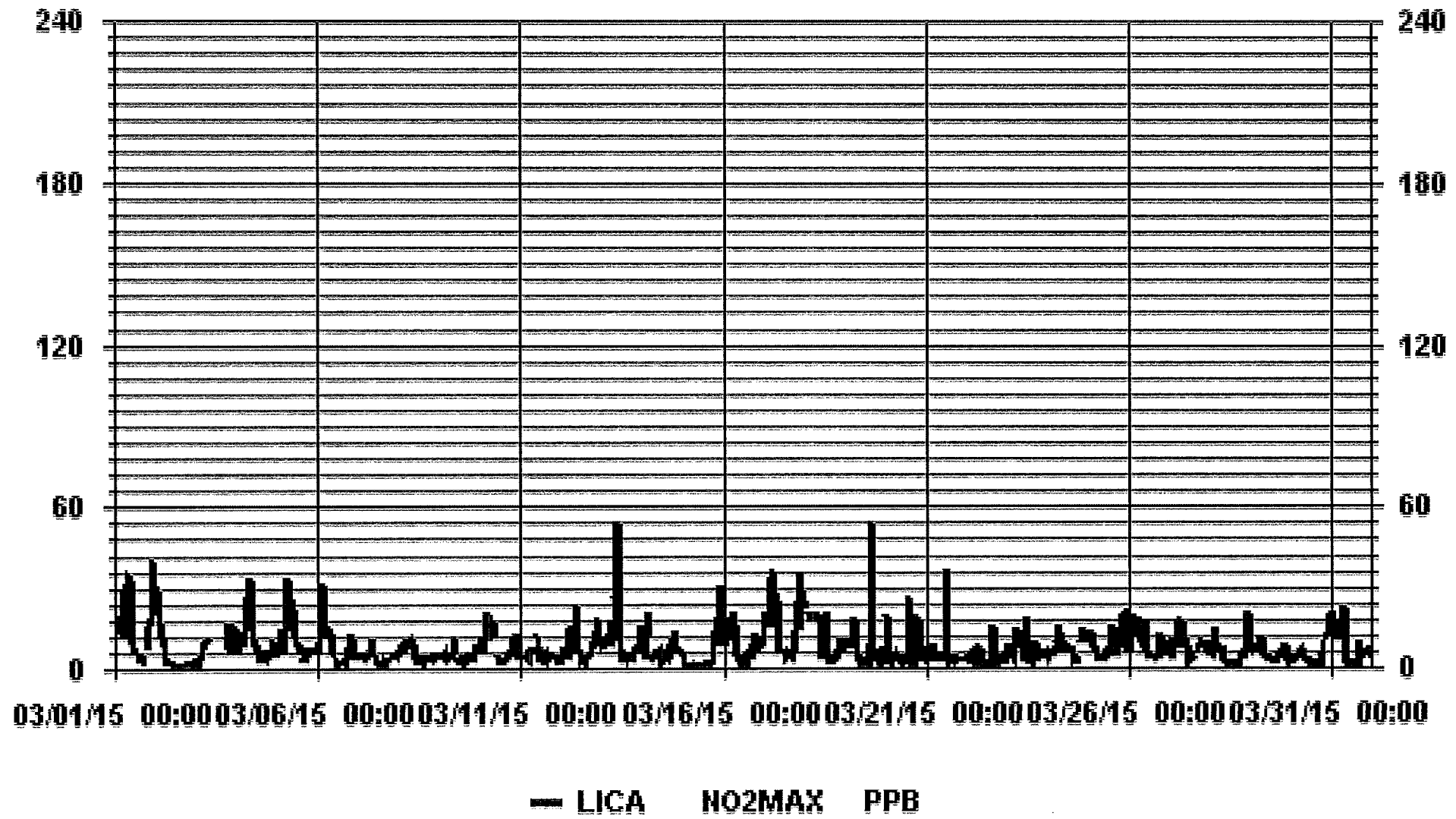
- Class Limits (PPB)
- >= 210.0
 - < 210.0
 - < 110.0
 - < 50.0

NITROGEN DIOXIDE

01 Hour Averages



01 Hour Averages



LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.28	1.85	6.58	4.43	12.16	6.15	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	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	2.28	1.85	6.58	4.43	12.16	6.15	9.01	3.57	2.71	2.86	6.86	20.45	13.30	3.00	2.86	1.85	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	16	13	46	31	85	43	63	25	19	20	48	143	93	21	20	13	699
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	16	13	46	31	85	43	63	25	19	20	48	143	93	21	20	13	




Calm : .00 %

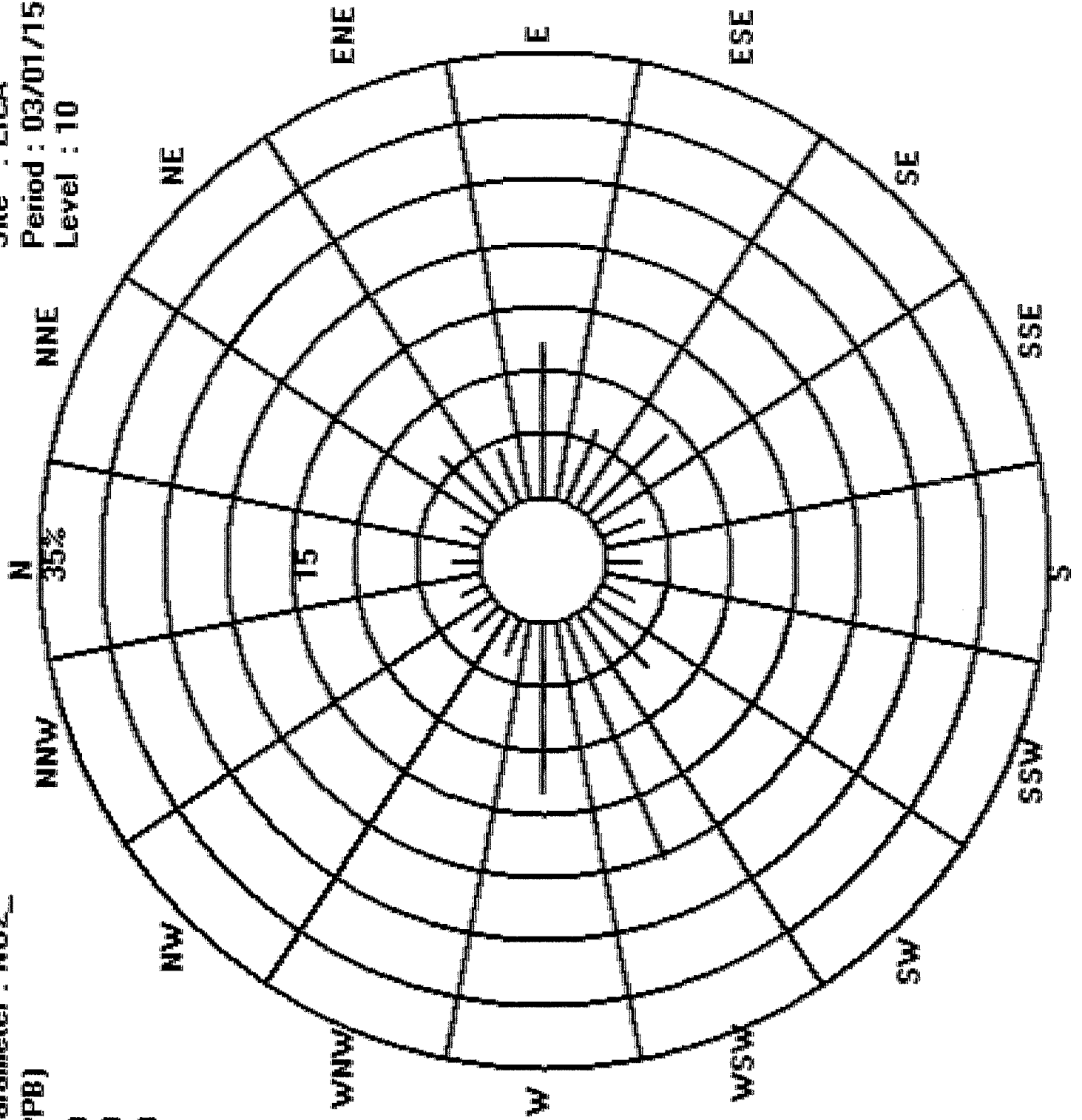
Total # Operational Hours : 699

Site : LICA
Period : 03/01/15-03/31/15
Level : 10

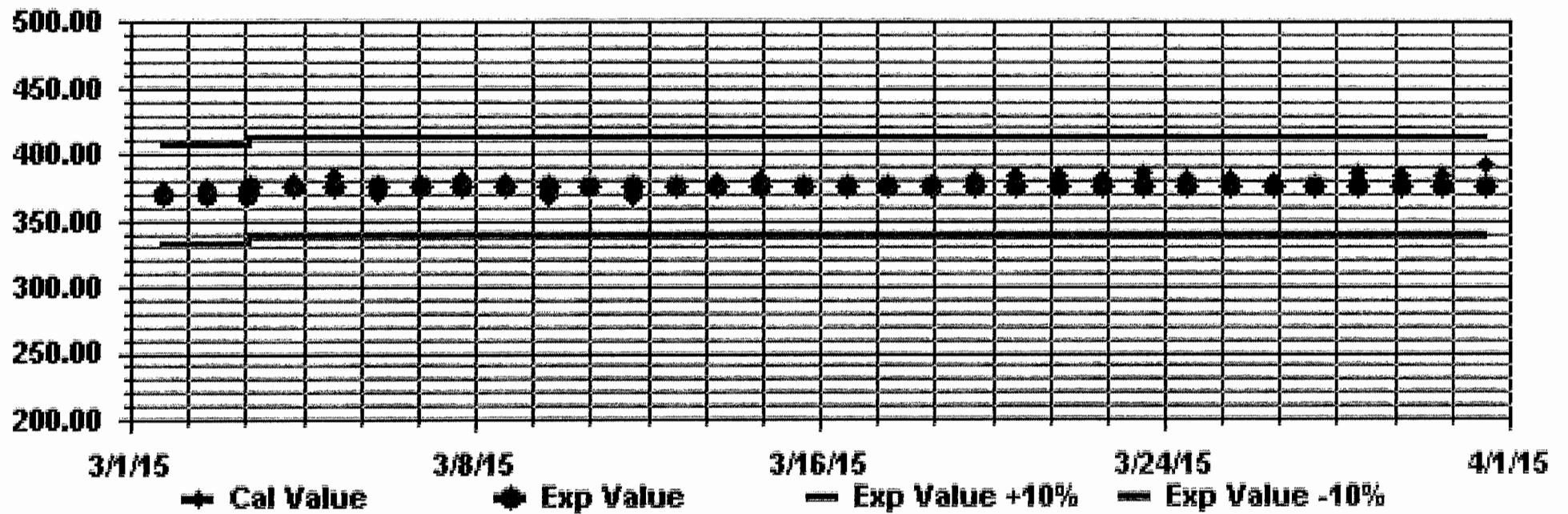
Logger : 01 Parameter : NO2_

Class Limits (PPB)

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0

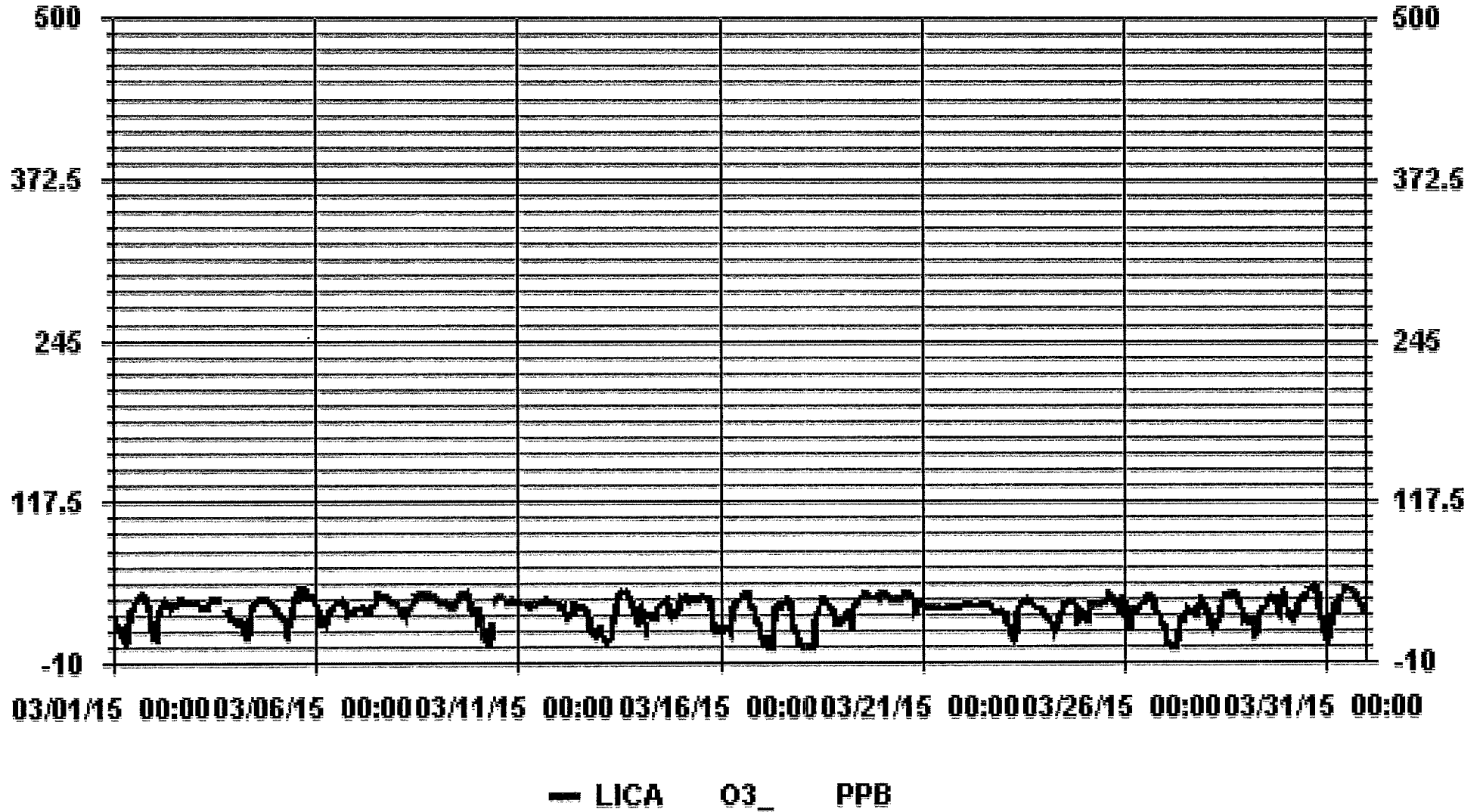


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN

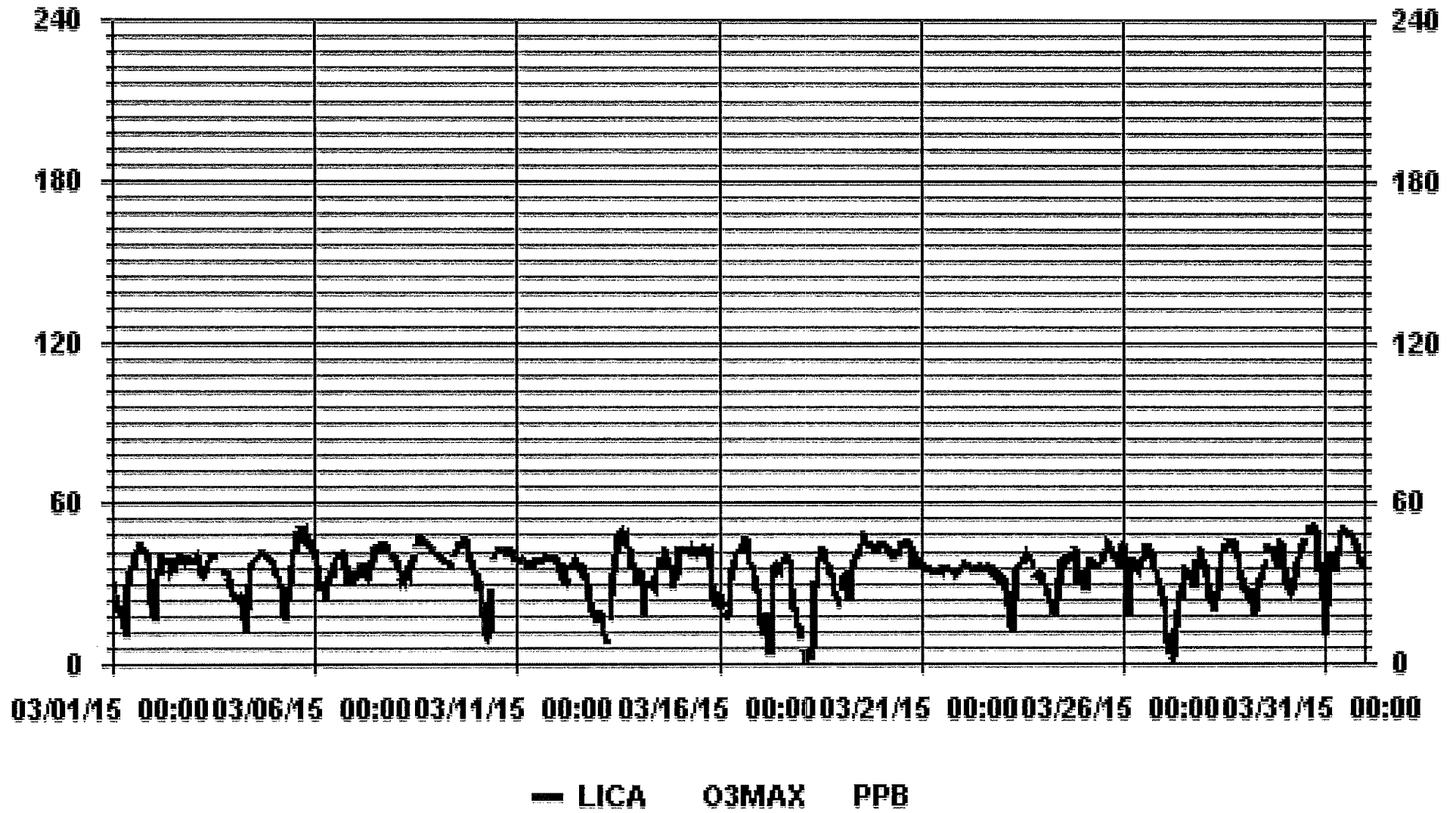


OZONE

01 Hour Averages



01 Hour Averages



LICA
 O3_ / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	2.27	1.84	6.53	4.40	12.07	6.10	8.94	3.55	2.69	2.84	6.81	20.31	12.92	3.26	2.84	2.27	99.71
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.00	.00	.28
< 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	2.27	1.84	6.53	4.40	12.07	6.10	8.94	3.55	2.69	2.84	6.81	20.31	13.21	3.26	2.84	2.27	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

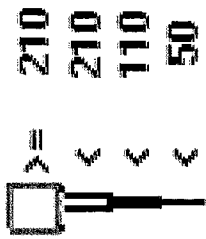
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	16	13	46	31	85	43	63	25	19	20	48	143	91	23	20	16	702
< 110													2				2
< 210																	
>= 210																	
Totals	16	13	46	31	85	43	63	25	19	20	48	143	93	23	20	16	

Calm : .00 %

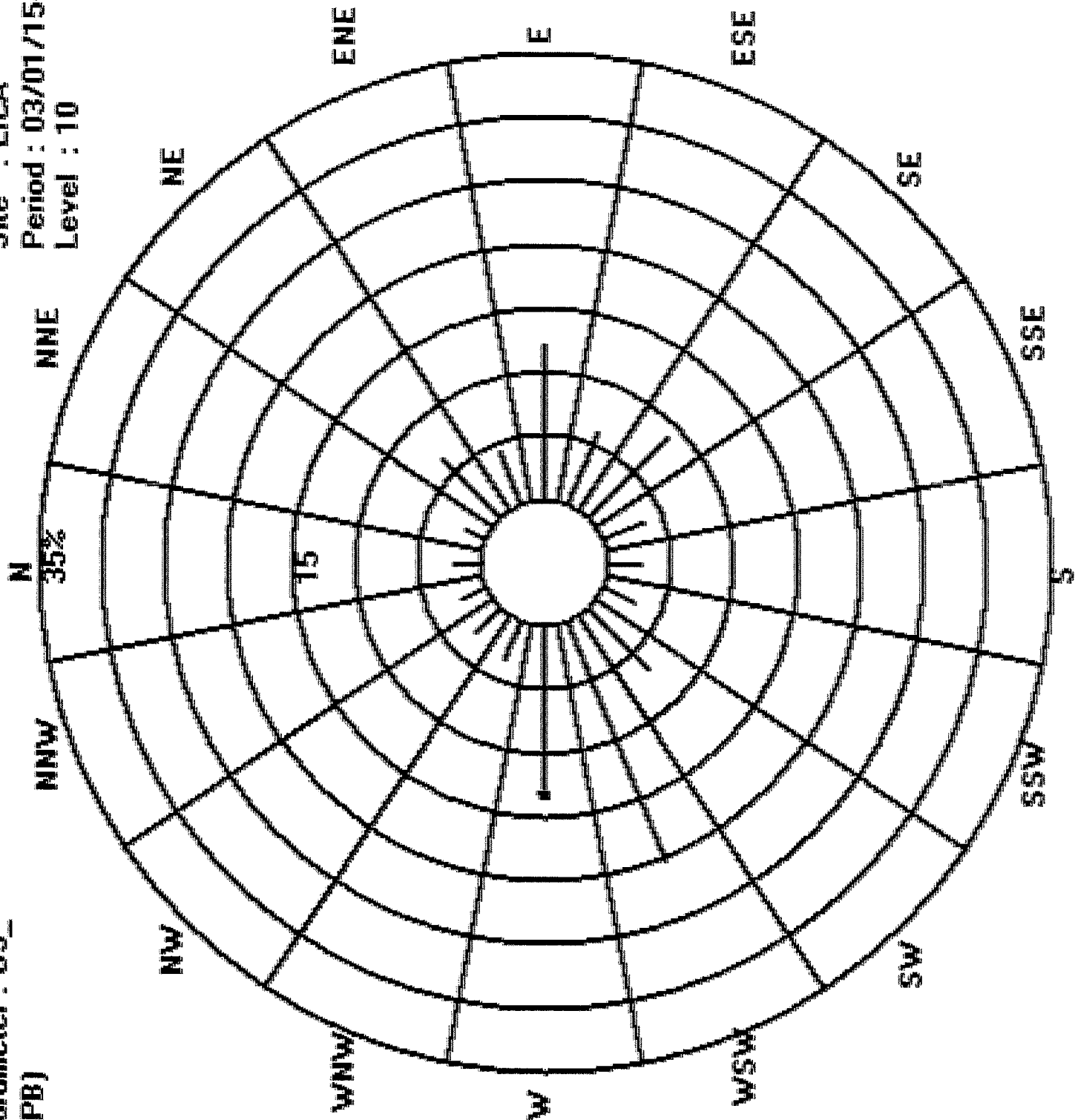
Total # Operational Hours : 704

Logger : 01 Parameter : 03_

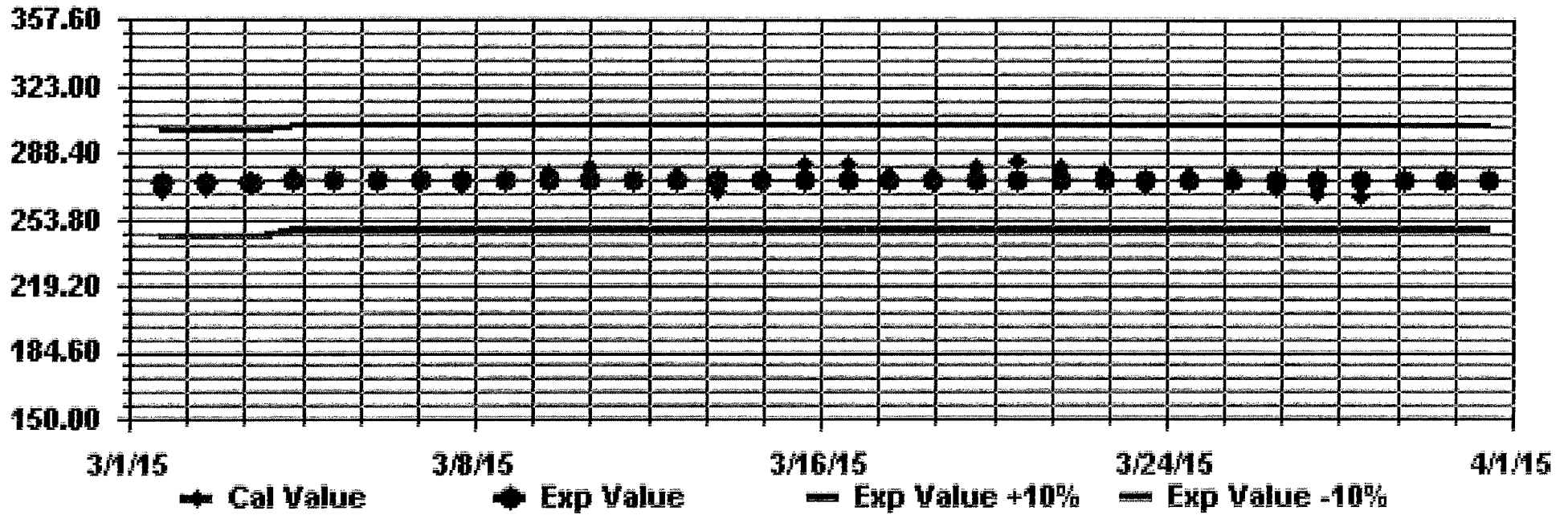
Class Limits (PPB)



Site : LICA
Period : 03/01/15-03/31/15
Level : 10

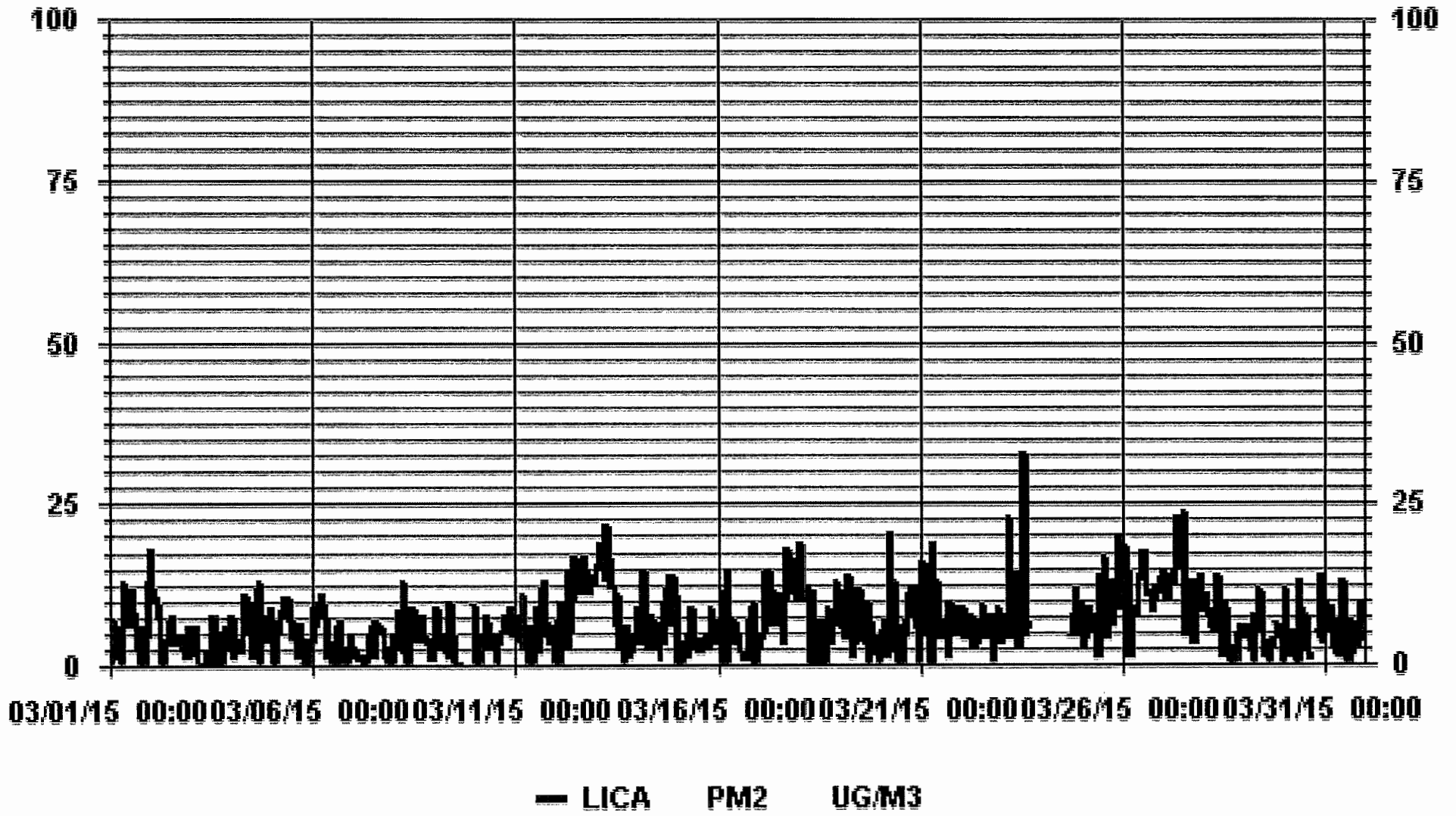


Calibration Graph for Site: LICA Parameter: O3_ Sequence: 03 Phase: SPAN



PARTICULATE MATTER 2.5

01 Hour Averages



LICA
PM2 / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	2.89	2.02	6.79	4.76	12.42	6.50	9.10	3.61	2.74	3.03	6.64	18.93	11.12	3.61	3.03	2.60	99.85
< 60	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.14
< 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	2.89	2.02	6.79	4.76	12.42	6.50	9.10	3.75	2.74	3.03	6.64	18.93	11.12	3.61	3.03	2.60	

Calm : .00 %

Total # Operational Hours : 692

Distribution By Samples

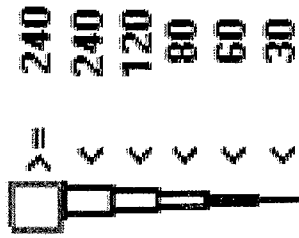
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	20	14	47	33	86	45	63	25	19	21	46	131	77	25	21	18	691
< 60								1									1
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	20	14	47	33	86	45	63	26	19	21	46	131	77	25	21	18	

Calm : .00 %

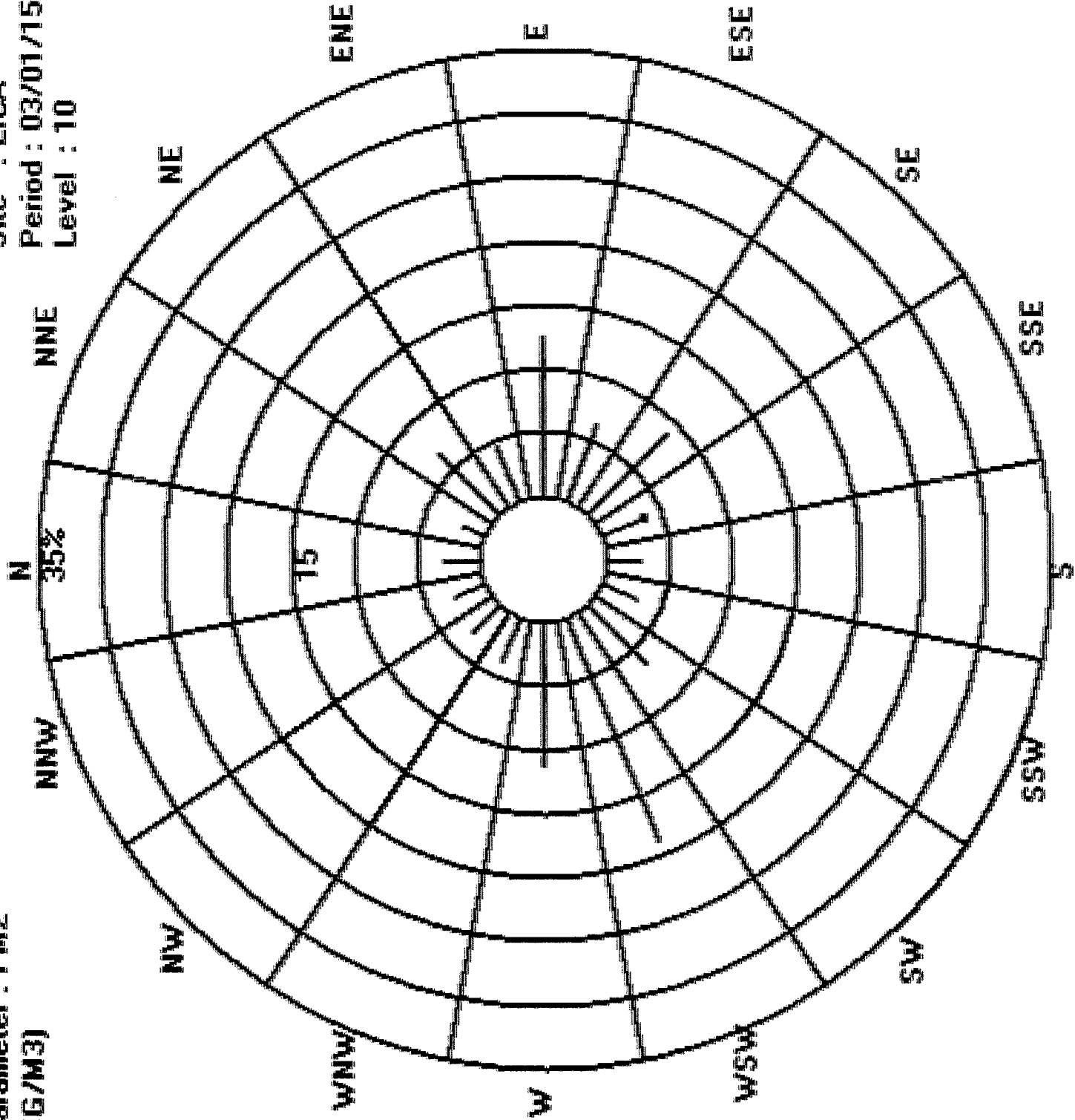
Total # Operational Hours : 692

Logger : 01 Parameter : PM2

Class Limits (UG/M3)

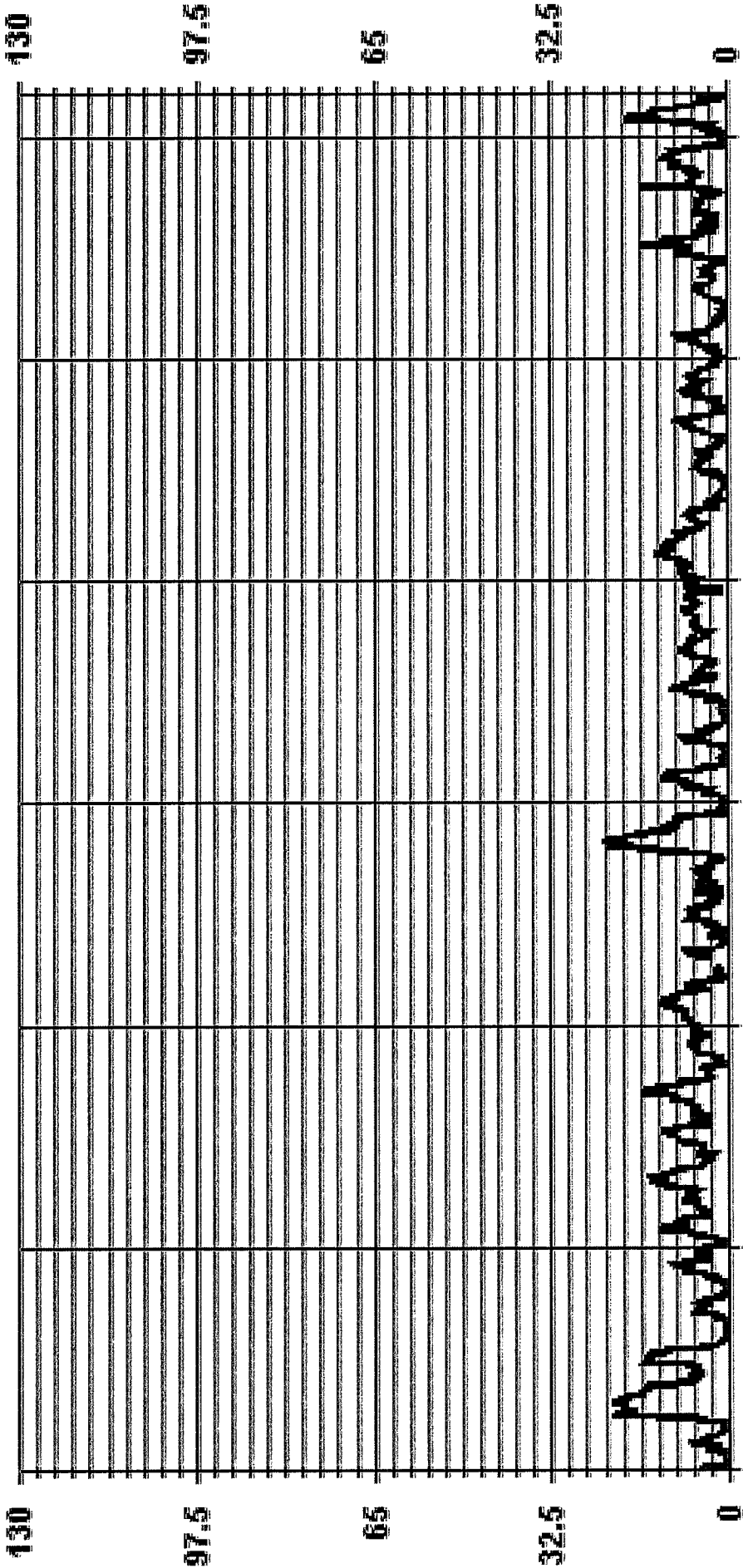


Site : LICA
Period : 03/01/15-03/31/15
Level : 10



WIND SPEED

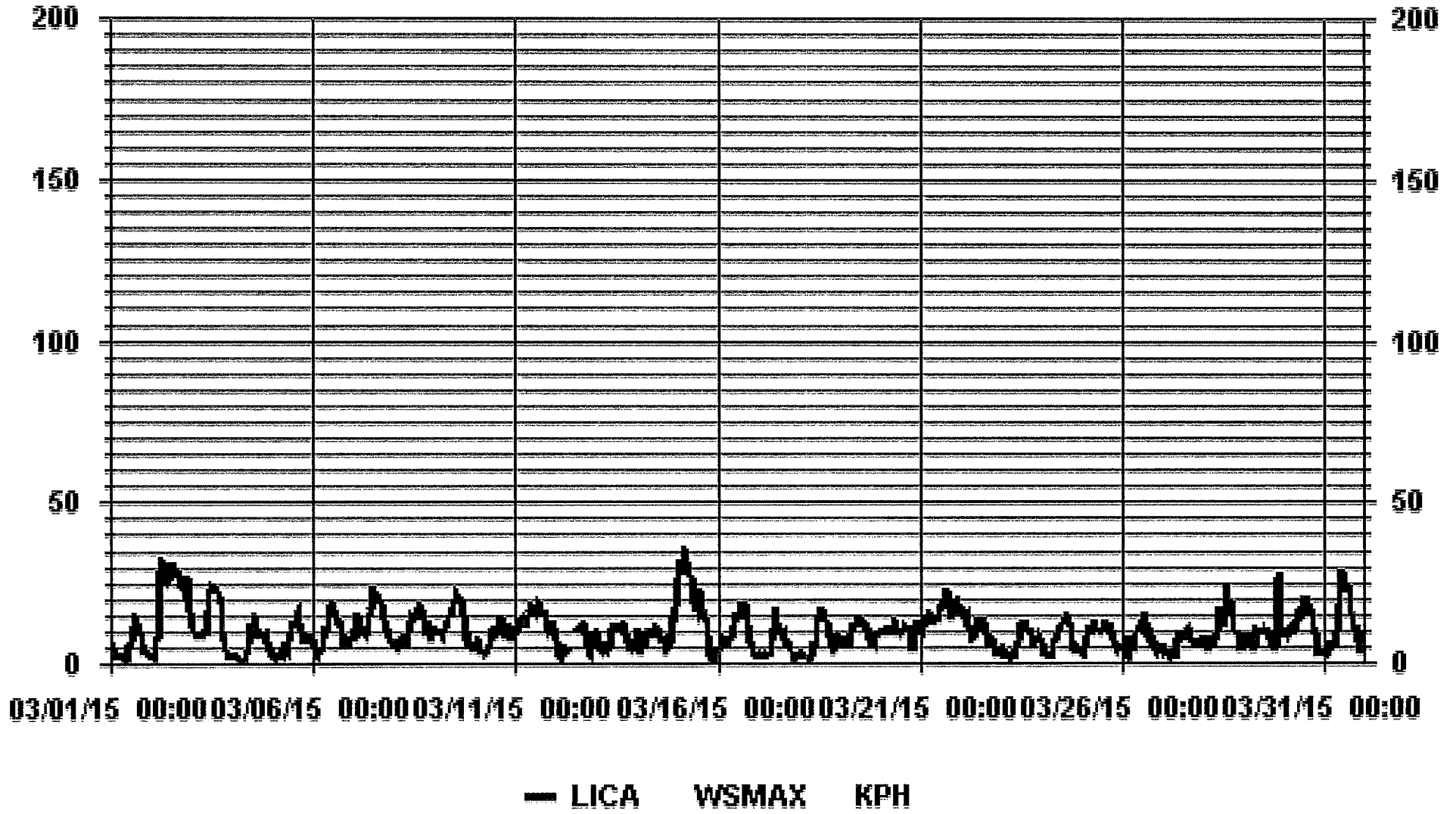
01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA WSP KPH

01 Hour Averages



LICA
WSP / WD Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1.62	.81	2.97	3.38	4.87	5.14	5.00	3.24	2.02	2.70	5.14	12.99	5.27	1.08	.54	.00	56.83
< 12.0	.54	1.08	3.24	.81	6.08	.94	2.70	.27	.00	.00	1.08	7.17	5.95	1.48	.81	.00	32.20
< 20.0	.54	.00	.00	.00	.27	.00	.81	.00	.00	.00	.00	.13	1.21	.54	1.35	2.30	7.17
< 29.0	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.13	.00	.13	.67
< 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	2.84	1.89	6.22	4.19	11.23	6.08	8.52	3.51	2.02	2.70	6.22	20.29	12.71	3.24	2.70	2.43	

Calm : 3.11 %

Total # Operational Hours : 739

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	12	6	22	25	36	38	37	24	15	20	38	96	39	8	4		420
< 12.0	4	8	24	6	45	7	20	2			8	53	44	11	6		238
< 20.0	4				2		6					1	9	4	10	17	53
< 29.0	1												2	1		1	5
< 39.0																	
>= 39.0																	
Totals	21	14	46	31	83	45	63	26	15	20	46	150	94	24	20	18	

Calm : 3.11 %

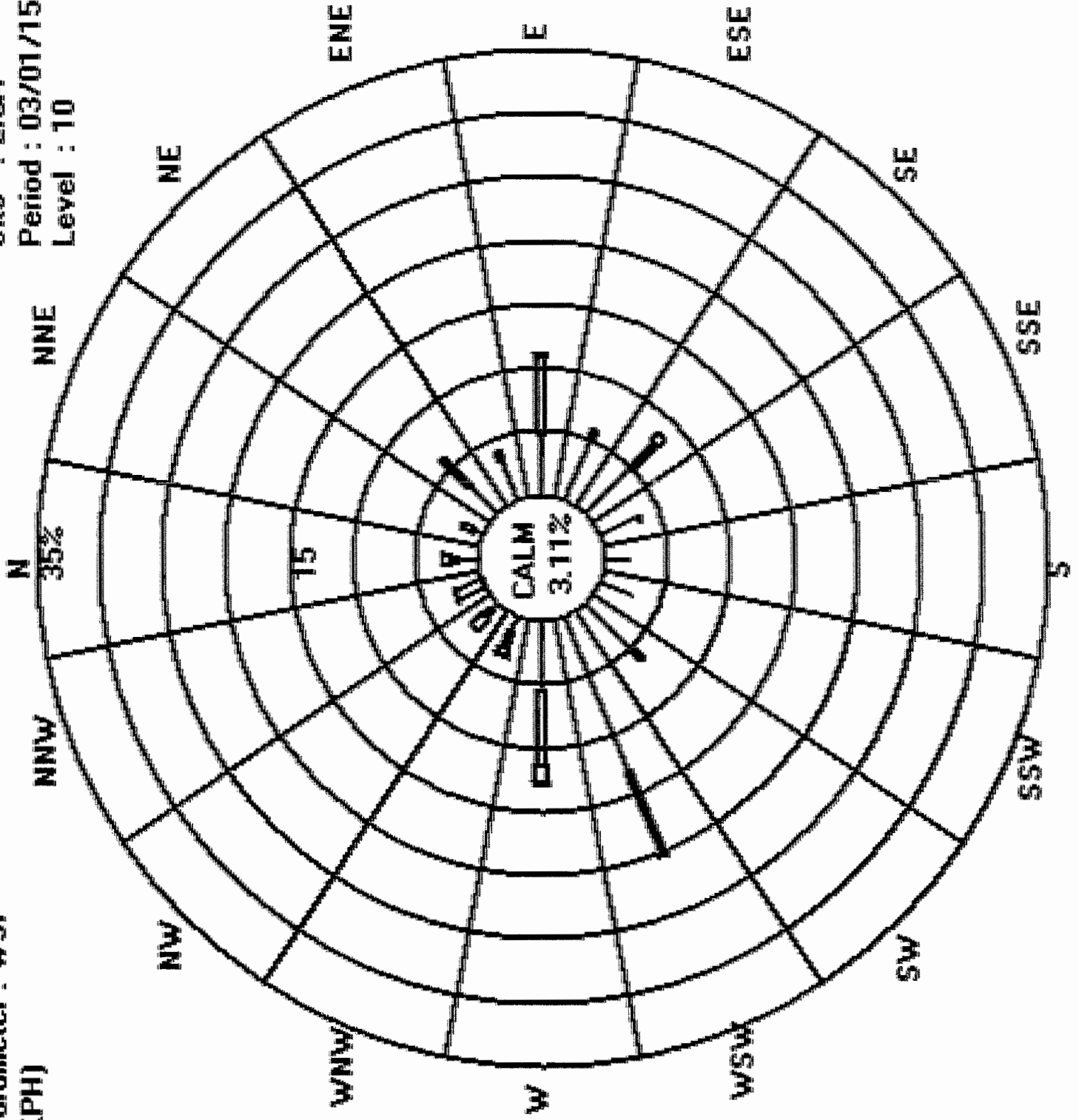
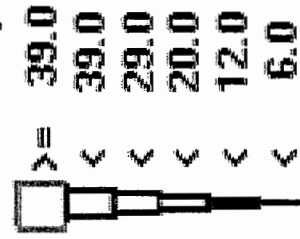
Total # Operational Hours : 739

Logger : 01 Parameter : WSP

Site : LICA

Class Limits (KPH)

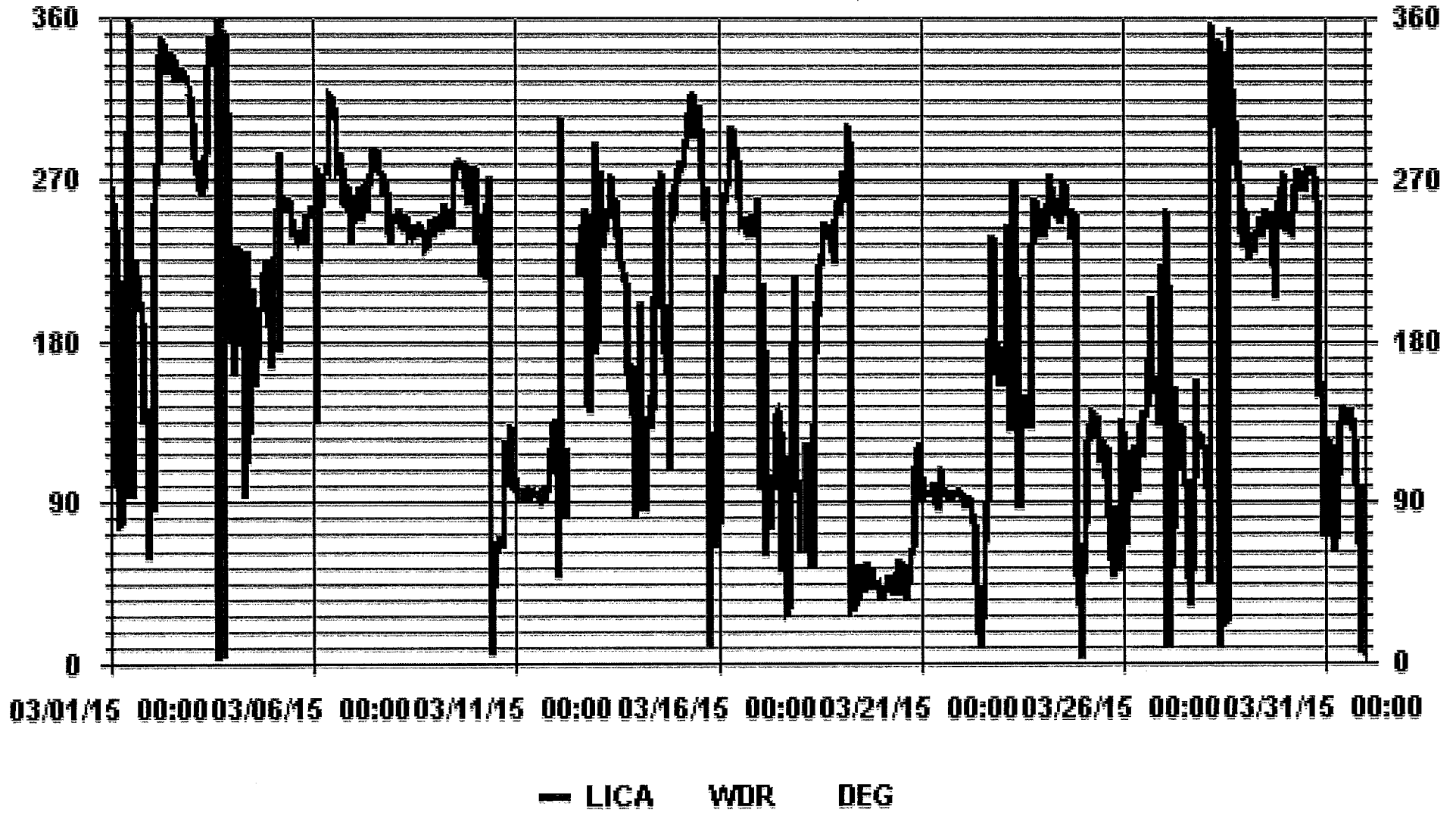
Period : 03/01/15-03/31/15



Level : 10

WIND DIRECTION

01 Hour Averages



STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MARCH 2015
JOB # 2833-2015-03-01- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR START	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		8	8	9	22	24	37	6	45	34	47	38	34	22	47	32	31	33	38	35	45	49	28	24	18
2		49	55	24	15	19	21	19	17	18	16	16	17	18	17	18	18	16	15	15	15	16	15	15	13
3		16	18	17	16	14	17	15	16	20	23	18	18	17	19	19	19	19	17	16	19	17	11	28	27
4		26	27	36	25	37	36	38	5	24	64	47	48	49	35	38	37	39	38	32	31	24	43	29	21
5		49	26	25	20	26	12	18	12	20	20	21	22	19	20	20	19	19	18	18	19	13	12	12	14
6		12	21	30	45	25	19	19	18	19	18	13	17	19	23	20	20	20	20	13	12	18	15	17	19
7		16	18	18	18	20	18	17	17	18	19	18	22	21	21	22	21	20	18	17	18	20	16	16	14
8		22	11	12	11	12	12	13	11	17	18	19	19	21	20	21	20	22	20	27	17	19	17	18	23
9		25	17	19	20	20	20	20	20	19	19	20	21	22	20	20	20	21	21	18	19	13	14	12	18
10		11	13	15	34	24	25	64	16	18	39	27	25	33	24	28	22	21	22	19	19	16	19	19	18
11		22	17	18	17	19	18	19	23	21	22	21	23	20	21	23	22	19	20	17	21	22	23	15	14
12		20	38	67	22	21	16	20	23	Y	Y	Y	Y	Y	33	24	20	20	21	32	42	26	62	75	64
13		46	29	47	28	14	52	23	15	25	20	21	21	23	20	33	31	33	35	39	24	45	37	25	20
14		18	16	55	19	14	18	18	33	43	32	34	29	24	27	26	52	36	44	51	87	37	14	28	17
15		20	20	21	21	22	21	18	19	17	17	22	23	22	23	24	22	21	20	17	16	24	48	28	39
16		55	61	57	46	35	14	13	17	23	23	24	27	25	25	23	22	21	19	19	17	20	21	13	44
17		24	29	18	25	36	34	14	28	25	30	21	22	32	35	32	20	21	20	42	18	43	36	52	37
18		10	44	28	19	14	9	9	10	17	48	55	39	35	26	22	21	21	21	17	20	20	15	17	15
19		13	16	18	20	23	21	20	22	22	24	25	22	27	24	23	24	20	21	22	23	23	20	19	21
20		20	20	20	21	21	21	21	23	21	22	28	29	25	28	32	27	23	19	14	9	21	23	21	22
21		23	22	21	19	21	19	20	22	23	21	22	24	24	21	23	20	21	19	22	18	20	19	22	21
22		21	22	22	22	23	22	24	23	23	26	25	35	27	25	23	24	53	35	23	28	25	23	32	22
23		27	20	43	26	26	26	30	41	33	67	49	47	33	37	35	22	26	21	24	15	16	19	20	21
24		19	15	21	12	13	9	17	16	25	28	25	25	24	23	25	25	23	20	27	14	53	38	18	54
25		27	15	26	29	18	13	14	15	16	26	26	27	24	24	24	23	21	21	19	18	20	13	27	15
26		18	26	7	18	21	22	24	20	23	22	21	23	18	21	21	42	37	30	27	22	21	22	21	33
27		57	32	38	36	48	47	31	56	32	30	28	31	27	31	26	20	19	23	19	39	23	18	22	20
28		24	24	24	25	45	53	62	21	18	18	22	25	27	26	19	19	17	16	15	15	16	16	22	17
29		13	54	30	18	30	23	19	17	20	22	27	25	27	25	28	21	18	23	50	23	18	19	18	16
30		16	18	17	18	18	17	18	19	20	24	26	26	24	24	26	24	23	21	16	44	26	37	24	44
31		23	39	18	17	22	17	15	22	22	21	18	19	24	20	20	24	23	25	20	21	42	37	46	26

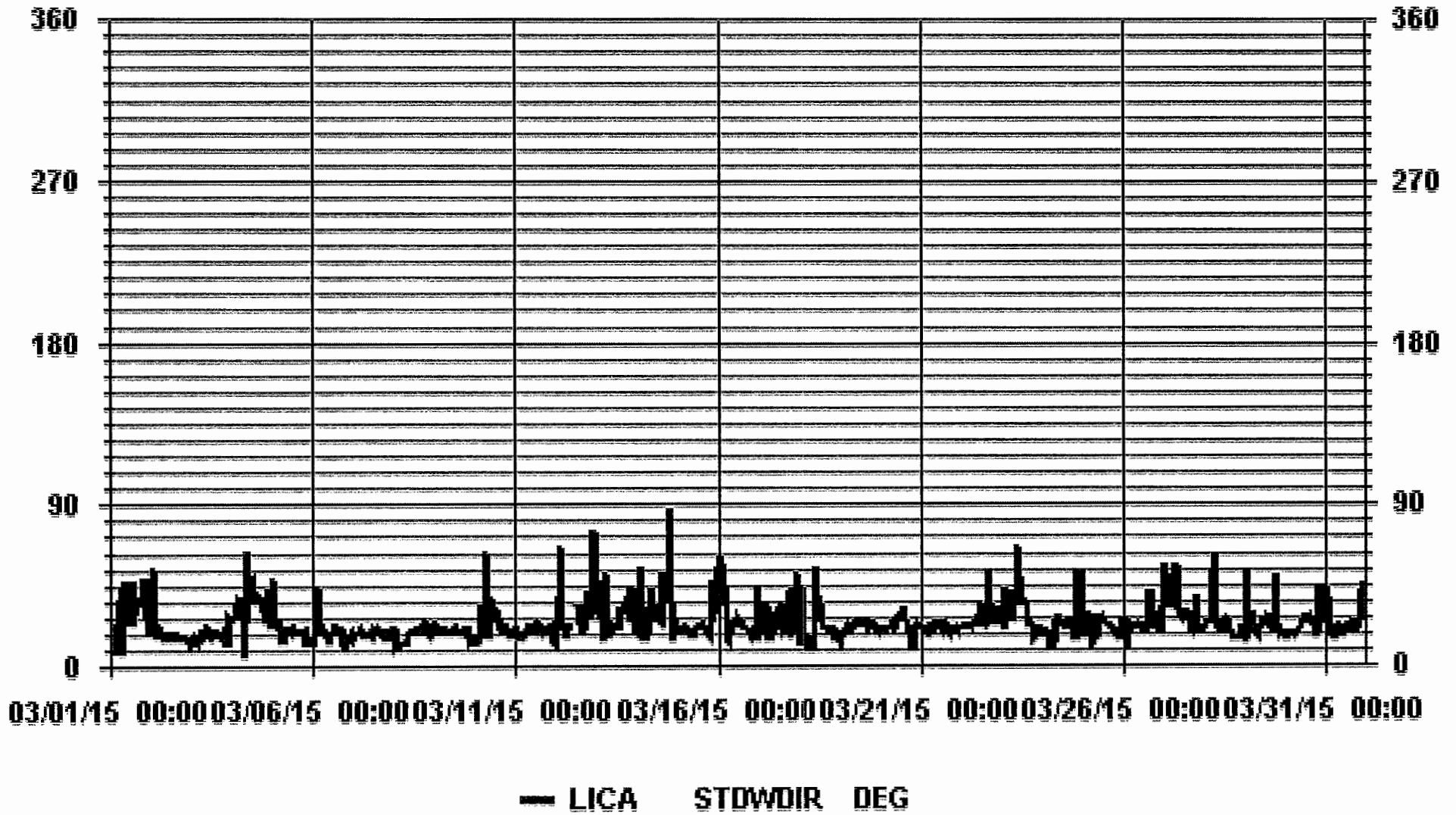
STATUS FLAG CODES

C	CALIBRATION	O	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: December 19, 2014

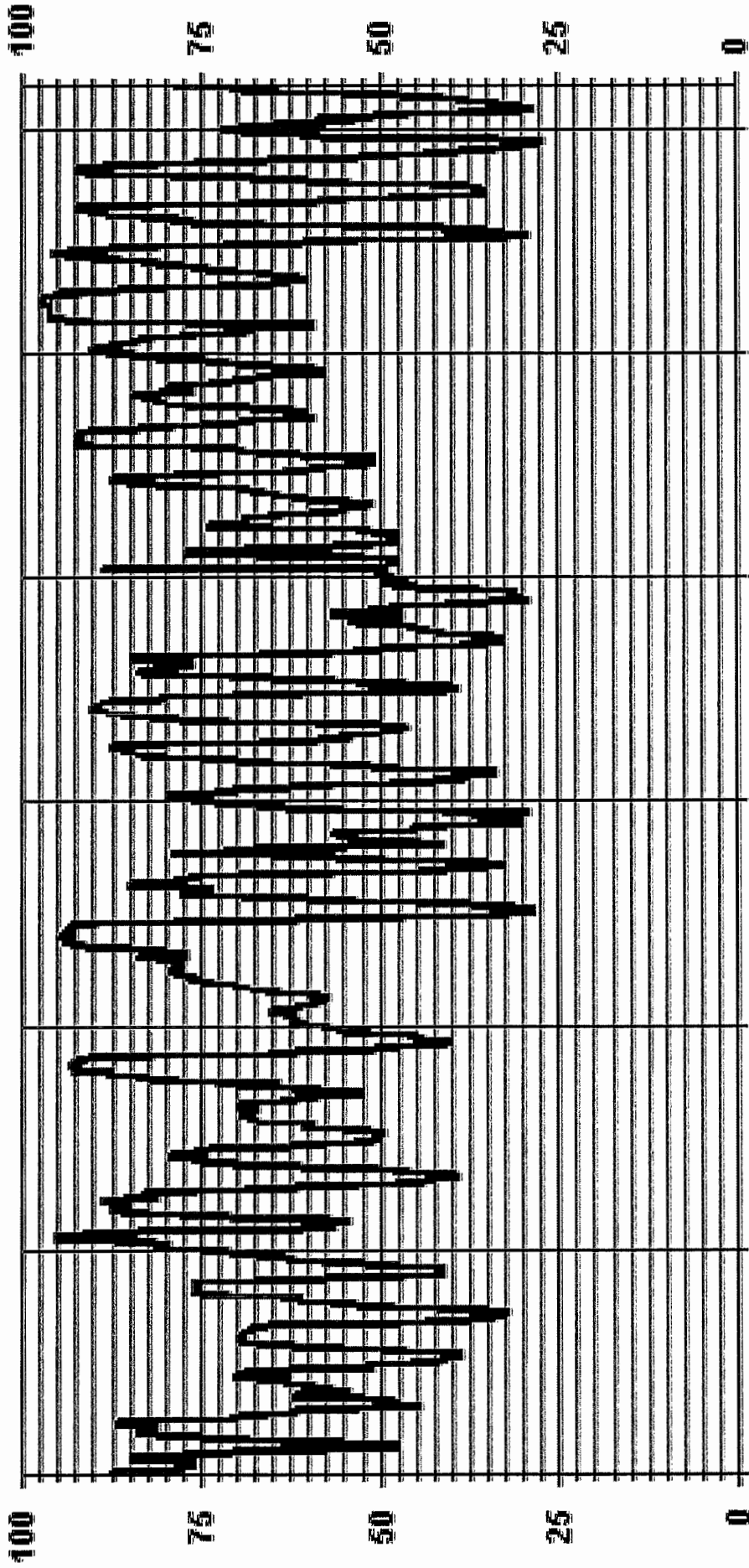
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 739 HRS

01 Hour Averages



RELATIVE HUMIDITY

01 Hour Averages

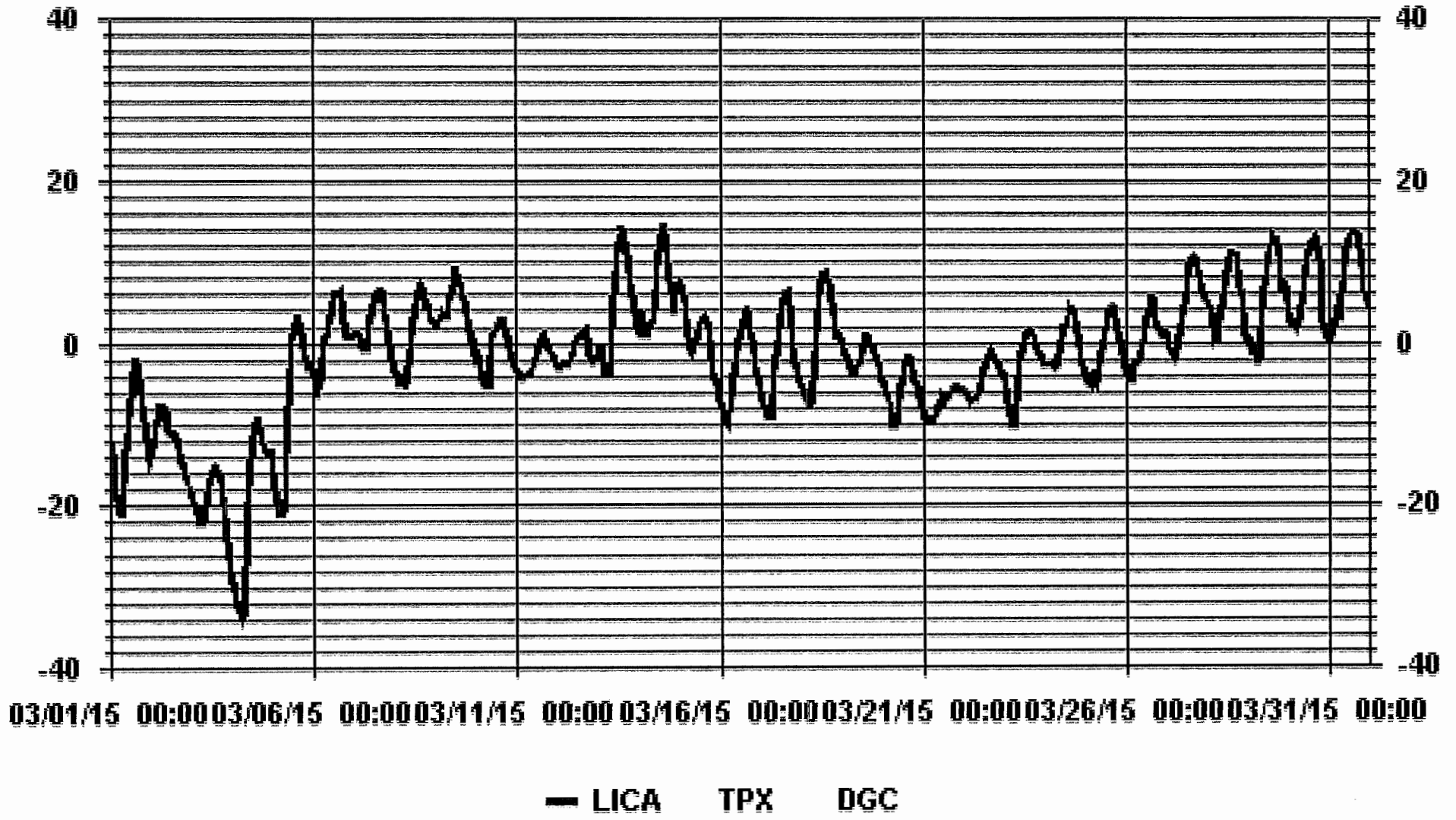


03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA RH %FS

AMBIENT TEMPERATURE

01 Hour Averages



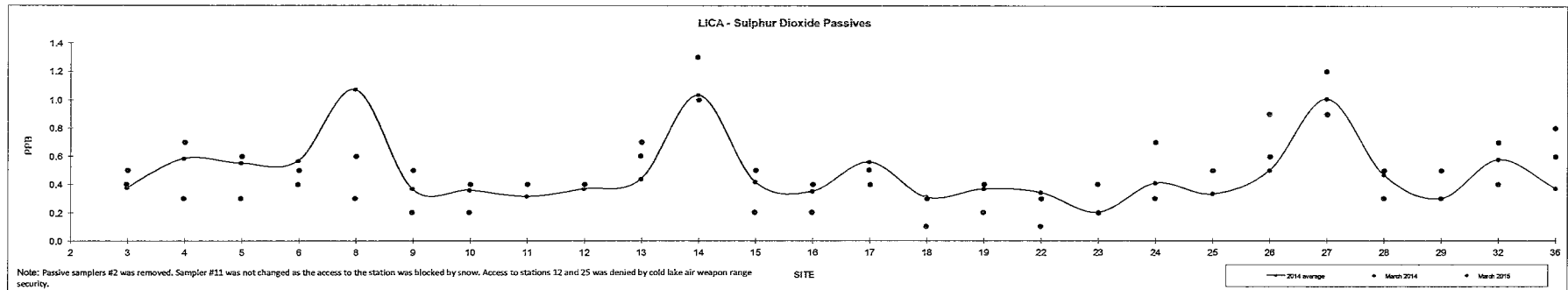
APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

PASSIVE RESULTS

Passive Summary Results for March 2015

LakeIand Industry & Community Association

	Sulphur Dioxide ppb																												March 2015	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	36	Roading		
Mean	NA	0.4	0.6	0.6	0.6	1.1	0.4	0.4	0.3	0.4	0.4	1.0	0.4	0.4	0.6	0.3	0.4	0.3	0.2	0.4	0.3	0.5	1.0	0.5	0.3	0.6	0.4	0.4	-	
Minimum	NA	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1		
Maximum	NA	0.8	0.9	1.0	1.5	3.2	0.7	0.8	0.8	0.6	0.9	2.4	0.8	0.8	1.1	0.7	0.8	0.7	0.4	0.8	0.5	1.2	1.9	0.8	0.7	2.0	0.9	1.3	#18, #22 #14	

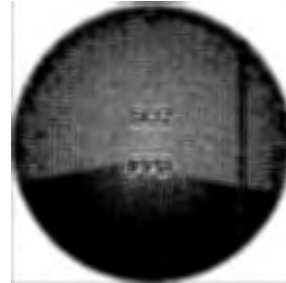


Lakeland Industry & Community Association SO₂ Passive Bubble Map

MARCH 2015

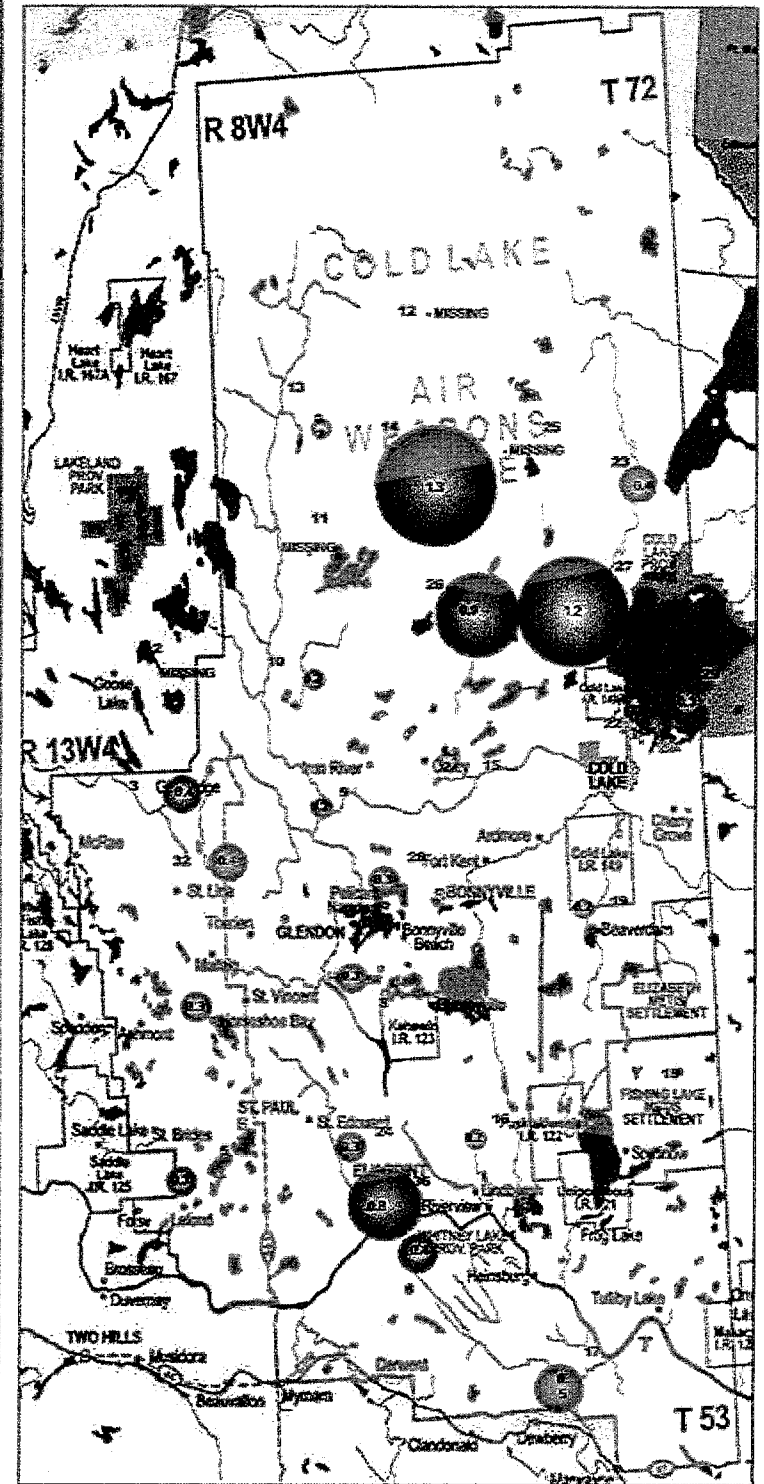
PASSIVE STATIONS

		DUPLICATE
2 - Sand River	MISSING	NA
3 - Therien	0.5 PPB	0.3 PPB
4 - Flat Lake	0.3 PPB	0.3 PPB
5 - Lake Eliza	0.3 PPB	NA
6 - Telegraph Creek	0.4 PPB	NA
8 - Muriel-Kehewin	0.3 PPB	NA
9 - Dupre	0.2 PPB	NA
10 - La Corey	0.2 PPB	NA
11 - Wolf Lake	MISSING	NA
12 - Foster Creek	MISSING	NA
13 - Primrose	0.6 PPB	NA
14 - Maskwa	1.3 PPB	NA
15 - Ardmore	0.2 PPB	NA
16 - Frog Lake	0.2 PPB	NA
17 - Clear Range	0.5 PPB	NA
18 - Fishing Lake	0.1 PPB	NA
19 - Beaverdam	0.2 PPB	NA
22 - Cold Lake South	0.1 PPB	NA
23 - Medley-Martineau	0.4 PPB	NA
24 - Fort George	0.3 PPB	NA
25 - Burnt Lake	MISSING	NA
26 - Mahikan	0.9 PPB	NA
27 - Mahkeses	1.2 PPB	NA
28 - Town of Bonnyville	0.3 PPB	NA
29 - Cold Lake South 2	0.3 PPB	NA
32 - St. Lina	0.4 PPB	NA
36 - Elk Point	0.8 PPB	0.4 PPB



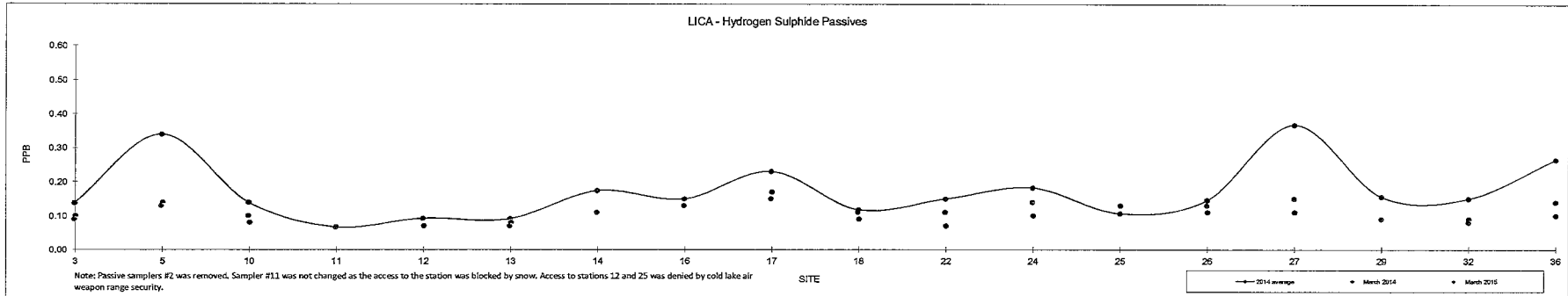
Summary

Minimum : 0.1 PPB - Fishing Lake and Cold Lake South
 Maximum: 1.3 PPB - Maskwa
 Average: 0.4 PPB *Includes Duplicates



Passive Summary Results for March 2015 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb														March 2015					
	3	5	10	11	12	13	14	15	17	18	22	24	25	26	27	29	32	36	Reading	Site
Mean	0.14	0.34	0.14	0.07	0.09	0.09	0.17	0.15	0.23	0.12	0.15	0.18	0.11	0.15	0.37	0.16	0.15	0.27	0.12	-
Minimum	0.05	0.07	0.06	0.04	0.02	0.02	0.05	0.07	0.11	0.04	0.04	0.08	0.03	0.06	0.04	0.05	0.05	0.07	0.07	#13
Maximum	0.24	0.97	0.31	0.11	0.20	0.16	0.30	0.29	0.44	0.17	0.32	0.32	0.16	0.21	1.23	0.33	0.26	1.36	0.15	#17, #27

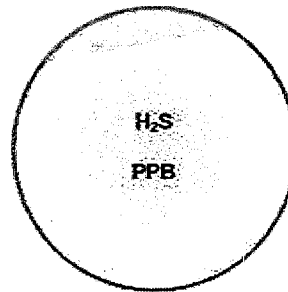


Lakeland Industry & Community Association H₂S Passive Bubble Map

MARCH 2015

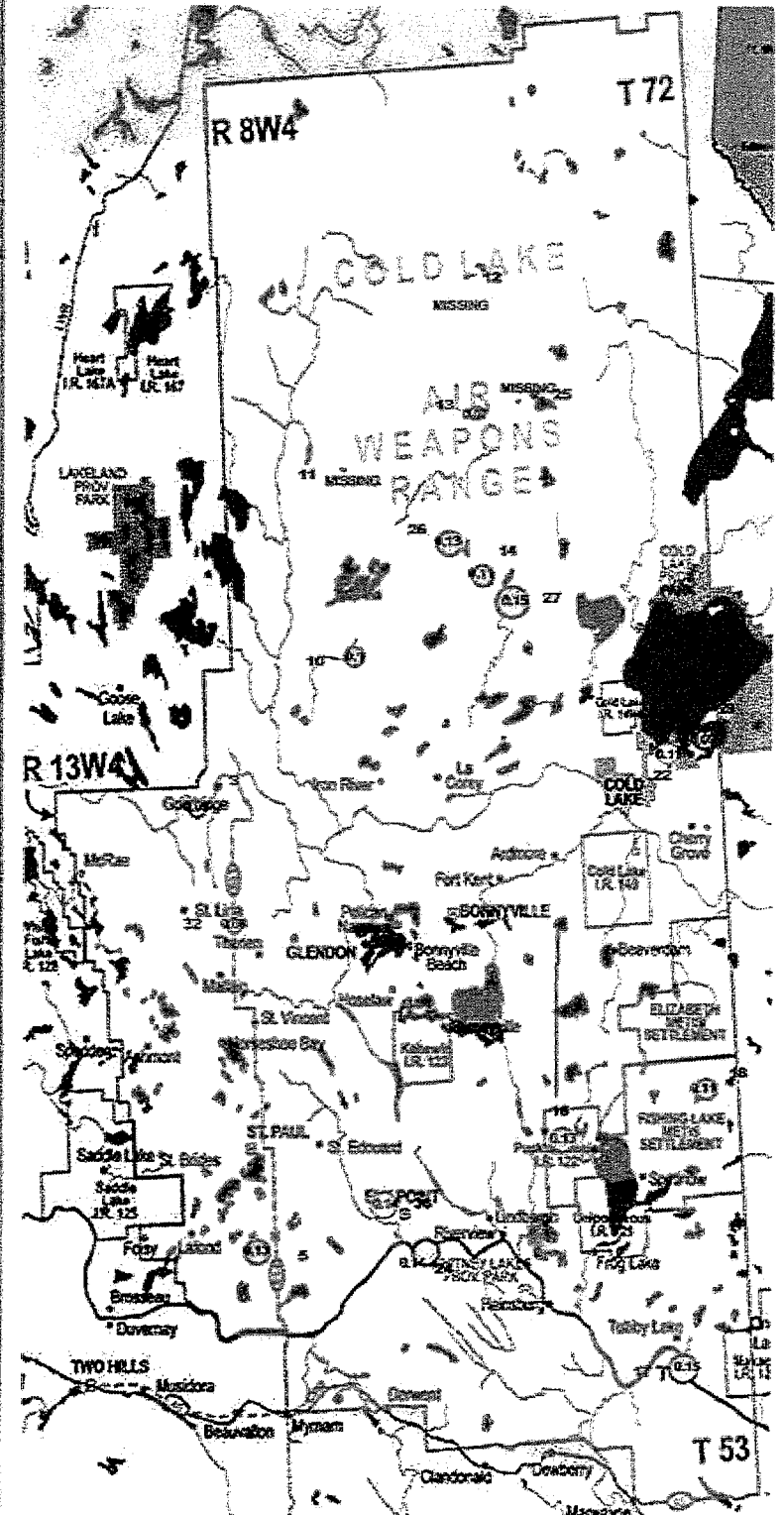
PASSIVE STATIONS

Station	Reading	Duplicate
3 - Therien	0.09 PPB	NA
5 - Lake Eliza	0.13 PPB	NA
10 - La Corey	0.10 PPB	0.10 PPB
11 - Wolf Lake	MISSING	NA
12 - Foster Creek	MISSING	NA
13 - Primrose	0.07 PPB	NA
14 - Maskwa	0.11 PPB	NA
16 - Frog Lake	0.13 PPB	NA
17 - Clear Range	0.15 PPB	NA
18 - Fishing Lake	0.11 PPB	NA
22 - Cold Lake South	0.11 PPB	NA
24 - Fort George	0.14 PPB	NA
25 - Burnt Lake	MISSING	NA
26 - Mahihkan	0.13 PPB	NA
27 - Mahkeses	0.15 PPB	NA
29 - Cold Lake South 2	0.09 PPB	NA
32 - St. Lina	0.08 PPB	NA
36 - Elk Point	0.14 PPB	NA



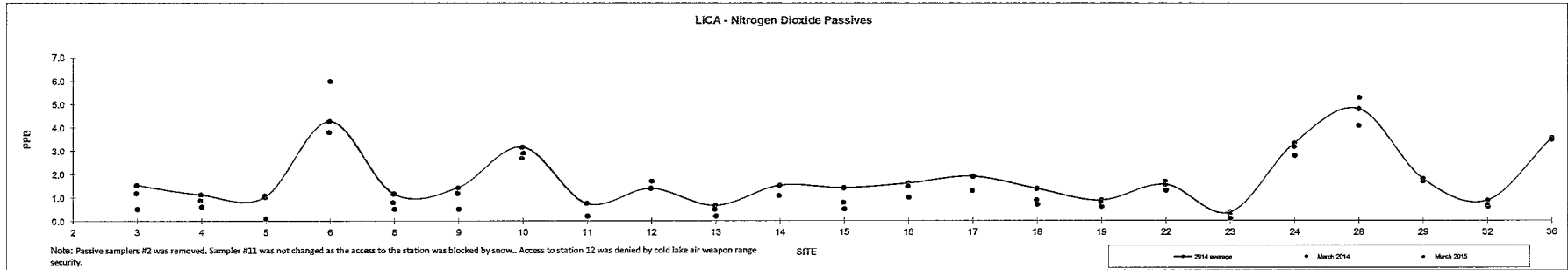
Summary

Minimum : 0.07 PPE - Primrose
 Maximum: 0.15 PPB - Clear Range and Mahkeses
 Average: 0.12 PPB (includes Duplicates)



Passive Summary Results for March 2015 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																										March 2015 Reading	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	36				
Mean	NA	1.5	1.1	1.0	4.3	1.2	1.4	3.2	0.8	1.4	0.7	1.5	1.4	1.6	1.9	1.4	0.9	1.6	0.4	3.3	4.8	1.8	0.9	3.6	1.6	-		
Minimum	NA	0.5	0.3	0.1	2.1	0.5	0.5	1.4	0.2	0.5	0.1	0.5	0.4	0.5	1.1	0.6	0.2	0.6	0.1	1.8	1.6	0.3	0.2	1.4	0.3	#23		
Maximum	NA	4.2	2.3	2.4	6.8	2.8	2.9	5.3	2.5	2.8	1.4	4.0	3.1	3.7	3.1	2.7	2.3	3.2	1.2	5.7	11.3	4.2	2.0	7.9	4.1	#28		

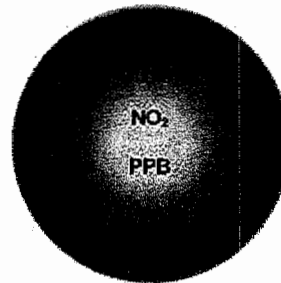


Lakeland Industry & Community Association NO₂ Passive Bubble Map

MARCH 2015

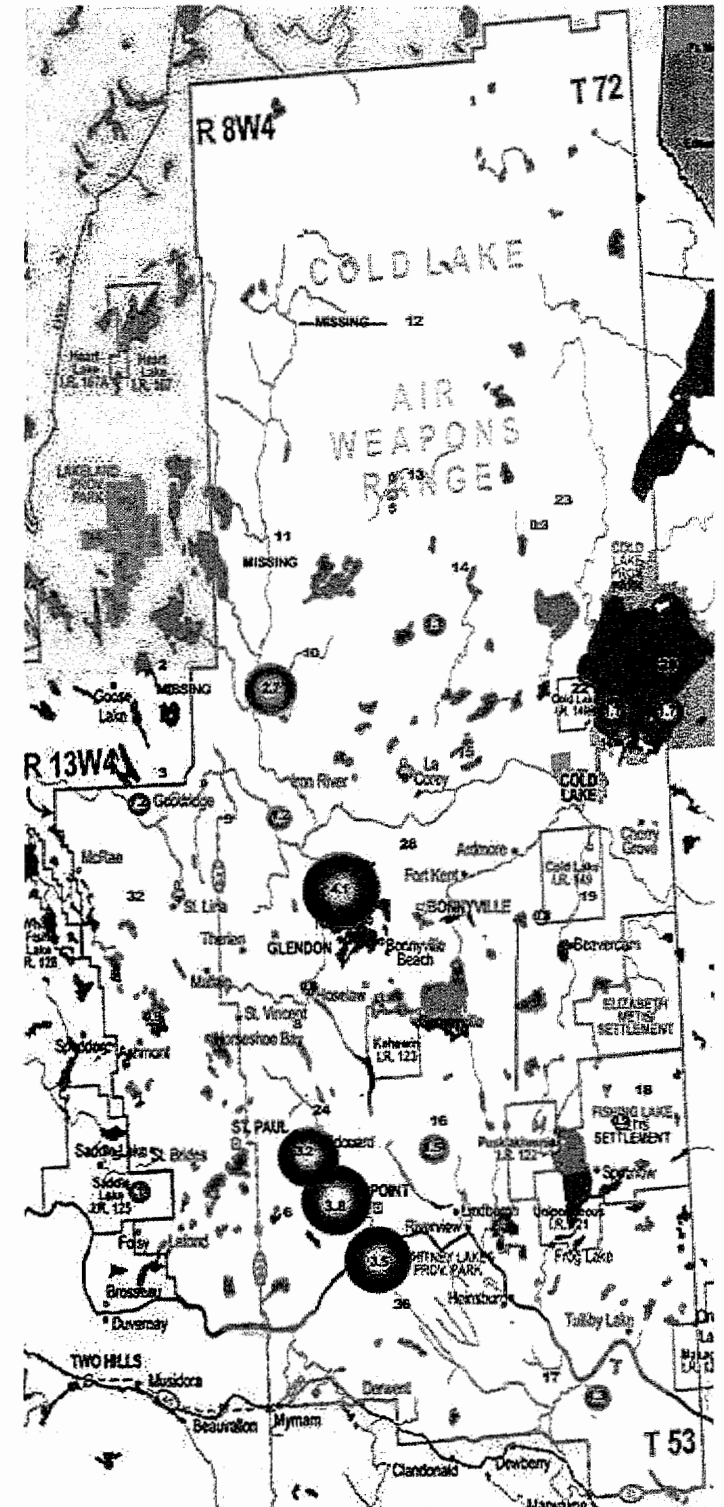
PASSIVE STATIONS

		DUPLICATE
2 - Sand River	MISSING	NA
3 - Therien	1.2 PPB	NA
4 - Flat Lake	0.7 PPB	1.0 PPB
5 - Lake Eliza	1.0 PPB	1.2 PPB
6 - Telegraph Creek	3.8 PPB	NA
8 - Muriel-Kehewin	0.8 PPB	NA
9 - Dupre	1.2 PPB	NA
10 - La Corey	2.7 PPB	NA
11 - Wolf Lake	MISSING	NA
12 - Foster Creek	MISSING	NA
13 - Primrose	0.5 PPB	NA
14 - Maskwa	1.1 PPB	NA
15 - Ardmore	0.8 PPB	NA
16 - Frog Lake	1.5 PPB	NA
17 - Clear Range	1.3 PPB	NA
18 - Fishing Lake	0.9 PPB	NA
19 - Beaverdam	0.8 PPB	NA
22 - Cold Lake South	1.7 PPB	NA
23 - Medley-Martineau	0.3 PPB	NA
24 - Fort George	3.2 PPB	NA
28 - Town of Bonnyville	4.1 PPB	NA
29 - Cold Lake South 2	1.7 PPB	NA
32 - St. Lina	0.7 PPB	NA
36 - Elk Point	3.5 PPB	NA



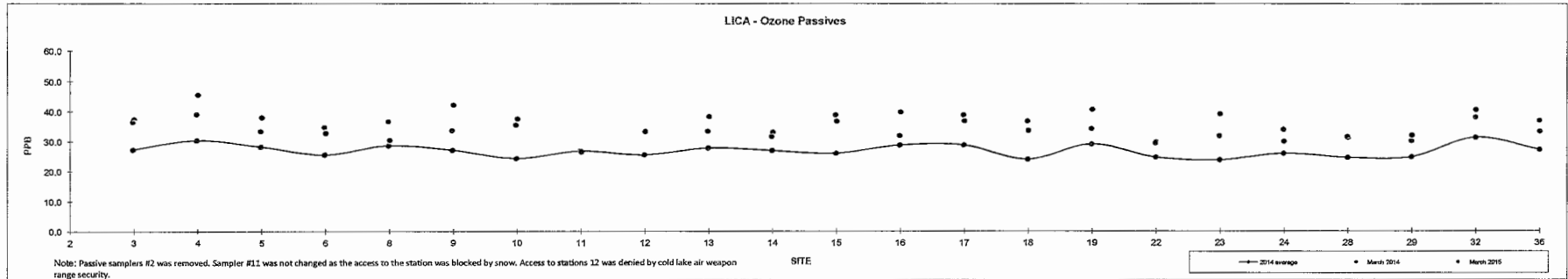
Summary

Minimum : 0.3 PPB - Medley-Martineau
 Maximum: 4.1 PPB - Town of Bonnyville
 Average: 1.6 PPB *Includes Duplicates



Passive Summary Results for March 2015 Lakeand Industry & Community Association

	Ozone ppb																												March 2015 Reading	Site
	2	3	4	5	6	8	9	10	11	12	2014 13	14	15	16	17	18	19	22	23	24	28	29	32	36	34.70					
Mean	NA	27.3	30.4	28.2	25.8	28.6	27.1	24.3	26.6	25.5	27.8	27.0	28.0	28.7	28.8	24.0	29.1	24.7	23.8	25.9	24.5	24.8	31.3	27.3						
Minimum	NA	18.7	20.0	19.9	17.0	20.1	17.8	14.5	13.9	16.4	18.6	21.0	16.5	18.1	19.9	14.9	20.3	18.4	14.4	17.8	18.2	15.4	22.8	13.1	29.50	#22				
Maximum	NA	40.5	45.6	38.0	37.9	41.5	42.3	37.6	51.2	35.2	40.2	34.8	36.8	43.7	38.0	33.6	40.7	32.4	39.2	39.0	31.3	36.7	40.6	34.2	39.10	#24				



Lakeland Industry & Community Association O₃ Passive Bubble Map

MARCH 2015

PASSIVE STATIONS

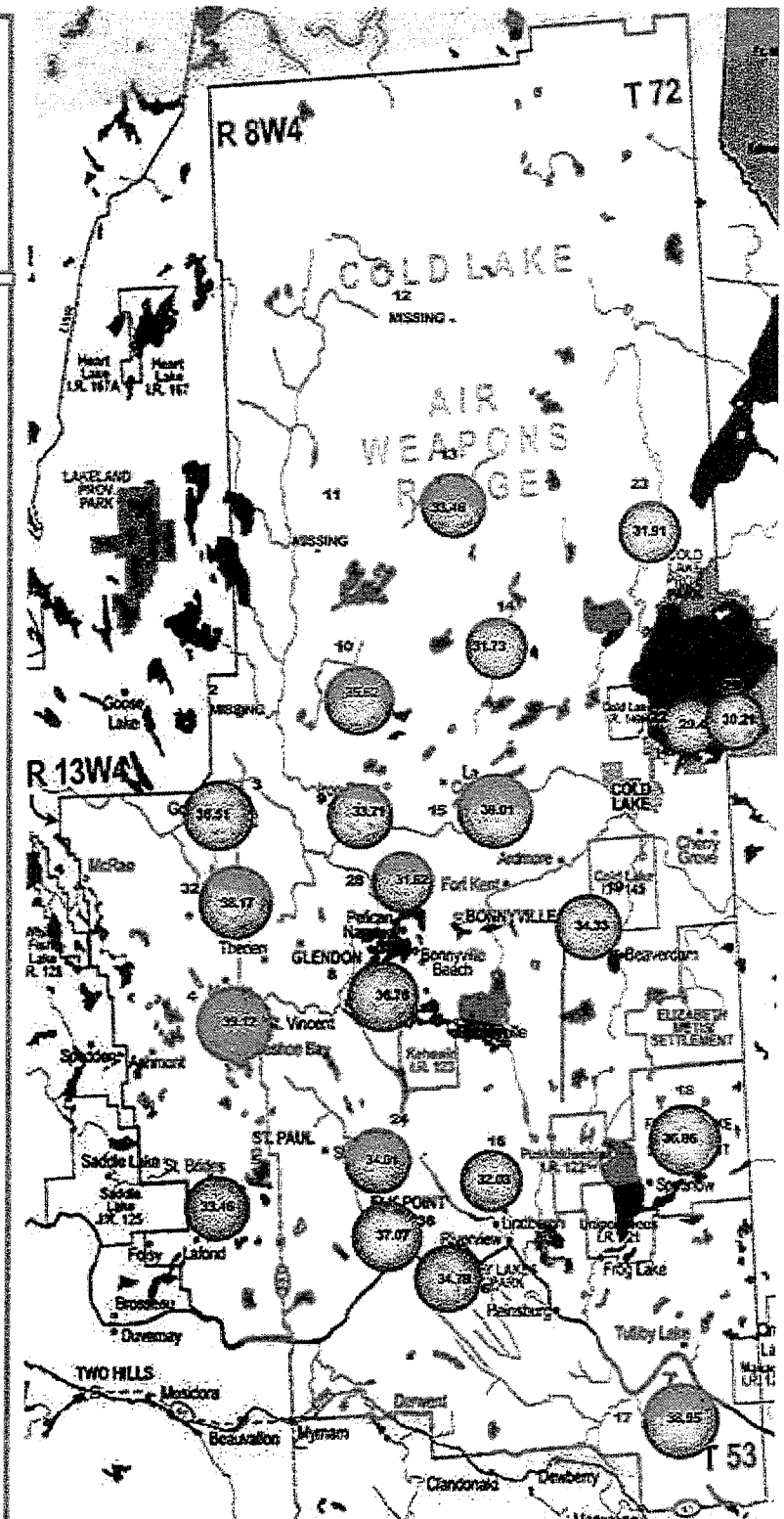
DUPLICATE

3 – Therien	36.51 PPB	NA
4 – Flat Lake	38.58 PPB	39.77 PPB
5 – Lake Eliza	32.68 PPB	34.23 PPB
6 – Telegraph Creek	34.78 PPB	NA
8 – Muriel-Kehewin	36.76 PPB	NA
9 – Dupre	33.71 PPB	NA
10 – La Corey	35.62 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	MISSING	NA
13 – Primrose	33.46 PPB	NA
14 – Maskwa	31.73 PPB	NA
15 – Ardmore	39.01 PPB	NA
16 – Frog Lake	32.03 PPB	NA
17 – Clear Range	38.95 PPB	NA
18 – Fishing Lake	36.86 PPB	NA
19 – Beaverdam	34.33 PPB	NA
22 – Cold Lake South	29.49 PPB	NA
23 – Medley-Martineau	31.91 PPB	NA
24 – Fort George	34.01 PPB	NA
28 – Town of Bonnyville	31.62 PPB	NA
29 – Cold Lake South 2	30.21 PPB	NA
32 – St. Lina	38.17 PPB	NA
36 – Elk Point	37.07 PPB	NA



Summary

Minimum : 29.49 PPB – Cold Lake South
 Maximum: 38.58 PPB – Flat Lake
 Average: 34.7 PPB *Includes Duplicates



Passive Sampler Data Sheet for LICA MARCH 2015

ID	SAMPLER				START		END		NOTES
					DATE	TIME	DATE	TIME	
2		SO ₂	NO ₂	O ₃	NA	NA	NA	NA	Samplers were removed
3	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	14:28	Mar 30, 2015	14:26	See "Duplicates" (+1)
4	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	19:53	April 1, 2015	11:33	See "Duplicates" (+3)
5	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	19:02	April 1, 2015	12:43	See "Duplicates" (+2)
6	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	17:21	Mar 31, 2015	17:52	
8	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	20:58	April 1, 2015	10:19	
9	---	SO ₂	NO ₂	O ₃	Feb 27, 2015	12:07	Mar 30, 2015	12:06	
10	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	15:34	Mar 30, 2015	15:45	See "Duplicates" (+1)
11	H ₂ S	SO ₂	NO ₂	O ₃	----	----	----	----	See "Duplicates" (+1) No access due to snow/mud
12	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	17:36	----	----	Access Denied
13	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	07:04	Mar 31, 2015	12:01	
14	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	08:53	Mar 30, 2015	18:07	
15	---	SO ₂	NO ₂	O ₃	Feb 27, 2015	11:17	Mar 31, 2015	10:34	
16	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	14:22	Mar 31, 2015	14:36	
17	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	16:27	Mar 31, 2015	16:55	
18	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	15:04	Mar 31, 2015	15:28	
19	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	13:29	Mar 31, 2015	13:43	
22	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	10:55	Mar 30, 2015	08:42	
23	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	11:33	Mar 31, 2015	09:13	
24	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	18:02	Mar 31, 2015	18:35	
25	H ₂ S	SO ₂	---	---	Feb 27, 2015	18:58	----	----	Access Denied
26	H ₂ S	SO ₂	---	---	Mar 02, 2015	08:29	Mar 31, 2015	11:12	
27	H ₂ S	SO ₂	---	---	Mar 02, 2015	10:13	Mar 31, 2015	10:45	
28	---	SO ₂	NO ₂	O ₃	Feb 27, 2015	12:26	Mar 30, 2015	11:41	
29	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	10:56	Mar 30, 2015	08:44	
32	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	13:36	Mar 31, 2015	18:47	
36	H ₂ S	SO ₂	NO ₂	O ₃	Mar 02, 2015	18:22	Mar 30, 2015	13:25	See "Duplicates" (+1)
DUPLICATES									
3	---	SO ₂	---	---	Feb 27, 2015	14:28	Mar 30, 2015	14:26	
4	---	SO ₂	NO ₂	O ₃	Mar 02, 2015	19:53	Apr 1, 2015	11:33	
5	---	---	NO ₂	O ₃	Mar 02, 2015	19:02	Apr 1, 2015	12:43	
10	H ₂ S	---	---	---	Feb 27, 2015	15:34	Mar 30, 2015	15:45	
11	H ₂ S	---	---	---	----	----	----	----	No access due to deep snow/mud/melt
36	---	SO ₂	---	---	Mar 02, 2015	18:22	Mar 30, 2015	13:25	

VOC RESULTS

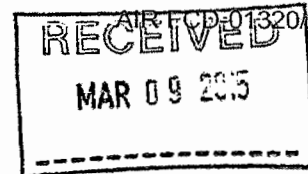
Sample ID: 15030061-002

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Mar 1, 2015

Priority: Normal

Maxxam



VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/Mar 01, 2015

Sampler S/N: 6167
Canister ID: 85643
Canister Installation Date/Time: Feb 26, 2015 @ 10:54
Canister Removal Date/Time: Feb 26, 2015 @ A.Y.
March 05, 2015 @ 18:44

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 1, 2015	00:00 Mar 1, 2015	00:00 Mar 2, 2015	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
NA	NA	NA

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	23.4

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

Volatile Organics Data Results

Date: MARCH 1, 2015
Canister ID: S5643

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	< 0.03
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	< 0.03
2,3-Dimethylpentane	0.07
2,4-Dimethylpentane	< 0.03
2-Methylheptane	< 0.03
2-Methylhexane	0.04
2-Methylpentane	0.17
3-Methylheptane	< 0.03
3-Methylhexane	< 0.03
3-Methylpentane	0.11
Acetone	1.92
Acrolein	< 0.03
Benzene	0.21
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.07
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.68
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.14
Cyclopentane	0.08
Dibromochloromethane	< 0.03
Ethanol	2.59
Ethyl acetate	< 0.03
Ethylbenzene	0.04
Freon-11	0.30

Volatile Organics Data Results

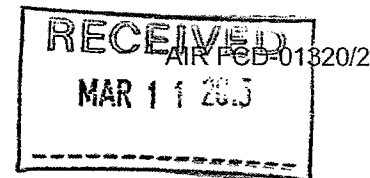
Date: MARCH 1, 2015
Canister ID: S5643

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.03
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.03
Isobutane	1.08
Isopentane	0.89
Isoprene	< 0.03
Isopropyl alcohol	< 0.03
Isopropylbenzene	< 0.03
m,p-Xylene	0.19
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	< 0.03
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.22
Methylcyclopentane	< 0.03
Methylene chloride	0.55
n-Butane	2.55
n-Decane	< 0.03
n-Dodecane	< 0.03
n-Heptane	0.09
n-Hexane	0.18
n-Nonane	< 0.03
n-Octane	< 0.03
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.07
p-Diethylbenzene	< 0.03
p-Ethyltoluene	0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.26
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

Sample ID: 15030080-002

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/March 7, 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/Mar 07 2015

Sampler S/N: 6167
Canister ID: 3 5615
Canister Installation Date/Time: March 05, 2015 @ 18:51
Canister Removal Date/Time: March 09, 2015 @ 10:49

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 7, 2015	00:00 Mar 7, 2015	00:00 Mar 8, 2015	24

Flow Settings		
Meter Reading (scm)	Pot Set Pt.	Pump Pressure Setting (psig)
NA	NA	NA

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.8	23.8

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 Signature:

Sample in - by Alex Yakupov
Sample out - Alex Yakupov

Volatile Organics Data Results

Date: MARCH 7, 2015
Canister ID: S5615

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	0.04
1,2,4-Trimethylbenzene	0.05
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	0.27
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	0.59
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	2.21
2,3-Dimethylpentane	< 0.03
2,4-Dimethylpentane	< 0.03
2-Methylheptane	0.93
2-Methylhexane	2.31
2-Methylpentane	< 0.03
3-Methylheptane	0.37
3-Methylhexane	< 0.03
3-Methylpentane	3.82
Acetone	49.8
Acrolein	< 0.03
Benzene	2.51
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	152
Carbon tetrachloride	0.08
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.30
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	0.07
cis-2-Pentene	0.09
Cyclohexane	9.86
Cyclopentane	2.71
Dibromochloromethane	< 0.03
Ethanol	8.70
Ethyl acetate	< 0.03
Ethylbenzene	1.07
Freon-11	0.20

Volatile Organics Data Results

Date: MARCH 7, 2015
Canister ID: S5615

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.03
Freon-12	0.29
Hexachloro-1,3-butadiene	< 0.03
Isobutane	0.32
Isopentane	4.25
Isoprene	< 0.03
Isopropyl alcohol	19.8
Isopropylbenzene	0.03
m,p-Xylene	1.86
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	14.5
Methyl ethyl ketone	71.4
Methyl isobutyl ketone	5.70
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	6.12
Methylcyclopentane	< 0.03
Methylene chloride	0.10
n-Butane	0.44
n-Decane	< 0.03
n-Dodecane	< 0.03
n-Heptane	< 0.03
n-Hexane	< 0.03
n-Nonane	< 0.03
n-Octane	0.93
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.53
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	42.1
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	0.19
trans-2-Pentene	0.29
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

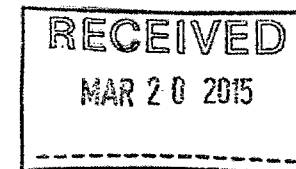
Sample ID: 15030186-003

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Mar 13, 2015

Maxxam Analytics Inc.



Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
 Location: CLS Canister ID: 1531
 Station ID: Lica 01 Canister Installation Date/Time: March 09, 2015 @ 10:51
 Field Sample ID: LICA/VOC/CLS/March 13 2015 Canister Removal Date/Time: March 18, 2015 @ 10:08

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 13, 2015</u>	<u>00:00</u> <u>Mar 13, 2015</u>	<u>00:00</u> <u>Mar 14, 2015</u>	<u>24</u>

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>28.8</u>	<u>24.0</u>

23.9⁵
SWR

Canister valve open prior to sampling? YES
 Timer set to 0.00 minutes prior to sampling? YES
 Canister valve closed prior to disconnection? YES

Comments:

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Volatile Organics Data Results

Date: MARCH 13, 2015
Canister ID: 1531

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	0.10
2,3-Dimethylpentane	0.06
2,4-Dimethylpentane	< 0.03
2-Methylheptane	0.03
2-Methylhexane	0.08
2-Methylpentane	0.26
3-Methylheptane	0.03
3-Methylhexane	0.08
3-Methylpentane	0.15
Acetone	3.12
Acrolein	< 0.03
Benzene	0.23
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.12
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.89
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.17
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	1.51
Ethyl acetate	< 0.03
Ethylbenzene	0.05
Freon-11	0.34

Volatile Organics Data Results

Date: MARCH 13, 2015
Canister ID: 1531

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.11
Freon-114	0.03
Freon-12	0.77
Hexachloro-1,3-butadiene	< 0.03
Isobutane	1.38
Isopentane	0.95
Isoprene	< 0.03
Isopropyl alcohol	0.11
Isopropylbenzene	< 0.03
m,p-Xylene	0.15
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.43
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.23
Methylcyclopentane	0.16
Methylene chloride	< 0.03
n-Butane	2.60
n-Decane	< 0.03
n-Dodecane	< 0.03
n-Heptane	0.11
n-Hexane	0.28
n-Nonane	< 0.03
n-Octane	0.05
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.06
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.21
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

Sample ID: 15030213-001

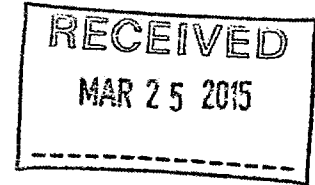
Customer ID: LICA

AIR FCD-01320/2

Cust Samp ID: LICA/VOC/CLS/March 19, 2015

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet



Client: LICA

Sampler s/n: S 56 R.V. 6167

Location: CLS

Canister ID: S 5634

Station ID: Lica 01

Canister Installation Date/Time: March 18, 2015 @ 10:12

Field Sample ID: LICA/VOC/CLS/March 19, 2015 Canister Removal Date/Time: March 23, 2015 @ 10:31

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 19, 2015</u>	<u>00:00 Mar 19, 2015</u>	<u>00:00 Mar 20, 2015</u>	<u>24</u>

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>28.8</u>	<u>25.1</u>

Canister valve open prior to sampling? YES
 Timer set to 0.00 minutes prior to sampling? YES
 Canister valve closed prior to disconnection? YES

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: March 23, 2015

Volatile Organics Data Results

Date: MARCH 19, 2015
Canister ID: S5634

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	< 0.03
2,3,4-Trimethylpentane	0.09
2,3-Dimethylbutane	< 0.03
2,3-Dimethylpentane	< 0.03
2,4-Dimethylpentane	< 0.03
2-Methylheptane	< 0.03
2-Methylhexane	< 0.03
2-Methylpentane	0.12
3-Methylheptane	< 0.03
3-Methylhexane	0.06
3-Methylpentane	0.15
Acetone	2.47
Acrolein	< 0.03
Benzene	0.20
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.11
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	< 0.03
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.21
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	1.01
Ethyl acetate	< 0.03
Ethylbenzene	0.04
Freon-11	0.32

Volatile Organics Data Results

Date: MARCH 19, 2015
Canister ID: S5634

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.03
Freon-12	< 0.03
Hexachloro-1,3-butadiene	< 0.03
Isobutane	< 0.03
Isopentane	0.41
Isoprene	< 0.03
Isopropyl alcohol	0.43
Isopropylbenzene	< 0.03
m,p-Xylene	0.12
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	< 0.03
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.10
Methylcyclopentane	< 0.03
Methylene chloride	0.65
n-Butane	< 0.03
n-Decane	0.22
n-Dodecane	0.41
n-Heptane	< 0.03
n-Hexane	10.6
n-Nonane	< 0.03
n-Octane	0.03
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	0.37
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.05
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.35
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

Sample ID: 15030234-001

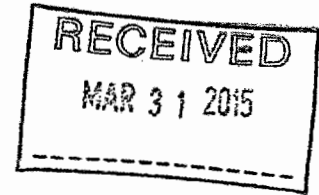
AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/March 25, 2015

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet



Client: LICA

Sampler s/n: 6167

Location: CLS

Canister ID: 2471

Station ID: Lica 01

Canister Installation Date/Time: March 23, 2015 @ 10:32

Field Sample ID: LICA/VOC/CLS/March 25, 2015 Canister Removal Date/Time: March 27, 2015 @ 10:08

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 25, 2015	00:00 Mar 25, 2015	00:00 Mar 26, 2015	24

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.8	23.8

24 psi
air

Canister valve open prior to sampling?: YES
 Timer set to 0.00 minutes prior to sampling? YES
 Canister valve closed prior to disconnection?: YES

Comments:

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

Date: March 27, 2015

Volatile Organics Data Results

Date: MARCH 25, 2015
Canister ID: 2471

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	0.35
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	< 0.03
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	0.07
2,3-Dimethylpentane	0.03
2,4-Dimethylpentane	< 0.03
2-Methylheptane	< 0.03
2-Methylhexane	0.05
2-Methylpentane	0.11
3-Methylheptane	< 0.03
3-Methylhexane	0.04
3-Methylpentane	0.06
Acetone	2.33
Acrolein	< 0.03
Benzene	0.18
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	0.57
Carbon tetrachloride	0.10
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.68
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.03
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	1.04
Ethyl acetate	< 0.03
Ethylbenzene	< 0.03
Freon-11	0.30

Volatile Organics Data Results

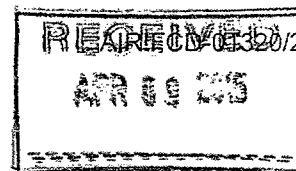
Date: MARCH 25, 2015
Canister ID: 2471

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	< 0.03
Freon-12	0.66
Hexachloro-1,3-butadiene	< 0.03
Isobutane	0.64
Isopentane	0.42
Isoprene	< 0.03
Isopropyl alcohol	0.10
Isopropylbenzene	< 0.03
m,p-Xylene	0.07
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.31
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.04
Methylcyclopentane	0.04
Methylene chloride	0.17
n-Butane	1.25
n-Decane	0.03
n-Dodecane	< 0.03
n-Heptane	0.05
n-Hexane	0.09
n-Nonane	< 0.03
n-Octane	< 0.03
n-Pentane	0.46
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.03
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.12
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

Sample ID: 15040032-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/March 31, 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: ELS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/March 31 2015

Sampler S/N: 6167
Canister ID: 247 A.Y. H 3286
Canister Installation Date/Time: March 27, 2015 @ 10:10
Canister Removal Date/Time: April 3, 2015 @ 11:04

Table with 4 columns: Sample Date, Start Time (MST), End Time (MST), Elapsed Time (Hours). Row 1: March 31 2015, 00:00, April 1, 2015, 24

Table with 3 columns: Meter Reading (sccm), Pot Set Pt., Pump Pressure Setting (psig). Row 1: 10.0, 6.52, 24

Table with 2 columns: Initial Canister Vacuum (inHg), Final Canister Pressure (psig). Row 1: 28.8, 23.9

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:

Four horizontal lines for handwritten comments.

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: April 3, 2015

Volatile Organics Data Results

Date: MARCH 31, 2015
Canister ID: H3286

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	0.06
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	0.38
1-Butene	0.22
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	0.08
2,2-Dimethylbutane	< 0.03
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	0.06
2,3-Dimethylpentane	0.06
2,4-Dimethylpentane	0.04
2-Methylheptane	< 0.03
2-Methylhexane	0.06
2-Methylpentane	0.17
3-Methylheptane	< 0.03
3-Methylhexane	0.06
3-Methylpentane	0.09
Acetone	2.59
Acrolein	< 0.03
Benzene	0.20
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	0.72
Carbon tetrachloride	0.09
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.65
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.04
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	1.58
Ethyl acetate	< 0.03
Ethylbenzene	0.04
Freon-11	0.26

Volatile Organics Data Results

Date: MARCH 31, 2015
Canister ID: H3286

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.03
Freon-12	0.57
Hexachloro-1,3-butadiene	< 0.03
Isobutane	0.58
Isopentane	0.72
Isoprene	< 0.03
Isopropyl alcohol	0.28
Isopropylbenzene	< 0.03
m,p-Xylene	0.13
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.28
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.05
Methylcyclopentane	0.08
Methylene chloride	< 0.03
n-Butane	1.50
n-Decane	0.19
n-Dodecane	< 0.03
n-Heptane	0.06
n-Hexane	0.11
n-Nonane	< 0.03
n-Octane	< 0.03
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	0.08
o-Ethyltoluene	< 0.03
o-Xylene	0.05
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.21
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

PAH RESULTS

Sample ID: 15030061-003

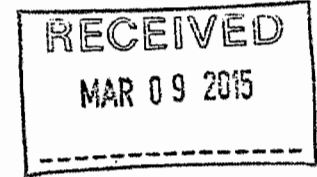
AIR FCD-01321/2

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Mar 1, 2015

Priority: Normal

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-08
 Location: CLS Motor S/N: 1138
 Station ID: LICA 01 Installation Date/Time: Feb 26, 2015 @ 10:33
 Field Sample ID: LICA/PUF/CLS/March 1, 2015 Removal Date/Time: March 05, 2015 @ 18:24

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 1, 2015	00:00 March 1, 2015	00:00 March 2, 2015	24

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: 01 - Sep - 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (Volume (Vstd m ³)
717	229	-10.5	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 Signature: Sample in - Alex Yakupov
Sample out - Alex Yakupov

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

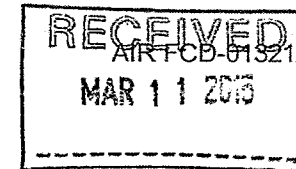
Date: MARCH 1, 2015
PUF S/N: TE08

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.37
2-Methylnaphthalene	0.72
3-Methylchoianthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.15
Acenaphthylene	0.04
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
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	0.10
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	1.34
Perylene	< 0.01
Phenanthrene	0.23
Pyrene	0.05
Retene	0.06

Sample ID: 15030080-003

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/March 7, 2015



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/March 7, 2015

Puf+ S/N: TE 01
Motor S/N: 1138
Installation Date/Time: March 5, 2015 @ 18:28
Removal Date/Time: March 09, 2015 @ 10:34

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 7, 2015	00:00 March 7, 2015	00:00 March 8, 2015	24

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: 01 - sep - 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature ()	Volume (Vstd m ³)
713	229	3.0	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:

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 7, 2015
PUF S/N: TE01

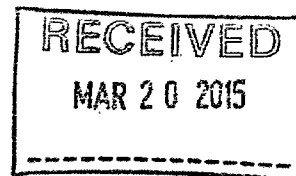
PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.07
2-Methylnaphthalene	0.12
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 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	0.12
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.02
Retene	< 0.01

Sample ID: 15030186-004

AIR FCD-01321/2

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Mar 13, 2015

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: 9801
Location: CLS Motor S/N: 1138
Station ID: LICA 01 Installation Date/Time: March 09, 2015 @ 10:37
Field Sample ID: LICA/PUF/CLS/March 13, 2015 Removal Date/Time: March 18, 2015 @ 09:43

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 13, 2015	00:00 March 13, 2015	00:00 March 14, 2015	24

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: 01-SEP-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
715	229	5.6	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 Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 13, 2015
PUF S/N: 9801

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.17
2-Methylnaphthalene	0.32
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	0.11
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,i)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.12
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.31
Perylene	< 0.01
Phenanthrene	0.19
Pyrene	0.04
Retene	0.02

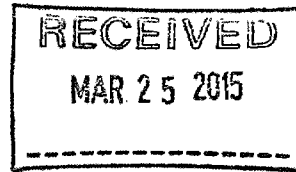
Sample ID: 15030213-002

Customer ID: LICA

AIR FCD-01321/2

Cust Samp ID: LICA/PUF/CLS/March 19, 2015

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: A 1302
 Location: CLS Motor S/N: 1128
 Station ID: LICA 01 Installation Date/Time: March 18, 2015 @ 09:45
 Field Sample ID: LICA/PUF/CLS/March 19, 2015 Removal Date/Time: March 23, 2015 @ 10:14

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 19, 2015	00:00 March 19, 2015	00:00 March 20, 2015	24

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: 01-SEP-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
713	229	-0.5	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 Signature: sample in - by Alex Yakupov
sample out - by Alex Yakupov

Date : March 23, 2015

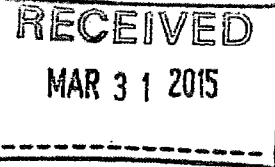
Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 19, 2015
PUF S/N: A1302

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.11
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	0.03
Benzo(c)phenanthrene	0.02
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	0.03
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.07
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.03
Retene	0.01

Sample ID: 15030234-002

AIR FCD-01321/2



Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/March 25, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/March 25, 2015
Puf+ S/N: TE 11
Motor S/N: 1138
Installation Date/Time: March 23, 2015 @ 10:16
Removal Date/Time: March 27, 2015 @ 09:33

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 25, 2015	00:00 March 25, 2015	00:00 March 26, 2015	24

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: 01-SEP-11

Sampling Data			
Average Pressure(mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
716	229	-0.2	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 Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

March 27, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

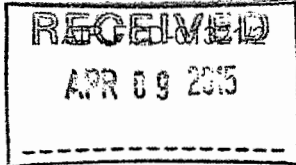
Date: MARCH 25, 2015
PUF S/N: TE11

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.12
2-Methylnaphthalene	0.21
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	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.25
Perylene	< 0.01
Phenanthrene	0.15
Pyrene	0.04
Retene	0.02

Sample ID: 15040032-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/March 31, 2015



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-06
 Location: CLS Motor S/N: 1138
 Station ID: LICA 01 Installation Date/Time: March 27, 2015 @ 09:35
 Field Sample ID: LICA/PUF/CLS/March 31, 2015 Removal Date/Time: April 3, 2015 @ 10:49 (A.V.)

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 31, 2015	00:00 Mar 31, 2015	00:00 Apr 1, 2015	24

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: 01-SEP-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
702	229	8.3 °C	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:

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: April 3, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 31, 2015
PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.17
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	0.02
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	0.01
Chrysene	0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.07
Fluorene	0.10
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.12
Perylene	< 0.01
Phenanthrene	0.25
Pyrene	0.06
Retene	0.04

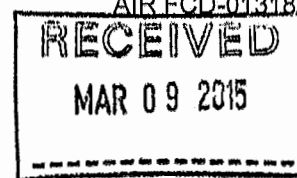
PARTISOL RESULTS

Sample ID: 15030062-001

Customer ID: LICA
Cust Samp ID: LICA P4130544

Partisol Sample Data Sheet

AIR ECD-01318/2



Priority: Normal

Date Sampled: Mar 1, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4130544

Start Time 00:00 Mar 01, 2015

End Time 00:00 Mar 02, 2015

Status OK

Std Vol 21.820

Valid Time 20:40

Total Time 24

Comments: Weather Conditions, etc.

Technician Signature: Alex Yakupov

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"
- 8) Make Sure it is left in RUN mode

Note: Beginning & End Date should be same date

Sample ID: 15030081-001

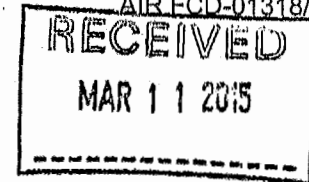
Customer ID: LICA

Cust Samp ID: LICA P4131473

Partisol Sample Data Sheet

Priority: Normal

AIR ECD-01318/2



Date Sampled: Mar 7, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4131473

Start Time 00:00 Mar 7, 2015

End Time 00:00 Mar 8, 2015

Status "E"

Std Vol 24.246

Valid Time 23:55

Total Time 24

Comments: Weather Conditions, etc.

"E" status means power outage occurred during the waiting period. This did not affect sampling operations. Sampling has happened according to the scheduled set up. Operations are normal.

Technician Signature: Alex Yakupov

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"
8) Make Sure It is left in RUN mode

Note: Beginning & End Date should be same date

Sample ID: 15030187-001

Customer ID: LICA

Cust Samp ID: LICA P4130542

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: March 13, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P413 0542

Start Time 00:00 March 13, 2015

End Time 00:00 March 14, 2015

Status OK

Std Vol 28.494

Valid Time 23:27

Total Time 24

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Vakupov

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"
8) Make Sure it is left in RUN mode

Note: Beginning & End Date should be same date

Sample ID: 15030212-001

Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: CLS Filter #P4131472

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: March 19, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4131472

Start Time 00:00 March 19, 2015

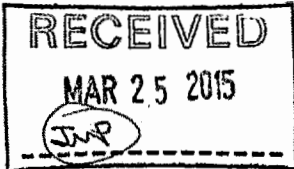
End Time 00:00 March 20, 2015

Status OK

Std Vol 24.041

Valid Time 23:33

Total Time 24



Comments: Weather Conditions, etc.

plastic container requires replacement
(for a sampling filter)

Technician Signature:

Alex Yakupov
Date: March 23, 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: 15030233-001

Customer ID: LICA

Cust Samp ID: LICA P4131475

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: March 25, 2015

Location: CLP

Parameter: TSP PM10

PM2.5

Filter #: LICA P413 1475

Start Time: 00:00 March 25, 2015

End Time: 00:00 March 26, 2015

Status: OK

Std Vol: 24.404

Valid Time: 23:48

Total Time: 24

Comments: Weather Conditions, etc.

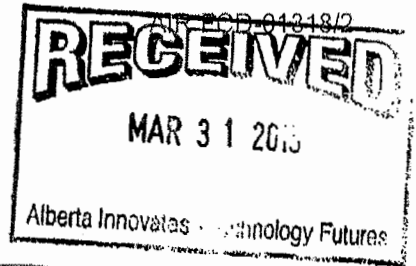
Technician Signature: Alex Yakupov

Date: March 27, 2015

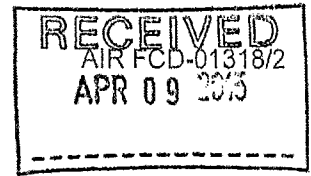
Programming

- 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: 15040033-001



Customer ID: LICA

Partisol Sample Data Sheet

Cust Samp ID: LICA P4131474

Priority: Normal

Date Sampled: March 31, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P 413 1474

Start Time 00:00 March 31, 2015

End Time 00:00 April 1, 2015

Status OK

Std Vol 23.491

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Vakupov

Date: April 3, 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

Partisol Sampler Results

Date	Filter.NO.	Concentration (mg)
MARCH 1	P4130544	0.057
MARCH 7	P4131473	0.037
MARCH 13	P4130542	0.074
MARCH 19	P4131472	0.085
MARCH 25	P4131475	0.145
MARCH 31	P4131474	0.071

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam Thermo 43i SO2 Analyzer Calibration

Date: 3-Mar-15 **Start/End Time (mst):** 8:38 - 12:52
Company: LICA **Calibration Purpose:** Monthly
Station Name/Location: Cold Lake South **Converter Make & Model:** NA
Performed by: Chris W / Alex Y **Converter Serial #:** NA
Application H₂S/TRS/SO₂: SO2 **Cal Gas Expiry Date:** 26-Mar-17

Analyzer:
Serial Number: 806528242 **Range ppb:** 500
Last Calibration Date: 18-Feb-15 **As Found C.F.:** 1.009
Previous Cal High Point C.F.: 0.999 **New C.F.:** 1.000

MOTHERBOARD:

As found:	As left:
BKG: 6.9	BKG: 7.0
COEF: 1.107	COEF: 1.120
3.3 3.3	3.3 3.3
5.0 5.0	5.0 5.0
15.0 15.0	15.0 15.0
24.0 23.9	24.0 24.0
-3.3 -3.2	-3.3 -3.2

INTERFACE BOARD:

As found:	As left:
PMT: -631.6	PMT: -631.6
FLASH: 716	FLASH: 716
3.3 3.3	3.3 3.3
5.0 5.0	5.0 5.0
15.0 14.8	15.0 14.8
-15.0 -15.1	-15.0 -15.1
24.0 23.7	24.0 23.7
INTERNAL: 28.8	INTERNAL: 28.6
CHAMBER: 44.9	CHAMBER: 45.2
PERM OVEN GAS: 45.0	PERM OVEN GAS: 45.0
PERM OVEN HEATER: 44.20	PERM OVEN HEATER: 44.19
PRESSURE: 682.5	PRESSURE: 682.5
SAMPLE FLOW: 0.442	SAMPLE FLOW: 0.441
LAMP INTENSITY: 74%	LAMP INTENSITY: 75%
CONVERTER: NA	CONVERTER: NA
CONVERTER SET: NA	CONVERTER SET: NA
Internal Span: 386.2	Internal Span: 387.4

Calibrator: **Calibrator Flow Targets:**

Flow Meter ID's: NA	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
Make & Model: Environoncs	zero	5000	0	5000
Serial #: 4760	high	5000	40	5040
Cal Gas Cylinder I.D. #: LI42475	mid	5000	20	5020
Cal Gas Conc. (ppm): 50.3	low	5000	10	5010

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4993	0.0	4993	0	0.0	NA
adjusted zero	NA	0.0		0		NA
as found high	4953	41.07	4994	413.7	410.0	1.009
adjusted high	4953	41.07	4994	413.7	416.0	0.994
mid	4972	20.57	4993	207.2	207.0	1.001
low	4985	10.27	4995	103.4	103.0	1.004
calibrator zero	4995	0.00	4995	0	0.0	NA
						Average C.F. = 1.000

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS > or = 0.995	Pass/Fail ? PASS
Slope = 0.994	0.85-1.15	PASS
b (Intercept as % of full scale) = 0.14%	± 3% F.S.	PASS
% change in C.F. from last cal = -0.99%	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

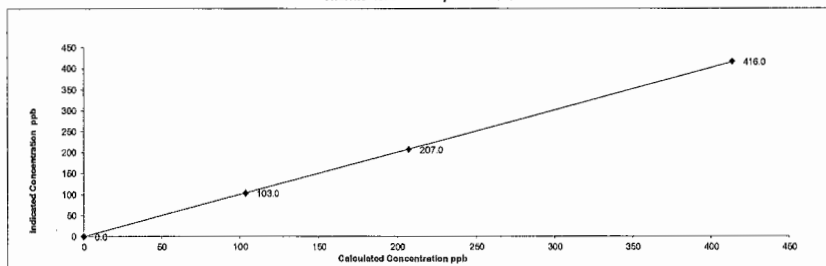
SO₂ High Point gas concentration: NA **Time gas run (mst):** NA

Zero corrected analyzer response: NA

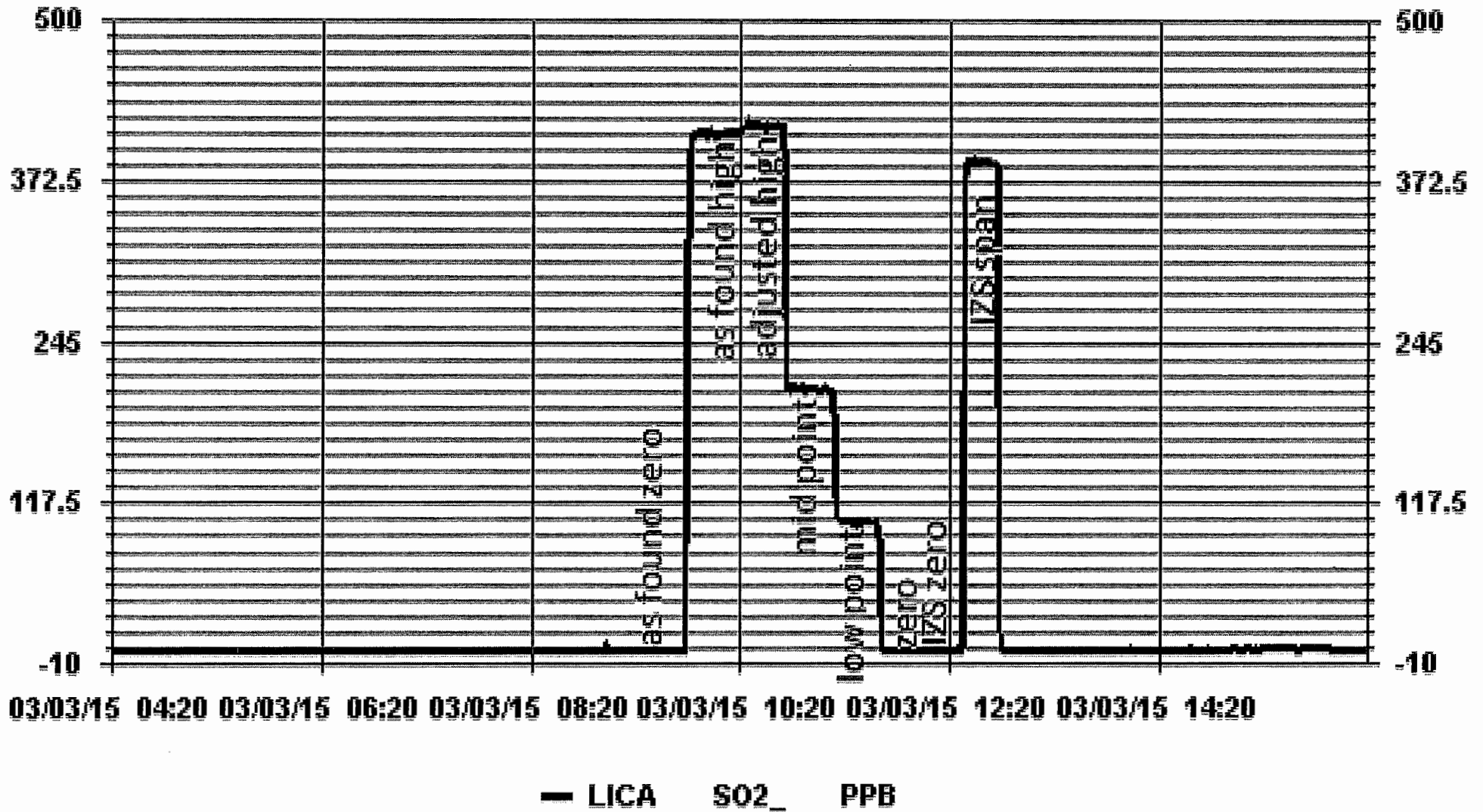
Comments:

Sample filter changed. No ZARO adjustment made.

Thermo 43i SO2 Analyzer Calibration



01 Minute Averages



TOTAL REDUCED SULPHUR

Maxxam Thermo 450i TRS Analyzer Calibration

Date: 3-Mar-15	Start/End Time (mst): 12:00 - 15:17
Company: LICA	Calibration Purpose: Monthly
Station Name/Location: Cold Lake South	Converter Make & Model: Thermo CDN-101
Performed by: Chris W / Alex Y	Converter Serial #: 501
Application H ₂ S/TRS/SO ₂ : TRS	Cal Gas Expiry Date: 25-Dec-15

Analyzer:
 Serial Number: 812728560 Range ppb: 100
 Last Calibration Date: 17-Feb-15 As Found C.F.: 1.000
 Previous Cal High Point C.F.: 1.000 New C.F.: 1.001

<p>MOTHERBOARD:</p> <table border="0"> <tr><td>As found:</td><td></td></tr> <tr><td>BKG:</td><td>13.1</td></tr> <tr><td>COEF:</td><td>0.955</td></tr> <tr><td>3.3:</td><td>3.3</td></tr> <tr><td>5.0:</td><td>5.0</td></tr> <tr><td>15.0:</td><td>15.0</td></tr> <tr><td>24.0:</td><td>23.9</td></tr> <tr><td>-3.3:</td><td>-3.2</td></tr> </table> <p>INTERFACE BOARD:</p> <table border="0"> <tr><td>PMT:</td><td>-650.5</td></tr> <tr><td>FLASH:</td><td>724</td></tr> <tr><td>3.3:</td><td>3.2</td></tr> <tr><td>5.0:</td><td>5.0</td></tr> <tr><td>15.0:</td><td>14.7</td></tr> <tr><td>-15.0:</td><td>-15.0</td></tr> <tr><td>24.0:</td><td>23.4</td></tr> <tr><td>INTERNAL:</td><td>32.2</td></tr> <tr><td>CHAMBER:</td><td>45.0</td></tr> <tr><td>CONVERTER TEMP:</td><td>327.8</td></tr> <tr><td>CONVERTER SET:</td><td>325</td></tr> <tr><td>PERM OVEN GAS:</td><td>45.0</td></tr> <tr><td>PERM OVEN HTR:</td><td>44.38</td></tr> <tr><td>PRESSURE:</td><td>657.8</td></tr> <tr><td>SAMPLE FLOW:</td><td>0.510</td></tr> <tr><td>LAMP INTENSITY:</td><td>92 %</td></tr> <tr><td>Internal Span:</td><td>38.34</td></tr> </table>	As found:		BKG:	13.1	COEF:	0.955	3.3:	3.3	5.0:	5.0	15.0:	15.0	24.0:	23.9	-3.3:	-3.2	PMT:	-650.5	FLASH:	724	3.3:	3.2	5.0:	5.0	15.0:	14.7	-15.0:	-15.0	24.0:	23.4	INTERNAL:	32.2	CHAMBER:	45.0	CONVERTER TEMP:	327.8	CONVERTER SET:	325	PERM OVEN GAS:	45.0	PERM OVEN HTR:	44.38	PRESSURE:	657.8	SAMPLE FLOW:	0.510	LAMP INTENSITY:	92 %	Internal Span:	38.34	<p>As left:</p> <table border="0"> <tr><td>BKG:</td><td>13.1</td></tr> <tr><td>COEF:</td><td>0.955</td></tr> <tr><td>3.3:</td><td>3.3</td></tr> <tr><td>5.0:</td><td>5.0</td></tr> <tr><td>15.0:</td><td>15.0</td></tr> <tr><td>24.0:</td><td>23.9</td></tr> <tr><td>-3.3:</td><td>-3.2</td></tr> </table> <p>INTERFACE BOARD:</p> <table border="0"> <tr><td>PMT:</td><td>-650.5</td></tr> <tr><td>FLASH:</td><td>746</td></tr> <tr><td>3.3:</td><td>3.2</td></tr> <tr><td>5.0:</td><td>5.0</td></tr> <tr><td>15.0:</td><td>14.7</td></tr> <tr><td>-15.0:</td><td>-15.0</td></tr> <tr><td>24.0:</td><td>23.4</td></tr> <tr><td>INTERNAL:</td><td>32.5</td></tr> <tr><td>CHAMBER:</td><td>45.0</td></tr> <tr><td>CONVERTER TEMP:</td><td>326.0</td></tr> <tr><td>CONVERTER SET:</td><td>325</td></tr> <tr><td>PERM OVEN GAS:</td><td>45.0</td></tr> <tr><td>PERM OVEN HTR:</td><td>44.28</td></tr> <tr><td>PRESSURE:</td><td>658.1</td></tr> <tr><td>SAMPLE FLOW:</td><td>0.510</td></tr> <tr><td>LAMP INTENSITY:</td><td>92%</td></tr> <tr><td>Internal Span:</td><td>36.77</td></tr> </table>	BKG:	13.1	COEF:	0.955	3.3:	3.3	5.0:	5.0	15.0:	15.0	24.0:	23.9	-3.3:	-3.2	PMT:	-650.5	FLASH:	746	3.3:	3.2	5.0:	5.0	15.0:	14.7	-15.0:	-15.0	24.0:	23.4	INTERNAL:	32.5	CHAMBER:	45.0	CONVERTER TEMP:	326.0	CONVERTER SET:	325	PERM OVEN GAS:	45.0	PERM OVEN HTR:	44.28	PRESSURE:	658.1	SAMPLE FLOW:	0.510	LAMP INTENSITY:	92%	Internal Span:	36.77
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Internal Span:	36.77																																																																																																		

Calibrator: **Calibrator Flow Targets:**

Flow Meter ID's: NA Make & Model: API 700 Serial #: 831 Cal Gas Cylinder I.D. #: BLM005049 Cal Gas Conc. (ppm): 10.1	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>diluent (cc/min)</th> <th>cal gas (cc/min)</th> <th>total (cc/min)</th> </tr> </thead> <tbody> <tr><td>zero</td><td>5000</td><td>0</td><td>5000</td></tr> <tr><td>high</td><td>5000</td><td>39</td><td>5039</td></tr> <tr><td>mid</td><td>5000</td><td>19</td><td>5019</td></tr> <tr><td>low</td><td>5000</td><td>11</td><td>5011</td></tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	5000	0	5000	high	5000	39	5039	mid	5000	19	5019	low	5000	11	5011
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	5000	0	5000																		
high	5000	39	5039																		
mid	5000	19	5019																		
low	5000	11	5011																		

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	4995	0.0	4995	0	0.0	NA
adjusted zero	NA	0.0		0		NA
as found high	4959	38.60	4998	78.0	78.0	1.000
adjusted high	NA					NA
mid	4979	18.80	4998	38.0	38.0	1.000
low	4985	10.90	4996	22.0	22.0	1.002
calibrator zero	4995	0.00	4995	0	0.0	NA
Average C.F. =						1.001

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS	Pass/Fail ?
Slope = 1.000	> or = 0.995	PASS
b (Intercept as % of full scale) = 0.00%	0.85-1.15	PASS
% change in C.F. from last cal = -0.01%	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

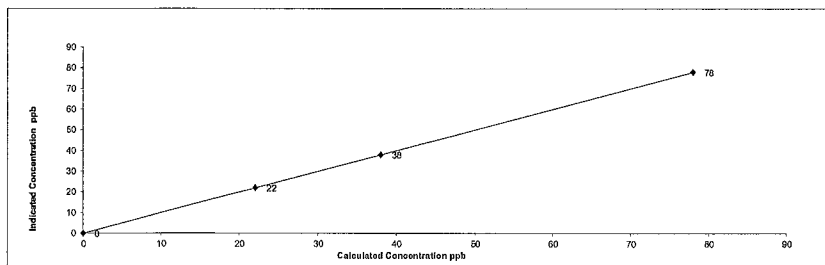
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

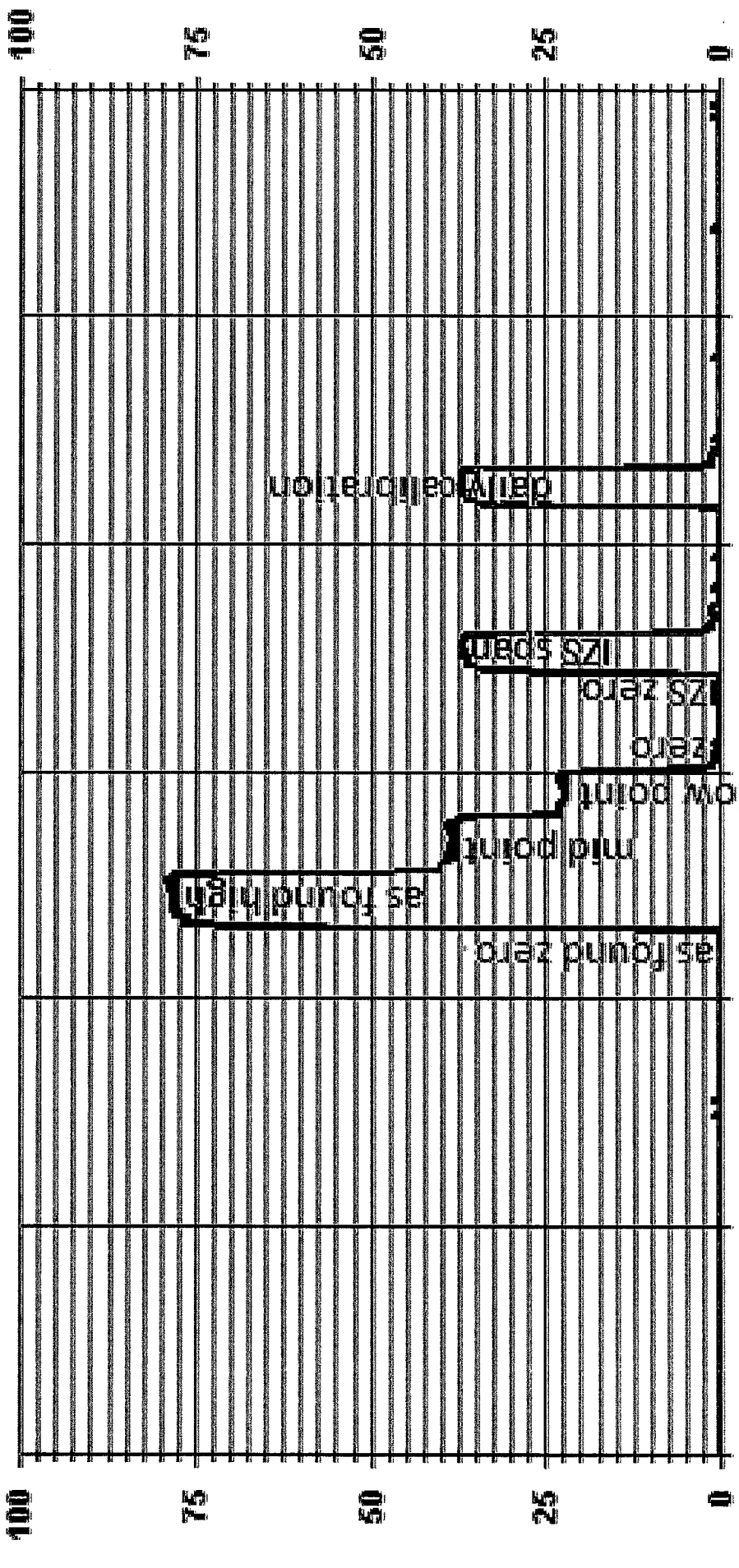
Comments:

Filter changed. No ZERO adjustment made. No high point adjustment made

Thermo 450i TRS Analyzer Calibration



01 Minute Averages



03/03/15 08:00 03/03/15 10:00 03/03/15 12:00 03/03/15 14:00 03/03/15 16:00 03/03/15 18:00

— LICA TRS_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 3-Mar-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Performed by: Chris W / Alex Y

Start Time (mst): 8:38
 End Time (mst): 12:42
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer:
 Serial Number: 427408718 Range ppm: 50
 Last Calibration Date: 15-Feb-15 As Found C.F.: 0.992
 Previous Cal High Point C.F.: 0.999 New C.F.: 1.004

	As found:	As left:
H ₂ cylinder (psi):	<u>250</u>	<u>250</u>
H ₂ cylinder reg set (psi):	<u>22</u>	<u>22</u>
Span Cylinder (psi):	<u>1800</u>	<u>1800</u>
Span Cylinder Reg Set (psi):	<u>32</u>	<u>32</u>
Zero Air Gen Pressure:	<u>33</u>	<u>33</u>
measurement alarms:	<u>None</u>	<u>None</u>
service alarms:	<u>None</u>	<u>None</u>
FID status:	cnt: <u>1470</u>	cnt: <u>1478</u>
	rng: <u>1</u>	rng: <u>1</u>
	try: <u>1</u>	try: <u>1</u>
	flm: <u>185.0</u>	flm: <u>184.2</u>
	det: <u>125.6</u>	det: <u>125.2</u>
Oven Readings:	Flame: <u>185</u>	Flame: <u>184</u>
	Filter: <u>125</u>	Filter: <u>125</u>
	Base: <u>125</u>	Base: <u>125</u>
	Pump: <u>6.49</u>	Pump: <u>6.49</u>
Voltages:	+5: <u>5</u>	+5: <u>5</u>
	+15: <u>14.8</u>	+15: <u>14.8</u>
	-15: <u>-15.1</u>	-15: <u>-15.1</u>
	Internal Span: <u>32.03</u>	Internal Span: <u>31.94</u>

Calibrator:
 Flow Meter ID's: NA
 Make & Model: API 700
 Serial #: 831
 Cal Gas Cylinder I.D. #: LL33674
 CH₄/C₃H₈ Cylinder Conc. (ppm): 601.4 | 202.0
 CH₄ as propane/total CH₄ equivalents (ppm): 555.5 | 1156.9

Calibrator Flow Targets:			
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	1935	65	2000
mid	1969	31	2000
low	1984	16	2000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1996	0.00	1996	0	0.00	NA
adjusted zero	NA	0.00		0		NA
as found high	1935	65.00	2000	37.60	37.90	0.992
adjusted high	1935	65.00	2000	37.60	37.60	1.000
mid	1965	31.00	1996	17.97	17.90	1.004
low	1981	16.00	1997	9.27	9.20	1.008
calibrator zero	1997	0.00	1997	0	0.00	NA
Average C.F. =						1.004

Linear Regression/Calibration Results:

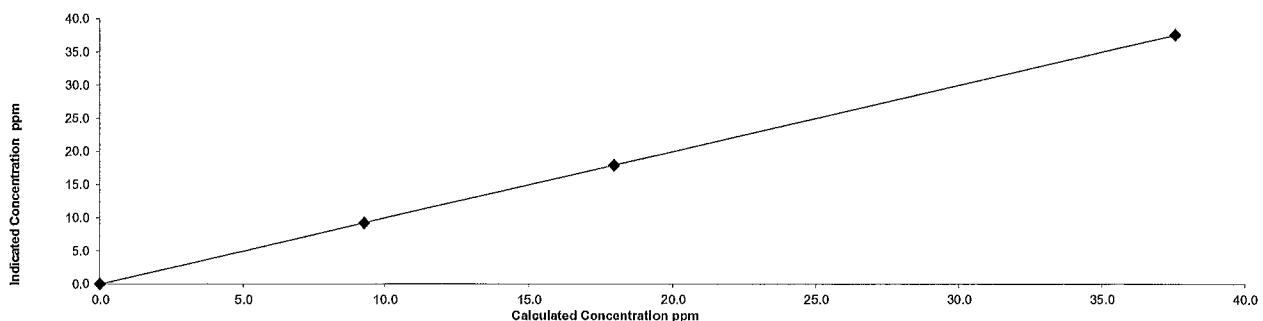
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.085%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0.69%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

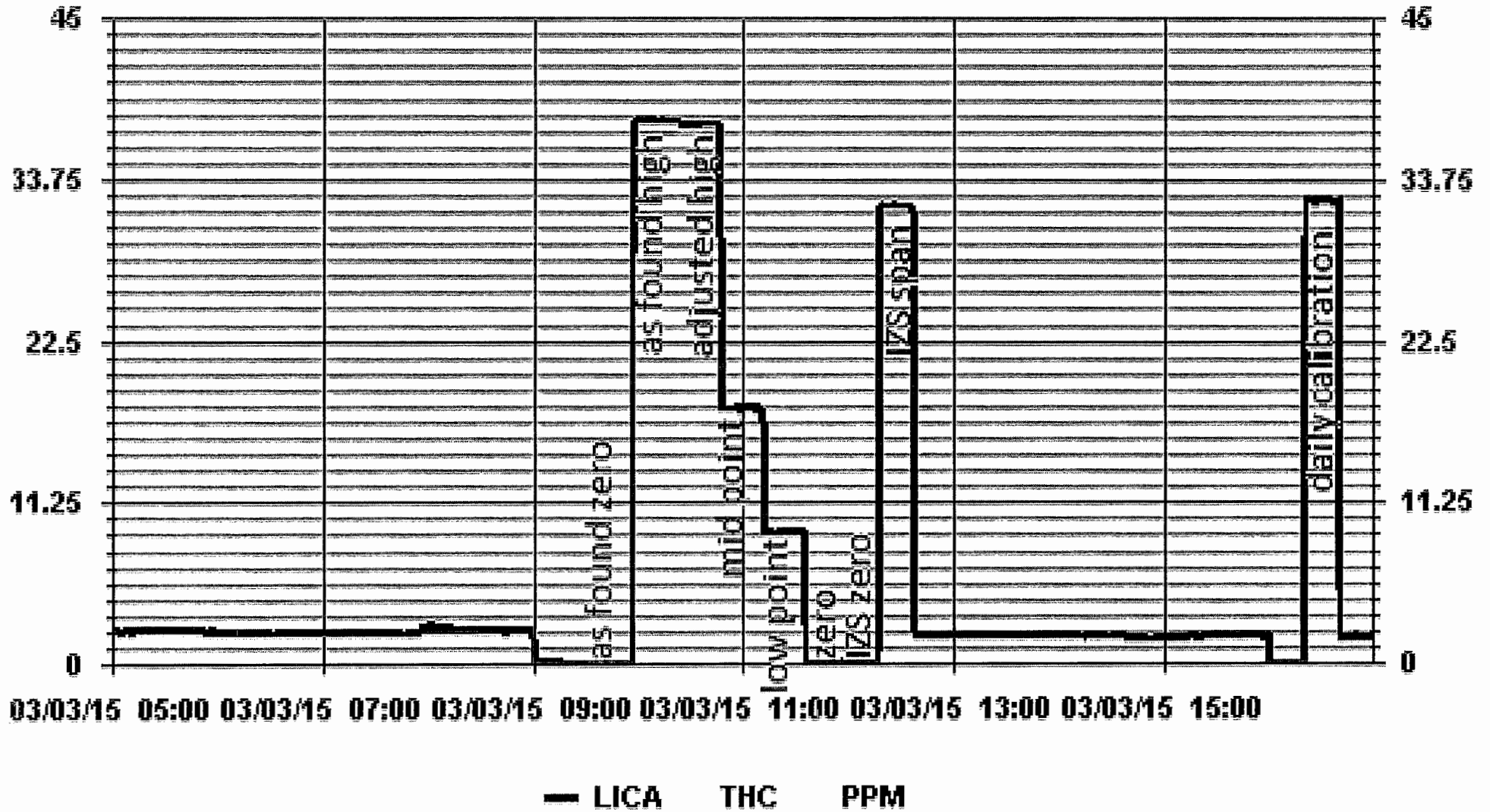
Sample filter changed. No Zero adjustment made

Thermo 51C THC Analyzer Calibration

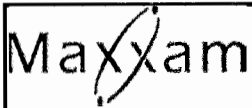
THC Calibration Curve



01 Minute Averages



NITROGEN DIOXIDE



Thermo 42C NOx Analyzer Calibration

Date: 3-Mar-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Performed by: Chris W / Alex Y

Start Time (mst): 8:38
 End Time (mst): 15:31
 Calibration Purpose: Monthly
 Cal Gas Expiry Date: 26-Mar-17

Analyzer Serial Number: 427408716
 Last Calibration Date: 18-Feb-15
 Range ppb: 500

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.005 NO= 1.000
 NOx= 1.005 NOx= 0.993
 NO₂= 1.003 NO₂= 0.992

As found:
 NO Bkg ppb: 4.6
 NOx Bkg ppb: 4.8
 NO Coef: 0.929
 NOx Coef: 1.014
 NO₂ Coef: 1.003
 PMT: -850
 +15: 15.1
 +5: 5.0
 -15: 15.1
 -15: -15.1
 Battery: 3.2
 Internal: 26.6
 Chamber: 49.6
 Cooler: -2.5
 Converter: 317
 Converter Set: 320
 Pressure: 188.1
 Sample Flow: 0.548
 Ozonator Flow: OK
 Internal Span: 375.8/5.9/369.6

As left:
 NO Bkg ppb: 4.6
 NOx Bkg ppb: 4.8
 NO Coef: 0.936
 NOx Coef: 1.013
 NO₂ Coef: 1.003
 PMT: -850
 +15: 15.1
 +5: 5.0
 -15: 15.1
 -15: -15.1
 Battery: 3.2
 Internal: 28.8
 Chamber: 49.6
 Cooler: -2.4
 Converter: 317
 Converter Set: 320
 Pressure: 187.8
 Sample Flow: 0.550
 Ozonator Flow: OK
 Internal Span: 381.4/6.05/375.3

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	40	260.00	4956
mid	4957	20	130.00	4977
low	4975	10	50.00	4985

Calibration:

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	4993	0.0	4993	0	0	0.0	0.0	NA	NA
adjusted zero	NA	0.0		0	0			NA	NA
as found high	4953	41.07	4994	398.9	398.9	397	397	1.005	1.005
adjusted high	4953	41.07	4994	398.9	398.9	399	399	1.000	1.000
mid	4972	20.57	4993	199.8	199.8	200	200	0.999	0.999
low	4985	10.27	4995	99.7	99.7	99	99	1.007	1.007
calibrator zero	4995	0.00	4995	0	0	0.0	0.0	NA	NA
Average C.F.=								1.002	1.002

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4953	41.12	4994	0.0	400.0	400.0	0.0	0.0	0.0	
as found NO ₂	4953	41.12	4994	260.0	84.0	399.0	315.0	316.0	315.0	1.003
adjusted NO ₂	4953	41.12	4994	260.0	84.0	399.0	315.0	316.0	315.0	1.003
gpt mid	4953	41.12	4994	130.0	240.0	400.0	160.0	160.0	160.0	1.000
gpt low	4953	41.12	4994	50.0	340.0	399.0	60.0	60.0	60.0	1.000
Average NO ₂ C.F.=										1.001

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	0.997	0.85-1.15
b (Intercept as % of full scale)=	-0.06%	-0.06%	0.04%	± 3% F.S.
% change in C.F. from last cal=	-0.47%	-1.17%	-1.13%	+/-15%
NO ₂ converter efficiency			99.9%	>85%

Comments:

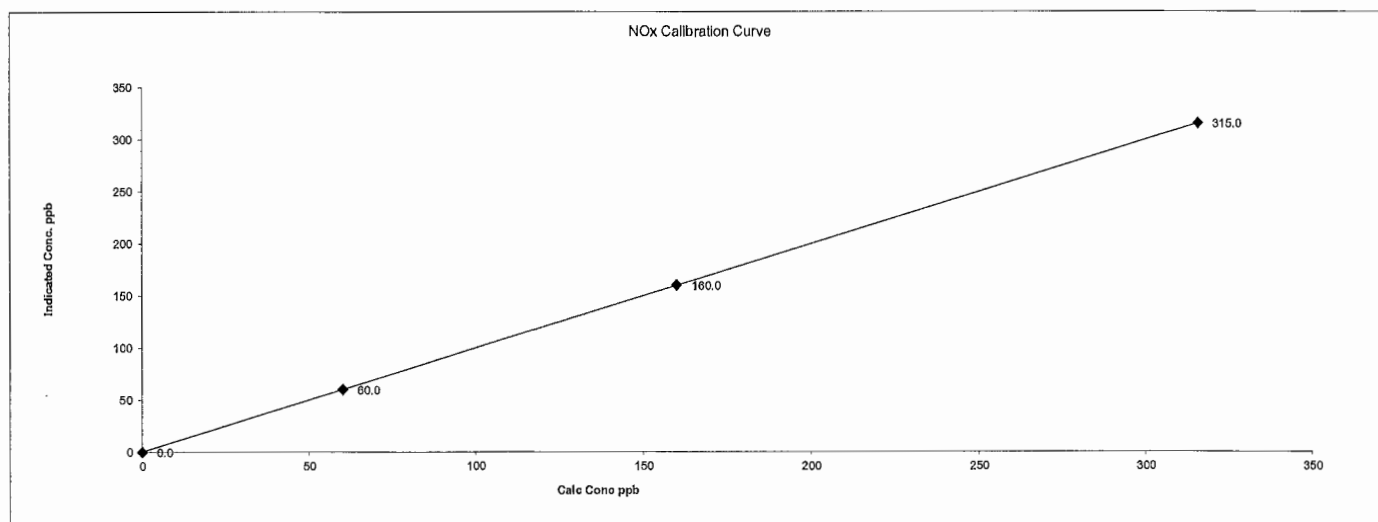
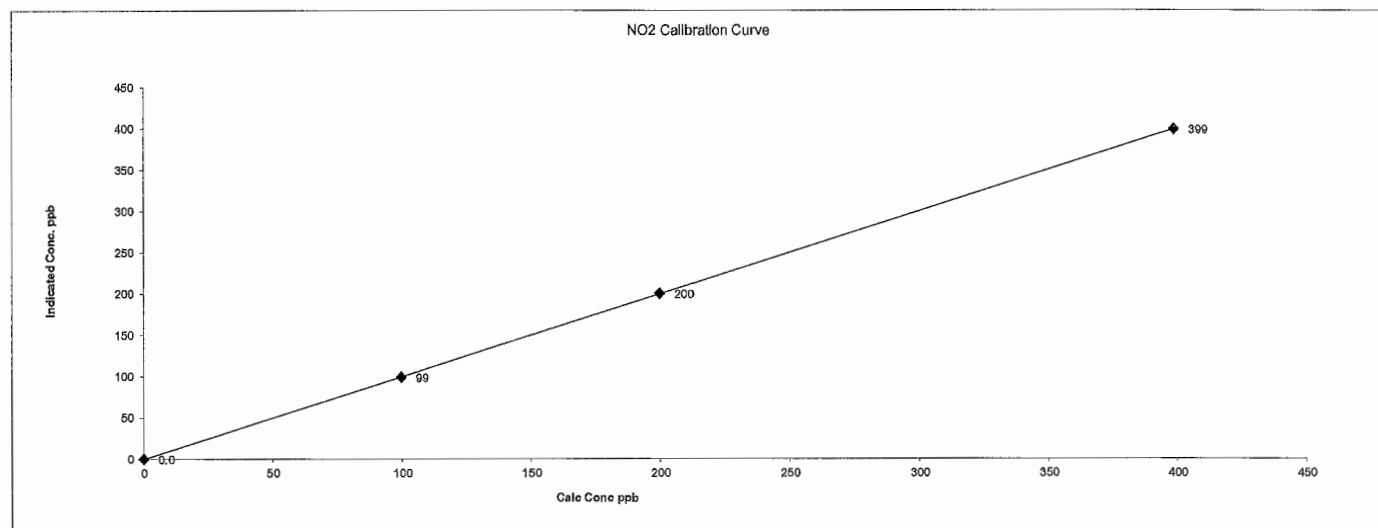
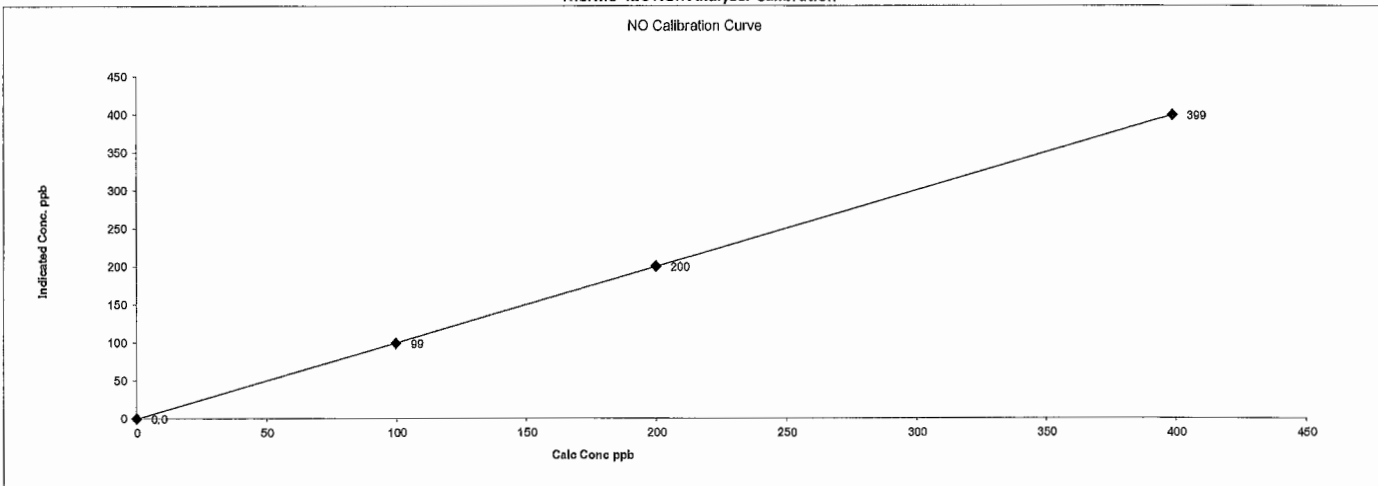
No ZERO adjustment made. Filter changed

NO₂ adjustment not made. Values copied from GPT as-found for calculation only.

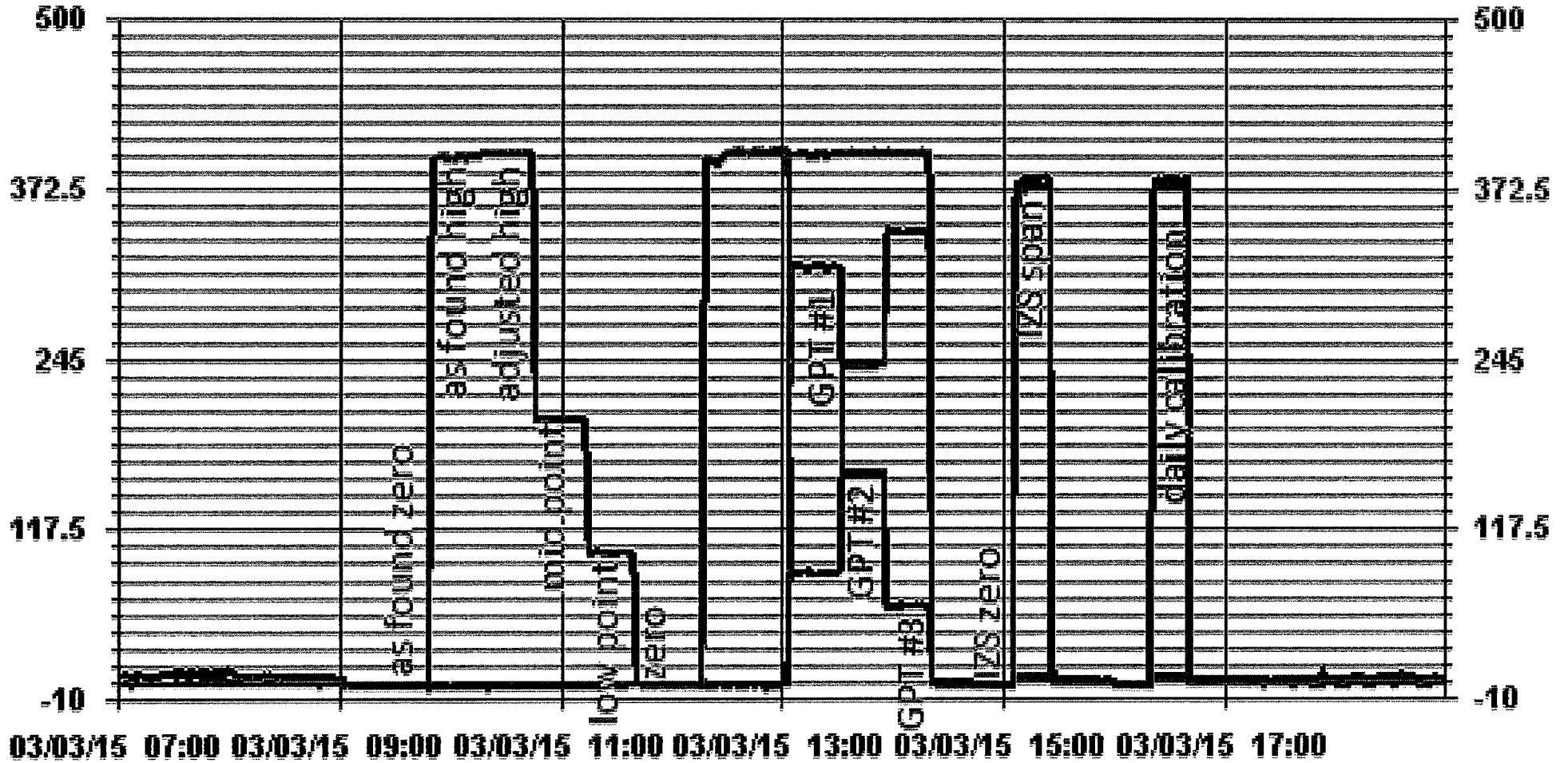
Date: 3-Mar-15
Company: LICA
Station Name/Location: Cold Lake South
Performed by: Chris W / Alex Y

Start Time (mst): 8:38
End Time (mst): 15:31
Calibration Purpose: Monthly
Cal Gas Expiry Date: 26-Mar-17

Thermo 42C NOx Analyzer Calibration



01 Minute Averages



— LICA NOX_ PPB — LICA NO_ PPB — LICA NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: <u>3-Mar-15</u>	Start Time (mst): <u>14:45</u>
Company: <u>LICA</u>	End Time (mst): <u>18:54</u>
Station Name/Location: <u>Cold Lake South</u>	Calibration Purpose: <u>Monthly Calibration</u>
Performed by: <u>Chris W / Alex Y</u>	G.P.T. Date: <u>3-Mar-15</u>

Analyzer:	
Serial Number: <u>700419951</u>	Range ppm: <u>500</u>
Last Calibration Date: <u>19-Feb-15</u>	As Found C.F.: <u>1.023</u>
Previous Cal High Point C.F.: <u>0.998</u>	New C.F.: <u>1.002</u>

	As found:	As left:
Motherboard:	O ₃ Bkg: <u>0.2</u>	O ₃ Bkg: <u>0.3</u>
	O ₃ Coef: <u>0.933</u>	O ₃ Coef: <u>1.009</u>
	<u>3.3</u> <u>3.3</u>	<u>3.3</u> <u>3.3</u>
	<u>15.0</u> <u>15.1</u>	<u>15.0</u> <u>15.1</u>
	<u>24.0</u> <u>23.9</u>	<u>24.0</u> <u>23.9</u>
Interface Board:	<u>-3.3</u> <u>-3.2</u>	<u>-3.3</u> <u>-3.2</u>
	<u>3.3</u> <u>3.2</u>	<u>3.3</u> <u>3.2</u>
	<u>5.0</u> <u>4.9</u>	<u>5.0</u> <u>4.9</u>
	<u>15.0</u> <u>14.8</u>	<u>15.0</u> <u>14.8</u>
	<u>-15.0</u> <u>-14.8</u>	<u>-15.0</u> <u>-14.8</u>
Photo Lamp	<u>8.7</u>	<u>7.8</u>
	<u>24.0</u> <u>23.6</u>	<u>24.0</u> <u>23.6</u>
O ₃ Lamp	<u>9.0</u>	<u>9.0</u>
	<u>28.0</u>	<u>28.2</u>
Bench Lamp:	<u>53.4</u>	<u>53.4</u>
	<u>67.4</u>	<u>67.4</u>
Pressure:	<u>704.7</u>	<u>706.2</u>
Cell A lpm:	<u>0.712</u>	<u>0.712</u>
Cell B lpm:	<u>0.751</u>	<u>0.751</u>
O ₃ ppb:	<u>1.1</u>	<u>0.0</u>
Cell A ppb:	<u>2.0</u>	<u>5.3</u>
Cell B ppb:	<u>0.3</u>	<u>-5.4</u>
Cell A int:	<u>5995B</u>	<u>59953</u>
Cell B int:	<u>58048</u>	<u>58044</u>
Internal Span:	<u>272.7</u>	<u>275</u>

Calibrator:	Make & Model: <u>Enviroincs 6100</u>	Calibrator Flow Targets:		
	Serial #: <u>4760</u>	point	total flow (cc/min)	O ₃ setting (v or ppb)
	NOx Gas Cylinder I.D. #: <u>LL42475</u>	zero	4995	0
	NOx Cylinder Conc. (ppm): <u>50.2</u>	high	4995	260
		mid	4995	130
		low	4995	50

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4995	0.0	4995	0.0	0.0	NA
adjusted zero	4995	0.0	4995	0.0	0.0	NA
as found high	4995	260.00	5255	316.0	309.0	1.023
adjusted high	4995	260.00	5255	316.0	316.0	1.000
mid	4995	130.00	5125	160.0	160.0	1.000
low	4995	50.00	5045	60.0	59.6	1.007
calibrator zero	4995	0.00	4995	0.0	0.0	NA

Average C.F.= 1.002

copy and paste flows and NO decrease from NOx cal in to calculated concentration

Linear Regression/Calibration Results:			
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.034%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>-2%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

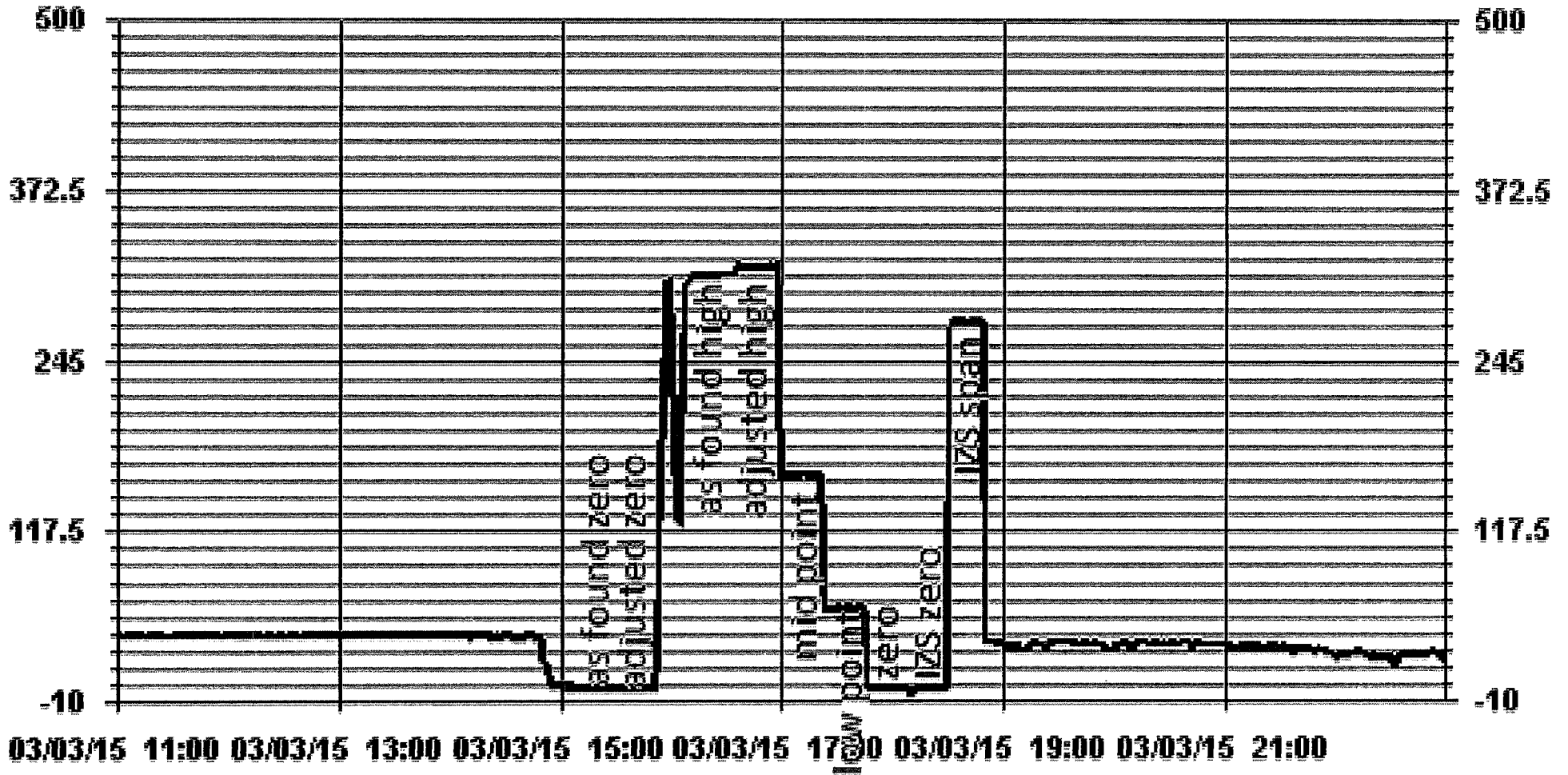
Filter changed
16:00 daily IZS triggered. As-found high restarts at 16:04

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc. (ppb)
0.0	0.0
59.0	59.0
160.0	160.0
316.0	316.0

01 Minute Averages



— LICA O3_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 5-Mar-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 17-Feb-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 17:08 - 17:58
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number: <u>1405A20620804</u>	As Found Filter Loading %: <u>25.32</u>
Ko Factor: <u>14578</u>	As Left Filter Loading %: <u>17.15</u>
Ambient Temperature °C: <u>1.86</u>	As Found Noise: <u>0.010</u>
Ambient Pressure atm: <u>0.929</u>	As Left Noise: <u>0.000</u>
Main Flow Reading lpm: <u>3.00</u>	Pump Vacuum: <u>0.37</u>
Aux Flow Reading lpm: <u>13.67</u>	Warnings: <u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>11-Apr-14</u>	<u>11-Apr-14</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.22	0.02	0.22
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.24	0.28	0.20	0.28
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.22	0.02	0.22
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.24	0.28	0.20	0.28
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C 1405F temperature °C: <u>1.9</u> reference temperature °C: <u>2.0</u> difference °C: <u>0.1</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.929</u> reference pressure: <u>0.933</u> difference : <u>-0.004</u>
--	--

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

tolerance +/- 2.0°C 1405F temperature °C: <u>1.9</u> reference temperature °C: <u>2.0</u> difference °C: <u>0.1</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.929</u> reference pressure: <u>0.933</u> difference : <u>0.004</u>
--	---

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.04</u> difference lpm: <u>0.04</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7% 1400A total/aux flow lpm: <u>13.64</u> reference total/aux flow lpm: <u>13.59</u> difference lpm: <u>-0.05</u>
--	--

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

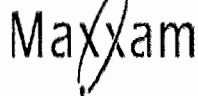
main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.04</u> difference lpm: <u>0.04</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7% 1400A total/aux flow lpm: <u>13.64</u> reference total/aux flow lpm: <u>13.59</u> difference lpm: <u>-0.05</u>
--	--

K_o Audit:

Last K_o audit date: 1-May-14
 1405F K_o factor: 14578
 Measured K_o factor: NA
 % difference: NA

Comments:

Filters changed



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 18-Mar-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 5-Mar-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 09:29/11:36
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number: 1405A20620804 As Found Filter Loading %: 23.48
 Ko Factor: 14578 As Left Filter Loading %: 16.75
 Ambient Temperature °C: 3.07 As Found Noise: 0.007
 Ambient Pressure atm: 0.933 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.37
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB61291	FB61291
Serial Number:	NA	130168457	130168457
Calibration Date:	NA	11-Apr-14	11-Apr-14

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.22	0.03	0.22
	limit	0.15	0.22	0.15	0.22
Bypass Flow	actual	0.30	0.28	0.23	0.28
	limit	0.60	0.28	0.60	0.28

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.22	0.03	0.22
	limit	0.15	0.22	0.15	0.22
Bypass Flow	actual	0.30	0.28	0.23	0.28
	limit	0.60	0.28	0.60	0.28

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C: <u>3.1</u>		1405F pressure atm: <u>0.933</u>	
reference temperature °C: <u>3.4</u>		reference pressure: <u>0.938</u>	
difference °C: <u>0.3</u>		difference: <u>-0.005</u>	

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C: <u>3.1</u>		1405F pressure atm: <u>0.933</u>	
reference temperature °C: <u>3.4</u>		reference pressure: <u>0.938</u>	
difference °C: <u>0.3</u>		difference: <u>0.005</u>	

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow lpm: <u>3.00</u>		1400A total/aux flow lpm: <u>13.64</u>
reference main flow lpm: <u>2.98</u>		reference total/aux flow lpm: <u>13.61</u>
difference lpm: <u>-0.02</u>		difference lpm: <u>-0.03</u>

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

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow lpm: <u>3.00</u>		1400A total/aux flow lpm: <u>13.64</u>
reference main flow lpm: <u>2.98</u>		reference total/aux flow lpm: <u>13.61</u>
difference lpm: <u>-0.02</u>		difference lpm: <u>-0.03</u>

K_o Audit:

Last K_o audit date: 18-Mar-15
 1405F K_o factor: 14578
 Measured K_o factor: 14753.2000
 % difference: 1.20

Comments:

Filters changed

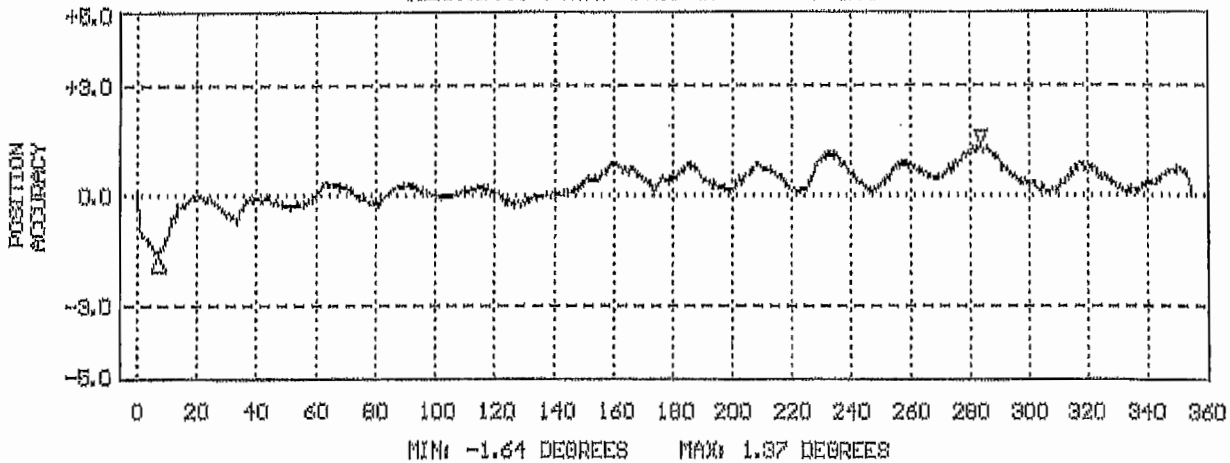
WIND SYSTEM

R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

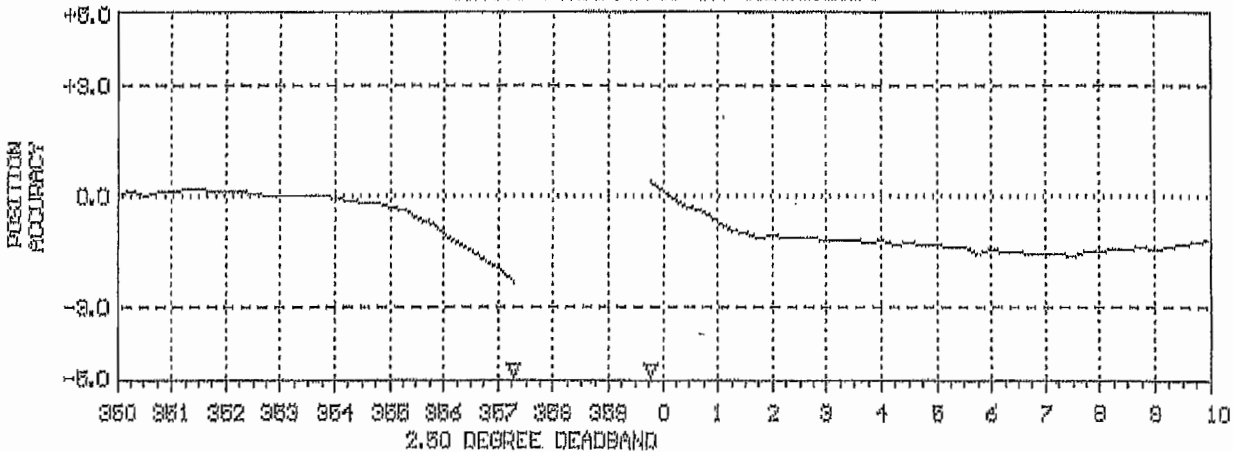
SENSOR: 05103 WIND MONITOR
SENSOR SERIAL NUMBER: WML29612
BEARINGS: SEALED/GREASE LUBE
DATE: OCT 21 2013
WIND SPEED THRESHOLD TEST: PASS
LOW WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
HIGH WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
VANE TORQUE TEST: PASS
SPECIAL NOTES:
SPECIAL NOTES:



AZIMUTH POSITION vs ACCURACY



AZIMUTH POSITION vs ACCURACY



NOTE: Azimuth Position vs Accuracy graphs are accurate to within 0.5 degrees. The accuracy shown in the potentiometer deadband region between 355 and 0 degrees is the result of no resistance change while position changes. The gap represents the actual deadband (open circuit).

CALIBRATORS



Calibrator Performance Audit Oxides Of Nitrogen

File No. 2014-260A

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Callibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO</u>		<u>LIMITS</u>		<u>NOx</u>			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0511	0.90-1.10		m (Slope)=	1.0496		
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)=	0.0400		

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO₂</u>		<u>LIMITS</u>					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	1.0006	0.90-1.10					
b (Intercept % of FS)=	-0.0132	± 3% F.S.					

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 1461</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS:

Auditor: Al Clark
Operator Signature: [Signature]

Date: December 17, 2014
Location: McIntyre Center Edmonton



Calibrator Performance Audit

Hydrogen Sulphide (by Cylinder Dilution)

File No. 2015-004A

Company: Maxxam

Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>831</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>April 2014</u>	Temperature (°C)	<u>N/A</u>
H ₂ S Cylinder Conc.	<u>10.2</u>	Barometric Pressure	<u>N/A</u>
H ₂ S Cylinder S/N	<u>BLM003757</u>		

Flow Measurements

Pt. No. 1 39.2 Pt. No. 2 19.6 Pt. No. 3 9.8

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.0000	0.0000		
4999	0.0800	0.0790	-1%	± 10%
4994	0.0400	0.0398	0%	± 10%
4994	0.0200	0.0194	-3%	± 10%
Absolute Average Percent Difference			2%	± 10%

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

<u>H₂S</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9894	0.90-1.10
b (Intercept % of FS)=	-0.0800	± 3% F.S.

AENV Standards	H ₂ S Analyzer
Audit Calibrator	Make/Model <u>Teco 450i</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1980</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>April 2, 2015</u>
	Full Scale (ppm) <u>0.1</u>

COMMENTS: MFC's recalibrated. Second run.

Auditor: Al Clark

Operator Signature:

Date: April 2, 2015

Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-257CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: LL42475 Concentration PPM: 50.3 Tolerance(%) 1 Certified By: Alr Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: December 15, 2014
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DG2
Serial Number: AMU 1659
Temp. °C: 22.5 C
B.P. 701 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.7 Span: 1.018 Range: 1.0
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	0.000	0.01019	98.157	49.3
5114	52.1	0.502	0.01019	98.157	49.3
5093	22.3	0.214	0.00438	228.386	48.9
5073	10.9	0.105	0.00215	465.413	48.9
Average Cylinder Concentration:					49.0

Previous Stated Concentration PPM: 50.3

Percent variance from Stated: 2.6

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 16, 2014
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2013-324CGA

Company: Maxxam Operator's Name: Chris Wesson
Cylinder #: BLM005049 Concentration PPM: 10.1 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: February 21, 2013
Gas Type: H2S Conc. 20.02
Cylinder Number: D249556

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp. °C: 21.0 C
B.P. 696 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
Instrument Settings: Zero: 7.5 Span: 1.023 Range: 0.1
Last Calibration: Date: Feb 21/13 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	0.0000	0.0000
5103	38.2	0.0768	0.00749	133.586	10.3
5087	17.9	0.0355	0.00352	284.190	10.1
5064	9.2	0.0182	0.00182	550.435	10.0
Average Cylinder Concentration:					10.1

Previous Stated Concentration PPM: 10.1

Percent variance from Stated: 0.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____

<=5% Outside Manufacturer Tolerance. Use manufacturers concentration _____

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

Auditor: Al Clark

Date: February 21, 2013

Operator Signature: *Chris Wesson*

Location: McIntyre Center Edmonton



Praxair Canada, Inc.
3050 Glen Street
Edmonton, AB T6B 2A5
Tel: 780-449-0778
Fax: 780-449-5322

03/27/2014

MAXAM ANALYTICAL INC (N.A.)
8272 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 Precision	Analytical Accuracy
Methane	601.0ppm	621.4ppm	U	±1% rel
Propane	202.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance--ID211 USA--
Hewlett-Packard (Agilent) 8890--GC-FID

Cylinder Style: AQ
Cylinder Pressure @ 70°F: 2200 psig
Cylinder Volume: 82.8 ltr
Valve Outlet Connection: CGA-580
Cylinder No(s): LL33874

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

Analyst: 
Todd Hryniw

The gas contained in these cylinders is supplied by Praxair Canada, Inc. as indicated on the certificate of analysis. It is intended for use in the laboratory or industrial setting. The certificate of analysis is provided as a guide only. Praxair Canada, Inc. makes no warranty or representation as to the suitability of the gas for use in any other application. The gas is not intended for use in any other application. The gas is not intended for use in any other application.

1. Gas Purity	2. Gas Composition	3. Gas Pressure	4. Gas Temperature
1. Gas Purity: 99.999%	2. Gas Composition: 99.999% Methane, 0.001% Nitrogen	3. Gas Pressure: 2200 psig	4. Gas Temperature: 70°F

The information contained herein has been prepared by Praxair Canada, Inc. and is intended for use in the laboratory or industrial setting. Praxair Canada, Inc. makes no warranty or representation as to the suitability of the gas for use in any other application. The gas is not intended for use in any other application. The gas is not intended for use in any other application.



Calibration Gas Audit

NO Cylinder Gas

File No. 2014-252CGA

Company: Maxxam **Operators name:** Llmh Ll
Cylinder #: LL42475 **Conc (PPM)** 48.5/48.5 **Tolerance (%)** 1 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146i
Serial Number AMU 1809
Last Verification Date December 15, 2014
Gas Type NO **Conc.** 48.79
Cylinder Number CAL017892

Flow Measurement Device:

Make/Model Blos DC2
Serial Number AMU 1659
Temp. °C 23.0 C
B.P. 702 mmhg

Reference Analyzer:

Make/Model Teco 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.3 **Span:** 1.017 **Range:** 1.0
Last Calibration: **Date:** Dec15/14 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (scem)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

	<u>NO</u>		<u>NOx</u>
Previous Stated Concentration PPM:	<u>48.5</u>		<u>48.5</u>
Percent variance from Stated:	<u>3.8</u>		<u>4.0</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark **Date:** December 16, 2014
Operator Signature: *[Signature]* **Location:** McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

PASSIVE SAMPLES

PASSIVES

Your Project #: 2015/02/27 - 2015/03/30
Site Location: LICA

Attention:MICHAEL BISAGA

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

Report Date: 2015/04/20
Report #: R1847836
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B526449

Received: 2015/04/07, 08:31

Sample Matrix: Air
Samples Received: 31

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	1	2015/04/09	2015/04/20	PTC SOP-00150	Tang.Passive H2S in
H2S Passive Analysis (1)	2	2015/04/15	2015/04/20	PTC SOP-00150	Tang.Passive H2S in
H2S Passive Analysis (1)	16	2015/04/20	2015/04/20	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	12	2015/04/16	2015/04/20	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	13	2015/04/17	2015/04/20	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2015/04/17	2015/04/20	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	29	2015/04/20	2015/04/20	PTC SOP-00149	Tang Passive SO2 in

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

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

Encryption Key **Levi** Levi Manchak
Manchak 20 Apr 2015 15:52:05 -06:00

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

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

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

Maxxam Job #: B526449
Report Date: 2015/04/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/02/27 - 2015/03/30
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LZ3803	LZ3804	LZ3805	LZ3806	LZ3807	LZ3808	LZ3809		
Sampling Date		2015/02/27 14:28	2015/03/02 19:53	2015/03/02 19:02	2015/03/02 17:21	2015/03/02 20:58	2015/02/27 12:07	2015/02/27 15:34		
	Units	3	4	5	6	8	9	10	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.09		0.13				0.10	0.02	7870985
Calculated NO2	ppb	1.2	0.7	1.0	3.8	0.8	1.2	2.7	0.1	7865836
Calculated O3	ppb	36.51	38.58	32.68	34.78	36.76	33.71	35.62	0.1	7867970
Calculated SO2	ppb	0.5	0.3	0.3	0.4	0.3	0.2	0.2	0.1	7870173
RDL = Reportable Detection Limit										

Maxxam ID		LZ3810	LZ3811	LZ3812	LZ3813	LZ3814		LZ3815		
Sampling Date		2015/02/27 14:28	2015/02/27 17:36	2015/03/02 07:04	2015/03/02 08:53	2015/02/27 11:17		2015/03/02 14:22		
	Units	11	12	13	14	15	QC Batch	16	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	MISSING	MISSING	0.07	0.11		7870985	0.13	0.02	7870985
Calculated NO2	ppb	MISSING	MISSING	0.5	1.1	0.8	7865836	1.5	0.1	7867443
Calculated O3	ppb	MISSING	MISSING	33.46	31.73	39.01	7867970	32.03	0.1	7867970
Calculated SO2	ppb	MISSING	MISSING	0.6	1.3	0.2	7870173	0.2	0.1	7870173
RDL = Reportable Detection Limit										

Maxxam ID		LZ3816	LZ3817	LZ3818	LZ3819	LZ3820		LZ3821		
Sampling Date		2015/03/02 16:27	2015/03/02 15:04	2015/03/02 13:29	2015/02/27 10:55	2015/03/02 11:33		2015/03/02 18:02		
	Units	17	18	19	22	23	QC Batch	24	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.15	0.11		0.11		7870985	0.14	0.02	7870985
Calculated NO2	ppb	1.3	0.9	0.8	1.7	0.3	7867443	3.2	0.1	7867443
Calculated O3	ppb	38.95	36.86	34.33	29.49	31.91	7867970	34.01	0.1	7867976
Calculated SO2	ppb	0.5	0.1	0.2	0.1	0.4	7870173	0.3	0.1	7870174
RDL = Reportable Detection Limit										

Maxxam ID		LZ3822	LZ3823	LZ3824	LZ3825	LZ3826	LZ3827	LZ3828		
Sampling Date		2015/02/27 18:58	2015/03/02 08:29	2015/03/02 10:13	2015/02/27 12:26	2015/02/27 10:56	2015/02/27 13:36	2015/03/02 18:22		
	Units	25	26	27	28	29	32	36	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	MISSING	0.13	0.15		0.09	0.08	0.14	0.02	7870985
Calculated NO2	ppb				4.1	1.7	0.7	3.5	0.1	7867443
Calculated O3	ppb				31.62	30.21	38.17	37.07	0.1	7867976
Calculated SO2	ppb	MISSING	0.9	1.2	0.3	0.3	0.4	0.8	0.1	7870174
RDL = Reportable Detection Limit										

Maxxam Job #: B526449
Report Date: 2015/04/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/02/27 - 2015/03/30
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LZ3831	LZ3832	LZ3888	LZ3890		LZ3891		
Sampling Date		2015/02/27 14:28	2015/03/02 19:53	2015/03/02 19:02	2015/02/27 15:34		2015/03/02 18:22		
	Units	3 DUP	4 DUP	5 DUP	10 DUP	QC Batch	36 DUP	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb				0.10	7870985		0.02	7870985
Calculated NO2	ppb		1.0	1.2		7867443		0.1	7867443
Calculated O3	ppb		39.77	34.23		7867976		0.1	7867976
Calculated SO2	ppb	0.3	0.3			7870173	0.4	0.1	7870174
RDL = Reportable Detection Limit									

Maxxam Job #: B526449
Report Date: 2015/04/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/02/27 - 2015/03/30
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Site inaccessible due to snow & mud.

Sample LZ3810-01 : Notes on COC indicate site inaccessible.

Sample LZ3811-01 : Notes on COC indicate site inaccessible.

Results relate only to the items tested.

Maxxam Job #: B526449
Report Date: 2015/04/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/02/27 - 2015/03/30
Site Location: LICA
Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
7865836	SS6	Spiked Blank	Calculated NO2	2015/04/16		97	%	90 - 110
7865836	SS6	Method Blank	Calculated NO2	2015/04/16	<0.1		ppb	
7867443	SS6	Spiked Blank	Calculated NO2	2015/04/17		98	%	90 - 110
7867443	SS6	Method Blank	Calculated NO2	2015/04/17	<0.1		ppb	
7867970	OZ	Spiked Blank	Calculated O3	2015/04/17		100	%	90 - 110
7867970	OZ	Method Blank	Calculated O3	2015/04/17	<0.1		ppb	
7867976	OZ	Spiked Blank	Calculated O3	2015/04/17		102	%	90 - 110
7867976	OZ	Method Blank	Calculated O3	2015/04/17	<0.1		ppb	
7870173	DF4	Spiked Blank	Calculated SO2	2015/04/20		102	%	90 - 110
7870173	DF4	Method Blank	Calculated SO2	2015/04/20	<0.1		ppb	
7870174	DF4	Spiked Blank	Calculated SO2	2015/04/20		99	%	90 - 110
7870174	DF4	Method Blank	Calculated SO2	2015/04/20	<0.1		ppb	
7870985	SSZ	Spiked Blank	Calculated H2S	2015/04/20		101	%	90 - 110

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

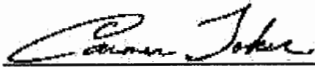
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Maxxam Job #: B526449
Report Date: 2015/04/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/02/27 - 2015/03/30
Site Location: LICA
Sampler Initials: WA

VALIDATION SIGNATURE PAGE

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



Carmen Toker, CT, Manager Air Laboratory Services

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

VOCs

RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB	403-219-3661 T2E 6P8 780 812-2182 T9N 2J5	LABORATORY SAMPLE ID: 15030061-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 1, 2015 CANISTER ID: S5643 DESCRIPTION: CLS DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1,4-Dioxane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2,3-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2,3-Dimethylpentane	I	0.07	ppbv	0.03	AC-058	14-Mar-15
2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-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, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB	403-219-3661 T2E 6P8 780 812-2182 T9N 2J5	LABORATORY SAMPLE ID: 15030061-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 1, 2015 CANISTER ID: S5643 DESCRIPTION: CLS DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
2-Methylhexane	I	0.04	ppbv	0.03	AC-058	14-Mar-15
2-Methylpentane	I	0.17	ppbv	0.03	AC-058	14-Mar-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	14-Mar-15
3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
3-Methylpentane	I	0.11	ppbv	0.03	AC-058	14-Mar-15
Acetone		1.92	ppbv	0.03	AC-058	14-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Benzene	I	0.21	ppbv	0.03	AC-058	14-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Carbon tetrachloride	I	0.07	ppbv	0.03	AC-058	14-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloromethane		0.68	ppbv	0.03	AC-058	14-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Cyclohexane	I	0.14	ppbv	0.03	AC-058	14-Mar-15
Cyclopentane	I	0.08	ppbv	0.03	AC-058	14-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB</p>	<p>403-219-3661 T2E 6P8 780 812-2182 T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030061-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 1, 2015 CANISTER ID: S5643 DESCRIPTION: CLS DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.59	ppbv	0.03	AC-058	14-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Ethylbenzene	I	0.04	ppbv	0.03	AC-058	14-Mar-15
Freon-11		0.30	ppbv	0.03	AC-058	14-Mar-15
Freon-113	I	0.10	ppbv	0.03	AC-058	14-Mar-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Freon-12		0.65	ppbv	0.03	AC-058	14-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Isobutane		1.08	ppbv	0.03	AC-058	14-Mar-15
Isopentane		0.89	ppbv	0.03	AC-058	14-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Isopropyl alcohol	K, T, U	< 0.03	ppbv	0.06	AC-058	14-Mar-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
m,p-Xylene	I	0.19	ppbv	0.03	AC-058	14-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methyl ethyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	14-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methylcyclohexane	I	0.22	ppbv	0.03	AC-058	14-Mar-15
Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methylene chloride		0.55	ppbv	0.03	AC-058	14-Mar-15
n-Butane		2.55	ppbv	0.03	AC-058	14-Mar-15
n-Decane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15

<p>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</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB</p>	<p>403-219-3661 T2E 6P8 780 812-2182 T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030061-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 1, 2015 CANISTER ID: S5643 DESCRIPTION: CLS DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Heptane	I	0.09	ppbv	0.03	AC-058	14-Mar-15
n-Hexane	I	0.18	ppbv	0.03	AC-058	14-Mar-15
n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
o-Xylene	I	0.07	ppbv	0.03	AC-058	14-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
p-Ethyltoluene	I	0.03	ppbv	0.03	AC-058	14-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Toluene	I	0.26	ppbv	0.03	AC-058	14-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15

<p>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</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB	403-219-3661 T2E 6P8 780 812-2182 T9N 2J5	LABORATORY SAMPLE ID: 15030080-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/March 7, 2015 CANISTER ID: S5615 DESCRIPTION: CLS DATE SAMPLED: 07-Mar-15 0:00 DATE RECEIVED: 11-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,2,4-Trichlorobenzene	I	0.04 ppbv	0.03	AC-058	14-Mar-15
1,2,4-Trimethylbenzene	I	0.05 ppbv	0.03	AC-058	14-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1,4-Dioxane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1-Butene	I	0.27 ppbv	0.03	AC-058	14-Mar-15
1-Hexene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
2,2-Dimethylbutane		0.59 ppbv	0.03	AC-058	14-Mar-15
2,3,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
2,3-Dimethylbutane		2.21 ppbv	0.03	AC-058	14-Mar-15
2,3-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-15
2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Mar-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, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

<p>RESULTS TO: Lily Lin 403-219-3661 LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030080-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/March 7, 2015 CANISTER ID: S5615 DESCRIPTION: CLS DATE SAMPLED: 07-Mar-15 0:00 DATE RECEIVED: 11-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane		0.93	ppbv	0.03	AC-058	14-Mar-15
2-Methylhexane		2.31	ppbv	0.03	AC-058	14-Mar-15
2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
3-Methylheptane		0.37	ppbv	0.02	AC-058	14-Mar-15
3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
3-Methylpentane		3.82	ppbv	0.03	AC-058	14-Mar-15
Acetone		49.8	ppbv	0.03	AC-058	16-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Benzene		2.51	ppbv	0.03	AC-058	14-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Carbon disulfide		152	ppbv	0.03	AC-058	16-Mar-15
Carbon tetrachloride	I	0.08	ppbv	0.03	AC-058	14-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Chloromethane	I	0.30	ppbv	0.03	AC-058	14-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
cis-2-Butene	I	0.07	ppbv	0.03	AC-058	14-Mar-15
cis-2-Pentene	I	0.09	ppbv	0.03	AC-058	14-Mar-15
Cyclohexane		9.86	ppbv	0.03	AC-058	14-Mar-15
Cyclopentane		2.71	ppbv	0.03	AC-058	14-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15

<p>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</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		8.70	ppbv	0.03	AC-058	14-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Ethylbenzene		1.07	ppbv	0.03	AC-058	14-Mar-15
Freon-11	I	0.20	ppbv	0.03	AC-058	14-Mar-15
Freon-113	I	0.07	ppbv	0.03	AC-058	14-Mar-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Freon-12	I	0.29	ppbv	0.03	AC-058	14-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Isobutane		0.32	ppbv	0.03	AC-058	14-Mar-15
Isopentane		4.25	ppbv	0.03	AC-058	14-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Isopropyl alcohol		19.8	ppbv	0.06	AC-058	16-Mar-15
Isopropylbenzene	I	0.03	ppbv	0.03	AC-058	14-Mar-15
m,p-Xylene		1.86	ppbv	0.03	AC-058	14-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methyl butyl ketone		14.5	ppbv	0.03	AC-058	14-Mar-15
Methyl ethyl ketone		71.4	ppbv	0.03	AC-058	16-Mar-15
Methyl isobutyl ketone		5.70	ppbv	0.03	AC-058	14-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	14-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methylcyclohexane		6.12	ppbv	0.03	AC-058	14-Mar-15
Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Methylene chloride	I	0.10	ppbv	0.03	AC-058	14-Mar-15
n-Butane		0.44	ppbv	0.03	AC-058	14-Mar-15
n-Decane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-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, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB	403-219-3661 T2E 6P8 780 812-2182 T9N 2J5	LABORATORY SAMPLE ID: 15030080-002 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/March 7, 2015 CANISTER ID: S5615 DESCRIPTION: CLS DATE SAMPLED: 07-Mar-15 0:00 DATE RECEIVED: 11-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Heptane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Octane		0.93	ppbv	0.03	AC-058	14-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
o-Xylene		0.53	ppbv	0.03	AC-058	14-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Toluene		42.1	ppbv	0.03	AC-058	16-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
trans-2-Butene	I	0.19	ppbv	0.03	AC-058	14-Mar-15
trans-2-Pentene	I	0.29	ppbv	0.03	AC-058	14-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Mar-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
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- U Compound was analyzed for but not detected
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Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 13, 2015</p> <p>CANISTER ID: 1531</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,4-Dioxane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
2,2-Dimethylbutane	I	0.04	ppbv	0.03	AC-058	21-Mar-15
2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
2,3-Dimethylbutane	I	0.10	ppbv	0.03	AC-058	21-Mar-15
2,3-Dimethylpentane	I	0.06	ppbv	0.03	AC-058	21-Mar-15
2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 13, 2015</p> <p>CANISTER ID: 1531</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.03	ppbv	0.03	AC-058	21-Mar-15
2-Methylhexane	I	0.08	ppbv	0.03	AC-058	21-Mar-15
2-Methylpentane	I	0.26	ppbv	0.03	AC-058	21-Mar-15
3-Methylheptane	I	0.03	ppbv	0.02	AC-058	21-Mar-15
3-Methylhexane	I	0.08	ppbv	0.03	AC-058	21-Mar-15
3-Methylpentane	I	0.15	ppbv	0.03	AC-058	21-Mar-15
Acetone		3.12	ppbv	0.03	AC-058	21-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Benzene	I	0.23	ppbv	0.03	AC-058	21-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Carbon tetrachloride	I	0.12	ppbv	0.03	AC-058	21-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloromethane		0.89	ppbv	0.03	AC-058	21-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Cyclohexane	I	0.17	ppbv	0.03	AC-058	21-Mar-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB	LABORATORY SAMPLE ID: 15030186-003 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 13, 2015 CANISTER ID: 1531 DESCRIPTION: CLS DATE SAMPLED: 13-Mar-15 0:00 DATE RECEIVED: 20-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.51	ppbv	0.03	AC-058	21-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Ethylbenzene	I	0.05	ppbv	0.03	AC-058	21-Mar-15
Freon-11		0.34	ppbv	0.03	AC-058	21-Mar-15
Freon-113	I	0.11	ppbv	0.03	AC-058	21-Mar-15
Freon-114	I	0.03	ppbv	0.03	AC-058	21-Mar-15
Freon-12		0.77	ppbv	0.03	AC-058	21-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Isobutane		1.38	ppbv	0.03	AC-058	21-Mar-15
Isopentane		0.95	ppbv	0.03	AC-058	21-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Isopropyl alcohol	I	0.11	ppbv	0.06	AC-058	21-Mar-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
m,p-Xylene	I	0.15	ppbv	0.03	AC-058	21-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl ethyl ketone		0.43	ppbv	0.03	AC-058	21-Mar-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	21-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methylcyclohexane	I	0.23	ppbv	0.03	AC-058	21-Mar-15
Methylcyclopentane	I	0.16	ppbv	0.03	AC-058	21-Mar-15
Methylene chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Butane		2.60	ppbv	0.03	AC-058	21-Mar-15
n-Decane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/Mar 13, 2015</p> <p>CANISTER ID: 1531</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Heptane	I	0.11	ppbv	0.03	AC-058	21-Mar-15
n-Hexane	I	0.28	ppbv	0.03	AC-058	21-Mar-15
n-Octane	I	0.05	ppbv	0.03	AC-058	21-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
o-Xylene	I	0.06	ppbv	0.03	AC-058	21-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Toluene	I	0.21	ppbv	0.03	AC-058	21-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-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, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 19, 2015</p> <p>CANISTER ID: S5634</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,4-Dioxane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,3,4-Trimethylpentane	I	0.09	ppbv	0.03	AC-058	27-Mar-15
2,3-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 19, 2015</p> <p>CANISTER ID: S5634</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2-Methylpentane	I	0.12	ppbv	0.03	AC-058	27-Mar-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	27-Mar-15
3-Methylhexane	I	0.06	ppbv	0.03	AC-058	27-Mar-15
3-Methylpentane	I	0.15	ppbv	0.03	AC-058	27-Mar-15
Acetone		2.47	ppbv	0.03	AC-058	27-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Benzene	I	0.20	ppbv	0.03	AC-058	27-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Carbon tetrachloride	I	0.11	ppbv	0.03	AC-058	27-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Cyclohexane	I	0.21	ppbv	0.03	AC-058	27-Mar-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 19, 2015</p> <p>CANISTER ID: S5634</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.01	ppbv	0.03	AC-058	27-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Ethylbenzene	I	0.04	ppbv	0.03	AC-058	27-Mar-15
Freon-11		0.32	ppbv	0.03	AC-058	27-Mar-15
Freon-113	I	0.10	ppbv	0.03	AC-058	27-Mar-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Isobutane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Isopentane		0.41	ppbv	0.03	AC-058	27-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Isopropyl alcohol		0.43	ppbv	0.06	AC-058	27-Mar-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
m,p-Xylene	I	0.12	ppbv	0.03	AC-058	27-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl ethyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	27-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methylcyclohexane	I	0.10	ppbv	0.03	AC-058	27-Mar-15
Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methylene chloride		0.65	ppbv	0.03	AC-058	27-Mar-15
n-Butane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Decane	I	0.22	ppbv	0.03	AC-058	27-Mar-15

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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 19, 2015</p> <p>CANISTER ID: S5634</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane		0.41	ppbv	0.03	AC-058	27-Mar-15
n-Heptane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Hexane		10.6	ppbv	0.03	AC-058	27-Mar-15
n-Octane	I	0.03	ppbv	0.03	AC-058	27-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Undecane		0.37	ppbv	0.03	AC-058	27-Mar-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
o-Xylene	I	0.05	ppbv	0.03	AC-058	27-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Toluene		0.35	ppbv	0.03	AC-058	27-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 25, 2015</p> <p>CANISTER ID: 2471</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,1-Dichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2,4-Trichlorobenzene	I	0.03 ppbv	0.03	AC-058	04-Apr-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,3-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,4-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1,4-Dioxane		0.35 ppbv	0.03	AC-058	04-Apr-15
1-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1-Hexene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
2,2,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
2,2-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
2,3,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15
2,3-Dimethylbutane	I	0.07 ppbv	0.03	AC-058	04-Apr-15
2,3-Dimethylpentane	I	0.03 ppbv	0.03	AC-058	04-Apr-15
2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 25, 2015</p> <p>CANISTER ID: 2471</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
2-Methylhexane	I	0.05	ppbv	0.03	AC-058	04-Apr-15
2-Methylpentane	I	0.11	ppbv	0.03	AC-058	04-Apr-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	04-Apr-15
3-Methylhexane	I	0.04	ppbv	0.03	AC-058	04-Apr-15
3-Methylpentane	I	0.06	ppbv	0.03	AC-058	04-Apr-15
Acetone		2.33	ppbv	0.03	AC-058	04-Apr-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Benzene	I	0.18	ppbv	0.03	AC-058	04-Apr-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Carbon disulfide		0.57	ppbv	0.03	AC-058	04-Apr-15
Carbon tetrachloride	I	0.10	ppbv	0.03	AC-058	04-Apr-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloromethane		0.68	ppbv	0.03	AC-058	04-Apr-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Cyclohexane	I	0.03	ppbv	0.03	AC-058	04-Apr-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-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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On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.04	ppbv	0.03	AC-058	04-Apr-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Freon-11	I	0.30	ppbv	0.03	AC-058	04-Apr-15
Freon-113	I	0.09	ppbv	0.03	AC-058	04-Apr-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Freon-12		0.66	ppbv	0.03	AC-058	04-Apr-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Isobutane		0.64	ppbv	0.03	AC-058	04-Apr-15
Isopentane		0.42	ppbv	0.03	AC-058	04-Apr-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Isopropyl alcohol	I	0.10	ppbv	0.06	AC-058	04-Apr-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
m,p-Xylene	I	0.07	ppbv	0.03	AC-058	04-Apr-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl ethyl ketone		0.31	ppbv	0.03	AC-058	04-Apr-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	04-Apr-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methylcyclohexane	I	0.04	ppbv	0.03	AC-058	04-Apr-15
Methylcyclopentane	I	0.04	ppbv	0.03	AC-058	04-Apr-15
Methylene chloride	I	0.17	ppbv	0.03	AC-058	04-Apr-15
n-Butane		1.25	ppbv	0.03	AC-058	04-Apr-15
n-Decane	I	0.03	ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 25, 2015</p> <p>CANISTER ID: 2471</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Heptane	I	0.05	ppbv	0.03	AC-058	04-Apr-15
n-Hexane	I	0.09	ppbv	0.03	AC-058	04-Apr-15
n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Pentane		0.46	ppbv	0.03	AC-058	04-Apr-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
o-Xylene	I	0.03	ppbv	0.03	AC-058	04-Apr-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Toluene	I	0.12	ppbv	0.03	AC-058	04-Apr-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 31, 2015</p> <p>CANISTER ID: H3286</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1-Dichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2,4-Trichlorobenzene	I	0.06 ppbv	0.03	AC-058	11-Apr-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,3-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,4-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,4-Dioxane		0.38 ppbv	0.03	AC-058	11-Apr-15
1-Butene	I	0.22 ppbv	0.03	AC-058	11-Apr-15
1-Hexene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,2,4-Trimethylpentane	I	0.08 ppbv	0.03	AC-058	11-Apr-15
2,2-Dimethylbutane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,3,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,3-Dimethylbutane	I	0.06 ppbv	0.03	AC-058	11-Apr-15
2,3-Dimethylpentane	I	0.06 ppbv	0.03	AC-058	11-Apr-15
2,4-Dimethylpentane	I	0.04 ppbv	0.03	AC-058	11-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 31, 2015</p> <p>CANISTER ID: H3286</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
2-Methylhexane	I	0.06	ppbv	0.03	AC-058	11-Apr-15
2-Methylpentane	I	0.17	ppbv	0.03	AC-058	11-Apr-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	11-Apr-15
3-Methylhexane	I	0.06	ppbv	0.03	AC-058	11-Apr-15
3-Methylpentane	I	0.09	ppbv	0.03	AC-058	11-Apr-15
Acetone		2.59	ppbv	0.03	AC-058	11-Apr-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Benzene	I	0.20	ppbv	0.03	AC-058	11-Apr-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Carbon disulfide		0.72	ppbv	0.03	AC-058	11-Apr-15
Carbon tetrachloride	I	0.09	ppbv	0.03	AC-058	11-Apr-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Chloromethane		0.65	ppbv	0.03	AC-058	11-Apr-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
cis-2-Butene	I	0.03	ppbv	0.03	AC-058	11-Apr-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Cyclohexane	I	0.04	ppbv	0.03	AC-058	11-Apr-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15040032-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/March 31, 2015 CANISTER ID: H3286 DESCRIPTION: CLS DATE SAMPLED: 31-Mar-15 0:00 DATE RECEIVED: 09-Apr-15 REPORT CREATED: 23-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.58	ppbv	0.03	AC-058	11-Apr-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Ethylbenzene	I	0.04	ppbv	0.03	AC-058	11-Apr-15
Freon-11	I	0.26	ppbv	0.03	AC-058	11-Apr-15
Freon-113	I	0.08	ppbv	0.03	AC-058	11-Apr-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Freon-12		0.57	ppbv	0.03	AC-058	11-Apr-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Isobutane		0.58	ppbv	0.03	AC-058	11-Apr-15
Isopentane		0.72	ppbv	0.03	AC-058	11-Apr-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Isopropyl alcohol	I	0.28	ppbv	0.06	AC-058	11-Apr-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
m,p-Xylene	I	0.13	ppbv	0.03	AC-058	11-Apr-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methyl ethyl ketone	I	0.28	ppbv	0.03	AC-058	11-Apr-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	11-Apr-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methylcyclohexane	I	0.05	ppbv	0.03	AC-058	11-Apr-15
Methylcyclopentane	I	0.08	ppbv	0.03	AC-058	11-Apr-15
Methylene chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Butane		1.50	ppbv	0.03	AC-058	11-Apr-15
n-Decane	I	0.19	ppbv	0.03	AC-058	11-Apr-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, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/March 31, 2015</p> <p>CANISTER ID: H3286</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Heptane	I	0.06	ppbv	0.03	AC-058	11-Apr-15
n-Hexane	I	0.11	ppbv	0.03	AC-058	11-Apr-15
n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Naphthalene	I	0.08	ppbv	0.03	AC-058	11-Apr-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
o-Xylene	I	0.05	ppbv	0.03	AC-058	11-Apr-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Toluene	I	0.21	ppbv	0.03	AC-058	11-Apr-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-2-Pentene	I	0.03	ppbv	0.03	AC-058	11-Apr-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-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, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

PAHs

RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15030061-003 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/Mar 1, 2015 CANISTER ID: TE-08 DESCRIPTION: CLS DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.37	ug/Filter	0.01	NA-017	15-Mar-15
2-Methylnaphthalene		0.72	ug/Filter	0.01	NA-017	15-Mar-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthene		0.15	ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthylene		0.04	ug/Filter	0.01	NA-017	15-Mar-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Anthracene		0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Chrysene		0.02	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Fluoranthene		0.06	ug/Filter	0.01	NA-017	15-Mar-15
Fluorene		0.10	ug/Filter	0.01	NA-017	15-Mar-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Naphthalene		1.34	ug/Filter	0.01	NA-017	15-Mar-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Phenanthrene		0.23	ug/Filter	0.01	NA-017	15-Mar-15
Pyrene		0.05	ug/Filter	0.01	NA-017	15-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Lily Lin 403-219-3661 LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030061-003</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/Mar 1, 2015</p> <p>CANISTER ID: TE-08</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 01-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Mar-15</p> <p>REPORT CREATED: 25-Mar-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.06 ug/Filter	0.01	NA-017	15-Mar-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, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15030080-003 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/March 7, 2015 CANISTER ID: TE 01 DESCRIPTION: CLS DATE SAMPLED: 07-Mar-15 0:00 DATE RECEIVED: 11-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.07	ug/Filter	0.01	NA-017	15-Mar-15
2-Methylnaphthalene		0.12	ug/Filter	0.01	NA-017	15-Mar-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthene		0.04	ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	15-Mar-15
Fluorene		0.06	ug/Filter	0.01	NA-017	15-Mar-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Naphthalene		0.12	ug/Filter	0.01	NA-017	15-Mar-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	15-Mar-15
Phenanthrene		0.13	ug/Filter	0.01	NA-017	15-Mar-15
Pyrene		0.02	ug/Filter	0.01	NA-017	15-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB</p> <p>403-219-3661 T2E 6P8</p> <p>INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB</p> <p>780 812-2182 T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030080-003</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/March 7, 2015</p> <p>CANISTER ID: TE 01</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 07-Mar-15 0:00</p> <p>DATE RECEIVED: 11-Mar-15</p> <p>REPORT CREATED: 25-Mar-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15

<p>Qualifiers</p> <p>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</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB	LABORATORY SAMPLE ID: 15030186-004 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/Mar 13, 2015 CANISTER ID: DESCRIPTION: CLS DATE SAMPLED: 13-Mar-15 0:00 DATE RECEIVED: 20-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.17 ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.32 ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.04 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Anthracene		0.02 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene		0.11 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.05 ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.12 ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.31 ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.19 ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.04 ug/Filter	0.01	NA-017	03-Apr-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adekunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/Mar 13, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/March 19, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.06	ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.11	ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.04	ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Anthracene		0.01	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene		0.02	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.06	ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.07	ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.09	ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.03	ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/March 19, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.01 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15030234-002 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/March 25, 2015 CANISTER ID: TE11 DESCRIPTION: CLS DATE SAMPLED: 25-Mar-15 0:00 DATE RECEIVED: 31-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.12 ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.21 ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Anthracene		0.02 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.05 ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.08 ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.25 ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.15 ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.04 ug/Filter	0.01	NA-017	03-Apr-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/March 25, 2015</p> <p>CANISTER ID: TE11</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15040032-002 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/March 31, 2015 CANISTER ID: TE-06 DESCRIPTION: CLS DATE SAMPLED: 31-Mar-15 0:00 DATE RECEIVED: 09-Apr-15 REPORT CREATED: 23-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.09	ug/Filter	0.01	NA-017	21-Apr-15
2-Methylnaphthalene		0.17	ug/Filter	0.01	NA-017	21-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Acenaphthene		0.04	ug/Filter	0.01	NA-017	21-Apr-15
Acenaphthylene		0.02	ug/Filter	0.01	NA-017	21-Apr-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Anthracene		0.02	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Benzo(ghi)perylene		0.01	ug/Filter	0.01	NA-017	21-Apr-15
Chrysene		0.01	ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Fluoranthene		0.07	ug/Filter	0.01	NA-017	21-Apr-15
Fluorene		0.10	ug/Filter	0.01	NA-017	21-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0:01	NA-017	21-Apr-15
Naphthalene		0.12	ug/Filter	0.01	NA-017	21-Apr-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	21-Apr-15
Phenanthrene		0.25	ug/Filter	0.01	NA-017	21-Apr-15
Pyrene		0.06	ug/Filter	0.01	NA-017	21-Apr-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/March 31, 2015</p> <p>CANISTER ID: TE-06</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/Filter	0.01	NA-017	21-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
--	---

PARTISOL

<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB</p> <p>INVOICE TO: Mike Bisaga PO Box 8237 5107W-50 St Bonnyville AB</p>	<p>403-219-3661</p> <p>T2E 6P8</p> <p>780 812-2182</p> <p>T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030062-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4130544</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 01-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Mar-15</p> <p>REPORT CREATED: 18-Mar-15</p> <p>REPORT VERSION: Version 01</p>
--	---	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.057	mg	0.004	AC-029	10-Mar-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE</p> <p>Calgary AB</p> <p>INVOICE TO: Mike Bisaga PO Box 8237 5107W-50 St Bonnyville AB</p>	<p>403-219-3661</p> <p>T2E 6P8</p> <p>780 812-2182</p> <p>T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030081-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4131473</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 07-Mar-15 0:00</p> <p>DATE RECEIVED: 11-Mar-15</p> <p>REPORT CREATED: 18-Mar-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.037 mg	0.004	AC-029	16-Mar-15

<p>Qualifiers</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030187-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4130542</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 26-Mar-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.074	mg	0.004	AC-029	24-Mar-15

<p>Qualifiers</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030212-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: CLS Filter # P4131472</p> <p>CANISTER ID:</p> <p>DESCRIPTION:</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 21-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.085 mg	0.004	AC-029	02-Apr-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030233-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4131475</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 21-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.145	mg	0.004	AC-029	02-Apr-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040033-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4131474</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 21-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.071 mg	0.004	AC-029	13-Apr-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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APPENDIX V
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-03-01- C</u>
Site: <u>Cold Lake South Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete *msdnha* Date 07 - April - 15

QA Check Review *msdnha* Date 07 - April - 15

Report Complete *msdnha* Date 11 - May - 15

Report Reviewed *[Signature]* Date 12 - May - 15

Report Shipped _____ Date _____

Notes



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 #:2833-2015-03-30- C

MARCH 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **April 1, 2015**

Prepared by:



Wunmi Adekanmbi, M.Sc.

Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:



Lily Lin, B.Sc.

Customer Service Supervisor, Air Services, Maxxam Analytics

SUMMARY

In MARCH 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						MAXIMUM VALUES							OPERATIONAL TIME (%)
Maskwa Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	1	18	5	9	5.9	NW	1.9	5	100.0
H2S (PPB)	10	3	0	0	0	1	VAR	VAR	VAR	VAR	1.0	14	100.0
THC (PPM)	-	-	-	-	2.2	2.9	13	7	6.9	SSW	2.4	13	100.0
NO2 (PPB)	159	-	0	-	2.8	26.5	16	6	5.8	WNW	6.0	16	100.0
NO (PPB)	-	-	-	-	0.8	16.7	5	9	5.9	NW	2.0	5	100.0
NOX (PPB)	-	-	-	-	3.5	36.9	5	9	5.9	NW	7.9	5	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	61.5	91	27	6	1.7	NE	81.7	26	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	940	956	16	11	6.9	WNW	952	16	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-1.5	14.9	31	15	7.2	SE	6.7	31	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	0.6	VAR	VAR	VAR	VAR	0.1	VAR	99.7
VECTOR WS (KPH)	-	-	-	-	5.7	22.4	15	3	-	WNW	9.7	15	100.0
VECTOR WD (DEG)	-	-	-	-	WSW	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters SO₂, H₂S, THC, NO_x, NO, NO₂, WS, WD, RH, BP, Precipitation and 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 is 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 conducted on March 11.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 11.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 11.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 11. The hydrogen gas cylinder was replaced on the same day.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 11.

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. Hourly maximum data collected on March 4 between hour 1 and hour 3 and at hour 7 were invalidated due to a spike. Reason unknown.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month.

PRECIPITATION

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

The rain gauge seasonal verification/maintenance was performed on March 24.

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 team consisted of 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/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

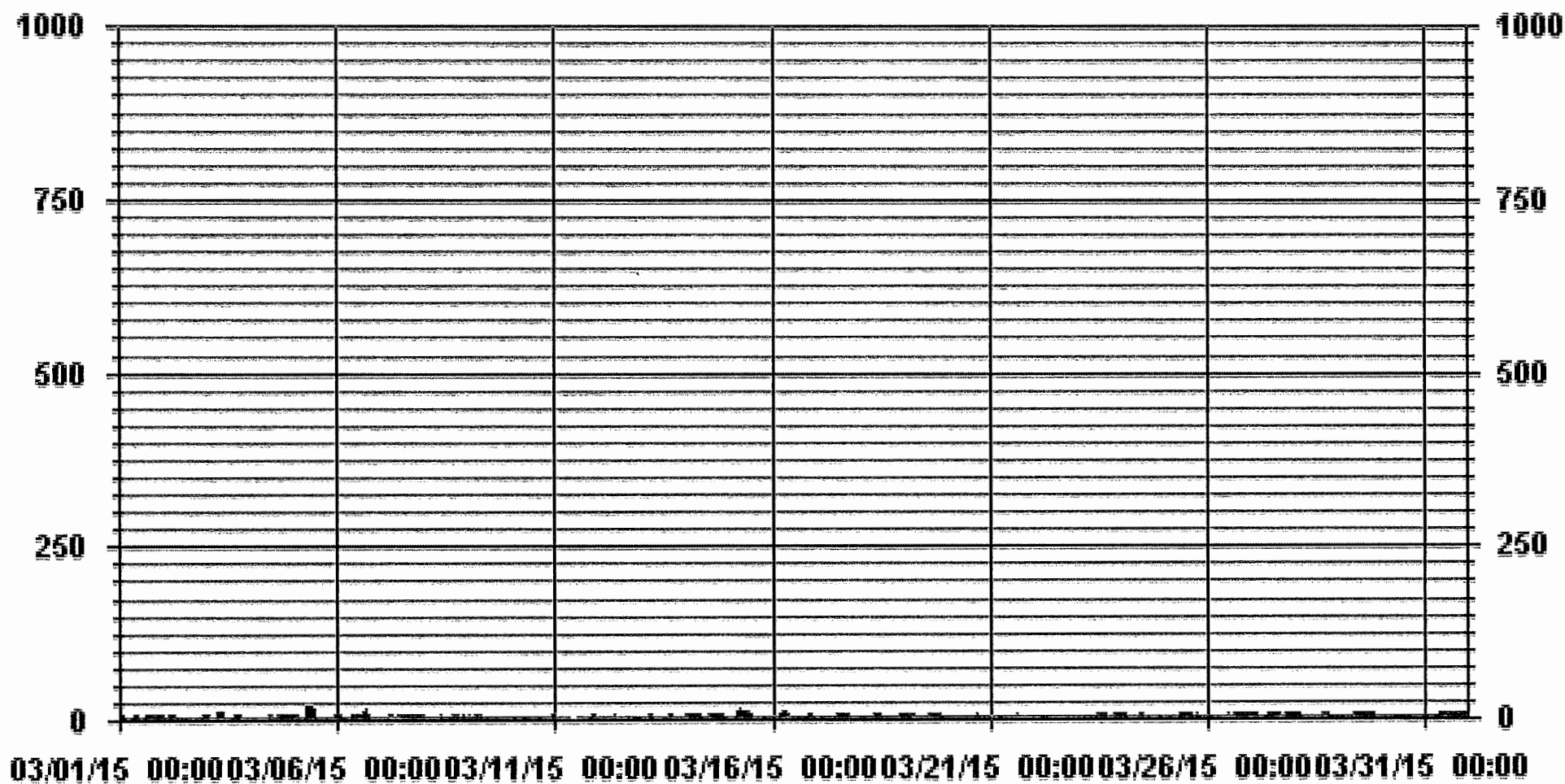
The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 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

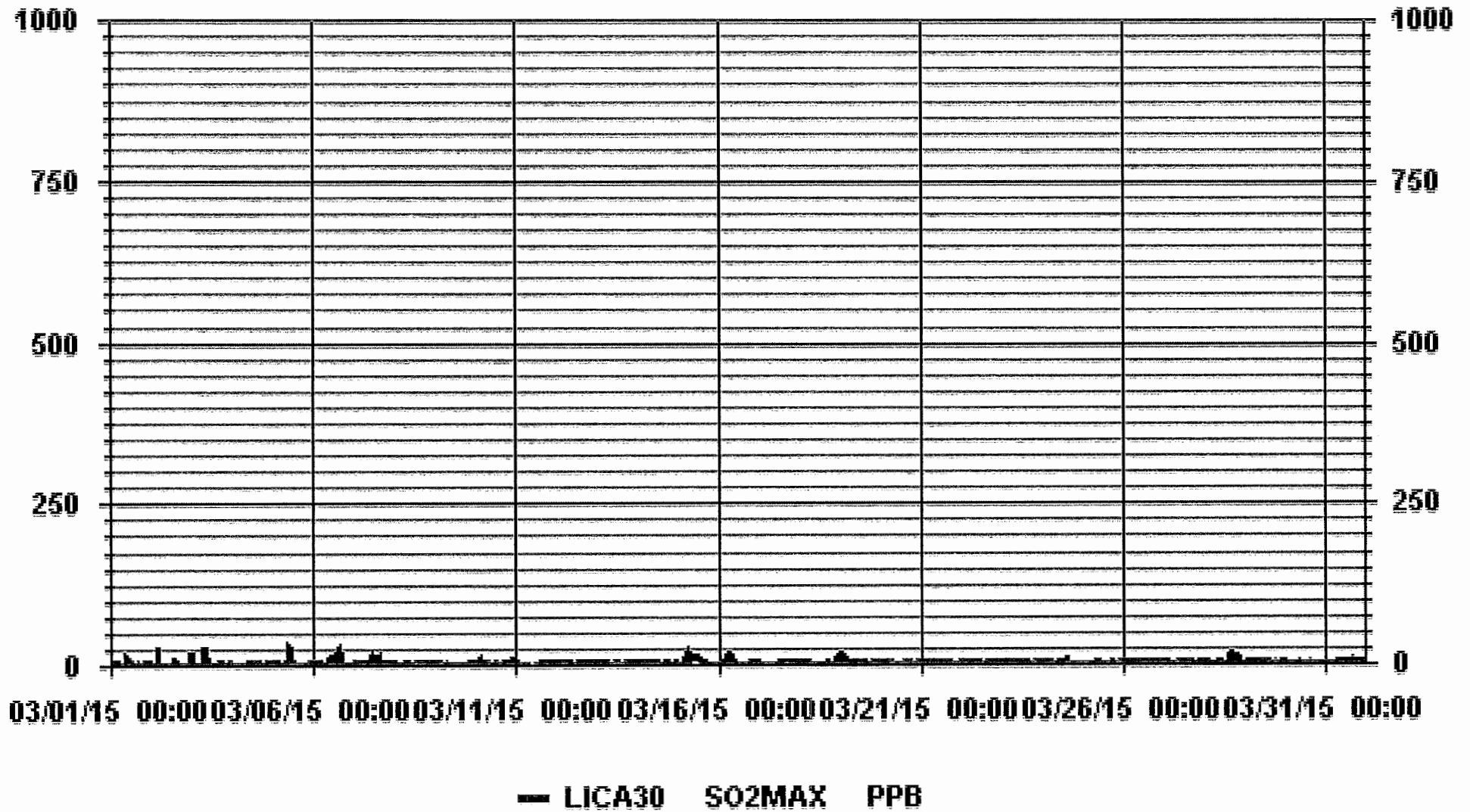
SULPHUR DIOXIDE

01 Hour Averages



— LICA30 SO2_ PPB

01 Hour Averages



LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : SO2_
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2.55	4.39	7.09	7.09	6.80	4.39	4.53	3.26	3.97	15.17	11.48	4.53	6.38	9.21	3.82	5.24	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	2.55	4.39	7.09	7.09	6.80	4.39	4.53	3.26	3.97	15.17	11.48	4.53	6.38	9.21	3.82	5.24	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	18	31	50	50	48	31	32	23	28	107	81	32	45	65	27	37	705
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	18	31	50	50	48	31	32	23	28	107	81	32	45	65	27	37	

Calm : .00 %

Total # Operational Hours : 705

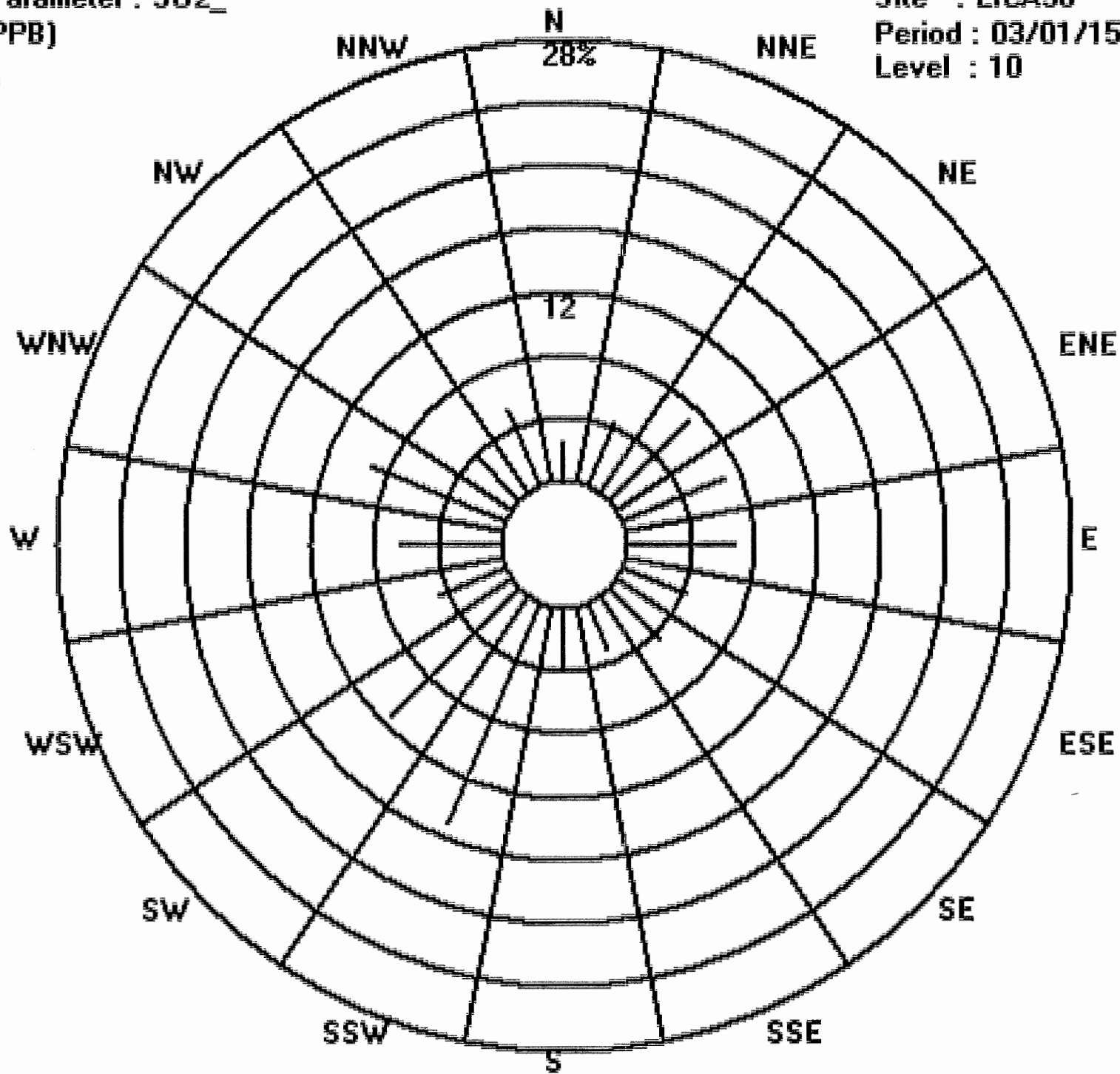
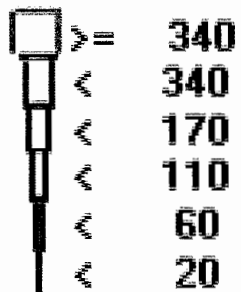
Logger : 30 Parameter : SO2_

Class Limits (PPB)

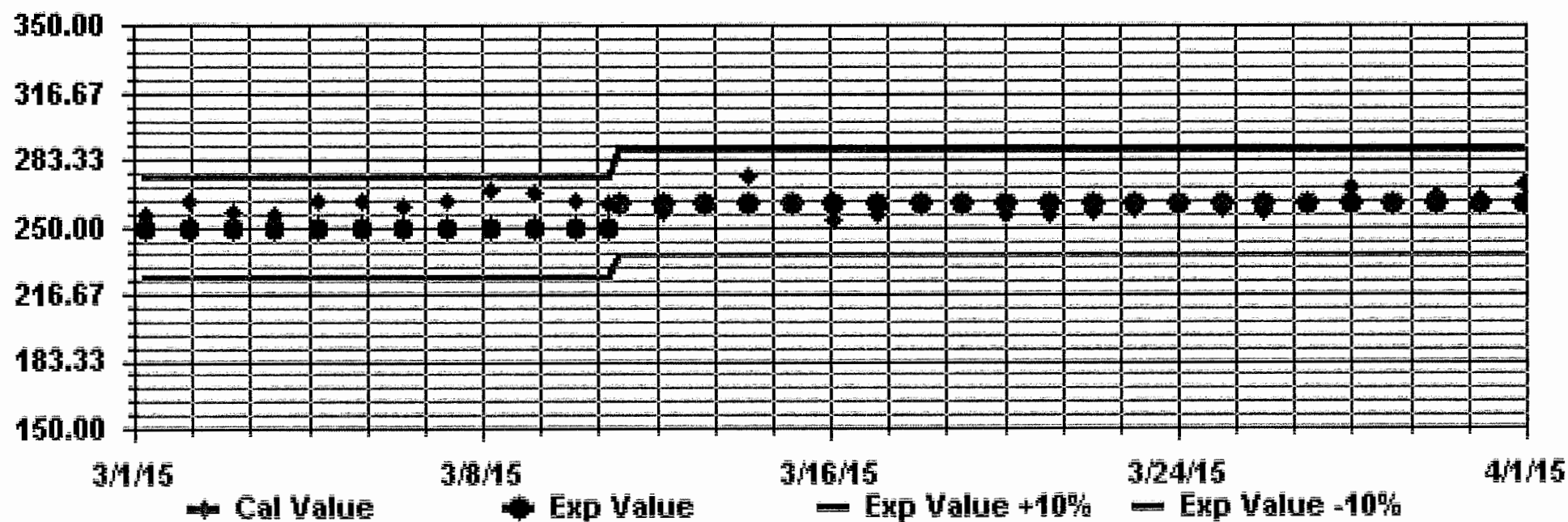
Site : LICA30

Period : 03/01/15-03/31/15

Level : 10

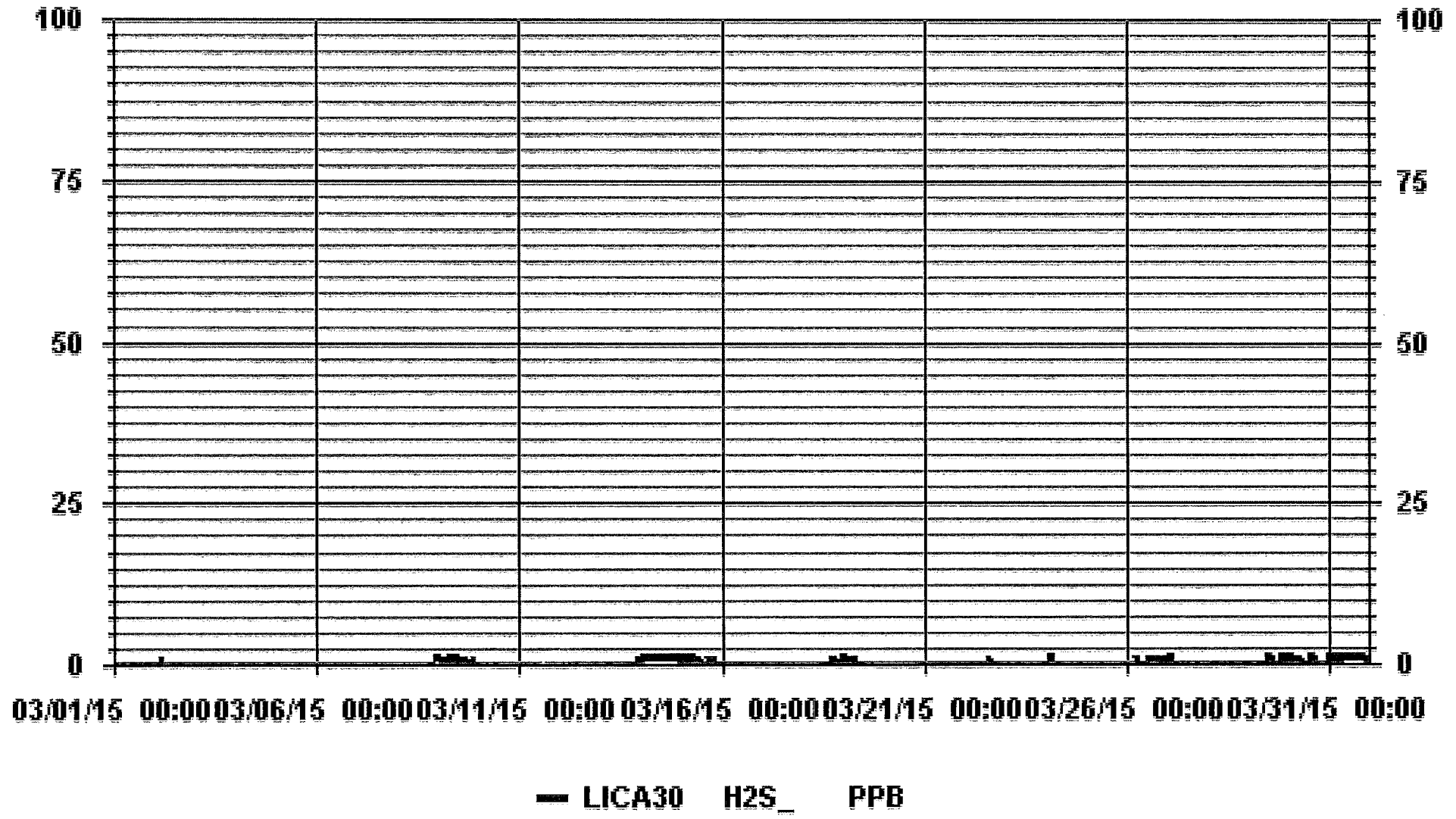


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN

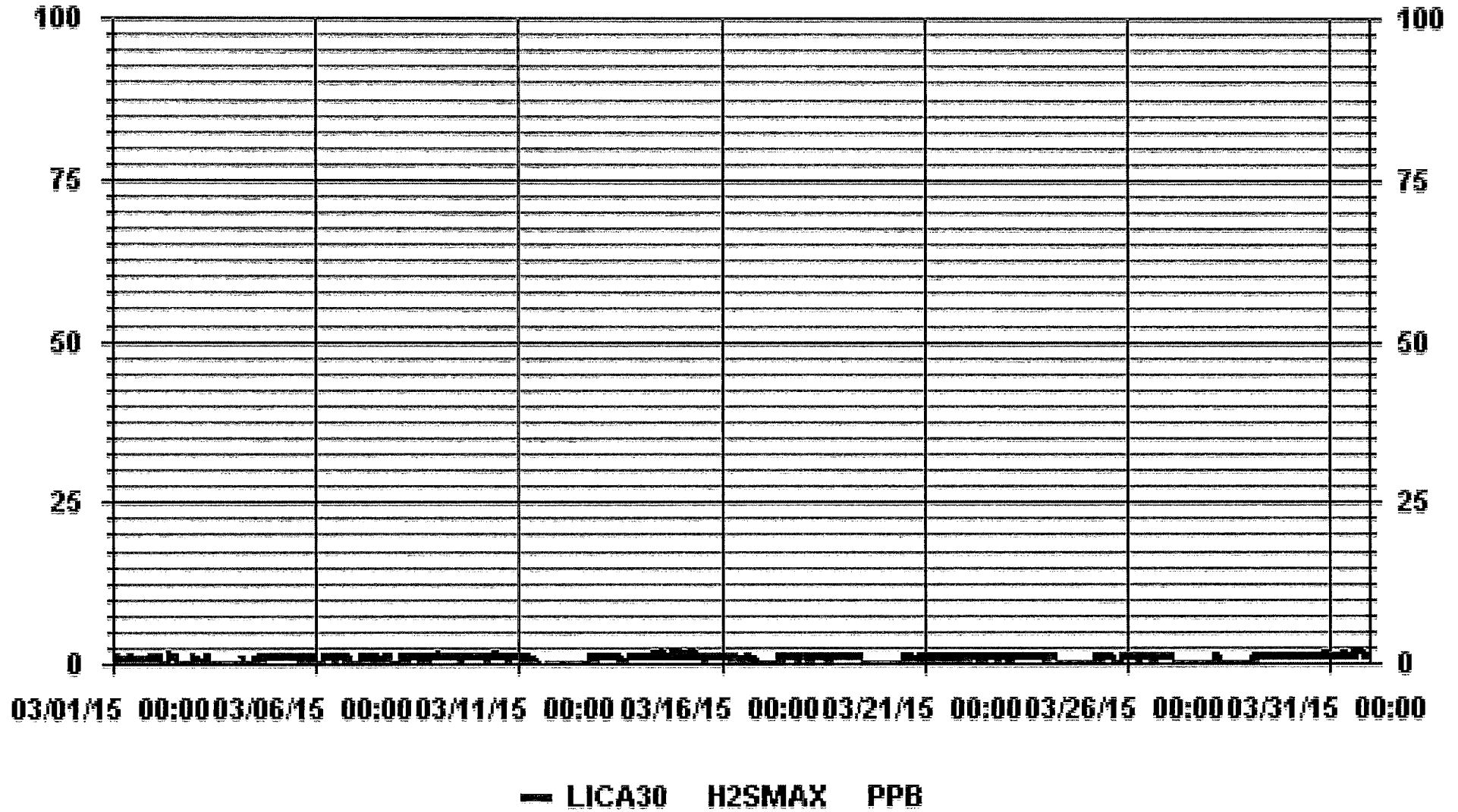


HYDROGEN SULPHIDE

01 Hour Averages



01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

March 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	2.54	4.39	7.08	7.08	7.22	4.10	4.53	3.25	3.96	15.15	11.47	4.53	6.37	9.20	3.82	5.24	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	2.54	4.39	7.08	7.08	7.22	4.10	4.53	3.25	3.96	15.15	11.47	4.53	6.37	9.20	3.82	5.24		

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	
< 3	18	31	50	50	51	29	32	23	28	107	81	32	45	65	27	37	706	
< 10																		
< 50																		
>= 50																		
Totals	18	31	50	50	51	29	32	23	28	107	81	32	45	65	27	37		

Calm : .00 %

Total # Operational Hours : 706

Logger : 30 Parameter : H2S_

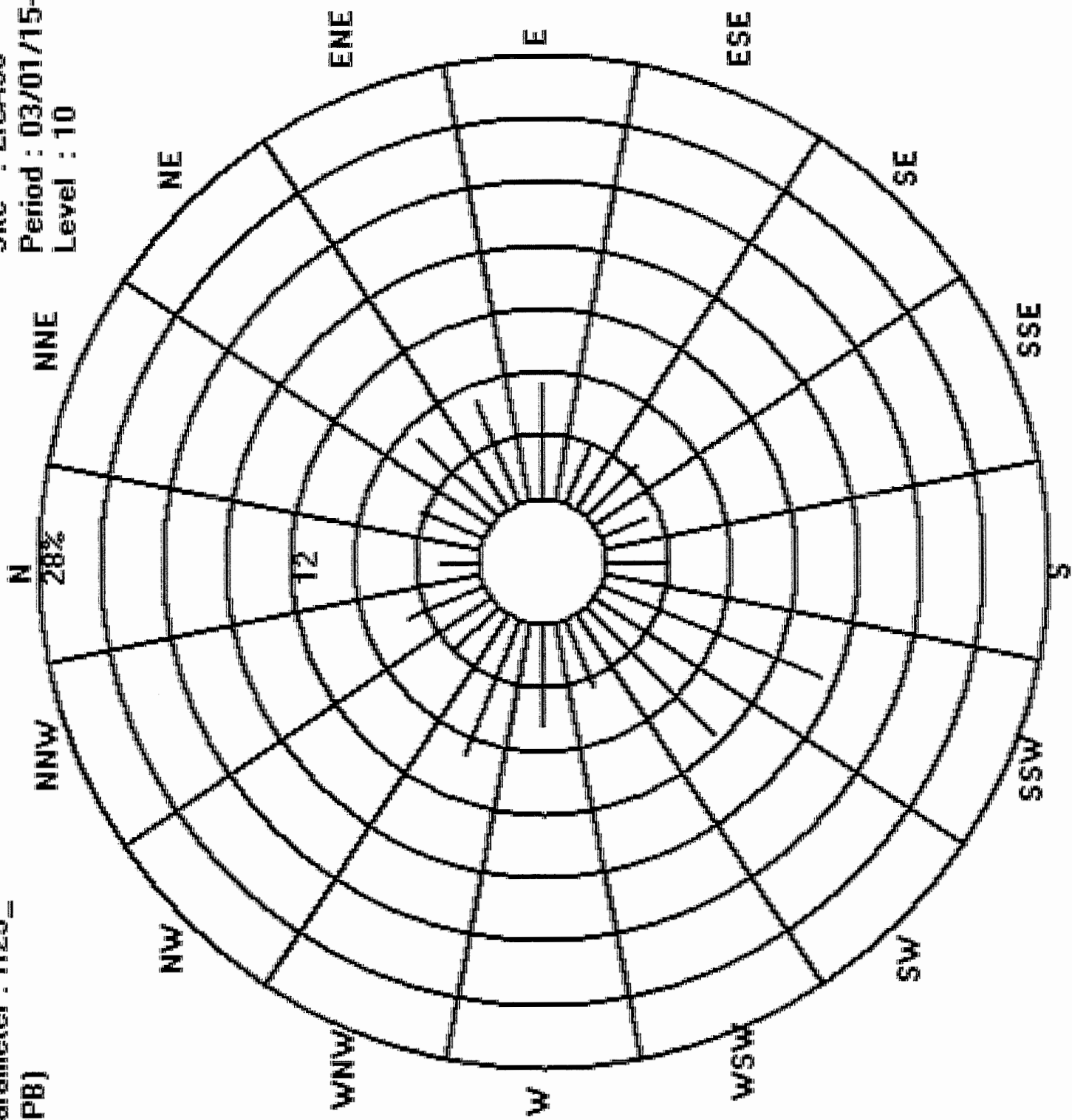
Site : LICA30

Class Limits (PPB)

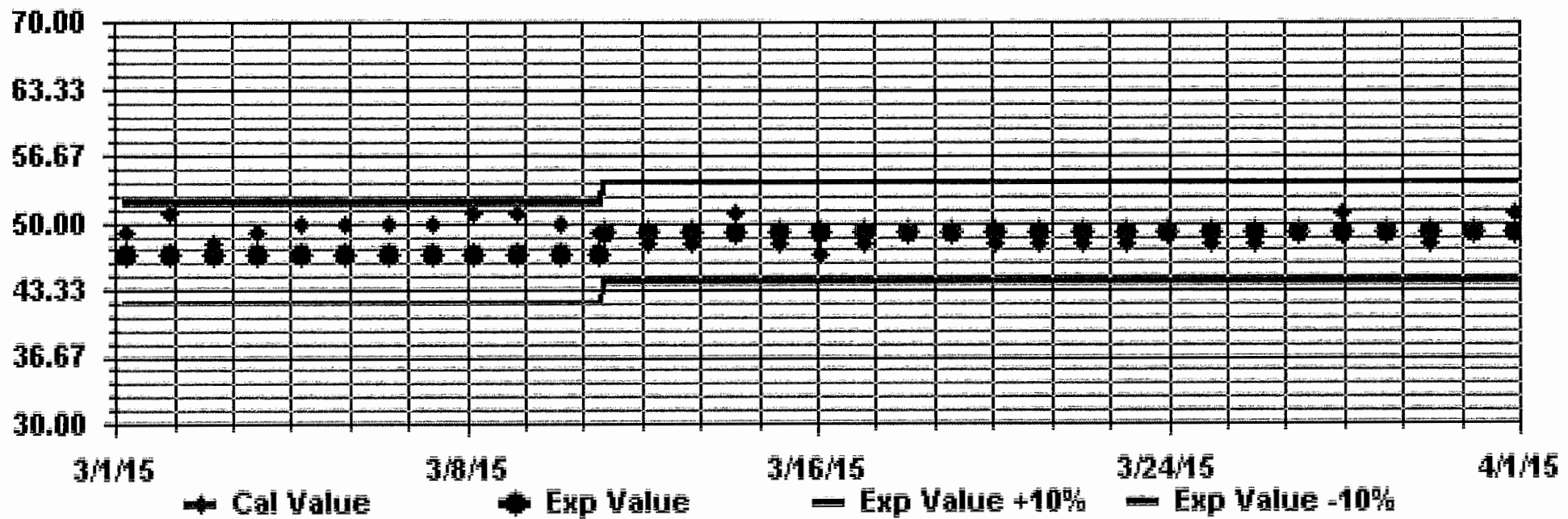
Period : 03/01/15-03/31/15



Level : 10

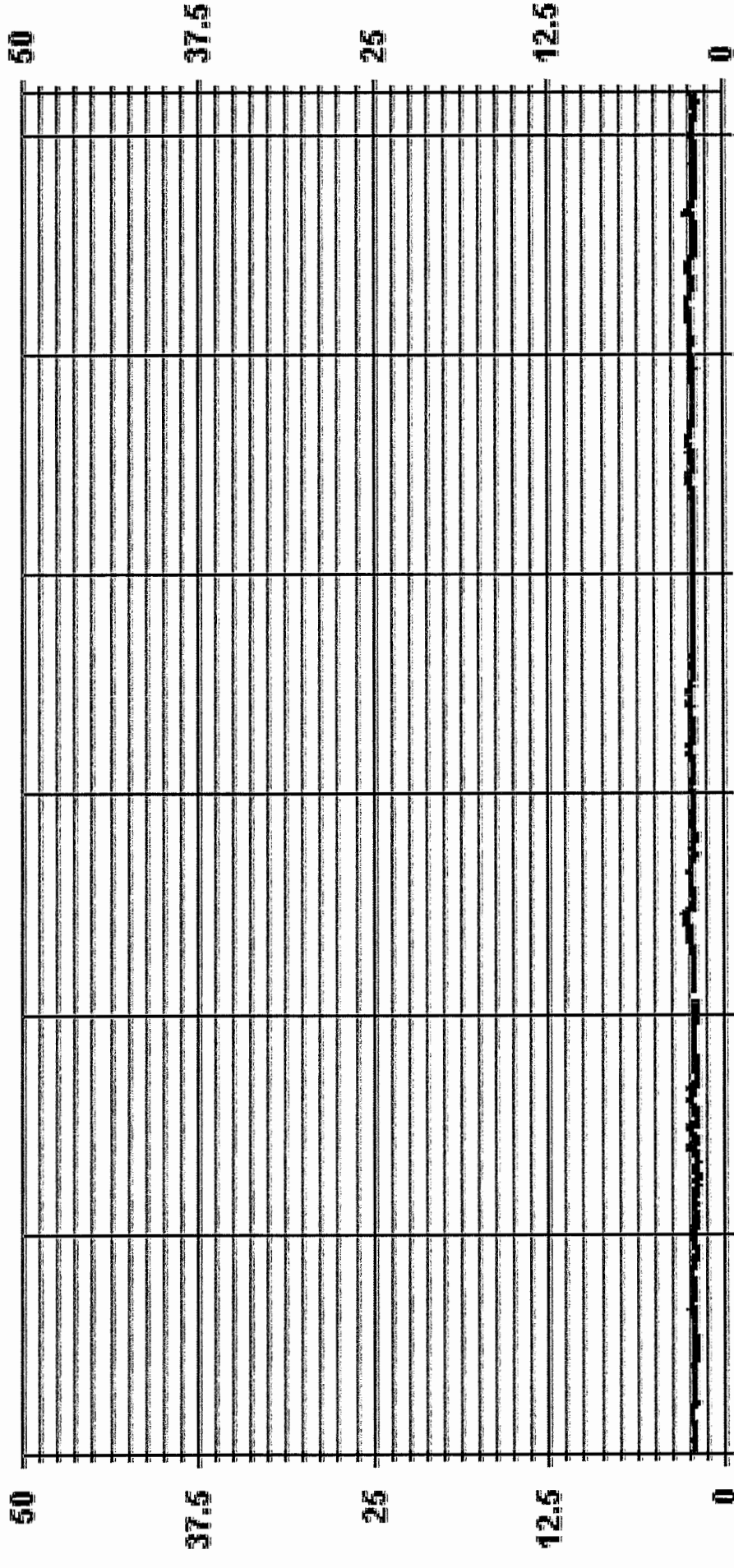


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN



TOTAL HYDROCARBON

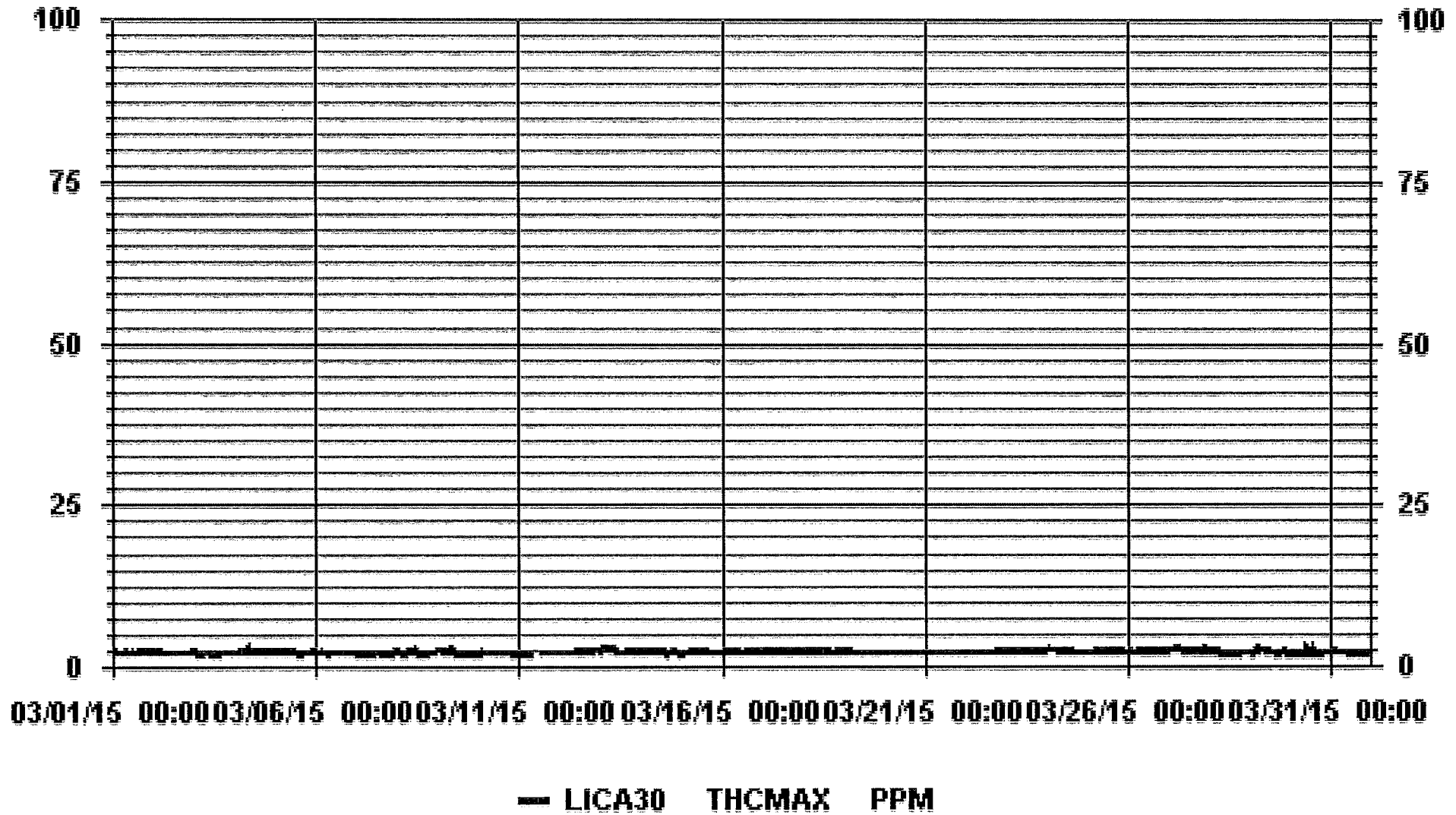
01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA30 - - - - THC PPM

01 Hour Averages



LICA30
 THC / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.55	4.39	7.09	7.09	6.80	4.39	4.53	3.26	3.97	15.17	11.48	4.53	6.38	9.21	3.82	5.24	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	2.55	4.39	7.09	7.09	6.80	4.39	4.53	3.26	3.97	15.17	11.48	4.53	6.38	9.21	3.82	5.24	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	31	50	50	48	31	32	23	28	107	81	32	45	65	27	37	705
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	18	31	50	50	48	31	32	23	28	107	81	32	45	65	27	37	

Calm : .00 %

Total # Operational Hours : 705

Logger : 30 Parameter : THC

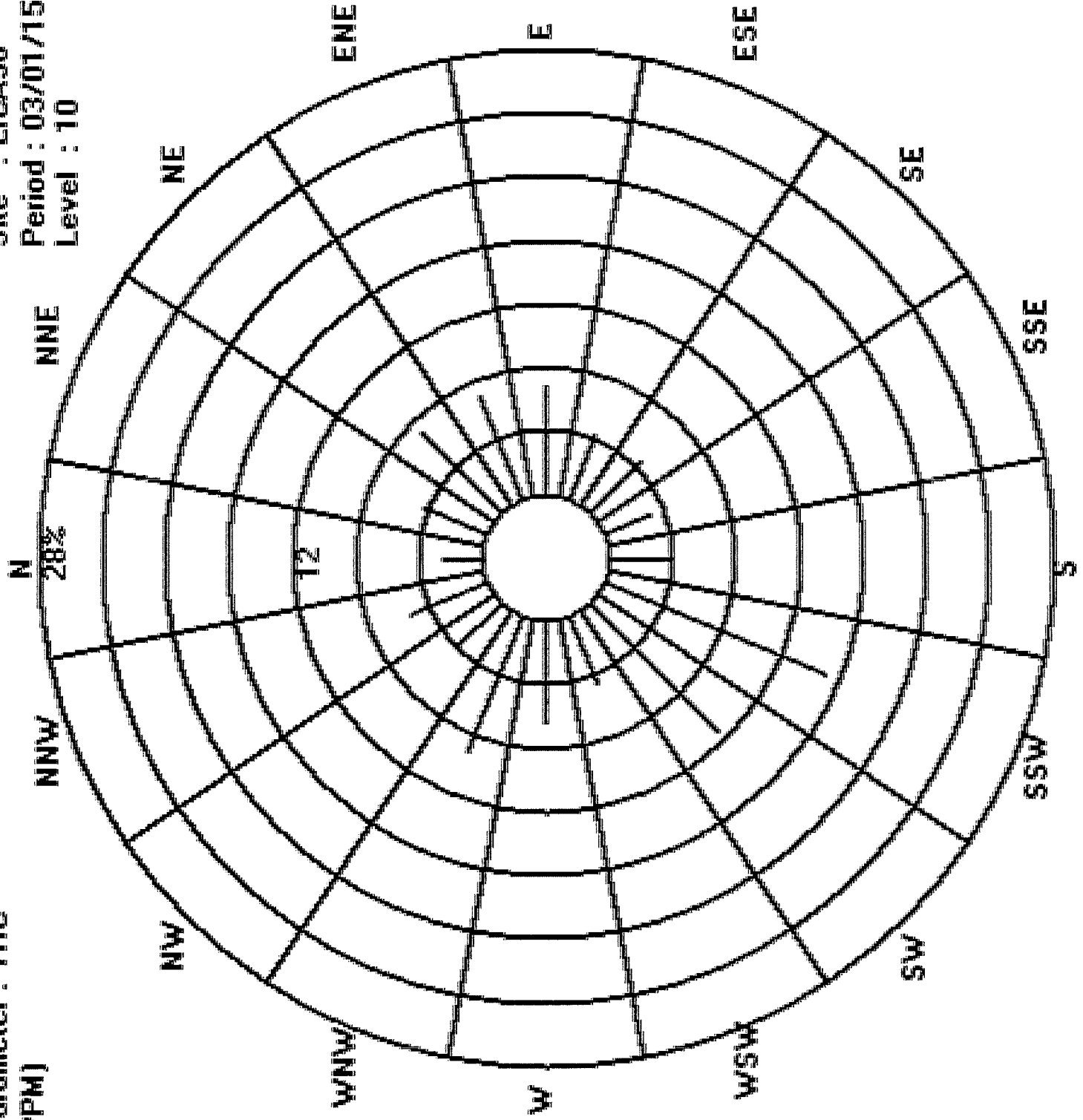
Class Limits (PPM)

-  >= 50.0
-  < 50.0
-  < 10.0
-  < 3.0

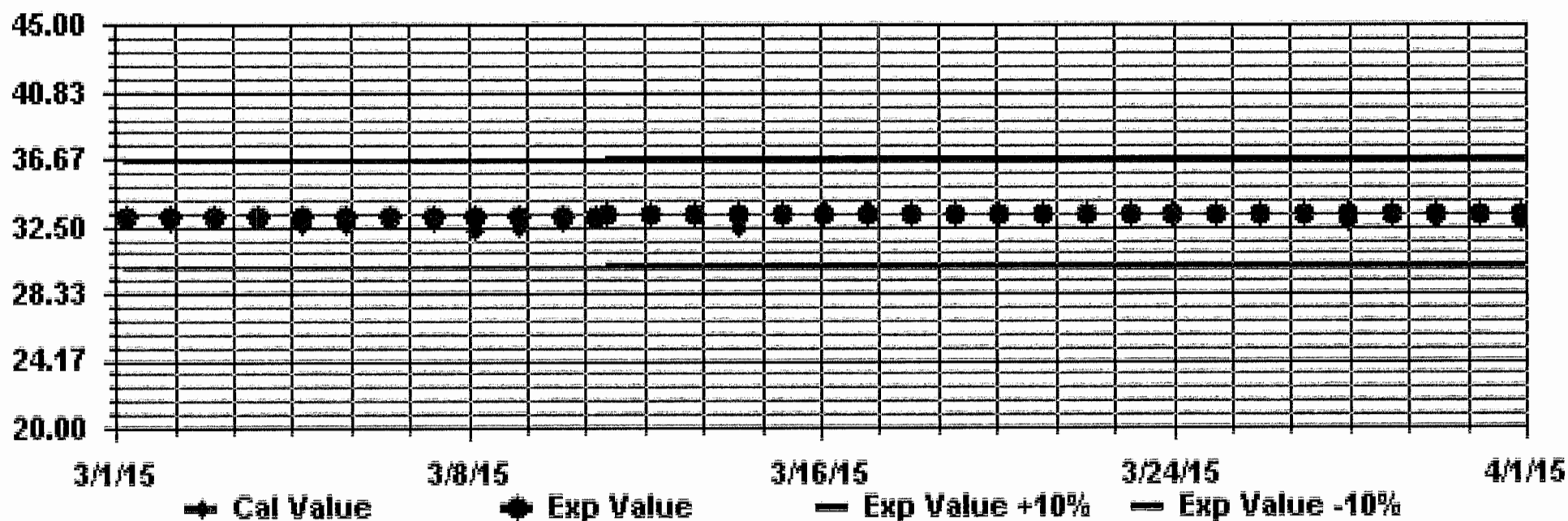
Site : LICA30

Period : 03/01/15-03/31/15

Level : 10

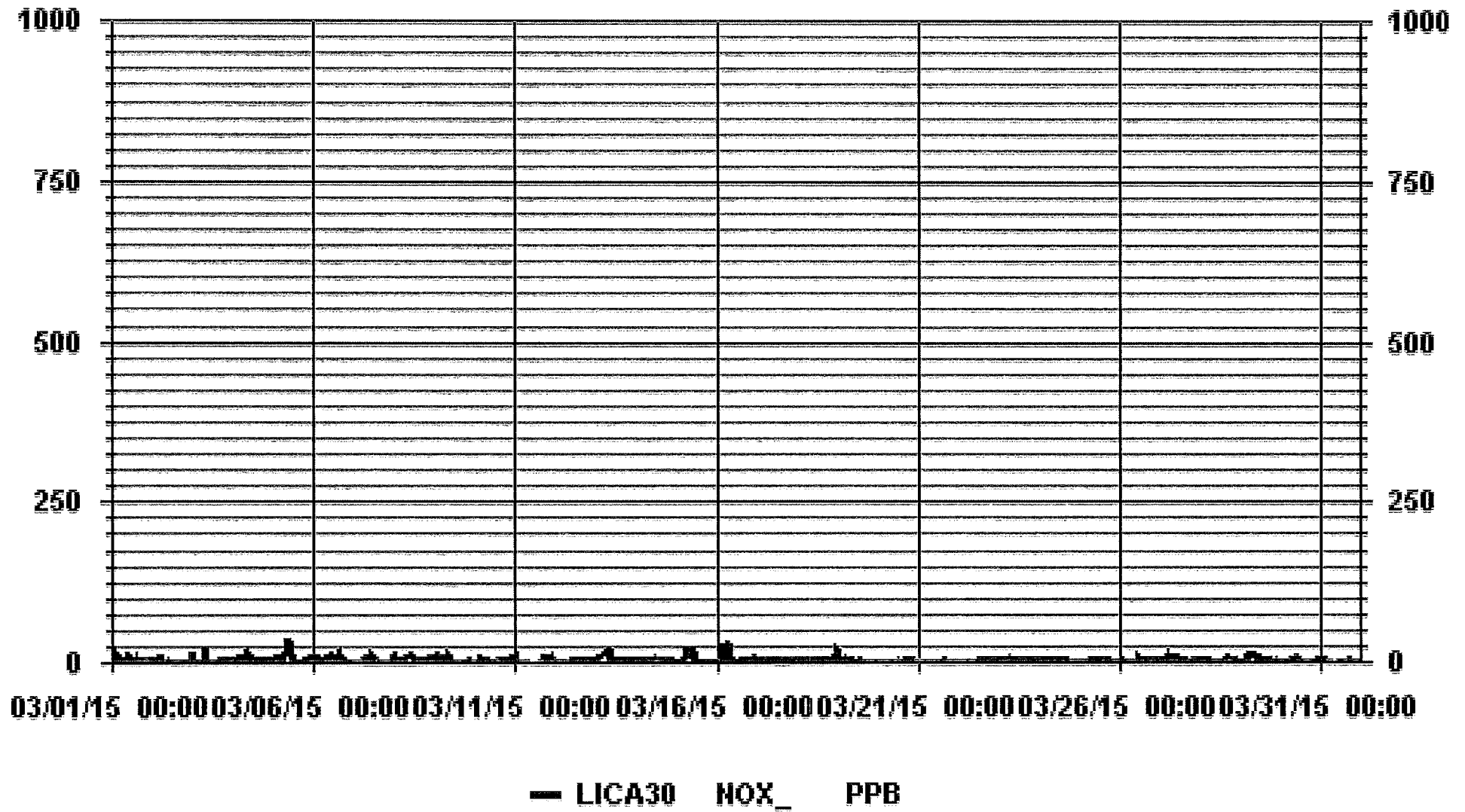


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN

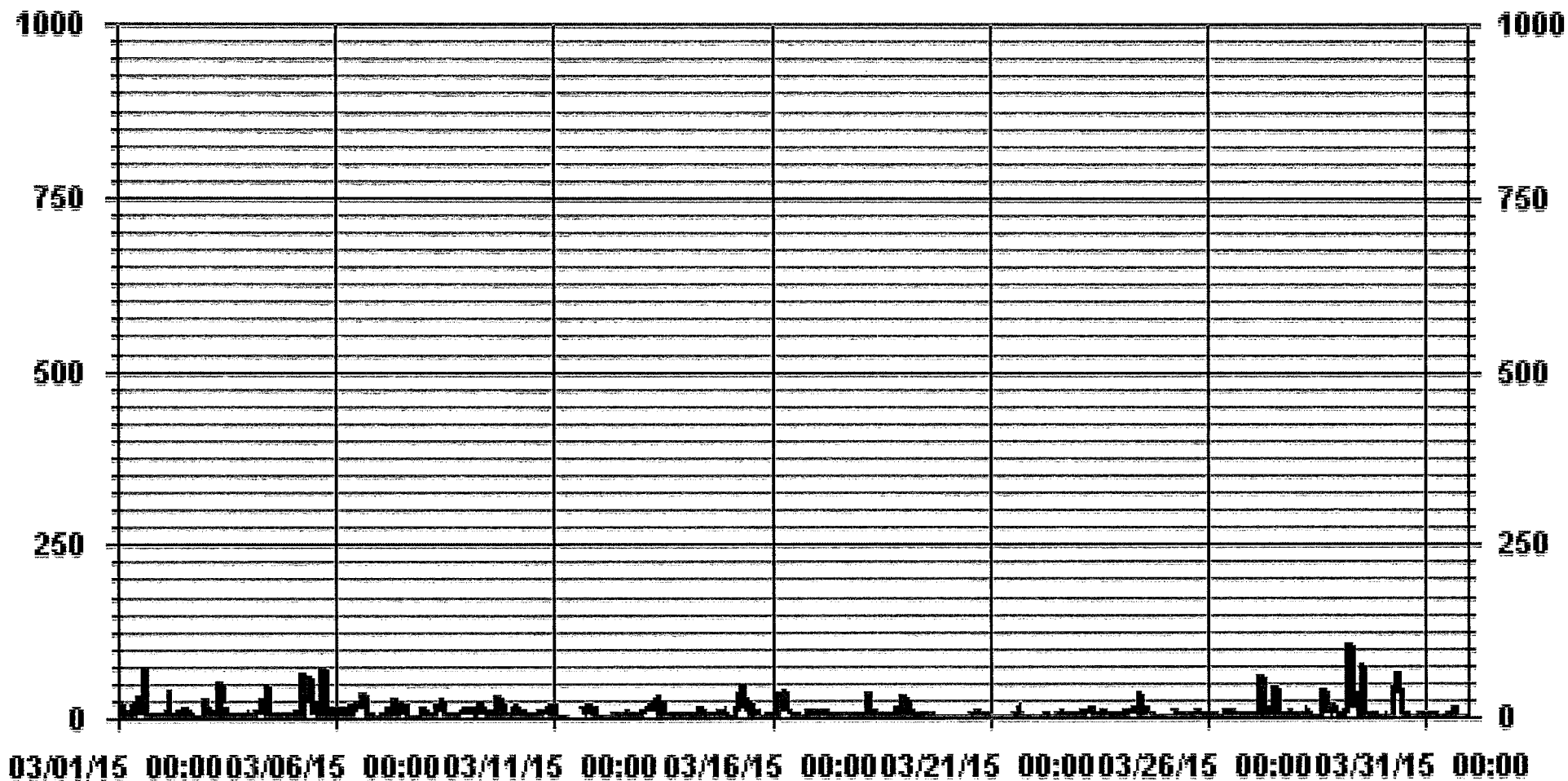


OXIDES OF NITROGEN

01 Hour Averages



01 Hour Averages



— LICA30 NOXMAX PPB

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NOX_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29	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	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

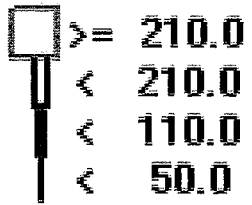
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37	699
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37	

Calm : .00 %

Total # Operational Hours : 699

Logger : 30 Parameter : NOX_

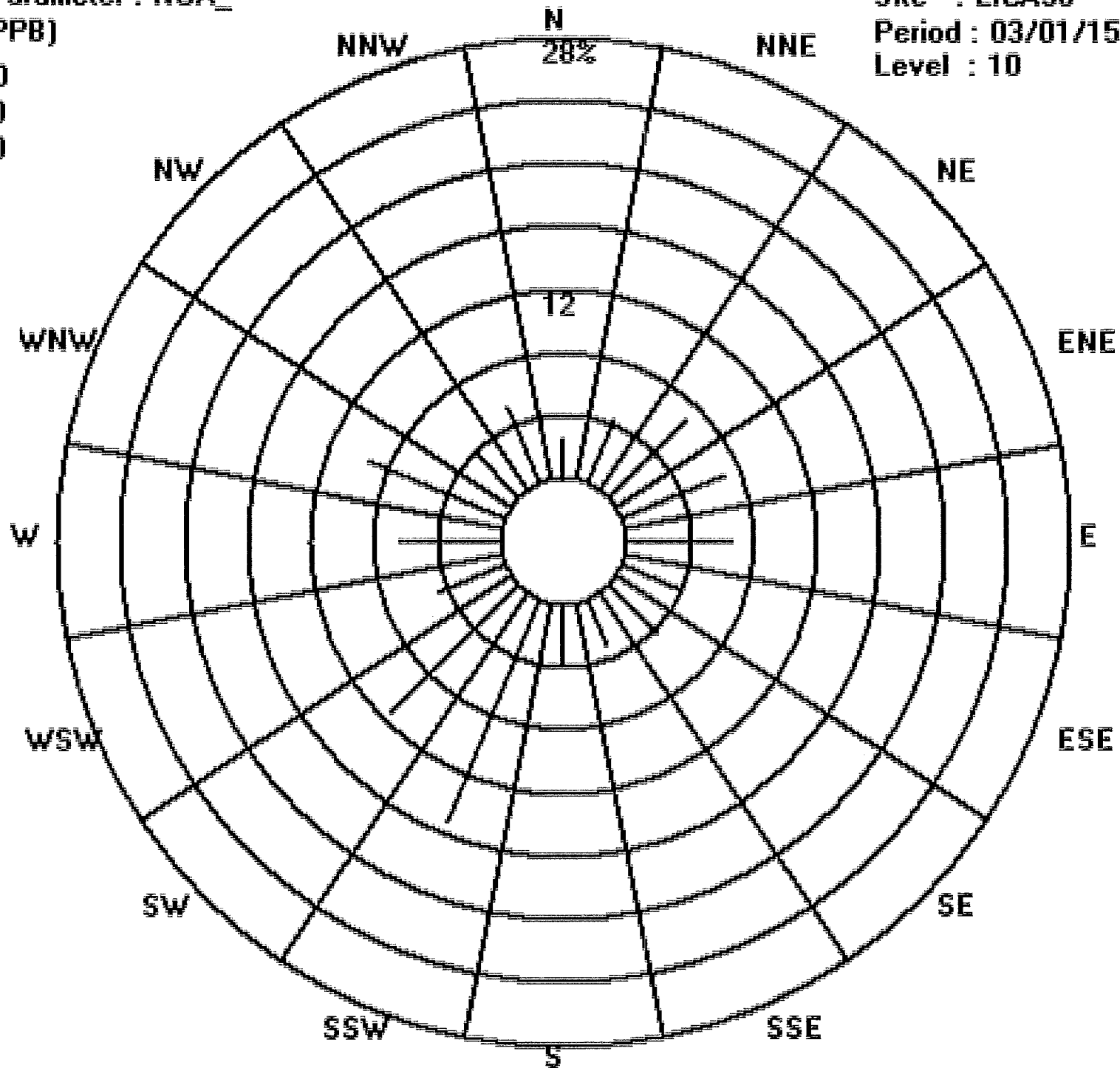
Class Limits (PPB)



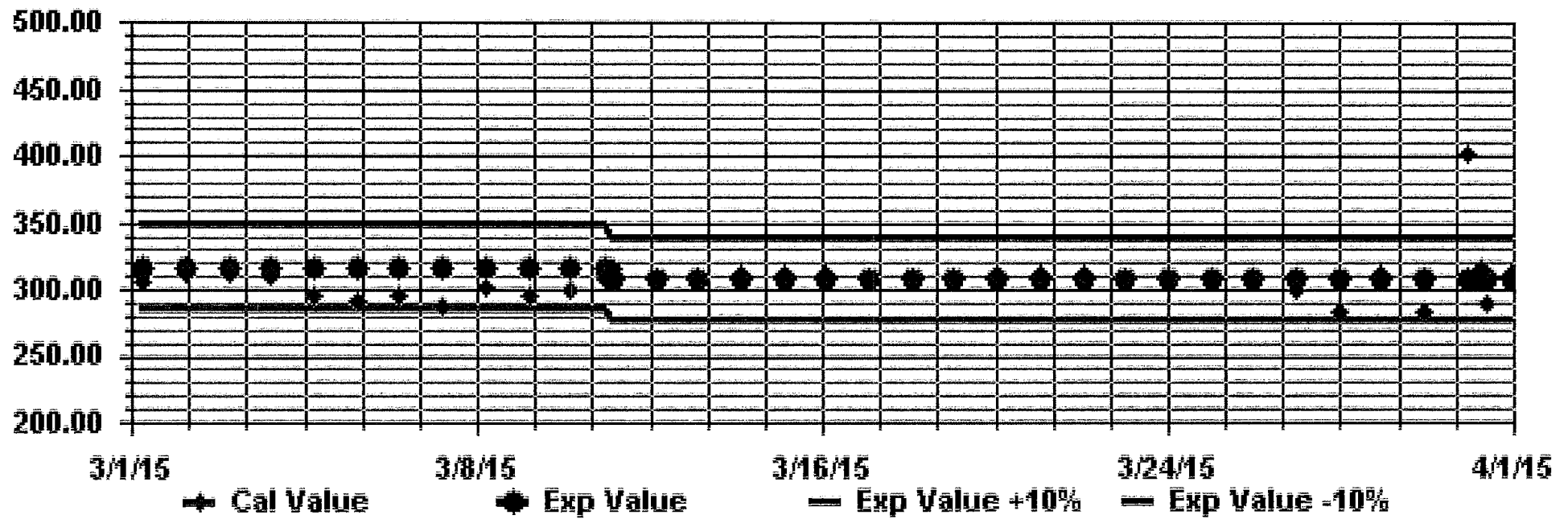
Site : LICA30

Period : 03/01/15-03/31/15

Level : 10



Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN



NITRIC OXIDES

NITRIC OXIDE (NO) hourly averages in ppb

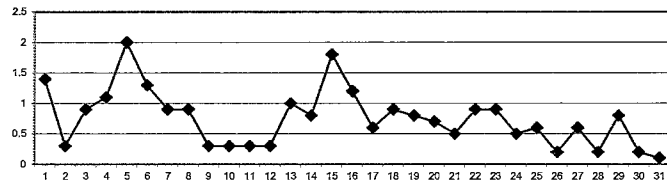
MST

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	RDGS.	
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.		
DAY																												
1	0.5	0.3	0.6	0.6	0.3	0.3	S	0.4	0.7	5.8	6.7	3.6	1.7	1.7	1	4	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.3	6.7	1.4	24	
2	0	0.1	0.2	0.2	1.8	S	0.2	0.2	0.5	0.2	0.4	0.2	0.5	0.3	0.9	0.3	0.1	0.2	0.2	0	0.2	0	0.1	0.2	1.8	0.3	24	
3	3.2	0.4	0.1	0.1	S	0.2	0.3	0.7	8.3	2.4	0.3	0.9	0.3	0.5	0.5	1	0.8	0.4	0.1	0.1	0.2	0.1	0.1	0.1	0	8.3	0.9	24
4	0	0	0	S	0.2	0.3	0.3	1.9	6.3	2.5	3.2	2.8	2.6	1.6	1.1	0.9	0.7	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	6.3	1.1	24
5	0	0.1	S	0.2	0.1	0.2	1.9	1.8	5.7	16.7	7	5.8	1.7	0.7	0.2	0.2	0.8	1.2	0.3	0.3	0.3	0.5	0.3	0.4	16.7	2.0	24	
6	0.4	S	0.4	0.4	0.4	0.2	0.3	0.5	2.4	4.3	2	2	2.9	1.4	3.8	4.8	1.1	0.2	0.1	0.4	0.3	0.4	0.2	0.3	4.8	1.3	24	
7	S	0.4	0.3	0.2	0.4	0.3	0.5	0.3	2.9	0.7	1.3	4	2.3	2.6	2.2	0.6	0.2	0.1	0.1	0	0.1	0.1	0.1	S	4	0.9	24	
8	0.3	0.2	0.1	0	0	0.1	0.1	0.9	2.5	4.7	5.3	3.9	1.2	0.5	0.4	0.4	0.3	0	0	0	0	0	S	0	5.3	0.9	24	
9	0	0.1	0.3	0	0	0	0.1	1.5	2.5	1.1	0.3	0.1	0	0	0.3	0	0	0.3	0	0	0	S	0.1	0	2.5	0.3	24	
10	0.1	0	0.2	0.6	0.2	0.3	0.2	0.4	0.6	0.4	0.4	0.2	0.4	1	0.5	1.3	0.2	0.4	0.2	0	S	0	0.2	0.1	1.3	0.3	24	
11	0.2	0	0	0	0	0	0	0	C	C	C	C	C	C	C	C	1.6	0.7	0.9	S	0.6	0.5	0.2	0.1	1.6	0.3	24	
12	0.1	0.1	0	0	0.1	0.1	0.1	0.2	0.3	0.3	0.6	0.5	0.3	0.4	0.5	0.7	0.6	0.2	S	0.2	0.2	0.1	0.2	0.2	0.7	0.3	24	
13	0.1	0	0.2	0.2	0.3	0.5	0.7	3.7	6.3	2.1	1	0.7	1.7	1	0.6	0.5	0.5	S	0.4	0.4	0.3	0.4	0.2	0.3	6.3	1.0	24	
14	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.4	1.2	0.8	1.3	2.3	2.7	1.8	1.2	0.7	S	0.8	0.3	0.2	0.5	0.8	0.8	0.2	2.7	0.8	24	
15	0.2	0.2	0.2	0.1	0.6	1.8	7.3	4.3	6.8	4.5	6.7	2.5	2.5	1.7	0.9	S	0.6	0.3	0.3	0.2	0.1	0.2	0.1	0.2	7.3	1.8	24	
16	0.1	0.2	0.2	0.4	2.7	2.3	2.8	8.7	2.2	2.1	1.9	0.8	0.2	0.6	S	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	8.7	1.2	24	
17	0.3	0.2	0.1	0.3	0.3	0.3	0.4	0.8	1.1	1	0.9	1.4	1.7	S	1.1	0.9	0.8	0.6	0.5	0.3	0.4	0.4	0.3	0.4	1.7	0.6	24	
18	0.2	0.3	0.3	0.4	0.4	1	0.6	1.5	2.5	2.4	1.4	1.3	S	0.9	1	0.8	0.6	0.6	0.5	0.6	0.6	0.5	1.2	2.5	0.9	24		
19	1.8	1.1	1.2	0.5	0.5	0.5	0.5	0.9	0.8	1.3	1.7	S	1.3	1.8	0.7	0.4	0.5	0.5	0.3	0.4	0.3	0.5	0.3	0.4	1.8	0.8	24	
20	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.5	0.5	S	0.5	0.8	0.8	0.6	1.1	1.6	1.4	1	1	1	1	1.1	0.5	1.6	0.7	24	
21	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.4	S	0.5	0.6	0.6	0.6	0.9	1.5	0.7	0.5	0.5	0.4	0.5	0.4	0.4	0.3	1.5	0.5	24	
22	0.5	0.6	0.6	0.7	0.5	0.5	0.4	0.5	S	0.5	0.5	0.6	1	1.7	1.4	1.8	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.8	0.9	24	
23	1.2	1.2	1.3	1.2	1.5	1.5	1.7	S	2	0.6	0.5	0.7	0.5	0.5	0.5	0.9	0.6	0.7	0.7	0.7	0.6	0.6	0.7	0.7	2	0.9	24	
24	0.8	0.7	0.7	0.7	0.8	0.9	S	0.8	1.7	1.7	0.7	0	0.3	1	0.6	0	0	0	0	0	0	0	0	0	1.7	0.5	24	
25	0	0	0	0	0	S	0.5	0.9	1	1	1	1	1.1	0.9	0.8	1.2	0.7	0.6	0.5	0.6	0.6	0.6	0.4	0.5	1.2	0.6	24	
26	0.5	0.5	0.4	0.4	S	0	0	0	0	0.2	1.2	0.4	0	0.6	0	0	0	0	0	0	0	0	0	0	1.2	0.2	24	
27	0	0	0	S	0.1	4.1	0.7	1.2	0.8	0.8	2.2	1.6	0.7	1.3	0.9	0.3	0.1	0	0	0	0	0	0	0.1	4.1	0.6	24	
28	0	0	S	0.1	0	0	0.3	0.1	0	0.1	0.1	0	0	0.1	0	0.8	2	0	0.4	0.1	0	0	0	0	2	0.2	24	
29	0	S	0	0	0	0.5	3.3	3.1	3.6	2.4	2.1	1.1	1.3	1.5	0.5	0.1	0	0	0	0	0	0	0	0	3.6	0.8	24	
30	S	0	0	0	0	0	0.5	1	2.1	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	S	2.1	0.2	24	
31	0.1	0	0.1	0.1	0.1	0	S	S	0.5	S	S	0.3	0	0	0	0	0.4	0.2	0	0	0	0	S	0.4	0.5	0.1	24	
HOURLY MAX	3.2	1.2	1.3	1.2	2.7	4.1	7.3	8.7	8.3	16.7	7	5.8	2.9	2.6	3.8	4.8	2	1.4	1.2	1.2	1.1	1.1	1.1	1.2				
HOURLY AVG	0.4	0.3	0.3	0.3	0.4	0.6	0.9	1.3	2.3	2.2	1.8	1.4	1.0	0.9	0.8	0.9	0.6	0.4	0.3	0.3	0.3	0.3	0.3	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

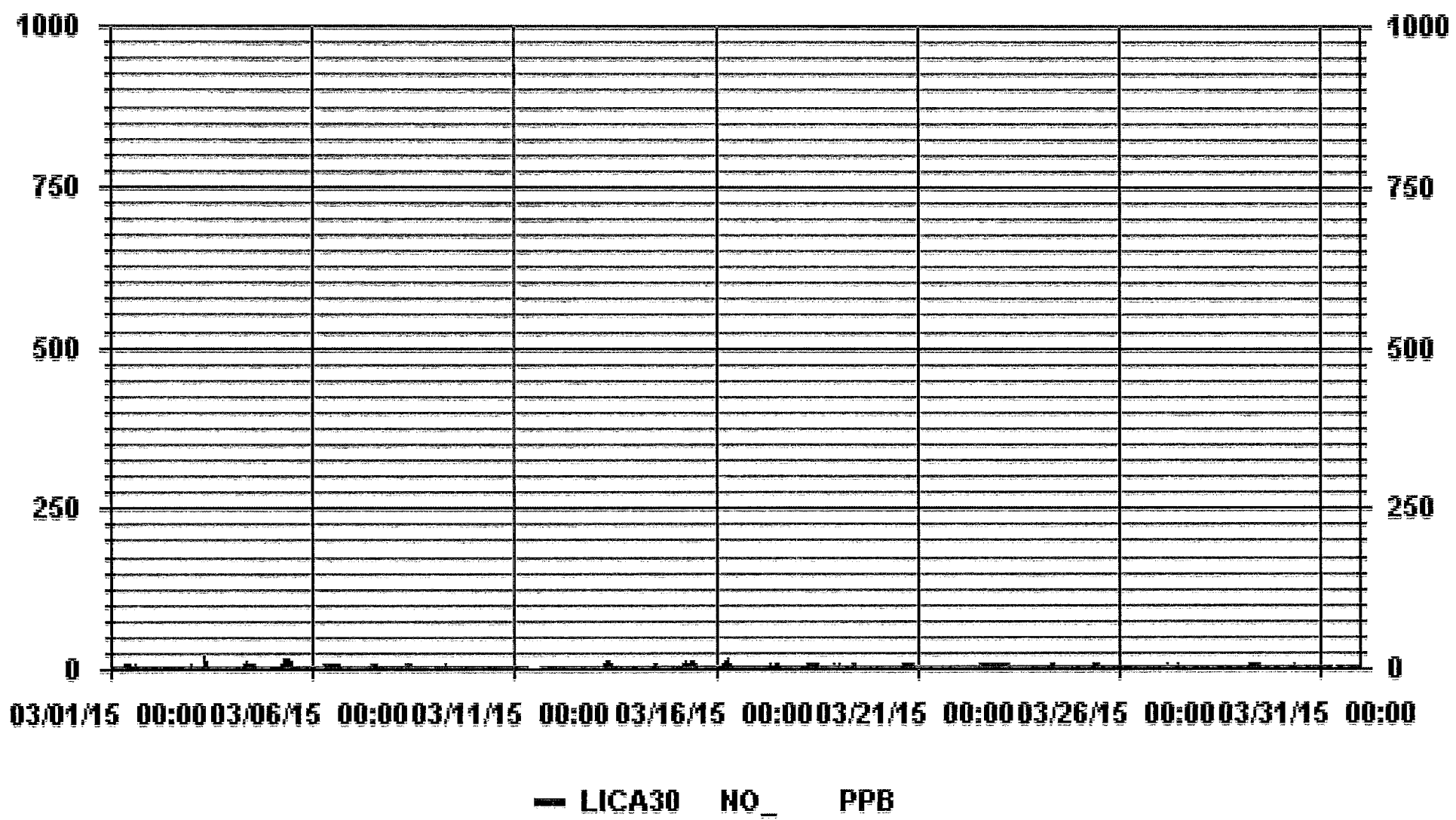
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	565					
MAXIMUM 1-HR AVERAGE:	16.7	PPB	@ HOUR(S)	9	ON DAY(S)	S
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	S
					VAR-VARIOUS	
IZS CALIBRATION TIME:	37	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CAUBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.29		MONTHLY AVERAGE:	0.8	PPB	

01 Hour Averages





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	RDGS.			
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.				
DAY:																														
1	1.7	1.3	2	1.8	1.2	0.9	S	1.3	1.5	9.1	11.2	27	2.8	13.9	8.6	26.5	1.9	1.1	1.2	0.9	0.8	1.2	0.8	1.1	27	5.2	24			
2	0.8	0.9	0.9	0.9	10.6	S	1	1.2	1.6	1	11.1	1	8.6	1.3	6.1	1.8	1.2	1	0.9	0.8	0.8	1.1	1.1	0.9	11.1	2.5	24			
3	7.4	1.2	1	0.6	S	1	1.7	2.4	32.1	8.7	1.2	9.3	1.2	1.4	2	2	2	1.2	1	0.8	1	0.8	0.9	0.8	32.1	3.6	24			
4	0.9	0.8	0.9	S	1.2	1.2	1	4.8	14.5	3.8	23.9	3.5	3.5	2.4	1.7	1.9	1.6	1	0.7	1	1	0.9	1	0.8	23.9	3.2	24			
5	0.7	0.7	S	0.9	1	1	37.2	5.3	21.2	34.5	22.8	11.4	3	6.6	1	1.1	16.4	29.1	1.1	1.4	1.3	1.4	1	1.2	37.2	8.8	24			
6	1.1	S	1	1.3	0.9	1.1	1	1.4	8.5	8.9	4.6	8.4	7.3	6.2	9.9	13.8	7	0.8	1.1	1	1	1.2	1.2	1.1	13.8	3.9	24			
7	S	1.2	1.2	0.8	1	1.2	2.8	1.1	19.5	2.2	2.9	11.4	6.5	6.8	7.4	3.5	2.5	1	0.9	0.7	0.8	0.9	0.9	S	19.5	3.5	24			
8	1	0.9	1.2	1	0.8	0.7	1	3.1	6	6.8	15.5	4.8	3.1	1.3	1.1	1.2	1.1	0.7	0.7	0.8	0.7	0.9	S	0.8	15.5	2.4	24			
9	0.9	0.8	1.4	0.6	0.7	0.9	1.5	5.6	3.6	3.3	2.2	4.6	0.6	0.6	8.1	0.5	0.8	21.1	0.6	0.5	0.9	S	0.8	0.9	21.1	2.7	24			
10	0.7	0.9	1.2	2.3	1	1	1	2.4	2	1.1	1.3	1	2.5	2.5	1.7	2.1	1	1.4	0.8	1	S	0.8	1.7	1	2.5	1.4	24			
11	1.2	0.6	0.5	0.6	0.5	0.5	0.6	0.8	C	C	C	C	C	C	C	C	3.5	1.8	2.1	S	1.3	1.7	1	0.9	3.5	1.2	24			
12	0.8	1	0.7	0.8	0.8	0.9	0.8	1.1	1.2	1.1	1.6	1.4	1.2	1.1	1.4	1.4	1.6	1.1	S	1	1	1	1	1.1	1	1.6	1.1	24		
13	0.8	0.9	1	1.1	1.2	1.6	1.6	7.3	9.2	4.3	1.9	1.8	19.3	3.7	2.6	1.6	1.9	S	1.3	1.2	1.4	1.4	1	1.4	19.3	3.0	24			
14	1.3	1.2	1.4	1.4	1	1.2	1.2	1.8	4.8	1.9	2.5	4.6	4.1	3.1	2.3	1.7	S	1.4	1.2	1.2	1.2	1.4	1.3	1.1	4.8	1.9	24			
15	1	1	1	0.8	3.9	4.1	13	7	28.7	7.7	14.6	7.5	11	4.2	4.1	S	2.8	1.2	1.1	1	1	1.1	1.2	1.2	28.7	5.2	24			
16	1	1.2	1.1	3.1	8.3	4.3	6.1	15.3	6.8	6.6	4.5	2.6	1.1	1.5	S	1.8	1.9	1.4	1.2	1.3	1.3	1.1	1.2	1	15.3	3.3	24			
17	1.1	1.2	1	1.2	1.2	1.5	1.7	2	1.9	2.2	2.5	2.7	S	2.4	1.8	2.6	1.3	1.4	1	1.3	1.4	1.2	1.4	2.7	1.6	2.7	1.6	24		
18	1	1.2	1	1.3	1.3	26.2	1.4	3.3	4.1	4.8	2.3	2.5	S	2	1.8	2	1.6	1.6	1.2	1.2	1.5	1.9	1.3	3.2	26.2	3.0	24			
19	7.1	6.2	5.2	1.1	1.3	1.2	1.4	1.7	1.6	2.4	3	S	2.9	3.4	2.4	1.2	1.7	1.3	1.2	1.1	1.1	1.2	1	1.4	7.1	2.3	24			
20	1.1	1.2	1.1	1.3	1.2	1.2	1.4	1	1.2	1.1	S	1.2	2.5	1.7	1.7	2.2	2.7	2.8	1.5	1.5	1.5	1.5	1.7	1.5	2.8	1.6	2.8	1.6	24	
21	1.4	1.3	1.4	1.2	1.3	1.3	1.4	1.2	S	1.5	1.4	1.5	2.5	3	3.9	1.8	1.7	1.4	1.4	1.4	1.4	1.3	1.4	1.2	3.9	1.6	2.4	1.6	24	
22	1.5	1.6	1.5	1.3	1.4	1.4	1.3	1.5	S	1.4	1.3	1.4	2.5	3.1	2.4	3.1	1.8	1.8	1.8	1.8	1.8	1.5	2.1	1.6	3.1	1.8	1.8	1.8	24	
23	1.8	1.7	1.9	1.8	2.9	2.6	S	4.5	1.5	1.5	1.5	1.4	1.4	4.1	1.6	1.3	1.3	1.3	1.3	1.1	1.2	1.2	1.3	1.3	4.5	1.9	2.4	1.9	24	
24	1.3	1.3	1.3	1.3	1.6	1.7	S	2.1	5	3.7	13.9	1.7	1.7	3	4.3	0.5	0.1	0.3	0	0	0	0	0	0	13.9	1.9	2.4	1.9	24	
25	0	0	0	0	0	S	2.5	1.8	2.1	1.9	1.5	1.7	1.6	1.5	1.3	2	1.3	1.1	1.1	1.1	1.1	1.1	1	1.2	2.5	1.2	2.4	1.2	24	
26	1	1	1	0.7	S	0.3	0.3	0.2	0.3	1.8	2.3	2.2	0.5	2.5	0.5	0.5	0.2	0.3	0.5	0.3	0.3	0.3	0.3	0.3	2.5	0.8	2.4	0.8	24	
27	0.2	0.2	0.2	S	0.6	51.3	13.1	2	1.5	1.5	3.9	3.3	1.2	24.7	15.5	0.8	0.7	0.6	0.3	0.4	0.5	0.5	0.4	0.5	51.3	5.4	2.4	5.4	24	
28	0.4	0.5	S	0.6	0.4	0.6	1.6	1.3	0.5	0.6	0.7	0.4	0.4	0.6	0.5	5.5	16.4	0.9	1.4	1.1	0.9	0.9	0.4	0.5	16.4	1.6	2.4	1.6	24	
29	0.5	S	0.4	0.3	0.3	16.5	58.6	5.6	19.3	3.7	15.7	2.3	2.4	46.4	1.8	0.6	0.4	0.2	0.2	0	0.3	0	0	0.3	58.6	7.6	2.4	7.6	24	
30	S	0.5	0.3	0.4	0.4	0.4	30.1	38.8	59.5	6.1	1.7	1.1	0.5	0.3	0.5	0.6	0	0.1	0.3	0.2	0.1	0.3	0.1	S	59.5	6.5	2.4	6.5	24	
31	0.6	0.5	0.6	0.6	0.7	0.5	S	S	1.6	S	S	1	1.5	0.5	0.6	0.4	3.4	1.5	0.4	0.5	0.3	0.2	S	1.4	3.4	0.9	0.9	2.4	3.4	24
HOURLY MAX	7.4	6.2	5.2	3.1	10.6	51.3	58.6	38.8	59.5	34.5	23.9	27	19.3	46.4	15.5	26.5	16.4	29.1	2.1	1.8	1.5	2.1	1.7	3.2						
HOURLY AVG	1.4	1.1	1.2	1.1	1.7	4.4	6.7	4.3	9.2	4.8	6.2	4.3	3.4	5.2	3.5	3.0	2.8	2.7	1.0	0.9	1.0	1.0	1.0	1.1						

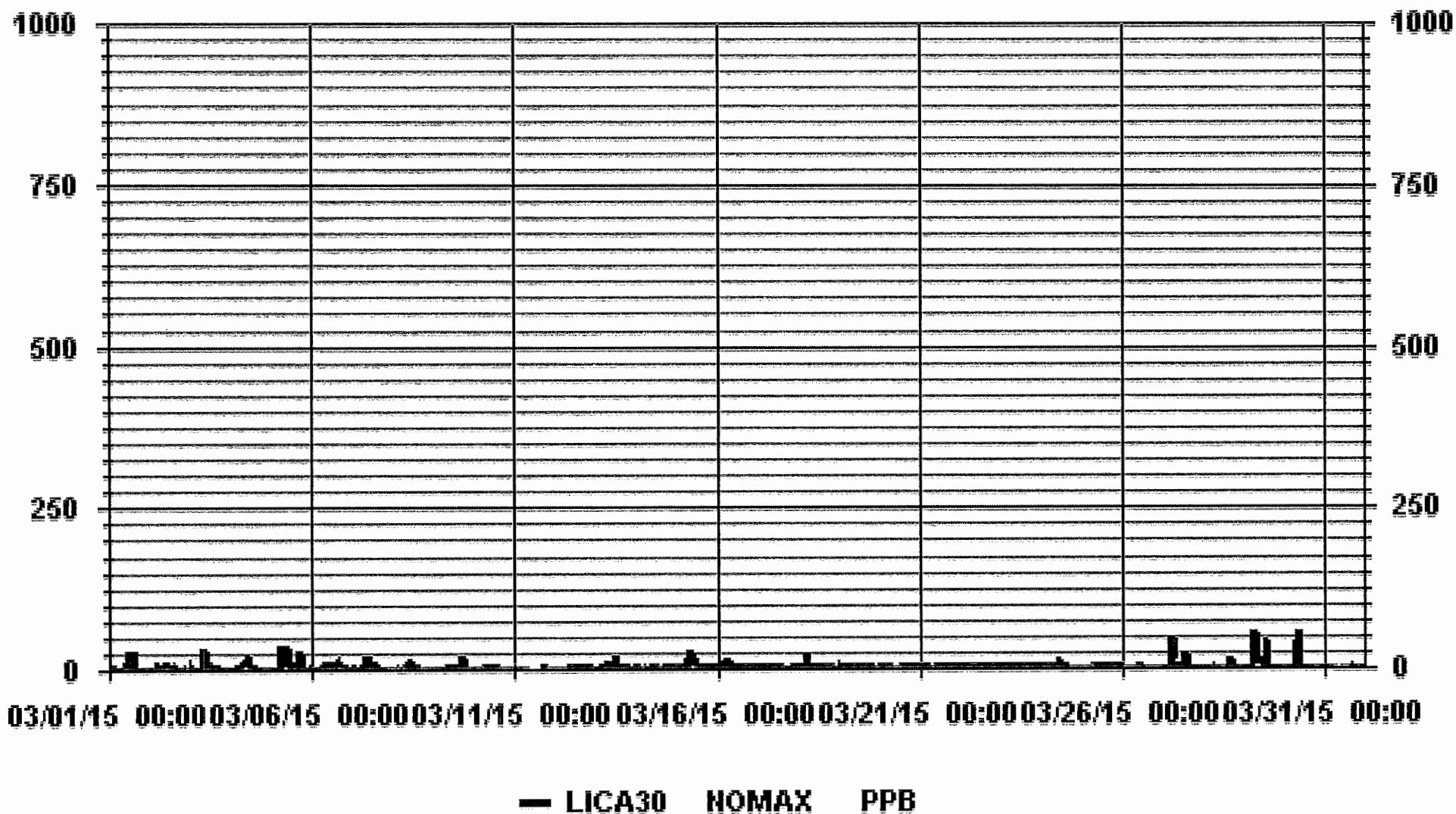
STATUS FLAG CODES

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:	684
MAXIMUM INSTANTANEOUS VALUE:	59.5 PPB @ HOUR(S) 8 ON DAY(S) 30
	VAR-VARIOUS
IZS CALIBRATION TIME:	37 HRS
MONTHLY CAUBRATION TIME:	8 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	6.16

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

March 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	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29	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	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29		

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50.0	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37	699	
< 110.0																		
< 210.0																		
>= 210.0																		
Totals	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37		

Calm : .00 %

Total # Operational Hours : 699

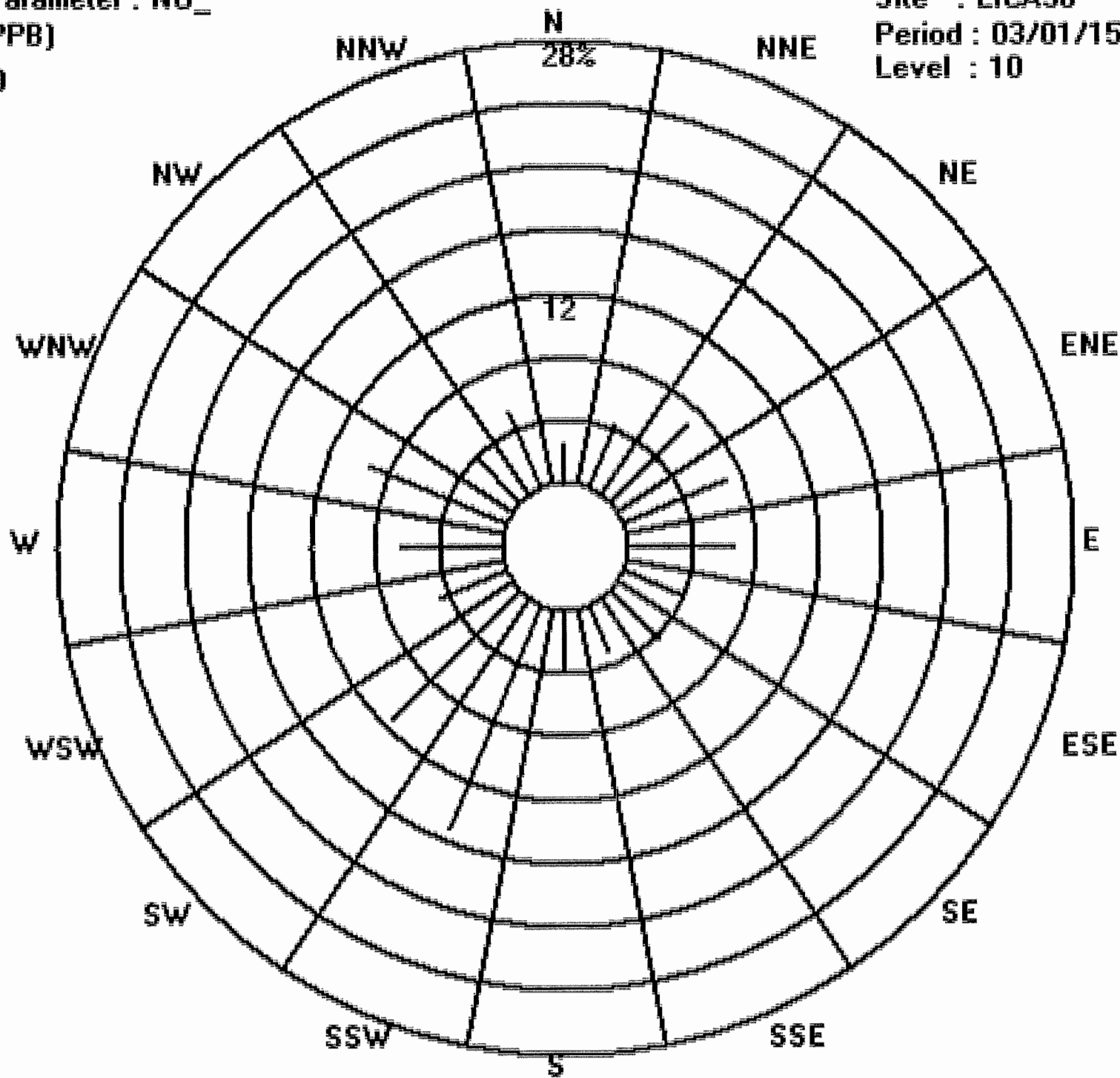
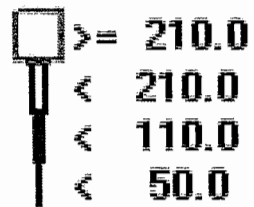
Logger : 30 Parameter : NO_

Class Limits (PPB)

Site : LICA30

Period : 03/01/15-03/31/15

Level : 10



NITROGEN DIOXIDE

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

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	DAILY MAX	24-HOUR AVG	RDGS.
1	10.2	5.1	14.5	10.7	6.2	6.4	S	4.0	1.5	9.1	7.5	3.3	1.6	1.5	1.0	4.2	2.4	2.2	2.6	2.8	2.3	2.3	2.3	2.5	14.5	4.6	24
2	2.4	2.4	3.1	4.9	7.4	S	1.2	1.3	1.3	0.8	0.6	0.5	0.6	0.3	1.4	0.5	0.6	0.3	0.3	0.2	0.2	0.3	0.7	0.9	7.4	1.4	24
3	12.6	7.1	1.2	0.2	S	1.3	2.9	4.2	14.1	3.2	0.3	0.6	0.3	0.5	0.6	1.2	1.7	2.2	2.3	2.3	1.9	1.7	1.8	3.0	14.1	2.9	24
4	2.5	2.5	4.6	S	7.2	6.6	7.6	8.6	8.7	3.6	3.5	3.1	3.1	1.8	1.6	2.3	3.2	3.6	3.4	2.7	2.6	3.1	3.0	3.0	8.7	4.0	24
5	3.1	3.3	S	7.1	7.5	6.6	8.6	10.8	10.7	20.2	9.9	8.9	2.9	1.6	0.6	0.5	1.1	2.6	2.7	2.8	2.6	5.9	6.4	8.5	20.2	5.9	24
6	9.3	S	4.4	7.6	5.4	1.3	0.8	1.2	7.8	7.9	2.2	1.8	4.0	2.3	6.5	9.5	2.3	0.0	3.2	1.2	0.1	0.1	0.1	0.1	9.5	3.4	24
7	S	0.7	0.4	0.2	0.4	3.8	6.5	0.7	5.1	0.5	1.2	4.9	3.4	3.3	3.0	0.2	0.1	0.0	0.0	0.1	0.0	0.2	2.8	S	6.5	1.7	24
8	10.8	8.4	3.1	0.9	1.1	0.9	3.0	7.3	7.3	9.0	7.5	6.5	2.2	1.2	0.8	1.4	1.6	2.2	2.9	3.7	4.1	8.5	S	10.2	10.8	4.5	24
9	7.9	11.4	11.4	8.4	9.3	7.1	10.3	14.7	11.3	3.4	1.1	0.6	0.0	0.0	0.3	0.1	0.2	0.7	0.1	0.0	3.0	S	0.6	0.6	14.7	4.5	24
10	1.2	0.6	2.9	10.5	1.9	3.3	2.3	2.2	1.8	0.9	0.6	0.3	1.0	1.8	1.5	2.7	0.5	2.0	4.6	4.2	S	1.0	6.1	6.3	10.5	2.6	24
11	8.8	1.0	0.1	0.0	0.2	0.2	0.3	0.4	C	C	C	C	C	C	C	5.3	5.0	9.6	S	5.4	9.1	0.6	0.2	9.6	3.1	24	
12	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.4	1.3	1.1	1.8	1.0	1.5	1.9	2.0	2.6	3.2	4.1	S	4.2	3.1	2.5	2.9	4.3	4.3	1.7	24
13	5.2	6.4	9.5	10.5	13.1	13.0	15.0	15.0	12.8	4.3	1.9	1.5	2.9	2.1	1.3	1.4	2.1	S	2.8	2.1	1.9	1.7	1.9	1.8	15.0	5.7	24
14	2.1	1.7	1.8	1.8	1.2	1.3	1.8	2.5	4.6	2.1	2.7	3.1	2.9	2.4	2.2	1.9	S	3.4	4.4	3.9	2.3	1.7	3.4	0.9	4.6	2.4	24
15	0.0	0.0	0.0	0.0	1.2	6.5	16.7	11.2	12.2	7.2	8.8	3.2	2.8	2.3	0.9	S	0.6	0.2	0.1	0.0	0.3	0.3	0.3	0.5	16.7	3.3	24
16	0.6	0.2	0.6	3.0	22.4	21.5	26.5	19.5	4.2	3.0	2.4	0.5	0.0	0.6	S	1.0	0.7	0.2	2.2	3.5	5.9	7.9	7.1	5.4	26.5	6.0	24
17	5.4	4.5	4.8	4.6	4.3	4.3	3.4	2.8	1.6	1.5	1.4	2.3	3.0	S	2.0	1.3	1.6	1.5	1.9	2.0	1.7	1.5	1.2	0.9	5.4	2.6	24
18	1.7	1.2	1.0	1.3	1.0	1.6	1.8	2.1	2.4	2.7	1.9	1.7	S	1.3	1.4	1.2	1.2	1.0	1.0	1.4	4.8	8.1	7.3	15.7	15.7	2.8	24
19	10.3	6.4	6.4	4.6	5.1	5.3	3.7	1.6	0.6	0.6	1.4	S	1.4	2.4	0.6	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	10.3	2.2	24
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.4	0.4	0.0	0.3	0.9	1.2	0.0	0.0	0.0	0.0	0.0	0.2	1.2	0.1	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.3	0.0	0.1	0.4	1.0	2.9	1.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.3	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.3	0.4	0.0	1.3	0.5	1.6	1.9	1.4	1.0	1.1	1.1	1.2	1.9	0.5	24
23	2.0	2.1	3.0	3.7	3.1	4.4	6.3	S	4.6	1.3	1.1	0.5	0.7	0.9	1.5	1.5	1.0	1.0	0.7	2.2	2.0	1.4	1.6	1.9	6.3	2.1	24
24	2.3	3.4	4.0	3.4	2.9	4.0	S	5.4	3.3	3.3	3.8	3.5	2.8	2.3	3.7	2.8	1.4	1.7	0.9	0.7	0.3	0.2	0.2	0.0	5.4	2.4	24
25	0.0	0.0	0.0	0.0	0.0	S	2.0	0.9	0.9	1.6	1.7	1.7	1.3	1.6	1.3	2.5	0.3	0.4	1.3	1.2	0.3	0.4	0.4	0.3	2.5	0.9	24
26	0.9	1.2	0.7	0.6	S	1.6	1.0	0.4	0.8	3.2	7.8	4.1	2.5	4.5	2.7	3.2	2.3	2.3	2.6	2.7	2.7	2.6	2.7	3.0	7.8	2.4	24
27	3.0	3.8	4.2	S	4.3	7.0	5.3	4.6	4.5	3.6	5.0	3.1	1.8	2.1	2.3	1.7	1.5	1.1	0.9	1.6	1.9	3.7	3.5	3.4	7.0	3.2	24
28	2.0	2.1	S	1.7	1.6	1.6	4.0	1.4	0.5	0.6	0.7	0.1	0.2	0.1	0.3	2.9	5.2	0.1	5.4	6.7	1.5	5.0	2.6	3.7	6.7	2.2	24
29	1.5	S	1.9	3.4	8.3	12.1	11.9	9.9	7.2	6.2	5.3	4.2	4.1	3.2	2.5	2.1	1.3	1.3	1.6	1.7	3.4	2.0	0.0	0.3	12.1	4.1	24
30	S	1.0	0.6	0.6	0.4	0.4	1.2	2.0	3.0	5.2	1.3	0.7	0.2	0.4	0.2	0.1	0.0	0.1	0.3	0.3	0.6	1.4	1.7	S	5.2	1.0	24
31	1.7	1.2	0.9	1.1	1.1	0.9	S	S	2.2	S	S	0.3	0.4	0.0	0.0	0.0	3.7	2.8	0.0	0.0	0.0	0.0	S	0.6	3.7	0.9	24
HOURLY MAX	12.6	11.4	14.5	10.7	22.4	21.5	26.5	19.5	14.1	20.2	9.9	8.9	4.1	4.5	6.5	9.5	5.3	5.0	9.6	6.7	5.9	9.1	7.3	15.7			
HOURLY AVG	4	3	3	3	4	4	5	5	5	4	3	2	2	2	1	2	2	2	2	2	2	2	2	3			

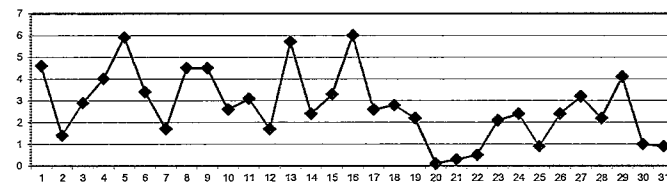
STATUS FLAG CODES

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

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

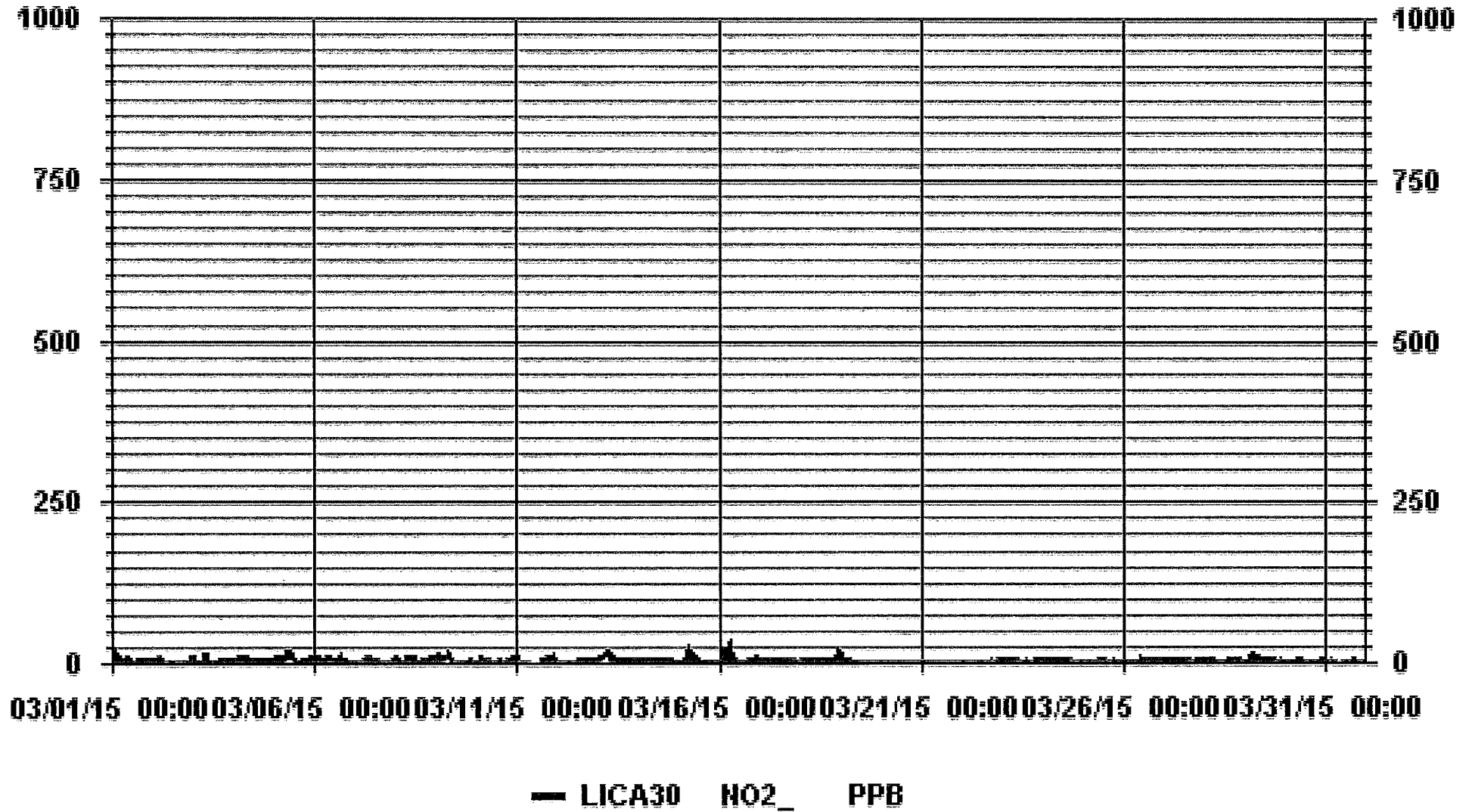
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	614		
MAXIMUM 1-HR AVERAGE:	26.5 PPB	@ HOUR(S)	6 ON DAY(S) 16
MAXIMUM 24-HR AVERAGE:	6.0 PPB		ON DAY(S) 16
			VAR-VARIOUS
I2S CALIBRATION TIME:	37 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	3.40	MONTHLY AVERAGE:	2.8 PPB

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - MARCH 2015

JOB # 2833-2015-03-30- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HOURLY MAX	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	MAX	AVG.	RDGS.	
1	13.8	9.5	21.9	14.2	10.8	7.3	S	6.9	3.3	13.7	12.1	10.6	3.1	9.2	11.8	48.1	4	3.5	4	4	3.6	3.4	3.4	4.1	48.1	9.8	24	
2	3.4	3.7	5.3	11.6	26.2	S	1.9	1.9	2.4	1.4	6.8	1	7.8	1.4	8.2	1.7	1.8	1	0.8	0.8	0.8	0.7	3.7	3.7	26.2	4.3	24	
3	23.3	17.4	6	0.9	S	3.5	7	7.6	24.9	12.2	1.5	5.3	1.3	1.3	2.2	2.5	3	3.5	3.3	3.3	3.3	2.6	2.8	6.9	24.9	6.3	24	
4	3.5	3.5	6.6	S	8.4	8	9.7	11	14.4	5.4	25.9	4.1	4.2	3.1	2.5	4	4.3	4.8	4.8	3.8	3.5	4.3	4	4	25.9	6.4	24	
5	3.9	5	S	8.5	8.8	7.8	33.4	18.8	25.2	28.7	25.1	15.3	5	12.1	1.7	1.8	12.5	45.5	4.7	5.2	3.5	9.2	7.6	10.5	45.5	13.0	24	
6	11.3	S	6.2	10.2	10.6	2.5	2.4	3.9	12.2	13.2	6.6	9.9	10.3	11.6	17.5	22.1	15.6	0.8	2.6	5.8	4	1.5	1.3	1.3	22.1	8.0	24	
7	S	2.4	1.8	1.3	1.5	11.7	10.7	4.9	16.9	3.3	4.8	14	9.5	8.8	10.2	3.1	2	0.7	0.7	1.5	1	1.6	6.4	S	16.9	5.4	24	
8	12.5	12.4	5.3	2.8	2.1	1.8	7.5	12.8	10.7	10.7	13	8.6	5.1	2.6	2.1	2.9	2.9	3.7	4.5	5	8.2	12	S	12.9	13	7.0	24	
9	12.2	15.1	13.2	13	12.8	10	12	18.6	15.2	9.4	3.5	9.4	0.9	1.3	7.2	1.2	1.3	14.4	1.8	1.2	15.7	S	1.6	2	18.6	8.4	24	
10	2.4	1.5	13.5	19.9	3.3	7.2	4.7	8.1	6.6	2.6	1.4	1	4.1	3.4	3.1	5	1.8	5.6	9.2	12.4	S	2.2	19.1	14.3	19.9	6.6	24	
11	15.9	5.1	0.7	0.8	0.8	0.8	1.1	0.9	C	C	C	C	C	C	C	C	11.9	8.8	15.7	S	11.1	12.4	3.9	0.7	15.9	6.0	24	
12	1	0.9	1.3	0.7	0.4	0.5	0.8	2.1	3	2.4	3.4	2.6	2.5	3.1	2.9	4.4	4.8	6.6	S	6.5	5.4	3.4	3.9	6	6.6	3.0	24	
13	6	8.6	10.6	12.9	14.5	15.9	18.4	16.5	17	8.9	2.7	2.4	6	5.2	1.9	2	3.1	S	4.3	3.1	3	2.8	3	2.9	18.4	7.5	24	
14	3.2	3.1	2.9	3	2	2.3	3.1	5	13.4	3.3	3.8	4.6	4.8	3.5	3.3	2.8	S	4.6	4.9	5.5	6.4	3.7	8.1	3.1	13.4	4.4	24	
15	0.5	0.2	0.2	0.2	8.3	10.9	24.6	15.9	27.9	12.6	15.1	9.8	11.4	5.4	4.7	S	5.8	0.8	1.2	0.6	1.2	0.9	1.2	1.3	27.9	7.0	24	
16	1.3	0.8	2.2	19.4	21.3	27.3	32.2	26.3	10.8	8.9	6.2	2	0.5	1.6	S	1.8	1.9	0.8	2.8	6.3	6.8	9.4	7.8	5.9	32.2	8.9	24	
17	6	5.8	5.7	5.9	4.9	4.9	4.6	4.6	2.2	1.9	2.8	3.4	3.7	S	3.5	2.6	3.6	2.8	3	3	2.8	2.4	2.4	2	6	3.7	24	
18	3.2	2.3	2.3	2.4	2.2	14	4.8	4.6	4.3	4.9	3.4	2.9	S	2.3	2.8	2.6	2.6	2.1	2.4	3.7	10	10.2	9.6	28.1	28.1	5.6	24	
19	24.3	23.8	21.2	6.4	6.9	7.2	7.5	3	2.4	2.4	2.7	S	3.8	4.5	2.6	0.7	2.9	2.9	0.4	0.6	0.5	0.3	0.3	0.2	24.3	5.5	24	
20	0.3	0.3	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	S	0.6	2.9	1.6	0.7	2.3	5	6.7	0.4	0.4	0.7	0.4	3.5	1.9	6.7	1.3	24	
21	0.9	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.3	S	1.1	0.6	1.2	3.6	4.9	8.2	4.1	4.6	0.3	0.3	0.3	0.2	0.2	0.4	8.2	1.4	24	
22	0.3	0.3	0.4	0.4	0.5	0.5	0.3	0.5	S	0.6	0.6	0.6	1.4	2.5	1.9	4.6	2	2.8	3.3	3	2.3	3.1	2.3	2.9	4.6	1.6	24	
23	3.3	3.4	4.6	5	6	7.5	8.8	S	9.7	2.2	1.8	1.6	1.6	1.6	10.3	2.9	2.1	2.4	2	3.7	4.1	2.6	3	3.1	10.3	4.1	24	
24	3.9	5.2	5.4	4.8	6.1	7.8	S	11.1	4.7	5.8	22.8	6.1	5.1	4.8	10.5	4.7	2.5	3.8	2.1	1.9	1.5	1.4	1.3	1.4	22.8	5.4	24	
25	1.1	1	1	0.9	0.8	S	8.6	3	3.7	3.1	4.1	2.9	2.5	3	2.5	5.6	1.3	1.4	7.2	7	1.5	1.4	1.4	1.1	8.6	2.9	24	
26	2.5	2.4	2.2	1.8	S	2.4	1.8	1.2	1.4	8.8	9.6	8	3	9	3.1	3.7	3.5	3.1	3	3.6	3.5	3	3.3	3.7	9.6	3.8	24	
27	3.9	5.4	5.2	S	6.7	23.4	13.2	6.3	6.2	5.9	8.4	5.6	2.9	22.7	15.3	2.9	2.7	2.1	2	2.8	3	5.9	5.6	5.6	23.4	7.1	24	
28	4.6	4.1	S	2.6	2.1	2.1	8.6	5.4	1.2	1.1	1.4	0.8	0.8	0.5	0.8	11.9	22.8	3.1	17.7	19.2	11.9	15.1	9.6	8.8	22.8	6.8	24	
29	2.2	S	2.6	7.2	9.2	23.8	60.4	12	17.7	7.7	20.7	5.6	6.2	35	3	2.6	1.6	2.4	2.3	2.4	5.8	5.3	0.8	0.8	60.4	10.3	24	
30	S	1.5	0.8	0.8	0.6	0.7	5.4	12.2	12.3	31.4	35.9	1.4	1.2	1.2	2.1	2.1	0.6	1.2	0.5	0.5	1.1	2.2	2.3	S	35.9	5.4	24	
31	2.3	1.7	1.4	1.5	1.6	1.5	S	S	6.8	S	S	2.6	3.8	2	1	0.9	12	7	2.4	1.2	0.8	0.8	S	1.4	12	2.8	24	
HOURLY MAX	24	24	22	20	26	27	60	26	28	31	36	15	11	35	18	48	23	46	18	19	16	15	19	28				
HOURLY AVG	6.0	5.1	5.2	5.5	6.2	7.4	10.5	7.8	9.6	7.6	8.8	4.9	4.0	5.8	5.0	5.6	4.9	5.1	3.8	3.9	4.2	4.1	4.3	4.9				

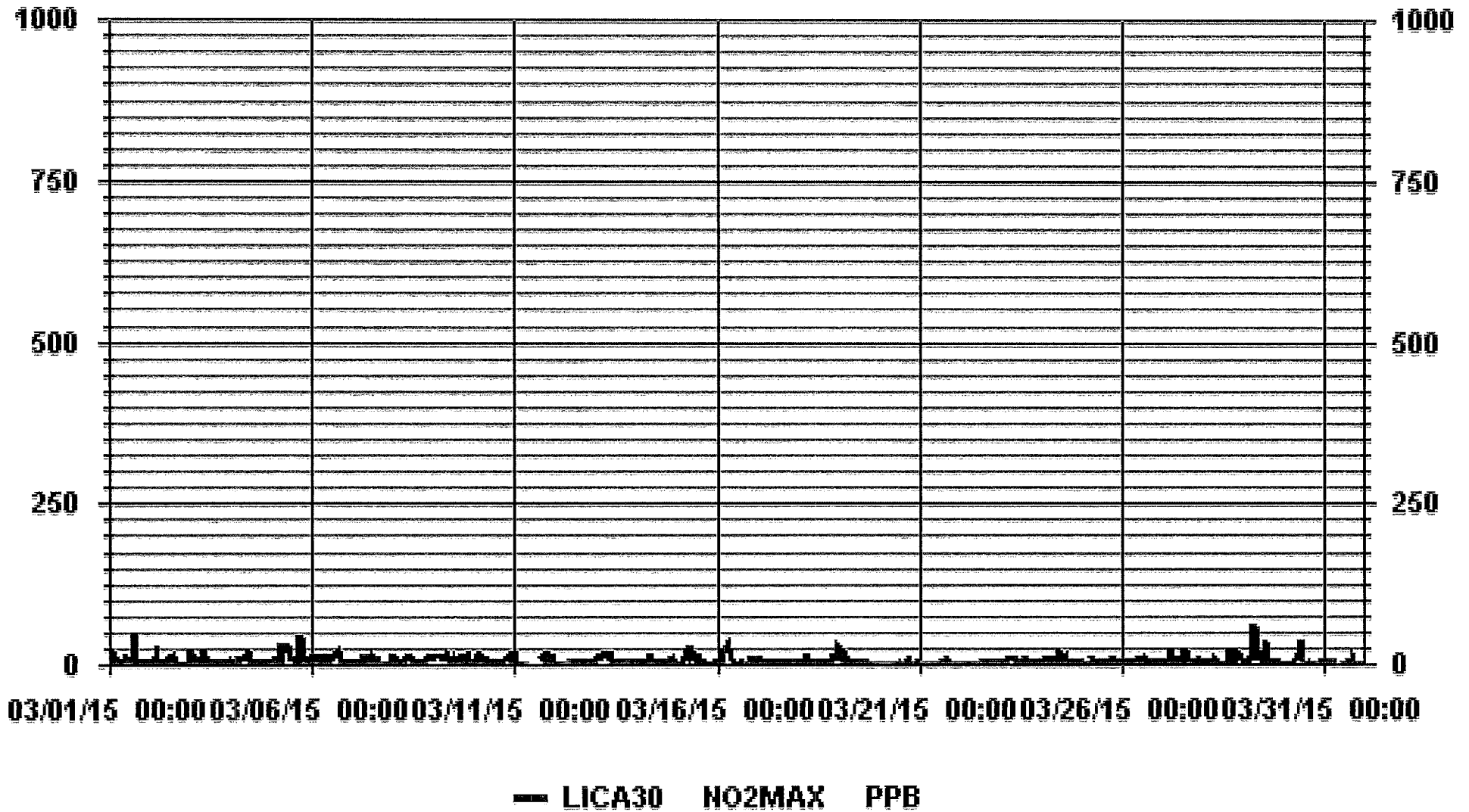
STATUS FLAG CODES

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:	699
MAXIMUM INSTANTANEOUS VALUE:	60.4 PPB @ HOUR(S) 6 ON DAY(S) 29
	VAR-VARIOUS
1ZS CALIBRATION TIME:	37 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	6.70

01 Hour Averages



LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29	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	2.57	4.43	7.01	7.01	6.72	4.14	4.43	3.29	4.00	15.30	11.58	4.57	6.43	9.29	3.86	5.29	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

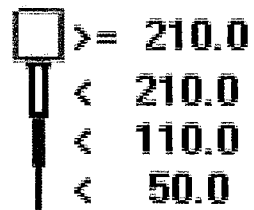
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37	699
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	18	31	49	49	47	29	31	23	28	107	81	32	45	65	27	37	

Calm : .00 %

Total # Operational Hours : 699

Logger : 30 Parameter : NO2_

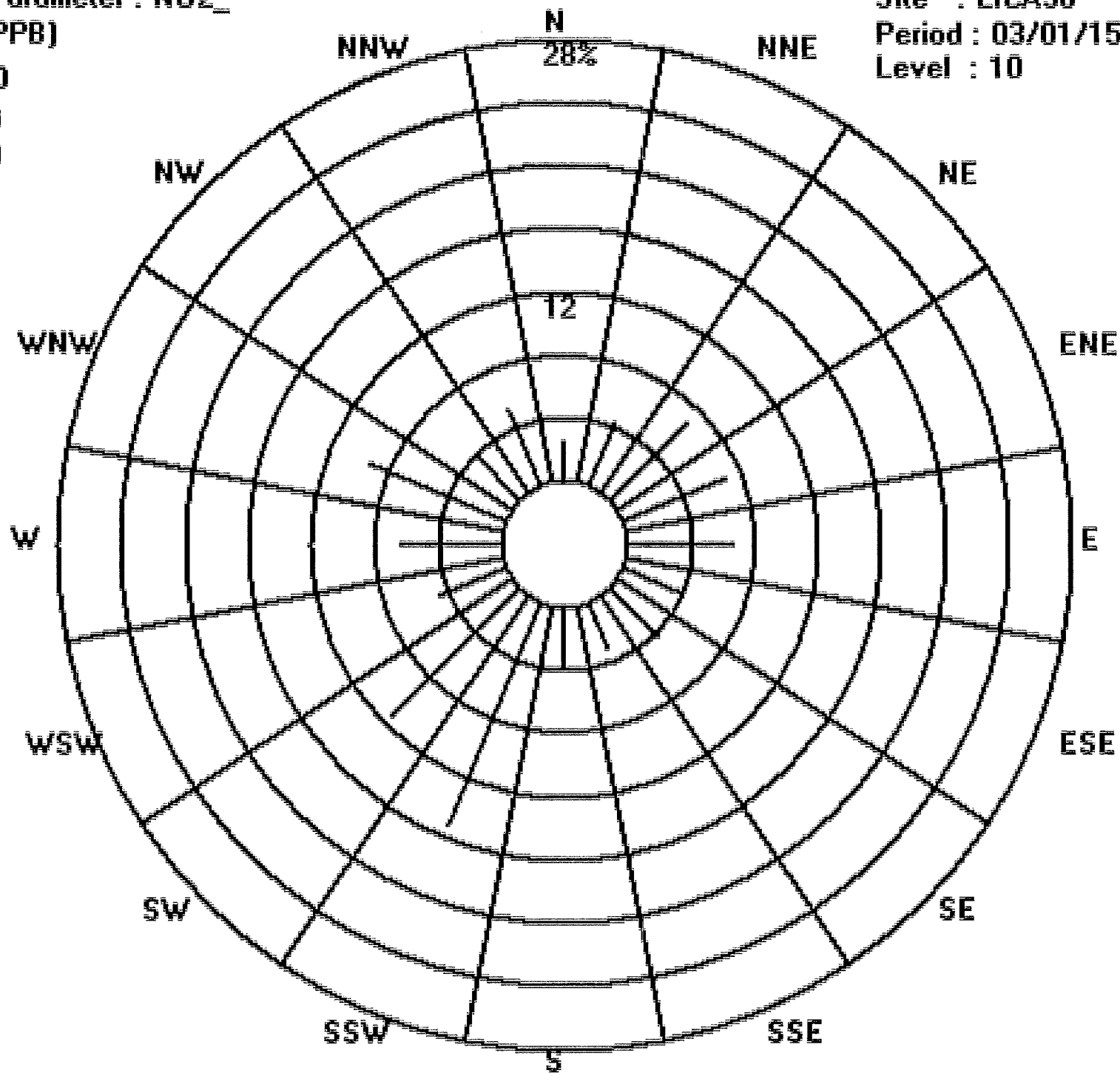
Class Limits (PPB)



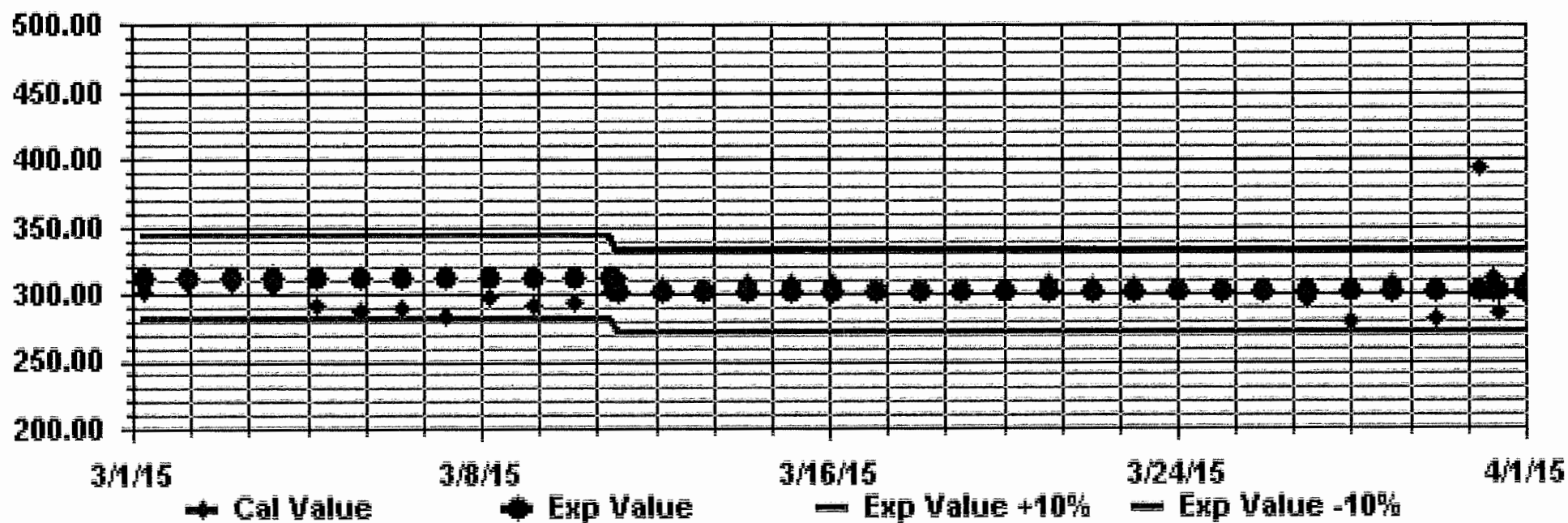
Site : LICA30

Period : 03/01/15-03/31/15

Level : 10

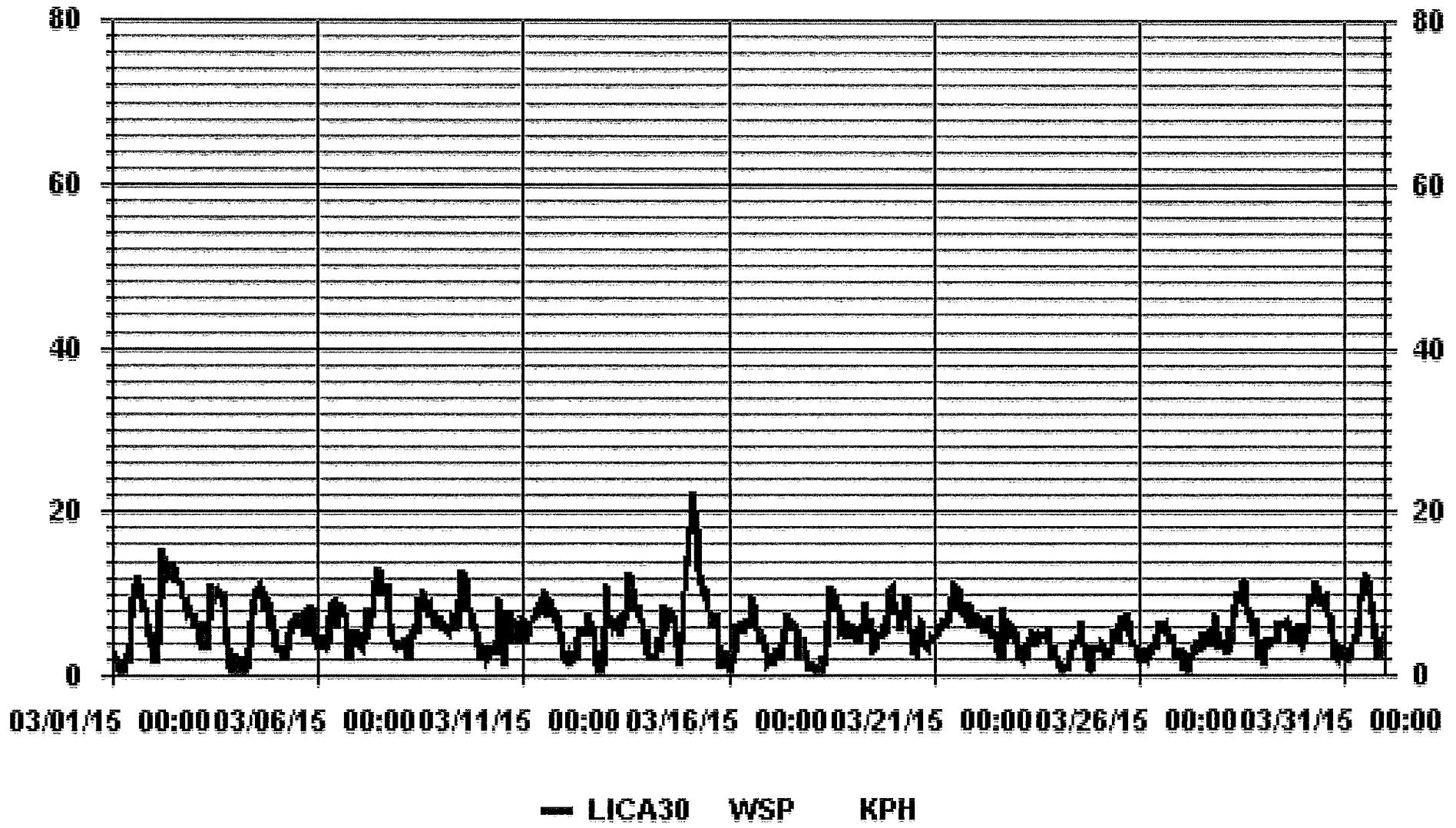


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN



WIND SPEED

01 Hour Averages





VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DAY	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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	15.7	19.9	33.3	23.7	20.6	17.7	20.6	14.4	8.5	9.1	13.1	17.7	22.1	24.3	25.1	33.5	28.1	23.9	21.2	18.8	15.7	18.8	15.9	15.8	33.5	19.9	24	
2	12.9	13.7	18.8	16.6	50.6	51.3	54.8	44.5	44.7	44.5	52.1	42.3	48.7	54.8	49.7	43.6	49.1	36.1	35.8	43.8	34.2	32.9	35.1	24.5	54.8	39.0	24	
3	22.5	26.5	58.8	41.9	69.5	47.2	24.2	84.2	28.0	31.1	35.3	32.9	32.2	44.5	35.7	42.3	41.2	32.0	22.3	37.6	43.4	86.9	82.7	34.7	86.9	43.2	24	
4	16.4	X	X	X	29.8	32.2	87.2	X	68.9	17.9	16.0	21.2	27.6	31.1	31.3	26.5	21.9	26.5	25.6	26.9	15.3	16.2	14.0	12.0	87.2	28.2	20	
5	22.5	29.1	26.3	10.7	14.9	42.9	19.0	18.1	23.2	22.7	28.4	22.1	20.8	30.2	28.8	27.5	26.4	21.4	18.4	19.9	17.0	17.7	14.5	10.0	42.9	22.2	24	
6	7.6	8.7	7.8	12.0	16.4	13.5	18.1	23.5	33.8	32.6	23.8	32.6	29.7	25.8	41.3	25.6	30.2	27.5	12.8	8.7	13.5	17.1	23.5	26.4	41.3	21.4	24	
7	18.4	17.5	25.1	21.6	26.4	35.9	22.9	24.3	25.4	41.9	37.1	38.7	39.8	42.4	33.0	34.3	35.9	28.9	15.3	22.1	13.7	12.0	11.8	15.8	42.4	26.7	24	
8	10.7	12.0	15.0	14.4	12.2	11.6	12.0	8.9	12.4	12.9	17.5	24.2	28.4	29.3	33.0	28.6	34.3	24.5	17.9	20.1	20.5	15.9	15.5	20.3	34.3	18.8	24	
9	20.3	16.5	17.7	16.1	13.9	13.5	15.0	18.4	15.3	27.7	36.7	35.8	40.0	35.4	37.4	32.1	28.4	25.2	17.8	22.8	18.1	13.7	13.9	10.7	40.0	22.6	24	
10	11.8	13.5	10.7	11.8	12.9	11.9	12.9	12.4	15.7	24.0	21.2	17.7	13.5	13.5	20.5	22.5	21.8	20.7	14.2	13.7	14.4	16.8	20.8	23.2	24.0	16.3	24	
11	19.7	11.6	11.6	15.9	17.7	24.1	22.5	25.6	30.8	35.9	33.3	28.4	29.6	31.3	29.5	29.7	29.9	21.6	23.2	23.8	23.2	20.8	14.8	11.9	35.9	23.6	24	
12	11.2	11.3	10.7	12.4	11.3	12.0	10.2	12.0	13.2	16.5	15.9	16.8	15.7	14.4	16.8	20.3	19.4	17.0	14.6	5.5	10.3	12.0	10.7	22.7	22.7	13.9	24	
13	25.1	16.8	16.6	18.4	13.5	17.0	15.5	18.0	16.4	22.3	21.6	31.5	19.9	26.4	28.8	31.0	27.9	23.8	19.9	22.5	22.9	25.1	16.1	17.0	31.5	21.4	24	
14	18.1	15.5	11.6	10.3	8.9	13.3	13.9	10.2	14.8	21.2	27.5	18.1	20.3	20.1	18.1	17.7	17.9	17.9	14.4	12.0	36.5	21.0	61.1	64.1	64.1	21.0	24	
15	55.3	72.2	73.8	83.0	69.6	54.9	42.4	46.4	40.7	40.7	46.7	38.2	31.1	23.8	30.6	22.3	20.3	23.6	17.0	9.3	11.6	12.0	12.5	11.3	83.0	37.1	24	
16	16.2	9.6	16.2	19.0	20.6	20.0	17.7	21.9	16.2	22.3	25.4	25.1	24.0	31.9	39.8	25.2	28.9	37.7	15.0	11.3	10.2	10.0	12.0	9.1	39.8	20.2	24	
17	9.1	5.3	9.9	8.7	12.4	12.0	12.7	12.2	8.9	13.8	27.3	18.1	17.5	18.1	16.6	16.1	16.8	9.6	8.7	8.3	8.5	7.6	5.0	10.1	27.3	12.2	24	
18	6.9	10.2	9.1	9.6	9.1	9.6	9.0	8.9	3.2	13.1	15.9	19.9	29.3	24.7	25.8	29.3	24.9	25.6	19.0	14.4	14.2	13.6	21.2	17.7	29.3	16.0	24	
19	19.4	21.6	25.8	20.8	16.2	22.7	21.0	19.1	19.5	17.7	16.1	22.9	16.1	33.5	24.7	17.0	17.2	16.4	13.1	14.7	14.2	23.8	24.9	25.6	33.5	20.2	24	
20	23.2	19.7	18.6	21.9	14.4	18.8	16.2	21.6	18.6	18.7	17.3	20.1	15.3	16.4	20.1	20.8	19.7	17.2	16.4	11.9	11.6	12.9	16.8	14.2	23.2	17.6	24	
21	21.0	16.2	15.8	17.9	14.0	18.8	22.1	14.0	22.4	28.9	33.9	32.2	35.7	31.3	28.9	26.0	24.9	24.7	25.1	32.0	27.8	21.9	18.4	39.2	24.7	24		
22	19.0	25.1	27.3	14.8	14.0	11.3	11.9	12.5	16.2	15.1	18.6	17.7	17.2	14.6	15.3	15.0	19.0	19.3	12.2	12.9	12.4	13.7	13.3	13.3	27.3	15.9	24	
23	14.2	10.5	12.1	9.4	7.1	6.9	4.5	10.9	12.6	16.6	12.3	17.0	18.6	15.3	21.8	15.9	12.9	12.6	9.8	15.9	12.6	12.0	13.4	12.7	21.8	12.8	24	
24	11.1	12.0	9.6	7.4	6.9	13.7	9.6	12.3	11.2	12.6	14.8	15.0	17.5	26.2	20.3	14.4	10.0	13.7	5.0	6.3	10.5	11.4	11.8	11.8	26.2	12.3	24	
25	12.9	11.3	10.9	15.5	9.8	12.7	11.3	13.5	14.2	13.5	13.9	16.1	18.6	19.7	18.5	18.9	21.2	19.7	15.5	12.6	11.6	11.6	11.6	11.8	21.2	14.5	24	
26	11.6	10.7	12.5	10.7	10.9	10.0	10.9	12.0	10.7	12.7	15.4	15.4	20.3	23.6	14.4	14.6	16.4	14.6	14.2	15.0	10.0	7.8	8.3	10.5	23.6	13.1	24	
27	10.5	9.8	7.8	5.8	3.9	9.3	10.2	12.0	10.4	13.7	12.0	13.5	11.2	15.6	15.3	14.1	15.5	12.6	11.3	19.9	22.3	22.0	9.1	10.4	22.3	12.4	24	
28	10.7	13.7	10.9	6.5	13.5	16.6	14.9	18.4	26.0	28.6	22.5	30.6	36.7	37.6	30.4	34.5	27.7	29.9	24.9	18.6	29.9	16.1	5.8	12.0	37.6	21.5	24	
29	9.9	10.5	9.3	16.6	9.4	10.9	11.3	11.1	13.1	15.3	13.9	14.4	15.9	16.8	19.7	14.5	15.3	10.7	10.2	10.0	21.6	24.9	14.6	14.2	24.9	13.9	24	
30	13.5	20.5	16.8	32.4	31.1	29.3	33.5	42.7	36.2	30.5	29.5	33.4	30.6	29.9	26.4	27.5	20.9	19.4	11.3	4.5	7.4	7.8	8.0	9.3	42.7	23.0	24	
31	10.7	10.9	10.3	11.8	10.7	11.6	10.4	21.2	26.7	31.3	33.0	40.2	38.5	30.6	27.5	26.4	32.8	21.4	18.1	8.3	9.3	5.8	11.1	15.4	40.2	19.8	24	
HOURLY MAX	55.3	72.2	73.8	83.0	69.6	54.9	87.2	84.2	68.9	44.5	52.1	42.3	48.7	54.8	49.7	43.6	49.1	37.7	35.8	43.8	43.4	86.9	82.7	64.1				
HOURLY AVG	16.4	16.7	18.7	17.9	19.1	20.4	19.9	20.8	21.2	22.8	24.1	24.8	25.4	27.0	26.7	24.9	24.4	21.8	16.8	16.7	17.7	18.3	18.4	17.3				

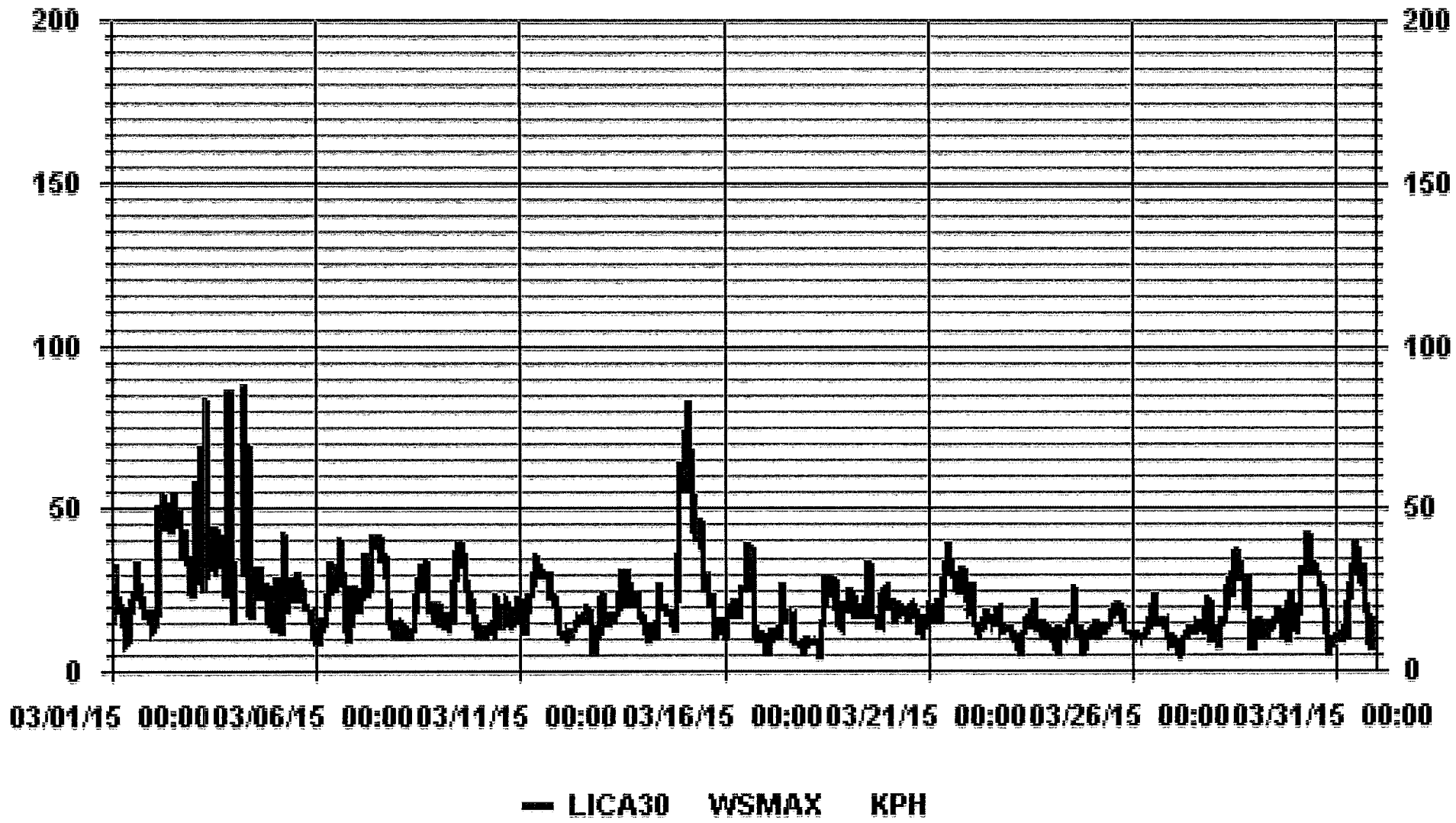
STATUS FLAG CODES

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:	87.2	KPH	@ HOUR(S)	6	ON DAY(S)	4
					VAR-VARIOUS	
OPERATIONAL TIME:				740	HRS	

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	.40	2.41	5.10	5.37	4.16	2.41	2.95	2.55	3.09	7.79	8.06	4.03	5.24	1.74	.94	2.01	58.33
< 12.0	1.61	2.01	1.74	1.74	3.22	2.15	1.20	.53	.67	7.52	3.62	.53	1.07	5.64	2.55	2.68	38.57
< 20.0	.53	.00	.00	.00	.00	.00	.13	.00	.00	.26	.00	.00	.13	1.07	.26	.40	2.82
< 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	2.55	4.43	6.85	7.12	7.39	4.56	4.30	3.09	3.76	15.59	11.69	4.56	6.45	8.73	3.76	5.10	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	3	18	38	40	31	18	22	19	23	58	60	30	39	13	7	15	434
< 12.0	12	15	13	13	24	16	9	4	5	56	27	4	8	42	19	20	287
< 20.0	4						1			2			1	8	2	3	21
< 29.0														2			2
< 39.0																	
>= 39.0																	
Totals	19	33	51	53	55	34	32	23	28	116	87	34	48	65	28	38	

Calm : .00 %

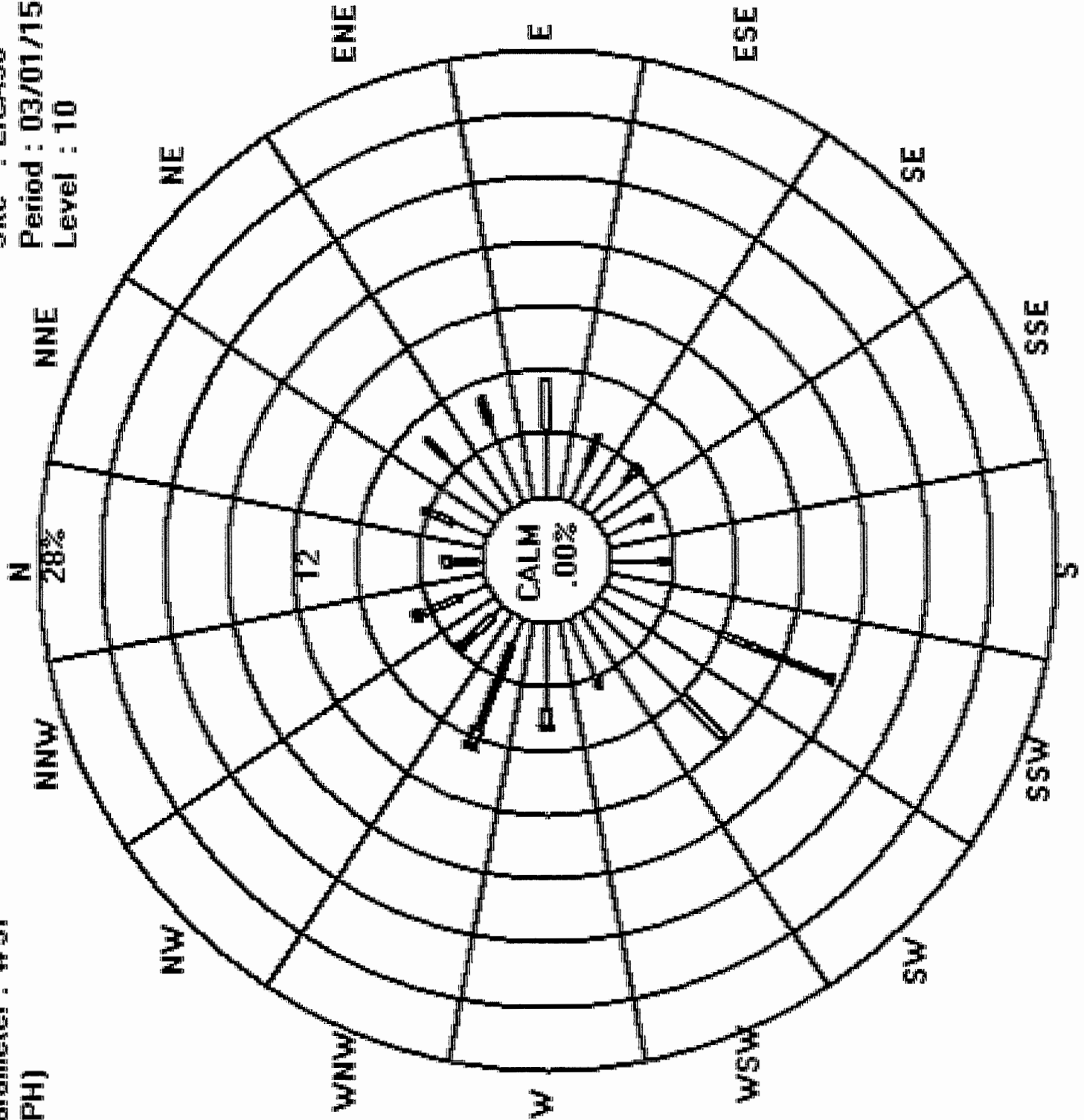
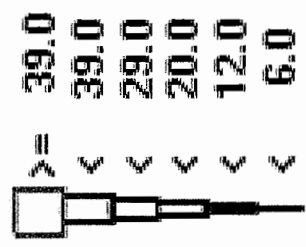
Total # Operational Hours : 744

Logger : 30 Parameter : WSP

Site : LICA30

Class Limits (KPH)

Period : 03/01/15-03/31/15



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - MARCH 2015

JOB # 2833-2015-03-30- C

WIND DIRECTION (WD) hourly averages

MST

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

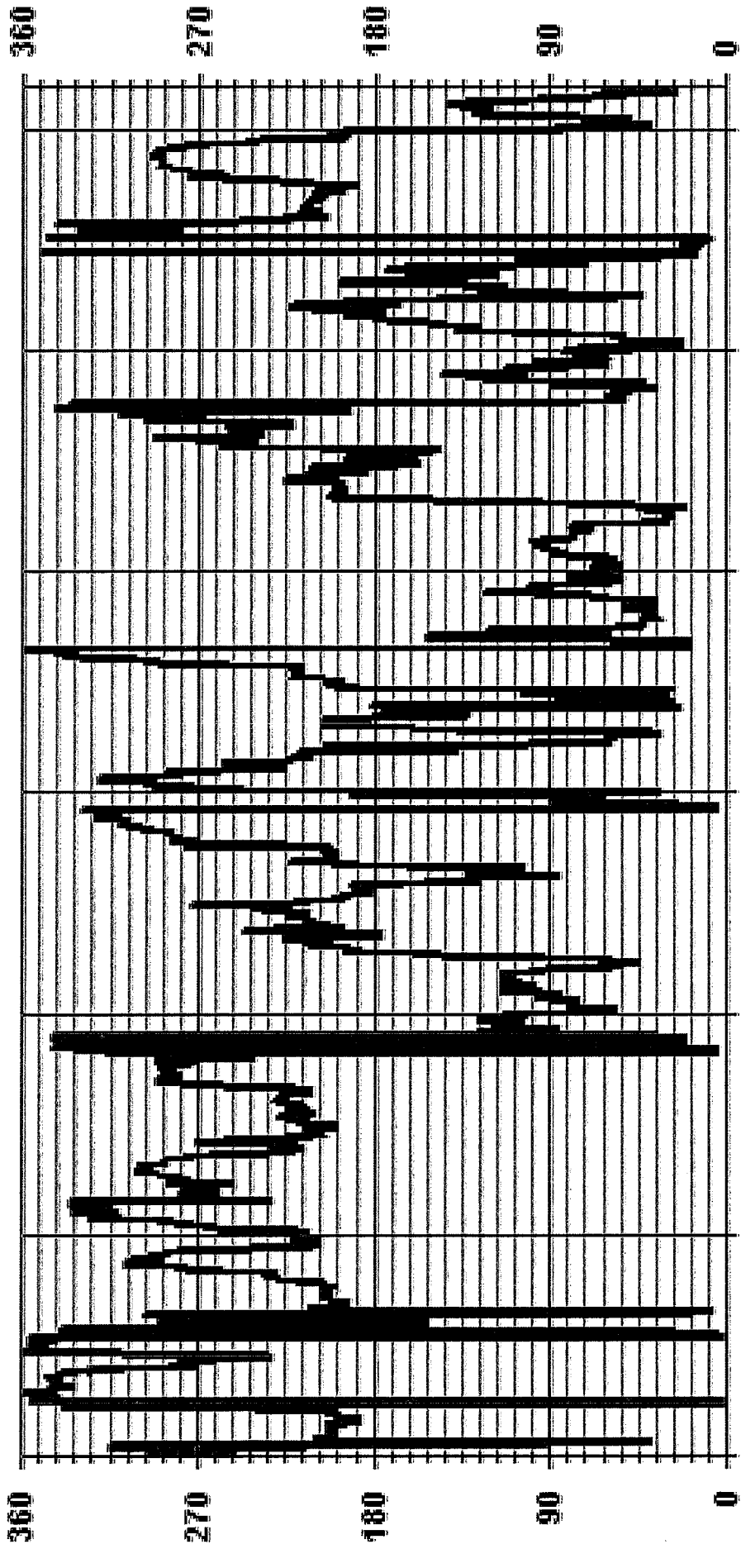
STATUS FLAG CODES

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:	March 04, 2014
DECLINATION:	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	95.48		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	WSW	

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA30 WDR DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - MARCH 2015

JOB # 2833-2015-03-30- 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	30	40	30	36	30	62	51	60	19	47	29	22	18	19	21	20	18	16	17	16	19	22	23	24
2	43	48	33	29	32	26	30	29	32	36	33	31	38	34	35	34	34	34	36	35	38	37	36	38
3	29	26	29	28	26	40	30	27	28	36	29	35	34	31	36	36	30	26	21	17	21	45	46	46
4	21	55	57	49	28	64	56	63	35	21	20	20	19	22	20	18	19	18	18	18	17	17	17	25
5	25	25	26	17	23	28	28	22	21	30	28	31	35	31	36	31	31	29	16	13	13	20	15	15
6	16	12	14	15	27	31	35	26	24	29	37	41	35	37	33	33	36	35	32	22	29	31	36	30
7	26	34	32	29	33	24	25	26	26	26	25	27	29	29	30	31	26	25	29	28	27	25	16	21
8	18	20	26	25	27	23	16	11	18	16	22	18	25	20	25	25	28	26	16	19	23	19	18	20
9	27	19	21	23	17	14	14	15	18	36	33	29	26	28	27	32	25	24	27	23	23	29	26	34
10	31	32	48	36	27	34	32	33	33	23	26	56	66	67	37	31	25	25	22	21	23	20	23	23
11	25	22	17	20	22	21	22	23	27	28	28	31	26	31	31	28	28	28	25	25	27	29	28	37
12	26	30	37	21	28	25	26	31	24	27	31	27	29	25	20	27	27	31	39	40	52	59	54	38
13	14	17	21	15	15	16	13	15	31	29	32	36	27	22	18	20	16	17	20	21	20	21	23	26
14	26	31	33	27	33	35	20	35	52	38	19	28	29	27	18	16	18	18	29	59	25	20	28	26
15	32	29	30	26	27	27	29	32	33	30	34	36	35	37	38	38	32	22	17	35	23	33	24	57
16	57	57	73	52	22	23	22	31	33	36	35	36	41	29	34	32	40	37	23	18	13	14	46	52
17	32	21	45	32	27	17	14	22	16	17	32	32	34	26	28	26	29	35	16	13	17	17	71	25
18	47	28	35	33	30	33	45	13	27	42	21	23	19	21	23	28	24	24	19	18	15	19	21	22
19	24	29	37	39	35	38	28	22	18	26	46	36	67	63	51	40	40	24	22	17	19	18	19	15
20	16	16	18	20	22	20	17	17	16	23	35	44	69	70	47	41	37	27	24	18	19	18	25	23
21	24	19	18	20	22	21	22	22	23	28	29	31	29	29	26	28	25	26	27	26	26	25	28	26
22	25	27	28	20	15	12	11	15	16	30	53	47	48	56	62	69	20	20	18	20	17	18	16	17
23	29	20	32	20	11	10	26	20	27	29	52	44	52	36	45	46	27	25	18	21	39	31	34	35
24	37	30	37	38	41	26	47	34	32	31	41	33	37	45	33	31	28	54	55	39	28	19	16	17
25	18	16	15	26	18	35	14	30	27	28	31	38	36	30	26	31	25	26	23	21	18	17	21	20
26	17	25	16	19	28	22	19	21	24	43	35	32	30	36	31	24	26	23	23	23	36	44	35	27
27	36	18	54	17	59	57	31	34	32	30	44	47	60	37	43	32	30	29	21	23	22	30	21	22
28	19	17	27	21	51	31	25	18	21	19	23	27	28	25	33	35	35	35	37	32	26	29	27	16
29	59	20	29	14	16	13	17	20	25	20	23	24	24	30	26	17	20	17	13	22	23	36	25	28
30	25	29	30	25	23	23	24	23	26	26	32	32	36	35	38	35	38	37	27	15	7	13	11	38
31	16	38	20	29	17	15	16	29	32	31	33	32	29	27	29	34	29	28	21	18	27	30	22	22

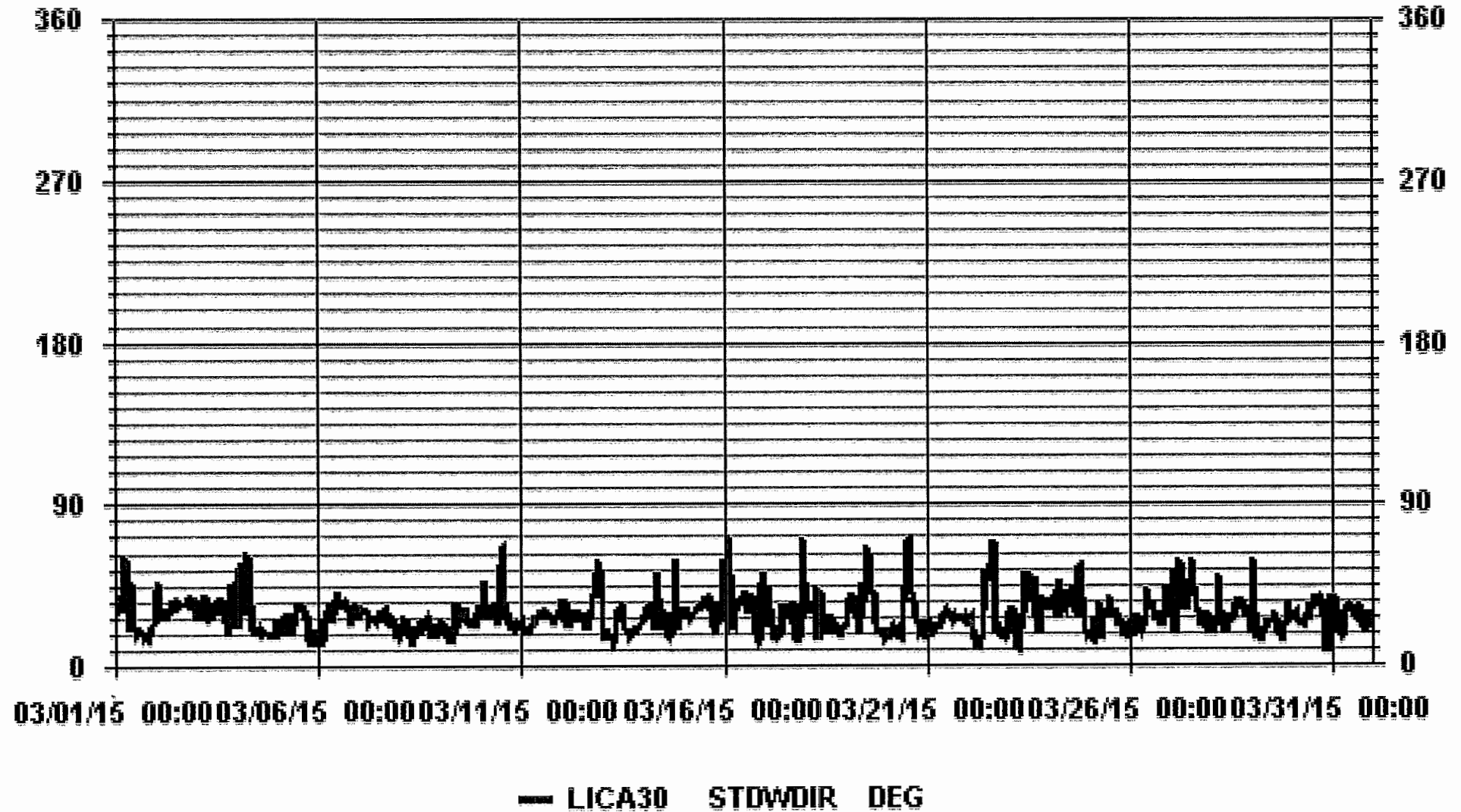
STATUS FLAG CODES

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 04, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



RELATIVE HUMIDITY



RELATIVE HUMIDITY (RH) hourly averages in %

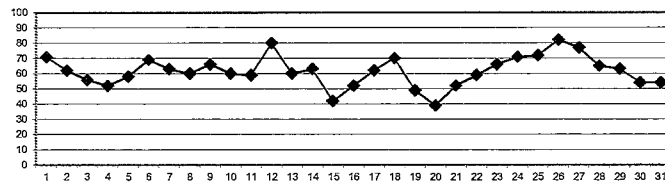
MST

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	82	82	81	78	77	77	77	78	79	77	73	65	58	52	53	54	58	63	69	72	75	76	77	82	71.5	24	
2	76	76	79	81	81	74	71	71	66	60	52	47	47	41	50	47	52	57	68	57	58	58	59	61	81	62.0	24	
3	63	63	66	68	67	69	71	70	65	54	50	47	40	38	35	36	38	43	47	53	58	63	65	68	71	55.7	24	
4	68	67	66	65	63	62	61	60	59	50	41	38	36	35	34	34	36	40	46	52	57	60	61	64	68	52.3	24	
5	69	73	73	76	78	79	79	77	65	51	39	35	33	32	31	33	39	47	55	61	63	65	66	69	79	57.8	24	
6	75	77	76	71	76	86	89	89	88	84	74	62	51	48	43	44	41	43	51	59	73	82	82	89	89	68.6	24	
7	83	86	85	87	86	89	88	87	79	70	61	51	47	39	37	37	38	40	48	50	53	56	58	66	89	63.4	24	
8	67	71	68	66	70	74	72	68	60	54	47	45	44	45	46	47	47	53	59	62	66	67	67	65	74	59.6	24	
9	63	64	65	65	66	69	70	70	66	57	51	47	48	52	53	63	68	72	80	79	79	83	82	83	83	66.5	24	
10	87	88	88	89	87	85	85	80	69	63	51	41	35	32	37	38	40	43	47	48	50	54	56	55	89	60.3	24	
11	56	59	61	60	58	57	59	59	56	56	54	51	50	52	50	54	57	60	63	65	67	68	71	76	76	59.1	24	
12	76	75	74	74	75	76	76	75	74	74	74	77	81	82	80	77	79	82	85	88	89	88	89	89	89	89	79.5	24
13	84	87	87	88	87	85	83	80	68	52	41	29	29	29	32	33	35	42	49	56	62	65	68	68	88	60.0	24	
14	71	72	77	83	84	84	81	77	74	66	65	55	43	38	36	38	42	49	55	63	69	71	64	61	84	63.3	24	
15	50	41	45	52	58	55	60	60	54	47	43	37	31	25	22	21	22	25	32	37	43	47	48	55	60	42.1	24	
16	62	67	69	67	65	68	73	68	60	52	44	33	31	37	36	32	31	36	44	51	55	57	57	63	73	52.4	24	
17	69	72	78	80	79	80	80	72	60	56	39	40	43	45	40	36	34	39	55	67	72	80	83	82	83	61.7	24	
18	85	84	85	85	85	85	84	81	70	64	60	55	50	47	46	53	56	59	67	73	77	80	80	80	85	85	69.8	24
19	64	65	68	75	80	76	68	63	56	49	41	37	32	32	31	31	32	34	37	38	39	41	44	47	80	49.2	24	
20	50	51	47	45	48	49	50	43	39	33	27	23	24	27	26	27	28	30	31	39	43	48	49	49	51	38.6	24	
21	50	51	53	50	55	56	54	52	48	41	39	40	44	56	65	70	71	64	55	48	49	49	47	46	71	52.2	24	
22	46	54	63	68	70	71	71	70	67	60	54	50	47	42	41	46	54	57	60	63	64	65	67	68	71	59.1	24	
23	70	72	75	81	83	83	84	80	69	62	53	49	47	49	49	51	51	54	60	68	68	68	69	79	84	65.6	24	
24	83	85	86	86	87	87	88	85	75	68	68	68	68	63	54	50	56	62	48	53	62	70	74	72	76	88	71.1	24
25	76	76	79	82	82	84	82	78	66	63	59	61	62	59	58	57	60	65	70	76	79	81	85	87	87	72.0	24	
26	87	86	87	86	86	86	85	83	79	75	73	70	67	66	68	74	81	86	89	90	90	89	89	88	90	81.7	24	
27	89	90	90	90	90	90	91	90	88	86	79	71	67	63	57	58	61	68	71	69	70	76	80	91	91	76.7	24	
28	82	85	86	88	90	88	89	86	82	77	65	55	44	34	33	35	34	33	39	47	60	67	78	79	90	64.8	24	
29	83	88	86	85	86	86	86	77	65	58	51	46	43	39	39	42	38	38	44	54	55	65	75	81	88	62.9	24	
30	82	82	81	75	70	69	69	62	56	50	46	41	35	33	30	29	31	33	39	50	57	59	64	63	82	54.4	24	
31	72	71	71	73	70	65	63	57	46	41	36	30	28	29	32	33	37	41	50	61	67	68	68	77	77	53.6	24	
HOURLY MAX	89	90	90	90	90	90	91	90	88	86	79	77	81	82	80	77	81	86	89	90	90	89	89	89	89			
HOURLY AVG	71.6	72.9	74.1	74.9	75.5	75.6	75.5	72.5	66.0	59.7	53.4	48.5	45.4	43.8	43.2	44.6	46.6	49.4	55.1	59.9	63.6	66.5	68.2	70.0				

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

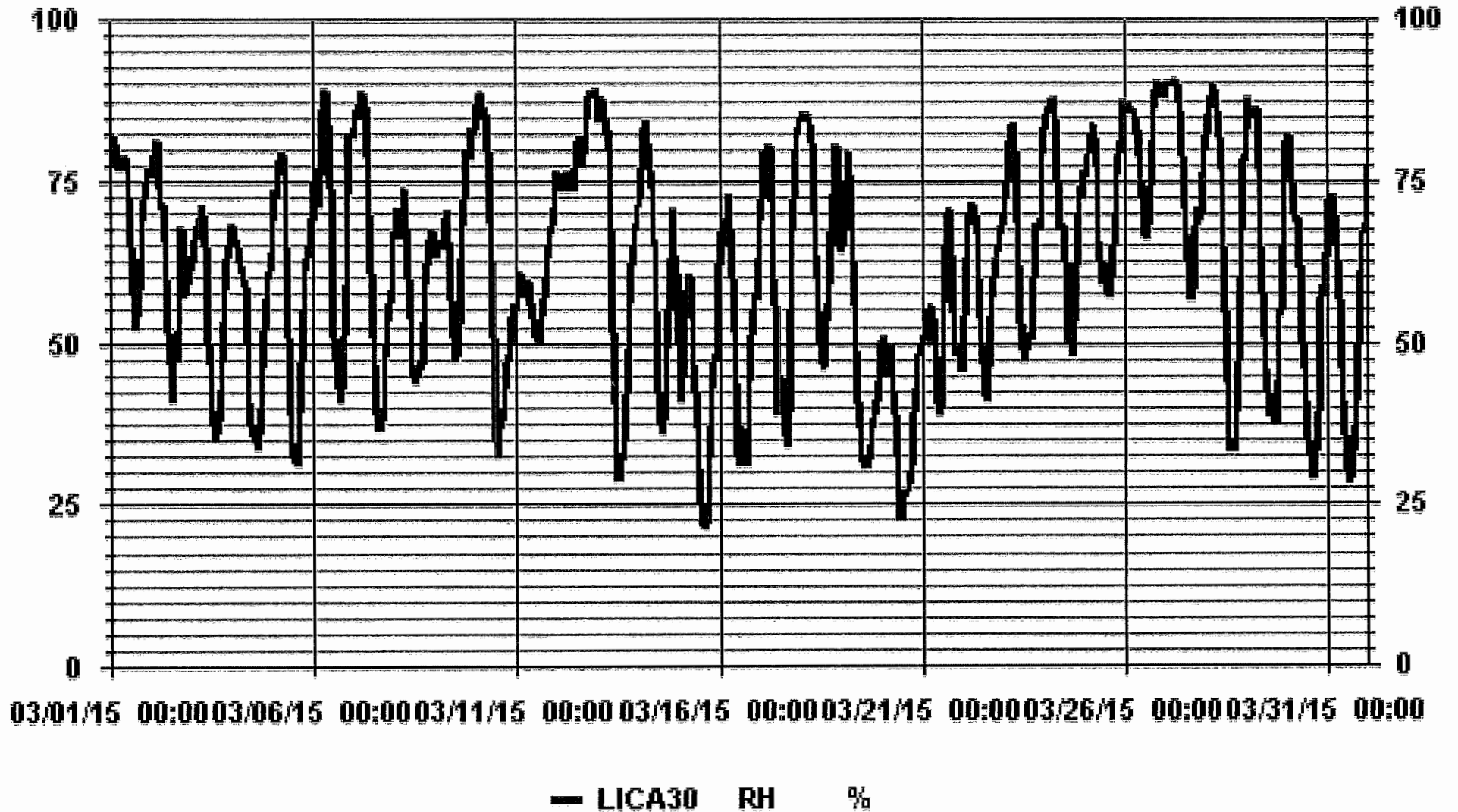
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

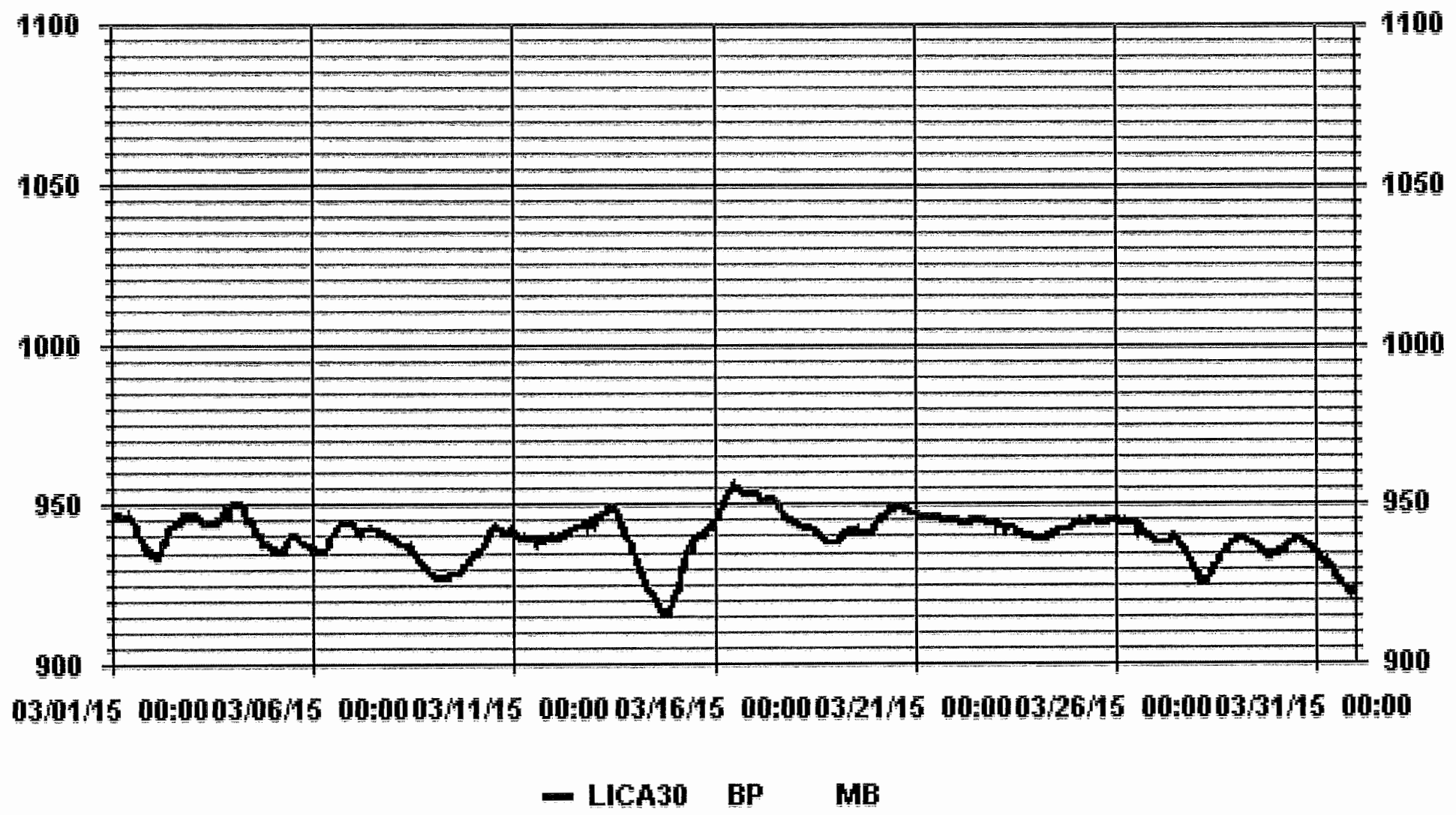
MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	6	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	81.7	%			ON DAY(S)	26
					VAR-VARIOUS	
			OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	17.18		MONTHLY AVERAGE:		62	%

01 Hour Averages



BAROMETRIC PRESSURE

01 Hour Averages



AMBIENT TEMPERATURE

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

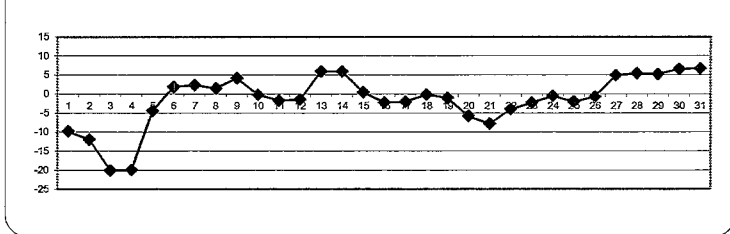
MST

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	RDGS.
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.	
DAY																											
1	-12.5	-13.7	-13.8	-14.3	-16.1	-17.3	-16.8	-15.8	-13.9	-10.6	-8.0	-7.6	-5.1	-3.5	-2.6	-2.7	-3.5	-5.1	-6.8	-7.8	-8.9	-9.8	-10.1	-10.0	-2.6	-9.8	24
2	-9.8	-9.2	-9.3	-9.2	-7.6	-7.3	-8.7	-8.8	-8.3	-10.2	-11.0	-10.6	-10.3	-10.1	-11.1	-11.9	-13.2	-14.4	-15.4	-16.3	-17.2	-17.8	-18.6	-19.4	-7.3	-11.9	24
3	-19.7	-20.2	-21.4	-22.3	-22.0	-23.0	-23.6	-23.8	-20.5	-17.1	-17.0	-16.0	-14.7	-14.1	-13.8	-14.3	-15.9	-17.9	-19.3	-22.1	-24.1	-25.4	-26.4	-27.8	-13.8	-20.1	24
4	-28.9	-30.6	-31.5	-31.8	-32.8	-33.7	-34.3	-33.8	-26.8	-19.1	-15.9	-13.8	-12.2	-10.3	-9.4	-9.2	-10.2	-11.1	-12.0	-12.8	-13.7	-14.3	-13.9	-15.1	-9.2	-19.9	24
5	-16.5	-17.3	-17.2	-16.2	-16.8	-17.0	-14.7	-12.1	-7.4	-2.5	1.1	4.4	6.3	7.3	7.7	7.2	5.3	2.9	0.3	-1.1	-1.4	-2.1	-2.3	-2.9	7.7	-4.4	24
6	-4.0	-4.3	-3.5	-2.0	-0.7	0.3	0.5	0.6	1.4	2.7	4.8	7.3	7.8	6.9	7.7	6.6	6.6	4.8	1.9	-0.4	-1.1	-0.4	1.0	1.3	7.8	1.9	24
7	0.9	0.0	0.2	0.3	-0.1	-0.1	-0.7	-1.0	1.0	3.2	4.7	6.0	6.1	7.9	8.2	8.5	7.1	5.3	2.7	1.7	0.4	-1.1	-1.4	-2.9	8.5	2.4	24
8	-2.8	-3.7	-3.4	-3.2	-4.5	-5.6	-5.4	-4.4	-1.8	0.5	3.4	4.8	6.4	7.2	7.6	7.8	8.1	6.3	4.7	3.8	3.1	2.8	2.7	2.6	8.1	1.5	24
9	2.6	2.3	2.4	2.5	2.5	2.1	2.1	2.6	3.9	7.5	9.5	10.7	10.0	9.2	9.6	6.1	5.2	4.1	2.5	2.1	1.5	0.0	-0.2	-0.9	10.7	4.2	24
10	-1.8	-2.7	-3.3	-3.2	-3.1	-3.0	-4.1	-3.3	-0.3	0.5	1.9	4.2	5.4	6.6	6.0	5.1	3.2	1.4	-0.2	-1.5	-2.6	-2.8	-3.1	-3.5	6.6	-0.2	24
11	-3.8	-5.0	-4.9	-4.5	-4.2	-3.8	-3.7	-3.3	-2.5	-1.9	-0.6	0.6	1.5	1.6	2.6	1.6	0.7	-0.1	-0.9	-1.4	-1.6	-1.8	-2.5	-3.9	2.6	-1.7	24
12	-3.8	-3.6	-3.3	-3.3	-3.5	-3.5	-3.2	-2.6	-1.5	-0.8	-0.3	0.3	0.5	0.8	1.6	1.3	0.7	-0.1	-1.7	-2.6	-2.4	-1.8	-0.4	1.6	1.6	-1.4	24
13	1.0	-0.2	-0.4	-0.7	-0.7	-0.6	-0.3	0.5	3.8	7.5	10.3	13.7	13.7	13.8	13.3	12.3	11.2	9.7	7.7	6.5	5.7	5.2	4.6	4.9	13.8	5.9	24
14	4.2	3.6	1.0	-1.0	-1.0	-0.3	0.9	2.0	2.7	4.4	4.7	7.6	11.7	12.9	13.3	12.1	11.2	9.6	7.9	6.6	7.1	6.1	7.5	7.9	13.3	5.9	24
15	7.6	6.6	5.6	4.0	1.7	-0.6	-2.0	-2.1	-1.1	0.2	1.0	1.7	3.1	4.4	4.8	4.5	3.1	0.7	-2.1	-4.8	-5.8	-6.0	-5.7	-7.1	7.6	0.5	24
16	-8.7	-9.6	-9.6	-9.1	-7.0	-7.3	-7.7	-6.0	-3.6	-1.5	0.7	2.7	3.6	3.2	4.1	4.6	4.7	3.2	1.2	-0.6	-1.6	-2.1	-2.6	-4.6	4.7	-2.2	24
17	-6.2	-7.1	-8.1	-9.1	-9.7	-10.9	-11.3	-8.9	-4.1	-1.8	2.8	4.3	5.9	6.5	7.3	7.5	7.2	5.5	1.4	-1.2	-2.4	-3.9	-4.9	-5.9	7.5	-2.0	24
18	-6.3	-7.4	-7.9	-8.6	-9.0	-9.5	-10.1	-7.9	-2.4	2.1	3.9	5.2	6.7	7.6	8.0	6.9	6.8	5.9	4.0	3.1	2.7	1.6	0.5	0.8	8.0	-0.1	24
19	0.5	0.0	-0.7	-1.7	-2.1	-2.9	-3.8	-4.4	-3.9	-2.3	0.2	1.0	2.7	3.8	3.8	2.5	1.1	0.0	-1.1	-1.9	-2.7	-3.3	-4.5	-5.2	3.8	-1.0	24
20	-5.8	-6.3	-6.9	-7.7	-8.4	-10.1	-11.8	-11.4	-9.8	-7.2	-4.7	-2.9	-0.5	0.0	0.1	0.2	-0.6	-2.3	-4.0	-5.6	-7.3	-8.1	-8.1	-8.8	0.2	-5.8	24
21	-10.0	-10.6	-11.0	-10.9	-11.6	-11.5	-10.6	-9.2	-7.4	-6.5	-5.7	-5.0	-5.1	-5.3	-5.7	-6.5	-6.3	-5.9	-5.8	-6.0	-6.2	-6.2	-6.2	-5.0	-7.8	24	
22	-6.2	-6.5	-7.0	-7.5	-7.9	-7.9	-7.9	-7.7	-6.9	-5.3	-3.3	-1.7	-0.6	1.4	2.2	0.9	-1.1	-1.9	-2.4	-3.1	-3.4	-3.5	-3.7	-4.0	2.2	-4.0	24
23	-4.4	-4.8	-5.3	-7.3	-8.1	-8.2	-9.9	-7.2	-4.1	-1.8	0.9	2.3	3.2	2.7	3.0	2.0	1.8	0.8	-0.5	-1.5	-1.7	-1.8	-1.9	-2.6	3.2	-2.3	24
24	-2.8	-3.0	-3.0	-2.9	-3.0	-4.0	-3.9	-2.5	-0.1	2.4	2.9	2.8	4.1	5.6	4.6	3.8	2.8	3.6	0.5	-2.0	-3.7	-4.5	-4.4	-5.6	5.6	-0.5	24
25	-5.3	-5.5	-6.3	-7.3	-7.5	-8.3	-7.3	-5.5	-1.4	0.1	1.3	1.6	2.5	3.5	4.0	4.2	3.1	2.0	0.7	-1.2	-2.1	-2.9	-4.1	-5.1	4.2	-2.0	24
26	-6.0	-6.7	-6.6	-6.1	-5.1	-4.6	-4.2	-3.4	-1.8	-0.2	0.7	1.9	3.1	4.2	4.4	3.8	3.0	1.7	0.8	0.9	0.9	0.7	0.7	0.7	4.4	-0.7	24
27	0.0	-0.6	-1.0	-1.4	-1.6	-1.0	-0.3	1.4	3.1	3.6	5.4	7.8	9.0	10.4	11.8	11.2	10.2	7.6	7.2	7.3	6.9	5.1	3.4	12.0	4.9	24	
28	2.7	2.1	1.6	0.3	0.3	1.2	1.7	4.1	5.0	5.5	7.9	10.1	11.0	10.4	10.7	10.6	10.6	9.8	7.7	5.6	5.0	3.7	1.0	1.1	11.0	5.4	24
29	-0.5	-2.0	-1.3	-1.3	-2.2	-1.9	-1.3	1.9	5.2	6.7	8.2	9.2	10.2	11.2	11.7	11.1	11.3	10.7	9.0	6.8	7.2	6.8	4.9	3.3	11.7	5.2	24
30	3.0	3.0	3.2	3.7	3.6	3.2	3.0	5.1	7.0	9.0	10.4	11.4	12.5	13.1	13.5	13.1	12.0	11.0	7.7	3.6	1.5	1.0	-0.4	0.6	13.5	6.5	24
31	-1.1	-0.6	-0.7	-1.1	0.0	0.8	1.5	3.9	7.5	9.8	11.9	13.2	13.9	14.4	14.7	14.9	13.9	12.4	9.6	5.9	4.6	4.0	4.3	3.8	14.9	6.7	24
HOURLY MAX	7.6	6.6	5.6	4.0	3.6	3.2	3.0	5.1	7.5	9.8	11.9	13.7	13.9	14.4	14.7	14.9	13.9	12.4	9.6	7.2	7.3	6.9	7.5	7.9			
HOURLY AVG	-4.7	-5.3	-5.6	-5.9	-6.1	-6.3	-6.4	-5.3	-2.9	-0.8	1.0	2.5	3.6	4.3	4.6	4.1	3.3	2.0	0.2	-1.3	-2.0	-2.6	-3.0	-3.6			

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

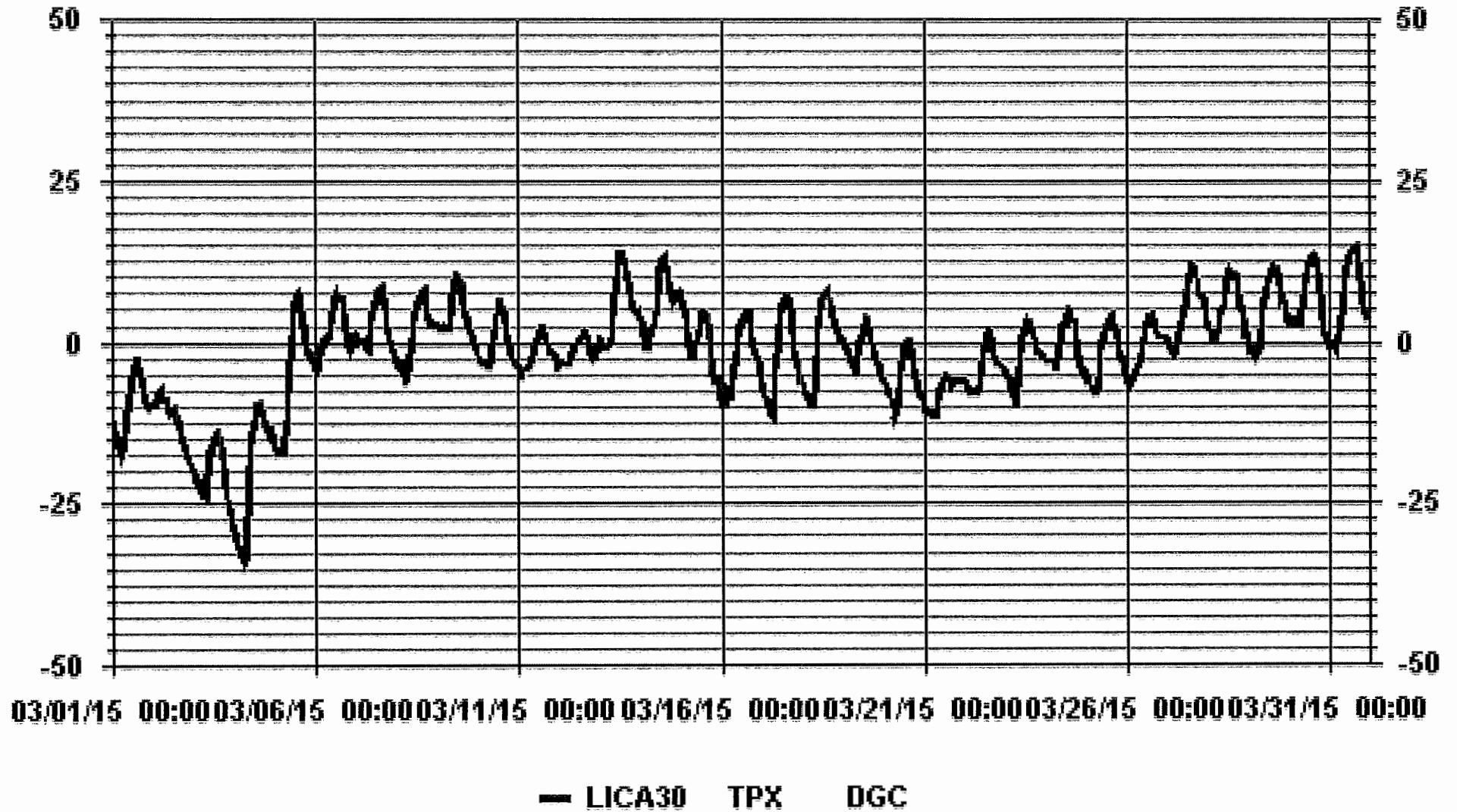
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-34.3 °C	@ HOUR(S)	6	ON DAY(S)	4
MAXIMUM 1-HR AVERAGE:	14.9 °C	@ HOUR(S)	15	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	6.7 °C			ON DAY(S)	31
				VAR-VARIOUS	
OPERATIONAL TIME:				744	HRS
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	8.15	MONTHLY AVERAGE:		-1.5	°C

01 Hour Averages



PRECIPITATION

PRECIPITATION hourly averages (mm)

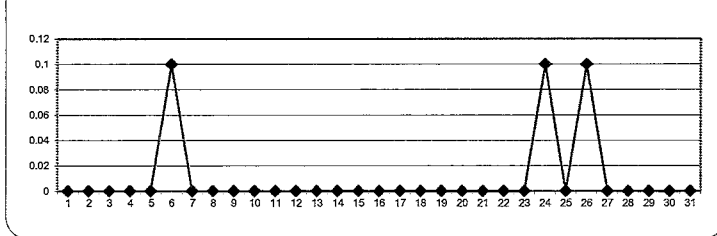
MST

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	RDGS.		
HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MAX.	AVG.			
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	0.0	0.0	
2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	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	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.2	0.4	0.6	0.6	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	0.6	0.1	24
7	0.0	0.0	0.1	0.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	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	0.0	0.0	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	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	0.0	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	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
22	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	0.1	0.1	0.0	24
24	0.4	0.4	0.6	0.4	0.3	0.1	0.0	0.0	0.0	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	22
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	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	0.3	0.5	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.1	0.0	0.0	24
HOURLY MAX	0.4	0.4	0.6	0.4	0.6	0.4	0.6	0.6	0.1	0.0	0.0	0.0	0.4	0.0	0.1	0.1	0.3	0.5	0.3	0.0	0.1	0.0	0.1	0.2					
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

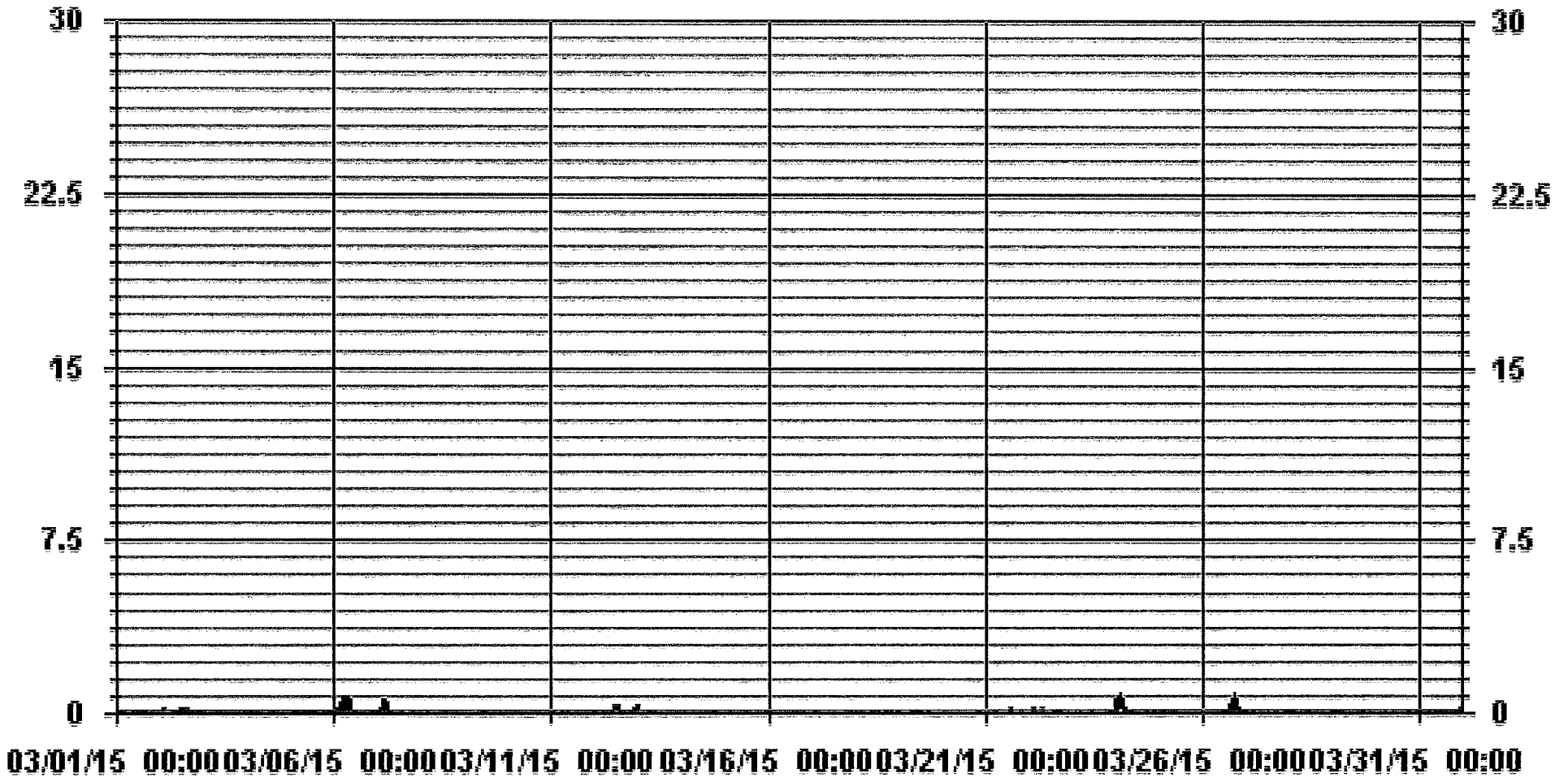
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.6	MM	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	0.1	MM			ON DAY(S)	VAR	
MONTHLY TOTAL	7.9	MM			VAR-VARIOUS		
OPERATIONAL TIME:						742	HRS
AMD OPERATION UPTIME:						99.7	%
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	0.0	MM		

01 Hour Averages



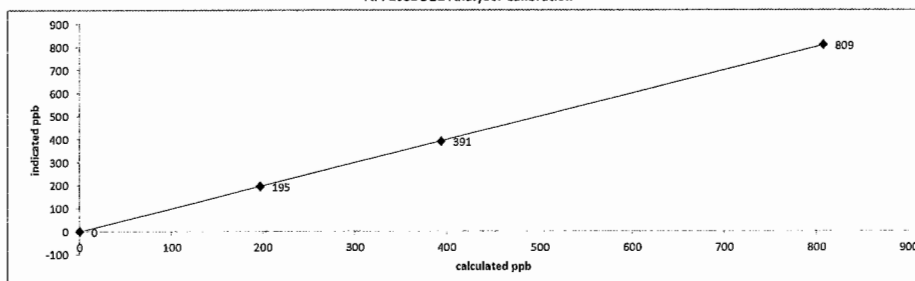
— LICA30 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

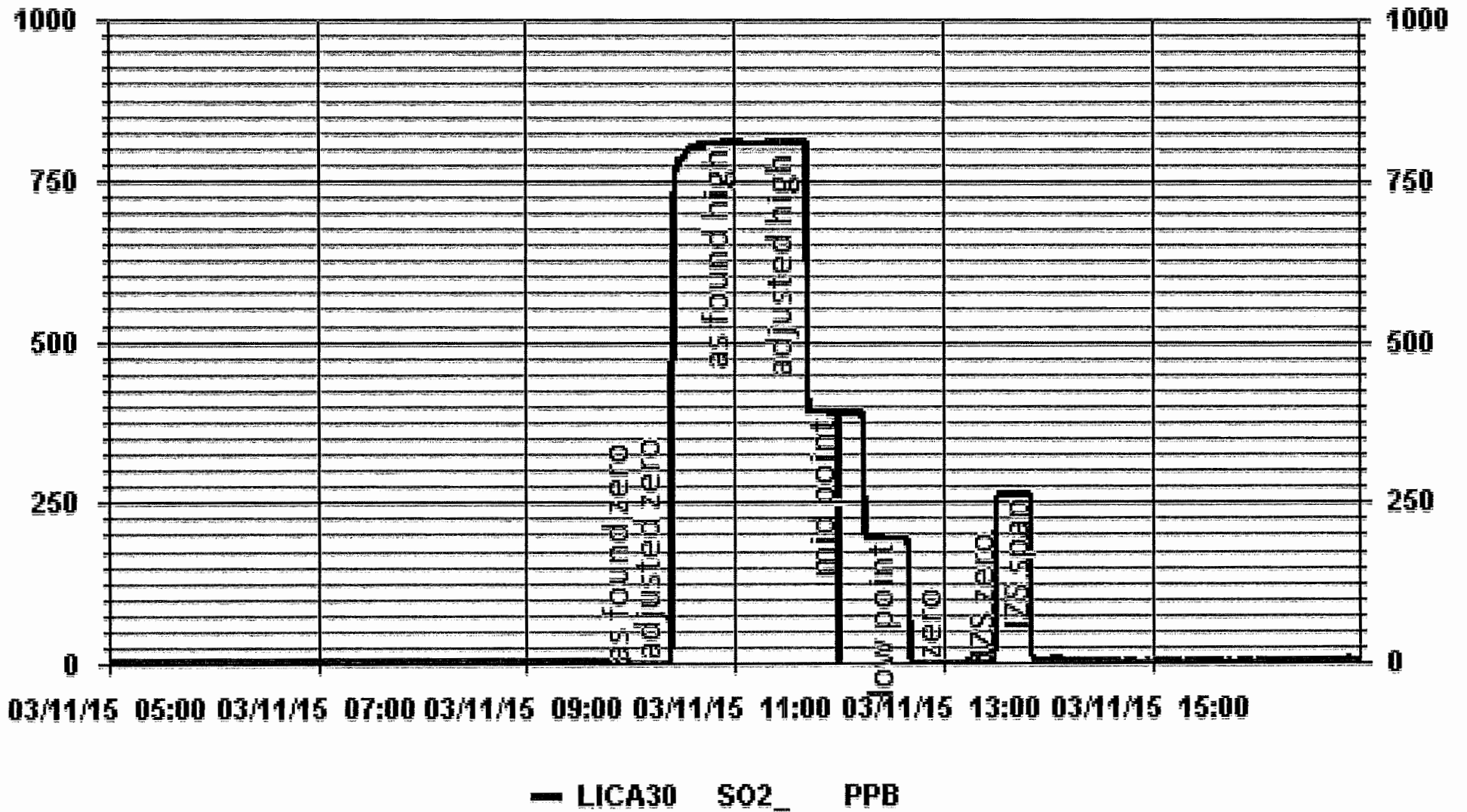
SULPHUR DIOXIDE

API 100E SO2 Analyzer Calibration																																																																
Date: 11-Mar-15 Company: LICA Station Name/Location: Maskwa Performed by: Alex Yakupov Application H₂S/TRS/SO₂: SO2	Start/End Time (mst): 9:39 / 14:53 Calibration Purpose: Monthly Calibration Converter Make & Model: NA Converter Serial #: NA Cal Gas Expiry Date: 12-Aug-17																																																															
Analyzer: Serial Number: 508 Range ppb: 1000 Last Calibration Date: 10-Feb-15 As Found C.F.: 0.997 Previous Cal High Point C.F.: 1.000 New C.F.: 1.005																																																																
<table style="width:100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">As found:</td> <td style="width: 50%; text-align: center;">As left:</td> </tr> <tr><td>SLOPE: 1.007</td><td>SLOPE: 1.007</td></tr> <tr><td>OFFSET: 115.6</td><td>OFFSET: 120.4</td></tr> <tr><td>HVPS: 495</td><td>HVPS: 495</td></tr> <tr><td>RCELL TEMP: 50.0</td><td>RCELL TEMP: 50.0</td></tr> <tr><td>BOX TEMP: 30.3</td><td>BOX TEMP: 30.5</td></tr> <tr><td>PMT TEMP: 7.7</td><td>PMT TEMP: 7.7</td></tr> <tr><td>IZS TEMP: 45.0</td><td>IZS TEMP: 45.0</td></tr> <tr><td>TEST: NA</td><td>TEST: NA</td></tr> <tr><td>STABIL: 0.1</td><td>STABIL: 0.1</td></tr> <tr><td>PRES: 24.5</td><td>PRES: 24.5</td></tr> <tr><td>SAMP FL: 586</td><td>SAMP FL: 585</td></tr> <tr><td>PMT: 104</td><td>PMT: 108.7</td></tr> <tr><td>NORM PMT: 120.4</td><td>NORM PMT: 120.7</td></tr> <tr><td>UV LAMP: 3039.2</td><td>UV LAMP: 3040.9</td></tr> <tr><td>LAMP RATIO: 94.8</td><td>LAMP RATIO: 94.8</td></tr> <tr><td>STR. LGT: 58.2</td><td>STR. LGT: 60.6</td></tr> <tr><td>DRK PMT: 11.9</td><td>DRK PMT: 12.2</td></tr> <tr><td>DRK LMP: -1.8</td><td>DRK LMP: -1.8</td></tr> <tr><td>Internal Span: 249.5</td><td>Internal Span: 262.1</td></tr> </table>		As found:	As left:	SLOPE: 1.007	SLOPE: 1.007	OFFSET: 115.6	OFFSET: 120.4	HVPS: 495	HVPS: 495	RCELL TEMP: 50.0	RCELL TEMP: 50.0	BOX TEMP: 30.3	BOX TEMP: 30.5	PMT TEMP: 7.7	PMT TEMP: 7.7	IZS TEMP: 45.0	IZS TEMP: 45.0	TEST: NA	TEST: NA	STABIL: 0.1	STABIL: 0.1	PRES: 24.5	PRES: 24.5	SAMP FL: 586	SAMP FL: 585	PMT: 104	PMT: 108.7	NORM PMT: 120.4	NORM PMT: 120.7	UV LAMP: 3039.2	UV LAMP: 3040.9	LAMP RATIO: 94.8	LAMP RATIO: 94.8	STR. LGT: 58.2	STR. LGT: 60.6	DRK PMT: 11.9	DRK PMT: 12.2	DRK LMP: -1.8	DRK LMP: -1.8	Internal Span: 249.5	Internal Span: 262.1																							
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Calibrator: Flow Meter ID's: NA Make & Model: Envirotronics 6100 Serial #: 4760 Cal Gas Cylinder I.D. #: LL42475 Cal Gas Conc. (ppm): 50.3																																																																
<table border="1" style="width:100%; border-collapse: collapse;"> <caption>Calibrator Flow Targets:</caption> <thead> <tr> <th>point</th> <th>diluent (cc/min)</th> <th>cal gas (cc/min)</th> <th>total (cc/min)</th> </tr> </thead> <tbody> <tr><td>zero</td><td>4995</td><td>0</td><td>4995</td></tr> <tr><td>high</td><td>4916</td><td>78</td><td>4994</td></tr> <tr><td>mid</td><td>4957</td><td>38</td><td>4995</td></tr> <tr><td>low</td><td>4975</td><td>19</td><td>4994</td></tr> </tbody> </table>		point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	4995	0	4995	high	4916	78	4994	mid	4957	38	4995	low	4975	19	4994																																											
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<p style="text-align: center;">Linear Regression/Calibration Results:</p> <table style="width:100%; border: none;"> <tr> <td style="width: 40%;">Correlation Coefficient =</td> <td style="width: 15%;">1.000</td> <td style="width: 15%;">LIMITS</td> <td style="width: 30%;">Pass/Fail ?</td> </tr> <tr> <td>Slope =</td> <td>0.998</td> <td>> or = 0.995</td> <td>PASS</td> </tr> <tr> <td>b (Intercept as % of full scale) =</td> <td>0.15%</td> <td>0.85-1.15</td> <td>PASS</td> </tr> <tr> <td>% change in C.F. from last cal</td> <td>0.28%</td> <td>± 3% F.S.</td> <td>PASS</td> </tr> <tr> <td></td> <td></td> <td>± 15%</td> <td>PASS</td> </tr> </table> <p style="text-align: center;">Converter Efficiency Check for H₂S/TRS application:</p> <p style="text-align: center;">**run converter efficiency test immediately following zero adjust**</p> <p>SO₂ High Point gas concentration: NA Time gas run (mst): NA</p> <p>Zero corrected analyzer response: NA</p>		Correlation Coefficient =	1.000	LIMITS	Pass/Fail ?	Slope =	0.998	> or = 0.995	PASS	b (Intercept as % of full scale) =	0.15%	0.85-1.15	PASS	% change in C.F. from last cal	0.28%	± 3% F.S.	PASS			± 15%	PASS																																											
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<p>Comments:</p> <p>Sample filter changed.</p>																																																																

API 100E SO2 Analyzer Calibration



01 Minute Averages



HYDROGEN SULPHIDE

Maxxam

API 101E H2S Analyzer Calibration

Date: 11-Mar-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 12:14 / 17:35

Calibration Purpose: Monthly

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 25-Dec-15

Analyzer:

Serial Number: 511

Last Calibration Date: 11-Feb-15

Previous Cal High Point C.F.: 0.994

Range ppb: 100

As Found C.F.: 0.990

New C.F.: 0.991

As found:

SLOPE: 0.853

OFFSET: 46.3

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 31.6

PMT TEMP: 7.9

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 28.9

SAMP FL: 649

PMT: 73.7

NORM PMT: 46.6

UV LAMP: 2788.6

LAMP RATIO: 89.6

STR. LGT: 19.8

DRK PMT: 33.5

DRK LMP: 5.6

Internal Span: 47.17

As left:

SLOPE: 0.845

OFFSET: 48.3

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 32.2

PMT TEMP: 7.9

IZS TEMP: 45.0

TEST: 314.5

STABIL: 0.0

PRES: 28.9

SAMP FL: 648

PMT: 77.9

NORM PMT: 49.4

UV LAMP: 2787.9

LAMP RATIO: 89.6

STR. LGT: 20.4

DRK PMT: 33.1

DRK LMP: 5.6

Internal Span: 49.23

Calibrator:

Flow Meter ID's: NA

Make & Model: API

Serial #: 831

Cal Gas Cylinder I.D. #: BLM005049

Cal Gas Conc. (ppm): 10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4959	39	4998
mid	4979	19	4998
low	4990	11	5001

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4997	0.0	4997	0	1.1	NA
adjusted zero	4997	0.0	4997	0	0.0	NA
as found high	4959	38.60	4998	78.0	78.8	0.990
adjusted high	4959	38.60	4998	78.0	78.0	1.000
mid	4980	18.80	4999	38.0	38.4	0.989
low	4985	10.90	4996	22.0	22.4	0.984
calibrator zero	4997	0.00	4997	0	0.0	NA
Average C.F.=						0.991

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale)=	<u>-0.23%</u>	± 3% F.S.	PASS
% change in C.F. from last cal	<u>0.40%</u>	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

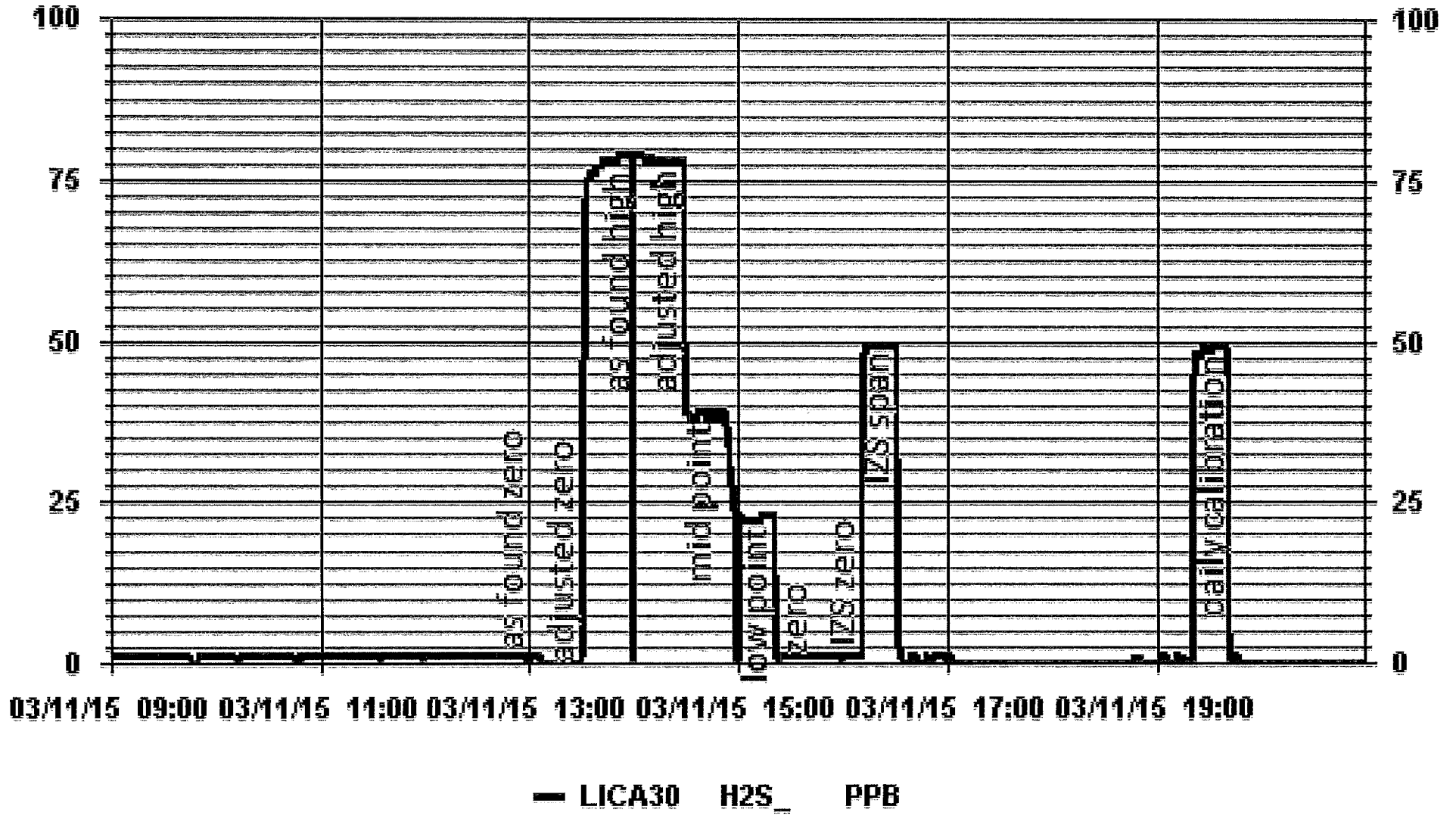
Comments:

Filter changed

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0.0	0.0
22.4	22.4
38.4	38.4
78.0	78.0

01 Minute Averages



TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 11-Mar-15 Start Time (mst): 9:29
 Company: LICA End Time (mst): 14:16
 Station Name/Location: Maskwa Calibration Purpose: Monthly Calibration
 Performed by: Alex Yakupov Cal Gas Expiry Date: 12-Aug-17

Analyzer: 436609738 Range ppm: 50
 Serial Number: 10-Feb-15 As Found C.F.: 1.018
 Last Calibration Date: 1.000 New C.F.: 1.002
 Previous Cal High Point C.F.:

	As found:	As left:
H ₂ cylinder (psi):	<u>120</u>	<u>1500</u>
H ₂ cylinder reg set (psi):	<u>20</u>	<u>20</u>
Span Cylinder (psi):	<u>1300</u>	<u>1300</u>
Span Cylinder Reg Set (psi):	<u>25</u>	<u>25</u>
Zero Air Gen Pressure:	<u>35</u>	<u>35</u>
measurement alarms:	<u>None</u>	<u>None</u>
service alarms:	<u>None</u>	<u>None</u>
FID status:	cnt: <u>863</u>	cnt: <u>861</u>
	rng: <u>1</u>	rng: <u>1</u>
	try: <u>5</u>	try: <u>5</u>
	flm: <u>179.2</u>	flm: <u>179.1</u>
	det: <u>125.5</u>	det: <u>125.6</u>
Oven Readings:	Flame: <u>179</u>	Flame: <u>179</u>
	Filter: <u>125</u>	Filter: <u>125</u>
	Base: <u>125</u>	Base: <u>125</u>
	Pump: <u>7.50</u>	Pump: <u>7.50</u>
Voltages:	+5 <u>4.9</u>	+5 <u>4.9</u>
	+15 <u>14.8</u>	+15 <u>14.8</u>
	-15 <u>-15.0</u>	-15 <u>-15.0</u>
	Internal Span: <u>33.22</u>	Internal Span: <u>33.3</u>

Calibrator:
 Flow Meter ID's: NA
 Make & Model: API 700
 Serial #: 831
 Cal Gas Cylinder I.D. #: LL33674
 CH₄/C₃H₈ Cylinder Conc. (ppm): 601.4 | 202.0
 CH₄ as propane/total CH₄ equivalents (ppm): 555.5 | 1156.9

Calibrator Flow Targets:			
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	1935	65	2000
mid	1969	31	2000
low	1984	16	2000

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppm)	Indicated Concentration (ppm)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	1997	0.00	1997	0	-0.05	NA
adjusted zero	1997	0.00	1997	0	0.01	NA
as found high	1997	65.00	2062	36.47	35.85	1.018
adjusted high	1997	65.00	2062	36.47	36.49	1.000
mid	1997	31.00	2028	17.68	17.67	1.001
low	1997	16.00	2013	9.20	9.16	1.005
calibrator zero	1997	0.00	1997	0	0.01	NA
Average C.F.=						1.002

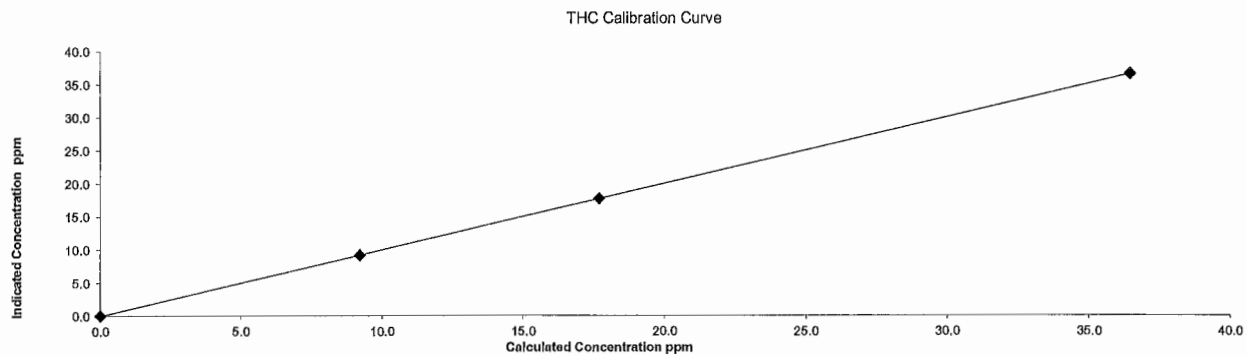
Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale)=	<u>-0.044%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>-1.75%</u>	± 3% F.S.	PASS
		± 15%	PASS

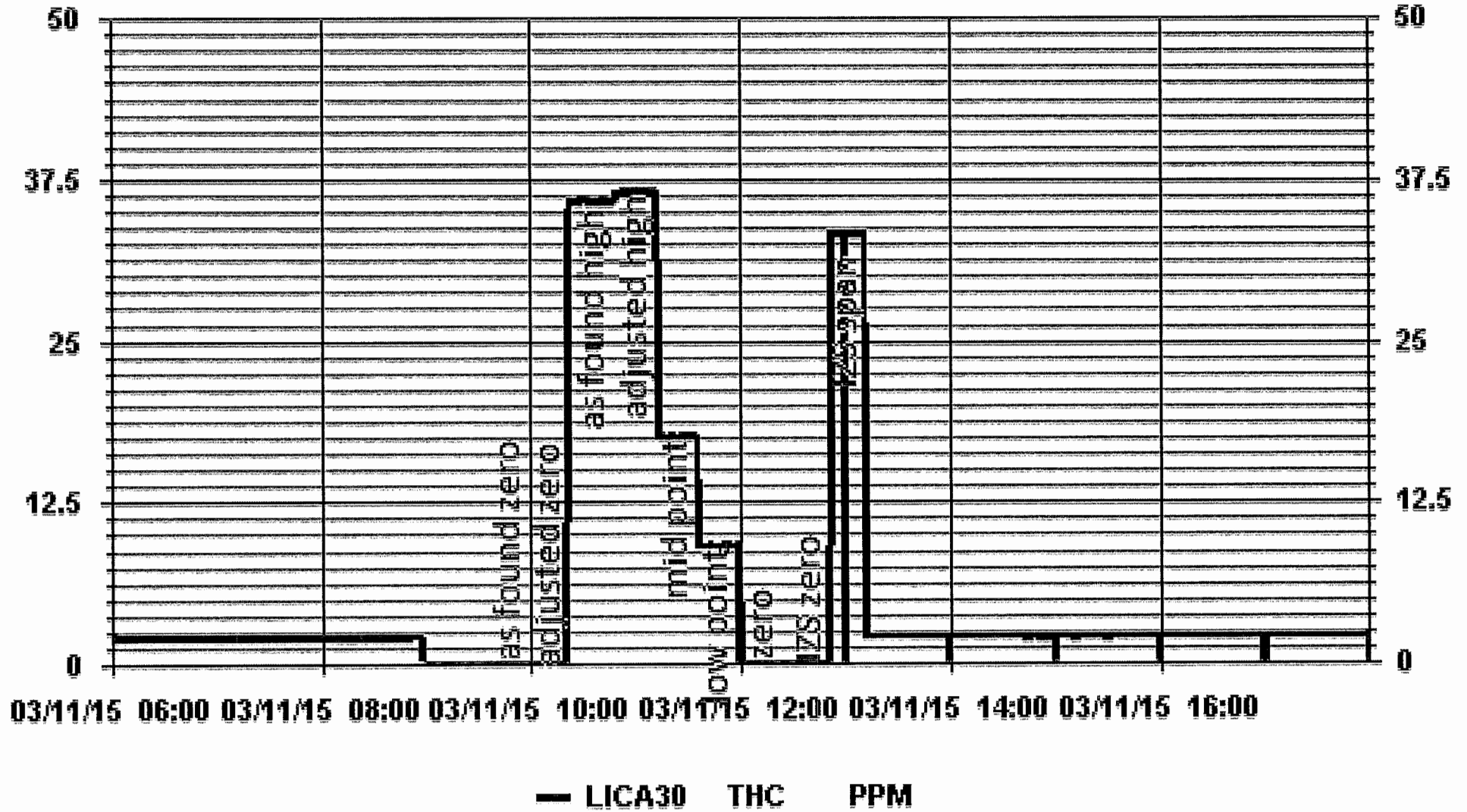
Comments:

Sample filter changed.

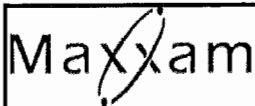
Thermo 51C THC Analyzer Calibration



01 Minute Averages



NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 11-Mar-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 9:39
 End Time (mst): 16:57
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer Serial Number: 593		Correction Factors:	
Last Calibration Date: 11-Feb-15	As found C.F.	Previous Cal High Point C.F.:	
Range ppb: 1000	NO= 1.072	NO= 0.988	
	NOx= 1.066	NOx= 0.990	
	NO ₂ = 1.005	NO ₂ = 1.000	
As found:		As left:	
NOx SLOPE: 0.889	NOx SLOPE: 0.946	NOx SLOPE: 0.946	
NOx OFFS: -1.4	NOx OFFS: -0.3	NOx OFFS: -0.3	
NO SLOPE: 0.887	NO SLOPE: 0.946	NO SLOPE: 0.946	
NO OFFS: -1.7	NO OFFS: -1.7	NO OFFS: -1.7	
TEST: 126.7	TEST: 126.7	TEST: 126.7	
SAMP FLW: 476	SAMP FLW: 477	SAMP FLW: 477	
OZONE FL: 77	OZONE FL: 77	OZONE FL: 77	
PMT: 11.8	PMT: 11.9	PMT: 11.9	
NORM PMT: -1.8	NORM PMT: 0.4	NORM PMT: 0.4	
AZERO: 8.2	AZERO: 8.2	AZERO: 8.2	
HVPS: 634	HVPS: 634	HVPS: 634	
RCELL TEMP: 50.0	RCELL TEMP: 50.0	RCELL TEMP: 50.0	
BOX TEMP: 32.5	BOX TEMP: 34.1	BOX TEMP: 34.1	
PMT TEMP: 6.8	PMT TEMP: 6.8	PMT TEMP: 6.8	
IZS TEMP: 50.2	IZS TEMP: 50.1	IZS TEMP: 50.1	
MOLY TEMP: 315.2	MOLY TEMP: 316.1	MOLY TEMP: 316.1	
RCEL: 6.8	RCEL: 6.8	RCEL: 6.8	
SAMP: 26.8	SAMP: 27.1	SAMP: 27.1	
Internal Span: 316/4/312	Internal Span: 307.3/5.11/301.9	Internal Span: 307.3/5.11/301.9	

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	78	480.00	4994
mid	4957	38	260.00	4995
low	4975	19	100.00	4994

Calibration:

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	4994	0.0	4994	0	0	0.0	0.0	NA	NA
adjusted zero	4994	0.0	4994	0	0	0.0	0.0	NA	NA
as found high	4914	80.21	4994	779.0	779.0	727	731	1.072	1.066
adjusted high	4914	80.21	4994	779.0	779.0	778	778	1.001	1.001
mid	4955	39.07	4994	379.4	379.4	377	377	1.006	1.006
low	4975	19.53	4995	189.6	189.6	188	188	1.009	1.009
calibrator zero	4994	0.00	4994	0	0	0.0	0.0	NA	NA
Average C.F.=								1.005	1.005

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4914	80.21	4994	0.0	778.0	778.0	0.0	0.0	0.0	
as found NO ₂	4914	80.21	4994	480.0	198.0	776.0	577.0	580.0	577.0	1.005
adjusted NO ₂	4914	80.21	4994	480.0	198.0	776.0	577.0	580.0	577.0	1.005
gpt mid	4914	80.21	4994	260.0	470.0	778.0	307.0	308.0	307.0	1.003
gpt low	4914	80.21	4994	100.0	663.0	779.0	115.0	115.0	115.0	1.000
Average NO ₂ C.F.=									1.003	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	0.999	0.995	0.85-1.15
b (Intercept as % of full scale) =	-0.10%	-0.10%	0.04%	± 3% F.S.
% change in C.F. from last cal =	-8.45%	-7.64%	-0.52%	+/-15%
NO ₂ converter efficiency			99.7%	>85%

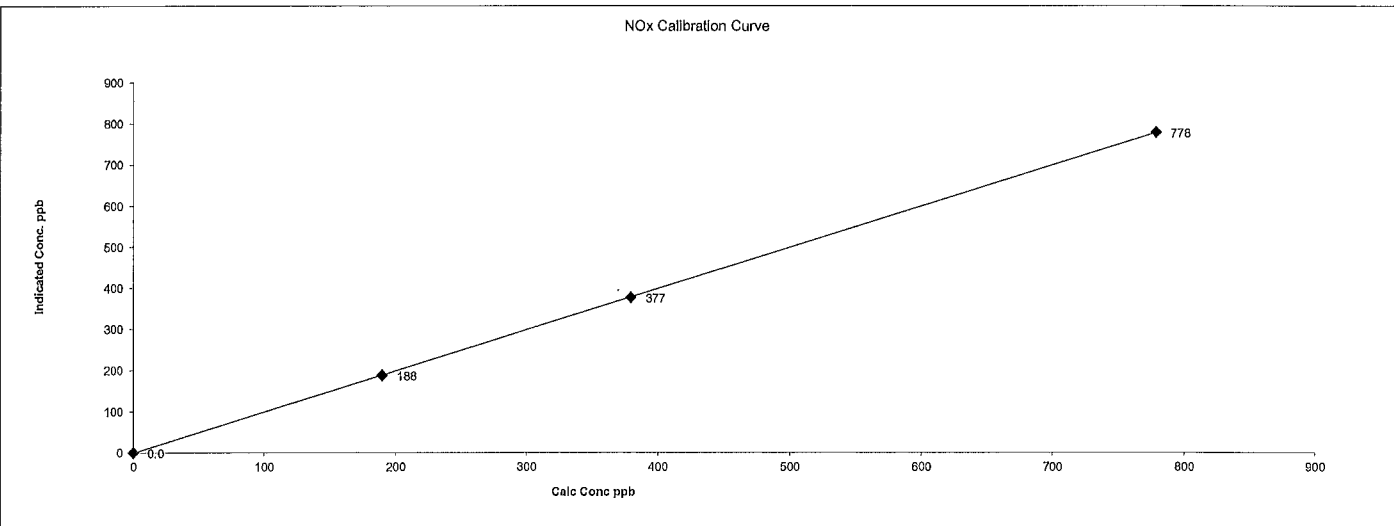
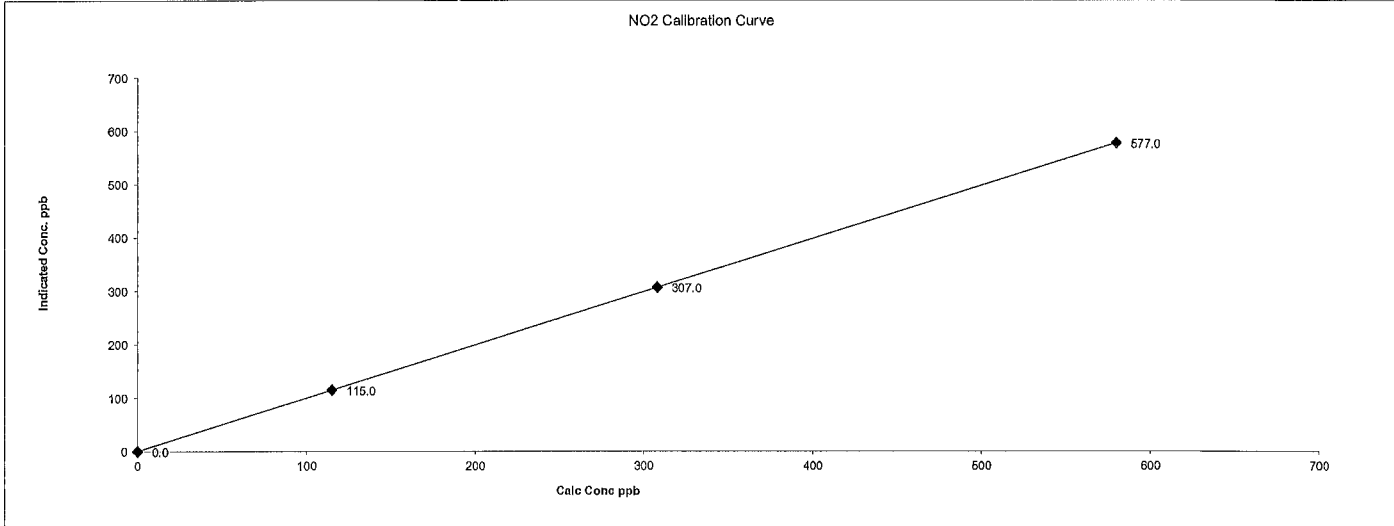
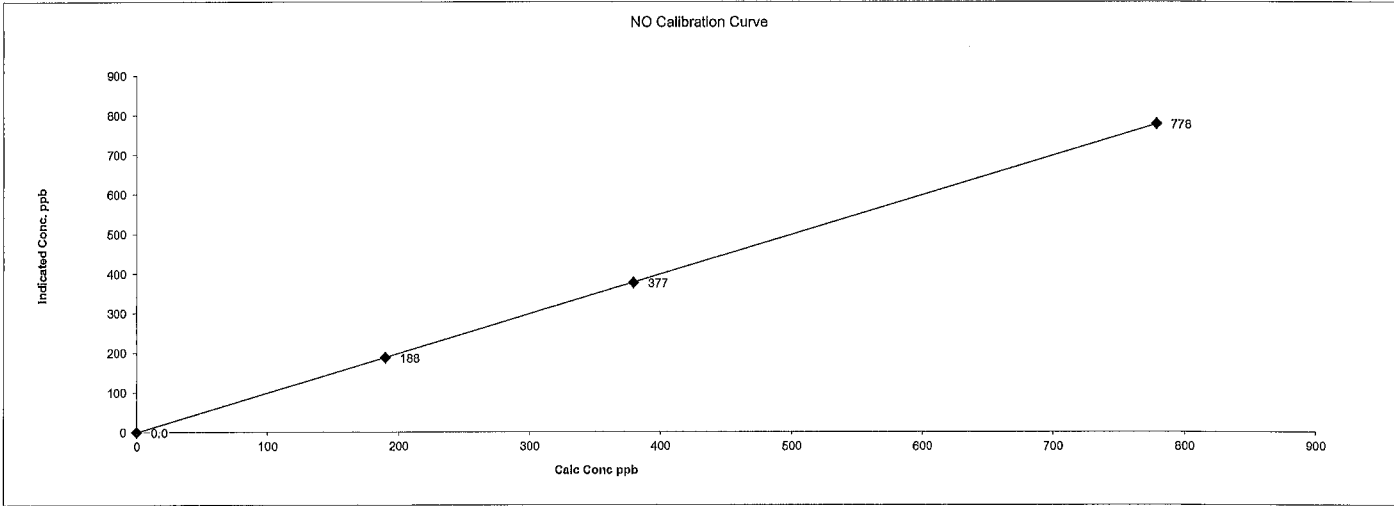
Comments:

Sample filter changed.
 No NO₂ adjustment made. Values copied from as found NO₂ for calculation only.

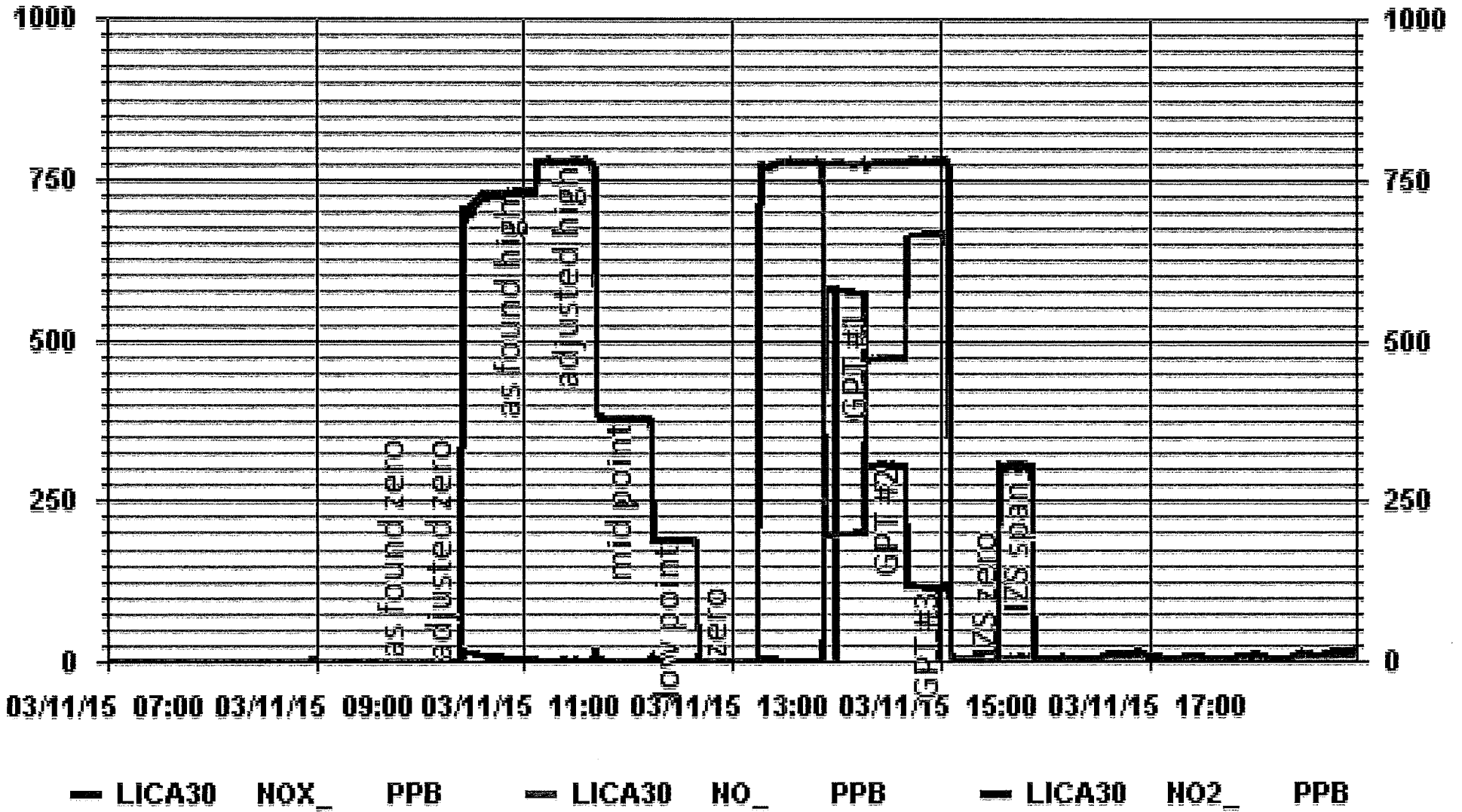
Date: 11-Mar-15
Company: LICA
Station Name/Location: Maskwa
Performed by: Alex Yakupov

Start Time (mst): 9:39
End Time (mst): 16:57
Calibration Purpose: Monthly Calibration
Cal Gas Expiry Date: 12-Aug-17

API 200E NOx Analyzer Calibration



01 Minute Averages



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. 35-51786

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 Paul

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	+/- 0.02% of input
Counter	Hewlett Packard	5245L	71616181	3/8/2013	3/8/2014	+/- 0.0001%
Standard Cup Assembly	Met One Instruments	170.41	3309	4/24/2012	4/24/2017	< 15mph or 1% ws

Environmental Data: Temperature 65 to 80 DegF Vibration none
 Humidity 20 to 70 % Radiation none

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

QC Inspection by: Byron Paulsen

Date: 3/10/14

METEOROLOGICAL SYSTEM CHECK

Meteorological System Checklist

Date: **24-Mar-15**
Performed by: Alex Yakupov
Station: **MASKWA**
Start: **09:20** End: **09:41**

PRECIPITATION SENSOR CHECK

Previous check date: **May 09, 2014**

- Is the sensor Level?
- Is the heater operating properly?
- Are the bucket drain holes clean?
- Is the inner screen on the housing? (screen should be on between July and September)
- Is the upper screen on the housing? (screen should be on between July and September)
- Is the housing clean?
- Is the area around the housing clean and free from obstacle?
- Is the tipping sensor working properly?
(pour water to housing and hear 10 tips, check if the datalogger read 1.0mm)

YES	NO
YES	
YES	
YES	
NA	NA
NA	NA
YES	
YES	
YES	
OK	

Comments: the rain gauge has been tested with water. Response is timely and accurate.
No issues

Field Technician: Alexander Yakupov March 24, 2015

CALIBRATORS



Calibrator Performance Audit

Hydrogen Sulphide (by Cylinder Dilution)

File No. 2012-301A

Company: Maxxam Operator: Ting Xu

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>831</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Dec 21/11</u>	Temperature (°C)	<u>N/A</u>
H ₂ S Cylinder Conc.	<u>LL42648</u>	Barometric Pressure	<u>N/A</u>
H ₂ S Cylinder S/N	<u>10.0</u>		

Flow Measurements

Pt. No. 1 40 Pt. No. 2 20 Pt. No. 3 11.5

Calibrator Flow (scem)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.0000	0.0000		
4960	0.0800	0.0809	1%	± 10%
4977	0.0400	0.0404	1%	± 10%
4987	0.0230	0.0234	2%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

<u>H₂S</u>	<u>LIMITS</u>
Correlation= 1.0000	≥ 0.995
m (Slope)= 1.0107	0.90-1.10
b (Intercept % of FS)= 0.0439	± 3% F.S.

AENV Standards	H ₂ S Analyzer
Audit Calibrator	Make/Model <u>Teco 45C</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1624</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>Dec13/12</u>
	Full Scale (ppm) <u>0.1</u>

COMMENTS: _____

Auditor: Al Clark Date: Decemebr 13, 2012
 Operator Signature: *[Signature]* Location: McIntyre Center Edmonton



Calibrator Performance Audit Oxides Of Nitrogen

File No. 2014-260A

Company Maxxam **Operator:** Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
		Pt. #3	<u>5000</u>
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
		Pt. #3	<u>20</u> Gas flows not available from display.

Callibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO</u>		<u>LIMITS</u>		<u>NO_x</u>			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0511	0.90-1.10		m (Slope)=	1.0496		
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)=	0.0400		

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
<u>NO₂</u>		<u>LIMITS</u>					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	1.0006	0.90-1.10					
b (Intercept % of FS)=	-0.0132	± 3% F.S.					

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 1461</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: _____

Auditor: Al Clark Date: December 17, 2014
 Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

NO Cylinder Gas

File No. 2014-252CGA

Company: Maxxam **Operators name:** Limin Li
Cylinder #: LL42475 **Conc (PPM)** 48.5/48.5 **Tolerance (%)** 1 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Teco 146i</u>			Make/Model	<u>Bios DC2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>AMU 1659</u>
Last Verification Date	<u>December 15, 2014</u>			Temp. °C	<u>23.0 C</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702 mmhg</u>
Cylinder Number	<u>CAL017892</u>				

Reference Analyzer:
Make/Model Teco 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.3 **Span:** 1.017 **Range:** 1.0
Last Calibration: **Date:** Dec15/14 **C.F.** 1.000 **Done By:** Al Clark

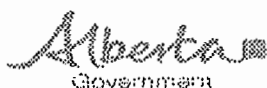
Calibrator Flows (scem)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

<u>NO</u>	<u>NOx</u>
Previous Stated Concentration PPM: <u>48.5</u>	<u>48.5</u>
Percent variance from Stated: <u>3.8</u>	<u>4.0</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark **Date:** December 16, 2014
Operator Signature: *[Signature]* **Location:** McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2013-324CGA

Company: Maxxam Operator's Name: Chris Wesson
 Cylinder #: BLM005049 Concentration PPM: 10.1 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: February 21, 2013
 Gas Type: H2S Conc. 20.02
 Cylinder Number: D249556

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 21.0 C
 B.P. 696 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 7.5 Span: 1.023 Range: 0.1
 Last Calibration: Date: Feb 21/13 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	0.0000	0.0000
5103	38.2	0.0768	0.00749	133.586	10.3
5087	17.9	0.0355	0.00352	284.190	10.1
5064	9.2	0.0182	0.00182	550.435	10.0
Average Cylinder Concentration:					10.1

Previous Stated Concentration PPM: 10.1

Percent variance from Stated: 0.2

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

Auditor: Al Clark
 Operator Signature: *Chris Wesson*

Date: February 21, 2013
 Location: McIntyre Center Edmonton

APPENDIX III
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group
Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-03-30- C</u>
Site: <u>Maskwa Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete mselinker Date April 1, 2015

QA Check Review mselinker Date April 1, 2015

Report Complete mselinker Date April 1, 2015

Report Reviewed [Signature] Date 1 - Apr - 15

Report Shipped _____ Date _____

Notes

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

JOB #:2833-2015-03-31- C

MARCH 2015


Prepared for:

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

Attention: MIKE BISAGA

DATE: **April 6, 2015**

Prepared by:



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

Reviewed by:



Lily Liri, B.Sc.
Customer Service Supervisor, Air Services, Maxxam Analytics

SUMMARY

In MARCH 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.

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 (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	1-HOUR			24-HOUR		
	1-HR	24-HR	1-HR	24-HR				HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0	4	6, 6	0, 1	7.6 8.9	SSW SW	0.9	8	99.9
H2S (PPB)	10	3	0	0	0	1	VAR	VAR	VAR	VAR	0.8	9	99.9
THC (PPM)	-	-	-	-	2.1	3.1	26	16	8.7	SE	2.8	26	99.9
NO2 (PPB)	159	-	0	-	1.8	14.3	6	1	8.9	SW	4.7	26	99.9
NO (PPB)	-	-	-	-	0.1	3.4	27	7	6.3	SW	0.7	13	99.9
NOX (PPB)	-	-	-	-	1.9	14.3	6	1	8.9	SW	5.1	13	99.9
O3 (PPB)	82	-	0	-	38	51	8	15	18.1	SW	43.8	30	99.9
PM2.5 (UG/M3)	-	30	-	0	9.2	36.0	26	4	7.1	E	23.6	26	99.1
RELATIVE HUMIDITY (%)	-	-	-	-	63.6	89	29, 30	23, 0	8.2 9.3	SW WSW	83.4	12	99.9
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	927	943	16	VAR	VAR	VAR	940	16	99.9
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-0.6	14.9	31	15	10.6	ESE	8.6	31	99.9
PRECIPITATION (MM)	-	-	-	-	0.0	4.0	29	20	16.5	NW	0.2	29	99.7
VECTOR WS (KPH)	-	-	-	-	11.2	34.5	15	3	-	W	20.0	2	99.5
VECTOR WD (DEG)	-	-	-	-	SW	-	-	-	-	-	-	-	99.5

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

No Exceedences Recorded During the Month

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	Total Hydrocarbon
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	Nitrogen Dioxide
	Ozone
	Particulate Matter 2.5
	Wind Speed
	Wind Direction
	Relative Humidity
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	Ambient Temperature
	Precipitation
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	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Meteorological System Check
	Calibrators
	Calibration Gases
Appendix III	Chain of Custody

1.0 Discussion

This monthly report consists of data for parameters SO₂, H₂S, THC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS, WD, RH, BP, Precipitation and 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 is 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 March 16. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

HYDROGEN SULPHIDE (H₂S)

The routine monthly calibration was performed on March 17. The analyzer showed a high drift on March 28. An as found points check was performed on March 30. The result was within acceptance limits. The sample pump was rebuilt following the as found points check. A post-repair calibration was performed following the maintenance on the same day. As the analyzer passed the as found points check, no data was discarded due to this event. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 16. The span gas and the hydrogen gas were replaced on March 6 and March 16 respectively. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 16. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

OZONE (O₃)

The analyzer was working well throughout the month. The routine monthly calibration was performed on March 17. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

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

A Teom audit was attempted on March 6. However, the unit did not pass the Bypass Flow check requirement. The audit was repeated on March 12. The unit passed the Bypass Flow check. Following the audit, the switch valve was cleaned and the O-rings for the switch valve were replaced. A post-maintenance audit was performed after the maintenance. The unit passed the audit requirements. As the Teom unit passed the pre-maintenance audit requirements on March 12, no data was discarded. The second Teom audit was performed on March 20 to ensure the unit's functionality. The result was within acceptable range. Both the inlet filter and the FDMS filter were replaced during the audits.

Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m³, the data was corrected to 0 ug/m³. If the data was below -3ug/m³, the data was invalidated. 5 hours of data were invalidated as the data were below -3 ug/m³ this month. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

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 put into Maintenance mode on March 12 for three hours in order to check the setting on the wind system. Data collected on March 16 at hour 11 was invalidated due to a small power outage. Hourly maximum data collected on March 31 at hour 23 was invalidated due to a spike. Reason unknown.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

PRECIPITATION

Both the rain gauge system and heating system were working well throughout the month. The rain gauge seasonal verification/maintenance was performed on March 20. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month. Data collected on March 16 at hour 11 was invalidated due to a small power outage.

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 Limin Li.

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-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - 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



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	24:00	DAILY	24-HOUR	RDGS.
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.		
DAY																												
1	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0.1	24
2	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	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	24
4	0	0	0	0	0	0	S	0	0	0	0	0	0	1	1	2	2	0	0	0	0	0	0	0	0	2	0.3	24
5	1	1	1	1	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	3	3	0.5	24
6	4	4	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.4	24
7	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.1	24
8	2	1	S	1	1	1	0	0	0	0	0	0	1	1	1	2	3	2	1	1	1	1	1	1	1	3	0.9	24
9	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
10	S	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	0	0	S	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	S	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	S	1	1	1	1	1	0.4	24
14	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	1	S	0	0	0	0	0	1	0.2	24
15	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
16	0	0	0	0	0	0	0	0	0	0	P	C	C	C	C	1	1	1	1	1	0	0	S	0	0	1	0.2	23
17	0	0	0	0	0	0	0	0	0	0	1	1	0	S	1	1	1	1	1	1	1	1	S	0	0	1	0.4	24
18	0	0	0	0	0	0	0	0	0	0	1	3	2	1	0	0	0	1	2	2	S	1	0	0	0	3	0.6	24
19	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.1	24
20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	S	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	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	0	S	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	S	0	1	1	0	0	0	0	0	0	0	0	1	0.1	24
26	0	0	0	0	0	0	0	0	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
27	0	1	2	1	1	1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0.3	24
28	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	1	0	0	S	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
30	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
31	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
HOURLY MAX	4	4	2	1	1	1	1	1	1	0	1	3	2	1	1	2	2	3	2	2	1	1	3	3	3			
HOURLY AVG	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.2	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

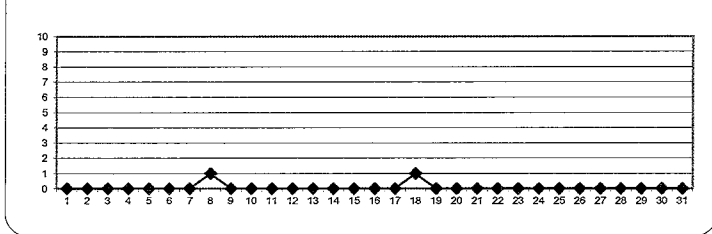
OBJECTIVE LIMIT:

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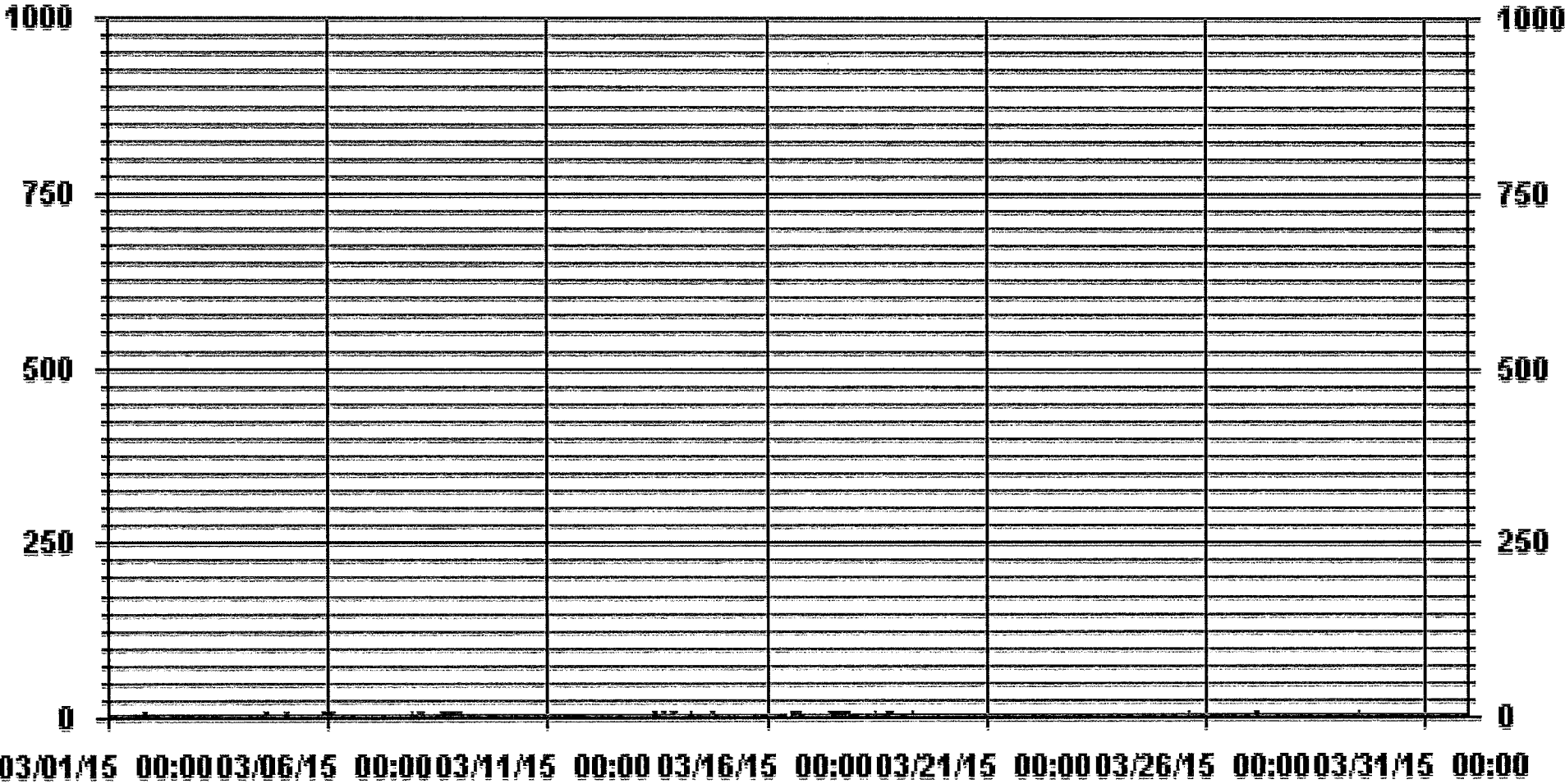
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	91					
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	0, 1	ON DAY(S)	6, 6
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	8
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.49		MONTHLY AVERAGE:	0	PPB	

24 HOUR AVERAGES FOR MARCH 2015



01 Hour Averages



— LICA31 SO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	0:00	DAILY	24-HOUR	RDGS.
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.		
DAY 1	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	1	1	1	1	2	2	2	1	2	0.7	24	
2	1	1	1	1	1	1	0	1	S	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	0	0	S	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	S	0	1	0	1	1	1	2	3	3	5	1	1	1	1	1	1	1	5	1.0	24	
5	2	2	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	4	4	1.4	24	
6	5	5	4	2	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.5	24	
7	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.1	24	
8	3	2	S	2	1	2	1	1	1	1	1	1	2	2	2	3	4	3	2	2	2	2	2	2	4	1.9	24	
9	2	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
10	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	S	0	1	1	0.1	24	
13	0	0	1	1	1	1	1	0	0	1	2	2	2	1	1	2	2	3	1	1	S	2	2	2	3	1.3	24	
14	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	S	1	1	0	0	2	1.0	24	
15	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	
16	0	0	0	0	0	0	0	0	0	0	C	P	C	C	C	C	2	2	1	1	1	S	1	2	0.5	23		
17	1	0	0	0	0	0	0	0	0	1	2	3	2	S	2	2	2	2	2	2	2	S	1	1	3	1.1	24	
18	1	1	1	1	1	1	1	1	1	1	4	4	4	3	1	1	2	2	3	S	2	1	0	4	1.7	24		
19	0	0	0	0	1	1	1	1	2	1	1	0	0	0	0	0	1	1	0	S	1	1	1	1	2	0.6	24	
20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	1.0	24	
21	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	
22	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	
23	0	0	0	0	0	0	0	0	1	1	1	0	0	0	S	0	0	0	0	0	0	0	1	1	1	0.3	24	
24	1	1	0	1	1	0	0	0	0	0	0	1	1	1	S	0	0	0	0	0	0	1	0	0	1	0.3	24	
25	0	1	1	1	0	1	0	1	1	1	1	1	1	S	1	2	2	1	1	0	1	1	1	1	2	0.9	24	
26	1	1	1	1	0	0	1	1	2	2	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
27	1	2	3	3	2	2	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
28	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	
29	1	1	1	1	1	1	1	1	2	S	2	3	2	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
30	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.1	24	
31	1	1	1	1	1	1	2	S	1	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	2	0.7	24	
HOURLY MAX	5	5	4	3	2	2	1	2	2	4	4	4	3	3	5	5	4	3	3	2	2	2	4	4				
HOURLY AVG	0.9	0.9	0.8	0.8	0.6	0.7	0.6	0.6	0.8	0.7	0.9	0.9	0.9	0.9	0.8	0.9	1.1	1.0	0.9	0.8	0.8	1.0	1.0	0.9				

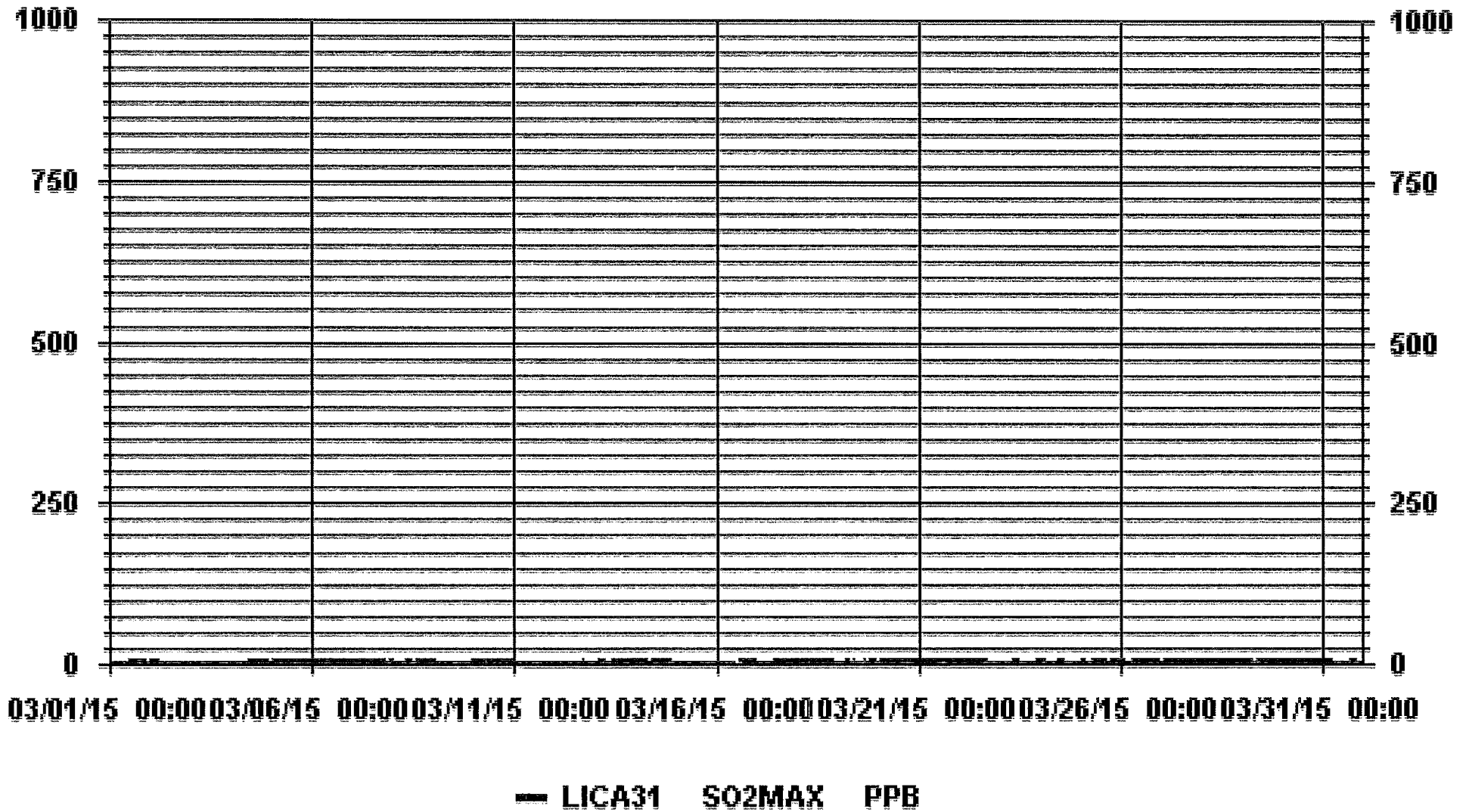
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	471
MAXIMUM INSTANTANEOUS VALUE:	5 PPB @ HOUR(S) VAR ON DAY(S) 4, 6
VAR-VARIOUS	
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.79
OPERATIONAL TIME:	743 HRS

01 Hour Averages



LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

March 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	1.28	1.13	2.98	7.82	3.55	4.69	5.40	5.68	11.94	11.66	8.25	8.53	9.95	7.53	6.97	2.56	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	1.28	1.13	2.98	7.82	3.55	4.69	5.40	5.68	11.94	11.66	8.25	8.53	9.95	7.53	6.97	2.56	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	9	8	21	55	25	33	38	40	84	82	58	60	70	53	49	18	703
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	9	8	21	55	25	33	38	40	84	82	58	60	70	53	49	18	

Calm : .00 %

Total # Operational Hours : 703

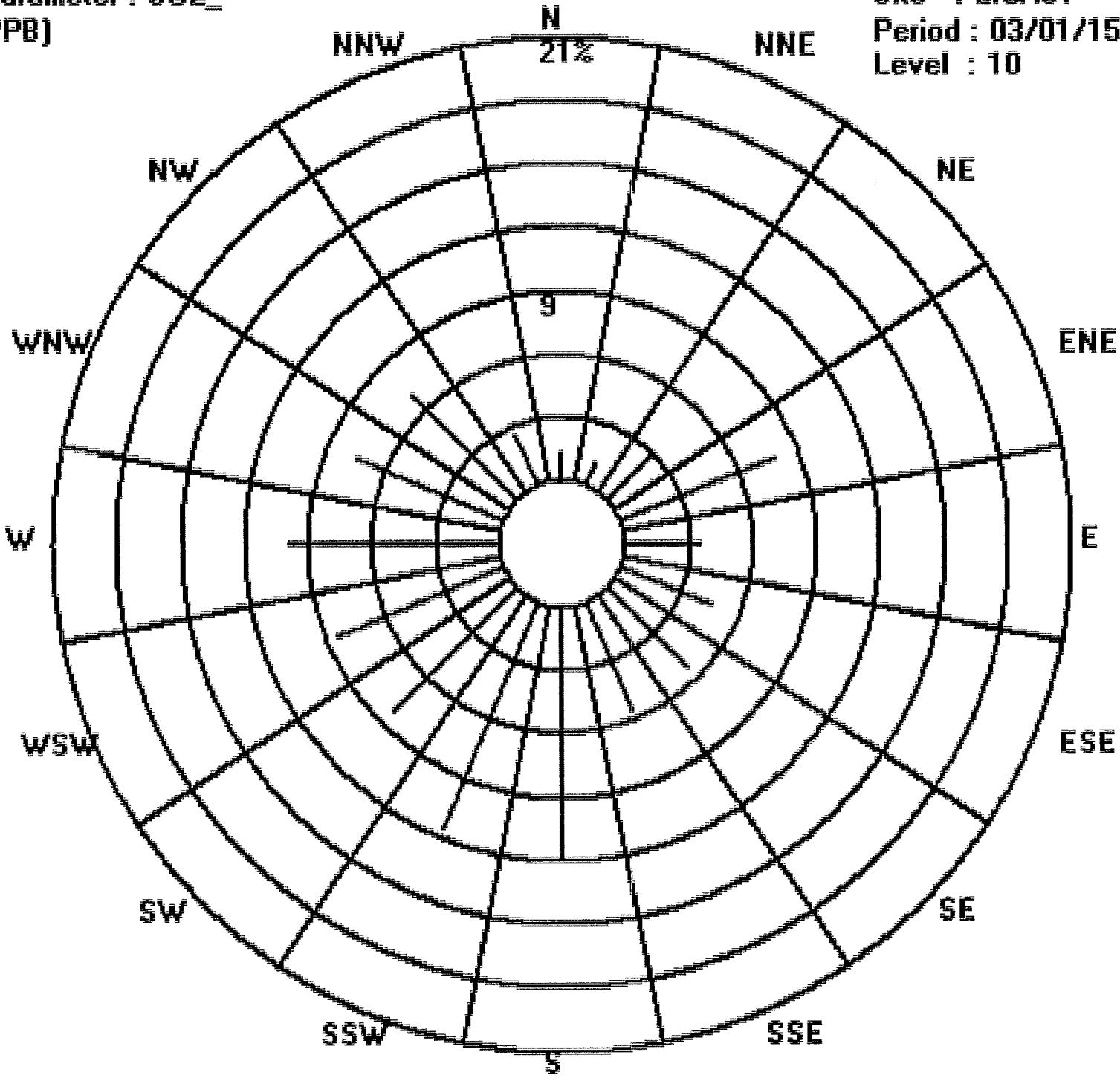
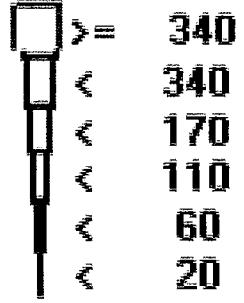
Logger : 31 Parameter : SO2_

Site : LICA31

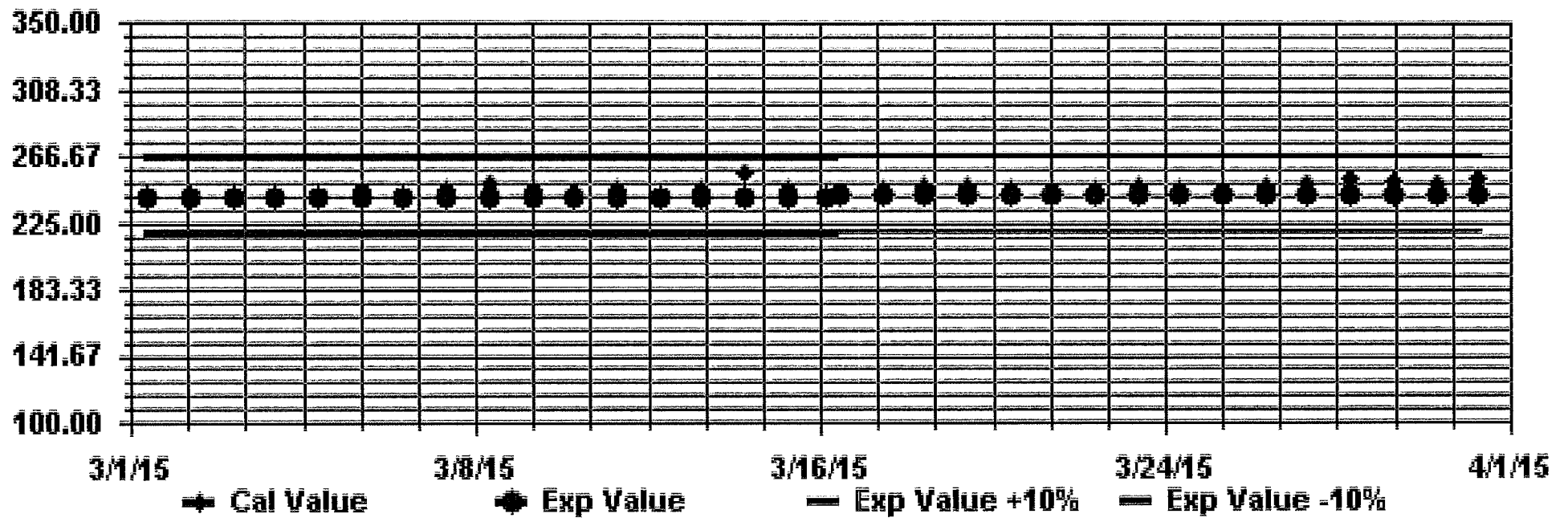
Class Limits (PPB)

Period : 03/01/15-03/31/15

Level : 10



Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN



HYDROGEN SULPHIDE



HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

DAY	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 MAX.	24-HOUR AVG.	RDGS.		
1	0	0	0	0	0	0	0	0	0	S	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24	
2	1	1	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	0	0	S	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	S	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	S	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	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	
7	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
8	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
9	0	S	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24	
10	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	24	
13	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	
14	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	0	1	0.7	24	
15	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	P	C	C	C	C	C	C	C	C	C	C	C	C	C	0	0.0	23	
17	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	S	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	S	0	S	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	S	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	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	0	S	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	S	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
28	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
29	0	0	0	0	0	0	S	S	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	S	1	S	1	0	0	C	C	C	C	C	C	C	C	C	C	C	C	C	1	0.1	24	
31	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	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	1	1			
HOURLY AVG	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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			

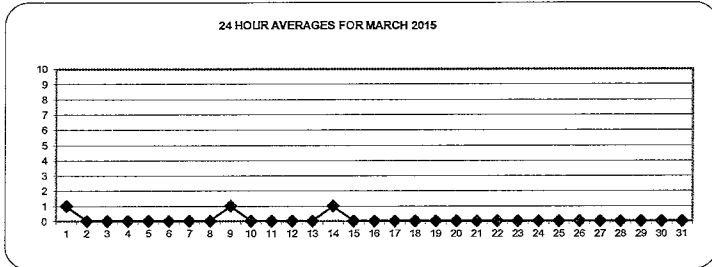
STATUS FLAG CODES

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

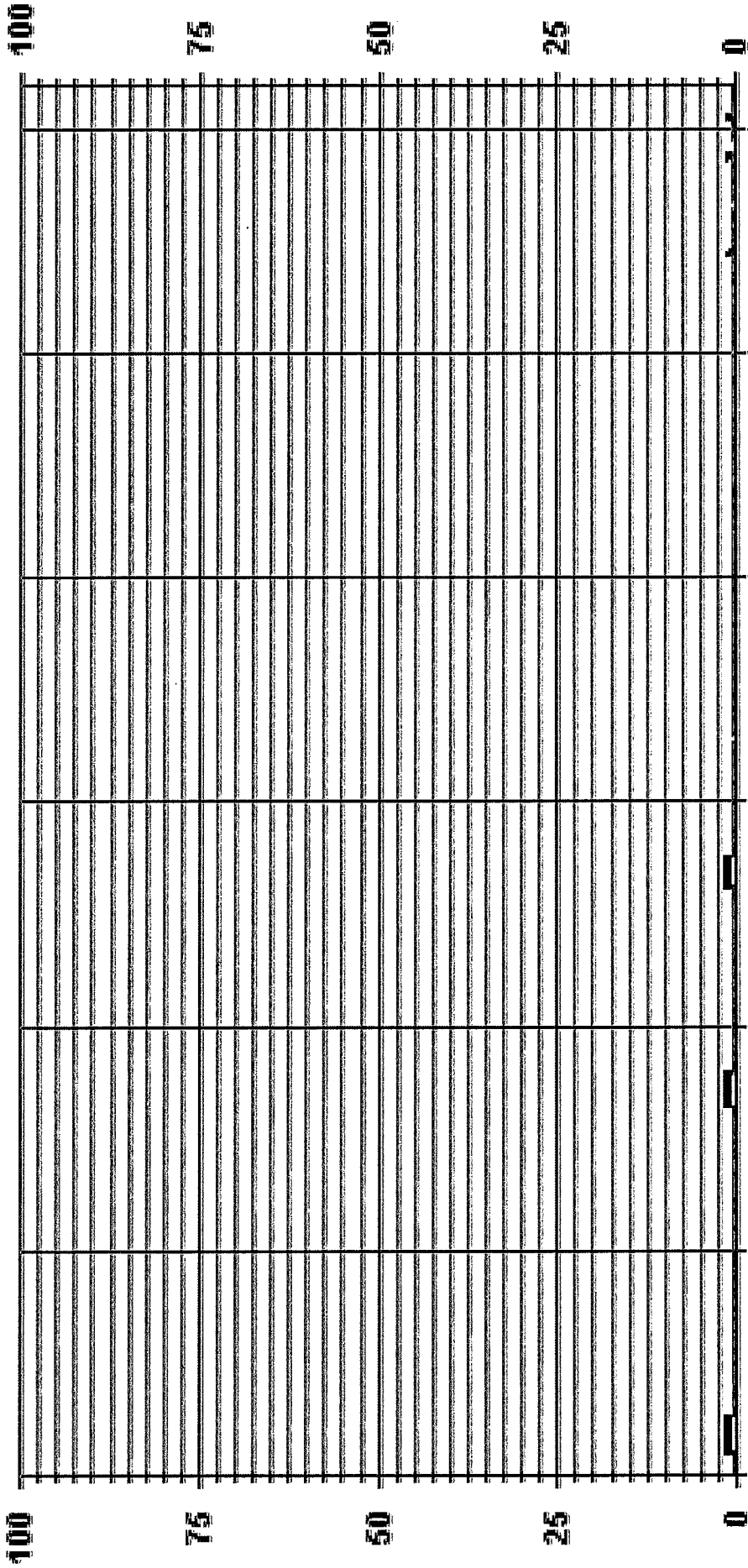
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	57
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR
MAXIMUM 24-HR AVERAGE:	0.8 PPB ON DAY(S) VAR-VARIOUS
IZS CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	12 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.27
MONTHLY AVERAGE:	0 PPB

01 Hour Averages



03/01/15 00:00:03/06/15 00:00:03/11/15 00:00:03/16/15 00:00:03/21/15 00:00:03/26/15 00:00:03/31/15 00:00

— LICA31 H2S_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	RDGS.		
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.			
DAY																													
1	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24	
2	1	1	1	1	1	1	1	1	S	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	0	0	0	S	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	S	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	S	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	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
7	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
8	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0.3	24	
9	1	S	0	0	0	0	S	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	1.5	24	
10	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24	
11	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	S	0	0	0	1	0.3	24	
12	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	0	1	0	1	0	0	S	0	0	0	1	0.3	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	1	1	0.1	24
14	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	S	1	0	0	0	0	2	1.0	24	
15	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	P	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	23	
17	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	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	1	S	0	1	0	1	1	0.1	24	
19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.0	24	
20	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	
21	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	
22	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	24	
23	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	1	0.0	24	
24	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	6	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	6	0.3	24	
27	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0.2	24	
28	1	1	1	1	1	1	1	1	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
29	0	0	0	0	0	0	S	S	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	S	S	S	1	1	1	C	C	C	C	C	C	C	C	C	1	1	1	0	1	0.5	24	
31	1	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	
HOURLY MAX	1	1	1	1	1	1	1	2	6	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2				
HOURLY AVG	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.2					

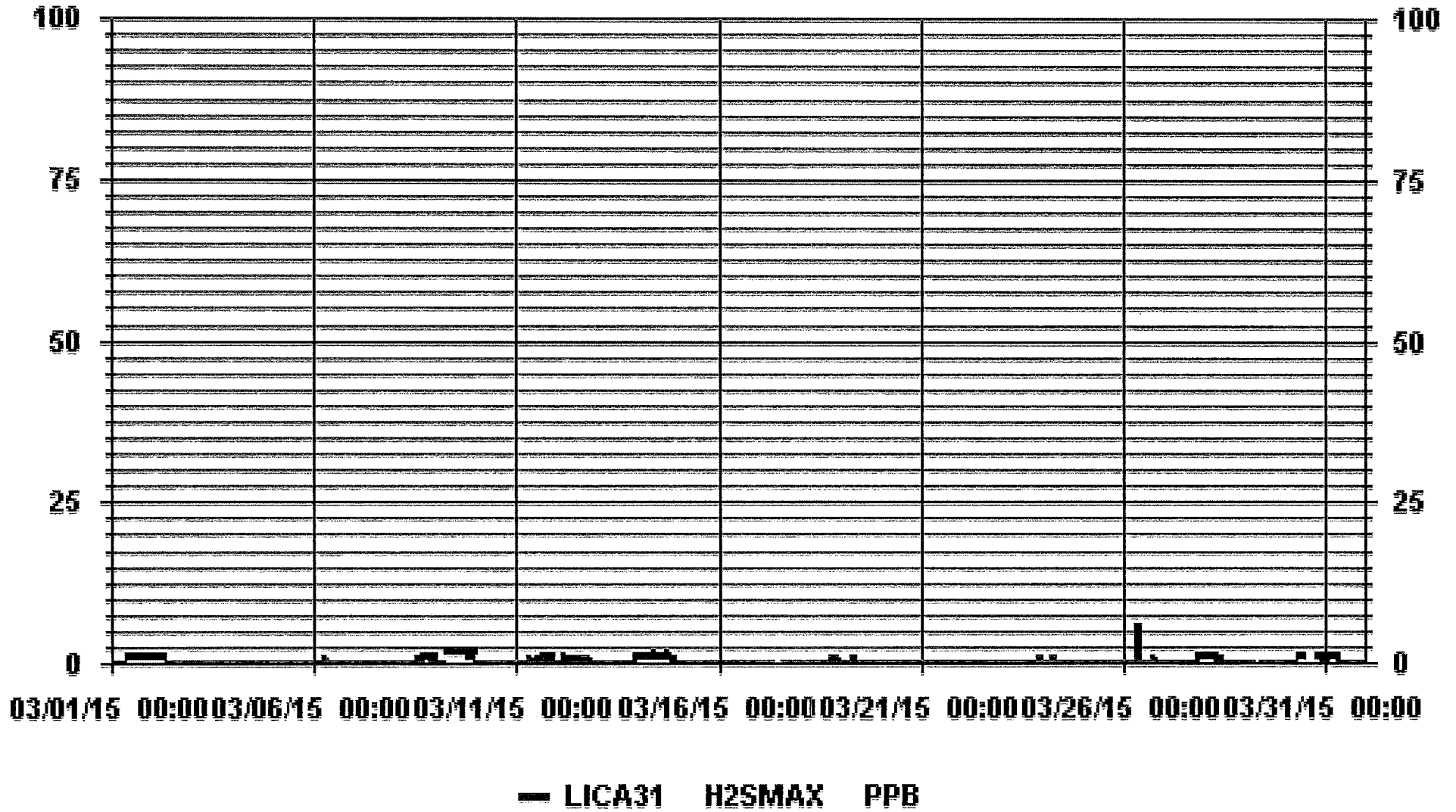
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	117
MAXIMUM INSTANTANEOUS VALUE:	6 PPB @ HOUR(S) 8 ON DAY(S) 26
	VAR-VARIOUS
IZS CALIBRATION TIME:	39 HRS
MONTHLY CALIBRATION TIME:	14 HRS
STANDARD DEVIATION:	0.50
OPERATIONAL TIME:	743 HRS

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	1.30	1.15	3.04	7.97	3.62	4.63	5.21	5.65	12.02	11.73	8.55	8.55	9.71	7.10	7.10	2.60	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	1.30	1.15	3.04	7.97	3.62	4.63	5.21	5.65	12.02	11.73	8.55	8.55	9.71	7.10	7.10	2.60	

Calm : .00 %

Total # Operational Hours : 690

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	9	8	21	55	25	32	36	39	83	81	59	59	67	49	49	18	690
< 10																	
< 50																	
>= 50																	
Totals	9	8	21	55	25	32	36	39	83	81	59	59	67	49	49	18	

Calm : .00 %

Total # Operational Hours : 690

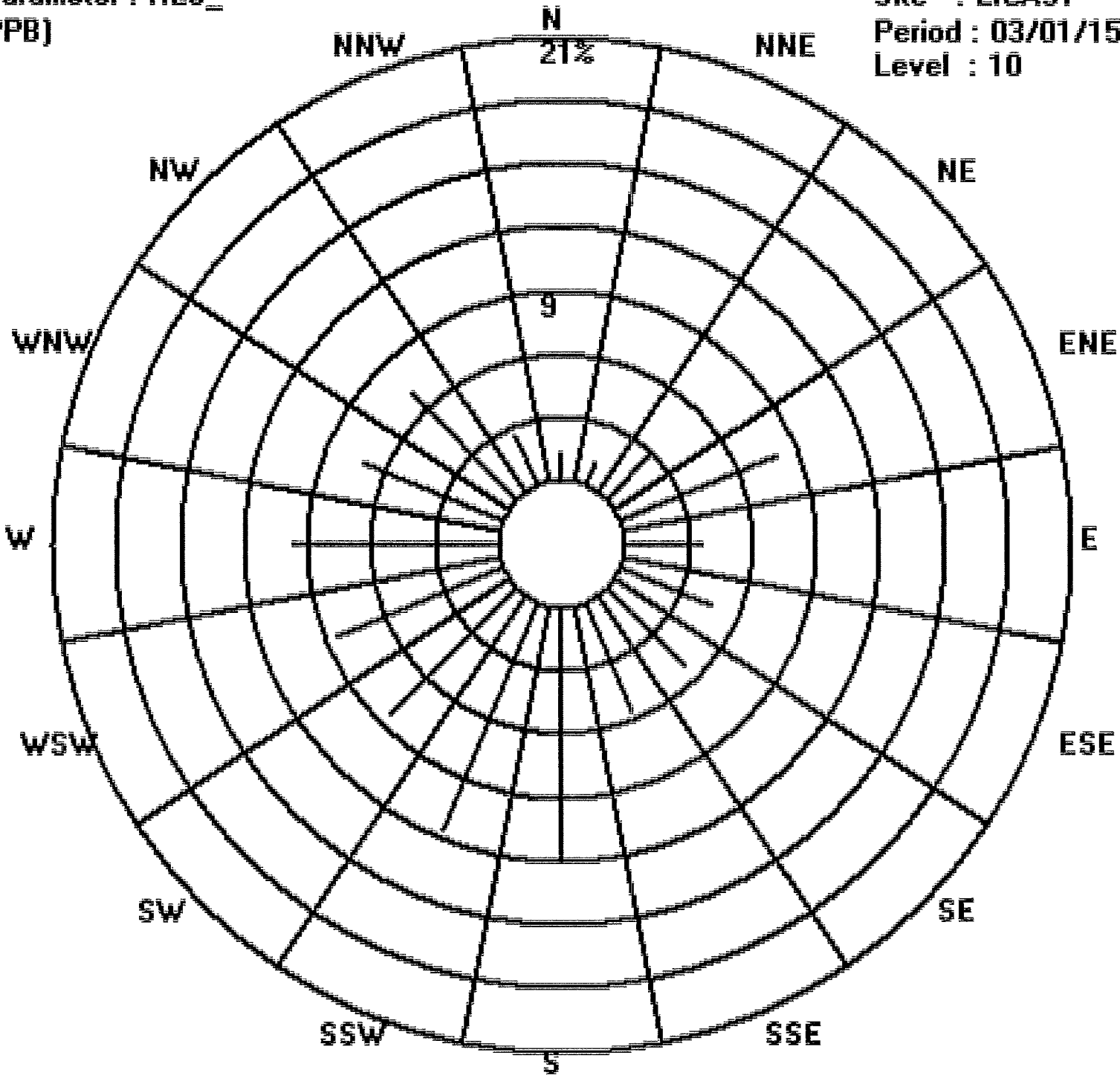
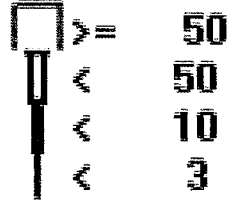
Logger : 31 Parameter : H2S_

Site : LICA31

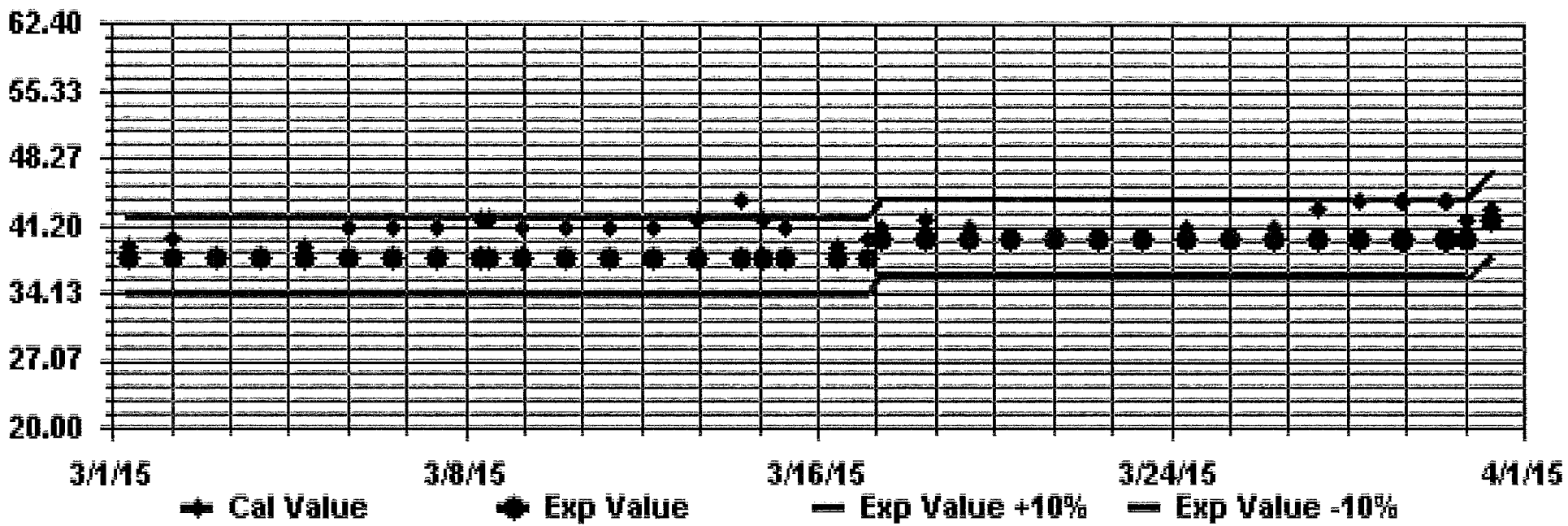
Class Limits (PPB)

Period : 03/01/15-03/31/15

Level : 10

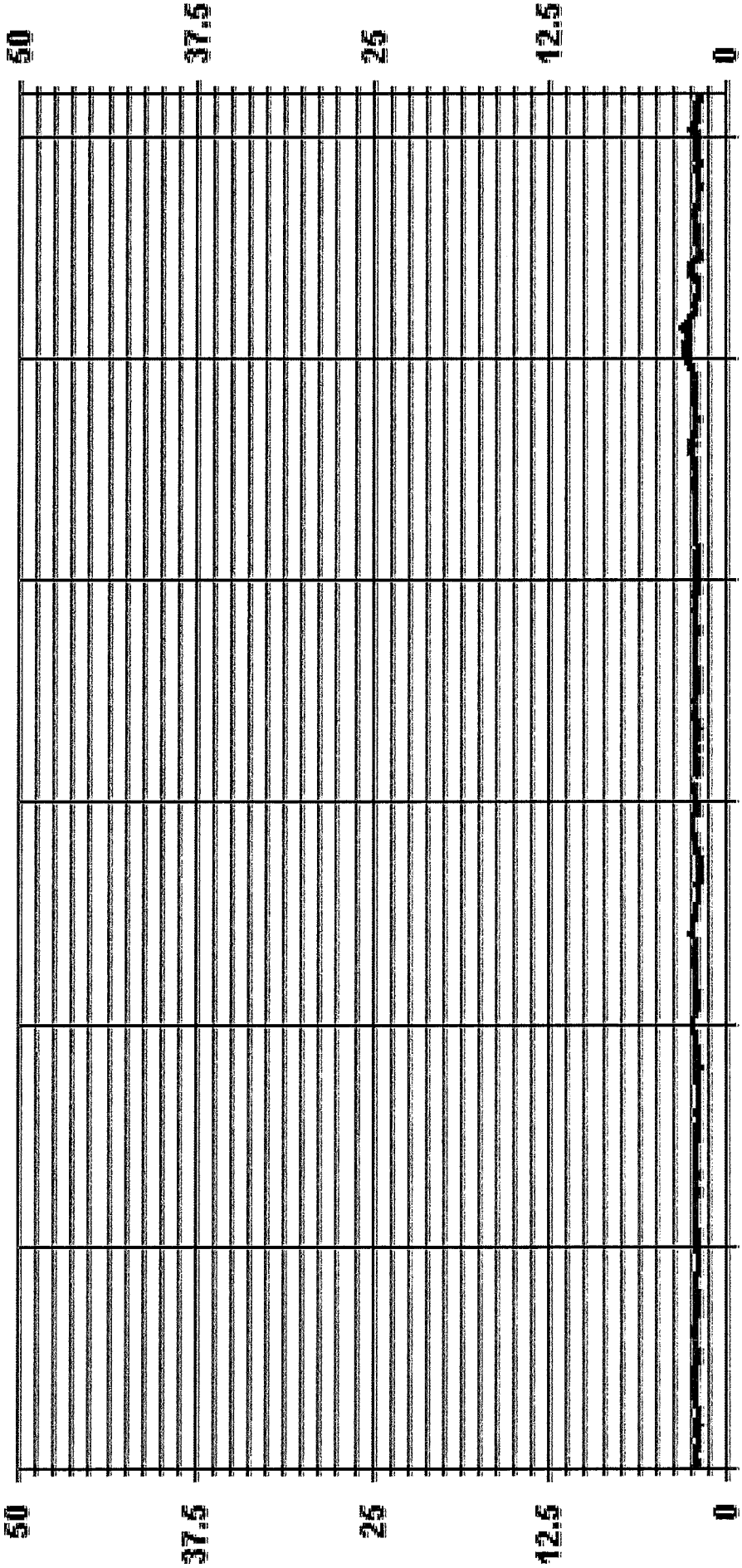


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN



TOTAL HYDROCARBON

01 Hour Averages



03/01/15 00:00:03 03/06/15 00:00:03 03/11/15 00:00:03 03/16/15 00:00:03 03/21/15 00:00:03 03/26/15 00:00:03 03/31/15 00:00:00

— LICA31 - - - - - THC PPM



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	RDGS.
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.	
DAY 1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	S	2.1	2.1	2.1	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	24
2	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	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	2.4	24
4	2.3	2.2	2.2	2.2	2.2	2.2	S	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.3	24
5	2.1	2.1	2.2	2.2	2.1	S	2.2	2.2	2.1	2.1	2.0	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	2.2	2.1	24
6	2.1	2.1	2.0	1.9	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
7	2.2	2.2	2.2	S	2.0	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	2.2	2.1	2.2	2.1	24
8	2.1	2.1	S	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	24
9	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	24
10	S	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.3	2.3	2.3	2.3	2.4	2.5	S	2.5	2.1	24
11	2.4	2.3	2.4	2.5	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	S	2.1	2.5	2.2	24
12	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.4	2.3	2.4	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.3	S	2.3	2.3	2.4	2.2	24
13	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.0	2.0	2.0	2.4	2.2	24
14	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.8	S	2.1	2.1	2.1	2.0	2.1	1.9	24
15	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	S	2.3	2.1	2.0	2.1	2.1	2.4	2.2	24
16	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	C	P	C	C	C	C	2.1	2.1	2.2	2.1	2.1	2.1	S	2.1	2.3	2.2	23
17	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	S	2.4	2.4	2.4	2.1	24
18	2.4	2.3	2.2	2.2	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	S	2.1	2.1	2.1	2.4	2.2	24
19	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.3	2.5	S	2.1	2.1	2.1	2.1	2.5	2.2	24
20	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.4	2.3	S	2.1	2.2	2.2	2.2	2.1	2.4	2.2	24
21	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.1	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	24
22	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	S	2.1	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.1	24
23	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.3	S	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	24
24	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.5	2.2	24
25	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.2	2.3	2.3	2.3	S	2.3	2.3	2.3	2.4	2.6	2.5	2.7	2.7	2.8	2.7	2.8	2.4	24
26	2.7	2.9	2.9	3.2	3.2	3.1	2.8	3.0	2.9	2.9	2.8	2.8	S	2.8	2.8	3.1	3.1	3.1	3.0	2.8	2.6	2.6	2.6	2.4	3.2	2.9	24
27	2.4	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.0	2.0	S	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.3	2.4	2.2	2.4	2.4	2.4	2.2	24
28	2.5	3.6	2.8	2.4	2.8	2.7	2.1	1.9	1.9	1.9	S	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.6	2.2	24
29	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	S	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	2.0	2.3	2.0	24
30	1.9	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	24
31	2.0	2.1	2.5	2.5	2.2	2.6	2.5	S	2.3	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.3	2.0	2.0	2.0	1.9	1.9	1.9	2.6	2.1	24
HOURLY MAX	2.7	3.6	2.9	3.2	3.2	3.1	2.8	3.0	2.9	2.9	2.8	2.8	2.4	2.8	2.8	3.1	3.1	3.1	3.0	2.8	2.7	2.7	2.8	2.7			
HOURLY AVG	2.2	2.2	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2			

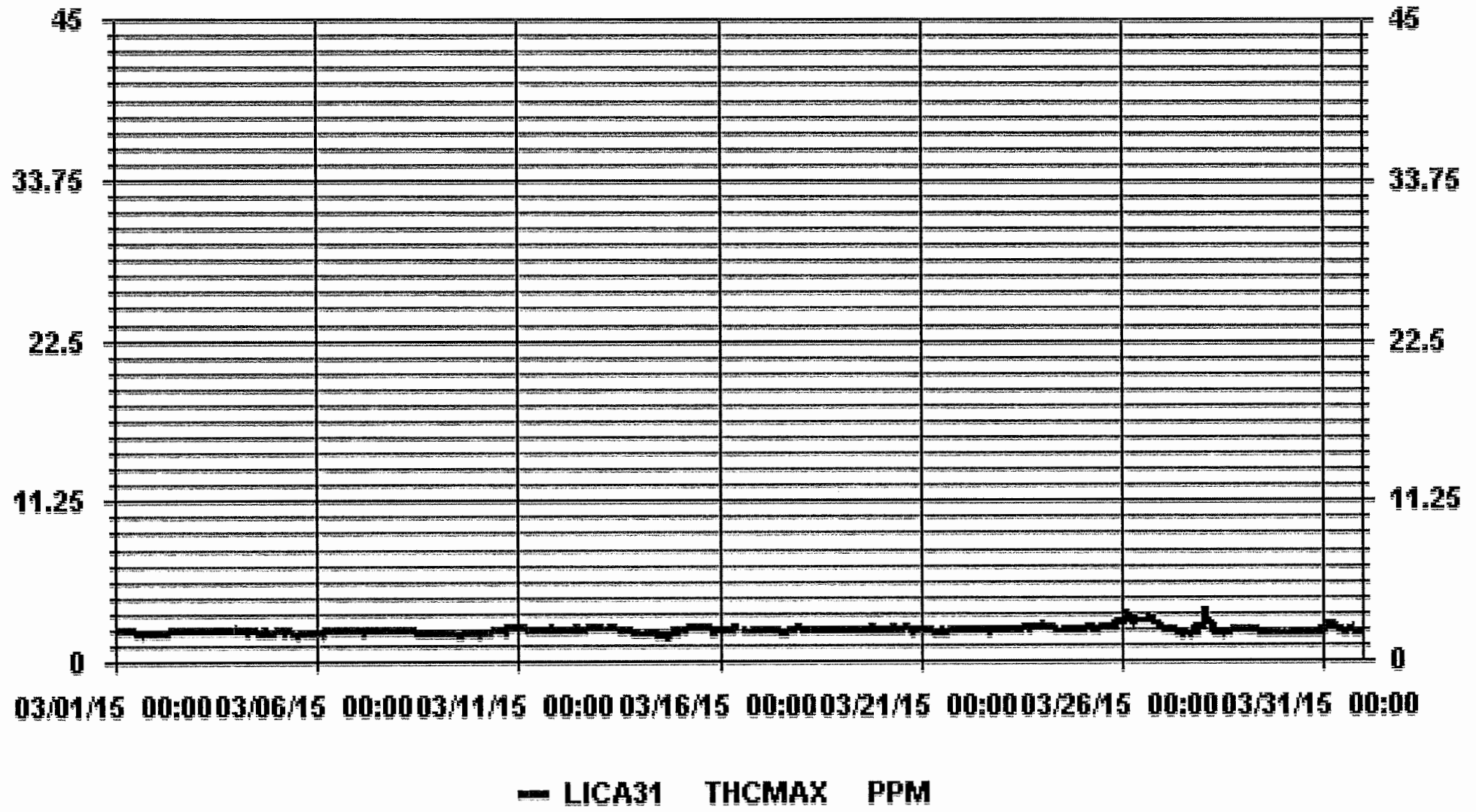
STATUS FLAG CODES

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:	706
MAXIMUM INSTANTANEOUS VALUE:	3.6 PPM @ HOUR(S) 1 ON DAY(S) 28
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.21
OPERATIONAL TIME:	743 HRS

01 Hour Averages



LICA31
 THC / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	1.27	1.13	2.98	7.81	3.40	4.68	5.25	5.53	12.07	11.64	8.23	8.52	9.94	7.52	6.96	2.55	99.57
< 10.0	.00	.00	.00	.00	.14	.00	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	.42
< 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	1.27	1.13	2.98	7.81	3.55	4.68	5.39	5.68	12.07	11.64	8.23	8.52	9.94	7.52	6.96	2.55	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	9	8	21	55	24	33	37	39	85	82	58	60	70	53	49	18	701
< 10.0					1		1	1									3
< 50.0																	
>= 50.0																	
Totals	9	8	21	55	25	33	38	40	85	82	58	60	70	53	49	18	

Calm : .00 %





Total # Operational Hours : 704

Logger : 31 Parameter : THC

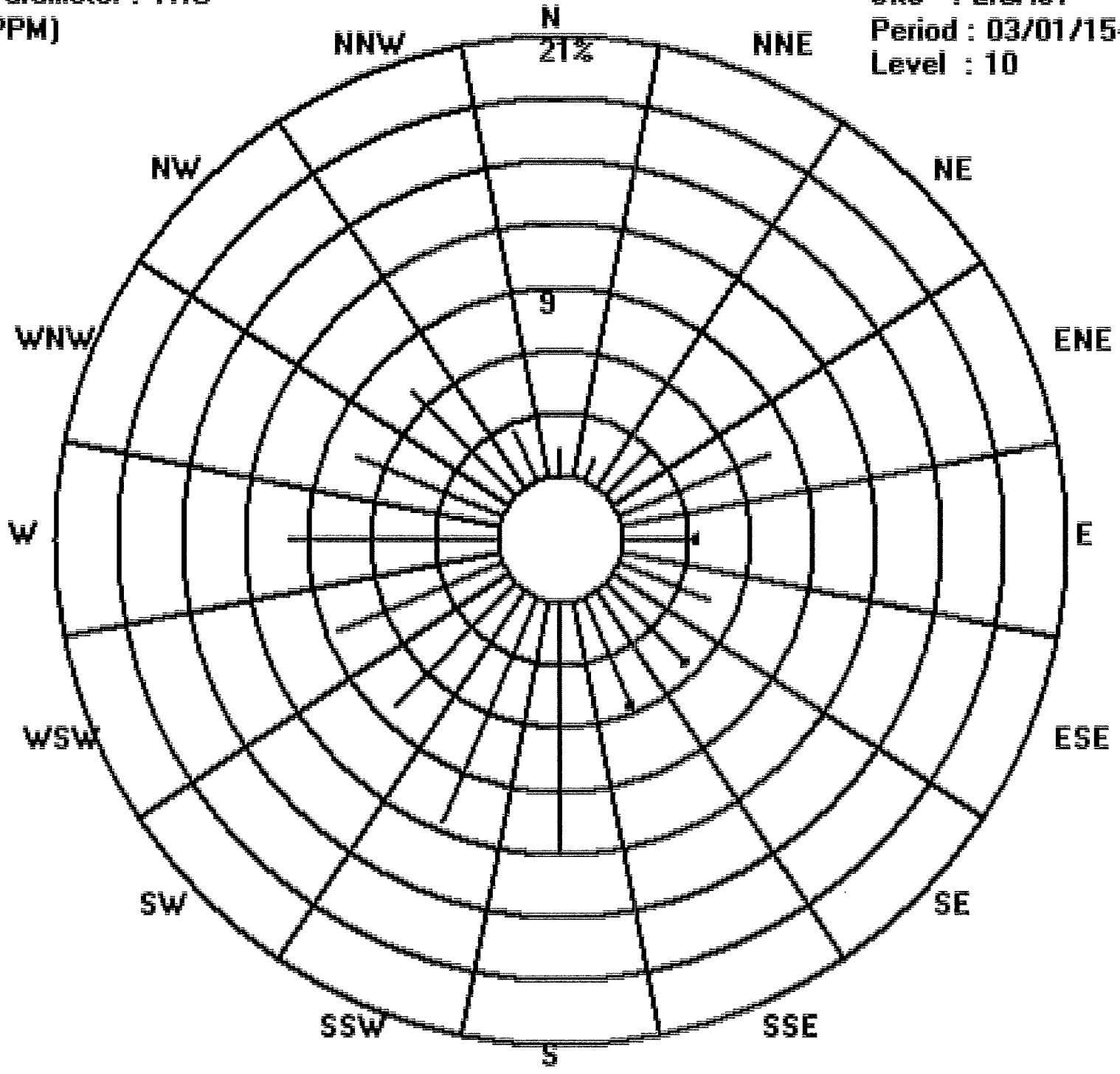
Site : LICA31

Class Limits (PPM)

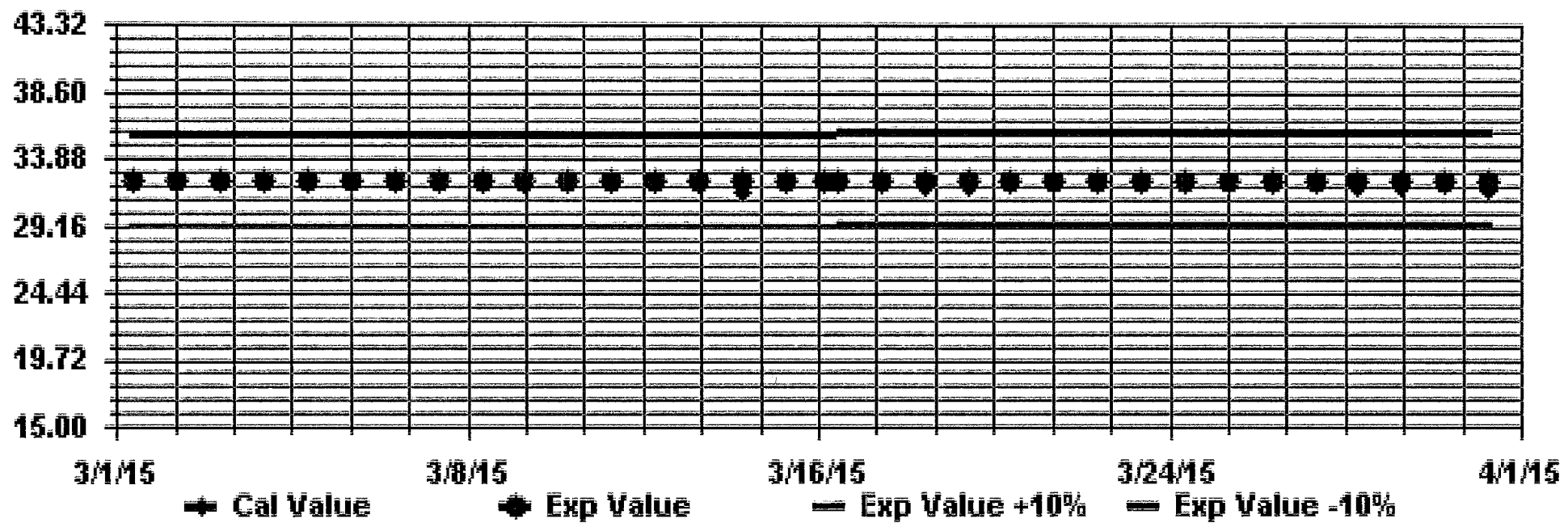
Period : 03/01/15-03/31/15

-  >= 50.0
-  < 50.0
-  < 10.0
-  < 3.0

Level : 10



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAN



OXIDES OF NITROGEN



OXIDES OF NITROGEN (NOx) hourly averages in ppb

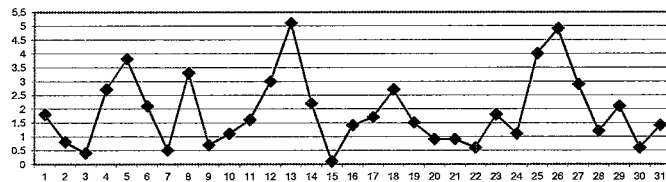
MST

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	0.8	0.3	0.6	0.5	0.5	0.7	0.7	2.3	1.6	S	2	1.9	2.7	2.1	2.2	2.1	1.5	2.6	3.3	2.9	2.6	2.7	2.4	2.6	3.3	1.8	24	
2	2.9	3	3.6	3.6	2.1	1.3	0.6	0.8	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6	0.8	24
3	0	0	0	0	0	0	0	S	0.8	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0	1.2	3.1	3.1	0.4	24	
4	2.9	2.4	3.9	1.9	1.3	1.7	S	2.1	2.5	2.5	3	2.8	2.7	2.6	3	4.3	3.5	3	2.5	2.7	2.5	3.1	3.4	4.3	2.7	24		
5	4.3	5.5	8	9.6	8.4	S	4.8	3.1	1.8	1.6	1.5	1.8	1.5	1.8	2.3	1.4	1.7	1.6	1.6	2.4	2.2	3.5	8.6	8.8	9.6	3.8	24	
6	10.7	14.3	6.3	4.2	S	3	1.8	0.6	0.6	0.6	0.7	0.7	0.5	0.2	0.3	0.3	0.3	0.2	0.2	0.5	0.3	0.4	0.3	0.4	14.3	2.1	24	
7	0.2	0.3	0.4	S	0.7	0.6	0.1	0.2	0.2	0.2	0	0	0	0	0	0	0	0.2	0.1	0.8	1	1.2	2.5	3.3	3.3	0.5	24	
8	4.7	3.9	S	3.6	4.4	4.7	3.4	3.8	3.9	2.1	1.6	1.2	1.6	2.8	4	3.1	4.4	5.8	4.7	3	2.6	2.1	2	1.8	5.8	3.3	24	
9	2.4	S	2.2	1.1	0.7	0.8	0.5	0.7	1	0.4	0.6	0.5	0.2	1.5	0.7	0.1	0.1	0.2	0.2	0.4	0.3	0.3	0.5	0.5	2.4	0.7	24	
10	S	0.5	0.8	1.1	0.9	0.9	0.5	1.1	0.8	0.3	0.4	0.5	1.3	1.3	0.9	0.9	1.4	1.4	1.4	1.9	2.4	2.4	S	2.4	1.1	24		
11	2.8	2.3	2.4	2.7	2	1.5	1.4	1.8	2.1	1.9	1.4	1.5	1.4	1.4	1	0.8	0.8	1.1	1	1.5	1.6	1.7	S	1.6	2.8	1.6	24	
12	1.3	1.3	1.4	1.6	1.6	1.6	1.7	1.8	1.9	2.9	2.6	2.1	2.6	2.6	3.7	3.3	3.5	5.3	5.7	4.9	4.5	S	5.5	6.3	6.3	3.0	24	
13	5.8	6.2	6.7	7.3	6.4	5.9	8.5	10.3	7	8.5	9.1	6.5	4.4	3.6	1.8	3	3.4	3.8	3.4	2	S	1.6	1.6	1.5	10.3	5.1	24	
14	1.4	0.9	0.9	1.1	1.5	1.6	2.6	3.4	3.4	2.9	4.3	3.1	2.2	2.6	1.9	1.6	1.9	2.1	2.2	S	2.9	3.8	1.3	0	4.3	2.2	24	
15	0	0	0	0	0	0	0	0.2	0.1	0.1	0.2	0.1	0.2	0	0	0	0.1	0	S	0.3	0.1	0.2	0.4	0.5	0.5	0.1	24	
16	0.3	0.2	0.4	0.4	0.4	0.5	0.6	1.7	0.8	0.7	1.3	P	C	C	C	C	C	C	3.4	3.1	3.8	3.7	S	1.5	3.8	1.4	23	
17	1	0.6	1	1.1	1.7	2.2	2.2	3.2	2.3	3.2	3.5	4.1	0	1.3	0.9	0.4	0.3	0.8	1.3	0.9	1	S	3	3	4.1	1.7	24	
18	2.3	1.7	1.3	1.7	1.6	1.4	1.3	1.5	1.8	1.6	2.5	2.6	2.2	1.7	1.4	1.1	1.8	4.2	7.9	9.5	S	7	2.9	1.2	9.5	2.7	24	
19	1.2	1.2	0.9	1.3	1.4	2.2	2.9	3.8	3	1.5	0.9	2.4	1.2	0.9	0.5	1	2.3	2.1	1.4	S	1.3	0.6	0.5	0.7	3.8	1.5	24	
20	2.5	1.5	1	0.6	0.3	0.6	0.5	0.7	1.4	1.4	0.6	0.3	0.5	0.4	0.4	0.3	0.4	0.3	S	1.4	1.4	1.5	1.6	1.3	2.5	0.9	24	
21	1.1	1.1	1.1	1.1	1	1.4	1.4	1.2	1.4	1.1	1.2	1.2	1.2	1.1	1	1	0.9	S	0.5	0.6	0	0	0	0.2	1.4	0.9	24	
22	0.1	0.3	0.2	0.4	0.4	0.1	0.2	0.2	0.1	0.5	0.7	1.2	0.9	0.3	0.4	0.3	S	0.4	0.6	0.7	1.1	1.3	1.1	1.3	0.6	24		
23	2.1	1.6	1.9	1.6	3.1	1.9	1.5	3.1	1.9	1.7	1.5	1.3	1.4	2	2.3	S	1.5	1	1.5	1.7	1.9	1.8	1.6	2.3	3.1	1.8	24	
24	1.6	1.7	1.8	1	1.3	1.2	1.4	2.5	1.7	0.9	0.9	1.2	0.7	0.7	S	0.8	0.5	0.3	0.4	0.5	1	1	1	1.1	2.5	1.1	24	
25	1.6	2.1	2.4	3.2	3.4	4.3	4.2	4.7	S	4.7	5.1	4.4	4.4	S	4	4.3	5.3	3.7	4	4.2	4.1	4.4	4.8	4.7	5.3	4.0	24	
26	4.5	4.5	5.2	5.8	6	5.2	4.9	5.5	6.3	6.3	5.7	4.4	S	4.3	3.9	4	6	7.5	5.4	3.6	3.2	3.1	3.5	3.5	7.5	4.9	24	
27	3.8	3.9	4.7	S	4.7	4.5	4.5	11.8	4.1	2	1.5	S	1.4	1.2	0.8	0.4	1	1	0.8	1.4	2.3	2	2.1	2.2	11.8	2.9	24	
28	2.4	3.4	3.4	2.9	4.6	4.1	1.1	0.8	0.4	0.4	S	0.8	1.2	0.3	0.5	0.2	0.1	0.3	0	0	0.1	0.3	0.1	0	4.6	1.2	24	
29	0.2	0.5	0.6	1.4	4.5	5.9	5.6	3.5	3.7	S	4.1	4.3	3.7	2.1	0.9	1.1	0.8	0.7	1.7	1.8	0.2	0	0	0.5	5.9	2.1	24	
30	0.6	0.1	0.1	0.1	0	0.3	0.8	1.2	S	0.6	0.4	0.3	0.3	0.6	0.2	0.5	0.7	0.5	1	1.4	0.8	0.8	1.1	1	1.4	0.6	24	
31	0.5	0.7	2.8	3.3	1.7	1.7	3	S	2.8	1.7	1.4	1.3	1.1	0.9	1	1	1.4	1.4	1.5	1.8	1.4	0.5	0.1	0.2	3.3	1.4	24	
HOURLY MAX	10.7	14.3	8	9.6	8.4	5.9	8.5	11.8	7	8.5	9.1	6.5	4.4	4.3	4	4.3	6	7.5	7.9	9.5	4.5	7	8.6	8.8				
HOURLY AVG	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.7	2.2	1.8	1.9	1.8	1.4	1.4	1.4	1.2	1.6	1.8	2.0	1.9	1.6	1.7	1.9	1.9				

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

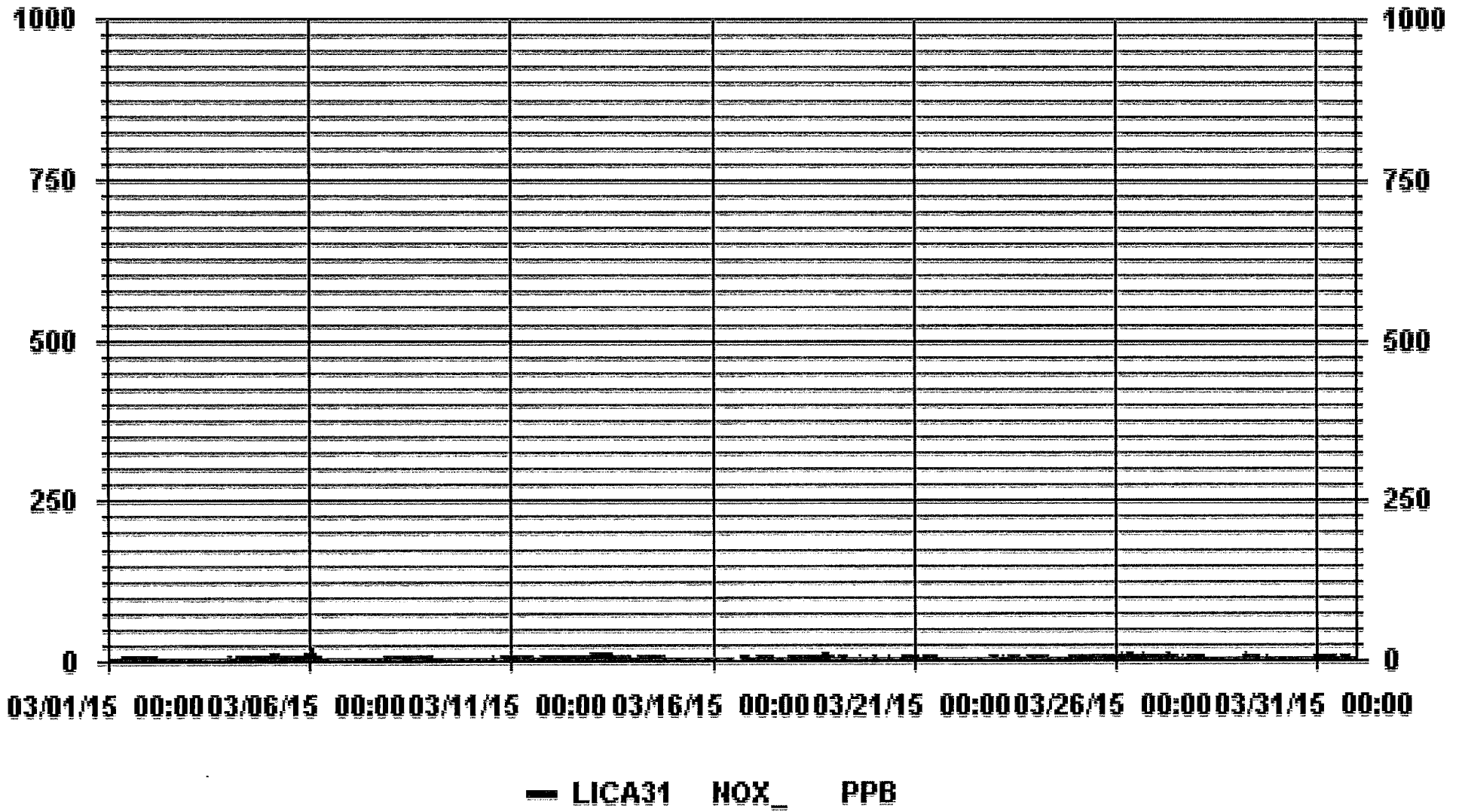
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	653					
MAXIMUM 1-HR AVERAGE:	14.3	PPB	@ HOUR(S)	1	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	5.1	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	1.91		MONTHLY AVERAGE:	1.9	PPB	

01 Hour Averages





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	1.6	0.9	0.9	1.2	1.2	1.3	1.5	4.3	2.7	S	5.1	3.2	3.2	2.9	4.4	2.7	2.3	3.9	4	3.8	3.4	3.8	3	3.2	5.1	2.8	24	
2	3.5	3.5	4.8	4.4	3.2	1.9	1.1	1.4	S	0.4	0.4	0.2	0.2	0.2	0.4	0.2	0.5	0.6	0.6	0.7	0.1	0.4	0.6	0.3	4.8	1.3	24	
3	0.5	0.5	0.5	0.6	0.2	0.6	0.7	S	1.5	1.2	1.1	1	1	1	1	1.2	1	1.2	1.5	1	1.2	0.6	2.5	4.7	4.7	1.1	24	
4	4.3	5.1	6.8	3.5	2	2.8	S	2.8	3.3	3.3	3.2	3.8	3.6	3.6	3.4	4.5	6.4	15.4	4.6	3.7	3.5	3.2	3.9	3.9	15.4	4.4	24	
5	5.2	6.3	9.9	10.2	9.6	S	29	21.2	2.6	2.3	2.6	4.3	15.1	2.6	3.4	6.7	27.3	2.6	11.7	31.7	3.4	5.1	10.1	1.0	31.7	10.1	24	
6	13.9	16.1	14.3	5.4	S	4.4	2.6	1.5	1.2	1.3	2	3.1	3.1	1.5	1.4	1.5	2.7	0.8	1.2	2.8	1.2	1	0.9	0.9	16.1	3.7	24	
7	0.7	0.9	1.1	S	1.2	1.2	0.7	6.2	1.5	1.2	0.9	0.4	0.4	0.5	0.4	0.7	0.5	1.7	0.7	30.6	2.4	2.1	4.3	4.6	30.6	2.8	24	
8	5.9	5.4	S	5.6	5.4	5.5	4.6	7.3	7.3	3.3	2.7	1.8	3.4	3.8	5.2	3.9	5.5	7.4	12.7	3.8	3.5	2.6	2.7	2.6	12.7	4.9	24	
9	3.3	S	3.1	1.8	1.4	1.2	1.2	13.3	2	1.8	3.8	1.2	1.9	42.8	3	0.8	1.2	1.1	1.1	1.6	1.6	1.2	1.3	1.2	42.8	4.0	24	
10	S	1.1	1.9	1.7	1.6	1.6	1.9	1.6	2.4	2.5	1.1	0.9	1.2	2	2	1.7	1.5	2.1	2	2	2.5	3.1	3.1	S	3.1	1.9	24	
11	4	3.1	3	3.6	3	2	1.9	2.6	3.1	2.5	2.1	2.3	2	1.9	1.6	1.5	1.2	1.7	1.5	2.3	2.1	2.3	S	2.4	4	2.3	24	
12	1.9	1.9	2	2.2	2.2	2.3	2.7	2.5	2.3	4.5	3.6	2.8	3.5	4	23.3	13.4	13.5	6.5	7.4	5.6	5	S	6.3	9.3	23.3	5.6	24	
13	6.6	7.6	7.4	7.9	7.3	7.6	27.8	32.7	30.5	13.4	37.8	9.4	5.2	4.9	3.4	3.9	4.9	4.7	4.2	2.9	S	2.2	2.3	2	37.8	10.3	24	
14	1.9	1.7	1.5	1.7	2.1	2.2	9.5	8.3	6.9	5.5	9.3	5.8	3.4	21.9	3	2.5	2.7	3.2	4.5	S	3.6	4.6	4	0.6	21.9	4.8	24	
15	0.3	0.4	0.6	0.3	0.3	0.5	0.6	1.4	0.8	0.7	1	0.8	0.8	0.7	0.5	0.6	0.8	1	S	1	0.7	0.8	1	1.1	1.4	0.7	24	
16	0.9	0.9	1	1	1.3	1.9	2.2	3.9	3	1.4	C	P	C	C	C	C	C	C	C	4.3	4.1	9	5.3	S	5	9	3.0	23
17	1.6	1.3	1.6	1.9	2.3	3.8	3.6	12.4	3.4	4.4	4.3	5.3	3.8	2.1	1.8	1.1	0.9	1.7	1.8	1.5	1.8	S	3.8	4.1	12.4	3.1	24	
18	3.1	2.4	1.8	3.8	3.9	2.1	2.1	2.1	4.6	3.4	3.6	3.9	2.7	2.6	2.3	1.9	2.6	23.8	9.6	13.4	S	42	11	2	42	6.6	24	
19	1.8	1.7	1.6	2	2.4	3	4.9	6.4	6.3	2.6	1.7	3.6	1.9	1.7	1.2	2	3	3.1	2	S	2	1.2	1.3	2.5	6.4	2.6	24	
20	3.3	2	1.7	1.3	0.8	1.4	1.2	1.5	2.3	2.4	1.2	0.9	1	1.1	1	0.9	0.9	0.9	S	1.8	2.1	2.2	2.1	1.8	3.3	1.6	24	
21	1.7	1.9	1.7	1.7	1.7	2.1	1.9	1.9	1.9	1.8	1.6	2	1.7	1.7	1.6	1.7	1.7	S	0.9	1.2	0.6	0.7	0.6	0.9	2.1	1.5	24	
22	0.7	0.8	0.8	1.2	0.9	0.7	0.7	1	0.8	1.4	1.5	1.9	1.6	0.9	1.1	0.8	S	1	1.4	1.9	1.8	2	2.1	1.7	2.1	1.2	24	
23	3.4	2.3	2.8	5.1	57.4	2.9	2.5	5.2	3.3	2.4	2.6	2.2	2.3	2.8	3.2	S	2.4	1.8	2.1	2.9	3.3	2.5	2.2	29.6	57.4	6.4	24	
24	2.3	3	2.3	1.8	4.2	4.3	3.8	40.5	5.3	2.5	2.7	16.7	1.4	1.4	S	16.9	2.2	1	1.9	1.9	2.4	1.6	1.5	1.6	40.5	5.4	24	
25	3	2.9	3	3.9	4.1	5.3	5.5	6.5	6.1	5.7	6.2	5.1	5.1	S	4.7	5.2	7.9	4.9	4.7	4.9	4.6	5	5.5	5.4	7.9	5.0	24	
26	5.2	5.3	5.8	7	6.9	5.9	5.6	6.3	6.9	7.1	6.5	5.7	S	5.5	5.2	5.9	7.2	9.8	7.1	5.2	4	3.6	4	4.1	9.8	5.9	24	
27	4.2	4.6	5.7	5.9	5.4	5.6	6.4	42.1	7.3	4.5	3	S	2	1.9	1.5	1	2	2.6	2.1	2.4	3.2	2.8	2.7	2.7	42.1	5.3	24	
28	3.2	4	4.1	3.5	8.1	7	1.9	1.6	1.2	0.9	S	1.5	31.5	1.1	3.3	0.9	0.6	2.5	0.6	1.2	0.7	9.9	0.8	0.6	31.5	3.9	24	
29	0.8	1.1	1.6	3.1	5.9	9.4	8.2	7.7	10.1	S	4.7	4.9	5.1	2.8	2.1	2.3	1.9	1.3	4.9	3.2	1.5	0.5	0.8	1.3	10.1	3.7	24	
30	1.5	0.9	0.6	0.9	0.6	1.1	5.3	30	S	1.5	1.4	1.1	1.5	1.8	2	2.6	19.6	1.4	27.8	4.7	3.1	1.3	1.6	1.8	30	5.0	24	
31	1	1.6	4.1	4	2.7	2.4	4.1	S	3.7	2.3	2.3	2.1	1.8	1.5	1.5	1.8	1.9	2	2.3	2.4	2.3	1.8	0.8	0.8	4.1	2.2	24	
HOURLY MAX	13.9	16.1	14.3	10.2	57.4	9.4	29	42.1	30.5	13.4	37.8	16.7	31.5	42.8	23.3	16.9	27.3	23.8	27.8	31.7	9	42	11	29.6				
HOURLY AVG	3.0	3.0	3.3	3.3	5.0	3.1	4.9	9.5	4.6	3.0	4.1	3.4	3.8	4.2	3.1	3.1	4.4	3.9	4.5	5.0	2.6	4.0	3.0	3.8				

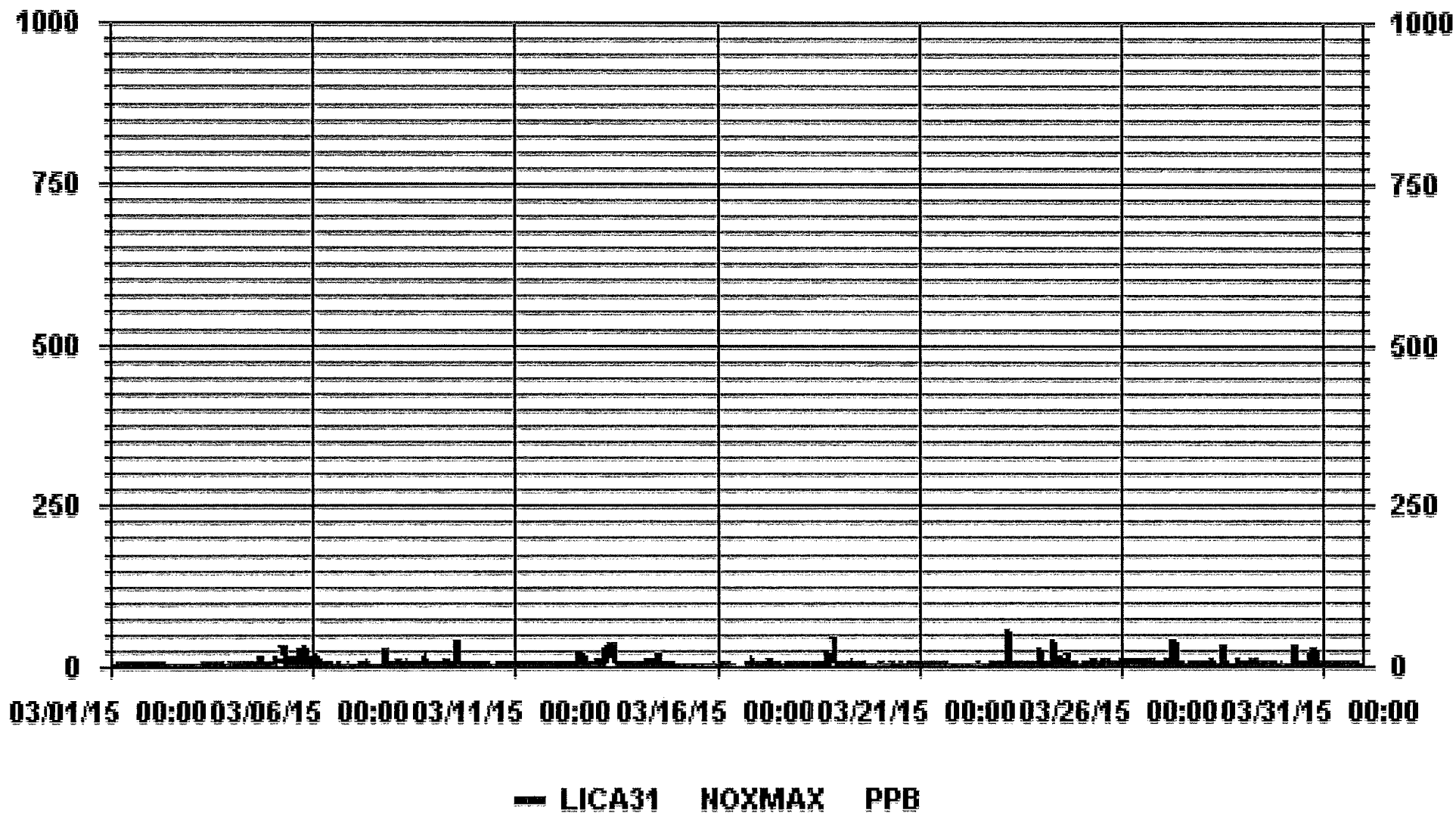
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704				
MAXIMUM INSTANTANEOUS VALUE:	57.4	PPB	@ HOUR(S)	4	ON DAY(S) 23
				VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	5.85				

01 Hour Averages



LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

March 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	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	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	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	702
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	

Calm : .00 %

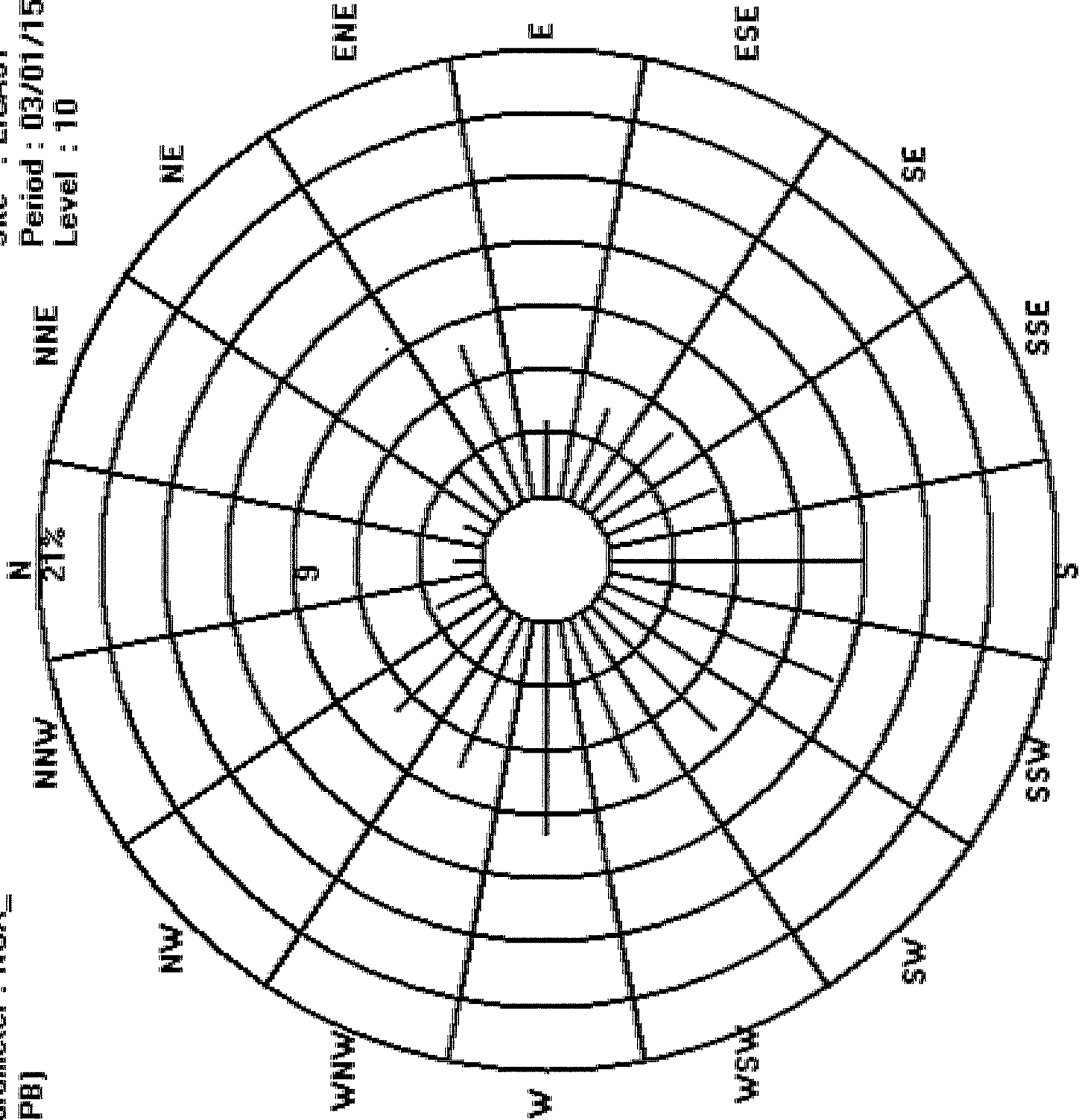
Total # Operational Hours : 702

Logger : 31 Parameter : NDX_

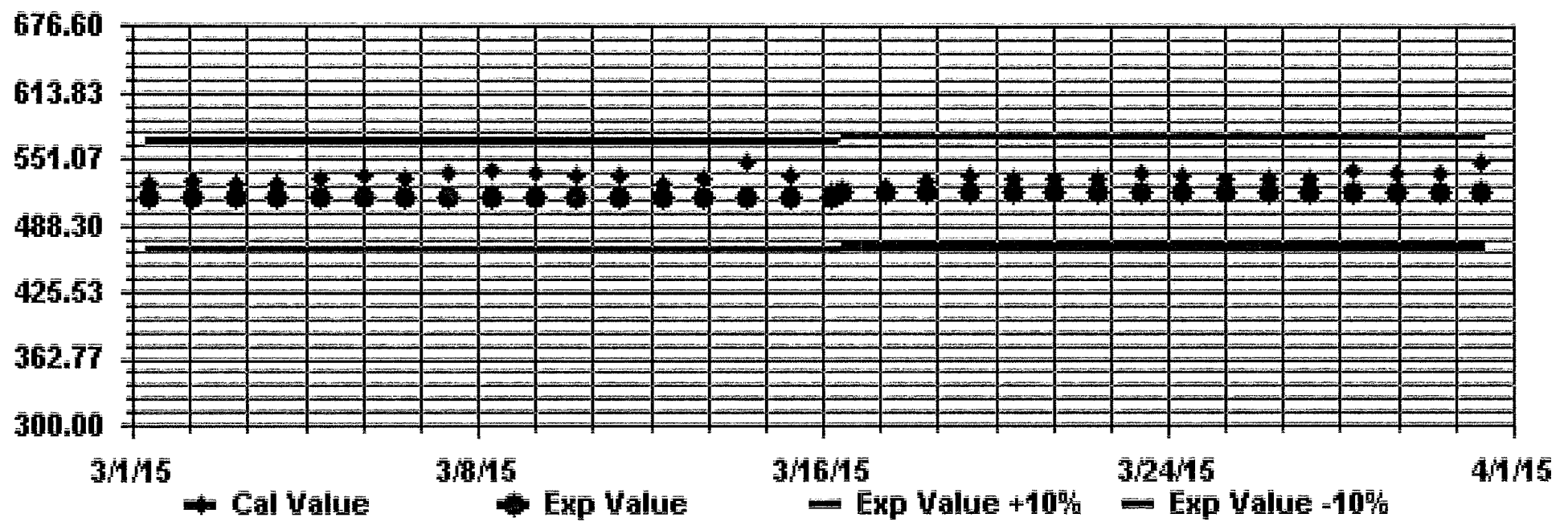
Class Limits (PPB)



Site : LICA31
Period : 03/01/15-03/31/15
Level : 10



Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN



NITRIC OXIDES



NITRIC OXIDE (NO) hourly averages in ppb

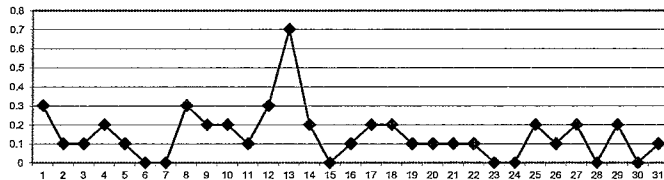
MST

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	RDGS.
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.	
DAY																											
1	0.1	0.1	0.3	0.3	0.2	0.1	0.2	0.1	0.4	S	0.8	0.7	0.8	0.5	0.6	0.4	0.1	0	0	0	0.1	0.2	0	0.1	0.8	0.3	24
2	0.2	0.1	0.2	0.1	0.2	0.2	0	0.2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1	24
3	0	0	0	0	0	0	0	S	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0	0.1	0.2	0	0.1	0	0.3	0.1	24
4	0.2	0	0.1	0.1	0	0	S	0	0.1	0.5	0.5	0.9	0.7	0.6	0.5	0.4	0.4	0	0	0	0	0	0	0	0.9	0.2	24
5	0	0	0	0	0	S	0	0.3	0.1	0.4	0.4	0.5	0.2	0.4	0.5	0	0.4	0	0	0.1	0	0	0	0	0.5	0.1	24
6	0	0	0	0	S	0	0	0	0	0	0	0.1	0	0.1	0.1	0.1	0.1	0	0	0.1	0	0	0	0	0.1	0.0	24
7	0	0	0	S	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.2	0	0.1	0	0	0	0	0.2	0.0	24
8	0	0	S	0	0	0	0	0.1	0.8	0.5	0.5	0.4	0.6	0.8	1.1	0.5	0.7	0.6	0	0	0	0	0	0	1.1	0.3	24
9	0	S	0.2	0	0	0.2	0	0.2	0.3	0	0.2	0.2	0	0.7	0.4	0	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.7	0.2	24
10	S	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.1	0.1	0.2	0.4	0.6	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0	S	0.6	0.2	24
11	0.1	0.1	0	0	0	0	0	0	0.1	0.4	0.3	0.3	0.2	0.5	0.2	0	0	0.2	0	0	0.1	0	S	0.3	0.5	0.1	24
12	0.1	0	0.1	0.2	0.1	0	0	0	0.1	0.2	0.2	0.1	0.3	0.5	0.9	0.9	0.8	0.9	0.4	0.2	0.1	S	0.2	0.4	0.9	0.3	24
13	0.1	0	0	0	0	0	0.8	2.2	1.5	2.5	3.1	2.1	1.3	0.9	0.5	0.7	0.6	0.4	0	S	0	0	0	0	3.1	0.7	24
14	0	0	0	0	0	0	0	0.3	0.2	0.2	1	0.5	0.5	0.8	0.1	0	0	0	0	S	0	0	0	0	1	0.2	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0.1	0.1	0	0	0.2	0.2	0.0	24
16	0	0	0	0	0	0.1	0.1	0.7	0.1	0.2	0.8	P	C	C	C	C	C	C	0	0	0	0	S	0	0.8	0.1	23
17	0	0	0	0	0	0	0	0.4	0.3	1	0.9	1.3	0	0.1	0	0	0	0	0	0	0	0	S	0	1.3	0.2	24
18	0	0	0	0	0	0	0	0	0.4	0.3	0.7	0.6	0.5	0.2	0.2	0	0.2	0.5	0.3	0.2	S	0.1	0	0	0.7	0.2	24
19	0	0	0	0	0	0	0	0.4	0.2	0.2	0	0.6	0.3	0.1	0	0	0	0	0	S	0	0	0	0	0.6	0.1	24
20	0	0	0	0	0	0	0	0	0.2	0.4	0	0	0	0	0	0	0	0	S	0.3	0.3	0.2	0.3	0.2	0.4	0.1	24
21	0.2	0.2	0.2	0.1	0	0.1	0.1	0.3	0.3	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	S	0	0	0	0	0	0	0.3	0.1	24
22	0	0	0	0	0	0	0	0	0	0.1	0.2	0.4	0.3	0.1	0.1	0	S	0	0	0	0	0	0	0	0.4	0.1	24
23	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0.1	0	S	0	0	0	0	0	0	0	0	0.2	0.0	24
24	0	0	0	0	0	0	0	0.5	0.1	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.5	0.0	24
25	0	0	0	0	0	0	0	0.1	0.2	0.3	0.7	0.4	0.4	S	0.6	0.6	0.5	0	0	0	0	0	0	0	0.7	0.2	24
26	0	0	0	0	0	0	0	0	0.4	0.4	0.6	0.3	S	0.5	0.3	0.1	0.3	0.4	0	0	0	0	0	0	0.6	0.1	24
27	0	0	0	0	0	0	0	3.4	0.9	0.4	0.2	S	0	0	0	0	0	0	0	0	0	0	0	0	3.4	0.2	24
28	0	0	0	0	0	0	0	0	0	0	S	0.1	0.3	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
29	0	0	0	0	0	0	0.1	0.3	1.1	S	1	1.2	0.7	0.4	0	0	0	0	0.1	0	0	0	0	0	1.2	0.2	24
30	0	0	0	0	0	0	0.1	0.5	S	0	0	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0.5	0.0	24
31	0	0	0	0	0	0	0	S	0.5	0.3	0.2	0.1	0	0	0	0	0.1	0	0	0	0	0	0	0	0.5	0.1	24
HOURLY MAX	0.2	0.2	0.3	0.3	0.2	0.2	0.8	3.4	1.5	2.5	3.1	2.1	1.3	0.9	1.1	0.9	0.8	0.9	0.4	0.3	0.3	0.2	0.3	0.4			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

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

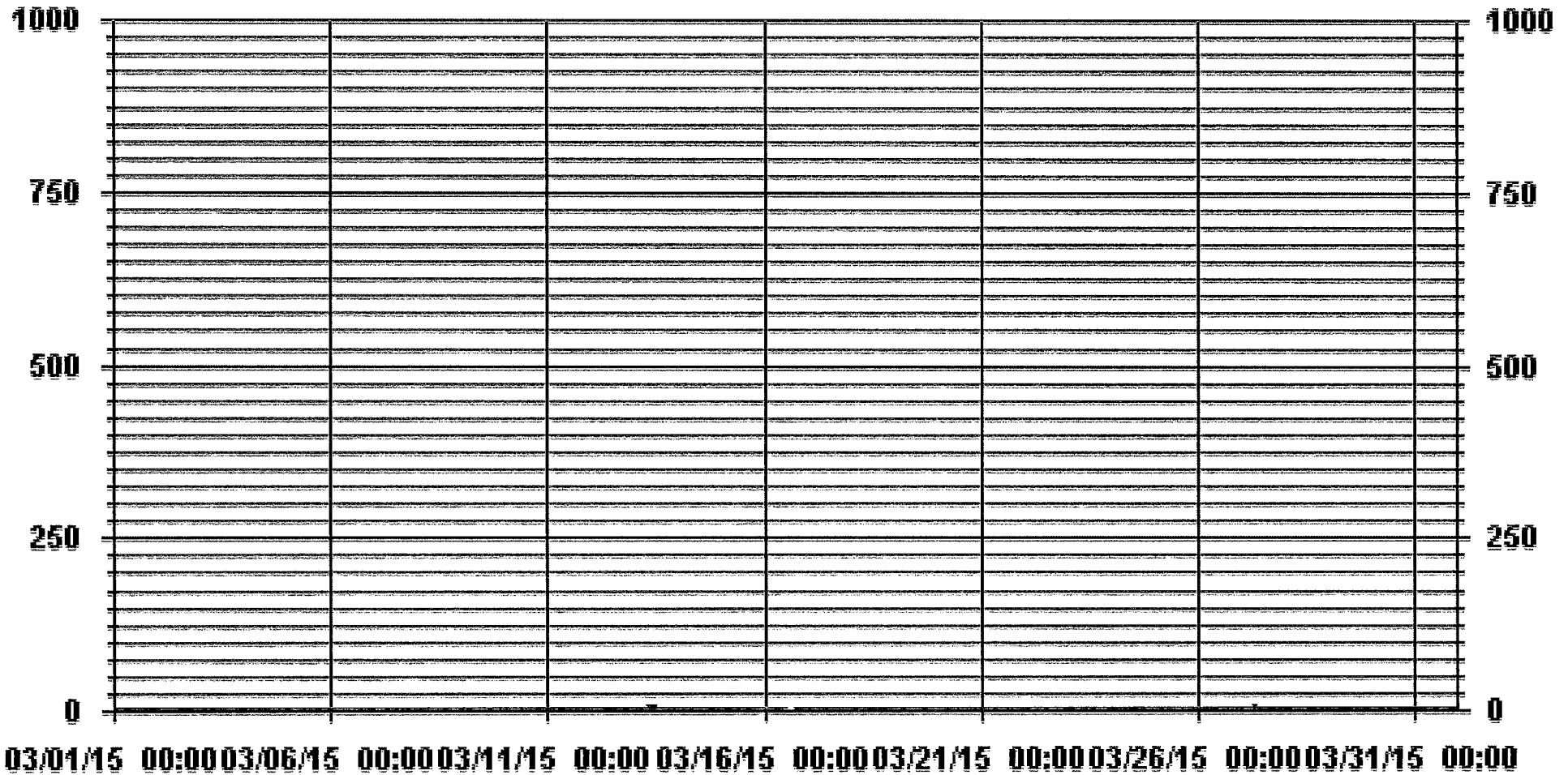
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	277		
MAXIMUM 1-HR AVERAGE:	3.4	PPB @ HOUR(S)	7 ON DAY(S) 27
MAXIMUM 24-HR AVERAGE:	0.7	PPB	ON DAY(S) 13 VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE: 0.1 PPB

01 Hour Averages



— LICA31 NO_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- C

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

DAY	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 MAX	24-HOUR AVG.	RDGS.
1	0.6	0.6	0.8	0.8	0.6	0.7	0.8	0.8	0.8	S	2.3	1.4	1.5	1.2	1.8	0.9	0.6	0.5	0.4	0.6	0.7	0.8	0.7	0.5	2.3	0.9	24
2	0.8	0.7	1.3	0.7	0.8	0.7	0.5	0.8	S	0.4	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.4	0.1	0.2	0	0.2	0.2	0	1.3	0.4	24
3	0	0.2	0.3	0.3	0.2	0	0.3	S	1	0.8	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.7	0.5	0.7	0.7	0.5	0.5	0.7	1	0.6	24
4	0.9	0.5	0.6	0.7	0.5	0.7	S	0.2	0.7	1.2	1.1	1.5	1.3	1.2	1.4	1.2	1.5	4.7	0.1	0.4	0.2	0	0.1	0.1	4.7	0.9	24
5	0	0.1	1	0.1	0	S	5.1	12.6	0.7	0.9	1.2	2	4.9	1	1.2	1	15.4	0.5	7.4	14.9	0.5	0.5	0.4	0.6	15.4	3.1	24
6	0.8	0.4	0.4	0.1	S	0.4	0.2	0.4	0.5	0.5	0.8	2.4	2.4	0.8	0.9	1.1	1.6	0.3	0.5	1.9	0.6	0.6	0.4	0.6	2.4	0.8	24
7	0.3	0.3	0.3	S	0.8	0.6	0.5	2.6	0.8	0.8	0.8	0.5	0.6	0.6	0.4	0.6	0.6	1	0.4	15.1	0.8	0.3	0.9	0.5	15.1	1.3	24
8	0.3	0.3	S	0.5	0.6	0.5	0.7	1.7	1.8	1.3	1.1	0.8	1.7	1.7	1.9	1.1	1.4	1.3	0.6	0.5	0.3	0.4	0.5	0.3	1.9	0.9	24
9	0.2	S	0.7	0.7	0.4	0.7	0.5	7.5	1.4	0.9	1.1	0.7	1.1	27.1	2	0.5	0.8	0.8	0.9	1	0.8	0.8	0.7	0.8	27.1	2.3	24
10	S	0.5	0.6	0.7	0.6	0.7	0.7	1.2	1.2	0.7	0.7	0.8	1	1.1	1	0.8	1	0.6	0.7	0.6	0.6	0.7	S	1.2	0.8	24	
11	0.7	0.6	0.6	0.5	0.6	0.3	0.5	0.6	0.6	0.9	0.9	0.9	0.9	1	0.7	0.7	0.5	0.9	0.6	0.7	0.5	0.5	S	0.8	1	0.7	24
12	0.6	0.5	0.7	0.7	0.5	0.7	0.5	0.6	0.7	1	0.9	0.7	1	1.3	12.9	9.8	13	2.1	1.5	0.8	0.6	S	1	3.4	13	2.4	24
13	0.6	0.7	0.6	0.5	0.5	0.5	16.2	18	15.4	5.2	21.4	3.7	1.9	1.6	1.4	1.4	0.9	0.6	0.6	S	0.1	0.2	0.3	0.3	21.4	4.1	24
14	0.4	0.2	0.3	0.2	0.3	0.3	2.7	4.7	2.3	1.3	3.4	1.8	1.1	17.1	0.9	0.6	0.4	0.1	0.1	S	0.3	0.5	0.2	0.3	17.1	1.7	24
15	0.2	0.2	0.1	0.2	0	0.1	0.1	0.7	0.3	0.2	0.7	0.2	0.5	0.5	0.4	0.3	0.3	0	S	0.7	0.6	0.4	0.7	0.8	0.8	0.4	24
16	0.4	0.3	0.4	0.5	0.6	1.1	1.1	2.5	1.6	0.7	C	P	C	C	C	C	C	C	0.6	0.3	1	0.2	S	1.3	2.5	0.8	23
17	0.2	0.1	0.3	0.1	0	1.1	0.8	4.2	1	1.7	1.6	2	1.5	0.7	0.5	0.4	0.2	0.2	0.4	0.2	0.3	S	0.5	0.5	4.2	0.8	24
18	0.5	0.3	0.3	0.3	0.5	0.4	0.4	0.5	2.1	1.5	1.5	1.4	1.1	0.8	0.9	0.6	0.8	14.2	1.9	2.3	S	19.3	5.8	0	19.3	2.5	24
19	0.3	0.1	0.2	0.3	0	0.3	0.9	2.1	1.8	0.8	0.6	1.2	0.9	0.6	0.6	0.4	0.3	0.3	0.4	S	0.4	0.1	0.2	0.2	2.1	0.6	24
20	0.2	0.2	0.3	0.4	0.3	0.2	0.4	0.4	0.7	0.9	0.5	0.4	0.4	0.4	0.5	0.3	0.5	0.3	S	0.9	0.8	0.6	0.9	0.6	0.9	0.5	24
21	0.6	0.6	0.6	0.5	0.5	0.8	0.6	0.9	0.9	0.6	0.7	0.9	0.8	0.9	0.7	0.7	0.8	S	0.5	0.5	0.3	0.3	0.4	0.4	0.9	0.6	24
22	0.3	0.5	0.2	0.4	0.2	0.3	0.4	0.5	0.5	0.8	0.8	1.1	0.9	0.6	0.7	0.4	S	0.3	0.1	0.5	0.4	0.3	0.2	0.3	1.1	0.5	24
23	0.5	0.3	0	1.1	33.5	0.2	0.3	0.7	0.6	0.7	0.4	0.6	0.5	0.6	0.6	S	0.5	0.3	0.4	0.2	0.5	0.1	0.3	12.6	33.5	2.4	24
24	0	0	0	0.1	1.1	1.2	0.9	23.2	1.9	0.9	1.1	6.4	0.4	0.7	S	9.6	0.7	0.2	0.3	0.1	0.3	0	0	0.2	23.2	2.1	24
25	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.6	0.7	1.1	1.7	1.1	1	S	1.4	1.1	1.8	0.6	0.3	0.3	0.2	0.3	0.3	0.5	1.8	0.6	24
26	0.3	0.1	0.2	0.2	0.4	0.3	0.2	0.6	0.9	1.1	1.4	1.2	S	1.3	1	0.7	0.9	1.2	0.6	0.7	0.2	0.2	0.5	0.4	1.4	0.6	24
27	0.5	0.5	0.3	0.4	0.5	1	1.2	23.8	2.4	2.4	1.1	5	0.4	0.5	0.4	0.4	0.4	0.5	0.1	0.3	0.3	0.2	0	0.3	23.8	1.6	24
28	0.4	0.3	0.4	0.1	0.2	0.2	0.4	0.4	0.2	0.4	S	0.7	20.3	0.1	1.1	0.4	0.2	0.9	0.2	0.4	0.4	10.7	0.2	0.2	20.3	1.7	24
29	0.3	0.3	0.2	0.4	0.3	1.4	1.6	1.5	4.9	S	1.6	1.8	1.3	1	0.5	0.7	0.4	0.2	2.4	0.3	0.3	0.3	0.3	0.3	4.9	1.0	24
30	0.4	0.3	0.3	0.5	0.3	0.5	2.7	21.2	S	0.7	0.6	0.4	0.6	0.6	0.6	1	13.5	0.7	18.2	0.4	0.4	0.2	0.3	0.5	21.2	2.8	24
31	0.3	0.3	0.3	0.4	0.4	0.3	0.5	S	1.1	0.9	0.7	0.7	0.6	0.5	0.5	0.6	0.7	0.5	0.4	0.2	0.3	0.4	0.4	0.2	1.1	0.5	24
HOURLY MAX	0.9	0.7	1.3	1.1	33.5	1.4	16.2	23.8	15.4	5.2	21.4	6.4	20.3	27.1	12.9	9.8	15.4	14.2	18.2	15.1	1	19.3	5.8	12.6			
HOURLY AVG	0.4	0.3	0.4	0.4	1.5	0.5	1.4	4.7	1.7	1.1	1.8	1.3	1.8	2.3	1.3	1.3	2.1	1.2	1.4	1.6	0.5	1.4	0.6	0.9			

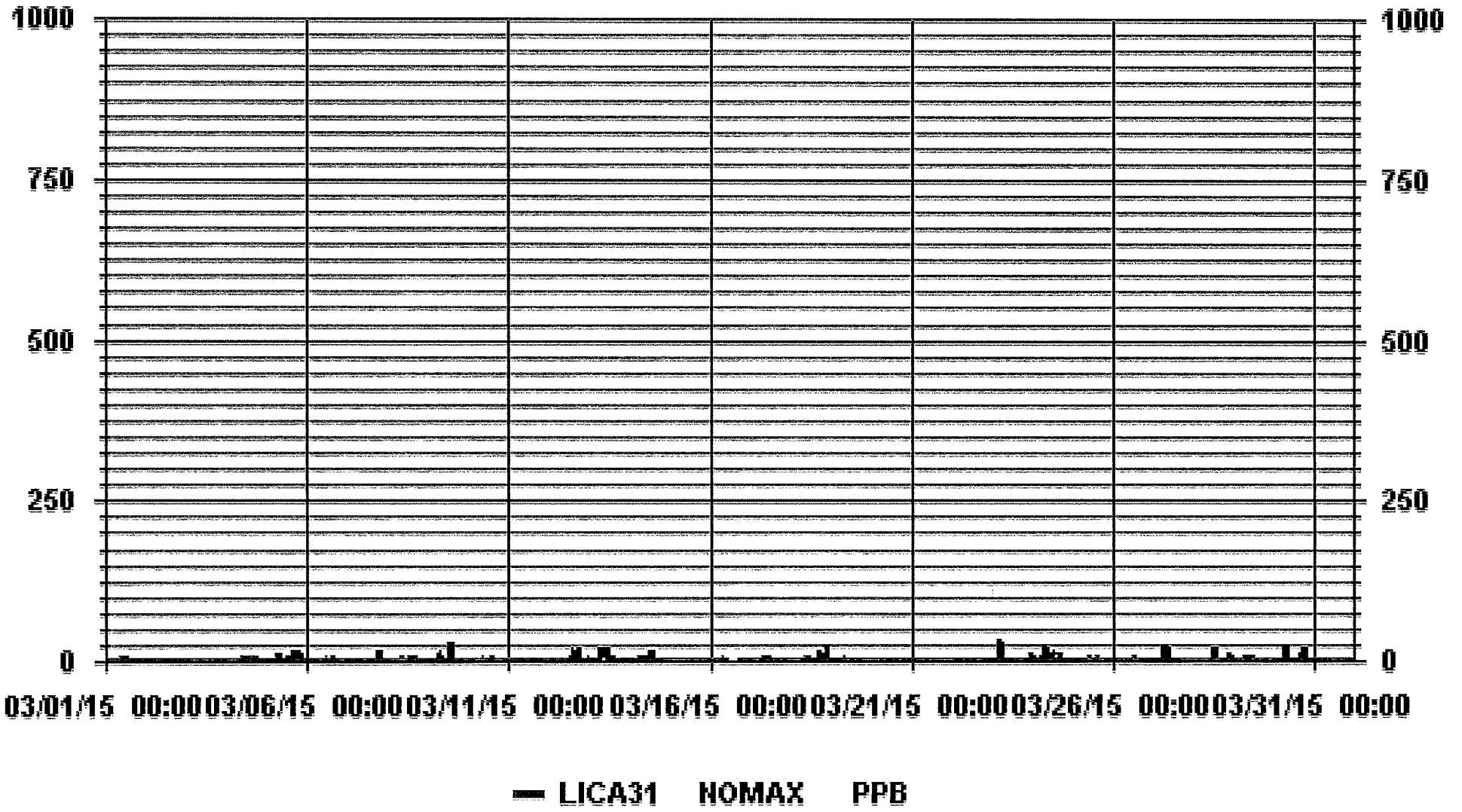
STATUS FLAG CODES

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:	685				
MAXIMUM INSTANTANEOUS VALUE:	33.5	PPB	@ HOUR(S)	4	ON DAY(S) 23
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	3.31				

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : NO_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	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	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

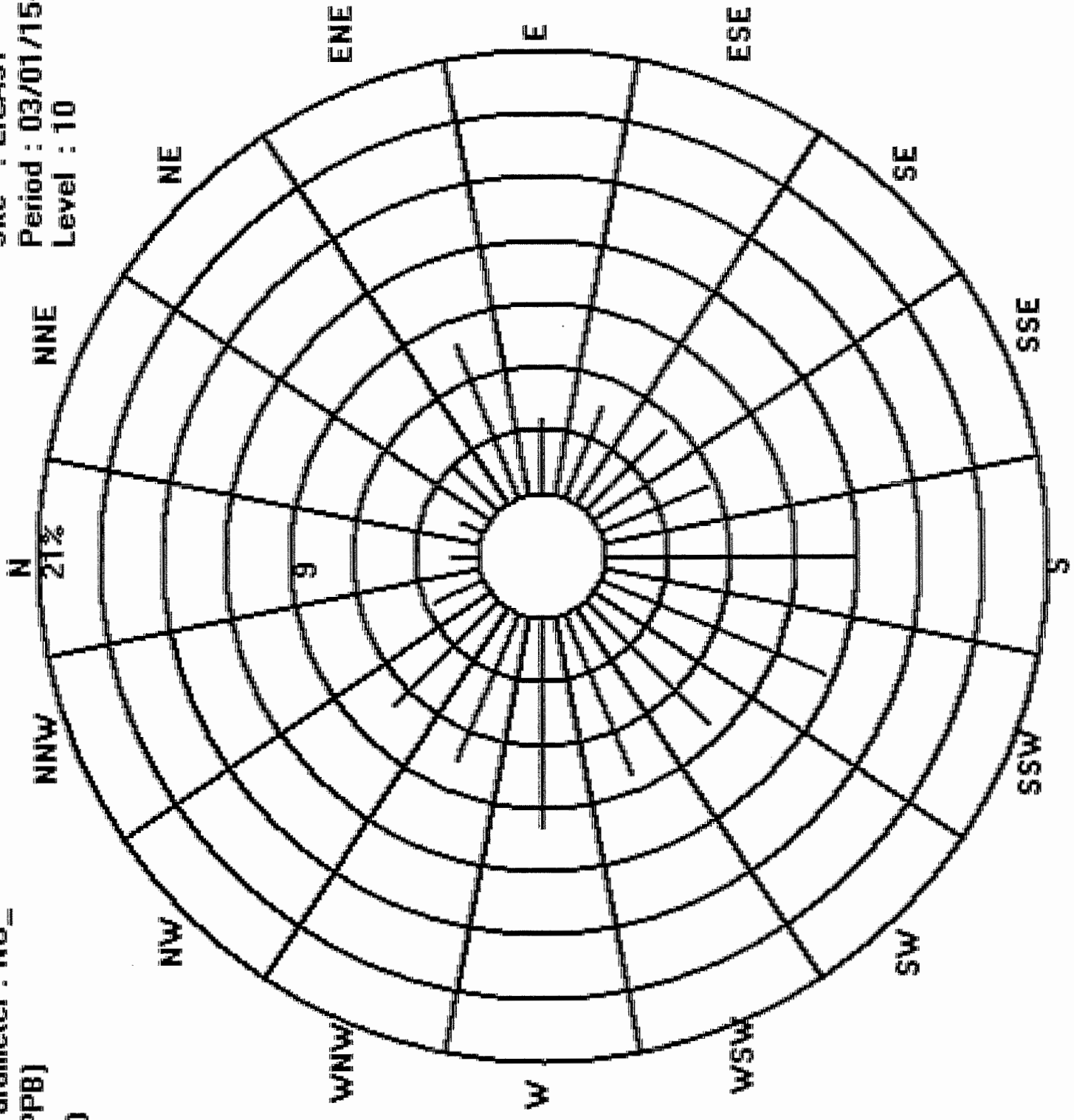
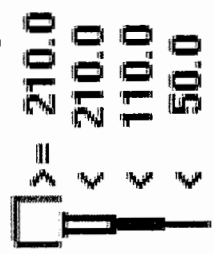
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	702
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	

Calm : .00 %

Total # Operational Hours : 702

Logger : 31 Parameter : NO_
Class Limits (PPB)

Site : LICA31
Period : 03/01/15-03/31/15
Level : 10



NITROGEN DIOXIDE

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	0.7	0.2	0.3	0.2	0.3	0.6	0.5	2.2	1.2	S	1.2	1.2	1.9	1.6	1.6	1.7	1.4	2.6	3.3	2.9	2.5	2.5	2.4	2.5	3.3	1.5	24	
2	2.7	2.9	3.4	3.5	1.9	1.1	0.6	0.6	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	3.5	0.7	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.5	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.3	0.2	0.3	0.2	0.1	0.0	1.1	3.1	3.1	0.3	24	
4	2.7	2.4	3.8	1.8	1.3	1.7	S	2.1	2.4	2.0	2.0	2.1	2.1	2.1	2.1	2.6	3.9	3.5	3.0	2.5	2.7	2.5	3.1	3.4	3.9	2.5	24	
5	4.3	5.5	8.0	9.6	8.4	S	4.8	2.8	1.7	1.2	1.1	1.3	1.3	1.4	1.8	1.4	1.3	1.6	1.6	2.3	2.2	3.5	8.6	8.8	9.6	3.7	24	
6	10.7	14.3	6.3	4.2	S	3.0	1.8	0.6	0.6	0.6	0.7	0.6	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.3	0.4	14.3	2.0	24	
7	0.2	0.3	0.4	S	0.7	0.6	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	1.0	1.2	2.5	3.3	3.3	0.5	24	
8	4.7	3.9	S	3.6	4.4	4.7	3.4	3.7	3.1	1.6	1.1	0.8	1.0	2.0	2.9	2.6	3.7	5.2	4.7	3.0	2.6	2.1	2.0	1.8	5.2	3.0	24	
9	2.4	S	2.0	1.1	0.7	0.6	0.5	0.5	0.7	0.4	0.4	0.3	0.2	0.8	0.3	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.3	2.4	0.5	24	
10	S	0.4	0.7	1.0	0.8	0.8	0.7	0.4	0.8	0.6	0.2	0.3	0.3	0.9	0.7	0.5	0.6	1.1	1.3	1.3	1.8	2.3	2.4	S	2.4	0.9	24	
11	2.7	2.2	2.4	2.7	2.0	1.5	1.4	1.8	2.0	1.5	1.1	1.2	1.2	0.9	0.8	0.8	0.8	0.9	1.0	1.5	1.5	1.7	S	1.3	2.7	1.5	24	
12	1.2	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.8	2.7	2.4	2.0	2.3	2.1	2.8	2.4	2.7	4.4	5.3	4.7	4.4	S	5.3	5.9	5.9	2.7	24	
13	5.7	6.2	6.7	7.3	6.4	5.9	7.7	8.1	5.5	6.0	6.0	4.4	3.1	2.7	1.3	2.3	2.8	3.4	3.4	2.0	S	1.6	1.6	1.5	8.1	4.4	24	
14	1.4	0.9	0.9	1.1	1.5	1.6	2.6	3.1	3.2	2.7	3.3	2.6	1.7	1.8	1.8	1.6	1.9	2.1	2.2	S	2.9	3.8	1.3	0.0	3.8	2.0	24	
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	S	0.2	0.0	0.2	0.4	0.3	0.4	0.1	24	
16	0.3	0.2	0.4	0.4	0.4	0.4	0.5	1.0	0.7	0.5	0.5	P	C	C	C	C	C	3.4	3.1	3.8	3.7	S	1.5	3.8	1.3	23		
17	1.0	0.6	1.0	1.1	1.7	2.2	2.2	2.8	2.0	2.2	2.6	2.8	0.0	1.2	0.9	0.4	0.3	0.8	1.3	0.9	1.0	S	3.0	3.0	3.0	1.5	24	
18	2.3	1.7	1.3	1.7	1.6	1.4	1.3	1.5	1.4	1.3	1.8	2.0	1.7	1.5	1.2	1.1	1.6	3.7	7.6	9.3	S	6.9	2.9	1.2	9.3	2.5	24	
19	1.2	1.2	0.9	1.3	1.4	2.2	2.9	3.4	2.8	1.3	0.9	1.8	0.9	0.8	0.5	1.0	2.3	2.1	1.4	S	1.3	0.6	0.5	0.7	3.4	1.5	24	
20	2.5	1.5	1.0	0.6	0.3	0.6	0.5	0.7	1.2	1.0	0.6	0.3	0.5	0.4	0.4	0.3	0.4	0.3	S	1.1	1.1	1.3	1.3	1.1	2.5	0.8	24	
21	0.9	0.9	0.9	1.0	1.0	1.3	1.3	0.9	1.1	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.8	S	0.5	0.6	0.0	0.0	0.0	0.2	1.3	0.8	24	
22	0.1	0.3	0.2	0.4	0.4	0.1	0.2	0.2	0.1	0.4	0.5	0.8	0.6	0.2	0.3	0.3	S	0.4	0.6	0.7	1.1	1.3	1.1	1.3	0.5	24		
23	2.1	1.6	1.9	1.6	2.9	1.9	1.5	3.1	1.9	1.7	1.5	1.3	1.4	1.9	2.3	S	1.5	1.0	1.5	1.7	1.9	1.8	1.6	2.3	3.1	1.8	24	
24	1.6	1.7	1.8	1.0	1.3	1.2	1.4	2.0	1.6	0.9	0.9	1.2	0.7	0.7	S	0.8	0.5	0.3	0.4	0.5	1.0	1.0	1.0	1.1	2.0	1.1	24	
25	1.6	2.1	2.4	3.2	3.4	4.3	4.2	4.6	4.8	4.4	4.4	4.0	4.0	S	3.4	3.7	4.8	3.7	4.0	4.2	4.1	4.4	4.8	4.7	4.8	3.9	24	
26	4.5	4.5	5.2	5.8	6.0	5.2	4.9	5.5	5.9	5.9	5.1	4.1	S	3.8	3.6	3.9	5.7	7.1	5.4	3.6	3.2	3.1	3.5	3.5	7.1	4.7	24	
27	3.8	3.9	4.7	5.0	4.7	4.5	4.5	8.4	3.2	1.6	1.3	S	1.4	1.2	0.8	0.4	1.0	1.0	0.8	1.4	2.3	2.0	2.1	2.2	8.4	2.7	24	
28	2.4	3.4	3.4	2.9	4.6	4.1	1.1	0.8	0.4	0.4	S	0.7	0.9	0.3	0.5	0.2	0.1	0.3	0.0	0.1	0.3	0.1	0.0	0.0	4.6	1.2	24	
29	0.2	0.5	0.6	1.4	4.5	5.9	5.5	3.2	2.6	S	3.1	3.0	1.7	0.9	1.1	0.8	0.7	1.6	1.8	0.2	0.0	0.0	0.5	5.9	1.9	24		
30	0.6	0.1	0.1	0.1	0.0	0.3	0.7	0.7	S	0.6	0.4	0.3	0.3	0.6	0.2	0.5	0.6	0.5	0.9	1.4	0.8	0.8	1.1	1.0	1.4	0.5	24	
31	0.5	0.7	2.8	3.3	1.7	1.7	3.0	S	2.3	1.4	1.2	1.2	1.1	0.9	1.0	1.0	1.3	1.4	1.5	1.8	1.4	0.5	0.1	0.2	3.3	1.4	24	
HOURLY MAX	10.7	14.3	8.0	9.6	8.4	5.9	7.7	8.4	5.9	6.0	6.0	4.4	4.0	3.8	3.6	3.9	5.7	7.1	7.6	9.3	4.4	6.9	8.6	8.8				
HOURLY AVG	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2				

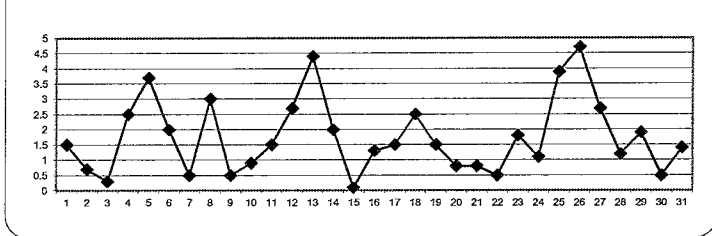
STATUS FLAG CODES

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

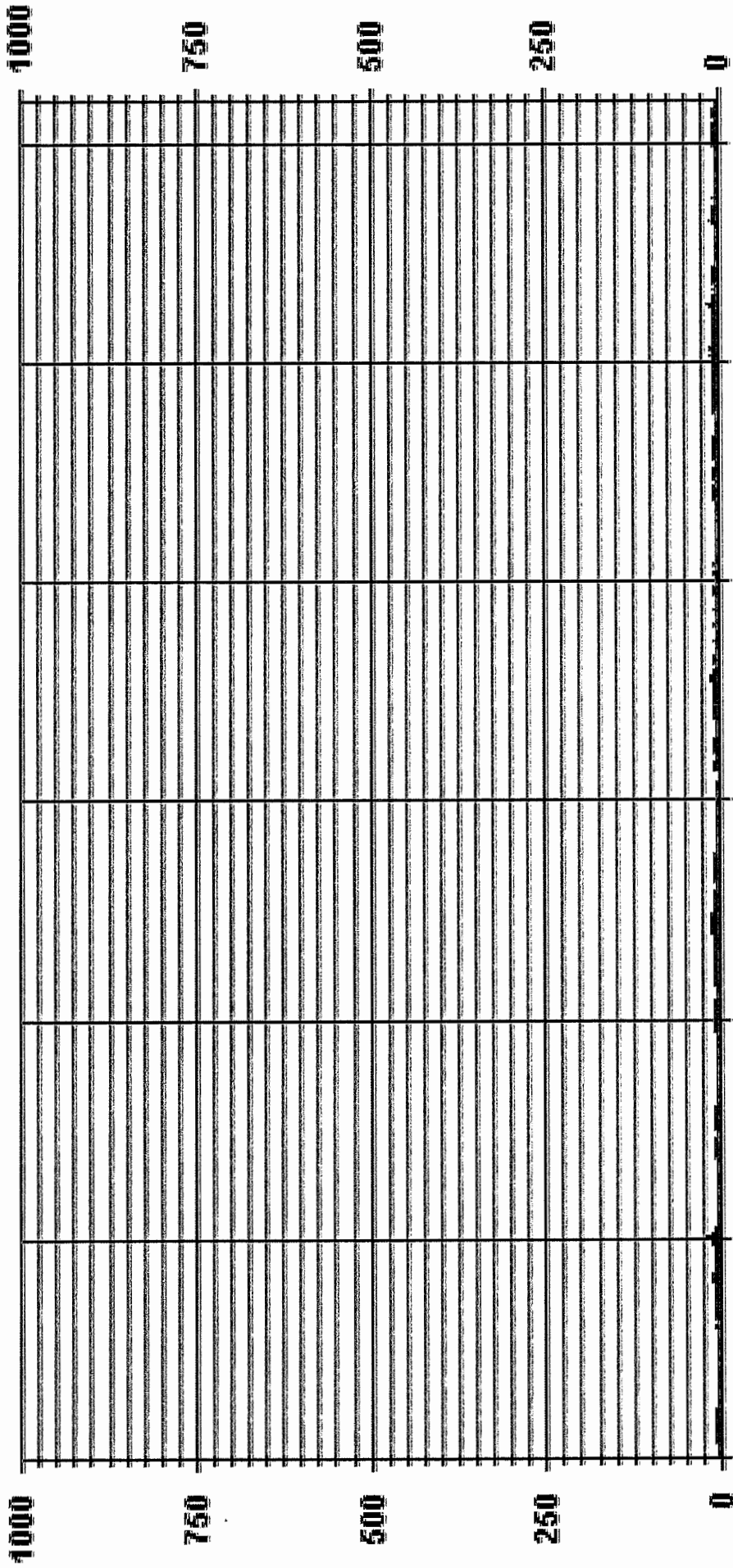
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	647					
MAXIMUM 1-HR AVERAGE:	14.3	PPB	@ HOUR(S)	1	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	4.7	PPB			ON DAY(S)	26
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	1.80		MONTHLY AVERAGE:	1.8	PPB	

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA31 NO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR START	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	MAX.	AVG.	RDGS.	
DAY	1	1.8	1.1	1.2	1.4	1.2	1.4	1.7	4.1	2.7	S	2.9	2	2.1	2	2.5	1.9	1.6	3.3	3.6	3.5	2.9	3.3	2.9	3.2	4.1	2.4	24
2	3.2	3.5	4.4	4.4	2.9	1.8	1	1.1	S	0.5	0.5	0.5	0.4	0.7	0.4	0.4	0.4	0.4	0.8	0.7	0.7	0.4	0.4	0.4	0.5	4.4	1.3	24
3	0.6	0.5	0.6	0.6	0.6	0.8	0.6	S	0.9	1	0.7	0.7	0.8	0.7	0.8	0.8	1	1	0.6	0.9	0.4	2.3	4.5	4.5	1.0	24	24	
4	3.7	4.9	6.6	2.9	1.5	2.8	S	2.6	2.7	2.2	2.2	2.2	2.3	2.2	2.5	3.3	4.9	10.5	4.6	3.3	3.3	3.4	4.1	4.2	10.5	3.6	24	
5	5.3	6.4	10.1	10.4	9.7	S	23.8	13.7	2.1	1.8	1.4	2	9.7	1.4	2	5.8	12.9	2.1	9.4	16.5	3.2	4.9	9.6	9.3	23.8	7.5	24	
6	13.3	15.4	14.1	5.2	S	4.4	2.6	1.6	1.1	1.2	1.8	1	1.5	1.4	1	1.1	1.7	1	1.2	1.5	1.1	1	1	1	1	15.4	3.3	24
7	0.9	1.1	1.2	S	1.4	1.1	1	4	1.1	0.8	0.8	0.6	0.7	0.7	0.7	0.8	0.6	1.4	0.9	16.9	2.1	2.4	4.1	4.9	16.9	2.2	24	
8	6.1	5.7	S	5.6	5.7	5.3	4.5	5.8	5.9	2.7	2.1	1.7	2.5	3.2	4.1	3.6	5.2	6.8	13	4.4	3.6	3.2	2.8	2.8	13	4.6	24	
9	3.8	S	2.9	1.8	1	1	1	7.9	1.2	1.2	3.2	0.9	1.3	18.1	1.3	0.7	0.5	0.8	0.6	0.7	1	0.8	0.9	1	18.1	2.3	24	
10	S	0.7	1.7	1.7	1.3	1.1	1.4	1.1	1.4	1.6	0.7	0.9	0.9	1.6	1.4	1.3	1.4	1.8	1.8	2	2.4	3	2.9	S	3	1.6	24	
11	3.8	3.1	3	3.5	3	2.5	2	3	3.1	2.2	1.7	2	1.7	1.7	1.5	1.5	1.5	1.7	1.8	2.3	2.3	2.6	S	1.5	3.8	2.3	24	
12	1.5	1.6	1.5	1.8	1.7	1.9	2.3	2.3	1.9	3.6	3.1	2.3	2.6	2.8	18.8	8	4.5	5.5	5.9	5.4	4.7	S	6.1	6.8	18.8	4.2	24	
13	6.5	7.3	7.2	7.8	7.5	7.8	20.4	18.3	15.3	8.8	20.8	5.8	3.5	3.6	2.1	3	4	4.2	4.1	3.2	S	2.1	2.1	1.9	20.8	7.3	24	
14	1.9	1.6	1.5	1.7	1.9	2	6.8	4	4.7	4.2	6	4.2	2.2	7.6	2.3	2.2	2.6	3.1	4.5	S	3.7	4.6	4.1	0.8	7.6	3.4	24	
15	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.8	0.7	0.7	0.7	0.8	0.7	0.6	0.6	0.9	0.7	1.1	S	0.8	0.5	0.6	0.5	0.5	1.1	0.7	24	
16	0.5	0.7	0.7	0.7	0.9	0.9	1	1.9	1.4	1.2	C	P	C	C	C	C	C	C	C	2.9	2.7	6.9	4.4	S	5	6.9	2.1	23
17	3	2.8	2.9	3.4	3.5	4.2	4.5	9.5	4	4.5	4.6	5	3.8	3.4	2.9	2.4	2.6	3.2	3.2	3.4	3.4	S	3.5	3.8	9.5	3.8	24	
18	3	2.4	1.9	3.7	3.6	1.8	1.8	1.8	2.8	2.1	2.5	3	2.3	2.3	1.9	1.7	2.4	11	9.1	11.6	S	22.8	9.2	2.1	22.8	4.6	24	
19	1.7	2	1.8	1.8	2.4	2.6	3.7	4.6	4.5	2	1.3	2.5	1.2	1.2	1.2	2.1	3	3	1.9	S	1.8	1.3	1.2	2.6	4.6	2.2	24	
20	3.2	2	1.4	1.2	0.9	0.9	0.9	1.1	1.8	1.7	1	0.7	0.9	0.7	0.7	0.7	0.9	0.9	S	1.3	1.6	1.5	1.5	1.4	3.2	1.3	24	
21	1	1.1	1	1.1	1.1	1.2	1.1	1.1	1.3	1.2	1	1	1.1	1	1	1	1	S	0.8	1	0.7	0.5	0.4	0.8	1.3	1.0	24	
22	0.7	0.6	0.7	1	0.8	0.7	0.8	0.8	0.8	1.1	1.4	1.4	1.3	0.8	1	1	S	0.9	1.4	1.4	1.5	2	1.7	1.7	2	1.1	24	
23	2.8	2.1	2.8	4	26.5	2.9	2.7	4.7	2.8	2.1	2.4	1.8	1.8	2.3	2.9	S	2	1.9	2.3	3	2.8	2.9	2.4	17.3	26.5	4.3	24	
24	2.6	3.2	2.6	2.2	3.3	3.5	3.1	18.3	3.7	1.8	2	11.1	1.3	1.5	S	9.1	1.3	0.9	1.6	1.7	1.9	1.4	1.5	1.6	18.3	3.5	24	
25	2.7	3	3	3.6	3.9	5.1	5.4	6.2	5.6	4.7	4.9	4.2	4.4	S	4.4	5.1	6.9	5.1	5.5	5.4	5.4	5.6	6.1	6	6.9	4.9	24	
26	5.7	5.9	6.4	7.5	7.6	6.5	6.2	6.5	6.9	6.9	6.2	5.4	S	4.5	4.3	5.1	6.1	8.6	6.8	4.5	4.1	3.6	3.7	4	8.6	5.8	24	
27	4	4.5	5.3	5.6	5.1	4.9	5.2	19.9	4.8	2.4	2	S	1.7	1.5	1.3	0.8	1.5	1.9	2.3	2.5	3	2.7	2.7	2.6	19.9	3.8	24	
28	3.2	4	4	3.6	8.1	7	2.1	1.3	1.1	0.8	S	0.9	14	0.8	2.1	0.5	0.5	1.4	0.4	0.8	0.6	3.9	0.6	0.6	14	2.7	24	
29	0.7	1	1.7	3	5.7	7.8	6.6	6	4.9	S	3.5	3.3	3.6	1.8	1.6	1.6	1.2	1.4	2.6	3	1.5	0.4	0.5	1.3	7.8	2.8	24	
30	1.3	0.7	0.8	0.5	0.5	0.8	2.6	8.3	S	1.5	0.9	0.8	1	1.3	1.5	1.8	10.3	1.4	12	4.8	3	1.5	1.6	1.7	12	2.6	24	
31	1.2	1.7	4.2	4.4	2.8	2.3	3.9	S	2.9	1.6	1.5	1.7	1.1	1.1	1.1	1.3	1.4	1.9	2.2	2.2	2.2	1.6	0.7	0.7	4.4	2.0	24	
HOURLY MAX	13	15	14	10	27	8	24	20	15	9	21	11	14	18	19	9	13	11	13	17	7	23	10	17				
HOURLY AVG	3.0	3.0	3.3	3.2	3.9	2.9	4.0	5.6	3.2	2.3	2.9	2.4	2.5	2.5	2.4	2.4	2.9	3.1	3.7	3.8	2.5	3.1	2.8	3.2				

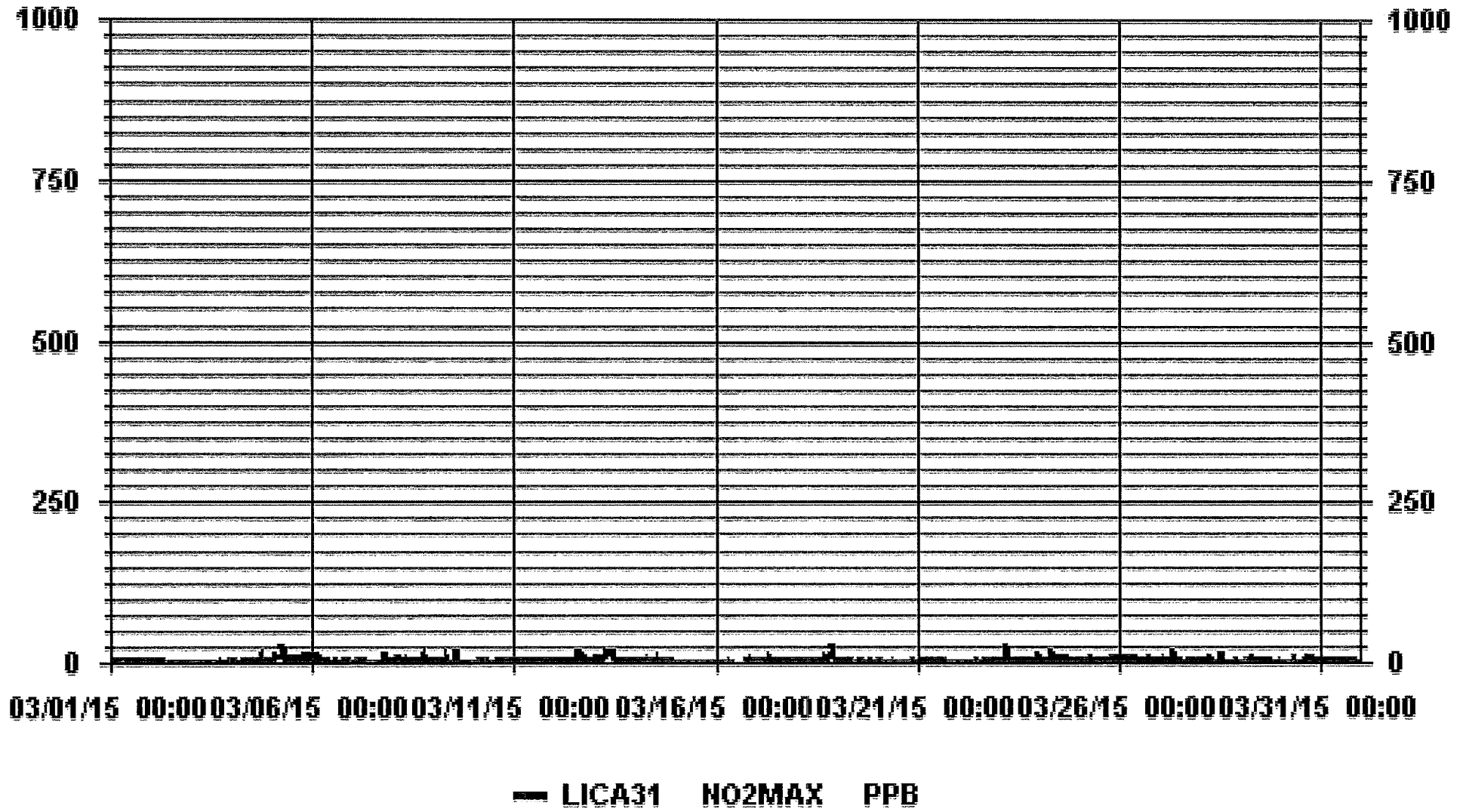
STATUS FLAG CODES

C	- CALIBRATION	O	- 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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	26.5 PPB @ HOUR(S) 4 ON DAY(S) 23
VAR-VARIOUS	
IJS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	3.36

01 Hour Averages



LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

March 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	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	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	1.28	1.13	2.99	7.83	3.56	4.70	5.41	5.69	12.10	11.68	8.26	8.26	9.97	7.54	6.98	2.56	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples





	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	702
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	9	8	21	55	25	33	38	40	85	82	58	58	70	53	49	18	

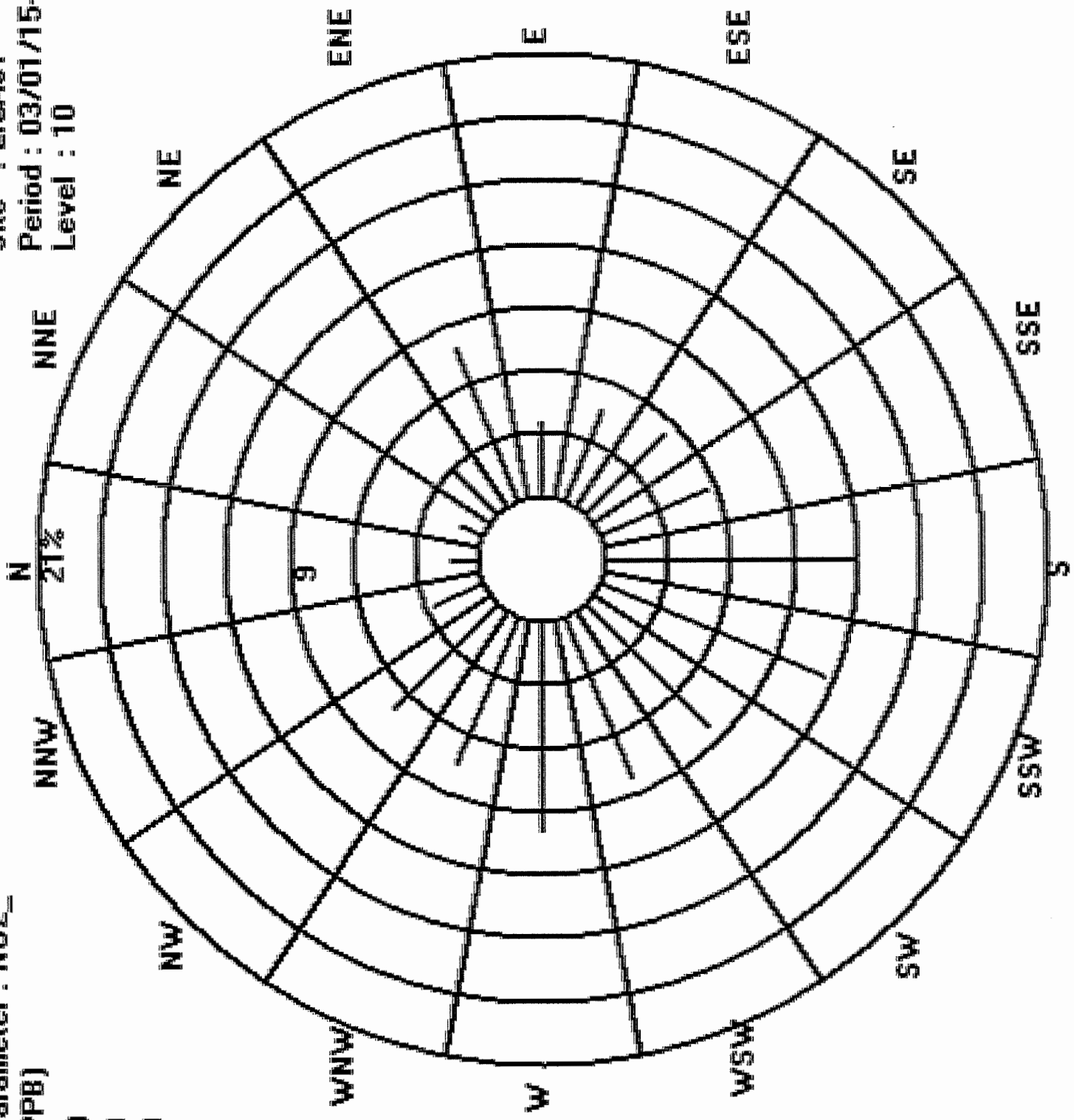
Calm : .00 %

Total # Operational Hours : 702

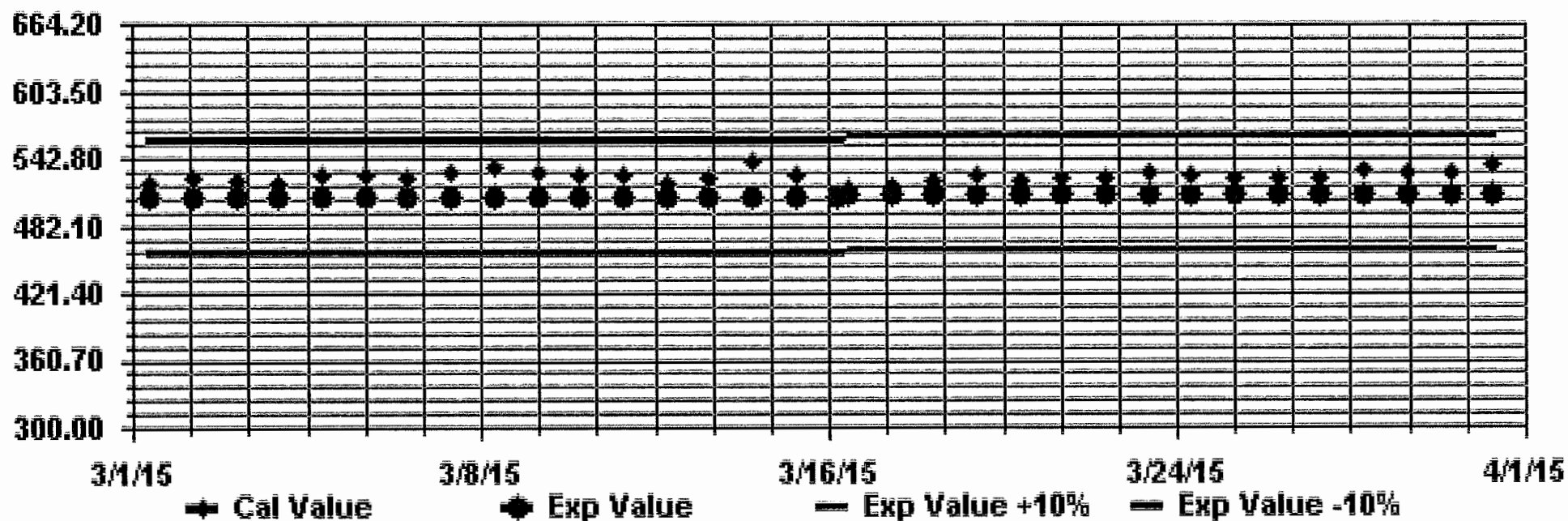
Site : LICA31
 Period : 03/01/15-03/31/15
 Level : 10

Logger : 31 Parameter : ND2_
 Class Limits (PPB)

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0



Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN



OZONE

OZONE (O3) hourly averages in ppb

MST

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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	40	41	40	40	41	40	40	37	38	S	40	42	42	44	46	46	46	45	43	43	44	43	43	42	46	42.0	24	
2	41	40	37	38	41	42	42	42	S	38	38	38	39	42	42	42	42	41	41	41	41	41	41	41	42	40.5	24	
3	41	41	41	41	41	41	41	S	41	42	42	43	42	43	43	43	42	42	41	41	41	40	39	37	43	41.3	24	
4	37	37	36	38	38	38	S	38	38	39	39	40	41	42	43	43	43	41	42	42	42	41	40	39	43	39.7	24	
5	36	34	31	30	32	S	36	39	41	41	42	43	45	45	45	48	48	48	48	47	46	44	36	35	48	40.9	24	
6	31	27	36	37	S	36	37	38	38	37	37	37	38	38	39	40	40	40	40	39	39	39	39	38	40	37.4	24	
7	38	38	38	S	38	38	39	39	39	39	41	42	44	45	46	46	46	46	46	46	45	44	41	40	46	41.9	24	
8	37	38	S	37	36	35	37	35	36	39	42	44	45	45	48	51	45	43	42	43	44	44	44	44	51	41.5	24	
9	42	S	41	42	42	40	39	38	38	40	39	41	42	44	46	45	46	46	45	44	43	42	41	41	46	42.0	24	
10	S	42	39	40	40	39	37	37	37	39	41	41	42	42	43	44	44	43	44	44	42	40	40	S	44	40.9	24	
11	37	39	39	37	37	36	36	36	36	37	38	38	39	40	41	40	40	40	39	39	41	40	S	40	41	38.5	24	
12	39	39	39	38	38	37	36	35	35	34	35	35	34	34	33	33	33	29	27	27	25	S	20	20	39	32.8	24	
13	19	19	19	22	26	28	26	27	31	32	34	36	38	40	44	42	41	38	36	37	S	37	37	38	44	32.5	24	
14	37	36	34	33	31	30	29	28	30	32	32	35	38	40	41	43	43	43	42	S	37	35	41	43	43	36.2	24	
15	42	42	43	42	38	40	40	40	41	41	41	41	41	41	42	42	43	43	S	42	42	42	41	41	43	41.3	24	
16	38	37	39	39	39	40	39	38	39	39	41	P	44	45	44	S	43	43	42	42	40	40	S	38	45	40.4	23	
17	37	36	33	29	26	23	23	22	23	C	C	C	C	C	42	44	43	40	37	37	S	S	35	33	44	33.3	24	
18	33	33	34	33	32	32	30	29	29	29	29	31	33	35	39	35	34	32	28	26	S	28	37	44	44	32.4	24	
19	45	45	45	44	41	38	34	33	36	38	38	39	41	41	43	42	39	39	40	S	41	42	42	41	45	40.3	24	
20	39	41	41	42	43	42	42	41	41	41	43	44	43	44	45	45	45	S	43	41	40	38	41	45	45	42.2	24	
21	42	40	41	40	38	36	36	37	37	38	38	38	38	37	36	35	34	S	35	35	35	36	37	36	42	37.2	24	
22	36	36	35	35	35	35	36	35	36	36	36	36	37	38	37	38	S	38	37	37	37	36	35	35	38	36.1	24	
23	34	35	36	35	35	36	36	36	37	40	40	40	40	40	38	S	37	37	36	36	35	35	34	33	40	36.6	24	
24	32	31	31	31	31	29	31	31	33	36	37	39	41	43	S	44	43	44	43	43	44	44	43	44	44	37.7	24	
25	41	39	38	38	38	35	38	38	37	36	36	37	38	S	41	40	39	40	39	40	39	38	38	42	42	38.5	24	
26	44	42	38	35	34	35	36	34	33	32	33	34	S	35	35	34	30	31	35	37	36	35	33	31	44	34.9	24	
27	31	30	29	28	28	26	24	18	25	29	30	S	38	40	41	41	41	42	40	40	41	39	37	35	42	33.6	24	
28	32	29	27	26	24	28	32	30	30	31	S	39	41	41	40	41	42	44	42	43	40	38	38	38	44	35.5	24	
29	35	34	32	29	23	21	21	24	25	S	27	30	35	40	44	44	43	40	38	37	42	43	40	35	44	34.0	24	
30	34	33	34	37	38	38	38	S	43	46	47	47	48	50	50	50	50	50	49	48	48	47	47	50	43.8	24		
31	48	46	41	39	43	41	38	S	41	41	41	40	41	42	43	43	44	44	42	41	39	38	39	35	48	41.3	24	
HOURLY MAX	48	46	45	44	43	42	42	41	43	46	47	47	48	50	51	50	50	49	48	48	47	47	47	47	47			
HOURLY AVG	37.3	36.7	36.2	35.8	35.6	35.2	35.0	34.2	35.2	37.1	37.8	38.9	40.2	41.2	42.0	42.2	41.6	41.3	40.0	40.0	40.1	39.6	38.5	38.2				

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

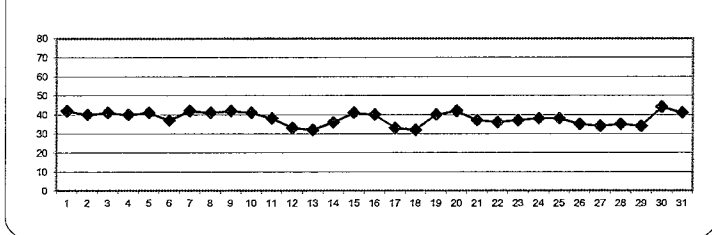
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR: 82 PPB

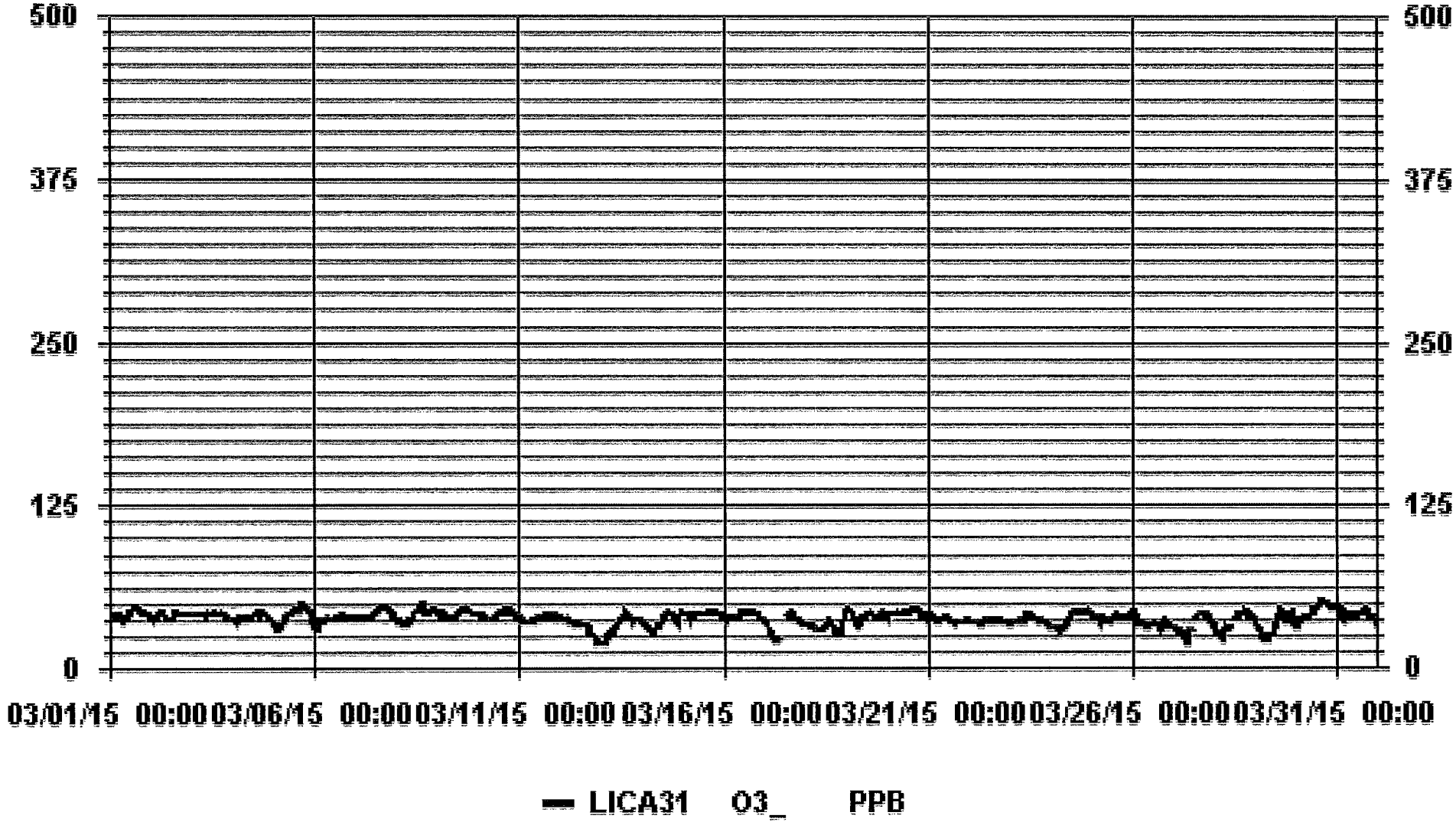
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	705		
MAXIMUM 1-HR AVERAGE:	51 PPB	@ HOUR(S)	15 ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	43.8 PPB		ON DAY(S) 30
			VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	5.32	MONTHLY AVERAGE:	38 PPB

24 HOUR AVERAGES FOR MARCH 2015



01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	RDGS.	
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.		
DAY																												
1	41	41	41	41	42	41	41	39	38	S	41	42	43	45	46	46	47	46	44	44	44	44	43	43	47	42.7	24	
2	42	40	39	40	42	43	43	42	S	39	38	39	40	43	43	43	42	42	42	41	41	42	42	42	43	41.3	24	
3	42	42	41	41	41	41	42	S	41	42	43	43	43	44	43	43	43	42	41	41	41	40	38	44	41.8	24		
4	39	38	38	39	39	39	S	38	38	40	40	41	42	43	45	43	42	43	42	42	42	41	40	39	45	40.6	24	
5	37	35	33	31	34	S	38	41	41	42	42	44	46	46	47	48	49	48	48	49	48	45	40	36	49	42.1	24	
6	33	30	39	38	S	37	38	39	39	38	39	39	38	39	40	40	41	40	40	40	40	40	40	39	41	38.5	24	
7	39	38	39	S	39	39	40	39	39	40	43	43	45	46	47	47	47	47	47	47	46	45	42	41	47	42.8	24	
8	39	39	S	42	37	36	38	39	38	40	44	45	46	47	55	56	47	44	44	45	45	45	45	45	56	43.5	24	
9	44	S	42	43	43	41	40	39	39	40	40	43	45	47	47	46	47	47	46	45	44	44	42	42	47	43.3	24	
10	S	43	41	41	41	40	39	39	38	42	41	42	43	43	44	45	45	44	45	45	42	41	40	S	45	42.0	24	
11	38	40	40	39	38	37	37	37	37	38	39	39	40	40	41	41	40	40	39	41	42	41	S	41	42	39.3	24	
12	40	39	39	39	38	38	38	36	36	35	36	36	35	34	34	34	34	32	28	28	26	S	22	21	40	33.8	24	
13	20	19	19	25	28	34	29	30	33	33	37	38	40	42	45	44	42	40	37	38	S	38	38	39	45	34.3	24	
14	38	36	35	34	32	31	30	29	31	33	34	37	40	42	43	44	44	44	43	S	38	37	44	44	44	37.5	24	
15	43	44	44	43	42	41	41	41	41	42	42	42	42	43	44	44	44	S	42	43	43	42	41	44	44	42.4	24	
16	39	39	39	39	40	40	40	39	39	40	42	P	45	46	46	S	44	44	43	43	42	41	S	39	46	41.4	23	
17	38	37	34	32	28	25	24	24	24	C	C	C	C	C	44	45	45	42	37	38	38	S	36	35	45	34.8	24	
18	34	34	34	34	33	32	31	30	30	30	31	32	35	38	40	39	34	34	31	28	S	33	42	45	45	34.1	24	
19	46	46	45	44	43	39	36	35	38	39	40	41	42	42	44	44	40	41	41	S	42	43	44	43	46	41.7	24	
20	41	42	42	43	43	43	42	42	42	43	44	45	44	45	46	46	46	45	S	43	42	41	39	43	46	43.1	24	
21	43	42	42	41	39	37	37	38	38	39	39	39	38	37	36	34	S	36	36	36	36	37	37	37	43	38.1	24	
22	36	37	36	36	36	36	36	36	36	36	36	36	38	38	38	S	39	38	38	37	36	37	36	37	36	36.8	24	
23	35	36	36	36	36	37	38	38	38	42	40	41	41	41	39	S	38	38	37	37	36	36	35	34	42	37.6	24	
24	34	33	33	32	32	32	33	33	34	37	39	41	42	44	S	44	44	45	44	44	44	44	44	44	45	39.0	24	
25	43	40	39	39	39	36	40	40	38	37	37	38	39	S	41	41	40	41	40	41	42	41	41	45	45	39.9	24	
26	45	44	41	39	35	45	37	36	34	34	34	35	S	35	36	36	32	33	37	38	37	36	35	32	45	36.8	24	
27	31	31	29	29	28	25	24	29	31	32	S	40	41	42	42	42	43	42	42	42	41	39	36	43	35.2	24		
28	34	30	28	28	26	33	34	32	31	33	S	42	43	43	41	42	44	45	43	44	43	39	40	39	45	37.3	24	
29	36	35	34	30	26	21	24	26	27	S	29	33	39	44	45	46	45	42	40	38	45	45	44	37	46	36.1	24	
30	35	34	36	39	39	39	39	39	S	45	47	50	49	50	51	51	50	51	51	50	50	48	48	48	51	45.2	24	
31	49	48	45	42	44	44	39	S	43	42	41	41	43	43	44	44	45	44	43	43	41	40	40	37	49	42.8	24	
HOURLY MAX	49	48	45	44	44	45	43	42	43	45	47	50	49	50	55	56	50	51	51	51	50	50	48	48	48			
HOURLY AVG	38.5	37.7	37.4	37.3	36.8	36.3	35.9	36.2	38.3	39.0	40.3	41.6	42.4	43.3	43.4	42.6	42.4	41.0	41.1	41.3	41.0	40.0	39.4					

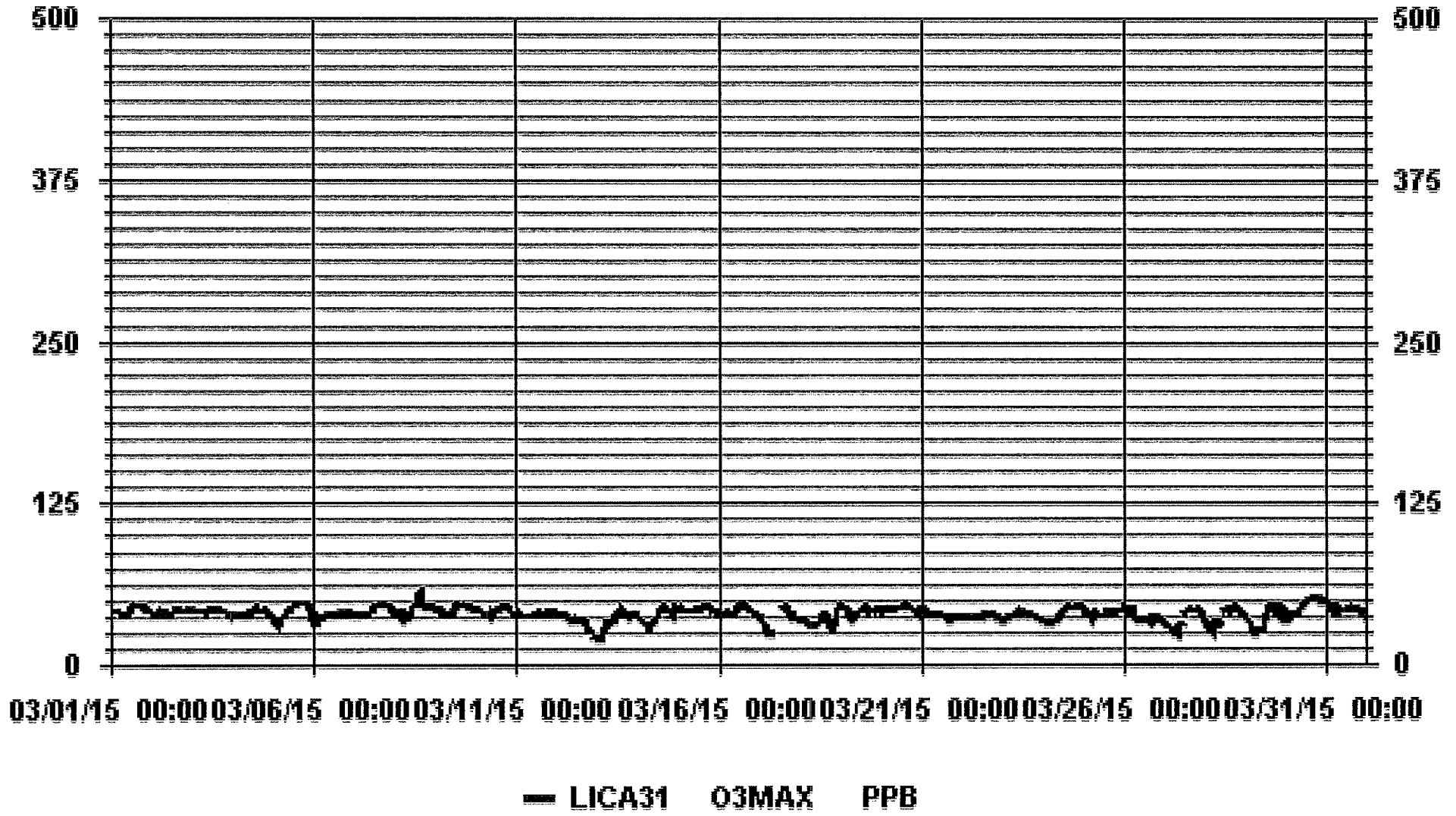
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705		
MAXIMUM INSTANTANEOUS VALUE:	56 PPB @ HOUR(S) 15 ON DAY(S) 8		
	VAR-VARIOUS		
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS		
STANDARD DEVIATION:	5.20		

01 Hour Averages



LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : O3
 Units : PPF

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50	1.28	1.13	2.99	7.83	3.56	4.55	5.12	5.55	11.96	11.68	8.40	8.40	9.68	7.54	6.98	2.56	99.28
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.28	.28	.00	.00	.00	.71
< 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	1.28	1.13	2.99	7.83	3.56	4.55	5.12	5.55	11.96	11.68	8.54	8.68	9.97	7.54	6.98	2.56	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50	9	8	21	55	25	32	36	39	84	82	59	59	68	53	49	18	697
< 110											1	2	2				5
< 210																	
>= 210																	
Totals	9	8	21	55	25	32	36	39	84	82	60	61	70	53	49	18	

Calm : .00 %

Total # Operational Hours : 702

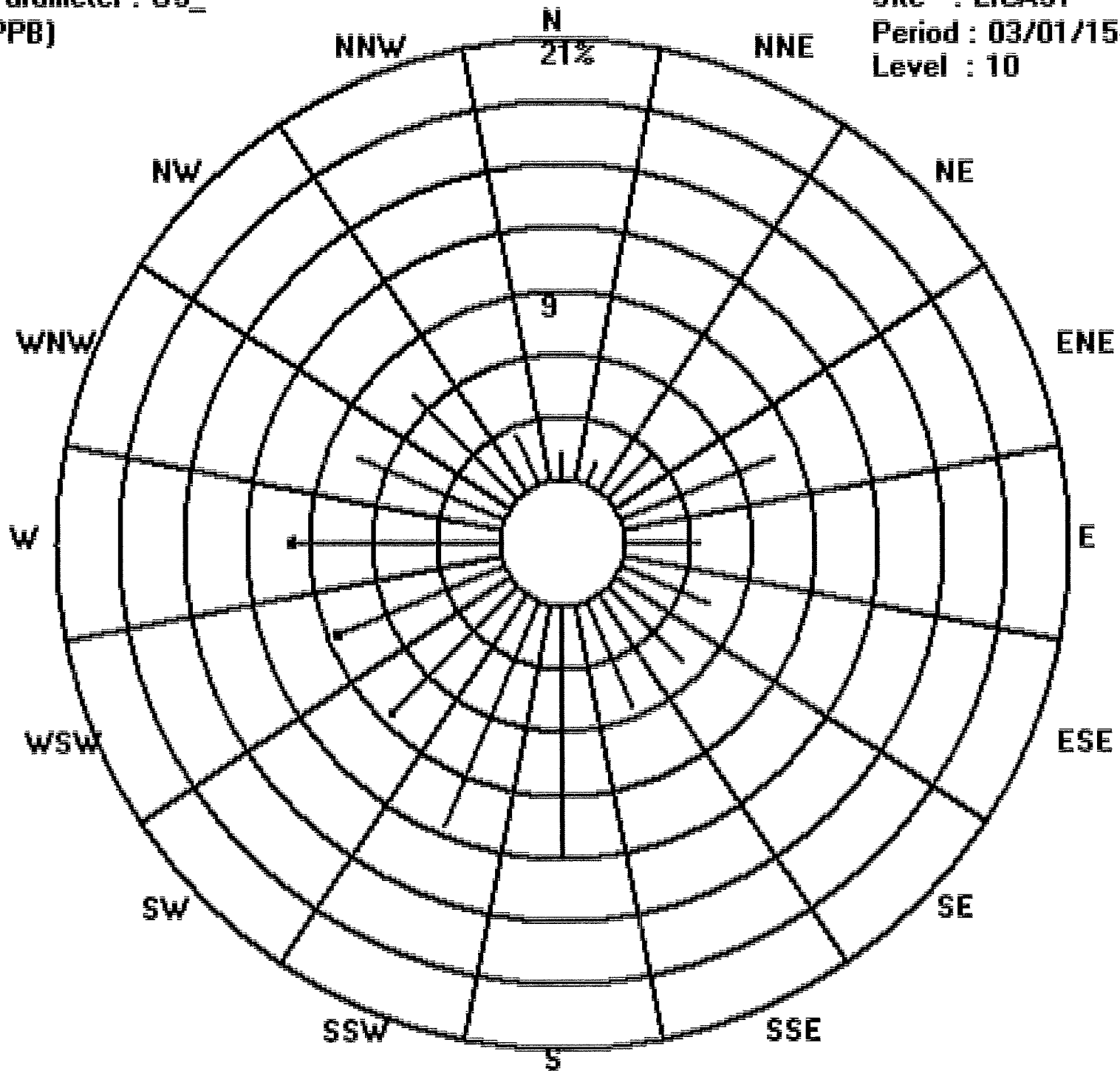
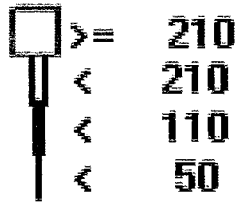
Logger : 31 Parameter : 03_

Site : LICA31

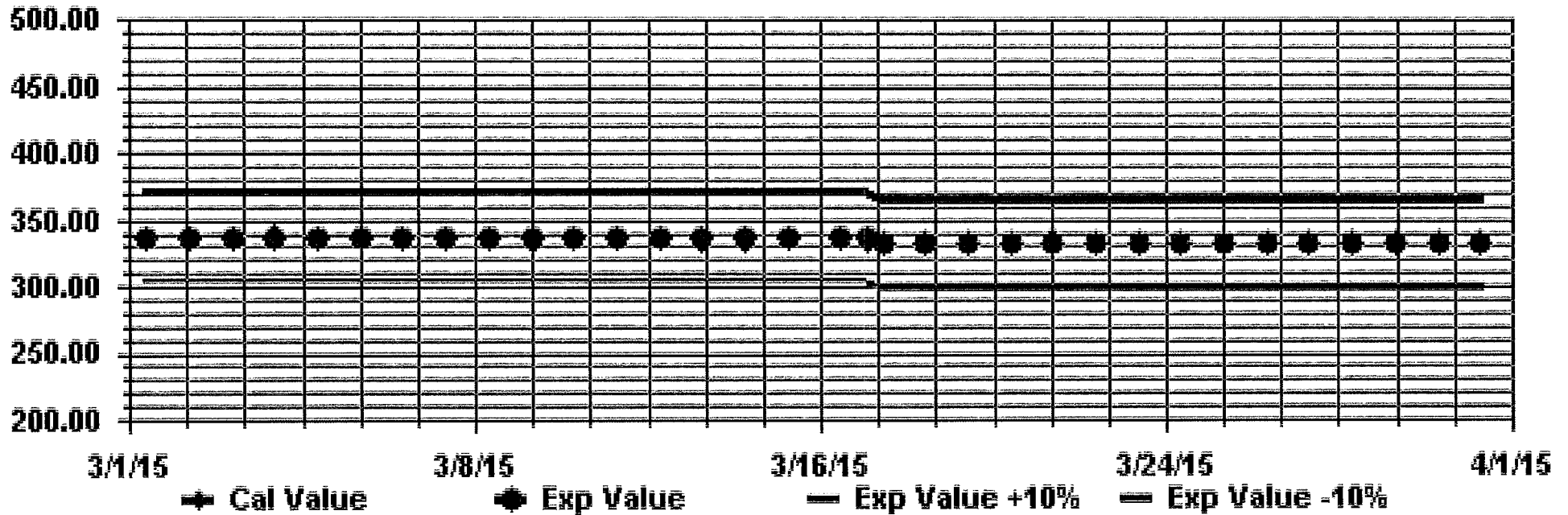
Class Limits (PPB)

Period : 03/01/15-03/31/15

Level : 10



Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: 03 Phase: SPAN



PARTICULATE MATTER 2.5

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

MST

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	DAILY MAX.	24-HOUR AVG.	RDGS.
1	5.0	5.0	5.0	5.0	5.0	9.0	4.0	8.0	9.0	5.0	2.0	9.0	10.0	8.0	12.0	11.0	4.0	7.0	8.0	7.0	13.0	14.0	10.0	7.0	14.0	7.6	24
2	6.0	7.0	16.0	16.0	8.0	4.0	3.0	4.0	7.0	5.0	3.0	3.0	7.0	5.0	6.0	4.0	0.0	7.0	8.0	7.0	2.0	25.0	20.0	2.0	25.0	7.3	24
3	8.0	4.0	3.0	4.0	12.0	8.0	10.0	7.0	8.0	3.0	4.0	4.0	6.0	2.0	6.0	6.0	5.0	6.0	3.0	7.0	10.0	0.0	7.0	5.0	12.0	5.8	24
4	9.0	5.0	6.0	5.0	6.0	5.0	7.0	6.0	8.0	10.0	13.0	X	6.0	10.0	6.0	9.0	5.0	12.0	6.0	8.0	10.0	9.0	11.0	9.0	13.0	7.9	23
5	11.0	13.0	14.0	16.0	15.0	14.0	11.0	7.0	4.0	3.0	6.0	3.0	6.0	10.0	4.0	7.0	7.0	5.0	5.0	6.0	11.0	10.0	6.0	13.0	16.0	8.6	24
6	13.0	10.0	11.0	7.0	15.0	5.0	6.0	7.0	7.0	1.0	5.0	5.0	C	0.0	8.0	18.0	1.0	1.0	2.0	2.0	0.0	21.0	12.0	0.0	21.0	6.8	24
7	6.0	0.0	3.0	6.0	X	7.0	8.0	9.0	0.0	1.0	0.0	0.0	9.0	3.0	10.0	10.0	15.0	0.0	6.0	X	0.0	5.0	13.0	6.0	15.0	5.3	22
8	6.0	0.0	3.0	6.0	7.0	8.0	8.0	3.0	9.0	2.0	8.0	4.0	3.0	10.0	10.0	9.0	5.0	6.0	4.0	5.0	3.0	6.0	9.0	7.0	10.0	5.9	24
9	7.0	11.0	0.0	6.0	2.0	3.0	2.0	7.0	9.0	4.0	5.0	4.0	4.0	4.0	7.0	4.0	0.0	0.0	2.0	0.0	6.0	6.0	0.0	11.0	4.1	24	
10	4.0	7.0	3.0	5.0	0.0	8.0	7.0	2.0	10.0	5.0	5.0	2.0	6.0	1.0	0.0	2.0	4.0	0.0	11.0	13.0	7.0	2.0	6.0	7.0	13.0	4.9	24
11	5.0	7.0	3.0	6.0	10.0	11.0	11.0	2.0	8.0	5.0	1.0	0.0	X	1.0	6.0	2.0	10.0	8.0	0.0	6.0	3.0	6.0	11.0	10.0	11.0	5.7	23
12	5.0	9.0	11.0	12.0	23.0	14.0	15.0	4.0	16.0	17.0	14.0	7.0	8.0	19.0	7.0	9.0	C	Y	C	0.0	7.0	17.0	31.0	25.0	31.0	12.9	23
13	17.0	21.0	22.0	29.0	21.0	22.0	18.0	17.0	18.0	19.0	15.0	12.0	16.0	7.0	11.0	11.0	7.0	10.0	7.0	10.0	14.0	22.0	17.0	21.0	29.0	16.0	24
14	18.0	11.0	13.0	8.0	9.0	12.0	7.0	6.0	3.0	9.0	10.0	10.0	8.0	4.0	4.0	11.0	8.0	13.0	8.0	11.0	12.0	9.0	10.0	6.0	18.0	9.2	24
15	12.0	8.0	2.0	15.0	1.0	0.0	8.0	8.0	6.0	10.0	4.0	3.0	9.0	8.0	6.0	6.0	3.0	8.0	0.0	7.0	6.0	0.0	11.0	15.0	15.0	6.1	24
16	11.0	10.0	15.0	8.0	5.0	6.0	2.0	3.0	5.0	4.0	3.0	P	3.0	6.0	3.0	3.0	10.0	6.0	6.0	6.0	10.0	8.0	13.0	11.0	15.0	6.8	23
17	15.0	14.0	12.0	15.0	18.0	17.0	19.0	18.0	23.0	21.0	26.0	22.0	18.0	14.0	10.0	14.0	10.0	13.0	7.0	9.0	16.0	18.0	13.0	11.0	26.0	15.5	24
18	18.0	11.0	10.0	10.0	4.0	4.0	8.0	15.0	4.0	10.0	5.0	6.0	11.0	8.0	9.0	10.0	17.0	13.0	28.0	21.0	18.0	18.0	15.0	9.0	28.0	11.8	24
19	9.0	13.0	9.0	11.0	7.0	7.0	10.0	10.0	13.0	5.0	4.0	9.0	5.0	7.0	5.0	7.0	6.0	6.0	11.0	10.0	6.0	4.0	10.0	0.0	13.0	7.7	24
20	9.0	1.0	8.0	12.0	14.0	13.0	5.0	6.0	9.0	5.0	5.0	10.0	7.0	C	0.0	0.0	X	4.0	7.0	7.0	12.0	13.0	3.0	12.0	14.0	7.4	23
21	10.0	13.0	6.0	9.0	6.0	10.0	10.0	14.0	9.0	7.0	11.0	13.0	7.0	7.0	2.0	5.0	18.0	10.0	12.0	13.0	8.0	11.0	15.0	13.0	18.0	10.0	24
22	7.0	11.0	14.0	14.0	8.0	11.0	11.0	4.0	6.0	6.0	8.0	12.0	9.0	8.0	0.0	2.0	8.0	8.0	7.0	9.0	2.0	5.0	10.0	7.0	14.0	7.8	24
23	7.0	5.0	10.0	6.0	11.0	11.0	10.0	9.0	11.0	10.0	11.0	0.0	6.0	11.0	11.0	13.0	10.0	13.0	18.0	13.0	14.0	15.0	13.0	13.0	18.0	10.5	24
24	14.0	16.0	16.0	20.0	10.0	9.0	10.0	8.0	11.0	8.0	7.0	9.0	8.0	9.0	7.0	2.0	8.0	11.0	7.0	8.0	11.0	14.0	12.0	11.0	20.0	10.3	24
25	12.0	14.0	17.0	14.0	20.0	23.0	19.0	28.0	31.0	22.0	18.0	24.0	20.0	20.0	14.0	16.0	16.0	21.0	16.0	21.0	17.0	24.0	22.0	29.0	31.0	19.9	24
26	24.0	23.0	28.0	20.0	36.0	25.0	23.0	28.0	24.0	27.0	25.0	20.0	23.0	21.0	25.0	21.0	25.0	27.0	29.0	16.0	18.0	18.0	21.0	20.0	36.0	23.6	24
27	16.0	26.0	17.0	24.0	18.0	18.0	16.0	16.0	13.0	6.0	5.0	10.0	6.0	2.0	1.0	5.0	2.0	5.0	4.0	9.0	19.0	11.0	7.0	13.0	26.0	11.2	24
28	9.0	16.0	17.0	12.0	18.0	17.0	7.0	9.0	7.0	5.0	5.0	2.0	7.0	5.0	7.0	0.0	0.0	0.0	7.0	7.0	5.0	7.0	9.0	7.0	18.0	7.7	24
29	0.0	4.0	7.0	12.0	18.0	22.0	21.0	23.0	7.0	12.0	11.0	9.0	11.0	7.0	7.0	7.0	4.0	9.0	12.0	2.0	0.0	6.0	4.0	23.0	9.3	24	
30	9.0	6.0	3.0	3.0	8.0	0.0	6.0	4.0	7.0	7.0	5.0	3.0	11.0	9.0	3.0	6.0	10.0	5.0	6.0	8.0	8.0	9.0	9.0	4.0	11.0	6.2	24
31	2.0	4.0	7.0	9.0	4.0	5.0	5.0	7.0	5.0	7.0	8.0	2.0	6.0	6.0	5.0	9.0	4.0	11.0	9.0	7.0	7.0	6.0	9.0	1.0	11.0	6.0	24
HOURLY MAX	24.0	26.0	28.0	29.0	36.0	25.0	23.0	28.0	31.0	27.0	26.0	24.0	23.0	21.0	25.0	21.0	25.0	27.0	29.0	21.0	19.0	25.0	31.0	29.0			
HOURLY AVG	9.8	9.8	10.0	11.1	11.3	10.6	9.9	9.6	9.9	8.4	8.1	7.5	8.8	7.7	6.7	7.8	8.0	7.8	8.6	8.7	8.8	10.9	11.5	9.5			

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

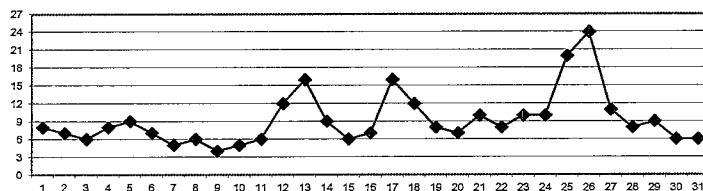
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

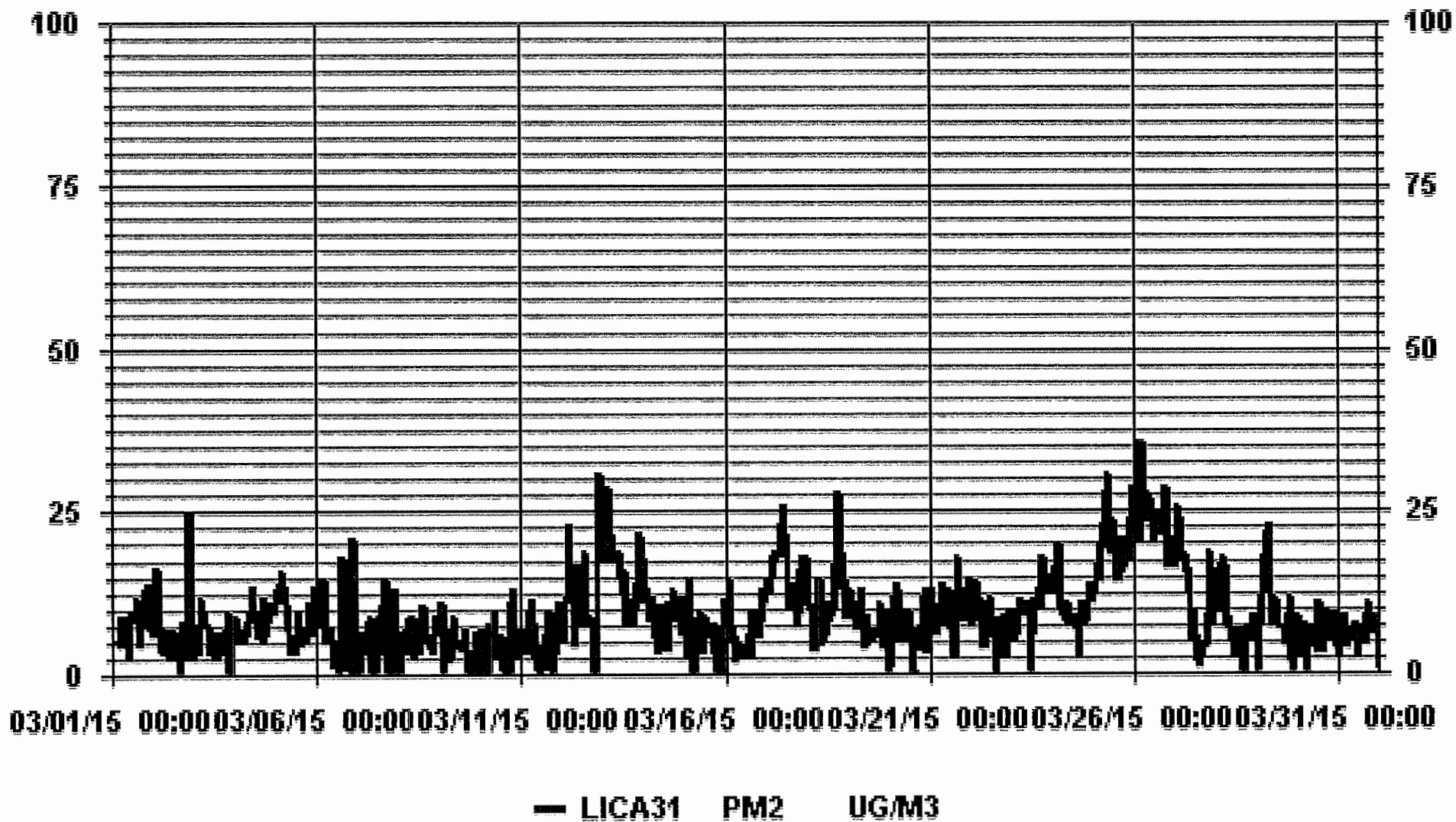
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	696		
MAXIMUM 1-HR AVERAGE:	36.0 ug/m3 @ HOUR(S)	4	ON DAY(S) 26
MAXIMUM 24-HR AVERAGE:	23.6 ug/m3		ON DAY(S) 26
			VAR-VARIOUS
MONTHLY CALIBRATION TIME:	4 HRS	OPERATIONAL TIME:	737 HRS
		AMD OPERATION UPTIME:	99.1 %
STANDARD DEVIATION:	6.18	MONTHLY AVERAGE:	9.2 ug/m3

24 HOUR AVERAGES FOR MARCH 2015



01 Hour Averages



LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : PM2
 Units : UG/M3

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	1.22	1.08	2.99	7.61	3.26	4.76	5.30	5.71	11.97	11.56	8.43	8.84	9.93	7.34	6.93	2.58	99.59
< 60	.00	.00	.00	.00	.13	.00	.00	.13	.00	.13	.00	.00	.00	.00	.00	.00	.40
< 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	1.22	1.08	2.99	7.61	3.40	4.76	5.30	5.85	11.97	11.70	8.43	8.84	9.93	7.34	6.93	2.58	

Calm : .00 %

Total # Operational Hours : 735

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	9	8	22	56	24	35	39	42	88	85	62	65	73	54	51	19	732
< 60					1			1		1							3
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	9	8	22	56	25	35	39	43	88	86	62	65	73	54	51	19	

Calm : .00 %

Total # Operational Hours : 735

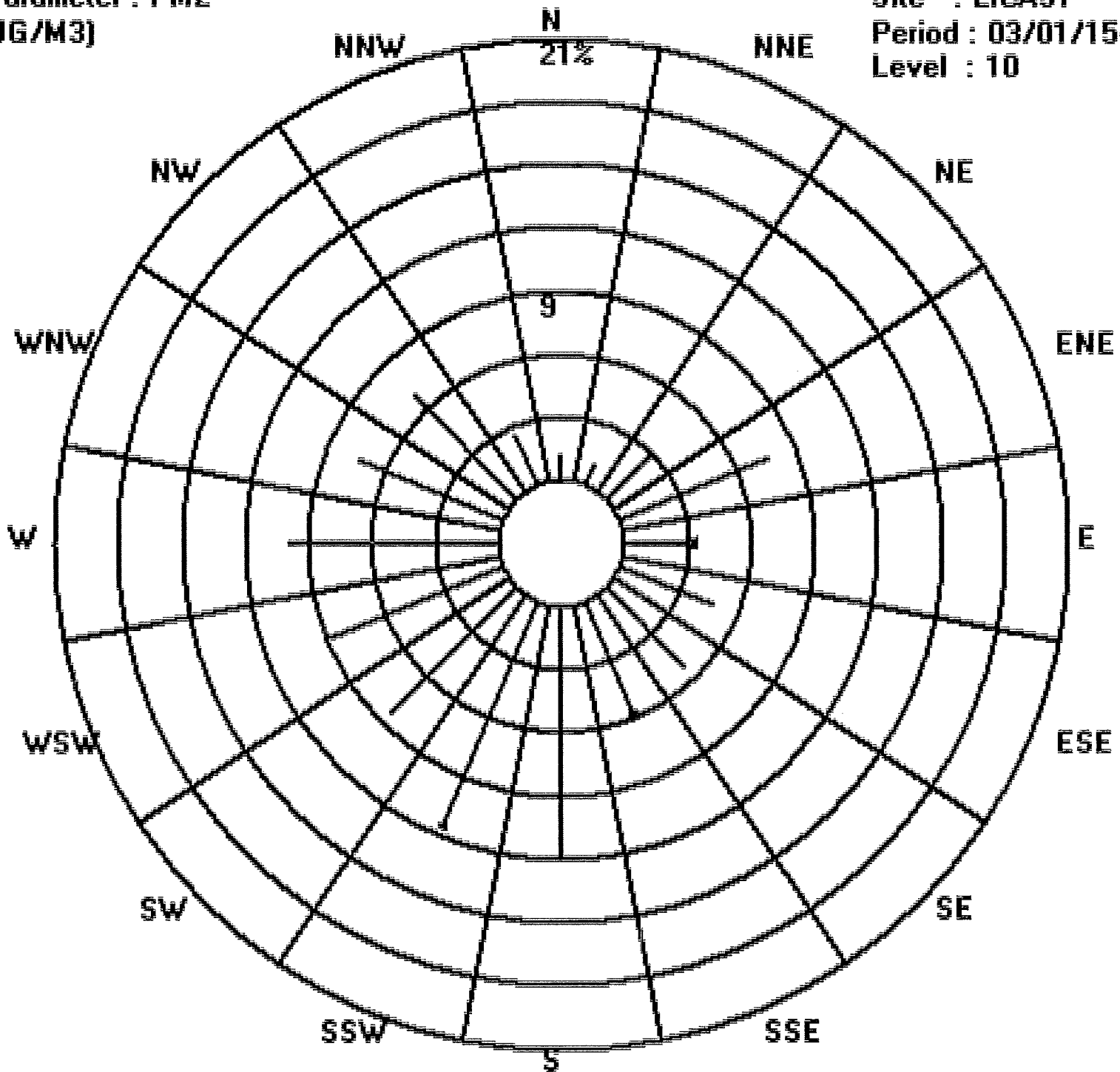
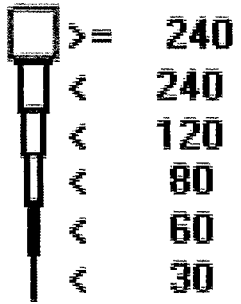
Logger : 31 Parameter : PM2

Site : LICA31

Class Limits (UG/M3)

Period : 03/01/15-03/31/15

Level : 10



WIND SPEED

WIND SPEED (WS) hourly averages in km/hr

MST

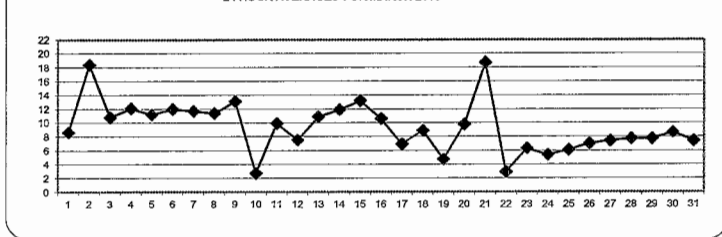
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	ROGS.
1	9.2	11.2	9.9	9.1	7.3	5.1	4.7	6.1	5.9	6.5	8.5	9.6	11.6	10.4	12.9	13.9	12.5	15.7	15.2	14.5	15.2	15.8	15.1	12.6	15.8	10.8	24
2	13.3	11.3	10.0	14.9	23.5	25.2	23.1	16.3	20.2	23.9	23.1	25.3	27.3	27.4	22.3	24.9	20.8	21.1	18.9	17.1	18.0	19.5	16.7	15.0	27.4	20.0	24
3	12.2	10.3	12.6	10.9	10.3	9.9	11.9	12.8	12.9	18.6	20.4	21.2	18.0	22.4	19.2	18.6	18.5	14.9	9.2	10.6	8.1	7.6	5.1	6.7	22.4	13.5	24
4	6.2	6.8	9.4	10.3	10.8	12.7	11.9	11.6	11.4	11.8	13.5	11.9	14.8	16.7	17.5	14.7	13.9	12.8	9.7	11.2	14.3	14.2	12.9	12.7	17.5	12.2	24
5	14.7	13.8	13.4	14.5	12.0	11.7	12.9	12.2	9.7	9.3	7.2	10.6	10.6	11.4	12.3	12.2	15.7	12.6	12.3	9.6	12.4	13.4	10.8	8.6	15.7	11.8	24
6	7.6	8.9	10.9	9.7	14.5	12.1	16.0	16.8	14.9	15.5	14.3	15.7	17.1	16.9	16.4	15.7	14.0	12.1	12.5	9.9	9.8	11.6	10.2	10.0	17.1	13.0	24
7	10.0	9.3	10.7	11.7	11.0	9.4	10.9	12.1	12.5	14.2	15.0	17.4	19.1	20.8	19.4	19.7	16.5	13.0	10.7	7.6	8.2	7.4	9.1	10.3	20.8	12.8	24
8	9.3	9.6	8.2	7.8	10.1	10.4	11.0	9.5	10.8	10.8	11.0	16.4	17.2	18.2	18.2	18.1	18.8	14.5	7.9	9.7	10.7	10.3	9.0	8.7	18.8	11.9	24
9	9.8	11.1	16.5	19.6	18.4	19.0	21.2	18.2	18.1	15.3	14.5	16.9	10.2	10.9	14.0	14.8	15.6	13.1	10.3	7.7	7.6	7.8	10.6	9.6	21.2	13.8	24
10	9.4	6.5	7.9	8.3	5.6	11.1	6.7	6.1	7.7	5.8	6.7	8.5	6.1	9.7	11.2	10.2	10.1	9.0	9.2	9.6	10.0	10.7	10.4	11.5	11.5	8.7	24
11	11.4	12.4	11.8	11.5	12.3	13.1	13.3	12.6	11.4	10.8	13.4	14.8	16.7	14.9	12.0	12.4	10.0	7.9	5.6	5.8	6.6	8.0	6.5	7.1	16.7	10.9	24
12	6.2	5.0	6.0	5.9	6.4	8.7	9.1	8.8	9.7	9.1	8.2	12.9	9.4	8.5	Y	Y	Y	13.9	9.8	9.9	12.1	9.1	10.2	10.9	13.9	9.0	21
13	10.5	9.1	9.7	9.8	9.1	9.2	11.0	9.9	6.8	5.8	7.1	8.6	11.6	11.8	16.0	14.7	12.6	12.8	13.1	15.2	17.1	15.5	16.4	16.8	17.1	11.7	24
14	16.8	16.3	14.7	13.2	14.4	15.5	14.6	16.0	14.3	11.8	12.0	12.7	12.5	13.3	10.5	10.8	9.9	10.8	9.6	12.5	11.4	15.3	25.4	28.9	28.9	14.3	24
15	28.6	28.9	34.1	34.5	28.1	22.3	18.0	18.3	19.3	18.2	15.2	13.9	10.9	10.3	8.0	7.5	7.1	5.4	4.0	3.9	3.7	2.7	6.2	8.2	34.5	14.9	24
16	8.3	7.4	8.4	10.6	9.9	10.3	9.9	7.7	6.4	6.0	10.2	P	20.3	23.7	24.0	23.1	22.2	18.4	11.0	8.6	7.6	8.0	9.6	8.8	24.0	12.2	23
17	9.3	6.6	8.1	9.5	8.0	8.2	6.1	5.6	3.8	5.0	9.3	9.0	7.8	8.5	7.2	8.3	7.0	9.4	10.1	11.0	11.7	10.6	10.5	10.3	11.7	8.4	24
18	9.4	8.2	8.2	8.6	8.7	8.7	8.2	6.7	7.7	9.6	9.5	11.7	10.3	12.2	18.5	21.0	20.1	14.8	10.5	7.3	6.8	7.5	11.0	11.3	21.0	10.7	24
19	10.8	9.8	10.8	11.2	10.3	8.2	10.5	8.7	8.3	7.8	8.9	7.1	8.7	7.2	8.6	7.1	7.9	6.8	7.6	9.2	8.0	8.5	10.2	10.6	11.2	8.9	24
20	11.3	12.0	11.0	10.8	11.6	10.1	7.4	9.5	9.4	6.6	7.7	9.8	9.3	8.1	7.4	7.7	9.2	12.0	12.7	12.7	13.9	11.5	10.7	12.9	13.9	10.2	24
21	14.7	13.6	16.2	17.7	17.6	20.2	20.3	20.2	20.6	21.1	20.0	20.8	21.3	23.1	22.4	22.0	22.4	20.0	19.5	14.2	15.0	18.1	13.8	15.2	23.1	18.8	24
22	14.4	14.7	15.4	14.3	13.2	9.3	5.4	4.3	5.5	6.0	7.3	5.4	5.7	4.9	4.5	4.7	3.4	4.1	6.1	5.5	6.6	7.1	7.3	8.7	15.4	7.7	24
23	9.2	7.6	7.8	8.3	7.6	8.3	9.3	7.6	7.9	9.0	11.3	7.3	9.0	8.9	8.9	7.0	7.2	4.7	5.2	4.0	3.8	5.9	2.5	1.9	11.3	7.1	24
24	1.5	1.5	1.5	3.5	2.5	2.8	5.0	3.3	6.2	6.1	7.7	7.4	7.2	9.2	9.2	8.7	6.6	5.0	4.3	9.1	11.1	11.1	11.5	9.4	11.5	6.3	24
25	7.2	6.8	7.1	5.9	4.2	6.5	9.7	8.3	10.1	7.3	7.4	8.4	9.3	6.4	6.4	5.4	4.3	5.9	6.6	8.1	6.6	7.1	5.1	7.2	10.1	7.0	24
26	8.4	6.2	5.0	5.3	7.1	8.8	6.8	7.2	8.3	8.4	8.5	9.7	10.5	5.7	6.3	7.6	8.7	10.3	11.9	10.1	10.8	9.7	10.6	9.9	11.9	8.4	24
27	8.9	9.5	8.7	9.4	7.4	7.7	7.4	6.3	7.3	4.8	2.8	5.4	8.5	9.3	14.0	15.5	13.0	9.7	10.4	11.8	13.9	13.6	12.9	12.4	15.5	9.6	24
28	8.4	5.4	6.2	6.0	11.9	11.5	11.8	9.9	8.6	8.8	8.3	9.6	13.6	17.4	16.2	14.9	14.6	12.2	10.0	8.9	10.6	9.6	9.0	8.4	17.4	10.5	24
29	11.6	9.8	8.6	7.6	7.9	6.9	6.2	7.6	9.3	7.9	7.8	7.7	7.2	10.0	9.6	9.8	9.9	9.9	7.7	8.4	16.5	7.3	9.4	8.2	16.5	8.9	24
30	9.3	10.9	12.5	12.1	13.6	14.2	11.1	12.2	12.3	15.0	13.6	12.3	10.1	10.9	11.6	11.7	15.3	15.4	7.6	5.5	6.9	8.0	8.3	8.7	15.4	11.2	24
31	12.7	13.8	12.1	12.5	12.5	9.5	14.9	16.7	16.1	16.5	15.4	15.3	15.4	14.0	11.6	10.6	12.2	10.3	11.2	8.0	15.0	21.8	20.3	5.5	21.8	13.5	24
HOURLY MAX	28.6	28.9	34.1	34.5	28.1	25.2	23.1	20.2	20.6	23.9	23.1	25.3	27.3	27.4	24.0	24.9	22.4	21.1	19.5	17.1	18.0	21.8	25.4	28.9			
HOURLY AVG	10.7	10.1	10.8	11.1	11.2	11.2	11.2	10.6	10.8	10.8	11.2	12.1	12.5	13.0	13.2	13.1	12.7	11.6	10.0	9.6	10.6	10.8	10.9	10.5			

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

LAST CALIBRATION: August 28, 2014
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

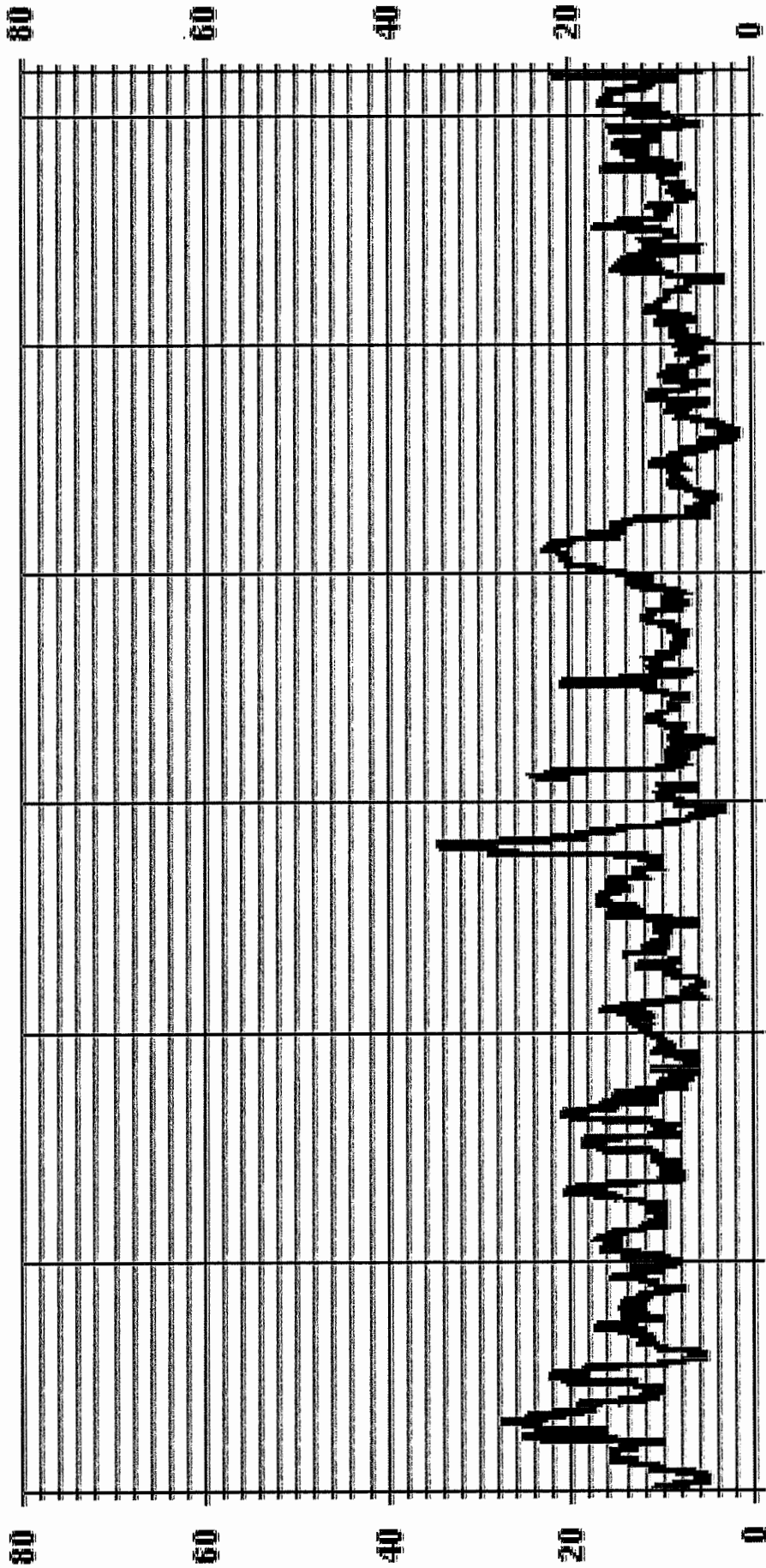
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	740		
MAXIMUM 1-HR AVERAGE:	34.5 KPH	@ HOUR(S)	3 ON DAY(S) 15
MAXIMUM 24-HR AVERAGE:	20.0 KPH		ON DAY(S) 2
			VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	740 HRS
		AMD OPERATION UPTIME:	99.5 %
STANDARD DEVIATION:	4.80	MONTHLY AVERAGE:	11.2 KPH

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA31 WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	RDGS.	
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.		
DAY																												
1	22.2	25.9	18.7	19.6	13.2	14.1	6.0	15.0	11.9	17.6	19.6	22.7	30.6	26.0	31.1	32.1	34.1	34.2	34.9	31.6	32.7	33.9	29.7	26.6	34.9	24.3	24	
2	18.5	14.8	22.0	38.0	58.8	69.0	70.1	36.6	54.4	54.4	51.8	55.2	58.7	58.3	50.9	51.7	43.9	48.4	47.5	41.7	38.8	50.6	37.7	34.0	70.1	46.1	24	
3	26.5	23.6	29.2	25.4	26.0	23.9	24.9	27.4	32.0	42.7	44.7	46.3	46.5	49.1	43.2	46.9	43.1	40.9	21.7	22.6	18.0	15.7	10.2	27.0	49.1	31.6	24	
4	14.5	14.7	14.5	16.9	19.7	22.3	23.7	23.6	26.8	28.3	29.9	28.6	33.9	40.2	40.4	35.8	33.8	29.2	22.3	24.4	29.9	29.2	25.1	18.9	40.4	26.1	24	
5	19.6	18.7	19.8	19.8	18.0	17.4	18.7	23.0	19.4	20.1	17.3	19.9	19.9	16.2	18.6	24.3	25.7	22.3	19.6	16.1	21.0	20.1	17.5	14.2	25.7	19.5	24	
6	22.1	18.4	18.8	18.2	26.3	21.6	43.9	46.3	46.1	33.9	35.2	33.7	39.3	37.0	36.6	42.7	33.7	34.0	32.8	23.4	20.1	23.8	22.1	18.8	46.3	30.4	24	
7	18.1	15.3	17.9	21.2	18.8	18.1	24.4	22.4	28.0	32.8	33.1	55.2	49.6	46.0	62.2	48.3	52.7	28.6	19.2	12.8	12.4	14.2	12.7	19.9	62.2	28.5	24	
8	19.0	16.4	13.5	11.5	13.3	13.7	13.9	14.4	14.8	17.3	25.8	31.9	35.0	29.6	35.3	33.5	30.2	23.8	16.8	16.8	19.3	19.5	16.7	16.6	35.3	20.8	24	
9	17.1	22.3	29.6	45.8	38.3	36.3	38.9	37.0	42.2	42.3	29.1	45.7	25.6	35.2	56.0	26.9	39.6	28.8	23.8	19.0	15.3	14.7	18.4	16.6	56.0	31.0	24	
10	14.0	13.3	12.2	12.2	17.9	31.2	16.5	14.0	15.9	23.6	19.9	20.4	15.3	21.0	21.1	21.7	21.2	16.6	16.6	15.1	20.1	20.8	21.4	23.6	31.2	18.6	24	
11	21.0	25.6	23.4	26.7	28.5	28.2	28.4	22.7	22.5	27.5	41.8	40.3	39.4	41.1	28.0	25.0	20.8	16.4	13.3	16.0	16.4	19.0	14.7	16.6	41.8	25.1	24	
12	16.0	15.1	14.0	11.6	14.2	17.0	22.5	20.1	23.5	24.9	21.8	29.3	25.8	18.3	Y	Y	Y	20.8	16.4	17.9	27.1	16.9	24.5	21.0	29.3	19.9	21	
13	17.3	14.9	16.0	16.4	17.3	20.6	16.8	13.4	10.8	11.2	12.1	16.8	28.0	27.6	36.4	35.5	30.0	32.5	31.8	32.4	35.3	32.7	35.3	32.5	36.4	23.9	24	
14	33.3	34.0	32.0	30.2	27.6	32.7	32.8	38.3	34.3	28.2	34.6	27.2	29.2	31.0	25.0	30.9	17.9	18.4	18.6	24.3	18.5	42.1	60.2	79.0	79.0	32.5	24	
15	79.7	84.1	84.5	94.1	77.6	51.2	41.3	43.1	42.0	42.2	34.5	28.4	28.9	27.8	25.1	17.3	18.8	16.8	10.4	12.7	11.8	9.9	13.1	16.0	94.1	38.0	24	
16	16.1	14.4	18.3	25.5	21.4	21.8	19.2	17.7	15.1	16.4	20.3	P	36.1	44.8	44.2	49.7	40.1	50.0	20.7	12.6	13.9	12.7	16.7	14.8	50.0	24.5	23	
17	15.8	10.4	11.5	16.7	13.4	17.8	14.5	14.4	12.6	13.5	25.7	19.9	17.9	19.0	18.8	17.5	16.3	17.3	18.8	20.5	22.5	24.9	20.0	18.8	25.7	17.4	24	
18	15.7	14.1	15.9	17.4	16.8	13.9	16.1	15.3	19.8	19.0	19.7	26.2	19.9	24.1	30.6	33.7	32.6	26.0	16.8	15.7	14.2	17.0	22.0	22.9	33.7	20.2	24	
19	21.8	19.2	22.0	22.1	21.3	27.2	27.2	21.5	24.4	23.5	19.0	18.6	24.7	17.5	17.3	16.8	14.6	13.5	16.3	21.2	17.3	17.7	26.7	23.2	27.2	20.6	24	
20	24.0	24.9	23.2	22.5	24.9	20.7	15.6	21.4	20.0	16.4	16.6	20.7	21.4	21.0	19.0	18.6	27.5	26.6	26.9	22.9	37.6	23.4	22.9	29.8	37.6	22.9	24	
21	31.5	31.1	41.3	44.1	40.2	45.7	47.8	55.7	46.4	45.4	49.1	47.8	46.7	53.1	55.2	51.9	54.1	44.1	52.1	29.2	38.0	53.3	42.8	33.0	55.7	45.0	24	
22	29.3	32.1	30.2	29.9	30.8	23.1	13.9	12.3	13.4	16.3	17.6	15.9	19.4	15.9	14.8	14.8	15.9	12.6	12.6	12.8	9.5	10.4	15.0	17.6	32.1	18.2	24	
23	13.3	11.5	11.5	13.0	16.5	18.7	21.5	19.3	20.0	22.0	31.5	21.0	19.9	21.4	19.8	17.6	14.8	11.3	12.2	12.4	13.0	15.2	11.8	3.9	31.5	16.4	24	
24	9.3	8.9	9.8	12.2	10.8	11.9	8.8	13.0	12.6	12.7	17.2	19.0	20.3	22.5	26.4	24.7	16.3	18.3	9.8	15.0	17.2	17.9	17.6	13.5	26.4	15.2	24	
25	11.3	10.6	10.9	13.7	13.5	11.5	22.9	17.2	25.3	24.9	14.8	19.7	18.6	16.2	15.5	16.0	10.3	11.8	12.0	14.6	13.5	15.1	12.9	14.4	25.3	15.3	24	
26	16.4	15.9	12.3	12.6	13.5	16.1	17.5	16.1	17.9	17.7	18.2	21.0	28.1	16.6	13.8	16.8	17.9	20.5	26.9	19.4	19.8	16.8	16.6	16.8	28.1	17.7	24	
27	13.3	16.0	15.5	18.4	12.2	11.5	10.5	8.7	14.0	13.4	10.8	13.9	19.6	20.2	31.4	34.2	28.7	28.8	20.5	23.2	29.3	27.4	28.0	23.0	34.2	19.7	24	
28	26.2	12.5	9.6	19.6	34.3	29.1	32.8	27.9	19.4	20.0	27.7	22.9	29.6	39.0	35.7	32.6	33.3	31.3	26.0	19.8	19.2	15.3	13.1	14.0	39.0	24.6	24	
29	19.0	15.5	13.6	11.8	11.8	10.7	10.5	14.2	17.5	16.6	15.1	18.4	17.4	20.9	20.8	19.7	20.3	19.9	15.1	16.5	69.7	14.0	14.9	11.6	69.7	18.1	24	
30	17.9	21.0	23.8	24.9	26.4	31.9	22.5	24.3	29.8	36.3	30.7	28.3	25.0	27.6	26.3	31.3	28.9	26.7	12.7	9.4	11.0	14.9	12.3	16.4	36.3	23.3	24	
31	25.4	27.1	24.1	26.1	30.0	27.4	35.0	37.3	33.7	31.3	32.0	35.5	28.5	29.4	25.0	24.3	22.4	20.6	22.2	20.3	51.2	48.5	56.2	X	56.2	31.0	23	
HOURLY MAX	79.7	84.1	84.5	94.1	77.6	69.0	70.1	55.7	54.4	54.4	51.8	55.2	58.7	58.3	62.2	51.9	54.1	50.0	52.1	41.7	69.7	53.3	60.2	79.0				
HOURLY AVG	21.5	20.7	21.3	23.8	24.3	24.4	24.5	23.7	24.7	25.6	26.4	28.3	29.0	29.5	30.8	29.8	28.0	25.5	21.5	19.8	23.7	22.8	22.9	21.8				

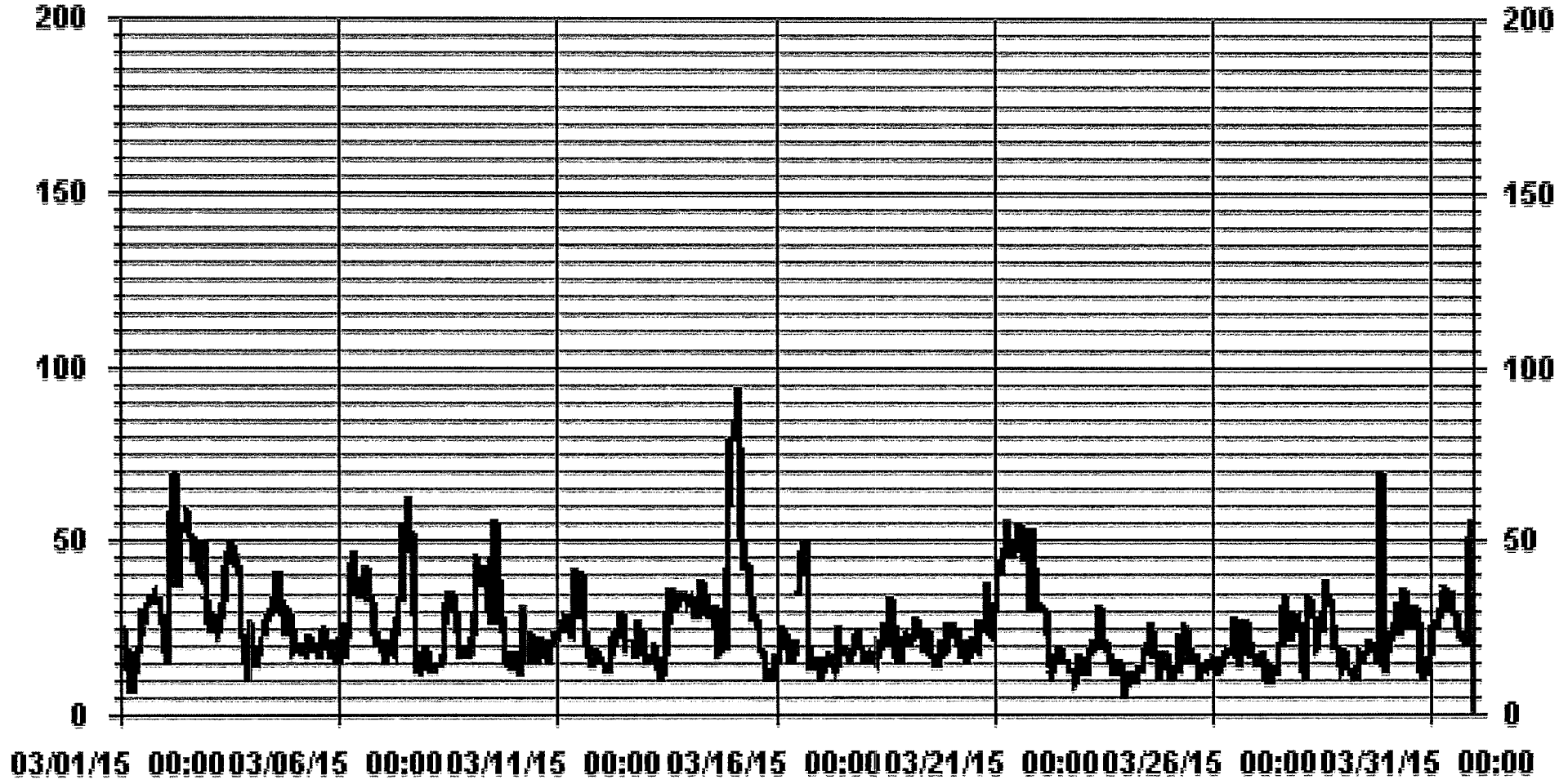
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	94.1	KPH	@ HOUR(S)	3	ON DAY(S)	15
					VAR-VARIOUS	
OPERATIONAL TIME:				739	HRS	

01 Hour Averages



— LICA31 WSMAX KPH

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	.54	.40	.40	.40	.40	.27	.54	.81	.67	1.08	.54	.40	.54	.94	.13	.27	8.37
< 12.0	.67	.67	1.75	2.70	2.43	3.37	3.64	3.24	7.29	8.51	5.00	5.13	5.94	2.97	1.62	1.62	56.62
< 20.0	.00	.00	.81	2.97	.54	1.08	1.08	1.75	4.05	2.02	2.43	2.83	2.43	2.83	3.24	.40	28.51
< 29.0	.00	.00	.00	1.75	.00	.00	.00	.00	.00	.00	.54	.54	.67	.54	1.89	.27	6.21
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.00	.27
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.21	1.08	2.97	7.83	3.37	4.72	5.27	5.81	12.02	11.62	8.51	8.91	9.86	7.29	6.89	2.56	

Calm : .00 %

Total # Operational Hours : 740

Distribution By Samples

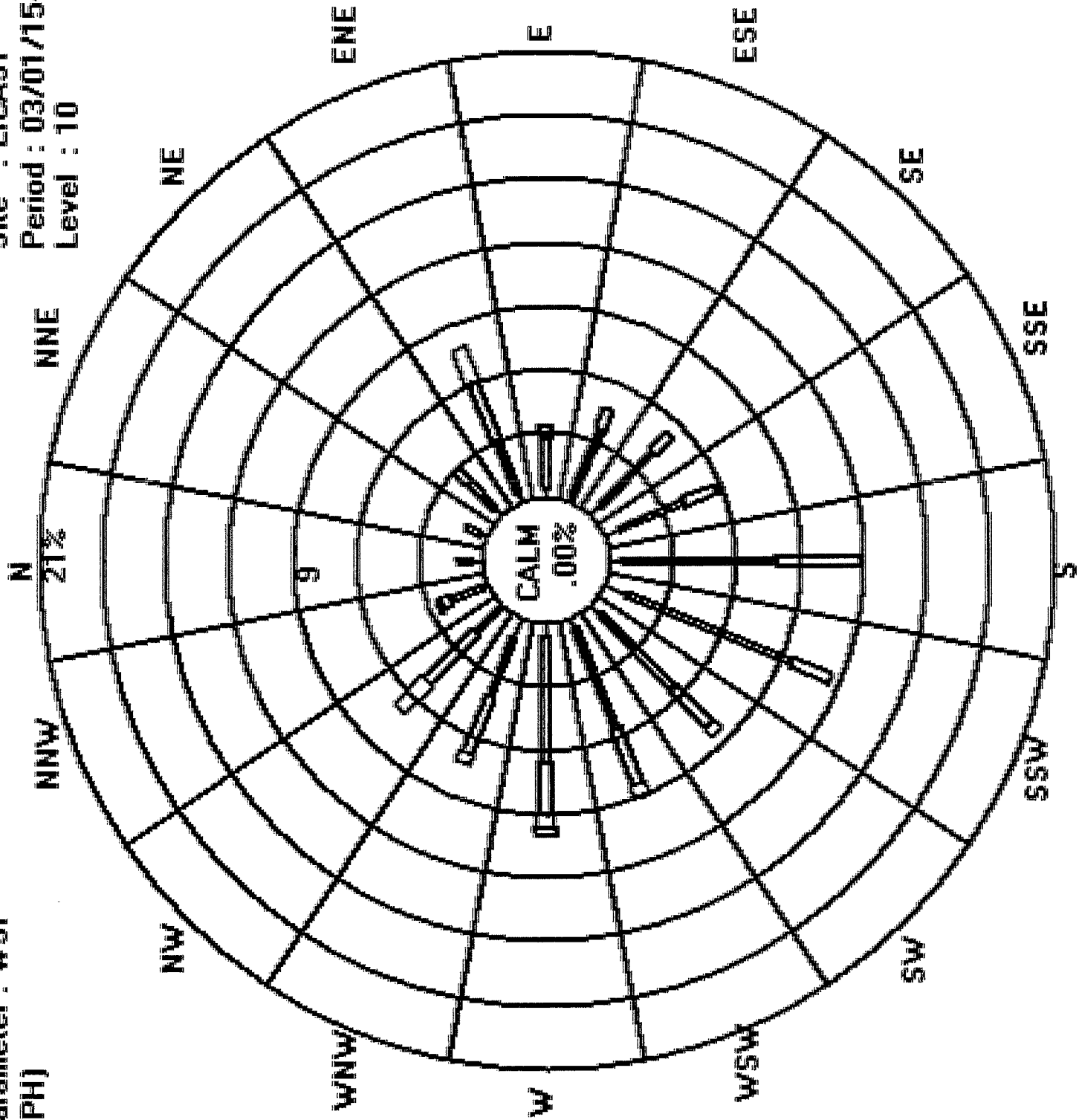
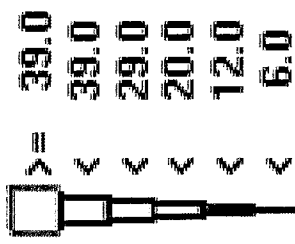
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	4	3	3	3	3	2	4	6	5	8	4	3	4	7	1	2	62
< 12.0	5	5	13	20	18	25	27	24	54	63	37	38	44	22	12	12	419
< 20.0			6	22	4	8	8	13	30	15	18	21	18	21	24	3	211
< 29.0				13							4	4	5	4	14	2	46
< 39.0													2				2
>= 39.0																	
Totals	9	8	22	58	25	35	39	43	89	86	63	66	73	54	51	19	

Calm : .00 %

Total # Operational Hours : 740

Logger : 31 Parameter : WSP
Class Limits (KPH)

Site : LICA31
Period : 03/01/15-03/31/15
Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	W	W	W	W	W	W	SW	SSW	S	S	S	S	S	S	S	S	SSE	SSE	SSE	S	S	S	S	SSW	24	
2	SSW	SW	WSW	NW	NW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	24
3	NW	W	W	W	W	W	W	W	W	NW	NW	NW	NW	NW	NNW	NNW	NNW	N	N	NNE	NE	NE	E	NW	24	
4	S	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	SSE	S	S	S	S	SSW	SSW	SSW	S	24
5	SSW	SSW	SW	WSW	WSW	SW	WSW	WSW	W	W	WSW	SW	SW	SSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SW	SW	24
6	SSW	SW	WSW	WSW	WSW	WSW	WSW	W	WNW	WNW	WNW	WNW	NW	WNW	WNW	W	W	WNW	WNW	W	W	W	W	WSW	W	24
7	WSW	WSW	WSW	WSW	WSW	W	W	W	WNW	W	W	W	WNW	WNW	WNW	W	WSW	WSW	SW	SW	SSW	SSW	WSW	W	24	
8	W	W	WSW	SSW	SW	SW	WSW	SW	SSW	SW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
9	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	NW	NW	W	WSW	W	W	W	W	W	W	W	WSW	WSW	W	24
10	WSW	WSW	SSW	WSW	WNW	NNW	NNW	WNW	WNW	NNW	N	NNE	NE	NE	ENE	ESE	ESE	E	E	E	ESE	ESE	ESE	ESE	ENE	24
11	ESE	SE	ESE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ESE	ESE	ESE	ESE	E	24
12	SSW	SSW	S	SSE	SE	SE	SE	SE	SE	SE	SSE	SE	SSW	SSW	Y	Y	Y	SW	SSW	S	S	SSW	SSW	WSW	S	21
13	SW	SSW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	SSE	SSE	SSE	SSE	S	S	SSE	S	24	
14	SSE	S	SSE	SSE	SSE	S	S	SSW	S	S	SSW	S	S	S	S	SSE	S	S	SW	WSW	SW	W	W	SSW	24	
15	W	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	W	WNW	NW	NW	N	NE	ENE	ENE	SSW	W	W	WNW	24
16	W	WNW	W	WNW	W	WNW	WNW	WNW	WNW	WNW	SW	P	SW	SW	WSW	WSW	WSW	WSW	SW	SW	S	S	SSW	SSW	WSW	23
17	SSW	SSW	SW	SSW	SSW	S	S	SE	SE	ESE	SSE	SE	SSE	SE	SE	SE	E	ESE	ESE	SE	SSE	SSE	SSE	SSE	SSE	24
18	SSE	SSE	S	S	S	S	SSE	SSE	S	SSE	S	S	S	SSW	SW	SW	SW	SW	SW	SSW	WSW	W	W	WNW	SSW	24
19	WNW	W	WNW	WNW	NW	NW	NNW	NW	NNW	N	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	ENE	ENE	ENE	NE	NE	NNE	24
20	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	ESE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	E	E	ENE	24
21	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
22	ENE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	N	N	NNW	W	WNW	WNW	WSW	SSW	S	SSW	SSW	S	S	NE	24	
23	SSW	SSW	SSW	SSW	S	SSE	S	S	SSE	SSE	SE	ESE	SE	SE	SSE	SE	SE	SSE	SSE	S	S	SSW	SSW	SSE	SSE	24
24	WSW	SW	WSW	NNE	N	WNW	WNW	W	WSW	WSW	WNW	WNW	WNW	NW	NW	NW	NW	W	WSW	WSW	WSW	WSW	WSW	WSW	W	24
25	SSW	SSW	SSW	SSW	SSE	SE	SSE	SSE	SSE	SSE	S	SSE	S	SSE	SSE	S	SE	ESE	SE	ESE	ESE	ESE	ESE	SE	SSE	24
26	SE	SE	ESE	E	E	E	ESE	ESE	ESE	SE	SSE	S	SSE	SSE	SE	SE	SE	SSE	S	S	S	SSW	SSW	SSE	SSE	24
27	SW	WSW	W	W	W	WSW	SW	SW	SW	W	SW	S	SSW	S	SSW	SSW	S	S	SSE	SE	SSE	SSE	SSE	SE	SSW	24
28	ESE	ENE	ENE	NNE	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	WNW	W	WSW	WSW	WSW	WSW	NW	24
29	WSW	WSW	SSW	SSW	SSW	SW	SSW	S	SSW	SSW	S	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NW	W	SW	SW	24
30	WSW	WSW	WSW	W	WSW	W	W	W	W	WNW	WNW	WNW	WNW	WNW	W	W	WSW	WSW	SW	S	SE	SE	SE	SE	WSW	24
31	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	E	E	NE	NNE	WNW	WNW	W	W	ESE	24

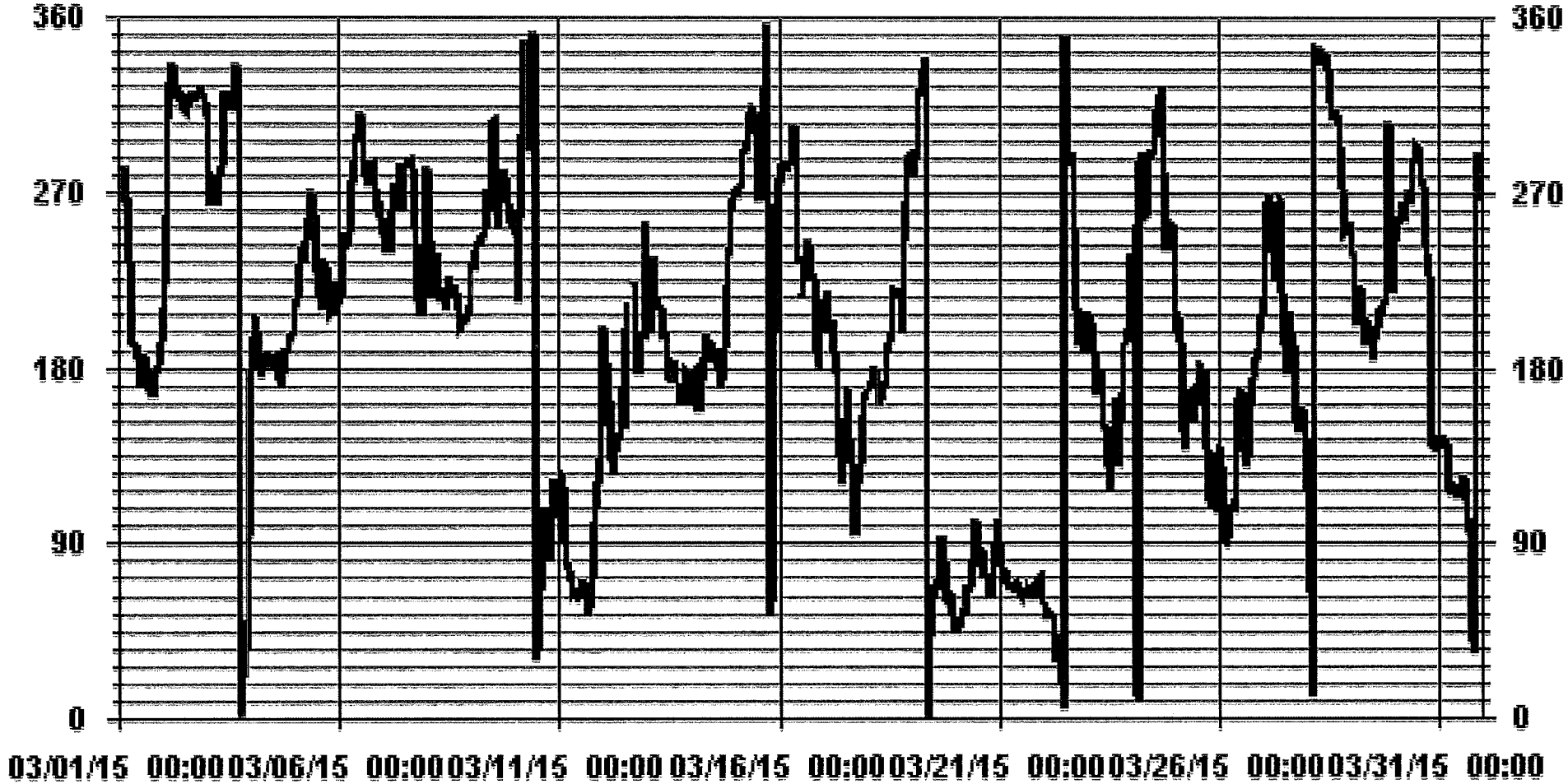
STATUS FLAG CODES

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:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	740	HRS
STANDARD DEVIATION:	81.78		AMD OPERATION UPTIME:	99.5	%
			MONTHLY AVERAGE:	SW	

01 Hour Averages



— LICA31 WDR DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

St. Lina Site - MARCH 2015

JOB # 2833-2015-03-31- 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	10	10	10	8	10	10	3	8	8	10	12	14	15	15	13	14	13	11	11	10	11	10	9	9
2	5	4	10	13	14	15	15	15	14	14	15	13	14	14	14	13	15	15	13	14	13	14	13	13
3	12	12	10	12	13	12	10	13	15	14	15	15	16	14	15	17	14	11	8	7	7	5	11	
4	10	7	5	6	6	7	8	9	10	12	12	13	13	14	14	16	13	12	12	10	9	8	8	6
5	4	3	4	3	4	4	3	7	13	16	19	16	11	8	6	10	7	7	6	6	7	6	5	5
6	10	10	9	9	8	7	10	15	16	14	14	14	15	16	18	16	17	16	15	13	11	13	11	
7	10	8	7	7	7	13	14	12	15	16	18	16	17	17	17	17	15	14	7	6	5	10	6	10
8	12	9	13	15	4	3	3	5	4	7	10	10	10	8	9	9	7	6	10	9	9	10	11	10
9	8	7	8	8	8	7	9	9	11	17	13	15	14	16	17	12	16	15	15	14	14	13	10	8
10	8	14	9	8	17	14	14	14	13	20	22	16	23	15	14	20	15	10	7	7	9	11	12	11
11	12	13	13	10	9	9	10	10	11	11	12	12	12	14	15	12	12	12	11	10	14	13	15	19
12	19	14	16	17	16	14	15	15	16	21	17	18	17	16	Y	Y	Y	5	7	9	10	17	12	13
13	6	7	7	7	11	15	8	5	7	9	12	12	11	13	12	12	13	13	10	10	10	10	9	
14	9	10	10	11	10	10	10	11	10	13	12	11	11	12	13	11	10	10	10	8	7	7	13	15
15	15	14	16	16	16	15	15	14	14	14	16	17	20	27	27	22	19	20	19	10	6	15	10	12
16	12	12	12	13	13	13	13	14	18	23	15	P	12	13	13	12	10	8	6	5	9	7	8	7
17	6	7	6	6	5	6	5	6	15	17	18	18	23	20	24	22	18	11	10	10	11	11	9	8
18	8	8	8	8	8	7	7	11	14	13	13	16	17	16	10	8	8	5	10	11	9	12	13	
19	12	12	12	12	12	14	13	14	16	18	17	20	18	18	15	17	12	12	12	13	13	12	12	11
20	12	12	12	12	11	10	9	10	13	21	19	17	20	19	21	21	17	12	10	9	10	10	9	12
21	11	11	11	11	11	10	11	11	11	11	12	11	11	11	11	11	11	11	11	11	11	11	12	13
22	11	11	11	12	11	11	12	13	15	24	19	26	32	30	47	39	54	20	9	7	6	6	6	9
23	7	5	5	5	9	8	8	12	14	16	19	24	25	24	19	18	18	21	13	16	15	13	12	9
24	8	27	16	15	13	12	10	19	19	17	21	20	26	22	17	22	17	26	15	12	6	7	6	4
25	4	5	5	6	11	11	10	16	13	20	20	19	20	27	23	25	19	13	12	11	25	11	15	11
26	11	14	16	22	9	10	12	12	14	14	16	15	15	17	16	15	13	12	11	10	9	9	8	6
27	6	5	8	10	10	5	6	9	8	24	36	30	21	23	17	15	14	13	11	10	10	10	10	11
28	15	16	7	11	14	16	16	20	15	14	16	19	16	14	13	15	15	16	13	12	8	6	7	6
29	5	6	9	6	5	4	7	8	9	13	14	17	18	19	12	11	10	11	9	10	16	9	7	6
30	8	8	9	13	9	11	13	13	16	17	19	22	28	22	25	28	18	11	9	12	6	8	7	10
31	10	12	13	12	14	15	12	13	14	16	17	18	17	18	20	19	14	13	10	9	37	14	14	63

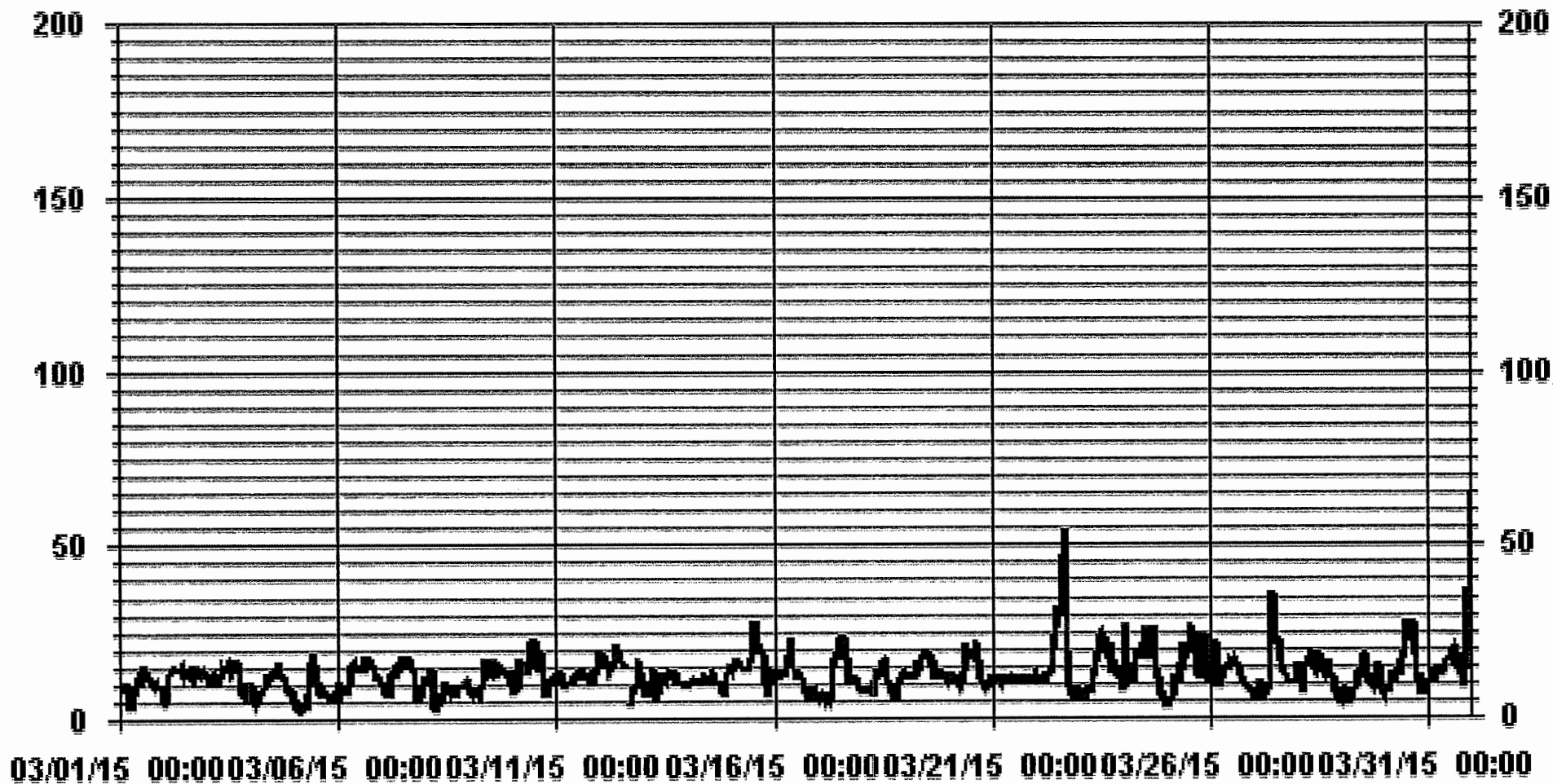
STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
IS	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: 740 HRS

01 Hour Averages



— LICA31 STDWDIR DEG

RELATIVE HUMIDITY



RELATIVE HUMIDITY (RH) hourly averages in %

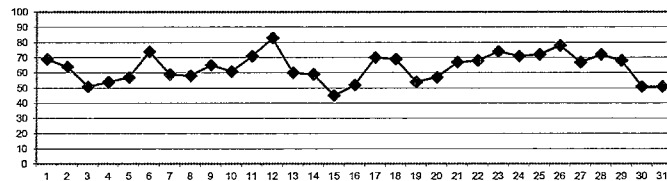
MST

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	RDGS.		
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.			
DAY																													
1	80	80	78	80	79	80	81	77	71	65	64	62	58	56	53	50	49	58	65	69	71	72	74	75	81	68.6	24		
2	76	76	78	82	81	78	76	78	78	75	73	56	49	46	51	48	45	51	52	53	53	55	59	59	82	63.7	24		
3	60	61	62	62	61	61	62	60	53	49	46	43	42	41	39	39	39	42	47	49	52	54	55	55	62	51.4	24		
4	57	59	62	61	61	63	64	61	53	47	46	42	40	38	36	39	46	52	56	58	62	65	68	71	71	54.5	24		
5	72	73	71	65	66	66	67	62	52	47	42	42	39	40	42	43	45	52	56	60	62	65	64	64	73	56.5	24		
6	63	62	67	72	81	87	86	84	86	86	84	77	70	64	56	53	58	64	72	78	80	79	78	78	87	73.5	24		
7	79	78	78	75	72	71	70	69	62	59	53	49	42	38	35	33	33	45	55	58	62	65	66	62	79	58.7	24		
8	61	59	62	65	66	68	67	65	60	55	50	52	51	51	50	48	48	51	59	62	60	60	61	63	68	58.1	24		
9	61	62	61	60	62	62	61	60	60	55	54	57	75	75	80	72	58	57	62	66	70	73	73	72	80	64.5	24		
10	69	69	75	75	74	77	81	76	69	59	51	48	45	47	41	46	49	49	51	53	58	66	68	69	81	61.0	24		
11	68	72	76	78	76	75	74	73	72	69	66	65	64	62	59	62	64	66	69	73	78	80	81	82	82	71.0	24		
12	83	84	85	86	87	88	88	88	88	88	88	88	88	88	88	87	83	74	71	72	77	82	83	83	81	80	88	83.4	24
13	81	82	82	78	71	68	70	65	56	49	45	42	45	45	42	42	43	49	59	64	64	64	64	62	82	59.7	24		
14	66	67	70	70	72	72	69	67	63	59	56	52	45	43	45	48	52	55	58	63	64	65	62	48	72	59.2	24		
15	44	46	43	48	57	59	61	58	51	48	45	42	41	38	36	34	30	33	40	42	42	40	45	46	61	44.5	24		
16	56	62	66	67	70	70	72	66	59	54	49	P	38	36	34	33	34	36	42	44	49	48	55	62	72	52.3	23		
17	67	71	76	81	85	86	87	86	85	78	67	66	55	47	48	48	50	58	68	72	74	76	77	79	87	70.3	24		
18	79	78	78	78	80	81	82	78	74	72	65	63	59	56	56	59	60	62	68	69	71	73	65	58	82	69.3	24		
19	59	61	62	63	65	67	63	59	52	47	49	47	44	44	44	48	51	53	56	54	51	49	51	49	67	53.7	24		
20	50	61	71	76	81	80	80	68	51	48	48	48	48	46	47	47	48	48	50	53	51	55	58	53	81	56.9	24		
21	51	53	51	55	60	61	61	59	62	74	78	80	79	78	77	77	77	77	76	70	62	58	64	71	80	67.1	24		
22	80	80	76	73	73	76	77	76	70	64	62	56	51	54	57	56	54	55	65	68	72	75	78	80	80	67.8	24		
23	82	83	83	82	82	82	81	80	78	71	66	59	57	59	66	68	68	69	70	71	72	79	84	84	84	74.0	24		
24	84	85	85	86	86	86	86	85	80	67	66	67	61	58	56	50	52	48	52	65	74	73	72	74	86	70.8	24		
25	78	81	82	82	82	82	82	78	76	74	69	66	63	59	57	56	58	62	67	70	75	78	79	79	82	72.3	24		
26	78	79	80	82	84	84	84	83	81	79	74	71	70	71	76	81	81	77	76	76	78	78	78	78	84	78.3	24		
27	79	78	76	74	76	79	82	81	71	62	59	55	51	52	48	47	49	54	60	67	71	73	75	77	82	66.5	24		
28	79	84	87	88	88	87	85	86	85	84	78	66	58	60	61	53	50	44	54	57	66	76	79	80	88	72.3	24		
29	83	83	83	86	86	87	84	78	71	68	64	55	46	38	36	38	41	46	52	57	82	86	88	89	89	67.8	24		
30	89	86	81	75	74	72	69	63	58	52	46	41	36	31	24	24	27	28	34	38	41	46	48	47	89	51.3	24		
31	44	46	49	52	49	51	55	50	43	43	43	43	42	41	41	41	42	44	50	53	66	79	81	87	87	51.5	24		
HOURLY MAX	89	86	87	88	88	88	88	88	88	88	88	88	88	88	87	83	81	81	77	77	82	83	86	88	89				
HOURLY AVG	69.6	71.0	72.1	72.8	73.8	74.4	74.4	71.6	66.8	62.8	59.5	56.7	53.3	51.6	50.8	50.2	50.7	53.5	58.6	61.7	65.0	67.4	68.4	68.8					

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

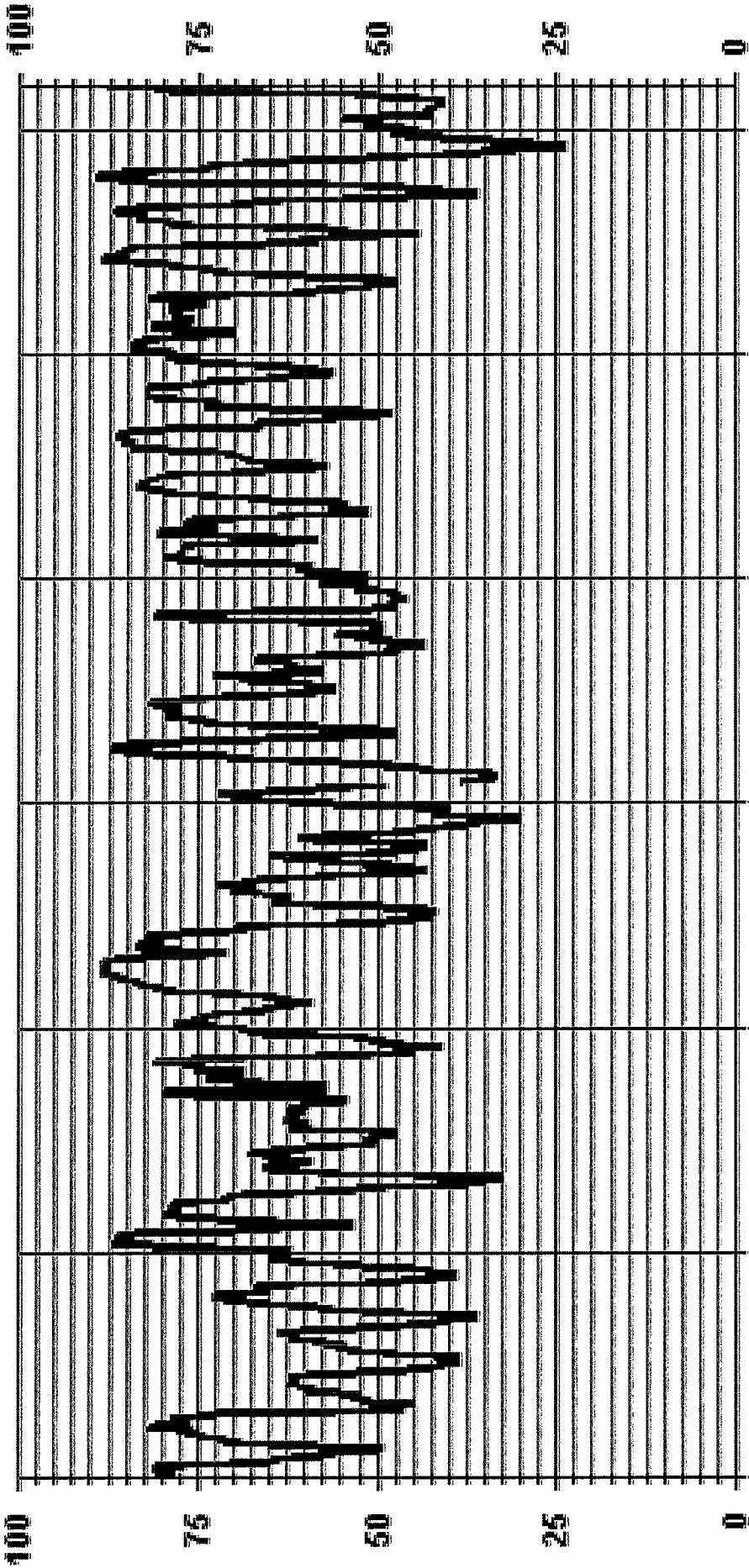
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	23 , 0	ON DAY(S)	29 , 30
MAXIMUM 24-HR AVERAGE:	83.4	%			ON DAY(S)	12
					VAR-VARIOUS	
OPERATIONAL TIME:					743	HRS
AMD OPERATION UPTIME:					99.9	%
STANDARD DEVIATION:	14.41		MONTHLY AVERAGE:		64	%

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LIC31 RH %FS

BAROMETRIC PRESSURE



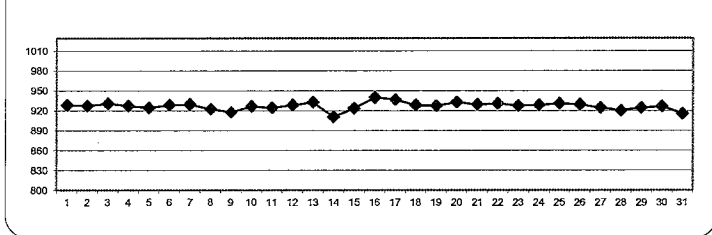
BAROMETRIC PRESSURE (BP) hourly averages in millibar

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	HOURLY MAX	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	933	933	933	933	933	932	932	932	931	932	932	932	931	931	930	929	928	926	925	924	923	922	921	920	933	929	24		
2	920	920	920	920	922	923	924	925	926	928	929	930	930	930	931	931	932	932	933	933	933	933	933	933	933	933	933	928	24
3	933	933	932	932	931	931	930	929	929	929	929	930	930	930	930	930	931	931	932	932	932	932	932	932	932	933	931	24	
4	933	933	933	932	932	931	930	930	929	929	929	929	928	928	927	926	926	925	925	924	924	923	923	923	923	923	928	24	
5	922	922	922	922	922	923	923	924	925	926	927	928	928	929	928	928	928	928	927	926	926	926	926	926	926	926	925	929	24
6	925	925	925	925	924	924	924	924	925	926	926	928	929	930	931	932	933	933	933	933	933	933	933	933	933	932	933	929	24
7	932	932	931	930	930	930	930	930	931	932	932	932	932	932	931	931	931	930	929	929	928	928	927	927	927	932	930	24	
8	927	927	927	926	926	925	925	924	924	925	925	925	924	924	923	922	922	921	920	919	919	918	918	918	918	918	927	923	24
9	917	917	917	917	917	917	917	917	917	917	918	918	917	917	917	918	919	919	920	920	921	921	922	922	922	922	918	24	
10	923	923	923	923	924	925	925	926	927	928	929	929	930	929	929	929	929	928	928	928	928	928	928	928	927	930	927	24	
11	927	926	926	926	925	925	924	924	925	925	924	924	925	925	925	925	925	925	925	925	925	926	926	926	926	927	927	925	24
12	927	927	927	927	927	927	927	927	928	928	929	929	930	930	930	931	932	932	932	931	932	932	932	932	933	933	933	929	24
13	933	934	934	935	935	936	936	936	936	937	938	937	938	937	936	935	934	933	932	930	929	928	928	928	928	927	938	933	24
14	922	921	920	918	916	915	914	913	912	912	911	910	910	910	909	908	906	905	905	905	906	907	909	911	922	911	24		
15	912	914	915	917	919	921	921	922	923	924	925	926	927	928	928	928	928	929	929	929	929	929	929	930	931	931	924	24	
16	932	933	934	935	936	937	938	939	940	942	943	P	943	943	943	943	943	942	941	941	941	941	941	940	943	940	23		
17	940	940	940	939	939	938	938	938	938	938	938	938	938	938	937	937	936	934	933	933	932	932	932	932	932	940	937	24	
18	932	931	931	930	930	930	929	929	929	929	930	930	930	930	929	929	929	928	928	927	927	927	927	927	927	932	929	24	
19	927	927	928	928	928	928	928	928	928	929	929	929	929	929	929	928	928	928	927	927	928	928	928	928	928	929	928	24	
20	929	930	931	931	931	932	932	933	933	934	935	935	935	936	935	935	935	934	934	933	933	933	933	933	933	936	933	24	
21	932	932	931	931	930	930	930	930	930	930	930	930	930	930	930	930	930	929	930	930	930	930	930	930	930	932	930	24	
22	930	930	930	930	930	930	930	930	931	931	932	932	932	933	932	932	933	932	931	931	931	931	931	930	930	933	931	24	
23	930	929	929	929	928	928	928	928	928	928	928	929	929	928	928	927	927	927	927	927	927	927	927	927	927	926	930	24	
24	926	926	926	926	926	926	926	927	927	928	929	929	929	930	930	931	931	932	931	931	931	931	931	931	931	932	929	24	
25	931	931	931	931	931	930	930	930	930	931	931	931	932	932	932	932	932	932	932	932	932	932	932	932	932	932	931	24	
26	932	931	931	931	931	931	931	930	930	931	931	931	931	931	931	930	929	929	928	928	927	927	927	927	926	932	930	24	
27	926	926	927	927	927	927	927	927	927	928	929	929	928	928	927	927	926	925	923	922	921	920	919	917	929	925	24		
28	916	915	914	913	914	914	915	916	917	918	919	920	921	922	923	924	925	926	927	927	927	927	927	927	927	927	921	24	
29	927	927	927	927	926	926	926	926	926	926	926	926	926	926	926	925	924	924	923	923	924	923	923	923	923	927	925	24	
30	924	924	925	925	925	925	926	926	927	928	928	929	929	929	929	928	928	927	926	926	925	925	924	929	927	924	929	24	
31	923	922	922	921	920	919	918	918	917	916	916	915	915	915	915	915	914	914	913	913	913	913	913	912	923	916	24		
HOURLY MAX	940	940	940	939	939	938	938	939	940	942	943	938	943	943	943	943	943	942	942	941	941	941	941	941	940				
HOURLY AVG	927	927	927	927	927	927	927	927	927	928	928	928	929	929	928	928	928	928	927	927	927	927	927	927	927				

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

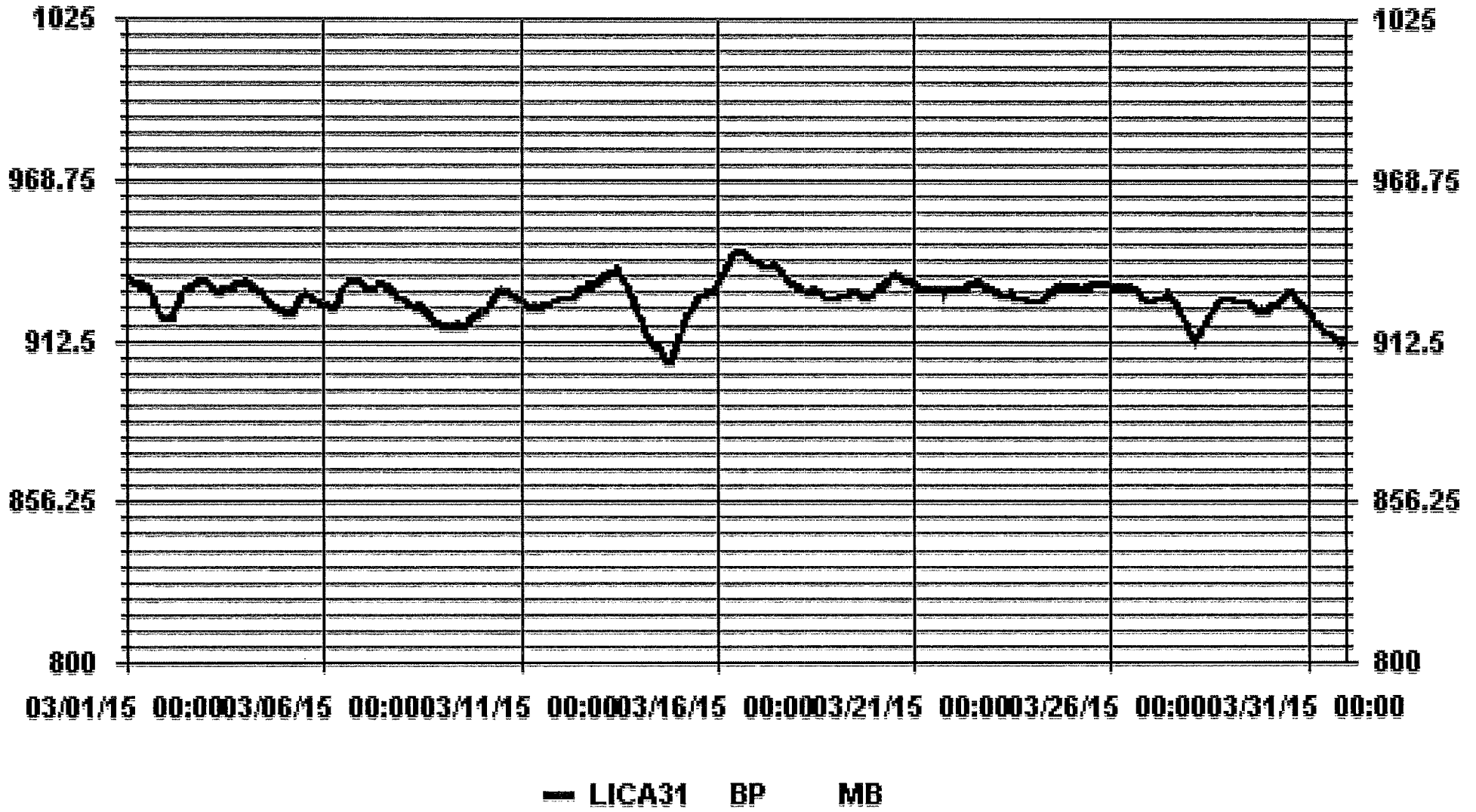
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	943	MB	@ HOUR(S)	VAR	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	940	MB			ON DAY(S)	16
					VAR-VARIOUS	
					OPERATIONAL TIME:	743 HRS
					AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	6.19				MONTHLY AVERAGE:	927 MB

01 Hour Averages



AMBIENT TEMPERATURE



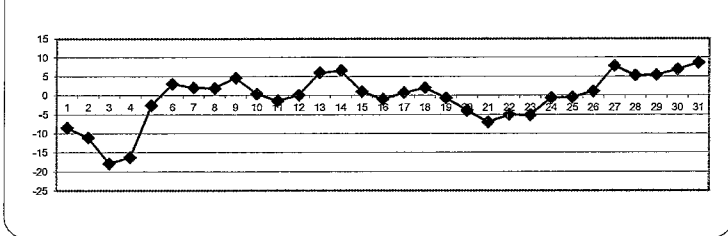
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOURLY START	HOURLY 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		-9.6	-10.5	-10.7	-11.7	-11.5	-13.3	-13.3	-14.5	-12.1	-8.8	-7.3	-5.8	-4.8	-3.5	-2.7	-3.1	-3.4	-5.1	-7.0	-8.1	-8.6	-8.9	-9.4	-9.6	-2.7	-8.5	24
2		-9.5	-9.5	-8.8	-7.4	-6.0	-7.1	-7.8	-7.9	-7.7	-8.5	-9.7	-9.3	-9.5	-10.5	-10.9	-11.7	-11.8	-13.3	-14.5	-15.2	-15.7	-16.8	-17.9	-18.6	-6.0	-11.1	24
3		-19.2	-19.8	-20.4	-20.9	-21.0	-20.9	-21.1	-20.7	-18.0	-15.5	-15.1	-14.2	-13.6	-13.3	-12.9	-13.1	-13.9	-15.1	-17.6	-19.0	-20.0	-20.8	-21.4	-21.5	-12.9	-17.9	24
4		-21.8	-22.6	-23.6	-23.6	-23.7	-24.4	-24.8	-23.9	-21.2	-18.2	-16.2	-13.4	-11.8	-10.1	-8.7	-8.3	-9.4	-10.4	-11.3	-12.0	-12.6	-13.0	-12.8	-13.0	-8.3	-16.3	24
5		-13.1	-13.4	-12.6	-9.9	-9.2	-8.7	-8.8	-7.0	-3.3	-1.2	1.4	2.1	3.6	4.0	4.4	4.6	4.3	2.2	0.5	-0.5	-0.7	-1.1	-0.4	0.0	4.6	2.6	24
6		0.1	1.1	2.5	2.3	1.7	1.4	1.9	2.5	2.6	2.5	3.1	4.0	4.5	5.6	7.3	7.6	6.1	4.6	3.2	2.1	1.5	1.3	1.4	1.0	7.6	3.0	24
7		0.5	0.1	-0.4	-0.3	-0.4	-0.6	-0.8	-0.6	1.9	3.5	5.0	6.2	6.3	6.3	6.6	6.7	6.3	4.1	1.7	0.6	-0.2	-0.9	-1.5	-1.0	6.7	2.0	24
8		-0.8	-0.8	-1.9	-2.8	-3.4	-4.1	-4.0	-3.9	-2.7	0.3	3.4	4.5	5.6	6.4	7.2	7.7	7.5	6.9	4.9	3.8	3.6	3.1	2.4	7.7	1.9	2.4	24
9		2.9	2.9	3.7	4.5	4.3	4.7	5.4	5.8	6.0	8.1	8.3	8.1	5.5	5.0	3.5	5.4	7.2	6.1	4.4	3.1	2.2	1.5	0.8	0.3	8.3	4.6	24
10		0.5	0.1	-1.4	-1.2	-1.3	-1.9	-2.9	-1.8	-0.2	1.8	2.4	3.1	3.5	2.7	3.5	3.4	2.8	1.8	0.0	-0.6	-0.9	-0.8	-0.8	-1.6	3.5	0.4	24
11		-1.6	-1.2	-1.1	-1.6	-2.1	-3.4	-4.1	-4.2	-4.0	-2.7	-1.6	-1.0	-0.4	0.7	1.6	0.8	0.3	0.0	-0.7	-1.2	-1.3	-1.3	-1.3	-1.4	1.6	-1.4	24
12		-1.4	-1.3	-1.5	-1.6	-1.8	-2.0	-2.1	-2.0	-1.8	-1.5	-1.3	-1.0	-0.3	0.3	1.5	3.2	4.1	3.7	2.4	1.3	1.1	1.4	1.8	2.0	4.1	0.1	24
13		1.6	1.0	0.9	1.5	2.2	2.2	1.5	2.7	5.4	8.0	9.5	10.2	9.1	9.2	10.1	10.6	10.6	9.3	7.1	6.3	6.0	5.8	6.0	6.0	10.6	6.0	24
14		4.8	4.5	3.8	3.5	2.8	2.6	3.1	3.4	4.0	5.1	5.9	7.5	9.9	11.3	11.1	10.1	9.3	8.8	8.5	7.5	7.2	6.5	8.3	8.3	11.3	6.6	24
15		7.2	5.7	5.0	3.8	0.9	-1.0	-1.8	-1.4	-0.9	-0.4	0.9	1.5	1.8	2.5	2.5	2.7	2.8	1.8	-0.7	-1.4	-1.7	-1.9	-2.2	-2.2	7.2	1.0	24
16		-3.3	-4.0	-4.4	-4.6	-5.2	-5.6	-5.9	-4.4	-2.2	-0.5	0.2	P	1.7	2.6	3.3	3.8	3.9	3.2	1.3	0.3	-0.4	-0.6	-0.9	-1.2	3.9	-1.0	23
17		-1.7	-2.5	-3.5	-4.5	-4.8	-4.9	-4.8	-4.3	-3.2	-0.2	2.4	2.5	4.5	5.7	6.3	6.6	6.9	5.6	3.4	2.4	1.9	1.2	0.7	0.0	6.9	0.7	24
18		-0.6	-1.0	-1.6	-2.1	-2.6	-3.0	-3.3	-2.3	-0.8	0.5	2.8	4.0	5.7	6.8	6.7	7.0	7.1	6.5	4.6	3.8	3.2	2.5	2.2	1.7	7.1	2.0	24
19		0.6	-0.2	-0.6	-1.1	-1.8	-2.5	-3.3	-3.1	-2.2	-0.3	-0.1	0.6	1.6	2.4	1.8	0.8	0.3	0.0	-0.6	-1.2	-1.4	-1.7	-2.1	-2.6	2.4	-0.7	24
20		-3.0	-4.4	-5.5	-6.1	-6.8	-7.5	-7.6	-6.6	-4.0	-2.8	-2.4	-2.5	-1.8	-1.1	-1.2	-1.2	-1.4	-2.2	-3.1	-4.1	-4.4	-4.5	-4.5	-4.3	-1.1	-3.9	24
21		-4.6	-5.3	-6.0	-6.6	-7.3	-7.8	-8.1	-8.0	-7.9	-8.4	-8.1	-7.3	-6.6	-6.4	-6.3	-6.8	-7.3	-7.4	-7.4	-7.2	-6.8	-6.6	-6.8	-7.1	-4.6	-7.0	24
22		-7.8	-7.9	-7.9	-7.9	-8.1	-8.3	-8.5	-8.0	-6.3	-4.8	-4.0	-1.6	0.0	-1.0	-1.3	-0.7	-0.2	-0.8	-3.6	-4.8	-5.8	-6.6	-7.1	-7.7	0.0	-5.0	24
23		-8.9	-9.3	-9.5	-10.2	-10.2	-10.2	-10.0	-8.3	-6.7	-4.4	-3.1	-0.2	0.3	-0.1	-2.2	-2.6	-2.8	-2.7	-2.8	-3.0	-3.1	-3.6	-3.9	-3.9	0.3	-5.1	24
24		-3.9	-4.1	-4.5	-4.8	-4.9	-4.9	-5.1	-3.8	-2.6	0.9	1.7	1.5	3.6	3.7	3.6	4.8	3.7	4.6	2.3	0.3	-1.0	-1.5	-1.9	-2.4	4.8	-0.6	24
25		-3.4	-4.2	-4.7	-5.0	-5.2	-5.9	-5.9	-4.1	-2.8	-1.7	0.4	2.1	3.0	4.9	5.4	5.9	5.2	4.1	2.5	1.0	-0.2	-0.7	-1.1	-1.1	5.9	-0.5	24
26		-0.8	-1.0	-1.2	-1.5	-2.1	-2.0	-1.5	-1.2	-0.2	0.8	2.3	3.2	3.5	3.8	3.8	3.5	2.9	2.8	2.5	2.1	1.7	1.6	1.8	2.3	3.8	1.1	24
27		2.3	2.8	3.7	4.9	4.7	3.9	3.3	3.8	6.9	9.8	10.7	11.8	12.4	12.7	14.0	13.8	13.3	12.0	10.0	7.9	6.5	6.1	5.7	5.3	14.0	7.8	24
28		4.6	2.6	1.8	1.7	1.7	2.3	3.8	4.0	4.5	4.8	6.1	8.4	9.3	8.7	8.4	9.9	10.1	9.7	7.5	5.7	4.1	3.0	2.4	1.9	10.1	5.3	24
29		0.8	0.8	0.6	-0.2	-0.5	-0.7	0.0	1.2	3.8	5.2	6.8	9.2	10.9	12.3	12.0	11.7	11.3	11.2	10.0	8.7	5.2	3.8	3.0	2.4	12.3	5.4	24
30		2.2	2.3	2.0	2.2	1.9	2.0	2.5	4.2	6.0	7.7	9.1	10.4	11.5	12.1	12.5	12.4	12.0	11.0	8.8	7.3	6.9	6.3	6.2	6.1	12.5	6.9	24
31		6.7	6.3	5.9	5.6	6.2	5.6	4.6	6.0	7.8	8.8	9.9	11.2	12.3	13.4	14.3	14.9	14.7	14.0	10.9	9.5	8.4	5.7	3.8	1.0	14.9	8.6	24
HOURLY MAX		7.2	6.3	5.9	5.6	6.2	5.6	5.4	6.0	7.8	9.8	10.7	11.8	12.4	13.4	14.3	14.9	14.7	14.0	10.9	9.5	8.4	6.5	8.3	8.3			
HOURLY AVG		-2.6	-3.0	-3.3	-3.4	-3.7	-4.1	-4.2	-3.5	-2.0	-0.4	0.8	1.9	2.6	3.1	3.4	3.6	3.3	2.5	0.9	-0.1	-0.8	-1.3	-1.6	-1.9			

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

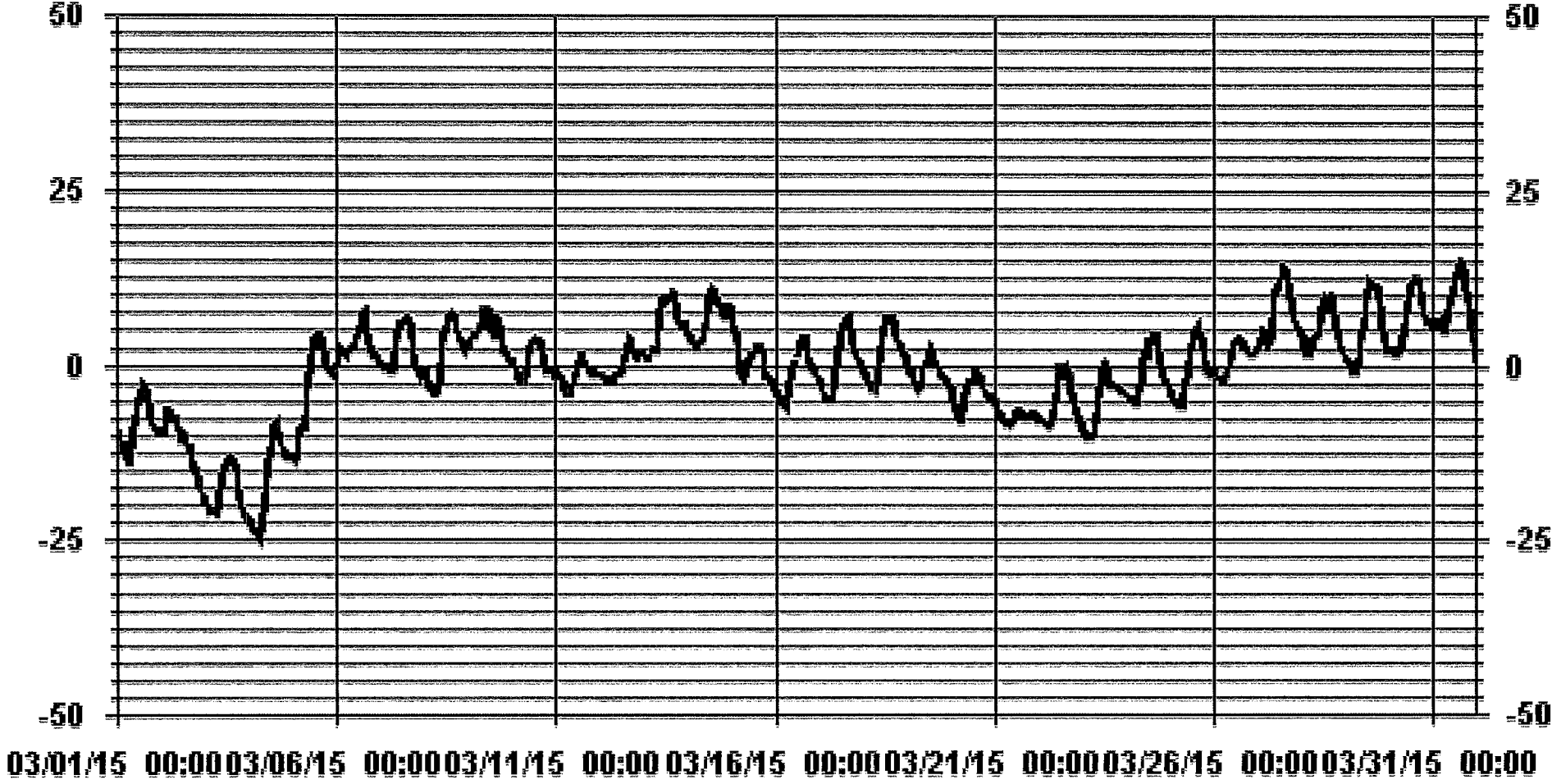
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-24.8 °C	@ HOUR(S)	6	ON DAY(S)	4
MAXIMUM 1-HR AVERAGE:	14.9 °C	@ HOUR(S)	15	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	8.6 °C			ON DAY(S)	31
				VAR-VARIOUS	
OPERATIONAL TIME:				743	HRS
AMD OPERATION UPTIME:				99.9	%
STANDARD DEVIATION:	7.19			MONTHLY AVERAGE:	-0.6 °C

01 Hour Averages



— LICA31 TPX DGC

PRECIPITATION



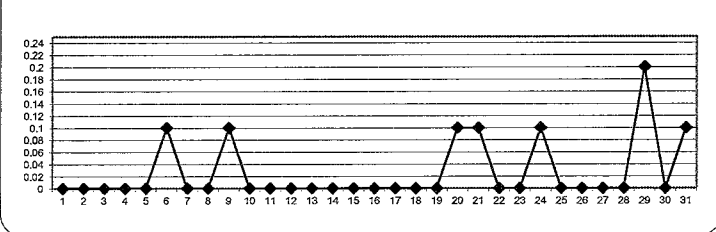
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY END	HOURLY START	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	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	0.0	0.0	24
2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	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	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.5	1.0	0.4	0.3	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	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	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	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	0.1	0.4	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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
13	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
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	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	0.0	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	23
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.7	0.5	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	0.7	0.1	24
22	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	0.5	0.4	0.5	0.0	24	
24	0.4	0.6	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	0.0	0.0	0.0	0.0	0.0	0.6	0.1	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	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	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.1	0.0	4.0	0.2	24	
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.5	2.1	2.1	0.1	0.1	24	
HOURLY MAX		0.4	0.6	0.2	0.1	0.5	1.0	0.4	0.3	0.6	1.0	0.3	0.7	0.5	0.7	0.6	0.1	0.0	0.1	0.0	0.0	4.0	0.0	0.5	2.1				
HOURLY AVG		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	0.0	0.0	0.0	0.0	0.1	0.0	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

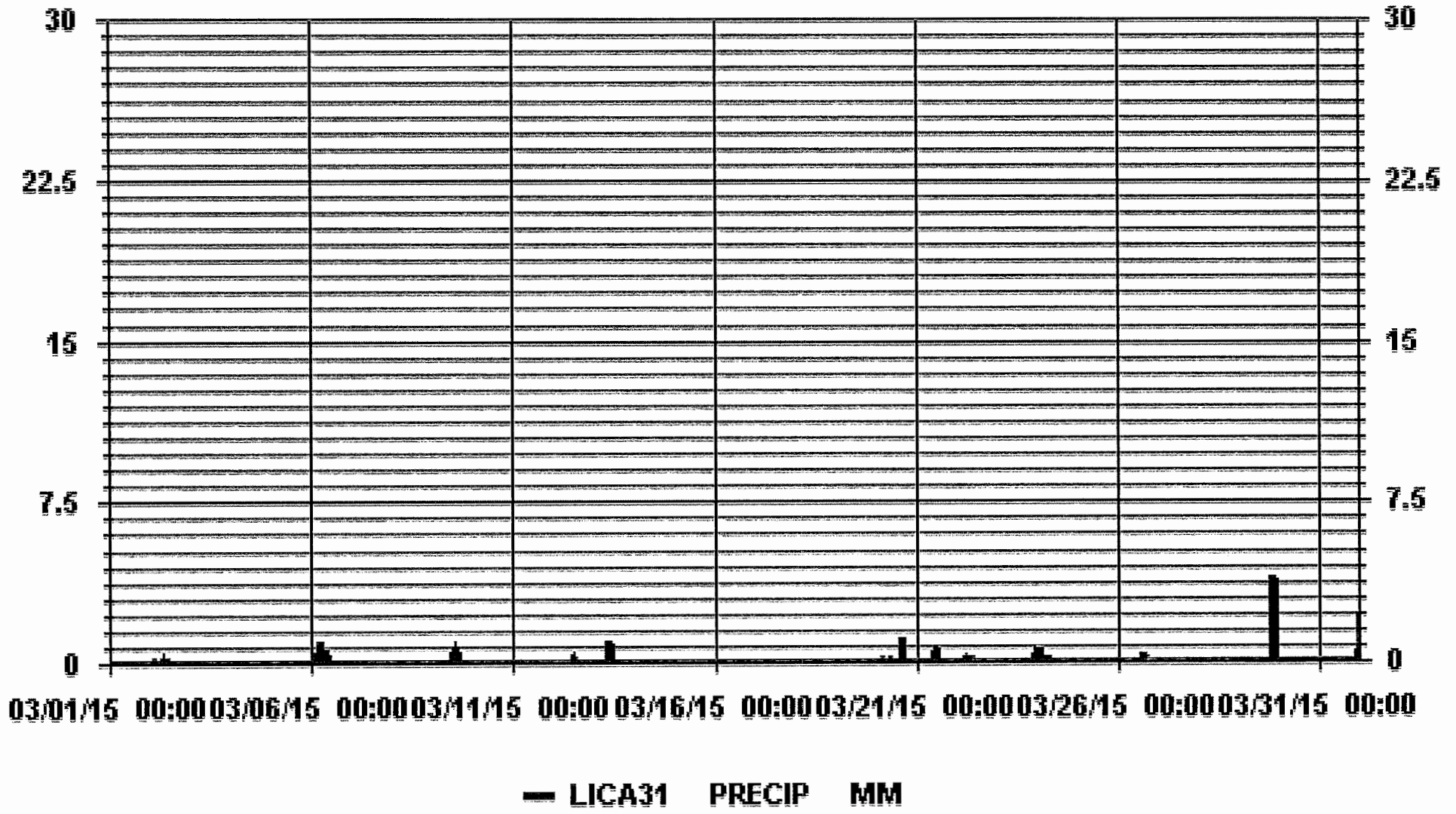
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	4.0	MM	@ HOUR(S)	20	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	0.2	MM			ON DAY(S)	29
MONTHLY TOTAL	19.2	MM			VAR-VARIOUS	
OPERATIONAL TIME:					742	HRS
AMD OPERATION UPTIME:					99.7	%
STANDARD DEVIATION:	0.19		MONTHLY AVERAGE:		0.0	MM

01 Hour Averages



APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam

API 100E SO2 Analyzer Calibration

Date: 16-Mar-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 11:55 / 16:46

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Aug-17

Analyzer:

Serial Number: 468

Last Calibration Date: 12-Feb-15

Previous Cal High Point C.F.: 1.001

Range ppb: 1000

As Found C.F.: 1.018

New C.F.: 1.000

As found:

SLOPE: 0.938

OFFSET: 54.3

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 29.1

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABIL: 0.1

PRES: 24.5

SAMP FL: 590

PMT: 61.4

NORM PMT: 57.8

UV LAMP: 2216.8.9

LAMP RATIO: 89.7

STR. LGT: 25.5

DRK PMT: 17.5

DRK LMP: 3.7

Internal Span: 241.7

As left:

SLOPE: 0.958

OFFSET: 57.7

HVPS: 533

RCELL TEMP: 50.0

BOX TEMP: 29.3

PMT TEMP: 7.9

IZS TEMP: 40.0

TEST: NA

STABIL: 0.1

PRES: 24.5

SAMP FL: 589

PMT: 63.3

NORM PMT: 59.0

UV LAMP: 2219.3

LAMP RATIO: 89.7

STR. LGT: 27.7

DRK PMT: 17.7

DRK LMP: 3.7

Internal Span: 242.9

Calibrator:

Flow Meter ID's: NA

Make & Model: EnviroNics 6100

Serial #: 4760

Cal Gas Cylinder I.D. #: LL42475

Cal Gas Conc. (ppm): 50.3

Calibrator Flow Targets:

point	diluent (cc/mln)	cal gas (cc/mln)	total (cc/mln)
zero	4995	0	4995
high	4916	78	4994
mid	4957	38	4995
low	4975	19	4994

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	4995	0.0	4995	0	2.0	NA
adjusted zero	4995	0.0	4995	0	0.0	NA
as found high	4935	61.71	4997	621.2	610.0	1.018
adjusted high	4935	61.71	4997	621.2	622.0	0.999
mid	4963	30.84	4993	310.7	311.0	0.999
low	4979	15.43	4995	155.4	155.0	1.003
calibrator zero	4995	0.00	4995	0	0.0	NA
Average C.F. =						1.000

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>0.998</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.02%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>-1.74%</u>	± 3% F.S.	PASS
		± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

****run converter efficiency test immediately following zero adjust****

SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

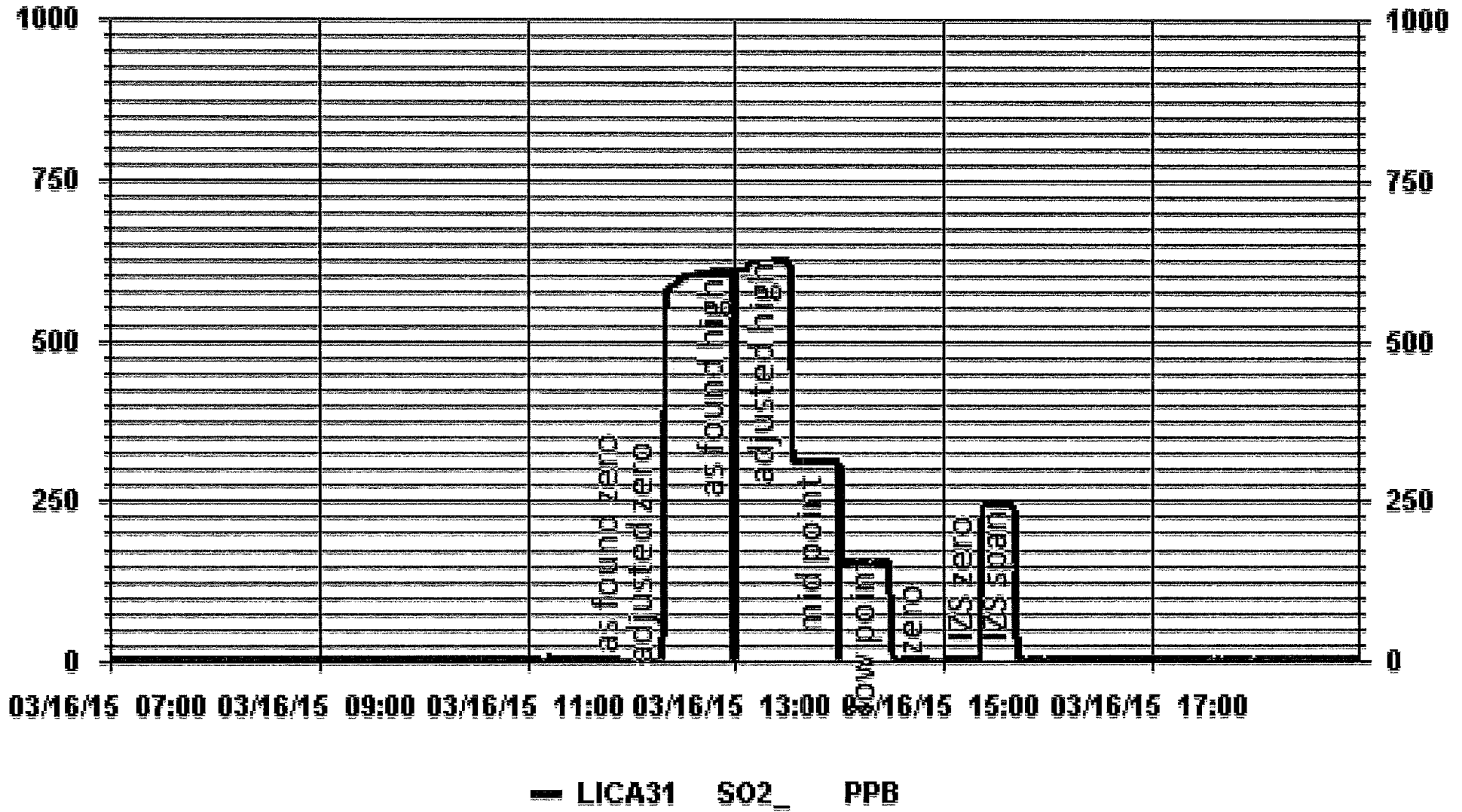
Comments:

Sample filter changed. Power outage at 12:10. ZERO starts at 12:20

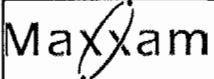
API 100E SO2 Analyzer Calibration

Calculated (ppb)	Indicated (ppb)
0	0
155	155
311	311
622	622

01 Minute Averages



HYDROGEN SULPHIDE



API 101E H2S Analyzer Calibration

Date: 17-Mar-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 10:00 / 15:11

Calibration Purpose: Monthly Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 25-Dec-15

Analyzer:

Serial Number: 722

Last Calibration Date: 12-Feb-15

Previous Cal High Point C.F.: 1.000

Range ppb: 100

As Found C.F.: 1.003

New C.F.: 0.985

As found:

SLOPE: 1.025

OFFSET: 58.0

HVPS: 607

RCELL TEMP: 50.0

BOX TEMP: 31.2

PMT TEMP: 8.2

IZS TEMP: 45.0

TEST: 3149.2

STABIL: 0.1

PRES: 25.3

SAMP FL: 607

PMT: 73.5

NORM PMT: 58.2

UV LAMP: 2431.1

LAMP RATIO: 96.9

STR. LGT: 29.7

DRK PMT: 25.5

DRK LMP: 3.2

Internal Span: 38.27

As left:

SLOPE: 1.027

OFFSET: 58.0

HVPS: 607

RCELL TEMP: 50.0

BOX TEMP: 30.5

PMT TEMP: 8.2

IZS TEMP: 45.0

TEST: 3144.3

STABIL: 0.2

PRES: 25.2

SAMP FL: 605

PMT: 72.1

NORM PMT: 59.5

UV LAMP: 2330.8

LAMP RATIO: 97.0

STR. LGT: 29.8

DRK PMT: 25.7

DRK LMP: 3.2

Internal Span: 39.81

Calibrator:

Flow Meter ID's: NA

Make & Model: API

Serial #: 831

Cal Gas Cylinder I.D. #: BLM005049

Cal Gas Conc. (ppm): 10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4959	39	4998
mid	4980	19	4999
low	4990	11	5001

Calibration:

Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
as found zero	4997	0.0	4997	0	0.5	NA
adjusted zero	4997	0.0	4997	0	0.1	NA
as found high	4959	38.60	4998	78.0	77.9	1.003
adjusted high	4959	38.60	4998	78.0	78.1	1.000
mid	4982	18.80	5001	38.0	38.7	0.984
low	4986	10.90	4997	22.0	22.8	0.971
calibrator zero	4994	0.00	4994	0	0.4	NA

Average C.F.= 0.985

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS > or = 0.995	PASS
Slope =	1.002	0.85-1.15	PASS
b (Intercept as % of full scale)=	-0.49%	± 3% F.S.	PASS
% change in C.F. from last cal	-0.27%	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

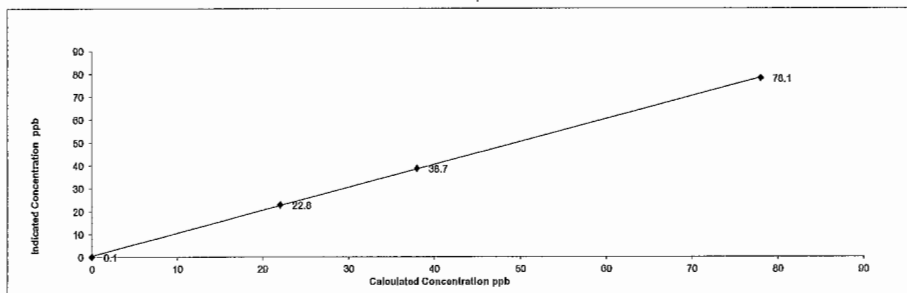
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

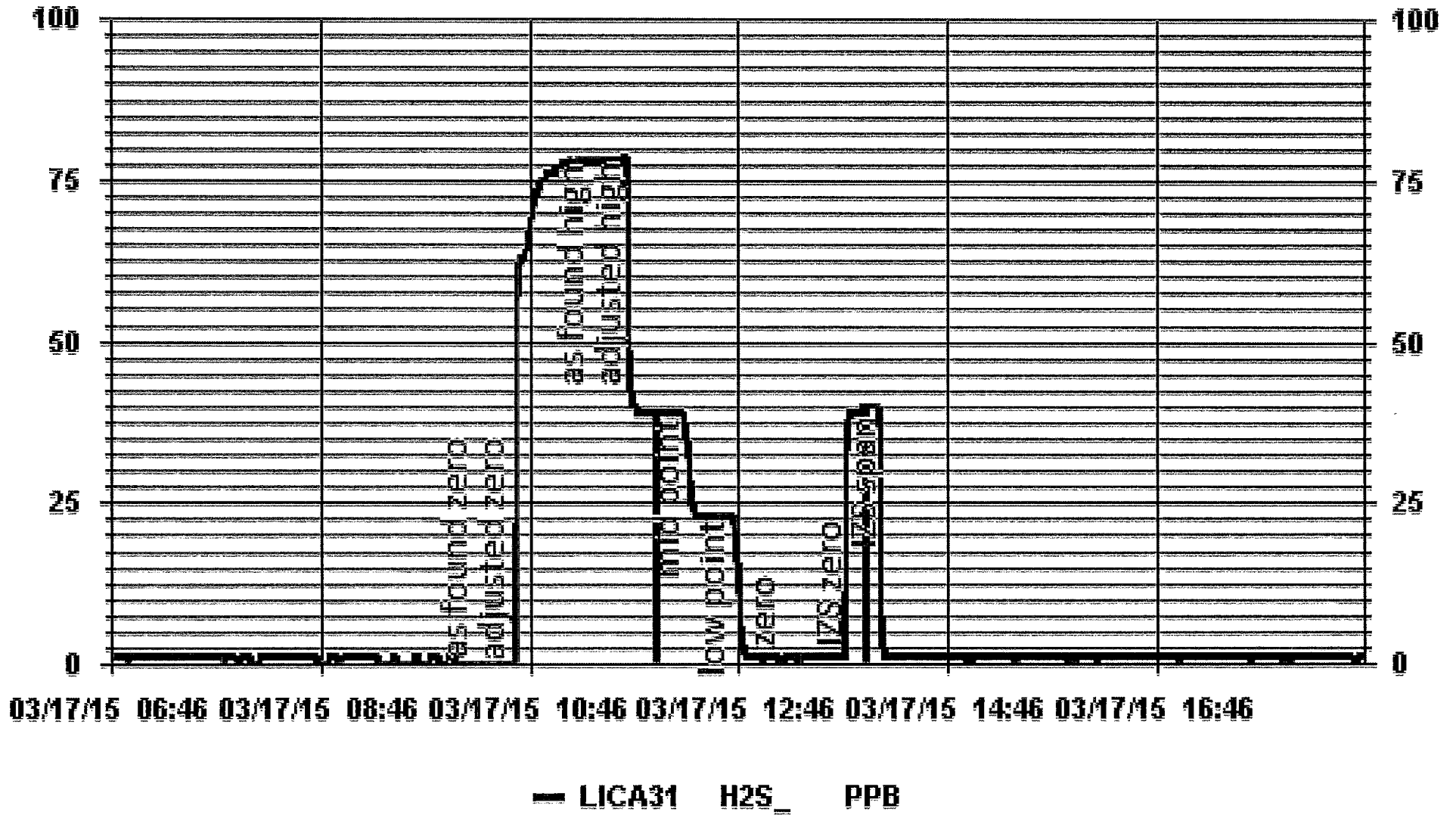
Comments:

Sample filter changed.

API 101E H2S Analyzer Calibration



01 Minute Averages



Maxxam		API 101E H2S Analyzer Calibration	
Date:	30-Mar-15	Start/End Time (mst):	12:30-13:35
Company:	LICA	Calibration Purpose:	AS-Found
Station Name/Location:	St.Lina	Converter Make & Model:	Internal
Performed by:	Chris Wesson	Converter Serial #:	NA
Application H ₂ S/TRS/SO ₂ :	H2S	Cal Gas Expiry Date:	15-Feb-17

Analyzer:	722	Range ppb:	100
Serial Number:	722	As Found C.F.:	1.054
Last Calibration Date:	17-Mar-15	New C.F.:	NA
Previous Cal High Point C.F.:	1.000		

As found:		As left:	
SLOPE:	1.027	SLOPE:	NA
OFFSET:	58.0	OFFSET:	NA
HVPS:	607	HVPS:	NA
RCELL TEMP:	50.0	RCELL TEMP:	NA
BOX TEMP:	31.0	BOX TEMP:	NA
PMT TEMP:	8.2	PMT TEMP:	NA
IZS TEMP:	45.0	IZS TEMP:	NA
TEST:	ConvTemp=314.5	TEST:	NA
STABIL:	0.1	STABIL:	NA
PRES:	25.4	PRES:	NA
SAMP FL:	546	SAMP FL:	NA
PMT:	70.2	PMT:	NA
NORM PMT:	58.8	NORM PMT:	NA
UV LAMP:	2422.9	UV LAMP:	NA
LAMP RATIO:	96.7	LAMP RATIO:	NA
STR. LGT	29.8	STR. LGT	NA
DRK PMT:	25.1	DRK PMT:	NA
DRK LMP:	3.2	DRK LMP:	NA
Internal Span:	39.81	Internal Span:	NA

Calibrator:	Flow Meter ID's:	NA	Calibrator Flow Targets:			
	Make & Model:	EnviroNics 6100	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
	Serial #:	5212	zero	5000	0	5000
	Cal Gas Cylinder I.D. #:	LL74219	high	4960	40	5000
	Cal Gas Conc. (ppm):	10.0	mid	4980	20	5000
			low	4990	11	5001

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4998	0.0	4998	0	0.3	NA
adjusted zero	4998	0.0	4998	0	0.3	NA
as found high	4956	38.95	4995	78.0	74.3	1.054
adjusted high		NA				
mid		NA				
low		NA				
calibrator zero	NA	0.00		0		NA
Average C.F.=						1.054

Linear Regression/Calibration Results:

Correlation Coefficient =	NA	LIMITS	Pass/Fail ?
Slope =	NA	> or = 0.995	
b (Intercept as % of full scale)=	NA	0.85-1.15	
% change in C.F. from last cal	-5.38%	± 3% F.S.	PASS
		± 15%	

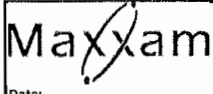
Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

SO ₂ High Point gas concentration:	NA	Time gas run (mst):	NA
Zero corrected analyzer response:	NA		

Comments:

As-Found due to span drift
 No zero-adjust. Values copied from as-found for calculation purposes only.



API 101E H2S Analyzer Calibration

Date: 30-Mar-15

Company: LICA

Station Name/Location: SL Lina

Performed by: Chris Wesson

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 15:35-19:10

Calibration Purpose: Post Repair

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Feb-17

Analyzer:

Serial Number: 722

Last Calibration Date: NA

Previous Cal High Point C.F.: NA

Range ppb: 100

As Found C.F.: NA

New C.F.: 0.998

As found:

SLOPE: 1.027

OFFSET: 58.0

HVPS: 607

RCELL TEMP: 50.0

BOX TEMP: 29.8

PMT TEMP: 8.2

IZS TEMP: 45.0

TEST: ConvTemp=314.8

STABIL: 0.2

PRES: 24.9

SAMP FL: 598

PMT: 70.4

NORM PMT: 59.8

UV LAMP: 2421.5

LAMP RATIO: 96.7

STR. LGT: 29.8

DRK PMT: 24.8

DRK LMP: 3.4

Internal Span: 39.81

As left:

SLOPE: 1.059

OFFSET: 60.0

HVPS: 607

RCELL TEMP: 50.0

BOX TEMP: 29.8

PMT TEMP: 8.2

IZS TEMP: 45.0

TEST: ConvTemp=315.0

STABIL: 0.1

PRES: 24.9

SAMP FL: 598

PMT: 75.3

NORM PMT: 60.6

UV LAMP: 2421.9

LAMP RATIO: 96.7

STR. LGT: 31.7

DRK PMT: 24.6

DRK LMP: 3.4

Internal Span: 39.81

Calibrator:

Flow Meter ID's: NA

Make & Model: Envtronics 6100

Serial #: 5212

Cal Gas Cylinder I.D. #: LL74219

Cal Gas Conc. (ppm): 10.0

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4960	40	5000
mid	4980	20	5000
low	4990	11	5001

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	NA	0.0		0		NA
adjusted zero	4998	0.0	4998	0	0.0	NA
as found high	NA					
adjusted high	4957	38.95	4996	78.0	78.0	1.000
mid	4978	18.98	4997	38.0	38.5	0.987
low	4987	10.98	4998	22.0	21.8	1.008
calibrator zero	4998	0.00	4998	0	0.3	NA
Average C.F. =						0.998

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	Pass/Fail ?
Slope =	0.999	> or = 0.995	PASS
b (Intercept as % of full scale) =	-0.10%	0.85-1.15	PASS
% change in C.F. from last cal	NA	± 3% F.S.	PASS
		± 15%	NA

Converter Efficiency Check for H₂S/TRS application:

****run converter efficiency test immediately following zero adjust****

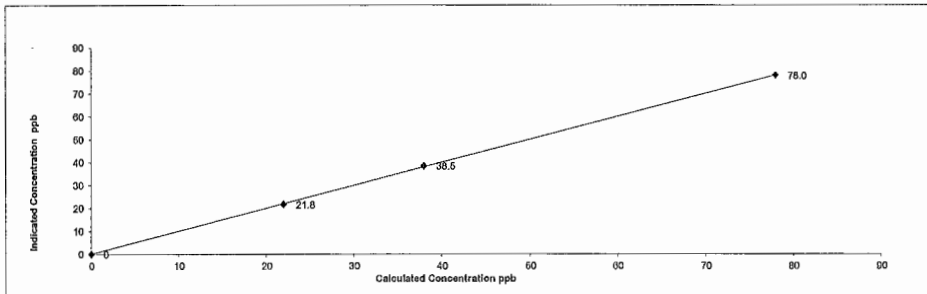
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

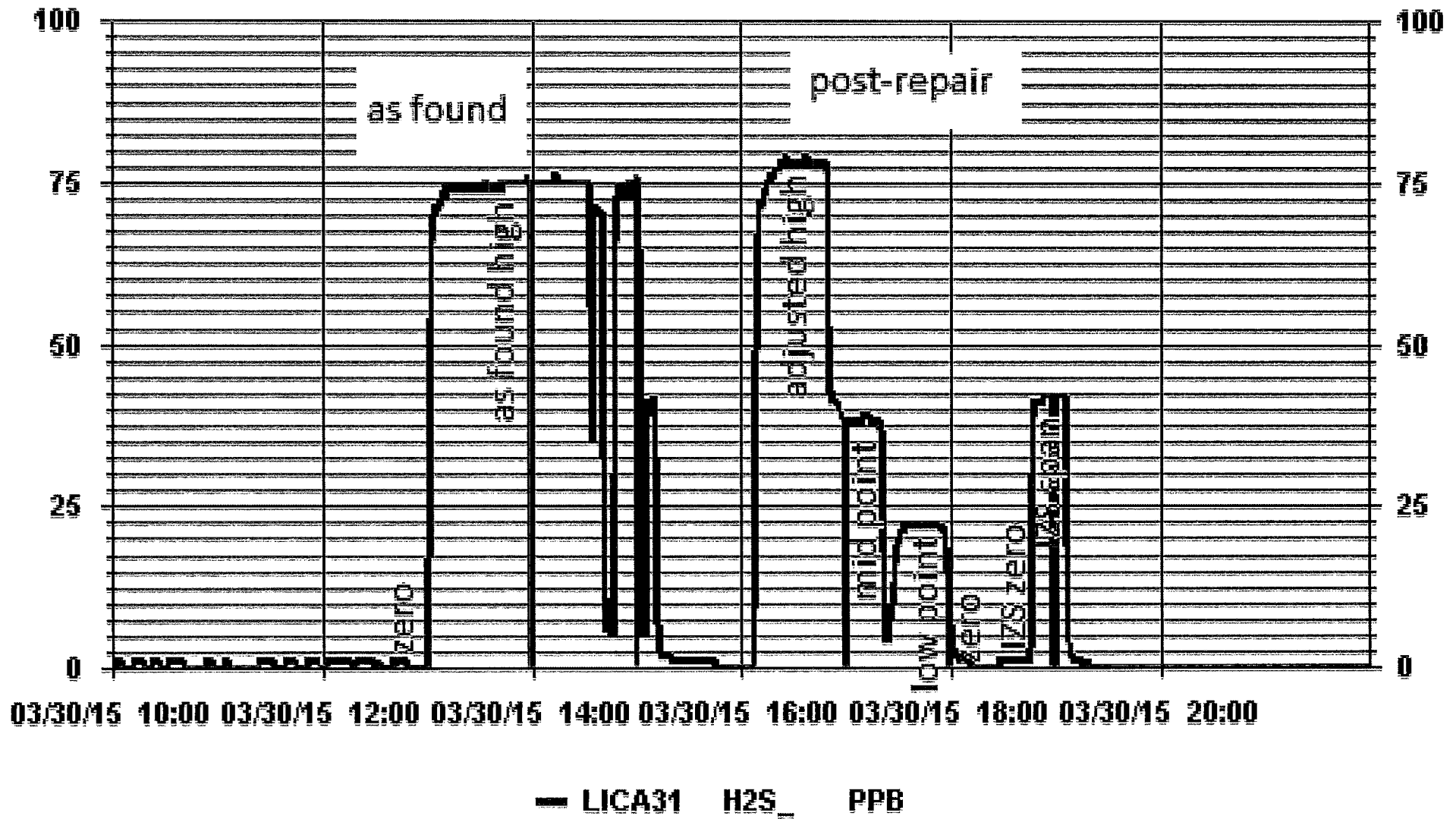
Comments:

Post-Repair following exhaust pump rebuild

API 101E H2S Analyzer Calibration



01 Minute Averages



TOTAL HYDROCARBON

Maxam Thermo 51C THC Analyzer Calibration

Date: 16-Mar-15
 Company: LICA
 Station Name/Location: St. Ulna
 Performed by: Alex Yakupov

Start Time (mst): 11:55
 End Time (mst): 16:15
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer:
 Serial Number: 436609739 Range ppm: 50
 Last Calibration Date: 12-Feb-15 As Found C.F.: 0.990
 Previous Cal High Point C.F.: 0.999 New C.F.: 0.998

As found:		As left:	
H ₂ cylinder (psi):	<u>50</u>	H ₂ cylinder (psi):	<u>2100</u>
H ₂ cylinder reg set (psi):	<u>32</u>	H ₂ cylinder reg set (psi):	<u>32</u>
Span Cylinder (psi):	<u>1700</u>	Span Cylinder (psi):	<u>1700</u>
Span Cylinder Reg Set (psi):	<u>45</u>	Span Cylinder Reg Set (psi):	<u>45</u>
Zero Air Gen Pressure:	<u>45</u>	Zero Air Gen Pressure:	<u>45</u>
measurement alarms:	<u>None</u>	measurement alarms:	<u>None</u>
service alarms:	<u>None</u>	service alarms:	<u>None</u>
FID status:	cnt: <u>2290</u>	FID status:	cnt: <u>2279</u>
	rng: <u>1</u>		rng: <u>1</u>
	try: <u>4</u>		try: <u>1</u>
	flm: <u>207.5</u>		flm: <u>208.2</u>
	det: <u>126.3</u>		det: <u>125.5</u>
Oven Readings:	Flame: <u>207</u>	Oven Readings:	Flame: <u>208</u>
	Filter: <u>125</u>		Filter: <u>125</u>
	Base: <u>126</u>		Base: <u>125</u>
	Pump: <u>6.79</u>		Pump: <u>6.81</u>
Voltages:	+5: <u>4.9</u>	Voltages:	+5: <u>4.9</u>
	+15: <u>14.9</u>		+15: <u>14.9</u>
	-15: <u>-15.0</u>		-15: <u>-15.0</u>
	Internal Span: <u>32.3</u>		Internal Span: <u>32.43</u>

Calibrator:
 Flow Meter ID's: NA
 Make & Model: API 700
 Serial #: 831
 Cal Gas Cylinder I.D. #: LL33674
 CH₄/C₃H₈ Cylinder Conc. (ppm): 601.4 202.0
 CH₄ as propane/total CH₄ equilivants (ppm): 555.5 1156.9

Calibrator Flow Targets:			
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	1935	65	2000
mid	1969	31	2000
low	1984	16	2000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:		Indicated Concentration:		Correction Factors:	
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	(ppm)	(ppm)		
as found zero	1995	0.00	1995	0	0.10				NA
adjusted zero	1995	0.00	1995	0	0.00				NA
as found high	1934	65.00	1999	37.62	38.00				0.990
adjusted high	1934	65.00	1999	37.62	37.60				1.001
mid	1965	31.00	1996	17.97	18.00				0.998
low	1983	16.00	1999	9.26	9.30				0.996
calibrator zero	1995	0.00	1995	0	0.00				NA
Average C.F.=									0.998

Linear Regression/Calibration Results:

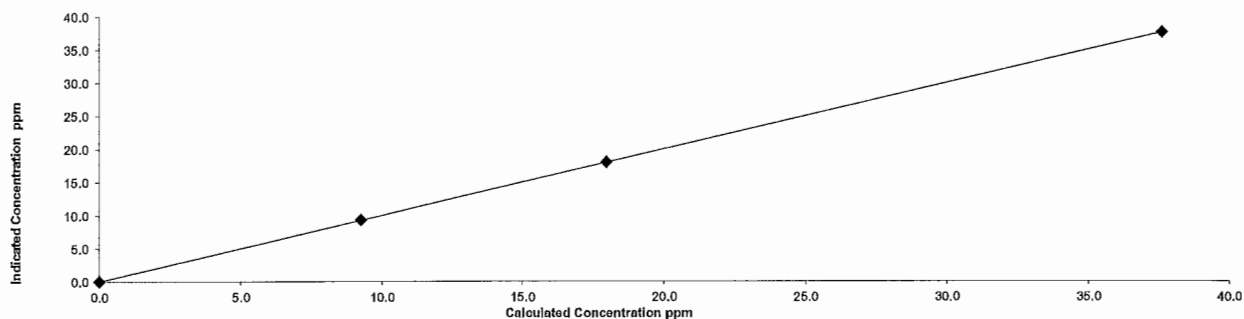
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>0.999</u>	> or = 0.995	PASS
b (Intercept as % of full scale)=	<u>0.052%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0.91%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

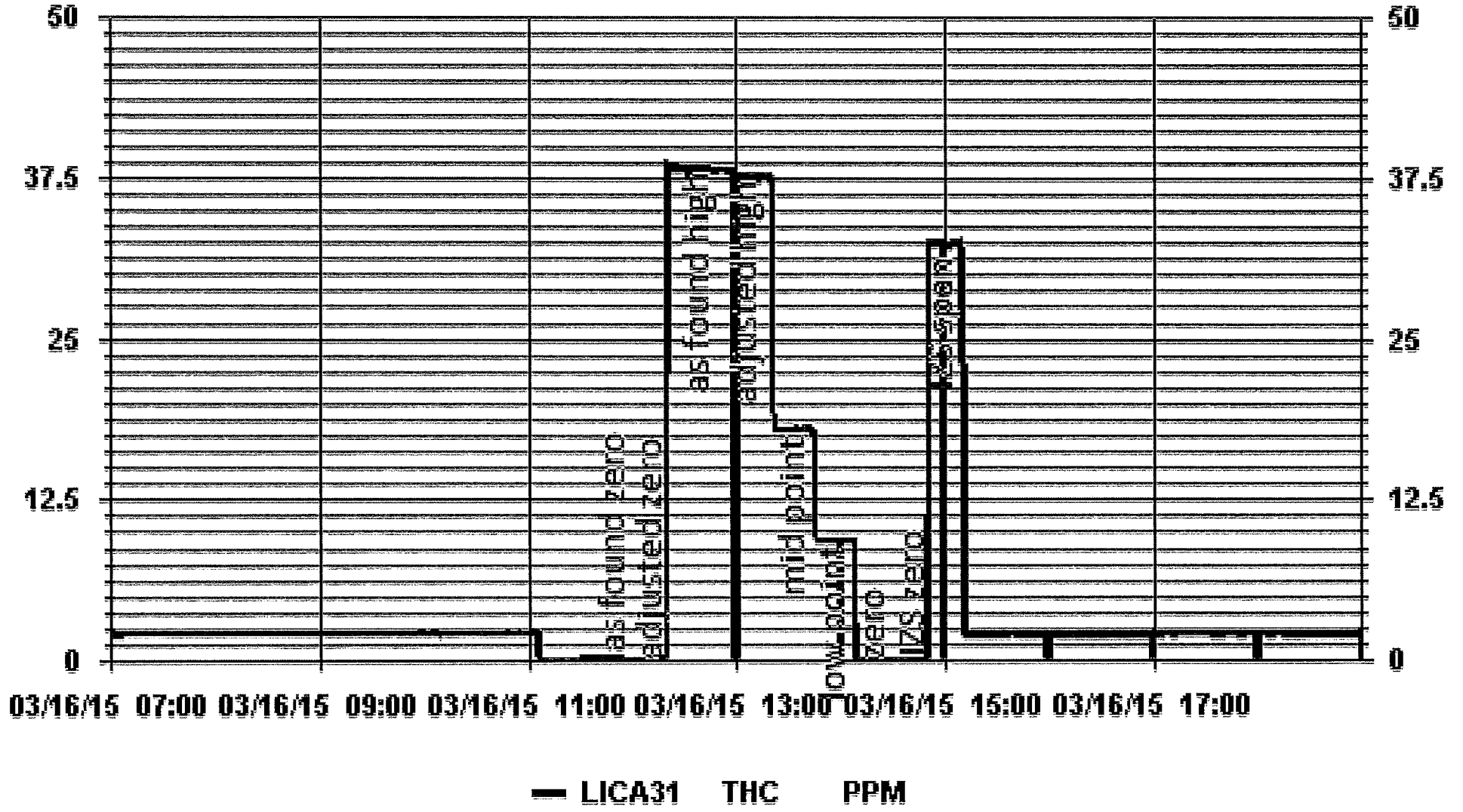
Sample filter changed. Power outage at 12:10. ZERO starts at 12:20. 12:15 - New Gas (H2) Cylinder connected

Thermo 51C THC Analyzer Calibration

THC Calibration Curve



01 Minute Averages



NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 16-Mar-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 11:55
 End Time (mst): 17:40
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer Serial Number: 594
 Last Calibration Date: 12-Feb-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 0.995 NO= 0.999
 NOx= 0.995 NOx= 0.997
 NO₂= 1.000 NO₂= 1.002

As found:
 NOx SLOPE: 0.917
 NOx OFFS: 0.2
 NO SLOPE: 0.914
 NO OFFS: -0.5
 TEST: NA
 SAMP FLW: 460
 OZONE FL: 79
 PMT: 19.3
 NORM PMT: -1.4
 AZERO: 19.5
 HVPS: 771
 RCELL TEMP: 50.1
 BOX TEMP: 29.6
 PMT TEMP: 6.7
 IZS TEMP: 45.0
 MOLY TEMP: 313.8
 RCEL: 5.5
 SAMP: 26.8
 Internal Span: 516.6/7.48/509.1

As left:
 NOx SLOPE: 0.913
 NOx OFFS: 0.4
 NO SLOPE: 0.912
 NO OFFS: -1.5
 TEST: NA
 SAMP FLW: 459
 OZONE FL: 79
 PMT: 22.5
 NORM PMT: 5.5
 AZERO: 16.7
 HVPS: 771
 RCELL TEMP: 50.0
 BOX TEMP: 29.9
 PMT TEMP: 6.7
 IZS TEMP: 45.0
 MOLY TEMP: 316.4
 RCEL: 5.5
 SAMP: 27.2
 Internal Span: 519.9/7.5/512.3

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	78	340.00	4994
mid	4957	38	170.00	4995
low	4975	19	80.00	4994

Calibration:

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	4995	0.0	4995	0	0	-1.0	0.0	NA	NA
adjusted zero	4995	0.0	4995	0	0	0.0	0.0	NA	NA
as found high	4935	61.71	4997	599.0	599.0	602	602	0.995	0.995
adjusted high	4935	61.71	4997	599.0	599.0	599	600	1.000	0.998
mid	4963	30.84	4993	299.5	299.5	299	300	1.002	0.998
low	4979	15.43	4995	149.8	149.8	150	151	0.999	0.992
calibrator zero	4995	0.00	4995	0	0	0.6	1.5	NA	NA
Average C.F.=								1.000	0.996

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ Increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4935	61.71	4997	0	600.0	600.0	-1.0	0.0	0.0	
as found NO ₂	4935	61.71	4997	340	209.0	600.0	390.0	391.0	391.0	1.000
adjusted NO ₂	4935	61.71	4997	340	209.0	600.0	390.0	391.0	391.0	1.000
gpt mid	4935	61.71	4997	170	405.0	600.0	194.0	195.0	195.0	1.000
gpt low	4935	61.71	4997	80	514.0	600.0	85.0	86.0	86.0	1.000
Average NO ₂ C.F.=										1.000

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.001	1.000	0.85-1.15
b (Intercept as % of full scale) =	0.00%	0.04%	0.00%	± 3% F.S.
% change in C.F. from last cal =	0.40%	0.20%	0.20%	+/-15%
NO2 converter efficiency			100.0%	>85%

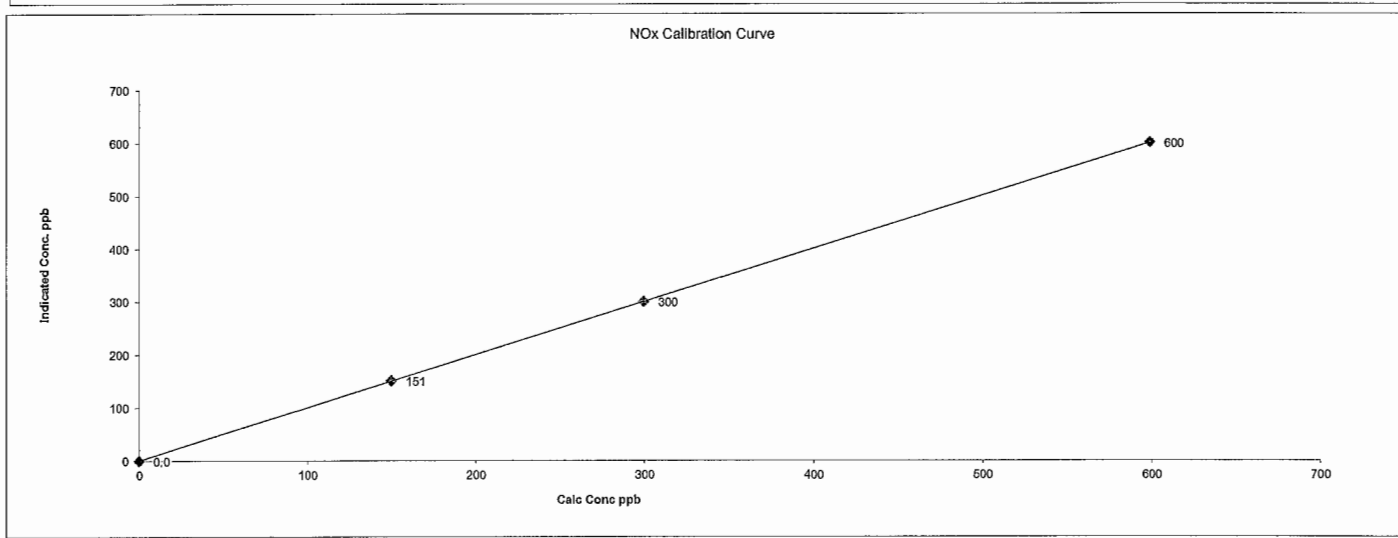
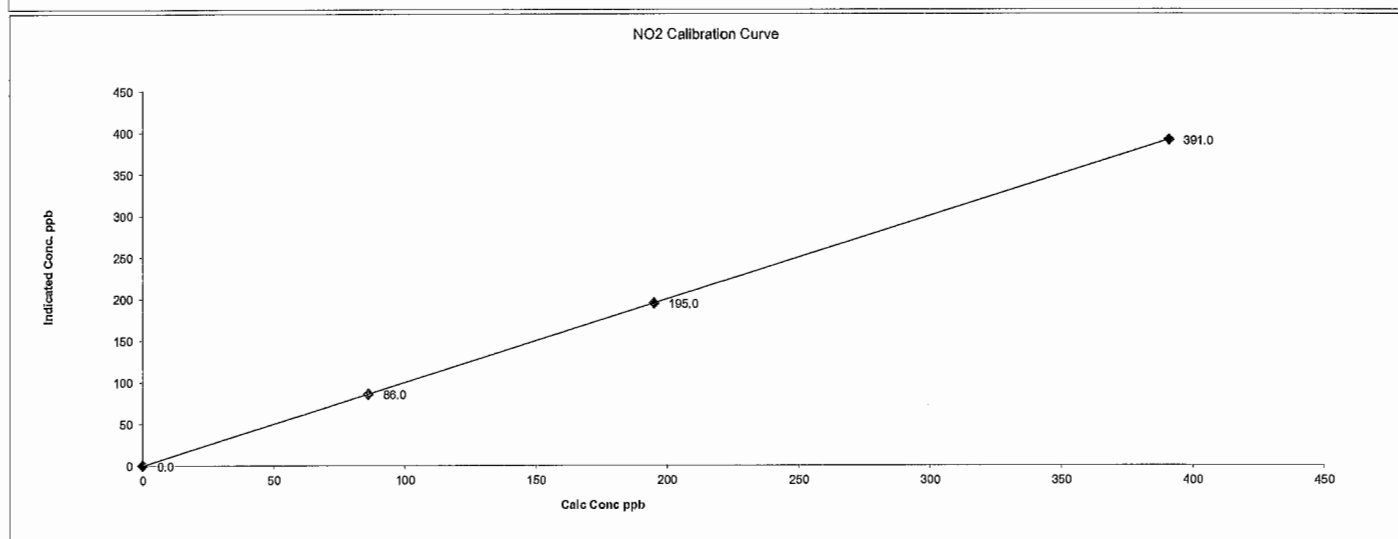
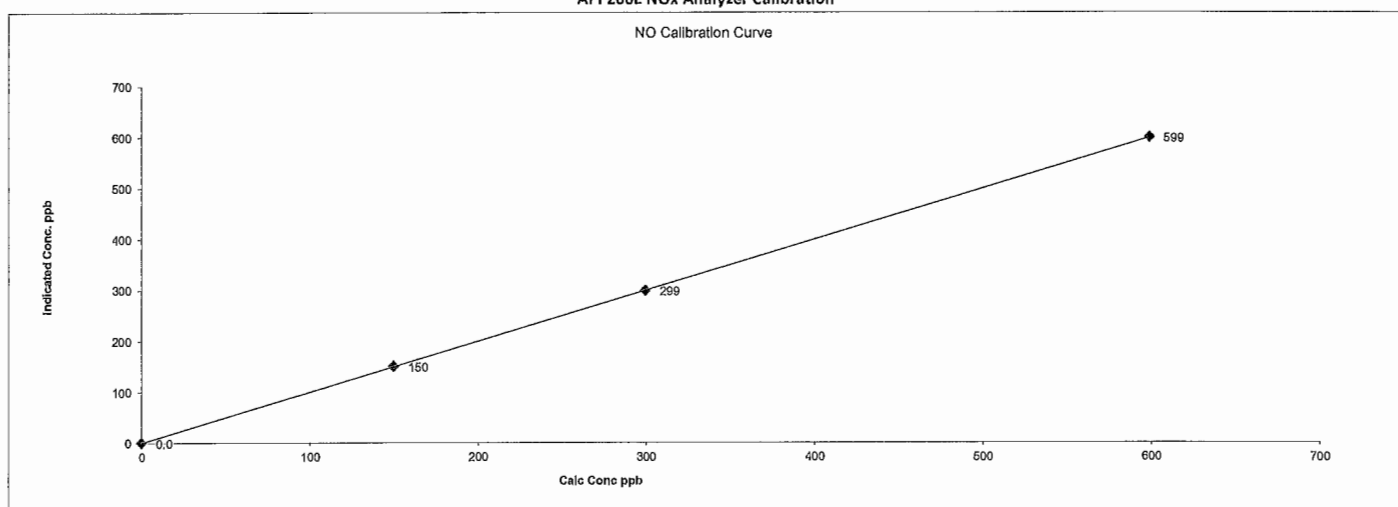
Comments:

Sample filter changed. No adjustments made for NO2. Data copied for calculation purposes only. Power outage at 12:10. ZERO starts at 12:20

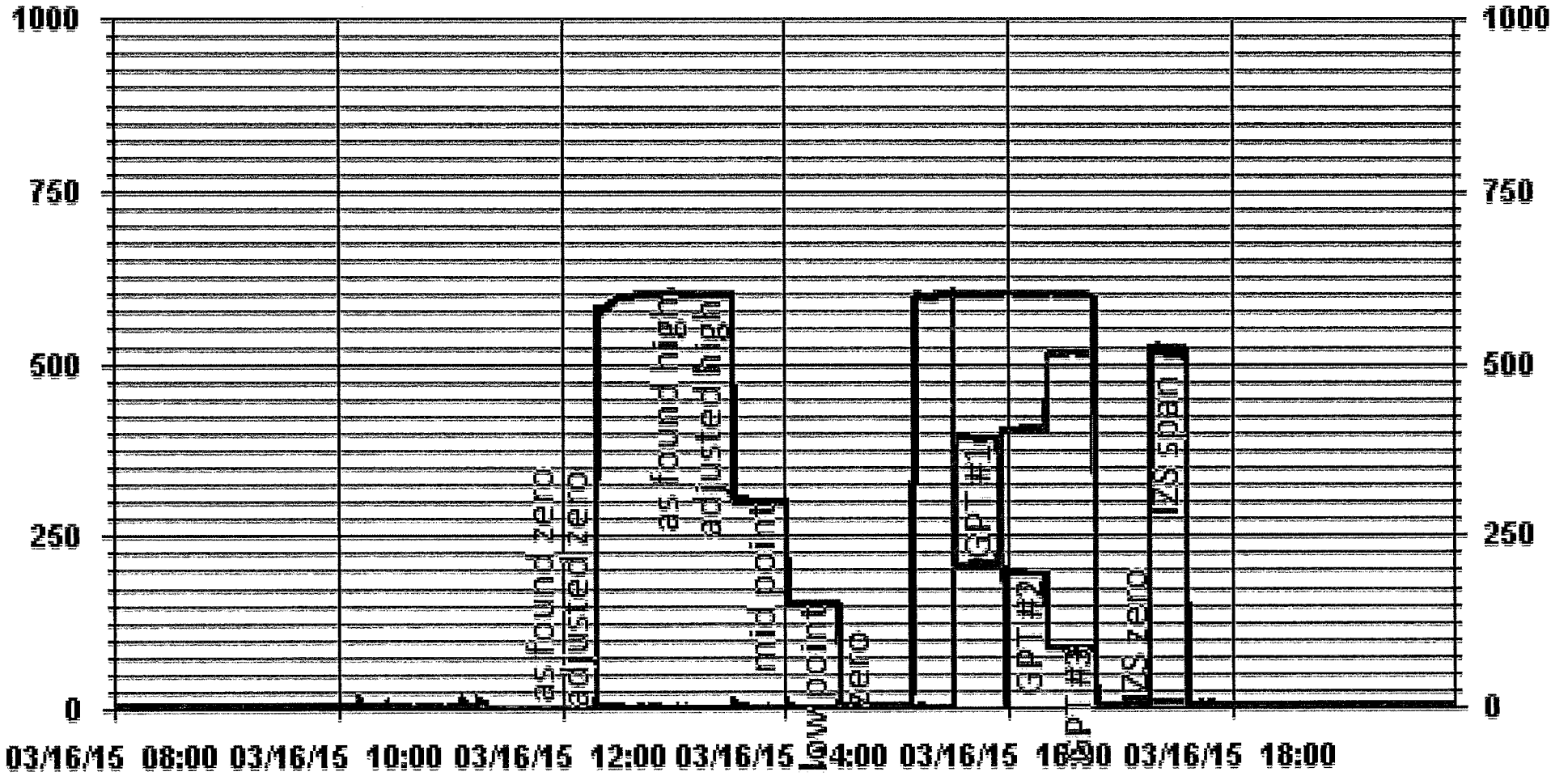
Date: 16-Mar-15
Company: LICA
Station Name/Location: St.Lina
Performed by: Alex Yakupov

Start Time (mst): 11:55
End Time (mst): 17:40
Calibration Purpose: Monthly Calibration
Cal Gas Expiry Date: 12-Aug-17

API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA31 NOX_ PPB — LICA31 NO_ PPB — LICA31 NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: <u>17-Mar-15</u>	Start Time (mst): <u>10:00</u>	
Company: <u>LICA</u>	End Time (mst): <u>14:53</u>	
Station Name/Location: <u>St.Lina</u>	Calibration Purpose: <u>Monthly Calibration</u>	
Performed by: <u>Alex Yakupov</u>	G.P.T. Date: <u>16-Mar-15</u>	

Analyzer: Serial Number: <u>1002240371</u>	Range ppm: <u>500</u>	
Last Calibration Date: <u>12-Feb-15</u>	As Found C.F.: <u>0.997</u>	
Previous Cal High Point C.F.: <u>1.000</u>	New C.F.: <u>0.978</u>	

	As found:	As left:
Motherboard:	O ₃ Bkg: <u>-0.2</u>	O ₃ Bkg: <u>-0.1</u>
	O ₃ Coef: <u>0.981</u>	O ₃ Coef: <u>0.977</u>
	3.3 <u>3.3</u>	3.3 <u>3.3</u>
	15.0 <u>14.8</u>	15.0 <u>14.8</u>
	24.0 <u>23.7</u>	24.0 <u>23.7</u>
Interface Board:	-3.3 <u>-3.2</u>	-3.3 <u>-3.2</u>
	3.3 <u>3.2</u>	3.3 <u>3.2</u>
	5.0 <u>4.9</u>	5.0 <u>4.9</u>
	15.0 <u>14.7</u>	15.0 <u>14.7</u>
	-15.0 <u>-15.0</u>	-15.0 <u>-15.0</u>
Photo Lamp:	9.4 <u>9.4</u>	9.4 <u>9.4</u>
	24.0 <u>23.4</u>	24.0 <u>23.4</u>
	O ₃ Lamp: <u>8.3</u>	O ₃ Lamp: <u>8.3</u>
	Bench: <u>29.5</u>	Bench: <u>29.1</u>
	Bench Lamp: <u>53.6</u>	Bench Lamp: <u>53.7</u>
O ₃ Lamp:	67.8 <u>67.8</u>	67.9 <u>67.9</u>
	Pressure: <u>685.6</u>	Pressure: <u>684.4</u>
	Cell A lpm: <u>0.731</u>	Cell A lpm: <u>0.729</u>
	Cell B lpm: <u>0.726</u>	Cell B lpm: <u>0.724</u>
	O ₃ ppb: <u>0.9</u>	O ₃ ppb: <u>0.7</u>
Cell A ppb:	6.0 <u>6.0</u>	Cell A ppb: <u>-2.5</u>
	Cell B ppb: <u>-4.2</u>	Cell B ppb: <u>4.0</u>
	Cell A Int: <u>62345</u>	Cell A Int: <u>62317</u>
	Cell B Int: <u>73485</u>	Cell B Int: <u>73463</u>
	Internal Span: <u>337.4</u>	Internal Span: <u>332.1</u>

Calibrator: Make & Model: <u>Envirocnics 6100</u> Serial #: <u>4760</u> NOx Gas Cylinder I.D. #: <u>LL42475</u> NOx Cylinder Conc. (ppm): <u>50.2</u>	Calibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>total flow (cc/min)</th> <th>O₃ setting (v or ppb)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>4995</td> <td>0</td> </tr> <tr> <td>high</td> <td>4995</td> <td>340</td> </tr> <tr> <td>mid</td> <td>4995</td> <td>170</td> </tr> <tr> <td>low</td> <td>4995</td> <td>80</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	4995	0	high	4995	340	mid	4995	170	low	4995	80
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	4995	0														
high	4995	340														
mid	4995	170														
low	4995	80														

Calibration:						
Calibrator Flow Rates (cc/min)			Calculated Concentration:	Indicated Concentration:	Correction Factors:	
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4995	0.0	4995	0.0	0.0	NA
adjusted zero	4995	0.0	4995	0.0	0.0	NA
as found high	4995	0.00	4995	391.0	392.0	0.997
adjusted high	4995	0.00	4995	391.0	391.0	1.000
mid	4995	0.00	4995	195.0	199.0	0.980
low	4995	0.00	4995	86.0	90.0	0.956
calibrator zero	4995	0.00	4995	0.0	0.0	NA
copy and paste flows and NO decrease from NOx cal in to calculated concentration						Average C.F.= <u>0.978</u>

Linear Regression/Calibration Results:			
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>0.997</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.487%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

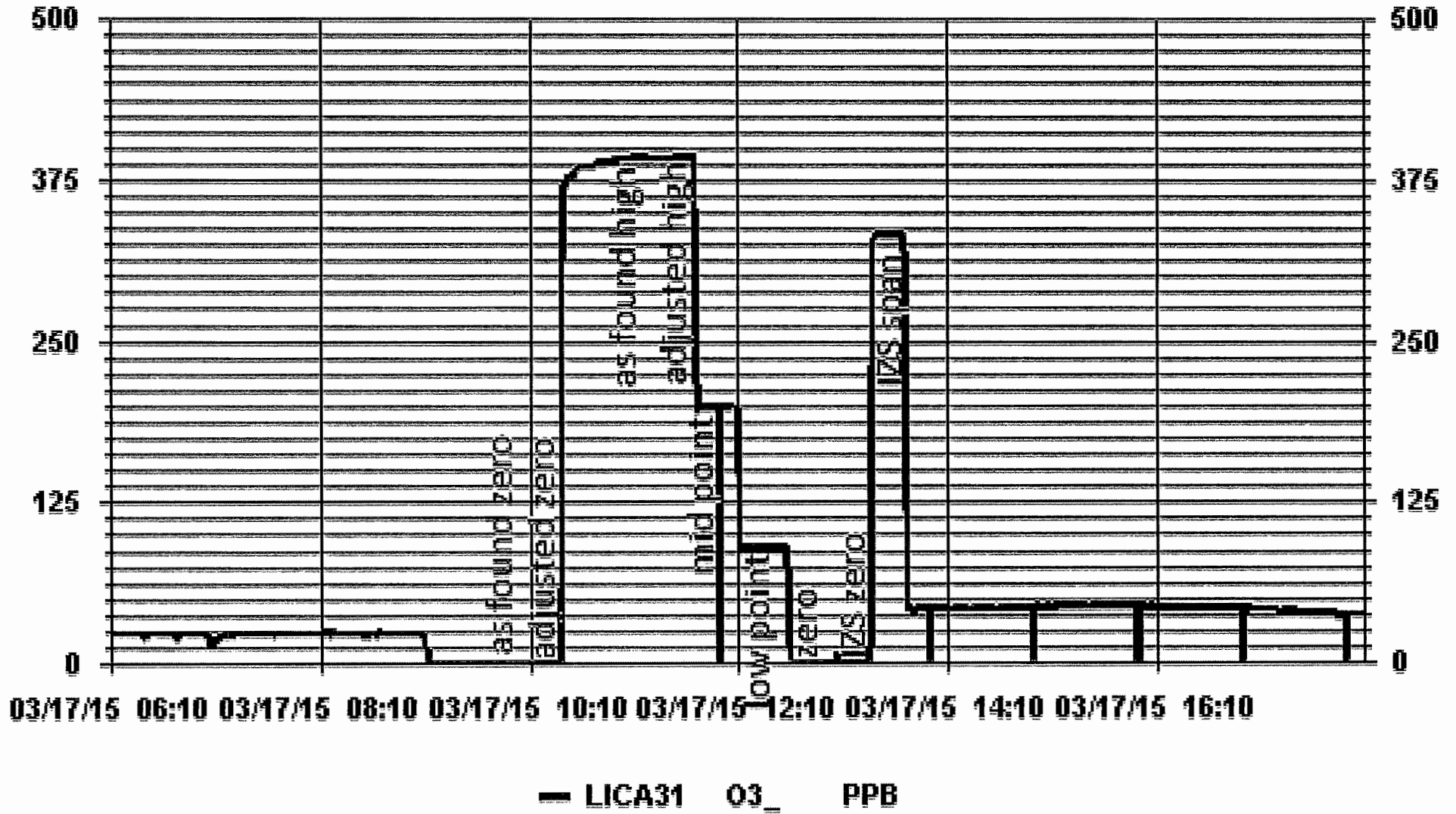
Sample filter changed.

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
100.0	100.0
391.0	392.0

01 Minute Averages



PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 6-Mar-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 17-Feb-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 12:19 - 13:17
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number: 1405A208301003 As Found Filter Loading %: 26.14
 Ko Factor: 13125.0 As Left Filter Loading %: 19.63
 Ambient Temperature °C: 4.37 As Found Noise: 0.009
 Ambient Pressure atm: 0.918 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.32
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	MetOne
Model:	475 Mark III	FB61291	Station
Serial Number:	NA	130168457	NA
Calibration Date:	NA	11-Apr-14	NA

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.04	-0.15	0.07	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.72	-0.64	0.56	-0.64
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.05	-0.15	0.08	-0.14
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.58	-0.64	0.53	-0.64
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>4.4</u>	1405F pressure atm: <u>0.918</u>
reference temperature °C: <u>4.8</u>	reference pressure: <u>0.922</u>
difference °C: <u>0.4</u>	difference : <u>-0.004</u>

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

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>4.4</u>	1405F pressure atm: <u>0.918</u>
reference temperature °C: <u>4.8</u>	reference pressure: <u>0.922</u>
difference °C: <u>0.4</u>	difference : <u>0.004</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.09</u>	reference total/aux flow lpm: <u>13.82</u>
difference lpm: <u>0.09</u>	difference lpm: <u>0.15</u>

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

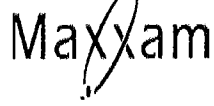
main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.09</u>	reference total/aux flow lpm: <u>13.82</u>
difference lpm: <u>0.09</u>	difference lpm: <u>0.15</u>

K_o Audit:

Last K_o audit date: 1-May-14
 1405F K_o factor: 13125.0
 Measured K_o factor: NA
 % difference: NA

Comments:

TEOM Filter # TFA207-14 and and external filter part # 10-002387-0100 has been changed. Bypass flow leak check failed during first attempt. After insulating bypass fittings and reconnecting them back leak check passed by a little margin. TEOM bypass flow air way requires maintenance/repair service



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 12-Mar-15
 Company: LICA
 Station Name/Location: St. Lina
 Previous Audit Date: 17-Feb-15

Parameter: PM 2.5
 Performed by: Limin Li
 Start/End Time (mst): 16:00/19:10
 Calibration Purpose: Maintenance

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>20.42</u>
Ko Factor:	<u>13125</u>	As Left Filter Loading %:	<u>20.42</u>
Ambient Temperature °C:	<u>3.14</u>	As Found Noise:	<u>0.005</u>
Ambient Pressure atm:	<u>0.920</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.31</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Brunton</u>	<u>Fluke</u>
Model:	<u>Streamline FTS</u>	<u>ADC Summit</u>	<u>1551A</u>
Serial Number:	<u>Hi 091001, Lo 091099</u>	<u>NA</u>	<u>1735039</u>
Calibration Date:	<u>NA</u>	<u>5-May-14</u>	<u>NA</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.05	-0.15	0.08	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.53	-0.64	0.57	-0.64
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.64	0.00	-0.64
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>3.1</u>	1405F pressure atm:	<u>0.920</u>
reference temperature °C:	<u>2.2</u>	reference pressure:	<u>0.923</u>
difference °C:	<u>-1.0</u>	difference :	<u>-0.003</u>

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>3.1</u>	1405F pressure atm:	<u>0.920</u>
reference temperature °C:	<u>2.2</u>	reference pressure:	<u>0.923</u>
difference °C:	<u>-1.0</u>	difference :	<u>0.003</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.04</u>	reference total/aux flow lpm:	<u>13.88</u>
difference lpm:	<u>0.04</u>	difference lpm:	<u>0.21</u>

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

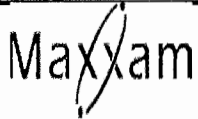
main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.04</u>	reference total/aux flow lpm:	<u>13.88</u>
difference lpm:	<u>0.04</u>	difference lpm:	<u>0.21</u>

Ko Audit:

Last Ko audit date: 1-May-14
 1405F Ko factor: 13125
 Measured Ko factor: NA
 % difference: NA

Comments:

Clean switch valve and change o-rings.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 20-Mar-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 6-Mar-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 13:31 / 14:49
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number: 1405A208301003 As Found Filter Loading %: 22.97
 Ko Factor: 13125.0 As Left Filter Loading %: 19.01
 Ambient Temperature °C: -0.91 As Found Noise: 0.013
 Ambient Pressure atm: 0.924 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.32
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	MetOne
Model:	475 Mark III	FB61291	Station
Serial Number:	NA	130168457	NA
Calibration Date:	NA	11-Apr-14	NA

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.65	0.00	-0.65
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.65	0.00	-0.65
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-0.9</u>	1405F pressure atm: <u>0.924</u>
reference temperature °C: <u>-0.9</u>	reference pressure: <u>0.929</u>
difference °C: <u>0.1</u>	difference: <u>-0.005</u>

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

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-0.9</u>	1405F pressure atm: <u>0.924</u>
reference temperature °C: <u>-0.9</u>	reference pressure: <u>0.929</u>
difference °C: <u>0.1</u>	difference: <u>0.005</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>2.97</u>	reference total/aux flow lpm: <u>13.64</u>
difference lpm: <u>-0.03</u>	difference lpm: <u>-0.03</u>

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

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>2.97</u>	reference total/aux flow lpm: <u>13.64</u>
difference lpm: <u>-0.03</u>	difference lpm: <u>-0.03</u>

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13213.2000
 % difference: 0.67

Comments:

WIND SYSTEM



Mel One Instruments

3206 Main St. Suite 106
Regional Service Center
Rowlett, TX 75088

Wind Tunnel Calibration

Data Sheet

50.5-6100

NIST Cup Model No. 170.41

Serial No. 3309

NIST Sensor Model No. 50.1B

Serial No. 1263

Average wind speed this test in mps 11.19

WD Setting Degree	WD Output Volts	WD Reading Degree	WD Error +/- 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error +/- 0.24 MPS
30.0	0.082	28.6	-0.4	11.21	0.224	11.19	-0.02
60.0	0.164	59.0	-1.0	11.17	0.227	11.33	0.16
120.0	0.331	119.1	-0.9	11.08	0.221	11.06	-0.02
150.0	0.420	151.3	1.3	11.29	0.222	11.11	-0.18
210.0	0.582	209.4	-0.6	11.25	0.223	11.16	-0.09
240.0	0.665	239.4	-0.6	11.18	0.226	11.32	0.14
300.0	0.835	300.5	0.5	11.16	0.224	11.18	0.02
330.0	0.917	330.0	0.0	11.18	0.223	11.15	-0.03

Average wind speed this test in mps 2.21

WD Setting Degree	WD Output Volts	WD Reading Degree	WD Error +/- 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error +/- 0.20 MPS
30.0	0.041	29.3	-0.7	2.18	0.042	2.08	-0.10
60.0	0.083	58.5	-1.5	2.20	0.043	2.14	-0.06
120.0	0.167	119.6	-0.4	2.21	0.042	2.08	-0.13
150.0	0.177	150.3	0.3	2.22	0.042	2.07	-0.15
210.0	0.249	210.1	0.1	2.20	0.042	2.12	-0.08
240.0	0.266	239.8	-0.2	2.23	0.042	2.10	-0.13
300.0	0.335	300.8	0.8	2.22	0.043	2.19	-0.04
330.0	0.377	330.0	0.0	2.21	0.043	2.17	-0.04

Instrument Test Condition As Found As Left

Sensor Model No. 50.5H

Sensor Serial No. H12635

Sensor Output (V/mph) 0V - 110V

Sensor Output Range 0 - 50 MPS

Customer Maxxim Analytica

Sales Order No. 104703

TELEPHONE 35-66587

Calibration Date 08/28/2014

Calibration by David Halliday

QC Inspection

David Halliday

METEOROLOGICAL SYSTEM CHECK

Meteorological System Checklist

Date: **20-Mar-14**
Performed by: **Alex Yakupov**
Station: **St. Lina**
Start: **14:49** End: **15:12**

PRECIPITATION SENSOR CHECK

Previous check date: **March 21, 2013**

	YES	NO
Is the sensor Level?	YES	
Is the heater operating properly?	YES	
Are the bucket drain holes clean?	YES	
Is the inner screen on the housing? (screen should be on between July and September	NA	NA
Is the upper screen on the housing? (screen should be on between July and September)	NA	NA
Is the housing clean?	YES	
Is the area around the housing clean and free from obstacle?	YES	
Is the tipping sensor working properly? (pour water to housing and hear 10 tips, check if the datalogger read 1.0mm)	YES OK	

Comments: the rain gauge has been tested with water. Response is timely and accurate.
No issues

Field Technician: Alexander Yakupov March 20, 2015

CALIBRATORS

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4780</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Callibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	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)=	1.0511		0.90-1.10	m (Slope)=	1.0496
b (Intercept % of FS)=	0.0400	±	3% F.S.	b (Intercept % of FS)=	0.0400

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

NO ₂		LIMITS	
Correlation=	1.0000	≥	0.995
m (Slope)=	1.0006		0.90-1.10
b (Intercept % of FS)=	-0.0132	±	3% F.S.

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: _____

Auditor: Al Clark
Operator Signature: [Signature]

Date: December 17, 2014
Location: McIntyre Center Edmonton



Calibrator Performance Audit

Hydrogen Sulphide (by Cylinder Dilution)

File No. 2012-301A

Company: Maxxam Operator: Ting Xu

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>831</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Dec 21/11</u>	Temperature (°C)	<u>N/A</u>
H ₂ S Cylinder Conc.	<u>11.42648</u>	Barometric Pressure	<u>N/A</u>
H ₂ S Cylinder S/N	<u>10.0</u>		

Flow Measurements

Pt. No. 1 40 Pt. No. 2 20 Pt. No. 3 11.5

Calibrator Flow (scfm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.0000	0.0000		
4960	0.0800	0.0809	1%	± 10%
4977	0.0400	0.0404	1%	± 10%
4987	0.0230	0.0234	2%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

<u>H₂S</u>	<u>LIMITS</u>
Correlation= 1.0000	≥ 0.995
m (Slope)= 1.0107	0.90-1.10
b (Intercept % of FS)= 0.0439	± 3% F.S.

AENV Standards		H ₂ S Analyzer	
Audit Calibrator		Make/Model	<u>Teco 45C</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>AMU 1624</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec13/12</u>
		Full Scale (ppm)	<u>0.1</u>

COMMENTS: _____

Auditor: Al Clark Date: December 13, 2012
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>5212</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>October 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4995	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4997	0.0	0.800	0.800	0.814	-0.001	0.813	2%	2%
4995	0.0	0.400	0.400	0.409	-0.001	0.408	2%	2%
4998	0.0	0.200	0.200	0.204	0.000	0.204	2%	2%
Absolute Average Percent Difference							2%	2%

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)=	1.0176	0.90-1.10		m (Slope)=	1.0161
b (Intercept % of FS)=	0.0600	± 3% F.S.		b (Intercept % of FS)=	0.0600

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
4997	0.000	0.000	0.813	-0.001	0.802	NO ₂	% Diff. Limit
4997	0.580	0.527	0.286	0.527	0.813	0	± 10%
4997	0.300	0.278	0.535	0.238	0.813	0	± 10%
4997	0.100	0.093	0.720	0.091	0.811	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

NO ₂		LIMITS	
Correlation=	0.9965	≥ 0.995	
m (Slope)=	0.9898	0.90-1.10	
b (Intercept % of FS)=	-0.8461	± 3% F.S.	

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS:

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 18, 2014
Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

NO Cylinder Gas

File No. 2014-262CGA

Company: Maxxam **Operators name:** Limin Li
Cylinder #: LL42475 **Conc (PPM)** 48.5/48.5 **Tolerance (%)** 1 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146i
Serial Number AMU 1809
Last Verification Date December 15, 2014
Gas Type NO **Conc.** 48.79
Cylinder Number CAL017892

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 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.3 **Span:** 1.017 **Range:** 1.0
Last Calibration: **Date:** Dec15/14 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (scem)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000	0.0000	1.0000	50.0	50.1
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

NO	NOx
Previous Stated Concentration PPM: <u>48.5</u>	<u>48.5</u>
Percent variance from Stated: <u>3.8</u>	<u>4.0</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark **Date:** December 16, 2014
Operator Signature: *Al Clark* **Location:** McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2013-324COA

Company: Maxxam Operator's Name: Chris Wesson
 Cylinder #: BLM005049 Concentration PPM: 10.1 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: February 21, 2013
 Gas Type: H2S Conc. 20.02
 Cylinder Number: D249556

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 21.0 C
 B.P.: 696 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 7.5 Span: 1.023 Range: 0.1
 Last Calibration: Date: Feb 21/13 C.F.: 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	0.0000	0.0000
5103	38.2	0.0768	0.00749	133.586	10.3
5087	17.9	0.0355	0.00352	284.190	10.1
5064	9.2	0.0182	0.00182	550.435	10.0
Average Cylinder Concentration:					10.1

Previous Stated Concentration PPM: 10.1
 Percent variance from Stated: 0.2

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

Auditor: Al Clark
 Operator Signature:

Date: February 21, 2013
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-256CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL74219 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: 23.5 C
 B.P. 701 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 (scm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	132.234	10.1
5091	38.5	0.0766	0.00756	132.234	10.1
5096	17.9	0.0356	0.00351	284.693	10.1
5067	9.1	0.0178	0.00180	556.813	9.9
Average Cylinder Concentration:					10.1

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 0.6

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

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Praxair Canada, Inc.
 8925 34th Street
 Edmonton, AB T5B 2K3
 Tel: 780-493-0778
 Fax: 780-493-8302

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. NE ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Registered Concentration	Certified Concentration	Analytical Purity	Analytical Accuracy
Methane	800.0ppm	801.4ppm	U	±1% rel
Propane	200.0ppm	202.2ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler Toledo Analytical Balance-1028x/USA--
 Hewlett-Packard (Agilent)-8890--GC-FID

Cylinder Style: AQ
 Cylinder Pressure @20F: 2200 psig
 Cylinder Volume: 82.6 m3
 Valve Outlet Connection: CGA-310
 Cylinder No(s): LL33874

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

Analyst: Todd Myrta

The gas cylinders analyzed are manufactured by Praxair Canada, Inc. It is certified a certified standard. It is prepared by gravimetric methods or other primary techniques. The certificate is issued pursuant to Praxair Canada, Inc. Certificate Standard which are either prepared by weight measured in the National Institute of Standards and Technology (NIST) Measurement Canada or in other NIST certified facilities. These are other products.

- For the information of customers, it is noted that the gas cylinders are not to be used for other than the intended purpose of the certificate.
- | | | | |
|--|--|--|--|
| 1. The certificate is valid for the following: | 2. The certificate is valid for the following: | 3. The certificate is valid for the following: | 4. The certificate is valid for the following: |
| 1. The certificate is valid for the following: | 2. The certificate is valid for the following: | 3. The certificate is valid for the following: | 4. The certificate is valid for the following: |

The information contained herein has been prepared and issued by Praxair Canada, Inc. while we believe the information is accurate under the terms of the analytical methods described and is subject to the effect of the specific analytical methods, we make no warranty or representation as to the accuracy of the use of the information for any particular purpose. The information is subject to the understanding that the use of the information is at the sole discretion and risk of the user. In no event shall Praxair Canada, Inc. be liable for any damages or for the use of the information contained herein, because of the limitations on recovering such information.

APPENDIX III
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: Lakeland Industry & Community Association
Site: St. Lina Site

Project #: 2833-2015-03-31- C
Contact: Mike Bisaga

QA Check Complete	<u>msdlnka</u>	Date	<u>April 02, 2015</u>
QA Check Review	<u>msdlnka</u>	Date	<u>April 02, 2015</u>
Report Complete	<u>msdlnka</u>	Date	<u>April 06, 2015</u>
Report Reviewed	<u>[Signature]</u>	Date	<u>7 - Apr - 15</u>
Report Shipped	_____	Date	_____

Notes

AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ELK POINT AIRPORT SITE

JOB #:2833-2015-03-35- C

MARCH 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **May 4, 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 MARCH 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.

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: LICA-owned API 101E analyzer was replaced with Maxxam-supplied Thermo 450i analyzer for troubleshooting/repair purposes.

NO2: Maxxam-owned API 200A analyzer was replaced with the LICA-owned API 200E analyzer that was brought to Maxxam Calgary shop for annual maintenance in November 2014.

O3: 11 hours of data were invalidated as the Ozone channel was put into Maintenance mode for calibrator check.

PM2.5: 25 hours of data were invalidated this month as the data were below -3 ug/m^3 .

All Parameters: 13 hours of data are missing due to power failures 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

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

Monthly Continuous Data Summary

Lakeland Industry & Community Association Elk Point Airport Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
						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	4	18	11.5	SE	0.5	4	98.3
H2S (PPB)	10	3	0	0	0	1	VAR	VAR	VAR	VAR	0.9	14	90.2
THC (PPM)	-	-	-	-	2.4	5.4	4	2	4.2	WSW	3.6	4	98.0
CH4 (PPM)	-	-	-	-	2.4	5.4	4	2	4.2	WSW	3.6	4	98.0
NMHC (PPM)	-	-	-	-	0.00	0.20	VAR	VAR	VAR	VAR	0.04	13	98.0
NO2 (PPB)	159	-	0	-	7.9	35.3	4	5	3	E	21.4	4	98.3
NO (PPB)	-	-	-	-	1.5	35.8	23	6	0.8	SSE	9.2	4	98.3
NOX (PPB)	-	-	-	-	9.5	61.5	23	6	0.8	SSE	30.8	4	98.3
O3 (PPB)	82	-	0	-	27	47	30	VAR	VAR	VAR	36.8		96.8
PM2.5 (UG/M3)	-	30	-	0	5.5	23.0	25	21	4.6	E	18.2	25	94.9
VECTOR WS (KPH)	-	-	-	-	11.4	48.6	15	4	-	WNW	24.6	2	98.3
VECTOR WD (DEG)	-	-	-	-	W	-	-	-	-	-	-	-	98.3

NA-NOT AVAILABLE VAR-VARIOUS

Volatilic Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatilic Organic Compound
MARCH 13, 2015	3.57	n - BUTANE
MARCH 19, 2015	2.66	ACETONE
MARCH 25, 2015	2.66	ACETONE
MARCH 31, 2015	6.28	NAPHTHALENE

Note: Sampling did not take place on March 1 and March 7 as the sampler was out for repair.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MARCH 1, 2015	0.50	2 - METHYLNAPHTHALENE
MARCH 7, 2015	0.17	2 - METHYLNAPHTHALENE
MARCH 13, 2015	0.13	2 - METHYLNAPHTHALENE
MARCH 19, 2015	0.08	NAPHTHALENE
MARCH 25, 2015	0.30	2 - METHYLNAPHTHALENE
MARCH 31, 2015	0.08	PHENANTHRENE

Note: NA

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 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, CH₄, NMHC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS and WD. It also consists of results for non-continuous parameters VOC, PAH and NMHC canister events.

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 March 4. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month. Hourly maximum data collected on March 10 at hour 14 was invalidated as the data was flagged in error during NO₂ calibration.

HYDROGEN SULPHIDE (H2S)

The routine monthly calibration was performed on March 4. The analyzer drifted low on March 22. On getting to the station on March 23, it was discovered that there was a dark cell warning on the analyzer screen and the zero reading had dropped. It was decided that the analyzer be replaced for troubleshooting/repair purposes. A removal calibration was therefore performed on the LICA-owned API 101E analyzer on March 23. The result was good. The Maxxam-supplied Thermo 450i analyzer was installed after the removal calibration. The analyzer was allowed time to stabilize overnight and an installation calibration was performed on March 24. The H2S channel was reconfigured on the datalogger and the analyzer output calibration was performed following the installation calibration on March 24. Data was invalidated back to the last good zero/span check which was on March 21. 42 hours of data were invalidated due to this event. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month.

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 March 4. The HC channel was put into Maintenance mode on March 9 at hour 18 while the NOX analyzer was being cleaned as this tends to affect the NMHC. The Hydrogen, Nitrogen and Methane gas cylinders were replaced on March 27. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month. Data collected on March 6 at hour 15 was invalidated as the analyzer was recovering from the power failure that occurred on that day.

NITROGEN DIOXIDE (NO2)

The routine monthly calibration was performed on March 4. The Maxxam-owned API 200A analyzer was replaced with the LICA-owned API 200E analyzer that was brought to Maxxam Calgary shop for annual maintenance in November 2014. The API 200A removal calibration was performed on March 10 followed by the API 200E installation calibration on the same day. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month.

OZONE (O3)

The routine monthly calibration was performed on March 5. The channel was put into Maintenance mode on March 11 from hour 9 to hour 19 for a calibrator check. 11 hours of data were discarded due to this event. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)

The Teom audit was performed on March 5. The unit passed the audit requirements. The switch valve was cleaned and the O-rings were replaced on March 11. The audit was performed before and after the maintenance. The results were within acceptance limits. The unit was checked again on March 20 to ensure the unit's functionality. The result was good. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this month. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m^3 , the data was corrected to 0 ug/m^3 . If the data was below -3 ug/m^3 , the data was invalidated. 25 hours of data were invalidated as the data were below -3 ug/m^3 this month.

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

The wind system 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. 13 hours of data collected on March 6 from hour 10 to hour 14 and on March 18 hour 20 to March 19 hour 3 are missing due to power failures this 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 as ppb in 2 decimal places.

The VOC sampler was re-installed on site on March 11 after it was out for repair. Samples were collected on March 13, 19, 25 and 31. They were sent to the lab for analysis. 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 as μg in 2 decimal places.

Samples were collected on March 1, 7, 13, 19, 25 and 31. They were sent to the lab for analysis. Results are included in this report.

NMHC CANISTER SAMPLES

Samples were programmed to be collected whenever the NMHC canister is triggered by a 5-minute average concentration of ≥ 0.3 ppb.

The canister was triggered on March 13 by an NMHC concentration of 0.3 ppm. However, the sample was not analyzed because it was an inappropriate sample due to equipment error. The regulator that was sent from the lab collected samples over a 24-hour period instead of a 1-hour period. The correct regulator was installed on April 3.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling team consisted of Alexander Yakupov, Christopher Wesson, and Limin Li.

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-00001 - Methane, Non-Methane Hydrocarbon Analyzer Monitoring
- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00215: 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 100A UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer and Thermo 450i UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 55i FID Analyzer
- Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
- Oxides of Nitrogen - API 200A Chemiluminescent Analyzer and API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - RM Young Unit
- Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	24-HOUR	
HOUR START	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	S	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	S	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	S	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	C	C	C	C	C	1	1	2	1	1	1	1	1	2	0.5	24
5		1	0	0	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
6		0	0	0	0	0	0	0	0	0	S	P	P	P	P	P	0	0	0	0	0	0	0	0	0	0	0	0.0	19
7		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	24
8		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	24
9		0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
10		0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11		0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12		0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13		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	24
14		0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15		S	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
16		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	24
17		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	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	0	0.0	20
19		P	P	P	P	0	0	S	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0.1	20
20		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
21		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
22		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
23		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
24		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	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27		0	0	0	0	1	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
28		0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	0.0	24
30		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	24
31		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	24
HOURLY MAX		1	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	2	1	1	1	1	1	1			
HOURLY AVG		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0				

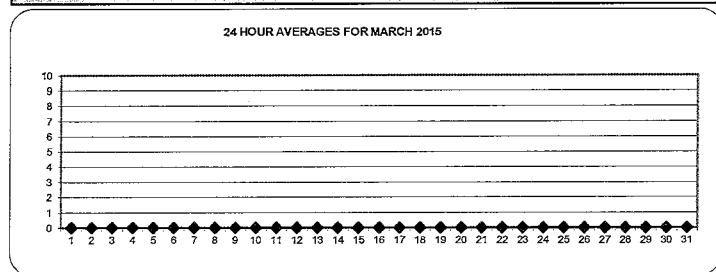
STATUS FLAG CODES

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

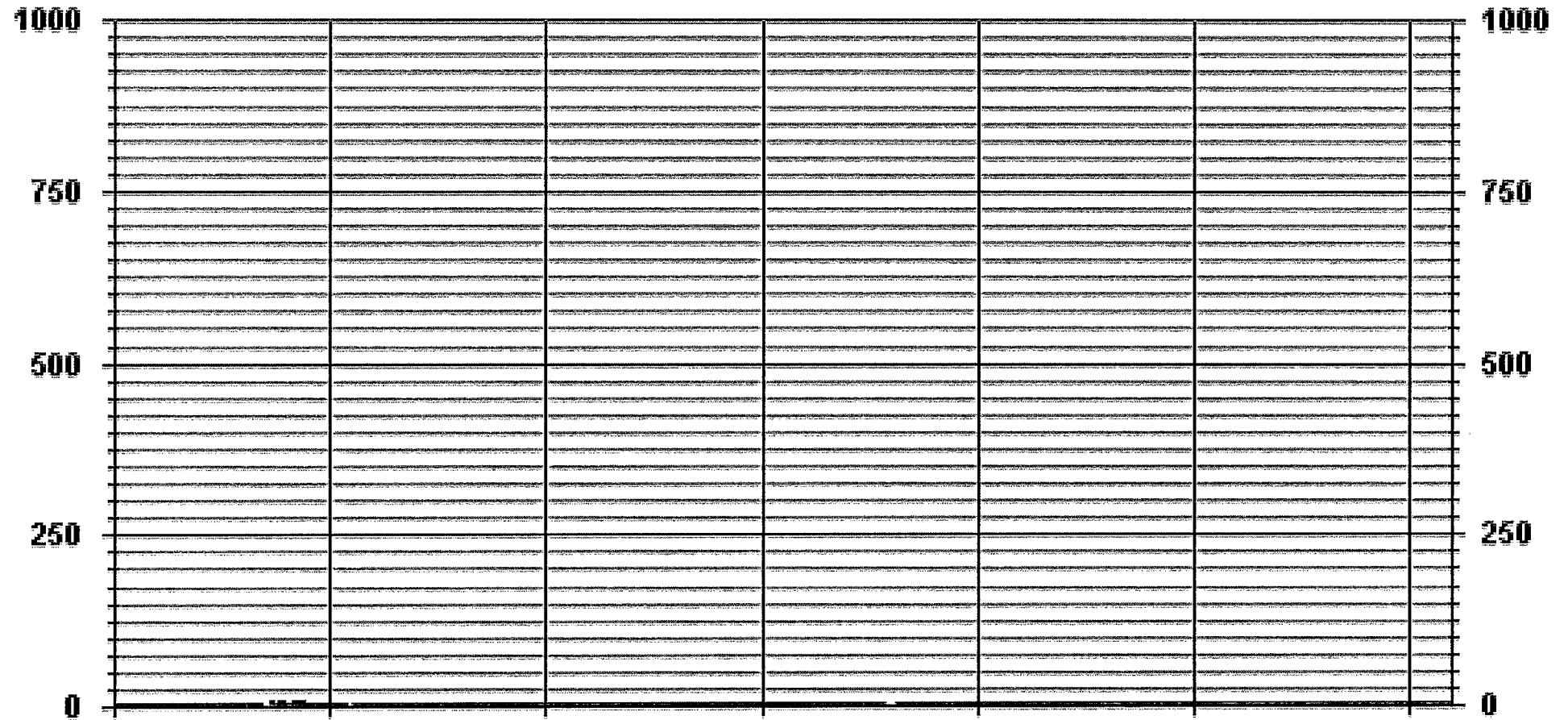
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	20			
MAXIMUM 1-HR AVERAGE:	2	PPB @ HOUR(S)	18	ON DAY(S) 4
MAXIMUM 24-HR AVERAGE:	0.5	PPB		ON DAY(S) 4
				VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	731 HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.3 %
STANDARD DEVIATION:	0.18		MONTHLY AVERAGE:	0 PPB

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA35 SO2_ PPB



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	RDGS.	
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.		
DAY 1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	1	1	1	1	2	1	1	1	1	2	0.5	24	
2	1	1	1	1	2	1	1	1	1	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
3	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	
4	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	3	3	2	2	2	2	2	3	0.9	24	
5	2	2	1	2	3	2	2	2	2	2	S	0	1	1	1	0	0	1	1	1	1	1	1	1	3	1.3	24	
6	2	1	1	1	1	1	1	1	1	S	P	P	P	P	P	4	0	0	0	0	0	0	0	0	4	0.8	19	
7	0	0	0	0	1	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0.3	24	
8	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	
9	1	2	2	1	1	2	S	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.6	24	
10	0	0	0	0	0	S	1	1	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	1	0.1	23	
11	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0	24	
12	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
13	0	0	S	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	0.3	24	
14	1	S	0	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	0.9	24
15	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	0.0	24	
17	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	1	0.9	24	
18	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	0	P	P	P	P	1	0.4	20	
19	P	P	P	P	2	0	S	S	1	1	1	1	1	1	1	0	0	0	1	S	0	0	1	0	2	0.6	20	
20	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	
21	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	
22	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	0.0	24	
23	1	0	0	0	0	1	2	1	1	1	1	0	0	1	S	1	1	1	1	1	1	1	1	1	2	0.8	24	
24	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	
25	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	
26	1	1	1	0	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
27	1	1	1	2	2	1	2	2	1	1	1	S	0	0	0	0	0	0	0	0	1	1	1	1	2	0.8	24	
28	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
29	0	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
30	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.1	24	
31	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	1	0.5	24	
HOURLY MAX	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	4	1	3	3	2	2	2	2	2	2			
HOURLY AVG	0.6	0.5	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.5				

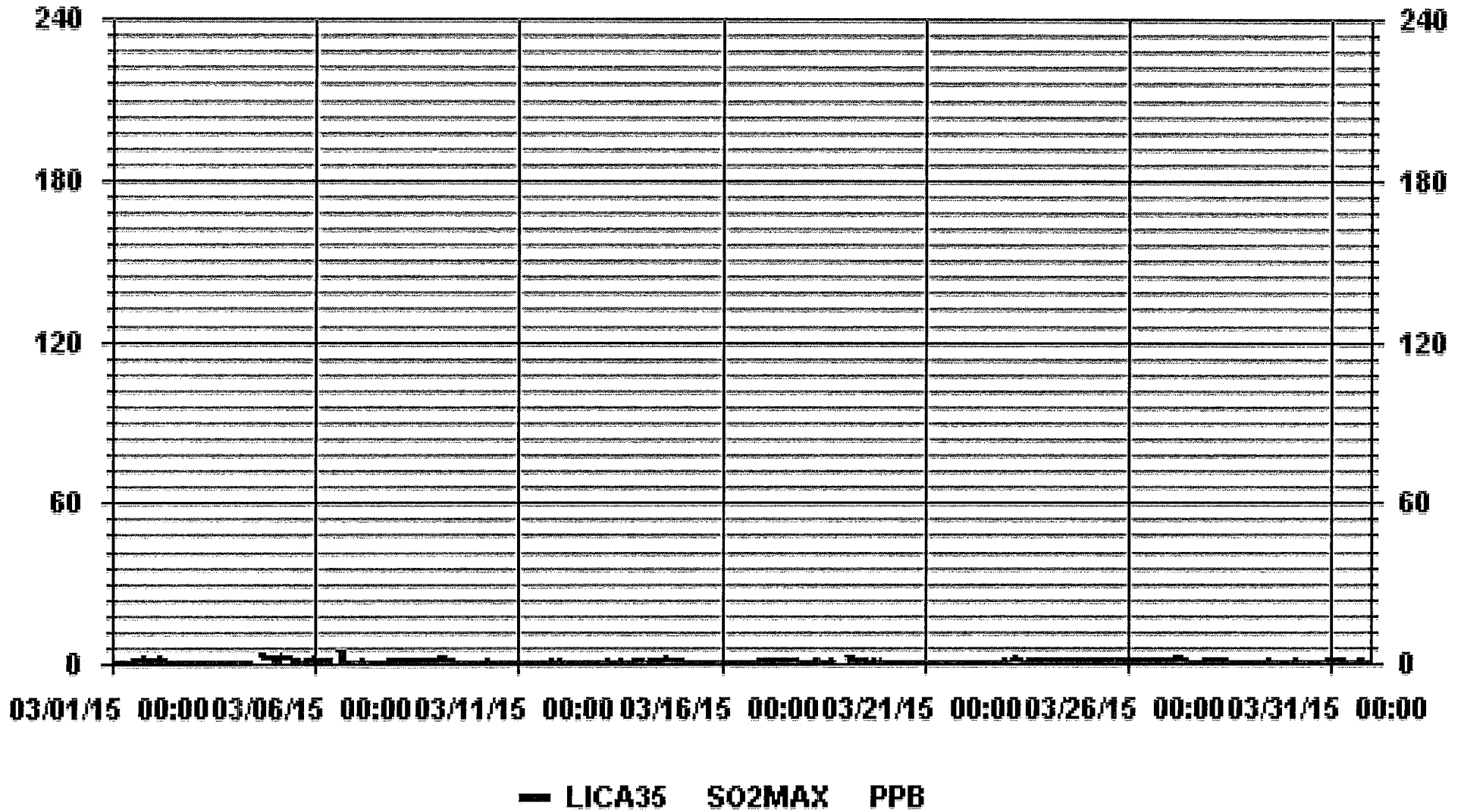
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	287
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 15 ON DAY(S) 6
	VAR-VARIOUS
IJS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	730 HRS
STANDARD DEVIATION:	0.61

01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	1.72	1.29	2.87	4.60	13.81	12.08	7.76	3.16	4.17	2.01	3.30	11.22	14.38	8.20	7.05	2.30	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	1.72	1.29	2.87	4.60	13.81	12.08	7.76	3.16	4.17	2.01	3.30	11.22	14.38	8.20	7.05	2.30	

Calm : .00 %

Total # Operational Hours : 695

Distribution By Samples

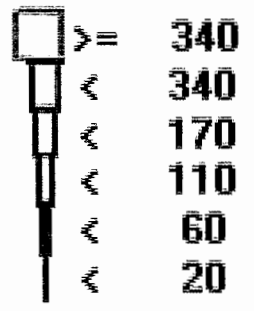
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	12	9	20	32	96	84	54	22	29	14	23	78	100	57	49	16	695
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	12	9	20	32	96	84	54	22	29	14	23	78	100	57	49	16	

Calm : .00 %

Total # Operational Hours : 695

Logger : 35 Parameter : SO2_

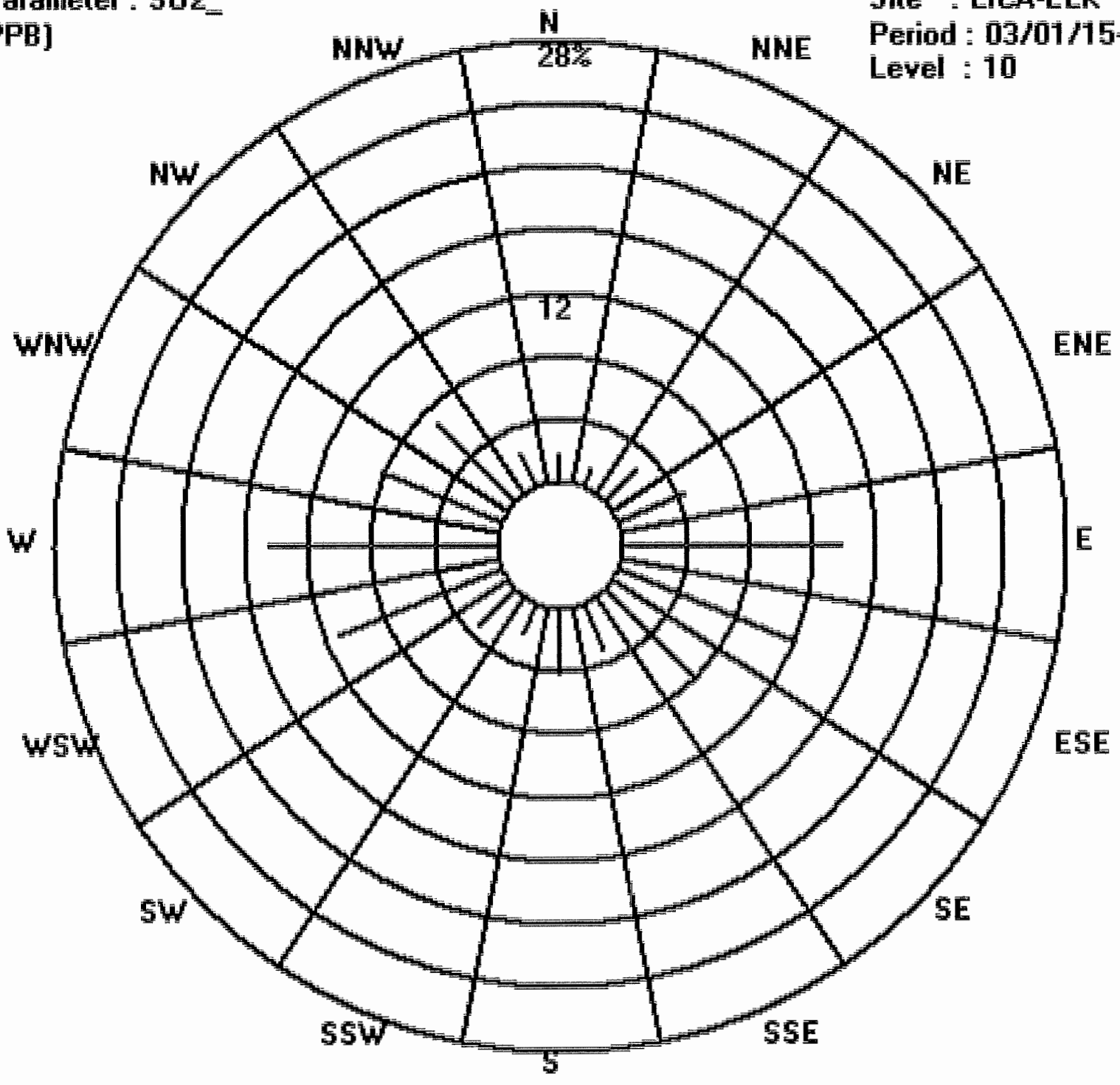
Class Limits (PPB)



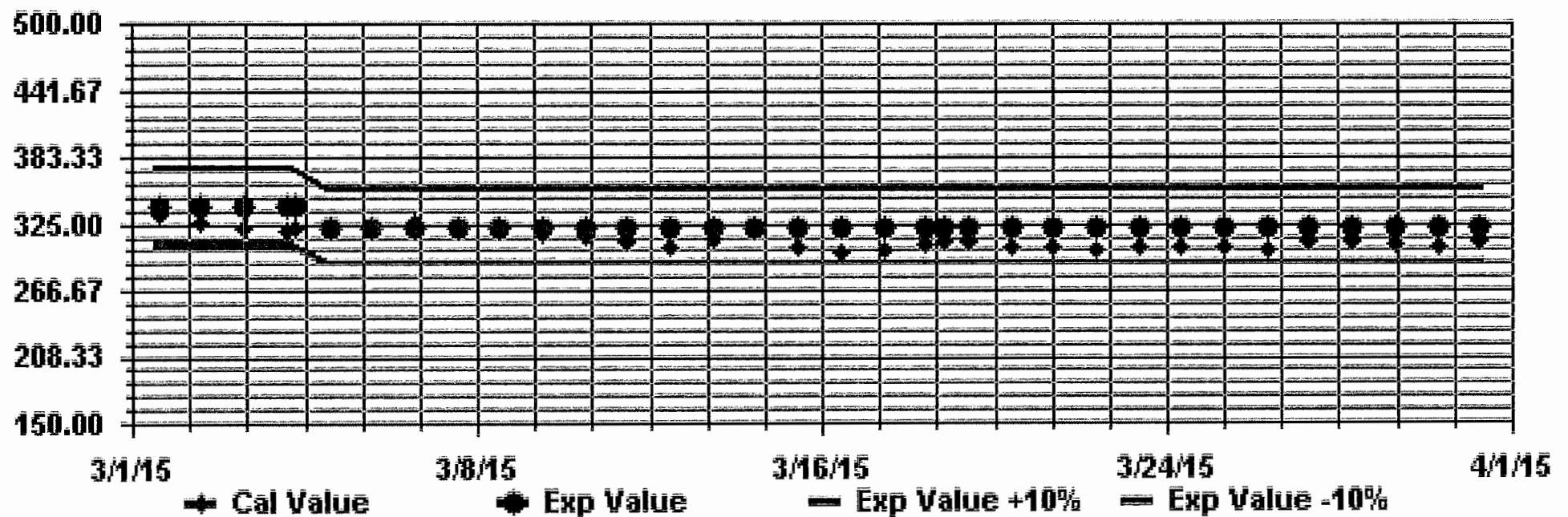
Site : LICA-ELK

Period : 03/01/15-03/31/15

Level : 10

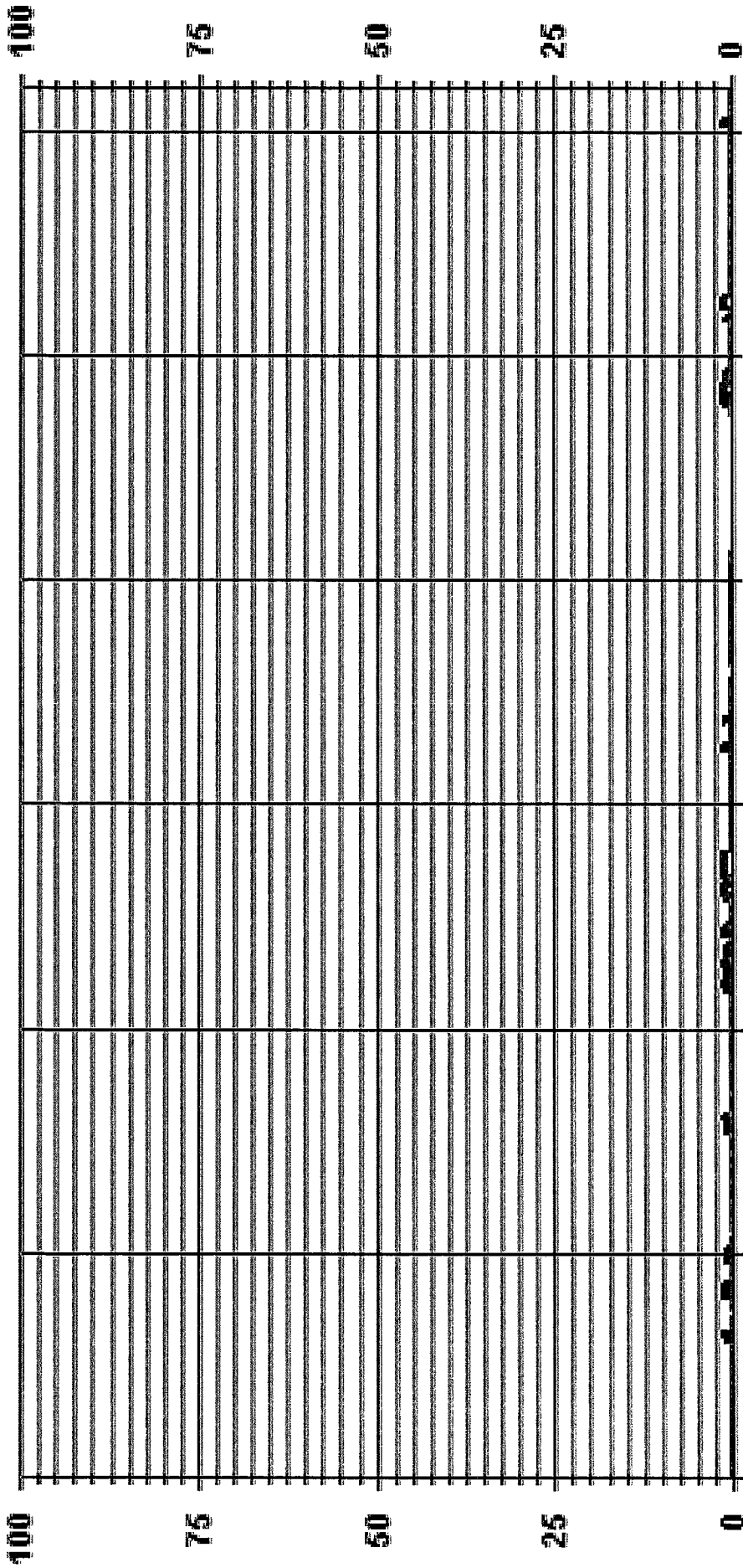


Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN



HYDROGEN SULPHIDE

01 Hour Averages



— LICA35 H2S_ PPB



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	RDGS.	
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.		
DAY 1	0	0	0	0	0	1	1	1	1	0	1	0	0	S	0	0	0	0	0	0	0	1	0	1	0.3	24		
2	0	1	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
3	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	
4	0	1	1	1	1	1	1	1	1	1	0	S	0	0	0	C	C	C	C	C	1	1	0	1	1	0.7	24	
5	1	1	1	1	2	1	1	1	1	1	S	1	0	1	1	0	1	0	1	0	1	1	1	1	1	2	0.9	24
6	1	1	1	1	1	1	1	1	1	S	P	P	P	P	P	4	0	0	0	0	0	0	0	0	0	4	0.7	19
7	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0.1	24
8	1	1	1	1	1	0	1	S	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
9	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	1	1.0	24
10	1	1	1	0	1	S	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.4	24
11	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	1.0	24
12	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	1.0	24
13	1	1	S	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	0.7	24
14	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	1.0	24
15	S	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
16	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	S	0	1	0.3	24
17	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	1	0	S	1	1	1	1	0.7	24
18	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	P	P	P	P	P	1	0.9	20
19	P	P	P	P	0	0	S	S	0	0	1	1	1	1	0	0	0	0	0	S	0	0	0	0	1	1	0.3	20
20	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	0.1	24
21	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	S	X	X	X	X	X	X	X	1	0.2	18
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		6
23	X	X	X	X	X	X	X	X	X	X	X	C	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y			
24	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	1	1	S	1	1	1	1	1	1.0	12
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	0	1	0.8	24
26	0	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	0.2	24
27	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	1.0	24
28	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	1.0	24
29	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	1.0	24
30	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	1.0	24
31	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	1.0	24
HOURLY MAX	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.5	0.7	0.4	0.5	0.6	0.7	0.6	0.7	0.7	0.7	0.7			

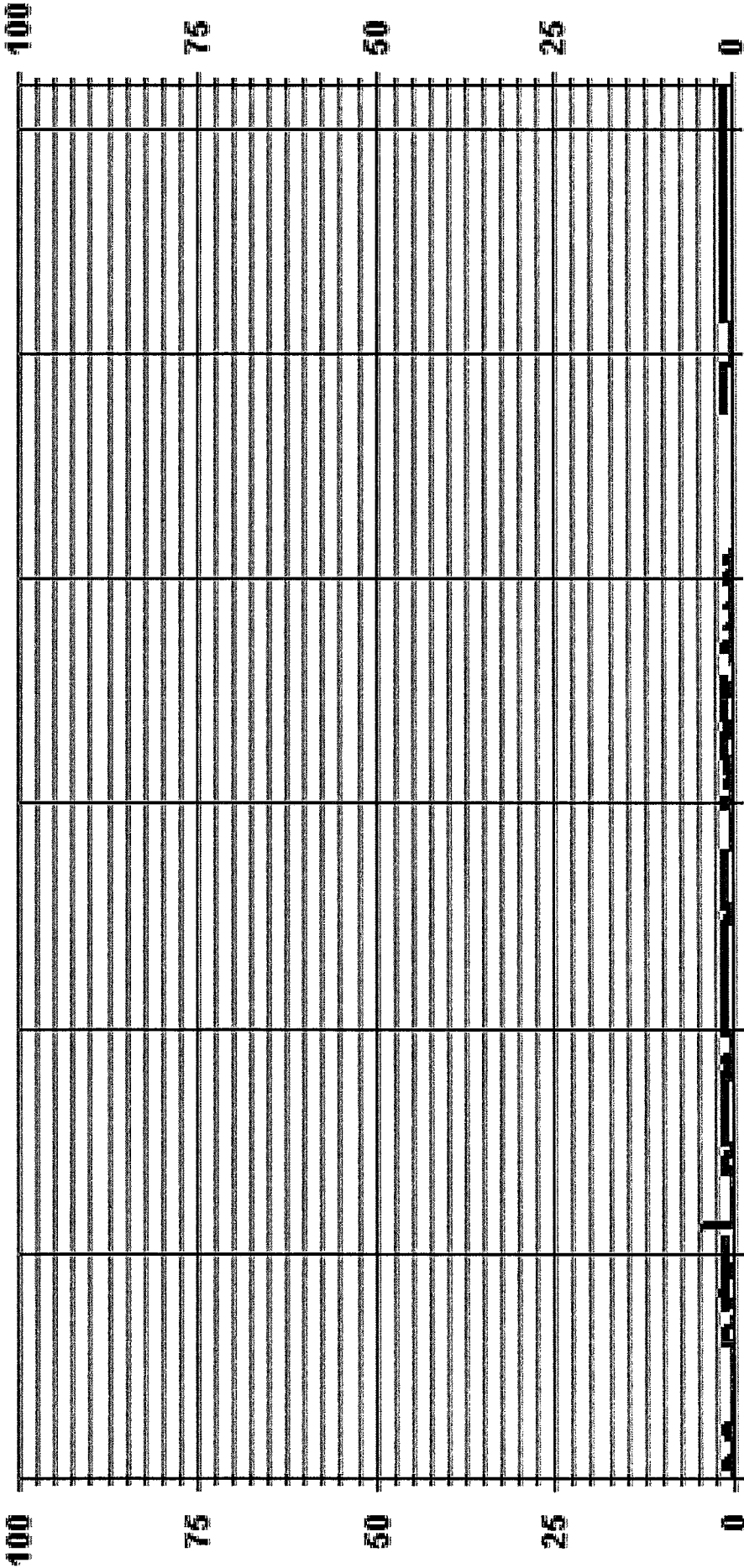
STATUS FLAG CODES

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:	388
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 15 ON DAY(S) 6, 23
VAR-VARIOUS	
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	17 HRS
OPERATIONAL TIME:	671 HRS
STANDARD DEVIATION:	0.51

01 Hour Averages



03/04/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA35 H2SMAX PPB

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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	1.28	.64	2.08	4.16	14.90	12.82	7.37	2.56	4.48	2.08	3.52	11.69	14.26	8.49	7.05	2.56	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	1.28	.64	2.08	4.16	14.90	12.82	7.37	2.56	4.48	2.08	3.52	11.69	14.26	8.49	7.05	2.56	

Calm : .00 %

Total # Operational Hours : 624

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	8	4	13	26	93	80	46	16	28	13	22	73	89	53	44	16	624
< 10																	
< 50																	
>= 50																	
Totals	8	4	13	26	93	80	46	16	28	13	22	73	89	53	44	16	

Calm : .00 %

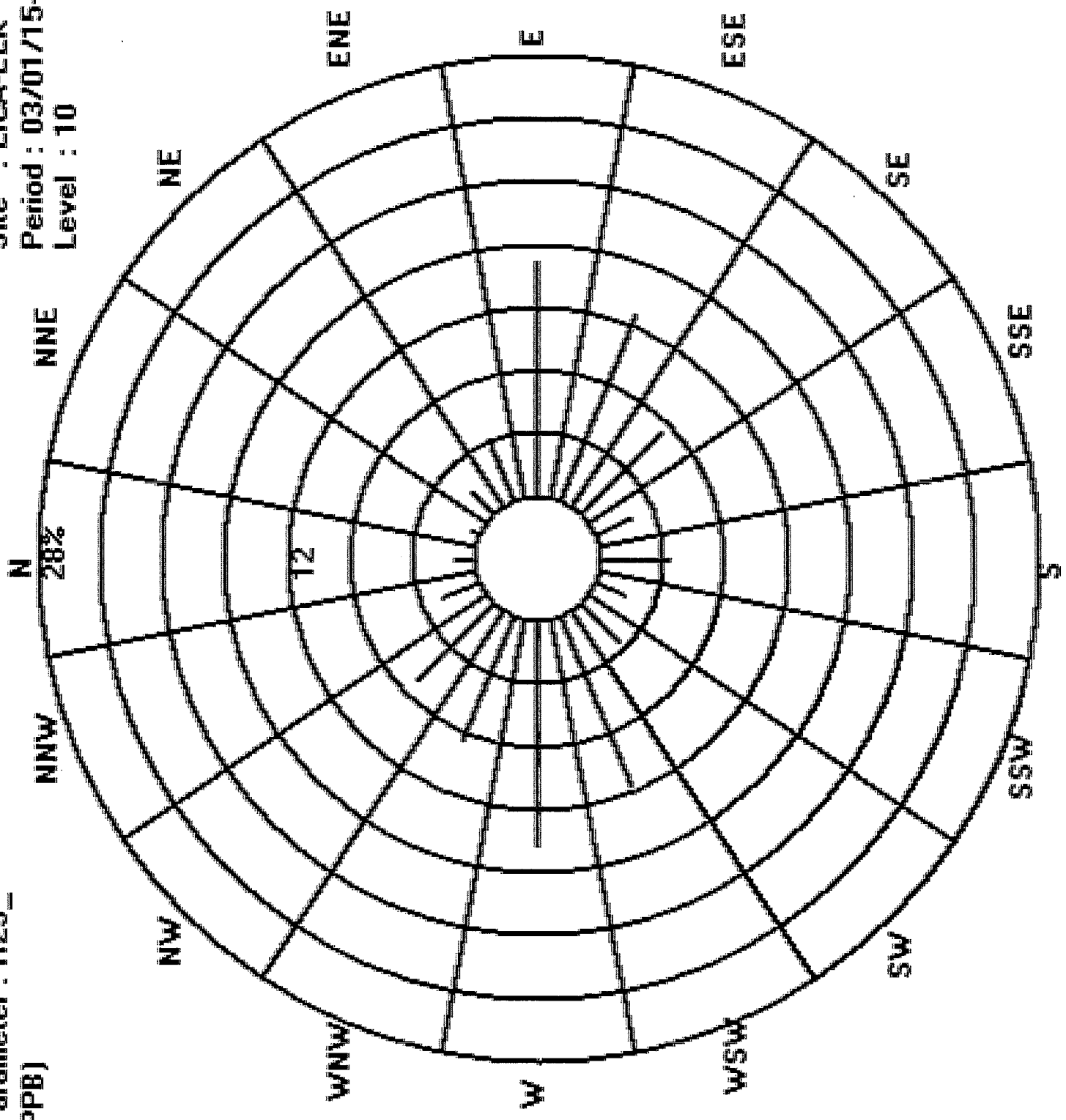
Total # Operational Hours : 624

Site : LICA-ELK
Period : 03/01/15-03/31/15
Level : 10

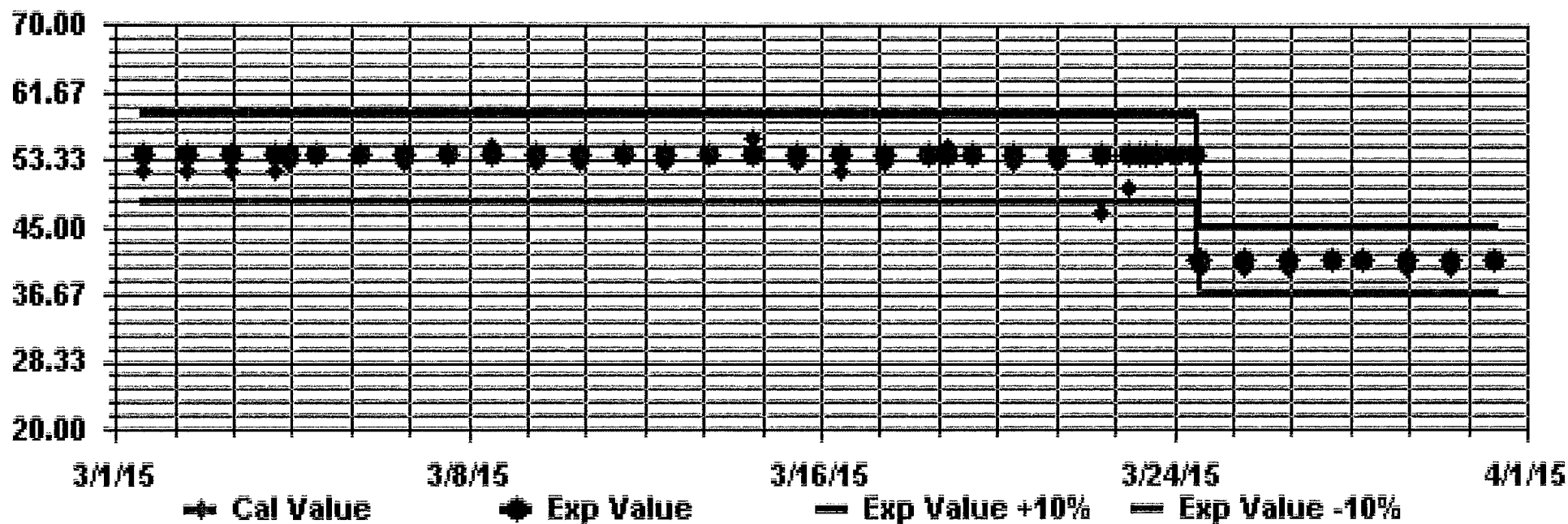
Logger : 35 Parameter : H2S_

Class Limits (PPB)

- >= 50
- < 50
- < 10
- < 3



Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN



TOTAL HYDROCARBON



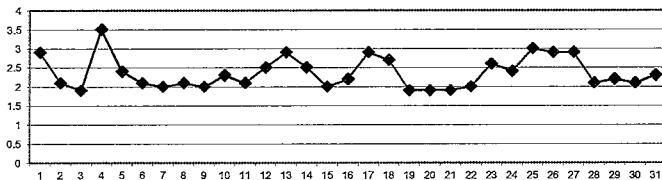
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HR	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	MAX	AVG.	RDGS.		
1		2.3	2.3	2.4	2.7	2.8	3.2	4.8	3.6	4.1	4.3	3.4	3.6	3.1	2.4	S	2.4	2.4	2.4	2.3	2.4	2.5	2.5	2.5	2.6	4.8	2.9	24	
2		2.6	2.9	2.8	2.9	3.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.3	2.1	24	
3		1.9	1.9	2.1	2.1	2.2	2.1	2.1	2.2	2.0	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.2	2.0	24	
4		3.2	5.0	5.4	4.7	4.7	4.7	4.4	4.0	4.1	4.1	3.7	C	C	C	C	C	2.1	2.1	2.2	2.5	2.8	2.8	2.6	3.1	5.4	3.6	24	
5		3.1	3.4	3.4	4.1	4.0	3.0	2.4	2.4	2.3	2.2	S	2.0	2.1	2.0	2.0	2.0	1.9	2.0	2.1	2.1	2.4	2.5	2.0	2.0	4.1	2.5	24	
6		2.1	2.3	2.3	2.2	2.0	2.1	2.0	2.0	1.9	S	P	P	P	P	P	R	2.1	2.0	2.0	2.5	2.1	2.0	2.3	2.0	2.5	2.1	18	
7		2.0	2.2	2.0	2.0	2.2	2.1	2.0	1.9	S	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.5	2.2	2.3	2.5	2.1	24	
8		2.3	2.5	2.4	2.3	2.3	2.1	2.1	S	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.5	2.6	2.5	2.6	2.2	24	
9		2.2	2.1	2.0	2.0	2.0	2.0	S	1.9	1.9	2.0	2.0	1.9	2.0	1.9	1.8	1.9	1.9	1.9	Y	2.0	2.3	2.4	2.2	2.1	2.4	2.0	23	
10		2.3	2.3	2.4	2.6	2.9	S	3.3	2.6	2.7	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.5	2.5	2.7	2.6	2.6	2.5	3.3	2.4	24	
11		2.6	2.5	2.3	2.2	S	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.0	2.1	2.6	2.1	24	
12		2.1	2.0	2.1	S	2.3	2.3	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.2	2.1	2.2	2.6	3.1	3.3	3.8	3.8	3.5	3.8	2.5	24	
13		3.0	3.3	S	4.0	4.0	4.5	4.1	3.3	4.0	3.0	2.3	2.5	2.4	2.4	2.2	2.2	2.4	2.5	2.3	2.3	2.5	2.5	2.7	2.4	4.5	2.9	24	
14		2.5	S	2.8	2.9	3.0	2.9	2.8	2.9	2.7	2.8	2.5	2.1	2.2	2.2	2.1	2.2	2.1	2.5	2.8	3.0	3.0	2.1	1.9	1.9	3.0	2.5	24	
15		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	2.1	2.8	3.0	2.9	S	3.0	2.0	24
16		4.3	3.2	2.7	2.3	2.1	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.6	S	3.2	4.3	2.3	24	
17		3.0	3.3	3.4	3.4	3.2	3.6	3.7	4.2	4.3	4.1	3.3	2.4	2.2	2.1	2.1	2.1	2.0	2.0	2.2	2.9	3.1	S	3.0	3.1	4.3	3.0	24	
18		2.7	2.8	2.8	2.9	3.0	3.3	3.7	4.0	3.7	3.5	3.0	2.6	2.3	2.2	2.2	2.0	2.0	2.1	2.4	P	P	P	P	P	4.0	2.8	20	
19		P	P	P	P	2.0	2.1	S	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	2.0	1.9	1.9	2.1	2.0	20	
20		1.9	1.9	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	2.0	S	2.3	2.1	2.1	2.1	2.0	2.3	2.0	24	
21		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	S	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24	
22		1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	2.0	2.0	2.2	2.2	2.5	2.8	2.8	2.0	2.4	24	
23		2.3	2.3	2.3	2.8	5.0	3.7	4.3	3.7	3.1	3.1	2.2	2.0	2.1	2.1	S	2.2	2.2	2.2	2.4	2.5	2.3	2.3	2.3	5.0	2.7	24		
24		2.6	2.8	2.7	2.8	2.8	3.3	3.8	3.2	2.6	2.2	2.1	2.1	2.1	2.0	S	2.0	1.9	2.0	2.1	2.2	2.4	2.3	2.4	2.4	3.8	2.5	24	
25		2.4	3.0	2.9	3.0	3.6	3.5	4.6	5.0	3.9	3.0	2.5	2.4	2.4	S	2.2	2.2	2.3	2.3	2.4	2.7	3.2	3.2	3.2	3.5	5.0	3.0	24	
26		3.5	3.6	3.6	3.6	3.5	3.4	3.5	3.0	2.8	2.7	2.7	2.8	S	2.6	2.5	2.5	2.4	2.4	2.4	2.8	2.6	2.6	2.9	3.2	3.6	2.9	24	
27		3.2	3.2	3.2	4.1	4.5	4.2	4.2	3.7	3.4	2.7	2.1	S	2.1	2.2	2.4	2.2	2.1	2.5	2.6	2.9	2.7	2.6	2.4	2.5	4.5	2.9	24	
28		2.4	2.4	2.4	2.5	2.5	2.7	2.6	2.5	2.4	2.2	S	1.9	1.9	1.8	1.9	1.8	1.8	1.9	1.9	2.2	2.2	2.0	2.1	2.2	2.7	2.2	24	
29		2.1	2.0	2.1	2.0	2.2	2.3	2.6	3.0	3.4	S	2.2	2.2	2.0	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.3	1.9	2.2	2.1	3.4	2.3	24	
30		2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	S	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.4	2.6	2.9	3.1	3.3	3.3	2.2	24	
31		3.8	3.6	3.2	3.2	2.9	2.8	2.9	S	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.1	1.9	1.9	1.9	3.8	2.4	24	
HOURLY MAX		4.3	5.0	5.4	4.7	5.0	4.7	4.8	5.0	4.3	4.3	3.7	3.6	3.1	2.6	2.5	2.5	2.4	2.5	2.8	3.1	3.3	3.8	3.8	3.5				
HOURLY AVG		2.6	2.6	2.6	2.7	2.8	2.7	2.9	2.7	2.7	2.5	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.4	2.4	2.5				

STATUS FLAG CODES

C	- CALIBRATION	O	- 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

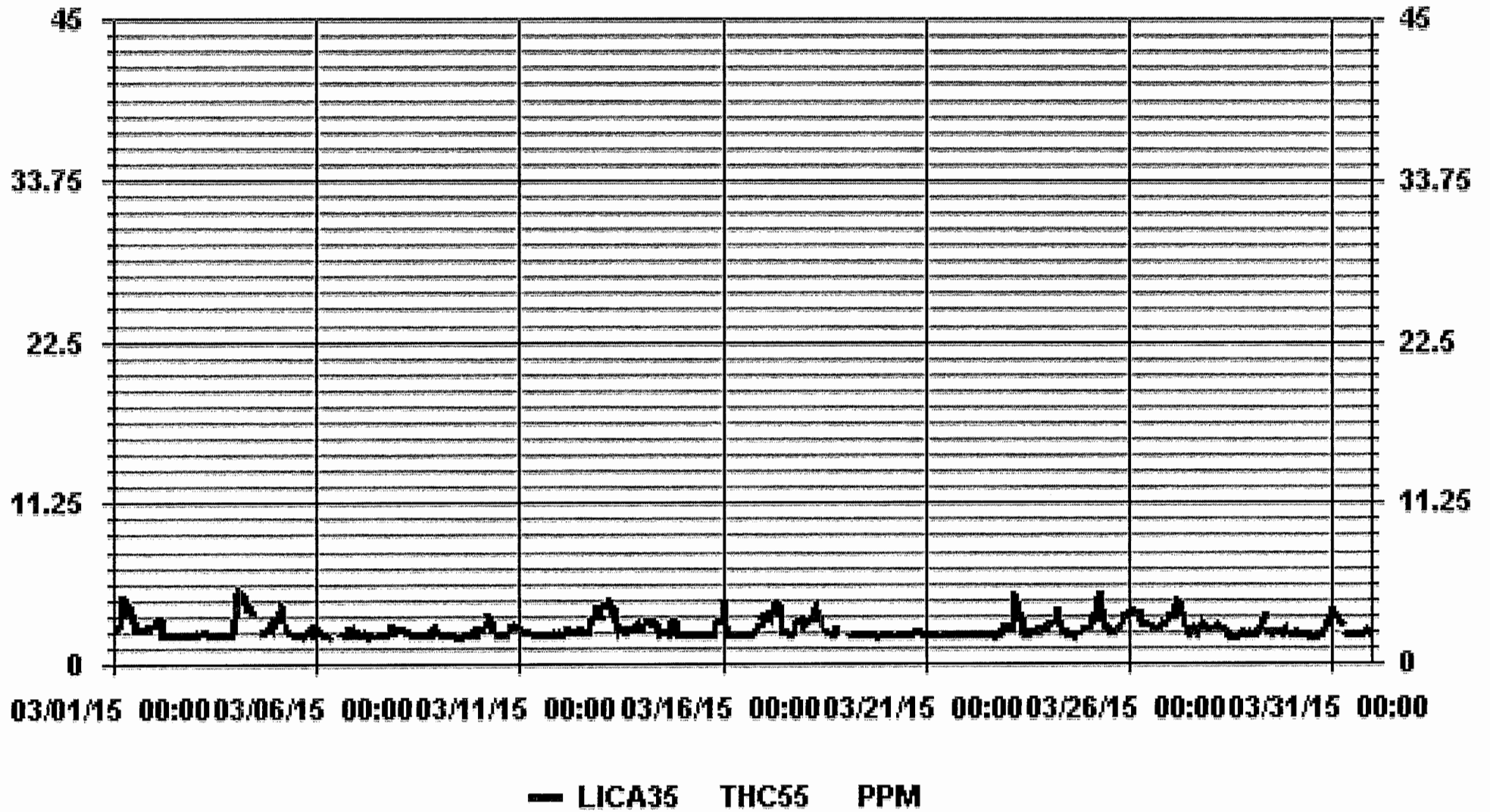
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	693			
MAXIMUM 1-HR AVERAGE:	5.4	PPM @ HOUR(S)	2	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	3.6	PPM		ON DAY(S)
				VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	729
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.0
STANDARD DEVIATION:	0.64		MONTHLY AVERAGE:	2.4
				PPM

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	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				
DAY 1	2.4	2.4	2.6	3.0	3.4	4.0	8.4	4.3	5.2	4.9	4.0	3.9	3.8	2.7	S	2.5	2.6	2.6	2.5	3.2	3.4	3.0	3.0	2.9	8.4	3.5	24	
2	2.9	3.1	3.1	3.3	4.7	2.1	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	4.7	2.3	24	
3	2.1	2.1	2.6	2.3	2.5	2.6	2.3	3.1	2.3	2.0	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.0	2.9	3.1	2.2	24	
4	4.6	12.2	9.8	5.2	5.1	5.1	5.0	4.5	4.7	4.6	C	C	C	C	C	C	2.3	2.3	2.8	3.1	3.3	3.0	3.1	3.4	12.2	4.7	24	
5	6.2	4.9	4.4	6.3	5.5	3.4	2.6	2.7	2.5	2.4	S	2.3	2.4	2.2	2.1	2.2	2.0	2.3	2.5	2.3	3.1	3.0	2.4	2.1	6.3	3.1	24	
6	2.3	2.4	2.7	2.9	2.2	2.2	2.3	2.2	2.0	S	P	P	P	P	R	2.6	2.4	2.6	3.1	2.8	2.2	2.4	2.2	3.1	2.4	18		
7	2.1	2.4	2.1	2.2	3.5	2.3	2.1	2.1	S	2.0	2.0	2.2	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.3	3.6	3.7	2.8	3.0	3.7	2.4	24	
8	2.6	3.4	2.7	2.5	2.7	2.3	2.2	S	2.3	2.3	2.1	2.1	2.2	2.2	2.1	2.3	2.1	2.2	2.3	2.3	2.5	3.8	2.8	2.7	3.8	2.5	24	
9	2.6	2.4	2.1	2.2	2.2	2.1	S	2.1	2.1	2.2	2.1	2.1	2.3	2.0	1.9	2.0	2.2	2.4	Y	2.4	3.0	3.1	2.5	3.0	3.1	2.3	23	
10	2.9	2.7	3.6	4.2	4.0	S	5.1	3.3	3.3	2.7	2.0	2.0	2.0	2.0	2.4	2.2	2.1	2.2	3.2	2.7	3.2	3.1	2.7	2.8	5.1	2.9	24	
11	2.7	2.7	2.5	2.4	S	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	2.1	2.3	2.7	2.2	24	
12	2.3	2.2	2.1	S	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.4	2.5	2.4	2.5	2.4	2.3	2.5	3.0	3.5	3.8	4.2	4.1	3.9	4.2	27	24
13	3.4	3.9	S	5.3	4.5	4.9	5.1	5.0	4.4	4.0	3.1	3.1	2.6	2.7	2.4	2.4	2.5	2.7	2.5	2.5	2.9	2.7	3.1	2.6	5.3	3.4	24	
14	2.7	S	3.1	3.2	3.2	3.0	3.1	3.3	3.1	3.2	2.8	2.4	2.4	2.4	2.1	2.4	2.6	2.6	3.3	3.4	3.5	2.5	2.0	2.0	3.5	2.8	24	
15	S	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	2.0	2.0	2.0	2.5	3.2	4.3	3.3	S	4.3	2.2	24
16	5.0	4.7	2.9	2.5	2.4	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.8	2.7	2.5	3.3	S	3.4	5.0	2.5	24	
17	3.2	3.5	4.0	3.6	3.3	4.1	4.0	4.7	4.7	4.6	3.8	2.8	2.3	2.3	2.1	2.1	2.1	2.3	2.5	3.2	3.3	S	3.5	3.3	4.7	3.3	24	
18	3.0	2.9	3.0	3.0	3.2	3.7	4.0	4.4	4.1	3.9	3.3	2.9	2.5	2.3	2.5	2.4	2.3	2.1	2.2	2.7	P	P	P	P	4.4	3.0	20	
19	P	P	P	P	2.2	2.2	S	S	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.2	S	2.1	2.1	2.0	1.9	2.2	2.0	20	
20	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	S	2.6	2.1	2.2	2.2	2.1	2.6	2.0	24	
21	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	2.0	2.0	1.9	1.9	S	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	24	
22	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.1	2.3	2.3	3.0	3.1	3.1	3.1	2.1	24	
23	2.5	2.5	2.5	3.8	6.5	4.1	4.9	4.6	3.4	3.7	2.4	2.1	2.1	2.2	2.2	S	2.3	2.3	2.5	2.6	2.6	2.5	2.5	2.4	6.5	3.0	24	
24	2.8	3.2	2.9	3.1	3.1	3.5	4.0	3.6	2.9	2.3	2.2	2.3	2.3	2.3	S	2.1	2.1	2.1	2.4	2.4	3.1	2.7	2.6	2.6	4.0	2.7	24	
25	2.7	3.9	3.3	3.9	4.1	4.1	5.4	5.5	4.9	3.4	2.7	2.5	2.5	S	2.3	2.3	2.6	2.5	2.7	3.0	3.7	3.5	3.4	3.8	5.5	3.4	24	
26	3.8	3.8	3.8	3.9	3.7	3.6	3.7	3.5	3.0	2.8	3.0	3.0	S	2.7	2.8	2.7	2.7	2.5	2.6	3.0	2.7	2.8	3.2	3.4	3.9	3.2	24	
27	3.4	3.4	3.5	5.1	4.9	4.6	4.5	5.7	3.8	3.6	2.2	S	2.3	2.4	2.5	2.3	2.9	3.0	3.1	3.0	2.9	2.6	2.7	5.7	3.3	24		
28	2.5	2.6	2.5	2.7	2.6	3.2	3.1	2.7	2.6	2.5	S	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.4	2.4	2.2	2.3	2.4	3.2	2.3	24	
29	2.6	2.2	2.2	2.2	2.4	2.6	2.8	3.7	3.8	S	2.3	2.3	2.2	2.3	2.5	2.3	2.5	2.4	2.3	3.0	2.0	2.4	2.3	3.8	2.5	2.4	24	
30	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.3	2.6	2.8	3.2	3.3	3.7	3.7	2.3	24	
31	4.3	4.3	3.3	3.4	3.1	2.9	2.9	S	2.3	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.2	2.9	2.9	2.1	2.0	4.3	2.6	24	
HOURLY MAX	6.2	12.2	9.8	6.3	6.5	5.1	8.4	5.7	5.2	4.9	4.0	3.9	3.8	2.7	2.8	2.7	2.7	2.9	3.3	3.5	3.8	4.3	4.1	3.9				
HOURLY AVG	3.0	3.2	3.0	3.2	3.2	3.0	3.3	3.2	3.0	2.7	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.6	2.8	2.8	2.7	2.7				

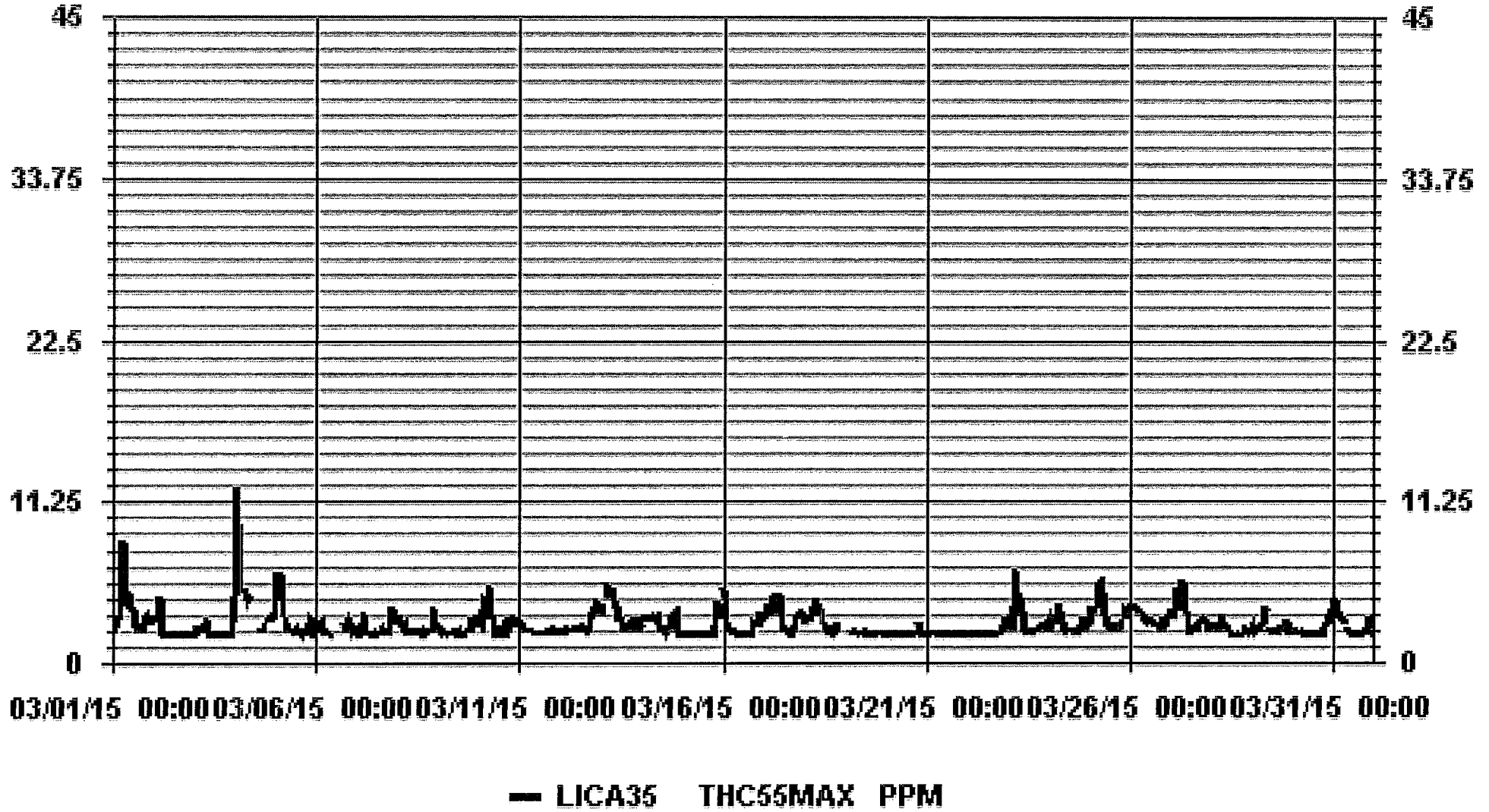
STATUS FLAG CODES

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:	691
MAXIMUM INSTANTANEOUS VALUE:	12.2 PPM @ HOUR(S) 1 ON DAY(S) 4
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	729 HRS
STANDARD DEVIATION:	0.96

01 Hour Averages



LICA35
 THC55 / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	1.29	1.15	2.74	3.31	8.80	9.23	6.63	3.03	3.75	2.02	2.88	9.95	13.13	7.21	5.77	2.16	83.11
< 10.0	.43	.14	.14	1.29	5.05	2.88	1.15	.14	.43	.00	.43	1.29	1.29	.72	1.29	.14	16.88
< 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	1.73	1.29	2.88	4.61	13.85	12.12	7.79	3.17	4.18	2.02	3.31	11.25	14.43	7.93	7.07	2.30	

Calm : .00 %

Total # Operational Hours : 693

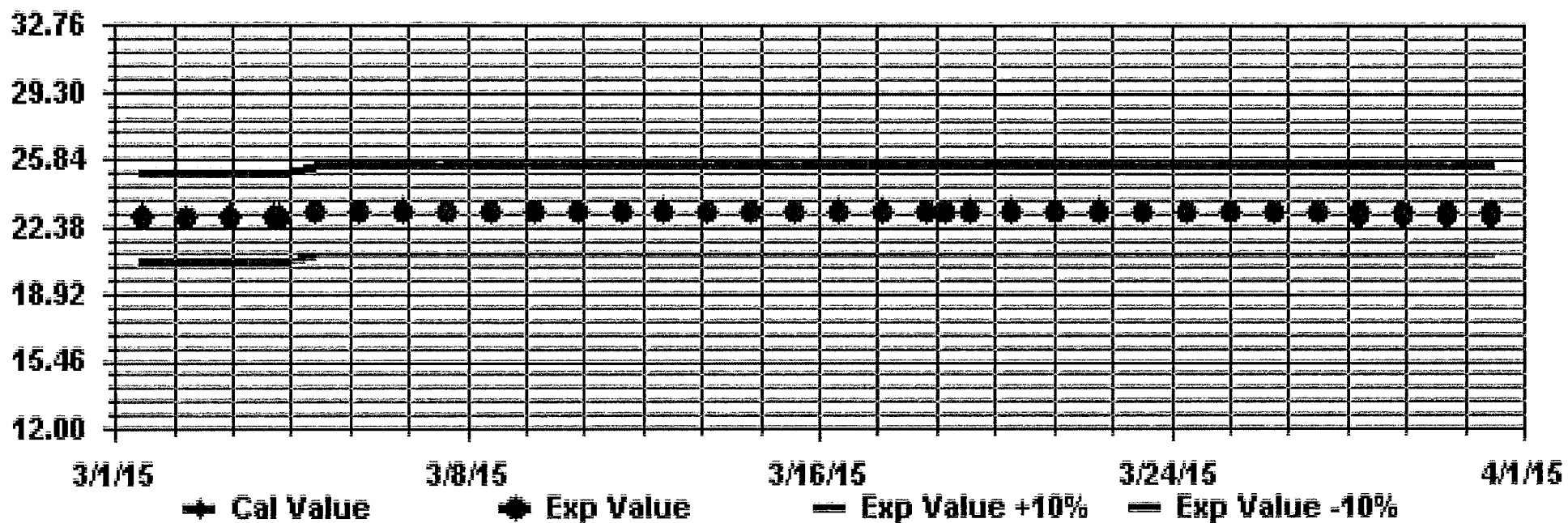
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	9	8	19	23	61	64	46	21	26	14	20	69	91	50	40	15	576
< 10.0	3	1	1	9	35	20	8	1	3		3	9	9	5	9	1	117
< 50.0																	
>= 50.0																	
Totals	12	9	20	32	96	84	54	22	29	14	23	78	100	55	49	16	

Calm : .00 %

Total # Operational Hours : 693

Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN



METHANE



METHANE (CH4) hourly averages in ppm

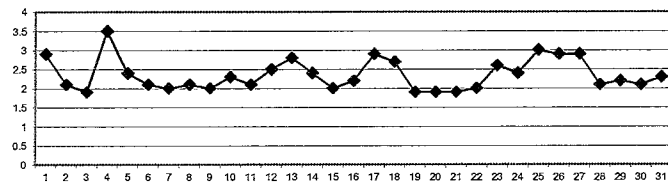
MST

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	2.3	2.3	2.4	2.7	2.8	3.2	4.8	3.6	4.1	4.3	3.4	3.6	3.1	2.4	S	2.4	2.4	2.4	2.3	2.4	2.5	2.5	2.5	2.6	4.8	2.9	24	
2	2.6	2.9	2.8	2.9	3.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.3	2.1	24
3	1.9	1.9	2.1	2.1	2.2	2.1	2.1	2.2	2.0	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.2	2.0	24	
4	3.2	4.9	5.4	4.7	4.7	4.4	4.0	4.1	4.1	3.7	C	C	C	C	C	2.1	2.1	2.2	2.5	2.8	2.8	2.6	3.1	5.4	3.6	24		
5	3.1	3.4	3.4	4.1	4.0	3.0	2.4	2.4	2.3	2.2	S	2.0	2.1	2.0	2.0	2.0	1.9	2.0	2.1	2.1	2.4	2.5	2.0	2.0	4.1	2.5	24	
6	2.1	2.3	2.3	2.2	2.0	2.1	2.0	2.0	1.9	S	P	P	P	P	P	R	2.1	2.0	2.0	2.5	2.1	2.0	2.3	2.0	2.5	2.1	18	
7	2.0	2.2	2.0	2.0	2.2	2.1	2.0	1.9	S	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.5	2.2	2.3	2.5	2.1	24	
8	2.3	2.5	2.4	2.3	2.3	2.1	2.1	S	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.5	2.6	2.5	2.6	2.2	24	
9	2.2	2.1	2.0	2.0	2.0	S	1.9	1.9	2.0	2.0	1.9	2.0	1.9	1.8	1.9	1.9	1.9	1.9	Y	2.0	2.3	2.4	2.2	2.1	2.4	2.0	23	
10	2.3	2.3	2.4	2.6	2.9	S	3.2	2.6	2.7	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.5	2.5	2.7	2.6	2.6	2.5	3.2	2.4	24	
11	2.6	2.5	2.3	2.2	S	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.0	2.1	2.6	2.1	24	
12	2.1	2.0	2.1	S	2.3	2.3	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.2	2.1	2.2	2.6	3.1	3.3	3.8	3.7	3.5	3.8	2.5	24	
13	3.0	3.3	S	3.9	3.9	4.3	3.9	3.2	3.9	2.9	2.3	2.5	2.4	2.4	2.2	2.2	2.4	2.5	2.3	2.3	2.5	2.5	2.7	2.4	4.3	2.9	24	
14	2.5	S	2.7	2.8	2.9	2.8	2.8	2.9	2.7	2.8	2.5	2.1	2.2	2.2	2.1	2.2	2.1	2.5	2.8	2.9	3.0	2.1	1.9	1.9	3.0	2.5	24	
15	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	2.1	2.8	3.0	2.9	S	3.0	2.0	24
16	4.3	3.2	2.7	2.3	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	1.9	2.1	2.2	2.3	2.6	S	3.2	4.3	2.3	24
17	3.0	3.3	3.4	3.2	3.2	3.6	3.6	4.1	4.3	4.1	3.3	2.4	2.2	2.1	2.1	2.1	2.0	2.0	2.2	2.9	3.1	S	3.0	3.1	4.3	3.0	24	
18	2.7	2.8	2.8	2.9	3.0	3.3	3.7	4.0	3.7	3.5	3.0	2.6	2.3	2.2	2.1	2.2	2.0	2.0	2.1	2.4	P	P	P	P	4.0	2.8	20	
19	P	P	P	P	2.0	2.1	S	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	2.0	1.9	1.9	2.1	2.0	20	
20	1.9	1.9	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	2.0	S	2.3	2.1	2.1	2.1	2.0	2.3	2.0	24	
21	2.0	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	S	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24	
22	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	2.0	2.0	2.2	2.2	2.5	2.8	2.8	2.0	24	
23	2.3	2.3	2.3	2.8	5.0	3.7	4.2	3.7	3.1	3.1	2.2	2.0	2.0	2.1	2.1	S	2.2	2.2	2.2	2.4	2.5	2.3	2.3	2.3	5.0	2.7	24	
24	2.6	2.8	2.7	2.8	2.8	3.3	3.8	3.2	2.6	2.2	2.1	2.1	2.1	2.0	S	1.9	1.9	2.0	2.1	2.2	2.4	2.3	2.4	2.4	3.8	2.5	24	
25	2.4	3.0	2.9	3.0	3.6	3.5	4.5	5.0	3.8	3.0	2.5	2.4	2.4	S	2.2	2.2	2.3	2.3	2.4	2.7	3.2	3.2	3.2	3.5	5.0	3.0	24	
26	3.5	3.6	3.5	3.6	3.5	3.4	3.5	3.0	2.8	2.7	2.7	2.8	S	2.5	2.5	2.5	2.4	2.4	2.4	2.8	2.6	2.6	2.9	3.2	3.6	2.9	24	
27	3.2	3.1	3.2	4.1	4.3	4.2	4.1	3.7	3.4	2.7	2.1	S	2.1	2.2	2.4	2.2	2.1	2.5	2.6	2.9	2.7	2.6	2.4	2.5	4.3	2.9	24	
28	2.4	2.4	2.3	2.5	2.5	2.7	2.6	2.5	2.4	2.2	S	1.9	1.9	1.8	1.9	1.8	1.8	1.9	1.9	2.2	2.2	2.0	2.1	2.2	2.7	2.2	24	
29	2.1	2.0	2.1	2.0	2.2	2.3	2.6	3.0	3.4	S	2.2	2.2	2.0	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.3	1.9	2.2	2.1	3.4	2.3	24	
30	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	S	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.4	2.5	2.9	3.1	3.3	3.3	2.1	24	
31	3.8	3.6	3.2	3.2	2.9	2.8	2.9	S	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.1	1.9	1.9	3.8	2.4	24		
HOURLY MAX	4.3	4.9	5.4	4.7	5.0	4.7	4.8	5.0	4.3	4.3	3.7	3.6	3.1	2.5	2.5	2.5	2.4	2.5	2.8	3.1	3.3	3.8	3.7	3.5				
HOURLY AVG	2.6	2.6	2.6	2.7	2.8	2.7	2.9	2.7	2.7	2.5	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.4	2.4	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

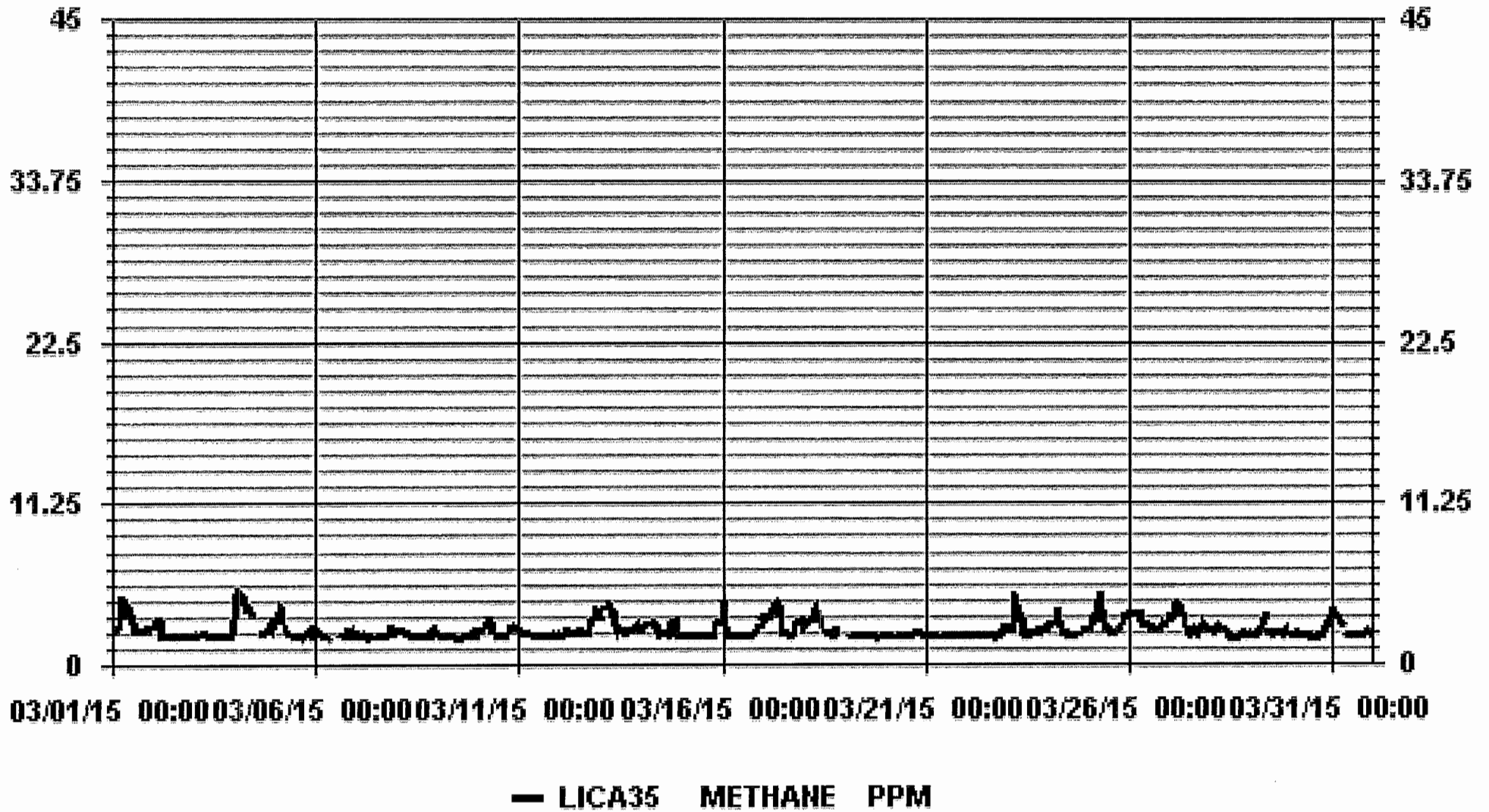
24 HOUR AVERAGES FOR MARCH 2015



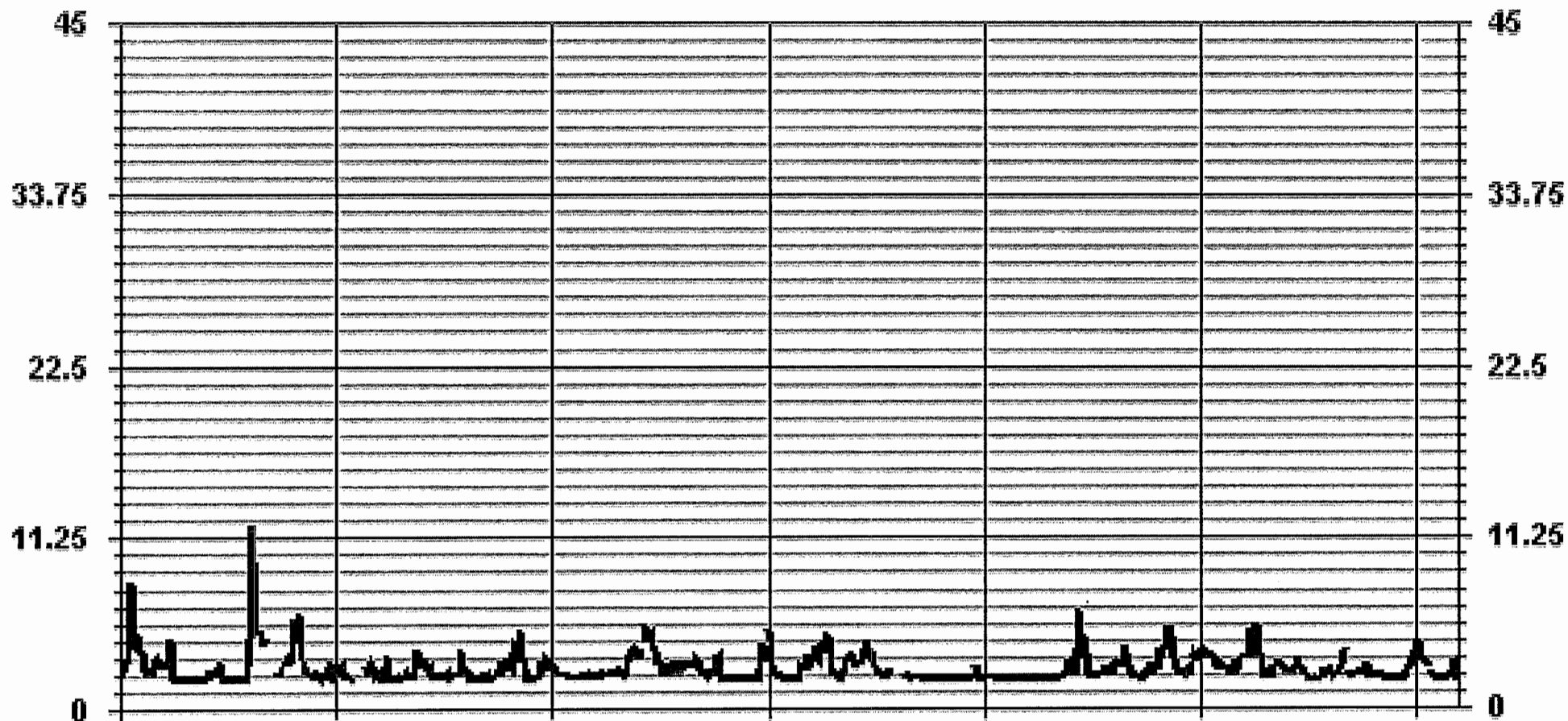
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	693				
MAXIMUM 1-HR AVERAGE:	5.4	PPM @ HOUR(S)	2	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	3.6	PPM		ON DAY(S)	4
				VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	729	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.0	%
STANDARD DEVIATION:	0.63		MONTHLY AVERAGE:	2.4	PPM

01 Hour Averages



01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA35 MATHMAX PPM

LICA35
 METHANE / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	1.29	1.15	2.74	3.46	8.94	9.23	6.78	3.03	3.75	2.02	2.88	9.95	13.13	7.21	5.77	2.16	83.54
< 10.0	.43	.14	.14	1.15	4.90	2.88	1.01	.14	.43	.00	.43	1.29	1.29	.72	1.29	.14	16.45
< 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	1.73	1.29	2.88	4.61	13.85	12.12	7.79	3.17	4.18	2.02	3.31	11.25	14.43	7.93	7.07	2.30	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	9	8	19	24	62	64	47	21	26	14	20	69	91	50	40	15	579
< 10.0	3	1	1	8	34	20	7	1	3		3	9	9	5	9	1	114
< 50.0																	
>= 50.0																	
Totals	12	9	20	32	96	84	54	22	29	14	23	78	100	55	49	16	

Calm : .00 %

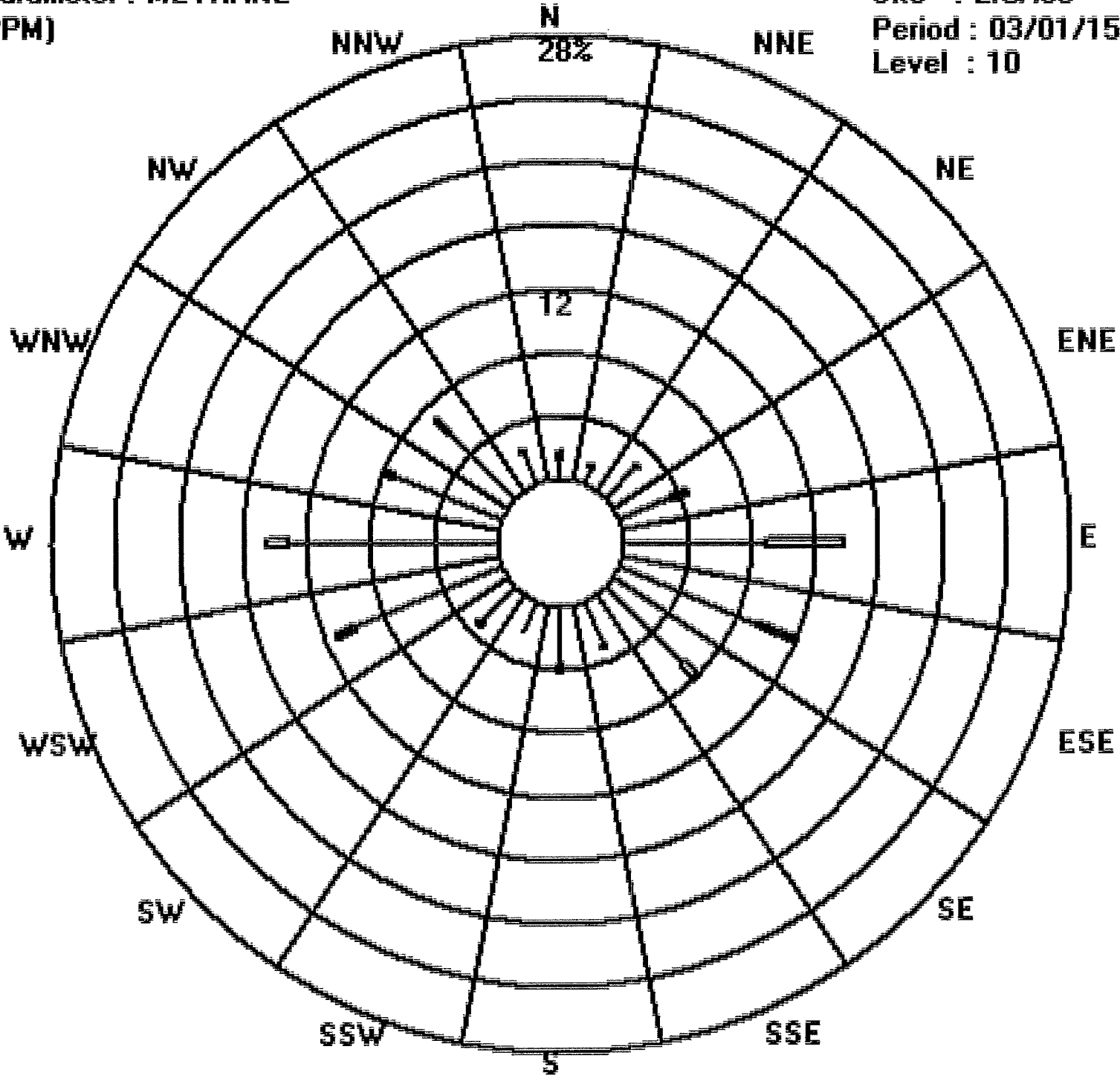
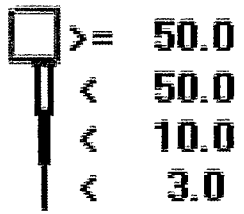
Total # Operational Hours : 693

Logger : 35 Parameter : METHANE

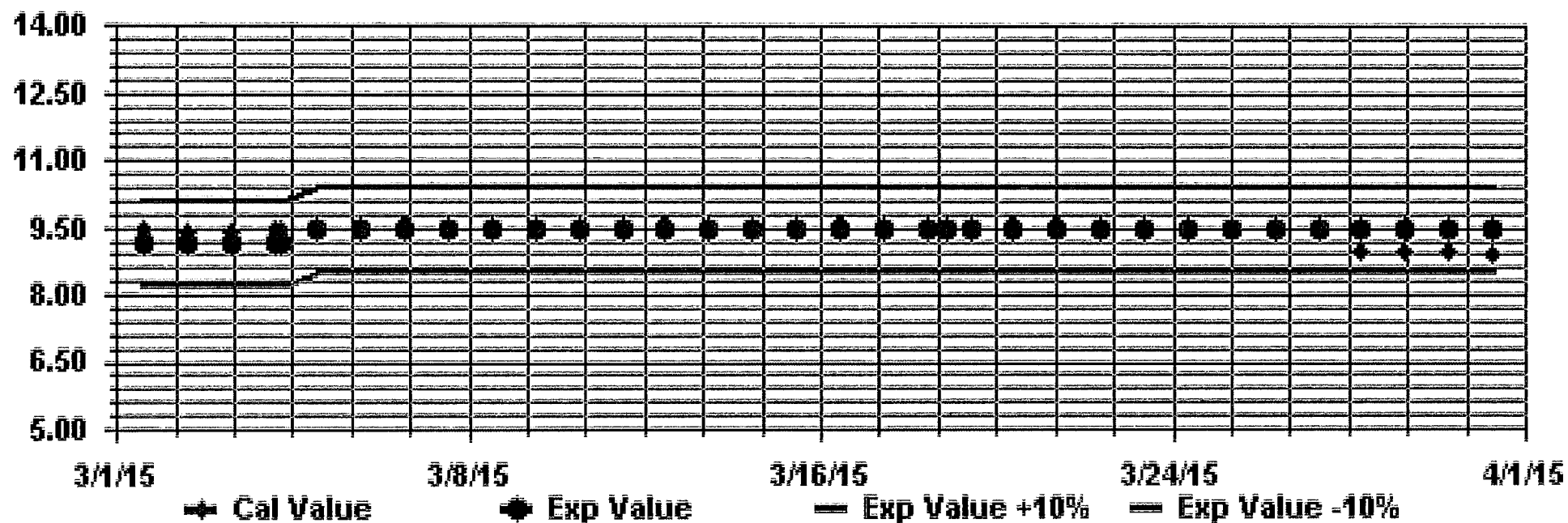
Site : LICA35

Class Limits (PPM)

Period : 03/01/15-03/31/15

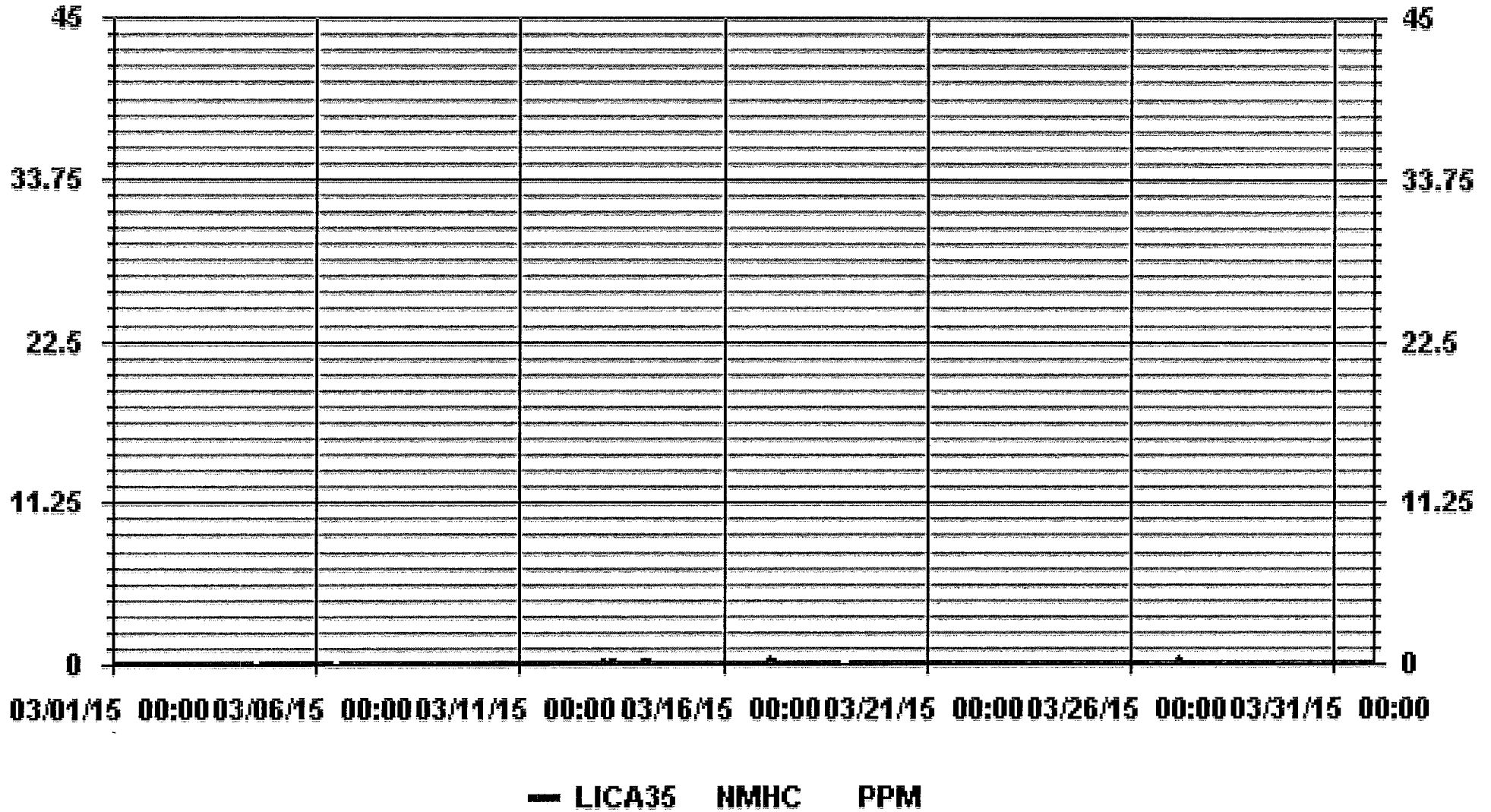


Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN



NON-METHANE HYDROCARBON

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- C

NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST	HOUR END																								DAILY MAX	24-HOUR		
	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		AVG.	RDGS.	
DAY 1	0.00	0.00	0.00	0.00	0.00	0.05	0.13	0.13	0.16	0.15	0.00	0.11	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.16	0.03	24	
2	0.00	0.00	0.22	0.11	0.12	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	0.22	0.02	24
3	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	0.00	0.00	24
4	0.19	0.09	0.00	0.03	0.10	0.06	0.04	0.04	0.11	0.05	C	C	C	C	C	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.19	0.04	24	
5	0.34	0.00	0.00	0.05	0.23	0.13	0.00	0.00	0.06	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.00	0.00	0.34	0.04	24	
6	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	S	P	P	P	P	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	18	
7	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	0.10	0.13	0.00	0.00	0.13	0.01	24	
8	0.00	0.08	0.00	0.00	0.06	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.07	0.09	0.09	0.09	0.02	24	
9	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	23	
10	0.00	0.00	0.00	0.00	0.10	S	0.20	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.47	0.20	0.00	0.00	0.10	0.09	0.00	0.09	0.00	0.00	0.47	0.06	24	
11	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	0.13	0.00	0.00	0.14	0.00	0.00	0.00	0.14	0.01	24	
12	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	0.07	0.04	0.07	0.09	0.22	0.24	0.18	0.13	0.24	0.05	24	
13	0.22	0.25	S	0.16	0.28	0.44	0.31	0.19	0.24	0.31	0.13	0.13	0.13	0.08	0.00	0.00	0.00	0.00	0.08	0.14	0.00	0.08	0.17	0.00	0.44	0.15	24	
14	0.16	S	0.19	0.18	0.26	0.21	0.21	0.11	0.11	0.16	0.13	0.00	0.00	0.12	0.00	0.07	0.14	0.00	0.10	0.15	0.17	0.00	0.00	0.00	0.26	0.11	24	
15	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	0.03	0.00	S	0.03	0.00	24		
16	0.14	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	0.00	S	0.22	0.22	0.02	24	
17	0.15	0.03	0.00	0.38	0.00	0.24	0.18	0.34	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.10	0.05	S	0.00	0.00	0.38	0.07	24		
18	0.11	0.00	0.01	0.09	0.14	0.14	0.11	0.08	0.13	0.16	0.12	0.10	0.13	0.06	0.18	0.11	0.10	0.05	0.09	0.19	P	P	P	P	0.19	0.11	20	
19	P	P	P	P	0.02	0.00	S	S	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.17	S	0.00	0.00	0.00	0.00	0.17	0.02	20	
20	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	
21	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	
22	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	
23	0.00	0.00	0.00	0.10	0.13	0.14	0.29	0.17	0.10	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.29	0.05	24		
24	0.02	0.15	0.13	0.23	0.12	0.06	0.15	0.00	0.00	0.00	0.00	0.13	0.16	0.16	S	0.12	0.00	0.00	0.07	0.00	0.16	0.00	0.09	0.00	0.23	0.08	24	
25	0.12	0.00	0.11	0.08	0.16	0.14	0.19	0.23	0.17	0.00	0.00	0.00	0.15	S	0.08	0.06	0.15	0.11	0.10	0.11	0.08	0.14	0.08	0.12	0.23	0.10	24	
26	0.15	0.07	0.15	0.13	0.14	0.12	0.05	0.00	0.11	0.10	0.16	0.15	S	0.08	0.11	0.10	0.11	0.00	0.10	0.11	0.00	0.00	0.13	0.16	0.16	0.10	24	
27	0.12	0.13	0.15	0.25	0.30	0.29	0.28	0.20	0.20	0.16	0.00	S	0.13	0.14	0.00	0.00	0.07	0.13	0.10	0.16	0.13	0.13	0.05	0.11	0.30	0.14	24	
28	0.00	0.11	0.04	0.08	0.15	0.06	0.10	0.04	0.11	0.06	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	0.15	0.03	24	
29	0.10	0.00	0.00	0.00	0.10	0.09	0.13	0.12	S	0.00	0.06	0.00	0.00	0.00	0.00	0.10	0.06	0.00	0.09	0.00	0.13	0.00	0.14	0.00	0.14	0.05	24	
30	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	0.22	0.15	0.08	0.00	0.22	0.02	24	
31	0.14	0.14	0.00	0.11	0.12	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.12	0.00	0.14	0.04	24	
HOURLY MAX	0.34	0.25	0.22	0.38	0.30	0.44	0.31	0.34	0.24	0.31	0.16	0.15	0.16	0.16	0.47	0.20	0.15	0.13	0.20	0.19	0.22	0.24	0.18	0.22				
HOURLY AVG	0.07	0.04	0.04	0.07	0.08	0.07	0.08	0.06	0.06	0.04	0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.05	0.04	0.05	0.04	0.04	0.03			

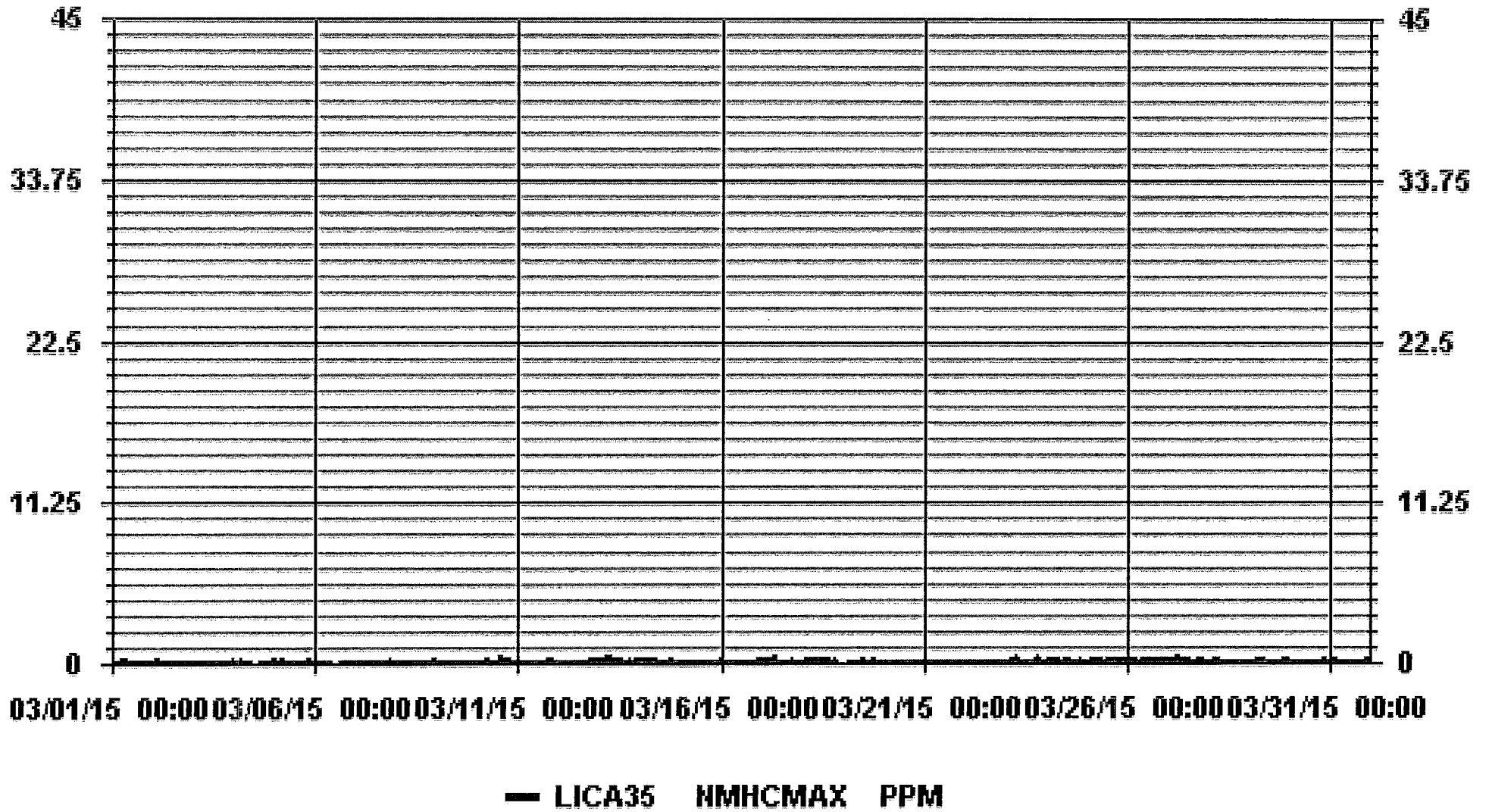
STATUS FLAG CODES

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-OF-REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	236
MAXIMUM INSTANTANEOUS VALUE:	0.47 PPM @ HOUR(S) 14 ON DAY(S) 10
VAR-VARIOUS	
IZS CALIBRATION TIME:	32 HRS
MONTHLY CAUBRATION TIME:	6 HRS
OPERATIONAL TIME:	729 HRS
STANDARD DEVIATION:	0.07

01 Hour Averages



LICA35
 NMHC / WDR Joint Frequency Distribution (Percent)

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	1.73	1.29	2.88	4.61	13.85	12.12	7.79	3.17	4.18	2.02	3.31	11.25	14.43	7.93	7.07	2.30	100.00
< .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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.73	1.29	2.88	4.61	13.85	12.12	7.79	3.17	4.18	2.02	3.31	11.25	14.43	7.93	7.07	2.30	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	12	9	20	32	96	84	54	22	29	14	23	78	100	55	49	16	693
< .5																	
< 1.0																	
< 2.0																	
< 4.0																	
>= 4.0																	
Totals	12	9	20	32	96	84	54	22	29	14	23	78	100	55	49	16	

Calm : .00 %

Total # Operational Hours : 693

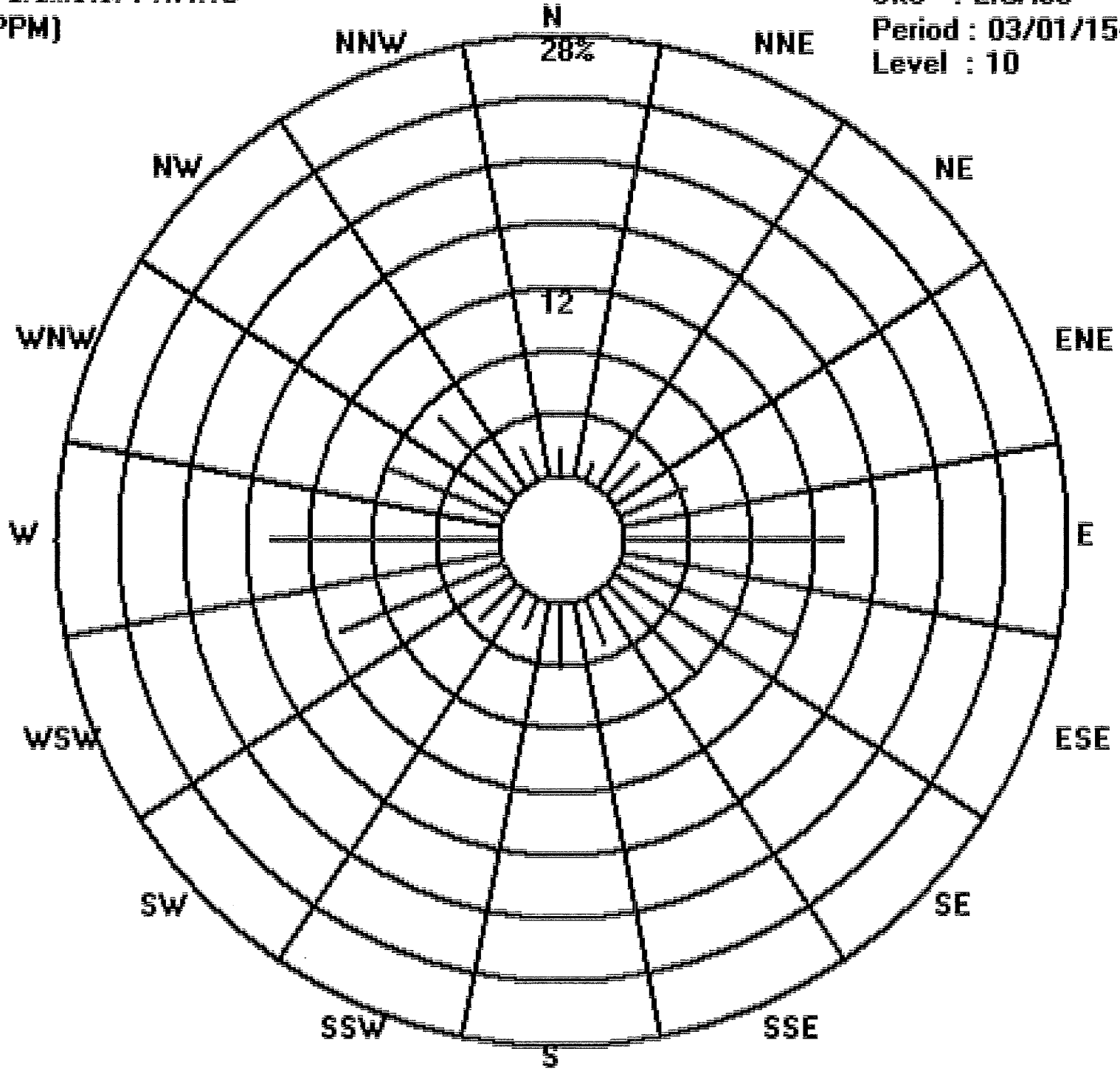
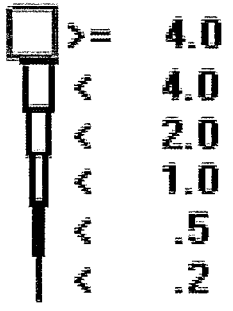
Logger : 35 Parameter : NMHC

Site : LICA35

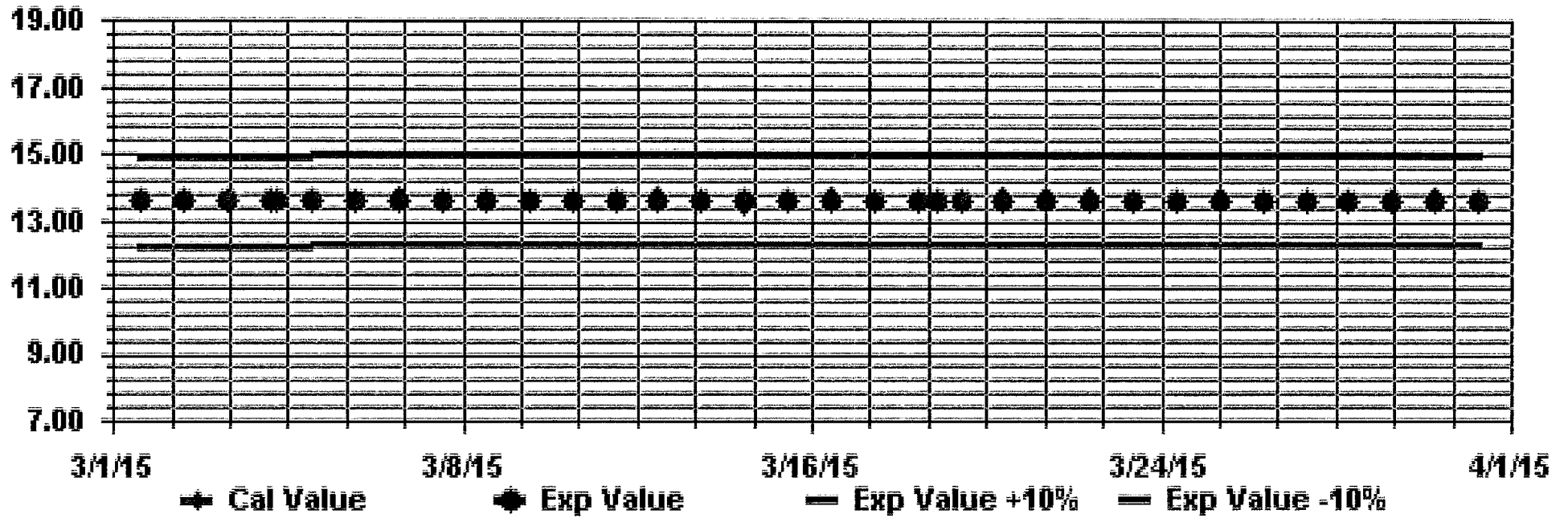
Class Limits (PPM)

Period : 03/01/15-03/31/15

Level : 10



Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN



OXIDES OF NITROGEN



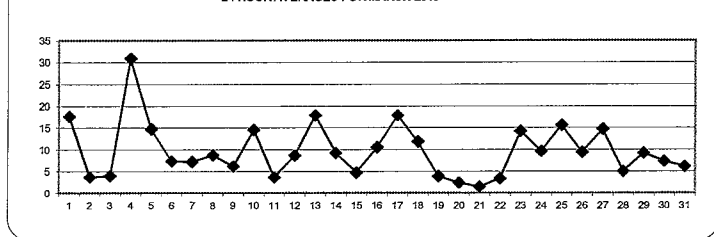
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
HOUR START	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.		
DAY																													
1		12.3	10.6	11.3	11.6	16.5	21.2	41.3	37	45.2	41	23.3	26.3	17.6	8.1	S	7.2	6.9	7.9	8.7	9.2	9.4	11.4	10.9	10.3	45.2	17.6	24	
2		9.1	12.5	11.9	12.9	23.9	2.5	1.1	0.8	0.6	0.3	0.1	0.3	0.2	S	1.6	1	1.1	0.7	0.8	1.1	0.7	0.8	0.6	0.6	23.9	3.7	24	
3		1.2	1.9	7.2	7.2	9.8	7.8	8.8	12.9	6.2	2.4	1.2	0.6	S	1.6	1.1	0.9	0.5	0.7	0.6	1.3	2.4	2.9	3.1	10.1	12.9	4.0	24	
4		22	38.5	59	54	45.2	49.8	47.8	33.3	33.3	25.4	22.4	C	C	C	C	C	C	C	C	11.9	14.2	12.2	8.7	15.2	59	30.8	24	
5		14.6	16.4	17.1	22.6	47	32.4	15.2	21.7	17.7	10.6	S	7.3	6.4	4	2.7	3.7	3.9	5.5	8.4	14	22.6	32	6	5.6	47	14.7	24	
6		8.7	10.5	11.1	8.1	5.9	6.2	5.9	3.4	1.7	S	P	P	P	P	P	4.6	10.5	5.8	5	13.2	8.7	6.3	11.4	3.9	13.2	7.3	19	
7		3.5	7.2	5.1	5.9	8.4	8.7	4.7	2.9	S	2.4	1.9	4.9	4	2.8	4.7	6.7	2.5	2.7	4.7	8.7	17.9	21.4	16.5	17.1	21.4	7.2	24	
8		9.2	13.2	13.9	12.3	14.3	9.2	11	S	7.3	8.1	5.5	5.8	5	6.4	5.4	6	6.2	5.3	6.6	7.3	6.7	11.9	12.5	10.7	14.3	8.7	24	
9		8.4	6.4	4.4	S	4	5.5	S	7.9	6.6	7.6	5.4	5.7	6.2	5.7	1.5	4.5	6.1	4.6	10.7	4.4	6.5	7.4	9.1	7.8	10.7	6.1	24	
10		10.9	9.3	11.7	15.1	21.5	S	33.2	21.9	21.4	9.7	C	C	C	C	C	C	C	C	C	C	C	8.2	6.3	4.7	33.2	14.5	24	
11		7.3	6.2	3.6	3.6	S	3.4	3.6	5.2	4.4	3.2	3.1	2.5	3.4	3.1	2.8	3	3.4	3	3.1	3.1	4.2	3.2	2.5	2.9	7.3	3.6	24	
12		2.8	5.6	2.7	S	5.6	7	4.7	4.1	4.4	4.9	3.7	5.1	6.1	6.9	5.4	6.1	5.1	10.4	8.5	16.4	18	24.5	23.2	17.2	24.5	8.6	24	
13		11.4	15	S	32.3	37.2	46.6	43.5	23.6	40.6	28.3	14.7	11.5	13.1	16.1	5.3	7	10.3	10.3	6.5	6.4	6.5	8	9.1	5.4	46.6	17.8	24	
14		S	S	6	6.2	8.8	10.9	7.6	12.1	9.3	11.9	8.3	6	8.2	8.6	6.5	13	5.2	11.7	14.8	16.9	16.5	7.5	5.9	3.6	16.9	9.2	24	
15		S	3.1	2.8	2.5	2.8	1.9	1.8	2.6	2.2	1.4	1.2	1.2	1.8	1.8	1.8	1.8	2	4.6	3	8.4	22.3	18.6	13.2	S	22.3	4.7	24	
16		40.1	21.2	17.4	9.2	10.4	5.1	13.8	3.6	3.5	2.3	2.4	2.7	2	1.8	2	2.9	3.3	5.9	9.3	16.5	9.8	29.5	S	26	40.1	10.5	24	
17		23.1	25.3	24.9	24.2	26.8	34.1	40.2	42.4	31.8	25.9	16.9	7.8	5.6	5.2	4.1	5.2	3.4	4.5	9.5	14.7	12.9	S	10.3	10.1	42.4	17.8	24	
18		8.8	9.4	9.6	8.7	12	14.7	25.5	30.5	17.1	13.7	11.1	8.7	6.2	5.3	6.2	9.4	5.7	6	11	15.6	P	P	P	P	30.5	11.8	20	
19		P	P	P	P	S	5.9	8.8	S	10.6	4.3	5.3	5.1	4.4	4.5	3.6	2.5	1.5	1.4	1.2	1.7	S	2.6	3	2.4	1.9	10.6	3.9	20
20		1.6	1.5	1.3	1.5	1.7	1.9	3.4	2.2	1.9	1.9	1.6	1.9	1.7	1.6	1.6	1.8	2.1	3.1	S	10.5	4	3.3	2	1.4	10.5	2.4	24	
21		1.2	1.2	1.3	1.5	1.7	1.4	1.2	1.3	1.2	1.7	1.3	1.4	2.5	1.3	1.3	1.2	1.2	S	1.3	1.1	1.1	1.4	1.5	1.6	2.5	1.4	24	
22		1.4	1.5	1.1	1.1	1.1	1.2	1.2	2.5	2	1.9	1.9	1.4	1.7	1.6	1.6	1.7	S	3	3.5	6.6	9	8.2	8.4	14.9	3.4	24	24	
23		7	6.5	12.1	19.1	28.5	36.1	61.5	44.9	25.3	16.8	6.2	2.9	3	3.1	3.6	S	4.1	4.5	6	6.5	7.3	6.1	7.1	7.5	61.5	14.2	24	
24		7.5	8.1	7.4	8.1	9.6	16.5	29	26.1	17.9	4.7	3.8	3.6	3.7	4.2	S	2.6	2.2	4	6.6	12.2	12.9	8.5	10.7	10.7	29	9.6	24	
25		10.3	15	17.4	14.3	22.6	29.9	39.3	37.6	23.8	14.8	9.1	8.1	7.5	S	6.1	7.6	9	8.7	8.8	12.7	15.4	12	14.4	15	39.3	15.6	24	
26		14.1	12.6	13.5	12.5	12.6	13.2	14.9	8.7	7.5	7.2	6.8	7.5	S	6.4	6	6.9	5.9	6.4	6.7	8.8	7.5	7.6	11.5	11.1	14.9	9.4	24	
27		10.3	9.9	10.7	31.6	42.7	34	45.7	27.6	20.8	15.7	6.3	S	6.7	5.1	7.2	5.9	4.9	5.4	8.5	11.6	9.5	6.2	5.6	6	45.7	14.7	24	
28		4.4	4.9	5.7	6.4	6.6	11.1	8.8	7.1	9	5.6	S	2	1.6	1.1	1.4	1	0.7	0.9	3.2	9.9	5.8	4.8	5.8	6.8	11.1	5.0	24	
29		5.2	4.7	7.4	5.2	8.9	11.1	18.3	24	20.3	S	8.9	6.4	4.5	5.9	6.2	11.6	11.2	10	7.5	5.9	10.5	2.1	7.6	7.3	24	9.2	24	
30		5.3	6	6.9	7.9	7.7	6.1	6.6	6.2	S	2.5	2	1.4	1	0.7	0.7	0.8	0.9	1.3	8.9	13	24.4	23.2	19.5	1.6	24.4	7.3	24	
31		17.7	16	11.7	11.2	8.1	6.4	8.8	S	3.9	3.5	3.1	2.6	2.2	2.3	2.5	3.1	2.6	2.9	2.4	3.8	10.9	8.7	3.6	3.1	17.7	6.1	24	
HOURLY MAX		40.1	38.5	59	54	47	49.8	61.5	44.9	45.2	41	23.3	26.3	17.6	16.1	7.2	13	11.2	11.7	14.8	16.9	24.4	32	29.2	26				
HOURLY AVG		9.8	10.4	10.9	12.5	15.3	14.8	18.9	16.0	13.5	9.7	6.6	5.2	4.9	4.4	3.5	4.6	4.4	5.0	6.3	9.4	10.4	10.4	8.6	8.8				

STATUS FLAG CODES

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

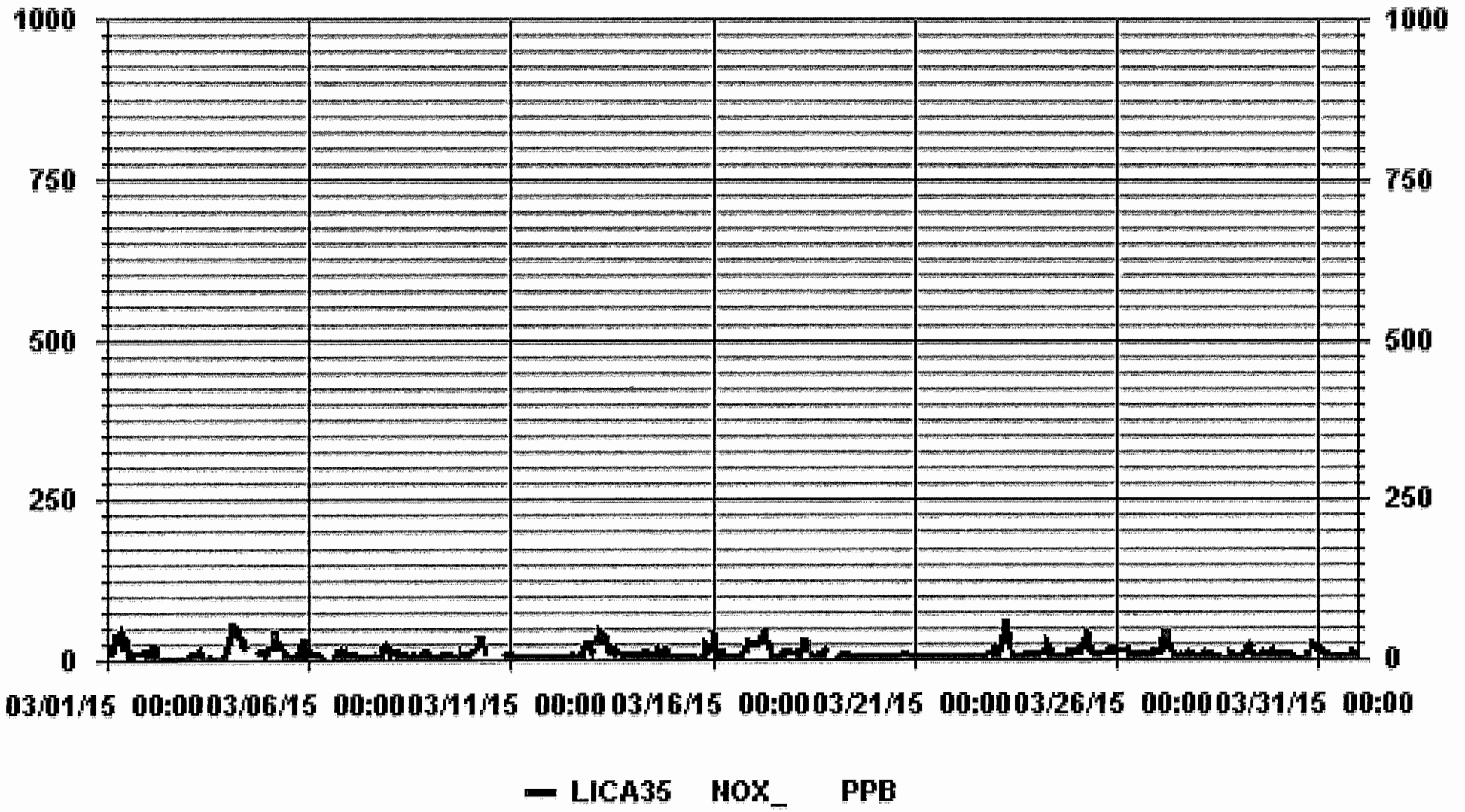
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681		
MAXIMUM 1-HR AVERAGE:	61.5	PPB @ HOUR(S)	6 ON DAY(S) 23
MAXIMUM 24-HR AVERAGE:	30.8	PPB	ON DAY(S) 4
			VAR- VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME: 731 HRS
MONTHLY CALIBRATION TIME:	19	HRS	AMD OPERATION UPTIME: 98.3 %
STANDARD DEVIATION:	9.66		MONTHLY AVERAGE: 9.5 PPB

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	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 MAX	24-HOUR AVG	RDGS.		
1	14.2	13.6	13.6	15.3	23.5	30	55.8	45.2	67.5	57	26.5	31.2	31.1	12.4	S	8.3	8.3	9.5	11.3	14.2	13.6	17.1	18.8	11.8	67.5	23.9	24		
2	10.6	22.9	13	18.8	40.6	4.8	2.4	1.2	1.3	9.4	0.7	8.3	0.7	S	2.4	1.3	1.9	1.3	1.8	3	1.3	1.3	1.3	0.7	40.6	6.6	24		
3	4.2	3	15.4	9.5	17.7	16.5	13.6	23.6	17.1	21.8	15.9	0.7	S	2.4	1.3	7.1	0.7	1.3	1.3	1.9	3	3.6	3.6	18.8	23.6	8.9	24		
4	37.7	88.1	78.1	64	55.8	57	89.3	59.4	56.4	29.4	C	C	C	C	C	C	C	C	C	16.2	27.4	21.5	10.4	28.6	89.3	48.0	24		
5	19.1	35	49.1	37.9	97.1	40.3	19.1	27.4	25	13.3	S	13	11.2	7.7	4.8	5.4	6	11.2	22.9	55.2	34.1	69.9	15.3	7.1	97.1	27.3	24		
6	10.7	13	16.5	14.8	7.1	7.7	9.5	5.4	3.6	S	P	P	P	P	P	16.5	25.3	25.3	18.2	20.6	24.7	10.1	17.7	6	25.3	14.0	19		
7	6	11.8	7.7	8.3	13	10.7	6	5.4	S	3.6	2.5	11.3	6	4.8	7.1	13	3.6	7.1	7.1	10.7	41.2	30	21.8	23.6	41.2	11.4	24		
8	22.4	27.1	26.5	16	18.2	14.2	S	10.1	13.6	6.5	7.7	5.9	8.9	7.7	11.3	8.3	7.7	8.9	8.9	13	17.6	14.2	13	27.1	13.1	24			
9	13.6	13.6	6	7.1	6	7.1	S	12.8	8.1	13.4	7.5	8.1	14.6	14	2.8	11	8.7	16.9	38.7	33.9	12.8	11	18.6	17.5	38.7	13.2	24		
10	19.8	16.9	19.2	25.7	74.4	S	58.2	39.4	31.2	18.8	S	C	C	C	C	C	C	C	C	C	C	C	C	13	9.5	5.5	74.4	27.6	24
11	9.6	9.1	4.6	4.7	S	4.1	4.5	8.9	6	5.6	4.5	5.4	5.7	4.4	3.5	5.2	5.1	4.4	4	5.4	6	4.1	3.2	4.5	9.6	5.3	24		
12	4.5	11.7	3.6	S	7.7	11.9	7.3	5.9	7	7.2	4.7	7.2	8.5	9.4	8	7.5	7.4	14.5	14.7	21.5	22	28.4	28.9	20.3	28.9	11.7	24		
13	12.4	24.9	S	49.6	46.9	54.2	58.8	36.2	50.8	39.7	20.2	19.3	22.6	28	9.6	10.5	15.8	12.8	8.5	8.2	8.8	9.5	11	7.2	58.8	24.6	24		
14	5.9	S	7.5	9.7	14.1	15.6	11.7	16.4	13.5	15.2	9.3	8.3	11.9	15.7	9.5	24.6	7.2	18.4	22.2	21.2	20.4	11.9	7.9	4.7	24.6	13.2	24		
15	S	4.5	3.6	3.1	3.9	2.8	2.7	3.6	3.4	2.1	2	1.8	2.4	2.5	2.7	4.2	3.3	13	7.9	17.4	31.4	27.3	17.6	S	31.4	7.4	24		
16	45.1	36.1	19.5	17.8	22	16.9	22	5.3	4.5	3.4	4.7	5.2	3	2.4	3.1	3.5	4.6	7.3	16.8	22	13.6	47.8	S	28.3	47.8	15.4	24		
17	26.4	27.9	27.7	26.5	35.9	47.5	46.1	52.5	36.4	32.5	21.2	10.9	6.9	6.9	5.3	6.5	5.4	8.9	13.8	22.1	20.1	S	14.3	11.6	52.5	22.3	24		
18	9.8	10.5	12.7	9.8	15.8	19.2	32.5	39.1	22	16	12	10.6	7.7	6.5	11.4	12.4	11.8	12.4	15.9	21.7	P	P	P	P	39.1	15.5	20		
19	P	P	P	P	9.8	14.7	S	S	5.3	5.9	6.2	5.1	5.2	4.6	3.4	2.2	2.2	1.8	2.5	S	3.6	4	3	2.5	14.7	4.8	20		
20	2.2	2	2.1	2.2	2.4	2.6	8.4	4.3	2.6	2.6	2.5	2.7	2.7	2.2	2.3	2.7	3	3.9	S	13.9	8.8	4.7	3.2	2	13.9	3.7	24		
21	1.8	2	1.9	2.2	2.4	2.4	1.8	1.8	1.8	2.5	2.3	2.1	6.7	1.9	2.2	1.9	1.8	S	2	1.7	2.2	2	2.2	2.1	6.7	2.2	24		
22	2.1	2.3	1.7	1.8	1.7	2	2	3.3	2.8	2.6	2.7	2.1	2.2	2.2	2.2	2.4	S	4.1	5.3	10	11.8	11	12.7	20.1	20.1	4.8	24		
23	9.2	7.9	15.7	27.6	36.2	40.5	90	62.6	27.7	26.9	9	4	4	4.5	4.4	S	4.8	6.7	9.6	8.8	9.2	7.4	10.2	9.1	90	19.0	24		
24	8.9	9.6	8.8	9.1	12.2	31	34.9	29.9	26.5	5.9	5.1	4.9	4.8	11	S	3.5	3.1	7	12.6	16.7	21.8	16.5	13.2	12.6	34.9	13.5	24		
25	13.9	19	20.1	24.9	28	44.9	47.2	41.4	33.5	18.9	10	9.3	8.4	S	6.8	9.3	13.3	10.3	13.8	15.4	17.8	14.5	16.4	16.7	47.2	19.7	24		
26	16.5	14.7	15	14.1	13.9	17.7	16.8	13.1	8.6	8.6	8.3	8.5	S	7.1	7.1	9	7.1	7.4	9.8	12.3	10.1	10.9	13.1	14.1	17.7	11.5	24		
27	12.4	11.1	12.5	46.3	45.5	42.3	55.8	43.4	24.6	25	8.7	S	14.3	6.5	12.4	8.2	9.5	11.1	15.5	15.6	14.7	8.2	7.5	7.2	55.8	19.9	24		
28	5.5	7.5	8.1	8.8	10.1	20.8	16	10.3	11.8	7.5	S	2.6	2.2	1.8	2.6	1.8	1.9	2.2	6	16.2	9.7	7.3	7.4	8.4	20.8	7.7	24		
29	7.8	6.5	9.8	8	11.1	18.1	24.8	29.7	24.1	S	10.4	7.9	6.4	8.4	10	17.3	15	16.3	11.9	7.7	18	6.1	10.2	8.9	29.7	12.8	24		
30	6.8	8.5	9.6	9.2	10.6	9.3	8	8.1	S	3.2	3.2	2.5	1.9	1.5	1.3	1.5	2	2.7	12.7	19.5	28.5	24.8	22.7	25.7	28.5	9.7	24		
31	21.9	17.7	13.9	14.4	10.4	7.7	13.6	S	5.2	4.5	4.2	3.3	3.1	3.5	3.3	5.9	4.1	6	3.9	5.1	22.8	23	4.3	4	23	8.9	24		
HOURLY MAX	45.1	88.1	78.1	64	97.1	57	90	62.6	67.5	57	26.5	31.2	31.1	12.4	28	12.4	24.6	25.3	25.3	38.7	55.2	41.2	69.9	28.9	28.6				
HOURLY AVG	13.1	16.5	15.3	17.5	23.1	20.5	26.7	22.7	18.6	14.3	8.1	7.6	7.7	7.0	5.3	7.6	6.8	9.0	11.4	15.4	16.3	16.0	11.7	11.8					

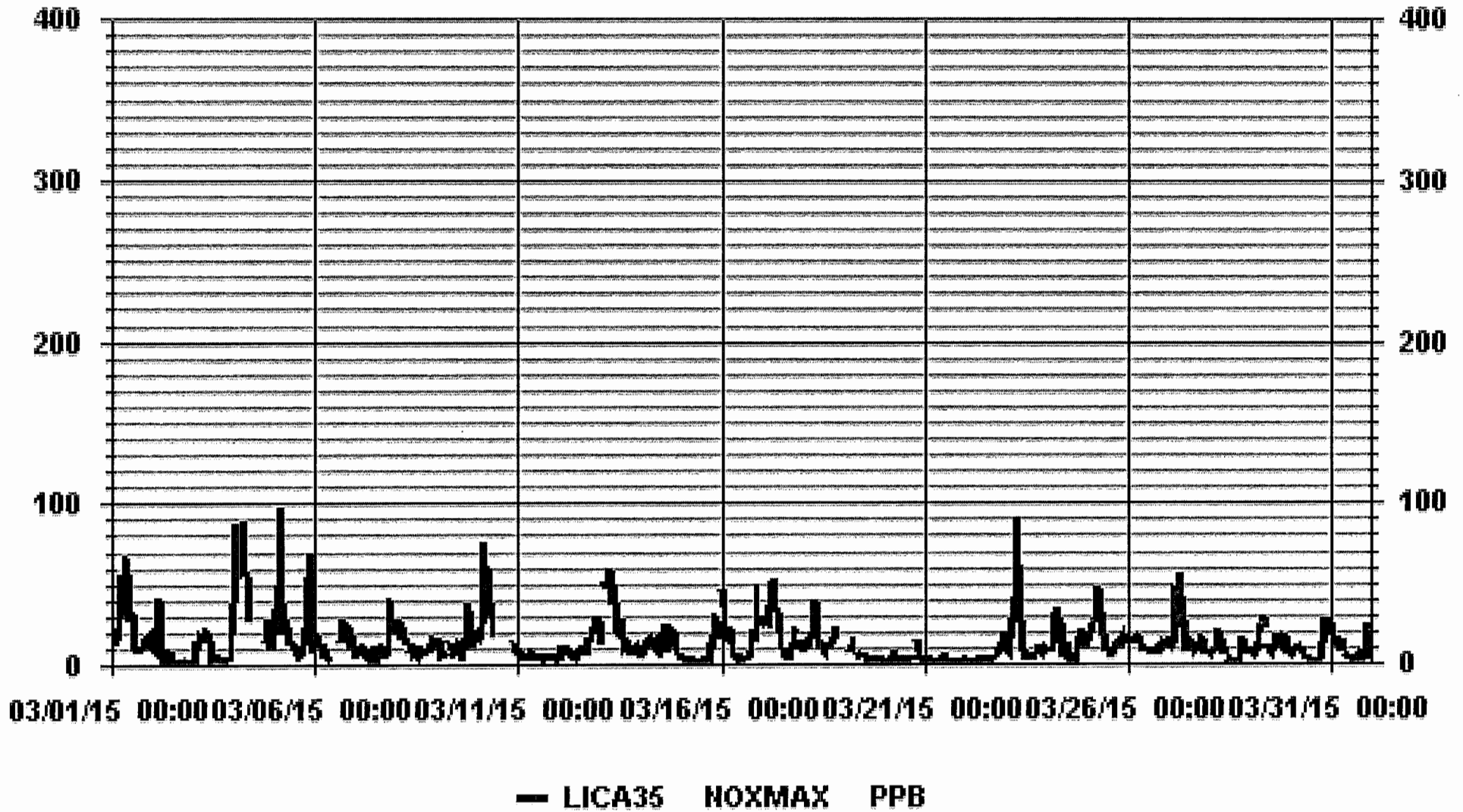
STATUS FLAG CODES

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:	679
MAXIMUM INSTANTANEOUS VALUE:	97.1 PPB @ HOUR(S) 4 ON DAY(S) 5
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	19 HRS
OPERATIONAL TIME:	731 HRS
STANDARD DEVIATION:	14.05

01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.11	2.05	3.37	11.30	14.53	8.37	7.19	2.34	99.55
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.14	.14	.00	.00	.00	.44
< 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	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.25	2.05	3.37	11.45	14.68	8.37	7.19	2.34	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	9	9	19	31	96	80	50	21	28	14	23	77	99	57	49	16	678
< 110.0									1			1	1				3
< 210.0																	
>= 210.0																	
Totals	9	9	19	31	96	80	50	21	29	14	23	78	100	57	49	16	

Calm : .00 %

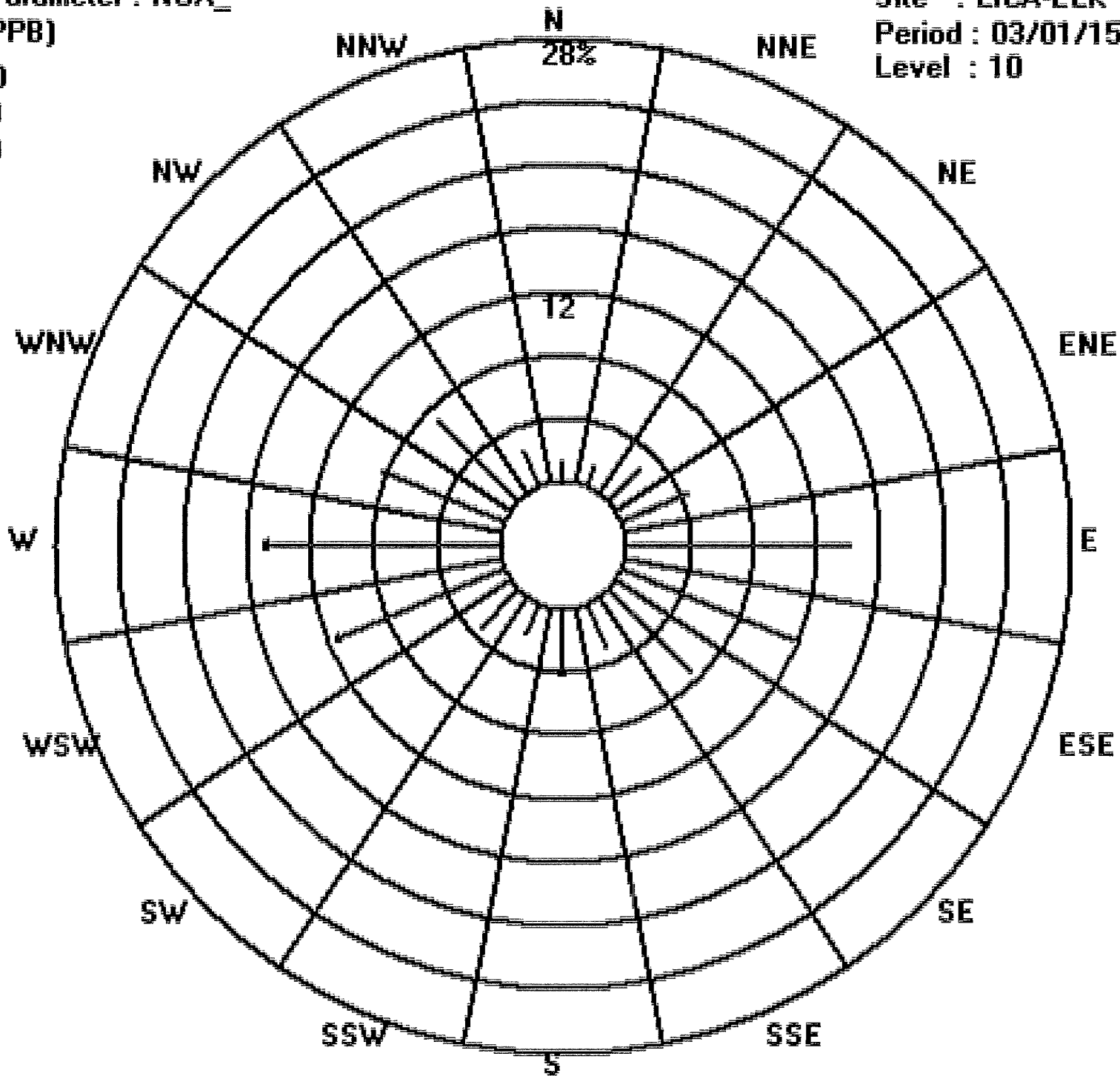
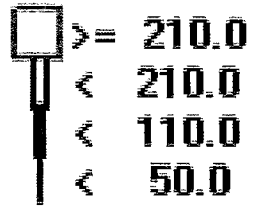
Total # Operational Hours : 681

Logger : 35 Parameter : NOX_

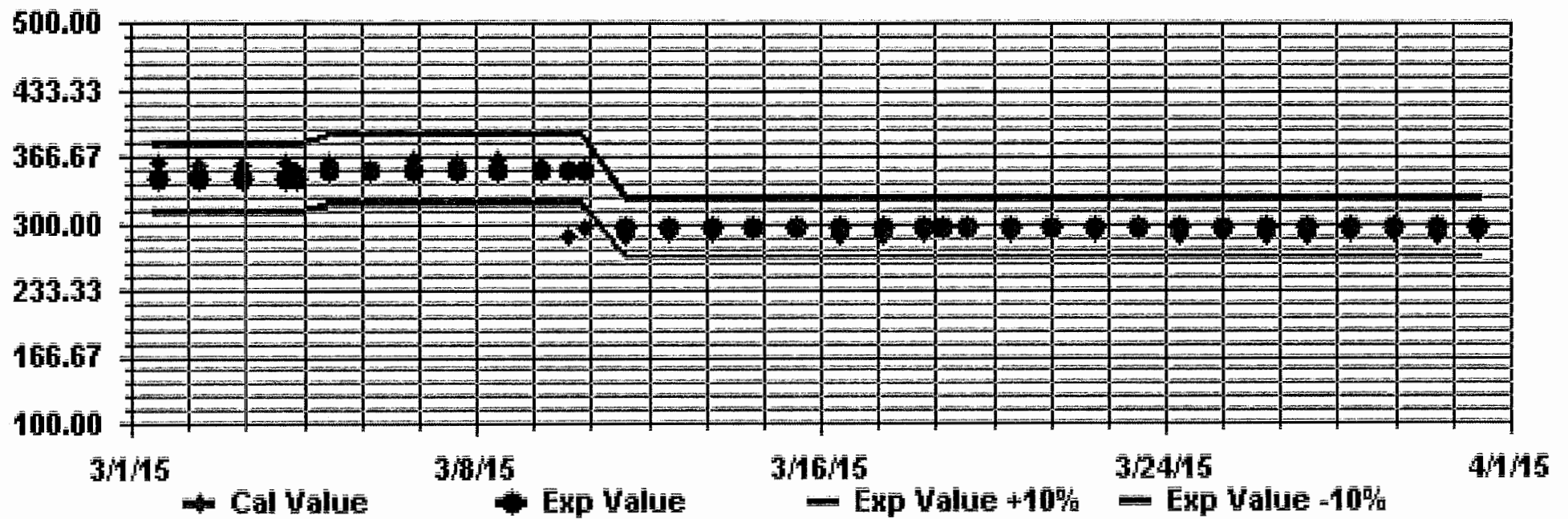
Site : LICA-ELK

Class Limits (PPB)

Period : 03/01/15-03/31/15



Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN



NITRIC OXIDES



NITRIC OXIDE (NO) hourly averages in ppb

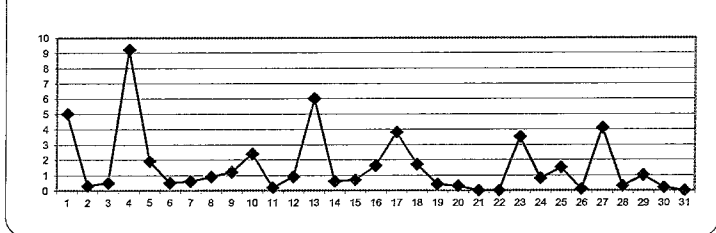
MST

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	RDGS.
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.	
DAY																											
1	0.2	0.2	0.3	0.3	0.6	1.2	8.7	9.3	23.2	24	13.2	15.1	9.3	3.8	S	2.1	1.5	0.8	0.2	0.3	0.1	0.3	0.4	0.1	24	5.0	24
2	0.1	0.4	0.1	0.2	1.9	0	0	0	0.1	0.1	0.1	0.1	0.2	S	0.4	0.2	0.4	0.2	0.1	0.3	0.2	0.2	0.3	0.2	1.9	0.3	24
3	0.2	0.3	0.9	0.7	0.8	0.6	0.7	2.5	1.9	1.1	0.6	0.4	S	0.1	0.1	0	0	0.1	0	0	0	0.1	0	0.5	2.5	0.5	24
4	1.4	9.1	24	19.1	11.4	14.3	14.2	9.4	16.3	14.3	13.1	S	C	C	C	C	C	C	C	0.3	0.2	0	0	0	24	9.2	24
5	0	0.1	0.4	0.6	13.1	2.2	0.5	3.1	4.6	3.5	S	2.7	2.5	1.4	0.7	0.9	0.8	0.5	0.5	0.6	0.4	5	0.1	0.2	13.1	1.9	24
6	0.1	0.4	0.1	0.1	0	0	0.2	0.1	0.2	S	P	P	P	P	P	3	2.5	0.8	0.4	0.6	0.5	0	0.2	0.1	3	0.5	19
7	0.1	0.1	0.2	0.1	0.2	0.2	0	0.3	S	0.4	0.5	2	1.5	0.9	1.5	2	0.4	0.1	0.2	0	0.9	0.5	0.4	0.4	2	0.6	24
8	0.3	0.2	0.4	0.1	0.1	0.1	0.6	S	1.6	2.8	1.9	2.2	1.6	2	1.7	1.7	1.3	0.6	0.3	0.1	0.1	0	0	0.2	2.8	0.9	24
9	0.2	0	0	0	0	0.3	S	1.3	1.7	2.4	2.1	2.4	2.1	2.3	0.8	1.7	1.9	1.4	1.8	0.9	0.8	0.7	1.3	1	2.4	1.2	24
10	1.1	0.9	1.2	1.1	2.1	S	7.4	5.1	6.9	2.9	C	C	C	C	C	C	C	C	C	C	0	0.1	0	0	7.4	2.4	24
11	0.2	0.3	0.1	0.3	S	0	0	0.2	0.2	0.2	0.4	0.3	0.5	0.4	0.3	0.4	0.3	0	0	0.1	0.1	0.1	0	0	0.5	0.2	24
12	0	0.4	0.1	S	0.3	0.4	0.4	0.5	0.6	0.7	0.6	0.8	1.2	1.3	1	1.1	1	2.1	0.7	1.2	1.1	2.4	1.8	0.7	2.4	0.9	24
13	0.6	1.8	S	16.1	21.1	28	21	7.5	23	9.7	2.3	1.4	1.6	2.2	0.2	0.3	0.7	0.1	0	0	0	0	0	0	28	6.0	24
14	0	S	0	0	0.1	0.6	0	1	0.8	2	1.5	0.8	1	1.2	0.6	1.7	0.1	0.6	0.5	0.3	0.3	0	0	0	2	0.6	24
15	S	0.3	0.4	0.5	0.4	0.3	0.5	0.6	0.5	0.5	0.5	0.3	0.7	0.6	0.5	0.6	0.6	0.7	0.6	0.7	2	1.3	1.3	S	2	0.7	24
16	14.3	2.7	1.2	0.7	1.3	0.7	1.5	0.5	0.7	0.4	0.7	0.6	0.4	0.4	0.5	0.6	0.4	0.5	0.7	1.2	0.6	4.5	S	0.8	14.3	1.6	24
17	0.4	0.5	0.4	1.8	4.9	12.1	17.7	21.2	12.9	9.4	3.7	0.6	0	0	0	0	0	0	0	0.2	0	S	0.4	0.5	21.2	3.8	24
18	0.3	0.2	0.4	0.4	0.7	1	6.1	10.2	3.5	2.9	1.9	1.2	0.4	0.4	0.6	0.9	0.3	0.5	0.5	0.7	P	P	P	P	10.2	1.7	20
19	P	P	P	P	1.6	1.5	S	1.7	0	0.1	0	0	0	0	0	0	0	0	0	S	0.4	0.5	0.4	0.6	1.7	0.4	20
20	0.6	0.4	0.4	0.4	0.3	0.2	0.4	0.4	0.6	0.6	0.4	0.5	0.3	0.4	0.3	0.3	0.3	0.5	S	0.1	0	0	0	0	0.6	0.3	24
21	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
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.1	0	0.1	0	0.1	0.1	0.0	24
23	0	0	0.3	1.3	4.6	11.6	35.8	17.1	4.7	2.2	0.4	0	0.2	0.2	0.2	S	0.4	0.4	0.4	0.1	0.1	0.2	0.3	0.3	35.8	3.5	24
24	0.4	0.4	0.1	0.1	0.3	1.5	5.6	5.2	2.9	0.5	0.5	0.4	0.4	0.5	S	0	0	0	0	0	0	0	0	0	5.6	0.8	24
25	0	0	0	0.1	0.6	6.1	12	9.8	3.1	0.9	0.3	0.4	0.3	S	0.1	0.2	0.2	0	0	0	0	0	0.1	0.1	12	1.5	24
26	0.1	0.1	0	0	0	0	0.1	0	0.1	0.1	0.2	0.4	S	0.3	0	0.1	0	0	0	0.1	0	0	0.1	0	0.4	0.1	24
27	0.1	0	0.3	11.1	18.2	13.6	26.3	9.2	6.4	3.2	0.3	S	1.2	0.7	0.9	0.7	0.3	0.3	0.1	0.3	0.4	0.2	0.3	0.4	26.3	4.1	24
28	0.3	0.4	0.4	0.4	0.8	1.8	0.6	0.6	0.8	0.5	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	0.3	24
29	0	0	0	0	0	0.5	4.4	7.9	5.2	S	0.7	0.6	0.3	0.5	0.6	0.7	0.5	0.4	0.1	0	0.1	0	0.1	0.2	7.9	1.0	24
30	0.1	0.3	0.1	0.3	0.1	0.2	0.2	0.1	S	0	0	0	0	0	0	0	0	0	0	0	0.8	1	0.2	0.3	1	0.2	24
31	0	0	0	0	0.1	0.1	0.2	S	0.2	0	0.1	0	0	0	0	0.1	0	0	0	0	0.3	0	0	0	0.3	0.0	24
HOURLY MAX	14.3	9.1	24	19.1	21.1	28	35.8	21.2	23.2	24	13.2	15.1	9.3	3.8	1.7	3	2.5	2.1	1.8	1.2	2	5	1.8	1			
HOURLY AVG	0.7	0.7	1.1	1.9	2.9	3.3	5.7	4.3	4.2	2.9	1.7	1.2	1.0	0.8	0.4	0.7	0.5	0.4	0.3	0.3	0.3	0.6	0.3	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

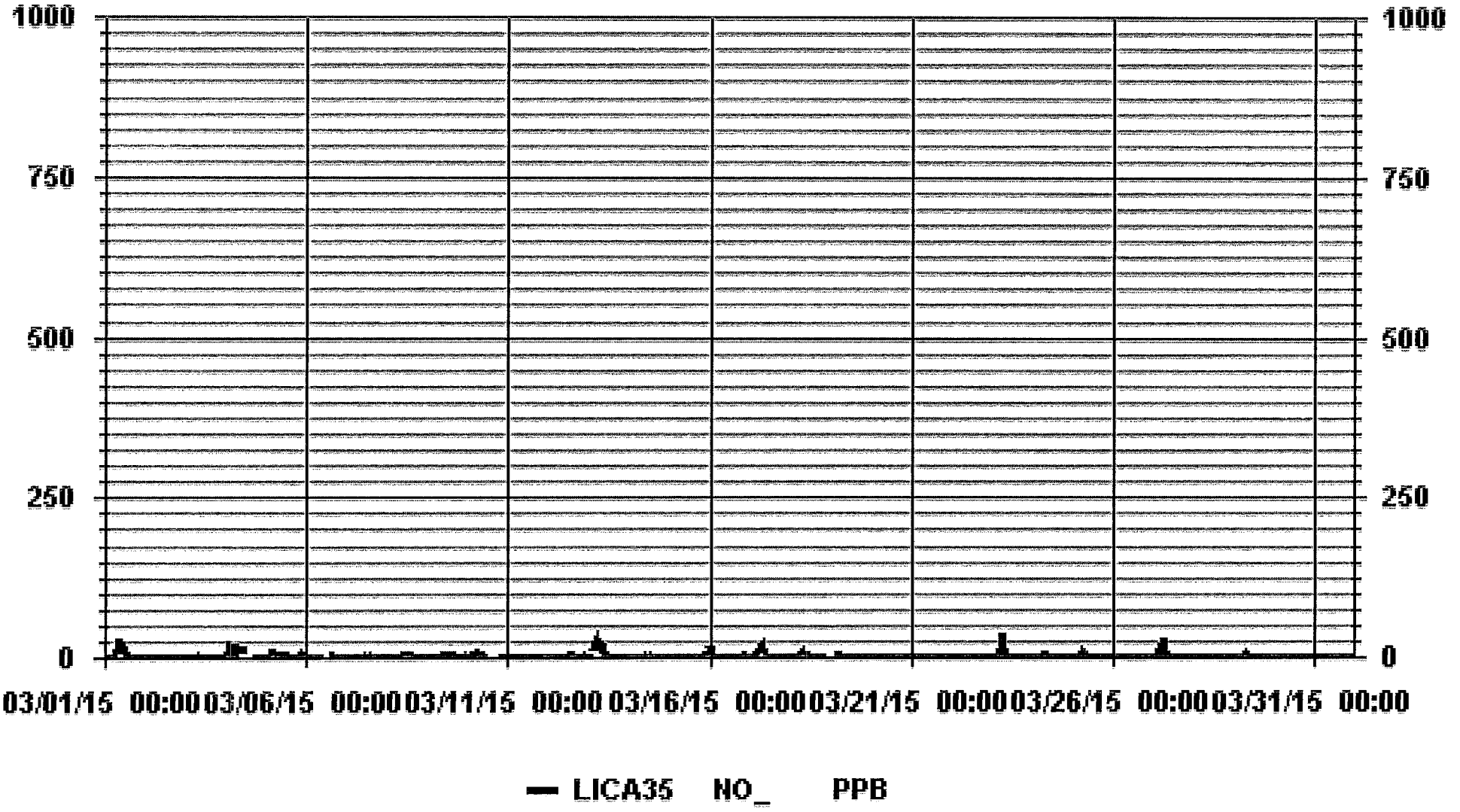
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	490					
MAXIMUM 1-HR AVERAGE:	35.8	PPB	@ HOUR(S)	6	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	9.2	PPB			ON DAY(S)	4
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	731	HRS	
MONTHLY CALIBRATION TIME:	18	HRS	AMD OPERATION UPTIME:	98.3	%	
STANDARD DEVIATION:	4.03		MONTHLY AVERAGE:	1.5	PPB	

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- 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 MAX.	24-HOUR AVG.	RDGS.	
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	0.2	0.2	0.8	0.8	3.2	4.9	20.2	12.5	41.8	34.8	16.1	19	18.4	6.1	S	2.5	2.5	1.3	0.7	1.3	0.7	0.7	2.5	0.7	41.8	8.3	24	
2	0.1	2.5	0.1	0.7	7.1	0.1	0.1	0.1	0.1	2.5	0.7	1.3	0.7	S	0.9	0.3	0.9	0.3	0.3	0.9	0.3	0.3	0.3	0.3	0.3	7.1	0.9	24
3	0.3	0.9	2.1	1.5	1.5	1.5	1.5	6.2	4.4	16.2	5.6	0.9	S	0.6	0.6	0.6	0	0.6	0	0	0.6	0.6	0	2.4	16.2	2.1	24	
4	15.9	48.2	42.2	27.6	21.2	20	52.8	29.4	28.2	15.9	C	C	C	C	C	C	C	C	C	1.8	3.6	0.6	0	1.2	52.8	20.6	24	
5	0.6	11.2	11.1	5.9	63.3	5.3	1.8	7	7	5.3	S	4.7	5.3	3	1.8	1.2	1.2	1.2	4.7	15.9	1.8	31.7	0.6	0.6	63.3	8.4	24	
6	0.6	0.6	0.6	0.6	0	0.6	0.6	0.6	0.6	S	P	P	P	P	P	16.5	6.5	6.4	3	2.4	2.4	0	1.2	0.6	16.5	2.4	19	
7	0.6	1.2	1.2	1.2	1.2	0.6	0	1.2	S	1.2	1.2	5.4	2.4	1.8	2.4	4.2	1.2	0.6	1.2	0	8.8	2.4	1.2	1.2	8.8	1.8	24	
8	1.2	1.8	1.2	0.6	0.6	0.6	1.8	S	2.4	5.4	2.4	3	2.4	3	2.4	3.6	1.8	1.8	1.2	0.6	0.6	0	0.6	0.6	5.4	1.7	24	
9	0.6	0.6	0	0	0.6	0.6	S	3.1	1.9	4.9	3.1	3.1	3.7	6.1	1.3	4.3	2.5	4.9	10.7	10.1	1.9	1.9	4.3	1.9	10.7	3.1	24	
10	3.7	1.9	3.1	3.1	33	S	22.9	15.3	11.8	6.4	C	C	C	C	C	C	C	C	C	C	C	0.6	0.9	0.7	33	8.6	24	
11	0.9	0.7	1	1.1	S	0.7	0.6	1.7	1.1	1	1.2	1.9	2.1	1.4	0.9	1.7	1.2	0.7	0.8	0.9	0.8	0.7	0.4	0.6	2.1	1.0	24	
12	0.7	1.8	0.7	S	1	2.1	1.2	1.4	1.6	1.7	1.5	1.7	2.5	2.7	1.9	2.4	2.2	3.6	2.7	3.5	3.3	5.8	5.3	1.7	5.8	2.3	24	
13	1.2	7.1	S	32.8	30.6	35.7	36.6	20.9	30.6	20.7	4.9	4	6.1	2.1	1.7	2.7	1.1	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.2	36.6	10.6	24
14	0.4	S	0.7	0.6	2.7	2.7	0.6	2.6	1.6	3.9	2.3	1.9	2.1	3.2	1.3	5.2	0.8	1.7	1.8	1.2	1.4	0.8	0.6	0.6	5.2	1.8	24	
15	S	1.1	1.4	1.1	1	1	1	1.3	1.3	1	1.2	1	1.3	1.2	1.3	1.2	1.2	2	1.2	2.1	9.4	3	3.1	S	9.4	1.8	24	
16	18.7	12.7	2.5	2.5	4.5	2.7	3.2	1.2	1.3	1.1	3.7	1.5	1	1.1	1.3	1.1	1	1.1	1.4	3	1.3	13.3	S	2	18.7	3.6	24	
17	1.6	2.3	1	3.4	13.2	24.5	23.4	30.7	16.9	13.9	6.5	1.3	0.7	0.7	0.3	0.3	0.1	0.1	1.4	2.7	3.3	S	1.5	1.2	30.7	6.6	24	
18	0.9	0.8	1.4	1.1	2.4	2.7	11.1	16.3	5	3.9	2.6	2.3	1	1	2	2.2	1.9	2	2	2	P	P	P	P	16.3	3.2	20	
19	P	P	P	P	2.2	2.8	S	S	0.7	0.6	0.6	0.8	0.6	0.5	0.3	0.3	0.3	0.1	0.1	S	1	1.2	0.8	1.3	2.8	0.8	20	
20	1.1	1.1	1	1	0.8	0.8	1	1	1.3	1.2	1.1	1.1	1.1	1	1	1	1	1	S	0.8	0.5	0.6	0.4	0.4	1.3	0.9	24	
21	0.3	0.2	0.4	0.5	0.7	0.5	0.2	0.5	0.4	0.4	0.3	0.3	1.3	0.5	0.5	0.5	0.5	S	0.4	0.2	0.2	0.5	0.5	0.5	1.3	0.4	24	
22	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.7	0.4	0.7	0.7	0.5	0.5	0.4	0.4	0.4	S	0.6	0.8	1.1	0.8	0.8	0.8	0.7	1.1	0.6	24	
23	0.5	0.7	2	4.2	9.7	19	60.3	35.2	6.2	5.8	1.3	0.5	0.8	0.8	S	0.9	1.2	1.7	0.7	0.7	0.7	0.8	0.9	60.3	6.8	24		
24	1	1	0.8	0.7	1.2	7.2	9.7	7.6	6	1.1	1.1	1	1.1	2.3	S	0.5	0.3	0.6	0.6	0.7	0.8	0.5	0.6	0.6	9.7	2.0	24	
25	0.6	0.8	0.6	1	1.5	16.2	18.4	13.8	7.1	1.9	0.8	1.1	0.9	S	0.7	0.8	1.1	0.6	0.8	0.3	0.5	0.3	0.6	0.7	18.4	3.1	24	
26	0.9	0.7	0.7	0.4	0.5	0.6	0.9	0.4	0.7	0.7	1.2	S	1.1	0.7	0.9	0.7	0.5	0.5	1	0.5	0.7	0.7	0.7	1.2	0.7	24		
27	0.6	0.8	0.9	21.3	19.6	17.8	35.8	22.7	9.3	8.9	0.9	S	4.6	1.2	3.1	1.5	1.4	1	0.7	1	1	0.9	1	0.8	35.8	6.8	24	
28	0.8	0.9	1	1.1	2.8	5.7	1.9	1.9	1.7	1	S	0.4	0.2	0.1	0.2	0	0.2	0	0.4	1.8	0.2	0.1	0.3	0.4	5.7	1.0	24	
29	0.2	0.1	0.4	0.4	0.5	3.5	9.9	12.1	9.1	S	1.5	1.3	0.8	1.1	1.7	1.9	1.1	1.4	1.3	0.7	0.8	0.4	0.7	0.8	12.1	2.2	24	
30	0.9	0.9	1	0.9	0.9	1	0.8	0.9	S	0.7	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.2	0.4	0.6	1.5	1.9	0.9	2.5	2.5	0.8	24	
31	0.7	0.6	0.7	0.5	0.7	0.7	1	S	0.9	0.7	0.7	0.7	0.4	0.7	0.7	1.2	0.7	0.6	0.3	0.4	1.4	1.1	0.7	0.5	1.4	0.7	24	
HOURLY MAX	18.7	48.2	42.2	32.8	63.3	35.7	60.3	35.2	41.8	34.8	16.1	19	18.4	6.1	3.1	16.5	6.5	6.4	10.7	15.9	9.4	31.7	5.3	2.5				
HOURLY AVG	1.9	3.6	2.8	4.0	7.6	6.1	11.0	8.9	6.9	5.6	2.4	2.3	2.3	1.8	1.2	2.1	1.3	1.3	1.5	2.0	1.7	2.5	1.1	0.9				

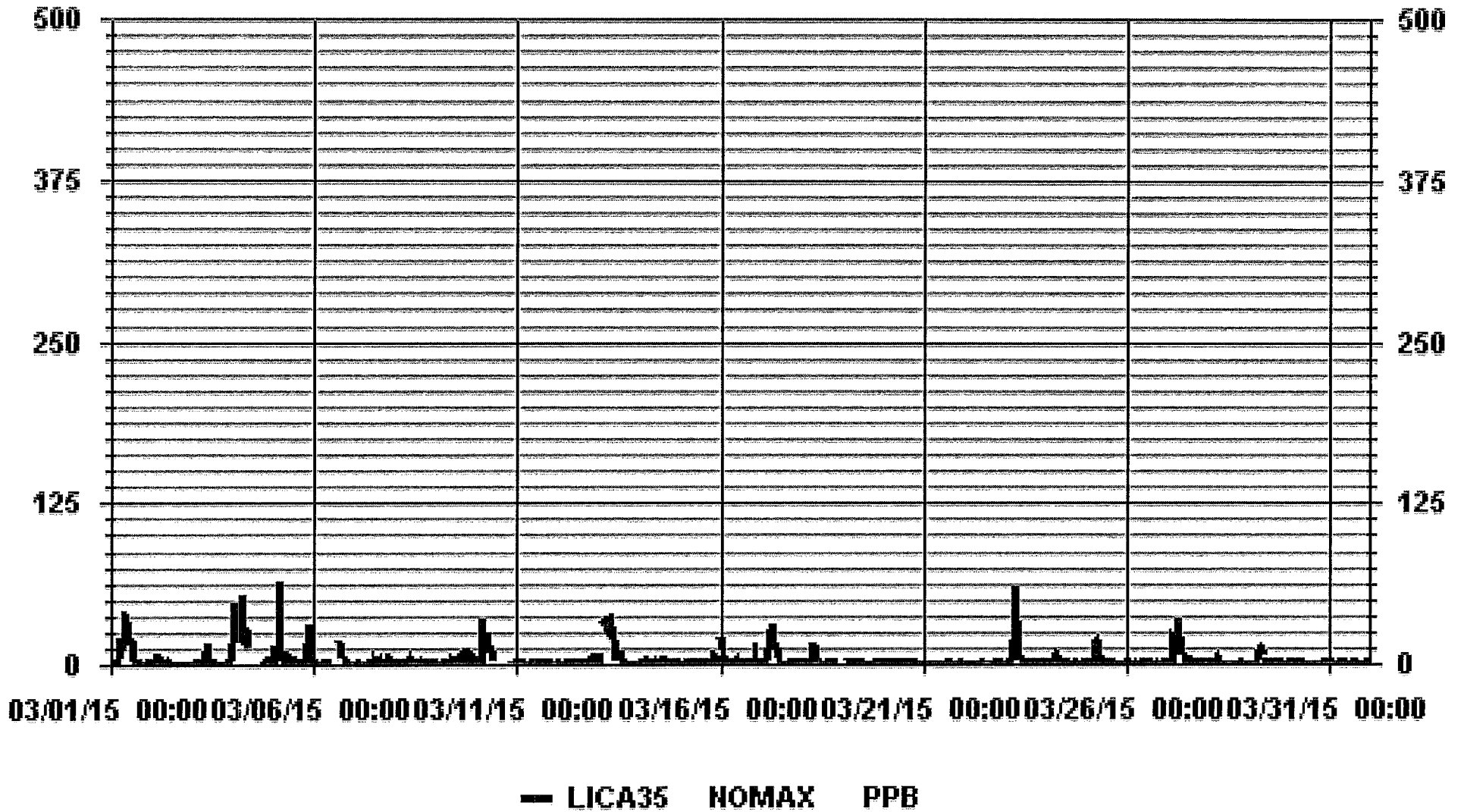
STATUS FLAG CODES

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:	665
MAXIMUM INSTANTANEOUS VALUE:	63.3 PPB @ HOUR(S) 4 ON DAY(S) 5
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	20 HRS
STANDARD DEVIATION:	7.45
OPERATIONAL TIME:	731 HRS

01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.25	2.05	3.37	11.45	14.68	8.37	7.19	2.34	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	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.25	2.05	3.37	11.45	14.68	8.37	7.19	2.34	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	9	9	19	31	96	80	50	21	29	14	23	78	100	57	49	16	681
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	9	9	19	31	96	80	50	21	29	14	23	78	100	57	49	16	

Calm : .00 %

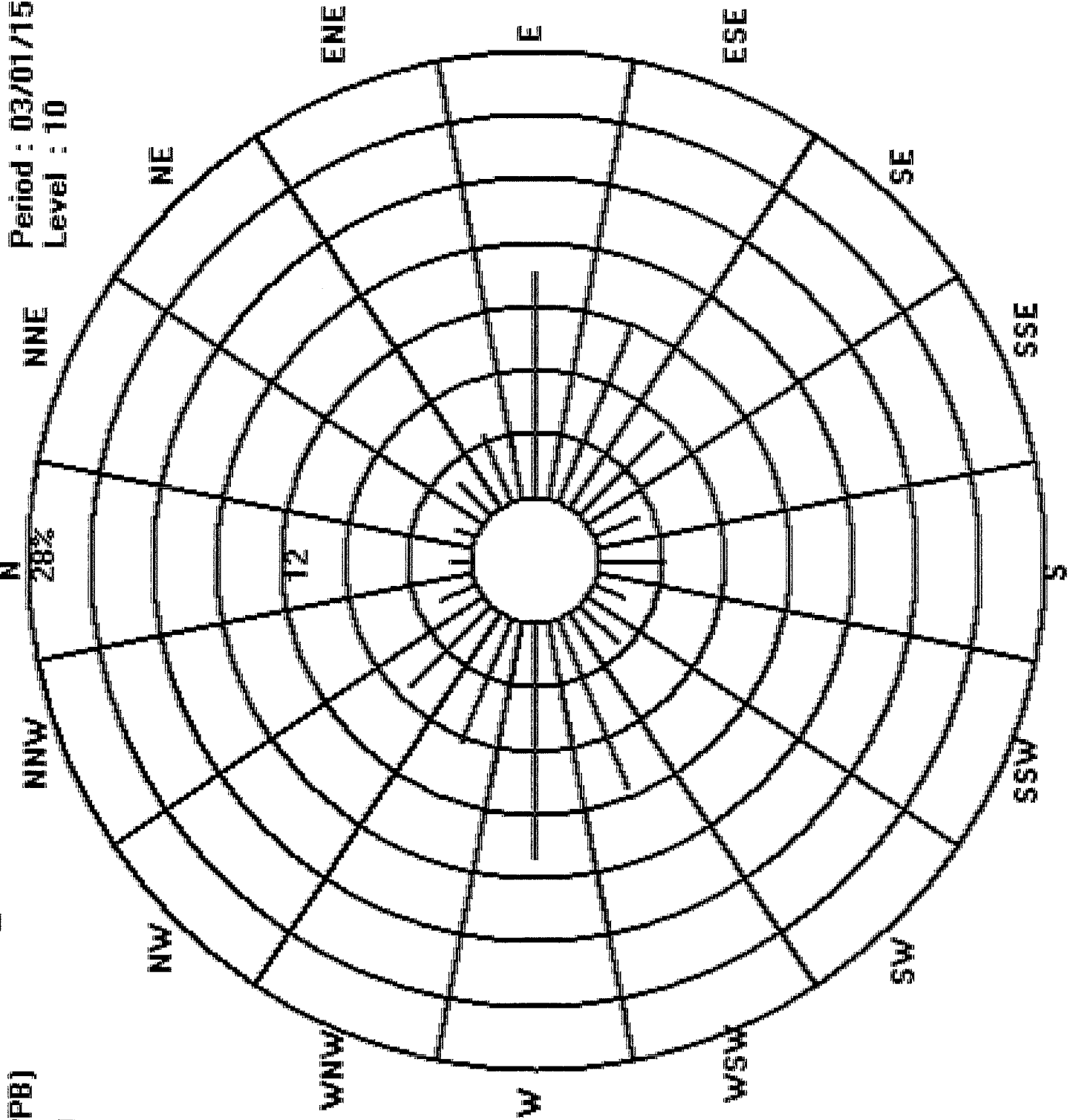
Total # Operational Hours : 681

Logger : 35 Parameter : NO_

Site : LICA-ELK

Period : 03/01/15-03/31/15

Level : 10



- >= 210.0
- < 210.0
- < 110.0
- < 50.0

NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
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			
1		12.0	10.3	11.0	11.3	15.7	19.9	32.6	27.7	22.0	16.9	10.1	11.1	8.2	4.4	S	5.4	5.7	7.4	8.7	9.2	9.5	11.2	10.7	10.5	32.6	12.7	24
2		9.2	12.4	12.1	13.0	22.3	2.7	1.4	1.0	0.7	0.5	0.4	0.4	0.2	S	1.2	0.7	0.8	0.5	0.7	0.8	0.7	0.7	0.5	0.5	22.3	3.6	24
3		1.2	1.6	6.3	6.5	9.0	7.2	8.1	10.5	4.4	1.4	0.6	0.2	S	1.3	0.7	0.7	0.3	0.4	0.4	1.4	2.1	2.6	2.8	9.4	10.5	3.4	24
4		20.3	29.1	34.7	34.6	33.6	35.3	33.4	23.7	16.8	10.9	9.2	S	C	C	C	C	C	C	C	11.3	13.7	12.2	9.0	15.1	35.3	21.4	24
5		14.5	16.0	16.4	21.7	33.6	30.0	14.5	18.4	12.8	6.9	S	4.4	3.6	2.4	1.7	2.5	2.8	4.8	7.8	13.1	21.9	26.7	5.7	5.2	33.6	12.5	24
6		8.2	9.8	10.7	7.8	5.7	5.8	5.4	3.0	1.1	S	P	P	P	P	P	1.3	7.7	4.8	4.3	12.3	7.8	6.1	10.9	3.5	12.3	6.5	19
7		3.2	6.8	4.6	5.5	7.8	8.2	4.4	2.3	S	1.7	1.2	2.7	2.3	1.6	2.9	4.4	1.8	2.3	4.3	8.4	16.7	20.6	15.7	16.3	20.6	6.3	24
8		8.7	12.6	13.2	11.9	13.9	8.8	10.2	S	6.1	5.7	3.8	4.0	3.8	4.8	4.0	4.7	5.2	5.0	6.8	7.6	7.0	12.4	12.8	10.8	13.9	8.0	24
9		8.5	6.7	4.8	5.3	4.3	5.6	S	6.7	4.9	5.2	3.3	3.4	4.2	3.4	0.7	3.0	4.2	3.3	8.9	3.5	5.8	6.6	7.8	6.9	8.9	5.1	24
10		9.8	8.5	10.5	13.9	19.5	S	25.6	16.5	14.4	6.6	C	C	C	C	C	C	C	C	C	C	C	8.1	6.1	4.6	25.6	12.0	24
11		6.9	5.9	3.5	3.3	S	3.6	3.6	4.9	3.9	2.8	2.5	2.0	2.6	2.5	2.3	2.4	2.8	2.7	2.9	2.8	4.0	3.0	2.5	2.8	6.9	3.3	24
12		2.7	5.0	2.4	S	5.3	6.5	4.3	3.6	3.8	4.1	3.1	4.3	4.9	5.5	4.4	4.9	4.1	8.4	7.8	15.3	17.0	22.1	21.4	16.5	22.1	7.7	24
13		10.8	13.1	S	16.2	16.0	18.6	22.4	16.0	17.4	18.4	12.3	9.9	11.3	13.7	4.9	6.5	9.4	10.0	6.6	6.8	8.1	9.3	5.6	5.6	22.4	11.7	24
14		5.2	S	5.9	6.2	8.6	10.2	7.5	11.0	8.4	9.9	6.7	5.2	7.1	7.2	5.8	11.2	4.9	11.0	14.2	16.6	16.2	7.5	5.7	3.7	16.6	8.5	24
15		S	2.7	2.3	1.9	2.4	1.6	1.4	2.0	1.6	0.9	0.7	0.8	1.1	1.3	1.3	1.3	1.6	3.9	2.5	7.8	20.4	17.4	12.0	S	20.4	4.0	24
16		26.1	19.0	16.7	8.8	9.4	4.6	12.6	3.3	3.2	2.3	2.1	2.5	1.9	1.6	1.7	2.6	3.0	5.7	9.0	15.7	9.6	25.4	S	25.0	26.1	9.2	24
17		22.4	24.5	24.2	22.0	21.7	21.7	22.1	21.0	18.6	16.1	12.7	6.8	5.2	4.9	4.0	5.1	3.4	4.6	9.2	14.1	12.5	S	9.6	9.4	24.5	13.7	24
18		8.3	9.0	9.0	8.2	11.1	13.5	19.3	20.1	13.4	10.7	9.1	7.4	5.5	4.7	5.3	8.0	5.0	5.2	10.1	14.6	P	P	P	P	20.1	9.9	20
19		P	P	P	P	5.8	8.6	S	9.0	4.1	4.9	4.9	4.1	4.1	3.5	2.4	1.6	1.4	1.2	1.9	S	2.2	2.6	2.3	1.5	9.0	3.7	20
20		1.3	1.2	1.1	1.2	1.5	1.7	3.2	1.9	1.4	1.5	1.4	1.6	1.6	1.3	1.4	1.6	1.9	2.9	S	10.4	3.9	3.3	2.1	1.5	10.4	2.2	24
21		1.3	1.3	1.3	1.5	1.5	1.5	1.4	1.3	1.3	1.7	1.5	1.5	2.4	1.4	1.3	1.2	1.2	S	1.3	1.2	1.3	1.4	1.5	1.7	2.4	1.4	24
22		1.6	1.7	1.2	1.2	1.1	1.2	1.3	2.3	2.1	1.8	2.0	1.4	1.7	1.6	1.6	1.8	S	2.8	3.5	6.5	9.1	8.2	8.4	14.9	14.9	3.4	24
23		7.1	6.5	11.7	17.9	24.0	24.5	25.8	27.9	20.6	14.6	5.8	2.8	2.8	2.9	3.5	S	3.9	4.2	5.6	6.4	7.2	5.9	6.9	7.3	27.9	10.7	24
24		7.2	7.8	7.4	8.0	9.3	15.1	23.5	20.9	15.2	4.3	3.4	3.3	3.4	3.7	S	2.7	2.3	4.0	6.7	12.3	13.0	8.7	10.8	10.8	23.5	8.9	24
25		10.3	15.1	17.4	14.3	22.2	24.0	27.4	27.9	20.9	14.0	8.8	7.7	7.2	S	5.7	7.2	8.5	8.5	12.8	15.3	12.0	14.1	14.8	27.9	14.1	24	
26		13.8	12.3	13.4	12.6	12.6	13.0	14.6	8.5	7.1	6.8	6.4	6.9	S	5.8	5.7	6.5	5.7	6.2	6.6	8.6	7.4	7.5	11.3	11.1	14.6	9.1	24
27		9.9	9.7	10.2	20.3	24.2	20.3	19.3	18.3	14.4	12.3	5.8	S	5.5	4.4	6.3	5.2	4.6	5.2	8.5	11.3	9.1	6.1	5.2	5.8	24.2	10.5	24
28		4.3	4.7	5.5	6.1	5.9	9.4	8.2	6.5	8.3	5.3	S	1.9	1.7	1.2	1.5	1.2	0.9	0.9	3.3	9.6	6.0	5.1	6.1	6.9	9.6	4.8	24
29		5.2	4.8	7.4	5.2	8.7	10.4	13.8	15.9	15.0	S	7.8	5.6	4.0	5.0	5.4	10.7	10.5	9.4	7.1	5.7	10.1	1.9	7.1	6.9	15.9	8.0	24
30		5.0	5.5	6.7	7.5	7.4	5.7	6.2	5.8	S	2.5	2.0	1.5	1.1	0.9	0.7	0.8	1.0	1.3	8.9	13.0	23.7	22.3	19.4	15.7	23.7	7.2	24
31		17.7	16.0	11.7	11.2	8.1	6.4	8.7	S	3.6	3.1	2.6	2.2	2.0	1.9	2.1	2.6	2.4	2.7	2.3	3.6	10.2	8.4	3.2	2.9	17.7	5.9	24
HOURLY MAX		26.1	29.1	34.7	34.6	33.6	35.3	33.4	27.9	22.0	18.4	12.7	11.1	11.3	13.7	6.3	11.2	10.5	11.0	14.2	16.6	23.7	26.7	21.4	25.0			
HOURLY AVG		9	10	10	11	12	12	13	12	9	7	5	4	4	4	3	4	4	5	6	9	10	10	8	9			

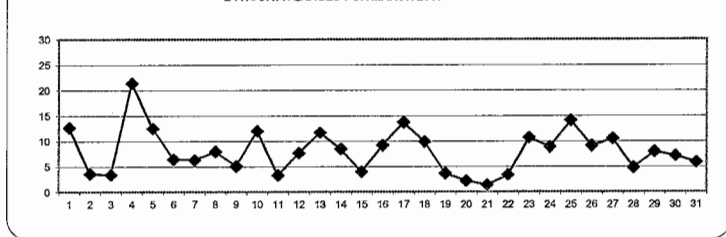
STATUS FLAG CODES

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: 1-HR: 159 PPB

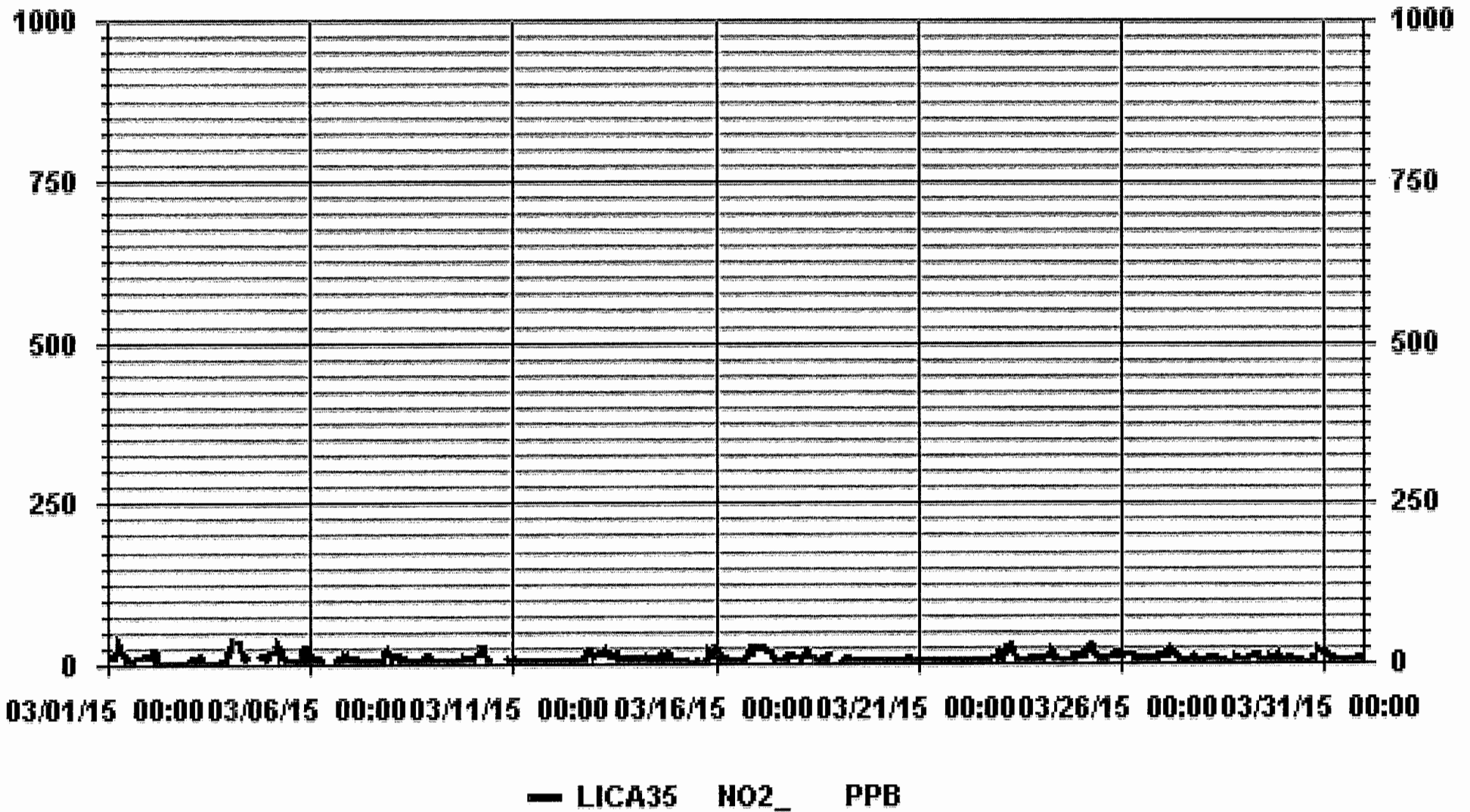
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	681			
MAXIMUM 1-HR AVERAGE:	35.3	PPB	@ HOUR(S)	5
MAXIMUM 24-HR AVERAGE:	21.4	PPB	ON DAY(S)	4
			ON DAY(S)	4
			VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	731
MONTHLY CALIBRATION TIME:	18	HRS	AMD OPERATION UPTIME:	98.3
STANDARD DEVIATION:	6.74		MONTHLY AVERAGE:	7.9
				PPB

01 Hour Averages





NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	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 MAX	24-HOUR AVG.	RDGS.	
1	13.5	13	13.5	14.7	20.5	27	35.8	33.4	25.8	22.9	11.2	13	12.9	5.9	S	6.3	6.3	9.2	11	13.3	12.7	16.9	16.8	12.2	35.8	16.0	24	
2	10.4	20.9	13.3	18.6	33.8	4.6	2.8	1.6	1	8	1	7.4	0.4	S	2.4	1.2	1.2	1.2	1.2	2.4	1.2	1.2	0.6	0.6	33.8	6.0	24	
3	4.2	3	14.1	9.4	15.9	15.9	12.9	17.6	12.9	8.8	11.2	0.6	S	2.4	1.2	6.5	0.6	0.6	0.6	1.8	3	3.6	3.6	17.6	17.6	7.3	24	
4	31.6	39.9	38.1	36.3	35.2	40.5	42.8	29.9	28.2	13.5	C	C	C	C	C	C	C	C	C	15	23.2	20.8	10.9	27.3	42.8	28.9	24	
5	18.5	27.3	37.8	32.5	40.2	34.9	18.5	23.8	17.8	8.5	S	7.6	5.9	4.7	3	4.2	4.7	10	18.2	38.7	32.8	43.9	14.7	6.4	43.9	19.8	24	
6	10	12.3	15.9	14.1	7	7.6	9.4	4.7	3	S	P	P	P	P	P	1.8	18.8	18.8	16.4	19.3	22.3	10	17	6.5	22.3	11.9	19	
7	4.8	10.6	6.4	7.6	12.4	10	5.4	4.2	S	3	1.8	5.9	3.6	3	4.2	8.2	2.4	6.5	6.5	10	32.2	29.3	20.5	22.3	32.2	9.6	24	
8	21.7	25.2	24.7	15.3	18.1	13.5	12.9	S	7.6	8.8	4.8	5.3	4.8	6.5	5.4	8.2	7.1	7	8.8	8.8	13.5	18.8	14.7	13.5	25.2	12.0	24	
9	13.5	13.5	6.5	7.1	6.4	6.5	S	10	6.4	8.8	4.8	4.8	10.6	8.2	1.8	6.4	5.9	12.4	28.2	24.1	11.8	10	14.7	15.9	28.2	10.4	24	
10	18.8	15.9	17.6	22.9	43.4	S	35.2	24.7	18.8	12.4	C	C	C	C	C	C	C	C	C	C	C	C	12.7	8.8	5.4	43.4	19.7	24
11	9.2	8.7	4.4	4.1	S	4.5	4.5	7.6	5.4	4.6	3.5	3.5	4.5	3.5	3	3.8	4.3	3.9	4.1	5.2	5.5	3.7	3.5	4.5	9.2	4.8	24	
12	4.2	10.2	3.1	S	7.2	9.8	6.3	5.4	5.9	5.9	4.1	5.9	6.2	7.2	6.2	5.8	6.1	11.5	12.4	19.6	19.2	24.1	23.9	19.7	24.1	10.0	24	
13	11.9	18	S	18.3	18.1	21.9	24.6	20.2	20.7	20	15.8	15.4	18.9	22.5	8.9	9.5	13.6	12.1	8.4	8.3	8.9	9.5	11.4	7.7	24.6	15.0	24	
14	6	S	7.2	9.3	12.9	13.5	11.7	14.4	12.3	12.5	8	7	10.2	13	8.5	19.7	7	17.3	20.9	20.3	19.7	11.5	7.7	4.9	20.9	12.0	24	
15	S	3.9	3.2	2.7	3.5	2.5	2.2	3.1	2.7	1.6	1.3	1.4	1.8	1.9	2	3.6	2.9	11.5	7.3	16.2	25.3	25.4	15.6	S	25.4	6.4	24	
16	28	24.1	18.8	16.2	19.2	14.8	19.5	S	4.1	3.1	3.5	4.6	2.8	2.2	2.7	3.2	4.3	6.9	16	21	13.4	35.2	S	26.4	35.2	12.8	24	
17	25	26.8	26.9	23.9	23.9	23.4	23.1	19.8	18.8	14.9	9.5	6.2	6.3	5.2	6.3	5.7	8.8	12.9	20.1	18.1	S	13.4	10.6	26.9	16.2	24		
18	9.5	10.1	11.5	9.3	14.2	17.2	22	22.9	17.1	12.2	10.2	8.6	7.1	5.8	9.1	10.3	10.1	10.3	14.1	20.3	P	P	P	P	22.9	12.6	20	
19	P	P	P	P	9.5	14	S	S	5	5.6	5.8	4.8	4.8	4.4	3.4	2.2	2.3	2	2.7	S	3.3	3.5	3	2.1	14	4.6	20	
20	1.9	1.8	1.8	1.8	2.1	2.6	7.8	3.7	2.1	2	2.1	2.5	2.3	1.9	2	2.4	2.6	3.8	S	13.8	8.6	4.6	3.3	2	13.8	3.5	24	
21	2	2	1.8	2.2	2.1	2.2	2.1	2	2	2.6	2.1	2.1	5.7	2	1.9	1.8	1.8	S	1.9	2	2.2	2	2.4	2.4	5.7	2.2	24	
22	2.4	2.6	1.8	1.9	1.9	1.7	2.2	3.1	2.8	2.4	2.6	2	2.3	2.3	2.2	2.5	S	4	5.4	9.5	11.4	11.1	13.2	20	20	4.8	24	
23	9.2	8	15.1	24	26.8	28.3	30.1	29.3	23.3	21.6	8.3	3.9	3.8	4.3	4.3	S	4.8	6	8.5	8.5	9	7.6	9.8	9.1	30.1	13.2	24	
24	8.5	9.4	8.8	9	12	24.1	25.8	23	21	5.7	4.7	4.3	4.3	9.4	S	3.4	3	6.7	12.4	16.3	21.6	16.9	13.3	12.9	25.8	12.0	24	
25	13.9	19.3	20.4	24.2	27.5	30.3	30.3	29.4	26.9	17.4	9.9	8.8	8	S	6.6	8.9	12.9	10.1	13.3	15.2	17.9	14.6	16.1	16.5	30.3	17.3	24	
26	16.4	14.4	14.8	14.3	14.1	17.5	16.6	12.9	8.3	8.3	7.9	8	S	6.8	6.6	8.3	7	7	9.5	11.8	9.8	10.9	12.6	14.1	17.5	11.2	24	
27	11.9	10.6	11.8	25.8	26.1	25.1	20.8	21.2	16.6	16.7	7.9	S	10.4	5.8	9.8	7	8.6	10.7	15.2	15.5	14.3	8	6.7	7	26.1	13.6	24	
28	5	7.1	7.6	8.5	7.8	16	14.7	9.2	10.6	7.3	S	2.7	2.6	2	2.5	2	2	2.6	5.8	15.7	9.6	7.9	7.3	8.4	16	7.2	24	
29	7.8	6.6	9.8	7.9	10.8	15	15.7	17.7	17.1	S	9.3	7.1	5.6	7.3	8.8	15.9	14.3	15.1	11.3	7.4	17.7	5.6	9.6	8.4	17.7	10.9	24	
30	6.9	7.9	9.7	8.9	10.3	8.6	7.4	7.5	S	3.1	3.1	2.5	2	1.6	1.3	1.6	2	3.1	12.9	19	27.9	24.1	22.6	23.6	27.9	9.5	24	
31	21.8	17.5	13.7	14.4	10.5	7.6	13.1	S	4.8	4.2	3.8	2.9	2.7	3.1	3	4.7	3.7	5.7	3.8	5	21.8	22	3.9	3.7	22	8.6	24	
HOURLY MAX	32	40	38	36	43	41	43	33	28	23	16	15	19	23	10	20	19	19	28	39	33	44	24	27				
HOURLY AVG	12.0	13.5	13.1	14.0	16.4	15.4	16.4	14.7	12.1	9.3	6.3	5.6	5.8	5.5	4.5	5.9	5.9	8.0	10.3	13.9	15.1	14.3	11.1	11.4				

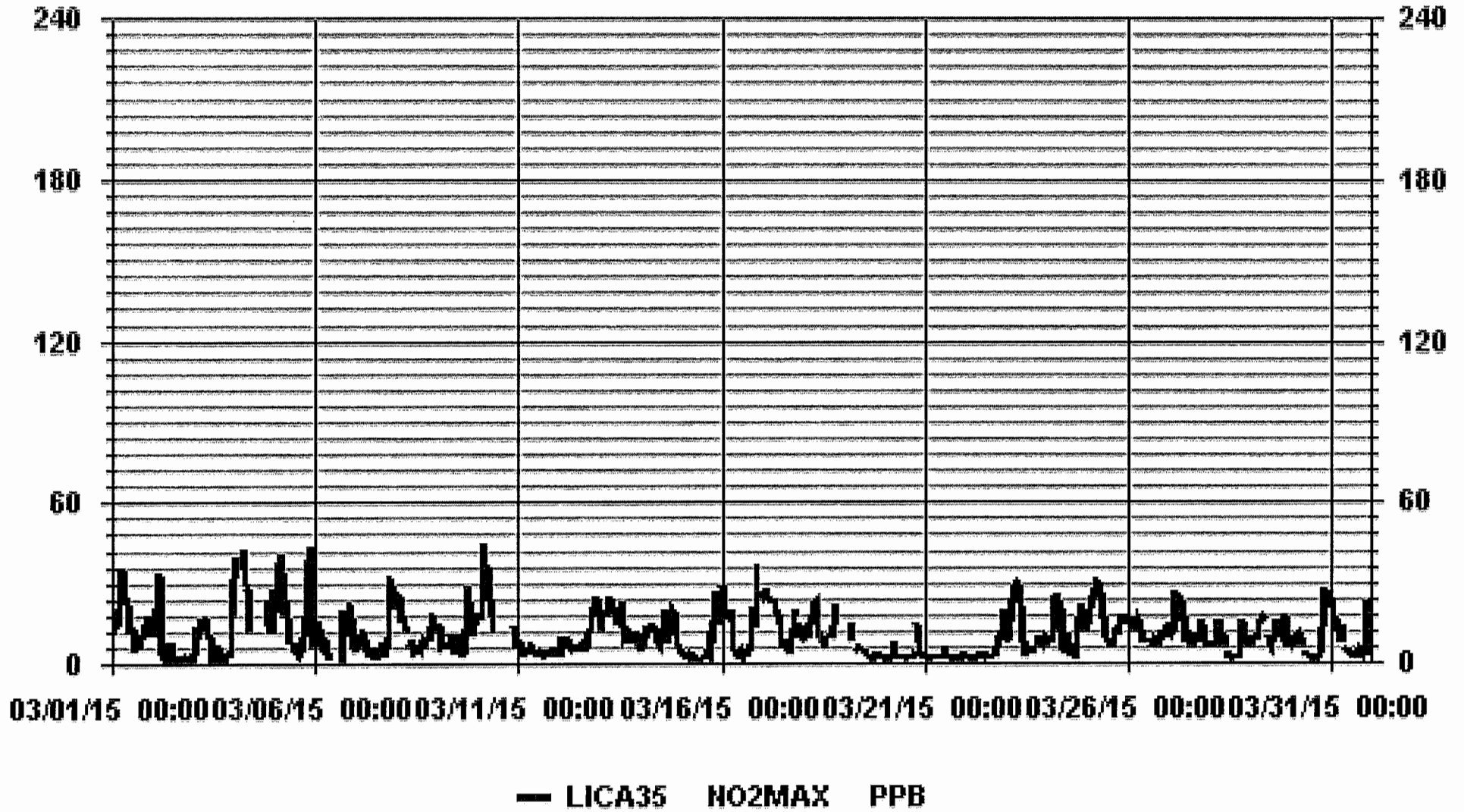
STATUS FLAG CODES

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:	679
MAXIMUM INSTANTANEOUS VALUE:	43.9 PPB @ HOUR(S) 21 ON DAY(S) 5
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	20 HRS
STANDARD DEVIATION:	8.53
OPERATIONAL TIME:	731 HRS

01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.25	2.05	3.37	11.45	14.68	8.37	7.19	2.34	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	1.32	1.32	2.79	4.55	14.09	11.74	7.34	3.08	4.25	2.05	3.37	11.45	14.68	8.37	7.19	2.34	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	9	9	19	31	96	80	50	21	29	14	23	78	100	57	49	16	681
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	9	9	19	31	96	80	50	21	29	14	23	78	100	57	49	16	

Calm : .00 %





Total # Operational Hours : 681

Logger : 35 Parameter : NO2_

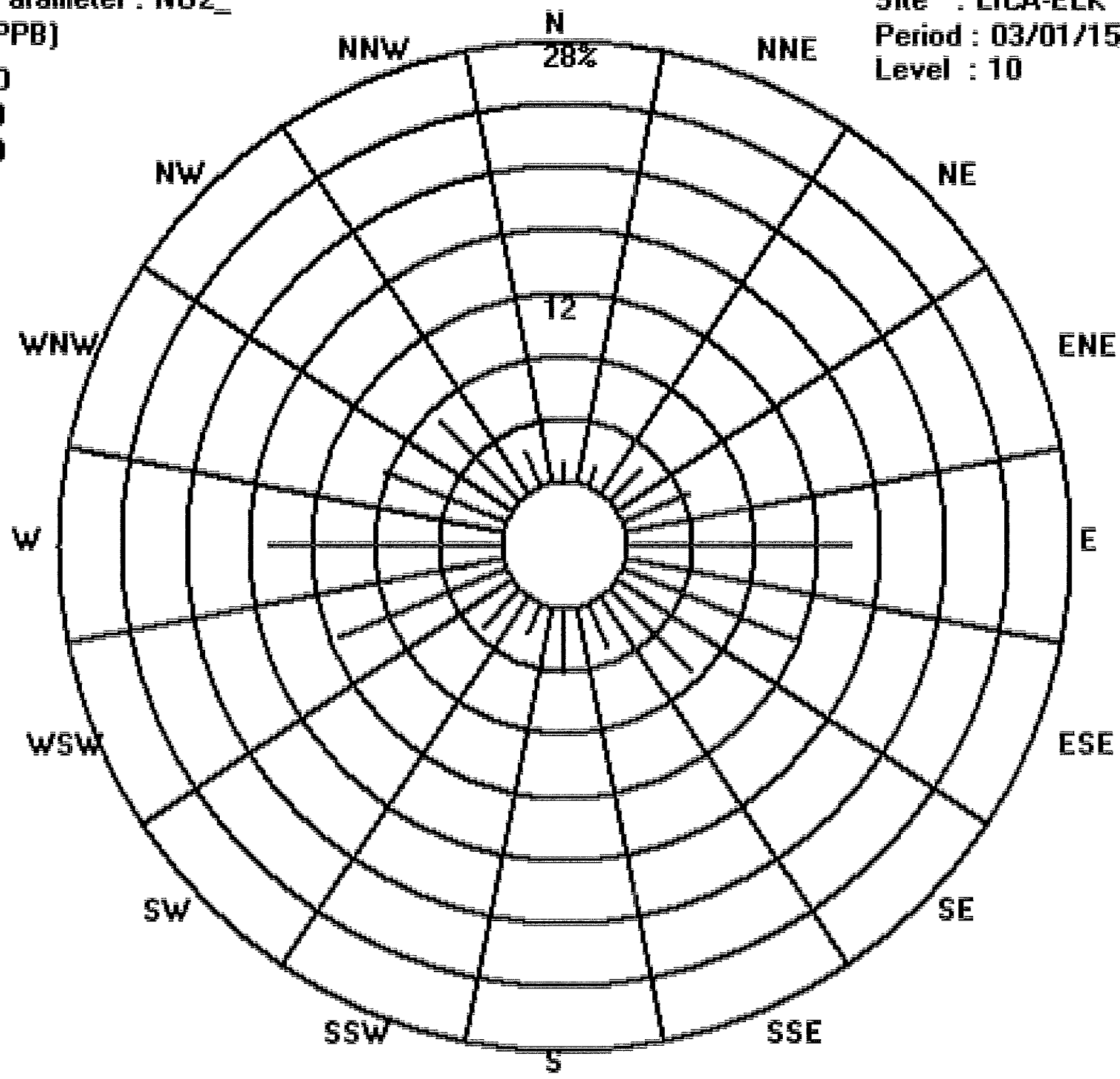
Site : LICA-ELK

Class Limits (PPB)

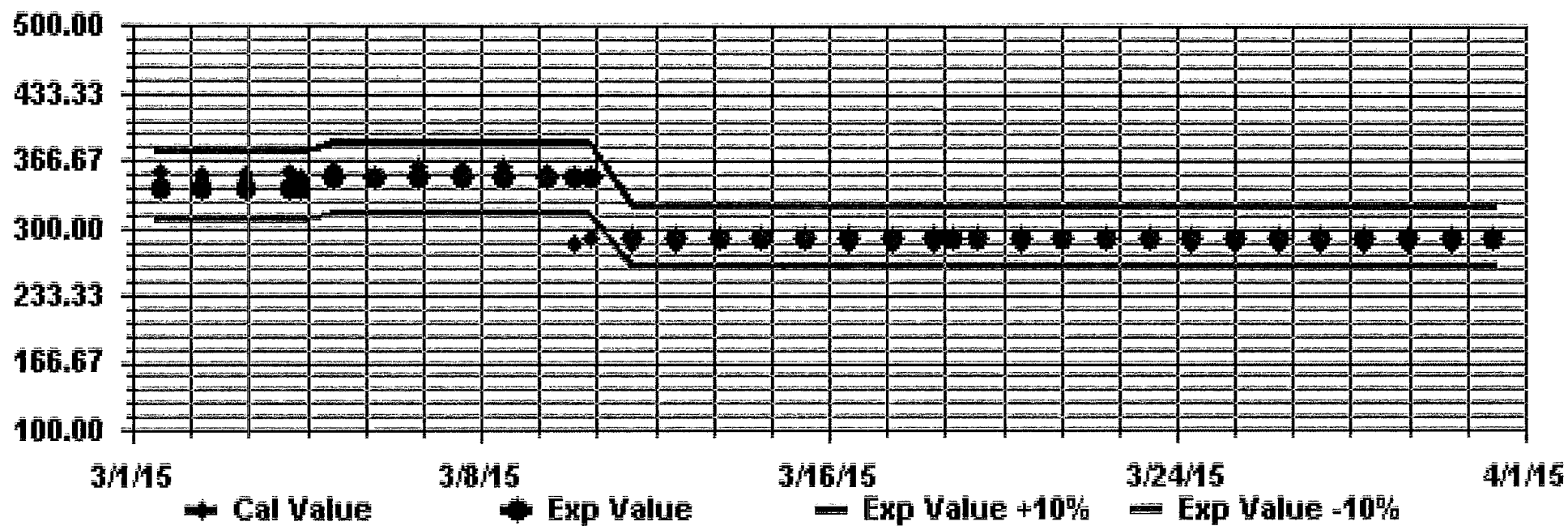
Period : 03/01/15-03/31/15

-  ≥ 210.0
-  < 210.0
-  < 110.0
-  < 50.0

Level : 10



Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN



OZONE

OZONE (O3) hourly averages in ppb

MST

HOURLY 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			
HOURLY 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	27	28	28	26	22	17	3	8	13	18	25	26	33	39	S	41	41	38	37	36	35	32	32	31	41	27.7	24		
2	31	28	27	25	17	38	40	40	39	39	36	37	37	S	39	41	40	40	40	39	39	39	40	40	41	36.1	24		
3	39	39	34	34	31	33	32	29	36	39	40	41	S	41	41	41	40	40	40	38	37	36	36	28	41	36.8	24		
4	16	7	1	1	1	1	2	11	18	23	26	S	36	37	38	38	39	39	35	31	27	28	31	23	39	22.1	24		
5	22	21	20	14	3	7	24	21	28	35	C	C	C	C	C	45	46	45	43	40	34	23	19	40	39	46	28.5	24	
6	34	32	32	34	34	32	31	35	37	S	P	P	P	P	P	38	31	34	34	25	30	31	26	34	38	32.4	19		
7	34	30	32	30	28	28	33	35	S	37	38	37	39	41	41	40	44	42	40	35	26	23	27	26	44	34.2	24		
8	32	27	28	28	26	30	28	S	35	35	37	39	41	41	44	44	44	44	40	38	38	30	27	28	44	35.0	24		
9	30	32	35	34	35	33	S	31	32	32	34	35	34	36	42	41	38	39	33	37	34	32	30	32	42	34.4	24		
10	27	29	28	23	16	S	11	19	23	32	37	38	38	39	38	37	36	34	24	25	24	26	27	30	39	28.7	24		
11	28	29	31	31	S	32	32	32	32	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	34	35	35	32.1	13
12	35	32	34	S	28	27	S	32	32	31	31	30	29	29	30	29	30	25	23	12	10	3	3	6	35	24.6	24		
13	9	6	S	1	1	1	2	6	5	12	22	26	29	29	37	33	29	26	28	26	24	21	18	22	37	18.0	24		
14	21	S	19	18	15	14	16	13	15	15	21	30	30	30	32	28	32	24	17	13	14	24	25	31	32	21.6	24		
15	S	33	34	35	33	32	33	34	34	35	36	36	36	36	37	37	37	33	33	25	12	15	18	S	37	31.5	24		
16	1	11	14	25	25	29	23	31	31	33	34	35	37	38	38	38	38	34	31	23	24	8	S	3	38	26.3	24		
17	6	5	3	3	2	1	1	2	4	6	12	22	28	31	32	32	35	33	24	18	18	S	18	16	35	15.3	24		
18	17	15	14	14	10	9	4	4	11	13	17	21	26	27	21	20	22	24	19	13	P	P	P	P	27	16.1	20		
19	P	P	P	P	29	25	S	24	28	28	29	29	30	34	36	37	37	37	37	S	S	35	34	35	37	32.2	20		
20	36	38	37	37	37	38	32	36	36	29	32	37	37	37	38	38	39	37	S	25	32	33	34	35	39	35.2	24		
21	36	36	36	35	34	34	34	33	34	34	34	32	32	34	32	31	31	S	32	32	32	31	31	31	36	33.1	24		
22	31	31	32	32	31	31	30	29	29	30	30	31	31	32	32	32	S	31	28	23	18	19	19	16	32	28.2	24		
23	24	24	16	6	2	1	1	4	10	18	29	31	25	22	21	S	21	21	26	24	23	24	23	21	31	18.1	24		
24	20	17	16	14	13	8	3	7	15	26	29	29	21	24	S	28	27	29	27	23	24	29	25	26	29	20.9	24		
25	24	20	16	16	6	3	2	5	14	21	26	28	29	S	35	34	33	35	31	26	24	21	20	17	35	21.1	24		
26	20	17	20	21	21	20	19	25	26	25	26	26	S	28	30	31	31	31	30	24	23	18	13	13	31	23.4	24		
27	11	8	8	2	1	1	1	4	4	12	23	S	27	31	30	35	36	36	29	25	24	26	24	23	36	18.3	24		
28	22	18	17	15	12	8	12	14	15	19	S	30	33	37	37	35	37	37	30	22	23	23	19	20	37	23.3	24		
29	21	20	16	18	10	7	2	3	6	S	22	27	34	33	32	28	27	28	28	29	23	33	23	22	34	21.4	24		
30	25	22	19	17	19	22	24	26	S	35	38	39	42	45	47	47	47	44	29	18	6	6	12	12	47	27.9	24		
31	11	13	17	16	20	23	22	S	32	33	34	35	37	38	38	37	37	37	36	33	21	21	24	28	38	28.0	24		
HOURLY MAX	39	39	37	37	37	38	40	40	39	39	40	41	42	45	47	47	47	44	40	39	39	39	40	40					
HOURLY AVG	23.8	23.0	22.9	20.9	18.7	19.5	17.8	20.4	23.2	26.6	29.6	31.8	32.7	34.2	35.7	35.8	35.3	34.3	31.1	26.6	25.2	24.8	25.3	24.9					

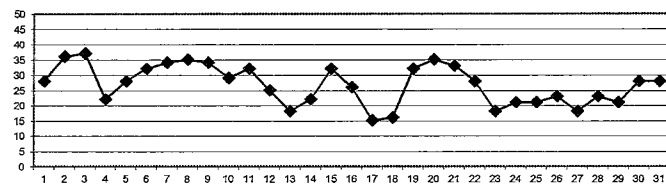
STATUS FLAG CODES

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: 1-HR: 32 PPB

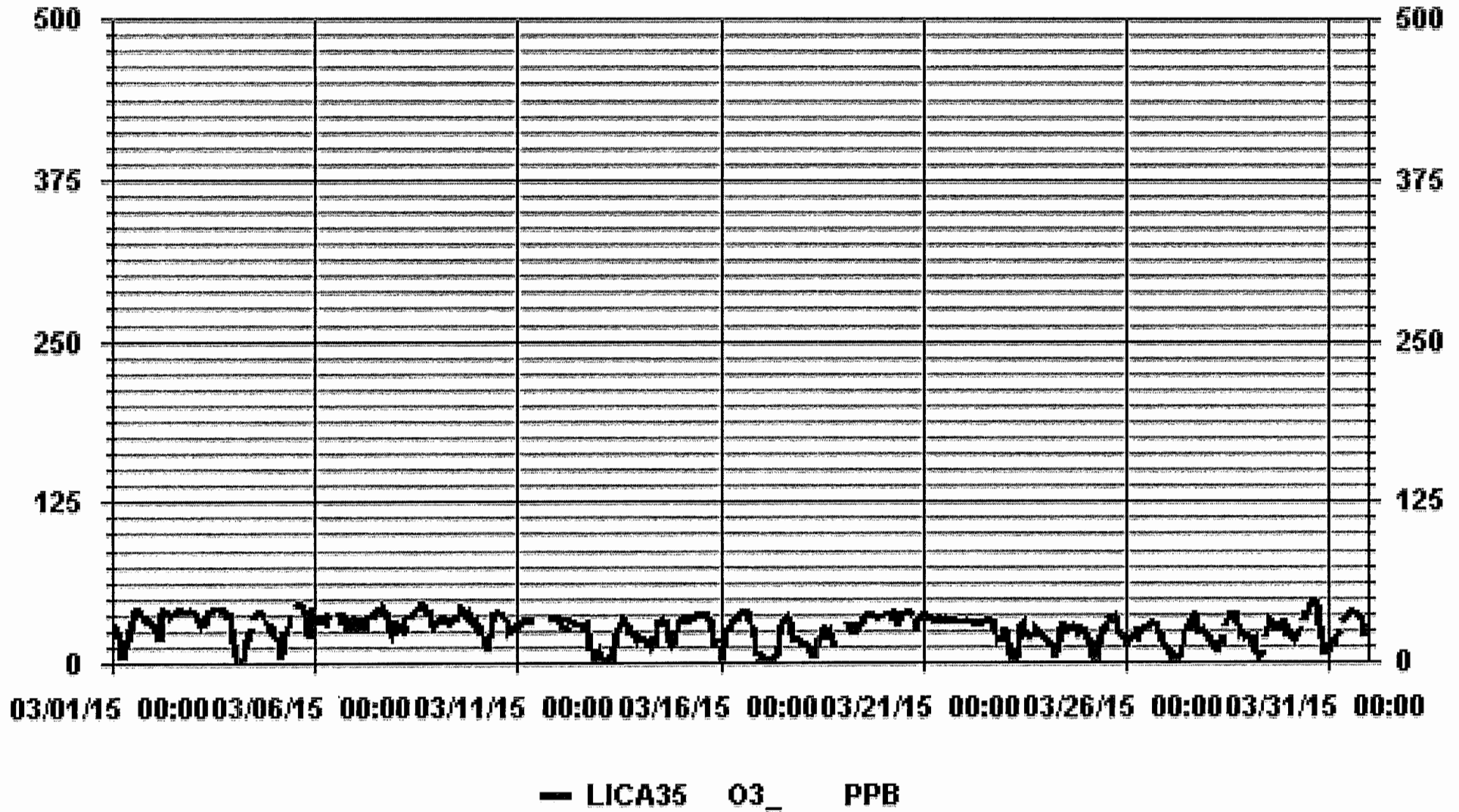
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	684			
MAXIMUM 1-HR AVERAGE:	47	PPB	@ HOUR(S)	VAR
MAXIMUM 24-HR AVERAGE:	36.8	PPB	ON DAY(S)	30
			ON DAY(S)	VAR-VARIOUS
I2S CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	96.8
STANDARD DEVIATION:	10.65		MONTHLY AVERAGE:	27
				PPB

01 Hour Averages





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- C

OZONE MAX instantaneous maximum in ppb

MST

DAY	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 MAX	24-HOUR AVG.	RDGS.
1	30	31	31	32	27	23	9	17	16	23	26	31	39	40	S	43	41	41	39	39	38	36	35	34	43	31.3	24
2	34	31	29	29	36	39	41	40	40	38	38	37	S	41	42	41	41	41	40	40	40	41	41	41	42	38.3	24
3	41	41	41	37	35	39	37	37	39	40	42	42	S	42	42	42	42	41	41	40	38	37	37	36	42	39.5	24
4	25	13	2	2	4	3	6	15	22	25	28	S	37	38	39	40	40	40	39	35	33	33	32	28	40	25.2	24
5	26	26	25	21	8	22	26	27	34	37	C	C	C	C	C	48	47	47	43	43	35	32	42	41	48	33.2	24
6	37	35	39	38	37	34	34	37	38	S	P	P	P	P	P	39	38	38	39	32	35	34	31	36	39	36.2	19
7	36	33	34	33	32	32	35	37	S	39	39	40	42	42	43	44	45	44	42	37	33	31	31	35	45	37.3	24
8	35	35	33	32	31	32	31	S	36	37	39	42	42	43	46	47	46	46	45	40	42	33	31	31	47	38.0	24
9	34	35	36	36	37	34	S	33	33	35	36	37	37	40	46	45	41	43	40	40	39	35	35	37	46	37.6	24
10	36	34	33	32	22	S	27	25	30	39	39	40	39	40	40	39	40	37	34	29	29	28	31	31	40	33.7	24
11	31	32	32	32	S	33	33	33	34	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	35	36	36	36	36	33.6	13
12	36	35	35	S	29	30	S	S	33	32	33	32	31	31	32	31	31	28	26	20	15	6	4	10	36	26.7	24
13	10	9	S	4	3	1	7	11	7	19	26	31	33	36	40	38	34	30	29	28	26	25	22	23	40	21.4	24
14	22	S	20	20	18	17	17	18	17	18	27	34	34	34	35	34	34	31	27	18	20	26	29	35	35	25.4	24
15	S	35	36	36	35	35	35	35	36	36	37	37	38	37	38	38	38	37	36	35	17	21	21	S	38	34.0	24
16	1	16	18	30	32	32	32	32	32	34	36	37	39	39	40	40	39	36	35	27	28	19	S	4	40	29.5	24
17	9	7	5	4	4	2	2	4	5	9	17	27	29	33	34	33	37	36	30	23	21	S	22	19	37	17.9	24
18	19	16	17	15	15	13	7	9	12	16	19	25	29	30	25	23	26	29	23	18	P	P	P	P	30	19.3	20
19	P	P	P	P	32	29	S	S	28	28	30	30	34	37	39	39	38	38	S	S	36	35	36	36	39	34.3	20
20	37	39	38	38	38	39	38	38	39	32	37	37	38	38	39	39	39	39	S	30	34	34	35	36	39	37.0	24
21	37	37	36	36	35	34	35	34	34	35	35	33	34	35	33	31	32	S	32	33	33	32	32	32	37	33.9	24
22	32	32	32	32	32	31	31	29	30	31	31	31	32	32	33	33	S	31	31	26	20	21	21	23	33	29.4	24
23	26	26	22	10	3	2	2	14	19	29	31	32	33	24	22	S	23	24	29	26	24	25	24	24	33	21.5	24
24	21	19	17	15	16	14	5	9	25	29	30	34	32	30	S	34	33	34	31	28	29	33	27	27	34	24.9	24
25	27	22	22	23	7	5	3	7	19	28	28	30	31	S	36	35	38	37	37	29	28	23	24	22	38	24.4	24
26	27	25	22	23	24	24	22	27	27	26	27	S	29	32	32	32	32	32	32	27	26	22	15	17	32	26.0	24
27	15	10	10	8	1	1	1	6	6	20	27	S	34	33	34	37	40	41	34	28	28	28	26	24	41	21.4	24
28	24	21	18	18	16	12	15	17	19	23	S	31	37	41	40	37	39	39	32	30	26	26	21	22	41	26.3	24
29	23	22	20	21	14	9	3	4	8	S	24	32	36	37	35	34	30	34	32	33	33	36	29	24	37	24.9	24
30	26	26	22	19	21	24	25	29	S	37	40	43	45	47	48	49	49	48	42	22	11	11	16	17	49	31.2	24
31	14	16	18	21	23	25	25	S	34	36	37	37	38	39	39	39	39	39	38	36	31	24	27	29	39	30.6	24
HOURLY MAX	41	41	41	38	38	39	41	40	40	42	43	45	47	48	49	49	49	48	45	43	42	40	42	41			
HOURLY AVG	26.6	26.2	25.6	24.0	22.2	22.3	20.9	23.1	25.9	29.8	31.8	34.2	35.8	36.4	37.3	38.1	37.7	37.3	35.1	30.8	29.4	28.3	28.0	27.9			

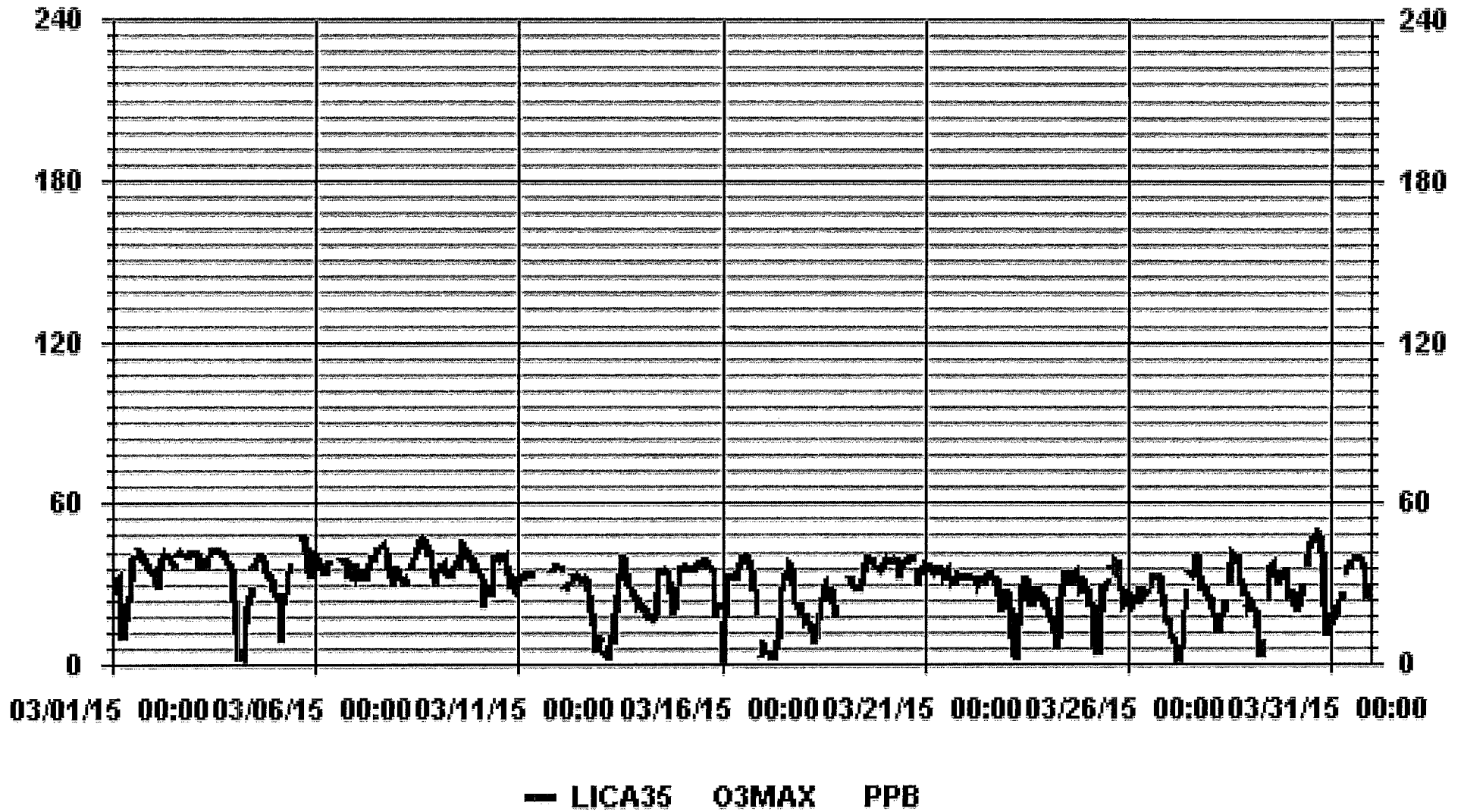
STATUS FLAG CODES

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:	681
MAXIMUM INSTANTANEOUS VALUE:	49 PPB @ HOUR(S) 15, 16 ON DAY(S) 30, 30
	VAR-VARIOUS
IZS CALIBRATION TIME:	34 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION:	10.26

01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	1.75	1.31	2.92	4.67	14.03	11.25	7.30	3.65	4.23	2.04	3.36	11.40	14.18	8.33	7.16	2.33	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	1.75	1.31	2.92	4.67	14.03	11.25	7.30	3.65	4.23	2.04	3.36	11.40	14.18	8.33	7.16	2.33	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	12	9	20	32	96	77	50	25	29	14	23	78	97	57	49	16	684
< 110																	
< 210																	
>= 210																	
Totals	12	9	20	32	96	77	50	25	29	14	23	78	97	57	49	16	

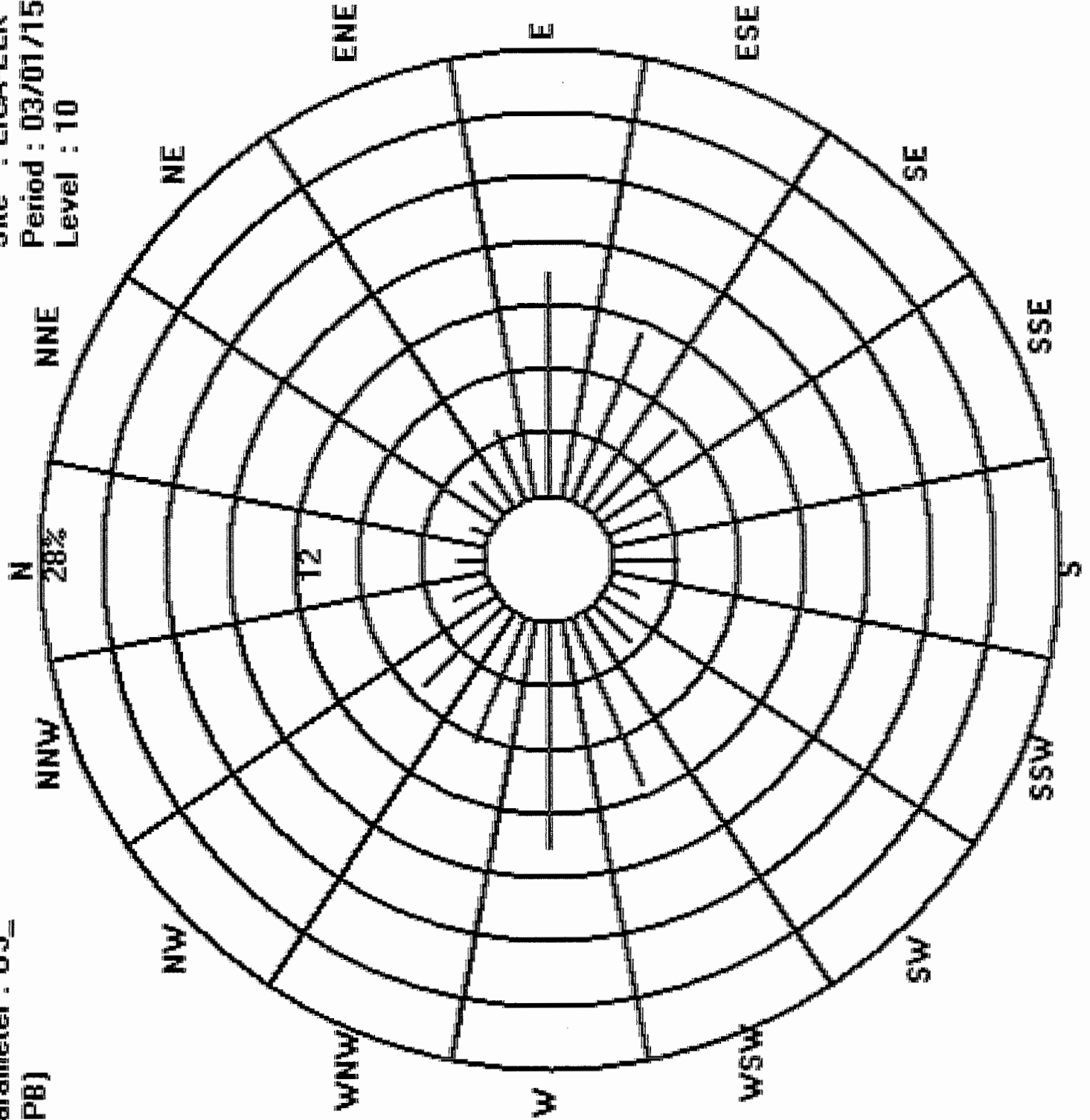
Calm : .00 %

Total # Operational Hours : 684

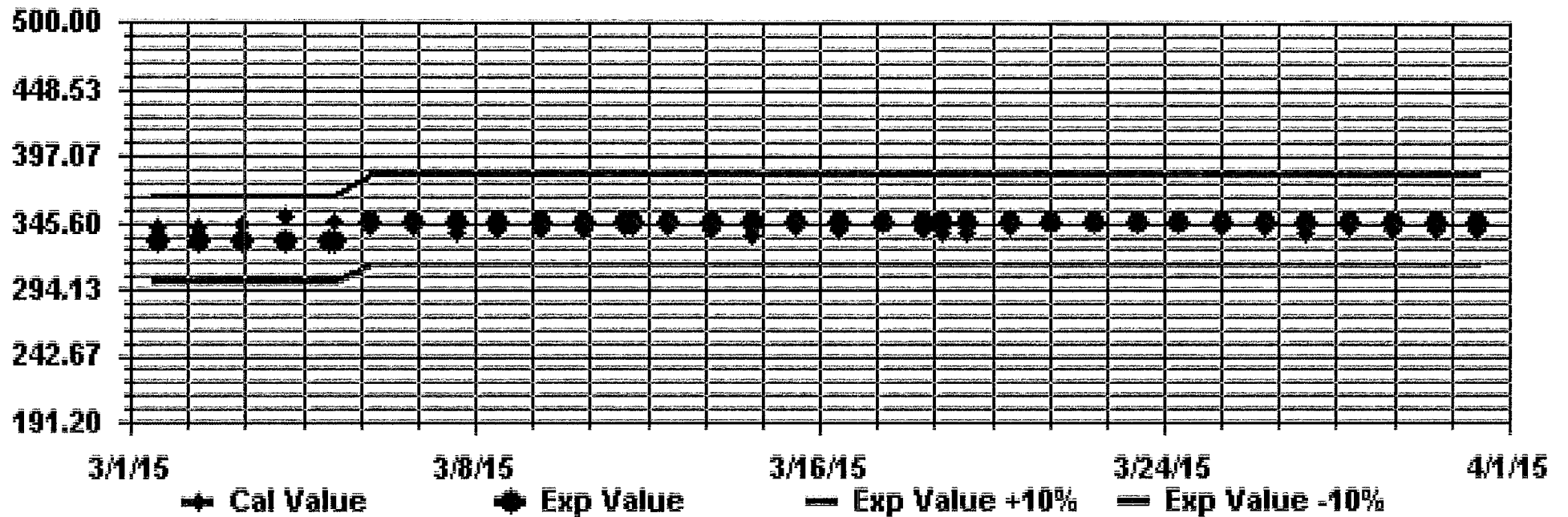
Logger : 35 Parameter : O3_
Class Limits (PPB)

☐ >= 210
▮ < 210
▮ < 110
▮ < 50

Site : LICA-ELK
Period : 03/01/15-03/31/15
Level : 10



Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: 03 Phase: SPAN



PARTICULATE MATTER 2.5

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	RDGS.	
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.		
DAY																												
1	0	7	0	0	2	1	1	2	0	11	8	4	9	5	13	X	7	9	12	17	6	11	9	4	17	6.0	23	
2	11	0	10	17	7	0	4	X	2	16	0	X	10	1	5	3	4	5	1	3	0	2	0	6	17	4.9	22	
3	2	3	3	1	2	1	2	0	0	2	4	0	0	6	0	1	1	2	1	0	1	4	1	2	6	1.6	24	
4	3	1	5	7	3	1	4	3	3	5	11	10	10	0	7	2	3	0	8	6	0	6	12	0	12	4.6	24	
5	1	3	0	4	11	9	20	4	9	6	3	5	11	5	C	0	X	5	0	3	10	7	X	8	20	5.9	22	
6	4	4	7	5	1	7	10	0	3	6	P	P	P	P	P	0	0	18	6	6	13	X	X	3	18	5.5	17	
7	7	2	0	0	3	20	10	0	0	0	2	X	X	X	X	3	0	4	0	9	11	3	11	14	20	5.0	20	
8	X	3	0	3	14	X	11	9	0	0	12	3	21	16	2	11	X	X	7	3	6	6	11	1	21	7.0	20	
9	14	15	5	8	2	1	1	2	1	X	X	X	13	0	15	X	5	0	X	0	0	3	3	6	15	4.9	19	
10	0	0	2	1	2	1	4	0	2	0	3	2	0	X	0	7	0	2	1	5	5	0	3	3	7	1.9	23	
11	5	5	0	7	1	3	1	2	0	2	C	C	C	C	C	4	5	3	4	3	0	4	7	6	7	3.3	24	
12	8	4	3	0	8	6	6	8	9	11	10	9	10	9	9	10	8	9	8	9	12	12	10	12	12	8.3	24	
13	14	8	14	13	16	15	16	10	16	2	8	8	4	2	4	2	4	3	1	3	4	4	4	8	2	16	7.5	24
14	6	7	5	0	7	3	10	3	3	3	9	8	6	5	6	5	2	6	4	5	5	3	3	0	10	4.8	24	
15	0	X	0	0	2	1	1	3	0	0	0	0	2	5	3	0	1	0	0	3	3	1	0	1	5	1.1	23	
16	0	X	0	0	6	0	X	0	0	1	1	0	4	0	5	1	1	0	2	4	0	2	0	3	1	6	1.4	22
17	2	0	0	11	13	14	14	11	13	9	9	13	15	8	5	5	6	8	5	13	11	6	8	12	15	8.8	24	
18	13	13	12	8	9	4	12	13	10	7	7	9	6	3	4	5	0	0	2	5	P	P	P	P	13	7.1	20	
19	P	P	P	P	0	4	9	6	6	6	5	5	4	2	1	2	4	1	4	6	2	2	2	3	9	3.7	20	
20	2	0	0	1	1	0	7	4	0	C	0	1	0	11	X	0	0	8	2	0	4	3	4	3	11	2.3	23	
21	9	0	4	4	4	6	3	0	1	0	4	0	0	7	4	2	3	3	4	5	5	3	6	3	9	3.3	24	
22	2	0	2	7	3	0	0	1	5	4	0	3	7	2	5	2	6	8	4	6	6	4	3	8	8	3.7	24	
23	6	6	4	0	0	9	3	3	12	5	7	8	4	1	8	8	5	6	9	6	5	3	5	4	12	5.3	24	
24	4	4	5	3	4	6	5	4	7	5	6	5	5	7	9	3	6	1	12	7	10	11	12	14	14	6.5	24	
25	13	18	19	19	19	12	20	19	15	18	16	16	18	16	18	20	18	20	22	20	20	23	18	19	23	18.2	24	
26	17	11	19	19	16	20	15	15	19	18	15	18	18	13	13	17	11	6	12	10	6	13	8	15	20	14.3	24	
27	11	12	13	11	12	12	15	13	11	12	7	6	9	7	10	4	7	7	8	12	12	11	6	8	15	9.8	24	
28	12	11	9	11	9	6	10	9	6	9	5	4	3	1	6	4	3	2	5	4	4	0	4	1	12	5.8	24	
29	3	2	0	3	5	5	7	8	4	2	5	0	4	2	1	7	2	0	4	0	2	0	0	4	8	2.9	24	
30	0	0	4	5	0	2	0	3	2	1	0	0	2	1	1	1	3	4	2	4	2	2	4	4	5	2.0	24	
31	5	3	4	6	6	5	3	0	3	1	0	3	2	0	0	4	2	1	7	5	6	8	4	0	8	3.3	24	
HOURLY MAX	17	18	19	19	19	20	20	19	19	18	16	18	21	16	18	20	18	20	22	20	20	23	18	19				
HOURLY AVG	6.0	5.1	5.0	6.0	5.9	6.0	7.2	5.2	5.3	5.6	5.6	5.5	6.9	5.2	5.8	4.6	4.0	4.8	5.3	5.7	5.8	5.3	5.9	5.6				

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

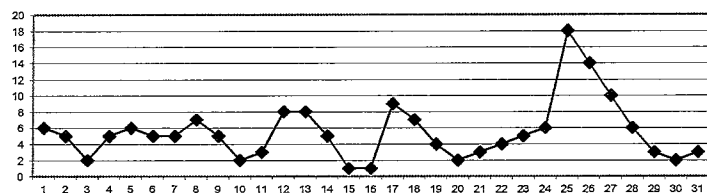
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR (30) ug/m3

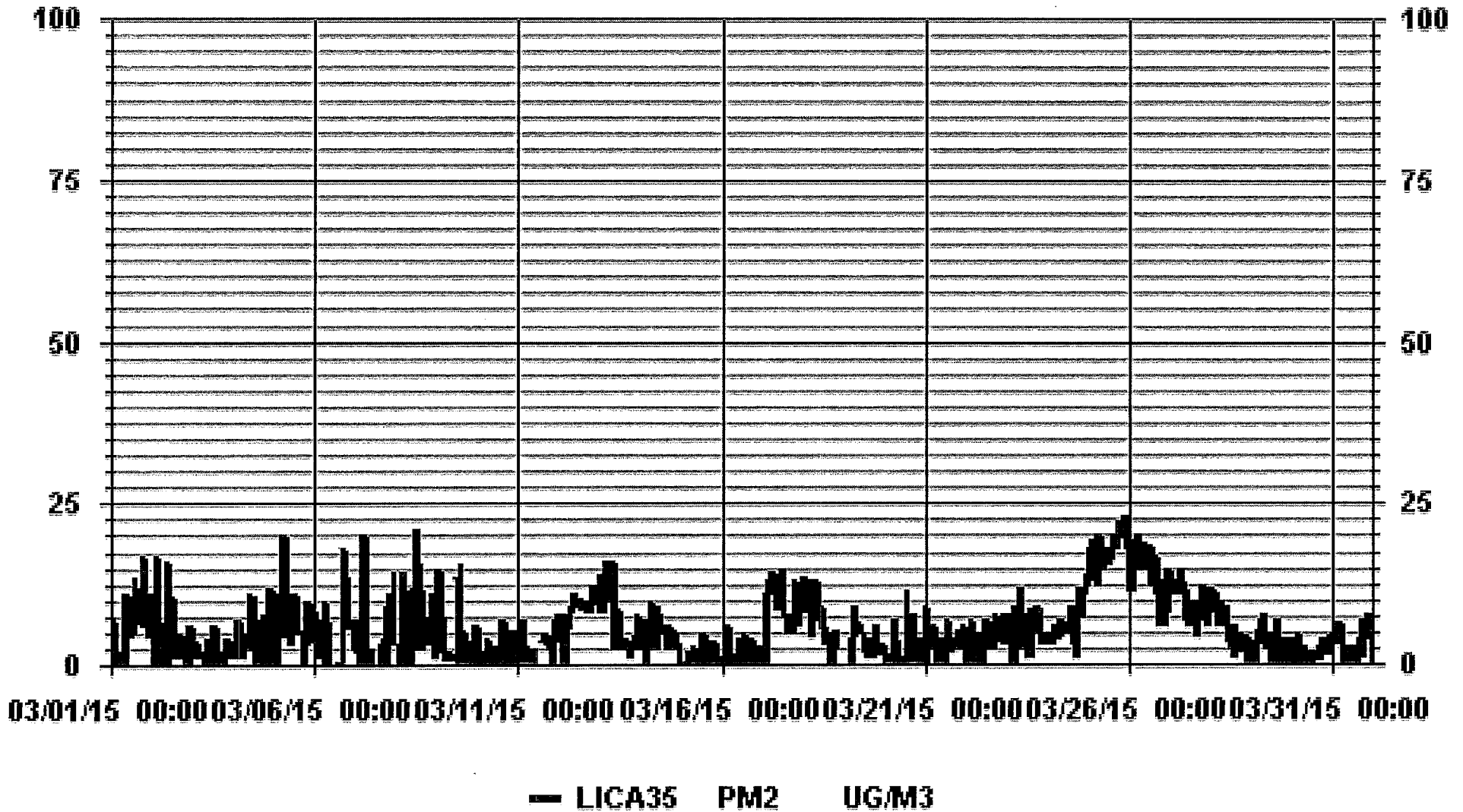
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	582		
MAXIMUM 1-HR AVERAGE:	23 ug/m3 @ HOUR(S)	21	ON DAY(5) 25
MAXIMUM 24-HR AVERAGE:	18.2 ug/m3		ON DAY(5) 25
			VAR-VARIOUS
MONTHLY CALIBRATION TIME:	7 HRS	OPERATIONAL TIME:	706 HRS
STANDARD DEVIATION:	5.08	AMD OPERATION UPTIME:	94.9 %
		MONTHLY AVERAGE:	5.5 ug/m3

24 HOUR AVERAGES FOR MARCH 2015



01 Hour Averages



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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	1.71	1.28	2.86	4.72	13.73	11.87	8.29	3.71	4.29	2.00	3.43	10.87	12.87	8.72	7.29	2.28	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	1.71	1.28	2.86	4.72	13.73	11.87	8.29	3.71	4.29	2.00	3.43	10.87	12.87	8.72	7.29	2.28	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

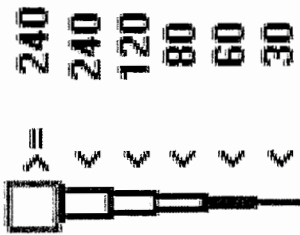
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	12	9	20	33	96	83	58	26	30	14	24	76	90	61	51	16	699
< 60																	
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	12	9	20	33	96	83	58	26	30	14	24	76	90	61	51	16	

Calm : .00 %

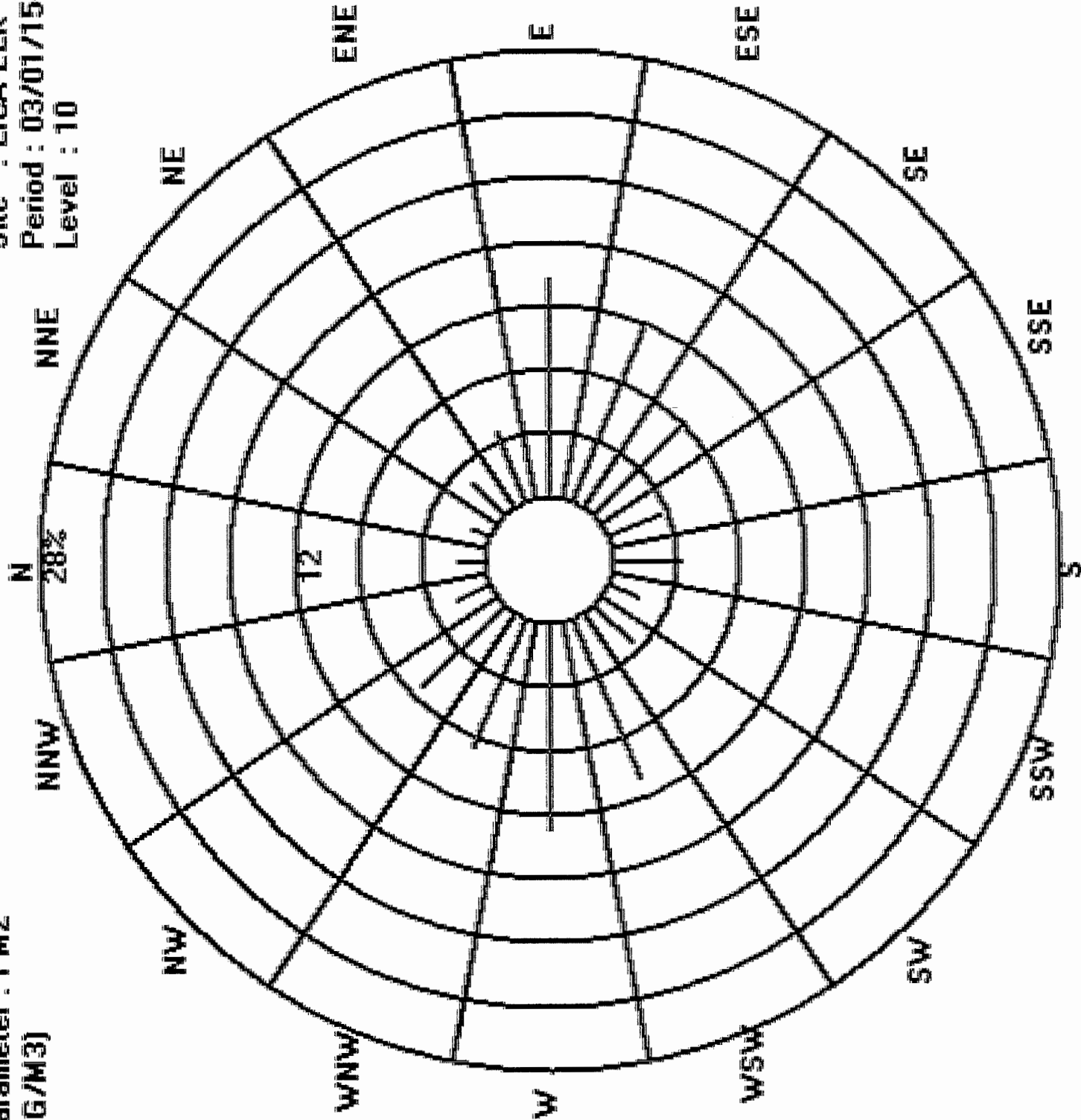
Total # Operational Hours : 699

Logger : 35 Parameter : PM2

Class Limits (UG/M3)



Site : LICA-ELK
Period : 03/01/15-03/31/15
Level : 10



WIND SPEED



WIND SPEED (WS) hourly averages in km/hr

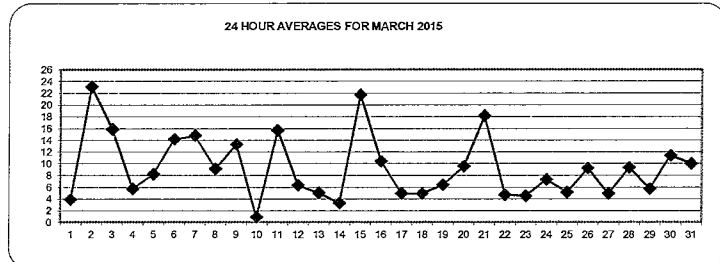
MST																										DAILY	24-HOUR	
DAY	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.
DAY	HOUR END	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59			
1		9.4	11.4	11.8	12.7	8.4	7.2	4.9	2.9	0.4	4.8	5.2	7.7	8.9	10.2	8.3	12.9	12.9	11.9	11.4	12.2	5.9	6.7	6.5	6.2	12.9	8.4	24
2		7.4	6.0	1.8	4.7	10.7	24.7	40.3	27.3	28.3	27.1	34.7	33.4	31.4	34.3	38.9	36.8	33.2	30.6	27.5	25.8	21.2	23.2	24.0	17.6	40.3	24.6	24
3		16.8	17.7	19.0	13.5	16.9	16.7	13.4	9.8	15.4	21.0	26.8	26.3	25.3	27.9	27.9	27.1	26.3	21.6	14.4	12.4	7.5	8.6	7.0	5.6	27.9	17.7	24
4		2.1	4.2	4.2	1.3	3.2	3.0	5.3	5.0	6.1	6.4	6.8	7.3	9.2	11.7	12.5	12.4	11.7	13.1	11.5	10.6	6.3	4.4	5.9	4.4	13.1	7.0	24
5		2.5	1.9	0.6	2.9	7.7	6.3	8.2	8.8	8.8	17.4	18.1	17.7	16.2	15.4	12.9	9.1	10.6	12.2	10.5	8.7	1.1	5.3	8.3	7.0	18.1	9.1	24
6		4.5	5.5	14.7	14.8	12.2	13.5	9.8	28.8	35.1	25.4	P	P	P	P	P	20.5	19.9	18.9	15.2	8.2	11.0	7.5	7.3	10.6	35.1	14.9	19
7		13.0	10.0	10.9	6.8	8.3	10.3	20.6	19.1	21.4	22.6	19.7	17.3	23.0	23.0	26.4	21.0	19.7	17.3	14.3	6.8	10.9	10.5	6.0	11.8	26.4	15.4	24
8		4.9	6.8	9.3	10.9	14.3	10.8	8.3	9.1	11.3	13.1	9.2	9.3	10.0	6.9	13.0	12.5	14.4	11.8	13.2	10.9	8.7	5.6	2.6	3.6	14.4	9.6	24
9		16.5	11.8	15.7	17.7	17.7	18.0	16.4	14.1	16.3	16.7	15.4	16.7	15.3	15.4	20.1	14.7	8.1	11.8	10.8	11.1	9.4	9.0	12.4	11.7	20.1	14.3	24
10		9.9	10.6	12.2	5.9	8.8	4.3	9.0	4.9	3.8	6.9	8.7	10.0	6.0	9.6	9.0	7.6	7.0	8.6	8.3	10.0	8.7	5.5	6.2	9.6	12.2	8.0	24
11		10.4	12.4	13.4	13.0	13.5	13.5	16.0	20.2	21.8	20.9	23.6	22.5	22.2	22.7	21.5	20.5	18.0	16.6	16.7	11.9	11.8	10.1	8.8	7.3	23.6	16.2	24
12		6.1	5.1	3.8	4.3	8.3	10.4	10.5	11.9	11.9	13.2	11.4	6.7	11.0	9.1	7.6	6.5	5.3	6.1	6.1	6.3	6.2	0.7	2.9	6.8	13.2	7.4	24
13		3.9	4.4	0.4	1.1	1.4	4.9	5.8	0.0	2.9	1.2	4.1	11.2	8.5	14.0	11.4	10.1	12.4	11.7	14.5	13.4	12.0	7.8	6.7	9.5	14.5	7.2	24
14		8.7	10.3	7.0	9.5	10.0	6.2	9.7	8.4	6.6	6.7	1.2	9.0	10.6	9.9	7.2	10.5	1.8	4.8	7.5	3.3	10.4	18.5	23.0	35.6	35.6	9.9	24
15		35.6	38.6	39.1	41.6	48.6	41.5	33.7	34.9	32.4	23.3	21.9	17.0	18.5	18.2	18.7	15.4	13.4	9.8	7.7	5.0	3.8	6.6	7.3	4.3	48.6	22.4	24
16		2.1	8.6	10.1	10.1	14.9	14.7	13.2	10.7	13.2	11.8	12.5	13.4	15.3	19.1	20.6	18.8	17.0	12.8	8.4	7.6	5.7	5.5	3.9	1.6	20.6	11.3	24
17		1.4	3.0	3.6	0.7	0.1	2.1	3.0	1.4	5.2	4.4	6.7	7.0	9.9	8.9	8.0	11.9	8.8	8.4	10.8	8.9	8.1	11.0	8.6	6.3	11.9	6.2	24
18		3.2	2.5	3.9	4.3	6.7	7.0	6.8	7.6	6.5	6.9	3.9	8.6	13.8	14.7	11.0	10.9	12.0	7.9	6.3	5.7	P	P	P	P	14.7	7.5	20
19		P	P	P	P	13.8	16.8	13.3	15.0	13.8	10.3	9.9	8.5	6.0	5.6	6.6	8.2	9.2	8.9	6.3	6.1	5.8	6.3	10.6	13.9	16.8	9.7	20
20		14.6	15.7	11.5	8.0	9.6	8.5	5.2	7.5	9.4	7.0	4.5	4.1	6.6	5.6	7.4	8.2	8.2	10.2	12.3	12.3	15.3	16.5	16.0	16.1	16.5	10.0	24
21		16.3	16.1	15.7	18.7	18.4	19.0	16.9	17.3	18.3	21.3	19.7	22.4	23.5	20.8	19.0	19.1	18.8	17.9	15.4	17.9	19.8	17.6	13.8	12.4	23.5	18.2	24
22		11.2	12.6	12.3	10.6	10.8	9.7	7.0	8.4	8.6	4.9	6.3	11.2	8.9	6.9	6.8	5.5	2.8	1.8	0.2	0.5	3.7	3.5	3.7	6.2	12.6	6.8	24
23		7.5	3.1	0.9	2.0	4.5	1.1	0.8	0.6	2.7	6.0	9.8	11.3	10.1	12.9	9.4	10.9	11.0	11.4	8.8	5.1	4.3	3.0	2.6	1.4	12.9	5.9	24
24		1.6	1.8	1.0	1.2	2.7	4.0	5.9	5.9	8.5	8.0	8.0	10.5	12.5	13.5	14.3	13.6	12.7	11.9	9.3	11.3	13.3	9.3	9.1	6.9	14.3	8.2	24
25		9.1	12.4	7.1	6.8	1.7	4.1	6.2	7.7	9.0	9.1	9.5	11.7	10.8	12.2	12.7	11.4	10.1	7.4	7.7	5.0	5.5	4.6	5.6	4.9	12.7	8.0	24
26		6.1	7.5	5.3	7.0	8.5	6.5	9.3	10.8	11.2	12.5	10.2	11.3	13.7	12.4	13.1	15.1	13.0	12.4	9.7	6.6	6.4	5.4	4.8	5.1	15.1	9.3	24
27		3.6	1.3	1.2	7.8	3.5	1.7	5.3	6.0	1.7	1.7	0.2	1.8	6.9	10.7	12.6	15.5	11.2	9.6	10.8	12.9	13.3	13.8	10.8	12.9	15.5	7.4	24
28		13.0	11.0	9.1	5.7	1.6	8.6	15.0	9.9	10.8	16.0	18.2	13.4	15.0	17.4	20.5	25.0	23.7	20.5	15.0	6.8	10.6	10.1	9.5	9.3	25.0	13.2	24
29		10.0	8.7	7.6	4.1	0.3	1.4	2.1	3.7	4.4	7.5	4.9	4.4	8.9	11.1	12.0	11.5	11.9	10.7	8.6	12.7	15.5	16.0	10.5	10.1	16.0	8.3	24
30		10.6	9.5	4.7	2.0	2.5	4.3	8.8	16.5	23.9	30.4	27.0	19.6	20.1	23.1	23.2	20.2	23.9	17.8	4.7	4.1	0.6	4.1	4.7	5.4	30.4	13.0	24
31		8.7	9.7	5.9	8.9	13.3	16.5	15.0	18.8	21.9	25.8	23.9	23.1	21.5	18.3	18.3	20.0	18.6	17.8	13.1	8.0	7.2	20.5	26.5	30.5	30.5	17.2	24
HOURLY MAX		35.6	38.6	39.1	41.6	48.6	41.5	40.3	34.9	35.1	30.4	34.7	33.4	31.4	34.3	38.9	36.8	33.2	30.6	27.5	25.8	21.2	23.2	26.5	35.6			
HOURLY AVG		9.0	9.3	8.8	8.6	9.8	10.2	11.2	11.4	12.6	13.2	12.7	13.1	14.0	14.7	15.0	14.9	13.8	12.7	10.9	9.3	9.0	9.2	9.2	9.8			

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

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

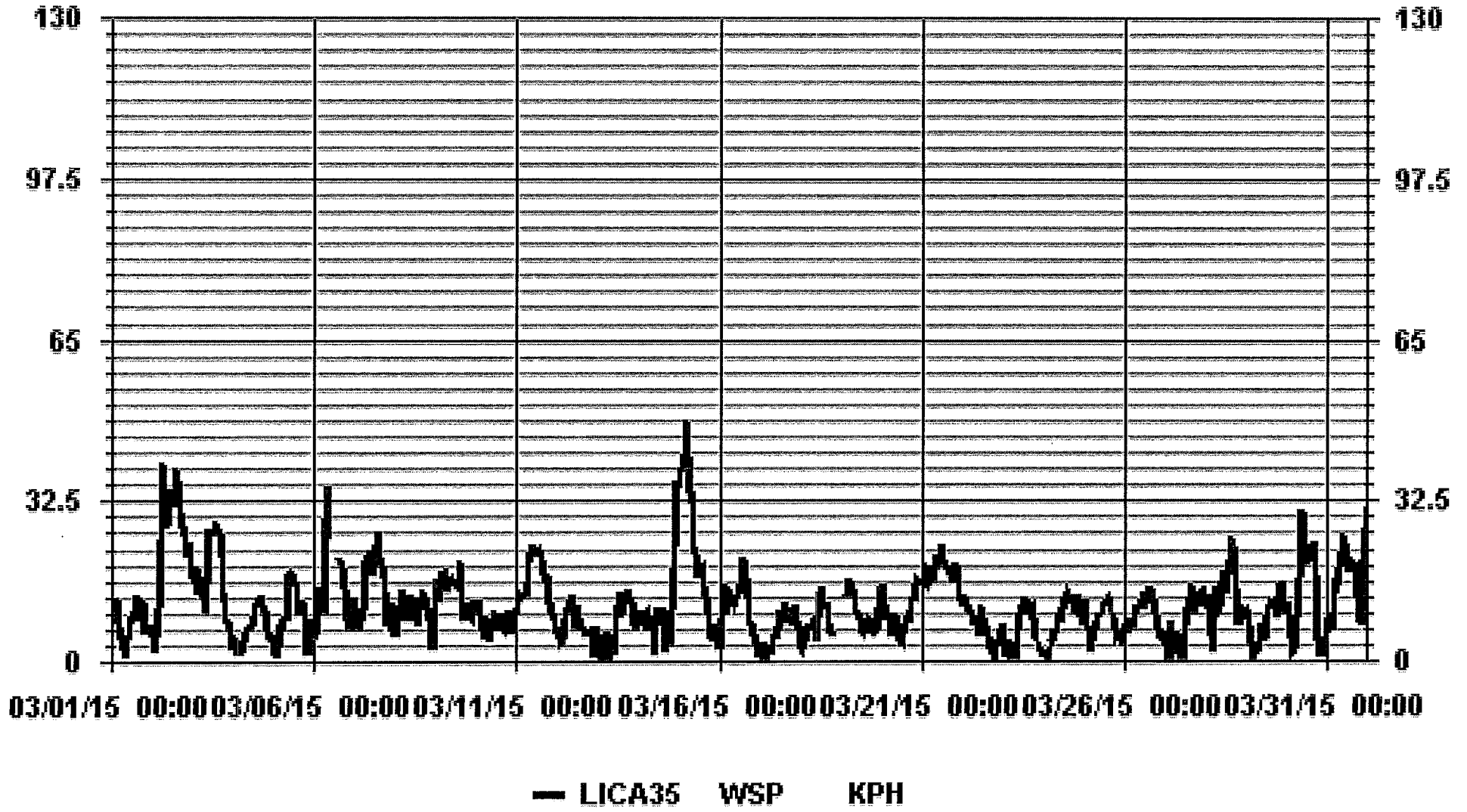
24 HOUR AVERAGES FOR MARCH 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	730
MAXIMUM 1-HR AVERAGE:	48.6 KPH @ HOUR(S) 4 ON DAY(S) 15
MAXIMUM 24-HR AVERAGE:	24.6 KPH ON DAY(S) 2
	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	0 HRS
OPERATIONAL TIME:	731 HRS
AMD OPERATION UPTIME:	98.3 %
STANDARD DEVIATION:	7.43
MONTHLY AVERAGE:	11.4 KPH

01 Hour Averages





VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	MAX.	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.	
1	14.0	20.3	20.1	17.9	14.9	11.0	12.7	9.7	5.5	6.9	7.2	11.5	15.0	18.3	16.2	22.3	22.7	22.6	19.3	18.4	11.5	12.7	9.9	9.0	22.7	14.6	24	
2	9.3	8.6	5.4	8.3	31.7	53.5	69.7	57.0	56.7	49.4	61.1	56.8	52.5	60.6	62.8	67.3	63.1	55.7	44.6	42.9	37.1	49.3	41.1	38.6	69.7	45.1	24	
3	28.6	30.0	29.7	22.0	27.5	27.3	22.9	18.9	33.0	37.0	45.7	44.4	42.5	44.9	45.6	47.2	47.0	43.5	26.3	26.9	14.1	13.9	15.8	9.9	47.2	31.0	24	
4	5.8	9.0	10.5	9.8	6.4	7.1	8.1	6.6	8.6	9.1	12.1	13.8	16.8	19.8	22.9	21.3	23.3	21.9	20.2	13.7	11.2	7.2	8.8	9.1	23.3	12.6	24	
5	5.1	4.6	3.6	8.8	12.6	19.3	17.0	15.8	14.9	24.6	24.9	24.2	20.9	22.2	21.9	15.2	21.3	21.2	17.6	15.2	5.0	19.1	18.0	18.8	24.9	16.3	24	
6	11.2	14.1	23.8	27.6	21.4	23.0	21.3	54.0	52.6	43.1	P	P	P	P	P	36.0	27.8	31.9	38.6	14.7	15.4	15.5	15.0	19.1	54.0	26.6	19	
7	23.0	18.9	20.0	14.8	18.9	22.6	30.9	28.6	34.4	34.6	30.4	27.3	32.6	39.4	39.8	32.0	39.8	36.0	23.9	19.0	20.4	17.5	11.8	20.4	39.8	26.5	24	
8	10.7	14.9	15.8	16.5	19.2	20.0	14.3	18.6	21.4	27.4	15.3	22.1	20.5	17.2	24.6	24.6	27.3	20.6	21.2	17.9	16.1	13.2	8.2	13.6	27.4	18.4	24	
9	26.9	24.6	23.9	27.2	26.1	26.2	26.2	23.7	25.9	27.5	27.0	29.9	32.5	27.5	53.5	44.9	18.5	18.9	17.1	18.4	16.8	15.7	20.3	19.9	53.5	25.8	24	
10	17.3	19.1	18.4	14.6	16.0	13.2	15.5	8.9	7.2	16.7	16.0	19.4	16.0	18.5	19.7	16.5	13.8	18.6	14.5	15.2	13.1	9.5	10.4	13.8	19.7	15.1	24	
11	15.7	18.5	18.8	21.0	22.8	21.4	23.3	31.3	31.5	35.4	35.5	33.3	34.2	35.8	34.0	31.2	28.1	27.6	33.7	24.3	20.8	22.8	16.9	13.7	35.8	26.3	24	
12	13.0	10.4	11.3	11.0	12.0	17.4	17.7	18.7	18.9	21.7	19.1	19.6	20.1	21.3	15.6	14.3	10.7	11.3	10.5	8.8	9.6	11.7	7.9	12.0	21.7	14.4	24	
13	10.4	10.6	4.2	6.3	7.9	10.3	9.3	9.6	8.4	6.2	15.6	19.0	17.3	20.6	28.6	20.5	21.2	19.2	23.6	23.9	18.8	17.7	18.2	16.5	28.6	15.2	24	
14	16.0	13.6	11.8	14.7	16.6	15.3	16.6	16.5	15.3	12.7	14.8	16.9	16.8	16.7	16.5	19.8	12.3	8.6	10.2	7.9	23.9	28.9	52.1	57.9	57.9	18.9	24	
15	57.6	59.9	65.7	64.1	76.3	71.4	63.1	56.1	49.5	41.1	35.9	29.4	36.0	29.1	27.3	24.0	19.3	16.3	11.0	7.0	5.8	8.6	9.4	8.5	76.3	36.4	24	
16	7.9	15.3	17.0	20.5	25.6	21.4	20.1	15.6	18.7	21.9	24.7	24.9	30.2	35.9	40.3	37.2	33.2	30.4	16.3	9.8	9.1	8.0	8.7	6.5	40.3	20.8	24	
17	6.7	7.3	6.7	5.8	4.7	6.3	5.7	7.1	9.0	8.8	15.3	14.8	18.1	18.4	19.1	20.8	16.9	15.5	15.1	12.4	12.5	17.2	15.0	10.5	20.8	12.1	24	
18	7.0	5.6	8.1	7.3	9.6	9.0	9.4	12.8	12.0	13.8	11.9	20.6	22.2	28.1	18.6	19.5	21.8	17.4	11.7	12.9	P	P	P	P	28.1	14.0	20	
19	P	P	P	P	20.7	23.4	23.1	22.8	23.9	21.8	19.2	17.5	18.5	16.4	14.9	16.4	18.0	18.0	14.8	11.9	14.0	16.5	22.6	24.3	24.3	18.9	20	
20	26.6	26.0	19.8	12.4	16.7	16.3	8.6	13.0	16.5	15.0	14.9	17.5	21.4	18.8	19.5	19.1	17.7	21.5	21.3	19.9	25.0	24.3	22.8	26.1	26.6	19.2	24	
21	27.8	27.2	26.2	32.6	29.2	27.4	28.2	28.5	30.9	37.1	33.5	35.9	36.8	33.3	32.0	33.0	31.8	31.7	27.1	30.9	34.2	29.3	24.7	24.6	37.1	30.6	24	
22	21.8	22.8	19.6	21.2	18.5	17.5	11.5	14.9	14.7	15.6	19.3	23.8	20.7	18.2	17.4	16.9	11.0	6.4	3.6	3.3	6.5	5.2	7.6	12.5	23.8	14.6	24	
23	13.2	9.7	8.1	4.9	9.6	8.4	4.8	5.6	7.8	19.4	18.4	22.1	22.5	22.3	17.3	18.5	17.0	18.0	15.9	11.4	8.7	8.0	5.9	4.8	22.5	12.6	24	
24	2.6	3.2	2.9	3.4	6.1	9.1	9.5	9.7	11.2	13.3	14.4	20.2	21.9	22.8	24.2	26.1	21.2	20.8	18.0	17.6	19.7	17.1	18.2	14.4	26.1	14.5	24	
25	15.8	14.8	13.5	8.4	6.1	7.3	9.2	12.3	13.8	15.1	16.9	18.2	20.7	20.8	25.0	18.8	18.4	12.6	13.1	8.0	8.2	7.1	9.1	7.1	25.0	13.3	24	
26	8.7	11.7	8.8	11.3	15.4	14.1	14.8	16.7	17.9	18.9	18.8	19.0	21.0	20.1	20.9	22.0	25.1	20.9	17.5	10.1	8.9	7.7	8.8	8.1	25.1	15.3	24	
27	7.0	3.8	5.0	12.9	7.9	6.9	10.9	12.1	5.5	8.2	8.7	12.1	19.0	21.3	21.4	23.3	19.6	18.5	18.5	19.6	19.2	20.3	16.9	19.2	23.3	14.1	24	
28	20.3	17.9	13.7	10.4	5.7	17.5	25.3	19.8	25.3	34.0	32.8	26.3	32.4	31.9	46.1	41.5	38.1	33.8	22.1	15.1	23.4	18.7	13.8	15.8	46.1	24.2	24	
29	17.6	17.1	17.5	17.5	4.3	4.4	5.3	7.2	8.9	16.3	10.2	14.8	18.3	21.9	22.5	18.9	19.3	20.1	15.0	29.1	77.4	55.5	19.8	21.0	77.4	20.0	24	
30	20.4	14.1	18.8	10.2	8.4	14.4	20.4	26.9	41.1	44.5	42.2	35.6	36.4	37.5	37.4	37.4	39.0	32.0	12.4	7.2	5.4	8.4	7.6	8.8	44.5	23.6	24	
31	12.5	15.3	10.3	15.3	21.9	24.4	25.1	28.7	44.4	40.2	37.5	36.3	36.1	34.7	32.8	31.0	29.6	27.9	24.9	16.4	23.9	43.2	58.0	49.2	58.0	30.0	24	
HOURLY MAX	57.6	59.9	65.7	64.1	76.3	71.4	69.7	57.0	56.7	49.4	61.1	56.8	52.5	60.6	62.8	67.3	63.1	55.7	44.6	42.9	77.4	55.5	58.0	57.9				
HOURLY AVG	16.0	16.3	16.0	16.0	17.4	18.9	19.4	20.2	22.1	23.8	23.3	24.2	25.7	26.5	27.9	27.0	25.0	23.2	19.3	16.4	17.9	18.3	17.4	17.8				

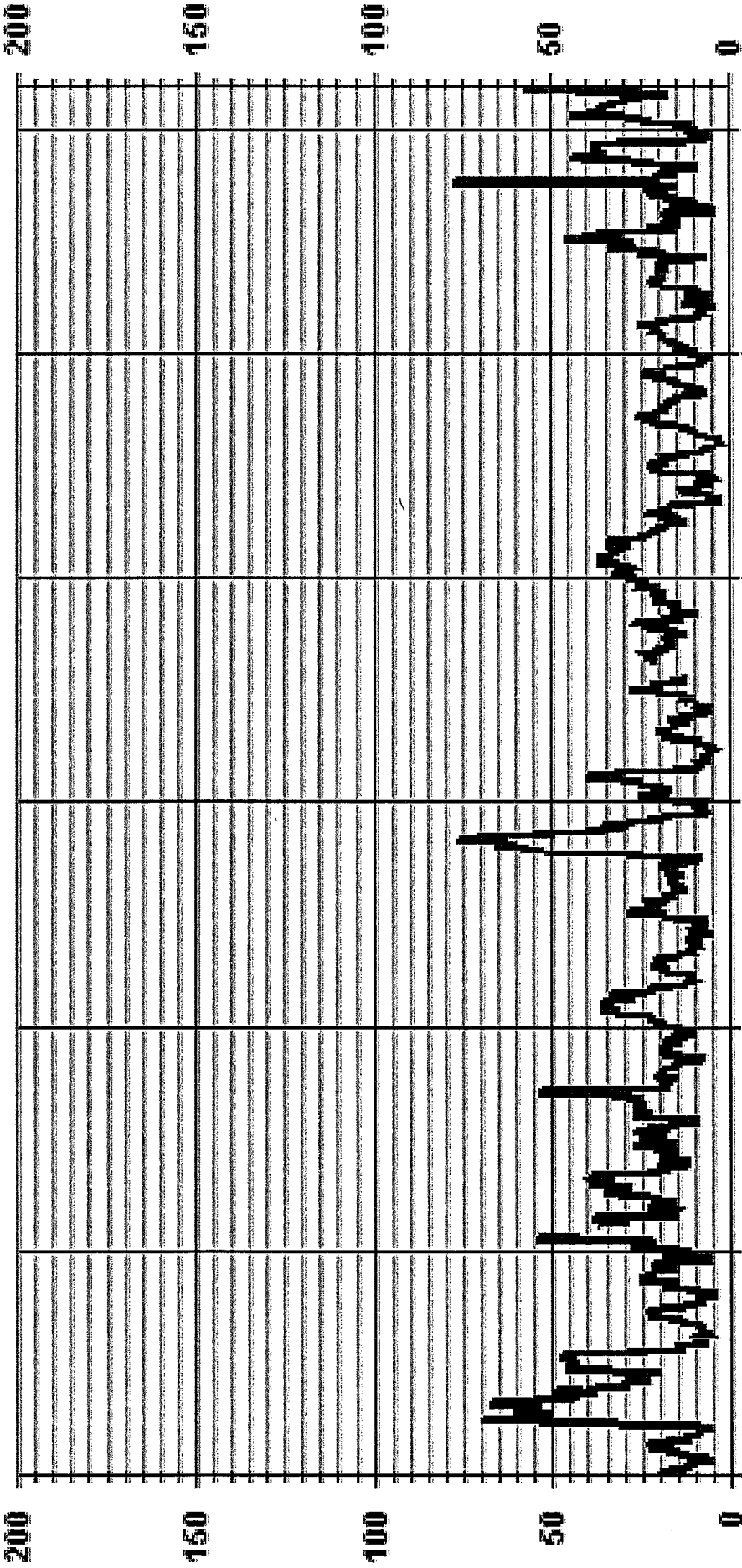
STATUS FLAG CODES

C	- CALIBRATION	O	- 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:	77.4	KPH	@ HOUR(S)	20	ON DAY(S)	29
VAR-VARIOUS						
OPERATIONAL TIME:	731	HRS				

01 Hour Averages



03/04/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA35 WSMAX KPH

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

March 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	.54	.68	.54	2.46	3.41	2.32	1.09	.54	.95	.82	1.23	1.64	2.87	1.36	1.09	.13	21.75
< 12.0	.95	.54	2.05	.82	5.88	5.47	4.37	2.59	2.32	.82	1.77	5.60	5.06	1.64	1.09	.54	41.58
< 20.0	.00	.00	.27	1.23	3.55	2.46	2.18	.54	.82	.27	.54	3.55	3.55	3.55	1.36	.68	24.62
< 29.0	.00	.00	.00	.00	.54	1.77	.27	.00	.00	.00	.00	.13	1.64	1.23	2.59	.68	8.89
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.54	.68	.95	.13	2.32
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.27	.00	.13	.68
Totals	1.50	1.23	2.87	4.51	13.40	12.03	7.93	3.69	4.10	1.91	3.55	10.94	13.95	8.75	7.11	2.32	

Calm : .13 %

Total # Operational Hours : 731

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	4	5	4	18	25	17	8	4	7	6	9	12	21	10	8	1	159
< 12.0	7	4	15	6	43	40	32	19	17	6	13	41	37	12	8	4	304
< 20.0			2	9	26	18	16	4	6	2	4	26	26	26	10	5	180
< 29.0					4	13	2					1	12	9	19	5	65
< 39.0													4	5	7	1	17
>= 39.0													2	2		1	5
Totals	11	9	21	33	98	88	58	27	30	14	26	80	102	64	52	17	

Calm : .13 %

Total # Operational Hours : 731

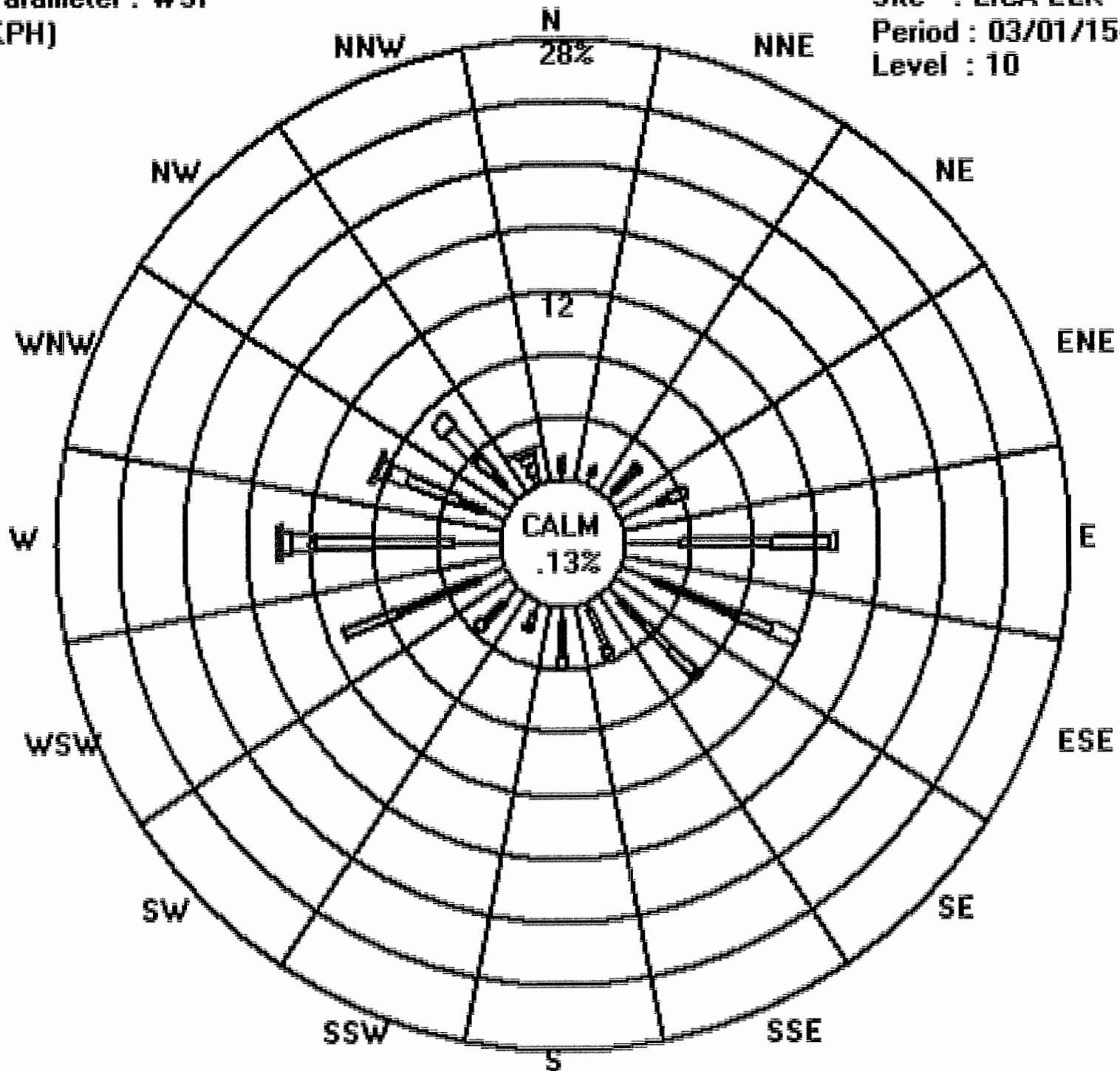
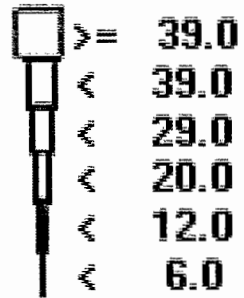
Logger : 35 Parameter : WSP

Site : LICA-ELK

Class Limits (KPH)

Period : 03/01/15-03/31/15

Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- C

WIND DIRECTION (WD) hourly averages

MST

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

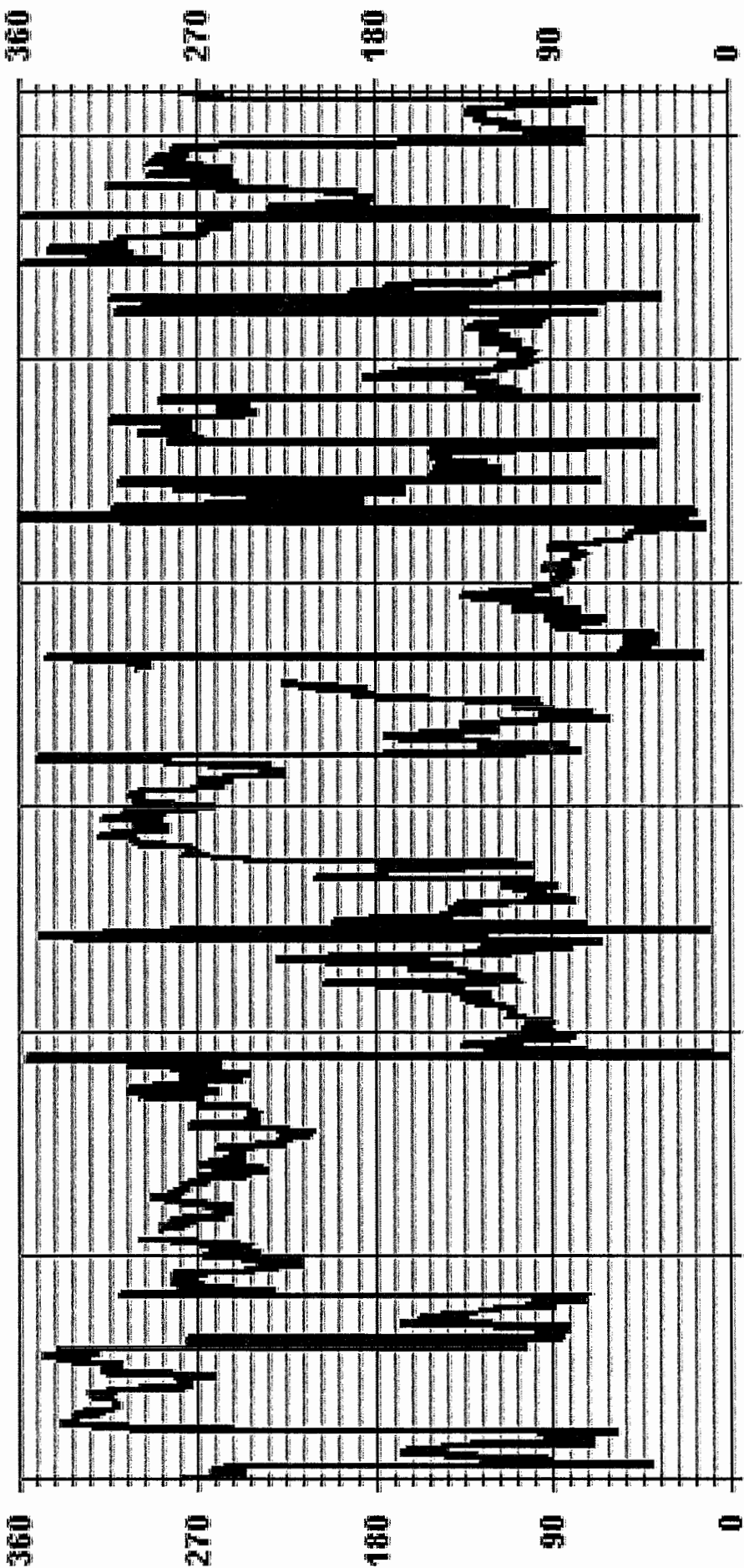
STATUS FLAG CODES

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:	731	HRS
STANDARD DEVIATION:	90.91		AMD OPERATION UPTIME:	98.3	%
			MONTHLY AVERAGE:	W	

01 Hour Averages



03/01/15 00:00 03/06/15 00:00 03/11/15 00:00 03/16/15 00:00 03/21/15 00:00 03/26/15 00:00 03/31/15 00:00

— LICA35 WDR DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Elk Point Airport Site - MARCH 2015

JOB # 2833-2015-03-35- 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	6	5	7	6	7	9	10	13	24	4	4	7	17	15	18	11	11	10	11	8	25	11	11	6	
2	5	7	23	14	8	8	9	8	9	8	9	10	10	9	9	9	9	8	8	9	9	8	9	9	
3	7	6	5	8	6	7	8	10	11	9	10	10	10	10	10	10	9	10	9	10	10	9	11	14	
4	17	8	18	30	8	8	7	5	4	8	10	19	14	15	16	15	14	9	8	4	5	11	6	9	
5	11	15	42	13	8	18	8	9	8	4	4	4	4	6	6	9	12	8	7	7	33	16	16	13	
6	30	28	14	9	10	10	11	9	5	5	P	P	P	P	P	6	5	5	7	9	7	11	10	11	
7	11	10	11	10	15	13	5	6	5	6	6	7	6	8	6	6	10	10	9	17	6	6	9	7	
8	13	17	9	7	5	6	10	10	12	10	12	13	14	17	13	11	10	9	7	9	12	14	21	21	
9	11	16	7	8	8	6	8	8	8	9	8	10	11	6	9	10	15	8	7	13	9	10	12	9	
10	11	10	6	23	10	15	8	11	9	17	21	17	34	18	21	21	17	11	8	5	6	10	9	7	
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12	17	14	20	18	7	8	13	10	11	12	13	27	16	16	18	19	18	12	10	10	18	34	27	8	
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14	13	6	9	9	7	32	8	19	19	15	54	18	10	11	16	10	25	19	9	17	10	7	10	7	
15	7	8	7	7	7	7	8	7	8	10	10	10	10	11	10	8	7	7	6	5	4	3	10	12	
16	16	9	7	7	5	4	5	5	7	10	14	13	17	15	13	17	13	12	7	6	7	7	10	12	
17	41	13	13	31	30	25	26	63	14	24	20	19	21	21	22	15	16	10	4	3	5	8	9	13	
18	31	29	26	11	5	4	5	5	13	16	27	21	15	13	11	10	15	10	12	11	P	P	P	P	
19	P	P	P	P	6	6	6	7	10	21	21	26	35	46	42	17	14	14	17	17	15	21	15	13	
20	10	10	9	11	14	13	8	11	14	24	46	55	36	58	34	26	21	14	9	8	7	6	7	7	
21	7	9	9	7	8	8	10	11	10	12	10	10	9	10	11	11	11	10	10	9	9	10	12	12	
22	11	12	11	11	11	10	9	12	13	20	26	18	26	29	27	33	32	30	34	50	11	8	10	10	
23	10	25	22	30	15	15	22	27	38	26	17	20	22	12	20	15	10	10	13	14	11	11	13	9	
24	6	9	3	43	8	11	7	7	6	10	13	15	14	14	14	13	9	9	10	7	6	10	10	11	
25	7	2	6	5	21	13	8	11	14	14	14	13	14	13	18	14	11	13	9	10	9	5	5	8	
26	6	8	6	11	11	10	12	9	11	9	14	14	11	12	10	8	10	9	9	9	9	6	7	6	
27	18	23	25	9	26	58	28	29	27	55	67	58	38	22	17	11	14	11	10	6	5	6	6	6	
28	8	6	6	9	43	17	9	9	10	9	10	14	16	13	8	8	9	7	5	12	17	11	7	8	
29	10	11	15	29	42	17	29	23	23	34	22	33	23	16	13	10	7	10	9	12	16	10	11	13	
30	11	7	28	28	27	34	14	9	8	7	9	12	11	13	11	12	9	6	11	15	40	16	13	11	
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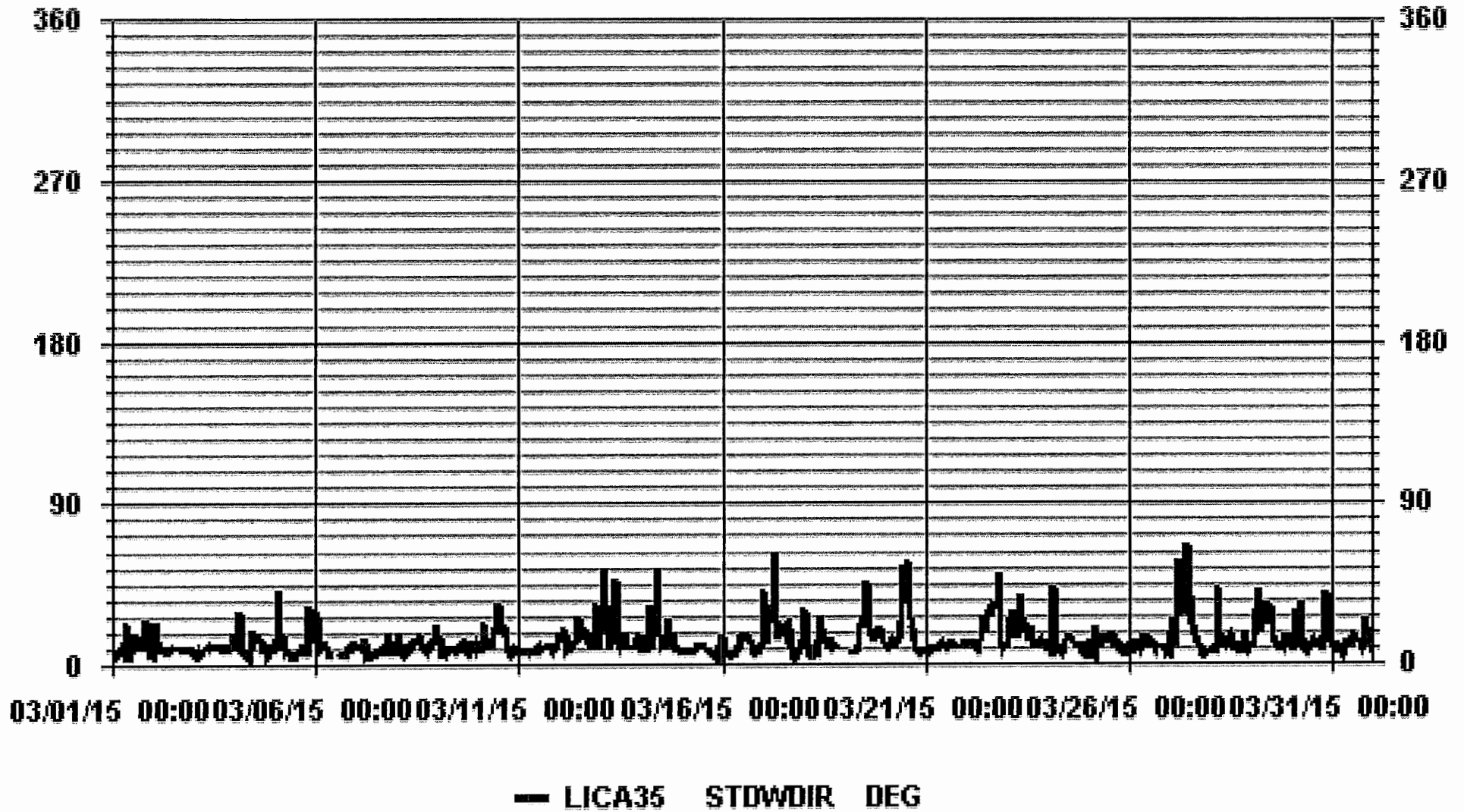
STATUS FLAG CODES

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: February 21, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 731 HRS

01 Hour Averages



APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 15030061-001

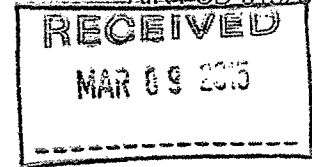
Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Mar 1, 2015

Priority: Normal

Maxxam

AIR ECD-01320/2



VOC Sample Collection Data Sheet

Client: LICA
Location: ELK POINT
Station ID: LICA 35
Field Sample ID: LICA/VOC/EP/ NA

Sampler S/N: NA
Canister ID: 1149
Canister Installation Date/Time: NA
Canister Removal Date/Time: March 5, 2015 @ 13:06

Table with 4 columns: Sample Date, Start Time (MST), End Time (MST), Elapsed Time (Hours). All cells contain 'na'.

Table with 3 columns: Meter Reading (sccm), Pot Set Pt., Pump Pressure Setting (psig). All cells contain 'na'.

Table with 2 columns: Initial Canister Vacuum (inHg), Final Canister Pressure (psig). Values are 28.6 and na.

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

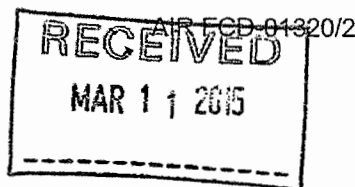
Comments: no sampling has been done / the VOC sampler is out for repair services
The canister # 1149 does NOT require analysis

Technician Signature: Alex Vakupov March 5, 2015

Sample ID: 15030080-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/March 7, 2015



Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: NA
 Location: ELK POINT airport Canister ID: H 3289
 Station ID: Lica 35 Canister Installation Date/Time: NA
 Field Sample ID: LICA/VOE/EP/ NA Canister Removal Date/Time: March 09, 2015 @ 13:42

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
NA	NA	NA	NA

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
na -10.0	na	na -24
A-Y-		A-Y-

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
2 P.P	NA

Canister valve open prior to sampling?: YES NA
 Timer set to 0.00 minutes prior to sampling? YES NA
 Canister valve closed prior to disconnection?: YES NA

Comments: No sampling has been done / the VOC sampler is out for repair services

The canister # H 3289 does NOT require analysis

Technician Signature: Alex Yakupov

Sample ID: 15030186-001

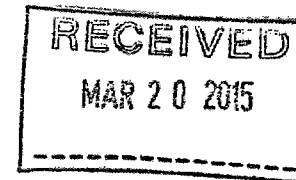
Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/Mar 13, 2015

Priority: Normal

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet



Client: LICA

Sampler s/n: 6200

Location: ELK Point Airport

Canister ID: S5618

Station ID: LICA 35 (Portable) EP

Canister Installation Date/Time: Mar 11, 2015 @ 09:35 mst

Field Sample ID: LICA VOC/CLS /Mar 13, 2015
A.V.

Canister Removal Date/Time: Mar 13, 2015 @ 17:37 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-Mar-15	03/13/15 00:00	03/14/15 00:00	24.00

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)
-28.8	24.5

230psi
SEP

A.V.

Canister valve open prior to sampling?: YES

Timer set to 0.00 minutes prior to sampling? YES

Canister valve closed prior to disconnection? YES

Comments:

Technician Signature: Sample in: Limin Li /Sample out: Alex Yakupov

Volatile Organics Data Results

Date: MARCH 13, 2015
Canister ID: S5618

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	0.05
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	0.09
2,3,4-Trimethylpentane	0.08
2,3-Dimethylbutane	0.32
2,3-Dimethylpentane	0.35
2,4-Dimethylpentane	< 0.03
2-Methylheptane	0.07
2-Methylhexane	0.14
2-Methylpentane	0.45
3-Methylheptane	0.05
3-Methylhexane	0.16
3-Methylpentane	0.25
Acetone	2.72
Acrolein	< 0.03
Benzene	0.26
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.11
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	< 0.03
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.32
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	1.06
Ethyl acetate	< 0.03
Ethylbenzene	0.06
Freon-11	0.32

Volatile Organics Data Results

Date: MARCH 13 , 2015
Canister ID: S5618

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.03
Freon-12	0.73
Hexachloro-1,3-butadiene	< 0.03
Isobutane	2.18
Isopentane	1.65
Isoprene	< 0.03
Isopropyl alcohol	2.94
Isopropylbenzene	< 0.03
m,p-Xylene	0.17
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.30
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.59
Methylcyclopentane	0.30
Methylene chloride	< 0.03
n-Butane	3.57
n-Decane	0.04
n-Dodecane	< 0.03
n-Heptane	0.24
n-Hexane	0.53
n-Nonane	0.07
n-Octane	0.13
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	0.04
o-Ethyltoluene	< 0.03
o-Xylene	0.07
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.43
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

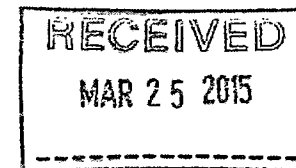
Sample ID: 15030213-003

AIR FCD-01320/2

Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/March 19, 2015

Maxxam Analytics Inc.



Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
 Location: ELK Point Airport Canister ID: S 5661
 Station ID: Lica 35 (Portable) Canister Installation Date/Time: March 18, 2015 @ 17:42
 Field Sample ID: LICA/VOC/EP/Mar 19, 2015 Canister Removal Date/Time: March 23, 2015 @ 17:53

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>Mar 19, 2015</u>	<u>00:00</u> <u>Mar 19, 2015</u>	<u>00:00</u> <u>Mar 20, 2015</u>	<u>24.0</u>

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>4.94</u>	<u>24</u>

*
1
(see comments)

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>28.8</u>	<u>15.1</u> * 1

Canister valve open prior to sampling?: YES
 Timer set to 0.00 minutes prior to sampling? YES
 Canister valve closed prior to disconnection?: YES

Comments: 1* The actual sampling started at 03:41 (March 19, 2015) and finished at 00:00 (March 20, 2015) with overall duration of 20 hours 49 minutes. The station experienced power outage from 00:00 (March 19, 2015) to 03:10 (March 19, 2015)

Technician Signature: _____

Sample in: Alex Vakupov
 Sample out: Alex Vakupov

March 23, 2015

Volatile Organics Data Results

Date: MARCH 19 , 2015
Canister ID: S5661

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,1,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	< 0.03
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	< 0.03
2,3,4-Trimethylpentane	0.06
2,3-Dimethylbutane	0.16
2,3-Dimethylpentane	0.25
2,4-Dimethylpentane	0.15
2-Methylheptane	< 0.03
2-Methylhexane	< 0.03
2-Methylpentane	0.13
3-Methylheptane	< 0.03
3-Methylhexane	0.04
3-Methylpentane	0.06
Acetone	2.66
Acrolein	< 0.03
Benzene	0.19
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.11
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	< 0.03
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.06
Cyclopentane	< 0.03
Dibromochloromethane	< 0.03
Ethanol	0.62
Ethyl acetate	< 0.03
Ethylbenzene	0.03
Freon-11	0.32

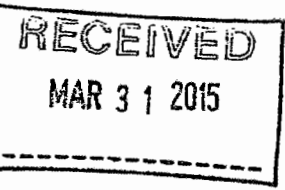
Volatile Organics Data Results

Date: MARCH 19 , 2015
Canister ID: S5661

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	< 0.03
Freon-12	0.71
Hexachloro-1,3-butadiene	< 0.03
Isobutane	0.49
Isopentane	0.99
Isoprene	< 0.03
Isopropyl alcohol	0.79
Isopropylbenzene	< 0.03
m,p-Xylene	0.07
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.24
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.07
Methylcyclopentane	< 0.03
Methylene chloride	0.51
n-Butane	1.89
n-Decane	< 0.03
n-Dodecane	< 0.03
n-Heptane	< 0.03
n-Hexane	0.18
n-Nonane	< 0.03
n-Octane	0.05
n-Pentane	< 0.03
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.03
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.23
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	1.13
Vinyl chloride	< 0.03

Sample ID: 15030234-003

AIR FCD-01320/2



Customer ID: LICA
Cust Samp ID: LICA/VOC/EP/March 25, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/EP/Mar 25, 2015

Sampler S/N: 6200
Canister ID: H 3283
Canister Installation Date/Time: March 23, 2015 @ 17:54
Canister Removal Date/Time: March 27, 2015 @ 12:57

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 25, 2015	00:00 Mar 25, 2015	00:00 Mar 26, 2015	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.8	19.8

20psi
JEP

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 Signature: sample in - by Alex Yakupov
sample out - by Alex Yakupov
March 27, 2015

Volatile Organics Data Results

Date: MARCH 25, 2015
Canister ID: H3283

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	< 0.03
1,2,4-Trichlorobenzene	< 0.03
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	< 0.03
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	0.35
1-Butene	< 0.03
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	0.09
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	0.21
2,3-Dimethylpentane	0.09
2,4-Dimethylpentane	0.08
2-Methylheptane	0.03
2-Methylhexane	0.10
2-Methylpentane	0.27
3-Methylheptane	0.03
3-Methylhexane	0.08
3-Methylpentane	0.14
Acetone	2.66
Acrolein	< 0.03
Benzene	0.20
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	< 0.03
Carbon tetrachloride	0.10
Chlorobenzene	< 0.03
Chloroethane	< 0.03
Chloroform	< 0.03
Chloromethane	0.99
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.19
Cyclopentane	0.07
Dibromochloromethane	< 0.03
Ethanol	0.64
Ethyl acetate	< 0.03
Ethylbenzene	0.04
Freon-11	0.30

Volatile Organics Data Results

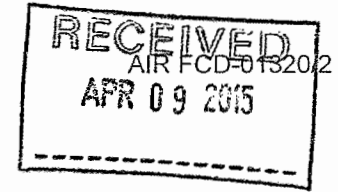
Date: MARCH 25 , 2015
Canister ID: H3283

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	< 0.03
Freon-12	0.66
Hexachloro-1,3-butadiene	< 0.03
Isobutane	1.86
Isopentane	0.95
Isoprene	< 0.03
Isopropyl alcohol	0.54
Isopropylbenzene	< 0.03
m,p-Xylene	0.09
m-Diethylbenzene	< 0.03
m-Ethyltoluene	< 0.03
Methyl butyl ketone	< 0.03
Methyl ethyl ketone	0.44
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.35
Methylcyclopentane	0.17
Methylene chloride	0.17
n-Butane	2.44
n-Decane	0.04
n-Dodecane	< 0.03
n-Heptane	0.12
n-Hexane	0.32
n-Nonane	< 0.03
n-Octane	0.05
n-Pentane	1.14
n-Propylbenzene	< 0.03
n-Undecane	< 0.03
Naphthalene	< 0.03
o-Ethyltoluene	< 0.03
o-Xylene	0.04
p-Diethylbenzene	< 0.03
p-Ethyltoluene	< 0.03
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.13
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

Sample ID: 15040032-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/March 31, 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6200
 Location: Elk Point Airport Canister ID: 85620
 Station ID: LICA 35 Canister Installation Date/Time: March 27, 2015 @ 12:59
 Field Sample ID: LICA/VOC/EP/Mar 31, 2015 Canister Removal Date/Time: April 03, 2015 @ 13:48

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 31, 2015	00:00 Mar 31, 2015	00:00 Apr 1, 2015	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.8	17.0

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 Signature:

Sample in - by Alex Yakupov
 Sample out - by Alex Yakupov

Date: April 3, 2015

Volatile Organics Data Results

Date: MARCH 31, 2015
Canister ID: S5620

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.03
1,1,1,2-Tetrachloroethane	< 0.03
1,1,2-Trichloroethane	< 0.03
1,1-Dichloroethane	< 0.03
1,1-Dichloroethylene	< 0.03
1,2,3-Trimethylbenzene	2.64
1,2,4-Trichlorobenzene	0.28
1,2,4-Trimethylbenzene	3.24
1,2-Dibromoethane	< 0.03
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.03
1,2-Dichloropropane	< 0.03
1,3,5-Trimethylbenzene	0.78
1,3-Butadiene	< 0.03
1,3-Dichlorobenzene	< 0.03
1,4-Dichlorobenzene	< 0.03
1,4-Dioxane	0.39
1-Butene	0.15
1-Hexene	< 0.03
1-Pentene	< 0.03
2,2,4-Trimethylpentane	< 0.03
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	< 0.03
2,3-Dimethylbutane	0.15
2,3-Dimethylpentane	0.09
2,4-Dimethylpentane	0.06
2-Methylheptane	< 0.03
2-Methylhexane	0.04
2-Methylpentane	0.15
3-Methylheptane	< 0.03
3-Methylhexane	0.05
3-Methylpentane	0.09
Acetone	3.28
Acrolein	< 0.03
Benzene	0.16
Benzyl chloride	< 0.03
Bromodichloromethane	< 0.03
Bromoform	< 0.03
Bromomethane	< 0.03
Carbon disulfide	0.18
Carbon tetrachloride	0.10
Chlorobenzene	< 0.03
Chloroethane	0.04
Chloroform	< 0.03
Chloromethane	1.05
cis-1,2-Dichloroethene	< 0.03
cis-1,3-Dichloropropene	< 0.03
cis-2-Butene	< 0.03
cis-2-Pentene	< 0.03
Cyclohexane	0.12
Cyclopentane	0.04
Dibromochloromethane	< 0.03
Ethanol	0.73
Ethyl acetate	< 0.03
Ethylbenzene	0.42
Freon-11	0.27

Volatile Organics Data Results

Date: MARCH 31, 2015
Canister ID: S5620

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.03
Freon-12	0.60
Hexachloro-1,3-butadiene	< 0.03
Isobutane	0.58
Isopentane	0.58
Isoprene	< 0.03
Isopropyl alcohol	1.39
Isopropylbenzene	0.19
m,p-Xylene	1.22
m-Diethylbenzene	< 0.03
m-Ethyltoluene	1.71
Methyl butyl ketone	0.03
Methyl ethyl ketone	0.33
Methyl isobutyl ketone	< 0.03
Methyl methacrylate	< 0.03
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.23
Methylcyclopentane	0.12
Methylene chloride	< 0.03
n-Butane	0.90
n-Decane	0.31
n-Dodecane	< 0.03
n-Heptane	0.07
n-Hexane	0.23
n-Nonane	< 0.03
n-Octane	< 0.03
n-Pentane	< 0.03
n-Propylbenzene	0.63
n-Undecane	< 0.03
Naphthalene	6.28
o-Ethyltoluene	1.39
o-Xylene	0.67
p-Diethylbenzene	< 0.03
p-Ethyltoluene	0.54
Styrene	< 0.03
Tetrachloroethylene	< 0.03
Tetrahydrofuran	< 0.03
Toluene	0.30
trans-1,2-Dichloroethylene	< 0.03
trans-1,3-Dichloropropylene	< 0.03
trans-2-Butene	< 0.03
trans-2-Pentene	< 0.03
Trichloroethylene	< 0.03
Vinyl acetate	< 0.03
Vinyl chloride	< 0.03

PAH RESULTS

Sample ID: 15030061-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Mar 1, 2015

Priority: Normal

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE07
 Location: ELK POINT AIRPORT Motor S/N: 1139
 Station ID: LICA 35 Installation Date/Time: Feb 26, 2015 @ 13:38
 Field Sample ID: LICA/PUF/EP/Mar 1, 2015 Removal Date/Time: March 5, 2015 @ 14:07

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 1, 2015	00:00 Mar 1, 2015	00:00 Mar 2, 2015	24

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

Set Flow Rate (slpm): 230
 Date of Last Calibration: 22-sept-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (Volume (Vstd m ³)
712	229	-10.2	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: _____

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

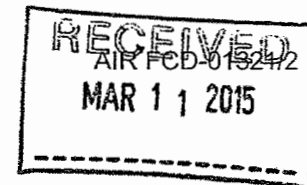
Date: MARCH 1, 2015
PUF S/N: TE07

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.25
2-Methylnaphthalene	0.50
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	< 0.01
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	0.02
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.21
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.02
Retene	< 0.01

Sample ID: 15030080-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/March 7, 2015



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: 100-1615 TE 03
 Location: ELK POINT AIRPORT Motor S/N: 1139
 Station ID: LICA 35 Installation Date/Time: March 5, 2015 @ 14:09
 Field Sample ID: LICA/PUF/EP/March 7, 2015 Removal Date/Time: March 9, 2015 @ 13:44

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07 March 2015	00:00	00:00	24

07 March 2015 08 March 2015

Set Flow Rate (slpm): 230

Date of Last Calibration: 22 - Sept - 11

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

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (Volume (Vstd m ³)
709	229	1.0	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:

Technician Signature:

Sample in - by Alex Yakupov
 Sample out - by Alex Yakupov

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 7, 2015
PUFS/N: TE03

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.10
2-Methylnaphthalene	0.17
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
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	0.02
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.15
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.02
Retene	0.01

Sample ID: 15030186-002

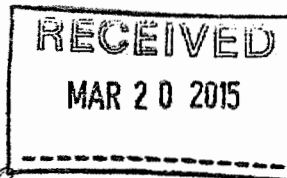
AIR FCD-01321/2

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Mar 13, 2015

Priority: Normal

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Puf+ S/N: 100-1015 9702

Location: EIK POINT AIRPORT

Motor S/N: 1139

Station ID: LICA 35

Installation Date/Time: March 09, 2015 @ 13:46

Field Sample ID: LICA/PUF/EP/March 13, 2015

Removal Date/Time: March 18, 2015 @ 17:21

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 13, 2015	00:00	00:00	24

Mar 13, 2015 Mar 14, 2015

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

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	3.2	330.19

Date of Last Calibration: 22 - Sept - 11

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



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

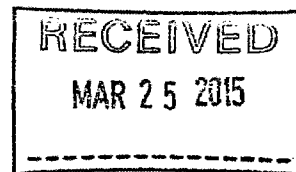
Date: MARCH 13, 2015
PUF S/N: 9702

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.07
2-Methylnaphthalene	0.13
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
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,i)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.04
Fluorene	0.11
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.12
Pyrene	0.03
Retene	0.02

Sample ID: 15030213-004

Customer ID: LICA
Cust Samp ID: LICA/PUF/EP/March 19, 2015

AIR FCD-01321/2



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

A.Y. TE 09

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/EP/March 19, 2015

Puf+ S/N: 100-1015 9702
Motor S/N: 1139
Installation Date/Time: March 18, 2015 @ 17:23
Removal Date/Time: March 23, 2015 @ 17:30

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Mar 19, 2015	00:00 Mar 19, 2015	00:00 Mar 20, 2015	24

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: 22 - Sept - 11

(see comments)

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
708	229	0.6	286.39

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: *1 The actual sampling started at 03:11 (March 19, 2015) and finished at 00:00 (March 20, 2015) with overall duration of 20 hours 49 minutes, because of power outage from 00:00 (March 19 2015) to 03:10 (March 19, 2015)

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

March 23, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 19 , 2015
PUF S/N: TE09

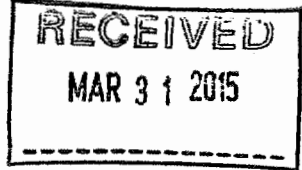
PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.05
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.04
Pyrene	0.02
Retene	< 0.01

Sample ID: 15030234-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/March 25, 2015

AIR FCD-01321/2



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-04
 Location: ELK POINT AIRPORT Motor S/N: 1139
 Station ID: LICA 35 Installation Date/Time: March 23, 2015 @ 17:41
 Field Sample ID: LICA/PUF/EP/March 25, 2015 Removal Date/Time: March 27, 2015 @ 18:12

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 25, 2015	00:00 Mar 25, 2015	00:00 March 26, 2015	24

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: 22 - Sept - 11

Sampling Data			
Average Pressure(mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	-1.9	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 Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: March 27, 2015

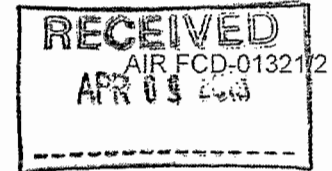
Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 25 , 2015
PUF S/N: TE04

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.16
2-Methylnaphthalene	0.30
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	0.02
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	0.13
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.03
Retene	0.05

Sample ID: 15040032-004

Customer ID: LICA
Cust Samp ID: LICA/PUF/EP/March 31, 2015



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-05
Location: ELK POINT Airport Motor S/N: 1139
Station ID: LICA 35 Installation Date/Time: March 27, 2015 @ 12:14
Field Sample ID: LICA/PUF/EP/March 31, 2015 Removal Date/Time: April 3, 2015 @ 18:34

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
March 31 2015	00:00 Mar 31, 2015	00:00 Apr. 1, 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: 22- Sept- 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
698	229	7.5°C	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 Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: April 3, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MARCH 31 , 2015
PUF S/N: TE05

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.04
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,l)pyrene	0.03
Dibenzo(a,i)pyrene	0.02
Dibenzo(ah)anthracene	0.01
Fluoranthene	0.02
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.01
Retene	< 0.01

NMHC CANISTER RESULTS

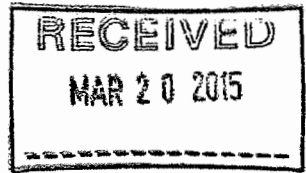
Sample ID: 15030186-001

Customer ID: LICA

Cust Samp ID: LICAVOC/EP/Mar 13, 2015

Priority: Normal

Maxxam Analytics Inc.



Canister Collection Data Sheet

Client: LICA

Location: ELK Point Airport

Station ID: Lica 35

Field Sample ID: LICA VOC/ ELK1 n/a

Canister ID: _____

1691

Canister Installation Date/Time: Jan 28, 2015 (MST) @ 14:21

Canister Removal Date/Time: March 18, 2015 (MST) @ 16:26

Date and Time Information	
Sample Date and time (MST)	
<u>n/a</u>	

<u>n/a</u>	<u>n/a</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>-28.8</u>	<u>0</u>

Canister valve open after to connection? YES

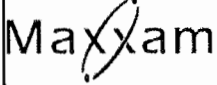
Canister valve closed prior to disconnection?: YES n/a

Comments: No analysis required for the canister # 1691
The canister was used for testing purposes
Alex Yakupov

Technician Signature: Sample in - Alex Yakupov
Sample out - n/a

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A SO2 Analyzer Calibration

Date: 4-Mar-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 10:59/16:03

Calibration Purpose: Monthly

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Aug-17

Analyzer:

Serial Number: 467

Last Calibration Date: 20-Feb-15

Previous Cal High Point C.F.: 1.003

Range ppb: 1000

As Found C.F.: 1.007

New C.F.: 1.000

As found:

SLOPE: 0.985

OFFSET: 117.1

HVPS: 524

DCPS: n/a

RCELL TEMP: 50

BOX TEMP: 30.7

PMT TEMP: 8.1

IZS TEMP: 45.0

STABIL: 0.1

PRES: 24.8

SAMP FL: 619

PMT: 110.8

UV LAMP: 2871 (104.3%)

STR. LGT: 57.7

DRK PMT: 13.5

DRK LMP: 2.8

Internal Span: 340

As left:

SLOPE: 0.990

OFFSET: 116.1

HVPS: 524

DCPS: n/a

RCELL TEMP: 50

BOX TEMP: 30.7

PMT TEMP: 8.1

IZS TEMP: 45.0

STABIL: 0.1

PRES: 24.7

SAMP FL: 618

PMT: 109.7

UV LAMP: 2870.2(104.4)

STR. LGT: 57.5

DRK PMT: 13.5

DRK LMP: 2.8

Internal Span: 323.1

Calibrator:

Flow Meter ID's: NA

Make & Model: EnviroNics 6100

Serial #: 5212

Cal Gas Cylinder I.D. #: LL42475

Cal Gas Conc. (ppm): 50.3

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	60	5060
mid	5000	30	5030
low	5000	15	5015

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	4993	0.0	4993	0	0.1	NA
adjusted zero	4993	0.0	4993	0	0.0	NA
as found high	4932	61.65	4994	621.0	617.0	1.007
adjusted high	4932	61.65	4994	621.0	622.0	0.998
mid	4962	30.84	4993	310.7	311.0	0.999
low	4979	15.42	4994	155.3	155.0	1.002
calibrator zero	4993	0.00	4993	0	0.0	NA
Average C.F.=						1.000

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.006</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>-0.07%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.35%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

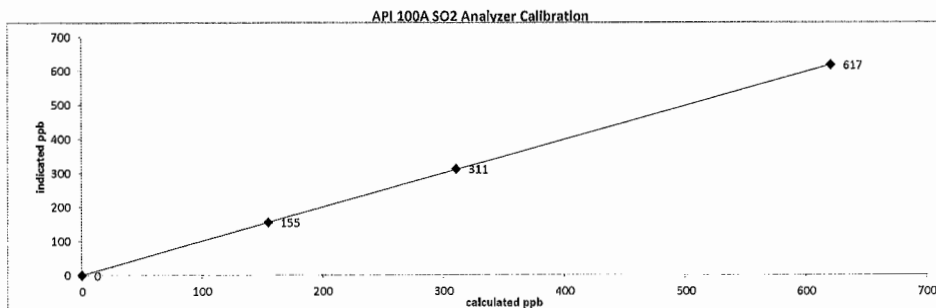
run converter efficiency test immediately following zero adjust

SO₂ High Point gas concentration: NA Time gas run (mst): NA

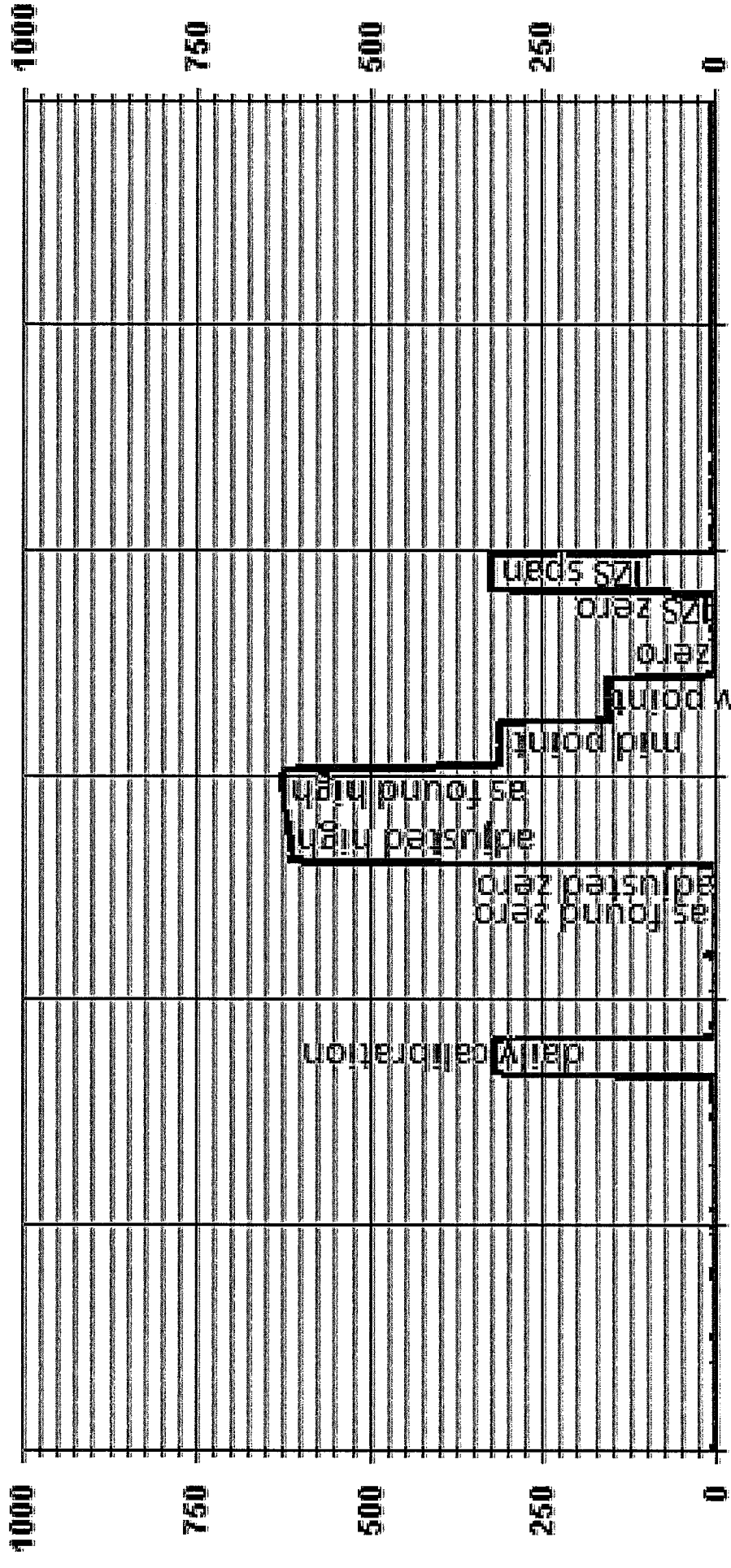
Zero corrected analyzer response: NA

Comments:

Filter changed

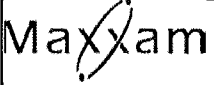


01 Minute Averages



— LICA35 SO2_ PPB

HYDROGEN SULPHIDE



API 101E H2S Analyzer Calibration

Date: 4-Mar-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 15:03/19:30

Calibration Purpose: Monthly

Converter Make & Model: Internal

Converter Serial #: na

Cal Gas Expiry Date: 25-Dec-15

Analyzer:

Serial Number: 510

Last Calibration Date: 4-Feb-15

Previous Cal High Point C.F.: 0.998

Range ppb: 100

As Found C.F.: 1.017

New C.F.: 0.992

As found:

SLOPE: 0.999

OFFSET: 32.3

HVPS: 534

RCELL TEMP: 50.0

BOX TEMP: 31.4

PMT TEMP: 8.4

IZS TEMP: 45.0

STABIL: 0.0

PRES: 22.3

SAMP FL: 519

PMT: 58.0

NORM PMT: 32.1

UV LAMP: 3230.1

LAMP RATIO: 96.1%

STR. LGT: 16.2

DRK PMT: 34.7

DRK LMP: -1.9

Internal Span: 53.5

As left:

SLOPE: 1.013

OFFSET: 31.9

HVPS: 534

RCELL TEMP: 50.0

BOX TEMP: 31.6

PMT TEMP: 8.4

IZS TEMP: 45.0

STABIL: 0.1

PRES: 22.3

SAMP FL: 519

PMT: 57.9

NORM PMT: 31.8

UV LAMP: 3229.7

LAMP RATIO: 96.0

STR. LGT: 16.2

DRK PMT: 34.8

DRK LMP: -1.9

Internal Span: 53.5

Calibrator:

Flow Meter ID's: na

Make & Model: API 700

Serial #: 831

Cal Gas Cylinder I.D. #: BLM0005049

Cal Gas Conc. (ppm): 10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	18	5018
low	5000	10	5010

Calibration:

Point	Diluent	Cal Gas	Total	Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
as found zero	4996	0.0	4996	0	-0.1	NA
adjusted zero	4996	0.0	4996	0	0.0	NA
as found high	4959	38.60	4998	78.0	76.7	1.017
adjusted high	4959	38.60	4998	78.0	78.2	0.998
mid	4979	18.80	4998	38.0	38.4	0.989
low	4982	10.90	4993	22.0	22.3	0.989
calibrator zero	4996	0.00	4996	0	0.0	NA
Average C.F.=						0.992

Linear Regression/Calibration Results:

	LIMITS	Pass/Fail ?
Correlation Coefficient = <u>1.000</u>	> or = 0.995	PASS
Slope = <u>1.018</u>	0.85-1.15	PASS
b (Intercept as % of full scale) = <u>-0.46%</u>	± 3% F.S.	PASS
% change in C.F. from last cal = <u>-1.91%</u>	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

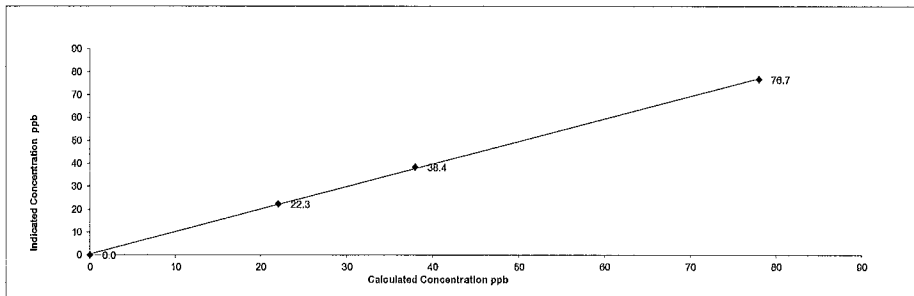
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

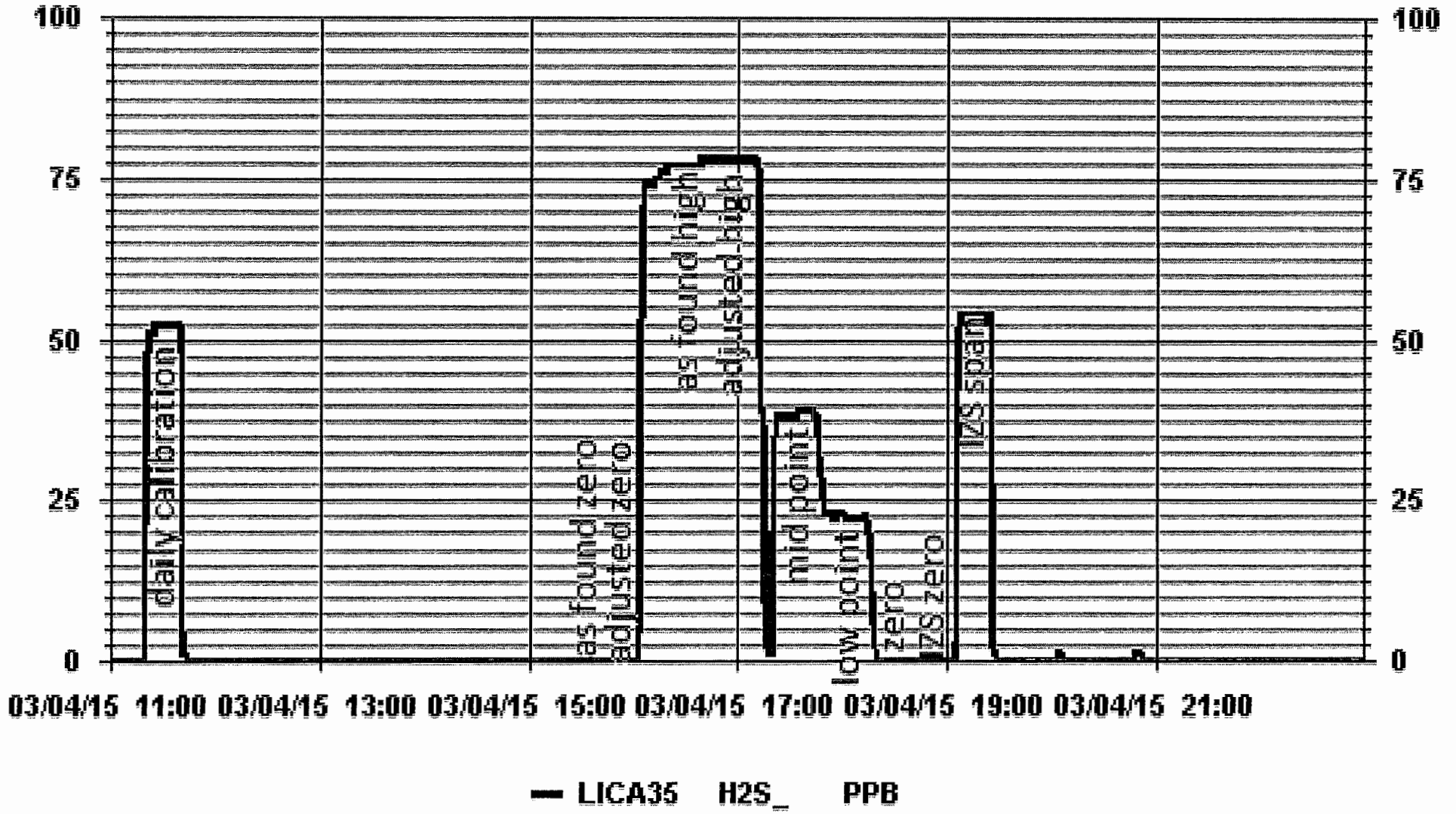
Comments:

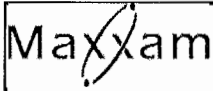
Filter changed. 17:12-17:20 - "gas pressure warning". Disconnected the Cal gas line - reconnected it back, checked regulator, mid point started at 17:21

API 101E H2S Analyzer Calibration



01 Minute Averages





API 101E H2S Analyzer Calibration

Date: 23-Mar-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 12:54 - 17:54

Calibration Purpose: Shut down Calibration

Converter Make & Model: Internal

Converter Serial #: na

Cal Gas Expiry Date: 25-Dec-15

Analyzer:

Serial Number: 510

Last Calibration Date: 4-Mar-15

Previous Cal High Point C.F.: 0.998

Range ppb: 100

As Found C.F.: NA

New C.F.: 0.978

As found:

SLOPE: 1.013

OFFSET: 31.9

HVPS: 534

RCELL TEMP: 50.0

BOX TEMP: 32.4

PMT TEMP: 8.4

IZS TEMP: 45.0

STABIL: 0.0

PRES: 22.3

SAMP FL: 518

PMT: 58.1

NORM PMT: 33.3

UV LAMP: 3168.3

LAMP RATIO: 94.2

STR. LGT: 16.2

DRK PMT: 34.6

DRK LMP: -1.8

Internal Span: 53.5

As left:

SLOPE: NA

OFFSET: NA

HVPS: NA

RCELL TEMP: NA

BOX TEMP: NA

PMT TEMP: NA

IZS TEMP: NA

STABIL: NA

PRES: NA

SAMP FL: NA

PMT: NA

NORM PMT: NA

UV LAMP: NA

LAMP RATIO: NA

STR. LGT: NA

DRK PMT: NA

DRK LMP: NA

Internal Span: NA

Calibrator:

Flow Meter ID's: na

Make & Model: API 700

Serial #: 831

Cal Gas Cylinder I.D. #: BLM0005049

Cal Gas Conc. (ppm): 10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	18	5018
low	5000	10	5010

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	4994	0.0	4994	0	-1.9	NA
adjusted zero	NA	0.0	NA	0	NA	NA
as found high	4959	38.60	4998	78.0	78.6	0.993
adjusted high	NA	NA	NA	NA	NA	NA
mid	4980	18.80	4999	38.0	37.5	1.013
low	4989	10.90	5000	22.0	23.7	0.929
calibrator zero	4994	0.00	4994	0	2.0	NA
Average C.F.=						0.978

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>NA</u>	LIMITS	Pass/Fail ?
Slope =	<u>NA</u>	> or = 0.995	PASS
b (Intercept as % of full scale)=	<u>NA</u>	0.85-1.15	NA
% change in C.F. from last cal	<u>NA</u>	± 3% F.S.	NA
		± 15%	NA

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

SO₂ High Point gas concentration: NA

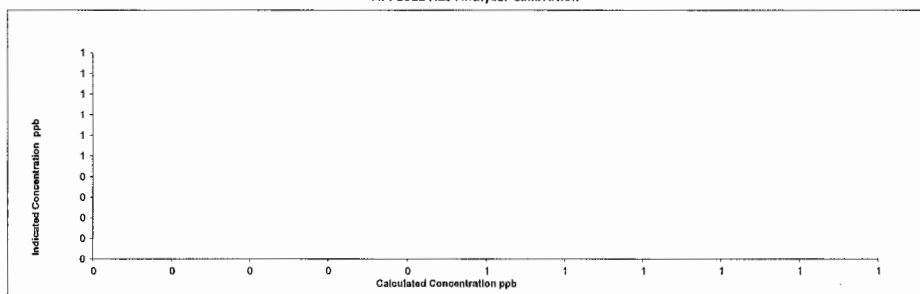
Time gas run (mst): NA

Zero corrected analyzer response: NA

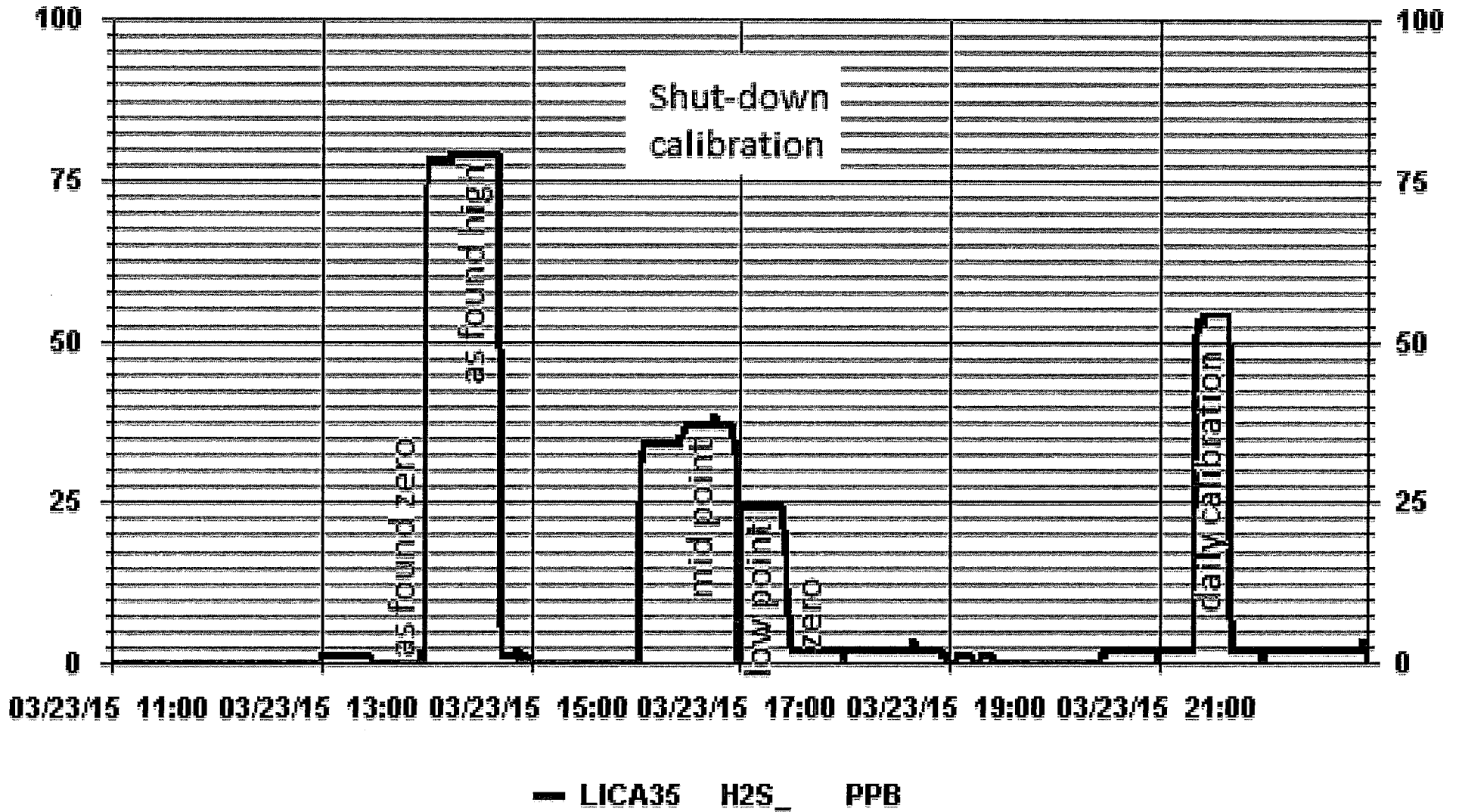
Comments:

Filter changed. The analyzer was found with an alarm indicating power outage occurrence. From 13:06 to 13:26 ZERO reads 1.0, after 13:26 there is a significant drop in reading to 0, No adjustments were made. 15:23 - DARK CALL WARNING1 ZERO readings dropped to -1.9

API 101E H2S Analyzer Calibration



01 Minute Averages



Maxxam Thermo 450i H2S Analyzer Calibration

Date: 24-Mar-15 **Start/End Time (mst):** 14:04-17:45
Company: LICA **Calibration Purpose:** Installation
Station Name/Location: Elk Point **Converter Make & Model:** Internal
Performed by: Chris Wesson **Converter Serial #:** N/A
Application H₂S/TRS/SO₂: H2S **Cal Gas Expiry Date:** 25-Dec-15

Analyzer:
Serial Number: 1226154721 **Range ppb:** 100
Last Calibration Date: NA **As Found C.F.:** NA
Previous Cal High Point C.F.: NA **New C.F.:** 0.995

<p>MOTHERBOARD:</p> <p>As found:</p> <p>BKG: 15.4 COEF: 1.033 3.3 3.3 5.0 5.0 15.0 15.1 24.0 24.0 -3.3 3.2 INTERFACE BOARD: PMT: -654.9 FLASH: 912 3.3 3.3 5.0 5.0 15.0 14.8 -15.0 -15.1 24.0 24.1 INTERNAL: 32.9 CHAMBER: 45.0 CONVERTER TEMP: 342.2 CONVERTER SET: 340.0 PERM OVEN GAS: 35.04 PERM OVEN HTR: 34.18 PRESSURE: 575.2 SAMPLE FLOW: 0.892 LAMP INTENSITY: 91 Internal Span: NA</p>	<p>As left:</p> <p>BKG: 14.1 COEF: 0.972 3.3 3.3 5.0 5.0 15.0 15.1 24.0 24.0 -3.3 -3.2 PMT: -654.9 FLASH: 915 3.3 3.3 5.0 5.0 15.0 14.8 -15.0 -15.1 24.0 24.1 INTERNAL: 33.5 CHAMBER: 45.4 CONVERTER TEMP: 340.7 CONVERTER SET: 340.0 PERM OVEN GAS: 35.00 PERM OVEN HTR: 34.27 PRESSURE: 576.1 SAMPLE FLOW: 0.891 LAMP INTENSITY: 91 Internal Span: 53.5</p>
---	---

Calibrator: **Calibrator Flow Targets:**

Flow Meter ID's: N/A	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
Make & Model: API 700	zero	5000	0	5000
Serial #: 831	high	4960	40	5000
Cal Gas Cylinder I.D. #: BLM005409	mid	4980	20	5000
Cal Gas Conc. (ppm): 10.1	low	4990	11	5001

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	NA	0.0		0		NA
adjusted zero	4994	0.0	4994	0	0.0	NA
as found high		NA				
adjusted high	4959	38.60	4998	78.0	78.1	0.999
mid	4979	18.80	4998	38.0	38.3	0.992
low	4984	10.90	4995	22.0	22.2	0.993
calibrator zero	4994	0.00	4994	0	0.3	NA
Average C.F.=						0.995

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS	Pass/Fail ?
Slope = 0.999	> or = 0.995	PASS
b (Intercept as % of full scale) = -0.11%	0.85-1.15	PASS
% change in C.F. from last cal = NA	± 3% F.S.	PASS
	± 15%	NA

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

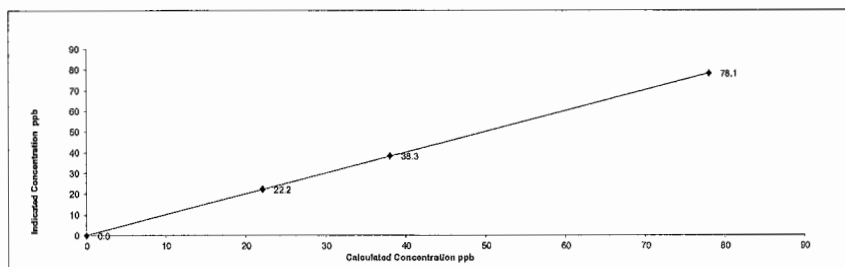
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

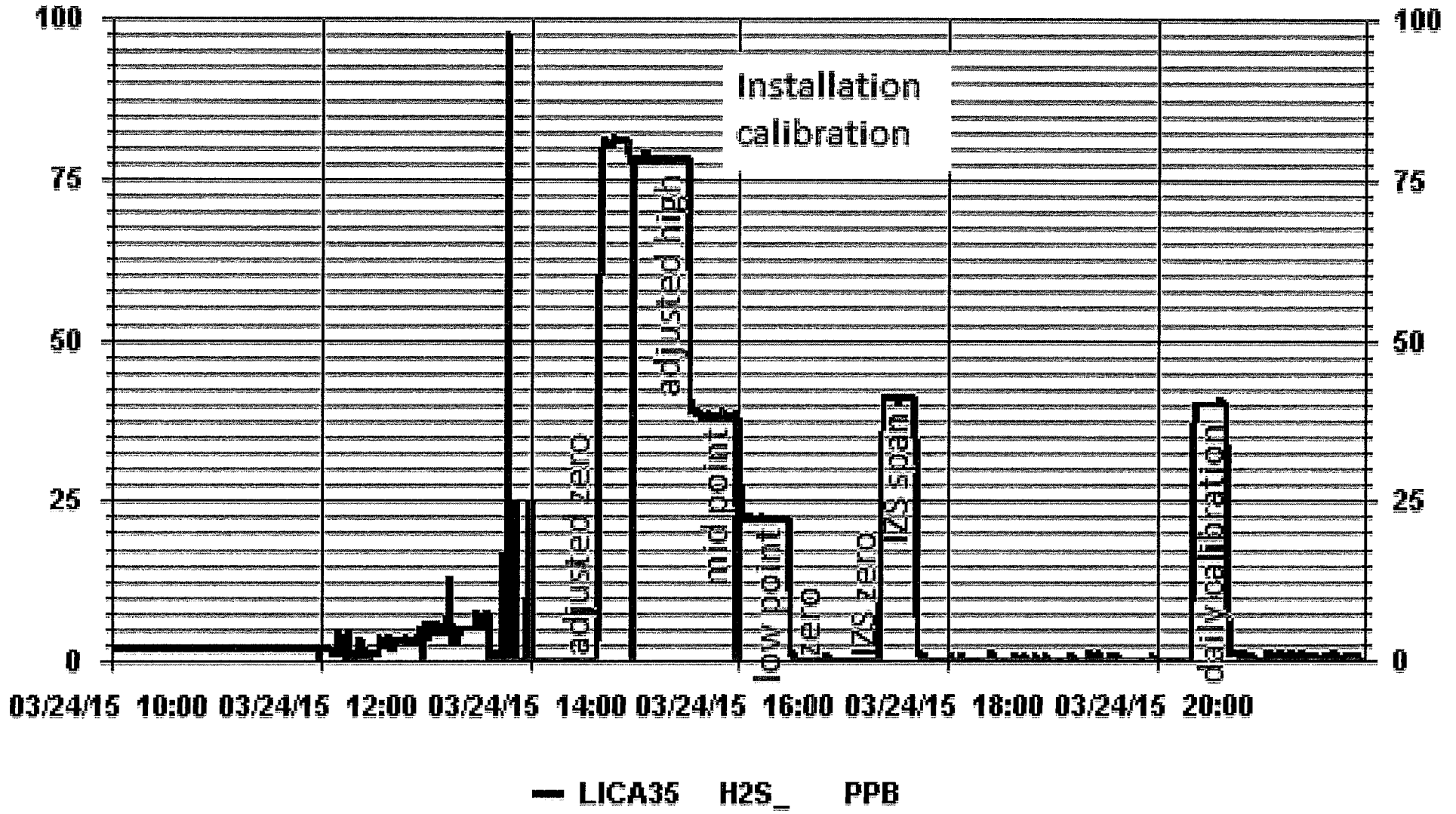
Comments:

Sampe Filter Changed

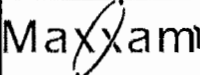
Thermo 450i H2S Analyzer Calibration



01 Minute Averages



TOTAL HYDROCARBON



Thermo 55I Methane/Non-Methane Analyzer Calibration

Date: 4-Mar-15

Company: LICA

Station Name: Elk Point

Performed by: Alex Yakupov

Start Time (mst): 10:59

End Time (mst): 15:50

Calibration Purpose: routine monthly

Cal Gas Expiry Date: 26-Mar-17

Analyzer & Diagnostics:

Serial Number: 1236656107

Last Calibration Date: 3-Feb-15

As found C.F.

CH₄= 1.000

NMHC= 0.992

THC= 0.997

Previous Cal High Point C.F.

CH₄= 1.002

NMHC= 1.003

THC= 1.001

Analyzer Range

CH₄= 20

NMHC= 20

THC= 40

Mother Board Voltages:

3.3: 3.3

5.0: 4.9

15.0: 14.9

24.0: 24.0

-3.3: -3.2

Interface Board Voltages:

3.3: 3.3

5.0: 5.0

15.0: 15.0

24.0: 23.4

-15.0: -15.1

Temperatures:

Bias Supply: -292.6

Detector Oven: 175.1

Filter: 175.1

Column Oven: 75.1

Flame: 379.5

Internal: 30.2

Pressures cylinder/reg.:

Carrier:	1500	31.1
Fuel:	1700	40.3
Air:	46	32.4

FID Status:

Status: LIT

Counts: 26247

Flame: 380

Det Base: 175.1

Flame and Power Stats:

Last Power On: Feb 24 2015 @ 19:59

Flameouts: 2

Det Oven at Start: 137.0

Col Oven at Start: 66.5

Calibration History>1:

Time: NA

Type: NA

Status: NA

Check/Adjust: NA

CH₄ Span Conc: NA

Calibration History cnt'd>1:

CH₄ SP Ratio: NA

CH₄ RT: NA

CH₄ PK IDX: NA

CH₄ PK HT: NA

NM Span Conc: NA

NM SP Ratio: NA

NM Peak Area: NA

Date: NA

Time: NA

CH₄ PK HT: NA

CH₄ RT: NA

CH₄ Baseline: NA

CH₄ LOD: NA

CH₄ SD: NA

CH₄ CONC: NA

NM PK HT: NA

NM Peak Area: NA

NM CONC: NA

NM Base Start: NA

NM Base End: NA

NM LOD: NA

NM Start IDX: NA

NM End IDX: NA

NM Max Slope: NA

NM Min Slope: NA

NM PT Count: NA

Daily Zero/Span Values:

Previous CH₄: 9.2

Previous NMHC: 13.62

Previous THC: 22.9

New CH₄: 9.5

New NMHC: 13.67

New THC: 23.23

Calibrator and Gas Information:

Make & Model: API 700

Serial #: 831

Cal Gas Cylinder I.D. #: LL33674

CH ₄ Cylinder Conc.=	601.4	202.0	=C ₃ H ₈ Cylinder Conc.
CH ₄ as C ₃ H ₈ =	555.5	1156.9	=total CH ₄ equivalent

Calibrator Flow Targets (cc/min):

point	diluent	cal gas	total flow
zero	3000	0	3000
high	3000	36	3036
mid	3000	18	3018
low	3000	10	3010

Calibration Data:

Calibrator Flow Rates (cc/min)				Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
20 min as found zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
20 min as found high point	3000	36.00	3036	7.13	6.59	13.72	7.13	6.64	13.76	1.000	0.992	0.997
20 min adjusted high	3000	36.00	3036	7.13	6.59	13.72	7.13	6.58	13.71	1.000	1.001	1.001
20 min mid	3000	18.00	3018	3.59	3.31	6.90	3.59	3.37	6.95	0.999	0.983	0.993
20 min low	3000	10.00	3010	2.00	1.85	3.84	2.03	1.87	3.91	0.984	0.987	0.983
20 min calibrator zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
Average C.F.=										0.995	0.990	0.992

Linear Regression/Calibration Results:

	CH ₄	NMHC	THC
Correlation Coefficient =	1.000	1.000	1.000
Slope =	0.998	0.999	0.998
b (Intercept as % of full scale) =	0.07%	0.11%	0.09%
% change in C.F. from last cal =	0.18%	-1.11%	-0.40%

LIMITS

> or = 0.995

0.85-1.15

± 3% F.S.

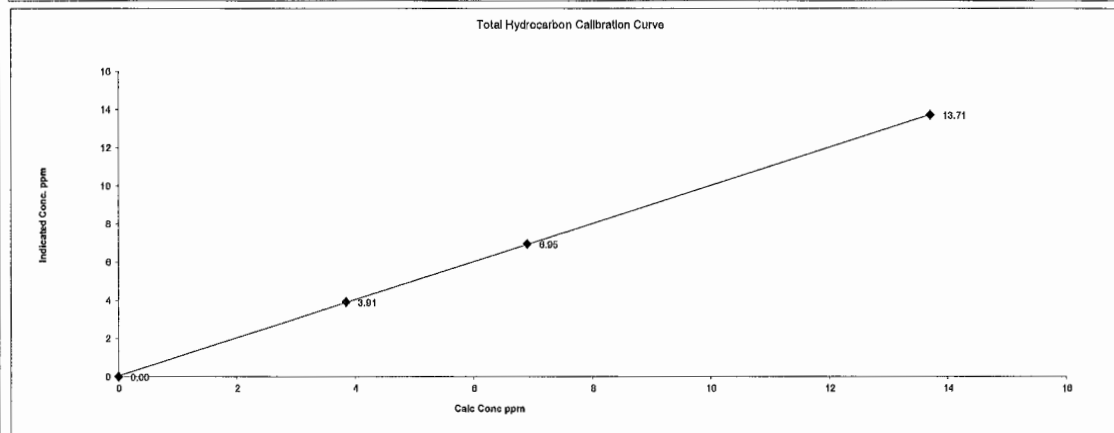
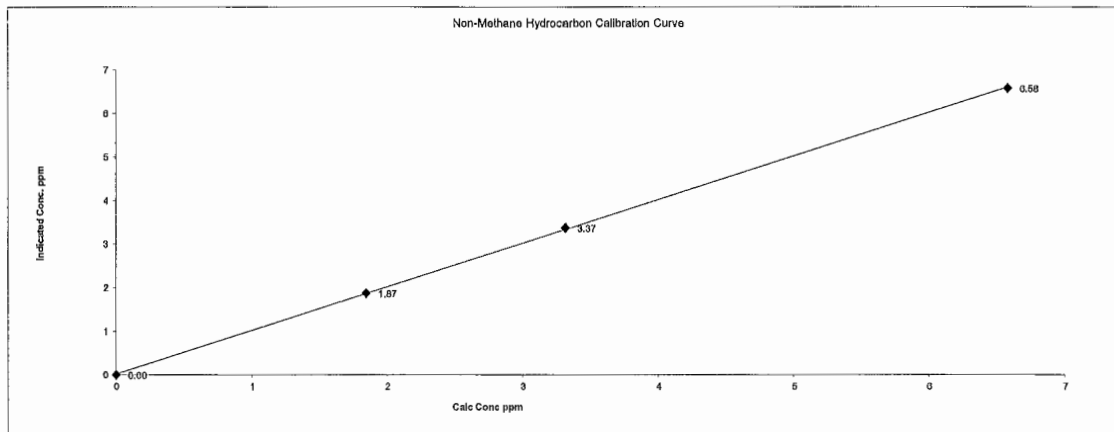
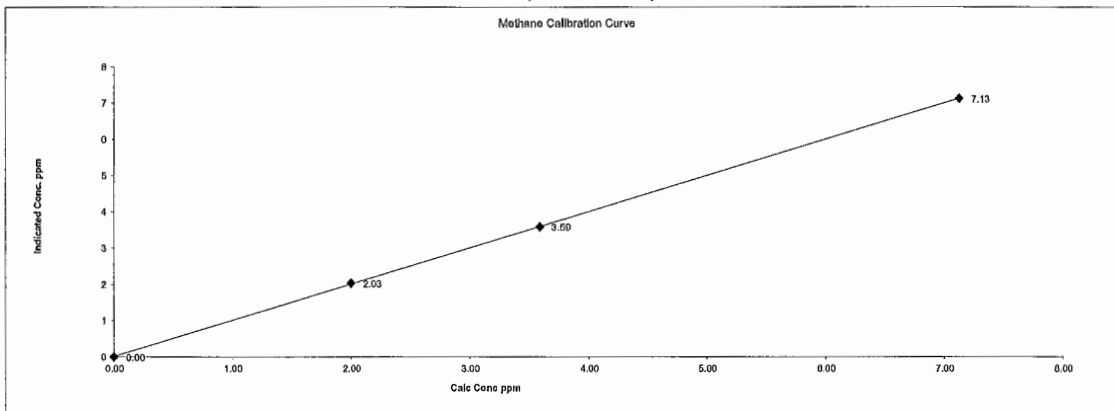
+/- 15%

Comments:

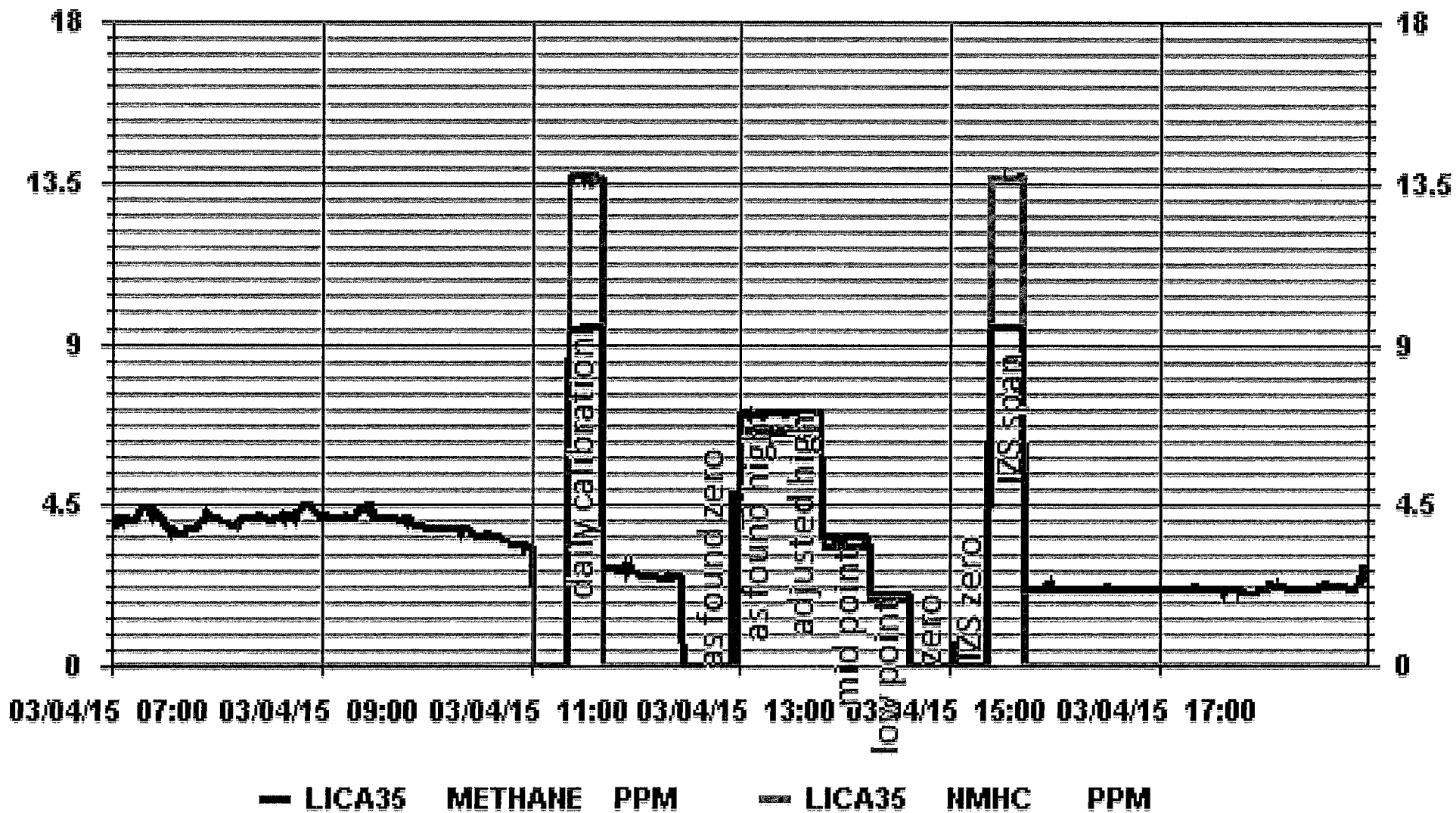
Calibration History was found with status "ZERO-Error" and all data for 5 available positions state: "01 Jan70, 00:00", no data saved. 12:56-12:58 - rebuilt broken cal gas line (when doing this put ZERO back). High point starts from 12:59. Filter changed

Date:	4-Mar-15	Start Time (mst):	10:59
Company:	LICA	End Time (mst):	15:50
Station Name:	Elk Point	Calibration Purpose:	routine monthly
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	26-Mar-17

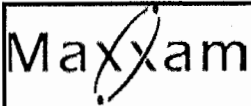
Thermo 55C Methane/Non-Methane Analyzer Calibration



01 Minute Averages



NITROGEN DIOXIDE



API 200A NOx Analyzer Calibration

Date: 4-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 10:59
 End Time (mst): 18:16
 Calibration Purpose: Monthly
 Cal Gas Expiry Date: 12-Aug-17

Correction Factors:

Analyzer Serial Number: 2166
 Last Calibration Date: 24-Feb-15
 Range ppb: 1000

As found C.F. Previous Cal High Point C.F.:

NO= 1.015 NO= 1.000
 NOx= 1.010 NOx= 0.999
 NO₂= 1.008 NO₂= 1.000

As found:

NOx SLOPE: 0.950
 NOx OFFS: 0.0
 NO SLOPE: 0.947
 NO OFFS: -0.6
 NOx STB: 0.2
 SAMP FLW: 489
 OZONE FL: 75
 NORM PMT: 9.1
 AZERO: 11.7
 HVPS: 691
 DCPS: 2542
 RCELL: 50.5
 BOX TEMP: 27.2
 IZS TEMP: pmt=7.0 / IZS = 45.0
 MOLY TEMP: 314.5
 RCEL: 7.9
 SAMP: 26.4
 Internal Span: 345/4.5/341

As left:

NOx SLOPE: 0.956
 NOx OFFS: 1.5
 NO SLOPE: 0.958
 NO OFFS: 0.5
 NOx STB: 0.1
 SAMP FLW: 487
 OZONE FL: 74
 NORM PMT: 2.5
 AZERO: 12.1
 HVPS: 691
 DCPS: 2541
 RCELL: 50.1
 BOX TEMP: 27.0
 IZS TEMP: pmt=7.0/45.1
 MOLY TEMP: 316.6
 RCEL: 7.7
 SAMP: 26.4
 Internal Span: 354/3.8/350.3

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	60	320.00	5060
mid	5000	30	160.00	5030
low	5000	15	75.00	5015

Calibration:

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	4993	0.0	4993	0	0	0.0	1.0	NA	NA
adjusted zero	4993	0.0	4993	0	0	0.0	0.0	NA	NA
as found high	4932	61.65	4994	598.8	598.8	590	593	1.015	1.010
adjusted high	4932	61.65	4994	598.8	598.8	599	600	1.000	0.998
mid	4962	30.84	4993	299.6	299.6	296	295	1.012	1.015
low	4979	15.42	4994	149.7	149.7	145	145	1.033	1.033
calibrator zero	4993	0.00	4993	0	0	0.0	0.0	NA	NA
Average C.F.=								1.015	1.015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4932	61.7	4994	0.0	601.0	601.0	0.0	0.0	0.0	
as found NO ₂	4932	61.7	4994	320.0	204.0	598.0	394.0	397.0	394.0	1.008
adjusted NO ₂		NA								
gpt mid	4932	61.7	4994	160.0	396.0	598.0	202.0	205.0	202.0	1.015
gpt low	4932	61.68	4994	75.0	507.0	599.0	92.0	94.0	92.0	1.022
Average NO ₂ C.F.=									1.018	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.002	1.004	0.993	0.85-1.15
b (Intercept as % of full scale) =	-0.26%	-0.30%	-0.08%	± 3% F.S.
% change in C.F. from last cal =	-1.49%	-1.08%	-0.76%	+/-15%
NO2 converter efficiency			98.2%	>85%

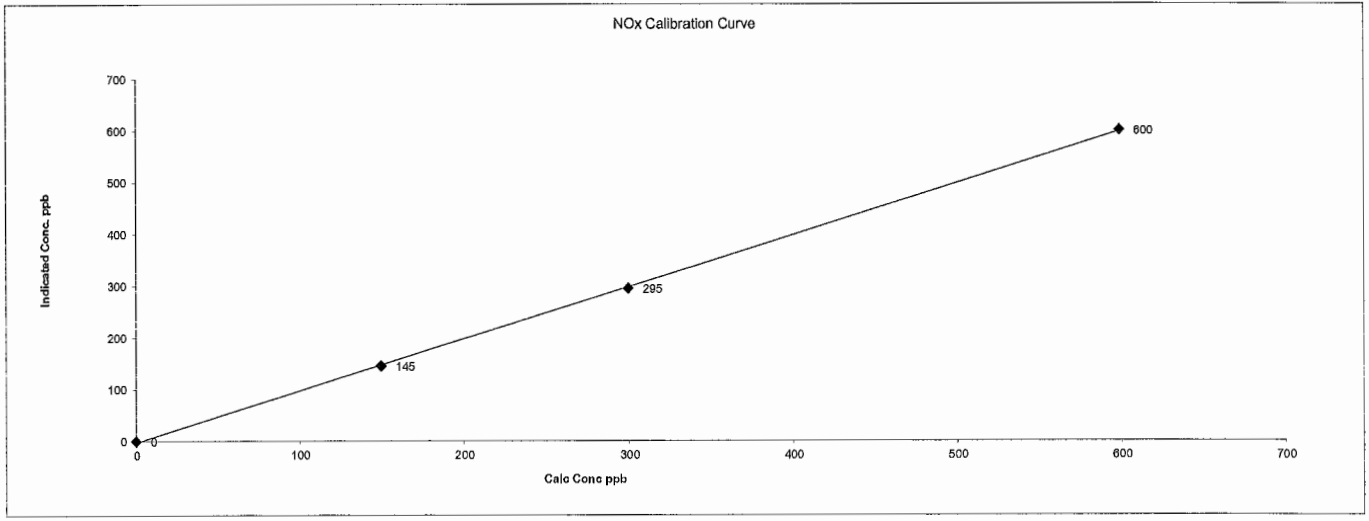
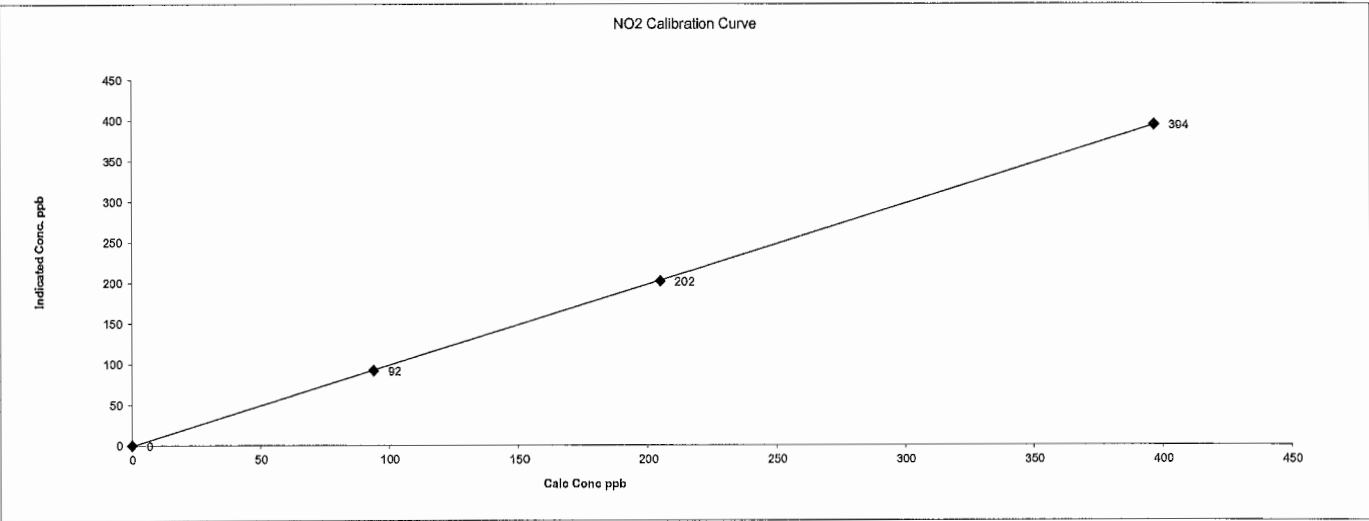
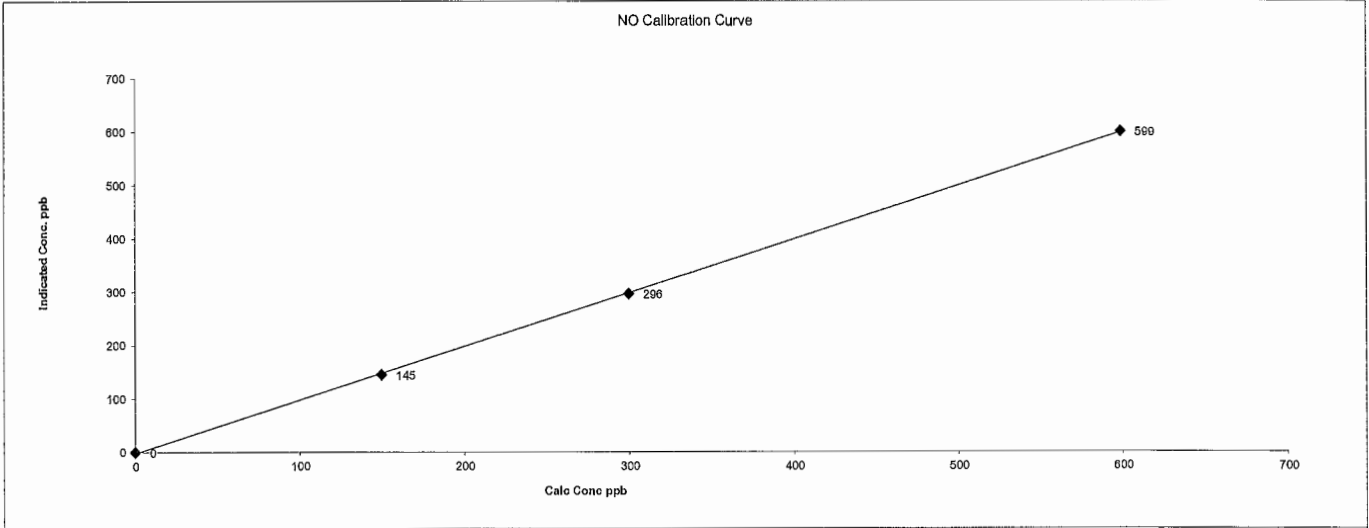
Comments:

Filter changed

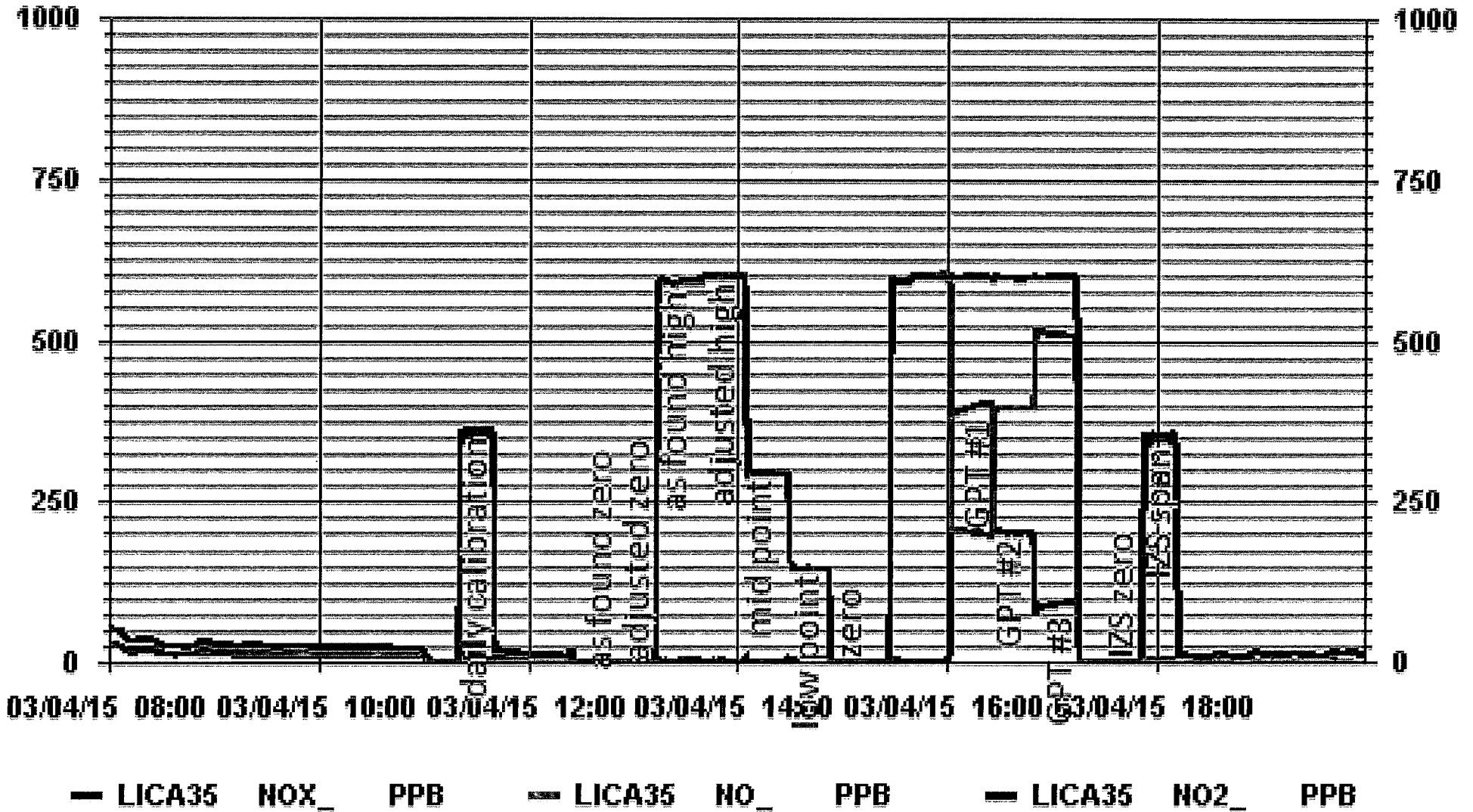
Date: 4-Mar-15
Company: LICA
Station Name/Location: Elk Point
Performed by: Alex Yakupov

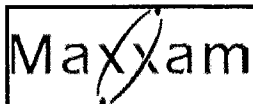
Start Time (mst): 10:59
End Time (mst): 18:16
Calibration Purpose: Monthly
Cal Gas Expiry Date: 12-Aug-17

API 200A NOx Analyzer Calibration



01 Minute Averages





API 200A NOx Analyzer Calibration

Date: 10-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Limin Li

Start Time (mst): 10:00
 End Time (mst): 14:35
 Calibration Purpose: Remove Calibration
 Cal Gas Expiry Date: 4-Feb-18

Analyzer Serial Number: 2166
 Last Calibration Date: 4-Mar-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.007 NO= 1.000
 NOx= 1.008 NOx= 0.998
 NO₂= 0.998 NO₂= 1.008

As found:
 NOx SLOPE: 0.956
 NOx OFFS: 1.5
 NO SLOPE: 0.958
 NO OFFS: 0.5
 NOx STB: 0.1
 SAMP FLW: 487
 OZONE FL: 74
 NORM PMT: 2.5
 AZERO: 12.5
 HVPS: 691
 DCPS: 2541
 RCELL: 50.1
 BOX TEMP: 28.2
 IZS TEMP: pmt=7.0/45.1
 MOLY TEMP: 314.8
 RCEL: 7.8
 SAMP: 26.3
 Internal Span: 354/3.8/350.3

As left:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 NOx STB: NA
 SAMP FLW: NA
 OZONE FL: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 DCPS: NA
 RCELL: NA
 BOX TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

Calibrator Flow Targets:

Make & Model: Sabio 2010D
 Serial #: 11900613
 Cal Gas Cylinder I.D. #: BLM000428
 NO Cylinder Conc. (ppm): 50.7
 NOx Cylinder Conc. (ppm): 50.8

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4923	77	500.00	5000
mid	4963	38	280.00	5001
low	4981	19	100.00	5000

Calibration:

Callibrator 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	NA	NA
adjusted zero	NA	0.0		0	0			NA	NA
as found high	4938	77.10	5015	779.4	781.0	774	775	1.007	1.008
adjusted high		NA							
mid	4976	37.60	5014	380.2	381.0	378	378	1.006	1.008
low	4994	18.80	5013	190.1	190.5	190	190	1.001	1.003
calibrator zero	5012	0.00	5012	0	0	0.0	1.0	NA	NA
Average C.F.=								1.005	1.006

Callibrator Flow Rates (cc/min)				Callibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ Increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4938	77.10	5015	0.0	778.0	776.0	-2.0	0.0	0.0	
as found NO ₂	4938	77.10	5015	500.0	275.0	777.0	502.0	503.0	504.0	0.998
adjusted NO ₂		NA								
gpt mid	4938	77.10	5015	280.0	492.0	777.0	285.0	286.0	287.0	0.997
gpt low	4938	77.10	5015	100.0	675.0	777.0	102.0	103.0	104.0	0.990
Average NO ₂ C.F.=										0.995

Linear Regression/Calibration Results:

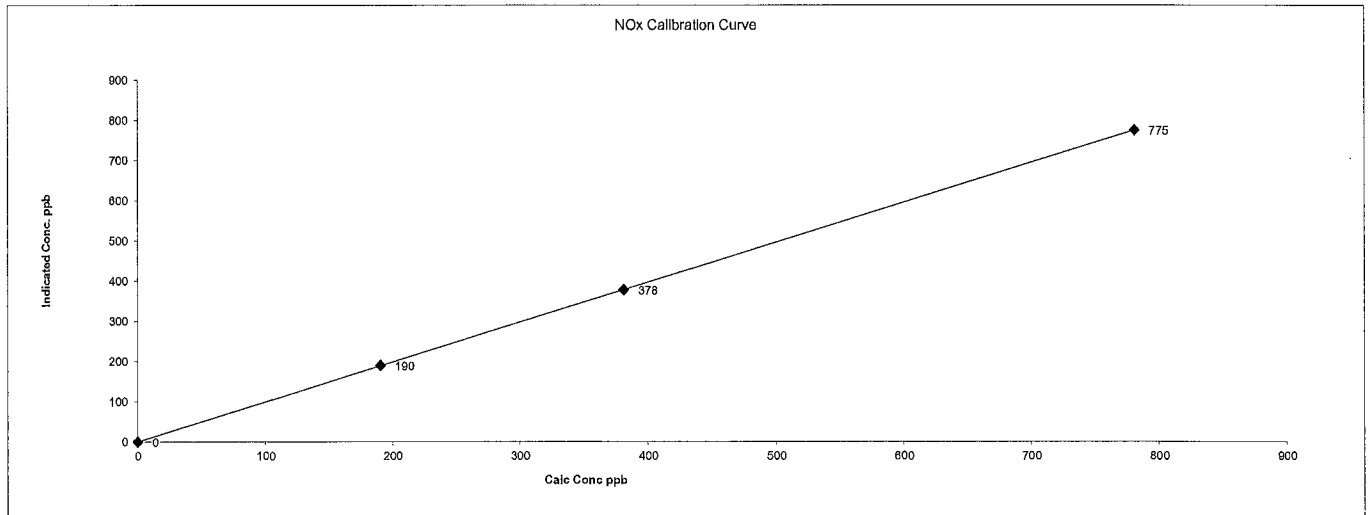
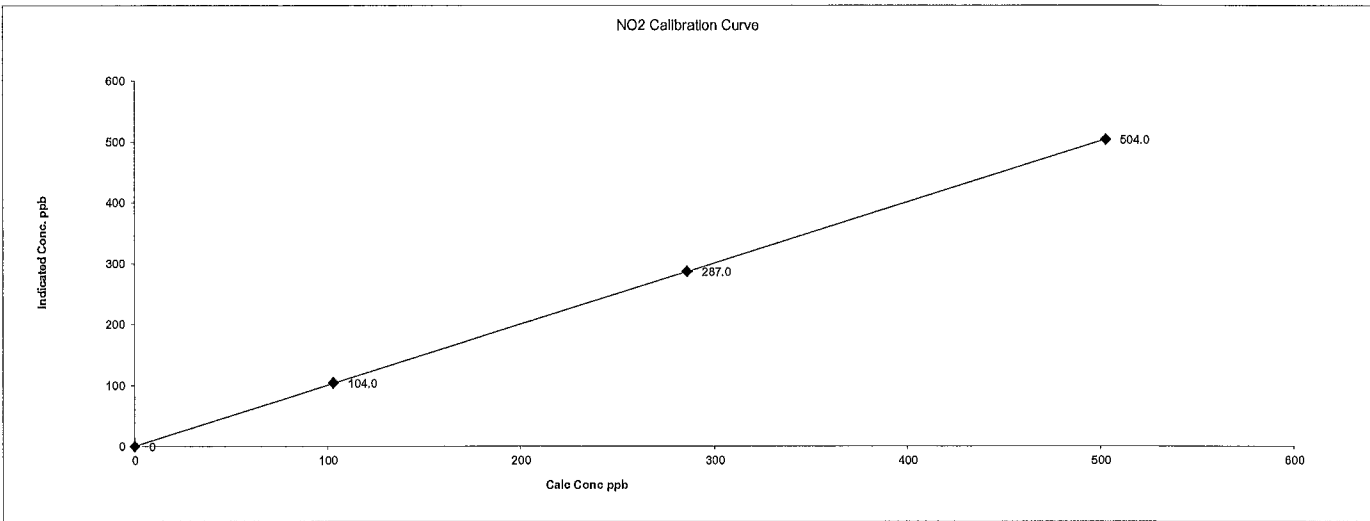
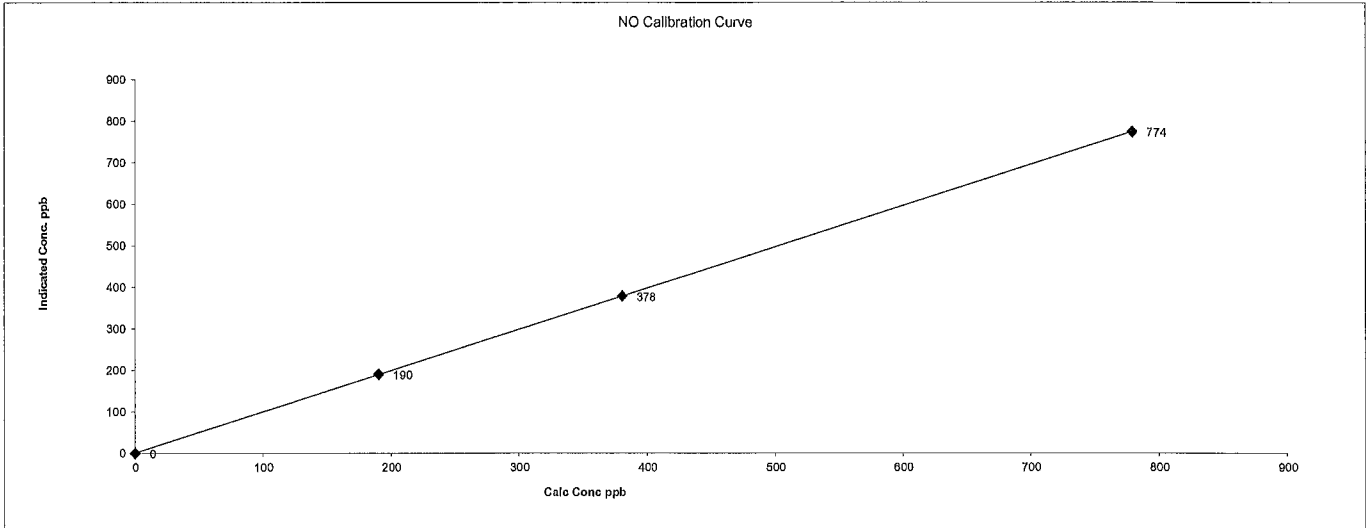
	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.993	0.992	1.002	0.85-1.15
b (Intercept as % of full scale) =	0.06%	0.04%	0.04%	± 3% F.S.
% change in C.F. from last cal =	-0.70%	-0.97%	0.99%	+/-15%
NO ₂ converter efficiency			100.5%	>85%

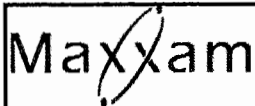
Comments:

Date: 10-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Limin Li

Start Time (mst): 10:00
 End Time (mst): 14:35
 Calibration Purpose: Remove Calibration
 Cal Gas Expiry Date: 4-Feb-18

API 200A NOx Analyzer Calibration





API 200E NOx Analyzer Calibration

Date: 10-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Limin Li

Start Time (mst): 15:55
 End Time (mst): 20:30
 Calibration Purpose: Install calibration
 Cal Gas Expiry Date: 4-Feb-18

Correction Factors:

Analyzer Serial Number: 592
 Last Calibration Date: NA
 Range ppb: 1000

As found C.F. Previous Cal High Point C.F.:
 NO= NA NO= NA
 NOx= NA NOx= NA
 NO₂= 1.002 NO₂= NA

As found:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 TEST: NA
 SAMP FLW: NA
 OZONE FL: NA
 PMT: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 RCELL TEMP: NA
 BOX TEMP: NA
 PMT TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

As left:
 NOx SLOPE: 0.957
 NOx OFFS: 0.6
 NO SLOPE: 0.957
 NO OFFS: -2.4
 TEST: 127.5
 SAMP FLW: 482
 OZONE FL: 74
 PMT: 25.8
 NORM PMT: -0.3
 AZERO: 32.6
 HVPS: 637
 RCELL TEMP: 50.0
 BOX TEMP: 32.5
 PMT TEMP: 6.9
 IZS TEMP: 40
 MOLY TEMP: 315.2
 RCEL: 6.6
 SAMP: 26.6
 Internal Span: 4/292/296

Calibrator Flow Targets:

Make & Model: Sablo 2010D
 Serial #: 11900613
 Cal Gas Cylinder I.D. #: BLM000428
 NO Cylinder Conc. (ppm): 50.7
 NOx Cylinder Conc. (ppm): 50.8

point	diluent (cc/min)	cal gas (cc/min)	O ₂ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4923	77	500.00	5000
mid	4963	38	280.00	5001
low	4981	19	100.00	5000

Calibration:

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		NA							
adjusted zero	5012	0.0	5012	0	0	0.0	0.6	NA	NA
as found high		NA							
adjusted high	4938	77.10	5015	779.4	781.0	780	782	0.999	0.999
mid	4977	37.60	5015	380.2	380.9	384	386	0.990	0.988
low	4995	18.90	5014	191.1	191.5	196	197	0.975	0.975
calibrator zero	5012	0.00	5012	0	0	0.0	0.6	NA	NA
Average C.F.=								0.988	0.988

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4938	77.10	5015	0.0	780.0	782.0	2.0	0.0	0.6	
as found NO ₂	4938	77.10	5015	500.0	283.0	781.0	498.0	497.0	496.0	1.002
adjusted NO ₂		NA								
gpt mid	4938	77.10	5015	280.0	499.0	780.0	281.0	281.0	279.0	1.007
gpt low	4938	77.10	5015	100.0	680.0	783.0	103.0	100.0	101.0	0.990
Average NO ₂ C.F.=									0.999	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂
Correlation Coefficient =	1.000	1.000	1.000
Slope =	0.999	1.000	0.996
b (Intercept as % of full scale)=	0.25%	0.30%	0.03%
% change in C.F. from last cal=	NA	NA	NA
NO ₂ converter efficiency			100.1%

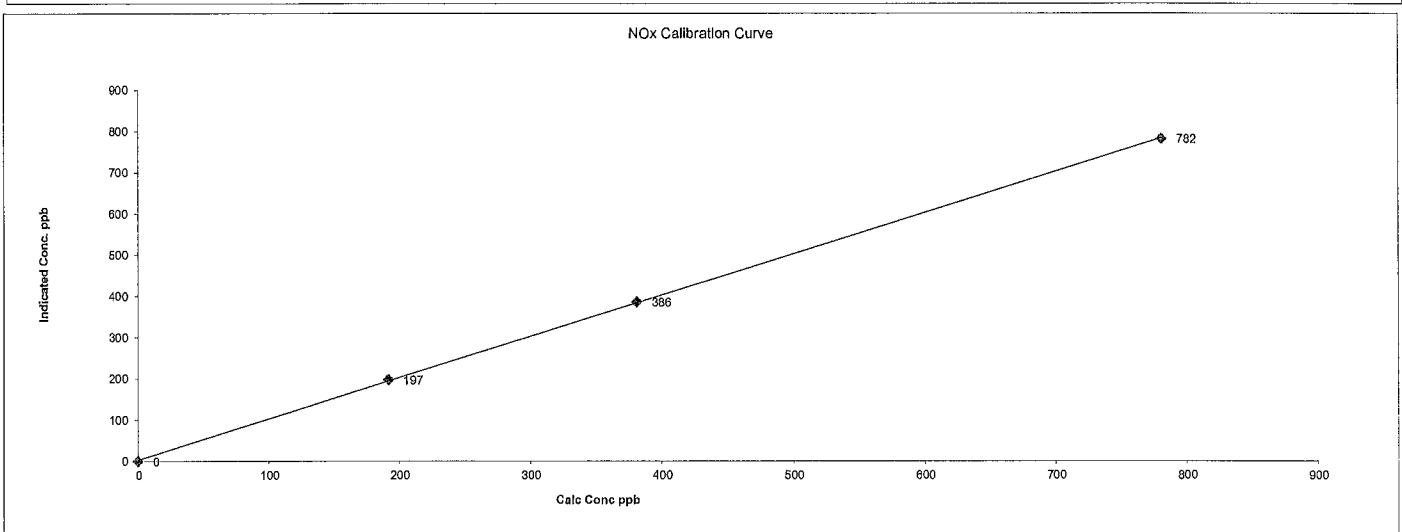
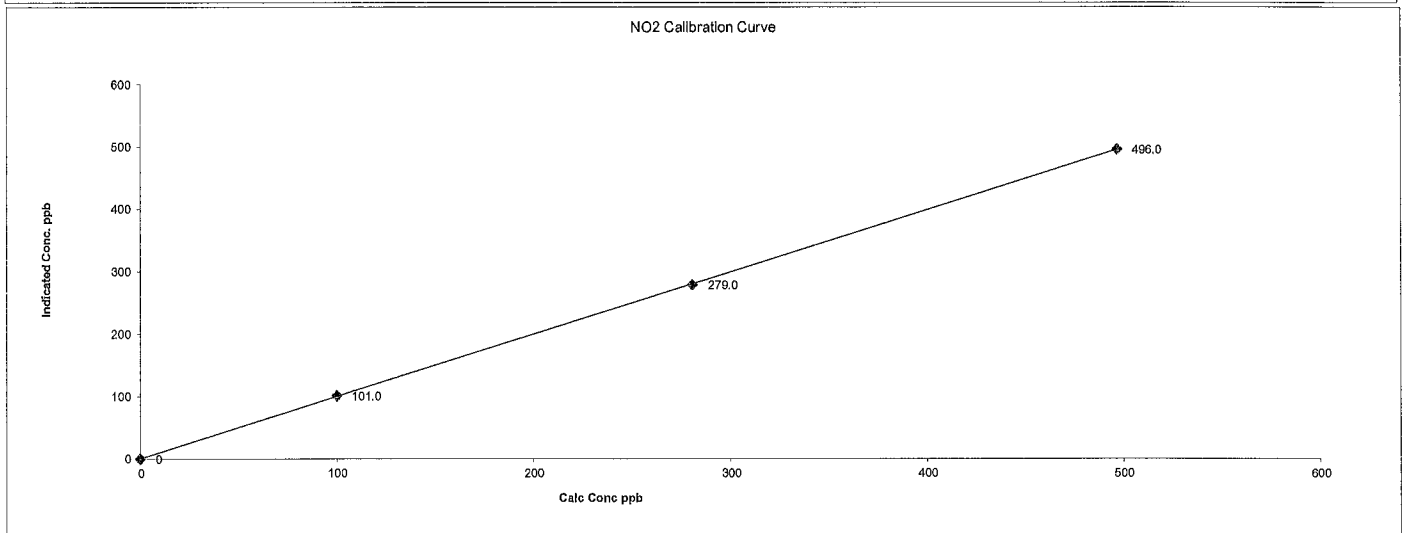
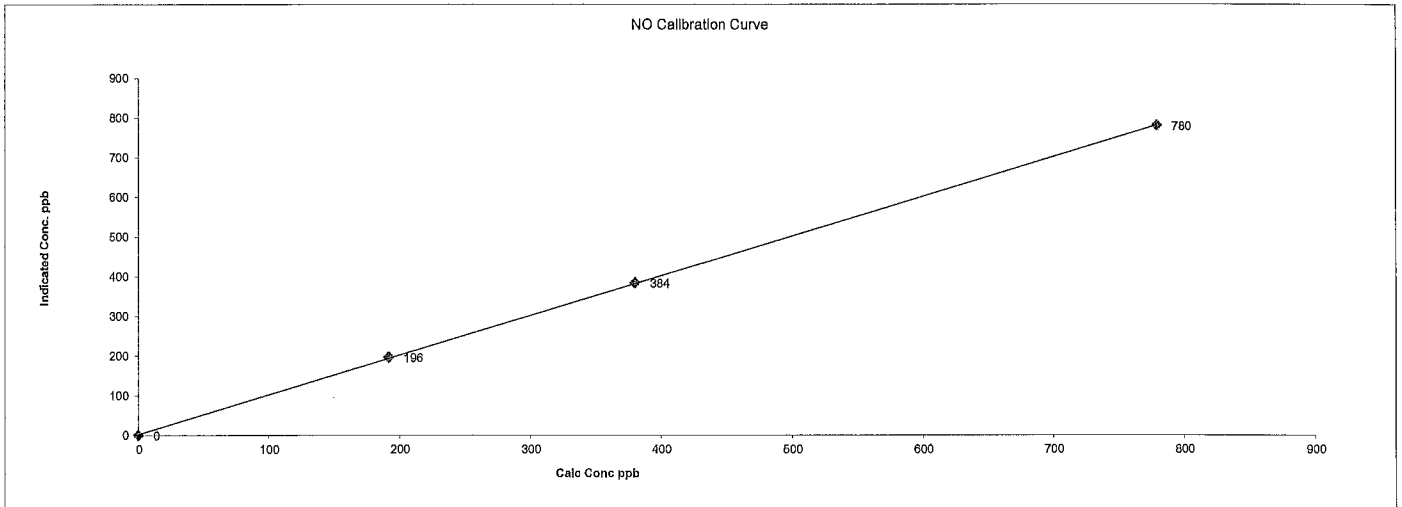
LIMITS
 > or = 0.995
 0.85-1.15
 ± 3% F.S.
 +/-15%
 >85%

Comments:

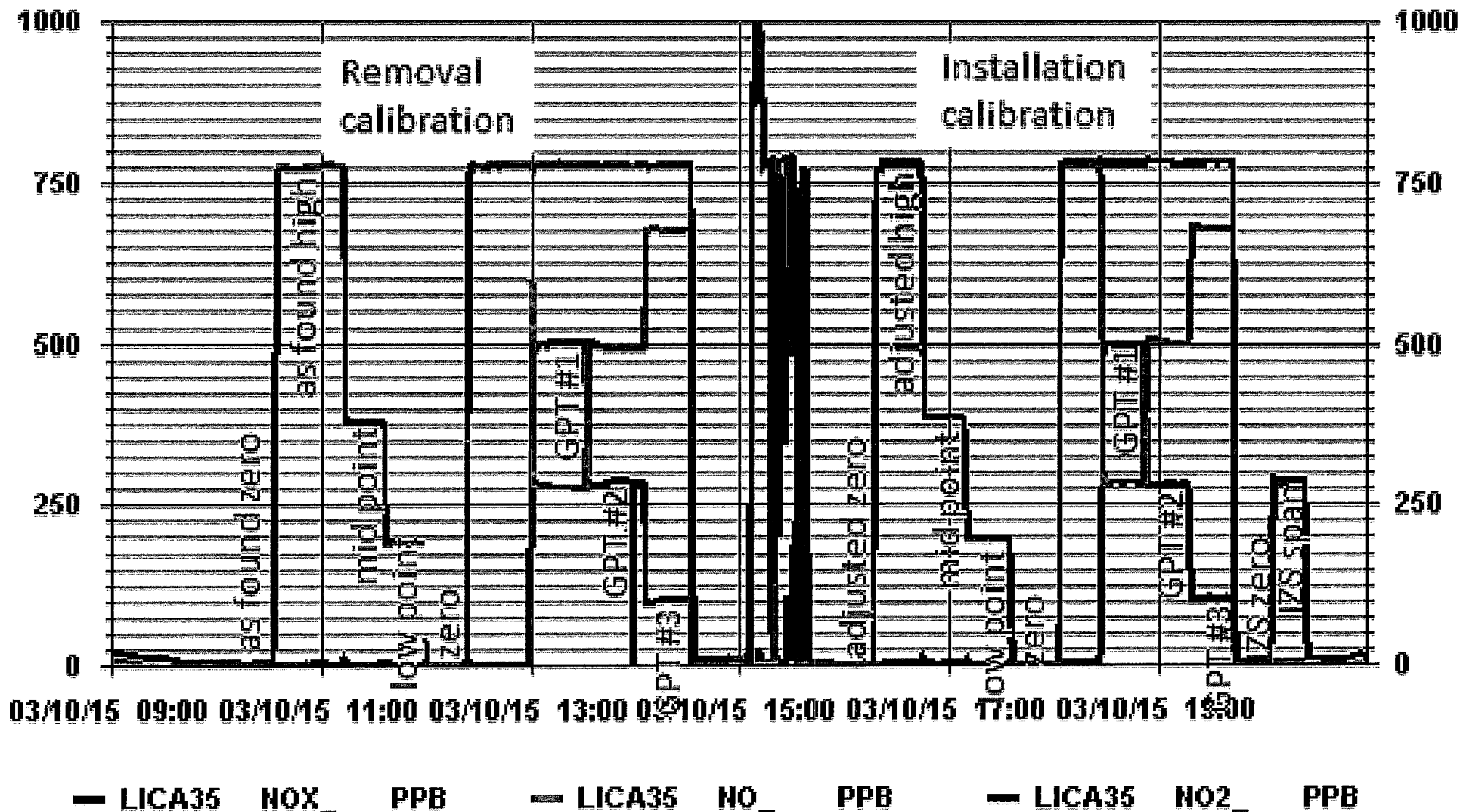
Date: 10-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Limin Li

Start Time (mst): 15:55
 End Time (mst): 20:30
 Calibration Purpose: Install calibration
 Cal Gas Expiry Date: 4-Feb-18

API 200E NOx Analyzer Calibration



01 Minute Averages



OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: <u>5-Mar-15</u>	Start Time (mst): <u>10:03</u>
Company: <u>LICA</u>	End Time (mst): <u>14:05</u>
Station Name/Location: <u>Elk Point</u>	Calibration Purpose: <u>Monthly</u>
Performed by: <u>Alex Yakupov</u>	G.P.T. Date: <u>4-Mar-15</u>

Analyzer: Serial Number: <u>1002240372</u> Last Calibration Date: <u>24-Feb-15</u> Previous Cal High Point C.F.: <u>0.999</u>	Range ppm: <u>500</u> As Found C.F.: <u>0.997</u> New C.F.: <u>1.012</u>
--	--

	As found:	As left:
Motherboard:	O ₃ Bkg: <u>-0.1</u>	O ₃ Bkg: <u>-0.2</u>
	O ₃ Coef: <u>1.005</u>	O ₃ Coef: <u>1.001</u>
	<u>3.3</u>	<u>3.3</u>
	<u>15.0</u>	<u>15.0</u>
	<u>24.0</u>	<u>23.9</u>
Interface Board:	<u>-3.3</u>	<u>-3.2</u>
	<u>3.3</u>	<u>3.3</u>
	<u>5.0</u>	<u>5.0</u>
	<u>15.0</u>	<u>14.9</u>
	<u>-15.0</u>	<u>-15.1</u>
Photo Lamp	<u>9.8</u>	<u>9.8</u>
	<u>24.0</u>	<u>23.8</u>
O ₃ Lamp	<u>5.8</u>	<u>5.8</u>
Bench:	<u>27.4</u>	<u>28.4</u>
Bench Lamp:	<u>54.0</u>	<u>54.0</u>
O ₃ Lamp:	<u>68.1</u>	<u>68.2</u>
Pressure:	<u>695.9</u>	<u>696.2</u>
Cell A lpm:	<u>0.745</u>	<u>0.745</u>
Cell B lpm:	<u>0.756</u>	<u>0.755</u>
O ₃ ppb:	<u>0.0</u>	<u>0.4</u>
Cell A ppb:	<u>1.5</u>	<u>6.5</u>
Cell B ppb:	<u>-1.4</u>	<u>-5.8</u>
Cell A Int:	<u>49424</u>	<u>49374</u>
Cell B Int:	<u>45980</u>	<u>45978</u>
Internal Span:	<u>332.9</u>	<u>348</u>

Callibrator: Make & Model: <u>EnviroNics 6100</u> Serial #: <u>4760</u> NOx Gas Cylinder I.D. #: <u>LL42475</u> NOx Cylinder Conc. (ppm): <u>48.5</u>	Callibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>total flow (cc/min)</th> <th>O₃ setting (v or ppb)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> </tr> <tr> <td>high</td> <td>5000</td> <td>320</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>160</td> </tr> <tr> <td>low</td> <td>5000</td> <td>75</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	5000	0	high	5000	320	mid	5000	160	low	5000	75
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	5000	0														
high	5000	320														
mid	5000	160														
low	5000	75														

Callibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4991	0.0	4991	0.0	-0.2	NA
adjusted zero	4991	0.0	4991	0.0	0.0	NA
as found high	4991	320.00	5311	397.0	398.1	0.997
adjusted high	4991	320.00	5311	397.0	397.4	0.999
mid	4991	160.00	5151	205.0	202.8	1.011
low	4991	75.00	5066	94.0	91.5	1.027
calibrator zero	4991	0.00	4991	0.0	0.0	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration Average C.F.= 1.012

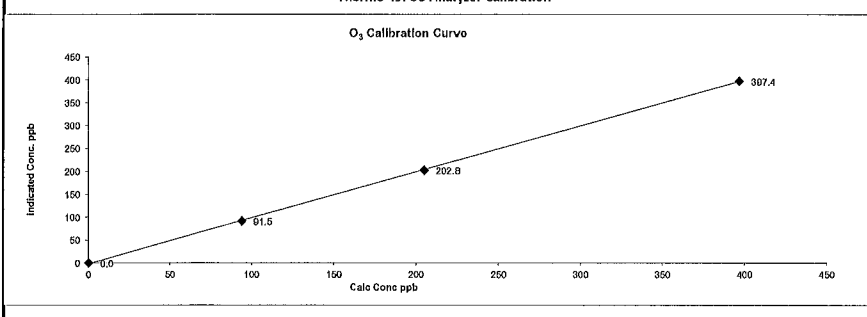
Linear Regression/Calibration Results:			
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.003</u>	> or = 0.995	PASS
b (Intercept as % of full scale)=	<u>-0.303%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

Filter changed

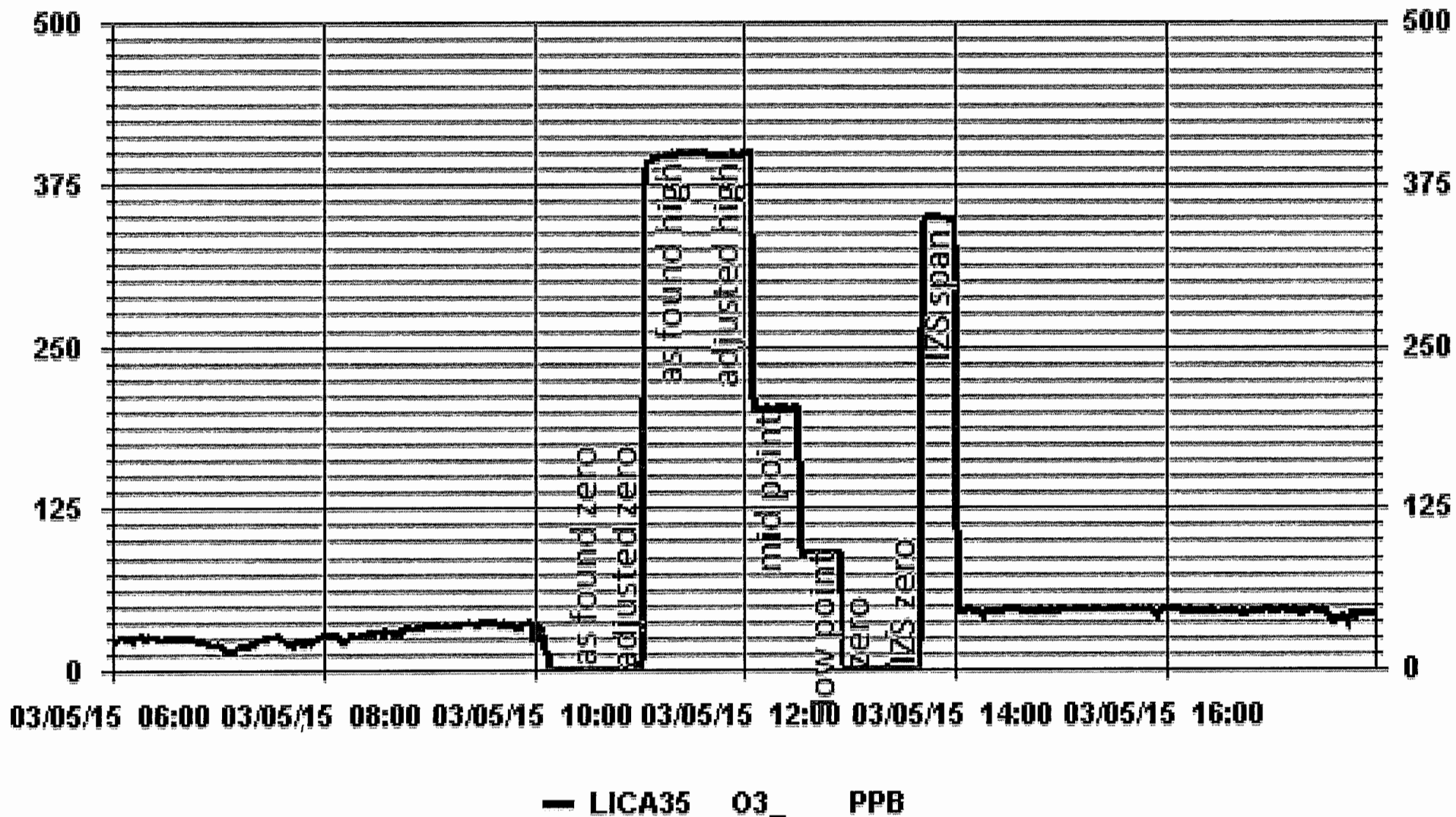
Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

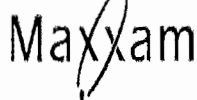


Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
91.5	91.5
202.8	202.8
397.4	397.4

01 Minute Averages



PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 5-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 17-Feb-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 14:12 - 14:51
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>20.83</u>
Ko Factor:	<u>14578</u>	As Left Filter Loading %:	<u>18.79</u>
Ambient Temperature °C:	<u>1.25</u>	As Found Noise:	<u>0.003</u>
Ambient Pressure atm:	<u>0.929</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.39</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>11-Apr-14</u>	<u>11-Apr-14</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>1.3</u>	1405F pressure atm:	<u>0.929</u>
reference temperature °C:	<u>2.0</u>	reference pressure:	<u>0.932</u>
difference °C:	<u>0.8</u>	difference :	<u>-0.003</u>

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>1.3</u>	1405F pressure atm:	<u>0.929</u>
reference temperature °C:	<u>2.0</u>	reference pressure:	<u>0.932</u>
difference °C:	<u>0.7</u>	difference :	<u>0.003</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.05</u>	reference total/aux flow lpm:	<u>13.75</u>
difference lpm:	<u>0.05</u>	difference lpm:	<u>0.08</u>

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

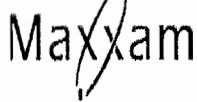
main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.05</u>	reference total/aux flow lpm:	<u>13.75</u>
difference lpm:	<u>0.05</u>	difference lpm:	<u>0.08</u>

K_o Audit:

Last K_o audit date: 1-May-14
 1405F K_o factor: 14578
 Measured K_o factor: NA
 % difference: NA

Comments:

Filters changed



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 11-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 5-Mar-15

Parameter: PM 2.5
 Performed by: Limin Li
 Start/End Time (mst): 1000/1500
 Calibration Purpose: Maintenance

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>20.01</u>
Ko Factor:	<u>15634</u>	As Left Filter Loading %:	<u>20.01</u>
Ambient Temperature °C:	<u>-0.47</u>	As Found Noise:	<u>0.004</u>
Ambient Pressure atm:	<u>0.928</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.36</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Brunton</u>	<u>Fluke</u>
Model:	<u>Streamline FTS</u>	<u>ADC Summit</u>	<u>1551A</u>
Serial Number:	<u>HI 091001, Lo 091099</u>	<u>NA</u>	<u>1735039</u>
Calibration Date:	<u>NA</u>	<u>5-May-14</u>	<u>NA</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>0.3</u>	1405F pressure atm:	<u>0.928</u>
reference temperature °C:	<u>1.1</u>	reference pressure:	<u>0.928</u>
difference °C:	<u>0.8</u>	difference :	<u>0.001</u>

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>2.2</u>	1405F pressure atm:	<u>0.927</u>
reference temperature °C:	<u>2.2</u>	reference pressure:	<u>0.927</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.10</u>	reference total/aux flow lpm:	<u>13.79</u>
difference lpm:	<u>0.10</u>	difference lpm:	<u>0.12</u>

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

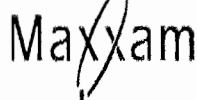
main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>13.67</u>
reference main flow lpm:	<u>3.07</u>	reference total/aux flow lpm:	<u>13.78</u>
difference lpm:	<u>0.07</u>	difference lpm:	<u>0.11</u>

K_o Audit:

Last K_o audit date: 11-Mar-15
 1405F K_o factor: 15634
 Measured K_o factor: 15398
 % difference: 1.51

Comments:

Clean switch valve, Change orings.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 20-Mar-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 5-Mar-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 08:47 / 10:12
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number: 1405A207691003 As Found Filter Loading %: 22.05
 Ko Factor: 15634 As Left Filter Loading %: 18.79
 Ambient Temperature °C: -3.75 As Found Noise: 0.005
 Ambient Pressure atm: 0.937 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.37
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB61291	FB61291
Serial Number:	NA	130168457	130168457
Calibration Date:	NA	11-Apr-14	11-Apr-14

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.44	0.00	-0.44
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-3.8</u>	1405F pressure atm: <u>0.937</u>
reference temperature °C: <u>-3.4</u>	reference pressure: <u>0.942</u>
difference °C: <u>0.4</u>	difference: <u>-0.005</u>

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

tolerance +/- 2.0°C	tolerance +/- 0.01 atm
1405F temperature °C: <u>-3.8</u>	1405F pressure atm: <u>0.937</u>
reference temperature °C: <u>-3.4</u>	reference pressure: <u>0.942</u>
difference °C: <u>0.4</u>	difference: <u>0.005</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>2.98</u>	reference total/aux flow lpm: <u>13.53</u>
difference lpm: <u>-0.02</u>	difference lpm: <u>-0.14</u>

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

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>2.98</u>	reference total/aux flow lpm: <u>13.53</u>
difference lpm: <u>-0.02</u>	difference lpm: <u>-0.14</u>

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 15634
 Measured K_o factor: 15712.9000
 % difference: 0.50

Comments:

Filters changed

WIND SYSTEM



Meteorological Sensor Audit

Station Information

Company:	<u>LICA</u>	Performed By:	<u>Chris Wesson/Kevin Hope</u>
Location:	<u>Elk Point</u>	Reason:	<u>Bi-annual audit</u>
Audit Date:	<u>21-Feb-14</u>	Start Time (mst):	<u>15:10</u>
Previous Audit Date:	<u>24-Nov-11</u>	End Time (mst):	<u>15:40</u>

Wind Speed

Sensor make:	<u>RM Young</u>	Sensor height:	<u>10M</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>RM Young</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0 - 1</u>	Output signal range:	<u>0 - 200 KPH</u>

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	17.75	0.99
2000	35.28	35.54	35.53	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:	<u>RM Young</u>	Sensor height:	<u>10M</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>RM Young</u>	Variable speed motor:	<u>CA03309</u>
Voltage range:	<u>0 - 1</u>	Output signal range:	<u>0 - 360</u>

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

Company Maxxam Operator: Limin Li

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

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>		

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

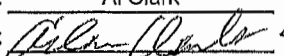
Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
5015	0.000	0.000	0.843	-0.017	0.826	NO ₂	% Diff. Limit
5015	0.520	0.527	0.316	0.485	0.802	-5%	± 10%
5015	0.280	0.286	0.557	0.262	0.819	-2%	± 10%
5015	0.100	0.104	0.739	0.089	0.827	2%	± 10%
Absolute Average Percent Difference						2%	± 10%

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 Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>April 1, 2015</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: Cylinder contains 49.7 ppm SO₂.

Auditor: Al Clark
Operator Signature: 

Date: April 1, 2015
Location: McIntyre Center Edmonton

Company: Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>831</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>April 2014</u>	Temperature (°C)	<u>N/A</u>
H ₂ S Cylinder Conc.	<u>10.2</u>	Barometric Pressure	<u>N/A</u>
H ₂ S Cylinder S/N	<u>BLM003757</u>		

Flow Measurements

Pt. No. 1 39.2 Pt. No. 2 19.6 Pt. No. 3 9.8

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.0000	0.0000		
4999	0.0800	0.0790	-1%	± 10%
4994	0.0400	0.0398	0%	± 10%
4994	0.0200	0.0194	-3%	± 10%
Absolute Average Percent Difference			2%	± 10%

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

H ₂ S		LIMITS	
Correlation=	1.0000	≥	0.995
m (Slope)=	0.9894		0.90-1.10
b (Intercept % of FS)=	-0.0800	±	3% F.S.

AENV Standards		H ₂ S Analyzer	
Audit Calibrator		Make/Model	<u>Teco 450i</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>AMU 1980</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>April 2, 2015</u>
		Full Scale (ppm)	<u>0.1</u>

COMMENTS: MFC's recalibrated. Second run.

Auditor: Al Clark Date: April 2, 2015

Operator Signature: *Al Clark* Location: McIntyre Center Edmonton

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Envionics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>5212</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>October 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)
Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)
Pt. #1 80 Pt. #2 40 Pt. #3 20 Gas flows not available from display.

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4995	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4997	0.0	0.800	0.800	0.814	-0.001	0.813	2%	2%
4995	0.0	0.400	0.400	0.409	-0.001	0.408	2%	2%
4998	0.0	0.200	0.200	0.204	0.000	0.204	2%	2%
Absolute Average Percent Difference							2%	2%

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)=	1.0176	0.90-1.10		m (Slope)=	1.0161
b (Intercept % of FS)=	0.0600	± 3% F.S.		b (Intercept % of FS)=	0.0600

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4997	0.000	0.000	0.813	-0.001	0.802	NO ₂	% Diff. Limit
4997	0.580	0.527	0.286	0.527	0.813	0	± 10%
4997	0.300	0.278	0.535	0.238	0.813	0	± 10%
4997	0.100	0.093	0.720	0.091	0.811	0	± 10%
Absolute Average Percent Difference						0	± 10%

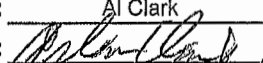
LINEAR REGRESSION ANALYSIS

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

NO ₂		LIMITS	
Correlation=	0.9965	≥ 0.995	
m (Slope)=	0.9898	0.90-1.10	
b (Intercept % of FS)=	-0.8461	± 3% F.S.	

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS:

Auditor: Al Clark
Operator Signature: 

Date: December 18, 2014
Location: McIntyre Center Edmonton

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Calibrator Flow (sccm)		Calculated Conco.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	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)=	1.0511	0.90-1.10		m (Slope)=	1.0496
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)=	0.0400

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%


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

NO ₂		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	1.0006	0.90-1.10	
b (Intercept % of FS)=	-0.0132	± 3% F.S.	

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: _____

Auditor: Al Clark Date: December 17, 2014

Operator Signature:  Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-257CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: LL42475 Concentration PPM: 50.3 Tolerance(%): 1 Certified By: Alr Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>R&R MFC 201</u>	Make/Model: <u>Bios DC2</u>
Serial Number: <u>AMU 1690</u>	Serial Number: <u>AMU 1659</u>
Last Verification Date: <u>December 15, 2014</u>	Temp. °C: <u>22.5 C</u>
Gas Type: <u>SO2</u> Conc. <u>98.57</u>	B.P. <u>701 mmhg</u>
Cylinder Number: <u>CAL016720</u>	

Reference Analyzer:
Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.7 Span: 1.018 Range: 1.0
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	0.000	0.01019	98.157	49.3
5114	52.1	0.502	0.01019	98.157	49.3
5093	22.3	0.214	0.00438	228.386	48.9
5073	10.9	0.105	0.00215	465.413	48.9
Average Cylinder Concentration:					49.0

Previous Stated Concentration PPM: 50.3
Percent variance from Stated: 2.6

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

Auditor: Al Clark Date: December 16, 2014
Operator Signature: *Al Clark* Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2013-324CGA

Company: Maxxam Operator's Name: Chris Wesson
 Cylinder #: BLM005049 Concentration PPM: 10.1 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: February 21, 2013
 Gas Type: H2S Conc. 20.02
 Cylinder Number: D249556

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 21.0 C
 B.P. 696 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 7.5 Span: 1.023 Range: 0.1
 Last Calibration: Date: Feb 21/13 C.F. 1.000 Done By: Al Clark

Calibrator Flows (secm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.00749	133.586	10.3
5103	38.2	0.0768	0.00749	133.586	10.3
5087	17.9	0.0355	0.00352	284.190	10.1
5064	9.2	0.0182	0.00182	550.435	10.0
Average Cylinder Concentration:					10.1

Previous Stated Concentration PPM: 10.1

Percent variance from Stated: 0.2

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

Auditor: Al Clark
 Operator Signature: *Chris Wesson*

Date: February 21, 2013
 Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2014-252CGA

Company: Maxxam Operators name: Limin Li
Cylinder #: LL42475 Conc (PPM) 48.5/48.5 Tolerance (%) 1 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146i
Serial Number AMU 1809
Last Verification Date December 15, 2014
Gas Type NO Conc. 48.79
Cylinder Number CAL017892

Flow Measurement Device:

Make/Model Blos DC2
Serial Number AMU 1659
Temp. °C 23.0 C
B.P. 702 mmhg

Reference Analyzer:

Make/Model Teco 42i Serial/AMU Number: 1868
Instrument Settings Zero: 4.3 Span: 1.017 Range: 1.0
Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000	0.000	0.000	0.000	0.000
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

NO **NOx**

Previous Stated Concentration PPM: 48.5 48.5

Percent variance from Stated: 3.8 4.0

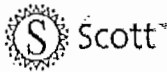
Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.

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

Auditor: Al Clark Date: December 16, 2014
Operator Signature: [Signature] Location: McIntyre Center Edmonton



500 WEAVER PARK RD, LONGMONT, CO 80501 Phone: 888-253-1635 Fax: 303-772-7673

COMPLIANCE CLASS

Guaranteed +/- 2% Accuracy

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A42014
 AIR LIQUIDE AMERICA SPECIALTY GASES LLC
 500 WEAVER PARK RD
 LONGMONT, CO 80501

P.O. No.: 1218334
 Document #: 53834050-001

Customer
 AIR LIQUIDE CANADA
 HARRY GE/PO 1218334
 10020 56TH AVENUE
 EDMONTON T6E 5Z2
 ALBERTA CANADA

ANALYTICAL INFORMATION Gas Type : NO,SO2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1. EPA/600/R-12/531; May 2012. Do not use this standard if pressure is less than 100 psig.

Cylinder Number: 8LM000428
 Cylinder Pressure: 1900 PSIG

Certification Date: 03Feb2014

Exp. Date: 04Feb2018
 Batch No: LGM0109922

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
NITRIC OXIDE	50.7 PPM	0.4 PPM / 0.8 %
SULFUR DIOXIDE	48.8 PPM	0.6 PPM / 1.2 %
NITROGEN - OXYGEN FREE	BALANCE	
TOTAL OXIDES OF NITROGEN	50.8 PPM	Reference Value Only

TRACEABILITY

REFERENCE STANDARD COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
NITRIC OXIDE	49.4600 PPM	0.4000 PPM	KAL003885	NTRM 1883/051711	15Mar2018
SULFUR DIOXIDE	49.6700 PPM	0.5000 PPM	KAL003244	NTRM 1693	20Aug2016

ANALYTICAL METHOD

1st Analysis: 27Jan2014

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
NITRIC OXIDE	MKS ONLINE/2030/0929062	FTIR	08Jan2014	50.84 PPM
SULFUR DIOXIDE	MKS ONLINE/2030/0929062	FTIR	04Jan2014	48.83 PPM

2nd Analysis: 03Feb2014

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
NITRIC OXIDE	MKS ONLINE/2030/0929062	FTIR	08Jan2014	50.58 PPM
SULFUR DIOXIDE	MKS ONLINE/2030/0929062	FTIR	04Jan2014	48.71 PPM

Special Notes:

Note on Tags and Certs: ALC Stock Number: SPG- 3MX0020758 Transfer cost approved by Sarah Herbert NOTE: END USER IS REQUESTING THAT THE ORDER COME FROM LONGMONT AS THEY HAVE HAD ISSUES WITH SOME EPAS SHIPPED FROM TROY

QUALITY ASSURANCE

APPROVED BY: JON WITZAK
 (signature on file)



Praxair Composites Inc
 2601 South Street
 Columbus, MS - 39208-2925
 Tel: 769-493-0778
 Fax: 769-493-3282

03/27/2014

MAXXAM ANALYTICALS INC (NA)
 5372 49TH ST
 EDMONTON, AB T6B 2L7

Work Order No. 20248856
 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	500.0ppm	501.4ppm	U	±1% rel
Propane	200.0ppm	202.2ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance—802g/USA—
 Hewlett-Packard (Agilent)—8490—GC-FID

Cylinder Style: AQ
 Cylinder Pressure: 2200 psig
 Cylinder Volume: 82.8 lts
 Valve Output Connection: CGA-310
 Cylinder No(s): CL33874

Filling Method: Gravimetric
 Date of Fill: 03/25/2014
 Expiration Date: 03/26/2017

Analyst: Todd Hryniw

This gas cylinder is a product of Praxair Composites Inc. It is intended for use as a primary standard. It is not intended for use in any other application. The cylinder is not intended to be used for any other purpose. It is not intended for use in any other application. It is not intended for use in any other application. It is not intended for use in any other application.

- 1. Do not use for any other purpose.
- 2. Do not use for any other purpose.
- 3. Do not use for any other purpose.
- 4. Do not use for any other purpose.
- 5. Do not use for any other purpose.
- 6. Do not use for any other purpose.
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- 12. Do not use for any other purpose.
- 13. Do not use for any other purpose.
- 14. Do not use for any other purpose.
- 15. Do not use for any other purpose.
- 16. Do not use for any other purpose.
- 17. Do not use for any other purpose.
- 18. Do not use for any other purpose.
- 19. Do not use for any other purpose.
- 20. Do not use for any other purpose.

This information is provided for your information only. It is not intended for use in any other application. It is not intended for use in any other application. It is not intended for use in any other application. It is not intended for use in any other application.

APPENDIX IV
ANALYTICAL RESULTS

VOC LAB RESULTS

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/Mar 13, 2015</p> <p>CANISTER ID: S5618</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	21-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1,4-Dioxane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
2,2-Dimethylbutane	I	0.09	ppbv	0.03	AC-058	21-Mar-15
2,3,4-Trimethylpentane	I	0.08	ppbv	0.03	AC-058	21-Mar-15
2,3-Dimethylbutane		0.32	ppbv	0.03	AC-058	21-Mar-15
2,3-Dimethylpentane		0.35	ppbv	0.03	AC-058	21-Mar-15
2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/Mar 13, 2015</p> <p>CANISTER ID: S5618</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.07	ppbv	0.03	AC-058	21-Mar-15
2-Methylhexane	I	0.14	ppbv	0.03	AC-058	21-Mar-15
2-Methylpentane		0.45	ppbv	0.03	AC-058	21-Mar-15
3-Methylheptane	I	0.05	ppbv	0.02	AC-058	21-Mar-15
3-Methylhexane	I	0.16	ppbv	0.03	AC-058	21-Mar-15
3-Methylpentane	I	0.25	ppbv	0.03	AC-058	21-Mar-15
Acetone		2.72	ppbv	0.03	AC-058	21-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Benzene	I	0.26	ppbv	0.03	AC-058	21-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Carbon tetrachloride	I	0.11	ppbv	0.03	AC-058	21-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Chloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Cyclohexane		0.32	ppbv	0.03	AC-058	21-Mar-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.06	ppbv	0.03	AC-058	21-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Ethylbenzene	I	0.06	ppbv	0.03	AC-058	21-Mar-15
Freon-11		0.32	ppbv	0.03	AC-058	21-Mar-15
Freon-113	I	0.10	ppbv	0.03	AC-058	21-Mar-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Freon-12		0.73	ppbv	0.03	AC-058	21-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Isobutane		2.18	ppbv	0.03	AC-058	21-Mar-15
Isopentane		1.65	ppbv	0.03	AC-058	21-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Isopropyl alcohol		2.94	ppbv	0.06	AC-058	21-Mar-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
m,p-Xylene	I	0.17	ppbv	0.03	AC-058	21-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl ethyl ketone		0.30	ppbv	0.03	AC-058	21-Mar-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	21-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Methylcyclohexane		0.59	ppbv	0.03	AC-058	21-Mar-15
Methylcyclopentane		0.30	ppbv	0.03	AC-058	21-Mar-15
Methylene chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Butane		3.57	ppbv	0.03	AC-058	21-Mar-15
n-Decane	I	0.04	ppbv	0.03	AC-058	21-Mar-15

Qualifiers

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Heptane	I	0.24	ppbv	0.03	AC-058	21-Mar-15
n-Hexane		0.53	ppbv	0.03	AC-058	21-Mar-15
n-Octane	I	0.13	ppbv	0.03	AC-058	21-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Naphthalene	I	0.04	ppbv	0.03	AC-058	21-Mar-15
n-Nonane	I	0.07	ppbv	0.03	AC-058	21-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
o-Xylene	I	0.07	ppbv	0.03	AC-058	21-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Toluene		0.43	ppbv	0.03	AC-058	21-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Mar-15

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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15030213-003 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/EP/March 19, 2015 CANISTER ID: S5661 DESCRIPTION: Elk Point Airport DATE SAMPLED: 19-Mar-15 0:00 DATE RECEIVED: 25-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1,4-Dioxane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2,3,4-Trimethylpentane	I	0.06	ppbv	0.03	AC-058	27-Mar-15
2,3-Dimethylbutane	I	0.16	ppbv	0.03	AC-058	27-Mar-15
2,3-Dimethylpentane	I	0.25	ppbv	0.03	AC-058	27-Mar-15
2,4-Dimethylpentane	I	0.15	ppbv	0.03	AC-058	27-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15030213-003 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/EP/March 19, 2015 CANISTER ID: S5661 DESCRIPTION: Elk Point Airport DATE SAMPLED: 19-Mar-15 0:00 DATE RECEIVED: 25-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
2-Methylpentane	I	0.13	ppbv	0.03	AC-058	27-Mar-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	27-Mar-15
3-Methylhexane	I	0.04	ppbv	0.03	AC-058	27-Mar-15
3-Methylpentane	I	0.06	ppbv	0.03	AC-058	27-Mar-15
Acetone		2.66	ppbv	0.03	AC-058	27-Mar-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Benzene	I	0.19	ppbv	0.03	AC-058	27-Mar-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Carbon tetrachloride	I	0.11	ppbv	0.03	AC-058	27-Mar-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Chloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Cyclohexane	I	0.06	ppbv	0.03	AC-058	27-Mar-15
Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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 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, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 19, 2015</p> <p>CANISTER ID: S5661</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.62	ppbv	0.03	AC-058	27-Mar-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Ethylbenzene	I	0.03	ppbv	0.03	AC-058	27-Mar-15
Freon-11		0.32	ppbv	0.03	AC-058	27-Mar-15
Freon-113	I	0.10	ppbv	0.03	AC-058	27-Mar-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Freon-12		0.71	ppbv	0.03	AC-058	27-Mar-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Isobutane		0.49	ppbv	0.03	AC-058	27-Mar-15
Isopentane		0.99	ppbv	0.03	AC-058	27-Mar-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Isopropyl alcohol		0.79	ppbv	0.06	AC-058	27-Mar-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
m,p-Xylene	I	0.07	ppbv	0.03	AC-058	27-Mar-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl ethyl ketone	I	0.24	ppbv	0.03	AC-058	27-Mar-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	27-Mar-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methylcyclohexane	I	0.07	ppbv	0.03	AC-058	27-Mar-15
Methylcyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Methylene chloride		0.51	ppbv	0.03	AC-058	27-Mar-15
n-Butane		1.89	ppbv	0.03	AC-058	27-Mar-15
n-Decane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15030213-003 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/EP/March 19, 2015 CANISTER ID: S5661 DESCRIPTION: Elk Point Airport DATE SAMPLED: 19-Mar-15 0:00 DATE RECEIVED: 25-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Heptane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Hexane	I	0.18	ppbv	0.03	AC-058	27-Mar-15
n-Octane	I	0.05	ppbv	0.03	AC-058	27-Mar-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
o-Xylene	I	0.03	ppbv	0.03	AC-058	27-Mar-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Toluene	I	0.23	ppbv	0.03	AC-058	27-Mar-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15
Vinyl acetate		1.13	ppbv	0.03	AC-058	27-Mar-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Mar-15

Qualifiers

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 25, 2015</p> <p>CANISTER ID: H3283</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2,3-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2,4-Trichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,3-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,4-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1,4-Dioxane		0.35	ppbv	0.03	AC-058	04-Apr-15
1-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1-Hexene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
2,2-Dimethylbutane	I	0.09	ppbv	0.03	AC-058	04-Apr-15
2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
2,3-Dimethylbutane	I	0.21	ppbv	0.03	AC-058	04-Apr-15
2,3-Dimethylpentane	I	0.09	ppbv	0.03	AC-058	04-Apr-15
2,4-Dimethylpentane	I	0.08	ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 25, 2015</p> <p>CANISTER ID: H3283</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.03	ppbv	0.03	AC-058	04-Apr-15
2-Methylhexane	I	0.10	ppbv	0.03	AC-058	04-Apr-15
2-Methylpentane	I	0.27	ppbv	0.03	AC-058	04-Apr-15
3-Methylheptane	I	0.03	ppbv	0.02	AC-058	04-Apr-15
3-Methylhexane	I	0.08	ppbv	0.03	AC-058	04-Apr-15
3-Methylpentane	I	0.14	ppbv	0.03	AC-058	04-Apr-15
Acetone		2.66	ppbv	0.03	AC-058	04-Apr-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Benzene	I	0.20	ppbv	0.03	AC-058	04-Apr-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Carbon tetrachloride	I	0.10	ppbv	0.03	AC-058	04-Apr-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Chloromethane		0.99	ppbv	0.03	AC-058	04-Apr-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Cyclohexane	I	0.19	ppbv	0.03	AC-058	04-Apr-15
Cyclopentane	I	0.07	ppbv	0.03	AC-058	04-Apr-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15

Qualifiers

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.64	ppbv	0.03	AC-058	04-Apr-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Ethylbenzene	I	0.04	ppbv	0.03	AC-058	04-Apr-15
Freon-11	I	0.30	ppbv	0.03	AC-058	04-Apr-15
Freon-113	I	0.09	ppbv	0.03	AC-058	04-Apr-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Freon-12		0.66	ppbv	0.03	AC-058	04-Apr-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Isobutane		1.86	ppbv	0.03	AC-058	04-Apr-15
Isopentane		0.95	ppbv	0.03	AC-058	04-Apr-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Isopropyl alcohol		0.54	ppbv	0.06	AC-058	04-Apr-15
Isopropylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
m,p-Xylene	I	0.09	ppbv	0.03	AC-058	04-Apr-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl butyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl ethyl ketone		0.44	ppbv	0.03	AC-058	04-Apr-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	04-Apr-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Methylcyclohexane		0.35	ppbv	0.03	AC-058	04-Apr-15
Methylcyclopentane	I	0.17	ppbv	0.03	AC-058	04-Apr-15
Methylene chloride	I	0.17	ppbv	0.03	AC-058	04-Apr-15
n-Butane		2.44	ppbv	0.03	AC-058	04-Apr-15
n-Decane	I	0.04	ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 25, 2015</p> <p>CANISTER ID: H3283</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Heptane	I	0.12	ppbv	0.03	AC-058	04-Apr-15
n-Hexane		0.32	ppbv	0.03	AC-058	04-Apr-15
n-Octane	I	0.05	ppbv	0.03	AC-058	04-Apr-15
n-Pentane		1.14	ppbv	0.03	AC-058	04-Apr-15
n-Propylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Naphthalene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
o-Xylene	I	0.04	ppbv	0.03	AC-058	04-Apr-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
p-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Toluene	I	0.13	ppbv	0.03	AC-058	04-Apr-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 31, 2015</p> <p>CANISTER ID: S5620</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1,2-Trichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,1-Dichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2,3-Trimethylbenzene		2.64 ppbv	0.03	AC-058	11-Apr-15
1,2,4-Trichlorobenzene	I	0.28 ppbv	0.03	AC-058	11-Apr-15
1,2,4-Trimethylbenzene		3.24 ppbv	0.03	AC-058	11-Apr-15
1,2-Dibromoethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,3,5-Trimethylbenzene		0.78 ppbv	0.03	AC-058	11-Apr-15
1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,3-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,4-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1,4-Dioxane		0.39 ppbv	0.03	AC-058	11-Apr-15
1-Butene	I	0.15 ppbv	0.03	AC-058	11-Apr-15
1-Hexene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,2,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,2-Dimethylbutane	I	0.04 ppbv	0.03	AC-058	11-Apr-15
2,3,4-Trimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	11-Apr-15
2,3-Dimethylbutane	I	0.15 ppbv	0.03	AC-058	11-Apr-15
2,3-Dimethylpentane	I	0.09 ppbv	0.03	AC-058	11-Apr-15
2,4-Dimethylpentane	I	0.06 ppbv	0.03	AC-058	11-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 31, 2015</p> <p>CANISTER ID: S5620</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
2-Methylhexane	I	0.04	ppbv	0.03	AC-058	11-Apr-15
2-Methylpentane	I	0.15	ppbv	0.03	AC-058	11-Apr-15
3-Methylheptane	K, T, U	< 0.03	ppbv	0.02	AC-058	11-Apr-15
3-Methylhexane	I	0.05	ppbv	0.03	AC-058	11-Apr-15
3-Methylpentane	I	0.09	ppbv	0.03	AC-058	11-Apr-15
Acetone		3.28	ppbv	0.03	AC-058	11-Apr-15
Acrolein	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Benzene	I	0.16	ppbv	0.03	AC-058	11-Apr-15
Benzyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Carbon disulfide	I	0.18	ppbv	0.03	AC-058	11-Apr-15
Carbon tetrachloride	I	0.10	ppbv	0.03	AC-058	11-Apr-15
Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Chloroethane	I	0.04	ppbv	0.03	AC-058	11-Apr-15
Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Chloromethane		1.05	ppbv	0.03	AC-058	11-Apr-15
cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Cyclohexane	I	0.12	ppbv	0.03	AC-058	11-Apr-15
Cyclopentane	I	0.04	ppbv	0.03	AC-058	11-Apr-15
Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 31, 2015</p> <p>CANISTER ID: S5620</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.73	ppbv	0.03	AC-058	11-Apr-15
Ethyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Ethylbenzene		0.42	ppbv	0.03	AC-058	11-Apr-15
Freon-11	I	0.27	ppbv	0.03	AC-058	11-Apr-15
Freon-113	I	0.08	ppbv	0.03	AC-058	11-Apr-15
Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Freon-12		0.60	ppbv	0.03	AC-058	11-Apr-15
Hexachloro-1,3-butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Isobutane		0.58	ppbv	0.03	AC-058	11-Apr-15
Isopentane		0.58	ppbv	0.03	AC-058	11-Apr-15
Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Isopropyl alcohol		1.39	ppbv	0.06	AC-058	11-Apr-15
Isopropylbenzene	I	0.19	ppbv	0.03	AC-058	11-Apr-15
m,p-Xylene		1.22	ppbv	0.03	AC-058	11-Apr-15
m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
m-Ethyltoluene		1.71	ppbv	0.03	AC-058	11-Apr-15
Methyl butyl ketone	I	0.03	ppbv	0.03	AC-058	11-Apr-15
Methyl ethyl ketone		0.33	ppbv	0.03	AC-058	11-Apr-15
Methyl isobutyl ketone	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methyl methacrylate	K, T, U	< 0.03	ppbv	0.05	AC-058	11-Apr-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Methylcyclohexane	I	0.23	ppbv	0.03	AC-058	11-Apr-15
Methylcyclopentane	I	0.12	ppbv	0.03	AC-058	11-Apr-15
Methylene chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Butane		0.90	ppbv	0.03	AC-058	11-Apr-15
n-Decane		0.31	ppbv	0.03	AC-058	11-Apr-15

Qualifiers

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

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

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/March 31, 2015</p> <p>CANISTER ID: S5620</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Heptane	I	0.07	ppbv	0.03	AC-058	11-Apr-15
n-Hexane	I	0.23	ppbv	0.03	AC-058	11-Apr-15
n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Pentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
n-Propylbenzene		0.63	ppbv	0.03	AC-058	11-Apr-15
n-Undecane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Naphthalene		6.28	ppbv	0.03	AC-058	11-Apr-15
n-Nonane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
o-Ethyltoluene		1.39	ppbv	0.03	AC-058	11-Apr-15
o-Xylene		0.67	ppbv	0.03	AC-058	11-Apr-15
p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
p-Ethyltoluene		0.54	ppbv	0.03	AC-058	11-Apr-15
Styrene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Tetrahydrofuran	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Toluene	I	0.30	ppbv	0.03	AC-058	11-Apr-15
trans-1,2-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Vinyl acetate	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15
Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Apr-15

Qualifiers

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Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

PAH LAB RESULTS

RESULTS TO: Lily Lin 403-219-3661 LICA 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: 15030061-001 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/EP/Mar 1, 2015 CANISTER ID: TE 07 DESCRIPTION: Elk Point Airport DATE SAMPLED: 01-Mar-15 0:00 DATE RECEIVED: 09-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.25 ug/Filter	0.01	NA-017	15-Mar-15
2-Methylnaphthalene		0.50 ug/Filter	0.01	NA-017	15-Mar-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthene		0.06 ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	15-Mar-15
Fluorene		0.06 ug/Filter	0.01	NA-017	15-Mar-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Naphthalene		0.21 ug/Filter	0.01	NA-017	15-Mar-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Phenanthrene		0.08 ug/Filter	0.01	NA-017	15-Mar-15
Pyrene		0.02 ug/Filter	0.01	NA-017	15-Mar-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Lily Lin LICA 4000, 19 St NE Calgary AB INVOICE TO: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB</p>	<p>403-219-3661 T2E 6P8 780 812-2182 T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030080-001 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/EP/March 7, 2015 CANISTER ID: TE 03 DESCRIPTION: Elk Point Airport DATE SAMPLED: 07-Mar-15 0:00 DATE RECEIVED: 11-Mar-15 REPORT CREATED: 25-Mar-15 REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.10 ug/Filter	0.01	NA-017	15-Mar-15
2-Methylnaphthalene		0.17 ug/Filter	0.01	NA-017	15-Mar-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthene		0.04 ug/Filter	0.01	NA-017	15-Mar-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	15-Mar-15
Fluorene		0.06 ug/Filter	0.01	NA-017	15-Mar-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Naphthalene		0.15 ug/Filter	0.01	NA-017	15-Mar-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	15-Mar-15
Phenanthrene		0.09 ug/Filter	0.01	NA-017	15-Mar-15
Pyrene		0.02 ug/Filter	0.01	NA-017	15-Mar-15

<p>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</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/Mar 13, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.07 ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.13 ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Anthracene		0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.04 ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.11 ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.08 ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.12 ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.03 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmain Code 780-812-2182 5107W-50th Street Box 8237 Bonnyville AB</p>	<p>LABORATORY SAMPLE ID: 15030186-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/Mar 13, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 13-Mar-15 0:00</p> <p>DATE RECEIVED: 20-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi LICA 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: 15030213-004 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/EP/March 19, 2015 CANISTER ID: TE09 DESCRIPTION: Elk Point Airport DATE SAMPLED: 19-Mar-15 0:00 DATE RECEIVED: 25-Mar-15 REPORT CREATED: 13-Apr-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.05 ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.02 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.03 ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.08 ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.04 ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.02 ug/Filter	0.01	NA-017	03-Apr-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, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030213-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/March 19, 2015</p> <p>CANISTER ID: TE09</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 19-Mar-15 0:00</p> <p>DATE RECEIVED: 25-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-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, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/March 25, 2015</p> <p>CANISTER ID: TE04</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.16 ug/Filter	0.01	NA-017	03-Apr-15
2-Methylnaphthalene		0.30 ug/Filter	0.01	NA-017	03-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthene		0.04 ug/Filter	0.01	NA-017	03-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(b,j,k)fluoranthene		0.02 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Fluoranthene		0.04 ug/Filter	0.01	NA-017	03-Apr-15
Fluorene		0.08 ug/Filter	0.01	NA-017	03-Apr-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Naphthalene		0.13 ug/Filter	0.01	NA-017	03-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	03-Apr-15
Phenanthrene		0.09 ug/Filter	0.01	NA-017	03-Apr-15
Pyrene		0.03 ug/Filter	0.01	NA-017	03-Apr-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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On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15030234-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/March 25, 2015</p> <p>CANISTER ID: TE04</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 25-Mar-15 0:00</p> <p>DATE RECEIVED: 31-Mar-15</p> <p>REPORT CREATED: 13-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.05 ug/Filter	0.01	NA-017	03-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/March 31, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/Filter	0.01	NA-017	21-Apr-15
2-Methylnaphthalene		0.04 ug/Filter	0.01	NA-017	21-Apr-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Acenaphthene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(b,j,k)fluoranthene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Benzo(ghi)perylene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,h)pyrene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,i)pyrene		0.03 ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(a,l)pyrene		0.02 ug/Filter	0.01	NA-017	21-Apr-15
Dibenzo(ah)anthracene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	21-Apr-15
Fluorene		0.06 ug/Filter	0.01	NA-017	21-Apr-15
Indeno(1,2,3-cd)pyrene		0.01 ug/Filter	0.01	NA-017	21-Apr-15
Naphthalene		0.03 ug/Filter	0.01	NA-017	21-Apr-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15
Phenanthrene		0.08 ug/Filter	0.01	NA-017	21-Apr-15
Pyrene		0.01 ug/Filter	0.01	NA-017	21-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15040032-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/March 31, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 31-Mar-15 0:00</p> <p>DATE RECEIVED: 09-Apr-15</p> <p>REPORT CREATED: 23-Apr-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	21-Apr-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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APPENDIX V
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-03-35- C</u>
Site: <u>Elk Point Airport Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete mslmtka Date 04 - April - 2015

QA Check Review mslmtka Date 04 - April - 2015

Report Complete mslmtka Date 05 - May - 2015

Report Reviewed [Signature] Date 8 - May - 15

Report Shipped _____ Date _____

Notes