



Box 8237  
5107W-50th Street  
Bonnyville, AB T9N 2J5  
Phone: (780) 812-2182  
Fax: (780) 812-2186  
Toll Free: 1-877-737-2182  
E-Mail: [lica2@lica.ca](mailto:lica2@lica.ca)  
Website: <http://www.lica.ca>

Alberta Environment  
Monitoring and Science  
Data Management  
Floor 11 Oxbridge Place  
9820 106 Street  
Edmonton Alberta T5K 2J6

November 15, 2015

**RE: September 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 #:2833-2015-09-01- C**

**SEPTEMBER 2015**

Prepared for:

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

**Attention: MIKE BISAGA**

DATE: **October 30, 2015**

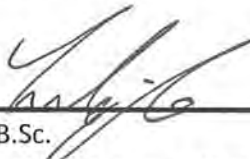
Prepared by:



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 SEPTEMBER 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.

All Parameters: Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzers and wind system were recovering from a short power outage.

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	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	2	1, 5	10, 7	13.9 0.6	WSW ENE	0.3	VAR	99.7
TRS (PPB)	-	-	-	-	0	7	30	7	0.1	S	0.4	30	99.7
THC (PPM)	-	-	-	-	2.1	3.5	29, 30	23, 1	1.5 0.8	S ESE	2.6	30	99.7
NO2 (PPB)	159	-	0	-	1.9	12.8	30	8	2.2	E	5.0	30	99.6
NO (PPB)	-	-	-	-	0.7	28.1	30	8	2.2	E	3.3	30	99.6
NOX (PPB)	-	-	-	-	2.5	40.9	30	8	2.2	E	8.3	30	99.6
O3 (PPB)	82	-	0	-	18	41	11	16	10.6	WSW	28.7	1	99.7
PM2.5 (UG/M3)	-	30	-	0	6.6	59.0	21	13	15.5	WNW	11.6	10	94.4
RELATIVE HUMIDITY (%)	-	-	-	-	73.4	98	VAR	VAR	VAR	VAR	90.9	6	99.7
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	10.0	25.7	11, 11	15, 16	12.1 10.6	WSW WSW	17.3	11	99.7
VECTOR WS (KPH)	-	-	-	-	5.4	20.6	6, 27	14, 13	-	NNE WNW	13.5	6	99.7
VECTOR WD (DEG)	-	-	-	-	WNW	-	-	-	-	-	-	-	99.7

NA-NOT AVAILABLE VAR-VARIOUS

---

## Exceedence Summary Report

---

**SO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**SO<sub>2</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**NO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**PM<sub>2.5</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

## Passive Sampler Summary (August - September 2015)

	Sulphur Dioxide (in ppb)
Mean	0.4
Minimum	<0.1
Maximum	1.1

**Note:** Access papers for stations #12 and #25 were not provided.

	Hydrogen Sulphide (in ppb)
Mean	0.29
Minimum	0.08
Maximum	0.87

**Note:** Access papers for stations #12 and #25 were not provided.

	Nitrogen Dioxide (in ppb)
Mean	1.3
Minimum	0.2
Maximum	3.7

**Note:** Access papers for station #12 were not provided.

	Ozone (in ppb)
Mean	21.10
Minimum	14.45
Maximum	30.60

**Note:** Access papers for station #12 were not provided.

### Volatile Organics (VOCs) Data Summary

---

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
SEPTEMBER 3, 2015	9.6	METHYLENE CHLORIDE
SEPTEMBER 9, 2015	2.7	ACETONE
SEPTEMBER 15, 2015	1.8	ACETONE
SEPTEMBER	1.4	ACETONE
SEPTEMBER 27, 2015	1.5	ACETONE

Note: NA

### Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
SEPTEMBER 3, 2015	0.12	PHENANTHRENE
SEPTEMBER 9, 2015	0.20	PHENANTHRENE
SEPTEMBER 15, 2015	0.13	PHENANTHRENE
SEPTEMBER	0.09	PHENANTHRENE
SEPTEMBER 27, 2015	0.09	2-METHYLNAPHTHALENE

Note: NA



### Partisol Sampler Summary

---

Sample Collected Date	Concentration (mg)
SEPTEMBER 3, 2015	0.040
SEPTEMBER 9, 2015	0.036
SEPTEMBER 15, 2015	0.006
SEPTEMBER 21, 2015	<0.004
SEPTEMBER 27, 2015	0.022

Note: NA

**TABLE OF CONTENTS**

<u>Title</u>	<u>Page</u>
1.0 Discussion	3
2.0 Project Personnel	8
3.0 Plant Monthly Required AMD Summary	8
4.0 Calculations and Results	8
5.0 Methods and Procedures	9
Appendix I	Continuous Monitoring Data Results
	Sulphur Dioxide
	Total Reduced Sulphur
	Total Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Ozone
	Particulate Matter 2.5
	Wind Speed
	Wind Direction
	Standard Deviation Wind Direction
	Relative Humidity
	Ambient Temperature
Appendix II	Non-Continuous Monitoring Data Results
	Passive Results
	VOC Results
	PAH Results
	Partisol Results
Appendix III	Analyzer Calibration Results
	Sulphur Dioxide
	Total Reduced Sulphur
	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Partisol Sampler
	Calibrators
	Calibration Gases

**Appendix IV**

**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 SO<sub>2</sub>, TRS, THC, NO<sub>x</sub>, NO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, WS, WD, RH and Ambient Temperature. It also includes results for non-continuous parameters Passives, VOC, PAH and Partisol.

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

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

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

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

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

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

### **SULPHUR DIOXIDE (SO<sub>2</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 23. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

### **TOTAL REDUCED SULPHUR (TRS)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 23. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

### **TOTAL HYDROCARBONS (THC)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 23. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

### **NITROGEN DIOXIDE (NO<sub>2</sub>)**

The analyzer spanned high on September 8. An as found points check was completed on September 9. The result was good. The analyzer continued to show a high span drift after the as found points check. Another as found points check was performed on September 18. The check result was within acceptance limits. The reason the analyzer had high span results was because the expected span value was set incorrectly after the calibration last month. The expected span value was adjusted after the as found points check on September 18. The routine monthly calibration was performed on September 23. Data collected on September 8 at hour 8 was invalidated due to a malfunction. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

### **OZONE (O<sub>3</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 23. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

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

The Teom unit was found with a vacuum pressure warning on September 3. A shut-down audit was performed prior to maintenance. The sampling pump was checked and the by-pass filter was changed and re-insulated. Both the inlet filter and the FDMS filter were also replaced. A post-repair audit was completed on the same day. As the unit passed both the shut-down audit and the post-repair audit, no data was discarded. The other routine audit was completed on September 25. Data was corrected using Alberta air quality guideline. If the data was between 0 to  $-3 \text{ ug/m}^3$ , the data was corrected to  $0 \text{ ug/m}^3$ . If the data was below  $-3 \text{ ug/m}^3$ , the data was invalidated. Thirty-eight hours of data were invalidated as the data were below  $-3 \text{ ug/m}^3$  this month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure.

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

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

The wind system was working well throughout the month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure. Hourly maximum data collected on September 1 at hour 7 was invalidated as the analyzer was recovering from a short power outage.

### **RELATIVE HUMIDITY (RH)**

The humidity sensor was working well throughout the month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure.

### **AMBIENT TEMPERATURE (TPX)**

The temperature sensor was working well throughout the month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power failure.

### **PASSIVE SAMPLES**

Samples were collected over the months of August and September. Samples were collected at all designated stations, except stations 12 and 25 as access documents were not provided by client. Analytical 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 in ppb.

Samples were collected on September 3, 9, 15, 21 and 27. Analytical results are included in this report.

### **PAH SAMPLES**

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported in the unit of  $\mu\text{g}$ .

Samples were collected on September 3, 9, 15, 21 and 27. Analytical results are included in this report.

**PARTISOL SAMPLES**

A temperature/pressure check, leak check and flow audit were performed on September 10. A full calibration, including interface board calibration and analog input calibration, was completed on September 18. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the Partisol were reported in mg. Samples were collected on September 3, 9, 15, 21 and 27. Analytical results are included in this report.

## **2.0 Project Personnel**

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling team consisted of Alexander Yakupov, Limin Li, and Christopher Wesson.

## **3.0 Plant Monthly Required AMD Summary**

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

The operational uptime for all analyzers and meteorological system 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-00210: Ambient TRS Monitoring
- Maxxam AIR SOP-00211: Ambient SO<sub>2</sub> Monitoring
- Maxxam AIR SOP-00212: Ambient O<sub>3</sub> Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO<sub>2</sub>/NO<sub>x</sub> 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

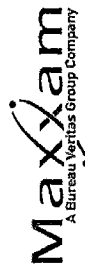
There were no deviations from the prescribed methods.

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<sub>2.5</sub>) - R&P 1405F Teom Unit
- Wind System - Met One Unit
- Relative Humidity - Met One Unit
- Ambient Temperature - Met One Unit
- Datalogger - ESC 8832
- Partisol - R&P 2000H Unit

***APPENDIX I***  
***CONTINUOUS MONITORING DATA RESULTS***

***SULPHUR DIOXIDE***



SULPHUR DIOXIDE (SO2) hourly averages in ppb

DAY	DAILY																								RODS			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		MAX.	AVG.	
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	2	0.3	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	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	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	0.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	0.1	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	0.2	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	0.1	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	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	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	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	0.2	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	0.1	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	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	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	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	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	24
HOURLY MAX																									2	0.3	24	
HOURLY AVG																									0.0	0.0	0.0	

STATUS FLAG CODES

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

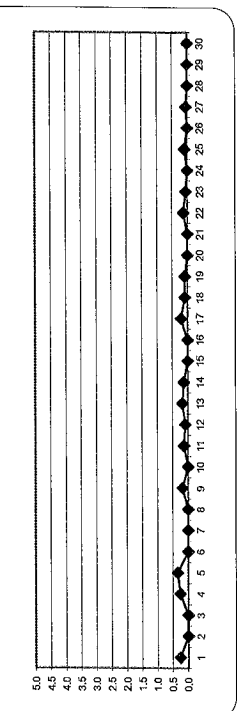
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	12-HR: 172	PPB	24-HR: 48	PPPB
----------------------	------------	-----	-----------	------

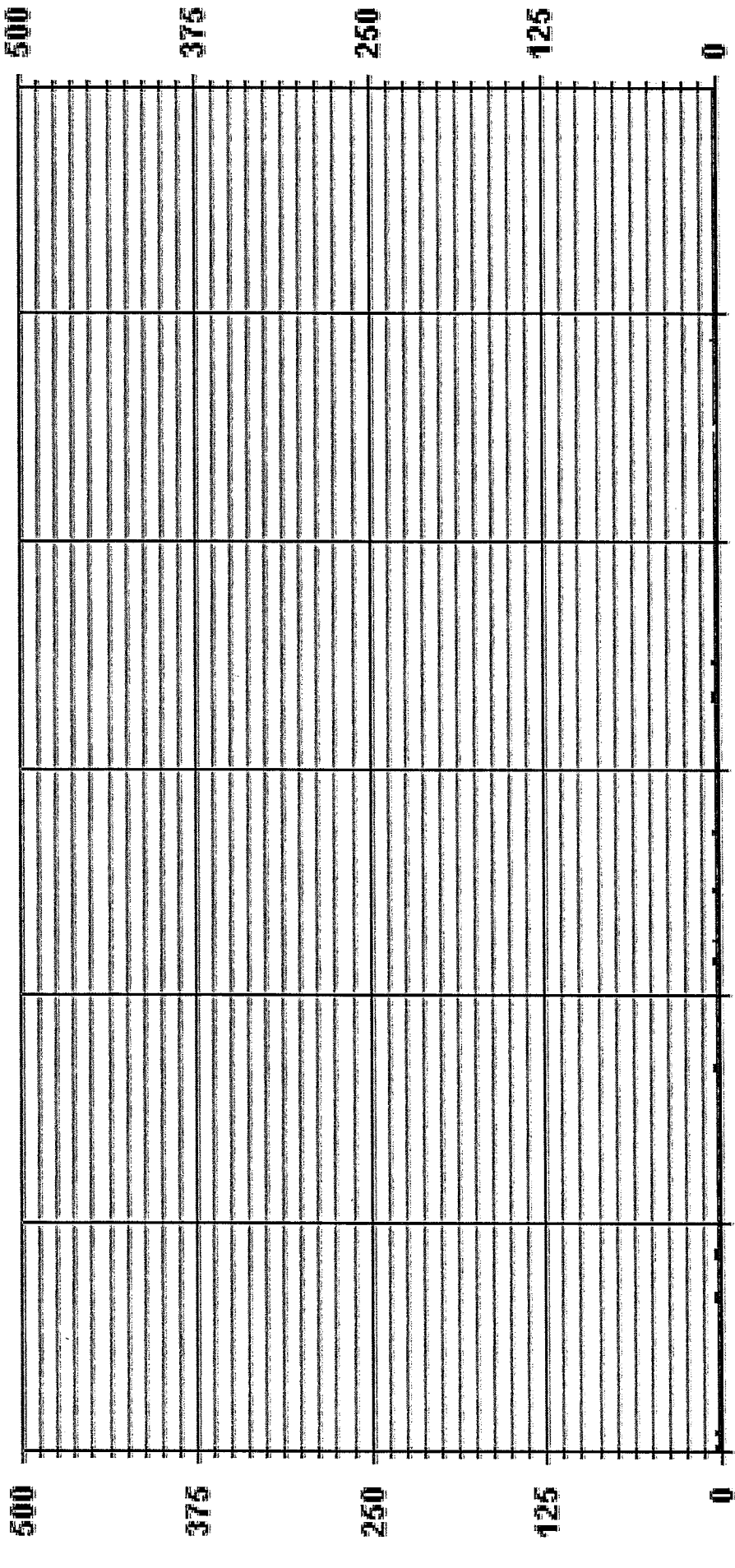
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF 24-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS:	50
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 10, 7
MAXIMUM 24-HR AVERAGE:	0.3 PPB
125 CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.28
MONTHLY AVERAGE:	0 PPB

24 HOUR AVERAGES FOR SEPTEMBER 2015



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/07/15 00:00 09/11/15 00:00 09/12/15 00:00 09/16/15 00:00 09/17/15 00:00 09/21/15 00:00 09/22/15 00:00

— LICA 502\_ PPB

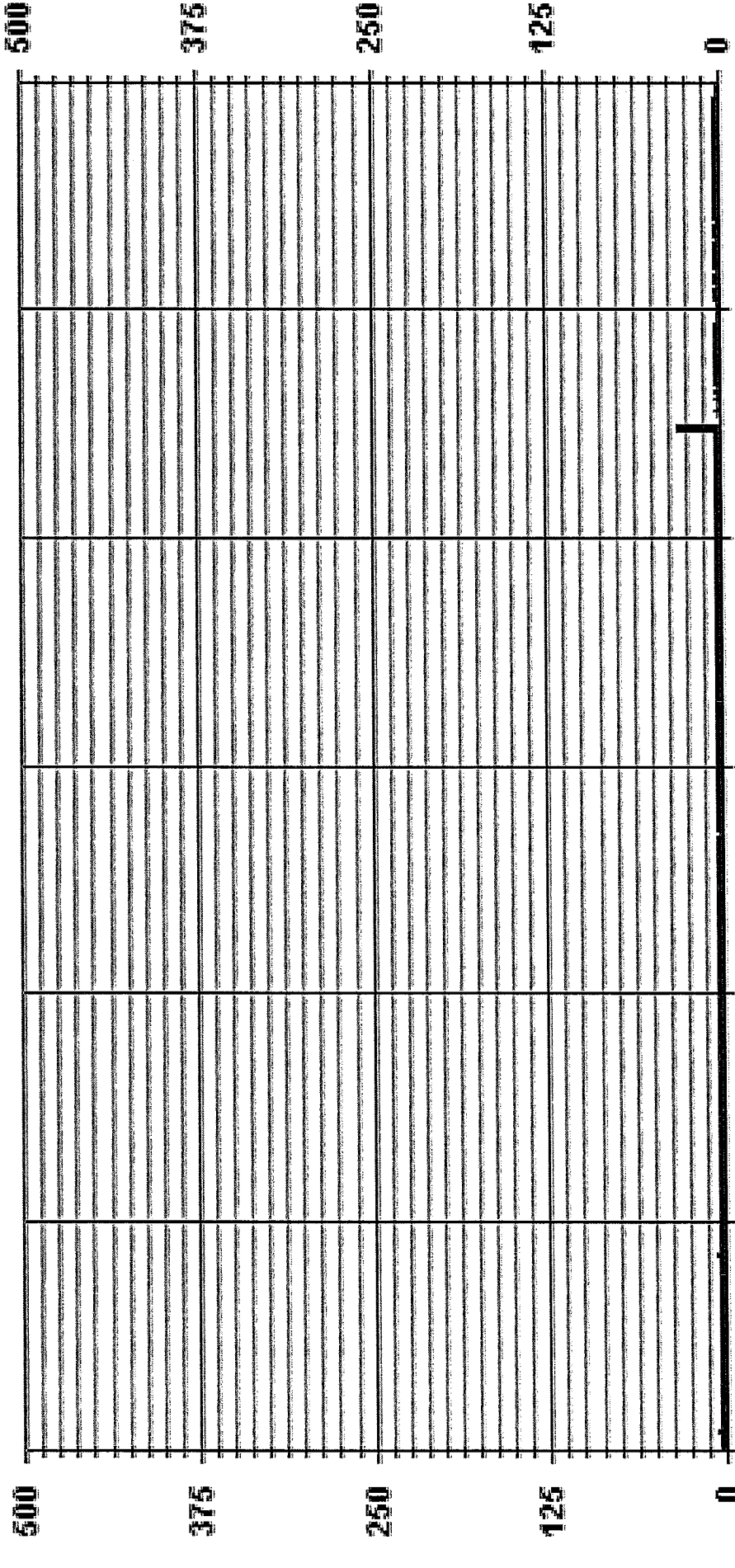


SULPHUR DIOXIDE MAX instantaneous maximum in ppb

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	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
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	4	1.2	23
2	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
3	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
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.3	24
6	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
7	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
8	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
9	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
10	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
11	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
12	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
13	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
14	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	2	1.1	24
15	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
16	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	22
17	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	2	1.0	24
18	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
19	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
20	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
21	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
22	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	2	1.1	24
23	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	28	2.3	24
24	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
25	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
26	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
27	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	0.8	24
28	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
29	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
30	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	0.9	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
HOURLY AVG	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.1	1.0	1.1	1.0	0.9	1.0	1.1	1.0	1.0	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	

STATUS FLAG CODES		MONTHLY SUMMARY	
C	CALIBRATION	NUMBER OF NON-ZERO READINGS:	650
O	QUALITY ASSURANCE	MAXIMUM INSTANTANEOUS VALUE:	28 PPB @ HOUR(S) 10 ON DAY(S) 23
R	RECOVERY	IZS CALIBRATION TIME:	32 HRS
M	MAINTENANCE	MONTHLY CALIBRATION TIME:	5 HRS
S	DAILY ZERO SPAN CHECK	STANDARD DEVIATION:	1.08
X	MAGNITUDE EXCEEDED	OPERATIONAL TIME:	717 HRS
D	OPERATOR ERROR	VAR-VARIOUS	
P	POWER FAILURE		
K	COLLECTION ERROR		
G	OUT FOR REPAIR		

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA SO2MAX PPB

LICA  
 SO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NW		
< 20	1.76	3.08	2.49	6.02	4.99	6.16	7.92	2.64	3.23	3.67	8.37	17.62	12.77	7.78	6.75	4.69	100.00	
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	1.76	3.08	2.49	6.02	4.99	6.16	7.92	2.64	3.23	3.67	8.37	17.62	12.77	7.78	6.75	4.69		

Logger Id : 01  
 Site Name : LICA  
 Parameter : SO2  
 Units : PPB

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NW		
< 20	12	21	17	41	34	42	54	18	22	25	57	120	87	53	46	32	681	
< 60																		
< 110																		
< 170																		
< 340																		
>= 340																		
Totals	12	21	17	41	34	42	54	18	22	25	57	120	87	53	46	32	681	

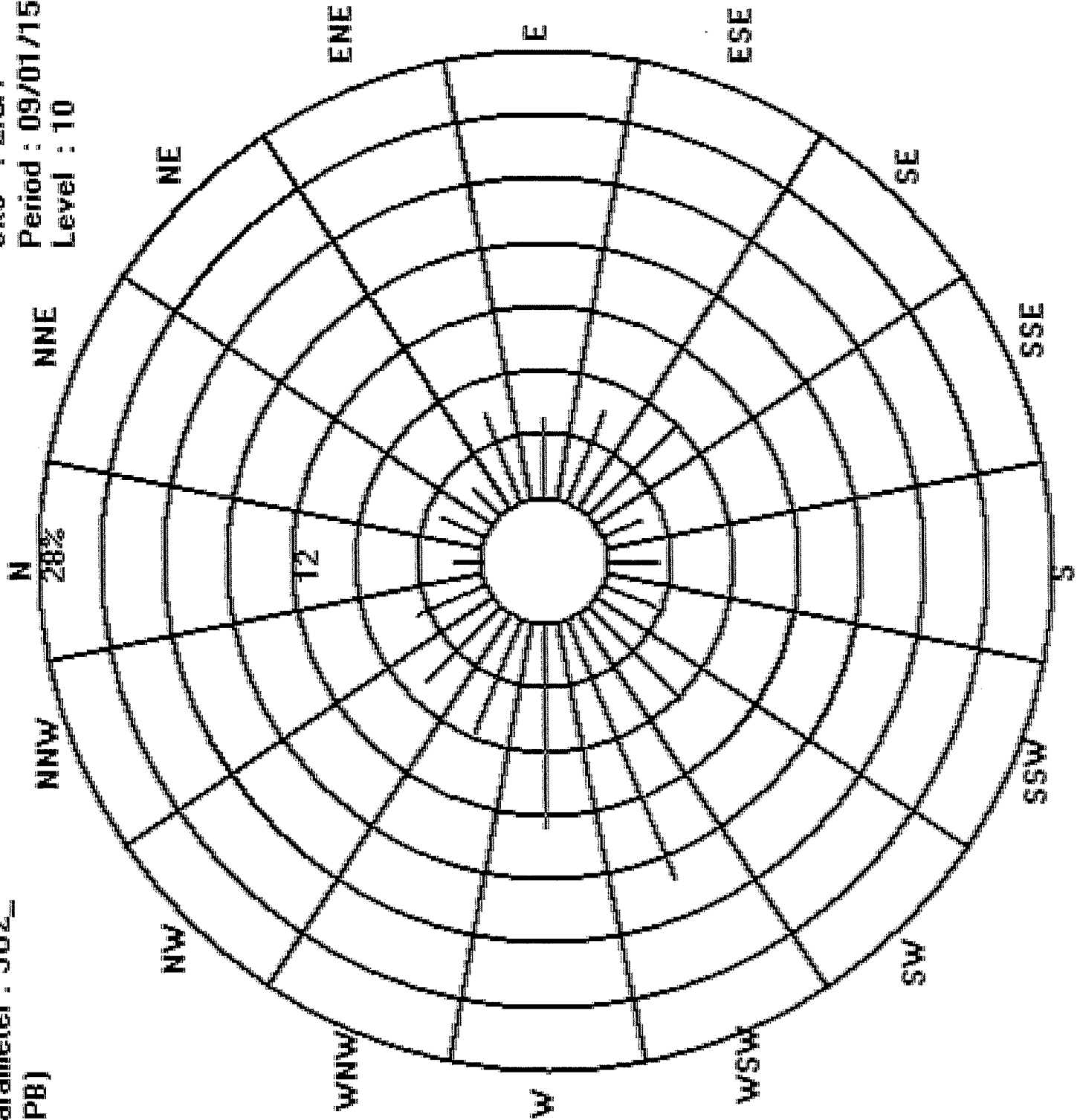
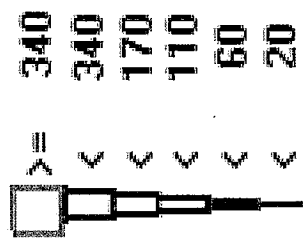
Calm : .00 %

Total # Operational Hours : 681

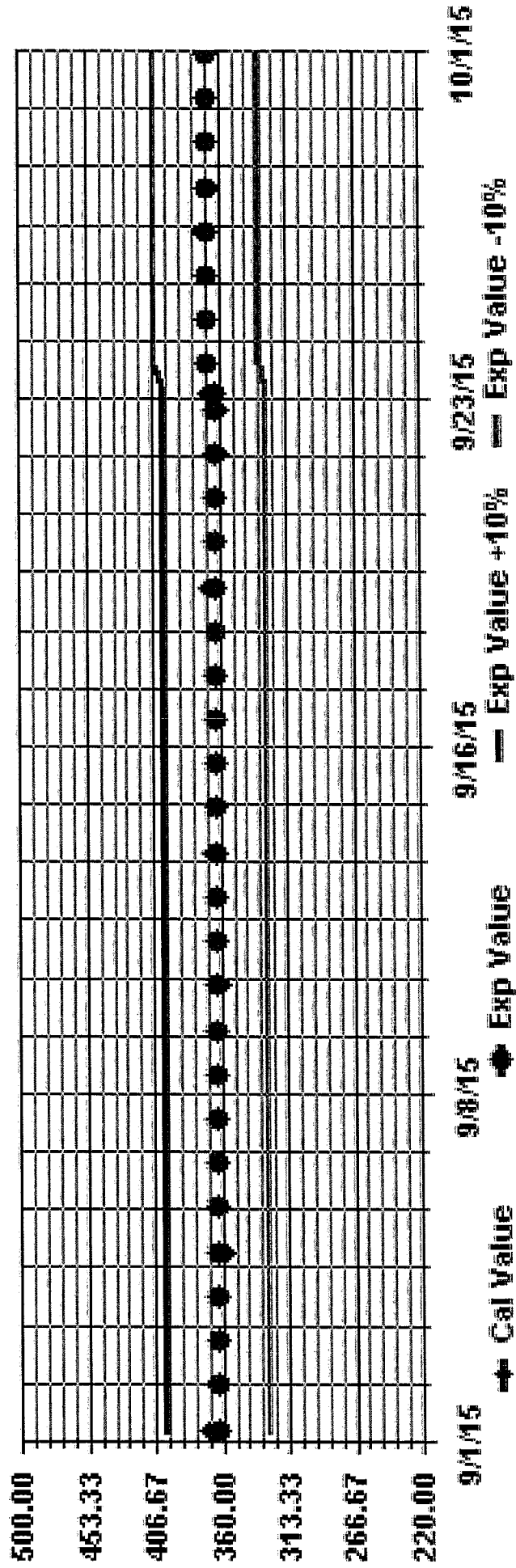


Site : LICA  
 Period : 09/01/15-09/30/15  
 Level : 10

Logger : 01 Parameter : SO2  
 Class Limits (PPB)



Calibration Graph for Site: LICA Parameter: SO2\_ Sequence: SO2 Phase: SPAN



***TOTAL REDUCED SULPHUR***

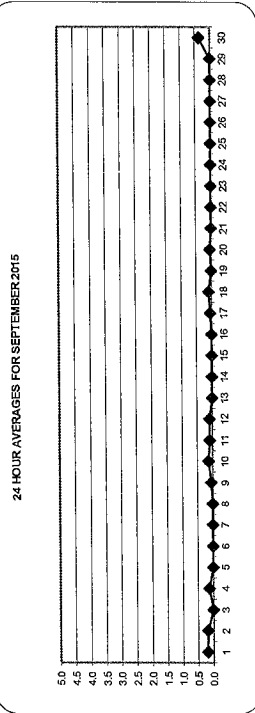


TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

DAY	MST																								DAILY MAX.	24-HOUR AVG.	ROGS.	
	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				
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	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	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	1	0.1	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	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	0.1	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	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	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	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	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	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	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	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	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	24
HOURLY MAX	2	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
HOURLY AVG	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	24

STATUS FLAG CODES

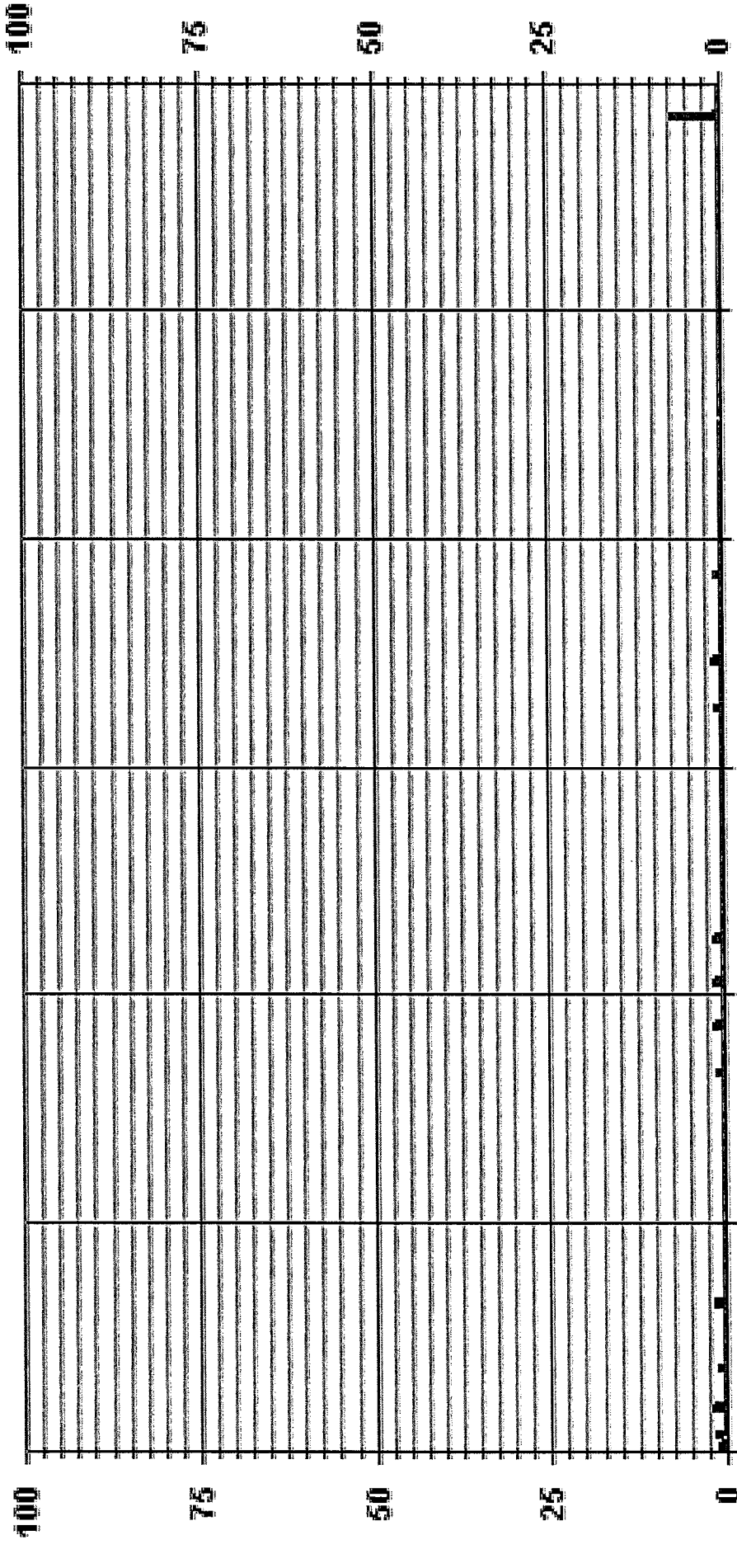
C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPRAY CHECK	X	MACHINE/VALVE/JUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	QUIP FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	24	ON DAY(S)	7	PPB @ HOUR(S)	7	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	0.4	PPB	0.4	PPB	7	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	0.33	PPB	0.33	PPB	7	ON DAY(S)	30
IS CALIBRATION TIME:	36	HRS	36	HRS	7	ON DAY(S)	30
MONTHLY CALIBRATION TIME:	5	HRS	5	HRS	7	ON DAY(S)	30
STANDARD DEVIATION:	0.33	PPB	0.33	PPB	7	ON DAY(S)	30
OPERATIONAL TIME:	718	HRS	718	HRS	7	ON DAY(S)	30
AMD OPERATION UPTIME:	99.7	%	99.7	%	7	ON DAY(S)	30
MONTHLY AVERAGE:	0	PPB	0	PPB	7	ON DAY(S)	30

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA    - - - TRS    . . . PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Cold Lake South Site - SEPTEMBER 2015  
JOB # 2833-2015-09-01-C

TOTAL REDUCED SULPHUR 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	24:00	AVG.	RDGS.		
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	1.5	23	
2	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	1.3	24	
3	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	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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	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	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	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	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	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	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	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	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	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	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	22	
17	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	
18	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	
19	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	
20	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	
21	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	
22	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	
23	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	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	24	
25	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	
26	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	
27	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	
28	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	
29	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	
30	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 MAX	3	2	2	1	2	1	1	1	7	51	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	51	3.6	51
HOURLY AVG	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	2.9	1.1	1.1	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	1.2	

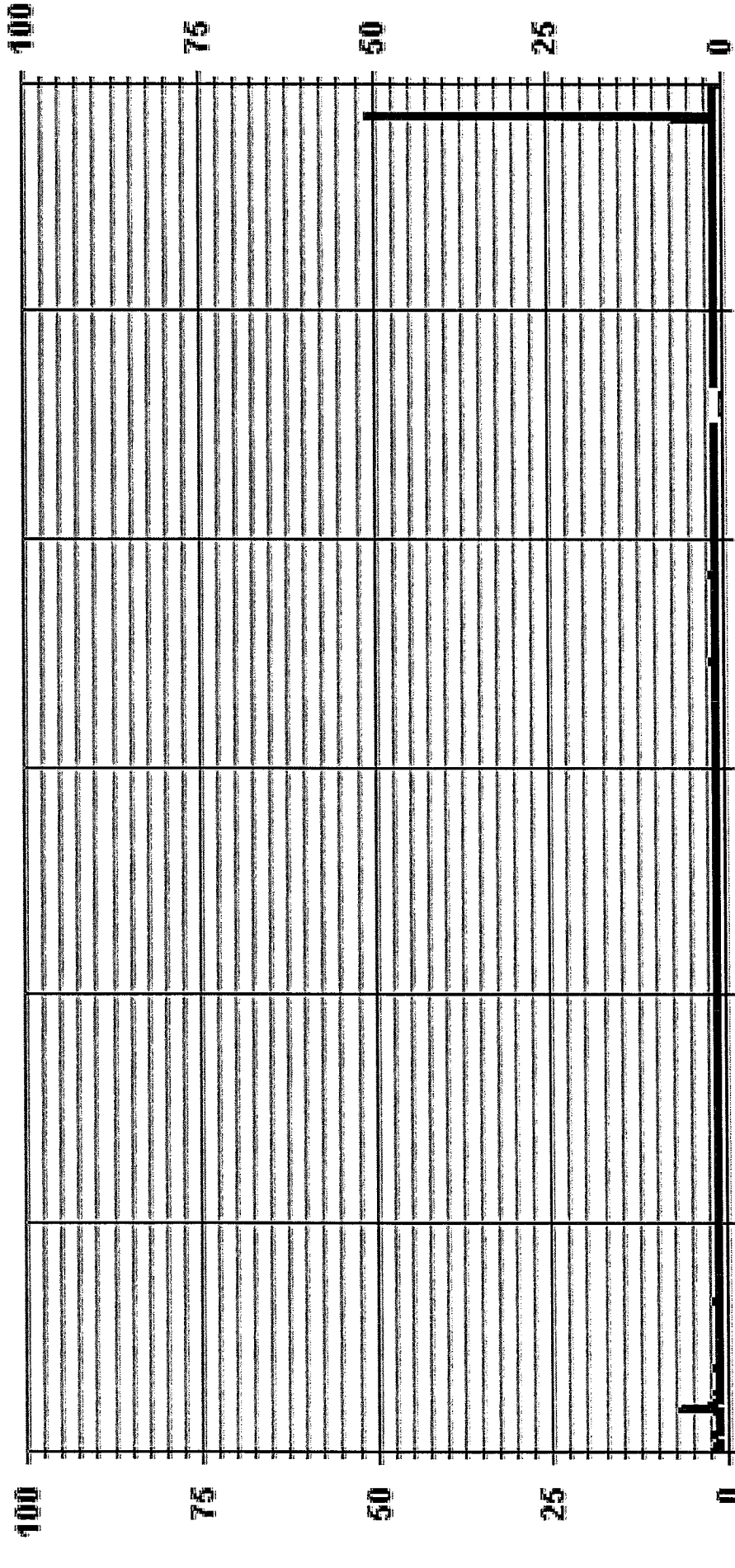
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	665
MAXIMUM INSTANTANEOUS VALUE:	51 PPB @ HOUR(S) 7 ON DAY(S) 30
IZS CALIBRATION TIME:	36 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	717 HRS
STANDARD DEVIATION:	1.96
VAR-VARIOUS	

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA TRSMAX PPB

LICA  
TRS\_ / WDR Joint Frequency Distribution (Percent)

September 2015

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	1.77	2.95	2.51	6.05	4.87	6.35	7.82	2.65	2.95	3.69	8.41	17.72	12.85	7.82	6.64	4.72	99.85
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.14
< 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	1.77	2.95	2.51	6.05	4.87	6.35	7.82	2.65	3.10	3.69	8.41	17.72	12.85	7.82	6.64	4.72	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	12	20	17	41	33	43	53	18	20	25	57	120	87	53	45	32	676
< 10									1								1
< 50																	
>= 50																	
Totals	12	20	17	41	33	43	53	18	21	25	57	120	87	53	45	32	

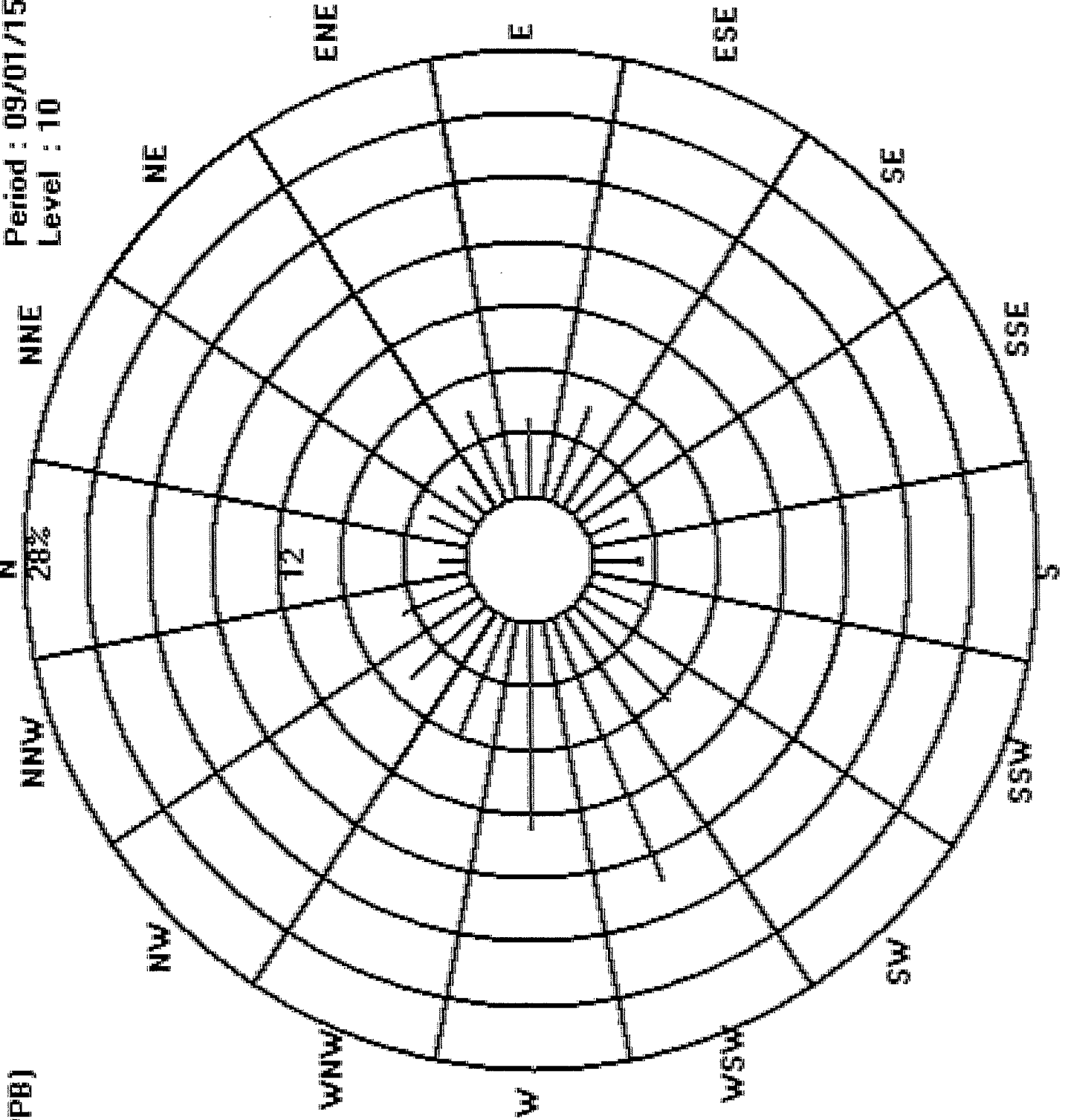
Calm : .00 %

Total # Operational Hours : 677



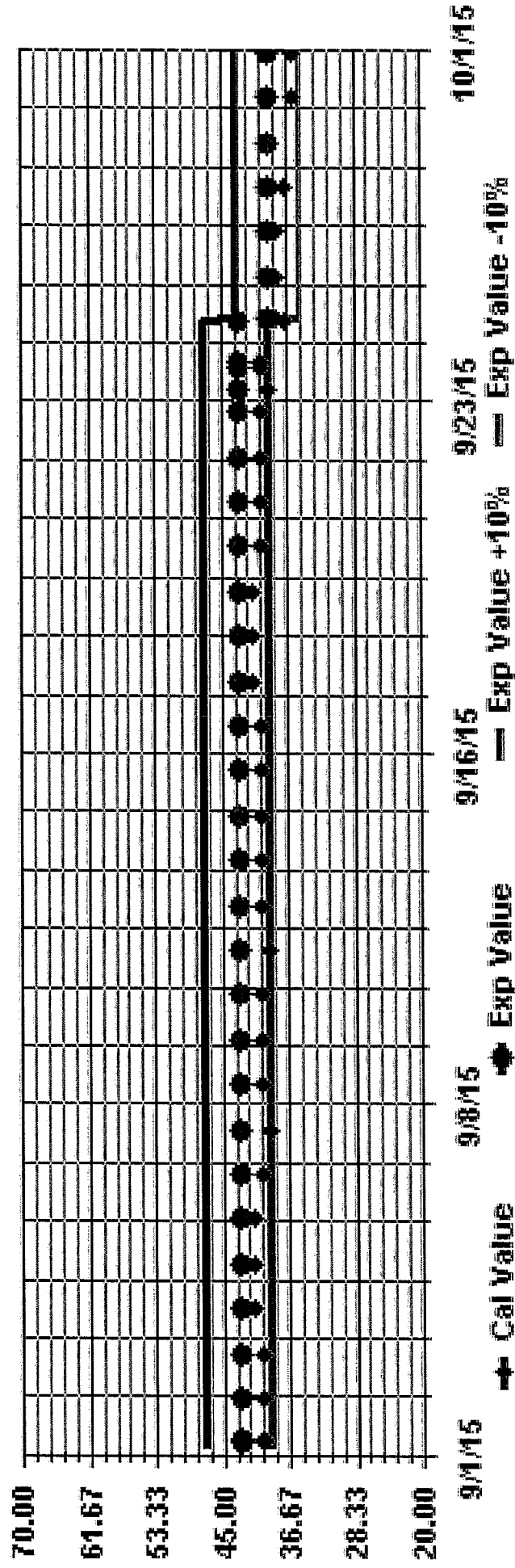
Logger : 01 Parameter : TRS\_

Site : LICA  
Period : 09/01/15-09/30/15  
Level : 10

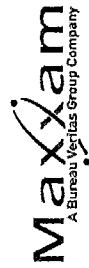


>= 50  
< 50  
< 10  
< 3

Calibration Graph for Site: LICA Parameter: TRS\_ Sequence: TRS Phase: SPAN



***TOTAL HYDROCARBON***



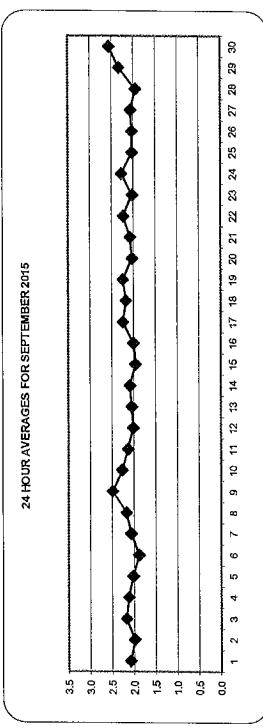
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24:00	
1	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.2	2.4	2.3	2.2	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.1
2	2.2	2.2	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.0
3	2.2	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.2
4	2.5	2.5	2.4	2.4	2.4	2.2	2.3	2.4	2.2	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.2	2.1	2.1	2.5
5	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.4	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	1.8	1.8	2.6	
6	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
7	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.3
8	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.2	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.4	2.6	2.8	2.8	2.8
9	2.7	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.8	2.7	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
10	2.3	2.5	2.4	2.5	2.7	2.5	2.3	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	2.1	2.2	2.7
11	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	2.1	2.2	2.7
12	1.9	2.0	2.1	2.1	2.2	2.1	2.2	2.1	2.2	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	2.2	2.2	2.3	2.0
13	2.3	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.1
14	2.3	2.3	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.1
15	2.3	2.2	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.4
16	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
17	2.2	2.2	2.3	2.5	2.5	2.6	2.5	2.6	2.7	2.6	2.7	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.1
18	2.3	2.3	2.2	2.3	2.4	2.5	2.7	2.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
19	2.2	2.2	2.4	2.4	2.6	2.8	2.9	2.8	2.6	2.4	2.3	2.3	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
20	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1
21	2.0	2.0	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
22	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.7	2.7	2.6	2.7	2.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
23	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
24	3.4	2.9	3.0	2.4	2.5	2.3	2.3	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
25	2.0	2.0	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
26	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
27	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
28	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
29	1.9	1.9	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.2	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
30	3.5	3.1	3.1	3.1	3.3	3.1	3.0	3.1	2.7	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	2.2	2.2	2.2
HOURLY MAX	3.4	3.5	3.1	3.1	3.3	3.1	3.0	3.1	2.8	2.6	2.3	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	2.2
HOURLY AVG	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

STATUS FLAG CODES

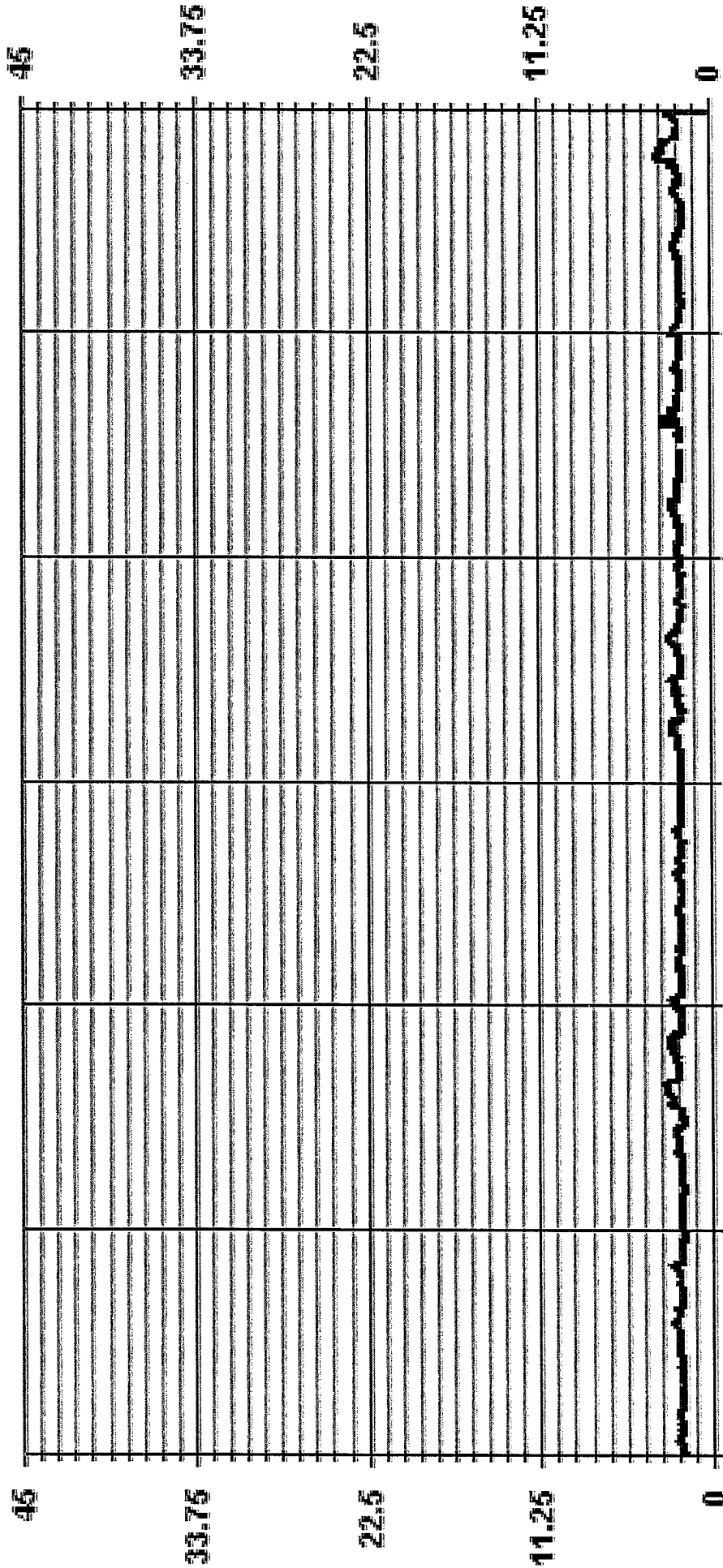
C	CALIBRATION	O	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MALFUNCTION
P	POWER/FLOW	O	OPERATOR ERROR
G	-OUT-OF-REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681	ON DAY(S)	29, 30
MAXIMUM 1-HR AVERAGE:	3.5 PPM	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	2.6 PPM	VAR-VARIOUS	
12S CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	718 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.27	MONTHLY AVERAGE:	2.1 PPM

01 Hour Averages



— LICA    - - - THC    . . . PPM



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Cold Lake South Site - SEPTEMBER 2015  
JOB # 2833-2015-09-01-C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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	24:00
1	2.4	2.2	2.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
2	2.4	2.7	2.5	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4	2.7	2.7	2.6	2.5	2.4	2.5	2.9	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	2.0	2.0	2.0
5	2.4	2.4	2.4	2.5	2.5	2.6	2.8	2.7	2.4	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
6	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
9	3.1	3.2	3.1	3.2	3.2	3.2	3.4	3.3	3.3	3.1	2.7	2.3	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
10	2.8	3.0	2.8	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.7	2.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
11	2.7	2.8	2.7	3.0	3.1	2.9	2.5	2.2	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	2.2
12	3.2	3.3	2.5	2.8	3.0	2.8	3.0	2.8	2.2	2.2	2.3	2.3	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
13	2.0	2.2	2.4	2.2	2.3	2.3	2.4	2.5	2.1	2.1	2.1	2.1	2.2	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
14	2.4	2.5	2.3	2.1	2.1	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
15	2.5	2.5	2.3	2.2	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16	2.0	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1
17	2.3	2.2	2.5	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	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
18	2.5	2.6	2.4	2.4	2.5	2.6	2.7	3.0	2.7	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19	2.5	2.6	2.6	2.7	2.8	3.2	3.2	3.4	5.0	2.6	2.5	2.3	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
20	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21	2.1	2.1	2.2	2.3	2.2	2.3	2.4	2.3	2.3	2.3	2.3	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
22	2.5	2.5	2.6	2.7	2.8	2.7	2.8	2.9	2.8	2.9	2.8	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
23	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
24	5.0	4.4	4.4	3.8	3.7	2.9	2.9	2.9	3.2	2.3	2.2	2.3	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
25	2.1	2.2	2.1	2.2	3.0	2.2	2.6	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
26	2.7	2.6	2.6	2.8	2.8	2.8	2.8	2.8	2.4	2.6	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
27	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
28	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
29	2.0	2.4	2.4	2.4	2.5	2.7	2.6	2.6	2.6	2.3	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	2.2
30	5.7	4.4	4.4	4.2	4.8	3.7	3.5	4.0	3.0	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
HOURLY MAX	5.0	5.7	4.4	4.2	4.8	3.7	3.5	4.0	5.0	2.7	2.7	2.7	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.4	2.6	2.5	2.5	2.4
HOURLY AVG	2.5	2.6	2.5	2.5	2.6	2.5	2.5	2.6	2.5	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.2	2.4	2.6	2.5	2.4	2.5

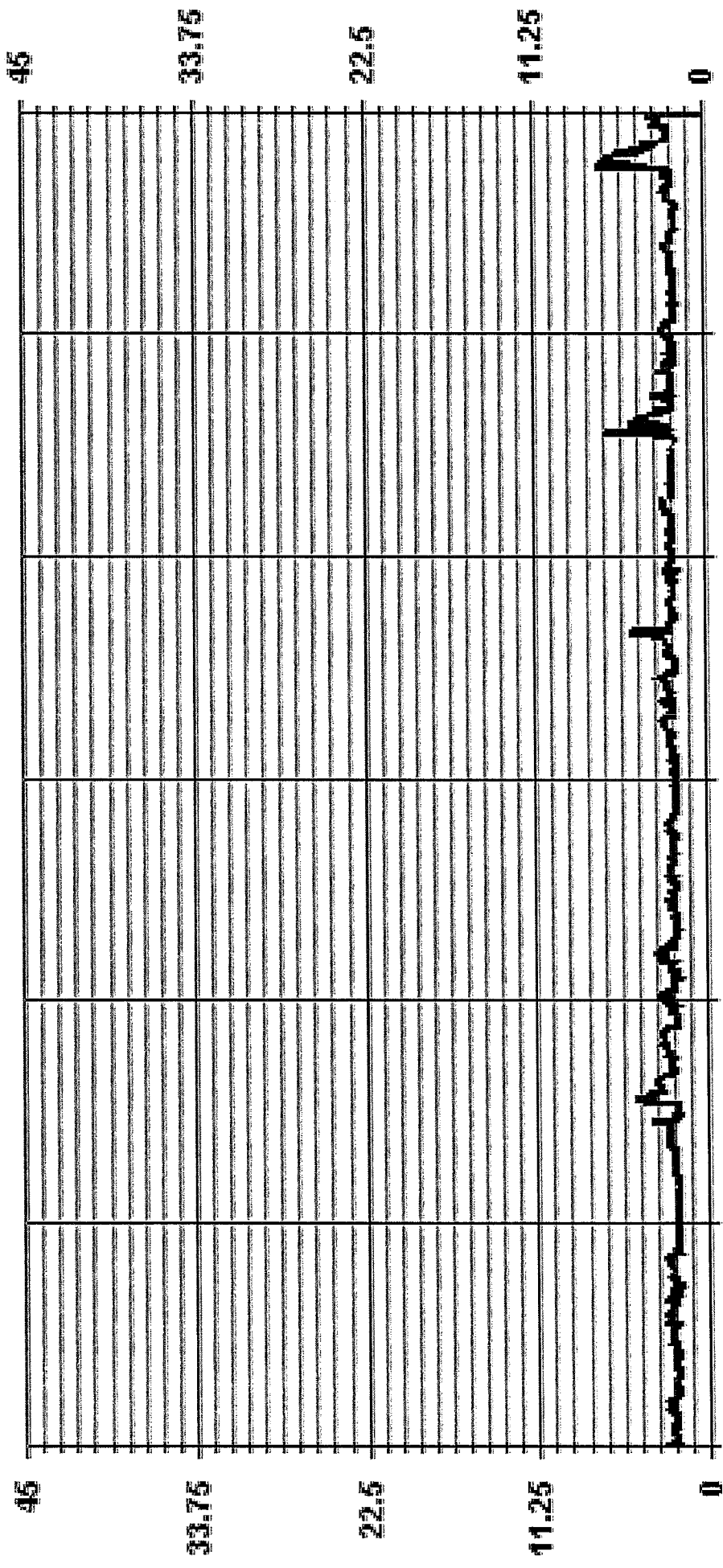
STATUS FLAG CODES

C	-CALIBRATION	O	-QUALITY ASSURANCE
V	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SRANGE CHECK	X	-MACHINE/AMPLIFICATION
P	-POWER/LORA	O	-OPERATOR ERROR
G	-OUT-OF-REPAIR	K	-COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680	PPM	7.0	@ HOUR(S)	19	ON DAY(S)	29
MAXIMUM INSTANTANEOUS VALUE:							
OPERATIONAL TIME:	32	HRS					
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.59						
OPERATIONAL TIME:							717 HRS
VAR-VARIOUS							

01 Hour Averages



— LICA THCMAX PPM

LICA  
 THC / WD Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	1.76	2.93	2.49	6.02	4.84	5.87	7.78	2.34	2.49	3.67	8.22	17.47	12.77	7.63	6.75	4.69	97.79
< 10.0	.00	.14	.00	.00	.14	.29	.14	.29	.73	.00	.14	.14	.00	.14	.00	.00	2.20
< 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	1.76	3.08	2.49	6.02	4.99	6.16	7.92	2.64	3.23	3.67	8.37	17.62	12.77	7.78	6.75	4.69	

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

Wind Parameter : WD  
 Instrument Height : 10 Meters

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	
< 3.0	12	20	17	41	33	40	53	16	17	25	56	119	87	52	46	32	666
< 10.0	1	1	1	1	1	2	1	2	5	1	1	1	1	1	1	1	15
< 50.0																	
>= 50.0																	
Totals	12	21	17	41	34	42	54	18	22	25	57	120	87	53	46	32	

Calm : .00 %

Total # Operational Hours : 681

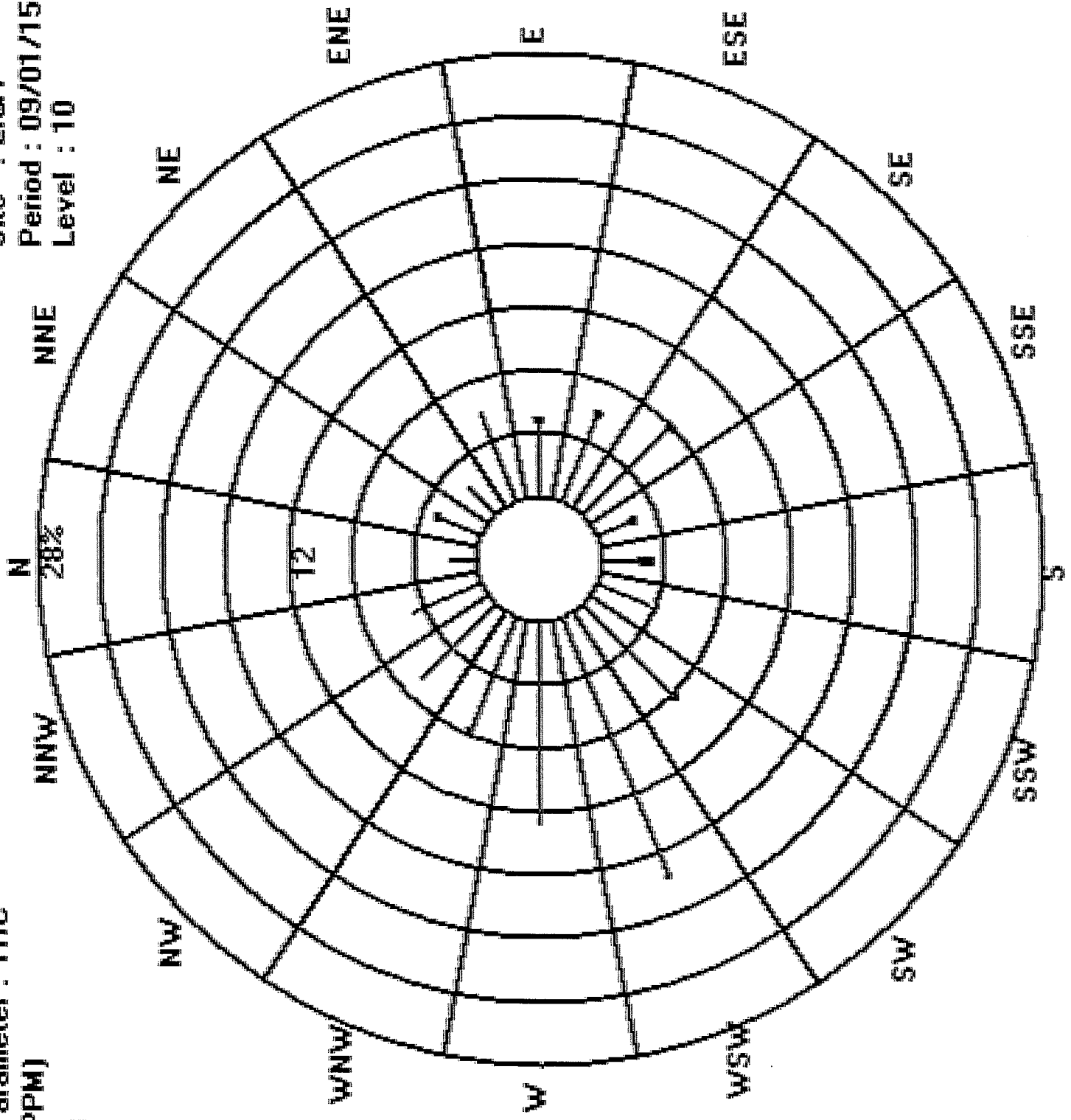
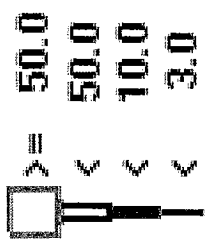


Logger : 01 Parameter : THC

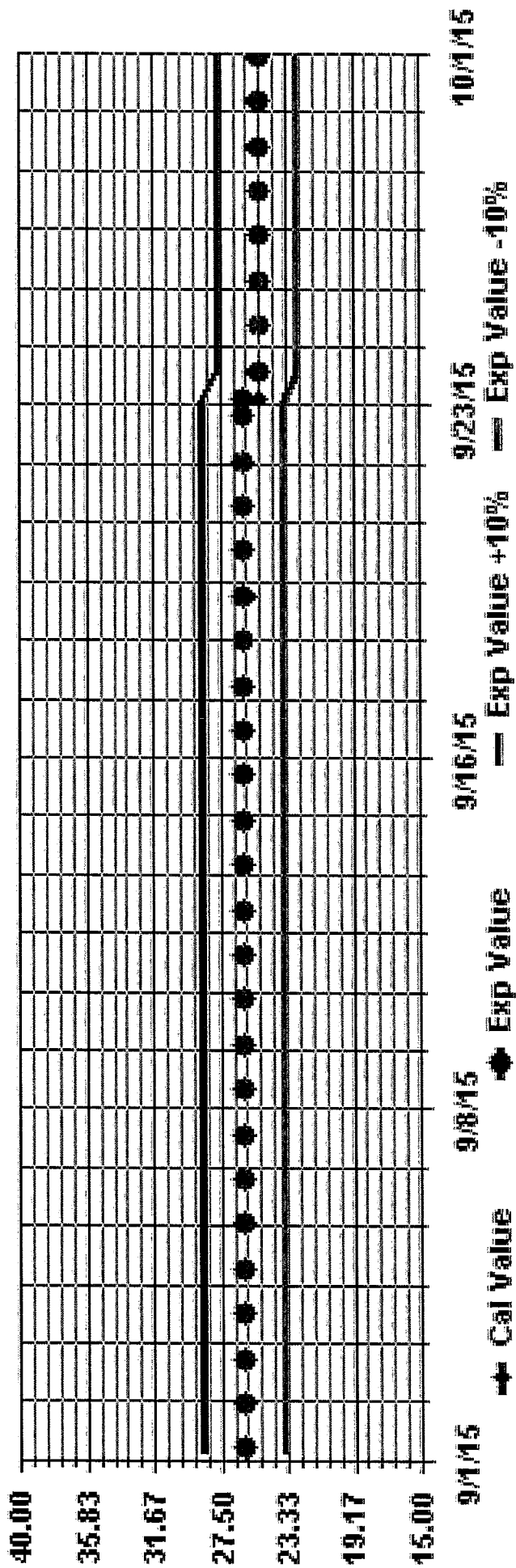
Site : LICA

Class Limits (PPM)

Period : 09/01/15-09/30/15  
Level : 10



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



***OXIDES OF NITROGEN***



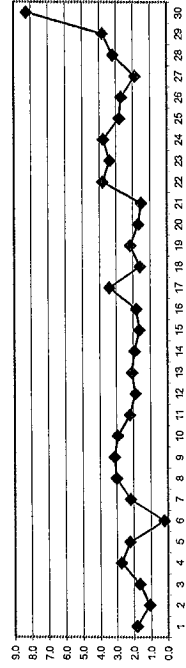
OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	HOURS																								24-HOUR AVG.	RDGS.	
	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
1	1.5	1.2	1.3	1.6	2.6	1.9	S	3.7	2.1	3.0	4.2	2.6	1.1	0.8	0.9	0.5	0.4	0.4	0.7	1.8	2.8	3.4	2.6	1.1	4.2	1.8	24
2	1.3	1.5	1.3	0.7	0.8	S	1.5	1.8	0.8	0.8	0.8	0.5	0.4	0.4	0.9	0.8	0.6	1.2	1.2	0.6	1.4	1.9	1.6	2.3	2.3	1.1	24
3	3.4	1.6	1.7	1.8	S	2.3	1.9	2.2	2.5	2.2	0.7	0.7	0.7	0.6	0.5	0.5	0.3	0.5	1.5	3.2	1.4	2.3	2.9	3.0	3.4	1.7	24
4	2.5	2.4	2.6	S	2.5	4.5	11.9	14.6	S	4.7	2.0	1.4	2.4	1.1	0.6	0.6	0.4	0.1	0.6	0.5	1.7	1.3	1.2	0.9	14.6	2.8	24
5	1.8	2.0	S	4.3	5.1	4.8	9.6	9.8	2.6	1.1	0.6	1.1	0.2	0.2	0.5	0.3	0.6	1.3	1.6	1.3	1.1	0.7	0.5	0.2	9.8	2.2	24
6	0.7	S	0.4	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.1	0.3	0.7	0.2	24
7	S	0.4	0.7	2.1	2.6	3.7	3.6	4.0	1.9	1.2	1.3	1.4	1.4	0.9	0.9	1.0	1.2	2.6	3.8	3.8	2.9	3.0	S	4.0	2.2	24	
8	4.6	3.3	2.4	2.4	2.5	3.7	9.3	15.9	X	0.6	0.2	0.5	2.7	3.6	1.0	0.7	1.0	0.9	1.6	2.8	3.0	2.1	S	1.8	15.9	3.0	23
9	2.1	2.4	2.4	1.8	2.1	2.9	S	16.7	7.2	5.2	2.8	0.7	0.4	0.7	0.4	1.3	C	1.8	2.1	2.9	S	3.3	3.6	16.7	3.1	24	
10	3.0	2.3	2.3	1.9	1.7	2.0	3.3	14.1	7.9	6.3	3.4	1.3	0.6	0.6	0.8	1.5	0.9	0.6	2.1	3.7	S	4.4	1.3	2.1	14.1	3.0	24
11	2.4	2.2	2.1	2.3	2.5	3.9	3.5	5.2	4.5	2.3	1.7	1.8	1.7	1.0	0.8	0.7	0.7	1.2	1.7	S	2.6	2.3	2.2	2.0	5.2	2.2	24
12	2.3	1.9	2.0	2.4	4.0	3.6	4.4	4.5	3.3	2.4	1.5	0.4	0.3	0.5	0.2	0.0	0.2	0.6	S	1.1	2.8	1.8	2.0	1.6	4.5	1.9	24
13	1.6	2.0	2.1	3.2	4.0	3.7	3.3	5.0	3.7	2.8	1.9	1.5	1.2	0.7	0.8	0.6	1.1	S	1.8	1.0	1.2	1.3	1.2	2.4	5.0	2.1	24
14	3.9	4.0	0.8	0.1	0.2	0.5	4.2	S	1.5	1.3	0.6	0.3	0.3	0.5	0.8	1.0	S	3.1	2.3	2.9	5.3	2.5	3.7	3.0	5.3	1.9	24
15	4.0	3.2	1.5	1.1	2.0	2.1	3.1	3.8	1.7	1.8	1.0	0.7	0.9	0.6	1.1	S	1.3	1.3	1.7	1.8	1.5	0.7	0.6	0.5	4.0	1.7	24
16	0.8	0.8	0.9	1.0	1.4	1.4	1.3	1.1	0.9	2.0	9.6	0.4	1.6	2.4	S	0.8	1.2	1.5	1.7	1.5	P	P	3.3	3.0	9.6	1.8	22
17	2.0	2.2	3.7	5.5	6.6	7.2	5.0	8.0	10.3	6.9	3.1	0.6	0.5	S	1.0	1.8	1.7	1.3	2.4	2.4	1.8	1.7	1.9	1.2	10.3	3.4	24
18	1.6	1.2	1.1	2.8	3.1	2.4	4.1	C	C	C	C	2.3	S	0.5	0.7	0.2	0.7	1.2	1.4	1.6	1.5	1.2	1.6	1.4	4.1	1.6	24
19	1.5	1.1	1.1	1.0	1.8	3.4	4.3	3.9	4.1	3.1	2.1	S	2.5	2.7	2.2	1.0	1.1	1.2	2.0	1.6	1.6	2.0	2.3	2.3	4.3	2.2	24
20	1.7	1.5	1.9	2.3	1.9	1.3	1.7	1.8	1.8	1.5	S	1.3	0.8	0.7	0.7	1.0	1.2	2.2	3.3	2.8	2.2	1.6	2.3	1.6	3.3	1.7	24
21	1.9	2.2	2.0	2.0	2.2	3.1	3.3	3.1	2.6	S	0.7	0.3	0.6	0.4	0.3	0.2	0.4	0.4	1.4	1.6	2.2	0.9	0.9	2.5	3.3	1.5	24
22	4.2	3.5	4.4	5.8	7.9	6.3	6.1	14.3	S	5.1	3.5	1.4	1.4	2.1	3.1	2.8	3.6	3.7	2.7	3.0	1.3	0.6	0.4	0.5	14.3	3.8	24
23	0.4	0.1	0.3	0.3	1.0	0.9	1.2	S	1.7	1.6	1.3	C	C	C	C	C	C	C	10.7	11.0	5.8	8.4	6.0	11.0	3.4	24	
24	3.6	2.6	2.0	2.5	2.4	2.2	S	17.2	7.7	2.9	4.0	2.5	2.1	2.5	6.6	8.3	4.2	2.6	2.7	1.9	1.3	1.5	1.6	1.6	17.2	3.8	24
25	1.8	1.7	1.5	1.5	5.6	S	7.2	S	5.9	6.6	5.4	2.6	1.8	1.1	1.4	0.7	1.4	1.5	1.4	1.7	1.9	2.8	2.5	4.0	7.2	2.8	24
26	6.4	8.1	5.2	4.1	S	3.0	2.8	3.2	3.5	2.2	2.4	2.1	1.6	1.2	1.0	0.5	0.6	0.8	1.2	1.3	2.1	3.7	2.6	2.5	8.1	2.7	24
27	2.3	1.7	1.4	S	1.7	1.1	1.0	1.0	1.0	1.1	0.9	0.4	0.7	0.2	0.0	0.3	0.2	1.2	2.2	2.4	6.5	5.5	4.4	6.1	6.5	1.9	24
28	4.3	4.6	S	4.6	4.2	5.5	5.7	5.2	4.3	3.1	2.1	1.3	1.5	1.6	1.5	1.2	3.2	4.1	3.3	4.9	2.5	1.2	1.5	1.7	5.7	3.2	24
29	1.6	S	2.1	2.8	2.9	4.0	3.9	7.7	4.5	4.1	3.8	3.0	2.7	2.9	4.2	2.7	2.0	1.6	2.6	2.6	3.5	4.5	7.7	8.2	4.7	3.8	24
30	S	5.8	6.4	6.2	8.5	14.1	10.9	20.9	40.9	9.5	5.2	3.5	2.7	2.0	1.8	1.1	1.8	3.2	8.8	5.1	6.9	8.7	7.7	S	40.9	8.3	24
HOURLY MAX	6.4	8.1	6.4	6.2	8.5	14.1	11.9	20.9	40.9	9.5	9.6	3.5	2.7	3.6	6.6	8.3	4.2	4.1	8.8	10.7	11.0	8.7	8.4	6.1			
HOURLY AVG	2.5	2.4	2.1	2.4	3.0	3.4	4.4	7.3	5.0	3.1	2.4	1.3	1.2	1.2	1.2	1.1	1.2	1.4	2.1	2.5	2.8	2.6	2.6				

STATUS FLAG CODES

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

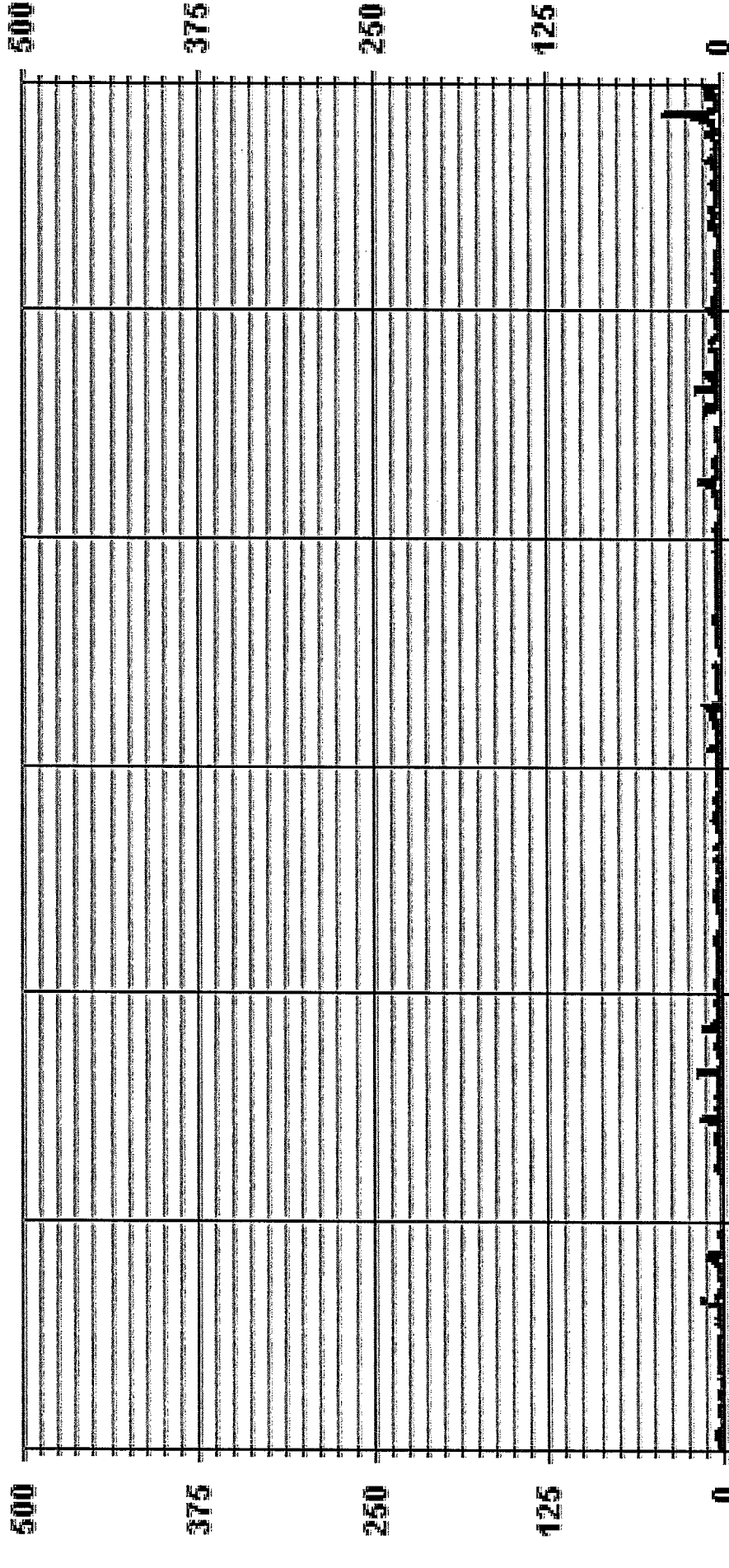
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

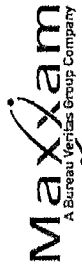
NUMBER OF NON-ZERO READINGS:	665	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	40.9 PPB	@ HOUR(S)	8
MAXIMUM 24-HR AVERAGE:	8.3 PPB	VAR- VARIOUS	
12S CALIBRATION TIME:	36 HRS	OPERATIONAL TIME:	717 HRS
MONTHLY CALIBRATION TIME:	14 HRS	AMD OPERATION UPTIME:	99.6 %
STANDARD DEVIATION:	2.88	MONTHLY AVERAGE:	2.5 PPB

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA MOX PPB



OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	HOURS																								24-HOUR AVG.	RODS		
	0500	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	3.6	2.5	2.1	2.1	9.1	4.6	S	R	3.4	4.4	5.4	11.9	2.8	1.8	3.9	1.3	0.8	1.8	1.4	3.4	18.4	5.4	4.9	1.4	18.4	4.4	23	
2	9.4	2.4	5.9	3.4	2.9	S	12.6	7.6	6.1	2.0	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6	4.1	24
3	4.1	2.1	2.1	2.1	S	2.8	2.3	2.8	3.8	3.8	2.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	24	
4	3.3	3.3	3.3	S	4.1	10.1	14.5	S	10.5	4.6	4.0	5.1	2.5	1.1	1.0	1.1	1.6	2.1	1.1	6.1	2.0	3.1	3.1	14.5	4.2	24		
5	3.6	3.1	S	7.1	8.1	7.6	15.6	14.6	8.1	5.7	3.2	11.2	1.1	1.1	15.1	1.1	1.7	3.6	3.7	5.2	2.7	1.7	1.6	15.6	5.6	24		
6	5.2	S	1.1	1.7	1.1	1.1	1.1	0.6	1.6	0.6	0.6	0.6	1.6	1.1	0.6	1.6	0.6	3.7	8.1	0.6	0.1	0.1	0.1	0.6	8.1	1.5	24	
7	S	0.8	0.8	2.9	3.4	4.4	4.4	5.9	4.9	3.8	1.8	1.8	1.9	2.3	1.3	1.9	1.9	1.8	5.4	5.9	5.4	3.4	5.9	S	5.9	3.3	24	
8	7.1	5.7	3.2	3.7	4.2	8.1	13.6	22.2	X	9.2	3.7	6.2	98.2	48.7	14.7	1.7	6.2	3.2	8.1	6.1	3.2	S	2.7	93.2	12.6	23		
9	6.2	3.7	3.2	2.2	2.7	8.7	S	28.5	10.5	8.5	8.0	1.5	1.5	10.5	1.5	C	C	C	C	C	3.2	5.2	S	4.1	4.6	28.5	6.4	24
10	4.1	3.1	3.1	2.6	2.6	4.6	30.6	39.5	12.5	10.6	23.1	2.6	2.6	1.1	2.0	5.1	3.1	1.1	11.0	9.1	S	78.7	1.7	2.7	78.7	10.9	24	
11	3.2	3.2	3.2	3.2	9.7	9.2	4.2	27.2	7.2	3.2	3.2	11.7	8.1	2.3	2.1	4.2	3.2	1.7	2.7	S	3.1	2.6	3.1	6.1	27.2	5.5	24	
12	3.6	3.1	3.1	3.6	4.6	4.1	5.1	5.6	6.1	3.1	2.6	1.5	1.0	1.5	0.5	0.5	1.0	1.1	S	1.8	3.3	3.3	2.8	2.8	6.1	2.9	24	
13	2.3	2.8	3.3	6.3	5.3	4.8	3.8	9.2	4.8	3.8	17.3	2.8	1.8	1.2	4.8	1.3	1.8	S	3.1	2.6	2.1	2.0	2.5	5.1	17.3	4.1	24	
14	5.1	4.6	3.1	0.5	0.5	1.6	S	2.6	2.0	1.1	1.1	3.6	1.6	1.6	S	7.1	7.6	4.6	18.6	5.6	11.1	6.5	18.6	4.3	24			
15	7.0	6.5	2.6	7.5	8.1	5.1	4.6	7.0	3.5	8.1	2.0	1.1	2.0	2.0	5.1	S	2.9	2.9	2.9	4.4	9.8	2.9	3.4	1.4	9.8	4.5	24	
16	3.9	2.8	2.8	2.8	12.4	2.3	2.3	2.3	2.3	48.8	82.8	0.8	2.8	3.4	S	2.2	3.7	3.2	2.2	3.2	P	5.2	6.6	82.8	9.5	22		
17	5.2	4.2	6.7	7.2	12.2	27.2	6.2	S	15.9	10.5	7.4	2.0	1.5	S	3.6	38.5	4.6	2.1	8.1	7.6	3.1	5.6	9.5	2.1	38.5	8.7	24	
18	8.6	7.1	3.1	8.1	12.1	4.1	6.6	C	C	C	25.4	S	3.1	4.1	0.5	1.6	2.1	2.6	2.6	2.1	4.1	2.1	4.1	2.1	25.4	5.4	24	
19	3.1	2.6	2.1	3.6	5.1	6.0	6.5	6.5	9.0	3.6	4.1	S	3.7	9.2	8.6	3.2	5.2	2.2	3.2	2.1	1.7	2.7	3.2	3.2	9.2	4.4	24	
20	3.2	2.2	3.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.3	2.8	1.8	3.3	2.3	2.8	18.8	10.8	3.8	4.3	3.8	3.3	2.8	18.8	4.0	24	
21	3.3	3.8	3.8	3.8	3.8	3.8	3.8	5.3	5.8	3.3	S	2.2	1.2	1.2	0.7	0.7	1.8	1.2	4.2	2.2	3.3	2.2	3.3	3.8	5.8	2.9	24	
22	5.8	4.8	6.2	6.7	21.2	22.2	10.2	31.8	S	14.0	6.5	5.1	2.0	23.6	13.5	16.0	23.6	5.6	6.0	18.6	3.1	2.0	1.6	5.1	31.8	11.1	24	
23	3.1	0.5	1.6	1.6	7.0	1.6	2.5	S	3.8	3.3	8.2	C	C	C	C	C	C	C	C	20.9	18.5	8.4	28.5	16.4	28.5	8.4	24	
24	5.5	5.0	5.5	6.0	6.5	3.5	S	40.5	18.0	13.0	19.5	4.0	3.5	5.5	27.4	28.4	25.9	4.0	14.9	3.0	2.0	1.5	3.0	2.0	40.5	10.8	24	
25	3.0	3.5	2.5	3.0	37.4	S	14.4	S	8.9	22.5	6.5	5.0	3.5	2.0	16.0	1.5	2.5	3.0	2.5	4.0	3.0	4.5	4.0	5.5	37.4	7.2	24	
26	7.5	15.4	6.9	4.5	S	5.0	4.5	4.5	5.0	3.0	3.0	6.5	4.5	5.0	8.0	1.5	1.0	2.0	3.0	1.5	4.0	4.0	3.0	3.0	15.4	4.6	24	
27	3.5	3.0	1.5	S	5.5	3.0	1.5	1.5	1.5	1.5	1.0	1.5	1.0	0.5	1.0	0.5	2.5	5.5	6.0	10.0	6.5	6.5	8.4	10.0	3.3	24		
28	5.5	7.4	S	8.9	9.9	8.4	8.9	11.4	6.5	5.0	5.0	3.5	6.0	2.5	3.0	2.0	8.0	7.0	5.0	8.5	7.0	1.5	2.0	4.5	11.4	6.0	24	
29	3.0	S	4.0	3.5	5.0	9.5	7.0	15.5	6.0	8.5	5.5	5.5	3.5	5.0	45.4	6.0	6.5	2.0	6.5	6.0	8.0	19.0	15.5	7.0	45.4	8.8	24	
30	S	10.0	11.0	9.5	15.4	40.9	17.0	82.5	63.9	24.5	7.5	4.5	5.5	3.5	3.9	1.9	14.9	7.0	20.0	12.0	9.5	12.5	10.5	S	82.5	17.6	24	
HOURLY MAX	9.4	15.4	11.0	9.5	37.4	40.9	30.6	82.5	63.9	48.8	82.8	25.4	93.2	48.7	45.4	38.5	25.9	18.8	20.0	20.9	18.6	78.7	28.5	16.4				
HOURLY AVG	4.7	4.3	3.5	4.3	8.0	7.8	8.0	16.1	8.4	8.6	8.9	4.6	6.1	5.3	7.1	4.9	4.7	3.7	5.7	5.5	6.0	6.9	5.3	4.2				

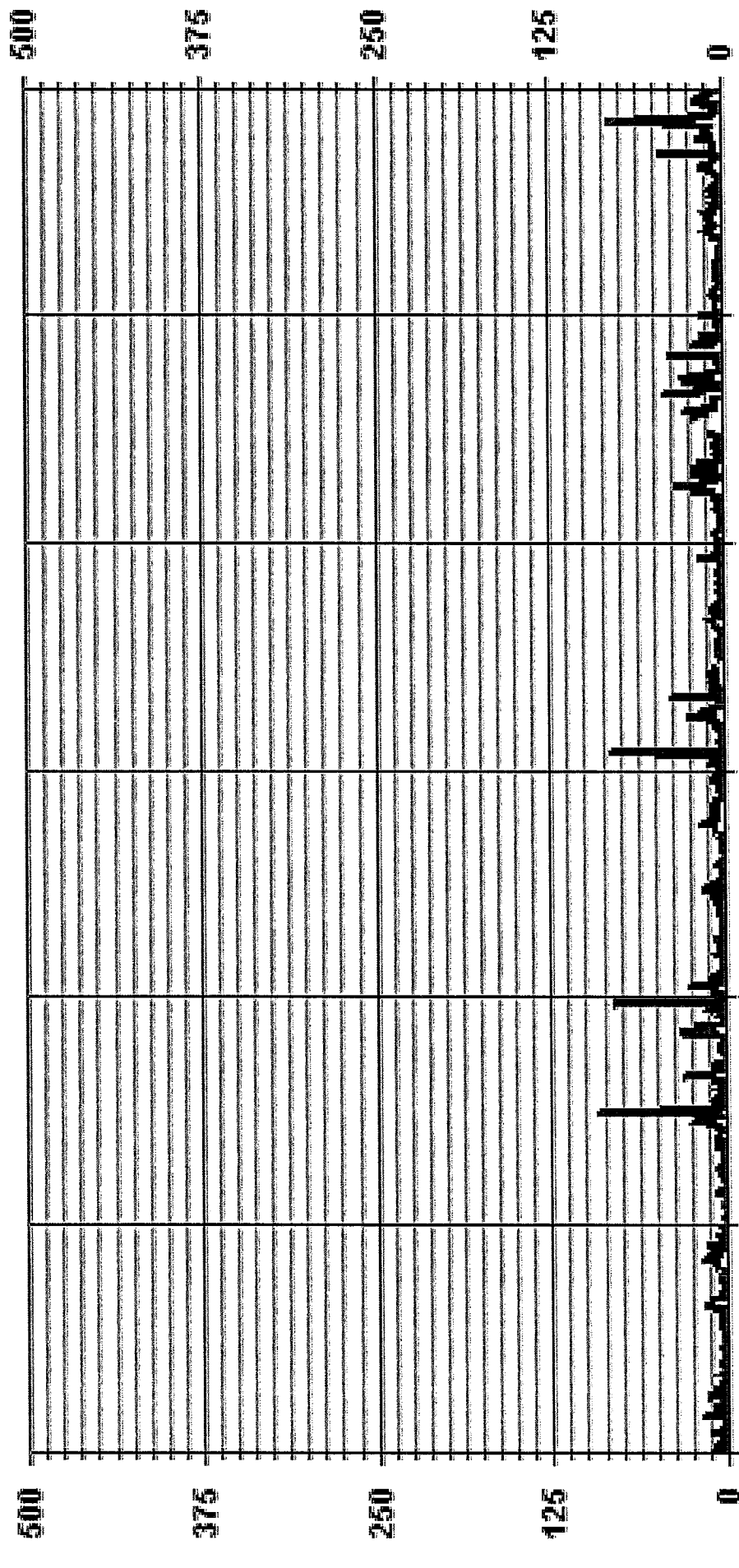
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	661
MAXIMUM INSTANTANEOUS VALUE:	93.2 PPB @ HOUR(S) 12 ON DAY(S) 8
OPERATIONAL TIME:	716 HRS
MONTHLY CALIBRATION TIME:	16 HRS
STANDARD DEVIATION:	9.17

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA    - - - NOXMAX    . . . PPB

LICA  
NOX\_ / WD Joint Frequency Distribution (Percent)

September 2015

Distribution By % Of Samples

Logger Id : 01  
 Site Name : LICA  
 Parameter : NOX\_  
 Units : PPS  
 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	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79	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	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79	

Calm : .00 %

Total # Operational Hours : 668

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32	668
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32	

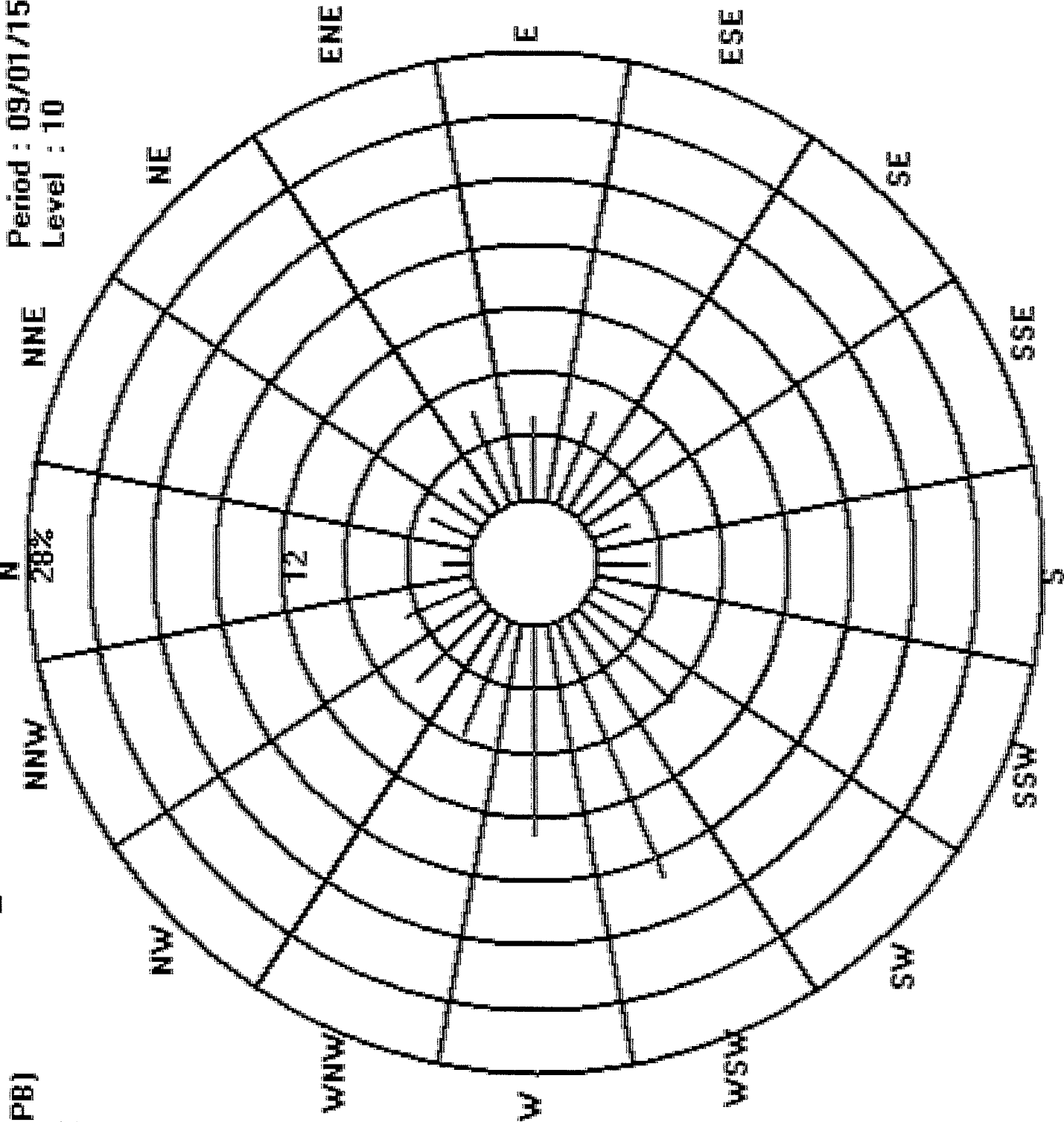
Calm : .00 %

Total # Operational Hours : 668



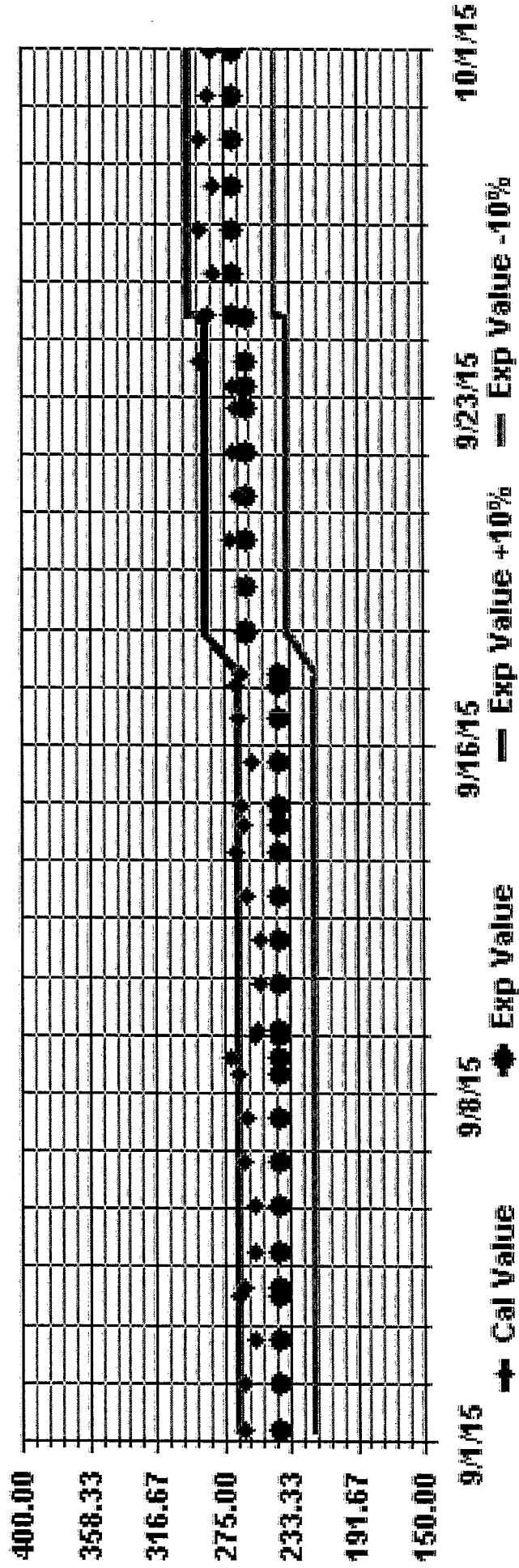
Logger : 01 Parameter : NDX\_

Site : LICA  
Period : 09/01/15-09/30/15  
Level : 10



>= 210.0  
< 210.0  
< 110.0  
< 50.0

Calibration Graph for Site: LICA Parameter: MOX\_ Sequence: NO2 Phase: SPAN



***NITRIC OXIDES***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Cold Lake South Site - SEPTEMBER 2015  
JOB # 2833-2015-09-01 - C

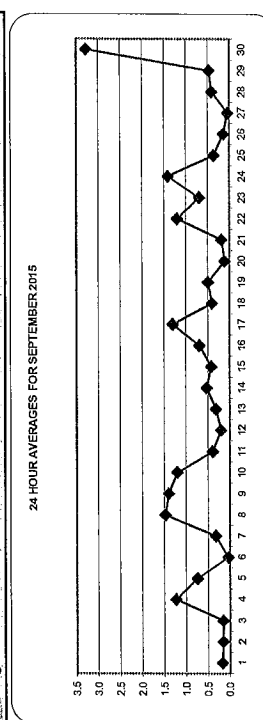
NITRIC OXIDE (NO) hourly averages in ppb

MST

DAY	HOURS																								24-HOUR AVG.	RDGS.			
	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			2400		
1	0.0	0.0	0.0	0.0	0.1	0.1	\$	0.5	0.5	0.8	1.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	1.0	0.2	24	
2	0.1	0.0	0.1	0.1	0.1	\$	0.6	0.6	0.3	0.3	0.4	0.1	0.0	0.1	0.3	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	24
3	0.0	0.0	0.0	0.0	\$	0.3	0.4	0.9	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.9	0.2	24	
4	0.4	0.4	0.4	\$	0.8	1.8	6.6	9.8	\$	2.4	0.6	0.5	0.8	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.5	0.4	0.5	9.8	1.2	24	
5	0.7	0.6	\$	0.7	0.8	1.4	5.3	4.2	0.8	0.5	0.2	0.5	0.1	0.0	0.1	0.0	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.0	5.3	0.7	24	
6	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	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	24	
7	\$	0.0	0.0	0.0	0.0	0.2	0.5	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.0	0.1	0.1	0.3	1.2	1.1	0.3	0.5	\$	1.2	0.3	24	
8	0.5	0.4	0.5	0.5	1.0	2.4	7.3	13.2	X	0.2	0.0	0.3	1.6	2.2	0.3	0.2	0.3	0.1	0.2	0.4	0.3	0.3	0.3	\$	0.3	13.2	1.5	23	
9	0.8	1.1	0.6	0.5	0.6	1.8	\$	13.2	3.9	2.2	1.1	0.2	0.0	0.1	0.4	C	0.1	0.2	0.3	0.1	0.2	0.3	\$	0.3	13.2	1.4	24		
10	0.4	0.5	0.4	0.4	0.4	0.8	2.4	11.0	3.7	3.0	1.3	0.4	0.1	0.1	0.1	0.2	0.1	0.0	0.3	0.3	\$	1.7	0.0	0.0	11.0	1.2	24		
11	0.2	0.3	0.2	0.3	0.6	1.1	0.5	1.9	1.6	0.7	0.4	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	1.9	0.4	24		
12	0.1	0.1	0.1	0.2	0.2	0.5	1.2	1.0	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	1.2	0.2	24		
13	0.0	0.0	0.1	0.1	0.1	0.1	0.7	1.9	1.6	1.2	0.7	0.4	0.3	0.0	0.1	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	1.9	0.3	24		
14	0.1	0.1	0.0	0.0	0.0	0.0	0.8	\$	0.4	0.4	0.4	0.1	0.0	0.2	0.1	0.1	\$	0.3	0.3	0.4	1.1	2.8	0.9	2.0	1.1	2.8	0.5	24	
15	1.3	0.7	0.3	0.3	0.6	0.3	0.5	0.8	0.6	0.7	0.4	0.4	0.3	0.5	\$	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.5	0.0	1.3	0.4	24		
16	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.3	0.9	8.2	0.1	0.4	0.6	\$	0.1	0.4	0.2	0.1	0.2	0.1	0.2	P	1.1	1.2	8.2	0.7	22	
17	0.8	0.7	0.5	1.0	2.8	3.8	2.1	4.6	5.2	3.9	1.6	0.3	0.2	\$	0.3	0.3	0.4	0.2	0.5	0.2	0.0	0.1	0.2	0.2	5.2	1.3	24		
18	0.3	0.3	0.2	0.4	1.7	1.0	2.7	C	C	0.7	\$	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	2.7	0.4	24		
19	0.2	0.1	0.2	0.2	0.5	1.4	2.2	1.7	1.6	1.1	0.6	\$	0.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.5	24		
20	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.2	\$	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.4	0.1	24		
21	0.0	0.0	0.0	0.1	0.0	0.1	0.3	1.0	1.1	\$	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	1.1	0.2	24		
22	0.2	0.2	0.3	0.3	2.5	2.3	9.2	\$	2.6	1.6	0.7	0.4	0.7	0.9	0.9	0.7	0.5	0.4	0.5	0.2	0.0	0.0	0.0	0.0	1.1	1.2	2.4	24	
23	0.1	0.0	0.1	0.0	0.4	0.2	0.3	\$	0.5	0.5	0.5	C	C	C	C	C	C	C	C	2.2	1.7	0.5	2.1	1.3	2.2	0.7	24		
24	0.8	0.7	0.7	0.7	0.8	0.8	\$	12.9	3.5	1.4	1.6	0.6	0.4	0.5	2.6	3.2	0.8	0.0	0.3	0.0	0.0	0.0	0.0	0.0	12.9	1.4	24		
25	0.0	0.0	0.0	0.0	1.3	\$	1.0	1.5	1.7	1.1	0.5	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.4	24		
26	0.0	0.1	0.0	0.0	\$	0.0	0.1	0.2	0.5	0.5	0.5	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24		
27	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	24		
28	0.0	0.5	\$	0.2	0.2	0.5	1.2	1.6	1.2	0.8	0.4	0.1	0.0	0.4	0.3	0.2	0.4	0.3	0.2	0.4	0.3	0.0	0.2	0.0	1.6	0.4	24		
29	0.0	\$	0.0	0.0	0.0	0.3	0.1	1.7	0.9	1.1	1.0	0.6	0.5	0.7	1.1	0.3	0.1	0.0	0.0	0.0	0.1	1.6	0.7	0.0	1.7	0.5	24		
30	\$	0.1	0.3	0.5	2.9	8.8	6.1	15.7	28.1	4.2	1.7	0.8	0.6	0.4	0.3	0.0	0.3	0.0	0.4	0.1	0.1	0.3	0.5	\$	28.1	3.3	24		
HOURLY MAX	1.3	1.1	0.7	1.0	2.9	8.8	7.3	15.7	28.1	4.2	8.2	0.8	1.6	2.2	2.6	3.2	0.8	0.7	0.5	2.2	2.8	1.7	2.1	1.3					
HOURLY AVG	0.3	0.3	0.2	0.2	0.7	1.0	1.6	4.2	2.4	1.2	1.0	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2			

STATUS FLAG CODES

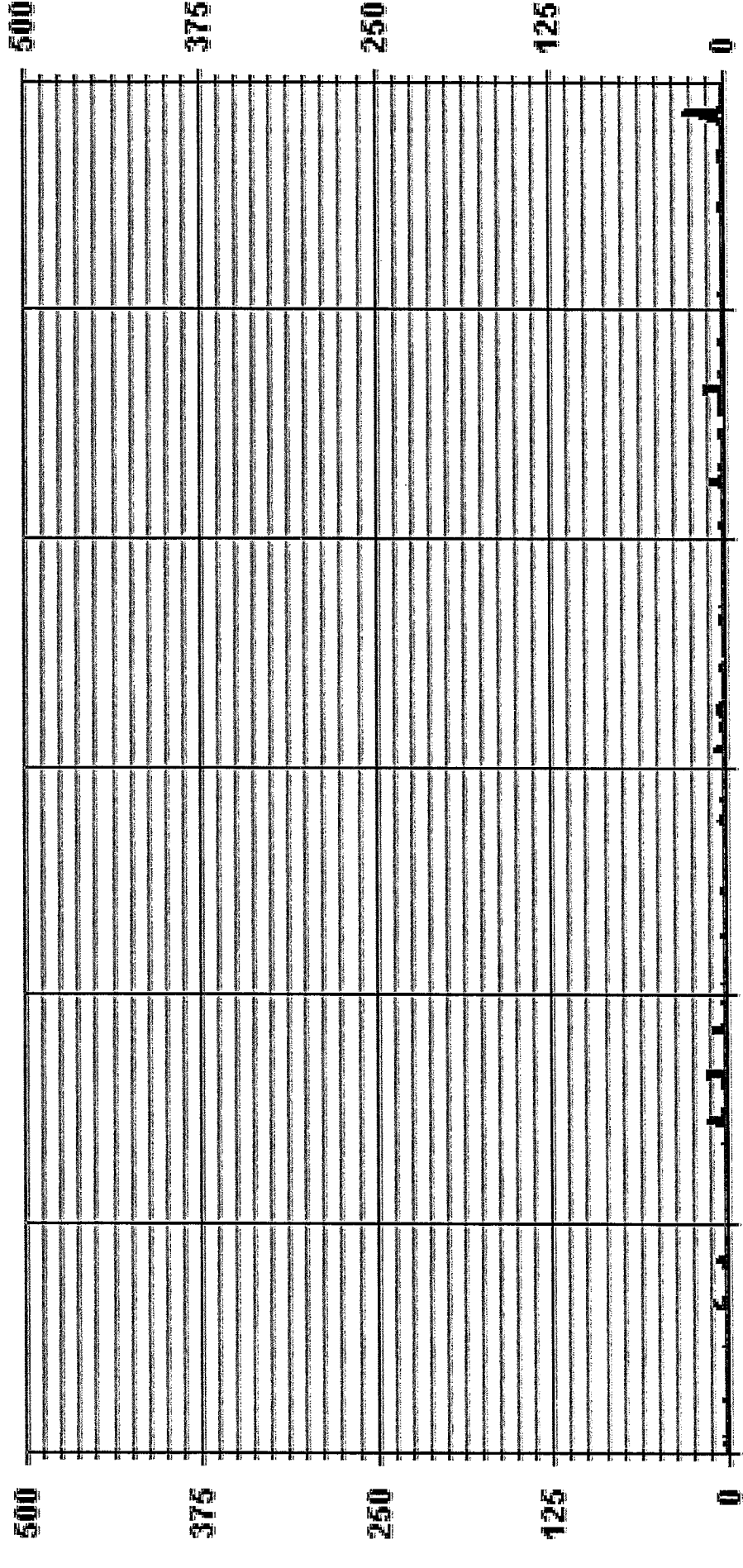
C - CALIBRATION O - QUALITY ASSURANCE  
 Y - MAINTENANCE R - RECOVERY  
 S - DAILY ZERO/SPIRIT CHECK X - MACHINE MALFUNCTION  
 P - POWER FAILURE O - OPERATOR ERROR  
 G - OUT FOR REPAIR K - COLLECTION ERROR



MONTHLY SUMMARY

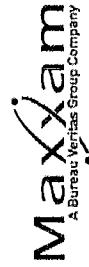
NUMBER OF NON-ZERO READINGS:	462
MAXIMUM 1-HR AVERAGE:	28.1 PPB
MAXIMUM 24-HR AVERAGE:	3.3 PPB
IS CALIBRATION TIME:	36 HRS
MONTHLY CALIBRATION TIME:	14 HRS
STANDARD DEVIATION:	1.86
OPERATIONAL TIME:	717 HRS
AMT OPERATION UPTIME:	99.6 %
MONTHLY AVERAGE:	0.7 PPB
ON DAY(S)	8
ON DAY(S) VAR-VARIOUS	30

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA NO\_ PPB



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	24:00	MAX.	AVG.	RDS.	
1	0.9	0.4	0.4	0.5	1.9	1.4	1.4	1.4	1.4	1.4	1.4	3.9	0.5	0.5	0.9	0.5	0.5	0.0	0.0	0.4	6.9	0.4	6.9	0.5	1.0	0.4	6.9	1.2	23
2	5.5	0.4	2.4	1.0	0.9	S	25.5	6.5	0.9	0.4	7.4	2.9	0.5	0.9	2.4	1.9	0.5	0.9	3.4	0.9	0.4	0.4	0.4	0.4	0.5	25.5	2.9	24	
3	0.4	0.4	0.5	0.4	S	1.4	0.8	1.8	1.9	1.3	0.8	0.3	0.3	0.3	1.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8	0.8	0.8	1.9	0.7	24
4	0.8	0.8	0.8	S	1.4	4.5	9.4	S	6.9	2.4	1.4	3.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.4	1.4	1.4	1.4	9.4	2.0	24	
5	1.9	0.9	S	2.9	1.9	4.0	7.9	7.9	3.9	3.4	1.5	5.5	0.4	0.9	3.9	0.4	0.9	1.9	1.4	2.4	1.5	1.4	0.9	0.9	7.9	2.5	24		
6	1.9	S	0.4	0.4	0.4	0.4	0.9	0.9	0.4	0.4	1.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.4	0.4	0.4	0.4	0.4	0.4	2.4	0.8	24	
7	S	4.4	0.4	0.4	0.4	0.4	1.4	0.9	0.9	0.4	1.4	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.9	2.9	0.9	5.0	S	5.0	1.0	24	
8	1.4	0.9	0.9	0.9	2.9	5.5	11.5	19.4	X	2.4	0.9	4.5	50.0	28.0	5.5	2.0	1.5	1.5	0.5	5.0	0.9	0.9	S	1.0	50.0	6.7	23		
9	3.5	2.0	1.0	1.0	1.5	7.0	S	23.0	6.9	3.5	3.5	0.5	0.4	7.4	1.0	C	C	C	C	0.5	1.0	S	0.9	0.9	23.0	3.6	24		
10	0.9	0.9	0.9	0.9	0.9	2.9	27.9	30.5	6.0	5.5	7.4	0.9	0.9	0.4	0.4	1.9	0.9	0.4	4.9	2.0	S	70.5	0.5	0.5	70.5	7.3	24		
11	0.5	0.5	0.5	0.5	0.5	5.5	1.0	17.0	2.5	1.4	1.4	5.5	1.9	0.9	0.9	0.9	1.4	0.4	0.4	S	0.5	0.4	0.5	1.5	17.0	2.2	24		
12	0.5	0.5	0.5	0.5	0.5	0.5	1.0	2.0	2.0	0.9	1.4	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.5	0.5	0.5	0.5	0.5	2.0	0.7	24	
13	0.5	0.5	1.5	0.4	1.4	4.4	2.4	1.9	7.4	0.9	0.4	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.5	0.5	0.4	0.9	0.4	7.4	1.3	24	
14	0.4	0.4	0.4	0.4	0.4	0.9	S	0.9	0.9	0.5	0.5	0.5	0.5	1.5	1.0	0.5	S	1.5	2.0	2.4	13.4	2.9	9.4	4.0	13.4	2.1	24		
15	3.4	2.9	0.4	3.5	3.9	1.9	1.4	2.4	1.9	5.5	0.9	0.9	0.9	1.4	2.9	S	1.4	1.9	0.9	1.4	6.0	2.0	0.4	0.4	6.0	2.1	24		
16	2.9	0.9	0.9	0.9	0.9	7.4	0.9	0.9	0.9	0.9	21.4	93.4	0.9	0.9	0.9	S	0.5	2.0	0.5	0.5	0.9	P	2.0	5.5	93.4	7.0	22		
17	2.5	2.5	1.0	2.5	10.5	24.5	3.5	S	8.9	9.5	4.5	3.0	0.5	S	1.5	7.5	1.5	0.5	4.5	2.0	0.4	1.9	2.4	0.5	24.5	4.4	24		
18	3.0	3.5	1.0	2.5	10.0	2.5	5.5	C	C	C	12.0	S	0.9	1.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	1.0	0.5	12.0	2.5	24		
19	0.9	0.9	0.4	1.4	3.0	4.0	3.5	3.4	4.4	1.5	0.9	S	0.9	2.9	4.0	0.9	1.9	0.5	0.5	0.5	0.5	0.5	0.4	0.5	4.4	1.7	24		
20	1.0	0.5	0.9	0.5	0.4	0.4	0.5	0.5	1.4	0.5	S	0.5	2.0	1.0	1.0	0.5	1.0	7.5	2.0	0.5	0.5	0.4	0.4	0.4	7.5	1.1	24		
21	0.4	0.4	1.9	1.4	0.9	1.4	1.9	3.4	1.9	S	0.9	0.4	0.9	0.4	0.4	0.4	0.4	0.9	0.4	1.4	0.4	0.9	0.4	0.4	3.4	1.0	24		
22	0.9	0.9	0.9	0.4	11.4	12.9	5.4	17.5	S	8.9	3.9	2.9	0.9	13.4	8.9	14.9	12.9	1.4	2.4	2.4	1.4	0.4	0.9	3.5	17.5	5.6	24		
23	1.4	0.4	0.4	0.4	0.9	4.0	0.9	0.9	S	1.4	1.4	6.5	C	C	C	C	C	C	C	9.4	5.4	2.4	13.9	9.4	13.9	3.9	24		
24	2.0	3.0	3.5	3.5	3.0	1.5	S	31.9	10.5	22.0	10.5	1.5	1.4	2.0	17.5	19.9	9.4	0.5	12.0	0.0	0.5	0.0	0.5	0.5	31.9	6.8	24		
25	1.0	0.5	0.0	0.5	16.9	S	5.4	S	2.9	12.5	1.5	1.0	1.0	3.0	2.0	2.5	3.0	0.5	0.5	0.0	0.0	0.5	0.5	0.5	16.9	2.4	24		
26	0.5	2.9	0.5	0.5	S	1.0	1.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	0.5	2.0	0.5	2.0	0.5	2.5	2.4	0.8	24		
27	0.0	0.5	0.5	S	1.0	1.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.0	0.5	3.0	1.5	0.0	0.5	1.5	6.9	1.9	24		
28	0.9	4.4	S	1.9	2.4	2.4	1.9	6.9	2.4	1.9	2.4	1.4	2.5	0.5	2.0	0.5	2.0	0.5	0.5	0.0	0.5	1.5	8.5	3.0	28.5	3.2	24		
29	0.5	S	0.5	0.5	0.5	4.0	1.0	6.0	1.0	5.0	2.0	2.5	1.0	1.5	28.5	2.0	2.5	0.5	0.0	0.5	8.0	4.0	0.5	1.0	1.0	10.4	24		
30	S	3.0	3.0	4.0	8.9	32.9	11.0	70.0	48.0	13.0	3.0	1.0	4.0	1.0	0.9	0.9	9.4	0.5	8.0	4.0	0.5	1.0	1.0	S	70.0	10.4	24		
HOURLY MAX	5.5	4.4	3.5	4.0	16.9	32.9	27.9	70.0	48.0	22.0	93.4	12.0	50.0	28.0	28.5	19.9	12.9	7.5	12.0	9.4	13.4	70.5	13.9	9.4					
HOURLY AVG	1.4	1.3	0.9	1.3	3.7	4.5	5.1	11.2	4.5	4.9	6.1	2.2	2.9	2.6	3.5	2.2	2.1	1.0	1.9	1.5	2.0	3.6	1.8	1.4					

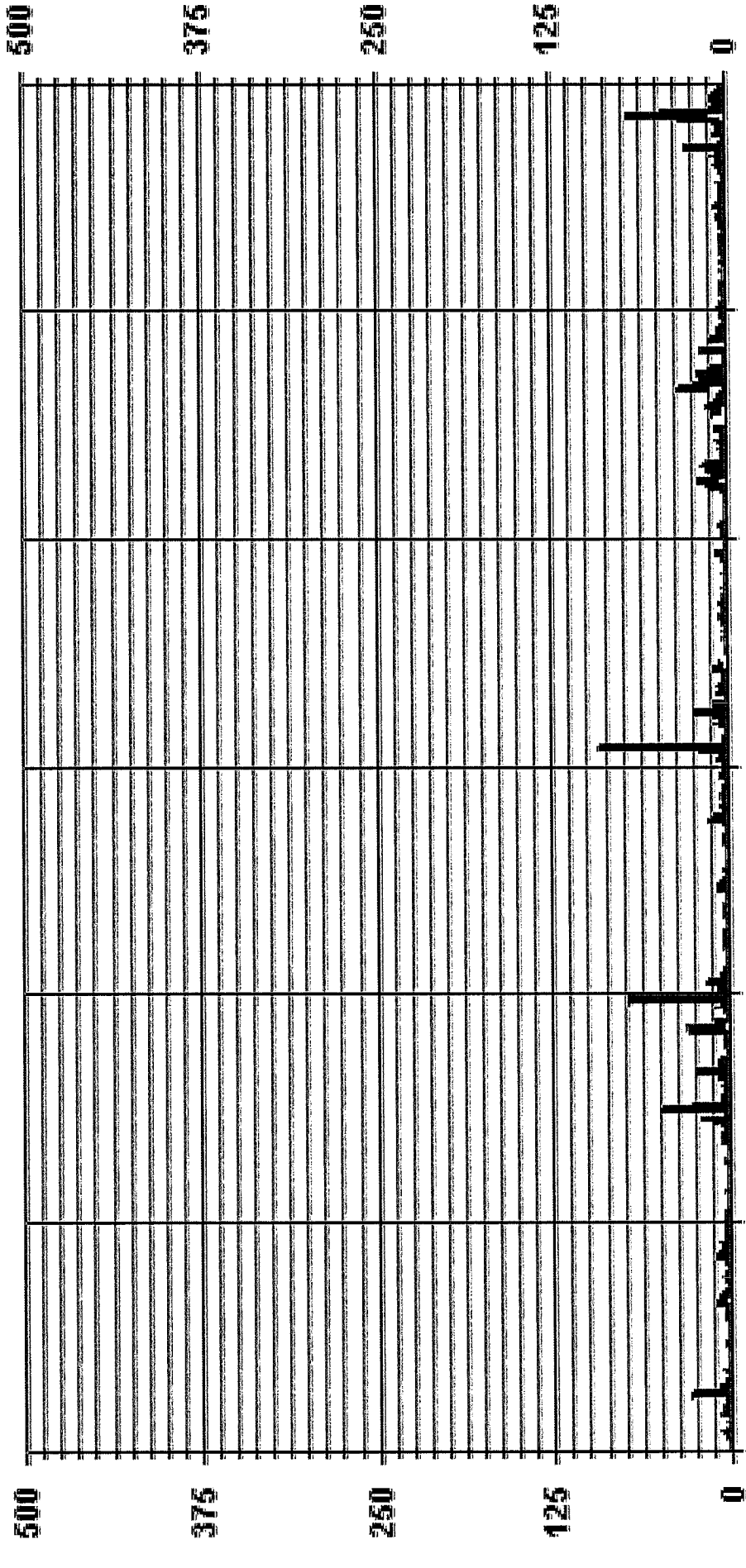
STATUS FLAG CODES

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:	649
MAXIMUM INSTANTANEOUS VALUE:	93.4 PPB @ HOUR(S) 10 ON DAY(S) 16
12S CALIBRATION TIME:	39 HRS
MONTHLY CALIBRATION TIME:	16 HRS
STANDARD DEVIATION:	7.18
OPERATIONAL TIME:	716 HRS
VAR-VARIOUS	VAR-VARIOUS

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA    - - - - NOMAX    . . . . PPB

LICA  
NO\_ / WD Joint Frequency Distribution (Percent)  
September 2015

Distribution By % Of Samples

Logger Id : 01  
Site Name : LICA  
Parameter : NO  
Units : PPS

Wind Parameter : WD  
Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 50.0	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79	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	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79				

Calm : .00 %

Total # Operational Hours : 668

Distribution By Samples

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 50.0	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32	668			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32				

Calm : .00 %

Total # Operational Hours : 668

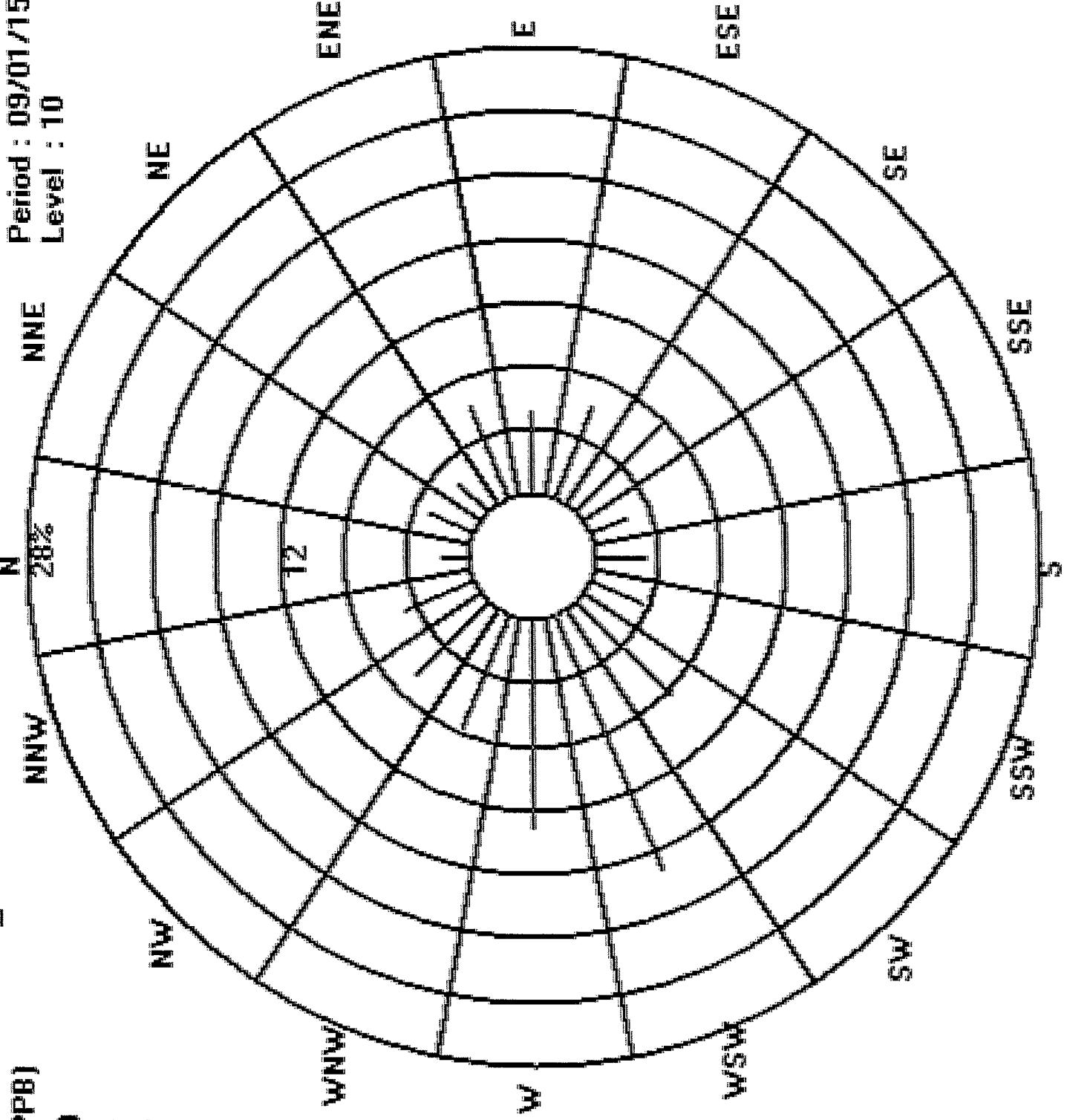


Logger : 01 Parameter : NO<sub>x</sub>





Site : LICA

Period : 09/01/15-09/30/15

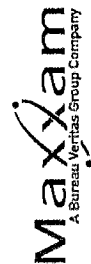
Level : 10



Class Limits (PPB)

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

***NITROGEN DIOXIDE***



NITROGEN DIOXIDE (NO2) hourly averages in ppb

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	RDGS		
	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	
1	1.5	1.2	1.3	1.6	2.5	1.8	\$	3.2	1.6	2.2	3.2	2.1	1.0	0.8	0.9	0.5	0.4	0.4	0.7	1.8	2.6	3.3	2.5	1.1	3.3	1.7	24		
2	1.2	1.5	1.2	0.6	0.8	\$	0.9	1.2	0.5	0.5	0.4	0.4	0.4	0.3	0.6	0.6	0.5	1.1	1.0	0.6	1.4	1.9	1.6	2.3	2.3	0.9	24		
3	3.4	1.6	1.7	1.8	\$	2.3	1.6	1.8	1.6	1.4	0.6	0.7	0.6	0.6	0.5	0.5	0.3	0.5	1.5	3.1	1.4	2.0	2.6	3.4	1.5	24			
4	2.1	2.0	2.2	\$	1.7	2.7	5.3	4.8	\$	2.3	1.4	0.9	1.6	0.8	0.4	0.5	0.3	0.1	0.5	0.5	1.2	0.9	0.7	0.5	5.3	1.5	24		
5	1.1	1.4	\$	3.6	4.3	3.4	4.3	5.6	1.8	0.6	0.4	0.6	0.1	0.2	0.4	0.3	0.5	1.1	1.5	1.0	0.9	0.5	0.4	0.2	5.6	1.5	24		
6	0.5	\$	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.1	0.1	0.1	0.1	0.3	0.5	0.2	24		
7	\$	0.4	0.7	2.1	2.6	3.7	3.4	3.5	3.3	1.5	0.8	0.9	1.0	1.1	0.7	0.9	0.9	1.1	2.3	2.6	2.7	2.6	2.5	\$	3.7	1.9	24		
8	4.1	2.9	1.9	1.9	1.5	1.3	2.0	2.7	X	0.4	0.2	0.2	1.1	1.4	0.7	0.5	0.7	0.8	1.4	2.4	2.7	1.8	\$	1.5	4.1	1.6	23		
9	1.3	1.3	1.8	1.3	1.5	1.1	\$	3.5	3.3	3.0	1.7	0.5	0.4	0.4	0.3	0.9	C	1.7	1.9	2.6	\$	3.0	3.3	3.5	1.7	24			
10	2.6	1.8	1.9	1.5	1.3	1.2	0.9	3.1	4.2	3.3	2.1	0.9	0.5	0.5	0.7	1.3	0.8	0.6	1.8	3.4	\$	2.7	1.3	2.1	4.2	1.8	24		
11	2.2	1.9	1.9	2.0	1.9	2.8	3.0	3.3	2.9	1.6	1.3	1.3	1.4	0.8	0.7	0.6	0.7	1.2	1.7	\$	2.6	2.3	2.2	1.9	3.3	1.8	24		
12	2.2	1.8	1.9	2.2	3.8	3.4	3.9	3.3	2.3	1.8	1.2	0.3	0.3	0.5	0.2	0.0	0.2	0.6	\$	1.1	2.8	1.8	2.0	1.6	3.9	1.7	24		
13	1.6	2.0	2.1	3.1	3.9	3.6	2.6	3.1	2.1	1.6	1.2	1.1	0.9	0.7	0.7	0.6	1.1	\$	1.8	1.0	1.2	1.3	1.1	2.4	3.9	1.8	24		
14	3.8	3.9	0.8	0.1	0.2	0.5	3.4	\$	1.1	0.9	0.2	0.2	0.3	0.3	0.3	0.7	0.9	\$	2.4	1.9	1.8	2.5	1.6	1.7	1.9	3.9	1.4	24	
15	2.7	2.5	1.2	0.8	1.4	1.8	2.6	3.0	1.1	1.1	0.6	0.3	0.6	0.3	0.6	\$	1.0	1.0	1.3	1.5	1.0	0.7	0.6	0.5	3.0	1.2	24		
16	0.7	0.8	0.9	0.9	1.1	1.4	1.2	0.9	0.6	1.1	1.4	0.3	1.2	1.8	\$	0.7	0.8	1.3	1.6	1.3	P	2.2	1.8	2.2	1.1	22	24		
17	1.2	1.5	3.2	4.5	3.8	3.4	2.9	3.4	5.1	3.0	1.5	0.3	0.3	\$	0.4	0.6	0.2	0.7	1.2	1.4	1.6	1.5	1.2	1.5	1.3	2.4	1.2	24	
18	1.3	0.9	0.9	2.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.3	1.6	\$	2.1	2.2	1.7	0.9	1.0	1.2	2.0	1.6	1.6	2.0	2.3	2.3	2.5	1.7	24
19	1.3	1.0	0.9	0.8	1.3	2.0	2.1	2.2	2.5	2.0	1.5	\$	1.1	0.6	0.6	0.6	0.9	1.1	2.0	3.1	2.8	2.1	1.6	2.3	1.6	3.1	1.6	24	
20	1.6	1.4	1.9	2.3	1.9	1.3	1.6	1.5	1.4	1.3	\$	0.5	0.1	0.3	0.2	0.2	0.1	0.3	0.3	1.3	1.6	2.1	0.9	0.9	2.5	3.0	1.4	24	
21	1.9	2.2	2.0	1.9	2.2	3.0	3.0	2.1	1.5	\$	2.5	1.9	0.7	1.0	1.4	2.2	1.9	2.9	3.2	2.3	2.5	1.1	0.6	0.4	0.4	5.5	2.6	24	
22	4.0	3.3	4.1	5.5	5.4	4.0	3.8	5.1	\$	2.5	1.9	0.7	1.0	1.4	2.2	1.9	2.9	3.2	2.3	2.5	1.1	0.6	0.4	0.4	5.5	2.6	24		
23	0.3	0.1	0.2	0.3	0.6	0.7	0.9	\$	1.2	1.1	0.8	C	C	C	C	C	C	C	C	8.5	9.3	5.3	6.3	4.7	9.3	2.7	24		
24	2.8	1.9	1.3	1.8	1.6	1.4	\$	4.3	4.2	1.5	2.4	1.9	1.7	2.0	4.0	5.1	3.4	2.6	2.4	1.9	1.3	1.5	1.6	1.6	5.1	2.4	24		
25	1.8	1.7	1.5	1.5	4.3	\$	6.2	\$	4.4	4.9	4.3	2.1	1.4	0.9	1.1	0.7	1.4	1.5	1.4	1.7	1.9	2.8	2.5	4.0	6.2	2.5	24		
26	6.4	8.0	5.2	4.1	\$	3.0	2.7	3.0	3.0	1.7	1.9	1.5	1.2	1.0	0.9	0.5	0.6	0.8	1.2	1.3	2.1	3.7	2.6	2.5	8.0	2.6	24		
27	2.3	1.7	1.4	\$	1.7	1.1	1.0	1.0	1.0	0.9	0.8	0.4	0.6	0.2	0.0	0.3	0.2	1.2	2.2	2.4	6.3	5.5	4.2	6.0	6.3	1.8	24		
28	4.3	4.1	\$	4.4	4.0	5.0	5.2	4.0	2.7	1.9	1.3	0.9	1.1	1.2	1.0	2.8	3.8	3.3	4.7	2.5	1.2	1.5	1.7	5.2	2.8	24			
29	1.6	\$	2.1	2.8	2.9	3.7	3.8	6.0	3.6	3.0	2.8	2.4	2.2	2.2	3.1	2.4	1.9	1.6	2.6	3.5	4.5	6.1	7.5	4.7	7.5	3.3	24		
30	5.7	6.1	5.7	5.6	5.3	4.8	5.2	12.8	5.3	3.5	2.7	2.1	1.6	1.5	1.1	1.5	1.1	1.5	3.2	8.4	5.0	6.8	8.4	7.2	\$	12.8	5.0	24	
HOURLY MAX	6.4	8.0	6.1	5.7	5.6	5.3	6.2	6.0	12.8	5.3	4.3	2.7	2.2	2.2	4.0	5.1	3.4	3.8	8.4	8.5	9.3	8.4	7.5	6.0	6.0	6.0	6.0	2	
HOURLY AVG	2	2	2	2	2	2	2	3	3	3	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	

ALBERTA ENVIRONMENT: 1-HR: 159 PPB

OBJECTIVE LIMIT:

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES: 0

NUMBER OF NON-ZERO READINGS: 665

MAXIMUM 1-HR AVERAGE: 12.8 PPB @ HOUR(S) 8 ON DAY(S) 30

MAXIMUM 24-HR AVERAGE: 5.0 PPB VAR-VARIOUS

12S CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 717 HRS

MONTHLY CALIBRATION TIME: 14 HRS AMD OPERATION UPTIME: 99.6 %

STANDARD DEVIATION: 1.54 MONTHLY AVERAGE: 1.9 PPB

STATUS FLAG CODES

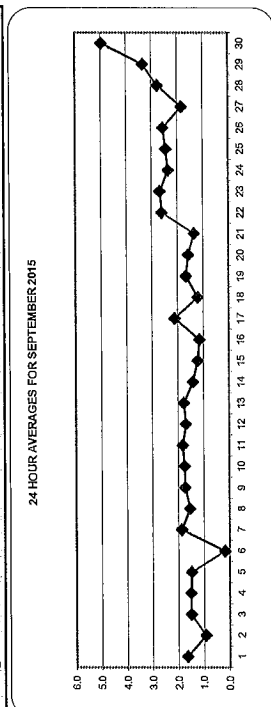
C - CALIBRATION Q - QUALITY ASSURANCE

Y - MAINTENANCE R - RECOVERY

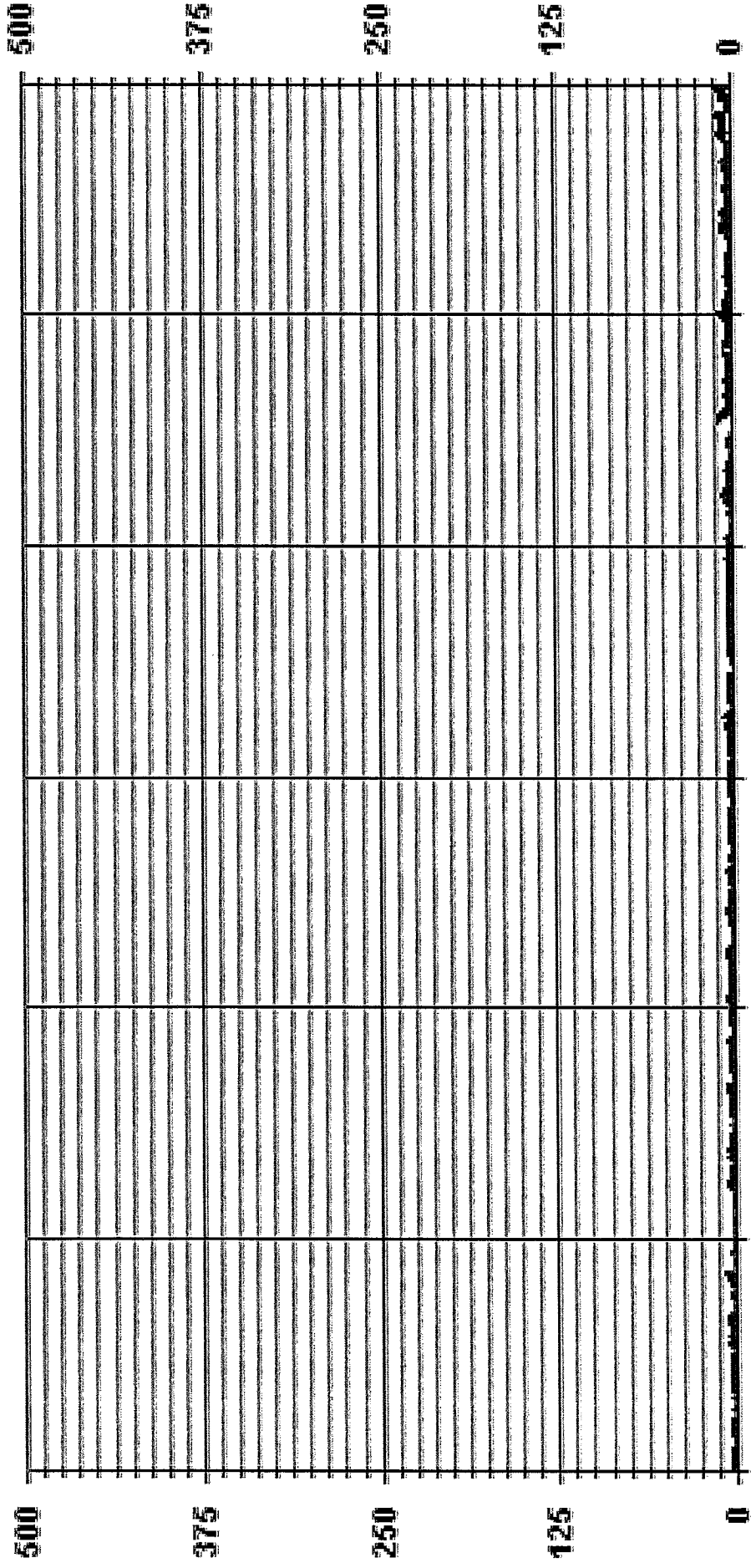
S - DAILY ZERO/SPAN CHECK X - MACHINE MALFUNCTION

P - POWER FAILURE O - OPERATOR ERROR

G - OUT FOR REPAIR K - COLLECTION ERROR



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA NO2\_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Cold Lake South Site - SEPTEMBER 2015  
JOB # 2833-2015-09-01 - C

NITROGEN DIOXIDE MAX instantaneous maximum 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-HOUR AVG.	RDGS.		
1	2.6	1.9	2.1	7.1	3.1	S	2.3	R	3.3	4.3	7.8	2.3	0.8	2.8	0.8	1.3	1.3	4.3	3.3	10.8	4.8	3.9	1.4	10.8	3.3	23	
2	4.9	2.6	3.8	2.8	2.3	S	4.4	4.4	1.8	3.3	5.3	3.3	1.3	3.8	1.8	1.3	4.3	3.3	2.3	3.3	2.3	3.9	2.3	3.9	2.9	24	
3	4.3	2.3	2.3	2.3	S	2.9	2.0	2.4	2.4	1.9	0.9	0.9	1.4	0.9	0.9	0.9	2.9	4.4	3.9	2.4	3.9	3.4	4.4	2.3	2.4	24	
4	2.4	2.9	2.9	S	2.9	6.4	S	4.0	S	4.0	3.0	2.5	2.0	1.0	0.5	1.1	1.6	1.0	3.0	1.5	1.0	1.0	1.0	6.4	2.4	24	
5	1.5	2.0	S	5.4	6.4	4.8	7.8	4.8	2.8	1.9	6.3	0.3	0.8	11.3	0.8	1.3	2.3	2.8	3.3	2.8	1.8	1.4	1.3	11.3	3.6	24	
6	3.3	S	0.8	0.8	0.8	0.8	0.8	0.3	1.3	0.3	0.8	1.3	0.8	0.3	1.3	0.8	1.8	6.4	0.3	0.8	0.3	0.3	0.8	6.4	1.1	24	
7	S	0.8	0.8	2.8	3.3	4.3	3.8	4.8	3.8	2.8	1.3	1.3	1.8	0.8	1.3	1.8	4.3	3.8	3.3	3.3	4.3	S	4.8	2.6	24		
8	5.9	4.9	2.8	3.4	2.3	2.8	4.3	X	6.8	2.3	4.4	43.4	31.8	9.9	1.4	1.9	5.4	2.9	4.8	5.4	2.8	S	2.3	43.4	7.1	23	
9	2.3	2.3	2.8	1.8	2.3	2.8	S	5.6	4.1	5.1	1.1	1.0	6.5	1.1	C	C	C	C	3.3	4.8	S	3.6	4.1	6.5	3.3	24	
10	3.6	2.6	2.6	2.6	2.1	2.6	3.6	4.6	6.6	5.2	17.6	2.1	2.1	2.1	2.1	2.1	3.6	2.6	1.1	7.1	7.2	S	19.7	1.8	2.8	19.7	24
11	2.8	2.8	2.8	2.8	4.8	4.8	4.8	3.7	14.8	4.8	2.2	1.7	6.2	1.2	1.2	3.2	2.2	1.7	2.7	S	3.2	2.8	2.8	4.8	14.8	3.7	24
12	3.3	2.8	2.8	3.8	4.8	4.8	4.8	4.8	4.8	4.3	2.2	1.7	0.7	1.2	1.2	1.2	1.2	0.7	1.2	S	1.8	3.4	2.9	2.4	4.8	2.6	24
13	2.4	2.4	2.9	4.9	4.9	4.9	4.3	3.8	4.8	2.8	1.9	10.8	1.8	1.3	0.8	4.3	0.8	1.3	S	3.3	2.8	2.2	2.7	4.8	10.8	3.2	24
14	4.8	4.7	3.2	0.7	0.7	1.2	S	S	2.3	1.8	0.8	0.9	1.4	2.4	1.9	1.9	S	5.8	5.8	2.7	6.2	3.2	6.2	2.2	2.8	2.4	24
15	4.2	4.2	2.2	5.3	3.7	3.3	4.7	2.2	3.2	1.7	1.2	1.2	1.2	2.2	S	S	1.9	2.4	2.4	3.4	5.4	0.9	2.9	5.4	2.9	24	
16	1.4	1.9	1.9	5.5	1.9	1.9	1.4	1.4	35.9	27.9	0.4	1.9	2.4	S	1.2	1.7	2.7	2.1	2.1	P	P	3.6	2.6	35.9	4.9	22	
17	2.7	2.2	5.7	5.7	6.1	4.2	S	8.2	4.7	3.7	1.3	1.3	S	2.8	31.3	3.3	1.8	4.8	6.2	3.2	7.2	2.2	31.3	5.3	24		
18	6.2	4.3	2.3	5.8	3.8	2.3	2.8	C	C	C	13.9	S	2.2	3.3	0.7	1.3	2.2	2.7	2.8	2.3	2.3	3.3	1.8	13.9	3.5	24	
19	2.2	1.7	1.7	2.2	2.7	3.2	3.3	3.7	4.7	2.8	S	3.4	6.3	5.3	2.3	4.3	2.3	2.9	2.3	2.3	2.3	3.4	3.4	6.3	3.1	24	
20	2.9	1.9	2.3	2.8	2.3	1.8	2.3	2.3	2.4	S	3.0	2.0	1.5	3.0	2.0	12.0	9.0	4.0	4.0	3.9	3.5	2.9	3.5	2.9	3.3	24	
21	3.4	3.9	3.4	2.4	3.5	4.9	4.4	3.4	1.9	S	1.9	0.9	0.9	0.4	0.4	0.9	0.9	2.9	2.4	2.9	1.9	3.4	3.5	4.9	2.4	24	
22	5.0	4.4	6.4	6.9	10.4	9.9	5.4	15.9	S	5.0	3.0	2.5	1.5	10.0	5.0	4.5	3.5	4.5	3.5	16.0	2.5	1.5	1.0	2.5	16.0	6.1	24
23	1.5	0.5	1.0	1.5	3.0	1.5	S	S	2.9	1.9	3.4	C	C	C	C	C	C	C	C	12.9	14.9	6.9	16.4	7.4	16.4	5.1	24
24	4.0	3.0	2.0	3.0	3.5	2.0	S	10.5	8.5	4.5	9.0	2.5	3.9	19.4	17.9	16.4	4.0	10.9	3.0	1.5	2.0	2.0	2.0	19.4	6.0	24	
25	3.0	3.0	2.0	3.0	22.4	S	10.9	S	6.0	10.0	5.0	4.0	2.5	1.5	1.5	1.0	2.5	3.0	2.5	4.0	3.0	4.0	4.0	5.5	22.4	5.2	24
26	6.9	12.9	6.9	4.5	S	4.5	4.0	4.0	4.0	2.0	2.5	3.5	2.5	5.5	1.5	1.5	3.0	1.5	3.0	1.5	4.0	3.5	3.0	12.9	3.9	24	
27	3.5	3.0	2.0	S	5.0	2.0	1.0	1.5	1.5	1.0	1.0	0.5	1.0	0.5	0.4	1.0	0.5	2.5	4.5	5.5	8.5	6.0	5.5	6.9	8.5	2.8	24
28	5.4	4.9	S	8.0	8.5	7.5	6.5	4.5	3.0	3.0	2.0	3.6	1.6	2.1	1.6	6.5	6.1	4.6	6.5	5.6	1.6	2.1	3.1	8.5	4.6	24	
29	2.6	S	3.5	3.5	4.5	8.5	6.4	10.5	5.0	4.0	4.0	3.5	3.0	3.5	18.5	4.5	4.0	2.0	6.4	5.5	7.0	11.5	13.0	6.4	18.5	6.1	24
30	S	7.0	8.5	8.0	8.0	8.9	6.9	13.9	19.0	11.5	4.5	3.5	3.5	2.9	1.4	6.4	7.0	18.0	9.5	8.5	11.5	9.0	S	19.0	8.2	24	

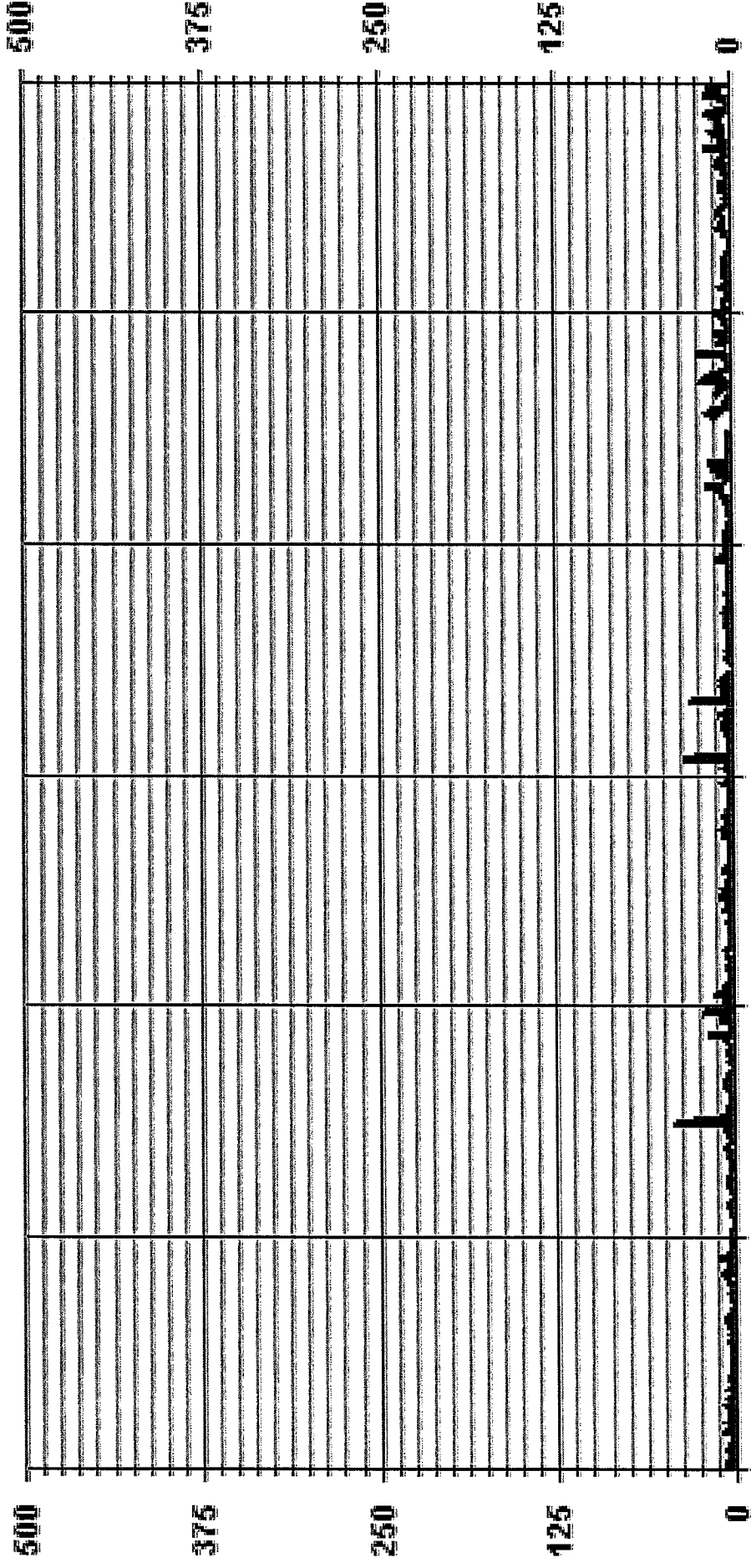
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	661
MAXIMUM INSTANTANEOUS VALUE:	43.4 PPB @ HOUR(S) 12 ON DAY(S) 8
IZS CALIBRATION TIME:	39 HRS
MONTHLY CALIBRATION TIME:	16 HRS
STANDARD DEVIATION:	4.13
OPERATIONAL TIME:	VAR- VARIOUS
HRS	716

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA NO2MAX PPB

LICA  
 NO2\_ / WD Joint Frequency Distribution (Percent)  
 September 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	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79	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	1.79	2.99	2.54	6.13	5.08	6.13	7.93	2.54	3.29	3.59	8.38	17.36	13.02	7.78	6.58	4.79	

Calm : .00 %

Total # Operational Hours : 668

Distribution By Samples

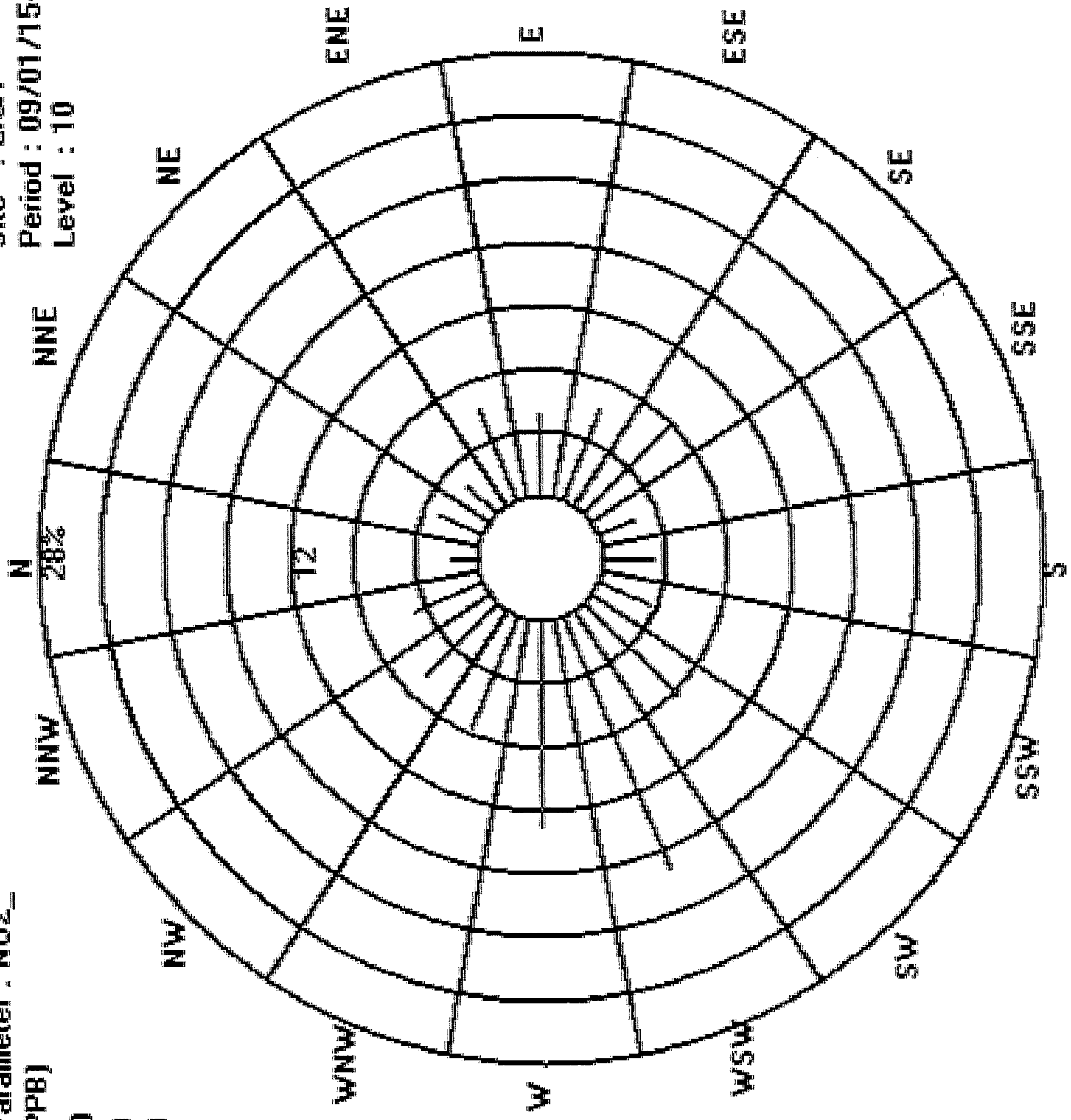
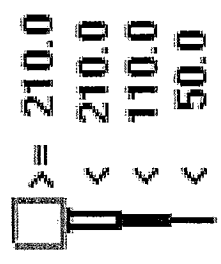
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32	668
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	12	20	17	41	34	41	53	17	22	24	56	116	87	52	44	32	

Calm : .00 %

Total # Operational Hours : 668

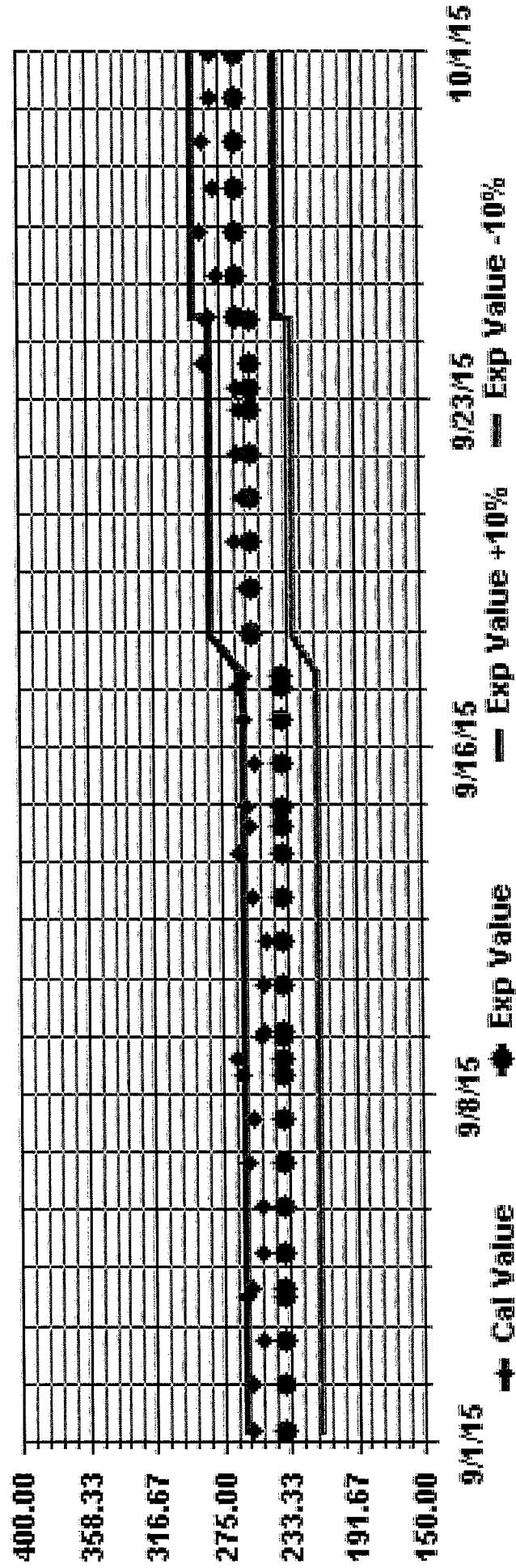
Logger : 01 Parameter : NO2\_  
Class Limits (PPB)

Site : LICA  
Period : 09/01/15-09/30/15  
Level : 10





Calibration Graph for Site: LICA Parameter: NO2\_ Sequence: NO2 Phase: SPAN



**OZONE**



OZONE (O3) hourly averages in ppb

MST

DAY	OZONE (O3) hourly averages in ppb																								24-HOUR AVG.	ROSS		
	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	21	25	27	30	30	31	5	24	24	25	30	36	36	38	38	37	37	36	34	27	23	16	16	20	38	28.7	24	
2	16	16	22	27	28	5	27	27	29	30	30	30	30	30	30	28	28	27	27	25	22	22	19	15	30	25.5	24	
3	13	15	10	11	5	12	13	12	11	14	19	23	22	22	22	21	21	21	18	10	11	5	2	1	23	14.3	24	
4	1	1	1	5	0	1	2	3	6	13	16	17	16	17	17	16	16	15	14	9	2	1	2	1	17	8.1	24	
5	1	1	5	1	1	0	1	4	16	24	28	26	27	27	28	27	27	26	25	24	22	22	22	28	28	17.7	24	
6	20	5	18	17	17	19	23	30	30	29	25	19	21	21	21	19	20	21	21	22	21	20	20	18	30	21.3	24	
7	5	17	15	13	14	12	11	11	12	12	14	15	17	17	17	21	23	22	20	13	6	2	1	4	5	23	12.9	24
8	2	1	1	0	0	0	1	1	8	27	29	28	28	29	30	31	30	30	22	9	6	3	5	2	31	13.8	24	
9	1	0	1	1	0	0	1	3	11	20	24	32	32	32	33	34	33	32	24	12	7	5	2	2	34	14.7	24	
10	2	1	2	1	1	1	1	4	12	14	21	29	33	32	32	34	35	24	13	5	17	18	17	17	35	16.3	24	
11	10	5	8	4	3	5	11	12	15	21	25	27	29	29	30	33	41	38	30	5	33	31	23	15	41	20.7	24	
12	13	9	8	6	11	11	14	16	21	25	29	29	30	30	30	29	26	31	5	19	23	22	19	17	31	20.3	24	
13	20	14	12	12	10	8	5	10	13	17	21	23	27	31	32	34	35	5	21	28	18	15	9	10	35	18.4	24	
14	8	6	13	16	14	15	9	14	18	17	19	21	22	22	24	22	5	17	7	2	1	1	0	1	24	12.6	24	
15	1	3	4	11	9	7	12	13	14	13	15	17	19	18	19	18	15	15	15	15	15	17	16	17	19	13.0	24	
16	17	19	25	25	20	10	9	10	12	15	17	19	19	17	18	15	17	10	6	6	6	6	6	1	25	14.5	22	
17	0	0	1	1	1	0	0	1	7	11	20	25	28	5	29	29	23	22	11	11	12	8	8	8	29	11.1	24	
18	4	6	5	3	1	1	1	6	14	20	27	31	35	35	34	35	36	33	31	24	19	21	16	12	9	36	17.0	24
19	5	5	4	3	2	1	1	6	15	20	28	5	35	35	34	35	38	32	30	29	29	28	22	21	38	20.0	24	
20	12	9	13	16	17	19	20	21	24	26	5	26	28	30	32	34	32	25	16	14	22	17	23	24	34	21.7	24	
21	21	18	19	17	17	15	14	13	15	5	16	16	16	16	15	14	13	11	12	10	8	9	13	12	9	21	14.0	24
22	6	3	3	3	3	2	2	2	5	13	16	21	22	20	20	21	19	18	19	21	24	24	24	22	24	14.3	24	
23	22	22	21	22	21	21	20	5	19	19	20	23	26	27	23	24	33	36	33	30	24	21	22	22	36	17.7	24	
24	2	2	1	2	2	2	2	5	10	14	17	23	26	27	23	24	33	36	33	30	24	21	22	22	36	17.7	24	
25	24	26	26	24	15	5	9	10	13	16	19	28	32	36	38	38	35	35	34	30	27	20	16	17	38	24.7	24	
26	14	14	12	12	5	17	16	17	18	21	22	25	29	33	35	36	37	32	30	31	28	25	23	23	37	23.9	24	
27	24	23	22	5	22	25	25	25	25	25	27	31	32	31	31	30	29	28	24	23	15	11	13	32	24.1	24		
28	15	15	5	13	13	9	12	13	16	18	21	24	26	26	27	29	26	21	19	18	21	25	24	23	29	19.7	24	
29	22	5	20	19	17	13	18	14	22	23	25	26	27	27	26	28	28	27	23	18	12	7	5	10	28	19.9	24	
30	5	6	6	3	1	0	0	1	4	16	22	28	32	33	34	33	32	25	13	13	11	6	2	5	34	14.6	24	
HOURLY MAX	24	26	27	30	30	31	27	30	30	30	36	36	38	38	38	41	38	34	33	33	33	31	24	24				
HOURLY AVG	11.3	10.1	11.3	11.2	10.3	9.2	9.9	11.2	15.7	19.3	22.2	24.9	26.4	27.3	28.1	28.4	27.5	25.6	20.7	17.2	16.9	15.2	13.1	12.9				

STATUS FLAG CODES

C - CALIBRATION  
 Y - MAINTENANCE  
 S - DAILY ZERO/SPIG CHECK  
 P - POWER FAILURE  
 G - OUTFOR REPAIR

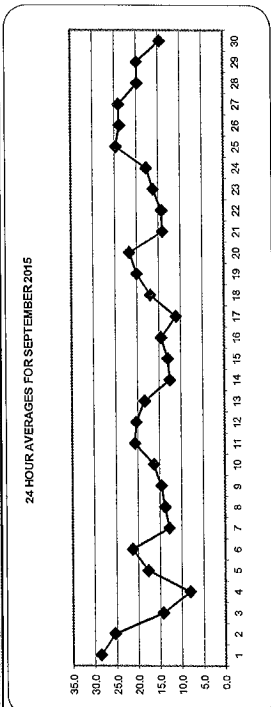
Q - QUALITY ASSURANCE  
 R - RECOVERY  
 X - MACHINE MALFUNCTION  
 O - OPERATOR ERROR  
 K - COLLECTION ERROR

ALBERTA ENVIRONMENT: 24-HR: 62 PPB

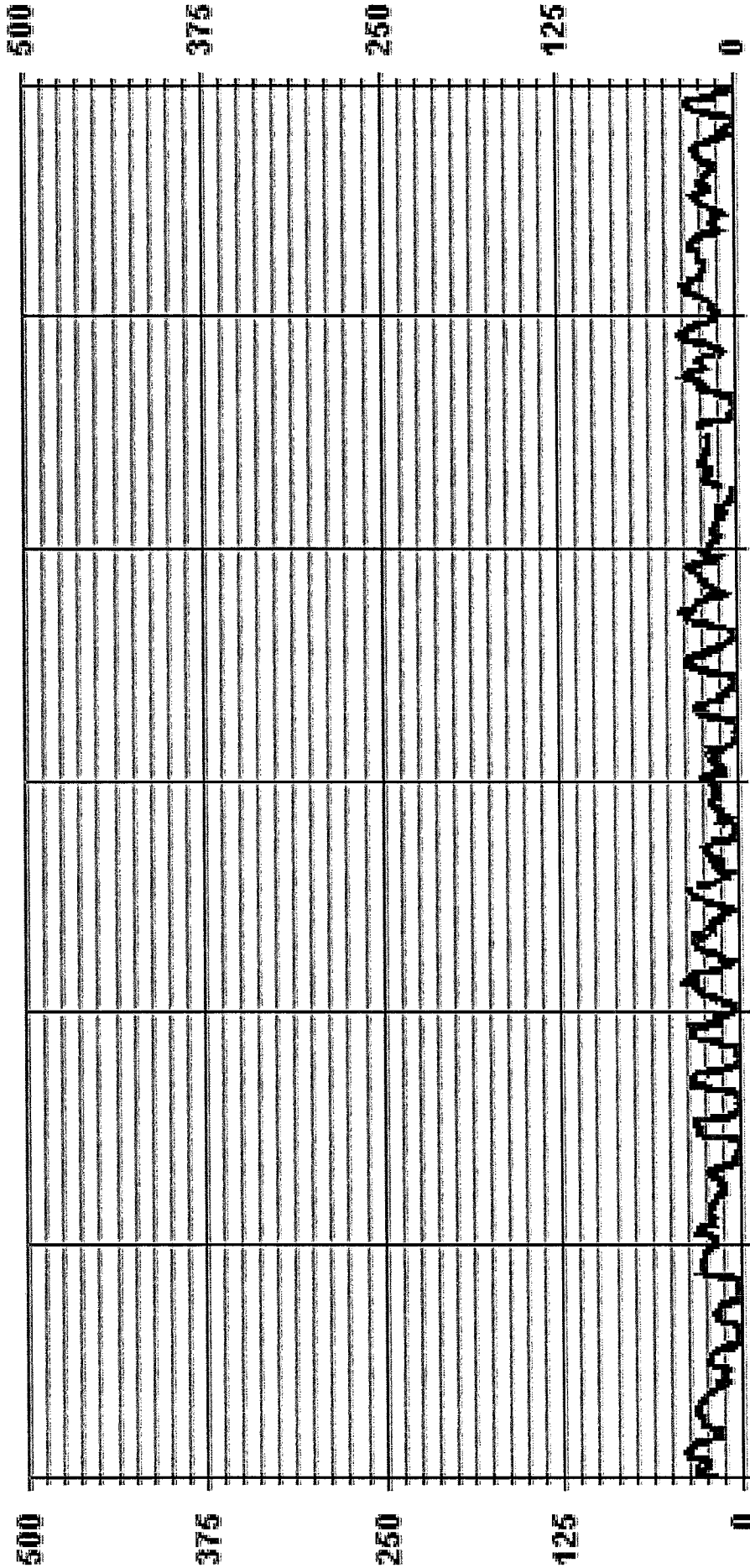
OBJECTIVE LIMIT:

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	665
MAXIMUM 1-HR AVERAGE:	41
MAXIMUM 24-HR AVERAGE:	28.7
IS CALIBRATION TIME:	32
MONTHLY CALIBRATION TIME:	5
STANDARD DEVIATION:	10.20
PPB @ HOUR(S)	16
OPERATIONAL TIME:	718
AMTD OPERATION UPTIME:	99.7
MONTHLY AVERAGE:	18
ON DAY(S)	11
ON DAY(S) VAR-VARIOUS	1
HRS	718
%	99.7
PPB	18



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA 03\_ PPB



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**  
**Cold Lake South Site - SEPTEMBER 2015**  
**JOB # 2833-2015-09-01- C**

**OZONE MAX** instantaneous maximum 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
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
<b>HOURLY MAX</b>																								
<b>HOURLY AVG</b>																								

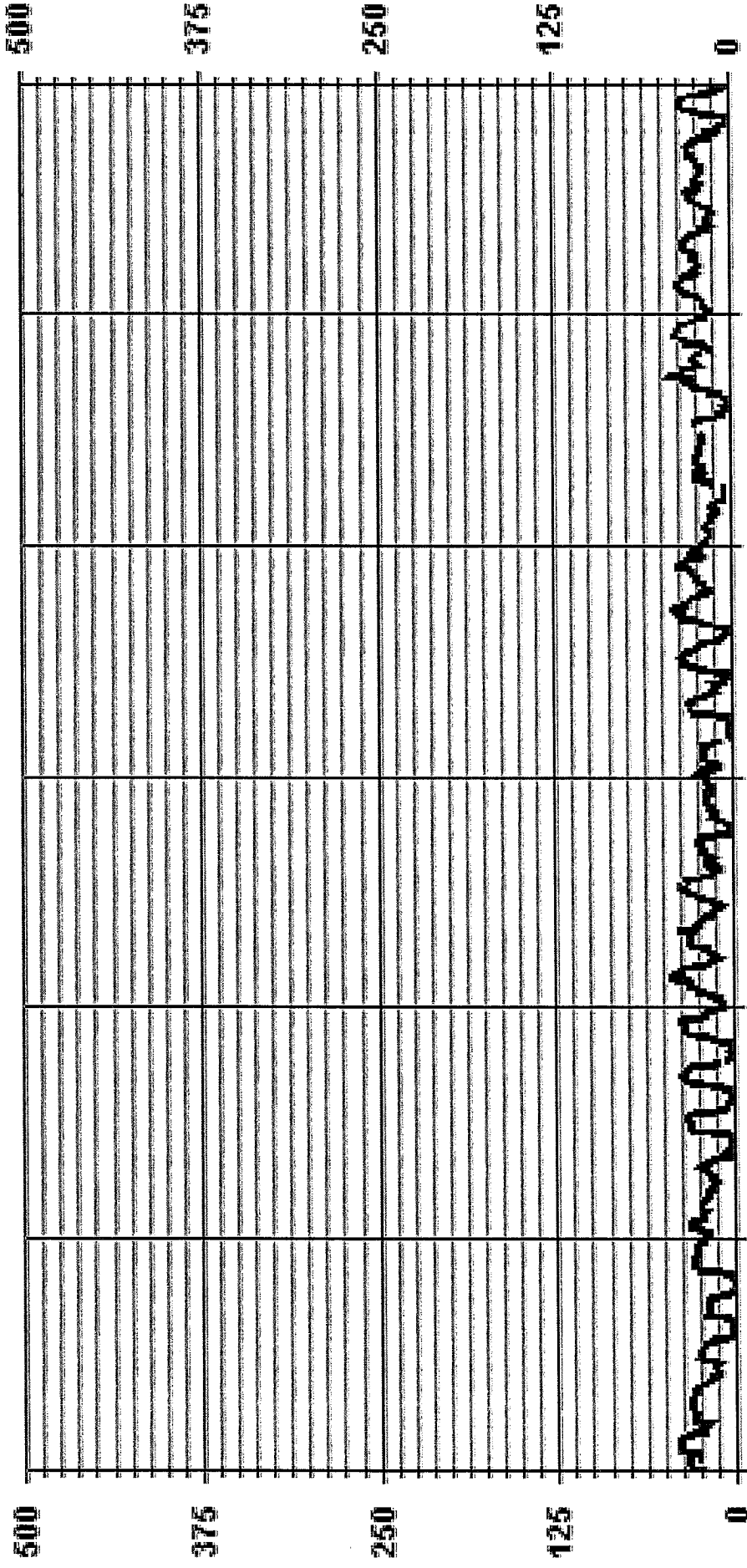
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:		679	
MAXIMUM INSTANTANEOUS VALUE:		43 PPB @ HOUR(S) 16, 17 ON DAY(S) 11, 11	
I/ZS CALIBRATION TIME: 32 HRS		OPERATIONAL TIME: 717 HRS	
MONTHLY CALIBRATION TIME: 5 HRS		VAR-VARIOUS	
STANDARD DEVIATION: 10.38			

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA O3MAX PPB

LICA  
 O3\_ / WD Joint Frequency Distribution (Percent)  
 September 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	1.76	3.08	2.49	6.02	4.99	6.16	7.92	2.64	3.23	3.67	8.37	17.62	12.77	7.78	6.75	4.69	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
<b>Totals</b>	<b>1.76</b>	<b>3.08</b>	<b>2.49</b>	<b>6.02</b>	<b>4.99</b>	<b>6.16</b>	<b>7.92</b>	<b>2.64</b>	<b>3.23</b>	<b>3.67</b>	<b>8.37</b>	<b>17.62</b>	<b>12.77</b>	<b>7.78</b>	<b>6.75</b>	<b>4.69</b>	<b>4.69</b>

Calm : .00 %

Total # Operational Hours : 681

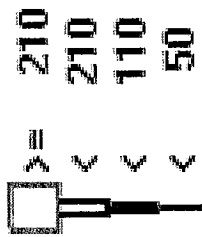
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	12	21	17	41	34	42	54	18	22	25	57	120	87	53	46	32	681
< 110																	
< 210																	
>= 210																	
<b>Totals</b>	<b>12</b>	<b>21</b>	<b>17</b>	<b>41</b>	<b>34</b>	<b>42</b>	<b>54</b>	<b>18</b>	<b>22</b>	<b>25</b>	<b>57</b>	<b>120</b>	<b>87</b>	<b>53</b>	<b>46</b>	<b>32</b>	<b>681</b>

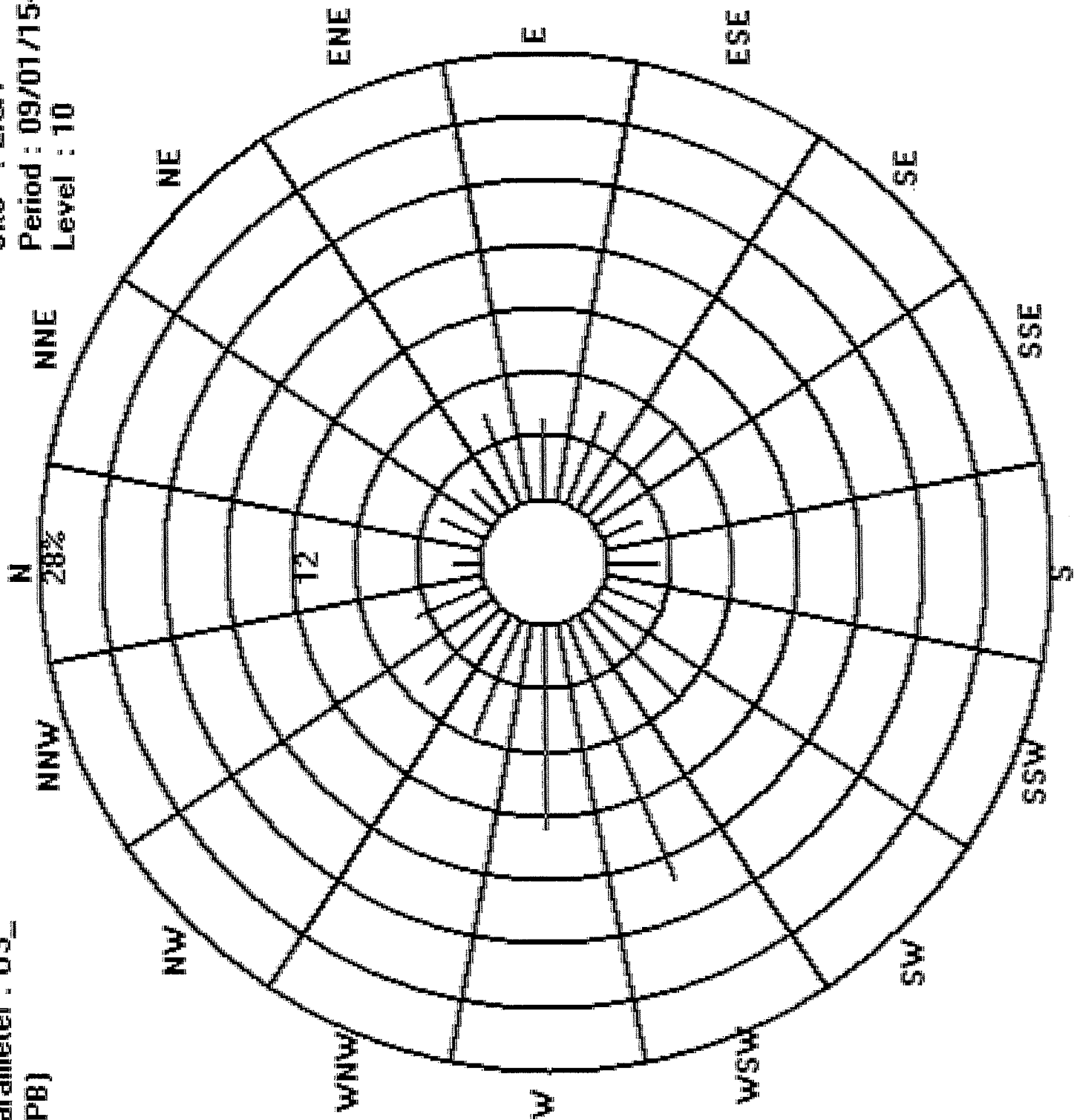
Calm : .00 %

Total # Operational Hours : 681

Logger : 01 Parameter : O3\_  
Class Limits (PPB)

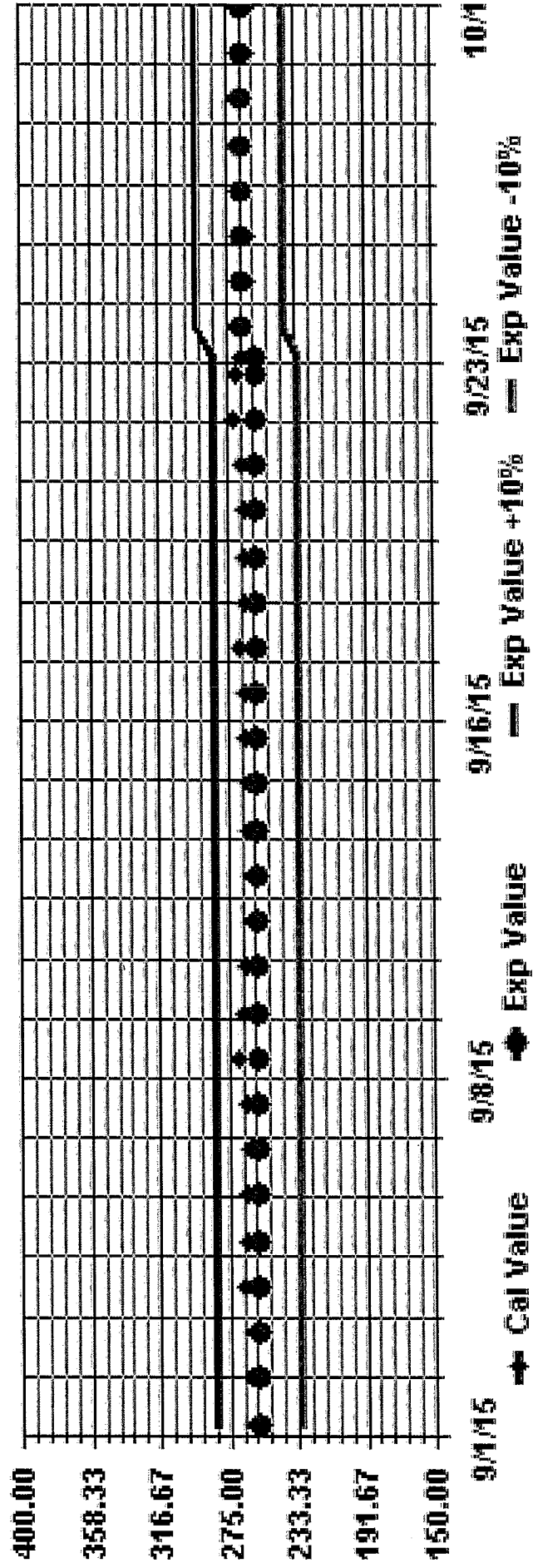


Site : LICA  
Period : 09/01/15-09/30/15  
Level : 10





Calibration Graph for Site: LICA Parameter: 03\_ 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	24:00	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	1:00	24-HOUR AVG.	MAX.			
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	8	4	5	8	8	7	0	6	6	0	3	0	5	10	4	7	0	3	6	0	3	6	7	3	1	10	4	24		
2	5	3	4	0	3	8	9	4	3	0	5	1	6	10	7	0	5	9	3	3	3	5	5	13	5	13	5	24		
3	10	5	3	9	4	1	7	5	C	0	0	0	3	10	3	10	8	7	5	6	7	8	7	10	6	10	6	24		
4	9	5	7	4	7	6	5	0	0	7	6	5	4	4	6	4	1	5	5	7	10	8	3	10	5	24	24			
5	3	5	3	10	8	12	9	11	8	12	9	12	4	6	7	0	9	15	8	12	13	3	6	15	8	23	23	24		
6	13	9	5	6	3	7	12	3	15	0	3	7	2	7	2	12	9	0	7	7	2	12	7	11	15	7	24	24		
7	5	5	7	4	7	5	1	0	2	7	3	7	4	3	6	4	6	2	6	6	6	6	17	6	17	5	24	24		
8	10	12	11	15	0	12	12	1	17	5	5	7	0	6	X	6	12	2	15	5	0	11	23	2	23	8	23	23		
9	1	17	10	2	3	8	8	6	10	5	11	12	10	5	0	9	5	0	X	3	10	17	16	12	17	8	23	23		
10	15	10	15	12	18	7	11	10	10	3	27	12	0	15	10	5	X	6	33	4	18	10	10	6	33	12	23	23		
11	8	10	6	6	8	10	1	1	11	4	5	11	19	10	16	5	9	8	11	8	13	4	12	2	19	8	24	24		
12	7	11	9	6	10	2	6	10	9	11	7	5	13	4	21	1	3	X	21	13	2	14	8	9	21	9	23	23		
13	11	2	7	7	8	6	8	1	6	16	10	4	13	8	1	2	16	24	13	0	7	9	2	6	24	8	24	24		
14	8	8	1	14	5	6	7	1	8	15	5	11	0	0	7	7	13	10	10	11	11	13	3	12	15	8	24	24		
15	8	11	8	7	0	2	11	0	11	X	1	4	7	7	4	6	0	4	6	9	0	13	10	1	13	6	23	23		
16	13	7	6	0	2	15	4	0	8	3	1	2	6	2	8	8	7	0	6	4	P	P	7	11	15	5	22	22		
17	0	10	1	7	9	5	9	4	11	0	7	4	0	0	5	6	14	26	13	9	15	5	14	8	26	8	24	24		
18	20	3	10	7	16	4	2	9	5	14	X	X	X	X	44	X	X	X	0	7	6	5	8	9	9	44	10	18	18	
19	11	12	4	6	3	10	4	2	0	X	X	2	3	24	0	X	1	X	2	9	6	12	4	9	24	6	20	20		
20	9	7	20	0	4	7	1	3	4	2	X	0	0	X	X	X	X	24	0	5	3	10	6	1	1	59	11	20	20	
21	14	9	8	0	11	6	8	X	4	9	14	18	X	X	X	X	X	59	X	3	10	6	1	1	1	59	11	20	20	
22	8	7	0	8	10	12	8	X	X	16	10	6	X	0	19	3	6	5	5	8	4	12	8	19	8	22	10	22	22	
23	10	3	8	13	9	5	9	14	13	6	27	24	0	5	X	0	9	X	10	12	16	15	13	27	10	22	10	22		
24	7	12	10	13	10	7	16	6	6	37	18	2	X	0	X	3	0	4	0	X	19	13	15	9	37	11	19	19	19	
25	5	12	12	9	8	13	16	C	2	8	6	3	X	0	0	3	1	3	1	3	1	0	0	6	16	5	23	23	23	
26	0	2	1	8	5	2	1	6	5	0	0	6	1	6	4	0	5	4	3	2	2	2	2	2	2	8	3	24	24	
27	5	0	4	6	3	5	2	0	0	3	0	0	X	1	6	0	0	5	2	1	3	2	4	2	5	6	3	24	24	
28	3	1	5	2	2	1	3	2	4	0	0	0	0	0	1	0	0	3	1	1	3	5	1	1	5	2	24	24		
29	2	10	0	6	0	8	6	3	2	3	10	15	X	4	5	2	X	X	8	9	5	4	6	3	15	5	22	22	22	
30	3	3	3	1	0	0	2	8	11	11	14	2	0	0	2	3	3	9	9	6	6	7	6	6	14	5	24	24	24	
HOURLY MAX	20	17	20	15	18	15	16	14	17	37	27	24	19	59	44	12	24	26	33	13	19	17	23	13						
HOURLY AVG	7.7	7.2	6.4	6.5	6.1	6.4	6.8	4.4	6.9	7.0	7.8	6.1	4.9	7.4	7.1	4.7	6.0	5.8	7.8	5.9	7.1	8.4	8.1	6.3						

STATUS FLAG CODES

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

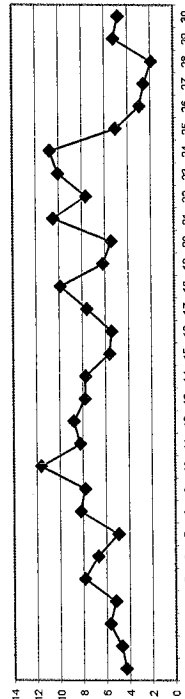
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

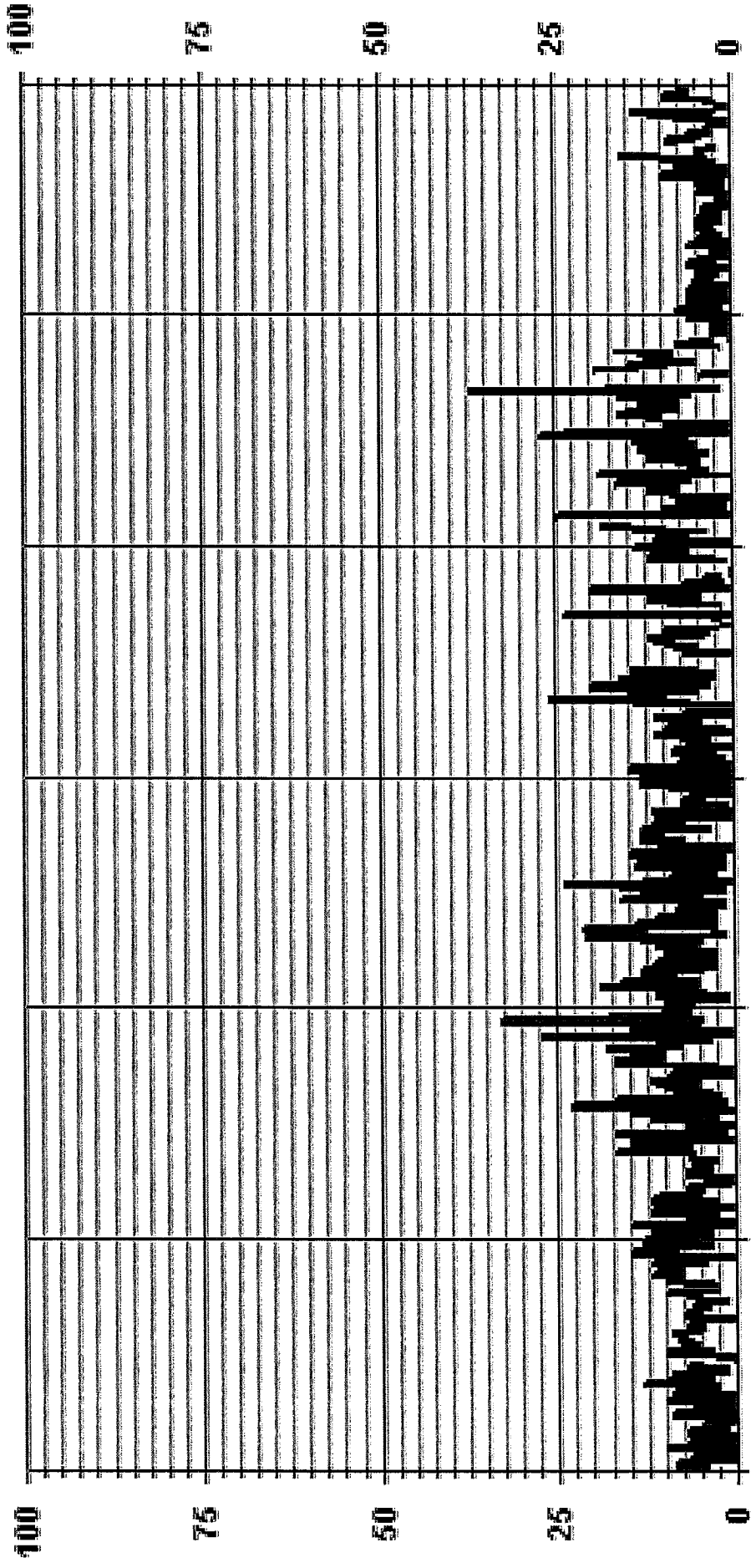
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	599
MAXIMUM 1-HR AVERAGE:	59 ug/m3 @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	11.6 ug/m3
MONTHLY CALIBRATION TIME:	3 HRS
STANDARD DEVIATION:	5.74
OPERATIONAL TIME:	680 HRS
AMD OPERATION UPTIME:	94.4 %
MONTHLY AVERAGE:	6.6 ug/m3
ON DAY(S)	21
ON DAY(S) VAR-VARIOUS	10

24 HOUR AVERAGES FOR SEPTEMBER 2015



# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA PM2 UG/M3

LICA  
PM2 / WD Joint Frequency Distribution (Percent)

September 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																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 30	1.77	2.65	2.51	6.35	5.31	6.35	8.56	2.51	2.95	3.69	8.41	17.57	12.11	7.23	6.64	4.72	99.40			
< 60	.00	.00	.00	.00	.00	.00	.00	.14	.14	.00	.00	.14	.14	.00	.00	.00	.59			
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	1.77	2.65	2.51	6.35	5.31	6.35	8.56	2.65	3.10	3.69	8.41	17.57	12.25	7.38	6.64	4.72				

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

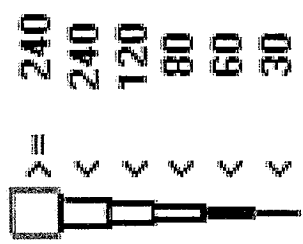
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 30	12	18	17	43	36	43	58	17	20	25	57	119	82	49	45	32	673			
< 60								1	1			1	1	1			4			
< 80																				
< 120																				
< 240																				
>= 240																				
Totals	12	18	17	43	36	43	58	18	21	25	57	119	83	50	45	32				

Calm : .00 %

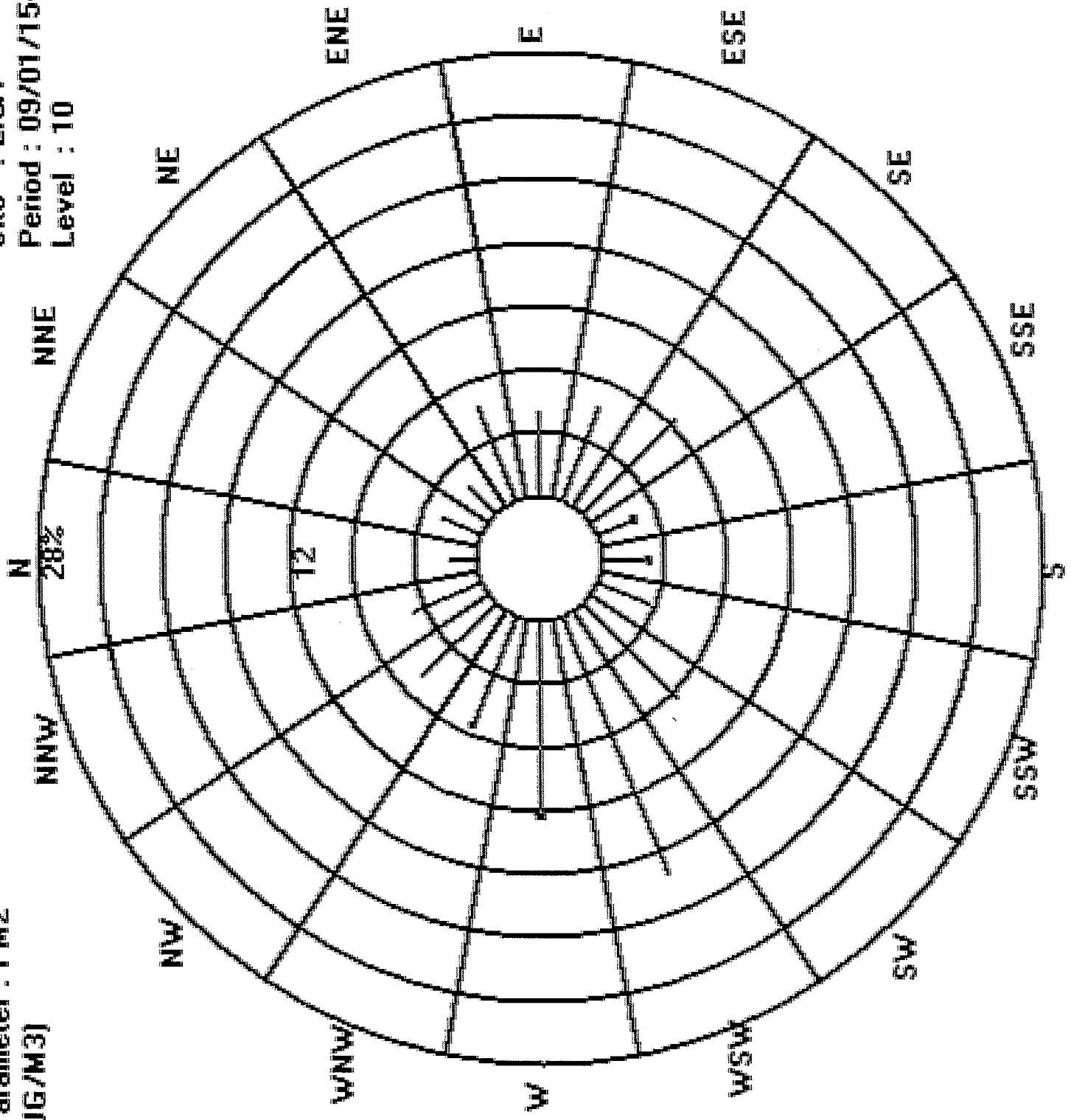
Total # Operational Hours : 677

Logger : 01 Parameter : PM2

Class Limits (UG/M3)



Site : LICA  
Period : 09/01/15-09/30/15  
Level : 10

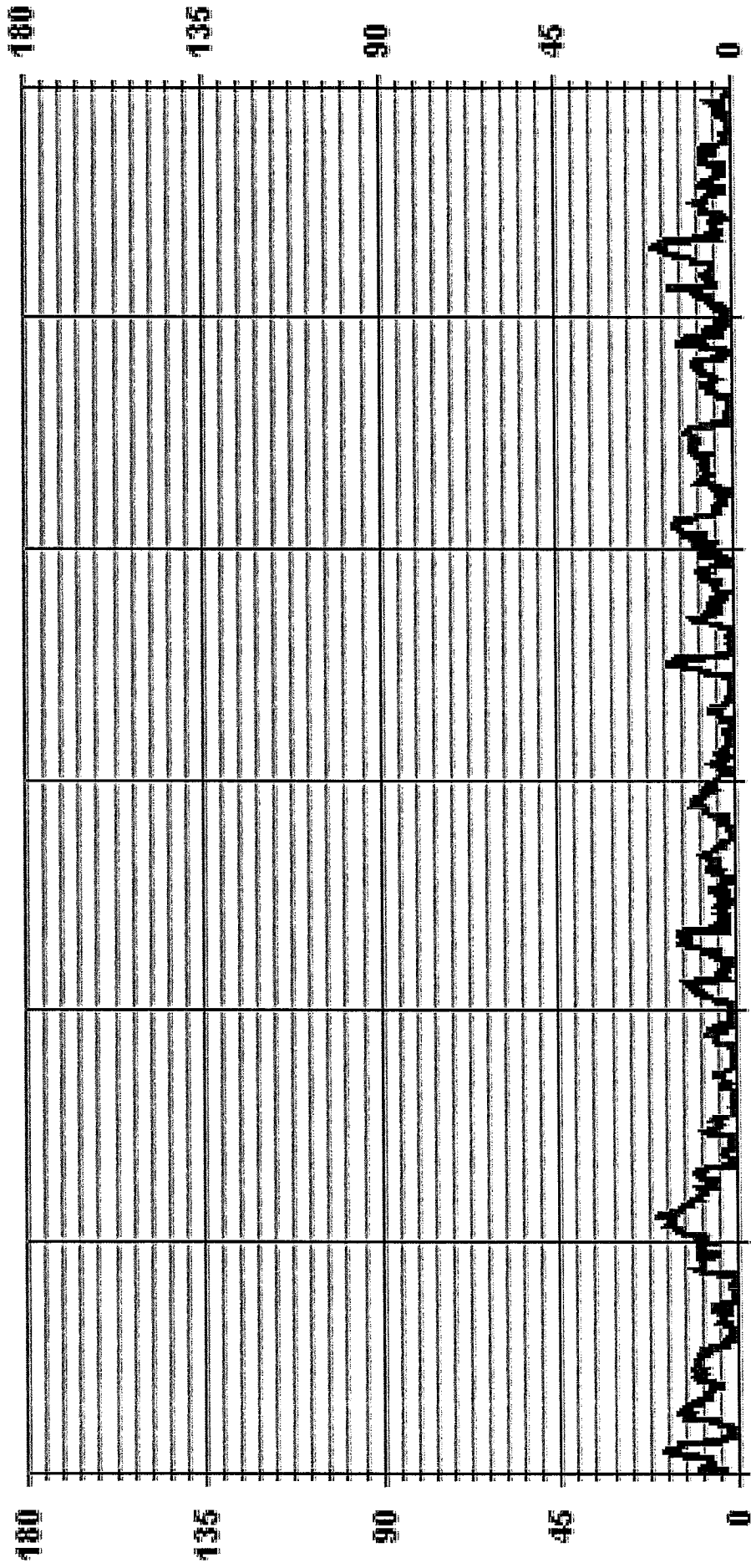


***WIND SPEED***





# 01 Hour Averages

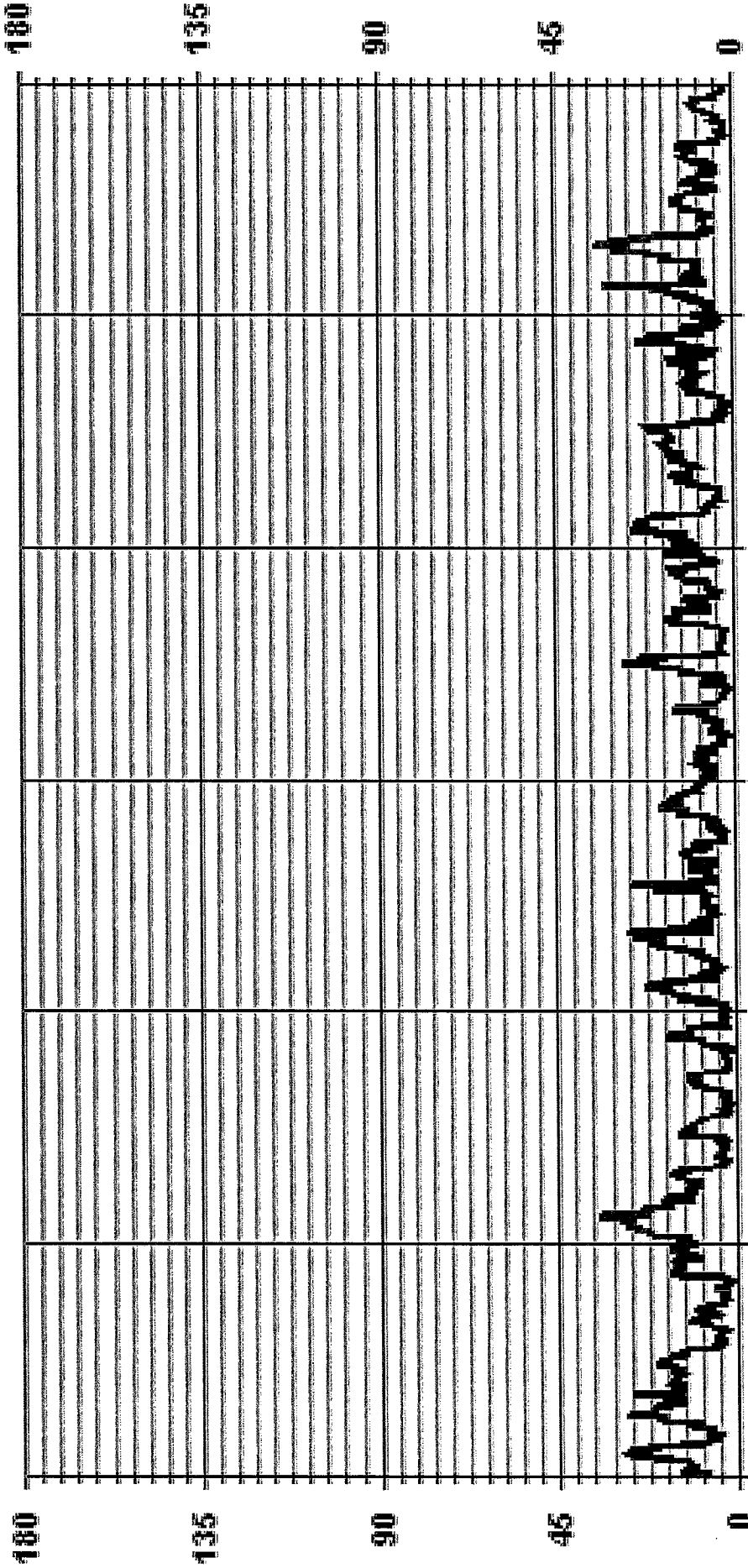


09/07/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA WSP KPH



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA WSMAX KPH

LICA  
WSP / WD Joint Frequency Distribution (Percent)

September 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	1.11	.69	1.25	2.92	2.22	2.50	5.15	2.22	2.50	3.48	6.26	12.81	6.40	4.17	2.22	2.64	58.63
< 12.0	.41	.55	.83	2.92	2.08	3.20	3.06	.00	.13	.00	1.67	4.17	4.31	1.53	3.06	1.25	29.24
< 20.0	.00	1.25	.41	.27	.55	.55	.00	.00	.00	.00	.00	.27	2.08	1.53	.97	.69	8.63
< 29.0	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.27
< 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	1.53	2.64	2.50	6.12	4.87	6.26	8.21	2.22	2.64	3.48	7.93	17.27	12.81	7.38	6.26	4.59	

Calm : 3.20 %

Total # Operational Hours : 718

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	8	5	9	21	16	18	37	16	18	25	45	92	46	30	16	19	421
< 12.0	3	4	6	21	15	23	22		1		12	30	31	11	22	9	210
< 20.0		9	3	2	4	4					2	15	11	7	5	62	
< 29.0														1			2
< 39.0																	
>= 39.0																	
Totals	11	19	18	44	35	45	59	16	19	25	57	124	92	53	45	33	

Calm : 3.20 %

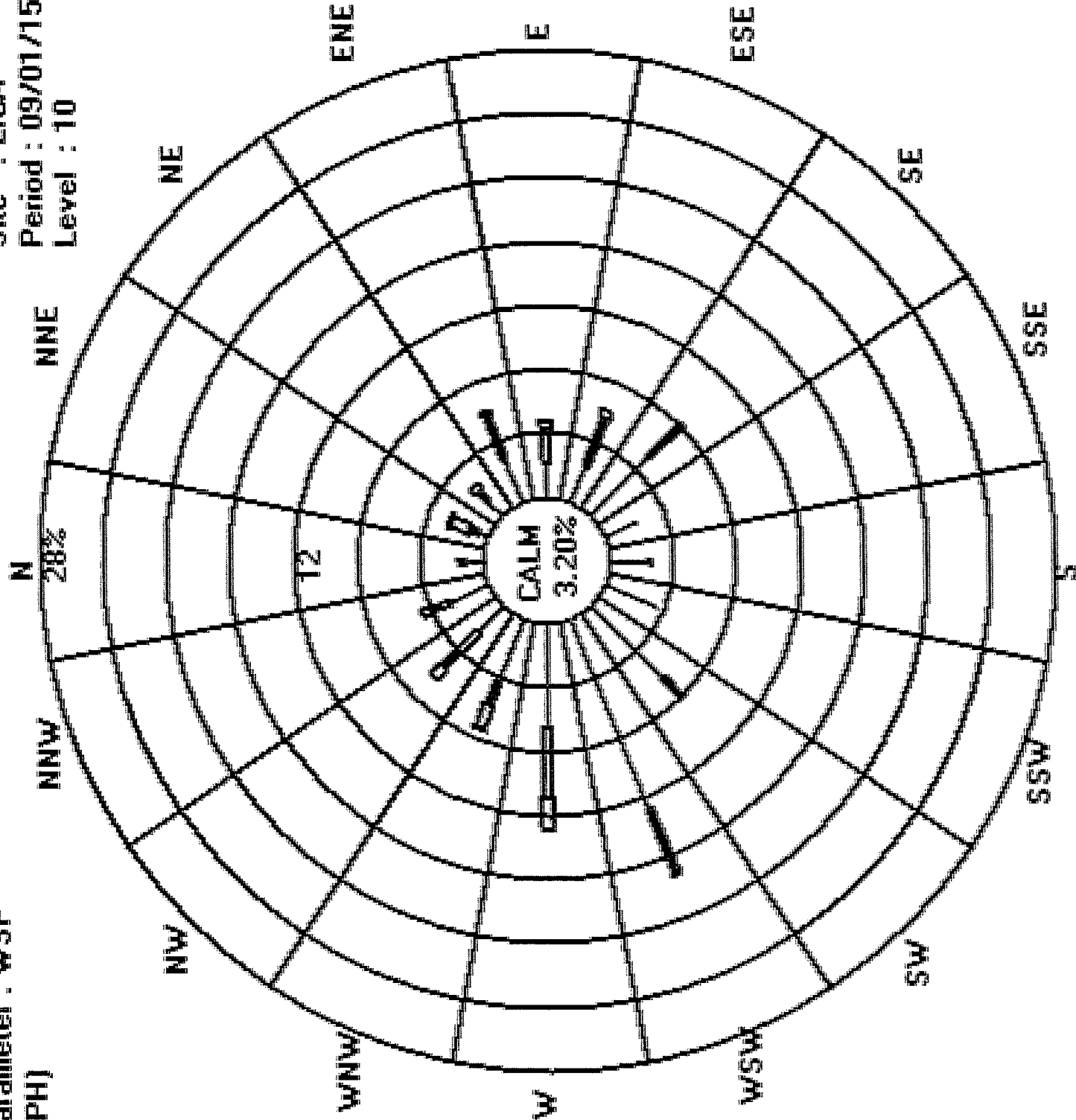
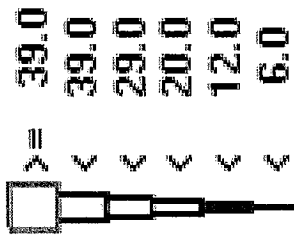
Total # Operational Hours : 718

Logger : 01 Parameter : WSP

Site : LICA

Class Limits (KPH)

Period : 09/01/15-09/30/15  
Level : 10



***WIND DIRECTION***



WIND DIRECTION (WD) hourly averages

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

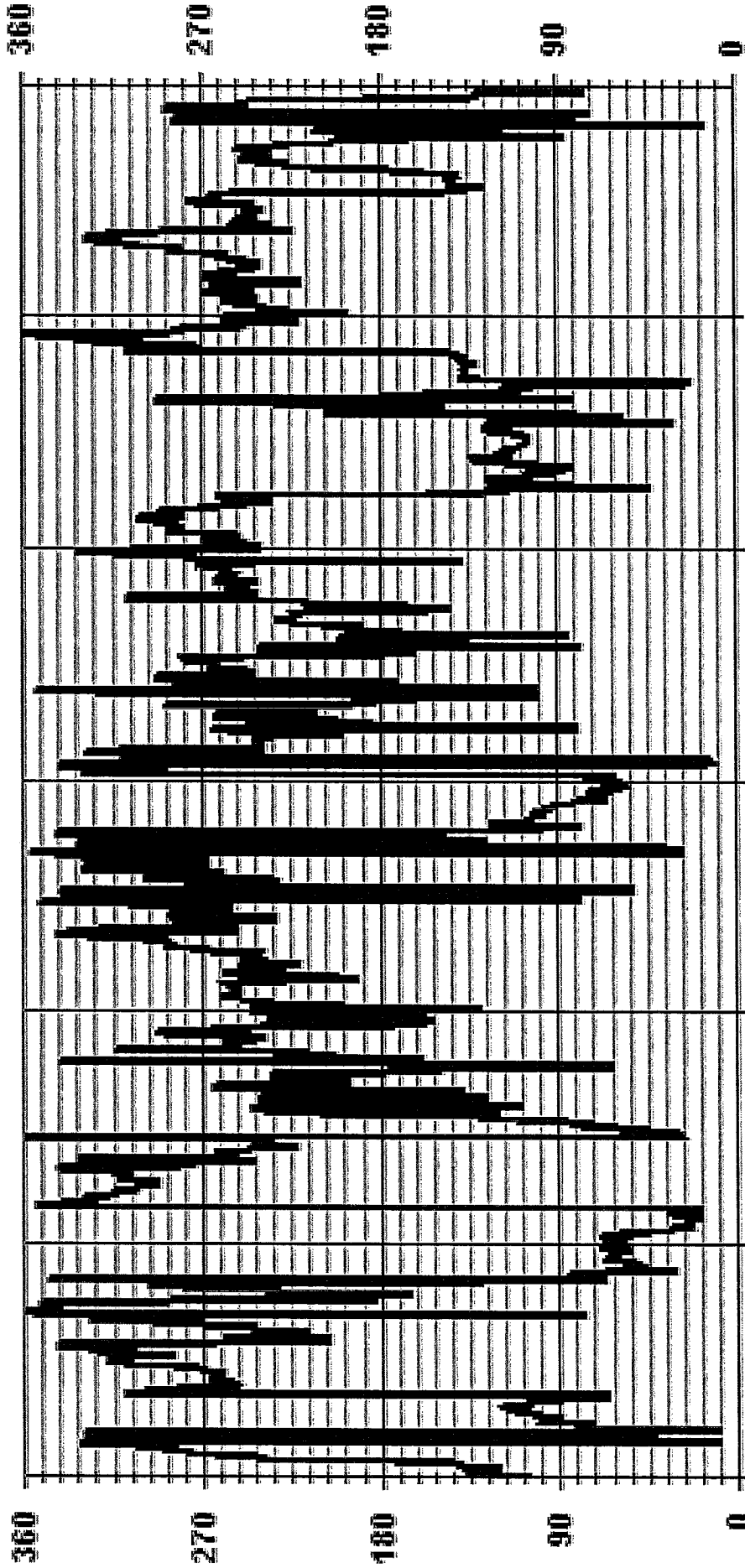
STATUS FLAG CODES

O	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

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

MONTHLY CALIBRATION TIME: 0 HRS  
STANDARD DEVIATION: 89.32  
OPERATIONAL TIME: 718 HRS  
AMD OPERATION UPTIME: 99.7 %  
MONTHLY AVERAGE: WNW

01 Hour Averages



09/04/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA    - - - WDR    . . . DEG



***STANDARD DEVIATION WIND DIRECTION***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Cold Lake South Site - SEPTEMBER 2015  
JOB # 2833-2015-09-01- C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
31	20	16	14	21	28	29	30	38	28	26	25	25	26	26	26	26	25	22	22	23	21	19	21	22	23	25	21	19	21	19	19
1	34	40	23	20	18	21	22	25	25	27	27	28	31	29	29	27	28	22	21	13	22	42	74	50	54						
2	22	22	24	21	22	19	23	19	22	24	23	24	19	19	21	23	24	20	14	33	16	14	36	55							
3	25	32	54	52	43	48	19	41	28	48	30	65	41	24	17	22	26	49	34	56	48	51	57								
4	47	43	41	54	66	48	49	64	31	24	24	26	27	25	24	22	20	22	18	17	16	18	19	17							
5	20	20	19	18	20	22	20	22	23	23	21	21	23	19	19	19	22	23	21	27	20	16	15	13							
6	14	15	13	15	13	17	18	21	24	19	20	20	20	20	20	22	22	30	40	24	32	29	10	38							
7	26	37	13	50	35	43	48	44	79	32	31	39	43	53	47	51	32	34	36	33	44	57	48	64							
8	57	45	44	60	46	58	61	55	52	48	64	65	60	59	42	32	39	17	34	48	31	45	61								
9	48	38	65	47	59	54	71	30	28	35	37	37	37	37	28	29	20	27	38	50	52	57									
10	68	54	70	52	56	42	18	21	23	26	30	27	28	28	27	25	23	27	28	26	31	23	19	63							
11	26	38	38	63	22	17	18	22	23	23	24	23	23	21	23	18	17	17	18	54	22	37	38	45							
12	39	47	21	31	19	20	15	20	32	63	58	51	69	45	61	28	23	26	46	51	46	37	58	47							
13	17	17	13	14	16	14	13	17	16	23	30	24	39	32	55	34	27	38	56	53	62	61	56	48							
14	28	23	22	18	35	51	23	22	23	24	24	22	22	22	22	23	21	19	21	20	23	17	17	19							
15	21	22	22	22	23	56	19	22	24	29	54	56	30	37	26	51	38	22	54	P	P	58	52								
16	48	31	31	54	83	69	77	56	26	51	59	44	37	42	36	49	35	35	37	44	58	57	72	42							
17	41	55	39	53	48	62	59	31	28	30	27	25	26	24	24	21	26	27	31	47	61	47	71	70							
18	44	44	44	45	42	65	52	50	40	40	35	29	28	29	32	33	31	36	19	38	29	35	32	25							
19	39	50	21	18	21	22	24	24	26	25	27	28	23	21	20	20	20	22	19	19	24	19	13	17							
20	21	27	22	26	19	18	21	25	22	24	22	24	24	24	24	23	20	22	19	24	19	13	17	19							
21	18	38	18	24	54	29	40	41	40	27	31	26	25	22	23	25	21	19	21	22	22	24	20	25							
22	28	26	24	24	25	25	23	25	26	23	25	26	24	24	24	24	24	24	24	24	24	24	24	20							
23	56	46	50	55	50	54	50	61	21	36	36	27	28	31	26	36	32	13	15	13	11	10	12	13							
24	18	14	18	19	32	48	69	72	32	26	22	19	26	24	34	51	41	41	22	23	36	29	34	44	20						
25	21	42	37	38	32	42	42	20	22	27	24	31	28	30	52	27	28	46	27	26	30	20	17	19							
26	20	25	20	21	23	23	22	21	23	21	24	23	23	22	21	20	19	15	18	13	31	15	14	18							
27	18	18	20	16	41	41	20	19	21	31	28	28	28	28	28	28	28	28	28	28	28	28	28	21							
28	14	16	21	38	51	26	36	39	22	28	28	27	27	26	29	31	23	22	25	51	56	36	33	56							
29	59	40	31	64	27	48	70	57	32	40	44	48	65	47	43	23	25	18	42	47	47	57	60	42							
30																															

STATUS FLAG CODES

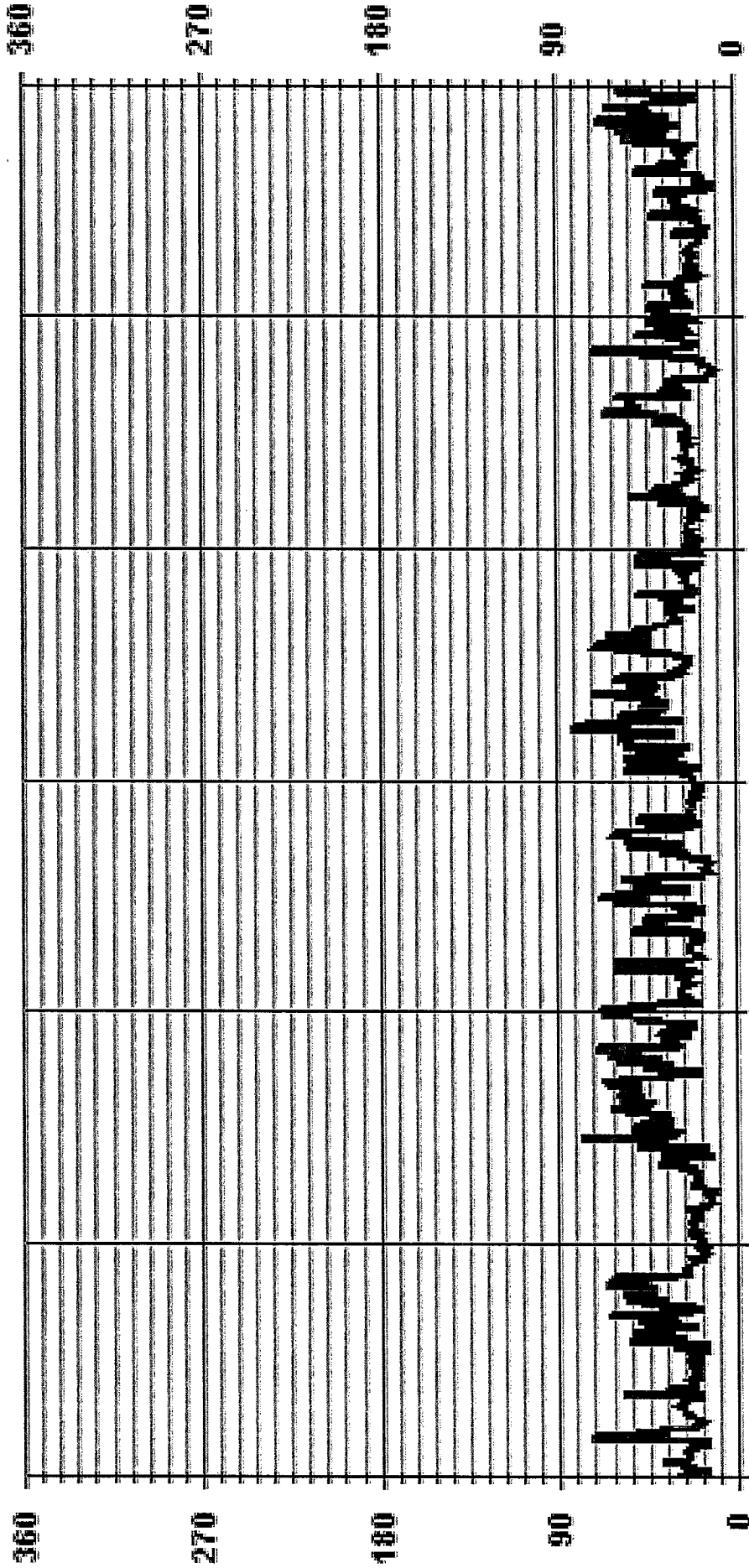
C	QUALITY ASSURANCE
G	RECOVERY
M	MACHINE MALFUNCTION
S	POWER FAILURE
P	OUT FOR REPAIR
X	OPERATOR ERROR
O	COLLECTION ERROR
K	

LAST CALIBRATION:

April 1, 2015

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 718 HRS

01 Hour Averages



09/04/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA    - - - - STDWDIR    DEG

***RELATIVE HUMIDITY***



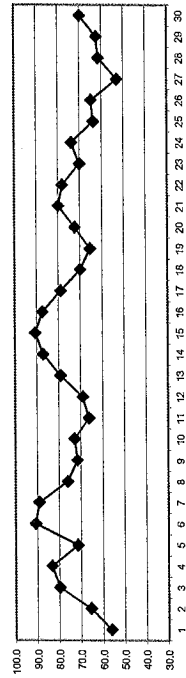
RELATIVE HUMIDITY (RH) hourly averages in %

DAY	HOUR																								AVG.	RDGS		
	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	
1	77	71	67	65	63	64	72	67	59	49	43	40	41	38	35	36	35	38	45	57	63	71	76	79	79	56.3	24	
2	83	81	74	64	59	61	67	63	54	52	51	49	48	46	47	48	49	54	58	80	97	97	96	97	97	65.6	24	
3	97	97	96	93	93	90	88	86	83	75	71	69	67	65	62	62	61	60	66	80	84	90	94	94	94	79.9	24	
4	95	95	95	95	95	96	97	98	94	74	64	56	58	56	54	54	55	57	60	61	62	65	76	76	93	71.5	24	
5	93	93	93	92	92	93	91	85	74	64	56	58	56	54	54	55	57	60	61	62	65	76	76	95	90.9	24		
6	81	89	91	93	93	89	88	89	89	89	89	91	92	91	92	91	90	92	91	93	95	95	95	95	95	89.3	24	
7	95	94	94	94	93	93	93	94	94	93	89	82	77	70	68	80	84	88	92	93	96	96	95	95	96	76.2	24	
8	96	96	95	95	95	95	96	94	80	61	57	56	55	51	49	47	48	49	62	83	89	92	93	94	96	76.2	24	
9	94	94	94	94	95	95	95	85	74	63	55	46	42	40	38	41	44	44	59	80	84	88	87	88	95	71.6	24	
10	91	93	94	94	95	95	95	85	79	71	61	52	47	47	47	44	45	62	77	80	82	83	81	95	72.9	24		
11	86	90	90	89	92	93	89	80	71	59	53	49	46	45	41	37	34	41	55	67	60	66	76	83	93	66.3	24	
12	84	88	88	90	86	85	77	68	55	47	42	40	38	39	39	42	48	53	75	93	94	95	96	96	96	69.1	24	
13	93	95	97	97	96	96	95	90	83	75	67	67	57	57	48	44	46	50	58	74	90	95	96	97	97	79.3	24	
14	98	98	98	98	97	96	95	94	89	83	75	70	65	64	62	81	80	80	91	94	93	92	90	90	91	97	87.3	24
15	92	95	96	97	94	92	93	90	88	89	90	89	87	86	85	87	89	89	91	94	93	92	90	90	91	97	80.8	24
16	96	96	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	87.5	22
17	96	96	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	87.5	22
18	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	79.0	24
19	92	93	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	70.1	24
20	90	90	90	87	89	86	83	77	68	63	63	57	51	50	50	51	53	61	73	78	69	81	86	91	91	72.4	24	
21	93	95	94	95	93	91	92	92	79	72	70	65	61	61	59	71	70	77	77	83	85	83	87	82	95	80.0	24	
22	93	93	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	78.1	24
23	72	69	72	75	76	75	74	74	73	69	65	62	58	54	52	51	50	55	71	83	86	88	89	91	91	70.2	24	
24	93	93	93	93	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	73.8	24
25	76	69	70	73	83	86	88	78	77	70	67	56	49	43	41	40	44	44	47	54	59	69	76	72	88	63.8	24	
26	72	70	76	79	77	78	79	79	74	66	63	54	48	37	33	30	47	63	65	71	76	77	73	66	79	64.7	24	
27	58	66	69	71	68	61	60	57	53	52	47	39	37	35	29	30	31	37	48	58	74	75	69	75	53.0	24		
28	71	74	80	83	85	87	85	82	75	66	55	47	43	40	37	34	40	50	56	56	54	58	62	87	61.5	24		
29	65	68	70	69	75	79	71	72	58	52	48	49	45	47	46	48	48	50	59	68	73	79	79	79	79	62.4	24	
30	79	81	84	88	91	92	94	90	75	65	56	49	46	41	38	38	40	51	69	77	80	83	85	85	94	69.9	24	
HOURLY MAX	98	98	98	97	97	97	97	98	98	93	91	92	91	92	91	92	91	91	94	95	97	97	97	97	97	97	85.8	
HOURLY AVG	86.5	87.2	87.9	87.9	88.1	88.0	87.6	84.3	76.9	69.0	63.0	57.6	54.7	52.1	50.8	51.7	54.2	58.4	67.9	76.2	78.4	82.2	84.9	85.8				

STATUS FLAG CODES

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

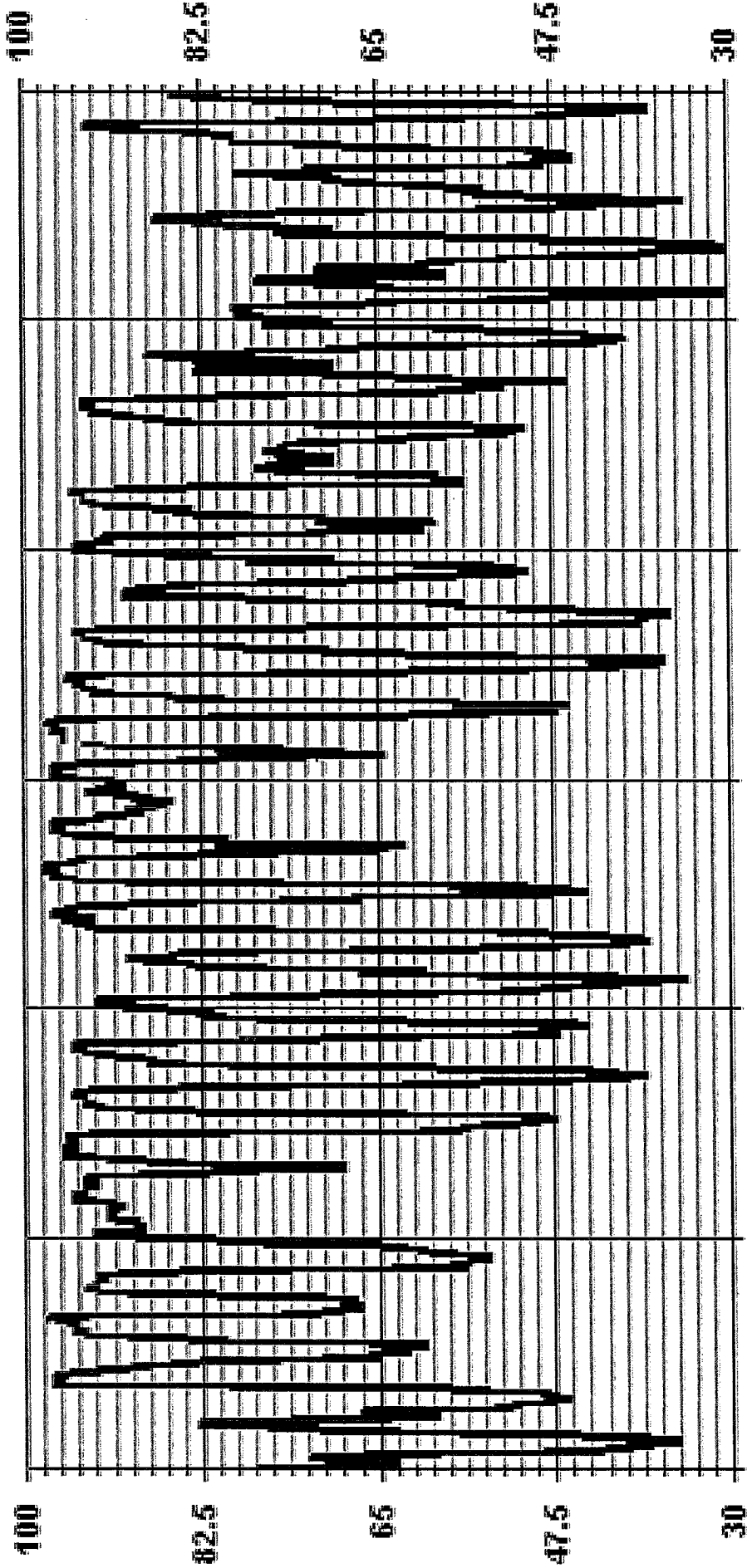
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	90.9	%			ON DAY(S)	6	
					VAR-VARIOUS		
STANDARD DEVIATION:	18.85						
					OPERATIONAL TIME:	718	HRS
					AND OPERATION UPTIME:	99.7	%
					MONTHLY AVERAGE:	73	%

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

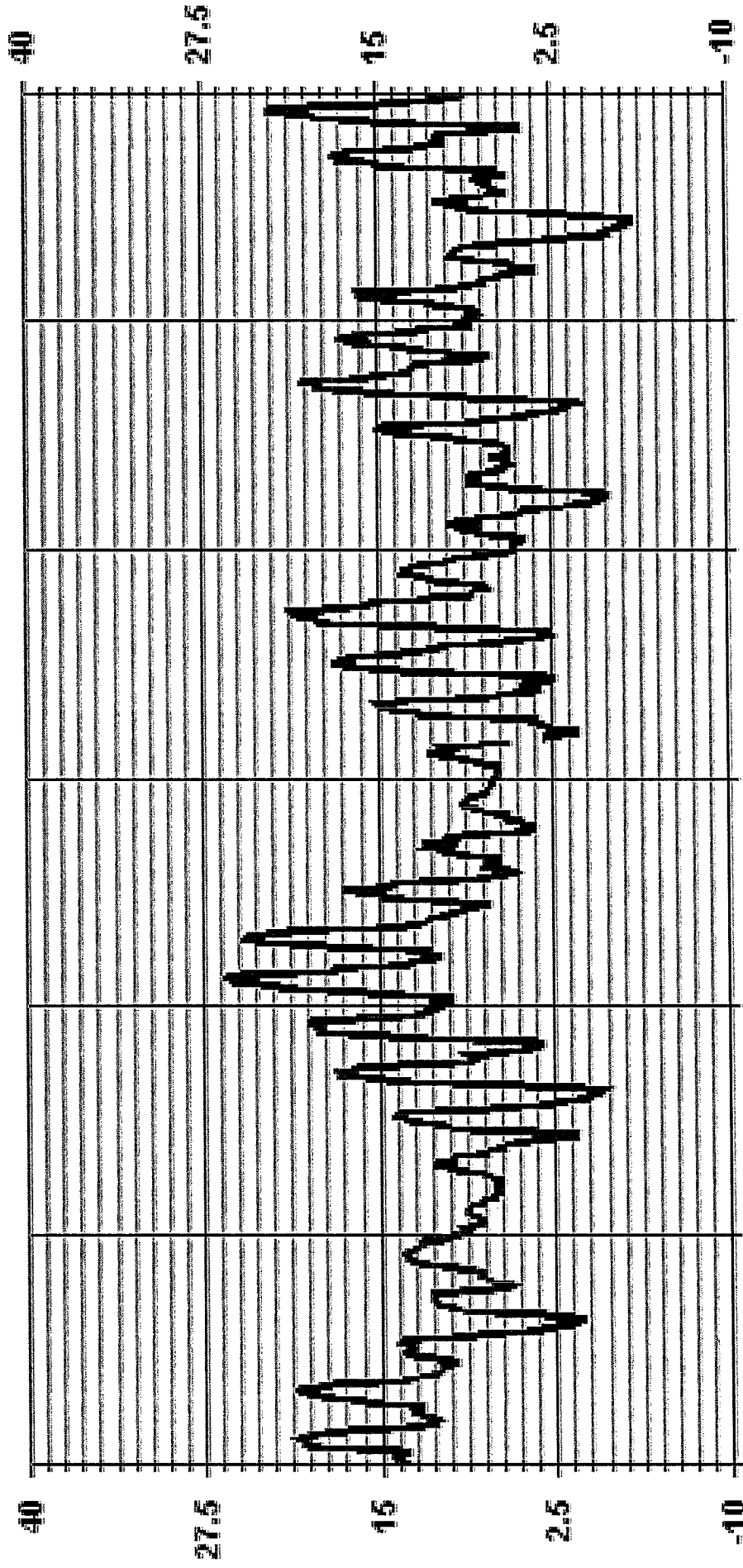
— LICA    - - - %FS

***AMBIENT TEMPERATURE***





# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

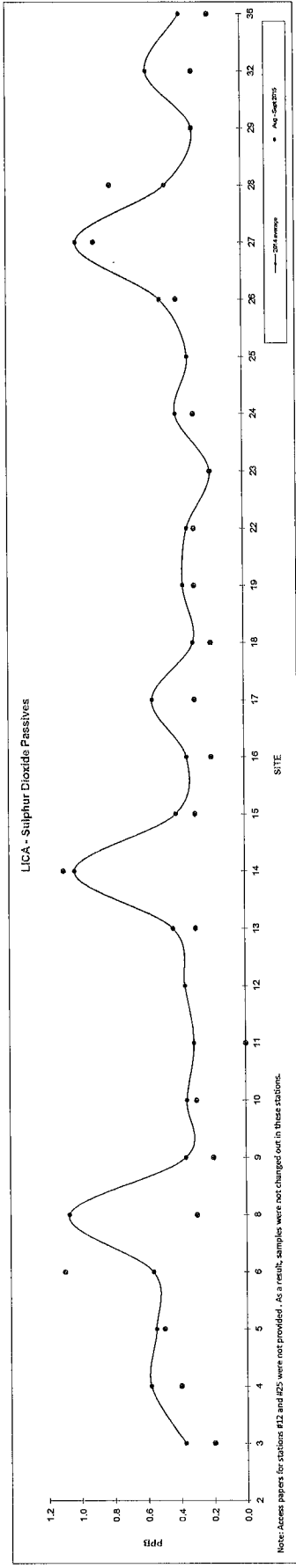
— LICA TPX DGC

***APPENDIX II***  
***NON-CONTINUOUS MONITORING DATA RESULTS***

***PASSIVE RESULTS***

### Passive Summary Results for August - September 2015 Lakeland Industry & Community Association

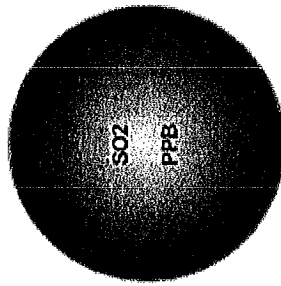
Mean	Sulphur Dioxide PPB																																August - September 2015 Reading	Site
	2	3	4	5	6	8	9	10	11	12	13	14	14	16	17	18	19	22	23	24	25	26	27	28	29	32	36							
NA	0.4	0.6	0.6	0.9	0.6	1.1	0.4	0.4	0.3	0.4	0.4	1.0	0.4	0.4	0.4	0.8	0.3	0.4	0.3	0.2	0.4	0.3	0.5	1.3	0.5	0.3	0.6	0.4	0.4	-				
Minimum	NA	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	<0.1	#11					
Maximum	NA	0.9	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	1.1	#6, #14					



# Lakeland Industry & Community Association SO<sub>2</sub> Passive Bubble Map

AUGUST - SEPTEMBER 2015

PASSIVE STATIONS	DUPLICATE
3 - Therien	0.2 PPB
4 - Flat Lake	0.4 PPB
5 - Lake Eliza	0.5 PPB
6 - Telegraph Creek	1.1 PPB
8 - Muriel-Kehewin	0.3 PPB
9 - Dupre	0.2 PPB
10 - La Corey	0.3 PPB
11 - Wolf Lake	<0.1 PPB
12 - Foster Creek	MISSING
13 - Primrose	0.3 PPB
14 - Maskwa	1.0 PPB
15 - Ardmore	0.3 PPB
16 - Frog Lake	0.2 PPB
17 - Clear Range	0.3 PPB
18 - Fishing Lake	0.2 PPB
19 - Beaverdam	0.3 PPB
22 - Cold Lake South	0.3 PPB
23 - Medley-Martineau	0.2 PPB
24 - Fort George	0.3 PPB
25 - Burnt Lake	MISSING
26 - Mahikan	0.4 PPB
27 - Mahkases	0.9 PPB
28 - Town of Bonnyville	0.8 PPB
29 - Cold Lake South 2	0.3 PPB
32 - St. Lina	0.3 PPB
36 - Elk Point	0.2 PPB



## Summary

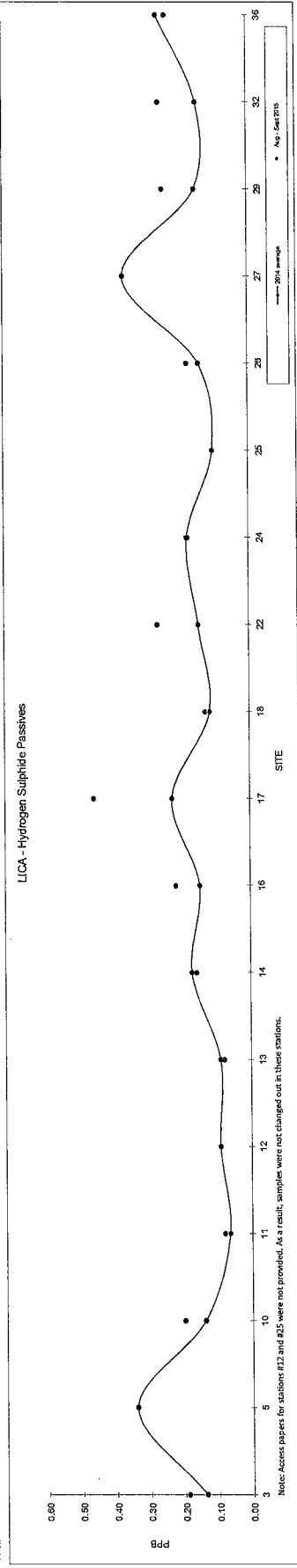
Minimum: <0.1 PPB - Wolf Lake  
 Maximum: 1.1 PPB - Telegraph Creek and Maskwa  
 Average: 0.4 PPB \*includes Duplicates



# Passive Summary Results for August - September 2015

## Lakeland Industry & Community Association

Mean	Hydrogen Sulphide ppb																August - September 2015			
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	36	Reading	Site
0.14	0.34	0.14	0.07	0.09	0.09	0.09	0.17	0.15	0.23	0.12	0.15	0.16	0.11	0.15	0.37	0.16	0.15	0.27	0.29	-
0.05	0.07	0.06	0.04	0.02	0.02	0.02	0.05	0.07	0.11	0.04	0.04	0.06	0.03	0.06	0.04	0.05	0.05	0.07	0.08	#11, #13
0.24	0.37	0.21	0.11	0.20	0.16	0.30	0.29	0.29	0.44	0.17	0.32	0.32	0.19	0.21	1.23	0.33	0.26	1.36	0.87	#27

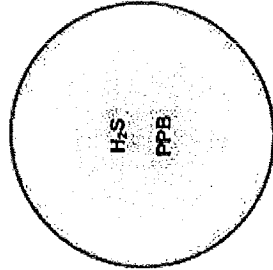


# Lakeland Industry & Community Association H<sub>2</sub>S Passive Bubble Map

AUGUST - SEPTEMBER 2015

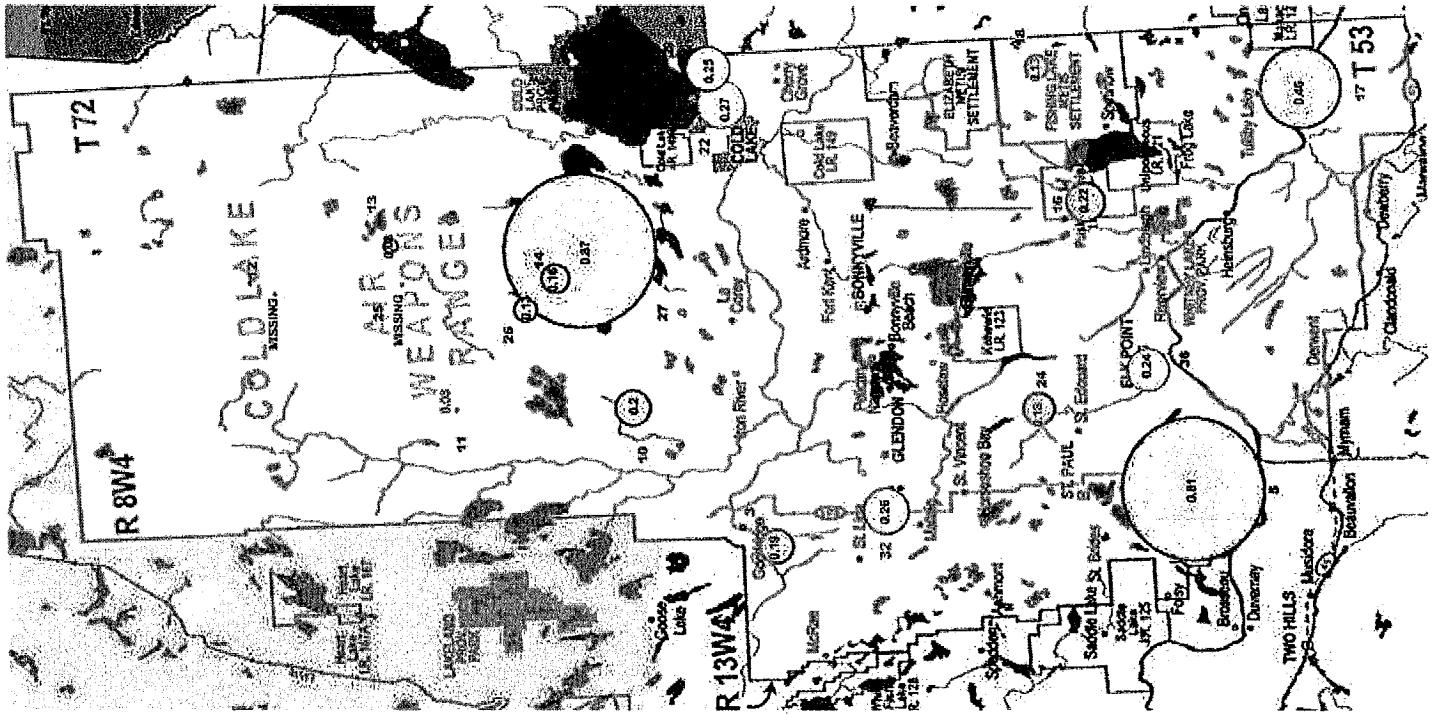
## PASSIVE STATIONS

Station	Reading	Duplicate
3 - Therien	0.19 PPB	NA
5 - Lake Eliza	0.81 PPB	NA
10 - La Corey	0.20 PPB	NA
11 - Wolf Lake	0.08 PPB	NA
12 - Foster Creek	MISSING	NA
13 - Primrose	0.08 PPB	NA
14 - Maskwa	0.16 PPB	NA
16 - Frog Lake	0.22 PPB	NA
17 - Clear Range	0.43 PPB	0.48 PPB
18 - Fishing Lake	0.14 PPB	0.12 PPB
22 - Cold Lake South	0.27 PPB	NA
24 - Fort George	0.18 PPB	NA
25 - Burnt Lake	MISSING	NA
26 - Mahlikan	0.18 PPB	NA
27 - Mahkases	0.87 PPB	NA
29 - Cold Lake South 2	0.25 PPB	NA
32 - St. Lina	0.26 PPB	NA
36 - Elk Point	0.24 PPB	NA



## Summary

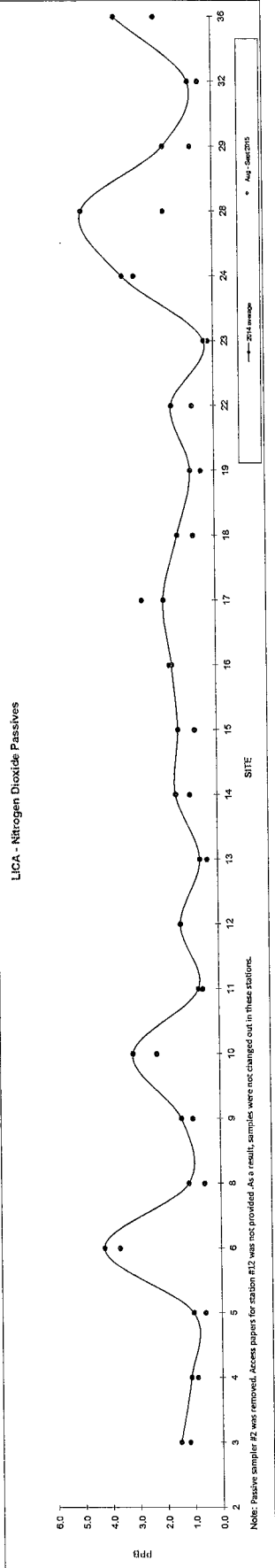
Minimum : 0.08 PPB - Wolf Lake and Primrose  
 Maximum: 0.87 PPB - Mahkases  
 Average: 0.29 PPB (includes Duplicates)



# Passive Summary Results for August - September 2015

## Lakeland Industry & Community Association

		Nitrogen Dioxide ppb																				August - September 2015															
		2015																				Reading		Site													
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Mean	NA	1.5	1.1	1.1	1.0	1.2	1.4	1.4	1.2	1.4	0.7	1.5	1.4	1.4	1.6	1.9	1.4	0.9	1.8	4.8	1.8	0.9	3.6	3.3	4.8	1.8	0.9	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Minimum	NA	0.5	0.3	0.3	0.1	2.1	0.5	1.4	0.2	0.5	0.1	0.5	0.4	0.5	1.1	0.5	0.2	0.2	0.2	1.6	0.3	0.2	1.4	1.6	1.6	0.3	0.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Maximum	NA	4.2	2.3	2.4	2.4	6.8	2.8	2.9	5.3	5.3	2.5	2.8	3.1	3.1	3.7	3.1	2.7	2.3	2.3	5.7	4.2	2.0	7.9	5.7	11.3	4.2	2.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9



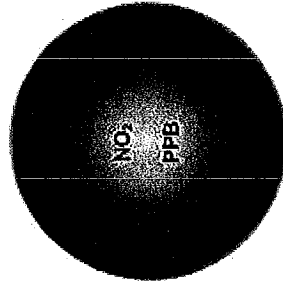
Note: Passive sampler #2 was removed. Access papers for station #12 was not provided. As a result, samples were not changed out in these stations.



# Lakeland Industry & Community Association NO<sub>2</sub> Passive Bubble Map

AUGUST - SEPTEMBER 2015

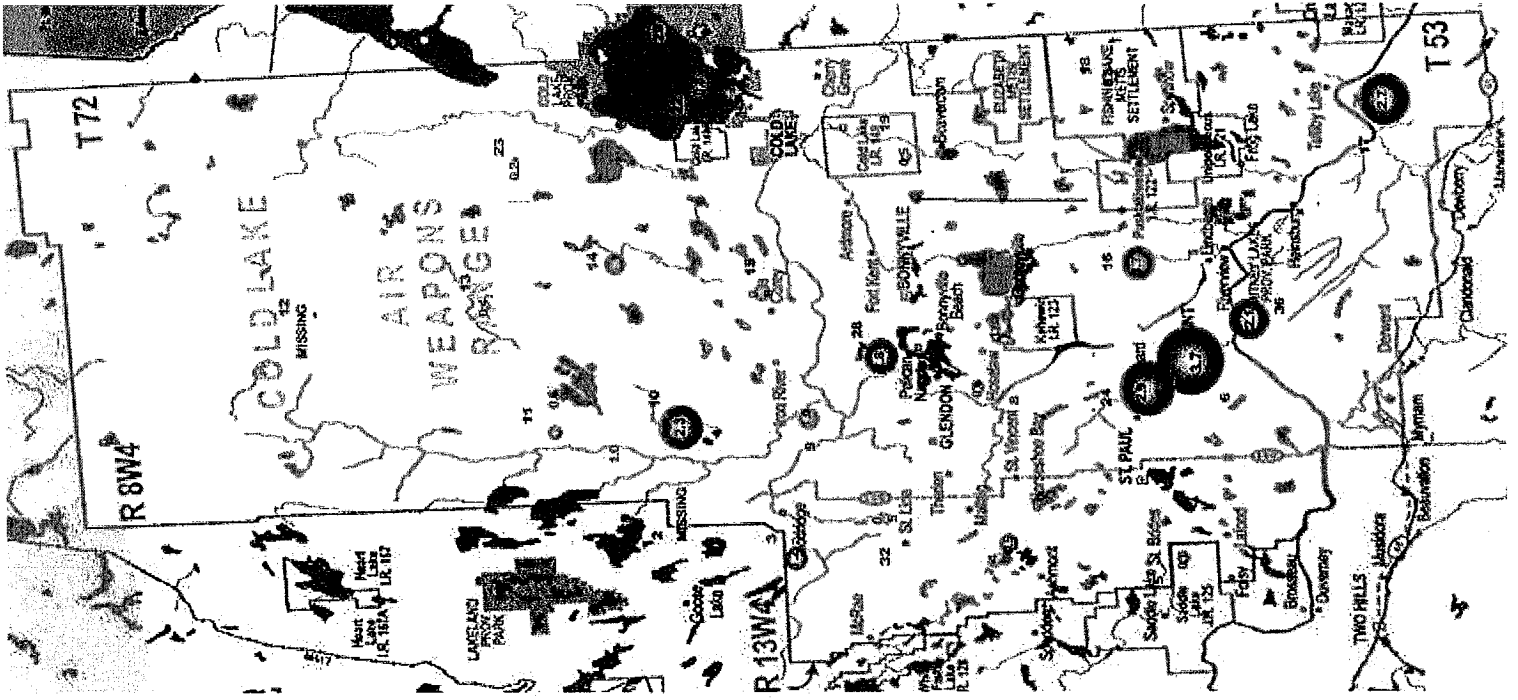
PASSIVE STATIONS	DUPLICATE
3 - Therien	1.2 PPB
4 - Flat Lake	2.4 PPB
5 - Lake Eliza	0.6 PPB
6 - Telegraph Creek	3.7 PPB
8 - Muntel-Kehewin	0.6 PPB
9 - Dupre	1.0 PPB
10 - La Corey	2.3 PPB
11 - Wolf Lake	0.6 PPB
12 - Foster Creek	MISSING
13 - Primrose	0.5 PPB
14 - Maskwa	1.0 PPB
15 - Ardmore	0.8 PPB
16 - Frog Lake	1.7 PPB
17 - Clear Range	2.7 PPB
18 - Fishing Lake	0.8 PPB
19 - Beavertam	0.5 PPB
22 - Cold Lake South	0.8 PPB
23 - Medley-Martineau	0.2 PPB
24 - Fort George	2.9 PPB
28 - Town of Bonnyville	1.8 PPB
29 - Cold Lake South 2	0.8 PPB
32 - St. Lina	0.5 PPB
36 - Elk Point	2.1 PPB



## Summary

Minimum : 0.2 PPB - Medley-Martineau  
Maximum: 3.7 PPB - Telegraph Creek

Average: 1.3 PPB \*includes Duplicates

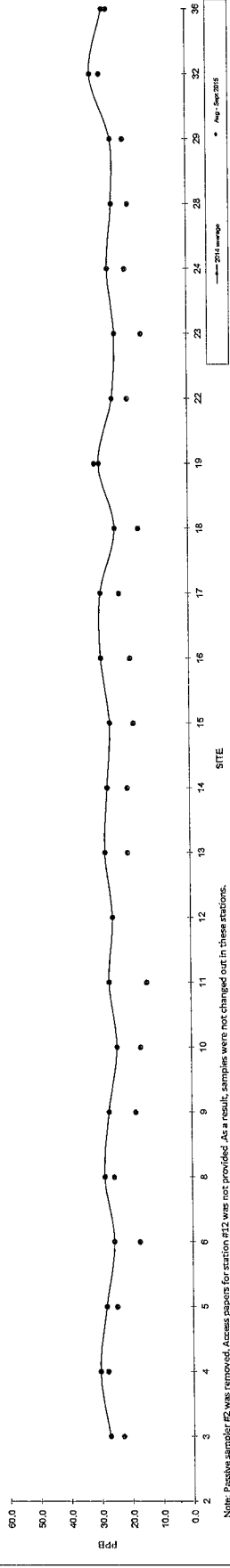


# Passive Summary Results for August - September 2015

Lakeland Industry & Community Association

Mean	2014																				June - July 2015					
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	36	Reading	Site
NA	27.3	30.4	30.4	28.2	28.2	28.6	27.1	24.3	28.8	29.5	27.8	27.0	26.0	28.7	28.8	24.0	26.1	24.7	23.8	23.9	24.5	24.8	31.3	27.9	21.10	#11
Minimum	NA	18.7	20.0	19.0	17.0	20.1	17.8	14.5	13.9	16.4	18.6	21.0	16.5	18.1	19.5	14.9	20.3	16.4	14.4	17.8	16.2	18.4	22.8	13.1	14.50	#19
Maximum	NA	40.5	40.6	38.0	37.0	41.5	42.3	37.9	51.2	35.2	40.2	34.6	36.8	43.7	38.0	33.6	40.7	32.4	38.2	39.0	31.3	38.7	40.6	34.2	30.00	

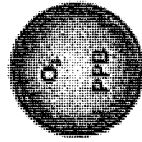
LICA - Ozone Passives



Note: Passive sampler #2 was removed. Access points for station #12 was not provided. As a result, samples were not changed out in these stations.

# Lakeland Industry & Community Association O<sub>3</sub> Passive Bubble Map

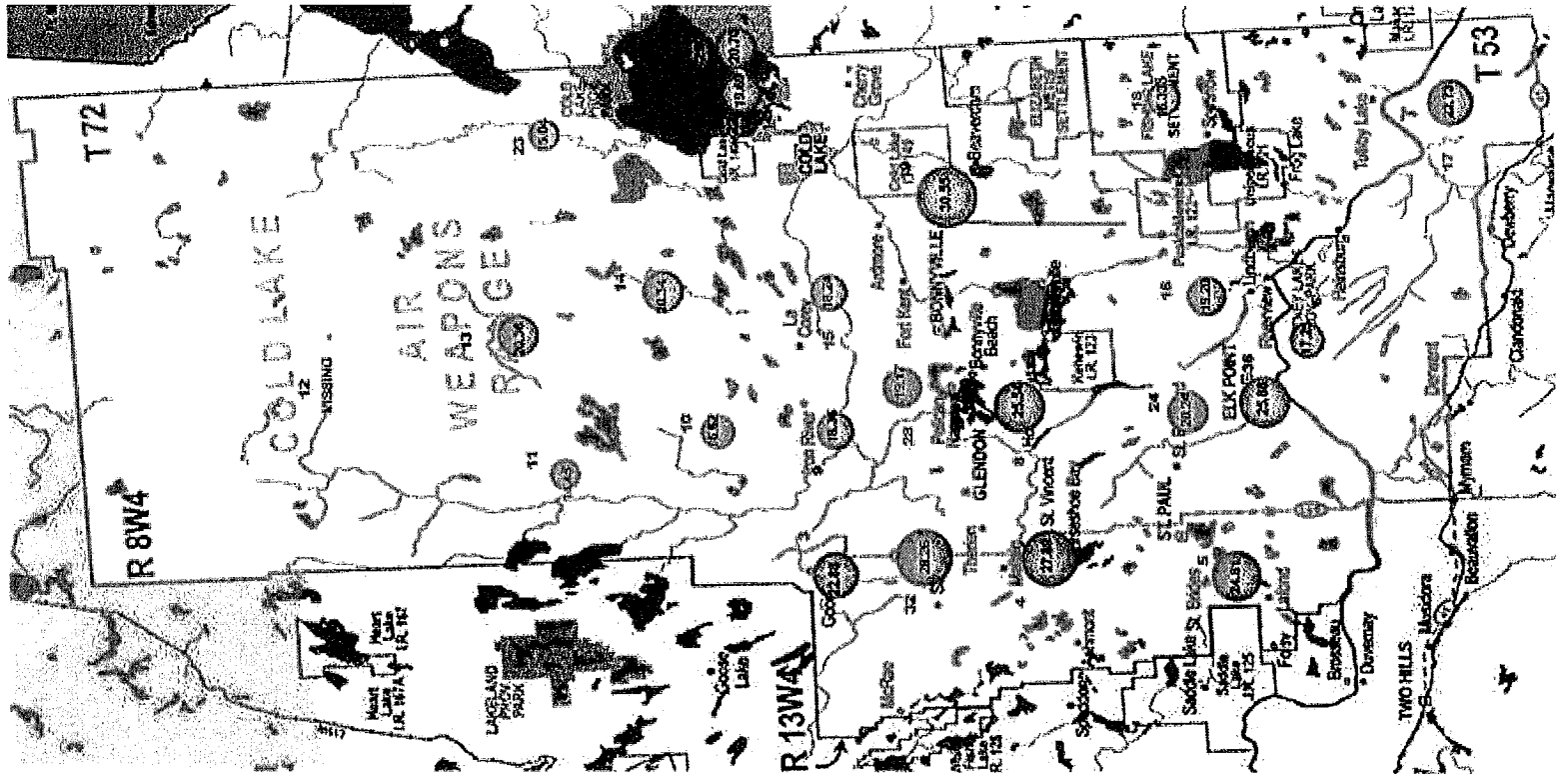
AUGUST - SEPTEMBER 2015



PASSIVE STATIONS	DUPLICATE
3 - Therien	22.88 PPB
4 - Flat Lake	27.89 PPB
5 - Lake Eliza	24.81 PPB
6 - Telegraph Creek	17.25 PPB
8 - Muriel-Kehewin	25.54 PPB
9 - Dupre	18.36 PPB
10 - La Corey	16.62 PPB
11 - Wolf Lake	12.77 PPB
12 - Foster Creek	MISSING
13 - Primrose	20.03 PPB
14 - Maskwa	20.34 PPB
15 - Ardmore	18.24 PPB
16 - Frog Lake	19.20 PPB
17 - Clear Range	22.73 PPB
18 - Fishing Lake	16.33 PPB
19 - Beaverdam	30.55 PPB
22 - Cold Lake South	19.69 PPB
23 - Medley-Martineau	15.04 PPB
24 - Fort George	20.24 PPB
28 - Town of Bonnyville	19.17 PPB
29 - Cold Lake South 2	20.70 PPB
32 - St. Lina	28.26 PPB
36 - Elk Point	25.88 PPB

## Summary

Minimum: 14.45 PPB - Wolf Lake  
 Maximum: 30.55 PPB - Beaverdam  
 Average: 21.10 PPB \*Includes Duplicates



Passive Sampler Data Sheet for LICA August-September 2015

ID	SAMPLER			START		END		NOTES	
		SO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	DATE	TIME	DATE		TIME
2		SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	NA	NA	NA	NA	Samplers were removed
3	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	17:32	Sept 29, 2015	15:03	
4	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	12:31	Sept 30, 2015	10:24	
5	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	13:11	Sept 30, 2015	11:12	
6	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	15:42	Sept 30, 2015	12:50	
8	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	11:08	Sept 30, 2015	09:20	
9	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	19:16	Sept 29, 2015	17:10	
10	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	15:05	Sept 29, 2015	14:00	
11	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	15:51	Sept 29, 2015	13:06	See "Duplicates" (+2)
12	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	Feb 27, 2015	17:36	NA	No Access	No Access Paper provided by the Client
13	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	13:30	Sept 29, 2015	11:17	See "Duplicates" (+3)
14	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	12:04	Sept 29, 2015	10:12	See "Duplicates" (+1)
15	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	20:15	Sept 29, 2015	17:49	See "Duplicates" (+1)
16	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	18:57	Sept 29, 2015	16:36	
17	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	16:39	Sept 30, 2015	13:56	See "Duplicates" (+1)
18	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	17:55	Sept 30, 2015	15:31	See "Duplicates" (+1)
19	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	May 28, 2015	18:44	Sept 30, 2015	17:14	
22	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	09:34	Sept 29, 2015	18:37	
23	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	10:27	Sept 29, 2015	08:34	
24	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	15:06	Sept 30, 2015	12:14	
25	H <sub>2</sub> S	SO <sub>2</sub>	---	---	Feb 27, 2015	18:58	NA	No Access	No Access paper provided by the Client
26	H <sub>2</sub> S	SO <sub>2</sub>	---	---	July 30, 2015	12:28	Sept 29, 2015	10:42	
27	H <sub>2</sub> S	SO <sub>2</sub>	---	---	July 30, 2015	11:37	Sept 29, 2015	09:49	
28	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	19:43	Sept 29, 2015	16:48	
29	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	09:35	Sept 29, 2015	18:37	
32	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	18:15	Sept 29, 2015	15:44	
36	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 31, 2015	14:05	Sept 30, 2015	12:02	
<b>DUPLICATES</b>									
11			NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	15:51	Sept 29, 2015	13:06	
13	---	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>	July 30, 2015	13:30	Sept 29, 2015	11:17	
14	---	SO <sub>2</sub>			July 30, 2015	12:04	Sept 29, 2015	10:12	
15	---	SO <sub>2</sub>			July 30, 2015	20:15	Sept 29, 2015	17:49	
17	H <sub>2</sub> S	---			July 31, 2015	16:39	Sept 30, 2015	13:56	
18	H <sub>2</sub> S	---			July 31, 2015	17:55	Sept 30, 2015	15:31	

***VOC RESULTS***

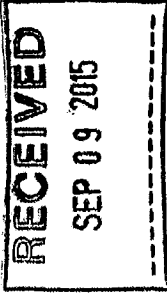
Sample ID: 15090085-001

Customer ID: LICA  
Cust Samp ID: LICA/VOC/CLS/Sept 3, 2015

AIR FCD-01320/2

# Maxxam

## VOC Sample Collection Data Sheet



Client: LICA  
 Location: CLS  
 Station ID: LICA 01  
 Field Sample ID: LICA/VOC/CLS/ Sept 3, 2015

Sampler S/N: 6167  
 Canister ID: S5587  
 Canister Installation Date/Time: August 31, 2015 @ 08:25  
 Canister Removal Date/Time: September 8, 2015 @ 07:45

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

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

23.5 psi  
JNR

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

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 Yarusso  
Sample out - by Alex Yarusso

Date: Sept 8, 2015

## Volatile Organics Data Results

Date: SEPTEMBER 3, 2015  
Canister ID: S5587

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.03
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.01
2-Methylpentane	0.05
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.08
Acetone	2.2
Acrolein	< 0.3
Benzene	0.02
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.02
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.63
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.03
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	1.4
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.33

## Volatile Organics Data Results

Date: SEPTEMBER 3, 2015  
Canister ID: 55587

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	0.02
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.11
Isopentane	0.22
Isoprene	0.14
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.04
Methylcyclopentane	0.06
Methylene chloride	9.6
n-Butane	0.19
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.30
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.04
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

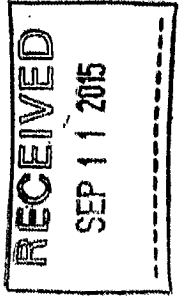


Sample ID: 15090129-003

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/Sept 9, 2015

AIR FCD-01320/2



# Maxxam

## VOC Sample Collection Data Sheet

Client: LICA      Sampler S/N: 6167  
 Location: CLS      Canister ID: 14710  
 Station ID: LICA 01      Canister Installation Date/Time: September 8, 2015 @ 09:46  
 Field Sample ID: LICA/VOC/CLS / Sept 9, 2015      Canister Removal Date/Time: September 10, 2015 @ 09:20

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	23.8

24psi  
SR

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

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 Yankov  
Sample out - by Alex Yankov  
 Date: September 10, 2015  
A.Y.

## Volatile Organics Data Results

Date: SEPTEMBER 9, 2015  
Canister ID: 14710

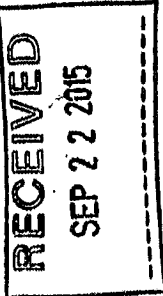
PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.01
2-Methylhexane	0.03
2-Methylpentane	0.11
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.06
Acetone	2.7
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.67
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.07
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	1.5
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.32

## Volatile Organics Data Results

---

Date: SEPTEMBER 9, 2015  
Canister ID: 14710

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	0.02
Freon-12	0.70
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.28
Isopentane	0.45
Isoprene	0.26
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.05
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.09
Methylcyclopentane	0.06
Methylene chloride	< 0.3
n-Butane	0.55
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.04
n-Hexane	0.10
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.3
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.02
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.13
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02



Sample ID: 15090321-001

Customer ID: LICA

Cust Samp ID: LICA/VOG/CLS/Sept 15, 2015

# Maxxam

## VOC Sample Collection Data Sheet

Client: LICA  
 Location: CLS  
 Station ID: LICA 01  
 Field Sample ID: LICA/VOG/CLS/ Sept 15, 2015

Sampler S/N: 6167  
 Canister ID: H 3303  
 Canister Installation Date/Time: September 10, 2015 @ 09:21  
 Canister Removal Date/Time: September 18, 2015 @ 09:30

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

Canister Information	
Initial Canister Vacuum (inHg)	28.0
Final Canister Pressure (psig)	+24

24 psi  
28.0

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

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 Yakepov  
 Sample out - by LIMIN LI  
 Date: Sept 18, 2015

## Volatile Organics Data Results

Date: SEPTEMBER 15, 2015  
Canister ID: H3303

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.01
2-Methylpentane	0.03
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.01
Acetone	1.8
Acrolein	< 0.3
Benzene	0.02
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.08
Carbon tetrachloride	0.06
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	0.37
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.9
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.23

## Volatile Organics Data Results

Date: SEPTEMBER 15, 2015  
Canister ID: H3303

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.04
Freon-114	< 0.02
Freon-12	0.45
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.09
Isopentane	0.16
Isoprene	0.06
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	< 0.01
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.22
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.02
n-Hexane	0.02
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.04
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15090469-001

Customer ID: LICA

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

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA      Sampler s/n: 6167  
 Location: Cold Lake South      Canister ID: S5618  
 Station ID: Lica 1      Canister Installation Date/Time: Sept 18, 15 @ 10:00 mst  
 Field Sample ID: LICA VOC/CLS/Sept 21, 15      Canister Removal Date/Time: Sept 25, 15 @ 11:45 mst

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
2015/09/21	2015/09/21 0:00	2014/09/22 0:00
		Elapsed Time (Hours)
		24

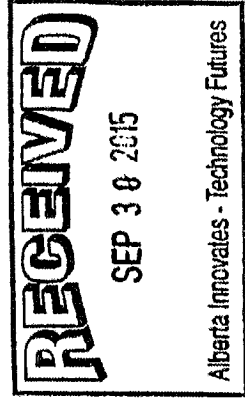
Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	652	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	25

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: L / min Li / Sample out: Chris Wesson



## Volatile Organics Data Results

Date: SEPTEMBER 21, 2015

Canister ID: S5618

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.01
2-Methylpentane	0.03
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	1.4
Acrolein	< 0.3
Benzene	0.06
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.04
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.54
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	0.6
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.26



## Volatile Organics Data Results

---

Date: SEPTEMBER 21, 2015  
Canister ID: S5618

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	0.02
Freon-12	0.56
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.13
Isopentane	0.13
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.05
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.22
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.02
n-Hexane	0.05
n-Nonane	< 0.01
n-Octane	0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.09
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15100050-001

Customer ID: LICA

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

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA  
 Location: Cold Lake South  
 Station ID: Lica 1  
 Field Sample ID: LICA VOC/CLS /Sept 27, 15

Sampler s/n: 6167  
 Canister ID: 15754  
 Canister Installation Date/Time: Sept 25, 15 @ 11:50 mst  
 Canister Removal Date/Time: Sept 15 @ 12:30 mst  
*Oct 1, 2015*

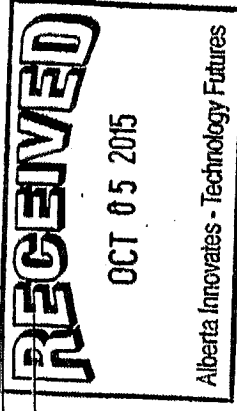
Sample Date	Date and Time Information		Elapsed Time (Hours)
	Start Time (MST)	End Time (MST)	
2015/09/27	2015/09/27 0:00	2014/09/28 0:00	24

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

Canister Information	
Initial Canister Vacuum (inHg)	23.9
Final Canister Pressure (psig)	

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 out: *Alex Vassopou*  
 Date: *Oct 1, 2015*

## Volatile Organics Data Results

Date: SEPTEMBER 27, 2015  
Canister ID: 15754

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.02
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	< 0.01
Acetone	1.5
Acrolein	< 0.3
Benzene	0.01
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.64
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	1.1
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.28

## Volatile Organics Data Results

Date: SEPTEMBER 27, 2015

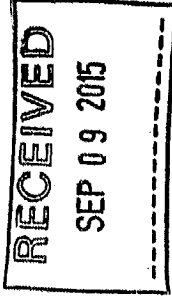
Canister ID: 15754

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	0.02
Freon-12	0.64
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.13
Isopentane	0.12
Isoprene	0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.03
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.25
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.02
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.01
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

***PAH RESULTS***

Sample ID: 15090085-002  
 Customer ID: LICA  
 Cust Samp ID: LICA/PUF/CLS/Sept 3, 2015

AIR FCD-01321/2



Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ SIN: 9702  
 Location: CLS Motor SIN: 1138  
 Station ID: LICA 01 Installation Date/Time: August 31, 2015 @ 08:31  
 Field Sample ID: LICA/PUF/CLS/Sept 3, 2015 Removal Date/Time: September 8, 2015 @ 07:53

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

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 01- Sept - 11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
710	229	11.80
		Volume (Vstd m <sup>3</sup> )
		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 Yampou  
 Sample out - by Alex Yampou  
 Date: Sept 8, 2015

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 3, 2015  
PUF S/N: 9702

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.09
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.05
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,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	0.06
Perylene	< 0.01
Phenanthrene	0.12
Pyrene	0.03
Retene	0.02

RECEIVED  
SEP 11 2015

Sample ID: 15090129-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Sept 9, 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: September 8, 2015 @ 07:54  
 Field Sample ID: LICA/PUF/CLS/Sept 9, 2015 Removal Date/Time: September 10, 2015 @ 07:32

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

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

Set Flow Rate (slpm): 1.50

Date of Last Calibration: 01. Sept. 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m <sup>3</sup> )
712	1.29	10.9 °	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 Yanyupov  
 Sample out by Alex Yanyupov  
 Date: September 10, 2015



## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 9, 2015  
PUF S/N: 9801

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.11
2-Methylnaphthalene	0.19
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.07
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.04
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.11
Perylene	< 0.01
Phenanthrene	0.20
Pyrene	0.05
Retene	0.02

Sample ID: 15090321-002

Customer ID: LICA

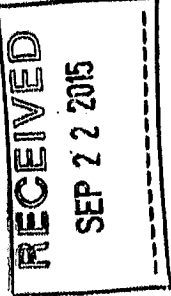
Cust Samp ID: LICAPUF/CLS/Sept 15, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA  
Location: CLS  
Station ID: LICA 01  
Field Sample ID: LICA/PUF/CLS/Sept 15, 2015

Puf+ S/N: TE-09  
Motor S/N: 1138  
Installation Date/Time: September 10, 2015 @ 09:33  
Removal Date/Time: Sept. 18, 2015 @ 10:10



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

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 01- Sept - 10

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C) (Vstd m <sup>3</sup> )
708	229	7.8
		330.16

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 Yaneva  
Sample out by LIMA HI  
Date: Sept 18, 2015

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 15, 2015  
PUF S/N: TE09

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.04
Retene	0.03

Sample ID: 15090469-002

Customer ID: LICA

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

# Maxxam Analytics Inc.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Puf+ s/n: TE05

Location: Cold Lake South

Motor s/n: 100-1020

Station ID: LICA1

Installation Date/Time: Sept 18, 15 @ 10:20 mst

Field Sample ID: LICA PUF/CLS/Sept 21, 15

Removal Date/Time: Sept 25, 15 @ 11:57 mst

Sample Date	Date and Time Information		Elapsed Time (Hours)
	Start Time (MST)	End Time (MST)	
21-Sep-15	2015/09/21 0:00	2015/09/22 0:00	24.00

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C) (Nstd m <sup>3</sup> )
709	229	7.1
		330.19

Time set correctly prior to sampling? YES  
 Timer set correctly prior to sampling? YES  
 Sampling data saved to memory card after sampling?

Comments:

---



---

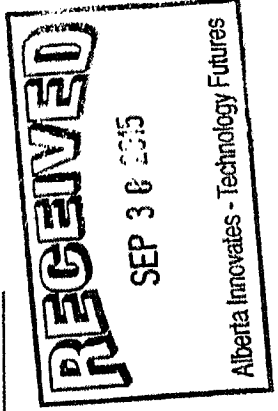


---



---

Technician Signature: Sample in: Limin Li / Sample out: Chris Wesson



## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 21, 2015  
PUFS/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	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.03
Retene	0.02

Sample ID: 15100050-002

Customer ID: LICA

Cust Samp ID: LICA PUF/CLS/Sept 25, 2015

# Maxxam Analytics Inc.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ s/n: 9702  
 Location: Cold Lake South Motor s/n: 100-1020  
 Station ID: LICA1 Installation Date/Time: Sept 25, 15 @ 11:59 mst  
 Field Sample ID: LICA PUF/CLS/Sept 25, 15 Removal Date/Time: Sept 15 @ 11:42 mst  
*AY Oct 1, 2015*

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Sep-15	2015/09/27 0:00	2015/09/28 0:00	24.00

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C) (Vstd m <sup>3</sup> )
709	229	5.80
		330.20

Time set correctly prior to sampling?  YES  
 Timer set correctly prior to sampling?  YES  
 Sampling data saved to memory card after sampling?  YES

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technician Signature: Sample in: Chris Wesson / Sample out: Alex Kanykov

Date: Oct 1, 2015

# RECEIVED

OCT 05 2015

Alberta Innovates - Technology Futures

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 27, 2015  
PUF 5/N: 9702

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

***PARTISOL RESULTS***



Sample ID: 15090083-001

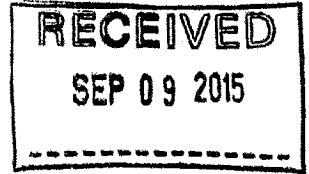
Customer ID: LICA

Cust Samp ID: LICA P4149570

AIR FCD-01318/2

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: Sept 3, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P414 95 70

Start Time 00:00 Sept 3 2015

End Time 00:00 Sept 4, 2015

Status OK

Std Vol 23.623

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Yakupov

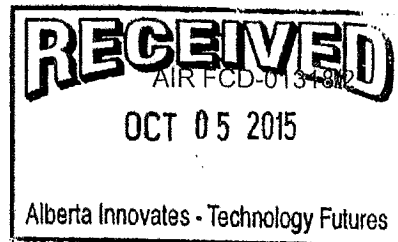
Date: Sept 8, 2015

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: 15100052-001



Customer ID: LICA

Partisol Sample Data Sheet

Cust Samp ID: LICA P4149456

Priority: Normal

Date Sampled: Sept 9, 2015

Location: ELS

Parameter: TSP PM10

PM2.5

Filter #: LICA P 414 94 56

Start Time 00:00 Sept 9, 2015

End Time 00:00 Sept 10, 2015

Status OK

Std Vol 23.752

Valid Time 24:00

Total Time 24

This filter came back. No one received it at ATE

Comments: Weather Conditions, etc.

[Blank lines for additional comments]

91

Technician Signature: Alex Yakupov

Date: September 10, 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"
- 8) Make Sure it is left in RUN mode

Note: Beginning & End Date should be same date

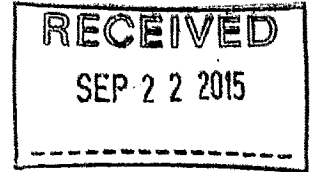
Sample ID: 15090320-001

AIR FCD-01318/2

Customer ID: LICA

Partisol Sample Data Sheet

Cust Samp ID: LICA P4149457



Priority: Normal  
Date Sampled: sept 15, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P414 9457

Start Time 00:00 Sept 15, 2015

End Time 00:00 Sept 16, 2015

Status OK

Std Vol 23.862

Valid Time 24

Total Time 24

Comments: Weather Conditions, etc.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Technician Signature: Alex Yakupov (sample in)

Date: Sept 18, 2015 @ 09:45  
(sample out): LIMIN LI

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

Partisol Sample Data Sheet

Sample ID: 15090470-001

Customer ID: LICA

Cust Samp ID: LICA P5010248

Priority: Normal

Date Sampled: 21-Sep-15  
Location: LICA\_CLS  
Parameter: PM2.5  
Filter #: LICA P5010248

Start Time: Sept 21,2015 @ 00:00  
End Time: Sept 22,2015 @ 00:00  
Status: OK  
Std Vol: 23.92  
Valid Time: 24  
Total Time: 24

Comments: Weather Conditions, etc.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Technician Signature:

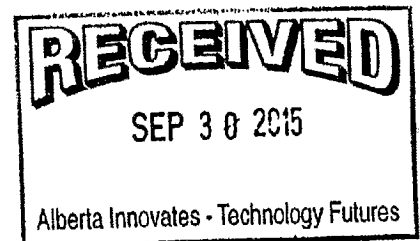
Limin Li (Sample in) 18-Sep-2015

Chris Wesson (Sample out) 25-Sep-2015

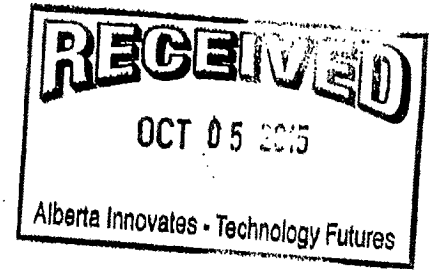
Programming

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

Note: Beginning & End  
Date should be same date



Partisol Sample Data Sheet



Date Sampled: 27-Sep-15  
Location: LICA\_CLS  
Parameter: PM2.5  
Filter #: LICA P5010245

Start Time: Sept 27, 2015 @ 00:00  
End Time: Sept 28, 2015 @ 00:00  
Status: OK  
Std Vol: 24.002  
Valid Time: 23:59  
Total Time: 24:00

Sample ID: 15100052-002  
Customer ID: LICA  
Cust Samp ID: LICA P5010245  
Priority: Normal

Comments: Weather Conditions, etc.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Technician Signature: Chris Wesson (Sample In) 25-Sep-2015  
(Sample out) Alex Yarepov Oct 3, 2015  
@ 10:39

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



### Partisol Sampler Results

---

Date	Filter NO	Concentration (mg)
SEPTEMBER 3	P4149570	0.040
SEPTEMBER 9	P4149456	0.036
SEPTEMBER 15	P4149457	0.006
SEPTEMBER 21	P5010248	<0.004
SEPTEMBER 27	P5010245	0.022

***APPENDIX III***  
***ANALYZER CALIBRATION RESULTS***

***SULPHUR DIOXIDE***





Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	September 23, 2015	Barometric Pressure:	28.17 inHg
Company/Alrshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly cloudy with clear breaks
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	11:45	Performed By/Reviewer:	Chris Wesson Tom Bourque
End Time 24 hr. (mst):	15:49	Cal Gas Expiry Date:	March 12, 2019
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	NA

Analyzer:		Serial Number:	806528242	Range ppb:	500
		Last Calibration Date:	August 10, 2015	As Found C.F.:	1.043
		Previous C.F.:	1.001	New C.F.:	0.999

Calibrator:		Standard Calibration Points for Ranges	
Flow Meter ID's:	NA	Point	Sulphur Dioxide Standard Calibration Points
Make & Model:	Sablo 2010	High	380
Serial #:	17100415	Mid	180
Cal Gas Cylinder I.D. #:	BLM002073	Low	90
Cal Gas Conc. (ppm):	49.5		

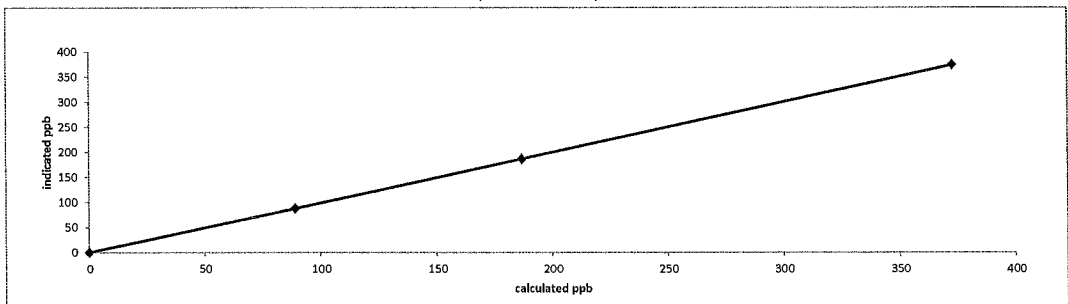
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Diluent	Cal Gas	Total	Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors (C.F.):
as found zero	6015	0.00	6015	0.0	0.4	N/A
as found high	5969	45.30	6014	372.8	358.0	1.043
adjusted zero	6016	0.00	6016	0.0	0.0	n/a
adjusted high	5970	45.30	6015	372.8	373.0	0.999
mid	5993	22.70	6016	186.8	186.0	1.004
low	6006	10.80	6017	88.9	87.0	1.021
calibrator zero	6016	0.00	6016	0.0	0.0	n/a
Average C.F.=						1.008

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.998		.95-1.05
b (Intercept as % of full scale)=	0.19%		± 3% F.S.
% change in C.F. from last cal=	-4.16%		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration

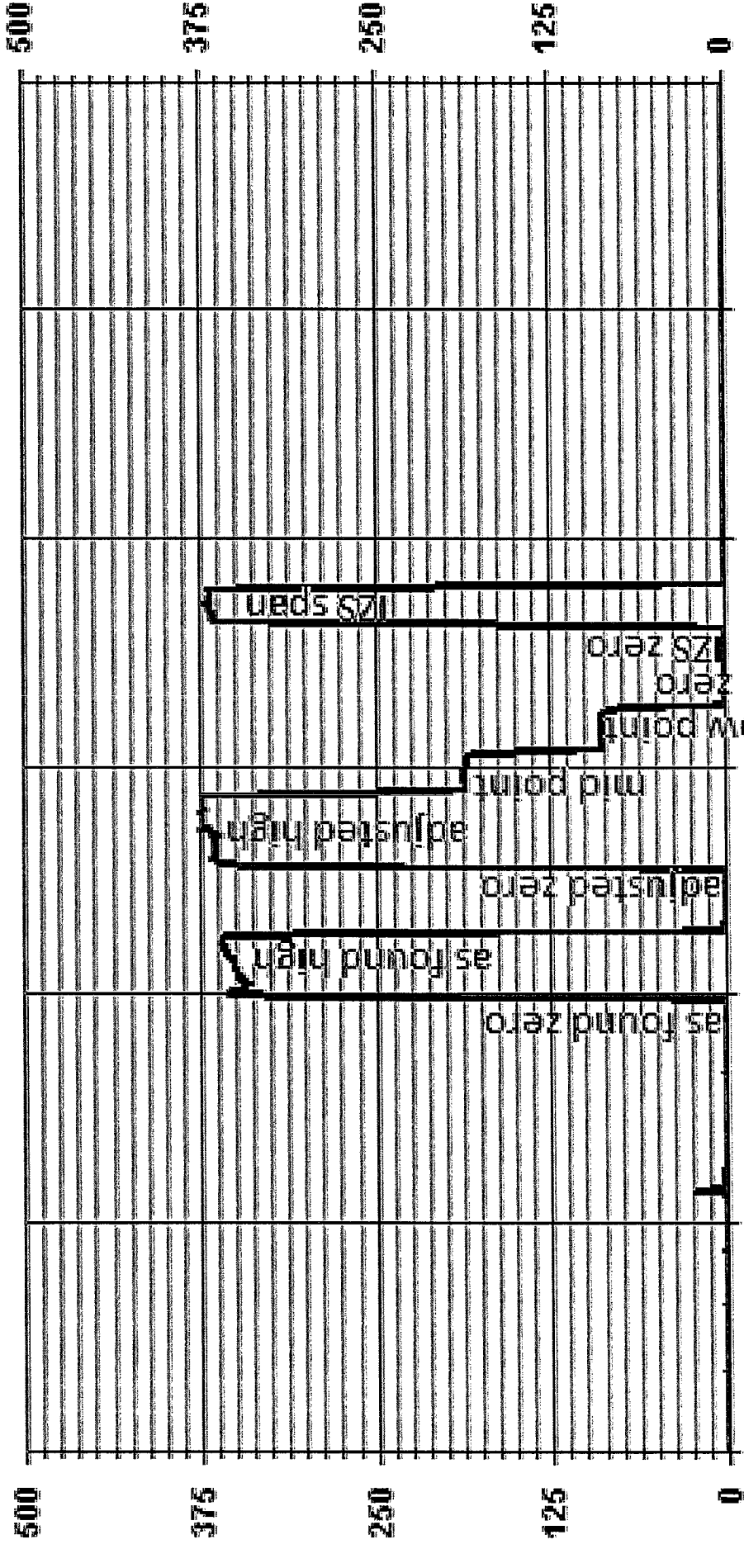


As found:	As left:		
BKG:	6.7	BKG:	7.1
COEF:	1.077	COEF:	1.098
PMT:	-632.0	PMT:	-632.3
FLASH:	707	FLASH:	707
INTERNAL:	27.6	INTERNAL:	27.5
CHAMBER:	44.9	CHAMBER:	45.0
PERM OVEN GAS:	45.00	PERM OVEN GAS:	45.00
PERM OVEN HEATER:	44.18	PERM OVEN HEATER:	44.19
PRESSURE:	680.4	PRESSURE:	679.2
SAMPLE FLOW:	0.475	SAMPLE FLOW:	0.474
LAMP INTENSITY:	77	LAMP INTENSITY:	76
CONVERTER:	NA	CONVERTER:	NA
CONVERTER SET:	NA	CONVERTER SET:	NA
Internal Span:	363	Internal Span:	368

Comments:

Sample Filter Changed

01 Minute Averages



09/23/15 08:10 09/23/15 10:10 09/23/15 12:10 09/23/15 14:10 09/23/15 16:10 09/23/15 18:10

— LICA SO2\_ PPB

***TOTAL REDUCED SULPHUR***



**Thermo 450i Total Reduced Sulphur Analyzer Calibration**

Date:	September 23, 2015	Barometric Pressure:	28.12 InHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	A few clouds
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly
Start Time 24 hr. (mst):	15:09	Performed By/Reviewer:	Chris Wesson   Tom Bourque
End Time 24 hr. (mst):	19:18	Cal Gas Expiry Date:	February 15, 2017
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CDNova CDN-101 #501

Analyzer:	Serial Number: 812728560	Range ppb: 100
	Last Calibration Date: August 10, 2015	As Found C.F.: 0.918
	Previous C.F.: 0.987	New C.F.: 0.999

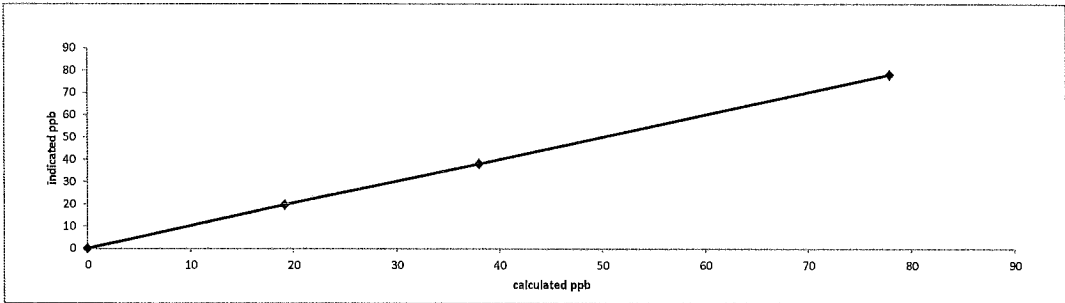
Callibrator: Flow Meter ID's: NA Make & Model: Sablo 2010D Serial #: 11900613 Cal Gas Cylinder I.D. #: LL74219 Cal Gas Conc. (ppm): 10.0	<b>Standard Calibration Points for Ranges</b> <table border="1"> <tr> <th>Point</th> <th>Total Reduced Sulphur Standard Calibration Points</th> </tr> <tr> <td>High</td> <td>78</td> </tr> <tr> <td>Mid</td> <td>38</td> </tr> <tr> <td>Low</td> <td>19</td> </tr> </table>	Point	Total Reduced Sulphur Standard Calibration Points	High	78	Mid	38	Low	19
Point	Total Reduced Sulphur Standard Calibration Points								
High	78								
Mid	38								
Low	19								

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

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7516	0.00	7516	0.0	0.1	N/A
as found high	7459	58.60	7518	78.0	85.0	0.918
adjusted zero	7516	0.00	7516	0.0	0.0	n/a
adjusted high	7459	58.60	7518	78.0	78.0	0.999
mid	7489	28.60	7518	38.0	38.0	1.001
low	7504	14.40	7518	19.2	19.5	0.982
calibrator zero	7515	0.00	7515	0.0	1.5	n/a
Average C.F.=						0.994

**Linear Regression/Calibration Results:**

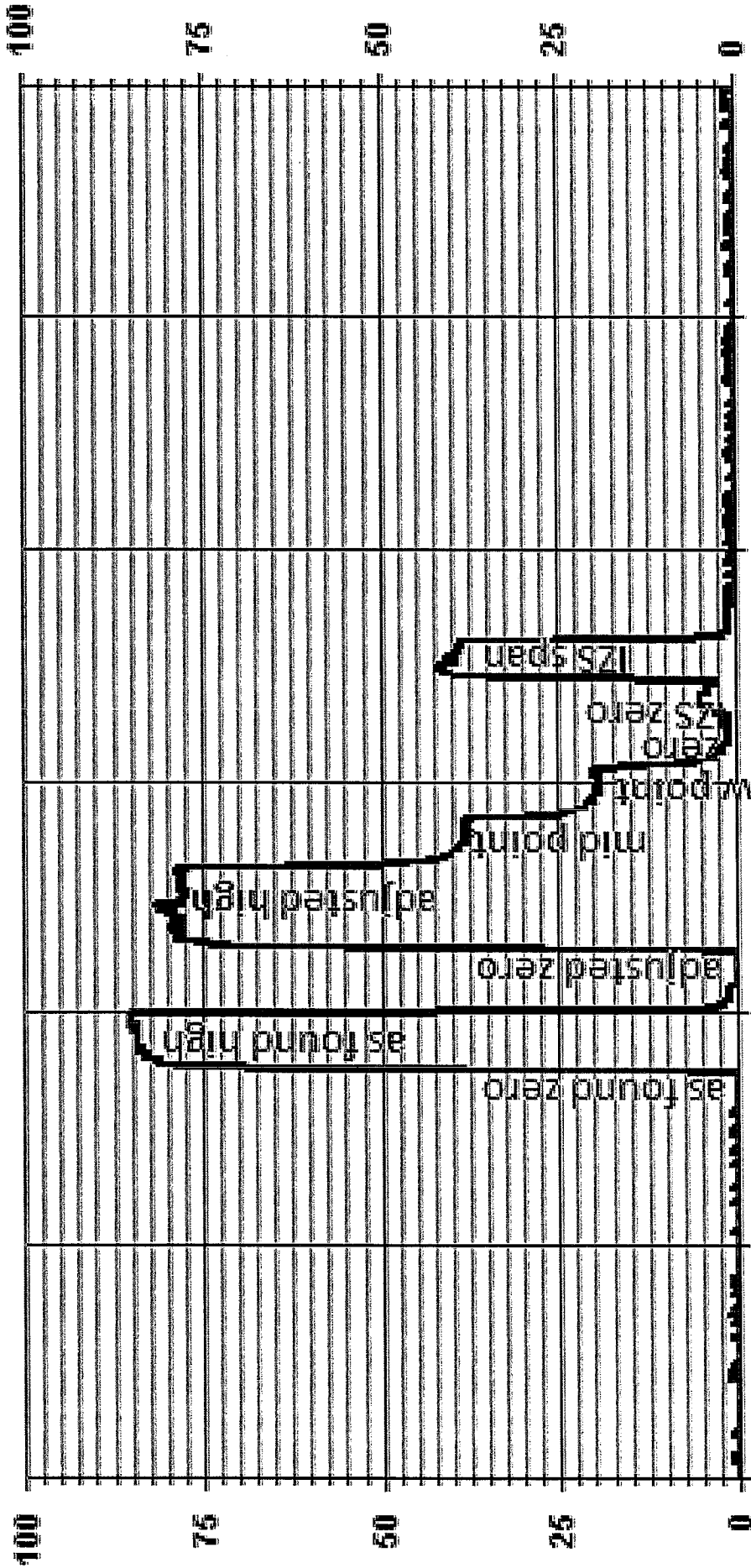
Correlation Coefficient =	1.000	LIMITS
Slope =	1.001	> or = 0.995
b (Intercept as % of full scale)=	-0.12%	.95-1.05
% change in C.F. from last cal=	6.98%	± 3% F.S.
		± 10%



<b>As found:</b>	BKG: 15.3	<b>As left:</b>	BKG: 14.7
COEF: 1.095	PMT: -650.5	COEF: 1.047	PMT: -650.8
FLASH: 739	INTERNAL: 31.5	FLASH: 743	INTERNAL: 31.5
CHAMBER: 45.0	CONVERTER TEMP: 810	CHAMBER: 45.2	CONVERTER TEMP: 810
CONVERTER SET: 810	CONVERTER SET: 810	CONVERTER SET: 810	CONVERTER SET: 810
PERM OVEN GAS: 45.00	PERM OVEN GAS: 45.00	PERM OVEN GAS: 45.00	PERM OVEN GAS: 45.00
PERM OVEN HTR: 44.38	PERM OVEN HTR: 44.38	PERM OVEN HTR: 44.38	PERM OVEN HTR: 44.38
PRESSURE: 656.9	PRESSURE: 656.6	PRESSURE: 656.6	PRESSURE: 656.6
SAMPLE FLOW: 0.509	SAMPLE FLOW: 0.512	SAMPLE FLOW: 0.512	SAMPLE FLOW: 0.512
LAMP INTENSITY: 92	LAMP INTENSITY: 92	LAMP INTENSITY: 92	LAMP INTENSITY: 92
Internal Span: 43	Internal Span: 39	Internal Span: 39	Internal Span: 39

Comments:  
 Sample Filter Changed

01 Minute Averages



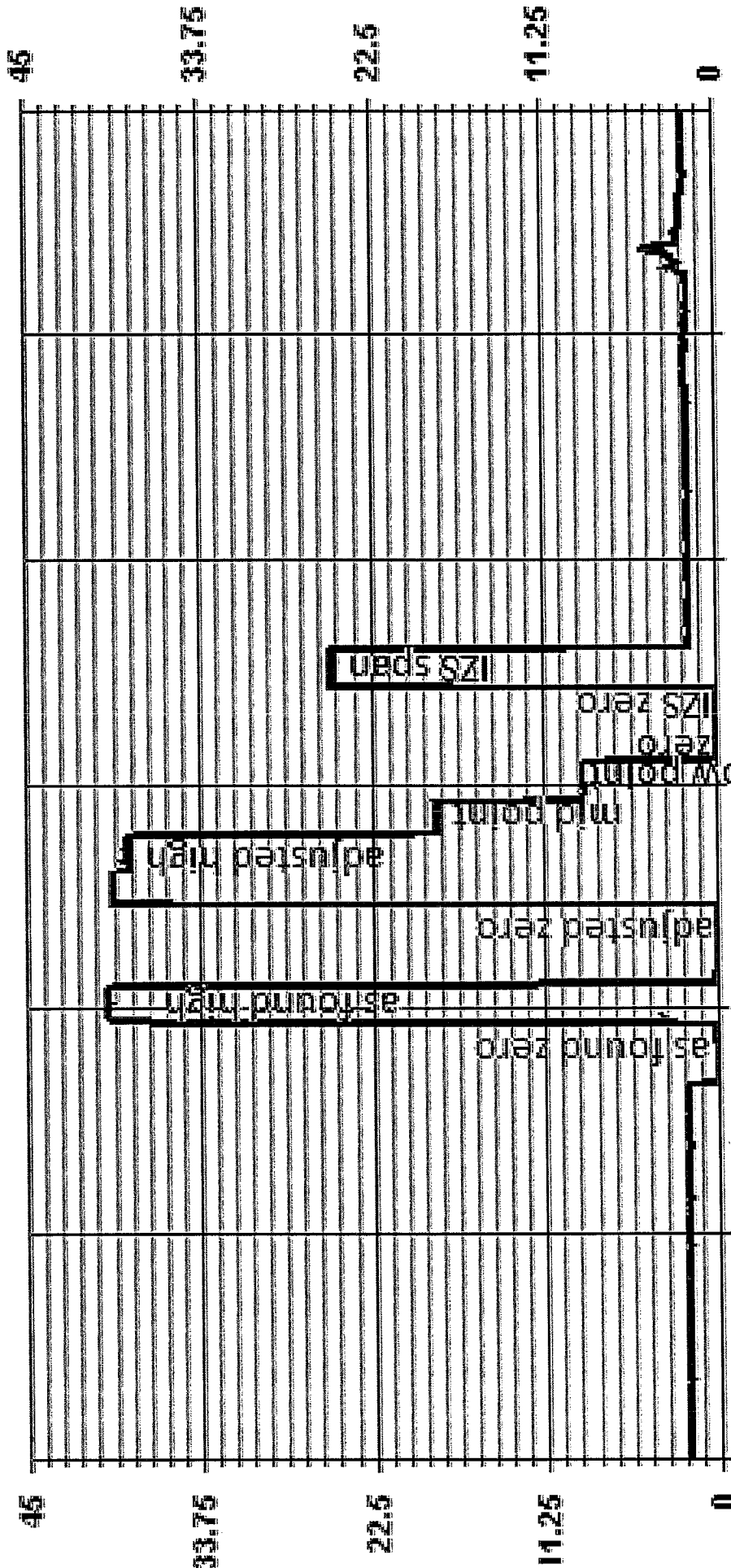
09/23/15 12:00 09/23/15 14:00 09/23/15 16:00 09/23/15 18:00 09/23/15 20:00 09/23/15 22:00

— LICA TRS\_ PPB

***TOTAL HYDROCARBON***

Maxxam <small>ANALYTICAL SERVICES</small>		Thermo 51C Total Hydrocarbon Analyzer Calibration									
Date: September 23, 2015		Barometric Pressure: 28.17 InHg									
Company/Alrshed: LICA		Station Temperature °C: 22									
Location/Station Name: Cold Lake South		Weather Conditions: Mainly cloudy with clear breaks									
Parameter: Total Hydrocarbon		Calibration Purpose: routine monthly									
Start/End Time 24 hr. (mst): 11:45-15:38		Performed By/Reviewer: Chris Wesson   Tom Bourque									
Calibration Method: Gas Dilution		Cal Gas Expiry Date: January 9, 2021									
<b>Analyzer:</b>											
Serial Number: 427408718		Range ppm: 50									
Last Calibration Date: August 11, 2015		As Found C.F.: 0.971									
Previous Cal High Point C.F.: 1.002		New C.F.: 1.000									
<b>Calibrator:</b>											
Flow Meter ID's: NA		Standard Calibration Points for a Range of 50 ppm									
Make & Model: Apl 700		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>Target ppm</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>38</td> </tr> <tr> <td>Mid</td> <td>18</td> </tr> <tr> <td>Low</td> <td>9</td> </tr> </tbody> </table>		Point	Target ppm	High	38	Mid	18	Low	9
Point	Target ppm										
High	38										
Mid	18										
Low	9										
Serial #: 830											
Cal Gas Cylinder I.D. #: LL19272											
CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> Cylinder Conc. (ppm): 880.0      304.0											
CH <sub>4</sub> as propane/total CH <sub>4</sub> equivalents (ppm): 836.0      1716.0											
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>											
Calibrator Flow Rates (cc/min)											
Point	Diluent	Cal Gas	Total	Calculated Concentration: (ppm)	Indicated Concentration: (ppm)	Correction Factors:					
as found zero	2499	0.00	2499	0.0	0.10	n/a					
as found high	2442	56.00	2498	38.47	39.70	0.971					
adjusted zero	2498	0.00	2498	0.00	0.00	n/a					
adjusted high	2441	56.00	2497	38.48	38.50	1.000					
mid	2473	27.00	2500	18.53	18.30	1.013					
low	2486	13.00	2499	8.93	8.70	1.026					
calibrator zero	2499	0.00	2499	0.0	-0.10	n/a					
Average C.F. =						1.013					
Linear Regression/Calibration Results:				LIMITS							
Correlation Coefficient = 1.000				> or = 0.995							
Slope = 0.998				.95-1.05							
b (Intercept as % of full scale) = 0.29%				± 3% F.S.							
% change in C.F. from last cal = 3.05%				± 10%							
Thermo 51C Total Hydrocarbon Analyzer Calibration											
As found:			As left:								
H2 cylinder (psi): 500			H2 cylinder (psi): 500								
H2 cylinder reg set (psi): 22			H2 cylinder reg set (psi): 22								
Span Cylinder (psi): 900			Span Cylinder (psi): 900								
Span Cylinder Reg Set (psi): 30			Span Cylinder Reg Set (psi): 30								
Zero Air Gen Pressure: 35			Zero Air Gen Pressure: 35								
measurement alarms: None			measurement alarms: None								
service alarms: None			service alarms: None								
cnt: 1470			cnt: 1440								
rng: 1			rng: 1								
try: 0			try: 0								
flm: 184.2			flm: 184.3								
det: 125.6			det: 125.7								
Flame: 184			Flame: 184								
Filter: 125			Filter: 125								
Base: 125			Base: 125								
Sample psi: 6.52			Sample psi: 6.50								
Internal Air Pressure: 20			Internal Air Pressure: 20								
Internal Fuel Pressure: 14			Internal Fuel Pressure: 14								
Intenal Pressure Gauge psi: 27			Intenal Pressure Gauge psi: 27								
Internal Span: 26			Internal Span: 25.1								
<b>Comments:</b>											
Sample Filter Changed											

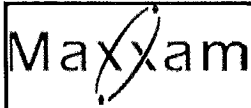
01 Minute Averages



— LICA    - - - - THC    ..... PPM



***NITROGEN DIOXIDE***



Thermo 42C NOx Analyzer Calibration

Date: 9-Sep-15  
 Company: LICA  
 Station Name/Location: Cold Lake South  
 Performed by: Alex Yakupov

Start Time (mst): 15:47  
 End Time (mst): 18:03  
 Calibration Purpose: As Found  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 427408716  
 Last Calibration Date: 10-Aug-15  
 Range ppb: 500

Correction Factors:  
 As found C.F. Previous Cal High Point C.F.:  
 NO= 1.042 NO= 1.001  
 NOx= 1.042 NOx= 1.001  
 NO<sub>2</sub>= 1.000 NO<sub>2</sub>= 1.000

As found:  
 NO Bkg ppb: 5.1  
 NOx Bkg ppb: 5.2  
 NO Coef: 1.044  
 NOx Coef: 1.015  
 NO<sub>2</sub> Coef: 1.003  
 PMT: -850  
 +15: 15.1  
 +5: 5.0  
 -15: -15.1  
 Battery: 3.2  
 Internal: 27.1  
 Chamber: 49.5  
 Cooler: -2.5  
 Converter: 318  
 Converter Set: 319  
 Pressure: 206.3  
 Sample Flow: 0.492  
 Ozonator Flow: OK  
 Internal Span: 241/4.4/236.4

As left:  
 NO Bkg ppb: 5.1  
 NOx Bkg ppb: 5.2  
 NO Coef: 1.044  
 NOx Coef: 1.015  
 NO<sub>2</sub> Coef: 1.003  
 PMT: -850  
 +15: 15.1  
 +5: 5.0  
 -15: -15.1  
 Battery: 3.2  
 Internal: 27.0  
 Chamber: 49.7  
 Cooler: -2.5  
 Converter: 318  
 Converter Set: 319  
 Pressure: 206.0  
 Sample Flow: 0.493  
 Ozonator Flow: OK  
 Internal Span: 241/4.4/236.4

Calibrator Flow Targets:

Make & Model: SABIO 2010 D  
 Serial #: 11900613  
 Cal Gas Cylinder I.D. #: BLM002073  
 NO Cylinder Conc. (ppm): 50.6  
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5012	0	0	5012
high	4976	38	250.00	5014
mid	4997	18	135.00	5015
low	5004	9	45.00	5013

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	5012	0.0	5012	0	0	0.0	0.0	NA	NA
as found high	4976	37.70	5014	380.5	380.5	365	365	1.042	1.042
Average C.F.=								N/A	N/A

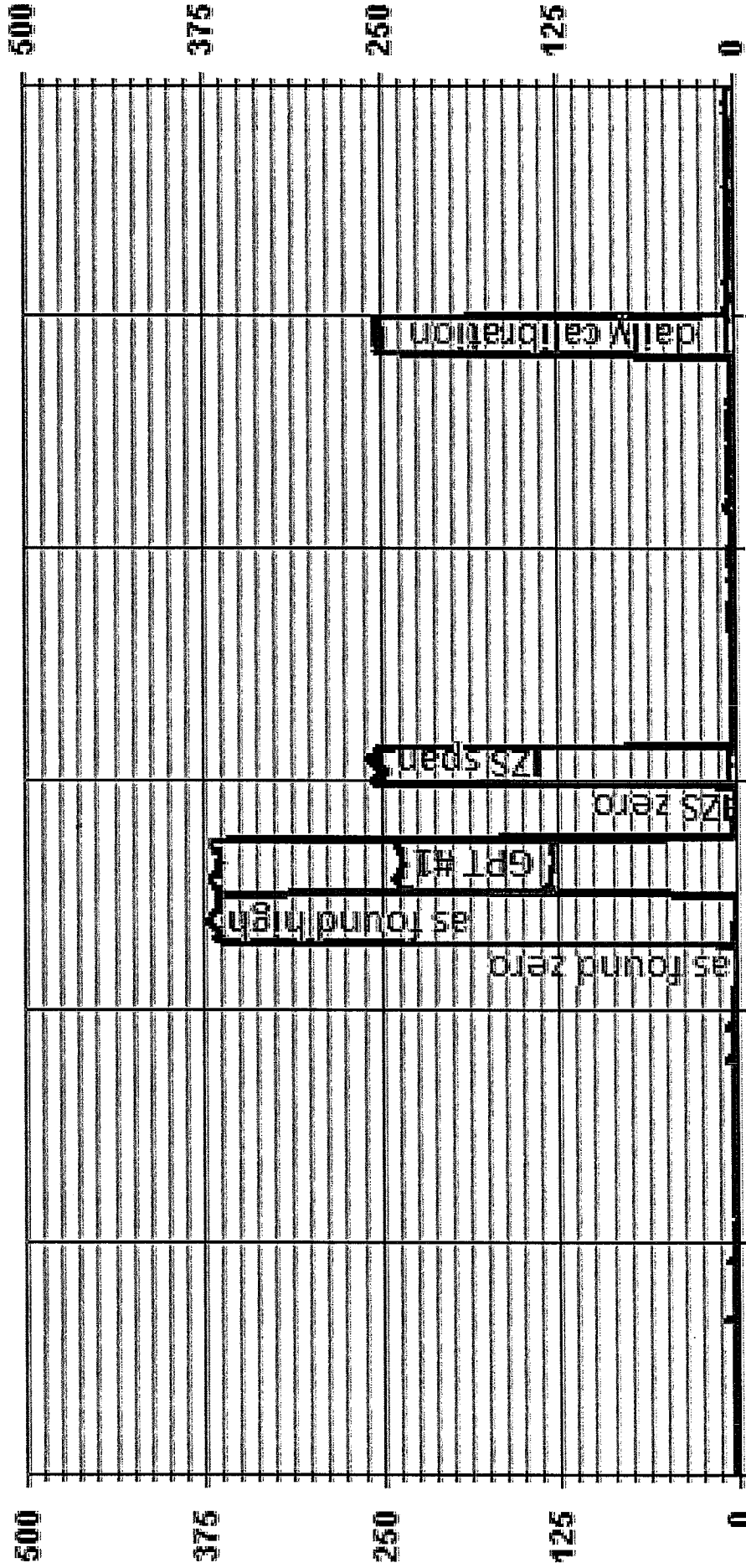
Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4976	37.70	5014	0.0	365.0	365.0	0.0	0.0	0.0	
as found NO <sub>2</sub>	4976	37.70	5014	250.0	128.0	365.0	237.0	237.0	237.0	1.000
Average NO <sub>2</sub> C.F.=										N/A

Linear Regression/Calibration Results:			LIMITS
NO	NOx	NO <sub>2</sub>	
Correlation Coefficient =	N/A	N/A	> or = 0.995
Slope =	N/A	N/A	0.85-1.15
b (Intercept as % of full scale) =	N/A	N/A	± 3% F.S.
% change in C.F. from last cal =	-4.14%	-4.14%	+/-15%
NO2 converter efficiency		N/A	>85%

Comments:

No ZERO adjustment made. No High Point adjustment made. No NO<sub>2</sub> adjustment made. Nox "As Found" calibration. Reason: SPAN value drifted over 10% during daily ZS check.

# 01 Minute Averages



09/09/15 11:40 09/09/15 13:40 09/09/15 15:40 09/09/15 17:40 09/09/15 19:40 09/09/15 21:40

— LICA NOX\_ PPB — LICA NO\_ — LICA NO2\_ PPB



Thermo 42C NOx Analyzer Calibration

Date: 18-Sep-15  
 Company: LICA  
 Station Name/Location: Cold Lake South  
 Performed by: Limin Li

Start Time (mst): 7:30  
 End Time (mst): 10:50  
 Calibration Purpose: As Found  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 427408716  
 Last Calibration Date: 10-Aug-15  
 Range ppb: 500

Correction Factors:  
 As found C.F. Previous Cal High Point C.F.:  
 NO= 1.034 NO= 1.001  
 NOx= 1.034 NOx= 1.001  
 NO<sub>2</sub>= 1.000 NO<sub>2</sub>= 1.000

As found:  
 NO Bkg ppb: 5.1  
 NOx Bkg ppb: 5.2  
 NO Coef: 1.044  
 NOx Coef: 1.015  
 NO<sub>2</sub> Coef: 1.003  
 PMT: -850  
 +15: 15.1  
 +5: 5.0  
 +15: 15.1  
 -15: -15.1  
 Battery: 3.2  
 Internal: 25.7  
 Chamber: 49.6  
 Cooler: -2.5  
 Converter: 317  
 Converter Set: 320  
 Pressure: 200.7  
 Sample Flow: 0.522  
 Ozonator Flow: OK  
 Internal Span: 241/4.4/236.4

As left:  
 NO Bkg ppb: 5.1  
 NOx Bkg ppb: 5.2  
 NO Coef: 1.044  
 NOx Coef: 1.015  
 NO<sub>2</sub> Coef: 1.003  
 PMT: -850  
 +15: 15.1  
 +5: 5.0  
 +15: 15.1  
 -15: -15.1  
 Battery: 3.2  
 Internal: 27.2  
 Chamber: 49.5  
 Cooler: -2.5  
 Converter: 317  
 Converter Set: 319  
 Pressure: 201.7  
 Sample Flow: 0.495  
 Ozonator Flow: OK  
 Internal Span: 260/5/255

Calibrator Flow Targets:

Make & Model: SABIO 2010 D  
 Serial #: 11900613  
 Cal Gas Cylinder I.D. #: BLM002073  
 NO Cylinder Conc. (ppm): 50.6  
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5012	0	0	5012
high	4976	38	250.00	5014
mid	4997	18	135.00	5015
low	5004	9	45.00	5013

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	5011	0.0	5011	0	0	0.0	0.0	NA	NA
as found high	4975	37.70	5013	380.6	380.6	368	368	1.034	1.034
Average C.F.=								NA	NA

Callibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4976	37.70	5014	0.0	368.0	368.0	0.0	0.0	0.0	
as found NO <sub>2</sub>	4976	37.70	5014	250.0	134.0	368.0	234.0	234.0	234.0	1.000
Average NO <sub>2</sub> C.F.=										NA

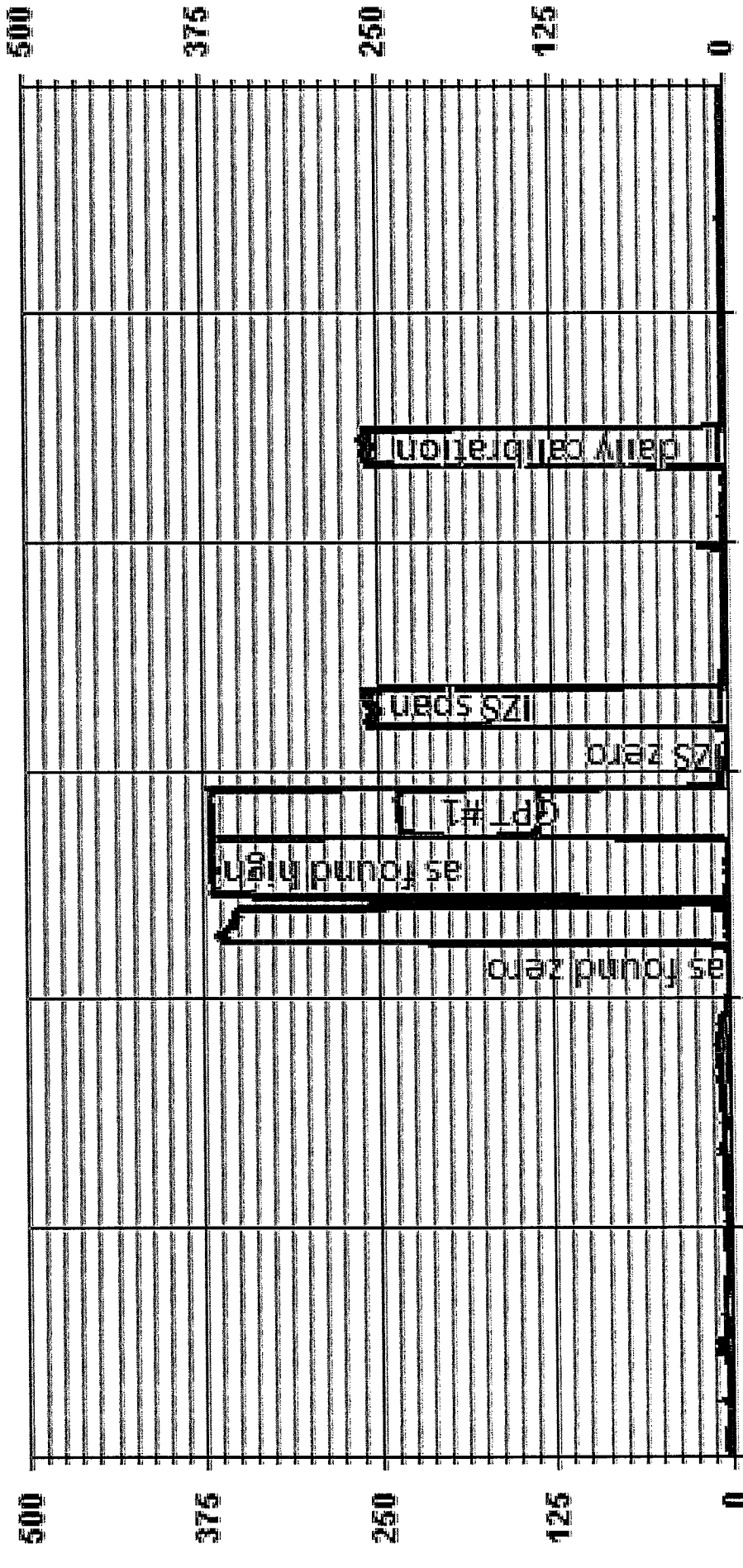
Linear Regression/Calibration Results:

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	NA	NA	NA	> or = 0.995
Slope =	NA	NA	NA	0.85-1.15
b (Intercept as % of full scale) =	NA	NA	NA	± 3% F.S.
% change ln C.F. from last cal =	-3.31%	-3.31%	0.00%	+/-15%
NO <sub>2</sub> converter efficiency			NA	>85%

Comments:

As found check only.

01 Minute Averages



09/18/15 03:40 09/18/15 05:40 09/18/15 07:40 09/18/15 09:40 09/18/15 11:40 09/18/15 13:40

— LICA NOX\_ PPB — LICA NO\_ — LICA NO2\_ PPB



### Thermo 42C NO-NO2-NOx Analyzer Calibration

Date:	September 23, 2015	Barometric Pressure:	28.17 inHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Cold Lake South	Weather Conditions:	Mainly cloudy with clear breaks
Start/End Time 24 hr. (mst):	11:45-18:52	Calibration Purpose:	routine monthly
G.P.T. to be used for Ozone?	No	Performed By/Reviewer:	Chris Wesson   Tom Bourque
Calibration Method:	Gas Dilution & Gas Phase Titration	Cal Gas Expiry Date:	March 12, 2019

Analyzer:		Correction Factors:			
Serial Number:	427408716	Previous C.F.:	As Found C.F.:	New C.F.:	
Last Calibration Date:	August 10, 2015	NO =	1.001	1.071	1.000
Range ppb:	500	NO <sub>2</sub> =	1.000	1.000	1.000
		NO <sub>x</sub> =	1.001	1.068	1.000

Calibrator:		Standard Calibration Points for a Range of: 500 ppb			
Flow Meter ID's:	NA	Point	Target NO (ppb)	Target NO <sub>2</sub> (ppb)	Cc Ozone ?
Make & Model:	Sabio 2010	High	380	250	n/a
Serial #:	17100415	Mid	180	145	n/a
Cal Gas Cylinder I.D. #:	BLM002073	Low	90	50	n/a
NO/NO <sub>x</sub> Gas Conc. (ppm):	50.6   50.6	Extra Point #1	n/a	n/a	n/a
		Extra Point #2	n/a	n/a	n/a

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

Calibrator Flow Rates (cc/mln)				Calculated NO	Calculated NO <sub>x</sub>	Indicated NO	Indicated NO <sub>x</sub>	NO C.F.	NO <sub>x</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	6016	0.0	6016	0	0	0.2	0.2	n/a	n/a
as found high	5969	45.3	6014	381.1	381.1	356.0	357.0	1.071	1.068
adjusted zero	6016	0.00	6016	0.0	0.0	0.0	0.0	n/a	n/a
adjusted high	5970	45.30	6015	381.1	381.1	381.0	381.0	1.000	1.000
mid	5993	22.70	6016	190.9	190.9	189.0	190.0	1.010	1.005
low	6006	10.80	6017	90.8	90.8	88.0	88.0	1.032	1.032
calibrator zero	6016	0.00	6016	0	0	0.0	0.0	n/a	n/a
								Average C.F.=	1.014   1.012

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

Calibrator Flow Rates (cc/mln)				Callibrator Setting	Indicated NO	Indicated NO <sub>x</sub>	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> C.F.	
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	
NO <sub>x</sub> reference	5970	45.30	6015	0.0	382.0	381.0	0.0	0.0	0.0		
as found high NO <sub>2</sub>	5970	45.30	6015	260.0	127.0	381.0	255.0	255.0	255.0	1.000	
gpt mid	5970	45.30	6015	150.0	233.0	380.0	147.0	149.0	147.0	1.014	
gpt low	5970	45.30	6015	55.0	332.0	381.0	49.0	50.0	49.0	1.020	
										Average NO <sub>2</sub> C.F.=	1.011

**Linear Regression/Calibration Results:**

	NO	NO <sub>x</sub>	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.998	0.998	1.000	.95-1.05
b (Intercept as % of full scale)=	-0.30%	-0.26%	-0.15%	± 3% F.S.
% change in C.F. from last cal=	-7.01%	-6.71%	0.00%	± 10%
NO <sub>2</sub> converter efficiency			1.00	0.96 to 1.04

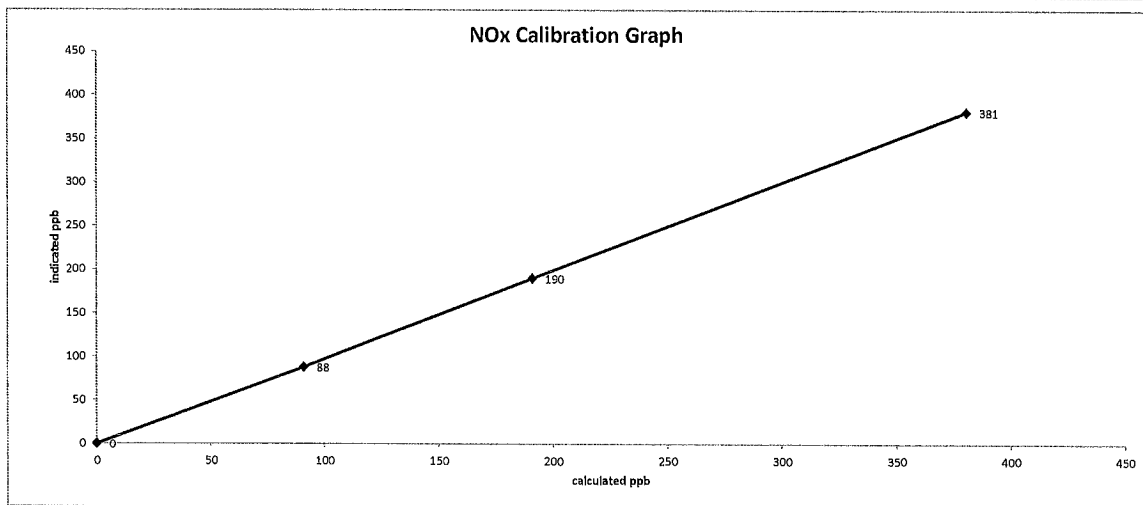
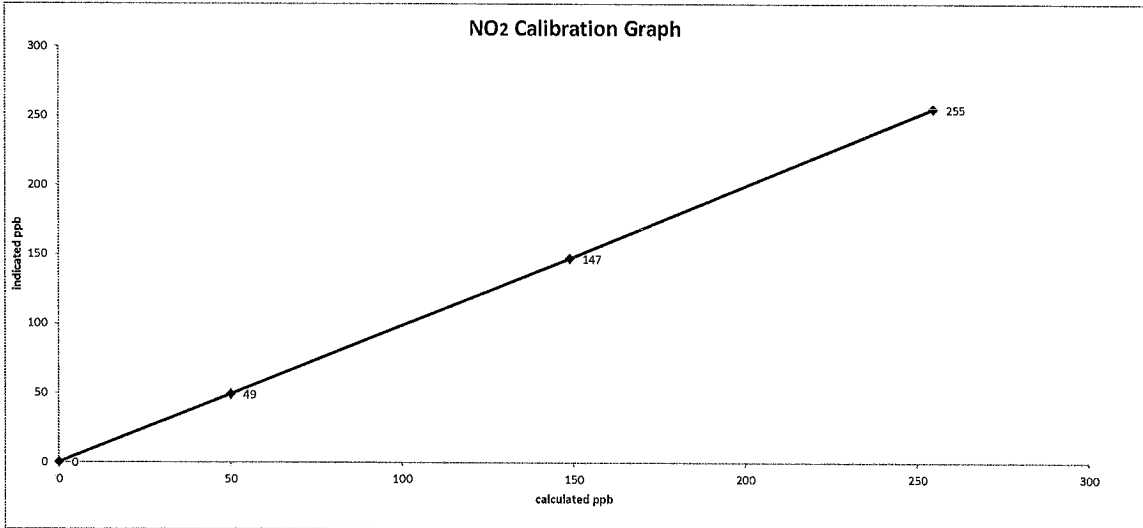
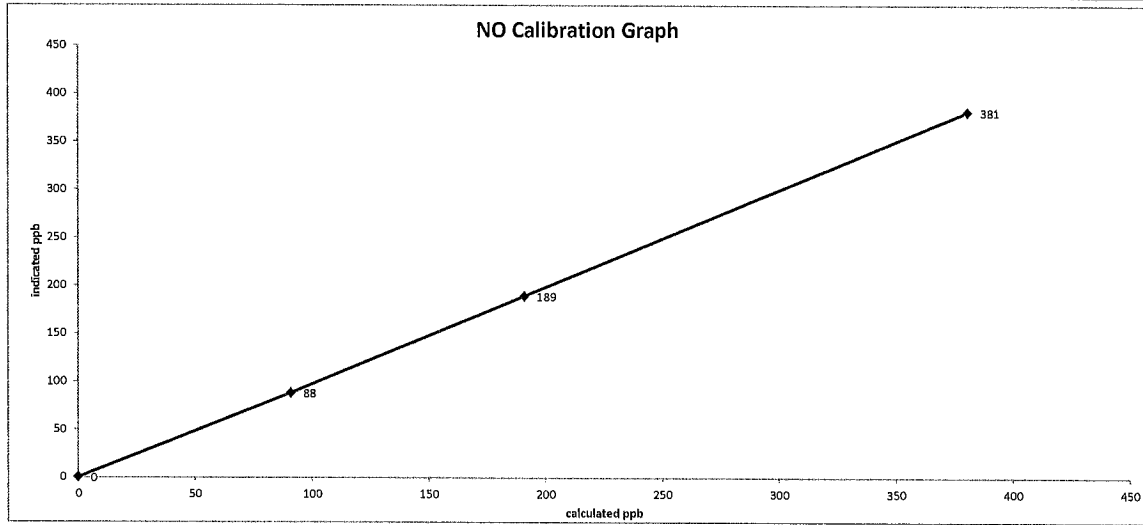
As found:		As left:	
NO Bkg ppb:	5.1	NO Bkg ppb:	5.5
NO <sub>x</sub> Bkg ppb:	5.2	NO <sub>x</sub> Bkg ppb:	5.7
NO Coef:	1.044	NO Coef:	1.110
NO <sub>x</sub> Coef:	1.015	NO <sub>x</sub> Coef:	1.013
NO <sub>2</sub> Coef:	1.003	NO <sub>2</sub> Coef:	1.003
PMT:	-850	PMT:	-850
Battery:	3.2	Battery:	3.2
Internal:	26.6	Internal:	27.0
Chamber:	49.8	Chamber:	49.5
Cooler:	-2.4	Cooler:	-2.5
Converter:	318.	Converter:	318.
Converter Set:	319	Converter Set:	319.
Pressure:	208.6	Pressure:	205.8
Sample Flow:	0.490	Sample Flow:	0.493
Ozonator Flow:	OK	Ozonator Flow:	OK
Internal Span NO:	5	Internal Span NO:	4.5
Internal Span NO <sub>2</sub> :	255	Internal Span NO <sub>2</sub> :	264
Internal Span NO <sub>x</sub> :	260	Internal Span NO <sub>x</sub> :	269

Comments:

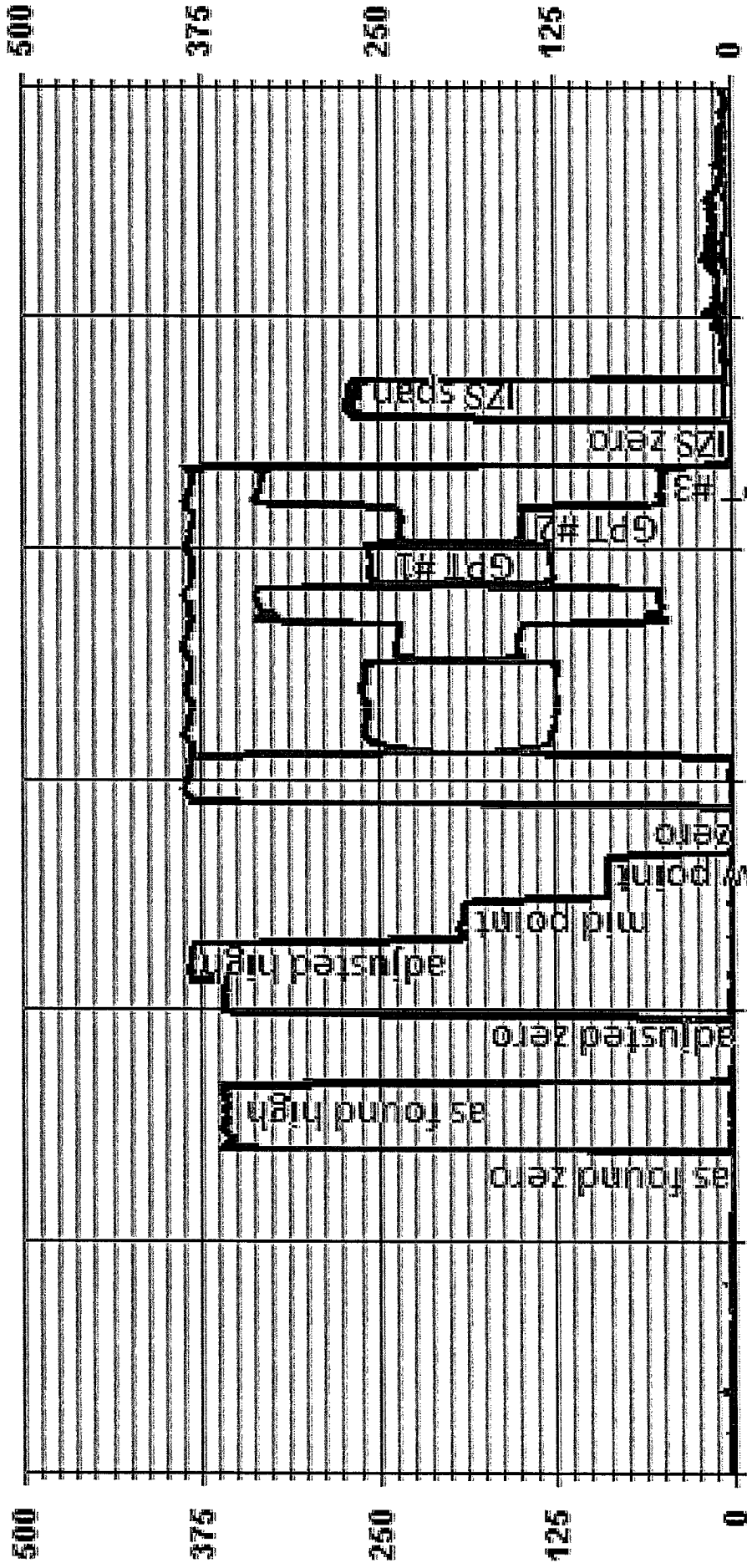
Sample Filter Changed. GPT points were repeated because the first attempt failed.

Date: September 23, 2015  
Company/Alrshed: LICA  
Location/Station Name: Cold Lake South

Start/End Time 24 hr. (mst): 11:45-18:52  
Calibration Purpose: routine monthly  
Calibration Method: Gas Dilution & Gas Phase Titration



01 Minute Averages



09:23/15 09:20 09/23/15 11:20 09/23/15 13:20 09/23/15 15:20 09/23/15 17:20 09/23/15 19:20

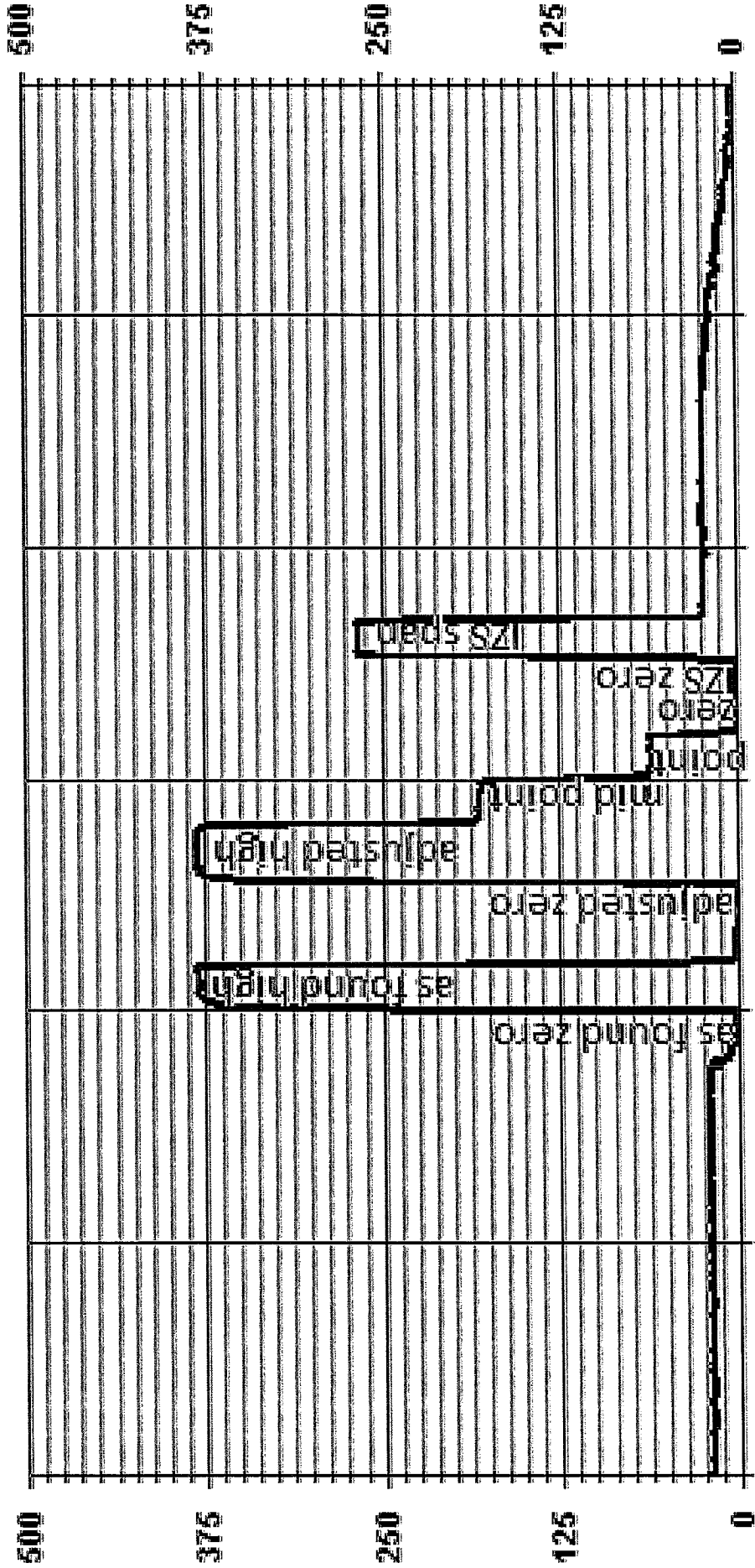
— LICA NOX PPB — LICA NO PPB — LICA NO2 PPB



**OZONE**

<b>Maxxam</b> Thermo 49i Ozone Analyzer Calibration <small>A Bureau Veritas Group Company</small>						
Date: <u>September 23, 2015</u>	Barometric Pressure: <u>28.17 inHg</u>					
Company/Alrshed: <u>LICA</u>	Station Temperature °C: <u>22</u>					
Location/Station Name: <u>Cold Lake South</u>	Weather Conditions: <u>Mainly cloudy with clear breaks</u>					
Start/End Time 24 hr. (mst): <u>11:45-15:38</u>	Calibration Purpose: <u>routine monthly</u>					
Ozone Calibration Method: <u>Varying UV Lamp Power</u>	Performed By/Reviewer: <u>Chris Wesson Tom Bourque</u>					
G.P.T. Date: <u>n/a-done by Varying UV Lamp Power</u>	Cal Gas Expiry Date: <u>n/a</u>					
<b>Analyzer:</b>						
Serial Number: <u>700419951</u>	Ozone Range ppb: <u>500</u>					
Last Calibration Date: <u>August 11, 2015</u>	As Found C.F.: <u>1.008</u>					
Previous Cal High Point C.F.: <u>1.000</u>	New C.F.: <u>1.000</u>					
<b>Calibrator:</b>						
Flow Meter ID's: <u>NA</u>	Point	AMD Required Range of Ozone Calibration Points				
Make & Model: <u>Sabco 2010D</u>	High	300-400 ppb				
Serial #: <u>11900613</u>	Mid	150-200 ppb				
Cal Gas Cylinder I.D. #: <u>NA</u>	Low	50-100 ppb				
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>						
Calibrator Flow Rate (cc/min)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:	
Point	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	2.0	n/a
as found high	5013	5013	378.0	378.0	377.0	1.008
adjusted zero	5013	5013	0.0	0.0	0.0	n/a
adjusted high	5013	5013	380.0	380.0	380.0	1.000
mid	5013	5013	180.0	180.0	181.0	0.994
low	5013	5013	60.0	60.0	60.0	1.000
calibrator zero	5013	6012	0.0	n/a	0.0	n/a
					Average C.F.=	0.998
<b>Linear Regression/Calibration Results:</b>						
Correlation Coefficient = <u>1.000</u>			LIMITS			
Slope = <u>1.000</u>			> or = 0.995			
b (Intercept as % of full scale) = <u>-0.04%</u>			.95-1.05			
% change in C.F. from last cal = <u>-0.80%</u>			± 3% F.S.			
			± 10%			
<b>Thermo 49i Ozone Analyzer Calibration</b>						
<b>As found:</b>			<b>As left:</b>			
O3 Bkg:	<u>0.1</u>	O3 Bkg:	<u>0.4</u>			
O3 Coef:	<u>1.008</u>	O3 Coef:	<u>1.004</u>			
Photo Lamp:	<u>8.7</u>	Photo Lamp:	<u>8.7</u>			
O3 Lamp:	<u>9.0</u>	O3 Lamp:	<u>9.0</u>			
Bench:	<u>26.7</u>	Bench:	<u>26.1</u>			
Bench Lamp:	<u>53.4</u>	Bench Lamp:	<u>53.4</u>			
O3 Lamp:	<u>67.3</u>	O3 Lamp:	<u>67.3</u>			
Pressure:	<u>705.3</u>	Pressure:	<u>704.1</u>			
Cell A lpm:	<u>0.715</u>	Cell A lpm:	<u>0.715</u>			
Cell B lpm:	<u>0.754</u>	Cell B lpm:	<u>0.753</u>			
O3 ppb:	<u>0.1</u>	O3 ppb:	<u>-0.4</u>			
Cell A ppb:	<u>18.3</u>	Cell A ppb:	<u>3.1</u>			
Cell B ppb:	<u>-18.1</u>	Cell B ppb:	<u>-3.0</u>			
Cell A int:	<u>57800</u>	Cell A int:	<u>57822</u>			
Cell B int:	<u>56241</u>	Cell B int:	<u>56231</u>			
Internal Span:	<u>257</u>	Internal Span:	<u>266</u>			
<b>Comments:</b>						
Sample filter changed						

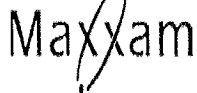
# 01 Minute Averages



09/23/15 08:10 09/23/15 10:10 09/23/15 12:10 09/23/15 14:10 09/23/15 16:10 09/23/15 18:10

— LICA 03\_ PPB

***PARTICULATE MATTER***



# R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 3-Sep-15  
 Company: LICA  
 Station Name/Location: Cold Lake South  
 Previous Audit Date: 26-Aug-15

Parameter: PM 2.5  
 Performed by: Alex Yakupov  
 Start/End Time (mst): 08:10 - 08:39  
 Calibration Purpose: Shutdown

**1400A Information and Status:**

Serial Number: 1405A201620804 As Found Filter Loading %: 37.78  
 Ko Factor: 14578 As Left Filter Loading %: NA  
 Ambient Temperature °C: 12.95 As Found Noise: 0.016  
 Ambient Pressure atm: 0.940 As Left Noise: NA  
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.40  
 Aux Flow Reading lpm: 13.68 Warnings: Vacuum Pressure Warning

**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>18-Mar-15</u>	<u>18-Mar-15</u>

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.16	0.01	0.16
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.03	-0.10	0.03	-0.10
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	NA	NA	NA	NA
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	NA	NA	NA	NA
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>13.0</u>	1405F pressure atm:	<u>0.940</u>
reference temperature °C:	<u>12.2</u>	reference pressure:	<u>0.934</u>
difference °C:	<u>-0.8</u>	difference :	<u>0.006</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>NA</u>	1405F pressure atm:	<u>NA</u>
reference temperature °C:	<u>NA</u>	reference pressure:	<u>NA</u>
difference °C:	<u>#VALUE!</u>	difference :	<u>#VALUE!</u>

**As found flows:**

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.00</u>	reference total/aux flow lpm: <u>16.81</u>
difference lpm: <u>0.00</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>NA</u>	1400A total/aux flow lpm: <u>NA</u>
reference main flow lpm: <u>NA</u>	reference total/aux flow lpm: <u>NA</u>
difference lpm: <u>#VALUE!</u>	difference lpm: <u>#VALUE!</u>

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 16-Jul-15  
 1405F K<sub>o</sub> factor: 14578  
 Measured K<sub>o</sub> factor: 14760.7000  
 % difference: 1.25

**Comments:**

Shutdown Audit performed to replace a sampling pump



# R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 3-Sep-15  
 Company: LICA  
 Station Name/Location: Cold Lake South  
 Previous Audit Date: NA

Parameter: PM 2.5  
 Performed by: Alex Yakupov  
 Start/End Time (mst): 09:12 - 09:58  
 Calibration Purpose: Post-Repair

**1400A Information and Status:**

Serial Number: 1405A201620804 As Found Filter Loading %: NA  
 Ko Factor: 14578 As Left Filter Loading %: 18.17  
 Ambient Temperature °C: 15.9 As Found Noise: NA  
 Ambient Pressure atm: 0.936 As Left Noise: 0.000  
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.40  
 Aux Flow Reading lpm: 13.67 Warnings: None

**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>18-Mar-15</u>	<u>18-Mar-15</u>

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	limit	<u>0.15</u>	<del>0.15</del>	<u>0.15</u>	<del>0.15</del>
Bypass Flow	actual	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	limit	<u>0.60</u>	<del>0.60</del>	<u>0.60</u>	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	<u>0.01</u>	<u>0.16</u>	<u>0.01</u>	<u>0.17</u>
	limit	<u>0.15</u>	<del>0.15</del>	<u>0.15</u>	<del>0.15</del>
Bypass Flow	actual	<u>0.04</u>	<u>-0.10</u>	<u>0.03</u>	<u>-0.10</u>
	limit	<u>0.60</u>	<del>0.60</del>	<u>0.60</u>	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C  
 1405F temperature °C: NA  
 reference temperature °C: NA  
 difference °C: #VALUE!

tolerance +/- 0.01 atm  
 1405F pressure atm: NA  
 reference pressure: NA  
 difference: #VALUE!

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

tolerance +/- 2.0°C  
 1405F temperature °C: 15.9  
 reference temperature °C: 15.9  
 difference °C: 0.0

tolerance +/- 0.01 atm  
 1405F pressure atm: 0.936  
 reference pressure: 0.936  
 difference: 0.000

**As found flows:**

main flow tolerance 3.00 lpm +/- 0.20 lpm  
 1405F main flow lpm: NA  
 reference main flow lpm: NA  
 difference lpm: #VALUE!

total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%  
 1400A total/aux flow lpm: NA  
 reference total/aux flow lpm: NA  
 difference lpm: #VALUE!

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

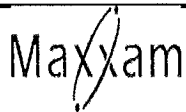
main flow tolerance 3.00 lpm +/- 0.20 lpm  
 1405F main flow lpm: 3.00  
 reference main flow lpm: 3.00  
 difference lpm: 0.00

total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%  
 1400A total/aux flow lpm: 16.67  
 reference total/aux flow lpm: 16.79  
 difference lpm: 0.12

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 16-Jul-15  
 1405F K<sub>o</sub> factor: 14578  
 Measured K<sub>o</sub> factor: 14760.7000  
 % difference: 1.25

**Comments:**



## R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: September 25, 2015  
 Company: LICA  
 Station Name/Location: Cold Lake South  
 Previous Audit Date: September 3, 2015  
 Parameter: PM 2.5

Performed By/Reviewer: Chris Wesson | Tom Bourque  
 Start Time (mst): 7:28  
 End Time (mst): 8:25  
 Calibration Purpose: Bi-monthly #2  
 Weather Conditions: Clear

**1400A Information and Status:**

Serial Number: <u>1405A201620804</u>	As Found Filter Loading %: <u>25.32</u>
Ko Factor: <u>14578</u>	As Left Filter Loading %: <u>21.85</u>
Ambient Temperature °C: <u>12.6</u>	As Found Noise: <u>0.009</u>
Ambient Pressure atm: <u>0.930</u>	As Left Noise: <u>0.082</u>
Main Flow Reading lpm: <u>3.00</u>	Pump Vacuum: <u>0.40-0.41</u>
Aux Flow Reading lpm: <u>13.67</u>	Warnings: <u>Pump Vacuum (intermittent)</u>

**Reference Standards:**

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Fisher
Model:	475 Mark III	FB1291	FB1291
Serial Number:	NA	130168457	130168457
Calibration Date:	NA	18-Mar-15	18-Mar-15

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.16	0.01	0.16
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.03	-0.10	0.02	-0.10
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.16	0.01	0.16
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.03	-0.10	0.02	-0.10
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C 1405F temperature °C: <u>11.6</u> reference temperature °C: <u>10.7</u> difference °C: <u>-0.9</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.932</u> reference pressure: <u>0.933</u> difference : <u>-0.001</u>
---	--

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

tolerance +/- 2.0°C 1405F temperature °C: <u>11.6</u> reference temperature °C: <u>10.7</u> difference °C: <u>-0.9</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.932</u> reference pressure: <u>0.932</u> difference : <u>0.000</u>
---	---

**As found flows:**

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.00</u> difference lpm: <u>0.00</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7% 1400A total/aux flow lpm: <u>16.65</u> reference total/aux flow lpm: <u>16.77</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 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.00</u> difference lpm: <u>0.00</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7% 1400A total/aux flow lpm: <u>16.65</u> reference total/aux flow lpm: <u>16.77</u> difference lpm: <u>0.12</u>
--	---

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 16-Jul-15  
 1405F K<sub>o</sub> factor: 14578  
 Measured K<sub>o</sub> factor: NA  
 % difference: \_\_\_\_\_

**Comments:**

***WIND SYSTEM***





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

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

### Sonic Wind Sensor Certificate of Calibration

Sensor Model No: 50.5H Sonic Sensor Serial No: F1644  
 Customer: \_\_\_\_\_ P.O. No: \_\_\_\_\_ Sales Order: \_\_\_\_\_  
 Final Calibration By: Kevin Ricks Calibration Date: 04-01-15  
 Quality Control Inspected By: AJZ Inspection Date: APR 03 2015

New Unit  Repair/Adjust  Re-Calibration  As Found   
 Unit Within Tolerance as Found  Unit Within Tolerance as Left

#### Calibration Equipment

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

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

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

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

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

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

***PARTISOL SAMPLER***

# PARTISOL

<p><b>Station</b></p> <p>Date: <u>September 10, 2015</u></p> <p>Company: <u>LICA</u></p> <p>Plant: <u>CLS</u></p> <p>Station: <u>LICA 01</u></p>	<p><b>Audit Transfer Standard</b></p> <p>Make/Model: <u>BIOS DryCAI DC-2</u></p> <p>S/N Flow/Cell: <u>B1193/2272</u></p> <p>Temperature (°C): <u>NA</u></p> <p>Serial Number: <u>Brunton ADC-Summit</u></p>
--	---

<p><b>Sampler</b></p> <p>Make/Model: <u>R &amp; P 2000H</u></p> <p>Unit #: <u>#1517</u></p> <p>S/N: <u>2000A204009710</u></p>	<p><b>Ambient Data</b></p> <p>Temperature (°C): <u>18.3</u></p> <p>Pressure (ATM): <u>0.944</u></p> <p>Set Flow (l/min): <u>16.7</u></p>
---	--

**Note: Tolerances are noted as BOLD in Brackets**

### Calibration Data

Calibration Constants						
Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.01	NA	0.0054	NA	0.9894	NA
Temperature	18.5	NA	NA	NA	1.0017	NA
Pressure	0.943	NA	NA	NA	0.9961	NA
Flow	-0.1	NA	-0.0436	NA	0.9989	NA
Interface Board Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
R21	6.00 VDC ( <b>±0.05 V</b> )		NA		NA	
R44	10.000 VDC ( <b>±0.002 V</b> )		NA		NA	
Analog Input Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
"AO" Offset	0.050 - 0.150 VDC ( <b>±0.005 V</b> )		NA		NA	
"AO" Span	4.800 - 4.900 VDC ( <b>±0.002 V</b> )		NA		NA	
Temperature/Pressure Calibration						
Calc Temp ( <b>±2 °C</b> )	18.5		Δ °C	0.2		
Calc Press ( <b>±0.02 ATM</b> )	0.944		Δ ATM	0.001		
Leak Check						
Unit	Flow Controller Valve Closed (V1)		Pump Valve Closed after 10 Secs. (V2)		Leakage Calculation (v2 > VL) After 10 Secs	
Hub	-14	inHg	-13.5	inHg	VL=1/2*V1 -7 inHg      OK inHg	
Flow Calibration						
Item	Acceptable		Calculated		Actual	
"Zero" Offset	Enter Zero for "Actual"		-0.1		Zero	
"Flow" Span	±7.0 % Adjust to 16.7 L		16.7		16.61	

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

Comments: Audit Start Time (MST): 9:12      Audit End Time (MST): 9:54

Calibration Performed By: Alex Yakupov

# PARTISOL

<b>Station</b>		<b>Audit Transfer Standard</b>	
Date:	September 18, 2015	Make/Model:	Streamline FTS
Company:	LICA	S/N Flow/Cell:	Hi 091001
Plant:	CLS	Temperature (°C):	Fluke 1551A Ex
Station:	LICA 01	Serial Number:	1735039

<b>Sampler</b>		<b>Ambient Data</b>	
Make/Model:	R & P 2000H	Temperature (°C):	17.9
Unit #:	#1517	Pressure (ATM):	0.932
S/N:	2000A204009710	Set Flow (l/min):	16.7

Note: Tolerances are noted as **BOLD** in Brackets

## Calibration Data

Calibration Constants						
Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.05	0.00	0.0054	0.0008	0.9894	0.9915
Temperature	18.6	17.9	NA	NA	1.0017	1.0007
Pressure	0.934	0.932	NA	NA	0.9961	0.9939
Flow	-0.1	-0.1	-0.0436	-0.0436	0.9989	0.9989
Interface Board Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
R21	6.00 VDC ( <b>±0.05 V</b> )		6.022		6	
R44	10.000 VDC ( <b>±0.002 V</b> )		10.023		10	
Analog Input Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
"AO" Offset	0.050 - 0.150 VDC ( <b>±0.005 V</b> )		0.126		0.123	
"AO" Span	4.800 - 4.900 VDC ( <b>±0.002 V</b> )		4.864		4.818	
Temperature/Pressure Calibration						
Calc Temp ( <b>±2 °C</b> )		17.9		$\Delta$ °C		0.0
Calc Press ( <b>±0.02 ATM</b> )		0.932		$\Delta$ ATM		0.000
Leak Check						
Unit	Flow Controller Valve Closed (V1)		Pump Valve Closed after 10 Secs. (V2)		$VL=1/2*V1$	
Hub	-14	inHg	-13.5	inHg	-7	inHg
Leakage Calculation ( $v2 > VL$ ) After 10 Secs						
					OK	inHg
Flow Calibration						
Item	Acceptable		Calculated		Actual	
"Zero" Offset	Enter Zero for "Actual"		-0.1		-0.1	
"Flow" Span	±7.0 % Adjust to 16.7 L		16.7		16.7	

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

Comments: **Audit Start Time (MST):** 10:20 **Audit End Time (MST):** 11:00  
Need rebuilt pump next visit.

Calibration Performed By: Limin Li

## ***CALIBRATORS***

Company: Maxxam

Operator: Limin Li

**Calibrator:**

Make/Model	API 700
Serial Number	830
Last Verification Date	Oct 2013
SO <sub>2</sub> Cylinder Conc.	50.3
SO <sub>2</sub> Cylinder S/N	LL42475

**Flow Measurement Device:**

Make/Model	N/A
Serial Number	N/A
Temperature (°C)	N/A
Barometric Pressure	N/A

**Flow Measurements**

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

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

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

SO <sub>2</sub>		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO <sub>2</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model	Teco 43C
Make/Model	R&R MFC 201	Serial/AMU Number	AMU 1623
Serial/AMU Number	AMU 1690	Last Calibration Date	Dec 15/14
		Full Scale (ppm)	1.0

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

Auditor: Al Clark

Date: December 16, 2014

Operator Signature: \_\_\_\_\_

Location: McIntyre Center Edmonton

Company <u>Maxxam</u>		Operator: <u>Lmlin LI</u>	
<b>Calibrator:</b>		<b>Flow Measurement Device:</b>	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17100415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>New</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>BLM0027561</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>50.7/50.7</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 <sub>2</sub>	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5016	79.1	0.800	0.800	0.811	-0.011	0.800	1%	0%
5016	39.7	0.401	0.401	0.405	-0.005	0.400	1%	0%
5015	19.9	0.201	0.201	0.203	-0.003	0.200	1%	0%
Absolute Average Percent Difference							1%	0%

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

<b>NO</b>		<b>LIMITS</b>		<b>NOx</b>
Correlation=	1.0000	≥ 0.990		Correlation= 1.0000
m (Slope)=	1.0139	0.90-1.10		m (Slope)= 1.0003
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.		b (Intercept % of FS)= #DIV/0!

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas	
5016	0.000	0.000	0.809	-0.013	0.796	NO <sub>2</sub>	% Diff. Limit
5016	0.500	0.484	0.325	0.469	0.794	0	± 10%
5016	0.300	0.278	0.531	0.263	0.794	0	± 10%
5016	0.100	0.090	0.719	0.076	0.765	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

<b>NO<sub>2</sub></b>		<b>LIMITS</b>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9960	0.90-1.10
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.

<b>AENV Standards</b>	<b>NO<sub>x</sub> Analyzer</b>
<b>Audit Calibrator</b>	
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>May 21, 2015</u>
	Full Scale (ppm) _____

COMMENTS: Contains 49.9 ppm SO2

Auditor: Al Clark  
Operator Signature: *Al Clark*

Date: May 21, 2015  
Location: McIntyre Center Edmonton

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. #3 <u>5000</u>
Pt. #2	<u>5000</u>	
Gas Flow (sccm)		
Pt. #1	<u>80</u>	Pt. #3 <u>20</u>
Pt. #2	<u>40</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	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

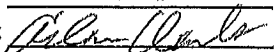
Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas	
5015	0.000	0.000	0.843	-0.017	0.826	NO <sub>2</sub>	% Diff. Limit
5015	0.520	0.527	0.316	0.485	0.802	-5%	± 10%
5015	0.280	0.286	0.557	0.262	0.819	-2%	± 10%
5015	0.100	0.104	0.739	0.089	0.827	2%	± 10%
Absolute Average Percent Difference						2%	± 10%

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

NO <sub>2</sub>		LIMITS	
Correlation=	0.9998	≥ 0.995	
m (Slope)=	0.9495	0.90-1.10	
b (Intercept % of FS)=	-1.2915	± 3% F.S.	

AENV Standards		NO <sub>x</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model <u>Teco 421</u>	
Make/Model	<u>Teco 146i</u>	Serial/AMU Number	<u>AMU 1868</u>
Serial/AMU Number	<u>AMU 1809</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



***CALIBRATION GASES***



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam Operator's Name: Limin Li  
 Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%) 2 Certified By: Alr Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

Make/Model: Teco 43C Serial/AMU Number: 1623  
 Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0  
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	<del>0.000</del>	<del>0.000</del>	<del>0.000</del>
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
Average Cylinder Concentration:					<b>48.0</b>

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: 3.0

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

Auditor: Al Clark  
 Operator Signature: *Al Clark*

Date: March 31, 2015  
 Location: McIntyre Center Edmonton



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam Operators name: Limin Li  
Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:				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>March 31, 2015</u>			Temp. °C	<u>22.5 C</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>690 mmhg</u>
Cylinder Number	<u>CAL018024</u>				

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

Callibrator 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				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
Average Cylinder Concentration:						<b>52.0</b>	<b>51.3</b>

	<u>NO</u>	<u>NOx</u>
Previous Stated Concentration PPM:	<u>50.6</u>	<u>50.6</u>
Percent variance from Stated:	<u>2.8</u>	<u>1.4</u>

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_  
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.5 ppm SO2 in cylinder  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: March 31, 2015  
Operator Signature: *Al Clark* 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	<del>0.0000</del>	<del>132.234</del>	<del>10.1</del>
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:					<b>10.1</b>

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: Molntyre Center Edmonton



# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

File No. 2016-031CGA

Company: Maxxam Operators name: Limin Li  
 Cylinder #: LL19272 Conc CH4 (PPM) 880/304 Tolerance (%) 2 Certified By: Praxair

**Reference Calibrator and Gas:**

Make/Model R&R MFC 201  
 Serial Number AMU 1691  
 Last Verification Date May 21, 2015  
 Gas Type CH4 Conc. 999.2  
 Cylinder Number D751932  
 Gas Type C3H8 Conc. 246.5  
 Cylinder Number XF0037998

**Flow Measurement Device:**

Make/Model Bios DC2  
 Serial Number AMU 1650  
 Temp. °C 24.0 C  
 B.P. 703 mmhg

**Reference Analyzer:**

Make/Model Teco 55C Serial/AMU Number: 1643  
 Instrument Settings Zero: N/A Span: N/A Range: 20  
 Last Calibration: Date: May 21/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH4	C3H8			CH4	C3H8
2600	0.0	0.00	0.00	<del>0.02005</del>	<del>49.883</del>	<del>886</del>	<del>304</del>
2569	51.5	17.77	16.76	0.02005	49.883	886	304
3549	22.3	5.56	5.27	0.00628	159.148	885	305
3523	10.4	2.63	2.49	0.00295	338.750	891	307
Average Cylinder Concentration:						<b>887</b>	<b>305</b>

	<u>CH4</u>		<u>C3H8</u>
Previous Stated Concentration PPM:	<u>880</u>		<u>304</u>
Percent variance from Stated:	<u>0.8</u>		<u>0.4</u>

**Cylinder gas tolerances based on CH4 only**

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: May 21, 2015  
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton

***APPENDIX IV***  
***ANALYTICAL RESULTS***

***PASSIVE SAMPLES***

Your Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA

**Attention:MICHAEL BISAGA**

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

**Report Date: 2015/10/20**  
Report #: R2060826  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B587371**

Received: 2015/10/05, 13:03

Sample Matrix: Air  
# Samples Received: 32

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	20	2015/10/16	2015/10/19	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	25	2015/10/08	2015/10/19	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2015/10/09	2015/10/19	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	19	2015/10/16	2015/10/19	PTC SOP-00149	Tang Passive SO2 in
SO2 Passive Analysis (1)	10	2015/10/19	2015/10/19	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 Oct 2015 08:53:58 -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 #: B587371  
Report Date: 2015/10/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA  
Sampler Initials: WA

**RESULTS OF CHEMICAL ANALYSES OF AIR**

<b>Maxxam ID</b>		NH5400	NH5401	NH5402	NH5403	NH5404	NH5405		
<b>Sampling Date</b>		2015/07/30 17:32	2015/07/31 12:31	2015/07/31 13:11	2015/07/31 15:42	2015/07/31 11:08	2015/07/30 19:16		
	<b>UNITS</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>8</b>	<b>9</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.19		0.81				0.02	8077373
Calculated NO2	ppb	1.2	0.9	0.6	3.7	0.6	1.0	0.1	8066537
Calculated O3	ppb	22.88	27.89	24.81	17.25	25.54	18.36	0.1	8068902
Calculated SO2	ppb	0.2	0.4	0.5	1.1	0.3	0.2	0.1	8076737
RDL = Reportable Detection Limit									

<b>Maxxam ID</b>		NH5406	NH5407	NH5408	NH5409	NH5410		NH5411	
<b>Sampling Date</b>		2015/07/30 15:05	2015/07/30 15:51	2015/02/27 17:36	2015/07/30 13:30	2015/07/30 12:04		2015/07/30 20:15	
	<b>UNITS</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>QC Batch</b>	<b>15</b>	<b>RDL QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.20	0.08	MISSING	0.08	0.16	8077373		0.02 8077373
Calculated NO2	ppb	2.3	0.6	MISSING	0.5	1.0	8066537	0.8	0.1 8066543
Calculated O3	ppb	16.62	12.77	MISSING	20.03	20.34	8068907	18.24	0.1 8068907
Calculated SO2	ppb	0.3	<0.1	MISSING	0.3	1.0	8076737	0.3	0.1 8076737
RDL = Reportable Detection Limit									

<b>Maxxam ID</b>		NH5412	NH5413	NH5414	NH5415		NH5416	NH5417	
<b>Sampling Date</b>		2015/07/31 18:57	2015/07/31 16:39	2015/07/31 17:55	2015/05/28 18:44		2015/07/30 09:34	2015/07/30 10:27	
	<b>UNITS</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>QC Batch</b>	<b>22</b>	<b>23</b>	<b>RDL QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.22	0.43	0.14		8077373	0.27		0.02 8077373
Calculated NO2	ppb	1.7	2.7	0.8	0.5	8066543	0.8	0.2	0.1 8066543
Calculated O3	ppb	19.20	22.73	16.33	30.55	8068907	19.69	15.04	0.1 8068907
Calculated SO2	ppb	0.2	0.3	0.2	0.3	8076737	0.3	0.2	0.1 8078896
RDL = Reportable Detection Limit									

<b>Maxxam ID</b>		NH5418	NH5419	NH5420	NH5421	NH5422	NH5423	NH5424	
<b>Sampling Date</b>		2015/07/31 15:06	2015/02/27 18:58	2015/07/30 12:28	2015/07/30 11:37	2015/07/30 19:43	2015/07/30 09:35	2015/07/30 18:15	
	<b>UNITS</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>32</b>	<b>RDL QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.18	MISSING	0.18	0.87		0.25	0.26	0.02 8077373
Calculated NO2	ppb	2.9				1.8	0.8	0.5	0.1 8066543
Calculated O3	ppb	20.24				19.17	20.70	28.26	0.1 8068907
Calculated SO2	ppb	0.3	MISSING	0.4	0.9	0.8	0.3	0.3	0.1 8078896
RDL = Reportable Detection Limit									

Maxxam Job #: B587371  
Report Date: 2015/10/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA  
Sampler Initials: WA

**RESULTS OF CHEMICAL ANALYSES OF AIR**

<b>Maxxam ID</b>		NH5425	NH5428		NH5429	NH5430	NH5431	NH5432		
<b>Sampling Date</b>		2015/07/31 14:05	2015/07/30 15:51		2015/07/30 13:30	2015/07/30 12:04	2015/07/30 20:15	2015/07/31 16:39		
	<b>UNITS</b>	<b>36</b>	<b>11 DUP</b>	<b>QC Batch</b>	<b>13 DUP</b>	<b>14 DUP</b>	<b>15 DUP</b>	<b>17 DUP</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>										
Calculated H2S	ppb	0.24		8077373				0.48	0.02	8077373
Calculated NO2	ppb	2.1	0.5	8066543	0.3				0.1	8066543
Calculated O3	ppb	25.88	16.12	8068907	20.68				0.1	8068907
Calculated SO2	ppb	0.2		8078896	0.3	1.1	0.3		0.1	8076737
RDL = Reportable Detection Limit										

<b>Maxxam ID</b>		NH5440		
<b>Sampling Date</b>		2015/07/31 17:55		
	<b>UNITS</b>	<b>18 DUP</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Passive Monitoring</b>				
Calculated H2S	ppb	0.12	0.02	8077373
RDL = Reportable Detection Limit				

Maxxam Job #: B587371  
Report Date: 2015/10/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA  
Sampler Initials: WA

**GENERAL COMMENTS**

Samples (NH5408) (NH5419) not returned to the lab. Site inaccessible during changeout.

Results relate only to the items tested.

Maxxam Job #: B587371  
Report Date: 2015/10/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA  
Sampler Initials: WA

**QUALITY ASSURANCE REPORT**

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	8066537	SS6	Spiked Blank	Calculated NO2	2015/10/08		99	%	90 - 110
	8066537	SS6	Method Blank	Calculated NO2	2015/10/08	<0.1		ppb	
	8066543	SS6	Spiked Blank	Calculated NO2	2015/10/08		102	%	90 - 110
	8066543	SS6	Method Blank	Calculated NO2	2015/10/08	<0.1		ppb	
	8068902	OZ	Spiked Blank	Calculated O3	2015/10/09		99.5	%	90 - 110
	8068902	OZ	Method Blank	Calculated O3	2015/10/09	<0.1		ppb	
	8068907	OZ	Spiked Blank	Calculated O3	2015/10/09		97.1	%	90 - 110
	8068907	OZ	Method Blank	Calculated O3	2015/10/09	<0.1		ppb	
	8076737	YL6	Spiked Blank	Calculated SO2	2015/10/16		98	%	90 - 110
	8076737	YL6	Method Blank	Calculated SO2	2015/10/16	<0.1		ppb	
	8077373	LCH	Spiked Blank	Calculated H2S	2015/10/17		99	%	N/A
	8078896	YL6	Spiked Blank	Calculated SO2	2015/10/19		98	%	90 - 110
	8078896	YL6	Method Blank	Calculated SO2	2015/10/19	<0.1		ppb	

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


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

Maxxam Job #: B587371  
Report Date: 2015/10/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2015/07/30 - 2015/09/29  
Site Location: LICA  
Sampler Initials: WA

**VALIDATION SIGNATURE PAGE**

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



Linda Lin, Supervisor, Centre for Passive Sampling Technology

---

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

**VOCS SAMPLES**

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090085-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 3, 2015</p> <p><b>CANISTER ID:</b> S5587</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 09-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	12-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	12-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
1-Butene	I	0.03	ppbv	0.02	AC-058	12-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
2,2-Dimethylbutane	I	0.01	ppbv	0.01	AC-058	12-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	12-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090085-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/CLS/Sept 3, 2015

**CANISTER ID:** S5587

**DESCRIPTION:** CLS

**DATE SAMPLED:** 03-Sep-15 0:00

**DATE RECEIVED:** 09-Sep-15

**REPORT CREATED:** 28-Sep-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
2-Methylhexane	I	0.01	ppbv	0.01	AC-058	12-Sep-15
2-Methylpentane	I	0.05	ppbv	0.01	AC-058	12-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
3-Methylpentane	I	0.08	ppbv	0.01	AC-058	12-Sep-15
Acetone		2.2	ppbv	0.4	AC-058	12-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Sep-15
Benzene	I	0.02	ppbv	0.01	AC-058	12-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Bromomethane	I	0.01	ppbv	0.01	AC-058	12-Sep-15
Carbon disulfide	I	0.02	ppbv	0.01	AC-058	12-Sep-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	12-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Chloroform	I	0.02	ppbv	0.02	AC-058	12-Sep-15
Chloromethane		0.63	ppbv	0.02	AC-058	12-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Cyclohexane	I	0.03	ppbv	0.02	AC-058	12-Sep-15
Cyclopentane	I	0.02	ppbv	0.01	AC-058	12-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca



**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090085-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/CLS/Sept 3, 2015

**CANISTER ID:** S5587

**DESCRIPTION:** CLS

**DATE SAMPLED:** 03-Sep-15 0:00

**DATE RECEIVED:** 09-Sep-15

**REPORT CREATED:** 28-Sep-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.4	ppbv	0.3	AC-058	12-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
Freon-11		0.33	ppbv	0.02	AC-058	12-Sep-15
Freon-113	I	0.08	ppbv	0.01	AC-058	12-Sep-15
Freon-114	I	0.02	ppbv	0.02	AC-058	12-Sep-15
Freon-12		0.65	ppbv	0.02	AC-058	12-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	12-Sep-15
Isobutane	I	0.11	ppbv	0.02	AC-058	12-Sep-15
Isopentane	I	0.22	ppbv	0.03	AC-058	12-Sep-15
Isoprene	I	0.14	ppbv	0.01	AC-058	12-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	12-Sep-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Sep-15
Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	12-Sep-15
Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	12-Sep-15
Methylene chloride		9.6	ppbv	0.3	AC-058	12-Sep-15
n-Butane	I	0.19	ppbv	0.03	AC-058	12-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090085-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/CLS/Sept 3, 2015

**CANISTER ID:** S5587

**DESCRIPTION:** CLS

**DATE SAMPLED:** 03-Sep-15 0:00

**DATE RECEIVED:** 09-Sep-15

**REPORT CREATED:** 28-Sep-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
n-Hexane	I	0.30	ppbv	0.01	AC-058	12-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	12-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Toluene	I	0.04	ppbv	0.01	AC-058	12-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 14710</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	19-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	19-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	19-Sep-15
2,3,4-Trimethylpentane	I	0.01	ppbv	0.01	AC-058	19-Sep-15
2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	19-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090129-003  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 9, 2015  <b>CANISTER ID:</b> 14710  <b>DESCRIPTION:</b> CLS  <b>DATE SAMPLED:</b> 09-Sep-15 0:00  <b>DATE RECEIVED:</b> 11-Sep-15  <b>REPORT CREATED:</b> 28-Sep-15  <b>REPORT VERSION:</b> Version 01
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.01	ppbv	0.01	AC-058	19-Sep-15
2-Methylhexane	I	0.03	ppbv	0.01	AC-058	19-Sep-15
2-Methylpentane	I	0.11	ppbv	0.01	AC-058	19-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
3-Methylhexane	I	0.04	ppbv	0.02	AC-058	19-Sep-15
3-Methylpentane	I	0.06	ppbv	0.01	AC-058	19-Sep-15
Acetone		2.7	ppbv	0.4	AC-058	19-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
Benzene	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	19-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Chloroform	I	0.03	ppbv	0.02	AC-058	19-Sep-15
Chloromethane		0.67	ppbv	0.02	AC-058	19-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Cyclohexane	I	0.07	ppbv	0.02	AC-058	19-Sep-15
Cyclopentane	I	0.02	ppbv	0.01	AC-058	19-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 14710</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.5	ppbv	0.3	AC-058	19-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	19-Sep-15
Freon-11		0.32	ppbv	0.02	AC-058	19-Sep-15
Freon-113	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Freon-114	I	0.02	ppbv	0.02	AC-058	19-Sep-15
Freon-12		0.70	ppbv	0.02	AC-058	19-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Isobutane	I	0.28	ppbv	0.02	AC-058	19-Sep-15
Isopentane		0.45	ppbv	0.03	AC-058	19-Sep-15
Isoprene	I	0.26	ppbv	0.01	AC-058	19-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
m,p-Xylene	I	0.05	ppbv	0.03	AC-058	19-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	19-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
Methylcyclohexane	I	0.09	ppbv	0.01	AC-058	19-Sep-15
Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	19-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
n-Butane		0.55	ppbv	0.03	AC-058	19-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Sep-15

**Qualifiers**

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

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

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

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 14710</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
n-Heptane	I	0.04	ppbv	0.01	AC-058	19-Sep-15
n-Hexane	I	0.10	ppbv	0.01	AC-058	19-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
n-Pentane	I	0.3	ppbv	0.1	AC-058	19-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
o-Xylene	I	0.02	ppbv	0.01	AC-058	19-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Toluene	I	0.13	ppbv	0.01	AC-058	19-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090321-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 15, 2015  <b>CANISTER ID:</b> H3303  <b>DESCRIPTION:</b> CLS  <b>DATE SAMPLED:</b> 15-Sep-15 0:00  <b>DATE RECEIVED:</b> 22-Sep-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	25-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	25-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	25-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	25-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	25-Sep-15
1,2-Dichloroethane	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	25-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	25-Sep-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	25-Sep-15
1-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15
2,2,4-Trimethylpentane	I	0.01 ppbv	0.01	AC-058	25-Sep-15
2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15
2,3-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	25-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	25-Sep-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090321-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 15, 2015  <b>CANISTER ID:</b> H3303  <b>DESCRIPTION:</b> CLS  <b>DATE SAMPLED:</b> 15-Sep-15 0:00 <b>DATE RECEIVED:</b> 22-Sep-15 <b>REPORT CREATED:</b> 23-Oct-15 <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
2-Methylhexane	I	0.01	ppbv	0.01	AC-058	25-Sep-15
2-Methylpentane	I	0.03	ppbv	0.01	AC-058	25-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
3-Methylpentane	I	0.01	ppbv	0.01	AC-058	25-Sep-15
Acetone		1.8	ppbv	0.4	AC-058	25-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
Benzene	I	0.02	ppbv	0.01	AC-058	25-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Carbon disulfide	I	0.08	ppbv	0.01	AC-058	25-Sep-15
Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	25-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Chloromethane		0.37	ppbv	0.02	AC-058	25-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--



<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090321-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 15, 2015  <b>CANISTER ID:</b> H3303  <b>DESCRIPTION:</b> CLS  <b>DATE SAMPLED:</b> 15-Sep-15 0:00  <b>DATE RECEIVED:</b> 22-Sep-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.9	ppbv	0.3	AC-058	25-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Freon-11	I	0.23	ppbv	0.02	AC-058	25-Sep-15
Freon-113	I	0.04	ppbv	0.01	AC-058	25-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Freon-12		0.45	ppbv	0.02	AC-058	25-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	25-Sep-15
Isobutane	I	0.09	ppbv	0.02	AC-058	25-Sep-15
Isopentane	I	0.16	ppbv	0.03	AC-058	25-Sep-15
Isoprene	I	0.06	ppbv	0.01	AC-058	25-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	25-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	25-Sep-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Sep-15
Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
n-Butane	I	0.22	ppbv	0.03	AC-058	25-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Sep-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/CLS/Sept 15, 2015</p> <p><b>CANISTER ID:</b> H3303</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
n-Heptane	I	0.02	ppbv	0.01	AC-058	25-Sep-15
n-Hexane	I	0.02	ppbv	0.01	AC-058	25-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	25-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Toluene	I	0.04	ppbv	0.01	AC-058	25-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090469-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA VOC/CLS/Sept 21, 2015  <b>CANISTER ID:</b> S5618  <b>DESCRIPTION:</b> Cold Lake South  <b>DATE SAMPLED:</b> 21-Sep-15 0:00  <b>DATE RECEIVED:</b> 30-Sep-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	02-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090469-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/CLS/Sept 21, 2015

**CANISTER ID:** S5618

**DESCRIPTION:** Cold Lake South

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2-Methylhexane	K, T, U	0.01	ppbv	0.01	AC-058	02-Oct-15
2-Methylpentane	I	0.03	ppbv	0.01	AC-058	02-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	02-Oct-15
Acetone		1.4	ppbv	0.4	AC-058	02-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
Benzene	I	0.06	ppbv	0.01	AC-058	02-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
Carbon disulfide	I	0.04	ppbv	0.01	AC-058	02-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	02-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Chloroform	I	0.02	ppbv	0.02	AC-058	02-Oct-15
Chloromethane	I	0.54	ppbv	0.02	AC-058	02-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	02-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090469-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/CLS/Sept 21, 2015

**CANISTER ID:** S5618

**DESCRIPTION:** Cold Lake South

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.6	ppbv	0.3	AC-058	02-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
Freon-11	I	0.26	ppbv	0.02	AC-058	02-Oct-15
Freon-113	I	0.06	ppbv	0.01	AC-058	02-Oct-15
Freon-114	I	0.02	ppbv	0.02	AC-058	02-Oct-15
Freon-12	K, T, U	0.56	ppbv	0.02	AC-058	02-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Oct-15
Isobutane	I	0.13	ppbv	0.02	AC-058	02-Oct-15
Isopentane	I	0.13	ppbv	0.03	AC-058	02-Oct-15
Isoprene	I	0.02	ppbv	0.01	AC-058	02-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
Methylcyclohexane	I	0.05	ppbv	0.01	AC-058	02-Oct-15
Methylcyclopentane	I	0.03	ppbv	0.02	AC-058	02-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
n-Butane	I	0.22	ppbv	0.03	AC-058	02-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090469-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/CLS/Sept 21, 2015

**CANISTER ID:** S5618

**DESCRIPTION:** Cold Lake South

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
n-Heptane	I	0.02	ppbv	0.01	AC-058	02-Oct-15
n-Hexane	I	0.05	ppbv	0.01	AC-058	02-Oct-15
n-Octane	K, T, U	0.02	ppbv	0.02	AC-058	02-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	02-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Toluene	I	0.09	ppbv	0.01	AC-058	02-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15100050-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA VOC/CLS/Sept 27, 2015  <b>CANISTER ID:</b> 15754  <b>DESCRIPTION:</b> Cold Lake South  <b>DATE SAMPLED:</b> 27-Sep-15 0:00  <b>DATE RECEIVED:</b> 05-Oct-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	10-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/CLS/Sept 27, 2015</p> <p><b>CANISTER ID:</b> 15754</p> <p><b>DESCRIPTION:</b> Cold Lake South</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2-Methylpentane	I	0.02	ppbv	0.01	AC-058	10-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
3-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Acetone		1.5	ppbv	0.4	AC-058	10-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
Benzene	I	0.01	ppbv	0.01	AC-058	10-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	10-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Chloroform	I	0.02	ppbv	0.02	AC-058	10-Oct-15
Chloromethane		0.64	ppbv	0.02	AC-058	10-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	10-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---



<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15100050-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA VOC/CLS/Sept 27, 2015  <b>CANISTER ID:</b> 15754  <b>DESCRIPTION:</b> Cold Lake South  <b>DATE SAMPLED:</b> 27-Sep-15 0:00  <b>DATE RECEIVED:</b> 05-Oct-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.1	ppbv	0.3	AC-058	10-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Freon-11	I	0.28	ppbv	0.02	AC-058	10-Oct-15
Freon-113	I	0.06	ppbv	0.01	AC-058	10-Oct-15
Freon-114	I	0.02	ppbv	0.02	AC-058	10-Oct-15
Freon-12		0.64	ppbv	0.02	AC-058	10-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	10-Oct-15
Isobutane	I	0.13	ppbv	0.02	AC-058	10-Oct-15
Isopentane	I	0.12	ppbv	0.03	AC-058	10-Oct-15
Isoprene	I	0.01	ppbv	0.01	AC-058	10-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	10-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
Methylcyclohexane	I	0.03	ppbv	0.01	AC-058	10-Oct-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
n-Butane	I	0.25	ppbv	0.03	AC-058	10-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Oct-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/CLS/Sept 27, 2015</p> <p><b>CANISTER ID:</b> 15754</p> <p><b>DESCRIPTION:</b> Cold Lake South</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
n-Hexane	I	0.02	ppbv	0.01	AC-058	10-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	10-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Toluene	I	0.01	ppbv	0.01	AC-058	10-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

***PAHS SAMPLES***

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090085-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 3, 2015</p> <p><b>CANISTER ID:</b> 9702</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 09-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.09	ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene		0.05	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.06	ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.06	ug/Filter	0.01	NA-017	17-Sep-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.12	ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.03	ug/Filter	0.01	NA-017	17-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB                      T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code                      780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB                      T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090085-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 3, 2015</p> <p><b>CANISTER ID:</b> 9702</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 09-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
---	---

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/Filter	0.01	NA-017	17-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 9801</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.11 ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.19 ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene		0.07 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.02 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.04 ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.09 ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.11 ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.20 ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.05 ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 9801</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

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

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090321-002  <b>MATRIX:</b> Air Filter  <b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 15, 2015  <b>CANISTER ID:</b> TE-09  <b>DESCRIPTION:</b> CLS  <b>DATE SAMPLED:</b> 15-Sep-15 0:00 <b>DATE RECEIVED:</b> 22-Sep-15 <b>REPORT CREATED:</b> 23-Oct-15 <b>REPORT VERSION:</b> Version 01
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.13	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.04	ug/Filter	0.01	NA-017	18-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca



<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/CLS/Sept 15, 2015</p> <p><b>CANISTER ID:</b> TE-09</p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

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

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

**RESULTS TO:**

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

Calgary

AB T2E 6P8

**INVOICE TO:**

Charmaine Code 780 812-2182

PO Box 8237

5107W-50 St

Bonnyville

AB T9N 2J5

**LABORATORY SAMPLE ID:** 15090469-002

**MATRIX:** Air Filter

**CLIENT SAMPLE ID:** LICA PUF/CLS/Sept 21, 2015

**CANISTER ID:** TE05

**DESCRIPTION:** Cold Lake South

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.04 ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene		0.02 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.05 ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.04 ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.09 ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.03 ug/Filter	0.01	NA-017	18-Oct-15

**Qualifiers**

K Off-scale low. Actual value is known to be less than the value given

T Value reported is less than the laboratory method detection limit

U Compound was analyzed for but not detected

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090469-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/CLS/Sept 21, 2015</p> <p><b>CANISTER ID:</b> TE05</p> <p><b>DESCRIPTION:</b> Cold Lake South</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

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

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/CLS/Sept 25, 2015</p> <p><b>CANISTER ID:</b> 9702</p> <p><b>DESCRIPTION:</b> Cold Lake South</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05 ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.09 ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene		0.03 ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.04 ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.06 ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.08 ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.03 ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/CLS/Sept 25, 2015</p> <p><b>CANISTER ID:</b> 9702</p> <p><b>DESCRIPTION:</b> Cold Lake South</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

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

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

***PARTISOL SAMPLES***

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB                      T2E 6P8</p> <p><b>INVOICE TO:</b> Mike Bisaga                      780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB                      T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090083-001</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA P4149570</p> <p><b>CANISTER ID:</b></p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 09-Sep-15</p> <p><b>REPORT CREATED:</b> 18-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.040 mg	0.004	AC-029	11-Sep-15

<p><u>Qualifiers</u></p>	<p><b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--------------------------	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB                      T2E 6P8</p> <p><b>INVOICE TO:</b></p>	<p><b>LABORATORY SAMPLE ID:</b> 15100052-001</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA P4149456</p> <p><b>CANISTER ID:</b></p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 15-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
---	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.036	mg	0.004	AC-029	13-Oct-15

<p><u>Qualifiers</u></p>	<p><b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--------------------------	---





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

# ENVIRONMENTAL ANALYTICAL SERVICES

## TEST REPORT

<p><b>RESULTS TO:</b>          Adewunmi Adekanmbi          Lakeland Industry and Community Assn          4000, 19 St NE</p> <p>Calgary          AB T2E 6P8</p> <p><b>INVOICE TO:</b>          Charmaine Code 780 812-2182          PO Box 8237          5107W-50 St          Bonnyville          AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090320-001</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA P4149457</p> <p><b>CANISTER ID:</b></p> <p><b>DESCRIPTION:</b> CLS</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 13-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
---	--

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.006 mg	0.004	AC-029	28-Sep-15

<p><b>Qualifiers</b></p>	<p><b>Certified By:</b> Graham Knox, Team Lead  <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455  <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--------------------------	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB                      T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code                      780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB                      T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090470-001</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA P5010248</p> <p><b>CANISTER ID:</b></p> <p><b>DESCRIPTION:</b> LICA_CLS - PM 2.5</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 20-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
---	--

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight	K, T, U	< 0.004 mg	0.004	AC-029	05-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b></p>	<p><b>LABORATORY SAMPLE ID:</b> 15100052-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA P5010245</p> <p><b>CANISTER ID:</b></p> <p><b>DESCRIPTION:</b> LICA_CLS</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 15-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.022 mg	0.004	AC-029	13-Oct-15

<p><u>Qualifiers</u></p>	<p><b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--------------------------	---

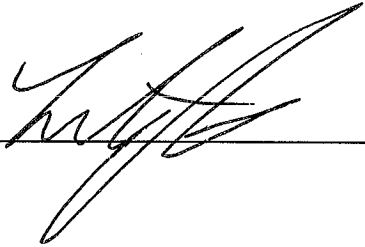
***APPENDIX V***  
***CHAIN OF CUSTODY***



# Maxxam Analytics - Air Services Group

## Project Chain of Custody

<b>Client:</b> <u>Lakeland Industry &amp; Community Association</u>	<b>Project #:</b> <u>2833-2015-09-01- C</u>
<b>Site:</b> <u>Cold Lake South Site</u>	<b>Contact:</b> <u>Mike Bisaga</u>

QA Check Complete	<u>msclmbe</u>	Date	<u>22 - Oct - 2015</u>
QA Check Review	<u>msclmbe</u>	Date	<u>22 - Oct - 2015</u>
Report Complete	<u>msclmbe</u>	Date	<u>30 - Oct - 2015</u>
Report Reviewed		Date	<u>2 - Nov - 15</u>
Report Shipped	_____	Date	_____

Notes

**AMBIENT AIR MONITORING MONTHLY DATA REPORT**  
**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**  
**ELK POINT AIRPORT SITE**

**JOB #:2833-2015-09-35- C**

**SEPTEMBER 2015**


Prepared for:

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

**Attention: MIKE BISAGA**

DATE: **October 29, 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 SEPTEMBER 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.

All Parameters: Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

The summary of results is presented on the following pages.

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

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



### Monthly Continuous Data Summary

Lakeland Industry & Community Association Elk Point Airport Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR					24-HOUR		
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0	1	VAR	VAR	VAR	VAR	0.3	8	99.7
H2S (PPB)	10	3	0	0	0	2	1, 30	VAR	VAR	VAR	1.0	30	99.7
THC (PPM)	-	-	-	-	2.4	6.2	30	7	1.5	WNW	3.4	30	99.7
CH4 (PPM)	-	-	-	-	2.4	6.1	30	7	1.5	WNW	3.4	30	99.7
NMHC (PPM)	-	-	-	-	0.01	0.10	VAR	VAR	VAR	VAR	0.03	24	99.7
NO2 (PPB)	159	-	0	-	6.6	19.1	25	6	5.1	E	11.3	24	99.7
NO (PPB)	-	-	-	-	2.6	69.6	30	7	1.5	WNW	9.8	17, 30	99.7
NOX (PPB)	-	-	-	-	9.3	82.9	10	6	2.2	WNW	20.4	30	99.7
O3 (PPB)	82	-	0	-	15	44	2	15	1.2	ESE	28.3	2	99.7
PM2.5 (UG/M3)	-	30	-	0	3.3	29.0	29	18	6.9	SW	6.4	24	96.8
VECTOR WS (KPH)	-	-	-	-	9.8	35.5	21	11	-	WNW	19.6	6	99.7
VECTOR WD (DEG)	-	-	-	-	WNW	-	-	-	-	-	-	-	99.7

NA-NOT AVAILABLE VAR-VARIOUS



---

## Exceedence Summary Report

---

**SO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**SO<sub>2</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**H<sub>2</sub>S 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**H<sub>2</sub>S 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**NO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**PM<sub>2.5</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

### Volatile Organics (VOCs) Data Summary

---

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
SEPTEMBER 3, 2015	10.4	ACETONE
SEPTEMBER 9, 2015	10.4	ACETONE
SEPTEMBER 15, 2015	18.8	n-HEXANE
SEPTEMBER 21, 2015	1.7	ACETONE
SEPTEMBER 27, 2015	2.5	ETHANOL

Note: NA

### Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

---

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
SEPTEMBER 3, 2015	0.07	BENZO(C)PHENANTHRENE
SEPTEMBER 9, 2015	0.11	PHENANTHRENE
SEPTEMBER 15, 2015	0.06	PHENANTHRENE
SEPTEMBER 21, 2015	0.09	2-METHYLNAPHTHALENE
SEPTEMBER 27, 2015	0.08	2-METHYLNAPHTHALENE

Note: NA

**TABLE OF CONTENTS**

<u>Title</u>	<u>Page</u>
<u>1.0 Discussion</u>	<u>3</u>
<u>2.0 Project Personnel</u>	<u>7</u>
<u>3.0 Plant Monthly Required AMD Summary</u>	<u>7</u>
<u>4.0 Calculations and Results</u>	<u>7</u>
<u>5.0 Methods and Procedures</u>	<u>8</u>
<u>Appendix I</u>	<u>Continuous Monitoring Data Results</u>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Methane
	Non-Methane Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Ozone
	Particulate Matter 2.5
	Wind Speed
	Wind Direction
	Standard Deviation Wind Direction
<u>Appendix II</u>	<u>Non-Continuous Monitoring Data Results</u>
	VOC Results
	PAH Results
<u>Appendix III</u>	<u>Analyzer Calibration Results</u>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Calibrators
	Calibration Gases

**Appendix IV**

**Analytical Results**

**VOCs Samples**

**PAHs Samples**

**Appendix V**

**Chain of Custody**

## 1.0 Discussion

This monthly report consists of data for parameters SO<sub>2</sub>, H<sub>2</sub>S, THC, CH<sub>4</sub>, NMHC, NO<sub>x</sub>, NO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, WS and WD. It also includes results for non-continuous parameters VOC, PAH and NMHC canister.

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

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

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

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

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

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

**SULPHUR DIOXIDE (SO<sub>2</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 24. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**HYDROGEN SULPHIDE (H<sub>2</sub>S)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 24. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**TOTAL HYDROCARBONS (THC), METHANE (CH<sub>4</sub>), and NON-METHANE HYDROCARBONS (NMHC)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 24. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**NITROGEN DIOXIDE (NO<sub>2</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 24. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**OZONE (O<sub>3</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 24. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM<sub>2.5</sub>)**

Two Teom audits were performed on this month: one was completed on September 3, and the other audit was performed on September 25. Both the inlet filter and the FDMS filter were replaced on September 3. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m<sup>3</sup>, the data was corrected to 0 ug/m<sup>3</sup>. If the data was below -3ug/m<sup>3</sup>, the data was invalidated. Twenty-one hours of data were invalidated as the data were below -3 ug/m<sup>3</sup> this month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a 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 working well throughout the month. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

**VOC SAMPLES**

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs were reported in ppb.

Samples were collected on September 3, 9, 15, 21 and 27. Analytical results are included in this report.

**PAH SAMPLES**

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported in µg.

Samples were collected on September 3, 9, 15, 21 and 27. Analytical results are included in this report.

**NMHC CANISTER SAMPLES**

The sampler is triggerer when the 5-min average concentration of NMHC is above 0.30ppm.

No canister event was recorded this 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, Limin Li, and Christopher Wesson.

## **3.0 Plant Monthly Required AMD Summary**

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

The operational uptime for all analyzers and meteorological system 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 H<sub>2</sub>S Monitoring
- Maxxam AIR SOP-00211: Ambient SO<sub>2</sub> Monitoring
- Maxxam AIR SOP-00212: Ambient O<sub>3</sub> Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO<sub>2</sub>/NO<sub>x</sub> Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

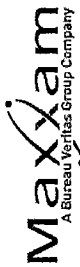
There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM<sub>2.5</sub>) - 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

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RDGS.		
	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	
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	1	0.0	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	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	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	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	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	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	24
HOURLY MAX																									1				
HOURLY AVG																									0.0				

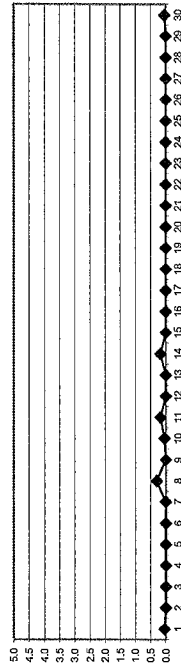
STATUS FLAG CODES: C - CALIBRATION, O - QUALITY ASSURANCE, P - RECOVERY, Y - MAINTENANCE, X - MACHINE MALFUNCTION, S - DAILY ZERO SPAN CHECK, M - OPERATOR ERROR, P - POWER FAILURE, O - OPERATOR ERROR, G - OUTFLOW REPAIR, K - COLLECTION ERROR

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 172 PPB, 24-HR: 43 PPB

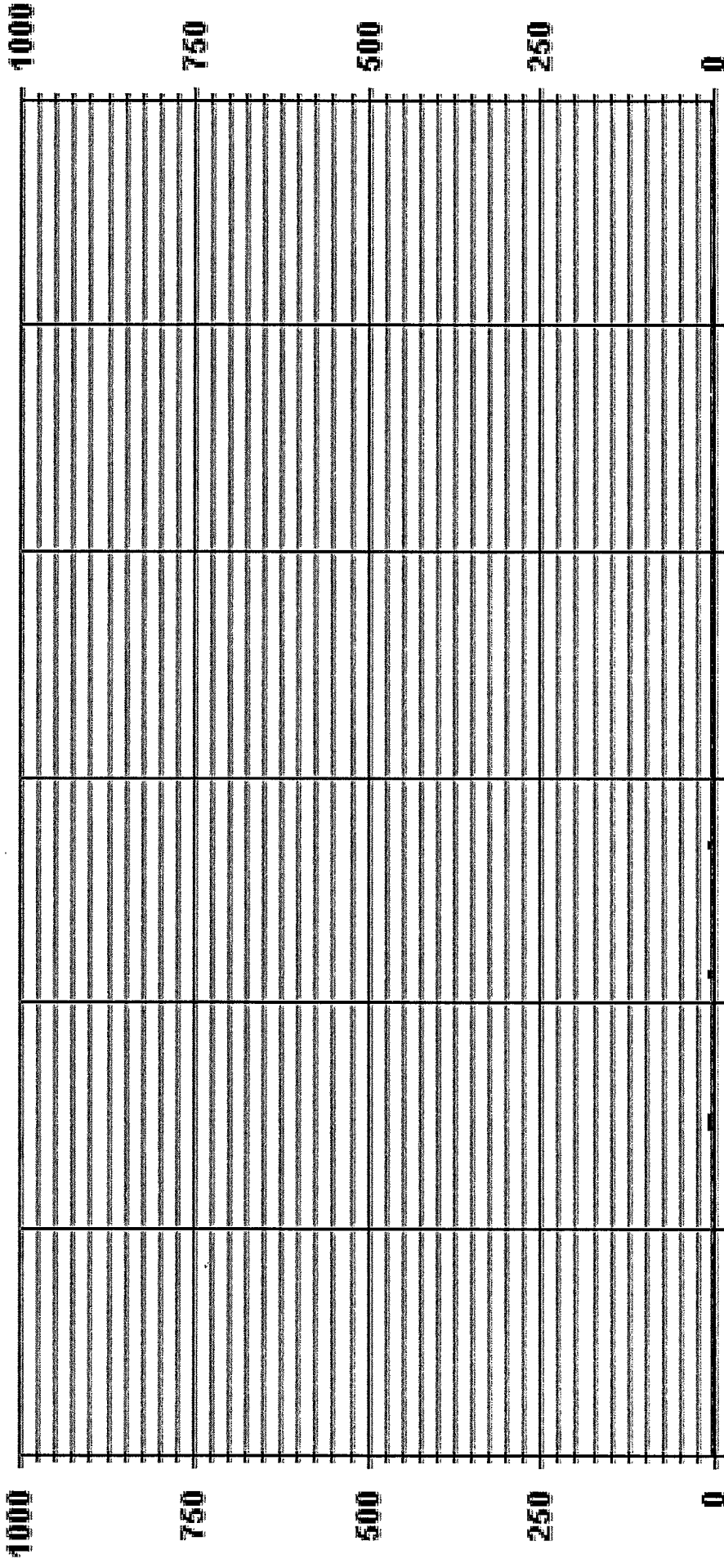
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0	PPB	18	PPB	ON DAY(S)	VAR
NUMBER OF 24-HR EXCEEDENCES	0	PPB	0.3	PPB	ON DAY(S)	8
NUMBER OF NON-ZERO READINGS	18	PPB	32	HRS	OPERATIONAL TIME:	718
MAXIMUM 1-HR AVERAGE	1	PPB	4	HRS	AMD OPERATIONAL UPTIME:	59.7
MAXIMUM 24-HR AVERAGE	0.3	PPB	0.16	STANDARD DEVIATION:	MONTHLY AVERAGE:	0

24 HOUR AVERAGES FOR SEPTEMBER 2015

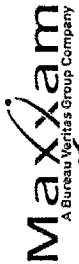


01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

--- LICA35 SO2\_ PPB



SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
HOURLY MAX	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.5	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2						
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						
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					
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					
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				
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				
6	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	1	1	1	1	1			
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		
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		
9	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	1	1	1	1	1	1		
10	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	1	1	1	1	1	1	1	
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	
12	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	1	1	1	1	1	1	1	
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
14	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	1	1	1	1	1	1	1	1
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
16	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	1	1	1	1	1	1	1	1
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
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
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
20	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	1	1	1	1	1	1	1	1
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
24	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	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	1	1	1	1	1	1	1	1
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
30	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	1	1	1	1	1	1	1	1
DAILY MAX	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.5	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2
24-HOUR AVG	0.3	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RDGS.	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

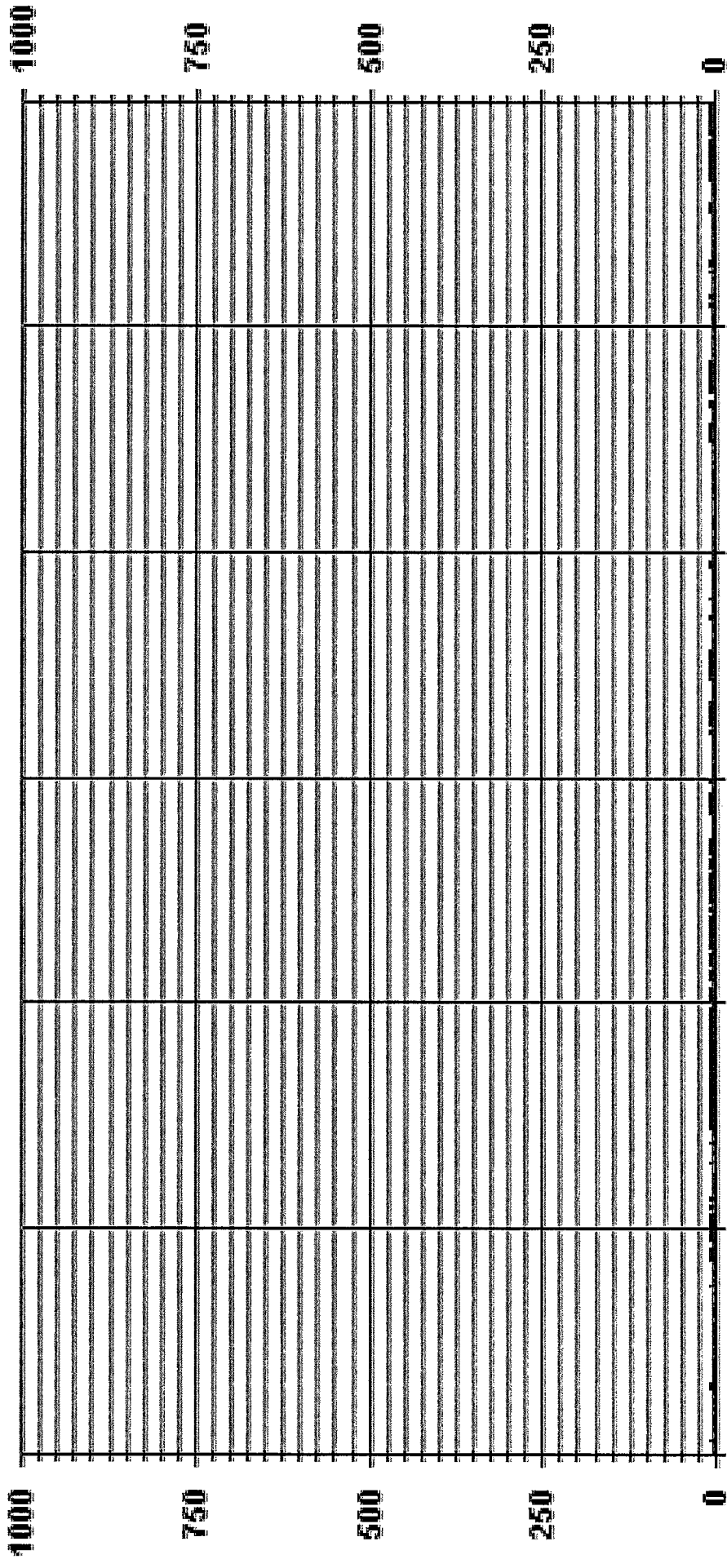
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	328
MAXIMUM INSTANTANEOUS VALUE:	3 PPB @ HOUR(S) VAR ON DAY(S) VAR
OPS CALIBRATION TIME:	82 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.60
OPERATIONAL TIME:	VAR-VARIOUS
718 HRS	

**01 Hour Averages**



— LICA35 SO2MAX PPB



LICA-ELK  
 SO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : SO2  
 Units : PPB\_

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Distribution By % Of Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	3.07	3.37	3.66	8.21	7.33	6.74	2.49	1.31	1.46	3.66	4.39	10.99	13.78	13.19	10.11	6.15	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.37	3.66	8.21	7.33	6.74	2.49	1.31	1.46	3.66	4.39	10.99	13.78	13.19	10.11	6.15	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	21	23	25	56	50	46	17	9	10	25	30	75	94	90	69	42	682
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	21	23	25	56	50	46	17	9	10	25	30	75	94	90	69	42	

Calm : .00 %

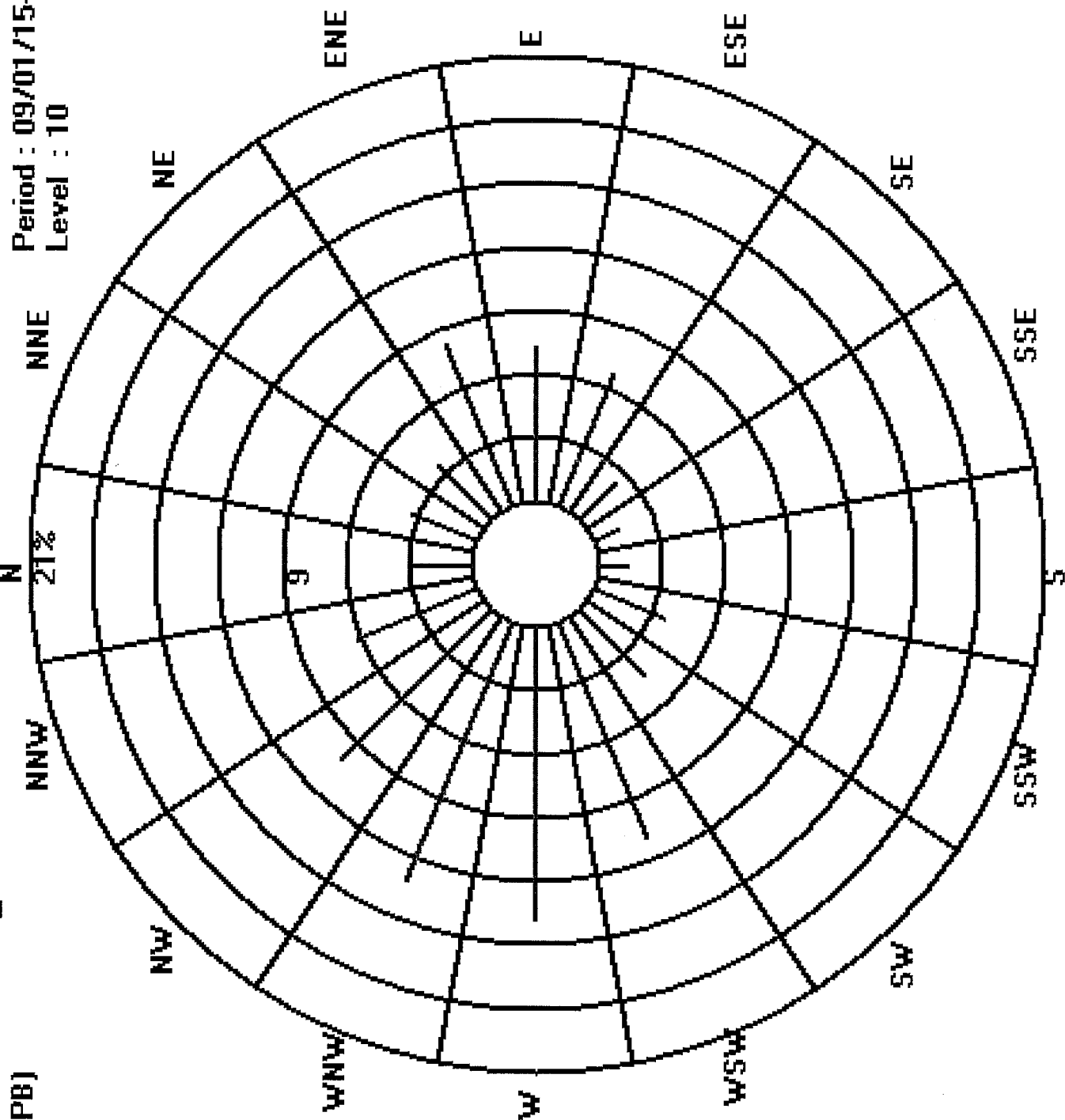
Total # Operational Hours : 682

Logger : 35 Parameter : SO2\_

Site : LICA-ELK

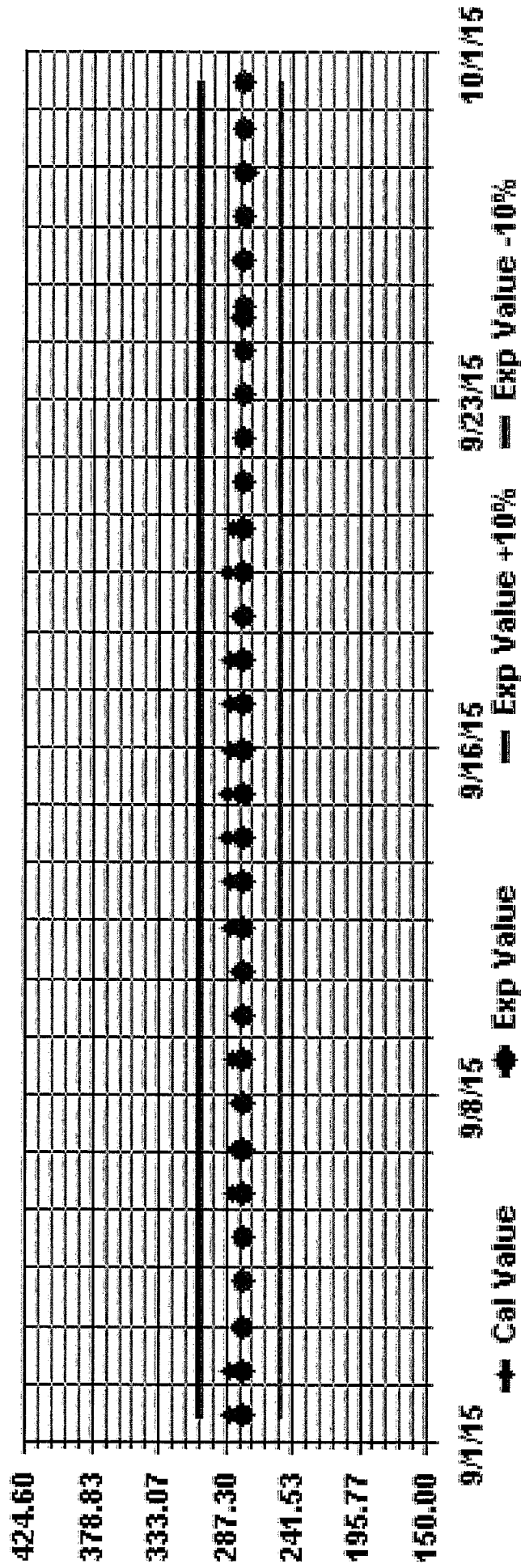
Period : 09/01/15-09/30/15

Level : 10

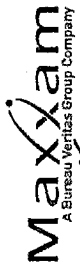


□	>=	340
□	<	340
□	<	170
□	<	110
□	<	60
□	<	20

Calibration Graph for Site: LICA35 Parameter: SO2\_ Sequence: S02 Phase: SPAN



***HYDROGEN SULPHIDE***



HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	ROGS	
	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
1	1	1	1	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.6	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	1	0.1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	24
9	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	0.7	24
10	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	0.3	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	0.1	24
12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	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	0.1	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	24
17	0	1	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	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	0.2	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	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	0.5	24
26	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	0.9	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	0.5	24
28	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	0.4	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	0.3	24
30	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	0.6	24
HOURLY MAX	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
HOURLY AVG	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

STATUS FLAG CODES

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

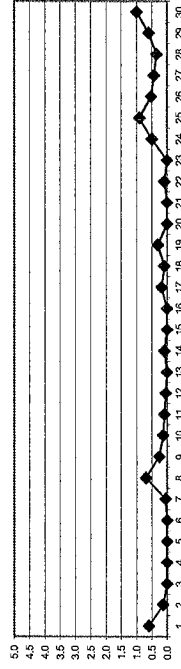
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	5	PPB
----------------------	------	----	-----	-------	---	-----

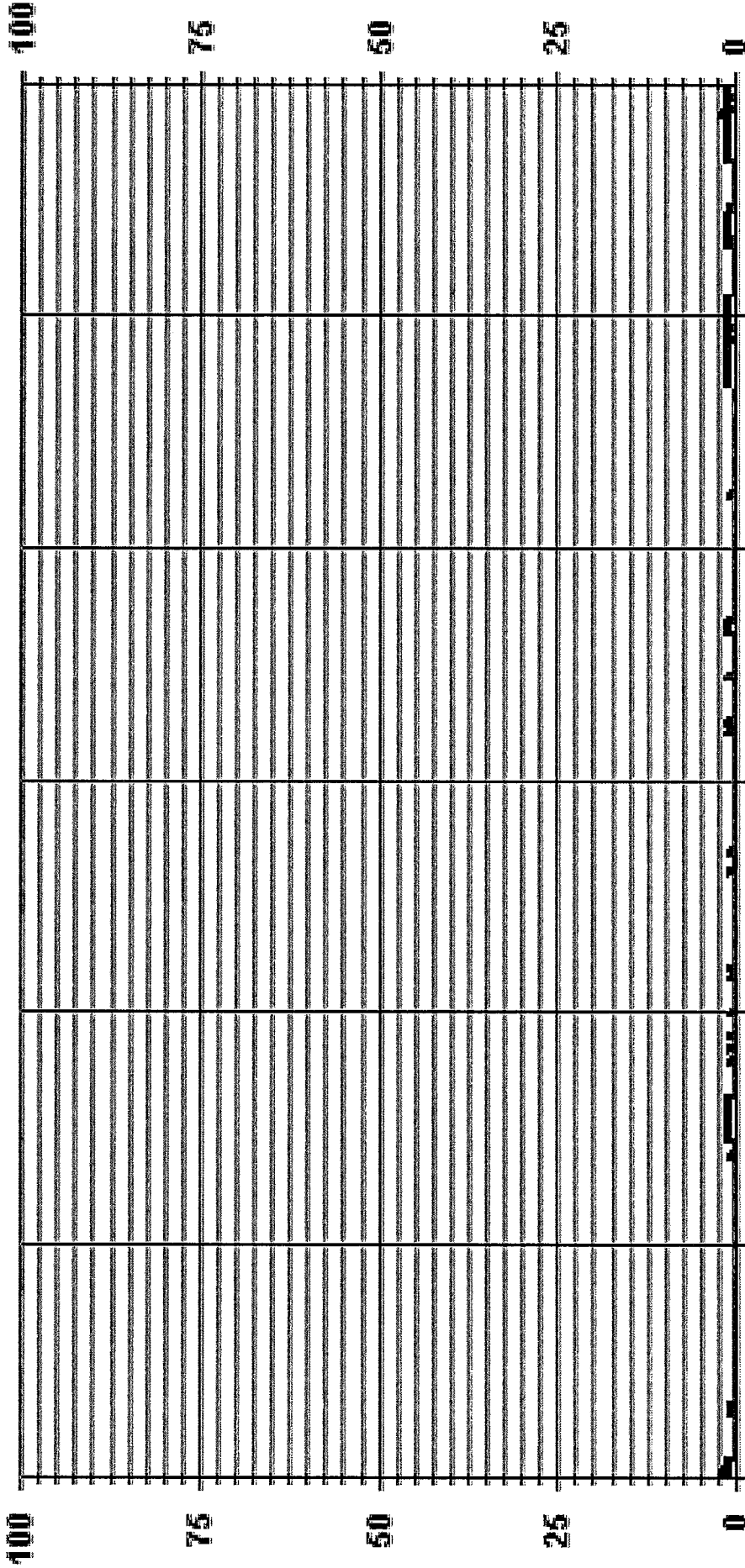
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	156						
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	1, 30	
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	30	
IS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:			718	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	0.44		MONTHLY AVERAGE:			0	PPB

24 HOUR AVERAGES FOR SEPTEMBER 2015

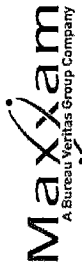


01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

--- LICA35 H2S\_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 Elk Point Airport Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-35- C

HYDROGEN SULPHIDE 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	24:00	RODS	
1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	2	1.0
2	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	1	2	1	1	1	1	0	1	1	0.7
3	1	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	0.1
4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
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
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
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
8	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
9	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9
10	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	2	0.6
11	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	0.8
12	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	0.1
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
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
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
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
17	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	0.8
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	0.4
19	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4
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
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
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
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	0.4
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
25	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	0.8
26	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	1.2
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	0.5
28	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	0.6
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	0.7
30	1	1	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.2
HOURLY MAX	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	1.2
HOURLY AVG	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.4	0.5	0.4	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	

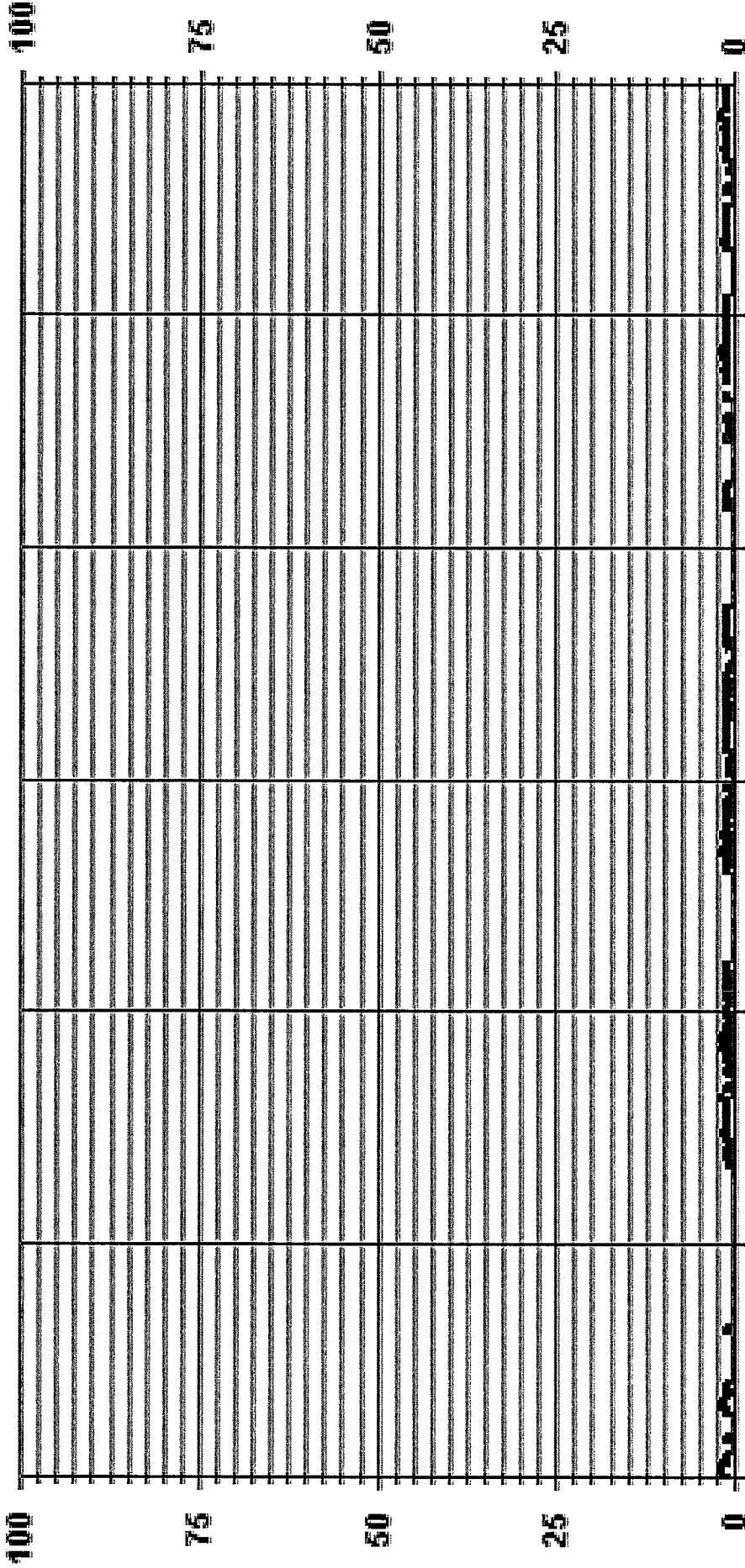
STATUS FLAG CODES

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:	314				
MAXIMUM INSTANTANEOUS VALUE:	2				
PPB	@	HOURLY(S)	VAR	ON DAY(S)	VAR
VAR-VARIOUS					
OPERATIONAL TIME: 7.18 HRS					
MONTHLY CALIBRATION TIME: 6 HRS					
STANDARD DEVIATION: 0.59					

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 H2SMAX PPB



H2S\_ / WDR Joint Frequency Distribution (Percent)  
 LICA-ELK  
 September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : H2S  
 Units : FFB

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	3.07	3.50	3.65	8.18	7.30	6.72	2.63	1.31	1.46	3.65	4.38	10.96	13.74	13.15	10.08	6.14	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.50	3.65	8.18	7.30	6.72	2.63	1.31	1.46	3.65	4.38	10.96	13.74	13.15	10.08	6.14	

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	
< 3	21	24	25	56	50	46	18	9	10	25	30	75	94	90	69	42	684
< 10																	
< 50																	
>= 50																	
Totals	21	24	25	56	50	46	18	9	10	25	30	75	94	90	69	42	

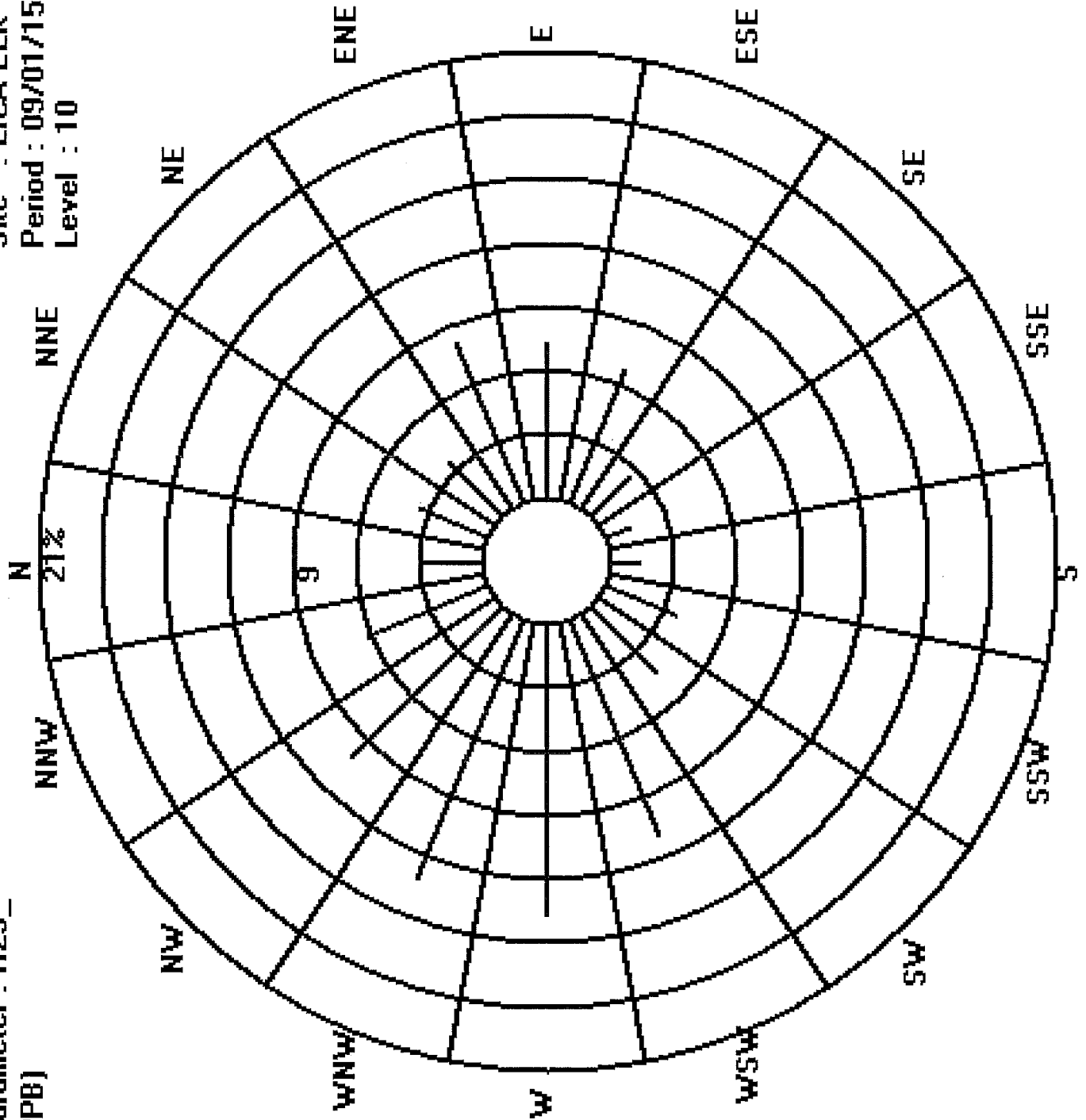
Calm : .00 %

Total # Operational Hours : 684

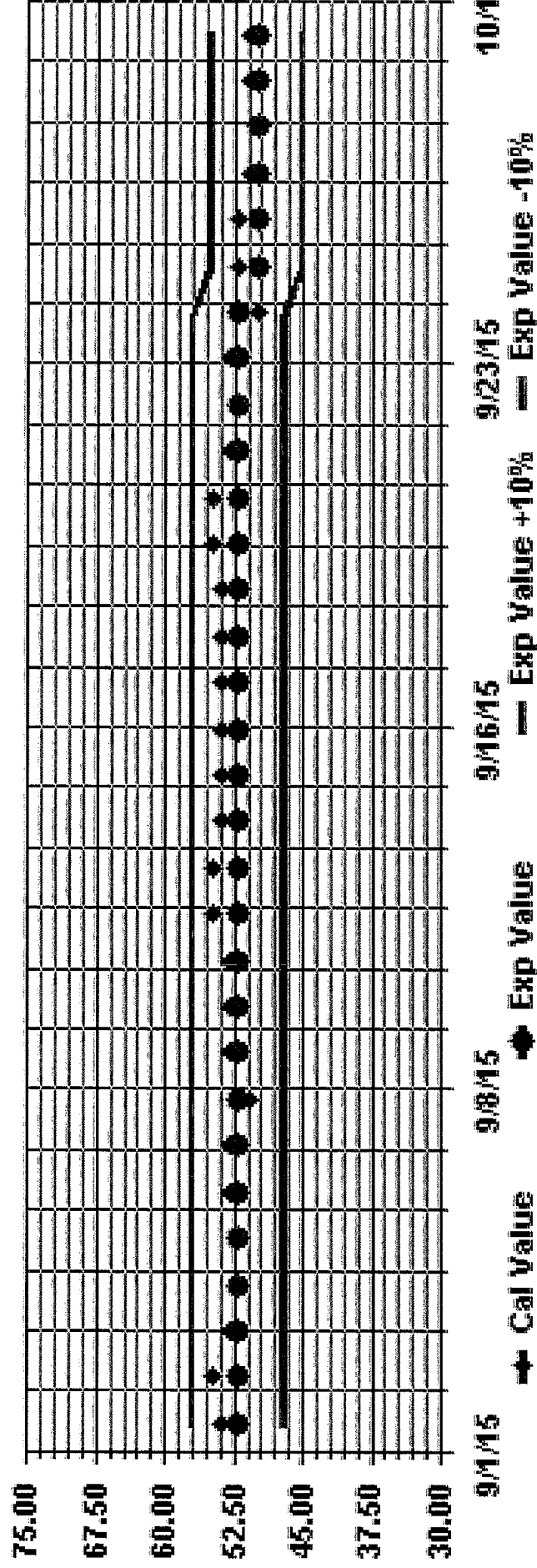
Logger : 35 Parameter : H2S\_  
Class Limits (PPB)



Site : LICA-ELK  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: H2S\_ Sequence: H2S Phase: SPAN



***TOTAL HYDROCARBON***

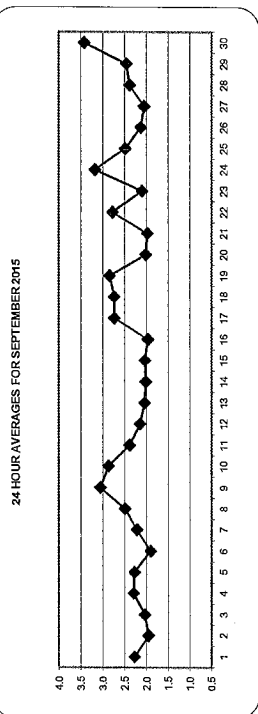


TOTAL HYDROCARBONS (THC) hourly averages in ppm

DAY	MST																								24-HOUR AVG.	ROGS.			
	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		
1	3.0	3.0	3.1	2.8	2.9	3.0	3.0	3.0	2.7	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.2	2.1	2.1	3.1	2.3	24	
2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	24
3	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.1	2.1	2.0	2.0	24
4	2.5	2.7	2.4	2.3	2.4	3.4	3.5	2.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.2	3.1	3.5	2.3	24	
5	3.3	3.4	3.0	2.7	3.1	2.9	2.4	2.4	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	3.4	2.3	24	
6	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	2.0	1.9	24	
7	1.9	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	1.9	1.9	1.9	2.0	2.1	2.8	3.3	3.4	5.1	5.1	2.2	24	
8	3.6	3.8	3.5	3.3	2.7	3.0	3.5	3.5	3.5	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.4	2.4	2.7	2.8	3.8	2.5	24	
9	3.1	3.3	3.7	3.7	4.1	4.3	5.5	4.0	2.5	2.0	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	3.0	3.1	3.4	4.3	3.1	2.4	24	
10	3.7	4.0	4.2	4.2	4.6	5.5	4.0	2.5	2.0	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.8	2.9	3.2	3.3	5.5	2.9	24	
11	3.4	3.7	3.7	4.1	5.5	2.7	2.4	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.3	2.1	2.4	2.7	2.7	4.1	2.4	24	
12	2.9	3.1	3.0	3.0	3.0	2.6	2.4	2.4	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.2	2.1	3.1	2.2	24	
13	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	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	2.6	2.6	2.2	2.1	2.6	2.0	24	
14	2.2	2.5	2.4	2.2	2.2	2.2	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	2.0	2.0	2.1	2.3	2.4	2.6	2.6	2.0	24	
15	2.7	2.5	2.4	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.6	2.6	2.6	2.0	24	
16	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.3	2.4	2.6	2.6	2.0	24	
17	3.0	3.7	3.5	2.8	2.8	3.0	3.5	4.2	4.2	3.7	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.9	2.9	4.2	2.7	24	
18	3.0	3.3	3.2	3.5	3.5	3.7	3.9	4.6	3.9	2.3	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.2	2.8	4.6	2.7	24	
19	3.1	3.1	3.0	3.6	3.9	4.0	4.1	4.0	4.4	4.2	3.9	2.6	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.4	2.3	4.4	2.8	2.4	24	
20	1.9	2.1	2.1	2.3	2.4	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.3	1.9	1.8	2.4	2.0	24	
21	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2	2.2	2.7	2.8	2.8	2.0	24	
22	2.5	2.8	3.6	3.7	3.7	4.2	3.9	3.7	4.1	4.1	3.5	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	2.7	2.8	2.8	2.0	24	
23	2.1	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3	1.9	1.8	2.4	2.0	24	
24	2.7	3.2	4.6	4.3	4.0	3.9	3.9	3.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	24	
25	2.8	2.7	2.7	2.9	3.1	3.2	3.4	3.1	3.1	2.8	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	2.4	2.3	3.4	2.5	24	
26	2.3	2.4	2.4	2.5	2.6	2.3	2.6	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.2	2.1	2.2	2.1	2.4	24	
27	2.1	2.1	2.2	2.0	2.0	2.2	2.3	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	2.0	2.2	2.4	2.5	2.3	2.5	2.1	24	
28	2.4	2.9	2.4	3.3	2.6	2.4	2.6	2.6	2.2	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.5	3.0	2.7	2.5	2.6	2.7	3.3	2.4	24
29	2.8	2.9	3.0	3.0	3.1	2.2	2.3	2.4	2.2	2.2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.9	3.7	3.1	3.1	3.7	2.5	24	
30	4.5	4.2	4.2	4.2	4.5	4.9	5.1	5.4	6.2	5.0	2.8	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.9	2.1	2.7	3.3	3.2	3.0	2.9	2.9	6.2	3.4	24
HOURLY MAX	4.5	4.2	4.6	4.5	4.9	5.1	5.5	6.2	4.4	5.0	3.9	2.6	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.3	2.7	3.3	3.2	3.4	5.1	2.6	
HOURLY AVG	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.5	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.6	2.6	

STATUS FLAG CODES

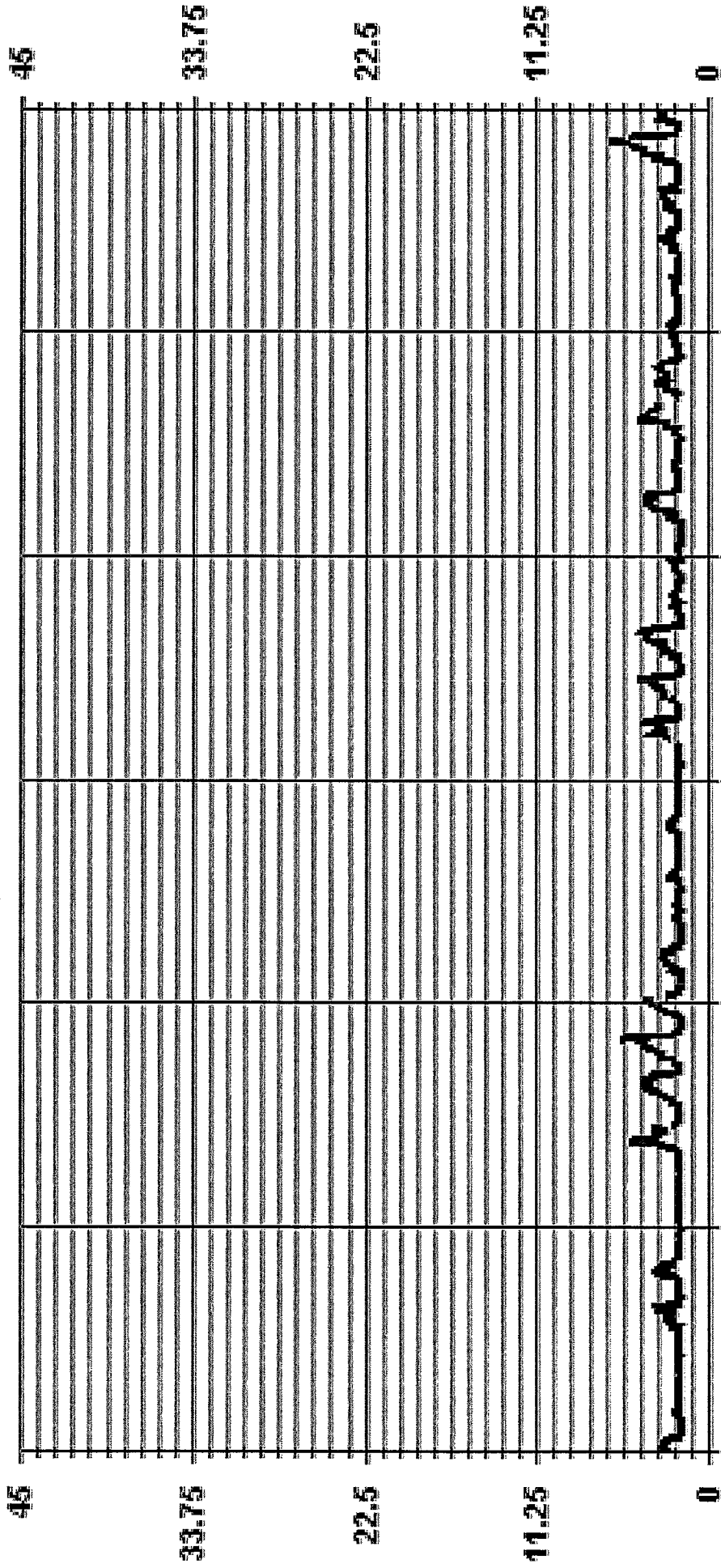
C	- CALIBRATION	O	- QUALITY ASSURANCE
M	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



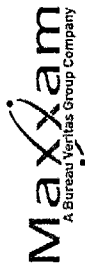
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683	PPM @ HOUR(S)	7	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	6.2	PPM		ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	3.4			VAR-VARIOUS	
1Z CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	71.8	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	95.7	%
STANDARD DEVIATION:	0.71		MONTHLY AVERAGE:	2.4	PPM

01 Hour Averages



— LICA35    - - - - THC55    PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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	24:00					
1	3.2	3.3	3.3	3.3	3.1	3.2	3.3	3.1	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.1	2.2	2.3	2.2	2.2	3.3	2.5	2.4	
2	2.1	2.1	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.4
3	2.1	2.0	2.1	2.0	2.0	2.2	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.2	2.2	2.0	2.4
4	3.1	3.0	2.9	2.5	3.0	3.6	4.1	3.8	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.8	3.5	4.1	2.5	2.4	
5	3.8	3.9	3.3	3.0	3.3	3.2	2.6	2.5	2.6	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.0	3.9	2.4	2.4	
6	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.4	
7	1.9	2.0	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	1.9	1.9	1.9	1.9	2.0	2.2	2.3	3.7	3.8	3.9	6.2	2.4	2.4	
8	4.2	4.2	4.0	3.6	3.3	3.8	3.9	2.4	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.3	2.5	2.7	3.2	4.2	2.7	2.4	
9	3.7	3.7	4.0	4.3	4.7	4.9	5	4.8	4.3	3.7	3.9	2.9	2.2	2.0	2.0	2.0	2.2	3.2	2.7	3.6	3.5	3.6	3.6	3.7	4.9	3.4	2.4	2.4	2.4	
10	4.2	4.2	4.6	4.6	4.8	5	6.3	4.5	3.7	2.2	2.1	2.0	1.9	1.9	1.9	1.9	2.0	2.5	3.2	3.6	3.4	3.4	3.4	3.4	6.3	3.2	2.4	2.4	2.4	
11	3.6	4.2	4.2	4.2	5.5	5	2.9	2.7	4.2	1.9	2.0	1.9	1.9	1.9	1.8	1.8	2.0	2.2	2.6	2.2	2.8	2.5	3.3	3.6	5.5	2.7	2.4	2.4	2.4	
12	3.3	3.5	3.5	3.5	5	3.6	2.9	2.5	2.6	2.3	2.1	2.0	1.9	1.8	1.9	1.9	2.0	2.0	1.8	1.8	2.1	2.0	3.2	2.4	3.6	2.4	2.4	2.4	2.4	
13	2.6	2.1	5	2.0	2.3	2.1	2.5	2.4	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	3.2	3.2	2.3	2.2	2.2	2.2	2.2	2.2	2.4	
14	2.5	5	2.1	2.1	2.2	2.2	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.3	2.1	2.5	2.5	2.6	2.7	2.7	2.1	2.1	2.4	2.4	
15	5	2.9	2.9	2.6	2.4	2.4	2.2	2.1	2.0	2.0	2.3	2.0	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.3	P	P	5	2.9	2.9	2.0	2.2	2.2	2.2	
16	2.0	2.0	2.0	2.2	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	2.0	2.6	2.7	2.5	2.7	5	3.1	2.9	4.8	3.0	2.4	2.4	
17	3.5	4.4	4.3	3.1	3.0	3.4	3.6	4.8	4.8	4.0	2.8	2.2	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.2	2.2	2.8	5	3.3	3.0	3.2	6.5	3.1	2.4	
18	3.1	3.7	3.5	3.7	4.0	4.0	4.2	6.5	4.9	2.6	2.2	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.2	2.8	5	3.3	3.0	3.2	6.5	3.1	2.4	2.4	
19	3.3	3.3	3.3	4.0	4.2	4.2	4.2	4.5	4.6	4.6	4.1	3.9	2.0	1.9	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	3.3	3.1	4.6	3.1	2.4	2.4	
20	2.0	2.4	2.4	2.4	2.8	2.5	2.3	2.2	1.9	2.0	2.1	1.9	1.9	1.9	1.8	1.9	2.0	2.1	2.3	5	2.3	2.3	3.1	2.6	1.9	3.1	2.2	2.4	2.4	
21	1.9	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.1	2.2	2.4	2.4	
22	3.5	3.6	4.1	4.2	3.9	4.5	4.2	4.1	4.4	4.4	4.1	2.6	2.4	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	4.5	3.0	2.4	2.4	
23	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.4	2.3	2.3	2.3	3.9	3.2	3.9	2.2	2.4	2.4	2.4	
24	3.2	4.7	7.7	5.3	4.4	4.3	4.1	3.8	3.4	C	C	C	C	C	C	C	2.2	2.2	2.5	3.1	3.1	3.3	3.9	3.5	3.0	7.7	3.8	2.4	2.4	
25	3.3	2.7	2.9	3.2	3.3	3.4	3.8	3.5	3.6	3.7	2.2	2.0	1.9	1.9	1.9	1.9	2.1	2.4	2.3	2.4	2.5	2.8	2.6	2.6	3.8	2.7	2.4	2.4	2.4	
26	2.7	2.5	2.5	2.9	2.9	2.9	2.9	2.5	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.1	2.1	2.1	2.3	2.3	2.4	2.3	2.9	2.3	2.4	2.4	2.4	
27	2.3	2.4	2.3	2.1	2.2	2.3	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.6	2.8	2.7	2.6	2.8	2.2	2.4	
28	3.0	3.1	3.3	2.8	11.5	3.0	2.5	2.8	3.0	2.4	2.1	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.3	2.8	3.7	3.2	2.6	2.8	2.9	11.5	3.0	2.4	2.4	
29	3.0	3.1	3.2	3.2	3.4	2.5	2.4	2.5	2.3	5	2.1	2.1	1.9	1.9	1.9	1.9	2.0	2.3	2.2	2.2	2.4	4.3	4.3	3.5	4.1	4.3	2.7	2.4	2.4	
30	5.3	4.6	4.7	5.3	5.3	5.6	5.8	7.0	5	7.4	3.6	2.3	2.3	2.0	1.9	1.9	1.9	3.0	3.6	4.2	3.4	3.1	3.1	3.1	3.0	7.4	3.9	2.4	2.4	
HOURLY MAX	5.3	4.7	7.7	11.5	5.3	5.6	6.3	7.0	4.9	7.4	4.1	3.9	2.4	2.1	2.1	2.2	2.3	3.2	3.8	4.2	4.3	4.3	3.9	6.2	2.9	2.9	2.9	2.9		
HOURLY AVG	3.0	3.1	3.2	3.4	3.1	3.0	3.1	3.1	2.7	2.6	2.3	2.1	2.0	1.9	1.9	1.9	2.0	2.1	2.3	2.5	2.6	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	

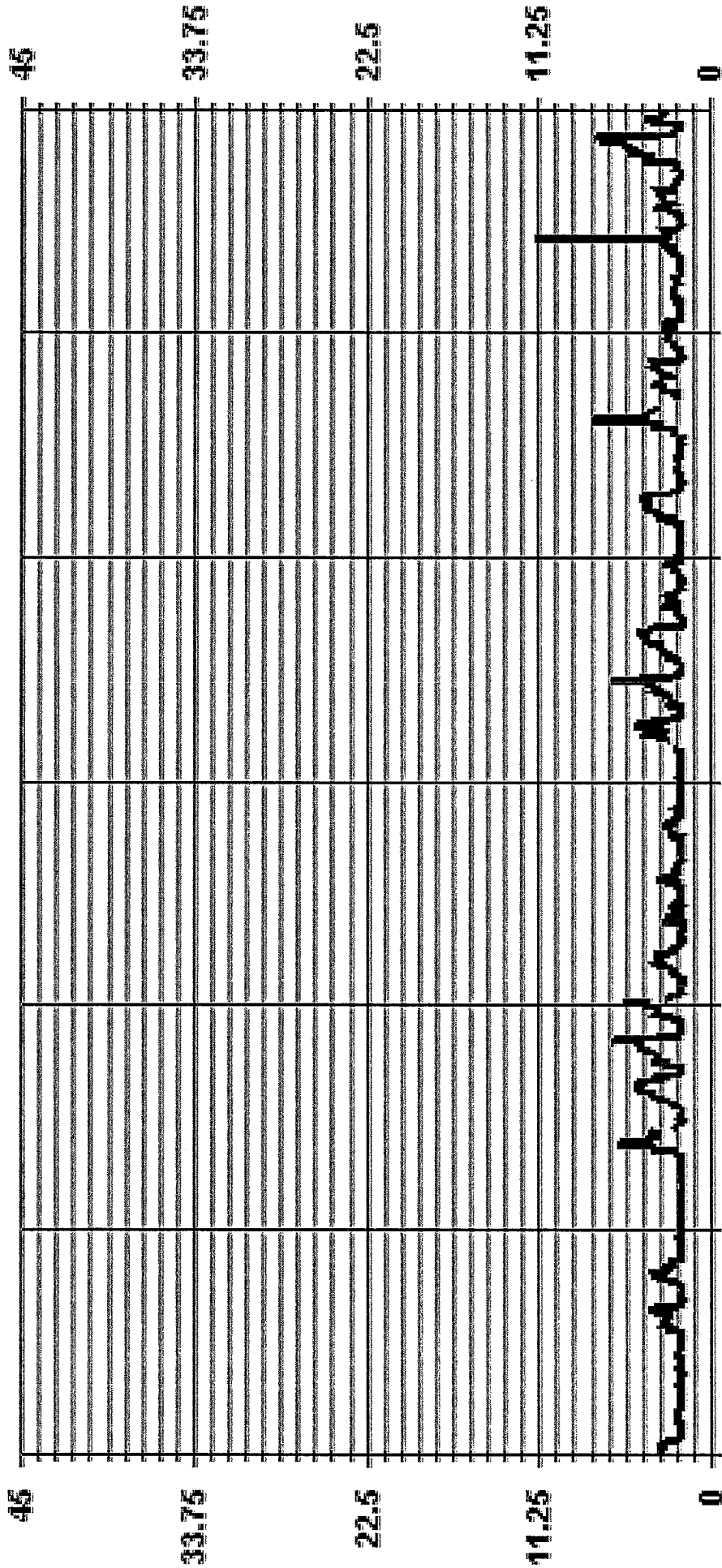
STATUS FLAG CODES

C	CALIBRATION	OF	QUALITY ASSURANCE
R	RECOVERY		
S	DAILY ZERO/SPAN CHECK	X	MACHINE/ALFUNCTION
P	POWER FAILURE	D	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682	PPM	@ HOUR(S)	3	ON DAY(S)	28
MAXIMUM INSTANTANEOUS VALUE:	11.5	PPM	@ HOUR(S)	3	ON DAY(S)	28
VAR-VARIOUS						
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.97					

01 Hour Averages



— LICA35 THC55MAX PPM



L1CA35  
 THC55 / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : L1CA35  
 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	3.07	3.22	3.51	6.58	3.66	3.36	1.46	1.17	1.02	3.22	3.66	10.54	12.44	10.10	8.49	6.00	81.55
< 10.0	.00	.29	.14	1.61	3.66	3.36	1.02	.14	.43	.43	.73	.43	1.31	3.07	1.61	.14	18.44
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.51	3.66	8.19	7.32	6.73	2.48	1.31	1.46	3.66	4.39	10.98	13.76	13.17	10.10	6.14	

Calm : .00 %

Total # Operational Hours : 683

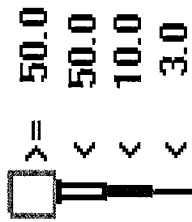
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	21	22	24	45	25	23	10	8	7	22	25	72	85	69	58	41	557
< 10.0		2	1	11	25	23	7	1	3	3	5	3	9	21	11	1	126
< 50.0																	
>= 50.0																	
Totals	21	24	25	56	50	46	17	9	10	25	30	75	94	90	69	42	

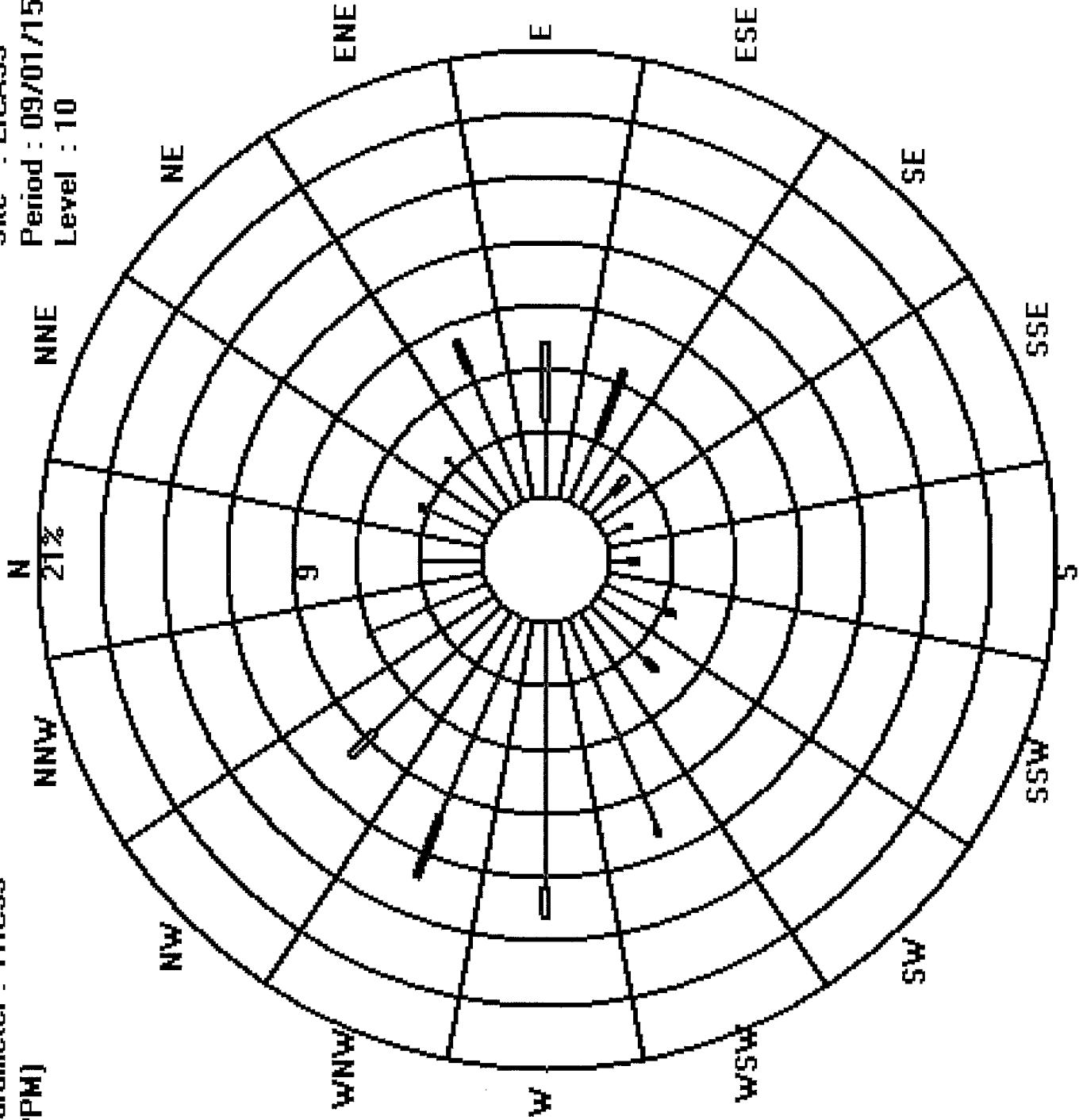
Calm : .00 %

Total # Operational Hours : 683

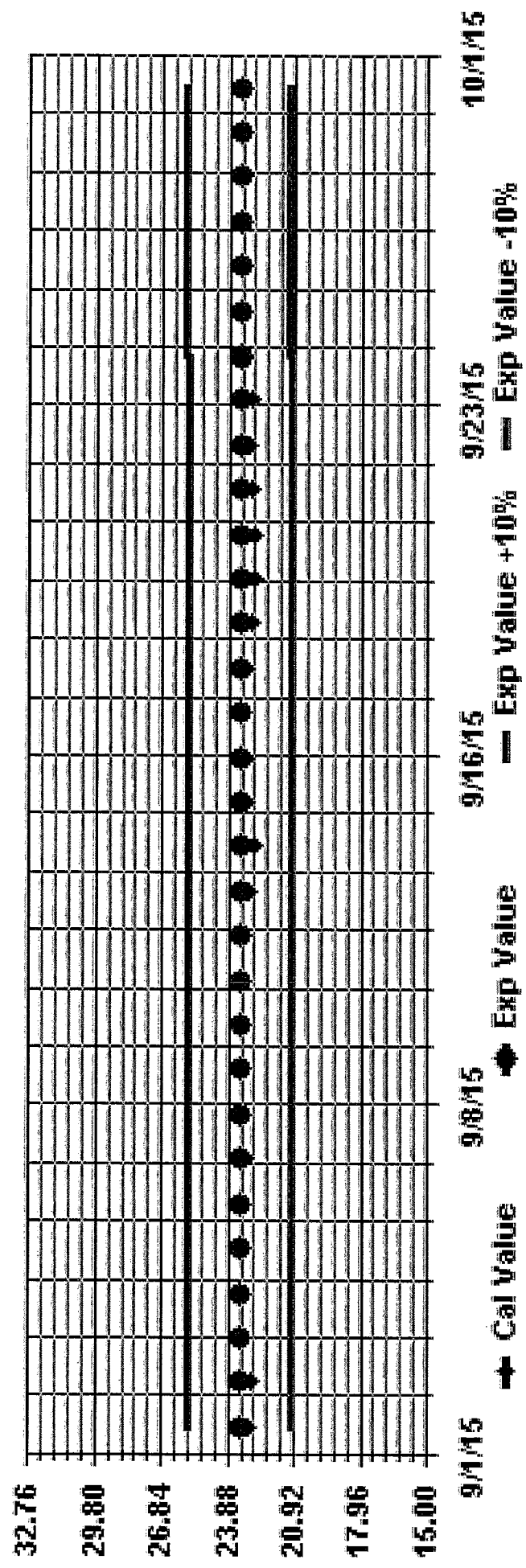
Logger : 35 Parameter : THC55  
Class Limits (PPM)



Site : LICA35  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN



***METHANE***

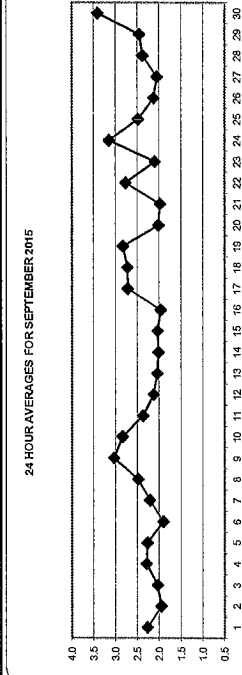


METHANE (CH4) hourly averages in ppm

MST

DAY	1	DAILY																								24-HOUR			
		1:00-2:00	2:00-3:00	3:00-4:00	4:00-5:00	5:00-6:00	6:00-7:00	7:00-8:00	8:00-9:00	9:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	MAX		AVG	RDGS	
1	3.0	3.0	3.0	2.8	2.9	3.0	3.0	2.7	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.2	2.1	2.1	3.0	2.3	24	
2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	24
3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.6	2.7	2.7	2.7	2.0	2.0	24
4	2.5	2.7	2.4	2.3	2.4	3.4	3.5	2.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.2	3.1	3.5	2.3	2.4	24
5	3.3	3.4	3.0	2.7	3.1	2.9	2.4	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	3.4	2.3	2.4	24	
6	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	24	
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.8	3.4	5.0	5.0	2.2	2.4	24
8	3.6	3.7	3.4	3.3	2.7	3.0	3.5	3.5	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.4	2.7	2.8	3.7	2.5	2.4	24	
9	3.1	3.3	3.7	3.7	4.0	4.3	4.3	3.8	3.5	3.6	2.4	2.0	2.0	2.0	2.1	2.3	2.4	2.4	2.4	2.4	3.0	3.0	3.1	3.3	4.3	3.0	2.4	24	
10	3.7	3.9	4.1	4.1	4.5	5.5	4.0	2.5	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.8	3.2	5.5	2.8	2.4	24	
11	3.3	3.7	3.7	4.0	3.5	2.7	2.4	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.3	2.1	2.4	2.6	2.7	4.0	2.4	24	
12	2.9	3.1	2.9	3.5	2.9	2.5	2.4	2.4	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.2	2.1	3.1	2.1	2.4	24	
13	2.1	2.0	1.9	1.9	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.6	2.6	2.2	2.1	2.6	2.0	24	
14	2.2	2.0	2.0	2.1	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.3	2.6	2.6	2.0	2.4	24	
15	2.7	2.5	2.4	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.6	2.0	2.0	24	
16	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.6	2.0	2.0	2.0	24	
17	3.0	3.6	3.4	2.8	2.8	3.0	3.5	4.2	4.1	3.7	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.9	2.9	4.2	2.7	24	
18	3.0	3.3	3.2	3.5	3.4	3.7	3.9	4.6	3.8	2.3	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.4	3.0	2.7	2.8	4.6	2.7	24
19	3.1	3.1	3.0	3.6	3.9	4.0	4.0	4.4	4.2	3.9	2.6	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.1	2.1	2.3	1.9	1.8	2.4	2.0	24
20	1.9	2.1	2.1	2.3	2.4	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.3	1.9	1.8	2.4	2.0	24
21	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.2	2.1	2.6	2.0	24	
22	2.5	2.8	3.6	3.7	3.7	4.2	3.9	3.6	4.1	4.1	3.5	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.2	2.2	2.1	2.6	2.0	24	
23	2.1	2.2	2.1	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.2	2.7	2.7	2.1	2.4	2.0	24
24	2.7	3.1	4.5	4.3	4.0	3.9	3.8	3.5	3.3	3.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	2.7	2.7	2.1	2.4	2.0	24
25	2.8	2.7	2.7	2.9	3.1	3.2	3.4	3.1	3.1	2.8	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.3	2.2	2.2	2.4	3.4	2.5	2.4	24
26	2.3	2.4	2.4	2.5	2.6	2.3	2.6	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.2	2.1	2.6	2.1	2.4	2.0	24
27	2.1	2.1	2.2	2.0	2.0	2.2	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.4	2.5	2.3	2.5	2.1	2.4	24
28	2.4	2.9	2.4	3.2	2.6	2.4	2.6	2.6	2.2	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.5	3.0	2.7	2.5	2.6	2.7	3.2	2.4	24
29	2.8	2.9	3.0	3.0	3.1	2.2	2.3	2.4	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.9	3.7	3.0	3.1	3.7	2.5	2.4	24
30	4.5	4.2	4.2	4.2	4.5	4.9	5.0	5.4	6.1	5.5	4.9	2.8	2.2	2.1	2.0	1.9	1.9	1.9	1.9	2.1	2.7	3.3	3.2	3.0	2.9	2.9	6.1	24	
HOURLY MAX	4.5	4.2	4.5	4.5	4.9	5.0	5.5	6.1	4.4	4.9	3.9	2.6	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.7	3.3	3.2	3.7	3.4	5.0			
HOURLY AVG	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.5	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6			

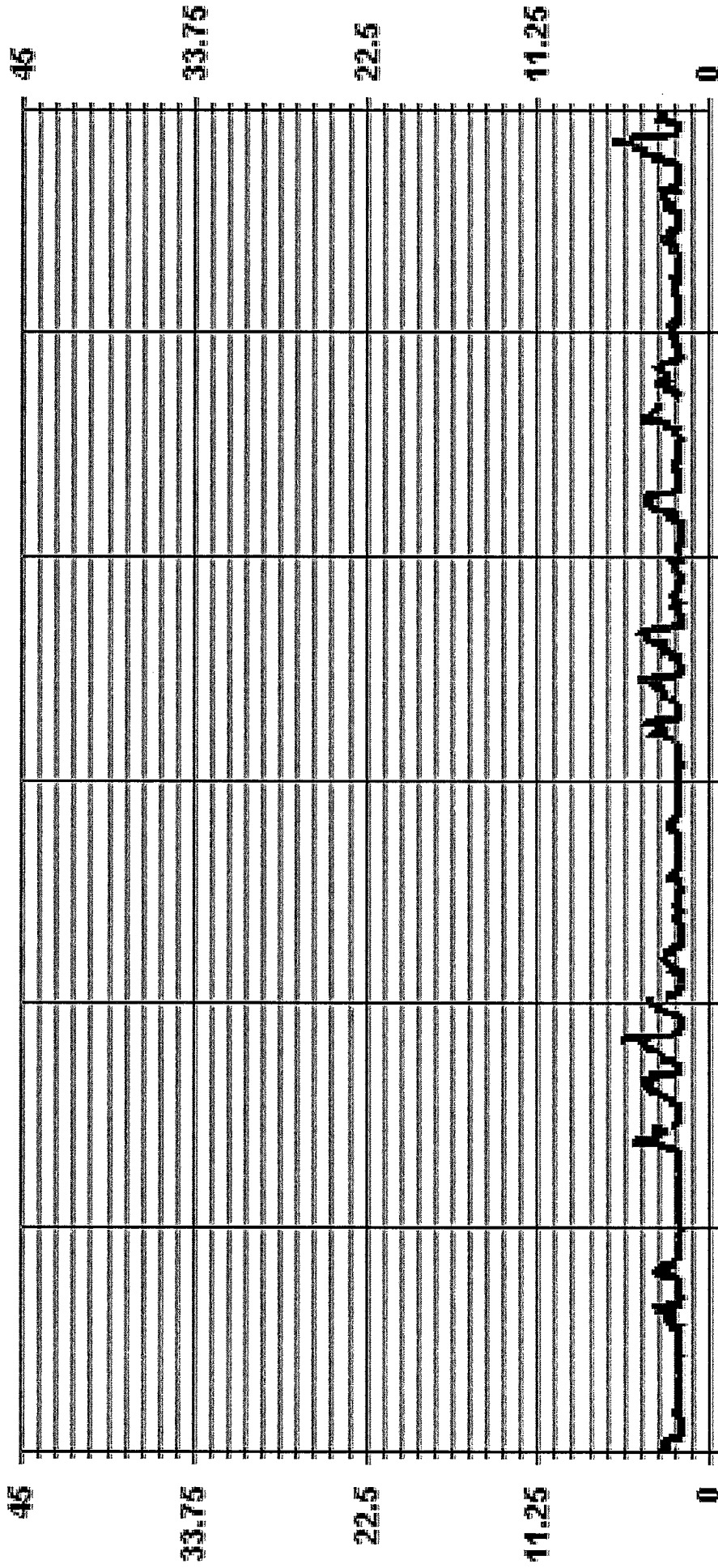
- STATUS FLAG CODES
- C - CALIBRATION
  - Q - QUALITY ASSURANCE
  - M - MAINTENANCE
  - R - RECOVERY
  - D - DAILY ZERO/SPAN CHECK
  - X - MACHINE MALFUNCTION
  - P - POWER FAILURE
  - O - OPERATION ERROR
  - G - OUT FOR REPAIR
  - K - COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683	PPM	@ HOUR(S)	7	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	6.1	PPM			ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	3.4	PPM			VAR-VARIOUS	
IS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		HRS	718
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		%	95.7
STANDARD DEVIATION:	0.70		MONTHLY AVERAGE:		PPM	2.4

# 01 Hour Averages



— LICA35    - - - - METHANE PPM



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Elk Point Airport Site - SEPTEMBER 2015  
JOB # 2833-2015-09-35-C

METHANE MAX instantaneous maximum in ppm

MS2

DATE	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 MAX	24-HOUR AVG	RDGS			
1	3.2	3.3	3.2	3.0	3.1	3.0	2.3	3.0	3.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.4		
2	2.1	2.1	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.0	2.4	
3	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	2.9	2.4	3.2	3.1	3.2	2.2	2.4	2.4	
4	3.1	3.0	2.9	2.5	3.0	3.6	4.0	3.8	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.8	3.5	4.0	2.5	2.4	2.4		
5	3.8	3.9	3.3	3.0	3.3	3.2	2.5	2.4	2.6	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.0	3.9	2.4	2.4		
6	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.4		
7	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	3.7	3.7	3.9	6.1	6.1	2.4	2.4		
8	4.2	4.2	3.8	3.6	3.3	3.8	3.9	5	4.8	4.2	3.6	3.8	2.9	2.1	2.0	2.0	2.0	2.2	3.2	2.7	3.3	3.5	3.5	3.6	3.6	4.8	3.4	2.4	2.4		
9	3.6	3.7	4.0	4.2	4.7	4.7	5	6.2	4.5	3.6	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.5	3.0	3.5	3.4	3.3	6.2	3.2	2.4	2.4	2.4		
10	4.0	4.1	4.3	4.5	4.7	5	6.2	4.5	3.6	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.5	3.0	3.5	3.4	3.3	6.2	3.2	2.4	2.4	2.4		
11	3.5	4.0	4.1	5.4	5	2.9	2.7	2.1	1.9	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2	2.6	2.2	2.7	2.6	3.2	3.4	5.4	2.6	2.4	2.4		
12	3.0	3.3	3.4	5	3.5	2.8	2.4	2.4	2.3	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.0	3.2	2.4	3.5	2.3	2.4	2.4	2.4		
13	2.5	2.1	5	2.0	2.2	2.1	2.4	2.4	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.2	2.2	3.3	3.2	2.3	2.2	3.3	2.2	2.4	2.4		
14	2.5	5	2.1	2.1	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.3	2.1	2.5	2.5	2.6	2.7	2.7	2.1	2.4	2.4		
15	5	2.9	2.8	2.6	2.3	2.3	2.1	2.1	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	1.9	2.0	5	2.9	2.1	2.4	2.4		
16	2.0	2.0	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	1.9	1.9	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.8	2.8	2.0	2.2	2.4	2.4	
17	3.5	4.3	4.2	3.0	3.0	3.3	3.6	4.7	4.6	3.9	2.8	2.2	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.6	2.7	2.5	2.7	5	3.1	2.9	3.0	2.4	2.4		
18	3.1	3.7	3.5	3.7	3.9	4.0	4.0	6.4	4.9	2.6	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.3	2.8	5	3.3	3.0	3.2	6.4	3.1	2.4	
19	3.3	3.2	3.3	4.0	4.0	4.2	4.2	4.4	4.5	4.5	4.5	4.0	3.8	2.0	1.9	1.8	1.8	1.9	1.9	1.9	2.0	2.0	5	2.1	2.1	3.4	3.1	4.5	3.1	2.4	
20	2.0	2.2	2.3	2.4	2.8	2.5	2.3	2.2	1.9	2.0	2.1	1.9	1.9	1.8	1.9	1.8	1.9	1.9	2.0	2.1	2.3	5	2.3	2.3	3.1	2.6	1.9	3.1	2.2	2.4	
21	1.9	2.1	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.3	2.4	3.6	3.1	3.6	2.1	2.4
22	3.5	3.6	4.1	4.2	3.9	4.5	4.1	4.1	4.4	4.4	4.1	2.6	2.4	2.1	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.2	2.1	4.5	3.0	2.4	2.4	2.4	
23	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.3	2.3	3.7	3.1	3.7	2.2	2.4	2.4	2.4	
24	3.2	4.3	7.4	5.2	4.4	4.2	3.9	3.8	3.4	3	2.1	2.1	2.3	3.0	2.9	3.2	3.8	3.4	3.0	7.4	3.6	2.6	3.7	3.1	3.7	2.2	2.4	2.4	2.4	2.4	
25	3.2	2.7	2.9	3.2	3.2	3.3	3.6	3.3	3.5	3.7	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.5	2.8	2.6	2.6	3.7	2.7	2.7	2.4	2.4	2.4	2.4	
26	2.7	2.5	2.5	2.9	2.9	2.9	2.9	2.5	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.3	2.8	2.3	2.9	2.3	2.4	2.4	2.4	2.4	
27	2.3	2.4	2.3	2.1	2.2	2.3	2.4	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.7	2.8	2.8	2.6	2.8	2.2	2.4	2.4	2.4	
28	3.1	3.2	2.8	11.1	2.9	2.5	2.8	3.0	2.4	2.1	5	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.3	2.8	3.7	3.2	2.6	2.8	2.9	11.1	2.9	2.4	2.4	
29	3.0	3.1	3.2	3.2	3.4	2.5	2.4	2.5	2.4	2.3	5	2.1	2.1	1.9	1.9	1.9	1.9	1.9	2.0	2.3	2.2	2.2	4.3	3.4	4.1	4.3	2.7	2.4	2.4	2.4	
30	5.3	4.5	4.5	5.3	5.3	5.5	5.7	6.8	5	7.3	3.6	2.3	2.3	2.0	2.0	1.9	1.9	1.9	2.9	3.7	4.2	3.4	3.1	3.0	7.3	3.9	3.9	2.4	2.4	2.4	
HOURLY MAX	5.3	4.5	7.4	11.1	5.3	5.5	6.2	6.8	4.9	7.3	4.1	3.8	2.4	2.1	2.0	2.1	2.3	3.2	3.2	4.2	4.3	4.3	4.3	3.9	6.1	6.1	6.1	6.1	6.1	6.1	
HOURLY AVG	3.0	3.1	3.1	3.4	3.0	3.0	3.0	3.1	2.7	2.6	2.3	2.1	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	

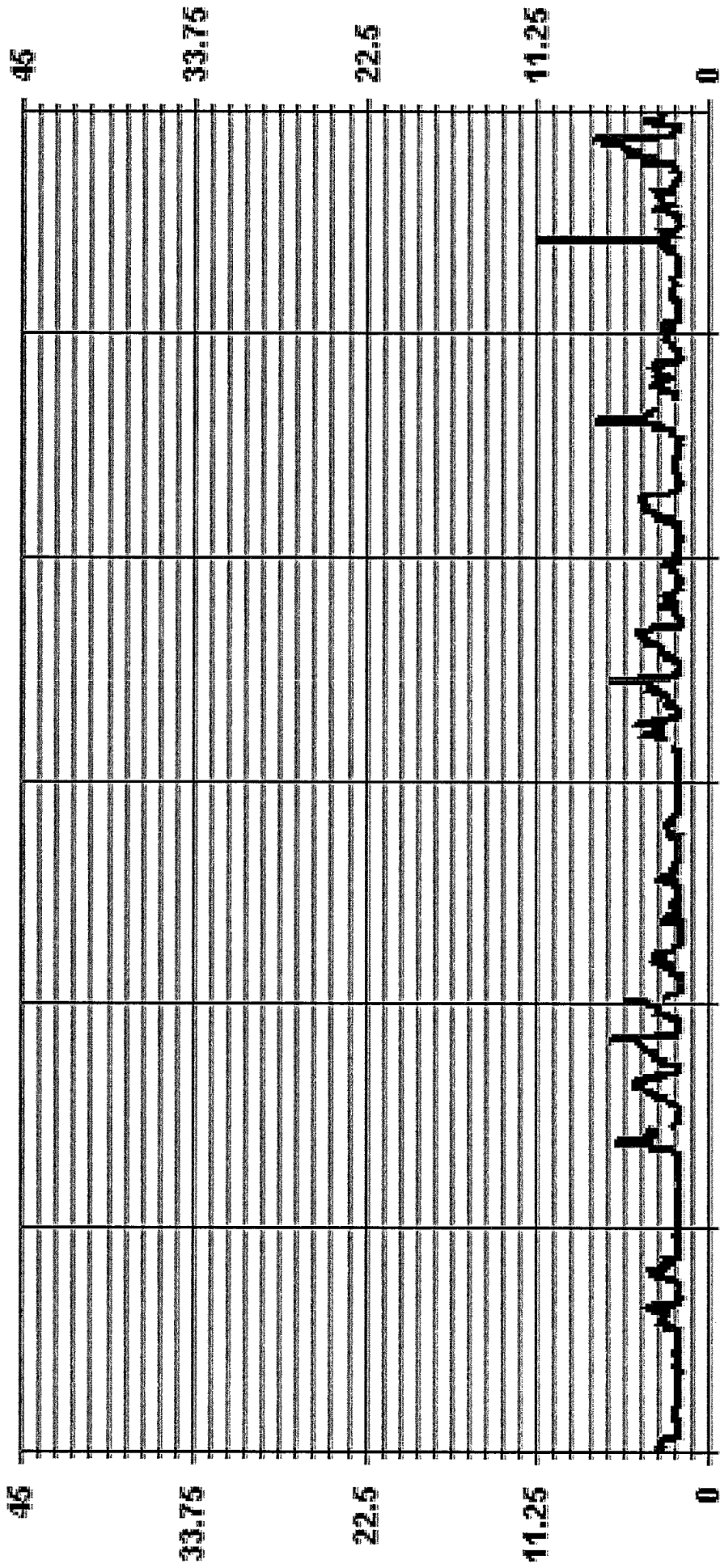
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682	PPM	@ HOUR(S)	3	ON DAY(S)	28
MAXIMUM INSTANTANEOUS VALUE:	11.1					
ISZ CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:			
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.95					

# 01 Hour Averages



— LICA35 MATHMAX PPM



L1CA35  
 METHANE / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : L1CA35  
 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	3.07	3.22	3.51	6.58	3.66	3.36	1.46	1.17	1.02	3.22	3.66	10.68	12.44	10.10	8.63	6.00	81.84
< 10.0	.00	.29	.14	1.61	3.66	3.36	1.02	.14	.43	.43	.73	.29	1.31	3.07	1.46	.14	18.15
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.51	3.66	8.19	7.32	6.73	2.48	1.31	1.46	3.66	4.39	10.98	13.76	13.17	10.10	6.14	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

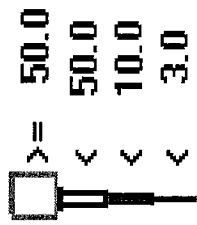
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	21	22	24	45	25	23	10	8	7	22	25	73	85	69	59	41	559
< 10.0	2	1	11	25	23	7	1	3	3	5	2	9	21	10	1	124	
< 50.0																	
>= 50.0																	
Totals	21	24	25	56	50	46	17	9	10	25	30	75	94	90	69	42	42

Calm : .00 %

Total # Operational Hours : 683

Logger : 35 Parameter : METHANE

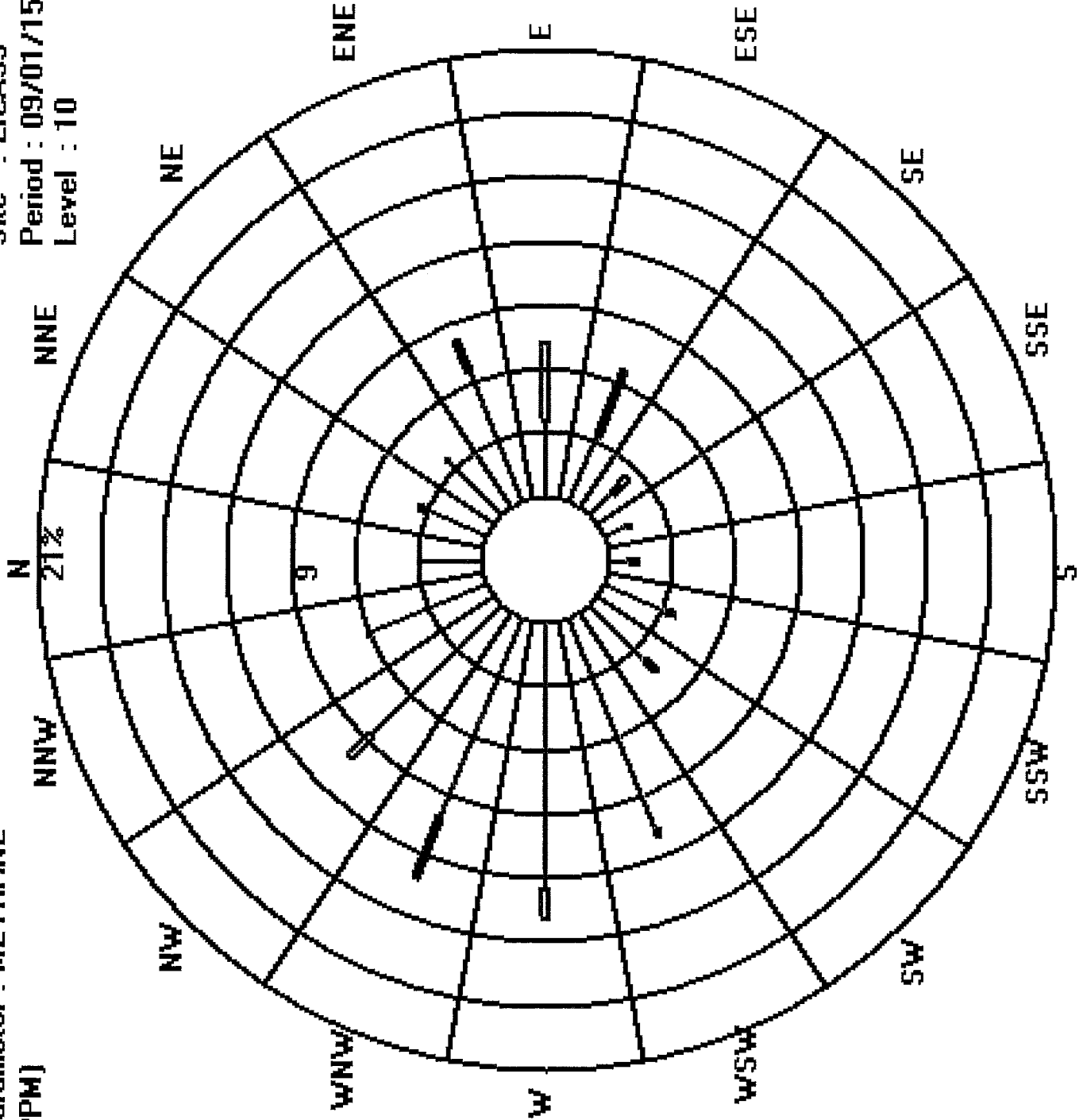
Class Limits (PPM)



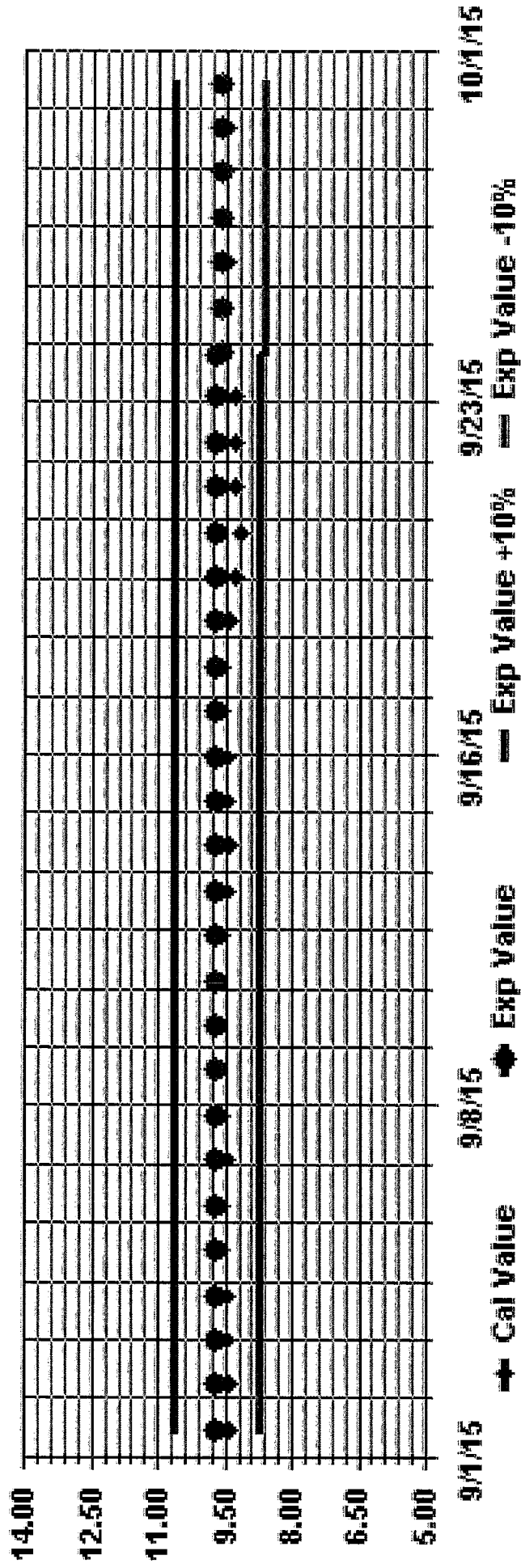
Site : LICA35

Period : 09/01/15-09/30/15

Level : 10



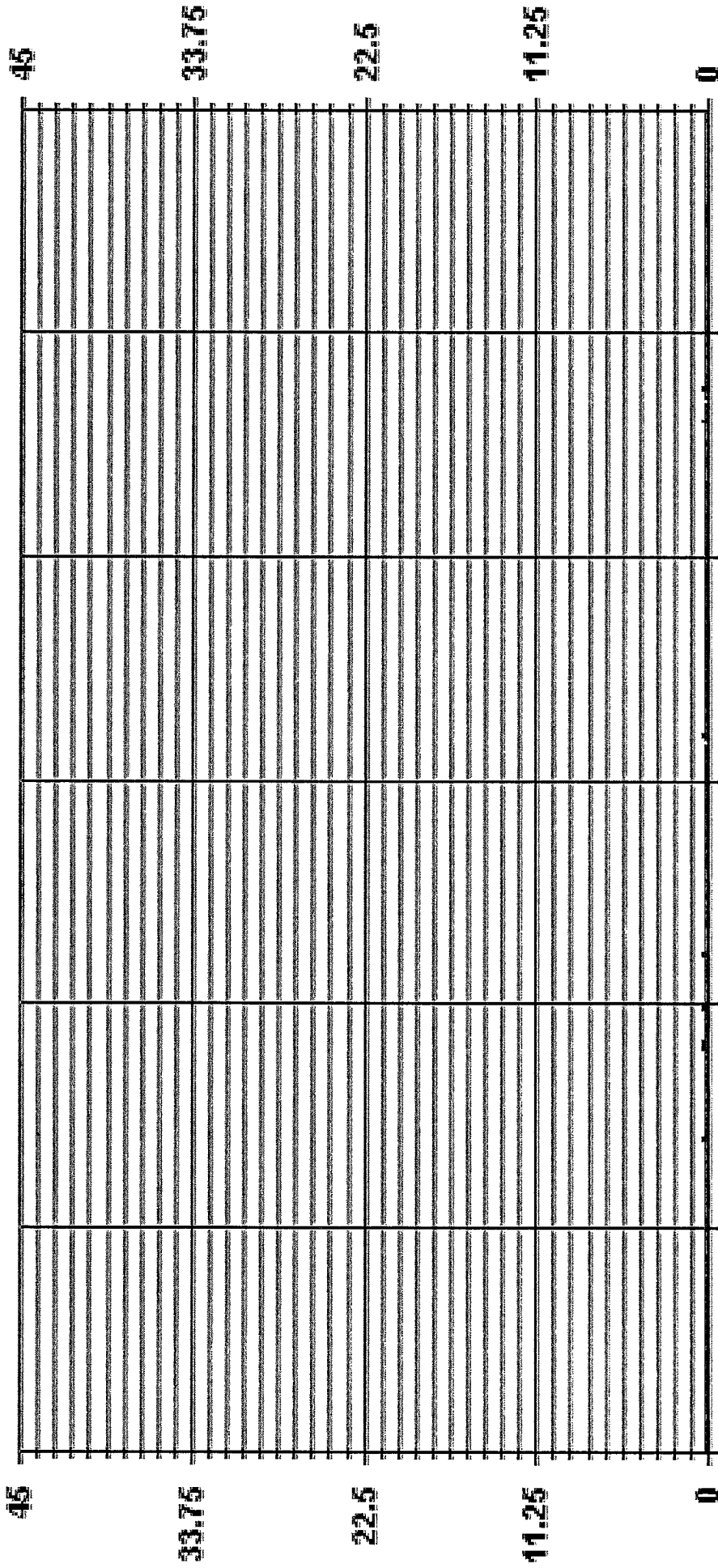
Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN



***NON-METHANE HYDROCARBON***



01 Hour Averages



— LICA35 NMHC PPM



NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	ROGS		
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	1:00	24-HOUR AVG.		
DAY																												
1	0.07	0.12	0.13	0.19	0.15	0.16	0.17	0.14	0.12	0.12	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.09	0.00	0.11	0.12	0.14	0.13	0.19	0.09	24	
2	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	24
3	0.00	0.00	0.00	0.00	0.07	0.15	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	24
4	0.04	0.00	0.00	0.00	0.00	0.11	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
8	0.16	0.15	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
9	0.17	0.22	0.31	0.20	0.19	0.16	0.11	0.11	0.16	0.10	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.17	0.22	0.31	0.22	0.26	0.23	0.31	0.21	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.19	0.19	0.20	0.15	0.25	0.23	0.16	0.11	0.11	0.09	0.13	0.09	0.07	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
12	0.25	0.23	0.20	0.20	0.25	0.18	0.17	0.17	0.13	0.17	0.12	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.12	0.00	0.00	0.00	0.00	0.00	0.18	0.15	0.11	0.00	0.00	0.00	0.00	0.00	0.00	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
14	0.10	0.10	0.11	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.18	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
17	0.16	0.24	0.17	0.14	0.14	0.13	0.17	0.20	0.21	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.11	0.19	0.20	0.15	0.19	0.18	0.20	0.31	0.20	0.10	0.10	0.10	0.10	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
19	0.16	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.17	0.14	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.24	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.12	0.00	0.00	0.00	0.00	0.06	0.07	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	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.10	0.39	0.38	0.20	0.09	0.18	0.18	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
25	0.16	0.00	0.14	0.15	0.18	0.20	0.22	0.17	0.15	0.14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.18	0.20	0.17	0.19	0.22	0.20	0.25	0.32	0.32	0.30	0.30	0.17	0.15	0.14	0.15	0.11	0.15	0.17	0.18	0.20	0.27	0.23	0.21	0.19	0.15	0.52	0.13	24
HOURLY MAX	0.25	0.39	0.38	0.34	0.26	0.23	0.31	0.32	0.21	0.30	0.17	0.15	0.14	0.15	0.11	0.15	0.17	0.18	0.20	0.27	0.23	0.21	0.25	0.24	0.08	0.09	0.08	
HOURLY AVG	0.08	0.10	0.08	0.09	0.09	0.07	0.09	0.08	0.06	0.06	0.04	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.05	0.04	0.06	0.09	0.09	0.13	0.13	0.13	

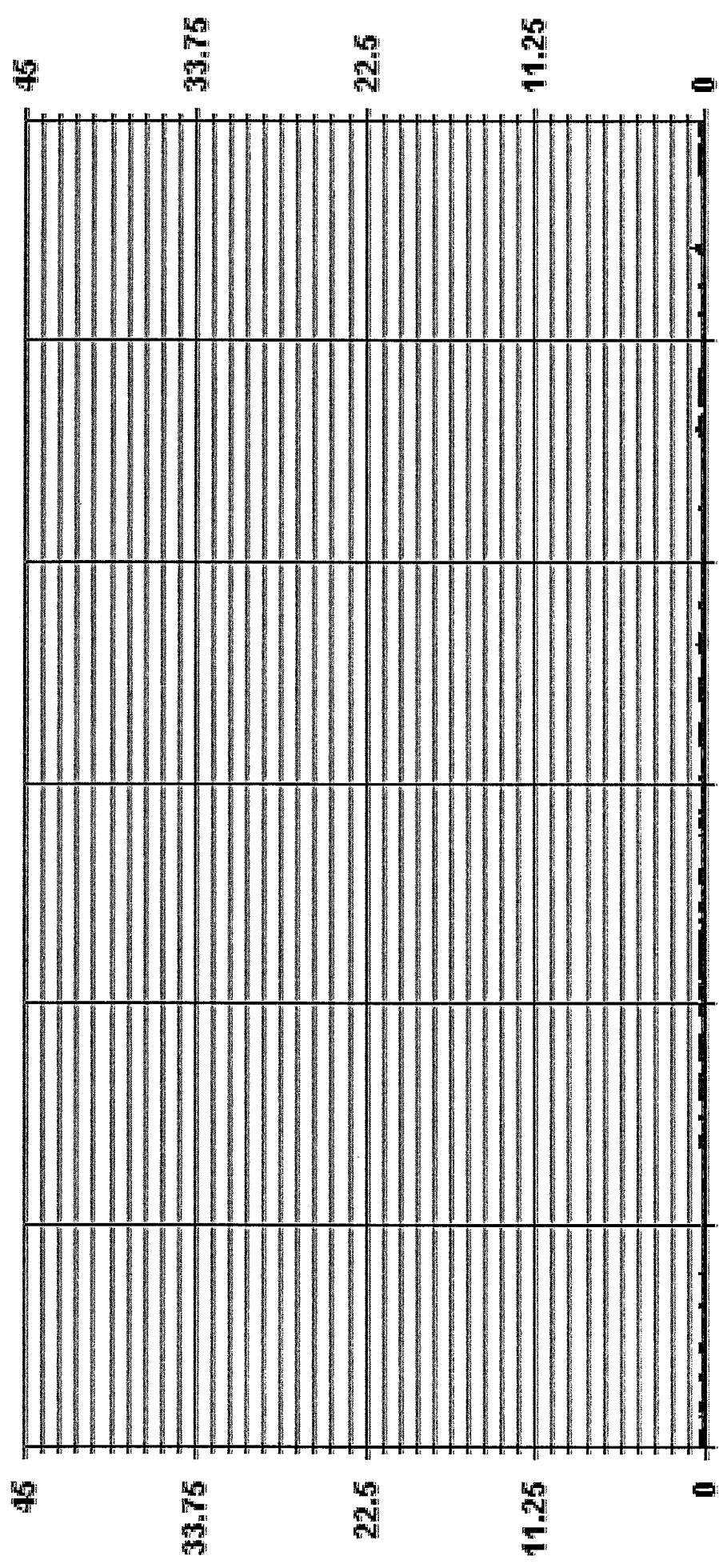
STATUS FLAG CODES

C	CALIBRATION
V	QUALITY ASSURANCE
M	RECOVERY
X	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
R	SENSOR REPAIR
G	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	242
MAXIMUM INSTANTANEOUS VALUE:	0.39
PPM @ HOUR(S)	1
ON DAY(S)	24
VAR- VARIOUS	
OPERATIONAL TIME:	718 HRS
30 HRS	
6 HRS	
STANDARD DEVIATION:	0.08

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 NMHCMAX PPM



LJCA35  
 NMEC / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : LJCA35  
 Parameter : NMEC  
 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	3.07	3.51	3.66	8.19	7.32	6.73	2.48	1.31	1.46	3.66	4.39	10.98	13.76	13.17	10.10	6.14	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	3.07	3.51	3.66	8.19	7.32	6.73	2.48	1.31	1.46	3.66	4.39	10.98	13.76	13.17	10.10	6.14	

Calm : .00 %

Total # Operational Hours : 683

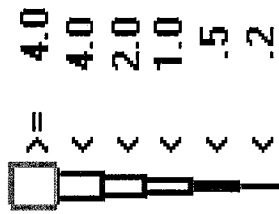
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	21	24	25	56	50	46	17	9	10	25	30	75	94	90	69	42	683
< .5																	
< 1.0																	
< 2.0																	
< 4.0																	
>= 4.0																	
Totals	21	24	25	56	50	46	17	9	10	25	30	75	94	90	69	42	

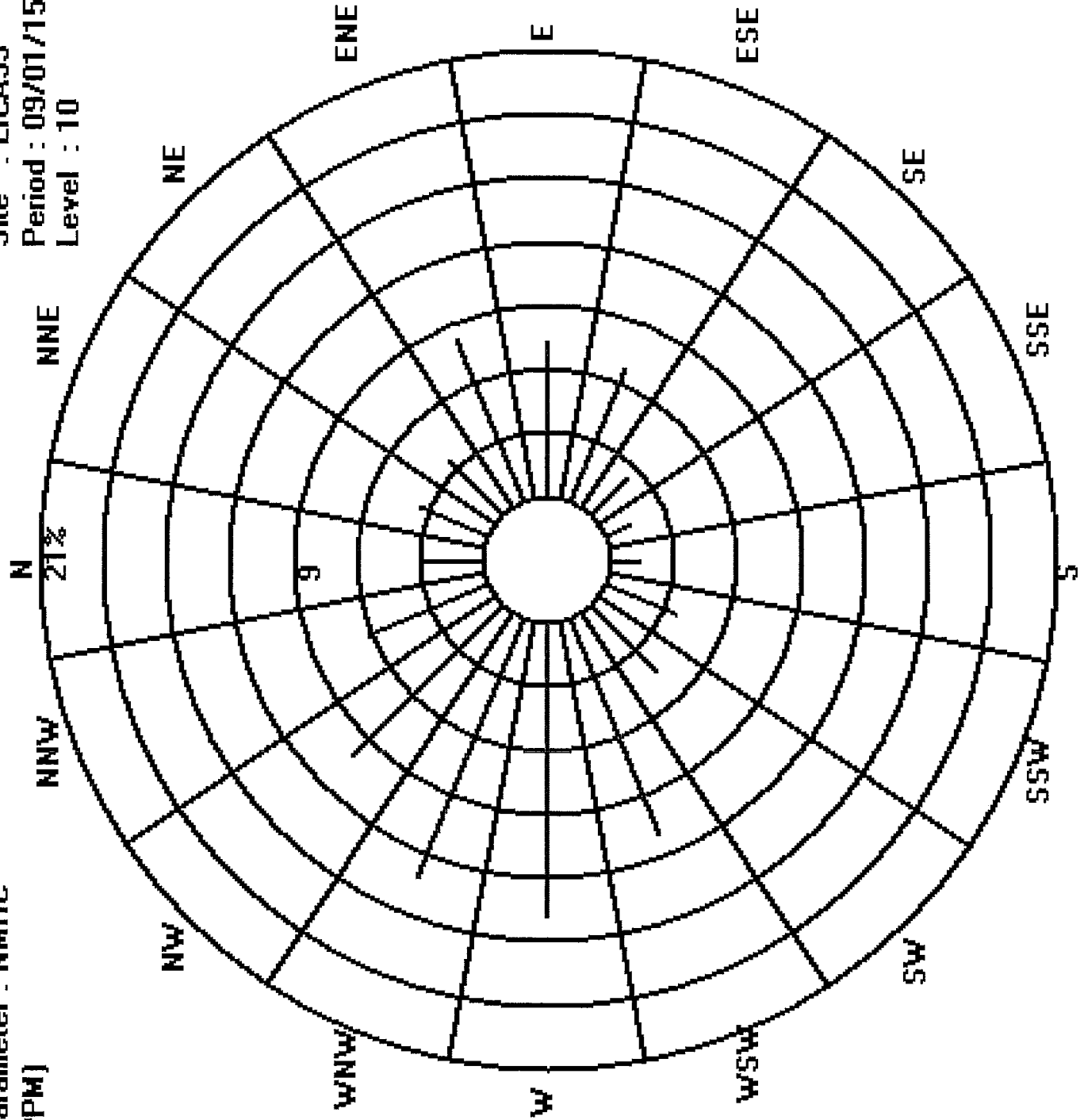
Calm : .00 %

Total # Operational Hours : 683

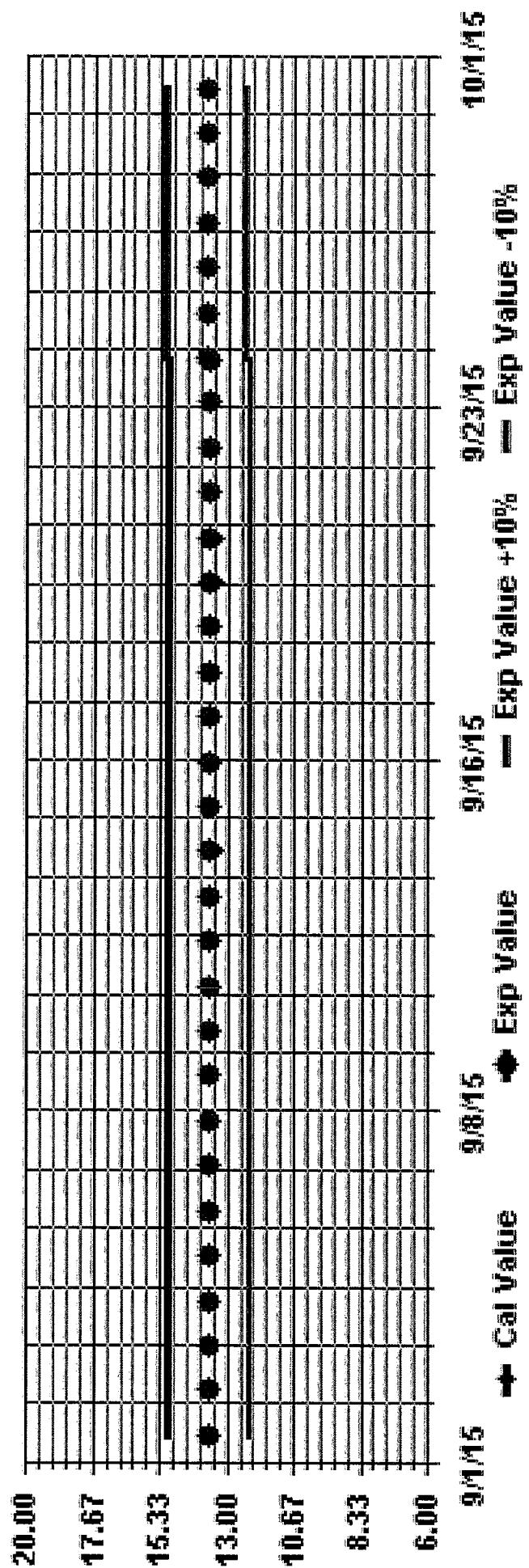
Logger : 35 Parameter : NMHC  
Class Limits (PPM)



Site : LICA35  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN



## ***OXIDES OF NITROGEN***



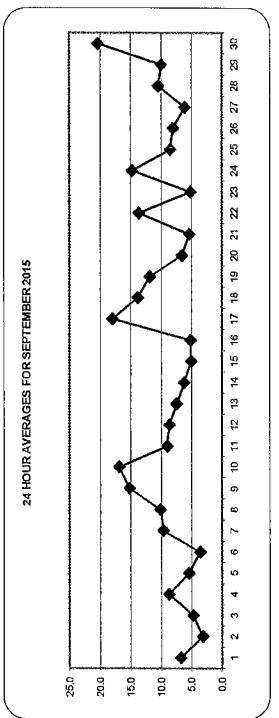
**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**  
**Elk Point Airport Site - SEPTEMBER 2015**  
**JOB # 2833-2015-09-35- C**

**OXIDES OF NITROGEN (NOx) hourly averages in ppb**

DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.	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	11.1	11.6	13.2	11.6	10.3	10.3	14.9	11.1	6.7	7.7	4.7	3.1	2.8	\$	2.3	2.4	2.5	3.0	3.9	5.6	5.3	4.3	4.3	6.8	24				
2	3.7	3.2	3.0	2.7	2.7	2.7	2.8	2.2	1.8	2.1	3.0	3.0	3.2	\$	3.2	2.9	2.4	2.1	3.9	3.7	3.1	3.3	6.3	5.9	3.2	24			
3	5.9	5.5	5.0	4.2	4.6	7.2	4.6	4.6	4.6	3.5	3.0	2.6	2.6	\$	2.6	2.7	2.1	1.6	2.4	2.5	4.1	11.6	6.2	7.8	8.4	11.6	4.7	24	
4	9.7	9.7	8.2	6.6	9.0	35.7	32.6	20.7	5.4	2.9	2.8	\$	3.3	4.2	3.5	2.8	2.5	2.8	4.0	4.0	6.2	8.0	6.3	10.7	35.7	8.7	24		
5	11.3	11.8	9.0	7.4	10.1	8.6	7.9	6.8	6.1	3.1	\$	3.0	2.9	2.8	2.7	3.0	3.0	3.0	3.0	3.3	3.7	4.5	4.3	4.4	11.8	5.5	24		
6	4.6	4.6	4.2	4.4	3.8	3.6	3.8	4.0	3.7	4.4	3.3	3.3	3.5	3.6	3.5	3.3	3.2	3.0	3.1	3.1	3.5	3.4	3.3	3.4	4.6	3.6	24		
7	3.5	3.9	3.9	3.7	4.0	3.6	4.9	4.9	\$	4.4	4.3	4.8	4.4	3.9	3.6	3.5	3.3	3.7	5.9	8.8	22.2	30.1	37.5	48.6	9.6	24			
8	19.5	25.5	23.2	17.1	9.7	11.7	17.5	\$	10.7	7.8	3.7	4.0	3.3	3.7	3.3	3.6	3.8	3.8	4.0	8.7	15.2	10.4	11.2	11.7	25.5	10.1	24		
9	14.1	17.2	19.3	20.6	27.7	27.3	\$	25.3	20.1	17.4	17.7	6.9	4.4	3.5	3.9	4.6	6.6	14.0	9.7	19.4	19.5	19.4	15.3	15.4	27.7	15.2	24		
10	18.5	21.5	21.8	22.0	24.5	\$	82.9	66.7	19.6	6.9	4.9	3.9	3.7	3.7	3.4	3.5	3.8	4.7	8.9	10.3	16.1	11.3	11.8	13.8	82.9	16.9	24		
11	14.5	15.9	13.3	11.9	\$	12.4	13.0	10.0	6.2	6.5	4.9	3.8	3.3	3.3	3.6	4.1	4.8	6.0	9.8	10.3	10.9	9.9	12.2	16.9	16.9	9.0	24		
12	22.2	21.7	21.4	\$	17.9	18.3	16.5	16.1	7.3	5.9	4.6	3.1	2.7	2.9	2.7	2.5	2.4	3.1	3.1	2.8	3.3	3.9	6.2	9.0	22.2	8.7	24		
13	7.4	7.1	\$	5.3	7.1	7.4	15.0	10.4	4.8	4.5	3.7	3.8	3.4	4.0	3.3	4.8	6.0	6.1	11.7	13.3	14.7	13.3	11.4	15.0	7.5	24			
14	12.0	\$	5.2	5.1	7.2	6.0	4.9	4.1	4.1	3.9	3.7	3.8	3.4	3.3	3.5	3.8	5.3	4.1	4.0	11.7	17.5	9.8	8.5	9.3	17.5	6.3	24		
15	4.3	3.9	4.3	4.8	4.5	4.1	4.0	4.2	3.8	3.7	3.4	3.6	3.6	3.7	3.3	3.1	3.1	3.8	8.1	15.3	P	\$	10.3	5.1	24	22	22		
16	17.3	37.1	36.5	28.0	22.8	27.4	28.6	44.9	39.2	29.6	9.0	6.5	5.0	4.5	4.5	3.9	5.1	7.5	8.9	10.0	12.7	\$	13.6	11.5	44.9	18.0	24		
17	13.0	17.3	16.3	14.7	13.9	24.6	34.1	42.0	30.8	9.0	6.6	4.6	4.3	4.0	3.8	5.2	9.1	5.3	7.2	15.2	\$	17.7	10.3	9.9	42.0	13.9	24		
18	10.5	11.0	12.5	16.9	18.8	25.4	30.6	25.4	21.5	23.9	18.9	8.3	2.7	2.8	2.1	2.3	2.7	3.4	4.1	\$	5.3	6.2	10.3	8.1	30.6	11.9	24		
19	3.4	7.8	9.4	12.1	18.4	16.0	8.5	7.1	4.2	5.7	4.8	3.8	3.5	2.8	2.6	3.7	9.1	9.1	\$	4.7	3.9	6.0	3.5	1.9	18.4	6.6	24		
20	2.5	3.2	3.4	4.0	3.5	3.7	5.1	4.9	4.5	2.9	2.5	2.1	2.5	2.4	2.2	1.9	\$	2.7	6.7	8.3	13.0	17.4	23.1	23.1	5.4	24	24		
21	16.5	19.6	29.1	30.9	31.4	40.5	23.6	22.5	26.9	22.9	16.2	6.4	4.5	2.2	1.8	1.8	\$	2.3	2.3	2.1	1.9	2.4	3.4	2.8	40.5	13.7	24	24	
22	3.2	4.5	4.4	4.5	4.4	4.2	3.6	2.2	2.7	3.7	3.5	3.5	2.9	3.2	3.4	\$	3.6	6.1	6.8	7.8	12.6	11.7	7.3	10.0	12.6	5.2	24	24	
23	8.7	8.6	12.9	19.3	16.1	18.2	28.0	28.1	12.7	13.4	2.2	1.1	0.6	\$	2.0	1.6	2.9	3.3	5.8	9.7	8.6	8.1	12.3	12.5	29.9	8.5	24	24	
24	11.8	5.0	7.4	9.4	10.0	18.4	29.9	10.5	11.7	11.2	2.2	1.1	0.6	\$	2.9	3.0	6.3	2.6	4.6	5.5	4.3	5.6	8.0	10.2	8.1	24	24	24	
25	14.1	11.9	13.7	12.0	13.6	10.8	20.4	8.8	6.8	4.8	4.1	3.6	\$	2.6	2.2	2.4	2.1	1.7	2.3	2.5	3.0	8.7	11.9	13.1	10.5	13.4	6.2	24	24
26	8.2	7.1	8.7	4.8	5.9	10.4	13.4	7.4	5.3	4.3	3.0	\$	3.6	3.9	3.8	3.4	3.8	4.6	6.3	21.7	14.3	10.6	9.2	9.8	9.2	21.7	10.5	24	24
27	12.6	15.8	10.7	15.5	15.7	14.2	21.3	16.9	8.8	6.0	\$	5.8	6.1	2.9	3.3	3.8	4.6	7.7	4.8	7.5	9.9	13.3	18.0	17.1	16.2	20.2	10.0	24	24
28	9.5	9.6	10.8	15.7	20.2	10.3	11.4	11.9	9.4	\$	45.5	17.4	8.1	6.2	3.7	3.1	2.4	3.3	8.0	16.1	16.3	16.9	12.9	12.0	12.3	82.3	20.4	24	24
29	23.3	21.1	22.5	22.0	26.2	36.7	51.5	82.3	\$	45.5	17.4	8.1	6.2	3.7	3.1	2.4	3.3	8.0	16.1	16.3	16.9	12.9	12.0	12.3	82.3	20.4	24	24	
30	37.1	36.5	30.9	31.4	40.5	82.9	82.3	39.2	45.5	18.9	8.3	6.2	4.5	4.5	6.3	9.1	14.0	21.7	19.4	22.2	30.1	37.5	48.6						
HOURLY MAX	10.9	12.2	12.5	11.9	12.8	14.7	18.6	17.7	10.5	9.6	6.2	4.2	3.5	3.3	3.2	3.3	4.0	4.8	6.4	8.2	9.8	10.1	10.6	11.7					
HOURLY AVG																													

**STATUS FLAG CODES**

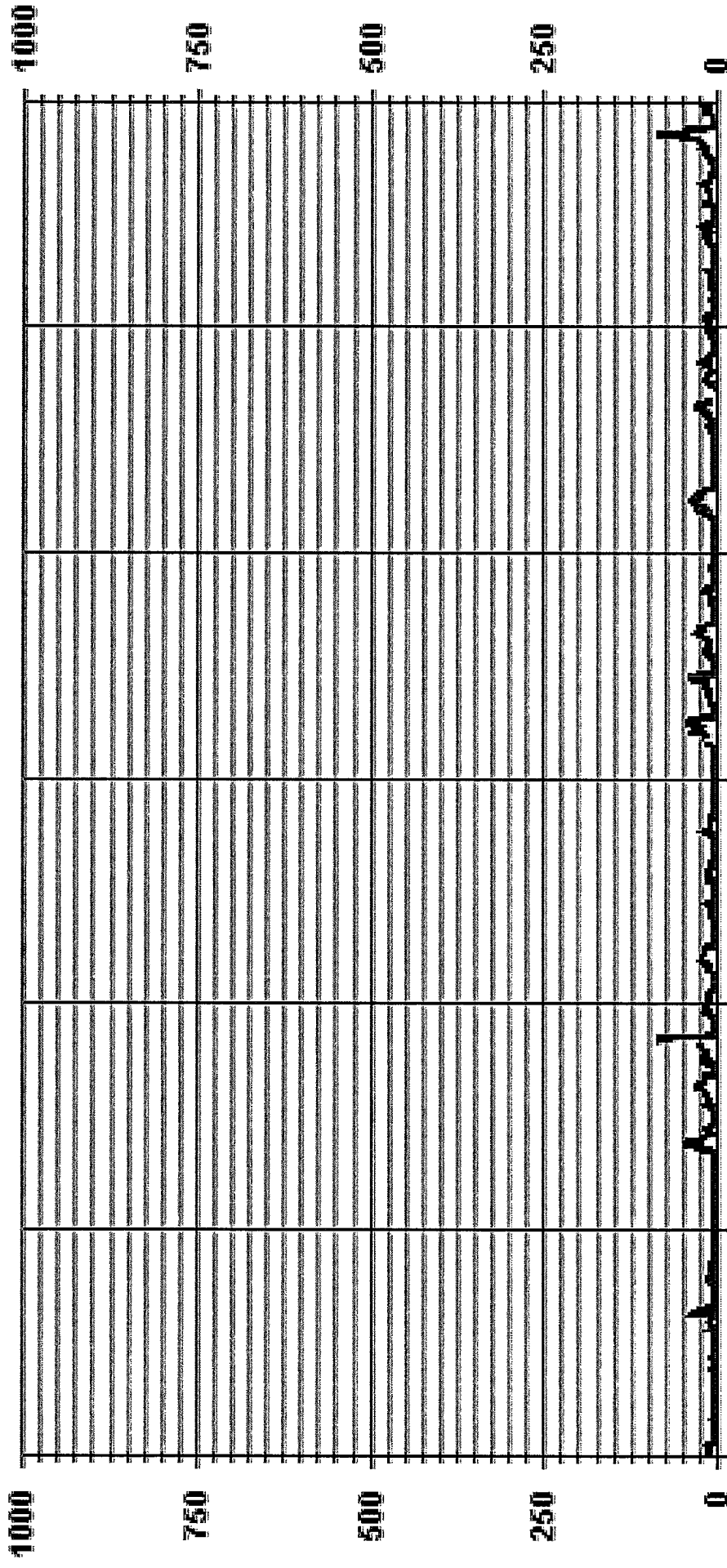
C	QUALITY ASSURANCE	G	RECOVERY
M	MAINTENANCE	R	MACHINE MALFUNCTION
S	DAILY ZERO/SPAN CHECK	X	OPERATOR ERROR
P	POWER FAILURE	O	COLLECTION ERROR
IG	OUT OF REPAIR	K	



**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	681	PPB @ HOUR(S)	6	ON DAY(S)	10
MAXIMUM 1-HR AVERAGE:	82.9	PPB	20.4	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:				VAR- VARIOUS	
1ZS CALIBRATION TIME:	37 HRS	OPERATIONAL TIME:			718 HRS
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:			99.7 %
STANDARD DEVIATION:	9.10	MONTHLY AVERAGE:			9.3

01 Hour Averages



— LICA35 NOX\_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 Elk Point Airport Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-35-C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.		
	0100	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000	23000			24000	
1	13.0	13.2	20.7	16.5	12.7	12.0	17.5	14.5	9.3	9.3	6.2	3.7	3.8	3.4	\$	3.0	3.2	4.0	6.1	5.3	7.9	6.3	5.5	5.9	20.7	8.8	24	
2	5.1	3.9	3.8	3.9	3.3	3.2	3.4	3.1	2.6	3.1	4.3	3.9	3.9	\$	4.2	4.2	3.2	4.2	4.8	4.0	6.1	8.8	7.1	8.8	4.3	8.8	24	
3	8.5	6.4	6.6	5.4	6.5	9.5	7.1	8.5	6.3	4.6	3.6	3.6	\$	3.6	3.3	3.1	2.9	3.1	9.0	15.9	7.7	10.0	10.9	15.9	6.5	24		
4	15.3	13.6	10.5	8.8	17.3	43.1	46.3	34.0	10.0	3.5	3.7	\$	4.6	5.8	4.2	3.4	3.2	3.6	3.8	4.5	9.0	12.7	8.0	12.9	46.3	12.3	24	
5	14.1	13.7	11.5	10.5	12.2	11.6	9.3	8.2	7.3	4.6	\$	4.0	3.5	3.5	3.5	3.7	3.6	3.8	3.5	4.0	4.5	5.6	5.4	5.2	14.1	6.8	24	
6	5.6	5.4	4.9	5.3	4.6	4.3	4.5	4.4	\$	4.1	4.0	4.3	4.5	4.4	4.0	3.8	3.6	3.8	3.8	4.1	4.2	4.2	4.1	5.6	4.4	24		
7	4.2	5.0	4.9	4.4	4.7	4.5	4.7	4.5	\$	6.0	4.9	5.6	5.4	4.7	4.5	4.1	4.1	4.7	7.6	15.6	26.7	38.1	44.5	62.6	12.1	24		
8	31.3	33.7	27.8	22.9	12.8	16.4	22.2	\$	11.9	10.0	5.4	8.5	4.0	4.5	4.0	4.2	4.6	4.6	4.7	15.5	19.5	11.5	13.3	13.9	33.7	13.4	24	
9	23.6	23.9	23.7	25.0	30.6	\$	102.0	77.9	56.7	7.8	6.2	5.0	4.8	4.5	4.5	4.7	5.1	6.6	11.8	24.8	26.1	13.1	13.6	15.2	102.0	22.5	24	
10	23.6	23.9	23.7	25.0	30.6	\$	102.0	77.9	56.7	7.8	6.2	5.0	4.8	4.5	4.5	4.7	5.1	6.6	11.8	24.8	26.1	13.1	13.6	15.2	102.0	22.5	24	
11	18.5	19.0	14.6	13.6	\$	13.9	15.1	12.4	7.3	7.4	7.0	4.8	4.0	4.1	4.8	5.4	5.6	9.0	12.3	13.8	12.8	11.8	15.8	20.6	11.0	24		
12	24.2	23.2	28.2	\$	19.8	23.9	19.3	13.0	6.9	6.4	4.0	3.6	3.7	3.6	3.3	3.1	4.0	3.7	3.7	7.7	7.5	8.5	10.9	28.2	10.9	24		
13	10.3	9.3	\$	7.6	8.4	10.1	19.5	18.8	5.6	5.5	4.8	4.5	4.7	4.5	4.8	4.4	6.8	9.7	9.9	16.9	17.0	18.2	15.8	13.1	19.5	10.0	24	
14	15.5	\$	6.3	6.2	9.0	7.9	6.1	4.7	4.9	4.8	4.6	4.1	4.0	4.4	5.7	6.8	5.8	5.7	17.5	39.9	14.3	10.0	11.0	39.9	8.9	24		
15	\$	12.6	10.3	9.7	7.8	8.0	6.8	6.4	6.0	5.5	5.2	4.8	4.0	4.4	4.3	4.6	4.9	5.0	4.8	4.6	\$	12.6	\$	12.6	6.1	24		
16	5.2	4.6	5.4	5.6	5.2	4.8	4.6	4.9	4.5	4.6	4.0	4.3	4.7	4.3	4.0	3.8	4.0	4.8	11.8	23.9	P	\$	20.2	23.9	6.6	22		
17	22.5	49.6	49.0	35.7	28.5	31.1	35.6	58.5	60.6	34.4	17.9	8.7	5.9	5.3	5.9	5.1	7.2	15.4	15.0	13.0	17.6	\$	15.1	12.7	60.6	23.9	24	
18	15.7	21.2	20.4	18.2	19.4	37.1	38.2	56.1	46.5	12.9	7.9	5.9	5.3	5.4	5.1	7.6	13.5	8.2	14.2	23.9	\$	22.1	12.8	13.2	56.1	18.7	24	
19	13.5	12.4	16.6	22.0	23.4	31.3	37.3	29.8	28.8	28.7	21.1	17.2	4.4	3.9	2.8	3.0	4.5	4.7	6.9	\$	7.3	8.7	17.9	16.9	37.3	15.8	24	
20	5.0	10.9	11.8	14.1	25.6	21.5	13.9	13.3	5.3	7.0	6.9	4.9	4.7	3.6	3.6	6.6	13.4	13.5	\$	8.3	6.2	8.7	8.2	3.3	25.6	9.6	24	
21	3.5	4.6	4.3	5.6	4.7	4.8	6.2	6.2	6.3	4.0	3.3	3.0	3.2	3.2	2.9	2.6	\$	3.6	9.5	9.5	16.9	23.2	29.1	29.1	7.1	24		
22	24.1	29.2	33.8	34.2	38.3	60.8	27.5	31.5	31.9	27.0	21.6	8.5	5.9	3.0	2.5	2.3	\$	4.7	9.5	3.1	2.7	2.8	3.2	4.7	3.5	60.8	17.6	24
23	3.8	5.3	5.6	6.1	5.5	5.4	5.4	3.0	4.1	4.7	4.7	4.5	4.0	4.2	4.7	\$	4.7	9.5	13.1	13.9	16.8	14.9	8.8	12.2	16.8	7.2	24	
24	12.3	11.4	15.8	27.7	18.8	21.5	41.6	50.7	14.3	C	C	C	C	C	C	C	C	9.4	16.8	18.2	18.3	18.9	22.8	21.7	50.7	21.1	24	
25	20.9	5.9	13.2	14.8	13.9	27.6	49.7	17.5	18.8	19.3	3.3	2.0	1.2	\$	2.7	3.0	5.1	9.5	9.9	11.8	12.6	13.7	21.0	16.5	49.7	13.6	24	
26	16.6	14.9	16.4	19.9	20.4	18.1	25.4	17.0	8.8	6.4	5.5	4.4	\$	4.0	4.5	8.8	6.1	7.4	8.3	5.8	7.1	9.8	13.2	11.9	25.4	11.3	24	
27	11.9	11.4	11.4	7.2	7.3	14.3	16.1	14.5	6.8	5.2	4.1	\$	4.2	2.9	3.5	2.7	2.4	2.9	3.4	5.1	13.1	15.3	18.3	14.7	18.3	8.6	24	
28	17.3	17.9	16.2	21.0	21.0	19.2	27.0	20.5	12.6	7.1	\$	4.7	5.0	5.1	4.3	4.8	5.6	10.3	32.7	17.5	15.0	10.7	10.9	10.3	32.7	13.8	24	
29	10.4	11.8	12.1	19.5	27.9	22.0	14.6	14.6	11.4	\$	7.1	7.6	4.0	5.4	5.6	7.8	11.1	7.0	11.5	11.6	18.0	20.5	18.6	18.4	27.9	13.0	24	
30	27.4	26.5	26.1	27.9	28.1	40.4	67.1	101.3	\$	80.0	27.5	9.3	9.0	4.5	4.0	4.5	4.0	4.5	14.7	19.4	21.4	18.9	14.1	13.5	14.3	101.3	26.2	24
HOURLY MAX	31.3	49.6	49.0	35.7	38.3	60.8	102.0	101.3	60.6	80.0	27.5	17.2	9.0	5.8	5.9	8.8	13.5	25.7	32.7	24.8	39.9	38.1	44.5	62.6				
HOURLY AVG	14.5	15.2	15.6	15.3	16.3	19.5	24.0	24.1	15.4	12.5	8.2	5.8	4.5	4.3	4.2	4.5	5.6	7.5	9.3	12.1	13.8	13.0	13.7	14.8				

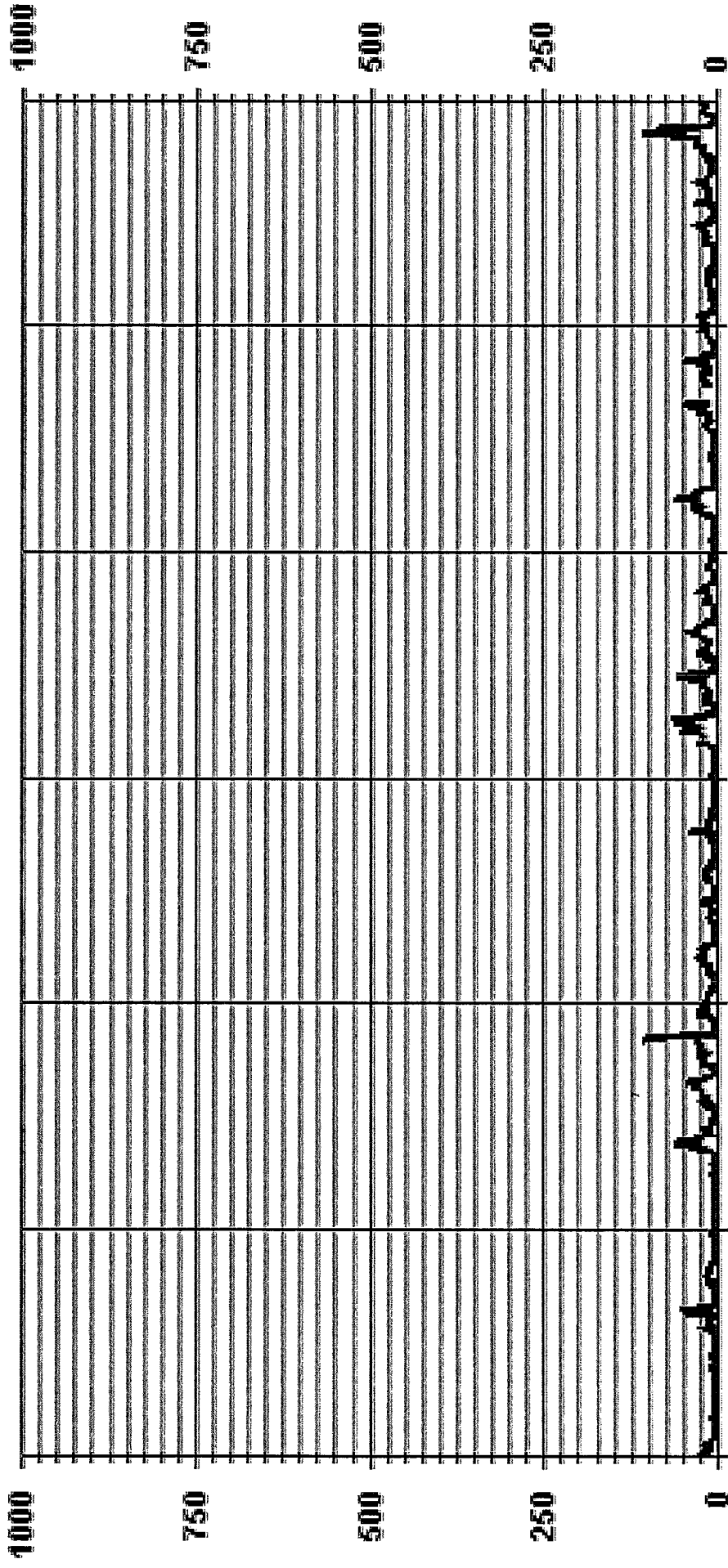
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
D	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:	680
MAXIMUM INSTANTANEOUS VALUE:	102.0 PPB @ HOUR(S) 6 ON DAY(S) 10
1ZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	12.01
VARIOUS	VARIOUS

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 NOXMAX PPB



LICA-ELK  
 NOX\_ / WDR Joint Frequency Distribution (Percent)

September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : NOX\_  
 Units : PPS  
 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	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.50	12.92	10.13	6.16	99.41
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.29	.00	.00	.00	.58
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.80	13.21	10.13	6.16	

Calm : .00 %

Total # Operational Hours : 681

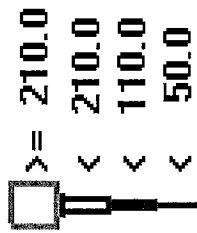
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	21	24	25	56	50	46	17	7	10	25	30	75	92	88	69	42	677
< 110.0												2	2				4
< 210.0																	
>= 210.0																	
Totals	21	24	25	56	50	46	17	7	10	25	30	75	94	90	69	42	42

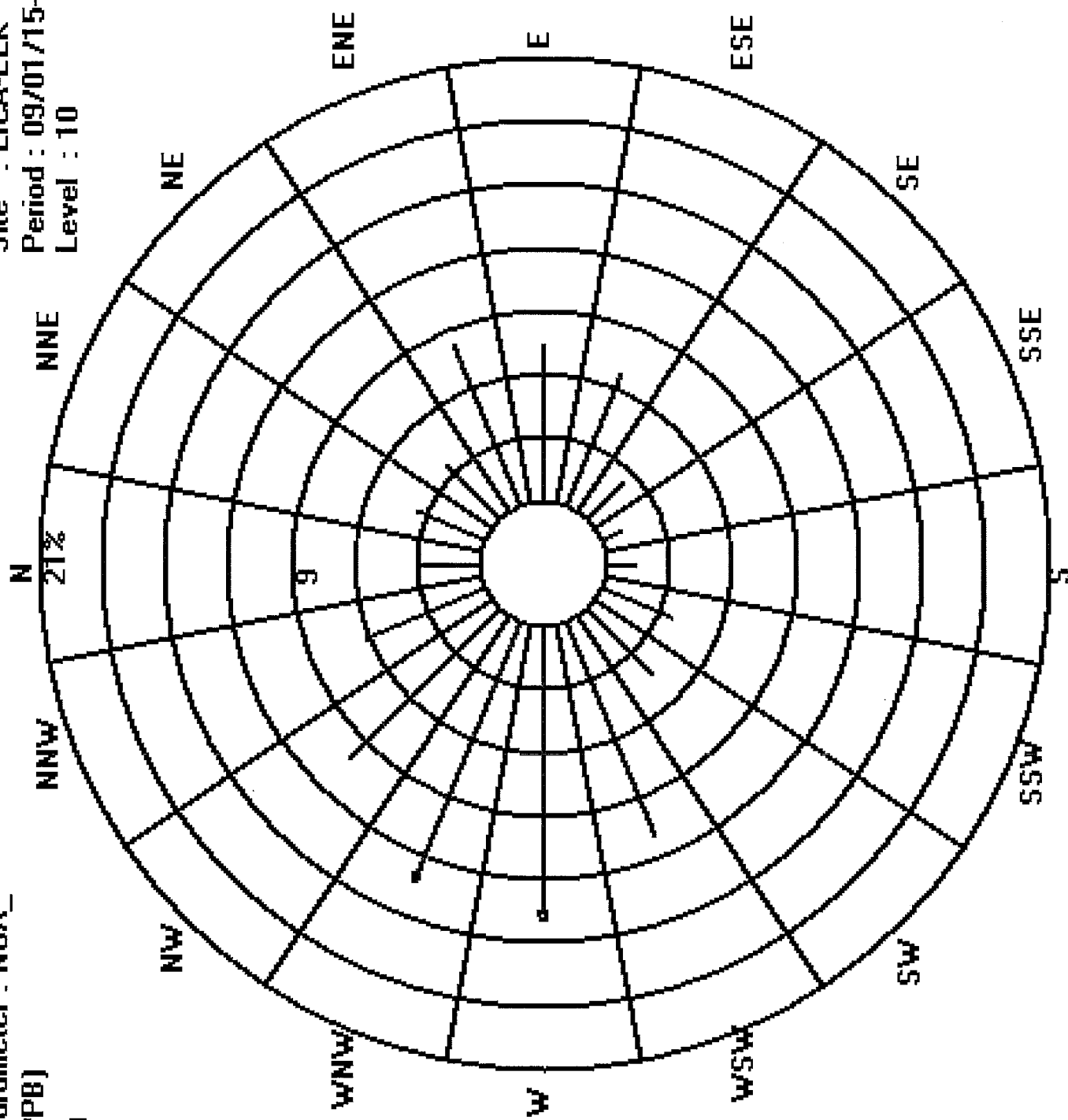
Calm : .00 %

Total # Operational Hours : 681

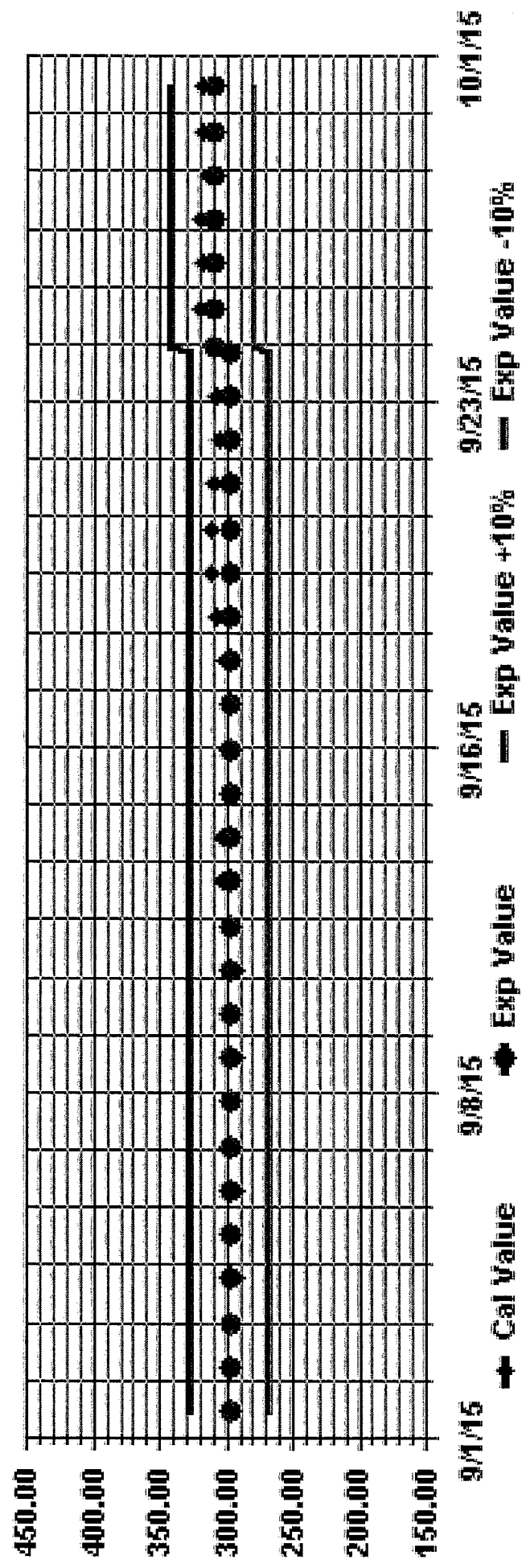
Logger : 35 Parameter : NDX\_  
Class Limits (PPB)



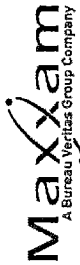
Site : LICA-ELK  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



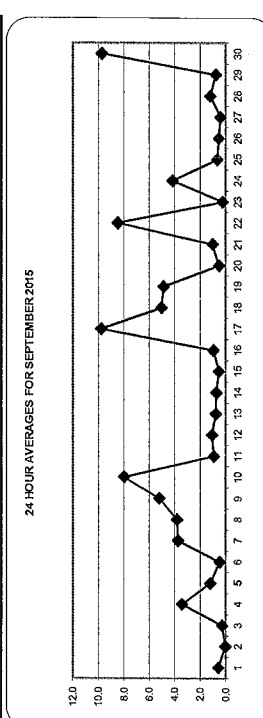
***NITRIC OXIDES***



NITRIC OXIDE (NO) hourly averages in ppb

DAY	24-HOUR AVG.																								ROGGS				
	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			
1	0.7	0.6	1.3	1.0	0.6	0.5	2.2	2.0	1.0	1.1	0.6	0.5	0.4	0.1	S	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	2.2	0.6		
2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0		
3	0.2	0.2	0.2	0.0	0.2	0.0	0.2	0.0	0.3	0.1	0.1	0.0	S	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.8	0.3	0.7	1.3	0.3	2.4		
4	2.0	2.4	1.8	1.3	2.6	25.2	23.3	12.0	1.1	0.2	0.2	S	0.5	0.5	0.4	0.3	0.0	0.1	0.0	0.3	0.3	1.1	0.8	2.5	25.2	3.4	2.4		
5	3.6	4.4	2.2	1.7	3.6	2.2	1.0	1.2	1.1	0.0	S	0.7	0.6	0.5	0.7	0.7	0.5	0.4	0.4	0.6	0.5	0.5	0.5	4.4	1.2	2.4			
6	0.7	0.8	0.7	0.8	0.5	0.7	0.6	0.5	S	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.4	0.4	0.8	0.5	2.4			
7	0.2	0.3	0.4	0.5	0.3	0.4	0.5	0.6	S	0.4	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.9	6.6	13.8	23.3	35.8	3.7	2.4			
8	11.2	17.2	14.7	9.4	3.0	4.8	11.2	S	16.8	10.4	7.6	6.5	0.8	0.2	0.1	0.1	0.5	0.4	0.5	0.4	0.6	1.2	1.3	1.6	2.1	17.2	3.8		
9	4.3	6.3	8.7	10.7	17.3	18.4	S	67.8	59.0	9.6	1.0	0.5	0.4	0.4	0.4	0.4	0.4	1.4	0.5	2.8	1.8	2.2	1.0	1.3	18.4	5.2	2.4		
10	3.8	7.5	8.0	9.3	12.9	S	1.2	2.2	1.9	0.9	1.1	0.6	0.4	0.2	0.1	0.2	0.1	0.3	0.3	0.4	0.4	0.6	0.3	0.4	1.3	2.5	0.9	2.4	
11	2.0	2.5	2.1	1.9	S	1.8	3.0	2.7	3.6	0.9	0.5	0.2	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	3.6	1.1	2.4		
12	3.3	3.6	3.5	S	0.5	0.5	0.7	3.0	2.2	0.8	0.7	0.4	0.4	0.3	0.4	0.6	0.6	0.4	0.8	0.9	1.1	1.0	0.8	3.0	0.8	2.4			
13	0.3	0.5	0.5	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.2	0.1	1.7	6.8	1.2	0.8	2.4		
14	1.0	S	1.7	1.1	1.1	0.9	0.7	0.5	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.4	0.2	0.4	0.2	0.4	0.3	0.3	0.3	0.4	S	1.7	0.5	2.4	
15	0.6	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.7	0.6	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.9	4.1	P	P	S	6.6	6.6	1.0	2.2	2.4	
16	6.8	26.1	24.9	15.6	11.6	18.4	20.6	36.8	32.0	20.7	2.5	1.1	0.7	0.6	0.4	0.3	0.3	0.3	0.9	0.8	0.8	1.2	S	1.1	1.4	36.8	9.8	2.4	
17	2.4	4.0	3.4	3.8	3.8	14.4	24.4	30.1	19.2	1.8	0.9	0.6	0.3	0.3	0.3	0.3	0.3	0.6	0.3	0.5	2.2	S	1.1	0.5	0.7	30.1	5.0	2.4	
18	1.1	1.8	2.6	6.5	9.1	16.5	22.0	15.9	13.1	12.2	8.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.2	0.0	0.3	0.2	22.0	4.9	2.4	
19	0.1	0.5	0.3	0.4	3.2	2.1	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.8	0.8	S	0.2	0.0	0.3	0.0	0.3	0.0	0.0	3.2	0.5	2.4	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	S	0.0	0.5	0.7	2.5	6.5	12.2	1.0	2.4	2.4		
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	
22	7.2	11.2	20.6	23.6	24.4	33.5	17.7	15.4	19.1	14.5	7.5	0.6	0.1	0.0	0.0	S	0.5	0.5	0.4	0.3	0.7	0.9	0.5	1.1	1.1	0.2	2.4	2.4	
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	S	0.5	0.5	0.4	0.3	0.7	0.9	0.5	1.1	1.1	0.2	2.4	2.4	
24	0.9	3.2	8.6	5.2	7.8	17.6	16.4	4.6	5.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	0.0	0.0	2.4	2.4
25	0.0	0.0	0.0	0.0	1.8	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.3	0.2	0.1	0.3	0.0	0.3	0.2	0.2	0.6	0.5	10.8	0.7	2.4	2.4
26	0.4	0.7	0.6	0.6	0.7	0.9	3.0	0.7	0.6	0.4	0.5	0.4	S	0.4	0.3	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.4	3.0	0.5	2.4	2.4	
27	0.3	0.3	0.3	0.2	0.2	0.4	1.0	0.6	0.5	0.4	0.1	S	0.4	0.1	0.4	0.3	0.0	0.4	0.3	0.2	0.3	0.2	0.3	0.9	1.0	0.4	2.4	2.4	
28	0.8	1.4	0.8	1.8	1.4	1.7	4.3	4.6	2.1	1.3	S	0.8	0.5	0.2	0.1	0.0	0.4	4.9	0.6	0.0	0.0	0.0	0.0	4.9	1.2	2.4	2.4		
29	0.0	0.0	0.0	2.0	4.1	0.4	0.3	1.1	0.9	S	0.9	0.9	0.0	0.3	0.2	0.4	0.6	0.0	0.2	0.1	0.9	1.5	1.2	1.7	4.1	0.8	2.4	2.4	
30	6.4	5.6	9.3	10.7	15.8	25.4	40.8	69.6	S	30.6	5.1	0.9	0.3	0.1	0.0	0.0	0.0	0.1	1.0	0.7	0.9	0.3	0.2	0.6	69.6	9.8	2.4	2.4	
HOURLY MAX	11.2	26.1	24.9	23.6	24.4	33.5	17.7	15.4	19.1	14.5	7.5	0.6	0.1	0.0	0.0	S	0.5	0.5	0.4	0.3	0.7	0.9	0.5	1.1	1.1	0.2	2.4	2.4	
HOURLY AVG	2.1	3.5	3.9	3.9	4.3	6.3	9.6	9.9	4.4	3.7	1.4	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.7	1.0	1.1	1.5	2.6	2.6		

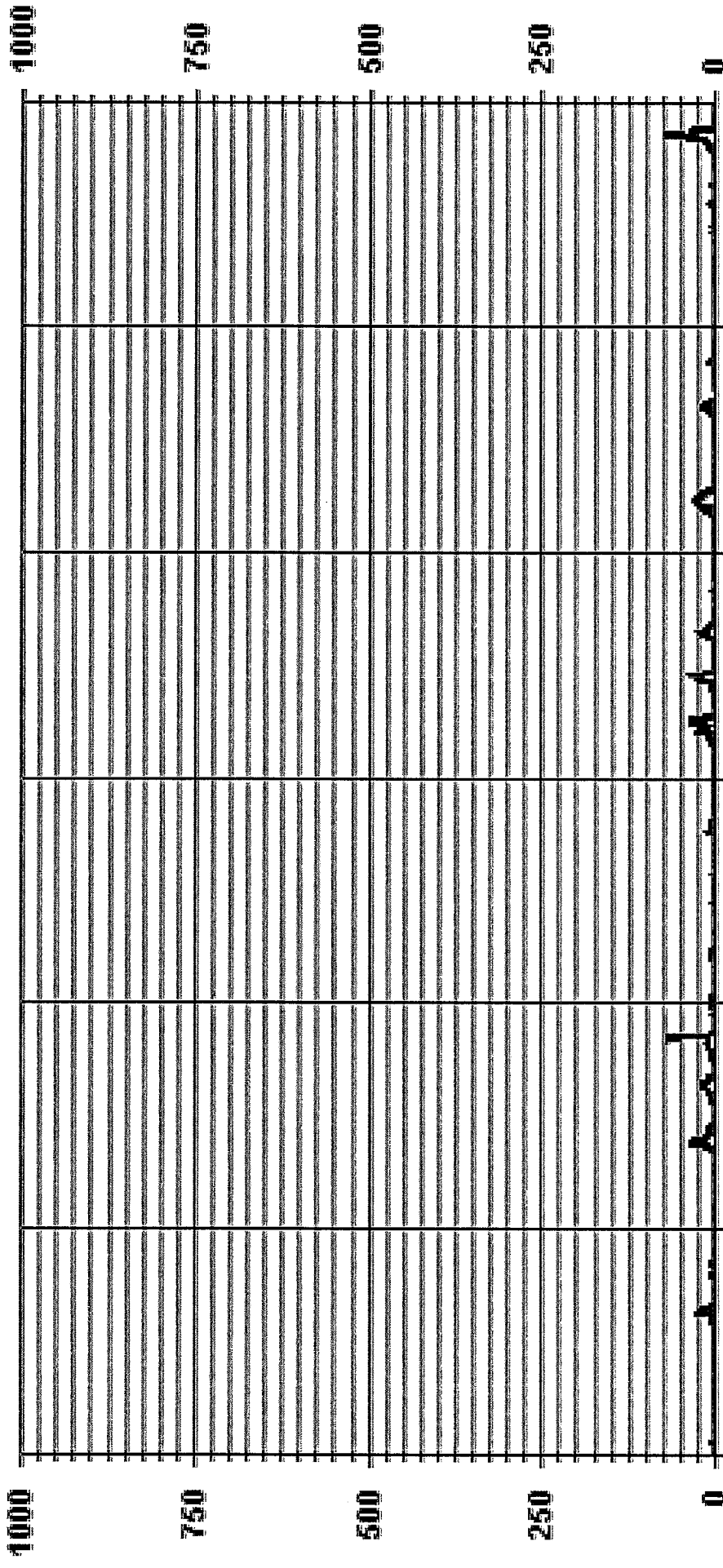
STATUS FLAG CODES  
 C - CALIBRATION  
 Y - MAINTENANCE  
 S - DAILY ZERO/SPAN CHECK  
 P - POWER FAILURE  
 G - OUT FOR REPAIR  
 Q - QUALITY ASSURANCE  
 R - RECOVERY  
 X - MACHINE MALFUNCTION  
 O - OPERATOR ERROR  
 K - COLLECTION ERROR



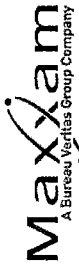
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	564
MAXIMUM 1-HR AVERAGE:	69.6
MAXIMUM 24-HR AVERAGE:	9.8
1/25 CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	6.88
ON DAY(S)	30
ON DAY(S) VAR- VARIOUS	17, 30
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	2.6
PPB	PPB

# 01 Hour Averages



--- LICA35 NO<sub>2</sub> PPB



NITRIC OXIDE MAX instantaneous maximum in ppb

DAY	HOUR START																								24-HOUR AVG.	ROGS.	
	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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			
1	1.4	4.4	2.4	1.1	1.5	3.7	2.9	1.9	1.8	1.1	1.1	1.1	0.8	S	0.7	0.8	0.7	0.6	0.9	0.8	0.7	0.6	0.6	0.6	4.4	1.4	24
2	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.8	0.6	0.5	S	0.8	0.3	0.8	0.6	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.8	0.5	24
3	0.8	1.0	0.8	0.8	0.5	1.7	1.0	0.8	0.7	0.6	0.6	S	0.9	0.8	0.7	1.0	0.8	1.0	1.0	1.6	1.0	1.1	2.5	2.5	1.0	24	
4	6.1	4.9	3.7	2.9	8.7	32.5	36.0	23.9	3.5	0.8	0.8	S	1.0	1.0	0.7	0.7	0.6	0.6	0.9	1.1	3.0	1.8	4.2	36.0	6.1	24	
5	6.1	5.8	4.0	3.8	5.3	4.7	1.8	1.9	2.0	0.8	S	1.6	1.2	1.1	1.2	1.1	1.1	1.3	1.1	1.3	1.3	1.1	6.1	6.1	2.3	24	
6	1.5	1.4	1.5	1.5	1.3	1.3	1.3	1.3	S	1.0	1.1	1.0	1.2	1.0	0.8	0.8	0.8	0.8	1.1	1.1	1.0	1.1	1.5	1.1	1.1	24	
7	0.7	0.9	1.0	1.0	1.0	1.1	1.0	1.3	S	1.3	1.2	1.1	1.0	0.8	0.6	0.7	0.8	0.7	0.8	1.1	1.1	1.1	1.5	1.1	1.1	24	
8	21.2	24.0	20.1	14.5	6.0	10.2	15.1	S	4.2	3.0	1.3	2.6	1.0	1.1	1.2	1.0	1.2	1.1	1.5	2.1	2.2	2.5	3.1	24.0	6.1	24	
9	9.0	9.1	11.1	14.6	23.9	27.2	S	32.2	16.0	8.4	8.5	1.9	0.8	0.7	0.8	0.9	1.3	4.0	1.6	4.7	4.0	5.1	2.5	2.2	8.3	24	
10	7.9	9.8	10.2	10.5	18.4	S	85.9	65.0	42.8	1.7	1.1	1.0	1.3	1.1	1.1	1.0	1.0	1.1	1.4	7.2	7.4	1.2	1.9	2.4	85.9	12.2	24
11	4.0	4.4	2.9	2.6	S	1.9	3.3	3.1	1.5	2.0	1.3	1.1	0.8	0.7	0.9	0.8	1.0	1.2	1.4	1.2	1.3	1.0	2.1	4.4	1.8	24	
12	4.3	5.0	8.9	S	2.7	6.9	4.8	5.1	2.5	1.1	0.9	0.8	0.7	0.8	0.7	0.6	0.9	0.6	0.7	0.6	0.7	0.6	0.7	1.1	8.9	2.3	24
13	0.9	1.2	S	1.3	1.2	1.5	5.8	5.5	1.5	1.4	1.1	1.2	1.2	1.1	1.2	1.2	1.2	0.9	2.9	1.5	2.3	1.8	1.5	5.8	1.8	24	
14	2.1	S	1.4	0.9	1.4	1.1	1.0	1.0	0.8	0.8	1.0	1.1	0.8	0.7	0.7	0.9	0.8	0.8	1.0	5.6	26.1	2.7	1.4	2.6	26.1	2.5	24
15	S	3.6	1.8	1.8	1.6	1.5	1.0	1.4	1.3	1.1	1.1	1.1	1.1	0.8	1.0	0.8	0.8	1.1	1.1	0.8	1.2	0.8	1.3	3.6	1.3	24	
16	1.4	1.3	1.2	1.3	1.3	1.1	1.1	1.2	1.4	1.2	1.0	1.1	1.4	1.0	0.9	1.2	0.9	0.8	2.1	11.6	P	S	9.2	11.6	2.1	22	24
17	11.1	39.0	38.0	22.8	17.8	22.2	27.8	49.9	52.2	26.0	8.1	2.0	1.4	1.3	1.0	0.9	0.9	2.8	1.9	2.0	1.9	S	1.8	2.5	52.2	14.6	24
18	3.3	5.9	5.0	6.5	9.3	27.4	28.9	42.1	33.8	3.4	1.8	1.3	1.0	1.0	1.0	1.6	1.0	1.8	4.7	S	3.1	1.5	2.5	42.1	8.2	24	
19	2.5	2.8	5.3	11.5	13.6	22.5	29.0	19.7	18.1	18.0	10.9	7.6	0.4	0.6	0.2	0.3	0.5	0.6	1.1	S	1.0	0.7	1.2	1.1	29.0	7.4	24
20	0.9	1.1	1.2	1.5	7.6	4.9	2.0	2.1	1.0	1.0	1.2	0.9	0.9	0.8	0.8	0.8	2.7	2.5	S	1.2	0.8	1.0	0.7	0.3	7.6	1.6	24
21	0.6	0.6	0.4	0.6	0.4	0.5	0.7	1.5	1.4	0.9	0.6	0.6	0.7	0.9	0.4	0.5	S	0.6	1.5	1.5	4.9	12.4	17.9	17.9	2.2	24	
22	15.0	19.6	25.3	25.8	31.3	52.8	21.8	24.0	24.1	19.4	12.8	1.5	0.7	0.4	0.3	0.4	S	0.7	0.5	0.5	0.2	0.4	0.4	0.3	52.8	12.1	24
23	0.5	0.6	0.6	0.6	0.4	0.7	0.6	0.3	0.4	0.9	1.2	0.9	0.7	0.5	0.8	S	1.0	1.6	1.7	1.0	1.8	2.2	1.2	3.1	1.0	2.4	24
24	2.1	2.0	5.7	15.5	8.0	10.8	28.6	36.0	6.4	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	3.6	2.9	36.0	7.6	24
25	3.2	0.0	0.0	0.0	0.0	8.4	27.8	2.3	3.2	3.5	0.0	0.0	S	1.1	0.7	0.9	0.9	1.6	1.1	1.1	2.2	1.3	27.8	2.6	24	24	
26	1.1	1.5	1.4	2.0	1.7	2.4	7.0	1.8	1.6	1.1	1.2	1.0	S	1.5	0.9	1.1	0.8	1.5	0.7	0.9	0.7	1.2	1.3	1.1	7.0	1.5	24
27	1.0	0.9	1.0	1.0	0.8	1.5	2.6	2.6	1.4	1.1	0.9	S	1.2	0.8	1.1	0.9	0.8	1.1	1.1	0.9	1.4	1.8	2.8	1.6	2.8	1.3	24
28	1.9	2.1	1.9	2.9	2.8	4.6	8.2	7.0	4.0	2.2	S	1.5	1.6	0.9	0.7	0.6	2.6	13.0	1.4	0.7	0.6	0.6	0.5	13.0	2.7	24	24
29	0.6	0.6	0.8	4.9	10.1	4.4	1.3	1.9	1.7	S	1.6	1.6	0.9	1.2	1.0	1.4	1.6	0.8	1.0	0.8	2.1	2.3	2.8	10.1	2.1	24	24
30	10.4	8.0	12.4	16.9	16.9	28.9	57.0	85.0	S	68.4	11.1	1.6	1.1	0.9	0.5	0.2	0.7	1.1	2.9	2.1	1.6	1.1	1.3	2.0	85.0	14.4	24
HOURLY MAX	21.2	39.0	38.0	25.8	31.3	52.8	85.9	85.0	52.2	68.4	12.8	7.6	1.6	1.5	1.2	1.5	2.7	4.0	13.0	11.6	26.1	22.1	29.6	49.9			
HOURLY AVG	4.2	5.5	5.9	6.0	6.8	9.9	14.0	14.6	8.3	6.4	2.8	1.4	0.9	0.9	0.8	1.0	1.2	1.5	2.2	2.7	2.4	2.9	4.3				

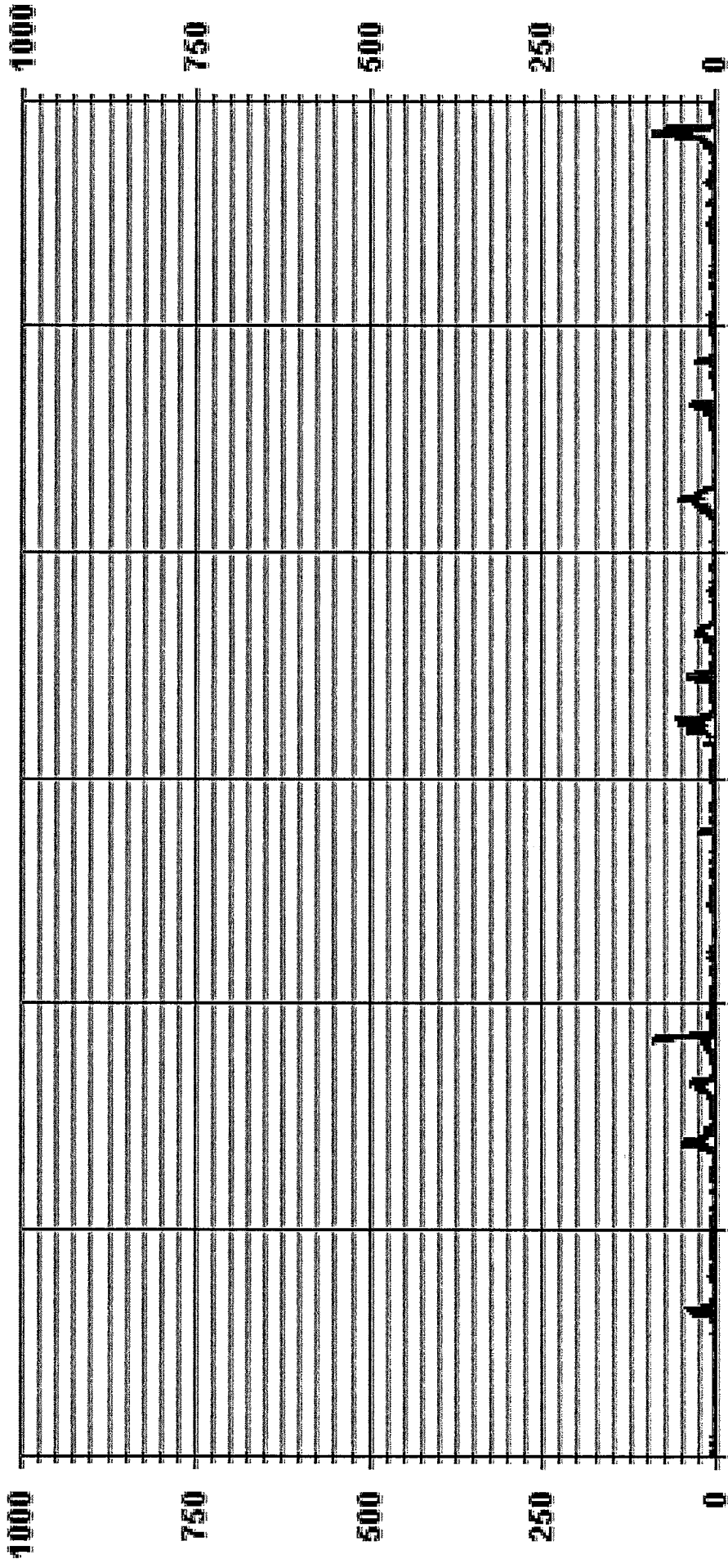
STATUS FLAG CODES

C	CALIBRATION
O	QUALITY ASSURANCE
M	MAINTENANCE
R	RECOVERY
X	W/ACRIME/VALVE/UNCTION
D	DAILY ZERO/SPAN/CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	668
MAXIMUM INSTANTANEOUS VALUE:	85.9
PPB @ HOUR(S)	6
ON DAY(S)	10
VAR-VARIOUS	
IZS CALIBRATION TIME:	30
MONTHLY CALIBRATION TIME:	8
STANDARD DEVIATION:	9.64
OPERATIONAL TIME:	718
HRS	HRS

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35    - - - NOMAX    . . . PPB



LICA-ELK  
 NO\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.65	12.92	10.13	6.16	99.55
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.29	.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	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.80	13.21	10.13	6.16	

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : NO\_  
 Units : FPS

Wind Parameter : WDR  
 Instrument Height : 10 Meters

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	21	24	25	56	50	46	17	7	10	25	30	75	93	88	69	42	678
< 110.0													1	2			3
< 210.0																	
>= 210.0																	
Totals	21	24	25	56	50	46	17	7	10	25	30	75	94	90	69	42	

Calm : .00 %

Total # Operational Hours : 681

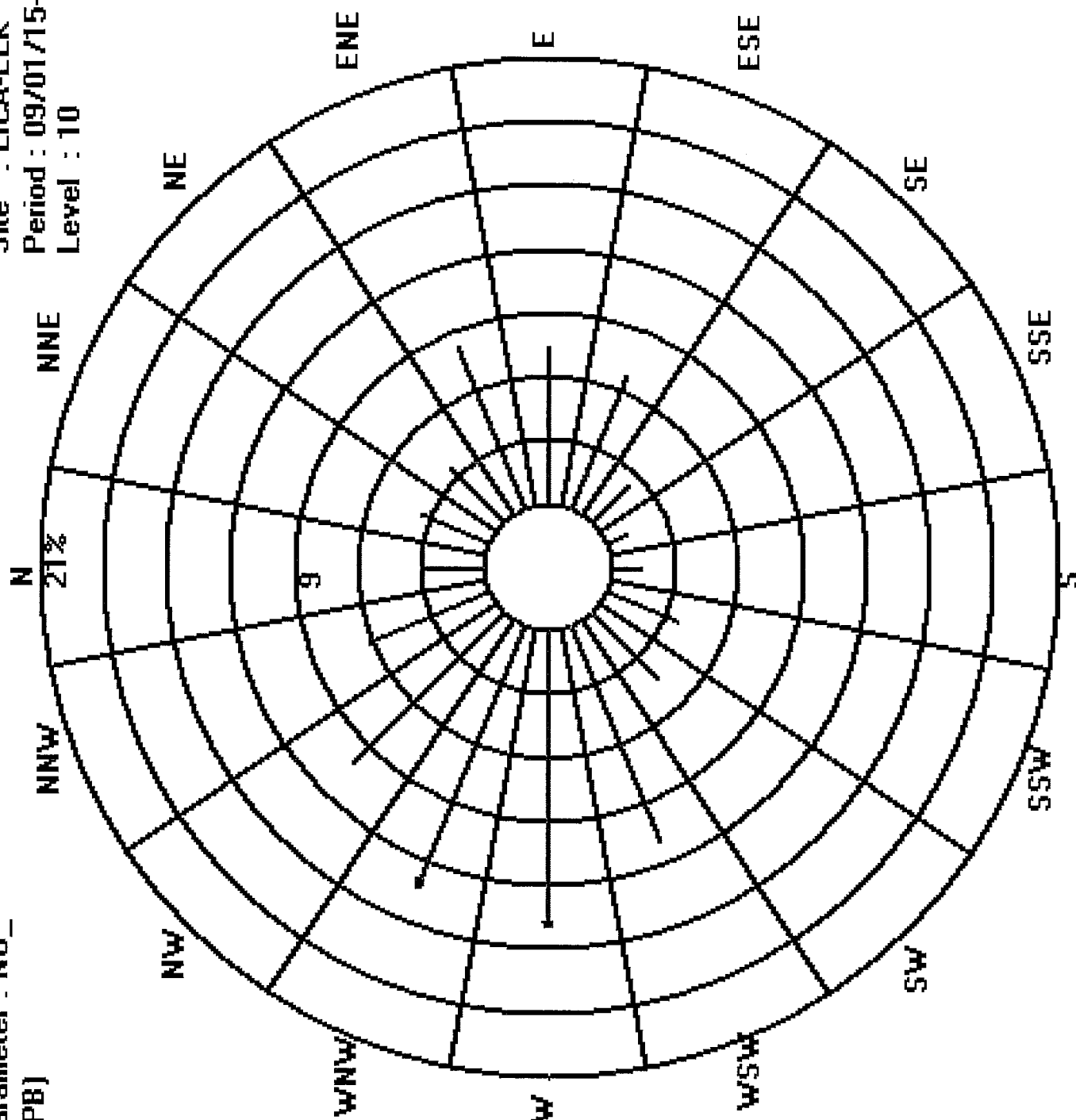
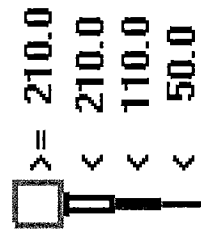
Logger : 35 Parameter : NO\_

Site : LICA-ELK

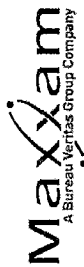
Period : 09/01/15-09/30/15

Level : 10

Class Limits (PPB)



***NITROGEN DIOXIDE***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Elk Point Airport Site - SEPTEMBER 2015  
JOB # 2833-2015-09-35- C

NITROGEN DIOXIDE (NO2) hourly averages in ppb

DAY	MST																								DAILY MAX.	24-HOUR AVG.	ROGS.		
	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	
1	10.6	11.2	12.2	10.7	9.8	9.9	12.9	9.1	5.9	6.9	4.5	2.9	3.0	2.9	\$	2.2	2.2	2.2	2.4	3.0	3.8	5.4	5.1	4.2	4.3	12.9	6.3	24	
2	3.6	3.2	2.7	2.9	2.7	2.5	2.6	2.3	1.8	2.0	2.7	2.9	3.2	2.9	\$	3.0	3.0	3.0	2.2	2.1	3.7	3.4	3.0	3.2	6.3	5.8	3.1	24	
3	5.3	5.0	4.6	3.8	4.2	6.6	4.3	5.5	4.0	3.1	2.7	2.3	\$	2.3	2.3	1.8	1.3	2.2	2.2	3.9	10.7	5.9	6.8	6.8	10.7	4.2	24		
4	7.4	7.0	6.1	6.3	10.4	9.1	8.4	4.1	2.6	2.6	\$	2.4	3.5	2.8	2.2	2.4	2.6	3.2	2.5	6.5	5.1	7.8	10.4	5.0	24	24	24		
5	7.3	6.9	6.2	5.2	5.9	6.0	6.5	5.2	4.7	2.7	\$	2.2	2.2	2.2	2.0	2.2	2.4	2.5	2.3	2.5	3.1	3.8	3.6	3.8	7.3	4.0	24		
6	3.8	3.7	3.5	3.5	3.1	2.7	2.9	3.2	3.1	\$	2.9	2.9	3.1	3.1	3.1	3.0	2.8	2.6	2.7	2.6	3.1	3.0	3.0	2.9	3.8	3.1	24		
7	3.2	3.4	3.4	3.1	3.6	3.1	4.4	4.3	\$	4.0	3.9	4.4	3.7	3.6	3.4	3.2	3.6	3.7	7.8	15.6	16.2	14.2	12.8	16.2	5.9	24	24		
8	8.2	8.2	8.2	7.5	6.5	6.5	6.1	\$	7.3	6.0	3.1	3.2	3.0	3.1	2.8	3.0	3.2	3.4	3.5	8.0	13.9	8.9	9.4	9.2	13.9	6.2	24	24	
9	9.5	10.7	10.3	9.6	10.0	8.4	\$	8.4	9.8	10.0	11.4	6.3	4.5	3.6	3.9	4.5	6.2	12.7	9.3	16.8	17.9	17.4	14.6	14.2	17.9	10.0	24	24	
10	14.8	14.1	13.8	12.8	11.7	\$	15.0	13.6	10.0	5.9	4.4	3.5	3.3	3.3	3.0	3.1	3.5	4.3	8.2	8.7	13.5	10.6	10.6	12.1	15.0	8.9	24	24	
11	12.5	13.4	11.0	9.7	\$	11.2	10.8	8.2	5.5	5.6	4.6	3.7	3.4	3.4	3.6	4.2	4.7	6.0	9.7	10.2	10.6	9.8	11.9	15.7	15.7	8.2	24	24	
12	19.0	18.1	18.0	\$	16.1	15.3	13.8	12.4	6.4	5.5	4.4	2.9	2.7	2.8	2.7	2.4	2.8	3.1	2.8	3.1	2.8	3.2	3.9	6.0	8.6	19.0	7.6	24	24
13	7.0	6.5	\$	4.7	6.4	6.4	11.9	8.1	3.9	3.9	3.3	3.3	3.3	3.0	3.4	3.5	4.9	3.9	3.7	9.9	10.5	8.5	7.5	7.8	10.8	5.4	24	24	
14	10.8	\$	4.6	4.7	6.6	5.4	4.5	3.7	3.7	3.5	3.1	3.4	3.5	3.6	3.2	3.1	3.3	3.3	3.6	3.7	3.6	3.7	3.6	3.5	\$	8.4	4.5	24	24
15	\$	8.4	7.5	7.3	6.2	5.9	4.8	4.8	4.1	4.2	3.9	3.6	3.5	3.6	3.2	3.1	3.3	3.3	3.3	3.6	3.7	3.6	3.7	3.6	\$	8.4	4.5	24	24
16	3.6	3.2	3.6	4.0	3.6	3.4	3.4	3.6	3.1	3.1	3.0	3.1	3.1	3.1	2.9	2.6	2.8	2.8	3.4	7.1	11.1	P	\$	9.6	11.1	4.1	22	24	
17	10.4	11.0	11.7	12.5	11.3	8.9	7.8	7.8	7.2	9.0	6.7	5.6	4.5	4.1	4.2	3.7	4.9	6.7	8.2	9.2	11.6	\$	12.3	9.7	12.5	8.2	24	24	
18	10.2	13.0	12.7	10.6	9.8	9.9	9.3	11.6	11.4	7.0	5.6	3.9	3.9	3.9	3.6	3.4	4.7	8.3	4.9	6.6	12.9	\$	16.7	9.8	9.2	16.7	8.7	24	24
19	9.3	9.1	9.8	10.3	9.6	8.7	8.4	9.4	8.4	11.7	10.5	6.1	3.0	3.0	3.4	2.5	2.9	3.5	4.1	\$	4.9	5.9	9.6	7.6	11.7	7.0	24	24	
20	2.9	7.0	8.7	11.6	15.1	13.7	7.7	6.4	3.5	5.0	4.2	3.4	3.1	2.4	2.2	3.4	8.1	8.2	\$	4.5	4.0	5.7	3.4	2.1	15.1	5.9	24	24	
21	2.8	3.3	3.6	4.2	3.6	3.6	5.0	4.4	4.0	2.8	2.6	2.2	2.1	2.3	2.4	2.0	1.9	\$	2.5	6.1	7.4	10.4	10.8	10.8	10.8	4.4	24	24	
22	9.1	8.1	8.2	7.1	6.7	6.6	5.6	6.9	7.6	8.2	8.6	5.7	4.3	2.3	1.9	1.9	\$	2.2	2.4	2.1	2.1	2.6	3.5	2.9	9.1	5.1	24	24	
23	3.2	4.4	4.4	4.4	4.4	4.0	3.6	2.3	2.7	3.5	3.1	3.2	2.8	3.1	3.3	\$	3.2	5.6	6.4	7.5	11.9	10.8	6.8	8.9	11.9	4.9	24	24	
24	7.7	7.7	9.7	10.7	10.8	10.3	10.2	11.6	8.0	8.0	C	C	C	C	C	C	C	C	9.1	14.7	11.6	13.1	16.9	16.9	15.1	16.9	11.3	24	24
25	12.6	7.6	9.8	11.3	12.3	16.7	19.1	11.5	11.9	11.4	5.0	3.8	3.3	\$	1.7	1.5	2.9	3.1	5.9	9.5	8.4	7.8	11.6	11.9	19.1	8.7	24	24	
26	13.7	11.4	13.3	11.5	13.0	9.9	17.4	8.0	6.2	4.4	3.7	3.3	\$	2.3	2.5	5.6	2.3	4.2	3.9	5.2	7.3	9.5	8.1	17.4	7.5	24	24	24	
27	7.6	6.5	8.1	4.3	5.4	9.7	12.2	6.7	4.6	3.7	2.5	\$	2.1	1.9	1.9	1.7	1.6	1.9	2.1	2.6	8.1	10.8	11.8	9.6	12.2	5.5	24	24	24
28	11.6	14.2	9.7	13.4	14.0	12.2	16.7	12.0	6.6	4.6	\$	2.7	3.3	3.3	3.0	3.3	4.2	5.6	16.5	13.4	10.3	9.0	9.6	9.0	16.7	9.1	24	24	24
29	9.1	9.3	10.4	13.3	15.7	9.5	10.7	10.5	8.2	\$	4.9	5.2	2.8	3.0	3.6	4.2	7.0	4.7	7.1	9.7	12.4	16.5	15.9	14.7	16.5	9.1	24	24	24
30	17.1	15.6	13.1	11.3	10.1	11.1	10.4	12.6	\$	15.0	12.3	7.2	5.9	3.6	3.2	2.7	3.2	7.8	15.1	15.7	16.2	12.7	11.8	11.7	17.1	10.7	24	24	24
HOURLY MAX	19.0	18.1	18.0	13.4	16.1	16.7	19.1	13.6	11.9	15.0	12.3	7.2	5.9	4.1	4.2	5.6	8.3	12.7	16.5	16.8	17.9	17.4	16.9	15.7					
HOURLY AVG	9	9	9	8	8	8	9	8	6	6	5	4	3	3	3	3	3	4	4	4	6	8	9	9	9	9	9	9	9

STATUS FLAG CODES  
 Q - QUALITY ASSURANCE  
 R - RECOVERY  
 X - MAINTENANCE/JUNCTION  
 O - OPERATOR ERROR  
 K - COLLECTION ERROR

OBJECTIVE LIMIT:  
 ALBERTA ENVIRONMENT: E-HR: 159 PPB

MONTHLY SUMMARY  
 NUMBER OF 1-HR EXCEEDENCES: 0

NUMBER OF NON-ZERO READINGS: 681

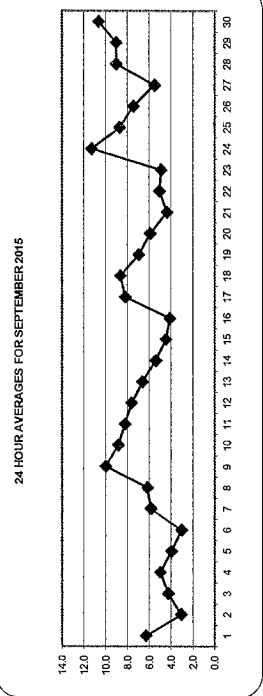
MAXIMUM 1-HR AVERAGE: 19.1 PPB @ HOUR(S) 6 ON DAY(S) 25

MAXIMUM 24-HR AVERAGE: 11.3 PPB VAR-VARIOUS 24

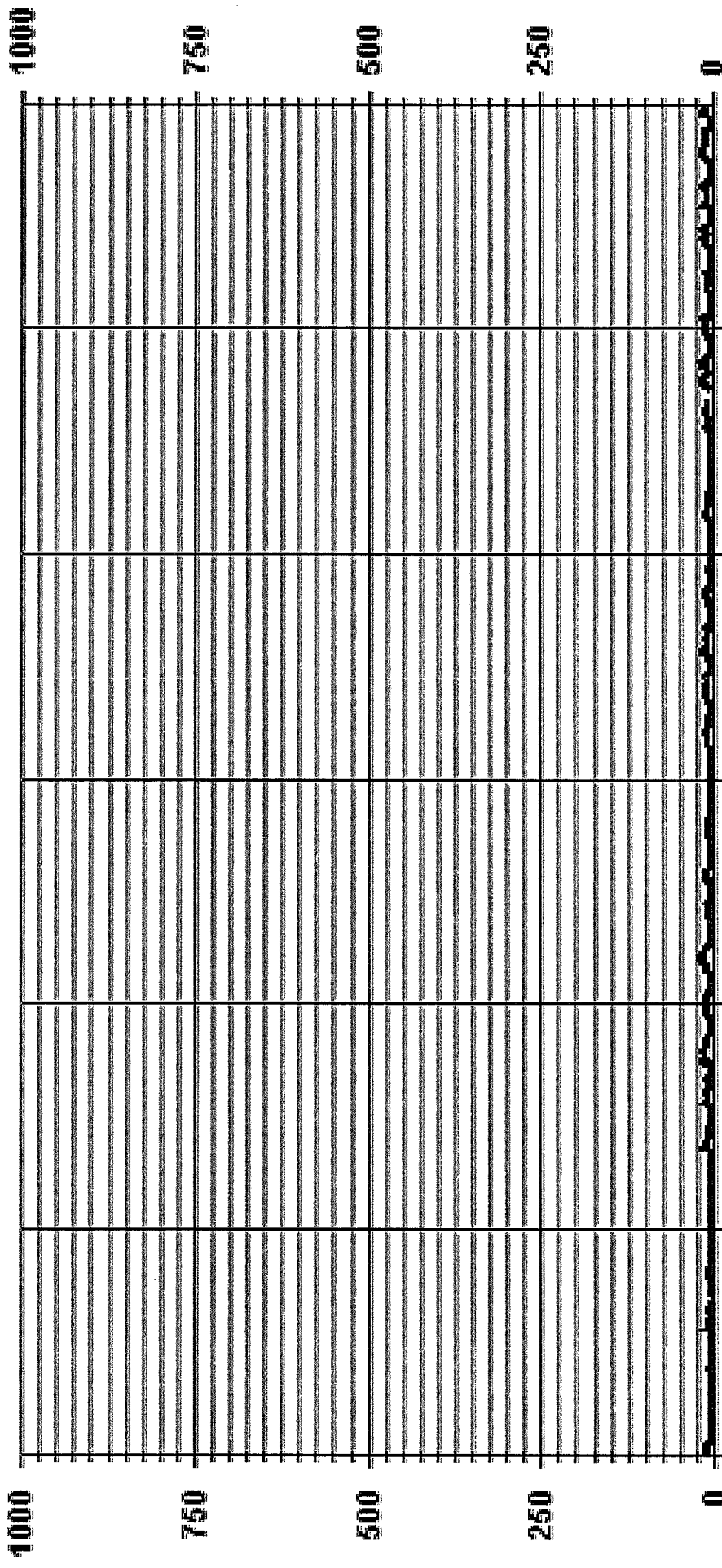
1/25 CALIBRATION TIME: 30 HRS OPERATIONAL TIME: 718 HRS

MONTHLY CALIBRATION TIME: 7 HRS AMD OPERATION UPTIME: 99.7 %

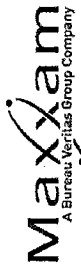
STANDARD DEVIATION: 4.03 MONTHLY AVERAGE: 6.6 PPB



01 Hour Averages



-- LICA35 NO2\_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	24-HOUR AVG.																								RDGS.				
	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400					
1	12.4	12.6	17.0	14.5	12.1	11.5	15.3	12.5	7.8	8.2	6.0	3.6	3.8	3.6	3.6	3.1	3.1	3.1	6.0	5.2	7.5	6.0	5.2	5.7	17.0	8.1	24		
2	5.0	4.2	3.6	3.6	3.4	3.1	3.3	3.3	2.4	2.9	3.9	3.6	4.0	3.8	4.4	3.6	4.1	4.6	4.8	4.0	4.0	5.9	8.6	7.2	8.6	4.2	24		
3	7.9	5.9	5.8	4.8	5.9	8.9	6.6	7.0	3.2	3.2	3.2	3.2	3.2	3.2	3.0	2.6	2.9	8.3	14.9	7.1	8.1	8.6	14.9	5.8	24	24			
4	9.7	8.7	7.3	6.2	8.6	11.7	11.1	10.3	6.6	3.2	3.4	3.7	5.1	3.9	3.0	3.0	3.0	3.3	3.9	8.2	9.6	6.4	9.0	11.7	6.5	24			
5	8.2	7.8	7.3	6.8	6.8	6.9	7.7	6.6	5.6	3.8	2.9	2.9	2.9	2.7	2.6	2.9	3.0	3.2	2.9	3.3	4.0	4.8	4.2	4.6	8.2	4.8	24		
6	4.7	4.5	4.2	4.4	3.9	3.6	3.6	3.6	3.9	3.9	3.6	3.6	4.1	3.9	3.8	3.7	3.5	3.5	3.4	3.7	3.5	3.9	3.7	4.7	3.8	24			
7	3.7	4.5	4.2	3.7	4.3	4.0	5.2	5.0	5	5.2	4.5	5.2	4.6	4.4	4.3	4.1	4.0	4.6	7.2	13.2	17.2	18.0	16.5	15.9	18.0	7.1	24		
8	10.0	9.8	9.7	9.7	7.4	7.5	7.4	5	8.4	7.7	4.7	6.4	3.7	3.8	3.4	3.7	4.1	4.0	4.2	14.2	17.8	10.0	10.8	11.1	17.8	7.8	24		
9	12.5	12.8	12.4	11.1	11.7	10.2	9.9	11.0	11.3	12.9	10.3	5.7	4.6	5.0	6.3	9.5	22.1	12.7	19.0	20.4	20.8	18.8	15.5	22.1	12.5	24			
10	16.3	16.0	15.5	15.9	13.0	12.6	13.1	10.0	6.6	6.3	6.5	4.7	4.1	4.3	4.7	5.5	5.7	8.6	12.0	13.4	12.3	11.7	15.6	18.8	10.0	24			
11	14.6	15.3	12.3	11.5	11.5	12.6	13.1	10.0	6.6	6.3	6.5	4.7	4.1	4.3	4.7	5.5	5.7	8.6	12.0	13.4	12.3	11.7	15.6	18.8	10.0	24			
12	20.5	19.3	19.9	19.9	17.8	17.3	14.9	14.5	10.7	6.4	6.3	3.7	3.6	3.6	3.4	3.4	3.2	3.6	3.7	3.5	7.5	7.4	8.4	10.4	20.5	9.3	24		
13	10.2	8.6	5	5.3	5.8	7.8	7.2	5.4	4.5	4.7	4.2	4.1	3.9	3.8	4.2	5.2	6.4	5.5	5.4	12.6	14.2	11.8	9.0	8.9	14.2	6.8	24		
14	13.5	9.7	8.7	8.5	7.2	7.2	6.1	5.6	5.2	5.1	4.7	4.4	4.4	4.5	3.9	3.8	4.1	4.1	3.9	4.5	4.6	4.2	4.3	5	9.7	5.4	24		
15	4.6	4.0	4.6	4.7	4.4	4.1	4.2	4.3	3.8	4.0	3.7	3.9	4.1	4.0	3.5	3.4	3.6	4.3	10.6	12.7	P	P	S	11.1	12.7	5.1	22		
16	11.9	12.3	12.8	13.7	12.7	10.4	9.4	9.4	9.1	10.9	10.2	7.3	5.9	5.0	5.6	4.8	6.8	13.9	13.8	11.8	16.1	S	S	13.4	11.3	16.1	10.3	24	
17	12.5	16.6	16.1	11.9	10.9	10.9	10.5	14.6	13.0	9.7	6.7	5.0	4.7	5.2	4.7	7.2	12.1	7.5	19.3	19.9	S	S	20.3	12.4	11.2	20.3	11.2	24	
18	11.4	10.2	11.8	13.3	11.2	10.1	9.7	10.7	11.0	13.7	12.5	10.8	4.6	3.9	2.9	3.1	4.2	4.4	5.9	S	6.9	8.3	17.1	16.0	17.1	9.3	24		
19	4.2	10.0	10.8	13.0	18.2	17.2	12.6	11.5	4.5	6.3	6.3	4.1	4.2	3.5	3.1	6.1	12.1	12.4	S	7.4	5.8	8.5	8.2	3.4	18.2	8.4	24		
20	3.8	4.7	4.6	5.6	5.0	4.7	6.0	5.2	5.3	3.8	3.3	2.9	3.0	3.0	2.6	2.6	2.6	S	3.2	8.4	8.4	12.5	11.8	12.0	12.5	5.5	24		
21	11.2	10.4	9.6	8.5	8.9	7.9	6.5	8.2	8.7	9.7	9.7	7.4	5.6	3.4	2.5	2.5	S	3.1	3.2	2.8	2.9	3.4	4.9	3.8	11.2	6.3	24		
22	4.0	5.2	5.7	6.2	5.7	5.5	5.4	3.1	4.2	4.2	4.2	4.0	3.7	4.2	4.1	S	4.1	8.3	12.1	13.3	15.5	13.2	8.1	10.3	15.5	6.7	24		
23	10.5	9.6	11.0	12.5	12.3	11.9	13.2	15.0	9.6	C	C	C	C	C	C	C	C	C	11.2	19.0	18.3	19.1	20.2	19.8	19.4	20.2	14.5	24	
24	17.8	8.7	14.8	15.6	15.5	19.8	22.2	15.3	16.1	16.4	5.8	4.8	4.0	S	2.5	2.8	5.2	9.3	9.6	11.9	12.2	13.4	18.9	15.6	22.2	12.1	24		
25	16.4	14.4	16.0	18.6	19.5	16.4	19.7	15.7	7.7	5.5	4.7	4.1	S	3.1	3.9	8.0	5.7	6.2	8.0	5.2	6.5	9.4	12.0	11.2	19.7	10.3	24		
26	11.3	10.8	10.9	6.4	7.1	13.3	13.9	11.9	6.1	4.7	3.5	S	3.7	2.6	2.6	2.4	2.4	2.6	3.2	4.6	11.9	13.7	15.6	13.5	15.6	7.8	24		
27	15.7	16.1	14.7	18.3	18.2	14.8	19.0	14.6	8.9	5.4	S	3.7	4.1	4.3	3.8	4.5	5.0	8.6	21.3	16.2	14.3	10.6	10.5	10.0	21.3	11.4	24		
28	10.2	11.7	11.6	15.3	18.5	17.4	13.7	13.3	9.7	S	6.3	6.7	3.9	4.6	5.3	6.7	9.8	7.0	10.8	11.4	16.3	19.0	17.1	16.4	19.0	11.4	24		
29	18.8	19.0	14.5	12.5	11.4	13.4	12.5	16.5	S	16.9	16.9	8.2	8.5	4.5	4.0	3.6	4.3	13.4	18.3	19.9	18.0	13.5	15.1	12.8	19.9	12.8	24		
30	20.5	19.3	19.9	18.6	19.5	19.8	22.2	16.5	16.1	16.9	16.9	10.8	8.5	5.2	5.6	8.0	12.1	22.1	21.3	19.9	20.4	20.8	19.8	19.4	20.8	19.8	19.4	24	
HOURLY MAX	10.8	10.5	10.4	10.0	10.3	10.3	10.7	10.0	7.7	7.1	6.2	5.1	4.3	4.0	3.8	4.2	5.2	6.9	8.5	10.6	11.7	11.3	11.4	11.1	11.1	11.1	11.1	24	
HOURLY AVG																													24

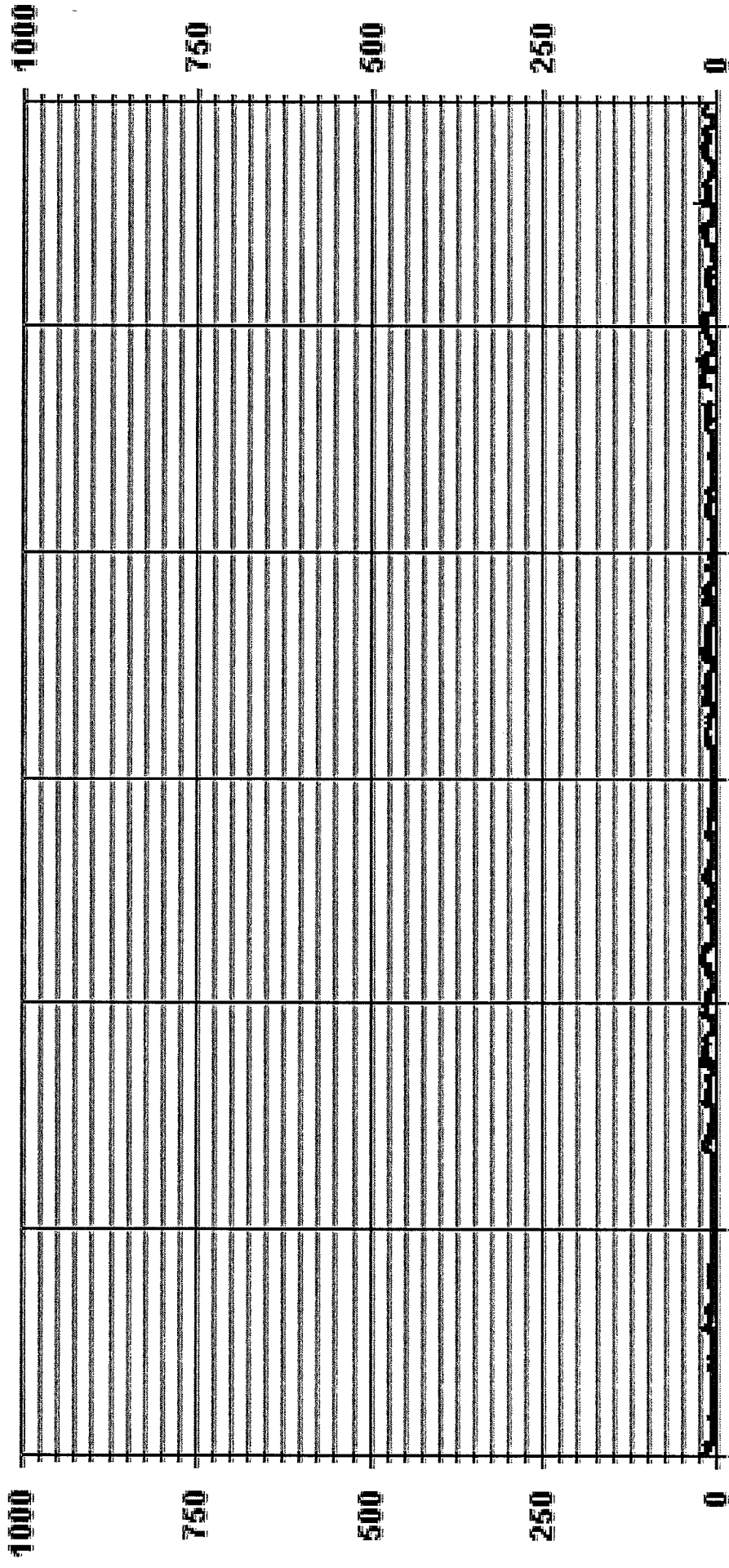
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680
MAXIMUM INSTANTANEOUS VALUE:	22.2
@ HOUR(S)	6
ON DAY(S)	25
VAR-VARIOUS	
OPERATIONAL TIME:	718
HRS	
MONTHLY CALIBRATION TIME:	8
HRS	
STANDARD DEVIATION:	4.90

01 Hour Averages



— LICA35 NO2MAX PPB

NO2\_ / WDR Joint Frequency Distribution (Percent)

LICA-ELK

September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : NO2  
 Units : PFB  
 Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.80	13.21	10.13	6.16	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.08	3.52	3.67	8.22	7.34	6.75	2.49	1.02	1.46	3.67	4.40	11.01	13.80	13.21	10.13	6.16	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	21	24	25	56	50	46	17	7	10	25	30	75	94	90	69	42	681
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	24	25	56	50	46	17	7	10	25	30	75	94	90	69	42	

Calm : .00 %

Total # Operational Hours : 681

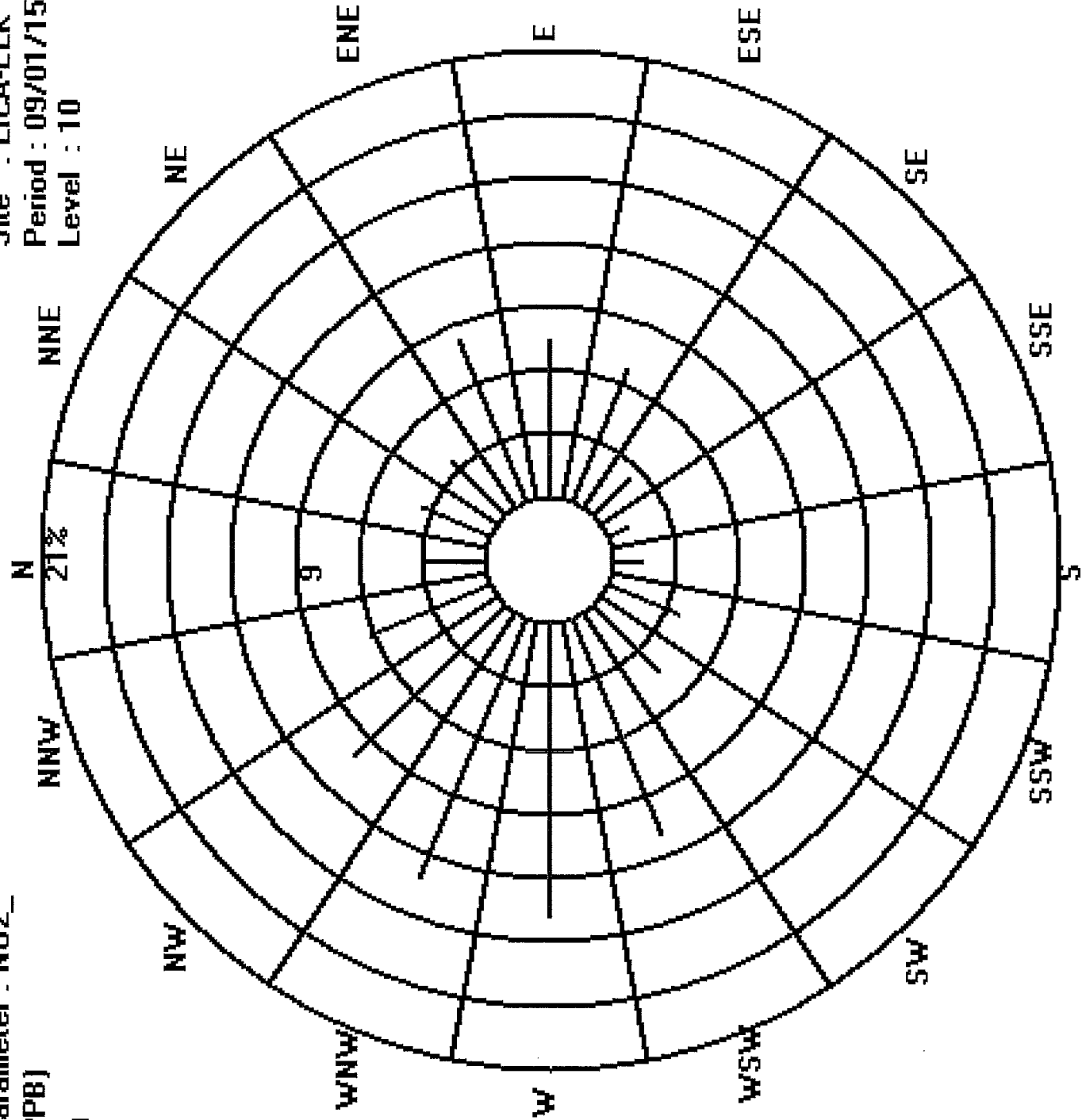
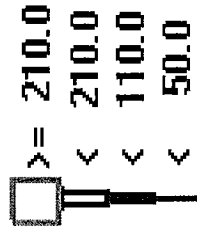


Logger : 35 Parameter : NO2\_

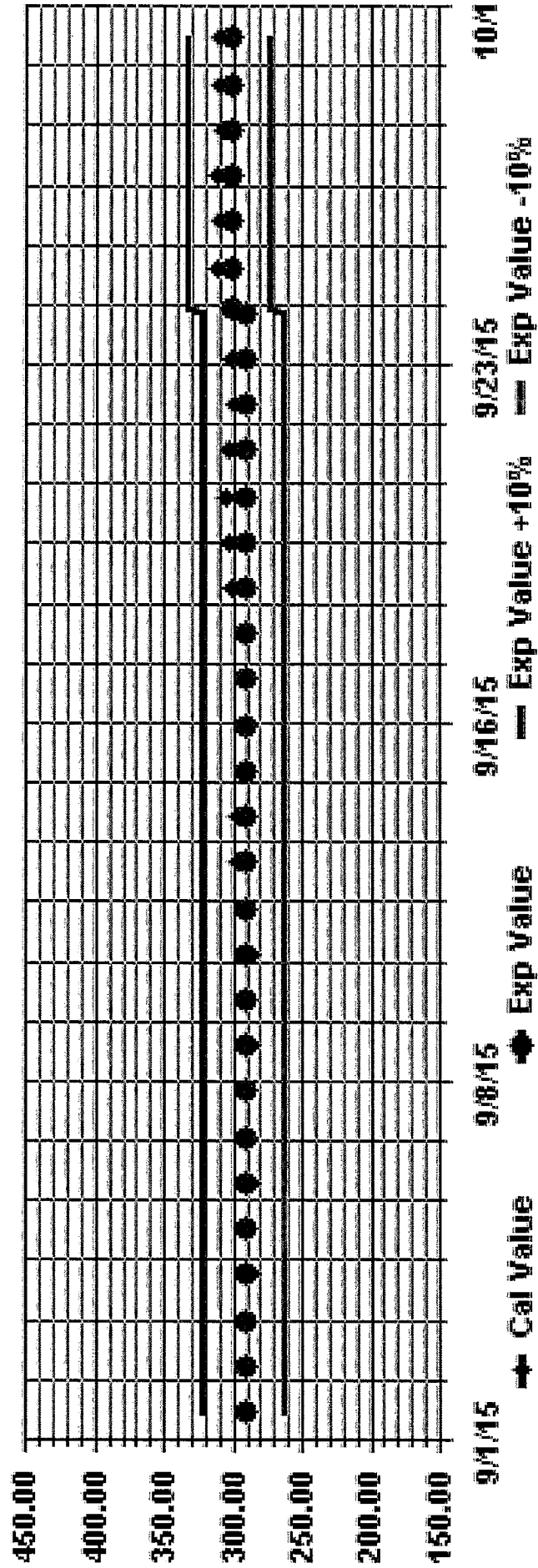
Site : LICA-ELK

Class Limits (PPB)

Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



**OZONE**



OZONE (O3) hourly averages in ppb

MST

DAY	HOURS																								24-HOUR AVG.	RDGS.		
	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			0000	
1	15	13	13	16	15	15	9	11	16	20	25	28	30	32	34	34	34	34	32	27	23	23	24	23	34	22.3	24	
2	24	24	26	26	26	26	26	25	26	27	29	32	35	35	41	44	44	32	26	31	25	25	26	18	44	28.3	24	
3	10	10	11	12	13	10	13	11	13	14	16	19	21	21	21	21	23	22	22	17	8	9	6	4	23	14.2	24	
4	4	2	3	3	2	0	1	3	11	17	18	5	19	18	20	21	21	18	17	15	9	7	5	1	21	10.2	24	
5	1	1	1	2	1	2	5	6	11	22	5	24	24	24	24	24	24	24	23	21	19	17	15	16	24	14.0	24	
6	15	14	14	15	17	17	20	22	22	20	18	16	15	15	14	14	14	16	15	16	15	16	17	16	22	16.7	24	
7	15	14	13	13	14	13	11	5	13	14	14	16	18	20	21	22	22	22	22	17	11	1	0	0	22	12.8	24	
8	0	0	0	1	1	1	1	5	10	17	22	24	26	27	27	28	29	31	29	20	11	10	7	5	31	14.2	24	
9	2	1	0	0	0	0	5	0	4	5	9	23	28	29	29	28	25	18	20	7	9	9	8	4	29	11.3	24	
10	1	0	0	0	0	0	1	8	18	25	27	29	31	31	31	31	28	26	21	14	12	10	6	4	31	14.0	24	
11	3	2	1	2	1	2	5	5	9	12	15	20	23	24	28	30	37	41	39	29	21	16	12	5	41	17.2	24	
12	2	1	2	5	6	6	7	8	17	20	23	26	28	31	29	26	26	22	31	32	33	28	18	33	16.3	24		
13	18	15	5	16	14	14	7	11	16	17	19	21	25	26	27	29	28	27	29	19	12	8	10	11	29	18.2	24	
14	10	5	15	15	11	12	15	17	19	22	23	23	24	26	24	25	23	23	19	8	5	7	8	4	26	16.4	24	
15	5	6	7	8	9	10	10	12	13	14	14	14	16	16	16	17	17	19	19	18	19	21	20	17	5	21	13.9	24
16	12	11	10	10	9	11	11	11	12	13	15	18	17	17	16	16	17	17	16	10	3	P	P	5	1	18	12.5	22
17	1	1	1	1	1	1	1	1	2	3	13	18	22	25	26	28	26	25	21	15	12	5	7	5	28	11.1	24	
18	3	2	2	1	1	1	1	1	5	12	18	27	30	30	32	31	24	26	21	10	5	6	8	4	32	12.9	24	
19	2	1	2	0	0	0	2	2	2	3	4	19	32	33	34	34	33	31	27	5	24	22	14	15	34	14.5	24	
20	18	13	12	8	4	8	14	17	19	17	20	23	26	27	27	24	17	12	5	13	14	12	23	26	27	17.1	24	
21	23	21	19	17	17	17	14	12	12	15	16	17	17	15	15	16	15	16	5	14	8	4	2	1	0	23	13.4	24
22	1	0	0	0	0	0	0	1	1	2	5	14	17	20	19	19	19	18	17	16	17	16	15	14	20	9.2	24	
23	13	11	11	13	14	14	14	16	15	16	18	18	21	23	25	5	5	5	25	22	18	17	12	10	7	25	15.8	24
24	8	5	3	1	1	0	0	3	6	5	7	12	19	19	19	19	19	19	19	19	21	20	17	10	27	9.4	24	
25	12	16	14	10	9	5	3	9	8	12	21	25	29	31	32	31	31	32	31	26	21	21	21	17	16	32	18.3	24
26	12	14	12	11	12	12	4	15	17	21	23	25	30	31	29	32	30	26	26	24	19	14	15	15	32	19.7	24	
27	18	19	18	20	19	16	13	18	21	22	23	23	26	28	28	27	26	25	23	16	13	11	14	28	20.5	24		
28	10	5	11	6	6	6	3	7	13	17	5	23	25	27	26	25	22	22	8	10	13	13	11	10	27	13.9	24	
29	9	8	6	3	5	17	14	14	17	5	20	22	26	27	26	25	22	23	20	14	7	3	3	27	14.5	24		
30	1	1	1	1	1	1	1	1	5	3	11	22	25	28	29	30	28	20	11	10	8	9	8	7	30	11.2	24	
HOURLY MAX	24	24	26	26	26	26	26	25	26	27	29	32	35	33	41	44	41	39	32	32	33	31	26	26				
HOURLY AVG	9.1	7.9	7.8	7.9	7.8	8.3	7.8	9.4	12.4	14.4	17.7	21.4	24.0	24.9	25.7	26.4	25.4	23.9	21.3	16.6	14.5	13.1	11.5	9.5				

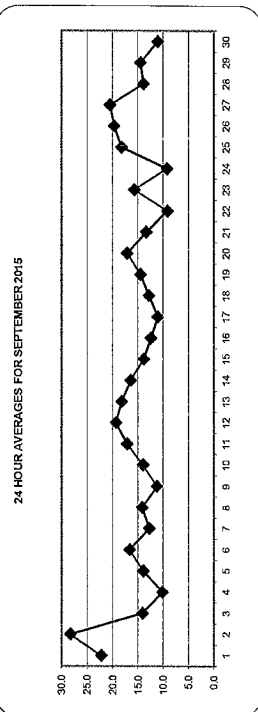
STATUS FLAG CODES

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	U	COLLECTION ERROR

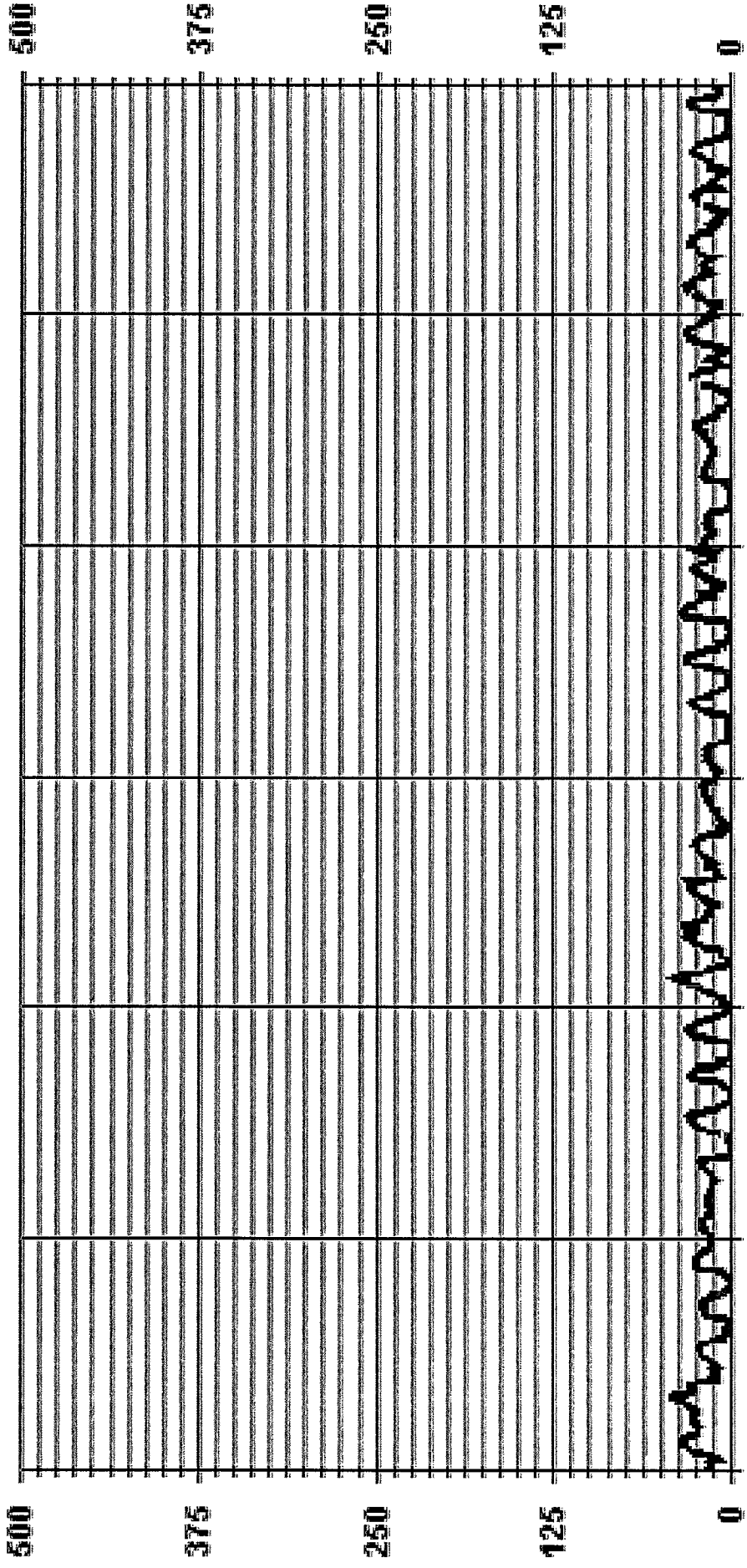
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1 HR - 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	655
MAXIMUM 1-HR AVERAGE	44 PPB
MAXIMUM 24-HR AVERAGE	28.3 PPB
ISZ CALIBRATION TIME	30 HRS
MONTHLY CALIBRATION TIME	4 HRS
STANDARD DEVIATION	9.43
OPERATIONAL TIME	718 HRS
AMD OPERATION UPTIME	99.7 %
MONTHLY AVERAGE	15 PPB
ON DAY(S)	2
ON DAY(S) VAR-VARIOUS	2
PPB @ HOUR(S)	15



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

--- LICA35 03\_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 Elk Point Airport Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-35- C

OZONE MAX instantaneous maximum in ppb

MST

DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	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				
1	17	15	16	18	18	17	11	13	19	24	28	30	32	34	S	36	35	34	30	26	25	26	25	36	24.5	24		
2	25	25	26	27	27	27	27	28	27	28	32	35	37	S	44	47	45	29	34	38	31	34	28	24	47	31.2	24	
3	11	12	12	13	15	13	15	12	15	16	18	21	S	22	22	23	24	23	23	21	12	12	8	6	24	16.0	24	
4	8	3	4	3	3	1	2	6	16	19	20	S	20	20	21	22	22	20	18	17	14	9	4	22	12.2	24		
5	2	1	2	3	2	5	6	7	20	23	S	24	25	25	25	25	23	22	21	18	16	17	17	25	15.4	24		
6	16	15	14	17	18	18	22	22	25	S	23	22	18	18	15	16	15	15	18	17	17	17	17	25	18.0	24		
7	16	15	14	14	15	15	14	13	S	14	15	16	18	19	22	23	24	24	21	15	4	1	1	24	14.5	24		
8	1	1	1	1	1	1	1	1	3	5	6	18	29	31	32	30	29	29	31	31	30	16	15	9	31	16.6	24	
9	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24	14.6	24	
10	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	33	16.8	24	
11	4	3	2	5	5	8	8	11	14	19	24	25	27	31	34	40	43	43	34	27	19	17	15	8	43	20.0	24	
12	5	4	4	5	9	9	10	11	20	24	27	28	31	33	32	29	28	25	35	37	37	31	27	20	37	22.4	24	
13	20	17	5	18	17	15	10	17	17	19	22	24	28	29	31	31	29	30	34	26	17	12	12	15	34	21.3	24	
14	14	5	17	16	14	14	18	18	22	23	25	24	26	28	26	26	25	24	21	15	7	9	11	7	28	18.7	24	
15	\$	7	8	9	9	11	11	10	13	14	15	16	17	17	17	18	20	20	18	21	23	21	19	\$	23	15.2	24	
16	12	12	11	10	11	12	11	13	15	18	19	19	19	19	17	17	18	18	17	16	8	P	P	S	3	19	14.1	22
17	1	1	2	2	2	2	1	1	3	10	15	20	24	27	29	30	30	33	26	21	17	S	8	8	33	13.6	24	
18	4	3	4	2	0	1	2	2	11	15	26	30	31	33	34	33	31	29	30	17	S	9	10	6	34	15.8	24	
19	3	3	3	2	0	0	1	3	4	6	5	28	33	35	34	35	32	30	S	26	23	23	19	35	16.7	24		
20	17	18	10	11	16	16	16	18	21	20	19	22	26	27	28	28	22	16	S	16	18	19	26	28	28	20.6	24	
21	24	23	20	18	19	19	16	14	14	17	17	17	17	17	18	16	16	17	S	15	12	6	4	2	1	24	14.9	24
22	3	1	1	0	0	1	1	1	2	2	2	15	19	20	20	20	20	S	19	19	17	17	16	15	20	10.3	24	
23	14	12	14	14	16	15	15	17	16	18	18	20	23	26	26	S	27	24	23	20	16	13	14	9	27	17.8	24	
24	11	9	5	3	2	1	1	6	8	7	9	17	C	C	C	C	C	C	32	26	26	22	17	11	14	32	11.9	24
25	18	18	17	16	12	9	7	9	12	19	24	27	31	S	35	36	35	34	29	24	25	26	23	20	36	22.0	24	
26	17	17	15	15	17	17	8	18	20	22	25	27	S	32	33	31	34	32	29	27	26	22	18	18	34	22.6	24	
27	20	23	20	22	21	19	14	20	22	23	25	S	31	29	29	28	27	26	25	21	15	15	12	11	31	22.7	24	
28	15	9	12	9	9	8	5	12	16	19	S	23	24	26	27	27	26	26	17	15	15	14	12	11	27	16.4	24	
29	10	10	8	7	12	19	17	18	19	S	21	26	29	29	27	27	24	24	24	22	18	12	6	6	29	17.3	24	
30	2	1	1	1	1	1	1	1	1	5	6	22	23	28	29	30	30	25	17	15	10	10	10	8	30	13.1	24	
HOURLY MAX	25	25	26	26	27	27	27	27	26	27	28	32	35	37	35	44	47	45	43	35	37	37	34	28	28			
HOURLY AVG	11.1	9.6	9.4	9.8	9.8	10.1	9.5	11.2	15.2	17.0	20.7	23.8	26.1	26.6	27.3	28.1	28.0	26.3	24.7	20.8	18.1	15.9	14.3	11.9				

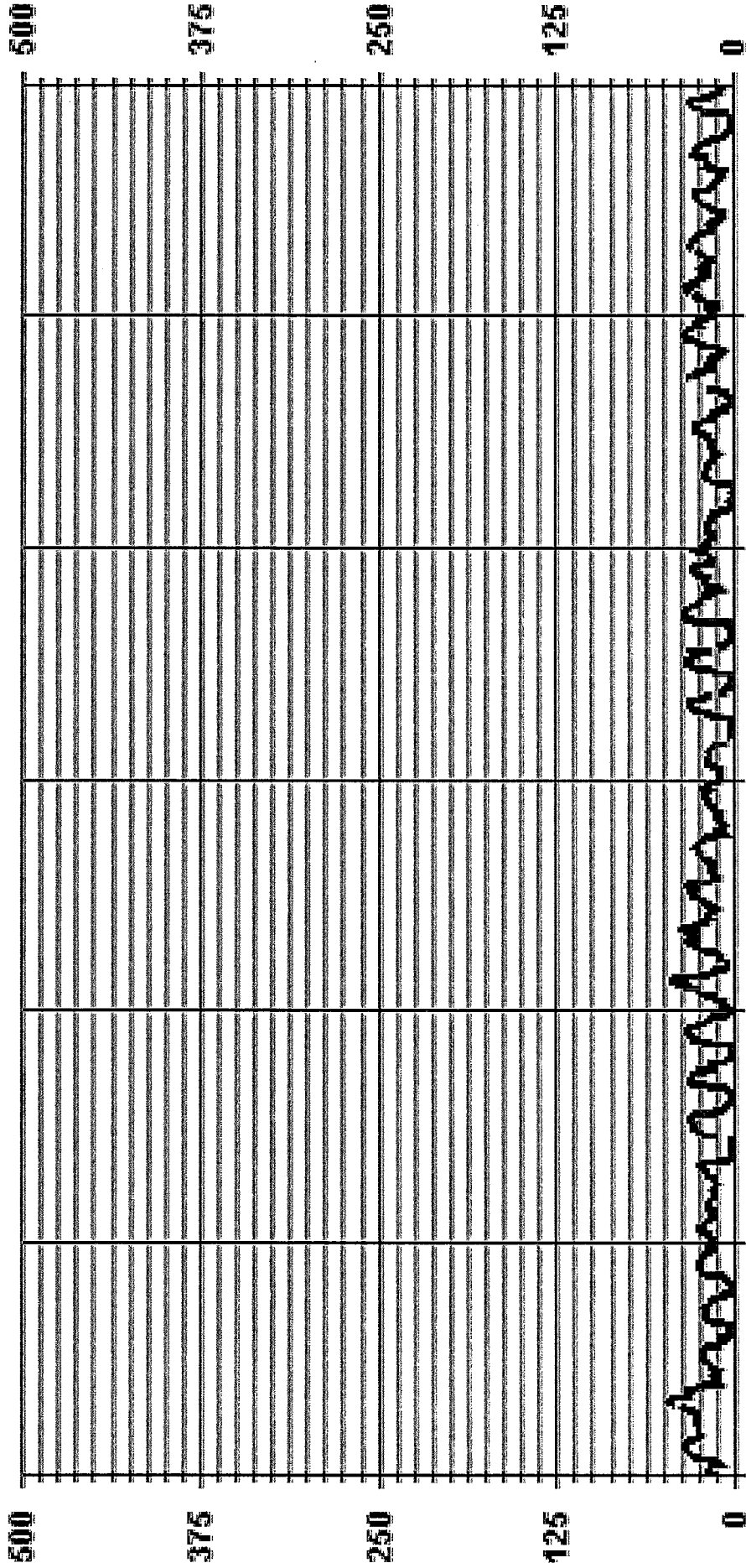
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677
MAXIMUM INSTANTANEOUS VALUE:	47
PPB @ HOUR(S)	15
ON DAY(S)	2
VAR-VARIOUS	
OPERATIONAL TIME:	718
HRS	
IZS CALIBRATION TIME:	30
HRS	
MONTHLY CALIBRATION TIME:	5
HRS	
STANDARD DEVIATION:	9.74

01 Hour Averages



— LICA35 O3MAX PPB

LICA-ELK  
 O3\_ / WDR Joint Frequency Distribution (Percent)

September 2015

Distribution By % Of Samples

Logger Id : 35  
 Site Name : LICA-ELK  
 Parameter : O3  
 Units : PFB

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	3.07	3.50	3.65	8.18	7.45	7.01	2.48	1.02	1.46	3.65	4.38	10.96	13.74	13.15	10.08	6.14	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.50	3.65	8.18	7.45	7.01	2.48	1.02	1.46	3.65	4.38	10.96	13.74	13.15	10.08	6.14	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

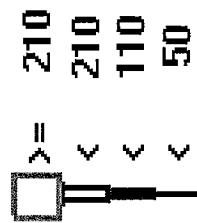
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	21	24	25	56	51	48	17	7	10	25	30	75	94	90	69	42	684
< 110																	
< 210																	
>= 210																	
Totals	21	24	25	56	51	48	17	7	10	25	30	75	94	90	69	42	

Calm : .00 %

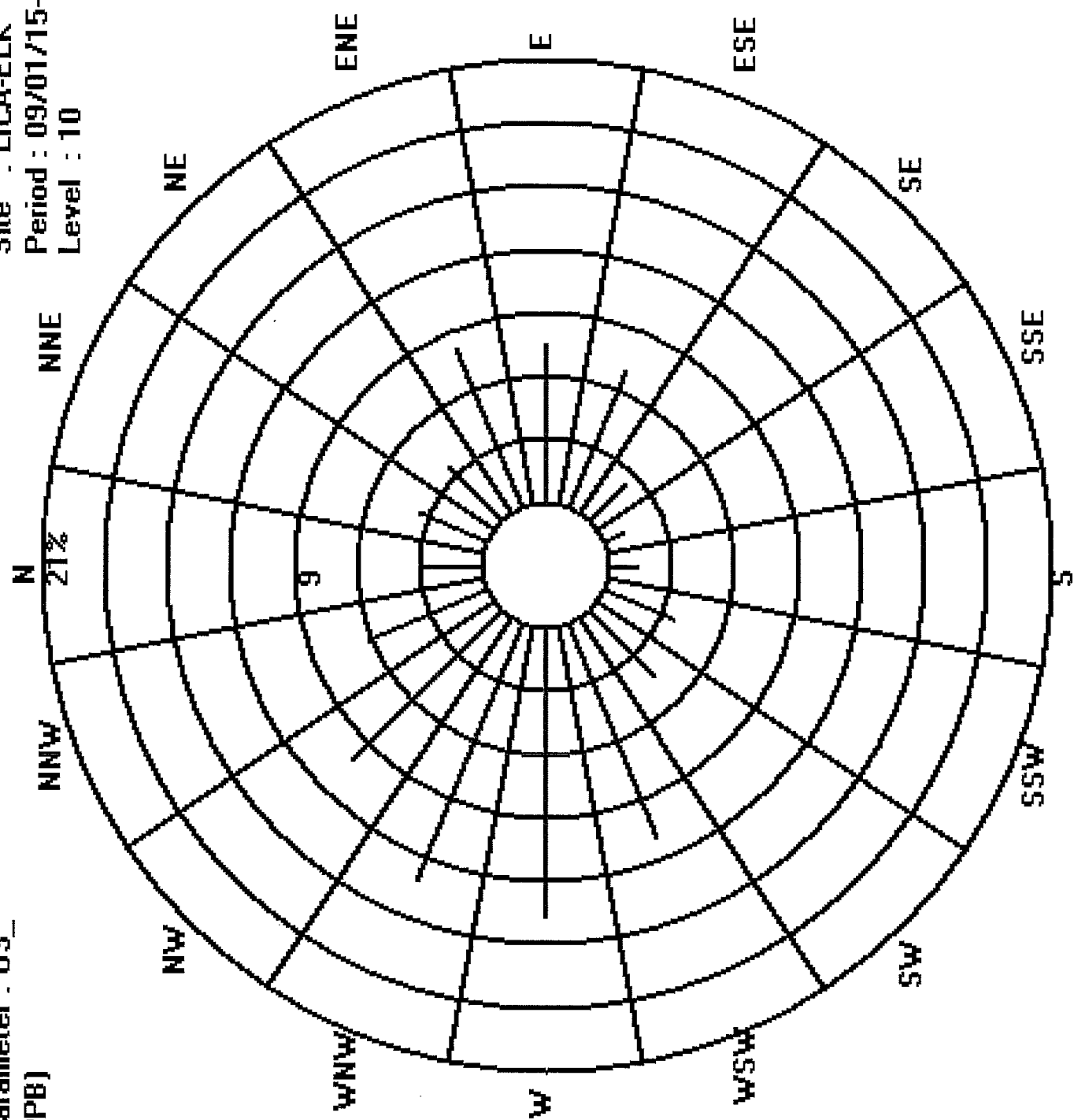
Total # Operational Hours : 684



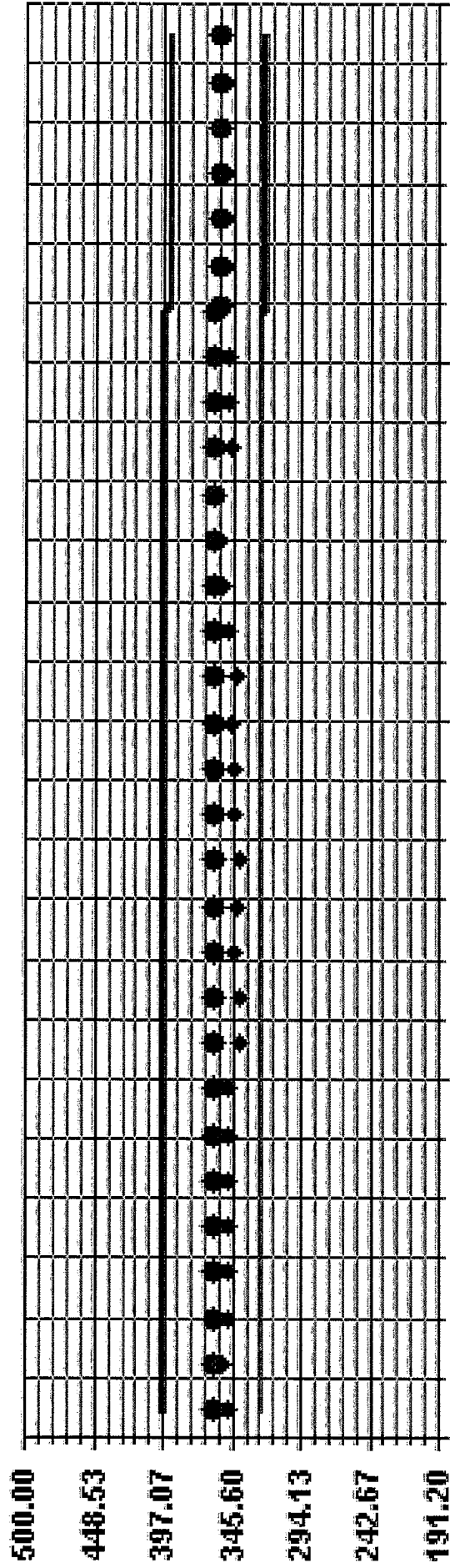
Logger : 35 Parameter : 03\_  
Class Limits (PPB)



Site : LICA-ELK  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA35 Parameter: O3\_ Sequence: O3 Phase: SPAN



***PARTICULATE MATTER 2.5***

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

**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	24:00			
1	10	10	10	9	6	9	7	2	6	7	8	1	0	5	1	0	2	0	0	0	1	5	9	5	2	0	10	4.4
2	1	3	3	1	4	2	1	1	1	4	3	5	4	4	8	10	5	10	9	9	2	1	X	2	10	10	4.4	
3	8	7	9	0	0	4	2	4	7	10	4	2	3	4	0	C	0	0	0	1	4	3	3	6	0	10	3.5	
4	0	3	5	0	0	3	4	4	4	2	1	2	0	2	6	3	4	7	0	4	1	X	0	1	4	7	2.3	
5	6	1	6	0	1	3	1	3	5	4	4	4	4	8	4	0	3	1	3	1	7	9	2	X	9	3.4		
6	5	5	0	1	7	0	2	0	2	4	3	1	4	5	5	0	0	6	0	0	0	0	4	0	2	7	2.3	
7	0	0	0	4	1	2	0	1	1	2	0	1	4	2	3	6	3	4	X	1	2	2	1	4	6	1.9		
8	3	7	0	3	0	2	4	1	0	4	2	2	1	0	3	2	3	0	4	3	0	1	0	1	0	7	1.9	
9	9	6	10	11	7	10	11	3	3	0	3	2	4	4	2	0	3	3	7	4	4	3	5	11	5	5.1		
10	6	5	3	1	0	1	0	6	5	3	1	6	4	8	0	5	6	7	0	0	4	6	6	7	8	3.8		
11	5	X	5	7	0	4	2	1	5	7	5	6	24	5	4	3	10	7	1	3	3	0	0	3	24	5.0		
12	0	1	4	6	6	4	0	5	6	8	1	2	5	4	3	3	6	4	2	5	5	1	0	5	8	3.6		
13	5	3	9	10	2	4	1	0	2	5	4	4	0	5	4	0	3	1	8	4	1	3	1	3	10	3.5		
14	1	1	0	0	2	0	0	0	3	0	0	3	5	5	2	7	0	5	4	0	2	4	0	3	7	2.2		
15	0	2	0	0	6	3	1	4	0	0	4	0	4	0	3	0	0	0	0	0	0	0	0	2	5	6	1.4	
16	0	0	0	1	0	7	4	0	0	0	1	3	0	3	1	0	1	4	2	5	P	P	2	8	8	1.9		
17	24	0	0	17	4	0	4	4	11	7	0	4	5	5	3	2	X	2	4	1	6	2	3	24	3.8			
18	4	5	X	5	0	4	4	7	2	3	4	0	X	1	0	3	4	5	3	2	8	2	6	2	8	3.4		
19	2	0	0	0	0	0	4	7	2	0	1	4	1	1	1	3	2	2	1	X	2	3	3	1	7	1.7		
20	4	0	0	2	11	8	1	0	6	1	0	6	1	2	0	17	5	0	2	0	0	0	1	7	17	3.2		
21	X	4	3	1	3	0	6	0	1	2	0	1	0	0	0	0	1	0	5	2	0	0	3	2	6	1.5		
22	0	3	3	0	1	3	7	0	0	X	1	0	4	4	2	3	4	3	0	3	0	X	6	7	7	2.5		
23	1	0	X	3	1	X	X	0	1	10	2	4	5	5	3	X	7	7	5	6	5	7	6	3	10	4.1		
24	0	0	7	3	0	4	7	7	6	9	10	5	6	10	9	2	6	7	5	7	3	5	8	27	2.7			
25	7	6	9	7	8	6	9	6	5	1	2	5	2	C	C	0	1	6	4	2	3	X	5	9	4.6			
26	3	0	2	3	3	3	X	4	4	1	2	5	X	1	0	1	16	5	2	0	2	0	16	2.7				
27	0	0	1	X	2	1	3	3	8	19	3	2	1	1	1	0	1	0	1	3	5	3	0	2	1	19		
28	1	0	0	0	3	0	0	3	5	0	0	X	1	3	2	4	0	1	7	2	0	4	5	7	1.9			
29	2	3	4	0	3	8	6	2	8	3	6	3	4	3	5	1	6	4	29	1	3	2	5	3	29	4.8		
30	6	3	6	5	8	6	6	4	4	5	7	5	3	1	4	2	5	3	4	4	9	9	8	5	9	5.1		
HOURLY MAX	24	10	9	10	11	11	10	11	11	8	19	10	6	24	10	10	7	17	9	29	8	9	9	8	27			
HOURLY AVG	3.9	2.8	3.4	2.7	2.8	3.4	3.5	3.5	3.4	4.2	2.7	2.8	3.9	3.4	3.1	2.3	3.4	3.4	3.9	3.3	3.0	2.9	3.0	4.4				

**STATUS FLAG CODES**

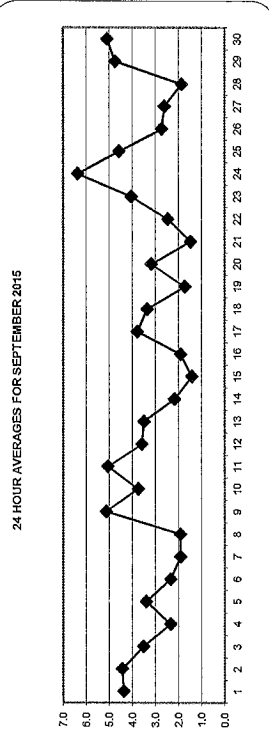
C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER/FLEWURE	O	OPERATOR ERROR
Y	OUT FOR REPAIR	K	COLLECTION ERROR

**OBJECTIVE LIMIT:**

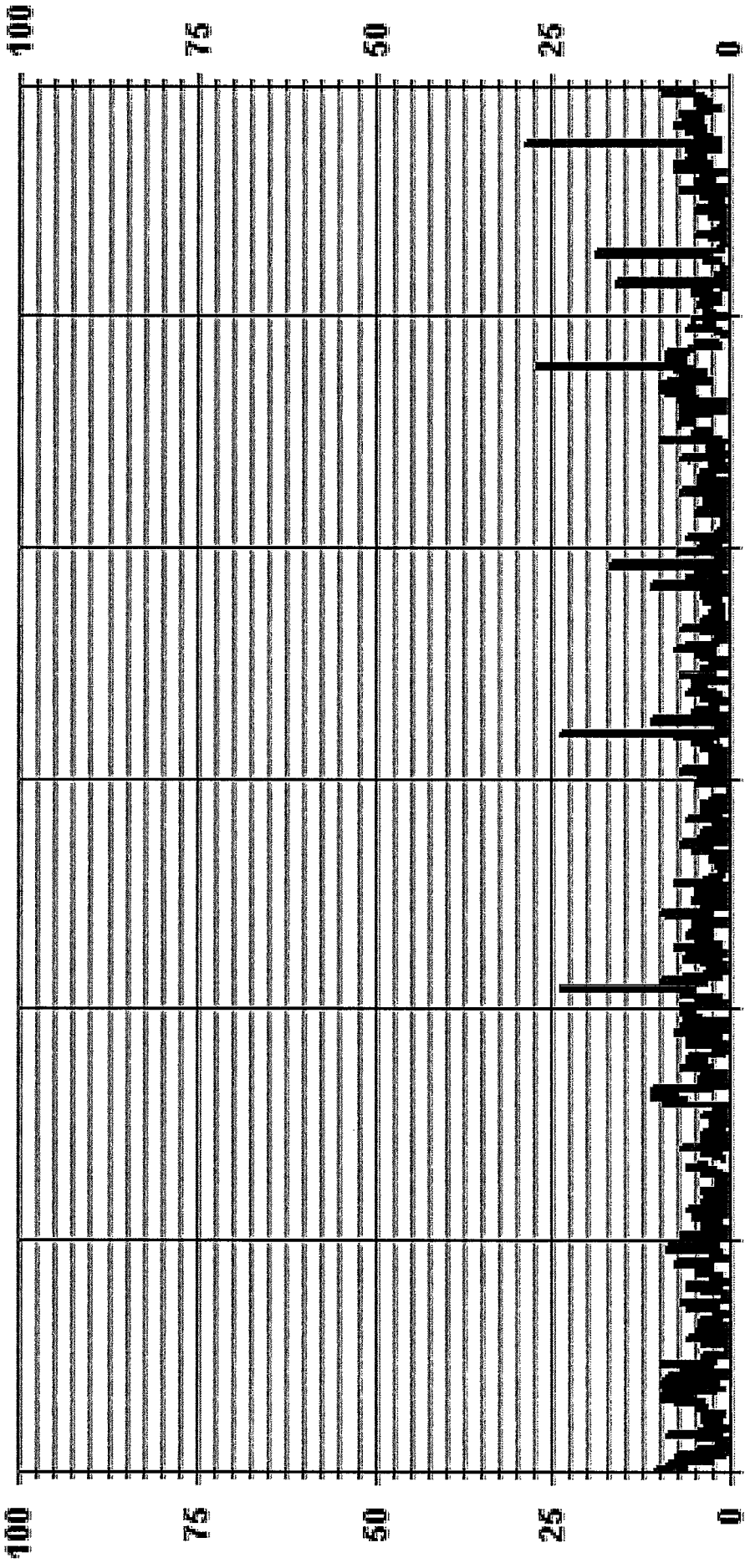
ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

**MONTHLY SUMMARY**

NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	541
MAXIMUM 1-HR AVERAGE:	29 ug/m3 @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	6.4 ug/m3
MONTHLY CALIBRATION TIME:	3 HRS
STANDARD DEVIATION:	3.33
OPERATIONAL TIME:	697 HRS
AMLD OPERATION UPTIME:	96.8 %
MONTHLY AVERAGE:	3.3 ug/m3
ON DAY(S)	18
ON DAY(S) VAR-VARIOUS	24



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 PM2 UG/M3

PM2 / WDR Joint Frequency Distribution (Percent)  
 LICA-FLK  
 September 2015

Distribution By % Of Samples

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

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	3.17	3.60	3.45	8.06	6.77	7.34	2.88	1.29	1.44	3.60	4.32	10.80	13.54	13.68	9.94	6.05	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.17	3.60	3.45	8.06	6.77	7.34	2.88	1.29	1.44	3.60	4.32	10.80	13.54	13.68	9.94	6.05	6.05

Calm : .00 %

Total # Operational Hours : 694

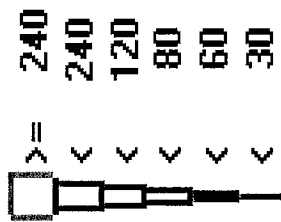
Distribution By Samples

Limit	Direction																NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	22	25	24	56	47	51	20	9	10	25	30	75	94	95	69	42	694
< 60																	
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	22	25	24	56	47	51	20	9	10	25	30	75	94	95	69	42	694

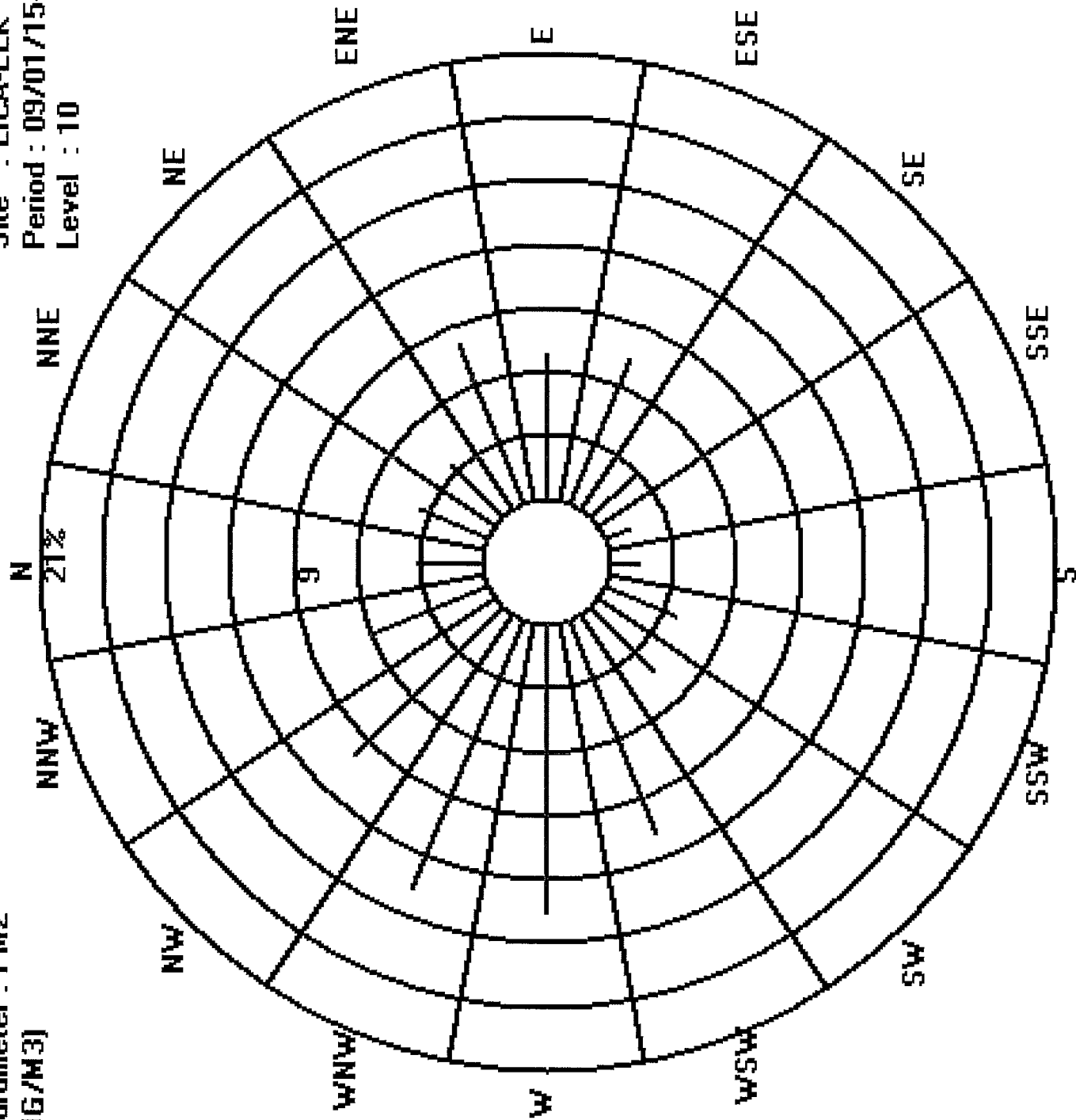
Calm : .00 %

Total # Operational Hours : 694

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



Site : LICA-ELK  
Period : 09/01/15-09/30/15  
Level : 10



***WIND SPEED***





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Elk Point Airport Site - SEPTEMBER 2015  
JOB # 2833-2015-09-35- C

WIND SPEED (WS) hourly averages in km/hr

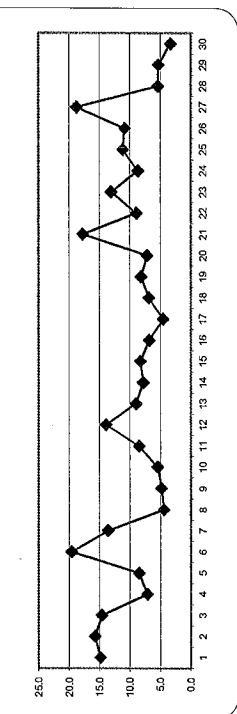
DAY	WIND SPEED (WS) hourly averages in km/hr																								24-HOUR AVG.	RDGS		
	0100	0150	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300				
1	10.8	10.6	12.1	13.0	4.7	7.0	10.5	12.8	16.1	18.5	26.0	33.1	33.6	30.8	28.6	22.2	18.9	13.0	7.3	3.9	3.3	6.9	6.4	6.4	33.6	14.9	24	
2	9.5	9.6	13.3	15.8	16.5	17.3	19.6	22.4	23.7	20.6	20.6	20.6	18.0	16.0	12.5	8.9	1.2	14.2	6.4	22.2	28.0	24.8	15.2	8.8	14.0	28.0	15.8	24
3	15.6	17.7	18.1	17.3	15.2	16.4	16.2	12.4	20.0	18.7	19.1	15.4	18.1	20.6	20.1	18.2	15.0	14.1	9.4	6.5	7.6	7.0	6.6	5.9	20.6	14.6	24	
4	8.3	7.1	6.2	6.4	4.9	5.1	5.0	8.3	8.0	8.5	10.6	12.2	9.2	11.3	7.5	7.7	8.9	10.0	9.8	6.5	1.4	2.0	2.9	4.8	12.2	7.2	24	
5	6.3	5.5	4.0	4.1	2.3	2.5	4.2	3.0	12.8	13.4	13.6	13.4	14.4	13.7	12.6	13.1	11.6	10.5	9.3	3.8	4.5	7.2	9.9	14.4	8.5	24		
6	7.4	12.1	9.8	13.7	13.8	13.5	17.7	17.5	19.8	24.4	25.8	27.2	27.5	24.4	24.8	26.0	25.8	22.4	19.3	18.7	21.3	21.7	19.5	17.0	27.5	19.6	24	
7	15.5	15.5	16.7	15.1	17.1	15.7	16.5	16.5	19.0	18.7	15.5	17.9	20.8	19.4	20.8	16.6	14.1	10.9	4.0	3.8	5.2	3.6	3.5	4.7	20.8	13.6	24	
8	0.9	1.6	1.4	2.1	4.3	5.6	3.7	3.0	4.3	4.5	2.1	3.4	1.4	8.2	7.0	10.2	12.5	10.2	5.9	4.9	4.4	1.1	2.1	2.7	12.5	4.5	24	
9	3.4	3.7	2.1	1.3	2.3	4.1	3.4	4.1	4.0	2.7	5.1	7.3	9.9	10.9	9.1	9.7	8.0	3.8	5.1	5.5	3.8	4.4	2.0	0.7	10.9	4.9	24	
10	0.4	0.4	0.6	1.0	1.0	2.2	2.2	0.3	5.6	4.7	11.4	11.1	10.9	9.8	9.6	10.7	10.1	9.6	7.9	7.3	8.3	1.5	2.6	2.5	11.4	5.5	24	
11	1.5	3.3	2.0	2.2	5.8	4.0	4.3	5.6	9.3	9.1	11.5	15.6	15.9	15.0	12.7	9.5	10.1	8.6	7.4	8.8	5.6	4.3	17.5	8.6	24			
12	4.8	3.7	4.2	4.5	9.4	12.8	12.7	8.1	8.4	11.5	20.7	25.7	20.4	19.9	22.6	19.2	15.9	26.4	29.9	18.4	10.7	10.4	8.0	6.6	29.9	14.0	24	
13	10.4	7.3	11.5	9.8	7.4	8.3	8.0	10.3	10.3	5.5	6.9	7.4	7.7	7.9	4.2	10.3	9.6	7.8	12.6	6.5	12.7	11.0	10.4	12.6	12.7	9.0	24	
14	10.9	16.4	15.7	8.3	7.8	7.9	7.8	10.4	13.1	11.0	11.9	7.7	7.1	13.1	8.1	4.7	5.8	2.9	0.7	3.3	1.4	3.5	0.8	16.4	7.8	24		
15	2.8	2.2	3.5	4.2	4.2	6.2	7.5	8.7	9.8	10.6	11.4	10.4	13.4	14.3	14.9	13.5	13.5	13.5	9.6	7.3	8.4	8.6	5.7	4.1	14.9	8.3	24	
16	5.6	4.1	5.6	5.2	5.0	5.0	5.1	5.5	6.9	11.8	9.7	9.8	9.8	14.0	12.0	9.7	5.6	5.9	5.7	3.2	P	P	4.4	1.8	14.0	6.9	22	
17	2.3	2.3	4.1	5.4	2.2	2.7	1.1	0.6	1.7	0.9	6.3	7.1	5.7	7.6	6.3	6.6	13.7	1.7	5.3	5.7	8.4	5.5	4.1	2.9	13.7	4.6	24	
18	3.7	1.7	1.8	2.3	1.2	0.2	0.3	0.9	6.8	9.4	13.3	15.5	18.6	23.6	21.4	13.7	6.4	5.3	2.9	5.6	6.1	3.3	1.1	1.4	23.6	6.9	24	
19	0.3	0.3	0.1	4.4	1.6	2.2	2.0	3.6	3.1	3.0	2.8	9.6	16.6	14.4	15.4	12.3	15.5	13.0	13.0	13.7	14.9	11.9	8.5	15.0	16.6	8.2	24	
20	5.6	5.9	5.7	3.2	5.5	6.6	7.2	6.2	6.1	8.5	10.1	9.5	11.4	10.5	9.5	4.2	3.6	2.3	2.1	6.2	2.4	6.9	22.9	11.0	22.9	7.2	24	
21	13.2	11.2	14.5	11.0	13.4	14.7	11.1	10.9	17.2	30.0	33.9	35.5	32.6	30.9	31.0	29.4	24.5	17.9	9.9	7.4	5.6	6.8	7.2	7.2	35.5	17.8	24	
22	6.1	2.3	1.7	1.0	1.1	2.5	3.7	4.3	8.0	8.1	10.9	12.8	13.2	18.4	16.5	15.9	11.9	11.0	12.2	9.3	10.9	10.2	11.8	11.4	18.4	9.0	24	
23	10.5	8.9	8.5	8.4	9.2	9.2	9.9	12.6	15.8	20.2	23.8	22.1	22.1	21.8	24.9	26.3	20.6	13.8	9.6	7.5	3.4	0.7	1.9	3.0	26.3	13.1	24	
24	1.0	2.7	2.7	5.2	4.6	1.2	4.6	3.8	6.3	6.6	6.1	7.8	13.4	14.3	16.6	17.1	12.8	12.7	11.4	11.8	11.1	10.4	11.9	13.1	17.1	17.1	24	
25	12.3	8.4	6.1	6.5	5.6	5.5	5.1	4.1	5.5	13.7	25.0	22.7	25.5	20.5	14.8	9.7	9.3	8.8	12.0	7.4	7.8	12.2	11.9	8.7	25.5	11.2	24	
26	9.3	7.3	6.7	6.0	6.7	8.7	9.0	8.7	8.2	10.8	10.6	11.0	12.3	15.9	16.8	19.6	18.8	6.2	7.4	13.4	15.2	15.2	8.1	10.2	19.6	10.9	24	
27	10.9	10.4	12.4	11.0	13.5	14.3	14.5	14.8	18.9	20.2	27.4	31.8	35.2	33.9	32.4	35.3	25.2	22.0	17.4	13.9	9.2	10.4	8.9	7.9	35.3	18.8	24	
28	6.7	0.8	3.7	5.7	2.9	3.2	3.7	3.5	7.2	5.2	6.3	4.8	5.8	5.9	5.5	5.0	2.7	5.6	6.8	6.7	9.6	9.1	8.1	6.1	9.6	5.4	24	
29	8.6	7.8	6.9	3.7	2.2	4.9	4.2	4.2	6.9	6.7	6.2	3.5	6.4	11.3	9.1	4.3	7.4	7.4	6.9	2.5	3.0	0.9	0.9	2.3	11.3	5.3	24	
30	2.4	3.2	2.0	0.1	3.0	2.5	2.1	1.5	1.4	2.2	2.5	3.9	2.7	3.0	4.5	4.9	5.0	4.9	6.6	6.4	6.0	5.3	3.0	1.1	6.6	3.3	24	
HOURLY MAX	15.6	17.7	18.1	17.3	17.1	17.3	19.6	22.4	23.7	30.0	33.9	35.5	35.2	33.9	32.4	35.3	25.8	26.4	29.9	28.0	24.4	21.7	22.9	17.0				
HOURLY AVG	6.9	6.5	6.8	6.6	6.5	7.1	7.4	7.6	9.9	11.4	13.5	14.6	15.3	15.8	15.3	13.8	12.7	10.3	9.8	8.6	8.3	7.4	6.9	6.7				

STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
T	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SF/AIR 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

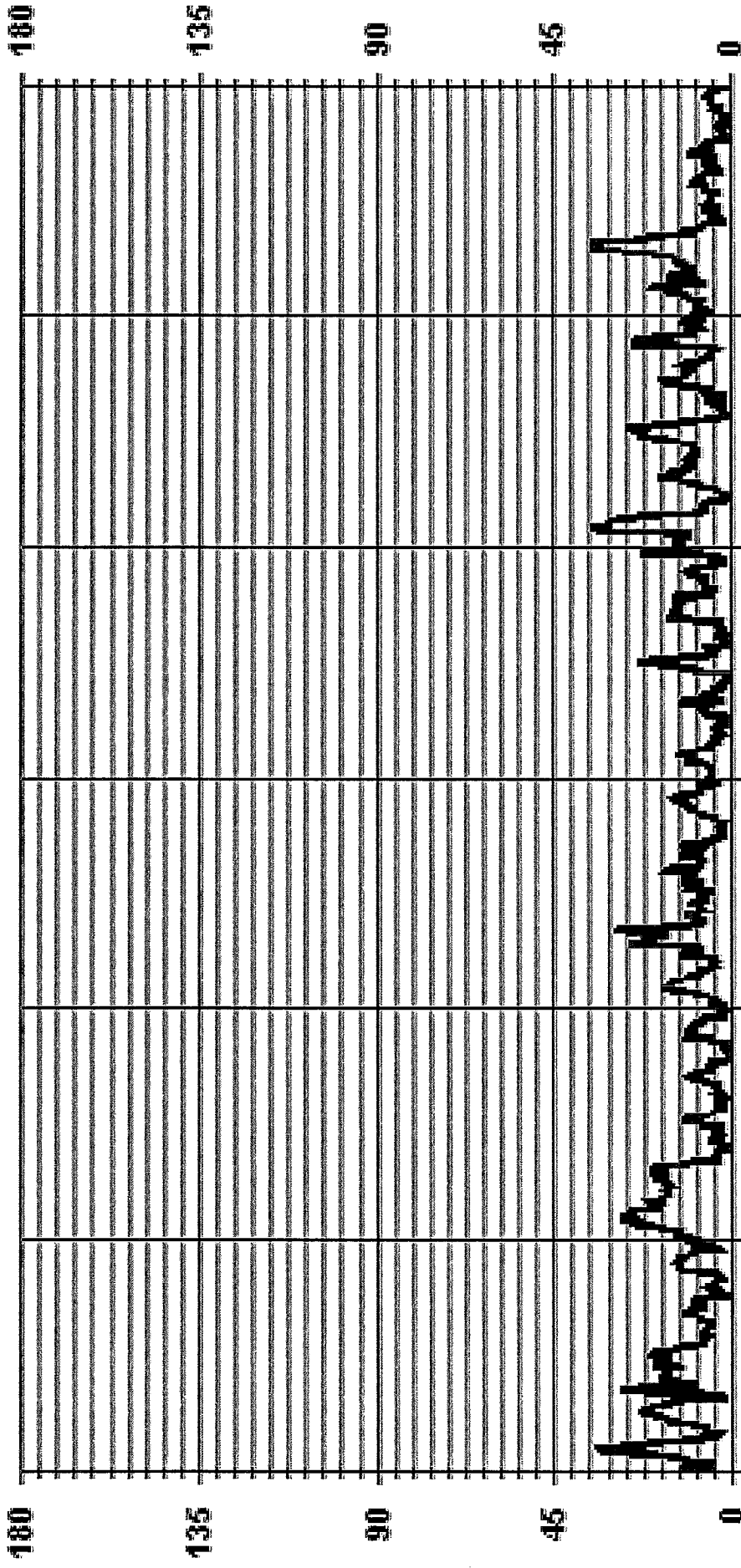
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

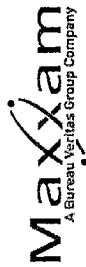
NUMBER OF NON-ZERO READINGS:	718	ON DAY(S)	21
MAXIMUM 1-HR AVERAGE:	35.5 KPH	@ HOUR(S)	11
MAXIMUM 24-HR AVERAGE:	19.6 KPH	ON DAY(S)	6
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	6.99	AMTD OPERATION UPTIME:	99.7 %
		MONTHLY AVERAGE:	9.8 KPH

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Elk Point Airport Site - SEPTEMBER 2015  
JOB # 2833-2015-09-35 - C

VECTOR WIND SPEED MAX Instantaneous maximum in km/hr

MST

DAY	DAILY																								RODS			
	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		
1	15.4	14.0	18.1	20.8	12.8	21.2	23.7	23.5	31.8	43.1	54.6	53.8	55.0	46.7	48.6	40.9	32.2	24.3	15.1	10.4	14.2	21.1	14.7	14.7	14.7	55.0	27.9	24
2	18.8	19.0	37.5	27.3	32.4	29.7	35.1	38.2	37.8	37.5	33.2	30.6	31.7	27.7	25.3	23.8	26.5	38.6	41.6	61.0	47.4	34.1	18.4	24.6	61.0	32.4	24	24
3	31.0	32.8	28.8	27.3	34.6	31.7	30.2	32.0	33.0	32.0	32.0	33.0	35.9	32.5	35.3	31.8	27.9	28.0	18.3	11.0	11.5	12.2	9.3	8.2	36.0	26.5	24	24
4	12.2	13.6	10.2	11.3	7.7	7.9	8.9	13.5	16.3	16.7	24.3	22.3	23.5	23.1	21.0	17.4	16.9	22.8	19.1	11.2	5.9	5.4	8.9	8.9	24.3	14.4	24	24
5	10.1	9.7	8.7	7.0	6.4	7.9	9.8	11.9	21.1	24.8	27.9	27.4	27.7	27.1	24.3	25.9	24.9	22.0	18.3	17.0	11.1	9.1	20.5	19.4	27.9	17.5	24	24
6	18.9	23.7	19.0	24.8	24.8	27.2	34.2	35.4	42.9	50.7	51.3	46.7	45.4	38.3	43.0	43.4	40.9	37.5	38.9	34.9	32.4	37.7	35.8	29.6	51.3	35.7	24	24
7	27.6	29.1	28.8	30.2	36.2	32.8	34.2	26.9	31.6	29.1	28.7	28.2	33.5	29.5	36.6	31.8	25.2	19.8	8.4	7.2	7.9	12.2	8.5	7.6	36.6	24.7	24	24
8	5.1	6.1	4.3	5.1	6.5	8.3	6.6	8.4	12.6	13.1	15.0	14.8	14.6	17.0	19.8	22.2	21.9	19.6	10.9	8.4	7.6	4.6	5.5	5.8	22.2	11.0	24	24
9	5.8	5.5	4.6	4.2	4.3	7.0	6.1	7.8	8.6	6.7	14.9	18.4	20.8	25.6	27.4	19.9	16.5	6.7	9.0	9.6	14.7	10.0	9.3	3.8	27.4	11.1	24	24
10	3.8	2.9	3.3	3.4	3.8	5.7	4.6	4.5	12.4	12.4	23.0	23.1	24.3	26.5	26.2	24.9	24.7	17.4	12.1	10.3	12.0	7.9	5.6	5.6	26.5	12.5	24	24
11	5.0	6.3	5.4	6.7	12.6	10.3	8.2	17.1	17.0	17.1	27.3	29.3	30.4	30.2	32.6	29.7	25.3	17.1	16.3	13.8	14.7	16.4	13.2	7.1	32.6	17.0	24	24
12	7.2	7.3	7.8	13.4	13.1	16.8	18.1	13.5	17.9	21.4	36.6	42.4	35.1	35.5	37.4	37.0	30.5	48.3	53.0	37.8	20.5	27.8	15.0	18.3	53.0	25.5	24	24
13	24.0	17.5	19.5	18.2	13.5	14.9	13.4	21.3	16.7	13.5	18.1	18.4	20.4	18.4	20.9	20.3	20.8	15.3	40.3	15.1	16.4	14.6	19.2	20.8	40.3	18.8	24	24
14	17.6	24.6	23.3	19.9	15.4	12.9	15.8	19.9	22.7	21.8	22.0	18.5	20.6	23.0	17.1	11.7	10.5	8.3	6.3	6.3	6.3	6.9	7.3	4.2	24.6	15.4	24	24
15	5.5	7.8	8.0	7.6	7.6	13.8	13.8	17.8	17.8	18.6	20.7	18.1	24.3	26.4	30.7	27.5	25.5	22.4	14.1	15.0	16.6	13.7	8.1	8.0	30.7	16.2	24	24
16	11.6	10.5	10.3	10.1	8.8	8.6	8.4	8.3	15.3	20.0	17.5	20.0	21.2	21.9	19.9	20.1	10.5	10.4	9.9	6.4	P	P	7.0	5.7	21.9	12.8	22	22
17	6.8	5.2	11.5	10.4	7.0	13.6	5.1	4.4	6.6	12.3	14.6	21.9	22.0	22.4	16.4	18.0	41.9	30.7	12.8	12.6	14.2	11.2	7.0	5.3	41.9	13.9	24	24
18	6.5	7.5	10.6	8.9	5.6	4.5	3.3	7.1	15.5	19.7	24.7	31.5	37.5	40.4	40.1	28.8	12.9	14.8	9.4	11.6	11.4	8.7	5.1	6.4	40.4	15.5	24	24
19	4.1	4.0	3.7	8.8	5.4	6.3	4.5	8.0	7.4	9.6	8.2	22.2	30.2	29.3	28.0	23.4	29.6	26.0	21.8	25.8	28.0	22.7	19.7	24.3	30.2	16.7	24	24
20	18.1	11.3	11.9	10.0	10.1	17.5	15.5	14.9	12.6	16.2	16.8	21.3	19.8	18.5	17.2	8.4	7.4	8.1	7.0	11.3	8.7	24.4	40.7	23.2	40.7	15.5	24	24
21	26.4	21.3	24.6	23.6	25.2	23.1	22.1	21.4	39.0	46.5	52.2	53.7	50.0	48.0	54.4	46.4	40.4	37.0	23.5	15.0	11.6	12.4	10.1	9.2	54.4	30.7	24	24
22	10.1	7.0	4.9	3.3	4.7	5.7	7.3	9.3	12.5	13.4	21.1	21.9	23.0	29.4	31.6	28.0	19.0	21.9	20.1	17.8	16.4	15.2	16.9	17.5	31.6	15.8	24	24
23	15.8	14.5	14.7	12.2	15.0	14.7	13.4	19.1	26.7	34.0	34.9	33.1	34.3	36.0	38.5	41.9	37.4	21.4	15.1	14.3	5.8	5.1	5.9	7.6	41.9	21.3	24	24
24	6.3	5.3	5.0	8.5	7.6	4.6	7.5	7.3	10.6	11.2	12.8	15.3	22.9	25.7	32.5	32.8	24.9	22.6	20.7	22.1	14.8	16.3	16.4	19.5	32.8	15.6	24	24
25	20.2	14.2	11.5	9.9	9.3	9.2	9.1	20.2	14.6	30.3	45.8	52.7	45.1	36.7	29.4	18.1	21.8	18.9	22.1	12.5	11.9	18.2	15.9	12.3	52.7	21.2	24	24
26	14.4	14.2	12.1	12.1	10.8	15.3	13.7	14.8	18.1	18.5	19.9	21.6	28.1	32.9	31.5	51.4	42.2	13.4	19.2	22.4	27.5	29.8	16.8	19.6	51.4	21.7	24	24
27	19.3	17.5	20.0	22.5	21.5	21.8	22.8	26.3	36.6	35.1	53.8	58.1	51.0	58.3	55.8	50.0	38.4	35.1	23.7	15.1	13.4	12.8	16.4	58.3	32.4	24	24	
28	13.5	5.6	9.1	13.0	5.9	7.9	10.6	11.0	14.8	12.7	17.8	12.7	13.6	14.3	14.0	15.4	11.8	11.4	9.8	11.8	12.3	13.0	12.9	7.7	17.8	11.8	24	24
29	10.9	10.3	9.6	7.8	13.2	15.7	13.1	14.7	16.7	15.9	13.8	11.7	19.6	21.3	24.5	10.1	12.9	12.5	12.6	7.6	7.1	3.6	5.5	6.5	24.5	12.4	24	24
30	8.5	6.1	6.5	1.4	5.3	4.6	5.6	4.9	8.0	9.2	8.9	10.6	10.6	16.9	14.3	12.2	12.4	8.6	11.6	10.2	8.5	8.2	7.1	4.4	16.9	8.5	24	24
HOURLY MAX	31.0	32.8	37.5	30.2	36.2	32.8	36.0	38.2	42.9	50.7	54.6	53.8	58.1	51.0	58.3	55.8	50.0	48.3	53.0	61.0	47.4	37.7	40.7	29.6				
HOURLY AVG	13.4	12.5	13.1	15.0	12.9	14.0	14.3	15.7	19.7	22.1	26.4	27.7	29.2	29.0	30.1	27.5	24.9	21.5	19.1	16.4	14.9	15.0	15.2	12.4				

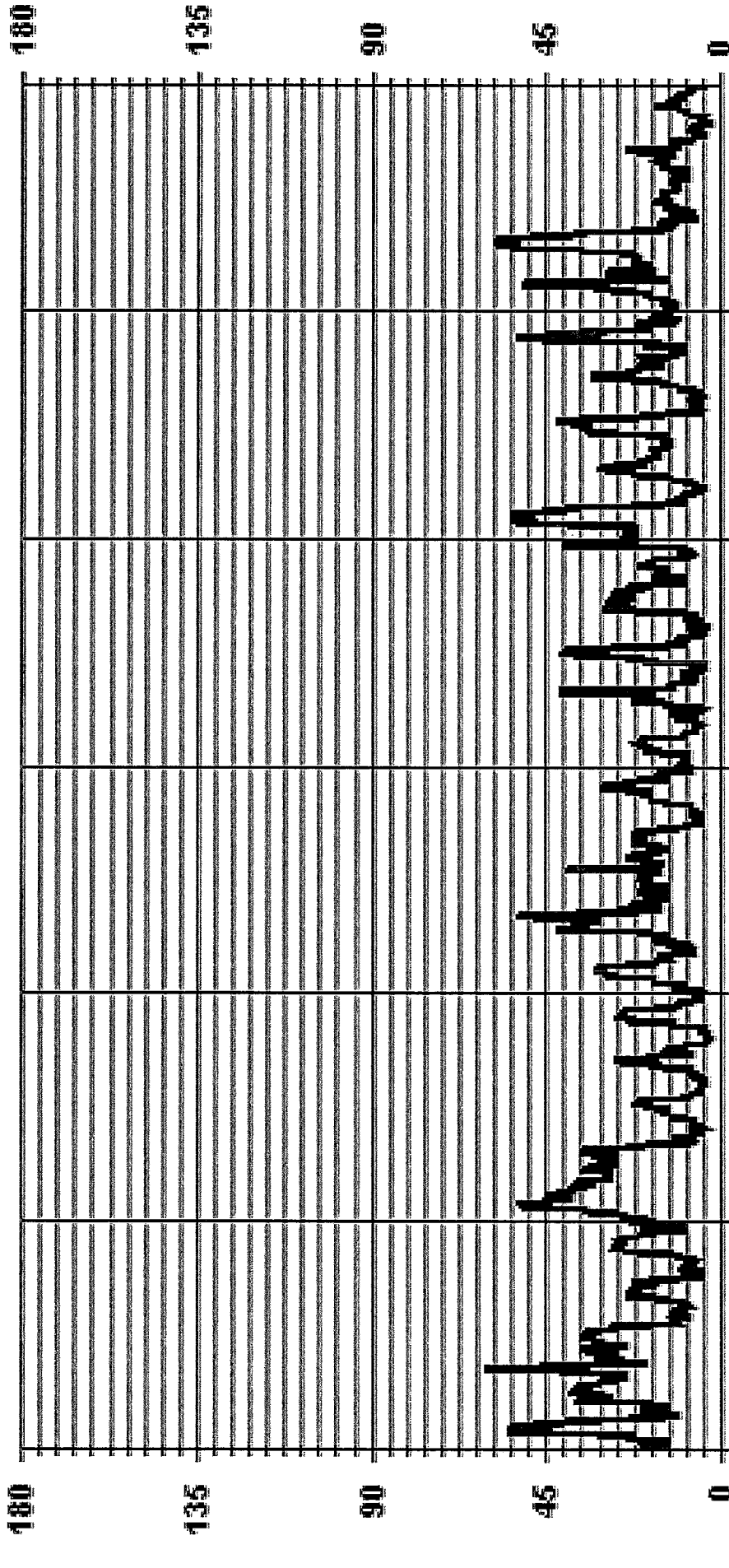
STATUS FLAG CODES

C	CALIBRATION	R	RECOVERY	S	QUALITY ASSURANCE
M	MAINTENANCE	X	MACHINE/ALERT/INJECTION		
D	DAILY ZERO/SPAN CHECK	O	OPERATOR ERROR		
P	POWER FAILURE	K	COLLECTION ERROR		
G	ROUT FOR REPAIR				

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	61.0	KPH	@ HOUR(S)	19	ON DAY(S)	2	
OPERATIONAL TIME:	VARIOUS					718	HRS

# 01 Hour Averages



— LICA35 WSMAX KPH

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

September 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																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	1.81	1.53	1.81	3.06	3.48	2.78	.83	.83	.41	1.11	1.53	2.78	3.34	5.43	3.06	.69	34.54
< 12.0	.69	1.53	.97	3.34	1.94	1.94	1.53	.00	.97	1.53	1.81	5.57	5.15	2.64	2.92	2.22	34.81
< 20.0	.55	.55	.69	1.81	1.25	1.25	.41	.41	.00	.97	.83	2.64	2.78	2.92	3.06	1.11	21.30
< 29.0	.00	.00	.00	.00	.41	1.25	.00	.00	.00	.00	.00	.00	1.25	1.25	.97	1.94	7.10
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.83	1.25	.00	.13	2.22
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.06	3.62	3.48	8.21	7.10	7.24	2.78	1.25	1.39	3.62	4.17	11.00	13.37	13.50	10.02	6.12	

Calm : .00 %

Total # Operational Hours : 718

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	13	11	13	22	25	20	6	6	3	8	11	20	24	39	22	5	248
< 12.0	5	11	7	24	14	14	11		7	11	13	40	37	19	21	16	250
< 20.0	4	4	5	13	9	9	3	3		7	6	19	20	21	22	8	153
< 29.0					3	9						9	9	9	7	14	51
< 39.0												6	6	9		1	16
>= 39.0																	
Totals	22	26	25	59	51	52	20	9	10	26	30	79	96	97	72	44	

Calm : .00 %

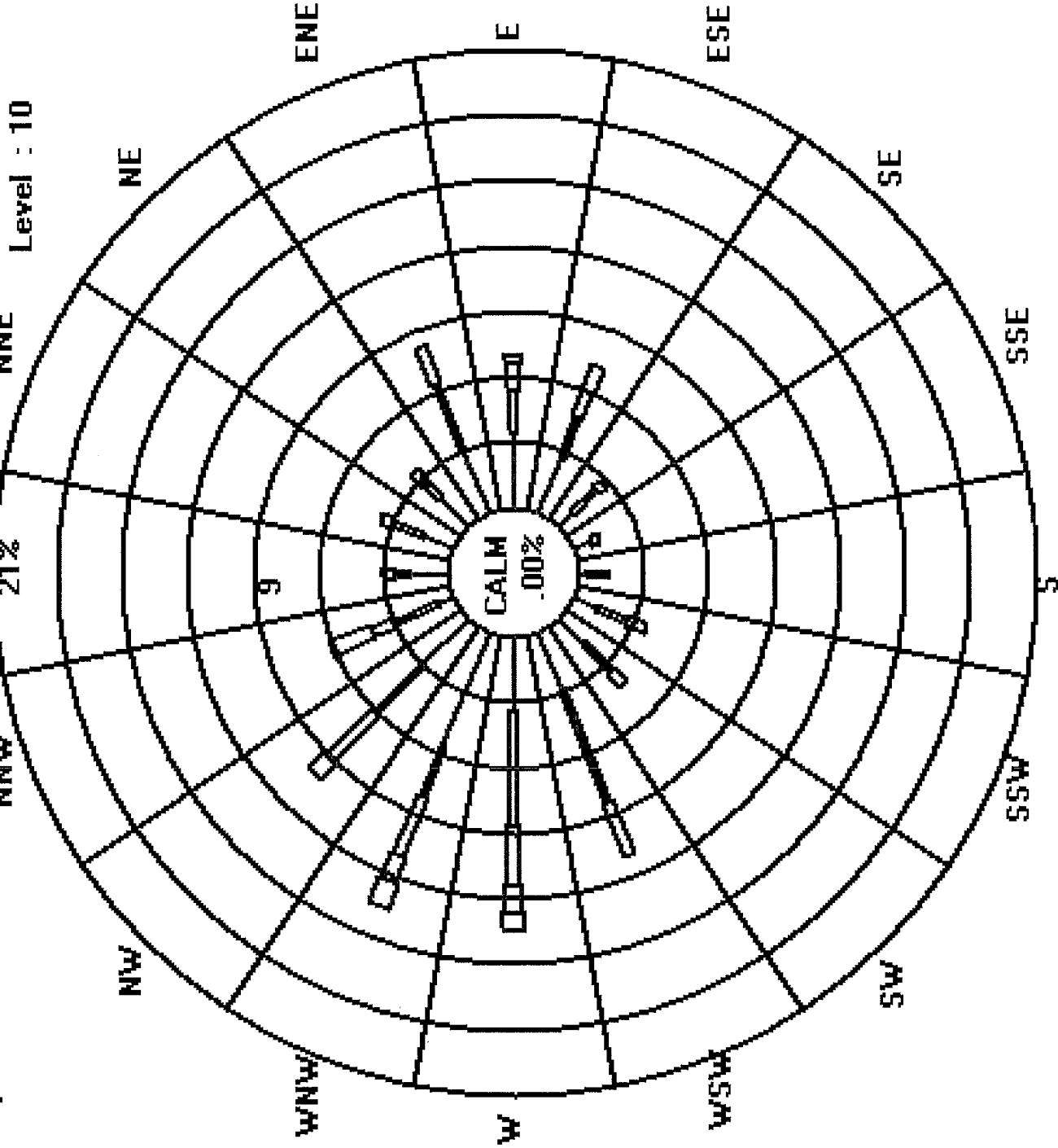
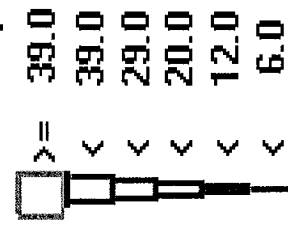
Total # Operational Hours : 718

Logger : 35 Parameter : WSP

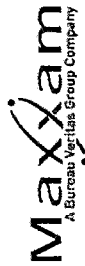
Site : LICA-ELK

Class Limits (KPH)

Period : 09/01/15-09/30/15



***WIND DIRECTION***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 Elk Point Airport Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-35 - C

WIND DIRECTION (WD) hourly averages

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

24-HOUR AVG  
 QUADRANT

STATUS FLAG CODES

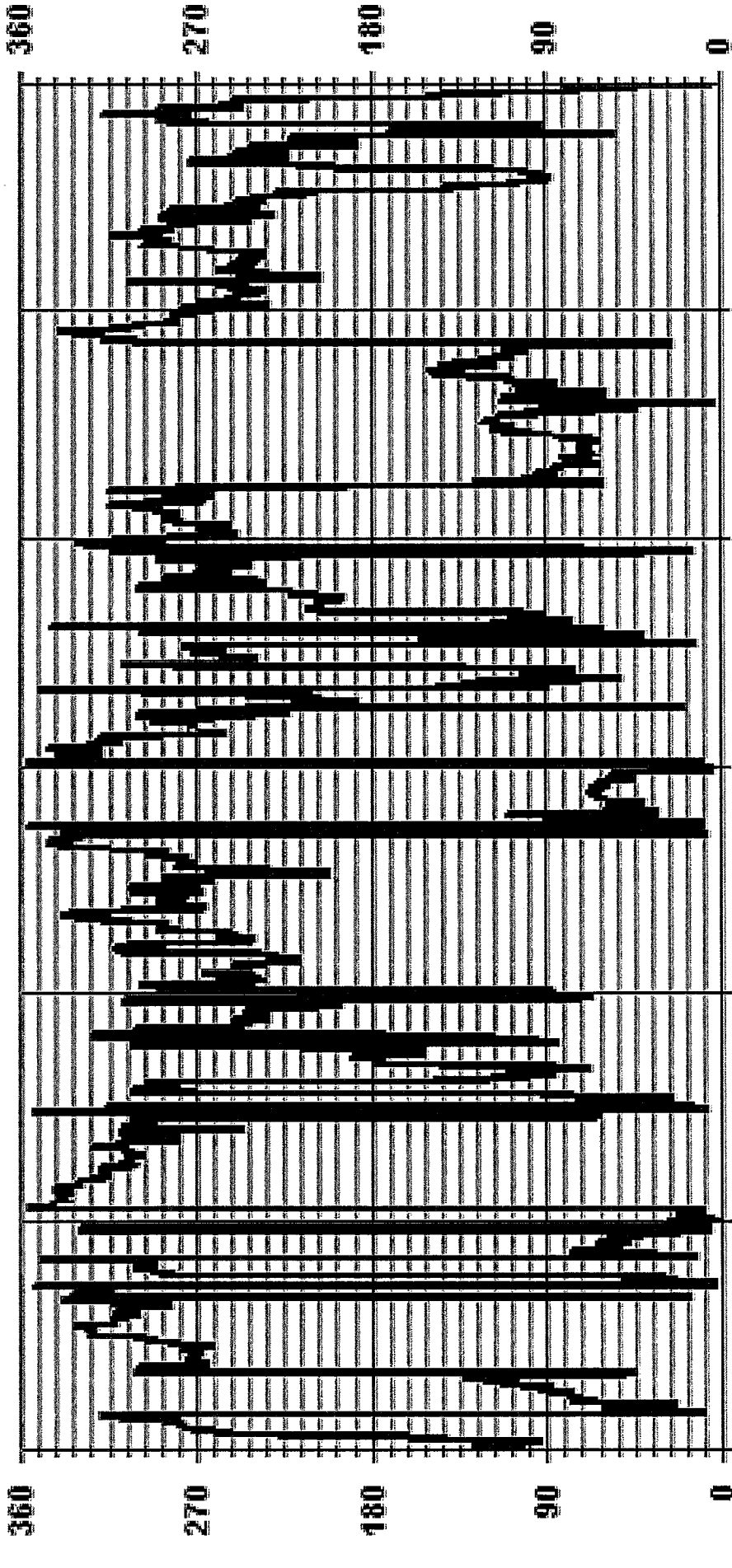
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	71.8	HRS
STANDARD DEVIATION:	102.60		AMD OPERATION UPTIME:	99.7	%
			MONTHLY AVERAGE:	WNW	



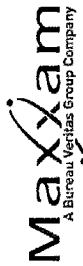
01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 WDR DEG

***STANDARD DEVIATION WIND DIRECTION***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 Elk Point Airport Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-35- 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	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	5	6	8	6	4	3	26	13	15	14	14	10	10	11	12	13	12	12	7	29	29	29	86	31	18
2	16	16	16	12	12	12	10	9	10	12	12	14	17	19	27	54	14	31	10	9	9	15	11	9	9
3	7	8	7	7	11	9	9	12	9	11	13	16	14	11	12	10	13	10	9	6	5	5	5	5	6
4	5	11	10	6	5	9	12	16	22	16	17	19	18	30	24	25	19	12	10	32	7	17	10	10	
5	11	7	15	10	10	19	21	23	17	16	17	20	22	15	14	16	13	11	12	13	25	13	17	14	
6	17	13	15	14	13	13	14	14	15	13	12	11	8	9	10	9	9	12	9	7	8	8	8	8	
7	10	9	10	10	10	10	8	8	8	8	9	9	10	10	15	10	8	4	7	11	15	15	9	9	
8	12	10	18	13	7	7	10	34	27	40	62	48	53	28	30	21	14	12	7	10	15	13	8	6	
9	6	6	4	57	39	11	15	15	23	38	30	28	21	22	23	16	13	10	9	5	18	11	30	45	
10	34	30	72	31	11	32	11	48	18	23	17	19	23	22	19	16	19	12	8	3	6	33	34	32	
11	39	16	38	24	17	17	13	14	14	16	18	16	13	17	13	15	13	10	9	8	9	8	11	7	
12	8	20	17	19	7	3	5	10	14	14	13	9	12	12	11	11	11	9	10	10	10	10	14	23	
13	9	12	9	10	8	12	10	10	11	23	24	23	25	15	30	18	19	12	14	18	7	5	8	7	
14	13	6	7	9	11	9	12	12	13	15	20	11	29	36	12	11	18	16	27	41	23	33	30	39	
15	28	37	42	14	19	10	10	12	12	13	13	13	13	13	13	13	13	12	12	11	15	15	17	17	
16	15	16	13	13	11	11	8	10	15	13	14	14	13	11	13	12	14	8	11	9	P	P	6	20	
17	13	18	13	15	32	49	16	33	58	48	27	29	32	34	26	19	18	31	30	12	8	9	18	19	
18	14	40	58	42	61	38	7	21	16	16	14	17	17	12	11	11	7	21	21	7	10	43	68	21	
19	26	33	46	26	33	57	52	29	34	38	38	49	14	14	13	15	13	9	7	11	12	12	16	8	
20	11	13	17	22	9	13	16	18	12	11	10	12	12	12	12	10	12	23	43	48	11	35	12	9	17
21	9	10	9	12	11	9	12	13	12	8	8	8	8	8	8	10	10	8	9	7	8	7	10	7	6
22	11	19	19	12	15	22	19	17	12	13	12	8	10	9	9	10	10	11	9	8	9	9	8	9	9
23	9	10	9	8	8	6	7	8	10	8	12	12	11	11	11	9	9	6	7	5	21	56	21	21	
24	66	14	16	9	14	39	13	15	12	14	20	18	12	13	14	14	12	10	9	10	6	7	5	5	
25	7	7	9	9	12	15	11	16	22	10	10	11	12	12	15	13	11	9	5	10	6	6	7	9	
26	8	11	11	9	10	8	10	12	12	13	12	16	16	19	16	17	11	24	10	10	10	10	12	8	11
27	12	10	9	12	9	7	11	12	11	10	9	9	9	9	9	9	11	8	6	6	10	6	5	10	
28	13	20	13	9	19	5	17	15	17	20	25	30	27	36	29	35	46	15	7	7	5	7	8	7	
29	4	5	5	35	53	19	16	27	15	20	20	38	21	13	14	17	9	8	7	9	17	23	34	38	
30	39	31	13	6	8	7	8	13	25	35	25	26	43	40	28	21	11	13	7	8	6	7	27	35	

STATUS FLAG CODES

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

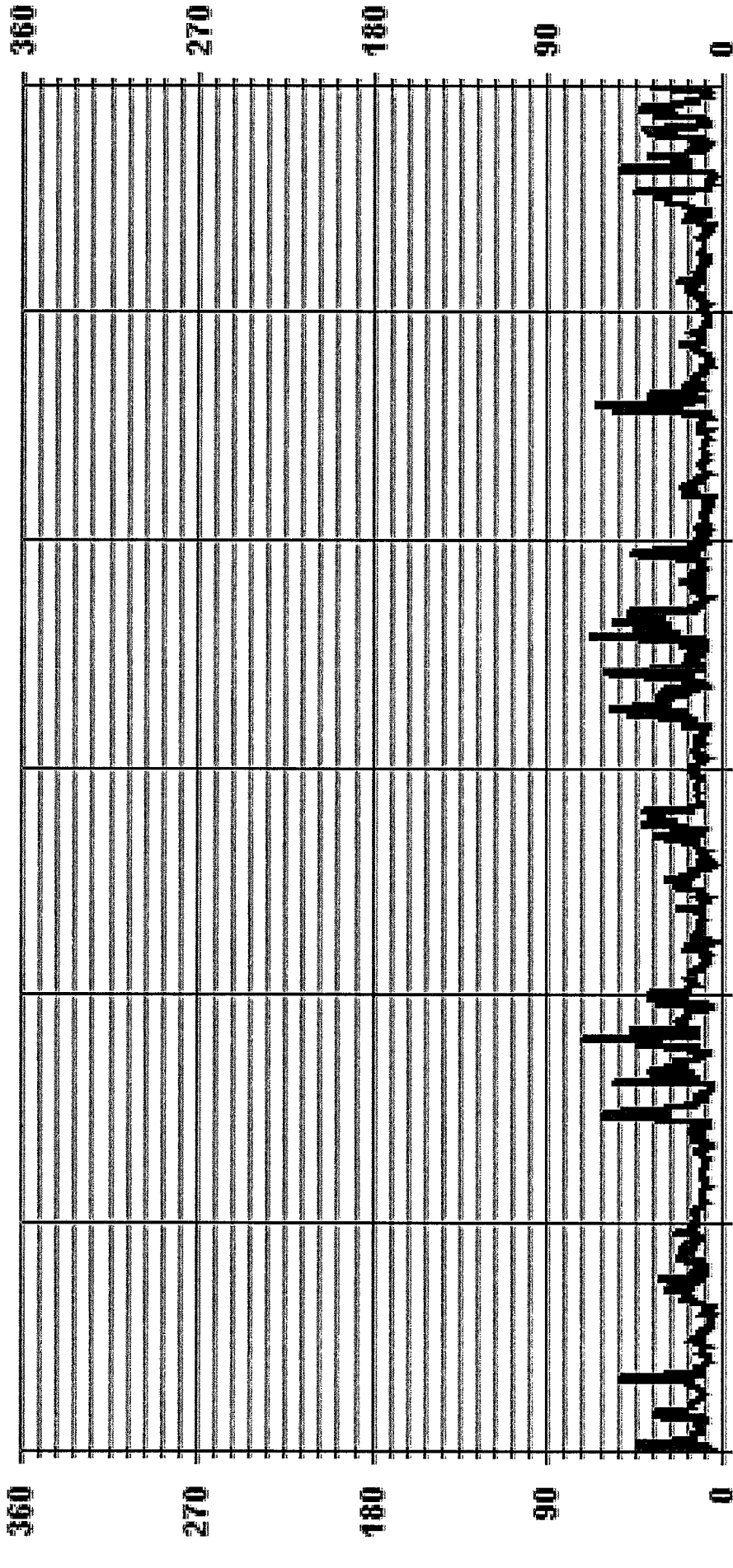
LAST CALIBRATION:

February 21, 2014

CALIBRATION TIME: 0 HRS

OPERATIONAL TIME: 718 HRS

01 Hour Averages

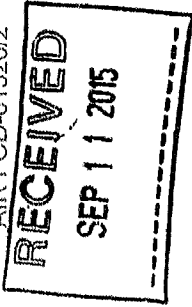


09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA35 STDWDIR DEG

**APPENDIX II**  
**NON-CONTINUOUS MONITORING DATA RESULTS**

***VOC RESULTS***



Sample ID: 15090129-001

Customer ID: LICA

Cust Samp ID: LICAVOC/EP/Sept 3, 2015

Priority: Normal

Maxxam

VOC Sample Collection Data Sheet

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

Sampler SIN: 6200  
 Canister ID: 2453  
 Canister Installation Date/Time: August 31, 2015 @ 18:01  
 Canister Removal Date/Time: September 2, 2015 @ 18:22

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	18.0

19.5 psi  
sub.

Flow Settings		
Meter Reading (scfm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

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: The canister does not have a pressure gauge. Pressure readings were taken from the sampler's pressure gauge.

Technician Signature: \_\_\_\_\_  
 Sample in - by Alex Yakupov  
 Sample out - by Alex Yakupov  
 Date: September 8, 2015



## Volatile Organics Data Results

Date: SEPTEMBER 3, 2015  
Canister ID: 2453

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.04
2-Methylhexane	< 0.01
2-Methylpentane	0.07
3-Methylheptane	0.02
3-Methylhexane	0.06
3-Methylpentane	0.04
Acetone	10.4
Acrolein	0.4
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.04
Carbon disulfide	7.94
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	0.04
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.09
cis-2-Pentene	< 0.02
Cyclohexane	0.05
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	1.1
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.35





## Volatile Organics Data Results

Date: SEPTEMBER 3, 2015  
Canister ID: 2453

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.68
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.18
Isopentane	0.25
Isoprene	0.24
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.09
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	1.5
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.08
Methylcyclopentane	0.06
Methylene chloride	< 0.3
n-Butane	0.25
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	< 0.01
n-Nonane	0.02
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.7
o-Ethyltoluene	0.01
o-Xylene	0.05
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.16
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.15
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15090129-005

Customer ID: LICA

Cust Samp ID: LICAVOC/EP/Sept 9, 2015

Priority: Normal

Maxxam

VOC Sample Collection Data Sheet

Client: LICA

Location: Elk Point Airport

Station ID: LICA 25

Field Sample ID: LICA/VOC/EP/Sept 9, 2015

Sampler S/N: 6100

Canister ID: 1532

Canister Installation Date/Time: September 9, 2015 @ 10:23

Canister Removal Date/Time: September 10, 2015 @ 12:11

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

Canister Information	
Initial Canister Vacuum (inHg)	28.0
Final Canister Pressure (psig)	20.0

20 PSI  
BR

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

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

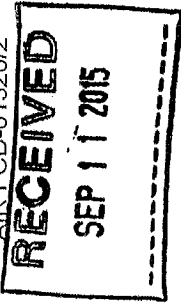
Comments:

Technician Signature:

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

Date: September 10, 2015

AIR FCD-01320/2



## Volatile Organics Data Results

Date: SEPTEMBER 9, 2015  
Canister ID: 1532

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.09
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.03
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.10
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.22
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.14
3-Methylheptane	< 0.02
3-Methylhexane	0.06
3-Methylpentane	0.08
Acetone	10.4
Acrolein	0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	4.83
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.40
cis-2-Pentene	< 0.02
Cyclohexane	0.13
Cyclopentane	0.04
Dibromochloromethane	< 0.01
Ethanol	1.2
Ethyl acetate	< 0.4
Ethylbenzene	0.23
Freon-11	0.31

## Volatile Organics Data Results

Date: SEPTEMBER 9, 2015  
Canister ID: 1532

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.69
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.79
Isopentane	0.56
Isoprene	0.26
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.37
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	3.1
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.24
Methylcyclopentane	0.11
Methylene chloride	< 0.3
n-Butane	0.80
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.07
n-Hexane	< 0.01
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	4.9
o-Ethyltoluene	0.03
o-Xylene	0.12
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.29
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.87
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

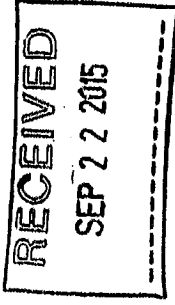
Sample ID: 15090321-003

AIR FCD-01320/2

Customer ID: LICA  
Cust Samp ID: LICAVOC/EP/Sept 15, 2015

Maxxam

VOC Sample Collection Data Sheet



Client: LICA  
Location: Ek Point Airport  
Station ID: LICA 35  
Field Sample ID: LICA/VOC/EP/Sept 15, 2015  
Sampler S/N: 6200  
Canister ID: 1089  
Canister Installation Date/Time: September 10, 2015 @ 12:12 MST  
Canister Removal Date/Time: Sept 18, 2015 @ 13:25 MST

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

Canister Information	
Initial Canister Vacuum (inHg)	22

21.5 psi  
MSR

Flow Settings		
Meter Reading (sccm)	Pot Set Pt	Pump Pressure Setting (psig)
10.0	4.94	2.4

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 - by Alex Yankovov  
Sample out - by LINDA LI.  
Date: Sept 18, 2015

## Volatile Organics Data Results

Date: SEPTEMBER 15, 2015  
Canister ID: 1089

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	0.36
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.46
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.13
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	0.04
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.13
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.20
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.02
2-Methylhexane	< 0.01
2-Methylpentane	0.98
3-Methylheptane	< 0.02
3-Methylhexane	0.06
3-Methylpentane	2.75
Acetone	7.9
Acrolein	< 0.3
Benzene	0.05
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.66
Carbon tetrachloride	0.06
Chlorobenzene	< 0.02
Chloroethane	0.03
Chloroform	< 0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.27
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	6.8
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.21



## Volatile Organics Data Results

Date: SEPTEMBER 15, 2015  
Canister ID: 1089

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.03
Freon-114	< 0.02
Freon-12	0.42
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.23
Isopentane	0.63
Isoprene	0.07
Isopropyl alcohol	0.8
Isopropylbenzene	< 0.01
m,p-Xylene	0.17
m-Diethylbenzene	< 0.04
m-Ethyltoluene	0.12
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	5.2
Methyl methacrylate	0.08
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.05
Methylcyclopentane	2.96
Methylene chloride	4.1
n-Butane	0.39
n-Decane	0.33
n-Dodecane	2.9
n-Heptane	0.13
n-Hexane	18.8
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	0.8
Naphthalene	< 0.5
o-Ethyltoluene	0.08
o-Xylene	0.09
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	5.82
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15090469-003

Customer ID: LICA

Cust Samp ID: LICA VOC/ELK/Sept 21, 2015

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA  
 Location: Elk Point Airport  
 Station ID: LICA 35 (Portable)  
 Field Sample ID: LICA VOC/ELK/Sept 21, 15

Sampler s/n: 6200  
 Canister ID: H2826  
 Canister Installation Date/Time: Sept 18, 15 @ 13:26 mst  
 Canister Removal Date/Time: Sept 25, 15 @ 15:17 mst

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
2015/09/21	2015/09/21 0:00	2014/09/22 0:00
		Elapsed Time (Hours)
		24

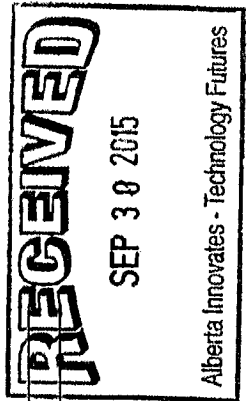
Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	494	26

Canister Information	
Initial Canister Vacuum (inHg)	19 psi
Final Canister Pressure (psig)	

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: Chris Wesson





## Volatile Organics Data Results

Date: SEPTEMBER 21, 2015  
Canister ID: H2816

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.03
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	1.7
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	0.6
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.27



## Volatile Organics Data Results

Date: SEPTEMBER 21, 2015  
Canister ID: H2816

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	< 0.02
Freon-12	0.58
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.19
Isopentane	0.13
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.04
Methylcyclopentane	0.02
Methylene chloride	< 0.3
n-Butane	0.28
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.05
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.03
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15100050-003

Customer ID: LICA

Cust Samp ID: LICA VOC/ELK/Sept 27, 2015

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA  
 Location: Elk Point Airport  
 Station ID: LICA 35 (Portable)  
 Field Sample ID: LICA VOC/ELK/Sept 27, 15

Sampler s/n: 6200  
 Canister ID: 2665  
 Canister Installation Date/Time: Sept 25, 15 @ 15:24 mst  
 Canister Removal Date/Time: Sept 27, 15 @ 13:59 A.K.

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
2015/09/27	2015/09/27 0:00	2014/09/28 0:00
		Elapsed Time (Hours)
		24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	494	26

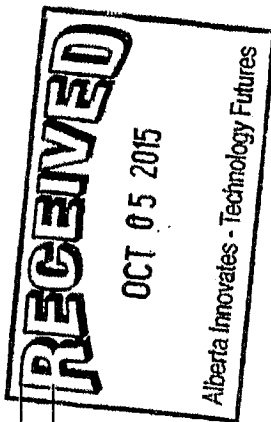
Canister Information	
Initial Canister Vacuum (inHg)	-28
Final Canister Pressure (psig)	+ 10.0

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: Chris Wesson / Sample out: Alex Yarepov

Date: Oct 1, 2015

## Volatile Organics Data Results

Date: SEPTEMBER 27, 2015  
Canister ID: 2665

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	< 0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.04
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.03
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.02
2-Methylpentane	0.05
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.02
Acetone	1.7
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.05
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	2.5
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.27

## Volatile Organics Data Results

Date: SEPTEMBER 27, 2015  
Canister ID: 2665

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.06
Freon-114	< 0.02
Freon-12	0.63
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.32
Isopentane	0.35
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.04
Methylcyclopentane	0.02
Methylene chloride	< 0.3
n-Butane	0.51
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.05
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.05
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

***PAH RESULTS***

Sample ID: 15090129-002

Customer ID: LICA

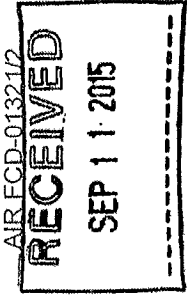
Cust Samp ID: LICA/PUF/EP/Sept 3, 2015

Priority: Normal

Maxxam

Hi-Vol PUF + Sample Collection Data Sheet

Client: LICA Puf+ SIN: A13-02  
 Location: Elk Point Airport Motor SIN: 1139  
 Station ID: LICA 35 Installation Date/Time: August 31, 2015 @ 12:06  
 Field Sample ID: LICA/PUF/EP/Sept 3, 2015 Removal Date/Time: September 1, 2015 @ 10:31



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

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)
707	229	10.1 °
		Volume (Vstd m <sup>3</sup> )
		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: ILC-certifier N.Y.

Technician Signature: \_\_\_\_\_

Sample in - by Alex Yousepor  
Sample out by Alex Yousepor

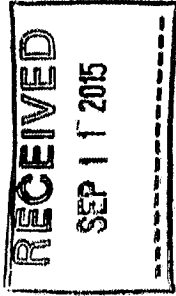
Date: September 8, 2015

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 3, 2015  
PUF S/N: A1302

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





Sample ID: 15090129-006

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Sept 9, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA  
 Location: Elk Point Airport  
 Station ID: LICA 35  
 Field Sample ID: LICA / PUF / EP / Sept 9, 2015

Puf+ S/N: TE-02  
 Motor S/N: 1139  
 Installation Date/Time: September 8, 2015 @ 10:32  
 Removal Date/Time: September 10, 2015 @ 12:01

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

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 22 - Sept - 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m <sup>3</sup> )
709	229	9.2 °	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 - by Alex Yousepor*  
*Sample out - by Alex Yousepor*  
 Date: *September 10, 2015*

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 9, 2015  
PUF S/N: TE02

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.08
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.11
Pyrene	0.03
Retene	0.02

RECEIVED  
SEP 22 2015

Sample ID: 15090321-004

Customer ID: LICA  
Cust Samp ID: LICA/PUF/EP/Sept 15, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA  
Location: Elk Point Airport  
Station ID: LICA 35  
Field Sample ID: LICA/PUF/EP/Sept 15, 2015  
Puf+ S/N: TE-03  
Motor S/N: 1139  
Installation Date/Time: September 10, 2015 @ 12:02  
Removal Date/Time: September 18, 2015 @ 13:50

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

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

Set Flow Rate (slpm): 230  
Date of Last Calibration: 22 - Sept - 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Mstd m <sup>3</sup> )
703	229	6.7	330.22

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

Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signature: \_\_\_\_\_  
Sample in - by Alex Yampou  
Sample out: by LIAWA H  
Date: September 18, 2015

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 15, 2015  
PUF S/N: TE03

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	< 0.01
2-Methylnaphthalene	0.02
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
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	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.02
Perylene	< 0.01
Phenanthrene	0.06
Pyrene	0.02
Retene	0.02

Sample ID: 15090469-004

Customer ID: LICA

Cust Samp ID: LICA PUF/ELK/Sept 21, 2015

# Maxxam Analytics Inc.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Puf+ s/n: TE08

Location: Elk Point Airport

Motor s/n: 1139

Station ID: LICA 35 (Portable)

Installation Date/Time: Sept 18, 15 @ 13:55 mst

Field Sample ID: LICA PUF/ELK/Sept 21, 15

Removal Date/Time: Sept 25, 15 @ 15:31 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Sep-15	2015/09/21 0:00	2015/09/22 0:00	24.00

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

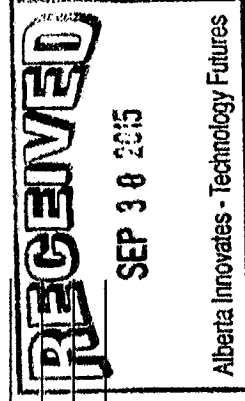
Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data		
Average Pressure(mmHg)	Average Flow (Qstd slpm)	Average Temperature (C) (Vstd m <sup>3</sup> )
706	229	5.4
		330.19

Time set correctly prior to sampling? YES  
 Timer set correctly prior to sampling? YES  
 Sampling data saved to memory card after sampling?

Comments:



Technician Signature: Sample in: Limin Li / Sample out: Chris Wesson

## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 21, 2015  
PUF S/N: TE08

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.09
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.04
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.05
Retene	0.01

Sample ID: 15100050-004

Customer ID: LICA  
Cust Samp ID: LICA PUF/ELK/Sept 27, 2015

# Maxxam Analytics Inc.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ s/n: TE0864  
Location: Elk Point Airport Motor s/n: 1139  
Station ID: LICA 35 (Portable) Installation Date/Time: Sept 25, 15 @ 15:33 mst  
Field Sample ID: LICA PUF/ELK/Sept 27, 15 Removal Date/Time: ~~Sept 27, 15 @ mst~~ 4-V  
*Oct 1, 2015 @ 13:54*

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
27-Sep-15	2015/09/27 0:00	2015/09/28 0:00
		Elapsed Time (Hours)
		24.00

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

Set Flow Rate (slpm): 230

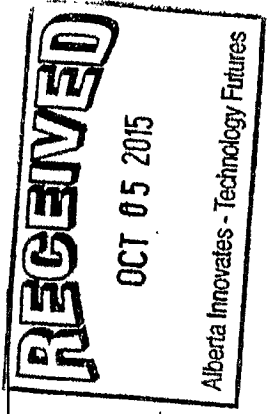
Date of Last Calibration: 25-Sep-11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
706	229	5.3°
		Volume (Mstd m³)
		330.20

Time set correctly prior to sampling? **YES**  
Timer set correctly prior to sampling? **YES**  
Sampling data saved to memory card after sampling? **No**

Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signature: Sample in: Chris Wesson / Sample out: Alex Yampou  
Date: Oct 1, 2015



## Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: SEPTEMBER 27, 2015  
PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.04
2-Methylnaphthalene	0.08
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.05
Perylene	< 0.01
Phenanthrene	0.07
Pyrene	0.03
Retene	0.01

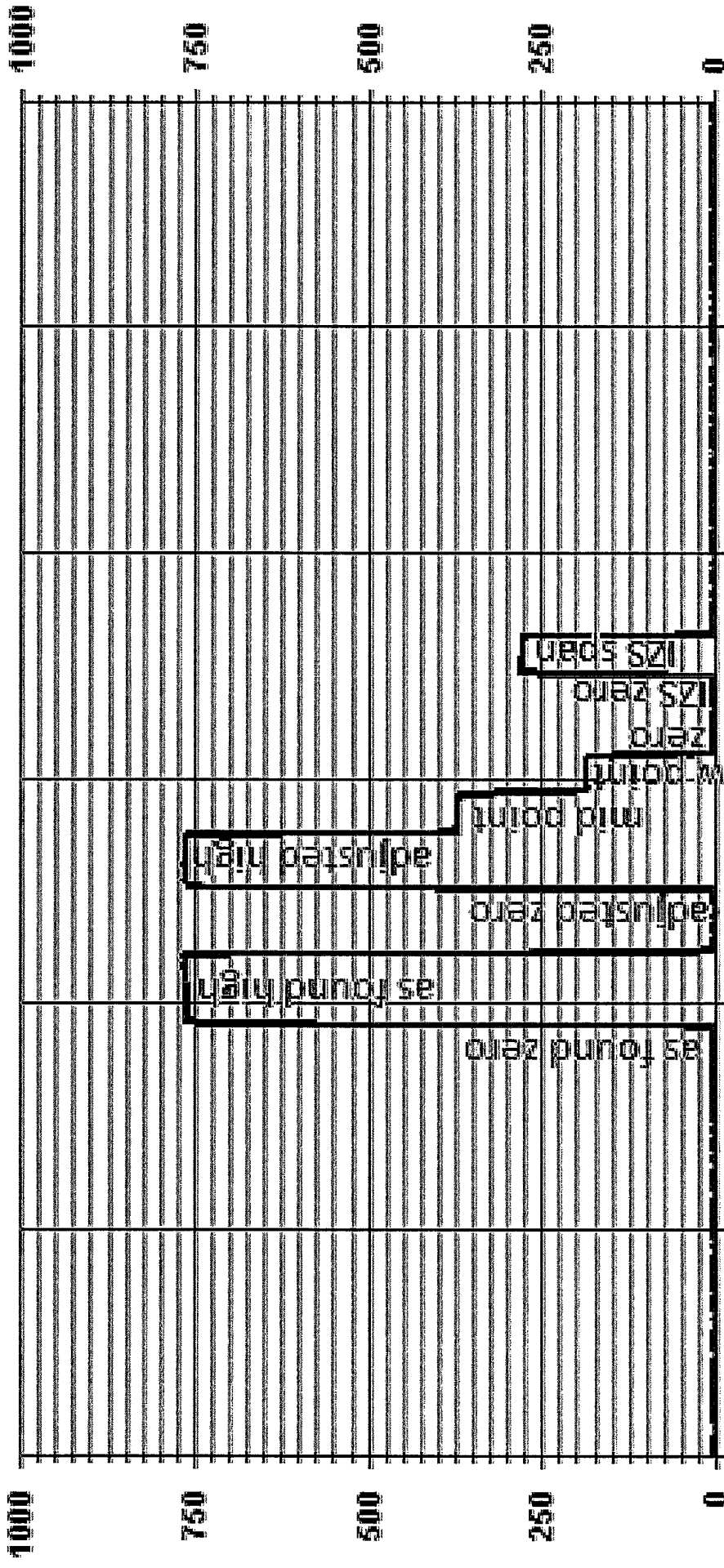


***APPENDIX III***  
***ANALYZER CALIBRATION RESULTS***

***SULPHUR DIOXIDE***

<b>Maxxam</b> <small>A Brown Veritas Group Company</small>		<b>API 100E Sulphur Dioxide Analyzer Calibration</b>																																			
Date: September 24, 2015		Barometric Pressure: 27.97 InHg																																			
Company/Alrshed: LICA		Station Temperature °C: 22																																			
Location/Station Name: Elk Point		Weather Conditions: Clear																																			
Parameter: Sulphur Dioxide		Calibration Purpose: routine monthly																																			
Start Time 24 hr. (mst): 10:12		Performed By/Reviewer: Chris Wesson   Tom Bourque																																			
End Time 24 hr. (mst): 14:21		Cal Gas Expiry Date: March 12, 2019																																			
Calibration Method: Gas Dilution		Converter Model & s/n (if applicable): NA																																			
<b>Analyzer:</b>																																					
Serial Number: 510		Range ppb: 1000																																			
Last Calibration Date: August 17, 2015		As Found C.F.: 1.001																																			
Previous C.F.: 1.000		New C.F.: 1.001																																			
<b>Calibrator:</b>																																					
Flow Meter ID's: NA		<b>Standard Calibration Points for Ranges</b>																																			
Make & Model: Sablo 2010		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Point</th> <th>Sulphur Dioxide Standard Calibration Points</th> </tr> <tr> <td>High</td> <td>780</td> </tr> <tr> <td>Mid</td> <td>380</td> </tr> <tr> <td>Low</td> <td>190</td> </tr> </table>		Point	Sulphur Dioxide Standard Calibration Points	High	780	Mid	380	Low	190																										
Point	Sulphur Dioxide Standard Calibration Points																																				
High	780																																				
Mid	380																																				
Low	190																																				
Serial #: 17100415																																					
Cal Gas Cylinder I.D. #: LL67747																																					
Cal Gas Conc. (ppm): 49.7																																					
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>																																					
<b>Callibrator Flow Rates (cc/min)</b>																																					
Point	Diluent	Cal Gas	Total	Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors (C.F.):																															
as found zero	5015	0.00	5015	0.0	1.0	N/A																															
as found high	4940	76.90	5017	761.8	762.0	1.001																															
adjusted zero	5015	0.00	5015	0.0	1.0	n/a																															
adjusted high	4940	76.90	5017	761.8	762.0	1.001																															
mid	4979	37.60	5017	372.5	372.0	1.004																															
low	4998	18.90	5017	187.2	185.0	1.018																															
calibrator zero	5015	0.00	5015	0.0	1.0	n/a																															
Average C.F.=						1.008																															
<b>Linear Regression/Calibration Results:</b>																																					
Correlation Coefficient = 1.000				LIMITS > or = 0.995																																	
Slope = 1.000				.95-1.05																																	
b (Intercept as % of full scale) = 0.04%				± 3% F.S.																																	
% change in C.F. from last cal = -0.11%				± 10%																																	
<b>API 100E Sulphur Dioxide Analyzer Calibration</b>																																					
<table style="width:100%;"> <tr> <td style="width:50%;"><b>As found:</b></td> <td style="width:50%;"><b>As left:</b></td> </tr> <tr> <td>SLOPE: 1.067</td> <td>SLOPE: 1.064</td> </tr> <tr> <td>OFFSET: 113.4</td> <td>OFFSET: 114.3</td> </tr> <tr> <td>HVPS: 512</td> <td>HVPS: 512</td> </tr> <tr> <td>RCELL TEMP: 50.0</td> <td>RCELL TEMP: 50.0</td> </tr> <tr> <td>BOX TEMP: 30.9</td> <td>BOX TEMP: 30.9</td> </tr> <tr> <td>PMT TEMP: 8.1</td> <td>PMT TEMP: 8.1</td> </tr> <tr> <td>IZS TEMP: 45.0</td> <td>IZS TEMP: 45.0</td> </tr> <tr> <td>PRES: 24.7</td> <td>PRES: 24.3</td> </tr> <tr> <td>SAMP FL: 622</td> <td>SAMP FL: 620</td> </tr> <tr> <td>NORM PMT: 116.3</td> <td>NORM PMT: 116.0</td> </tr> <tr> <td>UV LAMP: 3122</td> <td>UV LAMP: 3125</td> </tr> <tr> <td>LAMP RATIO: 103.9</td> <td>LAMP RATIO: 104.0</td> </tr> <tr> <td>STR. LGT: 60.5</td> <td>STR. LGT: 60.8</td> </tr> <tr> <td>DRK PMT: 13.8</td> <td>DRK PMT: 14.4</td> </tr> <tr> <td>DRK LMP: 2.8</td> <td>DRK LMP: 2.8</td> </tr> <tr> <td>Internal Span: 276</td> <td>Internal Span: 276</td> </tr> </table>				<b>As found:</b>	<b>As left:</b>	SLOPE: 1.067	SLOPE: 1.064	OFFSET: 113.4	OFFSET: 114.3	HVPS: 512	HVPS: 512	RCELL TEMP: 50.0	RCELL TEMP: 50.0	BOX TEMP: 30.9	BOX TEMP: 30.9	PMT TEMP: 8.1	PMT TEMP: 8.1	IZS TEMP: 45.0	IZS TEMP: 45.0	PRES: 24.7	PRES: 24.3	SAMP FL: 622	SAMP FL: 620	NORM PMT: 116.3	NORM PMT: 116.0	UV LAMP: 3122	UV LAMP: 3125	LAMP RATIO: 103.9	LAMP RATIO: 104.0	STR. LGT: 60.5	STR. LGT: 60.8	DRK PMT: 13.8	DRK PMT: 14.4	DRK LMP: 2.8	DRK LMP: 2.8	Internal Span: 276	Internal Span: 276
<b>As found:</b>	<b>As left:</b>																																				
SLOPE: 1.067	SLOPE: 1.064																																				
OFFSET: 113.4	OFFSET: 114.3																																				
HVPS: 512	HVPS: 512																																				
RCELL TEMP: 50.0	RCELL TEMP: 50.0																																				
BOX TEMP: 30.9	BOX TEMP: 30.9																																				
PMT TEMP: 8.1	PMT TEMP: 8.1																																				
IZS TEMP: 45.0	IZS TEMP: 45.0																																				
PRES: 24.7	PRES: 24.3																																				
SAMP FL: 622	SAMP FL: 620																																				
NORM PMT: 116.3	NORM PMT: 116.0																																				
UV LAMP: 3122	UV LAMP: 3125																																				
LAMP RATIO: 103.9	LAMP RATIO: 104.0																																				
STR. LGT: 60.5	STR. LGT: 60.8																																				
DRK PMT: 13.8	DRK PMT: 14.4																																				
DRK LMP: 2.8	DRK LMP: 2.8																																				
Internal Span: 276	Internal Span: 276																																				
<b>Comments:</b>																																					
Sample Filter Changed																																					


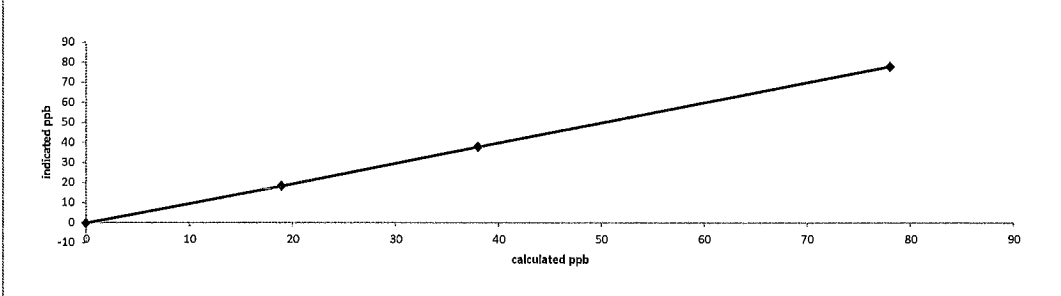
01 Minute Averages



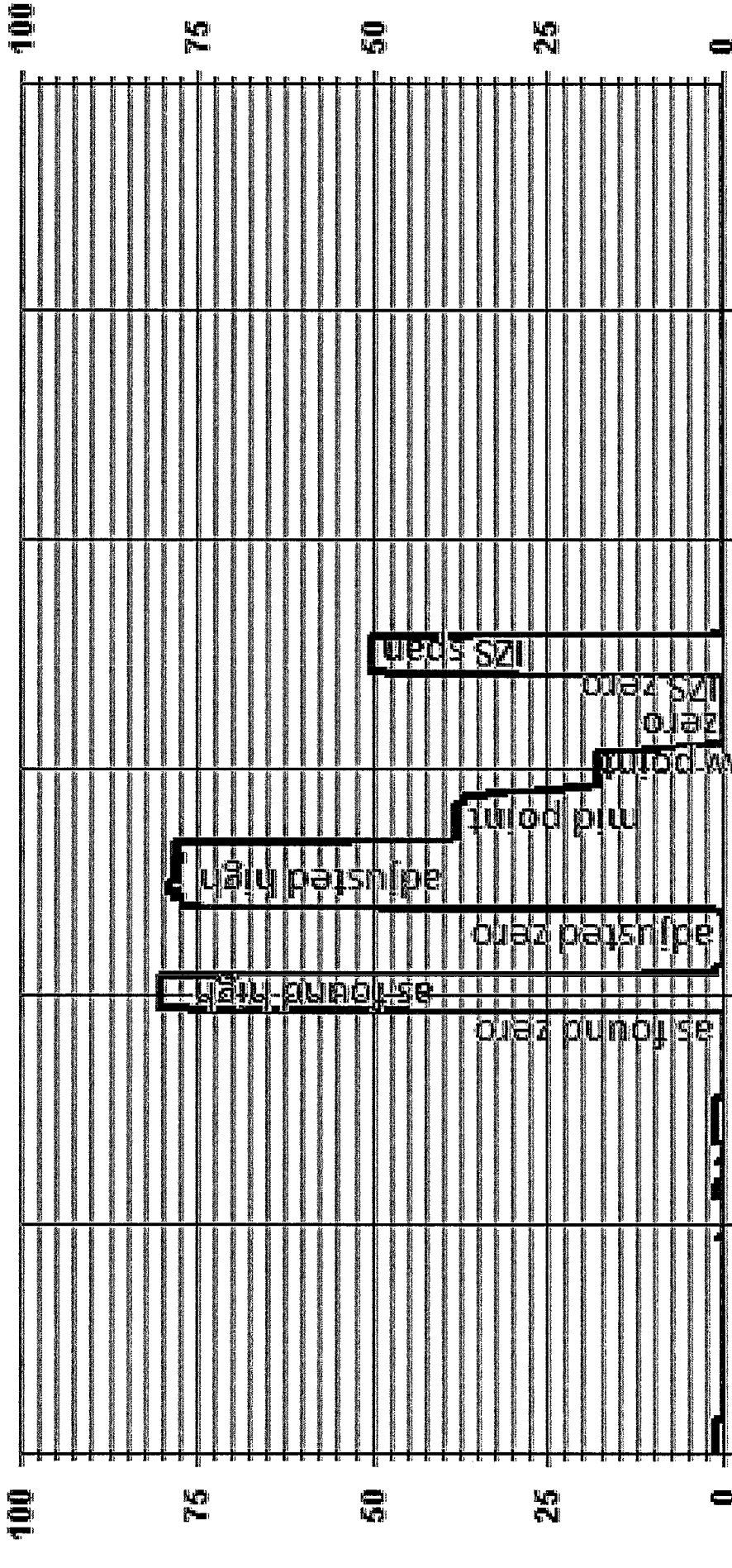
09/24/15 07:00 09/24/15 09:00 09/24/15 11:00 09/24/15 13:00 09/24/15 15:00 09/24/15 17:00

-- LICA35 SO2\_ PPB

***HYDROGEN SULPHIDE***

 <b>API 101E Hydrogen Sulphide Analyzer Calibration</b>									
<b>Date:</b> September 24, 2015 <b>Company/Airshed:</b> LICA <b>Location/Station Name:</b> Elk Point <b>Parameter:</b> Hydrogen Sulphide <b>Start Time 24 hr. (mst):</b> 10:12 <b>End Time 24 hr. (mst):</b> 14:14 <b>Calibration Method:</b> Gas Dilution	<b>Barometric Pressure:</b> 27.97 inHg <b>Station Temperature °C:</b> 22 <b>Weather Conditions:</b> Clear <b>Calibration Purpose:</b> routine monthly <b>Performed By/Reviewer:</b> Chris Wesson   Tom Bourque <b>Cal Gas Expiry Date:</b> July 15, 2017 <b>Converter Model &amp; s/n (if applicable):</b> NA								
<b>Analyzer:</b> <b>Serial Number:</b> 510 <b>Range ppb:</b> 100 <b>Last Calibration Date:</b> August 17, 2015 <b>As Found C.F.:</b> 0.979 <b>Previous C.F.:</b> 1.000 <b>New C.F.:</b> 1.000									
<b>Calibrator:</b> <b>Flow Meter ID's:</b> NA <b>Make &amp; Model:</b> API 700 <b>Serial #:</b> 830 <b>Cal Gas Cylinder I.D. #:</b> LL74219 <b>Cal Gas Conc. (ppm):</b> 10.0									
<b>Standard Calibration Points for Ranges</b>									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>Hydrogen Sulphide Standard Calibration Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>78</td> </tr> <tr> <td>Mid</td> <td>38</td> </tr> <tr> <td>Low</td> <td>19</td> </tr> </tbody> </table>		Point	Hydrogen Sulphide Standard Calibration Points	High	78	Mid	38	Low	19
Point	Hydrogen Sulphide Standard Calibration Points								
High	78								
Mid	38								
Low	19								
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>									
<b>Calibrator Flow Rates (cc/min)</b>									
<b>Point</b>	<b>Diluent</b>	<b>Cal Gas</b>	<b>Total</b>	<b>Calculated Concentration: (ppb)</b>	<b>Indicated Concentration: (ppb)</b>	<b>Correction Factors (C.F.):</b>			
as found zero	7497	0.00	7497	0.0	0.2	N/A			
as found high	7439	58.50	7498	78.0	79.9	0.979			
adjusted zero	7496	0.00	7496	0.0	-0.4	n/a			
adjusted high	7440	58.50	7499	78.0	77.6	1.000			
mid	7469	28.50	7498	38.0	37.7	0.998			
low	7485	14.20	7499	18.9	18.0	1.029			
calibrator zero	7497	0.00	7497	0.0	-0.9	n/a			
<b>Average C.F.=</b>						1.009			
<b>Linear Regression/Calibration Results:</b>									
				<b>LIMITS</b> > or = 0.995 .95-1.05 ± 3% F.S. ± 10%					
Correlation Coefficient =		1.000							
Slope =		0.998							
b (Intercept as % of full scale) =		0.59%							
% change in C.F. from last cal =		2.10%							
<b>API 101E Hydrogen Sulphide Analyzer Calibration</b>									
									
<b>As found:</b>				<b>As left:</b>					
SLOPE:	1.152		SLOPE:	1.129					
OFFSET:	28.1		OFFSET:	28.8					
HVPS:	526		HVPS:	526					
RCELL TEMP:	50.0		RCELL TEMP:	50.0					
BOX TEMP:	31.9		BOX TEMP:	32.8					
PMT TEMP:	8.3		PMT TEMP:	8.3					
IZS TEMP:	45.0		IZS TEMP:	45.0					
Converter Temp:	314.5		Converter Temp:	314.3					
PRES:	22.1		PRES:	22.0					
SAMP FL:	574		SAMP FL:	572					
UV LAMP:	2925		UV LAMP:	2930					
LAMP RATIO:	92.3		LAMP RATIO:	92.3					
STR. LGT:	16.2		STR. LGT:	16.3					
DRK PMT:	34.6		DRK PMT:	35.8					
DRK LMP:	-1.8		DRK LMP:	-1.9					
Internal Span:	52		Internal Span:	50.1					
<b>Comments:</b> <p style="text-align: center;">Sample Filter Changed</p>									

01 Minute Averages



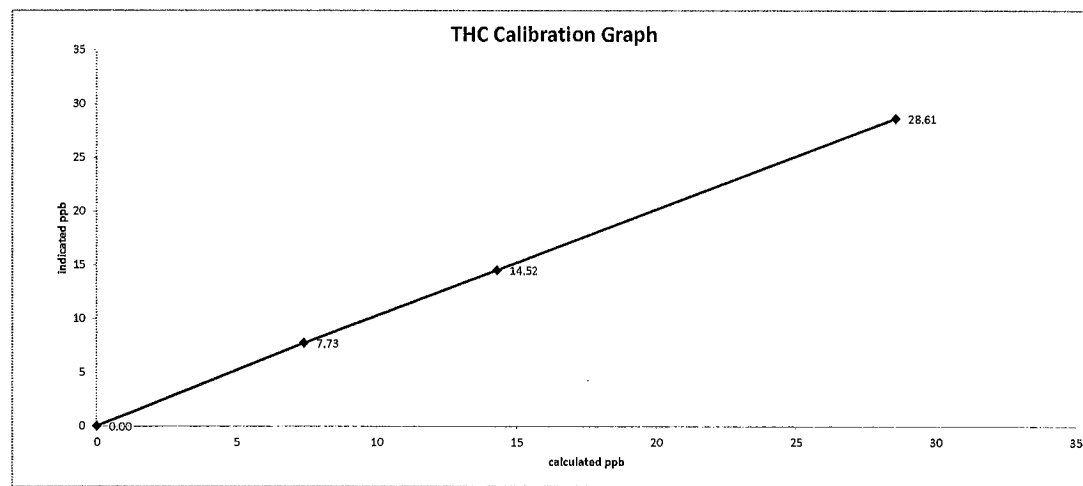
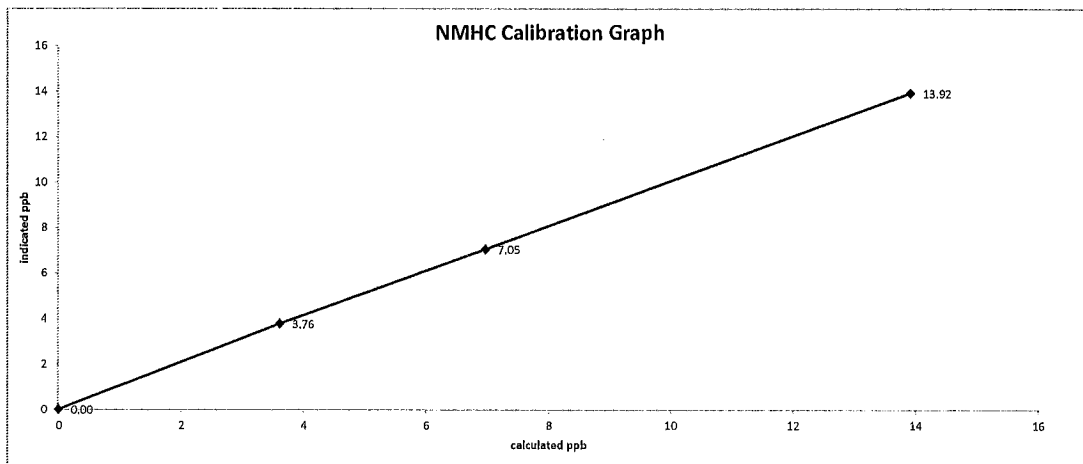
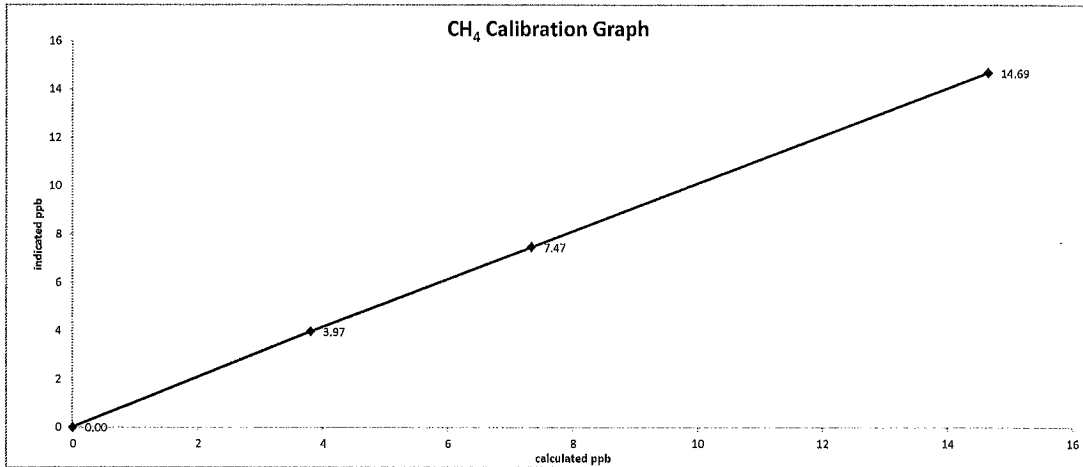
--- LICA35 H2S\_ PPB

***TOTAL HYDROCARBON***

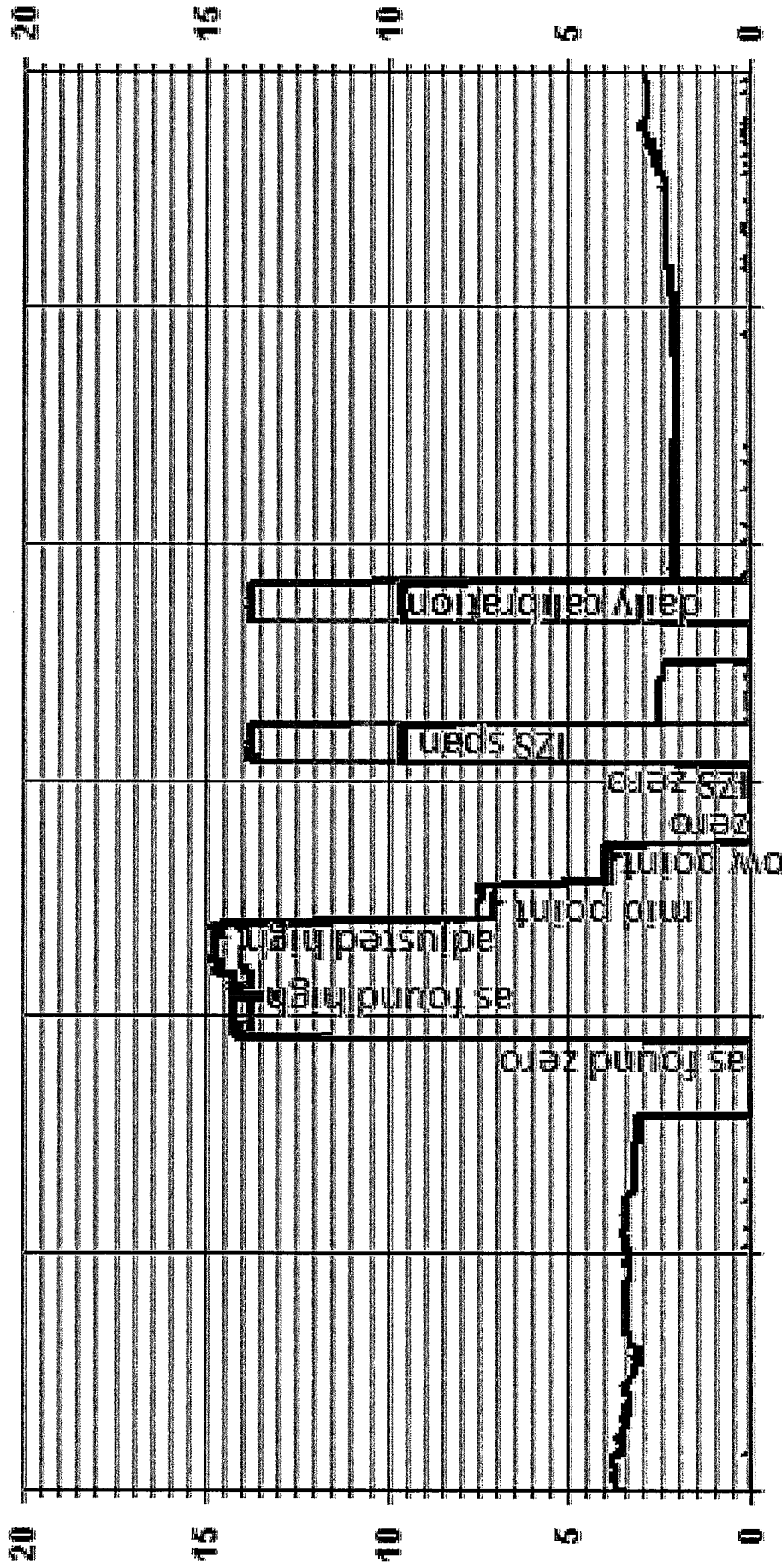


<b>Thermo 55i Methane/Non-Methane Analyzer Calibration</b>																	
Date: <u>September 24, 2015</u> Company/Airshed: <u>LICA</u> Location/Station Name: <u>Elk Point</u> Parameter: <u>CH<sub>4</sub> / NMHC / THC</u> Start/End Time 24 hr. (mst): <u>10:12-13:32</u> Calibration Method: <u>Gas Dilution</u>	Barometric Pressure: <u>27.97 inHg</u> Station Temperature °C: <u>22</u> Weather Conditions: <u>Clear</u> Calibration Purpose: <u>routine monthly</u> Performed By/Reviewer: <u>Chris Wesson   Tom Bourque</u> Cal Gas Expiry Date: <u>January 9, 2021</u>																
<b>Analyzer:</b> Serial Number: <u>1236656107</u> Last Calibration Date: <u>August 18, 2015</u> Range ppm: <u>20 CH<sub>4</sub>/20 NMHC/40 THC</u>	<b>Correction Factors:</b> <table border="1" style="width: 100%; text-align: center;"> <tr> <td></td> <td>Previous C.F.:</td> <td>As Found C.F.:</td> <td>New C.F.:</td> </tr> <tr> <td>CH<sub>4</sub> =</td> <td>0.997</td> <td>1.034</td> <td>0.998</td> </tr> <tr> <td>NMHC =</td> <td>1.006</td> <td>1.020</td> <td>1.001</td> </tr> <tr> <td>THC =</td> <td>0.996</td> <td>1.021</td> <td>0.999</td> </tr> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	CH <sub>4</sub> =	0.997	1.034	0.998	NMHC =	1.006	1.020	1.001	THC =	0.996	1.021	0.999
	Previous C.F.:	As Found C.F.:	New C.F.:														
CH <sub>4</sub> =	0.997	1.034	0.998														
NMHC =	1.006	1.020	1.001														
THC =	0.996	1.021	0.999														
<b>Calibrator:</b> Flow Meter ID's: <u>NA</u> Make & Model: <u>Sablo 2010D</u> Serial #: <u>11900613</u> Cal Gas Cylinder I.D. #: <u>LL19272</u> CH <sub>4</sub> Cylinder Conc. = <u>880.0</u> <u>304.0</u> = C <sub>3</sub> H <sub>8</sub> Cylinder Conc. CH <sub>4</sub> as C <sub>3</sub> H <sub>8</sub> = <u>836.0</u> <u>1716.0</u> = total CH <sub>4</sub> equivalent	<b>Standard Calibration Points for Analyzer Range of 20/20/40 ppm</b> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>Point</th> <th>CH<sub>4</sub></th> <th>NMHC</th> <th>THC</th> </tr> <tr> <td>High</td> <td>13.00</td> <td>13.00</td> <td>26.00</td> </tr> <tr> <td>Mid</td> <td>7.00</td> <td>7.00</td> <td>14.00</td> </tr> <tr> <td>Low</td> <td>3.00</td> <td>3.00</td> <td>6.00</td> </tr> </table>	Point	CH <sub>4</sub>	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00
Point	CH <sub>4</sub>	NMHC	THC														
High	13.00	13.00	26.00														
Mid	7.00	7.00	14.00														
Low	3.00	3.00	6.00														
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>																	
<b>Calibrator Flow Rates (cc/min)</b>																	
Point	Diluent	Cal Gas	Total Flow	Calculated CH <sub>4</sub> (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH <sub>4</sub> (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:							
										CH <sub>4</sub>	NMHC	THC					
as found zero	3007	0.00	3007	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a					
as found high	2957	50.10	3007	14.66	13.93	28.59	14.18	13.66	28.00	1.034	1.020	1.021					
adjusted high	2957	50.10	3007	14.66	13.93	28.59	14.69	13.92	28.61	0.998	1.001	0.999					
mid	2984	25.10	3009	7.34	6.97	14.31	7.47	7.05	14.52	0.983	0.989	0.986					
low	2997	13.00	3010	3.80	3.61	7.41	3.97	3.76	7.73	0.957	0.960	0.959					
calibrator zero	3008	0.00	3008	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a					
										Average C.F. =							
										0.979	0.983	0.981					
<b>Linear Regression/Calibration Results:</b>																	
				CH <sub>4</sub>	NMHC	THC											
Correlation Coefficient =				1.000	1.000	1.000	LIMITS										
Slope =				0.999	0.996	0.998	> or = 0.995										
b (Intercept as % of full scale) =				0.44%	0.38%	0.41%	.95-1.05										
% change in C.F. from last cal =				-3.71%	-1.36%	-2.52%	± 3% F.S.										
				-3.71%	-1.36%	-2.52%	± 10%										
<b>As found:</b>																	
Interface Board Voltages:						Bias Supply: <u>-292.8</u>			Calibration History cnt'd: <u>NM Peak Area: 97337</u>								
Temperatures:						Detector Oven: <u>175.0</u>			Crucial Settings: <u>Methane Start: 8.0</u>								
						Filter: <u>175.0</u>			<u>Methane End: 16.0</u>								
						Column Oven: <u>75.2</u>			<u>Backflush: 18.0</u>								
						Internal: <u>31.4</u>			<u>NMHV Start: 24.5</u>								
Cylinder Pressures/reg.:						Carrier: <u>2200</u> <u>50</u>			<u>NMHC End: 56.0</u>								
						Fuel: <u>1000</u> <u>50</u>			<u>Date: 25Sep2015</u>								
						Span Gas: <u>1450</u> <u>30</u>			<u>Time: 12:20</u>								
						Zero Air Generator: <u>45 / 32.4</u>			<u>CH<sub>4</sub> PK HT: 0</u>								
Internal Pressures:						Carrier: <u>31.1</u>			<u>CH<sub>4</sub> RT: 8.0</u>								
						Fuel: <u>40.3</u>			<u>CH<sub>4</sub> Baseline: 2401</u>								
						Air: <u>32.4</u>			<u>CH<sub>4</sub> LOD: 59</u>								
FID Status:						Status: <u>LIT</u>			<u>CH<sub>4</sub> SD: 19</u>								
						Counts: <u>26320</u>			<u>CH<sub>4</sub> CONC: 0.00</u>								
						Flame: <u>381.0</u>			<u>NM PK HT: 0</u>								
						Det Base: <u>175.0</u>			<u>NM Peak Area: 0</u>								
Flame and Power Stats:						Last Power On: <u>05May2015</u>			<u>NM CONC: 0.00</u>								
						Flameouts: <u>40</u>			<u>NM Base Start: 2233</u>								
						Det Oven at Start: <u>170.1</u>			<u>NM Base End: 2232</u>								
						Col Oven at Start: <u>74.5</u>			<u>NM LOD: 12.21</u>								
Calibration History:						Time: <u>18Aug2015@12:09</u>			<u>NM Start IDX: 54</u>								
						Type: <u>SPAN</u>			<u>NM End IDX: 83</u>								
						Status: <u>GOOD</u>			<u>NM Max Slope: 3.1e-01</u>								
						Check/Adjust: <u>Adjust</u>			<u>NM Min Slope: -4.9e-01</u>								
						CH <sub>4</sub> Span Conc: <u>15.53</u>			<u>NM PT Count: 0</u>								
						CH <sub>4</sub> SP Ratio: <u>0.000715</u>			<u>Previous CH<sub>4</sub>: 9.65</u>								
						CH <sub>4</sub> RT: <u>12.2</u>			<u>Previous NMHC: 13.61</u>								
						CH <sub>4</sub> PK IDX: <u>21</u>			<u>Previous THC: 23.29</u>								
						CH <sub>4</sub> PK HT: <u>21717</u>			<u>New CH<sub>4</sub>: 9.61</u>								
						NM Span Conc: <u>14.34</u>			<u>New NMHC: 13.7</u>								
						NM SP Ratio: <u>0.000147</u>			<u>New THC: 23.4</u>								
<b>Comments:</b>																	
Sample Filter Changed																	

Date:	September 24, 2015	Start/End Time 24 hr. (mst):	10:12-13:32
Company/Airshed:	LICA	Calibration Purpose:	routine monthly
Location/Station Name:	Elk Point	Calibration Method:	Gas Dilution




01 Minute Averages



09/24/15 07:00 09/24/15 09:00 09/24/15 11:00 09/24/15 13:00 09/24/15 15:00 09/24/15 17:00

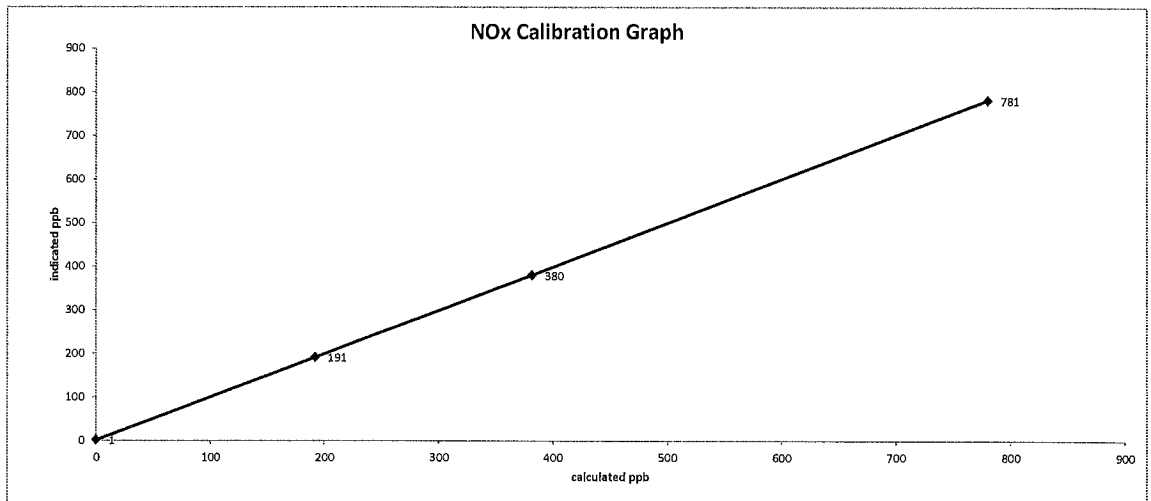
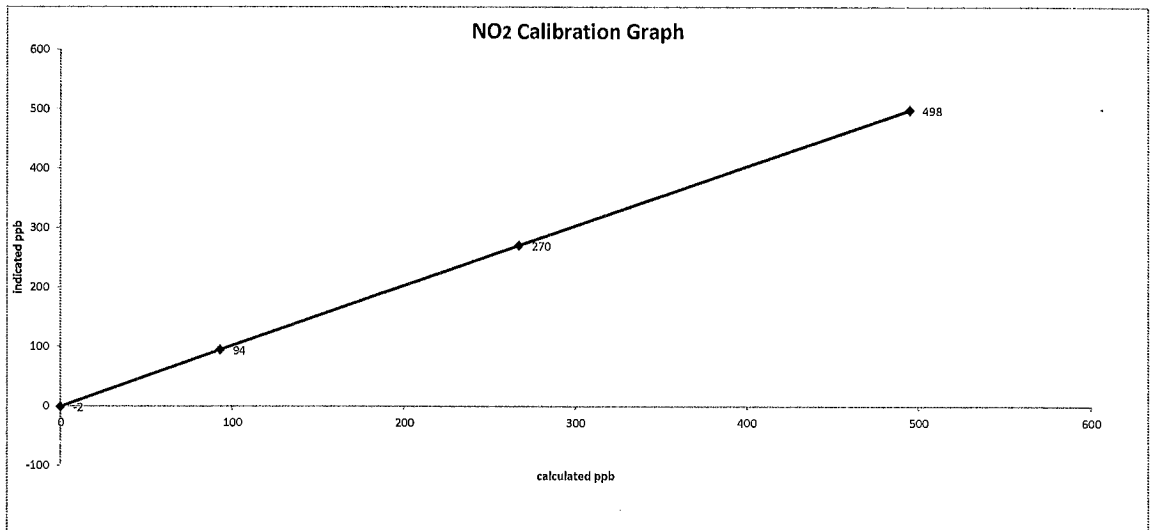
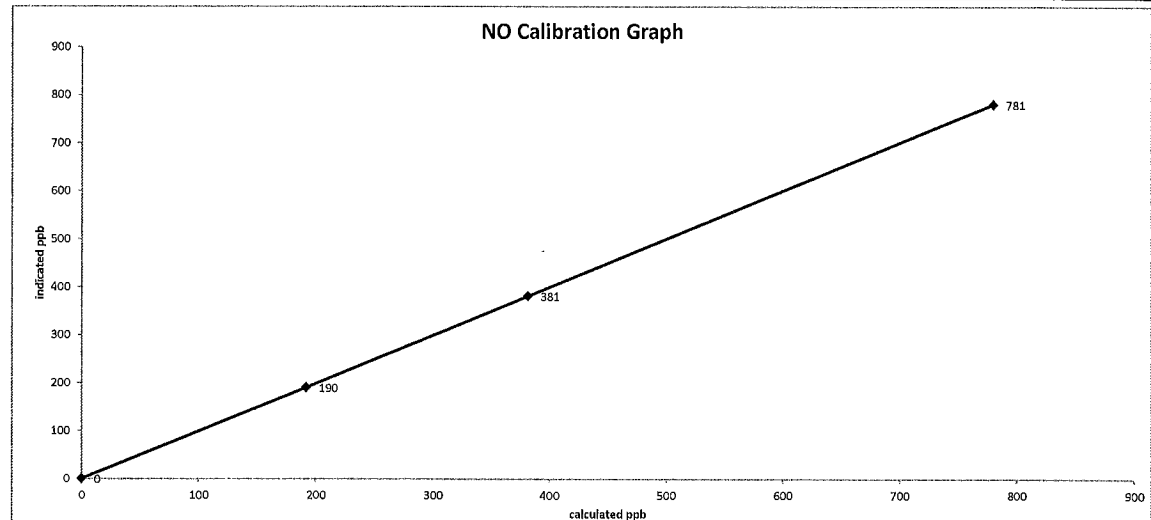
— LICA35 METHANE PPM      — LICA35 NMHC PPM

***NITROGEN DIOXIDE***

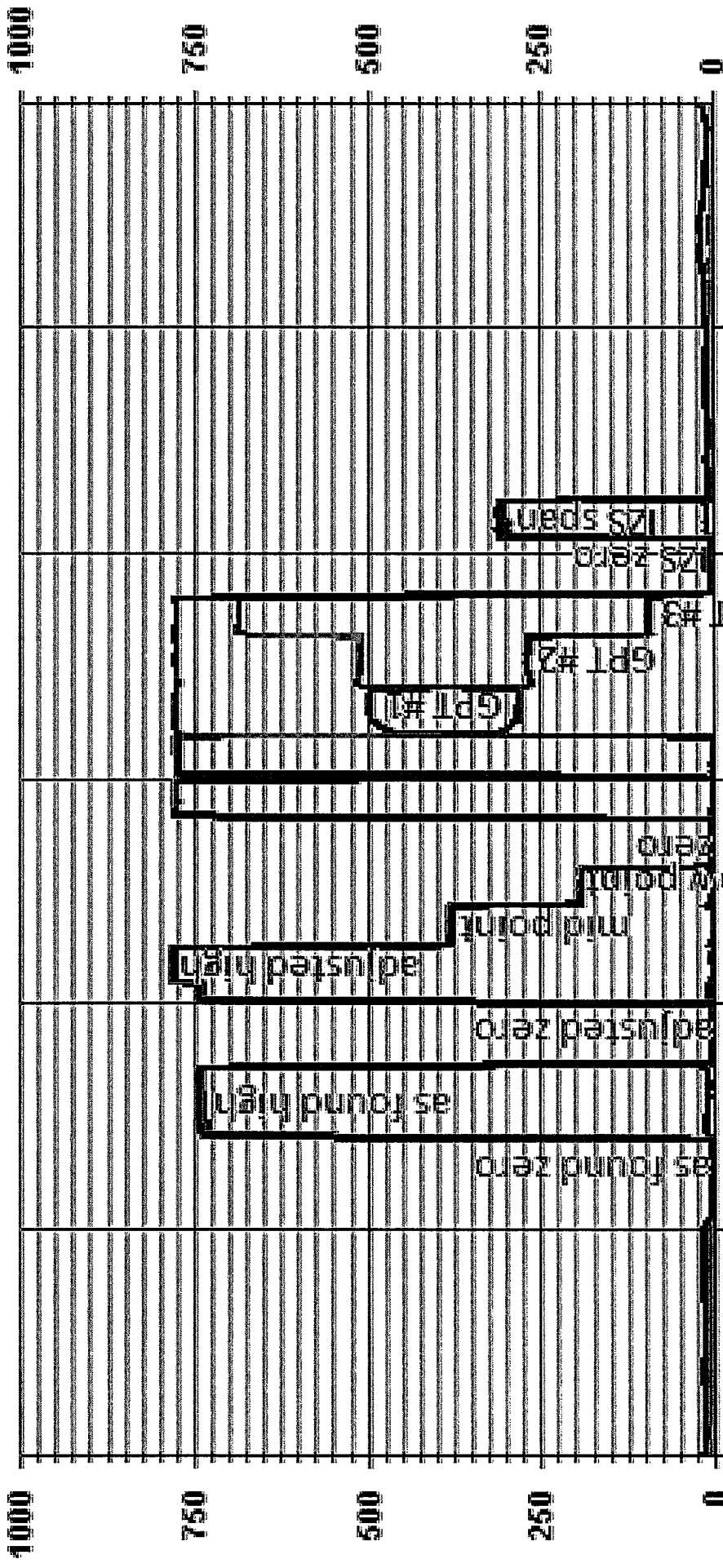
 <b>API 200E NO-NO2-NOx Analyzer Calibration</b>																																																																																																					
Date: <u>September 24, 2015</u> Company/Airshed: <u>LICA</u> Location/Station Name: <u>Elk Point</u> Start/End Time 24 hr. (mst): <u>1012-1633</u> G.P.T. to be used for Ozone? <u>No</u> Calibration Method: <u>Gas Dilution &amp; Gas Phase Titration</u>	Barometric Pressure: <u>27.97 inHg</u> Station Temperature °C: <u>22</u> Weather Conditions: <u>Clear</u> Calibration Purpose: <u>routine monthly</u> Performed By/Reviewer: <u>Chris Wesson   Tom Bourque</u> Cal Gas Expiry Date: <u>March 12, 2019</u>																																																																																																				
Analyzer: Serial Number: <u>592</u> Last Calibration Date: <u>August 29, 2015</u> Range ppb: <u>1000</u>	Correction Factors: <table border="1" style="width:100%; text-align: center;"> <tr> <td></td> <td>Previous C.F.:</td> <td>As Found C.F.:</td> <td>New C.F.:</td> </tr> <tr> <td>NO =</td> <td>1.022</td> <td>1.059</td> <td>0.999</td> </tr> <tr> <td>NO<sub>2</sub> =</td> <td>1.000</td> <td>0.994</td> <td>0.994</td> </tr> <tr> <td>NOx =</td> <td>1.014</td> <td>1.051</td> <td>1.000</td> </tr> </table>		Previous C.F.:	As Found C.F.:	New C.F.:	NO =	1.022	1.059	0.999	NO <sub>2</sub> =	1.000	0.994	0.994	NOx =	1.014	1.051	1.000																																																																																				
	Previous C.F.:	As Found C.F.:	New C.F.:																																																																																																		
NO =	1.022	1.059	0.999																																																																																																		
NO <sub>2</sub> =	1.000	0.994	0.994																																																																																																		
NOx =	1.014	1.051	1.000																																																																																																		
Calibrator: Flow Meter ID's: <u>NA</u> Make & Model: <u>Sablo 2010</u> Serial #: <u>17100415</u> Cal Gas Cylinder I.D. #: <u>LL67747</u> NO/NOx Gas Conc. (ppm): <u>50.9   50.9</u>	Standard Calibration Points for a Range of: <u>1000 ppb</u> <table border="1" style="width:100%; text-align: center;"> <tr> <th>Point</th> <th>Target NO (ppb)</th> <th>Target NO<sub>2</sub> (ppb)</th> <th>Cc Ozone ?</th> </tr> <tr> <td>High</td> <td>780</td> <td>500</td> <td>n/a</td> </tr> <tr> <td>Mid</td> <td>380</td> <td>276</td> <td>n/a</td> </tr> <tr> <td>Low</td> <td>190</td> <td>100</td> <td>n/a</td> </tr> <tr> <td>Extra Point #1</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Extra Point #2</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </table>	Point	Target NO (ppb)	Target NO <sub>2</sub> (ppb)	Cc Ozone ?	High	780	500	n/a	Mid	380	276	n/a	Low	190	100	n/a	Extra Point #1	n/a	n/a	n/a	Extra Point #2	n/a	n/a	n/a																																																																												
Point	Target NO (ppb)	Target NO <sub>2</sub> (ppb)	Cc Ozone ?																																																																																																		
High	780	500	n/a																																																																																																		
Mid	380	276	n/a																																																																																																		
Low	190	100	n/a																																																																																																		
Extra Point #1	n/a	n/a	n/a																																																																																																		
Extra Point #2	n/a	n/a	n/a																																																																																																		
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>																																																																																																					
<table border="1" style="width:100%; text-align: center;"> <thead> <tr> <th colspan="4">Calibrator Flow Rates (cc/min)</th> <th>Calculated NO</th> <th>Calculated NOx</th> <th>Indicated NO</th> <th>Indicated NOx</th> <th>NO C.F.</th> <th>NOx C.F.</th> </tr> <tr> <th>Point</th> <th>Diluent</th> <th>Cal Gas</th> <th>Total Flow</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>as found zero</td> <td>5015</td> <td>0.0</td> <td>5015</td> <td>0</td> <td>0</td> <td>0.0</td> <td>3.0</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>as found high</td> <td>4940</td> <td>76.9</td> <td>5017</td> <td>780.2</td> <td>780.2</td> <td>737.0</td> <td>745.0</td> <td>1.059</td> <td>1.051</td> </tr> <tr> <td>adjusted zero</td> <td>5015</td> <td>0.00</td> <td>5015</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>1.0</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>adjusted high</td> <td>4940</td> <td>76.90</td> <td>5017</td> <td>780.2</td> <td>780.2</td> <td>781.0</td> <td>781.0</td> <td>0.999</td> <td>1.000</td> </tr> <tr> <td>mid</td> <td>4979</td> <td>37.60</td> <td>5017</td> <td>381.5</td> <td>381.5</td> <td>381.0</td> <td>380.0</td> <td>1.001</td> <td>1.007</td> </tr> <tr> <td>low</td> <td>4998</td> <td>18.90</td> <td>5017</td> <td>191.8</td> <td>191.8</td> <td>190.0</td> <td>191.0</td> <td>1.009</td> <td>1.009</td> </tr> <tr> <td>calibrator zero</td> <td>5015</td> <td>0.00</td> <td>5015</td> <td>0</td> <td>0</td> <td>1.0</td> <td>1.0</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td colspan="8" style="text-align: right;">Average C.F.=</td> <td>1.003</td> <td>1.005</td> </tr> </tbody> </table>		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	5015	0.0	5015	0	0	0.0	3.0	n/a	n/a	as found high	4940	76.9	5017	780.2	780.2	737.0	745.0	1.059	1.051	adjusted zero	5015	0.00	5015	0.0	0.0	0.0	1.0	n/a	n/a	adjusted high	4940	76.90	5017	780.2	780.2	781.0	781.0	0.999	1.000	mid	4979	37.60	5017	381.5	381.5	381.0	380.0	1.001	1.007	low	4998	18.90	5017	191.8	191.8	190.0	191.0	1.009	1.009	calibrator zero	5015	0.00	5015	0	0	1.0	1.0	n/a	n/a	Average C.F.=								1.003	1.005
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	5015	0.0	5015	0	0	0.0	3.0	n/a	n/a																																																																																												
as found high	4940	76.9	5017	780.2	780.2	737.0	745.0	1.059	1.051																																																																																												
adjusted zero	5015	0.00	5015	0.0	0.0	0.0	1.0	n/a	n/a																																																																																												
adjusted high	4940	76.90	5017	780.2	780.2	781.0	781.0	0.999	1.000																																																																																												
mid	4979	37.60	5017	381.5	381.5	381.0	380.0	1.001	1.007																																																																																												
low	4998	18.90	5017	191.8	191.8	190.0	191.0	1.009	1.009																																																																																												
calibrator zero	5015	0.00	5015	0	0	1.0	1.0	n/a	n/a																																																																																												
Average C.F.=								1.003	1.005																																																																																												
<b>ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015</b>																																																																																																					
<table border="1" style="width:100%; text-align: center;"> <thead> <tr> <th colspan="4">Calibrator Flow Rates (cc/min)</th> <th>Calibrator Setting</th> <th>Indicated NO</th> <th>Indicated NOx</th> <th>Indicated NO<sub>2</sub></th> <th>NO drop</th> <th>NO<sub>2</sub> gain</th> <th>NO<sub>2</sub> C.F.</th> </tr> <tr> <th>Point</th> <th>Diluent</th> <th>Cal Gas</th> <th>Total Flow</th> <th>volts or ppb</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> <th>(ppb)</th> </tr> </thead> <tbody> <tr> <td>NOx reference</td> <td>4940</td> <td>76.90</td> <td>5017</td> <td>0.0</td> <td>776.0</td> <td>773.0</td> <td>-2.0</td> <td>0.0</td> <td>-2.0</td> <td></td> </tr> <tr> <td>as found high NO2</td> <td>4940</td> <td>76.90</td> <td>5017</td> <td>520.0</td> <td>281.0</td> <td>776.0</td> <td>496.0</td> <td>495.0</td> <td>498.0</td> <td>0.994</td> </tr> <tr> <td>gpt mid</td> <td>4940</td> <td>76.90</td> <td>5017</td> <td>290.0</td> <td>509.0</td> <td>775.0</td> <td>268.0</td> <td>267.0</td> <td>270.0</td> <td>0.989</td> </tr> <tr> <td>gpt low</td> <td>4940</td> <td>76.90</td> <td>5017</td> <td>110.0</td> <td>683.0</td> <td>774.0</td> <td>92.0</td> <td>93.0</td> <td>94.0</td> <td>0.989</td> </tr> <tr> <td colspan="9" style="text-align: right;">Average NO<sub>2</sub> C.F.=</td> <td>0.991</td> </tr> </tbody> </table>		Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> C.F.	Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	NOx reference	4940	76.90	5017	0.0	776.0	773.0	-2.0	0.0	-2.0		as found high NO2	4940	76.90	5017	520.0	281.0	776.0	496.0	495.0	498.0	0.994	gpt mid	4940	76.90	5017	290.0	509.0	775.0	268.0	267.0	270.0	0.989	gpt low	4940	76.90	5017	110.0	683.0	774.0	92.0	93.0	94.0	0.989	Average NO <sub>2</sub> C.F.=									0.991																								
Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> C.F.																																																																																											
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)																																																																																											
NOx reference	4940	76.90	5017	0.0	776.0	773.0	-2.0	0.0	-2.0																																																																																												
as found high NO2	4940	76.90	5017	520.0	281.0	776.0	496.0	495.0	498.0	0.994																																																																																											
gpt mid	4940	76.90	5017	290.0	509.0	775.0	268.0	267.0	270.0	0.989																																																																																											
gpt low	4940	76.90	5017	110.0	683.0	774.0	92.0	93.0	94.0	0.989																																																																																											
Average NO <sub>2</sub> C.F.=									0.991																																																																																												
<b>Linear Regression/Calibration Results:</b> <table border="1" style="width:100%; text-align: center;"> <thead> <tr> <th></th> <th>NO</th> <th>NOx</th> <th>NO<sub>2</sub></th> <th>LIMITS</th> </tr> </thead> <tbody> <tr> <td>Correlation Coefficient =</td> <td>1.000</td> <td>1.000</td> <td>1.000</td> <td>&gt; or = 0.995</td> </tr> <tr> <td>Slope =</td> <td>0.998</td> <td>1.000</td> <td>0.991</td> <td>.95-1.05</td> </tr> <tr> <td>b (Intercept as % of full scale)=</td> <td>-0.10%</td> <td>-0.02%</td> <td>-0.07%</td> <td>± 3% F.S.</td> </tr> <tr> <td>% change in C.F. from last cal=</td> <td>-3.58%</td> <td>-3.70%</td> <td>0.60%</td> <td>± 10%</td> </tr> <tr> <td>NO2 converter efficiency</td> <td></td> <td></td> <td>0.99</td> <td>0.96 to 1.04</td> </tr> </tbody> </table>			NO	NOx	NO <sub>2</sub>	LIMITS	Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995	Slope =	0.998	1.000	0.991	.95-1.05	b (Intercept as % of full scale)=	-0.10%	-0.02%	-0.07%	± 3% F.S.	% change in C.F. from last cal=	-3.58%	-3.70%	0.60%	± 10%	NO2 converter efficiency			0.99	0.96 to 1.04																																																																						
	NO	NOx	NO <sub>2</sub>	LIMITS																																																																																																	
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995																																																																																																	
Slope =	0.998	1.000	0.991	.95-1.05																																																																																																	
b (Intercept as % of full scale)=	-0.10%	-0.02%	-0.07%	± 3% F.S.																																																																																																	
% change in C.F. from last cal=	-3.58%	-3.70%	0.60%	± 10%																																																																																																	
NO2 converter efficiency			0.99	0.96 to 1.04																																																																																																	
<table style="width:100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>As found:</b>                  NOx SLOPE: <u>1.225</u>                  NOx OFFS: <u>1.9</u>                  NO SLOPE: <u>1.219</u>                  NO OFFS: <u>0.4</u>                  SAMP FLW: <u>485</u>                  OZONE FL: <u>75</u>                  PMT: <u>20.7</u>                  NORM PMT: <u>1.7</u>                  AZERO: <u>16.7</u>                  HVPS: <u>637</u>                  RCELL TEMP: <u>50.0</u>                  BOX TEMP: <u>29.4</u>                  PMT TEMP: <u>6.9</u>                  IZS TEMP: <u>40.0</u>                  MOLY TEMP: <u>315.5</u>                  RCEL: <u>5.6</u>                  SAMP: <u>26.7</u>                  Internal Span NO: <u>7.3</u>                  Internal Span NO<sub>2</sub>: <u>292</u>                  Internal Span NOx: <u>298</u> </td> <td style="width: 50%; vertical-align: top;"> <b>As left:</b>                  NOx SLOPE: <u>1.283</u>                  NOx OFFS: <u>1.6</u>                  NO SLOPE: <u>1.288</u>                  NO OFFS: <u>0.6</u>                  SAMP FLW: <u>483</u>                  OZONE FL: <u>74</u>                  PMT: <u>18.5</u>                  NORM PMT: <u>4.1</u>                  AZERO: <u>17.6</u>                  HVPS: <u>637</u>                  RCELL TEMP: <u>50.1</u>                  BOX TEMP: <u>28.5</u>                  PMT TEMP: <u>6.9</u>                  IZS TEMP: <u>40.1</u>                  MOLY TEMP: <u>313.6</u>                  RCEL: <u>5.5</u>                  SAMP: <u>27.2</u>                  Internal Span NO: <u>9</u>                  Internal Span NO<sub>2</sub>: <u>302</u>                  Internal Span NOx: <u>310</u> </td> </tr> </table>		<b>As found:</b> NOx SLOPE: <u>1.225</u> NOx OFFS: <u>1.9</u> NO SLOPE: <u>1.219</u> NO OFFS: <u>0.4</u> SAMP FLW: <u>485</u> OZONE FL: <u>75</u> PMT: <u>20.7</u> NORM PMT: <u>1.7</u> AZERO: <u>16.7</u> HVPS: <u>637</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>29.4</u> PMT TEMP: <u>6.9</u> IZS TEMP: <u>40.0</u> MOLY TEMP: <u>315.5</u> RCEL: <u>5.6</u> SAMP: <u>26.7</u> Internal Span NO: <u>7.3</u> Internal Span NO <sub>2</sub> : <u>292</u> Internal Span NOx: <u>298</u>	<b>As left:</b> NOx SLOPE: <u>1.283</u> NOx OFFS: <u>1.6</u> NO SLOPE: <u>1.288</u> NO OFFS: <u>0.6</u> SAMP FLW: <u>483</u> OZONE FL: <u>74</u> PMT: <u>18.5</u> NORM PMT: <u>4.1</u> AZERO: <u>17.6</u> HVPS: <u>637</u> RCELL TEMP: <u>50.1</u> BOX TEMP: <u>28.5</u> PMT TEMP: <u>6.9</u> IZS TEMP: <u>40.1</u> MOLY TEMP: <u>313.6</u> RCEL: <u>5.5</u> SAMP: <u>27.2</u> Internal Span NO: <u>9</u> Internal Span NO <sub>2</sub> : <u>302</u> Internal Span NOx: <u>310</u>																																																																																																		
<b>As found:</b> NOx SLOPE: <u>1.225</u> NOx OFFS: <u>1.9</u> NO SLOPE: <u>1.219</u> NO OFFS: <u>0.4</u> SAMP FLW: <u>485</u> OZONE FL: <u>75</u> PMT: <u>20.7</u> NORM PMT: <u>1.7</u> AZERO: <u>16.7</u> HVPS: <u>637</u> RCELL TEMP: <u>50.0</u> BOX TEMP: <u>29.4</u> PMT TEMP: <u>6.9</u> IZS TEMP: <u>40.0</u> MOLY TEMP: <u>315.5</u> RCEL: <u>5.6</u> SAMP: <u>26.7</u> Internal Span NO: <u>7.3</u> Internal Span NO <sub>2</sub> : <u>292</u> Internal Span NOx: <u>298</u>	<b>As left:</b> NOx SLOPE: <u>1.283</u> NOx OFFS: <u>1.6</u> NO SLOPE: <u>1.288</u> NO OFFS: <u>0.6</u> SAMP FLW: <u>483</u> OZONE FL: <u>74</u> PMT: <u>18.5</u> NORM PMT: <u>4.1</u> AZERO: <u>17.6</u> HVPS: <u>637</u> RCELL TEMP: <u>50.1</u> BOX TEMP: <u>28.5</u> PMT TEMP: <u>6.9</u> IZS TEMP: <u>40.1</u> MOLY TEMP: <u>313.6</u> RCEL: <u>5.5</u> SAMP: <u>27.2</u> Internal Span NO: <u>9</u> Internal Span NO <sub>2</sub> : <u>302</u> Internal Span NOx: <u>310</u>																																																																																																				
Comments:																																																																																																					

Date: September 24, 2015  
Company/Airshed: LICA  
Location/Station Name: Elk Point

Start/End Time 24 hr. (mst): 1012-1633  
Calibration Purpose: routine monthly  
Calibration Method: Gas Dilution & Gas Phase Titration



# 01 Minute Averages



— LICA35 NOX\_ PPB — LICA35 NO2\_ PPB — LICA35 NO2\_ PPB — LICA35 NO2\_ PPB

**OZONE**





### Thermo 49i Ozone Analyzer Calibration

Date:	September 24, 2015	Barometric Pressure:	27.93 inHg
Company/Airshed:	LICA	Station Temperature °C:	22
Location/Station Name:	Elk Point	Weather Conditions:	Clear
Start/End Time 24 hr. (mst):	1310-1644	Calibration Purpose:	routine monthly
Ozone Calibration Method:	Varying UV Lamp Power	Performed By/Reviewer:	Chris Wesson   Tom Bourque
G.P.T. Date:	n/a-done by Varying UV Lamp Power	Cal Gas Expiry Date:	

Analyzer:	Serial Number:	1002240372	Ozone Range ppb:	500
	Last Calibration Date:	August 17, 2015	As Found C.F.:	1.012
	Previous Cal High Point C.F.:	1.000	New C.F.:	1.000

Calibrator:	Flow Meter ID's:	NA	Point	AMD Required Range of Ozone Calibration Points
	Make & Model:	Sabto 2010D	Hlgh	300-400 ppb
	Serial #:	11900613	Mid	150-200 ppb
	Cal Gas Cylinder I.D. #:	NA	Low	50-100 ppb

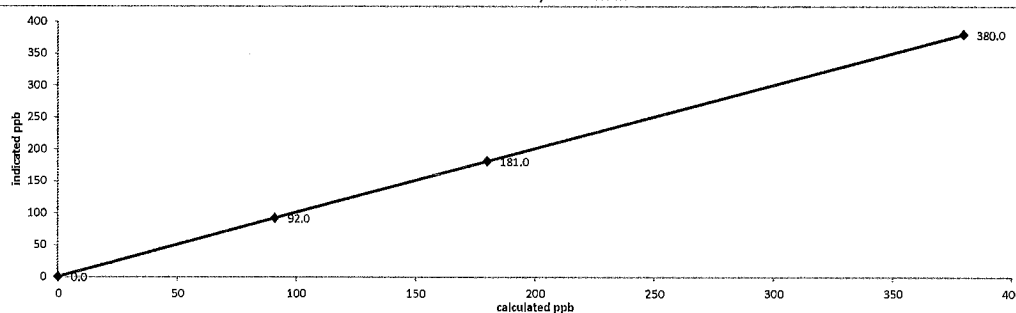
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Callibrator Flow Rate (cc/mln)		Calculated Concentration:	Corrected Calculated Concentration:	Indicated Concentration:	Correction Factors:
	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	-0.6	n/a
as found hlgh	5013	5013	380.0	380.0	375.0	1.012
adjusted zero	5013	5013	0.0	0.0	0.0	n/a
adjusted high	5013	5013	380.0	380.0	380.0	1.000
mid	5013	5013	180.0	180.0	181.0	0.994
low	5013	5013	91.0	91.0	92.0	0.989
callibrator zero	5013	5013	0.0	n/a	0.5	n/a
Average C.F.=						0.995

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.001		.95-1.05
b (Intercept as % of full scale)=	-0.12%		± 3% F.S.
% change in C.F. from last cal=	-1.17%		± 10%

Thermo 49i Ozone Analyzer Calibration

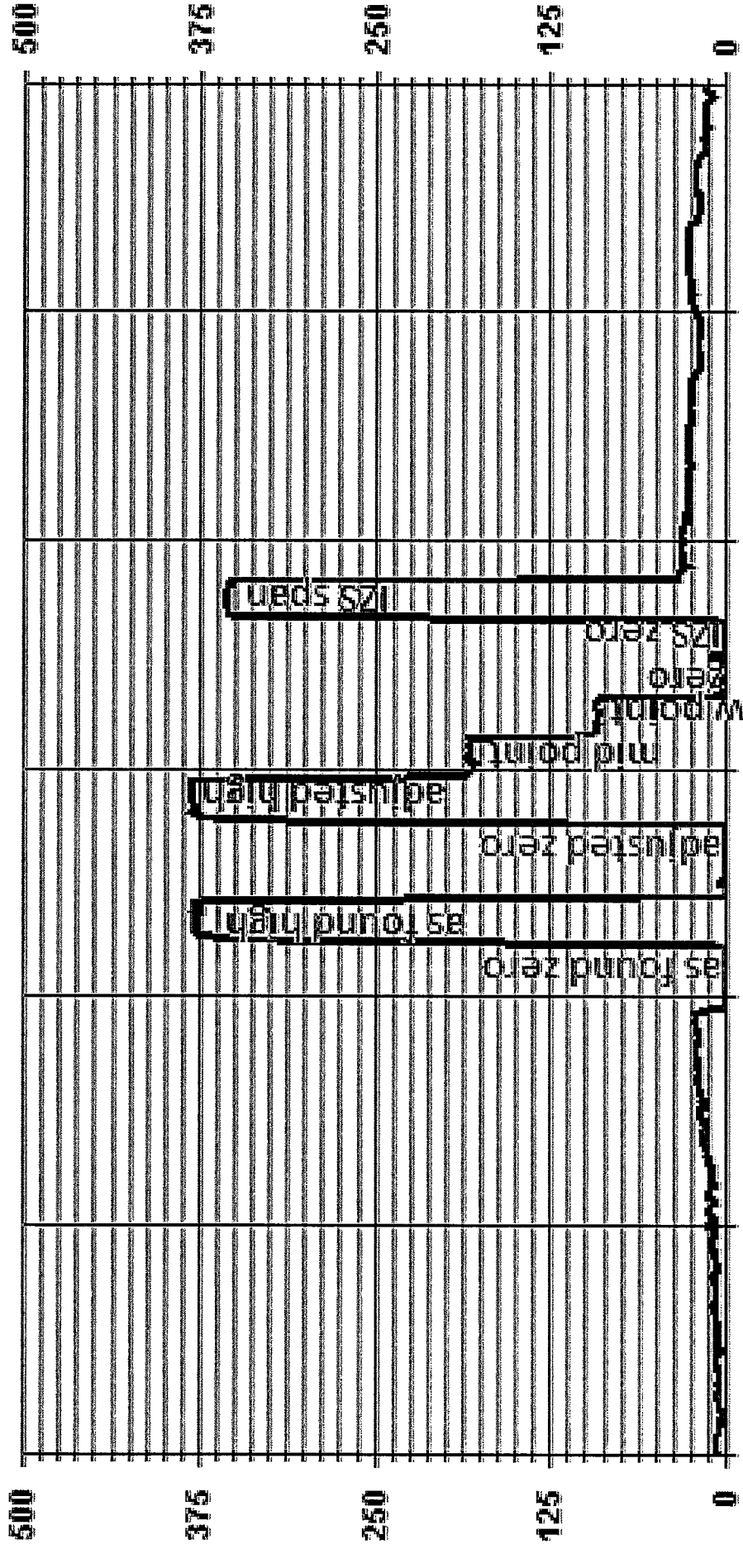


<b>As found:</b>		<b>As left:</b>	
O3 Bkg:	-0.2	O3 Bkg:	-0.7
O3 Coef:	0.985	O3 Coef:	0.990
Photo Lamp:	14.2	Photo Lamp:	14.2
O3 Lamp:	9.4	O3 Lamp:	5.8
Bench:	32.1	Bench:	30.8
Bench Lamp:	54.1	Bench Lamp:	54.1
O3 Lamp:	68.2	O3 Lamp:	68.2
Pressure:	699.4	Pressure:	698.3
Cell A lpm:	0.750	Cell A lpm:	0.749
Cell B lpm:	0.755	Cell B lpm:	0.756
O3 ppb:	-0.6	O3 ppb:	00.7
Cell A ppb:	-1.1	Cell A ppb:	0.7
Cell B ppb:	-0.1	Cell B ppb:	0.0
Cell A int:	104263	Cell A int:	104259
Cell B int:	102446	Cell B int:	102449
Internal Span:	360	Internal Span:	355

Comments:

Sample Filter Changed

01 Minute Averages



09/24/15 09:00 09/24/15 11:00 09/24/15 13:00 09/24/15 15:00 09/24/15 17:00 09/24/15 19:00

— LICA35 03\_ PPB

***PARTICULATE MATTER***



# R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 3-Sep-15  
 Company: LICA  
 Station Name/Location: Elk Point  
 Previous Audit Date: 26-Aug-15

Parameter: PM 2.5  
 Performed by: Alex Yakupov  
 Start/End Time (mst): 15:07 - 16:00  
 Calibration Purpose: Monthly Audit #1

**1400A Information and Status:**

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>35.53</u>
Ko Factor:	<u>15634</u>	As Left Filter Loading %:	<u>35.74</u>
Ambient Temperature °C:	<u>16.5</u>	As Found Noise:	<u>0.004</u>
Ambient Pressure atm:	<u>0.933</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>18-Mar-15</u>	<u>18-Mar-15</u>

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.55	0.00	0.55
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.55	0.00	0.55
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	<u>16.5</u>	1405F pressure atm:	<u>0.933</u>
reference temperature °C:	<u>18.1</u>	reference pressure:	<u>0.931</u>
difference °C:	<u>1.6</u>	difference :	<u>0.002</u>

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

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	<u>18.1</u>	1405F pressure atm:	<u>0.931</u>
reference temperature °C:	<u>18.1</u>	reference pressure:	<u>0.931</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>16.67</u>
reference main flow lpm: <u>3.08</u>	reference total/aux flow lpm: <u>17.07</u>
difference lpm: <u>0.08</u>	difference lpm: <u>0.40</u>

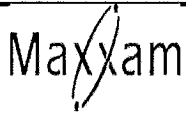
**As left flows (same as above if as found adequate):**

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.08</u>	reference total/aux flow lpm: <u>17.07</u>
difference lpm: <u>0.08</u>	difference lpm: <u>0.40</u>

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 16-Jul-15  
 1405F K<sub>o</sub> factor: 15634  
 Measured K<sub>o</sub> factor: 15757.7000  
 % difference: 0.79

**Comments:**



## R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: September 25, 2015  
 Company: LICA  
 Station Name/Location: Elk Point  
 Previous Audit Date: September 3, 2015  
 Parameter: PM 2.5

Performed By/Reviewer: Chris Wesson | Tom Bourque  
 Start Time (mst): 14:15  
 End Time (mst): 15:15  
 Calibration Purpose: Bi-monthly #2  
 Weather Conditions: Sunny

**1400A Information and Status:**

Serial Number: 1405A207691003      As Found Filter Loading %: 36.55  
 Ko Factor: 15634      As Left Filter Loading %: 34.31  
 Ambient Temperature °C: 19.27      As Found Noise: 0.003  
 Ambient Pressure atm: 0.927      As Left Noise: 0.000  
 Main Flow Reading lpm: 3.00      Pump Vacuum: 0.40-0.41  
 Aux Flow Reading lpm: 13.67      Warnings: Pump Vacuum (intermittent)

**Reference Standards:**

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB1291</u>	<u>FB1291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	0.56	0.00	0.55
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	-0.01	0.56	0.00	0.55
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C      tolerance +/- 0.01 atm  
 1405F temperature °C: 19.4      1405F pressure atm: 0.926  
 reference temperature °C: 19.6      reference pressure: 0.928  
 difference °C: 0.3      difference : -0.002

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

tolerance +/- 2.0°C      tolerance +/- 0.01 atm  
 1405F temperature °C: 19.4      1405F pressure atm: 0.926  
 reference temperature °C: 19.6      reference pressure: 0.928  
 difference °C: 0.3      difference : 0.002

**As found flows:**

main flow tolerance 3.00 lpm +/- 0.20 lpm      total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%  
 1405F main flow lpm: 3.00      1400A total/aux flow lpm: 16.65  
 reference main flow lpm: 3.09      reference total/aux flow lpm: 17.17  
 difference lpm: 0.09      difference lpm: 0.52

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

main flow tolerance 3.00 lpm +/- 0.20 lpm      total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%  
 1405F main flow lpm: 3.00      1400A total/aux flow lpm: 16.65  
 reference main flow lpm: 3.02      reference total/aux flow lpm: 16.69  
 difference lpm: 0.02      difference lpm: 0.04

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 16-Jul-15  
 1405F K<sub>o</sub> factor: 15634  
 Measured K<sub>o</sub> factor: NA  
 % difference: \_\_\_\_\_

**Comments:**

***WIND SYSTEM***



# Meteorological Sensor Audit

## Station Information

Company:	LICA	Performed By:	Chris Wesson/Kevin Hope
Location:	Elk Point	Reason:	Bi-annual audit
Audit Date:	21-Feb-14	Start Time (mst):	15:10
Previous Audit Date:	24-Nov-11	End Time (mst):	15:40

## Wind Speed

Sensor make:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Calibrator:	RM Young	Variable speed motor:	CA 03309
Voltage range:	0 - 1	Output signal range:	0 - 200 KPH

## Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.02	0.03	-
1000	17.6	17.79	17.75	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:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Calibrator:	RM Young	Variable speed motor:	CA03309
Voltage range:	0 - 1	Output signal range:	0 - 360

## Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	355.0	NA
45	43.1	1.04
90	89.5	1.01
135	135.5	1.00
180	181.2	0.99
225	226.1	1.00
270	270.1	1.00
315	312.3	1.01
360	354.7	1.01
Average Correction Factor:		1.01

Remarks:

---



---



---

## ***CALIBRATORS***





## Calibrator Performance Audit Oxides Of Nitrogen

File No. 2015-032A

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17200415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>New</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>BLM0027561</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>50.7/50.7</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 <sub>2</sub>	NOx	NO	NOx
5010	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5033	79.1	0.797	0.797	0.790	-0.011	0.779	-1%	-2%
5030	39.7	0.400	0.400	0.395	-0.005	0.390	-1%	-3%
5029	20.0	0.202	0.202	0.198	-0.003	0.195	-2%	-3%
Absolute Average Percent Difference							1%	3%

**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)= 0.9920	<b>0.90-1.10</b>	m (Slope)= 0.9783
b (Intercept % of FS)= #DIV/0!	<b>± 3% F.S.</b>	b (Intercept % of FS)= #DIV/0!

Flow	O <sub>2</sub> Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5033	0.000	0.000	0.787	-0.011	0.776	NO <sub>2</sub>	% Diff. Limit
5033	0.520	0.490	0.297	0.475	0.772	0	± 10%
5033	0.280	0.261	0.526	0.249	0.774	0	± 10%
5033	0.100	0.089	0.698	0.078	0.775	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

NO <sub>2</sub>	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9916	<b>0.90-1.10</b>
b (Intercept % of FS)= #DIV/0!	<b>± 3% F.S.</b>

AENV Standards Audit Calibrator	NO <sub>x</sub> 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>May 21, 2015</u>
	Full Scale (ppm) _____

COMMENTS: Contains 49.9 ppm SO2

Auditor: Al Clark  
Operator Signature: *Al Clark*

Date: May 21, 2015  
Location: McIntyre Center Edmonton

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. #3 <u>5000</u>
Pt. #2	<u>5000</u>	
Gas Flow (sccm)		
Pt. #1	<u>80</u>	Pt. #3 <u>20</u>
Pt. #2	<u>40</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	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 <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOx	% Diff. Vs Audit gas	
5015	0.000	0.000	0.843	-0.017	0.826	NO <sub>2</sub>	% 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 <sub>2</sub>		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 <sub>x</sub> Analyzer	
Make/Model	<u>Teco 1461</u>	Make/Model	<u>Teco 421</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 SO<sub>2</sub>.

Auditor: Al Clark Date: April 1, 2015  
 Operator Signature: *Limin Li* 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>830</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Oct 2013</u>	Temperature (°C)	<u>N/A</u>
SO <sub>2</sub> Cylinder Conc.	<u>50.3</u>	Barometric Pressure	<u>N/A</u>
SO <sub>2</sub> Cylinder S/N	<u>LL42475</u>		

**Flow Measurements**

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

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

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

<u>SO<sub>2</sub></u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO <sub>2</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&amp;R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

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

Auditor: Al Clark Date: December 16, 2014  
Operator Signature: \_\_\_\_\_ Location: McIntyre Center Edmonton

***CALIBRATION GASES***



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-339CGA

Company: Maxxam Operator's Name: Limin Li  
Cylinder #: LL67747 Concentration PPM: 49.7 Tolerance(%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

Make/Model: Teco 43C Serial/AMU Number: 1623  
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0  
Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	<del>0.00000</del>	<del>0.00000</del>	<del>0.000</del>
4976	82.6	0.818	0.01660	60.242	49.3
4993	41.0	0.407	0.00821	121.780	49.6
4977	20.2	0.200	0.00406	246.386	49.3
Average Cylinder Concentration:					<b>49.4</b>

Previous Stated Concentration PPM: 49.7

Percent variance from Stated: 0.7

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: March 31, 2015  
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	<del>0.00756</del>	<del>132.234</del>	<del>10.1</del>
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:					<b>10.1</b>

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:** *Limin Li*

**Date:** December 16, 2014  
**Location:** McIntyre Center Edmonton



# Calibration Gas Audit

## CH<sub>4</sub> / C<sub>3</sub>H<sub>8</sub> Cylinder Gas

File No. 2015-031CGA

Company: Maxxam Operators name: Limin Li  
 Cylinder #: LL19272 Conc CH<sub>4</sub> (PPM) 880/304 Tolerance (%) 2 Certified By: Praxair

**Reference Calibrator and Gas:**

Make/Model R&R MFC 201  
 Serial Number AMU 1691  
 Last Verification Date May 21, 2015  
 Gas Type CH<sub>4</sub> Conc. 999.2  
 Cylinder Number D751932  
 Gas Type C<sub>3</sub>H<sub>8</sub> Conc. 246.5  
 Cylinder Number XF0037998

**Flow Measurement Device:**

Make/Model Bios DC2  
 Serial Number AMU 1650  
 Temp. °C 24.0 C  
 B.P. 703 mmhg

**Reference Analyzer:**

Make/Model Teco 55C Serial/AMU Number: 1643  
 Instrument Settings Zero: N/A Span: N/A Range: 20  
 Last Calibration: Date: May 21/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH <sub>4</sub>	C <sub>3</sub> H <sub>8</sub>			CH <sub>4</sub>	C <sub>3</sub> H <sub>8</sub>
2600	0.0	0.00	0.00	<del>0.02005</del>	<del>49.883</del>	<del>886</del>	<del>304</del>
2569	51.5	17.77	16.76	0.02005	49.883	886	304
3549	22.3	5.56	5.27	0.00628	159.148	885	305
3523	10.4	2.63	2.49	0.00295	338.750	891	307
Average Cylinder Concentration:						<b>887</b>	<b>305</b>

	<u><b>CH<sub>4</sub></b></u>		<u><b>C<sub>3</sub>H<sub>8</sub></b></u>
Previous Stated Concentration PPM:	<u>880</u>		<u>304</u>
Percent variance from Stated:	<u>0.8</u>		<u>0.4</u>

**Cylinder gas tolerances based on CH<sub>4</sub> only**

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: May 21, 2015  
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-340CGA

**Company:** Maxxam      **Operators name:** Limin Li  
**Cylinder #:** LL67747   **Conc (PPM)** 50.9/50.9   **Tolerance (%)** 2   **Certified By:** Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.846	0.829	0.01660	60.242	51.0	49.9
4993	41.0	0.421	0.413	0.00821	121.780	51.3	50.3
4977	20.2	0.207	0.203	0.00406	246.386	51.0	50.0
<b>Average Cylinder Concentration:</b>						<b>51.1</b>	<b>50.1</b>

	<u><b>NO</b></u>		<u><b>NOx</b></u>
Previous Stated Concentration PPM:	<u>50.9</u>		<u>50.9</u>
Percent variance from Stated:	<u>0.4</u>		<u>1.6</u>

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  **COMMENTS:** \_\_\_\_\_  
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.7 ppm SO2 in cylinder  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark      Date: March 31, 2015  
 Operator Signature: *Limin Li*      Location: McIntyre Center Edmonton



***APPENDIX IV***  
***ANALYTICAL RESULTS***

***VOCS SAMPLES***

**RESULTS TO:**

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

 Calgary  
 AB T2E 6P8

**INVOICE TO:**

Charmaine Code 780 812-2182

 PO Box 8237  
 5107W-50 St  
 Bonnyville  
 AB T9N 2J5

**LABORATORY SAMPLE ID:** 15090129-001

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/EP/Sept 3, 2015

**CANISTER ID:** 2453

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 03-Sep-15 0:00

**DATE RECEIVED:** 11-Sep-15

**REPORT CREATED:** 28-Sep-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	19-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	19-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 3, 2015</p> <p><b>CANISTER ID:</b> 2453</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.04	ppbv	0.01	AC-058	19-Sep-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2-Methylpentane	I	0.07	ppbv	0.01	AC-058	19-Sep-15
3-Methylheptane	I	0.02	ppbv	0.02	AC-058	19-Sep-15
3-Methylhexane	I	0.06	ppbv	0.02	AC-058	19-Sep-15
3-Methylpentane	I	0.04	ppbv	0.01	AC-058	19-Sep-15
Acetone		10.4	ppbv	0.4	AC-058	19-Sep-15
Acrolein		0.4	ppbv	0.3	AC-058	19-Sep-15
Benzene	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromomethane	I	0.04	ppbv	0.01	AC-058	19-Sep-15
Carbon disulfide		7.94	ppbv	0.01	AC-058	19-Sep-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	19-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Chloroethane	I	0.04	ppbv	0.02	AC-058	19-Sep-15
Chloroform	I	0.02	ppbv	0.02	AC-058	19-Sep-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
cis-2-Butene	I	0.09	ppbv	0.02	AC-058	19-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Cyclohexane	I	0.05	ppbv	0.02	AC-058	19-Sep-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090129-001  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 3, 2015  <b>CANISTER ID:</b> 2453  <b>DESCRIPTION:</b> Elk Point Airport  <b>DATE SAMPLED:</b> 03-Sep-15 0:00  <b>DATE RECEIVED:</b> 11-Sep-15  <b>REPORT CREATED:</b> 28-Sep-15  <b>REPORT VERSION:</b> Version 01
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.1	ppbv	0.3	AC-058	19-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	19-Sep-15
Freon-11		0.35	ppbv	0.02	AC-058	19-Sep-15
Freon-113	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Freon-12		0.68	ppbv	0.02	AC-058	19-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Isobutane	I	0.18	ppbv	0.02	AC-058	19-Sep-15
Isopentane	I	0.25	ppbv	0.03	AC-058	19-Sep-15
Isoprene	I	0.24	ppbv	0.01	AC-058	19-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
m,p-Xylene	I	0.09	ppbv	0.03	AC-058	19-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	19-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Methyl ethyl ketone		1.5	ppbv	0.3	AC-058	19-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
Methylcyclohexane	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	19-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
n-Butane	I	0.25	ppbv	0.03	AC-058	19-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Sep-15

**Qualifiers**

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

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

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

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-001</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 3, 2015</p> <p><b>CANISTER ID:</b> 2453</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	19-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Sep-15
Naphthalene		1.7	ppbv	0.5	AC-058	19-Sep-15
n-Nonane	I	0.02	ppbv	0.01	AC-058	19-Sep-15
o-Ethyltoluene	I	0.01	ppbv	0.01	AC-058	19-Sep-15
o-Xylene	I	0.05	ppbv	0.01	AC-058	19-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Toluene	I	0.16	ppbv	0.01	AC-058	19-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
trans-2-Butene	I	0.15	ppbv	0.01	AC-058	19-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

**RESULTS TO:**

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

 Calgary  
 AB T2E 6P8

**INVOICE TO:**

Charmaine Code 780 812-2182

 PO Box 8237  
 5107W-50 St  
 Bonnyville  
 AB T9N 2J5

**LABORATORY SAMPLE ID:** 15090129-005

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/EP/Sept 9, 2015

**CANISTER ID:** 1532

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 09-Sep-15 0:00

**DATE RECEIVED:** 11-Sep-15

**REPORT CREATED:** 28-Sep-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	19-Sep-15
1,2,4-Trimethylbenzene	I	0.09	ppbv	0.03	AC-058	19-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	19-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
1,3,5-Trimethylbenzene	I	0.03	ppbv	0.02	AC-058	19-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2,2-Dimethylbutane	I	0.10	ppbv	0.01	AC-058	19-Sep-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	19-Sep-15
2,3-Dimethylbutane	I	0.22	ppbv	0.02	AC-058	19-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-005</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 1532</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
2-Methylpentane	I	0.14	ppbv	0.01	AC-058	19-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
3-Methylhexane	I	0.06	ppbv	0.02	AC-058	19-Sep-15
3-Methylpentane	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Acetone		10.4	ppbv	0.4	AC-058	19-Sep-15
Acrolein		0.3	ppbv	0.3	AC-058	19-Sep-15
Benzene	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
Carbon disulfide		4.83	ppbv	0.01	AC-058	19-Sep-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	19-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Chloroform	I	0.02	ppbv	0.02	AC-058	19-Sep-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
cis-2-Butene		0.40	ppbv	0.02	AC-058	19-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Cyclohexane	I	0.13	ppbv	0.02	AC-058	19-Sep-15
Cyclopentane	I	0.04	ppbv	0.01	AC-058	19-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---



<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-005</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 1532</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.2	ppbv	0.3	AC-058	19-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Ethylbenzene	I	0.23	ppbv	0.01	AC-058	19-Sep-15
Freon-11		0.31	ppbv	0.02	AC-058	19-Sep-15
Freon-113	I	0.08	ppbv	0.01	AC-058	19-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Freon-12		0.69	ppbv	0.02	AC-058	19-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Isobutane		0.79	ppbv	0.02	AC-058	19-Sep-15
Isopentane		0.56	ppbv	0.03	AC-058	19-Sep-15
Isoprene	I	0.26	ppbv	0.01	AC-058	19-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
m,p-Xylene		0.37	ppbv	0.03	AC-058	19-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	19-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	19-Sep-15
Methyl ethyl ketone		3.1	ppbv	0.3	AC-058	19-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Sep-15
Methylcyclohexane	I	0.24	ppbv	0.01	AC-058	19-Sep-15
Methylcyclopentane	I	0.11	ppbv	0.02	AC-058	19-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Sep-15
n-Butane		0.80	ppbv	0.03	AC-058	19-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-005</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 9, 2015</p> <p><b>CANISTER ID:</b> 1532</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
n-Heptane	I	0.07	ppbv	0.01	AC-058	19-Sep-15
n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	19-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Sep-15
Naphthalene		4.9	ppbv	0.5	AC-058	19-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
o-Ethyltoluene	I	0.03	ppbv	0.01	AC-058	19-Sep-15
o-Xylene	I	0.12	ppbv	0.01	AC-058	19-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Sep-15
Styrene	I	0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Toluene	I	0.29	ppbv	0.01	AC-058	19-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	19-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
trans-2-Butene		0.87	ppbv	0.01	AC-058	19-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead  <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455  <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 15, 2015</p> <p><b>CANISTER ID:</b> 1089</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
1,2,3-Trimethylbenzene		0.36	ppbv	0.05	AC-058	25-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	25-Sep-15
1,2,4-Trimethylbenzene		0.46	ppbv	0.03	AC-058	25-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	25-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
1,3,5-Trimethylbenzene	I	0.13	ppbv	0.02	AC-058	25-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
1-Hexene	I	0.04	ppbv	0.02	AC-058	25-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
2,2,4-Trimethylpentane	I	0.13	ppbv	0.01	AC-058	25-Sep-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	25-Sep-15
2,3-Dimethylbutane	I	0.20	ppbv	0.02	AC-058	25-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15

**Qualifiers**

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

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

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

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090321-003

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA/VOC/EP/Sept 15, 2015

**CANISTER ID:** 1089

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 15-Sep-15 0:00

**DATE RECEIVED:** 22-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.02	ppbv	0.01	AC-058	25-Sep-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
2-Methylpentane		0.98	ppbv	0.01	AC-058	25-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
3-Methylhexane	I	0.06	ppbv	0.02	AC-058	25-Sep-15
3-Methylpentane		2.75	ppbv	0.01	AC-058	25-Sep-15
Acetone		7.9	ppbv	0.4	AC-058	25-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
Benzene	I	0.05	ppbv	0.01	AC-058	25-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Carbon disulfide		0.66	ppbv	0.01	AC-058	25-Sep-15
Carbon tetrachloride	I	0.06	ppbv	0.01	AC-058	25-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Chloroethane	I	0.03	ppbv	0.02	AC-058	25-Sep-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
cis-2-Butene	I	0.02	ppbv	0.02	AC-058	25-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Cyclohexane	I	0.27	ppbv	0.02	AC-058	25-Sep-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 15, 2015</p> <p><b>CANISTER ID:</b> 1089</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		6.8	ppbv	0.3	AC-058	25-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Ethylbenzene	I	0.04	ppbv	0.01	AC-058	25-Sep-15
Freon-11	I	0.21	ppbv	0.02	AC-058	25-Sep-15
Freon-113	I	0.03	ppbv	0.01	AC-058	25-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Freon-12		0.42	ppbv	0.02	AC-058	25-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	25-Sep-15
Isobutane	I	0.23	ppbv	0.02	AC-058	25-Sep-15
Isopentane		0.63	ppbv	0.03	AC-058	25-Sep-15
Isoprene	I	0.07	ppbv	0.01	AC-058	25-Sep-15
Isopropyl alcohol		0.8	ppbv	0.4	AC-058	25-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
m,p-Xylene	I	0.17	ppbv	0.03	AC-058	25-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
m-Ethyltoluene	I	0.12	ppbv	0.08	AC-058	25-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	25-Sep-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Sep-15
Methyl isobutyl ketone		5.2	ppbv	0.4	AC-058	25-Sep-15
Methyl methacrylate	I	0.08	ppbv	0.07	AC-058	25-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Sep-15
Methylcyclohexane	I	0.05	ppbv	0.01	AC-058	25-Sep-15
Methylcyclopentane		2.96	ppbv	0.02	AC-058	25-Sep-15
Methylene chloride		4.1	ppbv	0.3	AC-058	25-Sep-15
n-Butane		0.39	ppbv	0.03	AC-058	25-Sep-15
n-Decane		0.33	ppbv	0.06	AC-058	25-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE  Calgary AB T2E 6P8  <b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	<b>LABORATORY SAMPLE ID:</b> 15090321-003  <b>MATRIX:</b> Ambient Air  <b>CLIENT SAMPLE ID:</b> LICA/VOC/EP/Sept 15, 2015  <b>CANISTER ID:</b> 1089  <b>DESCRIPTION:</b> Elk Point Airport  <b>DATE SAMPLED:</b> 15-Sep-15 0:00  <b>DATE RECEIVED:</b> 22-Sep-15  <b>REPORT CREATED:</b> 23-Oct-15  <b>REPORT VERSION:</b> Version 01
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane		2.9	ppbv	0.4	AC-058	25-Sep-15
n-Heptane	I	0.13	ppbv	0.01	AC-058	25-Sep-15
n-Hexane		18.8	ppbv	0.01	AC-058	25-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	25-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Sep-15
n-Undecane		0.8	ppbv	0.5	AC-058	25-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
o-Ethyltoluene	I	0.08	ppbv	0.01	AC-058	25-Sep-15
o-Xylene	I	0.09	ppbv	0.01	AC-058	25-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Toluene		5.82	ppbv	0.01	AC-058	25-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	25-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Sep-15

<b>Qualifiers</b> 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	<b>Certified By:</b> Graham Knox, Team Lead <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS  <b>Inquiries:</b> (780) 632 8455 <b>E-mail:</b> EAS.Results@albertainnovates.ca
---	--

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090469-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/ELK/Sept 21, 2015</p> <p><b>CANISTER ID:</b> H2826</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	02-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090469-003

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/ELK/Sept 21, 2015

**CANISTER ID:** H2826

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
2-Methylpentane	I	0.03	ppbv	0.01	AC-058	02-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	02-Oct-15
Acetone		1.7	ppbv	0.4	AC-058	02-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
Benzene	I	0.03	ppbv	0.01	AC-058	02-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	02-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Chloroform	I	0.02	ppbv	0.02	AC-058	02-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	02-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca



**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

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

**LABORATORY SAMPLE ID:** 15090469-003

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/ELK/Sept 21, 2015

**CANISTER ID:** H2826

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 21-Sep-15 0:00

**DATE RECEIVED:** 30-Sep-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.6	ppbv	0.3	AC-058	02-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
Freon-11	I	0.27	ppbv	0.02	AC-058	02-Oct-15
Freon-113	I	0.06	ppbv	0.01	AC-058	02-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Freon-12		0.58	ppbv	0.02	AC-058	02-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Oct-15
Isobutane	I	0.19	ppbv	0.02	AC-058	02-Oct-15
Isopentane	I	0.13	ppbv	0.03	AC-058	02-Oct-15
Isoprene	I	0.02	ppbv	0.01	AC-058	02-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Oct-15
Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	02-Oct-15
Methylcyclopentane	I	0.02	ppbv	0.02	AC-058	02-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Oct-15
n-Butane	I	0.28	ppbv	0.03	AC-058	02-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090469-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/ELK/Sept 21, 2015</p> <p><b>CANISTER ID:</b> H2826</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
n-Hexane	I	0.05	ppbv	0.01	AC-058	02-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	02-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Toluene	I	0.03	ppbv	0.01	AC-058	02-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead  <b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455  <b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/ELK/Sept 27, 2015</p> <p><b>CANISTER ID:</b> 2665</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Oct-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	10-Oct-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
1,2-Dichloroethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
1-Butene	I	0.04	ppbv	0.02	AC-058	10-Oct-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2,3-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	10-Oct-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15

**Qualifiers:**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

**RESULTS TO:**

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

Calgary  
AB T2E 6P8

**INVOICE TO:**

Charmaine Code 780 812-2182

PO Box 8237  
5107W-50 St  
Bonnyville  
AB T9N 2J5

**LABORATORY SAMPLE ID:** 15100050-003

**MATRIX:** Ambient Air

**CLIENT SAMPLE ID:** LICA VOC/ELK/Sept 27, 2015

**CANISTER ID:** 2665

**DESCRIPTION:** Elk Point Airport

**DATE SAMPLED:** 27-Sep-15 0:00

**DATE RECEIVED:** 05-Oct-15

**REPORT CREATED:** 23-Oct-15

**REPORT VERSION:** Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
2-Methylhexane	I	0.02	ppbv	0.01	AC-058	10-Oct-15
2-Methylpentane	I	0.05	ppbv	0.01	AC-058	10-Oct-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
3-Methylhexane	I	0.02	ppbv	0.02	AC-058	10-Oct-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	10-Oct-15
Acetone		1.7	ppbv	0.4	AC-058	10-Oct-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
Benzene	I	0.03	ppbv	0.01	AC-058	10-Oct-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Carbon disulfide	I	0.05	ppbv	0.01	AC-058	10-Oct-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	10-Oct-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	10-Oct-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/ELK/Sept 27, 2015</p> <p><b>CANISTER ID:</b> 2665</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.5	ppbv	0.3	AC-058	10-Oct-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
Freon-11	I	0.27	ppbv	0.02	AC-058	10-Oct-15
Freon-113	I	0.06	ppbv	0.01	AC-058	10-Oct-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Freon-12		0.63	ppbv	0.02	AC-058	10-Oct-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	10-Oct-15
Isobutane		0.32	ppbv	0.02	AC-058	10-Oct-15
Isopentane		0.35	ppbv	0.03	AC-058	10-Oct-15
Isoprene	I	0.02	ppbv	0.01	AC-058	10-Oct-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Oct-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	10-Oct-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Oct-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Oct-15
Methylcyclohexane	I	0.04	ppbv	0.01	AC-058	10-Oct-15
Methylcyclopentane	I	0.02	ppbv	0.02	AC-058	10-Oct-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Oct-15
n-Butane		0.51	ppbv	0.03	AC-058	10-Oct-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-003</p> <p><b>MATRIX:</b> Ambient Air</p> <p><b>CLIENT SAMPLE ID:</b> LICA VOC/ELK/Sept 27, 2015</p> <p><b>CANISTER ID:</b> 2665</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
n-Hexane	I	0.05	ppbv	0.01	AC-058	10-Oct-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	10-Oct-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Oct-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Oct-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Oct-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Oct-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Toluene	I	0.05	ppbv	0.01	AC-058	10-Oct-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	10-Oct-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Oct-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Oct-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

***PAHS SAMPLES***

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 3, 2015</p> <p><b>CANISTER ID:</b> A13-02</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02	ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.04	ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene		0.07	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.01	ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.02	ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.06	ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.01	ug/Filter	0.01	NA-017	17-Sep-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---



<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-002</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 3, 2015</p> <p><b>CANISTER ID:</b> A13-02</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 03-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15

**Qualifiers**

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

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

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

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-006</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 9, 2015</p> <p><b>CANISTER ID:</b> TE-02</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.08	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.06	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.11	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.03	ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090129-006</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 9, 2015</p> <p><b>CANISTER ID:</b> TE-02</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 09-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 11-Sep-15</p> <p><b>REPORT CREATED:</b> 28-Sep-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	---

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

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 15, 2015</p> <p><b>CANISTER ID:</b> TE-03</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.06	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.02	ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090321-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA/PUF/EP/Sept 15, 2015</p> <p><b>CANISTER ID:</b> TE-03</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 15-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 22-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

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

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090469-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/ELK/Sept 21, 2015</p> <p><b>CANISTER ID:</b> TE08</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.09	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.08	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.05	ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15090469-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/ELK/Sept 21, 2015</p> <p><b>CANISTER ID:</b> TE08</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 21-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 30-Sep-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

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

**Qualifiers**

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

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

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

<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/ELK/Sept 27, 2015</p> <p><b>CANISTER ID:</b> TE06</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.04	ug/Filter	0.01	NA-017	18-Oct-15
2-Methylnaphthalene		0.08	ug/Filter	0.01	NA-017	18-Oct-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Anthracene		0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	18-Oct-15
Fluorene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Naphthalene		0.05	ug/Filter	0.01	NA-017	18-Oct-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	18-Oct-15
Phenanthrene		0.07	ug/Filter	0.01	NA-017	18-Oct-15
Pyrene		0.03	ug/Filter	0.01	NA-017	18-Oct-15

<p><b>Qualifiers</b></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><b>Certified By:</b> Graham Knox, Team Lead</p> <p><b>On behalf of:</b> PJ Pretorius, Portfolio Manager, EAS</p> <p><b>Inquiries:</b> (780) 632 8455</p> <p><b>E-mail:</b> EAS.Results@albertainnovates.ca</p>
--	---



<p><b>RESULTS TO:</b> Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p><b>INVOICE TO:</b> Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p><b>LABORATORY SAMPLE ID:</b> 15100050-004</p> <p><b>MATRIX:</b> Air Filter</p> <p><b>CLIENT SAMPLE ID:</b> LICA PUF/ELK/Sept 27, 2015</p> <p><b>CANISTER ID:</b> TE06</p> <p><b>DESCRIPTION:</b> Elk Point Airport</p> <p><b>DATE SAMPLED:</b> 27-Sep-15 0:00</p> <p><b>DATE RECEIVED:</b> 05-Oct-15</p> <p><b>REPORT CREATED:</b> 23-Oct-15</p> <p><b>REPORT VERSION:</b> Version 01</p>
--	--

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

**Qualifiers**

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

**Certified By:** Graham Knox, Team Lead

**On behalf of:** PJ Pretorius, Portfolio Manager, EAS

**Inquiries:** (780) 632 8455

**E-mail:** EAS.Results@albertainnovates.ca

***APPENDIX V***  
***CHAIN OF CUSTODY***



# Maxxam Analytics - Air Services Group

## Project Chain of Custody

<b>Client:</b> <u>Lakeland Industry &amp; Community Association</u>	<b>Project #:</b> <u>2833-2015-09-35- C</u>
<b>Site:</b> <u>Elk Point Airport Site</u>	<b>Contact:</b> <u>Mike Bisaga</u>

QA Check Complete msclmkg Date 22-Oct-2015

QA Check Review msclmkg Date 22-Oct-2015

Report Complete msclmkg Date 29-Oct-2015

Report Reviewed \_\_\_\_\_ Date \_\_\_\_\_

Report Shipped \_\_\_\_\_ Date \_\_\_\_\_

Notes

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

**JOB #:2833-2015-09-30- C**

**SEPTEMBER 2015**

Prepared for:

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

**Attention: MIKE BISAGA**

DATE: **October 27, 2015**

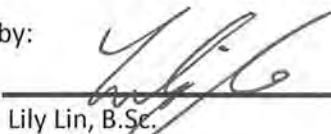
Prepared by:



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 SEPTEMBER 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.

All Parameters: Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

NOX/NO/NO<sub>2</sub>: The LICA-owned API 200E, S/N: 593, analyzer was installed back on site on September 15 after maintenance was performed at Maxxam shop.

The summary of results is presented on the following pages.

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

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

**Monthly Continuous Data Summary**

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
Maskwa Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0	5	23, 25	VAR	VAR	VAR	1.4	23	99.6
H2S (PPB)	10	3	0	0	0	3	6, 7	VAR	VAR	VAR	1.4	7	99.6
THC (PPM)	-	-	-	-	2.1	2.6	10, 30	7, 8	0.9 1.8	W NNE	2.2	VAR	99.6
NO2 (PPB)	159	-	0	-	2.4	15.3	25	22	2.9	W	5.0	11	99.4
NO (PPB)	-	-	-	-	0.5	12.2	25	8	3	WNW	1.8	21	99.4
NOX (PPB)	-	-	-	-	3.0	26.2	25	8	3	WNW	5.7	11	99.4
RELATIVE HUMIDITY (%)	-	-	-	-	73.3	93	VAR	VAR	VAR	VAR	89.6	15	99.6
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	939	949	4, 5	VAR	VAR	VAR	948	4, 5	99.6
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	9.3	25.7	11	15	7.4	WSW	17.4	11	99.6
PRECIPITATION (MM)	-	-	-	-	0.1	6.9	2	19	3	W	1.6	6	99.4
VECTOR WS (KPH)	-	-	-	-	4.6	15.5	6	9	-	NNE	10.0	6	99.6
VECTOR WD (DEG)	-	-	-	-	WSW	-	-	-	-	-	-	-	99.6

NA-NOT AVAILABLE VAR-VARIOUS

---

## Exceedence Summary Report

---

SO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

SO<sub>2</sub> 24- Hour Exceedences

No Exceedences Recorded During the Month

H<sub>2</sub>S 1- Hour Exceedences

No Exceedences Recorded During the Month

H<sub>2</sub>S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

**TABLE OF CONTENTS**

<u>Title</u>	<u>Page</u>
<b>1.0 Discussion</b>	<b>3</b>
<b>2.0 Project Personnel</b>	<b>6</b>
<b>3.0 Plant Monthly Required AMD Summary</b>	<b>6</b>
<b>4.0 Calculations and Results</b>	<b>6</b>
<b>5.0 Methods and Procedures</b>	<b>7</b>
<b>Appendix I</b>	<b>Continuous Monitoring Data Results</b>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Wind Speed
	Wind Direction
	Standard Deviation Wind Direction
	Relative Humidity
	Barometric Pressure
	Ambient Temperature
	Precipitation
<b>Appendix II</b>	<b>Analyzer Calibration Results</b>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Nitrogen Dioxide
	Wind System
	Calibrators
	Calibration Gases
	Meteorological System
<b>Appendix III</b>	<b>Chain of Custody</b>



## 1.0 Discussion

This monthly report consists of data for parameters SO<sub>2</sub>, H<sub>2</sub>S, THC, NO<sub>x</sub>, NO, NO<sub>2</sub>, WS, WD, RH, BP, Precipitation and Ambient Temperature.

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

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

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

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

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

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

Trailer Inspection was completed on September 1.

**SULPHUR DIOXIDE (SO<sub>2</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 1. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**HYDROGEN SULPHIDE (H<sub>2</sub>S)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 1. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**TOTAL HYDROCARBONS (THC)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 1. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**NITROGEN DIOXIDE (NO<sub>2</sub>)**

The routine monthly calibration was performed on September 1. The analyzer showed instability in its daily span results after the calibration. Two as found points checks were performed on September 3 and September 9 respectively to verify the analyzer's functionality. The analyzer passed the as found points check requirements. No data was discarded due to this issue. The Maxxam-supplied API 200A, S/N: 1899 analyzer was removed following a shut-down calibration on September 15. The LICA-owned API 200E, S/N: 593 was installed followed by an installation calibration on the same day. The ozone scrubber material was renewed, the NO<sub>2</sub> converter was changed, and the pump and perm tube were replaced before the API 200E was installed.

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

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

The wind system was working well throughout the month. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**RELATIVE HUMIDITY (RH)**

The humidity sensor was working well throughout the month. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**BAROMETRIC PRESSURE (BP)**

The pressure sensor was working well throughout the month. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**PRECIPITATION**

The rain gauge system was working well throughout the month. The rain gauge system was checked on September 1. The check result is included in this report. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

**AMBIENT TEMPERATURE (TPX)**

The temperature sensor was working well throughout the month. Three hours of data collected on September 1 at hour 10 and on September 16 from hour 20 to hour 21 were invalidated due to power failures.

## **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-00209: Ambient H<sub>2</sub>S Monitoring
- Maxxam AIR SOP-00211: Ambient SO<sub>2</sub> Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO<sub>2</sub>/NO<sub>x</sub> Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100A UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200A and API 200E Chemiluminescent Analyzers
- 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

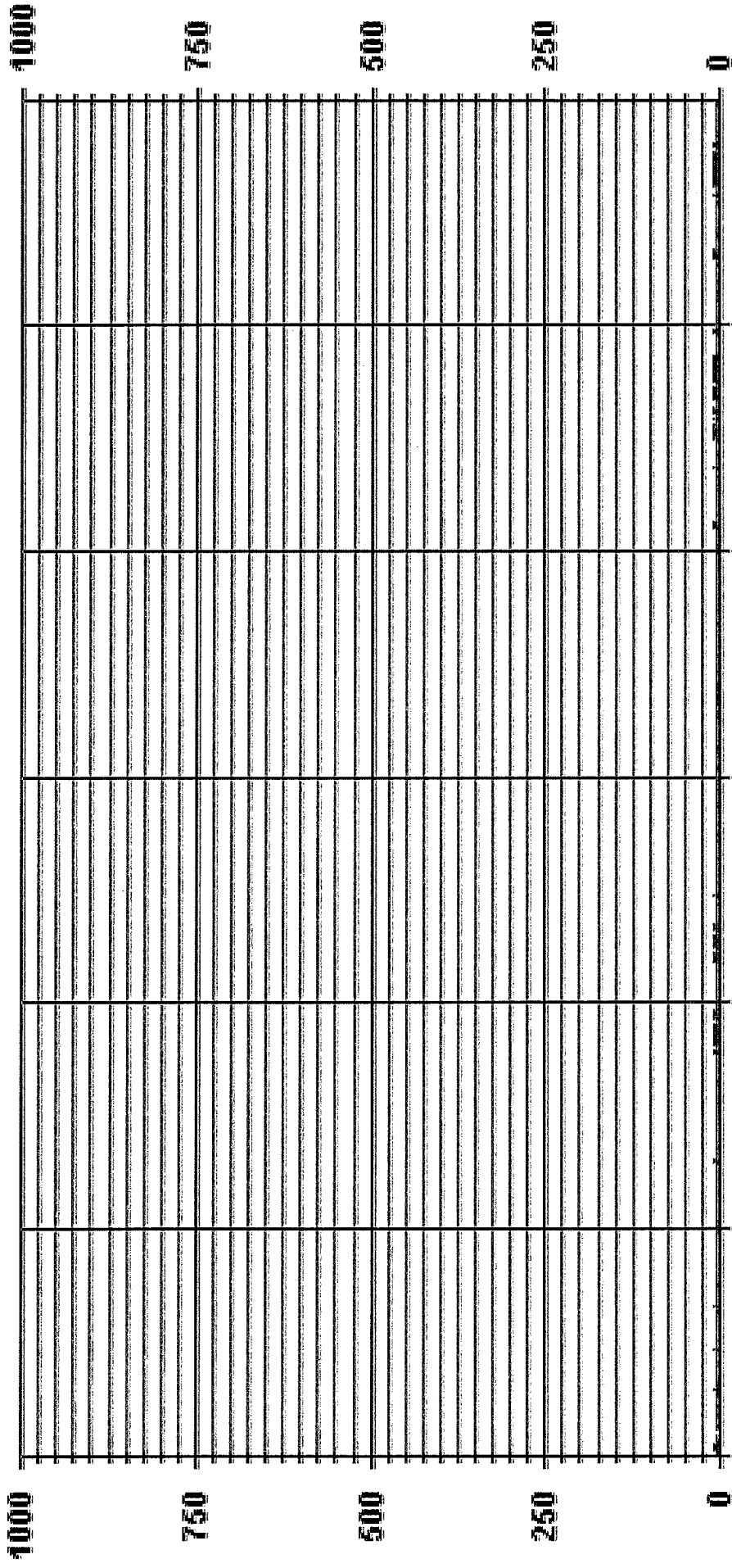
***APPENDIX I***  
***CONTINUOUS MONITORING DATA RESULTS***

***SULPHUR DIOXIDE***





**01 Hour Averages**



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 SO2\_ PPB



SULPHUR DIOXIDE MAX instantaneous maximum in ppb

DAY	MST																								DAILY MAX	24-HOUR AVG	ROGS	
	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				
1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	23	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.9	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	6	1.2	24
4	0	1	0	0	0	1	1	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4	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	1	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24
8	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	2	0.2	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	0.1	24
10	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	0.9	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	3	0.3	24
12	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	1.7	24
13	1	1	1	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.8	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	5	0.7	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	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	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	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	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	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	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	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24
24	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	8	2.6	24
25	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	14	2.7	24
26	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	3	0.4	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	11	2.6	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	5	0.7	24
29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.9	24
30	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
HOURLY MAX	2	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	8	2	
HOURLY AVG	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0	0.3

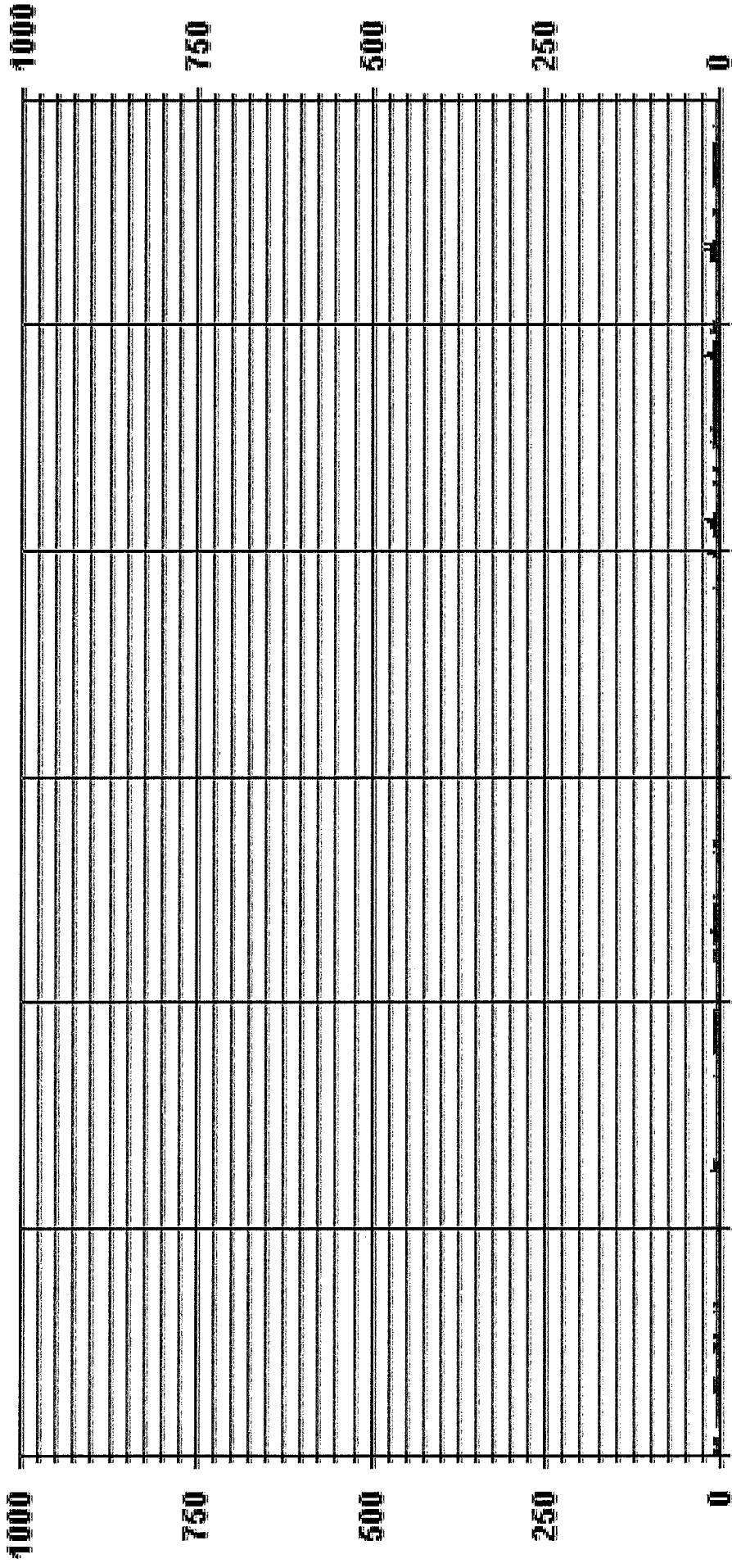
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	250	PPB	@ HOUR(S)	8	ON DAY(S)	25
MAXIMUM INSTANTANEOUS VALUE:	14	PPB	@ HOUR(S)	8	ON DAY(S)	25
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	1.76					

# 01 Hour Averages



— LICA30 SO2MAX PPB

LICA30  
 SO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Limit	Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	4.98	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.57	6.59	5.57	3.66	5.42	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.98	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.57	6.59	5.57	3.66	5.42	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

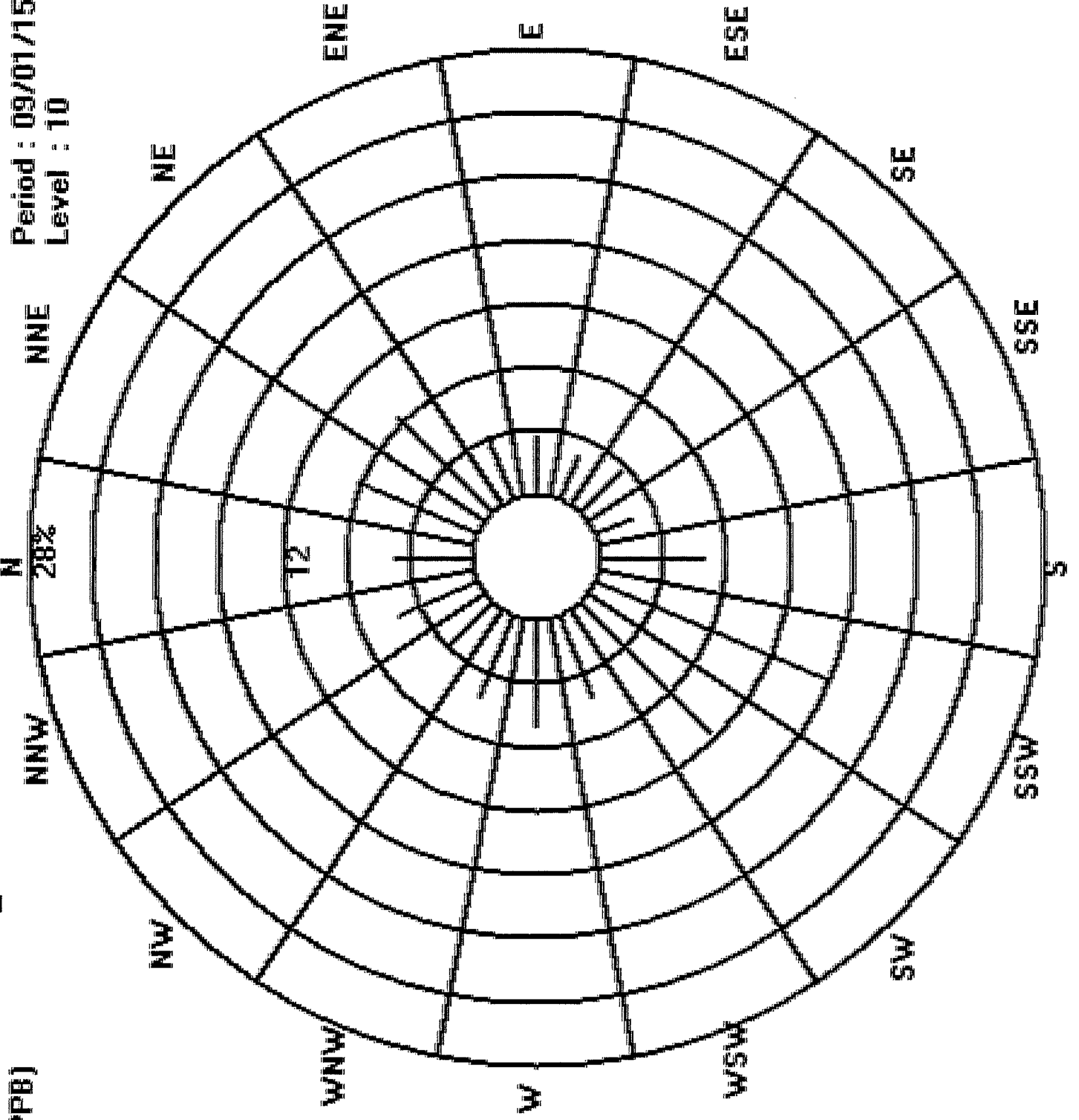
Limit	Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	34	56	58	29	25	20	25	17	45	110	80	38	45	38	25	37	682
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	34	56	58	29	25	20	25	17	45	110	80	38	45	38	25	37	

Calm : .00 %

Total # Operational Hours : 682

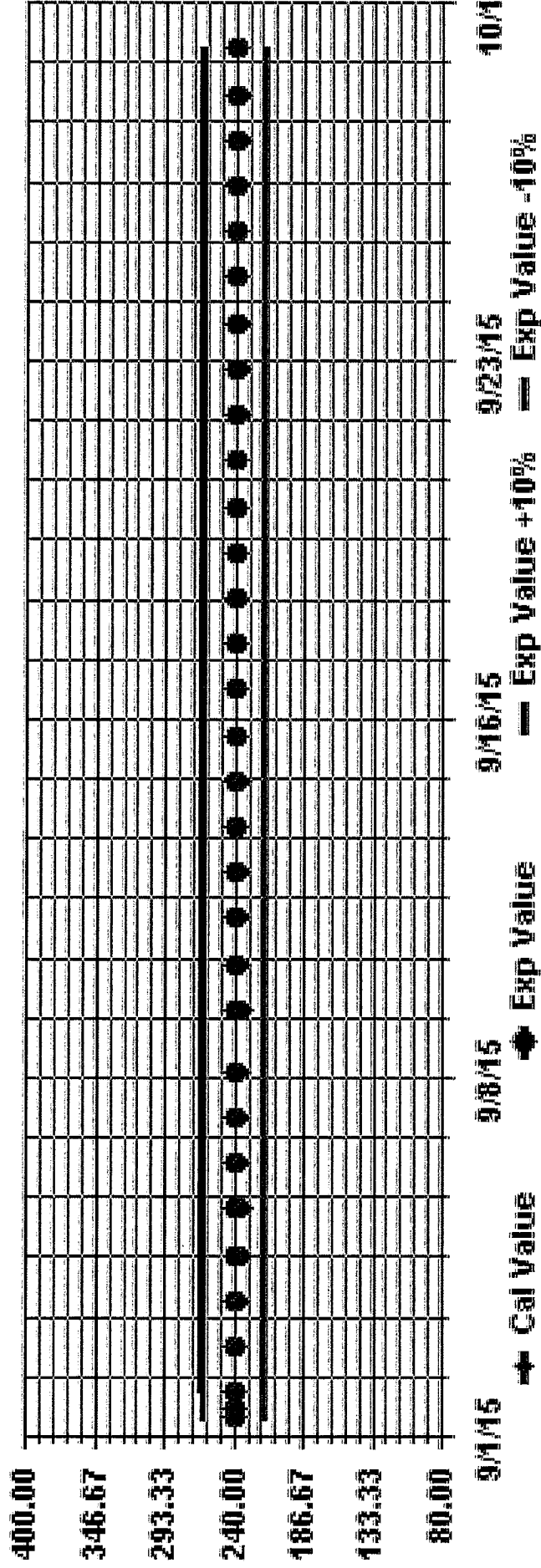
Logger : 30 Parameter : SO2\_

Site : LICA30  
Period : 09/01/15-09/30/15  
Level : 10



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

Calibration Graph for Site: LICA30 Parameter: S02\_ Sequence: S02 Phase: SPAN



***HYDROGEN SULPHIDE***



HYDROGEN SULPHIDE (HZS) hourly averages in ppb

MST

DAY	DAILY																								24-HOUR AVG.
	0000	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000	23000	
1	0	0	1	0	2	2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	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	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	0	0	0
6	0	1	1	0	0	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
8	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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
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
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
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
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
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
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
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
18	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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
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
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
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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
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
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
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
30	0	5	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HOURLY MAX	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HOURLY AVG	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

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

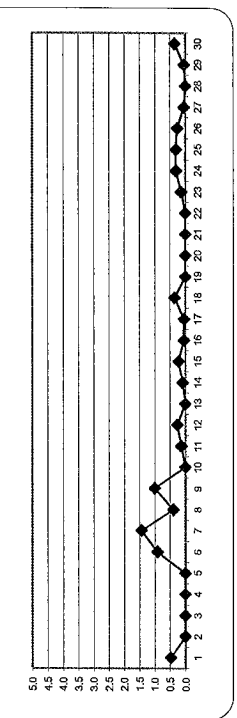
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR: 10: PPB, 24-HR: 3: PPB

MONTHLY SUMMARY

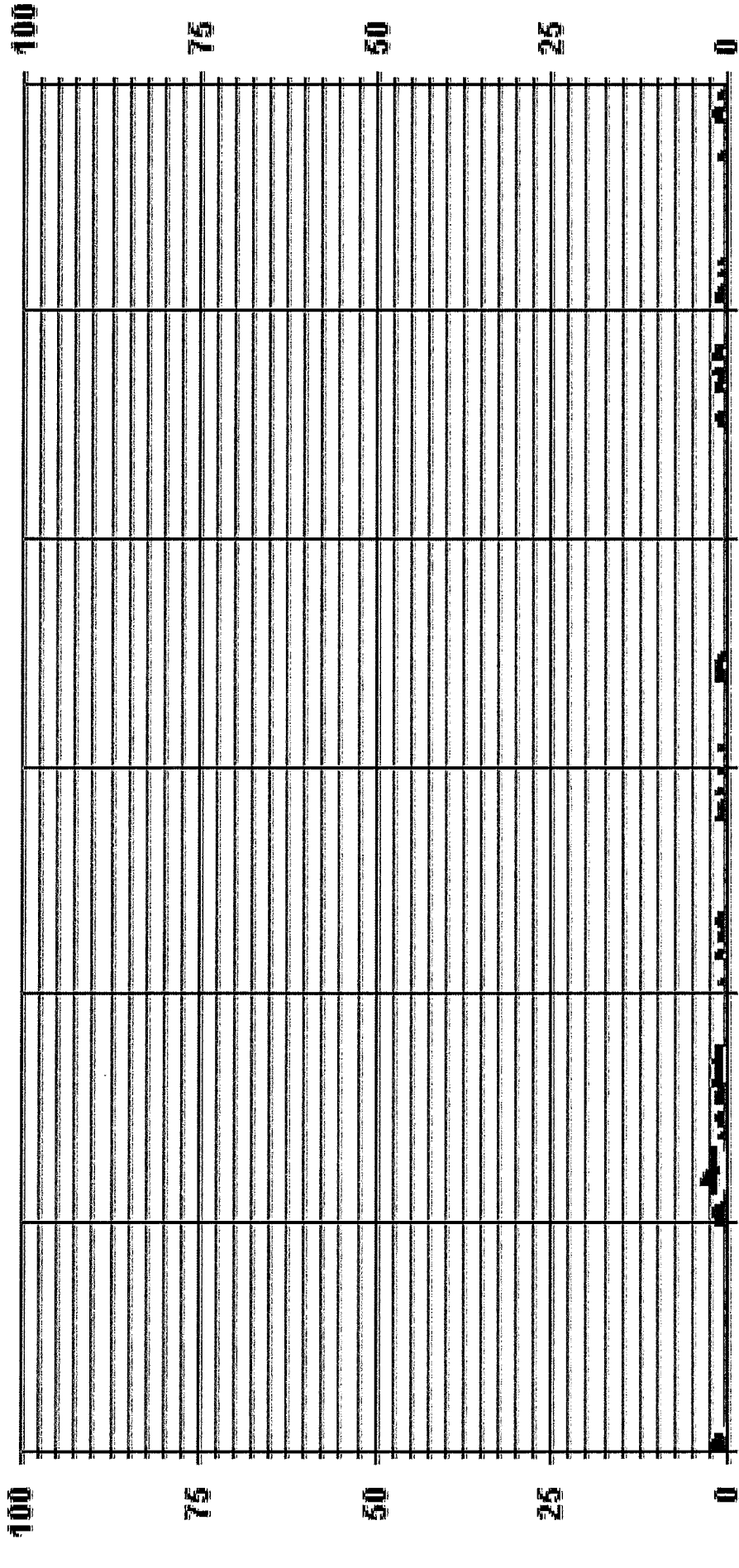
NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	120
MAXIMUM 1-HR AVERAGE:	3 PPB
MAXIMUM 24-HR AVERAGE:	1.4 PPB
OPERATIONAL TIME:	30 HRS
MONTHLY CALIBRATION TIME:	5 HRS
MONTHLY AVERAGE:	0.53
ON DAY(S):	6, 7
ON DAY(S):	7
VAR-VARIOUS:	
OPERATIONAL TIME:	717 HRS
AMD OPERATION UPTIME:	99.6 %
MONTHLY AVERAGE:	0

24 HOUR AVERAGES FOR SEPTEMBER 2015





# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 H2S\_ PPB



HYDROGEN SULPHIDE 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	24:00	24-HOUR AVG.	RDGS.			
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	5	1.2	23		
2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24		
5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24		
6	1	2	2	1	2	3	1	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	5	2.0	24		
7	3	3	3	3	2	2	3	3	3	3	3	3	4	3	2	2	2	2	2	2	2	2	2	2	3	4	4	2.1	24	
8	1	0	0	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1.3	24		
9	1	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	5	0	1.6	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	1	0.1	24		
11	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		
12	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	0.8	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	0.1	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	0.1	24		
15	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	3	0.3	24		
16	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		
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	0.7	22		
18	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	0.4	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	0.6	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	0.1	24		
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24		
22	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	2	0.8	24		
23	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24		
24	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	4	1.2	24		
25	1	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	0.5	24		
26	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	2	0.9	24		
27	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	0.2	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	1	0.8	24		
29	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		
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	4	1.3	24		
HOURLY MAX	3	4	3	3	4	5	3	5	3	4	3	2	4	3	2	2	4	2	2	2	2	2	3	3	3	4	4	0.7	0.8	0.7
HOURLY AVG	0.6	0.8	0.7	0.8	0.8	0.7	0.9	0.8	1.0	0.9	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.7	0.8	0.7	

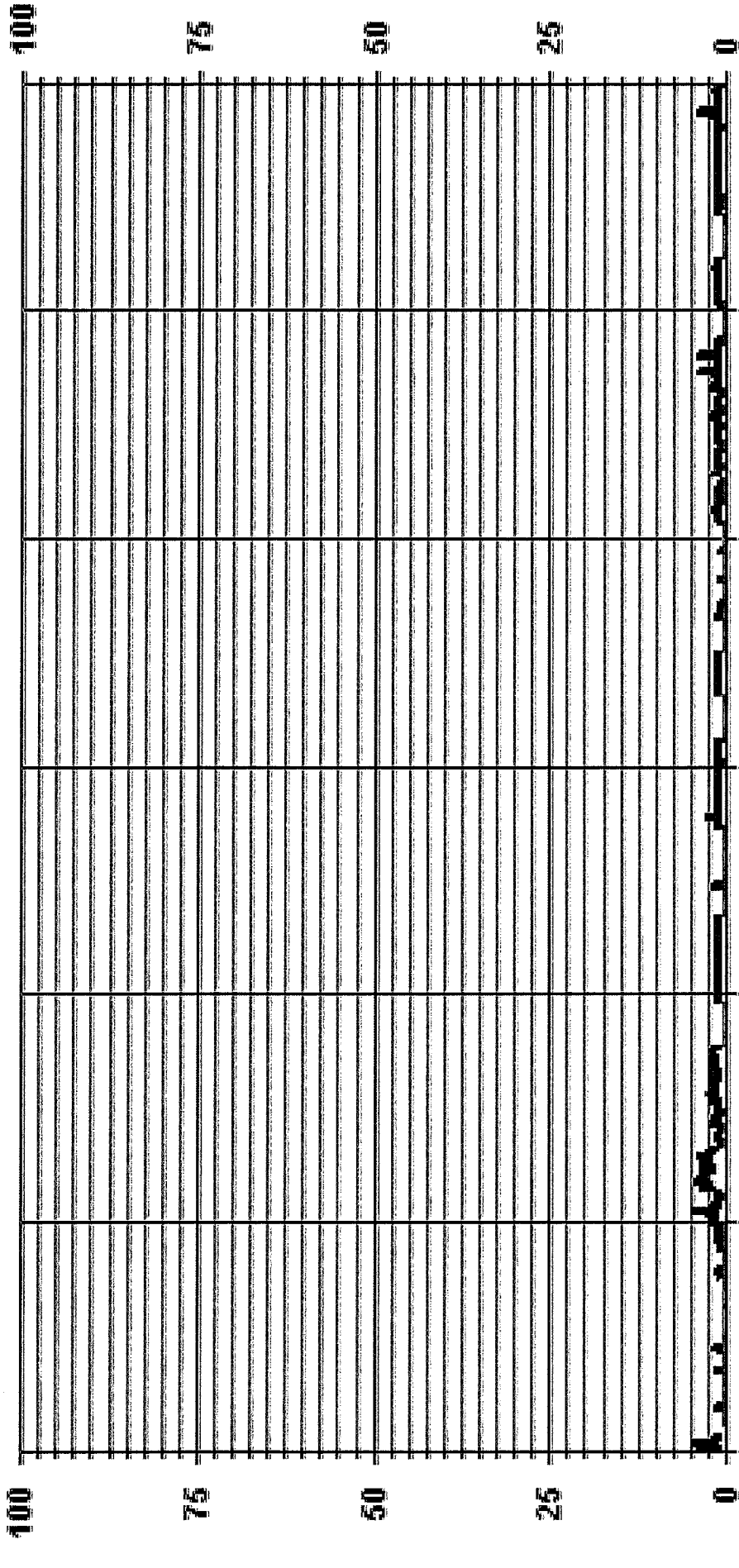
STATUS FLAG CODES

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:	390	ON DAY(S)	1,6
MAXIMUM INSTANTANEOUS VALUE:	5 PPB	@ HOUR(S)	5,7
IZS CALIBRATION TIME:	30 HRS	OPERATIONAL TIME:	VAR-VARIOUS
MONTHLY CALIBRATION TIME:	5 HRS		
STANDARD DEVIATION:	0.82		
			71.7 HRS

# 01 Hour Averages



— LICA30 H2SMAX PPB

H2S\_ / WDR Joint Frequency Distribution (Percent)  
 LICA30  
 September 2015

Distribution By % Of Samples

Logger Id : 30  
 Site Name : LICA30  
 Parameter : H2S\_  
 Units : FFB

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	4.69	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.57	6.59	5.57	3.66	5.27	99.56
< 10	.29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.43
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.98	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.57	6.59	5.57	3.66	5.42	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

Direction

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	32	56	58	29	25	20	25	17	45	110	80	38	45	38	25	36	679
< 10	2															1	3
< 50																	
>= 50																	
Totals	34	56	58	29	25	20	25	17	45	110	80	38	45	38	25	37	

Calm : .00 %

Total # Operational Hours : 682

Logger : 30 Parameter : H2S\_

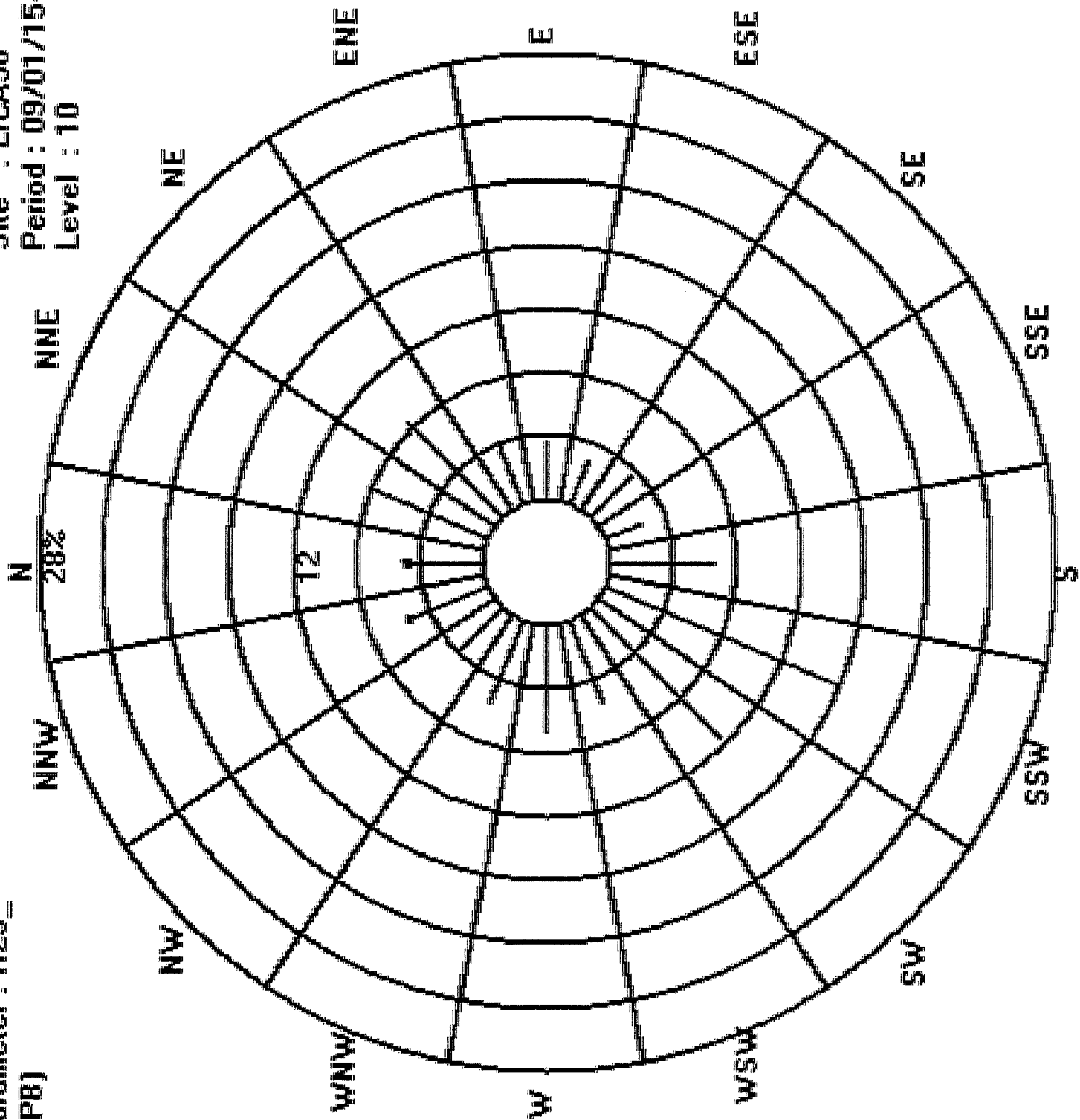
Site : LICA30

Period : 09/01/15-09/30/15

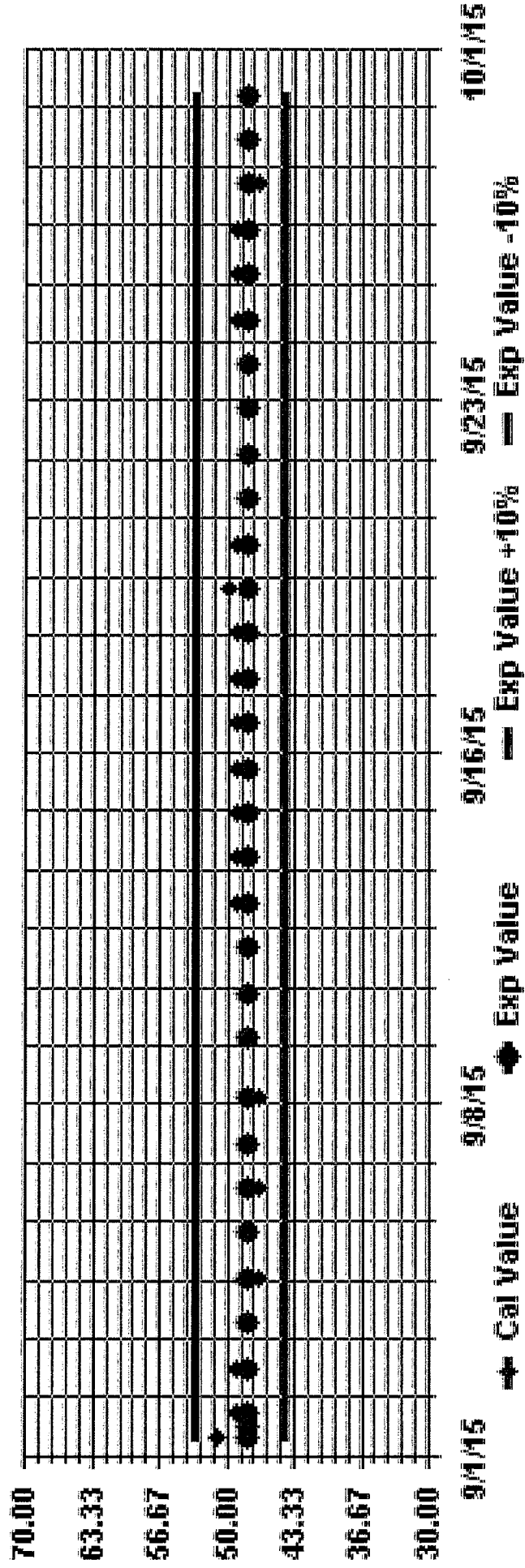
Level : 10

Level : 10

>= 50  
< 50  
< 10  
< 3



Calibration Graph for Site: LICA30 Parameter: H2S\_ Sequence: H2S Phase: SPAN



***TOTAL HYDROCARBON***



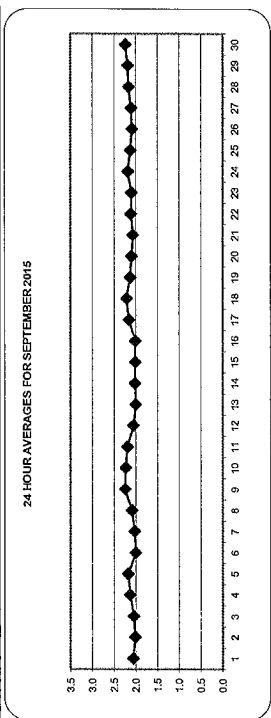
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

DAY	DAILY MAX. 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	24:00	
1	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
3	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0
4	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1
5	2.3	2.3	2.5	2.5	2.4	2.5	2.5	2.5	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
8	2.2	2.2	2.2	2.2	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0
9	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.3	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	2.2	2.2	2.1	2.1
10	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
11	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.5	2.5	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.5	2.2	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
13	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
14	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17	2.1	2.1	2.2	2.3	2.3	2.3	2.4	2.5	2.4	2.3	2.3	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
18	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
19	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	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	2.2
20	2.0	2.0	2.1	2.2	2.3	2.4	2.4	2.3	2.2	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
21	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
22	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
23	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
24	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
25	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
26	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
27	2.0	2.0	2.2	2.3	2.3	2.3	2.3	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	2.0	2.0	2.0	2.0	2.0
28	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
29	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
30	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
HOURLY MAX	2.3	2.3	2.5	2.5	2.4	2.5	2.5	2.6	2.6	2.5	2.5	2.3	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	2.4
HOURLY AVG	2.1	2.1	2.1	2.2	2.2	2.2	2.2	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	2.0	2.0	2.0	2.1

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

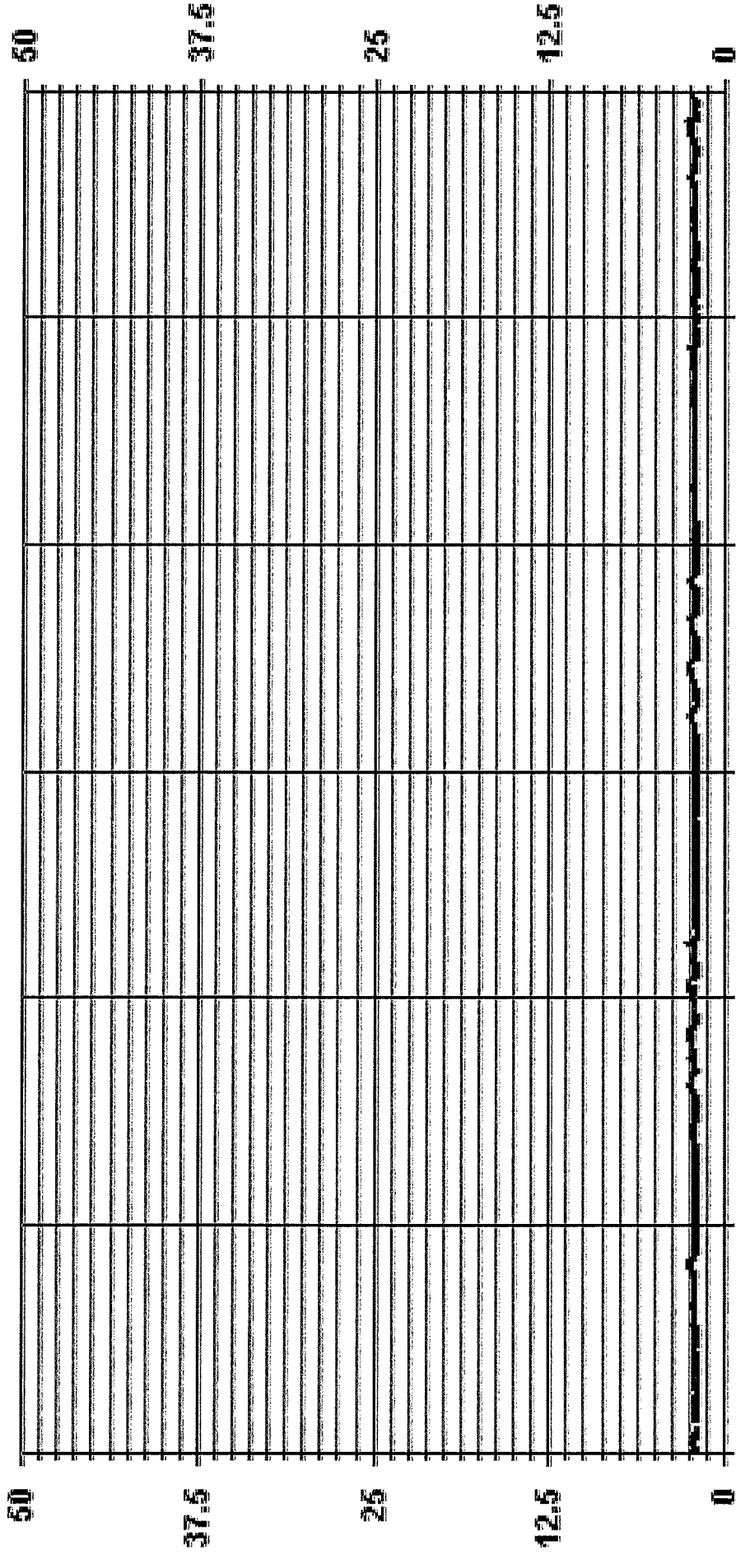


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682	ON DAY(S)	7, 8	ON DAY(S)	10, 30
MAXIMUM 1-HR AVERAGE:	2.6 PPM	@ HOUR(S)		ON DAY(S)	
MAXIMUM 24-HR AVERAGE:	2.2 PPM			VAR-VARIOUS	VAR
12S CALIBRATION TIME:	30 HRS	OPERATIONAL TIME:			717 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMTD OPERATION UPTIME:			99.6 %
STANDARD DEVIATION:	0.13	MONTHLY AVERAGE:			2.1 PPM



# 01 Hour Averages



— LICA30    - - - THC    . . . PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUREND	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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.	RDS.									
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.3					
2	2.2	2.1	2.1	2.1	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.3					
3	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3				
4	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3				
5	2.3	2.4	2.6	2.6	2.5	2.6	2.6	2.5	2.4	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.2	2.4		
6	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.4	
7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.4
8	2.3	2.2	2.2	2.3	2.2	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.4
9	2.3	2.4	2.6	2.5	2.5	2.4	2.3	2.5	2.5	2.3	2.2	2.3	2.3	2.1	2.1	2.3	2.5	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	2.2	2.3	2.1	2.4
10	2.3	2.3	2.4	2.4	2.5	2.7	2.6	2.8	2.5	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
11	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.6	2.6	2.6	2.6	2.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
12	2.3	2.3	2.1	2.1	2.2	2.4	2.6	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
13	2.1	2.0	2.1	2.1	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
14	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
15	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
16	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
17	2.1	2.2	2.3	2.4	2.4	2.5	2.6	2.4	2.3	2.3	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
18	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.4
19	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
20	2.0	2.0	2.1	2.2	2.3	2.5	2.4	2.3	2.3	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
21	2.0	2.0	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
22	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	2.4
23	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	2.4
24	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	2.2	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	2.2	2.2	2.2	2.2	2.4
25	2.3	2.3	2.2	2.2	2.2	2.3	2.1	2.9	2.6	2.5	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
26	2.0	2.0	2.3	2.2	2.1	2.1	2.1	2.3	2.4	2.4	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
27	2.1	2.1	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	2.4
28	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
29	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	2.2	2.4
30	2.4	2.4	2.5	2.4	2.5	2.6	2.5	2.7	2.5	2.3	2.1	2.0	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
HOURLY MAX	2.4	2.4	2.6	2.6	2.5	2.7	2.6	2.9	2.7	2.6	2.6	2.6	2.6	2.3	2.3	2.3	2.5	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	2.2	2.2	2.2	2.4
HOURLY AVG	2.1	2.2	2.2	2.2	2.2	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1

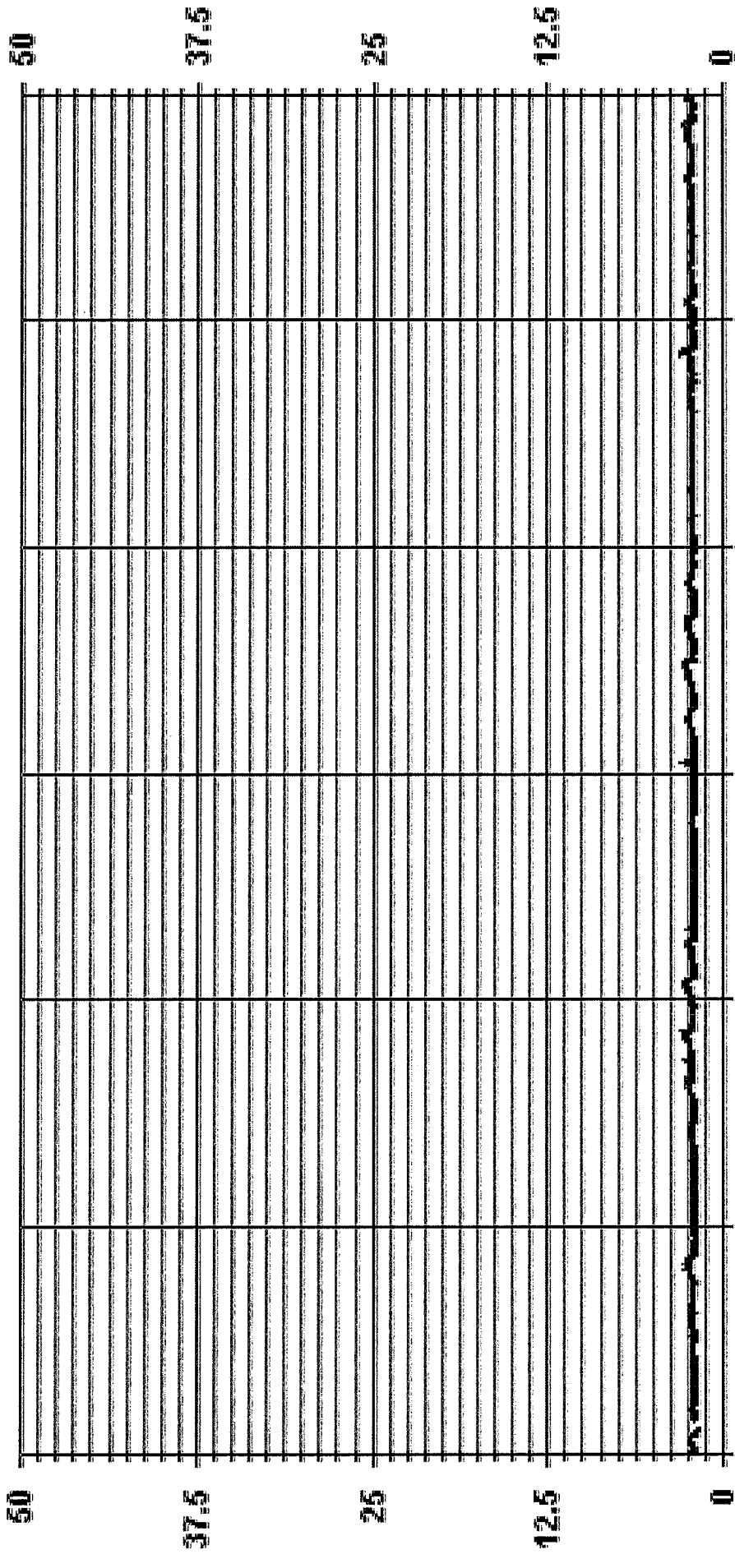
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER/FLODR
G	OUT-OF-REPAIR
Q	QUALITY ASSURANCE
R	RECOVERY
M	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682	PPM @ HOUR(S)	7	ON DAY(S)	25
MAXIMUM INSTANTANEOUS VALUE:	2.9	VAR-VARIOUS			
12S CALIBRATION TIME:	30 HRS	OPERATIONAL TIME:			717 HRS
MONTHLY CALIBRATION TIME:	5 HRS				
STANDARD DEVIATION:	0.16				

# 01 Hour Averages



— LICA30 THCMAX PPM

LICA30  
 THC / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

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

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 3.0	4.98	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.71	6.74	5.27	3.66	5.42	100.00			
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	4.98	8.21	8.50	4.25	3.66	2.93	3.66	2.49	6.59	16.12	11.73	5.71	6.74	5.27	3.66	5.42				

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

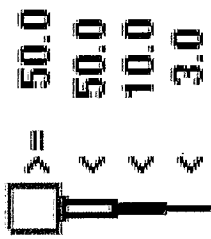
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 3.0	34	56	58	29	25	20	25	17	45	110	80	39	46	36	25	37	682			
< 10.0																				
< 50.0																				
>= 50.0																				
Totals	34	56	58	29	25	20	25	17	45	110	80	39	46	36	25	37				

Calm : .00 %

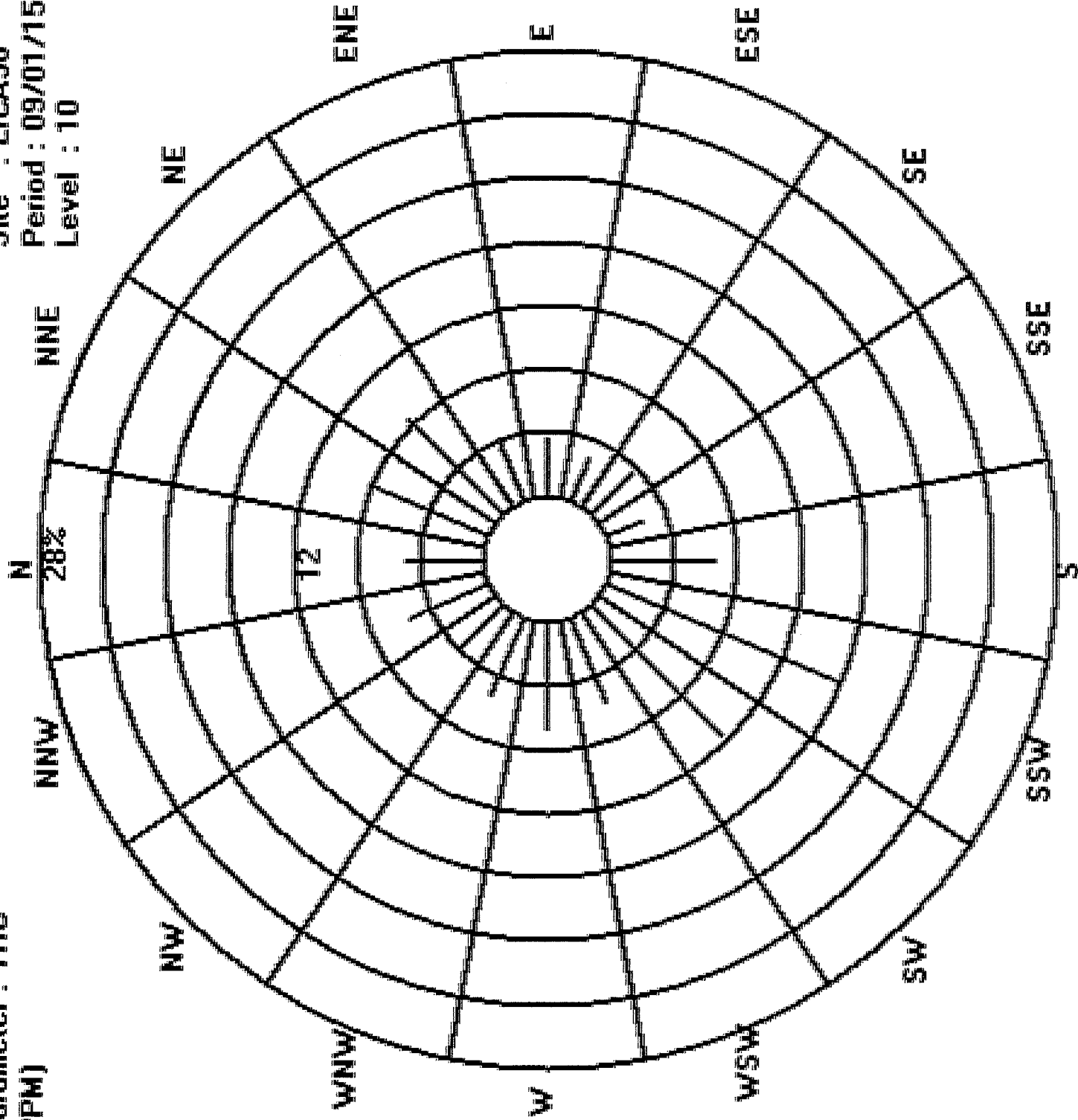
Total # Operational Hours : 682

Logger : 30 Parameter : THC

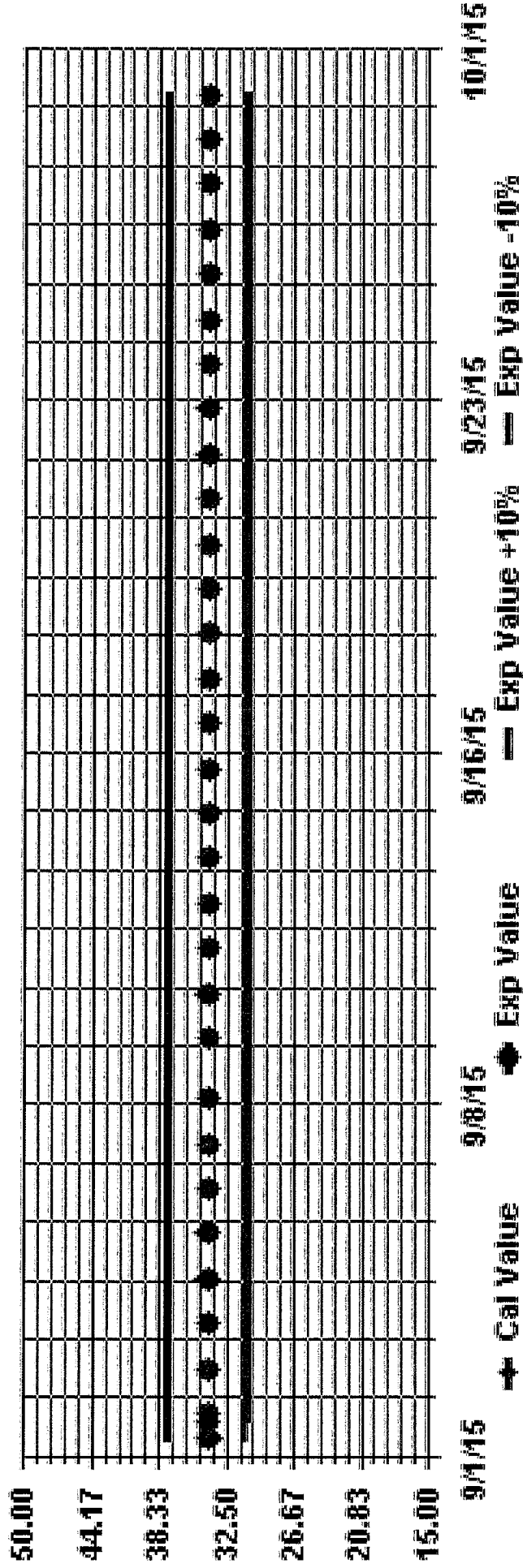
Class Limits (PPM)



Site : LICA30  
Period : 09/01/15-09/30/15  
Level : 10



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



## ***OXIDES OF NITROGEN***



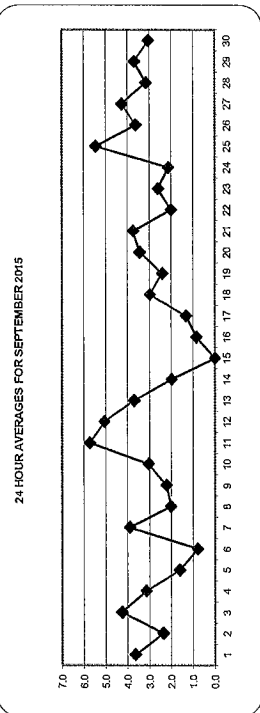
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HOURLY MAX	3.0	4.4	2.4	2.4	4.4	5.9	3.7	3.5	3.8	4.4	P	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
HOURLY AVG	3.5	2.1	0.7	0.3	2.0	2.0	0.0	0.0	5.7	7.2	3.2	4.1	2.3	3.4	2.6	2.6	2.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-HOUR AVG	3.7	2.4	2.4	2.4	3.7	3.5	3.8	4.4	4.1	2.3	3.4	2.6	2.6	2.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	9.2	9.2	4.1	7.2	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1	7.2	4.1
RDGS	23	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

STATUS FLAG CODES

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

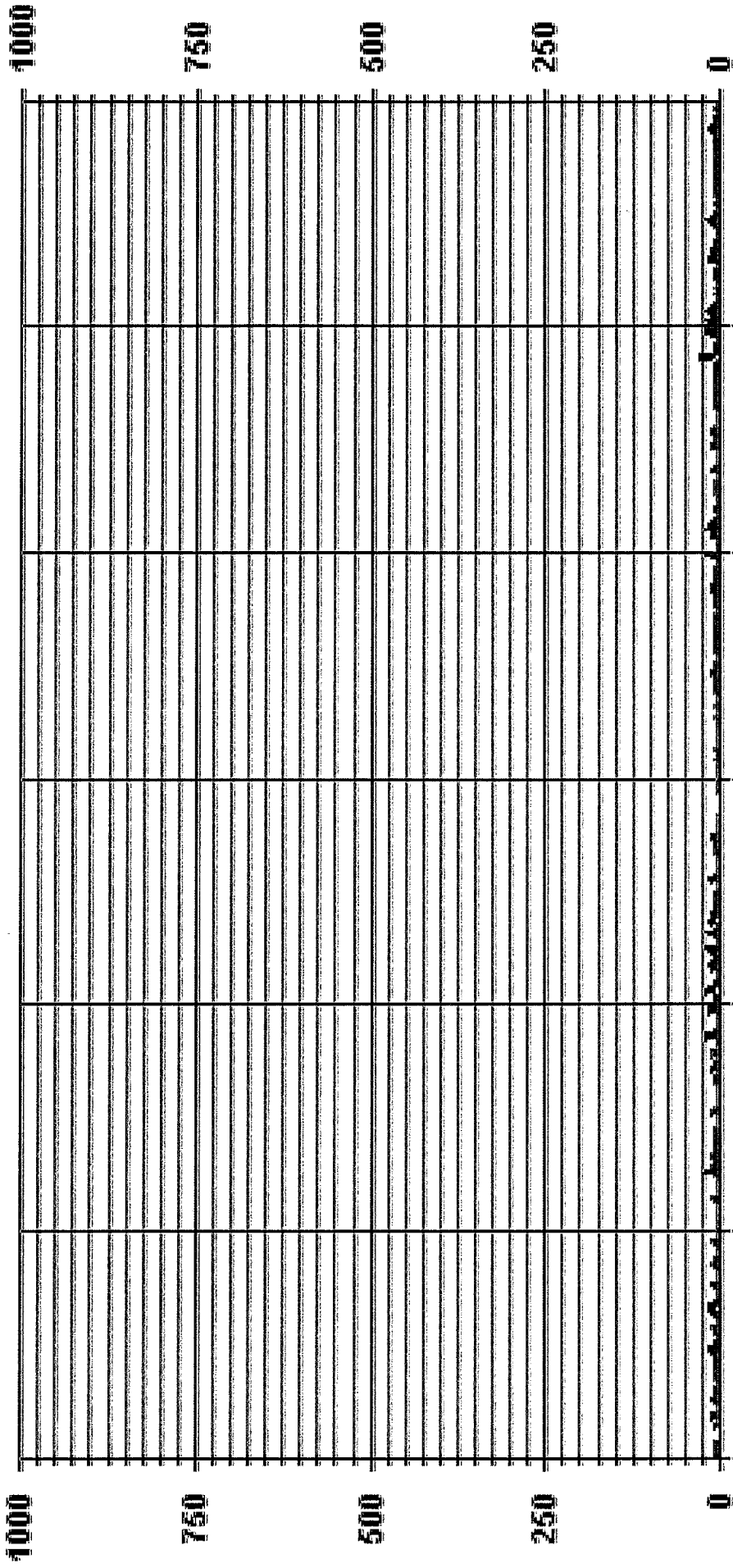


MONTHLY SUMMARY

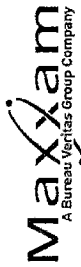
NUMBER OF NON-ZERO READINGS:	576	PPB @ HOUR(S)	8	ON DAY(S)	25
MAXIMUM 1-HR AVERAGE:	26.2	PPB	5.7	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	37	HRS	25	OPERATIONAL TIME:	71.6 HRS
1/2 CALIBRATION TIME:	25	HRS	3.35	AMTD OPERATION UPTIME:	95.4 %
MONTHLY CALIBRATION TIME:	3.35	HRS	15.1	MONTHLY AVERAGE:	3.0
STANDARD DEVIATION:	15.1	PPB	15.8		3.1



# 01 Hour Averages



— LICA30 NOX\_ PPB



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.	ROGS.		
1	4.1	8.8	2.5	3.0	10.6	11.2	4.7	4.1	4.1	4.7	4.7	4.7	11.2	5.9	5.3	10.0	10.6	4.7	1.8	0.6	0.1	13.4	8.8	\$	17.0	17.0	5.9	23	
2	4.7	2.9	1.2	0.6	0.0	0.0	\$	\$	\$	12.3	4.7	11.2	5.9	5.3	10.0	10.6	4.7	1.8	0.6	0.1	13.4	8.8	\$	11.8	5.3	13.4	5.5	24	
3	4.1	2.9	2.4	1.2	2.9	2.9	\$	\$	\$	14.3	22.6	23.2	8.5	9.1	10.9	C	C	C	C	2.4	0.0	\$	14.6	4.1	1.1	23.2	7.5	24	
4	1.1	4.1	2.3	0.6	4.1	7.0	14.6	\$	\$	27.0	7.0	3.5	2.4	1.8	1.2	0.6	0.6	0.1	0.1	\$	14.6	4.1	1.8	1.2	27.5	5.9	24		
5	0.6	0.7	0.6	0.0	0.6	0.6	\$	\$	\$	13.5	8.8	3.5	1.8	1.2	1.2	0.6	0.6	0.1	0.1	\$	10.6	5.3	3.5	2.4	1.2	1.2	10.6	2.6	24
6	0.0	0.0	0.0	0.0	0.0	0.0	\$	\$	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	10.6	5.3	3.5	2.4	1.2	1.2	10.6	1.1	24
7	0.7	0.7	0.7	1.8	2.4	1.2	1.9	2.4	28.7	14.1	17.0	7.6	14.6	17.6	16.9	1.8	\$	13.6	6.5	3.5	2.4	2.4	5.3	6.5	28.7	7.4	24		
8	7.0	3.5	2.4	3.0	1.8	1.2	4.1	4.7	4.7	15.2	0.7	0.7	0.7	0.7	0.1	0.7	\$	22.3	10.6	3.5	1.8	1.2	0.6	0.1	0.1	22.3	3.9	24	
9	0.1	0.1	0.1	1.8	0.6	1.8	0.6	1.8	7.6	6.5	5.9	2.3	C	C	C	C	20.5	7.0	2.9	1.8	1.2	1.2	0.6	\$	18.2	20.5	4.1	24	
10	5.3	2.9	1.8	1.2	1.2	0.6	\$	\$	\$	30.5	9.4	5.3	4.1	2.9	2.3	1.2	2.3	0.7	0.6	0.6	0.6	\$	18.2	8.2	30.5	4.8	24		
11	5.9	5.8	4.7	4.1	4.1	5.8	\$	\$	\$	25.2	14.6	13.0	7.6	2.3	1.8	1.8	2.9	4.7	1.2	\$	14.6	15.8	15.8	25.2	7.4	24			
12	11.2	8.2	4.7	3.5	5.9	14.1	17.6	10.0	2.9	1.8	1.2	0.7	1.8	1.8	1.8	31.7	20.0	5.3	3.0	2.4	\$	15.8	12.4	14.6	11.2	31.7	8.8	24	
13	14.6	12.9	14.6	37.5	15.8	2.4	3.5	3.0	8.8	8.2	7.6	3.5	1.2	1.8	2.4	1.2	1.2	1.2	5.9	\$	13.4	9.4	4.7	2.3	1.2	37.5	7.7	24	
14	0.6	0.6	0.6	0.6	0.6	0.1	1.2	6.5	1.8	2.4	5.9	4.1	9.4	8.8	1.2	10.6	4.1	\$	19.4	7.6	3.5	1.8	1.2	0.6	19.4	4.1	24		
15	0.6	0.1	0.1	0.0	0.0	0.0	C	C	C	C	C	C	C	C	C	C	C	C	C	2.0	0.1	0.0	0.0	0.0	0.0	2.0	0.2	23	
16	0.0	0.0	0.0	0.0	0.0	0.0	\$	\$	\$	2.5	1.5	3.9	5.4	3.8	9.7	17.2	\$	3.0	2.2	1.8	2.1	P	P	2.1	1.1	17.2	3.0	22	
17	0.9	0.8	0.4	0.2	0.7	0.9	3.3	3.0	8.7	8.1	3.5	1.6	2.2	1.3	\$	10.5	3.4	3.1	1.5	1.3	1.3	1.9	1.7	10.5	2.7	24			
18	2.2	2.3	3.0	3.8	3.2	3.9	4.5	7.3	9.8	10.7	9.2	8.6	2.1	\$	22.4	15.3	5.6	0.9	1.9	2.3	3.1	2.2	1.7	2.0	22.4	5.6	24		
19	2.0	2.5	2.8	3.1	3.1	3.3	4.8	4.9	4.4	5.0	4.9	4.7	\$	4.5	2.0	1.8	2.2	1.4	1.6	2.2	2.4	4.3	12.0	9.9	12.0	3.9	24		
20	10.8	2.0	4.1	8.4	14.2	11.0	12.2	9.4	4.7	2.4	4.4	\$	4.8	4.0	4.8	4.2	2.4	1.7	2.5	1.7	1.2	1.1	28.8	0.8	28.8	6.2	24		
21	2.6	1.7	1.8	2.8	2.0	3.6	2.2	2.2	5.9	15.2	\$	22.3	13.7	32.4	29.5	34.5	38.8	6.0	6.4	13.3	4.7	0.6	7.1	8.2	38.8	11.2	24		
22	8.0	3.8	4.4	0.4	0.4	0.4	3.1	3.7	3.1	3.8	\$	11.9	7.1	7.4	9.2	3.9	2.8	1.2	0.7	0.7	1.5	17.3	11.6	4.6	0.7	17.3	4.8	24	
23	0.8	0.4	0.4	0.7	0.5	0.5	10.3	9.2	\$	9.0	9.4	5.4	4.8	5.4	3.8	3.4	3.4	3.9	1.8	2.8	2.7	2.4	2.5	2.7	2.5	10.3	3.8	24	
24	2.5	4.9	2.6	2.6	1.8	1.9	\$	76.2	42.1	34.1	4.3	18.7	7.2	5.6	8.8	10.1	29.9	0.8	1.9	1.6	24.8	25.7	23.0	19.6	76.2	16.0	24		
25	4.4	2.4	10.8	21.4	9.1	\$	18.3	8.0	81.7	13.7	16.4	5.6	7.5	5.6	1.1	1.0	1.4	1.3	1.8	1.9	5.7	3.0	1.2	0.9	81.7	9.7	24		
26	0.9	4.8	9.1	7.6	\$	7.1	8.7	7.0	6.2	1.9	1.2	15.8	27.5	29.2	23.0	5.5	22.1	4.1	15.3	3.2	13.9	4.7	2.2	2.4	29.2	9.7	24		
27	2.6	1.2	1.4	\$	3.2	10.5	10.8	13.8	16.1	12.4	4.4	5.6	11.2	14.2	28.4	12.6	2.2	2.2	1.8	2.3	3.2	4.4	4.4	3.1	28.4	7.5	24		
28	2.9	3.2	\$	5.5	4.4	7.7	6.3	4.1	6.8	13.0	6.4	5.8	6.4	4.5	3.8	3.3	2.0	3.2	3.4	3.6	4.2	5.8	5.3	6.4	13.0	5.1	24		
29	5.6	\$	5.7	5.1	4.9	3.4	8.0	4.5	14.1	12.1	9.4	4.2	2.2	2.9	3.6	3.0	3.1	2.2	1.3	3.0	3.8	3.0	3.2	2.8	14.1	4.8	24		
30	14.6	12.9	14.6	37.5	15.8	19.0	18.3	76.2	81.7	34.1	23.2	22.3	27.5	32.4	31.7	34.5	38.8	13.6	19.4	14.6	24.8	25.7	28.8	19.6	76.2	16.0	24		
HOURLY MAX	3.6	2.9	2.9	4.2	3.4	4.6	6.7	9.6	13.7	10.6	7.6	6.5	6.3	7.3	9.2	7.4	7.1	3.4	3.9	4.0	5.7	4.8	6.4	5.0	14.1	4.8	24		
HOURLY AVG																													

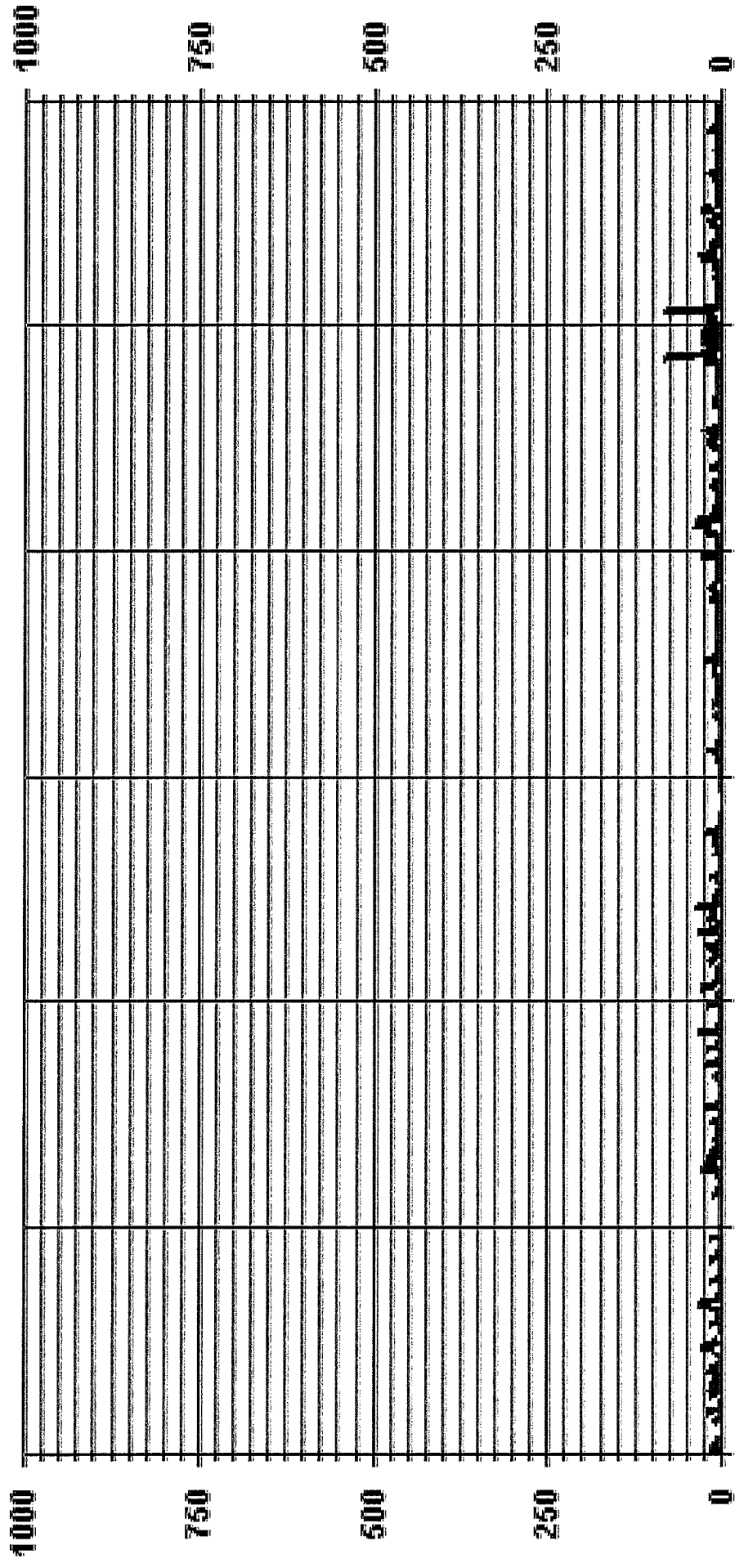
STATUS FLAG CODES

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:	612
MAXIMUM INSTANTANEOUS VALUE:	81.7
PPB @ HOUR(S)	8
ON DAY(S)	26
VAR- VARIOUS	
IS CALIBRATION TIME:	42
HRS	
MONTHLY CALIBRATION TIME:	25
HRS	
OPERATIONAL TIME:	716
HRS	
STANDARD DEVIATION:	7.87

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 NOXMAX PPB

LICA30  
NOX\_ / WDR Joint Frequency Distribution (Percent)  
September 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	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35	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	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35	

Calm : .00 %

Total # Operational Hours : 654

Distribution By Samples


Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35	654
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35	

Calm : .00 %

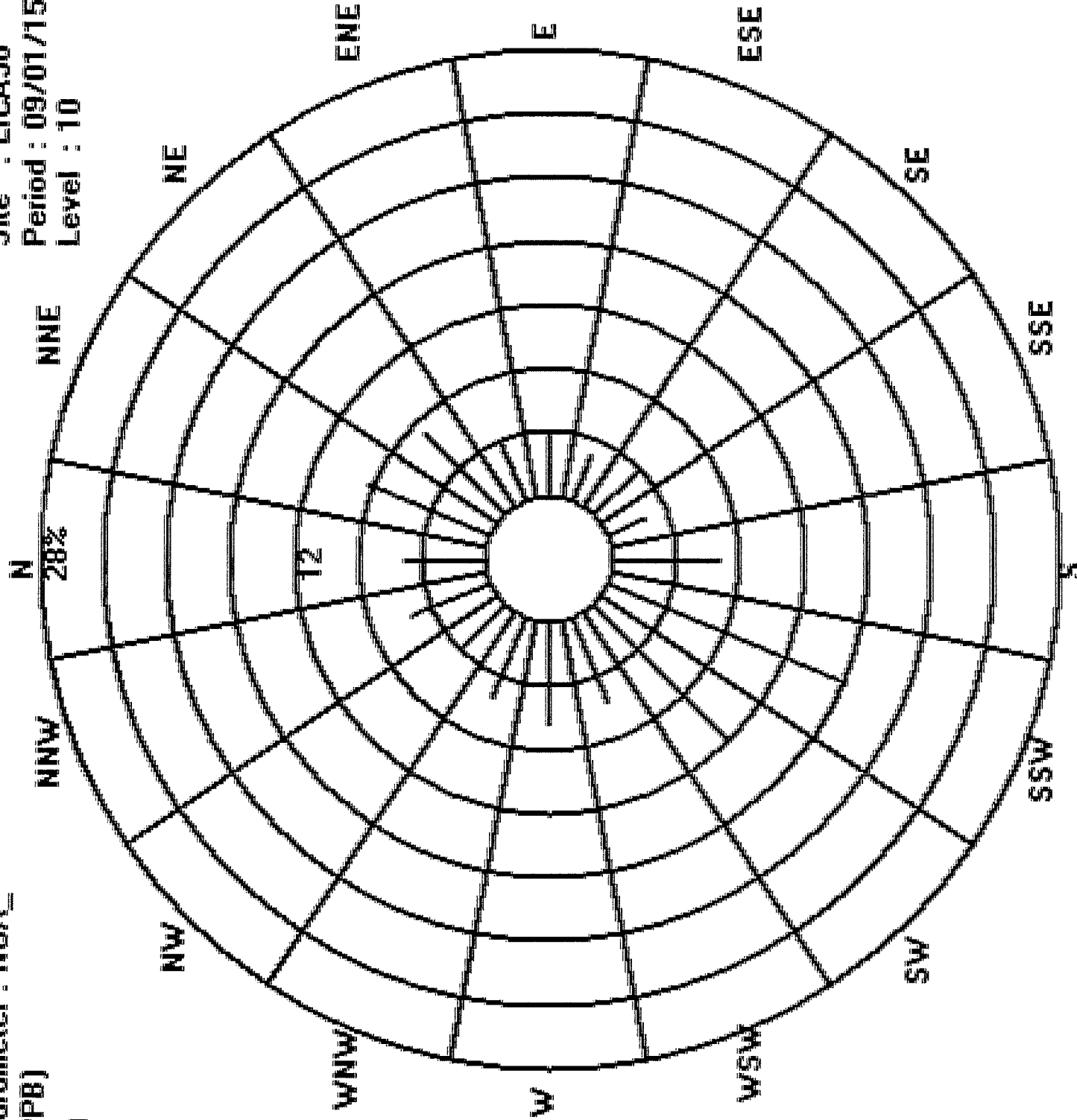
Total # Operational Hours : 654

Logger : 30 Parameter : NDX\_

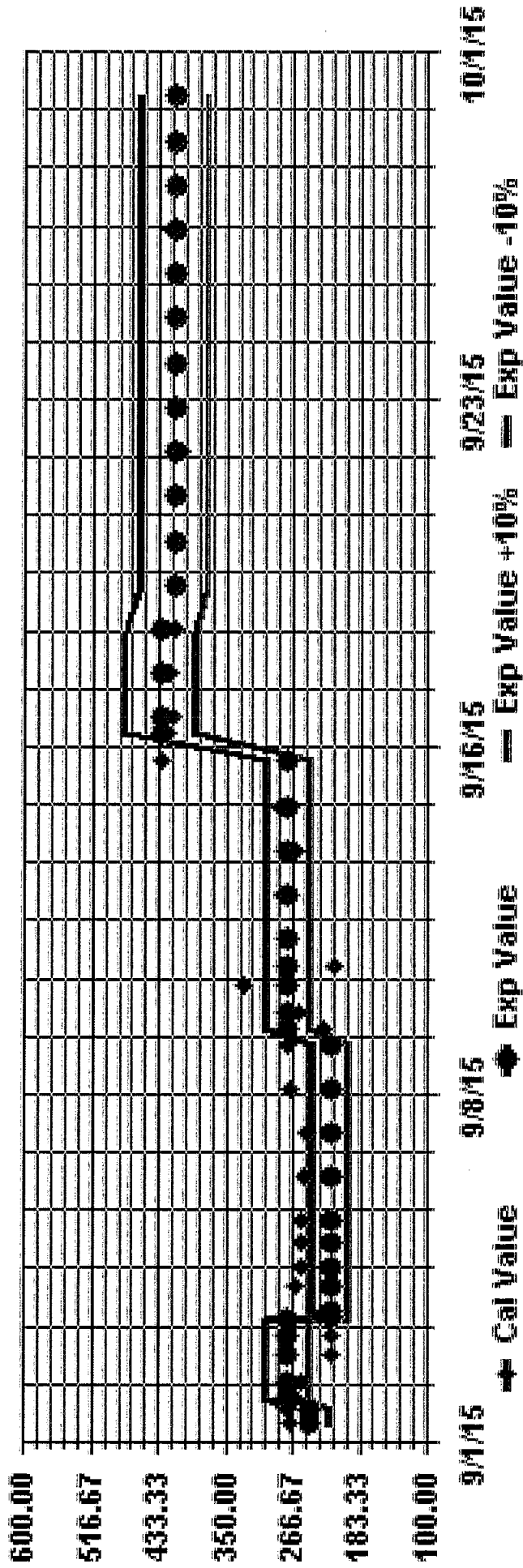
Class Limits (PPB)

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

Site : LICA30  
Period : 09/01/15-09/30/15  
Level : 10



Calibration Graph for Site: LICA30 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



***NITRIC OXIDES***



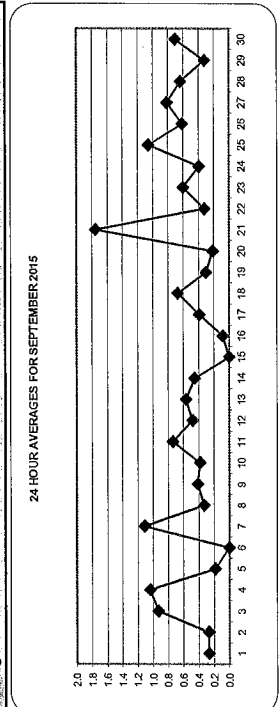
NITRIC OXIDE (NO) hourly averages in ppb

MST

DAY	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	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	ROSS	
1	0.3	0.3	0.0	0.0	0.2	0.3	0.3	0.5	0.5	1.1	P	C	C	C	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	1.1	0.3	23
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.5	1.0	0.8	0.9	0.8	0.2	0.0	0.0	0.6	0.1	S	0.1	0.0	0.0	1.0	0.3	24	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.0	5.4	0.9	2.1	1.9	C	C	C	C	C	0.0	0.0	S	0.2	0.0	0.0	5.4	0.9	24	
4	0.0	1.1	0.5	0.0	0.4	2.1	5.0	8.9	S	1.8	0.6	0.4	0.3	0.4	0.1	0.0	0.0	S	0.0	0.0	S	0.0	0.0	0.0	8.9	1.0	24	
5	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.7	0.2	0.1	0.2	0.0	0.0	0.0	S	0.0	0.0	S	0.0	0.0	0.0	1.7	0.2	24	
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	S	0.0	0.0	0.0	0.1	0.0	24	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	4.3	1.9	2.9	3.0	2.3	0.4	S	0.3	0.0	0.0	0.0	0.0	0.0	0.0	6.0	1.1	24	
8	0.3	0.2	0.2	0.1	0.0	0.2	0.7	1.5	1.6	0.8	0.6	0.0	0.0	0.2	S	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	24	
9	0.0	0.0	0.0	0.2	0.1	0.5	0.0	0.0	2.6	2.7	0.4	0.6	C	C	C	0.4	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.4	24	
10	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	3.2	1.7	0.7	0.6	0.4	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.4	24	
11	0.1	0.2	0.0	0.0	0.0	0.4	S	4.7	4.2	3.7	1.1	0.4	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.7	24	
12	0.1	0.1	0.0	0.0	0.0	0.3	1.8	1.2	0.4	0.3	0.1	0.0	0.2	0.2	2.5	2.9	0.0	0.0	0.0	0.0	S	0.5	0.3	0.2	2.9	0.5	24	
13	0.3	0.2	0.7	2.5	0.9	0.0	0.0	0.2	0.9	0.6	1.3	2.6	1.5	0.6	0.2	0.1	0.3	0.3	0.0	0.2	S	0.1	0.0	0.1	2.6	0.6	24	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.8	1.2	1.6	0.3	1.7	0.3	S	0.0	0.1	0.0	0.0	0.0	0.0	1.7	0.5	24	
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.8	0.3	S	0.0	0.0	0.0	0.0	0.0	P	0.0	0.0	0.0	0.8	0.1	22
17	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.4	3.5	2.1	0.4	0.3	0.2	0.0	S	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.4	24	
18	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.4	3.4	4.5	2.4	1.9	0.0	S	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	4.5	0.7	24	
19	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.9	1.2	1.3	1.5	1.0	S	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.3	24	
20	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.5	0.1	0.6	S	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.2	24	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.5	4.1	S	3.7	2.0	8.6	6.0	7.8	5.3	0.3	0.0	0.0	0.0	0.0	0.0	8.6	1.8	24	
22	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.8	0.9	S	1.6	1.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	24	
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.8	S	2.3	2.6	1.4	0.4	1.3	1.3	1.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.6	24	
24	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.8	S	1.7	2.7	1.0	0.5	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.4	24	
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	12.2	3.1	0.3	0.5	0.2	0.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.5	12.2	1.1	24	
26	0.0	0.0	0.0	0.0	0.6	0.0	S	0.3	0.5	4.0	3.2	3.9	1.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.6	24	
27	0.0	0.0	0.0	0.0	0.0	S	0.1	0.1	0.3	0.4	0.0	0.0	4.8	5.0	3.1	0.0	3.7	0.0	1.1	0.0	0.0	0.0	0.0	0.0	5.0	0.8	24	
28	0.0	0.0	0.0	S	0.0	0.1	0.4	2.2	5.2	1.7	0.8	1.4	0.4	1.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.6	24	
29	0.0	0.0	S	0.0	0.0	0.0	0.1	0.6	1.8	1.8	1.3	0.9	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.3	24	
30	0.0	S	0.0	0.0	0.0	0.0	1.5	1.8	4.9	5.4	2.0	0.2	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.7	24	
HOURLY MAX	0.4	1.1	0.7	2.5	0.9	2.1	5.0	8.9	12.2	5.4	3.7	4.8	8.6	6.0	7.8	5.3	1.0	1.1	0.9	0.8	1.7	1.9	0.5	0.0	5.4	0.7	24	
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	1.4	2.3	2.1	1.4	0.8	1.0	0.9	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0

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

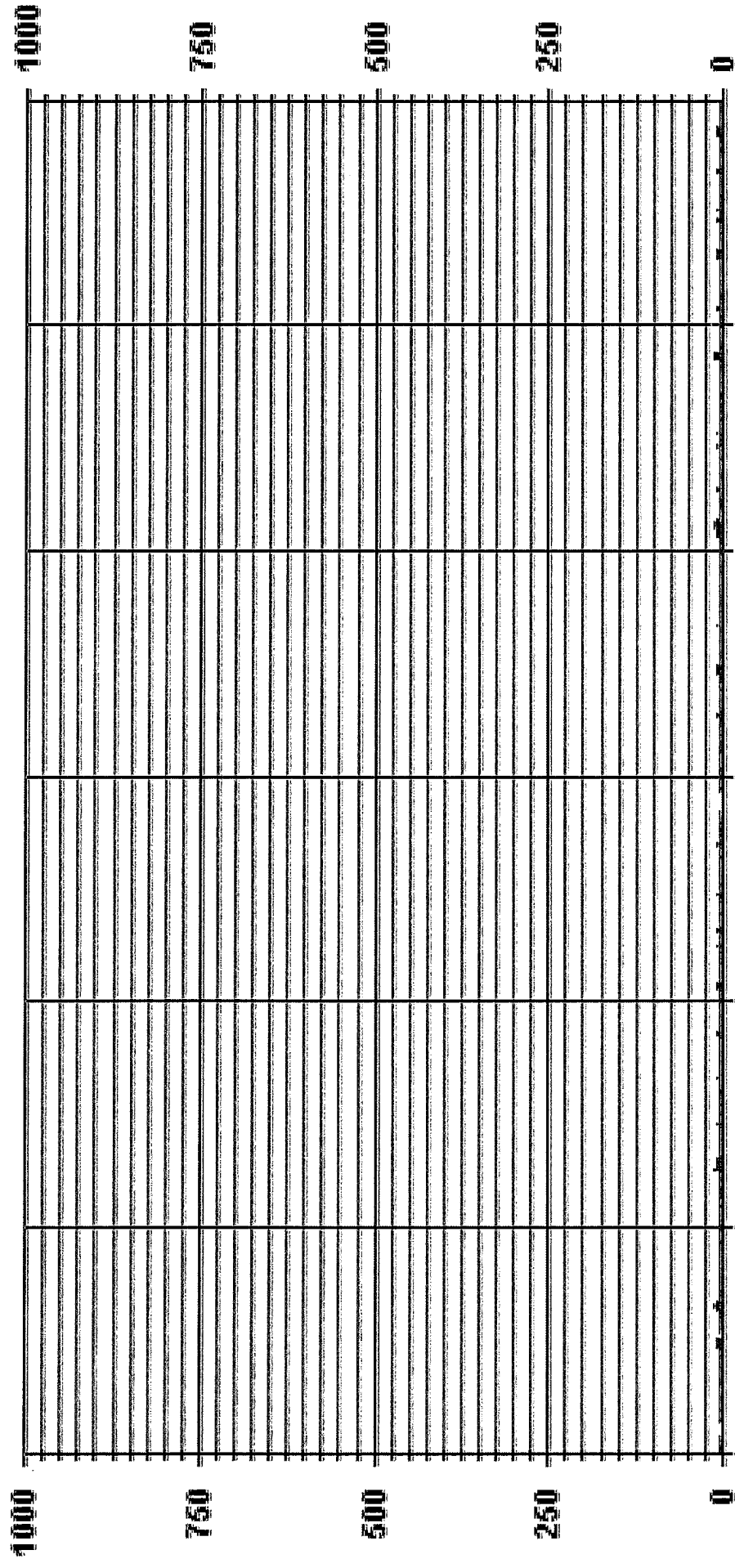


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	312	ON DAY(S)	25
MAXIMUM 1-HR AVERAGE:	12.2 PPB	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	1.8 PPB	VAR-VARIOUS	
1ZS CALIBRATION TIME:	37 HRS	OPERATIONAL TIME:	716 HRS
MONTHLY CALIBRATION TIME:	25 HRS	AMD OPERATION UPTIME:	99.4 %
STANDARD DEVIATION:	1.24	MONTHLY AVERAGE:	0.5 PPB



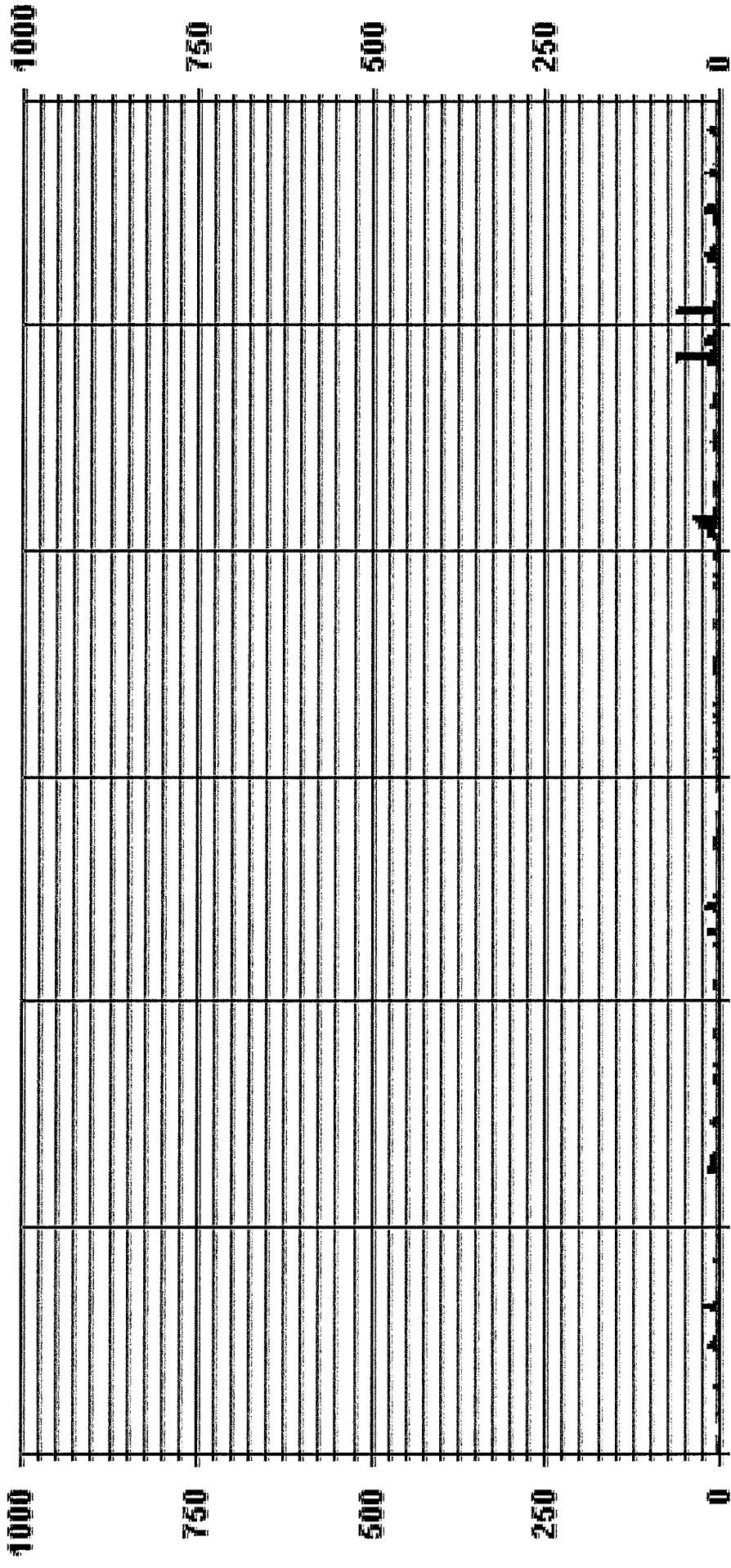
# 01 Hour Averages



— LICA30 NO\_ PPB



# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30    - - - - NOMAX    . . . . PPB

LICA30  
 NO\_ / WDR Joint Frequency Distribution (Percent)

September 2015

Distribution By % Of Samples

Logger Id : 30  
 Site Name : LICA30  
 Parameter : NO  
 Units : PFB

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NW				
< 50.0	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35	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	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35				

Calm : .00 %

Total # Operational Hours : 654

Distribution By Samples

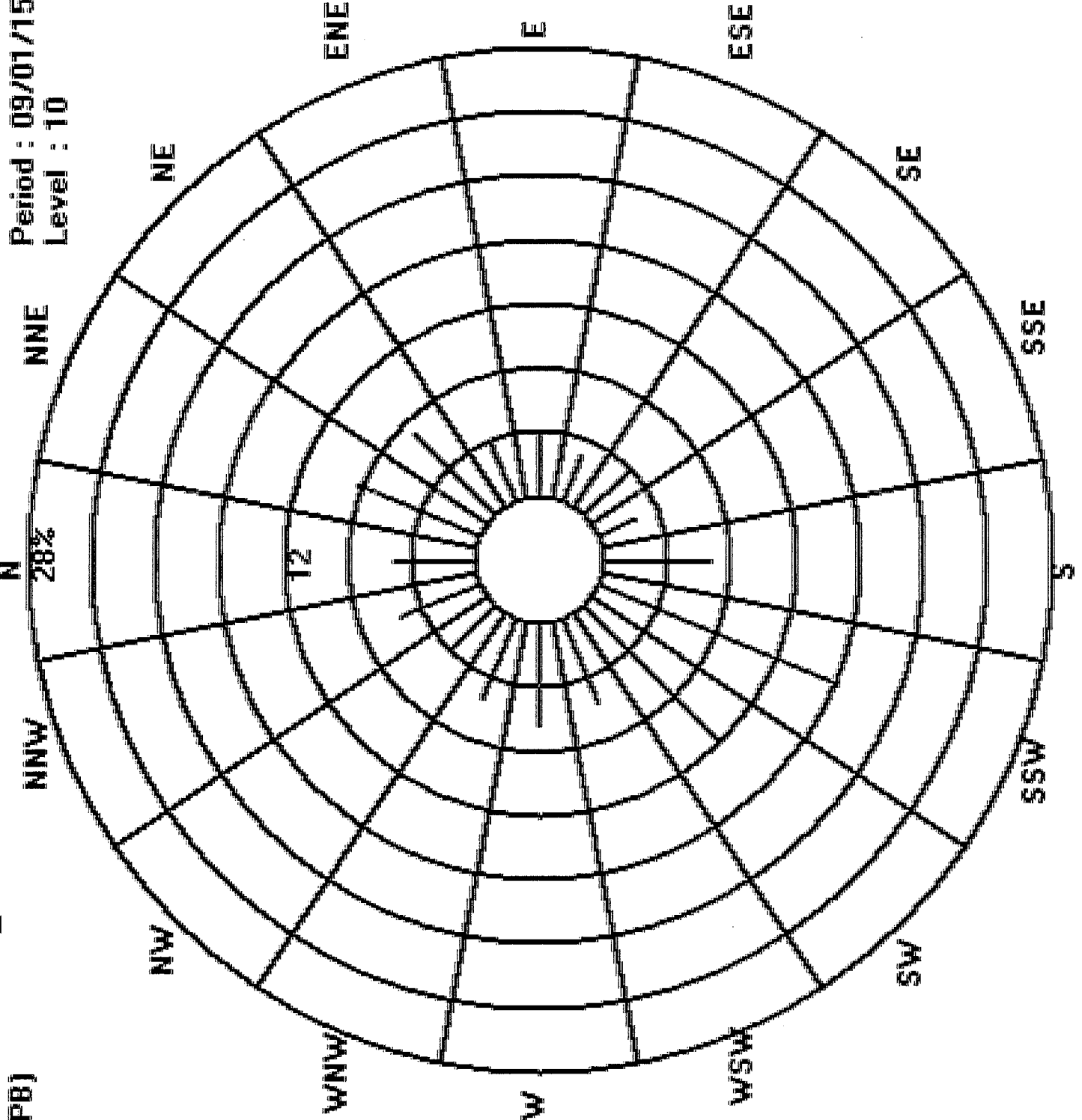
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NW				
< 50.0	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35	654			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35				

Calm : .00 %

Total # Operational Hours : 654

Logger : 30 Parameter : NO\_

Site : LICA30  
Period : 09/01/15-09/30/15  
Level : 10



Class Limits (PPB)

>=	210.0
<	210.0
<	110.0
<	50.0



***NITROGEN DIOXIDE***



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
24-HOUR MAX	8.5	6.1	6.7	9.7	8.6	10.1	12.1	9.1	14.4	12.5	7.9	3.7	7.0	6.7	4.7	9.3	9.5	9.9	10.6	11.4	11.2	13.4	15.3	13.2	3	3	3	3	3	
24-HOUR AVG	2	2	2	2	2	2	2	3	3	5	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

STATUS FLAG CODES

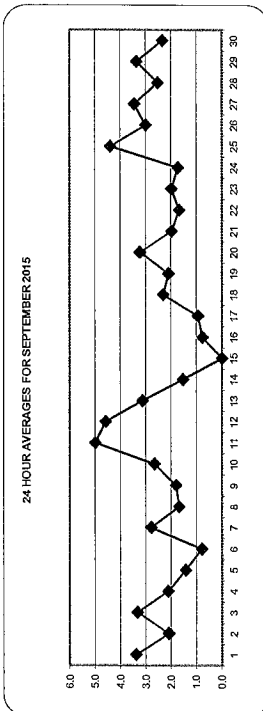
C	QUALITY ASSURANCE	O	RECOVERY
V	MAINTENANCE	R	WASHING
S	DAILY ZERO/SPAN CHECK	X	MACHINE/VALVE/NOISE
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

OBJECTIVE LIMIT:

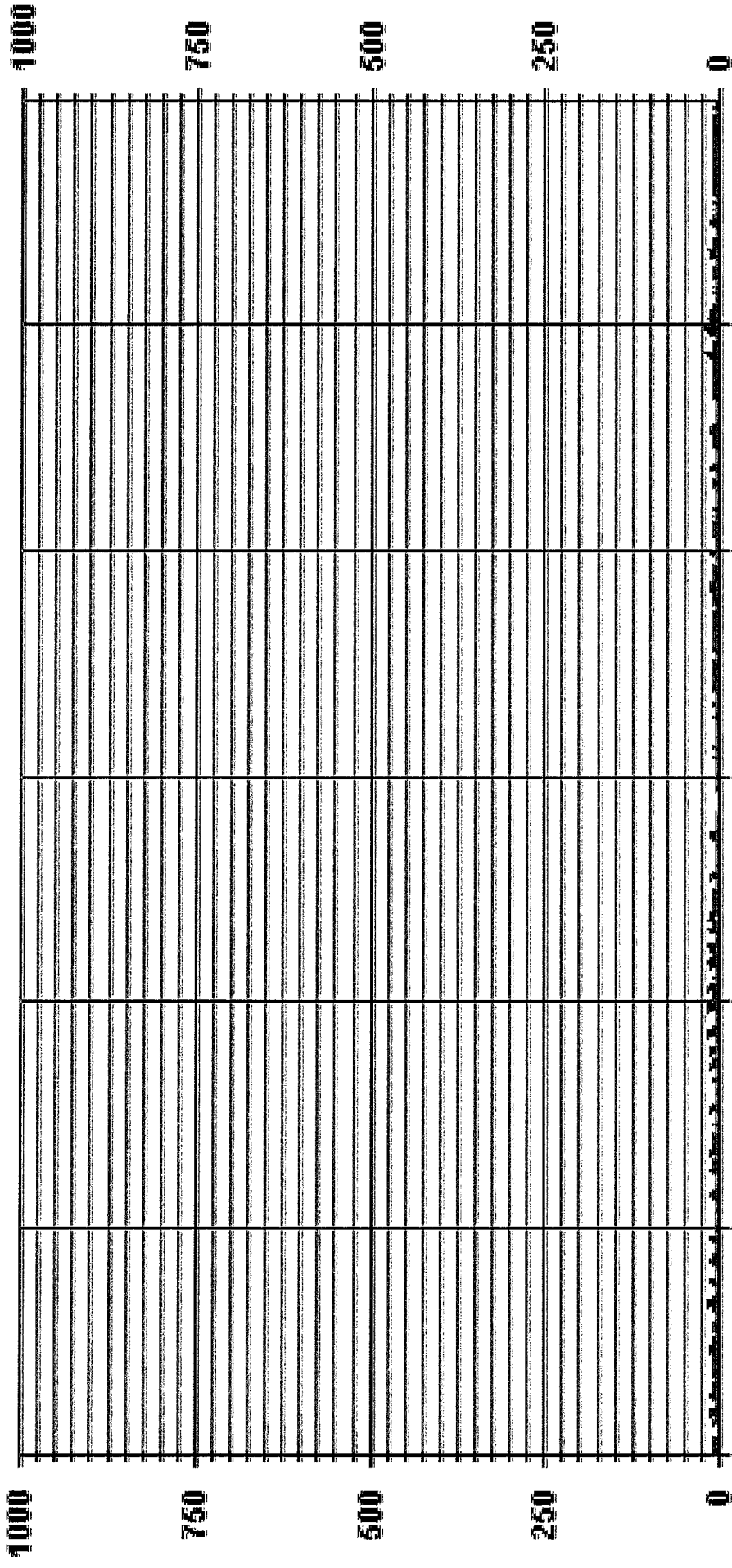
ALBERTA ENVIRONMENT: 1-HR: 155; 24-HR: 155; 3-MONTH: 155; 1-YEAR: 155; 5-YEAR: 155; 10-YEAR: 155; 15-YEAR: 155; 20-YEAR: 155; 25-YEAR: 155; 30-YEAR: 155; 35-YEAR: 155; 40-YEAR: 155; 45-YEAR: 155; 50-YEAR: 155; 55-YEAR: 155; 60-YEAR: 155; 65-YEAR: 155; 70-YEAR: 155; 75-YEAR: 155; 80-YEAR: 155; 85-YEAR: 155; 90-YEAR: 155; 95-YEAR: 155; 100-YEAR: 155

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	574
MAXIMUM 1-HR AVERAGE:	15.3 PPB
MAXIMUM 24-HR AVERAGE:	5.0 PPB
1-Z CALIBRATION TIME:	37 HRS
MONTHLY CALIBRATION TIME:	25 HRS
STANDARD DEVIATION:	2.65
OPERATIONAL TIME:	716 HRS
AMD OPERATIONAL UPTIME:	98.4 %
MONTHLY AVERAGE:	2.4 PPB
ON DAY(S)	25
ON DAY(S) VAR-VARIOUS	11

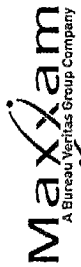


01 Hour Averages



— LICA30 NO2\_ PPB





NITROGEN DIOXIDE MAX instantaneous maximum 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	24:00	ROGS.				
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	1:00	AVG.				
1	3.7	7.9	2.1	2.6	10.3	10.9	4.3	3.2	3.7	3.7	3.7	4.1	4.1	6.5	7.1	3.5	1.8	0.7	0.7	7.7	5.2	0.5	0.0	S	16.4	16.4	5.5	23		
2	4.7	2.9	1.2	0.1	0.0	0.0	S	S	13.0	4.7	7.6	4.1	4.1	6.5	7.1	3.5	1.8	0.7	0.7	7.7	5.2	0.5	0.0	S	10.7	13.0	4.7	24		
3	4.1	2.9	2.4	1.3	2.4	2.4	S	S	9.5	12.4	13.0	6.5	6.5	7.1	C	C	C	C	C	1.8	0.0	S	14.6	4.1	0.6	14.6	5.4	24	24	
4	0.6	1.7	1.2	0.0	2.3	3.5	4.7	6.5	S	23.0	5.9	3.0	1.8	1.3	0.7	0.1	0.1	0.1	0.1	0.1	S	14.7	4.1	1.8	1.3	23.0	3.6	24	24	
5	0.7	0.7	0.7	0.7	0.7	0.7	S	S	12.5	6.0	3.1	1.9	1.3	0.8	0.2	0.2	0.2	0.2	0.2	S	14.7	4.7	1.8	1.3	0.7	14.7	2.6	24	24	
6	0.1	0.1	0.1	0.0	0.0	0.1	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	S	10.7	4.8	2.9	1.9	0.7	10.7	1.0	24	24	
7	0.7	0.1	0.1	1.8	2.4	0.7	1.3	1.9	11.9	6.5	7.7	4.1	7.1	8.2	8.2	0.7	S	13.0	6.5	3.6	2.4	1.9	4.8	5.9	13.0	4.4	24	24		
8	5.9	3.6	2.4	2.4	1.9	0.7	1.3	1.3	2.4	8.2	0.1	0.1	0.1	0.1	0.1	S	21.2	8.9	3.0	1.8	0.7	0.1	0.1	0.0	21.2	2.9	24	24		
9	0.1	0.1	0.1	1.3	0.7	0.7	0.1	0.1	3.5	3.5	2.9	1.2	C	C	C	C	C	C	20.0	5.3	2.9	1.7	1.2	0.7	0.1	S	18.2	20.0	3.2	24
10	5.3	3.0	1.8	1.3	1.3	0.7	S	S	25.2	7.7	4.7	3.5	2.3	2.3	1.3	1.3	1.3	2.3	4.1	0.7	S	14.1	15.9	15.3	20.0	6.3	24	24		
11	5.8	5.8	4.6	4.0	4.0	5.2	S	S	20.0	9.5	8.3	5.3	1.8	1.3	1.3	1.3	1.3	2.3	4.1	0.7	S	14.1	15.9	15.3	20.0	6.3	24	24		
12	11.2	7.7	4.1	3.0	5.9	13.0	13.6	8.2	1.9	1.3	0.7	0.1	0.7	1.3	15.3	15.0	4.1	2.4	2.4	S	15.2	11.8	13.5	11.2	15.3	7.0	24	24		
13	14.0	12.3	12.9	20.5	11.8	1.8	2.9	2.3	4.0	4.0	3.5	2.2	0.6	1.2	1.8	0.6	1.2	4.7	S	13.6	9.5	4.8	3.0	1.3	20.5	5.8	24	24		
14	1.3	0.7	1.3	1.3	1.3	0.7	1.3	5.3	1.9	1.9	3.6	2.4	4.7	5.9	1.3	7.1	3.5	S	19.4	7.7	3.6	1.9	1.3	1.3	19.4	3.5	24	24		
15	0.7	0.1	0.1	0.1	0.1	0.1	C	C	C	Y	C	C	C	C	C	C	C	C	C	1.9	0.5	0.2	0.3	0.3	0.0	1.9	0.4	22	22	
16	0.1	0.1	0.0	0.0	0.0	0.0	S	S	2.4	1.2	3.2	4.2	2.9	6.6	10.8	S	2.1	1.7	1.9	2.1	P	P	2.1	1.1	10.8	2.2	22	22		
17	0.6	0.7	0.2	0.2	0.5	0.9	1.1	0.8	3.2	3.2	1.6	0.8	0.9	0.8	S	7.2	2.7	2.3	1.2	1.0	1.1	1.1	1.5	1.4	7.2	1.5	24	24		
18	1.8	2.0	2.6	3.2	2.9	3.4	3.3	4.3	5.2	5.2	4.9	4.7	0.9	S	3.6	1.9	1.7	1.6	1.3	1.5	2.1	2.3	4.0	9.3	9.5	3.3	24	24		
19	1.9	2.2	2.6	3.2	2.9	3.2	4.6	3.8	3.2	4.0	3.2	3.0	S	3.6	1.9	1.7	1.6	1.3	1.5	2.1	2.3	4.0	9.3	9.5	3.3	24	24			
20	10.3	1.8	3.9	8.2	13.7	10.4	11.5	8.5	3.1	2.0	3.4	S	3.4	3.1	4.1	3.7	2.0	1.6	2.3	1.2	1.0	1.0	1.0	19.6	0.6	19.6	5.2	24	24	
21	2.6	1.6	1.9	2.8	1.8	2.0	1.2	1.0	3.4	5.6	S	8.7	4.5	9.6	8.7	10.1	11.7	4.2	4.1	7.9	4.5	0.5	6.3	6.9	11.7	4.9	24	24		
22	6.9	3.4	4.0	0.5	0.5	1.9	2.9	1.5	1.8	S	6.8	4.5	4.7	7.1	3.5	2.4	1.0	0.7	1.4	14.9	10.4	4.2	0.6	14.9	3.8	24	24			
23	0.5	0.4	0.4	0.4	0.4	0.8	3.1	6.0	S	9.6	9.6	8.4	5.4	2.5	5.9	8.5	13.1	11.2	0.9	1.1	0.6	0.5	0.3	0.3	13.1	3.9	24	24		
24	0.2	0.1	0.2	0.1	0.1	3.7	3.9	S	3.4	4.7	3.6	3.6	3.6	3.9	3.1	2.5	2.8	3.3	1.7	2.7	2.4	2.4	2.6	2.5	2.4	4.7	2.4	24	24	
25	2.3	4.9	2.4	2.4	1.7	11.8	S	13.0	20.4	18.2	3.7	12.7	4.5	3.9	6.2	8.0	16.6	0.6	1.5	1.3	22.6	22.8	22.4	18.8	10.0	24	24			
26	4.6	2.3	10.0	17.6	8.5	S	13.0	7.3	24.5	7.2	10.1	4.4	4.7	3.9	1.1	1.1	1.4	1.5	2.0	2.1	5.9	3.2	1.3	1.1	24.5	6.0	24	24		
27	1.0	4.9	9.0	7.7	S	6.7	8.1	6.3	3.8	1.5	1.2	10.5	13.0	15.3	12.5	3.5	12.1	3.1	10.8	2.9	12.9	4.5	2.1	2.3	15.3	6.8	24	24		
28	2.3	1.3	1.3	S	2.3	10.0	9.2	7.9	8.4	6.1	2.4	3.2	6.0	7.9	7.7	7.3	1.7	1.8	1.6	2.0	3.0	4.2	2.9	10.0	4.6	24	24			
29	2.7	3.0	S	5.1	4.3	5.5	5.7	3.9	5.5	6.5	4.4	4.0	3.8	3.3	2.7	2.9	2.0	3.5	3.6	3.9	4.6	5.9	5.3	6.4	6.5	4.3	24	24		
30	5.7	S	5.5	5.1	4.7	3.4	3.3	2.2	4.3	5.7	5.2	3.0	1.6	2.4	2.9	2.4	2.4	2.3	1.3	2.9	3.7	3.0	3.2	2.9	5.7	3.4	24	24		
HOURLY MAX	14.0	12.3	12.9	20.5	13.7	13.0	13.6	19.4	25.2	23.0	13.0	12.7	13.0	15.3	20.0	21.2	13.0	19.4	14.7	22.6	22.8	22.4	18.8	10.0	24	4.8				
HOURLY AVG	3.4	2.7	2.7	3.3	3.1	3.6	4.6	4.6	7.5	6.2	4.6	4.1	3.5	4.2	4.9	4.9	4.5	3.0	3.5	3.7	5.5	4.6	5.8	4.8						

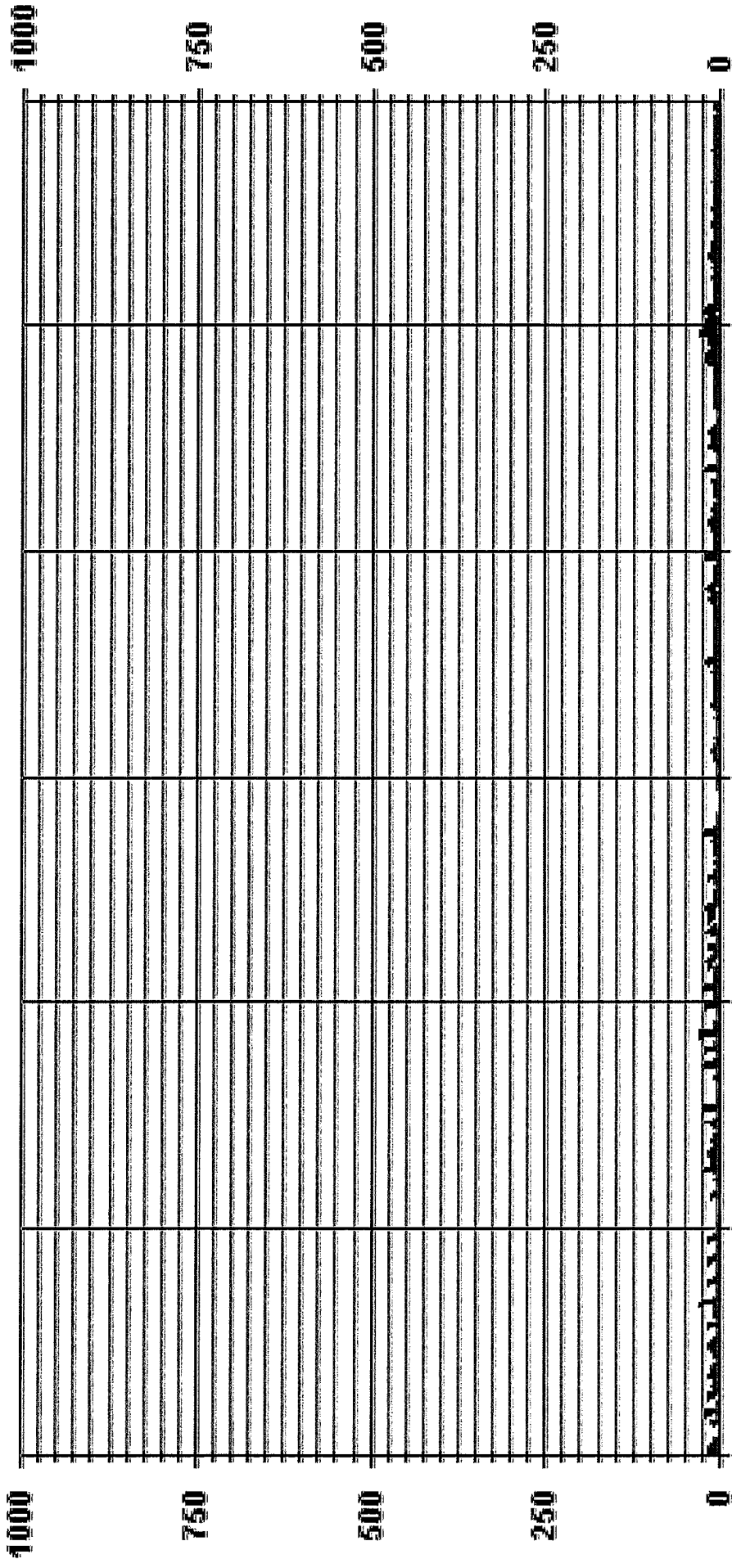
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
M	- 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:	626
MAXIMUM INSTANTANEOUS VALUE:	25.2 PPB @ HOUR(S) 8 ON DAY(S) 10
12S CALIBRATION TIME:	42 HRS
MONTHLY CALIBRATION TIME:	25 HRS
OPERATIONAL TIME:	716 HRS
STANDARD DEVIATION:	4.61
VAR- VARIOUS	

# 01 Hour Averages



— LICA30 NO2MAX PPB

LICA30  
 NO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 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	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35	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	5.19	8.40	7.18	4.12	3.82	3.05	3.82	2.59	6.88	16.36	11.92	5.81	6.42	5.35	3.66	5.35	

Calm : .00 %

Total # Operational Hours : 654

Distribution By Samples


Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35	654
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	34	55	47	27	25	20	25	17	45	107	78	38	42	35	24	35	

Calm : .00 %

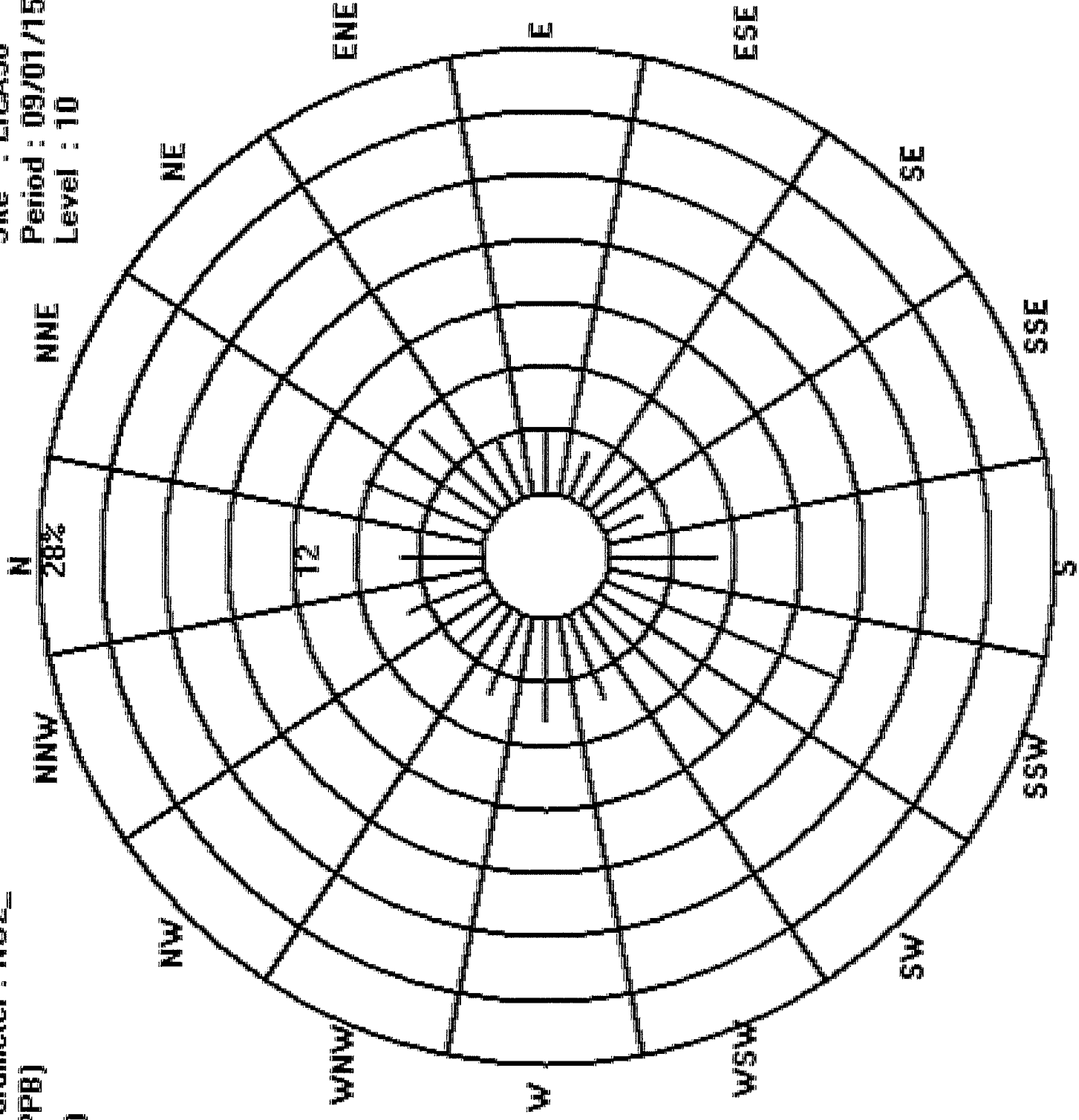
Total # Operational Hours : 654

Logger : 30 Parameter : NO2\_

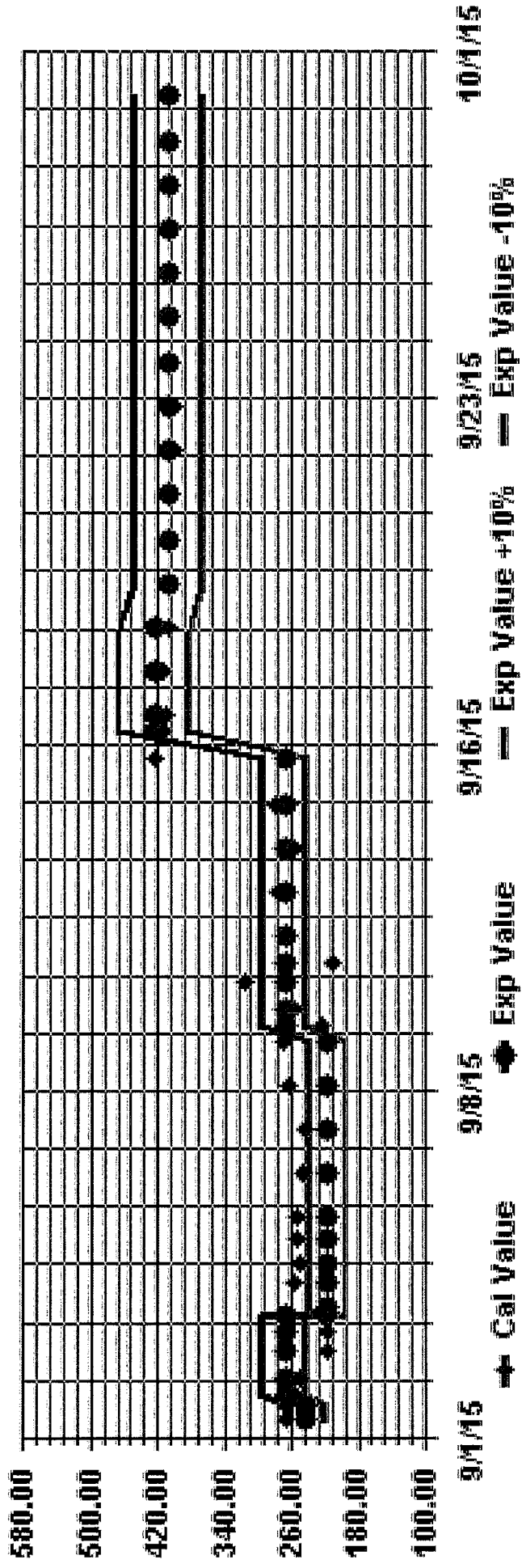
Class Limits (PPB)

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

Site : LICA30  
Period : 09/01/15-09/30/15  
Level : 10



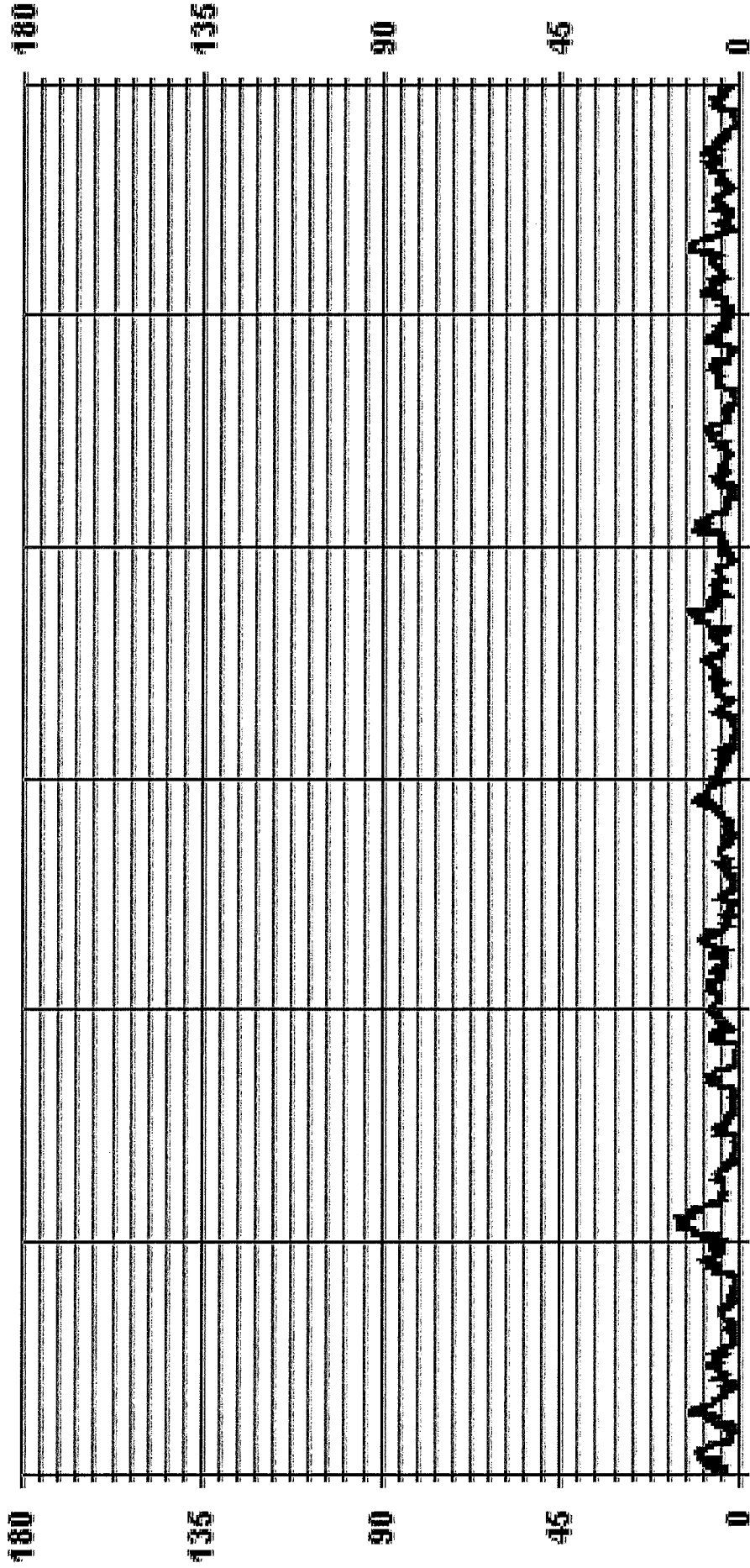
Calibration Graph for Site: LICA30 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



***WIND SPEED***



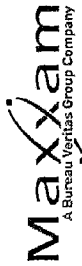
# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 WSP KPH





VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	RODS
	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			
1	12.2	11.5	10.7	20.7	29.5	25.1	26.0	25.8	20.1	24.4	P	40.0	50.5	43.5	38.7	37.6	30.1	20.3	13.7	5.6	8.5	9.3	8.0	8.2	50.5	22.6	23
2	9.1	8.9	10.0	17.0	16.6	19.0	22.9	40.1	48.8	56.5	49.7	42.7	33.5	33.6	27.1	23.3	24.9	8.5	12.8	19.6	11.3	13.5	18.3	16.4	56.5	24.3	24
3	5.0	11.5	22.9	18.1	19.9	18.3	21.8	17.9	24.7	35.0	26.2	24.2	21.6	21.0	25.1	23.0	20.4	22.8	14.7	9.7	4.7	6.1	9.1	10.9	35.0	18.1	24
4	4.8	6.9	8.3	10.2	6.3	10.9	7.1	8.5	9.6	18.7	12.3	15.0	15.9	14.1	11.1	16.6	8.9	6.3	9.3	4.1	4.3	3.6	5.8	3.6	18.7	9.3	24
5	9.8	4.1	2.3	3.5	5.7	5.1	3.2	7.8	10.0	21.0	26.6	19.9	22.3	21.4	24.7	24.9	23.4	16.4	11.3	12.2	10.9	8.9	12.4	15.5	26.6	13.5	24
6	14.2	12.0	18.1	17.3	23.2	30.2	29.5	26.0	35.0	40.7	34.8	33.4	32.4	34.1	33.2	32.4	33.3	33.0	27.1	31.5	21.6	18.2	16.2	14.8	40.7	26.8	24
7	15.5	19.0	16.1	21.0	16.1	15.7	15.0	19.2	19.9	19.9	19.4	22.3	27.1	25.3	22.9	14.9	11.4	13.6	7.6	2.6	3.2	3.9	4.5	4.5	27.1	15.0	24
8	4.3	3.9	5.8	2.6	2.8	3.0	2.8	2.7	11.8	18.1	15.7	22.0	18.8	17.9	15.9	16.8	16.6	9.6	9.6	4.7	2.6	3.9	5.0	4.8	22.0	9.2	24
9	9.6	3.2	9.9	10.7	9.1	3.0	8.9	2.1	7.6	15.3	15.7	18.1	21.8	22.9	20.5	19.2	19.6	18.8	6.7	5.8	4.5	2.1	2.8	3.2	22.9	10.9	24
10	3.7	3.5	4.8	4.3	3.0	3.2	2.8	5.8	9.3	15.0	20.3	21.1	20.9	21.6	14.1	17.0	17.4	19.8	8.2	7.6	10.9	13.5	16.1	15.9	21.6	11.7	24
11	15.1	15.6	16.0	14.9	15.5	14.8	13.7	13.1	17.9	16.1	23.1	27.3	26.0	27.3	27.7	32.1	29.2	20.1	7.8	11.5	14.4	15.0	15.5	17.7	32.1	18.6	24
12	12.4	16.6	13.3	13.7	15.0	17.7	13.1	17.2	22.0	35.8	37.3	38.9	50.9	42.8	34.5	30.1	38.7	40.4	19.3	18.4	12.5	14.0	13.1	11.1	50.9	24.1	24
13	16.8	10.4	13.5	11.3	9.6	10.2	6.5	5.6	8.5	10.2	12.6	19.9	19.9	13.5	14.2	8.5	10.4	7.6	13.1	9.1	8.6	5.9	6.5	12.4	19.9	11.0	24
14	10.9	12.9	10.9	15.5	17.9	13.7	12.0	11.3	16.4	16.1	19.6	20.5	16.4	15.0	18.1	17.5	8.3	12.5	9.9	5.9	6.1	8.5	7.6	8.9	20.5	13.0	24
15	5.4	6.9	6.1	8.9	8.7	9.8	8.0	9.6	12.5	17.3	21.6	22.3	21.2	27.3	26.2	24.0	24.9	23.4	22.1	20.3	25.3	16.6	11.1	13.3	27.3	16.4	24
16	11.8	11.3	12.1	13.6	12.6	12.4	10.7	10.4	11.1	17.5	13.7	12.6	15.0	16.4	18.1	15.5	14.6	9.3	4.5	4.8	P	P	3.7	3.4	18.1	11.6	22
17	7.1	10.2	9.8	10.5	5.4	10.2	6.3	4.5	10.4	13.7	16.9	19.5	18.9	21.2	28.6	12.2	17.4	6.9	8.3	8.5	10.9	10.2	12.0	15.0	28.6	12.3	24
18	15.9	13.7	12.0	11.5	14.6	13.7	12.6	13.8	17.1	18.6	25.1	28.2	41.5	52.9	45.9	31.4	26.2	24.0	10.7	10.0	8.5	7.8	9.8	12.4	52.9	19.9	24
19	12.4	13.9	15.7	13.9	12.6	12.4	13.1	17.5	18.0	20.6	26.5	32.7	31.8	28.9	31.5	25.5	25.1	23.1	15.9	18.5	21.0	20.3	31.0	11.8	32.7	20.6	24
20	10.9	10.4	14.2	15.5	13.9	15.5	15.0	12.6	24.9	16.6	19.0	20.7	26.6	19.3	20.1	15.4	12.9	8.1	5.6	6.7	6.9	21.2	19.9	12.2	26.6	15.2	24
21	11.3	15.7	17.5	15.5	21.0	17.9	17.9	25.0	44.1	43.8	33.7	35.2	40.5	33.9	37.8	41.1	31.0	24.7	19.7	19.2	13.5	13.9	13.1	13.3	44.1	25.0	24
22	11.4	7.2	12.0	5.4	8.5	3.0	8.5	10.4	10.9	11.3	13.3	26.5	20.0	13.6	11.1	14.2	9.6	18.3	14.2	15.5	16.1	11.3	8.0	8.3	26.5	12.0	24
23	6.5	6.5	8.0	7.5	12.2	9.6	15.3	25.6	27.1	29.5	29.1	28.8	34.1	29.3	31.5	26.4	31.0	13.7	8.3	8.0	10.0	7.1	10.3	9.3	34.1	17.7	24
24	9.1	8.9	5.9	8.9	5.2	6.7	2.3	5.0	4.8	7.6	15.0	17.0	15.7	16.6	17.7	22.5	16.3	13.7	12.1	20.2	19.5	25.0	20.6	17.9	25.0	13.1	24
25	20.1	15.5	11.5	10.0	8.7	8.7	5.4	13.3	12.0	19.6	26.6	38.7	36.7	25.8	28.1	24.4	15.0	19.6	15.9	12.6	19.2	15.5	18.2	12.1	38.7	18.1	24
26	12.9	17.9	14.2	10.2	8.9	10.2	6.7	10.2	9.3	13.9	18.3	17.4	33.0	25.8	37.4	21.4	34.8	24.0	17.0	16.6	18.3	23.1	19.5	26.3	37.4	18.6	24
27	28.2	23.4	17.7	18.6	17.2	18.3	20.3	29.3	27.5	42.0	51.2	48.1	51.4	54.9	41.2	40.3	34.7	24.2	29.7	15.9	9.6	10.7	14.4	14.8	54.9	28.5	24
28	12.6	13.7	12.5	11.0	12.0	12.0	12.4	14.8	11.8	15.3	18.3	18.1	26.9	25.3	17.2	16.1	15.3	10.3	5.5	8.0	10.9	19.9	18.8	13.7	26.9	14.7	24
29	15.5	16.6	14.8	18.1	20.1	17.9	15.5	19.4	17.0	13.1	15.7	19.0	21.9	22.7	25.4	19.5	19.7	17.1	10.5	11.3	9.8	10.2	5.0	7.8	25.4	16.0	24
30	6.9	1.9	1.9	2.3	3.2	4.3	4.3	3.4	4.7	13.1	13.7	14.4	18.8	15.0	16.1	18.1	14.8	14.6	8.5	11.4	12.5	9.7	11.2	9.1	18.8	9.7	24
HOURLY MAX	28.2	23.4	22.9	21.0	29.5	30.2	29.5	40.1	48.8	56.5	51.2	48.1	51.4	54.9	45.9	41.1	38.7	40.4	29.7	31.5	25.3	25.0	31.0	26.3			
HOURLY AVG	11.4	11.1	11.6	12.1	12.5	12.4	12.0	14.3	17.5	21.9	23.1	25.5	27.7	26.1	22.7	21.2	17.5	12.7	11.9	11.6	12.0	12.3	11.6				

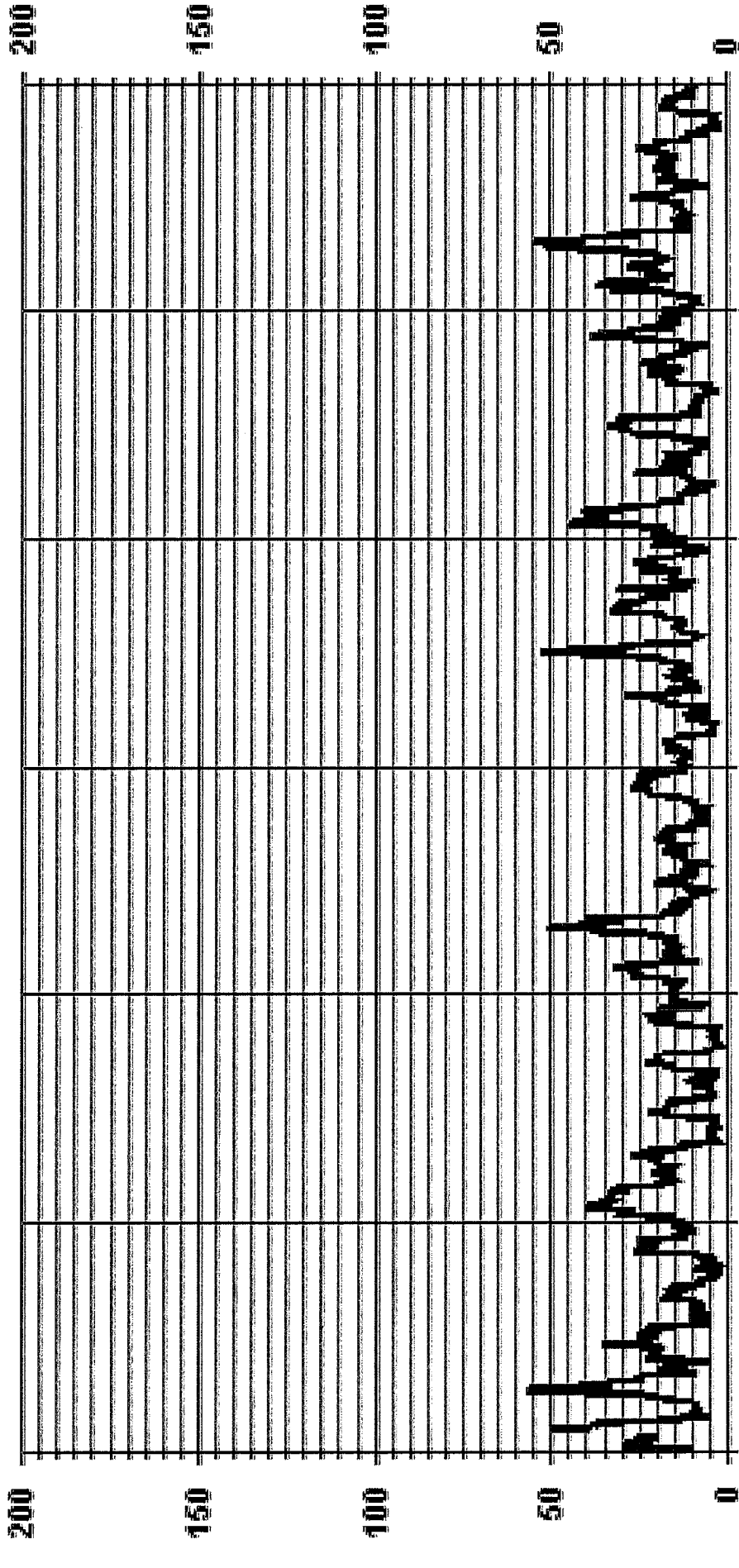
STATUS FLAG CODES

C	CALIBRATION	QUALITY ASSURANCE	
M	MAINTENANCE	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:	56.5	KPH	@	9	HOUR(S)	ON	9	DAY(S)	2	
OPERATIONAL TIME:									717	HRS
VAR-VARIOUS										

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 WSMAX KPH

WSP / WDR Joint Frequency Distribution (Percent)  
 LICA30  
 September 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	4.45	5.01	5.15	3.89	2.50	1.81	2.78	2.36	6.12	9.19	9.74	4.31	5.98	2.64	2.64	4.87	73.53
< 12.0	.41	1.53	3.34	.41	1.11	.97	.97	.13	.41	6.82	1.94	1.11	.97	2.78	.83	.55	24.37
< 20.0	.00	1.39	.00	.00	.13	.00	.00	.00	.00	.13	.00	.00	.00	.27	.13	.00	2.08
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.87	7.93	8.49	4.31	3.76	2.78	3.76	2.50	6.54	16.15	11.69	5.43	6.96	5.71	3.62	5.43	

Calm : .00 %

Total # Operational Hours : 718

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	32	36	37	28	18	13	20	17	44	66	70	31	43	19	19	35	528
< 12.0	3	11	24	3	8	7	7	1	3	49	14	8	7	20	6	4	175
< 20.0		10			1					1				2	1		15
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	35	57	61	31	27	20	27	18	47	116	84	39	50	41	26	39	

Calm : .00 %

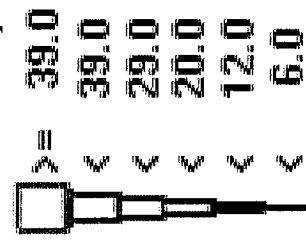
Total # Operational Hours : 718

Logger : 30 Parameter : WSP

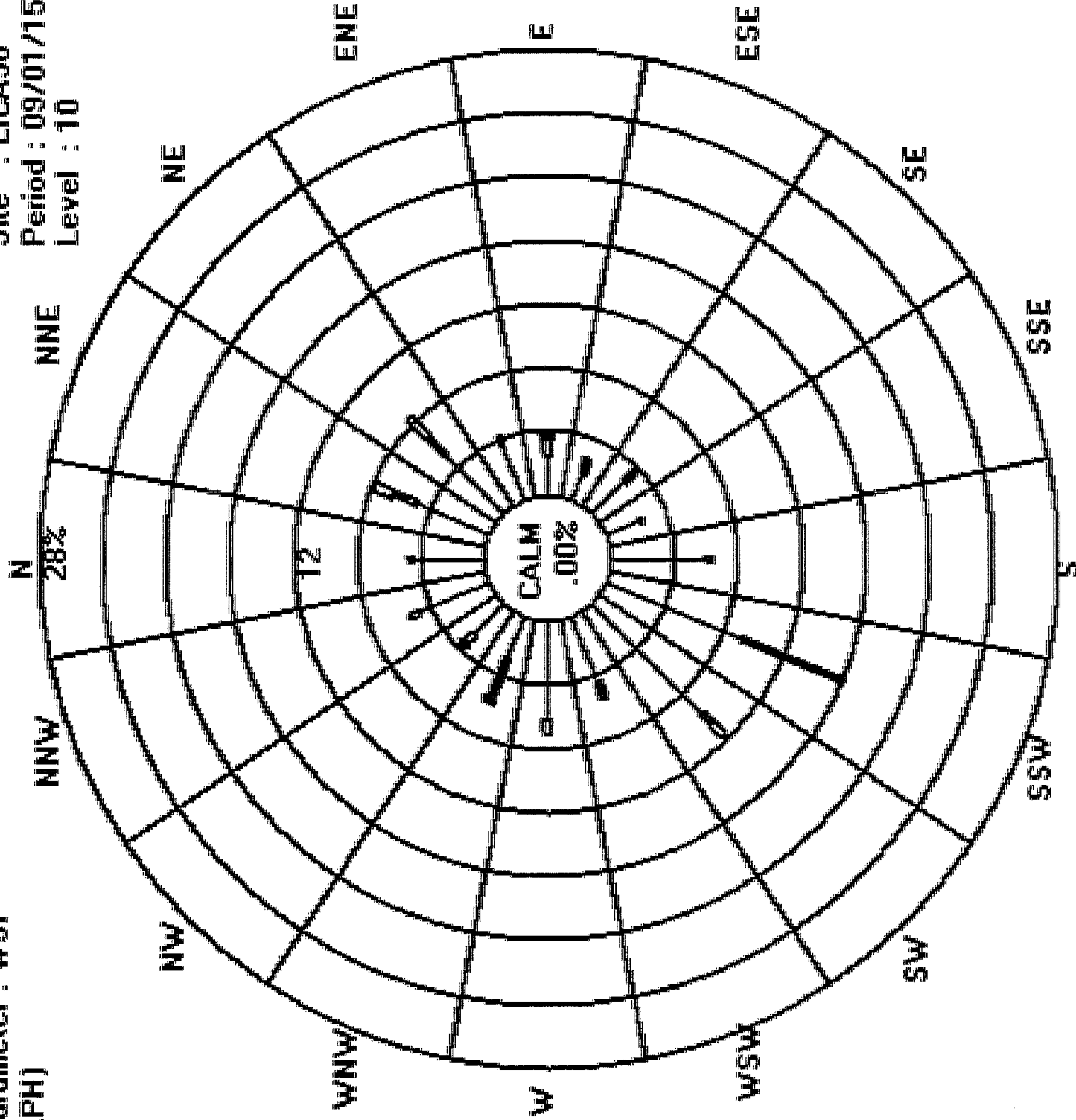
Site : LICA30

Class Limits (KPH)

Period : 09/01/15-09/30/15



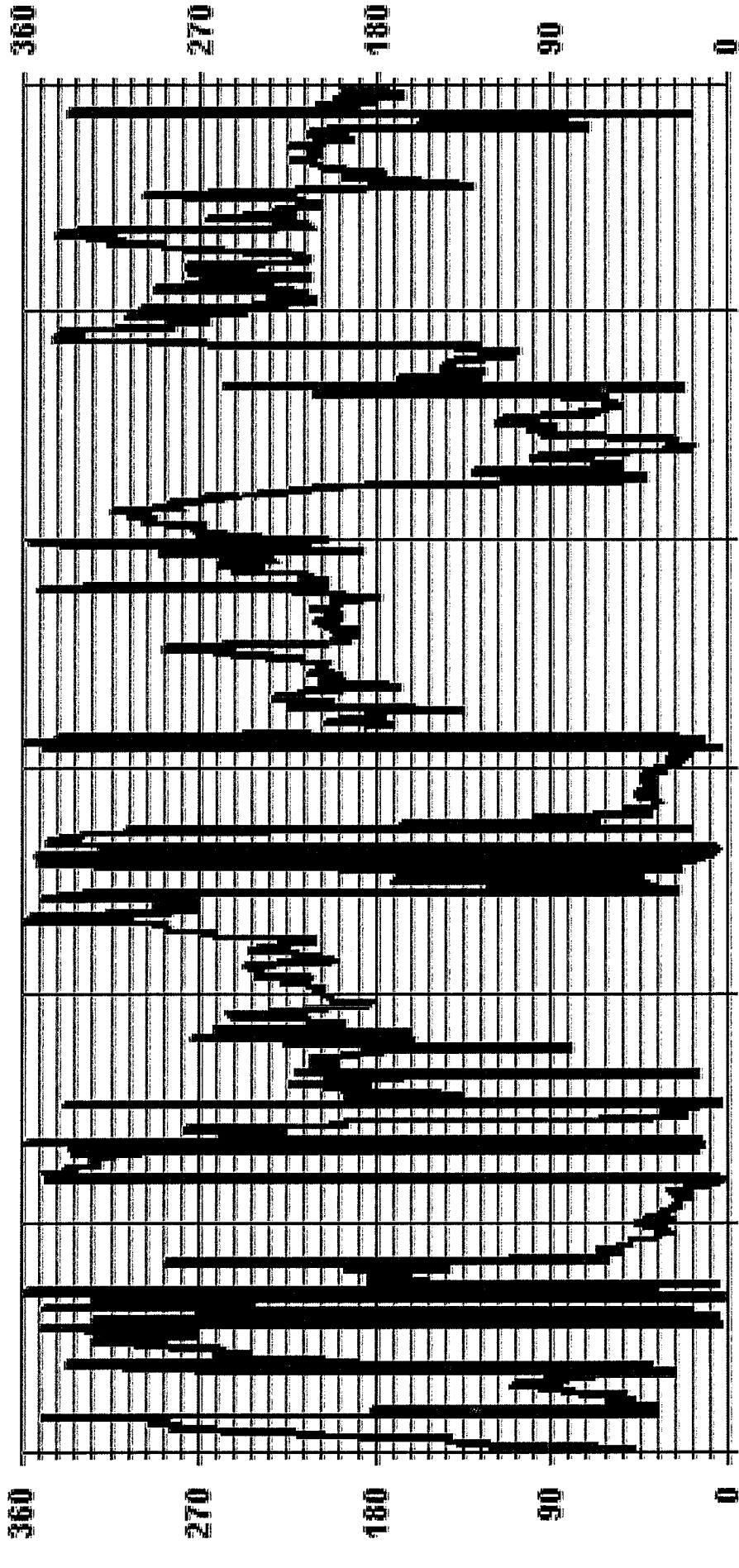
Level : 10



***WIND DIRECTION***



01 Hour Averages

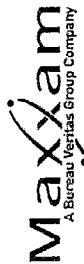


09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 WDR DEG

***STANDARD DEVIATION WIND DIRECTION***





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
Maskwa Site - SEPTEMBER 2015  
JOB # 2833-2015-09-30 - C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

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	24:00	
1	45	32	29	21	19	22	24	29	32	34	31	33	26	44	37	43	44	44	39	42	53	55	29	29	29	29
2	4	24	29	21	19	22	24	29	32	34	31	33	26	44	37	43	44	44	39	42	53	55	29	29	29	29
3	67	22	39	39	40	41	41	43	37	40	43	45	42	43	47	36	49	43	38	48	58	48	58	36	75	39
4	48	32	51	36	53	43	49	49	49	51	41	37	42	39	39	23	43	32	26	46	32	26	46	32	26	53
5	44	54	61	56	65	58	57	44	30	34	37	38	28	34	26	25	24	18	11	16	12	22	12	12	16	16
6	22	21	16	27	14	21	14	15	14	16	18	18	18	17	18	20	15	16	17	21	20	30	29	36	36	36
7	30	28	38	39	41	41	43	42	38	42	47	43	39	39	41	37	42	39	46	64	45	50	35	46	46	46
8	58	47	48	51	72	25	26	53	13	41	36	38	32	46	50	47	70	50	17	38	44	51	31	32	32	32
9	28	36	26	31	44	29	61	22	53	31	32	46	37	32	29	32	29	20	12	11	41	43	46	33	33	33
10	48	47	39	47	48	55	38	54	26	24	30	31	34	48	43	41	37	31	12	10	13	14	14	14	15	15
11	15	13	15	14	16	17	19	23	32	29	30	39	38	37	40	39	42	35	12	11	13	15	19	25	25	25
12	37	37	31	31	22	14	24	37	38	39	38	41	43	34	40	41	34	38	40	46	49	36	51	45	45	45
13	32	41	41	51	46	41	34	83	65	28	32	39	39	32	40	32	37	47	41	75	51	38	33	18	18	18
14	22	25	37	24	26	29	37	41	40	42	43	46	45	42	39	49	35	38	26	33	36	23	31	18	18	18
15	21	18	21	21	14	16	17	12	15	20	21	24	19	16	20	19	20	19	18	19	21	19	20	12	12	12
16	11	22	15	23	18	14	23	19	35	39	51	41	45	46	48	31	45	38	16	47	P	P	30	54	54	54
17	37	43	59	64	53	58	55	50	45	35	40	60	39	47	47	45	35	42	10	12	13	11	15	14	14	14
18	18	19	25	16	15	13	14	18	25	27	37	42	42	42	34	38	36	17	13	24	18	17	38	35	49	49
19	16	17	15	15	48	49	24	19	19	18	21	25	24	20	19	21	20	21	19	18	17	38	35	49	49	49
20	37	22	11	23	16	18	21	36	43	37	37	41	44	40	37	34	41	49	42	34	68	42	43	40	40	40
21	31	39	33	39	33	34	34	38	33	36	35	43	35	37	38	42	35	33	31	37	35	37	43	38	38	38
22	36	37	24	39	26	50	47	21	30	26	25	39	37	37	32	22	21	30	24	32	31	30	19	14	14	14
23	16	21	21	11	11	12	28	32	33	36	36	36	34	36	39	40	39	37	29	22	23	18	18	19	14	14
24	18	21	36	55	72	59	62	33	60	57	54	38	33	35	37	35	30	20	17	19	22	24	27	35	35	35
25	34	38	41	38	26	48	77	57	39	38	43	43	42	41	46	44	38	35	41	36	35	48	48	29	29	29
26	44	35	46	47	37	15	19	21	29	30	27	40	38	39	45	38	39	32	20	20	40	33	32	34	34	34
27	32	29	22	21	19	20	27	42	42	36	35	33	37	36	36	49	38	40	39	40	39	40	32	18	21	18
28	33	40	35	24	43	46	19	21	30	34	44	37	46	43	46	41	39	17	30	15	55	25	29	27	27	27
29	26	24	25	21	22	18	17	19	29	26	34	26	22	22	27	33	26	18	13	13	11	16	27	15	15	15
30	45	49	37	57	52	30	44	47	31	55	61	41	35	39	96	31	20	15	11	13	17	18	13	18	13	13

STATUS FLAG CODES

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

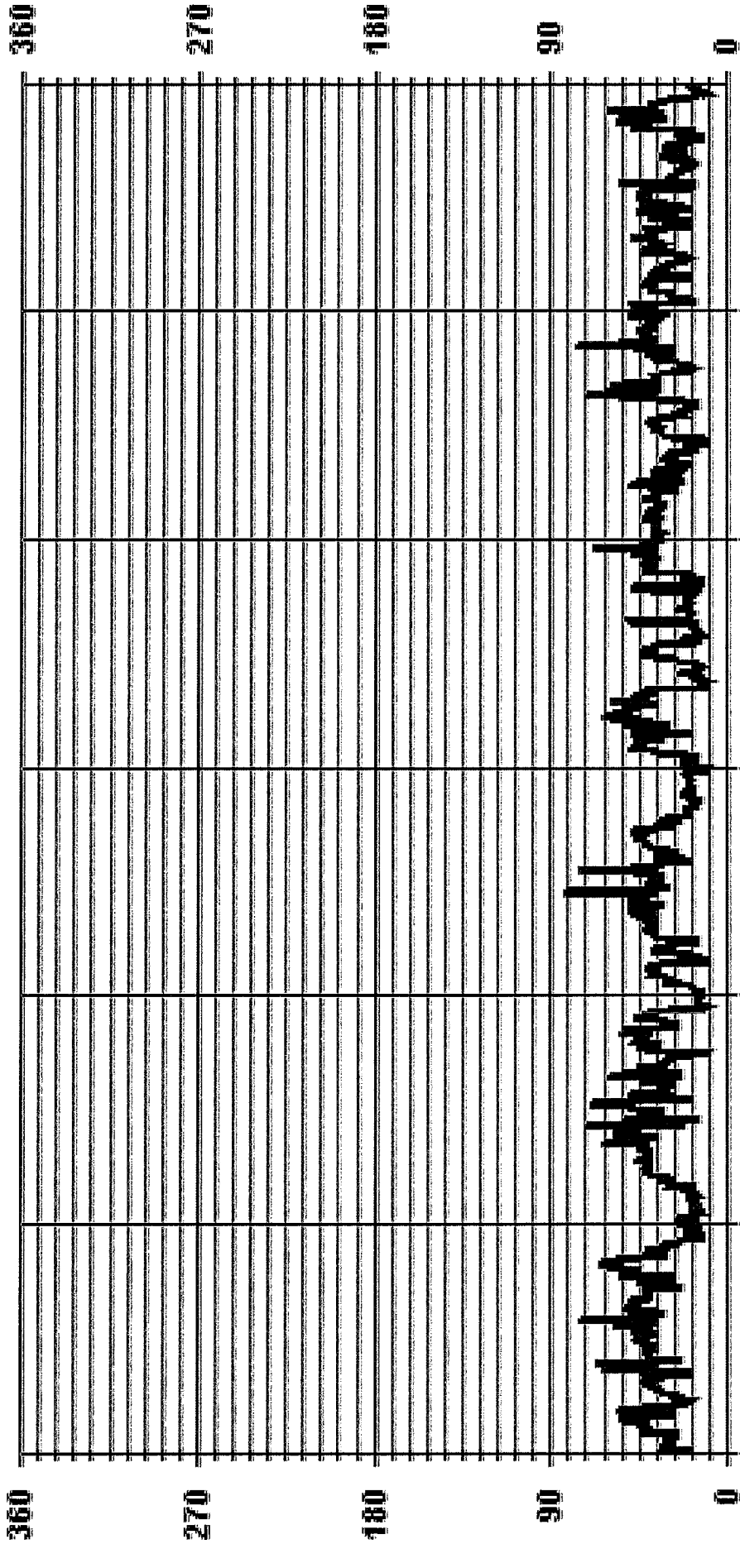
LAST CALIBRATION:

March 4, 2014

CALIBRATION TIME: 0 HRS

OPERATIONAL TIME: 717 HRS

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 STOWDIR DEG

***RELATIVE HUMIDITY***



RELATIVE HUMIDITY (RH) hourly averages in %

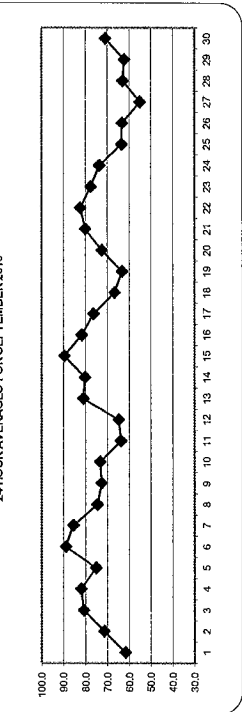
MST

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	ROSS
	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			
1	77	79	84	85	84	64	64	69	65	60	53	47	43	39	40	43	44	53	71	73	73	75	74	85	61.7	23	
2	89	90	90	87	86	79	75	71	63	55	52	51	49	47	45	47	53	62	70	87	91	92	91	92	71.4	24	
3	92	93	93	92	91	90	89	86	76	71	69	66	64	64	64	64	66	70	80	89	91	92	92	93	80.8	24	
4	92	92	92	93	92	92	92	92	93	90	74	70	69	67	68	66	66	73	82	90	91	92	92	93	82.0	24	
5	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	82.0	24	
6	74	85	88	91	91	91	91	91	91	90	90	89	89	89	89	89	89	89	89	90	90	91	91	91	89.0	24	
7	92	91	90	90	90	90	90	90	89	88	86	83	76	74	75	73	83	80	77	82	89	91	92	92	85.6	24	
8	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	85.6	24	
9	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	85.6	24	
10	91	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	85.6	24	
11	75	76	77	79	82	83	85	82	74	65	62	52	49	49	49	49	47	50	45	47	50	66	81	82	73.3	24	
12	71	69	65	63	66	69	72	62	50	46	43	42	41	43	43	48	48	48	44	44	42	40	45	45	63.7	24	
13	89	90	91	90	91	91	91	92	89	74	70	61	53	48	58	79	77	85	88	90	91	92	92	92	81.1	24	
14	92	91	91	90	89	91	88	83	76	71	62	59	57	68	61	60	73	83	87	91	92	91	92	92	80.3	24	
15	92	92	92	92	92	92	92	92	91	90	89	87	86	88	87	86	60	63	70	67	74	87	90	91	81.8	22	
16	91	91	91	91	91	91	91	91	90	86	78	75	73	66	60	63	70	67	74	87	90	91	92	92	81.8	22	
17	91	91	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	81.8	22	
18	84	84	85	87	87	87	86	84	78	66	56	49	44	39	37	44	44	44	48	57	63	71	72	77	87	66.7	24
19	77	77	77	78	82	88	85	76	66	64	55	46	43	42	40	41	42	47	54	60	62	66	72	79	88	63.3	24
20	84	81	84	84	85	84	80	75	67	67	66	58	54	56	56	58	61	68	74	79	73	82	88	88	72.6	24	
21	90	90	89	89	91	91	91	89	79	73	67	61	62	68	66	72	63	70	78	84	90	90	91	91	80.2	24	
22	91	91	91	91	91	91	91	90	90	90	87	81	63	58	61	67	72	79	78	81	86	87	87	88	82.4	24	
23	90	90	90	91	92	91	90	81	74	70	66	63	60	56	55	58	65	77	86	89	90	92	91	92	77.7	24	
24	91	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	82.4	24	
25	78	77	80	84	87	87	89	85	78	73	62	55	49	43	39	37	42	47	54	58	53	55	60	89	63.5	24	
26	66	69	79	78	79	80	82	81	78	70	60	53	31	28	29	34	46	56	65	76	79	72	65	82	63.3	24	
27	60	60	64	68	70	72	68	63	58	52	44	41	35	34	38	38	45	47	52	62	72	73	65	73	55.1	24	
28	72	79	83	86	87	89	89	85	77	65	52	50	39	33	39	36	39	47	59	61	68	56	58	62	89	63.0	24
29	64	64	66	67	70	68	68	65	64	60	54	51	50	49	48	49	50	54	66	66	72	72	78	79	62.3	24	
30	83	85	91	91	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	71.0	24	
HOURLY MAX	83.8	84.6	85.8	86.3	86.4	86.4	86.4	86.4	84.0	78.4	69.5	63.1	57.6	54.1	53.0	53.4	54.7	56.3	61.7	70.8	77.4	80.1	80.5	81.7	82.5		
HOURLY AVG																											

STATUS FLAG CODES

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

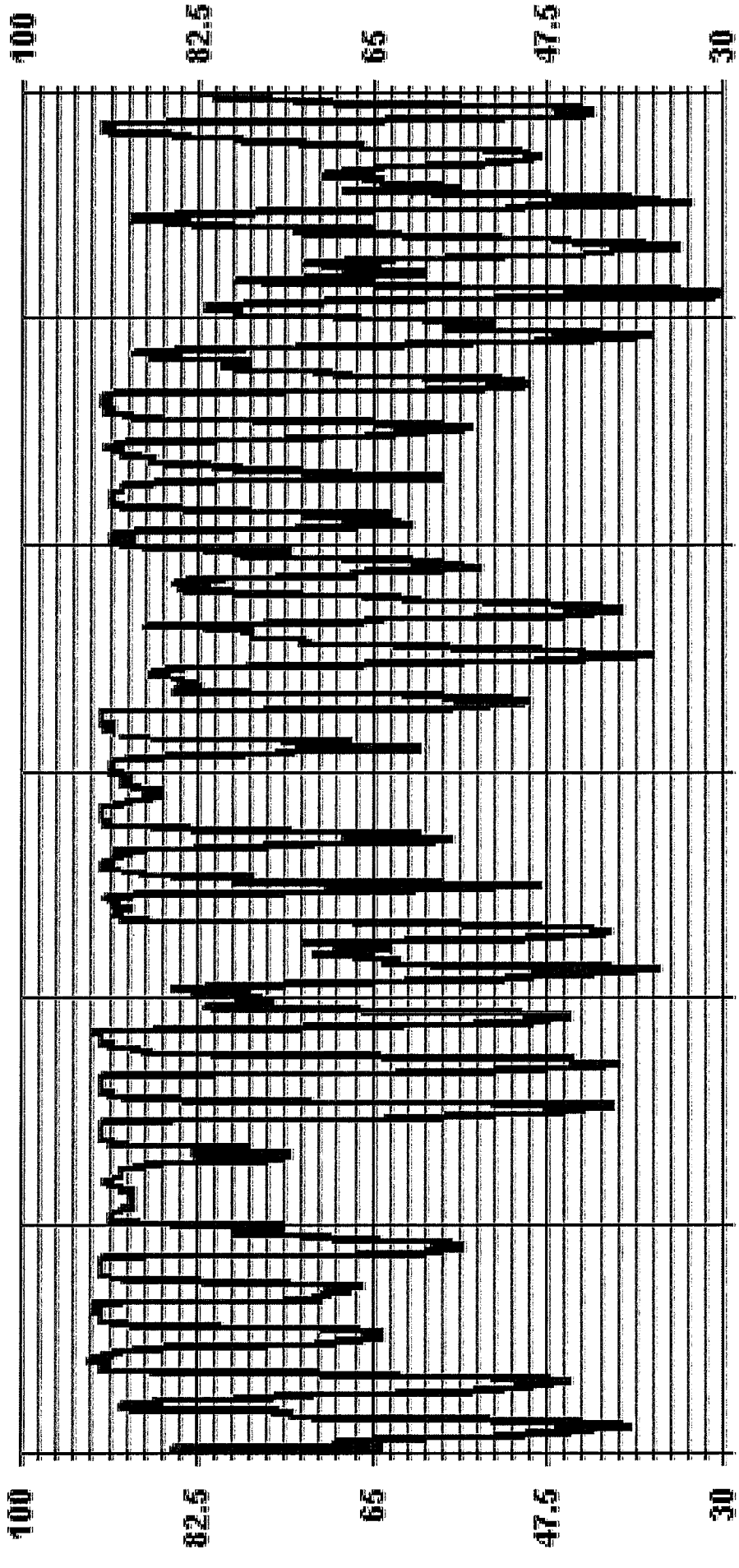
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	89.6	%			VAR-VARIOUS		15
STANDARD DEVIATION:	15.97						
OPERATIONAL TIME:	71.7	HRS					
AMTD OPERATION UPTIME:	99.6	%					
MONTHLY AVERAGE:	73	%					

# 01 Hour Averages

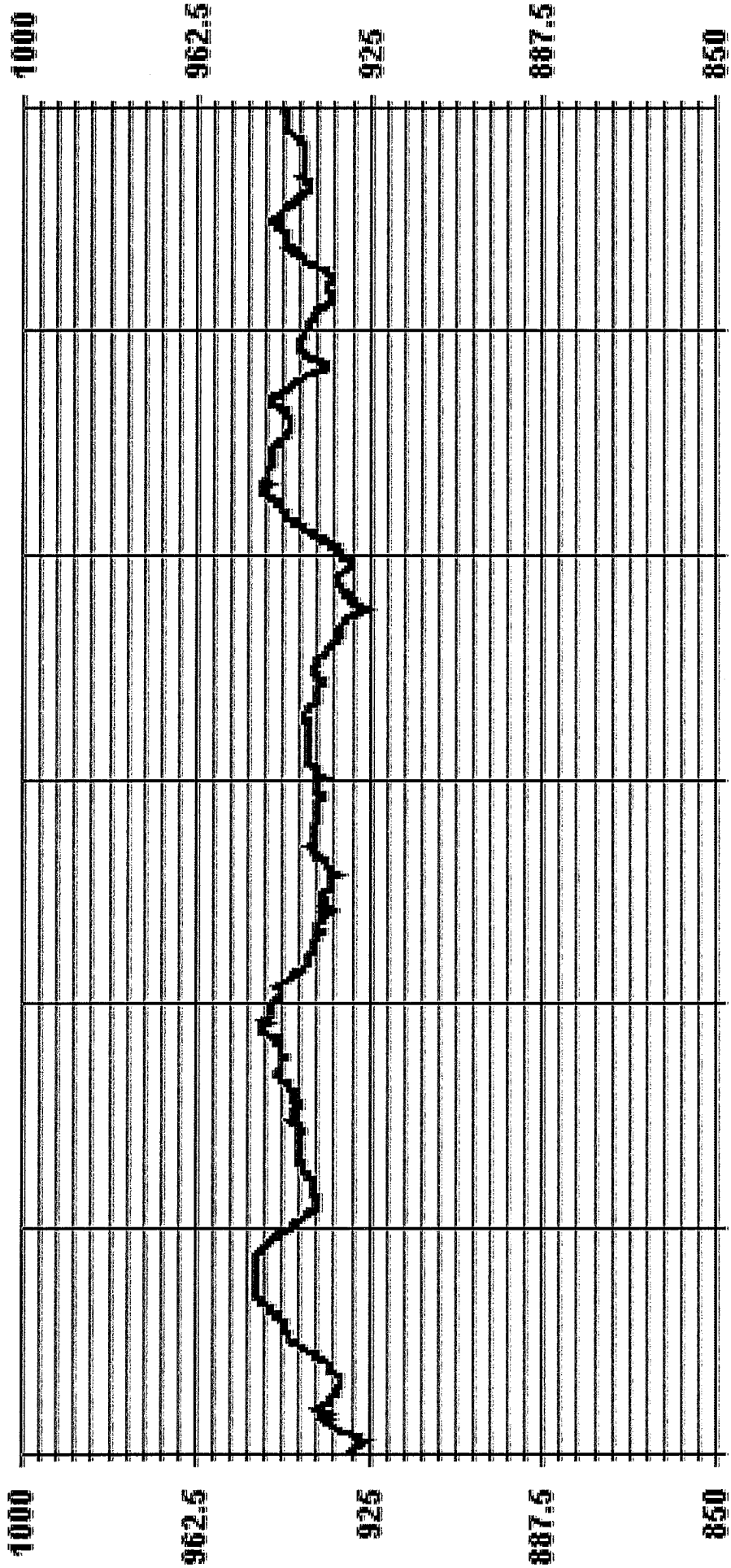


— LICA30 RH %

***BAROMETRIC PRESSURE***



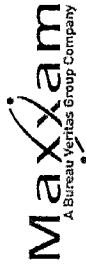
# 01 Hour Averages



— LICA30 BP MB



***AMBIENT TEMPERATURE***



AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

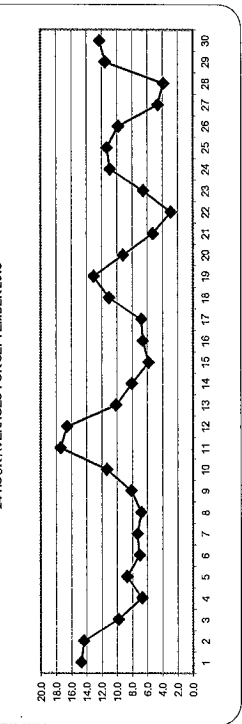
MST

DAY	HOURS																								DAILY MAX	DAILY AVG	24-HOUR ROSS	
	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
1	10.7	11.2	10.6	9.2	13.8	14.4	13.3	14.5	16.7	18.9	P	20.5	20.0	20.4	20.7	20.1	19.2	18.3	15.3	10.4	10.4	10.1	9.2	10.4	20.7	14.7	23	
2	9.5	9.2	8.8	9.2	9.4	11.4	14.0	16.0	18.0	18.9	20.3	21.1	21.5	21.4	20.0	18.1	16.6	14.1	12.8	12.6	12.3	10.6	21.5	14.4	24	14.4	24	
3	8.7	10.0	10.6	10.0	9.7	9.4	9.1	9.7	10.6	12.2	12.4	12.6	12.5	12.6	13.0	12.9	13.1	12.2	10.9	8.1	5.3	4.0	3.1	3.4	13.1	9.8	24	
4	2.0	2.5	3.3	3.7	3.3	3.6	3.2	4.6	6.8	9.2	9.8	9.8	10.5	10.4	11.0	10.9	11.3	11.3	10.4	8.1	5.0	4.0	3.1	11.3	6.7	24		
5	2.3	1.8	2.1	3.1	4.0	4.5	5.2	6.3	8.5	12.3	13.0	12.7	12.6	13.3	13.2	12.7	12.2	11.5	10.7	10.0	9.2	8.7	9.0	13.3	8.7	24		
6	9.0	7.8	7.4	7.3	7.7	7.6	7.3	7.1	6.8	6.6	6.5	6.9	7.3	7.2	7.2	7.4	7.6	7.4	6.8	6.5	6.1	6.0	6.0	5.6	9.0	7.0	24	
7	5.8	6.0	5.9	5.9	5.9	6.0	6.1	6.5	6.9	7.6	8.7	10.0	10.2	10.8	10.5	8.7	9.9	9.7	8.2	6.4	5.7	5.4	4.9	4.4	10.8	7.3	24	
8	4.1	3.5	2.3	1.3	0.3	0.0	0.0	2.0	6.0	9.9	11.3	12.4	13.6	14.6	14.8	15.8	13.5	9.5	5.6	3.6	2.2	1.2	0.7	15.8	6.8	24		
9	0.2	-0.5	-0.8	-0.9	-1.1	-1.4	-1.0	2.7	8.7	12.9	14.7	16.3	16.9	17.4	17.4	16.8	16.4	15.4	11.8	8.0	6.2	6.6	6.1	5.5	17.4	8.1	24	
10	4.1	3.2	2.9	2.3	1.8	1.2	1.3	5.2	10.6	14.4	16.7	18.2	19.3	19.8	18.8	19.8	19.7	18.8	15.1	11.4	10.9	11.6	12.2	13.0	19.8	11.3	24	
11	12.9	12.7	12.6	12.3	11.6	11.2	10.8	12.1	14.6	17.6	19.1	22.0	23.2	23.2	23.2	25.3	25.7	25.4	23.7	19.2	16.9	17.2	16.8	16.4	15.6	25.7	17.4	24
12	14.4	14.6	14.8	14.8	14.0	13.4	13.2	16.3	20.3	22.4	22.9	23.7	23.9	23.9	23.4	21.5	19.1	16.2	12.5	11.6	11.0	10.5	10.1	9.5	23.9	16.6	24	
13	8.9	8.6	8.2	7.8	7.2	6.5	5.2	7.5	11.1	13.0	14.9	17.2	17.0	14.6	10.4	13.0	13.6	11.5	10.0	9.3	8.5	6.8	6.3	6.6	17.2	10.2	24	
14	7.3	7.1	7.1	6.8	6.6	6.1	5.2	7.1	8.1	9.9	10.6	12.0	12.4	13.0	10.3	11.3	11.3	10.2	7.8	5.6	4.6	4.6	3.9	3.7	13.0	8.0	24	
15	3.5	3.2	3.0	3.3	3.7	4.0	4.1	5.0	6.3	7.1	7.7	8.3	8.2	7.7	7.7	7.7	7.2	7.1	6.6	6.2	6.0	5.6	5.5	5.5	8.3	5.8	24	
16	5.4	5.2	5.1	5.1	5.1	5.0	5.0	5.5	6.4	8.4	8.5	9.1	10.1	10.9	11.0	9.9	10.2	8.7	5.4	3.3	P	1.4	0.7	11.0	6.6	22		
17	-0.2	-0.7	0.6	1.8	2.6	3.1	2.9	1.0	5.7	8.9	11.9	13.1	12.4	14.0	14.6	14.2	11.7	10.7	7.5	5.6	5.8	5.5	5.3	14.6	6.8	24		
18	5.9	6.4	6.3	5.3	5.0	4.9	5.5	6.4	8.1	12.0	14.8	16.6	17.5	18.2	18.5	16.6	16.4	14.9	12.9	11.9	10.9	10.6	10.5	8.8	18.5	11.0	24	
19	8.2	8.2	8.0	7.5	6.4	4.3	5.9	8.2	11.2	12.2	15.5	18.6	18.6	19.2	20.1	20.6	20.2	18.6	16.2	14.7	14.4	13.4	12.6	10.7	20.6	13.1	24	
20	8.7	9.0	8.3	7.7	7.1	6.8	7.4	8.4	10.6	10.5	10.8	12.0	12.4	12.5	12.5	11.8	10.8	9.9	8.9	8.4	8.2	8.1	5.9	4.7	12.5	9.2	24	
21	4.6	4.6	4.5	4.4	3.8	3.4	3.4	4.3	6.4	6.6	7.6	8.9	9.4	8.5	9.3	7.5	8.2	6.2	5.2	4.0	2.8	2.0	1.2	0.4	9.4	5.3	24	
22	-0.1	-0.8	-1.1	-1.8	-2.3	-2.6	-2.5	-0.9	1.3	4.5	6.0	8.8	8.5	7.5	7.4	7.0	6.2	6.3	4.8	3.5	3.4	2.9	2.5	1.4	8.8	2.9	24	
23	0.8	0.6	-0.1	-0.1	1.1	1.5	2.5	5.3	6.4	7.7	8.7	9.8	11.2	12.5	13.4	14.2	13.5	12.2	9.0	7.1	6.4	5.1	4.4	3.9	14.2	6.5	24	
24	3.2	2.3	1.3	1.1	0.6	0.2	-0.1	2.2	6.5	12.5	16.6	18.3	19.4	19.9	20.8	20.7	19.9	16.7	14.4	13.9	13.8	12.9	12.6	11.9	20.8	10.9	24	
25	11.5	10.8	9.1	7.6	6.3	5.6	5.2	7.5	9.6	10.9	12.6	13.5	15.4	17.2	18.3	17.6	16.0	13.7	11.8	10.6	10.7	10.6	10.2	9.3	18.3	11.3	24	
26	8.7	9.1	8.2	8.0	7.6	7.3	6.9	7.1	8.0	10.1	12.4	14.4	15.8	16.6	16.5	14.5	12.1	10.3	8.8	7.3	7.0	7.3	6.3	5.6	16.6	9.8	24	
27	5.3	5.3	4.4	3.4	2.9	2.4	3.2	4.4	6.7	9.4	9.8	9.3	9.1	8.6	8.4	7.6	6.7	5.2	4.1	2.4	-0.5	-2.9	-1.7	9.8	4.6	24		
28	-2.2	-2.2	-2.7	-2.9	-3.6	-3.4	-2.6	-1.2	1.3	4.6	7.5	7.9	10.2	10.8	9.5	10.2	9.5	8.1	6.2	5.0	3.0	6.3	7.3	7.1	10.8	3.9	24	
29	7.3	8.0	8.1	8.1	7.3	7.4	6.6	7.3	8.2	10.0	13.5	15.0	16.1	16.8	17.9	17.8	17.3	15.6	12.5	11.0	11.4	10.7	10.4	17.9	11.5	24		
30	9.4	7.9	5.9	4.6	3.6	2.6	2.0	4.1	8.5	16.1	19.4	19.9	20.7	21.3	21.8	21.6	20.5	17.6	13.9	12.7	11.5	9.5	10.4	9.2	21.8	12.3	24	
HOURLY MAX	14.4	14.6	14.8	14.8	14.0	14.4	13.3	16.3	20.3	22.4	22.9	23.7	23.9	23.3	25.3	25.7	25.4	23.7	19.2	16.9	17.2	16.8	16.4	15.6				
HOURLY AVG	6.0	5.8	5.5	5.2	5.0	4.8	4.8	6.3	8.7	11.1	12.5	13.9	14.5	14.8	14.8	14.8	14.0	12.7	10.4	8.7	8.0	7.5	6.9	6.5				

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-OF-REPAIR	K	COLLECTION ERROR

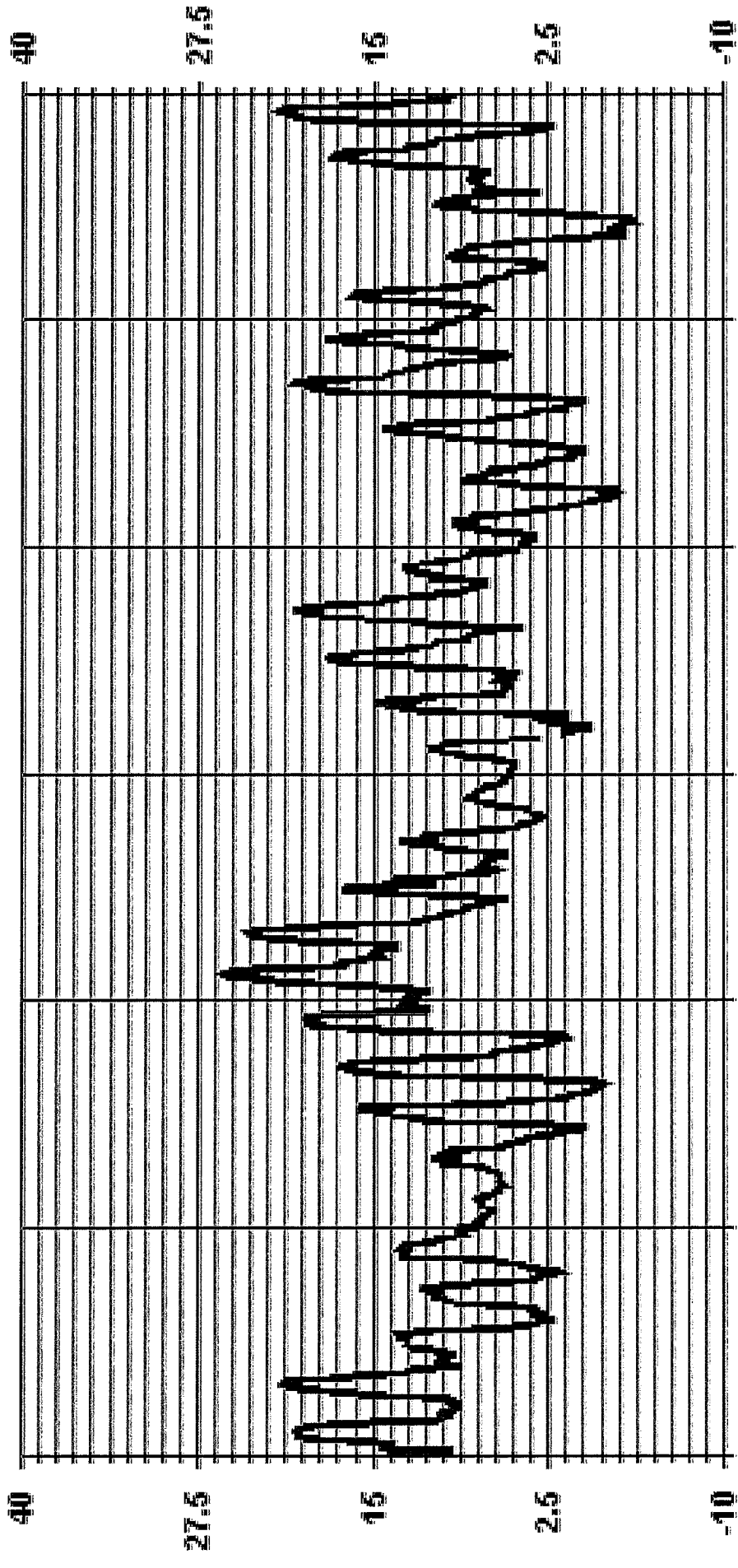
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

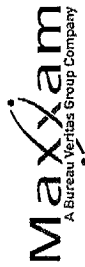
MINIMUM 1-HR AVERAGE:	-3.6	°C	@ HOUR(S)	4	ON DAY(S)	28
MAXIMUM 1-HR AVERAGE:	25.7	°C	@ HOUR(S)	15	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	17.4	°C			VAR-VARIOUS	
STANDARD DEVIATION:	5.66		OPERATIONAL TIME:			71.7 HRS
			AMD OPERATION UPTIME:			99.6 %
			MONTHLY AVERAGE:			9.3 °C

# 01 Hour Averages



— LICA30 TPX DGC

***PRECIPITATION***



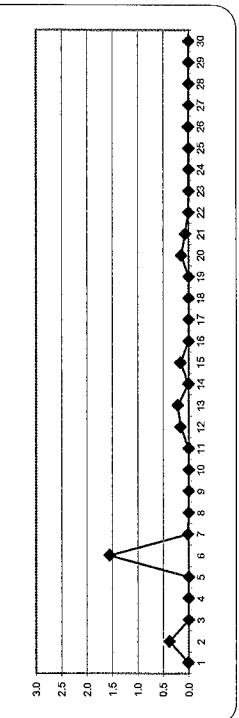
PRECIPITATION hourly averages (mm)

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	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	22	
2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.4	24	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.7	1.3	1.6	1.5	2.1	1.7	3.4	4.0	4.2	2.6	2.3	2.4	2.1	2.0	1.5	0.4	0.8	0.5	0.8	0.7	0.6	0.2	0.0	4.2	1.6	0.0	24	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.4	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	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
HOURLY MAX	0.4	0.7	1.3	1.6	1.5	2.1	1.7	3.4	4.0	4.2	2.6	2.3	2.4	2.1	4.1	1.5	0.4	0.8	0.8	0.8	0.9	1.0	0.6	2.5	0.9				
HOURLY AVG	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	

STATUS FLAG CODES

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

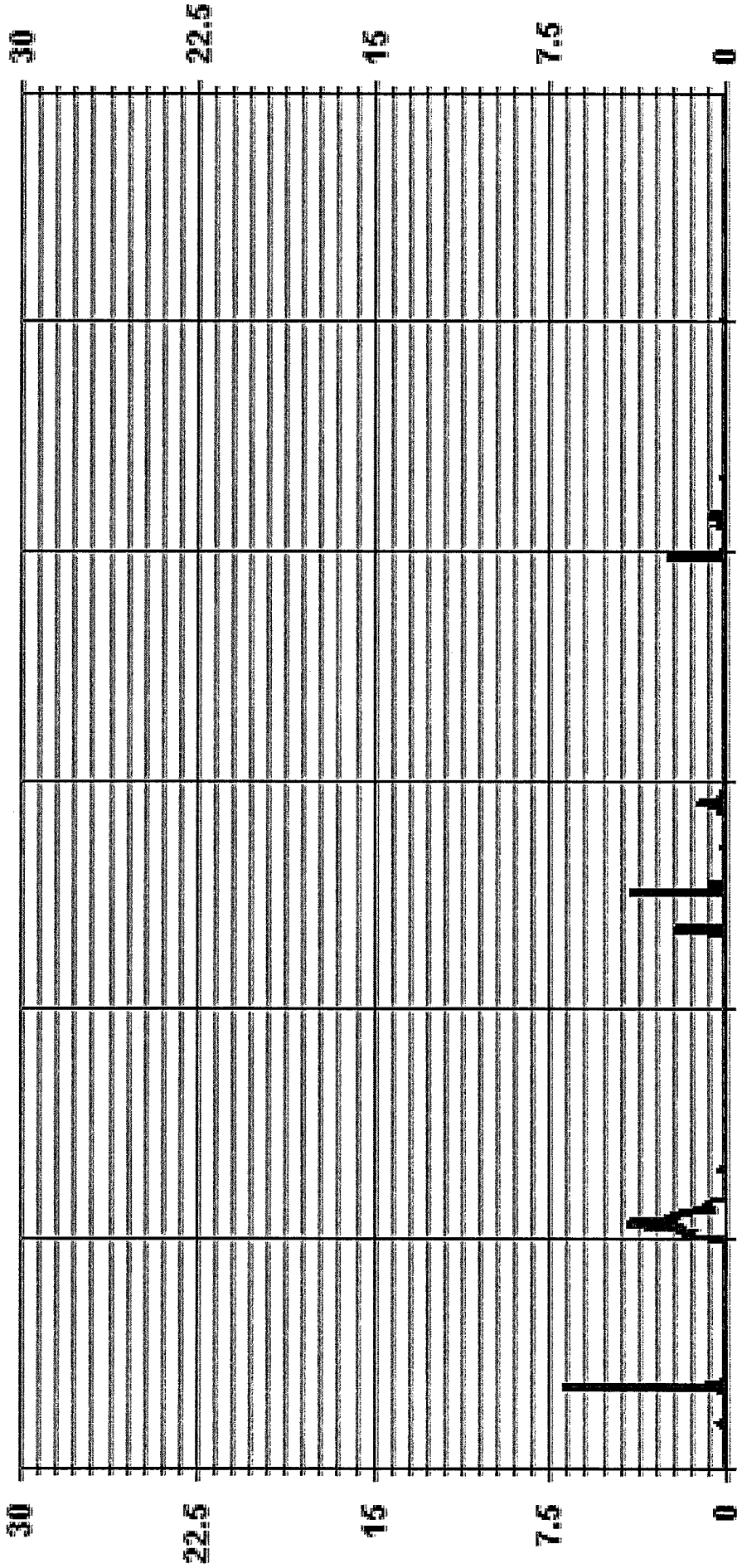
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	6.9	MM	@ HOUR(S)	19	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	1.6	MM			ON DAY(S)	6
MONTHLY TOTAL	65.5	MM			VAR-VARIOUS	
STANDARD DEVIATION:	0.48					
OPERATIONAL TIME:		AMD OPERATION UPTIME:		716	HRS	
MONTHLY AVERAGE:				99.4	%	
				0.1	MM	

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA30 PRECIP MM

***APPENDIX II***  
***ANALYZER CALIBRATION RESULTS***

***SULPHUR DIOXIDE***



## API 100A SO2 Analyzer Calibration

---

Date: 1-Sep-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H<sub>2</sub>S/TRS/SO<sub>2</sub>: SO2

Start/End Time (mst): 10:52 - 15:18

Calibration Purpose: Monthly

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

---

Analyzer:

Serial Number: 1124

Last Calibration Date: 25-Aug-15

Previous Cal High Point C.F.: 0.999

Range ppb: 1000

As Found C.F.: 1.007

New C.F.: 0.996

---

As found:

SLOPE: 0.960

OFFSET: 24.4

HVPS: 782

DCPS: 2560

RCELL TEMP: 50.0

BOX TEMP: 28.0

PMT TEMP: 7.3

IZS TEMP: 45.0

STABIL: 0.0

PRES: 24.7

SAMP FL: 664

PMT: 54.0

UV LAMP: 2045.4

STR. LGT: 11.7

DRK PMT: 33.6

DRK LMP: -11.3

Internal Span: 239.3

As left:

SLOPE: 0.962

OFFSET: 23.6

HVPS: 782

DCPS: 2568

RCELL TEMP: 50.0

BOX TEMP: 27.5

PMT TEMP: 7.3

IZS TEMP: 45.0

STABIL: 0.1

PRES: 24.8

SAMP FL: 669

PMT: 51.0

UV LAMP: 2049.4

STR. LGT: 11.4

DRK PMT: 32.8

DRK LMP: -11.3

Internal Span: 239.9

---

Calibrator:

Flow Meter ID's: NA

Make & Model: SABIO 2010 D

Serial #: 11900613

Cal Gas Cylinder I.D. #: BLM002073

Cal Gas Conc. (ppm): 49.5

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5013	0	5013
high	4935	79	5014
mid	4976	38	5014
low	4994	19	5013

---

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	5013	0.0	5013	0	0.3	NA
adjusted zero	5013	0.0	5013	0	0.0	NA
as found high	4938	77.20	5015	762.0	757.0	1.007
adjusted high	4938	77.20	5015	762.0	762.0	1.000
mid	4976	37.70	5014	372.2	374.0	0.995
low	4994	18.90	5013	186.6	188.0	0.993
calibrator zero	5013	0.00	5013	0	0.0	NA

Average C.F.= 0.996

---

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>-0.09%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.76%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H<sub>2</sub>S/TRS application:

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

SO<sub>2</sub> High Point gas concentration: NA      Time gas run (mst): NA

Zero corrected analyzer response: NA

---

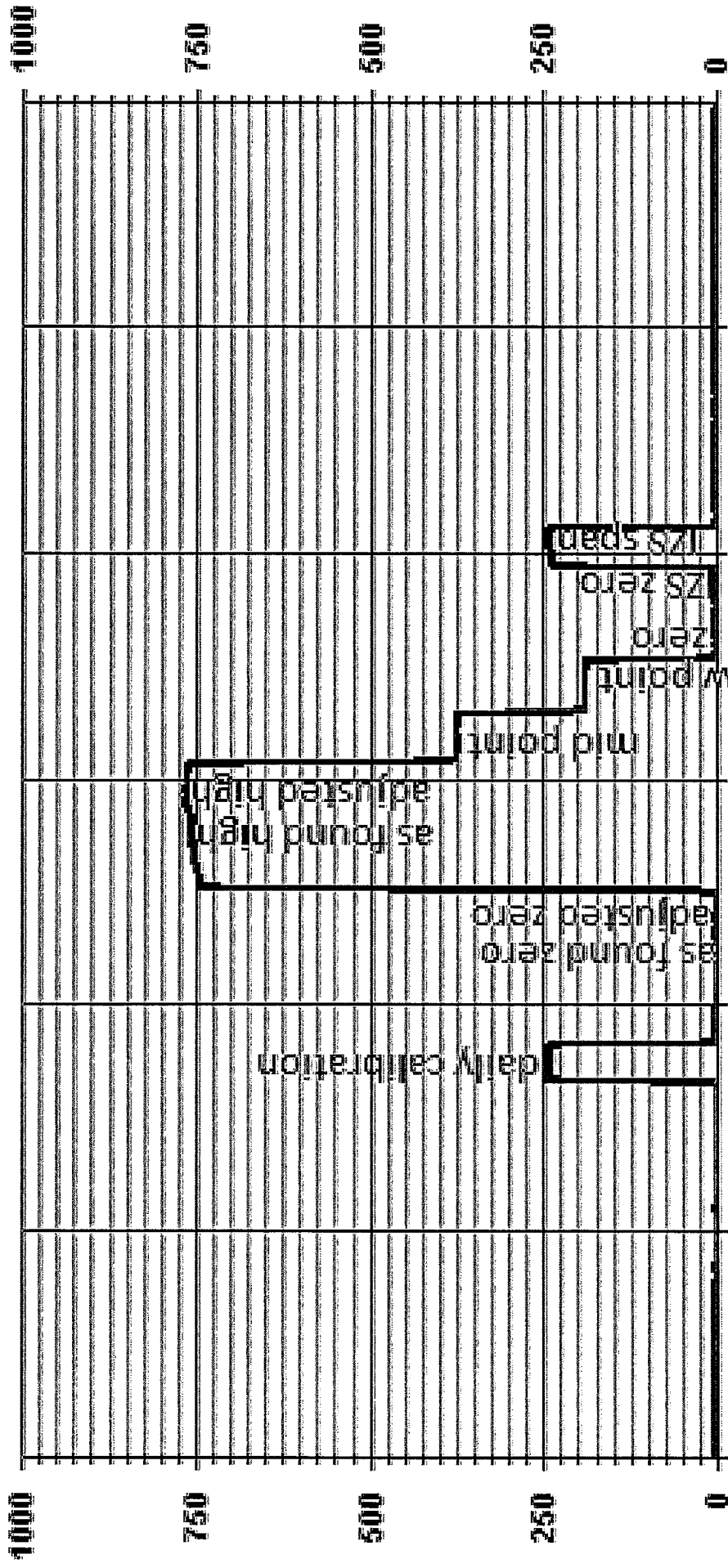
Comments:

Analyzer filter changed. The as left span check result was identical to the previous span check result.

API 100A SO2 Analyzer Calibration

calculated ppb	indicated ppb
0	0
188	188
374	374
762	762

01 Minute Averages



09/01/15 07:00 09/01/15 09:00 09/01/15 11:00 09/01/15 13:00 09/01/15 15:00 09/01/15 17:00

— LICA30 SO2\_ PPB

***HYDROGEN SULPHIDE***

Maxxam
API 101E H2S Analyzer Calibration

---

Date: 1-Sep-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H<sub>2</sub>S/TRS/SO<sub>2</sub>: H2S

Start/End Time (mst): 10:52 - 15:18

Calibration Purpose: Monthly

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

---

Analyzer:

Serial Number: 511

Last Calibration Date: 13-Aug-15

Previous Cal High Point C.F.: 1.004

Range ppb: 100

As Found C.F.: 0.990

New C.F.: 0.996

---

**As found:**

SLOPE: 0.842

OFFSET: 49.6

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 31.1

PMT TEMP: 7.9

IZS TEMP: 45.0

TEST: NA

STABIL: 0.2

PRES: 28.4

SAMP FL: 642

PMT: 72.4

NORM PMT: 50.6

UV LAMP: 2604.9

LAMP RATIO: 83.7

STR. LGT: 20.9

DRK PMT: 33.7

DRK LMP: 5.4

Internal Span: 48.38

**As left:**

SLOPE: 0.837

OFFSET: 50.8

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 30.3

PMT TEMP: 7.8

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 28.5

SAMP FL: 645

PMT: 72.5

NORM PMT: 52.8

UV LAMP: 2606.4

LAMP RATIO: 83.8

STR. LGT: 21.2

DRK PMT: 32.8

DRK LMP: 5.4

Internal Span: 48.38

---

Callibrator:

Flow Meter ID's: NA

Make & Model: API

Serial #: 830

Cal Gas Cylinder I.D. #: LL36837

Cal Gas Conc. (ppm): 10.0

**Callibrator Flow Targets:**

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	7497	0	7497
high	7442	59	7501
mid	7472	29	7501
low	7486	14	7500

---

**Calibration:**

Point	Callibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	7497	0.0	7497	0	0.5	NA
adjusted zero	7497	0.0	7497	0	0.0	NA
as found high	7442	58.50	7501	78.0	78.8	0.990
adjusted high	7442	58.50	7501	78.0	78.1	0.999
mid	7472	28.50	7501	38.0	38.4	0.990
low	7486	14.30	7500	19.1	19.1	0.998
calibrator zero	7497	0.00	7497	0	0.0	NA
Average C.F. =						0.996

---

**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>-0.08%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>1.41%</u>	± 3% F.S.	PASS
		± 15%	PASS

**Converter Efficiency Check for H<sub>2</sub>S/TRS application:**

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

SO<sub>2</sub> High Point gas concentration: 20 ppb      Time gas run (mst): 11:53 - 11:59

Zero corrected analyzer response: 0.3 ppb

---

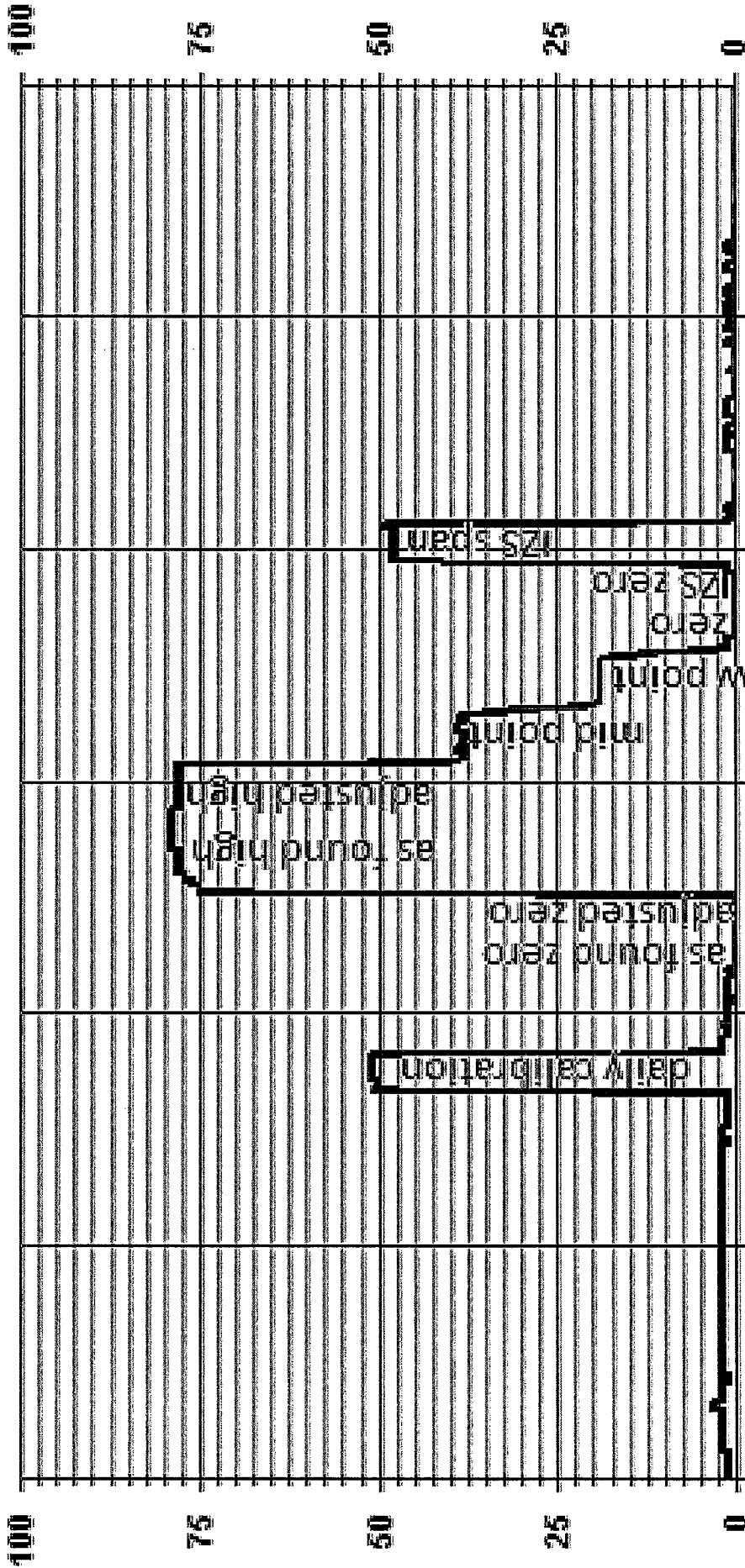
**Comments:**

Analyzer filter changed. The as left span check result was identical to the previous span check result.

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0	0
19.1	19.1
38.4	38.4
78.1	78.1

# 01 Minute Averages



09/01/15 07:00 09/01/15 09:00 09/01/15 11:00 09/01/15 13:00 09/01/15 15:00 09/01/15 17:00

— LICA30 H2S\_ PPB

***TOTAL HYDROCARBON***

# Maxxam Thermo 51C THC Analyzer Calibration

Date: 1-Sep-15 Start Time (mst): 14:34  
 Company: LICA End Time (mst): 18:38  
 Station Name/Location: Maskwa Calibration Purpose: Monthly Calibration  
 Performed by: Alex Yakupov Cal Gas Expiry Date: 26-Mar-17

**Analyzer:**  
 Serial Number: 436609738 Range ppm: 50  
 Last Calibration Date: 14-Aug-15 As Found C.F.: 1.005  
 Previous Cal High Point C.F.: 1.000 New C.F.: 1.003

	<b>As found:</b>		<b>As left:</b>
H <sub>2</sub> cylinder (psi):	<u>1300</u>	H <sub>2</sub> cylinder (psi):	<u>1300</u>
H <sub>2</sub> cylinder reg set (psi):	<u>30</u>	H <sub>2</sub> cylinder reg set (psi):	<u>30</u>
Span Cylinder (psi):	<u>1300</u>	Span Cylinder (psi):	<u>1300</u>
Span Cylinder Reg Set (psi):	<u>26</u>	Span Cylinder Reg Set (psi):	<u>26</u>
Zero Air Gen Pressure:	<u>35</u>	Zero Air Gen Pressure:	<u>35</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>831</u>	FID status:	cnt: <u>873</u>
	rng: <u>1</u>		rng: <u>1</u>
	try: <u>0</u>		try: <u>0</u>
	flm: <u>178.2</u>		flm: <u>178.5</u>
	det: <u>125.3</u>		det: <u>125.3</u>
Oven Readings:	Flame: <u>178</u>	Oven Readings:	Flame: <u>178</u>
	Filter: <u>125</u>		Filter: <u>125</u>
	Base: <u>125</u>		Base: <u>125</u>
	Pump: <u>07.52</u>		Pump: <u>07.53</u>
Voltages:	+5: <u>4.9</u>	Voltages:	+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>34.19</u>		Internal Span: <u>34.13</u>

**Calibrator:**

Flow Meter ID's:	<u>NA</u>	<b>Calibrator Flow Targets:</b>			
Make & Model:	<u>API 700</u>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
Serial #:	<u>830</u>	zero	<u>2000</u>	<u>0</u>	<u>2000</u>
Cal Gas Cylinder I.D. #:	<u>LL33674</u>	high	<u>1935</u>	<u>65</u>	<u>2000</u>
CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> Cylinder Conc. (ppm):	<u>601.4</u>   <u>202.0</u>	mid	<u>1969</u>	<u>31</u>	<u>2000</u>
CH <sub>4</sub> as propane/total CH <sub>4</sub> equivalents (ppm):	<u>555.5</u>   <u>1156.9</u>	low	<u>1984</u>	<u>16</u>	<u>2000</u>

**Calibration:**

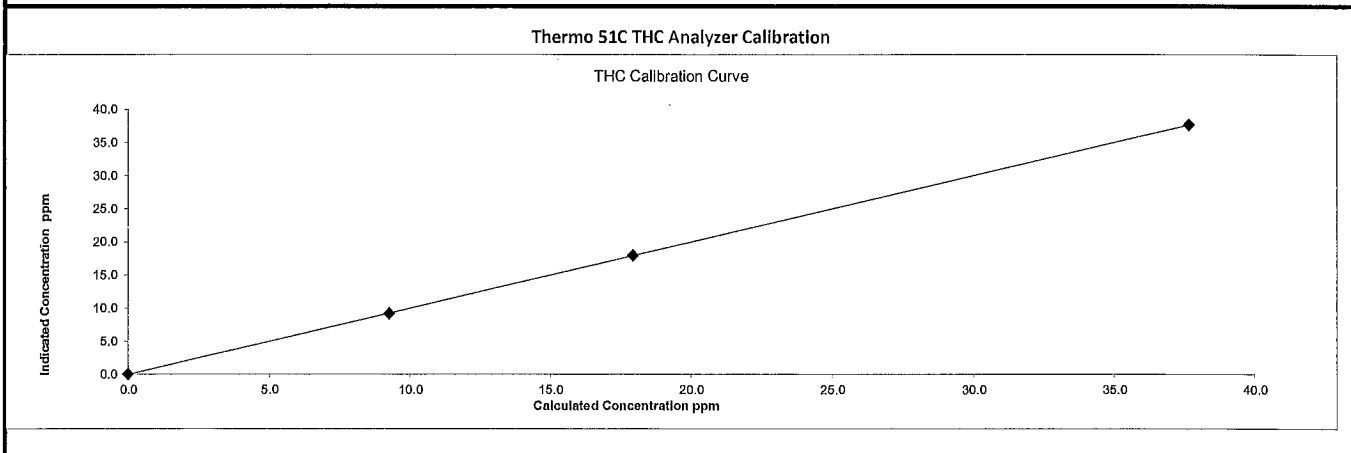
Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppm)	Indicated Concentration (ppm)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	1999	0.00	1999	0	-0.04	NA
adjusted zero	1999	0.00	1999	0	0.00	NA
as found high	1932	65.00	1997	37.66	37.47	1.005
adjusted high	1932	65.00	1997	37.66	37.66	1.000
mid	1969	31.00	2000	17.93	17.93	1.000
low	1984	16.00	2000	9.26	9.17	1.009
calibrator zero	1999	0.00	1999	0	0.00	NA
Average C.F. =						1.003

**Linear Regression/Calibration Results:**

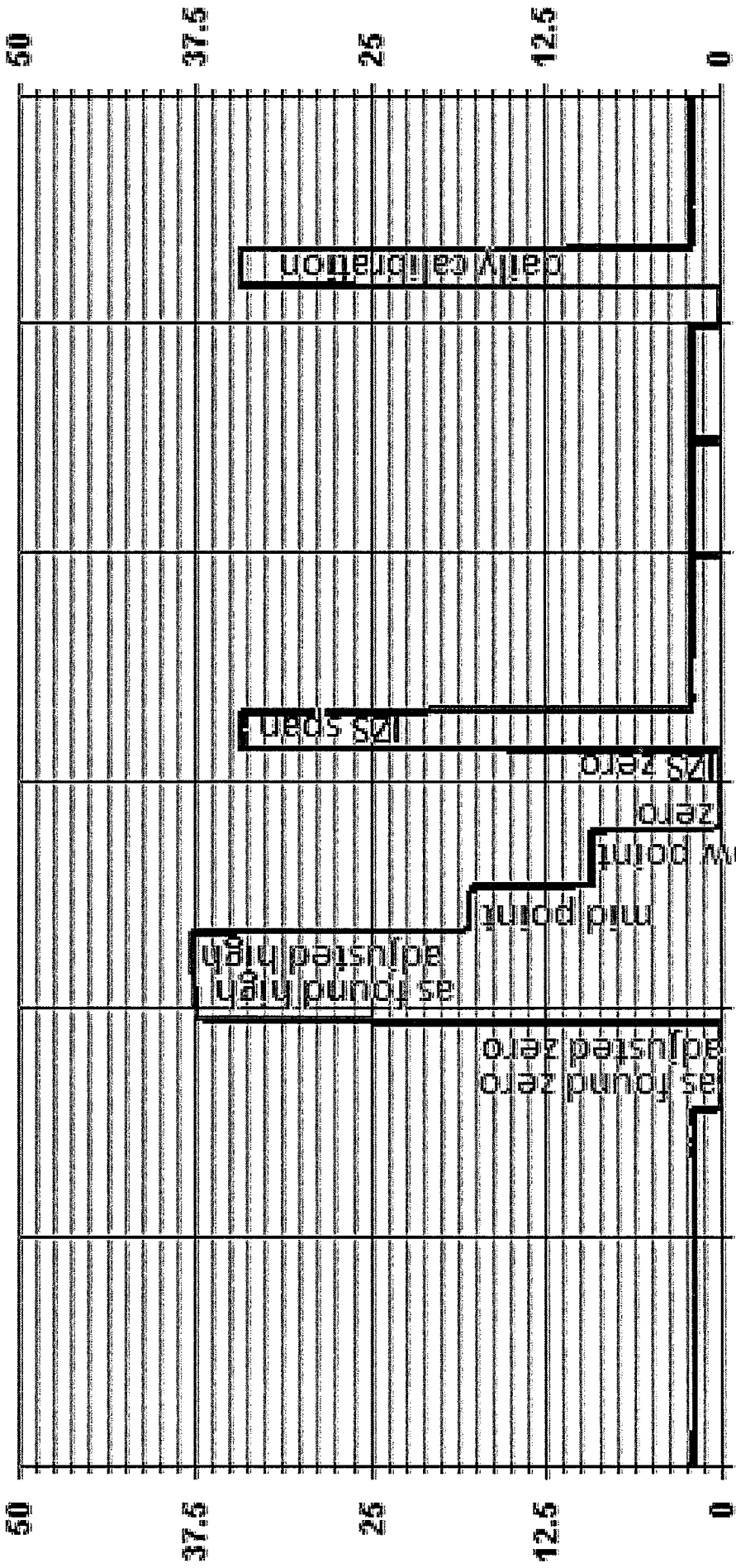
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.071%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>-0.50%</u>	± 3% F.S.	PASS
		± 15%	PASS

**Comments:**

Sample filter changed.



01 Minute Averages

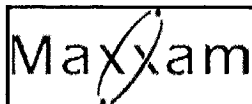


09/01/15 12:00 09/01/15 14:00 09/01/15 16:00 09/01/15 18:00 09/01/15 20:00 09/01/15 22:00

— LICA30 THC PPM



***NITROGEN DIOXIDE***



### API 200A NOx Analyzer Calibration

Date: 1-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Alex Yakupov

Start Time (mst): 10:52  
 End Time (mst): 17:27  
 Calibration Purpose: Monthly  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899  
 Last Calibration Date: 28-Aug-15  
 Range ppb: 1000

**Correction Factors:**  
 As found C.F.      Previous Cal High Point C.F.:  
 NO= 1.017      NO= 0.999  
 NOx= 1.017      NOx= 0.999  
 NO<sub>2</sub>= 1.006      NO<sub>2</sub>= 1.000

**As found:**  
 NOx SLOPE: 0.975  
 NOx OFFS: -0.7  
 NO SLOPE: 0.985  
 NO OFFS: -1.2  
 NOx STB: 2.0  
 SAMP FLW: 446  
 OZONE FL: 77  
 NORM PMT: 0.2  
 AZERO: 23.5  
 HVPS: 670  
 DCPS: 2578  
 RCELL: 50.6  
 BOX TEMP: 28.6  
 IZS TEMP: 40.3  
 MOLY TEMP: 314.5  
 RCEL: 5.8  
 SAMP: 26.1  
 Internal Span: 246/3.4/243

**As left:**  
 NOx SLOPE: 0.991  
 NOx OFFS: 0.7  
 NO SLOPE: 1.002  
 NO OFFS: -1.0  
 NOx STB: 0.1  
 SAMP FLW: 448  
 OZONE FL: 77  
 NORM PMT: -0.1  
 AZERO: 23.2  
 HVPS: 670  
 DCPS: 2572  
 RCELL: 50.0  
 BOX TEMP: 28.2  
 IZS TEMP: 40.0  
 MOLY TEMP: 314.8  
 RCEL: 5.9  
 SAMP: 26.8  
 Internal Span: 272.2/4.2/268

**Calibrator Flow Targets:**

Make & Model: SABIO 2010 D  
 Serial #: 11900613  
 Cal Gas Cylinder I.D. #: BLM002073  
 NO Cylinder Conc. (ppm): 50.6  
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
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	5013	0.0	5013	0	0	0.0	1.0	NA	NA
adjusted zero	5013	0.0	5013	0	0	0.0	0.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	766	766	1.017	1.017
adjusted high	4938	77.20	5015	778.9	778.9	779	779	1.000	1.000
mid	4976	37.70	5014	380.5	380.5	380	380	1.001	1.001
low	4994	18.90	5013	190.8	190.8	190	190	1.004	1.004
calibrator zero	5013	0.00	5013	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 <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4938	77.20	5015	0.0	778.0	778.0	0.0	0.0	0.0	
as found NO <sub>2</sub>	4938	77.20	5015	500.0	298.0	775.0	477.0	480.0	477.0	1.006
gpt mid	4938	77.20	5015	280.0	503.0	775.0	272.0	275.0	272.0	1.011
gpt low	4938	77.20	5015	100.0	673.0	777.0	104.0	105.0	104.0	1.010
Average NO <sub>2</sub> C.F.=									1.009	

Linear Regression/Calibration Results:			LIMITS
NO	NOx	NO <sub>2</sub>	
Correlation Coefficient =	1.000	1.000	> or = 0.995
Slope =	1.000	1.000	0.85-1.15
b (Intercept as % of full scale) =	-0.04%	-0.04%	± 3% F.S.
% change In C.F. from last cal =	-1.79%	-1.79%	+/-15%
NO <sub>2</sub> converter efficiency		99.1%	>85%

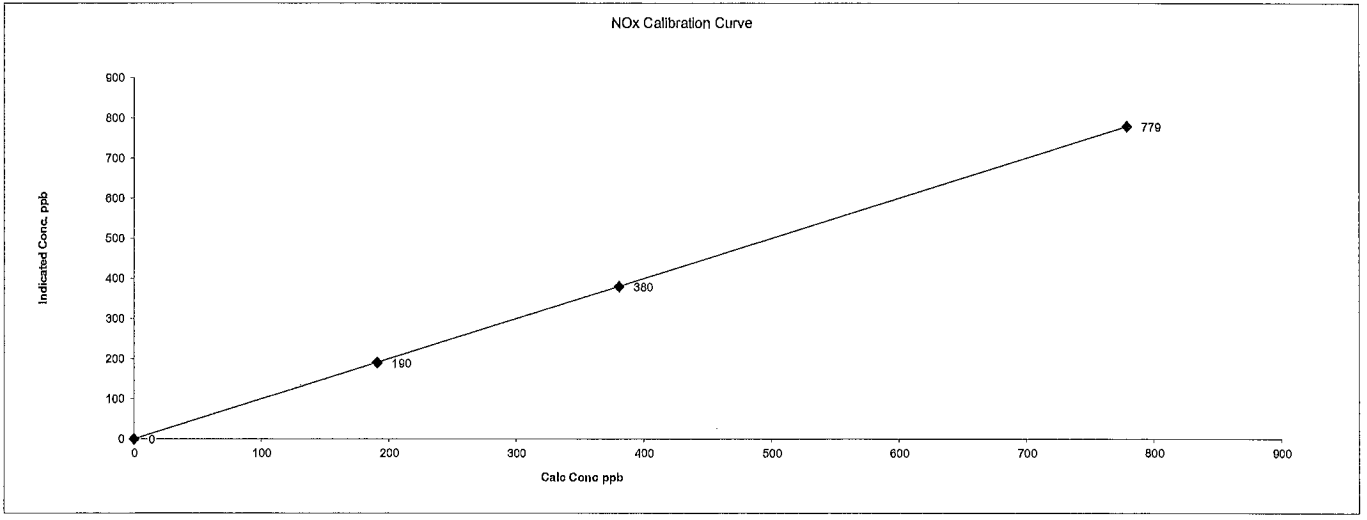
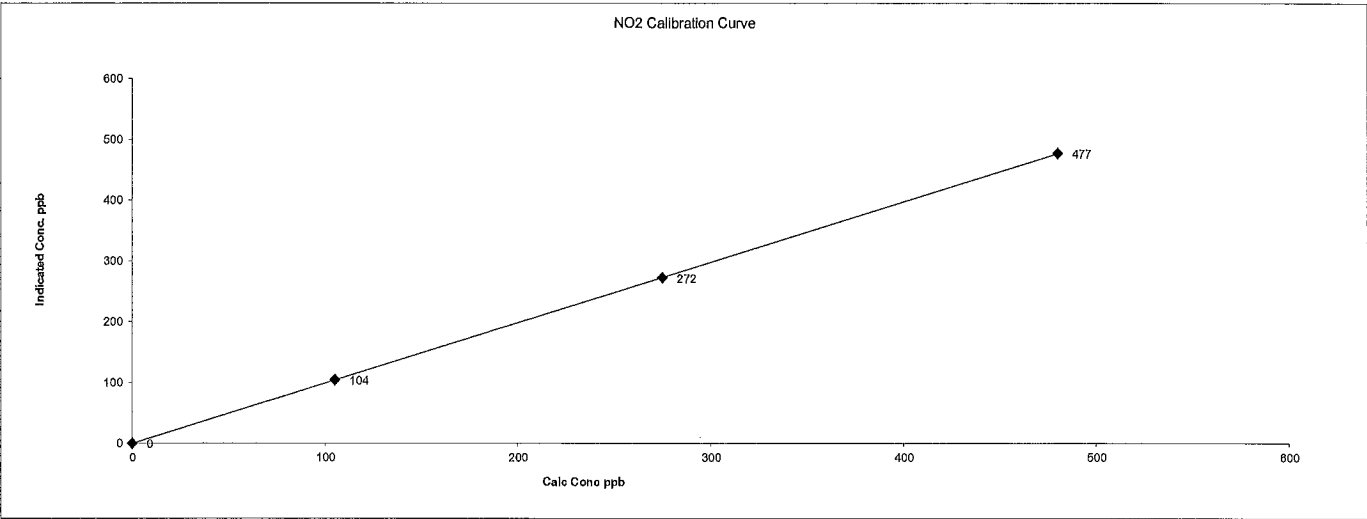
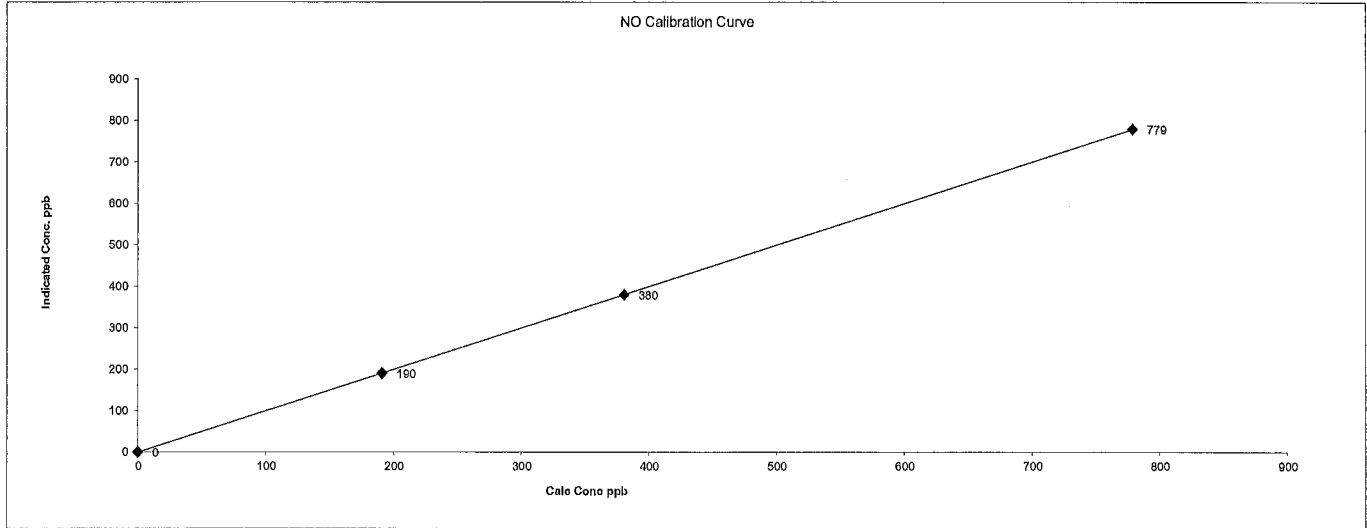
**Comments:**

Filter changed. No NO<sub>2</sub> adjustment made.

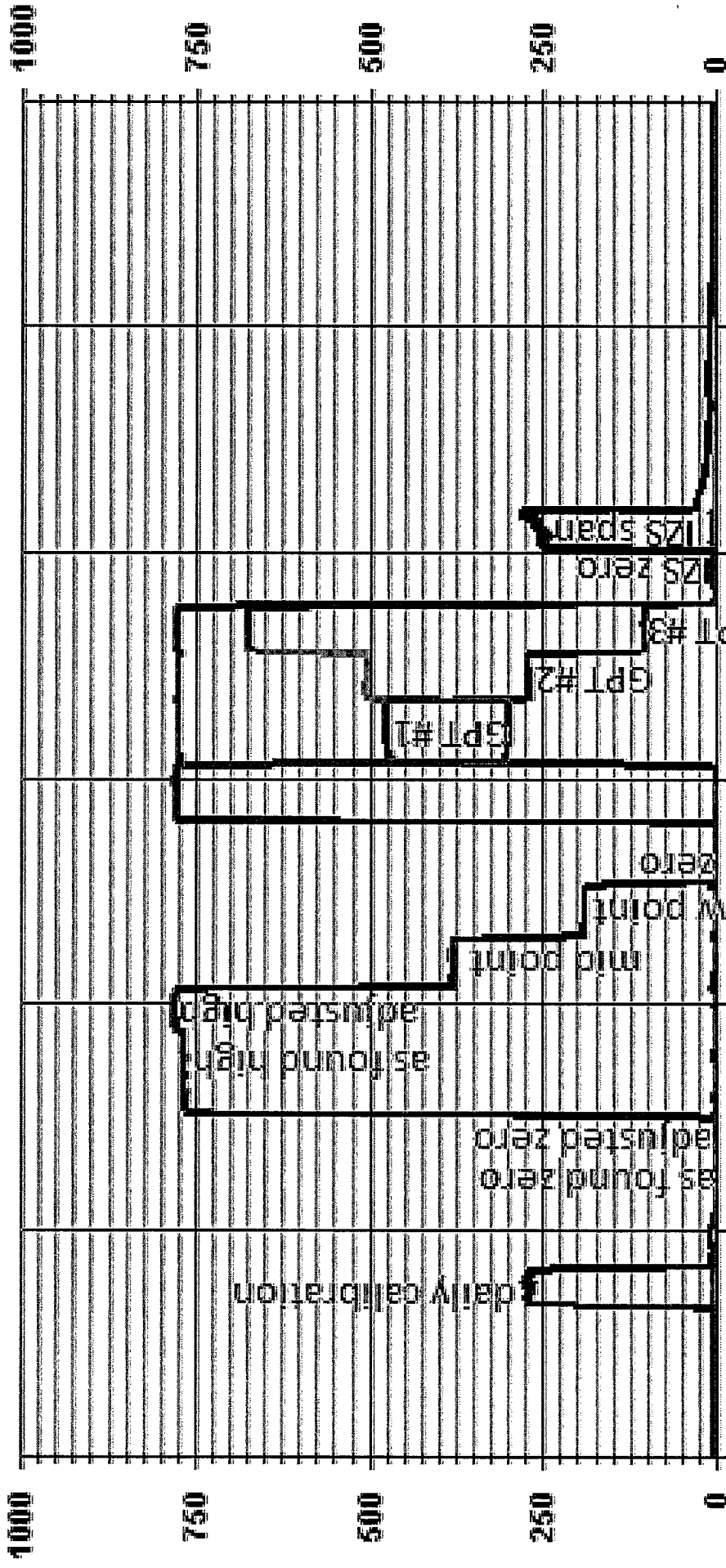
Date: 1-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Alex Yakupov

Start Time (mst): 10:52  
 End Time (mst): 17:27  
 Calibration Purpose: Monthly  
 Cal Gas Expiry Date: 12-Mar-19

API 200A NOx Analyzer Calibration

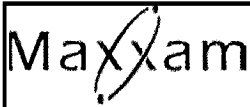


01 Minute Averages



09/01/15 09:00 09/01/15 11:00 09/01/15 13:00 09/01/15 15:00 09/01/15 17:00 09/01/15 19:00

— LICA30 NOX\_ PPB — LICA30 NO\_ PPB — LICA30 NO2\_ PPB



API 200A NOx Analyzer Calibration

Date: 3-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Chris Wesson

Start Time (mst): 14:18  
 End Time (mst): 15:44  
 Calibration Purpose: AS Found  
 Cal Gas Expiry Date: 12-Mar-19

<b>Analyzer Serial Number:</b> <u>1899</u>		<b>Correction Factors:</b>	
<b>Last Calibration Date:</b> <u>1-Sep-15</u>		<b>As found C.F.</b>	<b>Previous Cal High Point C.F.:</b>
<b>Range ppb:</b> <u>1000</u>		NO= <u>1.004</u>	NO= <u>1.000</u>
		NOx= <u>1.008</u>	NOx= <u>1.000</u>
		NO <sub>2</sub> = <u>1.004</u>	NO <sub>2</sub> = <u>1.006</u>
<b>As found:</b>		<b>As left:</b>	
NOx SLOPE:	<u>0.991</u>	NOx SLOPE:	<u>0.991</u>
NOx OFFS:	<u>0.7</u>	NOx OFFS:	<u>0.7</u>
NO SLOPE:	<u>1.002</u>	NO SLOPE:	<u>1.002</u>
NO OFFS:	<u>-1.0</u>	NO OFFS:	<u>-1.0</u>
NOx STB:	<u>0.6</u>	NOx STB:	<u>NA</u>
SAMP FLW:	<u>452</u>	SAMP FLW:	<u>452</u>
OZONE FL:	<u>78</u>	OZONE FL:	<u>78</u>
NORM PMT:	<u>-0.7</u>	NORM PMT:	<u>1.3</u>
AZERO:	<u>23.3</u>	AZERO:	<u>23.4</u>
HVPS:	<u>670</u>	HVPS:	<u>669</u>
DCPS:	<u>2580</u>	DCPS:	<u>2573</u>
RCELL:	<u>50.8</u>	RCELL:	<u>50.7</u>
BOX TEMP:	<u>29.7</u>	BOX TEMP:	<u>29.9</u>
IZS TEMP:	<u>PMT=6.9; IZS=40.0</u>	IZS TEMP:	<u>PMT=6.9; IZS=40.2</u>
MOLY TEMP:	<u>316.8</u>	MOLY TEMP:	<u>315.5</u>
RCEL:	<u>6.0</u>	RCEL:	<u>6.0</u>
SAMP:	<u>26.5</u>	SAMP:	<u>26.5</u>
Internal Span:	<u>NOX:272,NO:4.2,NO2:268</u>	Internal Span:	<u>NOX:220,NO:4,NO2:216</u>

Calibrator Flow Targets:

Make & Model: Sabto 2010  
 Serial #: 17100415  
 Cal Gas Cylinder I.D. #: LL67747  
 NO Cylinder Conc. (ppm): 50.9  
 NOx Cylinder Conc. (ppm): 50.9

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4920	80	500.00	5000
mid	4960	40	250.00	5000
low	4980	20	95.00	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	5015	0.0	5015	0	0	0.0	0.0	NA	NA
as found high	4940	76.90	5017	780.2	780.2	777	774	1.004	1.008
Average C.F.=								1.004	1.008

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4940	76.90	5017	0.0	777.0	774.0	-3.0	0.0	0.0	
as found NO <sub>2</sub>	4940	76.90	5017	500.0	257.0	772.0	515.0	520.0	518.0	1.004
Average NO <sub>2</sub> C.F.=									NA	

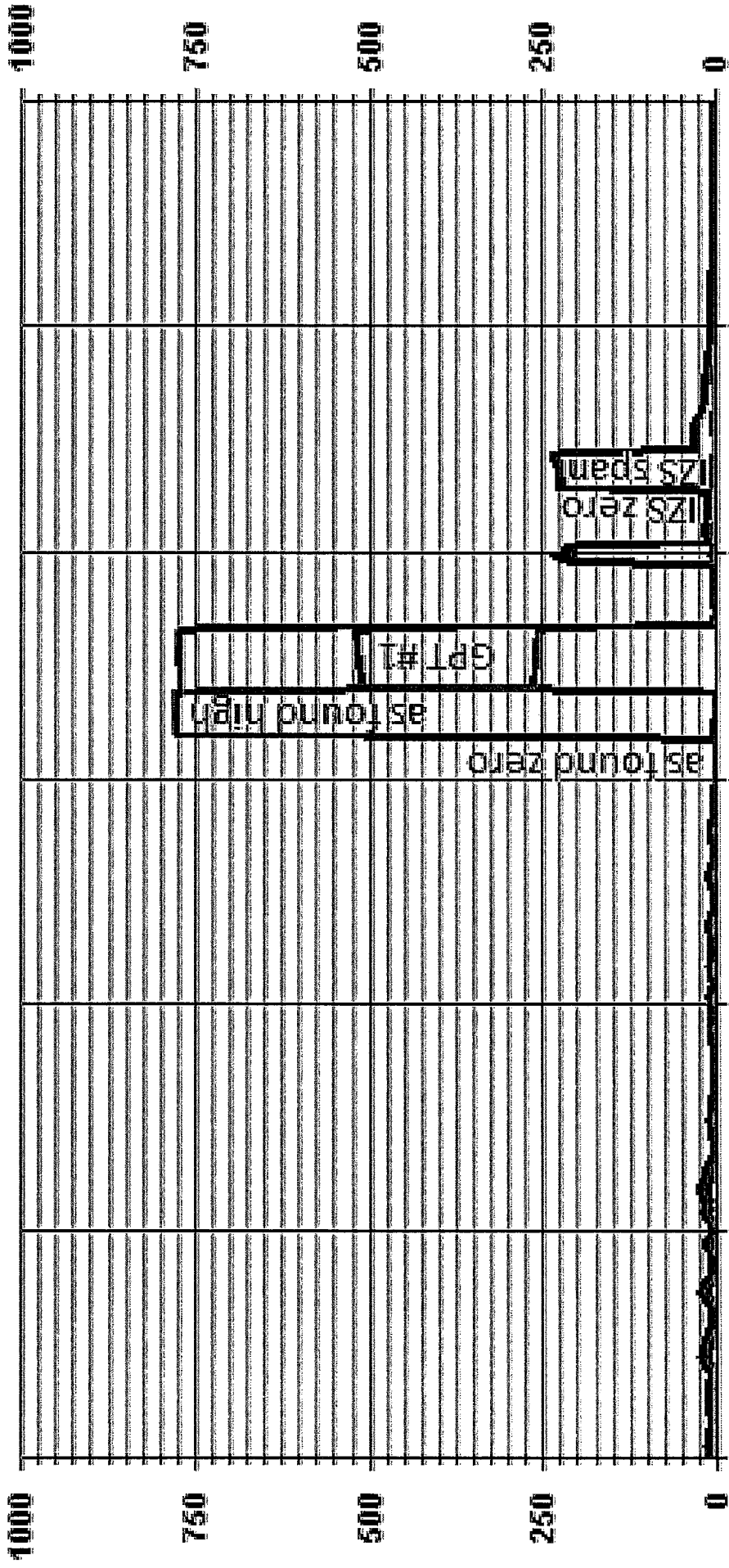
Linear Regression/Calibration Results:

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	NA	NA	NA	> or = 0.995
Slope =	NA	NA	NA	0.85-1.15
b (Intercept as % of full scale)=	NA	NA	NA	± 3% F.S.
% change in C.F. from last cal=	-0.41%	-0.80%	0.21%	+/-15%
NO2 converter efficiency			NA	>85%

Comments:

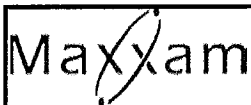
As-found showed minimal variance despite marked changes in IZS results. IZS zero shows some contamination - renewed scrubber material (Purafil and charcoal). Inspected IZS system - no problems apparent. Achieved span value increased Aug 30-Sep 02; cause unknown. Now returned to a value close to pre Aug 30 values. Again, cause unknown. Seems to be stable at approx NOX=220 ppb. Will adjust EV based on as-found (full calibration < 2 days old).

01 Minute Averages



09/03/15 08:20 09/03/15 10:20 09/03/15 12:20 09/03/15 14:20 09/03/15 16:20 09/03/15 18:20

— LICA30 NOX\_ PPB — LICA30 NO\_ PPB — LICA30 NO2\_ PPB



### API 200A NOx Analyzer Calibration

Date: 9-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Alex Yakupov

Start Time (mst): 12:21  
 End Time (mst): 14:45  
 Calibration Purpose: As Found  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899  
 Last Calibration Date: 3-Sep-15  
 Range ppb: 1000

**Correction Factors:**  
 As found C.F.                      Previous Cal High Point C.F.:  
 NO= 0.988                      NO= 1.000  
 NOx= 0.991                      NOx= 1.000  
 NO<sub>2</sub>= 1.000                      NO<sub>2</sub>= 1.006

**As found:**  
 NOx SLOPE: 0.991  
 NOx OFFS: 0.7  
 NO SLOPE: 1.002  
 NO OFFS: -1.0  
 NOx STB: 0.1  
 SAMP FLW: 453  
 OZONE FL: 79  
 NORM PMT: 0.1  
 AZERO: 23.1  
 HVPS: 670  
 DCPS: 2579  
 RCELL: 50.2  
 BOX TEMP: 29.8  
 IZS TEMP: 40.4  
 MOLY TEMP: 315.5  
 RCEL: 6.0  
 SAMP: 26.6  
 Internal Span: 220/4/216

**As left:**  
 NOx SLOPE: 0.991  
 NOx OFFS: 0.7  
 NO SLOPE: 1.002  
 NO OFFS: -1.0  
 NOx STB: 0.1  
 SAMP FLW: 453  
 OZONE FL: 78  
 NORM PMT: 1.1  
 AZERO: 23.0  
 HVPS: 670  
 DCPS: 2579  
 RCELL: 50.1  
 BOX TEMP: 29.3  
 IZS TEMP: 40.0  
 MOLY TEMP: 315.9  
 RCEL: 6.0  
 SAMP: 26.6  
 Internal Span: 273/5/268

**Calibrator Flow Targets:**

Make & Model: SABIO 2010 D  
 Serial #: 11900613  
 Cal Gas Cylinder I.D. #: BLM002073  
 NO Cylinder Conc. (ppm): 50.6  
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
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	5013	0.0	5013	0	0	0.0	0.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	788	786	0.988	0.991
Average C.F.=								N/A	N/A

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4938	77.20	5015	0.0	788.0	786.0	-2.0	0.0	0.0	
as found NO <sub>2</sub>	4938	77.20	5015	500.0	298.0	786.0	488.0	490.0	490.0	1.000
Average NO <sub>2</sub> C.F.=										N/A

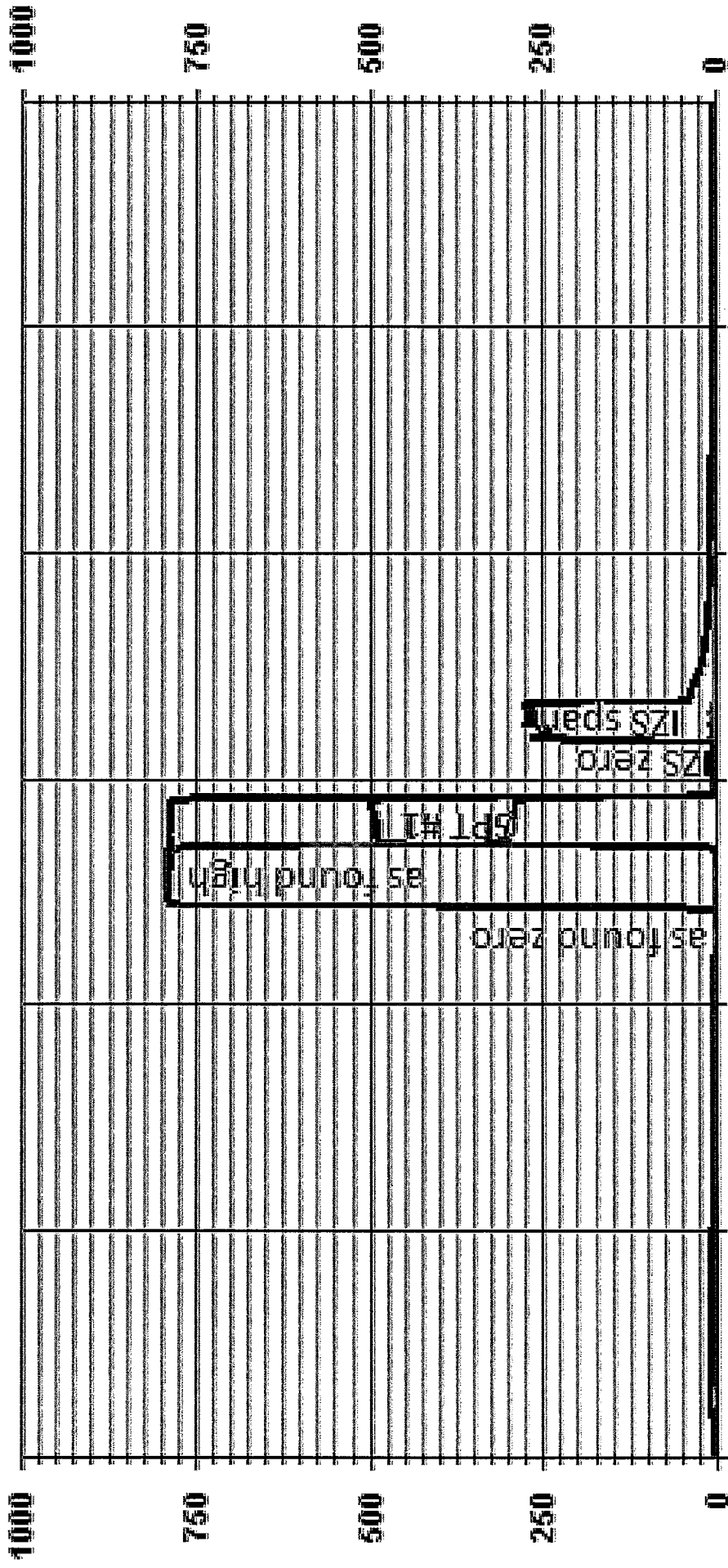
**Linear Regression/Calibration Results:**

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	N/A	N/A	N/A	> or = 0.995
Slope =	N/A	N/A	N/A	0.85-1.15
b (Intercept as % of full scale) =	N/A	N/A	N/A	± 3% F.S.
% change in C.F. from last cal =	1.16%	0.90%	0.60%	+/-15%
NO2 converter efficiency			N/A	>85%

**Comments:**

As Found calibration of the NOx analyzer. Reason: SPAN drift was over 10 % during ZS daily check. No ZERO adjustment made. No High Point adjustment made. No NO2 adjustment made.

# 01 Minute Averages



09/09/15 08:00 09/09/15 10:00 09/09/15 12:00 09/09/15 14:00 09/09/15 16:00 09/09/15 18:00

— LICA30 NOX\_ PPB    — LICA30 NO2\_ PPB    — LICA30 PPB





API 200A NOx Analyzer Calibration

Date: 15-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Limin Li

Start Time (mst): 6:42  
 End Time (mst): 10:41  
 Calibration Purpose: Removal Calibration  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899  
 Last Calibration Date: 3-Sep-15  
 Range ppb: 1000

Correction Factors:  
 As found C.F. Previous Cal High Point C.F.:  
 NO= 1.028 NO= 1.004  
 NOx= 1.027 NOx= 1.008  
 NO<sub>2</sub>= 1.008 NO<sub>2</sub>= 1.004

As found:  
 NOx SLOPE: 0.991  
 NOx OFFS: 0.7  
 NO SLOPE: 1.002  
 NO OFFS: -1.0  
 NOx STB: 0.6  
 SAMP FLW: 451  
 OZONE FL: 78  
 NORM PMT: -1.3  
 AZERO: 22.7  
 HVPS: 670  
 DCPS: 2573  
 RCELL: 50.4  
 BOX TEMP: 27.1  
 IZS TEMP: PMT=7.1; IZS=40.3  
 MOLY TEMP: 315.5  
 RCEL: 5.9  
 SAMP: 26.5  
 Internal Span: NOX:272,NO:4.2,NO<sub>2</sub>:268

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: Sablo 2010  
 Serial #: 17200415  
 Cal Gas Cylinder I.D. #: BLM002756T  
 NO Cylinder Conc. (ppm): 50.7  
 NOx Cylinder Conc. (ppm): 50.7

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5030	0	0	5030
high	4952	77	560.00	5029
mid	4991	38	310.00	5029
low	5011	19	110.00	5030

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	5029	0.0	5029	0	0	0.0	0.0	NA	NA
as found high	4952	77.10	5029	777.3	777.3	756	757	1.028	1.027
mid	4991	37.70	5029	380.1	380.1	361	362	1.053	1.050
low	5011	19.00	5030	191.5	191.5	178	179	1.076	1.070
Average C.F.=								1.052	1.049

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4953	77.20	5030	0.0	747.0	748.0	1.0	0.0	0.0	
as found NO <sub>2</sub>	4953	77.20	5030	560.0	245.0	744.0	499.0	502.0	498.0	1.008
gpt mid	4953	77.20	5030	310.0	468.0	744.0	276.0	279.0	275.0	1.015
gpt low	4953	77.20	5030	110.0	651.0	745.0	94.0	96.0	93.0	1.032
Average NO <sub>2</sub> C.F.=										1.018

Linear Regression/Calibration Results:

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.975	0.976	0.993	0.85-1.15
b (Intercept as % of full scale) =	-0.51%	-0.47%	-0.13%	± 3% F.S.
% change in C.F. from last cal =	-2.40%	-1.86%	-0.40%	+/-15%
NO <sub>2</sub> converter efficiency			98.2%	>85%

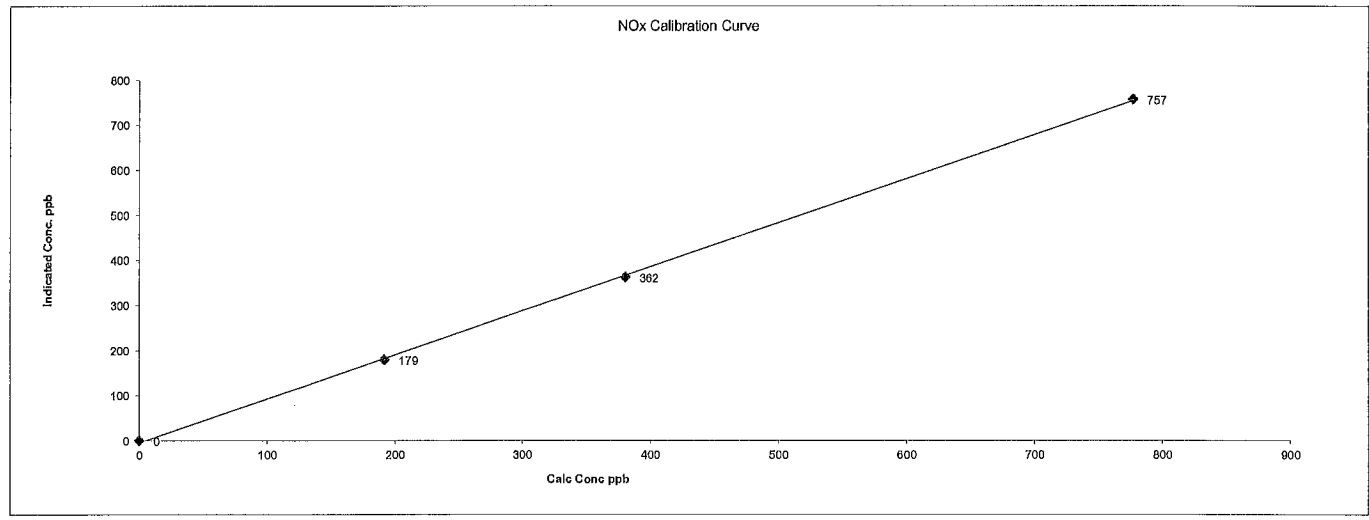
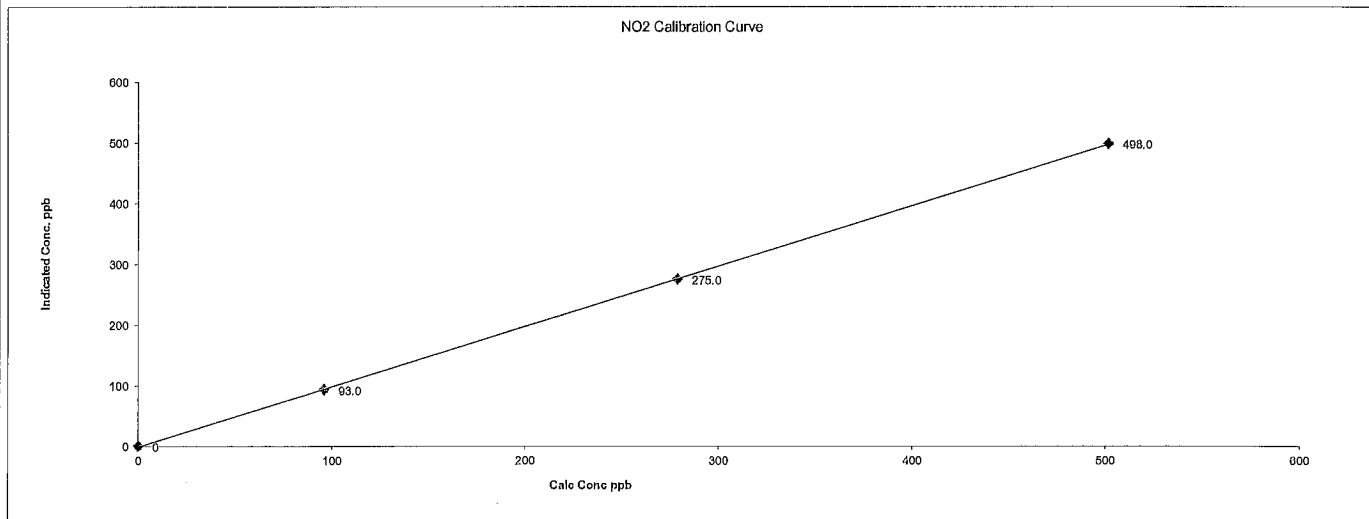
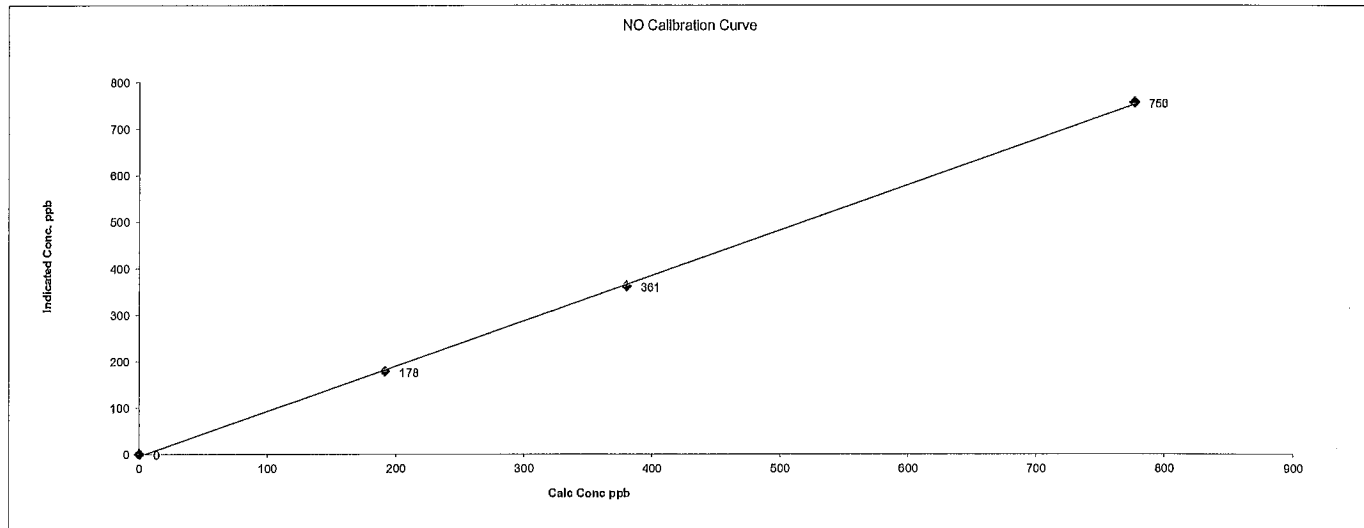
Comments:

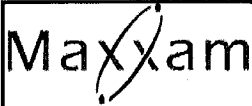
Analyzer to be removed for maintenance - this is a removal calibration.

Date: 15-Sep-15  
Company: LICA  
Station Name/Location: Maskwa  
Performed by: Limin Li

Start Time (mst): 6:42  
End Time (mst): 10:41  
Calibration Purpose: Removal Calibration  
Cal Gas Expiry Date: 12-Mar-19

API 200A NOx Analyzer Calibration





API 200E NOx Analyzer Calibration

Date: 15-Sep-15  
 Company: LICA  
 Station Name/Location: Maskwa  
 Performed by: Limin Li

Start Time (mst): 12:15  
 End Time (mst): 17:46  
 Calibration Purpose: Install Calibration  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 593		Correction Factors:	
Last Calibration Date:	NA	As found C.F.	Previous Cal High Point C.F.:
Range ppb:	1000	NO= 1.000	NO= NA
		NOx= 1.000	NOx= NA
		NO <sub>2</sub> = 1.000	NO <sub>2</sub> = NA
<b>As found:</b>		<b>As left:</b>	
NOx SLOPE:	NA	NOx SLOPE:	1.017
NOx OFFS:	NA	NOx OFFS:	2.6
NO SLOPE:	NA	NO SLOPE:	1.022
NO OFFS:	NA	NO OFFS:	-0.7
TEST:	NA	TEST:	132.3
SAMP FLW:	NA	SAMP FLW:	475
OZONE FL:	NA	OZONE FL:	77
PMT:	NA	PMT:	15.2
NORM PMT:	NA	NORM PMT:	-0.8
AZERO:	NA	AZERO:	12.9
HVPS:	NA	HVPS:	662
RCELL TEMP:	NA	RCELL TEMP:	50
BOX TEMP:	NA	BOX TEMP:	32.7
PMT TEMP:	NA	PMT TEMP:	6.7
IZS TEMP:	NA	IZS TEMP:	38.6
MOLY TEMP:	NA	MOLY TEMP:	316.7
RCEL:	NA	RCEL:	4.3
SAMP:	NA	SAMP:	26.8
Internal Span:	NA	Internal Span:	431.6/8.2/423.7

**Calibrator Flow Targets:**

Make & Model:	Sabio 2010	point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
Serial #:	17200415	zero	5030	0	0	5030
Cal Gas Cylinder I.D. #:	BLM002756T	high	4953	77	560.00	5030
NO Cylinder Conc. (ppm):	50.7	mid	4992	38	310.00	5030
NOx Cylinder Conc. (ppm):	50.7	low	5011	19	110.00	5030

**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)		
adjusted zero	5030	0.0	5030	0	0	0.0	0.0	NA	NA
adjusted high	4953	77.10	5030	777.1	777.1	777	777	1.000	1.000
mid	4992	37.70	5030	380.0	380.0	379	378	1.003	1.005
low	5011	19.00	5030	191.5	191.5	189	188	1.013	1.019
calibrator zero	5029	0.00	5029	0	0	0.0	0.0	NA	NA
Average C.F.=								1.005	1.008

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4953	77.20	5030	0.0	776.0	774.0	-2.0	0.0	0.0	
adjusted NO <sub>2</sub>	4953	77.20	5030	560.0	262.0	774.0	512.0	514.0	514.0	1.000
gpt mid	4953	77.20	5030	310.0	491.0	775.0	284.0	285.0	286.0	0.997
gpt low	4953	77.20	5030	110.0	677.0	775.0	98.0	99.0	100.0	0.990
Average NO <sub>2</sub> C.F.=									0.996	

**Linear Regression/Calibration Results:**

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	1.000	0.85-1.15
b (Intercept as % of full scale) =	-0.12%	-0.18%	0.06%	± 3% F.S.
% change in C.F. from last cal =	NA	NA	NA	+/-15%
NO <sub>2</sub> converter efficiency			100.5%	>85%

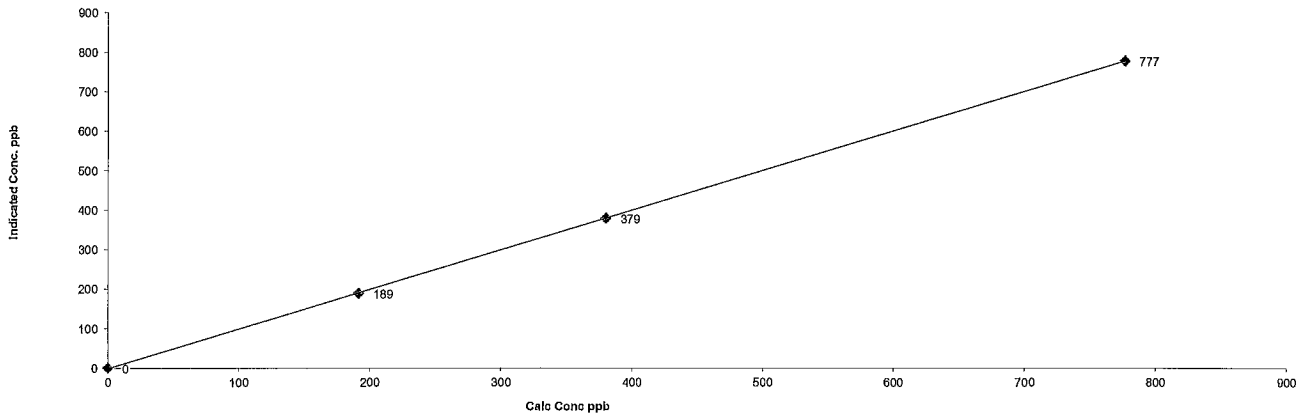
**Comments:**  
 This is a replacement analyzer - the previous analyzer was removed for maintenance.

Date: 15-Sep-15  
Company: LICA  
Station Name/Location: Maskwa  
Performed by: Limin Li

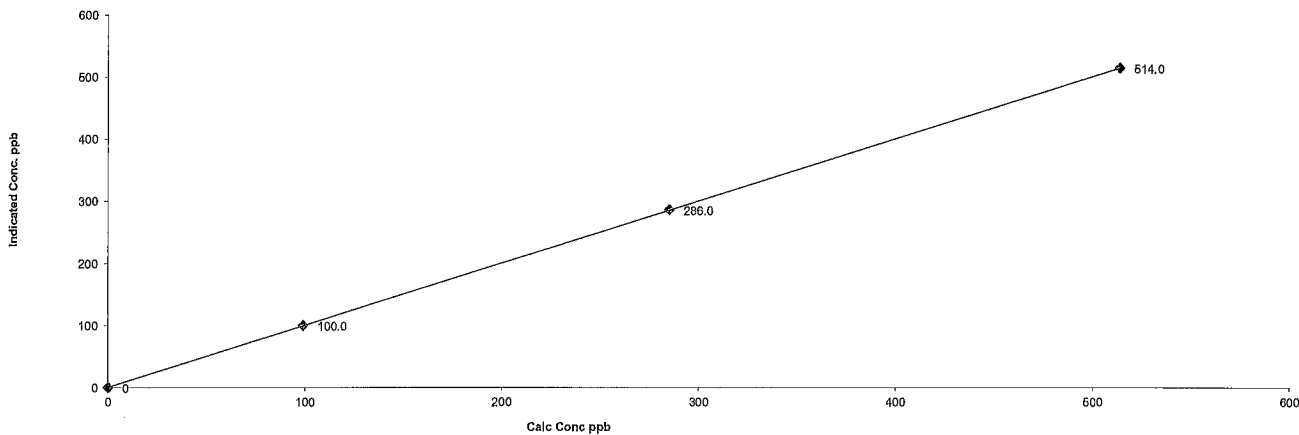
Start Time (mst): 12:15  
End Time (mst): 17:46  
Calibration Purpose: Install Calibration  
Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration

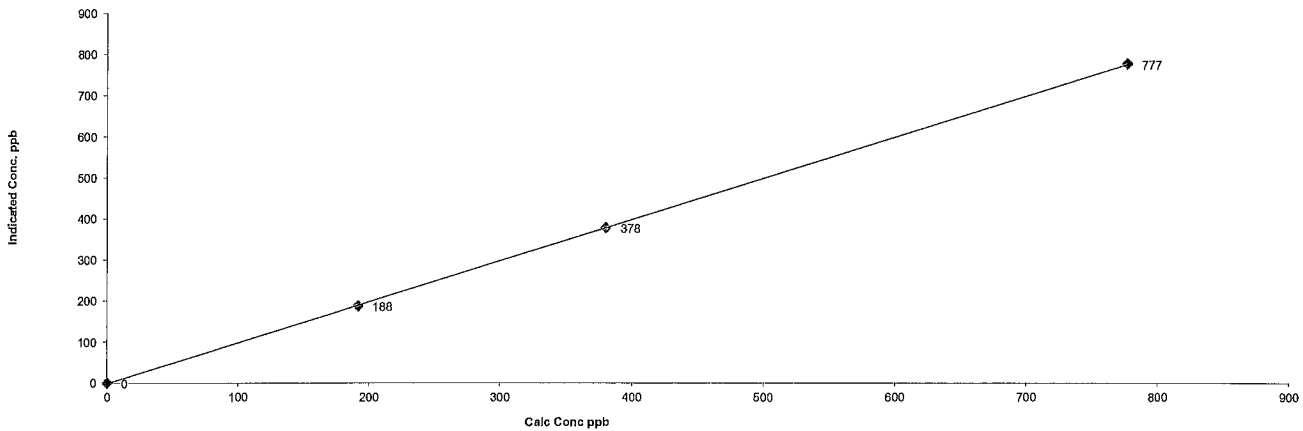
NO Calibration Curve



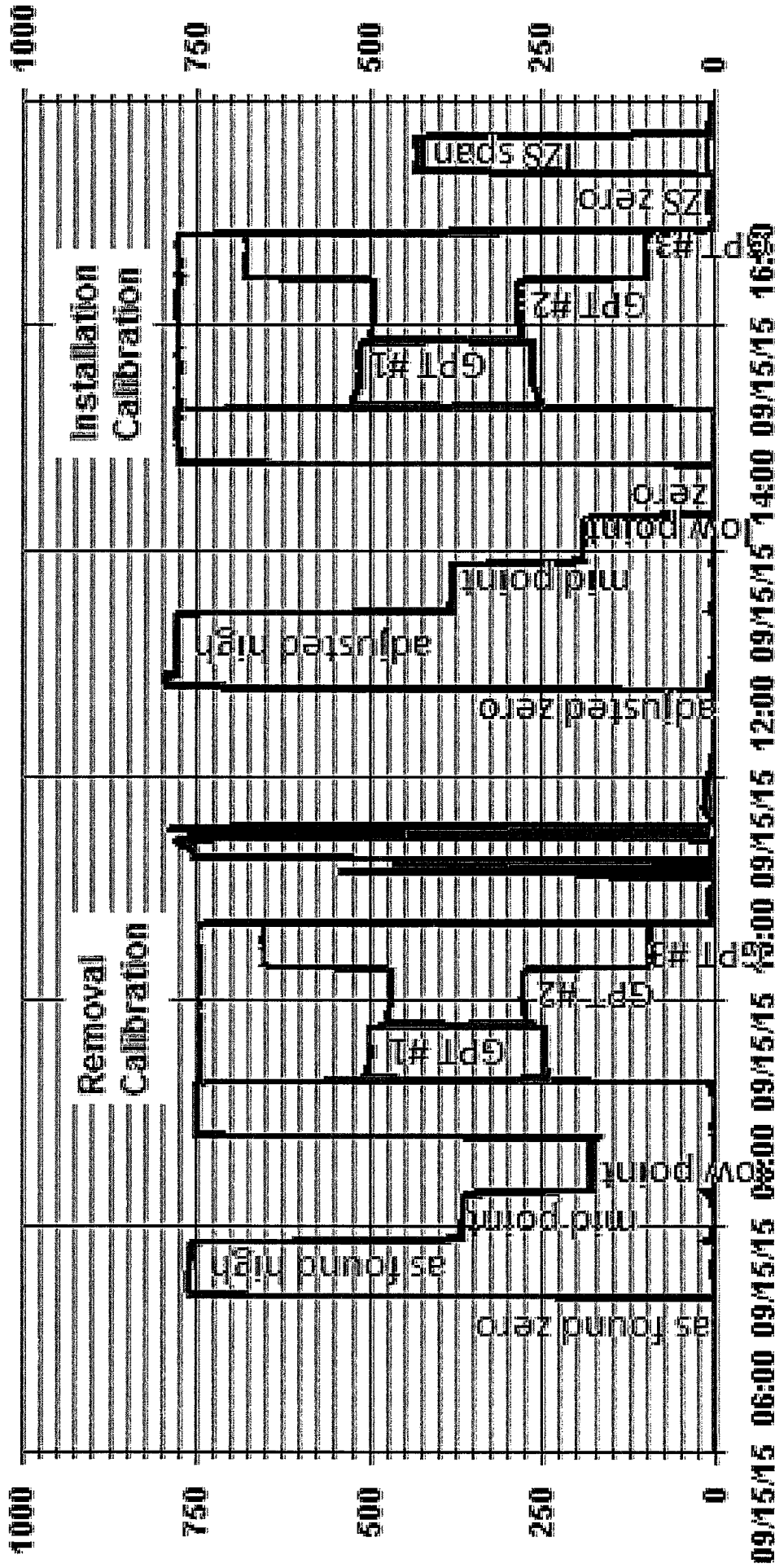
NO2 Calibration Curve



NOx Calibration Curve



01 Minute Averages



— LICA30 NOX\_ PPB — LICA30 NO\_ PPB — LICA30 NO2\_ PPB

## ***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>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

**Flow Measurements**

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

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

<u>O<sub>3</sub></u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Auditor: Al Clark Date: May 21, 2015  
 Operator Signature: *Limin Li* 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>830</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Oct 2013</u>	Temperature (°C)	<u>N/A</u>
SO <sub>2</sub> Cylinder Conc.	<u>50.3</u>	Barometric Pressure	<u>N/A</u>
SO <sub>2</sub> Cylinder S/N	<u>LL42475</u>		

**Flow Measurements**

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

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

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

SO <sub>2</sub>		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO <sub>2</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&amp;R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

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

Auditor: Al Clark Date: December 16, 2014  
Operator Signature: \_\_\_\_\_ Location: McIntyre Center Edmonton



Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17100415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>New</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>BLM0027561</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>50.7/50.7</u>		

Dilution Flow (sccm)		
Pt. #1	<u>5000</u>	Pt. #3 <u>5000</u>
Pt. #2	<u>5000</u>	
Gas Flow (sccm)		
Pt. #1	<u>80</u>	Pt. #3 <u>20</u>
Pt. #2	<u>40</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5016	79.1	0.800	0.800	0.811	-0.011	0.800	1%	0%
5016	39.7	0.401	0.401	0.405	-0.005	0.400	1%	0%
5015	19.9	0.201	0.201	0.203	-0.003	0.200	1%	0%
Absolute Average Percent Difference							1%	0%

**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)=	1.0139	<b>0.90-1.10</b>		m (Slope)=	1.0003
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.		b (Intercept % of FS)=	#DIV/0!

Flow	O <sub>2</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOx	% Diff. Vs Audit gas	
5016	0.000	0.000	0.809	-0.013	0.796	NO <sub>2</sub>	% Diff. Limit
5016	0.500	0.484	0.325	0.469	0.794	0	± 10%
5016	0.300	0.278	0.531	0.263	0.794	0	± 10%
5016	0.100	0.090	0.719	0.076	0.765	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

NO <sub>2</sub>		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	0.9960	<b>0.90-1.10</b>	
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.	

AENV Standards		NO <sub>x</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 42i</u>
Make/Model	<u>Teco 146i</u>	Serial/AMU Number	<u>AMU 1868</u>
Serial/AMU Number	<u>AMU 1809</u>	Last Calibration Date	<u>May 21, 2015</u>
		Full Scale (ppm)	

COMMENTS: Contains 49.9 ppm SO2

Auditor: Al Clark  
Operator Signature: [Signature]

Date: May 21, 2015  
Location: McIntyre Center Edmonton

***CALIBRATION GASES***



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam Operator's Name: Limin Li  
 Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%): 2 Certified By: Alr Liquide

**Reference Calibrator and Gas:**

Make/Model: R&R MFC 201  
 Serial Number: AMU 1690  
 Last Verification Date: March 31, 2015  
 Gas Type: SO2 Conc. 98.57  
 Cylinder Number: GAL016720

**Flow Measurement Device:**

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

**Reference Analyzer:**

Make/Model: Teco 43C Serial/AMU Number: 1623  
 Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0  
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	<del>0.000</del>	<del>0.000</del>	<del>0.000</del>
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00408	246.386	47.6
Average Cylinder Concentration:					<b>48.0</b>

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: 3.0

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

Auditor: Al Clark  
 Operator Signature: *Al Clark*

Date: March 31, 2015  
 Location: McIntyre Center Edmonton



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2014-251CGA

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

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

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

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration  \_\_\_\_\_

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

Auditor: Al Clark

Date: December 16, 2014

Operator Signature: *Al Clark*

Location: McIntyre Center Edmonton



Praxair Canada, Inc.  
 8501 44th Street  
 Edmonton, AB T6B 2X6  
 Tel: 780-449-0775  
 Fax: 780-449-3302

03/27/2014

MAXAM ANALYTICS INC/NA  
 9372 48TH ST  
 EDMONTON AB T6B 2L7

Work Order No. 20248856  
 Customer Reference No.

Product Lot/Batch No. Z582 4 085 02  
 Product Part No. NI ME800P2P-AQ

**CERTIFICATE OF ANALYSIS**  
 Primary Standard

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

Analytical Instruments: Mettler Toledo Analytical Balance--ID2ex/USA--  
 Hewlett-Packard (Agilent)--6890--GC-FID

Cylinder Style: AQ  
 Cylinder Pressure @70F: 2200 psig  
 Cylinder Volume: 32.0 ltr  
 Valve Outlet Connection: CGA-350  
 Cylinder No(s): LL33574

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

Analyst: Todd Hyatt

This certificate is issued by Praxair Canada, Inc. as a service to its customers. It is provided by agreement, and is not intended to constitute a contract. The information contained herein is for informational purposes only and is not intended to be used as a substitute for professional advice. Praxair Canada, Inc. is not responsible for any errors or omissions in this certificate. Praxair Canada, Inc. is not responsible for any damage or injury resulting from the use of this information for any particular purpose. The information contained herein is the property of Praxair Canada, Inc. and is not to be distributed, copied, or used in any way without the prior written consent of Praxair Canada, Inc.

<input type="checkbox"/> Gas Chromatography with Flame Ionization Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Photoionization Detector
<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Infrared - FTIR or IRTF
<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Infrared - FTIR or IRTF	<input type="checkbox"/> Specific Vapor Analyzers
<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Infrared - FTIR or IRTF	<input type="checkbox"/> Other

This certificate is issued by Praxair Canada, Inc. as a service to its customers. It is provided by agreement, and is not intended to constitute a contract. The information contained herein is for informational purposes only and is not intended to be used as a substitute for professional advice. Praxair Canada, Inc. is not responsible for any errors or omissions in this certificate. Praxair Canada, Inc. is not responsible for any damage or injury resulting from the use of this information for any particular purpose. The information contained herein is the property of Praxair Canada, Inc. and is not to be distributed, copied, or used in any way without the prior written consent of Praxair Canada, Inc.



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam Operators name: Limin Li  
 Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

Callibrator 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	<del>0.01660</del>	<del>60.242</del>	<del>51.5</del>	<del>51.1</del>
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
Average Cylinder Concentration:						<b>52.0</b>	<b>51.3</b>

<u>NO</u>	<u>NOx</u>
Previous Stated Concentration PPM: <u>50.6</u>	<u>50.6</u>
Percent variance from Stated: <u>2.8</u>	<u>1.4</u>

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_  
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.5 ppm SO2 in cylinder  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: March 31, 2015  
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-340CGA

**Company:** Maxxam      **Operators name:** Limin Li  
**Cylinder #:** LL67747   **Conc (PPM)** 50.9/50.9   **Tolerance (%)** 2   **Certified By:** Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.846	0.829	0.01660	60.242	51.0	49.9
4993	41.0	0.421	0.413	0.00821	121.780	51.3	50.3
4977	20.2	0.207	0.203	0.00406	246.386	51.0	50.0
<b>Average Cylinder Concentration:</b>						<b>51.1</b>	<b>50.1</b>

<u>NO</u>	<u>NO<sub>x</sub></u>
Previous Stated Concentration PPM: <u>50.9</u>	<u>50.9</u>
Percent variance from Stated: <u>0.4</u>	<u>1.6</u>

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  **COMMENTS:** \_\_\_\_\_  
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.7 ppm SO<sub>2</sub> in cylinder  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark      Date: March 31, 2015  
 Operator Signature: *Al Clark*      Location: McIntyre Center Edmonton



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-343CGA

**Company:** Maxxam      **Operators name:** Limin Li  
**Cylinder #:** BLM002756T Conc (PPM) 50.7/50.7 Tolerance (%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.842	0.822	0.01660	60.242	50.7	49.5
4993	41.0	0.420	0.410	0.00821	121.780	51.1	49.9
4977	20.2	0.208	0.205	0.00406	246.386	51.2	50.5
Average Cylinder Concentration:						<b>51.0</b>	<b>50.0</b>

<u>NO</u>	<u>NOx</u>
Previous Stated Concentration PPM: <u>50.7</u>	<u>50.7</u>
Percent variance from Stated: <u>0.7</u>	<u>1.4</u>

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  **COMMENTS:** \_\_\_\_\_  
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.9 ppm SO2 in cylinder  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark      Date: March 31, 2015  
 Operator Signature: *Al Clark*      Location: McIntyre Center Edmonton



## ***WIND SYSTEM***

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

Instrument: Sonic Wind Sensor

Model No.: 50.5H

Manufacturer: Met One Instruments Inc.

Serial No.: H10703

Sales Order No.: 101530

Customer: Maxxam Analytics

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

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

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

All Work Performed per Customers Purchase Order Requirements

Calibration Document No. 50.5-6100

Date (As Found): n/a

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

Calibrated by: Dan Fack

Date: 3/4/14

**Test Equipment Used for Calibration of Instruments**

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

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

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

Calibration by: John Patten

Date: 3/10/14

***METEOROLOGICAL SYSTEM***

# Meteorological System Checklist

Date: **01-Sep-15**  
 Performed by: **Alex Yakupov**  
 Station: **Maskwa**  
 Start: **12:12** End: **12:31**

## PRECIPITATION SENSOR CHECK

Previous check date: **September 1, 2015**

	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)	YES	
Is the upper screen on the housing? (screen should be on between July and September)	YES	
Is the housing clean?	YES	
Is the area around the housing clean and free from obstacle?	YES	
Is the tipping sensor working properly? (12:19 - 12:27 - live test / water (test sequence 1.0 - 2.0 - 3.0 - 2.0 - 1.0 - 0.7 - 0.5 - 0.4 - 0.1 mm))	YES	
	PASS	

Comments: the rain gauge has been tested with and without water. Response is timely and accurate. No issues.

Field Technician: **Alexander Yakupov** September 01, 2015

***APPENDIX III***  
***CHAIN OF CUSTODY***



# Maxxam Analytics - Air Services Group

## Project Chain of Custody

<b>Client:</b> <u>Lakeland Industry &amp; Community Association</u>	<b>Project #:</b> <u>2833-2015-09-30- C</u>
<b>Site:</b> <u>Maskwa Site</u>	<b>Contact:</b> <u>Mike Bisaga</u>

QA Check Complete	<u>W. Schmitz</u>	Date	<u>23 - Oct - 2015</u>
QA Check Review	<u>W. Schmitz</u>	Date	<u>23 - Oct - 2015</u>
Report Complete	<u>W. Schmitz</u>	Date	<u>27 - Oct - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>28 - Oct - 2015</u>
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**  
**ST. LINA SITE**

**JOB #:2833-2015-09-31- C**

**SEPTEMBER 2015**


Prepared for:

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

**Attention: MIKE BISAGA**

DATE: **October 27, 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 SEPTEMBER 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.

All Parameters: Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

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	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	3	12, 12	1, 2	11.1 10.8	WSW WSW	0.4	12	99.4
H2S (PPB)	10	3	0	0	1	2	VAR	VAR	VAR	VAR	2.0	11, 24	99.7
THC (PPM)	-	-	-	-	1.8	2.6	16	19	1.8	W	2.0	1, 24	99.7
NO2 (PPB)	159	-	0	-	1.3	8.7	12	2	10.8	WSW	3.5	29	99.7
NO (PPB)	-	-	-	-	0.1	2.6	4	4	5.4	NW	0.4	VAR	99.7
NOX (PPB)	-	-	-	-	1.5	8.7	12	2	10.8	WSW	3.9	29	99.7
O3 (PPB)	82	-	0	-	23	47	24	15	10.3	SE	31.8	25	99.7
PM2.5 (UG/M3)	-	30	-	0	2.2	15.0	12	7	10.2	WSW	5.7	12	94.7
RELATIVE HUMIDITY (%)	-	-	-	-	69.6	91	10, 13	VAR	VAR	VAR	88.3	15	99.7
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	928	938	4, 10	VAR	VAR	VAR	936	VAR	99.7
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	10.1	26.8	11	16	15.5	SW	17.9	11	99.7
PRECIPITATION (MM)	-	-	-	-	0.1	5.6	6	11	13.2	NNE	2.3	6	99.7
VECTOR WS (KPH)	-	-	-	-	8.5	29.0	1	10	-	WSW	14.5	27	99.7
VECTOR WD (DEG)	-	-	-	-	WSW	-	-	-	-	-	-	-	99.7

NA-NOT AVAILABLE VAR-VARIOUS

---

## Exceedence Summary Report

---

**SO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**SO<sub>2</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**H<sub>2</sub>S 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**H<sub>2</sub>S 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**NO<sub>2</sub> 1- Hour Exceedences**

**No Exceedences Recorded During the Month**

**PM<sub>2.5</sub> 24- Hour Exceedences**

**No Exceedences Recorded During the Month**

**TABLE OF CONTENTS**

<u>Title</u>	<u>Page</u>
<b>1.0 Discussion</b>	<b>3</b>
<b>2.0 Project Personnel</b>	<b>6</b>
<b>3.0 Plant Monthly Required AMD Summary</b>	<b>6</b>
<b>4.0 Calculations and Results</b>	<b>6</b>
<b>5.0 Methods and Procedures</b>	<b>7</b>
<b>Appendix I</b>	<b>Continuous Monitoring Data Results</b>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Ozone
	Particulate Matter 2.5
	Wind Speed
	Wind Direction
	Standard Deviation Wind Direction
	Relative Humidity
	Barometric Pressure
	Ambient Temperature
	Precipitation
<b>Appendix II</b>	<b>Analyzer Calibration Results</b>
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Calibrators
	Calibration Gases
<b>Appendix III</b>	<b>Chain of Custody</b>

## 1.0 Discussion

This monthly report consists of data for parameters SO<sub>2</sub>, H<sub>2</sub>S, THC, NO<sub>x</sub>, NO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, WS, WD, RH, BP, Precipitation and Ambient Temperature.

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

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

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

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

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

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

### **SULPHUR DIOXIDE (SO<sub>2</sub>)**

The analyzer was working well throughout the month. The analyzer was put into Maintenance mode for a few hours on September 8 during Ozone calibration. The routine monthly calibration was performed on September 17. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

### **HYDROGEN SULPHIDE (H<sub>2</sub>S)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 17. Two hours of data collected on September 16 from hour 20 to hour 21 were invalidated due to a power outage.

### **TOTAL HYDROCARBONS (THC)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 8. The gas cylinders were replaced on September 3, September 8 and September 21. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

### **NITROGEN DIOXIDE (NO<sub>2</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 17. The zero air supply pump malfunctioned during the third GPT point check of the calibration. The pump was fixed and the third GPT point check was repeated. The calibration passed the AMD requirements. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

### **OZONE (O<sub>3</sub>)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on September 17. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

### **PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM<sub>2.5</sub>)**

Two Teom audits were performed this month: one was completed on September 3, and the other audit was performed on September 17. Both the inlet filter and the FDMS filter were replaced on September 3. The pump was replaced on September 17. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m<sup>3</sup>, the data was corrected to 0 ug/m<sup>3</sup>. If the data was below -3ug/m<sup>3</sup>, the data was invalidated. 36 hours of data were invalidated as the data were below -3 ug/m<sup>3</sup> this month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a 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 working well throughout the month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

**RELATIVE HUMIDITY (RH)**

The humidity sensor was working well throughout the month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

**BAROMETRIC PRESSURE (BP)**

The pressure sensor was working well throughout the month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

**PRECIPITATION**

The rain gauge system was working well throughout the month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a power outage.

**AMBIENT TEMPERATURE (TPX)**

The temperature sensor was working well throughout the month. Two hours of data collected on September 8 from hour 20 to hour 21 were invalidated due to a 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, Limin Li, and Christopher Wesson.

## **3.0 Plant Monthly Required AMD Summary**

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

The operational uptime for all analyzers and meteorological system 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 H<sub>2</sub>S Monitoring
- Maxxam AIR SOP-00211: Ambient SO<sub>2</sub> Monitoring
- Maxxam AIR SOP-00212: Ambient O<sub>3</sub> Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO<sub>2</sub>/NO<sub>x</sub> 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.

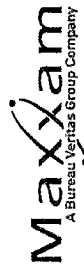
The following instruments were used to perform the test program:

- 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<sub>2.5</sub>) - 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

DAY	MST		DAILY																								24-HOUR AVG.	ROGS				
	START	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						
1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	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	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	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	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	0.2	22	
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	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	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	24	
12	1	3	3	2	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	0.1	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	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	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	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	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	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	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	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	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	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	24	
HOURLY MAX	1	3	3	2	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	24	
HOURLY AVG	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

STATUS FLAG CODES

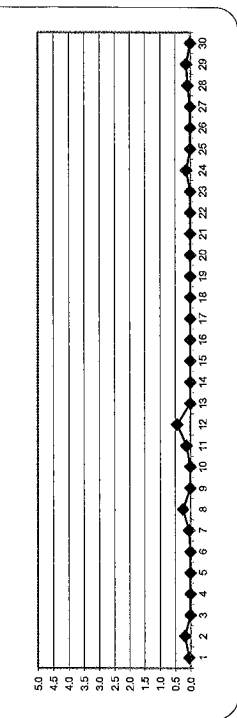
C	QUALITY ASSURANCE
Y	MAINTENANCE
S	DAILY ZERO/Span CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
Q	RECOVERY
R	RECOVERY
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 172 PPB 172 PPB 48 HR 48 HR

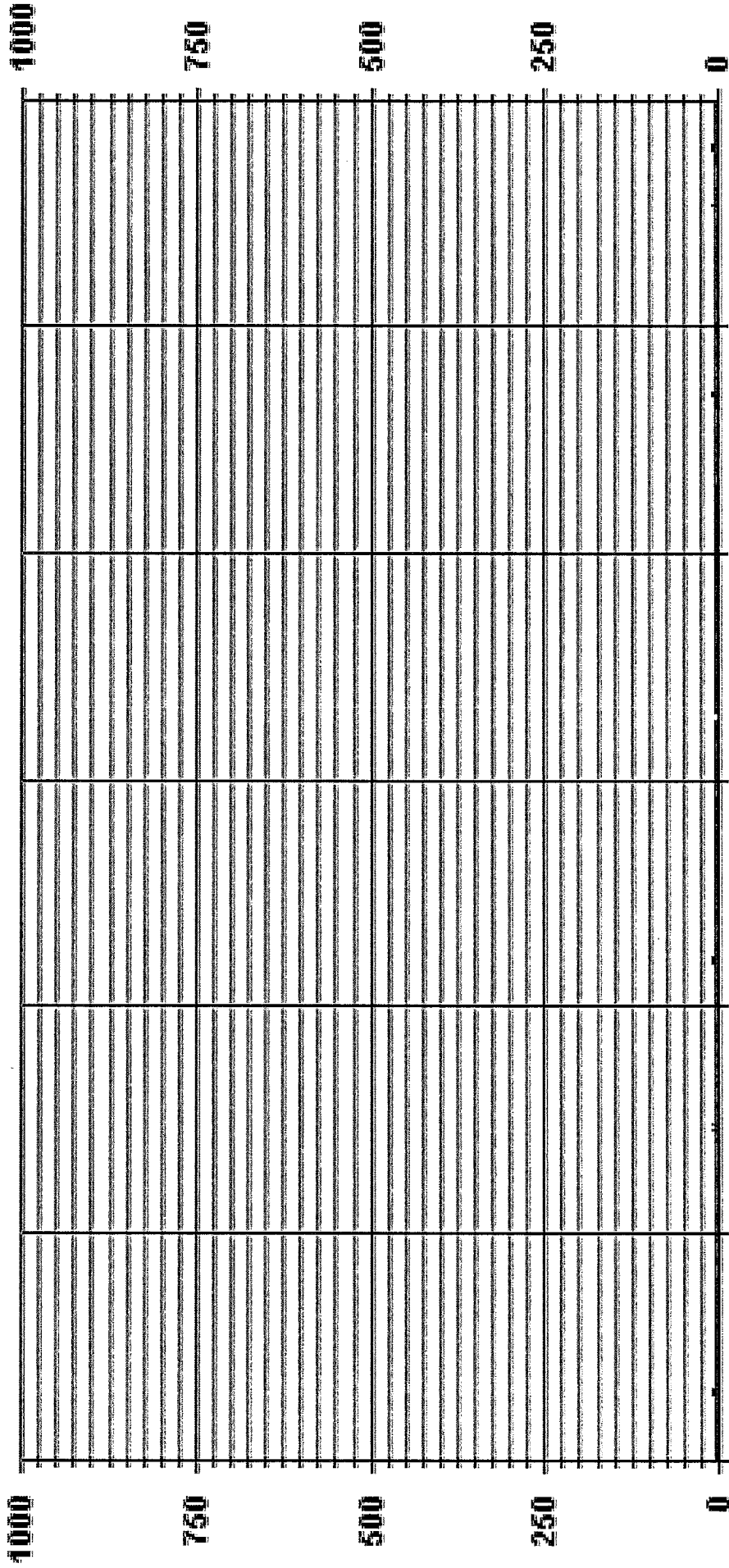
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	26
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) 1, 2
MAXIMUM 24-HR AVERAGE:	0.4 PPB
1ZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.26
OPERATIONAL TIME:	716 HRS
AMD OPERATION UPTIME:	99.4 %
MONTHLY AVERAGE:	0 PPB

24 HOUR AVERAGES FOR SEPTEMBER 2015



01 Hour Averages

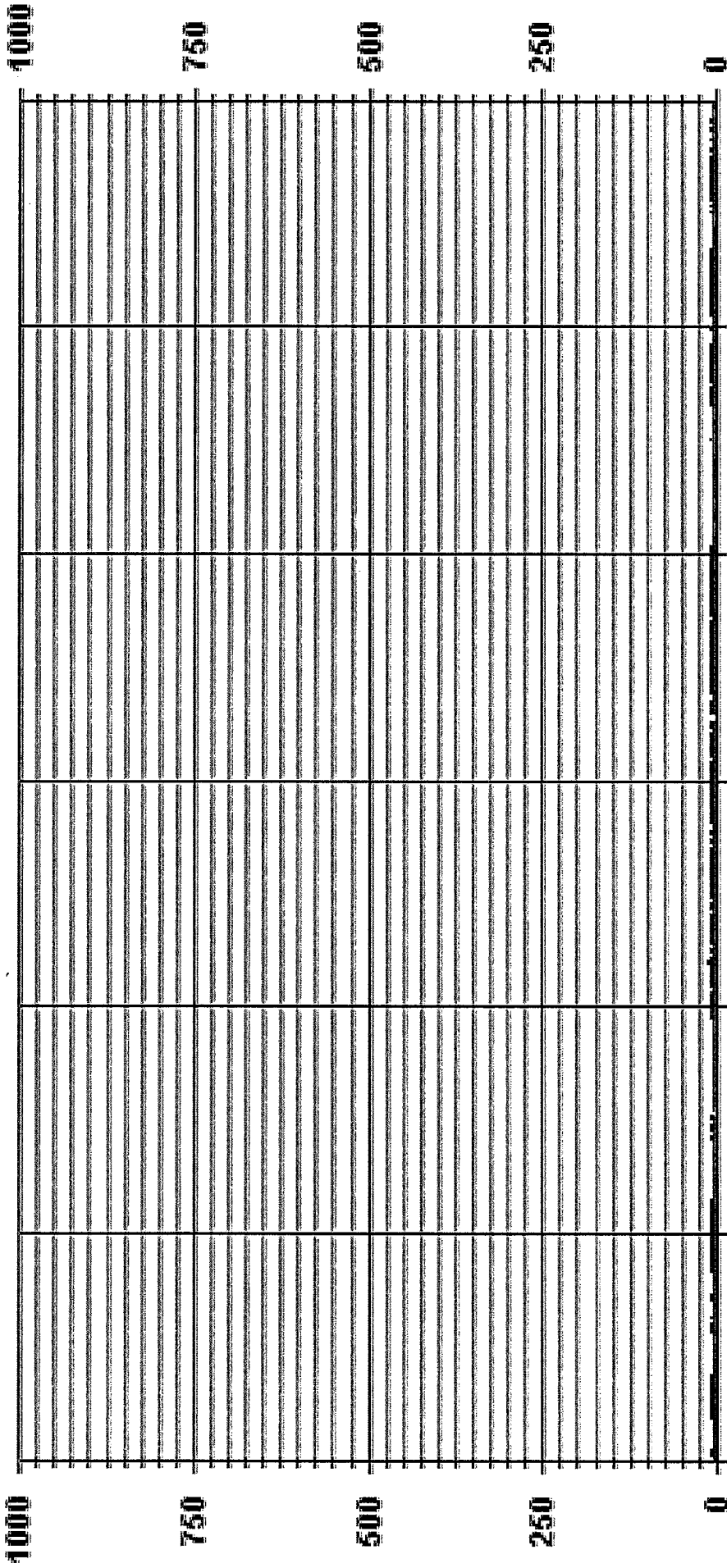


09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 SO2\_ PPB



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 SO2MAX PPB

LICA31  
 SO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 Parameter : SO2  
 Units : PPB

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW			
< 20	3.23	2.79	4.70	8.52	3.82	1.76	3.08	4.70	8.52	7.50	12.20	11.76	8.52	5.73	6.76	6.32	100.00		
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
Totals	3.23	2.79	4.70	8.52	3.82	1.76	3.08	4.70	8.52	7.50	12.20	11.76	8.52	5.73	6.76	6.32	6.32		

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Limit	Direction																NNW	NW	NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW			
< 20	22	19	32	58	26	12	21	32	58	51	83	80	58	39	46	43	680		
< 60																			
< 110																			
< 170																			
< 340																			
>= 340																			
Totals	22	19	32	58	26	12	21	32	58	51	83	80	58	39	46	43	680		

Calm : .00 %

Total # Operational Hours : 680

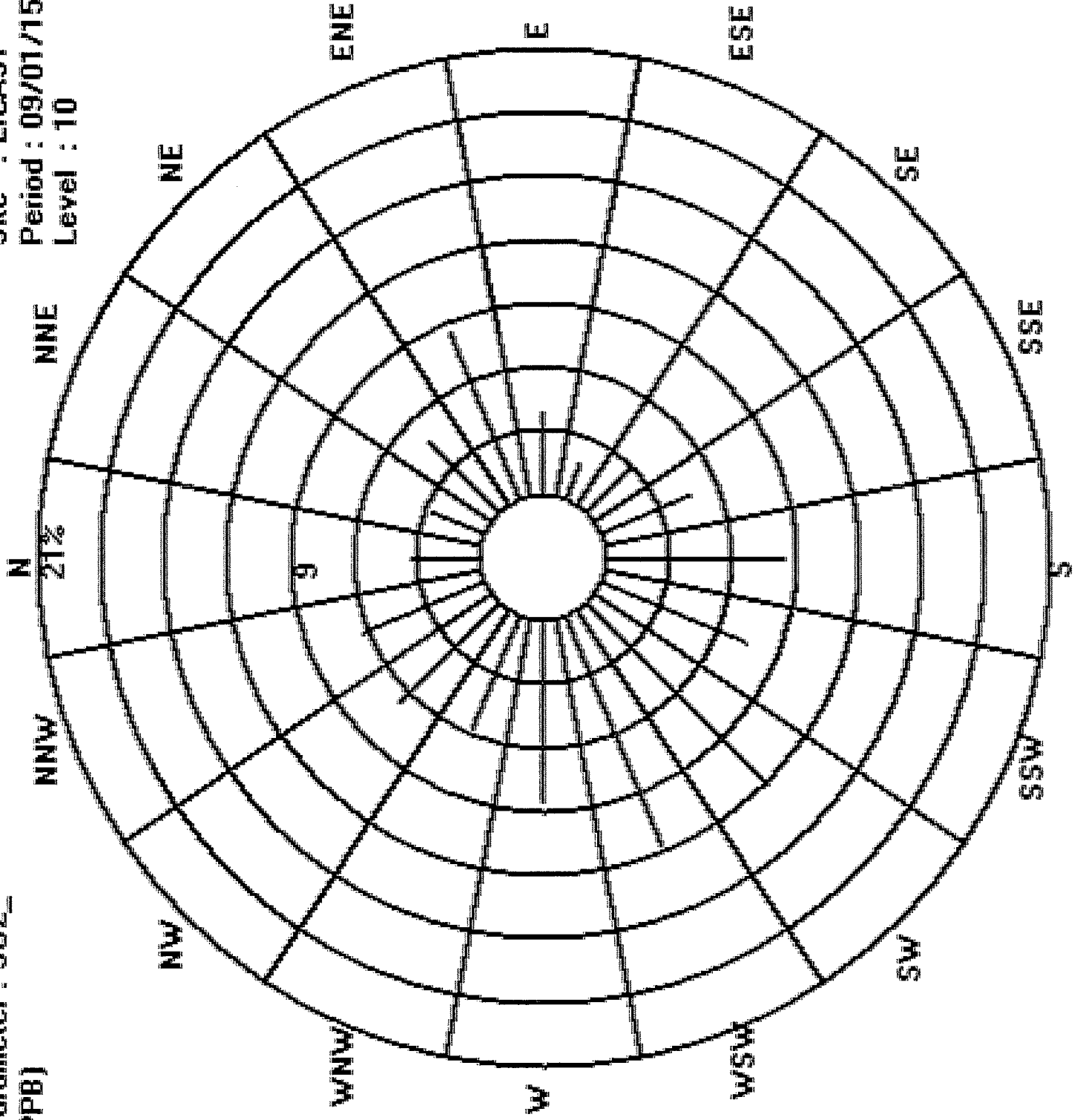
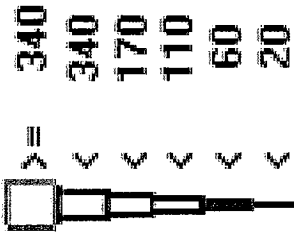
Logger : 31 Parameter : SO2\_

Site : LICA31

Period : 09/01/15-09/30/15

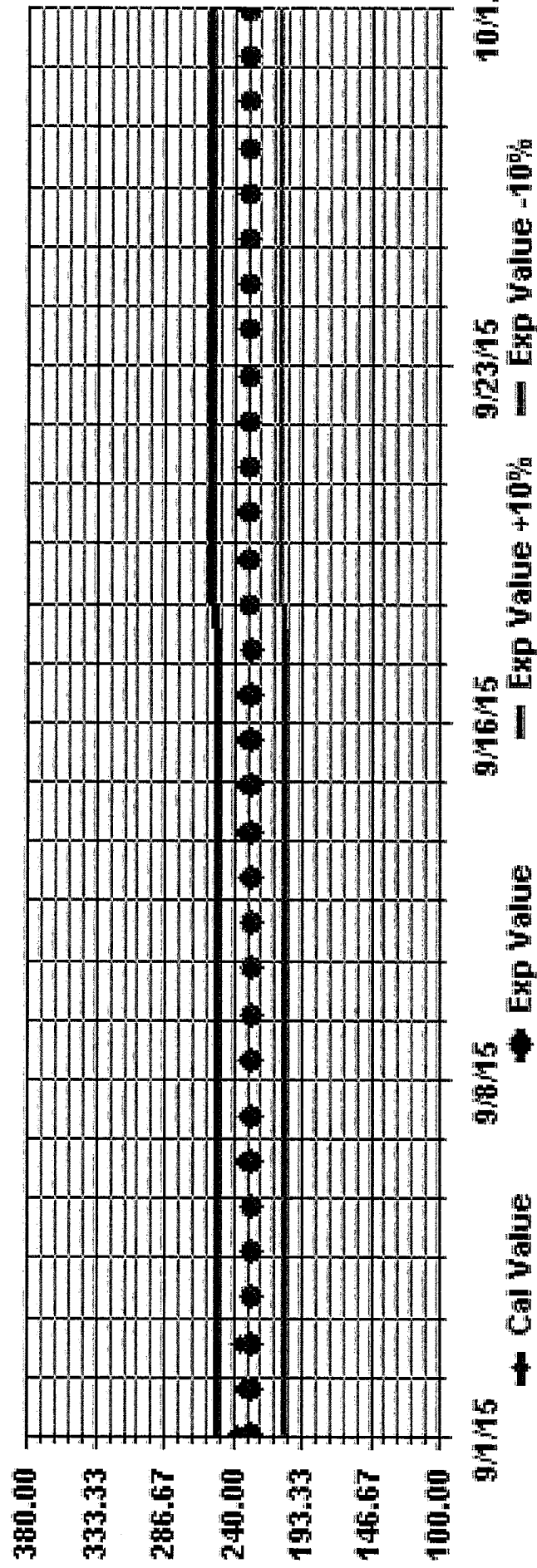
Level : 10

Class Limits (PPB)





Calibration Graph for Site: LICA31 Parameter: S02\_ Sequence: S02 Phase: SPAN



9/1/15

9/8/15

9/16/15

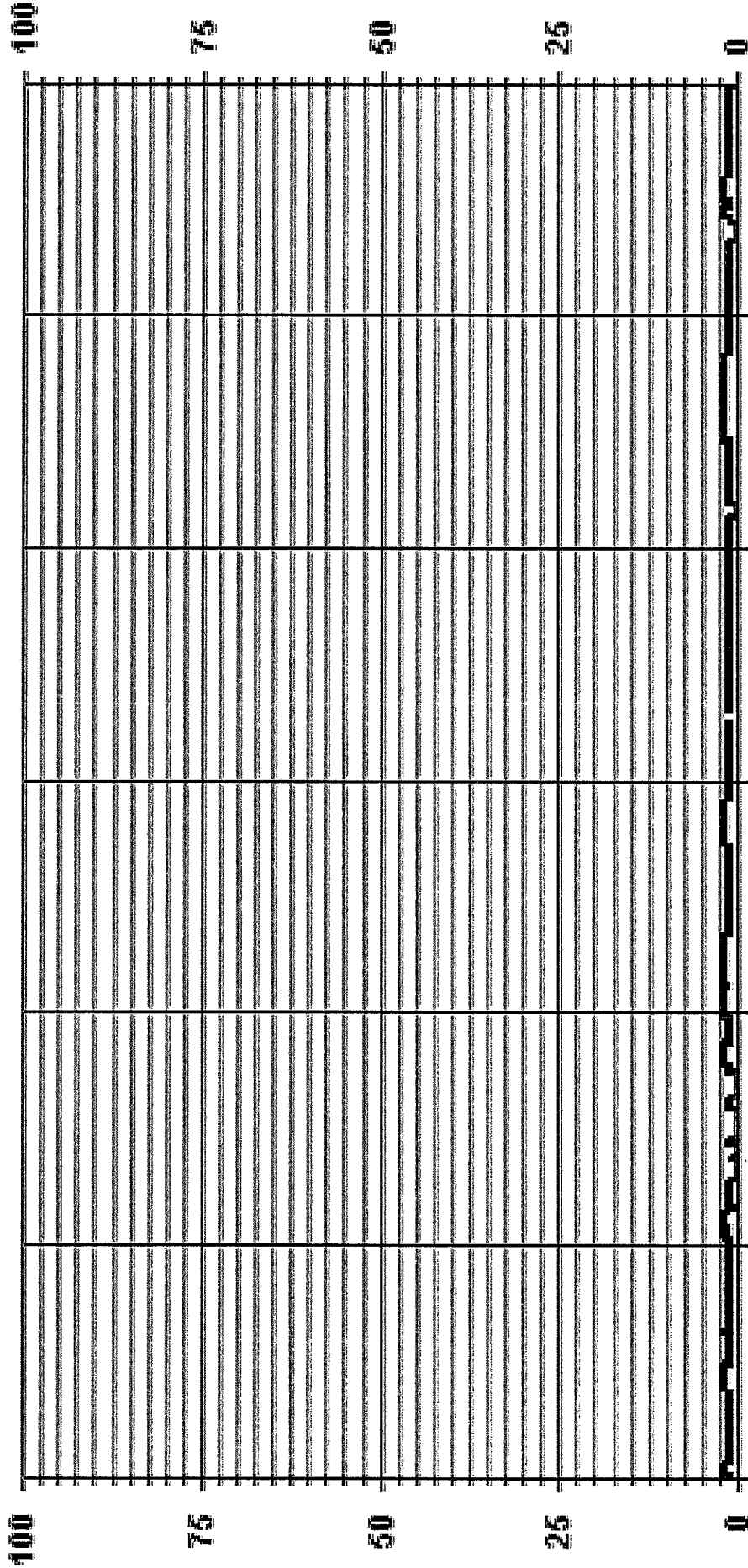
9/23/15

10/1/15

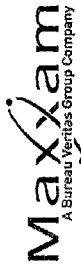
***HYDROGEN SULPHIDE***



01 Hour Averages



— LICA31 H2S\_ PPB



HYDROGEN SULPHIDE 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	24:00
1	1	5	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	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
4	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
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	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
7	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
8	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
9	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
10	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
11	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
12	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
13	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
14	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
15	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	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
17	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
18	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
19	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
20	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
21	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
22	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
23	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
24	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
25	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
26	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
27	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
28	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
29	2	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HOURLY MAX	3	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
HOURLY AVG	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.4	1.4
DAILY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
DAILY AVG	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
RDGS.	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

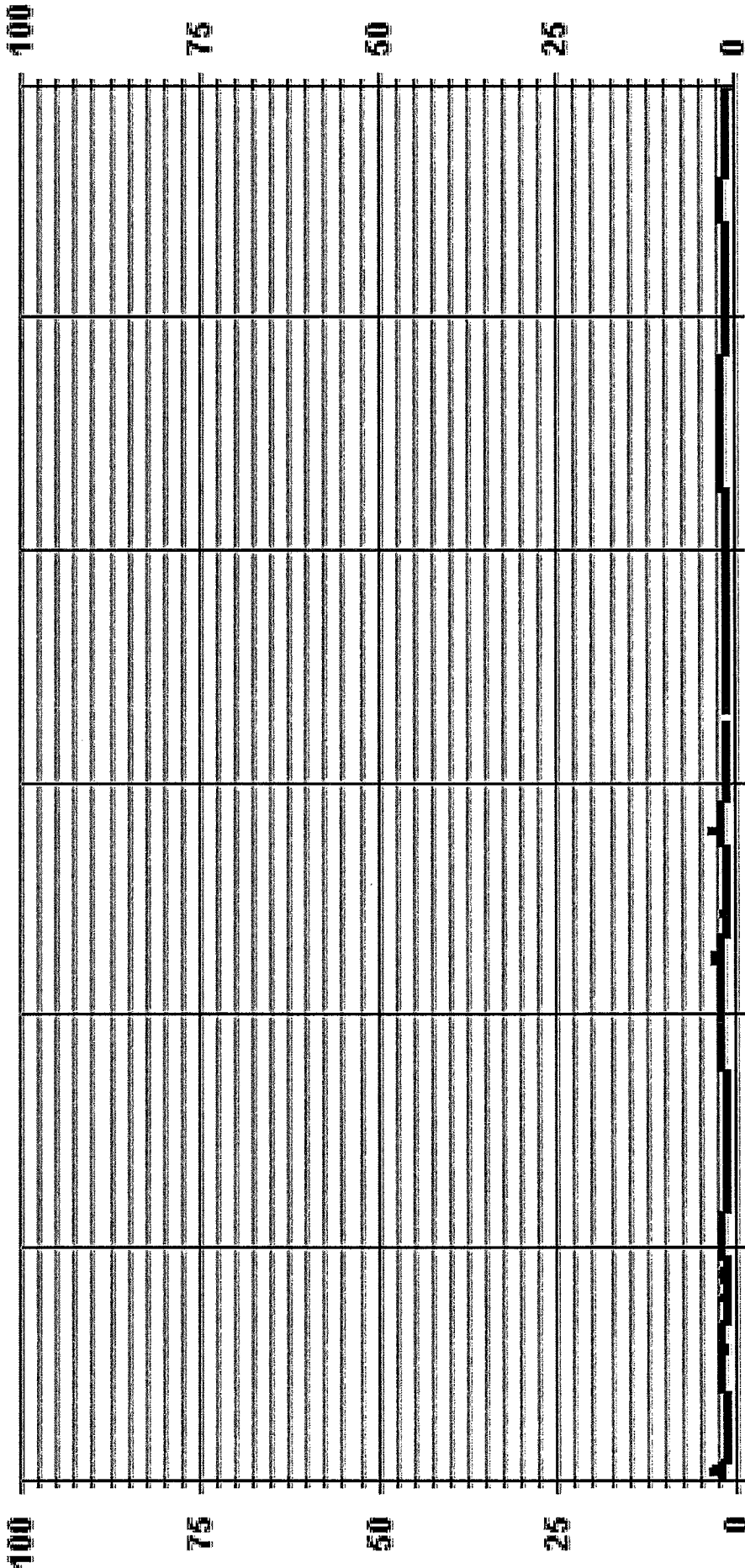
STATUS FLAG CODES

C	-CALIBRATION	O	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVER
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:	3
PPB	3
@ HOUR(S)	VAR
ON DAY(S)	VAR
VAR	VAR-VARIOUS
OPERATIONAL TIME:	718 HRS
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.50

01 Hour Averages



— LICA31 H2SMAX PPB

LICA31  
 HZS\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 Parameter : HZS  
 Units : PPS

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 3	3.22	2.78	4.98	8.50	3.81	1.75	3.07	4.69	8.50	7.47	12.17	11.73	8.50	5.71	6.74	6.30	100.00			
< 10	.00	.00	.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	.00	.00	
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	3.22	2.78	4.98	8.50	3.81	1.75	3.07	4.69	8.50	7.47	12.17	11.73	8.50	5.71	6.74	6.30				

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples





Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 3	22	19	34	58	26	12	21	32	58	51	83	80	58	39	46	43	682			
< 10																				
< 50																				
>= 50																				
Totals	22	19	34	58	26	12	21	32	58	51	83	80	58	39	46	43				

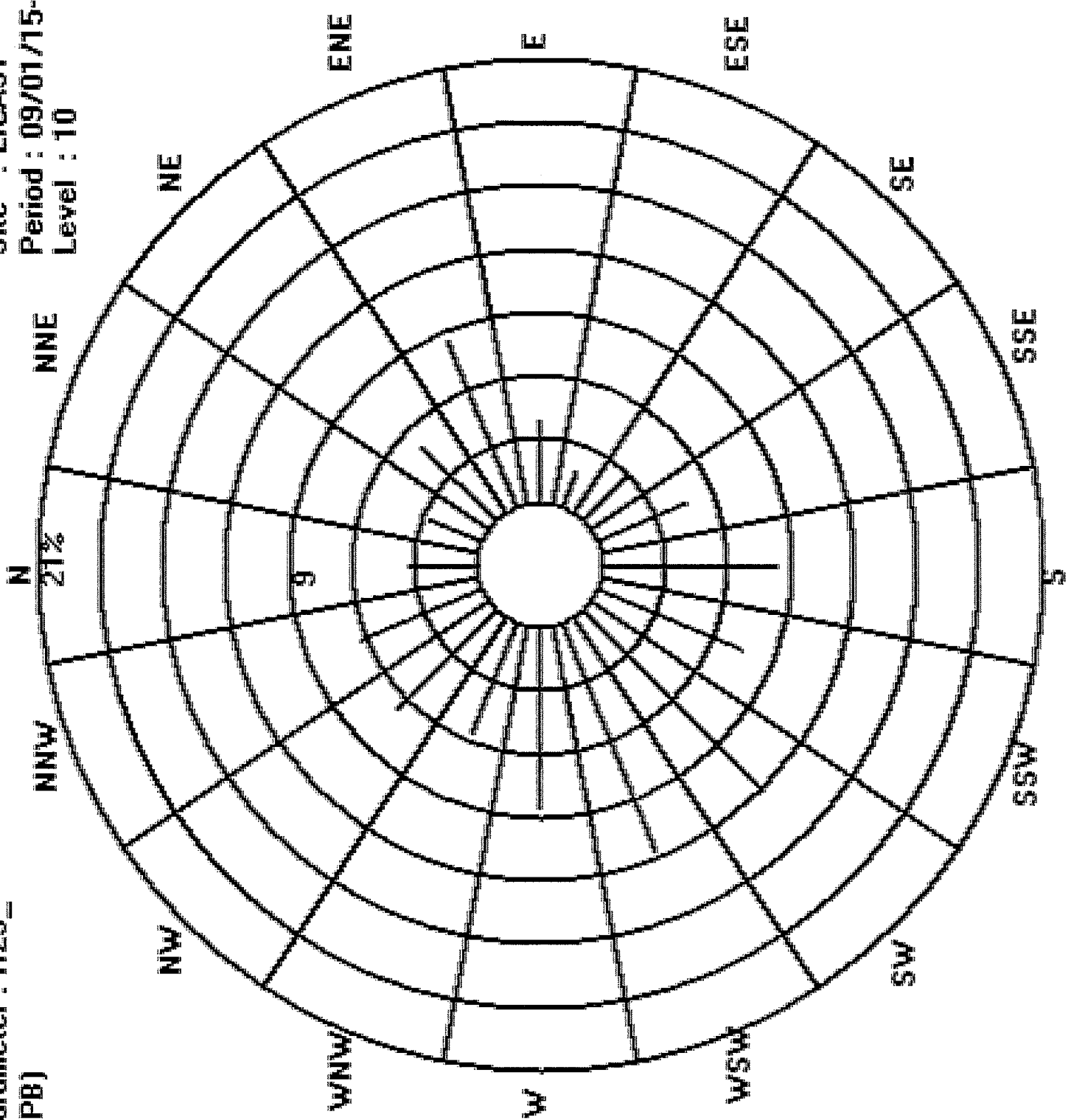
Calm : .00 %

Total # Operational Hours : 682

Site : LICA31  
Period : 09/01/15-09/30/15  
Level : 10

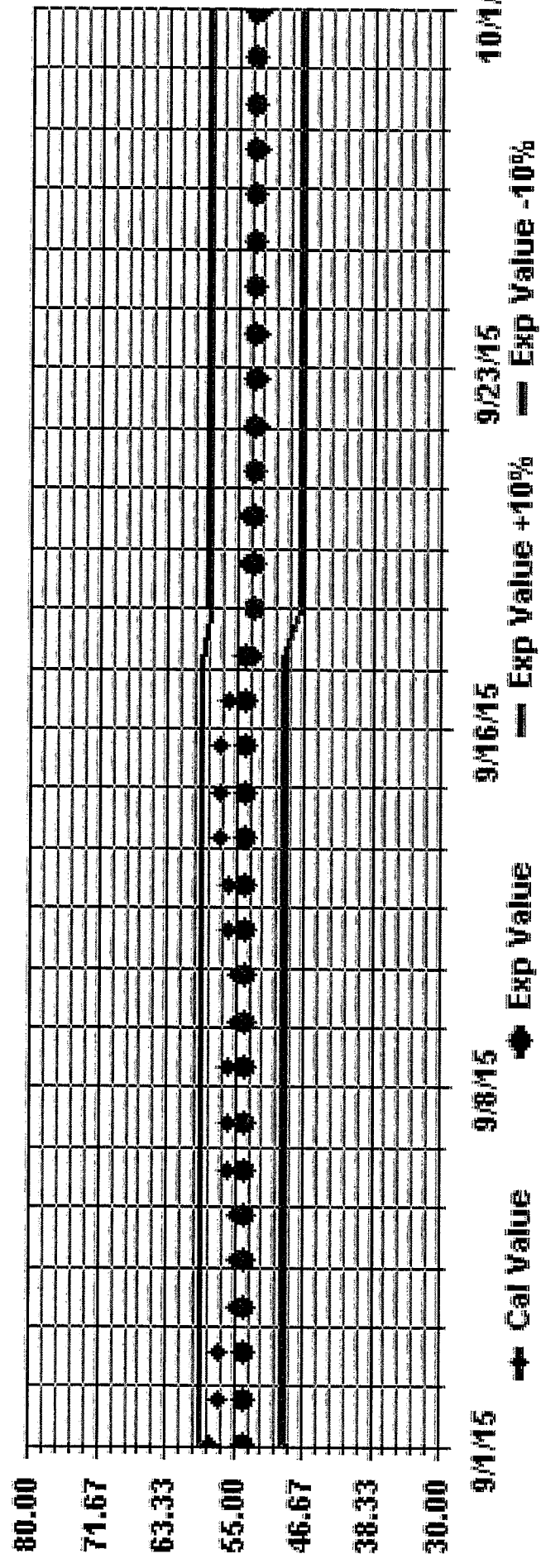
Logger : 31 Parameter : H2S\_  
Class Limits (PPB)

-  >= 50
-  < 50
-  < 10
-  < 3





Calibration Graph for Site: LICA31 Parameter: H2S\_ Sequence: H2S Phase: SPAN



**TOTAL HYDROCARBON**



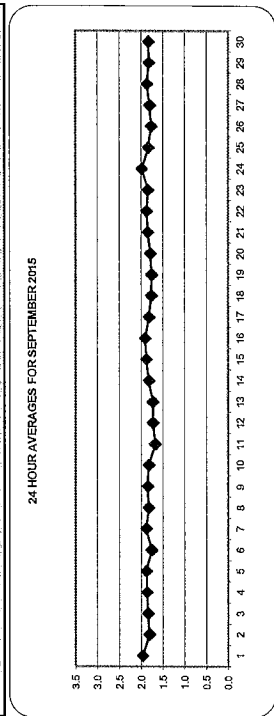
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	24:00		
HOURLY AVG																									DAILY MAX	24-HOUR AVG	ROGS
1	2.1	5	2.1	2.2	2.3	2.2	2.1	1.9	2.0	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	2.0	1.9	2.3	2.0	24	
2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
4	1.8	1.8	1.8	2.0	2.1	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
5	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	24	
6	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	24	
7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	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	1.8	1.8	1.8	1.8	1.8	24	
8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
10	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
11	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	24	
12	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
13	1.7	1.6	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	24	
14	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
15	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
16	1.8	1.8	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
17	2.0	1.9	1.9	2.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
18	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
19	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
20	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
21	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
22	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
23	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24	
24	1.9	1.9	2.0	2.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	24	
25	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
26	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
27	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	24	
28	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24	
29	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
30	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24	
HOURLY MAX	2.1	2.0	2.1	2.2	2.3	2.3	2.1	2.3	2.2	2.0	2.1	2.1	2.1	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.1	2.0	2.1	2.2	2.2	1.8	
HOURLY AVG	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	

STATUS FLAG CODES

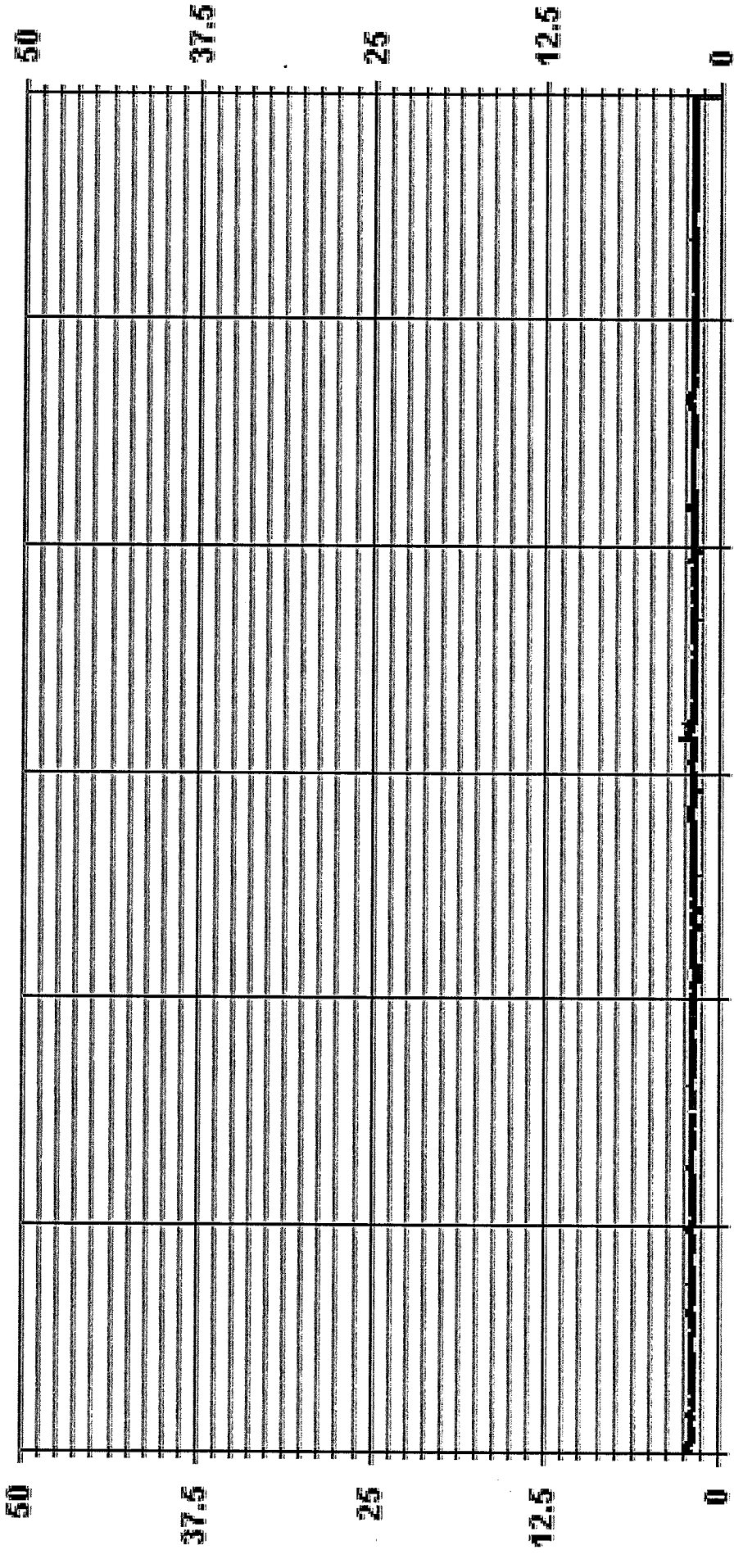
C	CALIBRATION	Q	QUALITY ASSURANCE
S	MAINTENANCE	R	RECOVERY
S	DAILY ZERO / SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	678	ON DAY(S)	16
MAXIMUM 1-HR AVERAGE:	2.6 PPM	@ HOUR(S)	19
MAXIMUM 24-HR AVERAGE:	2.0 PPM	ON DAY(S)	1, 24
1/25 CALIBRATION TIME:	96 HRS	OPERATIONAL TIME:	718 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMTD OPERATION UPTIME:	95.7 %
STANDARD DEVIATION:	0.11	MONTHLY AVERAGE:	1.8 PPM

01 Hour Averages



— LICA31    - - - - THC    PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS.												
	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											
1	2.4	S	1.8	1.9	1.8	2.3	2.3	2.0	2.0	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.6	2.4	1.9	1.9	2.4	2.2	2.0	2.6	2.1	24									
2	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	24								
3	2.0	2.1	2.5	2.0	2.1	2.0	2.6	2.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	24								
4	1.8	1.8	1.8	2.0	3.1	7.1	3.8	2.1	1.9	2.3	2.0	2.1	2.0	2.2	2.2	2.3	1.8	1.8	2.0	1.9	3.8	1.9	S	2.1	1.9	7.1	2.4	2.4	2.4	2.4	24								
5	2.1	1.9	1.8	1.9	1.9	2.0	2.2	2.0	2.2	2.0	2.2	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	S	1.9	2.1	2.3	2.3	2.0	2.4	2.4	2.4	24								
6	2.1	2.0	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	S	1.8	1.8	1.9	2.1	1.8	2.4	2.4	2.4	24								
7	2.2	2.0	2.1	2.2	2.3	2.2	2.4	2.5	3.3	2.4	2.2	2.4	2.4	2.2	2.2	2.3	2.3	2.5	S	2.3	3.5	1.8	2.3	2.8	3.5	2.4	2.4	2.4	2.4	2.4	24								
8	2.4	1.8	1.9	2.0	1.9	2.0	1.9	2.1	2.1	1.9	2.0	1.9	1.9	C	C	C	C	C	C	C	1.8	1.7	3.0	1.8	S	1.8	3.0	2.0	2.0	2.4	24								
9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	S	1.8	1.8	2.0	1.9	2.4	24								
10	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24							
11	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24						
12	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24					
13	2.0	2.0	3.3	2.1	2.2	2.7	2.2	2.1	2.1	2.3	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	S	2.4	3.1	2.5	1.8	2.1	6.4	2.3	2.4	2.4	2.4	24					
14	2.8	3.7	2.6	2.6	2.1	2.0	2.2	2.4	2.2	2.1	2.2	2.1	2.1	2.2	2.1	1.8	2.8	2.1	S	2.4	3.1	1.9	3.9	2.1	2.0	3.8	3.9	2.5	2.4	2.4	2.4	2.4	2.4	24					
15	2.7	3.6	2.3	2.2	2.1	2.1	2.2	2.1	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.0	2.4	2.4	2.4	2.4	2.4	2.4	24				
16	1.8	1.9	1.9	1.9	2.1	2.1	1.9	2.0	2.1	1.9	2.4	1.8	1.9	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24			
17	9.3	3.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	24			
18	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24		
19	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24		
20	2.2	1.7	1.8	3.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24		
21	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24		
22	2.2	1.9	1.9	1.9	1.8	1.8	S	S	S	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	24	
23	2.0	1.9	1.9	1.9	1.9	1.9	2.0	S	S	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	24	
24	2.0	2.0	2.1	2.1	2.2	2.5	S	S	2.3	2.3	2.1	2.2	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	24	
25	1.8	1.8	1.9	1.8	1.8	S	S	2.7	2.4	2.2	2.0	2.1	2.0	1.8	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	24	
26	1.8	3.0	2.3	1.9	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24	
27	1.8	1.8	1.8	S	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24	
28	1.9	1.9	S	1.9	1.9	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	24	
29	1.8	S	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	24	
30	S	1.8	1.8	3.1	2.8	1.9	3.4	2.0	1.9	2.1	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	24	
HOURLY MAX	9.3	3.7	3.3	12.0	7.1	3.8	3.4	2.6	3.3	2.4	2.2	2.4	2.8	2.2	2.8	2.7	5.1	5.3	6.4	11.8	3.9	7.0	7.1	3.8	7.1	3.8	7.1	3.8	7.1	3.8	7.1	3.8	7.1	3.8	7.1	3.8	7.1	3.8	
HOURLY AVG	2.3	2.1	2.0	2.5	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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

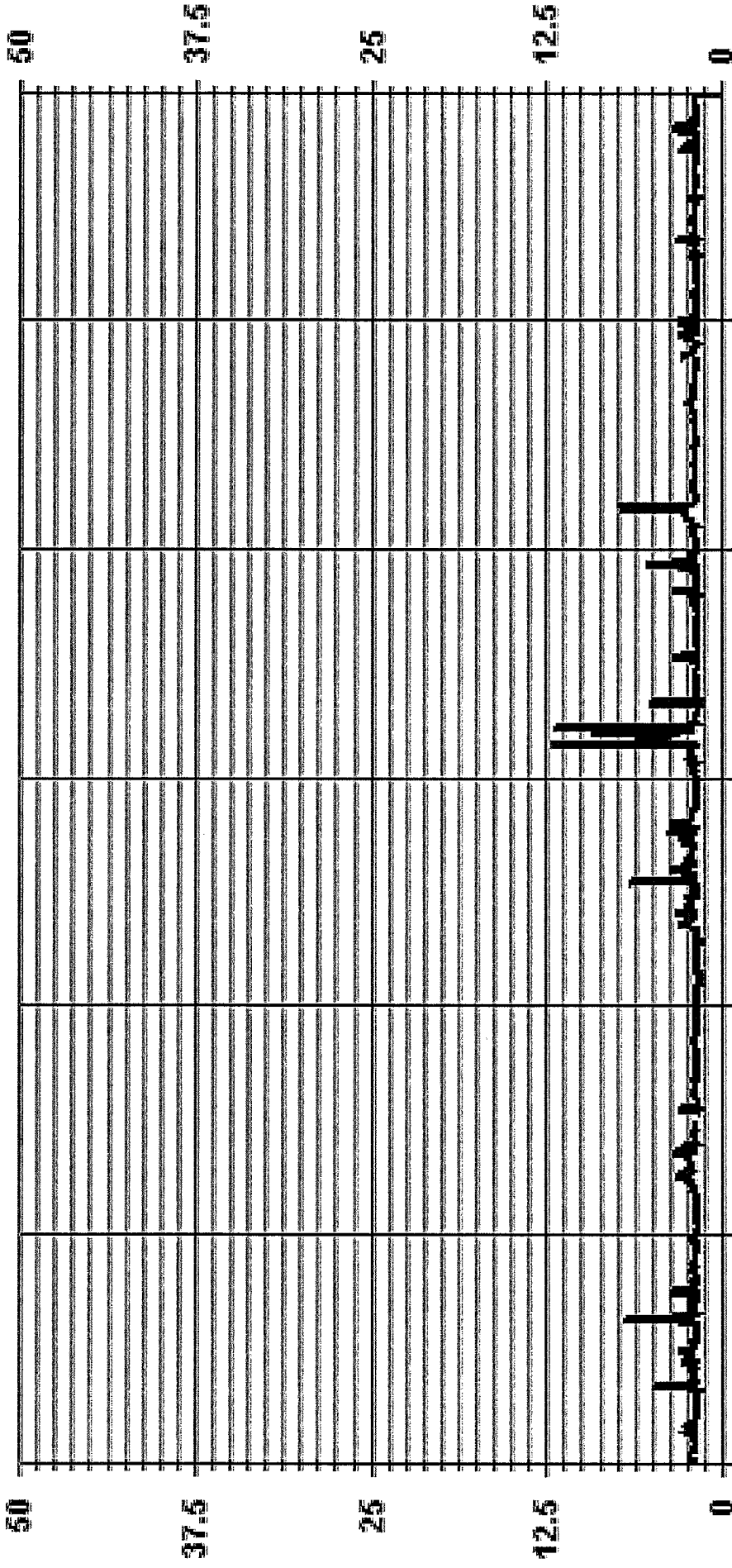
STATUS FLAG CODES

C	QUALITY ASSURANCE
O	OPERATOR
Y	RECOVERY
M	MAINTENANCE
D	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
S	STATUS FLAG
X	MACHINE/VALVE/NOISE
O	OPERATOR ERROR
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	675
MAXIMUM INSTANTANEOUS VALUE:	12.0 PPM @ HOUR(S)
ON DAY(S)	3
OPERATIONAL TIME:	71.8 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.83
VAR-VARIOUS	VAR-VARIOUS

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 THCMAX PPM

LICA31  
 THC / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 Parameter : THC  
 Units : PPM  
 Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	2.80	2.80	4.86	8.55	3.83	1.62	3.09	5.01	8.84	7.52	12.24	11.79	8.55	5.75	6.48	6.19	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	2.80	2.80	4.86	8.55	3.83	1.62	3.09	5.01	8.84	7.52	12.24	11.79	8.55	5.75	6.48	6.19	

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	19	19	33	58	26	11	21	34	60	51	83	80	58	39	44	42	678
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	19	19	33	58	26	11	21	34	60	51	83	80	58	39	44	42	

Calm : .00 %

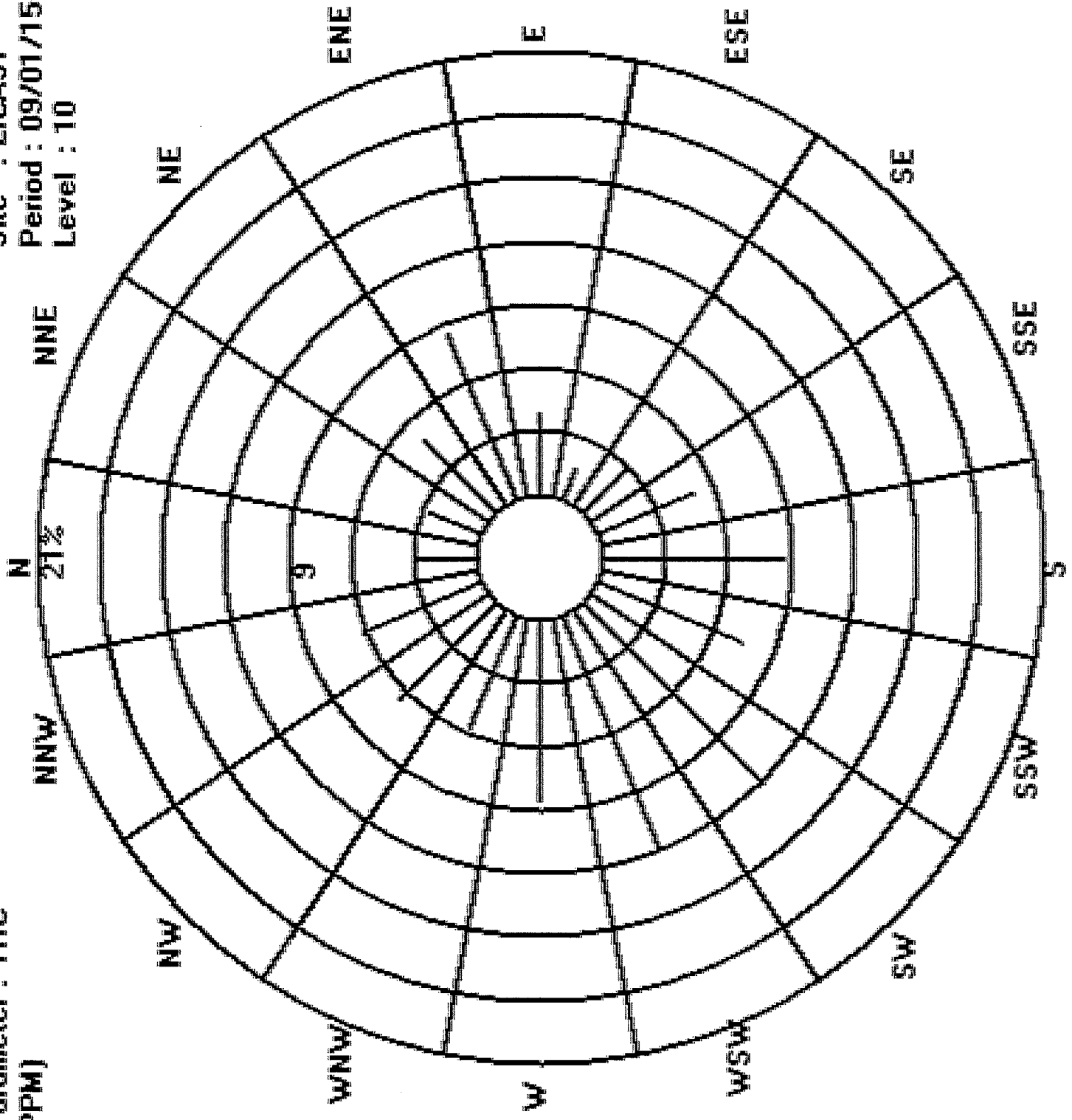
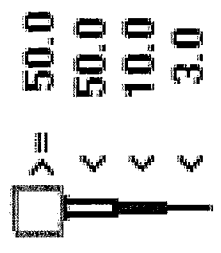
Total # Operational Hours : 678

Logger : 31 Parameter : THC

Site : LICA31

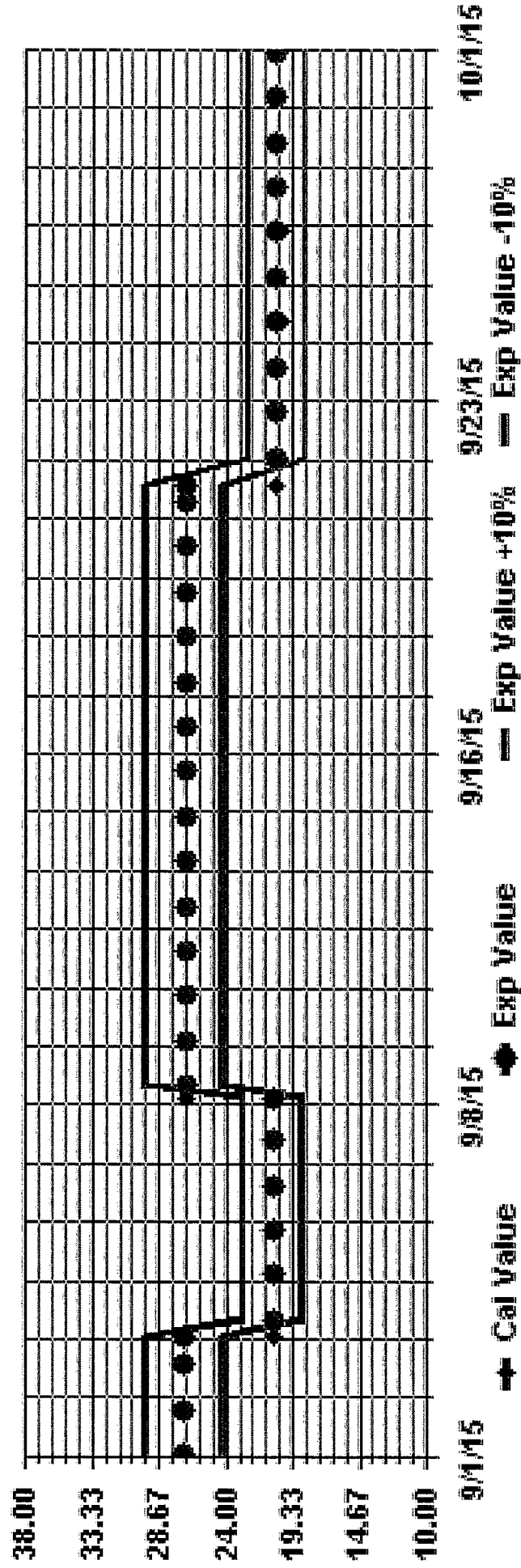
Class Limits (PPM)

Period : 09/01/15-09/30/15  
Level : 10





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



## ***OXIDES OF NITROGEN***



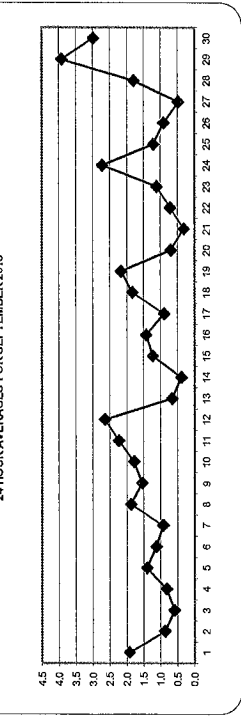
OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	MST																								DAILY MAX.	24-HOUR AVG.	RDGS	
	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
1	3.5	\$	3.5	3.6	3.6	3.2	3.0	3.1	6.5	2.1	0.8	0.4	0.5	0.1	0.0	0.2	0.3	1.2	0.4	0.5	2.9	2.6	2.1	6.5	1.9	24		
2	\$	2.2	2.1	2.4	1.1	0.6	0.5	0.4	0.1	0.1	0.2	0.6	0.7	0.7	0.6	0.5	1.5	1.0	1.2	0.7	0.9	0.9	\$	2.4	0.9	24		
3	1.0	0.8	0.9	1.2	1.3	1.2	0.7	0.9	0.6	0.5	0.5	0.5	0.1	0.4	0.4	0.3	0.1	0.1	0.5	0.0	0.8	0.1	\$	0.9	1.3	0.6	24	
4	0.9	0.7	1.4	0.9	4.2	0.9	0.7	1.0	0.7	0.2	0.6	0.0	0.2	0.4	0.1	0.0	0.2	0.1	0.4	1.4	1.0	\$	1.8	4.2	0.8	24		
5	1.1	0.9	0.6	0.7	1.1	1.1	0.9	1.1	1.1	2.1	1.1	1.2	1.7	0.7	0.8	1.0	0.7	0.4	0.4	1.2	\$	2.2	3.2	7.1	1.4	24		
6	5.4	4.2	2.3	1.3	1.9	1.8	0.7	0.4	0.3	0.7	0.5	0.3	0.2	0.2	0.3	0.1	0.3	0.3	\$	0.6	0.7	1.2	2.0	5.4	1.1	24		
7	1.7	1.4	1.2	1.0	1.0	1.2	1.2	1.3	1.6	1.7	1.5	0.9	0.6	0.4	0.5	0.6	0.5	0.6	\$	0.7	0.4	0.5	0.6	1.7	0.9	24		
8	0.8	0.8	1.4	3.9	3.1	2.6	2.5	3.0	3.9	2.6	2.0	1.8	1.4	1.5	2.2	2.1	1.7	0.4	0.6	0.9	1.5	1.0	\$	1.6	3.9	1.9	24	
9	1.9	2.0	2.4	2.6	2.8	2.8	2.5	1.8	1.1	1.4	1.5	1.3	0.7	1.1	0.7	0.9	0.9	1.0	0.8	1.6	\$	1.4	1.6	2.8	1.6	24		
10	1.2	1.2	1.4	1.3	1.5	2.0	2.9	2.8	3.4	3.9	2.6	1.4	1.1	1.7	1.0	0.6	0.9	1.0	0.8	0.7	\$	2.8	2.6	3.9	1.8	24		
11	1.8	1.7	1.8	1.6	2.1	2.9	3.5	4.2	3.6	3.5	1.8	1.1	1.0	0.7	0.5	0.5	1.9	3.0	\$	4.2	3.4	3.2	4.2	2.2	24			
12	3.8	5.6	8.7	8.5	8.0	5.7	4.9	3.6	2.9	1.7	0.9	0.4	0.4	0.5	0.3	0.2	0.4	0.3	\$	1.0	1.0	0.7	0.6	8.7	2.6	24		
13	0.5	0.5	0.4	0.6	0.5	0.9	0.6	0.8	0.8	0.8	1.1	1.4	0.9	0.8	0.9	0.5	0.6	\$	0.6	0.4	0.5	0.5	0.4	0.3	1.4	0.7	24	
14	0.2	0.3	0.2	0.5	0.2	0.5	0.2	0.5	0.9	1.1	0.5	0.3	0.1	0.3	0.1	0.3	0.5	\$	0.9	0.5	0.3	0.1	0.3	0.2	1.1	0.4	24	
15	0.3	1.5	2.4	3.1	2.8	3.6	3.1	2.3	1.8	1.2	0.8	0.6	0.3	0.6	0.4	\$	0.2	0.4	0.5	0.7	0.1	0.6	0.3	0.6	3.6	1.2	24	
16	0.8	1.7	2.3	4.0	2.9	2.6	2.8	3.7	1.1	0.3	0.0	0.1	0.1	0.0	\$	0.3	0.4	0.4	0.5	2.8	\$	2.6	0.6	4.0	1.4	22		
17	0.5	0.5	0.7	0.7	0.9	0.9	0.4	1.3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	24	
18	1.1	1.3	1.4	1.8	1.8	2.0	2.7	4.0	6.3	4.7	1.3	1.4	\$	1.6	1.4	1.3	1.2	1.3	1.2	1.8	2.3	2.3	2.2	1.5	0.6	4.4	2.2	24
19	2.7	2.0	2.3	2.8	2.8	2.8	2.8	2.7	3.5	4.4	3.3	2.1	\$	0.9	0.6	0.6	0.6	1.3	0.8	0.6	0.5	0.4	0.2	1.3	0.7	2.4	2.4	24
20	0.4	0.7	0.4	0.5	0.7	0.9	1.2	0.9	1.1	1.3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	24	
21	0.6	0.3	0.4	0.4	0.4	0.4	0.7	0.9	0.8	0.5	\$	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.4	0.1	0.3	0.9	0.3	24	
22	0.5	1.6	0.4	1.9	0.9	0.2	0.4	0.2	\$	1.7	1.6	0.9	1.1	0.4	0.2	0.3	0.4	0.8	0.6	0.4	0.5	0.6	0.4	0.6	1.9	0.7	24	
23	0.4	0.4	0.6	1.0	0.9	1.0	1.3	\$	1.1	0.6	0.6	1.1	1.0	1.1	1.2	1.4	1.2	1.7	1.4	1.3	1.5	1.8	1.8	1.8	1.1	2.4	24	
24	1.9	2.5	2.7	2.9	4.0	\$	5.3	4.8	3.5	3.8	2.8	2.2	2.0	1.6	1.3	1.9	2.2	2.6	2.4	2.5	2.1	2.2	5.3	2.7	2.4	2.4	24	
25	2.3	2.1	2.4	2.3	2.4	\$	2.8	3.0	2.7	1.7	0.8	0.5	0.0	0.0	0.0	0.0	0.4	1.2	0.4	0.3	0.5	0.5	0.3	0.8	3.0	1.2	24	
26	0.9	0.7	0.8	1.0	\$	1.0	1.0	1.1	1.4	1.4	1.6	1.2	0.6	0.4	0.3	1.0	0.9	1.6	1.1	1.0	0.9	0.6	0.6	1.6	0.9	2.4	24	
27	0.2	0.4	0.5	\$	0.7	0.5	0.7	0.9	0.6	0.5	0.4	0.0	0.0	0.2	0.5	0.8	0.2	0.4	1.2	1.5	0.6	0.0	0.2	1.5	0.5	2.4	24	
28	0.2	0.5	\$	1.0	0.9	1.4	1.7	2.9	2.2	1.5	0.8	1.1	1.2	1.1	1.6	2.1	2.9	3.3	3.1	1.9	2.2	3.2	2.5	2.2	3.3	1.8	24	
29	1.6	\$	1.8	2.1	2.2	2.2	3.5	4.0	5.3	5.2	3.6	2.7	1.7	2.6	3.1	3.5	3.5	2.5	7.3	7.0	7.1	7.1	5.9	4.8	7.3	3.9	24	
30	\$	4.0	3.5	3.4	3.5	3.8	4.0	4.3	4.8	4.7	3.9	1.9	1.8	1.4	1.9	2.1	1.8	3.4	1.6	2.0	2.5	2.6	3.0	\$	4.8	3.0	24	
HOURLY MAX	5.4	5.6	8.7	8.5	8.0	5.7	4.9	5.3	6.5	5.2	3.9	2.8	2.8	2.6	3.1	3.5	3.5	3.4	7.3	7.0	7.1	7.1	5.9	7.1	1.5	1.5	24	
HOURLY AVG	1.4	1.5	1.8	2.0	2.0	1.9	1.9	2.2	2.3	1.9	1.3	0.9	0.8	0.8	0.8	0.9	0.9	1.0	1.3	1.3	1.3	1.3	1.3	1.5	1.5	1.5	24	

STATUS FLAG CODES

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

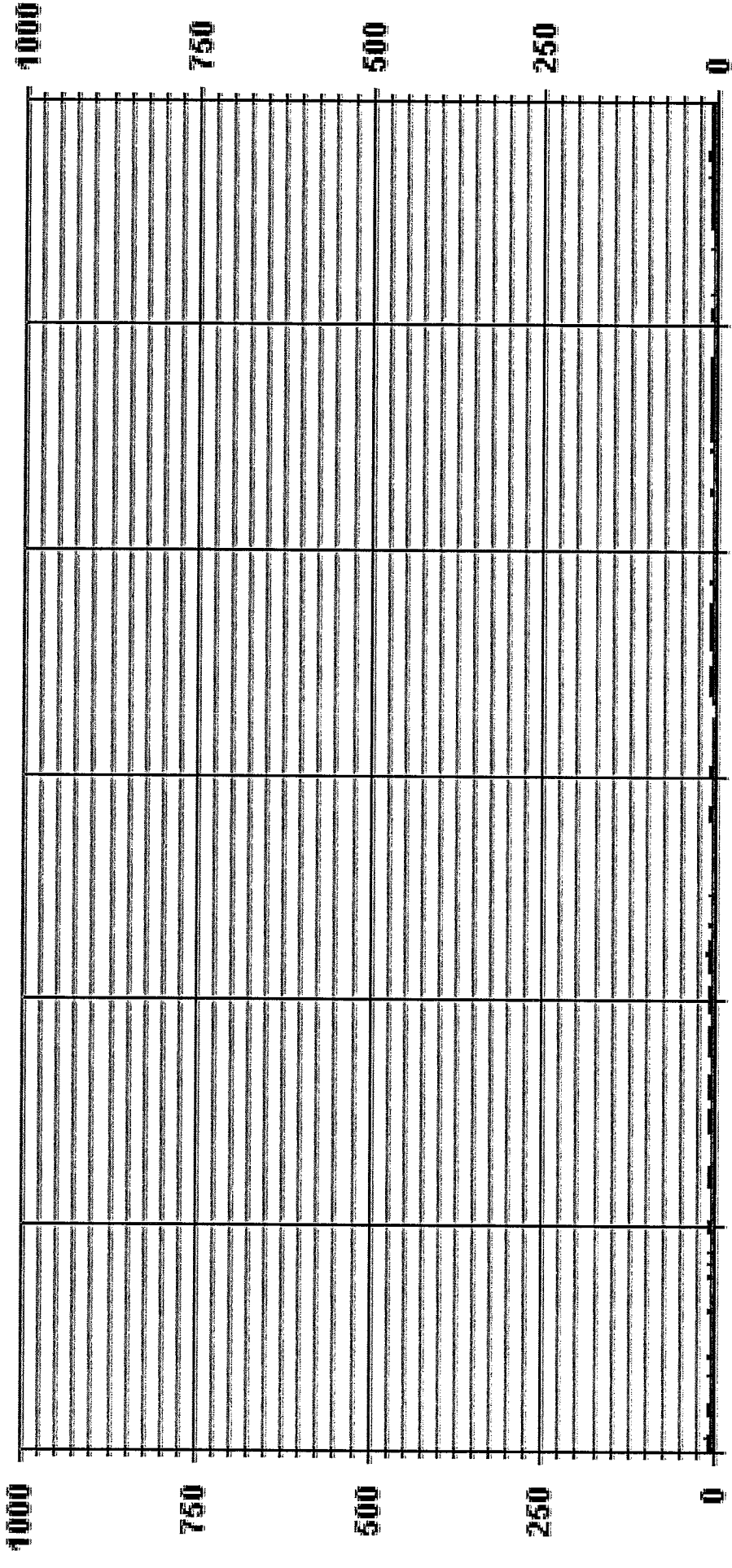
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

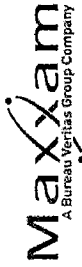
NUMBER OF NON-ZERO READINGS:	662	ON DAY(S)	12
MAXIMUM 1-HR AVERAGE:	8.7	PPB @ HOUR(S)	2
MAXIMUM 24-HR AVERAGE:	3.9	PPB	29
12S CALIBRATION TIME:	32	HRS	718
MONTHLY CALIBRATION TIME:	9	HRS	95.7
OPERATIONAL TIME:	1.35	MONTHLY AVERAGE:	1.5
AMT OPERATION UPTIME:			
VAR-VARIOUS			
STANDARD DEVIATION:			
OPERATIONAL TIME:			
AMT OPERATION UPTIME:			
MONTHLY AVERAGE:			
STANDARD DEVIATION:			

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 NOX\_ PPB



OXIDES OF NITROGEN MAX instantaneous maximum in ppb

DAY	HOURS START																								24-HOUR AVG.	RDGS.		
	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				
1	6.7	S		4.3	4.5	4.4	4.0	4.0	6.7	10.0	3.5	1.5	1.5	2.7	1.0	0.9	1.4	1.7	1.2	6.1	1.0	1.5	5.1	4.5	2.8	10.0	3.5	24
2	S		3.4	3.3	3.4	1.8	1.3	1.3	1.1	0.9	0.6	0.8	0.8	1.4	1.3	1.5	1.3	1.6	3.9	2.5	1.9	1.6	2.5	1.7	S	3.9	1.8	24
3	1.7	1.4	1.7	2.0	2.2	1.8	2.0	1.1	1.4	1.6	1.4	1.6	1.4	0.9	1.2	1.2	1.9	1.5	0.6	2.8	0.7	5.5	0.9	S	2.0	11.9	2.2	24
4	1.7	1.6	2.9	1.6	4.7	4.4	3.0	2.7	1.9	1.1	2.1	0.8	1.5	1.9	1.2	1.2	0.8	0.7	1.0	4.2	1.7	S	3.0	2.6	47.0	3.9	24	
5	2.1	2.1	1.3	1.9	2.1	1.7	1.6	1.6	1.9	3.3	1.7	2.2	2.6	1.3	1.7	2.0	1.5	1.0	1.0	2.0	S	3.2	4.9	9.2	9.2	2.3	24	
6	7.2	5.1	4.0	2.5	2.5	2.5	2.5	1.4	1.1	1.0	1.7	1.4	1.1	0.8	1.3	1.1	0.5	1.1	1.0	S	1.3	1.5	2.0	2.7	7.2	2.0	24	
7	2.4	1.9	1.9	1.6	1.6	1.6	1.8	2.1	2.1	2.4	2.7	2.4	2.4	1.5	1.3	1.2	1.8	1.6	1.4	S	4.4	0.9	1.2	1.3	1.2	4.4	1.9	24
8	2.3	1.7	4.1	5.2	4.1	3.3	3.2	3.8	5.1	4.1	2.7	2.4	2.1	2.1	8.6	2.9	3.5	1.4	15.6	3.4	2.8	2.0	S	2.4	15.6	3.9	24	
9	2.6	2.8	3.0	3.3	4.1	3.8	5.4	5.2	5.5	6.4	4.6	2.1	2.1	15.7	2.5	3.7	2.8	2.3	1.7	1.2	S	6.9	3.5	2.7	15.7	3.8	24	
10	1.9	2.0	2.0	2.0	2.1	3.1	6.0	5.2	5.5	6.4	4.6	2.1	2.1	15.7	2.5	3.7	2.8	2.3	1.7	1.2	S	6.9	3.5	2.7	15.7	3.8	24	
11	2.5	2.4	2.5	2.4	4.1	21.9	6.1	6.0	4.9	7.8	3.5	2.7	2.3	1.4	1.4	1.9	1.3	4.0	6.6	S	7.1	6.3	5.1	6.6	21.9	4.8	24	
12	5.0	7.6	9.6	9.6	8.9	6.9	5.8	4.5	30.7	2.9	2.9	1.3	1.1	1.8	1.7	1.3	1.6	1.2	1.4	S	2.5	2.3	1.3	1.4	1.2	30.7	4.9	24
13	1.4	1.2	1.0	1.4	1.2	1.7	1.5	1.7	1.9	1.4	4.2	4.0	2.5	2.3	2.0	1.2	1.4	S	1.4	1.2	1.2	1.0	1.1	0.8	4.2	1.7	24	
14	0.7	1.1	0.9	1.0	0.8	1.8	2.7	1.8	1.8	2.1	1.0	0.7	1.3	1.6	1.2	1.8	S	2.9	1.9	1.3	0.8	1.0	1.0	0.8	2.9	1.4	24	
15	1.3	3.5	3.3	3.9	4.1	4.7	3.9	2.9	2.7	1.9	1.4	1.4	0.9	1.4	1.0	S	0.9	1.2	1.2	1.2	1.2	0.6	1.6	1.1	1.2	4.7	2.1	24
16	1.5	3.3	3.0	5.3	5.5	3.4	3.9	4.5	3.3	0.9	0.5	0.5	1.2	1.2	S	1.5	1.7	1.7	1.8	10.9	P	17.3	1.5	17.3	3.5	2.2	24	
17	1.2	1.0	1.5	1.5	2.9	1.5	1.0	3.4	C	C	C	C	C	C	C	C	C	C	C	C	1.8	2.6	3.5	1.7	S	2.3	2.2	24
18	1.7	1.9	2.1	2.9	2.6	2.6	2.6	7.9	8.3	8.4	7.9	2.1	2.2	S	1.2	1.7	2.3	4.1	1.7	4.4	1.6	1.8	2.5	2.2	2.7	8.4	3.3	24
19	5.2	2.8	3.1	3.6	3.4	3.6	3.2	4.8	9.2	5.9	3.3	S	2.6	2.6	2.0	2.2	2.0	5.6	24.8	4.4	3.1	4.0	1.4	24.8	4.6	24		
20	1.1	1.1	1.3	1.1	1.4	1.7	2.1	2.6	2.5	2.0	S	1.6	1.5	1.5	1.6	1.5	1.8	5.0	3.6	1.2	1.2	1.1	1.1	0.9	5.0	1.8	24	
21	2.3	1.2	1.0	0.9	1.1	1.3	4.1	1.5	1.9	S	1.2	0.9	1.2	1.2	1.2	0.5	1.1	0.5	1.4	0.9	1.1	0.8	0.9	1.1	4.1	1.3	24	
22	1.3	3.0	1.1	8.7	1.6	1.1	1.4	0.9	S	2.4	2.6	1.7	1.9	1.4	0.7	1.0	1.0	1.8	1.6	1.1	1.1	1.2	1.1	1.3	8.7	1.8	24	
23	0.8	1.2	1.4	1.5	1.4	1.7	1.8	S	2.0	1.2	1.3	1.8	1.4	1.7	2.0	2.2	2.0	2.5	2.2	1.9	1.9	2.1	2.5	2.5	2.5	1.8	24	
24	2.6	3.4	3.5	3.7	3.7	5.5	S	6.2	6.4	4.4	4.7	3.5	3.7	3.1	3.1	2.3	1.8	3.2	2.8	4.1	3.1	3.2	2.6	2.8	6.4	3.6	24	
25	3.0	2.9	3.1	3.1	3.0	S	4.4	21.3	4.1	13.6	2.6	2.0	0.5	1.4	0.8	3.1	41.3	2.2	0.9	1.9	2.2	1.4	1.0	1.3	41.3	5.3	24	
26	1.6	1.2	1.7	1.6	S	1.8	1.7	1.9	2.2	3.5	3.1	13.8	1.4	1.1	0.9	22.8	2.7	3.5	1.9	1.6	3.2	1.3	1.4	0.7	22.8	3.3	24	
27	0.9	1.2	1.1	S	1.2	1.5	1.7	1.5	1.3	1.3	1.0	0.6	1.0	1.9	2.0	2.5	2.2	1.5	5.2	4.4	26.1	0.7	1.0	26.1	2.7	24		
28	0.7	1.2	S	1.6	1.6	4.6	4.6	37.9	32.3	2.9	2.0	3.2	3.2	3.1	3.0	3.6	5.6	4.0	3.9	2.7	3.3	3.8	3.4	5.6	37.9	6.0	24	
29	2.2	S	2.4	2.7	2.7	5.3	6.1	5.5	9.7	9.0	4.6	3.7	2.5	17.1	5.0	19.6	5.3	5.6	15.8	9.0	7.8	9.0	11.0	5.5	19.6	7.3	24	
30	S	4.7	4.2	4.6	4.6	4.4	7.3	5.9	5.8	5.9	7.7	2.9	2.4	2.4	2.7	4.1	3.5	9.3	3.0	2.4	3.5	3.6	3.6	S	9.3	4.5	24	
HOURLY MAX	7.2	7.6	9.6	9.6	47.0	21.9	7.9	37.9	32.3	13.6	24.3	13.8	3.7	17.1	8.6	22.8	41.3	9.3	15.8	24.8	26.1	9.0	17.3	9.2				
HOURLY AVG	2.3	2.4	2.6	3.1	4.4	3.6	3.5	5.7	5.8	3.7	3.3	2.3	1.8	2.7	2.0	3.4	3.5	2.5	3.6	3.5	3.4	2.6	3.2	2.6				

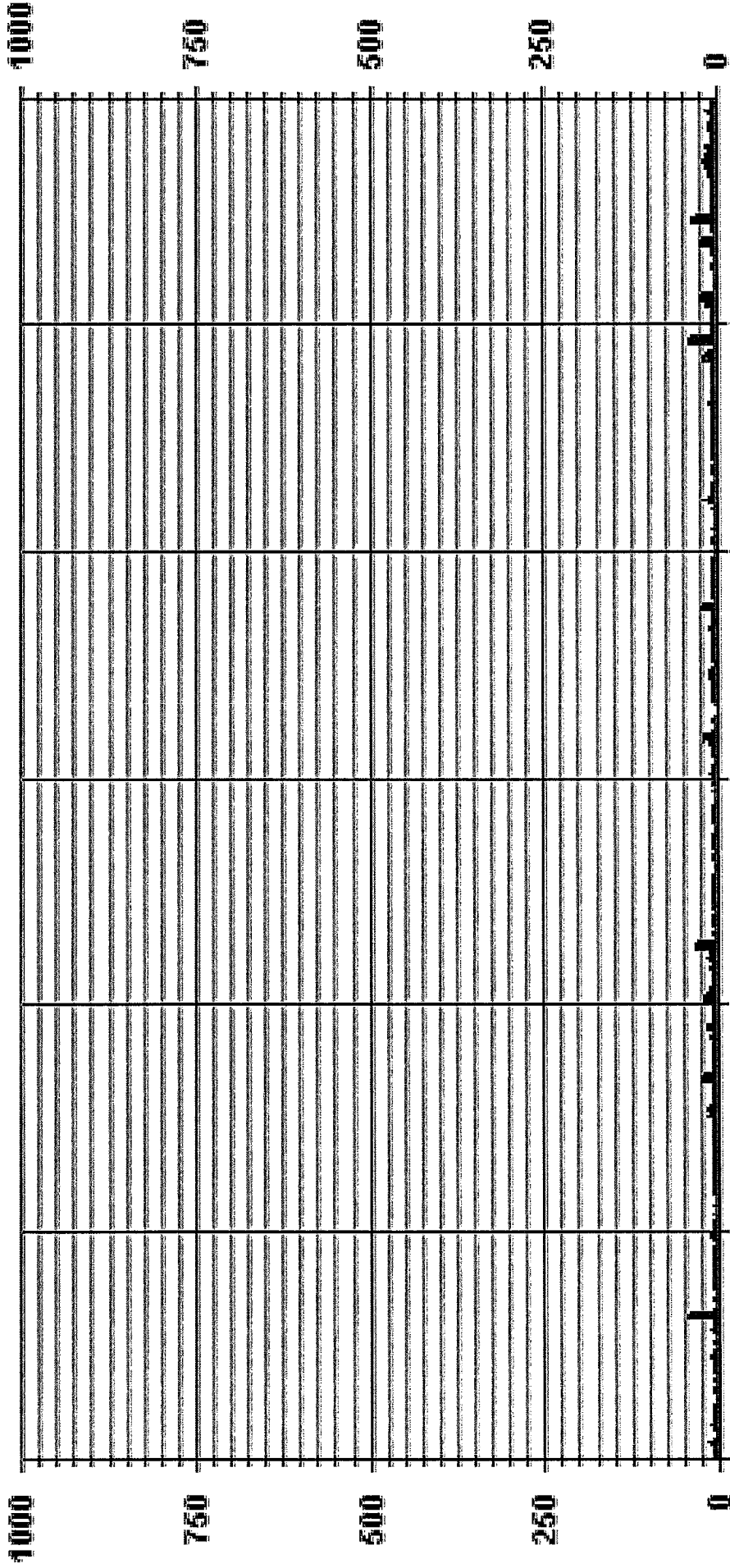
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677
MAXIMUM INSTANTANEOUS VALUE:	47.0 PPB @ HOUR(S) 4 ON DAY(S) 4
1/2S CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	9 HRS
STANDARD DEVIATION:	4.31
OPERATIONAL TIME:	718 HRS
VAR-VARIOUS	

STATUS FLAG CODES

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

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 NOXMAX PPB

LIC31  
 NOX\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LIC31  
 Parameter : NOX  
 Units : PPS

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 50.0	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35	100.00			
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35				

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

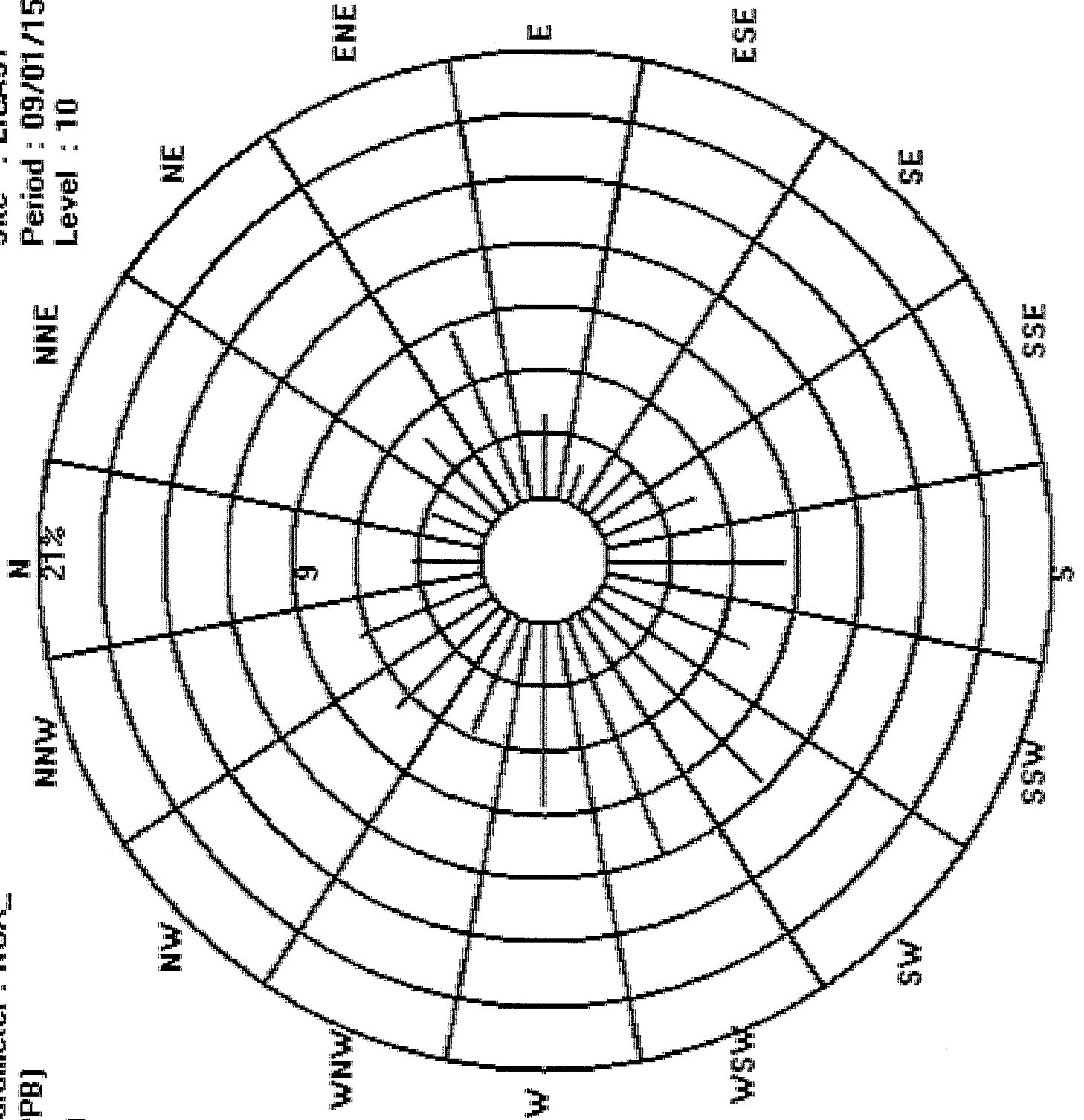
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 50.0	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43	677			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43				

Calm : .00 %

Total # Operational Hours : 677

Logger : 31 Parameter : NDX\_  
Class Limits (PPB)

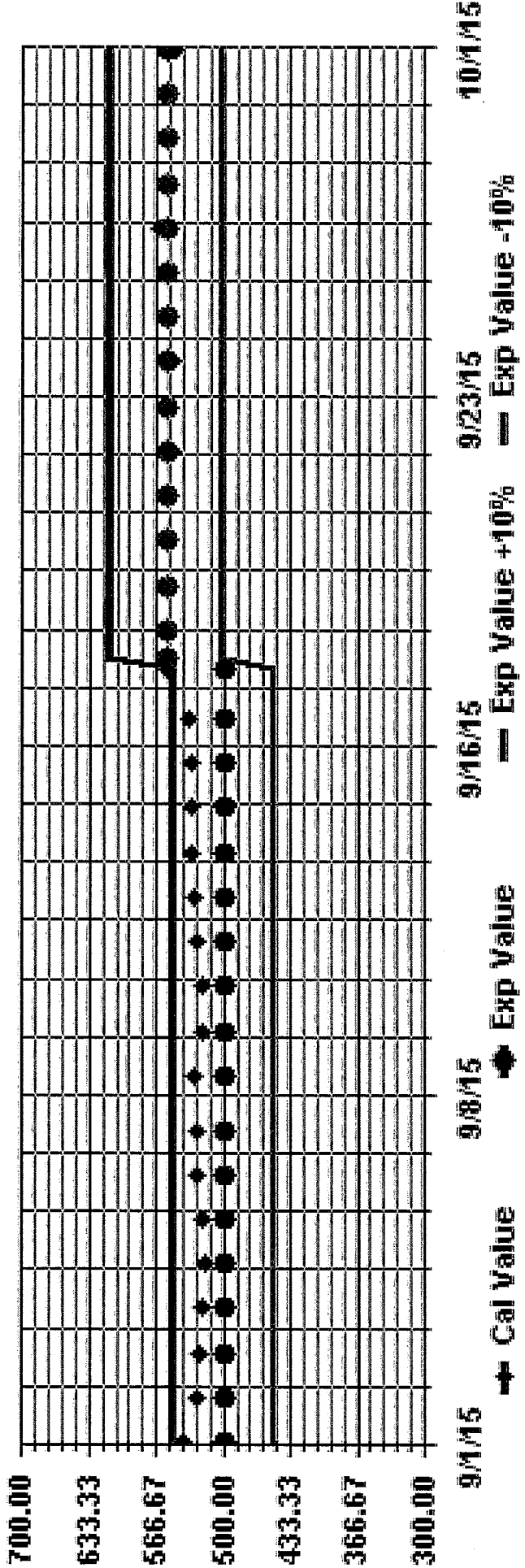
Site : LICA31  
Period : 09/01/15-09/30/15  
Level : 10



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



Calibration Graph for Site: LICA31 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



***NITRIC OXIDES***



NITRIC OXIDE (NO) hourly averages in ppb

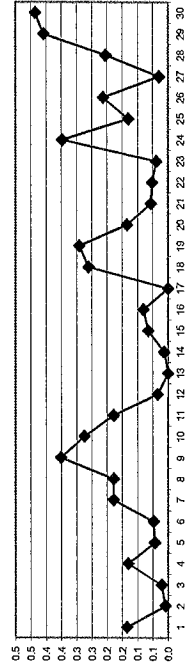
MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HOURLY MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DAILY MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DAILY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-HOUR AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROG65	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

STATUS FLAG CODES

- C - CALIBRATION
- M - 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

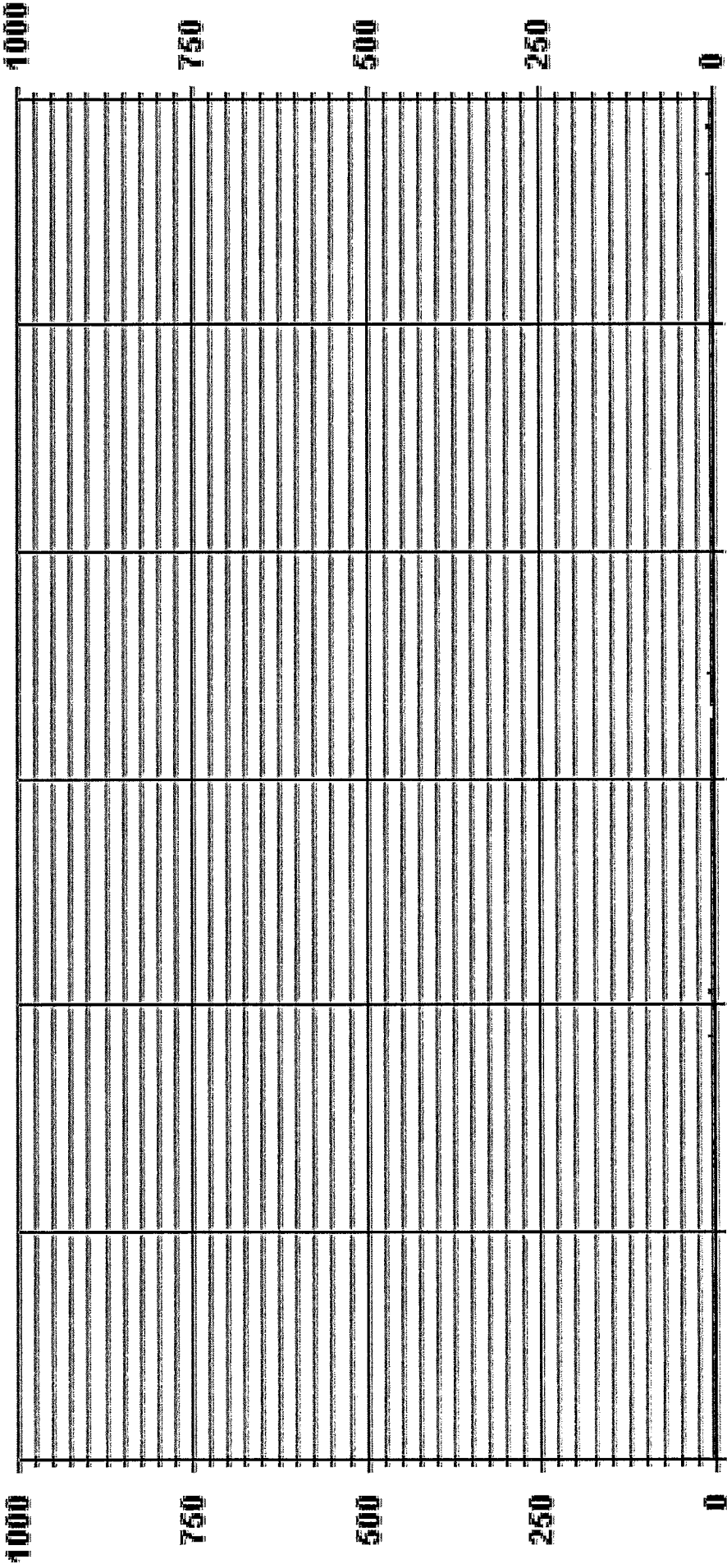
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	259	PPB @ HOUR(S)	4	ON DAY(S)	4
MAXIMUM 1-HR AVERAGE:	2.6	PPB	4	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.4	PPB	VARIOUS		
1/25 CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	71.8	HRS
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:	0.1	PPB

01 Hour Averages



— LICA31 NO\_ PPB



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	24:00	DAILY MAX	24-HOUR AVG	RODS
1	0.1	S	0.5	0.4	0.5	0.6	0.6	2.5	4.0	1.3	0.7	0.6	1.6	0.5	0.4	0.6	1.1	0.6	0.7	0.4	0.4	0.4	0.2	0.2	0.4	4.0	0.8	24
2	S	0.5	0.7	0.2	0.5	0.4	0.8	0.8	0.6	0.8	0.5	0.6	0.6	0.5	0.4	0.6	1.0	0.5	0.6	0.1	0.5	0.5	0.4	S	0.5	1.7	0.6	24
3	0.7	0.2	0.2	0.7	0.6	0.6	0.4	12.9	0.7	0.6	1.1	0.9	0.5	0.8	0.8	1.0	0.7	0.5	0.6	0.1	2.2	0.4	S	0.7	12.9	1.2	24	
4	0.5	0.2	0.5	0.5	37.6	2.2	1.7	1.4	0.9	0.6	0.9	0.5	0.9	0.4	0.3	0.6	0.3	0.2	0.8	0.3	S	0.7	37.6	2.3	24			
5	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.5	1.3	0.8	0.5	0.5	0.5	0.4	0.2	0.3	0.3	S	0.8	0.8	0.8	1.3	0.6	0.6	0.6	24	
6	0.7	0.6	0.5	0.6	0.9	0.6	0.4	0.7	0.9	0.5	0.5	0.6	0.6	0.6	0.8	0.7	0.4	0.6	0.7	S	0.8	0.4	0.7	0.7	0.9	0.6	24	
7	0.6	0.7	0.9	0.8	0.9	0.7	0.7	0.8	1.3	1.3	1.3	1.2	0.8	1.0	1.0	1.3	0.9	0.7	S	1.6	0.6	0.3	0.2	1.6	0.9	0.9	24	
8	0.7	0.5	0.6	0.2	0.2	0.5	0.7	1.4	1.7	1.5	1.1	1.0	0.8	0.7	0.9	1.2	0.7	0.4	0.1	0.3	0.3	S	0.9	4.4	0.9	24		
9	0.9	1.0	1.0	0.9	0.9	0.8	1.7	1.5	1.2	1.3	20.4	1.5	0.9	1.1	1.0	1.1	1.0	1.1	0.6	1.1	S	0.5	1.3	20.4	1.9	24		
10	0.4	0.4	0.5	0.5	0.5	0.5	2.8	2.5	3.0	4.2	1.9	0.8	0.9	7.2	1.0	1.5	1.2	1.0	0.6	0.2	S	1.4	0.4	1.5	7.2	1.5	24	
11	0.3	0.4	0.7	0.5	1.4	12.6	2.2	3.0	1.9	3.7	1.2	1.4	0.9	0.6	0.5	1.0	0.6	0.7	0.7	S	1.5	1.3	0.5	2.1	12.6	1.7	24	
12	0.3	0.5	0.2	0.2	0.4	0.4	0.7	1.1	12.0	0.6	0.8	0.3	0.3	0.4	0.6	S	0.6	0.3	0.4	0.3	0.3	0.3	0.3	0.3	12.0	1.0	24	
13	0.4	0.2	0.0	0.3	0.0	0.2	0.4	0.3	0.6	0.6	2.3	1.7	1.1	0.8	0.9	0.4	0.4	S	0.3	0.0	0.0	0.1	0.0	0.1	2.3	0.5	24	
14	0.1	0.1	0.0	0.1	0.1	0.3	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	S	1.0	0.6	0.6	0.7	0.8	0.3	0.3	1.0	0.4	0.4	24	
15	0.5	0.5	0.6	0.6	0.7	0.7	1.0	0.7	0.9	0.9	0.6	0.7	0.7	0.8	0.7	S	0.6	0.3	0.3	0.3	0.3	0.1	0.4	0.5	0.1	1.0	0.6	24
16	0.3	0.5	0.3	0.3	0.3	0.4	0.8	0.9	0.7	0.7	0.3	0.4	0.6	0.6	S	0.6	0.7	0.9	1.1	3.5	P	10.8	0.3	10.8	1.2	2.2	24	
17	0.4	0.4	0.6	0.4	0.8	0.2	0.4	0.4	C	C	C	C	C	C	C	C	C	C	C	0.9	0.6	0.4	S	0.4	0.3	0.9	0.5	24
18	0.6	0.4	0.3	0.6	0.4	0.4	3.6	3.7	4.1	3.7	1.0	1.5	S	1.2	1.4	1.2	1.1	1.1	0.9	0.6	0.1	0.0	0.3	0.1	4.1	1.1	24	
19	1.0	0.3	0.2	0.3	0.4	0.4	0.6	1.2	4.1	1.9	1.4	S	1.1	0.9	0.9	0.8	0.7	0.3	0.6	0.1	0.0	0.3	0.1	0.3	4.1	1.1	24	
20	0.6	0.8	0.7	0.8	0.8	0.6	0.9	1.5	1.5	1.1	S	1.1	0.9	0.9	0.8	0.7	0.5	0.9	0.5	1.1	0.9	1.9	8.3	1.6	0.9	8.3	1.4	24
21	1.1	0.7	0.4	0.6	0.5	0.7	2.6	0.9	1.1	S	0.7	1.0	0.8	0.7	0.5	0.9	0.5	1.1	0.9	0.2	0.4	0.3	0.2	0.4	2.6	0.7	24	
22	0.5	0.4	0.5	1.0	0.5	0.5	0.3	0.5	S	1.2	1.2	1.2	0.7	0.6	0.3	0.3	0.4	0.3	0.5	0.3	0.4	0.4	0.1	0.4	1.2	0.5	24	
23	0.1	0.4	0.2	0.6	0.4	0.4	S	0.6	0.7	0.5	1.0	1.0	0.7	0.6	0.7	0.6	0.7	0.5	0.4	0.1	0.3	0.3	0.3	0.6	1.0	0.5	24	
24	0.3	0.6	0.3	0.4	0.2	0.4	S	1.6	2.1	1.9	2.1	1.2	1.3	1.0	1.1	0.8	1.0	1.0	0.8	0.6	0.8	0.8	0.4	0.9	2.1	0.9	24	
25	0.7	1.0	1.0	1.0	0.8	S	1.2	11.8	1.2	11.5	1.7	0.9	0.4	0.9	0.7	1.2	22.0	0.4	0.3	0.5	0.6	0.5	0.2	0.3	22.0	2.6	24	
26	0.4	0.6	0.4	0.4	S	0.6	0.9	0.9	1.3	2.2	2.0	3.8	1.0	1.2	0.7	17.4	1.4	1.5	0.9	0.6	1.1	0.6	0.6	0.4	17.4	1.8	24	
27	1.0	0.9	0.8	S	0.3	0.4	1.0	0.7	0.6	0.6	0.7	0.4	0.5	0.8	1.1	1.2	1.2	0.7	2.0	0.6	14.4	0.4	0.3	0.4	14.4	1.3	24	
28	0.3	0.6	S	1.0	0.7	2.4	1.7	28.3	21.4	2.3	1.4	1.4	1.5	1.3	1.2	0.9	2.0	0.7	0.4	0.4	0.5	0.7	0.5	1.6	28.3	3.2	24	
29	0.5	S	0.7	0.7	0.6	2.1	2.7	1.6	4.9	3.7	1.8	1.3	1.0	12.3	1.6	8.4	1.1	1.3	3.2	0.6	0.6	0.6	0.8	1.7	0.4	12.3	2.3	24
30	S	0.9	1.0	0.9	0.9	0.9	2.7	1.7	2.4	2.5	3.3	1.2	0.9	0.8	0.9	1.8	1.0	1.9	0.7	0.7	0.7	0.7	0.7	S	3.3	1.3	24	
HOURLY MAX	1.1	1.0	1.0	1.0	37.6	12.6	3.6	28.3	21.4	11.5	20.4	3.8	1.6	12.3	1.6	17.4	22.0	1.9	4.4	8.3	14.4	1.7	10.8	2.1				
HOURLY AVG	0.5	0.5	0.5	0.6	1.8	1.1	1.2	3.0	2.7	1.9	1.9	1.0	0.9	1.4	0.8	1.7	1.6	0.8	0.9	0.9	1.1	0.6	0.8	0.8				

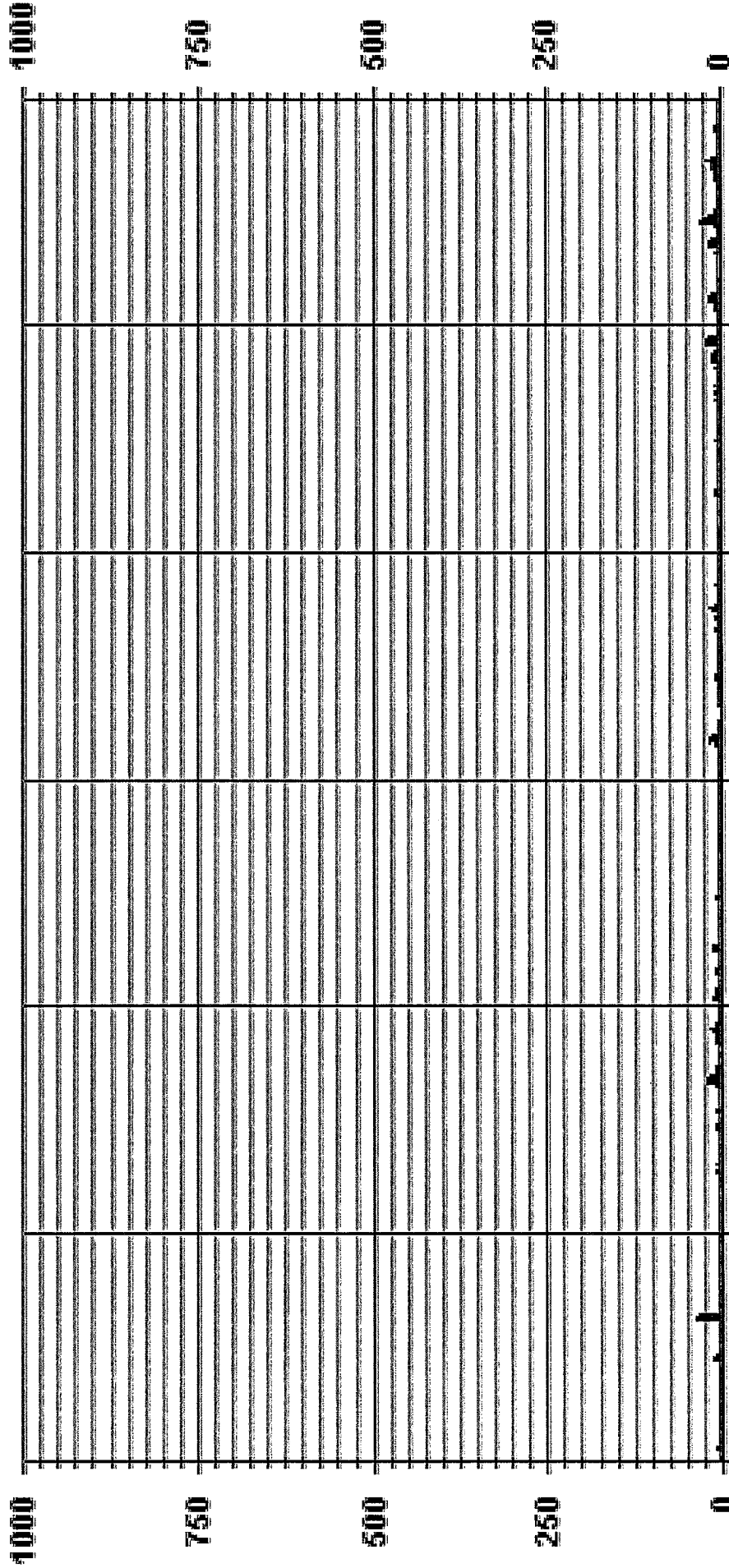
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	670
MAXIMUM INSTANTANEOUS VALUE:	37.6
PPB	PPB
@ HOUR(S)	@ HOUR(S)
ON DAY(S)	ON DAY(S)
4	4
VAR- VARIOUS	VAR- VARIOUS
OPERATIONAL TIME:	718
HRS	HRS
32 HRS	32 HRS
9 HRS	9 HRS
MONTHLY CALIBRATION TIME:	2.73
STANDARD DEVIATION:	2.73

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 NOMAX PPB

LICA31  
 NO\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 Parameter : NO  
 Units : PPS  
 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	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43	677
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43	

Calm : .00 %

Total # Operational Hours : 677





Logger : 31 Parameter : NO<sub>2</sub>

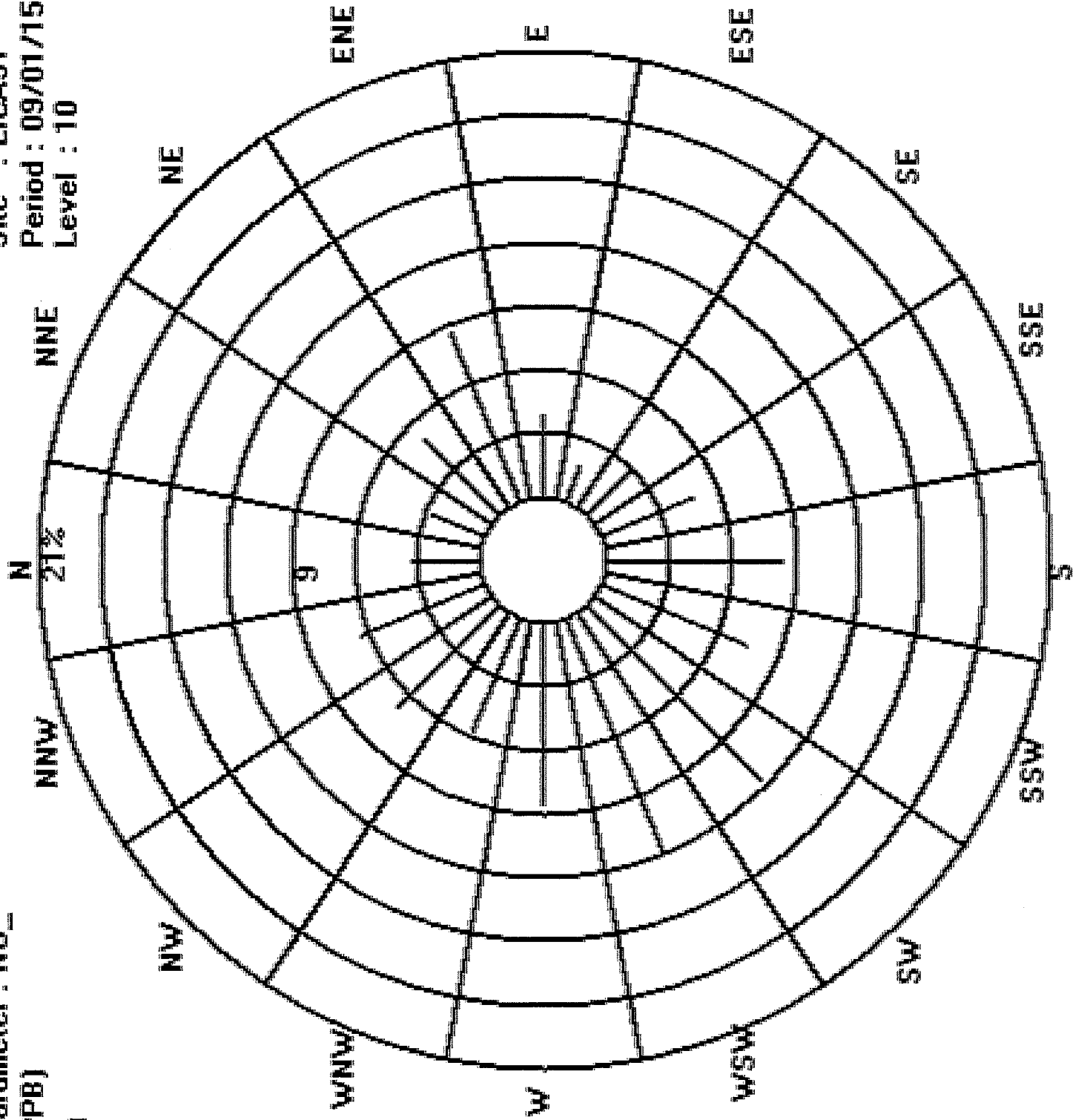
Site : LICA31

Period : 09/01/15-09/30/15

Level : 10

Class Limits (PPB)

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





***NITROGEN DIOXIDE***



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

DAY	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	24:00					
1	3.5	S	3.5	3.6	3.2	3.0	2.6	4.4	1.7	0.8	0.4	0.5	0.1	0.0	0.2	0.2	0.2	0.3	1.2	0.4	0.5	2.9	2.6	2.1	4.4	1.8	24			
2	S	2.2	2.1	2.4	1.1	0.6	0.5	0.4	0.1	0.2	0.3	0.5	0.7	0.7	0.6	0.5	1.4	1.0	1.2	0.7	0.9	0.9	S	S	2.4	0.9	24			
3	S	1.0	0.8	0.9	1.2	1.3	1.2	0.7	0.8	0.6	0.4	0.5	0.4	0.1	0.2	0.4	0.3	0.1	0.5	0.0	0.8	0.1	S	S	0.9	1.3	0.6	24		
4	S	0.9	0.7	1.4	0.9	1.6	0.9	0.7	0.8	0.6	0.2	0.5	0.0	0.2	0.4	0.1	0.0	0.2	0.1	0.4	1.4	1.0	S	S	1.8	1.3	0.7	24		
5	S	1.1	0.9	0.6	0.7	1.1	1.1	1.1	0.9	1.0	1.6	1.0	1.2	1.6	0.7	0.8	1.0	0.7	0.4	1.2	S	S	2.1	3.2	7.0	1.4	24			
6	S	5.3	4.2	2.9	1.3	1.7	1.8	0.7	0.5	0.3	0.2	0.7	0.5	0.3	0.2	0.1	0.2	0.3	S	S	0.4	0.7	1.1	2.0	5.3	1.1	24			
7	S	1.7	1.4	1.0	0.9	0.9	1.1	1.1	1.1	1.1	1.1	0.9	0.6	0.4	0.2	0.2	0.4	0.5	S	S	0.7	0.4	0.5	0.6	0.4	1.7	0.8	24		
8	S	0.8	0.8	1.4	3.9	3.1	2.6	2.5	2.6	2.9	1.9	1.6	1.4	1.1	1.4	2.1	1.8	1.6	0.4	0.6	0.9	1.5	1.0	S	S	1.3	3.9	1.7	24	
9	S	1.7	1.8	1.8	2.3	2.4	2.6	2.0	1.1	0.6	0.8	0.8	0.4	0.7	0.5	0.6	0.5	0.6	0.5	0.8	1.3	S	S	1.4	1.6	2.6	1.2	24		
10	S	1.2	1.2	1.4	1.3	1.5	2.0	2.5	1.8	2.0	2.1	1.9	1.2	1.0	1.3	0.9	0.6	0.8	0.9	0.8	0.7	S	S	2.8	2.6	2.3	2.8	1.5	24	
11	S	1.8	1.7	1.8	1.6	2.1	2.9	3.2	2.5	1.7	0.9	0.4	0.4	0.5	0.3	0.2	0.4	0.3	S	S	1.0	1.0	0.7	0.7	0.6	8.7	2.6	2.1	24	
12	S	3.8	5.6	8.7	8.5	8.0	5.7	4.9	3.2	2.5	1.7	0.9	0.4	0.4	0.5	0.3	0.2	0.4	0.3	S	S	0.6	0.4	0.5	0.4	0.3	1.4	0.7	24	
13	S	0.5	0.5	0.4	0.6	0.5	0.9	0.6	0.8	0.8	0.8	1.1	1.4	0.9	0.8	0.9	0.5	0.6	S	S	0.6	0.4	0.5	0.5	0.4	0.3	1.4	0.7	24	
14	S	0.2	0.3	0.2	0.5	0.2	0.5	0.9	1.1	0.5	0.5	0.3	0.1	0.3	0.1	0.3	0.5	S	S	0.6	0.5	0.3	0.1	0.3	0.3	0.2	1.1	0.4	24	
15	S	0.3	1.5	2.4	3.1	2.8	3.5	2.7	2.2	1.6	1.0	0.7	0.6	0.2	0.4	0.3	S	S	0.2	0.4	0.5	0.7	0.1	0.6	0.3	0.6	3.5	1.2	24	
16	S	0.8	1.7	2.3	4.0	2.9	2.6	2.7	3.4	1.1	0.3	0.0	0.1	0.1	0.0	S	S	0.3	0.4	0.5	2.4	P	P	1.7	0.6	4.0	1.3	22	24	
17	S	0.5	0.5	0.7	0.7	0.9	0.9	0.4	1.3	C	C	C	C	C	C	C	C	C	C	C	0.9	0.9	1.5	0.9	S	1.3	1.2	1.5	0.9	24
18	S	1.1	1.3	1.4	1.8	1.8	2.0	3.2	3.8	3.0	1.1	1.0	S	S	0.6	0.8	0.7	1.1	0.7	1.8	0.8	1.0	1.4	1.4	2.2	3.8	1.6	2.4	24	
19	S	2.7	2.0	2.3	2.8	2.8	2.8	2.7	3.0	3.5	2.7	1.8	S	S	1.1	0.9	0.8	0.8	1.0	0.9	1.4	1.8	1.9	2.0	1.3	0.4	3.5	1.9	24	24
20	S	0.4	0.4	0.4	0.4	0.6	0.8	0.9	0.6	0.7	0.8	S	S	0.5	0.4	0.6	0.5	0.4	0.6	1.3	0.8	0.6	0.5	0.4	0.4	0.2	1.3	0.6	24	24
21	S	0.5	0.3	0.4	0.4	0.4	0.4	0.7	0.7	0.5	0.4	S	S	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.4	0.1	0.3	0.7	0.3	24	24
22	S	0.5	1.6	0.4	1.9	0.9	0.2	0.4	0.2	0.2	S	S	1.1	0.9	1.1	0.4	0.2	0.3	0.4	0.8	0.6	0.4	0.5	0.6	0.4	0.6	1.9	0.7	24	24
23	S	0.4	0.4	0.6	1.0	0.9	1.0	1.3	S	S	1.0	0.5	0.6	0.9	0.7	1.0	1.2	1.3	1.2	1.7	1.4	1.3	1.3	1.5	1.8	1.8	1.1	2.4	24	24
24	S	1.9	2.5	2.7	2.9	4.0	S	4.3	3.5	2.5	2.4	2.2	2.1	1.8	1.5	1.1	1.5	1.1	2.5	2.2	2.3	2.1	2.1	2.1	4.3	2.4	2.4	2.4	24	24
25	S	2.2	2.0	2.2	2.1	2.0	S	2.6	2.5	2.3	1.4	0.6	0.5	0.0	0.0	0.0	0.4	0.8	0.4	0.3	0.6	0.5	0.5	0.3	0.8	2.6	1.1	2.4	24	24
26	S	0.9	0.7	0.8	1.0	S	0.9	0.9	0.8	1.0	0.8	0.8	0.6	0.3	0.1	0.2	0.7	0.6	1.1	0.9	1.0	0.9	0.6	0.6	0.0	1.1	0.7	24	24	
27	S	0.1	0.1	0.4	S	0.7	0.5	0.7	0.9	0.6	0.5	0.0	0.2	0.4	0.7	0.2	0.4	1.2	1.5	0.6	0.0	0.2	0.2	0.2	0.2	1.5	0.5	24	24	
28	S	0.2	0.5	S	0.8	0.9	1.1	1.5	1.8	1.4	0.8	0.6	1.1	0.9	0.9	1.4	2.1	2.6	3.2	3.1	1.9	2.2	3.1	2.5	2.2	3.2	1.6	24	24	
29	S	1.6	S	1.7	2.0	2.2	2.2	3.0	3.2	3.6	3.8	2.7	2.1	1.3	2.0	2.5	2.8	3.2	2.4	7.1	7.0	7.1	7.0	5.6	4.8	7.1	3.5	24	24	
30	S	3.7	3.2	3.2	3.2	3.5	3.5	3.5	3.5	3.0	2.6	1.5	1.2	1.6	1.6	1.6	1.6	3.0	1.6	1.9	2.5	2.5	2.9	S	3.7	2.6	2.6	24	24	
HOURLY MAX		5.3	5.6	8.7	8.5	8.0	5.7	4.9	4.3	4.4	3.8	2.7	2.2	2.1	2.0	2.5	2.8	3.2	3.2	7.1	7.0	7.1	7.0	5.6	7.0					
HOURLY AVG		1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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

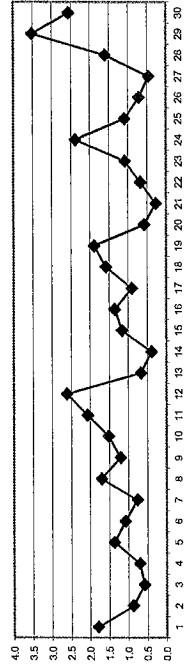
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 159 PPB

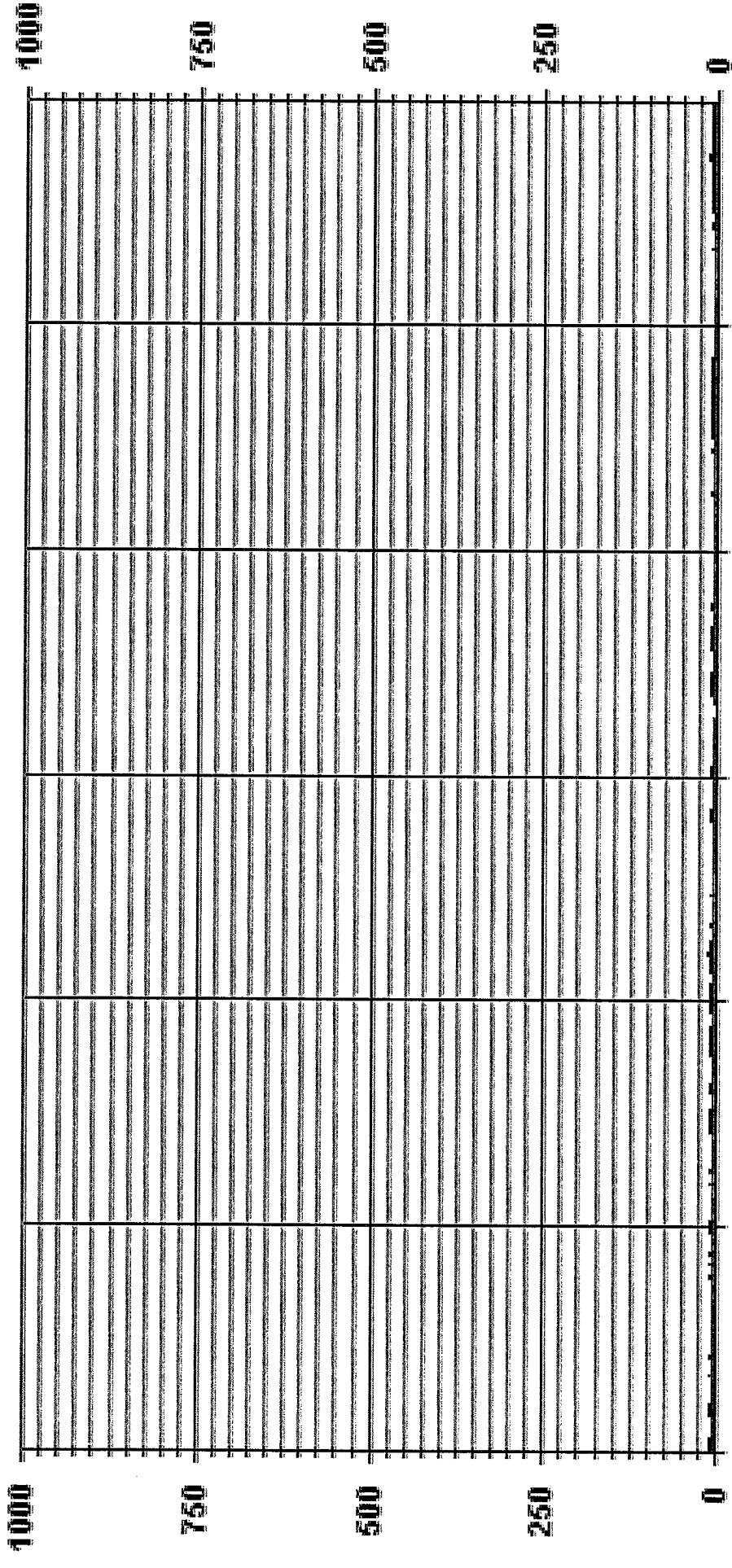
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	660
MAXIMUM 1-HR AVERAGE	8.7 PPB
MAXIMUM 24-HR AVERAGE	5.5 PPB
12S CALIBRATION TIME	32 HRS
MONTHLY CALIBRATION TIME	9 HRS
STANDARD DEVIATION	1.24
OPERATIONAL TIME	718 HRS
AMID OPERATION UPTIME	99.7 %
MONTHLY AVERAGE	1.3 PPB
ON DAY(S)	12
ON DAY(S) VAR-VARIOUS	29

24 HOUR AVERAGES FOR SEPTEMBER 2015



01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 NO2\_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	RDGS.		
	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	
1	7.1	\$	4.3	4.5	3.7	3.6	4.4	6.3	4.0	3.7	1.3	1.5	1.0	0.8	1.1	1.2	0.9	5.8	1.2	1.4	1.4	5.3	4.7	2.5	7.1	3.1	24		
2	\$	2.2	2.4	2.6	1.0	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.6	0.7	2.6	1.4	1.1	0.8	0.5	0.7	\$	2.6	0.9	24		
3	1.7	1.7	1.7	1.9	2.1	1.7	1.8	2.7	1.3	1.3	1.2	1.0	1.0	1.1	1.0	1.6	1.3	0.8	2.8	1.2	3.6	1.2	\$	1.7	3.6	1.6	24		
4	1.5	1.7	2.7	1.5	11.1	2.4	1.6	1.5	1.1	0.9	1.2	0.9	1.2	1.2	1.2	0.7	1.0	1.5	3.3	1.7	\$	2.8	2.5	11.1	2.0	24			
5	2.3	2.1	1.5	1.5	2.1	1.6	1.8	1.6	1.5	2.3	1.5	1.8	2.3	1.5	1.7	1.8	1.5	1.2	2.2	\$	2.8	4.7	9.1	9.1	2.2	24			
6	7.2	5.2	3.7	2.5	2.4	2.6	1.6	1.0	0.8	1.6	1.8	1.0	1.0	0.8	0.9	0.7	0.7	1.0	\$	1.7	2.2	3.0	3.6	7.2	2.1	24			
7	3.1	2.9	2.5	2.3	2.6	2.5	2.6	2.6	2.6	2.7	2.3	2.1	1.8	1.7	1.7	2.0	2.1	\$	3.7	2.0	2.2	2.2	2.1	3.7	2.4	24			
8	2.7	2.3	5.0	6.1	5.3	4.2	4.0	4.5	3.7	3.1	2.9	2.7	3.1	3.3	3.4	3.3	2.2	12.4	4.7	4.0	2.9	\$	1.8	12.4	4.2	24			
9	2.0	2.1	2.3	3.0	3.4	3.3	4.0	3.7	1.3	1.4	5.1	1.3	1.1	1.1	1.2	1.3	1.0	1.1	1.5	2.4	\$	3.2	3.8	5.1	2.2	24			
10	1.9	1.7	2.0	2.1	2.2	2.8	3.5	2.7	2.7	2.9	3.0	2.0	1.7	9.2	2.1	2.3	2.0	2.6	1.9	1.8	\$	5.6	3.0	2.7	9.2	2.8	24		
11	2.2	2.1	2.2	2.1	2.8	13.3	4.0	3.3	3.1	4.1	2.2	1.9	1.5	1.1	1.3	1.1	1.0	3.2	5.9	\$	5.9	5.1	4.7	5.2	13.3	3.4	24		
12	4.9	7.8	9.9	9.7	8.9	7.2	5.7	4.2	19.2	2.5	2.4	1.3	1.3	1.7	1.0	1.3	1.0	\$	2.0	2.2	1.4	1.4	1.1	19.2	4.3	24			
13	1.1	1.2	1.1	1.2	1.3	1.5	1.4	1.5	1.4	1.3	2.1	2.4	1.4	1.6	1.3	1.1	1.3	\$	1.6	1.2	1.2	1.2	1.4	0.9	2.4	24			
14	0.9	1.1	1.2	1.0	1.0	1.4	2.1	1.7	1.4	1.5	1.0	0.8	0.9	1.0	1.3	\$	1.8	1.4	0.9	0.5	0.9	1.0	0.8	2.1	1.2	24			
15	1.2	3.1	3.2	3.5	4.2	4.0	3.4	2.7	2.3	1.5	1.3	1.1	0.8	0.8	0.8	\$	0.7	1.4	1.1	1.3	0.8	1.3	1.1	1.3	4.2	1.9	24		
16	1.7	2.8	3.1	5.3	5.3	3.3	3.2	3.8	2.9	0.8	0.5	0.3	0.6	0.6	\$	1.0	1.2	1.3	1.2	7.3	P	7.5	1.4	7.5	2.6	22			
17	1.1	1.2	1.4	1.4	2.2	1.7	1.2	3.1	C	C	C	C	C	C	C	C	C	1.3	2.4	2.9	1.5	\$	2.1	2.2	3.1	1.8	24		
18	2.0	2.0	2.3	2.6	2.6	2.7	4.8	5.0	4.8	4.2	1.9	1.6	\$	1.5	1.6	1.7	1.3	1.5	3.6	16.8	3.0	2.8	3.1	0.7	16.8	3.4	24		
19	4.3	2.6	2.9	3.4	3.5	3.5	3.1	3.5	5.3	3.9	2.2	\$	1.5	1.6	1.7	1.3	1.5	1.5	3.6	16.8	3.0	2.8	3.1	0.7	16.8	3.4	24		
20	0.9	0.9	0.7	0.6	0.9	1.2	1.4	1.5	1.4	1.3	\$	1.2	1.1	1.3	1.2	1.7	1.7	4.6	3.4	1.1	1.4	1.1	1.1	0.8	4.6	1.4	24		
21	1.6	1.0	1.1	1.0	1.2	1.4	1.7	1.2	1.2	\$	0.7	0.4	0.5	0.7	0.5	0.4	0.4	0.8	0.6	0.9	1.0	0.9	0.7	0.8	1.7	0.9	24		
22	1.6	2.7	0.8	7.9	1.4	1.1	1.4	0.7	\$	1.5	1.4	1.5	1.7	1.5	0.9	1.0	0.9	1.4	1.5	1.1	1.0	1.2	0.9	1.2	7.9	1.6	24		
23	1.0	1.0	1.5	1.5	1.3	1.5	1.8	\$	1.4	0.9	0.9	1.1	1.0	1.2	1.4	1.7	1.4	2.7	2.2	1.7	2.0	1.7	2.3	2.4	2.7	1.5	24		
24	2.5	3.0	3.2	3.5	3.6	5.2	\$	4.8	4.6	2.9	2.9	2.7	2.5	2.2	2.4	2.0	1.6	2.4	2.8	3.7	2.6	2.6	2.7	2.4	5.2	3.0	24		
25	2.4	2.3	2.5	2.5	2.4	\$	3.5	9.6	3.1	7.0	1.5	1.7	0.6	1.0	0.8	2.2	21.6	1.9	1.1	1.6	1.6	1.1	1.1	1.3	21.6	3.2	24		
26	1.3	1.6	1.6	1.6	\$	1.5	1.5	1.5	1.6	1.9	1.8	10.4	1.1	0.8	1.1	0.8	1.1	1.7	1.5	2.5	2.0	1.8	2.3	1.4	1.2	0.7	10.4	2.2	24
27	0.8	0.8	1.0	\$	1.1	1.4	1.3	1.3	1.2	1.2	1.0	1.0	0.6	1.5	1.1	1.7	1.7	1.8	3.4	4.2	12.6	0.7	0.6	0.6	12.6	1.9	24		
28	1.0	1.2	\$	1.6	1.7	2.7	3.5	11.1	11.2	1.7	1.5	2.2	2.0	1.9	2.8	3.0	4.2	3.9	3.9	2.9	3.6	3.7	3.6	4.6	11.2	3.5	24		
29	2.4	\$	2.1	2.4	2.7	3.1	4.5	4.0	5.2	5.6	3.4	2.8	1.8	9.4	3.7	13.1	4.2	5.3	12.8	8.8	7.5	8.3	9.4	5.3	13.1	5.6	24		
30	\$	4.5	3.6	3.9	4.5	4.0	4.9	4.3	3.9	3.7	4.5	1.9	1.7	2.0	2.6	2.6	2.6	7.5	3.0	2.3	3.4	3.1	3.3	3.1	7.5	3.5	24		
HOURLY MAX	7.2	7.8	9.9	9.7	11.1	13.3	5.7	11.1	19.2	7.0	5.1	10.4	2.7	9.4	9.3	13.1	21.6	7.5	12.8	16.8	12.6	8.3	9.4	9.1					
HOURLY AVG	2.3	2.3	2.5	2.9	3.1	3.0	2.7	3.2	3.5	2.4	1.9	1.8	1.3	1.9	1.7	2.2	2.4	2.2	3.1	3.0	2.7	2.4	2.7	2.4					

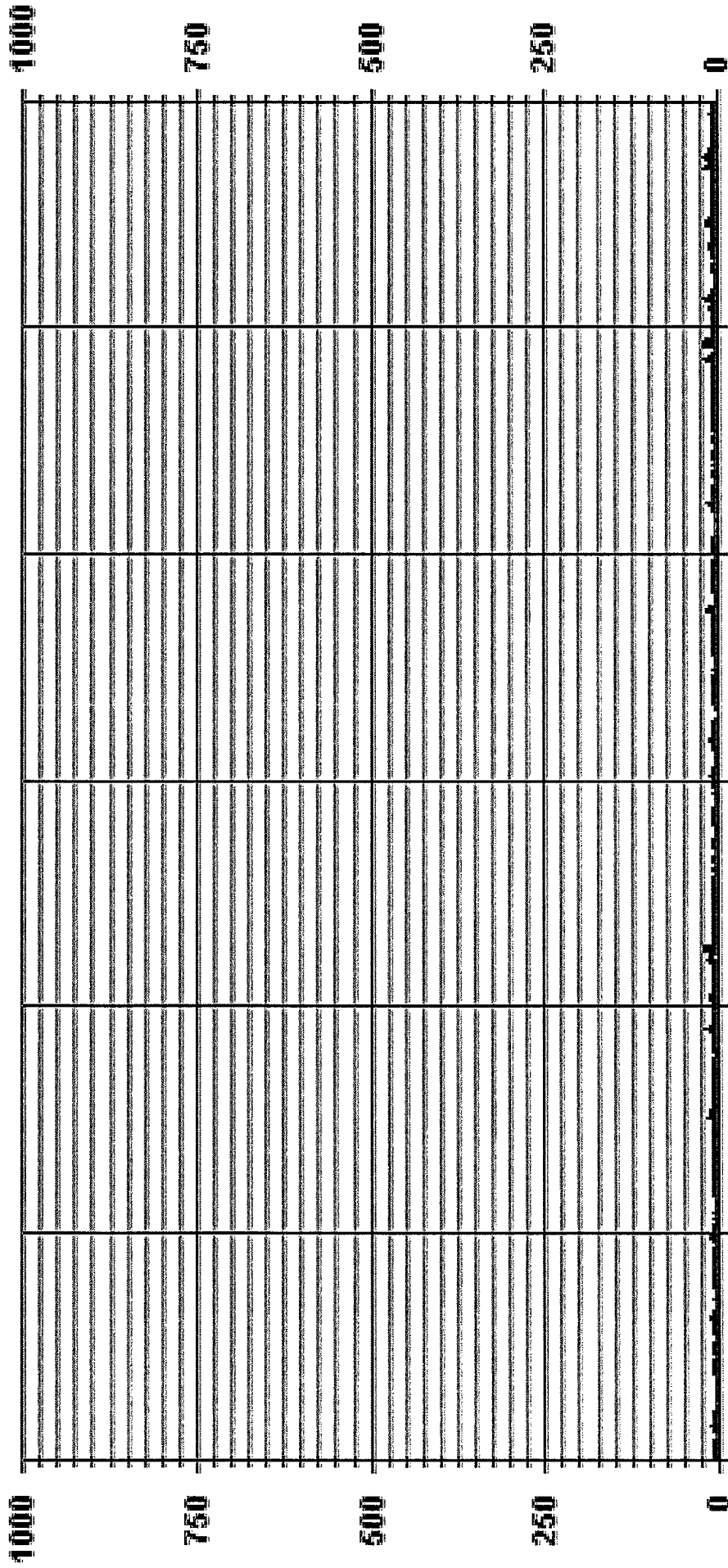
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	673
MAXIMUM INSTANTANEOUS VALUE:	21.6
PPB @ HOUR(S)	16
ON DAY(S)	25
VAR- VARIOUS	
OPERATIONAL TIME:	718
HRS	
IZS CALIBRATION TIME:	32
HRS	
MONTHLY CALIBRATION TIME:	9
HRS	
STANDARD DEVIATION:	2.28

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 NO2MAX PPB

L1CA31  
 NO2\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : L1CA31  
 Parameter : NO2  
 Units : PPF

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.24	2.80	5.02	8.56	3.84	1.77	3.10	4.72	8.41	7.53	11.66	11.81	8.56	5.76	6.79	6.35	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43	677
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	22	19	34	58	26	12	21	32	57	51	79	80	58	39	46	43	

Calm : .00 %

Total # Operational Hours : 677

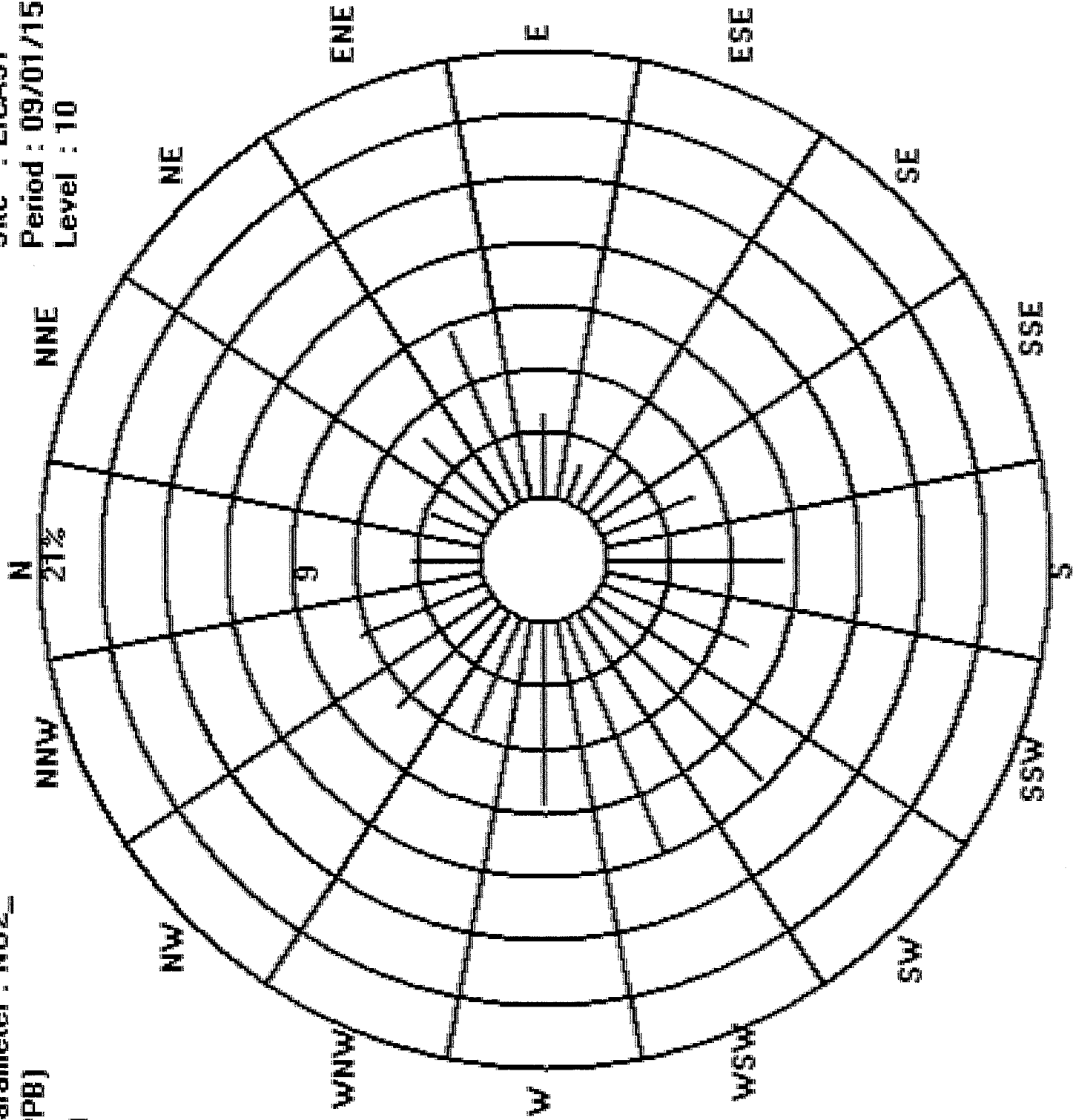
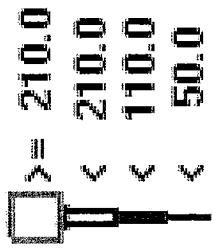
Logger : 31 Parameter : ND2\_

Site : LICA31

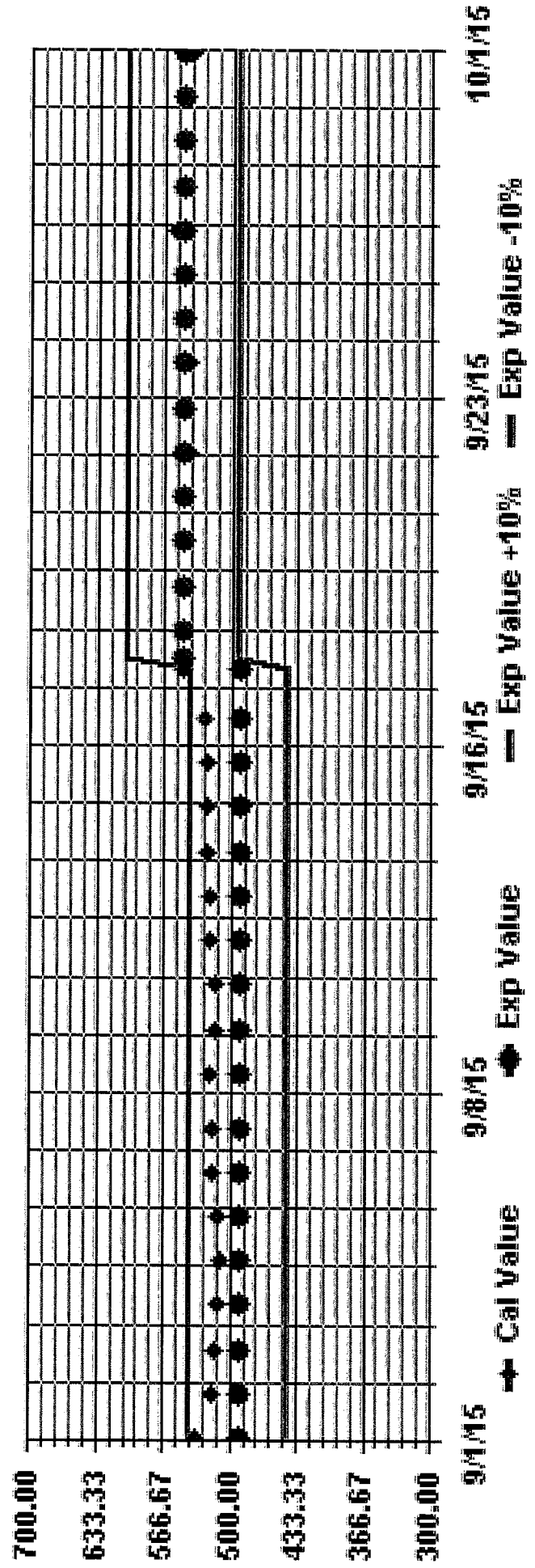
Period : 09/01/15-09/30/15

Level : 10

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: NO2\_ Sequence: NO2 Phase: SPAN

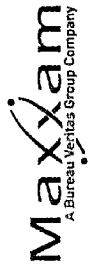


700.00  
 633.33  
 566.67  
 500.00  
 433.33  
 366.67  
 300.00

9/1/15    9/8/15    9/16/15    9/23/15    10/1/15  
 ● Cal Value    ● Exp Value    — Exp Value +10%    — Exp Value -10%



**OZONE**



OZONE (O3) 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	24:00	RDGS.		
1	29	5	24	24	24	23	21	19	20	28	32	35	37	38	37	37	37	36	33	30	29	26	26	24	38	29.1	24	
2	5	21	22	21	21	22	23	24	28	29	30	31	34	39	42	41	37	38	28	23	29	24	16	5	42	28.3	24	
3	16	16	17	15	16	15	15	14	15	17	17	20	21	22	22	23	24	23	22	21	20	18	5	16	24	18.4	24	
4	14	14	13	11	11	10	10	9	11	18	19	21	21	22	22	22	21	20	19	21	5	16	19	22	16.8	24		
5	17	21	19	19	18	14	13	14	13	17	22	23	22	24	25	24	25	25	24	21	5	17	13	8	25	19.0	24	
6	10	13	16	15	15	17	20	21	20	22	21	22	22	20	19	19	18	18	18	5	18	17	16	15	22	18.0	24	
7	15	16	16	16	14	13	13	13	13	15	20	22	23	24	24	24	24	24	24	21	20	17	16	18	24	17.7	24	
8	17	12	13	13	16	16	18	20	23	25	27	29	30	32	32	32	32	30	27	25	5	22	20	32	24.7	24		
9	27	24	21	20	20	21	21	24	24	24	24	31	34	34	33	30	29	27	26	25	5	21	20	34	21.1	24		
10	20	18	16	14	11	11	10	8	10	14	24	24	24	28	28	30	32	30	27	25	5	22	20	32	24.7	24		
11	19	18	17	16	14	12	9	9	15	19	24	27	29	36	40	41	41	40	38	5	31	28	26	41	25.0	24		
12	25	22	18	18	15	17	19	19	22	27	29	30	31	30	30	28	33	35	5	28	28	25	23	22	35	25.0	24	
13	24	24	22	20	20	19	18	18	17	19	21	23	27	30	32	35	31	5	50	27	24	23	19	35	23.6	24		
14	17	17	15	18	18	18	17	18	19	20	21	20	22	22	23	23	5	20	19	21	20	22	22	18	23	19.5	24	
15	12	11	10	10	9	8	6	7	9	11	14	16	18	18	18	18	5	17	15	15	16	15	15	13	18	13.0	24	
16	13	11	10	9	9	12	11	11	15	16	17	18	19	19	19	19	5	20	20	17	15	12	P	12	13	20	14.2	22
17	12	11	11	12	14	13	19	16	13	13	17	21	25	5	30	32	33	33	31	31	28	27	24	33	21.3	24		
18	22	19	18	18	16	14	14	13	14	21	30	32	5	36	35	32	31	28	25	28	25	25	26	25	36	23.8	24	
19	24	23	21	20	19	19	19	18	17	19	24	5	32	35	36	37	35	34	32	30	27	26	27	29	37	26.2	24	
20	31	26	27	29	25	21	21	21	21	22	5	31	33	33	34	33	30	24	27	28	29	32	28	26	34	27.5	24	
21	22	22	21	21	22	20	16	15	17	5	20	19	19	18	18	19	20	19	16	15	15	15	17	17	22	18.4	24	
22	12	11	10	10	13	14	15	17	5	13	17	19	19	21	22	21	21	20	19	19	18	18	17	22	16.7	24		
23	16	17	16	15	15	15	15	5	16	17	18	19	22	25	28	28	30	28	26	25	24	24	23	30	21.1	24		
24	23	20	22	14	16	16	5	20	20	26	25	32	40	45	46	47	46	42	39	38	36	34	32	47	30.9	24		
25	31	31	29	28	27	5	22	22	24	27	34	36	38	39	40	39	37	35	35	33	32	32	31	29	40	31.8	24	
26	26	28	27	24	5	23	23	22	21	21	23	27	32	36	37	36	33	30	29	28	29	27	29	37	27.8	24		
27	28	27	27	5	27	27	27	26	26	26	28	30	32	32	31	30	30	29	27	26	26	25	23	32	27.7	24		
28	22	21	5	20	19	15	15	14	16	20	26	27	29	30	29	28	27	25	24	25	25	23	24	30	22.9	24		
29	26	5	29	28	24	21	19	18	18	18	22	26	30	28	27	30	28	27	20	21	20	20	22	23	30	23.7	24	
30	5	21	22	22	23	22	19	15	16	19	24	28	31	34	35	36	36	35	36	34	32	31	28	5	36	27.2	24	
HOURLY MAX	31	31	29	29	27	27	27	26	28	29	34	36	40	45	46	47	46	42	39	38	36	34	32	32	32	32	32	
HOURLY AVG	20.4	19.1	19.0	17.9	17.6	16.8	16.8	16.6	17.4	19.8	22.9	25.3	27.5	29.2	30.2	30.3	29.5	27.7	26.1	24.9	24.9	23.8	21.9	21.4	21.9	21.4		

STATUS FLAG CODES

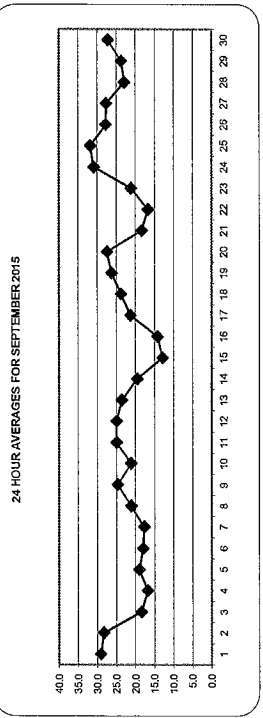
C	CALIBRATION	O	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DIRTY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	D	OPERATOR ERROR
G	OUT OF REPAIR	K	COLLECTION ERROR

ALBERTA ENVIRONMENT: **2833-2015-09-31-PPB**

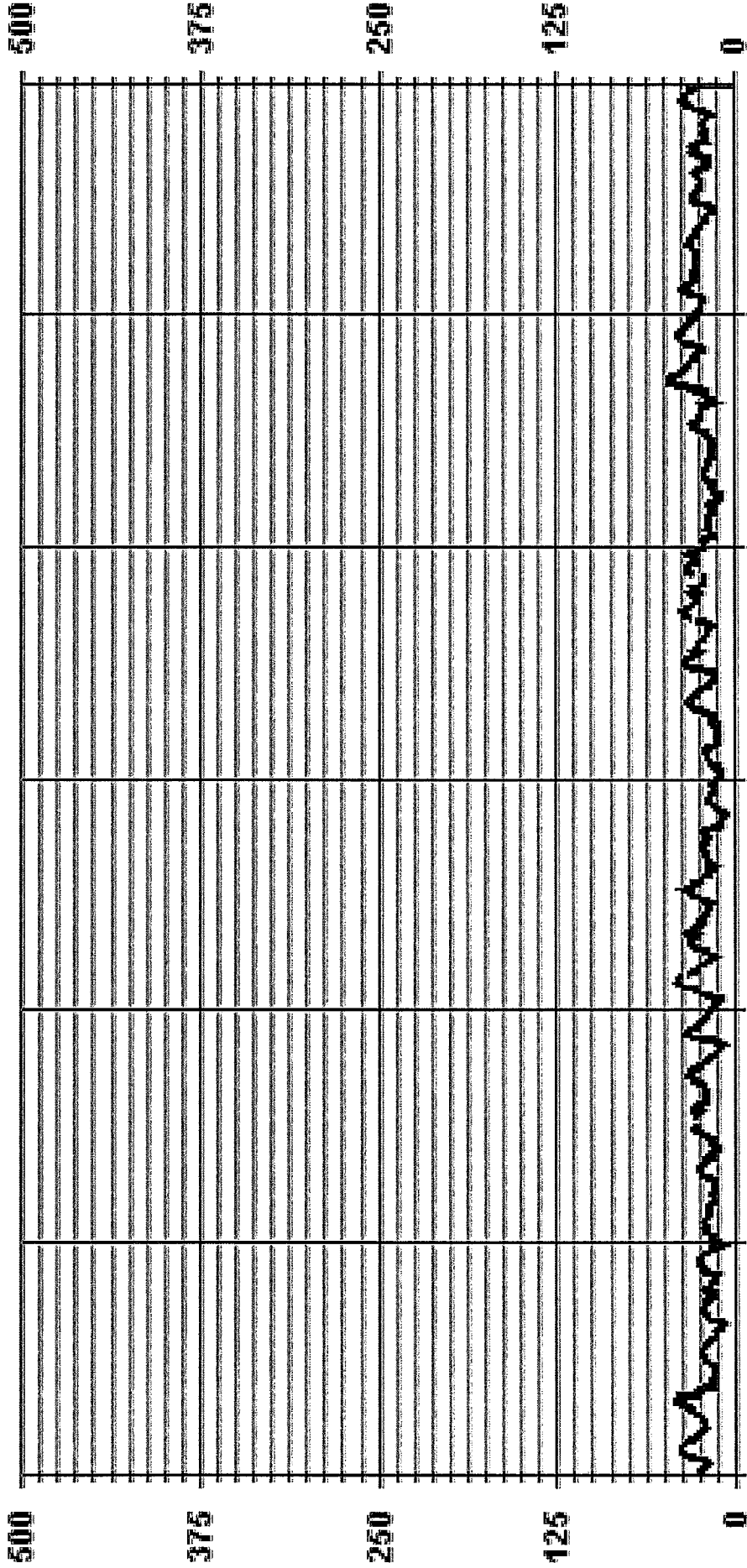
OBJECTIVE LIMIT:

MONTHLY SUMMARY

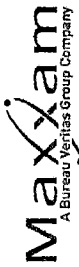
NUMBER OF 24-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	681
MAXIMUM 1-HR AVERAGE	47 PPB
MAXIMUM 24-HR AVERAGE	31.8 PPB
IS CALIBRATION TIME	32 HRS
MONTHLY CALIBRATION TIME	5 HRS
STANDARD DEVIATION	7.41
OPERATIONAL TIME	718 HRS
AMD OPERATION UPTIME	99.7 %
MONTHLY AVERAGE	23 PPB
ON DAY(S)	24
VAR-VARIOUS	25



01 Hour Averages



— LICA31 03\_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 St. Lima Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-31-C

OZONE MAX instantaneous maximum 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		
1	32	26	24	25	24	22	21	26	31	34	37	38	39	38	38	38	37	36	36	32	31	29	27	26	39	31.0
2	5	24	24	24	24	26	28	29	31	31	31	39	42	45	45	46	44	44	34	34	41	35	17	5	46	32.6
3	18	17	18	17	18	17	16	15	17	19	23	22	23	24	25	26	24	23	22	22	22	19	5	18	26	20.0
4	15	16	15	14	14	11	10	14	22	21	23	24	23	24	24	23	23	22	21	21	21	5	21	20	24	18.8
5	21	22	20	21	18	19	15	14	23	23	25	24	26	26	26	26	27	25	24	5	20	17	12	27	21.3	
6	12	15	18	17	17	21	22	22	21	24	23	25	24	22	21	20	19	19	18	5	20	18	16	25	19.7	
7	16	17	16	16	16	14	13	13	14	18	22	23	24	26	25	25	23	5	22	22	19	17	19	26	18.9	
8	21	15	15	16	18	17	18	20	23	26	29	C	C	C	C	C	C	C	C	28	28	31	5	30	22.6	
9	27	26	22	22	22	22	22	22	23	23	26	27	29	30	32	33	33	32	31	31	26	5	23	22	33	26.3
10	21	20	17	16	13	13	13	11	12	21	28	34	36	36	36	32	31	30	28	27	5	22	21	21	36	23.4
11	20	19	18	16	14	11	11	11	18	21	26	28	32	40	42	43	44	40	5	33	30	27	27	44	27.0	
12	27	24	20	19	18	19	20	21	25	29	31	31	32	31	31	42	39	5	32	32	29	27	24	42	27.6	
13	26	26	23	22	21	20	20	19	21	23	26	33	33	34	43	36	5	34	32	26	25	21	20	43	26.3	
14	18	19	19	16	20	20	19	19	20	23	22	25	25	25	25	25	5	21	20	22	22	23	23	24	25	21.4
15	15	14	11	11	11	11	9	7	9	11	14	16	17	19	20	21	21	5	22	22	20	17	15	20	14.9	
16	15	14	11	10	11	15	16	13	17	17	20	20	21	21	21	22	22	20	17	16	P	P	16	16	22	16.7
17	17	18	14	16	17	16	20	19	16	15	20	24	26	5	33	34	36	35	32	33	31	29	25	24	36	23.9
18	24	21	19	20	18	15	15	15	16	27	34	34	36	36	34	34	30	30	29	27	26	27	25	36	25.8	
19	26	24	22	21	21	19	20	19	20	29	5	33	37	38	39	38	35	33	32	29	28	28	31	39	27.9	
20	32	30	29	32	30	24	24	24	23	24	5	33	36	35	37	35	32	31	31	31	31	34	30	28	37	30.3
21	25	23	23	23	22	18	16	19	5	14	21	21	20	19	20	22	21	21	17	16	16	16	17	18	25	19.8
22	17	13	13	15	16	18	19	5	14	21	21	22	23	22	22	21	21	20	19	19	19	19	19	17	23	18.4
23	17	17	18	16	15	15	17	5	17	19	21	23	27	29	29	31	30	27	26	25	25	25	25	31	22.2	
24	25	23	23	22	19	18	5	22	25	28	31	36	44	46	48	47	44	40	39	38	35	33	32	48	33.3	
25	32	32	31	29	28	5	24	23	29	31	35	38	40	41	41	41	39	37	36	35	33	32	32	41	33.6	
26	27	29	29	26	5	25	25	24	23	26	31	36	37	38	38	35	33	30	29	32	29	28	30	38	29.7	
27	29	28	27	5	28	27	26	27	27	30	32	33	33	32	31	31	30	29	28	27	26	26	24	33	28.6	
28	23	22	5	22	20	17	18	17	18	22	27	28	31	31	29	28	27	25	26	26	24	24	26	31	24.4	
29	27	5	30	29	26	23	20	19	20	24	30	31	29	29	32	30	29	23	22	21	22	23	24	32	25.3	
30	5	23	22	24	24	24	17	20	22	28	31	33	36	36	37	38	37	37	35	34	32	30	5	38	29.3	
HOURLY MAX	32	32	31	32	30	27	27	28	29	31	35	38	44	46	48	48	47	44	40	39	41	35	33	32		
HOURLY AVG	22.3	21.1	20.4	19.9	18.6	18.7	18.3	19.7	22.3	25.3	27.6	29.6	30.8	32.0	32.2	31.8	30.0	28.0	27.2	27.1	25.8	23.6	23.1			

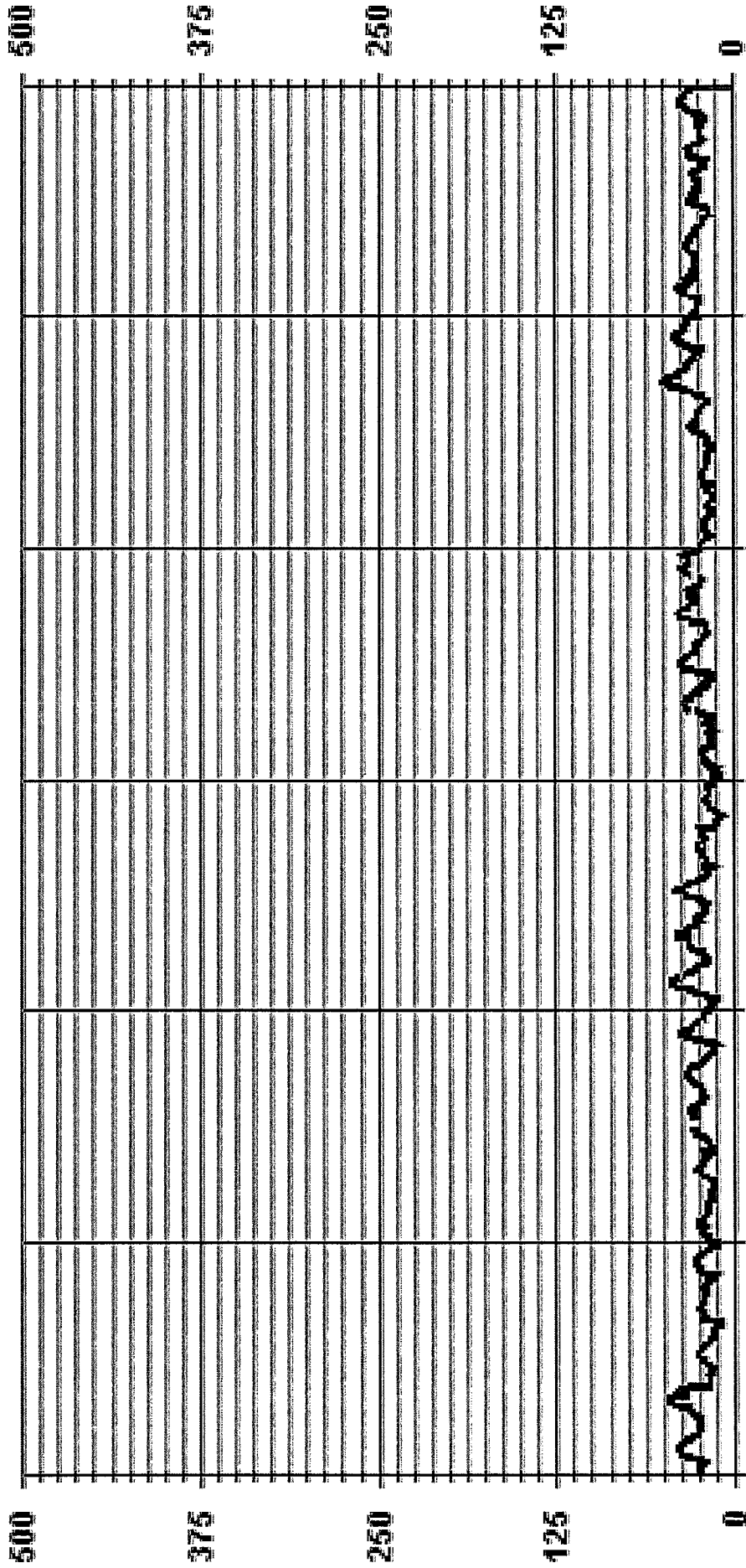
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	679
MAXIMUM INSTANTANEOUS VALUE:	48 PPB @ HOUR(S) 14, 15 ON DAY(S) 24, 24
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	7.56
VAR-VARIOUS	

01 Hour Averages



— LICA31 O3MAX PPB

L1CA31  
 O3\_ / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : L1CA31  
 Parameter : O3  
 Units : PPF

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2.79	2.79	4.69	8.51	3.81	1.76	3.08	4.99	8.81	7.48	12.18	11.74	8.51	5.72	6.75	6.31	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	2.79	2.79	4.69	8.51	3.81	1.76	3.08	4.99	8.81	7.48	12.18	11.74	8.51	5.72	6.75	6.31	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	19	19	32	58	26	12	21	34	60	51	83	80	58	39	46	43	681
< 110																	
< 210																	
>= 210																	
Totals	19	19	32	58	26	12	21	34	60	51	83	80	58	39	46	43	

Calm : .00 %

Total # Operational Hours : 681

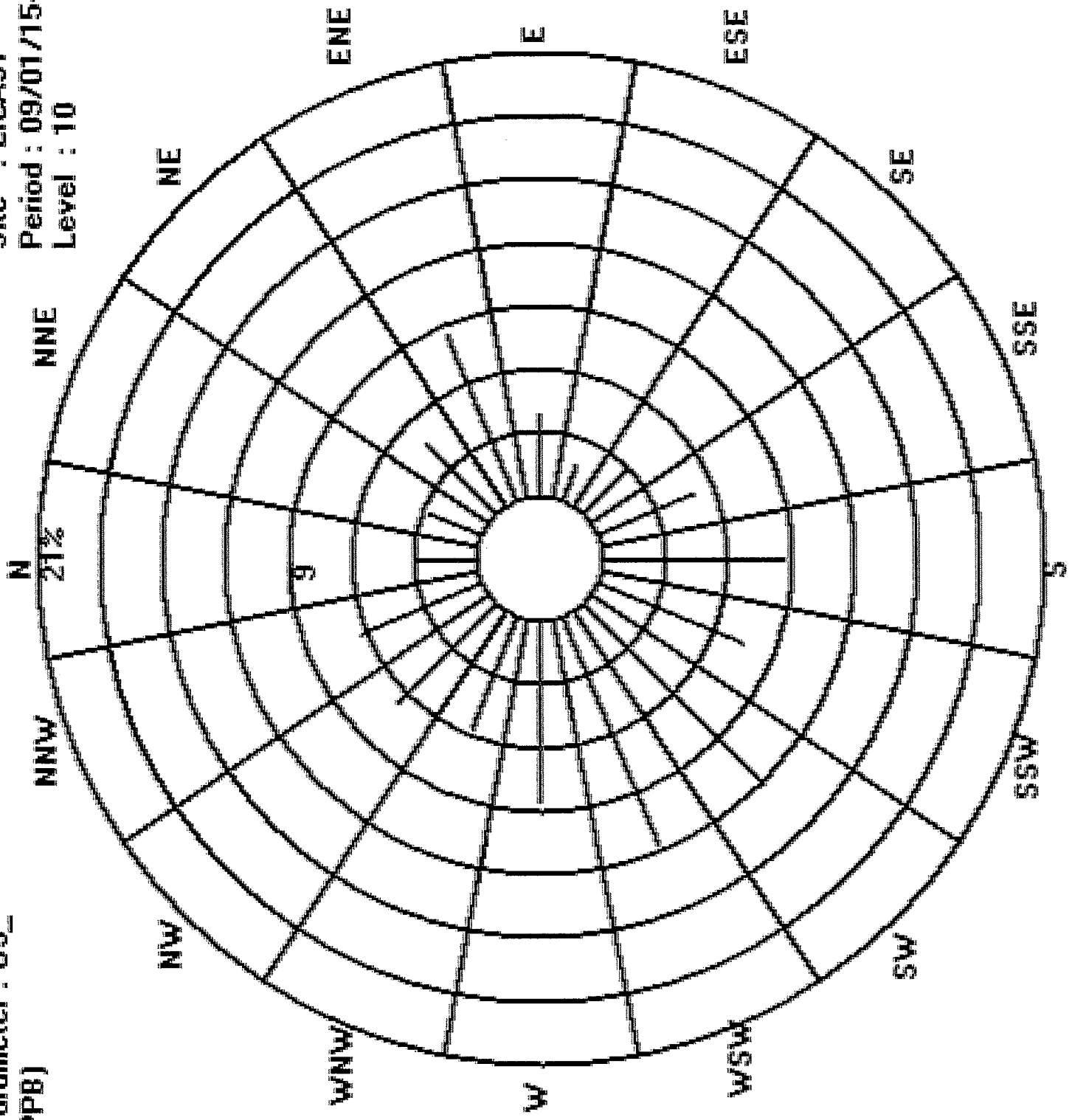
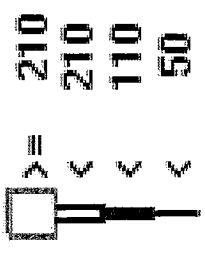
Logger : 31 Parameter : O3\_

Site : LICA31

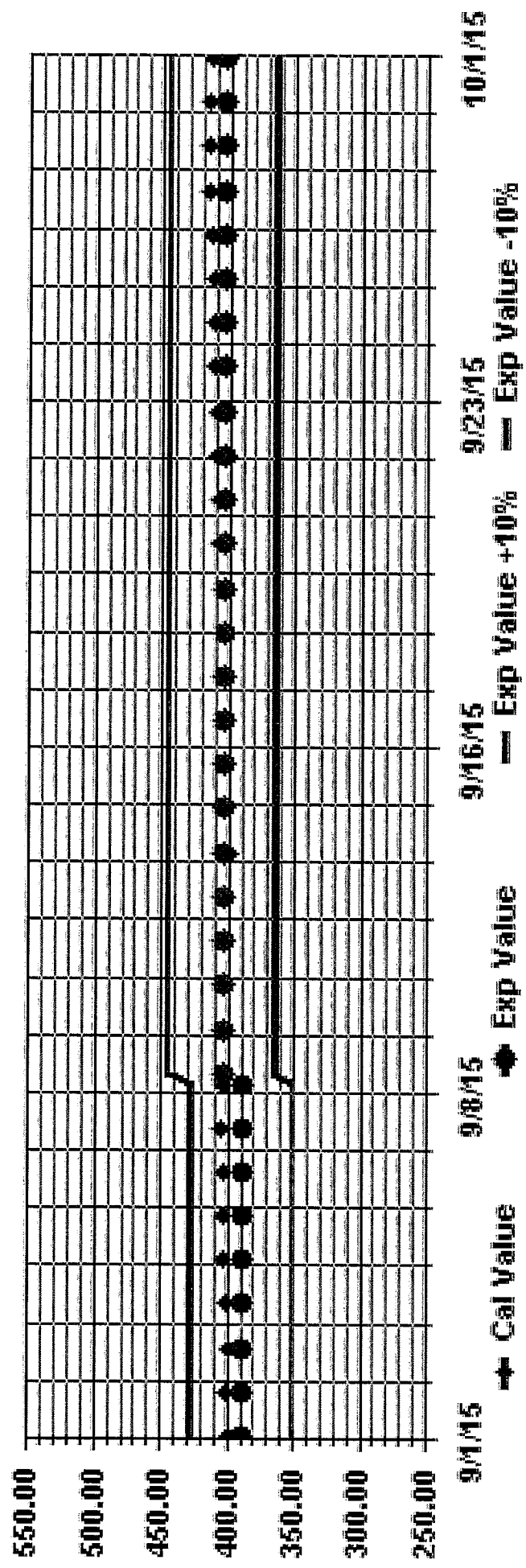
Period : 09/01/15-09/30/15

Level : 10

Class Limits (PPB)

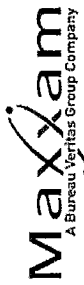


Calibration Graph for Site: LICA31 Parameter: O3\_ Sequence: 03 Phase: SPAN





***PARTICULATE MATTER 2.5***



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

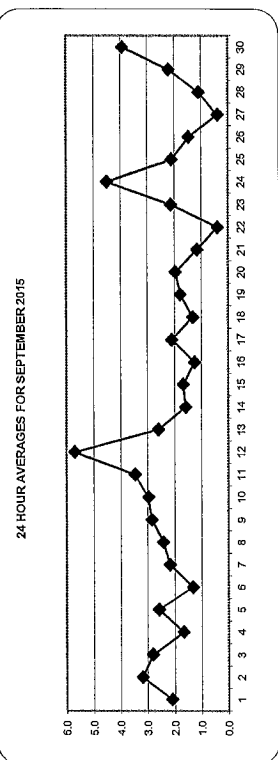
MST

DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	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				
1	4	1	0	0	7	5	X	X	5	0	5	0	0	0	0	0	0	0	5	6	0	1	2	2	1	7	2.1	
2	0	2	0	4	0	4	0	0	2	3	5	2	4	X	4	2	7	2	0	7	2	0	X	1	6	10	3.2	
3	9	3	4	2	1	5	7	X	8	8	X	X	C	0	2	0	2	0	2	0	2	3	0	0	0	9	2.8	
4	0	1	0	0	6	3	X	X	1	1	2	0	0	2	0	2	0	2	X	4	0	5	2	5	1	0	6	1.7
5	1	1	2	0	0	5	4	5	0	3	0	1	0	4	8	3	1	3	6	1	6	3	2	3	8	8	2.6	
6	6	1	0	6	2	3	0	0	0	0	X	0	2	0	X	3	1	0	0	5	0	5	0	0	0	6	1.3	
7	3	0	2	0	0	2	5	3	4	1	0	0	3	X	2	0	5	2	0	3	2	4	0	3	7	7	2.2	
8	5	3	4	7	4	1	4	3	0	2	0	2	0	0	4	2	5	5	2	0	4	0	0	0	0	7	2.4	
9	1	3	0	0	0	5	7	0	2	1	0	0	1	5	0	13	0	4	6	4	5	5	2	4	13	2.8		
10	4	3	2	2	4	3	4	2	8	8	1	0	5	2	1	5	0	1	2	2	4	3	3	2	8	3.0		
11	0	2	3	1	3	2	1	7	13	5	6	1	7	5	0	0	0	0	4	6	7	7	1	1	13	3.5		
12	3	3	7	9	8	6	11	15	4	2	7	5	7	10	8	1	4	8	7	0	1	4	1	3	0	8	2.6	
13	0	X	3	5	X	1	0	1	7	2	1	4	4	0	1	4	8	7	0	1	4	1	1	1	3	0	8	2.6
14	0	3	0	2	4	4	0	4	0	4	0	2	0	0	1	2	3	0	2	2	1	1	1	1	1	4	1.6	
15	2	0	4	2	6	3	4	0	1	2	1	3	1	0	0	1	5	1	0	0	4	0	4	0	0	6	1.7	
16	X	2	3	0	0	0	0	4	0	1	0	3	0	0	0	0	1	2	1	0	5	P	P	3	1	5	1.2	
17	1	2	1	4	0	4	0	0	0	5	X	C	C	0	12	3	0	3	0	1	3	0	3	2	12	2.1		
18	0	2	2	2	2	0	2	2	3	2	2	2	0	0	1	0	1	1	0	0	0	X	0	6	1	6	1.3	
19	2	2	2	4	2	0	1	1	2	6	X	3	0	2	0	0	0	X	2	2	2	1	5	0	2	6	1.8	
20	5	X	0	0	2	0	0	X	0	7	8	7	2	X	0	0	1	5	3	1	0	0	0	0	8	2.0		
21	0	0	1	0	0	1	0	0	X	2	6	0	0	X	5	3	0	2	0	2	0	2	0	0	0	6	1.1	
22	0	0	2	1	0	3	X	X	0	0	0	0	0	0	0	0	0	0	X	0	0	0	0	0	3	0.4		
23	0	1	0	1	4	0	1	1	0	0	1	2	2	3	2	3	4	4	6	3	4	4	2	3	6	2.1		
24	5	2	3	5	4	5	3	2	6	6	2	2	2	9	5	3	5	3	6	4	7	3	4	3	9	4.5		
25	3	2	3	4	8	5	0	3	6	1	2	2	0	X	3	0	0	X	0	0	1	0	3	8	2.1			
26	0	X	0	2	0	0	1	2	3	X	0	0	0	X	3	4	2	1	4	X	0	1	3	2	1	4	1.5	
27	2	1	0	0	0	1	0	0	0	0	0	2	0	0	0	1	4	0	0	0	0	0	0	0	1	4	0.4	
28	2	1	0	0	0	0	1	0	0	1	0	3	4	0	0	0	3	4	2	1	0	0	2	2	4	1.1		
29	0	0	1	4	2	3	4	0	2	2	1	3	1	1	3	3	2	0	0	7	5	2	3	4	7	2.2		
30	5	4	0	7	4	3	8	6	4	1	0	7	2	1	0	5	2	11	4	1	5	8	4	2	11	3.9		
HOURLY MAX	9	4	7	9	8	6	11	15	13	8	8	7	10	12	13	8	11	7	7	7	7	7	8	7	6			
HOURLY AVG	2.1	1.6	2.5	2.6	2.5	2.6	2.5	2.8	2.9	1.8	1.9	1.8	1.9	2.3	2.6	2.2	1.8	3.0	2.4	2.0	2.6	2.1	1.9	1.8				

STATUS FLAG CODES

- C - CALIBRATION
- M - 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

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES: 0

NUMBER OF NON-ZERO READINGS: 446

MAXIMUM 1-HR AVERAGE: 15 ug/m3 @ HOUR(S) 7 ON DAY(S) 12

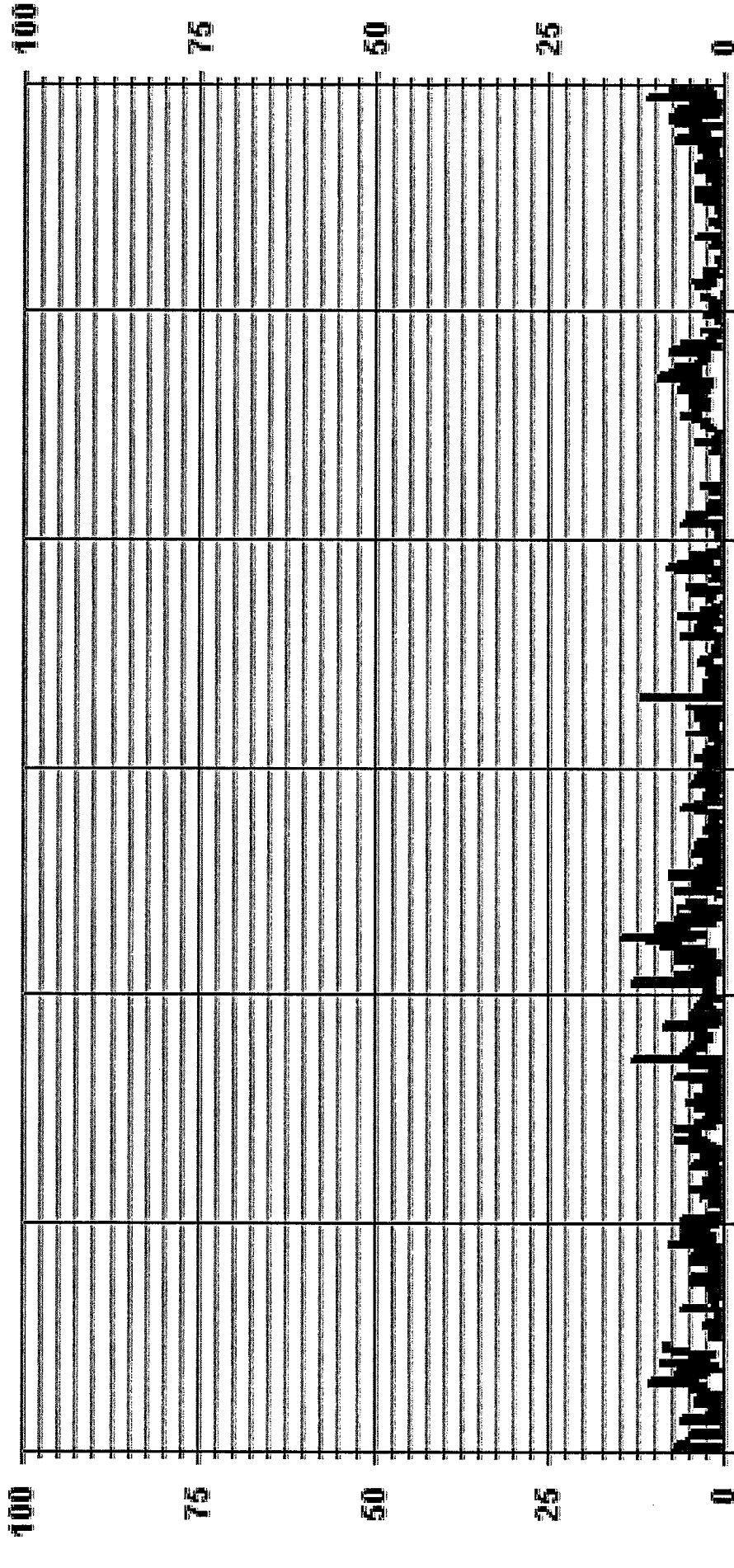
MAXIMUM 24-HR AVERAGE: 5.7 ug/m3 VAR-VARIOUS ON DAY(S) 12

MONTHLY CALIBRATION TIME: 3 HRS OPERATIONAL TIME: 682 HRS

STANDARD DEVIATION: 2.46 AMD OPERATION UPTIME: 94.7 %

MONTHLY AVERAGE: 2.2 ug/m3

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 PM2 UG/M3

LICA31  
 FM2 / WDR Joint Frequency Distribution (Percent)  
 September 2015

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 Parameter : FM2  
 Units : UG/M3

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 30	3.24	2.65	5.00	8.83	3.97	1.62	3.09	5.00	9.27	7.36	11.92	11.48	8.24	5.15	6.62	6.48	100.00			
< 60	.00	.00	.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	.00	.00	
< 120	.00	.00	.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	.00	.00	
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	3.24	2.65	5.00	8.83	3.97	1.62	3.09	5.00	9.27	7.36	11.92	11.48	8.24	5.15	6.62	6.48				

Calm : .00 %

Total # Operational Hours : 679

Distribution By Samples

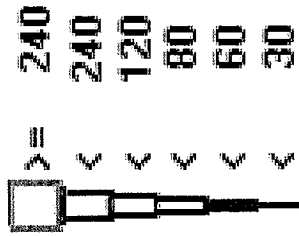
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< 30	22	18	34	60	27	11	21	34	63	50	81	78	56	35	45	44	679			
< 60																				
< 80																				
< 120																				
< 240																				
>= 240																				
Totals	22	18	34	60	27	11	21	34	63	50	81	78	56	35	45	44				

Calm : .00 %

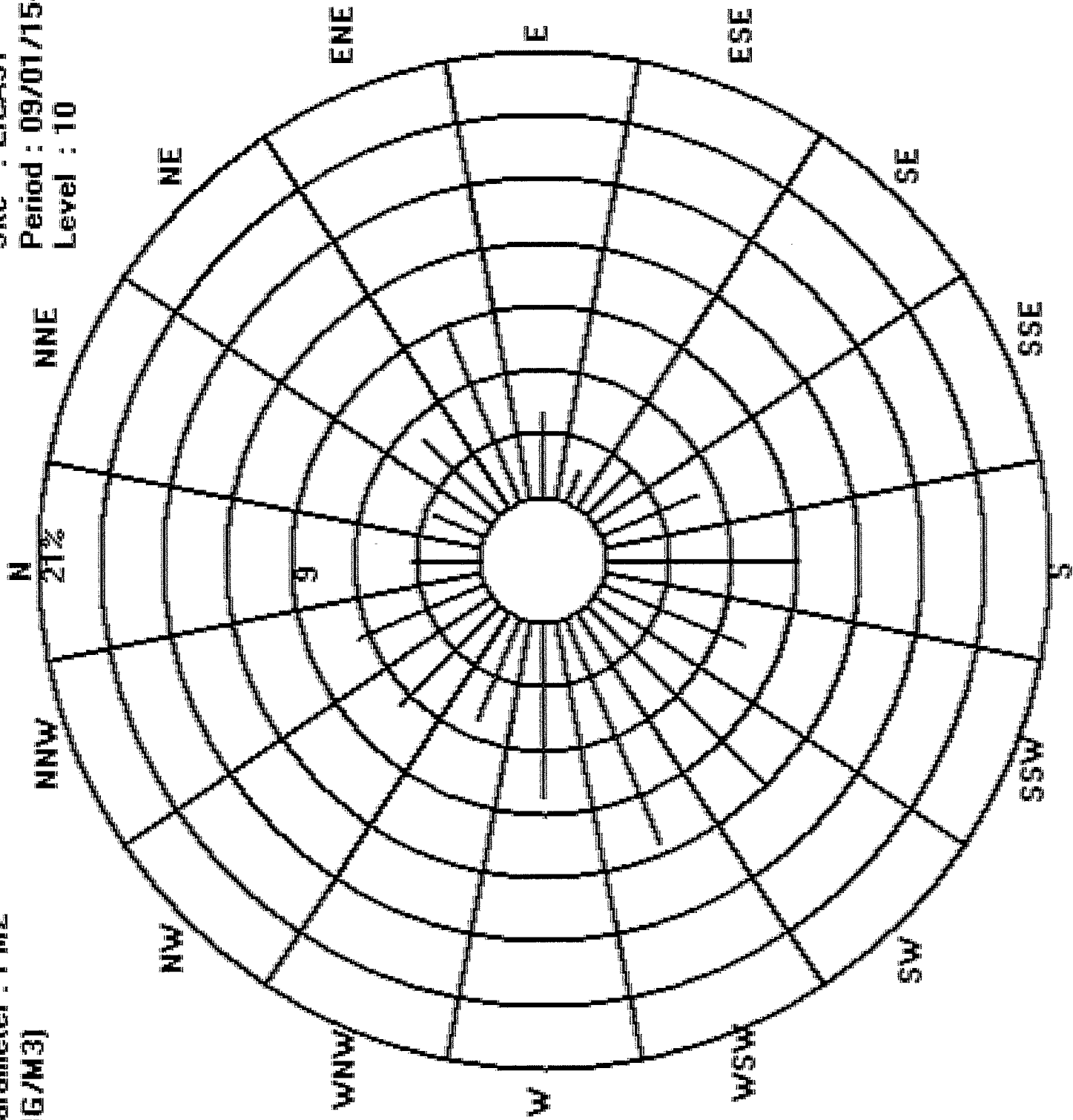
Total # Operational Hours : 679

Logger : 31 Parameter : PM2

Class Limits (UG/M3)



Site : LICA31  
Period : 09/01/15-09/30/15  
Level : 10



***WIND SPEED***



WIND SPEED (WS) hourly averages in km/hr

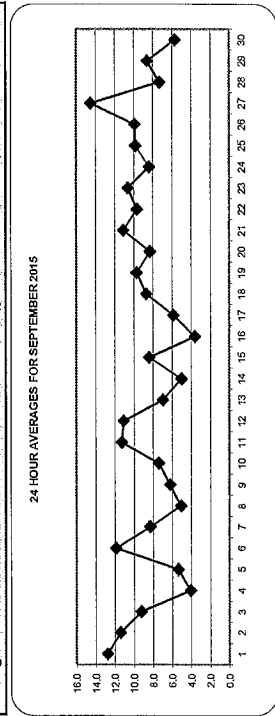
MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDS		
	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					
1	10.5	8.7	8.7	8.1	9.8	9.3	11.5	12.4	17.4	19.8	29.0	23.6	27.0	24.7	13.2	14.2	13.0	5.7	5.1	4.7	6.3	7.4	8.6	7.1	29.0	12.7	24		
2	9.8	10.9	11.1	14.7	16.3	16.3	14.6	14.0	18.8	16.4	13.1	12.7	7.1	6.7	6.9	5.7	8.2	6.5	13.5	5.1	5.6	11.9	14.6	13.0	18.8	11.4	24		
3	15.8	13.1	13.0	9.0	13.6	10.5	10.8	10.7	10.4	11.8	13.5	9.2	8.0	7.5	7.3	7.8	8.4	7.7	5.2	5.0	5.8	5.7	5.4	6.3	15.8	9.2	24		
4	5.7	6.2	4.7	4.3	5.4	5.6	4.5	1.7	2.6	6.9	6.4	6.0	6.8	4.2	3.7	3.1	2.7	1.7	1.8	0.6	0.8	4.8	4.7	6.9	4.1	24			
5	4.4	5.4	3.8	2.0	1.5	5.4	5.2	3.9	5.8	6.6	6.5	6.2	7.5	7.9	6.7	8.0	8.3	7.0	4.2	4.1	4.1	4.7	8.3	5.4	24				
6	6.3	7.8	9.3	6.9	10.4	15.0	14.7	13.2	13.8	13.1	13.2	15.3	16.4	13.4	12.6	12.2	12.8	12.5	11.4	11.0	10.4	9.7	16.4	11.9	24				
7	9.1	10.5	10.3	9.5	9.0	9.8	9.0	8.9	7.6	8.1	9.3	10.3	9.3	9.5	12.5	9.7	7.8	3.9	3.6	4.9	5.1	7.6	7.1	6.8	12.5	8.3	24		
8	4.8	5.3	6.4	6.9	5.7	5.6	5.6	5.7	7.2	6.3	3.6	4.2	2.1	1.8	2.8	3.5	4.4	5.6	6.4	6.0	6.2	6.0	6.9	7.2	5.1	24			
9	6.8	6.3	7.2	6.8	6.2	6.2	5.3	4.8	5.3	5.2	5.1	5.7	8.2	6.9	5.8	7.4	8.7	6.0	7.1	6.6	5.0	5.3	5.2	8.7	6.2	24			
10	5.0	6.0	7.3	5.8	6.0	6.8	5.4	5.2	4.5	5.3	7.4	8.5	11.0	12.5	12.0	10.9	9.5	5.8	4.1	6.7	7.0	8.1	8.3	8.7	12.5	7.4	24		
11	6.9	6.6	7.2	8.7	9.0	8.6	7.8	8.6	11.8	12.3	14.9	17.5	18.8	19.6	18.2	19.3	15.5	10.5	8.2	7.8	8.0	7.2	9.0	8.6	19.6	11.3	24		
12	10.8	11.1	10.8	9.8	8.9	10.5	9.8	10.2	11.5	14.9	12.3	17.4	16.7	10.9	11.6	10.8	15.5	19.1	12.7	6.0	4.9	5.0	7.0	7.5	19.1	11.1	24		
13	7.8	5.9	7.6	6.7	7.2	7.5	6.5	4.1	3.8	2.2	6.3	10.1	9.7	8.5	10.5	7.2	7.6	5.6	4.8	7.6	6.1	5.7	9.8	8.7	10.5	7.0	24		
14	7.2	6.3	5.1	5.3	7.4	6.7	5.3	5.1	5.2	5.1	5.8	6.1	7.5	6.9	6.7	4.6	3.8	2.9	2.9	4.6	2.3	1.7	1.2	4.6	7.5	5.0	24		
15	6.6	6.9	7.3	7.7	6.6	6.4	7.1	6.9	6.9	6.7	8.7	10.9	11.5	10.6	12.4	9.8	9.4	9.3	11.0	9.8	7.4	7.2	6.9	6.8	12.4	8.4	24		
16	5.6	4.2	4.7	5.9	4.9	3.0	2.0	2.3	3.0	3.3	4.1	2.3	4.2	4.0	3.9	4.7	1.5	4.5	4.8	1.8	P	2.1	2.3	5.9	3.6	22			
17	0.7	3.9	2.2	1.9	3.4	4.7	3.2	4.3	6.2	6.7	6.5	6.4	7.7	8.7	9.5	8.5	4.6	3.3	6.2	8.1	8.9	8.3	8.1	9.5	5.8	24			
18	6.2	5.6	5.7	5.6	6.0	6.3	6.1	5.1	7.1	10.7	14.7	18.9	20.9	20.5	16.8	3.8	4.5	1.0	5.7	7.5	8.3	7.2	6.9	7.3	20.9	8.7	24		
19	7.8	7.4	7.3	6.7	6.8	7.0	8.0	7.3	8.2	8.1	9.1	11.8	10.4	12.5	13.4	16.1	12.2	8.6	8.0	10.1	12.2	14.3	12.3	6.9	16.1	9.7	24		
20	6.0	9.2	10.4	13.0	13.4	12.5	9.9	10.1	15.1	18.2	16.8	19.9	18.9	17.0	16.0	14.3	10.0	7.1	6.0	5.9	6.2	4.4	3.4	2.3	19.9	11.1	24		
21	5.4	5.6	5.8	5.7	6.1	6.1	7.1	8.2	7.9	7.4	11.0	10.9	10.8	11.8	11.5	8.8	12.6	12.0	13.1	13.3	13.1	13.1	12.5	12.2	13.3	9.7	24		
22	12.3	11.1	10.1	9.7	9.7	11.0	11.7	12.0	10.8	10.2	9.3	8.8	11.0	14.5	15.4	12.6	10.9	11.2	9.0	8.9	8.4	8.9	8.4	8.4	15.4	10.6	24		
23	7.5	6.4	6.9	6.6	7.0	6.8	8.0	4.3	2.9	3.5	5.2	8.7	9.7	12.0	12.5	10.3	10.9	10.3	9.0	10.6	10.7	11.2	10.1	9.7	12.5	8.4	24		
24	11.6	10.3	9.4	8.1	8.3	8.2	7.4	9.0	13.3	15.1	16.7	14.5	14.8	10.5	8.7	9.0	6.1	5.1	6.3	8.9	10.3	8.4	7.6	7.8	16.7	9.8	24		
25	8.5	8.1	8.0	9.4	11.7	10.0	9.1	10.2	9.2	9.9	7.2	7.4	14.9	18.6	17.6	9.1	9.9	7.0	8.9	8.4	7.6	6.4	7.8	12.3	18.6	9.9	24		
26	11.7	13.9	14.3	18.6	19.4	17.3	17.5	17.8	16.1	17.8	19.0	16.7	18.4	18.4	15.3	15.3	16.1	12.5	9.4	6.8	7.9	8.6	8.8	8.6	19.4	14.5	24		
27	9.6	10.4	9.1	9.7	9.0	7.4	6.3	6.4	6.0	6.2	11.5	7.5	5.1	5.0	4.0	3.1	3.5	3.4	7.5	7.7	9.5	8.8	9.1	10.0	11.5	7.3	24		
28	13.1	13.0	9.4	7.7	8.6	8.2	7.4	7.0	8.0	7.0	7.9	9.8	15.4	13.5	8.7	17.1	13.6	9.3	3.9	3.0	4.0	3.5	3.4	3.4	17.1	8.6	24		
29	5.5	6.3	5.1	3.7	3.2	2.5	2.5	6.0	3.7	3.7	4.0	5.3	7.2	7.3	7.3	4.3	7.3	4.3	7.7	7.8	8.5	9.3	8.8	9.3	8.8	5.7	24		
30	15.8	13.9	14.3	18.6	19.4	17.3	17.5	17.8	18.8	19.8	29.0	23.6	27.0	24.7	18.2	19.3	16.1	19.1	13.5	13.3	13.1	14.3	14.6	13.0	7.4	7.5	24		
HOURLY MAX	7.9	8.0	7.9	7.7	8.2	8.1	7.9	7.8	8.5	9.3	10.3	10.9	11.6	11.3	10.6	9.4	8.7	7.0	7.0	7.0	7.3	7.5	7.5	7.5	7.4	7.4	24		
HOURLY AVG																													

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

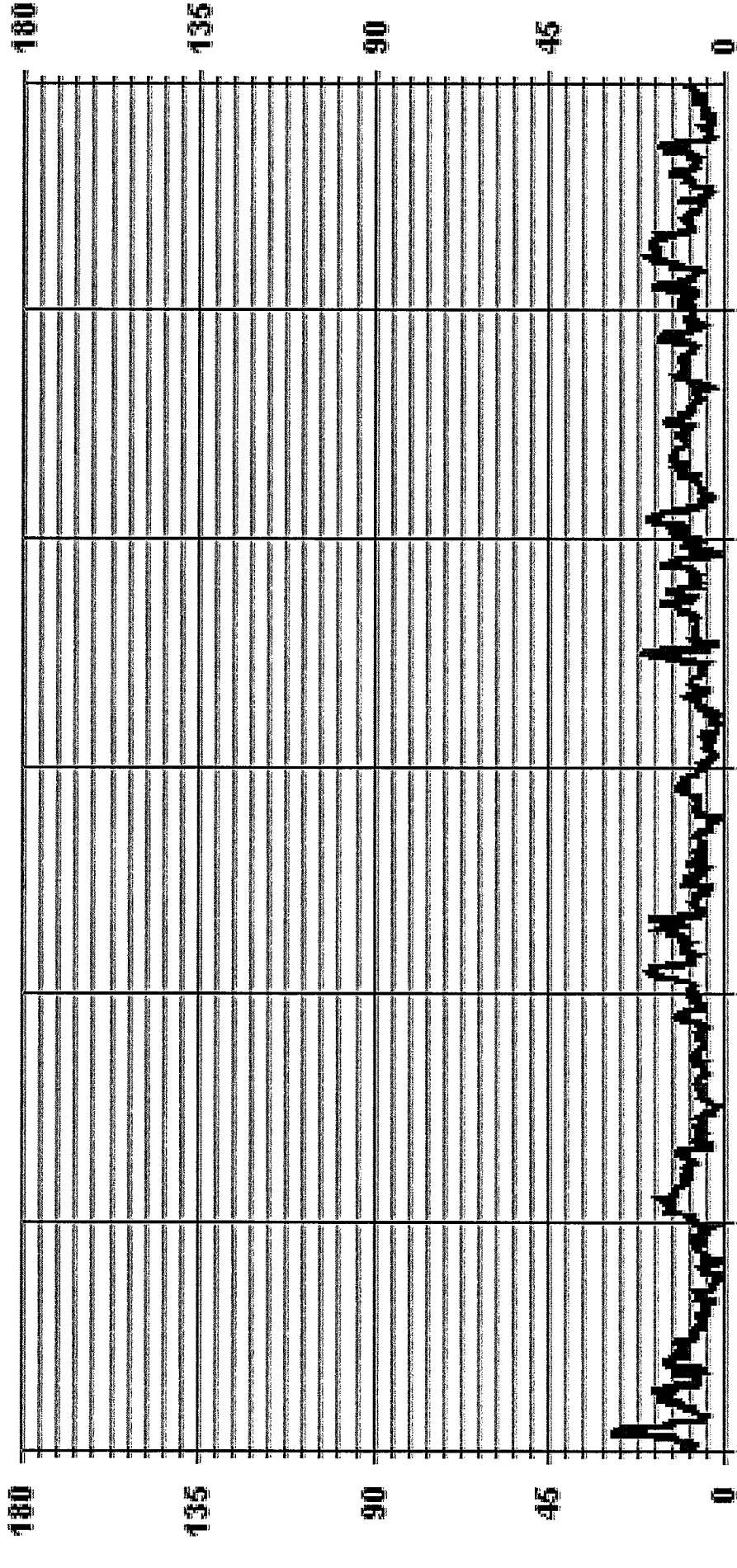
LAST CALIBRATION: August 28, 2014  
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	718	ON DAY(S)	1
MAXIMUM 1-HR AVERAGE:	29.0 KPH	@ HOUR(S)	10
MAXIMUM 24-HR AVERAGE:	14.5 KPH	ON DAY(S)	27
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	4.13	AMD OPERATION UPTIME:	99.7 %
		MONTHLY AVERAGE:	8.5 KPH

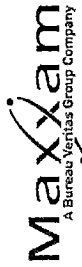
# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 WSP KPH





**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION**  
**St. Lina Site - SEPTEMBER 2015**  
**JOB # 2833-2015-09-31- C**

**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	24:00	24-HOUR AVG.	ROGS.	
1	25.0	19.5	15.9	17.5	24.3	21.7	32.9	37.2	49.5	41.5	59.8	61.6	71.0	57.4	31.5	37.7	34.9	16.8	13.8	14.0	12.9	15.2	22.9	15.4	71.0	31.2	24	
2	25.2	29.2	28.3	43.6	47.3	43.6	39.2	48.0	57.8	51.5	37.6	38.0	26.2	25.1	24.2	21.9	27.8	16.9	38.5	27.6	27.6	38.3	39.7	32.7	57.8	34.8	24	
3	37.0	39.6	32.0	23.4	46.9	24.4	37.6	27.4	25.0	29.9	32.3	25.4	20.4	24.4	24.5	25.5	27.9	15.4	10.0	13.6	12.3	12.9	14.7	46.9	25.2	24		
4	12.9	14.5	14.0	11.4	12.5	14.4	12.4	10.2	12.5	27.2	18.8	16.9	19.7	16.5	19.4	12.3	10.3	7.5	4.4	4.9	2.0	3.6	9.7	7.0	27.2	12.3	24	
5	7.5	7.5	6.0	3.0	4.1	9.7	9.7	9.5	11.9	16.7	18.0	21.8	21.1	21.7	25.0	21.9	26.1	24.1	19.8	15.0	13.3	11.0	9.9	12.3	26.1	14.4	24	
6	16.0	22.8	26.5	18.5	29.8	43.3	41.1	41.1	43.3	44.8	40.9	40.5	46.4	45.5	46.6	43.9	36.1	35.0	39.3	35.8	35.0	30.4	28.6	25.8	46.6	35.7	24	
7	22.8	29.3	26.0	30.9	24.3	23.4	24.0	20.3	20.8	19.7	23.1	28.7	23.9	25.2	35.7	30.9	23.9	14.7	7.2	8.7	8.1	11.9	13.6	13.9	35.7	21.3	24	
8	10.8	12.7	11.9	11.4	9.8	8.8	9.9	13.0	12.1	15.7	19.2	19.2	30.3	18.0	18.0	13.9	13.4	15.7	16.3	12.1	11.0	12.3	9.3	11.6	11.0	19.4	12.9	24
9	9.7	10.3	11.2	7.7	9.0	8.7	7.0	8.4	11.7	14.3	20.9	26.8	25.1	30.3	30.6	27.0	22.4	25.8	9.5	13.0	12.3	14.9	14.5	17.4	30.6	16.2	24	
10	16.7	22.6	18.9	19.8	13.6	11.2	13.2	15.2	22.6	24.2	31.7	32.8	36.3	41.5	37.8	40.2	36.9	25.5	15.4	15.4	16.5	15.9	20.0	15.6	41.5	23.3	24	
11	19.8	19.3	18.9	19.8	13.6	15.8	13.2	16.3	20.9	26.2	45.4	43.7	42.2	32.8	40.4	29.0	50.6	68.1	48.6	16.6	20.2	17.3	17.0	20.1	68.1	28.2	24	
12	25.2	19.3	21.9	16.2	16.7	17.3	16.4	12.9	9.9	8.6	14.3	19.7	21.7	23.3	26.1	30.0	59.5	65.0	10.5	14.2	17.5	11.2	16.9	18.4	65.0	21.4	24	
13	14.9	16.9	14.9	23.0	26.3	17.9	16.8	13.5	16.2	16.9	23.6	25.4	28.3	25.2	20.9	15.1	12.6	12.7	5.9	8.3	6.1	6.8	3.2	8.6	28.3	16.0	24	
14	10.8	13.6	18.3	17.0	16.2	14.7	17.5	17.4	24.0	22.1	28.7	29.6	35.0	29.6	35.1	29.0	25.6	31.1	35.7	26.7	24.5	20.2	18.8	18.9	35.7	23.3	24	
15	19.7	14.7	17.1	20.8	19.5	13.8	7.0	7.8	14.9	15.1	13.1	12.5	13.0	12.5	13.9	19.1	7.3	10.1	12.1	5.5	P	P	5.3	6.0	20.8	12.8	22	
16	6.6	9.7	4.7	7.9	6.4	6.4	4.6	8.4	14.1	19.3	18.8	19.0	25.7	25.1	23.0	31.0	26.6	25.6	12.5	14.5	14.8	16.1	14.0	14.1	31.0	15.4	24	
17	14.2	14.7	11.9	9.9	11.3	11.9	13.0	13.8	17.4	25.9	33.2	42.7	47.8	47.1	37.1	13.9	15.4	7.7	11.6	14.5	17.3	14.1	11.7	12.3	47.8	19.6	24	
18	13.0	13.0	13.2	12.8	13.6	12.8	16.6	17.6	18.2	20.0	24.8	35.7	29.9	36.9	31.9	37.4	34.9	24.9	19.1	23.9	29.4	33.8	35.8	19.8	37.4	23.7	24	
19	15.1	12.1	12.5	13.6	12.5	15.1	13.6	13.6	18.2	20.7	25.2	31.1	28.5	25.9	23.1	15.8	11.4	4.0	10.1	14.9	25.8	30.2	27.8	15.5	31.1	18.2	24	
20	8.1	8.1	8.3	9.9	8.3	10.5	13.9	17.1	18.3	20.2	40.1	29.0	42.5	34.2	33.8	29.9	46.4	34.6	36.1	38.5	33.8	34.6	46.4	38.1	46.4	26.7	24	
21	29.4	28.9	23.7	21.9	20.5	23.2	28.9	30.9	30.0	27.1	26.1	24.6	29.3	36.9	42.1	42.1	27.9	25.9	19.4	18.7	15.0	16.5	14.3	12.8	42.1	25.7	24	
22	12.6	9.8	9.5	10.6	9.7	15.1	13.6	10.6	10.8	12.6	19.9	20.3	32.1	28.0	30.8	28.6	26.4	26.8	21.7	23.9	25.3	23.5	21.8	32.1	19.6	24		
23	24.2	20.4	24.8	16.3	17.5	16.0	22.4	23.9	38.3	42.3	41.6	43.4	51.1	36.7	28.8	25.7	17.5	11.6	9.9	19.6	24.6	20.4	15.4	15.2	51.1	25.3	24	
24	15.4	15.5	16.0	23.2	22.8	19.3	17.5	16.6	16.4	19.1	18.0	23.3	32.9	33.4	52.8	37.4	23.6	18.9	19.2	17.7	19.7	15.4	20.5	25.0	52.8	22.5	24	
25	23.4	26.5	30.9	32.7	34.8	33.7	31.8	36.8	42.2	48.5	51.2	49.0	51.7	46.9	45.5	47.7	44.9	31.5	25.8	22.0	15.4	17.7	16.6	15.6	51.7	34.3	24	
26	15.7	15.3	14.0	12.5	12.9	9.3	10.0	12.5	13.8	15.4	21.6	19.1	16.9	15.2	15.9	11.3	14.5	8.2	16.6	16.6	20.2	19.4	18.9	27.4	27.4	15.6	24	
27	30.9	29.9	25.6	17.6	18.7	17.5	17.1	17.1	15.6	19.6	25.3	29.2	28.6	19.8	34.6	27.9	20.0	10.6	8.3	6.8	6.2	6.4	6.3	34.6	19.0	24		
28	7.8	9.6	7.5	6.0	5.3	4.7	11.7	9.7	9.3	9.3	14.0	14.2	16.4	17.4	25.3	23.3	18.7	9.9	10.1	11.2	11.7	18.1	17.6	17.0	25.3	12.7	24	
29	37.0	39.6	32.0	43.6	47.3	43.6	41.1	48.0	57.8	66.7	59.8	61.6	71.0	57.4	52.8	47.7	59.5	68.1	48.6	38.5	35.0	38.3	46.4	38.1	46.4	38.1	16.5	24
30	17.4	17.7	17.2	17.4	18.2	17.3	18.1	18.9	22.8	25.1	28.6	29.9	31.8	30.1	29.8	27.8	26.9	22.9	18.1	16.7	17.6	17.4	17.8	17.8	16.5	16.5	16.5	24

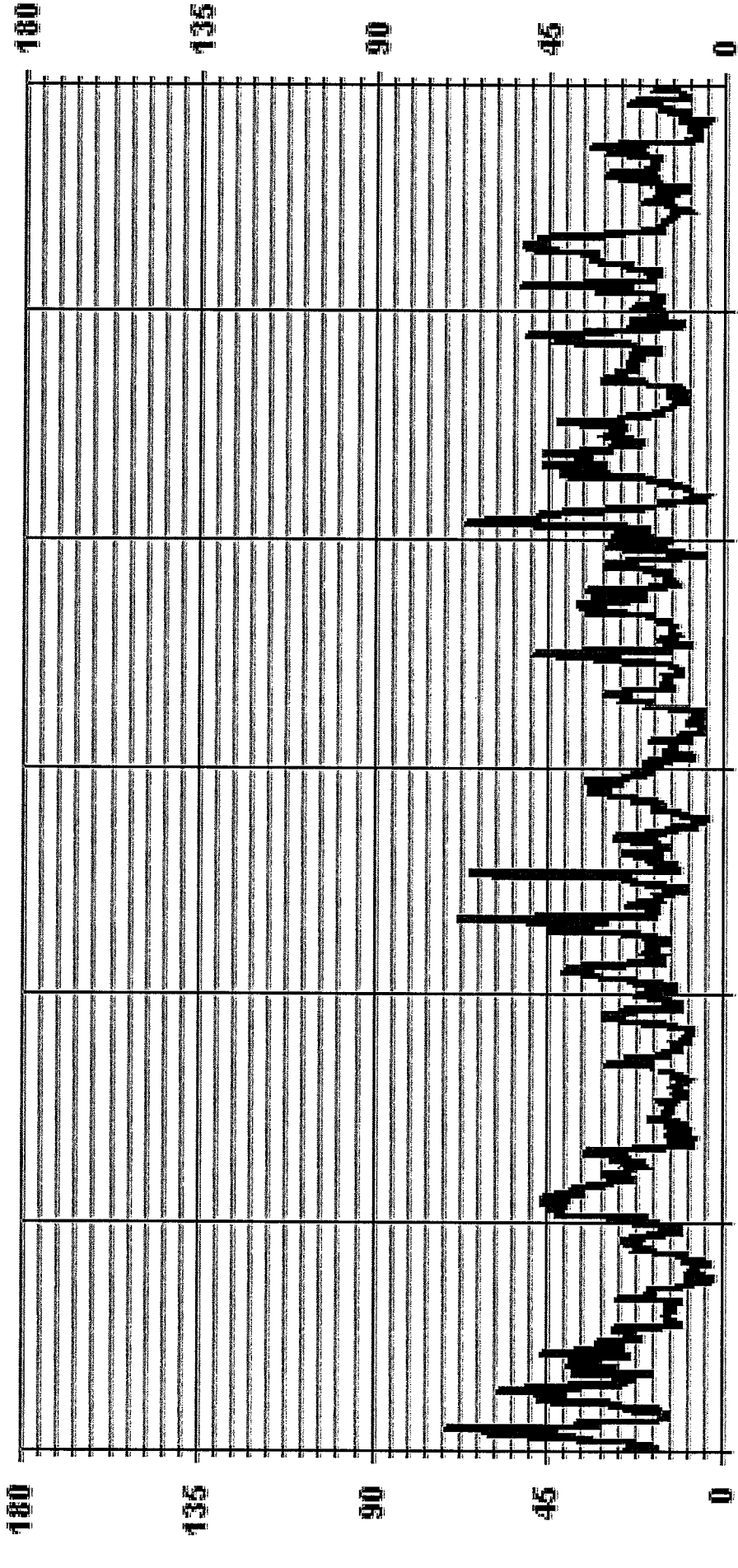
**STATUS FLAG CODES**

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	SAFETY	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

**MONTHLY SUMMARY**

MAXIMUM INSTANTANEOUS VALUE:	71.0	KPH	@ HOUR(S)	12	ON DAY(S)	1
VAR- VARIOUS						
OPERATIONAL TIME:						
						717
						HRS

01 Hour Averages



— LICA31 WSMAX KPH

LICA31  
WSP / WDR Joint Frequency Distribution (Percent)  
September 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	1.53	2.22	1.11	1.53	.41	.83	.13	.97	2.92	3.20	1.81	1.53	1.81	1.11	2.50	2.22	25.90
< 12.0	.83	.13	3.62	4.59	3.06	.41	2.64	3.76	5.84	3.89	7.38	6.12	3.48	3.20	3.06	2.92	55.01
< 20.0	.83	.41	.13	2.36	.27	.41	.27	.00	.27	.27	2.78	3.06	3.20	1.25	.83	1.25	17.68
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.55	.13	.00	.00	.00	.69
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.13
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.20	2.78	4.87	8.49	3.76	1.67	3.06	4.73	9.05	7.38	11.97	11.42	8.63	5.57	6.40	6.40	

Calm : .55 %

Total # Operational Hours : 718

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	11	16	8	11	3	6	1	7	21	23	13	11	13	8	18	16	186
< 12.0	6	1	26	33	22	3	19	27	42	28	53	44	25	23	22	21	395
< 20.0	6	3	1	17	2	3	2	2	2	2	20	22	23	9	6	9	127
< 29.0												4	1				5
< 39.0													1				1
>= 39.0																	
Totals	23	20	35	61	27	12	22	34	65	53	86	82	62	40	46	46	

Calm : .55 %

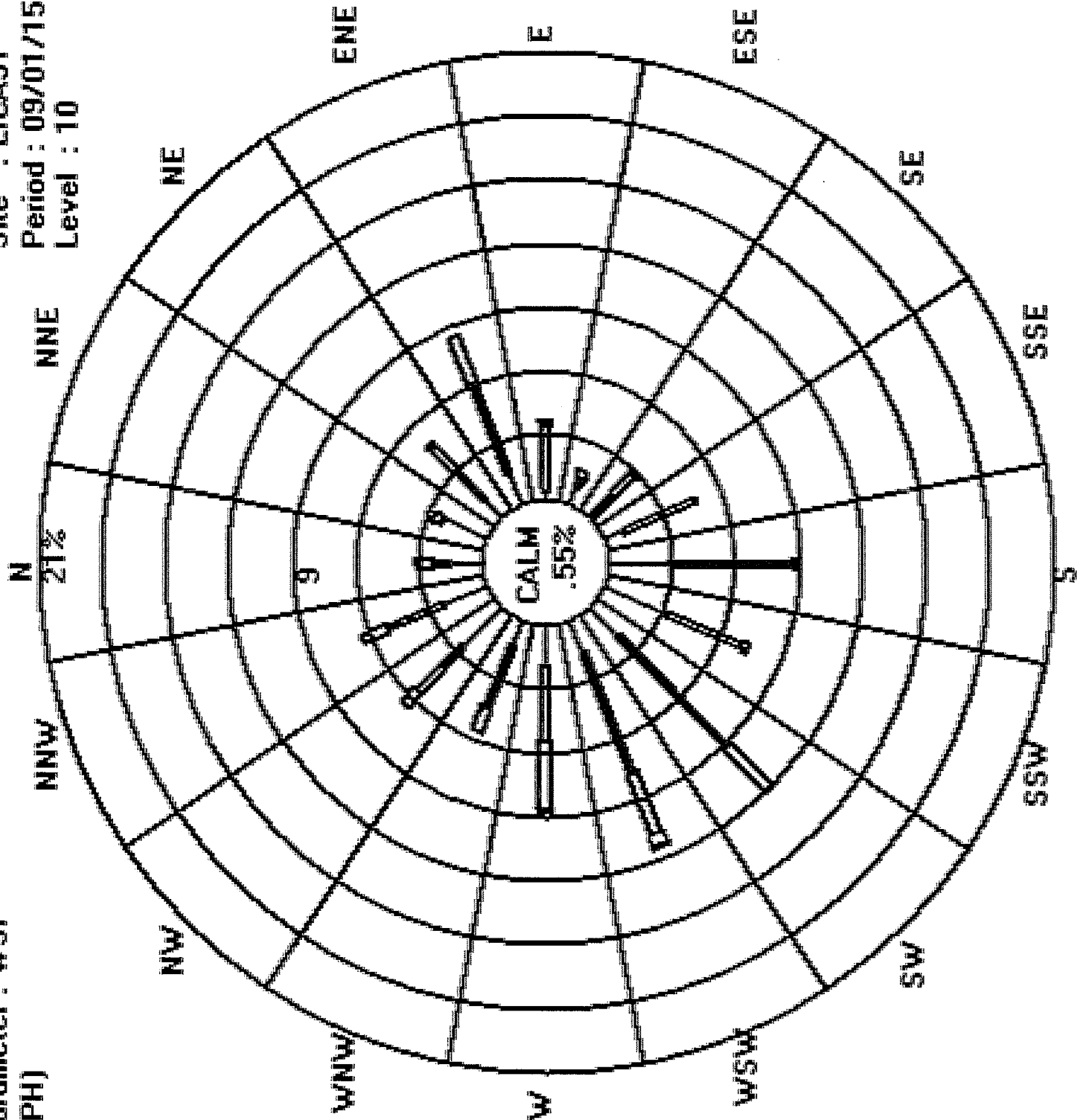
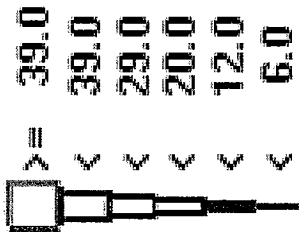
Total # Operational Hours : 718

Logger : 31 Parameter : WSP

Site : LICA31

Class Limits (KPH)

Period : 09/01/15-09/30/15  
Level : 10



***WIND DIRECTION***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 St. Lina Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-31 - C

WIND DIRECTION (WD) hourly averages

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

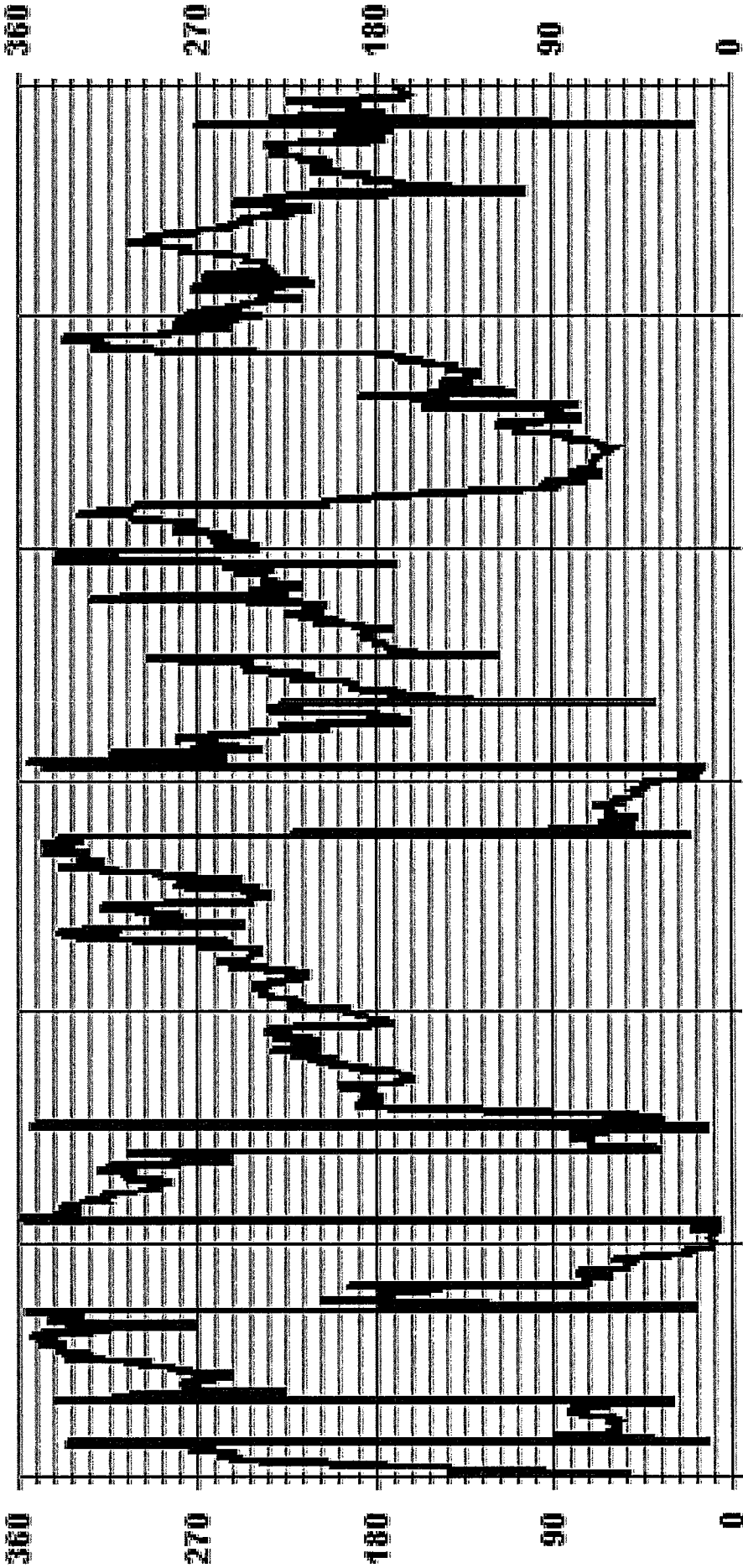
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAI/ZERO/SPAN CHECK	X	MACHINE/MAINTENANCE
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  
 STANDARD DEVIATION: 93.15  
 OPERATIONAL TIME: 718 HRS  
 AMD OPERATION UPTIME: 99.7 %  
 MONTHLY AVERAGE: WSW

01 Hour Averages

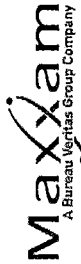


09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 WDR DEG

***STANDARD DEVIATION WIND DIRECTION***





LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 St. Lina Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-31 - C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	16	15	12	15	17	18	16	22	16	15	19	16	16	16	24	21	28	16	18	14	14	15	18	16	16	16	16	16	16	16
2	17	17	18	17	19	19	19	20	22	23	23	45	35	28	32	24	20	24	18	41	43	21	16	17	17	17	17	17	17	17
3	16	18	17	14	19	14	17	18	20	21	19	22	24	29	26	28	24	19	11	13	12	12	19	16	16	16	16	16	16	16
4	15	16	15	15	15	15	15	35	37	27	28	30	26	37	41	48	33	23	25	24	16	29	9	6	6	6	6	6	6	6
5	12	5	7	17	19	8	11	17	23	27	27	28	27	29	25	24	20	19	18	19	16	18	19	19	19	19	19	19	19	
6	19	20	22	21	22	23	21	21	21	26	22	23	20	20	21	25	20	19	20	20	20	22	20	20	20	20	20	20	20	20
7	18	18	18	18	18	18	18	17	19	20	19	21	22	23	21	25	22	19	10	12	8	6	11	12	8	6	11	12	8	6
8	25	6	9	14	10	10	12	19	23	26	47	35	61	47	71	54	37	22	12	7	10	6	11	8	8	8	8	8	8	8
9	7	10	9	9	8	6	12	20	22	26	30	28	20	21	24	23	17	15	10	15	13	14	13	11	11	11	11	11	11	11
10	11	9	4	5	5	3	7	18	23	26	28	21	19	21	16	17	19	12	8	10	9	11	14	14	14	14	14	14	14	14
11	17	20	18	11	8	5	8	11	12	14	13	13	14	14	14	13	11	10	12	12	12	12	12	12	12	12	12	12	12	12
12	9	6	7	10	6	5	4	6	10	12	21	20	13	18	23	23	19	25	19	22	36	37	19	19	19	19	19	19	19	19
13	18	21	16	18	15	15	15	26	25	44	18	14	19	23	19	27	16	37	13	10	14	11	8	16	16	16	16	16	16	16
14	17	18	18	19	19	20	18	19	24	26	30	27	23	26	24	29	24	25	13	9	27	17	19	17	17	17	17	17	17	17
15	10	11	16	15	17	16	18	19	20	21	21	21	21	22	20	22	21	21	22	21	20	22	21	21	21	21	21	21	21	21
16	23	22	25	23	24	27	24	29	26	30	28	39	26	32	32	25	52	12	10	17	P	P	10	14	14	14	14	14	14	14
17	51	29	23	33	13	6	6	11	17	29	29	35	27	25	21	25	34	22	13	9	9	11	9	9	9	9	9	9	9	9
18	14	17	10	10	10	8	13	16	16	14	16	15	17	14	13	17	15	19	10	9	11	9	8	8	8	8	8	8	8	8
19	10	10	10	10	10	12	11	12	16	18	21	22	22	22	20	14	15	21	15	16	15	14	19	17	17	17	17	17	17	17
20	13	10	7	7	8	10	7	8	11	12	14	12	12	14	12	15	13	10	19	35	37	20	19	17	22	20	20	20	20	20
21	19	9	9	9	9	12	12	9	13	17	17	19	18	19	18	19	19	21	17	15	15	11	8	13	13	13	13	13	13	13
22	9	6	6	5	7	10	10	12	17	20	23	19	21	21	21	21	21	21	19	18	18	17	17	16	16	16	16	16	16	16
23	16	16	15	15	15	16	16	16	16	16	22	22	22	22	24	21	21	21	18	14	13	12	11	9	12	12	12	12	12	12
24	9	12	6	14	13	15	9	11	27	31	29	22	24	21	22	21	19	16	15	13	17	17	15	14	14	14	14	14	14	14
25	14	14	13	13	14	14	18	17	19	18	20	20	25	26	25	19	19	14	6	10	15	15	10	7	7	7	7	7	7	7
26	8	10	13	13	13	11	9	8	10	9	21	29	16	16	18	22	14	19	14	11	13	13	8	11	8	11	8	11	8	11
27	9	10	10	10	9	10	10	10	10	14	16	19	19	19	21	20	22	19	18	16	14	12	13	10	8	8	8	8	8	8
28	7	5	5	5	6	4	7	10	15	20	15	29	44	29	45	37	39	27	11	14	14	12	11	12	11	12	11	12	11	12
29	14	13	17	17	14	14	15	16	15	18	19	20	16	14	15	12	11	9	19	15	8	10	12	9	8	10	12	9	8	10
30	6	10	4	10	8	13	25	5	16	27	33	25	34	40	27	17	18	6	6	7	10	10	10	10	10	10	10	10	10	10

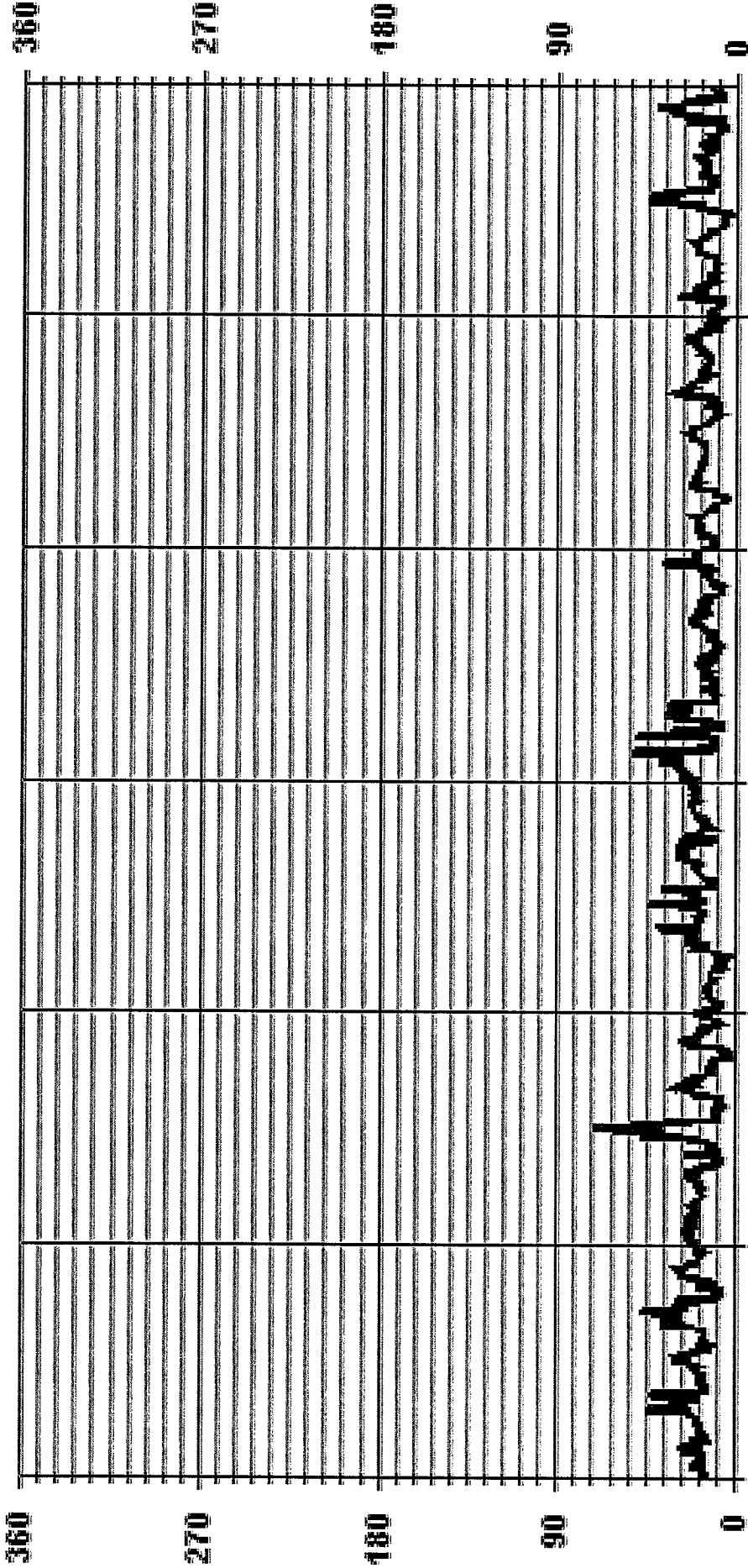
STATUS FLAG CODES

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

LAST CALIBRATION: August 28, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 718 HRS

01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 STDWDIR DEG

***RELATIVE HUMIDITY***



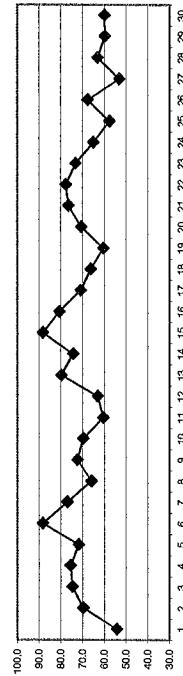
RELATIVE HUMIDITY (RH) hourly averages in %

DAY	HOUR																								DAILY MAX.	DAILY AVG.	RDGS.	
	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
1	60	64	71	70	65	65	67	60	53	52	48	45	38	34	34	30	30	34	44	55	64	66	69	82	82	54.2	24	
2	82	81	79	79	80	77	75	68	61	58	54	52	47	41	40	43	53	80	85	87	85	87	89	89	89	69.7	24	
3	89	88	86	87	86	84	81	79	72	68	70	69	60	58	52	57	64	73	77	77	77	82	84	84	89	74.6	24	
4	87	88	88	89	90	90	90	89	84	70	71	65	63	61	60	60	62	65	68	69	71	73	79	78	90	75.4	24	
5	81	77	77	77	79	83	85	75	73	68	62	59	61	60	59	60	61	64	67	71	73	78	84	86	86	71.7	24	
6	87	89	89	89	89	89	89	89	89	87	87	88	87	86	87	87	88	88	88	89	88	89	89	89	90	88.2	24	
7	89	89	88	88	89	89	89	89	87	85	80	70	66	61	55	56	59	64	68	71	74	81	82	77	89	76.9	24	
8	77	87	89	87	85	86	81	71	67	61	56	53	49	47	44	44	45	49	60	67	70	70	65	73	89	66.0	24	
9	73	78	79	79	81	79	75	67	66	69	64	61	70	68	65	58	61	65	67	75	79	81	86	89	89	72.3	24	
10	90	90	90	90	90	91	85	73	69	59	53	47	47	45	48	48	48	53	60	64	69	71	74	76	91	69.7	24	
11	76	78	78	80	83	87	86	75	65	59	51	48	45	40	34	31	32	38	49	57	63	65	66	67	90	60.5	24	
12	62	65	68	67	77	75	67	57	54	47	41	38	41	43	39	43	51	58	74	87	89	90	90	90	90	63.0	24	
13	90	90	90	91	91	91	90	88	84	73	67	57	48	47	50	58	84	87	88	89	89	89	90	91	91	79.7	24	
14	90	90	89	89	89	89	89	88	84	79	73	69	57	53	53	58	62	69	70	73	69	69	76	90	90	74.4	24	
15	87	88	89	88	89	89	90	90	90	89	88	87	84	85	86	86	87	88	89	90	89	90	90	90	90	88.3	24	
16	90	90	90	90	90	90	90	90	90	87	81	78	73	68	69	64	64	71	80	84	P	P	86	85	90	80.6	22	
17	86	85	88	88	88	88	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	70.9	24	
18	79	82	84	82	83	85	84	81	67	57	48	45	42	41	44	52	59	61	67	66	71	72	70	70	85	66.3	24	
19	70	73	75	76	76	77	75	74	71	67	56	45	44	39	36	35	41	43	53	59	64	63	70	73	77	60.6	24	
20	77	78	76	76	80	82	80	76	74	71	62	54	53	56	55	58	63	69	69	68	71	80	86	87	90	70.6	24	
21	88	88	87	87	88	88	88	88	88	88	88	87	84	85	86	86	87	88	89	90	89	90	90	90	90	88.3	24	
22	89	89	89	90	90	90	90	90	90	90	86	82	81	70	69	68	63	59	65	61	66	70	78	81	82	84	77.7	24
23	84	84	86	84	86	87	87	86	83	78	71	65	58	54	53	54	59	66	70	74	77	77	77	80	87	73.2	24	
24	82	86	80	87	89	87	85	75	70	64	60	55	48	44	44	43	41	51	59	62	62	62	62	64	89	65.1	24	
25	62	61	63	65	67	69	71	73	72	67	58	53	44	38	37	40	43	49	53	55	56	60	63	66	73	57.7	24	
26	75	73	73	78	78	78	78	79	76	71	60	49	39	33	30	29	30	39	40	43	49	53	56	60	63	66	67	24
27	59	58	58	57	58	58	58	58	57	54	52	54	45	37	39	40	39	40	47	51	57	62	66	72	72	53.2	24	
28	73	76	78	80	81	82	83	71	62	56	54	49	45	45	47	47	46	54	61	64	65	67	66	65	83	63.2	24	
29	63	59	59	59	66	70	73	69	60	61	53	48	44	48	50	48	56	61	65	66	65	65	64	64	73	59.8	24	
30	67	73	75	78	76	77	78	75	65	57	52	48	45	42	40	39	39	45	51	56	59	63	68	70	78	59.9	24	
HOURLY MAX	90	90	90	91	91	91	91	90	90	90	89	88	88	87	86	87	88	88	89	90	89	90	90	90	90	90	90	90
HOURLY AVG	78.5	79.9	80.4	81.0	82.0	82.6	81.9	77.7	73.0	68.5	62.7	58.5	54.7	52.0	51.0	52.3	54.4	60.1	66.3	70.2	72.4	74.6	76.9	78.0	78.0	78.0		

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

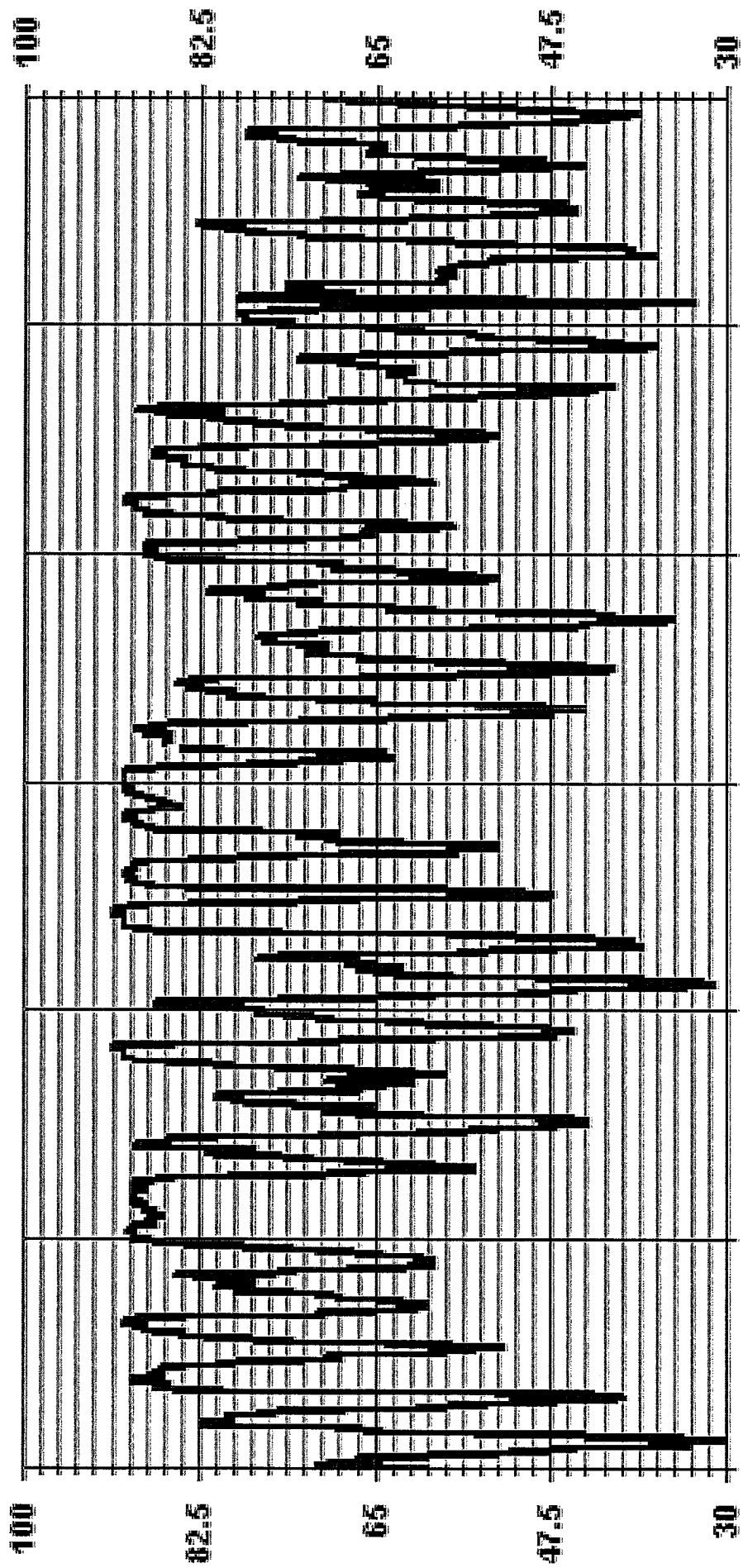
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	10, 13
MAXIMUM 24-HR AVERAGE:	88.3	%			ON DAY(S)	15
					VAR- VARIOUS	
STANDARD DEVIATION:	15.39					
OPERATIONAL TIME:	718	HRS				
AMD OPERATION UPTIME:	99.7	%				
MONTHLY AVERAGE:	70	%				

# 01 Hour Averages



— LICA31 RH %FS

## ***BAROMETRIC PRESSURE***



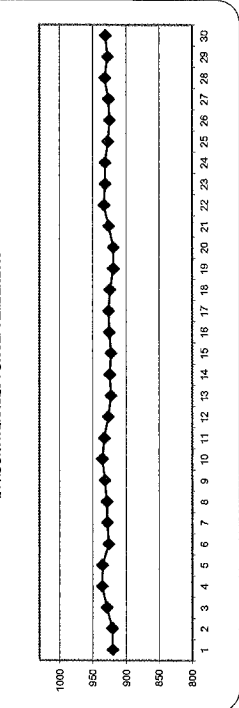
BAROMETRIC PRESSURE (BP) hourly averages in millibar

DAY	HOURS																								DAILY MAX	DAILY AVG	24-HOUR RDS			
	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		
1	918	917	916	915	915	915	915	916	916	918	919	920	921	922	923	924	924	925	925	924	924	923	924	923	924	923	925	925	920	24
2	923	922	922	921	920	920	920	919	919	919	919	920	920	921	921	921	921	920	920	921	921	922	922	923	923	923	923	923	921	24
3	923	924	924	924	925	926	926	927	928	929	929	930	931	931	932	932	933	933	933	932	932	932	932	932	932	932	933	933	929	24
4	933	933	933	933	934	934	935	936	937	937	937	937	938	938	938	938	938	938	938	938	938	937	937	937	937	938	938	936	24	
5	937	937	937	937	937	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	24	
6	930	929	929	929	928	928	927	927	926	926	926	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	926	24	
7	926	926	926	927	927	927	927	928	928	928	928	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	928	24	
8	929	928	928	928	927	927	927	927	929	930	930	930	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	929	24	
9	930	930	930	930	930	930	931	932	932	933	933	933	933	933	933	933	933	933	933	932	932	932	932	932	932	933	933	932	24	
10	933	933	933	933	933	933	933	934	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	936	24	
11	935	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	24	
12	928	928	928	928	928	928	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	24	
13	925	924	924	924	924	923	923	923	923	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	24	
14	922	922	922	922	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	24	
15	924	924	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	24	
16	923	923	923	923	924	924	924	925	925	925	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	24	
17	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	24	
18	924	924	924	923	923	923	923	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924	24	
19	921	921	921	920	920	920	920	920	920	920	920	920	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	24	
20	918	918	918	919	919	919	920	920	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	24	
21	920	920	920	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	921	24	
22	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	24	
23	933	933	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	24	
24	930	930	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	24	
25	926	926	925	924	923	923	923	923	924	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	24	
26	928	927	927	927	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	24	
27	923	923	923	923	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	24	
28	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	24	
29	928	928	927	927	927	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	926	24	
30	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	928	24	
HOURLY MAX	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	24	
HOURLY AVG	927	927	927	926	926	926	927	927	927	928	928	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	928	24	

STATUS FLAG CODES

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

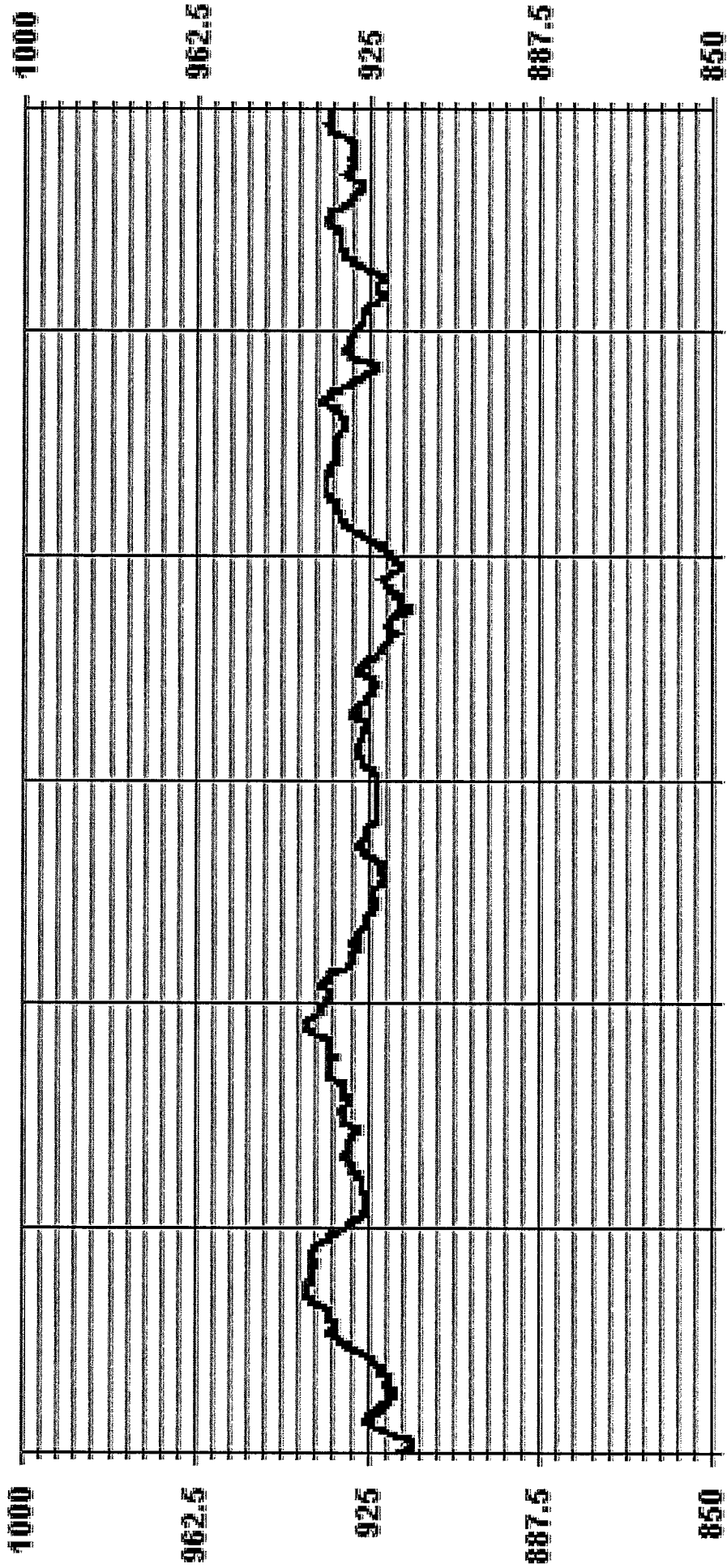
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	938	MB	@ HOUR(S)	VAR	ON DAY(S)	4, 10
MAXIMUM 24-HR AVERAGE:	936	MB			ON DAY(S)	VAR
					VAR-VARIOUS	
STANDARD DEVIATION:	S.11					
OPERATIONAL TIME:						71.8 HRS
AMD OPERATION UPTIME:						99.7 %
MONTHLY AVERAGE:						928 MB

01 Hour Averages



— LIC31 BP MB



***AMBIENT TEMPERATURE***



AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

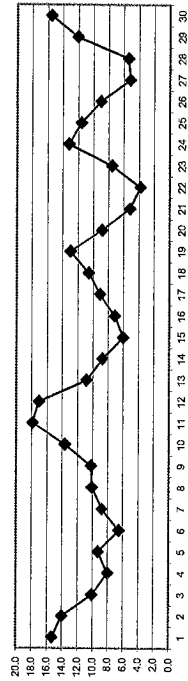
MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
12.8	12.4	11.0	11.0	12.0	12.4	12.4	12.4	14.8	17.0	17.6	18.2	18.7	19.7	20.0	20.5	20.2	20.2	19.3	16.4	14.5	12.2	11.9	11.9	10.6	20.5	20.5	15.3	24		
10.3	10.1	10.0	9.5	9.7	9.9	9.8	12.3	12.3	14.4	16.1	17.7	18.8	20.8	22.5	23.1	22.3	19.3	14.2	12.9	11.7	11.3	10.5	10.0	9.4	23.1	23.1	14.0	24		
8.9	8.7	8.6	8.0	7.6	7.8	8.2	9.3	9.9	11.8	12.4	11.3	11.0	11.5	13.7	14.6	14.4	14.7	13.3	11.1	8.7	8.1	7.1	6.5	6.2	14.7	10.1	24			
5.3	4.9	4.4	4.1	3.4	3.2	3.7	5.5	8.2	10.2	9.0	10.4	11.0	11.9	12.1	11.8	11.0	10.1	9.4	8.4	7.9	7.5	7.4	12.1	12.1	10.0	24				
6.7	6.6	6.7	7.0	6.7	5.4	5.2	8.6	10.2	11.1	11.6	12.4	12.3	12.5	12.6	12.1	11.6	11.1	10.3	9.6	9.1	8.6	7.8	7.6	12.6	9.3	24				
7.4	7.2	7.1	7.0	6.9	6.9	6.8	6.6	6.5	6.5	6.2	5.8	5.8	6.1	6.3	6.4	6.5	6.6	6.5	6.4	6.4	6.4	6.3	6.3	7.4	6.5	24				
6.2	6.3	6.3	6.3	6.0	5.7	5.7	5.9	6.9	7.8	8.7	10.5	11.2	11.9	13.6	13.3	12.3	11.6	10.6	9.7	9.1	8.5	8.3	8.7	13.6	8.8	24				
8.2	6.2	5.6	5.0	4.5	4.0	5.3	8.6	10.0	11.4	12.7	13.8	14.6	15.7	16.7	16.9	16.7	14.7	11.0	8.9	8.0	7.9	8.3	7.7	16.9	10.1	24				
7.2	6.2	5.9	5.8	5.2	5.8	6.8	9.7	11.4	11.6	12.2	13.3	13.9	12.8	13.7	15.1	14.6	13.6	12.7	11.2	10.8	10.5	9.2	8.4	15.1	10.2	24				
8.2	7.6	6.8	6.2	5.6	5.3	6.2	10.0	13.2	15.4	18.5	19.5	20.3	20.5	21.3	20.2	20.5	19.1	16.8	15.4	14.0	13.1	12.5	11.8	21.3	13.7	24				
11.6	12.0	11.7	11.2	10.2	9.4	9.8	13.7	17.1	19.2	22.2	23.1	24.3	25.0	26.2	26.4	26.8	25.3	21.3	18.2	16.9	16.4	15.8	15.1	26.8	17.9	24				
15.9	14.9	14.6	14.4	12.2	12.0	13.8	17.5	19.9	22.6	23.9	24.3	23.8	24.4	25.4	23.8	19.8	16.5	13.5	11.8	11.4	11.0	11.1	11.1	25.4	17.1	24				
10.7	10.0	9.8	9.4	8.9	8.1	7.8	8.7	9.4	10.4	13.9	15.4	17.3	17.8	17.8	16.3	15.0	9.7	9.0	7.9	7.4	6.5	6.5	6.7	17.8	10.9	24				
7.0	7.3	7.4	7.5	7.2	6.7	6.6	7.1	8.1	9.1	10.2	10.9	12.3	12.1	12.5	12.2	11.1	10.5	8.9	7.6	7.1	7.5	7.0	6.4	12.5	8.8	24				
4.6	4.5	4.9	4.7	4.7	4.6	4.8	5.2	5.6	6.6	7.1	7.1	8.0	7.9	7.6	7.6	7.4	6.9	6.1	5.9	5.7	5.8	5.7	5.5	8.0	6.0	24				
5.5	5.5	5.4	5.3	5.2	5.1	5.1	5.8	6.5	7.3	7.5	8.4	9.5	9.0	10.2	9.8	9.7	8.8	7.7	7.0	P	P	6.5	6.4	10.2	7.1	22				
6.2	5.5	5.5	5.3	5.0	3.6	4.0	4.5	7.8	10.2	12.1	13.3	15.0	16.2	15.4	16.6	14.3	12.6	9.7	8.7	8.2	7.0	6.0	5.8	16.6	9.1	24				
5.8	5.9	5.2	5.2	4.8	5.0	5.0	6.4	11.3	14.9	16.8	17.1	17.6	17.5	16.5	14.8	13.5	13.5	11.8	10.6	9.7	8.9	8.7	8.3	17.6	10.6	24				
8.0	7.1	6.5	6.2	5.9	5.7	6.3	7.2	9.0	10.6	14.3	17.9	18.8	21.3	22.2	22.5	20.4	17.0	14.9	13.5	13.6	12.5	10.8	22.5	13.0	24					
10.6	9.1	7.9	7.1	5.7	5.6	6.2	8.3	9.3	9.8	10.9	12.1	12.1	12.3	12.0	11.3	10.6	9.9	9.5	9.2	8.0	5.9	4.7	4.5	12.3	8.9	24				
4.6	4.6	4.6	3.9	3.1	2.7	2.5	5.3	7.0	7.2	6.5	6.8	7.4	7.4	8.5	8.6	7.7	7.8	5.7	3.9	3.2	2.2	1.7	1.8	8.6	5.2	24				
0.9	0.4	-0.2	0.4	0.6	0.4	0.6	1.7	3.1	4.1	6.6	6.1	6.7	7.2	7.7	6.8	7.7	6.7	5.8	5.0	4.1	3.5	3.1	2.7	7.7	3.8	24				
2.5	2.5	2.4	2.0	1.8	1.9	2.1	2.7	4.0	6.0	8.0	9.9	11.9	13.2	14.1	14.6	14.5	13.3	11.3	10.2	9.2	8.3	8.2	7.5	14.6	7.6	24				
7.1	6.3	7.6	5.5	5.5	5.7	6.2	9.7	11.8	15.0	17.0	17.8	19.1	20.1	20.3	21.0	20.6	17.9	16.0	14.5	13.9	13.5	12.3	21.0	13.2	24					
12.1	11.8	10.9	10.1	9.6	8.9	8.7	8.8	10.2	11.0	12.3	13.7	15.7	17.1	16.9	14.5	13.5	12.4	11.3	10.6	10.3	9.8	9.4	10.3	11.6	11.6	24				
8.2	7.8	8.0	7.5	7.2	6.9	6.6	6.8	7.9	9.3	12.7	15.6	16.3	16.2	13.1	7.6	10.9	10.6	8.0	6.5	6.5	6.7	4.8	5.6	16.3	9.1	24				
4.2	5.2	5.1	5.1	4.6	4.2	4.3	5.2	6.5	7.6	8.4	7.2	7.9	8.9	8.8	8.4	7.8	6.0	4.0	2.7	1.7	1.0	0.3	-0.9	8.9	5.2	24				
-1.4	-2.1	-2.4	-2.6	-2.7	-3.1	-2.9	0.7	4.2	7.2	7.5	9.5	11.1	10.6	11.3	11.6	13.2	10.9	8.3	7.8	8.0	8.0	8.6	9.1	13.2	5.4	24				
9.7	10.0	8.8	7.6	5.8	4.9	4.3	5.8	9.2	10.1	14.8	17.2	18.6	17.1	16.4	18.2	16.1	15.1	13.9	13.7	13.7	13.4	13.1	12.7	18.6	12.1	24				
11.9	10.6	10.3	9.6	10.2	10.1	9.2	10.3	13.8	16.9	18.4	19.5	20.7	21.7	22.4	23.2	23.1	20.6	18.1	16.5	15.5	14.4	13.2	12.6	23.2	15.5	24				
15.9	14.9	14.6	14.4	12.2	12.4	13.8	17.5	19.9	22.6	23.9	24.3	24.3	25.0	26.2	26.4	26.8	25.3	21.3	18.2	16.9	16.4	15.8	15.1	28.2	28.2	24				
7.6	7.2	6.9	6.5	6.1	5.8	6.0	7.8	9.6	11.2	12.6	13.6	14.4	15.0	15.3	15.0	14.4	13.0	11.2	10.0	9.4	8.8	8.3	7.9	8.3	7.9	24				

STATUS FLAG CODES

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

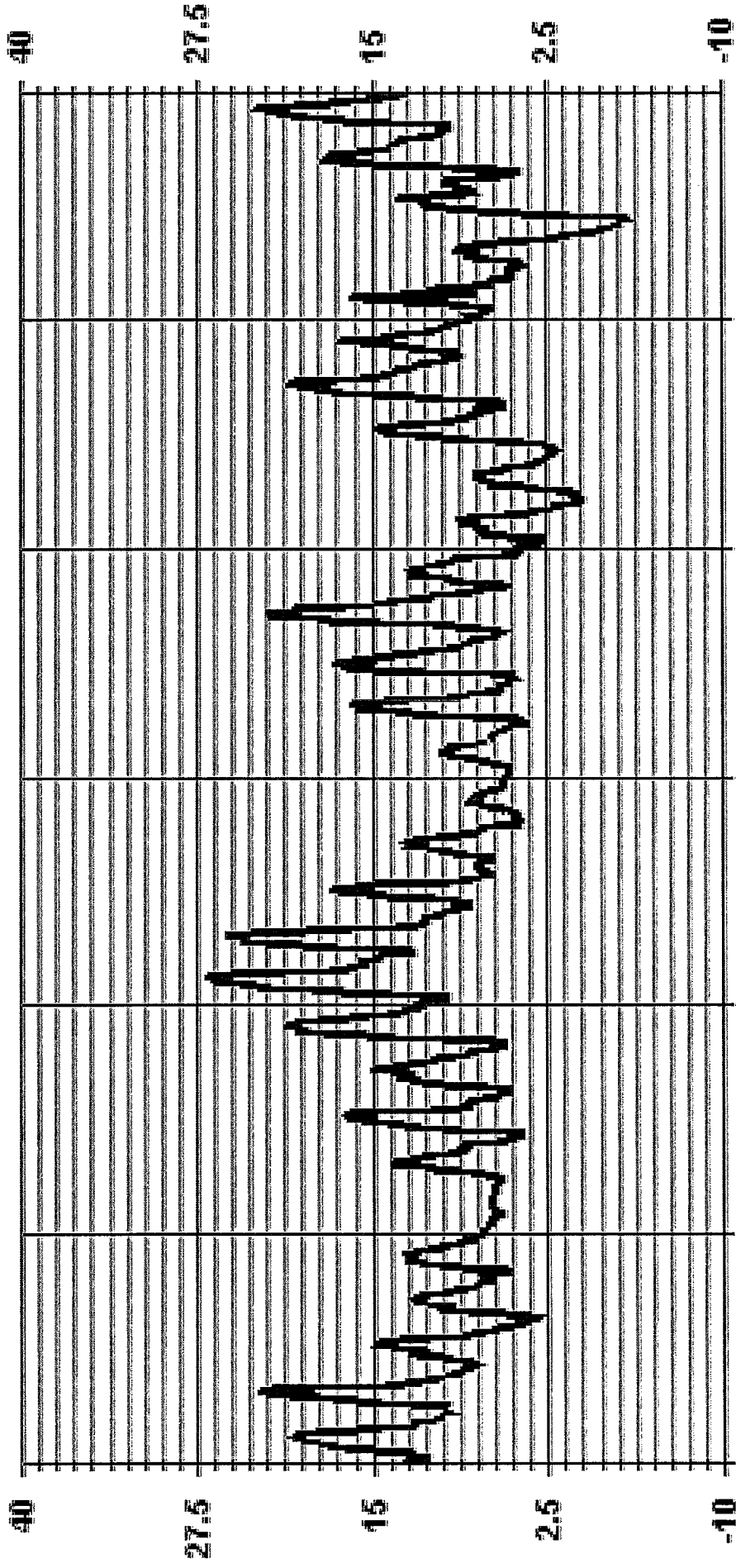
24-HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-3.1 °C	@ HOUR(S)	5	ON DAY(S)	28
MAXIMUM 1-HR AVERAGE:	26.8 °C	@ HOUR(S)	16	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	17.9 °C			ON DAY(S)	11
				VAR-VARIOUS	
STANDARD DEVIATION:	5.23				
OPERATIONAL TIME:	718 HRS				
AMID OPERATION UPTIME:	99.7 %				
MONTHLY AVERAGE:	10.1 °C				

# 01 Hour Averages



09/01/15 00:00 09/06/15 00:00 09/11/15 00:00 09/16/15 00:00 09/21/15 00:00 09/26/15 00:00

— LICA31 TPX DGC

***PRECIPITATION***



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION  
 St. Lina Site - SEPTEMBER 2015  
 JOB # 2833-2015-09-31- C

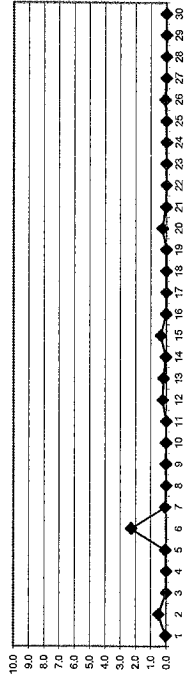
PRECIPITATION hourly averages (mm)

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	24:00	DAILY MAX	24-HOUR AVG	RDSGS
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	24
2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	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	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	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	24
6	2.8	3.3	2.4	3.5	2.9	3.2	1.7	1.3	2.6	2.2	4.5	5.6	3.8	3.2	2.4	1.9	2.1	1.8	1.3	0.9	0.7	0.3	0.4	0.2	5.6	2.3	24	
7	0.0	0.1	0.1	0.2	0.4	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	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	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	24
10	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	0.0	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	24
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	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	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	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	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	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	24
21	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
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	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	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	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	24
HOURLY MAX	2.8	3.3	2.4	3.5	2.9	3.2	1.7	1.3	2.6	2.2	4.5	5.6	3.8	3.2	2.4	1.9	2.6	5.5	1.5	1.7	3.2	1.8	3.2	0.7				
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.1	0.1	0.2	0.1	0.2	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	C	- OPERATOR ERROR
G	- OUTFORREPAIR	K	- COLLECTION ERROR

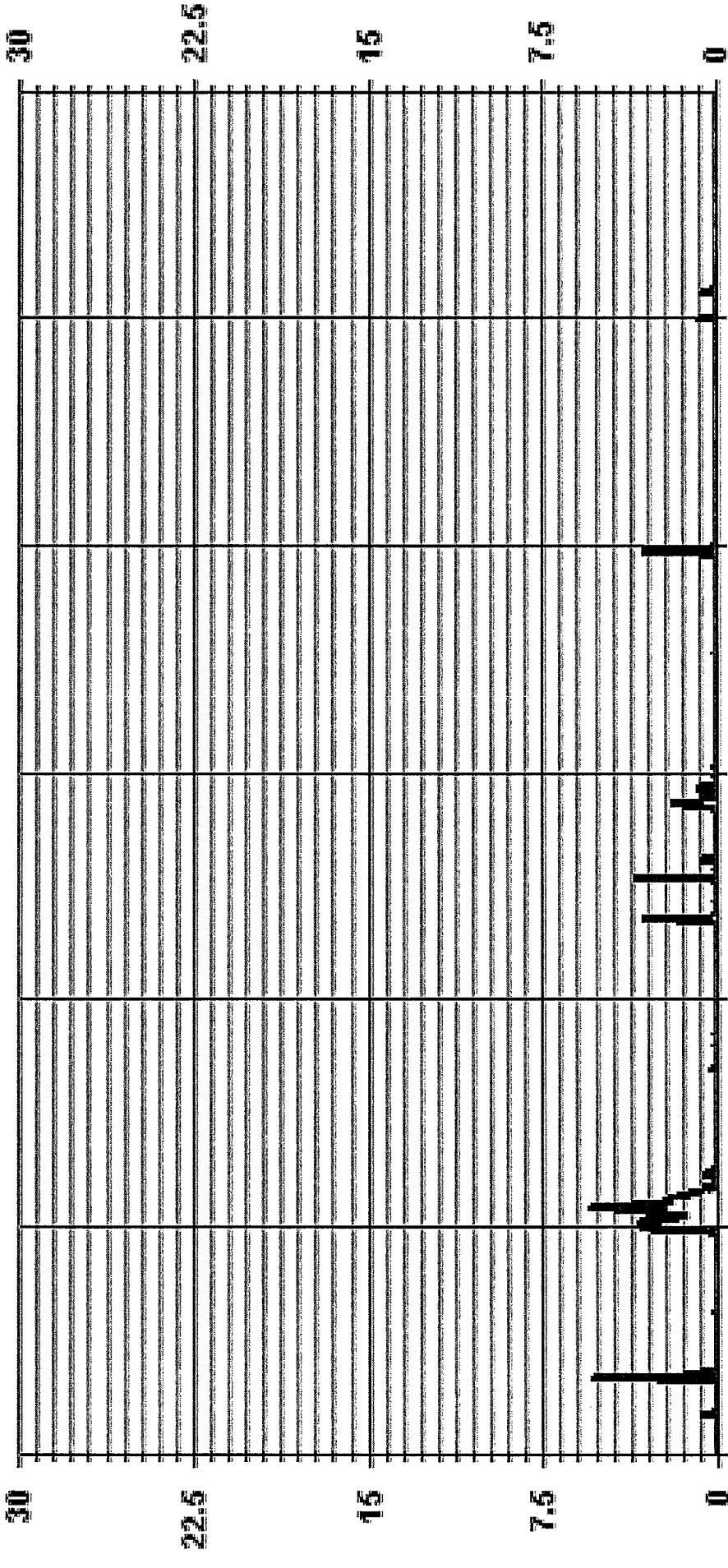
24 HOUR AVERAGES FOR SEPTEMBER 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	5.6	MM	@ HOUR(S)	11	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	2.3	MM			ON DAY(S)	6
MONTHLY TOTAL	98.6	MM			VAR-VARIOUS	
STANDARD DEVIATION:	0.59					
OPERATIONAL TIME:	718	HRS				
AMD OPERATION UPTIME:	99.7	%				
MONTHLY AVERAGE:	0.1	MM				

# 01 Hour Averages



— LICA31 PRECIP MM

***APPENDIX II***  
***ANALYZER CALIBRATION RESULTS***

***SULPHUR DIOXIDE***



## API 100E SO2 Analyzer Calibration

---

Date: 17-Sep-15

Company: LICA

Station Name/Location: St. Lina

Performed by: Limin Li

Application H<sub>2</sub>S/TRS/SO<sub>2</sub>: SO2

Start/End Time (mst): 8:00/11:47

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

---

**Analyzer:**

Serial Number: 468

Last Calibration Date: 5-Aug-15

Previous Cal High Point C.F.: 1.001

Range ppb: 1000

As Found C.F.: 1.004

New C.F.: 1.006

**As found:**

SLOPE: 0.916

OFFSET: 76.4

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 31.2

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABL: 0.0

PRES: 23.9

SAMP FL: 574

PMT: 69.2

NORM PMT: 82.6

UV LAMP: 1885

LAMP RATIO: 76.3

STR. LGT: 35.0

DRK PMT: 17.2

DRK LMP: 3.7

Internal Span: 227.2

**As left:**

SLOPE: 0.923

OFFSET: 84.4

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 26.2

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABL: 0.0

PRES: 24.0

SAMP FL: 581

PMT: 65.5

NORM PMT: 77.0

UV LAMP: 1888

LAMP RATIO: 76.4

STR. LGT: 35.0

DRK PMT: 16.3

DRK LMP: 3.6

Internal Span: 230.4

---

**Callibrator:**

Flow Meter ID's: n.a.

Make & Model: Sablo 2010

Serial #: 17200415

Cal Gas Cylinder I.D. #: BLM002756T

Cal Gas Conc. (ppm): 49.9

**Callibrator Flow Targets:**

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5030	0	5030
high	4953	77	5030
mid	4992	38	5030
low	5011	19	5030

---

**Calibration:**

Callibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5030	0.0	5030	0	3.5	NA
adjusted zero	5030	0.0	5030	0	0.2	NA
as found high	4953	77.20	5030	765.8	763.0	1.004
adjusted high	4953	77.20	5030	765.8	766.0	1.000
mid	4992	37.70	5030	374.0	374.0	1.001
low	5011	19.00	5030	188.5	185.6	1.017
calibrator zero	5029	0.00	5029	0	0.6	NA
Average C.F.=						1.006

---

**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>0.11%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.30%</u>	± 3% F.S.	PASS
	± 15%	PASS

**Converter Efficiency Check for H<sub>2</sub>S/TRS application:**

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

SO<sub>2</sub> High Point gas concentration: NA      Time gas run (mst): NA

Zero corrected analyzer response: NA

---

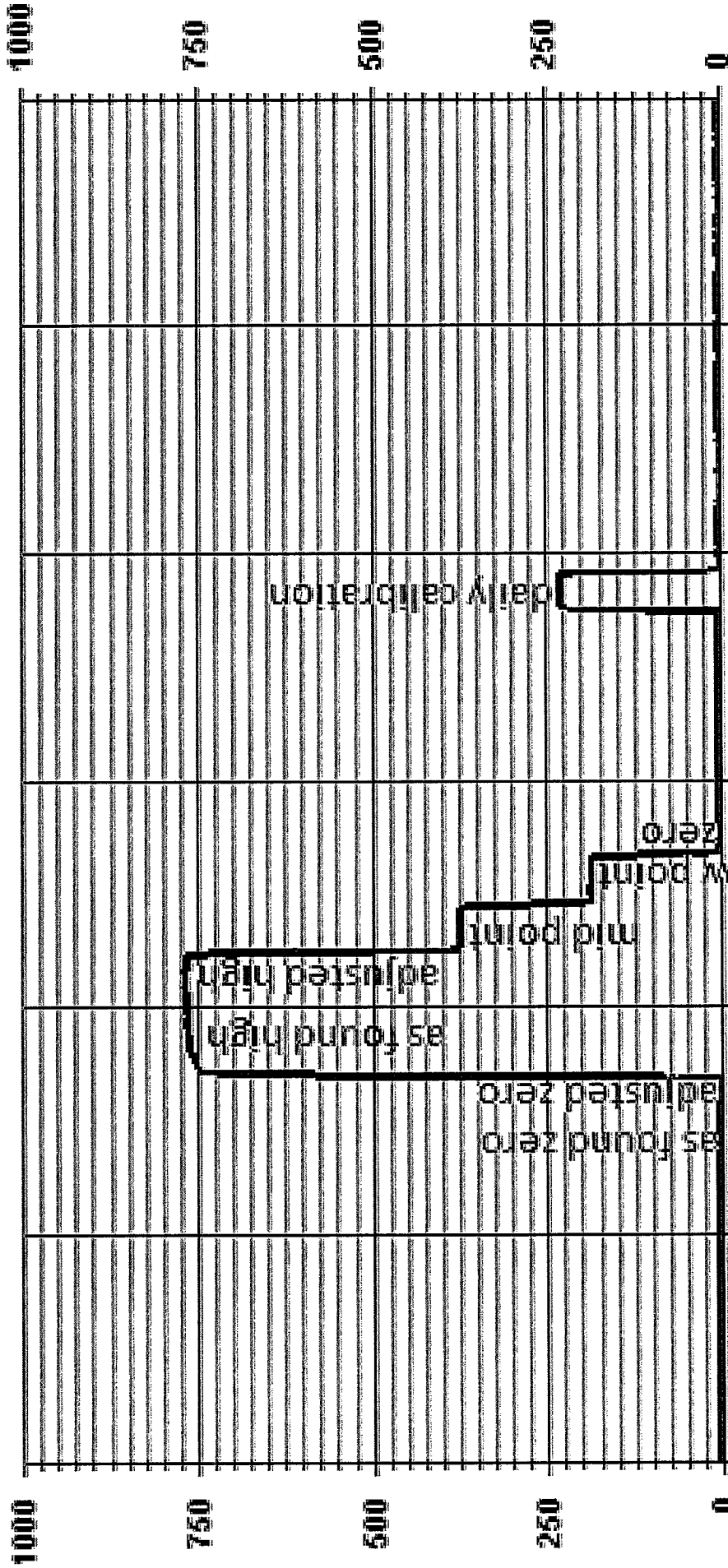
**Comments:**

Sample filter changed.

API 100E SO2 Analyzer Calibration

Calculated (ppb)	Indicated (ppb)
0	0
186	186
374	374
766	766

01 Minute Averages



— LICA31 SO2\_ PPB

***HYDROGEN SULPHIDE***

Maxxam

API 101E H2S Analyzer Calibration

---

Date: 17-Sep-15

Company: LICA

Station Name/Location: St.Lina

Performed by: LlmIn Ll

Application H<sub>2</sub>S/TRS/SO<sub>2</sub>: H2S

Start/End Time (mst): 8:00/11:47

Calibration Purpose: Monthly Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 6-Jan-18

---

**Analyzer:**

Serial Number: 509

Last Calibration Date: 5-Aug-15

Previous Cal High Point C.F.: 1.002

Range ppb: 100

As Found C.F.: 0.951

New C.F.: 1.009

**As found:**

SLOPE: 1.105

OFFSET: 34.9

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 32.1

PMT TEMP: 7.9

IZS TEMP: 48.0

TEST: Converter : 314.8

STABIL: 0.0

PRES: 19.3

SAMP FL: 523

PMT: 30.6

NORM PMT: 36.1

UV LAMP: 2995

LAMP RATIO: 90.3

STR. LGT: 19.3

DRK PMT: 8.8

DRK LMP: 0.7

Internal Span: 54

**As left:**

SLOPE: 1.062

OFFSET: 36.8

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 28.3

PMT TEMP: 7.9

IZS TEMP: 48.0

TEST: NA

STABIL: 0.0

PRES: 19.9

SAMP FL: 536

PMT: 30.6

NORM PMT: 35.0

UV LAMP: 2997

LAMP RATIO: 90.43

STR. LGT: 19.3

DRK PMT: 8.3

DRK LMP: 0.7

Internal Span: 52.74

---

**Calibrator:**

Flow Meter ID's: NA

Make & Model: API

Serial #: 627

Cal Gas Cylinder I.D. #: BLM002508

Cal Gas Conc. (ppm): 10.2

**Calibrator Flow Targets:**

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	7500	0	7500
high	7443	57	7500
mid	7472	28	7500
low	7486	14	7500

---

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7500	0.0	7500	0	1.0	NA
adjusted zero	7500	0.0	7500	0	0.0	NA
as found high	7443	57.40	7500	78.1	82.1	0.951
adjusted high	7443	57.40	7500	78.1	78.1	1.000
mid	7472	27.90	7500	37.9	37.6	1.009
low	7486	14.00	7500	19.0	18.7	1.018
calibrator zero	7500	0.00	7500	0	0.2	NA
Average C.F.=						1.009

**Linear Regression/Calibration Results:**

	<b>LIMITS</b>	<b>Pass/Fail ?</b>
Correlation Coefficient = <u>1.000</u>	> or = 0.995	PASS
Slope = <u>0.998</u>	0.85-1.15	PASS
b (Intercept as % of full scale) = <u>0.22%</u>	± 3% F.S.	PASS
% change in C.F. from last cal = <u>5.11%</u>	± 15%	PASS

**Converter Efficiency Check for H<sub>2</sub>S/TRS application:**

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

SO<sub>2</sub> High Point gas concentration: NA      Time gas run (mst): NA

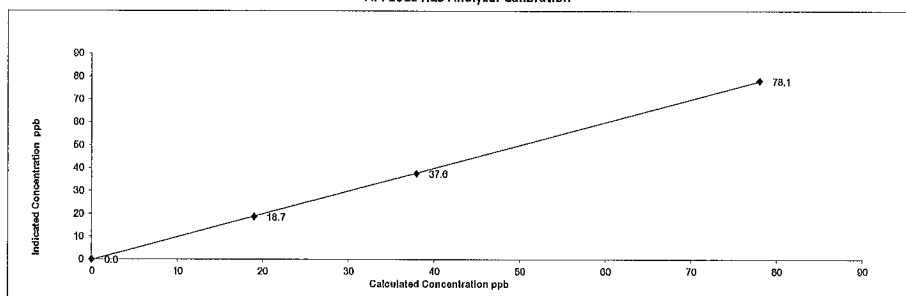
Zero corrected analyzer response: NA

---

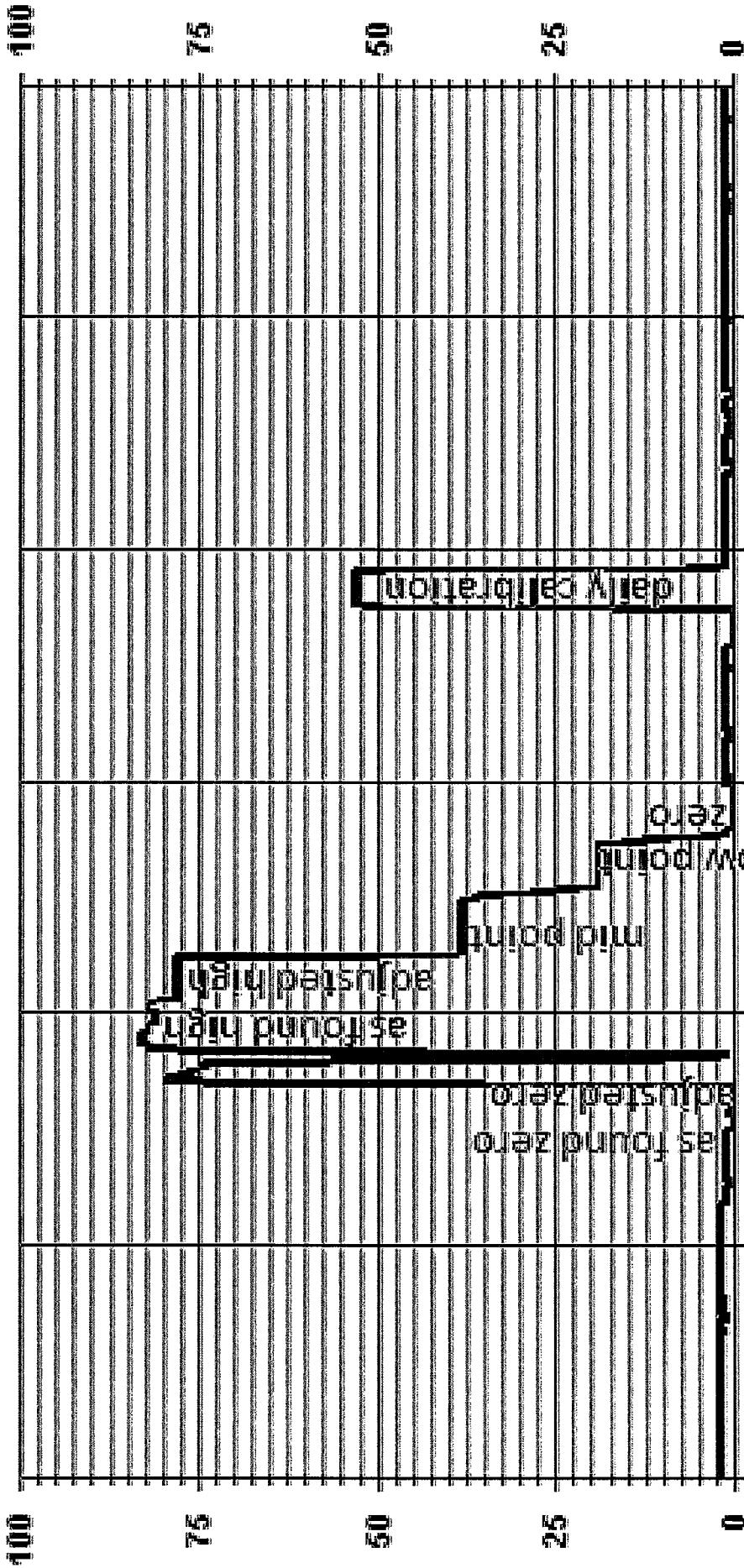
Comments:

Sample filter changed. Washer for regulator was changed before the as found high point check to enhance stability.

API 101E H2S Analyzer Calibration



01 Minute Averages



— LICA31 H2S\_ PPB

***TOTAL HYDROCARBON***

# Maxxam Thermo 51C THC Analyzer Calibration

Date: 8-Sep-15 Start Time (mst): 12:57  
 Company: LICA End Time (mst): 16:41  
 Station Name/Location: St. Lina Calibration Purpose: Monthly  
 Performed by: Alex Yakupov Cal Gas Expiry Date: 12-Aug-17

**Analyzer:**  
 Serial Number: 51CLT-77021-384 Range ppm: 50  
 Last Calibration Date: 4-Aug-15 As Found C.F.: 0.983  
 Previous Cal High Point C.F.: 0.999 New C.F.: 1.002

	<b>As found:</b>		<b>As left:</b>
H <sub>2</sub> cylinder (psi):	<u>600</u>	H <sub>2</sub> cylinder (psi):	<u>600</u>
H <sub>2</sub> cylinder reg set (psi):	<u>30</u>	H <sub>2</sub> cylinder reg set (psi):	<u>30</u>
Span Cylinder (psi):	<u>1000</u>	Span Cylinder (psi):	<u>1100</u>
Span Cylinder Reg Set (psi):	<u>35</u>	Span Cylinder Reg Set (psi):	<u>35</u>
Zero Air Gen Pressure:	<u>42</u>	Zero Air Gen Pressure:	<u>42</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>1703</u>	FID status:	cnt: <u>1708</u>
	rng: <u>1</u>		rng: <u>1</u>
	try: <u>0</u>		try: <u>0</u>
	flm: <u>186.0</u>		flm: <u>186.6</u>
	det: <u>125.0</u>		det: <u>125.7</u>
Oven Readings:	Flame: <u>186</u>	Oven Readings:	Flame: <u>186</u>
	Filter: <u>125</u>		Filter: <u>125</u>
	Base: <u>125</u>		Base: <u>125</u>
	Pump: <u>06.92</u>		Pump: <u>06.93</u>
Voltages:	+5 <u>4.9</u>	Voltages:	+5 <u>4.9</u>
	+15 <u>14.8</u>		+15 <u>14.8</u>
	-15 <u>-14.9</u>		-15 <u>-14.9</u>
	Internal Span: <u>20.73</u>		Internal Span: <u>26.84</u>

**Calibrator:**

Flow Meter ID's:	<u>NA</u>
Make & Model:	<u>API 700</u>
Serial #:	<u>830</u>
Cal Gas Cylinder I.D. #:	<u>LL33674</u>
CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> Cylinder Conc. (ppm):	<u>601.4</u> <u>202.0</u>
CH <sub>4</sub> as propane/total CH <sub>4</sub> equivalents (ppm):	<u>555.5</u> <u>1156.9</u>

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

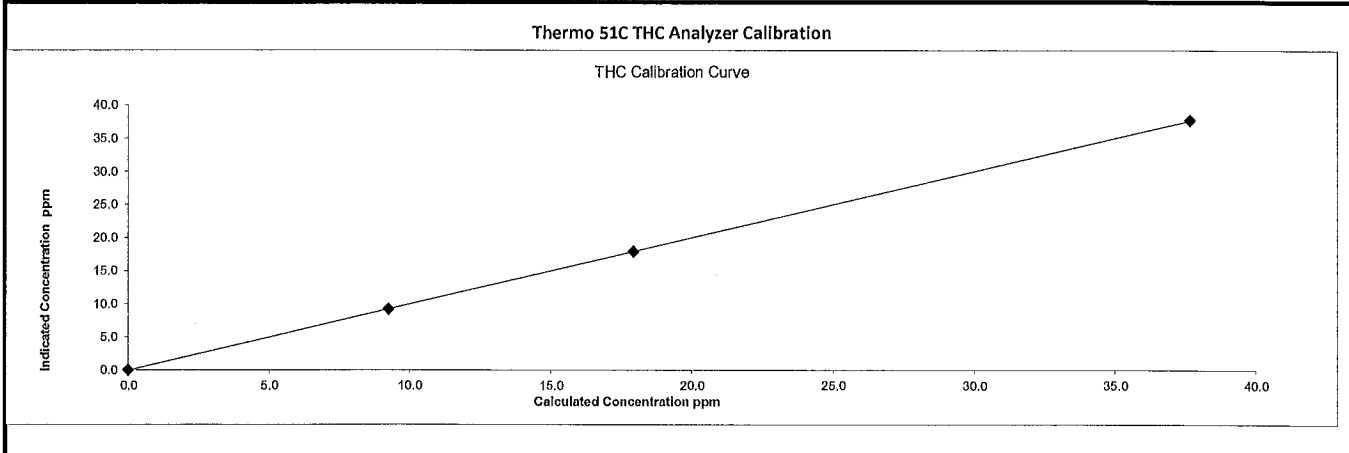
**Calibration:**

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppm)	Indicated Concentration: (ppm)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	1999	0.00	1999	0	0.01	NA
adjusted zero	1999	0.00	1999	0	0.00	NA
as found high	1932	65.00	1997	37.66	38.30	0.983
adjusted high	1932	65.00	1997	37.66	37.70	0.999
mid	1969	31.00	2000	17.93	17.90	1.002
low	1984	16.00	2000	9.26	9.20	1.006
calibrator zero	1999	0.00	1999	0	0.00	NA
Average C.F. =						1.002

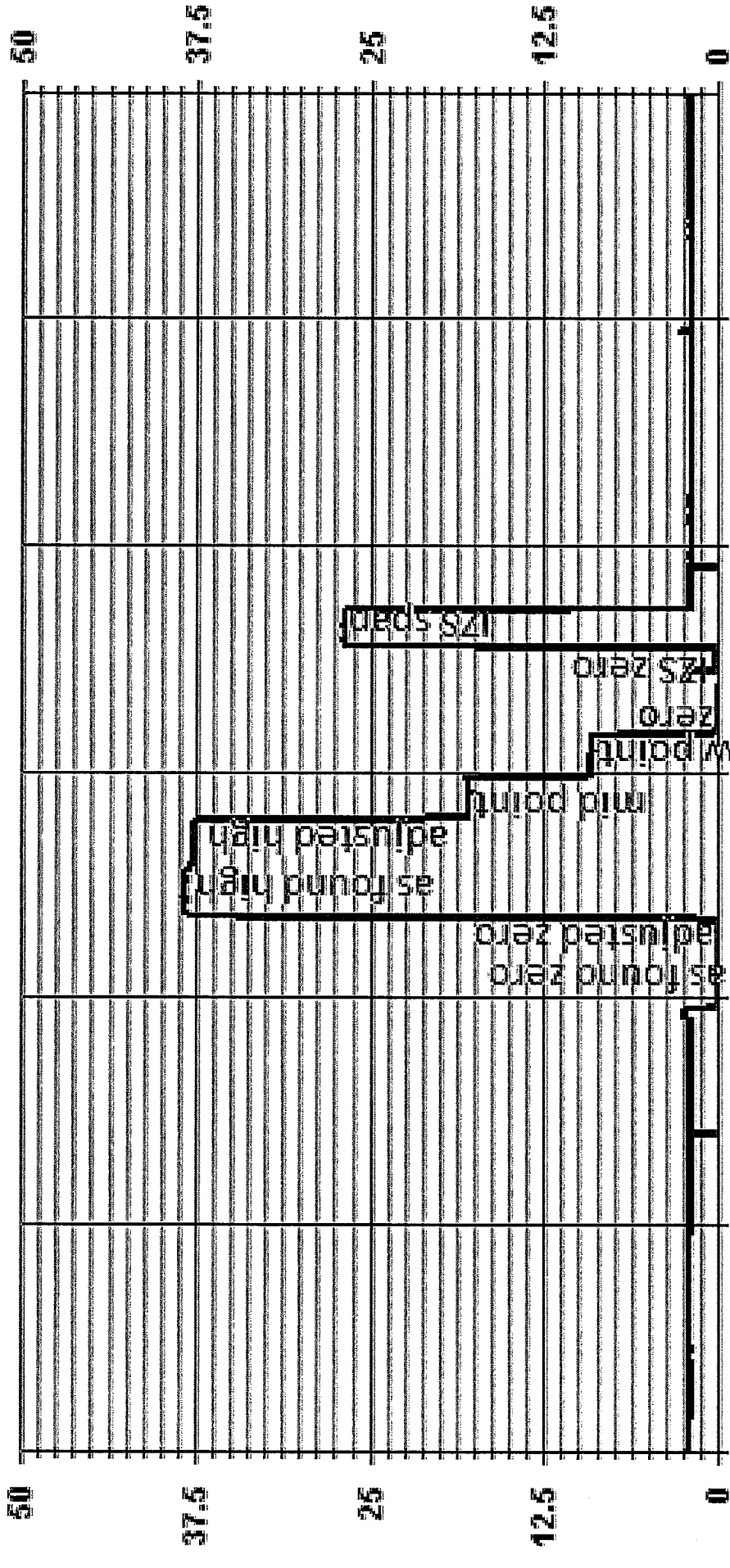
**Linear Regression/Calibration Results:**

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.002</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.076%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>1.58%</u>	± 3% F.S.	PASS
		± 15%	PASS

**Comments:**  
 Sample filter changed. A SPAN gas cylinder CH<sub>4</sub>-C<sub>3</sub>H<sub>8</sub> was replaced with the CH<sub>4</sub> cylinder.



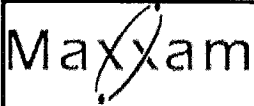
01 Minute Averages



— LICA31    - - - - - THC    ..... PPM



***NITROGEN DIOXIDE***



API 200E NOx Analyzer Calibration

Date: 17-Sep-15  
 Company: LICA  
 Station Name/Location: St.Lina  
 Performed by: Limin Li

Start Time (mst): 8:00  
 End Time (mst): 16:30  
 Calibration Purpose: Monthly calibration  
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 594  
 Last Calibration Date: 5-Aug-15  
 Range ppb: 1000

Correction Factors:  
 As found C.F. Previous Cal High Point C.F.:  
 NO= 1.043 NO= 0.997  
 NOx= 1.048 NOx= 0.997  
 NO<sub>2</sub>= 0.998 NO<sub>2</sub>= 1.000

As found:  
 NOx SLOPE: 0.936  
 NOx OFFS: 1.1  
 NO SLOPE: 0.938  
 NO OFFS: 0.1  
 TEST: NA  
 SAMP FLW: 452  
 OZONE FL: 78  
 PMT: 15.7  
 NORM PMT: -0.3  
 AZERO: 16.3  
 HVPS: 771  
 RCELL TEMP: 50.0  
 BOX TEMP: 31.7  
 PMT TEMP: 6.7  
 IZS TEMP: 45.0  
 MOLY TEMP: 315  
 RCEL: 6.8  
 SAMP: 26.3  
 Internal Span: 500.1/9.1/491.1

As left:  
 NOx SLOPE: 0.984  
 NOx OFFS: 1.1  
 NO SLOPE: 0.980  
 NO OFFS: 0.1  
 TEST: NA  
 SAMP FLW: 451  
 OZONE FL: 78  
 PMT: 15.7  
 NORM PMT: -0.3  
 AZERO: 17.1  
 HVPS: 771  
 RCELL TEMP: 50.0  
 BOX TEMP: 29  
 PMT TEMP: 6.7  
 IZS TEMP: 45.0  
 MOLY TEMP: 315.9  
 RCEL: 6.9  
 SAMP: 26.6  
 Internal Span: 556/8.3/547.5

Calibrator Flow Targets:

Make & Model: Sabio 2010  
 Serial #: 17200415  
 Cal Gas Cylinder I.D. #: BLM002756T  
 NO Cylinder Conc. (ppm): 50.7  
 NOx Cylinder Conc. (ppm): 50.7

point	diluent (cc/min)	cal gas (cc/min)	O <sub>3</sub> setting (v or ppb)	total (cc/min)
zero	5030	0	0	5030
high	4953	77	560.00	5030
mid	4992	38	310.00	5030
low	5011	19	110.00	5030

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	5030	0.0	5030	0	0	-0.1	-0.3	NA	NA
as found high	4953	77.20	5030	778.1	778.1	746	742	1.043	1.048
adjusted high	4953	77.20	5030	778.1	778.1	779	779	0.999	0.998
mid	4992	37.70	5030	380.0	380.0	382	383	0.995	0.991
low	5011	19.00	5030	191.5	191.5	192	192	0.997	0.996
calibrator zero	5029	0.00	5029	0	0	0.0	0.0	NA	NA
Average C.F.=								0.997	0.995

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> Increase	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4953	77.20	5030	0.0	784.0	786.0	2.0	-0.1	-0.2	
as found NO <sub>2</sub>	4953	77.20	5030	560.0	266.0	787.0	521.0	518.0	519.0	0.998
gpt mid	4953	77.20	5030	310.0	495.0	786.0	290.0	289.0	288.0	1.003
gpt low	4953	77.20	5030	110.0	678.0	785.0	107.0	106.0	105.0	1.010
Average NO <sub>2</sub> C.F.=										1.004

Linear Regression/Calibration Results:

	NO	NOx	NO <sub>2</sub>	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.002	1.002	0.85-1.15
b (Intercept as % of full scale)=	0.04%	0.05%	-0.08%	± 3% F.S.
% change in C.F. from last cal=	-4.60%	-5.14%	0.19%	+/-15%
NO <sub>2</sub> converter efficiency			99.6%	>85%

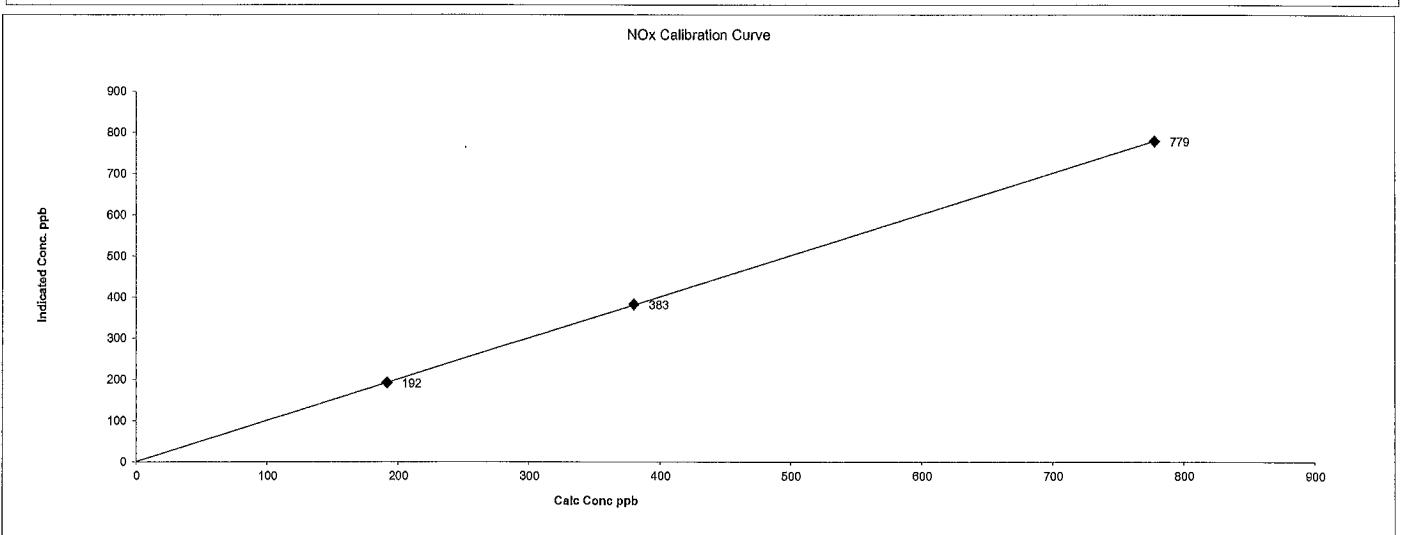
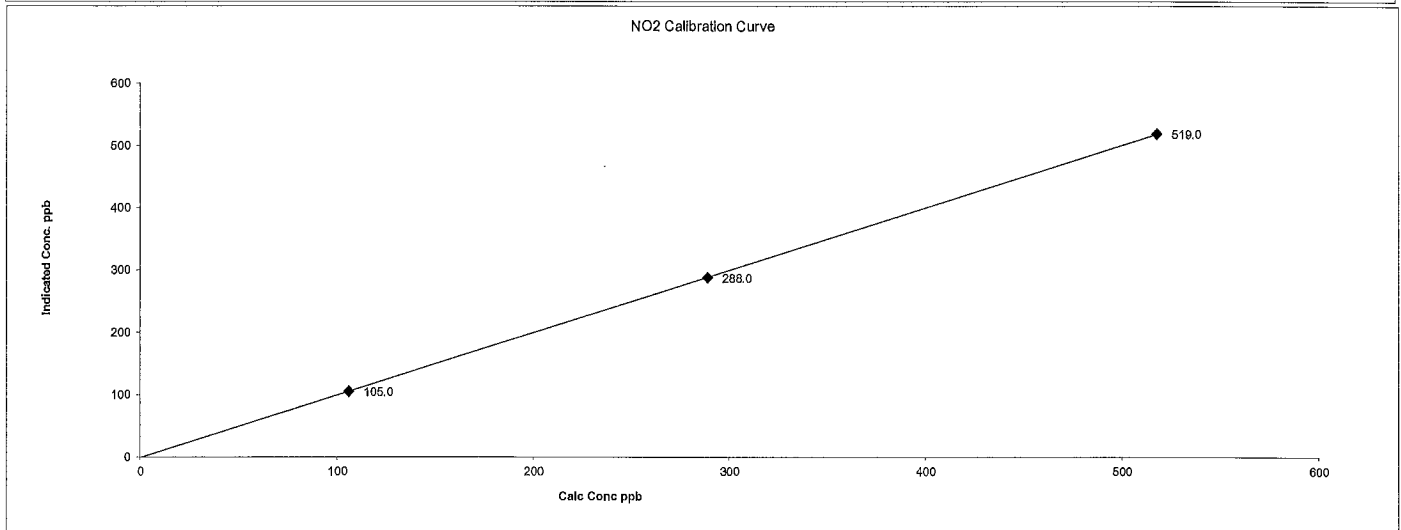
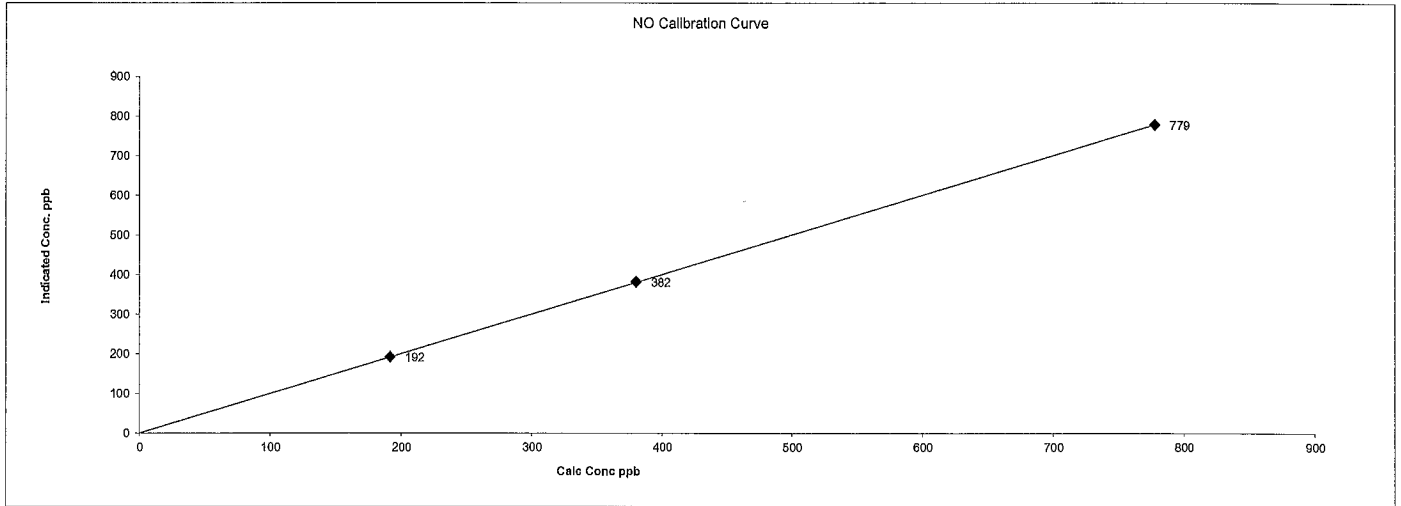
Comments:

No zero adjustment made. No NO<sub>2</sub> adjustment made. Zerp-air supply pump malfunctioned during the 3rd GPT point check. Fixed the pump and repeated the point.

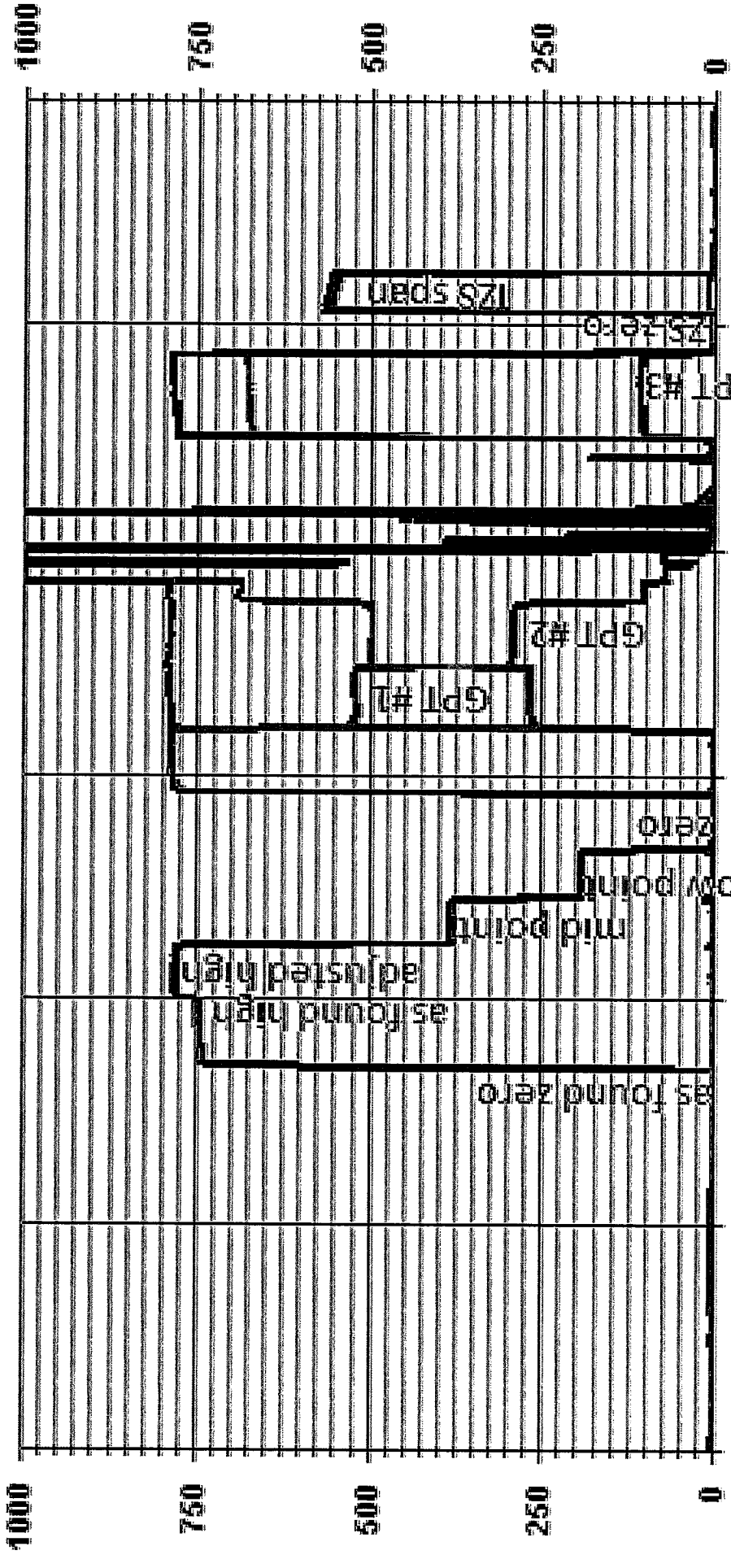
Date: 17-Sep-15  
Company: LICA  
Station Name/Location: St.Lina  
Performed by: Limin Li

Start Time (mst): 8:00  
End Time (mst): 16:30  
Calibration Purpose: Monthly calibration  
Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



09/17/15 05:50 09/17/15 07:50 09/17/15 09:50 09/17/15 11:50 09/17/15 13:50 09/17/15 15:50

— LICA31 NOX\_ PPB — LICA31 NO\_ PPB — LICA31 NO2\_ PPB

**OZONE**

## Maxxam Thermo 49i O<sub>3</sub> Analyzer Calibration

Date: <u>8-Sep-15</u>	Start Time (mst): <u>12:57</u>	
Company: <u>LICA</u>	End Time (mst): <u>17:53</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>NA</u>	

Analyzer: <u>1002240371</u>		Range ppm: <u>500</u>
Serial Number: <u>1002240371</u>	Last Calibration Date: <u>4-Aug-15</u>	As Found C.F.: <u>0.997</u>
Previous Cal High Point C.F.: <u>1.000</u>		New C.F.: <u>1.000</u>

	As found:	As left:
Motherboard:	O <sub>3</sub> Bkg: <u>-0.8</u>	O <sub>3</sub> Bkg: <u>-0.6</u>
	O <sub>3</sub> Coef: <u>0.973</u>	O <sub>3</sub> Coef: <u>0.971</u>
	<u>3.3</u>	<u>3.3</u>
	<u>15.0</u>	<u>14.8</u>
	<u>24.0</u>	<u>23.8</u>
Interface Board:	<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>15.0</u>	<u>14.7</u>
	<u>-15.0</u>	<u>-15.0</u>
Photo Lamp	<u>9.4</u>	<u>9.4</u>
	<u>24.0</u>	<u>23.4</u>
O <sub>3</sub> Lamp	<u>8.3</u>	<u>8.3</u>
Bench:	<u>28.2</u>	<u>28.4</u>
Bench Lamp:	<u>53.6</u>	<u>53.6</u>
O <sub>3</sub> Lamp:	<u>67.8</u>	<u>67.8</u>
Pressure:	<u>676.1</u>	<u>676.4</u>
Cell A lpm:	<u>0.726</u>	<u>0.726</u>
Cell B lpm:	<u>0.721</u>	<u>0.721</u>
O <sub>3</sub> ppb:	<u>-1.5</u>	<u>0.5</u>
Cell A ppb:	<u>-4.3</u>	<u>2.3</u>
Cell B ppb:	<u>1.3</u>	<u>-1.4</u>
Cell A Int:	<u>58450</u>	<u>58466</u>
Cell B Int:	<u>70853</u>	<u>70873</u>
Internal Span:	<u>388.5</u>	<u>403.6</u>

Calibrator:  Make & Model: <u>SABIO 2010 D</u> Serial #: <u>11900613</u> NOx Gas Cylinder I.D. #: <u>BLM002073</u> NOx Cylinder Conc. (ppm): <u>50.6</u>	Calibrator Flow Targets:		
	point	total flow (cc/min)	O <sub>3</sub> setting (v or ppb)
	zero	5013	0
	high	5013	380
	mid	5013	180
	low	5013	90

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.0	5013	0.0	-1.0	NA
adjusted zero	5013	0.0	5013	0.0	0.0	NA
as found high	5013	0.00	5013	380.0	381.0	0.997
adjusted high	5013	0.00	5013	380.0	380.0	1.000
mid	5013	0.00	5013	180.0	180.0	1.000
low	5013	0.00	5013	90.0	90.0	1.000
calibrator zero	5013	0.00	5013	0.0	0.0	NA

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

Average C.F.= 1.000

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS > or = 0.995	PASS
Slope = <u>1.000</u>	0.85-1.15	PASS
b (Intercept as % of full scale) = <u>0.000%</u>	± 3% F.S.	PASS
% change in C.F. from last cal = <u>0%</u>	± 15%	PASS

Comments:

Sample Filter changed.

Thermo 49i O<sub>3</sub> Analyzer Calibration

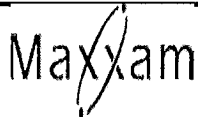
O<sub>3</sub> Calibration Curve

The graph displays a linear relationship between the calculated concentration (x-axis) and the indicated concentration (y-axis) for O<sub>3</sub>. The x-axis ranges from 0 to 400 ppb, and the y-axis ranges from 0 to 400 ppb. Four data points are plotted: (0, 0), (90, 90), (180, 180), and (380, 380). A straight line of best fit is drawn through these points, showing a slope of 1.000.



***PARTICULATE MATTER***





# R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 3-Sep-15  
 Company: LICA  
 Station Name/Location: St Llna  
 Previous Audit Date: 31-Aug-15

Parameter: PM 2.5  
 Performed by: Alex Yakupov  
 Start/End Time (mst): 12:10 - 13:07  
 Calibration Purpose: Monthly Audit #1

**1400A Information and Status:**

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>20.83</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>20.83</u>
Ambient Temperature °C:	<u>11.55</u>	As Found Noise:	<u>0.006</u>
Ambient Pressure atm:	<u>0.921</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.39</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>18-Mar-15</u>	<u>18-Mar-15</u>

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.09	0.00	-0.09
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	1.02	0.00	1.02
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.09	0.00	-0.09
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	1.02	0.00	1.02
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>11.6</u>	1405F pressure atm:	<u>0.921</u>
reference temperature °C:	<u>11.6</u>	reference pressure:	<u>0.921</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>11.6</u>	1405F pressure atm:	<u>0.921</u>
reference temperature °C:	<u>11.6</u>	reference pressure:	<u>0.921</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>16.67</u>
reference main flow lpm: <u>3.06</u>	reference total/aux flow lpm: <u>17.13</u>
difference lpm: <u>0.06</u>	difference lpm: <u>0.46</u>

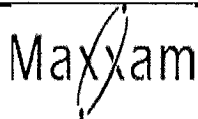
**As left flows (same as above if as found adequate):**

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.06</u>	reference total/aux flow lpm: <u>17.13</u>
difference lpm: <u>0.06</u>	difference lpm: <u>0.46</u>

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 17-Jul-15  
 1405F K<sub>o</sub> factor: 13125.0  
 Measured K<sub>o</sub> factor: 13184.8000  
 % difference: 0.46

**Comments:**



## R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 17-Sep-15  
 Company: LICA  
 Station Name/Location: St Lina  
 Previous Audit Date: 3-Sep-15

Parameter: PM 2.5  
 Performed by: Limin Li  
 Start/End Time (mst): 11:00-13:10  
 Calibration Purpose: Audit#2

**1400A Information and Status:**

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>24.10</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>22.67</u>
Ambient Temperature °C:	<u>13.27</u>	As Found Noise:	<u>0.005</u>
Ambient Pressure atm:	<u>0.9174</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>Old pump: 0.40/ new pump: 0.27</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

**Reference Standards:**

	Flow:	Pressure:	Temperature:
Make:	Dwyer	BRUNTON	Fluke
Model:	475 Mark III	NA	1551A EX
Serial Number:	1868	NA	2329070
Calibration Date:	NA	NA	NA

**As found leak check:**

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.09	0.00	-0.09
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	1.02	0.00	1.02
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.09	0.00	-0.09
	limit	0.15	<del>0.15</del>	0.15	<del>0.15</del>
Bypass Flow	actual	0.00	1.02	0.00	1.02
	limit	0.60	<del>0.60</del>	0.60	<del>0.60</del>

**As found temperature and pressure:**

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>13.5</u>	1405F pressure atm:	<u>0.919</u>
reference temperature °C:	<u>13.3</u>	reference pressure:	<u>0.917</u>
difference °C:	<u>-0.2</u>	difference :	<u>0.002</u>

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

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>16.2</u>	1405F pressure atm:	<u>0.919</u>
reference temperature °C:	<u>16.8</u>	reference pressure:	<u>0.917</u>
difference °C:	<u>0.6</u>	difference :	<u>-0.002</u>

**As found flows:**

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>13.67</u>
reference main flow lpm: <u>3.09</u>	reference total/aux flow lpm: <u>14.33</u>
difference lpm: <u>0.09</u>	difference lpm: <u>0.66</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>3.08</u>	reference total/aux flow lpm: <u>13.97</u>
difference lpm: <u>0.08</u>	difference lpm: <u>0.30</u>

**K<sub>o</sub> Audit:**

Last K<sub>o</sub> audit date: 17-Jul-15  
 1405F K<sub>o</sub> factor: 13125.0  
 Measured K<sub>o</sub> factor: 13184.8000  
 % difference: 0.46

**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  
NIST Sensor Model No. 50.1B

Serial No. 3309  
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	0.882	29.8	-0.1	11.21	0.224	11.19	-0.02
45.0	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	28.3	-0.7	2.18	0.042	2.08	-0.10
45.0	0.163	56.5	-1.5	2.29	0.043	2.14	-0.06
120.0	0.332	118.8	-0.1	2.21	0.042	2.09	-0.13
150.0	0.417	150.3	0.3	2.22	0.042	2.07	-0.15
210.0	0.591	210.1	0.1	2.39	0.042	2.12	-0.08
240.0	0.660	239.8	-0.2	2.23	0.042	2.10	-0.13
300.0	0.835	300.1	0.6	2.22	0.043	2.18	-0.04
330.0	0.917	330.0	0.0	2.21	0.043	2.17	-0.04

Reference condition: As Found As Left X

Sensor Model No. 50.1B

Sensor Serial No.: H12635

Supply Voltage 0V-10V

Sensor Output Range 0-50 MPS

Customer Mel One Instruments

Sales Order No. 104703

Customer No. 330637

Calibration Date 08/28/2014

Calibration by Diana Dawson

001 Inspection

*Diana Dawson*

## ***CALIBRATORS***

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17200415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>New</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>BLM0027561</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>50.7/50.7</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 <sub>2</sub>	NOx	NO	NOx
5010	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5033	79.1	0.797	0.797	0.790	-0.011	0.779	-1%	-2%
5030	39.7	0.400	0.400	0.395	-0.005	0.390	-1%	-3%
5029	20.0	0.202	0.202	0.198	-0.003	0.195	-2%	-3%
Absolute Average Percent Difference							1%	3%

**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)=	0.9920	0.90-1.10		m (Slope)=	0.9783
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.		b (Intercept % of FS)=	#DIV/0!

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOX	% Diff. Vs Audit gas	
5033	0.000	0.000	0.787	-0.011	0.776	NO <sub>2</sub>	% Diff. Limit
5033	0.520	0.490	0.297	0.475	0.772	0	± 10%
5033	0.280	0.261	0.526	0.249	0.774	0	± 10%
5033	0.100	0.089	0.698	0.078	0.775	0	± 10%
Absolute Average Percent Difference						0	± 10%

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

NO <sub>2</sub>		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	0.9916	0.90-1.10	
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.	

AENV Standards Audit Calibrator		NO <sub>x</sub> Analyzer	
Make/Model	<u>Teco 1461</u>	Make/Model	<u>Teco 421</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>May 21, 2015</u>
		Full Scale (ppm)	

COMMENTS: Contains 49.9 ppm SO2

Auditor: Al Clark

Date: May 21, 2015

Operator Signature: *Limin Li*

Location: McIntyre Center Edmonton

<b>Company</b> <u>Maxxam</u>		<b>Operator:</b> <u>Limin Li</u>	
<b>Calibrator:</b>		<b>Flow Measurement Device:</b>	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>627</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>April 2014</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>		

<b>Dilution Flow (sccm)</b>			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
<b>Gas Flow (sccm)</b>			
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 <sub>2</sub>	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.001	0.001	Limit ± 10%	
4999	78.7	0.800	0.800	0.851	-0.016	0.835	6%	4%
5000	39.4	0.400	0.400	0.423	-0.008	0.416	6%	4%
5001	19.7	0.200	0.200	0.211	-0.003	0.208	5%	3%
<b>Absolute Average Percent Difference</b>							6%	4%

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

<b><u>NO</u></b>		<b><u>LIMITS</u></b>		<b><u>NOx</u></b>	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	1.0641	<b>0.90-1.10</b>		m (Slope)=	1.0429
b (Intercept % of FS)=	-0.1200	± 3% F.S.		b (Intercept % of FS)=	0.0000

Flow	O <sub>3</sub> Conc	NO Decrease	NO	NO <sub>2</sub>	NOx	% Diff. Vs Audit gas	
4999	0.000	0.000	0.841	-0.015	0.831	NO <sub>2</sub>	% Diff. Limit
4999	0.520	0.562	0.279	0.518	0.797	-5%	± 10%
4999	0.280	0.308	0.533	0.286	0.818	-2%	± 10%
4999	0.100	0.108	0.733	0.095	0.828	2%	± 10%
<b>Absolute Average Percent Difference</b>						2%	± 10%

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

<b><u>NO<sub>2</sub></u></b>		<b><u>LIMITS</u></b>	
Correlation=	0.9998	≥ 0.995	
m (Slope)=	0.9458	<b>0.90-1.10</b>	
b (Intercept % of FS)=	-1.0258	± 3% F.S.	

<b>AENV Standards</b>	<b>NO<sub>x</sub> Analyzer</b>
<b>Audit Calibrator</b>	
Make/Model	<u>Teco 146i</u>
Serial/AMU Number	<u>AMU 1809</u>
	Make/Model
	<u>Teco 42i</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 SO<sub>2</sub>. System shows NOx drop when O<sub>3</sub> added. Also noisy during GPT phase for NO<sub>2</sub> and NOx.

Auditor: Al Clark Date: April 1, 2015  
 Operator Signature:  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>830</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Oct 2013</u>	Temperature (°C)	<u>N/A</u>
SO <sub>2</sub> Cylinder Conc.	<u>50.3</u>	Barometric Pressure	<u>N/A</u>
SO <sub>2</sub> Cylinder S/N	<u>LL42475</u>		

**Flow Measurements**

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

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

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

<u>SO<sub>2</sub></u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO <sub>2</sub> Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&amp;R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

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

Auditor: Al Clark Date: December 16, 2014  
Operator Signature: \_\_\_\_\_ Location: McIntyre Center Edmonton



**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>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

**Flow Measurements**

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


Calibrator Flow (scm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

<u>O<sub>3</sub></u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
<b>Audit Calibrator</b>		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Auditor: Al Clark Date: May 21, 2015  
 Operator Signature:  Location: McIntyre Center Edmonton

***CALIBRATION GASES***



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-342CGA

**Company:** Maxxam **Operator's Name:** Limin Li  
**Cylinder #:** BLM002758T **Concentration PPM:** 49.9 **Tolerance(%)** 2 **Certified By:** Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

Make/Model: Teco 43C Serial/AMU Number: 1623  
 Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0  
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	<del>0.000</del>	<del>0.000</del>	<del>0.000</del>
4976	82.6	0.821	0.01680	60.242	49.5
4993	41.0	0.410	0.00821	121.780	49.9
4977	20.2	0.202	0.00406	246.386	49.8
Average Cylinder Concentration:					<b>49.7</b>

Previous Stated Concentration PPM: 49.9

Percent variance from Stated: 0.4

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: *Limin Li*

Date: March 31, 2015  
 Location: McIntyre Center Edmonton



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-338CGA

**Company:** Maxxam **Operator's Name:** Limin Li  
**Cylinder #:** BLM002508 **Concentration PPM:** 10.2 **Tolerance(%)** 2 **Certified By:** Air Liquide

**Reference Calibrator and Gas:**

Make/Model: R&R MFC 201  
 Serial Number: AMU1690  
 Last Verification Date: March 31, 2015  
 Gas Type: H2S Conc. 20.43  
 Cylinder Number: CAL015106

**Flow Measurement Device:**

Make/Model: Bios DC2  
 Serial Number: AMU 1659  
 Temp. °C: 23.0 C  
 B.P. 689 mmhg

**Reference Analyzer:**

Make/Model: Teco 450i Serial/AMU Number: 1980  
 Instrument Settings: Zero: 14.5 Span: 1.035 Range: 0.1  
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	<del>0.0000</del>	<del>0.0000</del>	<del>0.0</del>
5080	38.2	0.0725	0.00752	132.984	9.6
5078	17.9	0.0340	0.00353	283.687	9.6
5066	9.1	0.0170	0.00180	556.703	9.5
Average Cylinder Concentration:					<b>9.6</b>

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: 6.0

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: March 31, 2015  
 Location: McIntyre Center Edmonton



Praxair Canada, Inc.  
 9501-34th Street  
 Edmonton, AB T6B 2X6  
 Tel: 780-449-0778  
 Fax: 780-449-9302

03/27/2014

MAXXAM ANALYTICS INC \*NA\*  
 9372 49TH ST  
 EDMONTON, AB T6B 2L7

Work Order No. 20248656  
 Customer Reference No.

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

**CERTIFICATE OF ANALYSIS**  
*Primary Standard*

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

Analytical Instruments: Mettler-Toledo Analytical Balance-ID2ex/USA--  
 Hewlett-Packard (Agilent)-6890--GC-FID

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

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

Analyst: Todd Hryniv

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

Note: All expressions for gases are given in g/L or ppm unless otherwise noted.

- |  |  |   |   |
|--|--|---|---|
| A. All Analytical Techniques                         | B. Gas Chromatography with Electrode sensitive Detector  | C. Gas Chromatography with Electrolytic Conductivity Detector | D. Gas Chromatography with Flame Ionization Detector  |
| E. Gas Chromatography with Photo Ionization Detector | F. Gas Chromatography with Infrared Detector             | G. Gas Chromatography with Methanolic Carbonisorb Detector    | H. Gas Chromatography with Poropac/Porapak Q Detector |
| I. Gas Chromatography with Refractive Gas Analyzer   | J. Gas Chromatography with Thermal Conductivity Detector | K. Heavy Gas Analytic with Thermal Conductivity Detector      | L. Infrared: FTIR or ICR                              |
| M. Mass Spectrometry: MS or GC/MS                    | N. By Difference of Typical Analytes                     | O. Paramagnetic   | P. Specific Water Analytes                            |
| Q. Total Hydrocarbon Analyzer                        | R. Wet Chemical  | S. Inertion Tube  | T. Other  |
| U. Other: Unknown                                    | V. Other: Unknown  | W. Gas Chromatography with Chemiresonance Detector            |   |

**IMPORTANT!**  
 The information contained herein has been prepared at your request by personnel within Praxair Canada, Inc. When we believe the information is accurate within the limits of the analytical methods employed and is consistent with the results of the specific analysis performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Canada, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.



# Calibration Gas Audit

## NO Cylinder Gas

File No. 2015-343CGA

Company: Maxxam Operators name: Limin Li  
Cylinder #: BLM002756T Conc (PPM) 50.7/50.7 Tolerance (%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

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

**Flow Measurement Device:**

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

**Reference Analyzer:**

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

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.842	0.822	0.01660	60.242	50.7	49.5
4993	41.0	0.420	0.410	0.00821	121.780	51.1	49.9
4977	20.2	0.208	0.205	0.00406	246.386	51.2	50.5
Average Cylinder Concentration:						<b>51.0</b>	<b>50.0</b>

NO NOx

Previous Stated Concentration PPM: 50.7 50.7

Percent variance from Stated: 0.7 1.4

**Cylinder gas tolerances based on NO only**

Meets Manufacturer Tolerance. Use manufacturers stated concentration  COMMENTS: \_\_\_\_\_

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration  Contains 49.9 ppm SO2 in cylinder

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

Auditor: Al Clark Date: March 31, 2015  
Operator Signature: *Al Clark* Location: McIntyre Center Edmonton



***APPENDIX III***  
***CHAIN OF CUSTODY***





# Maxxam Analytics - Air Services Group

## Project Chain of Custody

<b>Client:</b> <u>Lakeland Industry &amp; Community Association</u>	<b>Project #:</b> <u>2833-2015-09-31- C</u>
<b>Site:</b> <u>St. Lina Site</u>	<b>Contact:</b> <u>Mike Bisaga</u>

QA Check Complete	<u>msclmbh</u>	Date	<u>22 - Oct - 2015</u>
QA Check Review	<u>msclmbh</u>	Date	<u>22 - Oct - 2015</u>
Report Complete	<u>msclmbh</u>	Date	<u>27 - Oct - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>28 - Oct - 2015</u>
Report Shipped	_____	Date	_____

Notes