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February 15, 2014

RE: December 2013 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. In addition, there are also summaries for the passive monitoring network and speciated VOC and PAH sampling programs.

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

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

December 2013

Prepared By:



January 21, 2014

Lakeland Industry & Community Association Cold Lake Monitoring Site Ambient Air Monitoring

Table of Contents	Page		Page
Introduction	3	Calibration Reports	96
Calibration Procedure	4	• Sulphur Dioxide	97
Monthly Continuous Summary	5	• Total Reduced Sulphur	100
Monthly Non-Continuous Summary	6	• Total Hydrocarbons	103
General Monthly Summary	7	• Particulate Matter 2.5	108
Continuous Monitoring	10	• Nitrogen Dioxide	111
• Monthly Summaries, Graphs & Wind Roses	11	• Ozone	115
○ Sulphur Dioxide	12	Passive Bubble Maps	118
○ Total Reduced Sulphur	20	Passive Field Data	123
○ Total Hydrocarbons	28	• Field Notes	124
○ Particulate Matter 2.5	36	Passive Monitoring Laboratory Analysis	126
○ Nitrogen Dioxide	41		
○ Nitric Oxide	49		
○ Oxides of Nitrogen	56		
○ Ozone	64		
○ Ambient Temperature	72		
○ Relative Humidity	75		
○ Vector Wind Speed	78		
○ Vector Wind Direction	85		
○ Standard Deviation Wind Direction	88		
Non-Continuous Monitoring	91		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga
Lakeland Industry & Community Association
Box 8237
5107W – 50 Street
Bonnyville, Alberta
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Monitoring Location: Cold Lake
Data Period: December 2013

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Lili Zhou

The monthly analytical report for passive monitoring:
Authorized by Levi Manchak

Calibration Procedure

The following calibration procedure applies to all calibrations conducted at the Lakeland Industry & Community Association Air Monitoring Station.

Calibration gas concentrations are generated using a dynamic mass flow controlled calibrator. EPA Protocol one gases are diluted with zero air generated on site. The Mass Flow Controllers in the calibrator are referenced using an NIST traceable flow meter once per month. All listed flows are reported as corrected to Standard Temperature and Pressure (STP).

Generated zero gas is introduced to the analyzer first. Three concentrations of calibration gas are then generated in order to introduce points at approximately 50-80%, 25-40% & 10-20% of the analyzer's full-scale range. An auto zero and span are then performed to validate the daily zero and span values recorded to the next multi-point calibration.

All indicated concentrations are taken from the ESC data logger used to collect the data for monthly reporting.

Conformance of each calibration to Alberta Environment regulations is outlined in the individual calibration reports. The slope and correlation coefficient are derived from the calculated and indicated analyzer responses. The percent change is calculated using the previous calibration correction factor and the current correction factor before adjustment. The calibration conforms to the procedure outlined in the *Air Monitoring Directive, Appendix A-10, Section 1.6*.

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Continuous Ambient Monitoring – December 2013

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						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									
SO ₂ (PPB)	172	48	0	0	0.36	4	18, 30	VAR	VAR	VAR	1.6	18	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.9
NO ₂ (PPB)	159	-	0	-	8.21	32.1	26	12	0.8	49(NE)	15.8	22	100.0
NO (PPB)	-	-	-	-	1.64	66.4	20	10	0.5	89(E)	11.3	20	100.0
NOx (PPB)	-	-	-	-	9.84	95.8	20	10	0.5	89(E)	27.1	20	100.0
O ₃ (PPB)	82	-	0	-	21.66	40	15, 16	VAR	VAR	VAR	35.3	16	99.9
THC (PPM)	-	-	-	-	2.26	4.3	20	9	0.7	35(NE)	3.4	22	88.2
PM 2.5 (UG/M ³)	-	30	-	0	5.76	26	17	18	3	66(ENE)	11.7	1	90.3
TEMPERATURE (DEG C)	-	-	-	-	-18.92	4.4	15	13	19.2	278(W)	-3.3	16	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	73.29	93	1, 26	VAR	VAR	VAR	88.6	26	100.0
VECTOR WS (KPH)	-	-	-	-	5.23	26.3	15	15	-	286(WNW)	10.9	27	97.6
VECTOR WD (DEGREES)	-	-	-	-	324(NW)	-	-	-	-	-	-	-	97.6

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – December 2013

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#27	1.8	0.84
H ₂ S	#5	0.27	0.18
NO ₂	#28	8.9	3.8
O ₃	#4	32.1	25.1

General Monthly Summary

Equipment Operation

The following summary outlines the analyzer performance. Any non-conformances, problems or maintenance performed are detailed at the end of each section.

AQM STATION – LICA – COLD LAKE SOUTH

Sulphur Dioxide (PPB)

- Analyzer make / model – Thermo 43i, S/N: 806528242

No operational issues were observed during the month. Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. The monthly calibration was performed on December 12th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)

- Analyzer make / model –TEI 450i, S/N: 812728560
- Converter - CD NOVA CDN 101, S/N: 250

No operational issues were observed during the month. Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. The monthly calibration was performed on December 14th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Ozone (PPB)

- Analyzer make / model –Thermo 49i, S/N: 700419951

No operational issues were observed during the month. Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. The monthly calibration was performed on December 13th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – COLD LAKE SOUTH

Total Hydrocarbon (PPM)

- Analyzer make / model -TECO 51C-LT, S/N: 51CLT-77021-384

The analyzer failed on November 28th during hour 22nd. During the site visit on December 4th, it was found that the analyzer was unresponsive. The analyzer was replaced to another TECO51C analyzer. Time was allowed to stabilize, and then an installation calibration was performed. A total of 81 hours of data was invalidated due to this event. Another 3-point calibration was performed on December 13th to ensure the analyzer's functionality. The analyzer responded well. However, the analyzer kept spanning low after the replacement was installed. It was found that the valve for the zero/span system was not working properly: when running the daily span phase check, zero air leaked and diluted the span gas. An orifice was installed ahead of the zero port to improve the issue on December 19th. Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

- Analyzer make / model - TECO 42C, S/N: 427408716

Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. Some daily span results went above the +10% of the limited range. The analyzer passed the first span check point on December 12th, which indicated that the analyzer was working fine. The monthly calibration was performed on December 12th. The inlet filter was changed before the monthly calibration was started. The cell battery was changed and the pump in the ML calibrator for the span oven was rebuilt on December 19th. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

- Analyzer make / model –TEOM1405F, S/N: 1405A201620804

Two Teom audits were performed in December: one was on December 12th and the other was on December 19th. The Teom filter and the FDMS filter were replaced on December 12th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. Seventy-two hours of data were invalidated as the data were below –3 ug/m3.

General Monthly Summary

AQM STATION – LICA – COLD LAKE SOUTH

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3
- No operational issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3
- No operational issues were observed during the month.

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)

- System make / model –MetOne, S/N: F1644

The wind system is reported as vector wind speed and vector wind direction. The last wind system calibration was performed on December 18th, 2012.

Hourly data between hour 18 on December 3rd and hour 11 on December 4th were invalidated as the wind system was frozen. A total of 18 hours of data was invalidated.

Datalogger

- System make / model - ESC 8832, S/N: 263
- Software make / version - ESC v 5.51a

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.

Trailer

The glass manifold was cleaned on December 12th.

Passive Network

The samplers installed at site #2 had been removed, so no sample filters were installed.

No sample change out was done at site #11 as the access to the site was blocked by snow. SO2 Duplicate for site #19 and site #23 and O3 duplicate for site #19 are missing.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

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

STATUS FLAG CODES

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

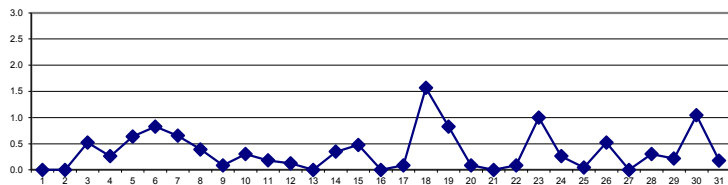
OBJECTIVE LIMIT:

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

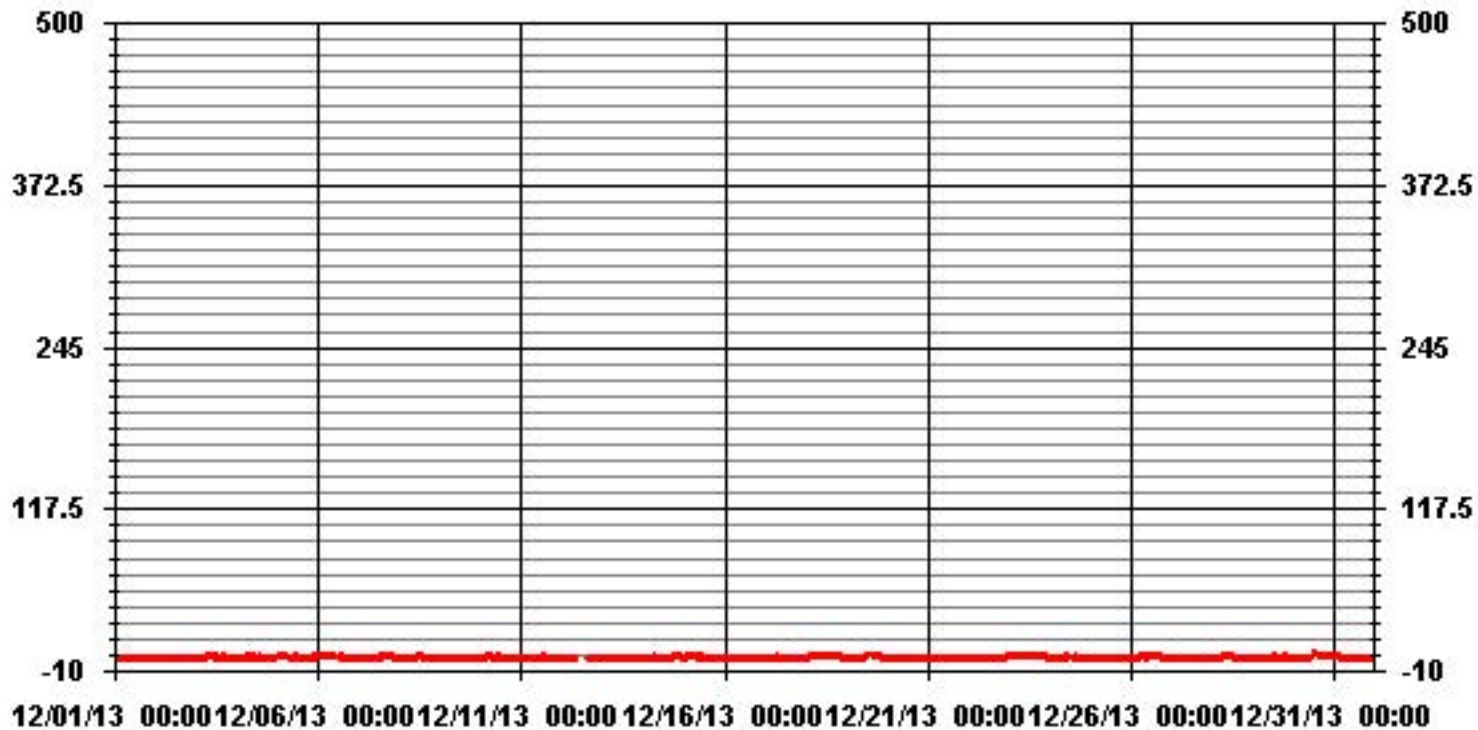
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	195
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) VAR ON DAY(S) 18, 30
MAXIMUM 24-HR AVERAGE:	1.6 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.67
MONTHLY AVERAGE:	0.36 PPB

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

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

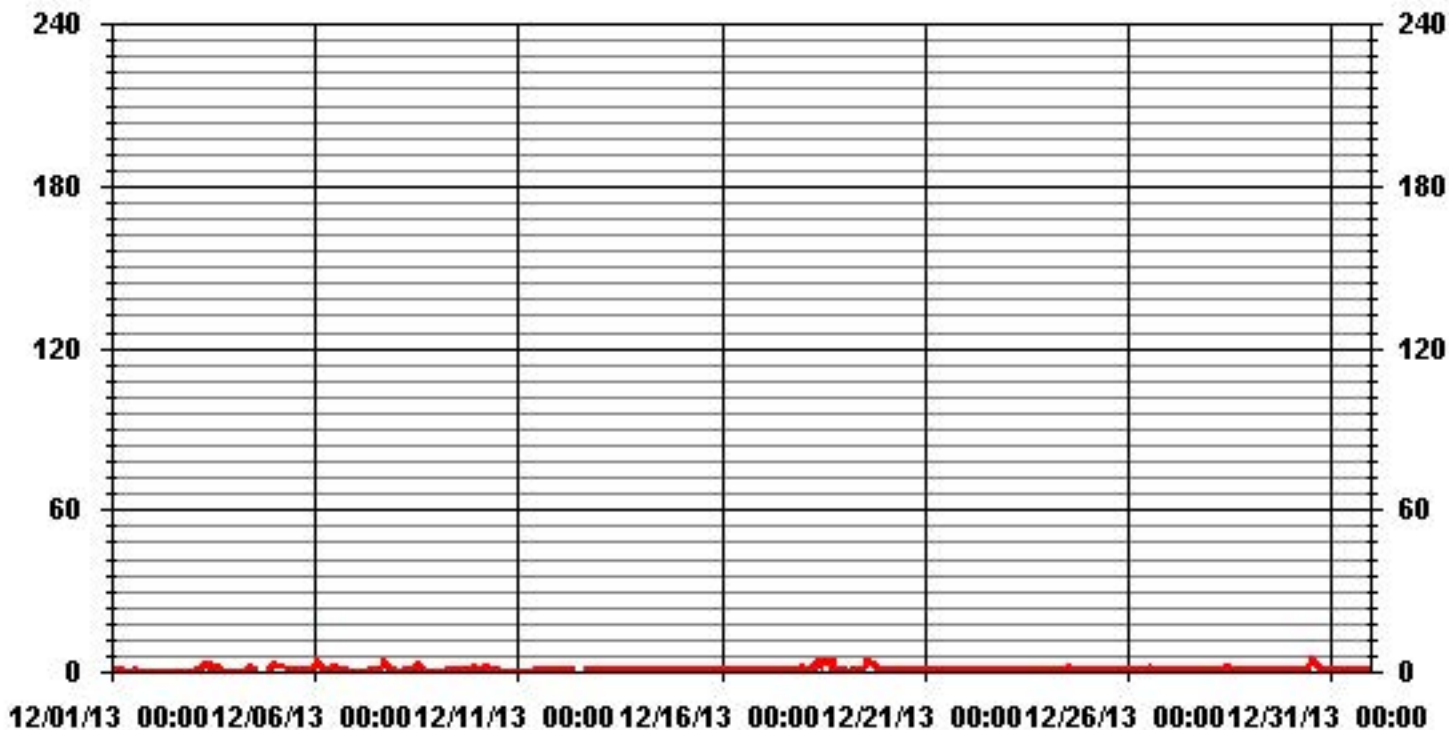
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	584					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	12, 13	ON DAY(S)	30
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.72					

01 Hour Averages



— LICA SO2MAX PPB

LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	3.05	3.05	6.11	5.24	8.58	6.25	10.48	1.89	1.89	1.01	4.07	13.68	14.70	8.58	7.56	3.78	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	3.05	3.05	6.11	5.24	8.58	6.25	10.48	1.89	1.89	1.01	4.07	13.68	14.70	8.58	7.56	3.78	

Calm : .00 %

Total # Operational Hours : 687

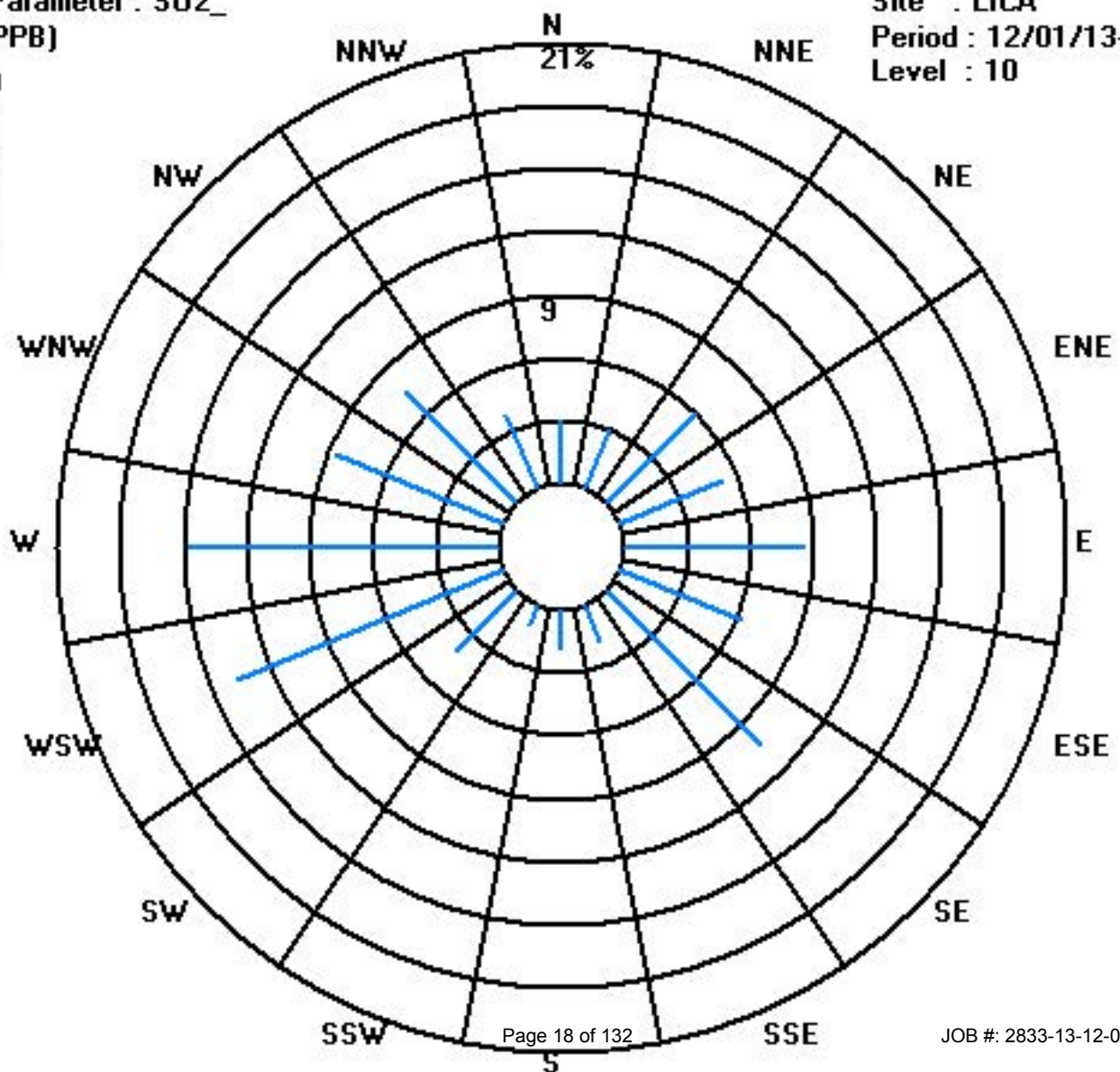
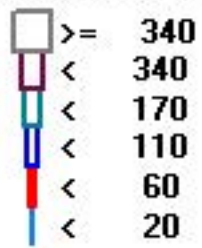
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	21	21	42	36	59	43	72	13	13	7	28	94	101	59	52	26	687
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	21	21	42	36	59	43	72	13	13	7	28	94	101	59	52	26	

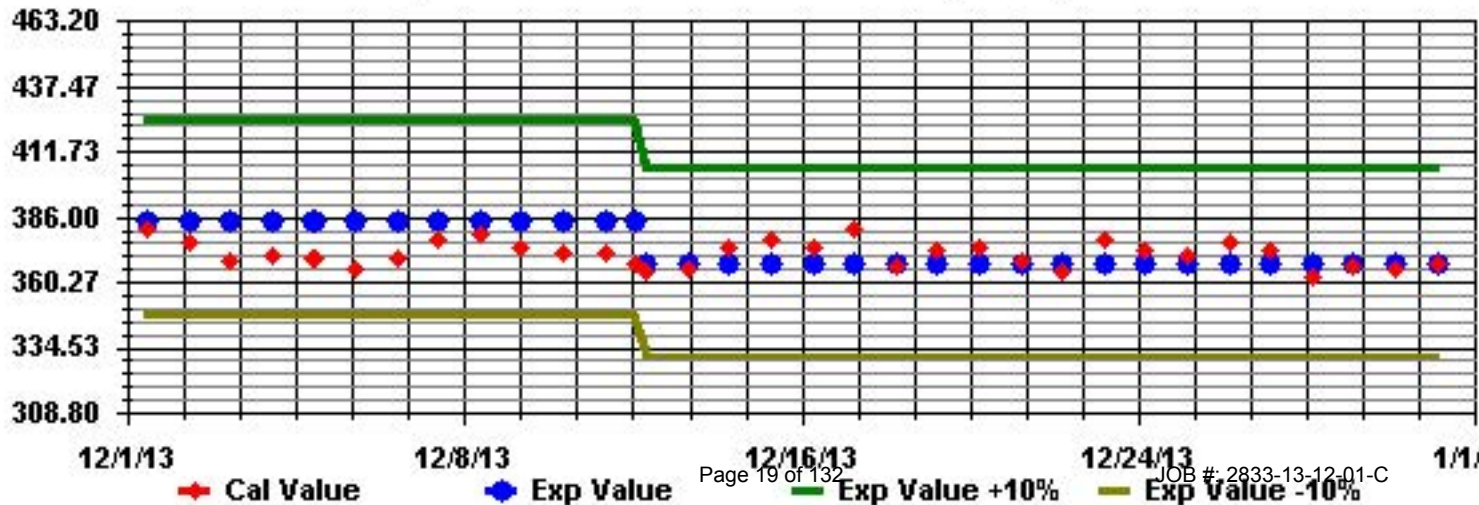
Calm : .00 %

Total # Operational Hours : 687

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

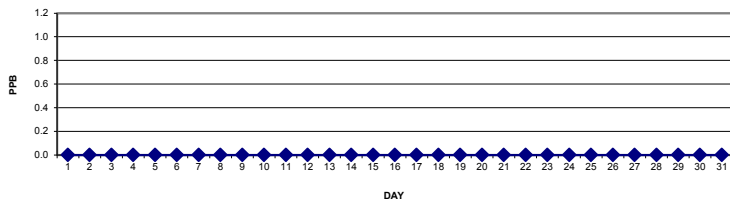
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR	RDGS.		
HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																												
1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23
6	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	S	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
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	
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	

STATUS FLAG CODES

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

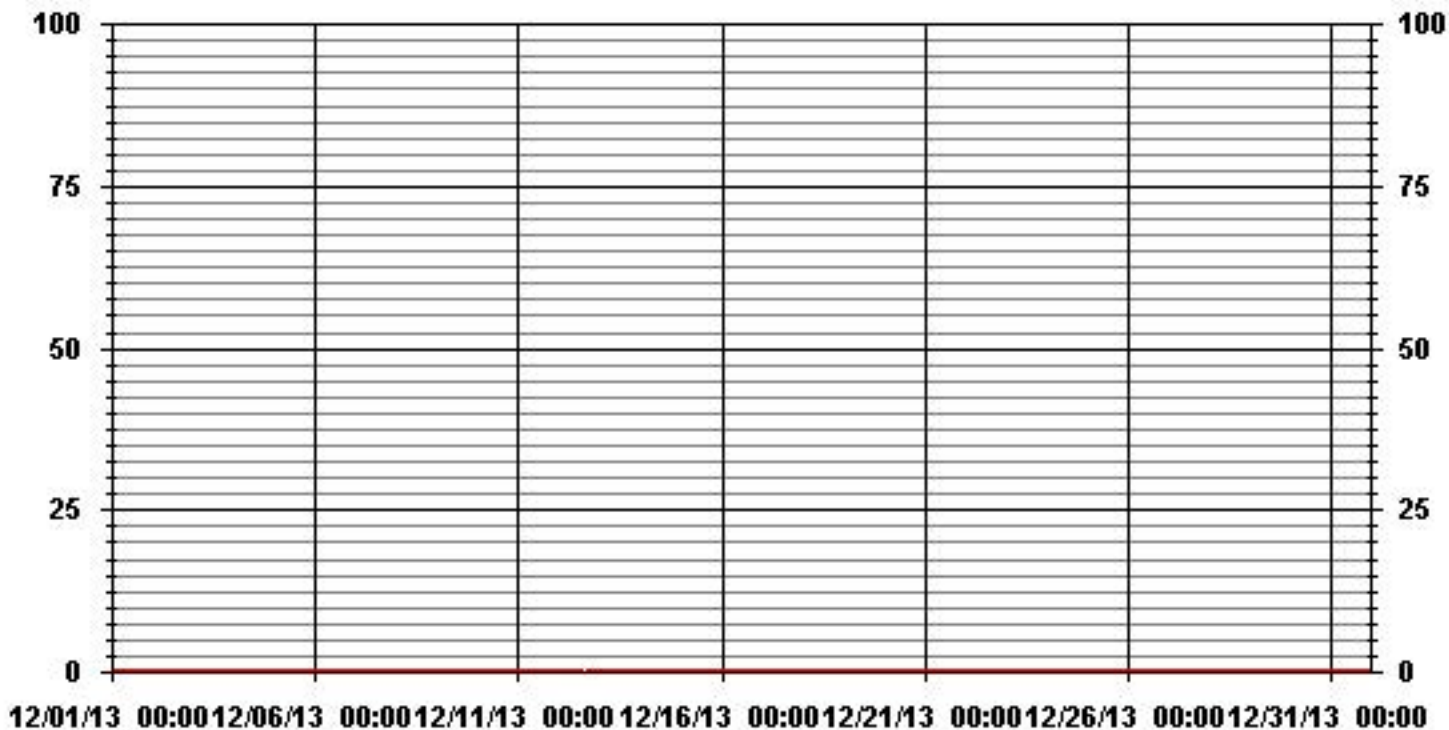
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	0
MAXIMUM 1-HR AVERAGE:	0 PPB @ HOUR(S) ALL ON DAY(S) ALL
MAXIMUM 24-HR AVERAGE:	0.0 PPB ON DAY(S) ALL
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.00
MONTHLY AVERAGE:	0.00 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR START		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
HOUR END		2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
2		1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
3		1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
4		1	1	1	1	1	1	1	S	1	1	1	1	1	1	Y	Y	Y	Y	Y	Y	Y	1	1	1	1	1	1.0	17
5		1	1	1	1	1	1	S	S	S	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	S	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	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
8		1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
9		1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
10		1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
11		S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1.0	24
12		1	1	1	1	1	1	1	1	1	S	1	1	1	C	C	C	C	C	C	1	1	1	1	S	1	1	1.0	24
13		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	S	0	1	1	0.9	24
14		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1.0	24
15		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1.0	24
16		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1.0	24
17		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1.0	24
18		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1.0	24
19		1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20		1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1.0	24
21		1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	0	0	1	1	1	1	0.9	24
22		0	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
23		1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
24		1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25		1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
26		1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
27		1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
28		1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1.0	24
29		1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
30		1	1	1	1	S	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31		1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1.0	24
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
HOURLY AVG		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0		

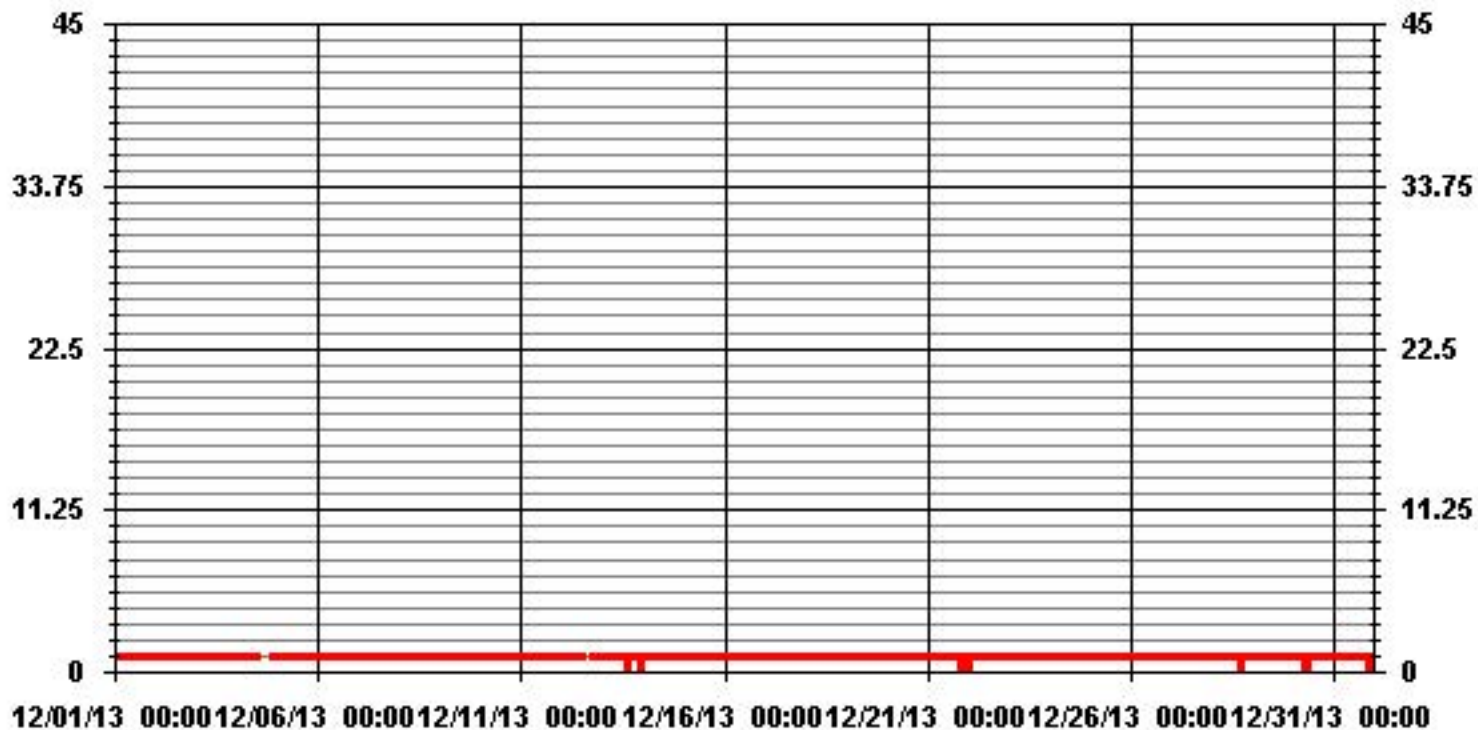
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689						
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	ALL	ON DAY(S)	ALL	
VAR - VARIOUS							
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	737			HRS
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.11						

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	3.04	3.04	6.09	5.22	8.70	6.38	10.44	1.88	1.88	1.01	4.06	13.64	14.65	8.56	7.54	3.77	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	3.04	3.04	6.09	5.22	8.70	6.38	10.44	1.88	1.88	1.01	4.06	13.64	14.65	8.56	7.54	3.77	

Calm : .00 %

Total # Operational Hours : 689

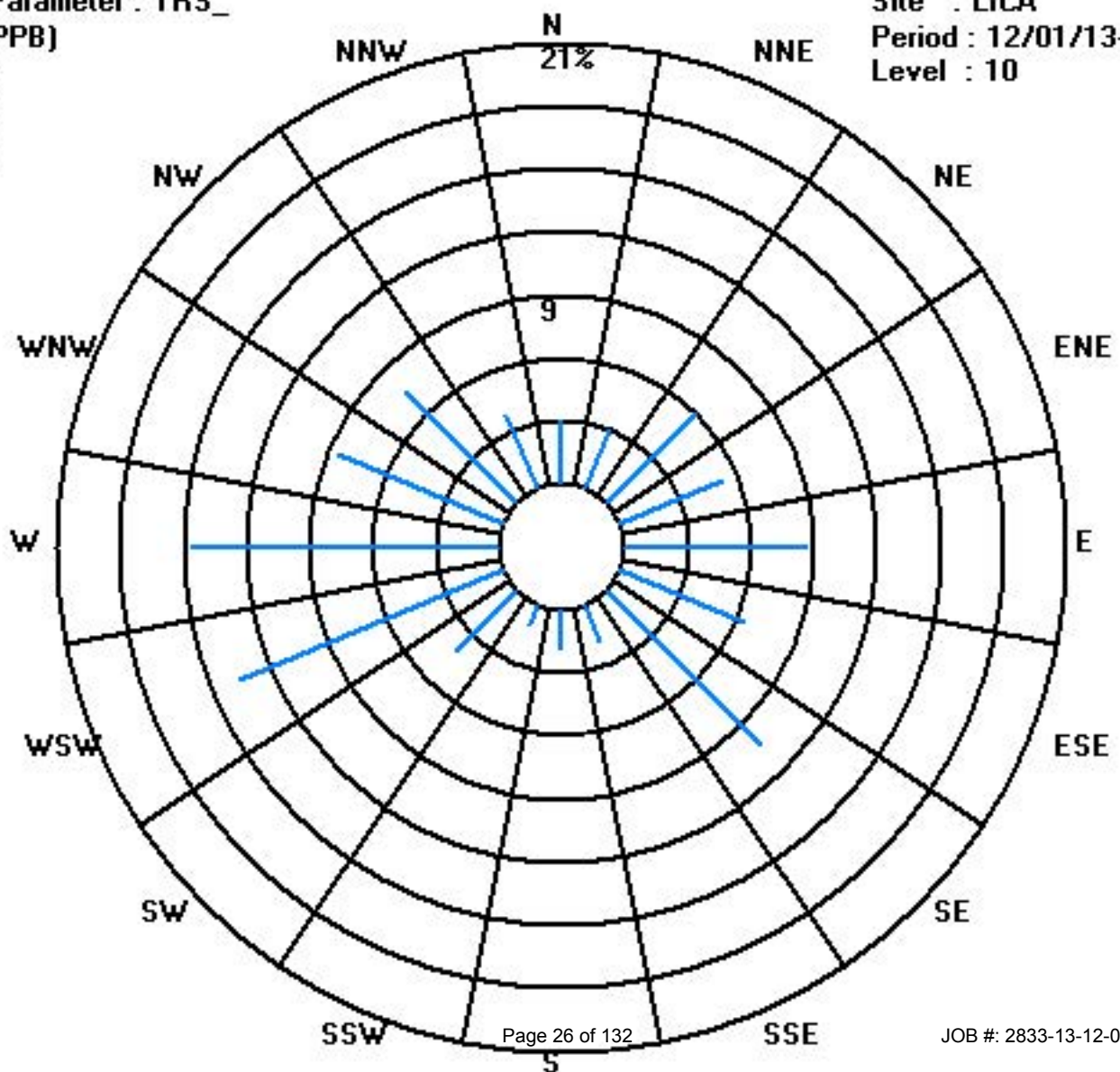
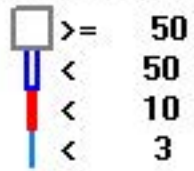
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	21	21	42	36	60	44	72	13	13	7	28	94	101	59	52	26	689
< 10																	
< 50																	
>= 50																	
Totals	21	21	42	36	60	44	72	13	13	7	28	94	101	59	52	26	

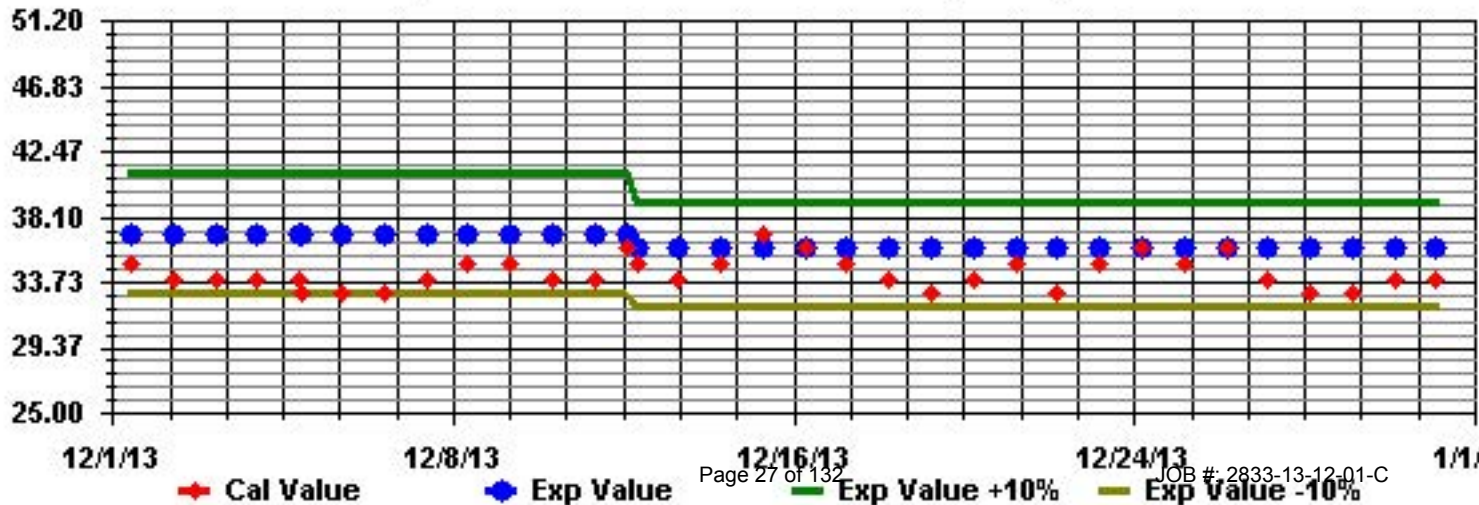
Calm : .00 %

Total # Operational Hours : 689

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

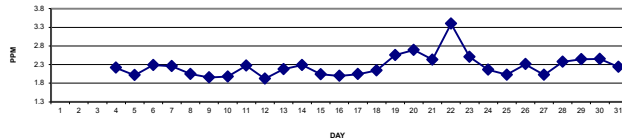
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
3		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
4		X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	C	C	C	2.2	2.4	2.2	2.1	2.2	2.2	2.2	2.4	2.2	10
5		2.1	2.1	2.1	2.1	2.2	2.2	S	S	2.1	S	2.2	2.1	2	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	2	2.2	2.0	
6		2.1	2.1	2.1	2.1	2.2	S	2.3	2.4	2.4	2.5	2.5	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.3	2.4	2.3	2.2	2.2	2	2.5	2.3	
7		2.2	2.2	2.3	2.3	S	2.3	2.4	2.4	2.4	2.4	2.6	2.7	2.5	2.1	2.1	2	2	2.1	2.2	2.3	2.2	2.1	2	2.7	2.3	24	
8		2	2	2	S	2.2	2.2	2.3	2.3	2.3	2.2	2	1.9	1.8	1.8	1.8	1.8	1.9	2	2.1	2.1	2	2.1	2.1	2.1	2.3	2.0	
9		2	2	S	2	2	2.3	2.4	2.3	2	2	1.9	1.9	1.9	1.8	2	1.9	1.9	1.8	1.7	1.8	1.9	1.8	1.8	1.8	2.4	2.0	
10		1.8	S	1.8	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.0	
11		S	2.2	2.2	2.2	2.2	2.5	2.5	2.3	2.4	2.3	2.4	2.8	2.6	2.4	2.3	2.4	2.5	2.4	1.9	1.9	1.9	1.8	1.8	S	2.8	2.3	
12		1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Y	Y	2.1	2	2.1	2.1	S	2.1	1.9	
13		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	C	2.1	2.2	2.2	2.2	2.2	2.2	2.3	S	2.3	2.5	2.5	2.2	
14		2.5	2.6	3	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.1	S	2.1	2.1	2.1	3.0	2.3	
15		2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.5	2.5	2.2	1.9	1.9	1.8	1.8	1.8	1.8	1.8	S	1.9	1.9	1.9	2	2.5	2.0	24	
16		1.9	2	2	2	2	2	2	1.9	2	2	1.9	1.9	1.9	1.9	1.9	2	2	S	2	2	2.1	2.2	2.2	2.2	2.0	24	
17		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	S	2	S	2	1.9	2	2	2.1	2.0	
18		1.9	2	2	2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	S	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.1	24	
19		2.4	2.5	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.4	S	2.3	S	S	S	2.5	2.4	2.4	2.5	2.7	2.6	
20		2.5	2.5	2.6	2.7	2.7	3	3.7	4.1	4	4.3	4	2.4	2.2	2.1	S	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	4.3	2.7	
21		2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.3	2.3	S	2.3	2.5	2.7	2.7	2.8	2.8	2.8	2.9	3	3.1	3.1	2.4	
22		3.2	3.3	3.5	3.7	3.7	3.9	3.9	4	4.1	4.1	4.2	4.1	S	2.8	2.7	2.8	2.9	3	3.1	3.1	3	3	2.9	3.1	4.2	3.4	
23		3.2	3	3	2.7	2.6	2.6	2.4	2.3	2.3	2.3	2.3	S	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.5	2.5	2.2	2.1	3.2	2.5	
24		2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.3	S	2.1	2.1	2	2.3	2.5	2.5	2.3	2.1	2	2	2	2.2	2.5	2.2	24	
25		2.1	2	2.1	2	2	2	2	2	2.1	2.1	S	2	2	2	1.9	1.9	2	2	2.1	2	2.1	2.1	2.1	2.1	2.1	2.0	
26		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	S	2.2	2.5	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.7	2.6	2.3	2	2.7	2.3	
27		1.9	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.0	24	
28		2.2	2.2	2.2	2.2	2.2	2.3	S	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.5	2.6	2.5	2.6	2.6	2.6	2.6	2.4	
29		2.7	2.7	2.7	2.7	2.7	S	2.8	2.8	2.7	2.4	2.4	2.5	2.4	2.4	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.8	2.4	
30		2.3	2.5	2.6	2.6	S	2.6	2.6	2.7	2.7	2.8	3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	3.0	2.5	
31		2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.2	24	
HOURLY MAX		3.2	3.3	3.5	3.7	3.7	3.9	3.9	4.1	4.1	4.3	4.2	4.1	2.6	2.8	2.7	2.8	2.9	3.0	3.1	3.1	3.0	3.0	3.1				
HOURLY AVG		2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2				

STATUS FLAG IZSODES

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

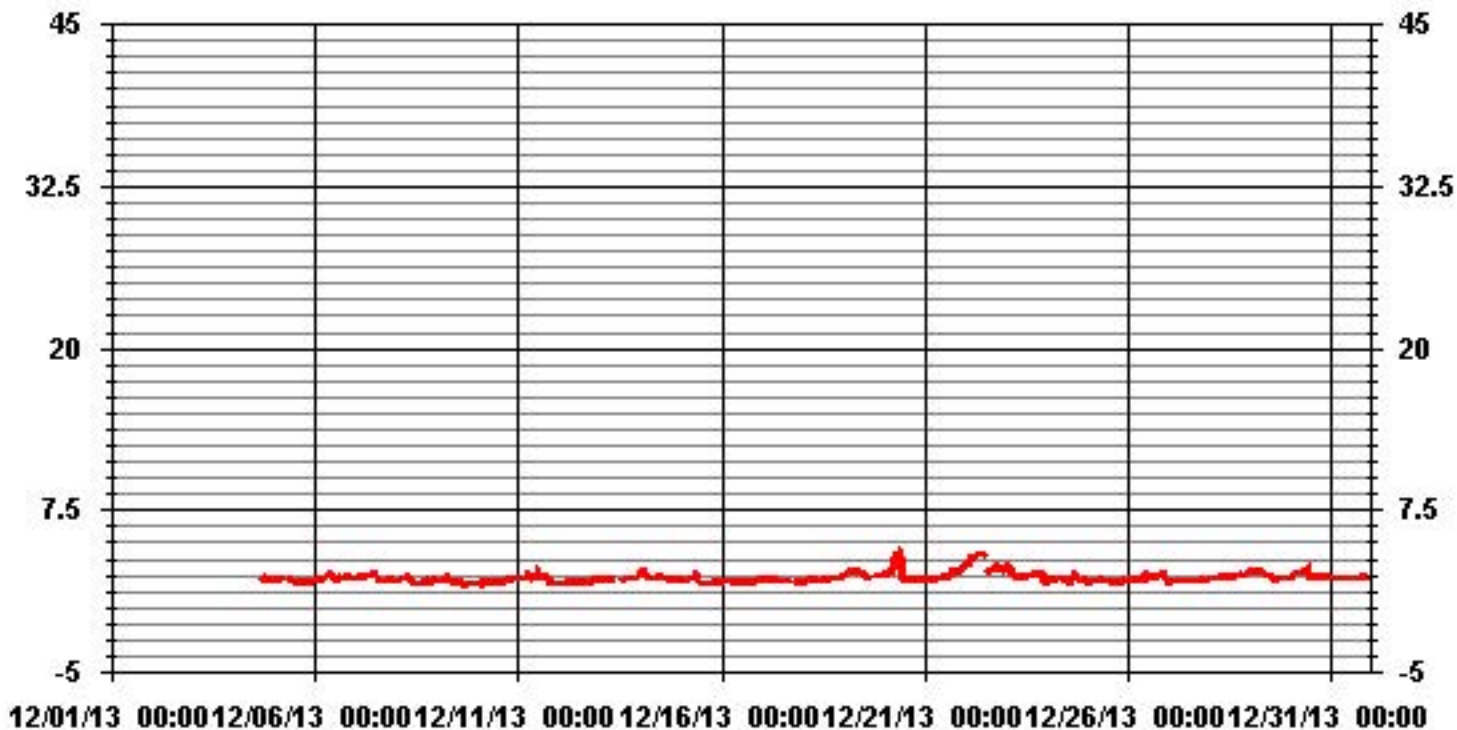
24 AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	613
MAXIMUM 1-HR AVERAGE:	4.3 PPM @ HOUR(S) 9 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	3.4 PPM ON DAY(S) 22
IZS CALIBRATION TIME:	35 HRS
MONTHLY CALIBRATION TIME:	0 HRS
OPERATIONAL TIME:	656 HRS
AMD OPERATION UPTIME:	88.2 %
STANDARD DEVIATION:	0.38
MONTHLY AVERAGE:	2.26 PPM

01 Hour Averages



— LICA THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST																																																		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR																								
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.																							
DAY																																																		
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		0																							
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		0																							
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		0																							
4	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C	C	C	C	2.1	1.9	2.2	2.2	2.2	2.3	2.3	2.3	2.3																						
5	2.2	2.3	2.1	2.2	2.3	2.3	S	S	S	S	2.4	2.4	2.1	2	1.9	1.9	2	2.1	2	2	2	2	2	2.1	2.4	2.1	24																							
6	2.2	2.1	2.1	2.1	2.3	S	2.4	2.5	2.5	2.6	2.7	2.5	2.3	2.4	2.5	2.4	2.8	2.5	2.5	2.3	2.5	2.4	2.2	2.3	2.8	2.4	24																							
7	2.3	2.3	2.4	2.4	S	2.4	2.4	2.4	3.1	2.5	2.7	2.7	2.3	2.2	2.2	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.1	3.1	2.4	2.4	24																							
8	2.1	2.1	2.1	S	2.3	2.3	2.4	2.5	2.4	2.3	2.1	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.5	2.1	24																							
9	2.1	2.1	S	2	2.2	2.4	2.5	2.5	2.3	2.2	2.8	2.1	2.2	2.2	2	2.1	1.9	1.8	1.9	2	1.9	1.8	1.8	1.8	2.8	2.1	24																							
10	1.9	S	1.9	1.9	2	2	2.1	2	2.1	2	1.9	1.9	2	1.9	2	2.7	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.7	2.1	24	24																							
11	S	2.5	2.3	2.3	2.3	2.9	2.7	2.5	2.6	2.5	2.7	3.1	3.1	2.5	2.4	2.5	2.5	2.8	2.3	3.1	2.1	1.9	1.9	S	3.1	2.5	24																							
12	1.9	1.9	1.9	1.9	1.9	1.9	2	2	S	S	2.1	2	1.9	2	2	Y	Y	2.3	2.1	2.1	2.1	S	2.1	2.3	2.0	22	24																							
13	2.1	2.1	2.1	2.2	2.1	2.4	2.1	2.2	2.1	C	C	C	C	C	C	2.3	2.3	2.3	2.3	2.4	2.3	S	2.4	2.6	2.6	2.3	24																							
14	2.6	2.8	3.5	2.8	3.7	2.8	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.4	S	2.2	2.2	2.2	3.7	2.5	24																							
15	2.2	2.2	2.2	2.2	2.5	2.3	2.3	2.5	2.6	2.6	2.5	2	2.3	1.9	1.9	1.8	1.9	1.9	S	1.9	1.9	2	2	2.6	2.2	2.4	24																							
16	2	2	2	2	2	2	2.1	2	2.1	2.1	2.1	2	1.9	2	1.9	2	2.3	2	S	2	2.2	2.2	2.2	2.3	2.3	2.1	24																							
17	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.5	2	2	S	S	S	2	2	2	2	2.5	2.1	24																							
18	2	2	2	2	2.1	2.1	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	S	2.4	2.3	2.3	2.3	2.3	4.1	2.4	4.1	2.3	24																							
19	2.5	2.5	2.7	2.7	2.7	2.7	2.8	2.8	3.6	3	2.7	2.6	2.6	2.6	2.8	S	2.4	S	S	S	S	2.5	2.5	2.5	3.6	2.7	24																							
20	2.6	2.6	2.7	2.7	2.8	3.4	4.8	4.5	4.4	4.6	4.2	3.6	2.2	2.6	S	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	4.8	2.9	24																							
21	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.3	2.3	2.5	S	2.4	2.7	2.8	2.9	2.9	2.9	3	3	3.1	3.2	3.2	2.5	24																							
22	3.3	3.5	3.7	3.9	3.8	4	4.1	4.2	4.2	4.3	4.3	4.5	S	3	2.8	3.3	3.2	3.2	3.3	3.6	3.1	3.2	3	3.3	4.5	3.6	24																							
23	3.4	3.1	3	2.9	2.7	2.7	2.4	2.4	2.4	2.3	2.5	S	2.4	2.4	3.9	2.6	2.8	2.7	2.7	2.7	2.6	2.5	2.4	2.2	3.9	2.7	24																							
24	2.1	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.5	2.5	S	2.2	2.1	2.7	2.2	3	2.7	2.6	2.4	2.3	2.1	2.1	2.1	2.3	3	2.3	24																							
25	2.3	2.1	2.1	2.1	2	2	2.1	2.1	2.2	S	2.1	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.1	24																							
26	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	S	2.5	2.6	2.7	3.2	2.4	2.4	3	4.2	2.5	2.5	2.7	2.8	2.7	2.5	2.2	4.2	2.5	24																							
27	2	2	2	2	2	2.1	2	S	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	24																							
28	2.2	2.2	2.3	2.3	2.3	2.3	S	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.7	2.7	3.6	2.7	2.6	2.6	2.6	2.6	2.7	3.6	2.5	24																							
29	2.7	2.9	2.8	2.8	2.9	S	2.8	2.9	2.8	2.6	2.5	2.6	2.5	2.4	3	2.5	2.3	2.3	2.3	2.2	2.3	2.3	2.3	3	2.6	2.4	24																							
30	2.5	2.8	2.8	2.7	S	2.7	2.7	2.7	2.8	3	7.2	2.6	2.3	2.3	2.4	2.4	3.1	2.4	2.4	2.4	2.4	2.4	2.4	2.3	7.2	2.8	24																							
31	2.3	2.3	2.3	S	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.3	2.5	2.3	2.4	2.3	2.4	2.3	2.4	2.4	2.4	2.5	2.3	24																							
HOURLY MAX	3	4	4	4	4	4	5	5	4	5	7	5	3	3	4	3	4	4	4	3	4	3	3	4	3																									
HOURLY AVG	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.3	2.3	2.4	2.3																										

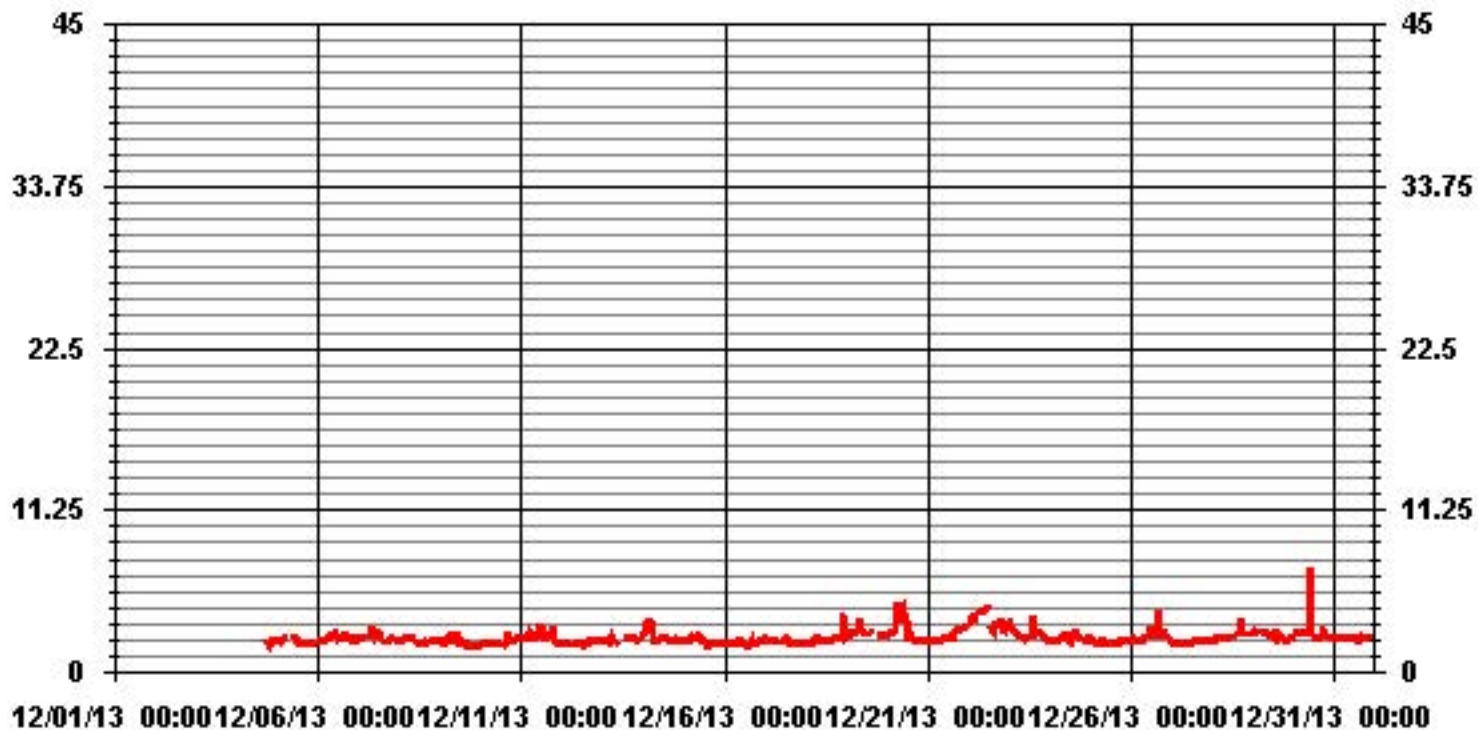
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	607					
MAXIMUM INSTANTANEOUS VALUE:	7.2	PPM	@ HOUR(S)	10	ON DAY(S)	30
S CALIBRATION TIME:	39	HRS	OPERATIONAL TIME:	656	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	0.50					

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.93	2.77	5.05	4.24	7.34	6.03	9.46	1.63	1.79	1.14	4.07	14.51	15.82	8.64	6.68	2.77	94.94
< 10.0	.00	.00	.32	.00	.48	.16	.81	.48	.32	.00	.48	.32	.48	.81	.00	.32	5.05
< 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	2.93	2.77	5.38	4.24	7.83	6.19	10.27	2.12	2.12	1.14	4.56	14.84	16.31	9.46	6.68	3.09	

Calm : .00 %

Total # Operational Hours : 613

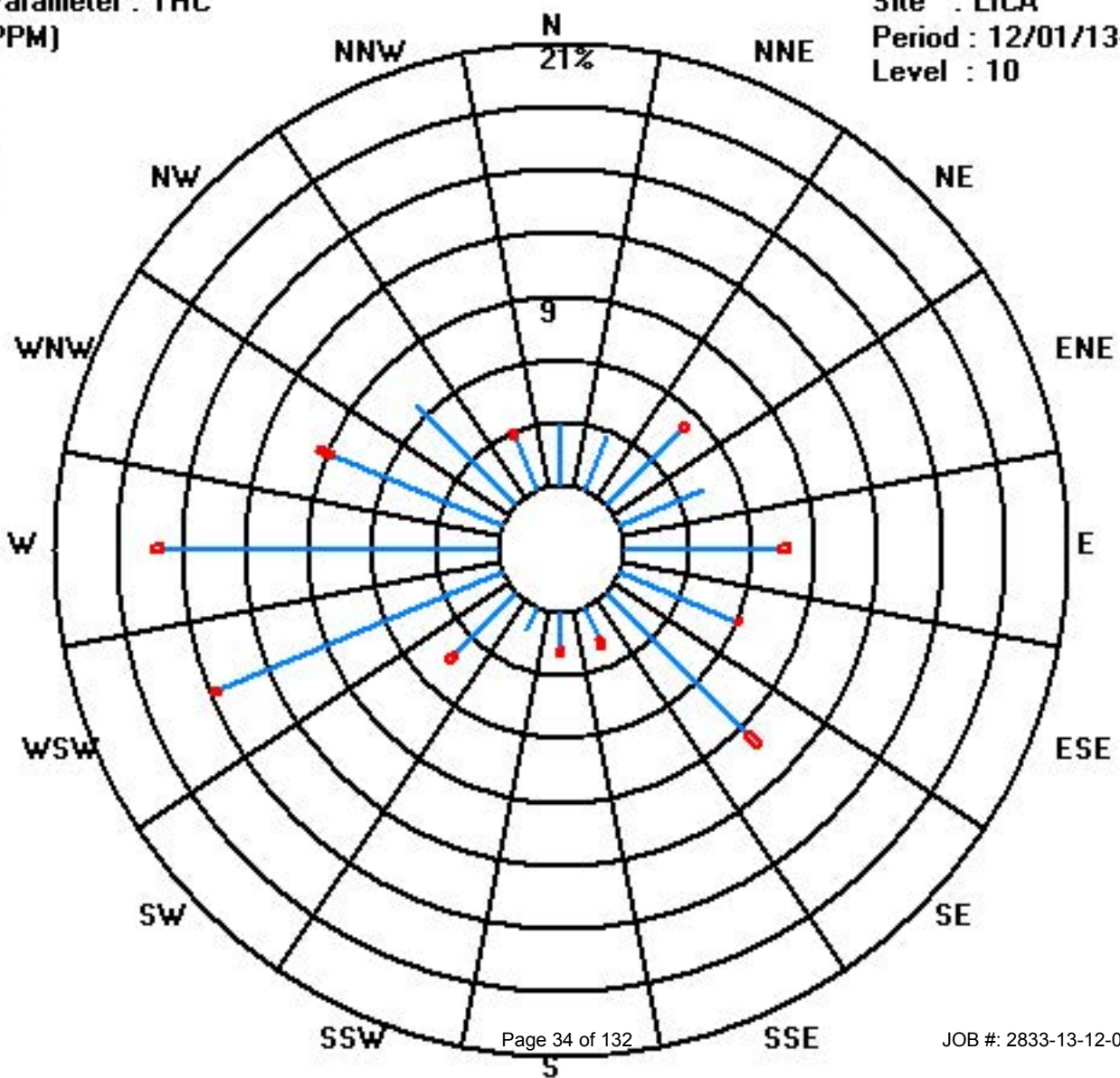
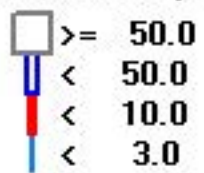
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	17	31	26	45	37	58	10	11	7	25	89	97	53	41	17	582
< 10.0			2		3	1	5	3	2		3	2	3	5		2	31
< 50.0																	
>= 50.0																	
Totals	18	17	33	26	48	38	63	13	13	7	28	91	100	58	41	19	

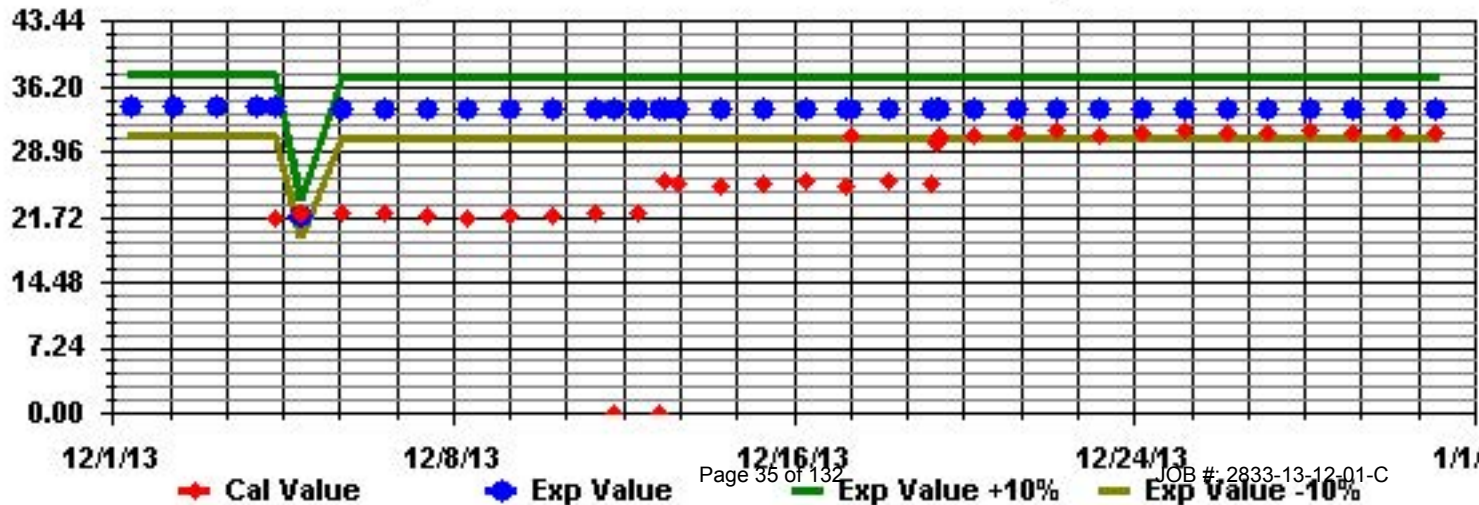
Calm : .00 %

Total # Operational Hours : 613

Class Limits (PPM)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		12	7	9	9	7	12	9	9	14	12	23	12	10	9	19	17	20	21	10	10	9	9	7	5	23	11.7	24
2		14	4	1	X	2	0	2	X	11	5	9	X	6	0	1	4	0	2	2	2	0	7	3	3	14	3.7	21
3		2	0	5	0	0	1	9	6	6	6	4	4	1	5	2	3	1	8	1	1	2	X	X	2	9	3.1	22
4		10	1	2	4	0	2	0	2	0	5	7	0	X	X	2	X	X	X	5	11	4	X	4	4	11	3.5	18
5		0	0	12	13	0	3	12	3	7	15	9	6	1	1	1	8	9	0	3	11	0	6	4	6	15	5.4	24
6		13	9	9	7	6	4	4	4	9	6	2	3	5	11	1	0	0	4	3	11	2	7	8	8	13	5.7	24
7		10	5	11	10	10	5	10	6	7	13	8	13	13	13	24	15	15	14	11	20	15	10	9	7	24	11.4	24
8		9	0	8	6	13	0	11	0	7	3	3	0	7	1	3	X	16	7	7	4	12	0	3	0	16	5.2	23
9		1	X	13	1	8	1	6	11	7	11	12	X	2	2	12	X	9	X	X	X	X	X	0	X	13	6.4	15
10		7	1	5	X	3	1	3	3	6	X	0	1	0	4	0	8	X	0	15	X	6	5	0	0	15	3.4	20
11		8	0	6	8	0	5	3	6	7	4	8	13	17	3	0	13	14	11	2	2	5	6	0	X	17	6.1	23
12		9	12	7	0	12	12	5	3	11	13	0	X	6	7	2	2	C	C	0	13	5	X	3	X	13	6.4	21
13		X	12	1	8	7	9	3	X	7	5	18	X	5	X	2	0	11	9	X	5	5	0	4	7	18	6.2	19
14		0	13	3	12	6	6	7	1	0	0	1	6	1	0	3	6	2	6	1	5	2	6	3	X	13	3.9	23
15		2	0	1	0	2	4	9	8	5	8	X	8	6	2	2	X	0	X	0	0	X	0	X	6	9	3.3	19
16		0	X	0	1	0	1	1	0	5	X	X	2	0	0	1	0	X	0	3	0	0	2	1	1	5	0.9	20
17		3	1	9	2	3	14	7	7	8	X	X	X	1	11	14	X	9	0	26	3	5	0	0	3	26	6.3	20
18		2	7	2	X	X	0	2	0	10	2	4	1	10	11	6	12	8	0	5	6	1	0	8	5	12	4.6	22
19		9	0	8	0	11	0	4	1	8	X	2	2	11	8	1	0	8	C	C	C	5	15	13	12	15	5.9	23
20		13	16	11	16	14	14	15	18	14	10	21	9	0	X	3	4	7	9	2	1	4	1	5	9	21	9.4	23
21		8	4	4	1	4	4	12	7	3	4	1	1	0	6	10	3	9	8	7	2	6	7	7	5	12	5.1	24
22		10	5	6	7	8	3	5	2	8	0	8	9	15	11	7	6	11	8	9	14	9	2	5	4	15	7.2	24
23		8	2	6	1	0	4	X	X	6	0	1	0	14	0	7	7	10	6	10	14	11	6	10	3	14	5.7	22
24		5	1	0	2	1	5	1	2	6	0	X	0	14	1	10	0	12	X	X	18	0	0	X	X	18	4.1	19
25		2	0	5	X	0	0	1	3	2	4	1	3	8	1	6	X	X	X	8	4	6	7	5	0	8	3.3	20
26		5	0	1	4	0	4	6	0	5	8	14	14	15	14	8	12	X	5	1	0	2	9	0	0	15	5.5	23
27		X	0	7	2	8	0	X	1	1	10	4	0	8	X	X	3	0	0	0	X	X	3	6	8	10	3.4	18
28		5	X	8	5	9	2	4	5	5	11	6	15	1	9	5	0	18	1	2	8	8	7	11	9	18	6.7	23
29		6	5	6	8	11	13	4	8	10	5	10	7	8	5	7	6	5	0	9	13	2	7	2	X	13	6.8	23
30		1	7	5	10	5	5	5	5	0	8	13	17	10	9	10	13	6	21	12	12	12	13	6	6	21	8.8	24
31		0	9	0	11	6	7	6	9	0	7	1	9	0	11	2	8	5	8	5	9	2	11	2	8	11	5.7	24
HOURLY MAX		14	16	13	16	14	14	15	18	14	15	23	17	17	14	24	17	20	21	26	20	15	15	13	12			
HOURLY AVG		6.0	4.3	5.5	5.5	5.2	4.5	5.7	4.6	6.3	6.5	7.0	6.0	6.5	5.7	5.7	6.0	8.2	6.2	5.9	7.4	5.0	5.4	4.6	4.8			

STATUS FLAG CODES

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

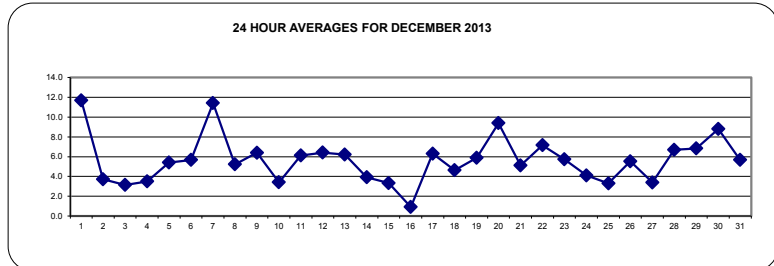
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

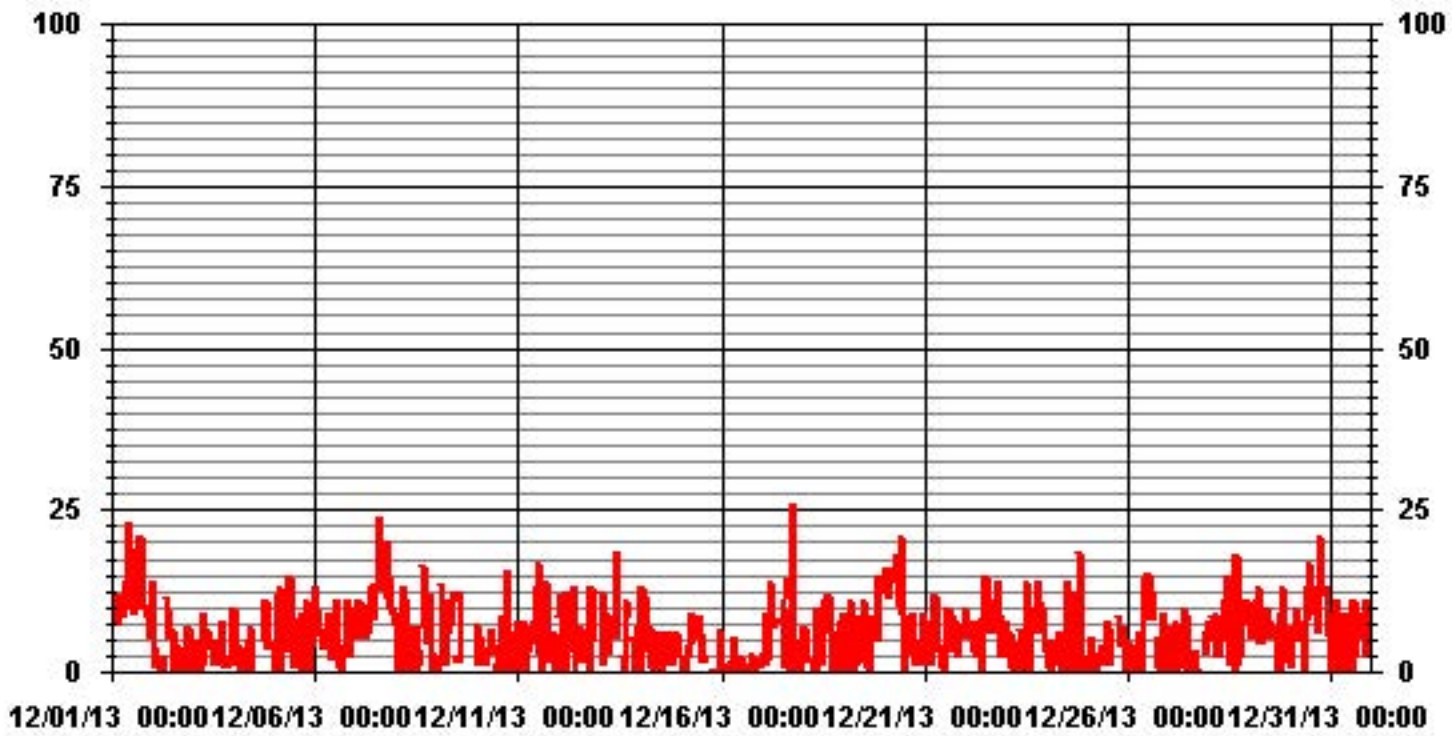
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	560
MAXIMUM 1-HR AVERAGE:	26 UG/M ³ @ HOUR(S) 18 ON DAY(S) 17
MAXIMUM 24-HR AVERAGE:	11.7 UG/M ³ ON DAY(S) 1
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	4.81
OPERATIONAL TIME:	672 HRS
AMD OPERATION UPTIME:	90.3 %
MONTHLY AVERAGE:	5.76 UG/M ³

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA PM2 UG/M3

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	3.07	2.91	6.14	5.52	8.44	6.91	9.98	1.99	1.99	1.07	4.45	13.82	13.97	8.75	7.37	3.53	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	3.07	2.91	6.14	5.52	8.44	6.91	9.98	1.99	1.99	1.07	4.45	13.82	13.97	8.75	7.37	3.53	

Calm : .00 %

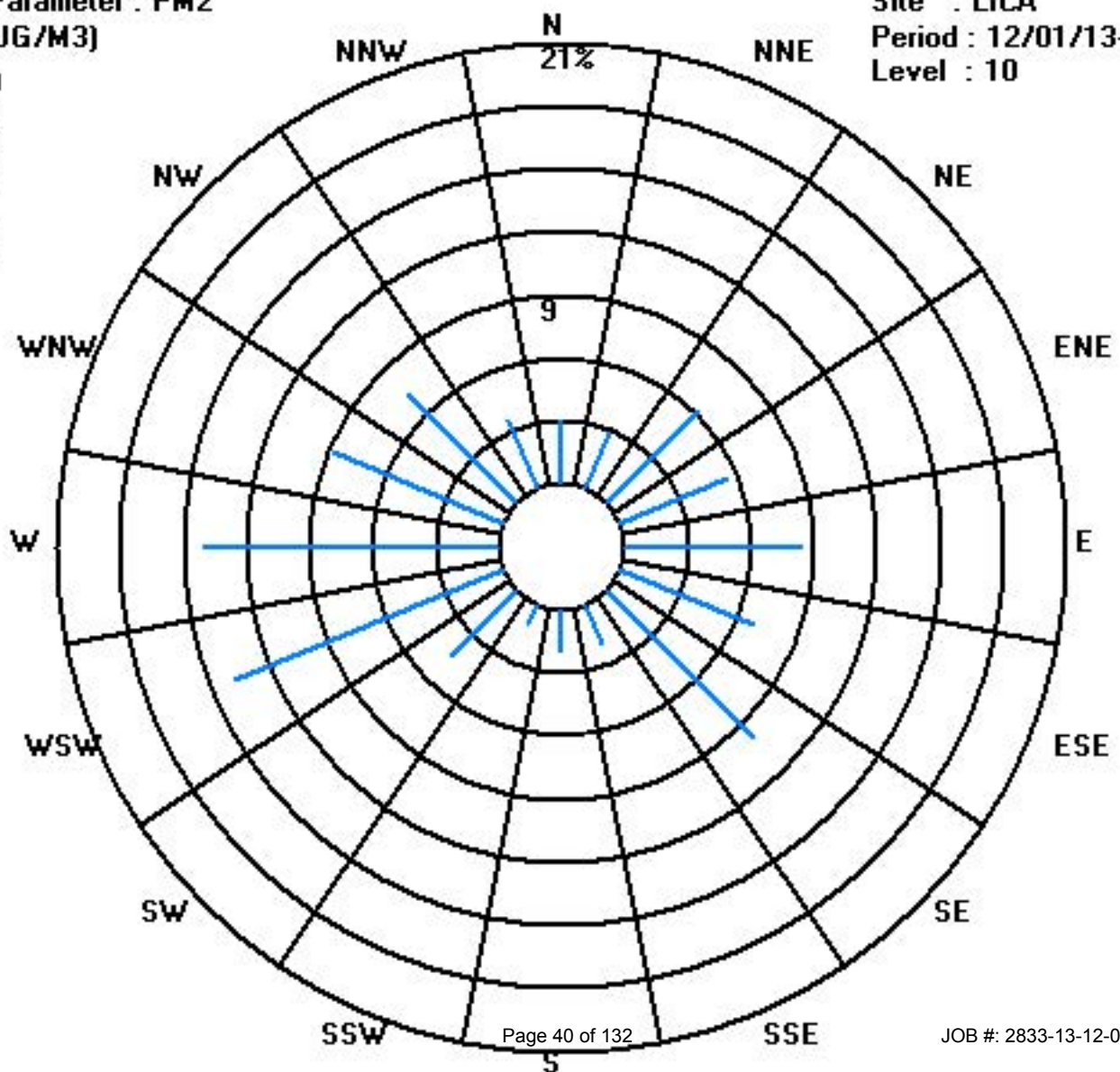
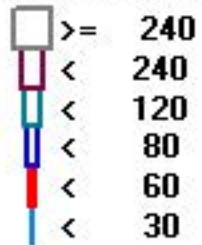
Total # Operational Hours : 651

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	20	19	40	36	55	45	65	13	13	7	29	90	91	57	48	23	651
< 60																	
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	20	19	40	36	55	45	65	13	13	7	29	90	91	57	48	23	

Calm : .00 %

Total # Operational Hours : 651



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																											
1	10	8.7	8.3	8.1	9.9	10.1	9.7	9.4	9.2	10.6	S	11.7	10.3	9.6	10.3	10.4	9.8	10.6	10.1	9.4	9.3	9	9	9.1	11.7	9.7	24
2	8.9	8.2	7.3	8.3	8.5	9.4	9.7	9.7	9.4	S	9.6	8.5	7.8	7.7	7.7	8.2	7.8	7.7	7.8	7.6	7.8	8	7.2	6.9	9.7	8.2	24
3	6.9	7.4	9.1	9.7	9	8.5	9.2	9.3	S	10.3	9.1	8.6	8.1	8.4	7.3	9.4	8.4	9.9	16.3	19.2	17.8	16.3	16.4	14.3	19.2	10.8	24
4	18.7	17.6	14.8	12.9	12.8	11.5	11.9	S	16.2	13.9	7	4.2	4.3	4.6	5.6	7	8.4	8.3	8.8	14.8	12.5	10.7	12.1	10.2	18.7	10.8	24
5	7.7	8.3	7.7	8.2	8	9.4	S	S	9.7	9.3	10.4	10.1	9.9	5.5	4.6	3.3	3.9	4.4	4.8	4.5	4.5	4.8	5.5	5.4	10.4	6.8	24
6	6.3	8.9	12.3	14.8	12.1	S	17.8	17.7	17.1	15.1	13.9	12.5	12.1	11.7	11.8	14.1	10.4	11.5	12.3	11.5	11.5	10.4	10.6	9.8	17.8	12.4	24
7	8	8.2	9	7.6	S	6.1	7.7	7.9	10.1	10.8	12.1	13	12.2	11	10.6	11.2	12.4	13.1	15.4	16.3	18.5	14.2	10.3	8.3	18.5	11.0	24
8	7.6	8.2	6.8	S	7.9	9.6	10.2	12.7	13.7	13.7	8.8	5.3	4.3	4	2.2	3	5.9	7	8.8	8.3	7.6	7.7	8.7	8.8	13.7	7.9	24
9	6.4	6.3	S	6.1	8	11.2	14.3	13.5	16.8	16.5	18.2	12.7	6.6	6	7.8	8.9	6	2.3	2.9	5.6	4.3	4.2	3.4	2.8	18.2	8.3	24
10	2	S	1.2	2.2	4.1	4	3.3	6.5	4.7	3.3	5.3	4.2	2.6	2.4	2.1	6.3	9.6	11.5	11.2	13.2	16	12.6	12.6	13.9	16	6.7	24
11	S	15.7	15.4	16.8	18	20.9	23	18	11.1	9.1	14.6	18.3	15.6	16.1	18.9	22.1	26.1	21.3	14.5	8.8	7.7	6.1	4.9	S	26.1	15.6	24
12	3.4	3.8	3.9	4.1	4.2	5.6	6.4	7.2	6	C	C	C	C	C	C	C	C	C	C	3.8	3.3	3.6	S	3	7.2	4.5	24
13	2	1.5	2	1.3	1.4	2.6	3	3	3.6	5.1	5.3	4.1	3.7	3.5	3.9	7	5.8	6.4	11.4	8.9	8.8	S	6.5	7.8	11.4	4.7	24
14	7.6	9.1	11.4	6.9	3.8	3.5	4	2.9	2.7	2.8	4.7	2.8	2.9	2.9	2.8	2.6	2.3	1.7	2	2	S	2.1	2.6	3.1	11.4	3.9	24
15	3	2.6	2.9	3.5	3.9	4.3	4.3	4.9	14.8	11.7	10.3	3.7	2.9	1.9	0.8	0.9	0.9	0.8	0.8	S	1.5	2.5	2.6	2.3	14.8	3.8	24
16	2	5	4.2	3.7	3.3	3.9	4.1	2.9	6.1	5	2.7	2.1	1.3	0.9	1	0.9	1.2	1.8	S	1.5	4.3	6	5.6	6.3	6.3	3.3	24
17	9.1	7.4	10.7	7.1	8.2	9.3	9.1	7.4	7.6	5.8	4.7	5.8	5.3	3	4.1	4.8	4.5	S	9.1	8.5	7.3	2.8	1.7	1.3	10.7	6.3	24
18	1.7	1.2	1.5	1.3	1.6	2.1	3.3	6.4	8	8.8	4.7	5.6	3.2	3.9	5.9	8.4	S	6.5	3.5	3.4	2.9	3.4	5.4	5.4	8.8	4.3	24
19	6.8	6.9	8.3	8.4	7.2	7	9.3	16.7	18.2	18	11.3	5.9	6	8.3	13.3	S	13.9	18.9	23	S	21.1	21.1	21.1	21.6	23	12.9	24
20	21.9	21.1	21.5	26.7	24.3	23.3	23.8	24.3	25.2	24	29.4	13	6.5	5.9	S	9	10.3	9	8.4	7.9	8.3	8.2	5.6	6.3	29.4	15.8	24
21	7.3	7.1	6.9	5.8	6	4.5	5.9	9.5	5.4	2.4	2.7	2.9	3	S	5.4	7.2	9.6	13.8	17.6	12.8	14.6	11.5	14.2	15.5	17.6	8.3	24
22	15.6	16.2	18	19.4	19.3	19.8	20	20.2	19.6	17.2	15.5	12.7	S	6.8	7.2	13.4	17.1	20.2	20.4	20.1	15	12.5	8.6	8.2	20.4	15.8	24
23	8.3	7.4	7.5	5.8	5.1	4.3	3.5	3.7	3.6	3.1	2.9	S	3.3	4.2	4.5	6.5	15.7	15.6	12.2	12.6	13.1	10.6	6.7	4.5	15.7	7.2	24
24	4.6	6.7	3.3	4	5.2	4.3	4	6.3	13	15.4	S	7.4	6.9	6.9	5.7	7.8	8.6	7.7	6.9	4.8	2	2.1	2.4	3.7	15.4	6.1	24
25	3.5	2.2	2.7	1.5	1.1	1.6	3.6	6.6	7.5	S	1.6	1.1	1.4	1.2	1.2	1.1	1.2	1.6	3.5	2.3	3	5.5	6.4	4.7	7.5	2.9	24
26	4.7	4.5	4.3	3.5	2.9	4.8	5.3	5.3	S	10	23.4	30.9	32.1	28.5	22.4	18.6	5	6.3	6.7	6.3	9.1	8.7	5.5	2.9	32.1	10.9	24
27	1.2	0.8	0	0.1	0	0.2	0.4	S	1.4	1.4	1	1.4	1.3	1.6	1.5	1.3	1.2	1.2	0.9	1.1	0.8	0.8	0.9	1.3	1.6	0.9	24
28	0.9	0.6	0.5	0.8	0.9	1.3	S	1.7	2.3	3.6	3.2	3.4	3.3	2.7	4.7	6.1	9.1	11.6	10.8	10.5	8.7	8.5	8.4	9	11.6	4.9	24
29	7.9	8.2	11.4	14	16.5	S	19.4	21.6	21.4	9.6	6.6	6.4	6.9	5.8	4.7	6	6.1	5.8	5.6	6.7	4.8	3.8	3.3	3.1	21.6	8.9	24
30	4.1	4.6	5.2	6	S	11	15	15.8	17.3	18.5	17.7	9.2	6	6	8.3	13.1	21	22.8	21.5	17.6	16.7	15	11.9	5.3	22.8	12.6	24
31	3.9	4.3	4.5	S	4.5	5.8	4.4	3.9	4.4	5.6	5.1	5.7	5.3	4.2	4.7	6	10.2	13	13	10.1	11	15.8	11.3	7.7	15.8	7.1	24
HOURLY MAX	21.9	21.1	21.5	26.7	24.3	23.3	23.8	24.3	25.2	24.0	29.4	30.9	32.1	28.5	22.4	22.1	26.1	22.8	23.0	20.1	18.5	21.1	21.1	21.6			
HOURLY AVG	6.7	7.3	7.4	7.5	7.5	7.6	9.2	9.8	10.6	10.0	9.4	8.0	6.7	6.4	6.6	7.7	8.7	9.4	10.0	9.0	8.7	8.3	7.7	7.1			

STATUS FLAG CODES

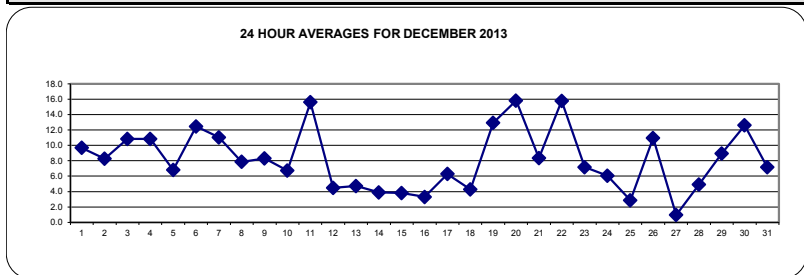
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

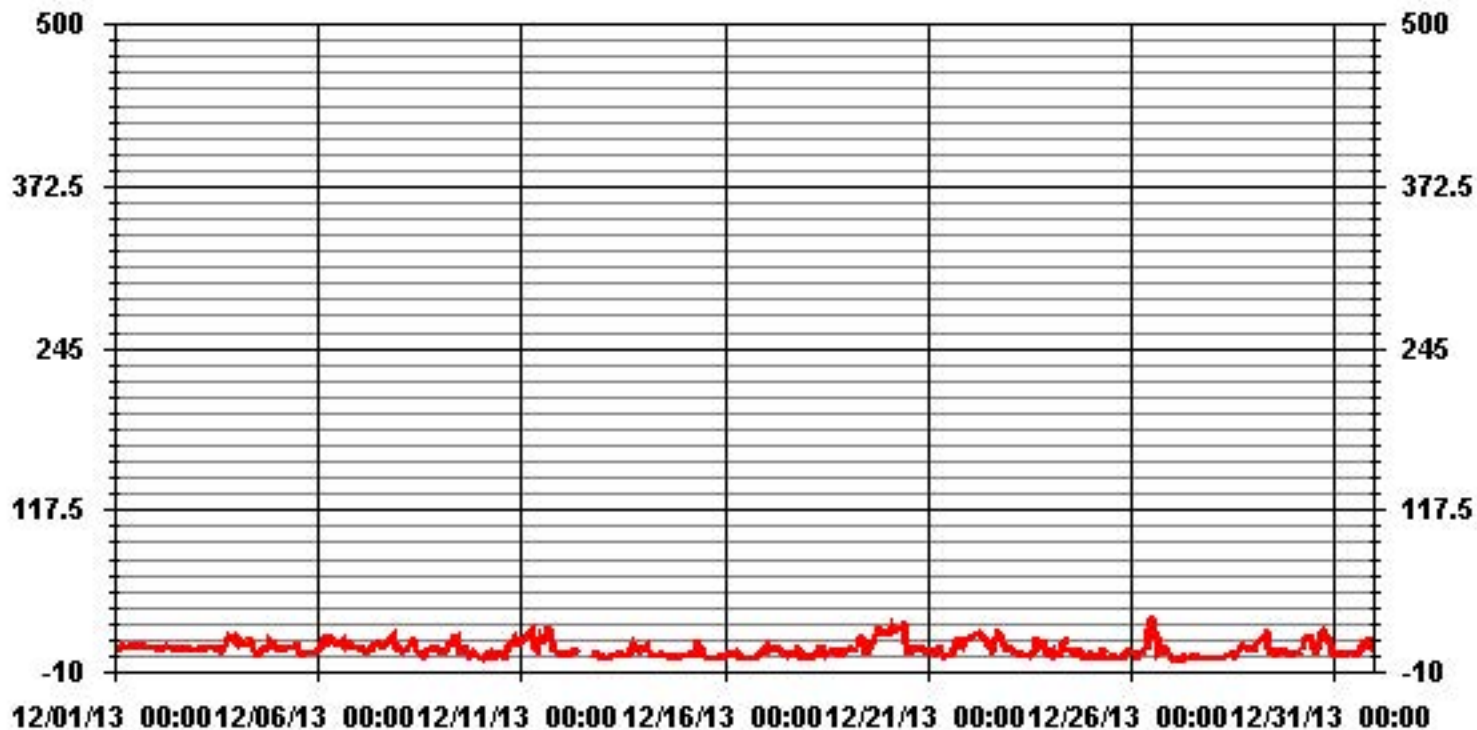
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM 1-HR AVERAGE:	32.1	PPB	@ HOUR(S)	12	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	15.8	PPB			ON DAY(S)	22
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.70		MONTHLY AVERAGE:	8.21	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	11.0	9.5	9.0	9.0	11.5	12.0	10.5	10.0	10.0	12.4	S	12.5	11.6	10.6	11.5	11.1	10.6	13.0	11.1	10.1	10.1	10.1	9.6	10.6	13.0	10.8	24	
2	9.6	9.1	8.1	9.1	9.6	10.6	11.0	10.6	10.5	S	11.2	9.3	9.2	8.7	8.7	9.2	8.7	8.8	8.2	8.7	8.8	7.8	7.7	11.2	9.2	24		
3	7.7	8.2	9.8	10.7	10.3	9.3	9.8	10.3	S	11.1	10.2	9.1	8.6	9.1	8.1	10.2	10.2	12.7	20.6	22.7	19.6	19.2	18.2	14.6	22.7	12.2	24	
4	21.1	20.1	15.1	15.1	14.6	14.1	13.1	S	17.1	17.6	11.1	4.6	5.2	5.7	Y	Y	Y	Y	Y	Y	Y	11.7	12.7	12.2	21.1	13.2	17	
5	8.1	8.7	8.7	8.7	8.7	10.2	S	S	S	12.2	11.7	10.6	10.6	9.1	8.1	3.7	4.2	5.2	5.1	5.2	5.7	5.7	5.7	5.7	12.2	7.7	24	
6	7.1	10.2	15.6	16.6	13.1	S	20.4	19.8	18.9	15.8	15.3	13.3	12.4	13.3	16.9	17.9	10.8	12.4	12.9	13.3	11.9	11.9	10.9	11.3	20.4	14.0	24	
7	8.8	9.5	9.4	8.9	S	6.5	9.1	9.1	11.1	11.6	13.0	13.5	13.0	15.0	14.5	11.6	13.0	13.5	17.0	17.6	19.0	17.0	12.1	9.0	19.0	12.3	24	
8	9.1	9.1	7.5	S	8.1	10.9	11.0	13.5	14.5	14.0	13.0	5.6	4.6	4.2	3.6	4.5	7.5	7.5	9.6	8.6	8.5	8.6	9.6	10.1	14.5	8.8	24	
9	7.0	7.0	S	6.7	9.6	13.0	15.0	15.2	19.5	17.1	25.1	24.1	8.5	6.5	8.5	11.0	9.1	2.6	4.1	7.5	5.6	5.1	4.1	3.6	25.1	10.2	24	
10	2.3	S	1.6	2.6	5.1	5.6	5.1	7.5	7.3	3.6	10.1	8.5	3.0	2.5	3.6	8.3	11.5	13.0	12.6	14.6	19.5	13.5	13.0	14.6	19.5	8.2	24	
11	S	16.9	16.4	17.3	18.4	23.3	24.9	20.8	12.8	12.4	16.9	19.8	16.3	20.0	19.8	26.3	26.9	24.9	17.9	10.4	8.9	7.4	5.4	S	26.9	17.5	24	
12	3.9	4.4	4.9	4.9	5.2	6.9	7.8	9.9	7.4	C	C	C	C	C	C	C	C	C	C	C	6.0	4.0	4.0	S	5.0	9.9	5.7	24
13	3.0	4.0	3.5	3.4	2.9	5.0	4.5	4.9	7.4	13.9	9.5	7.5	12.4	7.4	16.9	11.4	8.9	12.4	45.4	17.9	13.4	S	11.5	10.0	45.4	10.3	24	
14	9.0	11.0	13.0	9.5	5.5	6.0	6.5	3.5	4.0	3.5	13.0	7.0	4.5	4.0	5.5	8.5	4.5	4.0	3.0	4.0	S	2.5	3.5	3.5	13.0	6.0	24	
15	3.5	3.5	4.0	4.0	5.5	6.5	5.0	8.0	24.0	18.0	18.5	5.0	4.1	3.5	1.0	1.5	1.1	1.0	1.5	S	2.4	4.0	4.0	3.4	24.0	5.8	24	
16	2.9	8.4	5.5	5.4	6.0	6.9	6.5	4.9	7.9	8.4	3.5	3.0	2.0	1.4	1.4	1.0	2.5	3.4	S	2.9	6.5	7.9	7.4	12.0	12.0	5.1	24	
17	14.4	12.5	14.4	14.4	12.9	16.9	15.4	9.4	10.4	10.4	6.4	7.4	6.9	6.4	7.9	9.9	8.4	S	49.5	12.5	9.0	6.0	2.0	2.5	49.5	11.6	24	
18	4.5	1.5	2.0	2.0	3.0	3.0	7.5	10.0	10.0	10.5	6.0	22.0	4.5	5.0	7.5	9.0	S	8.5	4.0	5.0	3.0	7.5	7.0	7.0	22.0	6.5	24	
19	9.0	8.0	11.0	11.5	8.0	10.0	12.5	21.0	22.0	20.0	19.5	7.0	7.5	10.0	19.5	S	16.5	24.0	S	S	S	24.0	23.0	23.5	24.0	15.4	24	
20	24.5	23.5	24.0	28.5	26.0	25.5	27.0	27.5	28.5	28.5	34.0	35.0	9.0	8.0	S	12.0	15.0	12.5	23.0	13.0	13.0	10.5	7.5	9.0	35.0	20.2	24	
21	9.5	10.5	9.0	8.0	8.5	6.5	8.0	13.5	35.0	3.0	3.5	8.0	6.5	S	8.0	18.0	11.5	20.5	21.0	15.5	17.5	13.5	17.0	17.0	35.0	12.6	24	
22	18.0	18.5	20.0	22.0	20.0	21.5	21.5	22.5	21.0	19.0	18.5	14.5	S	9.5	11.0	22.5	21.0	25.5	22.5	23.5	19.5	16.0	10.5	9.0	25.5	18.6	24	
23	9.0	8.5	9.5	7.5	7.5	5.5	4.5	5.0	5.5	5.0	3.5	S	4.0	10.0	6.0	11.0	22.0	21.0	17.5	16.0	17.0	13.1	9.0	7.5	22.0	9.8	24	
24	8.0	10.5	7.5	8.5	7.0	8.0	7.1	12.6	24.6	22.0	S	12.5	9.4	11.0	6.9	12.5	11.5	10.5	12.0	10.0	4.5	4.0	4.5	6.0	24.6	10.0	24	
25	6.0	4.5	5.0	2.4	1.9	2.9	9.9	10.4	11.4	S	2.9	2.9	2.5	2.4	2.5	1.9	1.9	3.9	6.0	4.0	6.0	9.0	12.5	7.4	12.5	5.2	24	
26	7.4	12.0	8.4	7.9	5.5	6.9	7.9	7.4	S	18.0	31.1	39.5	38.6	32.1	28.0	28.0	7.0	11.1	12.1	9.6	15.0	12.1	9.1	4.6	39.5	15.6	24	
27	2.6	2.6	1.1	1.1	1.0	1.5	2.0	S	4.0	3.0	1.5	6.5	3.0	2.5	2.0	2.5	2.0	2.0	1.5	1.5	1.0	1.5	1.5	2.0	6.5	2.2	24	
28	1.5	1.0	1.0	1.5	1.5	2.0	S	2.5	3.5	4.0	4.5	4.0	4.0	4.0	5.5	7.0	12.5	19.5	12.5	11.5	9.0	10.5	13.5	13.0	19.5	6.5	24	
29	14.0	12.0	15.5	19.5	21.0	S	21.0	25.5	25.5	20.5	9.0	8.5	8.5	8.0	7.5	8.5	10.5	8.5	8.0	9.0	6.0	7.5	4.5	5.5	25.5	12.3	24	
30	6.0	6.5	6.0	8.0	S	15.0	20.0	19.5	20.0	31.5	22.5	15.5	11.0	9.0	11.0	20.5	26.0	27.0	26.0	24.0	19.5	19.5	17.5	7.5	31.5	16.9	24	
31	5.0	5.0	6.0	S	6.1	8.1	5.1	6.1	8.6	8.1	7.1	9.6	7.1	6.1	7.1	8.6	12.6	19.1	18.1	13.6	12.6	19.6	16.1	9.6	19.6	9.8	24	
HOURLY MAX	24.5	23.5	24.0	28.5	26.0	25.5	27.0	27.5	35.0	31.5	34.0	39.5	38.6	32.1	28.0	28.0	26.9	27.0	49.5	24.0	19.6	24.0	23.0	23.5				
HOURLY AVG	8.5	9.2	9.1	9.5	9.1	9.7	11.4	12.2	14.4	13.4	12.6	11.9	8.6	8.4	9.2	11.0	11.0	12.4	14.9	11.3	10.6	10.4	9.7	8.8				

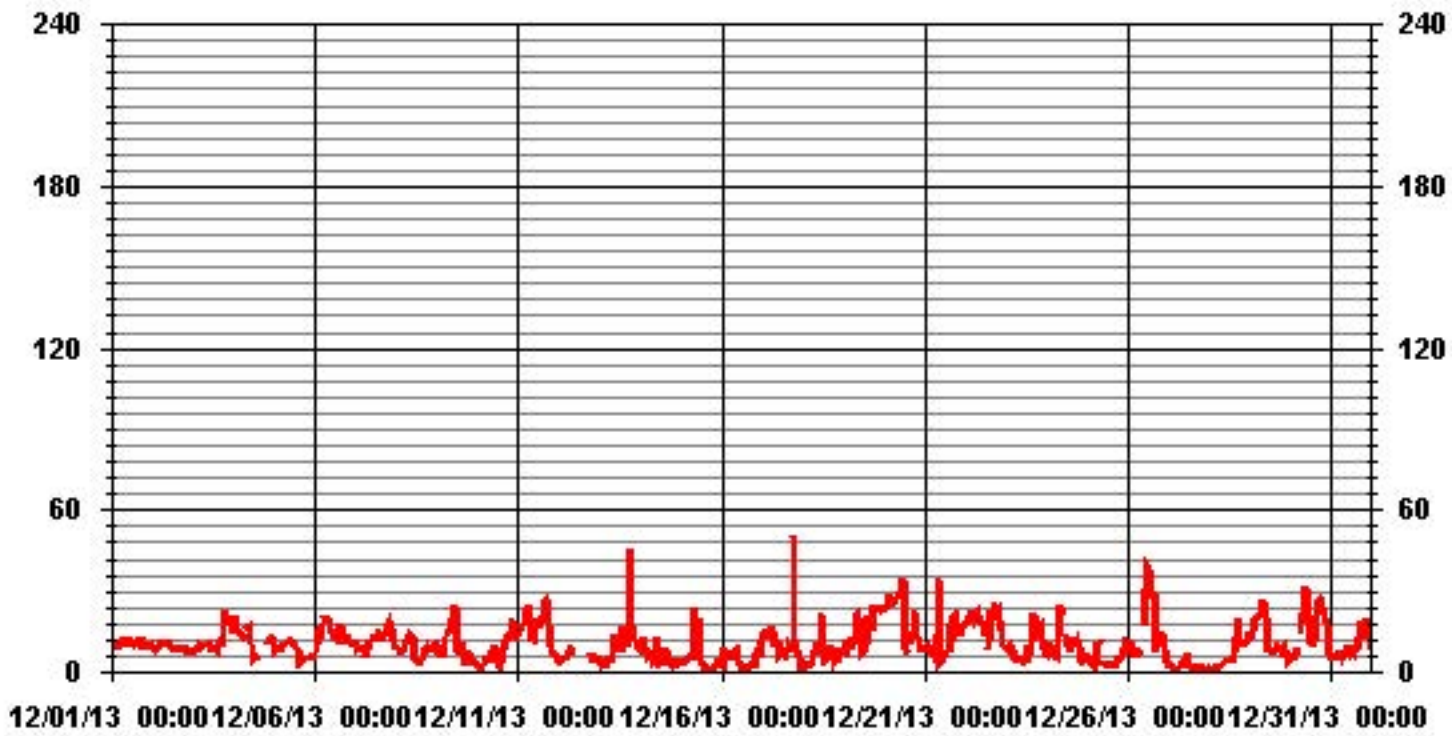
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690					
MAXIMUM INSTANTANEOUS VALUE:	49.5	PPB	@ HOUR(S)	18	ON DAY(S)	17
IZS CALIBRATION TIME:	37	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	6.97					

01 Hour Averages



— LICA NO2MAX PPB

LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

December 2013

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	3.07	3.07	6.15	5.27	8.35	6.15	10.55	1.90	1.90	1.02	4.10	13.48	14.80	8.65	7.62	3.81	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	3.07	3.07	6.15	5.27	8.35	6.15	10.55	1.90	1.90	1.02	4.10	13.48	14.80	8.65	7.62	3.81	

Calm : .00 %

Total # Operational Hours : 682

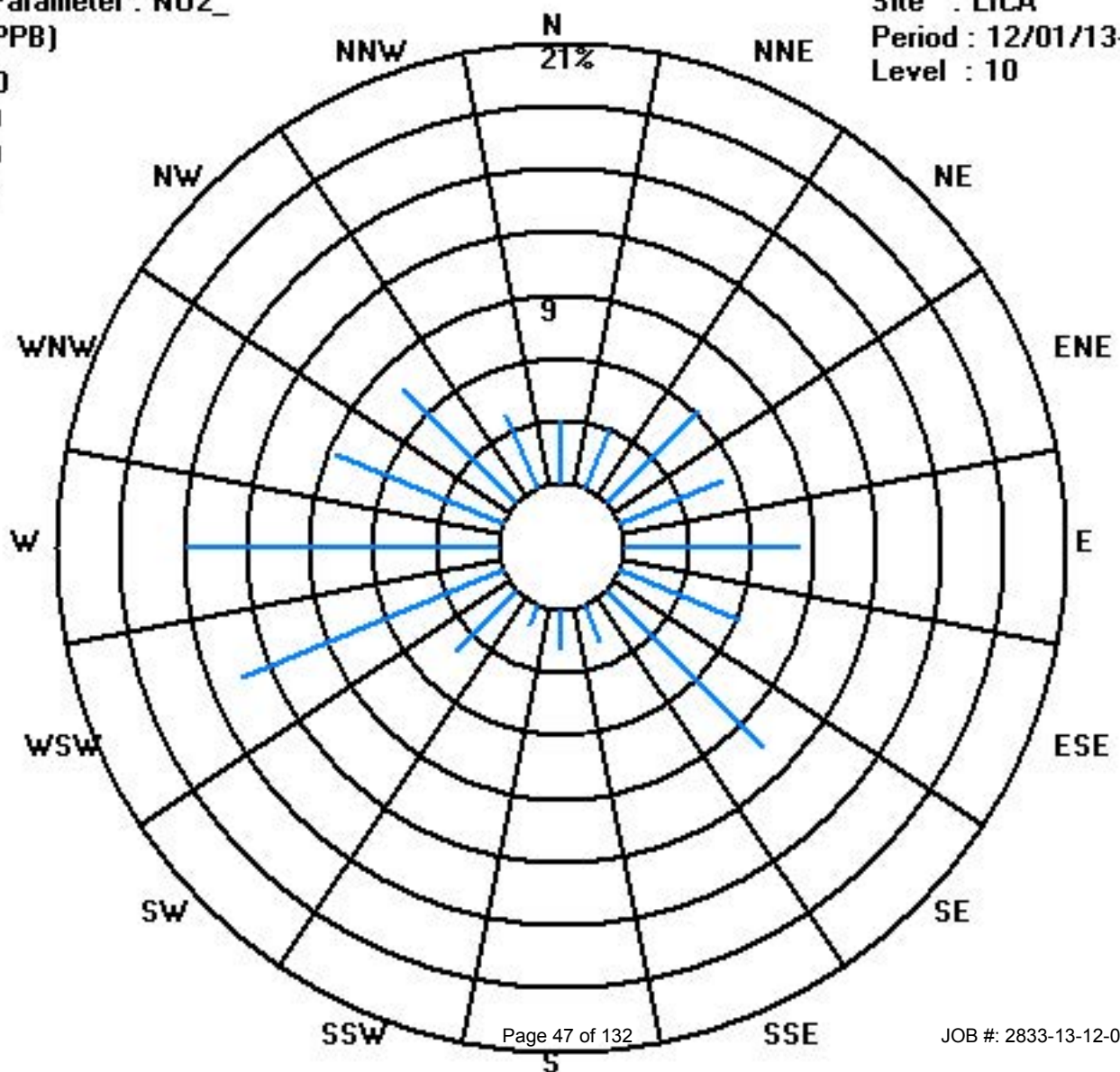
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	21	21	42	36	57	42	72	13	13	7	28	92	101	59	52	26	682
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	21	42	36	57	42	72	13	13	7	28	92	101	59	52	26	

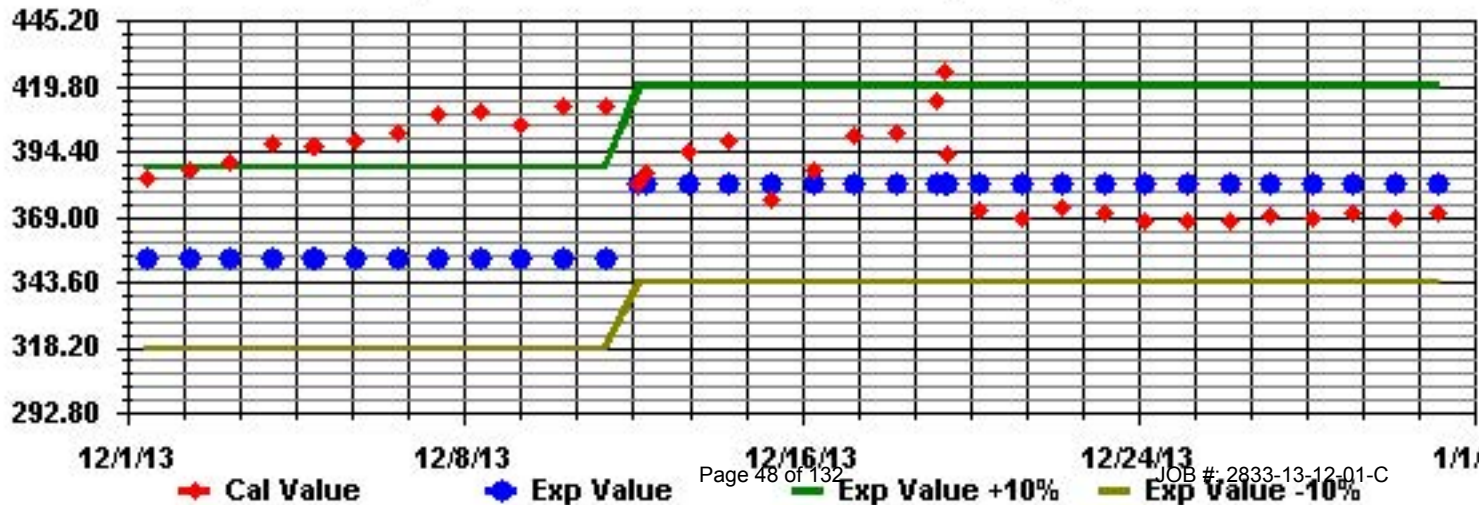
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

NITRIC OXIDE hourly average in ppb

MT

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.	RDG.		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.			
DAY 1	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
2	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
4	0	0	0	0	0	0	0	0	S	0	0.6	0.2	0	0	0.3	0.3	0.2	0	0	0	0.1	0	0	0	0	0	0.6	0.1	24
5	0	0	0	0	0	0	S	S	0	1	1.2	0.5	0.5	0.2	0.1	0	0	0	0	0	0	0	0	0	0	1.2	0.2	24	
6	0	0	0	0.3	0.3	S	1	0.8	0.8	1.3	1.5	1.3	1.1	1	1.2	1	0.1	0.1	0.1	0	0	0	0	0	1.5	0.5	24		
7	0	0	0	0	S	0	0	0	0.2	1.4	1.7	1.4	0.8	0.6	0.3	0	0	0	0	0	0.1	0	0	0	1.7	0.3	24		
8	0	0	0	S	0	0	0	0	0.2	0.9	0.3	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	0.1	24	
9	0	0	S	0	0	0	0.1	0	0.7	1.4	2.3	0.8	0.1	0	0	0	0	0	0	0	0	0	0	0	2.3	0.2	24		
10	0	S	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0.1	0.6	0.0	24	
11	S	0.3	0.5	0.8	0.6	1.4	1.5	0.3	0	0.4	1.2	3.2	1.8	1.8	2.1	2.9	4.4	0.7	0.1	0.1	0	0	0	S	4.4	1.1	24		
12	0	0	0	0.1	0.1	0.1	0.2	0.2	0.2	C	C	C	C	C	C	C	C	C	C	C	1.3	0.5	0.5	S	0.6	1.3	0.3	24	
13	0.6	0.7	0.6	0.6	0.7	0.7	0.8	1	1.2	1.8	2.1	2.9	2.9	2.3	3.4	1.8	0.6	1	7	0.5	0.7	S	0.7	0.3	7	1.5	24		
14	0.4	0.4	0.4	0.4	0.5	0.7	0.7	0.5	0.6	0.8	3.5	1.4	2.2	1.6	1.3	0.8	1	0.7	0.4	0.6	S	0.2	0.2	0.4	3.5	0.9	24		
15	0.2	0.4	0.4	0.1	0.2	0.5	0.4	0.3	3.3	3.7	5.5	1	0.8	0.5	0.4	0.2	0.2	0.2	0.3	S	0.2	0.2	0.3	0.4	5.5	0.9	24		
16	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.5	0.4	0.3	0.2	0.1	0.1	0.1	S	0.3	0.4	0.4	0.2	0.3	0.5	0.3	24		
17	0.5	0.4	0.7	0.4	0.6	1.4	0.9	1	1.2	1.8	1.5	1.8	1.8	1.2	0.9	0.7	0.9	S	4.6	1	0.5	0.3	0.3	0.4	4.6	1.1	24		
18	0.3	0.2	0.3	0.3	0.4	0.5	0.3	0.6	0.7	3	2.1	5	1.8	1.8	1.7	1.1	S	0.4	0.3	0.3	0.1	0.5	0.4	0.3	5	1.0	24		
19	0.5	0.2	0.2	0.5	0.1	0.5	0.7	4.5	12.5	24.6	13.3	4	3.8	5	5.4	S	1.3	1.6	2.2	S	1.7	1.3	3.2	24.6	4.1	24			
20	2.7	1.9	3.1	14.3	11.8	11.4	15.8	23.1	28.6	45.2	66.4	15.4	4.2	3.6	S	2.2	1.7	1.4	1.5	1.6	1.4	1.1	0.5	0.9	66.4	11.3	24		
21	1	1	0.7	0.5	0.6	0.3	0.2	0.5	1	0.6	0.8	1.7	1.6	S	1.7	2	0.4	0.9	1.5	0.9	0.9	0.3	0.8	1	2	0.9	24		
22	0.9	0.8	1.3	1.4	1.9	2.7	5.2	12.3	12.1	22.8	27.2	17.8	S	4.7	3.6	4.5	2.5	5.2	11.3	10.5	1.8	1.5	0.9	0.4	27.2	6.7	24		
23	0.5	0.5	0.7	0.5	0.5	0.6	0.4	0.3	0.5	0.6	0.7	S	1.4	1.5	1.1	1	0.7	0.6	0.5	0.7	0.9	0.7	0.6	0.5	1.5	0.7	24		
24	0.5	0.7	0.7	0.7	0.5	0.6	0.4	0.3	1.5	1.7	S	1.2	1.4	1.3	0.9	0.9	0.4	0.8	0.9	0.6	0.5	0.6	0.4	0.5	1.7	0.8	24		
25	0.5	0.6	0.5	0.3	0.3	0.3	0.6	0.4	0.5	S	0.7	0.7	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.3	0.3	0.2	0.5	0.2	0.7	0.4	24	
26	0.6	0.3	0.6	0.6	0.5	0.6	0.8	0.7	S	4.9	24.8	40.3	36.5	15.6	6	4.7	0.3	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.2	40.3	6.1	24	
27	0.3	0.3	0.3	0.4	0.4	0.5	0.4	S	0.4	0.4	0.4	0.6	0.5	0.6	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.6	0.4	24		
28	0.3	0.2	0.2	0.3	0.2	0.2	S	0.2	0.2	0.6	1.2	1.9	2.1	1.6	1.8	1.2	0.6	1.7	0.9	0.3	0.1	0.6	0.7	0.9	2.1	0.8	24		
29	1.7	0.7	0.9	1.9	3.3	S	9.8	9.6	7.3	3.8	3.6	3.4	3.5	2.5	1.6	1.3	1.2	1	0.8	1.1	1	0.9	0.5	0.6	9.8	2.7	24		
30	0.3	0.3	0.1	0.3	S	1.3	2.2	4.4	8.6	31	32.9	10.1	5.9	4.1	4.6	4.2	4.7	3.9	5.4	2.4	2.5	1.4	0.7	0.4	32.9	5.7	24		
31	0.5	0.6	0.8	S	0.8	1	0.8	0.9	0.9	1.6	2.2	3	2.7	2.5	2.9	1.5	1.3	1.5	0.4	0.5	0.5	0.6	0.3	0.2	3	1.2	24		
HOURLY MAX	2.7	1.9	3.1	14.3	11.8	11.4	15.8	23.1	28.6	45.2	66.4	40.3	36.5	15.6	6.0	4.7	4.7	5.2	11.3	10.5	2.5	1.7	1.3	3.2					
HOURLY AVG	0.4	0.4	0.4	0.9	0.8	0.9	1.5	2.2	2.9	5.6	7.1	4.1	2.7	1.9	1.5	1.1	0.8	0.8	1.4	0.8	0.5	0.4	0.3	0.4					

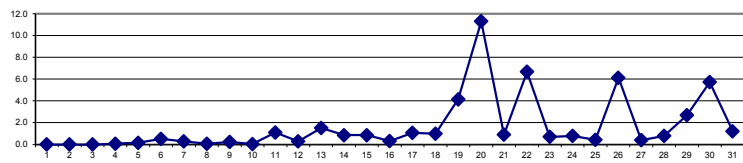
TATU FLAG CODE

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

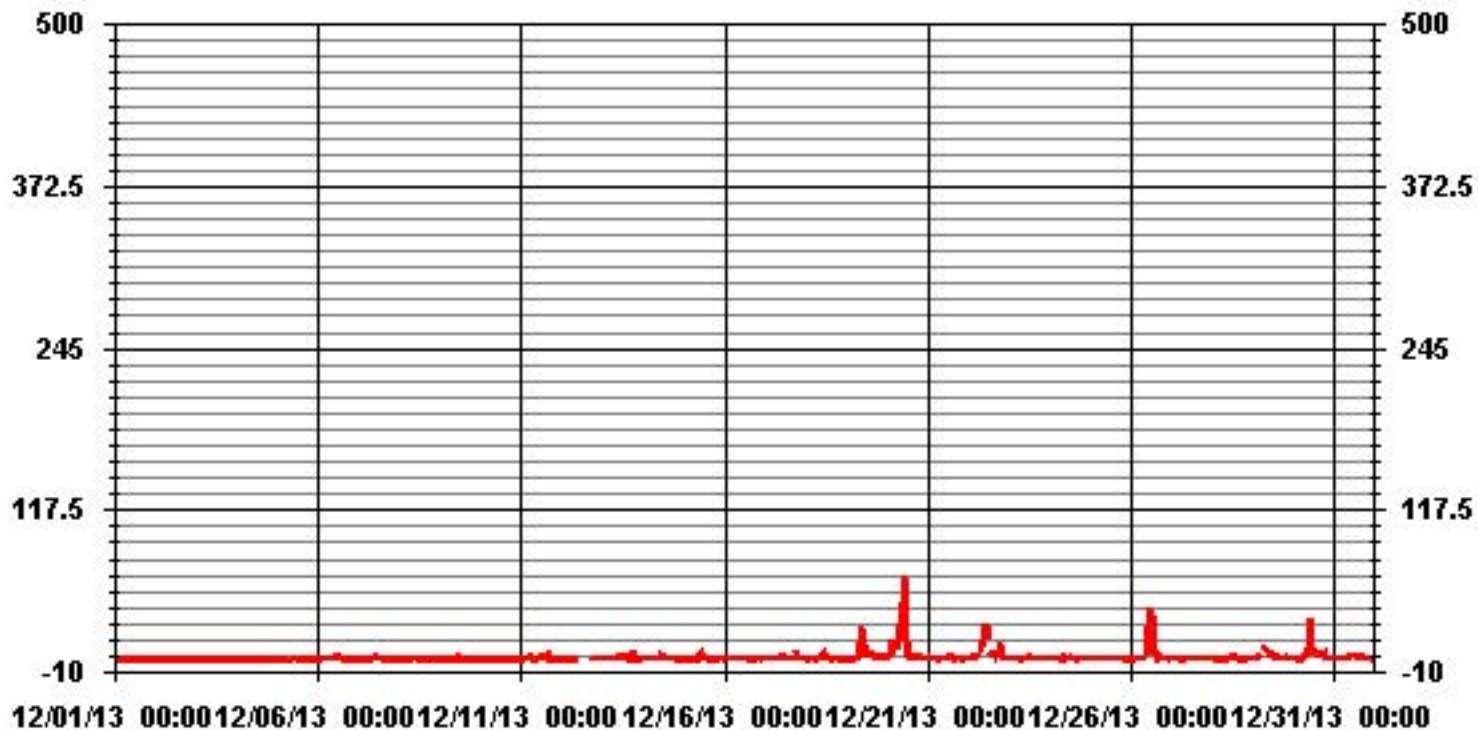
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	511					
MAXIMUM 1-HR AVERAGE:	66.4	PPB	@ HOUR()	10	ON DAY()	20
MAXIMUM 24-HR AVERAGE:	11.3	PPB			ON DAY()	20
IZ CALIBRATION TIME:	35	HR	OPERATIONAL TIME:	744	HR	
MONTHLY CALIBRATION TIME:	10	HR	AMD OPERATION UPTIME:	100.0	%	
TANDARD DEVIATION:	5.00		MONTHLY AVERAGE:	1.64	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.5	0	0	0.3	0	0	0	0.5	0.0	24
2	0	0	0	0	0	0	0	0.2	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.0	24
3	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0.5	0.0	24
4	0	0	0	0	0	0	0	S	0	2.4	0.9	0.5	0.5	0.5	Y	Y	Y	Y	Y	Y	Y	Y	0	0.5	0	2.4	0.3	17
5	0.5	0.5	0.5	0.6	0	0	S	S	S	4.5	3.5	1.4	1	1	2.5	0	0	0	0	0	0	0	0.2	0	4.5	0.8	24	
6	0	0	0.5	0.5	0.6	S	2	1.5	1	2	2	1.5	1.5	1.5	3.5	3.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0.5	3.5	1.1	24	
7	0.3	0.5	0.5	0.2	S	0	0.5	0	1	1.7	2	2	1.5	2.5	2	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5	0.8	24	
8	0.5	0.5	0	S	0.4	0.5	0	0	0.5	1	1	0.5	0.5	0.5	0	0	0	0.5	0.5	0	0	0.1	0	0.5	1	0.3	24	
9	0	0	S	0	0	0	0.5	0.5	2.5	2	5	3.5	0.5	0.5	0.5	0.5	0	0.2	0	0	0.5	0	0	0	5	0.7	24	
10	0.1	S	0	0.6	0.7	0.1	0	0	0.3	0	1.5	0.4	0	0	0	0.5	0	0.5	0.2	1	2.5	0	0.5	0.5	2.5	0.4	24	
11	S	1	1	1	1	2.5	3.4	1	0.5	1	2.5	5.5	3	3	3	6.5	6	1.5	0.5	1	0.5	0.5	0.5	S	6.5	2.1	24	
12	0.5	0.5	0.5	0.5	0.5	0.5	0.9	1	0.6	C	C	C	C	C	C	C	C	C	C	C	6.7	1.2	1.7	S	1.9	6.7	1.3	24
13	1.4	1.9	1.4	1.9	1.9	1.9	1.9	2.4	2.9	4.4	4.9	12.9	10.4	5.4	42.3	7.4	1.8	3.8	80.3	1.8	4.8	S	4	1	80.3	8.8	24	
14	1.6	2	1.6	1.1	3.5	3.1	1.6	1	1	2	19.5	2.5	7.6	3.1	4	3.1	8	5.5	1.6	2	S	0.5	1	2	19.5	3.4	24	
15	0.5	2.9	1.5	0.5	1.5	6.4	1.5	1	8.9	6.5	16.9	1.9	1.5	1	0.5	0.5	0.5	0.5	1	S	0.8	1.3	1.3	1.8	16.9	2.6	24	
16	1.8	1.8	0.8	1.3	1.3	1.3	2.3	1.3	2.3	1.8	1.3	0.8	0.8	0.8	0.3	0.8	0.8	S	2.8	2.3	1.3	1.3	0.8	2.8	2.8	1.4	24	
17	1.8	3.2	1.7	1.2	1.7	8.7	2.2	2.7	3.7	16.2	3.2	3.7	5.7	3.2	3.2	3.2	8.2	S	94.5	5.9	1.5	1	0.5	1	94.5	7.7	24	
18	0.5	0.5	0.5	0.5	2.4	2.4	1.5	2.9	2	5.9	2.9	41	2.5	2	2	1.5	S	0.9	0.4	2.5	0.4	2.5	3.4	1.9	41	3.6	24	
19	3.5	0.9	0.9	3.9	0.9	4.5	1.9	9.4	43.5	35.9	27.4	5.4	5.4	8	11.4	S	5.5	3.5	S	S	S	5	3.6	8.5	43.5	9.5	24	
20	4.5	5	6	18.5	14	23.6	29.5	55	57.5	76	74.6	7.5	8.1	S	9	5.5	2.5	6	4.5	4	3.1	2	4	76	18.9	24		
21	2.5	3	2	1.5	4.5	1.5	0.5	1.6	13	1	1.5	7.5	5	S	3.9	18.4	1.4	4.9	4.9	7.4	2.4	0.4	2.4	3.5	18.4	4.1	24	
22	2.4	2.9	3.9	3.4	2.9	4.9	7.9	19.4	20.9	30.9	32.4	22.4	S	7	8	19.5	6.5	13	80	32	4	6	2.5	2	80	14.6	24	
23	1	1	2.5	1.5	1.6	1	1.5	1	1.5	2	1.6	S	2.1	5	2	3.5	2	2	1.5	2.5	3	2.6	1.6	5	2.0	24		
24	1.6	2.6	2.5	1.5	1.5	1.5	1.1	1	15.6	4.1	S	1.9	2.5	2.5	1.9	2.5	0.9	4	3	2.5	1.9	3	1	2	15.6	2.7	24	
25	1.5	3	1.9	1	1	0.9	2.5	2	1	S	1	2.5	1.4	1	1	1	1.4	1.9	2	1.9	1.5	1	3.5	0.5	3.5	1.6	24	
26	4.5	1.9	2.5	2.5	1.9	2	2.5	2.5	S	14.4	36.5	58.9	55	20.9	12	11	1	1.5	3	1.5	3	2.5	1	0.5	58.9	10.6	24	
27	0.5	0.5	0.5	0.5	0.5	1.5	1	S	1.3	0.9	0.9	5.8	1.3	4.8	0.8	2.8	0.8	0.8	0.9	0.9	0.3	0.8	0.8	0.8	5.8	1.3	24	
28	0.3	0.8	0.3	0.3	1.3	0.3	S	0.8	0.8	1.3	2.8	3.3	3.3	3.8	2.8	2.3	2.8	11.8	2.8	0.3	0.3	2.3	6.8	4.8	11.8	2.5	24	
29	18.3	6.8	2.8	6.3	8.3	S	16	23	13.5	8.5	8.5	5	6	3.6	3.5	3	2.5	2.5	1.5	2	1.5	5	1	2	23	6.6	24	
30	1	1.6	0.5	1	S	5.4	7.9	9.9	13.9	73.4	58.9	22.9	10.9	7.9	23.4	11.4	21.4	10.4	14.4	9.4	11.4	5.4	1.9	2.4	73.4	14.2	24	
31	1.4	1.4	2.9	S	1.4	1.9	1.9	1.9	2.9	2.4	3.9	6.9	3.9	4.4	13.9	3.4	3.9	14.9	0.9	2.4	1.9	1.4	2.4	0.4	14.9	3.6	24	
HOURLY MAX	18.3	6.8	6.0	18.5	14.0	14.0	23.6	29.5	55.0	73.4	76.0	74.6	55.0	20.9	42.3	19.5	21.4	14.9	94.5	32.0	11.4	6.0	6.8	8.5				
HOURLY AVG	1.8	1.6	1.3	1.8	1.9	2.3	3.0	4.2	7.5	10.1	11.4	10.2	4.9	3.5	5.3	4.1	2.9	3.2	11.1	3.3	1.8	1.6	1.5	1.5				

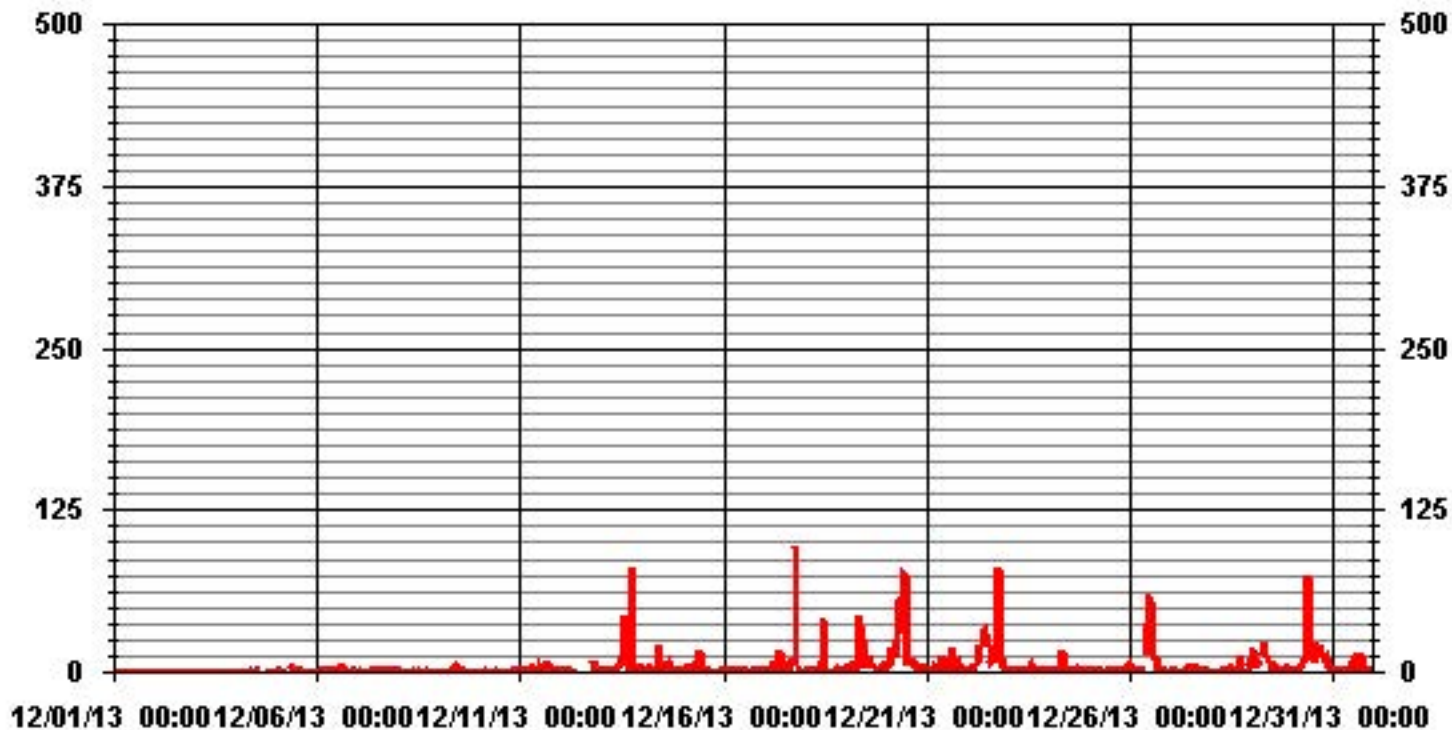
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	571					
MAXIMUM INSTANTANEOUS VALUE:	94.5	PPB	@ HOUR(S)	18	ON DAY(S)	17
I/ZS CALIBRATION TIME:	37	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	10.11					

01 Hour Averages



LICA
 NO_ / WD Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.07	3.07	6.15	5.27	8.21	6.15	10.55	1.90	1.90	1.02	4.10	13.48	14.80	8.65	7.62	3.81	99.85
< 110.0	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.07	3.07	6.15	5.27	8.35	6.15	10.55	1.90	1.90	1.02	4.10	13.48	14.80	8.65	7.62	3.81	

Calm : .00 %

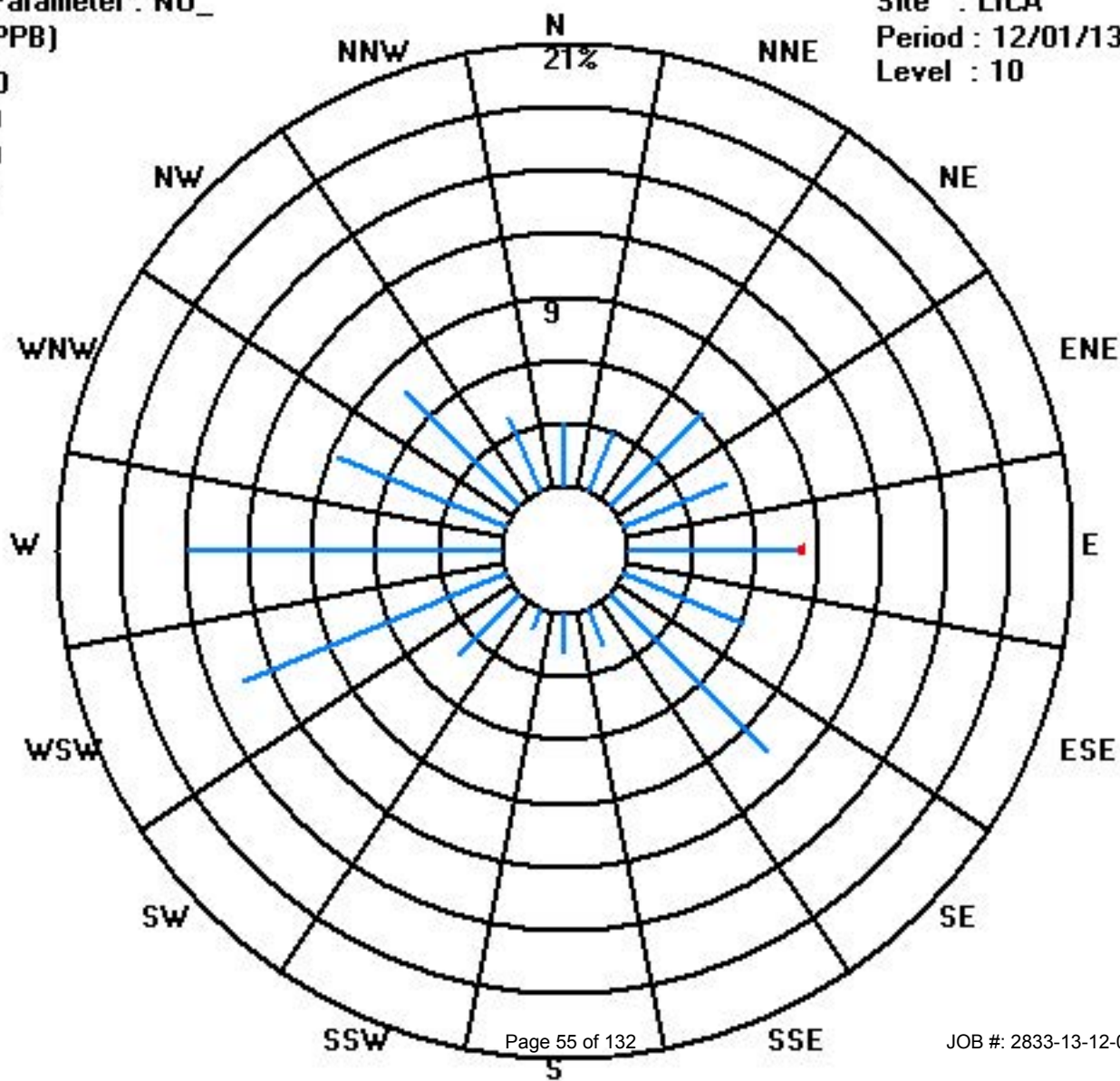
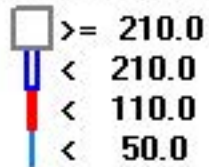
Total # Operational Hours : 682

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	21	42	36	56	42	72	13	13	7	28	92	101	59	52	26	681
< 110.0					1												1
< 210.0																	
>= 210.0																	
Totals	21	21	42	36	57	42	72	13	13	7	28	92	101	59	52	26	

Calm : .00 %

Total # Operational Hours : 682



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

OXIDES OF NITROGEN hourly averages in ppb

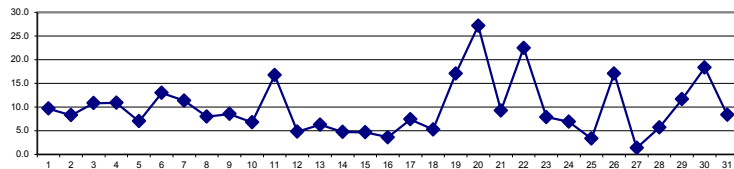
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																											
1	10.0	8.7	8.3	8.1	9.9	10.1	9.7	9.4	9.2	10.6	S	11.7	10.3	9.6	10.3	10.4	9.8	10.6	10.1	9.4	9.3	9.0	9.0	9.1	11.7	9.7	24
2	8.9	8.2	7.3	8.3	8.5	9.4	9.7	9.7	9.4	S	9.6	8.5	7.8	7.7	7.7	8.2	7.8	7.7	7.8	7.6	7.8	8.0	7.2	6.9	9.7	8.2	24
3	6.9	7.4	9.1	9.7	9.0	8.5	9.2	9.3	S	10.3	9.1	8.6	8.1	8.4	7.3	9.4	8.4	9.9	16.3	19.2	17.8	16.3	16.4	14.3	19.2	10.8	24
4	18.7	17.6	14.8	12.9	12.8	11.5	11.9	S	16.2	14.5	7.2	4.2	4.3	4.9	5.9	7.2	8.4	8.3	8.8	14.9	12.5	10.7	12.1	10.2	18.7	10.9	24
5	7.7	8.3	7.7	8.2	8.0	9.4	S	S	9.7	10.3	11.6	10.6	10.4	5.7	4.7	3.3	3.9	4.4	4.8	4.5	4.5	4.8	5.5	5.4	11.6	7.0	24
6	6.3	8.9	12.3	15.1	12.4	S	18.8	18.5	17.9	16.4	15.4	13.8	13.2	12.7	13.0	15.1	10.5	11.6	12.4	11.5	11.5	10.4	10.6	9.8	18.8	13.0	24
7	8.0	8.2	9.0	7.6	S	6.1	7.7	7.9	10.3	12.2	13.8	14.4	13.0	11.6	10.9	11.2	12.4	13.1	15.4	16.3	18.6	14.2	10.3	8.3	18.6	11.3	24
8	7.6	8.2	6.8	S	7.9	9.6	10.2	12.7	13.9	14.6	9.1	5.5	4.3	4.0	2.2	3.0	5.9	7.0	8.8	8.3	7.6	7.7	8.7	8.8	14.6	7.9	24
9	6.4	6.3	S	6.1	8.0	11.2	14.4	13.5	17.5	17.9	20.5	13.5	6.7	6.0	7.8	8.9	6.0	2.3	2.9	5.6	4.3	4.2	3.4	2.8	20.5	8.5	24
10	2.0	S	1.2	2.2	4.1	4.0	3.3	6.5	4.7	3.3	5.6	4.2	2.6	2.4	2.1	6.3	9.6	11.5	11.2	13.2	16.6	12.6	12.6	14.0	16.6	6.8	24
11	S	16.0	15.9	17.6	18.6	22.3	24.5	18.3	11.1	9.5	15.8	21.5	17.4	17.9	21.0	25.0	30.5	22.0	14.6	8.9	7.7	6.1	4.9	S	30.5	16.7	24
12	3.4	3.8	3.9	4.2	4.3	5.7	6.6	7.4	6.2	C	C	C	C	C	C	C	C	C	C	5.1	3.8	4.1	S	3.6	7.4	4.8	24
13	2.6	2.2	2.6	1.9	2.1	3.3	3.8	4.0	4.8	6.9	7.4	7.0	6.6	5.8	7.3	8.8	6.4	7.4	18.4	9.4	9.5	S	7.2	8.1	18.4	6.2	24
14	8.0	9.5	11.8	7.3	4.3	4.2	4.7	3.4	3.3	3.6	8.2	4.2	5.1	4.5	4.1	3.4	3.3	2.4	2.4	2.6	S	2.3	2.8	3.5	11.8	4.7	24
15	3.2	3.0	3.3	3.6	4.1	4.8	4.7	5.2	18.1	15.4	15.8	4.7	3.7	2.4	1.2	1.1	1.1	1.0	1.1	S	1.7	2.7	2.9	2.7	18.1	4.7	24
16	2.2	5.4	4.5	4.0	3.6	4.2	4.4	3.3	6.5	5.5	3.1	2.6	1.7	1.2	1.2	1.0	1.3	1.9	S	1.8	4.7	6.4	5.8	6.6	6.6	3.6	24
17	9.6	7.8	11.4	7.5	8.8	10.7	10.0	8.4	8.8	7.6	6.2	7.6	7.1	4.2	5.0	5.5	5.4	S	13.7	9.5	7.8	3.1	2.0	1.7	13.7	7.4	24
18	2.0	1.4	1.8	1.6	2.0	2.6	3.6	7.0	8.7	11.8	6.8	10.6	5.0	5.7	7.6	9.5	S	6.9	3.8	3.7	3.0	3.9	5.8	5.7	11.8	5.2	24
19	7.3	7.1	8.5	8.9	7.3	7.5	10.0	21.2	30.7	42.6	24.6	9.9	9.8	13.3	18.7	S	15.2	20.5	25.2	S	S	22.8	22.4	24.8	42.6	17.1	24
20	24.6	23.0	24.6	41.0	36.1	34.7	39.6	47.4	53.8	69.2	95.8	28.4	10.7	9.5	S	11.2	12.0	10.4	9.9	9.5	9.7	9.3	6.1	7.2	95.8	27.1	24
21	8.3	8.1	7.6	6.3	6.6	4.8	6.1	10.0	6.4	3.0	3.5	4.6	4.6	S	7.1	9.2	10.0	14.7	19.1	13.7	15.5	11.8	15.0	16.5	19.1	9.2	24
22	16.5	17.0	19.3	20.8	21.2	22.5	25.2	32.5	31.7	40.0	42.7	30.5	S	11.5	10.8	17.9	19.6	25.4	31.7	30.6	16.8	14.0	9.5	8.6	42.7	22.4	24
23	8.8	7.9	8.2	6.3	5.6	4.9	3.9	4.0	4.1	3.7	3.6	S	4.7	5.7	5.6	7.5	16.4	16.2	12.7	13.3	14.0	11.3	7.3	5.0	16.4	7.9	24
24	5.1	7.4	4.0	4.7	5.7	4.9	4.4	6.6	14.5	17.1	S	8.6	8.3	8.2	6.6	8.7	9.0	8.5	7.8	5.4	2.5	2.7	2.8	4.2	17.1	6.9	24
25	4.0	2.8	3.2	1.8	1.4	1.9	4.2	7.0	8.0	S	2.3	1.8	1.9	1.7	1.7	1.5	1.6	2.0	4.0	2.6	3.3	5.7	6.9	4.9	8.0	3.3	24
26	5.3	4.8	4.9	4.1	3.4	5.4	6.1	6.0	S	14.9	48.2	71.2	68.6	44.1	28.4	23.3	5.3	6.7	7.1	6.7	9.7	9.2	5.9	3.1	71.2	17.1	24
27	1.5	1.1	0.3	0.5	0.4	0.7	0.8	S	1.8	1.8	1.4	2.0	1.8	2.2	1.9	1.8	1.6	1.6	1.3	1.4	1.1	1.1	1.2	1.7	2.2	1.3	24
28	1.2	0.8	0.7	1.1	1.1	1.5	S	1.9	2.5	4.2	4.4	5.3	5.4	4.3	6.5	7.3	9.7	13.3	11.7	10.8	8.8	9.1	9.1	9.9	13.3	5.7	24
29	9.6	8.9	12.3	15.9	19.8	S	29.2	31.2	28.7	13.4	10.2	9.8	10.4	8.3	6.3	7.3	7.3	6.8	6.4	7.8	5.8	4.7	3.8	3.7	31.2	11.6	24
30	4.4	4.9	5.3	6.3	S	12.3	17.2	20.2	25.9	49.5	50.6	19.3	11.9	10.1	12.9	17.3	25.7	26.7	26.9	20.0	19.2	16.4	12.6	5.7	50.6	18.3	24
31	4.4	4.9	5.3	S	5.3	6.8	5.2	4.8	5.3	7.2	7.3	8.7	8.0	6.7	7.6	7.5	11.5	14.5	13.4	10.6	11.5	16.4	11.6	7.9	16.4	8.4	24
HOURLY MAX	24.6	23.0	24.6	41.0	36.1	34.7	39.6	47.4	53.8	69.2	95.8	71.2	68.6	44.1	28.4	25.0	30.5	26.7	31.7	30.6	19.2	22.8	22.4	24.8			
HOURLY AVG	7.2	7.7	7.9	8.4	8.4	8.5	10.7	12.0	13.4	15.6	16.4	12.2	9.4	8.3	8.0	8.9	9.5	10.2	11.4	9.8	9.2	8.7	8.0	7.5			

STATUS FLAG CODES

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

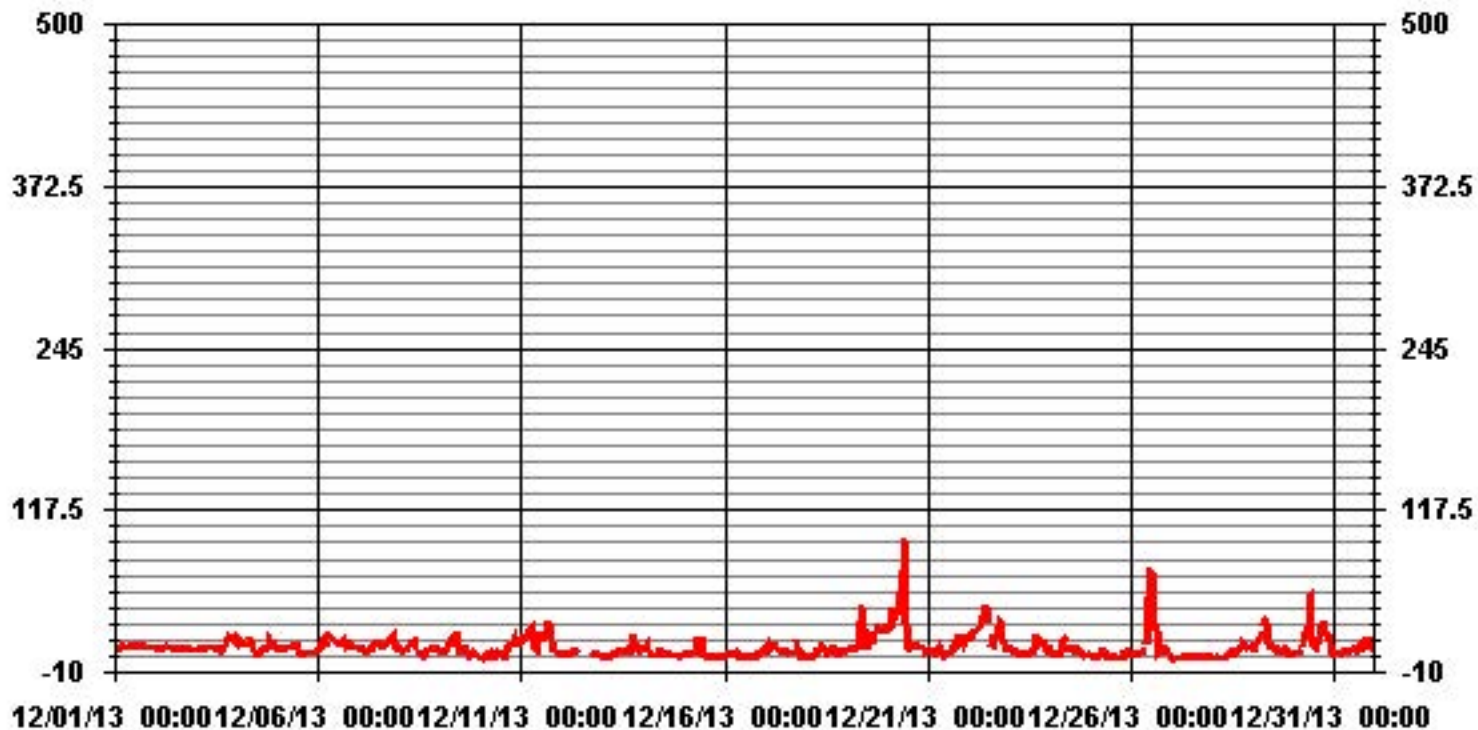
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM 1-HR AVERAGE:	95.8	PPB	@ HOUR(S)	10	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	27.1	PPB			ON DAY(S)	20
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	9.23		MONTHLY AVERAGE:	9.84	PPB	

01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	11.0	9.5	9.0	9.0	11.5	12.0	10.5	10.0	10.0	12.4	S	12.5	11.6	10.6	11.6	11.1	10.6	13.1	11.1	10.1	10.1	10.1	9.6	10.6	13.1	10.8	24	
2	9.6	9.1	8.1	9.1	9.6	10.6	11.1	10.6	10.6	S	11.1	9.1	9.1	8.6	8.6	9.1	8.6	8.6	8.6	8.1	8.6	8.6	8.0	7.6	11.1	9.2	24	
3	7.5	8.1	9.6	10.6	10.1	9.1	9.6	10.1	S	11.3	10.3	9.3	8.8	9.3	8.3	10.3	10.3	12.8	20.7	22.8	19.7	19.3	18.3	14.8	22.8	12.2	24	
4	21.3	20.2	15.3	15.3	15.2	14.2	13.2	S	17.6	18.2	11.6	4.7	5.2	5.7	Y	Y	Y	Y	Y	Y	Y	Y	11.7	12.7	12.2	21.3	13.4	17
5	8.2	8.7	8.7	8.7	8.7	10.2	S	S	S	14.5	14.0	11.5	11.5	9.5	9.7	3.5	4.5	5.0	5.0	5.0	5.0	5.5	6.2	5.5	14.5	8.1	24	
6	7.0	10.0	16.0	17.0	13.0	S	22.3	21.3	19.8	17.8	17.3	14.8	13.8	14.8	20.3	20.8	11.3	12.8	13.3	13.3	11.8	11.8	11.3	12.6	22.3	15.0	24	
7	8.8	9.3	9.3	8.8	S	6.6	9.6	9.1	12.1	13.0	14.6	15.1	14.6	17.1	16.1	12.1	13.0	13.6	17.1	18.1	19.6	17.1	12.1	9.1	19.6	12.9	24	
8	9.1	9.3	7.6	S	8.6	10.6	11.1	13.5	14.6	15.1	14.0	6.1	4.6	4.6	3.6	4.6	7.6	7.6	10.1	8.6	8.6	8.6	10.1	10.1	15.1	9.1	24	
9	7.1	6.6	S	6.6	9.6	13.0	15.6	15.1	22.1	19.1	29.6	27.5	8.6	7.1	8.6	11.1	9.1	2.6	3.6	7.5	5.6	5.1	4.1	3.6	29.6	10.8	24	
10	2.1	S	1.7	2.7	5.2	5.7	5.2	7.7	7.2	3.7	11.2	8.7	3.2	2.7	4.2	8.2	12.2	13.6	13.2	15.2	21.7	13.7	13.2	14.7	21.7	8.6	24	
11	S	17.5	17.0	18.5	19.5	25.9	27.9	21.5	13.0	13.0	19.4	25.0	19.0	22.5	22.5	32.4	33.5	26.5	18.0	10.5	9.0	8.0	5.5	S	33.5	19.3	24	
12	4.2	4.2	4.7	5.2	5.2	6.7	8.2	10.2	7.2	C	C	C	C	C	C	C	C	C	C	11.8	5.3	4.8	S	6.2	11.8	6.5	24	
13	3.7	5.2	4.7	4.7	3.2	6.2	5.7	6.2	9.7	16.2	14.2	13.2	22.2	12.2	55.1	14.6	10.6	15.7	103.6	19.6	17.1	S	15.0	11.0	103.6	16.9	24	
14	10.0	11.0	14.0	10.0	5.5	8.5	7.5	4.1	5.0	4.5	31.0	9.0	11.0	6.5	8.6	11.5	10.5	7.0	4.5	5.5	S	2.6	4.0	4.0	31.0	8.5	24	
15	4.0	4.5	5.5	4.5	7.0	13.0	6.1	8.6	33.0	21.5	35.5	6.5	5.6	4.1	1.6	2.1	1.1	1.5	2.1	S	3.5	4.5	4.5	4.5	35.5	8.0	24	
16	5.0	9.5	6.5	6.5	7.0	8.0	8.0	6.0	9.0	9.0	4.5	3.5	3.0	2.0	2.5	1.5	2.5	4.0	S	3.5	8.0	9.0	8.0	13.0	13.0	6.1	24	
17	15.5	13.5	15.9	15.4	14.9	25.4	17.4	10.9	13.9	13.9	9.9	10.9	12.9	9.0	9.9	12.4	14.9	S	125.0	17.0	10.0	7.0	2.5	2.5	125.0	17.4	24	
18	4.5	2.1	2.5	2.5	5.5	5.0	9.1	11.5	11.5	15.5	8.6	51.0	7.0	7.0	9.1	10.0	S	9.5	4.5	7.0	3.6	8.0	9.0	9.0	51.0	9.3	24	
19	10.5	8.5	11.5	15.0	8.5	14.5	13.5	29.0	52.0	55.0	47.0	12.5	11.5	17.1	29.0	S	18.0	26.5	S	S	S	28.5	26.0	31.5	55.0	23.3	24	
20	28.0	28.0	30.0	46.0	40.5	39.0	47.5	56.0	83.0	85.5	107.5	108.5	16.0	14.0	S	20.0	18.5	14.5	26.5	17.0	15.5	12.0	9.5	11.5	108.5	38.0	24	
21	11.0	12.0	10.0	8.6	11.0	8.0	8.5	14.5	39.0	3.6	4.5	15.0	11.0	S	10.5	35.5	12.5	25.0	24.5	23.0	19.5	14.0	19.0	19.5	39.0	15.6	24	
22	20.0	21.5	23.0	24.0	23.0	26.5	28.0	41.5	39.5	49.0	49.5	36.5	S	15.0	16.6	42.0	27.0	38.5	99.0	52.0	22.0	21.5	12.5	11.0	99.0	32.1	24	
23	10.0	9.5	12.0	8.5	8.6	6.6	5.5	5.5	6.5	6.0	5.0	S	5.7	14.1	7.7	13.1	22.6	22.6	17.6	16.1	19.2	15.2	9.2	8.2	22.6	11.1	24	
24	8.2	11.2	8.1	8.1	8.1	8.6	7.2	12.2	35.2	23.7	S	14.4	11.5	13.5	8.9	13.0	12.0	12.0	13.5	11.5	6.5	7.0	5.5	7.0	35.2	11.6	24	
25	7.5	6.5	6.0	3.0	3.0	3.5	11.5	12.0	12.0	S	3.7	4.2	3.7	3.2	2.7	2.6	2.6	4.1	7.2	4.7	6.2	9.7	14.7	7.2	14.7	6.2	24	
26	8.2	13.7	10.7	9.7	6.7	8.2	9.2	9.2	S	31.0	65.0	94.9	92.4	50.5	39.0	38.5	7.5	12.0	14.5	9.5	16.0	11.5	9.0	4.5	94.9	24.8	24	
27	2.0	2.0	0.5	1.0	1.0	1.5	2.4	S	5.0	3.5	2.5	8.6	4.0	3.5	3.0	5.0	3.0	2.6	2.1	2.6	1.6	2.6	2.5	3.0	8.6	2.8	24	
28	2.1	1.5	1.5	2.1	2.6	2.5	S	3.0	4.5	5.5	7.0	6.5	6.5	7.0	8.0	9.5	13.0	30.5	15.0	12.0	10.0	11.5	20.5	17.0	30.5	8.7	24	
29	23.5	14.0	18.5	26.0	28.0	S	36.5	47.5	38.5	28.5	15.0	13.5	14.5	11.5	11.0	11.5	13.0	10.5	9.5	11.0	7.5	12.5	5.0	7.0	47.5	18.0	24	
30	7.0	7.0	6.5	9.0	S	20.5	27.5	28.5	33.0	103.5	70.5	38.0	22.0	17.0	28.0	31.0	47.0	37.0	39.0	32.5	30.5	25.0	19.5	9.5	103.5	30.0	24	
31	6.0	6.5	7.5	S	7.0	8.5	6.5	8.0	12.0	10.0	11.0	16.0	11.0	9.0	19.5	11.5	15.0	25.5	18.5	16.0	13.5	21.0	16.0	9.5	25.5	12.4	24	
HOURLY MAX	28.0	28.0	30.0	46.0	40.5	39.0	47.5	56.0	83.0	103.5	107.5	108.5	92.4	50.5	55.1	42.0	47.0	38.5	125.0	52.0	30.5	28.5	26.0	31.5				
HOURLY AVG	9.4	10.0	10.1	10.9	10.6	11.7	13.9	15.8	20.6	22.3	23.0	20.9	13.2	11.3	13.7	14.6	13.3	14.8	24.0	14.0	12.0	11.6	10.8	9.9				

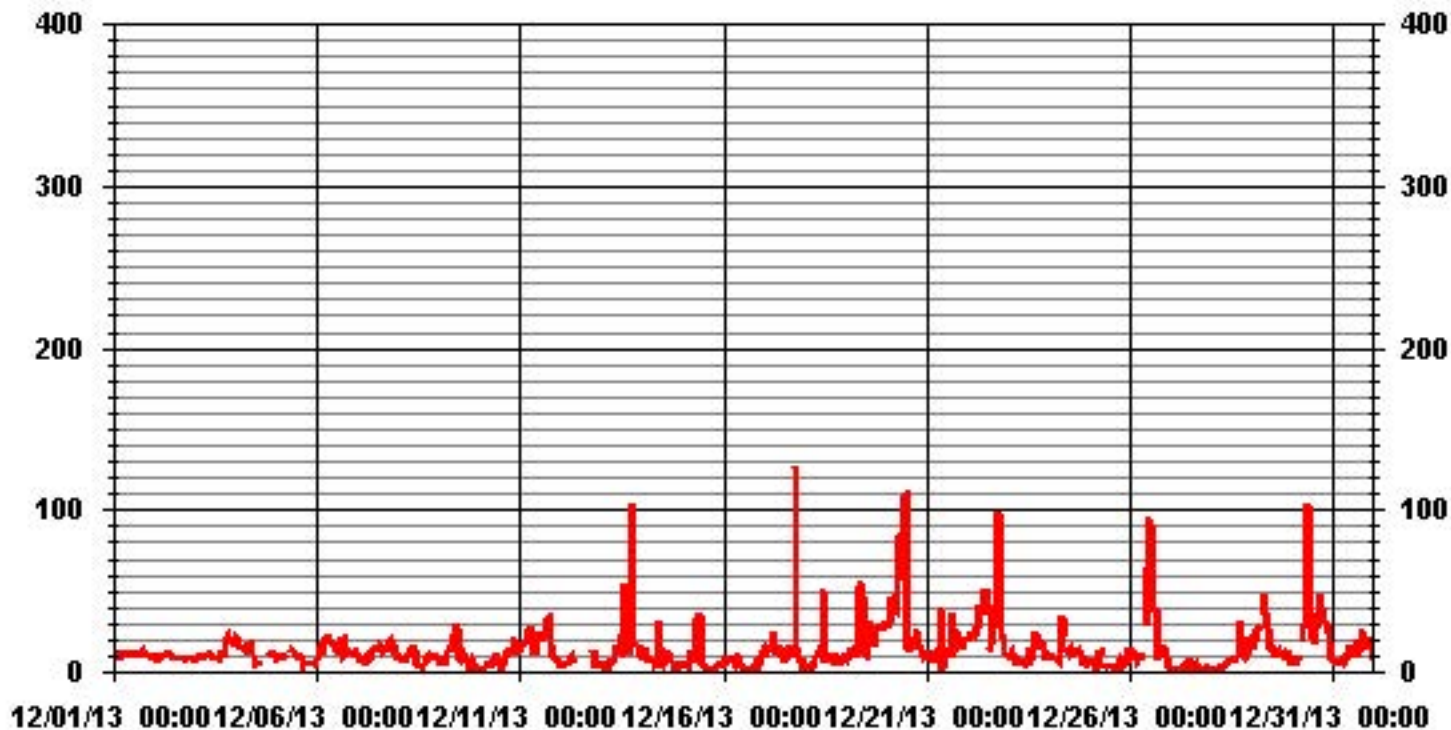
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690					
MAXIMUM INSTANTANEOUS VALUE:	125.0	PPB	@ HOUR(S)	18	ON DAY(S)	17
IZS CALIBRATION TIME:	37	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	14.49					

01 Hour Averages



— LICA NOXMAX PPB

LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.07	3.07	5.57	5.27	8.21	6.15	10.55	1.90	1.90	1.02	3.95	13.48	14.80	8.65	7.62	3.81	99.12
< 110.0	.00	.00	.58	.00	.14	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.87
< 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	3.07	3.07	6.15	5.27	8.35	6.15	10.55	1.90	1.90	1.02	4.10	13.48	14.80	8.65	7.62	3.81	

Calm : .00 %

Total # Operational Hours : 682

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	21	38	36	56	42	72	13	13	7	27	92	101	59	52	26	676
< 110.0			4		1						1						6
< 210.0																	
>= 210.0																	
Totals	21	21	42	36	57	42	72	13	13	7	28	92	101	59	52	26	

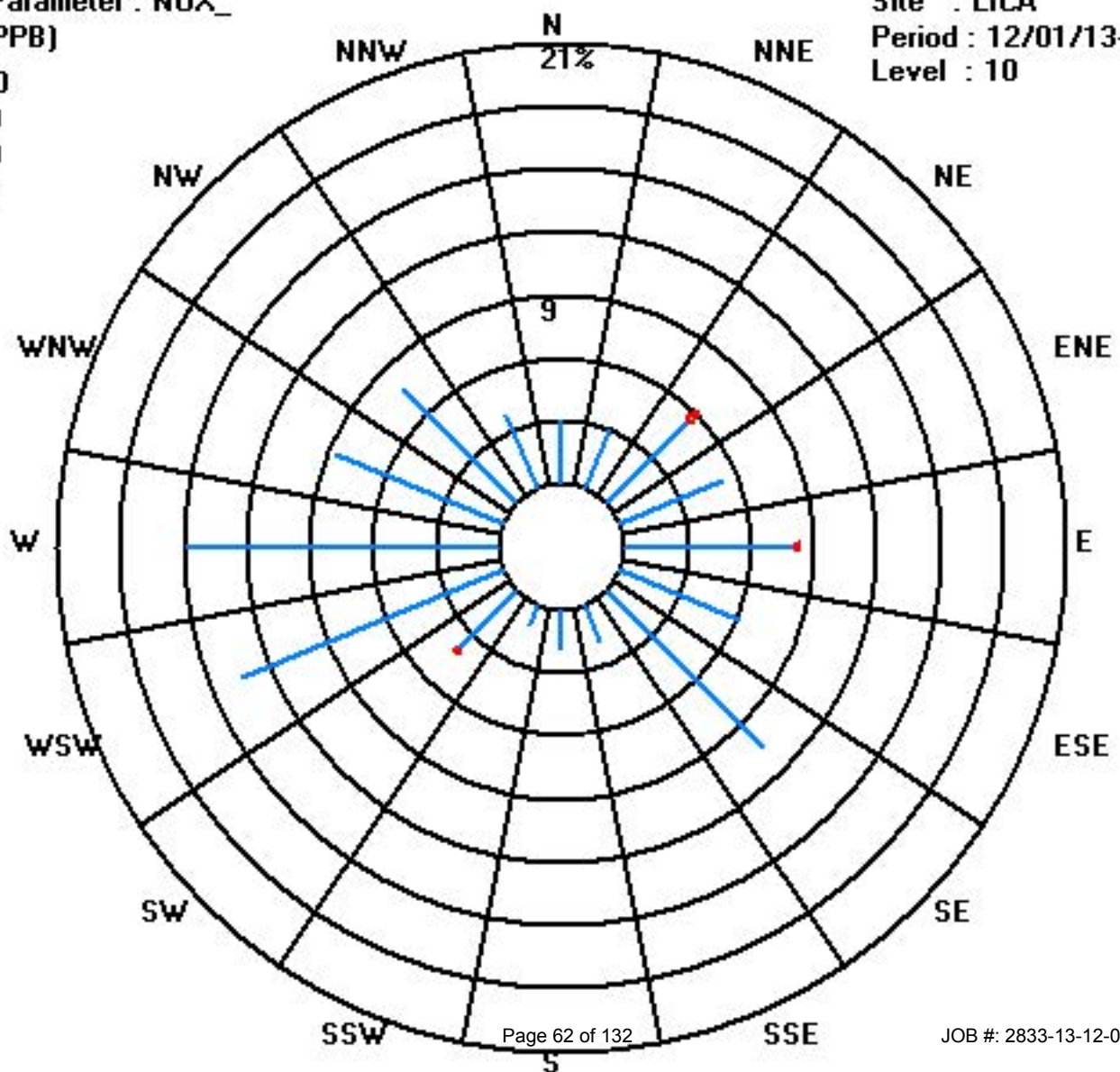
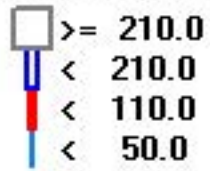
Calm : .00 %

Total # Operational Hours : 682

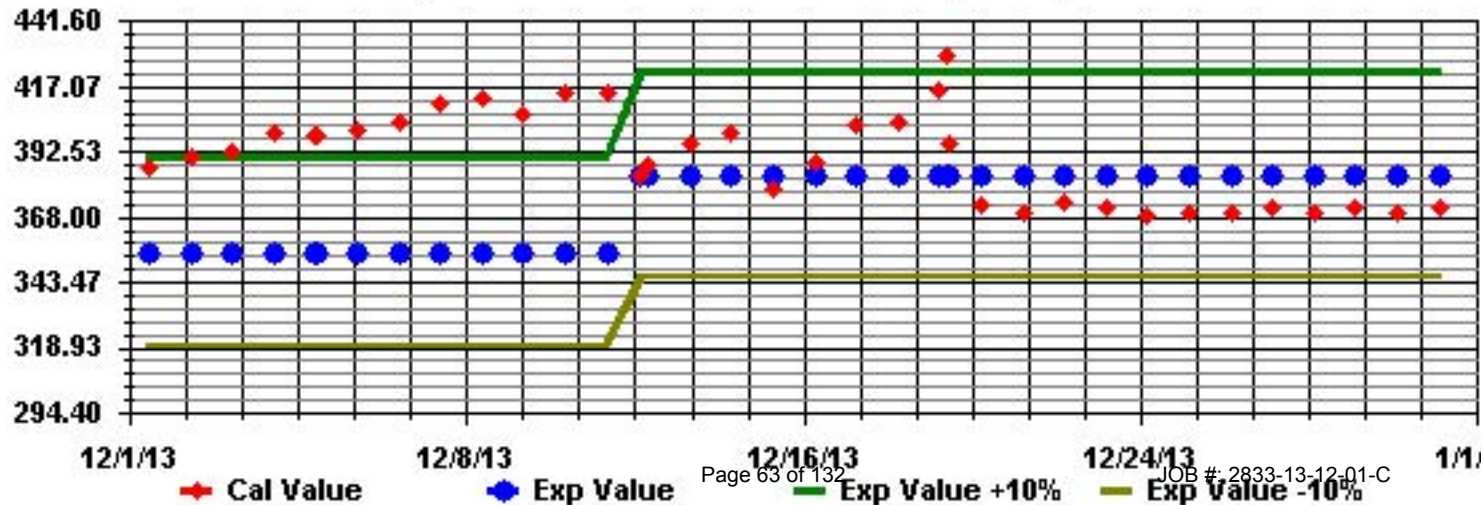
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																											
1	26	27	27	27	25	25	24	24	23	22	S	23	24	25	25	23	22	20	23	25	25	26	26	26	27	24.5	24
2	25	25	25	24	24	23	22	22	23	S	26	27	27	26	27	26	26	26	25	26	26	26	26	26	27	25.2	24
3	25	24	19	19	20	22	21	21	S	20	24	26	26	26	26	24	25	21	13	9	9	16	16	16	26	20.3	24
4	12	14	14	18	18	21	16	S	16	18	25	28	28	28	27	25	23	23	20	15	17	16	17	18	28	19.9	24
5	19	19	20	19	19	17	S	S	20	20	21	23	24	29	28	28	27	26	25	26	26	26	24	23	29	23.1	24
6	18	15	10	12	14	S	7	9	11	14	17	20	21	20	20	19	18	16	15	17	16	18	17	17	21	15.7	24
7	19	18	17	16	S	13	10	10	9	12	15	18	21	25	25	23	22	21	17	16	13	17	21	21	25	17.3	24
8	21	21	21	S	19	17	16	13	11	17	25	28	29	30	31	30	25	25	20	22	17	16	15	15	31	21.0	24
9	20	23	S	21	18	14	13	14	13	15	17	26	28	29	27	26	30	34	32	27	29	30	28	29	34	23.6	24
10	30	S	31	29	26	29	28	24	28	30	30	31	32	32	32	27	22	19	19	18	14	12	9	7	32	24.3	24
11	S	5	5	3	5	6	4	11	15	18	17	15	17	16	14	8	3	9	22	28	28	30	31	S	31	14.1	24
12	31	30	30	29	29	27	26	27	28	27	28	28	27	27	27	25	24	Y	25	26	27	27	S	30	31	27.5	23
13	29	29	28	28	28	26	26	26	25	C	C	C	C	C	25	21	22	21	17	16	14	S	19	17	29	23.2	24
14	16	15	13	17	21	22	22	23	23	23	22	24	24	24	25	26	26	26	26	S	25	25	24	26	26	22.5	24
15	24	24	23	23	22	22	21	12	12	20	35	38	40	40	40	39	39	39	S	38	37	37	36	40	40	29.7	24
16	36	33	34	34	34	34	33	34	31	33	37	38	39	39	40	40	39	S	39	35	33	32	26	40	40	35.3	24
17	21	20	19	20	18	20	20	20	19	20	23	22	23	26	25	24	24	S	20	19	20	25	25	25	26	21.7	24
18	25	25	26	27	27	26	24	21	18	17	24	24	27	27	25	22	S	21	23	23	24	23	19	17	27	23.3	24
19	16	13	11	10	11	11	10	5	3	5	14	22	22	20	17	S	17	12	8	7	6	5	4	2	22	10.9	24
20	2	2	1	1	1	1	1	1	1	3	5	21	26	26	S	23	20	23	24	25	25	24	27	25	27	13.4	24
21	24	24	24	25	24	26	22	20	24	26	26	26	27	S	25	23	19	13	8	10	7	10	7	5	27	19.3	24
22	4	3	2	2	1	1	1	1	1	4	7	12	S	20	20	13	7	4	2	2	6	12	20	21	21	7.2	24
23	21	21	22	25	27	29	32	32	32	32	32	S	31	31	30	28	18	17	19	17	16	19	26	30	32	25.5	24
24	30	25	35	35	31	34	33	27	19	19	S	33	35	35	36	33	29	25	25	28	33	34	31	29	36	30.2	24
25	32	37	38	39	40	39	33	27	28	S	33	34	34	35	35	35	34	33	31	31	29	26	21	18	40	32.3	24
26	19	18	21	25	30	28	27	27	S	13	7	6	6	9	11	14	25	21	19	16	13	15	20	21	30	17.9	24
27	23	25	28	30	32	32	32	S	34	35	35	35	35	35	36	36	36	36	36	35	35	33	32	29	36	32.8	24
28	30	28	28	27	27	25	S	24	23	22	22	22	23	23	21	20	16	12	15	15	16	17	15	13	30	21.0	24
29	12	11	8	5	3	S	1	1	3	16	19	21	22	24	27	26	25	26	22	19	21	23	23	22	27	16.5	24
30	20	19	17	15	S	8	4	3	2	4	8	16	19	22	19	14	7	5	4	6	7	10	14	24	24	11.6	24
31	26	25	24	S	24	22	25	25	25	23	24	24	24	25	24	23	19	14	13	15	13	11	16	18	26	21.0	24
HOURLY MAX	36	37	38	39	40	39	33	34	34	35	37	38	39	40	40	40	40	39	39	39	38	37	37	36			
HOURLY AVG	21.9	20.6	20.7	20.9	21.3	21.4	19.1	18.3	17.9	18.6	21.5	24.4	26.2	26.7	26.3	24.8	23.0	21.6	20.2	20.1	20.2	21.4	21.4	21.0			

STATUS FLAG CODES

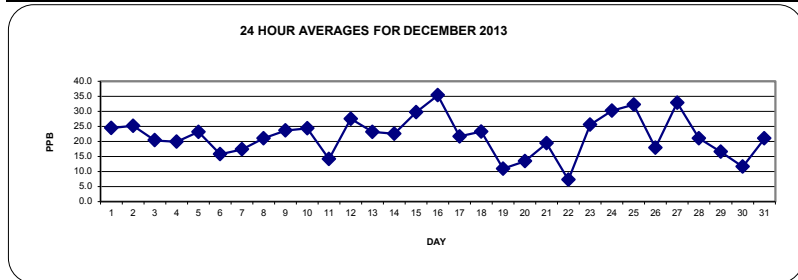
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

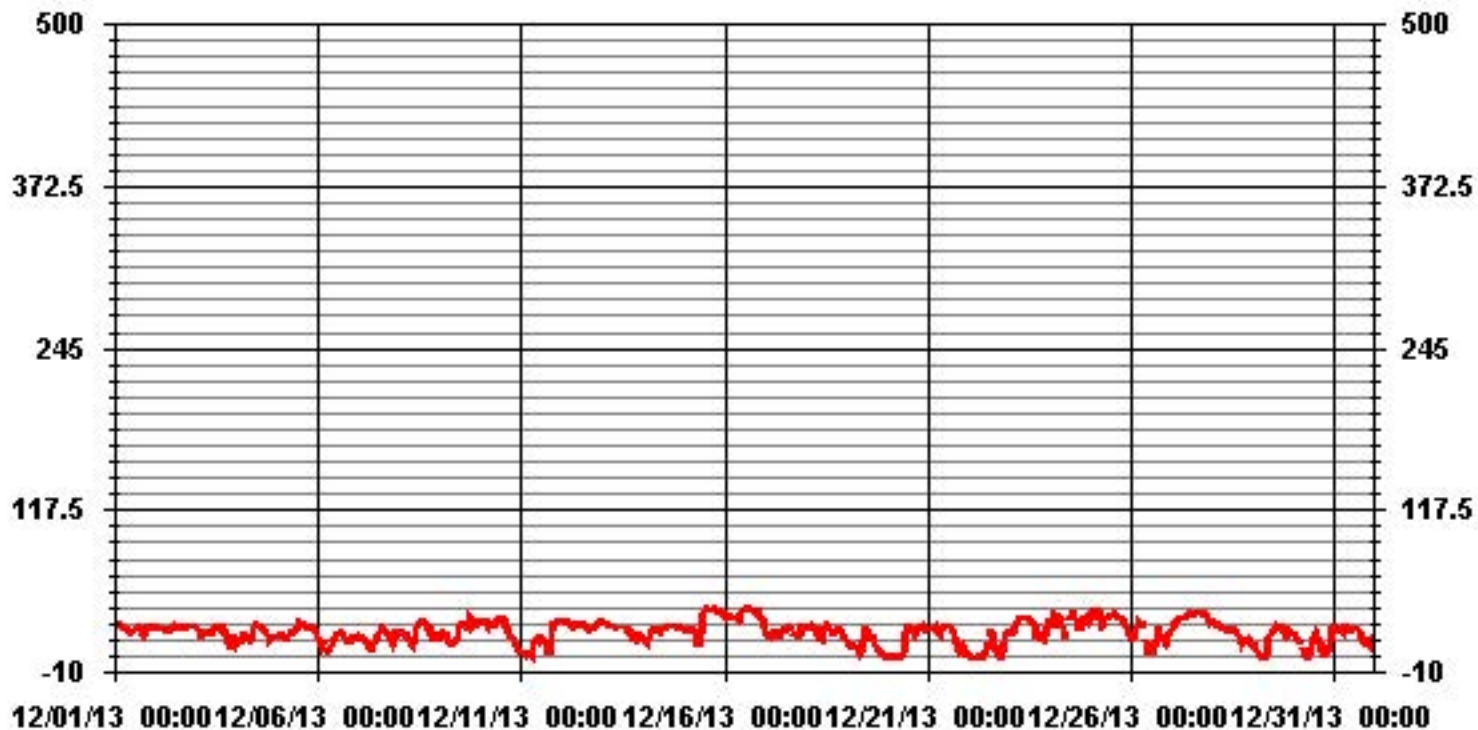
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	705				
MAXIMUM 1-HR AVERAGE:	40	PPB	@ HOUR(S)	VAR	ON DAY(S) 15, 16
MAXIMUM 24-HR AVERAGE:	35.3	PPB			ON DAY(S) 16
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS			OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	5	HRS			AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	8.75				MONTHLY AVERAGE: 21.66 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00						
DAY																														
1	27	27	28	28	27	26	25	24	24	24	S	25	25	26	27	25	23	21	25	26	27	27	27	27	27	28	25.7	24		
2	26	26	25	25	25	24	23	24	24	S	28	29	27	27	28	26	26	27	27	27	27	27	27	27	27	29	26.2	24		
3	27	25	20	20	21	23	22	21	S	22	26	27	27	26	27	26	27	25	18	13	14	19	18	18	18	27	22.3	24		
4	14	16	17	20	21	22	22	S	18	20	28	28	29	29	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	19	19	20	29	21.4	17
5	20	20	21	20	20	18	S	S	S	27	23	24	28	30	29	29	28	27	26	26	27	27	25	24	30	24.7	24			
6	21	17	14	14	16	S	9	12	13	16	19	21	22	22	21	20	19	17	17	17	17	19	18	20	22	17.4	24			
7	20	19	18	18	S	15	12	12	11	14	18	19	24	27	27	24	23	22	20	18	15	20	23	23	27	19.2	24			
8	22	23	22	S	20	18	17	15	15	20	27	29	30	31	32	32	28	27	24	24	24	19	19	22	32	23.5	24			
9	24	36	S	23	20	17	14	17	16	21	23	28	29	29	28	28	34	34	34	31	31	31	30	30	36	26.4	24			
10	31	S	31	30	27	31	30	26	30	31	31	32	33	33	33	30	27	23	22	21	18	15	12	12	33	26.5	24			
11	S	13	7	4	9	9	7	17	19	20	20	17	18	19	16	14	6	17	27	31	33	32	33	S	33	17.6	24			
12	32	31	31	31	30	29	29	29	29	29	29	29	28	28	28	27	27	Y	27	27	28	28	S	31	32	29.0	23			
13	30	30	29	29	28	28	27	27	26	C	C	C	C	C	C	25	24	23	22	19	16	S	22	21	30	25.1	24			
14	17	17	16	20	23	22	23	23	24	24	23	24	24	25	26	27	27	27	27	26	S	26	25	25	27	23.5	24			
15	24	24	28	23	23	22	22	22	19	15	32	37	39	41	41	40	40	40	40	S	39	38	37	37	41	31.4	24			
16	37	36	35	35	36	36	35	35	33	36	38	39	40	40	40	41	40	S	40	39	34	34	29	41	36.9	24				
17	26	26	25	22	22	23	23	22	22	23	25	24	25	26	27	27	25	S	29	22	22	27	26	27	29	24.6	24			
18	26	26	27	27	27	27	26	23	19	21	25	26	28	28	26	23	S	22	24	23	24	24	21	18	28	24.4	24			
19	17	15	13	13	12	13	13	9	5	8	22	23	23	22	19	S	18	16	9	10	9	7	7	4	23	13.3	24			
20	3	3	2	2	2	2	2	2	2	4	7	25	28	28	S	26	23	25	26	28	28	27	28	28	28	15.3	24			
21	27	26	25	26	26	27	25	23	26	27	27	27	27	S	26	25	22	17	12	12	12	13	9	9	27	21.6	24			
22	7	4	3	3	2	2	1	2	3	6	10	14	S	21	22	18	11	7	3	5	11	20	21	21	22	9.4	24			
23	21	23	23	27	29	31	33	33	32	33	32	S	31	31	31	30	26	20	22	20	19	23	28	34	34	27.5	24			
24	34	30	37	37	33	36	36	32	28	22	S	36	38	38	37	37	30	26	27	34	35	35	34	31	38	33.2	24			
25	38	39	40	40	40	40	39	29	30	S	34	35	35	35	35	35	34	34	32	32	31	31	23	21	40	34.0	24			
26	24	21	26	30	31	29	28	28	S	26	11	8	10	11	14	26	26	23	23	20	17	18	23	23	31	21.6	24			
27	25	27	29	32	32	32	33	S	35	36	36	36	36	36	36	36	36	36	37	36	36	35	33	30	37	33.7	24			
28	30	29	28	28	28	26	S	25	25	23	23	23	23	24	23	21	20	17	16	17	17	18	17	15	30	22.4	24			
29	15	14	10	11	6	S	2	2	7	19	21	22	24	26	28	28	26	28	27	21	22	25	24	23	28	18.7	24			
30	21	21	18	17	S	11	7	7	3	6	16	20	20	23	21	17	10	7	8	11	9	12	22	25	25	14.4	24			
31	27	27	25	S	25	24	25	26	26	25	25	25	25	26	26	25	22	20	17	19	17	15	18	20	27	23.0	24			
HOURLY MAX	38	39	40	40	40	40	39	35	35	36	38	39	40	41	41	41	41	40	40	40	39	38	37	37						
HOURLY AVG	23.8	23.0	22.4	22.6	22.8	22.9	21.0	20.3	20.1	21.4	24.3	25.9	27.4	27.9	27.6	27.2	25.1	23.8	23.0	22.6	22.9	23.7	23.4	23.2						

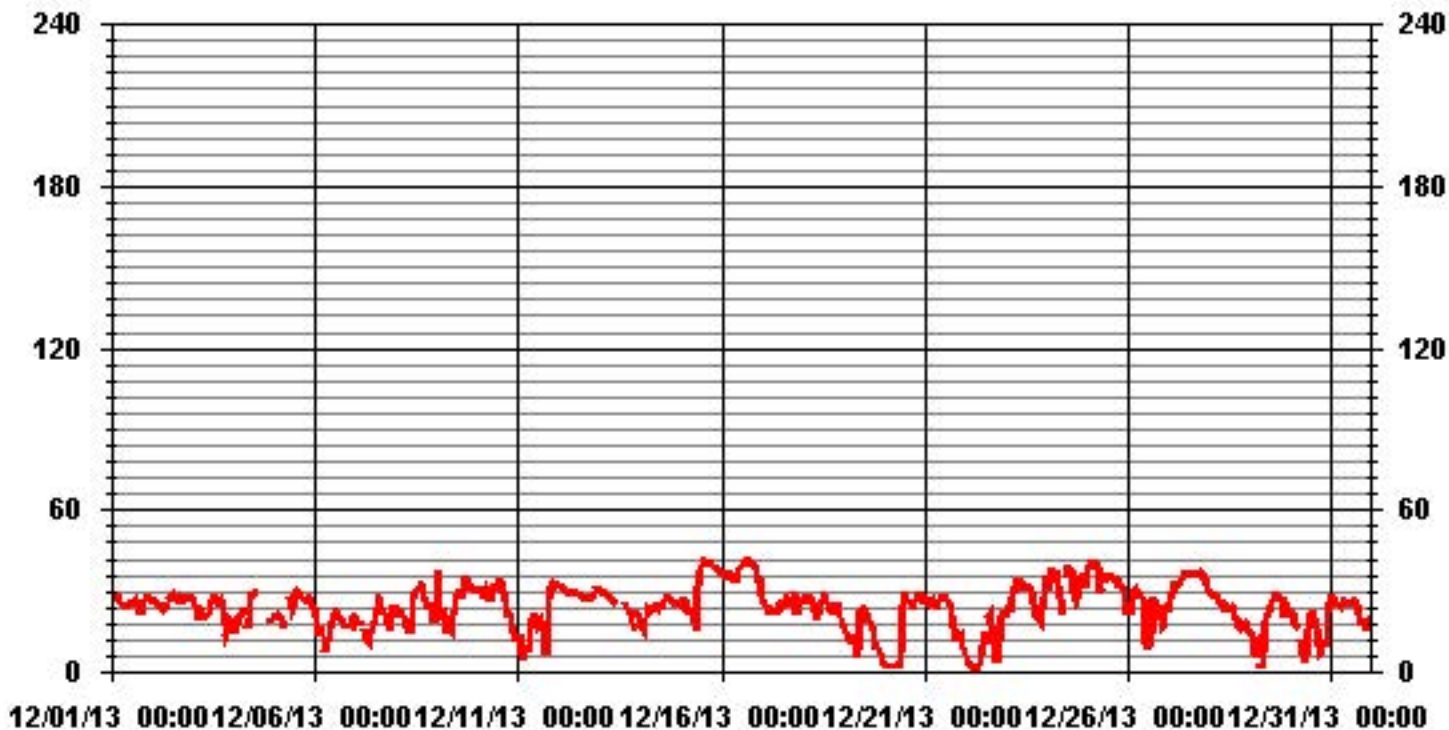
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	696				
MAXIMUM INSTANTANEOUS VALUE:	41	PPB	@ HOUR(S)	VAR	ON DAY(S) 15, 16
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	736	HRS
MONTHLY CALIBRATION TIME:	6	HRS			
STANDARD DEVIATION:	8.38				

01 Hour Averages



— LICA O3MAX PPB

LICA
O3_ / WD Joint Frequency Distribution (Percent)

December 2013

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	3.05	3.05	6.10	5.66	8.28	6.25	10.46	1.88	1.88	1.01	4.06	13.66	14.68	8.57	7.55	3.77	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	3.05	3.05	6.10	5.66	8.28	6.25	10.46	1.88	1.88	1.01	4.06	13.66	14.68	8.57	7.55	3.77	

Calm : .00 %

Total # Operational Hours : 688

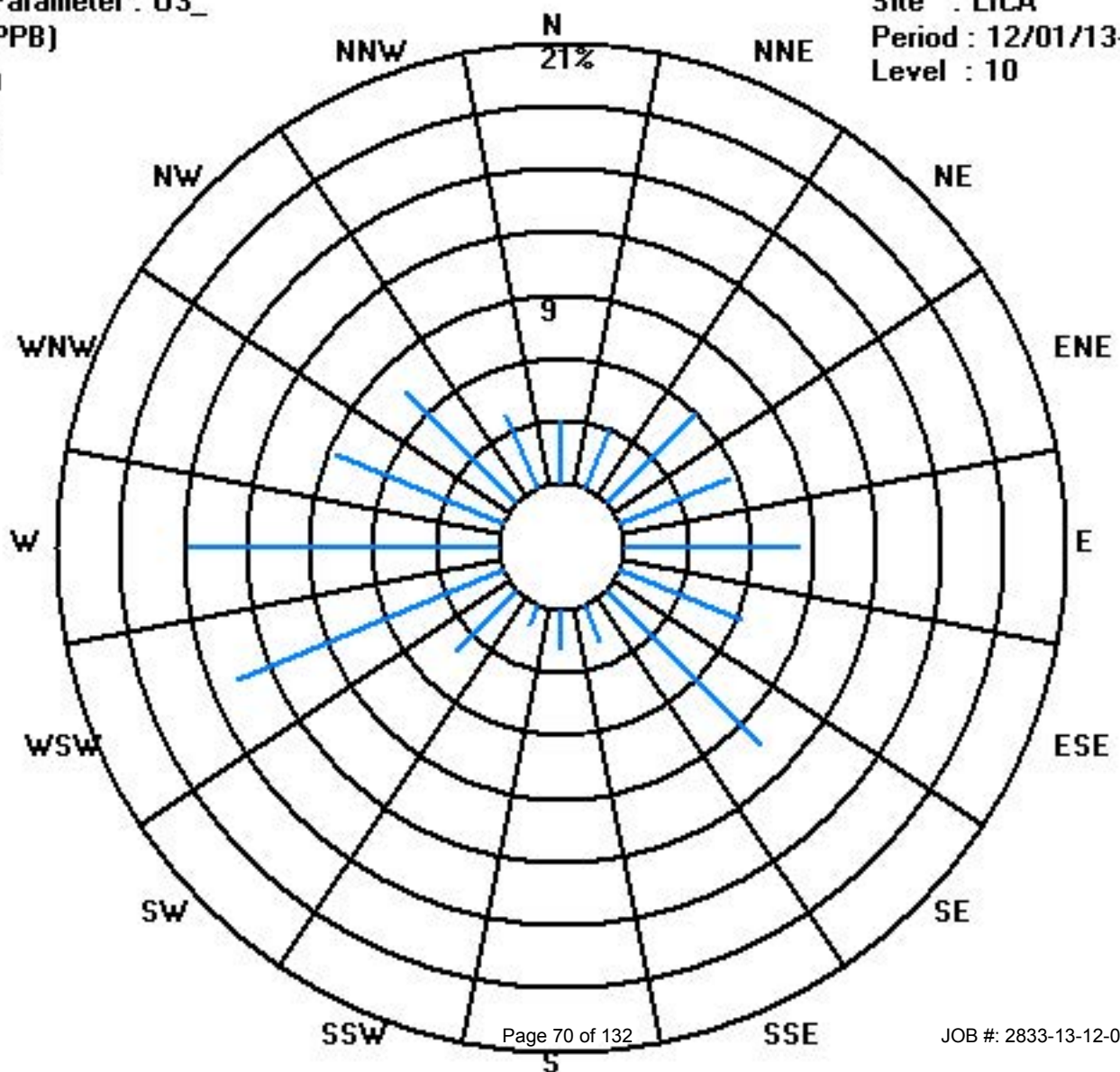
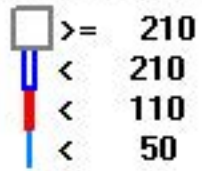
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50	21	21	42	39	57	43	72	13	13	7	28	94	101	59	52	26	688
< 110																	
< 210																	
>= 210																	
Totals	21	21	42	39	57	43	72	13	13	7	28	94	101	59	52	26	

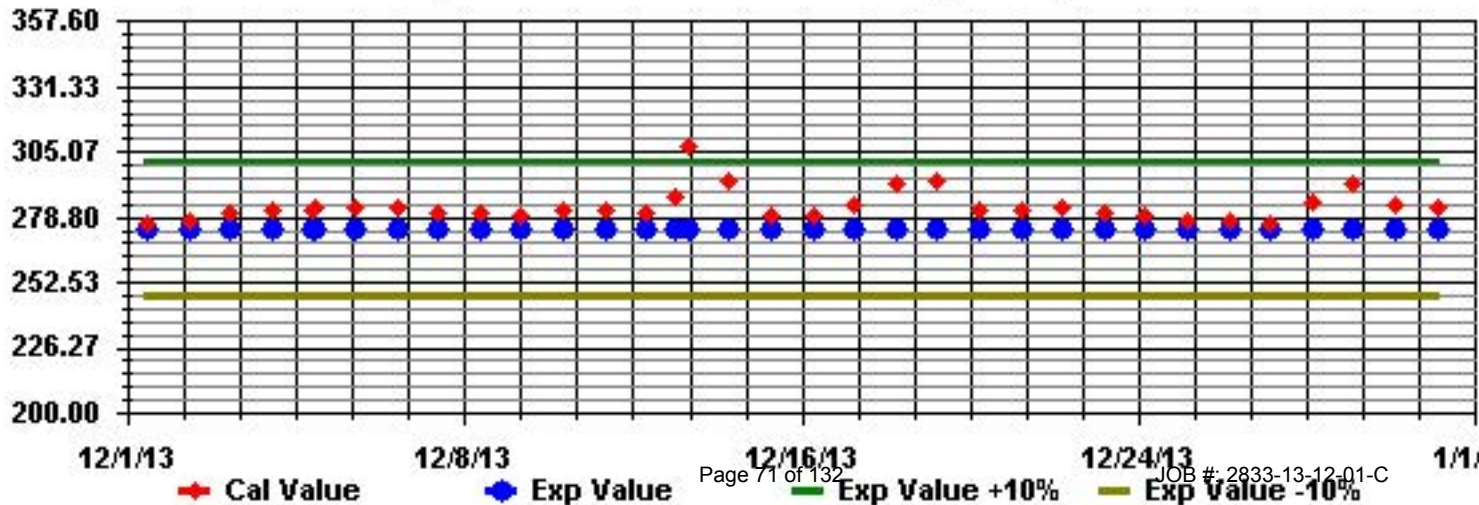
Calm : .00 %

Total # Operational Hours : 688

Class Limits (PPB)



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1	-3.8	-4.1	-4.4	-4.6	-4.8	-4.7	-4.6	-4.6	-4.6	-4.4	-4.2	-3.9	-3.4	-3	-2.8	-3.5	-4.2	-4.7	-5.2	-5.2	-5.2	-5.2	-4.9	-4.7	-2.8	-4.4	24	
2	-4.6	-4.6	-4.5	-4.7	-4.9	-5.3	-5.5	-5.8	-6.5	-6.8	-6.7	-6.6	-6.5	-6.6	-6.7	-6.6	-7.3	-8	-8.2	-8.4	-8.7	-9.1	-9.7	-10	-4.5	-6.8	24	
3	-10.2	-11	-12.3	-12.8	-13.3	-13.9	-14.3	-14.3	-14.3	-14.3	-14.2	-14.2	-14.5	-14.2	-14.1	-14.2	-14.9	-16.4	-18.1	-19.2	-20.8	-21.1	-19.5	-19.7	-19.8	-10.2	-15.5	24
4	-20.1	-20.6	-21.2	-20.1	-20.2	-21.2	-23	-21.9	-21.1	-20.5	-19.2	-18.8	-18.7	-17.8	-17.6	-18.7	-20.2	-20.3	-20.9	-21.7	-23.5	-23.6	-23.8	-23.9	-17.6	-20.8	24	
5	-23.6	-23.6	-24.1	-23.8	-24	-24.4	-24.9	-24.8	-24.4	-24.7	-24.4	-23.6	-22.7	-22	-22.3	-22.7	-23.4	-24.4	-25.1	-25.1	-25.4	-25.5	-26.3	-26.8	-22.0	-24.3	24	
6	-28.6	-29.7	-30.5	-28.9	-29.5	-30.4	-30.6	-30.9	-31.1	-30.5	-28.7	-26.9	-25.9	-25.3	-25.6	-26.3	-26.6	-27.6	-28.3	-29	-29.7	-30.1	-30.4	-31	-25.3	-28.8	24	
7	-31.2	-31.5	-31.8	-32.9	-34.1	-34.7	-35	-35.7	-35.8	-33.2	-30.4	-27.8	-25.5	-23	-22	-21.7	-21.3	-21.5	-21.3	-20.8	-21.1	-21.1	-21.8	-23.4	-20.8	-27.4	24	
8	-23.9	-23.7	-23.5	-23.7	-24.1	-24	-25.2	-26	-27	-25.2	-22.2	-20.7	-20	-19.6	-19.4	-19.7	-22	-22.9	-24.4	-25.4	-26.8	-27.8	-27.4	-27.4	-19.4	-23.8	24	
9	-25.5	-22.9	-22.2	-21	-20.6	-21.3	-21.1	-19.7	-20.2	-19.7	-15.7	-14.2	-13.3	-12.3	-11.1	-10.2	-9.4	-9.3	-10.5	-12.3	-12	-12.3	-12.9	-15.1	-9.3	-16.0	24	
10	-16.8	-18.8	-20.1	-21.4	-21.8	-22	-22.8	-23.8	-24.2	-23.4	-22.5	-21.8	-21	-20.1	-20	-21.2	-23.4	-25.8	-25.5	-26.3	-27.7	-28.7	-29.1	-29.3	-16.8	-23.2	24	
11	-29.7	-29.3	-29.6	-29.6	-28.1	-25.7	-24.6	-24.2	-23.9	-23	-22	-21.1	-19.1	-17.9	-17.4	-17.7	-18.1	-17.9	-18.1	-18	-18.1	-17.9	-18.2	-18.5	-17.4	-22.0	24	
12	-18.9	-19.1	-19.4	-19.5	-19.6	-19.9	-20.4	-20.5	-20.6	-20.6	-20.5	-20.4	-20.3	-20.4	-20.6	-20.7	-20.8	-21.2	-21.7	-22.4	-22.8	-23.1	-23.3	-23.6	-18.9	-20.8	24	
13	-23.9	-24.4	-25.1	-25.3	-25.4	-25.5	-25.4	-25.3	-25	-24.7	-24.4	-23.9	-23.6	-23.4	-23.5	-23.5	-23.4	-23.4	-24.5	-26.3	-26.9	-25	-24.4	-25.1	-23.4	-24.7	24	
14	-25.3	-24.9	-24.2	-24.3	-23.9	-23.5	-23.2	-23	-22.7	-22.3	-21.8	-21.4	-20.6	-20	-19.3	-18.8	-18.7	-18.4	-18.3	-18.5	-18.5	-18.4	-18.3	-18.1	-18.1	-21.1	24	
15	-17.9	-17.5	-17	-16.1	-14.9	-13.9	-12.7	-12.5	-12.6	-12.4	-8.7	0.4	4.1	4.4	3.9	3	1.4	1.5	0.9	0.5	0	0.1	0	-1.6	4.4	-5.7	24	
16	-2.9	-3.9	-4.5	-4.9	-3.5	-2.7	-2.6	-2.3	-3.1	-2.8	-2.1	-1.4	-0.7	-0.5	-0.4	-0.9	-1.4	-2.1	-3	-3.7	-5.1	-6.5	-7.7	-11.3	-0.4	-3.3	24	
17	-12.8	-14.1	-14.3	-14.8	-15.1	-15.2	-15.4	-15.8	-16.5	-17.2	-16.7	-16.2	-15.5	-15	-13.9	-13.1	-12.8	-12.4	-12.6	-12.2	-12.3	-11.6	-11.7	-12.5	-11.6	-14.2	24	
18	-14.3	-17	-18.6	-19.9	-20.7	-21.3	-22.2	-22.9	-23.2	-23	-22.3	-21.7	-21.6	-20.4	-20.6	-20.7	-21.4	-22.1	-21.9	-22.7	-22.6	-23.1	-25.7	-27.9	-14.3	-21.6	24	
19	-28.7	-29.8	-31.1	-32	-32.8	-32.6	-32.6	-32.8	-33.6	-31.7	-26.6	-23	-21.1	-19.5	-19.1	-19.6	-20.5	-21	-21.5	-22.5	-24.3	-25.9	-27.1	-27.4	-19.1	-26.5	24	
20	-27.4	-28.3	-27.4	-26.1	-26.8	-28.4	-29.3	-30.1	-31.3	-29	-24.1	-22.6	-21.8	-21.1	-20.9	-21	-21.4	-21.7	-21.9	-22.3	-22.5	-22.7	-23.1	-23.5	-20.9	-24.8	24	
21	-23.6	-24.1	-24.4	-24.7	-25	-25.1	-25.7	-26	-26	-25.5	-24.7	-23.5	-21.9	-21.2	-20.9	-21	-23.2	-25.4	-27.2	-28.2	-28.8	-29.8	-31.1	-32.1	-20.9	-25.4	24	
22	-32.9	-33.5	-34.1	-35	-35.6	-36	-36.7	-37.3	-37	-35.6	-31.3	-28.2	-25.5	-22.9	-22.3	-24.2	-27.7	-29.7	-31.1	-31.5	-31.8	-30.6	-28.6	-28	-22.3	-31.1	24	
23	-27.6	-27	-25.4	-24.1	-22.1	-20.2	-18.3	-17	-15.2	-14.9	-13.9	-13.4	-13	-12.3	-11.3	-11.3	-11.7	-11	-10.1	-9.5	-7.4	-6.6	-5.6	-5.9	-5.6	-14.8	24	
24	-7.9	-10.5	-9	-9.4	-10.7	-8.9	-8	-7.9	-8	-7.5	-7.2	-6.4	-5.9	-5.5	-5.1	-5.3	-5.1	-4.8	-4.3	-4.3	-3.5	-3.7	-4.2	-5.7	-3.5	-6.6	24	
25	-4.5	-4	-3.4	-3.6	-4	-5	-7.5	-9.1	-8.8	-8.7	-8.5	-8.2	-7.9	-8	-7.8	-7.9	-8	-7.8	-7.8	-7.5	-7.3	-6.9	-6.6	-7.8	-3.4	-6.9	24	
26	-8.1	-7.8	-7	-5.5	-4.3	-4.3	-4.2	-4.8	-6.3	-8.2	-7.2	-4.6	-2.7	-1.6	-1.1	-0.9	-0.7	-0.8	-1.2	-1.6	-0.9	0.1	2.1	2.1	2.1	-3.3	24	
27	-3	-6	-8.6	-10	-11.5	-12.2	-12.8	-13.2	-13.6	-14	-14.1	-14.5	-14.7	-14.9	-15.3	-15.9	-16.4	-16.7	-17.2	-17.8	-18.5	-19.5	-19.9	-20.9	-3.0	-14.2	24	
28	-21.6	-21.9	-22.2	-22.5	-22.7	-23	-23.4	-23.6	-23.4	-23.4	-23	-22.5	-21.1	-21	-21.4	-22.9	-25.5	-28.2	-27.5	-27.2	-28.2	-28.2	-30.8	-33.2	-21.0	-24.5	24	
29	-33.4	-34.5	-34.6	-35.2	-35.8	-36	-35.3	-32.5	-30.6	-28.2	-26.5	-25.4	-24.4	-23	-22.4	-21.7	-22	-21.6	-21.9	-23.1	-23.3	-23.7	-24	-24.2	-21.6	-27.6	24	
30	-24.3	-24.4	-25.6	-27.8	-29.9	-31.4	-32.8	-34.4	-35.1	-33.5	-29.2	-26.4	-26	-26.3	-26.5	-26.7	-28.2	-28.8	-29.2	-29.7	-29.6	-29.1	-28.7	-28.4	-24.3	-28.8	24	
31	-28.4	-28.4	-29	-29.1	-29	-29.2	-29.3	-29	-28.7	-28.4	-27.9	-27.1	-26.2	-25.4	-24.9	-24.8	-25.3	-26.7	-27.7	-28.4	-27.6	-26	-25.6	-26.1	-24.8	-27.4	24	
HOURLY MAX	-2.9	-3.9	-3.4	-3.6	-3.5	-2.7	-2.6	-2.3	-3.1	-2.8	-2.1	0.4	4.1	4.4	3.9	3.0	1.4	1.5	0.9	0.5	0	0.1	2.1	2.1				
HOURLY AVG	-19.5	-20.0	-20.3	-20.4	-20.6	-20.7	-20.9	-21.0	-21.1	-20.6	-19.1	-17.8	-16.8	-16.1	-15.9	-16.2	-16.9	-17.5	-17.9	-18.4	-18.7	-18.7	-19.0	-19.7				

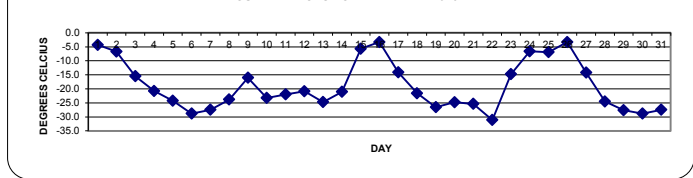
STATUS FLAG CODES

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

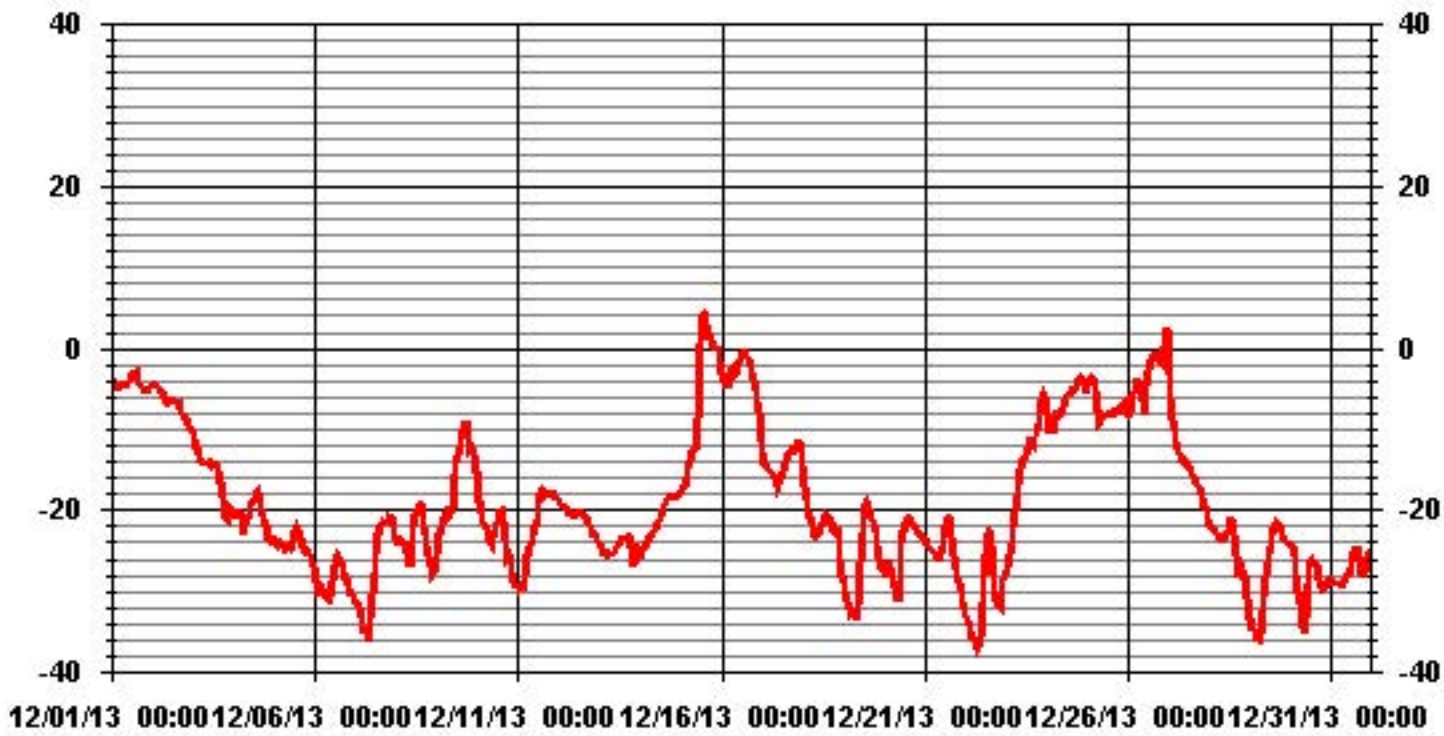
MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-37.3 °C	@ HOUR(S)	7	ON DAY(S)	22
MAXIMUM 1-HR AVERAGE:	4.4 °C	@ HOUR(S)	13	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	-3.3 °C			ON DAY(S)	16
				VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	9.26		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	-18.92	°C

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

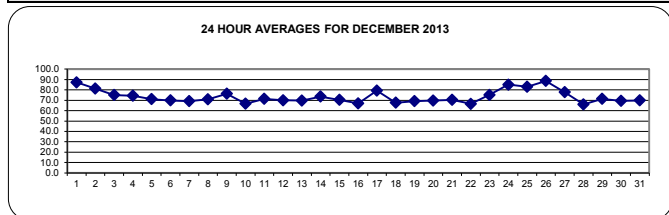
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	86	88	88	89	89	88	86	85	84	83	86	84	83	84	84	88	90	93	91	89	90	89	88	88	93	87.2	24	
2	89	87	85	87	84	84	85	81	80	78	76	78	79	77	78	83	81	82	79	79	81	79	79	79	89	81.2	24	
3	82	82	79	78	79	78	79	78	76	75	73	71	64	63	66	67	71	76	78	77	76	78	77	77	82	75.0	24	
4	77	76	76	76	76	76	75	77	76	76	74	74	73	68	67	70	74	74	74	75	75	75	75	74	77	74.3	24	
5	74	74	74	74	74	74	73	73	73	72	72	71	71	68	66	66	67	69	70	69	70	71	71	71	71	74	71.1	24
6	71	71	72	72	71	71	71	71	71	70	70	67	65	63	63	68	70	71	72	72	71	72	71	71	72	69.9	24	
7	71	71	70	69	68	67	67	66	66	67	68	69	70	68	65	65	65	67	71	71	73	74	75	75	75	69.1	24	
8	77	75	74	75	75	75	73	73	72	74	72	68	63	60	59	61	70	72	73	74	73	71	72	72	77	71.0	24	
9	74	74	74	75	76	75	76	76	76	74	75	76	75	78	81	83	82	75	78	82	79	77	73	65	83	76.2	24	
10	67	64	66	70	71	67	69	72	72	67	62	59	56	54	55	60	66	72	73	73	72	71	70	70	73	66.6	24	
11	70	71	70	70	71	73	73	72	72	71	71	68	67	67	69	72	72	70	74	76	75	74	76	74	76	71.4	24	
12	73	72	71	72	72	72	72	72	71	68	66	67	68	68	68	71	72	72	70	69	68	68	68	69	73	70.0	24	
13	70	69	67	67	68	69	69	70	71	70	70	71	69	68	67	68	69	70	72	71	71	72	72	72	72	69.7	24	
14	71	73	73	73	73	73	73	74	74	74	74	73	73	73	73	73	73	74	72	73	74	75	77	78	78	73.6	24	
15	78	78	79	80	81	82	83	83	84	80	84	75	62	56	47	51	69	64	65	67	67	62	54	56	84	70.3	24	
16	59	62	65	69	68	69	72	80	83	79	76	70	61	56	55	56	57	58	57	59	65	72	75	82	83	66.9	24	
17	83	84	85	83	82	82	81	80	80	79	79	78	78	77	76	76	76	76	76	77	77	78	80	78	78	85	79.3	24
18	76	69	66	67	68	70	72	73	72	70	64	61	60	57	61	67	69	69	67	68	67	68	72	71	76	67.7	24	
19	71	69	69	68	68	69	68	68	67	67	65	67	66	66	68	69	71	72	73	74	73	72	71	71	74	69.3	24	
20	69	69	70	73	71	70	70	70	69	66	63	68	67	65	67	68	71	71	72	72	72	73	73	73	73	69.7	24	
21	73	73	73	72	73	72	73	72	71	71	69	66	66	67	68	73	72	70	70	68	69	67	73	70	74	70.4	24	
22	69	67	67	66	66	65	65	65	64	63	62	65	64	61	61	67	71	71	69	69	68	71	71	70	71	66.5	24	
23	71	72	73	73	72	71	72	74	77	78	74	71	68	69	67	71	74	76	79	81	84	85	86	86	86	75.2	24	
24	87	88	86	84	85	82	82	84	86	86	86	83	81	82	82	84	86	89	90	89	83	83	85	88	90	85.0	24	
25	86	85	80	77	75	75	78	84	81	85	81	79	79	80	80	83	88	88	87	87	87	87	88	89	89	82.9	24	
26	89	89	89	90	89	88	87	87	87	86	86	86	86	83	84	89	90	91	92	92	93	93	91	89	93	88.6	24	
27	86	81	80	80	81	81	80	78	78	79	77	76	76	78	79	78	77	78	77	75	72	74	72	71	86	77.7	24	
28	69	67	65	65	64	65	63	65	67	66	64	62	57	57	59	64	69	71	73	72	71	71	69	67	73	65.9	24	
29	69	67	67	67	66	68	70	71	73	73	73	73	73	73	74	74	74	73	74	75	74	73	73	73	75	71.4	24	
30	72	72	72	71	70	70	68	67	67	66	66	66	65	66	68	69	72	72	72	70	71	71	71	70	72	69.3	24	
31	69	70	71	71	70	71	70	70	70	70	69	69	69	67	67	68	70	72	70	70	70	71	71	71	72	69.9	24	
HOURLY MAX	89	89	89	90	89	88	87	87	87	86	86	86	86	84	84	89	90	93	92	92	93	93	91	89				
HOURLY AVG	75.1	74.5	74.1	74.3	74.1	73.9	73.9	74.6	74.5	73.7	72.5	71.5	69.5	68.4	68.4	70.6	73.6	74.2	74.6	74.5	74.5	75.0	74.6	74.4				

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

24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	1, 26
MAXIMUM 24-HR AVERAGE:	88.6	%			ON DAY(S)	26
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	7.37		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	73.29	%	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

VECTOR WIND SPEED (WS) hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3.2	5.8	4.6	4.5	2.8	3.9	2.5	3.3	3.2	2.8	3.5	5.1	5.4	4.7	4.6	4.4	5.4	6.1	7.6	6.6	6.6	6.9	6.8	6.6	7.6	4.5	24	
2	6.9	7.7	8.9	7.6	7.4	6.8	7.2	10.8	10.5	10.4	11.8	13.7	13.4	12	10.9	9.4	9.7	10	9.2	9.9	7.9	7.3	7.8	7.2	13.7	9	24	
3	6.6	7.3	8.6	9.4	7	7.9	6.8	5.8	6.9	7.3	9.8	8.6	9.6	8.8	7.2	8	5.3	1.4	X	X	X	X	X	X	9.8	7.2	18	
4	X	X	X	X	X	X	X	X	X	X	X	X	0.5	6.4	7.2	7.3	5.4	5.3	3.8	4.8	5.5	5.7	5.9	4.6	7.3	4.8	12	
5	5.2	5.9	7.1	6.7	7.1	6.2	5	7.3	6.5	7.7	6.4	6.6	6.4	10.2	11.2	10.4	9.4	7	7.7	8.4	8.7	8.5	7.1	3.5	11.2	7.3	24	
6	3.6	6.8	6.9	5.9	7.3	6.9	6.3	6.7	6.4	6.5	7.5	7.4	7.3	6.3	5.1	5.2	4.2	4.4	4.7	4.6	4.5	4.9	4.7	4.7	7.5	5.8	24	
7	4.7	5.3	4.5	2.6	1	0.6	0.2	0.5	1.9	1.9	2.9	4.9	5.9	7.7	7.7	7.6	9.1	9.3	7.1	5.9	4.6	4.7	5.6	5.1	9.3	4.6	24	
8	7.8	3.8	4.5	5.6	5.2	6	5.7	6.4	4.3	5.9	7.3	10.4	9.6	10.1	7.1	3.3	4.9	4.7	2.3	3.8	0.4	1.4	0.4	1.5	10.4	5.1	24	
9	1.3	0.3	1.4	1.7	2	3.3	6.6	4.9	5.6	4.5	4.3	4.7	5.6	5.1	5.5	4.8	6.8	10.4	7.4	5.4	4	5.1	11.9	15.2	15.2	5.3	24	
10	11.2	10.7	9.4	5.9	7.7	10.3	7.7	6.2	7.2	8.4	11.1	10.6	8.7	7.3	6.6	5.5	4.7	3.7	4.3	2.9	0.6	0.7	0.3	0.1	11.2	6.3	24	
11	0.1	0.5	0.3	0.8	0.8	0.4	1.3	1.9	1.9	1.3	2.4	4.5	1.9	2.6	2.2	1.2	1.6	1.3	2.9	3.6	2.5	2.3	4.9	7.2	7.2	2.1	24	
12	7.1	5.9	5.7	4.6	5.1	5	5.6	5.5	6.8	6.5	6.7	5.6	6.1	7.8	8.1	6.3	5.8	5.9	6.8	6.7	6.9	7.6	6.5	7.7	8.1	6.3	24	
13	7.4	7.2	7.5	7.5	6.8	6.5	6.3	6.8	6.6	5.9	5.8	5.3	4.8	4.8	4.2	2	2	1.4	1.3	1.6	1	0.6	2	1.5	7.5	4.5	24	
14	0.8	2.1	2.5	3.8	5.3	6.3	6.6	7.6	7.5	7.5	7	7.3	7.8	8.1	7.8	7.9	8.1	9.2	12.7	10.1	11	9.5	11.1	11.5	12.7	7.5	24	
15	11.1	7.2	6.4	6.4	3.2	4.3	2.8	1.9	1.4	1.6	6	9.9	14.6	19.2	23.6	26.3	21.8	20.5	17.2	13.3	8.6	10.9	11.9	9	26.3	10.8	24	
16	7	7	5.1	5.1	9.1	7.9	9.5	9.1	7.2	9	11.5	13.3	15.2	14.1	14.4	13.5	11	12.2	9.4	7.4	7.2	6.2	2.9	2.6	15.2	9.0	24	
17	2.3	2.5	3.3	1.7	2.1	3.3	5.5	5.9	6.8	6.6	8.4	7.2	7.1	11.3	5.9	4.4	4.7	4	3	2.2	2	6	6.4	8.2	11.3	5.0	24	
18	12.2	15.9	14.4	8.7	7.6	4.5	5.3	5.6	5	6.6	8.2	7.5	8.3	7.9	8.7	5	6.5	7.1	5.8	4.3	5	3.2	2.7	2.8	15.9	7.0	24	
19	3.9	1.2	1.2	0.4	1	1.8	0.7	0.4	0.7	0.2	1.7	2.5	3.9	5.2	4.5	6.9	7.8	6.4	5	4	1.3	0.4	0.3	0.6	7.8	2.6	24	
20	0.8	1	0.6	1.1	0.6	0.5	0.1	0.1	0.9	0.7	0.5	4	4	4.2	5.6	4.2	6	6.4	6.3	6.2	5.7	3.1	2.4	2.2	6.4	2.8	24	
21	3.2	2.4	2.5	2.9	2.6	1.9	0.3	2.8	4.5	5.3	4.7	4.5	2.8	0.2	3	2.9	1.6	1.8	1.8	1.2	0.1	1.1	0.5	1.8	5.3	2.4	24	
22	0.2	0.4	0.3	0.7	0.5	0.5	1.1	0.7	0.8	0.7	1.1	2.8	3.5	3.1	2.7	0.9	0.8	1.1	0.6	1.3	1.4	3.1	6.8	5.4	6.8	1.7	24	
23	6.5	5.2	2.1	4.6	3.4	4.1	4.2	4.1	2.9	6.2	3.6	8.4	6.4	5.8	3	2.1	1.5	0.5	2.7	3.8	5.8	4.1	5.1	4.3	8.4	4.2	24	
24	3.5	3.6	5.2	4.5	5.2	3.4	0.5	0.8	0.8	0.2	1.3	2.5	3	3.8	3.6	5	4.2	7.6	6.4	7.2	6.3	5.2	3.4	4.8	7.6	3.8	24	
25	4.8	5.8	7.7	5.5	5.4	5.2	3.4	2.2	2.3	4.1	6.8	8.5	7.7	9.2	9.6	12	8.1	5.5	1.9	1.1	1.1	1.2	0.3	1.1	12.0	5.0	24	
26	2.5	1.9	3.6	4.8	5.4	4.5	5.4	5	2.9	0.8	1.2	1.1	0.8	1.7	1.3	3.3	4.1	2	1.2	1.7	1.6	3.8	6.5	8	8.0	3.1	24	
27	10	11.9	8.9	8.7	9.3	8.2	7	8.6	10.3	10.6	11.5	13.3	12.3	11.2	11.1	12.6	13.7	13.7	15.3	12.6	12.3	11.8	10.5	7	15.3	10.9	24	
28	7.8	8.3	8	5.7	5.1	5.9	5.9	3.7	2.8	4.9	2.7	1.2	4.1	4.9	5.1	5.3	3.6	3.1	4.9	5	5	5.4	0.9	2.3	8.3	4.7	24	
29	0.5	0.5	0.6	0.4	0.7	0.6	1.1	0.5	2.1	5	4.6	6	6.2	5.7	7.2	5.2	4.4	4.2	3.2	3.5	4.3	3.7	2.2	2.4	7.2	3.1	24	
30	2.1	0.9	0.7	0.9	0.2	0.2	0.4	1.5	0.2	0.6	1.3	2.6	4.4	5.3	2.5	0.6	2.2	1.2	1.2	0.4	1.1	1	2.2	6.2	6.2	1.7	24	
31	5.2	4.6	4.6	4.4	5.5	4.5	4.9	5.7	4.6	5.3	4.6	3.9	3.5	3.4	3.5	2.8	1.3	0.2	0.8	0.6	0.8	0.9	1.2	0.7	5.7	3.2	24	
HOURLY MAX	12.2	15.9	14.4	9.4	9.3	10.3	9.5	10.8	10.5	10.6	11.8	13.7	15.2	19.2	23.6	26.3	21.8	20.5	17.2	13.3	12.3	11.8	11.9	15.2				
HOURLY AVG	5.0	5.0	4.9	4.4	4.4	4.4	4.2	4.4	4.4	4.8	5.5	6.5	6.5	7.0	6.8	6.3	6.0	5.7	5.5	5.0	4.5	4.5	4.7	4.9				

STATUS FLAG CODES

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

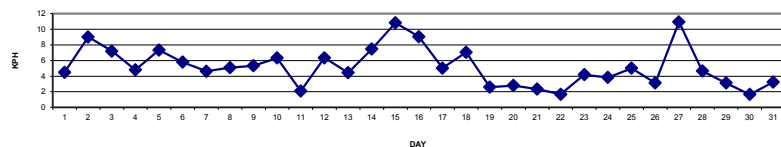
LAST CALIBRATION:

November 28, 2012

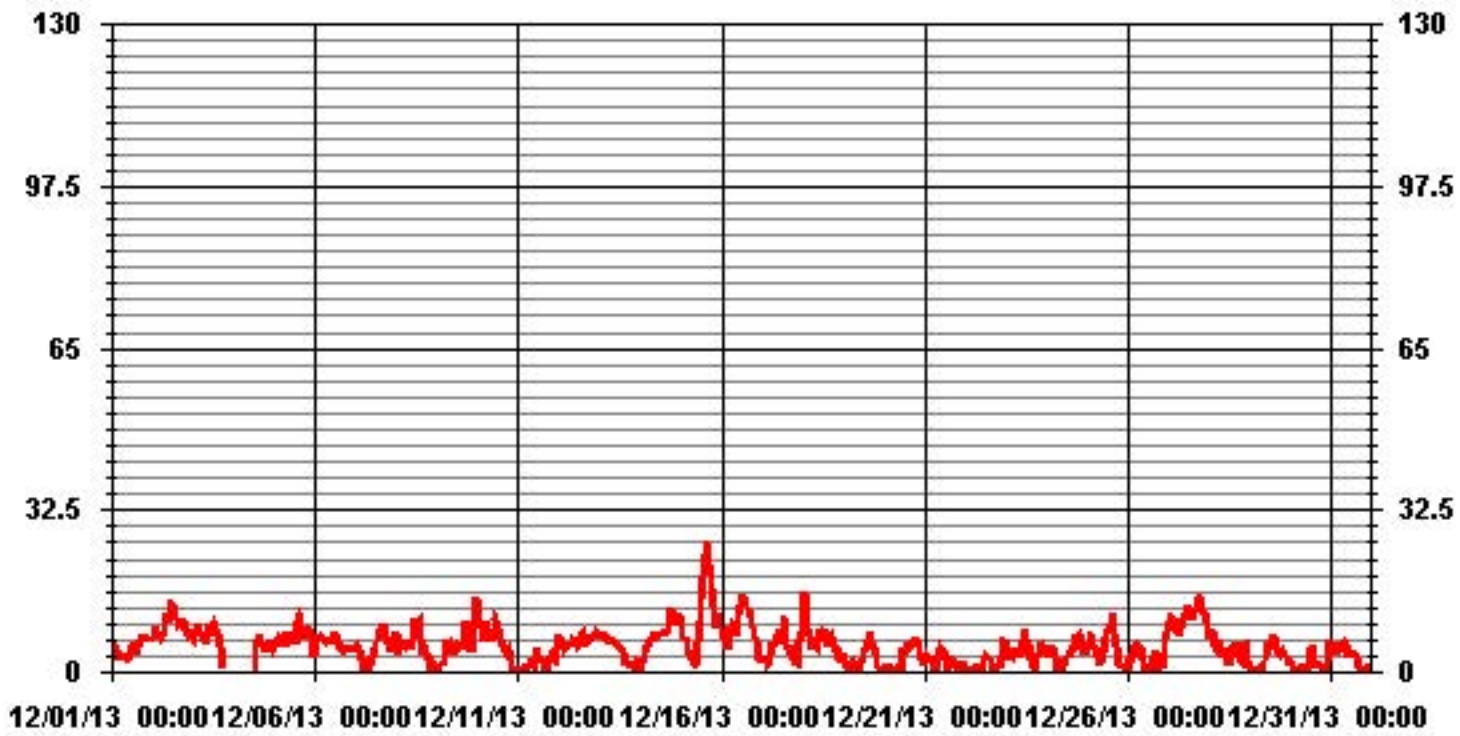
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	26.3	KPH	@ HOUR(S)	15	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	10.9	KPH			ON DAY(S)	27
CALMS (≤ 0 KPH)	2.82	%	OPERATIONAL TIME:	726	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	97.6	%	
STANDARD DEVIATION:	3.60		MONTHLY AVERAGE:	5.23	KPH	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	
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	9	8.9	7	6.9	5.2	6.7	4.8	6.1	5.2	5.2	6.3	9.1	9.6	7.9	8.1	7.9	7.7	9.9	13.6	11	11.6	10.7	10.5	13.3	13.6	
2	11.8	12.5	13.4	12	14.3	10.8	13.5	17.3	16.9	15.4	18.8	19.5	17.6	17.8	15.9	13.7	14.5	15.2	14.7	14.4	12	12.2	12.3	12.1	19.5	
3	9.9	10.8	12	15.6	12.2	12.1	9.4	9.6	12.3	12.2	18.1	13.5	14.7	14.5	11.8	12.5	9.7	X	X	X	X	X	X	X	18.1	
4	X	X	X	X	X	X	X	X	X	X	X	X	29.1	10.4	11.4	9.8	7	7.9	5.7	7.8	8.7	7.5	7.6	6.2	29.1	
5	7.3	8.5	9.4	9	9.3	8.7	7.9	10.2	9.6	9.6	10.2	10.2	9.5	15	14.9	17.5	14.3	9.5	10.1	11.6	10.6	11	12	5.8	17.5	
6	7.7	10.9	11.1	8.2	9.5	9.3	9.7	9.9	8.7	10.7	10.1	12.2	11	10.9	9.7	9.9	6.2	6.5	7.3	6.7	6.3	7.1	7.5	7.7	12.2	
7	6.8	8.9	7.9	4.3	7.6	2.7	18.3	5.4	4	6.2	6.2	8	9.6	12	11.4	14.4	14.2	14.9	10.8	9.6	6.7	8.2	8.3	8.8	18.3	
8	11.1	9.4	5.6	8.3	7.4	7.4	8.5	8.9	7.1	8.6	10.6	16.6	15.2	14	12.2	7.4	8.8	7.1	5.5	5.4	3.6	4.2	3.5	3.2	16.6	
9	5	7	5.1	5.4	8.1	6.7	9.6	7.3	8.3	7.2	6.9	7.8	8.8	8.8	7.8	7.3	13	19	12.3	10	6.6	7.7	25.3	20.3	25.3	
10	18.8	17.3	15	9.2	13.2	16	10.6	8.3	10.9	11.9	15.3	17.4	14.2	13.9	13.5	7.7	8.4	5.6	6.3	6.1	2.5	2.1	3.3	2	18.8	
11	6	2.4	3.4	3.4	2.8	3.3	5.8	4.6	4.5	2.9	6.3	8.6	4.7	5.1	5.1	4	4.5	2.2	6	6.4	7.3	6.1	8.9	11.1	11.1	
12	10.7	10.7	9.9	7.4	7.7	7.6	8.7	9.1	10.2	X	10.1	10.4	9.7	11.7	12.3	12	9.8	9.3	10.7	11.3	11.9	11.3	10.7	12.8	12.8	
13	10.6	12.9	12.5	14.6	11.1	12.2	11.3	11.1	10.7	9.9	10.4	9.6	9.6	8.7	8.1	4.4	4.2	3.9	3.7	4.3	4.7	3.6	5.5	5.7	14.6	
14	3.8	4.6	3.9	6.4	8.5	11.5	11.3	12.7	13.2	13.6	11	12.7	13.7	15.1	14	13.9	13.7	14.4	19.2	16.8	18.2	14.8	15.4	15.2	19.2	
15	20	12.7	12.7	13.3	15.5	7.8	8.6	3.9	4.3	7.3	11.1	18.5	24	32.9	38.6	41.6	36.2	33.7	29.4	26.2	13.6	17.2	16.5	16.3	41.6	
16	11.2	9.9	7.4	7.5	14.6	12.5	17.1	13.9	11.1	13.1	16.7	19.2	29	22.6	23.3	22.5	18.9	26.4	19.9	12.5	9.8	11.2	7.2	6.4	29	
17	4.9	5.5	5.4	4	4.6	5.8	9.5	9.5	11.4	11.1	14.3	13.3	11.3	20.7	11.7	12.6	7.9	7	5.8	4.7	5	9.6	9.3	14.3	20.7	
18	21.4	22.8	22.1	14.9	11.4	8	8.1	8.8	8.2	10.4	13	11.8	14.2	12.2	14.3	7.6	9.5	11.9	9	7.9	8.6	5.8	4.7	6.4	22.8	
19	6.1	3.5	3.7	5.2	4	3.5	3.9	5.1	3.5	3.4	5.4	6.4	7.5	8.1	7.6	10.1	11.4	12.3	9.9	5.7	4	3.7	3	2.5	12.3	
20	3.4	3.1	3.7	2.6	2.7	3.6	1.8	6.8	6.7	2.5	2.7	7.1	7.2	7.9	9.1	7.6	9.4	11.2	9.9	9.4	9	7.1	5.9	5.1	11.2	
21	7.1	4.3	5.9	5.1	4.6	3.8	3.1	5.2	8.4	8.5	7.2	6.4	7.2	3.9	6	4.9	3.8	3.9	4.5	4.9	2.4	4	5.1	4.1	8.5	
22	5.3	5	2.4	3.4	2.8	2.4	3.9	2.9	12	6.3	4.1	5.9	7	7	6.2	2.2	1.9	9.4	3.5	4.5	4.7	8.2	9.2	11.1	12	
23	9.8	9.3	6.2	10.3	6.8	7.8	8.4	8	8.9	14.7	9	14.7	11.8	11.5	6.3	4	5.3	8.4	5.9	6.5	9.9	7.1	7.9	9.1	14.7	
24	6.1	6.7	7.8	6.7	7.9	6.2	3.9	3.6	3	2.1	3	5.4	5.9	6.3	6.4	8	6.1	11.2	8.4	12.9	12.2	8.2	6.2	7.9	12.9	
25	9.2	8.6	11.7	10.5	8.2	8.9	6.8	6.3	4.3	8.9	12.8	14.1	12	15.6	15.7	17.3	14.1	11.6	7.4	5.5	5.4	3.9	5.3	2.4	17.3	
26	5.2	4.4	4.7	6.9	8.1	6.7	7.9	6.8	5.9	2.4	3.6	3.3	9.5	3.9	4.3	7.2	7	5.3	3	3.3	3.9	7.7	13	16.7	16.7	
27	16.7	17.6	14.9	14.6	13.3	13	11.7	13.7	15.2	13.8	17.1	19.6	18.2	15.1	16.8	18.7	18.4	19	23.1	17.9	19.5	20	18.1	12.3	23.1	
28	13.6	14.2	12.4	9.5	8.2	10.5	11	6.6	5.3	7.7	5.6	6.9	8.7	8.9	8.3	7.6	6.7	5.6	7.5	9	8.3	8.8	4.4	6.3	14.2	
29	5.9	4.4	7.8	6.4	5.4	2.7	7.8	2.4	5.3	7.5	7.1	8.5	9.6	10.1	11.9	8.3	8.1	7.1	5.8	6.7	8.6	6.8	4.6	4.6	11.9	
30	5.3	4.8	2.9	5	2.9	3.5	2.5	4.3	7.8	2.4	3.7	8.6	7.3	7.7	6	2	4.4	3.8	3.2	3.2	3.5	2.5	4.5	10.7	10.7	
31	9.1	8	10	8.8	10.7	8.6	8.9	8.7	8.5	7.9	8.6	7.6	6.8	6.8	6.3	5.4	4.5	4.1	3.3	3.3	4.1	4.1	4.7	2.2	10.7	
PEAK	21.4	22.8	22.1	15.6	15.5	16.0	18.3	17.3	16.9	15.4	18.8	19.6	29.1	32.9	38.6	41.6	36.2	33.7	29.4	26.2	19.5	20.0	25.3	20.3		

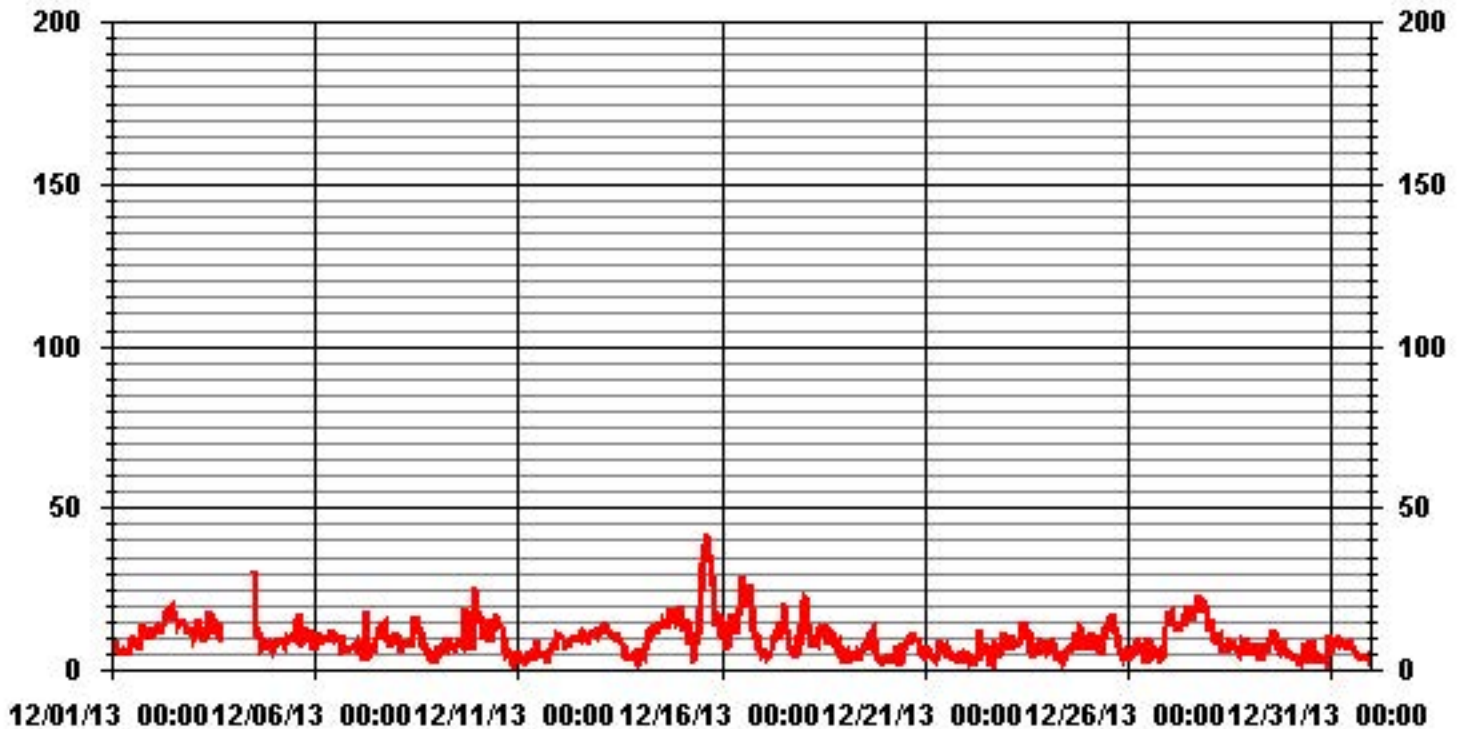
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	41.6	KPH	@ HOUR(S)	15
			ON DAY(S)	15

01 Hour Averages



— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

December 2013

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	1.37	1.23	2.75	2.47	5.64	3.99	5.92	1.51	1.51	.82	3.58	11.84	9.22	4.13	2.34	.82	59.22
< 12.0	1.37	1.37	2.06	2.89	3.03	2.20	3.85	.00	.13	.13	.41	1.51	4.40	2.89	5.23	2.06	33.60
< 20.0	.13	.13	1.10	.27	.00	.00	.27	.00	.00	.00	.00	.00	.41	.96	.00	.41	3.71
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.55	.00	.00	.55
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.89	2.75	5.92	5.64	8.67	6.19	10.05	1.51	1.65	.96	3.99	13.36	14.04	8.53	7.57	3.30	

Calm : 2.89 %

Total # Operational Hours : 726

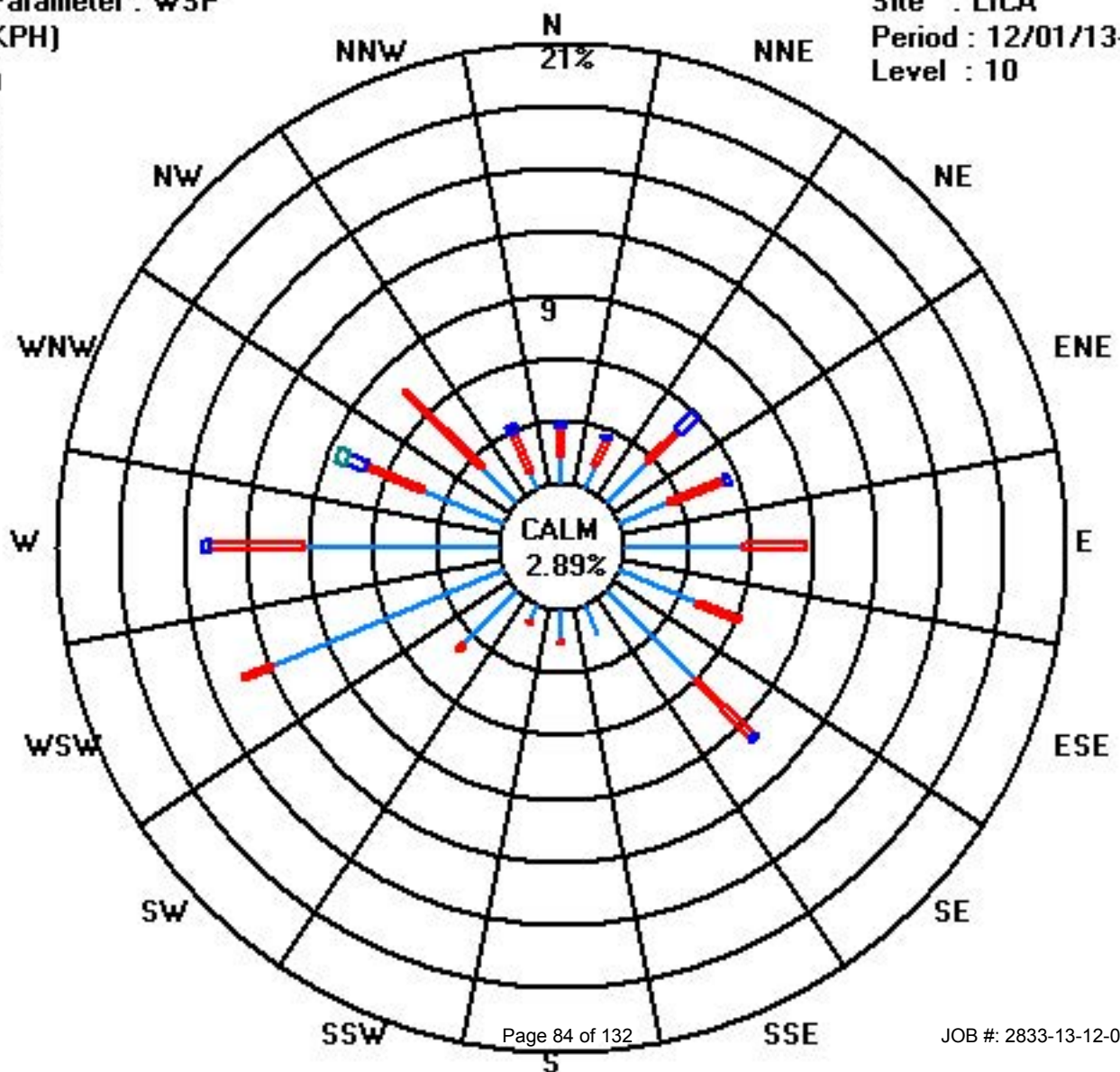
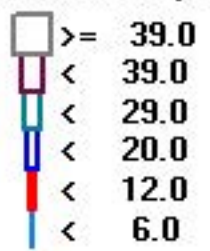
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	10	9	20	18	41	29	43	11	11	6	26	86	67	30	17	6	430
< 12.0	10	10	15	21	22	16	28		1	1	3	11	32	21	38	15	244
< 20.0	1	1	8	2			2						3	7		3	27
< 29.0														4			4
< 39.0																	
>= 39.0																	
Totals	21	20	43	41	63	45	73	11	12	7	29	97	102	62	55	24	

Calm : 2.89 %

Total # Operational Hours : 726

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

VECTOR WIND DIRECTION (WD) 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	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.
DAY																											
1	138	144	137	137	110	133	132	137	140	120	90	92	89	89	99	119	124	109	107	100	74	79	72	77	106	SW	24
2	69	74	75	75	82	76	75	65	68	67	63	59	55	51	55	45	30	33	30	37	35	41	34	23	55	WNW	24
3	349	326	334	343	351	333	325	327	326	318	317	324	325	319	323	327	334	359	X	X	X	X	X	X	329	NW	18
4	X	X	X	X	X	X	X	X	X	X	X	X	275	327	321	307	298	304	291	263	258	266	274	283	292	W	12
5	291	286	283	276	277	284	286	307	311	310	300	282	288	332	336	335	327	325	317	323	319	315	315	282	308	SSW	24
6	242	274	285	274	265	265	269	263	279	277	282	282	270	258	241	248	241	239	245	238	242	241	246	242	261	WNW	24
7	245	249	247	239	217	167	166	260	276	283	282	259	243	235	238	243	252	262	266	271	281	284	260	256	255	WNW	24
8	264	266	250	256	266	271	261	263	251	272	300	315	317	312	302	260	246	247	229	254	217	276	170	128	277	W	24
9	151	324	251	266	309	279	270	281	257	261	264	246	238	241	266	272	298	306	318	293	275	269	4	8	292	SW	24
10	4	359	346	325	321	333	315	290	306	307	308	313	296	283	283	259	255	240	244	229	211	257	264	71	309	WSW	24
11	120	76	115	270	268	31	261	237	271	299	271	271	307	273	272	266	265	145	104	105	85	50	62	61	342	NNW	24
12	64	68	70	81	73	78	73	81	82	90	101	102	85	63	68	77	83	92	104	106	111	99	99	98	86	S	24
13	97	101	102	116	104	108	117	103	108	90	98	87	106	96	82	95	38	46	169	230	276	285	243	221	104	SSW	24
14	170	149	148	141	138	136	132	135	134	131	115	121	119	123	127	133	128	134	138	137	138	144	138	138	134	NW	24
15	139	140	138	146	154	144	149	137	85	262	265	254	272	278	285	286	288	294	301	303	277	275	265	253	273	SE	24
16	232	250	240	242	267	265	275	273	256	262	272	275	284	288	289	297	291	296	297	285	263	274	275	30	277	WSW	24
17	78	134	68	36	60	103	101	97	97	71	100	90	99	134	128	129	133	62	66	54	20	4	323	6	86	SW	24
18	342	339	345	346	328	325	305	298	302	271	310	325	333	324	316	320	325	318	313	306	308	280	258	246	321	WSW	24
19	246	245	248	267	220	212	205	242	222	11	160	266	243	252	233	244	253	250	257	256	247	222	256	108	244	SW	24
20	235	283	260	57	222	260	100	332	231	35	89	114	102	82	92	107	90	96	91	90	99	100	128	85	97	WNW	24
21	94	100	117	126	132	142	150	139	144	143	141	138	138	191	286	248	250	230	240	267	160	242	162	260	156	WSW	24
22	287	232	183	261	289	335	248	214	248	282	284	294	254	251	267	304	183	85	119	152	185	133	139	142	203	WSW	24
23	140	138	129	133	131	132	140	145	186	190	189	221	213	217	183	221	291	205	239	266	273	286	293	294	198	SW	24
24	270	267	269	263	249	279	319	232	95	4	149	258	276	298	238	248	237	263	268	290	289	272	244	251	265	WSW	24
25	279	261	270	290	306	337	37	102	97	123	131	131	129	132	132	134	133	131	111	279	262	180	224	226	144	S	24
26	256	241	253	245	245	250	250	251	268	46	103	53	49	74	54	124	146	151	185	248	253	269	286	337	257	WNW	24
27	32	11	23	40	39	35	35	52	52	49	55	53	59	58	50	55	50	51	49	42	31	29	30	33	43	S	24
28	18	5	3	11	2	341	351	356	326	344	1	285	261	250	240	255	249	239	238	227	234	240	235	260	311	S	24
29	220	200	175	10	35	309	47	350	50	69	79	74	85	95	92	104	88	64	30	32	32	25	11	324	68	S	24
30	275	251	225	254	272	22	3	251	330	103	53	20	35	56	51	96	120	105	42	305	49	25	126	137	74	E	24
31	132	113	104	107	103	100	108	99	101	80	95	104	88	92	72	105	69	89	246	299	295	238	234	211	103	WNW	24
HOURLY AVG	349	359	346	346	351	341	351	356	330	344	317	325	333	332	336	335	334	359	318	323	319	315	323	337			

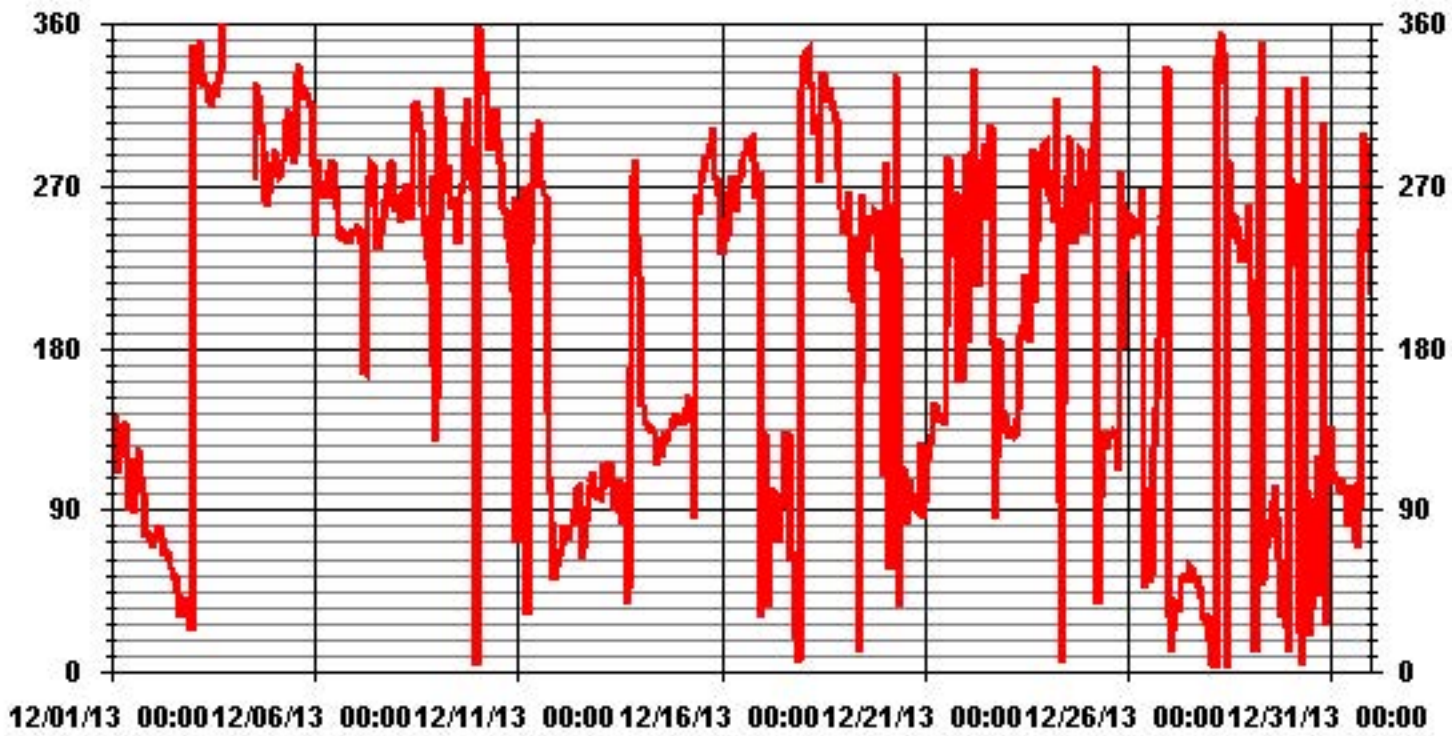
STATUS FLAG CODES

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:	November 28, 2012
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	726 HRS
STANDARD DEVIATION:	98.60	AMD OPERATION UPTIME:	97.6 %
		MONTHLY AVERAGE:	324 DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2013

STANDARD DEVIATION WIND DIRECTION (STDWDIR) 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	53	14	14	17	27	18	22	19	21	23	22	19	21	20	23	22	21	22	21	20	20	20	18	20
2	18	20	18	19	20	18	18	16	18	18	17	15	16	18	17	18	21	21	21	19	20	20	21	18
3	17	12	13	15	16	14	13	15	13	14	15	18	16	17	17	13	11	17	X	X	X	X	X	X
4	X	X	X	X	X	X	X	X	X	X	X	X	18	19	14	12	13	12	20	18	14	20	17	21
5	17	17	17	18	17	17	21	12	14	11	17	20	21	15	13	13	12	13	12	12	12	13	13	28
6	22	32	20	25	20	26	26	28	30	27	23	22	22	24	24	24	24	22	23	21	23	24	25	28
7	30	31	31	31	43	53	63	48	45	43	35	25	21	20	21	22	21	19	19	20	18	19	15	16
8	12	26	15	14	20	18	19	21	27	22	15	14	18	17	21	23	15	16	27	25	57	64	59	41
9	58	54	56	38	48	26	18	18	13	12	17	21	20	20	16	18	17	16	19	19	19	19	21	20
10	16	15	13	11	12	12	11	17	15	15	14	17	20	23	21	17	17	20	20	36	46	53	44	65
11	63	56	66	55	50	71	34	32	34	46	39	25	35	32	28	46	29	25	24	24	32	34	20	17
12	17	20	19	24	20	22	21	23	20	22	22	27	24	18	19	21	23	23	22	23	25	22	26	22
13	23	26	25	26	27	28	27	26	27	26	28	28	30	28	30	37	35	49	37	39	65	58	38	37
14	32	23	21	16	17	17	20	18	19	21	23	24	23	24	22	21	21	17	15	15	15	14	15	14
15	16	27	29	34	59	19	46	34	50	55	23	18	18	18	20	20	20	19	18	17	18	18	18	17
16	19	15	15	16	16	16	17	19	15	18	18	19	19	20	21	19	20	18	19	19	14	17	40	34
17	24	32	16	26	38	23	20	20	19	18	21	22	21	18	25	35	20	20	31	44	37	21	14	18
18	18	14	17	16	16	23	15	18	18	19	16	17	16	22	15	15	11	13	17	18	16	29	35	34
19	30	39	56	79	61	35	61	66	54	60	48	29	32	18	19	19	17	16	21	23	33	51	61	58
20	56	40	46	31	56	56	69	68	54	59	54	23	29	21	23	25	20	19	20	21	30	31	42	42
21	32	31	29	24	25	23	59	21	15	14	13	17	39	44	24	24	30	29	36	52	62	53	57	50
22	66	71	67	68	71	70	62	62	68	60	52	31	32	33	46	54	44	52	69	49	46	34	16	19
23	16	18	43	20	32	21	23	24	37	38	39	29	33	33	42	42	47	63	25	19	16	17	19	
24	21	30	18	15	10	23	47	65	46	52	45	32	29	21	20	17	15	14	13	16	17	18	23	13
25	20	15	17	18	15	15	20	20	20	22	18	18	21	18	18	14	34	33	42	76	55	32	62	34
26	21	35	13	13	17	16	12	11	12	28	27	42	68	39	60	21	25	40	46	25	46	23	20	17
27	21	19	20	20	19	21	20	17	17	17	16	17	16	15	16	17	18	17	17	20	19	19	21	21
28	18	16	16	18	22	16	19	27	25	19	33	50	32	26	25	25	23	32	29	24	26	28	55	54
29	60	60	62	62	73	71	54	53	50	27	29	22	25	24	18	23	21	22	22	23	21	24	29	23
30	36	70	59	57	68	68	77	55	80	58	62	42	24	21	53	50	40	54	49	57	49	35	35	23
31	27	32	34	34	32	36	33	30	34	29	35	36	34	34	32	34	67	45	46	48	60	56	42	51

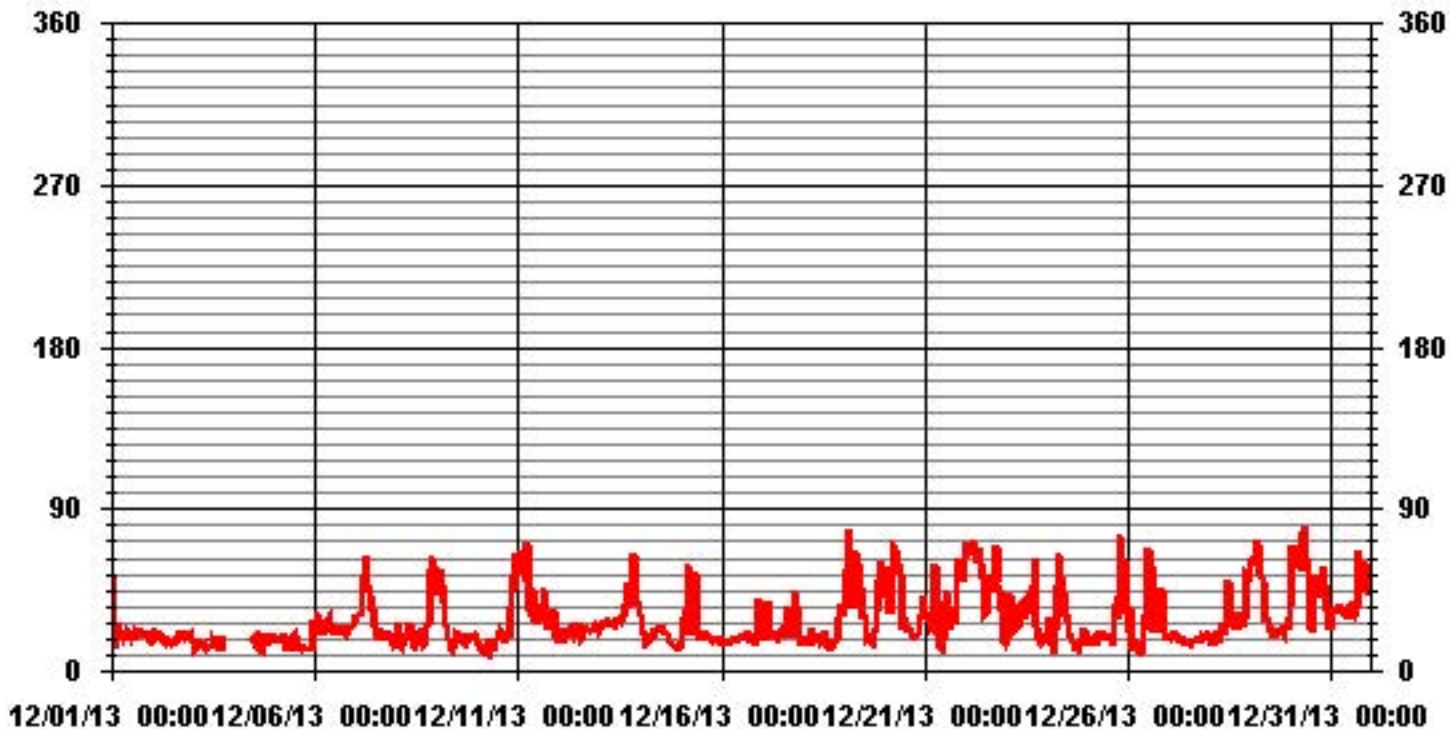
STATUS FLAG CODES

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: November 28, 2012

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 726 HRS

01 Hour Averages

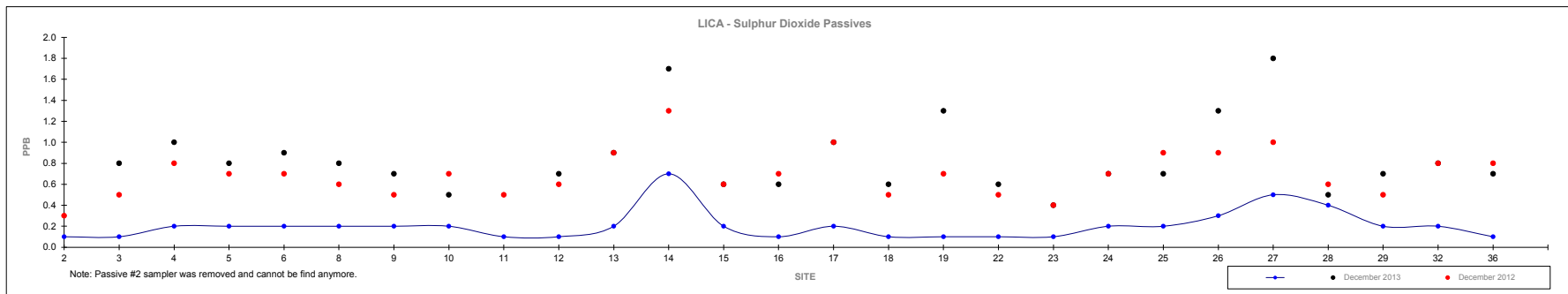


— LICA STDWDIR DEG

Non-Continuous Monitoring

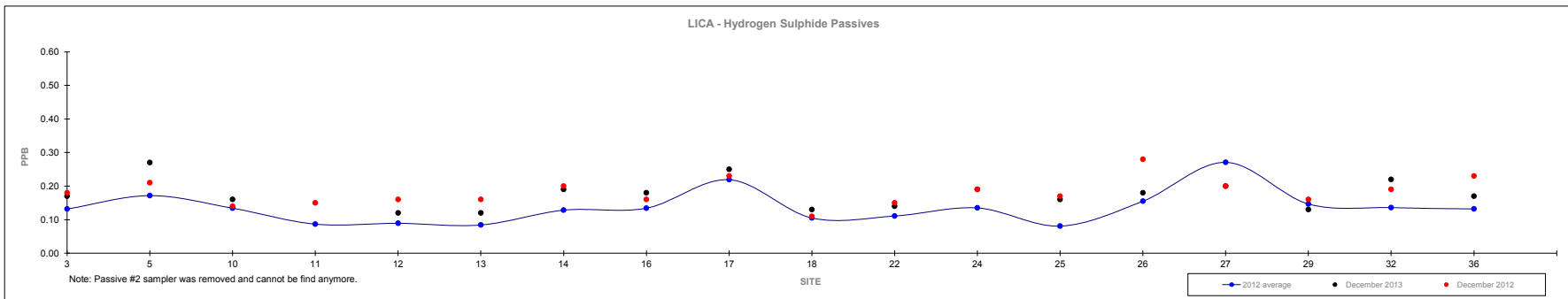
Passive Summary Results for December 2013 Lakeland Industry & Community Association

	Sulphur Dioxide ppb																																December 2013	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	36	Reading	Site					
Mean	0.2	0.3	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.4	0.5	1.0	0.4	0.4	0.5	0.3	0.3	0.3	0.2	0.3	0.6	0.7	1.0	0.6	0.4	0.5	0.3	0.84	-					
Minimum	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.7	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.4	0.2	0.2	0.1	0.4	#23					
Maximum	0.3	0.6	0.8	0.7	0.7	1.2	0.7	0.7	0.5	0.9	1.1	1.6	0.7	0.7	1.0	0.6	0.7	0.6	0.4	0.7	0.9	1.1	1.8	1.0	0.6	0.8	0.8	1.8	#27					



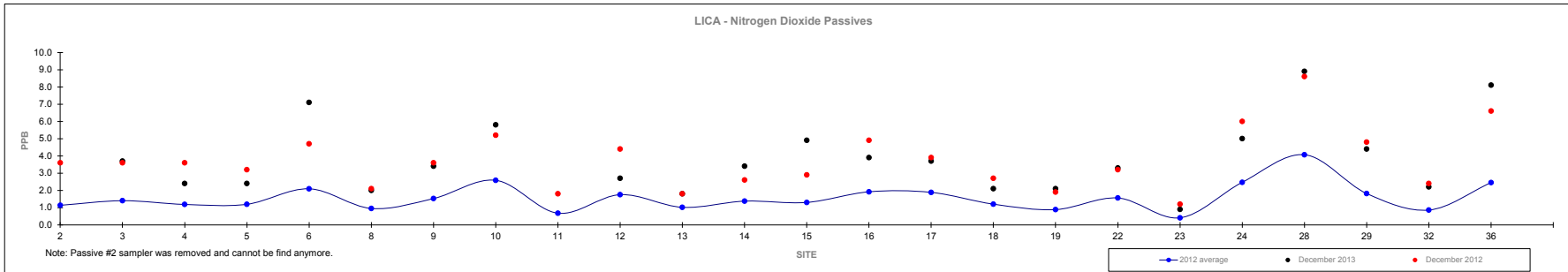
Passive Summary Results for December 2013 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb																	December 2013		
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	36	Reading	Site
Mean	0.13	0.17	0.13	0.09	0.09	0.08	0.13	0.13	0.22	0.11	0.11	0.14	0.08	0.16	0.27	0.15	0.14	0.13	0.18	-
Minimum	0.09	0.06	0.08	0.04	0.02	0.02	0.06	0.09	0.09	0.06	0.06	0.07	0.03	0.07	0.02	0.06	0.09	0.07	0.12	#12, #13
Maximum	0.21	0.38	0.35	0.15	0.16	0.16	0.20	0.23	0.55	0.16	0.18	0.24	0.17	0.28	0.74	0.49	0.23	0.23	0.27	#5



Passive Summary Results for December 2013 Lakeland Industry & Community Association

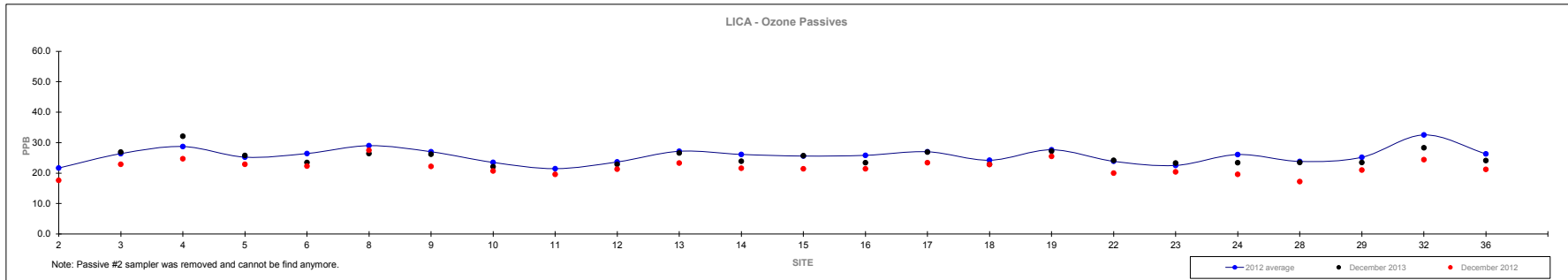
	2012																												December 2013	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	36	Reading	Site				
Mean	1.1	1.4	1.2	1.2	2.1	1.0	1.5	2.6	0.7	1.8	1.0	1.4	1.3	1.9	1.9	1.2	0.9	1.6	0.4	2.5	4.1	1.8	0.9	2.5	3.8	-				
Minimum	0.4	0.5	0.4	0.3	0.9	0.3	0.7	1.3	0.2	0.4	0.3	0.5	0.3	0.6	0.8	0.4	0.3	0.4	0.1	1.1	1.2	0.4	0.2	1.0	0.9	#23				
Maximum	3.6	3.6	3.6	3.2	4.7	2.1	3.6	5.2	1.8	4.4	2.5	3.2	2.9	4.9	3.9	2.7	2.0	3.2	1.2	6.0	8.6	4.8	2.4	6.6	8.9	#28				



Passive Summary Results for December 2013

Lakeland Industry & Community Association

	Ozone ppb																												December 2013	
	2	3	4	5	6	8	9	10	11	12	2012 13	14	15	16	17	18	19	22	23	24	28	29	32	36	Reading	Site				
Mean	21.7	26.4	28.7	25.2	26.4	29.0	27.0	23.5	21.5	23.7	27.2	26.1	25.6	25.8	27.0	24.2	27.7	23.9	22.5	26.1	23.8	25.2	32.5	26.3	25.1	-				
Minimum	12.8	18.4	18.8	19.0	17.5	21.6	17.6	15.1	12.3	13.9	15.9	17.8	16.8	18.4	16.4	15.8	18.3	15.2	11.8	17.5	17.1	17.5	24.4	20.4	22.1	#10				
Maximum	32.2	41.2	42.3	34.7	37.0	38.8	40.2	35.4	32.1	33.1	38.9	37.4	36.6	38.1	38.7	33.8	35.6	35.2	36.1	37.9	30.2	33.2	40.8	33.1	32.1	#4				



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 12, 2013		Previous Calibration	November 14, 2013	
Company	Lakeland Industry & Community Association				
Plant / Location	Cold Lake South				
Start Time (MST)	11:44		End Time (MST)	14:58	
Reason:	Monthly calibration				
Barometric Pressure	27.85	in HG	Station Temperature	22	Deg C
Cal Gas	49.7	ppm	Gas Cyl. #	BAL3165	Cal Gas Expiry date
DAS Output Voltage	0-10	Volts	Chart Rec. Output	N/A	Volts

Equipment Information

Analyzer Make / Model:	Thermo 43i	S/N :	806528242	Method:	Fluorescent
Converter Make / Model:	N/A	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	690	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A3485K		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	API 700	S/N :	690		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0-500		ppb		
Sample Flow / Box Temp	461	ccm	28.4	Deg C	446
HPVS / Lamp Setting	-631.6		727		-631.6
PMT / RxCell Temp	OK	Deg C	45.3	Deg C	OK
Converter / IZS Temp	N/A	Deg C	45	Deg C	N/A
Offset / Slope	7		1.095		7

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	1	N/A
5000	0	0	0	N/A
4957	38.3	381	382	0.9975
4957	38.3	381	383	0.9949
4980	17.9	178	173	1.0289
4989	8.1	81	77	1.0462
5000	0	0	0	N/A
Sum of Least Squares				1.0024
New Correction Factor				0.9949

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0		-1.0
Auto Span	385.0		368.0
Sample Lines Connected			Yes

Percent Change

Previous Month's Calibration Correction Factor:	0.9968
Current Correction Factor Before Span Adjust:	0.9975
Percent Change:	-0.1%

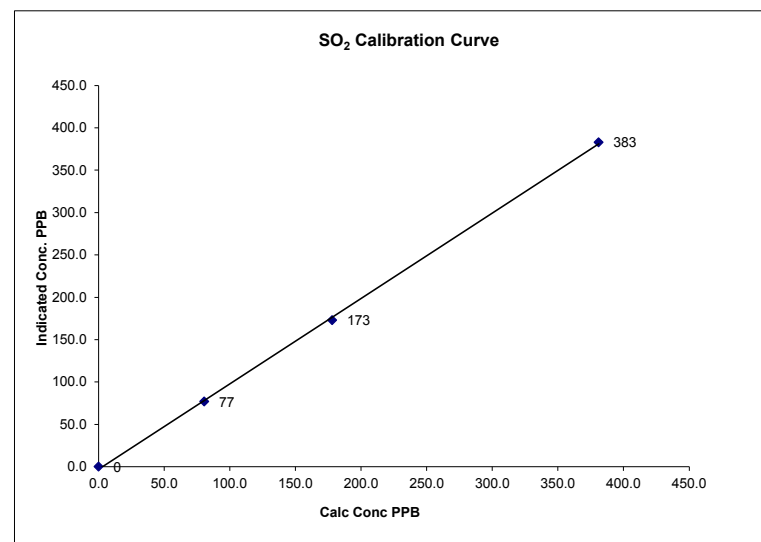
Notes: **N/A : Not applicable**

Calibration Performed by: Tom Bourque

SO₂ Calibration Curve

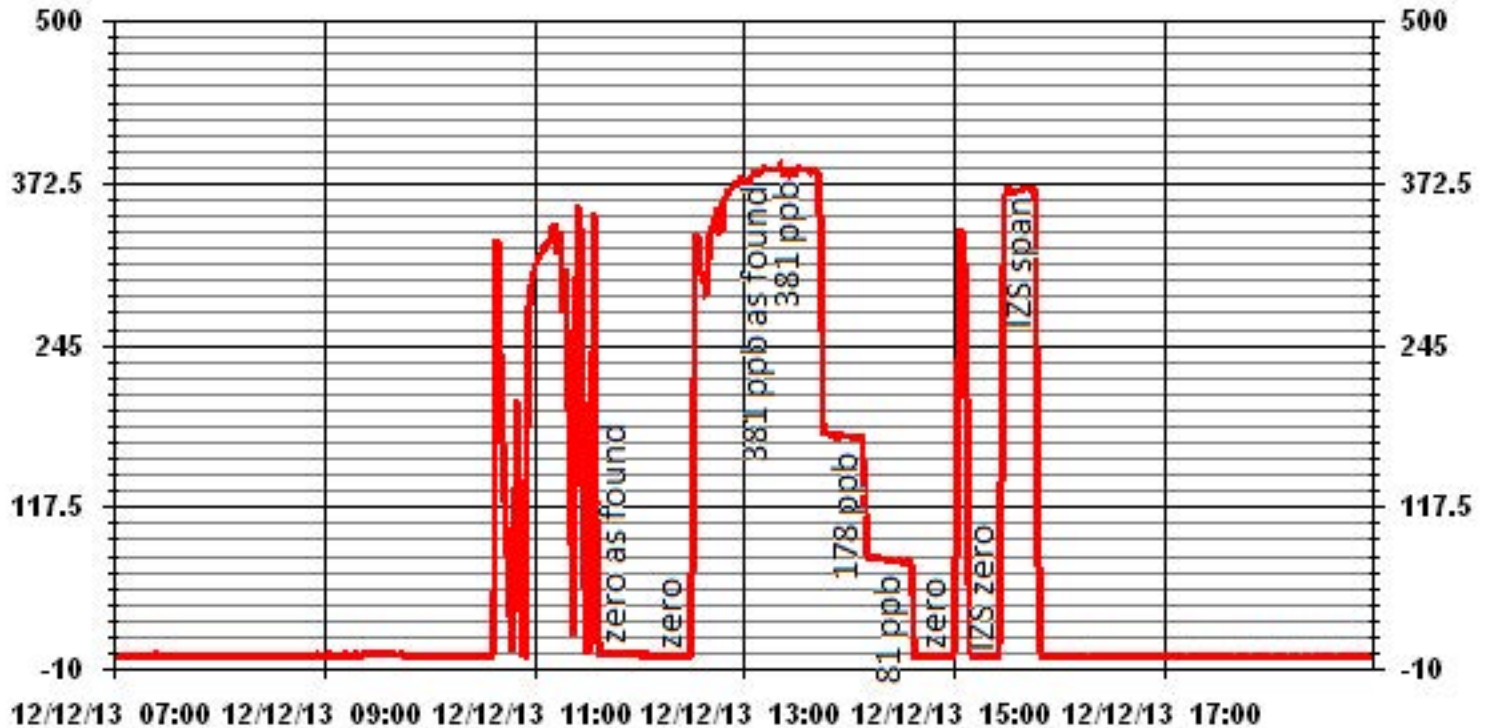
Calibration Date	December 12, 2013	
Company	Lakeland Industry & Community Association	
Plant / Location	Cold Lake South	
Start Time (MST)	11:44	End Time (MST) 14:58

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	N/A		0.999688
81	77	1.0462		1.007657
178	173	1.0289		-2.879878
381	383	0.9949		



Notes:

01 Minute Averages



Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	December 13, 2013	Previous Calibration	November 14, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake South		
Start Time (MST)	13:22	End Time (MST)	16:29
Reason:	Monthly calibration		
Barometric Pressure	27.85	in HG	Station Temperature
Cal Gas	10.1	ppm	22
DAS Output Voltage	0-10	Volts	Deg C
	Gas Cyl. #	BLM005049	Cal Gas Expiry date
	Chart Rec. Output	N/A	December 25, 2015

Equipment Information

Analyzer Make / Model:	Thermo 450i	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CND 101	S/N :	501		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A3485K		
Chart Recorder Make / Model:	N/A	S/N :	N/A		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0-100		
Sample Flow / Box Temp	498 ccm 31.2 Deg C	498 ccm 31.2 Deg C	
HVPS / Lamp Setting	-650.1 744	-650.1 744	
PMT / RxCell Temp	OK Deg C 45 Deg C	OK Deg C 45 Deg C	
Converter / IZS Temp	810 Deg C 45 Deg C	810 Deg C 45.0 Deg C	
Offset / Slope	12.1 0.889	12.3 0.898	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	N/A
5000	0	0	0	N/A
4958	37.1	75	73	1.0276
4958	37.1	75	75	1.0000
4980	17.3	35	34	1.0284
4990	8.9	18	18	1.0000
5000	0.0	0	0	N/A
Sum of Least Squares				1.0048
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0		0.1
Auto Span	37.0		35.7
Sample Lines Connected			Yes

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0276
Percent Change:	-2.7%

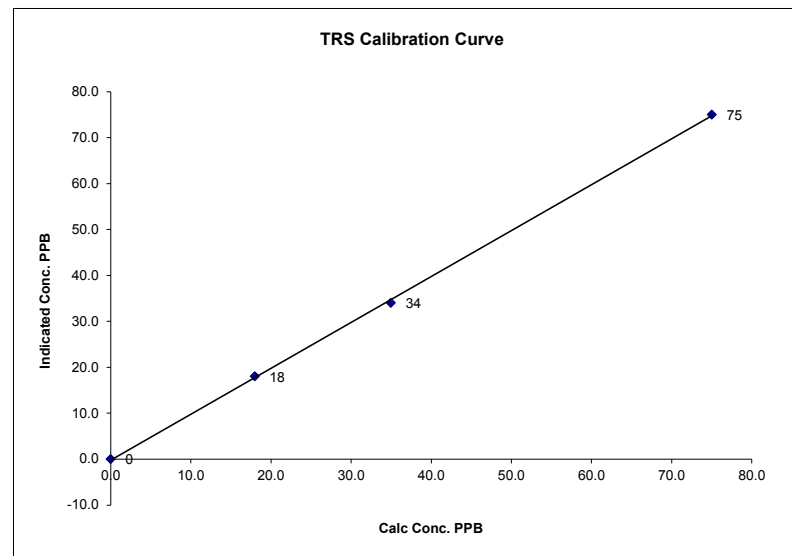
Notes: **N/A : Not applicable**

Calibration Performed by: Tom Bourque

TRS Calibration Curve

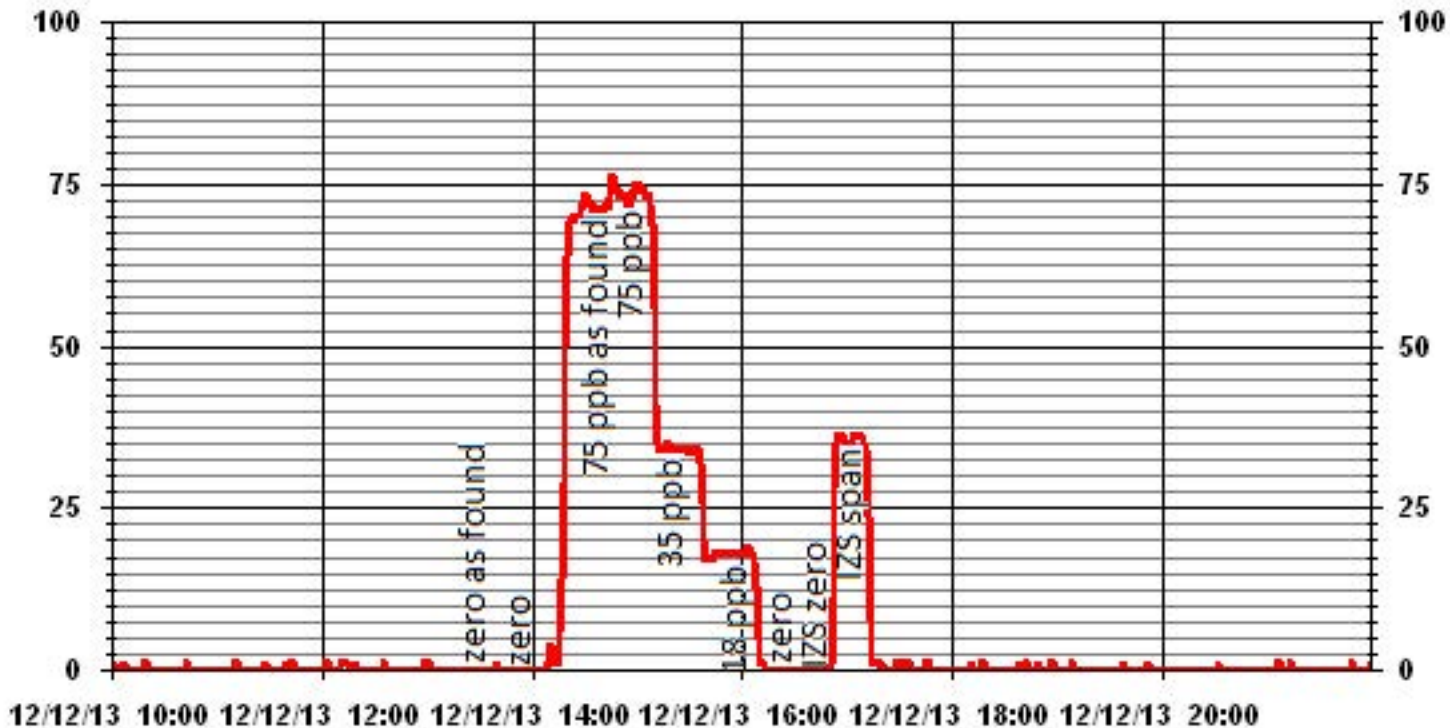
Calibration Date	December 13, 2013
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake South
Start Time (MST)	13:22
End Time (MST)	16:29

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
0	0	N/A	Slope (0.85 to 1.15)	0.999774
18	18	1.0000	Intercept (± 3% F.S.)	0.998769
35	34	1.0284		-0.201217
75	75	1.0000		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information					
Calibration Date:	December 4, 2013	Previous Calibration	November 14, 2013		
Company:	Lakeland Industry & Community Association				
Plant / Location:	Cold Lake South				
Start Time (MST)	14:11	End Time (MST)	16:26		
Reason:	installation calibration				
Barometric Pressure:	27.76	in HG	Station Temperature:	22	Deg C
Calibrator:	API 700		S/N:	690	
Cal Gas Concentration:	CH4 593 PPM	C3H8 205 PPM	Gas Cyl. #	LL84567	Cal Gas Expiry Date: June 7, 2014
DAS make & Model:	ESC 8832		S/N :	A3485K	
Chart Recorder:	N/A		S/N:	N/A	
Output Voltage Range:	0-10	VDC	Chart Speed:	N/A	mm/hr

Analyzer Information					
Make / Model	Thermo 51C-LT	S/N :	427408718	Method	Flame Ionization

Analyzer Settings					
	Before Calibration			After Calibration	
Concentration Range	0-50	ppm		0-50	ppm
Sample Pressure	6.9	psi		6.9	psi
Hydrogen Pressure	9	psi		9	psi
Air Pressure	20	psi		20	psi

Calibration Data				
Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
1933	No zero adj.		0.0	
	63.8	37.0	37.0	1.0000
	No Span adj.			
1970	27.5	15.9	16.0	0.9941
1985	12.9	7.5	7.5	0.9999
2000	0.0	0.0	0.0	NA
New Correction Factor:				1.0000

Percent Change	
Previous Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	0.0%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	34.0	33.7
Sample Lines Connected	Yes	

Cylinder Pressures
 Span 800 psi Hydrogen 1500 psi Zero Air 34 psi

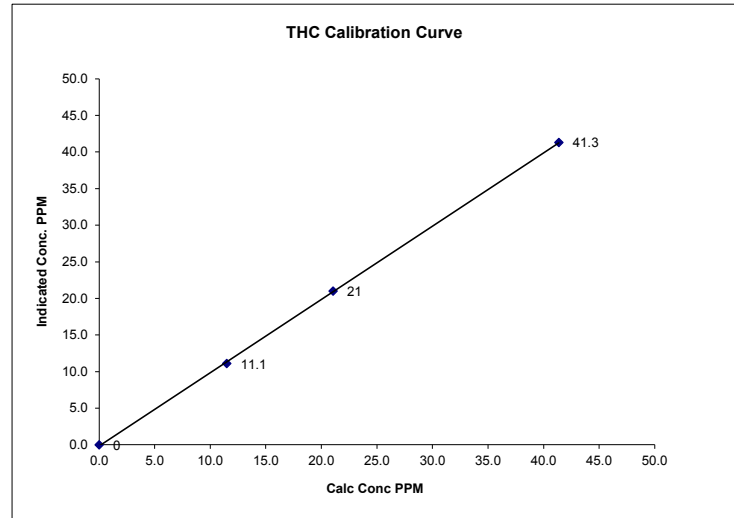
Notes: **New install, previous analyzer was removed without as founds as it would not have passed.**

Calibration Performed by: Tom Bourque

THC Calibration Curve

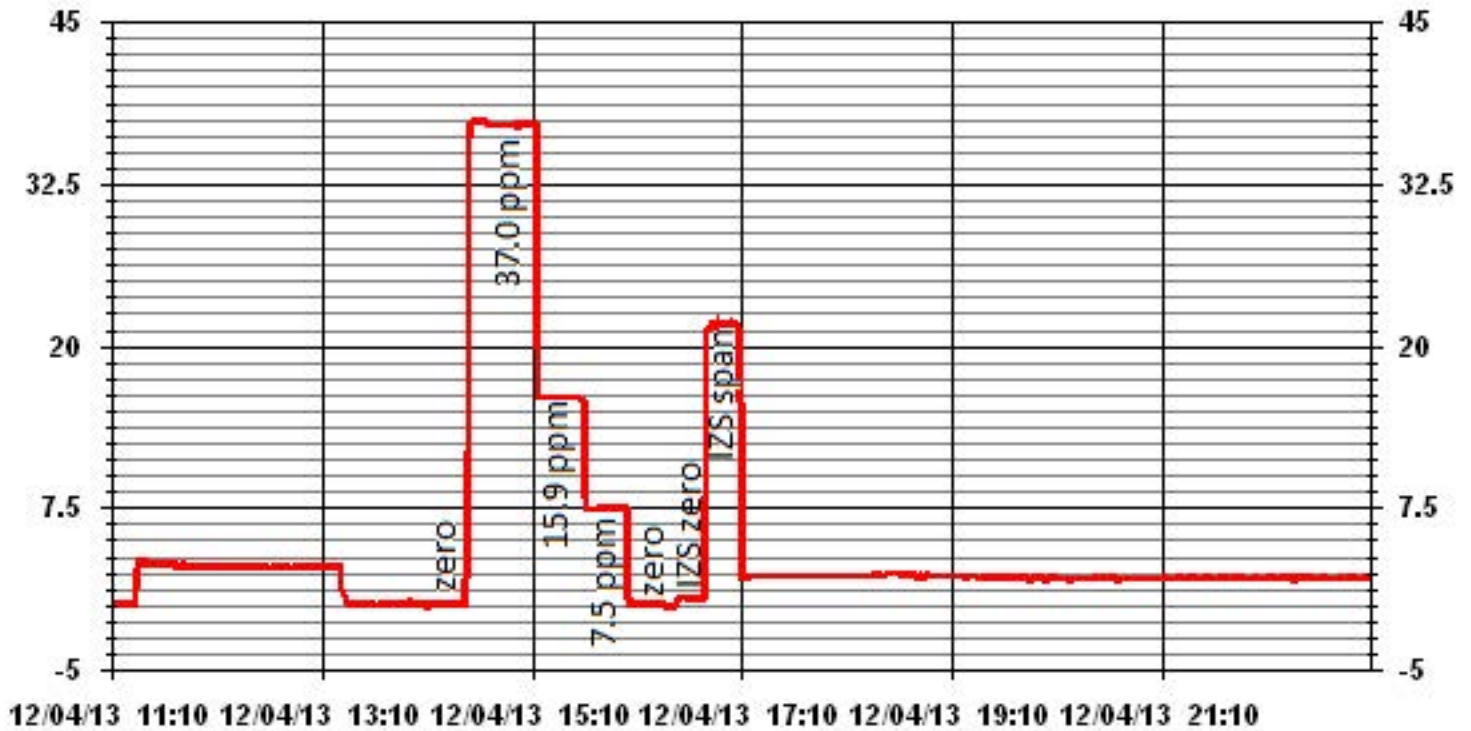
Calibration Date	December 4, 2013		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake South		
Start Time (MST)	14:11	End Time (MST)	16:26

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
0.0	0.0	NA	Slope (0.85 to 1.15)	1.001055
7.5	7.5	0.9999	Intercept (± 3% F.S.)	0.02070
15.9	16.0	0.9941		
37.0	37.0	1.0000		



Notes:

01 Minute Averages



THC Calibration Report

Station Information			
Calibration Date:	December 13, 2013	Previous Calibration	December 4, 2013
Company:	Lakeland Industry & Community Association		
Plant / Location:	Cold Lake South		
Start Time (MST)	9:51	End Time (MST)	13:12
Reason:	routine monthly		
Barometric Pressure:	27.76 in HG	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 593 PPM	C3H8	205 PPM
	TOTAL CH4 1156.8 PPM	Gas Cyl. #	LL84567
		Cal Gas Expiry Date:	June 7, 2014
DAS make & Model:	ESC 8832	S/N :	A3485K
Chart Recorder:	N/A	S/N:	N/A
Output Voltage Range:	0-10 VDC	Chart Speed:	N/A mm/hr

Analyzer Information

Make / Model	Thermo 51C-LT	S/N :	427408718	Method	Flame Ionization
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Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0-50	ppm	0-50	ppm
Sample Pressure	6.91	psi	6.91	psi
Hydrogen Pressure	9	psi	9	psi
Air Pressure	20	psi	20	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	0.0000
2000	0.0	0.0	0.0	0.0000
2000	65.0	36.4	39.0	0.9336
2000	65.0	36.4	36.7	0.9921
2000	30.0	17.1	16.8	1.0175
2000	15.0	8.6	8.4	1.0300
2000	0.0	0.0	0.0	0.0000
New Correction Factor:				0.9921

Percent Change

Previous Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9336
Percent Change:	7.1%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	33.7	25.7
Sample Lines Connected		Yes

Cylinder Pressures
 Span 750 psi Hydrogen 1300 psi Zero Air 34 psi

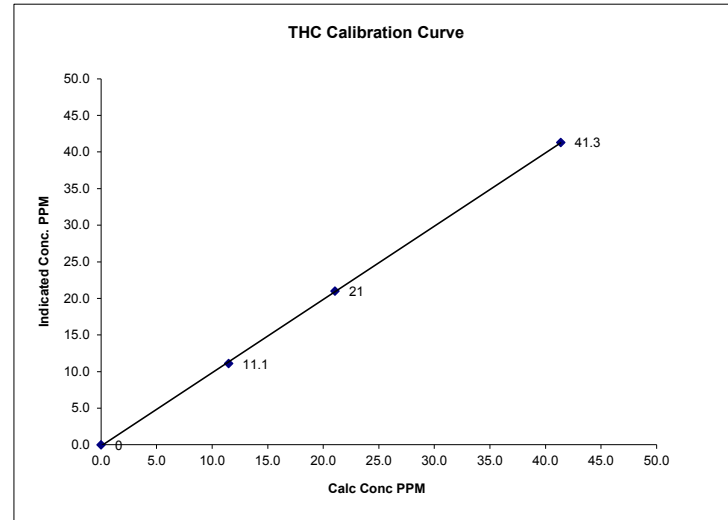
Notes:
 Erratic z/s response was a result of low regulator pressure on span cylinder.

Calibration Performed by: Tom Bourque

THC Calibration Curve

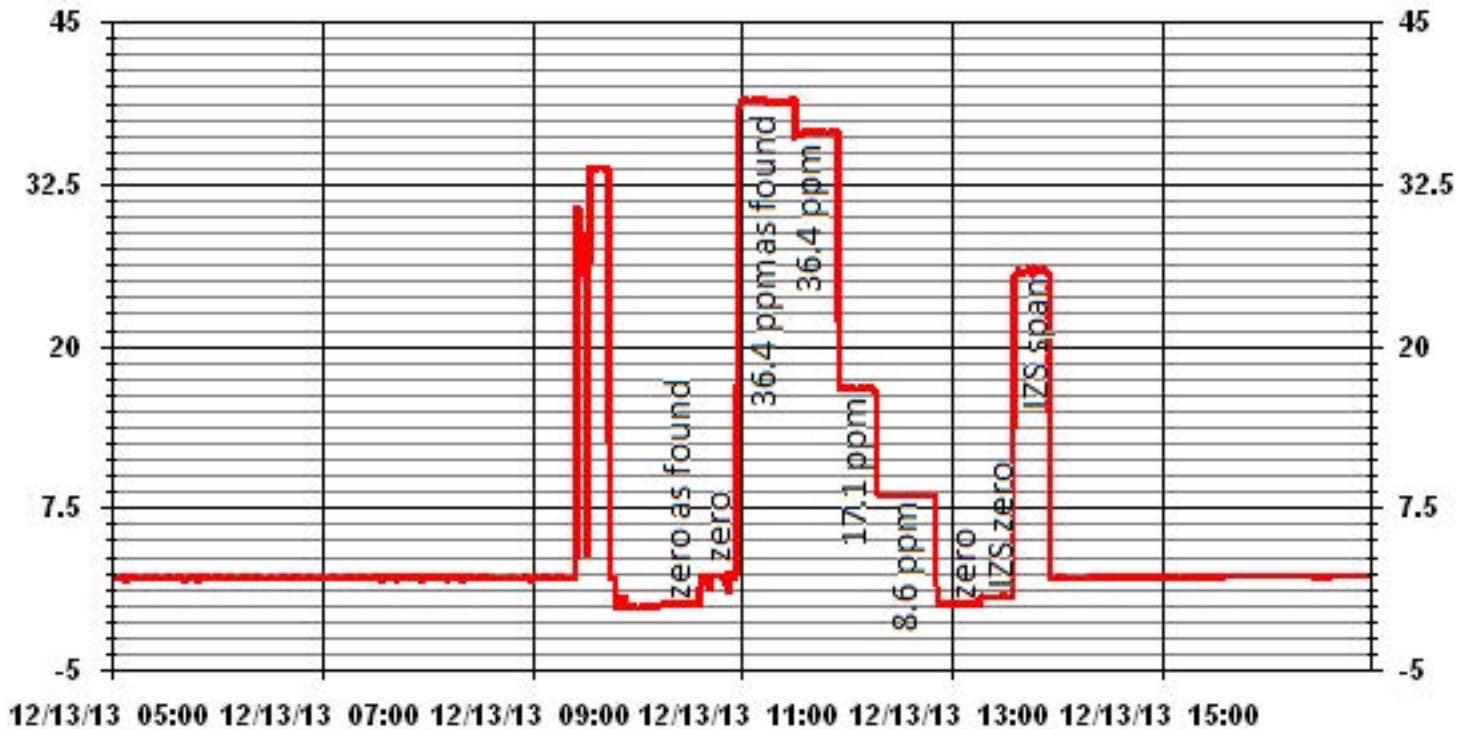
Calibration Date	December 13, 2013		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake South		
Start Time (MST)	9:51	End Time (MST)	13:12

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0.0	0.0	0.0000	0.999801	1.009834	-0.21443
8.6	8.4	1.0300			
17.1	16.8	1.0175			
36.4	36.7	0.9921			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

<u>Station</u>		<u>Audit Transfer Standard</u>	
Date:	<u>December 12, 2013</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>LICA 1</u>	Serial Number:	<u>LO 091099, HI 091001</u>
Location:	<u>Cold Lake South</u>	Cell s/n:	<u>N/A</u>
Operator:	<u>LICA</u>	Thermometer s/n:	<u>Station Temp. Sensor</u>
<u>Sampler</u>		<u>Set-up and current Sampler readings</u>	
Make/Model	<u>Thermo TEOM Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>AMU 1775</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A201620804</u>	Filter Load (%)	<u>26.0%</u>
Firmware Ver.	<u>1.52</u>	K _o Factor	<u>14578.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>-21.1</u>
		Press (ATM)	<u>0.955</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

ATM = (mmHg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10µg	<u>0.012</u>	Warnings	<u>None</u>
Pump Vacuum <0.40atm	<u>0.36</u>	Pump Gauge (inHg)	<u>N/A</u>
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	<u>-21.0</u>		<u>-0.1</u>
Measured Press (± 0.01atm)	<u>0.948</u>	DATM	<u>0.007</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>3.16%</u>
Measured Main Flow (l/min)	<u>2.96</u>	Flow Adjusted to Measured?	<u>no</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>na</u>
Measured Bypass Flow (l/min)	<u>16.65</u>	Flow Adjusted to Measured?	<u>no</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>Base= NA Ref = NA</u>	Flow Control=Active	
Aux (< 0.6 l/min)	<u>Base= NA Ref = NA</u>	Report Conditions=Actual	
K_o Factor			
Measured	<u>N/A</u>		
K _o Difference (± 2.5%)	<u>N/A</u>		

Start Time: 16:00 **Finish Time:** 18:00

Sample Inlet Cleaned: yes **New Filters Installed:** yes
New Filter Loading %: 22.0%

Comments:

Auditor/s: Tom Bourque

TEOM 1405F Audit

Station	Audit Transfer Standard
Date: _____	December 19, 2013
Station Name: _____	LICA 1
Location: _____	Cold Lake South
Operator: _____	LICA
Make/Model: _____	Streamline FTS
Serial Number: _____	LO 091099, HI 091001
Cell s/n: _____	N/A
Thermometer s/n: _____	Station Temp. Sensor

Sampler	Set-up and current Sampler readings
Make/Model _____	Thermo TEOM Series 1405F
Unit # _____	AMU 1775
Unit s/n _____	1405A201620804
Firmware Ver. _____	1.52
Parameter _____	PM 2.5 (with FDMS)
F-Main Set Pt (l/min) _____	3.00
F-Aux Set Pt (l/min) _____	13.67
Filter Load (%) _____	19.2%
K _o Factor _____	14578.0
Temp (°C) _____	-22.1
Press (ATM) _____	0.934

Conversion from mmHg or "Hg to ATM (Atmospheres)

ATM = (mmHg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	0.010	Warnings	None
Pump Vacuum <0.40atm	0.45	Pump Gauge (inHg)	N/A
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	-22.54		-0.4
Measured Press (± 0.01atm)	0.934	DATM	0.000
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.00%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.37%
Measured Bypass Flow (l/min)	13.62	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	Base= 0.04 Ref = 0.04	Flow Control=Active	
Aux (< 0.6 l/min)	Base= 0.14 Ref = 0.06	Report Conditions=Actual	
K_o Factor			
Measured	N/A		
K _o Difference (± 2.5%)	N/A		

Start Time: _____ 18:30 _____ Finish Time: _____ 19:50 _____

Sample Inlet Cleaned: _____ no _____ New Filters Installed: _____ no _____
 New Filter Loading %: _____ na _____

Comments: Warning on pump.

Auditor/s: _____ Limin Li _____

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	December 12, 2013	Previous Calibration	December 4, 2013
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	11:44	End Time (MST)	17:42
Reason:	Monthly Calibration		
Barometric Pressure	0.938 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.0 ppm	NO	48.9 ppm
Cal Gas Cylinder #	BAL3165	Cal Gas Expiry date	December 29, 2013
DAS Output Voltage	0 - 10 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	Thermo 42C	S/N :	427408716	Method:	Chemiluminescent
Calibrator Make / Model:	API 700	S/N:	690		
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	690		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	753 ccm			0 - 500 ppb			
Sample Flow/Conv. Temp	753	ccm	318	753	ccm	317	
Ozone Flow / Vacuum	OK	ccm	179.9	OK	ccm	175	
HVPS / A ZERO	-821	Volts	NA	-821	Volts	NA	
Rx/ Temp / PMT Temp	50.0	Deg C	-2.5	50.0	Deg C	-2.5	
Box Temp / IZS Temp	27.8	Deg C	OK	27.8	Deg C	OK	
Offset	5.1	NOx	6.1	6.9	NOx	5.7	
Slope	1.005	NOx	1.340	1.003	NOx	1.029	
NO2 COEF / Conv Efficiency	0.998	NO2	NA	1.003	NO2	NA	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	NA	0	0	NA	2	1	1	NA	NA
5000	0.0	NA	0	0	NA	0	0	0	NA	NA
4957	38.3	NA	376	375	NA	395	394	1	0.9547	0.9538
4957	38.3	NA	376	375	NA	376	375	1	1.0000	1.0000
4980	17.9	NA	175	175	NA	173	172	0	1.0233	1.0236
4989	8.1	NA	79	79	NA	77	77	0	1.0520	1.0416
5000	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4856	38.3	NA	38.3	383	NA	371	370	1	NA	NA
4856	38.3	300	383	NA	297	370	74	296	1.0054	99.66%
4856	38.3	300	383	NA	300	369	71	298	1.0087	99.33%
4856	38.3	175	383	NA	171	375	200	175	0.9805	102.35%
4856	38.3	75	383	NA	73	372	298	74	0.9946	101.39%

Linearity	Sum of Least Squares	NOx= 1.003	NO= 1.004	NO2= 0.999		
OK?	Yes	No	Correction Factors:	NOx= 1.0000	NO= 1.0000	NO2= 1.0087
Average Converter Efficiency= 101.02%						

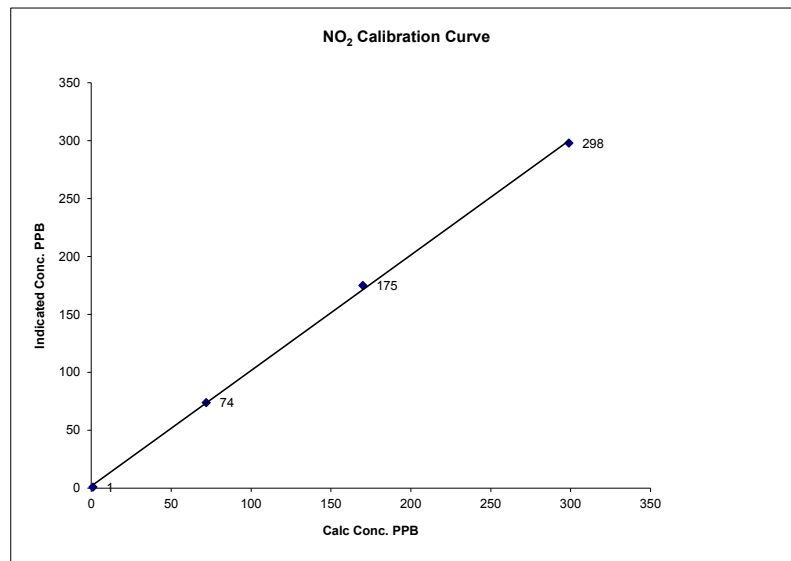
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.1	NOx	0.2	NO2	0.1	NOx	0.1
Auto Span	376	NOx	373	NO2	384	NOx	382
Sample Lines Connected:				YES			
Percent Change from Previous Calibration				NOx NO NO2			
Notes	NA : Not Applicable						
Calibration Performed by: Tom Bourque							

NO2 Calibration Curve

Calibration Date	December 12, 2013
Company	LICA
Plant / Location	Cold Lake South
Start Time (MST)	11:44
End Time (MST)	17:42

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999584
1	1	N/A	Intercept		0.997642
72	74	0.9730			1.81949
170	175	0.9714			
299	298	1.0034			

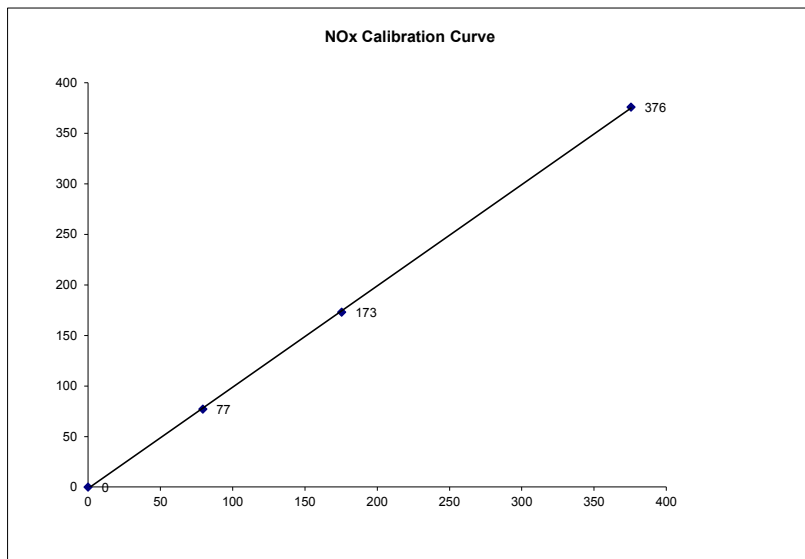


Notes:

NOx Calibration Curve

Calibration Date	December 12, 2013		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	11:44	End Time (MST)	17:42

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	N/A	0.999920	1.002692	-1.57759
79	77	1.0315			
175	173	1.0144			
376	376	0.9992			

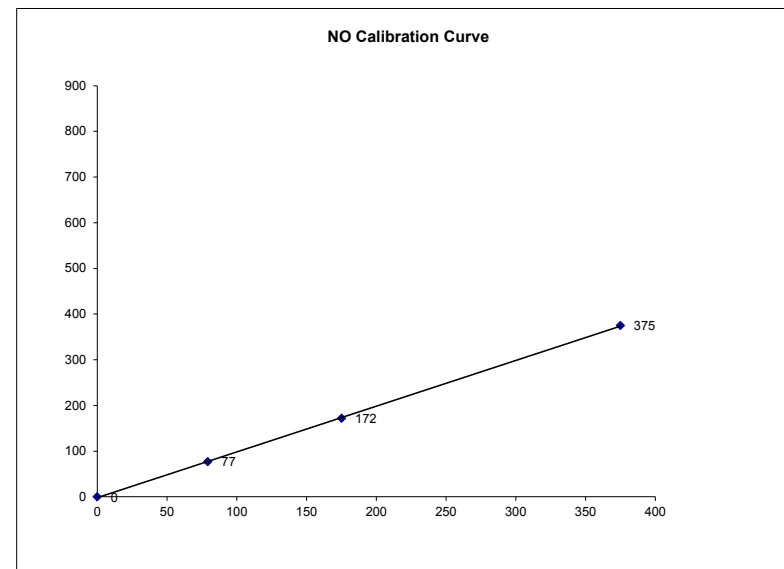


Notes:

NO Calibration Curve

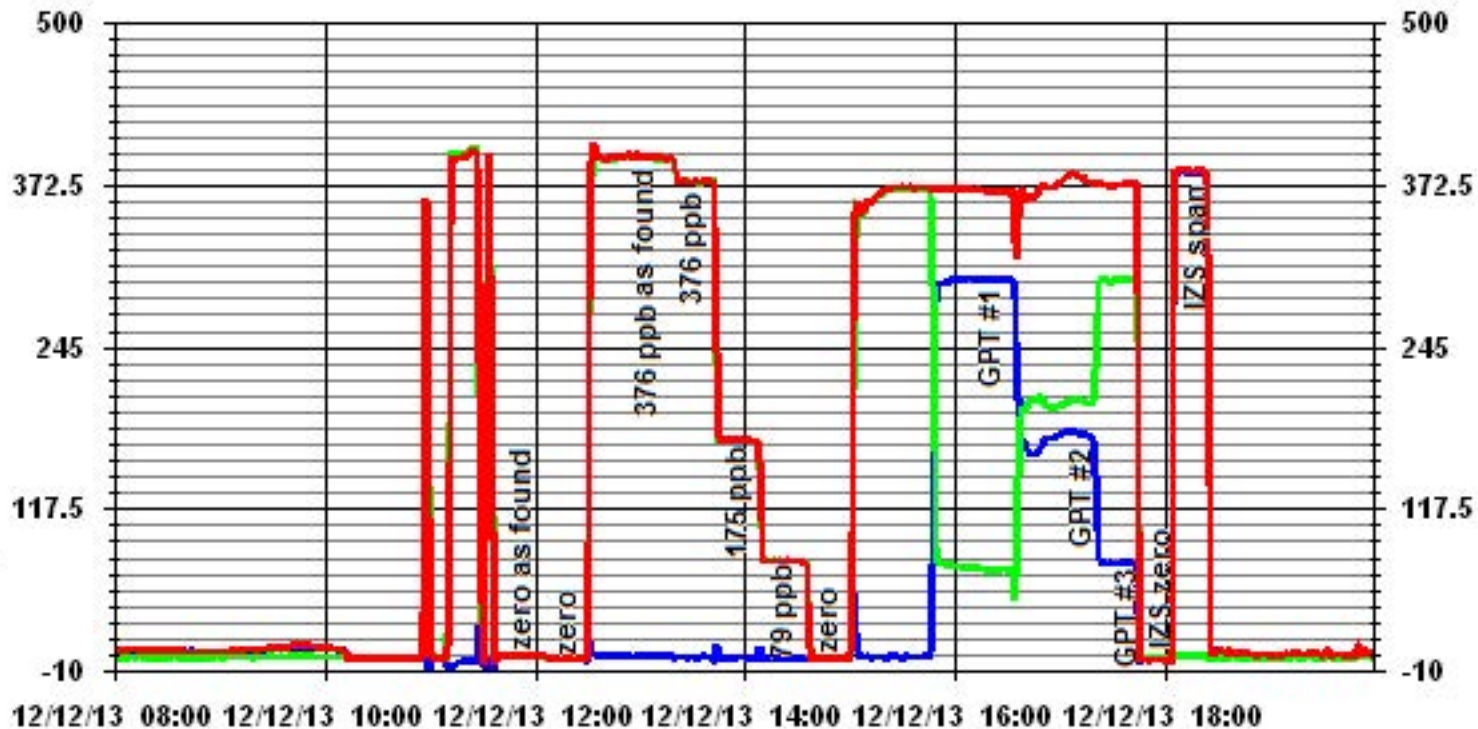
Calibration Date	December 12, 2013		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	11:44	End Time (MST)	17:42

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	N/A	0.999903	1.009147	-5.9487
79	77	1.0294			
175	172	1.0182			
375	375	0.9998			



Notes:

01 Minute Averages



— LICA

NOx_

PPB

— LICA

NO_

PPB

— LICA

NO2_

PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 13, 2013	Previous Calibration	November 14, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:56	End Time (MST)	13:12
Reason:	Monthly Calibration		
Barometric Pressure	27.73 inHg	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	700419951	Method:	Photometric
Calibrator Make / Model:	API 700	S/N :	690	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Cell A Flow / Cell B Flow	712 LPM	752 LPM		712 LPM	752 LPM		
O ₃ Set Level	696 mmHg			696 mmHg			
Bench Lamp	53.5 Deg C			53.5 Deg C			
O ₃ Lamp / Box Temp	67.5 Deg			67.5 Deg C	67.5 Deg C		
Offset / Slope	-0.1	1.012		-0.2	1.024		

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	NA
	No zero adj.		0	
5000	300	300	294	1.0204
5000	300	300	299	1.0033
5000	170	170	172	0.9884
5000	75	75	70	1.0714
5000	0	0	0.3	NA
Sum of Least Squares				1.0027
New Correction Factor				1.0033

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0	0.0	
Auto Span	274	288	
Sample Lines Connected		YES	
Previous Calibration Correction Factor:		0.9969	
Current Correctio Factor Before Span Adjust:		1.0204	
Percent Change:		-2.3%	

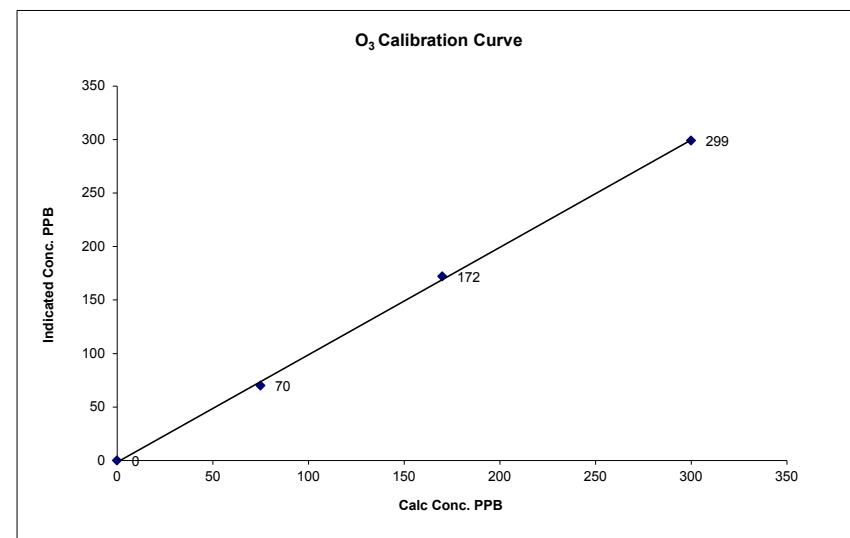
Note: NA : Not Applicable

Calibration Performed by: Tom Bourque

O₃ Calibration Curve

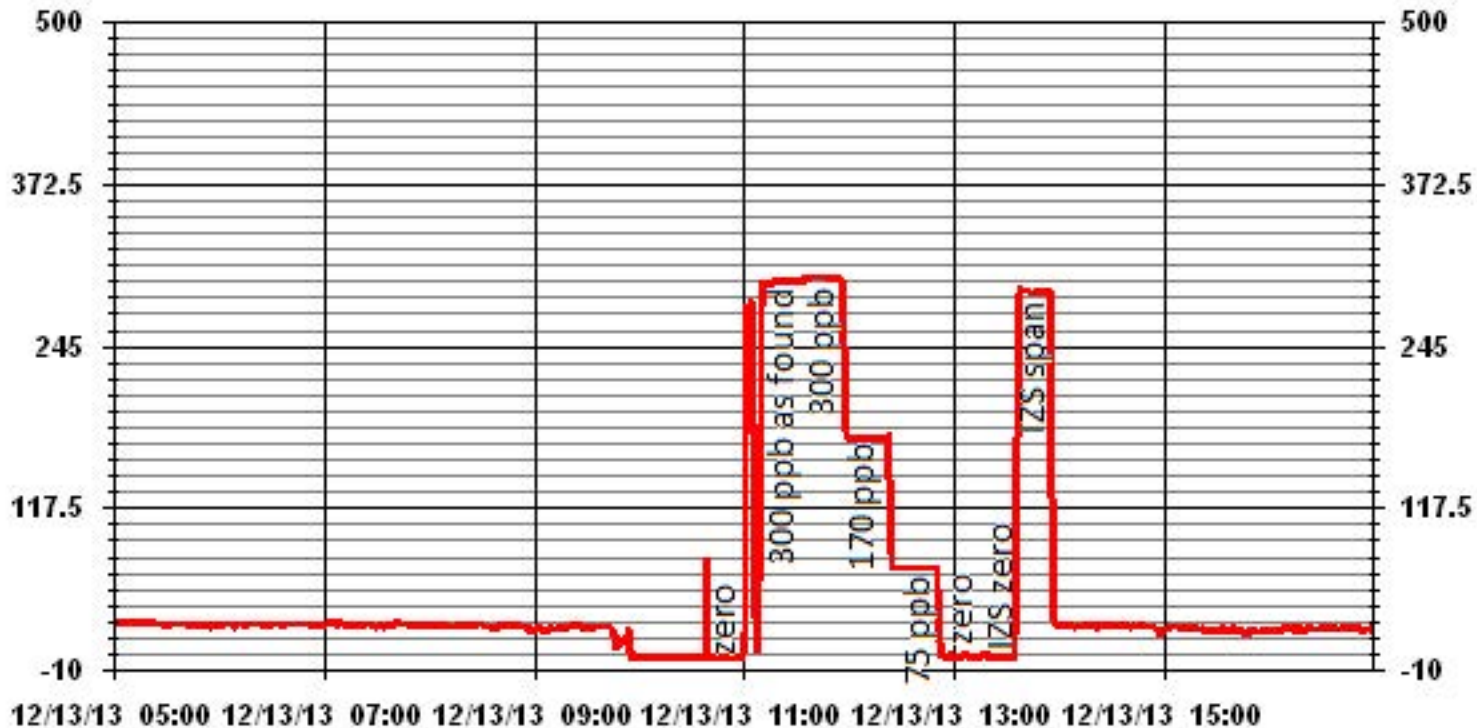
Calibration Date	December 13, 2013		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:56	End Time (MST)	13:12

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999505
0	0	n/a	Intercept	(± 3% F.S.)	1.004178
75	70	1.0714			-1.569191
170	172	0.9884			
300	299	1.0033			



Notes:

01 Minute Averages



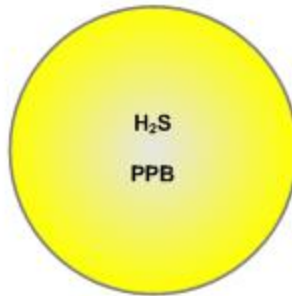
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

DECEMBER 2013

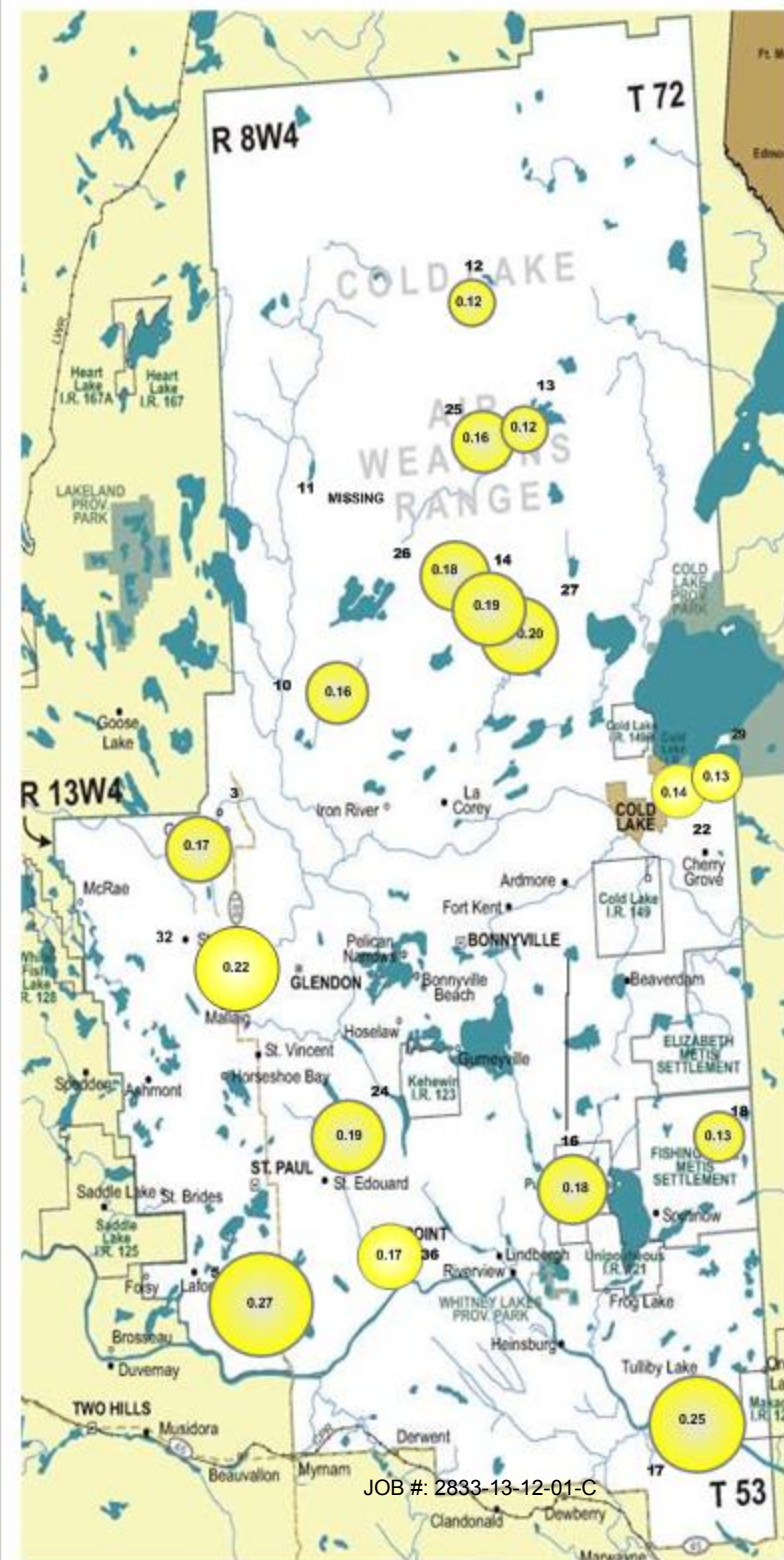
PASSIVE STATIONS

Station Number	Concentration	Duplicate
3 – Therien	0.17 PPB	NA
5 – Lake Eliza	0.27 PPB	NA
10 – La Corey	0.16 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.12 PPB	NA
13 – Primrose	0.12 PPB	NA
14 – Maskwa	0.19 PPB	NA
16 – Frog Lake	0.18 PPB	NA
17 – Clear Range	0.25 PPB	NA
18 – Fishing Lake	0.13 PPB	NA
22 – Cold Lake South	0.14 PPB	NA
24 – Fort George	0.19 PPB	NA
25 – Burnt Lake	0.16 PPB	NA
26 – Mahihkan	0.18 PPB	NA
27 – Mahkeses	0.20 PPB	0.20 PPB
29 – Cold Lake South 2	0.13 PPB	0.13 PPB
32 – St. Lina	0.22 PPB	NA
36 – Elk Point	0.17 PPB	NA



Summary

Minimum : 0.12 PPB – Foster Creek and Primrose
 Maximum: 0.27 PPB – Mahkeses
 Average: 0.18 PPB (Includes Duplicates)

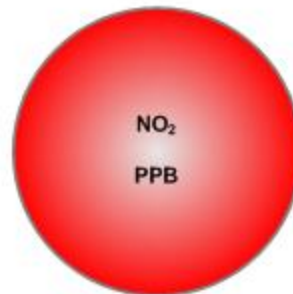


Lakeland Industry & Community Association NO₂ Passive Bubble Map

DECEMBER 2013

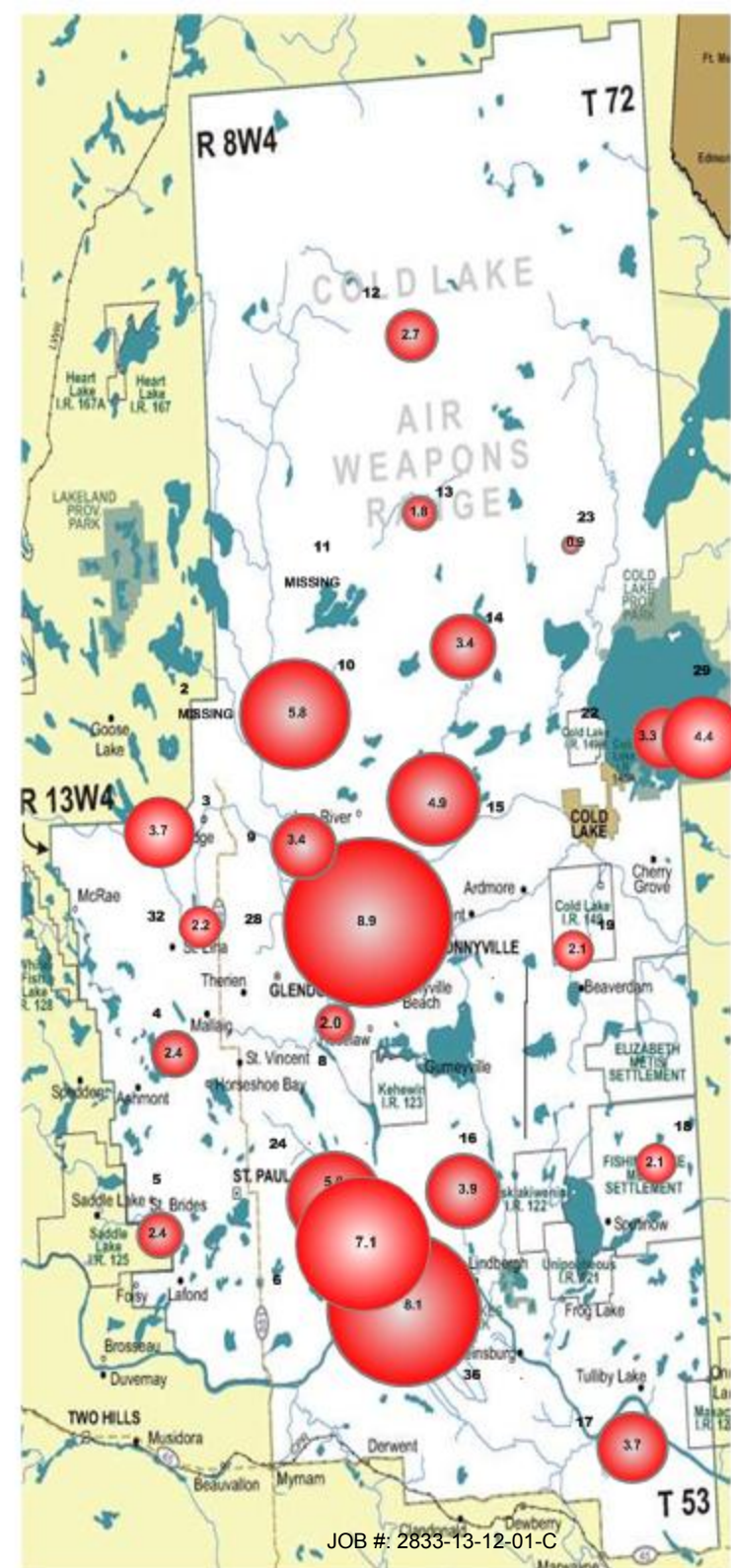
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	3.7 PPB	NA
4 – Flat Lake	2.4 PPB	2.2 PPB
5 – Lake Eliza	2.4 PPB	2.6 PPB
6 – Telegraph Creek	7.1 PPB	NA
8 – Muriel-Kehewin	2.0 PPB	NA
9 – Dupre	3.4 PPB	NA
10 – La Corey	5.8 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	2.7 PPB	NA
13 – Primrose	1.8 PPB	NA
14 – Maskwa	3.4 PPB	NA
15 – Ardmore	4.9 PPB	NA
16 – Frog Lake	3.9 PPB	NA
17 – Clear Range	3.7 PPB	NA
18 – Fishing Lake	2.1 PPB	NA
19 – Beaverdam	2.1 PPB	NA
22 – Cold Lake South	3.3 PPB	NA
23 – Medley-Martineau	0.9 PPB	NA
24 – Fort George	5.0 PPB	NA
28 – Town of Bonnyville	8.9 PPB	NA
29 – Cold Lake South 2	4.4 PPB	NA
32 – St. Lina	2.2 PPB	NA
36 – Elk Point	8.1 PPB	NA



Summary

Minimum : 0.9 PPB – Medley-Martineau
 Maximum: 8.9 PPB – Town of Bonnyville
 Average: 3.8 PPB *Includes Duplicates

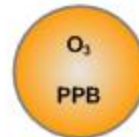


Lakeland Industry & Community Association O₃ Passive Bubble Map

DECEMBER 2013

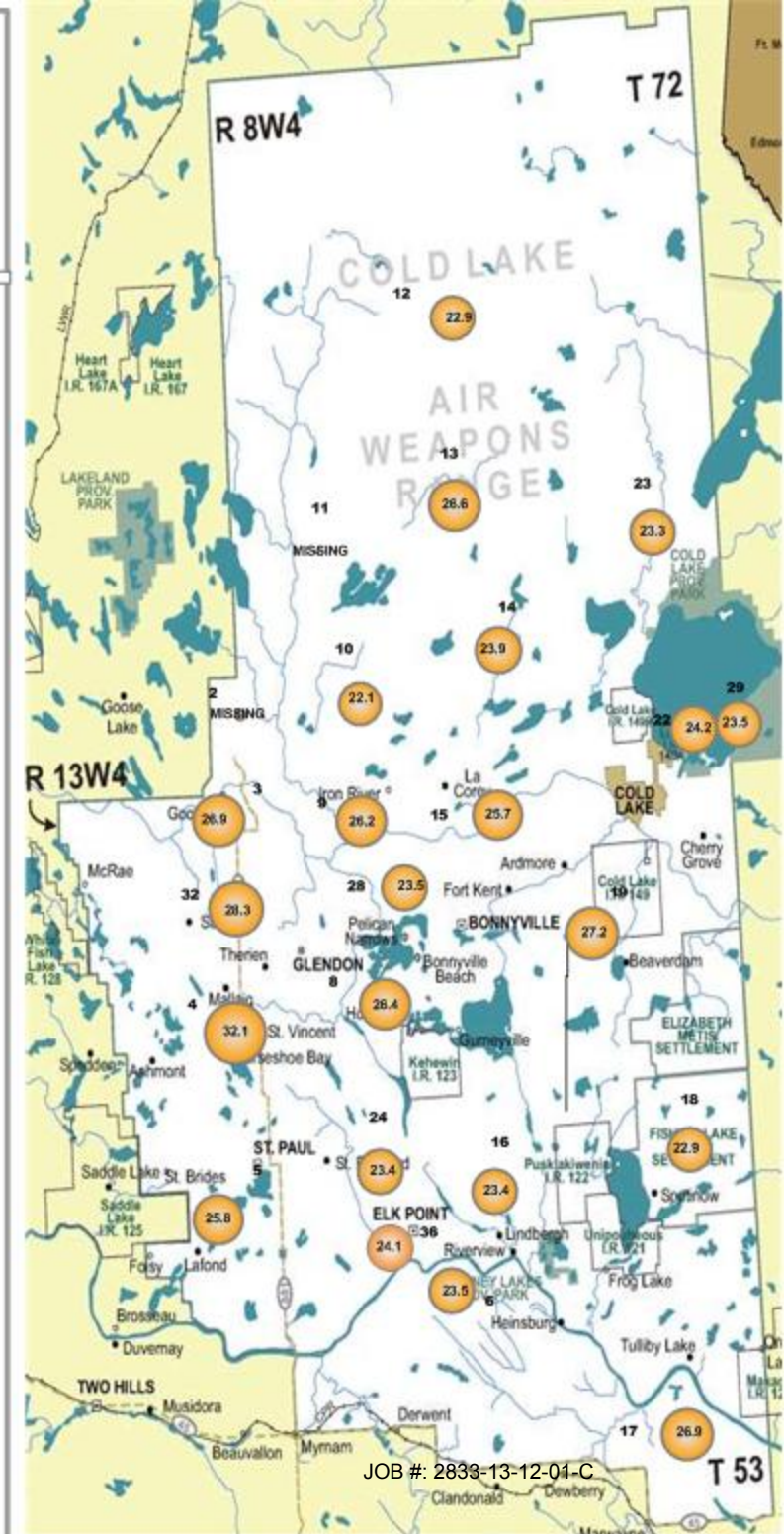
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	26.9 PPB	NA
4 – Flat Lake	32.5 PPB	31.7 PPB
5 – Lake Eliza	24.6 PPB	27.0 PPB
6 – Telegraph Creek	23.5 PPB	NA
8 – Muriel-Kehewin	26.4 PPB	NA
9 – Dupre	26.2 PPB	NA
10 – La Corey	22.1 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	22.9 PPB	NA
13 – Primrose	26.6 PPB	NA
14 – Maskwa	23.9 PPB	NA
15 – Ardmore	25.7 PPB	NA
16 – Frog Lake	23.4 PPB	NA
17 – Clear Range	26.9 PPB	NA
18 – Fishing Lake	22.9 PPB	NA
19 – Beaverdam	27.2 PPB	NA
22 – Cold Lake South	24.2 PPB	NA
23 – Medley-Martineau	23.3 PPB	NA
24 – Fort George	23.4 PPB	NA
28 – Town of Bonnyville	23.5 PPB	NA
29 – Cold Lake South 2	23.5 PPB	NA
32 – St. Lina	28.3 PPB	NA
36 – Elk Point	24.1 PPB	NA



Summary

Minimum : 22.1 PPB – La Corey
 Maximum: 32.1 PPB – Flat Lake
 Average: 25.1 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

DECEMBER 2013

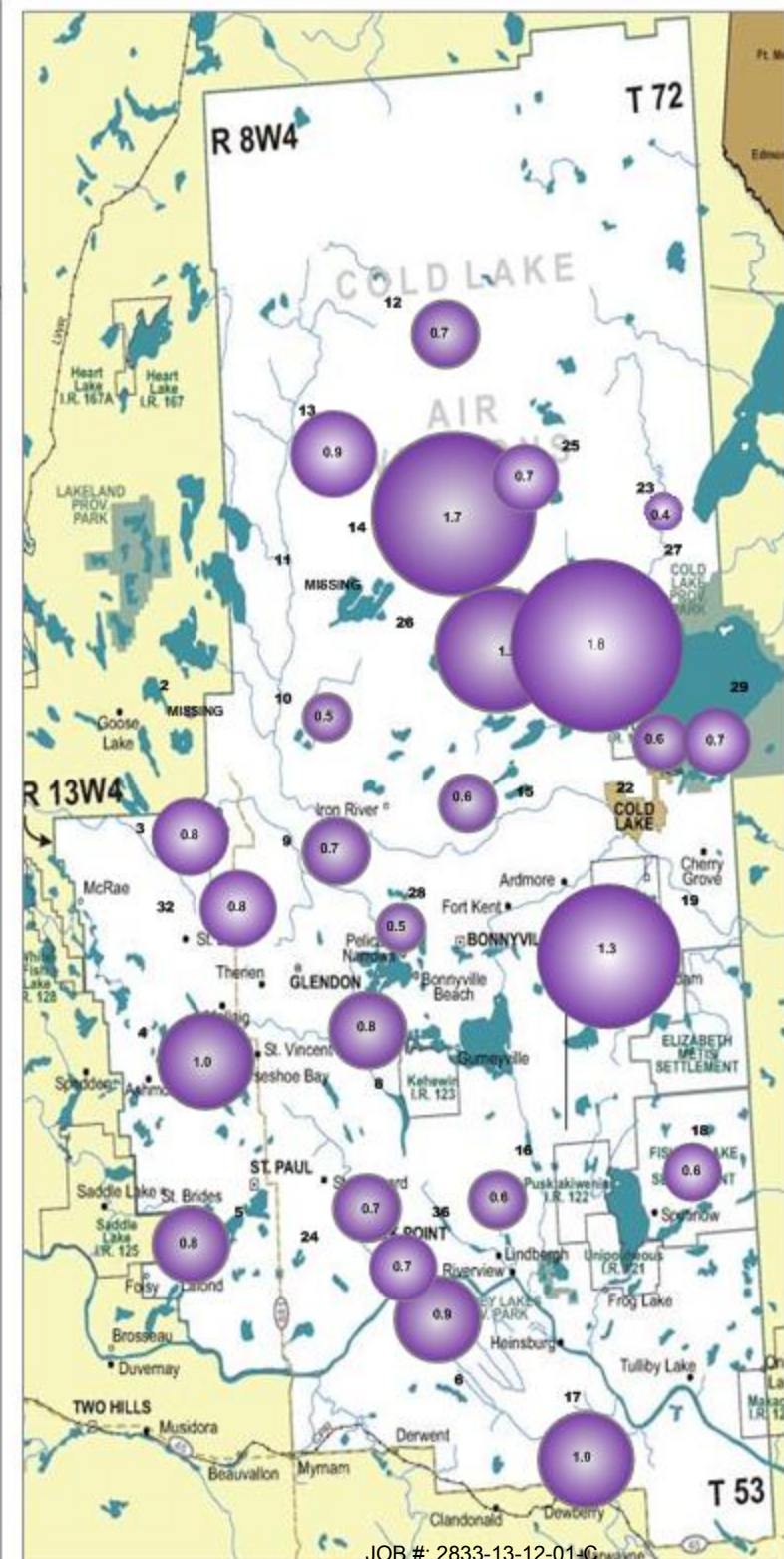
PASSIVE STATIONS

STATION	READING	DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	0.8 PPB	NA
4 – Flat Lake	1.0 PPB	NA
5 – Lake Eliza	0.8 PPB	NA
6 – Telegraph Creek	0.9 PPB	NA
8 – Muriel-Kehewin	0.8 PPB	NA
9 – Dupre	0.7 PPB	NA
10 – La Corey	0.5 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.7 PPB	NA
13 – Primrose	0.9 PPB	NA
14 – Maskwa	1.7 PPB	NA
15 – Ardmore	0.6 PPB	NA
16 – Frog Lake	0.6 PPB	NA
17 – Clear Range	1.0 PPB	NA
18 – Fishing Lake	0.6 PPB	NA
19 – Beaverdam	1.3 PPB	MISSING
22 – Cold Lake South	0.7 PPB	0.5 PPB
23 – Medley-Martineau	0.4 PPB	MISSING
24 – Fort George	0.7 PPB	0.6 PPB
25 – Burnt Lake	0.7 PPB	NA
26 – Mahikan	1.3 PPB	NA
27 – Mahkeses	1.8 PPB	NA
28 – Town of Bonnyville	0.5 PPB	NA
29 – Cold Lake South 2	0.7 PPB	NA
32 – St. Lina	0.8 PPB	NA
36 – Elk Point	0.7 PPB	NA



Summary

Minimum : 0.4 PPB –Medley-Martineau
Maximum: 1.8 PPB –Mahkeses
Average: 0.84 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	NA	NA	NA	NA	All samplers had been removed and samples are missing.
3	H ₂ S/SO ₂ /NO ₂ /O ₃	12/05/2013	15:32	01/01/2014	16:14	
4	SO ₂ /NO ₂ /O ₃	12/05/2013	12:40	12/31/2013	17:21	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	12/05/2013	11:22	12/31/2013	16:05	
6	SO ₂ /NO ₂ /O ₃	12/04/2013	15:14	12/31/2013	13:34	
8	SO ₂ /NO ₂ /O ₃	12/05/2013	09:30	01/01/2014	07:56	
9	SO ₂ /NO ₂ /O ₃	12/03/2013	09:17	01/01/2014	15:30	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	12/03/2013	10:17	12/30/2013	15:31	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	12/03/2013	11:29	NA	NA	Could not access to the sample site as access was blocked by snow
12	H ₂ S/SO ₂ /NO ₂ /O ₃	12/03/2013	13:36	01/01/2014	12:58	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	12/03/2013	17:50	12/30/2013	14:16	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	12/03/2013	19:55	12/30/2013	12:10	
15	SO ₂ /NO ₂ /O ₃	12/06/2013	09:55	12/29/2013	11:15	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	12/04/2013	13:11	12/31/2013	10:02	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	12/04/2013	14:05	12/31/2013	12:30	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	12/04/2013	11:55	12/31/2013	10:52	
19	SO ₂ /NO ₂ /O ₃	12/04/2013	09:12	12/31/2013	09:08	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	12/05/2013	18:50	12/28/2013	15:00	
23	SO ₂ /NO ₂ /O ₃	12/06/2013	10:54	12/28/2013	17:38	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	12/04/2013	15:55	12/31/2013	14:23	
25	H ₂ S/SO ₂	12/03/2013	15:33	01/01/2014	14:11	
26	H ₂ S/SO ₂	12/03/2013	17:00	12/30/2013	12:39	
27	H ₂ S/SO ₂	12/03/2013	21:00	12/30/2013	11:47	
28	SO ₂ /NO ₂ /O ₃	12/03/2013	08:32	12/30/2013	17:32	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	12/05/2013	18:53	12/28/2013	14:55	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	12/05/2013	14:16	01/01/2014	17:02	
36	H ₂ S/SO ₂ /NO ₂ /O ₃	12/04/2013	16:35	12/28/2013	12:00	

ID	SAMPLER	START5		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 22	SO ₂	12/05/2013	18:50	12/28/2013	15:00	
Duplicate # 23	SO ₂	12/06/2013	10:54	NA	NA	Sample shed was broken. Could not install duplicate sample.
Duplicate # 24	SO ₂	12/04/2013	15:55	12/31/2013	14:23	
Duplicate # 27	H ₂ S	12/03/2013	21:00	12/30/2013	11:47	
Duplicate # 29	H ₂ S	12/05/2013	18:53	12/28/2013	14:55	
Duplicate # 4	NO ₂	12/05/2013	12:40	12/31/2013	17:21	
Duplicate # 5	NO ₂	12/05/2013	11:22	12/31/2013	16:05	
Duplicate # 4	O ₃	12/05/2013	12:40	12/31/2013	17:21	
Duplicate # 5	O ₃	12/05/2013	11:22	12/31/2013	16:05	

Passive Network Laboratory Analysis

Your Project #: 2013/12/05 - 2013/12/31
 Site Location: LICA

Attention:MICHAEL BISAGA

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

Report Date: 2014/01/20
 Report #: R1503093
 Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B400429

Received: 2014/01/03, 15:12

Sample Matrix: Air
 # Samples Received: 34

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	20	2014/01/20	2014/01/20	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	12	2014/01/17	2014/01/20	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	13	2014/01/18	2014/01/20	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	26	2014/01/08	2014/01/20	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	1	2014/01/13	2014/01/20	PTC SOP-00149	Tang Passive SO2 in
SO2 Passive Analysis (1)	29	2014/01/18	2014/01/20	PTC SOP-00149	Tang Passive SO2 in

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
 (1) The detection limit is based on a 30 day sampling period.

Encryption Key

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

=====
 This report has been generated and distributed using a secure automated process.
 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 #: B400429
 Report Date: 2014/01/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2013/12/05 - 2013/12/31
 Site Location: LICA
 Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		IJ6964	IJ6965	IJ6966	IJ6967	IJ6968		IJ6969		
Sampling Date		2013/12/05 15:32	2013/12/05 12:40	2013/12/05 11:22	2013/12/04 15:14	2013/12/05 09:30		2013/12/03 09:17		
	Units	3	4	5	6	8	QC Batch	9	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.17		0.27			7354968		0.02	7354968
Calculated NO2	ppb	3.7	2.5	2.2	7.1	2.0	7353115	3.4	0.1	7353115
Calculated O3	ppb	26.9	32.5	24.6	23.5	26.4	7344726	26.2	0.1	7344726
Calculated SO2	ppb	0.8	1.0	0.8	0.9	0.8	7353141	0.7	0.1	7353797
RDL = Reportable Detection Limit										

Maxxam ID		IJ6970	IJ6971	IJ6972	IJ6973		IJ6974	IJ6975		
Sampling Date		2013/12/03 10:17	2013/12/03 11:29	2013/12/03 13:36	2013/12/03 17:50		2013/12/03 19:55	2013/12/06 09:55		
	Units	10	11	12	13	QC Batch	14	15	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.16	MISSING	0.12	0.12	7354968	0.19		0.02	7354968
Calculated NO2	ppb	5.8	MISSING	2.7	1.8	7353115	3.4	4.9	0.1	7353774
Calculated O3	ppb	22.1	MISSING	22.9	26.6	7344726	23.9	25.7	0.1	7344726
Calculated SO2	ppb	0.5	MISSING	0.7	0.9	7353797	1.7	0.6	0.1	7353797
RDL = Reportable Detection Limit										

Maxxam ID		IJ6976	IJ6977	IJ6978	IJ6979	IJ6980		IJ6981		
Sampling Date		2013/12/04 13:11	2013/12/04 14:05	2013/12/04 11:55	2013/12/04 09:12	2013/12/05 18:50		2013/12/06 10:54		
	Units	16	17	18	19	22	QC Batch	23	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.18	0.25	0.13		0.14	7354968		0.02	7354968
Calculated NO2	ppb	3.9	3.7	2.1	2.1	3.3	7353774	0.9	0.1	7353774
Calculated O3	ppb	23.4	26.9	22.9	27.2	24.2	7344726	23.3	0.1	7344733
Calculated SO2	ppb	0.6	1.0	0.6	1.3	0.7	7353797	0.4	0.1	7353797
RDL = Reportable Detection Limit										

Maxxam ID		IJ6982	IJ6983	IJ6984	IJ6985	IJ6986	IJ6987	IJ6988		
Sampling Date		2013/12/04 15:55	2013/12/03 15:33	2013/12/03 17:00	2013/12/03 21:00	2013/12/03 08:32	2013/12/05 18:53	2013/12/05 14:16		
	Units	24	25	26	27	28	29	32	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.19	0.16	0.18	0.20		0.13	0.22	0.02	7354968
Calculated NO2	ppb	5.0				8.9	4.4	2.2	0.1	7353774
Calculated O3	ppb	23.4				23.5	23.5	28.3	0.1	7344733
Calculated SO2	ppb	0.7	0.7	1.3	1.8	0.5	0.7	0.8	0.1	7353797
RDL = Reportable Detection Limit										

Maxxam Job #: B400429
 Report Date: 2014/01/20

 LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2013/12/05 - 2013/12/31
 Site Location: LICA
 Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		IJ6989		IJ6992	IJ6993	IJ6994	IJ6995	IJ6997		
Sampling Date		2013/12/04 16:35		2013/12/05 12:40	2013/12/05 11:22	2013/12/04 09:12	2013/12/05 18:50	2013/12/06 10:54		
	Units	36	QC Batch	4 DUP	5 DUP	19 DUP	22 DUP	23 DUP	RDL	QC Batch

Passive Monitoring

Calculated H2S	ppb	0.17	7354968						0.02	7354968
Calculated NO2	ppb	8.1	7353774	2.2	2.6				0.1	7353115
Calculated O3	ppb	24.1	7344733	31.7	27.0	MISSING			0.1	7344733
Calculated SO2	ppb	0.7	7353797			MISSING	0.5	MISSING	0.1	7353797

RDL = Reportable Detection Limit

Maxxam ID		IJ6998	IJ7003	IJ7004		
Sampling Date		2013/12/04 15:55	2013/12/03 21:00	2013/12/05 18:53		
	Units	24 DUP	27 DUP	29 DUP	RDL	QC Batch

Passive Monitoring

Calculated H2S	ppb		0.20	0.13	0.02	7354968
Calculated SO2	ppb	0.6			0.1	7353797

RDL = Reportable Detection Limit

Maxxam Job #: B400429
Report Date: 2014/01/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2013/12/05 - 2013/12/31
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Samples: IJ6971 (#11) and IJ6994 (#19Dup) for O3 parameter were not returned to the lab. - OZ
Sample IJ6971 (#11) for NO2 parameter was not returned to the lab. - OZ
Sample IJ6971 (#11) for H2S parameter was not returned to the lab.- SS
Samples: IJ6971 (#11) ,IJ6994 (#19Dup) and IJ6997 (#23Dup) for SO2 parameter were not returned to the lab. - OZ

Sample IJ6971-01 : Site inaccessible due to snow.

Sample IJ6981-01 : Not sampled; damaged shelter.

Results relate only to the items tested.

Maxxam Job #: B400429
 Report Date: 2014/01/20

 LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2013/12/05 - 2013/12/31
 Site Location: LICA
 Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
7344726	OZ	Calibration Check	Calculated O3	2014/01/08		100	%	90 - 110
7344726	OZ	Spiked Blank	Calculated O3	2014/01/08		99	%	90 - 110
7344726	OZ	Method Blank	Calculated O3	2014/01/08	<0.1		ppb	
7344733	OZ	Calibration Check	Calculated O3	2014/01/08		99	%	90 - 110
7344733	OZ	Spiked Blank	Calculated O3	2014/01/08		100	%	90 - 110
7344733	OZ	Method Blank	Calculated O3	2014/01/08	<0.1		ppb	
7353115	OZ	Calibration Check	Calculated NO2	2014/01/17		99	%	90 - 110
7353115	OZ	Spiked Blank	Calculated NO2	2014/01/17		100	%	90 - 110
7353115	OZ	Method Blank	Calculated NO2	2014/01/17	<0.1		ppb	
7353141	OZ	Calibration Check	Calculated SO2	2014/01/17		101	%	90 - 110
7353141	OZ	Spiked Blank	Calculated SO2	2014/01/17		103	%	90 - 110
7353141	OZ	Method Blank	Calculated SO2	2014/01/17	<0.1		ppb	
7353774	OZ	Calibration Check	Calculated NO2	2014/01/18		99	%	90 - 110
7353774	OZ	Spiked Blank	Calculated NO2	2014/01/18		97	%	90 - 110
7353774	OZ	Method Blank	Calculated NO2	2014/01/18	<0.1		ppb	
7353797	OZ	Calibration Check	Calculated SO2	2014/01/18		99	%	90 - 110
7353797	OZ	Spiked Blank	Calculated SO2	2014/01/18		103	%	90 - 110
7353797	OZ	Method Blank	Calculated SO2	2014/01/18	<0.1		ppb	
7354968	SS6	Calibration Check	Calculated H2S	2014/01/20		105	%	90 - 110
7354968	SS6	Spiked Blank	Calculated H2S	2014/01/20		98	%	90 - 110

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.

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.

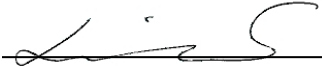
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Maxxam Job #: B400429
Report Date: 2014/01/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2013/12/05 - 2013/12/31
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.

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2013

Prepared By:



January 21, 2014

Lakeland Industry & Community Association Ambient Air Monitoring Maskwa

Table of Contents

	Page		Page
Introduction	3	Calibration Reports	84
Calibration Procedure	4	• Sulphur Dioxide	85
Monthly Continuous Summary	5	• Hydrogen Sulphide	8-
General Monthly Summary	6	• Total Hydrocarbons	9&
Continuous Monitoring	10	• Nitrogen Dioxide	9)
• Monthly Summaries, Graphs & Wind Roses	11		
• Sulphur Dioxide	12		
• Hydrogen Sulphide	20		
• Total Hydrocarbons	28		
• Nitrogen Dioxide	36		
• Nitric Oxide	44		
• Oxides of Nitrogen	51		
• Temperature	59		
• Precipitation	62		
• Relative Humidity	65		
• Barometric Pressure	68		
• Vector Wind Speed	71		
• Vector Wind Direction	78		
• Standard Deviation Wind Direction	81		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga
Lakeland Industry & Community Association
Box 8237
5107W – 50 Street
Bonnyville, Alberta
T9N 2J5

Monitoring Location: Maskwa
Data Period: December 2013

The monthly ambient data report:

- Prepared by Lili Zhou
- Reviewed by Lily Lin

Calibration Procedure

The following calibration procedure applies to all calibrations conducted at the Lakeland Industry & Community Association Air Monitoring Station.

Calibration gas concentrations are generated using a dynamic mass flow controlled calibrator. EPA Protocol one gases are diluted with zero air generated on site. The Mass Flow Controllers in the calibrator are referenced using an NIST traceable flow meter once per month. All listed flows are reported as corrected to Standard Temperature and Pressure (STP).

Generated zero gas is introduced to the analyzer first. Three concentrations of calibration gas are then generated in order to introduce points at approximately 50-80%, 25-40% & 10-20% of the analyzer's full-scale range. An auto zero and span are then performed to validate the daily zero and span values recorded to the next multi-point calibration.

All indicated concentrations are taken from the ESC data logger used to collect the data for monthly reporting.

The calibrations conducted at the LICA - Maskwa Air Monitoring Stations conform to the following Maxxam Standard Operation Procedures:

- CAL SOP-00211
- CAL SOP-00209
- CAL SOP-00213
- CAL SOP-00214
- CAL SOP-00208

Conformance of each calibration to Alberta Environment regulations is outlined in the individual calibration reports. The slope and correlation coefficient are derived from the calculated and indicated analyzer responses. The percent change is calculated using the previous calibration correction factor and the current correction factor before adjustment. All calibration's and maintenance conforms to the procedures outlined in the *Air Monitoring Directive, Appendix A-10, Section 1.6*.

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – MASKWA

Continuous Ambient Monitoring – December 2013

LICA MASKWA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	1.17	16	9	6	10	309(NW)	3.7	6	100.0
H2S (PPB)	10	3	0	0	0.12	1	VAR	VAR	VAR	VAR	0.5	15	100.0
THC (PPM)	-	-	-	-	2.31	3.9	22	5	0.2	272(W)	2.8	22	100.0
NO ₂ (PPB)	159	-	0	-	5.00	21.2	23	21	10	305(WNW)	13.2	7	97.4
NO (PPB)	-	-	-	-	0.56	12.7	9	6	10	309(NW)	1.8	6	97.4
NO _x (PPB)	-	-	-	-	5.56	31.5	9	6	10	309(NW)	14.8	7	97.4
VECTOR WS (KPH)	-	-	-	-	5.90	20.7	15	15	-	288(WNW)	11.2	27	100.0
VECTOR WD (DEGREES)	-	-	-	-	345(NNW)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	70.08	89	26	19, 20	4.1, 7.4	253(WSW), 281(W)	85.5	26	100.0
TEMPERATURE (DEG C)	-	-	-	-	-18.91	2.8	15	13	16.4	285(WNW)	-2.7	26	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	943	961	6	VAR	VAR	VAR	959.4	6	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	0.7	14	3	3.2	120(ESE)	1.7	23, 25	100.0

NA-NOT AVAILABLE VAR-VARIOUS

General Monthly Summary

Equipment Operation

The following summary outlines the analyzer performance. Any non-conformances, problems encountered or maintenance performed are detailed at the end of each section.

AQM STATION – LICA – Maskwa

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 508

No operational issues were observed during the month. Following the as found points check on December 18th, the sample pump was rebuilt and the inlet filter was changed. After that, a full calibration was performed. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 511

No operational issues were observed during the month. The monthly calibration was performed on December 18th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

- Analyzer make / model –TECO 51C-LT, S/N: 436609738

No operational issues were observed during the month. The monthly calibration was performed on December 18th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 594

No operational issues were observed during the month. Following the as found points check on December 18th, the reaction cell was clean, tubing and sintered filters were replaced, the analog output was calibrate and the inlet filter was changed. The analyzer was allowed time to stabilize. The three points calibration was performed on December 19th. The analyzer did not pass the calibration requirements during the GPT points. The GPT points calibration was repeated on December 20th, The analyzer met the GPT points calibration requirements. Data was corrected using daily zero information.

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)

- System make / model - MetOne 50.5H Sonic, S/N: H10703

The wind system is reported as vector wind speed and vector wind direction. The last wind system calibration was performed by manufacturer on December 20th, 2011.

No operational issues were observed this month. The hourly maximum reading for wind speed collected on December 12th at hour 4, on December 20th at hour 8 and on December 21st at hour 1 went above the full scale. The real-readings may be higher than indicated.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

- System make / model - Met One 387

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issues were observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issues were observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Datalogger

- System make / model - ESC 8832
- Software make/version - ESC v 5.51a

No operational issues were observed during the month.

Trailer

The manifold was cleaned on December 18th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2013
SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR																							
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.																						
DAY																																																	
1	1	1	1	2	1	1	1	1	1	1	1	0	0	1	0	0	1	0	S	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	S	0	0	0	0	0	0	0	0	0.0	24																					
3	0	0	0	0	0	2	2	2	1	0	0	0	0	1	0	0	S	1	1	0	0	0	0	0	3	3	0.6	24																					
4	1	1	11	5	1	1	2	2	2	2	2	1	2	2	2	S	0	1	1	1	6	7	3	3	11	2.6	24																						
5	3	3	3	4	2	1	1	1	1	1	1	1	1	1	S	0	1	1	1	1	1	1	1	3	5	5	1.7	24																					
6	6	10	8	2	8	6	6	5	5	4	4	4	4	S	2	1	1	2	1	1	1	1	1	1	10	3.7	24																						
7	1	1	1	1	0	1	1	2	2	1	1	2	S	3	3	3	3	2	2	5	10	6	7	6	10	2.8	24																						
8	2	1	1	2	2	2	5	7	2	6	2	S	2	2	3	2	1	0	0	0	0	0	0	0	7	1.8	24																						
9	1	1	1	1	2	2	16	2	1	5	S	3	1	2	4	4	7	1	1	5	6	2	2	1	16	3.1	24																						
10	0	1	0	1	1	1	2	11	8	S	6	2	3	4	2	2	1	1	1	1	1	1	1	1	11	2.3	24																						
11	1	1	1	1	1	2	2	2	S	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	2	0.7	24																						
12	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24																						
13	1	1	1	2	2	4	S	1	1	0	0	1	3	2	1	0	0	0	0	0	0	0	0	0	4	0.9	24																						
14	0	0	0	0	1	S	0	0	0	0	5	1	5	6	1	1	2	1	1	1	1	1	1	1	6	1.3	24																						
15	1	1	2	3	S	0	1	1	0	1	1	2	1	0	0	0	0	1	0	2	0	0	0	0	3	0.7	24																						
16	0	0	0	S	0	0	0	0	0	0	0	0	1	0	1	2	2	6	8	2	0	0	1	1	8	1.0	24																						
17	0	0	S	1	2	2	1	1	1	1	2	1	2	2	1	2	2	2	1	1	1	1	2	3	3	1.4	24																						
18	1	S	0	0	0	0	0	4	2	3	C	C	C	C	C	C	C	C	0	2	1	0	0	0	4	0.9	24																						
19	S	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	2	1	1	0	1	3	1	S	3	0.8	24																						
20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	S	0	1	0.1	24																					
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	1	0	1	0.1	24																					
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	1	1	0.1	24																						
23	2	2	3	3	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	S	4	14	11	11	14	3.2	24																						
24	4	2	1	0	1	0	2	1	1	0	2	2	1	3	1	0	1	1	S	8	1	2	3	1	8	1.7	24																						
25	2	0	0	1	1	0	0	0	0	0	0	0	0	2	2	2	1	S	1	1	1	0	1	1	2	0.7	24																						
26	2	1	2	2	2	2	2	2	1	1	1	1	1	2	1	2	S	2	1	1	1	4	4	1	4	1.7	24																						
27	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1	24																					
28	0	0	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	1	0.0	24																					
29	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24																					
30	2	2	1	1	1	0	0	0	0	0	0	2	S	1	1	1	0	1	1	1	0	0	0	0	2	0.7	24																						
31	0	2	1	1	0	0	0	1	1	0	1	S	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24																						
HOURLY MAX	6	10	11	5	8	6	16	11	8	6	6	4	5	6	4	4	7	6	8	8	10	14	11	11																									
HOURLY AVG	1.1	1.1	1.3	1.1	1.0	1.0	1.5	1.6	1.1	1.0	1.1	1.0	1.1	1.5	1.1	1.0	1.0	0.9	1.2	1.2	1.5	1.4	1.4																										

STATUS FLAG CODES

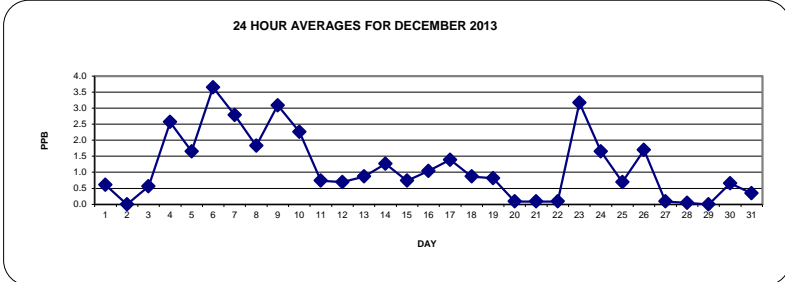
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

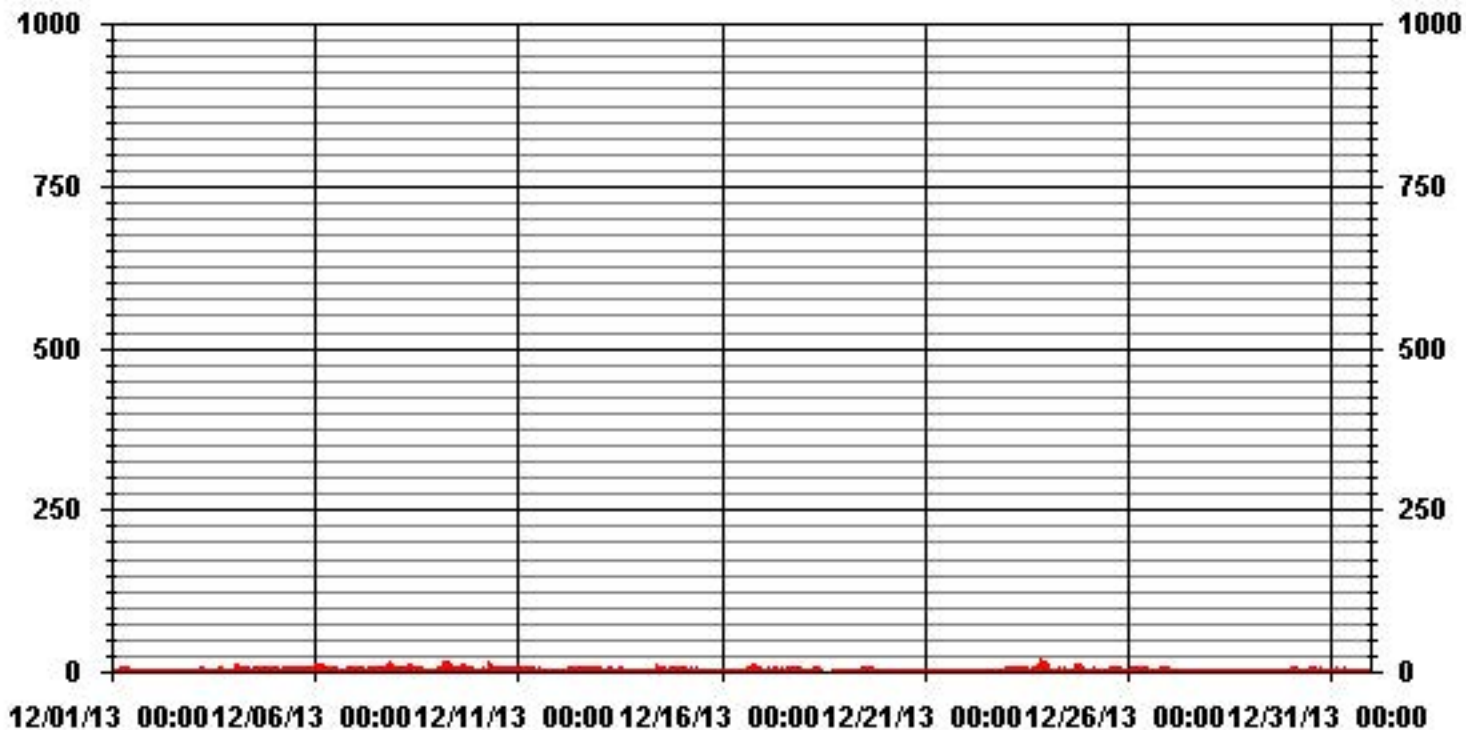
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	390					
MAXIMUM 1-HR AVERAGE:	16	PPB	@ HOUR(S)	6	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	3.7	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.85		MONTHLY AVERAGE:	1.17	PPB	



01 Hour Averages



— LICA30 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	1	2	1	3	2	1	2	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	3	1.2	24
2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	S	2	3	1	1	1	1	0	0	1	0.3	24
3	0	0	0	1	1	2	3	3	6	5	0	0	1	4	0	0	S	2	3	1	1	1	1	14	14	2.1	24	
4	2	2	22	14	3	1	2	2	2	3	3	2	3	2	2	S	1	2	2	3	15	16	4	3	22	4.8	24	
5	3	3	7	8	3	2	1	1	1	1	1	1	1	S	1	1	2	2	2	2	2	4	8	8	2.5	24		
6	12	16	16	3	17	12	14	12	10	9	9	8	8	S	4	2	5	6	1	1	1	1	1	2	17	7.4	24	
7	3	3	2	2	1	1	2	3	3	2	2	3	S	3	3	3	4	3	4	14	16	17	15	17	17	5.5	24	
8	4	1	2	4	2	3	7	14	5	15	7	S	5	9	7	5	4	1	1	1	1	1	1	1	15	4.4	24	
9	1	1	2	2	3	6	27	5	2	18	S	5	1	3	5	7	15	6	2	14	14	10	3	1	27	6.7	24	
10	1	1	1	2	2	2	17	17	20	S	16	6	14	14	5	4	2	1	2	2	1	1	1	1	20	5.8	24	
11	1	1	1	1	2	3	3	2	S	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.5	24
12	0	0	0	0	0	0	0	S	2	2	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24
13	1	1	4	8	8	6	S	3	2	0	1	5	6	5	9	0	0	0	0	0	0	1	1	0	9	2.7	24	
14	0	0	0	1	3	S	1	1	1	1	10	3	7	11	7	2	6	1	2	1	1	3	2	1	11	2.8	24	
15	1	2	3	4	S	1	1	1	1	1	1	3	3	1	1	1	1	5	2	5	1	0	0	0	5	1.7	24	
16	0	0	0	S	0	2	1	1	1	0	0	2	3	4	6	4	5	16	21	5	4	3	3	2	21	3.6	24	
17	0	0	S	2	2	2	2	2	1	2	4	2	6	6	2	6	3	3	2	2	2	2	6	15	15	3.2	24	
18	2	S	1	1	1	1	2	10	3	13	C	C	C	C	C	C	C	C	2	5	4	1	0	0	13	3.1	24	
19	S	0	0	0	0	1	1	0	0	2	1	2	2	3	3	3	3	2	1	1	2	5	6	S	6	1.7	24	
20	1	1	1	0	0	1	1	1	1	1	1	1	2	5	1	2	1	1	0	1	1	1	S	0	5	1.1	24	
21	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	0	S	4	3	4	0.5	24	
22	1	0	1	1	1	2	2	0	0	1	0	3	2	0	0	0	0	0	0	3	S	0	2	3	3	1.0	24	
23	2	3	3	4	3	3	3	3	2	3	2	2	2	2	2	2	2	3	3	S	8	21	20	20	21	5.1	24	
24	14	5	3	1	2	1	3	2	3	3	9	11	4	5	1	1	3	4	S	19	4	4	5	3	19	4.8	24	
25	3	1	1	3	9	0	0	0	0	0	0	1	5	5	3	3	S	2	1	1	1	1	2	9	1.8	24		
26	3	2	3	2	3	2	3	3	2	2	2	3	2	2	3	S	2	2	2	2	13	12	2	13	3.2	24		
27	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	0	0	0	0	0	0	0	2	0.7	24	
28	0	0	0	0	0	0	0	0	0	1	1	2	3	3	S	0	0	0	0	0	0	0	0	0	3	0.4	24	
29	0	1	0	0	0	0	0	0	0	0	0	1	S	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24	
30	7	4	2	4	3	1	0	0	0	0	2	3	S	2	2	2	1	2	2	1	1	1	1	0	7	1.8	24	
31	1	3	3	2	0	1	2	2	4	2	3	S	2	0	0	0	0	0	0	0	0	0	0	0	4	1.1	24	
HOURLY MAX	14	16	22	14	17	12	27	17	20	18	16	11	14	14	9	7	15	16	21	19	16	21	20	20				
HOURLY AVG	2.2	1.9	2.7	2.5	2.4	2.0	3.4	3.0	2.5	3.0	2.9	2.7	3.0	3.4	2.6	2.0	2.3	2.3	2.0	2.9	2.8	3.6	3.2	3.4				

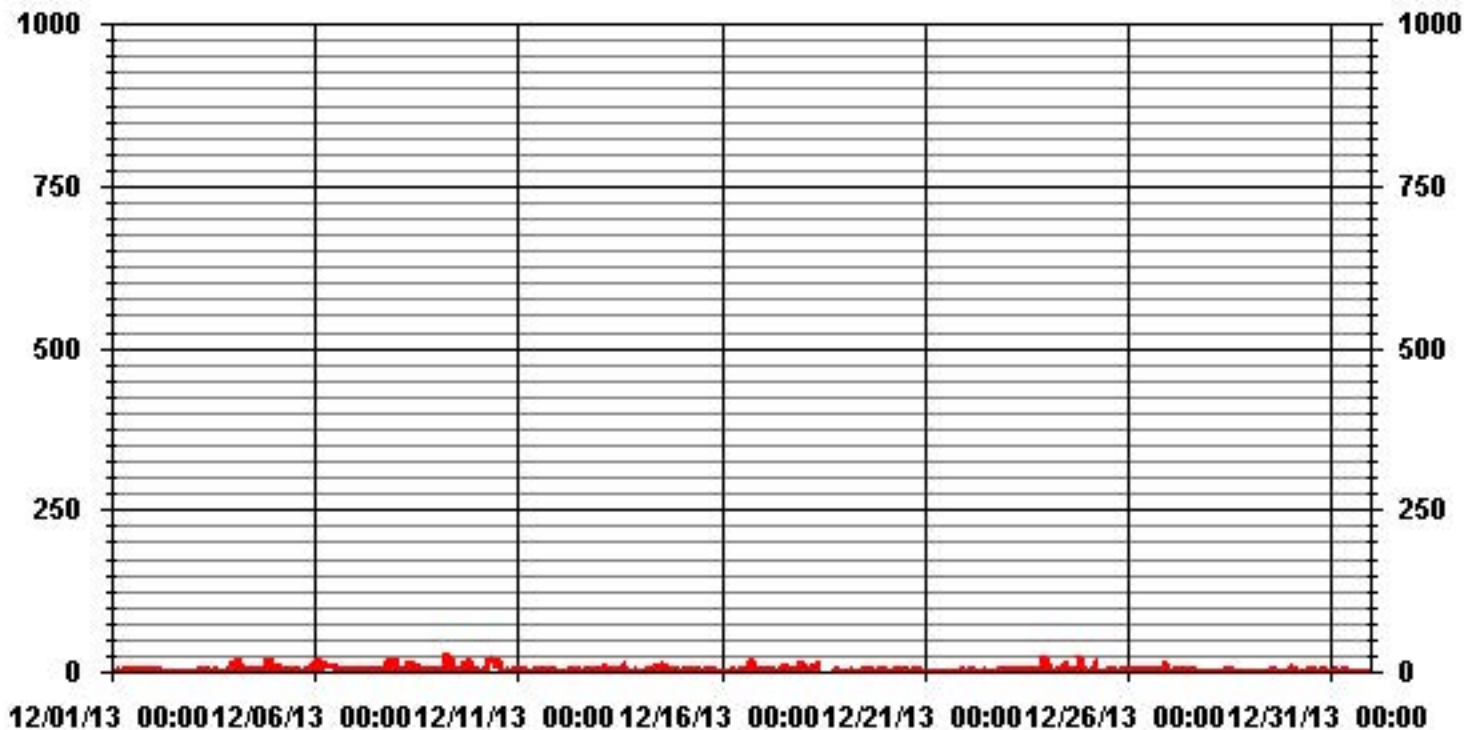
STATUS FLAG CODES

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:	542			
MAXIMUM INSTANTANEOUS VALUE:	27	PPB	@ HOUR(S)	6 ON DAY(S) 9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8	HRS		
STANDARD DEVIATION:	3.92			

01 Hour Averages



LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 20	6.96	6.96	13.92	6.25	2.55	4.68	2.55	3.69	1.84	11.07	7.38	3.26	5.25	8.94	8.09	6.53	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	6.96	6.96	13.92	6.25	2.55	4.68	2.55	3.69	1.84	11.07	7.38	3.26	5.25	8.94	8.09	6.53	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 20	49	49	98	44	18	33	18	26	13	78	52	23	37	63	57	46	704
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	49	49	98	44	18	33	18	26	13	78	52	23	37	63	57	46	

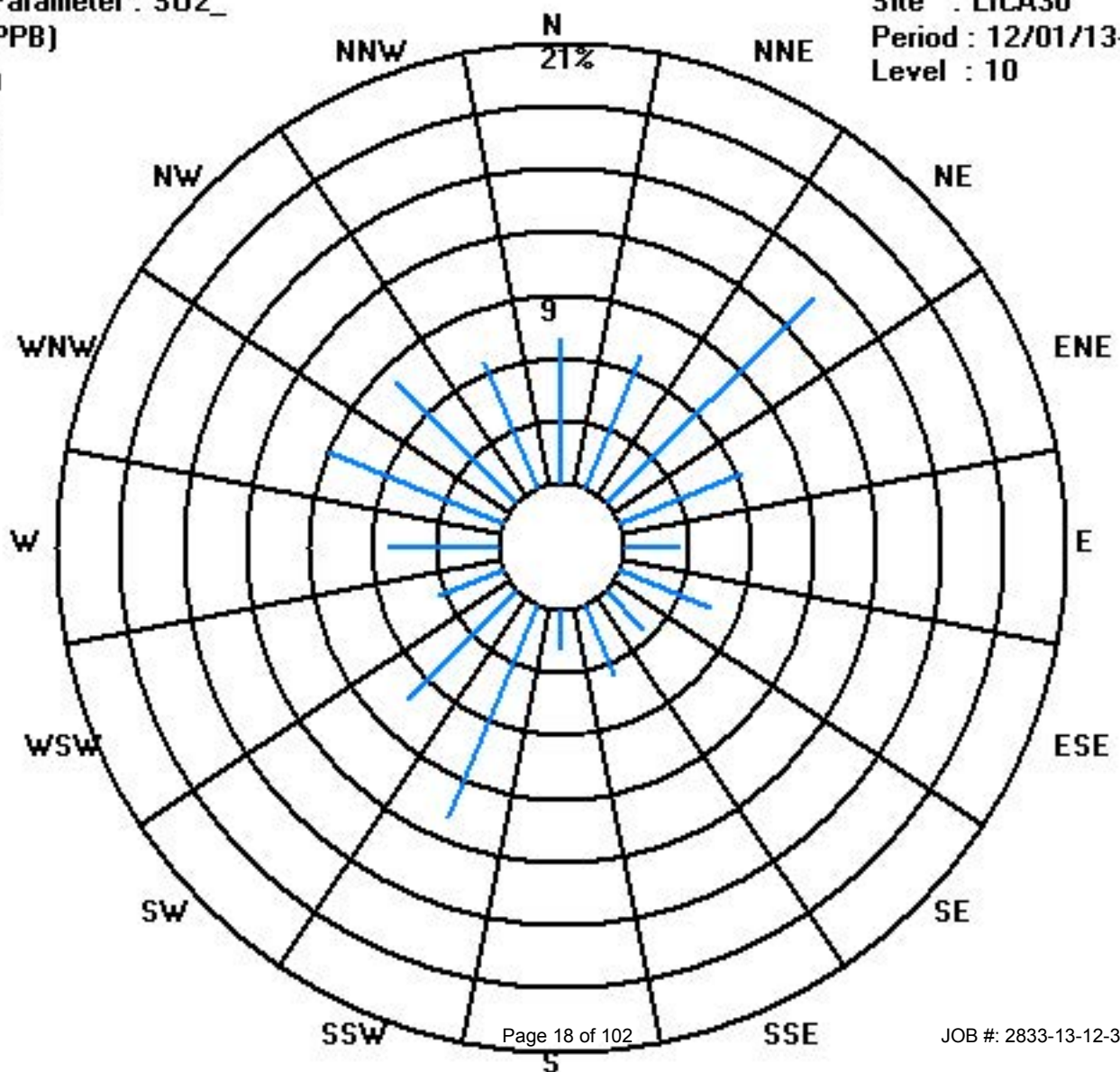
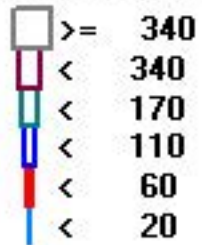
Calm : .00 %

Total # Operational Hours : 704

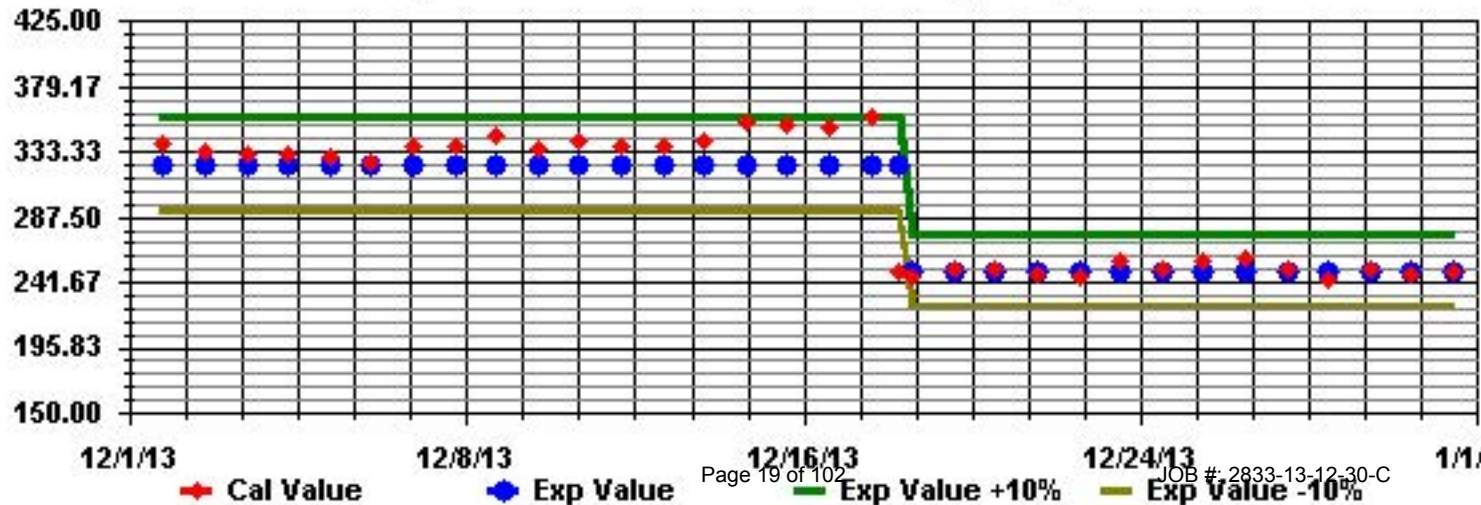
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

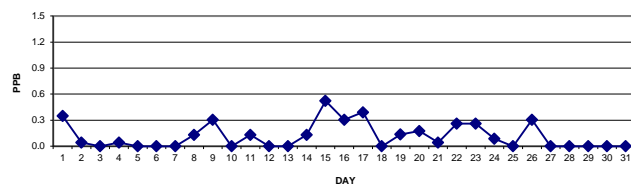
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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

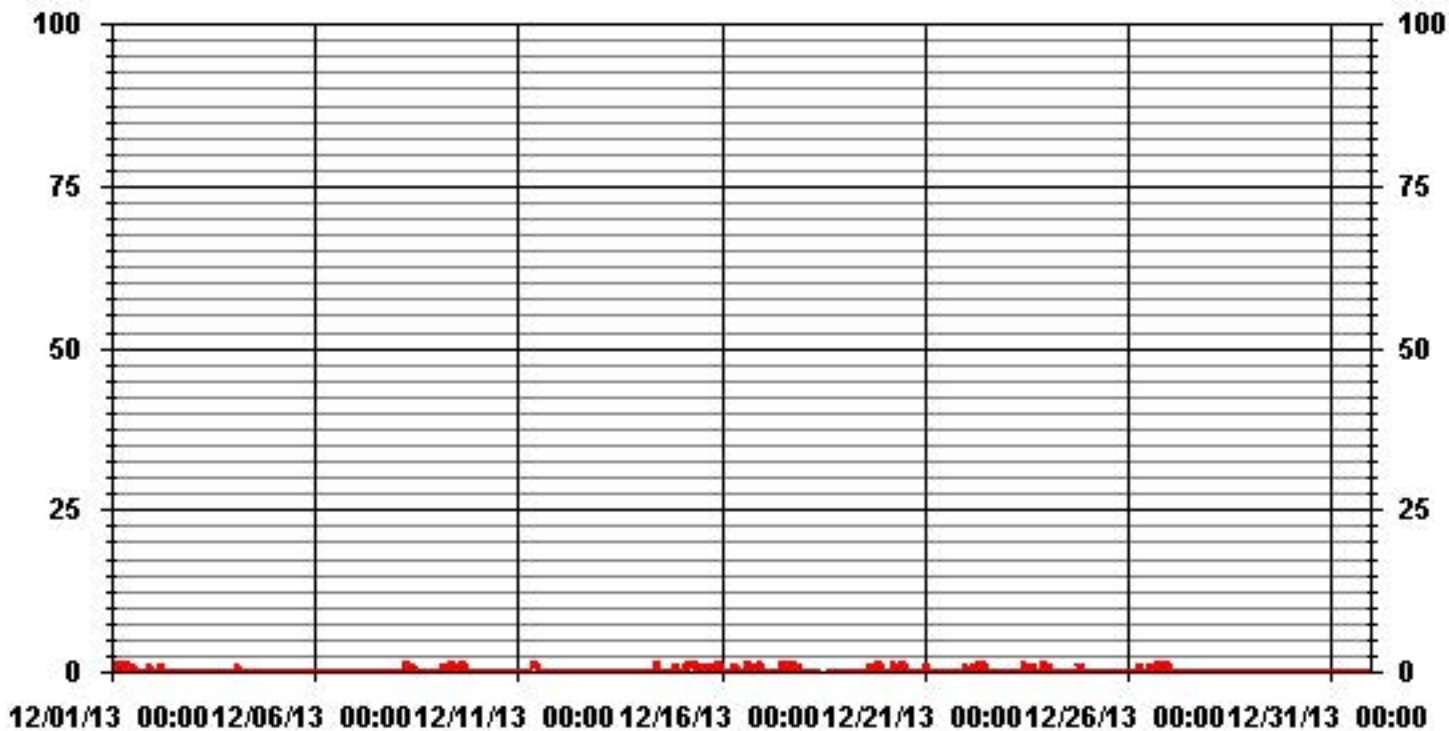
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	83
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.5 PPB ON DAY(S) VAR
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.32
MONTHLY AVERAGE:	0.12 PPB

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA30 H2S_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

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

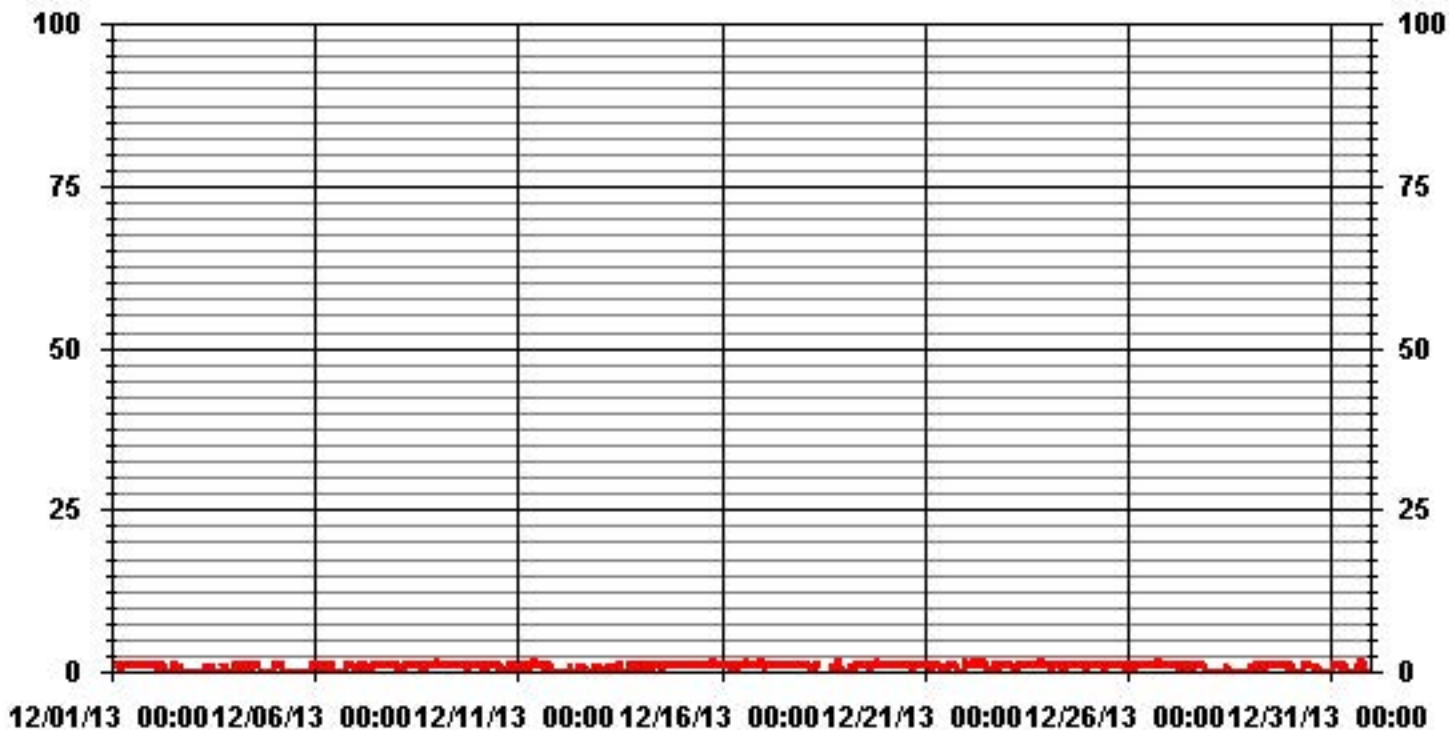
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	460					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744 HRS		
MONTHLY CALIBRATION TIME:	6 HRS					
STANDARD DEVIATION:	0.51					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	6.94	6.94	13.88	6.23	2.54	4.67	2.54	3.68	1.84	11.04	7.36	3.25	5.24	8.92	8.35	6.51	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	6.94	6.94	13.88	6.23	2.54	4.67	2.54	3.68	1.84	11.04	7.36	3.25	5.24	8.92	8.35	6.51	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	49	49	98	44	18	33	18	26	13	78	52	23	37	63	59	46	706
< 10																	
< 50																	
>= 50																	
Totals	49	49	98	44	18	33	18	26	13	78	52	23	37	63	59	46	

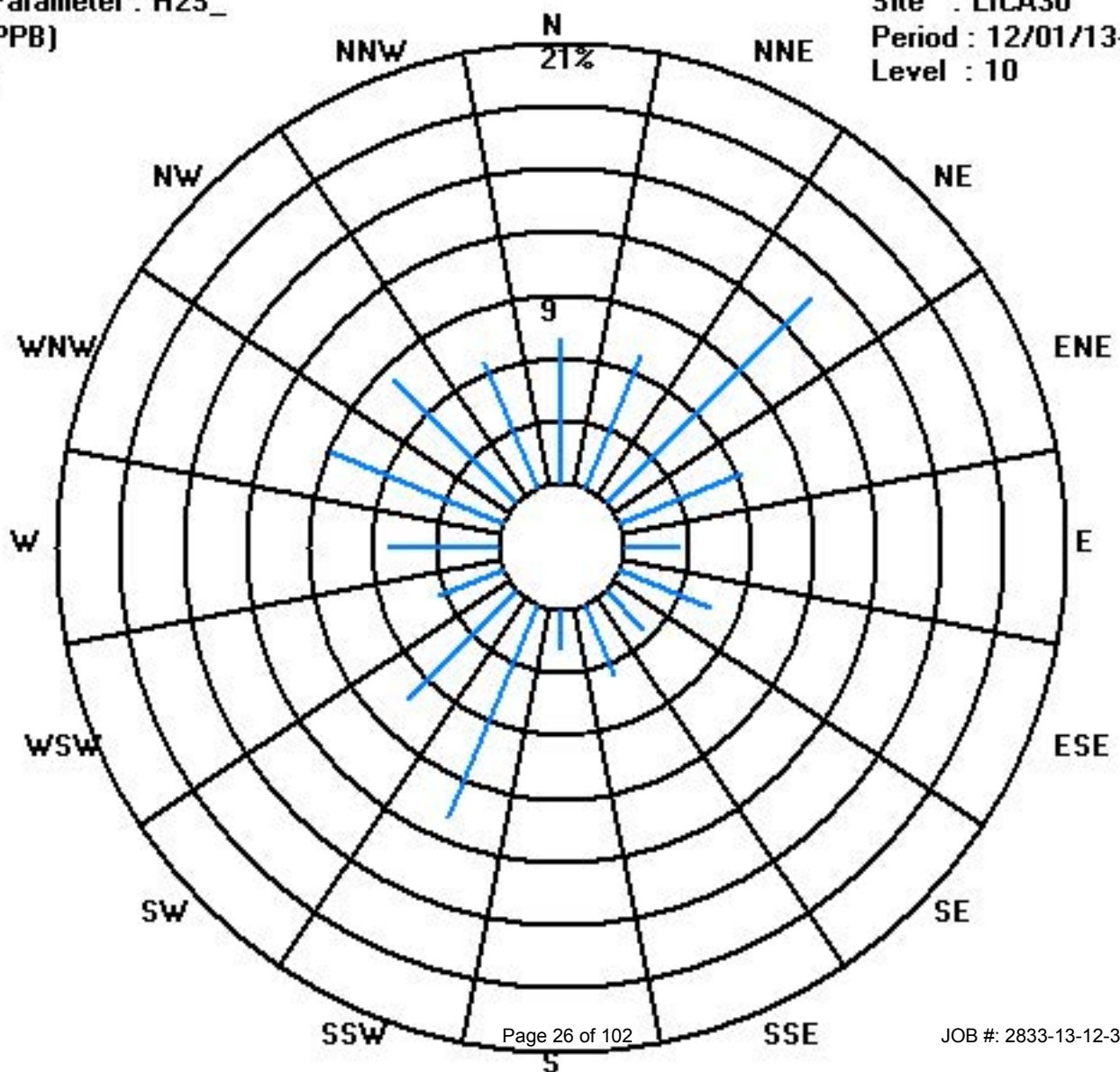
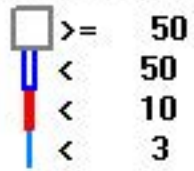
Calm : .00 %

Total # Operational Hours : 706

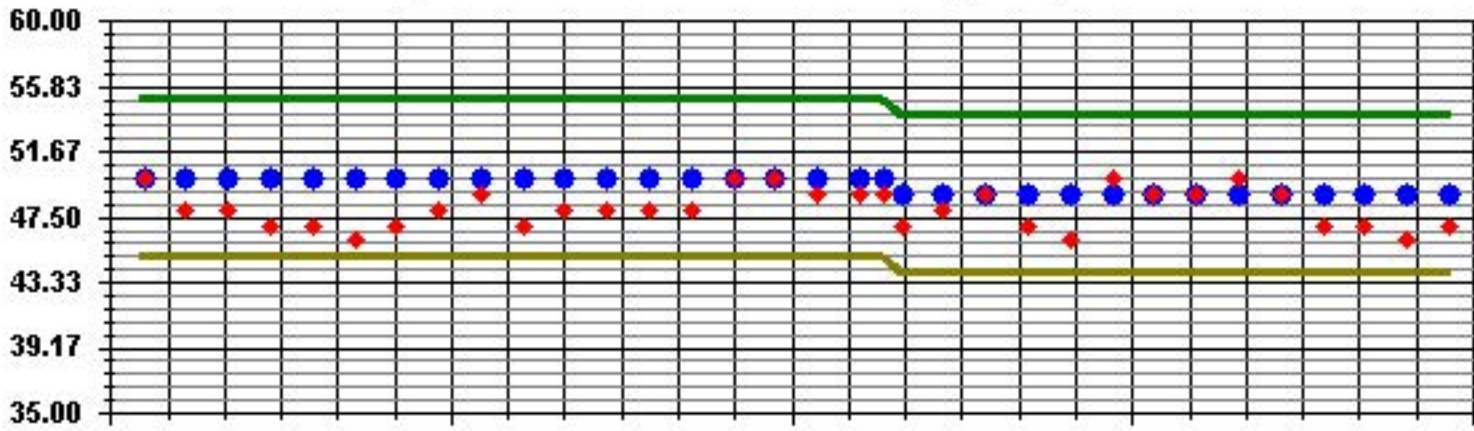
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



12/1/13

12/8/13

12/16/13

12/24/13

1/1/14

◆ Cal Value

◆ Exp Value

— Exp Value +10%

— Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

DECEMBER 2013

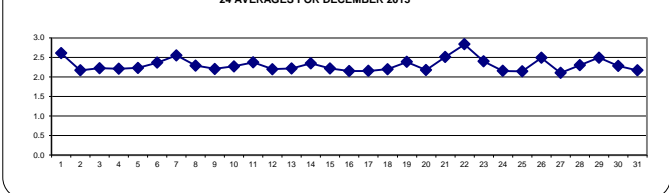
TOTAL HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY 24-HOUR		
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		3.2	3.2	3	3	2.9	2.7	2.7	2.7	2.8	2.8	2.8	2.7	2.5	2.4	2.4	2.4	2.4	2.3	S	2.4	2.3	2.2	2.2	2.1	3.2	2.6	24	
2		2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24	
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	S	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	24	
4		2.2	2.2	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	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	24	
5		2.2	2.2	2.3	2.4	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.2	24	
6		2.3	2.7	2.6	2.3	2.4	2.4	2.4	2.5	2.7	2.5	2.5	2.3	2.3	S	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.6	2.7	2.4	24	
7		2.7	2.9	2.9	2.8	2.8	2.6	2.6	2.5	2.4	2.5	2.5	2.5	S	2.5	2.5	2.6	2.6	2.6	2.6	2.4	2.4	2.3	2.2	2.4	2.9	2.6	24	
8		2.2	2.2	2.2	2.3	2.2	2.3	2.5	2.5	2.3	2.5	2.2	S	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.4	2.4	2.6	2.4	2.4	2.6	2.3	24	
9		2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.1	2.1	2.2	S	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.2	2.3	2.1	2.1	2.1	2.4	2.2	24	
10		2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.5	2.4	S	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.4	2.5	2.5	2.4	2.4	2.5	2.3	24	
11		2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	S	2.8	3.7	2.8	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.7	2.4	24	
12		2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	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	
13		2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.2	24	
14		2.4	2.5	2.7	2.6	2.4	S	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.7	2.3	2.4	24	
15		2.2	2.3	2.3	2.3	S	2.4	2.4	2.5	2.5	2.6	2.5	2.1	2	2	2	2	2.1	2.2	2	2	2	2	2	2	2.6	2.2	24	
16		2.1	2.1	2.1	S	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.3	2.2	2.3	2.4	2.1	2.2	2.1	2.2	2.4	2.2	24	
17		2.1	2.2	S	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	24	
18		2.1	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	C	C	C	C	C	C	C	C	2.4	2.2	2.3	2.2	2.2	2.2	2.4	2.2	24	
19		S	2.2	2.2	2.2	2.2	2.3	2.5	2.8	2.7	2.5	2.4	2.3	2.3	2.5	2.3	2.4	2.4	2.5	2.5	2.4	2.4	2.3	2.2	S	2.8	2.4	24	
20		2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.2	2.3	2.2	24
21		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.6	2.6	2.7	2.8	2.8	2.8	2.9	3	3.1	S	2.9	2.8	3.1	2.5	24	
22		3.1	3	3.1	2.7	2.7	3.9	3.3	2.6	2.8	3	2.7	2.6	2.5	2.7	2.7	2.8	2.7	2.5	2.6	2.9	S	2.8	2.8	3.9	2.8	2.4	24	
23		2.8	2.7	2.6	2.5	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	S	2.2	2.2	2.1	2.1	2.8	2.4	24	
24		2.2	2.4	2.1	2.1	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	S	2.3	2.1	2.3	2.1	2.1	2.4	2.2	24	
25		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	S	2.1	2.3	2.3	2.2	2.2	2.4	2.4	2.1	24	
26		2.8	3	2.6	2.6	2.7	2.6	2.7	2.8	2.6	2.5	2.5	2.5	2.6	2.4	2.3	2.2	S	2.4	2.5	2.4	2.2	2.2	2.1	2.1	3.0	2.5	24	
27		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24	
28		2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	S	2.1	2.1	2.3	2.4	2.3	2.3	2.4	2.5	2.9	2.9	2.3	24	
29		2.9	3	3	3	3.1	2.9	2.7	2.6	2.6	2.5	2.3	2.3	2.2	S	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	3.1	2.5	24	
30		2.3	2.4	2.3	2.4	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	S	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.1	2.1	2.6	2.3	24	
31		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	24	
HOURLY MAX		3.2	3.2	3.1	3.0	3.1	3.9	3.3	2.8	2.8	3.0	3.7	2.8	2.6	2.7	2.7	2.8	2.8	2.8	2.9	3.0	3.1	2.8	2.9	2.9				
HOURLY AVG		2.3	2.4	2.4	2.3	2.3	2.4	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	

STATUS FLAG CODES

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

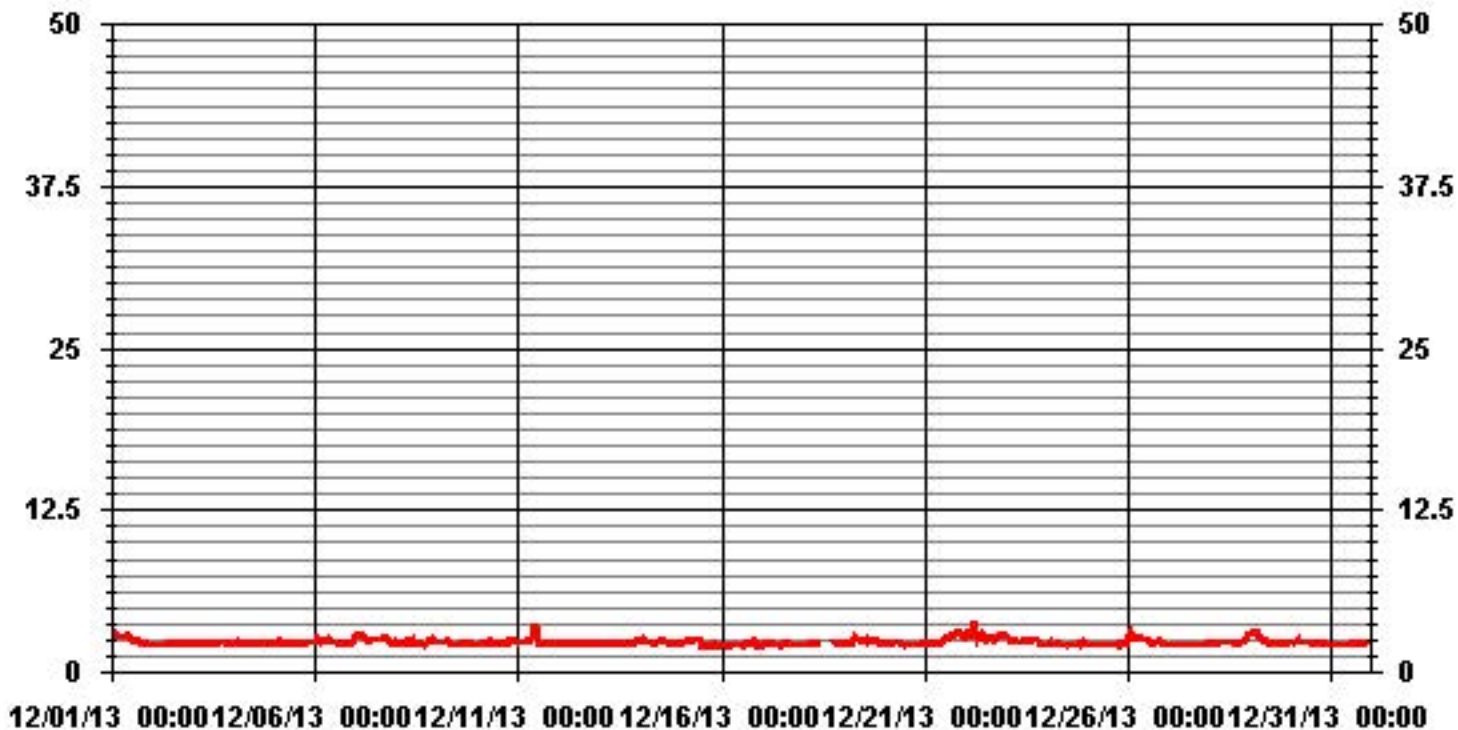
24 AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM 1-HR AVERAGE:	3.9	PPM	@ HOUR(S)	5	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	2.8	PPM			ON DAY(S)	22
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.23		MONTHLY AVERAGE:	2.31	PPM	

01 Hour Averages



— LICA30 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST																										DAILY	24-HOUR		
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	MAX.	AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
DAY																													
1	3.3	3.2	3.1	3	3	2.8	2.8	2.7	2.9	2.9	2.8	2.8	2.6	2.4	2.4	2.4	2.4	2.4	S	2.4	2.4	2.2	2.2	2.2	2.2	3.3	2.7	24	
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	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
3	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.4	2.6	2.2	2.2	S	2.7	2.4	2.5	2.4	2.2	2.2	2.2	2.3	2.7	2.3	24	
4	2.2	2.2	2.7	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	S	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.7	2.3	24	
5	2.3	2.3	2.7	2.8	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	S	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.8	2.3	24	
6	2.5	3.1	3.3	2.4	2.7	2.6	2.6	2.9	3.1	2.8	3	2.4	2.6	S	2.4	2.3	2.4	2.7	2.2	2.2	2.2	2.3	2.5	2.6	3.3	2.6	24		
7	2.9	3	2.9	2.8	2.8	2.7	2.6	2.5	2.5	2.5	2.5	2.5	S	2.5	2.5	2.6	2.6	2.6	2.8	2.7	2.7	2.6	2.3	2.9	3	2.7	24		
8	2.3	2.2	2.2	2.9	2.3	2.5	2.7	2.8	2.7	2.9	2.2	S	2.2	2.2	2.4	2.5	2.5	2.2	2.3	2.5	2.5	2.7	2.5	2.4	2.9	2.5	24		
9	2.4	2.3	2.3	2.3	2.3	2.8	2.8	2.2	2.1	2.5	S	2.4	2.1	2.2	2.4	2.5	2.5	2.1	2.4	2.6	2.7	2.1	2.2	2.1	2.8	2.4	24		
10	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.8	2.7	S	2.2	2.2	2.4	2.4	2.5	2.6	2.2	2.3	2.3	2.6	2.6	2.5	2.5	2.4	2.8	2.4	24		
11	2.3	2.6	2.4	2.4	2.5	2.4	2.4	2.4	S	3	4.8	3.8	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.8	2.5	24		
12	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	
13	2.2	2.2	2.2	2.3	2.3	2.3	S	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.3	2.4	24	
14	2.5	2.6	3.1	2.7	2.5	S	2.5	2.3	2.2	2.3	2.4	2.5	2.6	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3	3.1	2.4	24		
15	2.3	2.3	2.3	2.4	S	2.4	2.4	2.7	2.6	2.6	2.6	2.6	2.5	2	2	2.1	2	2.3	2.2	2.3	2	2	2	2.1	2.7	2.3	24		
16	2.1	2.1	2.1	S	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.6	2.4	2.4	2.4	2.5	2.6	3.2	2.6	2.5	S	3.6	2.6	24		
17	2.2	2.3	S	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.2	2.3	2.4	2.2	2.4	2.2	24		
18	2.1	S	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	C	C	C	C	C	C	C	C	C	2.3	2.3	2.3	2.2	2.2	2.3	2.2	24		
19	S	2.2	2.2	2.2	2.2	2.3	2.6	2.9	2.9	2.6	2.4	2.4	2.3	3.6	2.4	2.4	2.5	2.5	2.6	2.6	3.2	2.6	2.5	S	3.6	2.6	24		
20	2.3	2.2	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.5	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.2	2.5	2.2	24	
21	2.2	2.2	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.6	2.6	2.7	2.8	2.9	2.9	3.2	3.2	3.7	S	3.3	3.2	3.7	2.6	24		
22	4	3.8	3.8	3.2	4.1	4.8	4.6	2.9	3	3.4	2.9	3	2.6	2.7	2.8	2.9	2.9	2.5	2.9	3	S	2.9	2.8	2.8	4.8	3.2	24		
23	2.9	2.8	2.7	2.5	2.5	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	S	2.6	2.5	2.4	2.4	2.4	2.9	2.5	24		
24	2.6	2.8	2.1	2.1	2.1	2.8	3	2.2	2.3	2.3	2.3	2.6	2.3	2.4	2.1	2.1	2.4	2.2	S	2.5	2.2	2.6	2.3	2.4	3	2.4	24		
25	2.3	2.1	2.1	2.4	2.6	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.1	2.1	S	2.1	2.5	2.4	2.3	2.3	2.5	2.6	2.2	24		
26	3.1	3.1	2.8	2.7	2.8	2.7	2.8	2.8	2.7	2.6	2.5	2.7	2.7	2.5	2.4	2.3	S	2.5	2.5	2.5	2.4	2.4	2.4	2.1	3.1	2.6	24		
27	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	24		
28	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.3	2.3	2.4	S	2.1	2.2	2.4	2.5	2.4	2.4	2.5	2.7	2.9	2.9	2.4	24		
29	2.9	3.2	3.1	3	4.1	3	2.9	2.7	2.6	2.5	2.4	2.3	2.2	S	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.4	4.1	2.6	24		
30	2.5	2.5	2.7	2.7	2.9	2.5	2.4	2.3	2.3	2.3	2.4	2.3	S	2.2	2.2	2.2	2.5	2.3	2.3	2.2	2.8	2.2	2.2	2.2	2.9	2.4	24		
31	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	S	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	24		
HOURLY MAX	4.0	3.8	3.8	3.2	4.1	4.8	4.6	2.9	3.1	3.4	4.8	3.8	2.7	3.6	2.8	2.9	2.9	2.9	3.2	3.2	3.7	2.9	3.3	3.2					
HOURLY AVG	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4					

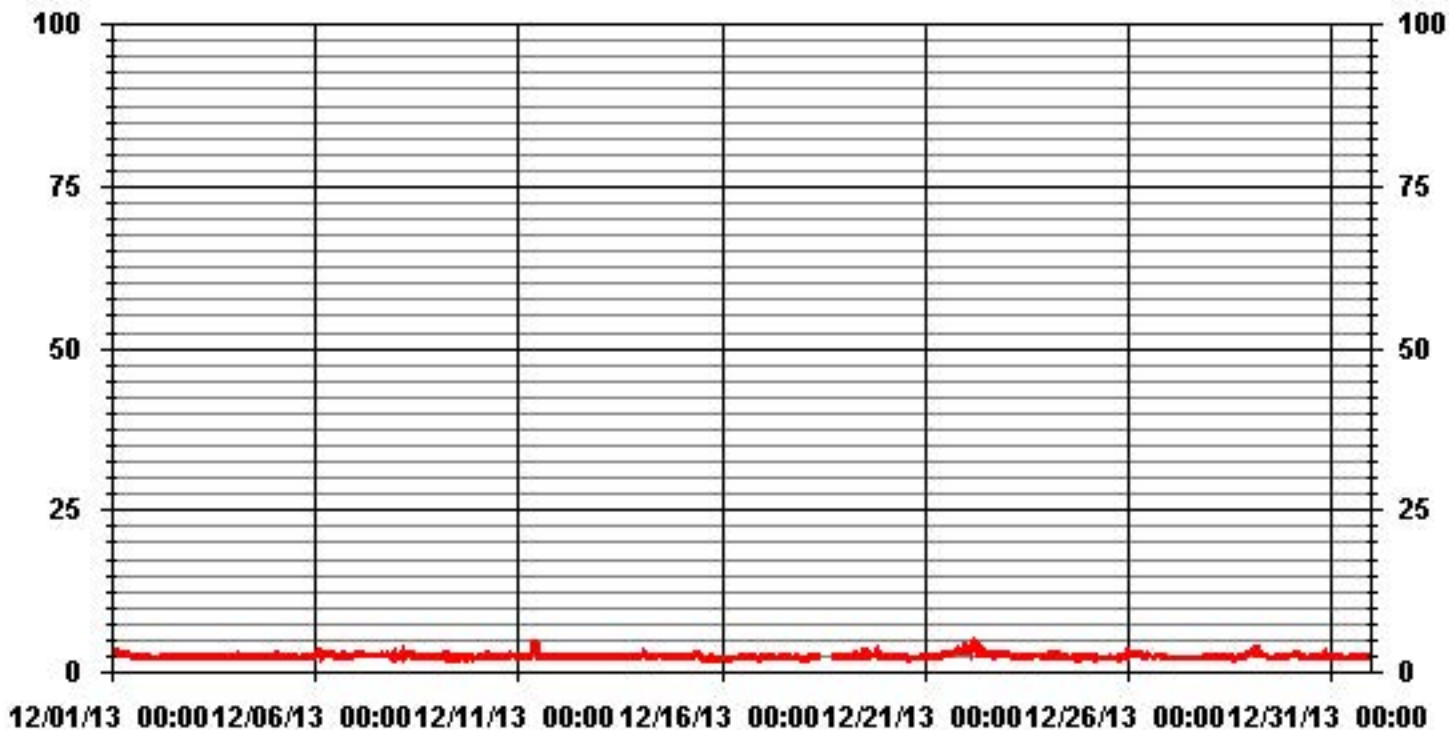
STATUS FLAG CODES

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:	703					
MAXIMUM INSTANTANEOUS VALUE:	4.8	PPM	@ HOUR(S)	10, 5	ON DAY(S)	11, 22
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.34					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3.0	6.96	6.81	13.92	6.25	2.55	4.68	2.27	3.12	1.70	10.51	7.38	3.12	4.97	8.80	7.95	6.39	97.44
< 10.0	.00	.14	.00	.00	.00	.00	.28	.56	.14	.56	.00	.14	.28	.14	.14	.14	2.55
< 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	6.96	6.96	13.92	6.25	2.55	4.68	2.55	3.69	1.84	11.07	7.38	3.26	5.25	8.94	8.09	6.53	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3.0	49	48	98	44	18	33	16	22	12	74	52	22	35	62	56	45	686
< 10.0		1					2	4	1	4		1	2	1	1	1	18
< 50.0																	
>= 50.0																	
Totals	49	49	98	44	18	33	18	26	13	78	52	23	37	63	57	46	

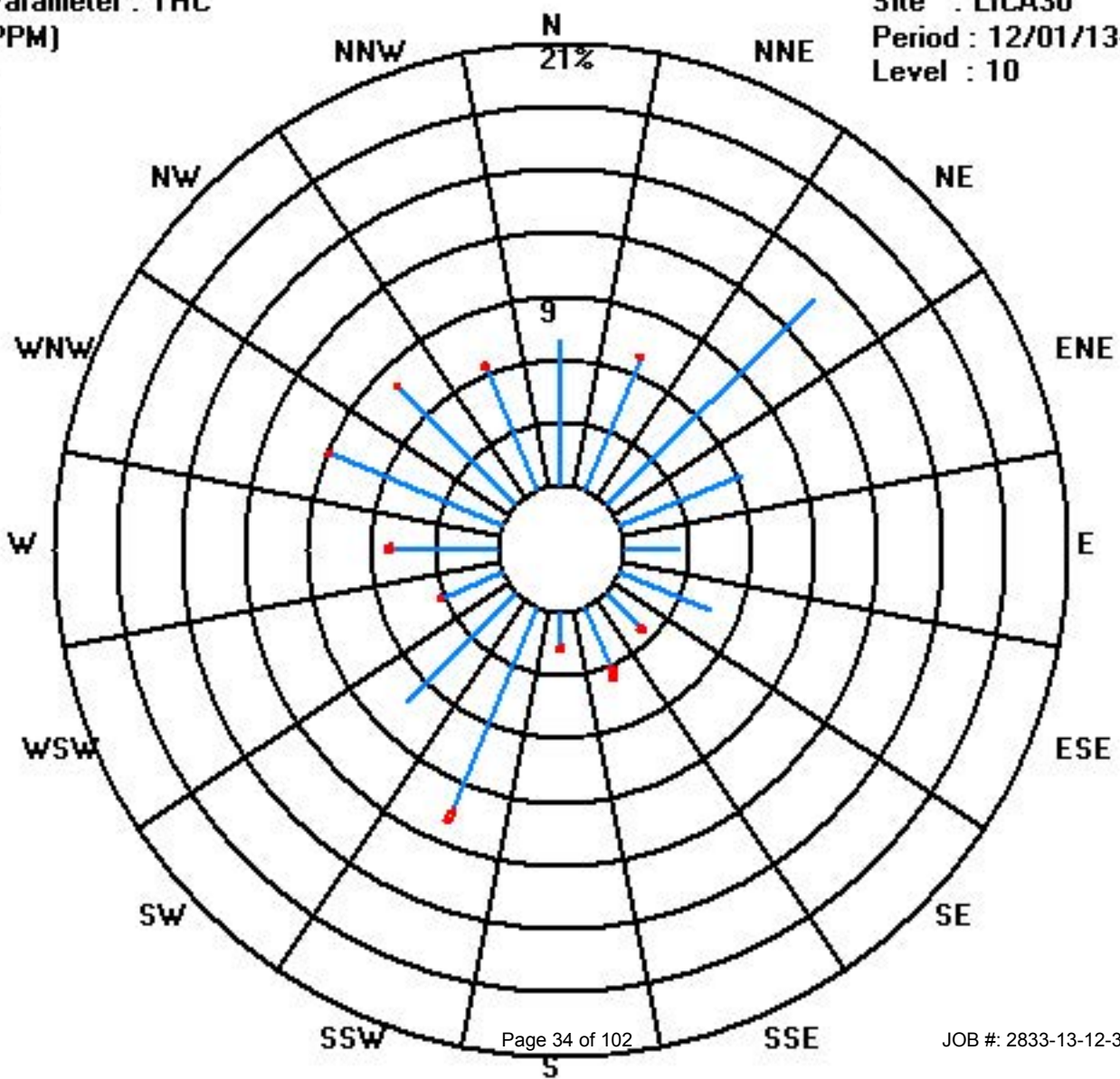
Calm : .00 %

Total # Operational Hours : 704

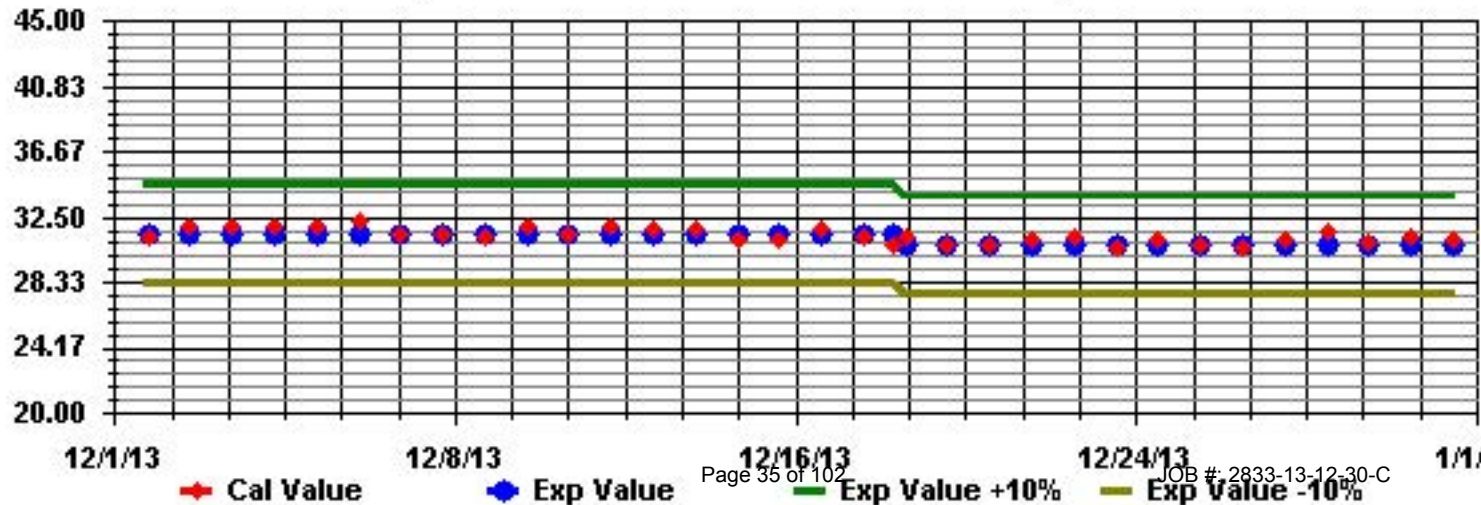
Class Limits (PPM)

Period : 12/01/13-12/31/13

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

NITROGEN DIOXIDE hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY 24-HOUR	24:00	24:00	24:00				
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.						
1	1	7.3	8.1	6.3	7.1	5.6	3.5	4.7	5.1	5.6	5.1	3.7	3.3	2.3	1.9	2.0	2.0	1.8	1.5	S	1.4	1.1	0.6	0.8	0.2	8.1	3.5	24						
2	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	0.7	S	0.5	0.0	0.0	0.1	0.5	0.1	0.7	0.1	24						
3	3	1.4	2.2	2.4	2.2	2.6	3.3	4.8	3.9	3.9	2.6	1.1	1.1	1.6	3.0	0.4	1.4	S	6.3	8.3	7.3	3.2	1.8	1.6	5.3	8.3	3.1	24						
4	4	1.9	2.4	13.9	7.0	1.0	1.0	3.0	4.4	5.5	5.0	4.9	3.0	3.3	3.9	4.2	S	3.2	2.3	2.7	2.9	8.0	6.9	3.6	4.7	13.9	4.3	24						
5	5	5.2	5.1	9.0	10.5	5.3	4.3	3.5	4.1	4.2	2.7	3.2	3.4	3.3	2.5	S	3.0	4.0	4.1	5.4	4.8	6.2	6.0	6.9	9.5	10.5	5.1	24						
6	6	10.3	16.7	14.7	6.0	11.2	11.1	8.6	11.3	16.2	11.7	7.6	6.0	6.1	S	5.3	5.5	5.4	11.4	5.6	3.7	4.2	4.6	8.6	12.7	16.7	8.9	24						
7	7	17.0	19.4	14.3	13.5	10.7	14.2	16.6	15.8	13.8	9.8	9.4	9.7	S	9.6	11.4	13.8	17.4	14.8	15.2	11.7	16.1	9.8	10.2	10.4	19.4	13.2	24						
8	8	6.5	2.8	3.5	6.9	8.3	9.0	14.7	17.6	13.0	10.5	2.1	S	1.5	2.8	4.7	3.7	4.3	3.5	4.6	6.8	5.9	6.2	5.2	4.8	17.6	6.5	24						
9	9	3.6	3.9	5.2	5.1	5.8	8.2	18.8	3.2	0.9	6.6	S	6.0	1.7	5.1	9.9	8.5	11.3	1.4	0.9	7.0	11.2	1.3	2.8	0.9	18.8	5.6	24						
10	10	0.3	0.6	0.5	2.2	2.4	2.4	4.4	15.2	12.7	S	6.5	1.7	3.8	5.0	3.6	6.3	9.4	7.6	9.4	9.3	9.5	6.9	6.9	5.8	15.2	5.8	24						
11	11	4.5	5.0	5.1	4.9	6.0	9.8	11.1	12.4	S	20.8	17.1	12.6	8.4	4.5	4.2	5.4	4.2	2.2	1.8	0.9	0.5	0.5	0.6	1.1	20.8	6.2	24						
12	12	0.4	0.0	0.0	0.0	0.0	0.0	0.0	S	0.9	0.9	0.5	0.5	0.5	0.8	0.6	0.5	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9	0.3	24						
13	13	0.0	0.0	0.5	1.7	2.3	4.1	S	1.6	1.2	0.2	0.3	2.0	3.5	2.5	2.2	0.9	0.4	0.8	2.4	2.6	3.9	6.3	8.1	7.6	8.1	2.4	24						
14	14	8.2	9.6	10.3	9.9	8.0	S	6.4	4.1	2.7	2.3	6.7	3.1	6.3	6.5	3.0	2.6	3.7	1.3	1.6	1.1	1.7	2.4	2.3	2.2	10.3	4.6	24						
15	15	2.8	4.1	4.2	5.3	S	3.5	4.5	8.2	11.2	8.6	6.2	8.3	4.0	1.5	0.7	0.6	0.5	3.6	2.7	9.0	0.8	0.4	0.2	0.4	11.2	4.0	24						
16	16	0.3	0.4	0.5	S	0.4	3.8	1.1	2.0	2.5	1.2	0.4	2.5	4.4	2.6	4.7	9.8	10.2	14.6	14.8	9.7	3.8	5.9	8.7	12.7	14.8	5.1	24						
17	17	2.0	2.5	S	3.3	3.2	3.1	2.9	2.1	1.1	0.9	3.3	1.2	3.1	3.5	1.7	5.1	3.7	3.3	1.0	0.8	0.6	1.3	4.8	4.8	5.1	2.6	24						
18	18	2.5	S	1.6	1.1	2.3	2.4	3.6	7.8	6.2	7.4	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	7.8	3.9	14					
19	19	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	11.8	11.5	15.8	9.7	S	15.8	12.2	15
20	20	5.2	4.5	8.3	6.8	5.2	5.4	6.5	8.0	13.2	C	C	C	C	1.3	1.3	2.0	0.7	0.9	0.7	0.8	0.8	0.8	S	1.1	13.2	3.9	24						
21	21	1.2	0.9	1.0	1.3	1.3	1.1	1.2	1.1	1.9	1.1	3.7	4.6	4.0	3.6	5.7	7.3	8.6	9.6	9.5	10.5	13.3	S	12.2	8.1	13.3	4.9	24						
22	22	10.0	9.7	9.7	9.6	9.8	15.0	13.7	13.7	13.7	10.4	7.3	9.0	5.4	5.7	6.0	8.3	8.6	5.3	7.0	8.7	S	6.7	6.6	7.1	15.0	9.0	24						
23	23	7.7	6.3	5.9	5.3	4.8	4.5	4.5	4.7	3.0	2.9	3.0	3.4	3.2	3.6	5.3	6.2	7.2	7.7	9.9	S	11.8	21.2	16.3	16.9	21.2	7.2	24						
24	24	6.8	6.0	4.3	0.1	2.8	1.1	6.9	7.4	5.2	0.5	6.6	6.5	2.7	10.1	1.9	1.5	6.0	6.9	S	17.5	6.0	6.1	12.7	6.3	17.5	5.7	24						
25	25	7.6	0.0	1.0	5.0	3.9	0.0	0.0	0.3	0.4	0.0	0.0	0.6	1.3	4.4	4.1	3.6	2.4	S	2.0	2.1	1.6	1.7	2.4	5.1	7.6	2.2	24						
26	26	12.8	14.6	8.6	7.9	10.6	8.7	11.3	10.4	7.1	7.3	9.5	8.3	7.6	7.1	6.1	6.6	S	7.6	8.4	7.7	4.4	14.8	7.2	2.4	14.8	8.6	24						
27	27	2.1	1.2	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	S	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	2.1	0.2	24						
28	28	0.0	0.1	0.7	1.2	0.8	2.0	2.4	2.5	3.6	4.0	4.8	2.8	3.7	5.0	S	1.8	4.1	4.6	7.4	5.1	6.5	7.2	8.5	15.6	15.6	4.1	24						
29	29	16.6	17.1	16.9	15.4	14.3	14.4	12.6	11.7	11.5	9.4	4.8	3.6	2.4	S	1.1	1.2	2.0	1.6	1.8	2.7	2.1	1.7	1.9	3.2	17.1	7.4	24						
30	30	9.6	9.5	6.6	7.0	10.7	7.9	5.4	7.1	10.5	14.2	8.0	3.5	S	3.9	5.6	8.6	12.6	11.2	8.1	6.2	5.6	3.4	3.3	2.7	14.2	7.4	24						
31	31	2.1	3.2	4.2	2.9	1.4	1.6	3.0	4.4	3.4	2.0	3.1	S	2.5	1.3	0.9	0.9	1.0	1.5	3.4	3.1	3.4	2.6	2.2	1.8	4.4	2.4	24						
HOURLY MAX		17.0	19.4	16.9	15.4	14.3	15.0	18.8	17.6	16.2	20.8	17.1	12.6	8.4	10.1	11.4	13.8	17.4	14.8	15.2	17.5	16.1	21.2	16.3	16.9									
HOURLY AVG		5.2	5.4	5.5	5.1	4.9	5.0	6.1	6.6	6.0	5.3	4.6	4.1	3.3	3.8	3.6	4.3	4.9	5.0	5.0	5.4	5.0	4.9	5.3	5.3									

STATUS FLAG CODES

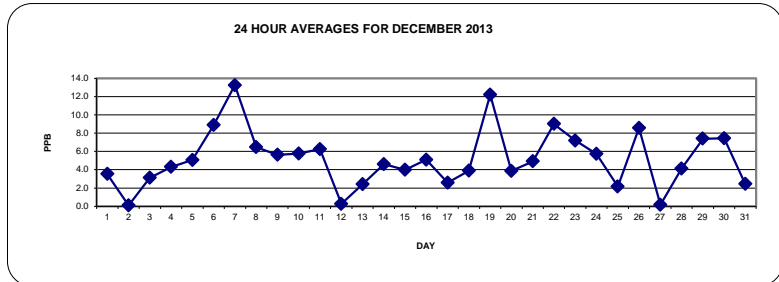
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

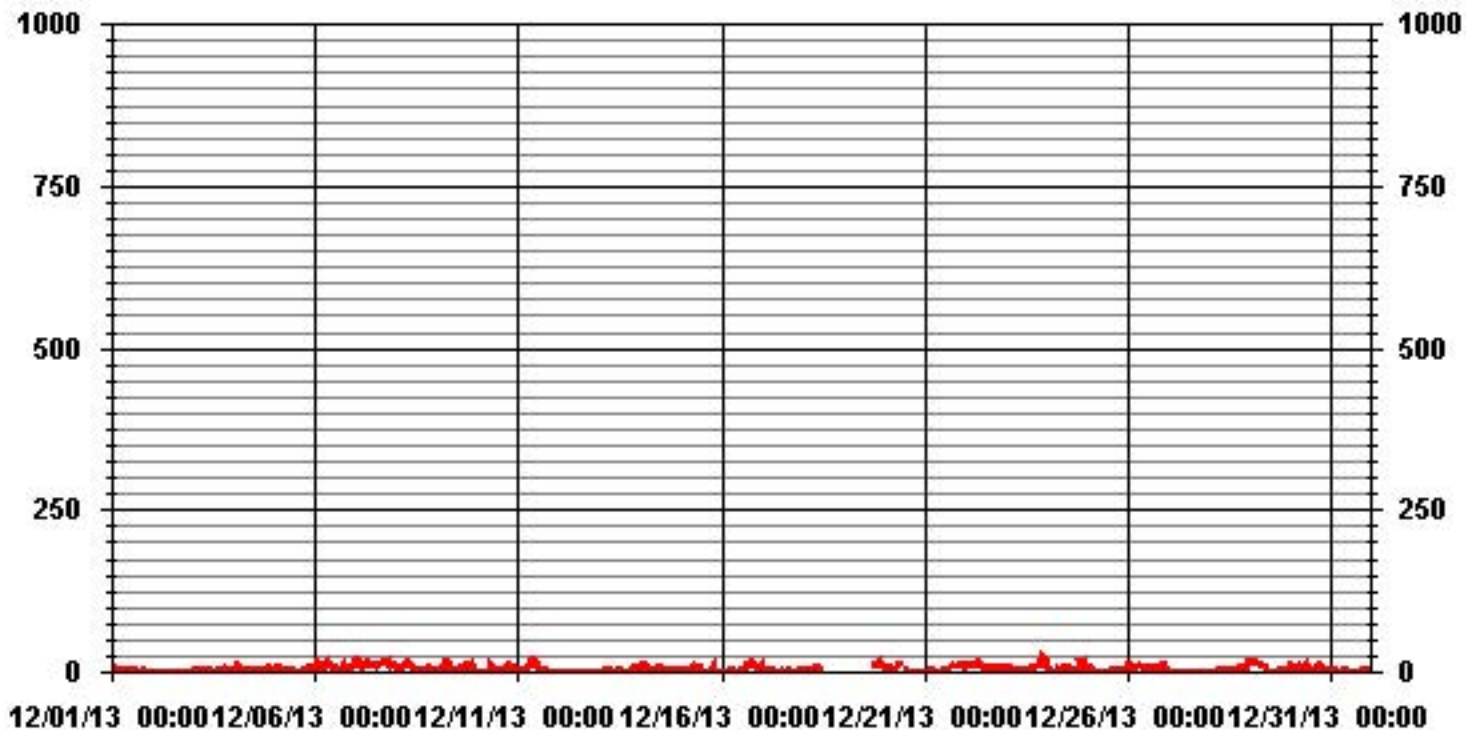
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	620					
MAXIMUM 1-HR AVERAGE:	21.2	PPB	@ HOUR(S)	21	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	13.2	PPB	ON DAY(S)			7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	18	HRS	AMD OPERATION UPTIME:	97.4	%	
STANDARD DEVIATION:	4.39	MONTHLY AVERAGE:			5.00	PPB



01 Hour Averages



— LICA30 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	6.7	8.5	6.5	8.0	7.7	3.3	6.3	5.6	6.3	5.5	3.3	3.0	1.9	1.2	1.5	1.5	1.5	1.2	S	1.2	1.4	0.7	0.7	0.3	8.5	3.6	24	
2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1	S	0.5	0.3	0.1	0.4	1.0	0.8	1.1	0.2	24		
3	2.5	2.7	2.6	2.6	3.1	3.6	5.4	5.2	7.4	6.2	1.4	1.2	2.2	5.2	0.6	2.4	S	12.1	16.3	11.3	4.8	3.7	1.9	14.9	16.3	5.2	24	
4	2.1	2.6	20.1	15.3	2.7	1.1	4.7	4.5	5.7	5.1	5.1	3.6	2.9	3.6	4.1	S	2.7	1.2	1.9	3.3	14.4	12.6	2.8	5.2	20.1	5.5	24	
5	4.7	4.0	14.8	15.1	4.9	3.6	2.6	3.1	4.8	2.1	2.6	2.7	2.5	1.8	S	2.5	4.4	4.3	5.5	4.8	6.1	5.8	7.2	11.0	15.1	5.3	24	
6	14.1	19.7	19.3	6.4	18.1	16.7	13.7	18.5	20.4	14.8	14.7	8.2	8.0	S	6.1	5.1	8.4	17.0	8.6	3.2	3.5	6.0	9.2	28.7	28.7	12.5	24	
7	19.4	20.4	16.5	13.6	10.8	15.8	16.1	14.9	15.1	9.5	9.4	8.8	S	10.6	12.0	16.6	18.2	17.0	18.0	18.4	21.0	19.2	17.9	24.2	24.2	15.8	24	
8	15.6	4.1	5.5	9.0	10.7	11.8	18.2	22.7	24.2	18.3	5.6	S	2.6	9.0	7.9	7.4	7.6	4.7	6.2	8.4	7.9	7.3	6.1	6.1	24.2	9.9	24	
9	4.4	4.8	7.0	6.0	7.4	16.7	26.2	6.9	2.6	19.8	S	9.5	3.6	6.9	11.9	10.8	20.8	6.2	4.2	17.8	19.0	12.8	4.5	2.0	26.2	10.1	24	
10	1.6	2.0	2.0	3.7	3.8	3.4	26.9	39.3	22.6	S	17.9	13.1	11.1	11.3	5.9	14.5	13.9	19.4	17.7	12.6	12.5	7.6	7.6	7.2	39.3	12.1	24	
11	5.2	6.3	6.8	5.9	8.9	10.5	12.1	38.1	S	23.4	20.0	17.1	9.7	6.9	22.2	6.1	6.1	2.9	2.9	2.0	1.4	1.3	1.5	2.0	38.1	9.5	24	
12	2.1	0.6	0.6	0.6	0.6	0.8	0.9	S	1.4	1.4	0.9	1.0	0.9	1.1	1.2	1.1	1.1	0.6	0.4	0.5	0.6	0.6	0.4	0.4	2.1	0.9	24	
13	0.4	0.4	3.9	8.2	8.5	6.5	S	5.0	3.0	1.2	1.6	4.8	5.1	5.5	6.8	2.0	1.4	2.6	3.5	4.5	5.1	7.7	9.0	8.6	9.0	4.6	24	
14	9.5	10.8	11.2	12.0	10.4	S	7.8	5.6	3.4	2.8	10.9	4.8	8.2	9.9	6.6	4.2	8.3	1.9	3.1	2.1	2.1	4.1	4.1	3.0	12.0	6.4	24	
15	3.4	4.9	5.4	6.0	S	4.1	5.5	11.3	13.4	10.8	7.0	9.4	9.5	2.6	1.6	1.4	1.6	10.4	7.2	13.9	4.2	1.2	1.2	1.2	13.9	6.0	24	
16	1.2	1.3	1.3	S	1.3	12.5	3.8	7.0	7.2	2.5	1.8	7.4	15.7	9.0	13.9	12.5	22.0	25.5	28.3	16.3	18.9	16.2	17.9	18.5	28.3	11.4	24	
17	4.4	4.5	S	4.0	3.7	3.6	3.6	3.1	2.2	1.9	7.5	1.8	11.2	11.2	2.7	11.4	6.7	6.2	1.8	1.5	1.6	3.3	9.5	13.4	13.4	5.3	24	
18	3.7	S	3.0	2.4	3.2	3.7	6.4	13.2	8.0	31.9	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	31.9	8.4	14
19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	16.1	18.9	19.7	18.6	S	19.7	18.3	15
20	6.3	5.7	10.8	8.4	7.0	9.4	14.2	11.5	28.0	C	C	C	C	C	2.1	4.1	1.8	2.1	1.8	1.7	1.9	1.9	S	2.0	28.0	6.7	24	
21	2.0	1.9	1.9	2.3	2.2	2.2	2.0	2.0	3.6	2.0	5.5	5.4	4.7	4.5	8.5	20.7	14.8	10.8	12.9	12.4	14.7	S	15.2	11.4	20.7	7.1	24	
22	11.9	12.5	14.4	12.9	12.7	24.4	37.6	17.9	15.5	14.0	10.0	11.6	9.1	7.2	7.3	9.0	10.2	6.7	9.7	11.7	S	7.9	7.6	7.7	37.6	12.6	24	
23	8.3	7.3	6.5	6.2	5.9	5.1	5.7	18.2	4.7	4.3	3.6	3.6	3.6	3.8	25.4	7.5	8.5	9.7	10.9	S	17.4	29.1	25.3	26.3	29.1	10.7	24	
24	21.8	9.4	7.9	1.2	5.5	4.8	12.2	11.7	10.3	4.0	13.3	16.9	10.6	14.6	4.2	4.0	15.1	16.3	S	26.3	17.2	13.0	20.9	12.3	26.3	11.9	24	
25	14.2	2.4	5.7	10.6	15.0	0.5	1.1	1.5	1.5	1.2	1.1	1.9	2.5	11.5	12.8	8.4	6.1	S	11.8	5.4	2.6	2.4	4.3	11.0	15.0	5.9	24	
26	17.3	19.3	12.4	9.2	15.2	10.6	13.0	14.0	10.3	8.2	27.4	11.6	10.0	7.8	7.3	7.8	S	8.3	9.4	9.6	8.0	20.8	20.9	3.5	27.4	12.3	24	
27	3.0	2.7	1.0	0.5	0.7	0.7	1.3	0.8	0.8	0.7	0.6	0.7	0.7	0.7	0.8	S	0.4	0.1	0.4	0.7	0.8	0.7	0.7	0.7	3.0	0.9	24	
28	0.6	0.7	1.2	1.7	1.4	3.5	3.0	4.3	5.2	5.9	5.7	4.5	6.4	8.8	S	4.2	10.6	6.6	8.2	6.4	8.9	9.4	12.6	16.6	16.6	5.9	24	
29	17.4	20.5	19.3	17.3	14.9	15.1	13.8	12.6	12.3	11.6	6.4	4.1	3.3	S	2.0	2.8	3.1	2.5	3.1	3.7	3.4	2.6	2.8	6.6	20.5	8.7	24	
30	14.7	12.4	9.2	10.4	12.7	11.5	6.2	11.0	13.2	19.2	14.5	5.2	S	4.3	6.3	12.0	15.7	11.7	10.7	7.5	6.5	4.3	3.9	3.5	19.2	9.9	24	
31	3.1	5.5	6.5	4.8	2.5	3.1	5.8	5.6	8.7	4.8	4.6	S	3.4	1.3	1.2	1.4	1.6	3.4	5.5	4.1	4.6	3.4	2.8	2.4	8.7	3.9	24	
HOURLY MAX	21.8	20.5	20.1	17.3	18.1	24.4	37.6	39.3	28.0	31.9	27.4	17.1	15.7	14.6	25.4	20.7	22.0	25.5	28.3	26.3	21.0	29.1	25.3	28.7				
HOURLY AVG	7.4	6.8	7.7	7.0	6.9	7.2	9.5	10.9	9.0	8.3	7.5	6.2	5.7	6.2	6.8	6.7	7.9	7.8	7.8	7.9	7.9	7.8	8.2	8.7				

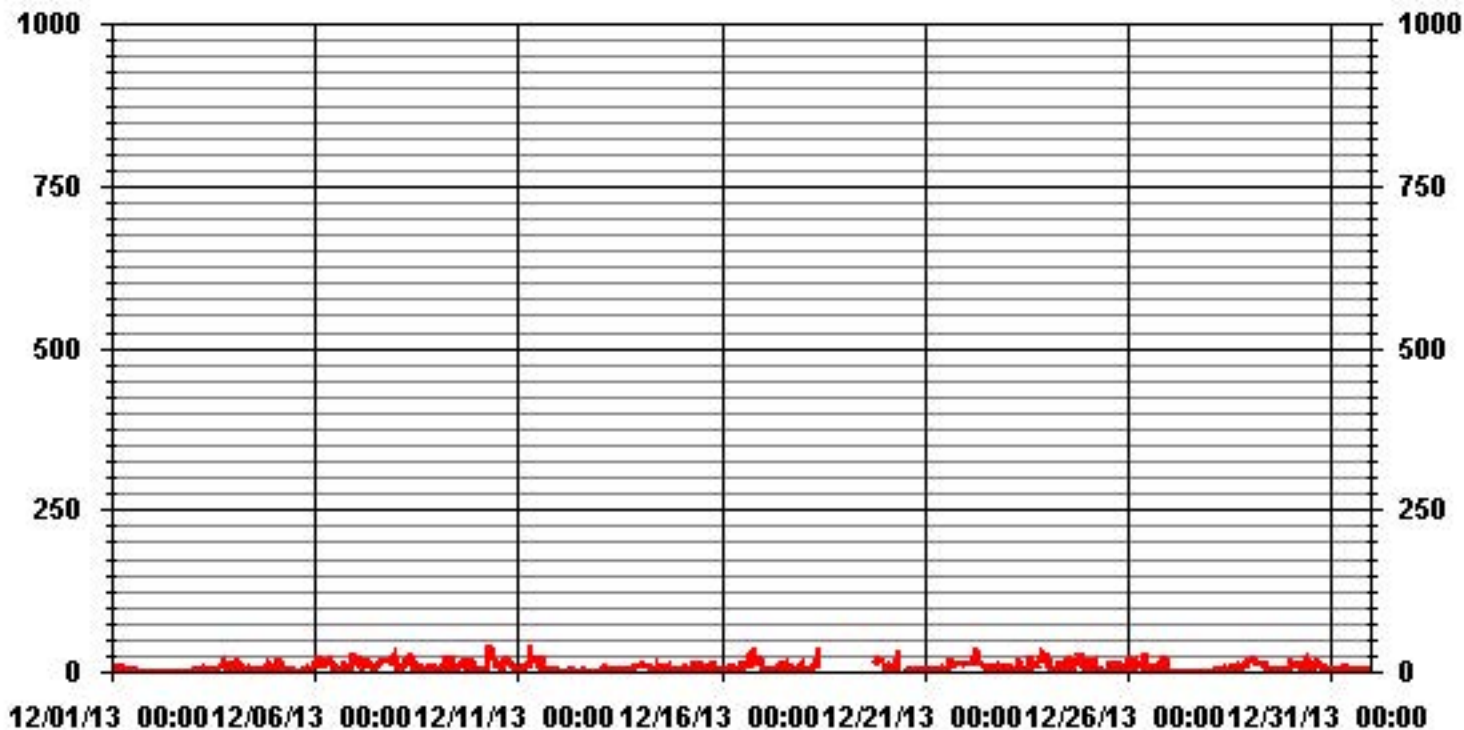
STATUS FLAG CODES

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:	662					
MAXIMUM INSTANTANEOUS VALUE:	39.3	PPB	@ HOUR(S)	7	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	19	HRS				
STANDARD DEVIATION:	6.67					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2013

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	7.25	7.11	14.37	6.37	2.51	4.88	2.66	3.85	1.92	10.37	6.37	3.11	5.18	9.03	8.29	6.66	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	7.25	7.11	14.37	6.37	2.51	4.88	2.66	3.85	1.92	10.37	6.37	3.11	5.18	9.03	8.29	6.66	

Calm : .00 %

Total # Operational Hours : 675

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	45	675
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	45	

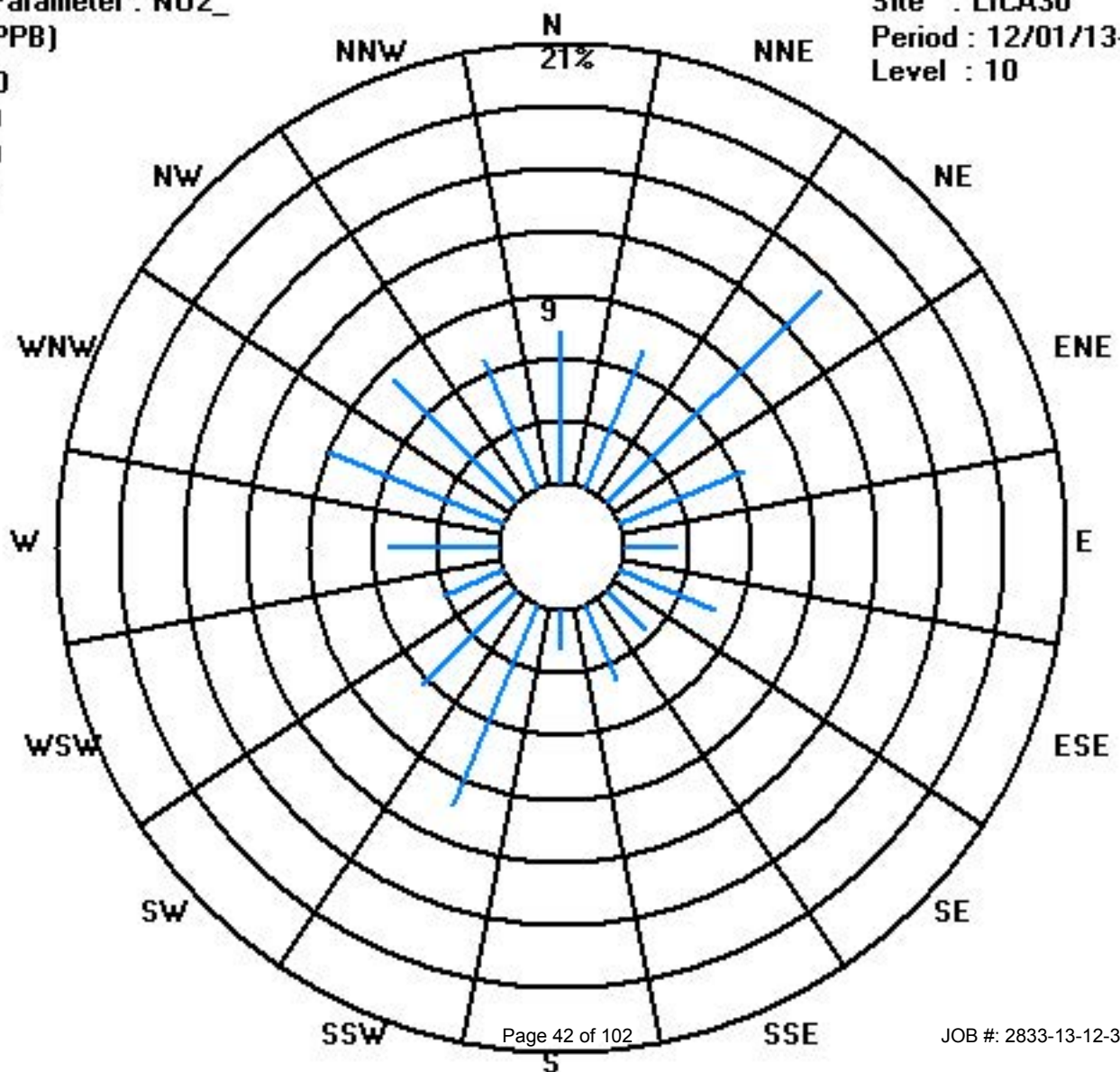
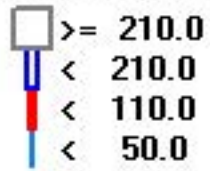
Calm : .00 %

Total # Operational Hours : 675

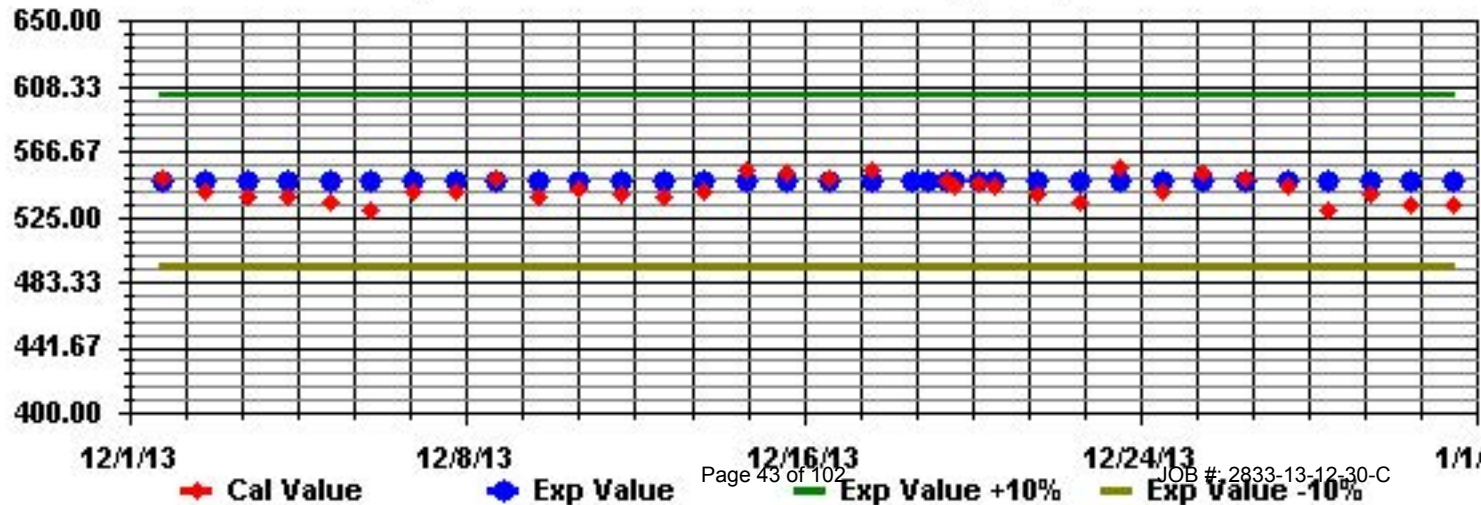
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

DECEMBER 2013

NITRIC OXIDE hourly averages in ppb

MST

DAY	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.4	0.0	0.2	0.2	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.8	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.1	24
4	0.0	0.0	6.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.6	1.1	1.2	1.3	0.8	S	0.0	0.0	0.0	0.0	1.5	1.3	0.0	0.0	6.2	0.7	24
5	0.0	0.0	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.1	1.4	1.4	0.9	S	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.4	0.3	24
6	0.4	2.6	2.9	0.4	3.2	2.1	1.5	1.8	4.4	5.2	5.0	3.8	3.8	S	1.7	0.4	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.2	5.2	1.8	24	
7	0.9	1.0	1.1	0.1	0.0	0.2	0.1	0.0	0.7	2.1	3.8	4.6	S	3.3	2.0	1.0	0.1	0.0	0.2	1.9	4.0	1.9	2.9	3.0	4.6	1.5	24	
8	0.4	0.0	0.0	0.0	0.0	0.0	1.5	2.4	2.5	4.9	1.0	S	0.5	1.4	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.7	24	
9	0.0	0.0	0.0	0.0	0.0	0.0	12.7	0.0	0.0	2.5	S	1.9	0.0	0.6	1.8	0.5	2.0	0.0	0.0	0.5	1.2	0.0	0.0	0.0	12.7	1.0	24	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.5	4.4	S	4.2	0.9	2.4	2.6	1.0	0.8	0.4	0.5	0.7	0.0	0.0	0.0	0.0	0.0	5.5	1.0	24	
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	S	10.4	11.3	6.9	3.3	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	1.5	24	
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24
13	0.0	0.1	0.1	0.4	0.3	0.5	S	0.0	0.0	0.0	0.0	0.0	0.2	1.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.1	24	
14	0.0	0.0	0.0	0.0	0.0	S	0.3	0.3	0.1	0.2	2.4	0.9	2.3	2.6	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.4	24	
15	0.0	0.0	0.0	0.0	S	0.0	0.0	0.3	0.4	1.1	1.6	3.6	0.9	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	3.6	0.4	24	
16	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	0.3	0.9	0.7	0.6	2.4	3.5	0.6	0.0	0.0	0.0	0.0	3.5	0.5	24	
17	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1	24	
18	0.0	S	0.0	0.0	0.0	0.0	0.0	0.5	0.2	2.3	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2.3	0.3	14
19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	0.6	0.7	1.0	0.4	S	1.0	0.7	15
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	C	C	C	C	C	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	4.1	0.3	24	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	1.4	1.1	1.4	1.9	0.5	0.0	0.0	0.0	0.0	0.0	S	0.4	0.0	1.9	0.4	24
22	0.0	0.0	0.0	0.1	0.0	3.2	3.0	1.1	1.0	2.7	4.0	8.2	3.8	3.5	2.1	1.2	0.2	0.0	0.1	0.0	S	0.0	0.0	0.0	8.2	1.5	24	
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0	S	0.4	7.1	5.2	3.4	7.1	0.8	24	
24	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	1.7	0.1	0.0	0.0	0.0	S	4.3	0.6	0.7	0.6	0.5	4.3	0.5	24	
25	0.5	0.4	0.4	0.5	0.5	0.0	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.7	0.5	0.2	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	24	
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.5	2.1	1.4	0.7	0.5	0.1	S	0.0	0.0	0.0	0.0	3.0	3.4	0.0	3.5	0.6	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	S	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	24	
28	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.4	1.4	1.4	2.4	3.1	S	0.3	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	3.1	0.5	24
29	0.5	0.6	0.5	0.3	0.3	0.3	0.2	0.5	0.7	1.8	1.6	1.2	0.7	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.4	24
30	0.3	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.2	4.6	4.8	2.5	S	1.5	1.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.7	24	
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24	
HOURLY MAX	0.9	2.6	6.2	1.2	3.2	3.2	12.7	5.5	4.4	10.4	11.3	8.2	3.8	3.5	2.1	1.9	2.0	2.4	3.5	4.3	4.0	7.1	5.2	3.4				
HOURLY AVG	0.1	0.2	0.4	0.1	0.2	0.2	0.7	0.5	0.7	1.4	1.8	1.7	1.1	1.1	0.7	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.4	0.4				

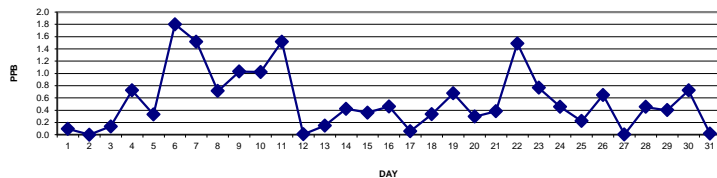
STATUS FLAG CODES

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

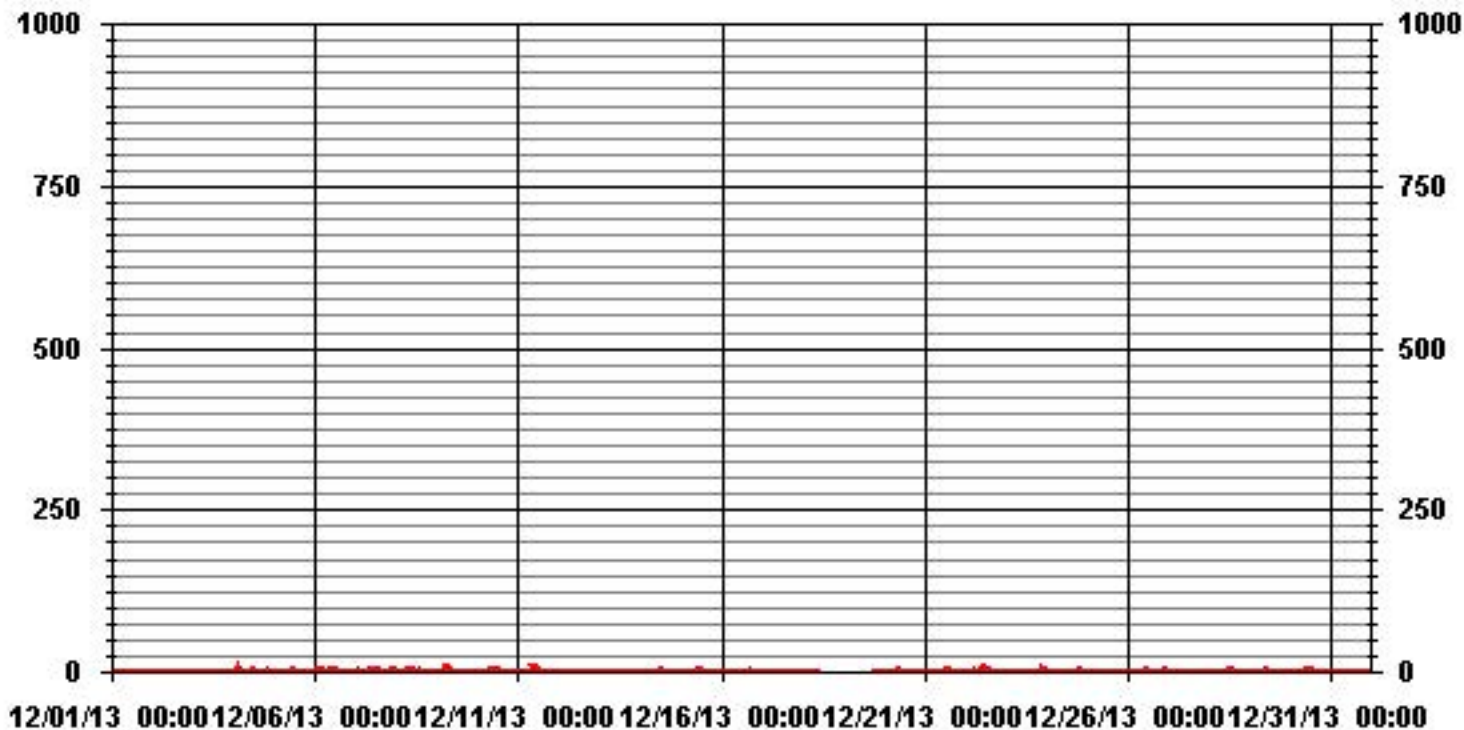
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	269					
MAXIMUM 1-HR AVERAGE:	12.7	PPB	@ HOUR(S)	6	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	1.8	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	18	HRS	AMD OPERATION UPTIME:	97.4	%	
STANDARD DEVIATION:	1.32		MONTHLY AVERAGE:	0.56	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA30 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	0.5	0.6	0.6	0.6	0.6	0.4	1.3	0.6	1.4	1.2	1.2	1.2	0.8	0.8	0.7	0.7	0.6	0.4	S	0.4	0.3	0.2	0.6	0.2	1.4	0.7	24	
2	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.4	S	0.0	0.0	0.2	0.3	0.6	0.1	0.6	0.1	24		
3	0.7	0.0	0.0	0.0	0.0	0.3	0.6	0.4	18.6	2.8	0.7	0.7	1.4	3.3	0.3	1.1	S	1.0	1.5	0.7	0.0	0.3	0.0	12.0	18.6	2.0	24	
4	0.3	0.1	14.2	7.3	0.2	0.0	0.0	0.6	1.3	1.5	3.9	3.5	1.9	1.8	1.7	S	0.5	0.3	0.4	1.3	5.5	6.3	0.4	0.2	14.2	2.3	24	
5	0.4	0.5	1.8	4.4	0.5	0.4	0.6	0.5	1.9	0.9	2.3	2.4	2.0	1.7	S	0.9	0.4	0.4	0.4	0.5	0.5	0.3	0.3	4.8	4.8	1.3	24	
6	2.3	6.3	6.4	3.1	8.1	5.8	4.8	6.9	27.7	9.5	32.2	7.0	6.7	S	3.6	0.9	0.6	7.0	1.5	0.3	0.3	0.4	0.5	46.9	46.9	8.2	24	
7	7.7	2.8	33.0	0.9	0.6	0.7	0.8	0.5	2.3	4.4	5.6	6.0	S	4.0	3.3	1.9	0.9	0.7	1.6	7.4	7.6	7.2	7.8	20.6	33.0	5.6	24	
8	5.8	0.4	0.4	0.5	0.3	0.4	6.1	6.0	19.0	11.0	3.5	S	1.9	6.0	4.6	1.8	0.7	0.1	0.2	0.0	0.3	0.4	0.2	0.0	19.0	3.0	24	
9	0.2	0.3	0.1	0.8	0.0	2.6	26.5	1.8	0.2	11.6	S	4.6	2.5	2.9	3.3	1.7	6.0	1.3	0.0	4.4	5.1	2.5	0.0	0.0	26.5	3.4	24	
10	0.0	0.0	0.0	0.1	0.0	0.1	20.8	42.6	12.6	S	23.9	14.3	8.4	8.6	2.4	4.4	2.7	17.5	10.7	0.4	0.9	0.4	0.5	0.4	42.6	7.5	24	
11	0.3	0.4	0.4	0.3	0.3	0.6	0.8	32.5	S	17.0	14.4	11.1	4.4	2.4	20.4	0.7	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	32.5	4.6	24	
12	0.0	0.0	0.0	0.1	0.0	0.0	0.2	S	0.5	0.4	0.5	0.5	0.7	0.5	0.7	0.6	0.5	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.7	0.4	24	
13	0.4	0.6	1.0	2.3	2.1	1.7	S	0.6	0.4	0.3	0.2	1.9	2.6	1.8	2.1	0.3	0.3	0.1	0.5	0.1	0.3	0.4	0.4	0.3	2.6	0.9	24	
14	0.2	0.6	0.3	0.3	0.3	S	0.9	1.1	0.7	0.9	5.5	1.9	3.7	5.9	2.6	0.5	1.3	0.5	0.3	0.3	0.4	0.4	0.5	0.2	5.9	1.3	24	
15	0.4	0.4	0.3	0.3	S	0.2	0.2	2.8	3.2	1.8	2.8	4.8	4.4	0.6	0.7	0.3	0.2	2.9	0.5	1.7	0.2	0.4	0.2	0.1	4.8	1.3	24	
16	0.2	0.4	0.5	S	0.3	0.1	1.2	1.7	1.8	1.1	0.5	5.5	5.2	3.0	13.3	2.9	3.7	8.1	10.3	2.0	0.4	0.7	0.3	0.2	13.3	2.8	24	
17	0.2	0.1	S	0.3	0.1	0.1	0.0	0.1	0.0	0.3	2.4	0.1	2.9	2.8	0.3	1.8	0.4	0.6	0.3	0.1	0.2	0.1	0.8	8.4	8.4	1.0	24	
18	0.6	S	0.2	0.2	0.4	0.2	0.4	3.8	2.1	15.6	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	15.6	2.6	14
19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	1.3	1.5	2.2	2.2	S	2.2	1.8	15
20	0.2	0.0	0.1	0.2	0.0	0.0	2.2	0.8	100.5	C	C	C	C	C	0.6	0.4	0.1	0.1	0.4	0.4	0.3	S	0.5	100.5	6.0	24		
21	0.2	0.2	0.4	0.4	0.4	0.2	0.5	0.2	2.6	0.6	1.8	2.3	2.0	2.0	4.2	41.1	6.5	0.7	0.4	0.2	0.5	S	1.6	0.4	41.1	3.0	24	
22	0.7	0.4	0.6	0.6	0.5	19.1	56.0	2.8	2.4	3.7	7.9	11.8	8.2	5.8	3.0	2.1	0.9	0.5	0.9	0.5	S	0.4	0.5	0.3	56.0	5.6	24	
23	0.4	0.2	0.4	0.1	0.4	0.3	0.3	17.0	0.1	0.0	0.4	0.7	1.1	1.2	11.1	2.0	0.7	0.0	0.0	S	2.7	12.2	12.4	7.4	17.0	3.1	24	
24	3.0	1.0	0.0	0.2	0.3	1.3	1.0	0.6	0.6	0.3	1.5	3.0	1.8	3.1	0.8	0.4	0.7	0.7	S	11.4	1.3	1.6	1.4	1.2	11.4	1.6	24	
25	1.1	0.9	1.1	1.4	2.8	0.4	0.7	0.8	0.9	0.7	0.9	0.9	0.7	2.0	1.9	0.8	0.8	S	15.3	1.8	0.0	0.3	0.3	0.1	15.3	1.6	24	
26	0.0	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.2	1.1	34.8	4.2	2.2	1.4	1.2	0.7	S	0.3	0.2	0.3	0.5	12.8	13.5	0.7	34.8	3.3	24	
27	0.3	0.0	0.0	0.3	0.5	0.3	0.5	0.5	0.4	0.3	0.6	0.4	0.4	0.4	S	0.6	0.3	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.4	24	
28	0.5	0.8	0.7	0.4	0.6	0.6	0.7	0.9	0.8	1.6	2.3	3.1	5.2	5.7	S	2.5	1.7	0.5	0.5	0.8	0.6	0.6	1.3	0.8	5.7	1.4	24	
29	1.4	1.5	1.0	1.0	0.9	0.8	0.7	1.0	1.5	2.5	2.3	1.7	1.5	S	0.5	0.4	0.2	0.3	0.0	0.0	0.2	0.2	0.2	0.2	2.5	0.9	24	
30	2.6	1.2	0.3	1.4	1.3	0.3	0.2	1.6	1.8	10.4	8.1	3.6	S	2.8	2.1	1.5	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.0	10.4	1.8	24	
31	0.1	0.4	0.1	0.0	0.1	0.0	0.3	0.2	0.3	0.3	0.9	S	1.5	0.7	0.4	0.2	0.2	0.3	0.0	0.3	0.3	0.2	0.3	0.2	1.5	0.3	24	
HOURLY MAX	7.7	6.3	33.0	7.3	8.1	19.1	56.0	42.6	100.5	17.0	34.8	14.3	8.4	8.6	20.4	41.1	6.5	17.5	15.3	11.4	7.6	12.8	13.5	46.9				
HOURLY AVG	1.0	0.7	2.2	1.0	0.8	1.3	4.4	4.5	7.1	3.6	6.0	3.7	2.9	2.7	3.2	2.7	1.2	1.7	1.7	1.3	1.1	1.8	1.6	3.7				

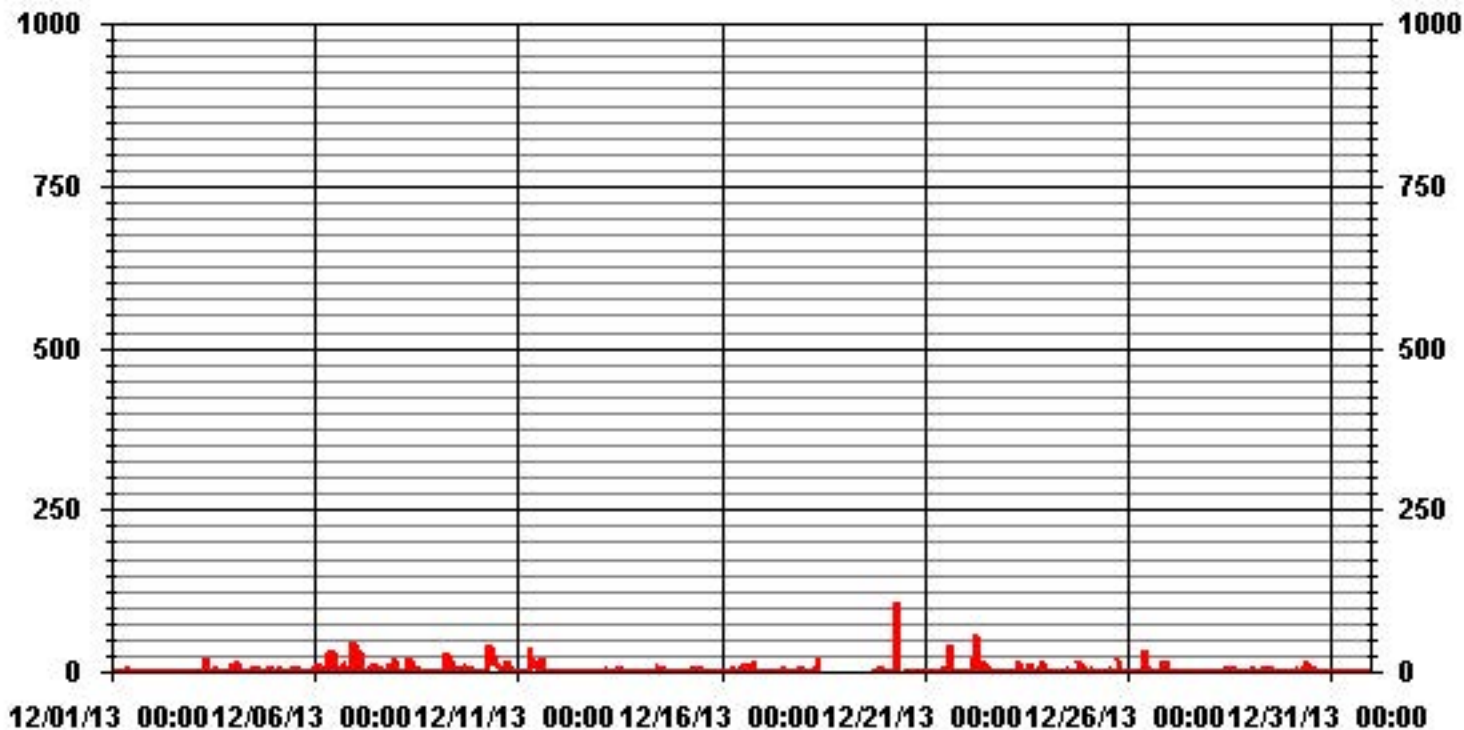
STATUS FLAG CODES

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:	617					
MAXIMUM INSTANTANEOUS VALUE:	100.5	PPB	@ HOUR(S)	8	ON DAY(S)	20
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	19	HRS				
STANDARD DEVIATION:	6.72					

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	7.24	7.10	14.34	6.36	2.51	4.88	2.66	3.84	1.92	10.35	6.36	3.10	5.17	9.02	8.28	6.80	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	7.24	7.10	14.34	6.36	2.51	4.88	2.66	3.84	1.92	10.35	6.36	3.10	5.17	9.02	8.28	6.80	

Calm : .00 %

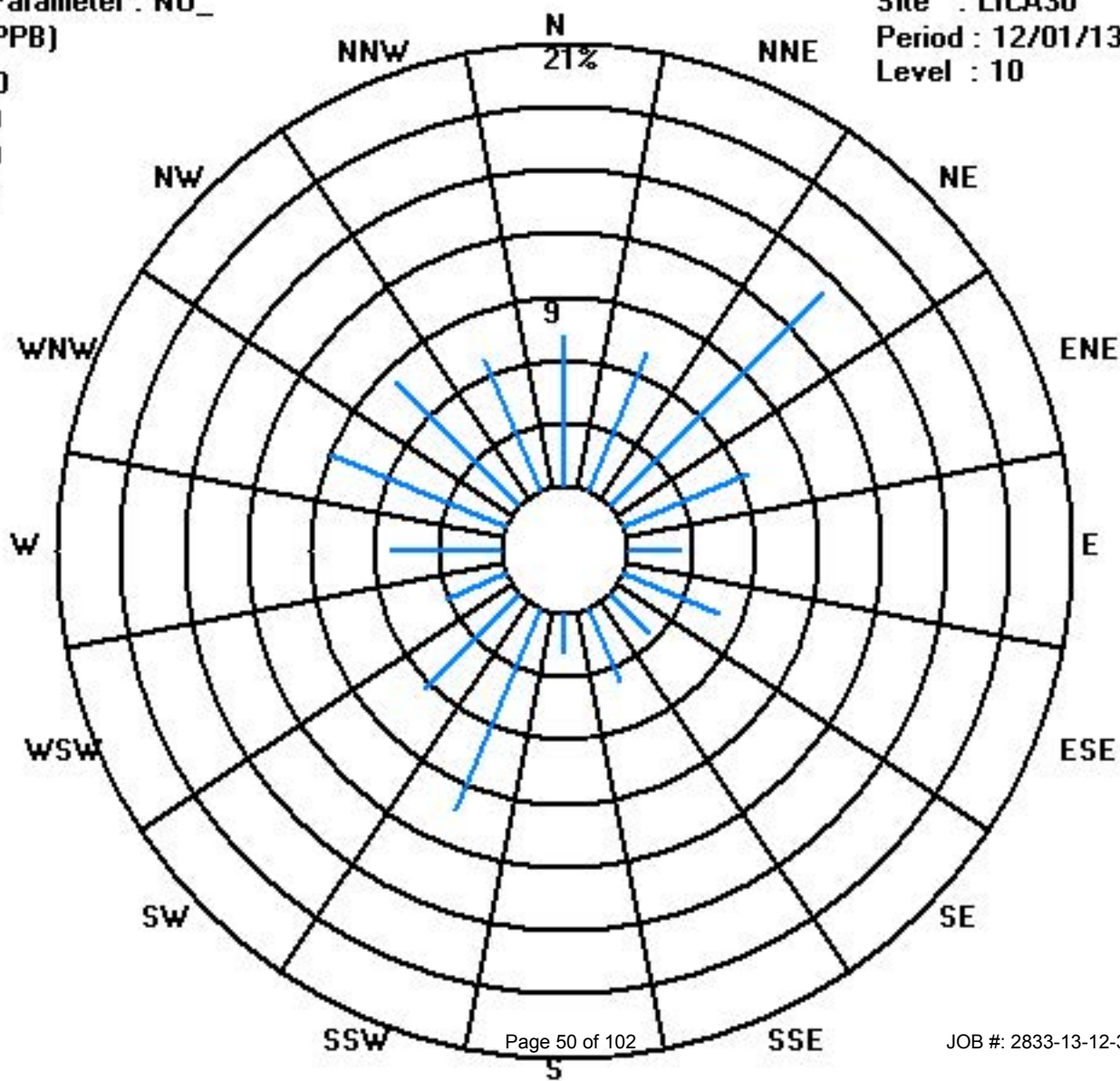
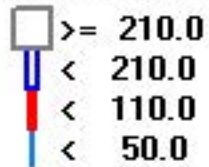
Total # Operational Hours : 676

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	46	676
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	46	

Calm : .00 %

Total # Operational Hours : 676



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

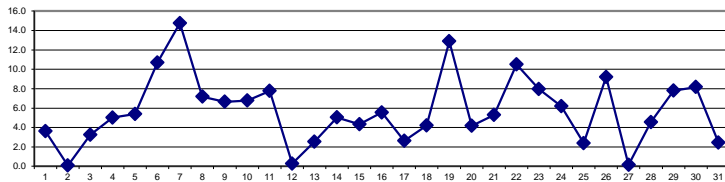
OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	7.3	8.2	6.3	7.1	5.6	3.5	4.7	5.1	5.8	5.6	4.2	3.7	2.3	2.1	2.2	2.1	1.8	1.5	S	1.4	1.1	0.6	0.8	0.2	8.2	3.6	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	0.7	S	0.5	0.0	0.0	0.1	0.5	0.1	0.7	0.1	24	
3	1.4	2.2	2.4	2.2	2.6	3.3	4.8	3.9	4.8	2.6	1.1	1.1	1.8	3.8	0.4	1.4	S	6.3	8.3	7.3	3.2	1.8	1.6	6.5	8.3	3.3	24	
4	1.9	2.4	20.1	8.2	1.0	1.0	3.0	4.4	5.5	5.4	6.5	4.1	4.5	5.2	5.0	S	3.2	2.3	2.7	2.9	9.5	8.2	3.6	4.7	20.1	5.0	24	
5	5.2	5.1	9.3	11.5	5.3	4.3	3.5	4.1	4.5	3.0	4.3	4.8	4.7	3.4	S	3.2	4.0	4.1	5.4	4.8	6.2	6.0	6.9	10.2	11.5	5.4	24	
6	10.7	19.3	17.6	6.4	14.4	13.2	10.1	13.1	20.6	16.9	12.6	9.8	9.9	S	7.0	5.9	5.4	12.4	5.6	3.7	4.2	4.6	8.6	13.9	20.6	10.7	24	
7	17.9	20.4	15.4	13.6	10.7	14.4	16.7	15.8	14.5	11.9	13.2	14.3	S	12.9	13.4	14.8	17.5	14.8	15.4	13.6	20.1	11.7	13.1	13.4	20.4	14.8	24	
8	6.9	2.8	3.5	6.9	8.3	9.0	16.2	20.0	15.5	15.4	3.1	S	2.0	4.2	6.4	3.8	4.3	3.5	4.6	6.8	5.9	6.2	5.2	4.8	20.0	7.2	24	
9	3.6	3.9	5.2	5.1	5.8	8.2	31.5	3.2	0.9	9.1	S	7.9	1.7	5.7	11.7	9.0	13.3	1.4	0.9	7.5	12.4	1.3	2.8	0.9	31.5	6.7	24	
10	0.3	0.6	0.5	2.2	2.4	2.4	4.5	20.7	17.1	S	10.7	2.6	6.2	7.6	4.6	7.1	9.8	8.1	10.1	9.3	9.5	6.9	6.9	5.8	20.7	6.8	24	
11	4.5	5.0	5.1	4.9	6.0	9.8	11.1	13.7	S	31.2	28.4	19.5	11.7	5.6	4.8	5.4	4.2	2.2	1.8	0.9	0.5	0.5	0.6	1.1	31.2	7.8	24	
12	0.4	0.0	0.0	0.0	0.0	0.0	0.0	S	0.9	0.9	0.5	0.5	0.6	0.8	0.7	0.5	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9	0.3	24	
13	0.0	0.1	0.6	2.1	2.6	4.6	S	1.6	1.2	0.2	0.3	2.2	4.7	2.9	2.4	0.9	0.4	0.8	2.4	2.6	3.9	6.3	8.1	7.6	8.1	2.5	24	
14	8.2	9.6	10.3	9.9	8.0	S	6.7	4.4	2.8	2.5	9.1	4.0	8.6	9.1	3.4	2.6	3.9	1.3	1.6	1.1	1.7	2.4	2.3	2.2	10.3	5.0	24	
15	2.8	4.1	4.2	5.3	S	3.5	4.5	8.5	11.6	9.7	7.8	11.9	4.9	1.5	0.7	0.6	0.5	3.8	2.7	9.2	0.8	0.4	0.2	0.4	11.9	4.3	24	
16	0.3	0.4	0.5	S	0.4	3.8	1.1	2.0	2.5	1.2	0.4	2.9	5.6	2.9	5.6	10.5	10.8	17.0	18.3	10.3	3.8	5.9	8.7	12.7	18.3	5.5	24	
17	2.0	2.5	S	3.3	3.2	3.1	2.9	2.1	1.1	0.9	3.4	1.2	3.1	3.5	1.7	5.4	3.7	3.3	1.0	0.8	0.6	1.3	4.8	5.7	5.7	2.6	24	
18	2.5	S	1.6	1.1	2.3	2.4	3.6	8.3	6.4	9.7	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	9.7	4.2	14
19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	12.4	12.2	16.8	10.1	S	16.8	12.9	15
20	5.2	4.5	8.3	6.8	5.2	5.4	6.5	8.0	17.3	C	C	C	C	2.8	1.3	2.0	0.7	0.9	0.7	0.8	0.8	0.8	S	1.1	17.3	4.2	24	
21	1.2	0.9	1.0	1.3	1.3	1.1	1.2	1.1	1.9	1.1	4.5	5.9	5.4	4.7	7.1	9.2	9.1	9.6	9.5	10.5	13.3	S	12.6	8.1	13.3	5.3	24	
22	10.0	9.7	9.7	9.7	9.8	18.2	16.7	14.8	14.7	13.1	11.3	17.2	9.2	9.2	8.1	9.5	8.8	5.3	7.1	8.7	S	6.7	6.6	7.1	18.2	10.5	24	
23	7.7	6.3	5.9	5.3	4.8	4.5	4.5	4.8	3.0	2.9	3.0	3.5	3.6	4.0	5.8	6.2	7.2	7.7	9.9	S	12.2	28.3	21.5	20.3	28.3	8.0	24	
24	7.5	6.1	4.3	0.1	2.8	1.1	6.9	7.4	5.2	0.5	7.1	7.2	2.7	11.8	2.0	1.5	6.0	6.9	S	21.8	6.6	6.8	13.3	6.8	21.8	6.2	24	
25	8.1	0.4	1.4	5.5	4.4	0.0	0.1	0.5	0.6	0.1	0.2	0.9	1.5	5.1	4.6	3.8	2.5	S	2.0	2.1	1.6	1.7	2.4	5.1	8.1	2.4	24	
26	12.8	14.6	8.6	7.9	10.6	8.7	11.3	10.4	7.1	7.5	13.0	10.4	9.0	7.8	6.6	6.7	S	7.6	8.4	7.7	4.4	17.8	10.6	2.4	17.8	9.2	24	
27	2.1	1.2	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	S	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	2.1	0.2	24
28	0.0	0.2	0.8	1.2	0.8	2.0	2.5	2.7	3.8	4.4	6.2	4.2	6.1	8.1	S	2.1	4.2	4.6	7.4	5.2	6.6	7.3	8.6	15.8	15.8	4.6	24	
29	17.1	17.7	17.4	15.7	14.6	14.7	12.8	12.2	12.2	11.2	6.4	4.8	3.1	S	1.1	1.2	2.0	1.6	1.8	2.7	2.1	1.7	1.9	3.2	17.7	7.8	24	
30	9.9	9.7	6.6	7.1	10.8	7.9	5.4	7.2	10.7	18.8	12.8	6.0	S	5.4	6.9	9.4	12.7	11.2	8.1	6.2	5.6	3.4	3.3	2.7	18.8	8.2	24	
31	2.1	3.2	4.2	2.9	1.4	1.6	3.0	4.4	3.4	2.0	3.1	S	2.9	1.3	0.9	0.9	1.0	1.5	3.4	3.1	3.4	2.6	2.2	1.8	4.4	2.4	24	
HOURLY MAX	17.9	20.4	20.1	15.7	14.6	18.2	31.5	20.7	20.6	31.2	28.4	19.5	11.7	12.9	13.4	14.8	17.5	17.0	18.3	21.8	20.1	28.3	21.5	20.3				
HOURLY AVG	5.3	5.6	5.9	5.3	5.0	5.2	6.8	7.0	6.7	6.7	6.4	5.8	4.5	4.9	4.2	4.7	5.1	5.2	5.2	5.6	5.3	5.5	5.8	5.7				

STATUS FLAG CODES

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

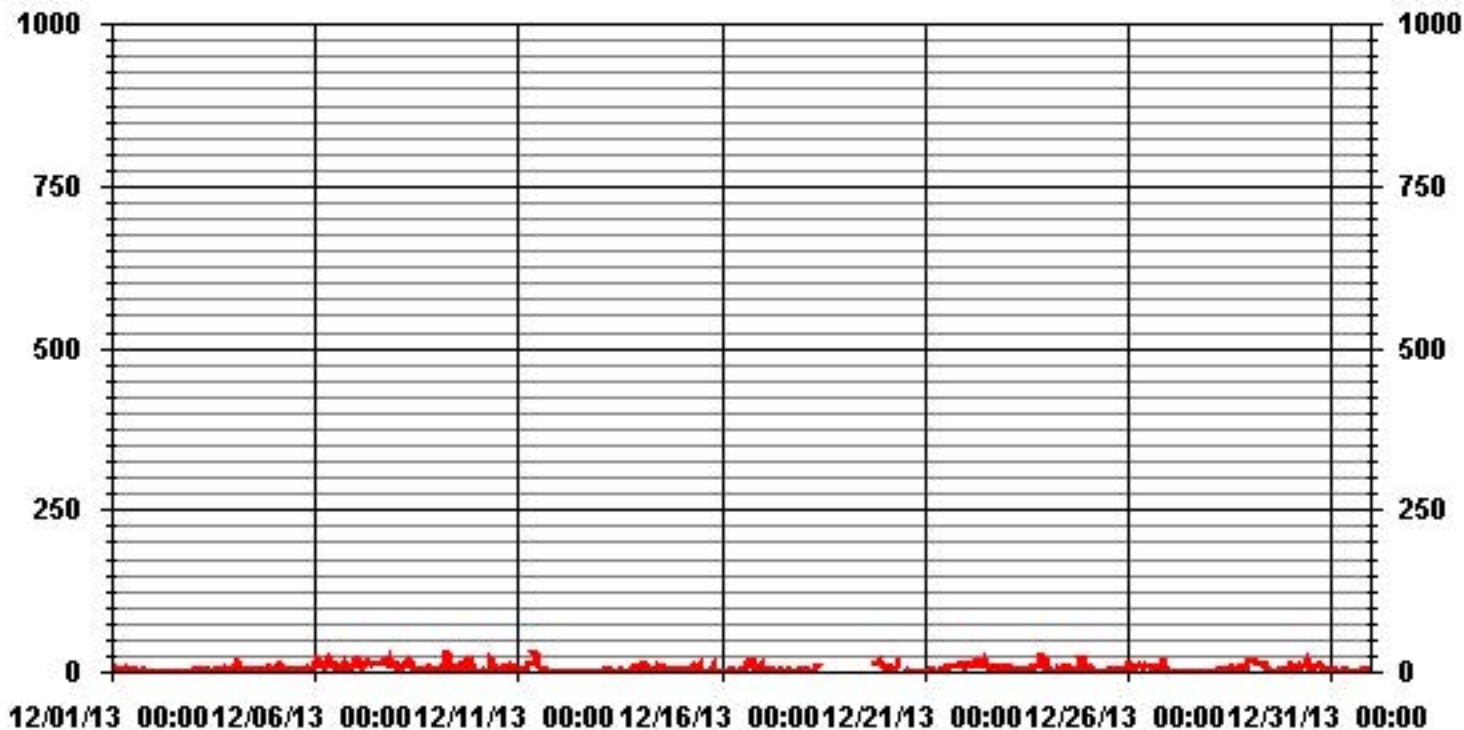
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	625					
MAXIMUM 1-HR AVERAGE:	31.5	PPB	@ HOUR(S)	6	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	14.8	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	18	HRS	AMD OPERATION UPTIME:	97.4	%	
STANDARD DEVIATION:	5.19		MONTHLY AVERAGE:	5.56	PPB	

01 Hour Averages



— LICA30 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR				
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.			
DAY																														
1	7.9	9.6	7.7	9.2	9.1	4.3	8.5	6.7	8.7	7.2	4.9	4.8	3.4	2.6	2.7	2.8	2.7	2.7	S	2	2	1.1	1.4	1	9.6	4.9	24			
2	0.8	0.4	0	0.2	0	0	0	0	0	0	0	0	0	0	0.1	1	1.8	S	1.1	0.5	0.5	0.9	1.5	0.9	1.8	0.4	24			
3	4	3.2	3.2	3.1	3.6	4.2	5.7	5.7	22	9.7	2.5	2.5	4.3	9.4	1.1	3.7	S	14	18.3	12.9	5.7	5.1	2.5	24.6	24.6	7.4	24			
4	3	3.2	35	23.7	3.8	1.7	4.9	5.4	6.9	7.4	9.6	7.3	5.5	6.4	5.7	S	4.6	3	3.6	6	21.2	20.6	4.5	6.8	35.0	8.7	24			
5	6.7	5.7	17.8	20.8	6.5	5.4	4.2	4.8	7.9	4	6.6	6.7	5.8	4.9	S	3.8	5.7	5.2	6.5	5.8	6.9	6.6	8.3	16.5	20.8	7.5	24			
6	17.2	26.9	25.9	10.2	26.9	23.3	19.2	26.3	47.1	24.7	45.5	16	15.7	S	13.9	11.1	7.1	10.3	22.9	11.7	4.6	4.9	7.4	10.7	68.6	68.6	21.1	24		
7	27	24.4	48.2	15.4	12.4	17.5	17.7	16.7	17.8	14.7	16.4	15.9	S	13.9	14.1	17.4	18.8	17.4	19.5	25.8	28	26	25.9	43.3	48.2	21.5	24			
8	21.5	4.2	5.7	9.4	10.8	11.9	22.6	28.7	41.8	27.3	9.1	S	4.2	14.8	12.9	9.6	8.3	4.7	6.1	8.1	7.9	7.6	6	6.1	41.8	12.6	24			
9	4.3	4.7	6.7	5.9	7.5	19.4	52.6	8.6	2.5	31.4	S	14.3	6.5	10.4	15.2	12.6	26.8	7.5	4.2	21.1	24.1	15.6	3.9	1.5	52.6	13.4	24			
10	1.4	1.5	1.4	3.2	3.8	3.2	47.7	78.8	34.6	S	30.8	24.7	19.5	19.8	8.3	18.6	16.6	34	28.2	12.7	12.6	7.7	8	7.3	78.8	18.5	24			
11	5	6.4	6.7	5.6	9	10.6	12.6	68.3	S	38.3	34.5	27.8	13.8	9.2	40.5	6.4	6.1	2.6	2.8	1.7	1.3	1	1.1	1.8	68.3	13.6	24			
12	1.9	0.4	0.3	0.5	0.4	0.4	0.5	S	1.6	1.6	1.1	1.2	1.3	1.4	1.7	1.3	1.3	0.6	0.5	0.7	0.6	0.6	0.5	0.5	1.9	0.9	24			
13	0.6	0.7	4.8	10.2	10.6	8	S	5.4	3.1	1.1	1.3	6.7	7.4	7.3	8.8	1.8	1	2.4	3.4	4.1	4.8	7.6	9	8.2	10.6	5.1	24			
14	9.3	10.7	11.3	12.1	10.4	S	8.5	6.6	3.7	3.4	16.2	6.3	11.8	16.1	9.5	4.4	9.5	1.8	3.2	2.1	2.2	4.1	4.1	3.1	16.2	7.4	24			
15	3.8	5.3	5.5	6.2	S	4.1	5.5	13.8	16.7	12.4	9.6	13.5	13.6	2.6	1.9	1.3	1.2	13.1	7.1	15.4	4.1	0.9	0.8	1.1	16.7	6.9	24			
16	0.9	1	1.1	S	0.9	12.1	3.5	6.9	7.3	3.1	1.8	12.9	19.7	11.4	18.3	14.9	25.5	33.1	38.1	16.7	18.4	16.2	17.5	18.1	38.1	13.0	24			
17	3.8	3.8	S	4	3.7	3.7	3.4	3.1	1.8	1.6	10	1.8	14.3	14.2	2.7	13	6.4	6.4	1.6	1.3	1.3	3.2	10.4	21.5	21.5	6.0	24			
18	3.8	S	3.1	2.3	3.2	3.5	6.8	16.8	10.2	46	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	46.0	10.6	14
19	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	C	15.2	17.7	19.5	18.5	S	19.5	17.7	15		
20	5.9	5.5	10.9	8.2	6.8	9.4	16.2	11.9	121.3	C	C	C	C	C	2	3.8	1.3	1.4	1.2	1.4	1.4	1.3	S	1.7	121.3	11.8	24			
21	1.7	1.4	1.6	2.1	2	1.8	1.7	1.7	6	1.8	6.8	6.9	6.3	5.8	12.5	52.6	21.3	11.4	12.9	12.3	14.6	S	16.6	11.7	52.6	9.3	24			
22	12.3	12.7	14.6	13.2	13	41.7	86.7	20.2	17.6	17.1	17.8	22.6	17.3	13.2	9.4	10.7	10.5	6.8	10	11.8	S	7.9	7.5	7.7	86.7	17.5	24			
23	8.3	7.3	6.9	6	5.9	5.2	5.4	35.3	4.7	4.3	3.8	4.2	4.7	4.6	36.9	9.7	9.7	9.5	10.8	S	20.1	40.1	36.6	33.3	40.1	13.6	24			
24	24.7	10.4	7.9	1.2	5.7	6	13.2	12.2	10.5	4.6	15	20.3	12.6	17.9	4.9	4.7	15.7	16.7	S	36.4	17.5	13.1	21.2	12.1	36.4	13.2	24			
25	14.4	2.3	5.5	10.9	16.8	0	0.6	1.2	1.1	0.8	0.9	1.6	2.3	12.8	13.7	8.4	6.1	S	26.2	7.2	2.3	2.2	3.9	10.8	26.2	6.6	24			
26	17.2	19.5	12.7	8.8	15.2	10.4	13.3	13.7	10.2	8.7	58.9	15.2	11.8	8.8	8	7.8	S	8.5	9.3	9.7	7.8	33.2	34.5	3.5	58.9	15.1	24			
27	2.8	2.4	0.6	0.3	0.5	0.3	1.2	0.7	0.6	0.3	0.3	0.6	0.4	0.6	0.7	S	0.5	0.3	0.6	0.7	0.7	0.6	0.8	0.7	2.8	0.7	24			
28	0.6	0.8	1.4	1.8	1.7	3.9	3.4	5.2	5.8	7.6	7.7	7.5	11.6	14.5	S	6.7	12.5	6.8	8.2	6.6	9.3	9.4	13	17.1	17.1	7.1	24			
29	18.6	21.7	19.5	17.9	15.3	15.5	14.1	13.2	13	13.2	8.1	5.6	4.4	S	2	2.7	2.6	2.5	2.8	3.3	3.2	2.3	2.6	6.9	21.7	9.2	24			
30	17.1	13.8	9.1	11.8	12.8	11.5	6.3	11.6	14.9	29.2	22.2	8.7	S	6.4	8.6	13.4	16.9	12.4	10.6	7.5	6.8	4.2	3.8	3.4	29.2	11.4	24			
31	3	5.9	6.8	4.8	2.2	2.7	6	5.7	8.8	5	5.5	S	4.8	2	1.5	1.5	1.6	3.7	5.4	3.9	4.6	3.4	2.9	2.3	8.8	4.1	24			
HOURLY MAX	27.0	26.9	48.2	23.7	26.9	41.7	86.7	78.8	121.3	46.0	58.9	27.8	19.7	19.8	40.5	52.6	26.8	34.0	38.1	36.4	28.0	40.1	36.6	68.6						
HOURLY AVG	8.3	7.4	9.7	7.9	7.6	8.3	13.5	15.0	15.5	11.7	12.8	9.8	8.6	8.9	9.4	9.0	9.1	9.3	9.4	8.9	8.7	9.3	9.6	11.8						

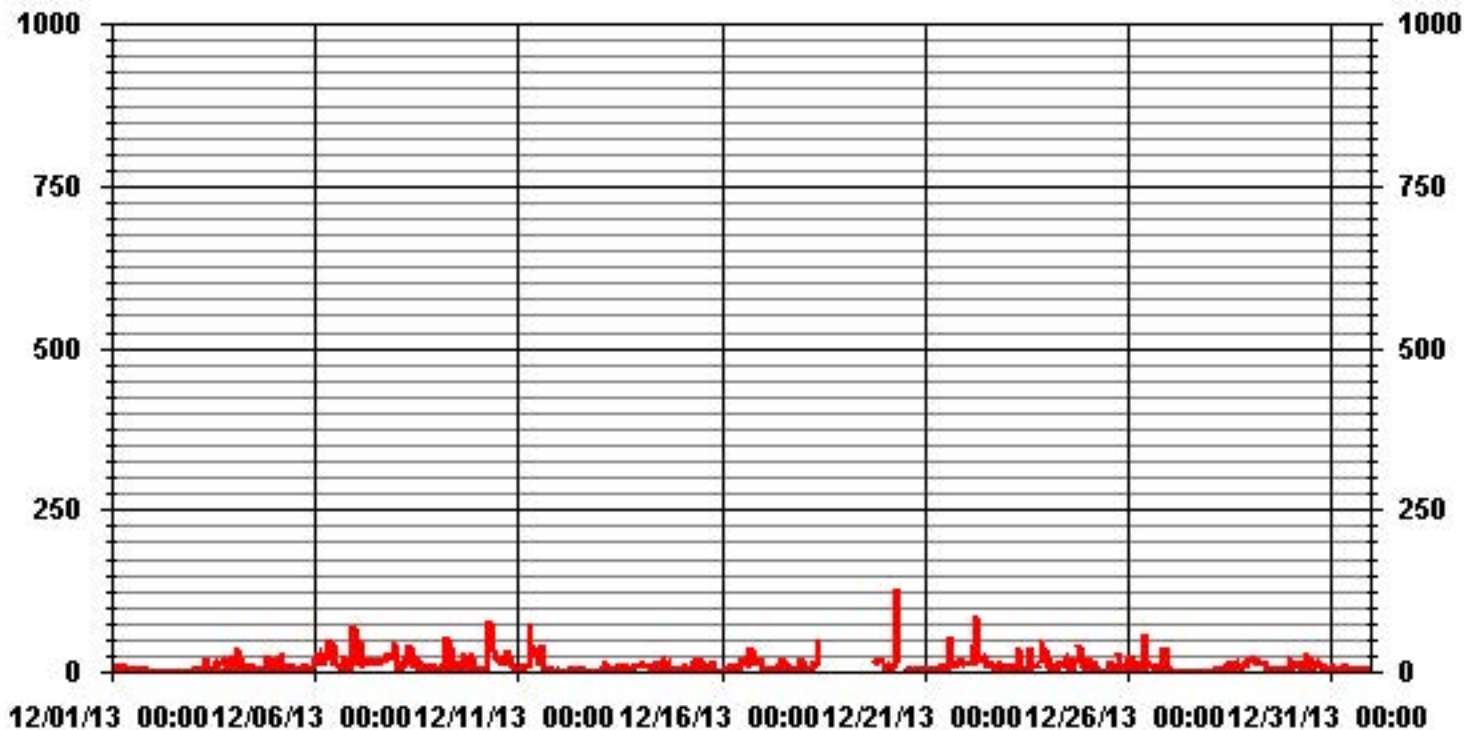
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	663					
MAXIMUM INSTANTANEOUS VALUE:	121.3	PPB	@ HOUR(S)	8	ON DAY(S)	20
Izs CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	19	HRS				
STANDARD DEVIATION:	11.48					

01 Hour Averages



LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

December 2013

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	7.24	7.10	14.34	6.36	2.51	4.88	2.66	3.84	1.92	10.35	6.36	3.10	5.17	9.02	8.28	6.80	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	7.24	7.10	14.34	6.36	2.51	4.88	2.66	3.84	1.92	10.35	6.36	3.10	5.17	9.02	8.28	6.80	

Calm : .00 %

Total # Operational Hours : 676

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	46	676
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	49	48	97	43	17	33	18	26	13	70	43	21	35	61	56	46	

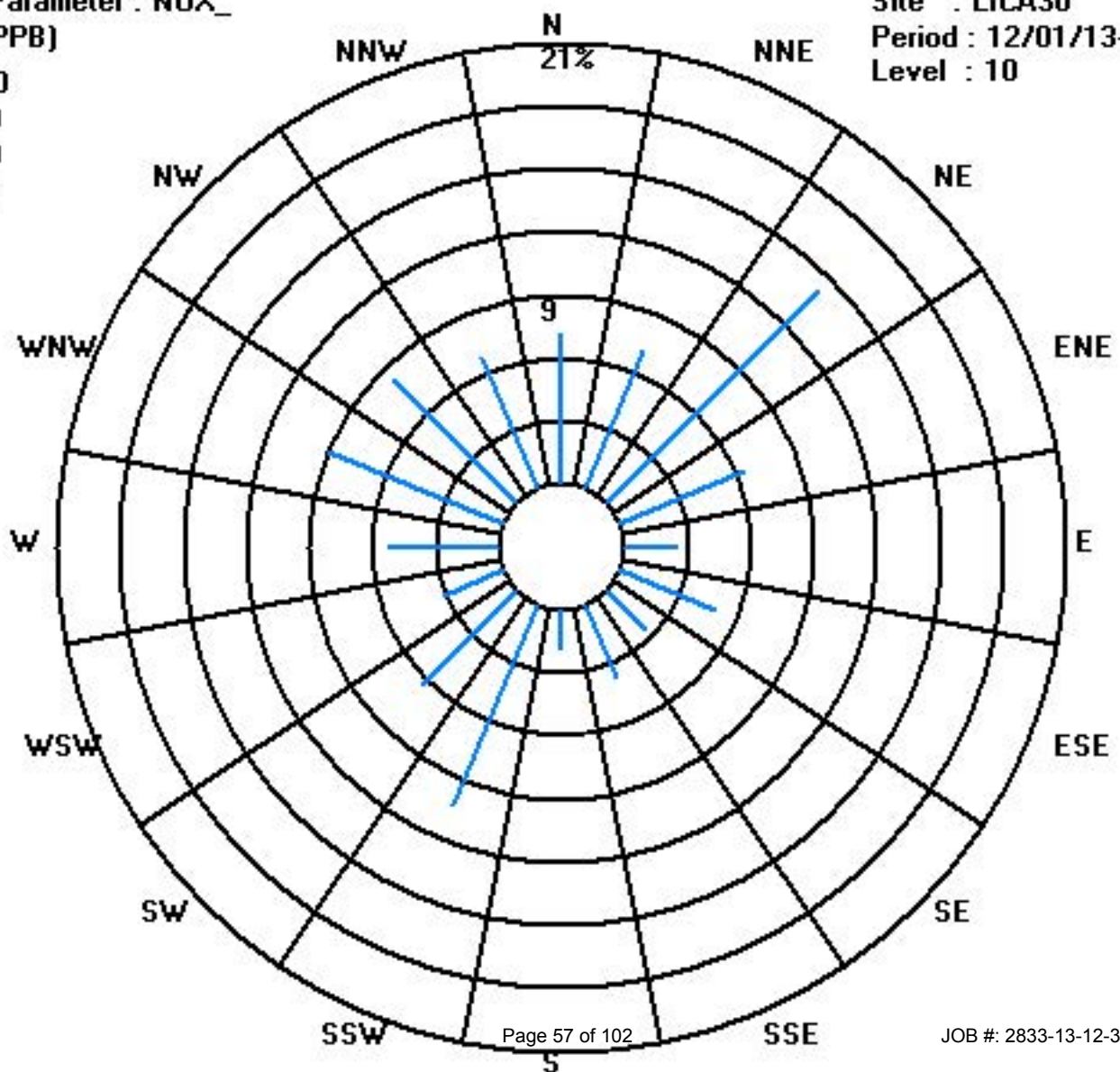
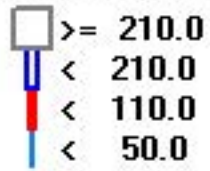
Calm : .00 %

Total # Operational Hours : 676

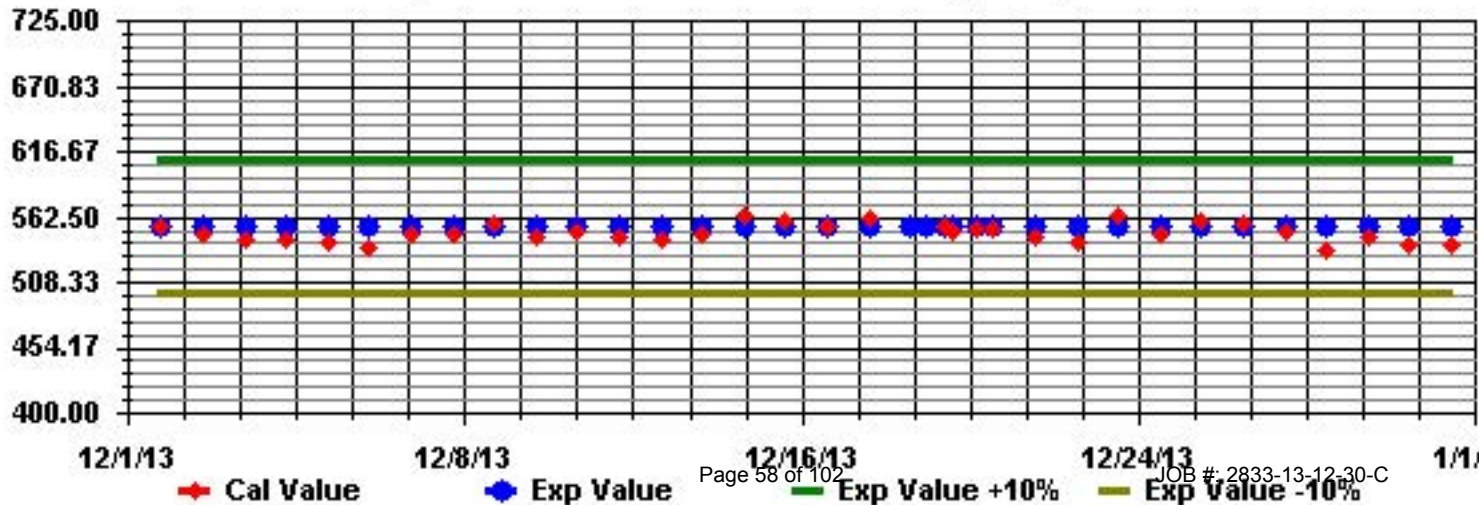
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2013
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY 24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	-4.3	-4.8	-4.7	-4.4	-4.6	-4.6	-4.7	-4.6	-4.5	-4.1	-3.6	-2.9	-2.9	-2.1	-2.3	-2.9	-3.4	-3.5	-3.5	-4.2	-5	-5.5	-5.5	-5.4	-2.1	-4.1	24	
2	2	-5.3	-5.4	-5.6	-5.9	-6.5	-7.1	-7.4	-7.9	-8.4	-8.8	-8.5	-8	-7.8	-7.6	-7.3	-7.6	-8.8	-9.5	-9.5	-9.5	-9.6	-9.9	-10.2	-10.7	-5.3	-8.0	24	
3	3	-11.6	-12.9	-13.3	-13.7	-14.4	-14.8	-15	-15.1	-15.2	-15	-15	-14.6	-14	-13.9	-15.1	-16.5	-19.3	-19.8	-19.5	-19.3	-19.6	-19.8	-19	-19.1	-11.6	-16.1	24	
4	4	-18.7	-19.3	-19.1	-19.4	-20.5	-20.5	-20.5	-21	-21.7	-20.8	-19.3	-17.9	-17.4	-17.1	-17.6	-19.3	-19.8	-20.8	-21.2	-21.9	-21.5	-22.3	-23.6	-24.4	-17.1	-20.2	24	
5	5	-23.9	-23.9	-23.9	-23.3	-23.9	-25.7	-25.8	-24.5	-24.8	-24.8	-23.1	-22.5	-22.3	-21.7	-22.5	-23.7	-25	-25.7	-25.8	-26.2	-27.3	-28	-28.1	-28.1	-21.7	-24.8	24	
6	6	-28.7	-29.2	-28.5	-29	-29.3	-29.6	-29.9	-29.8	-30.1	-29.2	-27	-25.1	-24.1	-23	-23.3	-25	-27.3	-28.4	-29.1	-29.1	-29.8	-29.7	-31	-31.5	-23.0	-28.2	24	
7	7	-31.8	-31.7	-32.4	-32.2	-32.9	-33.4	-33.2	-32.5	-31.5	-30.1	-28.8	-27.6	-26	-25	-24.3	-23.7	-23	-22.1	-21.6	-21.2	-21.7	-21.7	-21.3	-21.6	-21.2	-27.1	24	
8	8	-22	-24	-24.5	-24.7	-25.7	-26.4	-27	-25.8	-26.5	-23.7	-21	-20.2	-19.3	-18.6	-19.1	-20.9	-22.4	-23.7	-23.9	-24.3	-24.5	-24.2	-24.5	-24.4	-18.6	-23.4	24	
9	9	-23.1	-22	-21.3	-20.4	-20.2	-21.5	-18.9	-18	-16.9	-15.9	-13.7	-11.9	-10.1	-9.5	-8.7	-8.8	-9.5	-10.3	-12.4	-12.5	-12.2	-12.6	-14.4	-16.7	-8.7	-15.1	24	
10	10	-19	-20.5	-21.6	-22.4	-22.6	-23.4	-24.2	-24.4	-24.8	-24.3	-22.4	-21	-20.1	-19.1	-19.7	-22.3	-24.8	-25.2	-25.2	-25.4	-25.4	-25.8	-26	-26.5	-19.0	-23.2	24	
11	11	-27.2	-28.3	-29.8	-28.9	-27.5	-26	-25.1	-25.5	-24.6	-23	-20.9	-18.6	-17.2	-16.5	-15.9	-16.7	-17.3	-18	-18.8	-19.1	-19.5	-19.7	-19.8	-20	-15.9	-21.8	24	
12	12	-20.1	-20.3	-20.5	-20.8	-21	-21.2	-21.2	-21.4	-21.3	-21.7	-21.7	-21.6	-21.4	-21.5	-22.1	-22.7	-22.9	-23.1	-23.3	-23.6	-23.4	-23.7	-24	-24.3	-20.1	-22.0	24	
13	13	-24.6	-24.8	-24.6	-24.4	-24.7	-24.8	-25	-25.2	-25.1	-24.8	-24.4	-23.5	-22.5	-22.5	-23.2	-23.7	-24.1	-24.8	-26.9	-27.6	-25.9	-24.6	-24.9	-26.1	-22.5	-24.7	24	
14	14	-25	-24	-23.6	-23.1	-22.8	-23.2	-23.3	-23.2	-23.1	-22.7	-22	-21.1	-20.4	-20.2	-20.2	-20.1	-19.6	-19.2	-19	-18.9	-18.7	-18.7	-18.6	-18.5	-18.5	-21.2	24	
15	15	-18.2	-17.9	-17.4	-16.9	-16	-15	-14	-15.3	-16.2	-14.1	-8.1	-3.2	1.7	2.8	2.7	1.5	0.3	0	-0.6	-0.6	-1.2	-1.1	-0.7	-1.2	2.8	-7.0	24	
16	16	-2.4	-3.2	-3.8	-3.6	-3.2	-2.6	-2	-3	-3.5	-2.6	-1.6	-0.5	-0.3	-0.9	-2	-2.4	-3	-4	-4.8	-6	-7.2	-9.4	-11.6	-0.3	-3.5	24		
17	17	-13.2	-14.9	-16.4	-17.6	-18.2	-19.2	-18.8	-17.4	-15.9	-16.2	-15.5	-15.3	-14.5	-12.8	-12.7	-12.6	-12.3	-12.2	-12.7	-12.9	-12.9	-12.1	-11.4	-14.4	-11.4	-14.7	24	
18	18	-17.1	-18.8	-20.2	-21.1	-21.8	-22.2	-23.1	-23.8	-24.7	-23.9	-22.8	-21.6	-20.5	-20.9	-21.2	-21.9	-23	-22.7	-23.2	-23.8	-24.9	-27.2	-27.8	-28.7	-17.1	-22.8	24	
19	19	-29.1	-29.7	-29.1	-29	-28.8	-29.2	-29.2	-29.5	-29.1	-27.3	-24.6	-22.9	-22.2	-21.7	-21.5	-21.5	-22.5	-22.7	-23.7	-23.5	-24	-23.5	-24.5	-24.3	-21.5	-25.5	24	
20	20	-25.8	-25.6	-25.3	-26	-27.4	-28.9	-29.8	-31.1	-31.7	-29.5	-25.6	-21.7	-19.7	-19.2	-20.9	-21	-21.9	-22.1	-22.4	-23.1	-23.6	-23.8	-24.2	-24.8	-19.2	-24.8	24	
21	21	-25.3	-26.9	-27.1	-26.7	-25.9	-25.8	-25.1	-24.9	-24.2	-23.9	-22.6	-21.8	-21	-21	-20.1	-22.5	-24.3	-25.5	-26.7	-27	-27.7	-27.3	-27.5	-28.6	-20.1	-25.0	24	
22	22	-28.4	-30	-31.4	-32.3	-32.7	-31.2	-30.8	-32.1	-32	-31.4	-26.9	-23.5	-22.7	-22.4	-22.3	-24.8	-26.7	-26.6	-30.1	-30.9	-27.5	-25.9	-26	-25.9	-22.3	-28.1	24	
23	23	-25.7	-24.7	-23.7	-22.4	-21.3	-20.1	-19.1	-18	-17.3	-16.6	-15.4	-14.3	-12.8	-12.1	-12	-12.4	-11.4	-11.4	-10.7	-9	-5.5	-3.9	-4.4	-5.5	-3.9	-14.6	24	
24	24	-6.9	-7.9	-9.7	-10.5	-10.2	-9.5	-9.3	-9.3	-8.4	-7.6	-6.7	-6.2	-5.6	-4.9	-4.7	-4.4	-3.6	-3.4	-3.2	-3.8	-4.9	-4.6	-5	-4.7	-3.2	-6.5	24	
25	25	-4.1	-4.2	-4.2	-4.7	-5.2	-7.1	-7.9	-9	-8.8	-9.1	-8.3	-7.6	-8	-8.4	-8.4	-8.6	-8.4	-8	-8	-7.9	-7.4	-6.5	-6.2	-6.3	-4.1	-7.2	24	
26	26	-6.1	-5.7	-5.3	-5.5	-5.6	-5	-4.8	-5.4	-5.5	-5	-3.7	-2.2	-2	-1.7	-1.3	-1	-0.9	-1.2	-1.3	-0.3	1.1	2.2	2	-1	2.2	-2.7	24	
27	27	-5.7	-8.9	-11	-11.7	-12.2	-12.8	-13.5	-13.8	-14.5	-15	-15.3	-15.6	-15.9	-16.5	-16.9	-17.3	-17.7	-17.9	-18.1	-18.4	-19	-19.6	-20.3	-21.9	-5.7	-15.4	24	
28	28	-22.5	-22.9	-23.1	-23.7	-24.1	-24.4	-24.4	-24.3	-23.9	-23.1	-21.4	-20.3	-19.6	-20.1	-23.3	-25.5	-26.2	-26.7	-26.8	-27.3	-27.8	-28.6	-29.2	-19.6	-24.3	24		
29	29	-31.1	-29.9	-32	-34	-35.3	-35.9	-35	-33.2	-31.9	-30.2	-27.6	-26.4	-24.7	-23.3	-22.1	-21.7	-22.1	-22.5	-23.5	-24.7	-25.5	-26	-25.9	-25.5	-21.7	-27.9	24	
30	30	-24.9	-25.1	-26.1	-27.4	-28.4	-29.8	-30.9	-31.8	-33.3	-32.8	-28.8	-25.8	-24.9	-24.4	-25.7	-27.3	-29.6	-30.7	-30.7	-30.4	-30.6	-30.3	-30.3	-30.2	-24.4	-28.8	24	
31	31	-29.8	-29.4	-29.2	-29.3	-29.3	-29.5	-29.5	-28.5	-28.1	-27.7	-26.7	-26	-25	-25	-25	-25.5	-26.9	-27.7	-28.4	-28.1	-27	-25.6	-26	-26.1	-25.0	-27.5	24	
HOURLY MAX		-2.4	-3.2	-3.8	-3.6	-3.2	-2.6	-2.0	-3.0	-3.5	-2.6	-1.6	-0.5	1.7	2.8	2.7	1.5	0.3	0.0	-0.6	-0.3	1.1	2.2	2.0	-1.0				
HOURLY AVG		-19.4	-19.9	-20.3	-20.5	-20.7	-21.0	-20.9	-20.9	-20.9	-20.2	-18.5	-17.2	-16.3	-15.8	-15.9	-16.8	-17.6	-18.0	-18.5	-18.7	-18.6	-18.6	-18.9	-19.6				

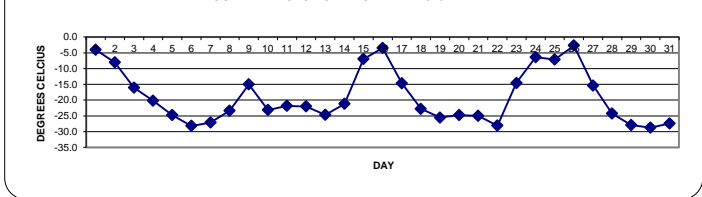
STATUS FLAG CODES

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

MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-35.9 °C	@ HOUR(S)	5	ON DAY(S)	29
MAXIMUM 1-HR AVERAGE:	2.8 °C	@ HOUR(S)	13	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	-2.7 °C			ON DAY(S)	26
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS		
STANDARD DEVIATION:	8.89	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-18.91 °C		

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

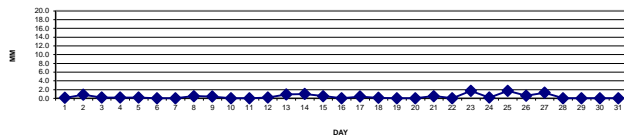
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	DAILY		
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.		
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	0.1	24		
2		0	0.1	0.1	0.1	0.2	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.2	24		
3		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.2	24	
4		0	0	0	0.1	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24	
5		0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	24
8		0	0	0.1	0	0	0	0	0	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	24
9		0	0	0	0	0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.4	24
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	24
12		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24	
13		0	0	0.1	0.1	0	0	0	0	0.1	0.1	0.2	0.2	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.2	0.9	24
14		0	0	0.3	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	1.0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0.3	0.5	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	24
17		0	0	0	0	0	0	0	0	0	0.1	0	0	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	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	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	24
21		0	0	0	0	0	0.1	0	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5	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	24
23		0	0	0	0	0	0	0	0.1	0.4	0.5	0.1	0.1	0	0	0	0.1	0.4	0	0	0	0	0	0	0	0	0	0.5	1.7	24
24		0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
25		0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.2	0.6	0.3	0.1	0	0	0.2	0.2	0	0	0	0.6	1.7	24	
26		0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0.2	0.3	0	0	0	0	0	0	0	0	0	0.3	0.6	24
27		0	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.1	0.1	0.4	0.1	0	0	0	0	0	0	0	0	0	0	0.4	1.3	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	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	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	24
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		0.1	0.1	0.3	0.7	0.2	0.1	0.1	0.1	0.4	0.5	0.2	0.2	0.2	0.1	0.4	0.6	0.4	0.3	0.0	0.1	0.2	0.2	0.1	0.1					

STATUS FLAG CODES

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

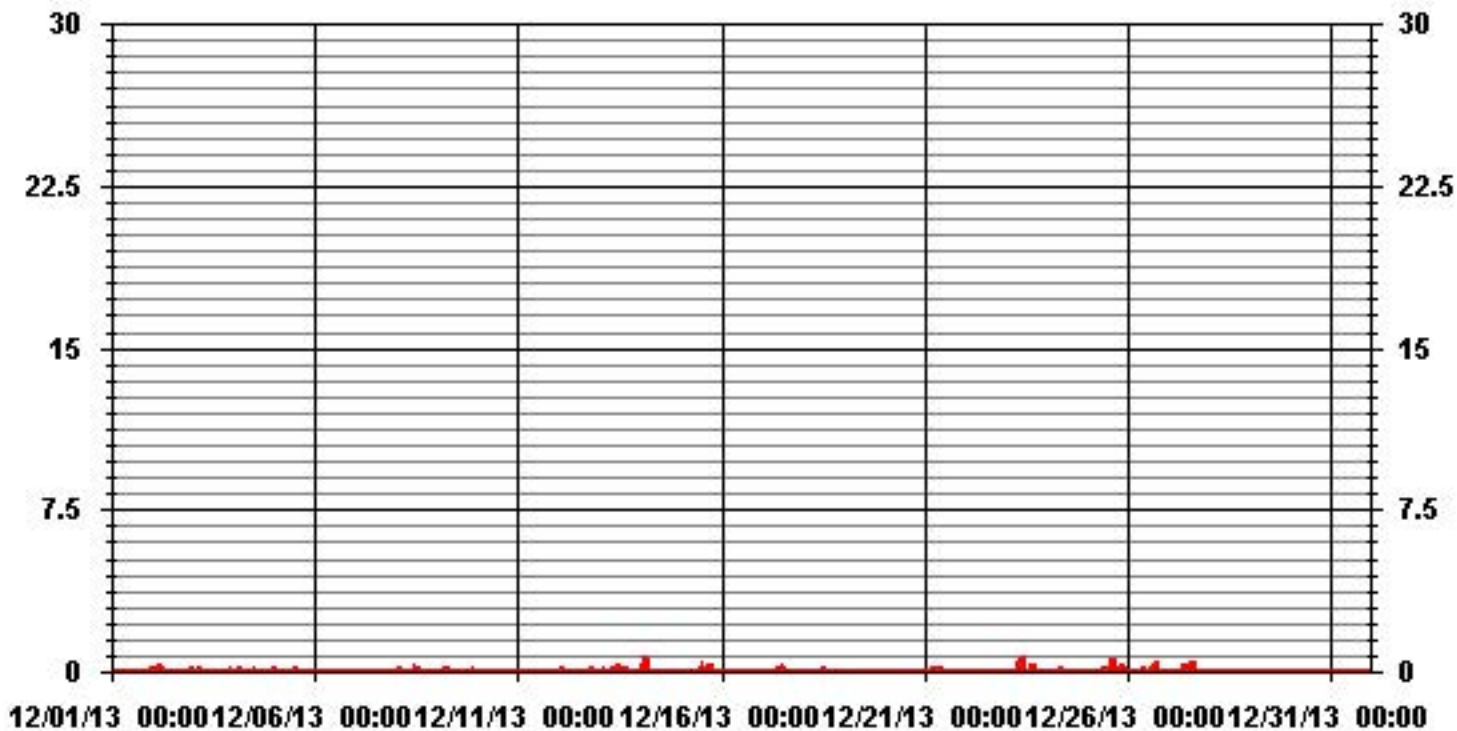
DAILY TOTALS FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.7	MM	HOUR(S)	3	ON DAY(S)	14
MAXIMUM DAILY TOTAL	1.7	MM			ON DAY(S)	23, 25
MONTHLY TOTAL	11.5	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.06		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.02	MM	

01 Hour Averages



— LICA30 PRECIP MM

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

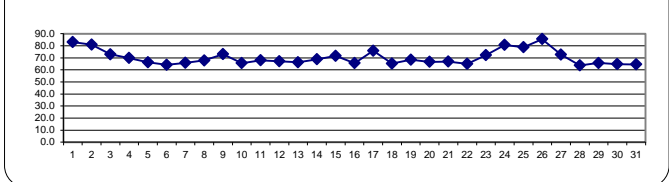
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		80	82	82	82	84	83	83	83	82	81	81	80	81	79	80	82	83	86	88	87	86	86	85	85	88	83.0	24	
2		85	85	84	84	83	83	83	82	82	81	81	80	79	78	76	78	79	79	80	80	79	80	80	80	80	85	80.9	24
3		78	76	75	76	76	75	75	75	74	73	71	67	64	63	65	68	75	76	75	75	74	74	74	74	78	72.8	24	
4		73	74	73	72	73	72	72	72	71	70	67	63	61	60	62	69	71	72	72	73	72	71	70	70	74	69.8	24	
5		70	69	70	69	69	69	69	68	68	66	63	61	61	59	61	64	66	66	66	67	68	68	67	67	70	66.3	24	
6		67	66	66	65	65	65	65	65	64	64	62	59	58	57	59	64	68	67	67	66	65	65	64	64	68	64.0	24	
7		63	63	62	63	62	61	62	62	63	63	63	64	65	65	66	67	68	68	70	70	71	72	73	72	73	65.8	24	
8		71	70	70	70	69	68	68	69	68	70	68	66	60	57	58	64	68	71	71	71	71	70	70	69	71	67.8	24	
9		70	70	71	71	72	73	75	74	75	74	73	70	70	74	75	77	77	74	78	76	74	74	69	67	78	73.0	24	
10		63	66	69	70	68	68	69	70	69	67	60	55	54	52	54	62	68	70	70	70	70	70	69	69	70	65.5	24	
11		68	66	66	66	66	67	68	67	68	68	68	68	67	67	66	70	69	69	69	68	70	70	69	70	70	67.9	24	
12		69	69	68	69	69	69	69	69	69	67	65	64	64	64	65	66	67	67	66	67	67	68	67	67	69	67.1	24	
13		67	66	67	66	66	66	66	66	66	65	65	65	63	63	64	66	67	68	67	67	68	68	68	68	68	66.2	24	
14		68	68	68	68	68	68	68	68	68	68	67	66	67	67	67	69	70	70	70	71	71	71	72	72	72	68.8	24	
15		72	73	73	74	74	76	77	77	77	78	78	75	71	65	58	64	75	75	76	74	73	67	59	58	78	71.6	24	
16		59	61	64	66	68	68	68	77	77	72	67	62	59	57	58	59	58	59	61	65	69	77	82	82	82	65.5	24	
17		79	80	78	75	74	75	74	75	76	75	74	74	75	75	74	75	75	76	76	77	77	77	78	74	80	75.8	24	
18		70	67	66	67	68	68	69	68	68	65	60	58	56	59	61	63	65	64	66	67	69	69	67	70	65.2	24		
19		68	67	68	67	67	66	66	66	66	67	67	67	67	67	67	69	70	71	71	70	71	71	71	70	71	68.3	24	
20		68	68	68	67	67	65	65	64	63	64	65	66	64	61	65	67	69	70	70	69	69	69	69	68	70	66.7	24	
21		68	67	67	67	67	67	68	68	68	66	64	63	63	61	67	70	69	68	67	67	69	68	68	70	66.9	24		
22		67	65	64	63	63	65	64	63	63	64	65	65	64	62	61	66	69	68	66	66	68	68	66	66	69	65.0	24	
23		67	68	68	68	68	68	69	71	73	73	72	70	68	67	68	72	73	74	77	83	79	75	78	83	72.2	24		
24		80	80	83	83	81	79	79	80	79	79	77	76	76	77	79	82	84	84	83	81	83	83	83	84	84	80.6	24	
25		81	82	76	75	73	72	77	80	81	77	74	74	75	77	79	79	81	81	81	81	82	84	84	85	85	78.8	24	
26		86	87	87	86	86	86	86	86	86	84	84	82	80	79	82	84	88	88	88	89	89	88	86	83	89	85.5	24	
27		79	77	77	76	76	76	75	74	73	74	73	72	71	71	72	73	72	72	71	69	68	69	68	67	79	72.7	24	
28		66	65	65	63	63	64	64	64	65	64	63	57	53	52	54	63	68	69	69	69	68	68	67	67	69	63.8	24	
29		65	67	64	61	60	60	60	61	62	63	65	66	67	68	68	68	69	70	70	70	69	68	68	68	70	65.7	24	
30		69	68	68	68	67	66	65	64	62	62	62	62	64	63	66	66	66	65	65	64	64	64	63	63	69	64.8	24	
31		64	64	64	64	64	64	64	64	64	64	63	62	62	63	64	66	67	66	66	66	67	67	67	67	67	64.5	24	
HOURLY MAX	HOURLY AVG	86	87	87	87	86	86	86	86	86	84	84	82	81	79	82	84	88	88	88	89	89	88	86	85				
		71.0	70.8	70.7	70.4	70.2	70.1	70.4	70.7	70.6	70.0	68.7	67.1	66.1	65.5	66.3	69.3	71.5	71.7	71.9	72.0	72.1	72.1	71.4	71.3				

STATUS FLAG CODES

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

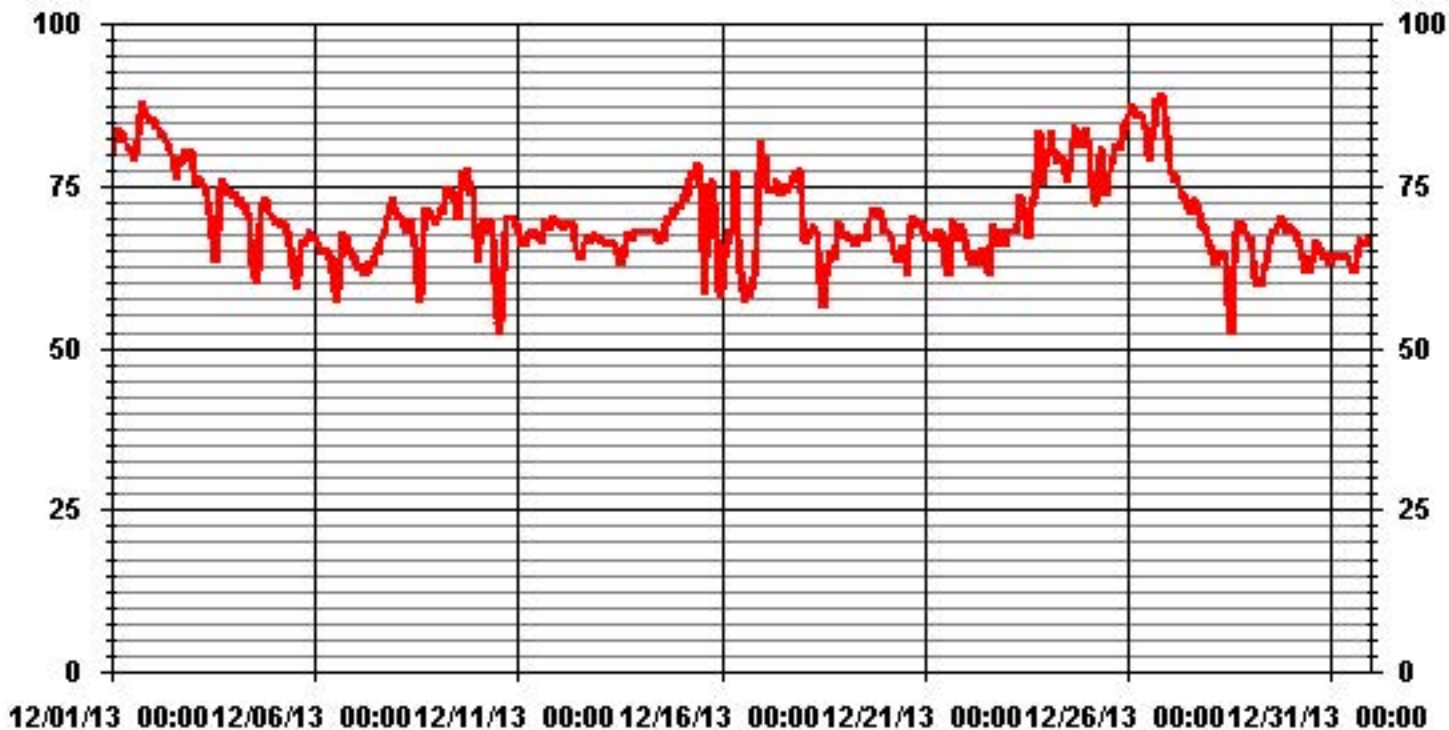
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	19, 20	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	85.5	%			ON DAY(S)	26
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	6.89		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	70.08	%	

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

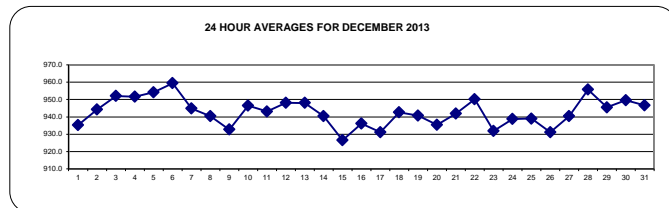
BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		939	938	938	937	937	936	936	935	935	935	935	934	934	934	933	933	934	934	934	934	935	935	935	935	935	939	935.2	24	
2		936	936	937	937	938	939	939	940	942	943	944	944	945	945	946	947	948	949	950	950	951	951	952	952	952	952	952	952	24
3		952	952	952	953	953	952	953	951	952	953	953	953	952	952	952	952	952	952	952	952	952	951	951	951	951	951	953	952.1	24
4		951	951	951	951	952	952	952	952	952	952	952	952	952	951	951	951	951	952	952	952	952	952	951	952	951	952	951.6	24	
5		950	951	952	952	952	952	952	952	953	953	953	953	953	953	954	955	956	956	957	957	958	959	959	959	959	959	959	954.2	24
6		959	959	957	959	960	960	960	961	961	961	961	960	960	959	959	959	960	960	960	959	959	958	958	957	961	959.4	24		
7		956	956	955	954	953	952	951	950	948	947	945	944	942	941	939	939	938	938	938	937	938	938	938	938	938	956	944.8	24	
8		937	937	938	939	940	940	941	942	943	943	943	943	943	943	943	943	942	941	940	939	938	935	935	943	940.5	24			
9		934	933	931	929	929	929	930	931	932	933	933	933	933	933	933	933	934	934	934	934	935	936	936	936	936	932.7	24		
10		939	941	942	943	944	945	946	947	948	949	949	949	949	949	949	949	949	949	949	948	947	946	946	945	949	946.5	24		
11		945	944	944	943	942	941	941	941	941	941	942	942	943	943	943	944	944	944	944	945	945	943	945	945	945	945	943.1	24	
12		946	946	947	947	947	947	948	948	948	949	949	949	948	948	948	948	948	948	949	949	949	949	949	949	949	949	948.1	24	
13		949	949	949	948	948	947	947	947	948	948	948	948	947	947	948	948	948	947	949	949	949	949	949	949	949	949	948.0	24	
14		948	948	947	947	946	945	944	943	943	942	942	941	940	939	938	938	938	937	936	935	934	934	933	932	948	940.4	24		
15		931	930	929	928	926	925	924	924	923	923	923	923	923	924	924	926	927	928	929	929	929	930	930	931	931	926.6	24		
16		930	931	931	931	932	932	933	933	934	934	935	936	936	937	938	938	939	940	941	941	941	942	942	942	942	942	936.2	24	
17		942	942	942	941	940	939	937	935	933	931	930	929	928	925	925	925	924	924	924	924	924	925	925	927	929	942	931.1	24	
18		930	932	934	935	937	937	939	940	940	942	944	944	944	945	945	946	947	947	948	949	949	950	950	950	950	950	942.7	24	
19		949	949	949	948	946	946	946	945	944	943	942	940	938	937	936	936	936	935	935	935	935	935	936	935	949	940.7	24		
20		935	935	936	936	934	935	936	937	937	937	936	935	934	934	934	934	934	935	935	935	935	936	937	937	937	935.4	24		
21		938	938	939	939	939	940	940	941	941	941	942	942	942	942	942	943	944	944	945	945	945	946	946	946	946	941.9	24		
22		945	947	949	950	951	951	952	952	953	953	952	952	951	951	951	951	951	951	950	950	949	948	947	946	953	950.1	24		
23		944	942	941	939	938	936	934	932	932	930	929	928	927	927	926	926	927	927	928	928	929	929	932	933	944	931.8	24		
24		933	934	935	935	935	936	936	936	936	937	938	938	939	939	940	940	941	942	942	943	943	944	944	944	944	938.8	24		
25		944	944	945	945	945	945	945	944	943	943	942	940	939	937	934	933	934	933	933	933	933	933	934	934	945	939.0	24		
26		934	934	934	934	934	933	933	933	933	933	932	932	930	929	929	928	928	928	928	928	928	929	930	932	934	931.1	24		
27		934	935	936	937	938	938	939	939	939	940	940	939	939	939	939	940	940	941	942	944	946	947	948	950	950	940.4	24		
28		951	952	954	954	955	956	957	957	957	958	958	956	956	957	956	957	957	957	957	957	956	956	955	955	954	958	955.8	24	
29		953	952	952	951	950	950	948	946	945	944	943	942	941	940	940	940	941	942	943	944	945	946	947	947	953	945.5	24		
30		946	948	949	950	950	951	951	951	952	952	951	950	949	949	949	949	949	950	950	949	949	949	949	948	952	949.6	24		
31		948	947	947	946	945	947	947	946	946	946	946	946	945	945	945	946	947	947	948	948	948	948	949	949	949	946.6	24		
HOURLY MAX		959	959	957	959	960	960	960	961	961	961	961	960	960	959	959	960	960	960	960	959	959	959	959	959	959				
HOURLY AVG		943	943	943	943	943	943	943	943	943	943	943	942	942	942	942	942	942	942	943	943	943	943	943	943					

STATUS FLAG CODES

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

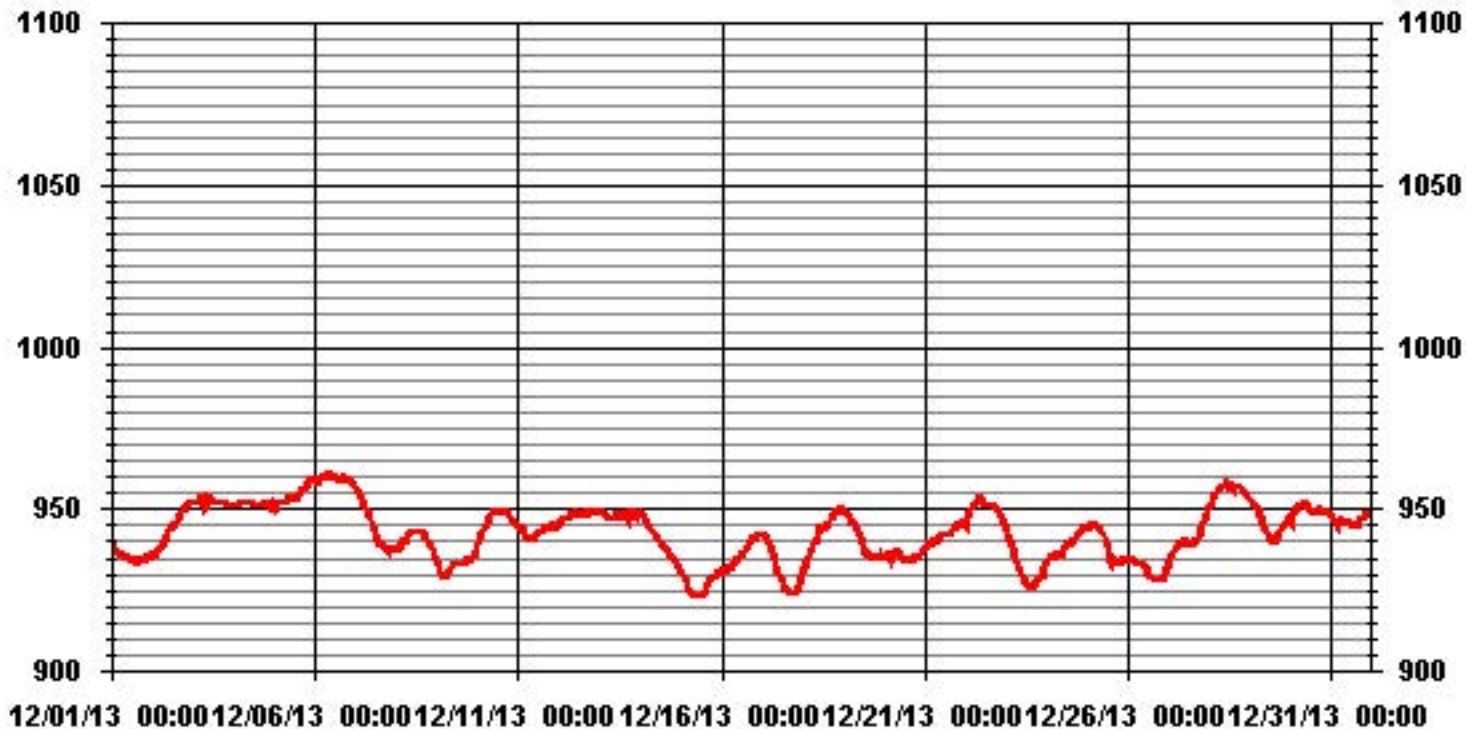
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	961	MB	@ HOUR(S)	VAR	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	959.4	MB			ON DAY(S)	6
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	8.59		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	943	MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.8	4.2	3.7	2.4	3.7	1.9	2.5	1.2	1.3	4	4.3	6.1	5.6	7.4	7.2	6.7	6.8	7.2	8.6	9.2	9.5	7.9	8.5	7.7	9.5	4.3	24
2	7.9	8.2	9.1	9.8	10.6	11	11.9	12.6	14.1	13.3	12.3	12.3	14.4	12.4	15	12.4	10.5	11	8.8	7.6	7.6	7	6	5.9	15	10.4	24
3	7.1	6.4	6.4	7.5	6.3	5.6	5.1	5.8	5.6	6	6.4	6.4	5.4	6.1	6.1	3.9	3.2	3.5	3.3	3.6	3.8	4	3.8	5.5	7.5	4.5	24
4	4.2	4.1	6.1	5.7	4.2	5.2	4.8	4.7	3.5	4.1	5.1	5.9	5.3	5.8	5.2	4.2	5	4.5	3.4	4.1	6.5	5.4	3.9	3.7	6.5	4.6	24
5	3.8	3.4	3.4	4.9	2.7	3.9	3.6	3.6	3.4	3.5	4.8	6.6	6.4	7.2	8.9	6.5	6.4	6.3	7.2	5.6	4.5	4.3	4.1	5	8.9	4.7	24
6	4.8	4.2	5	6	6.1	5.5	5.9	4.7	2.5	4.7	4.6	5.7	4.8	4.2	4.4	2.6	3.2	2.2	2.9	3.1	4.2	5	6	5.3	6.1	3.2	24
7	5.8	6.4	5.6	7.6	9.3	7.7	7.6	7.3	8.7	8.5	9.1	9	7.7	7.9	6.8	5.7	4.9	4.5	5.2	6.7	5.6	6.4	7.7	5.9	9.3	5.7	24
8	4	4	3.4	2.9	3.4	3.2	4.3	3.1	3.7	6.6	5.9	6.3	7.4	6.8	6	4.5	3.7	4.3	6.6	8	7.4	8.5	8.1	7.4	8.5	3.6	24
9	7.6	3.9	4.4	6.8	3.4	5	10	7.6	6.6	6.9	8.3	6.4	6.9	7.5	9.5	8.5	8.1	7.5	4.8	5.6	6.9	7.9	13.7	13.6	13.7	5.3	24
10	11.3	7.6	6.5	5.4	6.1	4.7	4.6	7.5	7.3	6.4	7.7	7.4	7.1	5.7	7	4.1	3.9	5.2	5.5	6.4	7.9	7.9	6.7	5.4	11.3	3.6	24
11	4.1	2.1	2.2	1.4	1.1	2.5	1.4	0.6	0.7	1.5	1.3	2.4	5.1	5.8	3.1	2.4	5.3	6.8	6.2	6.9	5.9	6.3	6.7	7.9	7.9	2.9	24
12	6.8	6.2	6.9	5.3	6.2	6.5	6.8	6.3	6.8	9.4	7.8	8.3	8.3	9.6	9.8	10.1	8.5	7.7	6.8	7.4	6	7	7.4	7.6	10.1	7.4	24
13	7	6.7	6.7	8	8.3	6.9	6.3	7.3	7	6.4	5.7	6.2	5.1	4.4	3.5	2	3.2	1.1	3.1	3.3	3.7	2.1	2.2	2.7	8.3	3.8	24
14	2.4	2.3	1.2	3.2	4.3	6	6.5	7.2	6.9	7.8	9.3	8.5	7.7	8.5	7.4	7.5	7.8	7.6	8.7	7.2	9.5	8	7.2	7.3	9.5	6.4	24
15	7.9	7	7.1	6.5	5.1	4.1	4	1.5	1.7	4.4	6.9	8.1	9.6	16.4	19.4	20.7	17.4	15.8	13.9	11.1	9.1	10.3	11.4	9.9	20.7	6.5	24
16	7.3	6	6.4	7.4	9.4	10.4	10.2	9.4	9.2	8.9	11.9	13.8	14.3	13.3	12.9	13.2	12.9	12.5	9.9	10.4	8.2	7	4.4	1.6	14.3	9.3	24
17	4.9	2.6	5.9	6.3	6.2	5.3	5.3	5.9	6.6	8.2	7.5	7.9	6.4	7.7	6.4	4.2	4.6	5.1	4.1	4.7	5	3.1	5.1	9.7	9.7	4.6	24
18	10.6	8.5	9.1	8.5	5.6	7.7	4	5.4	4.6	5.4	6.4	6.5	5.2	4.4	5.5	4.6	4.4	5.9	4.3	3.4	2.4	1.9	0.9	1.2	10.6	4.8	24
19	2.3	2	2.7	3	4	6.1	9.1	7.1	6	9	8.4	10.8	9.7	8.3	5.7	6.8	5.5	5.8	4.8	4.4	3.8	4	2.5	2.6	10.8	5	24
20	3	0.8	0.9	2.4	1.7	1.4	0.3	0.9	0.9	2.6	3.3	5.4	2.8	5.1	6.1	4	5.9	5.6	5.8	5.2	5.1	4	3.7	3.6	6.1	3.2	24
21	3.5	2.5	3.5	2.3	2.1	2.7	3.1	2.3	1.5	1	3.6	4.8	6.4	5.4	5.7	4.5	5	3.4	3.7	2.1	0.1	3.6	3.1	2.2	6.4	0.8	24
22	3.1	1.4	1.4	0.6	2.2	0.2	2.9	2.4	0.8	1.5	0.8	2.9	6.2	5.9	6.3	4.6	5.9	5.1	3.6	4.1	7.4	10.1	9.5	8.5	10.1	3.3	24
23	8.3	8.6	8.7	8.7	8.3	8.5	7.7	8.8	8.8	8	8.8	10.3	8.8	9.9	8.2	6.3	3.8	4.1	6.3	5.8	6.8	10	12.1	7.5	12.1	5.2	24
24	7.4	6.3	5	5.5	3.5	2.4	1.2	1.4	2.6	1.6	2.7	3.2	4.4	4	4.6	6	9.1	8.6	9.7	8.3	6.4	7.8	5.9	8.1	9.7	4.9	24
25	7.3	7.2	8.6	8.4	5.6	5	5.6	1.9	4.4	6.8	6	7.3	7	7.4	7.8	7.3	5.3	2.5	2.6	0.5	0.8	4.3	6.2	8.7	8.7	1.1	24
26	7.1	7.4	5.9	6.8	8	7.5	6.4	6.8	7.4	5.3	3.8	4.6	5.5	2.4	1.9	4.6	6.1	4.9	3.9	4.1	7.4	8.9	7.3	9.9	9.9	4.1	24
27	7.8	11.6	6.4	9.1	8.5	10.4	9.7	10.1	8.8	10.4	11.7	13.2	12.4	11.8	11	13.8	15.3	15.7	15.7	16.4	15.1	12	11	8.5	16.4	11.2	24
28	7.9	7.2	6.7	6.7	5.2	4.3	4.1	4.5	2.9	2.3	2.1	3.4	3.5	4.8	1.1	3.8	2.9	4.8	4.8	4.4	5.1	4.7	4.1	4.9	7.9	2.1	24
29	3.4	6	4.1	0.7	1	1	2.1	2.4	3.5	4.7	6.2	7.3	7.2	6.4	8.5	7.1	6.4	5.5	3.7	3.4	3.3	2.6	1.5	0.9	8.5	2.9	24
30	4	2.6	1.5	0.9	2.2	2.4	3.8	1.2	1.4	1.4	4.6	5.6	4.1	2.1	2.9	1.3	2.1	3.1	4.5	3.3	4.9	5.1	4.4	4.2	5.6	2.1	24
31	3.4	4.2	4.9	3.9	5.4	4.2	4.6	4.7	2.2	6.3	5.4	5.2	5.2	6.6	6.4	5.1	3.9	1.4	1.5	1.5	1	0.8	2.1	2.9	6.6	2.8	24
HOURLY MAX	11.3	11.6	9.1	9.8	10.6	11.0	11.9	12.6	14.1	13.3	12.3	13.8	14.4	16.4	19.4	20.7	17.4	15.8	15.7	16.4	15.1	12.0	13.7	13.6			
HOURLY AVG	5.8	5.2	5.1	5.3	5.2	5.1	5.3	5.0	4.9	5.7	6.2	7.0	7.0	7.1	7.1	6.4	6.4	6.1	5.9	5.7	5.8	6.1	6.0	6.0			

STATUS FLAG CODES

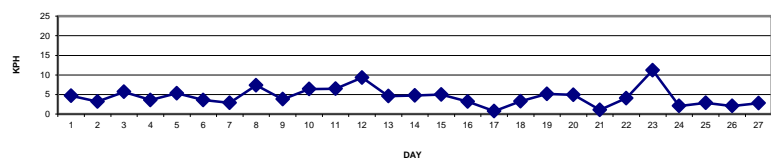
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION: December 20, 2011

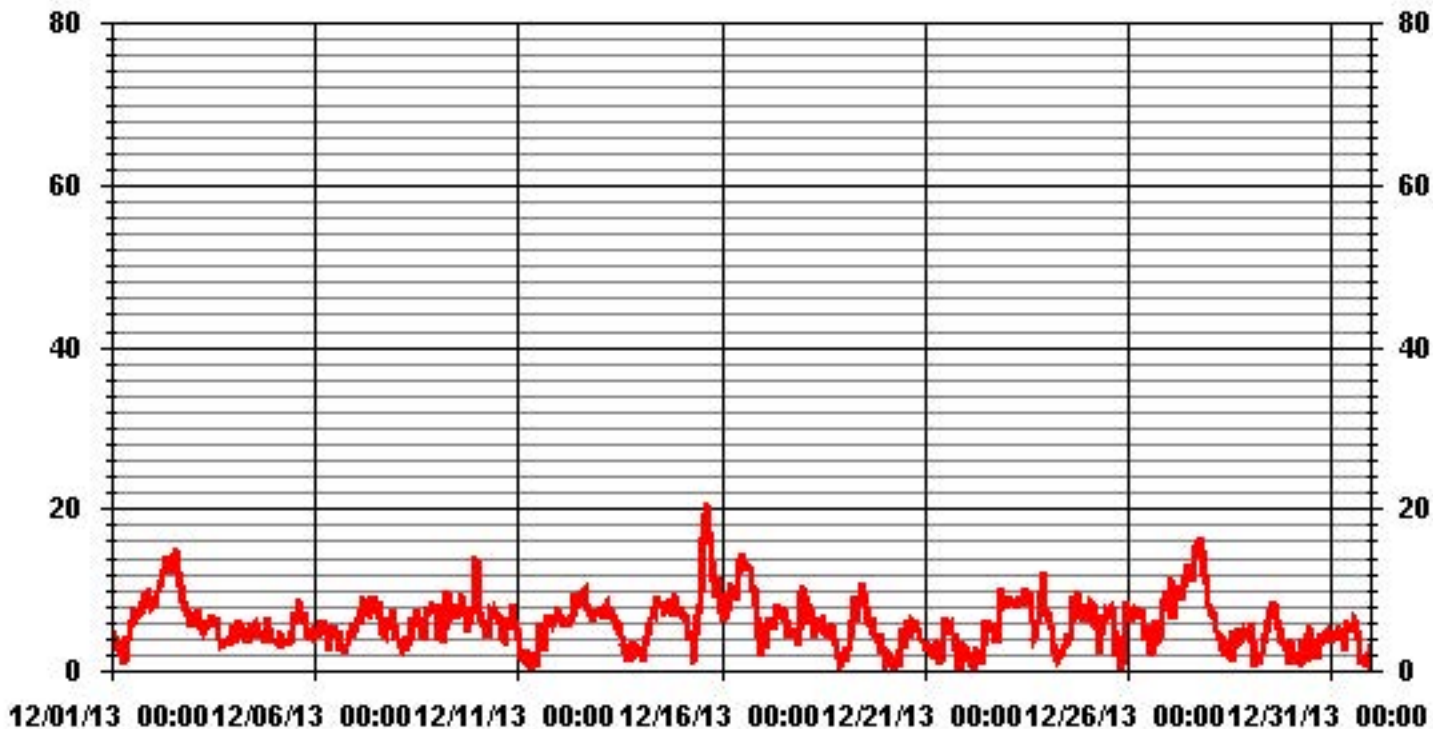
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	20.7 KPH	@ HOUR(S)	15	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	11.2 KPH			ON DAY(S)	27
CALMS (≤ 1 KPH)	1.75 %	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.07	MONTHLY AVERAGE:	5.90	KPH	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA30 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
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	0:00	MAX.
HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																										
1	11.2	9.9	11.4	13.6	14.7	13.6	14.1	11.5	7.7	10.2	15.4	15.1	15.4	17.8	18.7	20	19.8	23	21.2	22.5	21.4	21.2	19.6	23.8	23.8	
2	23.2	20.7	23.1	26	26	26.2	27.7	29.7	36.2	33.4	28.8	31	34.4	28	33.8	24.8	22.7	23.1	21.7	14.6	15.6	15.2	14.9	16.1	36.2	
3	23	18.6	20.9	30	19.7	19.1	19.4	21.9	18.2	21.5	21	19	18	25.2	18.7	15.7	18.6	31.7	40.9	42.3	39.1	65.2	67.4	38.7	67.4	
4	16.2	16.4	21.5	18.9	15.6	15.6	15.4	17.1	17.6	16.8	31	16.1	28.8	19.5	17.1	17.6	77.2	33.1	19.1	15.6	27	46.2	19.8	29.7	77.2	
5	85.9	87.6	59.3	88.4	21.1	80.7	51.5	79.4	35.1	18.9	17.7	28.3	20.9	24.3	24	21.1	27.9	16	24.8	28.8	21.1	24.1	40.2	28	88.4	
6	34	43.3	24.8	22.7	23.2	18.5	19.6	26.3	55.6	73.1	34	17.8	20	118.6	31.1	59.2	35.2	48.2	29.8	31.7	19.1	31.6	16.2	27.2	118.6	
7	19.8	19.9	18.4	19.8	22.3	20	21.7	20	23	23.1	26.5	26.9	23.4	24.6	23.4	22.7	19.9	42.2	21.2	19.9	48	31.2	30.1	86.9	86.9	
8	94.6	26.8	53.4	74.2	28.6	38	33.2	71.5	35.5	25.3	20.2	21.7	24.9	49.5	23.8	46	77.5	29.6	17.9	18.4	19.1	22.2	19.6	16.1	94.6	
9	21.6	27.6	64.3	18	35.6	46.3	28.3	26.6	26.8	25.1	28.1	26.1	25.5	31.9	32.2	29	33.8	23.4	16.5	24.2	30.4	40.2	34.4	42.9	64.3	
10	35.6	21.6	16.9	32.1	23.1	22.4	35.2	24.4	27.9	24.7	25.7	25.4	26.7	22.1	28.7	43.4	15.2	14.2	12.5	18.2	15	15.9	16.4	19.2	43.4	
11	24.5	37.4	27.7	54.1	181.2	73.3	43.6	70.8	77.4	76	30.8	34.4	18.3	13.7	25.9	19.6	14.1	14.7	15	15.9	16	16.3	17	18.5	181.2	
12	23.7	27.5	65.9	26.1	15.5	14.8	19.2	38.8	53.9	24.4	21	22.4	21.8	22.2	20	23	21.4	34.1	23.7	23.7	35.2	22.5	19.4	22.1	65.9	
13	22.7	56.5	24.9	26.3	29.8	25.1	32.1	66.7	41.5	19.3	18.8	36.7	22.6	34.2	40.3	27.2	52.6	96.5	31	41.9	32.2	54.6	77.7	21.1	96.5	
14	83.2	18.8	65.8	89.8	41.7	16.9	21.6	23.3	25.2	23.1	32.5	25.4	23.7	25.8	22.6	23.6	25.6	27.5	24.5	20.1	24	22	22.6	21.6	89.8	
15	25.8	22.6	21.3	19.3	19.3	14.7	15.5	16.4	16.3	29.6	16.3	18.3	34.4	56.4	76.2	59.8	56.2	64.6	50.2	36.1	28.6	33.1	40.4	40.6	76.2	
16	26.8	18.6	24.4	23.2	33.1	33.2	36	30	29.1	32.8	45.6	44.7	45.4	57.5	51.4	45.9	45.1	41.9	43.1	42	28.6	20.5	18	14.1	57.5	
17	17.1	27.1	15.9	19.1	16.5	14.8	23.8	18.3	19.8	25.4	25.8	26.6	20.8	26	18.8	19.8	17.6	16.3	16	14.8	15.1	13.2	25.3	34.1	34.1	
18	33.5	31.7	37.9	39.9	27.6	22.1	18.2	21.7	34.5	25.4	22.4	21.9	50.9	20.3	20.8	21.4	86.1	22.6	18.9	77.5	100.6	45.9	30	43.3	100.6	
19	26.5	30.3	40.8	25.9	20.8	19.4	22.3	20.7	16.6	27.1	21.7	34.1	28.7	23.2	23.4	17.2	42.8	14.4	15.2	78.6	72.9	91.3	98.1	41.3	98.1	
20	59	58.8	52.8	32.7	40.8	48.5	139.3	32.2	180.9	48.3	83.4	21	42.4	28.4	45	38.8	38.9	43.7	27.7	23.5	86.7	21.3	46.7	180.9	180.9	
21	80.5	181.1	47.2	44.8	85.1	21.5	41.7	95	29.4	45.6	51.9	15.8	15.8	49.9	17.4	16.7	12.7	28.3	19.3	58.9	68.5	73.6	24.2	63	181.1	
22	43.9	56.2	64.4	54.1	58.2	59.8	54.1	41.6	60.5	44	93.6	21.6	16.8	15.4	15.6	16.1	24.8	17.4	24.5	21.1	26.4	30.4	29.3	27.6	93.6	
23	24.6	28.3	32.5	29.2	27	27.2	25.7	32.3	22.1	26.8	26	23.3	23.3	25.8	19.8	16.1	18.8	18.4	13.3	21.2	21.1	44.9	41.2	25.3	44.9	
24	25.7	21	19.7	20.3	15.4	13.6	12.7	9.7	17.1	10.5	12.8	13.1	14.7	15.1	15.4	19.3	26.5	23.3	28.7	26.3	24.3	23.4	19.5	25.1	28.7	
25	26.8	28.9	28.3	26.3	21	15.9	11.6	15	14.7	18.6	17.5	19.9	22.5	25.7	24.9	26.7	20.6	14.6	15.1	17.7	10.9	11.4	11.8	15.5	28.9	
26	15.1	16.3	14.1	13.8	19.5	16.9	18.2	18.1	16.8	14.5	7.1	10.3	13.5	11.1	12.7	13.4	18.9	12.1	12.5	14.8	31.7	31.5	31.5	30.6	31.7	
27	25.4	28.5	24.9	20.8	18	21.5	19.5	29.6	26.2	29.8	30.7	34.2	32	31.2	27.8	31.6	37.7	35.9	38.8	36.6	34.9	30.4	28.9	47.7	47.7	
28	23.1	24.6	17.9	25.7	16.2	27.3	30.1	18.8	38.2	96.4	59.1	93.5	45.7	88.6	79.2	87.4	48.5	14.6	25.9	18.3	15.3	14.9	15.5	14.6	96.4	
29	13.8	17.7	31.6	29.4	36.7	111	106.2	51.7	36.7	36.6	38.8	33.4	25.2	17.9	25.6	31.4	17	22.2	23.2	32.7	39.6	42	36.4	85.3	111	
30	106.3	87.7	56.6	101.7	73.5	22	107.5	34.2	53.3	38.8	24.4	15.8	15.5	27.5	84.6	60.1	75.8	65.6	34.1	76.7	49.9	27.6	29.6	31.2	107.5	
31	58.1	39	40.4	39.1	93	61.3	31.7	28.9	59.6	23.1	46.4	33.3	39.4	72.5	52.2	28	54	63.2	54.9	43.3	79.4	27.6	82.2	22.1	93	
PEAK	106.3	181.1	65.9	101.7	181.2	111.0	139.3	95.0	180.9	96.4	93.6	93.5	50.9	118.6	84.6	87.4	86.1	96.5	54.9	78.6	100.6	91.3	98.1	86.9		

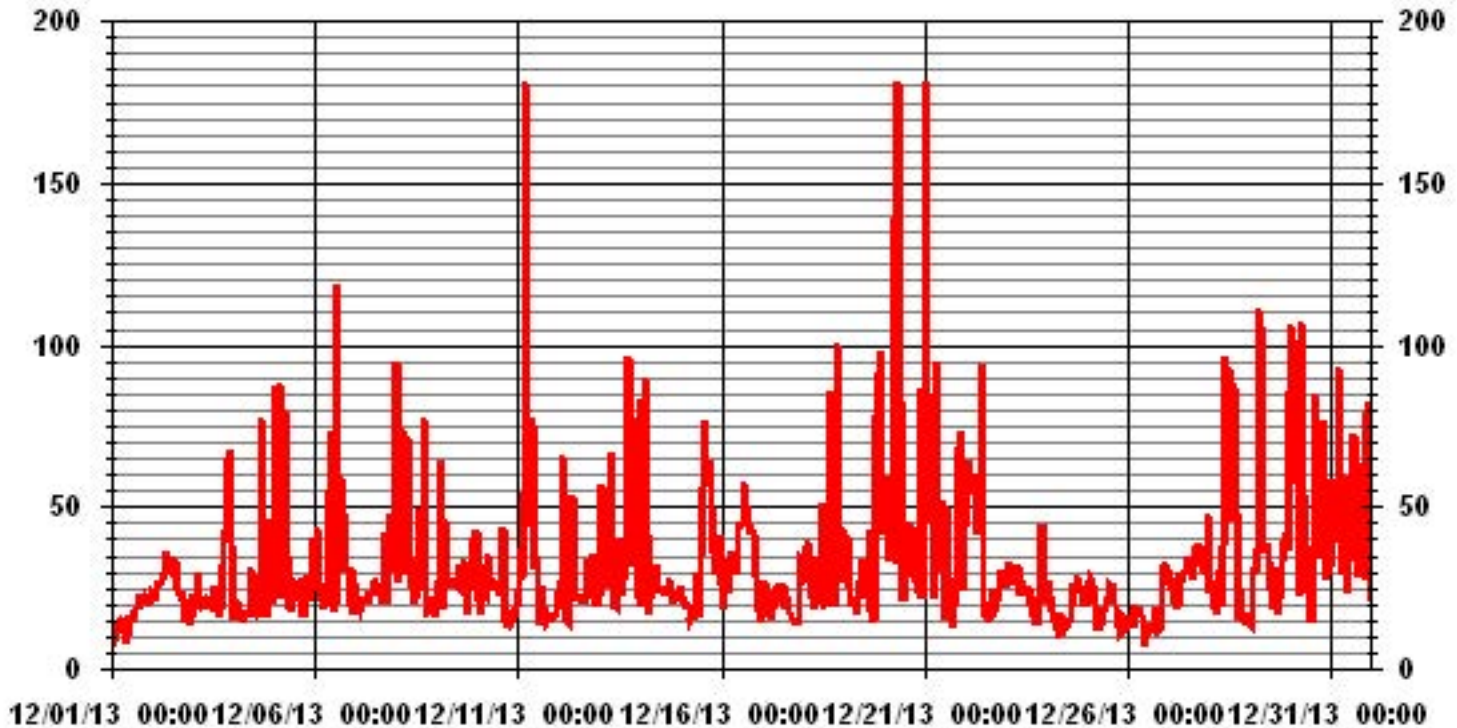
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	181.2	KPH	@ HOUR(S)	4
			ON DAY(S)	11

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	3.22	3.22	5.37	4.03	1.61	1.61	1.34	1.47	1.61	4.43	5.37	2.95	3.22	2.82	5.64	5.24	53.22
< 12.0	3.89	2.82	6.58	2.28	1.07	2.82	1.20	2.01	.67	6.04	1.74	.26	2.15	4.16	2.82	1.61	42.20
< 20.0	.00	.94	1.74	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.74	.00	.00	4.43
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.13
< 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	7.12	6.98	13.70	6.31	2.68	4.43	2.55	3.49	2.28	10.48	7.12	3.22	5.37	8.87	8.46	6.85	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	24	24	40	30	12	12	10	11	12	33	40	22	24	21	42	39	396
< 12.0	29	21	49	17	8	21	9	15	5	45	13	2	16	31	21	12	314
< 20.0		7	13											13			33
< 29.0														1			1
< 39.0																	
>= 39.0																	
Totals	53	52	102	47	20	33	19	26	17	78	53	24	40	66	63	51	

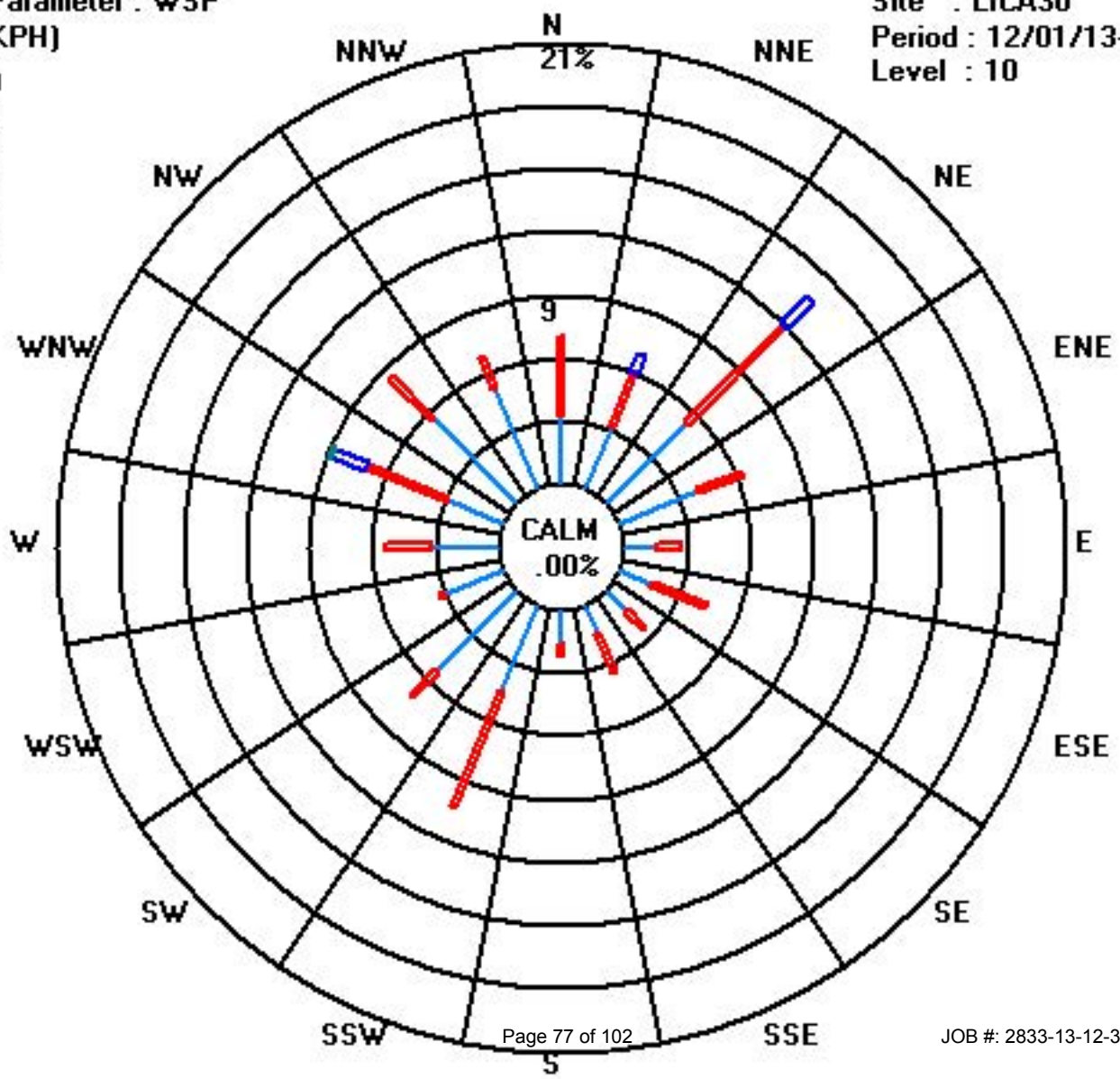
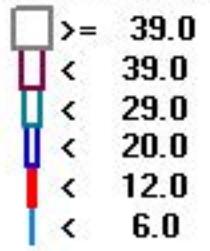
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

Period : 12/01/13-12/31/13

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

WIND DIRECTION 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	24-HOUR	24-HOUR AVG				
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.			
DAY																														
1	173	167	156	137	120	88	133	157	243	27	58	47	52	45	49	56	56	52	44	39	41	48	40	52	58	ENE	24			
2	51	55	42	39	42	41	40	38	38	41	40	41	38	35	30	30	26	33	24	26	33	24	19	8	36	NE	24			
3	357	360	353	357	356	345	345	340	324	331	337	354	317	317	340	341	354	308	295	240	230	263	273	305	331	NNW	24			
4	339	320	305	322	335	327	352	338	336	335	329	339	337	334	335	324	5	359	327	341	315	321	317	317	332	NNW	24			
5	323	319	298	314	340	8	3	6	353	344	335	1	2	358	5	1	1	357	358	360	359	338	316	312	349	NNW	24			
6	308	309	316	317	315	318	322	318	304	137	304	312	314	307	298	292	296	260	244	240	224	219	210	215	290	WNW	24			
7	212	212	218	212	207	209	208	209	210	214	216	217	227	223	229	237	237	245	273	316	300	315	316	287	233	SW	24			
8	253	219	246	273	247	275	301	285	271	305	319	326	331	322	316	308	266	231	212	206	206	207	206	208	261	W	24			
9	209	222	213	208	243	278	309	330	337	315	299	284	282	281	292	293	303	331	329	301	305	346	16	13	307	NW	24			
10	8	3	0	342	343	343	315	301	298	303	317	326	312	311	298	280	218	214	220	210	204	205	210	210	295	WNW	24			
11	218	229	57	57	54	60	327	159	184	213	340	345	25	19	32	53	19	23	26	18	15	24	32	32	25	NNE	24			
12	45	53	47	47	40	42	58	65	67	46	50	51	49	44	37	35	39	49	57	52	66	51	66	61	50	NE	24			
13	65	70	82	108	97	109	97	93	83	73	70	90	92	114	132	27	52	144	186	197	218	207	216	188	98	E	24			
14	195	186	114	120	120	132	119	119	121	117	110	115	111	107	115	116	116	121	123	132	133	152	132	135	123	ESE	24			
15	139	147	150	159	171	175	181	241	358	227	213	209	274	285	283	288	284	290	288	290	279	281	279	276	265	W	24			
16	264	244	256	270	279	287	284	283	282	281	284	291	293	289	291	295	294	299	300	295	286	284	290	42	287	WNW	24			
17	71	108	54	49	47	47	47	59	63	65	79	74	81	122	124	117	89	51	53	41	26	1	342	336	60	ENE	24			
18	351	348	353	358	343	8	339	325	343	333	339	0	355	335	328	340	304	320	317	296	281	216	282	280	340	NNW	24			
19	238	247	240	221	218	208	206	210	217	209	213	213	219	223	230	220	224	207	211	229	274	272	29	25	221	SW	24			
20	46	76	282	47	74	45	95	101	59	86	39	27	69	66	56	72	68	60	57	54	55	50	40	51	56	NE	24			
21	50	65	52	43	20	29	49	45	350	9	200	198	199	207	210	212	207	218	203	248	124	311	318	312	218	SW	24			
22	304	275	150	276	137	272	303	238	163	208	230	209	194	202	200	189	196	178	136	163	186	173	165	159	186	S	24			
23	155	161	159	158	158	152	156	163	188	166	184	196	196	199	206	212	208	225	209	266	285	305	303	312	195	SSW	24			
24	296	294	269	275	255	239	236	176	345	1	312	237	297	256	271	278	283	283	292	298	276	287	283	284	283	W	24			
25	281	277	280	287	344	357	18	60	120	121	124	128	119	106	114	110	115	85	24	287	219	203	200	203	135	SE	24			
26	203	208	217	214	212	219	218	211	208	215	211	195	203	195	80	158	181	206	225	253	281	292	324	355	224	SW	24			
27	356	15	3	18	21	31	32	40	54	44	43	43	45	47	46	40	40	40	38	33	31	28	20	13	34	NE	24			
28	11	10	9	5	355	358	354	12	359	330	303	342	307	294	268	276	235	220	229	234	220	224	220	223	313	NW	24			
29	214	204	207	167	22	34	37	44	37	47	48	56	51	60	64	61	49	40	51	38	25	25	19	279	52	NE	24			
30	301	305	1	168	321	0	25	206	126	64	44	29	17	75	135	120	101	59	58	48	39	54	55	58	41	NE	24			
31	110	110	95	77	17	65	72	92	59	75	85	73	60	28	37	41	69	147	195	210	172	205	233	212	72	ENE	24			
HOURLY AVG	357	360	353	358	356	358	354	340	359	344	340	354	355	358	340	341	354	359	358	360	359	346	342	355						

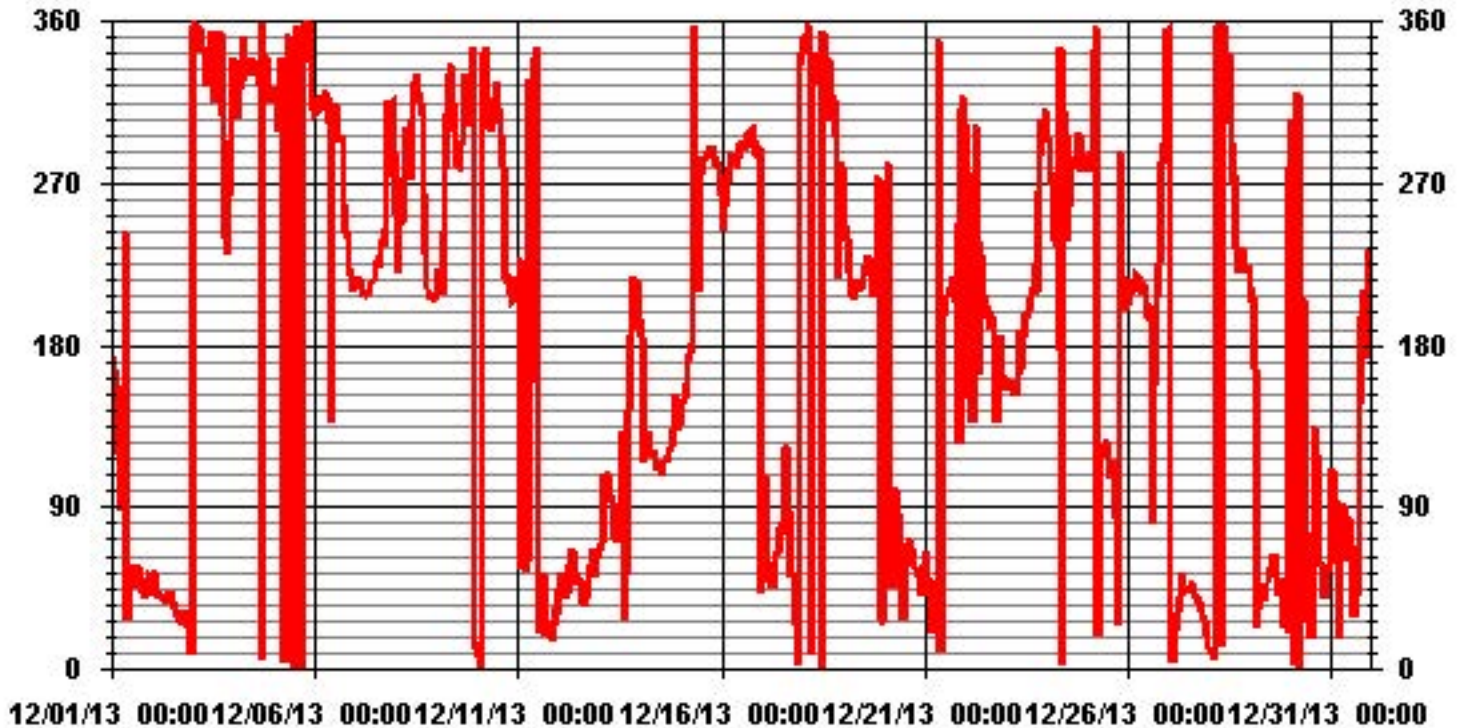
STATUS FLAG CODES

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:	December 20, 2011
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	113.45	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	345 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2013

STANDARD DEVIATION WIND DIRECTION (STDWDIR) 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	22	22	24	41	28	39	28	56	45	25	31	24	23	22	23	24	23	21	21	20	21	22	18	24
2	24	22	20	20	21	19	19	19	18	19	18	20	18	15	13	13	12	13	13	12	13	14	16	20
3	25	26	31	24	30	32	33	32	35	37	33	30	38	39	35	43	35	39	38	28	25	29	32	29
4	35	43	36	39	36	35	32	37	45	41	36	32	37	33	33	39	22	27	37	33	28	32	33	30
5	33	30	34	34	36	25	30	26	32	34	34	26	28	27	24	24	23	25	24	25	28	29	38	31
6	29	40	35	27	27	31	31	38	52	49	35	30	33	39	38	45	37	35	36	36	26	27	16	20
7	18	23	26	21	15	17	17	21	20	22	22	24	28	27	33	34	38	33	29	31	38	36	34	29
8	34	26	34	41	37	41	31	40	34	33	36	35	35	37	38	48	30	22	15	13	15	15	15	17
9	21	36	33	20	33	32	28	34	36	32	27	33	34	27	28	26	30	32	31	32	27	33	18	18
10	22	22	24	32	35	37	37	28	26	34	35	36	33	40	38	30	20	17	17	13	13	13	16	23
11	25	41	43	48	61	41	69	41	61	64	66	42	19	18	37	35	16	14	13	15	19	15	16	16
12	23	23	23	21	19	19	22	25	26	23	23	23	23	21	19	18	20	23	24	25	26	22	24	24
13	26	26	29	27	29	32	32	26	28	27	32	33	36	34	36	52	33	39	30	28	32	37	45	34
14	30	32	49	45	32	22	27	28	27	26	23	30	29	28	31	27	27	28	27	24	25	24	25	31
15	29	42	28	26	33	42	35	37	62	37	21	15	33	28	29	26	27	26	25	28	28	28	29	30
16	34	33	33	32	23	23	26	24	26	28	28	25	26	27	28	25	25	26	26	23	25	24	31	46
17	20	22	19	19	17	18	19	23	22	23	28	25	27	30	27	45	25	25	24	29	29	41	52	31
18	29	30	30	25	29	20	34	35	30	31	32	27	32	39	33	32	36	32	42	38	47	35	43	52
19	41	37	29	19	16	16	14	17	26	19	20	21	22	24	32	20	17	14	12	25	33	41	32	25
20	27	63	42	32	63	54	46	52	45	49	42	15	44	38	24	28	20	22	22	23	22	23	18	22
21	21	42	24	33	30	45	24	26	42	55	35	22	18	26	22	20	14	24	30	35	53	26	39	40
22	34	52	68	57	66	55	47	47	71	52	66	46	19	20	15	23	20	16	34	30	20	21	24	24
23	24	26	30	26	26	28	27	24	27	29	22	20	18	18	21	22	44	30	16	30	24	29	28	31
24	28	25	24	27	36	45	58	31	64	42	36	26	32	33	29	24	26	26	27	26	25	28	25	
25	28	25	27	25	29	29	12	31	22	24	27	29	28	27	29	29	31	48	49	70	59	12	12	11
26	13	16	18	15	14	17	17	15	15	17	13	19	26	47	45	27	24	25	26	29	24	25	35	29
27	27	18	29	17	17	14	13	19	23	20	21	19	21	22	21	19	17	18	17	13	14	16	17	19
28	20	23	22	26	29	30	32	26	39	47	56	44	41	33	50	33	24	15	21	23	15	16	17	22
29	21	16	24	62	57	58	42	33	23	20	20	22	21	23	21	22	20	16	19	20	23	28	43	71
30	35	40	50	53	41	34	30	35	47	46	18	21	35	29	26	50	47	38	34	44	22	22	24	26
31	42	48	40	39	38	39	37	42	57	27	33	33	30	17	19	19	22	41	49	45	57	68	57	33

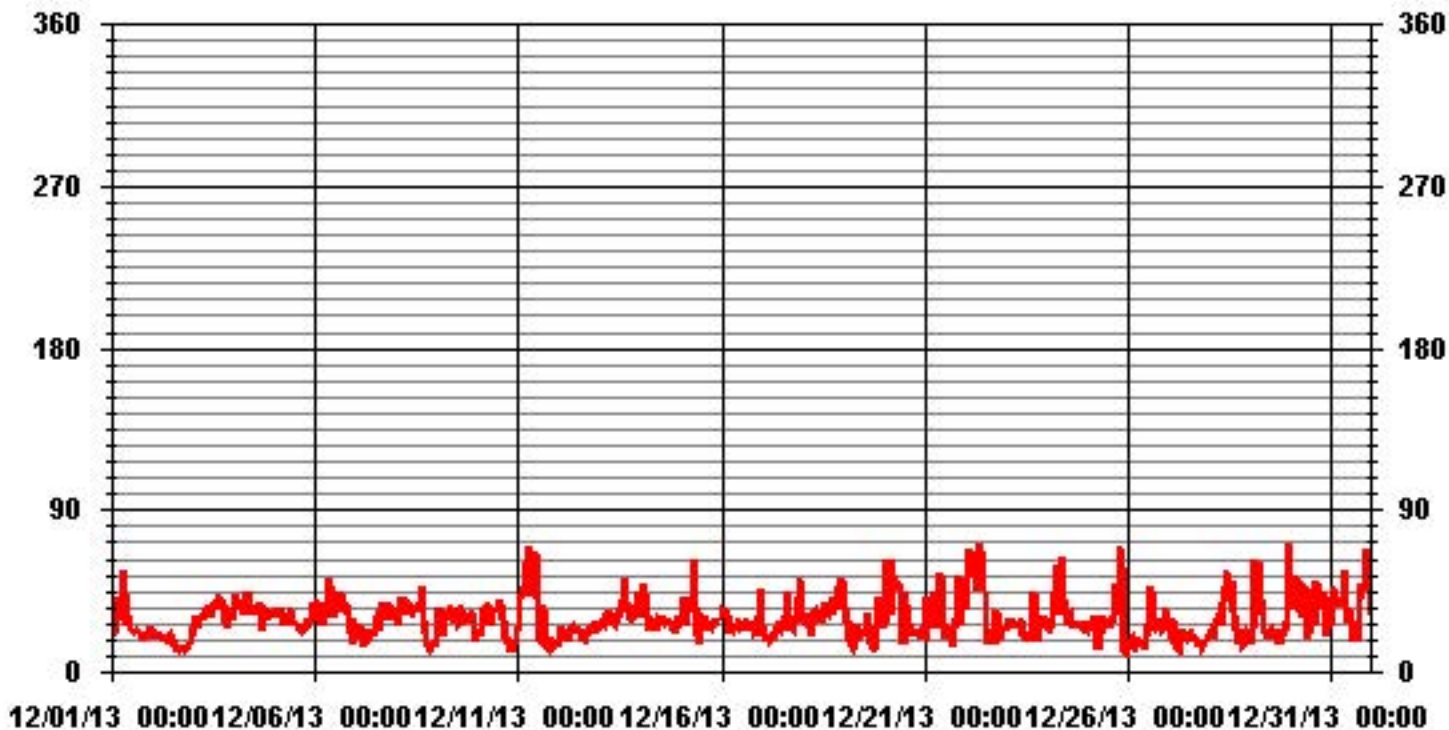
STATUS FLAG CODES

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: December 20, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

**SO2 Calibration Report
Station Information**

Calibration Date	December 18, 2013	Previous Calibration	November 7, 2013	
Company	Lakeland Industry & Community Association			
Plant / Location	LICA MASKWA			
Start Time (MST)	10:41	End Time (MST)	12:14	
Reason:	As Found			
Barometric Pressure	27.94 in HG	Station Temperature	21 Deg C	
Cal Gas	48.9 ppm	Gas Cyl. #	BAL1119 Cal Gas Expiry date	October 15, 2017
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts	

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	N/A	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	627	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0-1000		ppb		
Sample Flow / Box Temp	391 ccm	28 Deg C	ccm		Deg C
HVPS / Lamp Setting	491	2905			
PMT / RxCell Temp	7.7 Deg C	50 Deg C	Deg C		Deg C
Converter / IZS Temp	N/A Deg C	45 Deg C	Deg C		Deg C
Offset / Slope	69.8	1.238			

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	1	0.0000
	No adjustment			
4921	81.8	800	763	1.0479
	No adjustment			
		Sum of Least Squares New Correction Factor		1.0479

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.6		N/A
Auto Span	357.6		N/A
Sample Lines Connected			NO

Percent Change

Previous Month's Calibration Correction Factor:	0.9970
Current Correction Factor Before Span Adjust:	1.0479
Percent Change:	-4.9%

Notes:

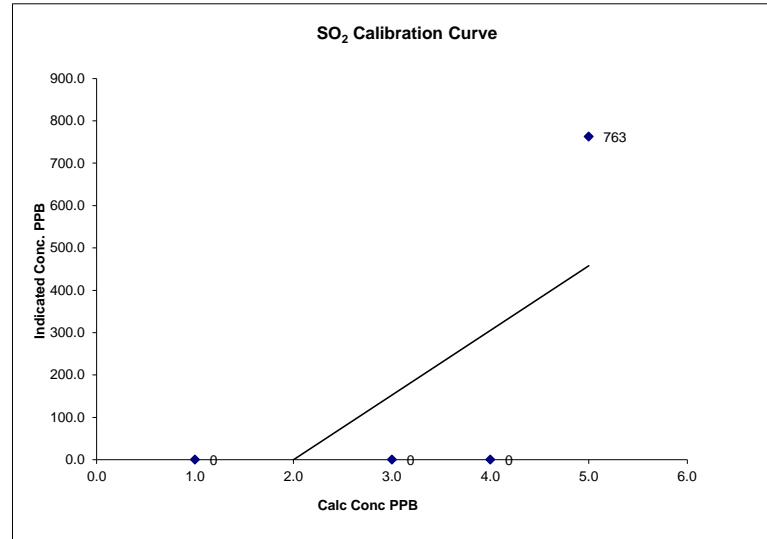
As found before rebuilding the pump.
 Pump pressure -10 inHG causing low flow and slow response.

Calibration Performed by: MICHAEL ESPIRITU

SO₂ Calibration Curve

Calibration Date	December 18, 2013		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA MASKWA		
Start Time (MST)	10:41	End Time (MST)	12:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0		0.0000		
800	763	1.0479		



Notes:

SO2 Calibration Report

Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 7, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	LICA MASKWA		
Start Time (MST)	13:04	End Time (MST)	17:26
Reason:	Monthly calibration		
Barometric Pressure	27.94 in HG	Station Temperature	21 Deg C
Cal Gas	48.9 ppm	Gas Cyl. #	BAL1119
DAS Output Voltage	0-1 Volts	Cal Gas Expiry date	October 15, 2017
		Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	N/A	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	627	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	N/A	S/N :	N/A		
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0-1000		ppb		
Sample Flow / Box Temp	391 ccm	28 Deg C	588 ccm	31.5	Deg C
HVPS / Lamp Setting	491	2905	491	2895	
PMT / RxCell Temp	7.7 Deg C	50 Deg C	7.7 Deg C	50	Deg C
Converter / IZS Temp	N/A Deg C	45 Deg C	N/A Deg C	45.0	Deg C
Offset / Slope	69.8	1.238	75.8	1.285	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	0.0000
	No Zero Adj.			
4921	81.8	800	800	1.0000
	No Span Adj.			
4961	40.9	400	398	1.0046
4980	20.4	199	197	1.0127
5000	0	0	0	0.0000
Sum of Least Squares				1.0011
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.6		-0.8
Auto Span	357.6		250.2
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	n/a
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	#VALUE!

Notes:

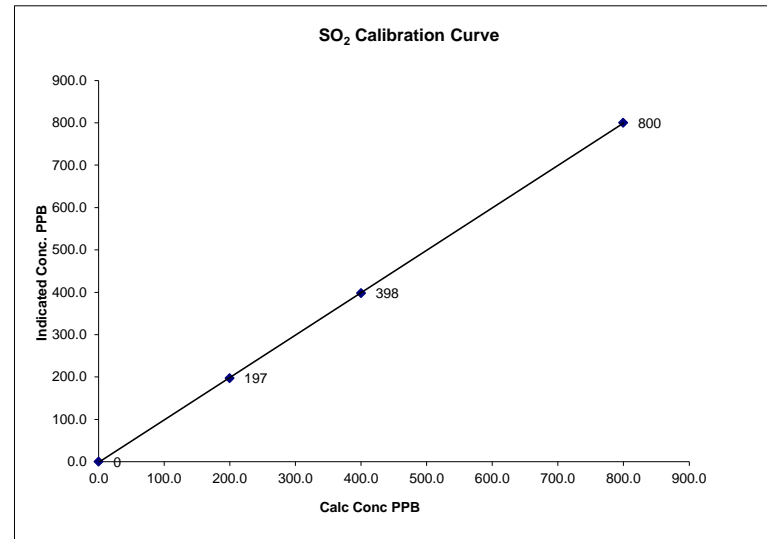
Sample filter changed.
Sample manifold cleaned.

Calibration Performed by: MICHAEL ESPIRITU

SO2 Calibration Curve

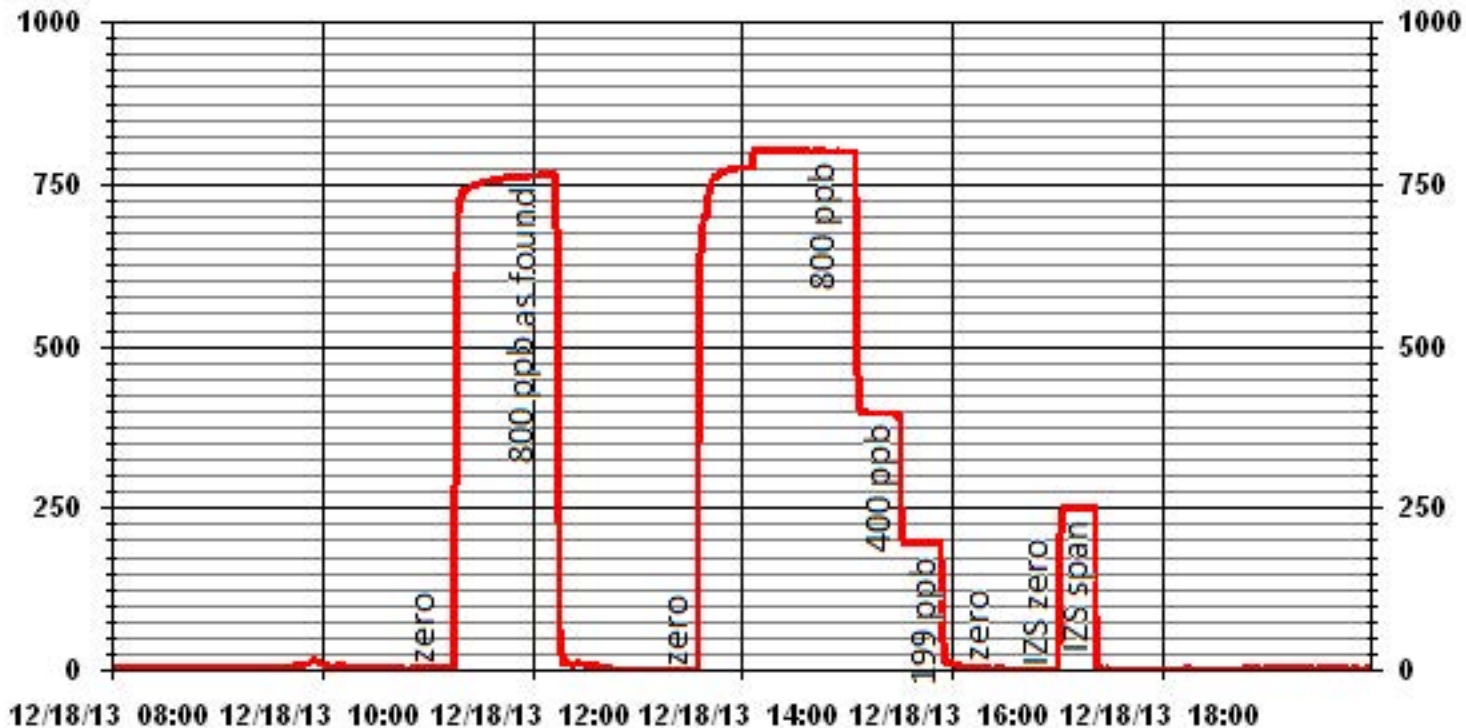
Calibration Date	December 18, 2013
Company	Lakeland Industry & Community Association
Plant / Location	LICA MASKWA
Start Time (MST)	13:04
End Time (MST)	17:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	0.0000		0.999985
199	197	1.0127		1.001378
400	398	1.0046		-1.457430
800	800	1.0000		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 7, 2013
Company	Lakeland Industry and Community Association		
Plant / Location	LICA MASKWA		
Start Time (MST)	10:41	End Time (MST)	14:20
Reason:	Monthly calibration		
Barometric Pressure	27.94 in HG	Station Temperature	21 Deg C
Cal Gas	9.58 ppm	Gas Cyl. #	BLM00521
DAS Output Voltage	0-1 Volts	Cal Gas Expiry date	December 25, 2015
		Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	511	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	SABIO 2010	S/N :	042531101(0911)	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	SABIO 2010	S/N :	042531101(0911)		

Analyzer Settings

		Before Calibration		After Calibration	
Concentration Range		0-100			
Sample Flow / Box Temp	675 ccm	28.9	Deg C	664	ccm 32.1 Deg C
HVPS / Lamp Setting	584	3493		584	3479
PMT / RxCell Temp	7.9 Deg C	50	Deg C	7.9	Deg C 50 Deg C
Converter / IZS Temp	314.5 Deg C	45	Deg C	315.6	Deg C 45.0 Deg C
Offset / Slope	30.8	1.164		30.8	1.163

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	0.0000
	No zero adj.			
4957	41.7	80	78	1.0246
4957	41.7	80	80	1.0000
4978	20.9	40	40	1.0000
4986	12.5	24	24	1.0000
5000	0	0	0	0.0000
Sum of Least Squares				0.9994
New Correction Factor				1.0000

IZS Calibration Data

		Before Calibration	After Calibration
Auto Zero		0.5	0.6
Auto Span		49.5	49.4
Sample Lines Connected			Yes

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0246
Percent Change:	-2.4%

Notes:

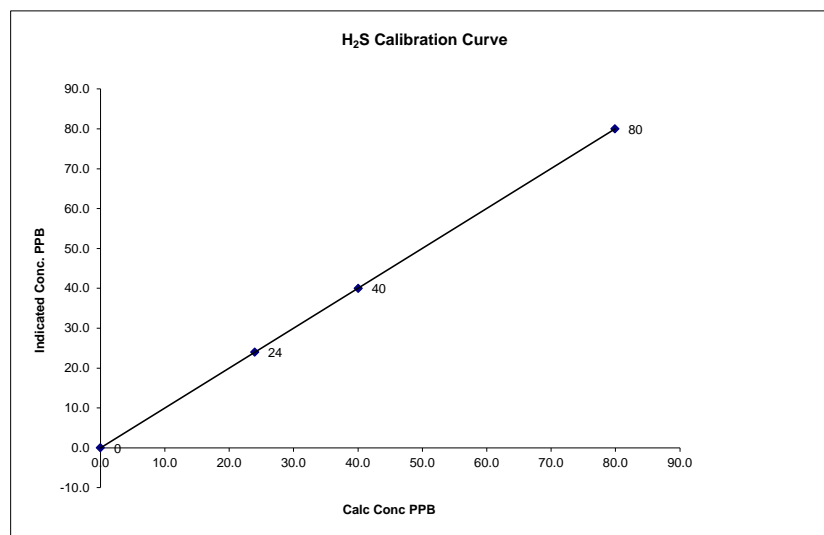
Sample filter changed.
Sample manifold cleaned.

Calibration Performed by: MICHAEL ESPIRITU

H₂S Calibration Curve

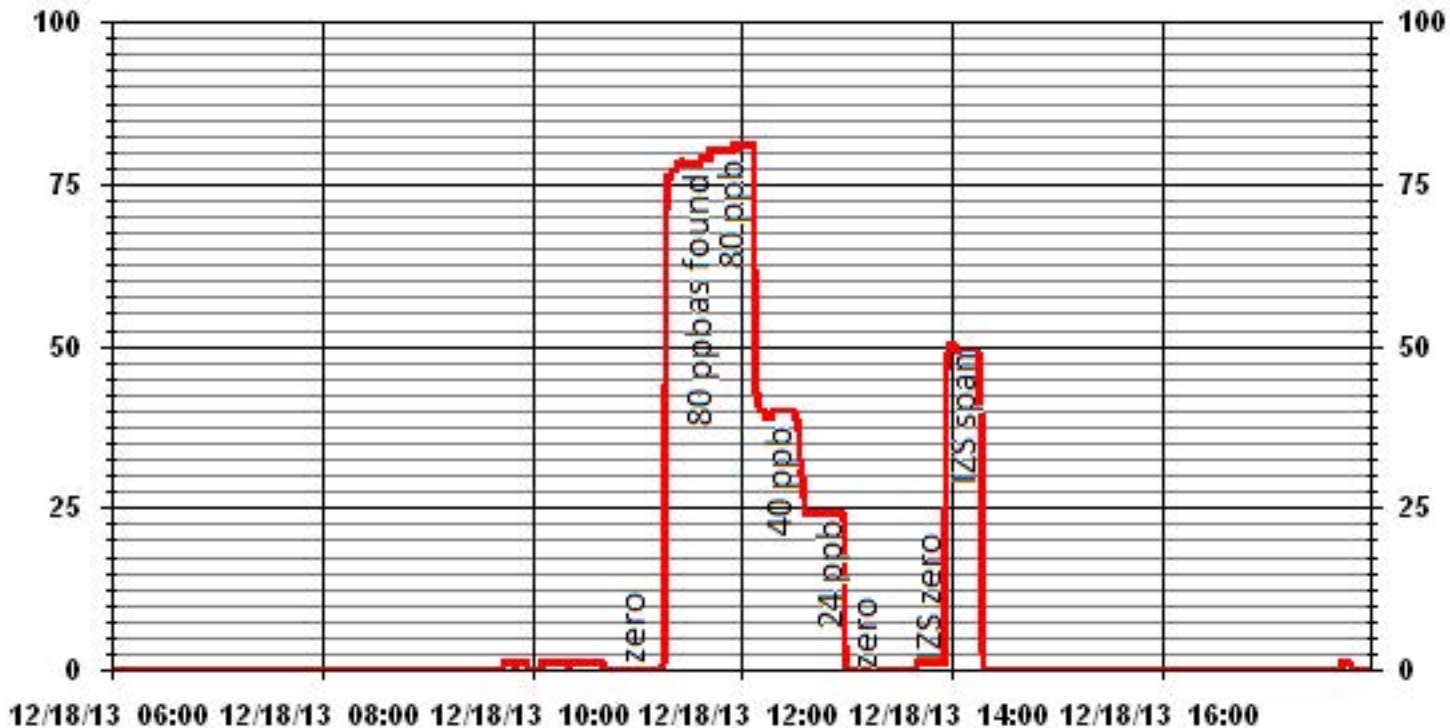
Calibration Date	December 18, 2013		
Company	Lakeland Industry and Community Association		
Plant / Location	LICA MASKWA		
Start Time (MST)	10:41	End Time (MST)	14:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999998
0	0	0.0000	Intercept	(± 3% F.S.)	-0.012615
24	24	0.9982			
40	40	1.0013			
80	80	0.9990			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	December 18, 2013	Previous Calibration	November 7, 2013
Company:	Lakeland Industry & Community Association		
Plant / Location:	LICA MASKWA		
Start Time (MST)	14:00	End Time (MST)	17:51
Reason:	Monthly calibration		
Barometric Pressure:	27.94 atm	Station Temperature:	21 Deg C
Calibrator:	SABIO 2010	S/N:	42531101 (0911)
Cal Gas Concentration:	CH4 880 PPM	C3H8 304 PPM	
	TOTAL CH4 1716.0 PPM	Gas Cyl. # LL19638	Cal Gas Expiry Date: January 9, 2021
DAS make & Model:	ESC 8832	S/N :	AO791
Chart Recorder:	N/A	S/N:	N/A
Output Voltage Range:	0-10 VDC	Chart Speed:	N/A mm/hr

Analyzer Information

Make / Model	Thermo 51C-LT	S/N :	436609738	Method	Flame Ionization
--------------	---------------	-------	-----------	--------	------------------

	Before Calibration		After Calibration	
Concentration Range	0-50	ppm	0-50	ppm
Sample Pressure	7.5	psi	7.5	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	20	psi	20	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	0.0000
	No Zero adj.	0.0		
2000	47.7	40.0	41.0	0.9750
2000	47.7	40.0	40.0	1.0000
2000	23.6	20.0	19.9	1.0057
2000	11.7	10.0	9.8	1.0184
2000	0.0	0.0	0.0	0.0000
New Correction Factor:				1.0000

Percent Change

Previous Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9750
Percent Change:	2.6%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.4
Auto Span	34.06	30.7
Sample Lines Connected		yes

Cylinder Pressures			
Span	800 psi	Hydrogen 450 psi	Zero Air 32 psi

Notes:

Sample filter changed.

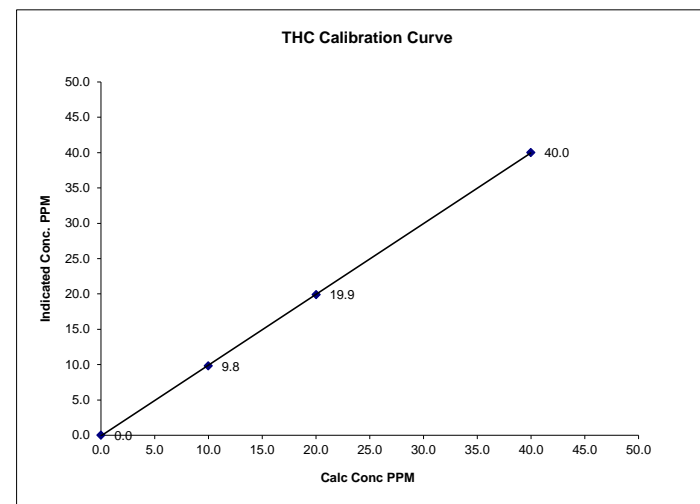
Sample line/ manifold cleaned.

Calibration Performed by: MICHAEL ESPIRITU

THC Calibration Curve

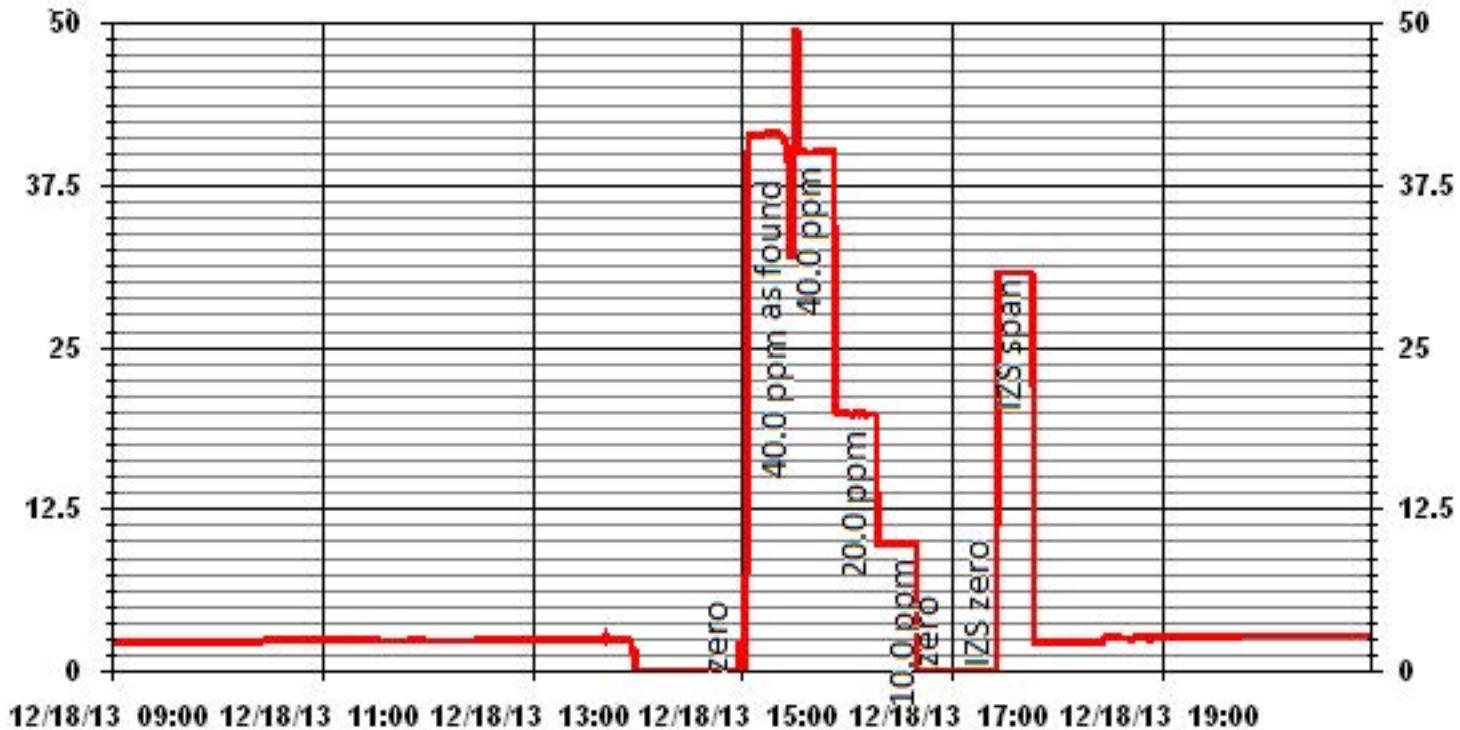
Calibration Date	December 18, 2013
Company	Lakeland Industry & Community Association
Plant / Location	LICA MASKWA
Start Time (MST)	14:00
End Time (MST)	17:51

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient	Slope	Intercept
0.0	0.0	0.0000	(≥ 0.995)	1.001912	-0.099972
10.0	9.8	1.0184			
20.0	19.9	1.0057			
40.0	40.0	1.0000			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 7, 2013
Company	LICA	Plant/Location	LICA Maskwa
Start Time (MST)	12:40	End Time (MST)	13:20
Reason:	Monthly calibration		
Barometric Pressure	27.94 in HG	Station Temperature	21 Deg C
Cal Gas Concentration	NOx 51.3 ppm	NO	51.3 ppm
Cal Gas Cylinder #	BAL1119	Cal Gas Expiry date	October 15, 2017
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	API 700	S/N:	627		
DAS Make / Model:	ESC 8832	S/N :	A0791		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	459 ccm	316.7 Deg C					Deg C
Ozone Flow / Vacuum	79 ccm	4.8 *Hg-A					*Hg-A
HVPS / A ZERO	751 Volts	14.7 MV					MV
Rx/ Temp / PMT Temp	50.0 Deg C	6.6 Deg C					Deg C
Box Temp / IZS Temp	29.3 Deg C	42.3 Deg C					Deg C
Offset	0.7 NOx	0.4 NO					NO
Slope	1.091 NOx	1.086 NO					NO
NO2 COEF / Conv Efficiency	na NO2	0.994					NO2

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	3	3	1	0	0
	No Zero Adj.									
4921	81.8	0	839	839	0	805	813	-8	1.0459	1.0356
	No Span Adj.									

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.0459	NO= 1.0356	NO2=
				Average Converter Efficiency=		

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	1.2 NOx	1.0 NO2		n/a NOx	n/a NO2		
Auto Span	561 NOx	554 NO2		n/a NOx	n/a NO2		
Sample Lines Connected:				No			

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	1.000	1.000	1.000
Current Correction Factor Before Span Adjust	1.046	1.036	
Percent Change	-4.4%	-3.4%	

Notes

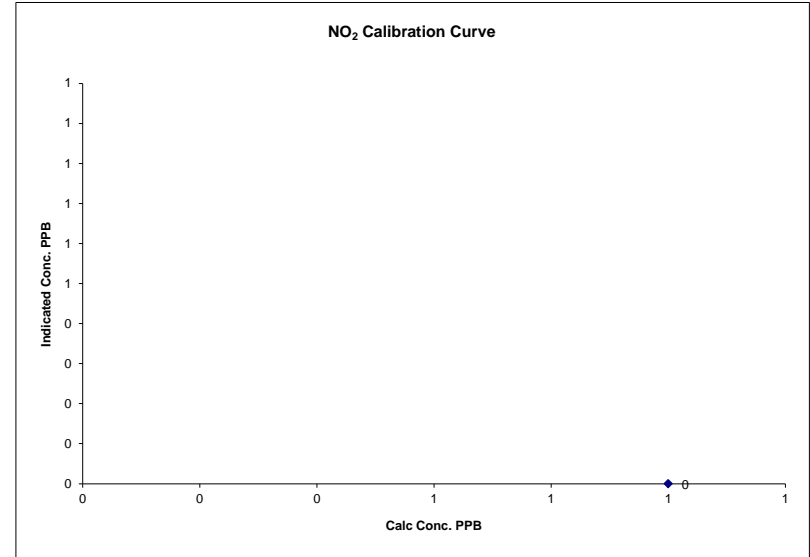
As found before servicing the analyzer for its stability issue.

Calibration Performed by: MICHAEL ESPIRITU

NO2 Calibration Curve

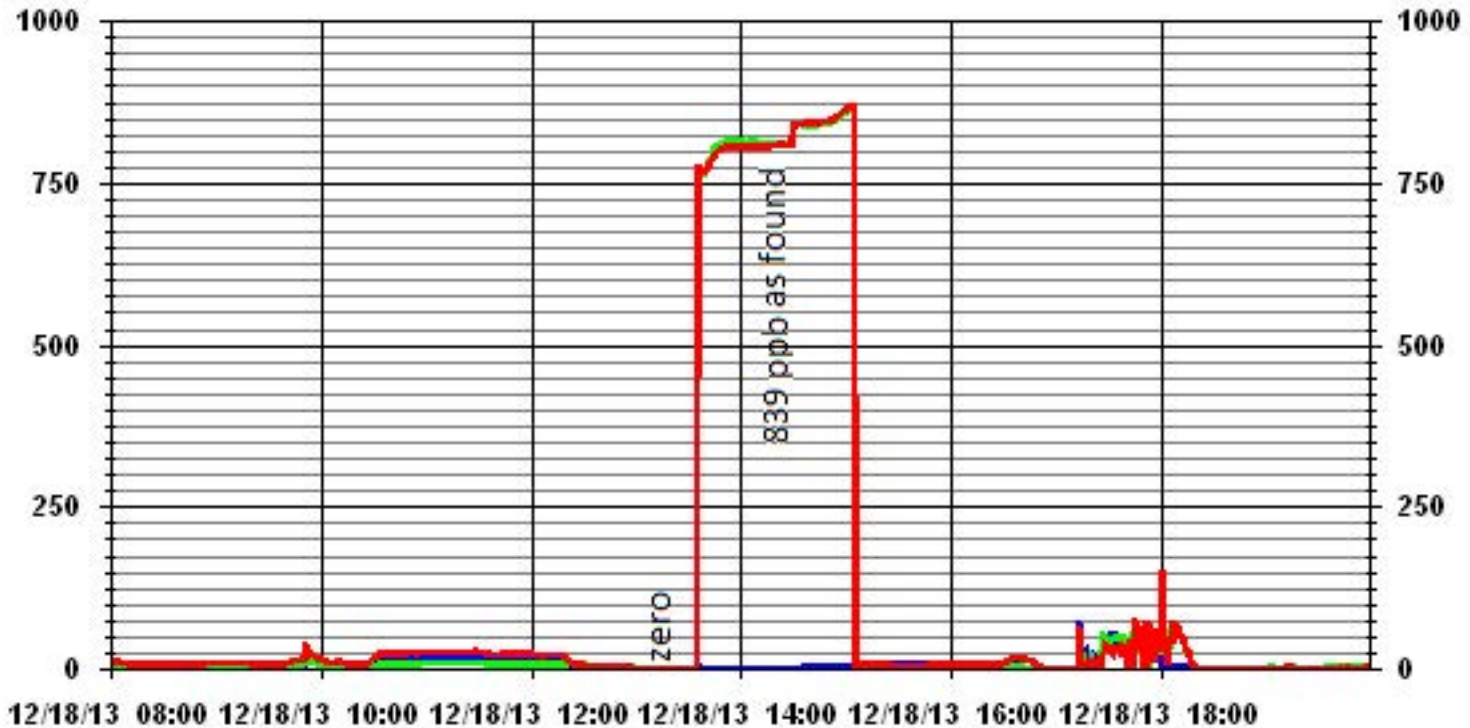
Calibration Date	December 18, 2013
Company	LICA
Plant / Location	LICA Maskwa
Start Time (MST)	12:40
End Time (MST)	13:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)
-8			Slope (0.85 to 1.15)
			Intercept (± 3% F.S.)



Notes:

01 Minute Averages



— LICA30 NOX_ PPB

— LICA30 NO_ PPB

— LICA30 NO2_ PPB

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	December 19, 2013	Previous Calibration	November 7, 2013
Company	LICA	Plant/Location	LICA Maskwa
Start Time (MST)	11:35	End Time (MST)	19:05
Reason:	Monthly calibration		
Barometric Pressure	27.91 in Hg	Station Temperature	20 Deg C
Cal Gas Concentration	NOx 51.3 ppm	NO	51.3 ppm
Cal Gas Cylinder #	BAL1119	Cal Gas Expiry date	October 15, 2017
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	API 700	S/N:	627		
DAS Make / Model:	ESC 8832	S/N :	A0791		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0-1000		ppb		
Sample Flow/Conv. Temp	458 ccm	316.2 Deg C	458 ccm	316.5 Deg C	
Ozone Flow / Vacuum	79 ccm	5.0 *Hg-A	79 ccm	4.9 *Hg-A	
HVPS / A ZERO	751 Volts	24.0 MV	750 Volts	15.8 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.5 Deg C	50.2 Deg C	6.6 Deg C	
Box Temp / IZS Temp	27.4 Deg C	42.1 Deg C	29.0 Deg C	42.1 Deg C	
Offset	0.7 NOx	0.4 NO	0.3 NOx	-0.3 NO	
Slope	1.091 NOx	1.086 NO	1.062 NOx	1.067 NO	
NO2 COEF / Conv Efficiency	na NO2	0.994	na NO2		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	0	0	0	0	0
	No Zero Adj.									
4921	78.0	0	800	800	0	800	800	0	1.0000	1.0000
	No Span Adj.									
4961	39.0	0	400	400	0	401	401	0	0.9979	0.9979
4981	19.5	0	200	200	0	201	201	0	0.9953	0.9953
5000	0.0	0	0	0	0	0	0	0	0.0000	0.0000

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.000	NO= 1.000	NO2=
				NOx= 1.0000	NO= 1.0000	NO2=
				Average Converter Efficiency=		

IZS Calibration Data

	Before Calibration			After Calibration		
	Auto Zero	n/a NOx	n/a NO	n/a NO2	0.8 NOx	-0.1 NO
Auto Span	n/a NOx	n/a NO	n/a NO2	552 NOx	546 NO	NO2
Sample Lines Connected:	Yes					

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	n/a	n/a	1.000
Current Correction Factor Before Span Adjust	1.000	1.000	
Percent Change	#VALUE!	#VALUE!	

Notes

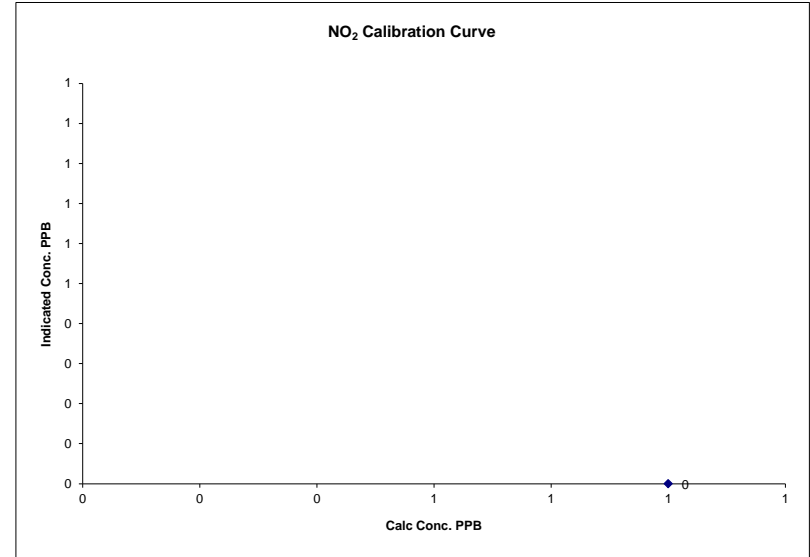
Filter changed.
 Manifold cleaned.
 GPT Made by Sabio 2010 start at 16:35. GPT aborted as the result was not good. GPT will be repeated tomorrow.

Calibration Performed by: MICHAEL ESPIRITU

NO2 Calibration Curve

Calibration Date	December 19, 2013
Company	LICA
Plant / Location	LICA Maskwa
Start Time (MST)	11:35
End Time (MST)	19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)
0			Slope (0.85 to 1.15)
			Intercept (± 3% F.S.)

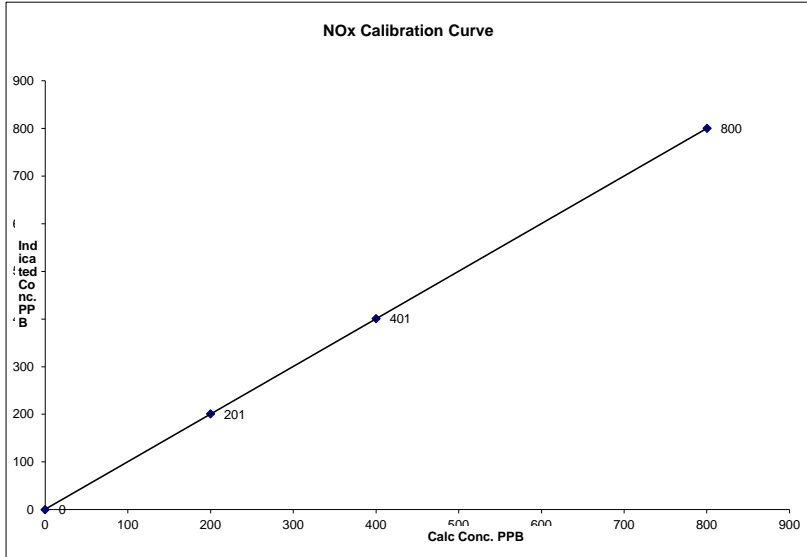


Notes:

NOx Calibration Curve

Calibration Date	December 19, 2013	
Company	LICA	
Plant / Location	LICA Maskwa	
Start Time (MST)	11:35	End Time (MST) 19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	0.0000	Slope (0.85 to 1.15)	0.999150
200	201	0.9953	Intercept (± 3% F.S.)	0.64006
400	401	0.9979		
800	800	1.0000		

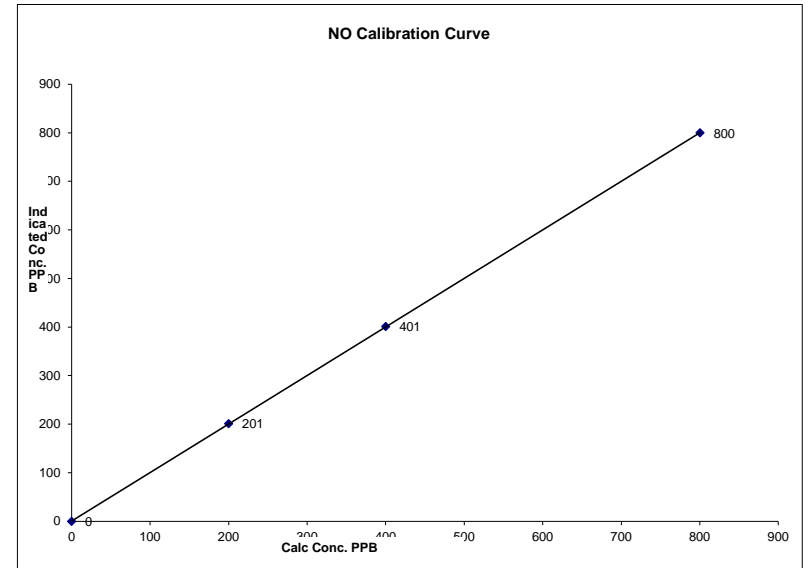


Notes:

NO Calibration Curve

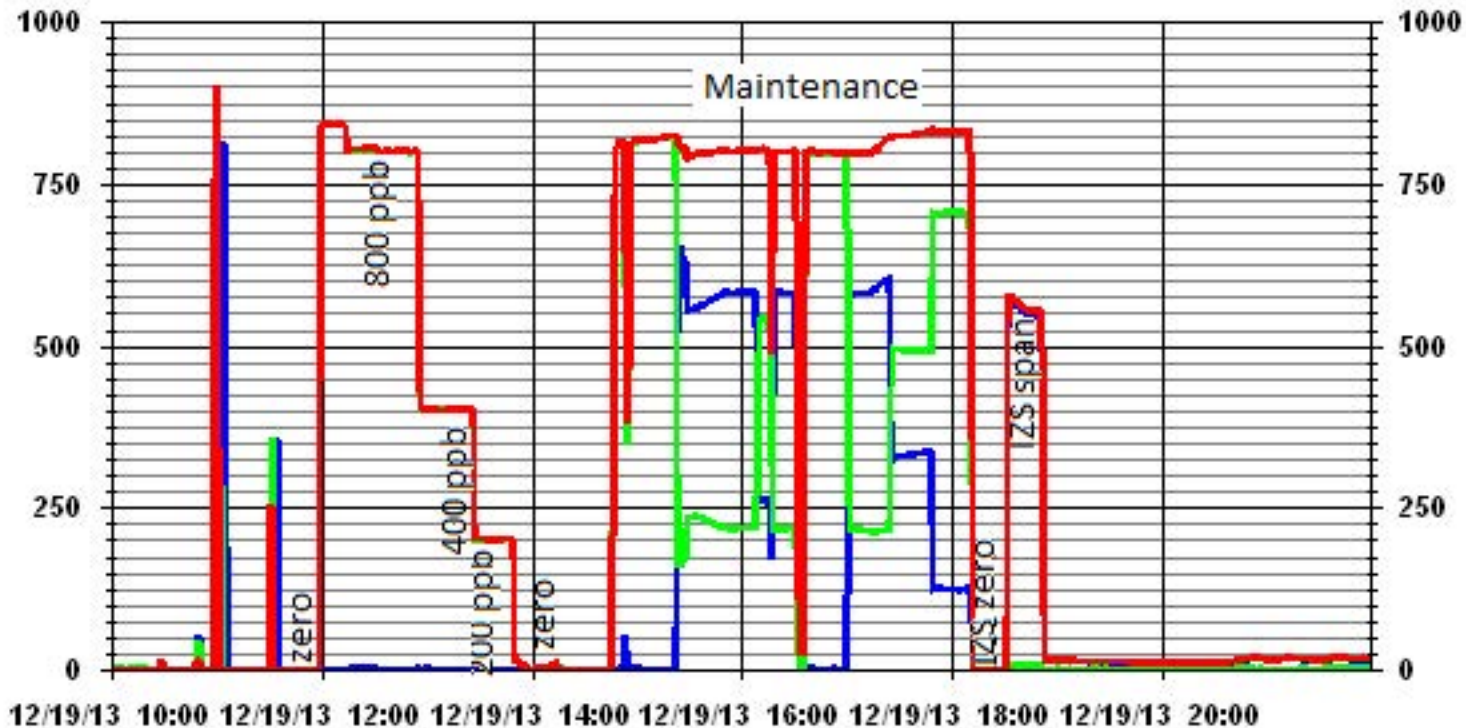
Calibration Date	December 19, 2013	
Company	LICA	
Plant / Location	LICA Maskwa	
Start Time (MST)	11:35	End Time (MST) 19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	0.0000	Slope (0.85 to 1.15)	0.999150
200	201	0.9953	Intercept (± 3% F.S.)	0.64006
400	401	0.9979		
800	800	1.0000		



Notes:

01 Minute Averages



— LICA30 NOX_ PPB

— LICA30 NO_ PPB

— LICA30 NO2_ PPB

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	December 20, 2013	Previous Calibration	December 19, 2013
Company	LICA	Plant/Location	LICA Maskwa
Start Time (MST)	9:15	End Time (MST)	12:30
Reason:	GPT calibration		
Barometric Pressure	27.7 in Hg	Station Temperature	20 Deg C
Cal Gas Concentration	NOx 49.0 ppm	NO	48.9 ppm
Cal Gas Cylinder #	BAL3165	Cal Gas Expiry date	December 29, 2016
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	A0791		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range			0-1000				
Sample Flow/Conv. Temp	455 ccm	316.9 Deg C		458 ccm	316.5 Deg C		
Ozone Flow / Vacuum	78 ccm	5.0 °Hg-A		78 ccm	5.0 °Hg-A		
HVPS / A ZERO	750 Volts	14.6 MV		750 Volts	14.6 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.6 Deg C		50.2 Deg C	6.6 Deg C		
Box Temp / IZS Temp	27.4 Deg C	42.2 Deg C		27.5 Deg C	42.1 Deg C		
Offset	0.3 NOx	-0.3 NO		0.3 NOx	-0.3 NO		
Slope	1.067 NOx	1.062 NO		1.067 NOx	1.062 NO		
NO2 COEF / Conv Efficiency	na NO2	0.994		na NO2	0.984		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	0	1	0	0	0
	No Zero Adj.									
4918	81.8	0	802	800	0	823	825	-2	0.9741	0.9709
	No Span Adj.									

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4918	81.8	0	802	800	0	823	825	-2	0	0.00%
4918	81.8	500	802	0.0	598	816	225	591	1.0118	98.83%
4918	81.8	500	802	0.0	601	823	222	601	1.0000	100.00%
4918	81.8	220	802	0.0	266	823	557	266	1.0000	100.00%
4918	81.8	100	802	0.0	116	824	707	117	0.9915	100.85%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.9741	NO= 0.9709	NO2= 1.0000
				Average Converter Efficiency= 100.28%		

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	551 NOx	545 NO2		551 NOx	545 NO2		
	Sample Lines Connected: Yes						

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	n/a	n/a	1.000
Current Correction Factor Before Span Adjust	0.974	0.971	1.012
Percent Change	#VALUE!	#VALUE!	-1.2%

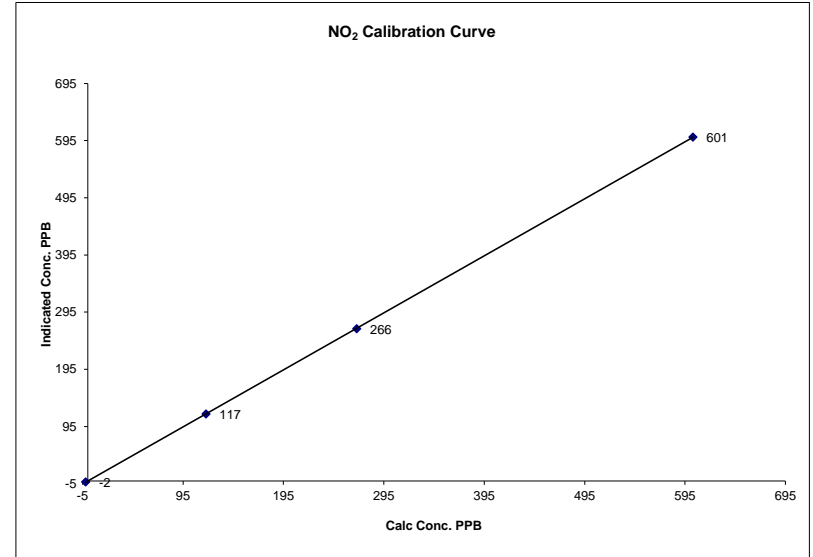
Notes

Calibration Performed by: Limin Li

NO2 Calibration Curve

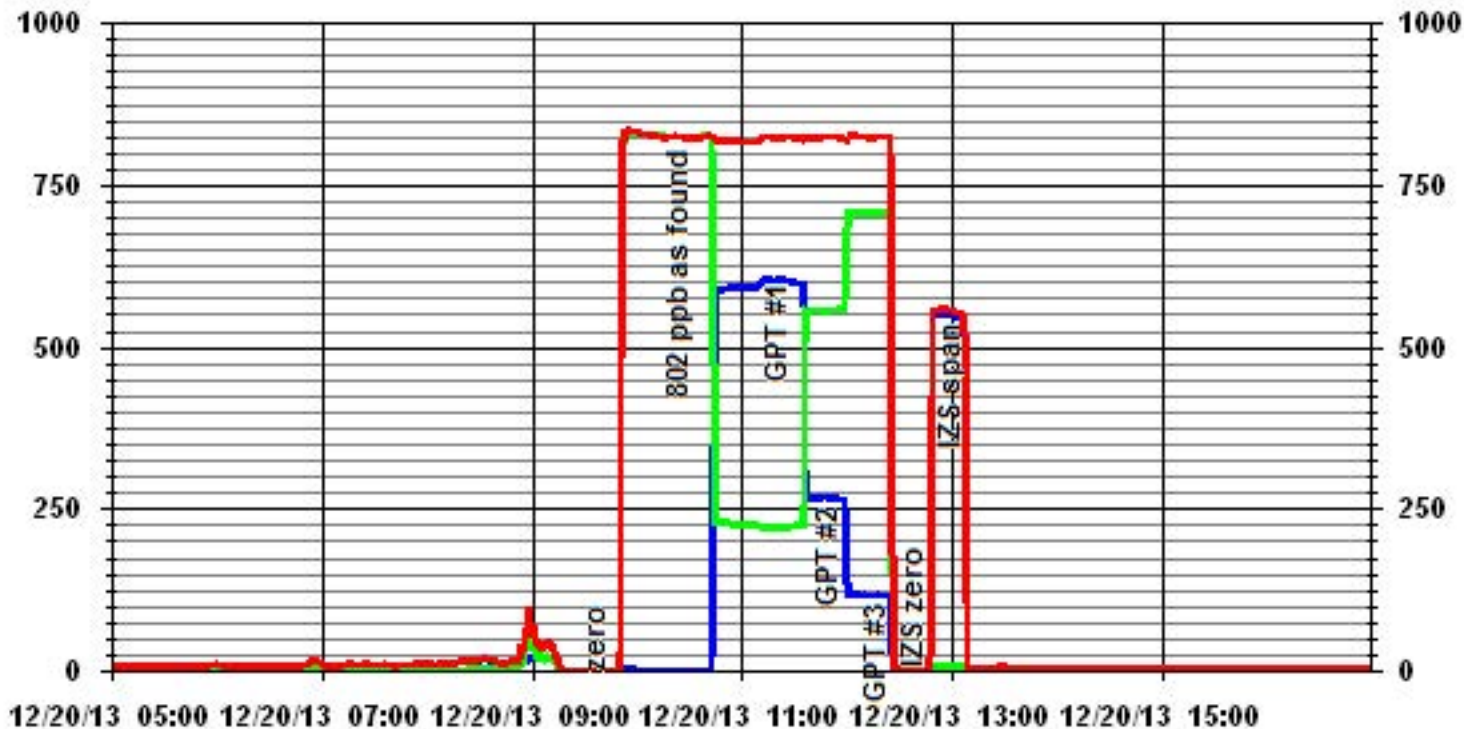
Calibration Date	December 20, 2013
Company	LICA
Plant / Location	LICA Maskwa
Start Time (MST)	9:15
End Time (MST)	12:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999996
-2	-2	0.0000	Intercept	(± 3% F.S.)	-0.49921
118	117	1.0085			
268	266	1.0075			
603	601	1.0033			



Notes:

01 Minute Averages



— LICA30 IIOX_ PPB

— LICA30 IIO_ PPB

— LICA30 IIO2_ PPB

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site

Ambient Air Monitoring Data Report

For

December 2013

Prepared By:



January 21, 2014

Lakeland Industry & Community Association Portable / Elk Point Airport Ambient Air Monitoring

Table of Contents

	Page		Page
Introduction	3		
Calibration Procedure	4		
Monthly Continuous Summary	5	Calibration Reports	99
General Monthly Summary	6	• Sulphur Dioxide	100
Continuous Monitoring	9	• Hydrogen Sulphide	103
• Monthly Summaries, Graphs & Wind Roses	10	• Total Hydrocarbons (55i)	106
○ Sulphur Dioxide	11	• Particulate Matter 2.5	110
○ Hydrogen Sulphide	19	• Nitrogen Dioxide	113
○ Particulate Matter 2.5	27	• Ozone	1&\$
○ Nitrogen Dioxide	32		
○ Nitric Oxide	40		
○ Oxides of Nitrogen	47		
○ Ozone	55		
○ Total Hydrocarbons (55i)	63		
○ Methane	70		
○ Non-Methane Hydrocarbons	78		
○ Vector Wind Speed	86		
○ Vector Wind Direction	93		
○ Standard Deviation Wind Direction	96		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga
Lakeland Industry & Community Association
Box 8237
5107W – 50 Street
Bonnyville, Alberta
T9N 2J5

Monitoring Location: Portable / Elk Point Airport
Data Period: December 2013

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Lili Zhou

Calibration Procedure

The following calibration procedure applies to all calibrations conducted at the Lakeland Industry & Community Association Air Monitoring Station.

Calibration gas concentrations are generated using a dynamic mass flow controlled calibrator. EPA Protocol one gases are diluted with zero air generated on site. The Mass Flow Controllers in the calibrator are referenced using an NIST traceable flow meter once per month. All listed flows are reported as corrected to Standard Temperature and Pressure (STP).

Generated zero gas is introduced to the analyzer first. Three concentrations of calibration gas are then generated in order to introduce points at approximately 50-80%, 25-40% & 10-20% of the analyzer's full-scale range. An auto zero and span are then performed to validate the daily zero and span values recorded to the next multi-point calibration.

All indicated concentrations are taken from the ESC data logger used to collect the data for monthly reporting.

Conformance of each calibration to Alberta Environment regulations is outlined in the individual calibration reports. The slope and correlation coefficient are derived from the calculated and indicated analyzer responses. The percent change is calculated using the previous calibration correction factor and the current correction factor before adjustment. The calibration conforms to the procedure outlined in the *Air Monitoring Directive, Appendix A-10, Section 1.6*.

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

– PORTABLE – ELK POINT AIRPORT –

Continuous Ambient Monitoring – December 2013

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABLE / ELK POINT AIRPORT SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE	1-HOUR	
PARAMETER	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)		READING	DAY
SO ₂ (PPB)	172	48	0	0	0.08	3	30	19, 20	7.7, 6.2	67(ENE), 103(ESE)	0.6	30	100.0
H ₂ S (PPB)	10	3	0	0	0.13	3	29	11	9.7	104(ESE)	0.7	23	97.3
THC (55i) (PPM)	-	-	-	-	2.72	9.3	20	9	3.2	117(ESE)	5.12	20	100.0
Methane (PPM)	-	-	-	-	2.70	9.1	20	9	3.2	117(ESE)	5.03	20	100.0
NMHC (PPM)	-	-	-	-	0.02	0.9	19	15	1.9	50(NE)	0.13	1	100.0
NO ₂ (PPB)	159	-	0	-	9.55	31.2	20	7	3.7	117(ESE)	21.6	20	100.0
NO (PPB)	-	-	-	-	5.63	81.3	20	7	3.7	117(ESE)	31.3	20	100.0
NO _x (PPB)	-	-	-	-	15.18	112.5	20	7	3.7	117(ESE)	52.9	20	100.0
O ₃ (PPB)	82	-	0	-	20.29	44	24	2	17.2	303(WNW)	35.7	16	100.0
PM 2.5 (UG/M ³)	-	30	-	0	11.64	65	20	7	3.7	117(ESE)	26.8	20, 21	73.3
VECTOR WS (KPH)	-	-	-	-	11.37	48.4	15	15	-	292(WNW)	19.3	16	100.0
VECTOR WD (DEGREES)	-	-	-	-	327(NW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

General Monthly Summary

Equipment Operation

The following summary outlines the analyzer performance. Any non-conformances, problems or maintenance performed are detailed at the end of each section.

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

- Analyzer make / model – API 100E, S/N: 467

The analyzer was working well throughout the month. The monthly calibration was performed on December 14th. The inlet filter was changed before the calibration was started. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

- Analyzer make / model –API 101E, S/N: 509
- Converter - Internal

Some daily span results went outside -10% of the limited range as the expected value was set too high after the calibration was completed last month. This issue did not affect data quality. The monthly calibration was performed on December 14th. The inlet filter was changed before the calibration was started. The analyzer failed on December 31st hour 4 due to sample pump failure. This issue was fixed on January 2nd, 2014. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage. Data was corrected using daily zero information.

THC 55i (PPM)

- Analyzer make / model –Thermo 55i, S/N: (12)36656107

The analyzer was working well throughout the month. The monthly calibration was performed on December 14th. The inlet filter was changed before the calibration was started. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage. Data was corrected using daily zero information. No canister was collected this month as per client request.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

- Analyzer make / model – Thermo 49i, S/N: 1002240372

The analyzer was working well throughout the month. The monthly calibration was performed on December 14th. The inlet filter was changed before the calibration was started. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

- Analyzer make / model – API 200E, S/N: 593

The analyzer was working well throughout the month. The monthly calibration was performed on December 14th. The inlet filter was changed before the calibration was started. The daily zero showed big drift after the calibration was completed. An as found points check was performed on December 16th. The result was good. No data was discarded due to this event. The analyzer was adjusted to correct the zero drift following the as found points check on December 16th. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

- Analyzer make / model – TEOM 1405F, S/N: 1405A208301003

Two Teom audits were performed this month: the first one was conducted on December 14th and the other one was done on December 19th. Both the sample filter and Teom filter were replaced before the audits were started. The switch valve was cleaned on December 19th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. 199 hours of data were invalidated as the data were below –3 ug/m³.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)

- System make / model –RM Young 5103VK, S/N: 43708

The wind system is reported as vector wind speed and vector wind direction. The most recent wind system calibration was done on December 24, 2011.

No operational issues were observed during the month. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

Datalogger

- System make / model - ESC 8832, S/N: AO717
- Software make / version - ESC v 5.51a

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.

Trailer

The manifold system was cleaned on December 14th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2013

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

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

STATUS FLAG CODES

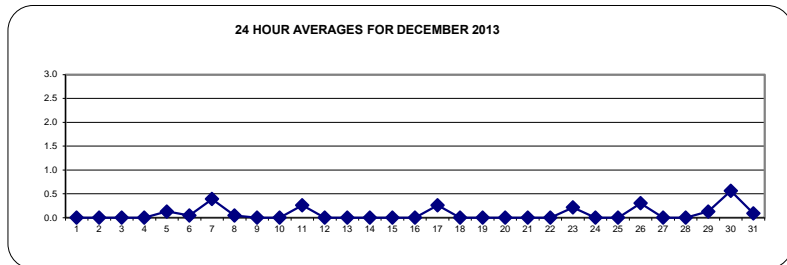
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

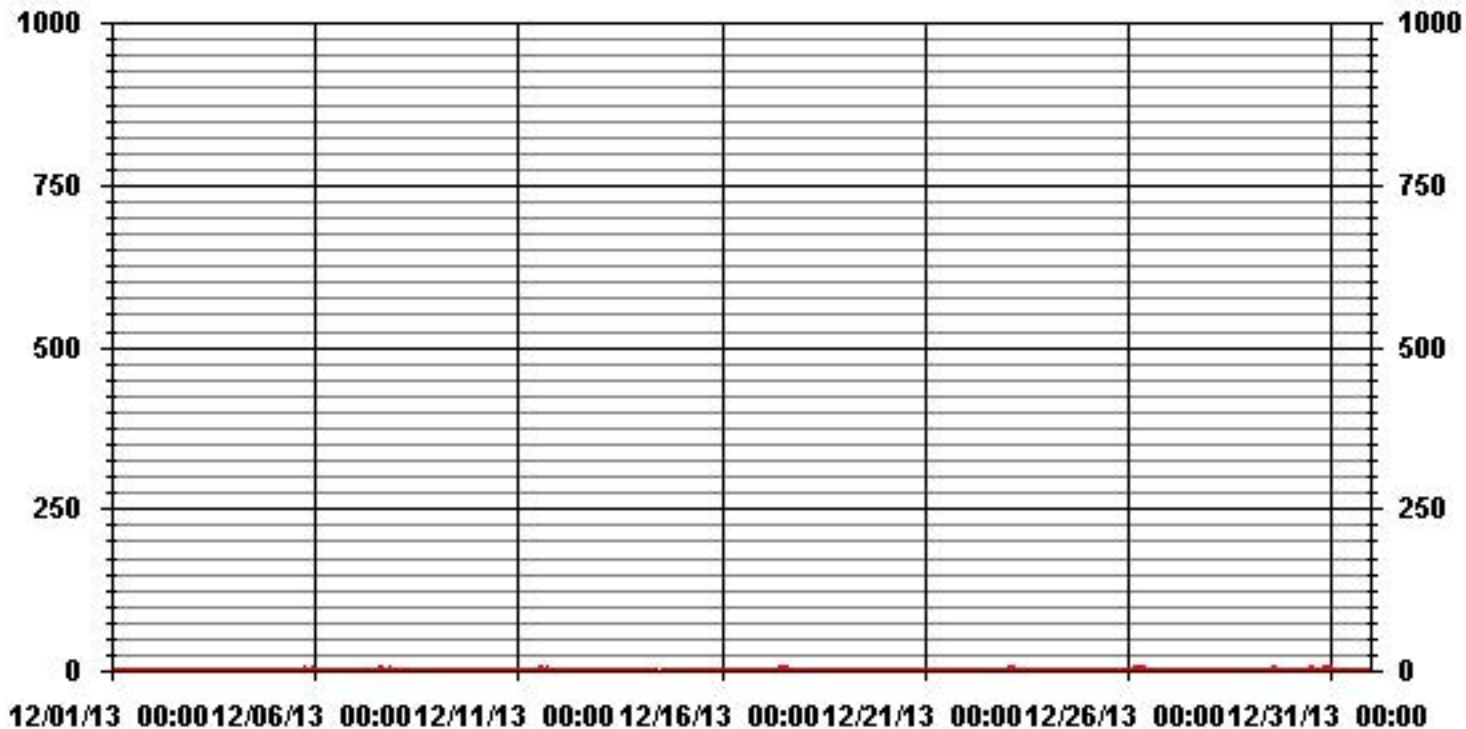
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	51
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) 19, 20 ON DAY(S) 30
MAXIMUM 24-HR AVERAGE:	0.6 PPB ON DAY(S) 30
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	6 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.30
MONTHLY AVERAGE:	0.08 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

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

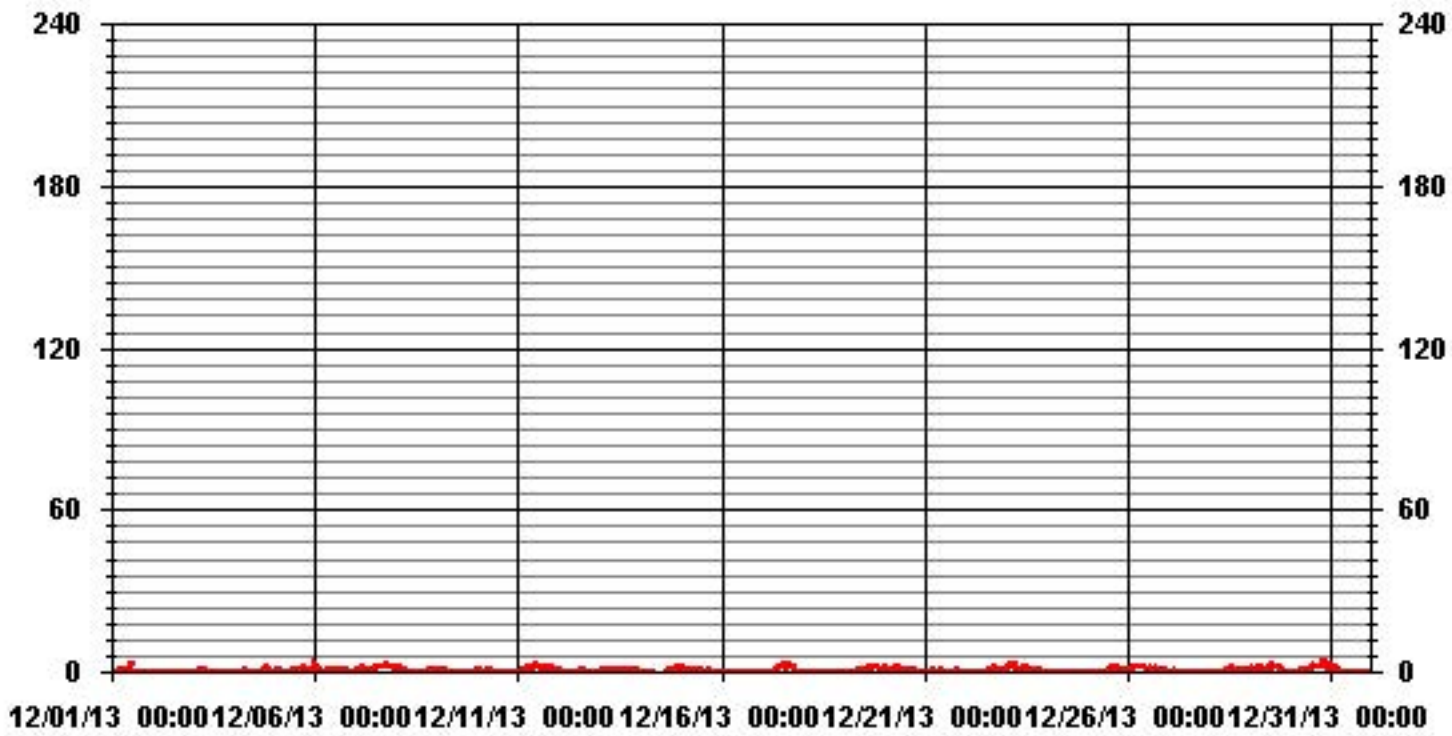
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	307					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.84					

01 Hour Averages



— LICA35 SO2MAX PPB

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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	3.68	1.98	4.39	4.24	8.64	20.67	2.12	1.27	.00	.42	.56	4.95	12.18	15.01	16.85	2.97	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	3.68	1.98	4.39	4.24	8.64	20.67	2.12	1.27	.00	.42	.56	4.95	12.18	15.01	16.85	2.97	

Calm : .00 %

Total # Operational Hours : 706

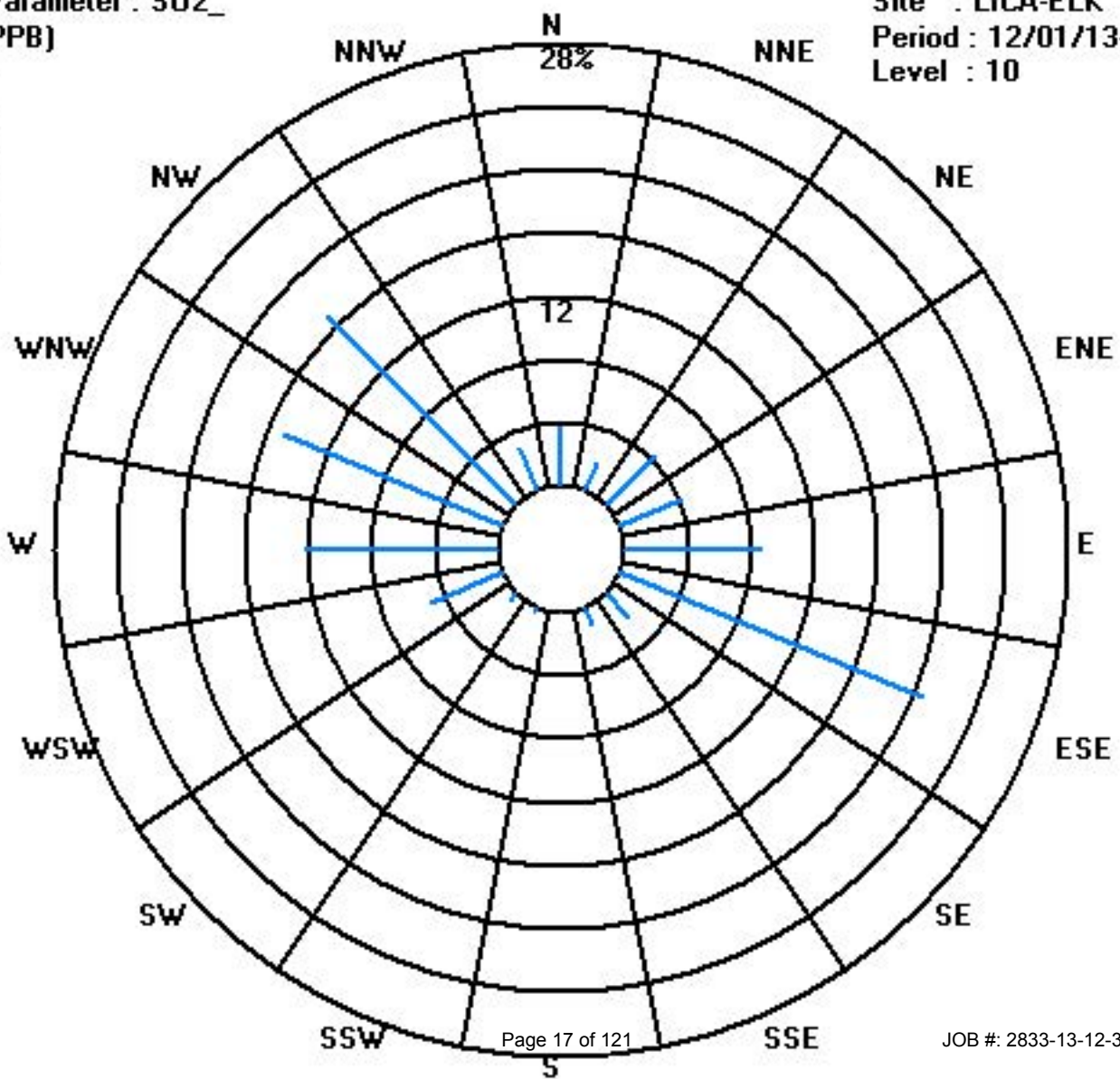
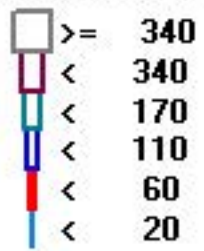
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	26	14	31	30	61	146	15	9		3	4	35	86	106	119	21	706
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	26	14	31	30	61	146	15	9		3	4	35	86	106	119	21	

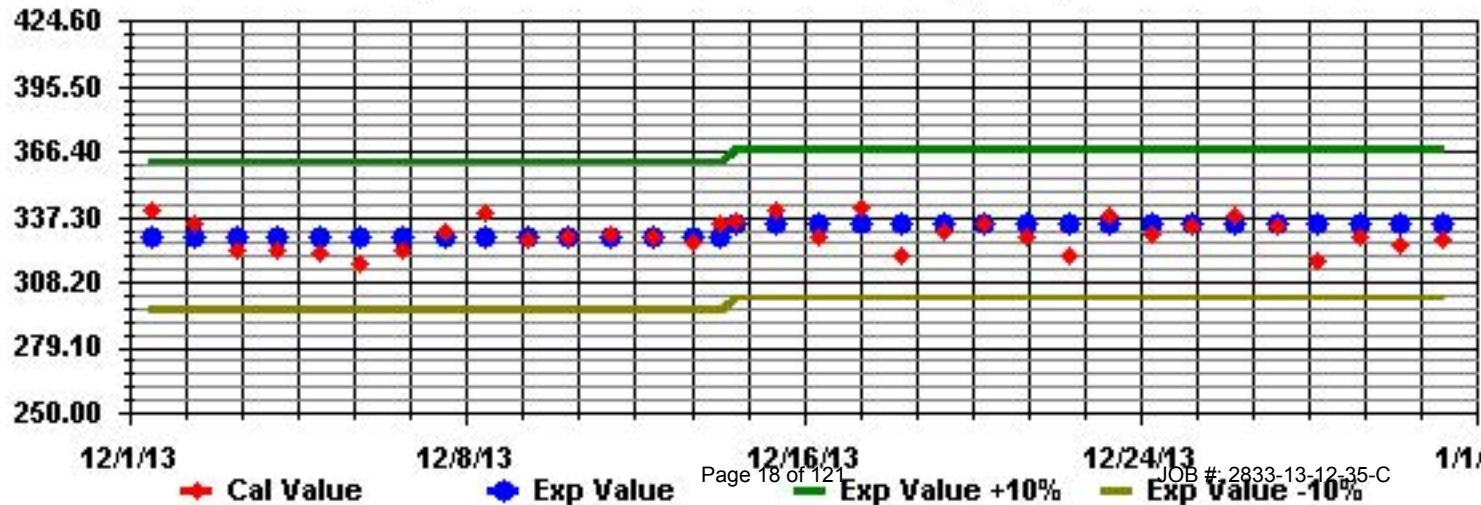
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: S02_ Sequence: S02 Phase: SPAN



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

DECEMBER 2013

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

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

STATUS FLAG CODES

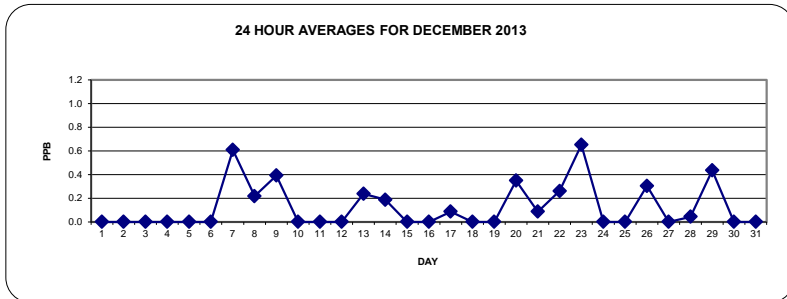
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

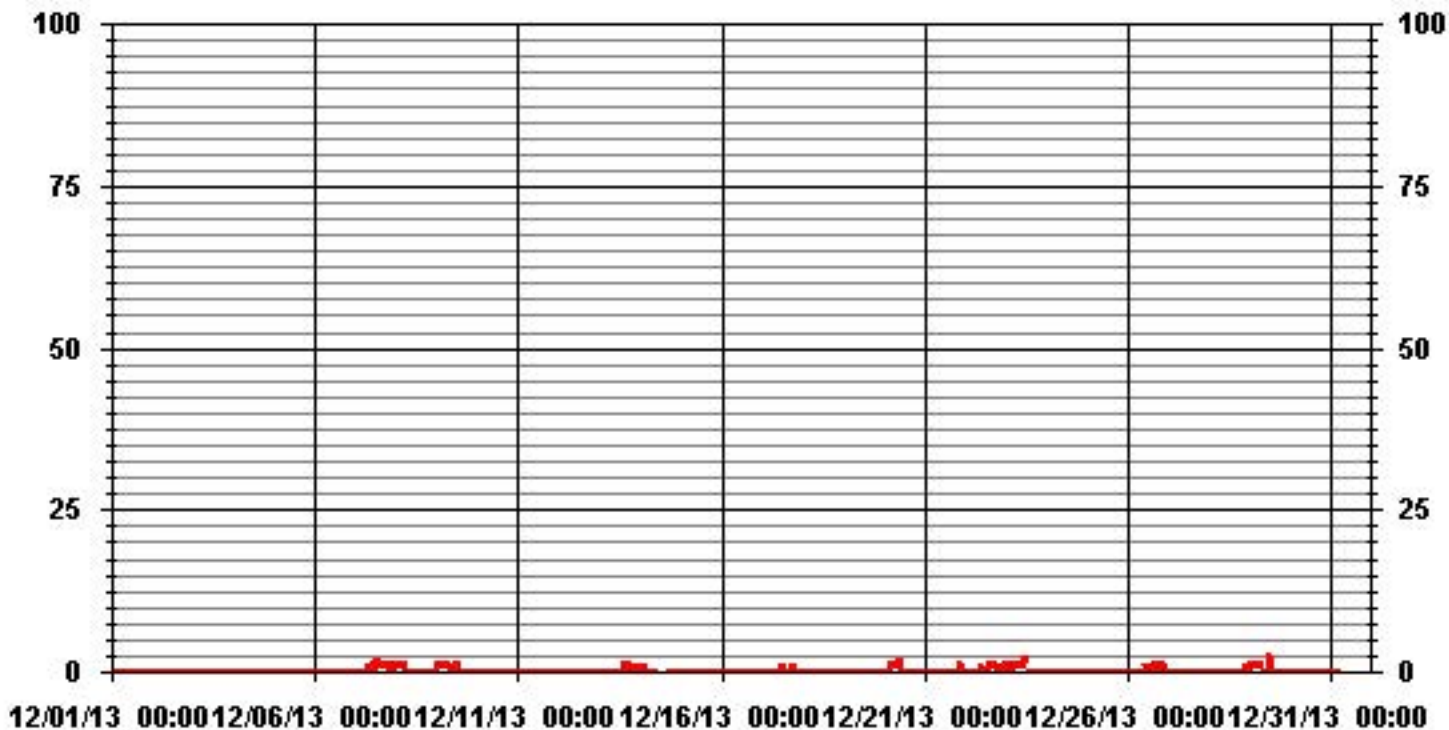
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	57	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	79		
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) 11 ON DAY(S) 29		
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) 23		
	VAR-VARIOUS		
IZS CALIBRATION TIME:	39 HRS	OPERATIONAL TIME:	724 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME:	97.3 %
STANDARD DEVIATION:	0.37	MONTHLY AVERAGE:	0.13 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0.1	24
4	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	1	1	1	S	2	2	2	1	1	1	2	2	2	1	2	2	1	2	1	2	2	2	2	1.3	24
8	2	2	2	2	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	0.7	24
9	1	2	2	1	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	1.1	24	
10	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	1	1	2	0.3	24	
11	1	0	S	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	0	1	0.7	24
12	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
13	S	0	0	0	0	0	0	S	S	1	1	1	1	1	1	2	2	1	1	2	1	2	1	S	2	0.9	24	
14	1	1	1	1	1	0	0	1	1	C	C	C	C	C	C	C	C	C	0	0	0	0	S	0	1	0.5	24	
15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	1	0.0	24	
16	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	3	0.1	24	
17	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0	1	1	1	1	S	1	1	0	0	2	0.5	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	0	0	1	0.1	24	
19	0	1	1	0	1	1	1	S	S	1	1	0	0	S	S	0	0	S	1	1	1	1	0	1	1	0.6	24	
20	1	1	1	1	1	1	1	2	1	3	2	1	1	1	0	0	S	0	0	0	1	1	0	0	3	0.9	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	0	0	1	0.3	24	
22	0	0	0	0	0	0	1	0	1	1	2	1	1	1	S	2	1	2	1	1	1	1	1	1	1	2	0.8	24
23	1	1	1	1	1	2	2	2	2	2	2	2	S	0	0	0	0	0	0	0	0	0	0	0	2	0.9	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	1	1	1	1	0	1	1	1	P	1	0.3	23
26	0	0	0	1	0	1	1	1	1	1	S	1	1	1	P	2	3	2	2	1	2	1	1	1	3	1.1	23	
27	1	0	1	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
28	0	0	0	0	0	0	0	0	S	0	0	0	1	1	0	0	0	0	0	0	1	1	1	0	1	0.2	24	
29	1	2	2	1	2	1	2	S	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7	0.8	24	
30	0	0	0	0	0	0	S	S	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	0	0	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	0.0	4
HOURLY MAX	2	2	2	2	2	2	2	3	2	3	2	7	2	2	2	2	3	2	2	2	2	2	2	2	2			
HOURLY AVG	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.6	0.4	0.5	0.4	0.7	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.3	0.3			

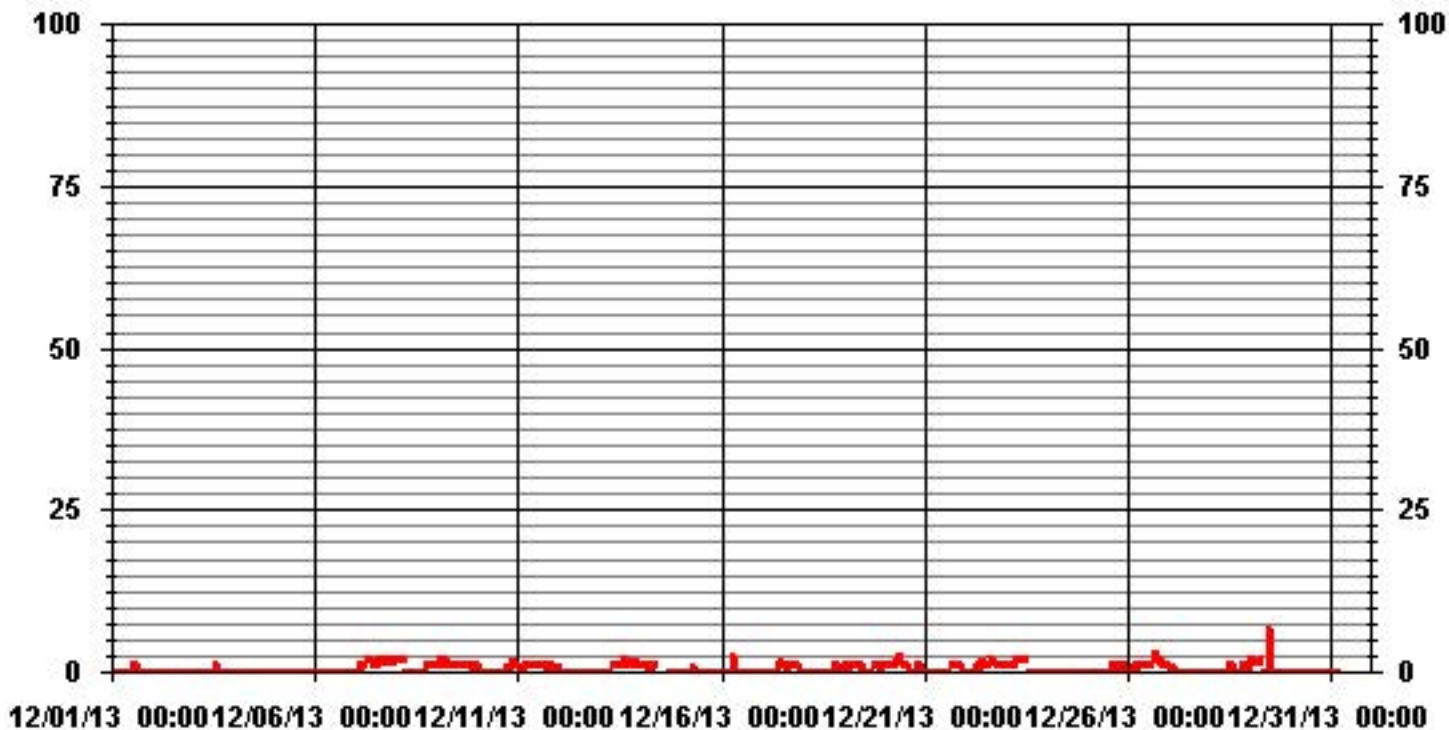
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	218					
MAXIMUM INSTANTANEOUS VALUE:	7	PPB	@ HOUR(S)	11	ON DAY(S)	29
	VAR - VARIOUS					
IZS CALIBRATION TIME:	41	HRS	OPERATIONAL TIME:	722 HRS		
MONTHLY CALIBRATION TIME:	9 HRS					
STANDARD DEVIATION:	0.68					

01 Hour Averages



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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	3.68	2.06	4.56	4.41	8.83	18.99	2.06	1.17	.00	.44	.58	5.00	12.66	15.02	17.23	3.09	99.85
< 10	.00	.00	.00	.00	.00	.14	.00	.00	.00	.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	3.68	2.06	4.56	4.41	8.83	19.14	2.06	1.17	.00	.44	.58	5.00	12.66	15.02	17.23	3.09	

Calm : .00 %

Total # Operational Hours : 679

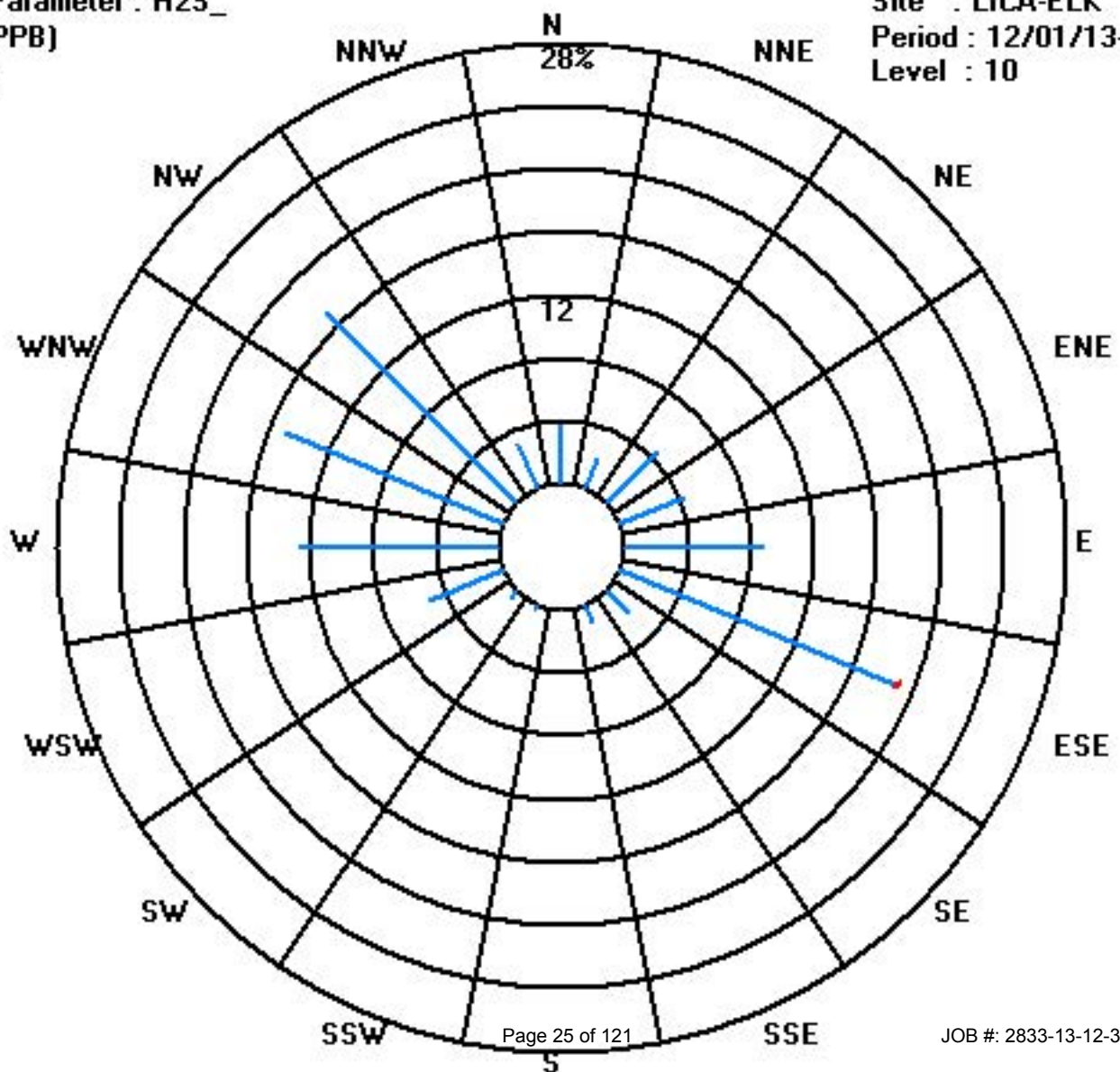
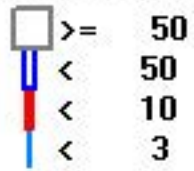
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3	25	14	31	30	60	129	14	8		3	4	34	86	102	117	21	678
< 10						1											1
< 50																	
>= 50																	
Totals	25	14	31	30	60	130	14	8		3	4	34	86	102	117	21	

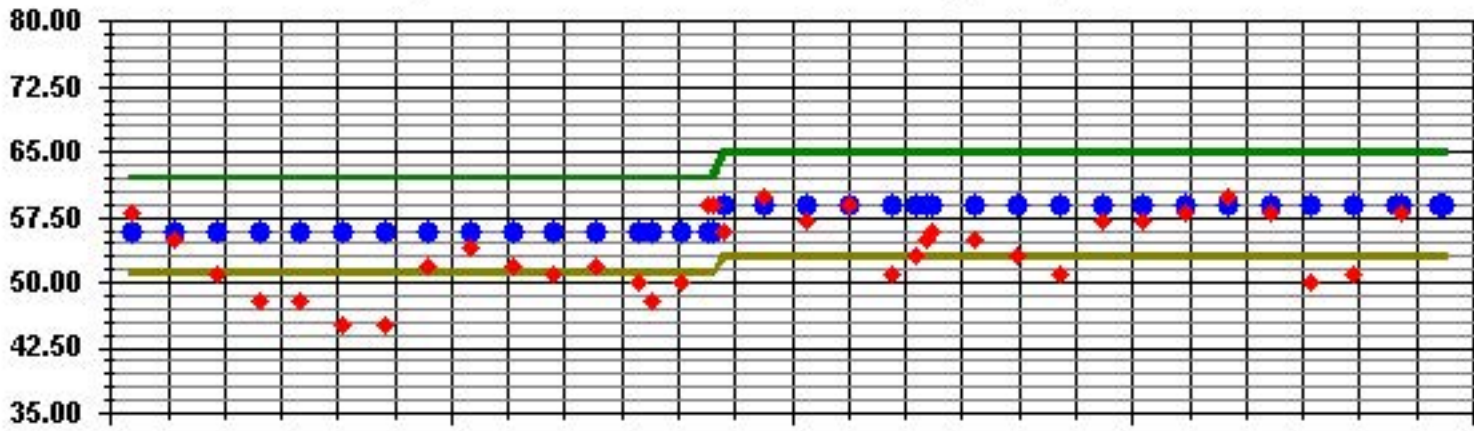
Calm : .00 %

Total # Operational Hours : 679

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN



12/1/13

12/8/13

12/16/13

12/24/13

1/1/14

◆ Cal Value

◆ Exp Value

— Exp Value +10%

— Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	12	28	51	21	5	X	0	24	41	44	29	25	13	18	18	21	25	2	25	27	10	X	7	8	51	20.6	22		
2	X	X	X	X	X	X	X	X	X	X	26	47	X	X	X	10	X	X	21	30	21	X	0	14	47	21.1	8		
3	10	7	5	9	1	X	12	11	16	3	X	X	X	9	X	11	18	13	4	1	X	2	5	0	18	7.6	18		
4	3	X	X	3	X	3	4	0	1	5	0	9	6	11	7	12	0	5	15	1	9	0	18	X	18	5.6	20		
5	0	6	13	0	0	12	X	12	14	0	4	0	3	X	4	0	X	0	2	0	6	11	5	11	14	4.9	21		
6	2	8	6	16	9	4	4	4	6	5	8	3	4	0	9	2	X	0	2	8	13	17	16	13	17	6.9	23		
7	9	14	13	16	14	5	15	16	21	17	17	8	1	0	8	12	X	6	12	X	0	X	X	0	21	10.2	20		
8	11	X	X	0	0	7	X	X	X	0	X	X	X	X	4	10	7	4	4	1	0	X	6	12	12	4.7	14		
9	X	X	8	0	10	0	X	X	X	10	X	X	9	X	X	12	0	0	0	X	2	7	X	6	12	4.9	13		
10	4	X	X	X	3	0	2	7	7	1	X	X	X	X	15	6	13	2	6	5	15	12	3	15	6.3	16			
11	5	8	8	X	15	11	11	2	1	8	7	12	14	13	16	1	9	0	14	14	8	0	1	6	16	8.0	23		
12	5	7	4	X	1	0	0	4	0	4	5	13	0	0	3	X	X	X	22	1	3	2	X	0	22	3.9	19		
13	10	X	0	5	3	10	5	7	5	0	3	5	8	11	8	0	3	X	X	6	2	10	7	15	15	5.9	21		
14	5	X	10	10	9	13	9	6	16	10	X	0	C	C	C	C	33	20	X	44	11	0	X	3	44	12.4	20		
15	X	X	X	1	X	X	4	5	X	0	0	18	X	7	28	5	0	5	1	16	11	8	8	X	28	7.3	16		
16	10	0	2	14	X	21	X	2	0	0	X	0	0	0	12	6	26	X	X	X	X	2	3	5	26	6.1	17		
17	0	0	X	9	0	4	X	X	X	0	X	0	9	0	0	X	X	X	4	8	10	14	13	X	X	14	5.1	14	
18	X	X	7	9	0	X	X	6	22	4	0	4	2	11	X	X	2	X	0	0	37	5	5	12	37	7.4	17		
19	9	X	X	X	8	3	X	0	0	11	3	11	17	C	C	X	29	21	16	3	16	33	6	18	33	12.0	19		
20	18	20	42	27	8	36	51	65	38	40	X	20	0	0	X	X	34	43	27	24	0	33	19	17	65	26.8	21		
21	58	33	7	27	36	33	17	10	24	33	14	X	X	X	X	X	39	45	40	20	14	8	21	31	58	26.8	19		
22	16	48	24	8	2	21	34	21	23	27	X	0	X	14	X	22	41	57	51	15	19	33	16	20	57	24.4	21		
23	15	7	9	1	10	12	6	23	0	X	11	X	0	35	0	26	7	25	50	11	2	25	0	2	50	12.6	22		
24	14	X	20	X	X	22	X	X	27	14	X	X	X	3	9	1	8	X	X	7	X	3	X	X	X	27	11.6	11	
25	18	X	X	X	X	X	X	X	X	46	X	X	1	12	10	X	16	2	7	25	42	X	11	0	46	15.8	12		
26	X	33	X	X	X	0	X	X	X	X	10	1	X	0	0	0	0	X	3	11	14	14	34	13	34	9.5	14		
27	3	5	X	10	8	X	7	11	19	X	27	X	4	X	X	X	0	12	19	21	22	16	0	15	27	11.7	17		
28	X	14	X	X	X	17	X	X	25	1	28	X	0	0	0	6	21	25	1	35	15	12	12	18	35	13.5	17		
29	16	13	15	17	0	7	X	X	7	X	X	X	28	2	28	23	19	6	X	7	X	13	0	12	28	12.5	17		
30	X	17	19	X	3	X	X	X	X	16	7	14	10	25	0	X	X	12	X	X	16	21	14	X	25	13.4	13		
31	39	1	32	15	2	18	X	11	23	26	22	41	33	8	31	29	4	1	X	10	6	25	X	X	41	18.9	20		
HOURLY MAX	58	48	51	27	36	36	51	65	41	46	47	41	33	35	31	29	41	57	51	44	42	33	34	31					
HOURLY AVG	12.2	14.2	14.8	10.4	6.4	11.3	11.3	11.8	14.6	13.0	12.7	9.7	7.7	8.1	10.3	10.7	14.5	13.4	14.4	13.1	11.8	12.6	9.4	10.2					

STATUS FLAG CODES

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

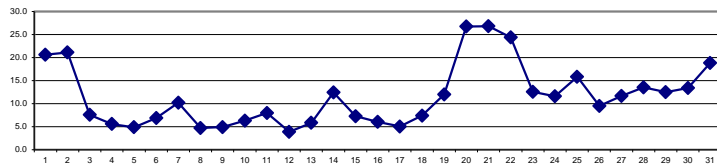
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
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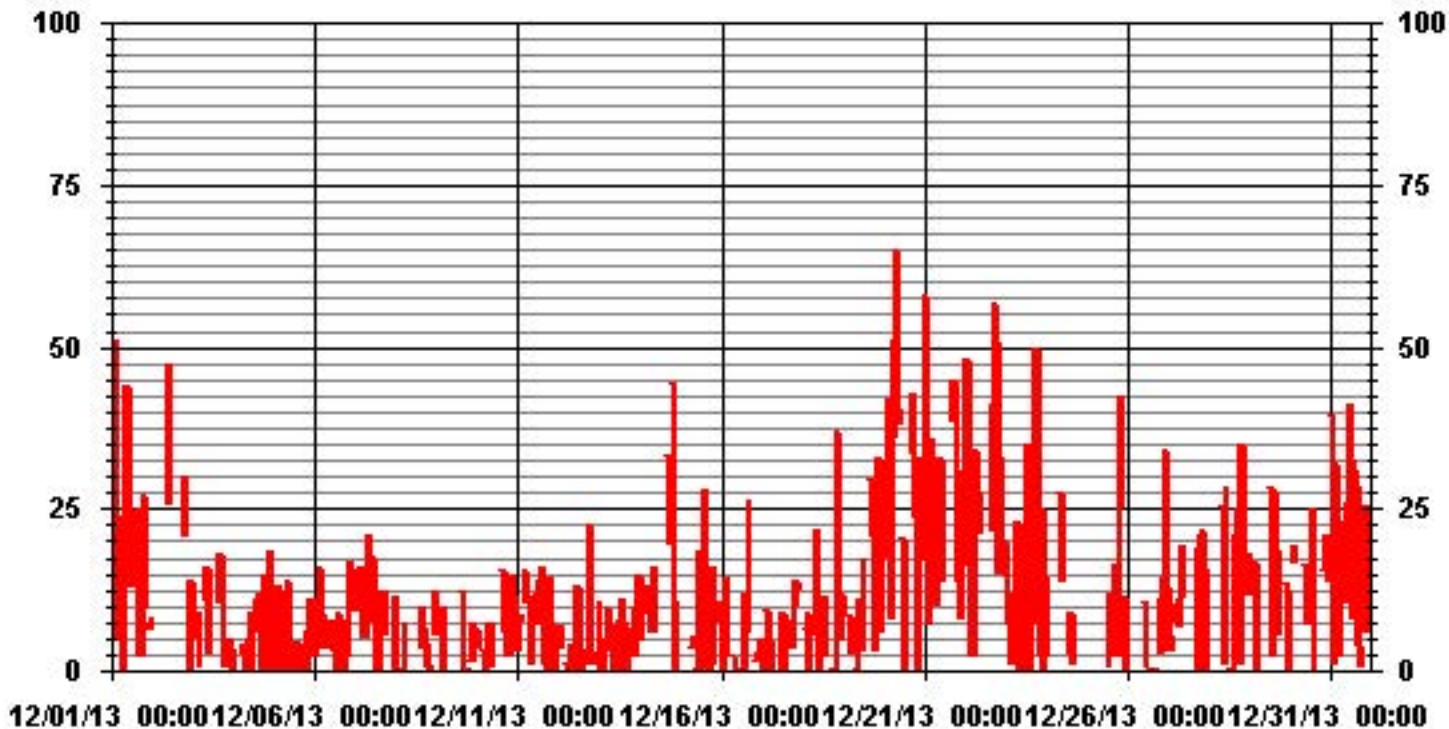
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	453
MAXIMUM 1-HR AVERAGE:	65 UG/M ³ @ HOUR(S) 7 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	26.8 UG/M ³ ON DAY(S) 20, 21
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	11.62
OPERATIONAL TIME:	545 HRS
AMD OPERATION UPTIME:	73.3 %
MONTHLY AVERAGE:	11.64 UG/M ³

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	3.52	1.29	4.08	2.41	9.64	18.55	2.41	.92	.00	.37	.55	3.89	11.68	15.76	14.28	2.22	91.65
< 60	.37	.00	.18	.18	.55	3.89	.37	.18	.00	.18	.00	.55	.55	.55	.55	.00	8.16
< 80	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18
< 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	3.89	1.29	4.26	2.59	10.20	22.63	2.78	1.11	.00	.55	.55	4.45	12.24	16.32	14.84	2.22	

Calm : .00 %

Total # Operational Hours : 539

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	19	7	22	13	52	100	13	5		2	3	21	63	85	77	12	494
< 60	2		1	1	3	21	2	1		1		3	3	3	3		44
< 80						1											1
< 120																	
< 240																	
>= 240																	
Totals	21	7	23	14	55	122	15	6		3	3	24	66	88	80	12	

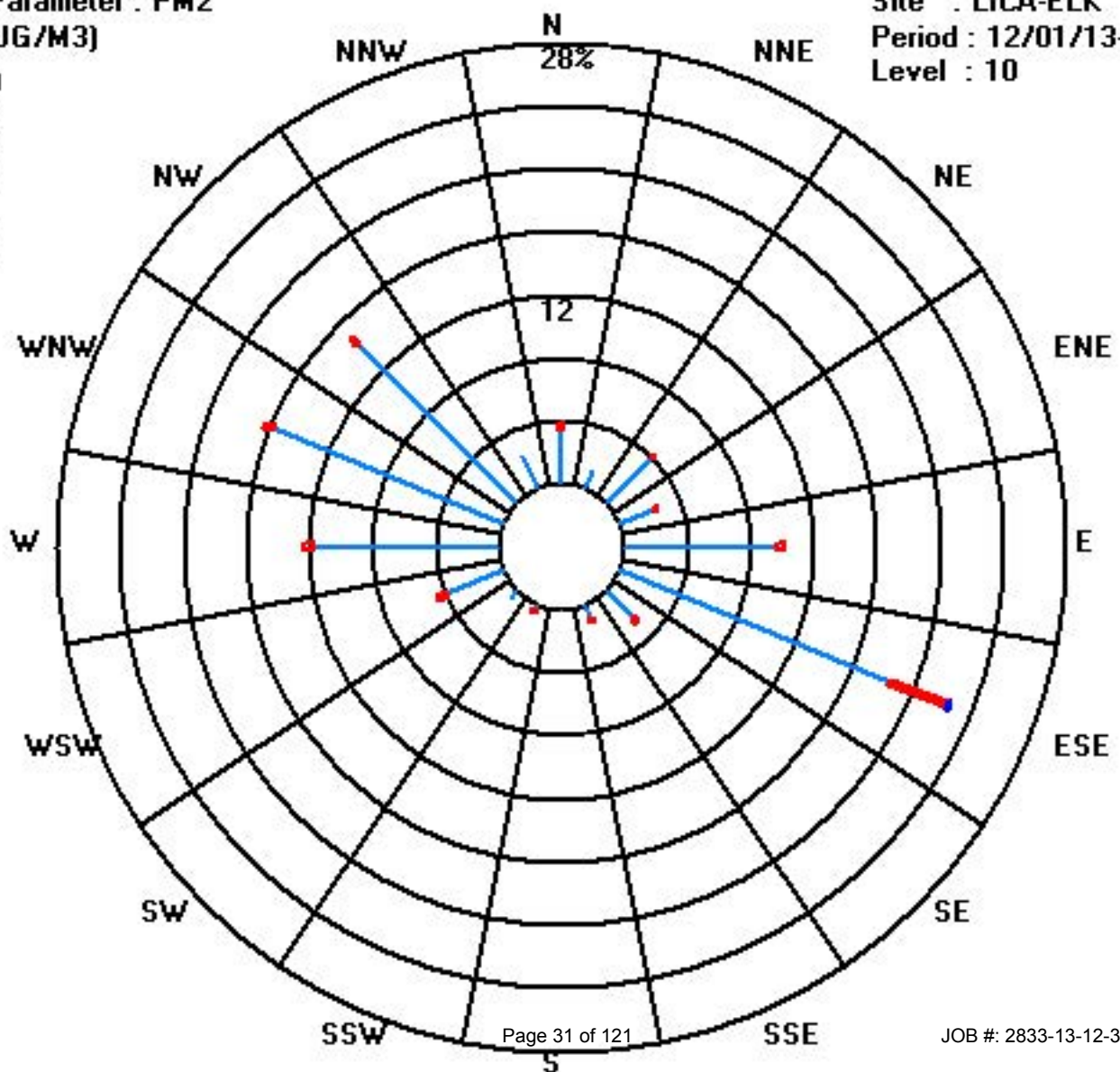
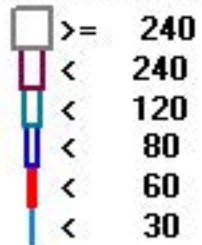
Calm : .00 %

Total # Operational Hours : 539

Class Limits (UG/M3)

Period : 12/01/13-12/31/13

Level : 10



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

NITROGEN DIOXIDE hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	16.7	15.1	12.8	13.5	12.2	10.4	9.6	11.1	10.6	9.6	11.4	10.5	S	11.0	8.9	10.0	14.3	11.3	9.7	10.5	7.3	3.5	1.2	0.6	16.7	10.1	24
2	2	0.9	0.9	0.6	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	S	1.9	2.4	1.2	1.3	1.1	1.2	1.0	0.7	0.7	0.5	0.2	0.2	2.4	0.7	24
3	3	0.4	0.5	0.7	1.6	2.0	2.8	2.6	1.9	0.9	0.2	S	0.7	0.7	0.6	2.5	0.9	0.9	0.9	1.1	2.0	3.9	11.9	15.8	10.6	15.8	2.9	24
4	4	12.2	8.1	1.9	1.5	0.8	1.0	2.6	3.6	2.6	S	1.7	1.0	1.7	1.5	2.0	2.1	10.0	18.8	16.5	11.6	15.8	13.6	23.1	18.1	23.1	7.5	24
5	5	19.3	5.9	13.7	16.4	6.4	4.9	2.9	3.2	S	3.1	2.7	4.1	2.4	2.2	2.4	3.3	4.3	4.8	4.6	4.7	4.7	4.8	4.7	4.4	19.3	5.6	24
6	6	5.9	3.2	2.6	3.4	4.4	3.9	7.3	S	15.2	14.9	7.0	4.2	1.9	1.5	3.9	5.4	15.9	19.1	7.3	11.8	13.2	10.3	11.7	10.9	19.1	8.0	24
7	7	12.3	19.3	21.6	22.0	21.9	22.0	S	23.6	24.0	19.0	16.2	13.1	13.6	15.6	17.9	22.1	13.1	13.7	13.3	9.6	8.8	4.4	2.7	2.0	24.0	15.3	24
8	8	1.5	9.1	13.0	9.2	1.3	S	6.7	1.4	1.6	1.2	0.7	0.5	0.5	0.3	0.5	2.6	9.2	20.6	18.5	20.3	27.9	27.6	27.1	22.2	27.9	9.7	24
9	9	20.2	15.4	15.6	12.8	S	19.3	3.5	0.7	0.3	0.4	0.5	3.8	4.7	0.4	0.0	0.4	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	20.2	4.3	24
10	10	1.4	2.6	1.7	S	1.8	2.0	1.5	1.2	0.9	0.8	0.6	1.0	0.5	0.4	0.8	7.4	22.3	27.1	22.4	23.1	27.8	30.1	29.7	27.5	30.1	10.2	24
11	11	24.1	17.2	S	17.9	18.0	16.9	18.4	20.9	20.6	18.8	14.2	14.4	13.0	11.1	12.8	10.8	13.0	15.6	13.1	12.7	8.8	4.5	3.3	2.4	24.1	14.0	24
12	12	1.6	S	1.7	1.1	1.3	1.3	1.2	0.9	0.7	0.3	0.7	0.6	0.8	0.8	1.0	1.3	1.7	0.8	0.5	1.1	0.6	0.8	0.5	0.6	1.7	1.0	24
13	13	S	1.3	1.2	1.6	2.7	3.9	3.2	2.8	3.8	2.5	3.1	3.4	3.5	3.2	7.2	17.6	25.0	17.1	10.1	15.1	21.4	24.8	22.1	S	25.0	8.9	24
14	14	25.7	23.7	23.3	23.1	21.5	14.3	10.9	7.4	10.7	C	C	C	C	C	C	C	C	C	C	5.1	5.0	4.1	S	5.4	25.7	13.9	24
15	15	6.5	6.0	5.9	5.8	6.5	6.4	8.4	10.1	11.5	9.9	9.9	10.2	6.6	1.1	1.2	1.2	0.4	0.5	0.6	1.6	1.9	S	2.1	3.8	11.5	5.1	24
16	16	5.4	4.2	1.6	1.9	1.6	1.8	2.1	1.5	2.9	2.0	2.7	1.2	3.4	0.8	5.2	2.7	9.6	C	C	C	10.8	8.2	9.5	10.8	4.0	24	
17	17	10.2	14.0	19.3	21.2	21.2	15.7	13.4	S	11.3	10.1	7.9	8.6	6.6	6.7	7.6	11.6	14.9	14.9	14.9	S	23.5	28.5	3.9	2.1	28.5	13.1	24
18	18	2.5	1.8	1.1	0.7	0.9	1.5	1.7	3.8	3.9	1.9	1.3	1.0	1.2	1.0	1.2	1.5	1.1	0.9	S	0.5	0.6	2.1	2.0	6.2	6.2	1.8	24
19	19	13.8	20.0	19.5	13.7	12.1	14.7	22.2	25.8	25.9	26.7	22.8	13.1	15.0	11.4	11.8	16.3	24.1	S	24.2	22.9	28.6	30.8	28.7	29.3	30.8	20.6	24
20	20	29.4	29.0	28.8	28.0	28.4	28.1	28.7	31.2	29.3	30.5	22.2	15.9	14.0	10.2	12.0	15.5	S	15.4	17.7	17.2	20.0	23.8	12.9	8.7	31.2	21.6	24
21	21	14.8	16.4	9.3	10.6	12.8	11.2	8.1	9.7	13.0	10.4	8.9	8.6	8.4	8.4	10.8	S	29.7	30.7	27.6	29.5	29.0	25.3	16.8	19.8	30.7	16.1	24
22	22	13.3	15.4	14.1	17.4	17.9	20.5	23.3	23.4	25.4	24.8	24.2	20.7	19.9	22.5	S	23.8	26.2	27.8	22.4	21.7	21.1	20.9	20.6	21.7	27.8	21.3	24
23	23	16.1	13.9	10.4	8.9	8.1	8.7	8.7	8.0	10.1	8.2	7.6	7.7	8.4	S	9.1	15.7	12.8	25.0	28.5	21.8	19.9	8.2	1.3	0.6	28.5	11.6	24
24	24	0.5	0.7	0.3	6.2	6.8	4.3	6.1	14.6	18.3	8.5	2.8	2.1	S	1.4	1.4	2.3	1.9	9.3	8.7	2.9	3.2	4.2	5.2	6.3	18.3	5.1	24
25	25	4.1	5.7	7.7	4.7	9.5	5.4	7.4	16.0	15.9	13.9	14.6	S	13.0	10.5	7.7	6.6	8.0	7.1	9.7	9.5	7.2	8.3	5.3	3.3	16.0	8.7	24
26	26	15.4	8.3	4.6	5.9	7.0	8.2	23.5	9.5	8.4	21.3	S	23.9	17.2	16.3	14.2	21.2	29.1	26.7	23.9	6.7	3.0	2.1	7.3	1.8	29.1	13.3	24
27	27	0.9	0.6	1.7	2.0	2.5	2.7	1.3	0.7	0.2	S	0.4	0.5	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.4	0.5	0.5	0.4	0.2	2.7	0.7	24
28	28	0.4	0.9	1.3	1.1	0.5	0.7	0.8	0.9	S	1.4	1.8	1.7	1.8	8.2	7.2	10.0	16.6	23.4	20.4	24.6	19.2	26.2	16.4	13.3	26.2	8.6	24
29	29	22.9	25.5	24.0	22.2	21.2	21.3	21.3	S	21.4	18.2	14.6	12.0	9.2	8.8	9.8	12.1	17.3	9.2	7.0	4.2	3.6	3.1	2.5	11.6	25.5	14.0	24
30	30	13.7	6.2	8.5	13.5	15.8	15.1	S	4.6	3.5	4.8	4.0	4.6	3.6	5.3	5.0	3.5	4.5	7.8	11.5	11.2	12.7	10.7	12.9	12.7	15.8	8.5	24
31	31	9.1	6.2	3.4	3.5	3.5	S	4.4	5.2	5.4	4.4	4.5	3.9	3.6	4.2	5.1	7.5	13.9	17.9	24.2	26.1	26.0	24.5	25.5	24.4	26.1	11.1	24
HOURLY MAX		29.4	29.0	28.8	28.0	28.4	28.1	28.7	31.2	29.3	30.5	24.2	23.9	19.9	22.5	17.9	23.8	29.7	30.7	28.5	29.5	29.0	30.8	29.7	29.3			
HOURLY AVG		10.7	9.9	9.1	9.7	9.0	9.3	8.7	8.7	10.3	9.6	7.5	6.9	6.3	5.8	5.9	8.2	11.8	13.2	12.8	11.3	12.2	12.4	10.5	9.3			

STATUS FLAG CODES

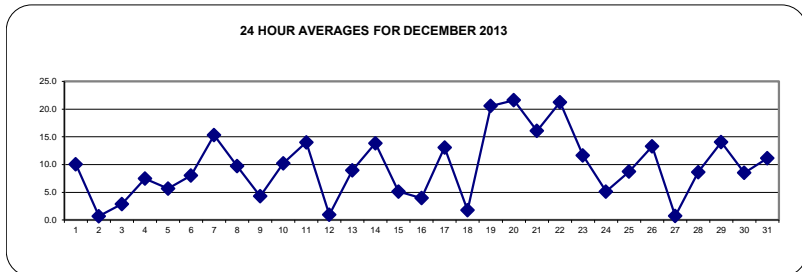
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

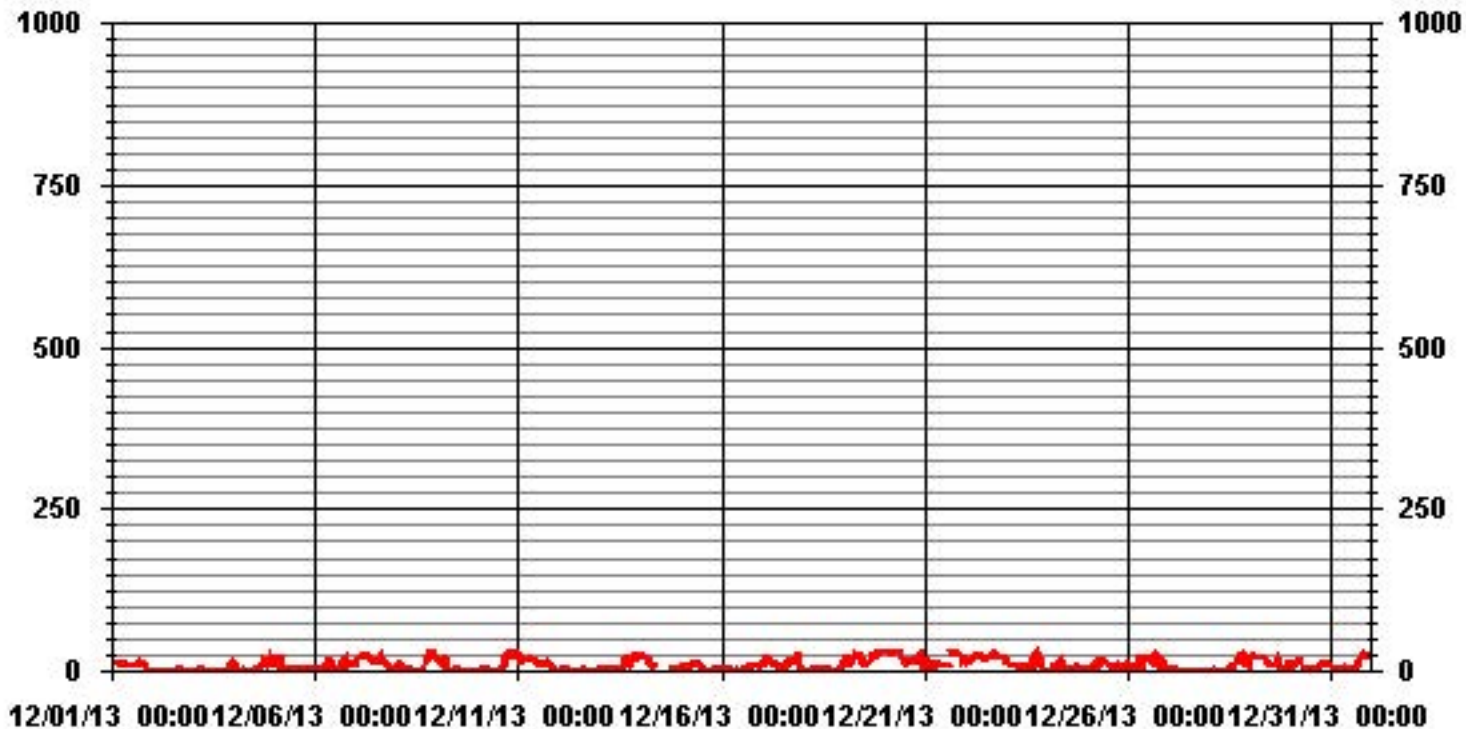
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	31.2	PPB	@ HOUR(S)	7	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	21.6	PPB			ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	14	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	8.55		MONTHLY AVERAGE:	9.55	PPB	



01 Hour Averages



— LICA35 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST																									DAILY	24-HOUR		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.	
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					
DAY																												
1	18.9	19.7	15	15.5	15.2	12.4	11.7	13.1	13	11.2	14.1	12.1	S	11.9	17.8	13	16.4	15.9	11.9	14.9	10.3	6.3	2	1.6	19.7	12.8	24	
2	1.7	1.9	1.4	1.4	1.4	1.3	0.8	0.9	0.6	0	0	S	10.1	18.1	2.4	2.8	1.6	1.9	1.6	1.5	1.3	1.2	0.9	0.9	18.1	2.4	24	
3	1	1.2	1.5	2.6	2.9	3.5	3.6	2.6	1.9	1	S	1.1	1.1	1.9	22	1.5	1.6	1.3	1.5	4.2	6.7	22.2	23	12.6	23	5.3	24	
4	18	22.5	2.7	3.3	1.3	1.5	4.1	5.2	5.4	S	2.6	1.8	4.9	1.9	2.5	3.3	30.6	25.3	21.8	16.5	24.3	23.2	26.1	20.7	30.6	11.7	24	
5	26.4	10.5	22.1	21.6	9.2	8.9	5.9	4	S	4	3.7	6.4	3.2	3	3.6	4.4	5.2	5.5	5.5	5.5	5.6	5.8	5.4	5.1	26.4	7.8	24	
6	7.8	5.1	4.8	5.9	8.1	6.5	17.1	S	19.7	18.1	9.1	8.1	3.2	2.5	11.3	9.1	26	26	14.6	15.2	16.8	15.8	14	14.9	26	12.2	24	
7	15.3	21.7	31.8	23.8	26	31.3	S	26.8	34	24.1	18.5	16	15.4	17.6	19.9	27	18.5	15.4	22.1	10	10.6	9	4.3	3.7	34	19.3	24	
8	3.4	26.7	21.5	20.2	3	S	12.1	2.1	2.4	1.9	1.3	1.2	1.2	1.2	1.4	9.7	23.7	28.4	22.8	30.5	32.7	37.4	29	26.7	37.4	14.8	24	
9	26	18.7	21.2	16.5	S	26.6	20.3	1.6	1.2	1.6	9.7	7.9	8.5	1.7	1	2	1.1	2.6	1.4	1.1	1.1	0.7	1	1.1	26.6	7.6	24	
10	4.1	4.4	3.2	S	2.2	2.9	2.1	2.1	1.6	1.3	1	21.4	1.1	1	2.1	16.8	30.4	49.5	24.9	28.9	36.6	35.7	33.7	29.9	49.5	14.6	24	
11	26.2	19.4	S	19.9	19.9	18.7	22	22.6	24.7	21.5	17.1	16.1	13.9	11.8	14.7	12.2	14.7	19.1	14.2	13.9	10.6	6	4.7	3.9	26.2	16.0	24	
12	3.1	S	2.8	2.4	2.6	2.6	2.2	2	2.2	1.7	1.7	1.4	1.7	1.7	2	2.6	3.2	2	1.6	2.6	2.2	2	2.1	2.5	3.2	2.2	24	
13	S	2.9	3	3.1	4	16.9	4.6	5.5	5.7	4.4	4.1	5.8	6.3	6.1	19.8	56.9	39.6	24.6	11.9	30.7	31.2	28.3	24.6	S	56.9	15.5	24	
14	28	25.3	24.3	23.6	23.7	18.8	14.9	9.2	C	C	C	C	C	C	C	C	C	C	C	C	6.4	12.6	7.3	S	8.3	28	16.9	24
15	11.7	9.5	7.2	6.7	8.3	8.8	10	12.6	17.4	25.9	20.8	13	13.2	2.9	4.3	7.7	1.4	1.4	1.7	5.8	4.6	S	3.1	8.5	25.9	9.0	24	
16	7	7.4	2.8	2.9	3.5	3	3	3	6.8	6.4	9.1	4.6	5.5	2.9	13.8	6.4	18.1	C	C	C	C	C	13.4	21.2	21.2	7.4	24	
17	17.3	18.3	27.2	26.4	25.6	19.5	20.3	S	14.4	11.2	8.8	10.4	8.2	7.7	9	15.2	18.9	26.9	23	S	36.7	34.3	12.6	3.5	36.7	18.0	24	
18	3.5	3	2.1	1.8	1.9	2.4	3.9	4.9	6.6	3.5	2.1	1.9	2.2	2.1	2.6	2.9	1.9	1.7	S	1.2	1.2	4.8	4.6	13	13	3.3	24	
19	18	24.7	22.7	19	15.6	19.3	30.3	28.3	42.8	42.6	37	17.4	21	14.8	12.9	29.7	34.3	S	49.9	33.1	31.1	37.7	29.8	30.5	49.9	27.9	24	
20	44.2	42.5	29.6	29.8	30.1	29.3	32.1	34.4	35	45.4	31.6	17.4	15.9	11.5	17	21.3	S	21	24.4	22.8	36.7	32.8	18.4	14.7	45.4	27.7	24	
21	19.2	30.1	13.8	12.2	16.1	16.7	12	18.1	20	15.1	14	10.1	10.9	11.1	13.5	S	34.1	36.6	38.1	42.7	44.2	29.6	21	24	44.2	21.9	24	
22	20.9	22.9	19.8	22	22.3	23.7	55.7	25.8	39.4	30.9	39	31.1	21.5	27.6	S	39	33.8	33.3	33.9	22.7	22.7	22.7	22.6	28.3	55.7	28.8	24	
23	20.1	17.5	11.7	10.1	9.6	12.3	11.3	11.6	13.9	10.6	14.5	12.5	11.1	S	23.7	23.8	22.1	33.6	34.7	38.6	30.6	18.1	3.3	1.1	38.6	17.2	24	
24	1.5	1.3	1.5	17.4	9.5	6.8	11	26.8	31.7	18.4	5.8	4	S	1.9	2	7.3	9.1	22.7	18	3.8	4.2	5.6	7.8	12.9	31.7	10.0	24	
25	6.3	7.7	24.9	8.5	14.2	10.3	13.7	26.6	27	17.8	17.5	S	16.4	15.1	11	23.1	11.3	8.3	18.6	13.9	11.4	13.8	13.4	P	27	15.0	23	
26	20.6	15.7	8.9	7.3	8.9	24.9	37.8	12.2	15.8	26	S	27.3	25.6	19.6	P	32.2	39.1	31.4	31.5	12	4.3	3.6	17.9	13.5	39.1	19.8	23	
27	2.3	1.6	2.6	2.8	4	4.3	2.3	1.7	1.1	S	1	1.1	1.2	1	0.8	1.1	1	0.7	1.1	1.2	1.1	1.3	1.2	1.2	4.3	1.6	24	
28	1.5	1.9	2.3	2.1	1.4	1.6	1.7	1.9	S	1.8	11	4.9	6.1	130.5	15.9	18.3	25.3	26.1	31.2	30.8	26.2	31.9	24.9	24.5	130.5	18.4	24	
29	24.7	30.1	25.5	24.2	21.9	23.1	22.3	S	22.9	20.1	16.2	14.1	11.6	9.9	11.8	16.7	22.1	13.1	10.4	5.7	4.8	4.8	4.8	16.8	30.1	16.4	24	
30	18.3	12.6	13.1	19.9	20.1	18.7	S	6.7	4.1	7.4	5.9	7.2	5.9	66	16.7	14.9	5.9	12.1	12.9	11.9	17.2	13.8	14.9	15.3	66	14.8	24	
31	10.7	8.4	4.3	4.3	5.2	S	6	7	9.7	7.5	6.1	5.1	4.6	6.1	7.1	16	31.9	30.2	34.3	30.8	31.8	35.1	33.6	27.4	35.1	15.8	24	
HOURLY MAX	44.2	42.5	31.8	29.8	30.1	31.3	55.7	34.4	42.8	45.4	39.0	31.1	25.6	130.5	23.7	56.9	39.6	49.5	49.9	42.7	44.2	37.7	33.7	30.5				
HOURLY AVG	14.3	14.5	12.5	12.6	11.3	13.0	13.6	11.4	15.0	13.6	11.5	10.1	9.0	14.2	10.1	15.1	18.0	18.5	18.6	15.8	17.0	16.9	13.9	13.4				

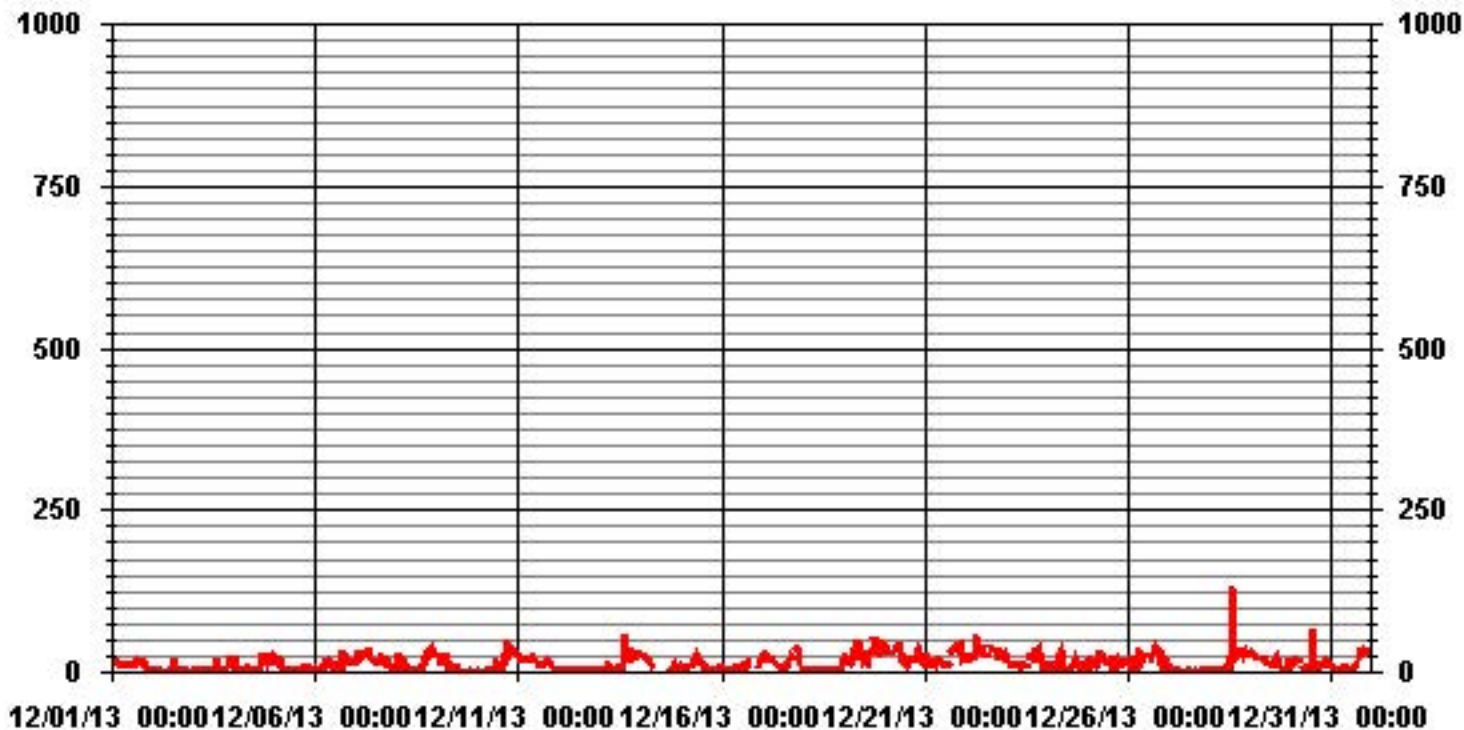
STATUS FLAG CODES

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:	692
MAXIMUM INSTANTANEOUS VALUE:	130.5 PPB @ HOUR(S) 13 ON DAY(S) 28
Izs CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	16 HRS
STANDARD DEVIATION:	12.21
OPERATIONAL TIME:	742 HRS

01 Hour Averages



— LICA35 NO2MAX PPB

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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.72	2.00	4.44	4.29	8.73	20.20	2.14	1.28	.00	.42	.57	4.87	12.32	14.89	17.04	3.00	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	3.72	2.00	4.44	4.29	8.73	20.20	2.14	1.28	.00	.42	.57	4.87	12.32	14.89	17.04	3.00	

Calm : .00 %

Total # Operational Hours : 698

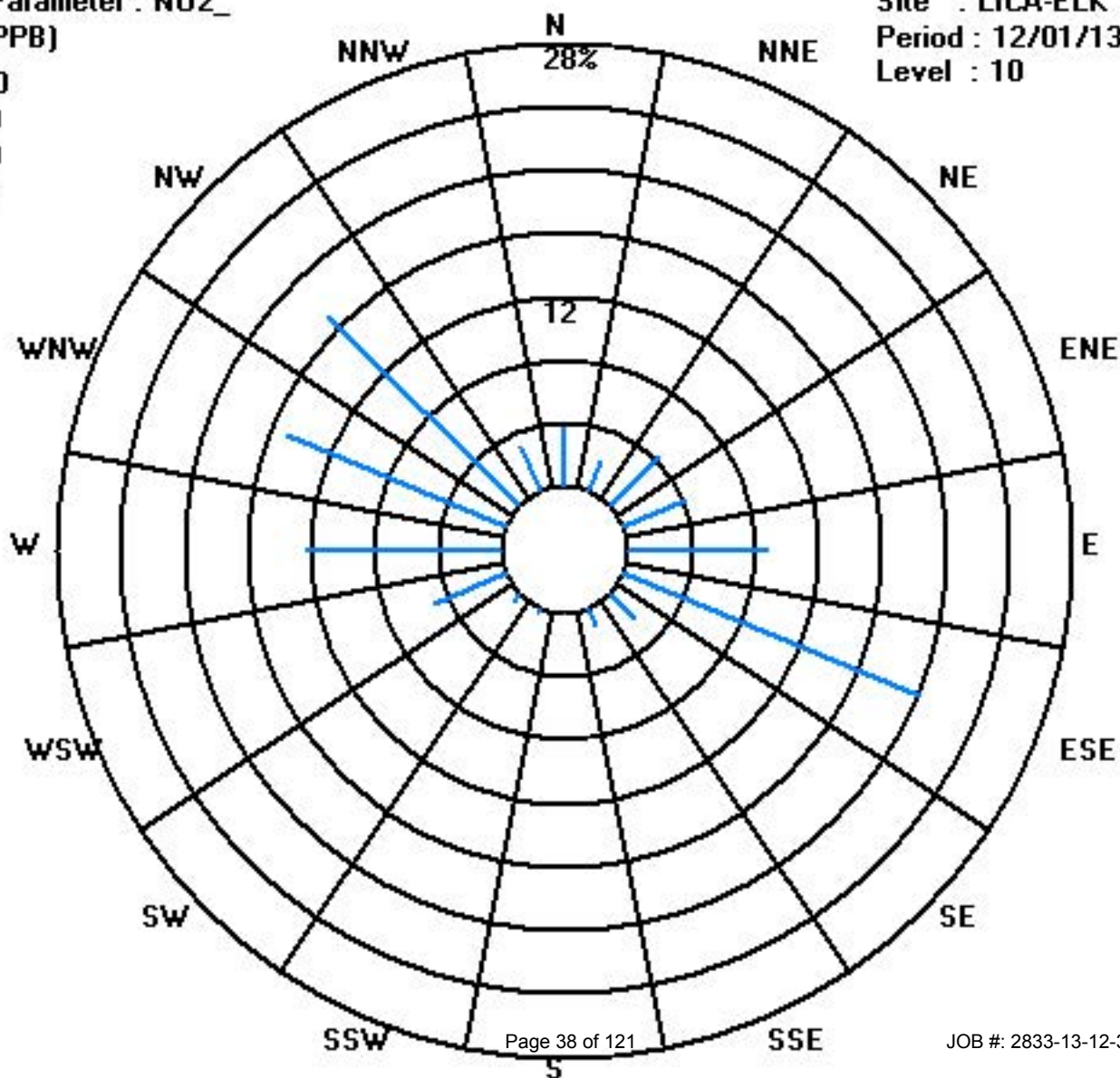
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	26	14	31	30	61	141	15	9		3	4	34	86	104	119	21	698
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	26	14	31	30	61	141	15	9		3	4	34	86	104	119	21	

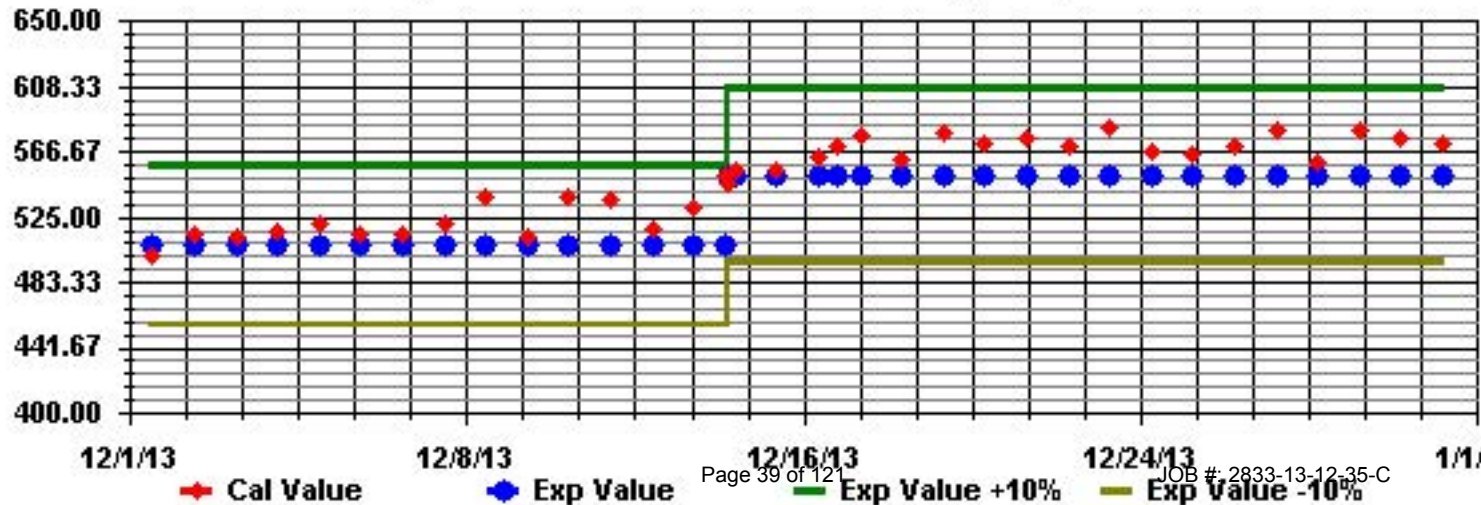
Calm : .00 %

Total # Operational Hours : 698

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
DAY																											
1	1.5	1.2	1.1	1.1	0.9	0.8	0.7	0.9	1.8	3.5	8	8.2	S	6.9	3.9	2.7	2.2	1.9	0.7	0.8	0.5	0.2	0	0	8.2	2.2	24
2	0	0	0	0	0	0	0	0	0	0	0	S	2.3	2.8	0.5	0.4	0	0	0	0	0	0	0	0.1	2.8	0.3	24
3	0	0	0	0	0.2	0.3	0.3	0.1	0	0.1	S	0.8	0.3	1.2	8.9	0	0.1	0.1	0	0	0	1	2.7	1.2	8.9	0.8	24
4	1.1	2.1	0	0	0	0	0	0.1	0	S	1.6	1	1.1	0.8	0.6	0.4	5.5	5.4	3.6	1.6	3.4	2.4	6.8	3.1	6.8	1.8	24
5	4.3	0.7	2.6	4.5	0.8	0.6	0.3	0.3	S	1.7	1.7	3	1.4	1.1	0.8	0.8	0.3	0.2	0.3	0.2	0.3	0.2	0.4	0.3	4.5	1.2	24
6	0.4	0.3	0.3	0.4	0.7	0.5	1.5	S	6.5	10.5	5.4	4	1.6	1	2.1	1.6	3.4	4.1	2.2	2.9	3.5	2.7	2.8	1.9	10.5	2.6	24
7	2.2	6.5	12.5	24.9	30.2	25.1	S	20.4	31	26.6	31.4	24.8	20.8	20.6	17.2	12.9	1.8	1.3	1	0.2	0	0	0	31.4	13.5	24	
8	0	0.4	0.4	0	0	S	2.1	0.6	0.4	0.3	0	0	0	0	0	0.9	3	2.3	6.8	9.4	14.3	9.1	4.3	14.3	2.4	24	
9	3.9	2.2	3.6	1.9	S	6.5	1.8	0.4	0.2	0	0.2	1.6	1.8	0	0	0	0	0	0	0	0	0	0	0	6.5	1.0	24
10	0	0	0	S	1	0.7	0.4	0.3	0.2	0.2	0.2	0.5	0.4	0.2	0	2.2	9.4	12.1	6	4.1	12.9	39.6	29.3	12.6	39.6	5.8	24
11	7.1	3	S	3.6	2.9	2.3	3.1	3.7	5.2	12.9	11.1	13.9	11.3	7.8	7.3	2.2	0.6	1.2	0.6	0.5	0.2	0	0	0	13.9	4.4	24
12	0	S	1.7	0.9	0.8	0.7	0.6	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.6	0.4	0.4	0.2	0.1	0.4	0.3	0.3	0.3	0.3	1.7	0.5	24
13	S	1.1	0.6	0.4	0.4	1.1	0.7	0.9	1.3	1	1.5	1.5	2.6	2.2	4.4	13.6	14.8	6	1.1	8.1	21.9	24.9	6.7	S	24.9	5.3	24
14	27.1	26	15.8	15.7	8.5	2.4	2	1.5	3.8	C	C	C	C	C	C	C	C	C	C	1	1.4	0.6	S	1.8	27.1	8.3	24
15	2.6	1.4	0.2	0.2	0.4	0.2	0.5	0.7	2.1	6.8	10.1	11.8	5.6	0	0.5	0	0	0	0	0	0	S	0.8	0.4	11.8	1.9	24
16	0.3	0.2	0.1	0	0	0	0	0.1	0.2	0.4	0.4	0.1	1.3	0.3	1.5	0.2	0.8	C	C	C	C	3.4	1.6	1.2	3.4	0.6	24
17	1.1	1.6	2.3	2.2	3.2	2	1.9	S	2.5	2.3	2.4	2.8	1	1.3	2	2.2	1.8	2.3	0.7	S	12.2	20.3	0.6	0.4	20.3	3.1	24
18	0.5	0.3	0.2	0.2	0.2	0.1	0.2	0.5	0.5	0.6	0.9	1.1	1.2	0.9	0.7	0.5	0.1	0.3	S	0.9	0.5	0.5	0.3	0.8	1.2	0.5	24
19	2.2	4.6	7	3.1	2.2	3.5	14.5	29.3	33.1	47.2	46.9	19.4	25.5	15.1	10.1	10.1	16.7	S	9.1	14.1	18.8	19.2	15	26.1	47.2	17.1	24
20	35.2	34.7	45.5	56.9	57.1	57.5	73.7	81.3	67.9	75.2	46.2	20.1	16	8.5	7.6	7.5	S	4.1	4.5	3.4	4.3	8.9	2.7	1.8	81.3	31.3	24
21	2.5	4.3	1.4	1.4	2.2	2.1	2	2.5	5.8	5.7	6.7	7.4	7.4	7.1	7.4	S	24.1	33.3	23.5	21	52.3	33.1	4.2	5.2	52.3	11.4	24
22	3.2	5.2	4.1	5.5	6.6	10.5	21.5	18.3	31.1	60.3	79.5	66.6	62.8	61.2	S	43.1	45	44.8	11.7	8	7.1	6.5	5.4	6.4	79.5	26.7	24
23	3.2	2.3	1.1	0.7	0.4	1	1	0.6	2	1.6	3.2	3.7	4.2	S	5.7	6.6	1.9	11.9	10.1	9.5	3.4	1.2	0.1	0	11.9	3.3	24
24	0	0	0	0.1	0.2	0	0.1	1	2.1	1.1	0.2	0.1	S	1.2	0.7	0.4	0.2	1.2	0.9	0.1	0	0	0.1	0.1	2.1	0.4	24
25	0	0	0.5	0.3	0.9	0.3	0.1	1.4	1	3	5.9	S	5.8	4.1	2.4	1.4	0.9	0.6	1	1	0.6	0.7	0.4	0.7	5.9	1.4	24
26	1	0.7	0.3	0.2	0.2	0.4	3.3	0.7	0.7	10.7	S	21.8	12.6	10.4	6.1	10.8	21.7	4	7.7	0.7	0.2	0	1.3	0.2	21.8	5.0	24
27	0	0	0.2	0.1	0.1	0.2	0.1	0	0	S	1	0.4	0.5	0.2	0.1	0	0	0	0	0.1	0	0.1	0	0	1	0.1	24
28	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	S	1	1.1	1.3	1.3	18.3	7.2	5.5	5.6	10.7	8.1	17.9	8.4	23.4	6.4	4.5	23.4	5.3	24
29	21.3	40.9	28.8	23.9	15	12.1	10	S	11.9	14.9	14.4	12.2	6.7	5.3	4.4	3.4	2.4	0.2	0	0	0	0	0	0.7	40.9	9.9	24
30	1.2	0	0	0.9	2	2.1	S	1.4	1	2.3	3.3	4.6	3.5	3.6	4.6	1.4	0.7	0.8	1.1	1	2.9	1.6	1.9	1.8	4.6	1.9	24
31	1.1	0.9	0.4	0.5	0.7	S	2.7	2.1	2.2	2.1	3	2.5	2.2	2.2	3	3.3	4.1	9.4	9.9	9.7	10.2	8.3	17.7	11.8	17.7	4.8	24
HOURLY MAX	35.2	40.9	45.5	56.9	57.1	57.5	73.7	81.3	67.9	75.2	79.5	66.6	62.8	61.2	17.2	43.1	45.0	44.8	23.5	21.0	52.3	39.6	29.3	26.1			
HOURLY AVG	4.1	4.7	4.4	5.0	4.6	4.6	5.0	6.1	7.4	10.4	10.2	8.4	7.2	6.4	3.8	4.6	5.7	5.7	3.8	3.9	5.8	7.1	3.9	2.9			

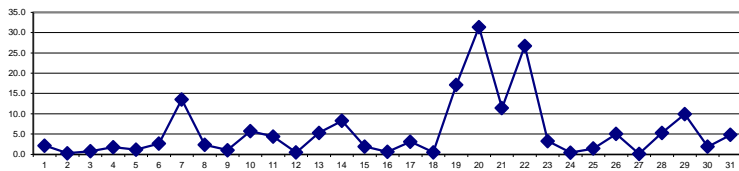
STATUS FLAG CODES

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

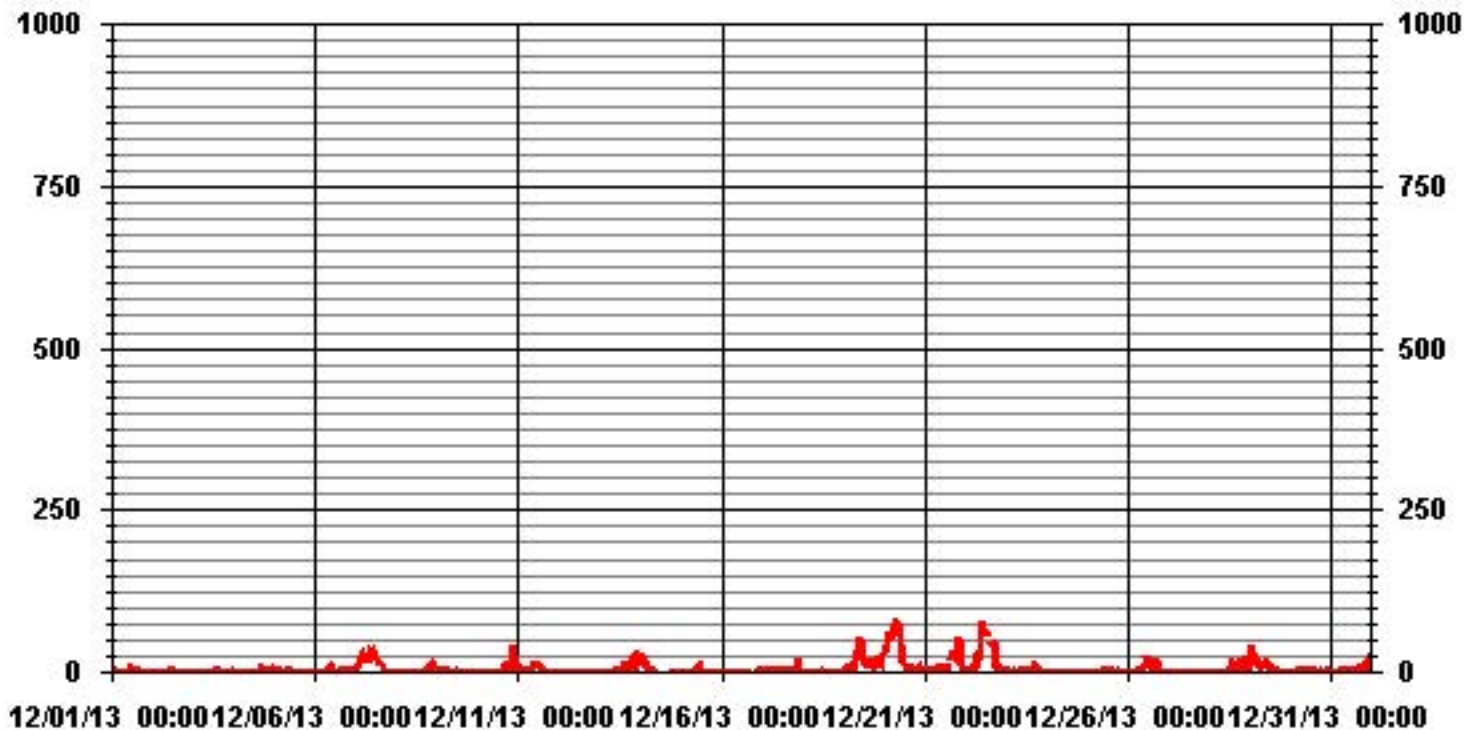
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	591					
MAXIMUM 1-HR AVERAGE:	81.3	PPB	@ HOUR(S)	7	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	31.3	PPB			ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	14	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	11.51		MONTHLY AVERAGE:	5.63	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3.0	2.6	2.4	2.0	1.7	1.4	1.4	2.6	5.2	5.9	13.2	11.3	S	9.0	19.1	4.4	3.9	5.8	1.9	1.8	1.2	0.6	0.5	0.3	19.1	4.4	24	
2	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.1	0.3	0.2	S	17.5	29.0	2.3	3.6	0.4	0.5	0.6	0.3	0.5	0.5	0.6	0.6	29.0	2.6	24	
3	0.6	0.6	0.5	0.5	0.7	0.7	0.8	0.6	0.7	0.7	S	1.8	1.1	48.2	170.7	0.6	0.6	0.6	0.5	0.3	0.6	4.5	6.8	2.5	170.7	10.7	24	
4	2.3	13.1	0.4	0.4	0.4	0.5	0.6	0.7	1.2	S	2.5	1.5	4.1	1.4	1.4	1.0	39.4	15.0	7.6	3.2	8.4	6.5	12.3	4.4	39.4	5.6	24	
5	10.2	1.2	7.5	10.0	1.5	1.4	1.1	1.0	S	2.1	2.1	5.0	2.3	1.8	1.4	1.4	0.9	0.8	0.8	0.7	0.8	0.8	0.9	0.7	10.2	2.5	24	
6	1.2	0.8	1.0	1.0	2.0	1.2	5.9	S	13.4	15.2	6.7	8.4	2.8	1.9	7.1	4.8	9.3	9.1	4.1	4.2	8.2	5.0	4.3	3.1	15.2	5.2	24	
7	3.6	12.5	51.3	34.3	72.1	69.6	S	40.5	98.0	34.0	41.3	41.9	24.7	25.8	23.1	20.6	4.2	2.1	3.7	1.0	0.5	0.3	0.0	0.0	98.0	26.3	24	
8	0.0	9.0	2.9	1.7	0.0	S	3.1	1.5	0.9	0.9	0.5	0.5	0.5	0.4	0.3	1.1	5.1	7.2	3.8	16.9	20.9	38.7	20.9	7.5	38.7	6.3	24	
9	7.3	3.3	10.2	2.8	S	14.4	6.1	1.1	0.9	1.0	5.4	4.1	4.4	0.7	0.2	0.2	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	14.4	2.7	24	
10	0.3	0.3	0.0	S	1.8	1.1	0.8	0.8	0.8	0.8	0.8	6.6	0.9	0.8	0.9	6.1	37.0	67.9	9.7	6.8	82.3	81.5	49.8	25.7	82.3	16.7	24	
11	9.2	4.9	S	5.0	5.0	3.8	5.0	5.2	7.5	17.5	16.0	19.0	13.6	10.1	10.9	4.8	1.1	6.5	1.2	1.1	0.9	0.2	0.2	0.1	19.0	6.5	24	
12	0.1	S	2.9	1.6	1.4	1.2	1.2	1.0	1.0	1.2	1.0	1.0	1.1	1.0	1.1	1.1	1.0	0.9	0.7	1.0	0.9	0.8	1.0	0.8	2.9	1.1	24	
13	S	2.1	1.3	1.0	0.9	19.8	1.7	2.3	2.8	3.0	2.4	3.4	6.0	5.5	29.8	78.0	77.5	13.7	1.6	76.1	55.1	44.7	10.4	S	78.0	20.0	24	
14	32.8	39.9	20.7	19.1	18.3	3.9	3.4	3.2	C	C	C	C	C	C	C	C	C	C	C	2.3	12.7	2.7	S	4.9	39.9	13.7	24	
15	9.4	5.7	1.1	0.7	2.0	1.0	1.1	2.3	6.5	43.7	46.1	19.3	19.1	0.7	0.8	36.0	0.2	0.1	0.1	0.3	0.2	S	1.8	1.6	46.1	8.7	24	
16	1.1	0.7	0.7	0.5	0.3	0.6	0.3	0.5	0.9	1.8	2.4	2.1	2.6	1.2	5.0	1.4	2.5	C	C	C	C	C	C	3.6	2.7	5.0	1.6	24
17	1.8	3.3	4.3	3.4	5.5	2.9	3.7	S	5.3	3.9	4.7	6.2	2.3	2.3	4.8	5.5	6.0	9.0	3.4	S	56.0	36.6	1.9	0.9	56.0	7.9	24	
18	1.0	0.9	0.8	0.8	0.7	0.7	0.8	1.0	1.1	1.2	1.3	1.5	1.8	1.6	1.5	1.1	0.7	0.8	S	1.9	1.0	1.0	1.2	3.1	3.1	1.2	24	
19	5.0	9.3	11.4	6.7	7.2	7.5	46.5	38.0	76.4	63.7	93.3	33.2	42.3	22.9	13.9	21.2	57.2	S	48.6	81.9	39.6	69.2	21.3	43.1	93.3	37.4	24	
20	104.6	68.5	62.4	69.0	82.7	72.0	90.4	102.7	101.0	139.1	91.4	24.8	22.0	12.1	11.4	15.8	S	8.1	9.8	6.9	56.8	27.6	6.1	3.9	139.1	51.7	24	
21	4.2	27.4	2.9	2.2	5.4	5.4	4.0	7.4	10.9	11.9	11.1	9.8	11.0	9.5	11.5	S	36.6	71.0	71.3	52.3	100.0	58.7	5.9	9.2	100.0	23.5	24	
22	8.4	15.2	7.6	17.0	19.2	24.3	79.3	27.5	66.9	97.4	147.3	103.7	68.1	74.1	S	129.7	93.6	92.3	50.9	11.5	10.9	12.3	8.0	11.3	147.3	51.2	24	
23	8.3	4.5	2.8	1.6	1.6	2.8	4.0	2.6	6.4	4.1	17.4	7.8	6.9	S	17.3	17.0	5.3	55.8	31.8	80.8	6.9	3.4	0.8	0.6	80.8	12.6	24	
24	0.5	0.4	0.5	1.2	0.9	0.6	1.3	5.4	8.9	3.0	1.3	0.7	S	2.2	1.3	1.8	0.8	3.9	2.8	0.6	0.6	0.8	0.5	1.5	8.9	1.8	24	
25	0.4	0.9	3.7	1.1	2.9	1.0	1.0	4.1	2.1	5.7	9.3	S	9.9	8.4	5.5	16.9	2.2	1.2	3.6	2.0	1.2	1.5	2.2	P	16.9	3.9	23	
26	2.1	1.8	0.9	0.8	0.8	1.8	41.8	1.6	4.8	18.3	S	33.7	22.0	15.9	P	39.7	140.9	21.7	21.5	1.6	0.7	0.6	6.0	3.0	140.9	17.4	23	
27	0.6	0.6	0.9	0.8	0.7	0.7	0.6	0.5	0.5	S	1.8	0.9	1.3	0.9	0.7	0.5	0.6	0.5	0.7	0.7	0.5	0.7	0.7	0.5	1.8	0.7	24	
28	0.7	0.7	0.8	0.7	0.8	1.2	0.8	0.7	S	1.9	11.1	6.7	7.8	322.0	25.5	18.4	14.8	18.6	48.3	47.2	20.8	41.2	21.4	22.5	322.0	27.6	24	
29	33.8	47.6	39.8	31.6	26.8	19.9	16.7	S	18.8	17.5	17.5	17.6	10.7	8.2	7.5	5.9	5.3	1.0	0.6	0.1	0.2	0.0	0.2	2.9	47.6	14.4	24	
30	3.4	0.9	0.7	3.1	4.1	10.2	S	2.4	1.6	3.5	5.2	7.3	7.3	10.6	26.4	28.7	1.3	1.4	2.3	1.6	6.0	2.9	3.0	3.2	28.7	6.0	24	
31	1.8	1.6	1.0	1.1	1.5	S	4.2	3.4	5.3	3.4	5.4	3.6	3.0	4.9	5.4	11.2	33.4	46.6	47.6	15.8	15.8	14.4	32.6	16.2	47.6	12.1	24	
HOURLY MAX	104.6	68.5	62.4	69.0	82.7	72.0	90.4	102.7	101.0	139.1	147.3	103.7	68.1	322.0	170.7	129.7	140.9	92.3	71.3	81.9	100.0	81.5	49.8	43.1				
HOURLY AVG	8.6	9.4	8.1	7.4	9.0	9.4	11.3	9.3	16.1	18.0	20.0	13.7	11.3	21.8	14.5	16.5	20.1	16.5	13.6	14.5	17.0	15.8	7.5	6.1				

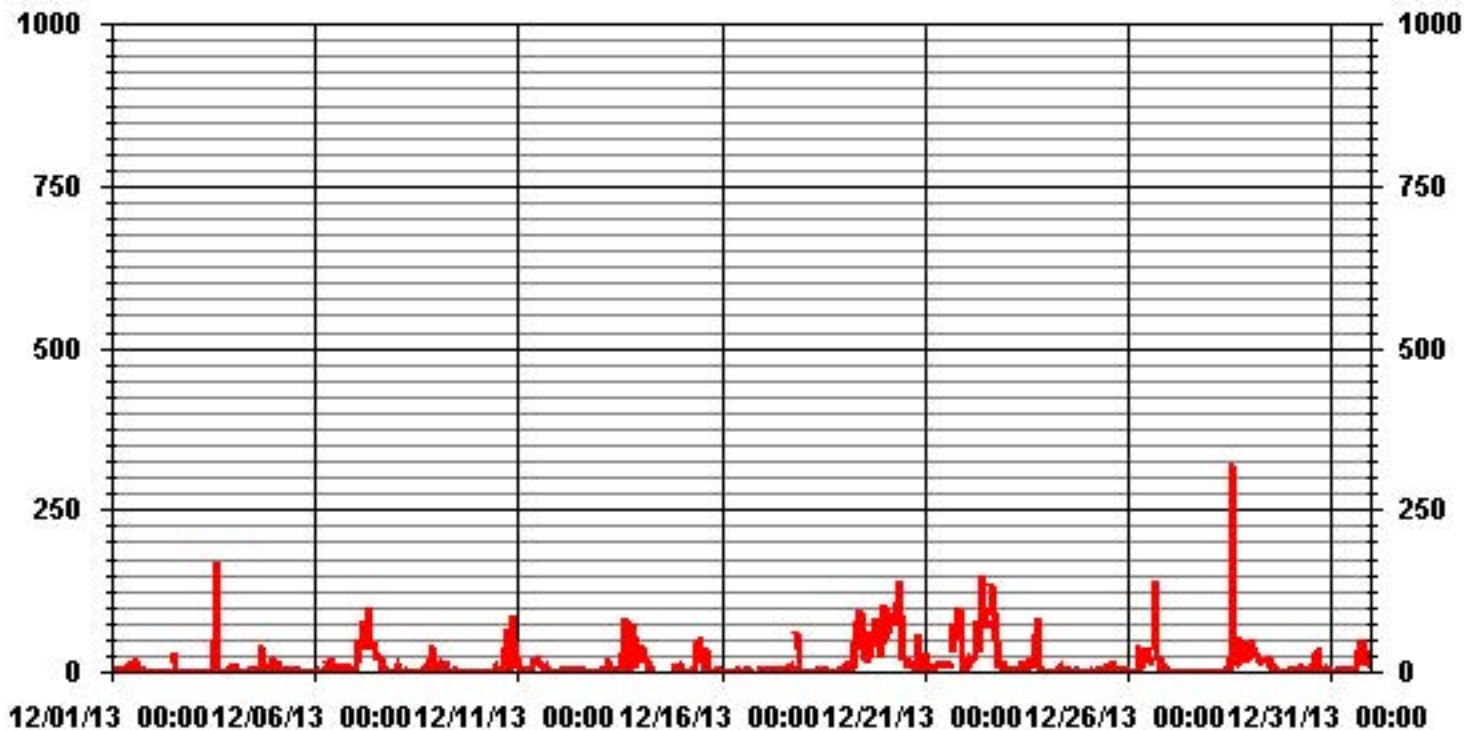
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM INSTANTANEOUS VALUE:	322.0	PPB	@ HOUR(S)	13	ON DAY(S)	28
Izs CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	16	HRS				
STANDARD DEVIATION:	25.97					

01 Hour Averages



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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.58	2.00	4.44	4.01	8.73	19.62	2.14	1.00	.00	.14	.57	4.87	12.17	14.89	17.04	2.86	98.13
< 110.0	.14	.00	.00	.28	.00	.57	.00	.28	.00	.28	.00	.00	.14	.00	.00	.14	1.86
< 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	3.72	2.00	4.44	4.29	8.73	20.20	2.14	1.28	.00	.42	.57	4.87	12.32	14.89	17.04	3.00	

Calm : .00 %

Total # Operational Hours : 698

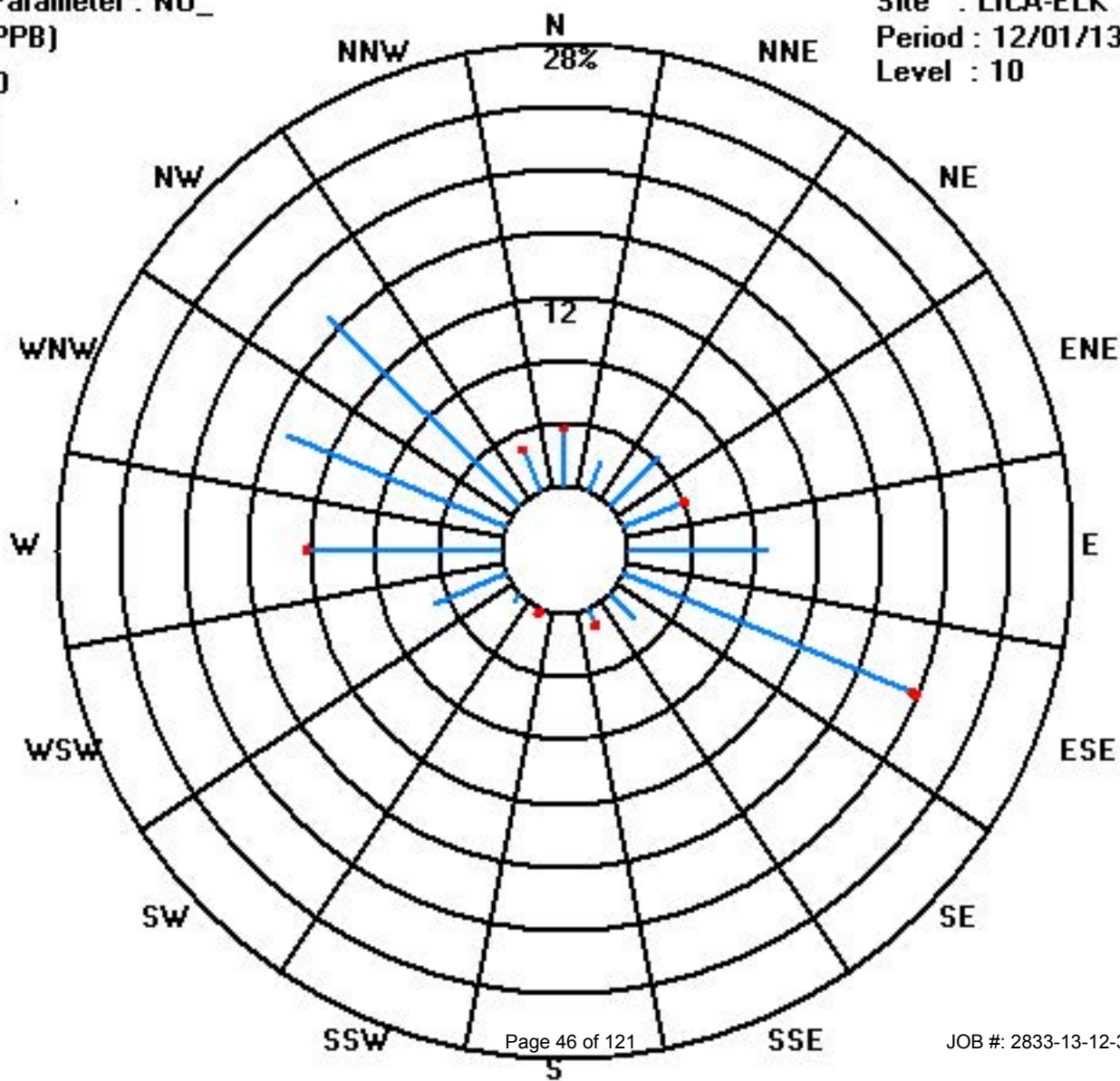
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	25	14	31	28	61	137	15	7		1	4	34	85	104	119	20	685
< 110.0	1			2		4		2		2			1			1	13
< 210.0																	
>= 210.0																	
Totals	26	14	31	30	61	141	15	9		3	4	34	86	104	119	21	

Calm : .00 %

Total # Operational Hours : 698

Class Limits (PPB)



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

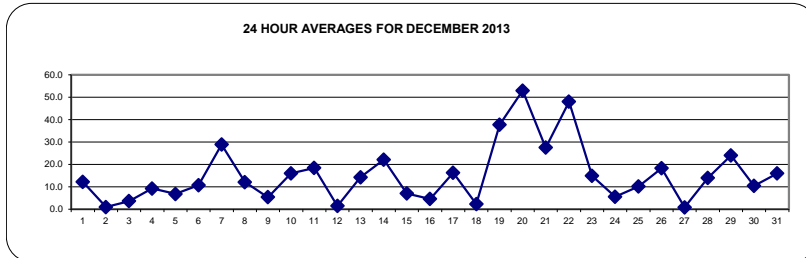
DECEMBER 2013

OXIDES OF NITROGEN hourly averages in ppb

MST	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																													
1		18.2	16.3	13.9	14.6	13.1	11.2	10.3	12	12.4	13.1	19.4	18.7	S	17.9	12.8	12.7	16.5	13.2	10.4	11.3	7.8	3.7	1.2	0.6	19.4	12.2	24	
2		0.9	0.9	0.6	0.3	0.4	0.2	0	0	0	0	0	S	4.2	5.2	1.7	1.7	1.1	1.2	1	0.7	0.7	0.5	0.2	0.3	5.2	0.9	24	
3		0.4	0.5	0.7	1.6	2.2	3.1	2.9	2	0.9	0.3	S	1.5	1	1.8	11.4	0.9	1	1	1.1	2	3.9	12.9	18.5	11.8	18.5	3.6	24	
4		13.3	10.2	1.9	1.5	0.8	1	2.6	3.7	2.6	S	3.3	2	2.8	2.3	2.6	2.5	15.5	24.2	20.1	13.2	19.2	16	29.9	21.2	29.9	9.2	24	
5		23.6	6.6	16.3	20.9	7.2	5.5	3.2	3.5	S	4.8	4.4	7.1	3.8	3.3	3.2	4.1	4.6	5	4.9	4.9	5	5	5.1	4.7	23.6	6.8	24	
6		6.3	3.5	2.9	3.8	5.1	4.4	8.8	S	21.7	25.4	12.4	8.2	3.5	2.5	6	7	19.3	23.2	9.5	14.7	16.7	13	14.5	12.8	25.4	10.7	24	
7		14.5	25.8	34.1	46.9	52.1	47.1	S	44	55	45.6	47.6	37.9	34.4	36.2	35.1	35	14.9	15	14.3	9.8	8.8	4.4	2.7	2	55	28.8	24	
8		1.5	9.5	13.4	9.2	1.3	S	8.8	2	2	1.5	0.7	0.5	0.5	0.3	0.5	2.6	10.1	23.6	20.8	27.1	37.3	41.9	36.2	26.5	41.9	12.1	24	
9		24.1	17.6	19.2	14.7	S	25.8	5.3	1.1	0.5	0.4	0.7	5.4	6.5	0.4	0	0.4	0	0.7	0.1	0	0	0	0	0	25.8	5.3	24	
10		1.4	2.6	1.7	S	2.8	2.7	1.9	1.5	1.1	1	0.8	1.5	0.9	0.6	0.8	9.6	31.7	39.2	28.4	27.2	40.7	69.7	59	40.1	69.7	16.0	24	
11		31.2	20.2	S	21.5	20.9	19.2	21.5	24.6	25.8	31.7	25.3	28.3	24.3	18.9	20.1	13	13.6	16.8	13.7	13.2	9	4.5	3.3	2.4	31.7	18.4	24	
12		1.6	S	3.4	2	2.1	2	1.8	1.3	1.1	0.8	1.2	1	1.3	1.3	1.6	1.7	2.1	1	0.6	1.5	0.9	1.1	0.8	0.9	3.4	1.4	24	
13		S	2.4	1.8	2	3.1	5	3.9	3.7	5.1	3.5	4.6	4.9	6.1	5.4	11.6	31.2	39.8	23.1	11.2	23.2	43.3	49.7	28.8	S	49.7	14.2	24	
14		52.8	49.7	39.1	38.8	30	16.7	12.9	8.9	14.5	C	C	C	C	C	C	C	C	C	C	6.1	6.4	4.7	S	7.2	52.8	22.1	24	
15		9.1	7.4	6.1	6	6.9	6.6	8.9	10.8	13.6	16.7	20	22	12.2	1.1	1.2	1.7	0.4	0.5	0.6	1.6	1.9	S	2.9	4.2	22	7.1	24	
16		5.7	4.4	1.7	1.9	1.6	1.8	2.1	1.6	3.1	2.4	3.1	1.3	4.7	1.1	6.7	2.9	10.4	C	C	C	C	14.2	9.8	10.7	14.2	4.6	24	
17		11.3	15.6	21.6	23.4	24.4	17.7	15.3	S	13.8	12.4	10.3	11.4	7.6	8	9.6	13.8	16.7	17.2	15.6	S	35.7	48.8	4.5	2.5	48.8	16.2	24	
18		3	2.1	1.3	0.9	1.1	1.6	1.9	4.3	4.4	2.5	2.2	2.1	2.4	1.9	1.9	2	1.2	1.2	S	1.4	1.1	2.6	2.3	7	7	2.3	24	
19		16	24.6	26.5	16.8	14.3	18.2	36.7	55.1	59	73.9	69.7	32.5	40.5	26.5	21.9	26.4	40.8	S	33.3	37	47.4	50	43.7	55.4	73.9	37.7	24	
20		64.6	63.7	74.3	84.9	85.5	85.6	102.4	112.5	97.2	105.7	68.4	36	30	18.7	19.6	23	S	19.5	22.2	20.6	24.3	32.7	15.6	10.5	112.5	52.9	24	
21		17.3	20.7	10.7	12	15	13.3	10.1	12.2	18.8	16.1	15.6	16	15.8	15.5	18.2	S	53.8	64	51.1	50.5	81.3	58.4	21	25	81.3	27.5	24	
22		16.5	20.6	18.2	22.9	24.5	31	44.8	41.7	56.5	85.1	103.7	87.3	82.7	83.7	S	66.9	71.2	72.6	34.1	29.7	28.2	27.4	26	28.1	103.7	48.0	24	
23		19.3	16.2	11.5	9.6	8.5	9.7	9.7	8.6	12.1	9.8	10.8	11.4	12.6	S	14.8	22.3	14.7	36.9	38.6	31.3	23.3	9.4	1.4	0.6	38.6	14.9	24	
24		0.5	0.7	0.3	6.3	7	4.3	6.2	15.6	20.4	9.6	3	2.2	S	2.6	2.1	2.7	2.1	10.5	9.6	3	3.2	4.2	5.3	6.4	20.4	5.6	24	
25		4.1	5.7	8.2	5	10.4	5.7	7.5	17.4	16.9	16.9	20.5	S	18.8	14.6	10.1	8	8.9	7.7	10.7	10.5	7.8	9	5.7	4	20.5	10.2	24	
26		16.4	9	4.9	6.1	7.2	8.6	26.8	10.2	9.1	32	S	45.7	29.8	26.7	20.3	32	50.8	30.7	31.6	7.4	3.2	2.1	8.6	2	50.8	18.3	24	
27		0.9	0.6	1.9	2.1	2.6	2.9	1.4	0.7	0.2	S	1.4	0.9	0.8	0.5	0.3	0.2	0.1	0	0	0.5	0.5	0.6	0.4	0.2	2.9	0.9	24	
28		0.6	1	1.5	1.2	0.7	0.9	1	1	S	2.4	2.9	3	3.1	26.5	14.4	15.5	22.2	34.1	28.5	42.5	27.6	49.6	22.8	17.8	49.6	13.9	24	
29		44.2	66.4	52.8	46.1	36.2	33.4	31.3	S	33.3	33.1	29	24.2	15.9	14.1	14.2	15.5	19.7	9.4	7	4.2	3.6	3.1	2.5	12.3	66.4	24.0	24	
30		14.9	6.2	8.5	14.4	17.8	17.2	S	6	4.5	7.1	7.3	9.2	7.1	8.9	9.6	4.9	5.2	8.6	12.6	12.2	15.6	12.3	14.8	14.5	17.8	10.4	24	
31		10.2	7.1	3.8	4	4.2	S	7.1	7.3	7.6	6.5	7.5	6.4	5.8	7	8.1	10.8	18	27.3	34.1	35.8	36.2	32.8	43.2	36.2	43.2	16.0	24	
HOURLY MAX		64.6	66.4	74.3	84.9	85.5	85.6	102.4	112.5	97.2	105.7	103.7	87.3	82.7	83.7	35.1	66.9	71.2	72.6	51.1	50.5	81.3	69.7	59.0	55.4				
HOURLY AVG		14.8	14.6	13.4	14.7	13.6	13.9	13.7	14.8	17.7	20.0	17.7	15.3	13.5	12.2	9.7	12.8	17.5	18.8	16.6	15.3	18.0	19.5	14.4	12.3				

STATUS FLAG CODES

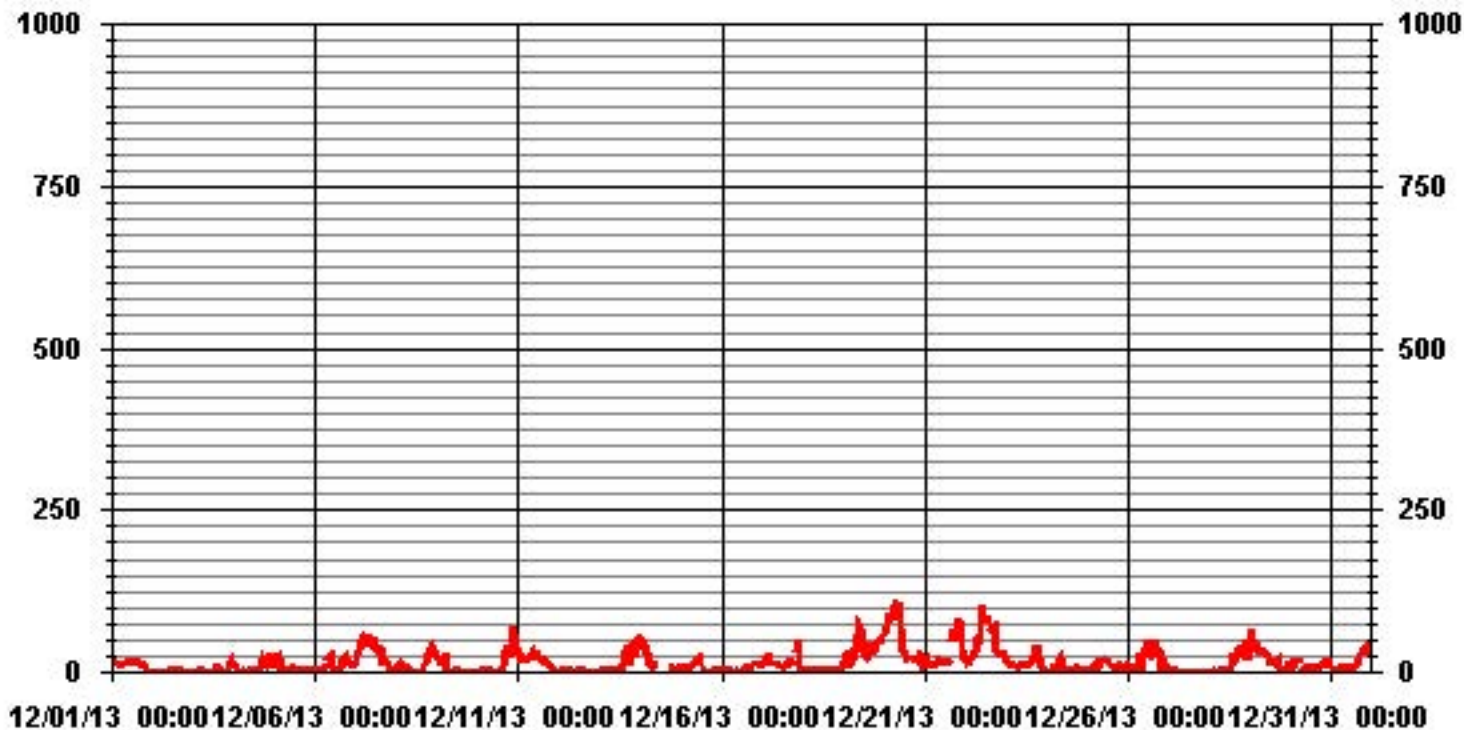
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM 1-HR AVERAGE:	112.5 PPB @ HOUR(S) 7 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	52.9 PPB ON DAY(S) 20
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	14 HRS
STANDARD DEVIATION:	18.38
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	15.18 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	20.6	21.5	17	16.5	16.3	13.2	12.7	15.4	17.9	16.3	26.9	23.2	S	20.9	33.6	17.1	19.3	21.6	13	15.5	10.9	6.6	2.1	1.3	33.6	16.5	24	
2	1.6	1.6	1.1	1	1	1	0.5	0.5	0.1	0	0	S	27.3	38.7	4.6	5.9	1.6	2	1.6	1.2	1.4	1.1	1	1	38.7	4.2	24	
3	0.9	1	1.4	2.8	3	3.7	3.8	2.9	2	1.1	S	2.6	1.5	50	188	1.6	1.7	1.4	1.6	4.2	7.3	27	27.5	14.2	188	15.3	24	
4	20.2	35.8	3	3.4	1.3	1.6	4.4	5.5	6.1	S	4.4	3	8.3	2.9	3.2	3.7	70	39.9	29.5	19.7	32.9	29.4	38.4	24.8	70	17.0	24	
5	36.4	11.2	29.4	31.6	10.2	9.8	6.8	4.4	S	5.4	5.1	11.1	5.5	4.2	3.8	4.9	5.5	5.6	5.6	5.7	5.9	5.7	5.7	5	36.4	9.8	24	
6	8.3	5.3	5.1	6.2	9.8	7.3	22.7	S	33.2	33.2	15.3	16.5	5.8	4.3	18.2	13.7	35.2	35.1	18.6	18.7	24.7	19	17.8	17.6	35.2	17.0	24	
7	18.8	34.3	75.6	56.2	92.5	96.9	S	66.7	125.4	58.1	59.3	57.2	40.2	43.5	41.1	47.7	22.9	16.9	26.2	11	11	8.9	3.6	2.9	125.4	44.2	24	
8	2.4	36	24.4	22.2	2.3	S	15	3.3	2.7	2.4	1.4	1.1	1.2	1.2	1.3	10.4	28.9	35.4	26.1	46.6	51.4	71.9	49.6	33	71.9	20.4	24	
9	32.2	21.9	31	19.1	S	40.2	26.3	1.7	1.2	2	13.1	11.8	12.4	1.9	0.6	1.5	0.6	2.1	1	0.3	0.2	0.1	0.3	0.4	40.2	9.6	24	
10	3.6	3.5	2.4	S	3.7	3.7	2.6	2.4	1.9	1.5	1.5	27.6	1.6	1.1	2.7	23.2	62.4	113.4	34.8	35.4	116.7	115.9	79.1	53.1	116.7	30.2	24	
11	35.3	24.1	S	24.7	24.5	21.7	27	27.9	31.4	37.6	33.1	35	26.9	22	25.6	16.8	15.4	25.7	15	14.4	11.3	6	4.7	3.6	37.6	22.2	24	
12	2.5	S	5.1	2.7	3	2.9	2.4	2.3	2.6	2.3	1.9	1.9	1.8	2	2.2	2.8	3.1	2.2	1.5	3	2.4	2	2.4	2.4	5.1	2.5	24	
13	S	3.9	3.5	3.8	4.5	33.7	6.1	7.2	8.4	6.9	6.3	9	11.9	10.9	48.5	120.7	108.8	35.1	13.1	104.1	80.9	71.8	33.2	S	120.7	33.3	24	
14	60.4	65.1	45	42.1	42.1	22.1	17.5	10.7	C	C	C	C	C	C	C	C	C	C	C	C	7.6	23.8	9	S	12.9	65.1	29.9	24
15	21.1	15.2	8.3	7.1	10.1	9.7	11.2	15.1	24	63.6	64.9	32.4	32.1	3.3	5	43.7	1.1	1	1.3	5.7	4.5	S	4.6	9.9	64.9	17.2	24	
16	7.8	7.6	2.8	2.9	3.6	3.3	3.1	3.2	7.3	7.5	11.2	6.5	7.9	3.7	18.3	7.4	20.3	C	C	C	C	C	C	16.2	22.8	22.8	8.6	24
17	18.3	20.2	30.4	29.1	30.4	21.8	22.9	S	20	15.4	13.1	17.1	11.1	10.4	13.8	20.2	24.3	36.3	27.2	S	92.1	71.1	14.4	3.5	92.1	25.6	24	
18	3.9	3.1	1.8	1.4	1.8	2.4	4	5	7.1	3.6	2.6	2.6	3.2	2.8	3.6	3.3	1.7	1.8	S	2.3	1.6	5.6	5.5	16.1	16.1	3.8	24	
19	21.8	33.3	34.1	25.8	22.9	25.6	72.5	64	112.6	100.4	122.1	50.8	62.8	37.8	27	44.7	85.4	S	94.4	111.6	69.8	103.8	50.9	73.8	122.1	63.0	24	
20	143.6	111	92.2	97.4	112.4	100.9	121.9	134.3	130.4	172.7	121.7	42.4	38	23.9	26.7	36.6	S	29.1	33.3	29.1	88.7	59.7	24.4	17	172.7	77.7	24	
21	22.8	55.9	16.5	13.8	21.3	21.9	14	25.3	30.3	26.7	24.8	19.6	21.8	20.5	24.8	S	70.4	107.6	108.3	81.2	139.1	86.7	26.4	33.2	139.1	44.0	24	
22	29.2	37.9	27.3	38.6	41.5	47.4	132.1	51.5	105.7	125.8	182	132.8	88.9	101.5	S	157.6	116.9	120.5	84	34.2	33.6	34.2	30	39.5	182	77.9	24	
23	26	21.8	14.5	11.1	10.6	15.1	15.3	14.3	20.4	14.5	28.8	20.3	17.8	S	41.3	40.9	27.7	88.9	66.2	111	37.5	21.4	3.6	1.3	111	29.1	24	
24	1.6	1.3	1.3	18.4	10.2	7.1	12.2	32.4	40.5	21.6	6.8	4.6	S	3.7	2.6	8.6	9.7	26.7	20.9	4.1	4.2	6	8	14.3	40.5	11.6	24	
25	6.4	8.3	28.5	9.5	16.7	11.2	14.8	28.6	28.9	22.3	26.4	S	26.3	23.2	16.3	38.3	13.3	9.3	22.1	15.8	12.4	14.8	15.3	P	38.3	18.6	23	
26	22.5	16.9	9.2	7.6	9.4	26.7	75	13.3	20.7	44	S	61	47.3	35	P	71	174.7	53	52.7	13	4.7	3.7	23.6	16.4	174.7	36.4	23	
27	2.2	1.4	2.7	2.7	4.1	4.4	2.2	1.5	0.8	S	2.5	1.4	1.3	1.1	0.8	1	0.9	0.6	0.8	1.2	1.1	1.3	1.2	0.8	4.4	1.7	24	
28	1.3	1.8	2.2	2	1.3	1.6	1.6	1.6	S	3.2	19.9	11.6	13.6	397.7	41.4	37	40	42.6	75.5	76.4	47.2	73.2	46.7	46.6	397.7	42.9	24	
29	58.4	78	63.9	54.3	48.1	41.6	38.6	S	40.6	37.4	32.8	31.7	22.1	17.9	19.4	21.9	26	14.1	10.6	5.2	4.3	4.5	4.1	19.2	78	30.2	24	
30	20.9	13.3	13.6	22.9	23.2	28.2	S	8.4	5.1	10.6	10.7	14.1	13.1	75.8	41.5	39.9	6.3	13.2	15.1	13.3	22.4	16.2	17.1	17.9	75.8	20.1	24	
31	12.1	9.4	5.1	5.1	6.1	S	10	10.3	14.8	10.4	11.3	8.3	7.4	10.8	12.6	27.2	61.1	75.8	80	46.2	45.1	49.3	63.9	43.5	80	27.2	24	
HOURLY MAX	143.6	111.0	92.2	97.4	112.4	100.9	132.1	134.3	130.4	172.7	182.0	132.8	88.9	397.7	188.0	157.6	174.7	120.5	108.3	111.6	139.1	115.9	79.1	73.8				
HOURLY AVG	22.1	23.4	19.9	19.4	19.6	21.6	24.1	20.0	30.1	30.2	30.4	23.5	20.0	33.5	23.9	30.0	36.4	34.2	31.4	28.9	33.0	31.9	20.7	18.9				

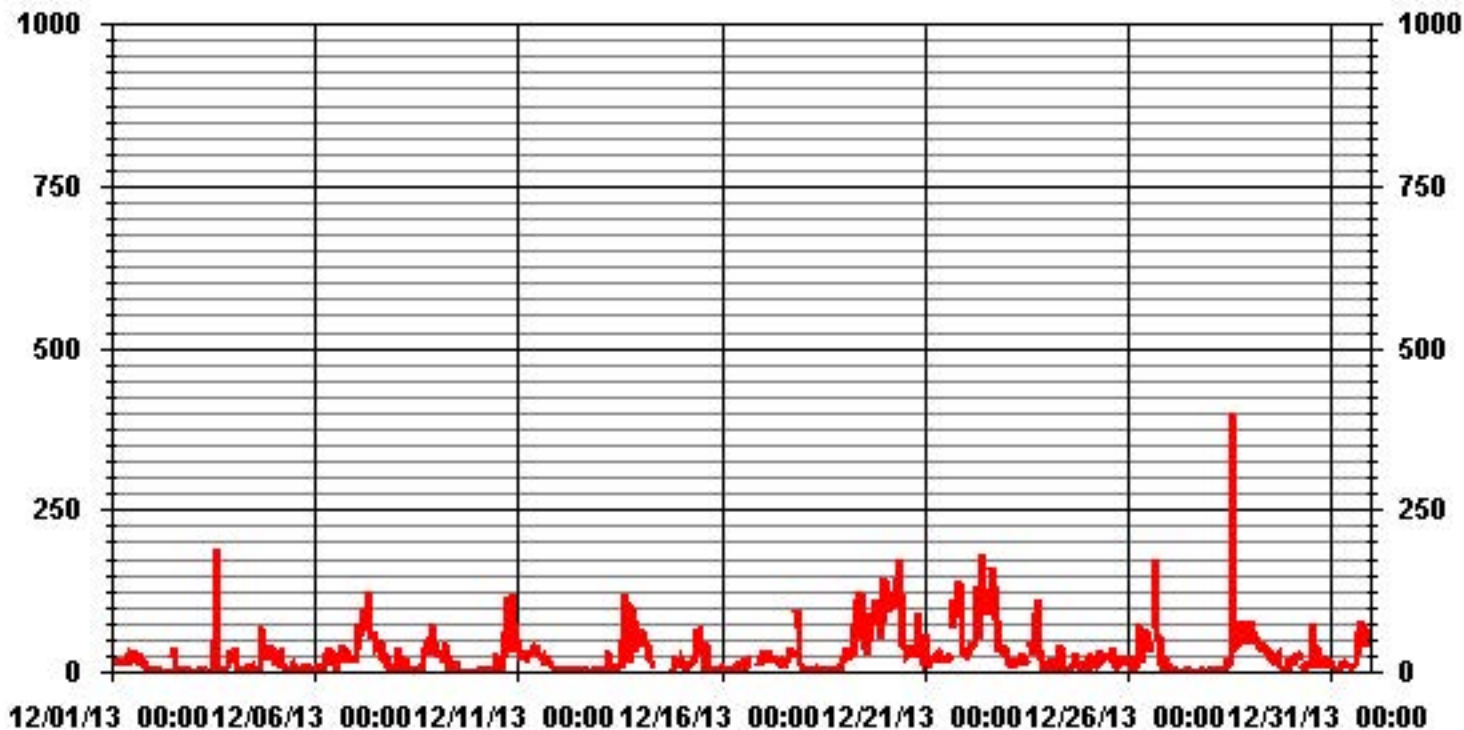
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	692					
MAXIMUM INSTANTANEOUS VALUE:	397.7	PPB	@ HOUR(S)	13	ON DAY(S)	28
IJSZ CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	16	HRS				
STANDARD DEVIATION:	34.35					

01 Hour Averages



— LICA35 NOXMAX PPB

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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.43	2.00	4.44	3.58	8.30	18.48	2.00	.71	.00	.14	.57	4.58	11.89	14.46	16.76	2.86	94.26
< 110.0	.28	.00	.00	.71	.42	1.57	.14	.57	.00	.28	.00	.28	.42	.42	.28	.14	5.58
< 210.0	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.72	2.00	4.44	4.29	8.73	20.20	2.14	1.28	.00	.42	.57	4.87	12.32	14.89	17.04	3.00	

Calm : .00 %

Total # Operational Hours : 698

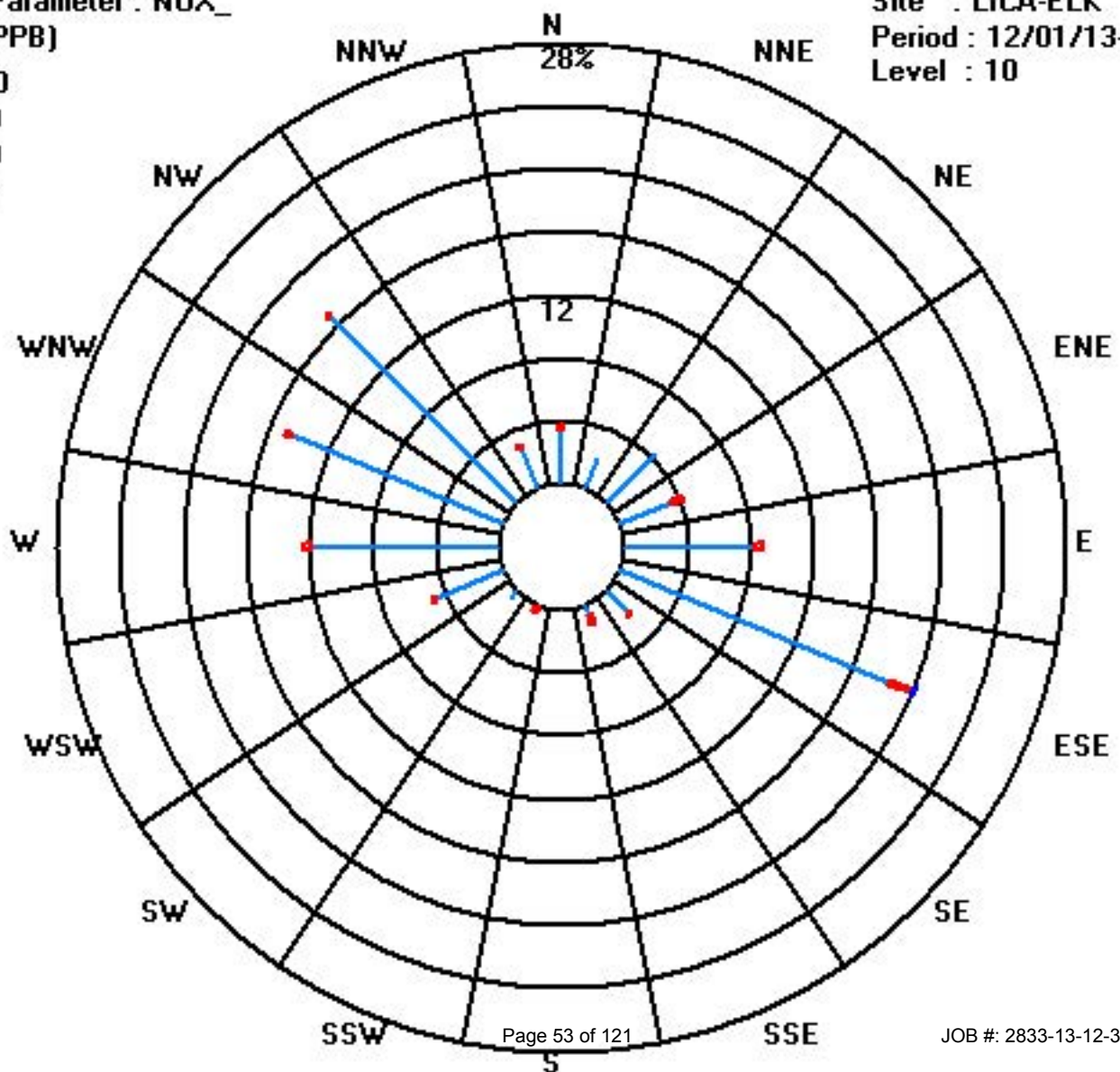
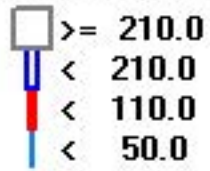
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	24	14	31	25	58	129	14	5		1	4	32	83	101	117	20	658
< 110.0	2			5	3	11	1	4		2		2	3	3	2	1	39
< 210.0						1											1
>= 210.0																	
Totals	26	14	31	30	61	141	15	9		3	4	34	86	104	119	21	

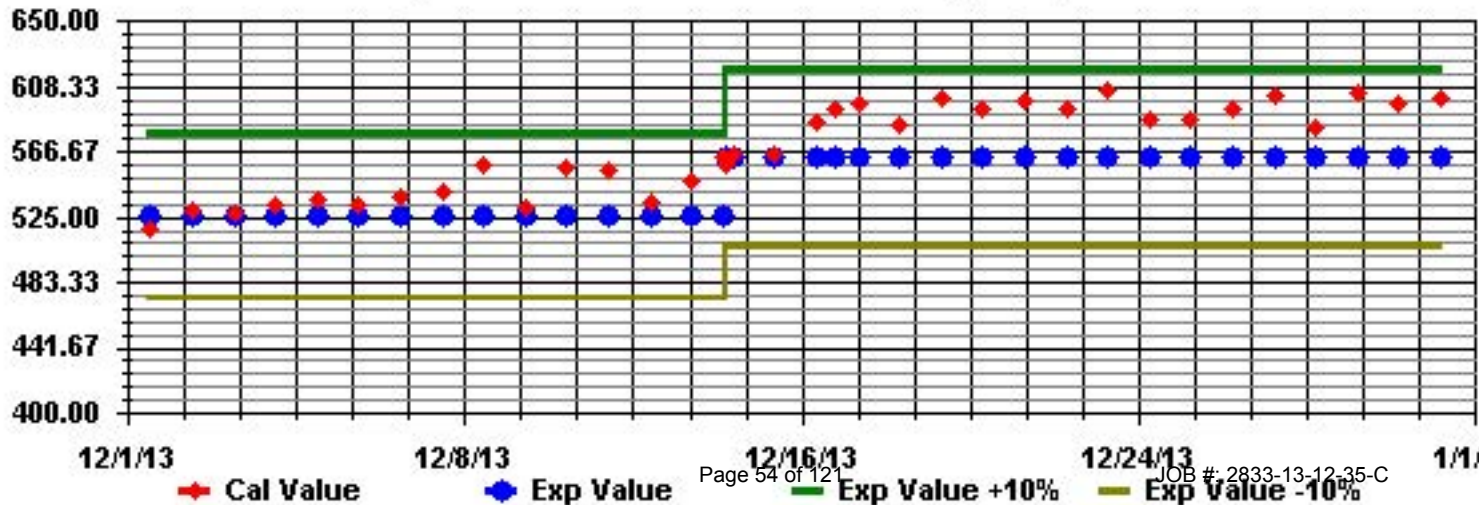
Calm : .00 %

Total # Operational Hours : 698

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																												
1	8	9	11	10	12	13	14	12	12	14	13	14	S	15	17	15	10	14	15	13	16	20	24	25	25	14.2	24	
2	25	25	24	24	24	23	23	22	22	23	24	S	26	29	28	27	26	26	25	25	25	24	25	24	29	24.7	24	
3	24	24	23	19	19	19	20	21	23	26	S	26	26	27	28	31	31	30	29	28	26	17	14	18	31	23.9	24	
4	16	20	26	27	28	28	26	25	26	S	27	28	28	28	28	27	20	10	13	17	13	14	6	11	28	21.4	24	
5	9	22	13	13	21	23	25	24	S	24	24	23	26	27	26	25	24	23	23	23	23	23	23	23	27	22.2	24	
6	21	24	25	24	23	23	19	S	11	14	21	24	26	27	24	23	12	9	19	14	13	14	12	13	27	18.9	24	
7	10	3	1	1	1	1	S	1	2	8	10	13	12	12	11	9	20	19	19	23	23	26	28	28	28	12.2	24	
8	29	23	18	21	29	S	25	30	30	30	31	31	31	32	32	29	23	12	14	10	3	4	2	6	32	21.5	24	
9	7	11	10	14	S	7	28	30	31	32	33	29	29	34	35	35	36	35	35	35	34	33	34	33	36	27.8	24	
10	28	25	27	S	28	27	29	30	31	31	31	31	31	32	31	25	10	6	9	8	2	1	1	2	32	20.7	24	
11	3	9	S	8	7	8	7	4	5	8	13	13	15	16	14	16	13	11	15	15	20	26	28	31	31	13.3	24	
12	32	S	31	31	30	30	29	30	30	29	28	29	30	30	29	28	27	28	28	28	28	28	29	29	32	29.2	24	
13	S	28	28	27	25	24	25	25	24	25	25	25	25	25	22	12	4	10	15	10	4	2	2	S	28	18.7	24	
14	1	1	1	0	2	10	14	17	14	14	18	21	22	22	22	21	C	C	C	C	C	22	S	22	22	13.6	24	
15	20	20	20	20	20	19	17	16	14	16	16	17	33	43	42	42	41	40	40	39	38	S	S	38	36	43	28.1	24
16	33	35	37	37	38	38	37	38	37	39	39	41	39	41	38	40	32	39	27	26	S	29	31	29	41	35.7	24	
17	27	22	15	11	12	16	18	18	23	25	28	29	32	32	30	25	21	19	18	S	7	5	28	26	32	21.2	24	
18	22	22	24	26	27	25	25	22	22	24	24	24	25	24	24	24	25	26	S	26	26	24	25	20	27	24.2	24	
19	13	5	5	11	13	12	4	1	1	5	9	15	13	15	14	9	2	S	9	7	3	1	2	1	15	7.4	24	
20	1	0	1	1	1	1	1	0	1	3	8	13	17	20	20	16	S	16	14	13	10	6	17	21	21	8.7	24	
21	15	13	20	18	15	17	20	18	16	18	20	21	22	22	20	S	2	1	3	1	0	3	9	5	22	13.0	24	
22	12	9	10	6	6	3	1	1	1	4	6	8	8	S	4	1	1	2	2	4	4	4	4	4	12	4.7	24	
23	9	12	16	19	21	21	22	23	21	22	24	25	25	S	26	20	21	8	4	11	11	25	34	42	42	20.1	24	
24	43	42	44	38	35	34	31	22	17	30	37	38	S	37	36	36	37	29	32	38	39	37	36	34	44	34.9	24	
25	36	36	33	35	30	35	31	21	22	22	22	S	25	28	32	34	31	29	28	30	30	28	31	28	36	29.4	24	
26	18	27	30	28	27	25	10	26	26	13	S	10	16	16	16	8	2	4	10	28	30	30	23	30	30	19.7	24	
27	29	26	23	22	24	25	29	30	31	S	31	32	32	33	35	36	37	38	39	38	38	36	35	35	39	31.9	24	
28	34	32	29	28	28	27	27	26	S	26	26	26	25	24	21	17	11	3	7	3	6	1	10	11	34	19.5	24	
29	1	0	0	0	1	1	1	S	2	7	11	14	17	19	18	15	10	18	20	22	23	25	25	15	25	11.5	24	
30	13	20	18	13	10	12	S	20	21	19	21	21	22	22	21	22	20	19	14	13	12	14	11	12	22	17.0	24	
31	16	21	25	26	26	S	25	24	24	25	26	27	28	27	26	24	18	13	7	3	4	5	2	1	28	18.4	24	
HOURLY MAX	43	42	44	38	38	38	37	38	37	39	39	41	39	43	42	42	41	40	40	39	39	37	38	42				
HOURLY AVG	18.5	18.9	19.6	18.6	19.4	18.9	20.1	19.9	18.6	19.9	22.3	23.0	24.3	25.6	25.5	23.2	19.6	18.5	18.4	18.9	17.6	17.6	19.6	20.5				

STATUS FLAG CODES

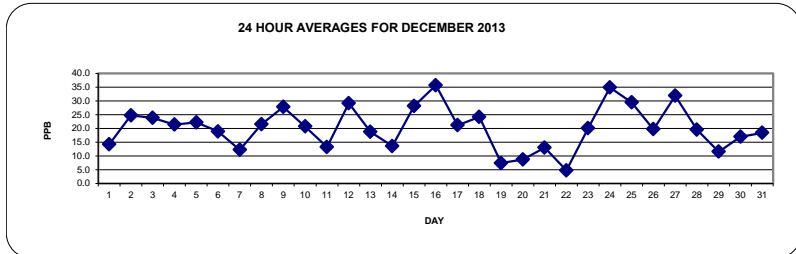
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

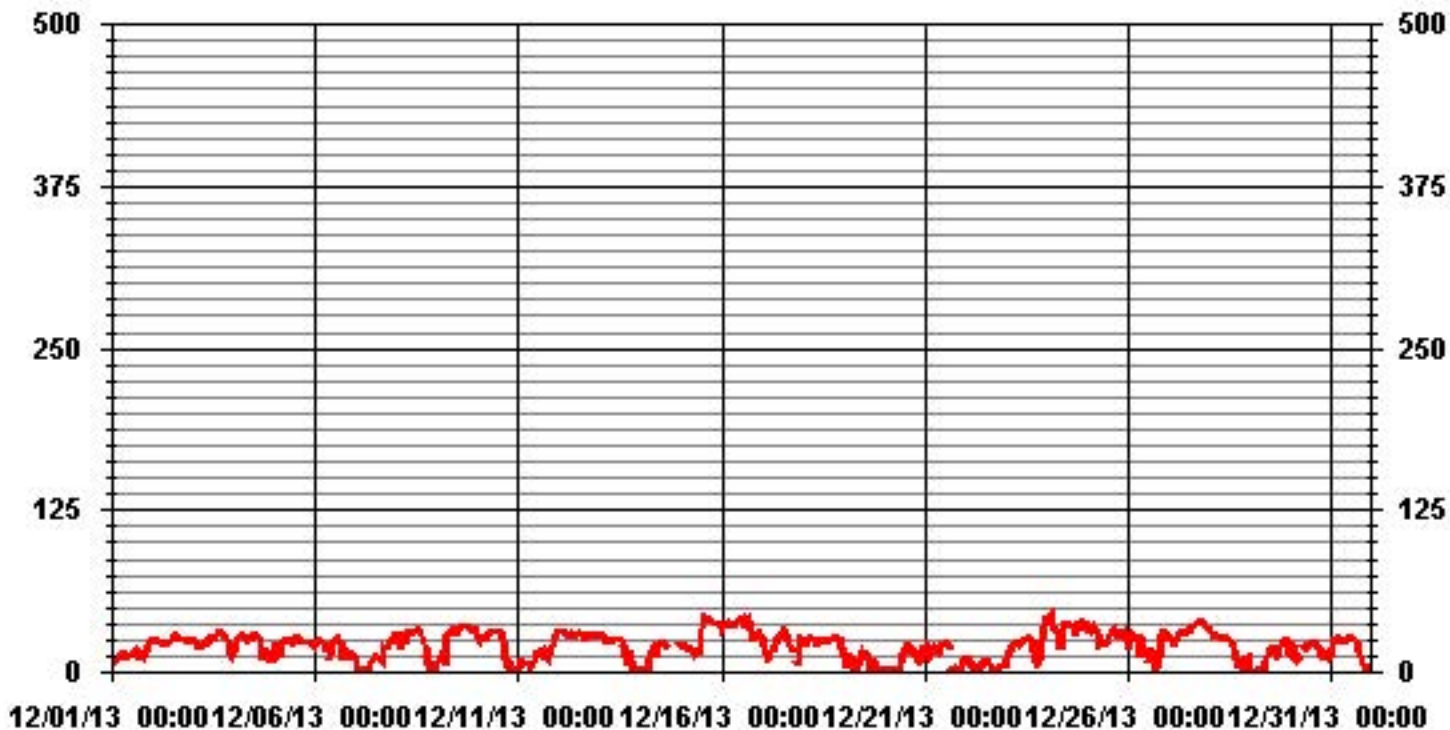
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	700				
MAXIMUM 1-HR AVERAGE:	44	PPB	@ HOUR(S)	2	ON DAY(S) 24
MAXIMUM 24-HR AVERAGE:	35.7	PPB			ON DAY(S) 16
					VAR-VARIOUS
I/SZ CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	10.57		MONTHLY AVERAGE:	20.29	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	10	13	14	12	15	15	16	14	15	15	16	16	S	16	20	19	13	18	17	17	18	23	24	25	25	25	25	16.6	24
2	25	25	25	25	25	23	23	23	23	24	24	S	28	30	30	27	26	26	26	26	26	25	25	25	25	30	30	25.4	24
3	25	25	24	22	19	19	21	22	25	26	S	27	27	28	29	31	31	31	30	29	28	27	21	20	31	31	25.5	24	
4	20	27	27	28	28	28	28	28	27	S	28	29	29	29	28	28	27	15	18	21	25	25	10	13	29	29	24.6	24	
5	22	25	22	22	24	26	26	25	S	24	25	25	27	27	27	26	25	24	24	25	24	24	23	23	27	27	24.6	24	
6	24	25	26	26	25	25	24	S	17	20	24	26	27	27	28	25	23	16	23	18	17	17	15	16	28	28	22.3	24	
7	14	10	2	1	1	1	S	1	6	10	11	15	14	14	12	14	22	21	23	23	24	28	28	29	29	29	14.1	24	
8	30	29	29	28	29	S	30	31	30	31	31	31	32	32	32	32	30	17	22	20	11	9	5	11	32	32	25.3	24	
9	11	14	14	18	S	13	31	31	32	33	33	33	33	35	35	36	36	36	36	36	35	34	34	34	34	36	29.6	24	
10	32	27	28	S	28	29	30	31	31	31	32	32	32	32	32	24	16	14	14	5	1	3	3	3	32	32	23.4	24	
11	9	13	S	11	9	10	11	7	8	12	14	16	16	17	15	17	15	14	15	18	24	27	31	33	33	33	15.7	24	
12	34	S	32	32	31	31	30	31	31	30	29	29	30	30	30	30	28	29	29	29	29	29	29	30	34	34	30.1	24	
13	S	29	29	29	27	26	26	26	26	26	26	26	27	27	25	23	12	18	16	15	13	7	6	S	29	29	22.0	24	
14	1	1	1	1	5	13	17	18	17	16	23	22	23	23	23	C	C	C	C	C	C	24	S	24	24	24	15.3	24	
15	23	22	21	21	21	21	19	19	19	20	19	20	43	44	43	42	42	41	41	41	41	40	S	39	38	44	30.4	24	
16	35	38	38	38	39	39	39	39	40	40	43	43	42	42	41	39	41	40	30	S	33	35	36	43	38.8	38.8	24	24	
17	33	26	21	16	16	21	23	22	26	27	30	31	33	33	33	29	28	26	24	S	17	25	30	29	33	26.0	24	24	
18	23	24	25	27	27	26	26	23	23	25	24	25	25	26	25	25	26	26	S	27	26	26	26	25	27	25.3	24	24	
19	18	11	10	16	18	18	10	2	3	8	12	17	16	17	16	14	5	S	14	13	5	1	7	1	18	11.0	24	24	
20	1	1	1	1	1	1	2	1	3	6	12	15	18	22	22	23	S	22	20	17	16	12	24	25	25	11.6	24	24	
21	21	19	22	21	18	20	22	22	23	22	22	23	23	23	21	S	5	2	7	6	1	12	12	10	23	16.4	24	24	
22	15	17	16	15	11	8	5	3	3	5	7	11	8	10	S	7	2	2	3	4	6	6	6	6	17	7.7	24	24	
23	13	16	18	21	23	23	25	25	24	25	27	27	S	30	25	24	19	12	18	21	31	38	43	43	43	24.1	24	24	
24	43	44	45	45	40	36	35	31	24	36	38	39	S	37	37	40	39	38	39	39	39	39	38	38	45	38.2	24	24	
25	38	39	40	40	35	38	35	29	29	28	26	S	30	34	35	36	35	30	34	36	34	34	35	P	40	34.1	23	23	
26	23	34	33	30	30	32	25	28	29	23	S	17	24	19	P	17	4	7	26	31	31	31	31	31	34	25.3	23	23	
27	30	28	24	24	25	27	30	31	32	S	32	32	33	34	36	36	39	39	39	39	38	38	36	35	39	32.9	24	24	
28	35	34	31	29	29	28	28	27	S	26	26	26	25	26	27	23	19	6	13	13	14	3	16	17	35	22.7	24	24	
29	4	1	1	1	3	3	2	S	4	9	13	15	19	20	19	19	17	21	22	23	25	27	27	23	27	13.8	24	24	
30	18	21	21	17	14	15	S	21	22	21	22	23	23	24	24	23	21	23	16	14	17	17	13	15	24	19.3	24	24	
31	19	24	26	26	27	S	27	26	27	27	27	28	29	29	28	27	23	22	15	8	10	13	12	2	29	21.8	24	24	
HOURLY MAX	43	44	45	45	40	39	39	39	40	40	43	43	43	44	43	42	42	41	41	41	40	39	39	43					
HOURLY AVG	21.6	22.1	22.2	21.4	21.4	21.2	23.0	22.0	21.3	22.3	24.0	24.8	26.3	26.9	27.7	26.3	23.4	22.3	22.7	22.4	21.3	21.6	22.6	22.8					

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM INSTANTANEOUS VALUE:	45	PPB	@ HOUR(S)	2, 3	ON DAY(S)	24
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	10.03					

01 Hour Averages



— LICA35 O3MAX PPB

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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	3.67	1.98	4.38	4.24	8.62	20.93	1.98	1.27	.00	.42	.56	4.95	12.16	14.99	16.83	2.97	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	3.67	1.98	4.38	4.24	8.62	20.93	1.98	1.27	.00	.42	.56	4.95	12.16	14.99	16.83	2.97	

Calm : .00 %

Total # Operational Hours : 707

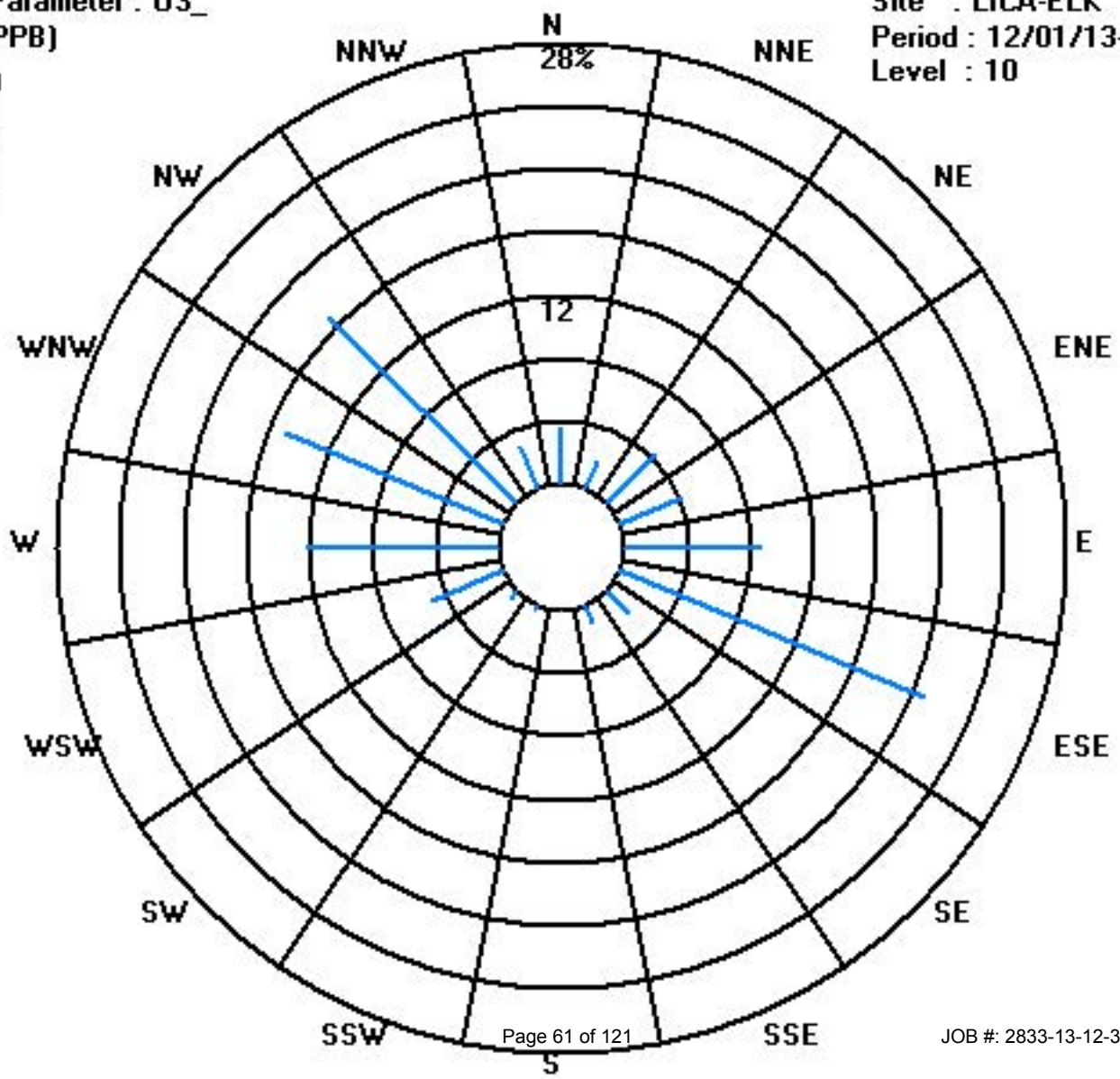
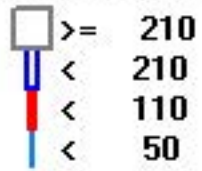
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	26	14	31	30	61	148	14	9		3	4	35	86	106	119	21	707
< 110																	
< 210																	
>= 210																	
Totals	26	14	31	30	61	148	14	9		3	4	35	86	106	119	21	

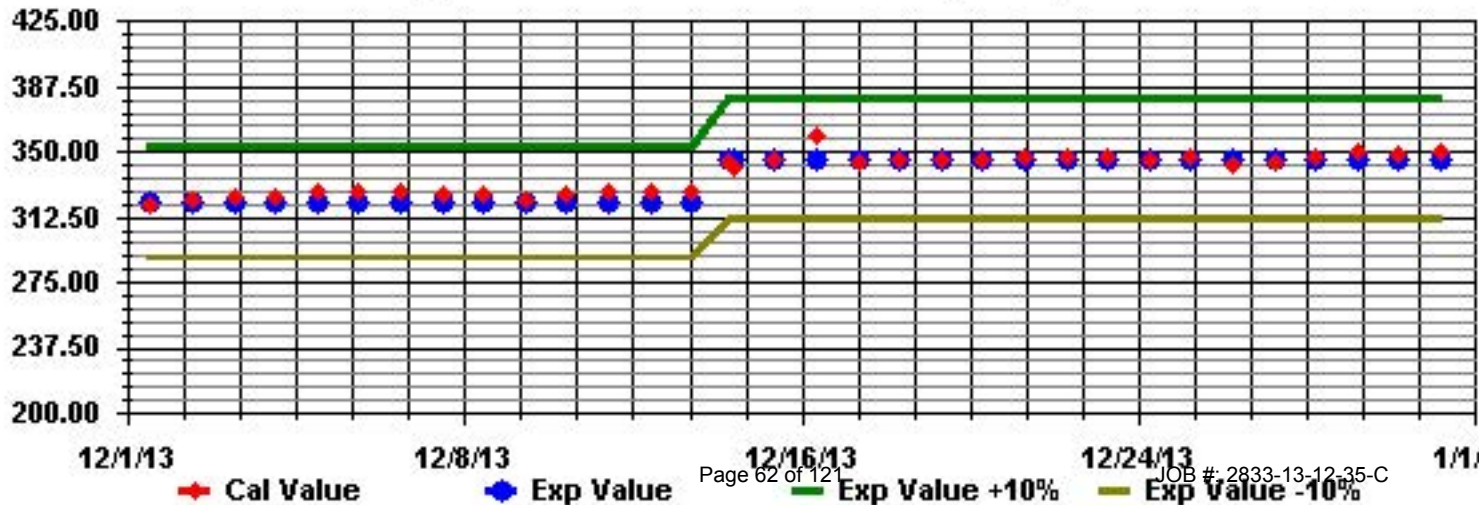
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN



Total Hydrocarbons (55i)

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

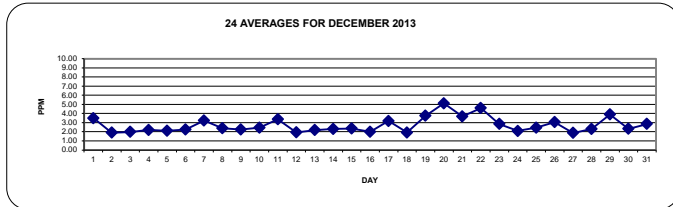
DECEMBER 2013

TOTAL HYDROCARBONS (55i) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	4.0	4.1	4.0	4.1	3.9	3.8	3.7	3.6	3.6	3.7	4.1	4.3	S	3.9	3.4	3.5	4.3	3.2	2.9	3.1	2.7	2.4	2.0	2.0	4.3	3.49	24
2	2	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.90	24
3	3	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.2	2.4	2.5	2.3	2.5	1.98	24
4	4	2.5	2.4	2.1	2.2	2.0	1.9	2.1	2.1	2.1	S	2.0	1.9	2.0	1.9	2.0	1.9	2.3	2.3	2.2	2.3	2.5	2.5	2.9	2.5	2.9	2.20	24
5	5	3.0	2.2	2.7	2.7	2.3	2.2	2.0	1.9	S	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	3.0	2.10	24
6	6	2.1	2.0	2.1	2.1	2.1	2.1	2.2	S	3.4	2.5	2.2	2.1	2.0	1.9	2.0	2.1	2.2	2.4	2.0	2.4	2.4	2.3	2.4	2.4	3.4	2.23	24
7	7	2.9	3.4	3.2	3.7	4.4	4.3	S	4.1	4.7	4.5	4.5	3.5	3.8	4.1	4.9	3.1	2.0	2.0	2.0	1.9	2.0	1.8	1.8	1.8	4.9	3.23	24
8	8	1.8	2.4	3.2	2.3	1.8	S	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.5	3.5	3.5	3.5	4.0	4.0	2.39	24	
9	9	4.4	3.6	3.4	3.1	S	3.4	2.0	1.8	1.8	1.8	1.8	2.0	2.0	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.8	1.9	1.9	4.4	2.23	24	
10	10	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.6	2.7	2.8	2.7	3.3	4.1	4.5	4.8	4.8	2.44	24	
11	11	4.5	3.5	S	4.1	4.4	3.9	4.0	4.5	4.1	4.3	4.2	4.0	3.5	3.3	3.4	2.7	2.5	2.6	2.7	2.7	2.5	2.1	2.0	2.0	4.5	3.37	24
12	12	2.0	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.0	2.0	2.1	1.94	24	
13	13	S	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.1	2.8	2.7	2.0	1.8	2.3	2.5	2.0	S	2.8	2.19	24
14	14	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0	3.2	2.6	2.4	2.2	2.2	2.3	C	C	C	C	2.3	2.2	S	2.3	4.0	2.30	24
15	15	2.4	2.2	2.3	2.4	2.3	2.4	3.0	3.0	3.5	2.8	3.1	3.4	2.6	1.8	1.8	1.8	1.8	2.1	1.9	1.9	S	1.9	2.0	3.5	2.36	24	
16	16	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.8	1.9	1.8	2.0	1.9	2.2	1.9	2.3	2.3	S	2.1	2.2	2.4	2.4	2.00	24
17	17	2.6	2.8	3.6	4.5	4.3	4.1	3.2	3.6	3.4	3.4	3.2	3.0	2.6	2.4	2.4	2.7	2.9	3.2	3.3	S	3.7	4.1	2.1	1.9	4.5	3.17	24
18	18	1.9	1.9	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	S	1.9	1.9	2.1	2.0	2.2	2.2	1.91	24
19	19	2.5	2.9	4.1	3.5	3.1	3.0	3.1	4.8	5.2	4.4	4.9	3.8	4.1	5.4	4.6	4.6	3.8	S	2.5	2.8	2.7	2.9	3.1	4.5	5.4	3.75	24
20	20	5.4	5.4	6.0	6.5	6.9	7.1	7.6	8.7	8.0	9.3	6.8	4.7	4.0	3.2	3.0	3.0	S	2.7	3.1	2.9	3.5	3.1	3.4	3.4	9.3	5.12	24
21	21	4.3	3.2	2.7	3.0	3.1	2.9	2.7	2.8	3.1	2.8	3.0	3.2	3.3	3.6	3.6	S	4.0	4.9	4.8	5.4	6.1	4.9	3.4	3.5	6.1	3.67	24
22	22	2.8	3.6	2.9	3.2	3.0	3.4	3.8	3.3	4.8	4.0	5.4	6.5	8.1	5.8	S	5.7	6.5	4.4	4.4	4.6	4.3	4.7	5.0	5.6	8.1	4.60	24
23	23	4.4	3.5	3.1	3.0	2.9	2.8	2.7	2.9	3.1	3.0	2.8	2.8	3.0	S	2.6	3.5	2.7	2.8	3.0	2.7	2.4	2.1	1.9	1.8	4.4	2.85	24
24	24	1.9	1.9	1.9	2.2	2.3	1.9	1.9	3.1	3.0	2.2	2.0	1.9	S	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	3.1	2.09	24	
25	25	2.0	2.1	2.0	2.1	2.3	2.1	2.1	2.5	2.7	2.7	3.3	S	3.6	3.6	2.9	2.4	2.9	2.7	2.4	2.0	2.1	2.1	1.9	1.8	3.6	2.45	24
26	26	3.0	2.2	2.0	1.9	2.0	2.2	2.9	2.1	2.1	3.9	S	6.2	4.0	4.0	3.1	4.9	6.0	4.4	3.8	2.1	1.9	1.9	2.0	1.8	6.2	3.06	24
27	27	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.87	24
28	28	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	1.9	2.0	2.2	2.2	2.4	2.7	2.5	3.1	3.0	4.2	2.8	3.0	4.2	2.31	24
29	29	4.5	6.4	6.2	4.8	4.8	4.8	4.9	S	5.2	5.2	4.9	4.4	3.8	3.3	3.4	3.3	3.1	2.7	2.5	2.3	2.3	2.2	2.1	2.5	6.4	3.90	24
30	30	2.6	2.2	2.2	2.5	2.9	2.4	S	2.1	2.0	2.2	2.4	2.4	2.1	2.1	2.0	2.0	2.1	2.2	2.3	2.3	2.6	2.5	2.6	2.8	2.9	2.33	24
31	31	2.6	2.3	2.1	2.2	2.3	S	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.8	3.6	3.3	3.9	3.9	4.1	4.1	5.2	5.2	2.86	24
HOURLY MAX		5.4	6.4	6.2	6.5	6.9	7.1	7.6	8.7	8.0	9.3	6.8	6.5	8.1	5.8	4.9	5.7	6.5	4.9	4.8	5.4	6.1	4.9	5.0	5.6			
HOURLY AVG		2.8	2.7	2.7	2.8	2.7	2.8	2.7	2.8	3.0	3.1	3.0	2.9	2.8	2.6	2.5	2.6	2.7	2.6	2.6	2.5	2.7	2.7	2.5	2.7			

STATUS FLAG CODES

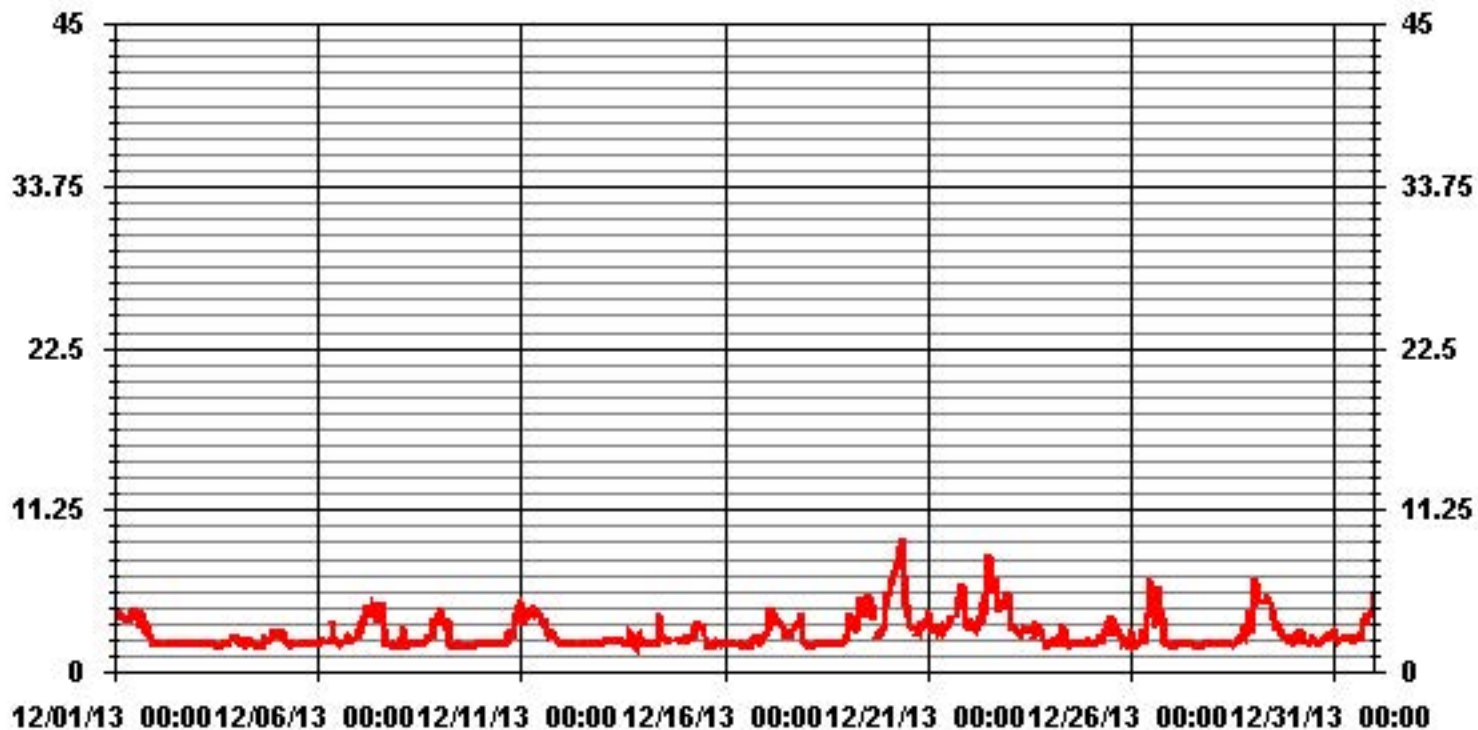
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708
MAXIMUM 1-HR AVERAGE:	9.3 PPM @ HOUR(S) 9 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	5.12 PPM ON DAY(S) 20
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	1.12
MONTHLY AVERAGE:	2.72 PPM

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2013

TOTAL HYDROCARBONS (THC) MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		4.4	6.1	6.2	5.2	4.8	4.8	4.8	4.5	4.5	4.0	4.5	5.1	S	4.5	3.9	4.3	5.5	3.7	3.6	5.2	5.2	2.8	2.3	2.0	6.2	4.42	24	
2		2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.1	2.00	24
3		2.0	2.0	2.5	2.3	2.0	2.0	2.0	2.0	2.0	1.9	S	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.2	2.8	2.8	2.9	2.9	3.3	3.3	2.22	24	
4		3.3	3.2	2.4	2.8	2.3	2.1	2.3	2.4	2.5	S	2.3	2.0	2.3	2.0	2.4	2.4	3.6	2.9	2.4	2.6	3.3	3.2	3.6	2.7	3.6	2.65	24	
5		3.8	2.7	3.6	3.3	2.5	2.5	2.3	2.0	S	2.2	2.1	2.3	2.1	2.1	1.9	2.1	2.1	1.9	2.0	2.0	2.3	2.3	2.4	2.4	3.8	2.39	24	
6		2.4	2.2	2.3	2.3	2.3	2.5	S	6.4	3.3	2.4	2.5	2.1	2.1	2.5	2.4	2.6	2.7	2.2	2.2	2.6	2.7	2.6	2.6	2.6	6.4	2.64	24	
7		4.3	5.1	3.6	4.0	5.6	4.9	S	5.2	6.4	5.9	6.6	4.8	4.3	5.8	9.4	4.1	2.6	2.1	2.7	2.1	2.2	2.1	1.9	1.9	9.4	4.24	24	
8		2.1	4.8	6.6	3.0	2.1	S	2.4	2.0	1.9	1.9	1.9	2.0	2.0	1.9	2.1	2.2	2.9	3.0	3.2	3.5	4.7	4.6	4.6	5.5	6.6	3.08	24	
9		7.3	5.4	4.3	4.4	S	4.1	3.0	1.9	1.9	1.9	1.9	2.1	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.0	1.9	2.0	2.0	1.9	7.3	2.69	24	
10		1.9	2.0	1.9	S	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.2	2.3	3.5	3.2	3.2	3.0	3.9	6.6	6.0	7.4	7.4	2.90	24			
11		5.1	4.4	S	6.0	10.6	5.2	5.3	6.5	5.0	5.0	4.6	4.3	3.9	3.7	3.9	3.3	2.6	2.9	2.8	2.8	2.7	2.4	2.2	2.1	10.6	4.22	24	
12		2.1	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.5	2.1	2.2	2.1	2.1	2.0	2.5	2.0	2.8	2.5	2.6	2.4	2.4	2.8	2.8	2.20	24	
13		S	3.3	2.9	3.2	2.5	2.5	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.1	2.8	3.3	3.4	3.4	2.3	2.2	2.8	3.3	2.3	S	3.4	2.66	24	
14		2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	S	3.9	2.7	2.6	2.3	2.3	2.6	C	C	C	C	2.9	2.9	S	3.2	3.9	2.47	24		
15		3.4	2.8	2.5	3.0	2.6	3.2	4.0	5.6	7.0	5.3	6.3	5.9	6.1	2.0	2.0	1.9	2.1	1.9	2.9	2.2	2.0	S	2.0	2.2	7.0	3.43	24	
16		2.2	2.2	2.0	2.0	2.0	2.0	2.1	2.4	2.3	2.5	2.3	2.2	2.3	2.1	2.7	2.1	2.7	2.2	3.4	2.6	S	2.3	2.7	3.3	3.4	2.37	24	
17		2.9	3.2	5.0	7.3	7.4	6.3	5.2	4.7	4.3	3.6	3.5	3.5	3.2	2.8	3.2	3.9	4.2	7.4	5.7	S	6.1	5.2	2.7	2.0	7.4	4.48	24	
18		2.0	2.0	1.9	1.9	1.9	2.1	2.0	2.0	2.4	1.9	1.9	2.0	2.0	2.1	2.0	1.9	1.9	S	1.9	2.0	2.4	2.3	2.7	2.7	2.05	24		
19		2.8	3.9	7.6	5.1	4.1	4.1	5.3	5.6	6.9	5.2	6.6	5.4	6.8	9.0	11.4	11.2	5.5	S	3.1	4.2	3.5	3.9	4.0	6.9	11.4	5.73	24	
20		9.4	8.1	7.5	7.1	8.4	7.7	9.7	10.9	12.1	13.6	9.2	6.1	5.5	3.5	3.3	3.7	S	3.7	4.6	4.1	7.4	3.6	6.1	10.3	13.6	7.20	24	
21		8.5	4.8	3.3	3.3	3.6	4.5	3.2	3.4	3.9	3.2	3.3	3.5	3.6	6.0	5.7	S	4.4	6.8	7.3	8.6	10.6	6.5	4.4	3.9	10.6	5.05	24	
22		3.3	5.5	3.7	4.0	3.7	6.0	5.8	4.1	7.0	4.6	8.5	12.3	12.2	8.7	S	8.8	8.0	5.2	6.8	7.8	5.8	8.1	5.9	7.3	12.3	6.66	24	
23		5.8	4.4	3.6	3.3	3.1	3.2	3.3	3.5	3.4	4.1	3.3	4.0	9.0	S	3.9	5.4	3.3	3.3	3.6	3.8	2.6	2.7	2.0	1.9	9.0	3.75	24	
24		2.3	2.1	2.4	2.9	2.9	2.2	2.2	4.8	4.8	4.8	2.4	2.5	S	1.9	2.0	2.1	2.0	2.2	2.1	2.1	2.2	2.2	2.4	2.5	4.8	2.61	24	
25		2.1	2.2	2.4	2.6	2.8	2.4	2.4	3.4	3.6	3.8	4.4	S	4.7	7.0	5.1	3.1	5.0	3.6	2.9	2.4	2.3	2.4	2.2	P	7.0	3.31	23	
26		6.6	2.6	2.2	2.1	2.2	3.2	3.3	2.4	3.6	6.6	S	7.9	6.2	5.3	P	8.7	8.5	5.1	5.1	2.6	2.0	2.0	2.2	2.1	8.7	4.20	23	
27		2.0	1.9	1.9	2.2	2.0	2.0	2.0	2.0	2.0	S	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	2.2	1.95	24	
28		1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.1	2.1	2.1	2.2	2.5	2.5	2.8	3.0	3.2	3.6	4.2	5.2	3.6	4.5	5.2	2.68	24		
29		5.9	8.2	8.3	5.3	8.8	6.1	6.4	S	9.1	7.7	6.5	4.8	4.4	3.6	4.1	4.9	3.3	3.1	2.8	2.4	2.4	2.3	2.4	2.8	9.1	5.03	24	
30		3.2	2.5	2.8	3.3	5.2	2.9	S	2.4	2.3	2.9	4.0	3.5	2.2	2.3	2.1	2.1	2.2	2.5	2.5	2.5	4.1	3.8	3.0	3.0	5.2	2.92	24	
31		2.8	2.6	2.2	2.3	2.4	S	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.4	3.2	2.7	3.3	5.8	4.9	5.5	7.9	7.0	6.7	12.7	12.7	3.97	24	
HOURLY MAX		9.4	8.2	8.3	7.3	10.6	7.7	9.7	10.9	12.1	13.6	9.2	12.3	12.2	9.0	11.4	11.2	8.5	7.4	7.3	8.6	10.6	8.1	6.7	12.7				
HOURLY AVG		3.7	3.5	3.5	3.4	3.6	3.4	3.3	3.4	4.1	3.9	3.7	3.7	3.3	3.3	3.5	3.4	3.2	3.3	3.2	3.2	3.6	3.5	3.1	3.8				

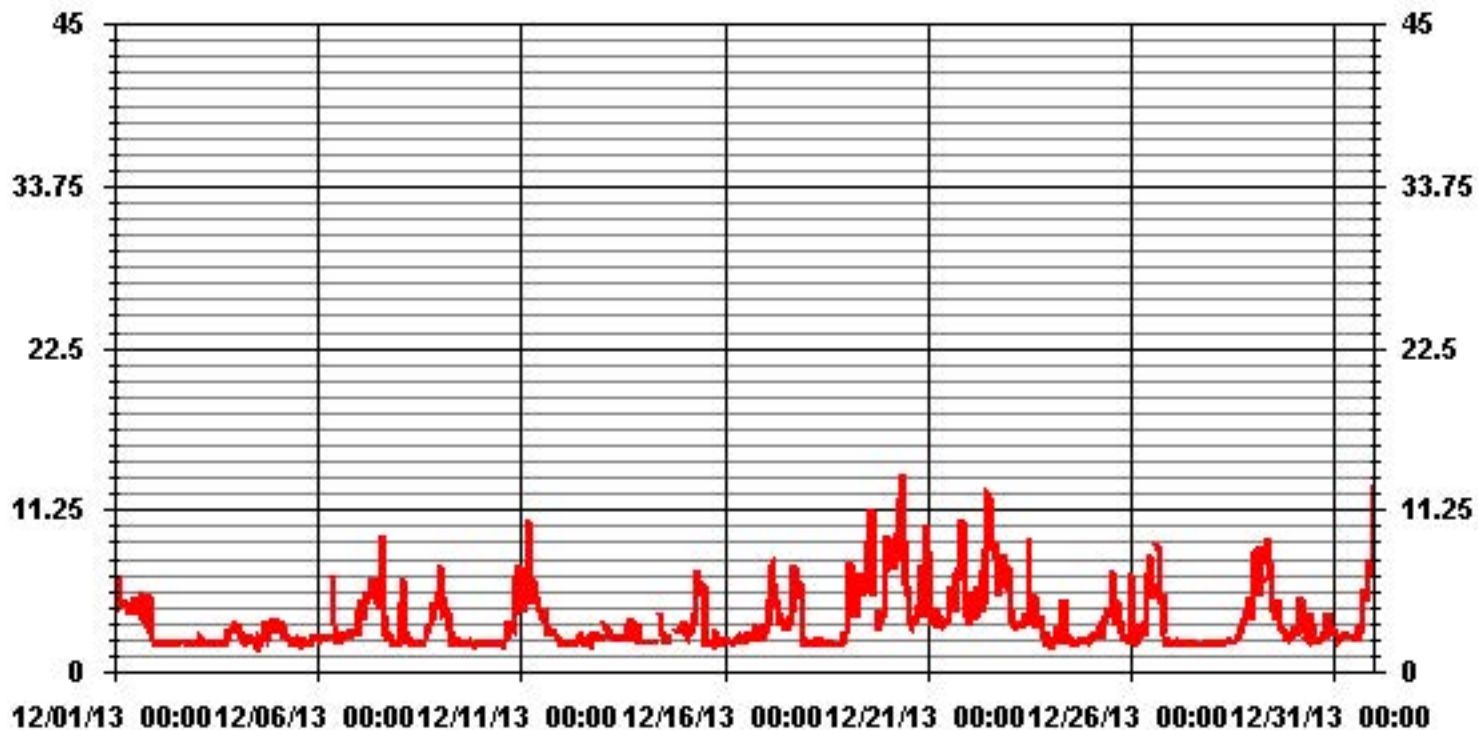
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM INSTANTANEOUS VALUE:	13.6	PPM	@ HOUR(S)	9	ON DAY(S)	20
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	2.00					

01 Hour Averages



— LICA35 THC55MAX PPM

LICA35
 THC55 / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.54	1.69	3.95	3.10	2.96	9.32	1.12	.28	.00	.00	.14	3.67	10.16	12.71	15.67	2.82	70.19
< 10.0	1.12	.28	.42	1.12	5.64	11.58	.98	.98	.00	.42	.42	1.27	1.97	2.25	1.12	.14	29.80
< 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	3.67	1.97	4.37	4.23	8.61	20.90	2.11	1.27	.00	.42	.56	4.94	12.14	14.97	16.80	2.96	

Calm : .00 %

Total # Operational Hours : 708

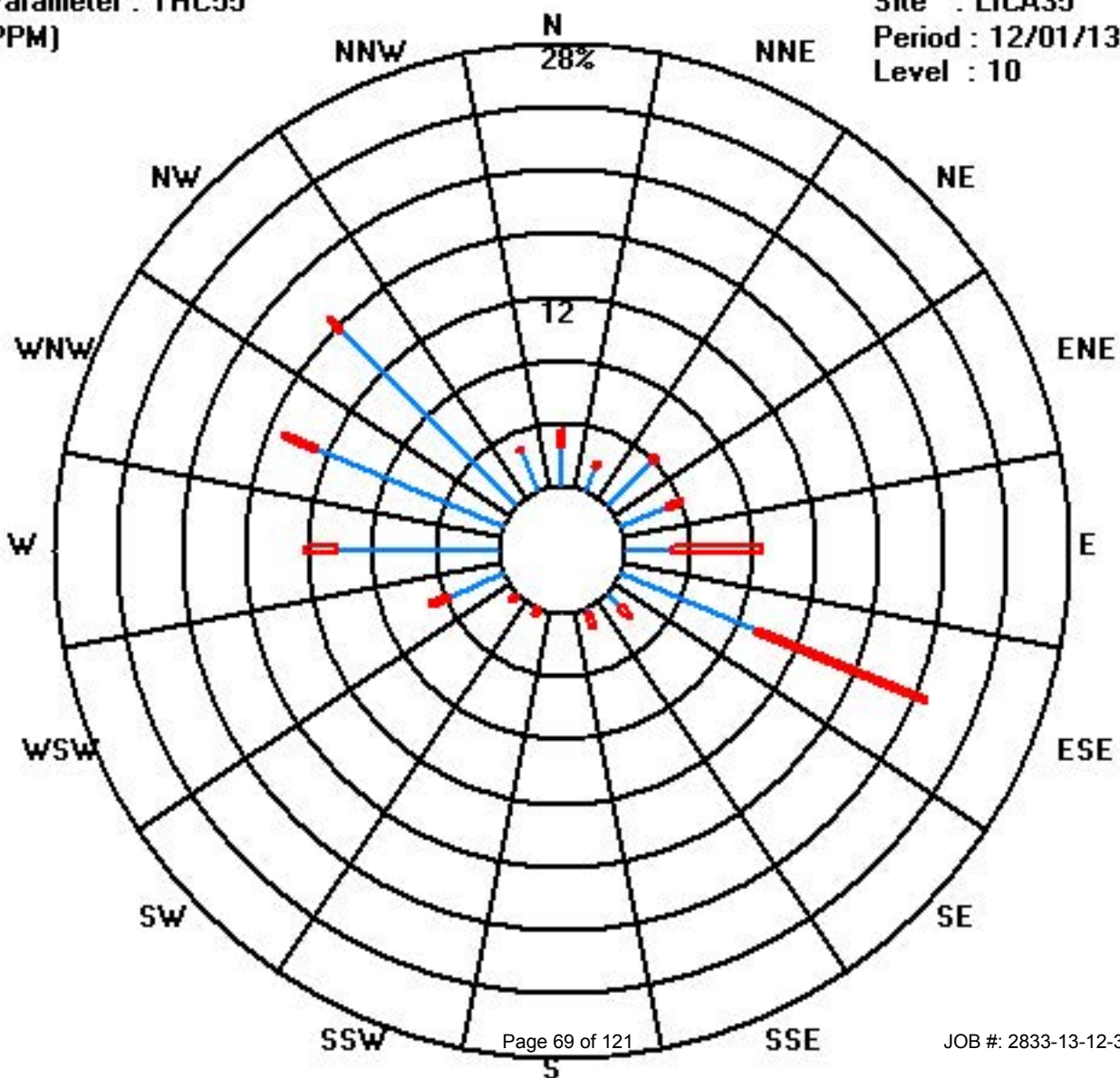
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	12	28	22	21	66	8	2			1	26	72	90	111	20	497
< 10.0	8	2	3	8	40	82	7	7		3	3	9	14	16	8	1	211
< 50.0																	
>= 50.0																	
Totals	26	14	31	30	61	148	15	9		3	4	35	86	106	119	21	

Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPM)



Methane

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2013

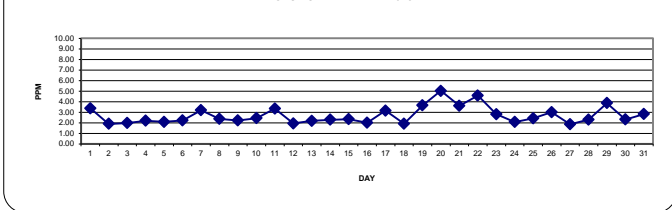
METHANE hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1		3.8	3.9	3.8	3.9	3.7	3.7	3.5	3.5	3.5	3.6	4.0	4.1	S	3.7	3.3	3.4	4.2	3.0	2.8	3.0	2.7	2.3	2.0	2.0	4.2	3.37	24	
2		1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.90	24	
3		1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.2	2.4	2.5	2.3	2.5	1.98	24	
4		2.5	2.4	2.1	2.2	2.0	1.9	2.1	2.1	2.1	S	2.0	1.9	2.0	1.9	2.0	1.9	2.3	2.3	2.2	2.3	2.5	2.5	2.9	2.5	2.9	2.20	24	
5		3.0	2.2	2.7	2.7	2.3	2.2	2.0	1.9	S	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	3.0	2.10	24	
6		2.1	2.0	2.1	2.1	2.1	2.1	2.2	S	3.4	2.5	2.2	2.1	2.0	1.9	2.0	2.1	2.2	2.4	2.0	2.4	2.4	2.3	2.4	2.4	3.4	2.23	24	
7		2.9	3.4	3.2	3.7	4.3	4.3	S	4.1	4.6	4.4	4.4	3.5	3.7	4.0	4.9	3.1	2.0	2.0	2.0	1.9	2.0	1.8	1.8	1.8	4.9	3.21	24	
8		1.8	2.4	3.1	2.3	1.8	S	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.5	3.5	3.5	3.5	3.9	3.9	2.38	24	
9		4.4	3.6	3.4	3.1	S	3.4	2.0	1.8	1.8	1.8	1.8	2.0	2.0	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.8	1.9	1.9	4.4	2.23	24		
10		1.9	1.9	1.9	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.6	2.7	2.8	2.7	3.3	4.1	4.5	4.8	4.8	2.44	24		
11		4.4	3.4	S	4.1	4.4	3.9	3.9	4.5	4.1	4.3	4.2	4.0	3.5	3.3	3.4	2.7	2.5	2.6	2.7	2.7	2.5	2.1	2.0	2.0	4.5	3.36	24	
12		2.0	S	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.0	2.0	2.1	1.94	24		
13		S	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.1	2.8	2.7	2.0	1.8	2.3	2.5	2.0	S	2.8	2.19	24	
14		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0	3.2	2.6	2.4	2.2	2.2	2.3	C	C	C	C	2.3	2.2	S	2.3	4.0	2.30	24	
15		2.4	2.2	2.3	2.4	2.3	2.4	3.0	3.0	3.5	2.8	3.1	3.4	2.6	1.8	1.8	1.8	1.8	1.8	2.1	1.9	1.9	S	1.9	2.0	3.5	2.36	24	
16		2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.8	1.9	1.8	2.0	1.9	2.2	1.9	2.3	2.3	S	2.1	2.2	2.4	2.4	2.00	24	
17		2.6	2.8	3.5	4.5	4.2	4.1	3.2	3.6	3.4	3.4	3.2	3.0	2.6	2.4	2.4	2.7	2.8	3.2	3.3	S	3.7	4.0	2.1	1.9	4.5	3.16	24	
18		1.9	1.9	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	S	1.9	1.9	2.1	2.0	2.2	2.2	1.91	24	
19		2.5	2.9	4.1	3.4	3.1	2.9	3.1	4.7	5.2	4.4	4.9	3.8	4.1	5.4	3.9	3.7	3.8	S	2.4	2.8	2.7	2.9	3.0	4.4	5.4	3.66	24	
20		5.1	5.3	5.8	6.3	6.8	7.0	7.3	8.5	7.8	9.1	6.8	4.7	4.0	3.2	3.0	2.9	S	2.7	3.1	2.9	3.5	3.1	3.4	3.4	9.1	5.03	24	
21		4.2	3.2	2.7	3.0	3.1	2.9	2.7	2.8	3.1	2.8	3.0	3.2	3.3	3.5	3.6	S	4.0	4.8	4.8	5.1	5.8	4.8	3.4	3.4	5.8	3.62	24	
22		2.8	3.5	2.9	3.2	3.0	3.4	3.8	3.3	4.8	4.0	5.3	6.5	8.0	5.7	S	5.7	6.4	4.4	4.4	4.6	4.3	4.7	5.0	5.5	8.0	4.57	24	
23		4.3	3.5	3.1	3.0	2.9	2.8	2.7	2.8	2.9	2.9	2.8	2.8	3.0	S	2.6	3.5	2.7	2.8	2.9	2.6	2.4	2.1	1.9	1.8	4.3	2.82	24	
24		1.9	1.9	1.9	2.2	2.3	1.9	1.9	3.1	3.0	2.2	2.0	1.9	S	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.1	3.1	2.09	24	
25		2.0	2.1	2.0	2.1	2.3	2.1	2.1	2.4	2.6	2.7	3.3	S	3.5	3.6	2.9	2.4	2.9	2.7	2.4	2.0	2.1	2.1	1.9	1.8	3.6	2.43	24	
26		2.9	2.1	2.0	1.9	2.0	2.2	2.9	2.1	2.1	3.9	S	6.0	3.9	4.0	3.1	4.8	5.8	4.3	3.7	2.1	1.9	1.9	2.0	1.8	6.0	3.02	24	
27		1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.87	24	
28		1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	S	2.0	2.0	2.0	1.9	2.0	2.2	2.2	2.4	2.7	2.5	3.1	3.0	4.2	2.8	3.0	4.2	2.31	24	
29		4.4	6.3	6.1	4.8	4.8	4.7	4.9	S	5.2	5.1	4.9	4.4	3.8	3.3	3.4	3.3	3.1	2.7	2.5	2.3	2.3	2.2	2.1	2.5	6.3	3.87	24	
30		2.6	2.2	2.2	2.5	2.9	2.4	S	2.1	2.0	2.2	2.4	2.4	2.1	2.1	2.0	2.0	2.1	2.2	2.3	2.3	2.6	2.5	2.6	2.8	2.9	2.33	24	
31		2.6	2.3	2.1	2.2	2.3	S	2.4	2.4	2.4	2.4	2.3	2.2	2.3	2.3	2.3	2.8	3.5	3.3	3.9	3.8	4.0	4.0	5.1	5.1	2.83	24		
HOURLY MAX		5.1	6.3	6.1	6.3	6.8	7.0	7.3	8.5	7.8	9.1	6.8	6.5	8.0	5.7	4.9	5.7	6.4	4.8	4.8	5.1	5.8	4.8	5.0	5.5				
HOURLY AVG		2.75	2.70	2.68	2.77	2.73	2.75	2.66	2.76	3.00	3.03	2.94	2.90	2.75	2.63	2.46	2.52	2.71	2.59	2.56	2.51	2.64	2.67	2.52	2.66				

STATUS FLAG CODES

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

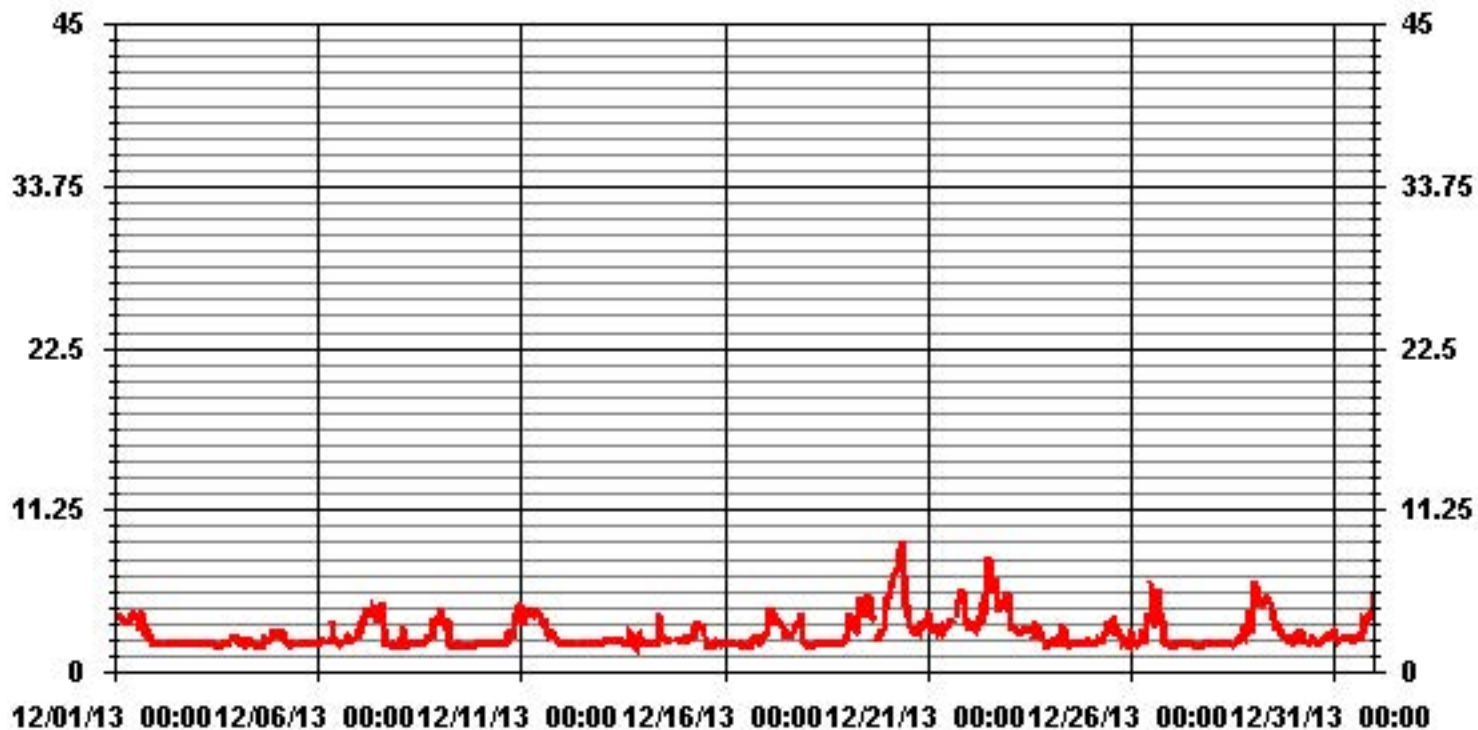
24 AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708					
MAXIMUM 1-HR AVERAGE:	9.1	PPM	@ HOUR(S)	9	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	5.03	PPM			ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.09		MONTHLY AVERAGE:	2.70	PPM	

01 Hour Averages



— LICA35 METHANE PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2013

METHANE MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	4.2	5.9	6.0	5.0	4.5	4.7	4.6	4.3	4.3	3.8	4.4	5.0	S	4.4	3.9	4.1	5.2	3.6	3.4	5.1	5.1	2.7	2.2	2.0	6.0	4.26	24	
2	2	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.1	1.99	24
3	3	2.0	2.0	2.5	2.3	2.0	2.0	2.0	2.0	2.0	1.9	S	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.2	2.8	2.7	2.9	2.9	3.3	3.3	2.21	24	
4	4	3.3	3.2	2.4	2.8	2.3	2.1	2.3	2.4	2.5	S	2.3	2.0	2.3	2.0	2.4	2.4	3.6	2.9	2.4	2.6	3.3	3.2	3.6	2.8	3.6	2.65	24	
5	5	3.8	2.7	3.6	3.3	2.5	2.5	2.3	2.0	S	2.2	2.1	2.3	2.1	2.1	1.9	2.1	2.1	2.0	2.0	2.0	2.3	2.3	2.4	2.4	3.8	2.39	24	
6	6	2.4	2.2	2.3	2.3	2.3	2.5	S	6.5	3.3	2.4	2.5	2.1	2.1	2.5	2.4	2.6	2.7	2.2	2.2	2.6	2.6	2.7	2.6	2.6	6.5	2.65	24	
7	7	4.3	5.0	3.6	4.0	5.5	4.9	S	5.1	6.2	5.7	6.5	4.7	4.3	5.6	9.2	4.1	2.6	2.1	2.6	2.1	2.2	2.1	1.9	1.9	9.2	4.17	24	
8	8	2.1	4.7	6.5	3.0	2.1	S	2.4	2.0	1.9	1.9	1.9	2.0	2.0	1.9	2.1	2.3	2.9	3.0	3.2	3.6	4.7	4.5	4.6	5.4	6.5	3.06	24	
9	9	7.3	5.4	4.2	4.4	S	3.9	3.0	1.9	1.9	1.9	1.9	2.1	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.0	1.9	2.0	2.0	1.9	7.3	2.68	24	
10	10	1.9	2.0	1.9	S	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.2	2.3	3.5	3.0	3.2	3.0	3.9	6.5	6.0	7.3	7.3	2.88	24		
11	11	5.0	4.3	S	5.9	10.5	5.2	5.3	6.5	4.9	4.9	4.6	4.2	3.9	3.6	3.8	3.3	2.6	2.9	2.8	2.8	2.7	2.4	2.1	2.1	10.5	4.18	24	
12	12	2.1	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.5	2.1	2.2	2.1	2.1	2.0	2.5	2.0	2.8	2.5	2.6	2.4	2.4	2.8	2.20	24	
13	13	S	3.3	2.9	3.2	2.5	2.5	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.1	2.8	3.2	3.4	3.4	2.3	2.2	2.8	3.3	2.3	S	3.4	2.66	24	
14	14	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	S	3.8	2.7	2.6	2.3	2.3	2.6	C	C	C	C	2.9	2.9	S	3.2	3.8	2.47	24	
15	15	3.4	2.8	2.5	3.0	2.6	3.1	4.0	5.6	6.9	5.3	6.3	5.9	6.0	2.0	2.0	1.9	2.1	1.9	2.9	2.2	2.1	S	2.0	2.2	6.9	3.42	24	
16	16	2.2	2.3	2.0	2.0	2.0	2.0	2.2	2.4	2.3	2.5	2.3	2.2	2.3	2.1	2.8	2.1	2.7	2.2	3.4	2.6	S	2.3	2.7	3.1	3.4	2.36	24	
17	17	2.9	3.1	4.9	7.2	7.3	6.2	5.1	4.6	4.1	3.5	3.3	3.5	3.2	2.8	3.2	3.9	4.1	7.4	5.6	S	6.1	5.1	2.7	2.0	7.4	4.43	24	
18	18	2.0	2.0	1.9	1.9	1.9	2.1	2.0	2.0	2.4	1.9	1.9	2.0	2.0	2.1	2.0	1.9	1.9	S	1.9	2.0	2.4	2.3	2.7	2.7	2.05	24		
19	19	2.8	3.9	7.3	4.7	3.9	3.8	5.3	5.5	6.8	5.2	6.5	5.5	6.7	8.9	6.1	4.8	5.4	S	3.0	4.0	3.5	3.4	3.6	6.4	8.9	5.08	24	
20	20	9.3	7.8	7.3	7.0	8.2	7.4	9.5	10.8	11.8	13.5	9.1	6.0	5.5	3.5	3.3	3.6	S	3.6	4.4	4.0	7.2	3.6	6.1	10.0	13.5	7.06	24	
21	21	8.3	4.8	3.3	3.3	3.5	4.5	3.2	3.4	3.9	3.2	3.3	3.5	3.6	6.0	5.7	S	4.2	6.7	7.2	8.0	9.7	6.2	4.4	3.7	9.7	4.94	24	
22	22	3.3	5.5	3.7	4.0	3.7	6.0	5.8	4.1	7.0	4.5	8.4	12.0	12.0	8.4	S	8.7	7.7	5.2	6.7	7.7	5.7	8.0	5.8	7.1	12.0	6.56	24	
23	23	5.6	4.2	3.5	3.3	3.1	3.1	3.3	3.5	3.2	3.9	3.3	4.0	8.9	S	3.9	5.3	3.3	3.3	3.4	3.8	2.5	2.7	2.0	1.9	8.9	3.70	24	
24	24	2.3	2.1	2.4	2.9	2.9	2.2	2.2	4.6	4.8	4.8	2.4	2.5	S	1.9	2.0	2.1	2.0	2.2	2.1	2.1	2.2	2.2	2.4	2.5	4.8	2.60	24	
25	25	2.1	2.2	2.3	2.6	2.8	2.4	2.4	3.3	3.4	3.6	4.2	S	4.7	7.0	5.1	3.1	5.0	3.6	2.7	2.4	2.3	2.4	2.1	P	7.0	3.26	23	
26	26	6.5	2.6	2.2	2.1	2.3	3.2	3.2	2.4	3.5	6.6	S	7.6	6.1	5.3	P	8.6	8.1	5.0	5.0	2.5	2.0	2.1	2.1	8.6	4.13	23		
27	27	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	S	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	2.0	1.95	24	
28	28	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	S	2.2	2.1	2.1	2.1	2.2	2.5	2.5	2.8	3.0	3.2	3.5	4.1	5.2	3.6	4.5	5.2	2.66	24	
29	29	5.7	8.1	8.2	5.1	8.7	6.1	6.4	S	9.0	7.6	6.4	4.7	4.4	3.5	4.1	4.9	3.3	3.1	2.9	2.4	2.4	2.3	2.4	2.8	9.0	4.97	24	
30	30	3.2	2.5	2.8	3.3	4.9	2.9	S	2.4	2.3	2.9	3.9	3.5	2.2	2.3	2.1	2.1	2.2	2.5	2.5	2.5	4.1	3.8	2.9	3.0	4.9	2.90	24	
31	31	2.8	2.6	2.2	2.3	2.4	S	2.5	2.5	2.5	2.5	2.4	2.4	2.4	3.2	2.7	3.3	5.8	4.9	5.5	7.4	6.7	6.4	12.6	12.6	3.92	24		
HOURLY MAX		9.3	8.1	8.2	7.2	10.5	7.4	9.5	10.8	11.8	13.5	9.1	12.0	12.0	8.9	9.2	8.7	8.1	7.4	7.2	8.0	9.7	8.0	6.4	12.6				
HOURLY AVG		3.62	3.49	3.41	3.37	3.54	3.35	3.30	3.36	4.07	3.84	3.68	3.65	3.64	3.28	3.14	3.23	3.32	3.22	3.23	3.20	3.55	3.41	3.07	3.71				

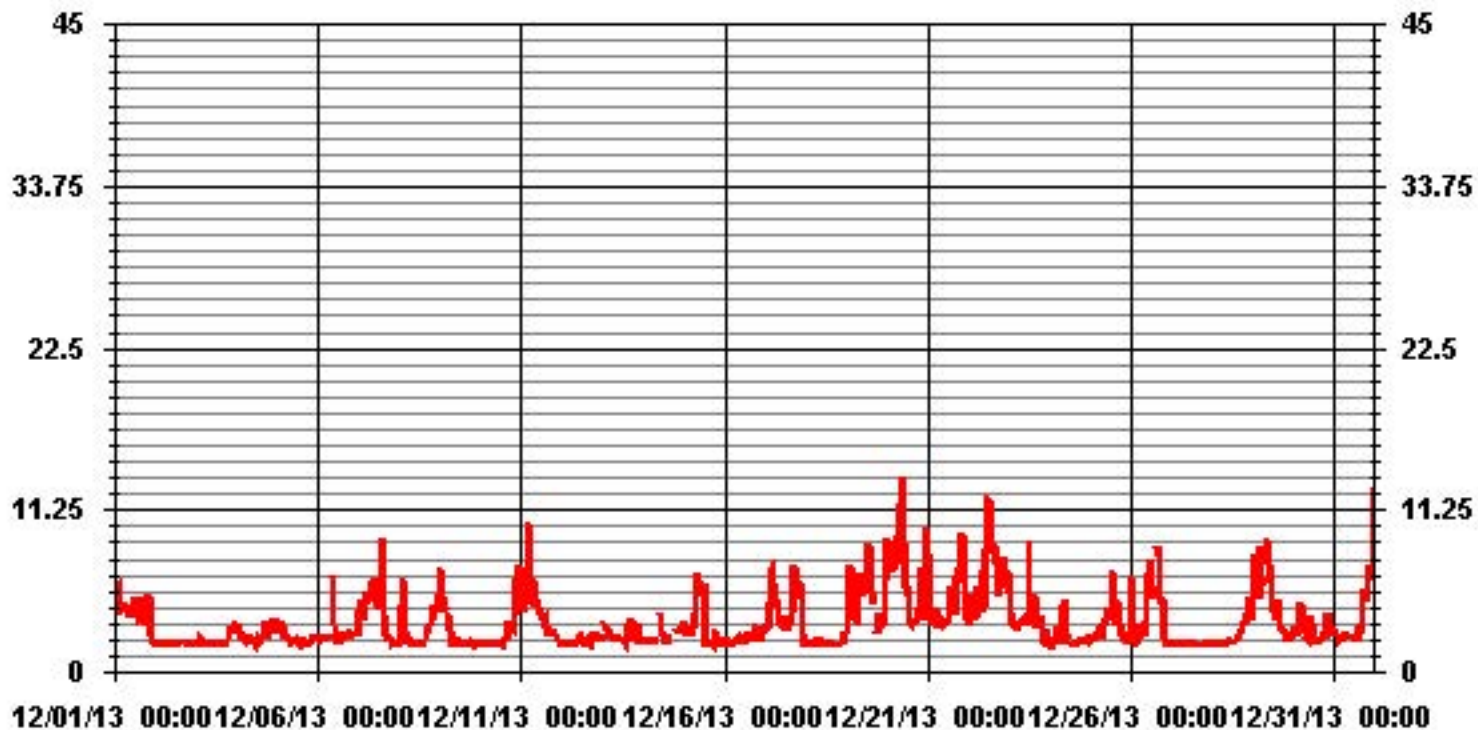
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM INSTANTANEOUS VALUE:	13.5	PPM	@ HOUR(S)	9	ON DAY(S)	20
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	1.91					

01 Hour Averages



— LICA35 MATHMAX PPM

LICA35
 METHANE / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.54	1.69	3.95	3.10	2.96	9.74	1.12	.28	.00	.00	.14	3.95	10.31	12.71	15.67	2.82	71.04
< 10.0	1.12	.28	.42	1.12	5.64	11.15	.98	.98	.00	.42	.42	.98	1.83	2.25	1.12	.14	28.95
< 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	3.67	1.97	4.37	4.23	8.61	20.90	2.11	1.27	.00	.42	.56	4.94	12.14	14.97	16.80	2.96	

Calm : .00 %

Total # Operational Hours : 708

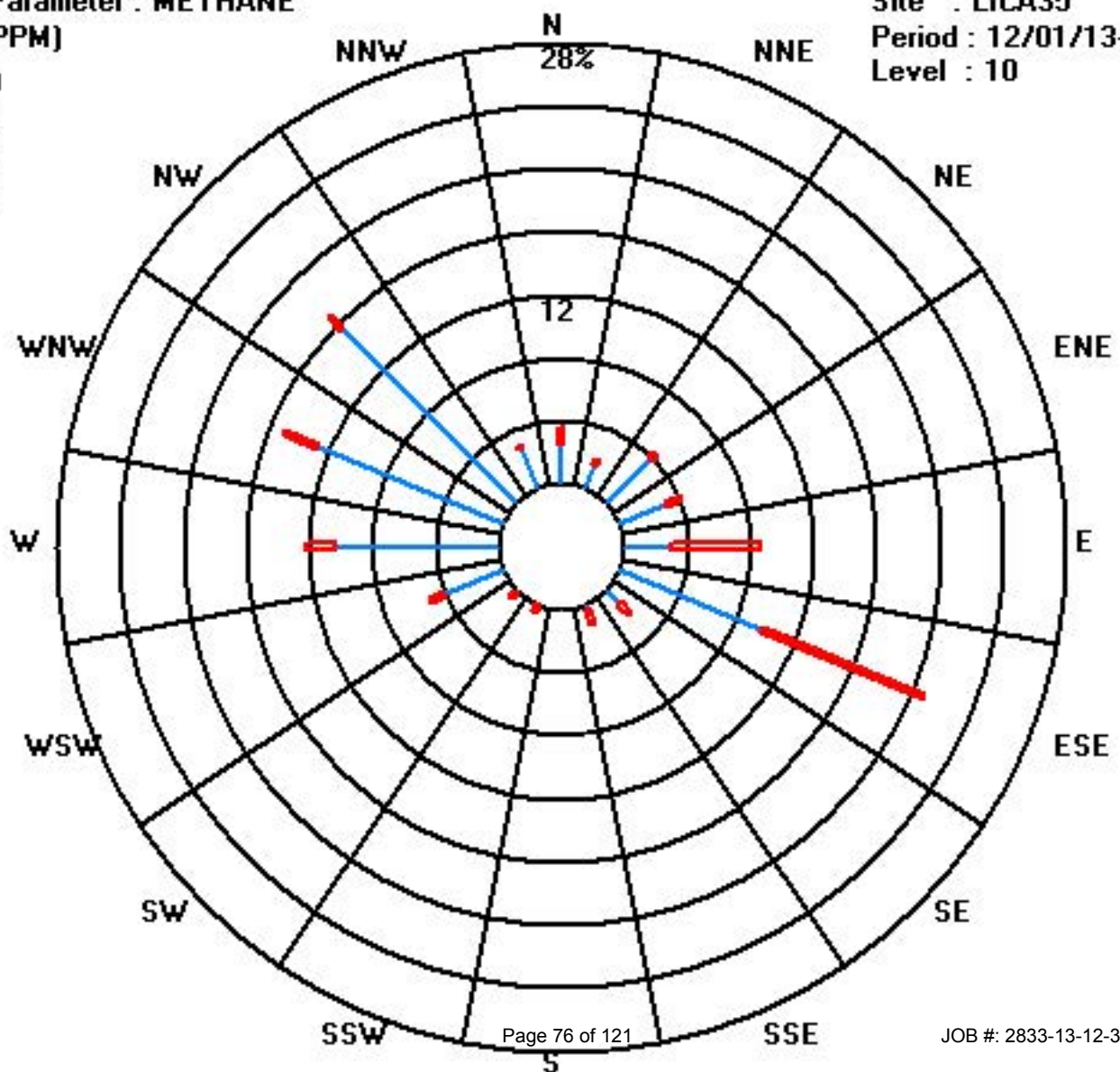
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	12	28	22	21	69	8	2			1	28	73	90	111	20	503
< 10.0	8	2	3	8	40	79	7	7		3	3	7	13	16	8	1	205
< 50.0																	
>= 50.0																	
Totals	26	14	31	30	61	148	15	9		3	4	35	86	106	119	21	

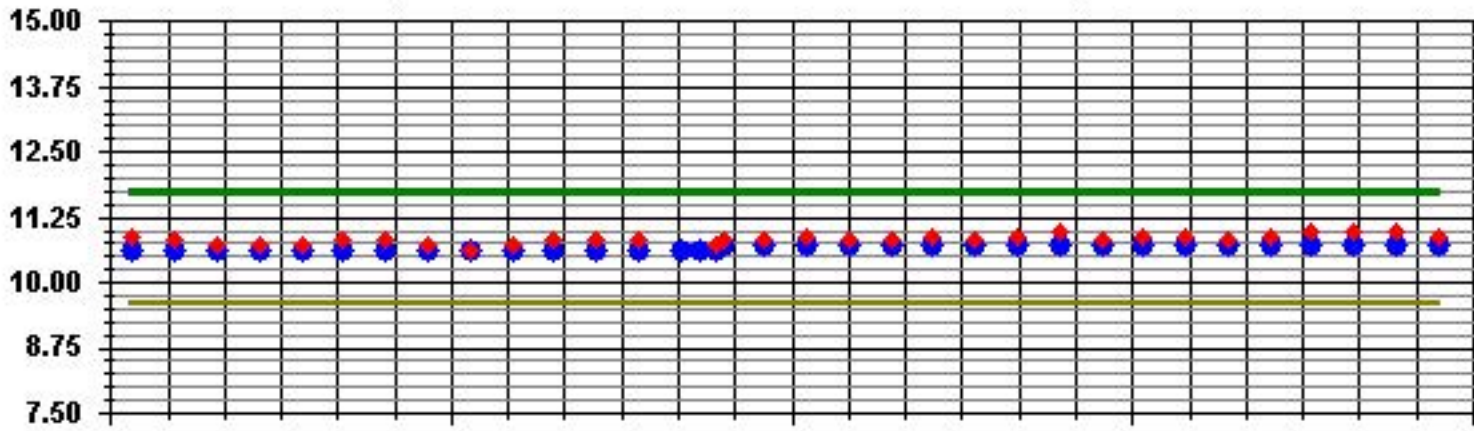
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPM)



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



12/1/13

12/8/13

12/16/13

12/24/13

1/1/14

◆ Cal Value

◆ Exp Value

— Exp Value +10%

— Exp Value -10%

Non-Methane Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

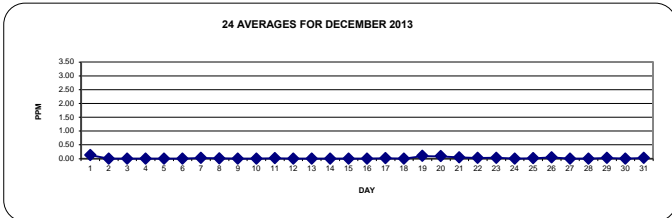
DECEMBER 2013

NON-METHANE HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1		0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	S	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0	0.1	0	0	0.2	0.13	24	
2		0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
3		0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
4		0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
5		0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
6		0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
7		0	0	0	0	0.1	0	S	0	0.1	0.1	0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.03	24
8		0	0	0.1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.01	24
9		0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
10		0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
11		0.1	0.1	S	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.01	24
12		0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
13		S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.00	24	
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	S	0	0	0.00	24		
15		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	0.00	24	
16		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	0.00	24	
17		0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	S	0	0.1	0	0	0	0.1	0.02	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.00	24	
19		0	0	0	0.1	0	0.1	0	0.1	0	0	0	0	0	0	0.7	0.9	0	S	0.1	0	0	0	0.1	0.1	0.1	0.9	0.10	24
20		0.3	0.1	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0	0	0	0	0.1	S	0	0	0	0	0	0	0	0	0	0.3	0.09	24
21		0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	S	0	0.1	0	0.3	0.3	0.1	0	0.1	0.3	0.05	24		
22		0	0.1	0	0	0	0	0	0	0	0.1	0	0.1	0.1	S	0	0.1	0	0	0	0	0	0	0.1	0.1	0.1	0.03	24	
23		0.1	0	0	0	0	0	0	0.1	0.2	0.1	0	0	S	0	0	0	0	0.1	0.1	0	0	0	0	0	0.2	0.03	24	
24		0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
25		0	0	0	0	0	0	0	0.1	0.1	0	0	S	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.01	24
26		0.1	0.1	0	0	0	0	0	0	0	0	S	0.2	0.1	0	0	0.1	0.2	0.1	0.1	0	0	0	0	0	0	0.2	0.04	24
27		0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
28		0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
29		0.1	0.1	0.1	0	0	0.1	0	S	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.02	24
30		0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	24	
31		0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.02	24
HOURLY MAX		0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.7	0.9	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1				
HOURLY AVG		0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.03	0.04	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01				

STATUS FLAG CODES

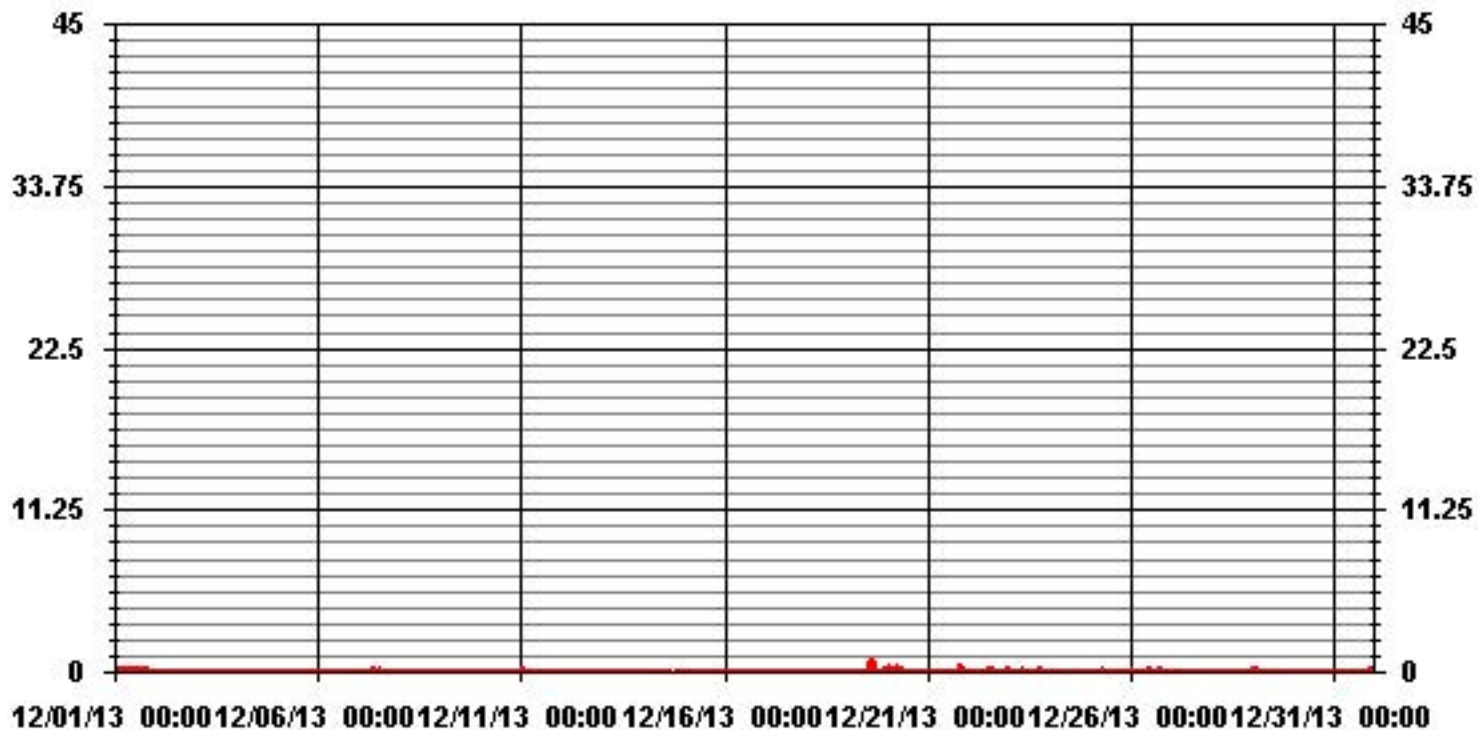
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	94					
MAXIMUM 1-HR AVERAGE:	0.9	PPM	@ HOUR(S)	15	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	0.13	PPM			ON DAY(S)	1
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	0.02	PPM	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2013

NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	RDGS.	
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.			
1		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	S	0.3	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.4	0.25	24		
2		0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.01	24	
3		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.01	24		
4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.02	24	
5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	24
6		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.00	24	
7		0.0	0.3	0.2	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.15	24	
8		0.0	0.1	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	0.0	0.2	0.3	0.04	0.04	24		
9		0.1	0.1	0.1	0.1	S	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.03	24		
10		0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.2	0.3	0.3	0.05	24		
11		0.1	0.1	S	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.08	24		
12		0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	24	
13		S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	S	0.2	0.02	24		
14		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	S	0.2	0.0	0.0	0.0	0.0	C	C	C	C	0.1	0.0	S	0.1	0.2	0.02	0.02	24		
15		0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.2	0.05	24		
16		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	S	0.0	0.1	0.3	0.3	0.03	0.03	24		
17		0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.2	0.2	0.2	0.1	S	0.2	0.2	0.0	0.0	0.3	0.13	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	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	24	
19		0.0	0.1	0.3	0.4	0.3	0.3	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.2	8.1	7.8	0.1	S	0.1	0.2	0.1	0.5	0.5	0.6	8.1	0.90	24		
20		0.4	0.3	0.4	0.4	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.4	0.2	0.1	0.1	S	0.1	0.2	0.2	0.3	0.0	0.1	0.3	0.5	0.26	0.26	24		
21		0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	S	0.2	0.2	0.2	0.6	0.9	0.3	0.0	0.2	0.9	0.16	24		
22		0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	S	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.16	24			
23		0.2	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.1	S	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.11	24			
24		0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.04	24		
25		0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.2	S	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	P	0.2	0.10	23			
26		0.3	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.2	0.1	S	0.2	0.2	0.2	P	0.4	0.5	0.3	0.3	0.1	0.1	0.0	0.1	0.0	0.5	0.15	23		
27		0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.01	24		
28		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.04	24		
29		0.3	0.3	0.3	0.2	0.1	0.2	0.1	S	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.11	24		
30		0.0	0.0	0.0	0.0	0.3	0.0	S	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.02	24			
31		0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.5	0.3	0.3	0.2	0.5	0.08	24			
HOURLY MAX		0.4	0.3	0.4	0.4	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.4	0.3	0.3	8.1	7.8	0.5	0.3	0.3	0.6	0.9	0.5	0.5	0.6					
HOURLY AVG		0.07	0.07	0.07	0.08	0.08	0.07	0.05	0.07	0.09	0.09	0.08	0.08	0.07	0.07	0.31	0.32	0.08	0.08	0.08	0.07	0.11	0.09	0.07	0.08					

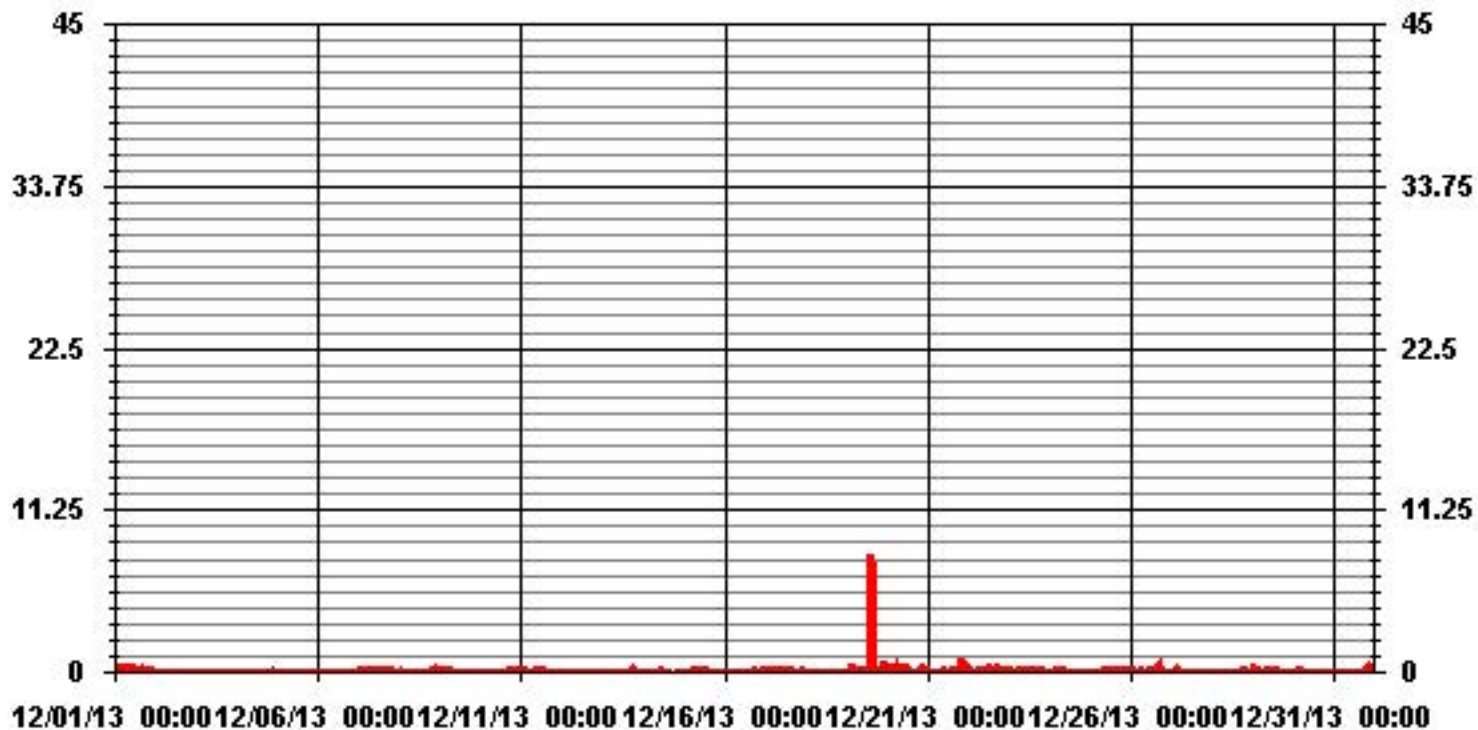
STATUS FLAG CODES

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:	307					
MAXIMUM INSTANTANEOUS VALUE:	8.1	PPM	@ HOUR(S)	14	ON DAY(S)	19
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.43					

01 Hour Averages



— LICA35 NMHC MAX PPM

LICA35
 NMHC / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	3.67	1.97	4.23	4.23	8.61	20.90	2.11	1.12	.00	.42	.56	4.94	11.86	14.83	16.66	2.96	99.15
< .5	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.28	.14	.00	.00	.56
< 1.0	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.28
< 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	3.67	1.97	4.37	4.23	8.61	20.90	2.11	1.27	.00	.42	.56	4.94	12.14	14.97	16.80	2.96	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	26	14	30	30	61	148	15	8		3	4	35	84	105	118	21	702
< .5								1					2	1			4
< 1.0			1												1		2
< 2.0																	
< 4.0																	
>= 4.0																	
Totals	26	14	31	30	61	148	15	9		3	4	35	86	106	119	21	

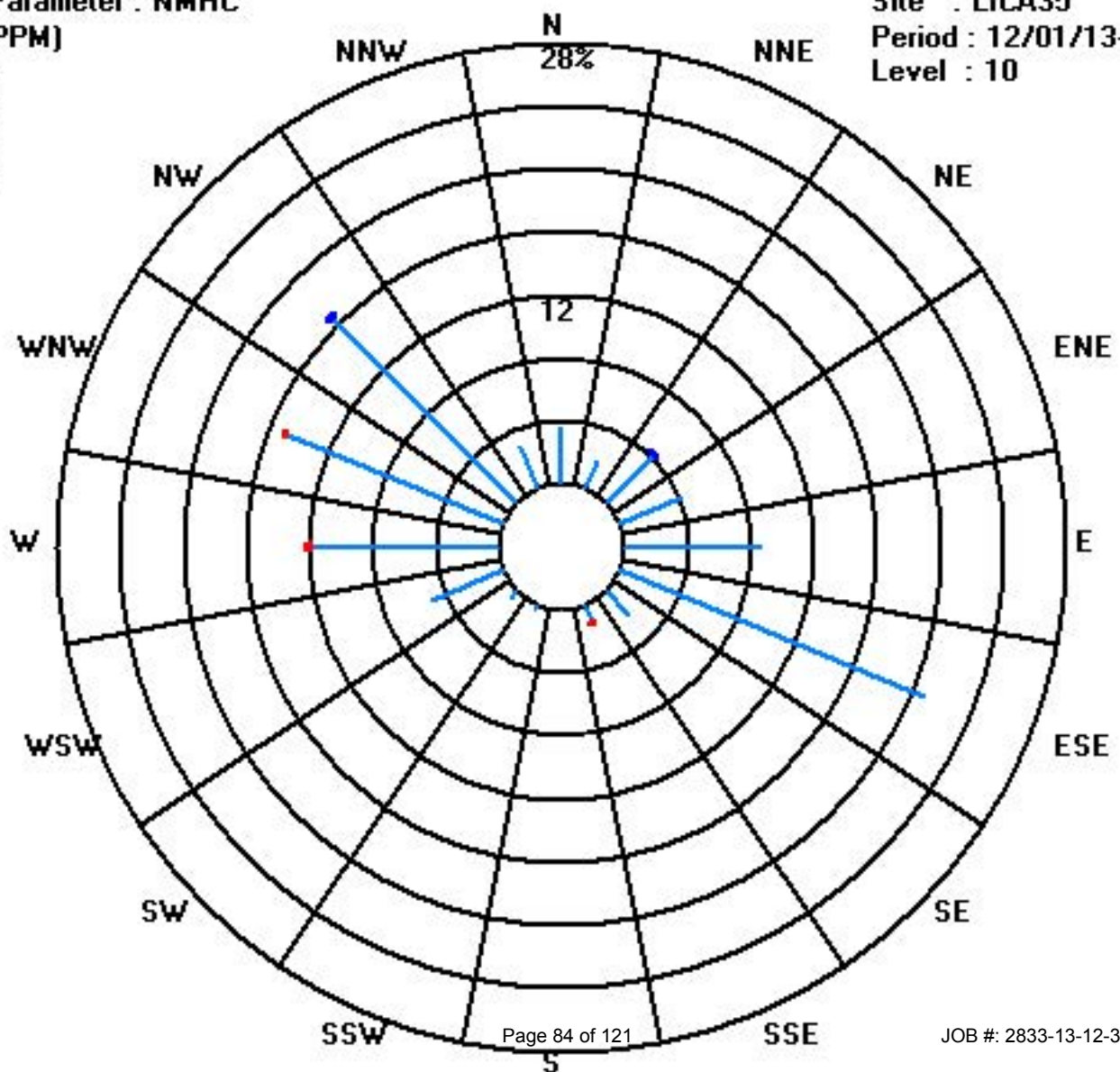
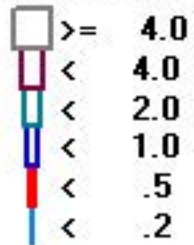
Calm : .00 %

Total # Operational Hours : 708

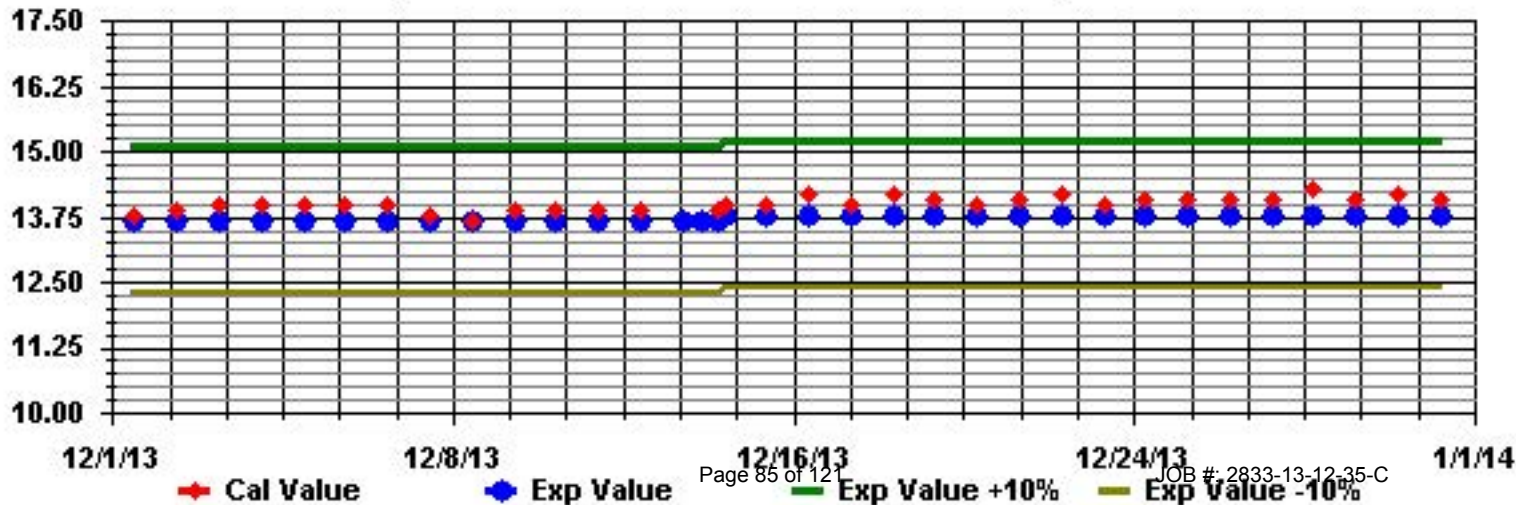
Class Limits (PPM)

Period : 12/01/13-12/31/13

Level : 10



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



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

VECTOR WIND SPEED (WS) hourly averages (km/hr)

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	3.5	4.3	5.9	6.4	7	8.6	7.1	7	6.9	9.1	7	3	7.3	6.4	6.8	6.3	5.4	8.2	5.9	3.4	4.2	9.9	10.5	9.8	10.5	6	24
2	9.6	11.5	11.5	9.5	10.5	12.1	15.3	14.7	12.6	14.5	14.9	17.6	15.7	15.7	12.9	12.3	12.2	10	10	10.6	11	12.1	13.9	11.6	17.6	11.4	24
3	9.3	10.4	7.6	15.8	15.3	12.6	12.6	12.3	13.7	17.3	16.7	15.1	16.8	17.4	17.1	17.9	15.6	12	10.4	9.4	10.1	10.6	11	9.8	17.9	12.2	24
4	10.2	10.7	10.3	13.2	14	15.3	14.7	19.3	16.7	15.5	15.4	14.8	14.2	13.5	15.3	15.5	12.3	9.8	12.4	12.6	12.5	10.4	13.9	13.7	19.3	13.4	24
5	6.8	11.7	10.7	14.5	11.5	11.1	14.7	14.2	10	12.6	17.2	15.3	17.1	18.8	18.7	15.5	17.1	14	12.1	12.4	10.1	15.4	14.9	11.8	18.8	13.5	24
6	15.3	16.2	14.5	16.1	15.7	14.4	15.7	13.7	14.1	14.6	11.7	11.8	12.6	13.5	14.7	10.7	8.7	8	12.3	10	9.8	10.5	12.6	7.1	16.2	12.3	24
7	3.5	3.7	0.3	0.5	0.6	2.4	3.3	3.7	3.5	2	3.9	4.5	4	3	3.8	1.8	8.7	10.1	12.4	16.7	15.9	15.9	15.9	18.1	18.1	3.5	24
8	15	8.6	8.3	10	11.8	12.4	13.9	13.6	10.6	17.9	17.4	21.1	23.3	24	18.6	17.6	9.1	5.5	5.1	1.9	1	0.8	1.8	5.2	24	10.4	24
9	4.7	6	6	6.3	4.1	5.4	31.1	34	30.7	21.5	16.2	9.2	10.5	25.1	27.9	28.6	24.4	13.8	17.3	17.1	17.8	16.7	20.2	23	34	15	24
10	21.8	19.6	22.4	14.1	13.9	17.1	19.8	21.1	17.8	9.4	15.6	16.8	15.4	15.6	13.2	6.8	7.4	9	12.2	5	0.7	0.2	2.2	4.2	22.4	10.2	24
11	7.8	8.6	6.8	6.4	5.3	5.5	3.9	3.2	4.4	4.7	0.4	0.8	0.5	1.5	3	5.2	4.7	1.8	5.6	6.8	8.4	8.4	9.3	8.8	9.3	3.5	24
12	8.5	7	6.9	8.6	8.3	10.3	9.3	11	12.3	13.6	16.8	17.7	15.8	14.4	13.2	11.2	12.9	15.1	13.2	14.9	14.8	14.6	13.8	11.5	17.7	12.1	24
13	13.3	15.5	14.4	14.9	15.6	18.4	18.6	17.9	17.6	15.7	16.3	11.7	13.3	10.5	7.7	3.6	1.7	3.3	7.5	4.9	4.2	3.5	3.2	1	18.6	8.3	24
14	2.6	6	4.4	6.4	8.8	13	16.3	16.7	16.6	19.5	21.3	21.7	21.7	20.9	22	22.2	19.9	22.5	20.4	18.8	18.7	19.5	17.5	18.9	22.5	16.4	24
15	15.2	17.3	16.6	14.6	13.7	11.9	9.4	8.3	8.1	8.9	8.5	4	32.1	45.2	46.4	48.4	44.4	37.9	34.8	24.5	19.6	16.2	16.7	18	48.4	10.1	24
16	15.7	21.7	24.9	21.1	23.2	26.1	24.5	18	19.8	21.7	22.6	26.1	30.4	30	26.4	23.9	23.4	17.6	14.4	12.8	10.9	12.7	9.1	1.3	30.4	19.3	24
17	5.1	1.1	0.2	5.3	8.7	6.5	10.1	14.2	18.9	20.2	23.5	16.6	17.4	19.4	14.2	9.8	7.2	7.2	4.4	5.5	5.3	9.6	26.6	25.9	26.6	5.9	24
18	26.4	29.8	28.7	23.5	15.8	12.6	18.1	19	17.1	20.9	17.7	12.2	17.5	18.2	14.8	13.6	19.2	18.5	16.3	10.1	14	11.7	11.6	10.5	29.8	17.1	24
19	3.9	4.7	10.9	12.9	10.9	4.8	1.3	2.3	0.4	0.8	6	4.4	2.3	4.5	0.8	1.9	1.5	4.3	9.1	9.9	6.9	3.1	6.4	3.4	12.9	2.9	24
20	1.5	2.1	3.4	2	3.6	0.2	1	3.7	1	3.2	5.9	6.5	9.7	12.4	12.6	10.5	10.7	9.6	6.8	5.7	6.2	7.8	9.1	8.2	12.6	5.1	24
21	8.3	7.7	9.8	8	8.8	10.2	10.1	7.7	9	8.3	7.7	7.7	4.9	5.7	5.8	6.6	1.3	0.3	3.3	2.5	3.3	10.4	6.8	5.6	10.4	4.1	24
22	8.5	8.7	10.6	4.6	5.4	7.3	2.1	1.9	0.1	0.9	0.3	2.1	0.2	1.8	2.8	6.4	7.9	10	9.2	9.4	8.5	13.4	11.4	11.8	13.4	2	24
23	11.2	12.3	13.8	12.9	16.4	17	16	13.5	14.9	14	11.5	7.4	7.7	7.6	6.1	4.5	2.6	2.6	3	4.5	0.9	12.3	22.7	26.2	26.2	4.9	24
24	25.2	21.8	17.2	6.1	8.1	8.1	8.9	4.4	1.2	11.5	20.4	19.1	16.7	14.1	17.4	20.4	21.1	18.4	22.3	17.5	16.8	12.9	5.2	5.6	25.2	13.6	24
25	8	10.7	12.1	7.2	7.7	7.3	5.3	4.2	2.4	2.2	7	8.9	10.3	11.7	12.2	9.1	4.2	3	6.3	21.1	11.9	10.5	11.9	7.5	21.1	3.8	24
26	1.6	5.4	8.9	7.1	8.1	7.9	3	6.2	1.9	0.8	3	3.5	5.8	1.7	1.5	2.6	0.2	0.1	8.3	20.2	24.1	26.3	26.2	28.8	28.8	7	24
27	21.1	23.8	12.9	14.6	15.5	12.8	13.2	13.6	12	15.5	14.7	13.3	16.1	15.9	18	20.3	20.1	19.6	21	19.1	17.8	18.4	15.9	16.7	23.8	13.8	24
28	10.1	16.5	13.6	12	10.3	10.2	9.4	8.6	7.8	9	8.9	8.1	5.3	8.6	12.9	9.1	8.1	6.7	6.5	7.1	4.8	6.2	4.9	4.8	16.5	7.4	24
29	1.6	3.1	3.5	6.6	6.5	5.6	6.6	7.8	7.5	9.8	11.1	9.7	11.8	13.4	9.4	8.9	4.8	4.5	9.8	8.3	8.3	8.4	6.7	7.9	13.4	5.3	24
30	10.6	11.4	6.4	7	7.3	9.6	8.8	4.4	6.7	9.4	7.5	4.9	3.4	5.2	4.3	3.3	3.7	8.1	7.5	7.7	6.2	8.1	9.2	12.1	12.1	2.6	24
31	14.4	15.6	16.6	16.2	16.4	15.4	16.7	16.5	16.1	15.2	16.5	18.6	16.3	12.9	9	7.3	5.9	4.5	3	0.6	2.2	2.4	1.8	2.5	18.6	10.3	24
HOURLY MAX	26.4	29.8	28.7	23.5	23.2	26.1	31.1	34.0	30.7	21.7	23.5	26.1	32.1	45.2	46.4	48.4	44.4	37.9	34.8	24.5	24.1	26.3	26.6	28.8			
HOURLY AVG	10.3	11.4	11.0	10.5	10.6	10.7	11.6	11.5	10.7	11.6	12.4	11.4	12.8	13.8	13.2	12.3	11.2	10.2	11.1	10.7	9.9	10.9	11.7	11.3			

STATUS FLAG CODES

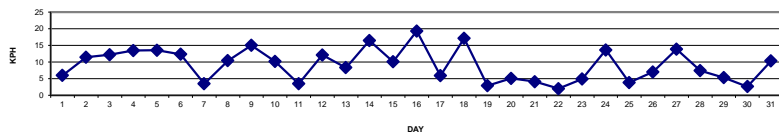
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION: November 24, 2011

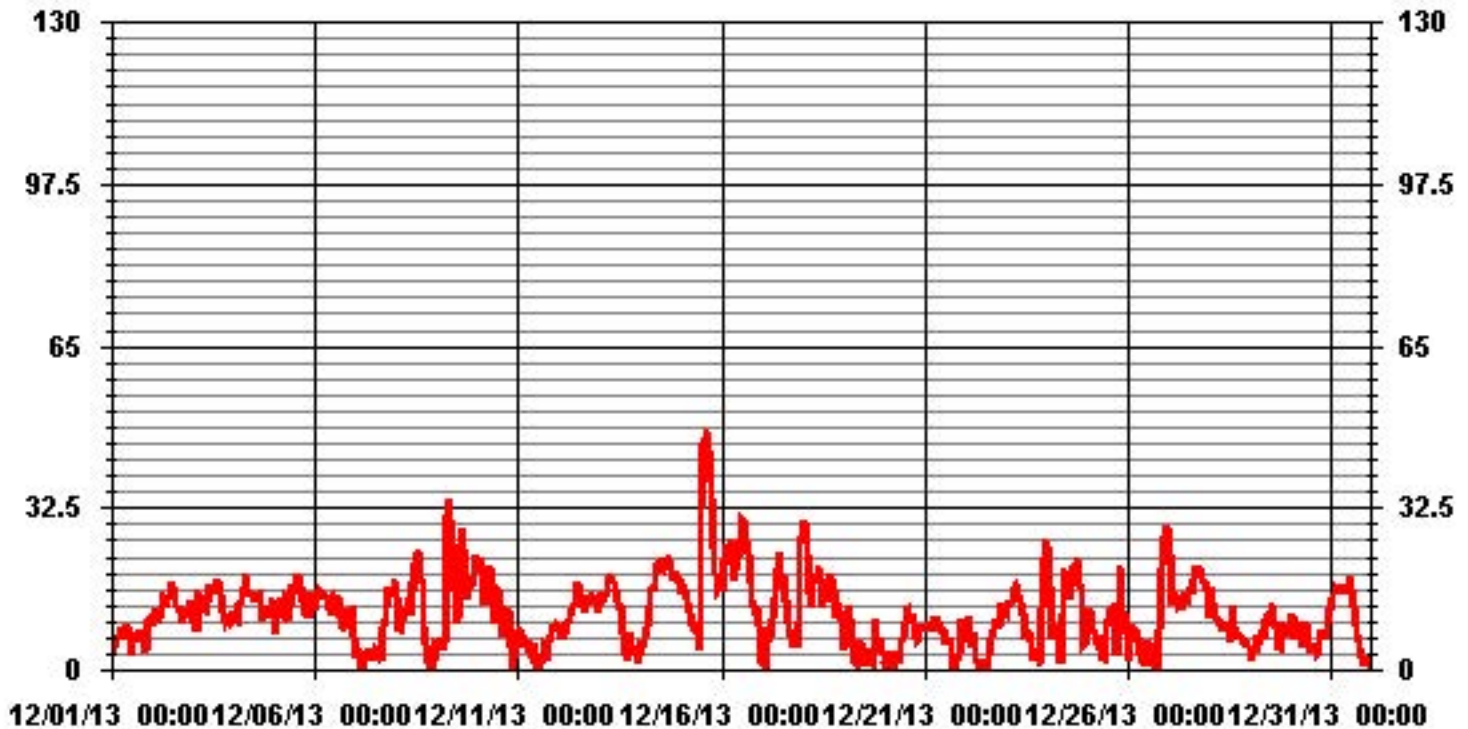
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	48.4	KPH	@ HOUR(S)	15	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	19.3	KPH			ON DAY(S)	16
CALMS (≤ 1 KPH)	1.34	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	7.09		MONTHLY AVERAGE:	11.37	KPH	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																										
1	10.5	8.4	9	9.6	10.8	14.5	10.2	10.1	11.4	12.7	11.9	10.1	11.4	11	11.4	10.7	9.3	11.8	8.7	5.8	10.6	20.1	20.9	18.2	20.9	
2	19.8	21.1	20.3	17.3	19.7	22.6	25.7	26.4	26.1	27.5	28.3	30.7	28.5	32.4	25.6	24.2	25.2	19.5	19.9	22.6	22	22.6	22.7	23.4	32.4	
3	16.4	15.9	12.4	26.5	25.7	19.7	22.3	20.4	25.3	26.9	26.2	25.5	29.7	26.9	29.4	28	26	23.4	15	13.2	14.7	15.4	14.9	13.3	29.7	
4	13.7	15	15.2	18.3	20.1	21.1	18.1	24.3	22.3	21.3	20.7	22.3	20.4	22	21.4	22.7	15.4	12.6	18.9	17.6	14.9	13.4	16.9	17.4	24.3	
5	15.1	15.9	17.1	17.4	16.2	17.3	18.9	18.1	16.5	22.7	23.2	21.9	22.9	27.5	28.6	23.1	23.4	22.3	19	21	19.3	20.9	21.3	17.8	28.6	
6	18.9	21.7	19.2	21.6	20.2	18.5	20.1	17.2	17.4	17.4	15.8	16.8	19.3	16.5	17.4	15.5	14.7	14.2	17.7	15.7	15.5	16.6	18.4	13.4	21.7	
7	6.6	6.7	2.9	3.8	4.9	6	6.7	6.4	5.8	5.9	6.1	6.5	6.2	7.3	7.6	12.5	20.8	19.5	22.5	25.1	25	26.7	26.8	35.6	35.6	
8	23.6	14.9	16.5	15.6	19.2	17.3	19.6	23	19.3	32.5	30	34.3	36.1	39.5	26.9	24.1	15.9	10.7	13.2	11	4.5	3.8	5.4	8.7	39.5	
9	11	10.8	13.1	11.4	14.1	17.8	54.8	59.3	56.4	39.9	34.3	17.9	30.3	39.1	44.5	41.1	42.5	24.7	38.8	33.2	33.4	34.1	36.8	46.2	59.3	
10	37.8	34.9	39.6	26.8	24.7	31.7	33.8	34.5	32.7	22.8	30.9	29.5	24.8	28.1	23.8	14.4	11.8	13.1	18	12.1	6.6	2.1	5.9	8.8	39.6	
11	11.8	12.6	11.2	9.2	8.2	10.2	7.6	5.8	6.4	7.8	3.2	4.9	3.5	4	5.2	7.3	7.2	5.5	9.1	11.4	13	15.1	15	14.5	15.1	
12	13.9	11.4	12.6	13.8	13.2	17.6	16.2	18.8	21.2	20.1	26.4	27.2	24.3	23.1	19	19.3	22.5	22.9	24.9	23	24.5	21.8	22.9	19.6	27.2	
13	18.9	22.8	21.3	21.1	24.7	28.2	25.4	25.9	25.4	23.8	22.3	17.6	18.6	15.1	13.1	8.6	6.2	10.3	9.6	8.9	9.2	8.3	6	5.1	28.2	
14	4.5	9.1	7.4	9.6	11.8	20	22.8	22.9	24.2	26.2	32	31	29.6	28.2	30.4	31.8	27.8	31.1	30.2	28.2	29.2	31	29.6	29.1	32	
15	21.4	26	23.2	19.3	19.1	16.8	14.5	16	12	14.2	11.7	8.3	71.9	74.9	88.2	66.6	76.2	66	54.6	34.8	32.8	31.2	36.5	40.6	88.2	
16	28.4	42.3	43.6	36.7	38.1	56.2	42.9	36.8	38.7	36.7	57.1	39.6	46.2	43.8	43.2	35.2	32.5	27.2	22.3	19.1	16.9	18.3	16.4	7.4	57.1	
17	8.1	5.2	3.6	10	12.7	11.1	19.1	19.4	27.4	31.8	35	28.2	26.6	27	24.1	25.1	21	12.4	9.6	10.5	9.4	23.1	54.3	52.4	54.3	
18	44.8	47.1	47.7	39.5	34	20.2	28.6	28.1	29.7	36.1	34	19.7	26.4	28.4	22.5	23.7	31.7	28.8	27.4	20.1	22.9	16.5	16.9	15.7	47.7	
19	11.1	10.1	15.2	15.4	14.9	9.9	9	9	5	5	9.5	8.3	6.4	8.1	5.2	5.3	6.6	8.4	16.5	20	15.9	12.4	13.7	6.6	20	
20	5.4	5.2	8	5.8	8.3	4.3	4.3	5.9	4	6.5	7.8	10	14.5	17.1	17.9	14.9	14.4	13.1	10.6	8	9.1	9.7	12	11.7	17.9	
21	10.1	11	13.1	12.6	11.7	15.3	13.5	11.5	13.9	13.7	13.3	11.9	9.9	7.6	7.4	10	4.6	3.4	6.8	5.3	7.3	16.3	16.3	12.7	16.3	
22	13.7	14.2	16.8	8.8	7.5	11	5	5.2	3.9	4.7	4.4	3.9	3.1	5	5.4	9.9	12	12.4	12.3	14.1	14.8	19.9	16.5	15.7	19.9	
23	16.6	17.1	19.8	20	21.9	26	23.3	22.3	22.6	37.2	17.6	16.5	10.8	9.3	12.7	10.4	15.5	7.4	10.2	9.9	10.6	26.7	33	45.3	45.3	
24	38.7	31.3	28	13.2	14.7	15.7	16.1	9.4	6.9	24.2	31.2	34.1	28.8	29.4	31.2	37.4	31.3	26.7	33.6	24.1	23.2	22.4	17.2	12.5	38.7	
25	19	23.3	21.1	16.2	15.5	15.2	9.7	8.6	6.3	6.8	10	12.1	15	17.2	19.5	17.6	15	7.7	25.9	28.7	22	25.6	24.6	P	28.7	
26	8.5	17	18.3	15.8	17.7	16.3	7.3	10.5	10.9	4.3	8.4	7.2	9.1	6.6	P	7.5	9.2	3.5	18.5	37.5	35.1	39	35	44.3	44.3	
27	33.3	42.9	22.8	26.9	25.8	21.6	24.4	27	20.8	25.3	26	22.5	26.9	30.2	29.7	34.8	34.2	34.2	39.3	41.9	36	34.1	34.3	41.1	42.9	
28	23.3	28	21.8	19.4	18.1	20	15.1	13.9	15.5	14.5	13.8	13.1	9.8	13.8	16.4	12	12	10.5	10	14	7.2	11.8	11.4	9.1	28	
29	6.5	6.4	8.9	10	10.2	8.9	10.1	13.4	11.4	15.2	15.5	13.1	18.6	17.6	12.9	12.9	9.1	8.8	18.9	17.7	12.9	16.1	11	16	18.9	
30	13.7	16.4	14	12.6	11.3	14.7	13.5	7.9	13.3	16.9	9.8	6.9	6.1	7	8.6	8	8.4	16.2	13.5	12.9	10	11.3	13.2	19.3	19.3	
31	20.6	23.2	25	21.3	22.1	20.3	24.3	23.7	22.7	21.4	24.5	24.7	22.9	20.2	13.4	11.6	8.5	8.1	5	3.1	4.8	7.6	6.7	4.8	25	
PEAK	44.8	47.1	47.7	39.5	38.1	56.2	54.8	59.3	56.4	39.9	57.1	39.6	71.9	74.9	88.2	66.6	76.2	66.0	54.6	41.9	36.0	39.0	54.3	52.4		

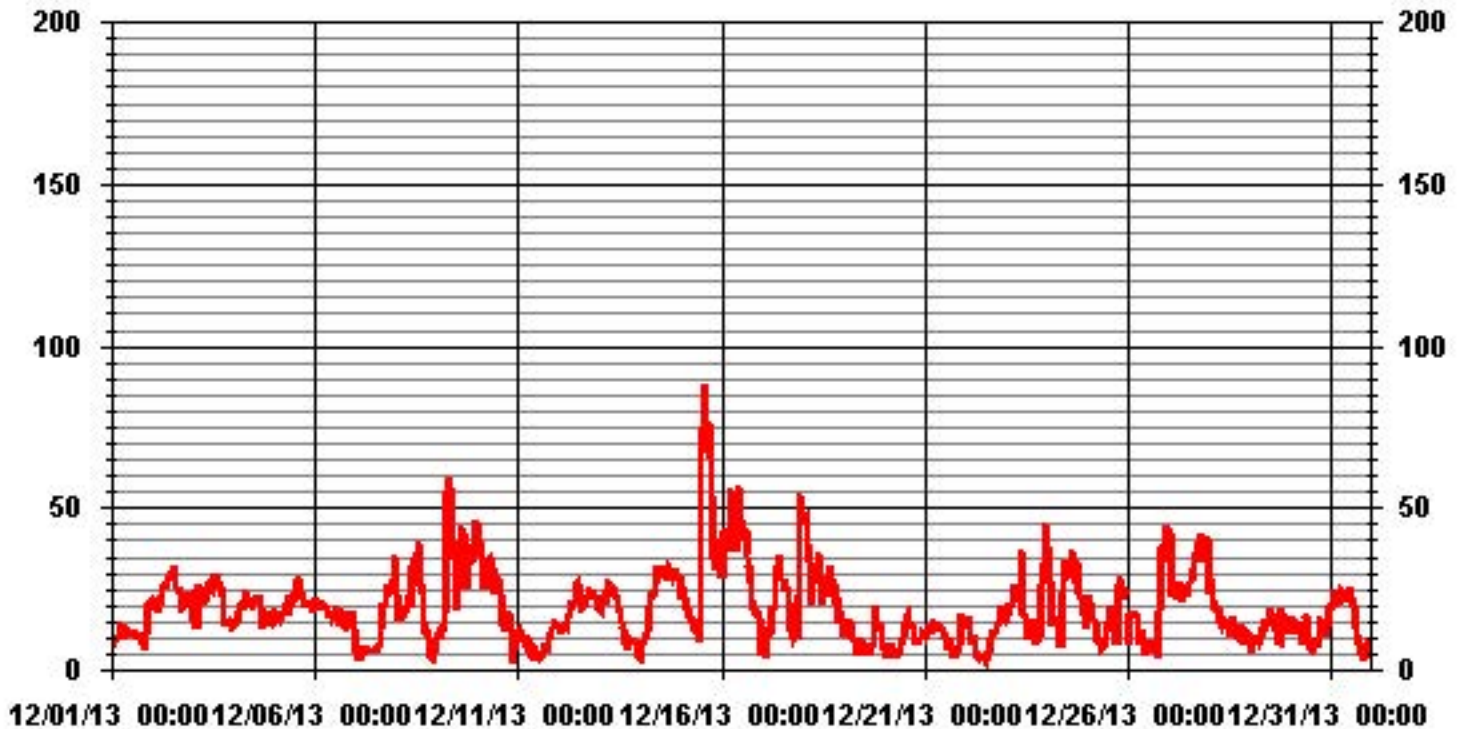
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	88.2	KPH	@ HOUR(S)	14
			ON DAY(S)	15

01 Hour Averages



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

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1.47	.40	.80	.94	3.36	3.89	1.07	1.07	.00	.40	.40	1.34	2.95	2.82	2.01	.53	23.52
< 12.0	1.07	.67	1.47	2.01	3.49	8.87	.53	.13	.00	.00	.13	2.68	5.77	3.09	2.55	.53	33.06
< 20.0	1.07	.80	1.88	1.07	2.15	7.39	.53	.00	.00	.00	.00	.80	1.34	5.64	9.81	.94	33.46
< 29.0	.13	.00	.26	.13	.00	1.34	.00	.00	.00	.00	.00	.00	1.74	2.01	2.01	.53	8.19
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.13	.40	1.20
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.53	.00	.00	.53
Totals	3.76	1.88	4.43	4.16	9.00	21.50	2.15	1.20	.00	.40	.53	4.83	11.82	14.78	16.53	2.95	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	11	3	6	7	25	29	8	8		3	3	10	22	21	15	4	175
< 12.0	8	5	11	15	26	66	4	1			1	20	43	23	19	4	246
< 20.0	8	6	14	8	16	55	4					6	10	42	73	7	249
< 29.0	1		2	1		10							13	15	15	4	61
< 39.0														5	1	3	9
>= 39.0															4		4
Totals	28	14	33	31	67	160	16	9		3	4	36	88	110	123	22	

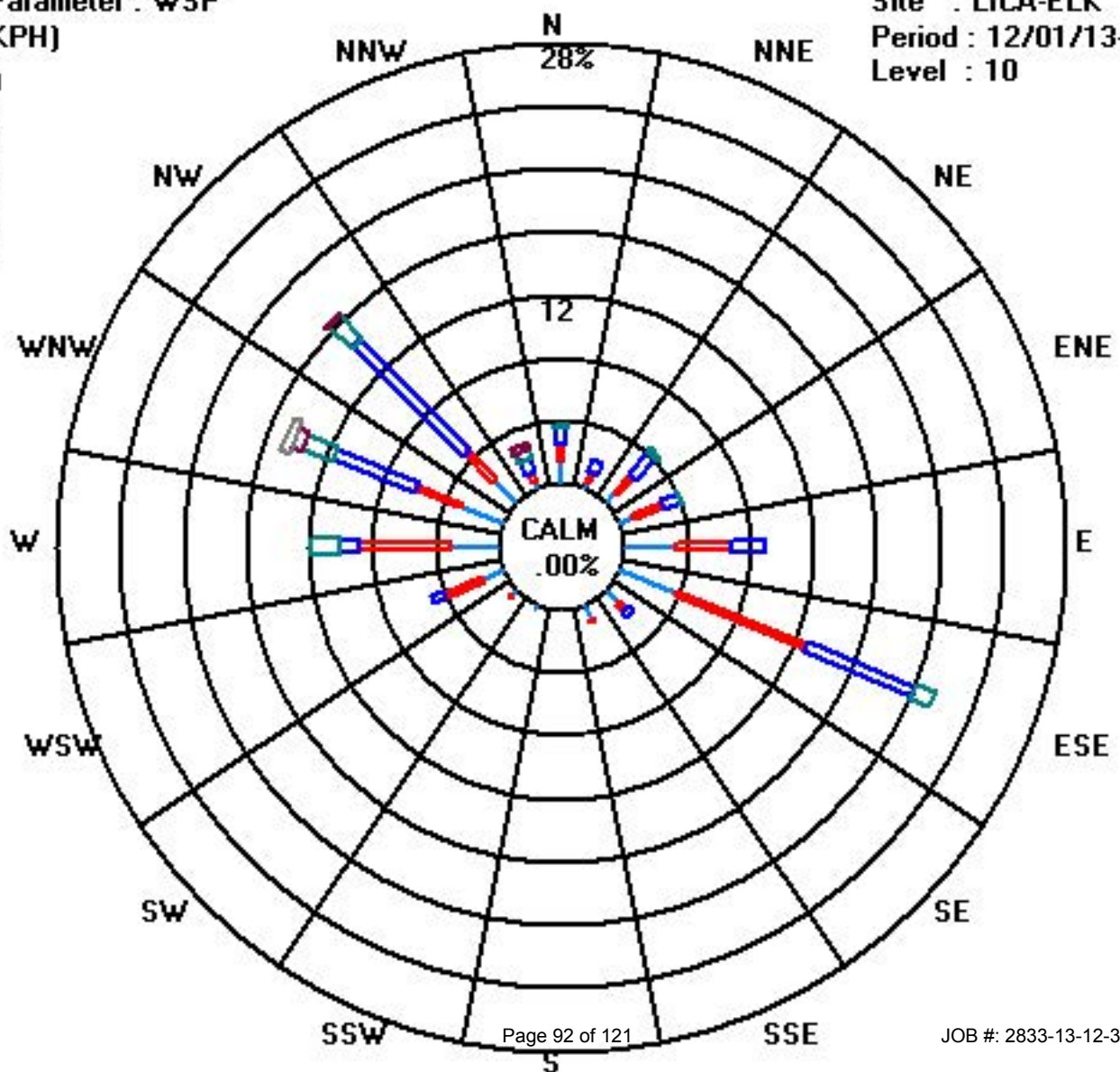
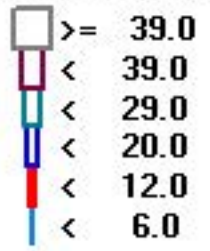
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

Period : 12/01/13-12/31/13

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																													
1		115	79	94	100	101	96	99	99	101	108	123	132	91	106	102	119	127	120	118	101	29	39	54	56	94	E	24	
2		59	63	64	62	60	61	56	60	45	51	44	46	56	61	34	29	23	17	355	3	19	352	354	352	39	NE	24	
3		349	5	345	319	313	319	321	318	313	318	325	322	315	313	311	313	312	319	312	305	292	268	253	247	313	NW	24	
4		288	295	304	304	304	300	289	296	299	302	305	316	303	308	307	312	288	277	283	283	292	286	286	282	297	WNW	24	
5		306	298	288	282	287	295	303	308	311	305	304	295	304	308	315	304	303	311	314	316	314	306	308	305	304	WNW	24	
6		298	299	302	296	290	294	287	285	290	282	275	286	289	283	281	272	265	273	255	257	255	257	254	273	281	W	24	
7		285	321	313	8	97	83	97	80	121	40	95	104	106	110	110	217	258	255	282	291	298	308	317	317	302	WNW	24	
8		308	292	273	291	306	301	288	320	318	319	321	315	312	312	304	293	263	260	249	269	355	30	42	111	305	WNW	24	
9		102	73	112	117	334	268	329	329	328	323	317	258	268	303	305	302	304	304	326	317	331	320	332	332	318	NW	24	
10		347	4	6	354	329	315	312	310	309	315	323	327	312	321	305	261	227	248	247	261	359	242	71	89	321	NW	24	
11		110	113	98	103	82	88	104	99	103	124	223	248	294	282	295	313	327	325	43	44	49	56	69	62	73	ENE	24	
12		61	61	55	63	65	56	56	63	77	84	93	87	84	85	85	66	74	85	80	93	88	86	84	87	79	ENE	24	
13		97	91	97	97	109	114	115	117	115	116	110	107	118	117	109	127	149	308	316	296	292	268	260	112	109	ESE	24	
14		119	111	107	91	99	107	115	117	125	114	117	114	113	114	112	115	111	113	115	113	125	122	116	116	115	ESE	24	
15		124	118	114	105	109	105	101	99	98	99	108	104	284	288	291	292	292	297	296	277	269	262	262	264	284	WNW	24	
16		261	269	270	268	272	277	306	298	290	294	291	285	291	288	276	282	299	293	253	252	254	250	293	280	W	24		
17		301	271	358	102	113	84	99	107	110	120	118	112	102	116	120	117	117	99	72	80	196	283	312	311	104	ESE	24	
18		317	315	318	343	343	315	313	311	315	316	320	314	314	313	306	313	313	314	315	317	313	296	301	278	315	NW	24	
19		270	272	248	246	243	250	152	115	359	71	105	92	96	105	307	50	11	273	259	265	259	241	268	298	252	WSW	24	
20		274	299	320	63	200	5	155	122	204	117	109	100	104	103	114	113	110	113	119	115	113	106	95	108	111	ESE	24	
21		107	105	108	110	110	105	121	125	133	116	127	119	106	98	97	107	133	68	310	288	264	259	264	254	121	ESE	24	
22		268	284	299	287	263	281	290	278	148	333	65	112	151	117	113	114	115	114	108	107	118	112	115	113	123	ESE	24	
23		116	109	116	117	115	112	107	106	111	106	107	101	103	92	98	85	356	273	250	241	358	289	305	308	102	E	24	
24		301	291	303	275	261	259	263	304	274	261	279	287	319	315	312	297	290	284	281	278	275	269	271	261	288	WNW	24	
25		258	265	286	262	245	254	298	238	312	127	117	115	118	135	135	159	123	46	268	282	263	257	261	260	240	WSW	24	
26		265	265	262	270	269	292	304	278	297	29	136	94	114	95	356	151	163	228	275	272	272	273	282	291	276	W	24	
27		302	315	323	11	7	14	38	51	53	42	55	61	59	65	56	57	52	49	46	28	21	14	0	0	28	NNE	24	
28		352	345	343	342	346	337	321	345	349	310	312	305	310	287	280	275	262	249	260	259	313	285	272	299	312	NW	24	
29		68	100	95	108	106	92	97	103	103	102	99	104	94	112	103	106	100	54	30	32	16	350	312	280	84	E	24	
30		296	298	268	251	249	266	296	313	299	304	306	297	280	289	325	331	9	37	45	67	103	102	109	112	314	NW	24	
31		113	117	116	113	112	116	112	109	112	116	108	112	110	113	112	121	137	160	117	293	297	297	256	94	114	ESE	24	
HOURLY AVG		352	345	358	354	346	337	329	345	359	333	325	327	319	321	356	331	356	325	355	317	359	352	354	352				

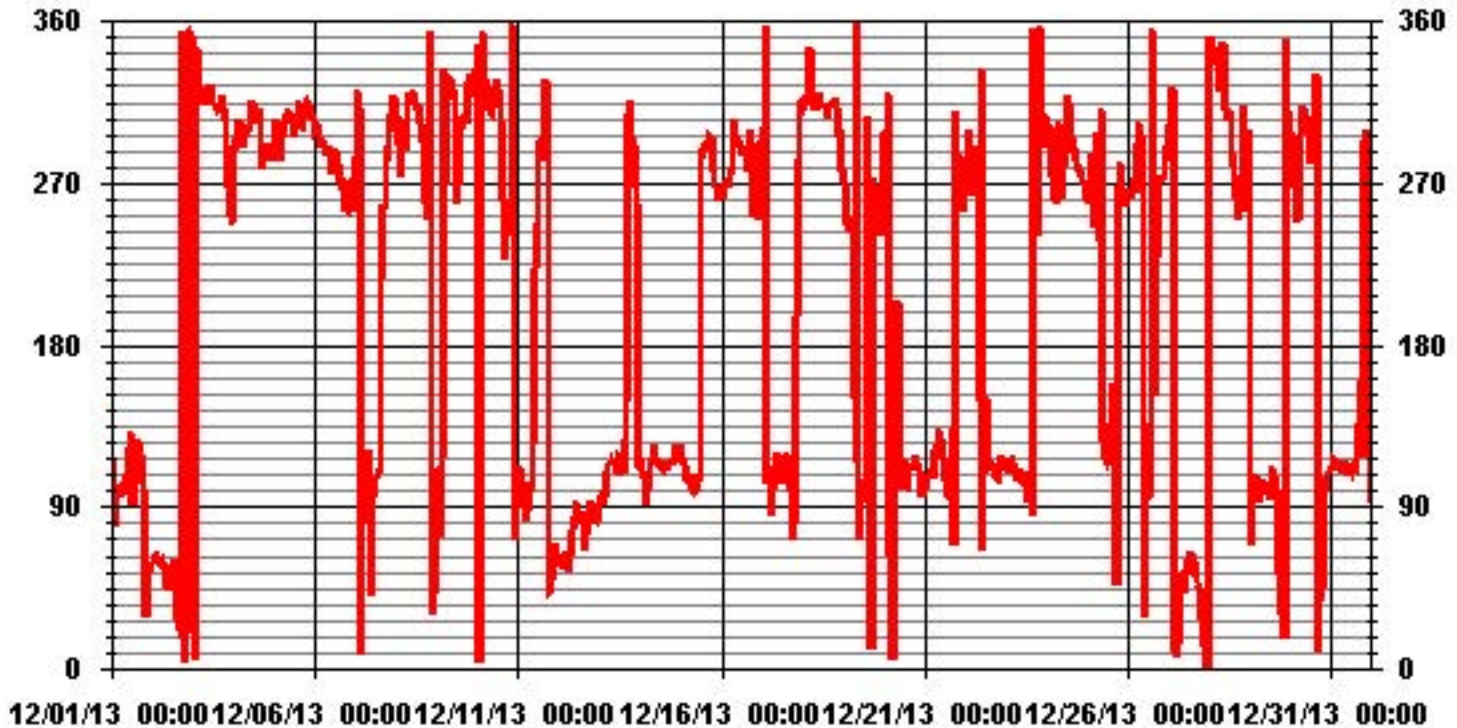
STATUS FLAG CODES

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:	November 24, 2011
DECLINATION:	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	104.68	AMD OPERATION UPTIME:	100.0	%
		MONTHLY AVERAGE:	327	DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

DECEMBER 2013

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	18	13	7	8	10	7	8	6	7	6	12	26	12	13	11	11	6	6	6	13	16	10	11	12
2	11	13	11	13	10	11	10	11	12	12	13	11	10	11	13	12	10	11	12	12	11	11	11	10
3	10	10	9	9	7	8	9	8	8	8	8	9	8	8	7	7	6	7	6	5	3	9	6	6
4	5	5	5	3	4	5	4	3	4	5	5	7	6	5	4	5	3	6	6	5	2	4	3	4
5	6	3	4	4	4	5	3	4	5	5	4	5	4	6	7	5	4	6	7	7	8	4	4	4
6	3	3	3	4	4	3	3	4	4	3	5	4	5	3	3	6	9	10	6	8	6	8	6	9
7	12	10	3	26	34	16	11	12	9	20	11	7	18	30	21	26	12	11	8	5	6	7	8	8
8	5	12	7	5	5	4	9	8	8	8	9	8	7	7	5	3	9	8	9	30	29	23	34	11
9	20	16	27	23	30	18	9	8	9	9	8	11	10	6	6	6	5	7	9	8	8	9	9	9
10	11	13	13	13	8	7	6	6	6	10	9	9	7	8	8	10	5	4	4	7	31	22	19	10
11	5	4	10	6	14	12	14	13	11	9	24	19	8	9	10	7	9	33	10	9	9	10	10	10
12	10	11	11	9	11	9	10	11	10	8	7	8	9	8	7	12	11	9	10	7	9	8	10	9
13	6	7	5	7	6	6	5	6	6	6	6	7	8	9	8	8	8	34	5	9	16	16	10	22
14	16	6	9	10	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	8	6	7	8
15	7	9	6	7	5	7	8	14	13	7	11	30	33	5	7	7	6	6	5	6	9	12	12	12
16	12	10	9	10	8	7	6	8	8	5	11	5	5	5	5	4	5	6	8	7	8	7	8	23
17	9	6	17	23	8	10	10	5	6	5	6	9	8	6	8	23	33	16	25	23	17	14	8	9
18	8	8	8	10	13	7	6	6	7	8	8	9	7	8	5	6	7	7	7	8	6	4	6	8
19	12	7	5	2	2	7	43	23	21	20	10	27	29	17	46	43	29	9	8	10	27	27	18	15
20	13	18	14	23	17	31	25	9	12	11	4	14	7	5	6	5	5	6	6	4	4	4	3	4
21	6	4	5	6	4	5	5	6	7	9	10	7	15	6	5	6	22	31	12	11	9	6	23	9
22	7	6	5	9	5	5	10	18	38	21	18	18	13	13	34	8	4	3	5	6	12	4	3	3
23	5	5	5	6	4	6	6	7	7	38	8	42	7	6	10	20	45	38	29	15	38	12	5	6
24	4	4	4	11	8	10	12	10	41	14	6	6	10	9	9	7	4	4	4	5	6	11	18	13
25	15	13	7	10	13	16	14	9	16	17	5	6	6	8	10	11	19	43	21	5	13	20	12	14
26	23	15	12	14	14	15	17	10	21	46	43	34	8	60	44	36	55	45	12	7	7	6	4	4
27	7	7	13	12	13	13	11	12	11	10	11	11	10	12	11	10	11	12	12	11	12	14	13	14
28	13	10	10	8	11	8	8	9	12	8	8	7	11	5	2	6	6	7	6	14	10	6	8	6
29	24	13	25	7	7	8	11	8	7	6	6	9	8	5	5	5	13	15	12	11	10	11	11	9
30	6	6	14	8	4	7	6	8	6	8	4	7	9	5	12	7	12	10	13	8	9	7	6	6
31	6	6	7	5	6	7	6	6	7	7	7	5	5	7	8	8	7	10	13	20	19	38	27	8

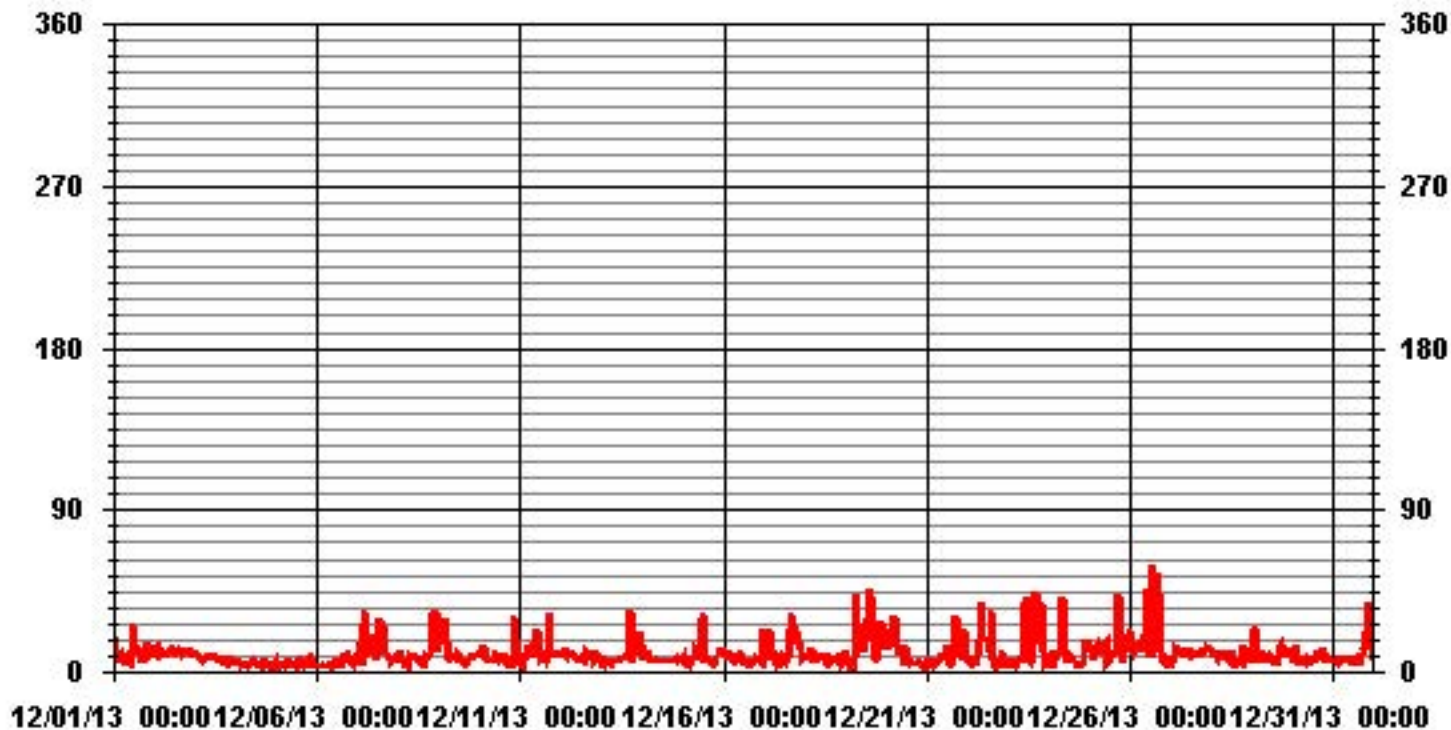
STATUS FLAG CODES

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

LAST CALIBRATION: November 24, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 14, 2013	Previous Calibration	November 13, 2013
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable / ELK Point Airport		
Start Time (MST)	9:52	End Time (MST)	13:23
Reason:	Monthly calibration		
Barometric Pressure	27.8 in HG	Station Temperature	24 Deg C
Cal Gas	49.7 ppm	Gas Cyl. #	BAL3165
DAS Output Voltage	0-1 Volts	Cal Gas Expiry date	December 29, 2016
		Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	Fluorescent
Converter Make / Model:	N/A	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	690	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	API 700	S/N :	690		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0-1000		ppb		
Sample Flow / Box Temp	623 ccm	35.9 Deg C	628 ccm	35.9	Deg C
HVPS / Lamp Setting	628	1341.7	628	1341.7	
PMT / RxCell Temp	8.2 Deg C	50 Deg C	8.2 Deg C	50	Deg C
Converter / IZS Temp	N/A Deg C	45 Deg C	N/A Deg C	45.0	Deg C
Offset / Slope	134.5	1.148	144.7	1.14	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	1	N/A
5000	0	0	1	N/A
4921	76.7	763	758	1.0063
4921	76.7	763	766	0.9958
4956	38.4	382	384	0.9951
4980	17.9	178	174	1.0230
5000	0	0	0	N/A
Sum of Least Squares				0.9967
New Correction Factor				0.9958

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.6		-0.4
Auto Span	329.5		334.0
Sample Lines Connected			Yes

Percent Change

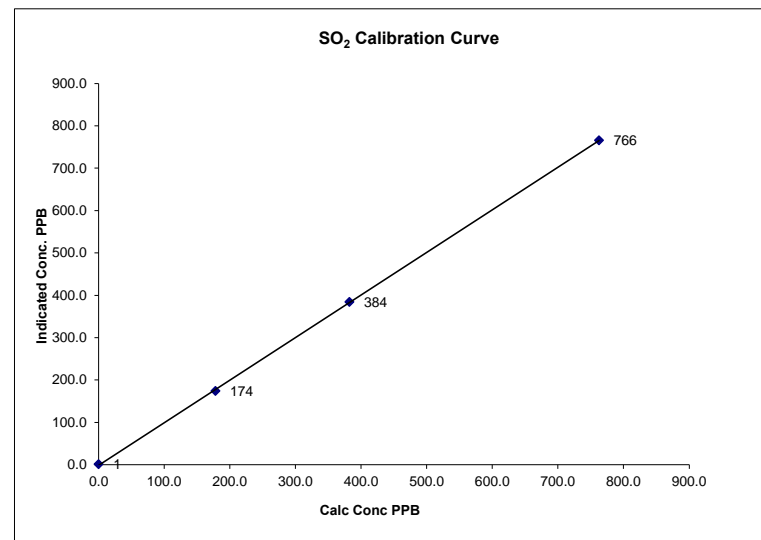
Previous Month's Calibration Correction Factor:	0.9985
Current Correction Factor Before Span Adjust:	1.0063
Percent Change:	-0.8%

Notes: **N/A : Not applicable**

SO2 Calibration Curve

Calibration Date	December 14, 2013
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable / ELK Point Airport
Start Time (MST)	9:52
End Time (MST)	13:23

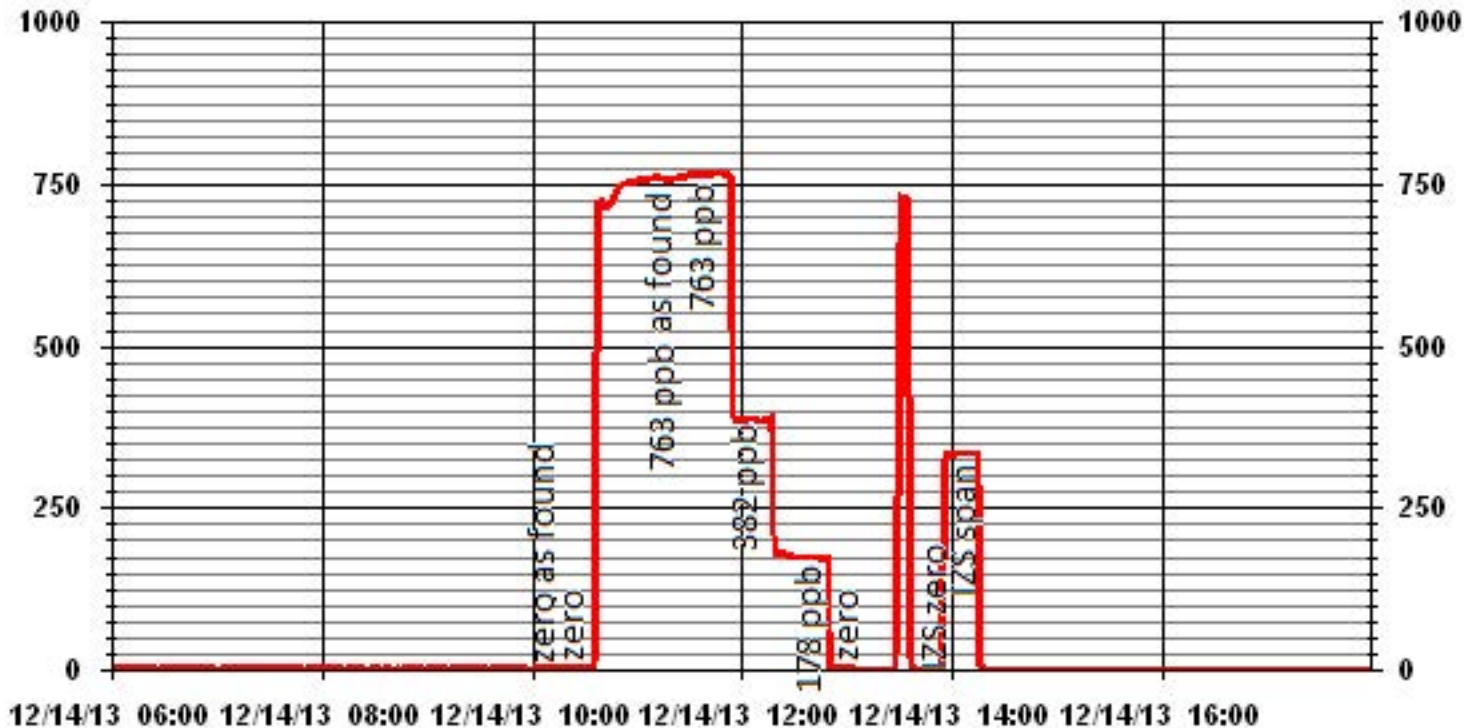
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1	N/A		0.999938
178	174	1.0230		1.005532
382	384	0.9951		-1.297982
763	766	0.9958		



Notes:

Calibration Performed by: Tom Bourque

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 14, 2013	Previous Calibration	November 13, 2013
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable / ELK Point Airport		
Start Time (MST)	10:23	End Time (MST)	13:35
Reason:	Monthly calibration		
Barometric Pressure	27.81 in Hg	Station Temperature	24 Deg C
Cal Gas	10.1 ppm	Gas Cyl. #	BLM0059
		Cal Gas Expiry date	December 25, 2015
DAS Output Voltage	0-1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	509	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	S/N:	NA	
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0-100 ppb	0-100 ppb	
Sample Flow / Box Temp	511 ccm 35.8 Deg C	511 ccm 35.8 Deg C	
HVPS / Lamp Setting	540 1555	540 1555	
PMT / RxCell Temp	8 Deg C 50 Deg C	8 Deg C 50 Deg C	
Converter / IZS Temp	314.1 Deg C 45 Deg C	314.1 Deg C 45.0 Deg C	
Offset / Slope	108.3 1.161	107.8 1.17	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	1	NA
5000	0	0	0	NA
4952	37.1	75	73	1.0288
4952	37.1	75	75	1.0000
4979	18.3	37	38	0.9733
4990	8.9	18	19	0.9616
5000	0	0	0	NA
Sum of Least Squares				0.9942
New Correction Factor				1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.8	2.6
Auto Span	56.5	58.8
Sample Lines Connected		Yes

Percent Change

Previous Month's Calibration Correction Factor:	0.9858
Current Correction Factor Before Span Adjust:	1.0288
Percent Change:	-4.2%

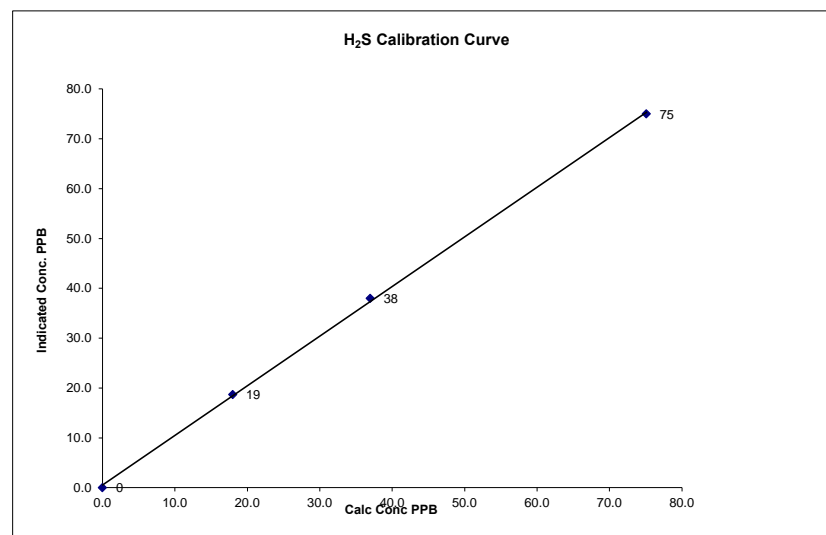
Notes: **NA : Not Applicable**

Calibration Performed by: Tom Bourque

H₂S Calibration Curve

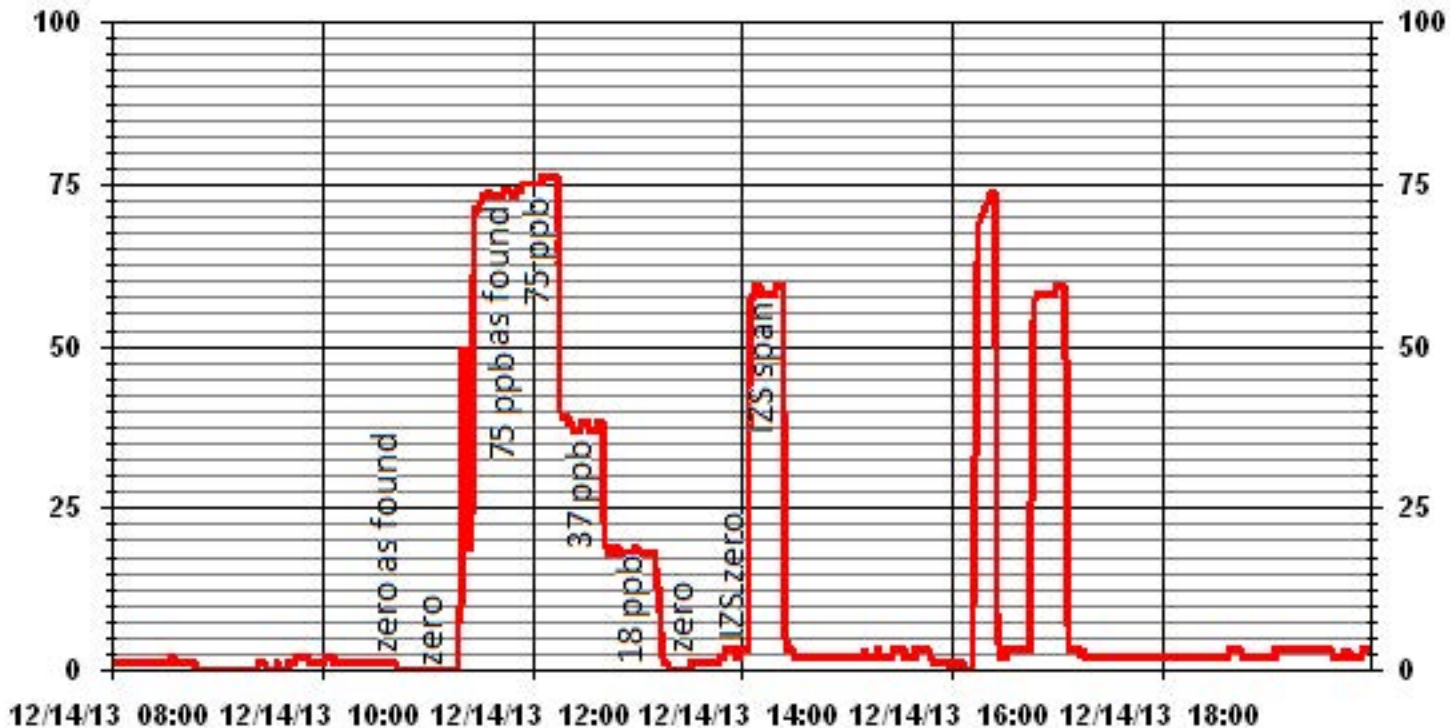
Calibration Date	December 14, 2013		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable / ELK Point Airport		
Start Time (MST)	10:23	End Time (MST)	13:35

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	
0	0	NA	Intercept	(± 3% F.S.)	0.999721
18	19	0.9616			0.996644
37	38	0.9733			
75	75	1.0014			0.515704



Notes:

01 Minute Averages



Total Hydrocarbons (55i)

Methane - Non Methane Hydrocarbon Calibration Report

Station Information

Calibration Date:	December 14, 2013	Previous Calibration	November 13, 2013
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELK Point Airport		
Start Time (MST)	16:46	End Time (MST)	18:26
Reason:	Monthly calibration		
Barometric Pressure:	27.81 inHg	Station Temperature:	24.0 Deg C
Calibrator:	API700	S/N:	831
Cal Gas Concentration:	CH4 593 PPM	C3H8 205 PPM=	563.75 CH4
	Cyl. # LL84567	Cal Gas Expiry Date:	June 7, 2014
DAS make & Model:	ESC8832	S/N :	AO717
Chart Recorder:	N/A	S/N:	N/A
Output Voltage Range:	0-10	Chart Speed:	N/A cm/hr

Analyzer Information

Make / Model	Thermo 55i	S/N :	1236656107	Method:	GC FID
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Analyzer Settings

Concentration Range (PPM)	CH4= 0-20		NMHC= 0-20		THC = 0-40	
	Before Calibration		After Calibration			
Hydrogen Pressure	40.3	psi	40.3	psi		
Air Pressure	32.4	psi	32.4	psi		
Carrier Pressure	31.1	psi	31.1	psi		
Detector Oven	175	Deg C	175	Deg C		
Filter Temp	175	Deg C	175	Deg C		
Column Oven Temp	75	Deg C	75	Deg C		
Flame Temp	376.3	Deg C	376.3	Deg C		
Box Temp	36	Deg C	36	Deg C		

Calibration Data

Gas Flows (sccm)		Calculated Concentration		Actual Concentration		Correction factors	
Dilution Flow	Cal Gas Flow	CH4	NMHC	CH4	NMHC	CH4	NMHC
3000	0.00	0.00	0.00	0.05	0.00	0.000	0.000
3000	0.00	0.00	0.00	0.05	0.00	0.0000	1.0000
2997	18.00	3.54	3.37	3.60	3.41	0.9834	0.9870
2997	18.00	3.54	3.37	3.60	3.38	0.9834	0.9958
2999	36.00	7.03	6.69	7.14	6.72	0.9851	0.9951
2997	9.00	1.78	1.69	1.85	1.75	0.9597	0.9645
3000	0.00	0.00	0.00	0.05	0.00	0.0000	0.0000
Correction Factors:						0.9834	0.9958

Percent Change from Previous Calibration

Previous Calibration Correction Factor:	CH4	NMHC
	0.9966	0.9949
Current Correction Factor Before Span Adjust:	0.9834	0.9870
Percent Change:	1.3%	0.8%

IZS Calibration Data

		Before Calibration		After Calibration	
Auto Zero (ppm)		CH4	NMHC	CH4	NMHC
		0.00	0.00	0.00	0.00
Auto Span (ppm)		CH4 10.67	NMHC 13.74	CH4 10.70	NMHC 13.87
Sample Lines Connected		YES			

Notes: Cylinder Pressures
 Span 750 psi
 Hydrogen _____ psi
 Zero Air 45 psi
 Nitrogen 1400 psi

Notes:

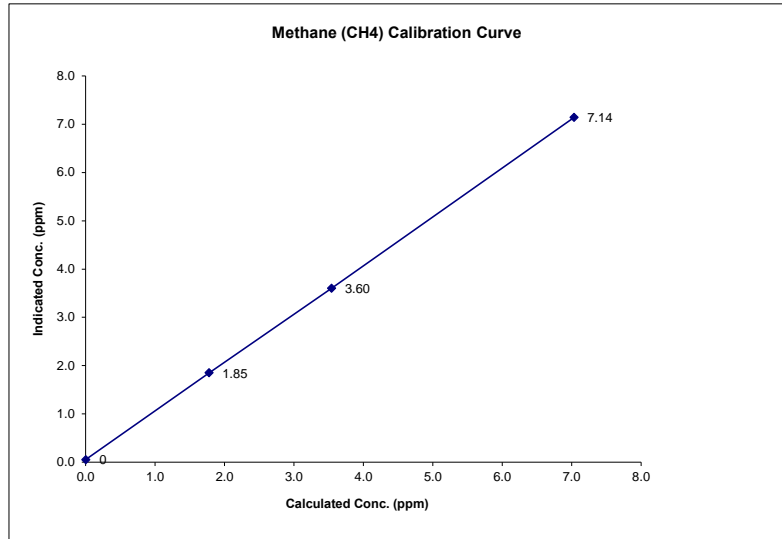
Zero adjust is not possible on 55i analyzers - perform zero chromatogram instead.
 Found and replaced broken ferral on N2 supply coming off regulator.

Calibration Performed by: Tom Bourque

Methane (CH4) Calibration Curve

Calibration Date	December 14, 2013		
Company	Lakeland Industry and Community Association		
Plant / Location	ELK Point Airport		
Start Time (MST)	16:46	End Time (MST)	18:26

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999985
0	0	0.0000	Slope	(0.85 to 1.15)	1.007155
1.78	1.85	0.9597	Intercept	(± 3% F.S.)	0.050487
3.54	3.60	0.9834			
7.03	7.14	0.9851			

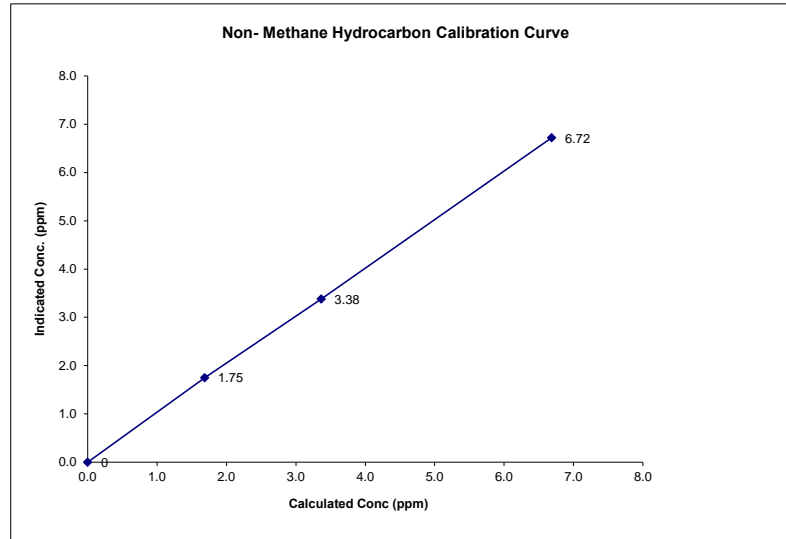


Notes:

Non-Methane Hydrocarbon Calibration Curve

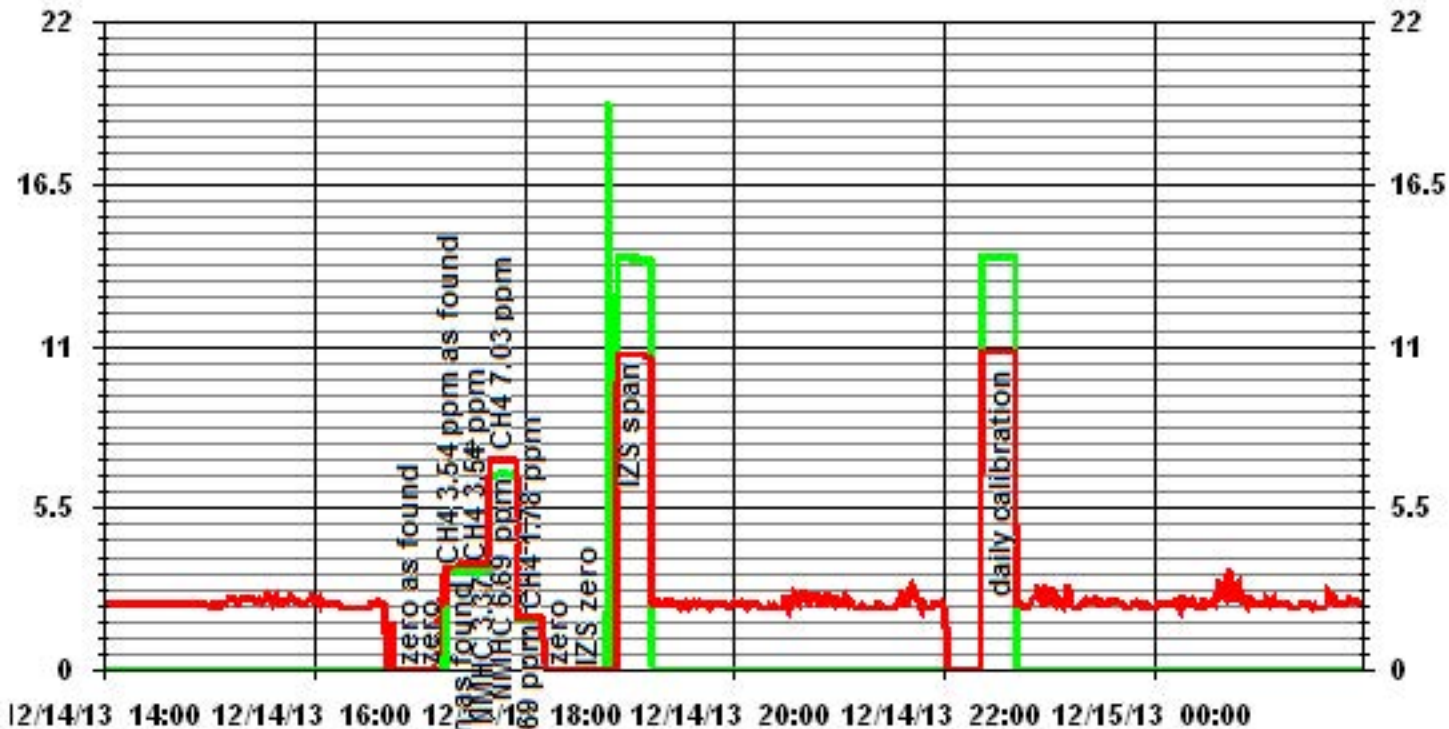
Calibration Date	December 14, 2013		
Company	Lakeland Industry and Community Association		
Plant / Location	ELK Point Airport		
Start Time (MST)	16:46	End Time (MST)	18:26

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999917
0	0	0.0000	Slope	(0.85 to 1.15)	1.002151
1.69	1.75	0.9645	Intercept	(± 3% F.S.)	0.021054
3.37	3.38	0.9870			
6.69	6.72	0.9951			



Notes:

01 Minute Averages



— LICA35

— IIMHC

— LICA35

Particulate Matter 2.5

TEOM 1405F Audit

<u>Station</u>		<u>Audit Transfer Standard</u>	
Date:	<u>December 14, 2013</u>	Make/Model:	<u>Streamline Pro Mark III</u>
Station Name:	<u>LICA Portable (CASA # 35)</u>	Serial Number:	<u>LO 091099, HI 091001</u>
Location:	<u>ELK Point Air Port</u>	Cell s/n:	<u>N/A</u>
Operator:	<u>LICA</u>	Thermometer s/n:	<u>N/A</u>
<u>Sampler</u>		<u>Set-up and current Sampler readings</u>	
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>N/A</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A208301003</u>	Filter Load (%)	<u>30.4%</u>
Firmware Ver.	<u>1.52</u>	K _o Factor	<u>13125.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>-19.7</u>
		Press (ATM)	<u>0.939</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

ATM = (mmHg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10µg	<u>0.008</u>	Warnings	<u>None</u>
Pump Vacuum <0.40atm	<u>0.39</u>	Pump Gauge (inHg)	<u>-</u>
Temperature/Pressure			
Measured Temp (± 2 °C)	<u>-18.90</u>	D °C	<u>-0.8</u>
Measured Press (± 0.01atm)	<u>0.931</u>	DATM	<u>0.008</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>-</u>
Measured Main Flow (l/min)	<u>3.10</u>	Flow Adjusted to Measured?	<u>NO</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>-</u>
Measured Bypass Flow (l/min)	<u>17.08</u>	Flow Adjusted to Measured?	<u>NO</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>Base=0, Ref.=0</u>	Flow Control = Active	
Aux (< 0.6 l/min)	<u>Base=0, Ref.=0</u>	Report Condition = Actual	
K_o Factor			
Measured	<u>N/A</u>		
K _o Difference (± 2.5%)	<u>N/A</u>		

Start Time: 12:00 **Finish Time:** 15:00

Sample Inlet Cleaned: yes **New Filters Installed:** YES

New Filter Loading %: NA

Comments:

Auditor/s: Tom Bourque

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>December 19, 2013</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica Portable (CASA # 35)</u>	Serial Number:	<u>Hi 091001,Lo 091099</u>
Location:	<u>Devon Wellsite 13-16-62-5 W4M</u>	Cell s/n:	<u></u>
Operator:	<u>LICA</u>	Thermometer s/n:	<u>FLUKE 2329070</u>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A207691003</u>	Filter Load (%)	<u>24.3%</u>
Firmware Ver.	<u>1.52</u>	K _o Factor	<u>13125.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>-22.2</u>
		Press (ATM)	<u>0.928</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

ATM = (mmHg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

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

Audit

Status			
Noise <0.10µg	<u>0.014</u>	Warnings	<u>None</u>
Pump Vacuum <0.40atm	<u>0.39</u>	Pump Gauge (inHg)	<u>-17</u>
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	<u>-22.2</u>		<u>0.0</u>
Measured Press (± 0.01atm)	<u>0.928</u>	DATM	<u>0.000</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (± 10.0%)	<u>1.70%</u>
Measured Main Flow (l/min)	<u>3.05</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (± 10.0%)	<u>1.98%</u>
Measured Bypass Flow (l/min)	<u>13.94</u>	Flow Adjusted to Measured?	<u>Yes</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>Base=-0.05 Ref=-0.05</u>	<u>Flow Control = Active</u>	
Aux (< 0.6 l/min)	<u>Base=0.00 Ref=0.00</u>	<u>Report Conditions = Actual</u>	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 14:00 Finish Time: 15:20

Sample Inlet Cleaned: Yes New Filters Installed: YES
 New Filter Loading %: 21.4%

Comments:

Auditor/s: Limin Li

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 14, 2013	Previous Calibration	November 13, 2013
Company	LICA	Plant/Location	ELK Point Airport
Start Time (MST)	9:52	End Time (MST)	16:24
Reason:	Monthly calibration		
Barometric Pressure	27.81 in Hg	Station Temperature	24 Deg C
Cal Gas Concentration	NOx 49.0 ppm	NO	48.9 ppm
Cal Gas Cylinder #	BAL3165	Cal Gas Expiry date	December 29, 2016
DAS Output Voltage	0-1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	API 700	S/N:	690		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	690		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	378 ccm	314.3 Deg C		378 ccm	314.3 Deg C		
Ozone Flow / Vacuum	78 ccm	4.4 *Hg-A		78 ccm	4.4 *Hg-A		
HVPS / A ZERO	674 Volts	8.9 MV		674 Volts	8.9 MV		
Rx/ Temp / PMT Temp	49.9 Deg C	6.7 Deg C		49.9 Deg C	6.7 Deg C		
Box Temp / IZS Temp	33.3 Deg C	45.0 Deg C		33.3 Deg C	45.0 Deg C		
Offset	0.4 NOx	0.5 NO		31.5 NOx	18.0 NO		
Slope	1.019 NOx	1.013 NO		1.200 NOx	1.200 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.997		NA NO2	0.997		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	NA	0	0	NA	0	0	0	NA	NA
5000	0.0	NA	0	0	NA	0	0	0	NA	NA
4921	76.7	NA	752	750	NA	725	719	6	1.0372	1.0438
4921	76.7	NA	752	750	NA	753	753	1	0.9987	0.9966
4956	38.4	NA	377	376	NA	389	383	6	0.9685	0.9817
4980	17.9	NA	175	175	NA	184	179	5	0.9538	0.9784
5000	0.0	NA	0	0	NA	-1	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	76.7	NA	752	750	NA	763	762	1	NA	NA
4921	76.7	600	752	NA	556	754	207	547	1.0165	98.38%
4921	76.7	600	752	NA	556	754	207	547	1.0165	98.38%
4921	76.7	375	752	NA	357	761	406	355	1.0056	99.44%
4921	76.7	120	752	NA	167	762	596	166	1.0060	99.40%

Linearity	Sum of Least Squares	NOx= 0.991	NO= 0.993	NO2= 1.013
OK?	Correction Factors:	NOx= 0.9987	NO= 0.9966	NO2= 1.0165
	Average Converter Efficiency=	99.07%		

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	526 NOx	507 NO2		563 NOx	551 NO2		
	Sample Lines Connected:			YES			

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	1.001	1.002	1.008
Current Correction Factor Before Span Adjust	1.037	1.044	1.016
Percent Change	-3.5%	-4.0%	-0.8%

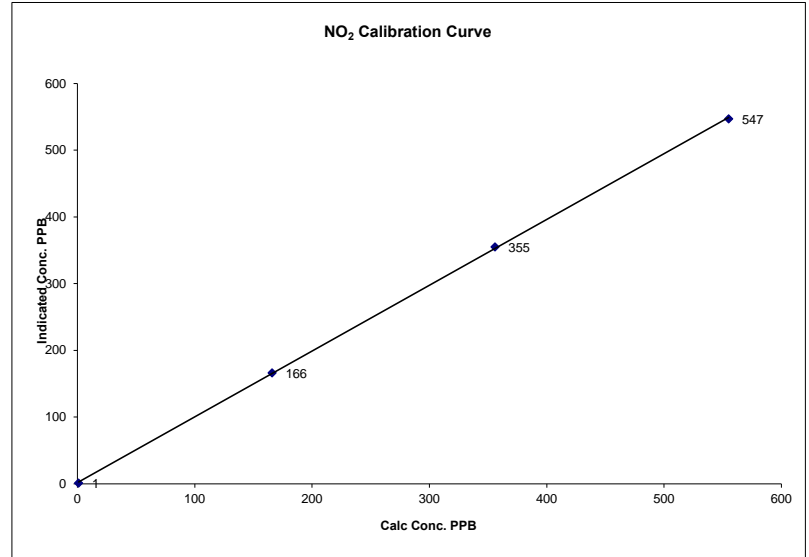
Notes: **NA : Not Applicable**

Calibration Performed by: Tom Bourque

NO2 Calibration Curve

Calibration Date	December 14, 2013
Company	LICA
Plant / Location	ELK Point Airport
Start Time (MST)	9:52
End Time (MST)	16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999928
1	1	NA	Intercept	(± 3% F.S.)	1.46863
166	166	1.0000			
356	355	1.0028			
555	547	1.0146			

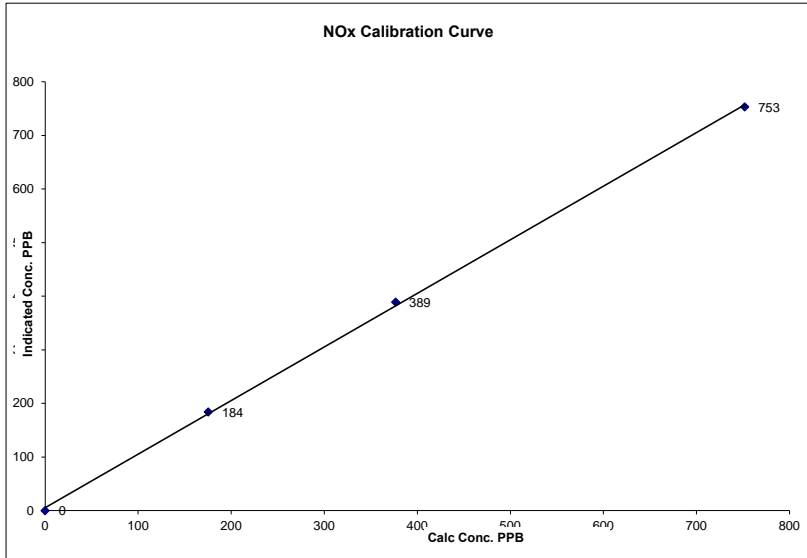


Notes:

NOx Calibration Curve

Calibration Date	December 14, 2013	
Company	LICA	
Plant / Location	ELK Point Airport	
Start Time (MST)	9:52	End Time (MST) 16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999664
0	0	NA	Slope (0.85 to 1.15)	0.999246
175	184	0.9538	Intercept (± 3% F.S.)	5.68555
377	389	0.9685		
752	753	0.9987		

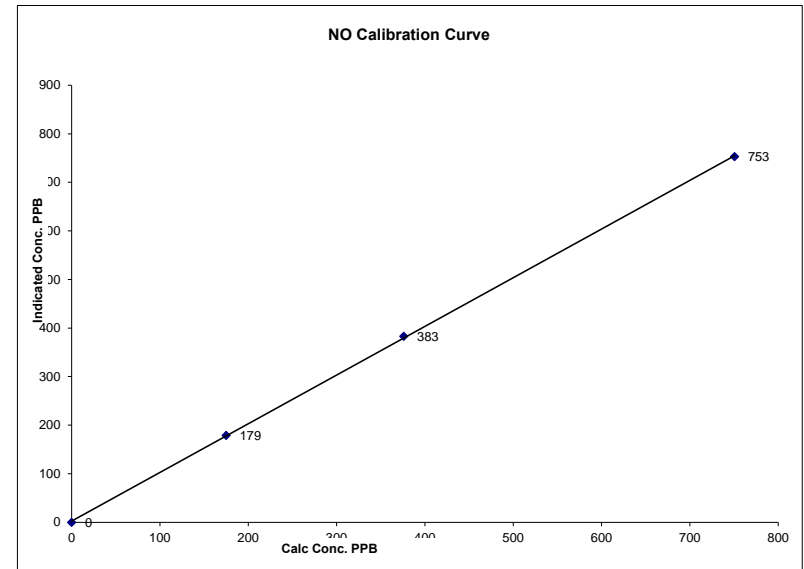


Notes:

NO Calibration Curve

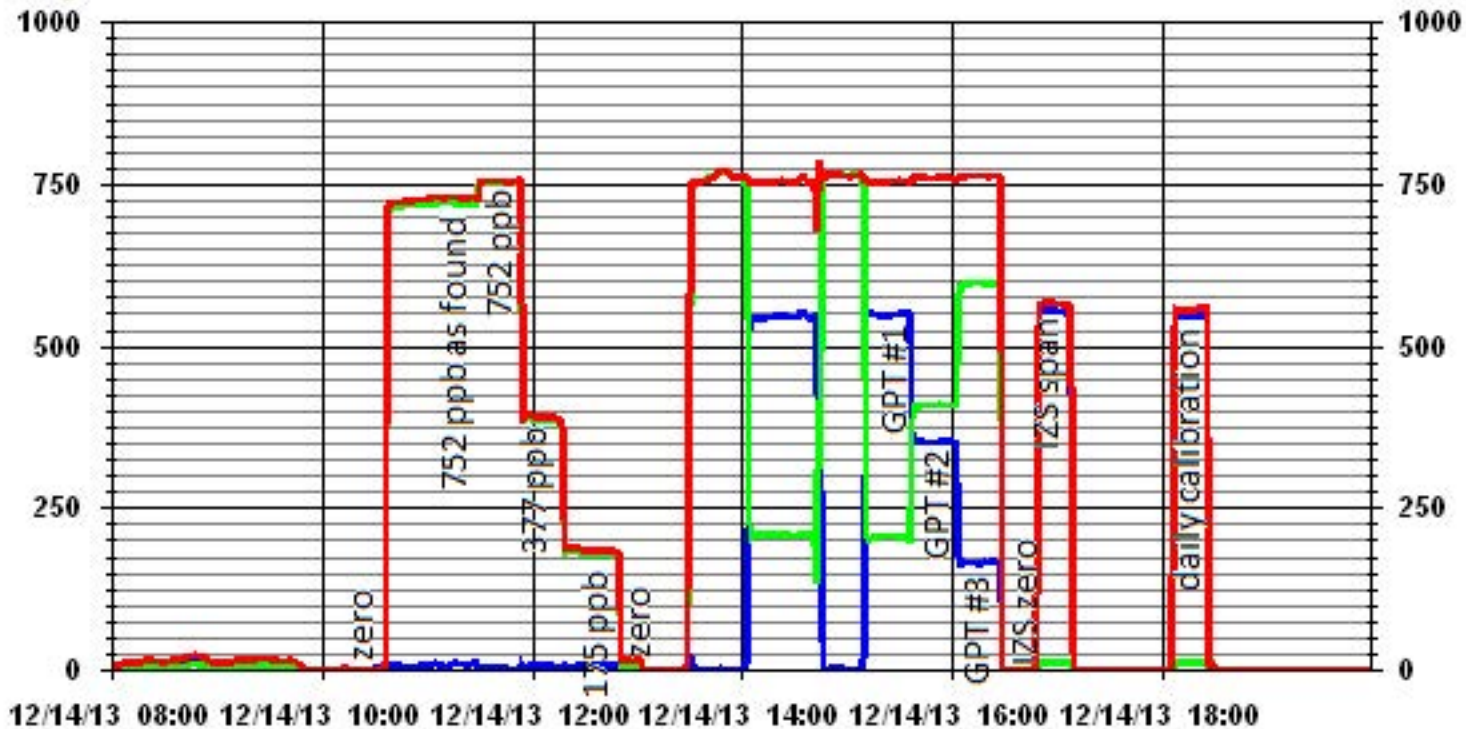
Calibration Date	December 14, 2013	
Company	LICA	
Plant / Location	ELK Point Airport	
Start Time (MST)	9:52	End Time (MST) 16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999925
0	0	NA	Slope (0.85 to 1.15)	1.002726
175	179	0.9784	Intercept (± 3% F.S.)	2.46806
376	383	0.9817		
750	753	0.9966		



Notes:

01 Minute Averages



NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 16, 2013	Previous Calibration	12/14/13 (?)
Company	LICA	Plant/Location	Elk Point Airport
Start Time (MST)	17:07	End Time (MST)	20:07
Reason:	As Found / 1-pt calibration		
Barometric Pressure	27.84 inHg	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.1 ppm	NO	49 ppm
Cal Gas Cylinder #	BAL3187	Cal Gas Expiry date	December 29, 2016
DAS Output Voltage	0-10 Volts	Chart Rec. Output	n/a Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	5212		
DAS Make / Model:	ESC8832	S/N :	3906		
Chart Recorder Make / Model:	n/a	S/N:	n/a		
Flow Meter:	EnviroNics 6100	S/N :	5212		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	402 ccm	316 Deg C		398 ccm	315 Deg C		
Ozone Flow / Vacuum	78 ccm	4.4 *Hg-A		78 ccm	4.7 *Hg-A		
HVPS / A ZERO	674 Volts	13.5 MV		674 Volts	9 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.7 Deg C		50.0 Deg C	6.7 Deg C		
Box Temp / IZS Temp	32.3 Deg C	45.3 Deg C		34.5 Deg C	45.3 Deg C		
Offset	31.5 NOx	18.0 NO		1.1 NOx	0.0 NO		
Slope	1.176 NOx	1.167 NO		1.197 NOx	1.179 NO		
NO2 COEF / Conv Efficiency	n/a NO2	0.997		n/a NO2	0.997		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	-18	-11	-7	0	0
5000	0.0	0	0	0	0	-1	0	0	0	0
4917	81.6	0	802	800	0	765	779	-13	1.0237	1.0125
4917	81.6	0	802	800	0	802	800	2	1.0000	1.0000
	N/A									
	N/A									
5000	0.0	0	0	0	0	0	1	0	0.0000	0.0000

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4916	81.6	0	802	800	0	800	798	2	0	0.00%
4916	81.6	600	802	0.0	533	798	267	531	0.9907	99.62%
	no adj									
	N/A									
	N/A									

Linearity OK?	Yes	Sum of Least Squares Correction Factors:	NOx= 1.0000	NO= 1.0000	NO2= #VALUE!
			NOx= 1.0000	NO= 1.0000	NO2= 0.9907
			Average Converter Efficiency=		

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	N/A NOx	N/A NO2		* NOx	* NO2		
	Sample Lines Connected:			YES			

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	0.999	0.997	1.016
Current Correction Factor Before Span Adjust	1.024	1.013	0.991
Percent Change	-2.4%	-1.5%	2.6%

Notes

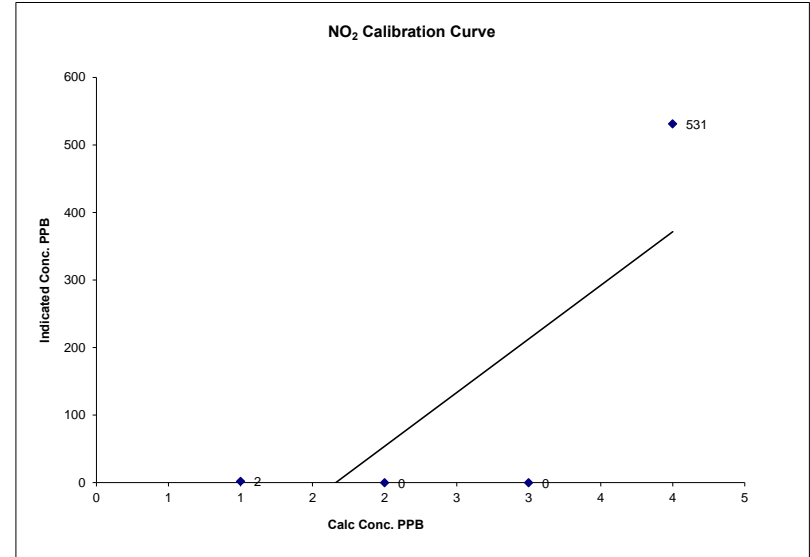
N/A = Not applicable
 * = To be set remotely
 Change in concentration at 20:00 due to scheduled IZS. NO2 as found still considered valid.

Calibration Performed by: Chris Wesson

NO2 Calibration Curve

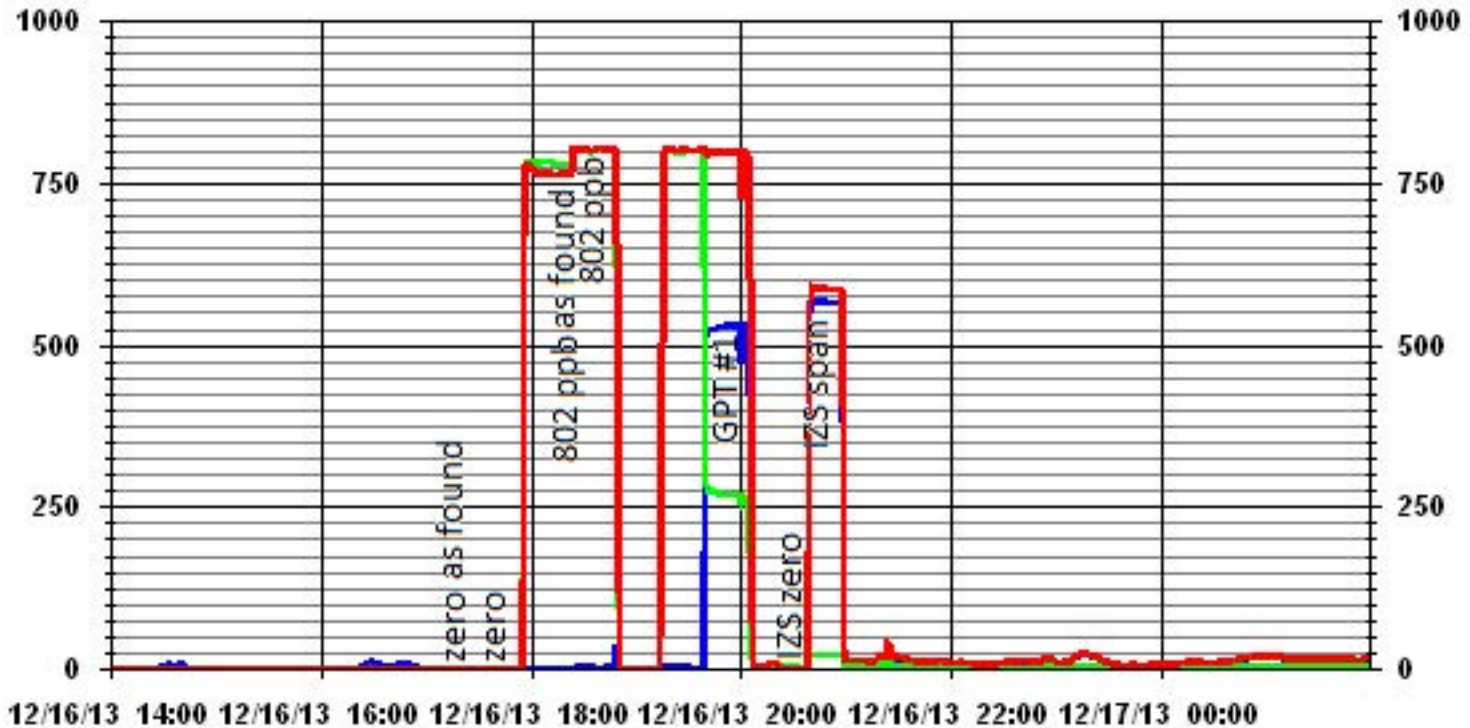
Calibration Date	December 16, 2013
Company	LICA
Plant / Location	Elk Point Airport
Start Time (MST)	17:07
End Time (MST)	20:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
2	2	0.0000		
531	531	1.0000		



Notes:

01 Minute Averages



— LICA35 IIOX_ PPB

— LICA35 IIO_ PPB

— LICA35 IIO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 14, 2013	Previous Calibration	November 13, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	EIK Point Airport		
Start Time (MST)	16:38	End Time (MST)	19:28
Reason:	Monthly calibration		
Barometric Pressure	27.8 in HG	Station Temperature	24 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	API 700	S/N :	690	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO717		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0-500 ppb							
Cell A Flow / Cell B Flow	744 LPM	684 LPM	753 LPM	744 LPM	744 LPM	684 LPM	753 LPM	744 LPM
O ₃ Set Level	54.1 mmHg				54.1 mmHg			
Bench Lamp	54.1 Deg C				54.1 Deg C			
O ₃ Lamp / Box Temp	54.1 Deg	31.9 Deg	31.9 Deg	54.1 Deg	54.1 Deg	31.9 Deg	31.9 Deg	54.1 Deg
Offset / Slope	-0.2	0.972	0	0	0	1.033	0	1.033

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0.1	N/A
5000	0	0	0	N/A
5000	300	299	280	1.0679
5000	300	299	300	0.9967
5000	170	170	168	1.0119
5000	75	72	73	0.9863
5000	0	0	0	N/A
Sum of Least Squares				0.9997
New Correction Factor				0.9967

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	321	345
Sample Lines Connected		Yes
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		1.0679
Percent Change:		-6.4%

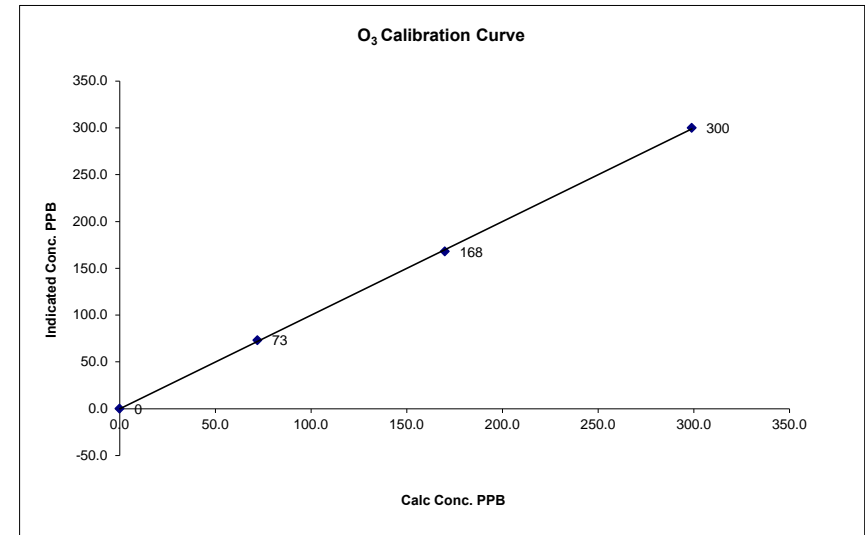
Note: N/A : Not Applicable
Change sample filter.

Calibration Performed by: Tom Bourque

O₃ Calibration Curve

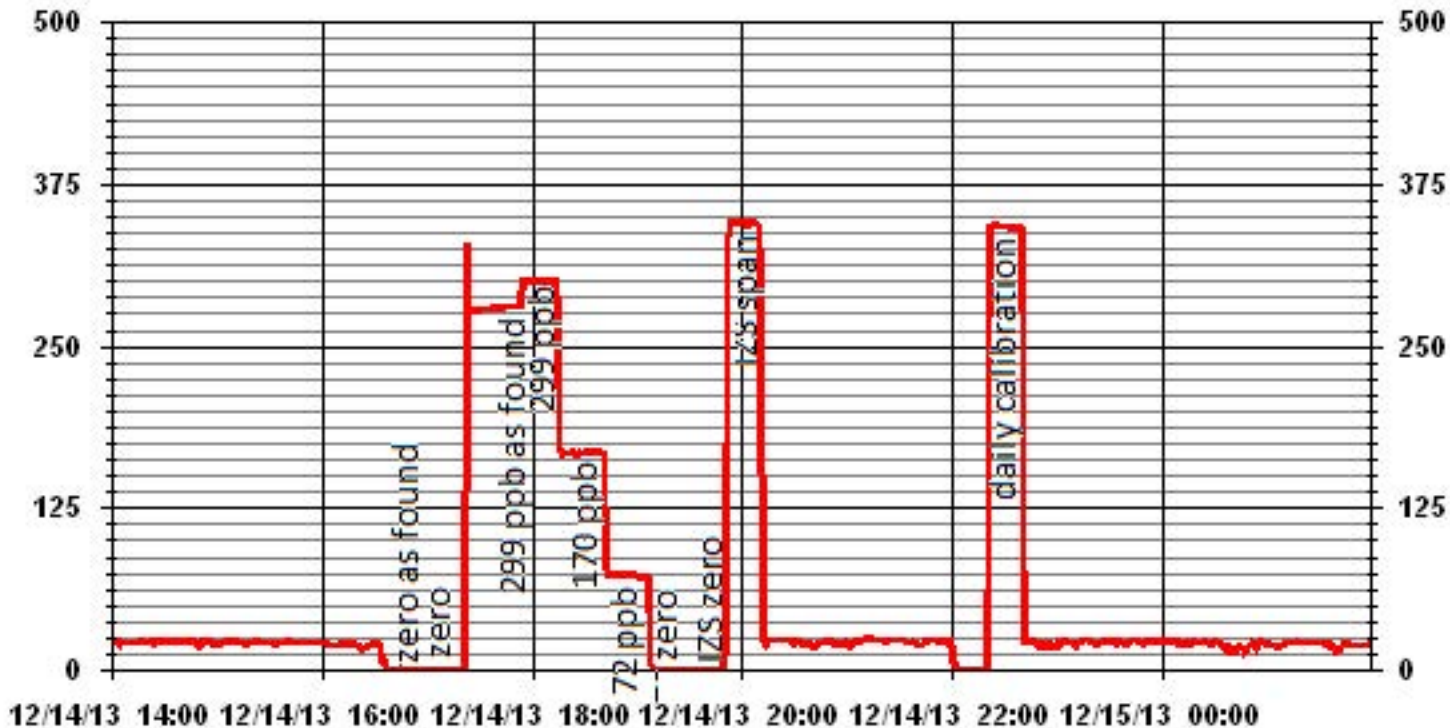
Calibration Date	December 14, 2013
Company	Lakeland Industry & Community Association
Plant / Location	EIK Point Airport
Start Time (MST)	16:38
End Time (MST)	19:28

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999881
0	0	N/A	Slope (0.85 to 1.15)	1.000616
72	73	0.9863	Intercept (± 3% F.S.)	-0.083330
170	168	1.0119		
299	300	0.9967		



Notes:

01 Minute Averages



Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2013

Prepared By:



January 21, 2014

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

Table of Contents	Page		Page
Introduction	3	Calibration Reports	96
Calibration Procedure	4	<ul style="list-style-type: none"> • Sulphur Dioxide • Hydrogen Sulphide • Total Hydrocarbons • Nitrogen Dioxide • Ozone • Particulate Matter 2.5 	97 103 107 110 11) 11,
Monthly Continuous Summary	5		
General Monthly Summary	6		
Continuous Monitoring	9		
<ul style="list-style-type: none"> • Monthly Summaries, Graphs & Wind Roses 	10		
<ul style="list-style-type: none"> • Sulphur Dioxide • Hydrogen Sulphide • Total Hydrocarbons • Ozone • Nitrogen Dioxide • Nitric Oxide • Oxides of Nitrogen • Particulate Matter 2.5 • Temperature • Barometric Pressure • Relative Humidity • Precipitation • Vector Wind Speed • Vector Wind Direction • Standard Deviation Wind Direction 	11 19 27 35 43 51 58 66 71 74 77 80 83 90 93		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga
Lakeland Industry & Community Association
Box 8237
5107W – 50 Street
Bonnyville, Alberta
T9N 2J5

Monitoring Location: St. Lina
Data Period: December 2013

The monthly ambient data report:

- Prepared by Lili Zhou
- Reviewed by Lily Lin

Calibration Procedure

The following calibration procedure applies to all calibrations conducted at the Lakeland Industry & Community Association Air Monitoring Station.

Calibration gas concentrations are generated using a dynamic mass flow controlled calibrator. EPA Protocol one gases are diluted with zero air generated on site. The Mass Flow Controllers in the calibrator are referenced using an NIST traceable flow meter once per month. All listed flows are reported as corrected to Standard Temperature and Pressure (STP).

Generated zero gas is introduced to the analyzer first. Three concentrations of calibration gas are then generated in order to introduce points at approximately 50-80%, 25-40% & 10-20% of the analyzer's full-scale range. An auto zero and span are then performed to validate the daily zero and span values recorded to the next multi-point calibration.

All indicated concentrations are taken from the ESC data logger used to collect the data for monthly reporting.

The calibrations conducted at the LICA – St. Lina Air Monitoring Stations conform to the following Maxxam Standard Operation Procedures:

- CAL SOP-00211
- CAL SOP-00209
- CAL SOP-00213
- CAL SOP-00214
- CAL SOP-00208
- CAL SOP-00215

Conformance of each calibration to Alberta Environment regulations is outlined in the individual calibration reports. The slope and correlation coefficient are derived from the calculated and indicated analyzer responses. The percent change is calculated using the previous calibration correction factor and the current correction factor before adjustment. All calibration's and maintenance conforms to the procedures outlined in the *Air Monitoring Directive, Appendix A-10, Section 1.6*.

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – ST. LINA

Continuous Ambient Monitoring – December 2013

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)	
						OBJECTIVES					EXCEEDENCES			MONTHLY AVERAGE
PARAMETER	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	3.53	10	23	1, 2	19.8, 12.7	195(SSW), 194(SSW)	6.0	23, 26	100.0	
H2S (PPB)	10	3	0	0	1.37	4	17	VAR	VAR	VAR	3.0	17	100.0	
THC (PPM)	-	-	-	-	2.19	4.4	1	6	7.9	69(ENE)	3.1	1	100.0	
OZONE (PPB)	82	-	0	-	27.0	44	24	0	12.6	314(NW)	39.3	24	100.0	
NOx (PPB)	-	-	-	-	4.12	23.5	19	18	9.7	234(SW)	12.4	7	100.0	
NO (PPB)	-	-	-	-	0.55	5.6	7	10	14.3	31(NNW)	2.0	7	100.0	
NO ₂ (PPB)	159	-	0	-	3.57	22.8	19	18	9.7	234(SW)	10.4	7	100.0	
PM2.5 (ug/m3)	-	30	-	0	2.34	13	7	2, 3	9.9, 11.9	230(SW), 232(SW)	6.0	7	99.9	
TEMPERATURE (DEGREE C)	-	-	-	-	-16.76	6.1	15	12	33.1	290(WNW)	-0.2	26	100.0	
BP (MILLIBAR)	-	-	-	-	925	943	6	VAR	VAR	VAR	941.5	6	100.0	
RH (%)	-	-	-	-	70.13	87	1, 25	VAR	VAR	VAR	85.5	1	100.0	
PRECIPITATION (MM)	-	-	-	-	0.04	1.2	VAR	VAR	VAR	VAR	6.6	27	100.0	
VECTOR WS (KPH)	-	-	-	-	11.76	37.2	15	13	-	302(WNW)	16.8	15	87.0	
VECTOR WD (DEGREES)	-	-	-	-	286(WNW)	-	-	-	-	-	-	-	87.0	

VAR-VARIOUS

General Monthly Summary

Equipment Operation

The following summary outlines the analyzer performance. Any non-conformances, problems or maintenance performed are detailed at the end of each section.

AQM STATION – LICA – St. Lina

Sulphur Dioxide (PPB)

Analyzer make / model - API 100E, S/N: 468

The analyzer was working well throughout the month. Following the as found points check on December 18th, the HVPS was adjusted and the inlet filter was changed. After that, a full calibration was performed. Another as found points check was performed on December 19th using a different calibrator to verify the analyzer's functionality. The result was good. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

Analyzer make / model - API 101E, S/N: 510

The analyzer was working well throughout the month. Following the as found points check on December 18th, the UV lamp was calibrated, HVPS was adjusted and the inlet filter was changed. After that, a full calibration was performed. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

Analyzer make / model – Thermo 51C-LT, S/N: 04366-09739

The analyzer spanned high on December 1st. During the site visit on December 5th, it was found that the regulator output pressure for the span gas had drifted high. The output pressure was set back to the same value from the last calibration day. The regulator will be replaced when the part is available. This issue did not affect data quality. The monthly calibration was performed on December 18th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Nitrogen Dioxide (PPB)

The analyzer was working well throughout the month. Following the as found points check on December 18th, the HVPS was adjusted and the inlet filter was changed. After that, a full calibration was performed. Data was corrected using daily zero information.

Ozone (PPB)

Analyzer make / model - Thermo 49i, S/N: 1002240371

The analyzer was working well throughout the month. The monthly calibration was performed on December 19th. The inlet filter was changed before the calibration was started. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

Analyzer make / model –R&P Teom 1400a, S/N: 20001

The Teom audit was performed on December 19th. A leak check and the flow audit were also performed. The audit passed the manufacturer requirements. The sample filter was changed and the sample inlet was cleaned on the same day. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. One hourly data was invalidated as the data was below –3 ug/m³.

Temperature (Degree C)

Analyzer make / model – Met One 060

The temperature sensor was working well throughout the month.

Barometric Pressure (Millibar)

Analyzer make / model - Met One 092

The BP sensor was working well throughout the month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Relative Humidity (%)

Analyzer make / model - Met One 083

The RH sensor was working well throughout the month.

Precipitation (MM)

Analyzer make / model - Met One 387

No issues were recorded this month.

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)

System make / model – MetOne 50.5H Sonic, S/N: H12635

The wind system is reported as vector wind speed and vector wind direction. The last wind system calibration was performed on June 12th, 2012 by the manufacturer.

Both WS and WD data collected between December 1st at hour 15 and December 5th at hour 15 were invalidated due to the wind system to be frozen. The wind system attempted to be checked on December 5th. However, the wind tower could not be lower down as the cables and steel were frozen and covered in thick frost. Performed troubleshooting by gently tapping on the wind tower to help ice and frost to fall off the head. A full check on the wind system will be performed when the weather is warmer. A total of 97 hours of data was invalidated due to a@s event.

Datalogger

System make / model - ESC 8832, S/N: AO717

Software make/version - ESC v 5.51a

The station is connected to a modem to allow for daily polling of the station.

Trailer

The glass manifold was cleaned on December 18th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2013
SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1		4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	4	4	4	5	S	4	4	5	4.3	24
2		4	5	5	5	4	4	4	4	5	4	4	4	3	3	3	3	2	1	3	3	S	3	3	3	5	3.6	24
3		3	3	5	4	3	2	2	2	2	3	2	2	2	3	3	2	2	2	2	S	2	2	2	2	5	2.5	24
4		2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	4	4	S	2	2	2	2	2	2	4	2.3	24
5		2	2	2	2	2	2	2	2	3	5	4	3	4	5	6	6	4	S	3	3	4	6	3	2	6	3.3	24
6		1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	S	2	2	2	2	2	2	2	2	1.4	24
7		2	2	2	3	3	3	3	3	3	3	4	5	6	7	9	2	S	6	4	4	4	3	4	4	9	4.0	24
8		4	4	4	4	3	3	3	3	3	3	3	3	3	3	S	3	4	3	3	3	3	3	4	4	4	3.3	24
9		5	5	5	5	5	5	5	5	4	4	4	4	4	S	4	4	4	4	4	4	4	4	4	4	5	4.3	24
10		3	3	3	3	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	3	3	3	2.3	24
11		2	3	3	3	3	4	4	4	4	4	4	S	3	4	4	3	3	3	3	3	3	4	4	3	3	3.4	24
12		3	3	2	3	3	3	2	2	3	3	S	3	3	3	3	3	3	3	3	3	2	2	2	2	3	2.7	24
13		2	2	2	2	2	2	3	2	3	S	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	2.2	24
14		2	3	3	3	3	3	3	3	S	3	4	4	4	4	4	5	4	4	4	4	4	4	5	5	5	3.7	24
15		5	5	5	5	6	6	6	S	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	6	4.9	24
16		4	4	4	5	4	5	S	5	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4.2	24
17		4	4	4	5	6	S	5	5	4	4	5	5	5	5	6	6	6	5	6	6	5	5	5	5	6	5.0	24
18		4	4	4	5	S	5	6	4	3	C	C	C	C	C	C	C	C	C	0	S	0	0	0	0	6	2.7	24
19		0	0	0	S	0	0	0	0	1	C	1	3	S	7	8	7	5	5	4	4	4	3	4	4	8	2.9	24
20		4	4	S	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	3.9	24
21		4	S	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	2	2	2	4	3.0	24
22		S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	S	4	2.1	24
23		6	10	10	6	5	6	5	5	6	6	7	7	6	6	6	6	6	6	5	5	5	4	S	4	10	6.0	24
24		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	S	3	3	4	3.8	24
25		4	4	4	3	3	3	3	3	3	3	4	4	5	5	5	4	5	5	4	4	S	4	4	4	5	3.9	24
26		5	5	6	6	6	6	6	7	7	8	7	7	7	7	7	7	7	7	5	S	4	4	4	4	8	6.0	24
27		5	5	5	5	4	4	4	4	4	4	3	3	3	3	4	4	4	4	S	3	3	3	2	2	5	3.7	24
28		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2.0	24
29		3	3	4	3	4	4	4	5	4	4	4	4	4	4	4	4	S	4	4	4	4	4	4	3	5	3.9	24
30		3	3	3	3	3	4	4	4	4	4	3	3	3	3	3	S	3	3	3	4	5	7	7	7	7	3.9	24
31		6	5	6	5	4	4	4	4	4	4	4	4	4	4	S	3	3	3	3	3	3	3	3	3	6	3.9	24
HOURLY MAX		6	10	10	6	6	6	6	7	7	8	7	7	7	9	7	7	7	7	6	6	5	7	7	7			
HOURLY AVG		3.4	3.5	3.6	3.6	3.3	3.4	3.4	3.3	3.5	3.7	3.5	3.6	3.7	3.9	4.2	3.9	3.9	3.6	3.3	3.4	3.3	3.3	3.3	3.2			

STATUS FLAG CODES

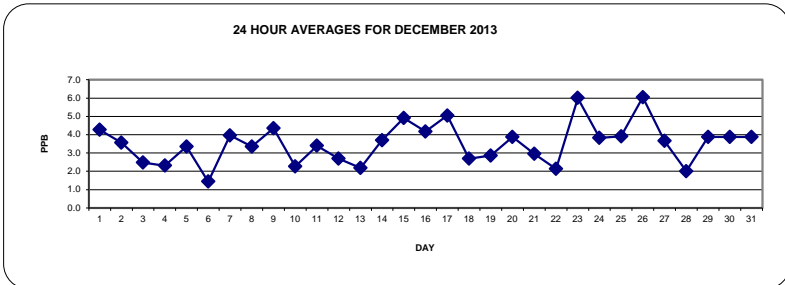
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

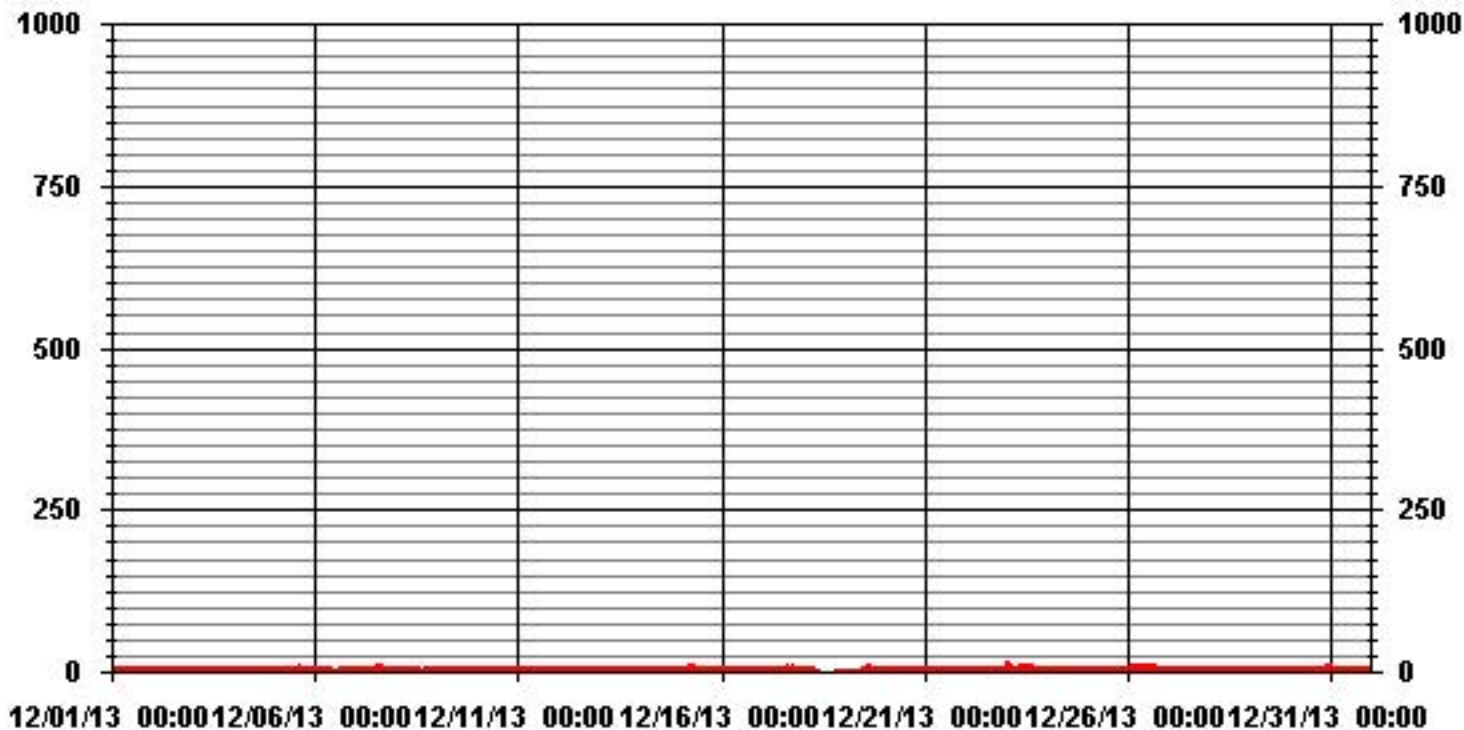
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	688					
MAXIMUM 1-HR AVERAGE:	10	PPB	@ HOUR(S)	1, 2	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	6.0	PPB			ON DAY(S)	23, 26
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.44		MONTHLY AVERAGE:	3.53	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	5	5	5	5	5	5	6	5	5	5	5	5	6	6	6	6	6	6	5	6	6	S	5	5	6	5.4	24	
2	5	6	6	6	5	5	5	5	6	5	5	5	4	4	4	4	4	4	3	4	4	S	4	5	4	6	4.7	24
3	4	5	6	6	4	3	3	3	3	4	4	3	3	3	4	4	4	3	4	S	3	3	3	3	6	3.7	24	
4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5	5	5	S	3	3	3	3	3	5	3.3	24	
5	3	3	3	3	3	3	3	3	6	7	5	4	5	6	8	7	6	S	4	4	6	7	5	3	8	4.7	24	
6	2	2	2	2	2	2	2	2	2	2	2	4	2	2	3	3	S	3	3	3	3	3	3	3	3	4	2.5	24
7	3	3	3	3	4	4	4	4	4	5	5	7	7	8	10	S	8	6	5	5	5	5	5	5	5	10	5.1	24
8	4	5	5	4	4	5	4	4	4	4	4	4	4	S	4	4	4	4	4	4	4	5	5	5	5	5	4.3	24
9	6	6	6	6	7	6	6	6	5	6	6	6	5	S	5	5	5	5	5	5	5	5	5	5	5	7	5.5	24
10	4	4	4	4	4	3	3	3	3	3	3	3	S	3	3	3	3	3	3	3	3	3	3	4	4	4	3.3	24
11	3	4	4	4	4	5	5	5	5	5	5	S	4	5	5	4	4	4	4	4	4	5	5	5	4	5	4.4	24
12	4	4	4	4	3	4	3	3	4	4	S	4	4	4	4	4	4	4	4	4	4	3	3	3	3	4	3.7	24
13	3	3	3	3	3	4	4	3	4	S	3	3	3	4	4	3	3	3	3	3	4	3	3	3	3	4	3.3	24
14	3	4	4	4	4	4	4	4	S	4	5	5	4	5	5	5	6	5	5	5	5	5	5	6	6	6	4.7	24
15	6	6	6	7	7	7	S	7	7	S	7	6	6	6	6	6	6	5	5	6	5	5	5	5	6	7	6.0	24
16	5	6	5	6	6	S	6	5	6	5	5	5	5	5	5	5	6	5	5	6	5	5	5	5	6	5.3	24	
17	5	5	6	7	7	S	6	6	5	5	6	6	6	6	7	7	7	7	7	7	7	6	6	6	7	6.2	24	
18	6	5	5	6	S	6	7	6	4	C	C	C	C	C	C	C	C	C	2	S	1	1	1	1	7	3.9	24	
19	1	1	1	S	1	1	1	2	2	C	C	C	S	9	9	8	6	6	6	5	5	5	5	5	9	4.2	24	
20	5	5	S	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5.0	24
21	5	S	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	3	3	3	5	4.0	24	
22	S	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	6	S	6	3.3	24
23	8	13	14	8	6	7	6	6	7	7	8	8	8	7	7	7	7	7	6	6	6	6	S	5	14	7.4	24	
24	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	5	S	4	4	6	4.9	24	
25	5	5	5	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6	6	6	S	5	5	5	6	5.1	24	
26	6	6	7	7	8	7	7	8	9	9	9	8	8	8	8	8	8	8	7	S	6	6	5	5	9	7.3	24	
27	6	6	6	6	5	6	5	5	5	5	5	4	5	4	4	4	5	5	S	4	4	4	3	3	6	4.7	24	
28	3	4	3	3	3	3	3	3	2	3	3	3	4	3	3	3	3	S	3	3	3	3	3	3	4	3.0	24	
29	4	5	5	5	5	5	5	6	5	5	5	5	6	5	5	5	S	5	5	6	5	5	5	4	6	5.0	24	
30	4	4	4	4	4	5	5	5	5	5	4	4	4	4	4	S	4	4	4	5	6	9	9	8	9	5.0	24	
31	7	6	7	7	5	5	5	5	5	5	5	5	5	5	S	5	4	4	4	4	4	4	4	4	7	5.0	24	
HOURLY MAX	8	13	14	8	8	7	7	8	9	9	9	8	8	9	10	8	8	8	7	7	7	9	9	8				
HOURLY AVG	4.4	4.7	4.9	4.8	4.4	4.5	4.4	4.4	4.6	4.8	4.8	4.8	4.8	4.9	5.3	4.9	5.0	4.8	4.4	4.6	4.4	4.5	4.5	4.3				

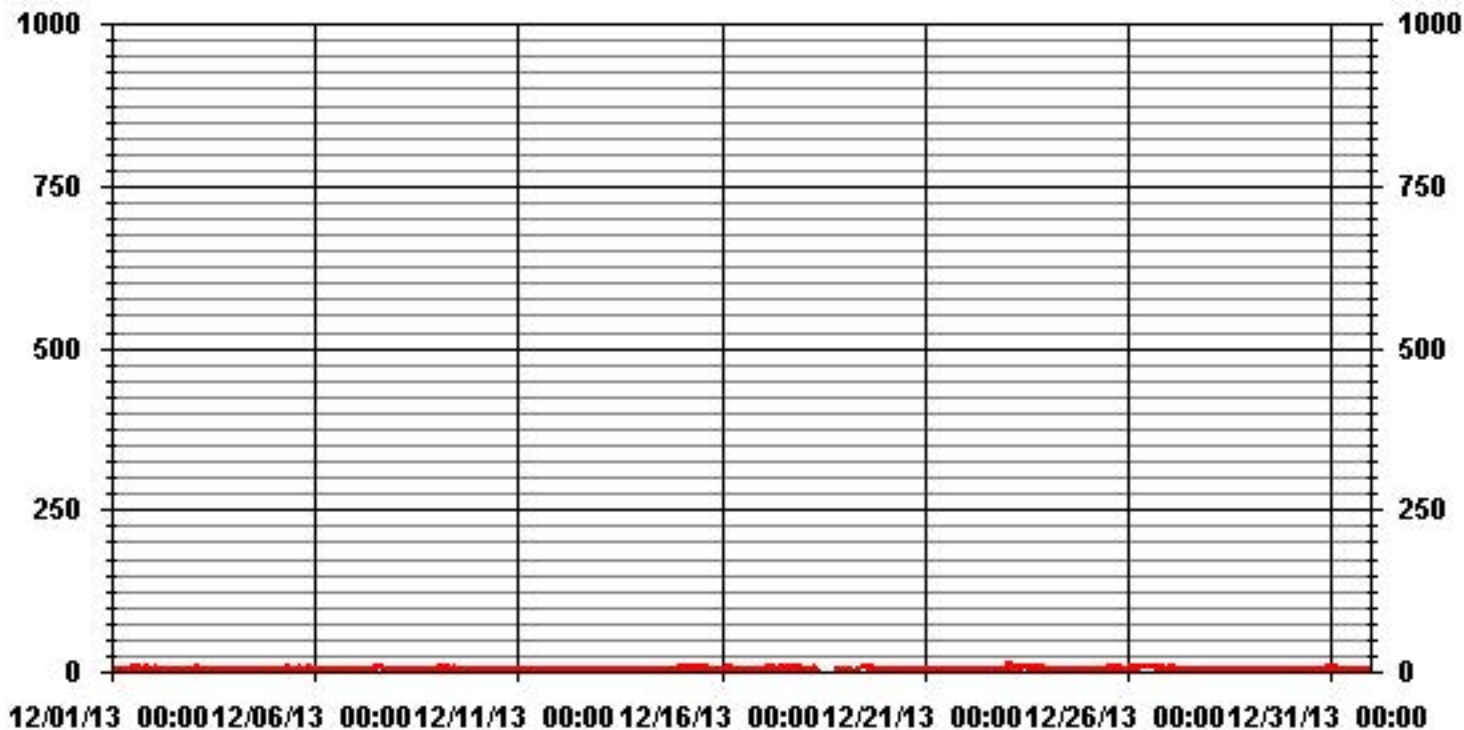
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698				
MAXIMUM INSTANTANEOUS VALUE:	14	PPB	@ HOUR(S)	2	ON DAY(S) 23
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	12	HRS			
STANDARD DEVIATION:	1.54				

01 Hour Averages



LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	3.62	1.81	1.97	5.43	9.22	6.42	4.61	1.48	4.77	7.08	10.54	5.43	7.57	8.73	10.21	11.03	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	3.62	1.81	1.97	5.43	9.22	6.42	4.61	1.48	4.77	7.08	10.54	5.43	7.57	8.73	10.21	11.03	

Calm : .00 %

Total # Operational Hours : 607

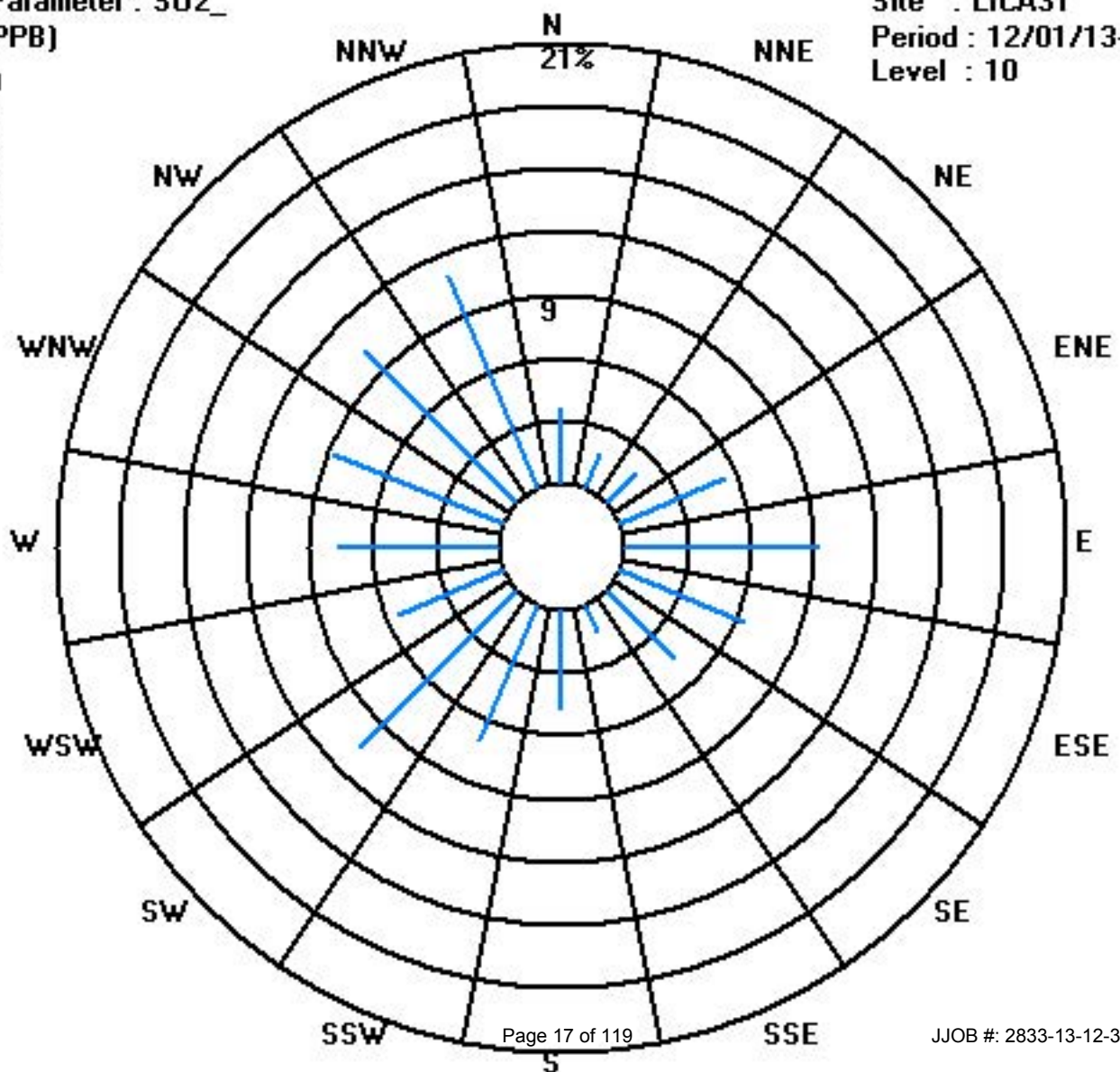
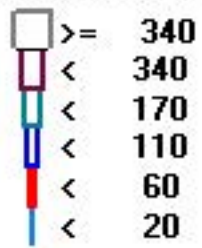
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	22	11	12	33	56	39	28	9	29	43	64	33	46	53	62	67	607
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	22	11	12	33	56	39	28	9	29	43	64	33	46	53	62	67	

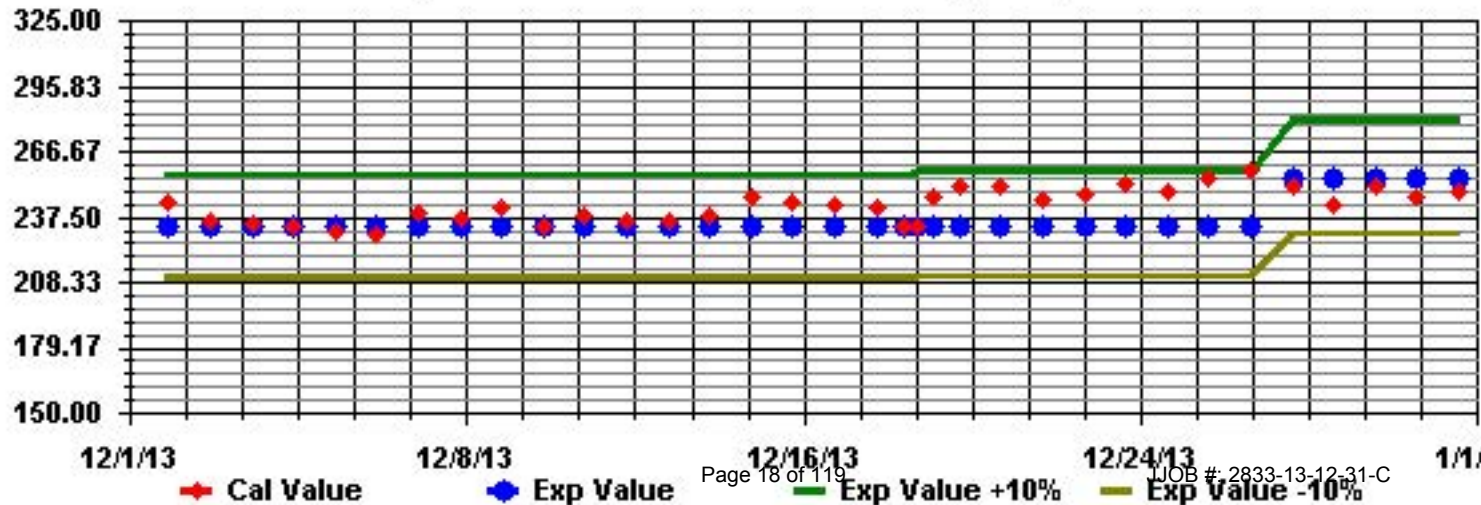
Calm : .00 %

Total # Operational Hours : 607

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: S02_ Sequence: S02 Phase: SPAN



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY 24-HOUR		
DAY	HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	2	1.4	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	3	2	2	2	S	1	1	3	2.0	24
2	1	1.1	1	1	1	1	0	1	S	1	1	1	1	1	1	1	1	0	0	0	0	S	1	1	1	1	1	0.8	24
3	1	1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	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	S	1	1	1	1	1	1	1.0	24
5	1	1.1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	S	1	0	0	0	0	1	1	1	1	0.8	24
6	0	1.1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	S	1	0	0	0	0	1	1	1	0.3	24
7	1	1.1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	2	S	2	2	1	1	2	2	1	1	2	1.1	24
8	2	1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	2	1	1	2	2	1.1	24
9	2	1.1	2	2	3	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	3	2.0	24
10	1	1.1	1	1	1	1	1	1	0	1	0	1	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
11	1	1.1	1	2	2	1	2	2	2	2	1	1	S	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1.3	24
12	1	1.1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
13	0	1.1	0	1	0	1	1	1	1	1	S	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	0.7	24
14	1	1.1	1	1	1	1	1	1	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	1.8	24
15	3	1.1	3	3	3	3	3	3	S	2	2	2	2	2	2	2	2	1	1	2	2	1	1	1	2	2	3	2.1	24
16	1	1.1	1	2	1	1	1	S	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	1	2	2	2	1.5	24
17	2	1.1	2	2	2	2	S	3	2	3	3	3	3	3	3	4	4	4	3	4	4	3	3	3	3	3	4	3.0	24
18	3	1.1	2	2	2	S	2	2	2	1	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	3	1.2	24	
19	0	1.1	0	0	S	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	1	2	1.0	24
20	2	1.1	2	S	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1.9	24
21	2	1.1	S	1	1	1	1	1	2	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	2	1.0	24
22	S	1.1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	S	1	0.2	24	
23	1	1.1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	S	2	3	2.0	24
24	2	1.1	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	0	1	1	S	1	0	2	1.3	24
25	1	1.1	0	1	0	1	1	1	1	0	1	1	1	1	2	2	2	2	2	2	2	2	S	2	2	2	2	1.3	24
26	2	1.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	S	2	2	2	2	3	2.1	24
27	2	1.1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	0	0	2	1.0	24
28	0	1.1	0	0	0	0	1	2	2	2	2	2	1	1	1	2	2	2	2	S	2	2	2	2	2	2	2	1.4	24
29	2	1.1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	S	3	2	2	2	2	2	2	2	3	2.2	24
30	1	1.1	2	1	2	2	2	2	1	0	1	1	1	1	1	1	S	1	1	1	1	2	2	1	1	2	2	1.3	24
31	2	1.1	2	2	2	1	1	1	1	1	2	2	2	2	2	S	2	2	2	2	2	1	1	2	2	2	2	1.7	24
HOURLY MAX	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	4	4	4	3	4	4	3	3	3	3	3		
HOURLY AVG	1.4	1.1	1.3	1.3	1.3	1.2	1.4	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.7	1.4	1.5	1.5	1.3	1.3	1.3	1.3	1.3	1.4	1.4			

STATUS FLAG CODES

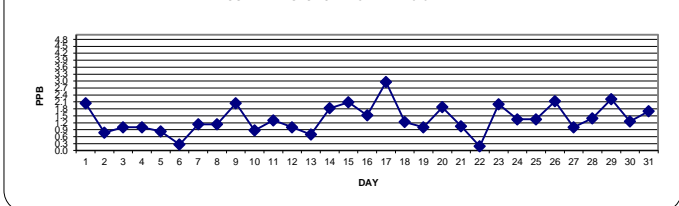
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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

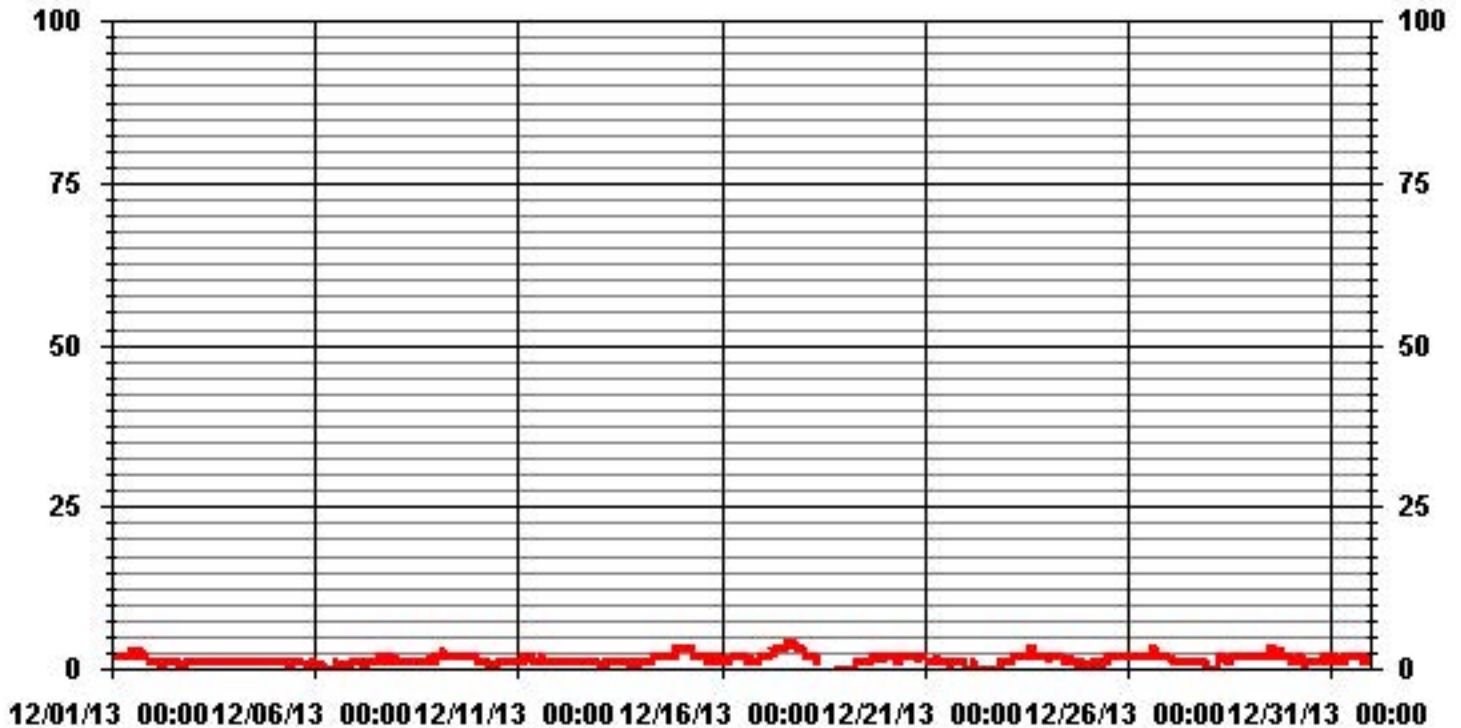
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	620				
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	3.0	PPB			ON DAY(S)
				VAR-VARIOUS	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.79		MONTHLY AVERAGE:	1.37	PPB

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2013

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	S	1	1	3	2.6	24	
2	1	1	2	1	1	1	1	S	2	2	2	1	1	1	1	1	1	0	1	1	S	2	2	2	1	2	1.2	24	
3	2	1	2	2	2	2	1	1	1	2	2	1	2	1	1	1	1	2	2	S	2	2	1	1	2	1.5	24		
4	2	2	1	1	1	1	1	1	1	5	1	1	1	2	2	2	1	2	S	1	1	2	1	1	1	5	1.5	24	
5	2	2	2	1	2	3	2	2	1	1	1	1	2	2	1	1	1	S	1	1	1	1	1	1	1	3	1.4	24	
6	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1.0	24	
7	2	1	2	1	0	1	1	1	1	1	1	2	1	2	2	S	2	2	2	2	2	2	2	2	2	2	1.5	24	
8	2	2	1	2	3	3	2	2	2	1	1	1	1	2	S	2	2	2	2	2	2	2	2	2	3	3	1.9	24	
9	3	3	3	3	3	3	3	3	2	2	2	2	3	S	3	2	3	2	2	2	3	3	2	3	2	3	2.6	24	
10	2	2	2	2	2	1	1	1	1	1	1	1	1	S	2	2	2	2	2	2	1	1	1	2	1	2	1.5	24	
11	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	2	1	1	2	2	2	2	2	1.9	24	
12	2	2	1	1	1	1	1	1	1	1	S	2	1	2	2	1	1	1	1	1	2	2	1	1	1	2	1.3	24	
13	1	1	2	1	2	1	2	2	1	S	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.3	24	
14	1	1	2	1	2	2	2	2	S	2	3	2	3	3	3	3	2	3	3	3	3	3	3	3	3	3	2.4	24	
15	3	3	4	3	3	4	4	S	3	3	3	2	3	3	3	2	2	2	2	2	2	2	2	2	2	4	2.7	24	
16	2	2	2	2	2	2	S	3	3	3	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2.2	24	
17	2	2	2	2	2	S	3	3	3	3	4	3	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3.3	24	
18	3	3	3	3	S	3	2	2	2	C	C	C	C	C	C	C	C	C	1	S	0	1	1	1	3	1.9	24		
19	0	1	1	S	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1.4	24	
20	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	2	2	2	2	3	2.1	24	
21	2	S	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1.5	24	
22	S	1	1	1	1	1	1	0	1	7	2	0	1	0	1	1	1	1	1	1	1	1	1	1	S	7	1.2	24	
23	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	S	2	3	2.5	24	
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	7	2	2	S	2	1	7	2.3	24	
25	1	2	1	1	1	2	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1.7	24	
26	2	2	2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	S	3	3	2	2	3	2.4	24	
27	2	2	2	2	1	2	2	1	1	1	2	1	1	1	1	2	2	1	S	1	1	1	1	1	1	2	1.4	24	
28	1	0	0	0	0	2	3	2	2	3	2	2	2	2	2	2	2	2	S	2	2	2	2	2	3	3	1.7	24	
29	3	3	3	3	2	2	3	2	3	3	3	3	3	3	3	5	3	S	3	2	2	2	2	2	2	5	2.7	24	
30	2	2	2	2	4	5	3	3	2	2	2	2	2	2	2	S	2	2	2	2	3	3	2	2	4	5	2.5	24	
31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	2	2	2	2	2	2	2	2.0	24	
HOURLY MAX	3	3	4	3	4	5	4	3	3	7	4	3	4	4	5	4	4	4	5	7	4	4	4	4	3	4			
HOURLY AVG	1.8	1.8	1.9	1.7	1.8	2.0	1.9	1.8	1.8	2.2	1.9	1.9	2.0	2.0	2.1	2.0	1.9	2.1	2.1	1.9	1.8	1.9	1.7	1.8					

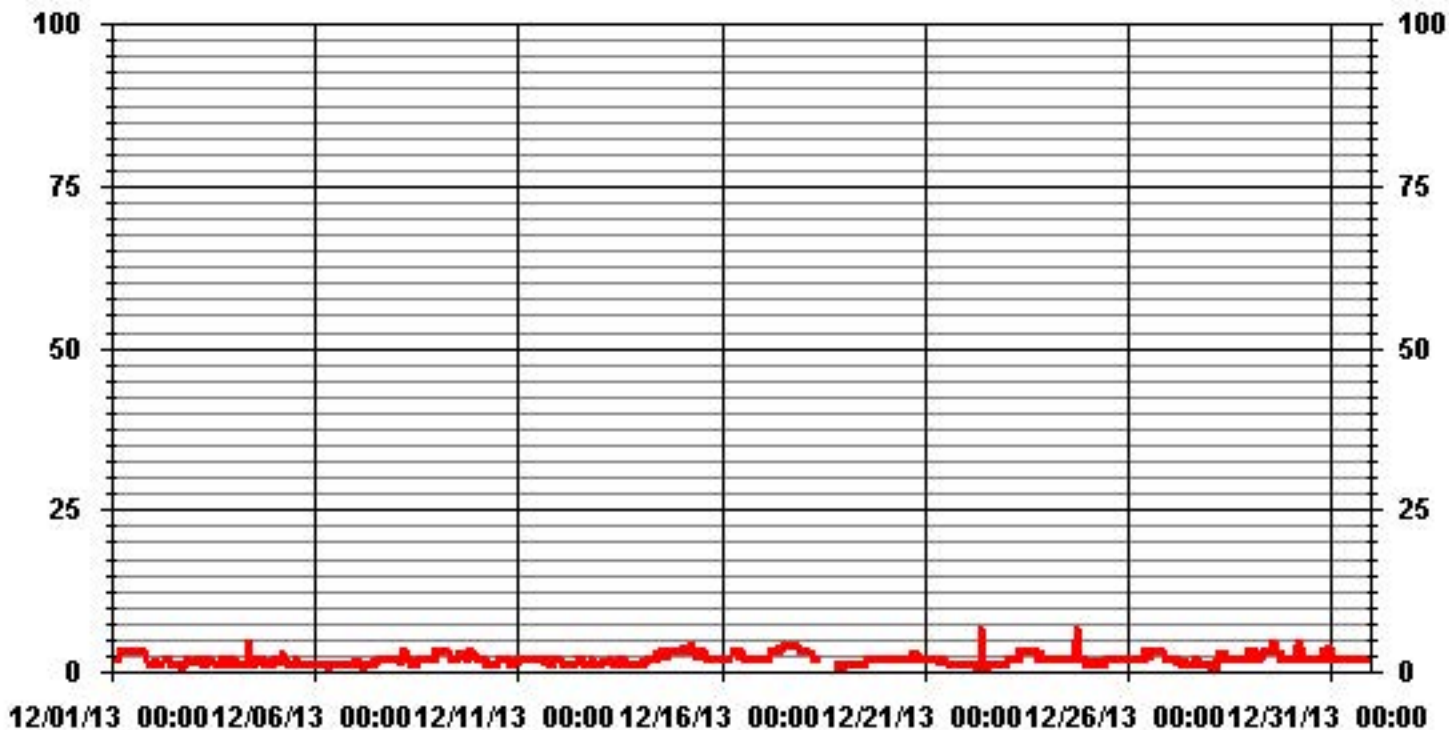
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689					
MAXIMUM INSTANTANEOUS VALUE:	7	PPB	@ HOUR(S)	9, 18	ON DAY(S)	22, 24
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.86					

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	3.61	1.80	1.80	4.92	8.70	5.41	4.43	1.31	3.77	6.23	9.68	4.92	7.22	8.70	10.01	10.34	92.93
< 10	.00	.00	.16	.49	.49	.98	.16	.16	.98	.82	1.14	.49	.32	.00	.16	.65	7.06
< 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	3.61	1.80	1.97	5.41	9.19	6.40	4.59	1.47	4.76	7.06	10.83	5.41	7.55	8.70	10.18	11.00	

Calm : .00 %

Total # Operational Hours : 609

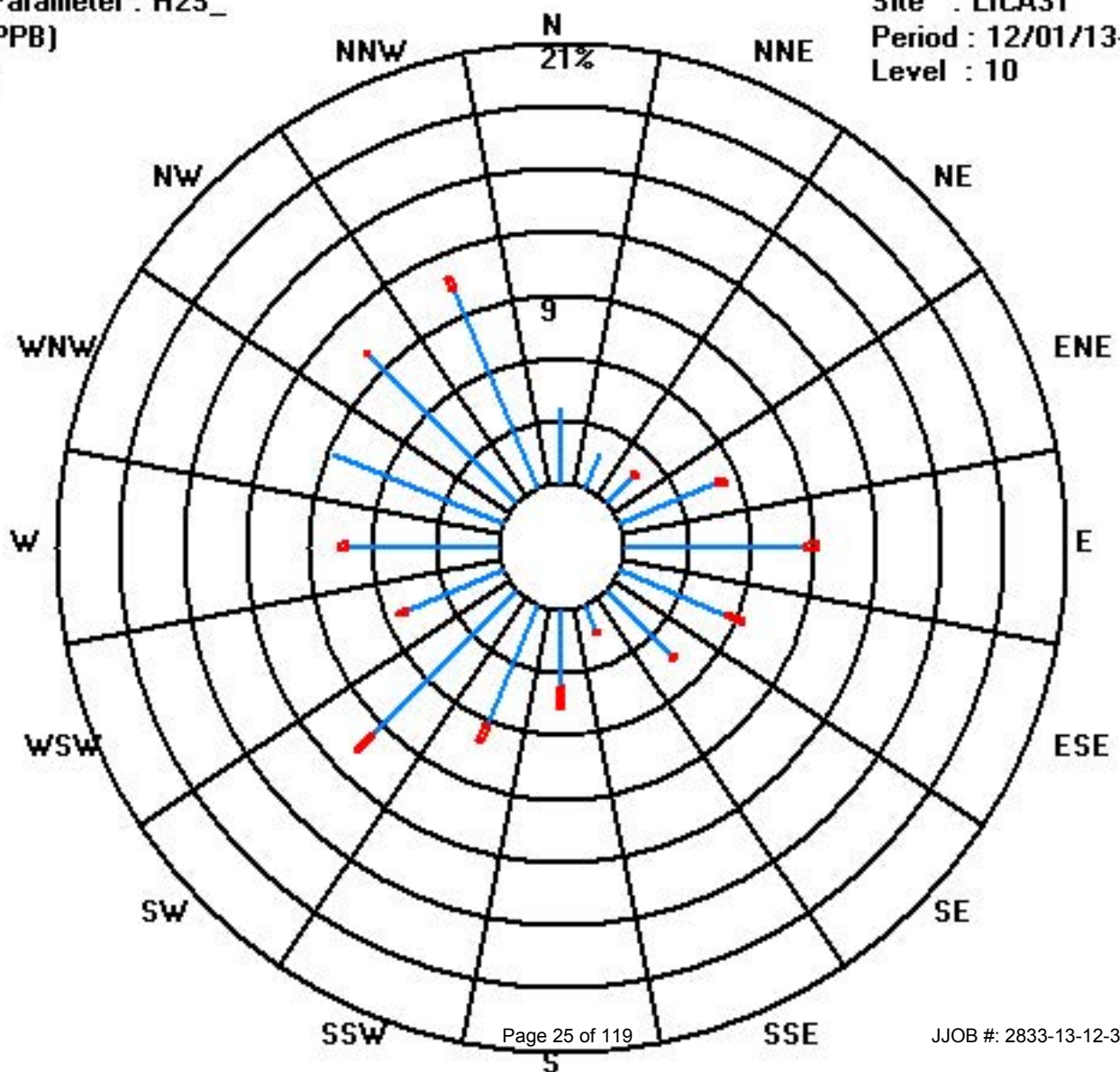
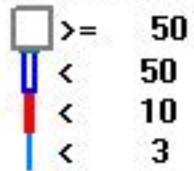
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	22	11	11	30	53	33	27	8	23	38	59	30	44	53	61	63	566
< 10			1	3	3	6	1	1	6	5	7	3	2		1	4	43
< 50																	
>= 50																	
Totals	22	11	12	33	56	39	28	9	29	43	66	33	46	53	62	67	

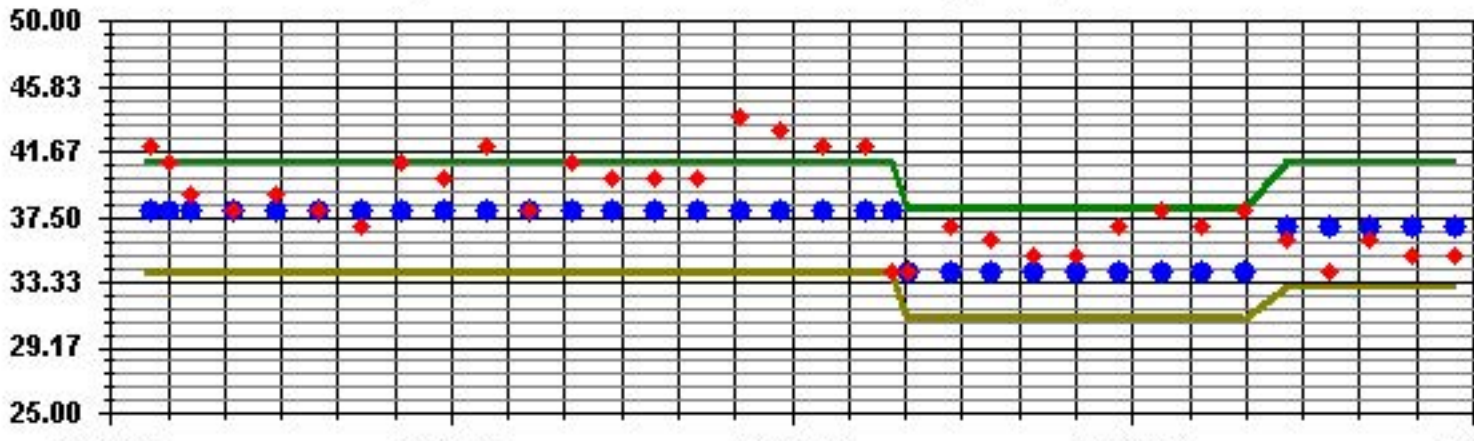
Calm : .00 %

Total # Operational Hours : 609

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

DECEMBER 2013

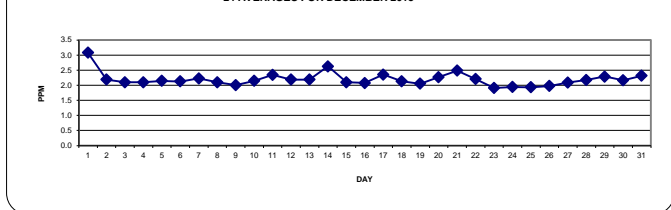
TOTAL HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	2.8	2.8	2.8	2.7	2.8	3.5	4.4	4.3	4.1	3.9	3.8	3.5	2.9	2.9	3.3	3	2.9	2.7	2.6	2.4	2.3	S	2.2	2.2	4.4	3.1	24		
2	2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	S	2	2.1	2.1	2.3	2.2	24			
3	3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24		
4	4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24		
5	5	2.1	2.1	2.2	2.2	2.2	2.2	2.2	S	2.4	2.1	2.1	2.1	S	S	2.2	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.1	24	
6	6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	S	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24	
7	7	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	S	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.2	24	
8	8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
9	9	2.1	2	2	2	2	2	2	1.9	2	2	2	1.9	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24
10	10	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	S	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	24
11	11	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	S	2.6	2.8	2.6	2.5	2.6	2.9	2.8	2.5	2.3	2.3	2.3	2.4	2.9	2.3	2.4	24	
12	12	2.6	2.8	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.8	2.2	2.4	24	
13	13	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.2	24	
14	14	2.3	2.3	2.3	2.3	2.4	2.5	3	3.3	S	3.1	3.4	3.5	3.1	2.7	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.5	2.6	24	
15	15	2.3	2.2	2.2	2.2	2.2	2.2	2.1	S	2.2	2	2	2	2	2	2	2	2.1	2.1	2	2.1	2	2.1	2.1	2.1	2.1	2.3	2.1	24	
16	16	2.1	2.1	2.1	2.1	2.1	2.1	S	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	2.2	2.2	2.1	24	
17	17	2.2	2.2	2.2	2.2	2.3	S	2.2	2.4	2.6	2.6	2.9	3.1	3.2	2.8	2.5	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	2.4	24	
18	18	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.2	C	C	C	C	C	C	2	2	2.3	2.1	24		
19	19	2	2	2	S	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	2	2	1.9	2.1	2.1	24		
20	20	2	2	S	2	2	2	2.1	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.8	2.7	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.3	24	
21	21	2.1	S	2.2	2.2	2.3	2.3	2.4	2.4	2.7	2.8	2.7	2.8	2.7	2.6	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.8	2.5	24	
22	22	S	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	S	2.3	2.2	24		
23	23	2.2	2.2	2.1	2	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	1.8	1.7	1.7	1.7	S	1.9	2.2	1.9	24		
24	24	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	S	1.9	1.9	2.0	1.9	24	
25	25	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	S	1.9	2	2	2.0	1.9	24		
26	26	2	2	2	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	S	1.8	1.9	1.8	1.9	2.1	2.0	24	
27	27	2	2.1	2.2	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	S	2	2	2	2.1	2.1	2.2	2.1	24		
28	28	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	S	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.3	2.2	24	
29	29	2.1	2.1	2.1	2	2	2	2	2	2.4	2.7	2.8	2.7	2.6	2.7	2.4	2.3	S	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.8	2.3	24		
30	30	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24	
31	31	2.3	2.3	2.4	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	S	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.6	2.3	24	
HOURLY MAX		2.8	2.8	2.8	2.7	2.8	3.5	4.4	4.3	4.1	3.9	3.8	3.5	3.2	2.9	3.3	3.0	2.9	2.9	2.8	2.5	2.5	2.4	2.5	2.6					
HOURLY AVG		2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1					

STATUS FLAG CODES

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

24 AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM 1-HR AVERAGE:	4.4	PPM	@ HOUR(S)	6	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	3.1	PPM			ON DAY(S)	1
					VAR- VARIOUS	
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.29		MONTHLY AVERAGE:	2.19	PPM	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST																													
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	2.9	2.8	2.8	2.8	3	4.4	4.5	4.4	4.6	4.6	4.1	4	3.4	3.5	3.5	3.2	3	2.9	2.8	2.5	2.4	S	2.2	2.2	4.6	3.3	24		
2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.3	S	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.2	24	
3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	24	
4	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	S	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24	
5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	S	2.1	2.1	2.1	S	S	S	2.2	2.2	S	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	24	
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	2.1	2.1	2.1	S	2.1	S	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24	
7	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.2	2.1	S	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.4	2.3	24	
8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
9	2.1	2.1	2.1	2	2.1	2	2	2	2	2	2	2	2.7	S	2.1	2.1	2	3	3.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	2.2	24	
10	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	S	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	2.3	2.2	24
11	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	S	2.8	2.9	2.7	2.6	2.8	2.9	2.9	2.6	2.4	2.5	2.5	2.6	2.9	2.4	2.4	24	
12	2.8	2.9	2.7	2.3	2.3	2.2	2.3	2.3	2.3	2.3	S	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.9	2.3	24	
13	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	S	2.3	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.4	2.3	2.3	2.5	2.3	2.3	2.4	2.5	2.3	24	
14	2.4	2.4	2.4	2.3	2.4	2.7	3.3	3.4	S	3.2	3.8	3.8	3.4	2.8	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	3.8	2.7	24	
15	2.4	2.3	2.3	2.2	2.2	2.2	2.2	S	2.2	2.1	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	2.4	2.1	24	
16	2.1	2.1	2.1	2.1	2.1	2.1	S	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	2.2	2.2	2.2	2.1	24	
17	2.2	2.2	2.2	2.3	2.4	S	2.7	2.8	2.8	2.9	3	3.4	3.3	3	2.7	2.3	2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	3.4	2.5	24		
18	2.1	2.2	2.2	2.2	S	2.1	2.1	2.1	2.2	2.3	2.2	2.4	2.3	2.2	2.2	2.2	C	C	C	C	C	C	C	2.1	2.1	2.4	2.2	24	
19	2.1	2	2	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	2.3	2.1	24		
20	2.1	2.1	S	2	2.1	2.2	2.5	2.6	2.7	2.7	2.4	2.4	2.6	2.7	3	2.9	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	3	2.4	24		
21	2.5	S	2.4	2.5	3	2.5	2.8	2.6	2.8	2.8	2.8	2.8	2.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3	2.6	24		
22	S	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	S	2.3	2.3	24		
23	2.2	2.2	2.2	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	1.9	1.8	1.7	1.7	S	1.9	2.2	1.9	2.4	24		
24	1.9	2	2	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	S	2	2	2.1	2.0	24		
25	2	2	2	2	2	2	2	2	2	2	2.3	2	2	2	1.9	1.9	2	1.9	1.9	1.9	1.9	S	2	2	2	2.3	2.0	24	
26	2	2	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2	2	2.1	2	2	1.9	1.9	1.9	S	1.9	1.9	2	1.9	2.1	2.0	24		
27	2.1	2.2	2.2	2.2	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	S	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24	
28	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	S	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	24	
29	2.2	2.1	2.1	2.1	2	2	2	2.1	2.8	2.9	2.9	2.8	2.8	2.9	2.5	2.3	S	2.4	2.3	2.3	2.2	2.3	2.4	2.3	2.9	2.4	24		
30	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	S	2.6	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.6	2.2	24	
31	2.3	2.4	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.4	S	2.3	2.3	2.2	2.2	2.2	2.2	2.5	2.5	2.6	2.6	2.6	2.4	24	
HOURLY MAX	2.9	2.9	2.8	2.8	3.0	4.4	4.5	4.4	4.6	4.6	4.1	4.0	3.4	3.5	3.5	3.2	3.0	3.0	3.1	2.6	2.6	2.5	2.6	2.6					
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2				

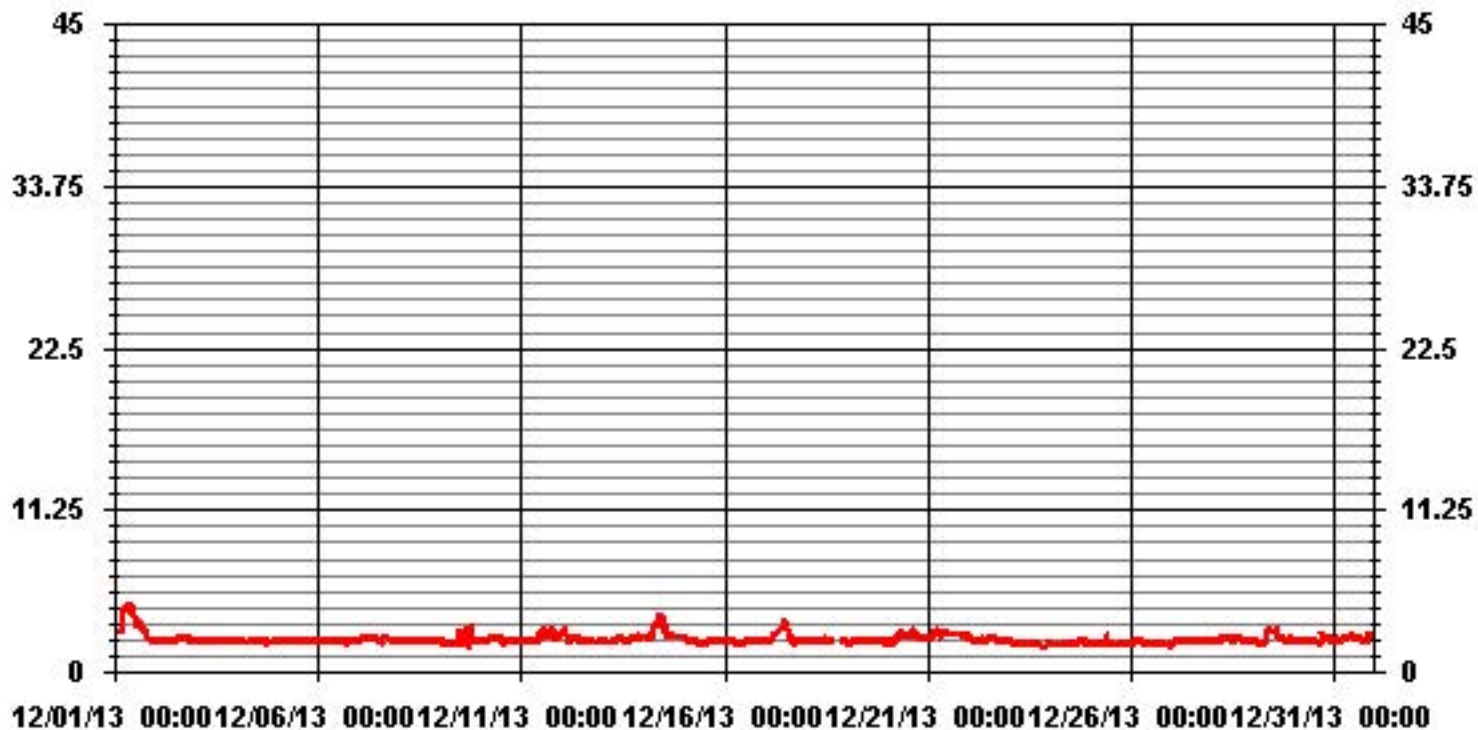
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	4.6	PPM	@ HOUR(S)	8, 9	ON DAY(S)	1
IZS CALIBRATION TIME:	39	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.35					

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3.0	3.75	1.79	1.95	4.73	8.64	5.87	3.58	1.46	4.73	7.01	10.76	5.38	7.50	8.64	9.95	11.58	97.38
< 10.0	.00	.00	.00	.65	.48	.48	.97	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.61
< 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	3.75	1.79	1.95	5.38	9.13	6.36	4.56	1.46	4.73	7.01	10.76	5.38	7.50	8.64	9.95	11.58	

Calm : .00 %

Total # Operational Hours : 613

Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 3.0	23	11	12	29	53	36	22	9	29	43	66	33	46	53	61	71	597
< 10.0				4	3	3	6										16
< 50.0																	
>= 50.0																	
Totals	23	11	12	33	56	39	28	9	29	43	66	33	46	53	61	71	

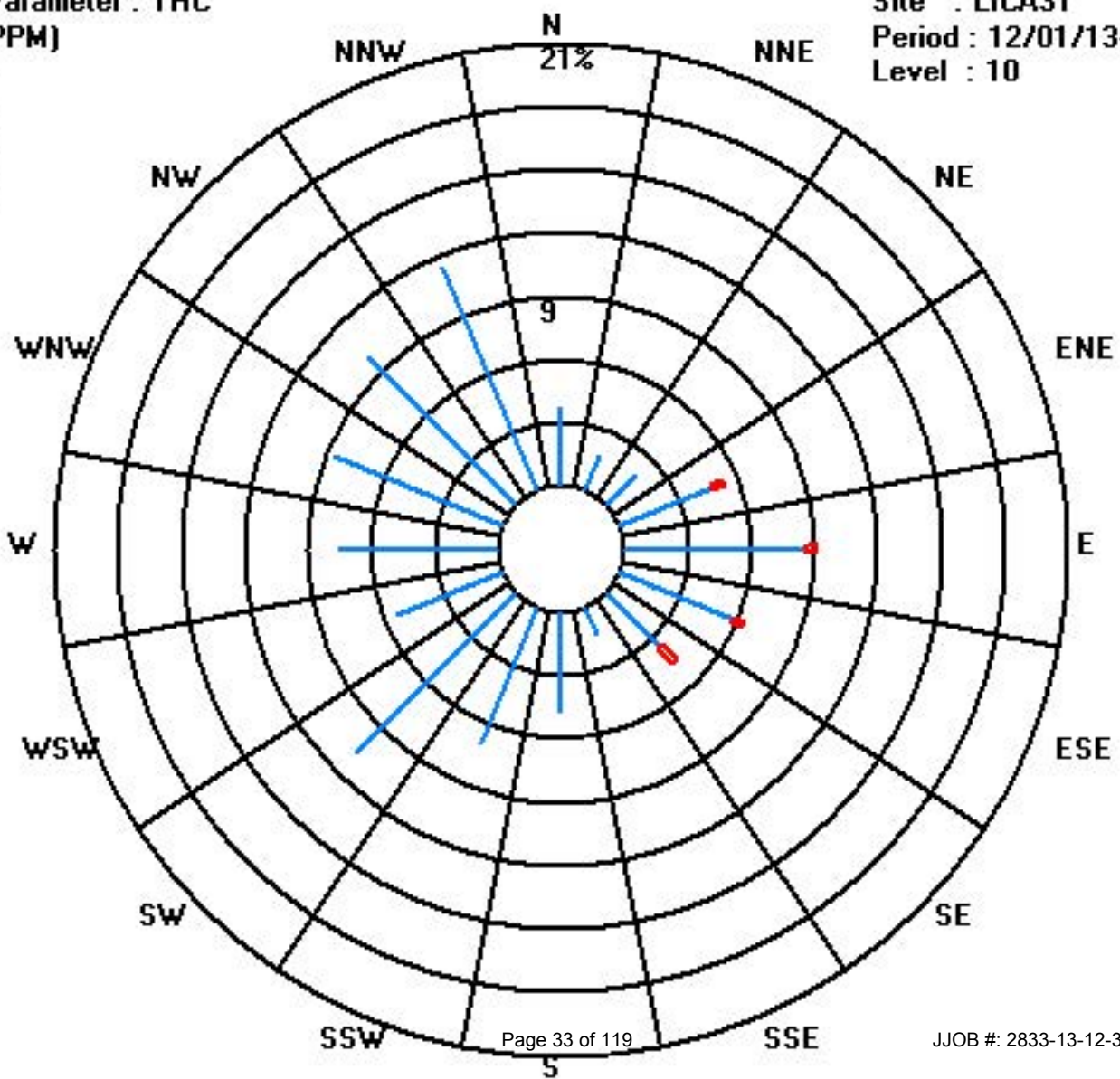
Calm : .00 %

Total # Operational Hours : 613

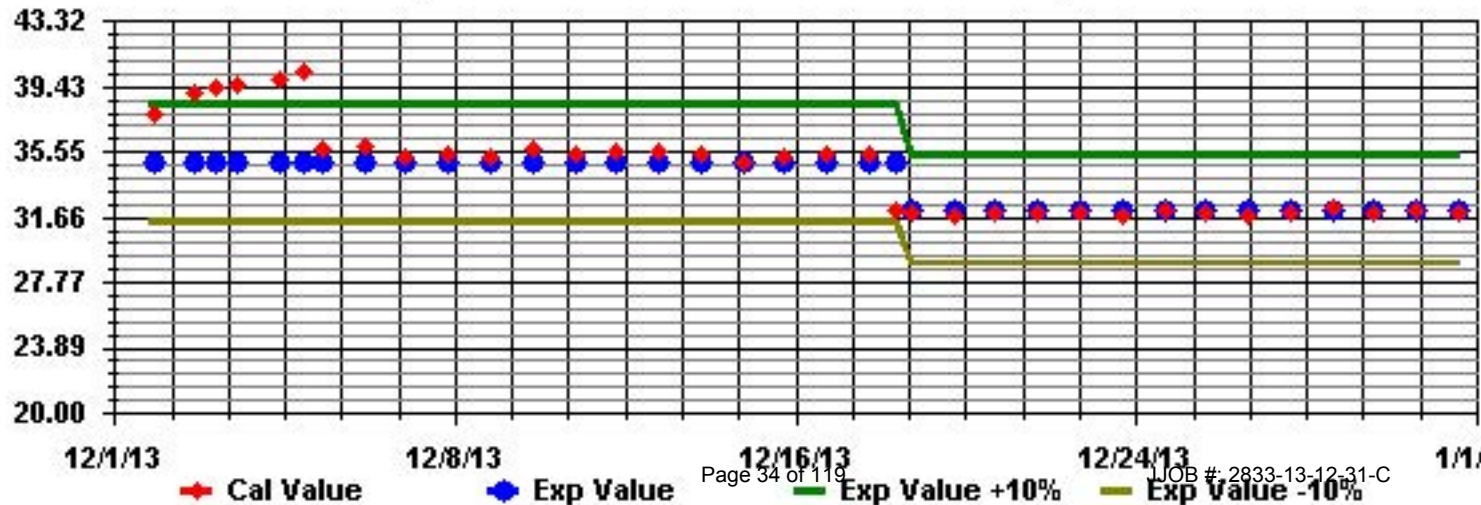
Class Limits (PPM)

Period : 12/01/13-12/31/13

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

OZONE (O₃) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	21	20	19	19	18	14	10	10	12	13	15	18	25	24	18	21	22	23	24	25	26	S	24	25	26	19.4	24	
2	2	23	24	24	24	24	22	21	20	20	21	23	23	24	25	27	25	25	26	25	24	S	24	22	19	27	23.3	24	
3	3	19	19	20	23	24	25	26	26	26	26	28	29	31	32	31	31	31	30	29	S	29	29	28	29	32	27.0	24	
4	4	30	30	30	30	30	30	29	29	30	30	30	30	30	31	30	29	28	28	S	30	30	29	28	27	31	29.5	24	
5	5	28	28	28	28	28	28	27	26	25	25	25	27	27	27	26	24	24	S	27	27	26	27	27	27	28	26.6	24	
6	6	27	28	28	27	27	26	26	26	26	26	27	27	27	28	28	28	S	27	26	23	23	17	17	20	28	25.4	24	
7	7	19	14	9	12	13	12	15	16	14	17	20	23	24	25	24	S	16	18	23	27	28	29	29	29	29	19.8	24	
8	8	28	29	30	31	32	33	32	32	32	31	32	33	33	33	S	33	33	32	30	30	28	27	26	25	33	30.7	24	
9	9	26	26	26	25	26	32	34	36	35	35	34	34	35	S	37	37	36	36	36	36	35	35	35	34	37	33.1	24	
10	10	33	32	30	30	33	32	31	32	31	31	32	33	S	33	33	33	33	31	29	29	29	28	27	25	33	30.9	24	
11	11	22	24	25	24	23	22	22	21	22	22	22	S	22	20	20	21	19	15	17	22	23	24	23	20	25	21.5	24	
12	12	16	12	19	28	30	31	30	29	29	28	S	30	29	29	28	28	28	26	26	28	28	29	32	32	32	27.2	24	
13	13	31	30	29	30	30	29	28	27	26	S	25	26	26	26	25	26	25	26	25	25	23	24	23	22	31	26.4	24	
14	14	23	23	24	24	23	23	19	15	S	18	19	20	21	22	22	22	22	22	22	22	22	22	22	22	24	21.5	24	
15	15	23	23	23	22	21	21	22	S	28	36	38	39	41	41	40	40	40	39	39	39	38	39	38	41	38	41	33.5	24
16	16	38	37	37	37	38	38	S	38	38	39	40	40	41	41	41	41	41	40	40	40	40	40	39	36	41	39.2	24	
17	17	36	36	35	34	31	S	29	28	25	24	28	29	29	32	33	35	34	33	31	26	27	27	24	22	36	29.9	24	
18	18	24	23	22	22	S	21	22	23	22	23	24	24	24	25	26	26	25	25	24	S	24	25	25	26	26	23.9	24	
19	19	28	26	26	S	26	25	25	24	20	C	C	C	C	23	21	18	15	14	10	15	20	22	24	26	28	21.5	24	
20	20	18	21	S	27	26	25	19	16	15	18	22	22	23	22	20	12	13	19	20	22	23	24	25	26	27	20.8	24	
21	21	26	S	26	26	26	25	25	24	23	24	26	27	27	27	26	25	25	25	24	24	23	23	22	21	27	24.8	24	
22	22	S	21	21	21	22	22	24	24	23	22	23	22	23	24	24	23	24	26	25	24	25	23	S	26	23.2	24		
23	23	21	20	23	27	29	29	29	29	29	28	28	27	27	27	26	23	21	23	29	31	30	33	S	41	41	27.4	24	
24	24	44	43	41	39	41	43	40	35	35	37	37	38	37	37	36	37	38	40	42	42	42	S	41	40	44	39.3	24	
25	25	40	40	40	39	39	39	39	38	37	37	37	37	36	38	38	37	37	36	36	37	S	33	33	34	40	37.3	24	
26	26	35	34	31	27	28	29	27	27	29	29	31	33	33	32	32	33	34	33	30	S	30	29	29	29	35	30.6	24	
27	27	21	20	15	19	25	27	29	29	28	30	34	34	35	35	36	35	36	S	36	36	36	34	34	36	36	30.4	24	
28	28	33	31	29	28	26	23	22	22	23	23	23	24	25	25	25	25	24	S	23	23	24	23	22	22	33	24.7	24	
29	29	21	20	20	22	24	22	23	22	18	17	17	18	19	17	19	19	S	22	25	25	25	24	25	26	26	21.3	24	
30	30	26	23	22	22	22	24	25	25	25	26	26	27	28	28	29	S	26	23	20	19	15	16	16	15	29	22.8	24	
31	31	15	16	18	23	25	26	27	27	26	26	26	26	27	27	S	25	23	23	22	24	23	22	22	22	27	23.5	24	
HOURLY MAX		44	43	41	39	41	43	40	38	38	39	40	40	41	41	41	41	41	41	42	42	42	40	41	41				
HOURLY AVG		26.5	25.8	25.7	26.3	27.0	26.5	25.9	25.9	25.7	26.2	27.3	28.3	28.6	28.5	28.3	28.0	27.5	27.5	26.9	27.7	27.4	27.0	26.9	27.1				

STATUS FLAG CODES

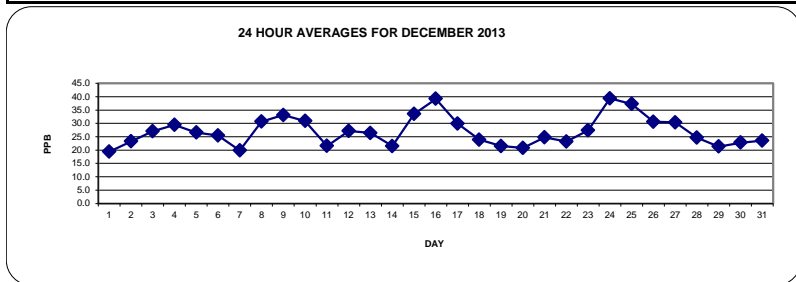
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

OBJECTIVE LIMIT:

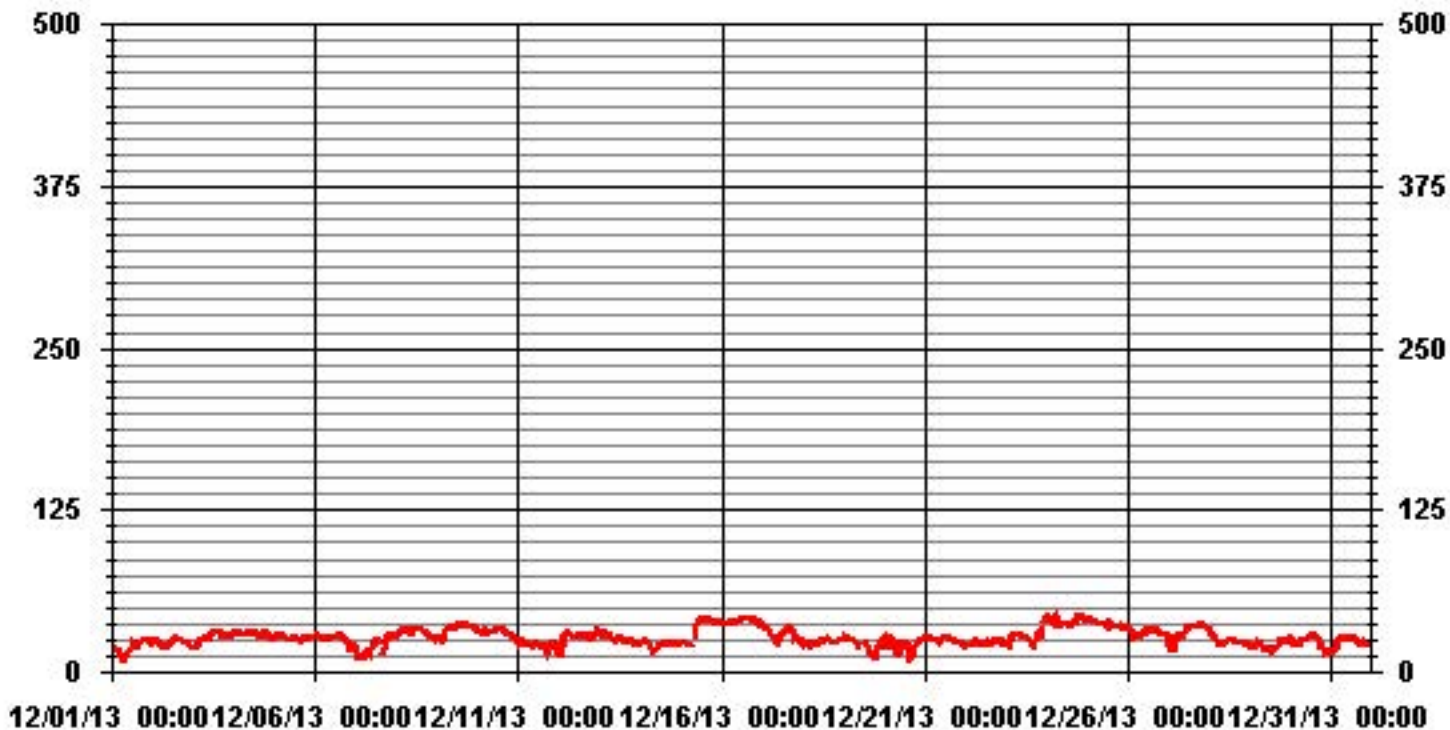
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	707				
MAXIMUM 1-HR AVERAGE:	44	PPB	@ HOUR(S)	0	ON DAY(S) 24
MAXIMUM 24-HR AVERAGE:	39.3	PPB			ON DAY(S) 24
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	6.50		MONTHLY AVERAGE:	27.0	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	21	20	20	19	18	17	10	11	13	15	16	21	27	28	19	22	23	24	25	26	27	S	25	25	28	20.5	24
2	25	25	24	24	24	24	21	21	20	22	24	24	25	26	27	27	26	26	25	25	S	24	24	21	27	24.1	24
3	19	20	22	23	24	26	27	27	26	27	29	30	32	32	32	32	31	31	30	S	29	29	29	29	32	27.7	24
4	31	30	30	30	30	30	30	30	30	30	30	31	31	31	31	30	29	29	S	31	30	30	28	28	31	30.0	24
5	28	28	28	28	28	28	28	27	26	25	26	28	28	27	27	25	25	S	27	27	27	28	28	27	28	27.1	24
6	28	28	28	28	28	27	27	27	26	27	27	27	28	28	28	28	S	28	28	25	24	22	18	21	28	26.3	24
7	20	17	10	13	14	14	17	17	15	19	22	24	24	25	25	S	18	20	25	28	29	30	29	29	30	21.0	24
8	29	30	30	32	32	33	33	33	33	32	33	33	34	34	S	34	33	33	31	30	30	28	26	25	34	31.3	24
9	26	27	26	26	28	33	36	36	36	35	35	35	36	S	38	37	37	37	36	36	36	36	36	35	38	33.9	24
10	34	33	31	32	33	33	32	32	32	32	32	33	S	34	34	34	33	33	30	30	29	29	27	26	34	31.7	24
11	23	25	26	25	24	23	22	22	22	23	23	S	22	21	22	23	23	16	21	22	24	24	24	22	26	22.7	24
12	19	16	24	30	31	31	30	30	29	29	S	30	30	29	29	28	28	28	27	29	29	32	33	33	33	28.4	24
13	31	30	29	30	30	30	29	27	27	S	19	19	20	22	23	22	23	22	22	22	22	22	22	23	25	22.1	24
14	24	24	24	25	24	24	22	16	S	19	19	20	22	23	22	23	23	22	22	22	22	22	22	23	25	22.1	24
15	24	23	23	23	22	22	23	S	32	38	39	40	42	41	41	40	40	40	40	40	39	39	39	39	42	34.3	24
16	38	37	37	38	39	39	S	39	39	40	41	41	41	41	41	41	41	41	41	41	40	40	39	39	41	39.7	24
17	36	36	35	35	33	S	29	29	26	25	30	30	31	33	34	35	35	34	33	28	30	29	26	24	36	31.1	24
18	24	24	23	25	S	22	24	24	23	23	24	24	25	26	27	26	26	25	25	S	25	25	25	28	28	24.7	24
19	28	27	27	S	27	25	26	25	C	C	C	C	C	C	23	20	16	15	13	22	25	26	27	27	28	23.4	24
20	26	26	S	28	27	26	22	17	17	20	23	24	23	23	22	15	17	20	21	23	24	24	25	26	28	22.6	24
21	26	S	27	26	26	26	25	25	23	25	27	27	27	27	27	26	25	25	25	24	24	23	23	22	27	25.3	24
22	S	22	22	22	22	23	25	25	24	23	24	23	24	24	24	23	25	27	27	26	25	26	24	S	27	24.1	24
23	22	21	25	28	29	30	30	29	29	29	29	27	28	27	27	25	22	27	30	32	32	36	S	42	42	28.5	24
24	46	45	42	40	44	44	41	39	37	37	39	38	38	38	37	38	40	41	42	42	42	S	41	41	46	40.5	24
25	41	40	40	39	39	39	40	40	38	37	38	37	37	39	39	38	37	36	36	37	S	35	34	35	41	37.9	24
26	35	35	34	29	29	29	29	28	29	30	32	33	33	33	32	34	35	34	31	S	31	30	30	29	35	31.5	24
27	25	21	18	22	27	28	29	30	29	34	35	35	36	36	37	36	36	36	S	37	37	36	37	34	37	31.8	24
28	34	33	31	29	27	25	23	23	23	24	25	25	25	25	25	25	25	S	24	24	24	25	23	22	34	25.5	24
29	22	20	20	25	25	22	23	23	21	18	18	19	19	18	20	19	S	26	26	26	26	25	25	27	27	22.3	24
30	28	25	22	22	22	24	24	25	25	26	27	28	29	31	31	S	28	25	21	20	18	17	16	16	31	23.9	24
31	16	17	22	25	26	27	27	27	27	27	27	27	27	28	S	25	24	24	23	24	24	22	22	22	28	24.3	24
HOURLY MAX	46	45	42	40	44	44	41	40	39	40	41	41	42	41	41	41	41	41	42	42	42	40	41	42			
HOURLY AVG	27.6	26.8	26.7	27.4	27.7	27.5	26.8	26.8	26.8	27.2	28.2	29.0	29.3	29.2	29.2	28.8	28.5	28.8	28.0	28.6	28.5	28.1	27.6	28.0			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706					
MAXIMUM INSTANTANEOUS VALUE:	46	PPB	@ HOUR(S)	0	ON DAY(S)	24
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	6.33					

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : O3_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.74	1.79	1.95	5.37	9.12	6.35	4.56	1.46	4.72	7.00	10.26	5.21	7.49	8.63	10.26	12.05	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	3.74	1.79	1.95	5.37	9.12	6.35	4.56	1.46	4.72	7.00	10.26	5.21	7.49	8.63	10.26	12.05	

Calm : .00 %

Total # Operational Hours : 614

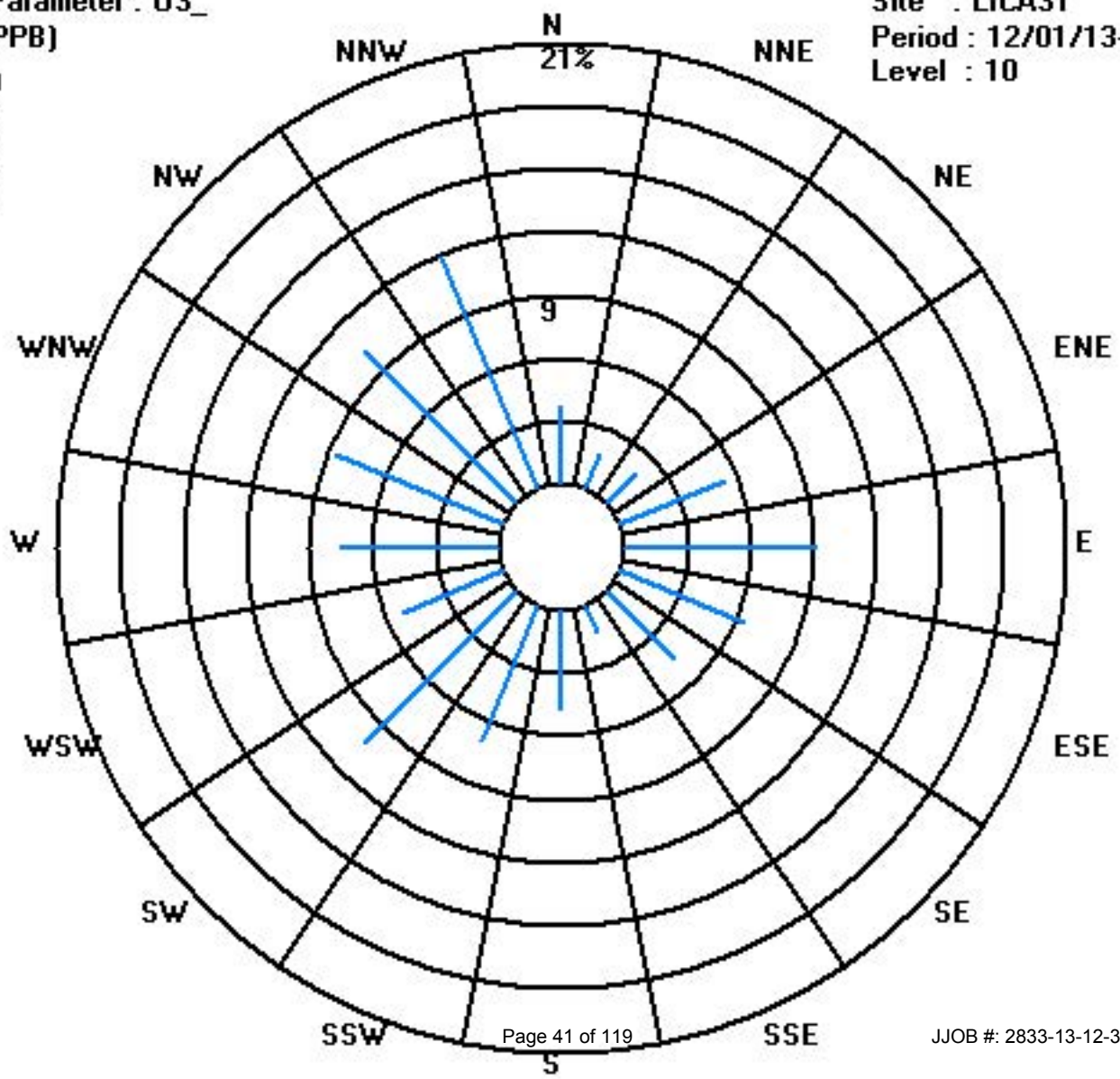
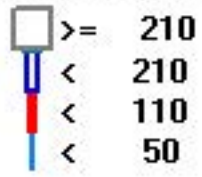
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	23	11	12	33	56	39	28	9	29	43	63	32	46	53	63	74	614
< 110																	
< 210																	
>= 210																	
Totals	23	11	12	33	56	39	28	9	29	43	63	32	46	53	63	74	

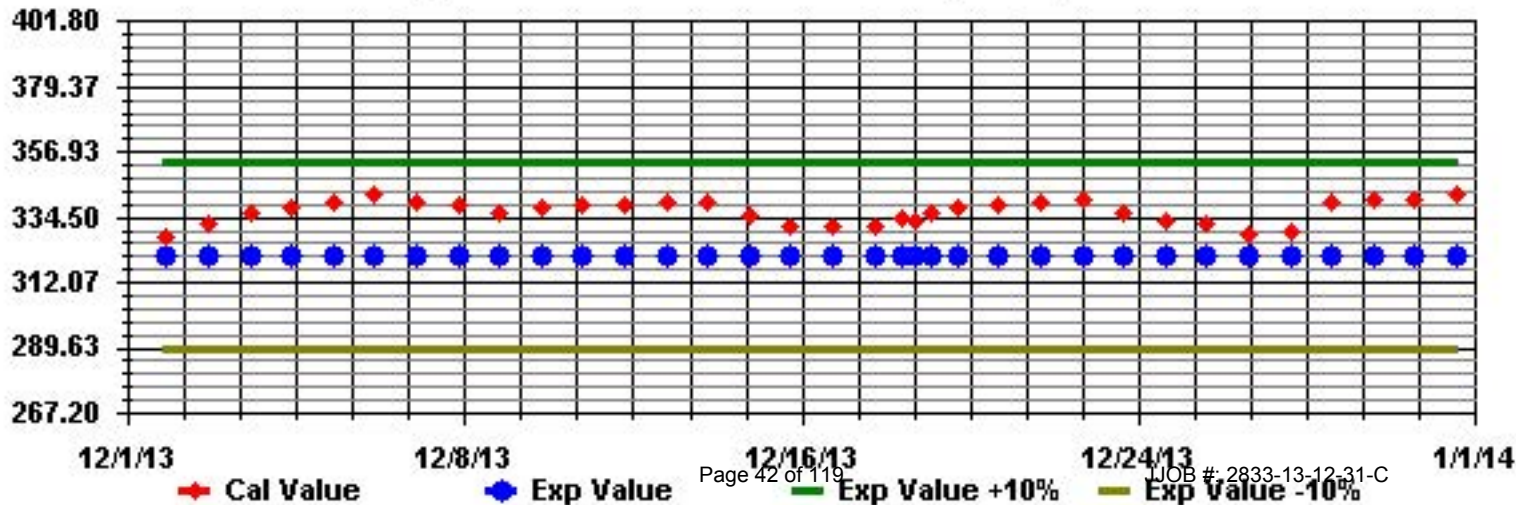
Calm : .00 %

Total # Operational Hours : 614

Class Limits (PPB)



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

NITROGEN DIOXIDE hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY 24-HOUR			
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	7.6	7.8	7.8	8.0	8.7	11.3	16.0	14.3	12.2	11.2	9.4	8.1	6.0	5.6	7.7	6.8	6.2	4.9	4.5	3.1	2.2	S	1.5	1.5	16.0	7.5	24			
2	2.4	2.1	1.9	1.6	1.3	2.0	1.9	1.7	1.7	0.9	0.5	0.5	0.1	0.6	0.5	1.8	1.3	0.5	0.1	0.0	S	0.1	0.7	2.6	2.6	1.2	24			
3	2.8	2.9	3.1	2.0	0.8	0.6	0.4	0.5	0.7	0.7	0.4	0.5	0.4	0.5	0.6	0.7	0.8	1.0	1.0	S	0.9	1.0	1.1	1.1	3.1	1.1	24			
4	0.8	1.0	0.8	0.9	0.5	0.6	1.1	1.3	1.0	0.9	1.0	1.0	1.1	0.8	1.5	2.2	3.0	2.5	S	0.8	1.3	1.8	1.7	2.6	3.0	1.3	24			
5	2.9	2.5	2.2	1.6	2.0	1.7	2.2	2.6	3.0	3.6	3.0	2.8	2.8	3.6	4.5	5.1	5.1	S	2.7	3.0	3.3	2.9	2.3	2.6	5.1	3.0	24			
6	2.4	1.7	1.3	1.2	1.4	1.7	1.7	1.7	2.1	2.1	1.8	1.8	1.4	1.1	1.0	1.3	S	0.5	1.6	3.7	3.5	8.6	9.1	6.3	9.1	2.6	24			
7	6.4	12.2	19.3	15.6	14.3	15.9	12.3	10.8	13.3	10.9	8.7	8.3	8.7	9.2	11.8	S	18.9	16.7	10.0	5.5	3.4	2.5	2.4	2.2	19.3	10.4	24			
8	2.4	1.6	1.6	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.4	0.6	1.6	1.8	2.5	3.1	4.0	4.8	4.8	1.1	24		
9	4.6	5.0	5.4	5.7	6.1	2.7	0.6	0.8	0.5	0.6	0.8	0.4	0.6	S	0.0	0.0	0.2	0.3	0.1	0.2	0.5	0.2	0.0	0.0	6.1	1.5	24			
10	0.0	0.8	1.4	1.1	0.0	0.1	0.2	0.1	0.4	0.2	0.2	0.3	S	0.2	0.5	0.3	1.0	1.7	4.0	4.1	3.5	4.2	5.0	6.6	6.6	1.6	24			
11	9.0	6.8	5.5	6.3	6.2	6.6	6.7	6.7	6.5	5.9	6.1	S	7.2	9.6	9.4	9.1	11.4	15.2	13.0	8.6	6.6	6.2	7.4	9.6	15.2	8.1	24			
12	13.4	17.1	10.4	3.8	1.9	1.1	1.3	1.4	2.0	2.4	S	0.4	1.1	1.5	1.9	2.1	1.9	2.3	2.8	1.8	1.0	0.7	0.3	0.4	17.1	3.2	24			
13	0.2	0.5	0.7	0.4	0.2	0.7	0.9	1.8	1.7	S	2.4	2.1	2.4	1.9	2.5	2.1	1.7	1.7	1.6	1.9	4.4	2.8	3.5	4.0	4.4	1.8	24			
14	3.4	3.0	2.1	1.9	2.8	2.6	7.3	11.6	S	7.5	7.2	7.1	6.2	4.6	5.0	5.1	5.1	5.6	5.3	4.8	4.6	4.6	4.5	4.1	11.6	5.0	24			
15	2.9	3.1	3.3	4.0	4.9	5.1	6.3	S	5.7	2.8	1.3	1.3	0.7	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.0	6.3	1.8	24			
16	0.2	0.3	0.3	0.2	0.0	0.0	S	0.6	0.6	0.7	0.2	0.5	0.3	0.4	0.4	0.5	0.7	0.4	0.4	0.7	0.5	0.9	0.9	2.2	2.2	0.5	24			
17	2.3	2.4	2.7	2.6	5.5	S	5.4	6.3	7.9	8.2	7.4	7.6	7.6	6.9	5.9	5.0	4.7	5.9	8.0	11.7	9.5	3.0	2.6	2.3	11.7	5.7	24			
18	1.4	2.0	3.1	3.4	S	4.0	2.9	2.1	2.0	C	C	C	C	C	C	C	C	C	C	C	C	C	1.5	1.8	4.0	2.4	24			
19	1.6	1.9	2.0	S	1.7	2.7	2.4	3.0	5.9	5.8	4.7	5.1	5.4	6.3	9.8	14.5	17.8	18.4	22.8	16.9	11.9	9.2	7.6	5.5	22.8	8.0	24			
20	11.8	9.2	S	3.2	3.8	4.5	7.9	11.0	11.7	9.7	6.8	6.7	6.5	7.0	9.1	16.2	15.8	10.0	8.3	6.8	4.9	4.1	3.8	3.2	16.2	7.9	24			
21	3.5	S	3.5	3.9	4.3	4.1	4.4	4.4	5.7	5.2	3.7	3.2	3.2	3.0	3.3	3.9	4.4	4.2	4.1	4.1	4.0	4.1	4.1	4.4	5.7	4.0	24			
22	S	3.4	3.1	2.8	2.4	2.5	1.7	1.5	1.6	2.4	1.8	2.3	2.1	2.1	2.3	3.2	3.7	2.9	2.7	3.1	3.3	3.4	4.8	S	4.8	2.7	24			
23	6.5	7.6	6.7	4.0	3.1	2.7	2.9	2.9	2.7	3.3	3.4	3.8	3.5	4.1	5.4	8.3	12.0	9.6	4.7	1.7	0.9	0.3	S	0.0	12.0	4.4	24			
24	0.1	0.3	0.6	0.6	0.4	0.3	0.3	0.5	0.3	0.5	0.5	0.3	0.4	0.4	0.5	0.1	0.4	0.2	0.0	0.0	0.2	S	0.2	0.2	0.6	0.3	24			
25	0.2	0.4	0.3	0.4	0.4	0.4	0.5	0.5	1.1	0.8	0.8	1.2	2.2	1.7	2.6	4.1	4.1	4.0	2.6	0.7	S	1.3	1.3	1.2	4.1	1.4	24			
26	1.0	1.3	3.1	5.4	5.5	5.3	6.4	7.2	6.5	6.7	6.4	4.7	4.8	5.0	5.7	5.3	4.7	4.4	4.0	S	0.7	0.5	0.4	0.4	7.2	4.1	24			
27	2.2	4.4	7.0	4.3	1.2	1.5	1.6	2.2	2.2	1.3	0.4	0.1	0.0	0.3	0.2	1.2	1.2	1.0	S	0.9	1.1	0.4	0.2	0.3	7.0	1.5	24			
28	0.5	0.6	0.6	0.4	1.0	2.3	2.6	2.4	2.3	2.2	1.9	1.4	1.5	1.2	1.2	1.6	1.8	S	2.3	2.8	2.8	3.5	3.8	4.2	4.2	2.0	24			
29	4.5	5.1	5.5	3.9	3.4	4.8	4.1	4.5	6.6	8.0	7.9	7.0	7.1	8.5	7.1	7.6	S	5.1	4.8	5.1	5.2	5.9	5.3	3.3	8.5	5.7	24			
30	2.9	4.1	3.8	3.4	2.9	2.6	2.0	1.7	1.6	1.6	1.1	1.8	1.4	2.1	1.0	S	1.0	2.8	4.6	6.1	9.5	8.9	9.0	8.7	9.5	3.7	24			
31	8.7	7.7	6.5	4.2	3.2	2.9	2.5	2.4	3.1	3.0	2.8	3.0	2.4	2.4	S	3.7	5.0	4.6	5.6	4.2	5.0	6.3	6.9	7.0	8.7	4.5	24			
HOURLY MAX	13.4	17.1	19.3	15.6	14.3	15.9	16.0	14.3	13.3	11.2	9.4	8.3	8.7	9.6	11.8	16.2	18.9	18.4	22.8	16.9	11.9	9.2	9.1	9.6						
HOURLY AVG	3.6	4.0	3.9	3.3	3.0	3.1	3.6	3.6	3.8	3.8	3.2	2.9	3.0	3.1	3.6	4.0	4.8	4.5	4.4	3.7	3.5	3.2	3.2	3.1						

STATUS FLAG CODES

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

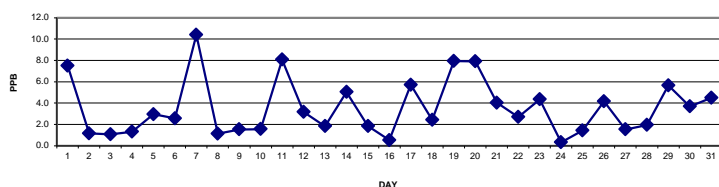
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

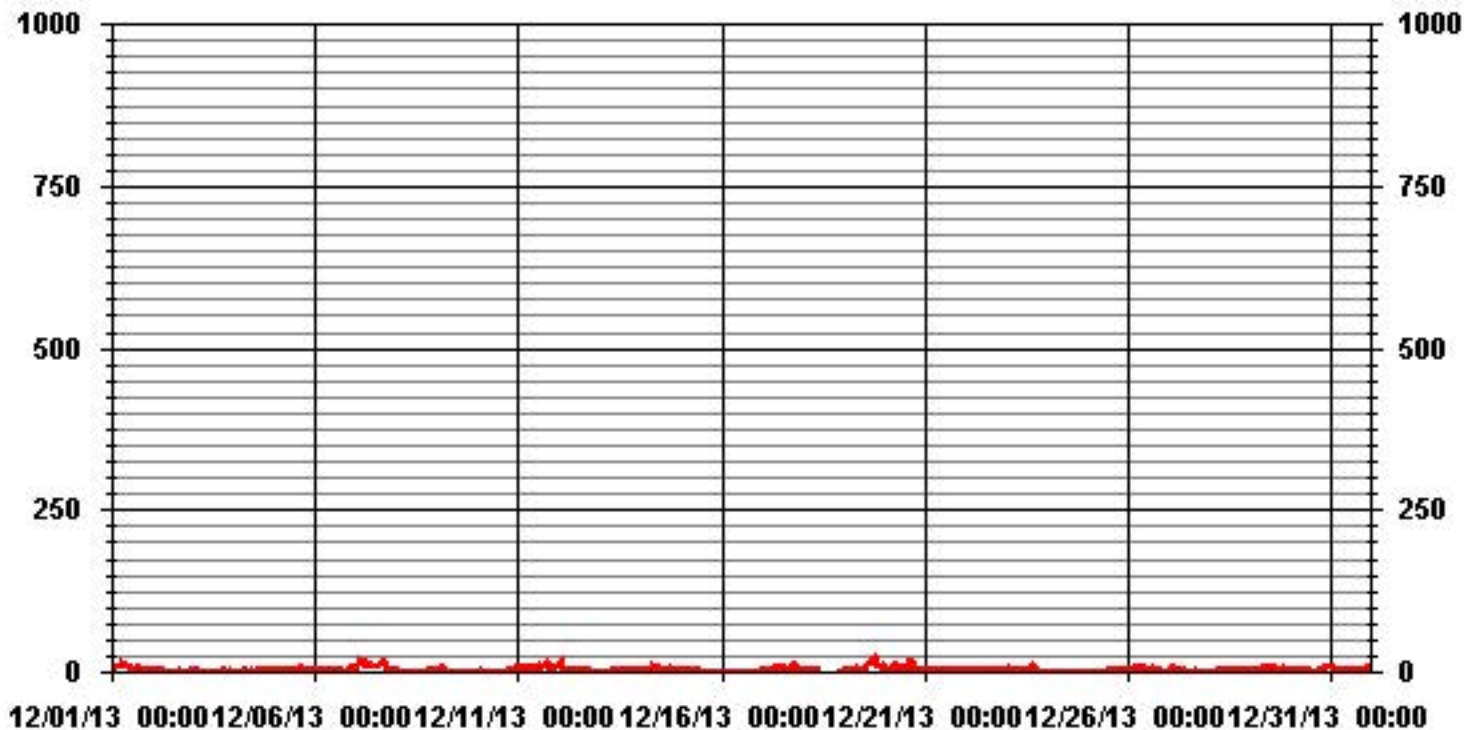
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	670					
MAXIMUM 1-HR AVERAGE:	22.8	PPB	@ HOUR(S)	18	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	10.4	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.56		MONTHLY AVERAGE:	3.57	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA31 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1	8.7	8.7	8.6	8.8	9.4	15.8	17.3	15.9	14.1	13.1	10.9	9.4	7.8	8.8	8.8	8.6	8.1	6.2	5.8	4.7	3.2	S	2.0	2.0	17.3	9.0	24	
2	3.5	2.9	2.6	2.5	2.3	2.8	2.6	2.8	2.6	1.9	1.2	1.7	1.1	1.5	1.3	3.0	2.8	1.7	1.0	0.2	S	1.1	1.6	3.9	3.9	2.1	24	
3	3.7	4.1	4.1	3.1	2.3	1.6	1.3	1.5	1.9	9.8	1.2	1.5	1.9	1.8	7.6	2.5	1.8	3.7	3.0	S	2.2	2.1	2.1	2.2	9.8	2.9	24	
4	2.0	2.0	1.9	1.9	1.7	1.8	3.2	2.3	2.1	2.3	3.1	2.8	2.8	1.8	3.6	4.7	4.7	3.9	S	2.0	2.1	2.8	2.9	3.9	4.7	2.7	24	
5	3.6	3.4	3.1	3.1	2.8	2.7	3.0	5.1	4.2	4.4	3.9	3.5	4.2	4.9	5.6	6.3	6.4	S	3.5	3.8	4.5	3.8	3.1	3.7	6.4	4.0	24	
6	3.7	2.7	2.4	2.4	3.0	2.7	2.7	3.2	2.9	3.1	2.7	2.7	2.8	2.5	1.9	2.3	S	2.2	3.3	5.4	5.0	12.4	11.1	7.7	12.4	3.9	24	
7	11.0	19.0	20.9	18.2	16.2	17.3	15.3	12.6	14.6	13.1	9.9	9.6	9.6	11.3	14.6	S	20.3	19.2	13.8	8.6	4.5	3.6	3.4	2.9	20.9	12.6	24	
8	3.3	2.5	2.1	2.2	1.7	1.1	0.9	1.1	1.2	0.9	0.7	0.5	0.4	0.6	S	0.9	1.3	1.9	3.1	3.1	4.9	4.4	5.1	5.5	5.5	2.1	24	
9	5.4	5.7	6.3	6.5	7.4	5.5	1.9	1.7	1.7	1.9	1.7	1.4	1.4	S	0.8	1.2	1.5	1.2	1.1	14.2	1.4	1.2	1.0	0.8	14.2	3.2	24	
10	0.7	1.9	2.3	2.0	0.9	1.0	1.3	1.3	1.7	1.5	1.4	2.7	S	1.8	2.1	1.9	2.4	3.0	5.1	5.8	4.0	5.7	5.7	8.5	8.5	2.8	24	
11	10.3	8.6	6.6	7.3	7.0	7.3	13.4	7.3	7.7	7.1	7.3	S	9.6	10.8	10.5	10.3	14.1	16.7	15.9	10.9	8.7	7.0	8.5	13.1	16.7	9.8	24	
12	16.1	19.7	14.3	8.0	3.1	2.1	2.1	2.3	3.0	3.3	S	1.8	2.2	2.6	2.7	3.2	2.8	3.7	4.2	3.3	2.2	1.9	1.8	1.6	19.7	4.7	24	
13	1.7	1.9	2.0	1.7	1.4	1.6	2.3	3.1	2.9	S	3.4	3.0	3.2	2.4	3.6	3.0	3.2	3.1	3.0	3.8	6.0	4.6	5.6	6.2	6.2	3.2	24	
14	5.9	4.6	3.8	3.5	4.4	5.1	12.1	13.4	S	8.6	8.2	8.5	7.6	5.6	6.2	6.0	6.3	6.7	6.5	5.6	5.6	5.0	4.7	13.4	6.5	24		
15	4.3	3.8	4.2	5.0	5.8	6.7	7.7	S	9.3	5.1	2.6	2.4	2.0	1.5	1.3	1.8	1.1	1.3	1.3	1.3	1.5	1.3	1.5	9.3	3.2	24		
16	1.3	1.7	1.6	1.6	1.4	1.4	S	1.5	2.0	1.9	1.7	1.8	1.5	1.8	1.4	2.6	1.5	1.6	2.2	2.1	1.6	1.9	2.3	3.8	3.8	1.8	24	
17	3.4	3.5	3.8	4.6	6.7	S	6.1	8.7	9.2	9.6	8.5	8.8	8.6	8.2	8.0	10.9	18.2	8.4	10.7	13.4	12.5	4.7	4.2	3.9	18.2	8.0	24	
18	2.5	3.6	4.8	5.6	S	4.9	4.2	3.1	3.2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.3	2.6	5.6	3.7	24
19	2.6	2.9	3.0	S	2.8	3.4	3.3	5.2	7.1	6.9	5.4	6.4	9.7	8.1	12.8	17.2	19.0	20.0	25.3	24.2	15.2	13.5	14.5	6.7	25.3	10.2	24	
20	14.9	17.8	S	4.2	5.2	6.6	10.6	12.1	13.0	11.3	8.5	8.0	7.7	8.4	13.9	19.4	19.2	11.9	9.5	8.5	5.9	5.0	4.9	4.1	19.4	10.0	24	
21	4.5	S	4.7	5.0	5.3	5.2	5.6	5.4	6.8	6.7	4.9	4.5	4.3	4.3	5.0	5.1	6.2	4.9	5.1	5.2	5.2	5.1	5.4	5.2	6.8	5.2	24	
22	S	4.4	3.9	4.0	3.4	3.6	3.3	2.6	2.8	3.9	3.4	3.4	4.1	3.3	3.3	4.3	4.6	4.1	3.5	4.1	4.2	4.6	5.7	S	5.7	3.8	24	
23	7.6	8.5	9.0	5.1	4.0	3.8	3.6	3.7	3.5	4.1	4.0	4.7	4.2	11.4	7.0	11.4	13.1	12.3	6.5	4.1	1.8	2.0	S	0.8	13.1	5.9	24	
24	1.1	1.3	1.4	1.6	1.4	1.2	1.1	1.5	1.4	1.5	1.5	1.5	1.3	1.4	1.5	1.2	1.2	1.2	1.0	1.0	1.3	S	1.5	1.2	1.6	1.3	24	
25	1.2	1.3	1.4	1.2	1.3	1.4	1.4	1.6	2.5	2.2	2.0	2.2	3.5	3.0	4.3	4.9	5.0	5.0	4.1	2.0	S	2.3	2.1	2.4	5.0	2.5	24	
26	1.8	2.3	5.3	6.5	6.6	6.2	8.1	8.4	7.6	8.0	7.9	5.6	6.1	15.1	6.9	6.4	5.5	5.5	5.6	S	1.6	1.4	1.5	1.1	15.1	5.7	24	
27	5.1	5.9	8.9	7.3	3.7	2.6	3.1	4.0	3.4	2.9	1.9	1.2	1.0	1.3	1.3	2.6	2.3	2.0	S	2.0	2.3	1.5	1.0	1.2	8.9	3.0	24	
28	1.7	1.5	1.6	1.5	2.2	3.4	3.6	3.8	3.5	3.8	3.6	2.4	3.4	2.6	2.6	2.6	3.4	S	3.1	3.8	3.5	5.0	4.6	5.3	5.3	3.2	24	
29	5.4	6.0	6.7	6.6	4.9	5.9	5.0	5.3	9.9	10.1	8.7	8.2	8.4	9.8	8.2	9.0	S	7.2	6.8	6.1	6.1	6.8	6.4	4.7	10.1	7.1	24	
30	4.2	4.8	4.6	4.0	3.7	3.7	3.1	2.6	2.3	2.3	1.7	4.8	3.0	4.5	1.7	S	2.1	5.1	5.8	8.5	11.7	10.6	10.1	9.7	11.7	5.0	24	
31	9.7	8.8	8.7	5.0	4.5	4.0	3.4	3.7	3.9	3.9	3.9	4.1	3.5	3.4	S	5.0	6.3	5.7	7.4	5.1	6.1	7.9	7.7	7.9	9.7	5.6	24	
HOURLY MAX	16.1	19.7	20.9	18.2	16.2	17.3	17.3	15.9	14.6	13.1	10.9	9.6	9.7	15.1	14.6	19.4	20.3	20.0	25.3	24.2	15.2	13.5	14.5	13.1				
HOURLY AVG	5.0	5.5	5.2	4.7	4.2	4.4	5.1	4.9	5.1	5.4	4.3	4.1	4.4	5.0	5.3	5.7	6.6	6.1	6.0	5.8	4.8	4.6	4.5	4.3				

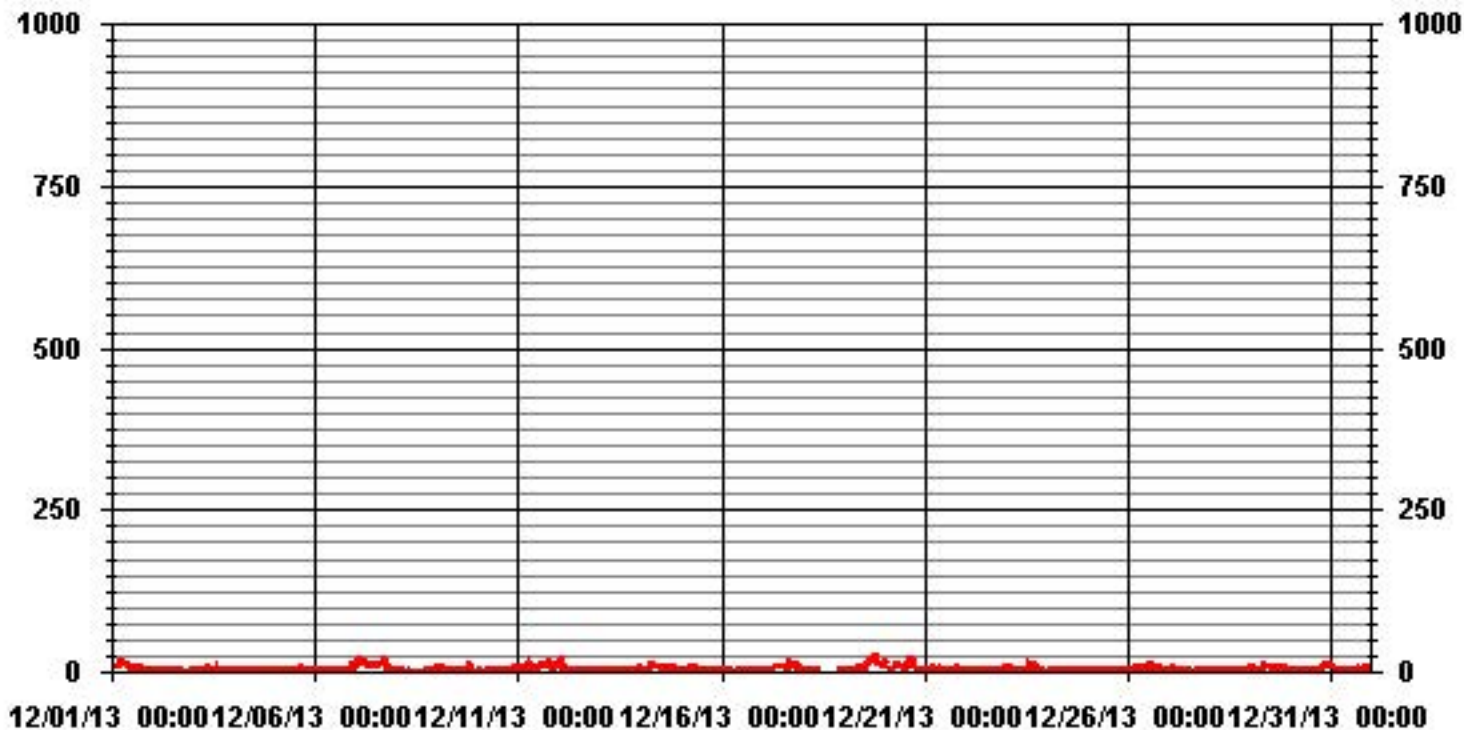
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	25.3	PPB	@ HOUR(S)	18	ON DAY(S)	19
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	4.04					

01 Hour Averages



— LICA31 NO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 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	3.63	1.81	1.98	5.45	9.25	6.44	4.62	1.48	4.79	6.94	10.90	5.45	7.60	8.76	9.91	10.90	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	3.63	1.81	1.98	5.45	9.25	6.44	4.62	1.48	4.79	6.94	10.90	5.45	7.60	8.76	9.91	10.90	

Calm : .00 %

Total # Operational Hours : 605

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	11	12	33	56	39	28	9	29	42	66	33	46	53	60	66	605
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	22	11	12	33	56	39	28	9	29	42	66	33	46	53	60	66	

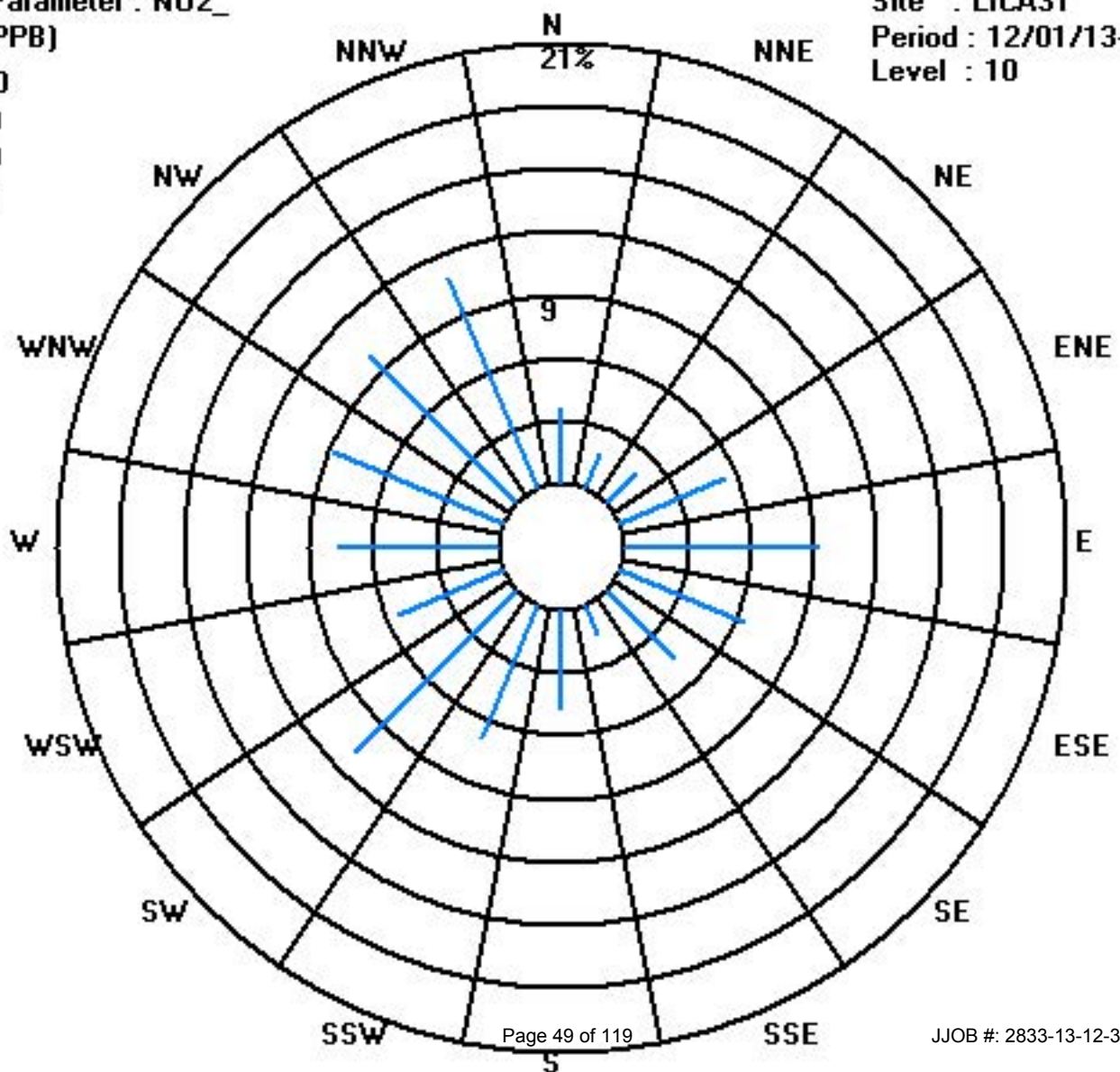
Calm : .00 %

Total # Operational Hours : 605

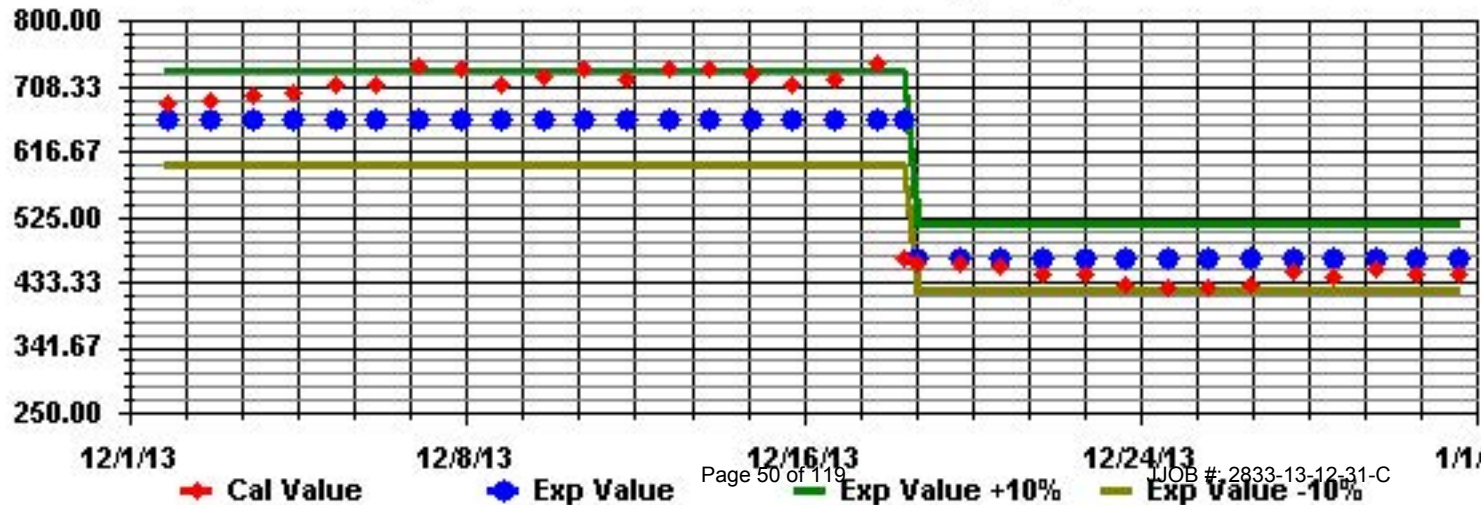
Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - ST. LINA

DECEMBER 2013

NITRIC OXIDE hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	0.7	0.5	0.2	0.2	0	0.1	0.4	0.3	0.7	1.7	2.7	2.3	1.2	0.9	1.5	0.3	0.3	0.2	0	0.3	0	S	1.2	0.7	2.7	0.7	24	
2	0.8	0.7	0.5	0.7	0.4	0.8	0.4	0.9	0.8	1	1.1	1	1.1	0.7	0.6	0.9	0.9	0.8	0.8	0.5	S	1.2	0.6	0.3	1.2	0.8	24	
3	0.4	0.3	0.4	0.6	0.1	0.1	0.1	0.2	0.2	0.6	0.2	0.2	0.3	0.1	0.1	0.5	0.1	0.1	0	S	1.3	0.8	0.5	0.6	1.3	0.3	24	
4	0.4	0.1	0	0.2	0.4	0.1	0	0.3	0	0.3	0.1	0.5	0.5	0.5	0.1	0.7	0.2	0.1	S	1	0.2	0.1	0	0	1	0.3	24	
5	0	0	0	0	0	0	0	0	0	0.1	0.7	1.1	1.2	1.3	1.2	0.9	0	S	1.2	0.5	0.6	0.5	0	0.2	1.3	0.4	24	
6	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	S	1.2	0.4	0.3	0	0.6	0.4	0.4	1.2	0.2	24	
7	1.3	0.9	1.7	1.2	1.4	1.4	0.9	1.1	1.7	4.7	5.6	4.9	4.3	4.7	3.7	S	2.5	1.5	1	0.8	0.3	0.2	0.1	0.1	5.6	2.0	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1.4	0.5	0.5	0.7	0.3	0	0.3	0.2	0.1	1.4	0.2	24	
9	0.3	0.2	0.3	0	0	0.1	0	0.1	0	0	0	0	0	S	1.5	0.9	0.7	0.1	0.3	0.4	0.3	0	0	0	1.5	0.2	24	
10	0	0.2	0.2	0.4	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.5	S	1.2	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0	0.2	0.3	1.2	0.3	24	
11	0.3	0.5	0.7	0.3	0.6	0.2	0.6	0.1	0.3	0.9	1.7	S	4.7	5.4	3.5	1.7	1.1	0.9	1.3	0.8	0.8	0.8	0.9	1.2	5.4	1.3	24	
12	1.3	1.5	1.4	1.3	0.4	0.4	0.7	0.7	0.6	0.9	S	1.5	1	1.1	0.8	0.5	0.2	0.3	0	0	0	0	0	0	1.5	0.6	24	
13	0	0	0	0	0	0	0	0	0	S	1	0.4	0.1	0.3	0	0	0	0	0	0	0.1	0	0	0	1	0.1	24	
14	0	0	0	0	0	0	0	0	S	1.8	2.4	3.4	2	1.4	0.9	0.3	0.3	0	0	0	0.2	0.3	0.1	0	3.4	0.6	24	
15	0	0	0	0	0	0	0	S	0.4	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.0	24
16	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	0	0.1	0.0	24
17	0	0	0	0	0	S	0.6	0.1	0	0.5	0.6	1.1	1.8	0.3	0.6	0.3	0	0	0	0	0	0	0	0	1.8	0.3	24	
18	0	0	0	0	S	0.5	0.5	0.2	0.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	0.3	0	0.5	0.2	24
19	0.5	0.2	0	S	0.4	0.2	0.3	0.2	0.5	1.3	2.9	3.4	4	3.7	4.9	3.4	0.8	0.8	0.7	1.2	0.8	0.4	0.2	0	4.9	1.3	24	
20	0.2	0.2	S	0.6	0.3	0.2	0.5	0.3	0.6	2.3	2.8	3.5	4.2	3.8	3.8	4.4	1.1	0.5	0.2	0.5	0.4	0	0.3	0.2	4.4	1.3	24	
21	0.2	S	0.4	0.6	0.2	0.3	0.3	0.5	0.6	1	1.4	1.9	1.6	1.7	1.3	0.9	0.4	0.3	0.1	0.2	0.4	0.2	0.4	0.3	1.9	0.7	24	
22	S	0.7	0.7	0.5	0.6	0.1	0.5	0.4	0.5	0.7	1.3	2	1.8	1.7	1.3	0.9	0.4	0.4	0.6	0.2	0.4	0.4	0.3	S	2	0.7	24	
23	0.3	0.1	0	0.2	0	0	0.1	0.1	0	0.2	0.3	0.9	1	1.1	1.4	1	0.2	0.1	0	0	0	0	S	0.6	1.4	0.3	24	
24	0.2	0.3	0	0	0	0	0.1	0.1	0	0.1	0.2	0	0	0	0.2	0	0	0	0	0	0	S	0.4	0.4	0.4	0.1	24	
25	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0	0.2	0.3	0.3	0.5	0.5	0.5	0.3	0.2	0.1	0.1	S	0.5	0.2	0	0.5	0.2	0	0.5	0.2	24
26	0.2	0.1	0.2	0.2	0.5	0.3	0.3	0.6	0.4	1	1	0.8	1.1	1.2	0.6	0.3	0	0	S	0.8	0.2	0.2	0.2	0.2	1.2	0.4	24	
27	0	0.7	1.1	0.9	0.6	0.3	0.4	0.6	0.7	0.8	0.7	1	0.8	0.8	0.7	0.5	0.7	0.8	S	1.2	0.3	0	0	0	1.2	0.6	24	
28	0.2	0.3	0.4	0.2	0.3	0	0.4	0.2	0.2	0.7	1	0.8	1.2	1.1	0.7	0.3	0.3	S	0.9	0	0.1	0.2	0.3	0.1	1.2	0.4	24	
29	0.3	0.5	0.3	0	0.3	0.3	0.1	0.2	0.4	1.2	3	3.3	3.8	4.2	2.4	1.8	S	1.1	0.5	0.2	0.5	0.3	0.1	0	4.2	1.1	24	
30	0	0	0.1	0.1	0	0	0	0.2	0.1	0.3	0.7	1.2	0.7	0.8	0.3	S	1.4	0.7	0.8	1.1	0.8	1.1	0.7	0.7	1.4	0.5	24	
31	1.1	0.8	0.7	0.3	0.6	0.3	0.3	0.3	0.5	0.7	1.4	1.4	2	1.6	S	1.9	1.1	0.3	0.3	0.5	0.1	0.6	0.4	0.5	2	0.8	24	
HOURLY MAX	1.3	1.5	1.7	1.3	1.4	1.4	0.9	1.1	1.7	4.7	5.6	4.9	4.7	5.4	4.9	4.4	2.5	1.5	1.3	1.2	1.3	1.2	1.2	1.2				
HOURLY AVG	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.8	1.2	1.3	1.4	1.4	1.2	0.9	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2				

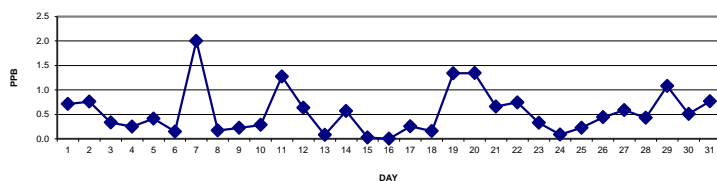
STATUS FLAG CODES

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

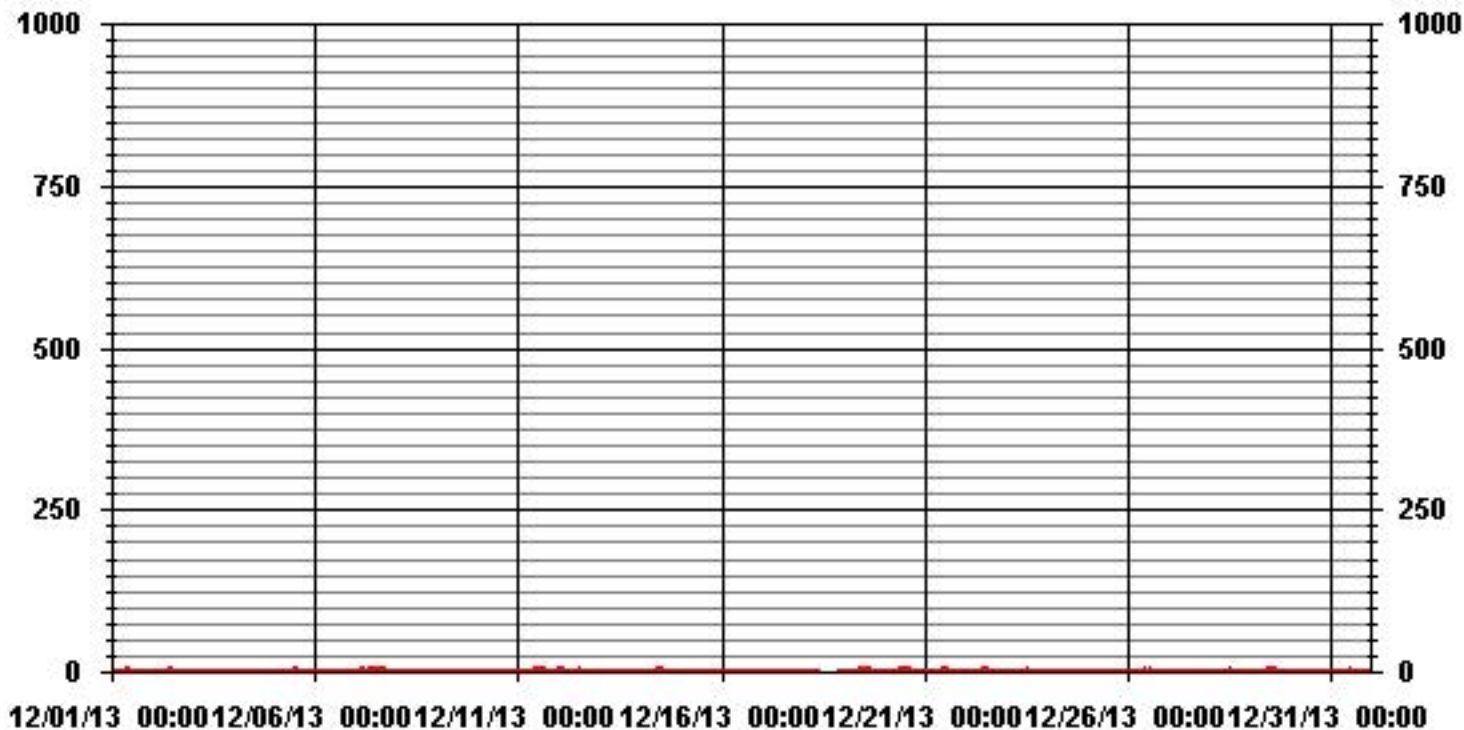
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	494					
MAXIMUM 1-HR AVERAGE:	5.6	PPB	@ HOUR(S)	10	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.84		MONTHLY AVERAGE:	0.55	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
DAY																													
1	1.5	1.7	1.0	1.1	0.7	1.2	1.1	1.2	1.9	2.6	3.7	3.6	2.0	1.8	2.2	1.8	1.0	1.1	1.1	1.3	0.7	S	2.7	1.7	3.7	1.7	24		
2	2.0	1.3	1.2	1.6	1.1	1.5	1.5	1.7	1.8	1.8	1.8	1.7	2.1	1.8	1.7	1.5	1.7	1.7	1.6	1.1	S	2.7	1.3	1.0	2.7	1.6	24		
3	1.5	1.0	1.3	1.4	1.1	1.1	0.8	1.3	1.0	29.4	1.0	1.0	1.3	1.2	5.2	1.5	0.9	2.1	1.2	S	2.5	1.9	1.3	1.7	29.4	2.7	24		
4	1.0	0.8	0.8	0.9	1.1	0.8	0.8	1.3	0.7	1.2	1.6	1.8	1.7	1.5	1.2	4.4	1.4	0.9	S	2.0	1.3	1.5	0.6	0.5	4.4	1.3	24		
5	0.6	0.8	0.8	0.3	0.7	0.7	1.1	1.7	0.8	0.7	1.5	2.0	2.0	3.5	2.5	1.8	0.9	S	2.9	1.1	1.5	1.4	1.1	1.1	3.5	1.4	24		
6	0.8	0.8	0.6	0.8	0.8	0.8	0.8	1.0	0.7	1.0	1.2	2.1	2.0	0.9	0.5	0.6	S	2.2	1.4	1.3	0.7	3.7	2.0	1.2	3.7	1.2	24		
7	37.9	2.1	2.3	2.0	2.5	2.3	2.2	2.1	3.6	5.8	6.7	5.6	5.3	5.6	5.0	S	4.7	2.4	1.8	1.8	1.2	1.0	1.0	1.0	37.9	4.6	24		
8	0.7	0.6	1.0	0.6	0.5	0.4	0.8	0.2	0.8	0.6	1.0	0.8	0.5	0.7	S	2.8	1.6	1.8	2.4	1.3	0.5	1.0	1.0	0.9	2.8	1.0	24		
9	1.3	1.0	1.2	0.7	0.9	0.7	0.7	1.3	0.5	0.6	1.3	0.4	1.0	S	2.7	1.9	1.6	0.7	1.3	20.0	1.1	1.0	0.5	0.7	20.0	1.9	24		
10	1.3	1.1	1.1	1.4	1.3	1.2	1.7	1.2	1.6	1.1	1.5	1.8	S	3.1	1.5	1.4	1.2	1.3	1.2	1.3	1.1	1.3	0.9	0.9	3.1	1.4	24		
11	1.1	1.5	1.6	1.2	1.5	1.4	18.7	1.0	1.2	2.4	2.8	S	5.8	6.4	4.8	3.8	2.1	1.6	2.1	1.6	1.7	1.7	1.9	2.8	18.7	3.1	24		
12	2.3	2.3	2.5	2.0	1.8	1.1	1.6	1.5	1.7	1.6	S	2.7	2.0	1.7	1.7	1.8	1.3	1.3	0.8	0.7	1.2	0.8	0.8	0.6	2.7	1.6	24		
13	0.3	0.8	0.6	0.9	0.6	0.9	0.4	0.6	0.6	S	2.1	1.4	1.1	1.3	1.0	1.3	0.2	0.4	0.4	0.4	0.8	0.7	0.5	0.3	2.1	0.8	24		
14	0.0	0.5	0.0	0.1	0.2	0.0	0.1	0.4	S	2.6	4.6	4.6	2.9	2.4	1.8	1.2	1.3	0.6	0.7	0.9	0.9	1.2	1.0	0.8	4.6	1.3	24		
15	0.5	0.8	0.6	0.8	1.3	0.4	0.5	S	1.6	1.4	0.6	1.2	0.5	1.1	0.7	0.4	0.5	0.3	0.3	0.6	0.6	0.3	0.8	0.3	1.6	0.7	24		
16	0.7	0.3	0.3	0.4	0.3	0.7	S	1.8	0.6	0.9	0.7	1.1	0.5	0.3	0.7	8.4	1.2	0.6	0.7	1.1	0.8	0.6	0.6	0.9	8.4	1.1	24		
17	0.7	1.1	0.9	0.7	1.0	S	1.5	0.9	0.7	1.7	1.5	2.5	2.5	1.9	2.6	17.9	10.6	0.4	0.6	0.9	0.9	0.3	0.3	0.5	17.9	2.3	24		
18	0.7	0.7	0.6	0.7	S	1.4	1.3	1.1	0.7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.1	0.8	1.4	0.9	24
19	1.4	1.2	1.2	S	1.8	1.1	1.5	1.6	1.6	2.4	3.7	4.2	14.2	4.6	6.4	5.1	1.8	2.1	2.0	3.5	3.7	1.4	1.1	0.8	14.2	3.0	24		
20	1.1	1.1	S	1.4	1.1	1.1	1.7	1.2	1.4	3.7	4.1	4.5	5.1	5.0	5.4	5.2	3.3	1.1	0.9	1.1	1.2	0.9	1.2	1.0	5.4	2.3	24		
21	1.0	S	1.3	1.6	1.0	1.5	1.3	1.3	1.3	2.1	2.4	3.1	2.5	3.7	2.0	2.1	1.8	1.3	0.7	1.2	1.4	0.7	2.0	1.0	3.7	1.7	24		
22	S	1.4	1.4	1.5	1.4	1.1	1.3	1.4	1.2	1.6	2.7	3.2	3.9	2.6	2.4	2.2	1.2	1.5	1.3	1.3	1.3	1.0	1.4	S	3.9	1.7	24		
23	1.3	0.9	0.9	0.8	1.1	0.6	0.9	0.8	0.5	1.0	1.3	2.1	1.8	8.9	2.9	2.1	1.4	1.0	0.9	0.0	0.3	0.0	S	1.9	8.9	1.5	24		
24	1.1	1.0	0.7	0.8	0.7	0.7	1.2	1.0	0.4	1.2	0.9	1.0	0.7	0.6	1.2	0.6	0.8	0.9	0.6	0.6	0.6	S	1.5	1.5	1.5	0.9	24		
25	1.1	0.7	1.3	1.3	0.9	1.1	0.9	0.8	1.0	1.1	1.3	1.4	1.3	1.3	1.2	1.5	1.2	1.1	1.0	0.9	S	1.7	1.0	0.9	1.7	1.1	24		
26	1.4	0.8	1.0	1.0	1.3	1.1	1.0	2.3	1.9	1.6	1.7	1.7	1.8	6.3	1.6	1.4	0.7	0.6	0.8	S	2.4	1.0	1.0	0.8	6.3	1.5	24		
27	0.9	1.6	2.0	1.6	1.4	1.0	1.3	1.8	1.7	1.6	1.6	1.7	1.9	1.7	1.7	1.4	1.6	1.7	S	2.1	1.0	0.8	0.8	0.7	2.1	1.5	24		
28	1.0	1.4	1.0	1.2	1.4	0.6	1.0	0.9	1.2	1.7	3.7	1.5	3.4	2.2	2.3	1.1	1.3	S	1.8	0.6	0.9	0.9	1.2	1.1	3.7	1.5	24		
29	1.0	1.4	1.1	0.7	1.0	1.4	1.2	1.1	1.3	3.1	3.9	4.5	4.9	5.3	3.8	3.1	S	2.4	1.5	1.0	1.4	1.0	1.0	0.3	5.3	2.1	24		
30	1.0	0.8	1.1	1.0	0.8	0.5	0.6	1.0	0.8	1.2	1.4	5.2	1.6	3.2	1.4	S	2.2	1.4	1.6	1.9	1.9	1.9	1.6	1.8	5.2	1.6	24		
31	1.9	1.6	1.6	1.1	1.3	1.1	1.1	1.6	1.2	1.6	2.3	2.2	3.2	2.5	S	3.3	2.1	1.2	1.1	1.3	1.1	1.3	1.1	1.2	3.3	1.7	24		
HOURLY MAX	37.9	2.3	2.5	2.0	2.5	2.3	18.7	2.3	3.6	29.4	6.7	5.6	14.2	8.9	6.4	17.9	10.6	2.4	2.9	20.0	3.7	3.7	2.7	2.8					
HOURLY AVG	2.3	1.1	1.1	1.1	1.1	1.0	1.7	1.2	1.2	2.7	2.2	2.4	2.7	2.9	2.4	2.9	1.8	1.3	1.2	1.9	1.2	1.2	1.1	1.0					

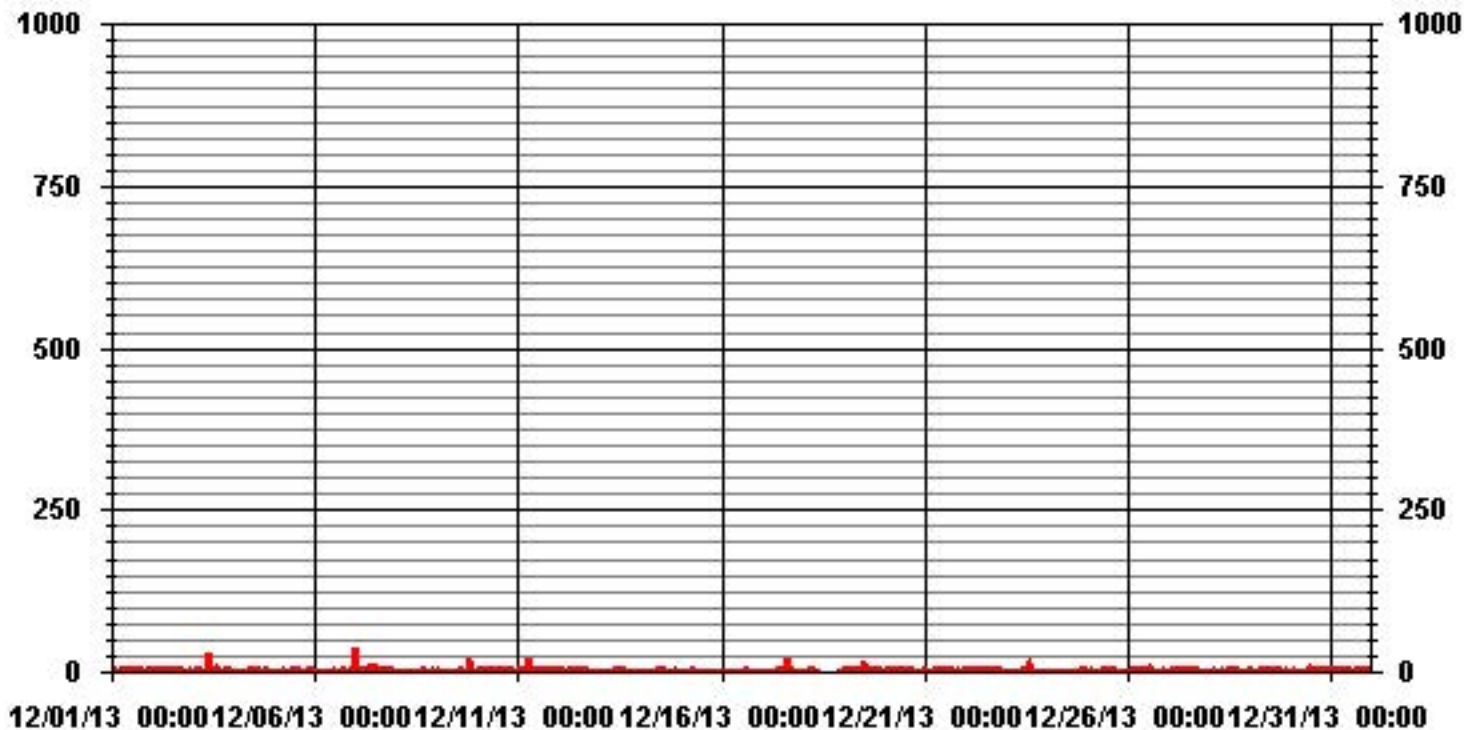
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	694					
MAXIMUM INSTANTANEOUS VALUE:	37.9	PPB	@ HOUR(S)	0	ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	2.42					

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	3.63	1.81	1.98	5.44	9.24	6.43	4.62	1.48	4.78	7.09	10.89	5.44	7.59	8.74	9.90	10.89	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	3.63	1.81	1.98	5.44	9.24	6.43	4.62	1.48	4.78	7.09	10.89	5.44	7.59	8.74	9.90	10.89	

Calm : .00 %

Total # Operational Hours : 606

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	11	12	33	56	39	28	9	29	43	66	33	46	53	60	66	606
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	22	11	12	33	56	39	28	9	29	43	66	33	46	53	60	66	

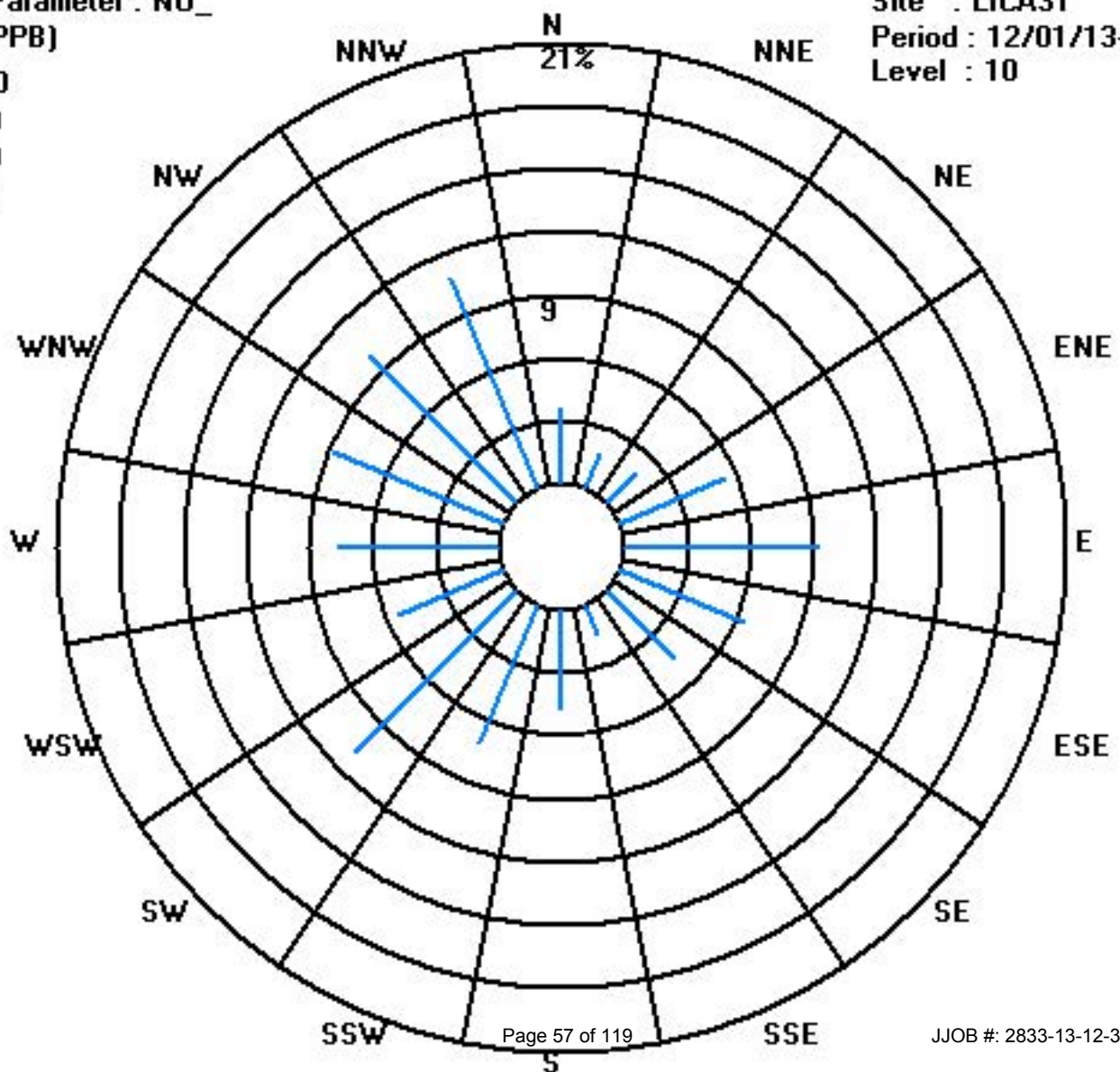
Calm : .00 %

Total # Operational Hours : 606

Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	8.3	8.3	8.0	8.2	8.7	11.4	16.4	14.6	12.9	12.9	12.1	10.4	7.2	6.5	9.2	7.1	6.5	5.1	4.5	3.4	2.2	S	2.7	2.2	16.4	8.2	24	
2	3.2	2.8	2.4	2.3	1.7	2.8	2.3	2.6	2.5	1.9	1.6	1.5	1.2	1.3	1.1	2.7	2.2	1.3	0.9	0.5	S	1.3	1.3	2.9	3.2	1.9	24	
3	3.2	3.2	3.5	2.6	0.9	0.7	0.5	0.7	0.9	1.3	0.6	0.7	0.7	0.6	0.7	1.2	0.9	1.1	1.0	S	2.2	1.8	1.6	1.7	3.5	1.4	24	
4	1.2	1.1	0.8	1.1	0.9	0.7	1.1	1.6	1.0	1.2	1.1	1.5	1.6	1.3	1.6	2.9	3.2	2.6	S	1.8	1.5	1.9	1.7	2.6	3.2	1.6	24	
5	2.9	2.5	2.2	1.6	2.0	1.7	2.2	2.6	3.0	3.7	3.7	3.9	4.0	4.9	5.7	6.0	5.1	S	3.9	3.5	3.9	3.4	2.3	2.8	6.0	3.4	24	
6	2.4	1.7	1.3	1.2	1.4	1.7	1.7	1.7	2.1	2.1	1.8	2.0	1.4	1.1	1.0	1.3	S	1.7	2.0	4.0	3.5	9.2	9.5	6.7	9.5	2.7	24	
7	7.7	13.1	21.0	16.8	15.7	17.3	13.2	11.9	15.0	15.6	14.3	13.2	13.0	13.9	15.5	S	21.4	18.2	11.0	6.3	3.7	2.7	2.5	2.3	21.4	12.4	24	
8	2.4	1.6	1.6	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	1.4	0.9	1.1	2.3	2.1	2.5	3.4	4.2	4.9	4.9	1.3	24	
9	4.9	5.2	5.7	5.7	6.1	2.8	0.6	0.9	0.5	0.6	0.8	0.4	0.6	S	1.5	0.9	0.9	0.4	0.4	0.6	0.8	0.2	0.0	0.0	6.1	1.8	24	
10	0.0	1.0	1.6	1.5	0.3	0.3	0.6	0.4	0.7	0.5	0.5	0.8	S	1.4	0.7	0.4	1.2	2.0	4.3	4.3	3.7	4.2	5.2	6.9	6.9	1.8	24	
11	9.3	7.3	6.2	6.6	6.8	6.8	7.3	6.8	6.8	6.8	7.8	S	11.9	15.0	12.9	10.8	12.5	16.1	14.3	9.4	7.4	7.0	8.3	10.8	16.1	9.3	24	
12	14.7	18.6	11.8	5.1	2.3	1.5	2.0	2.1	2.6	3.3	S	1.9	2.1	2.6	2.7	2.6	2.1	2.6	2.8	1.8	1.0	0.7	0.3	0.4	18.6	3.8	24	
13	0.2	0.5	0.7	0.4	0.2	0.7	0.9	1.8	1.7	S	3.4	2.5	2.5	2.2	2.5	2.1	1.7	1.7	1.6	1.9	4.5	2.8	3.5	4.0	4.5	1.9	24	
14	3.4	3.0	2.1	1.9	2.8	2.6	7.3	11.6	S	9.3	9.6	10.5	8.2	6.0	5.9	5.4	5.4	5.6	5.3	4.8	4.8	4.9	4.6	4.1	11.6	5.6	24	
15	2.9	3.1	3.3	4.0	4.9	5.1	6.3	S	6.1	3.1	1.3	1.3	0.7	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.0	6.3	1.9	24	
16	0.2	0.3	0.3	0.2	0.0	0.0	S	0.7	0.6	0.7	0.2	0.5	0.3	0.4	0.4	0.5	0.7	0.4	0.4	0.7	0.5	0.9	0.9	2.2	2.2	0.5	24	
17	2.3	2.4	2.7	2.6	5.5	S	6.0	6.4	7.9	8.7	8.0	8.7	9.4	7.2	6.5	5.3	4.7	5.9	8.0	11.7	9.5	3.0	2.6	2.3	11.7	6.0	24	
18	1.4	2.0	3.1	3.4	S	4.5	3.4	2.3	2.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.8	1.8	4.5	2.6	24
19	2.1	2.1	2.0	S	2.1	2.9	2.7	3.2	6.4	7.1	7.6	8.5	9.4	10.0	14.7	17.9	18.6	19.2	23.5	18.1	12.7	9.6	7.8	5.5	23.5	9.3	24	
20	12.0	9.4	S	3.8	4.1	4.7	8.4	11.3	12.3	12.0	9.6	10.2	10.7	10.8	12.9	20.6	16.9	10.5	8.5	7.3	5.3	4.1	4.1	3.4	20.6	9.3	24	
21	3.7	S	3.9	4.5	4.5	4.4	4.7	4.9	6.3	6.2	5.1	5.1	4.8	4.7	4.6	4.8	4.8	4.5	4.2	4.3	4.4	4.3	4.5	4.7	6.3	4.7	24	
22	S	4.1	3.8	3.3	3.0	2.6	2.2	1.9	2.1	3.1	3.1	4.3	3.9	3.8	3.6	4.1	4.1	3.3	3.3	3.3	3.7	3.8	5.1	S	5.1	3.4	24	
23	6.8	7.7	6.7	4.2	3.1	2.7	3.0	3.0	2.7	3.5	3.7	4.7	4.5	5.2	6.8	9.3	12.2	9.7	4.7	1.7	0.9	0.3	S	0.6	12.2	4.7	24	
24	0.3	0.6	0.6	0.6	0.4	0.3	0.4	0.6	0.3	0.6	0.7	0.3	0.4	0.4	0.7	0.1	0.4	0.2	0.0	0.0	0.2	S	0.6	0.6	0.7	0.4	24	
25	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.5	1.3	1.1	1.1	1.7	2.7	2.2	3.1	4.4	4.3	4.1	2.7	0.8	S	1.8	1.5	1.2	4.4	1.7	24	
26	1.2	1.4	3.3	5.6	6.0	5.6	6.7	7.8	6.9	7.7	7.4	5.5	5.9	6.2	6.3	5.6	4.7	4.4	4.0	S	1.5	0.7	0.6	0.6	7.8	4.6	24	
27	2.2	5.1	8.1	5.2	1.8	1.8	2.0	2.8	2.9	2.1	1.1	1.1	0.8	1.1	0.9	1.7	1.9	1.8	S	2.1	1.4	0.4	0.2	0.3	8.1	2.1	24	
28	0.7	0.9	1.0	0.6	1.3	2.3	3.0	2.6	2.5	2.9	2.9	2.2	2.7	2.3	1.9	1.9	2.1	S	3.2	2.8	2.9	3.7	4.1	4.3	4.3	2.4	24	
29	4.8	5.6	5.8	3.9	3.7	5.1	4.2	4.7	7.0	9.2	10.9	10.3	10.9	12.7	9.5	9.4	S	6.2	5.3	5.3	5.7	6.2	5.4	3.3	12.7	6.7	24	
30	2.9	4.1	3.9	3.5	2.9	2.6	2.0	1.9	1.7	1.9	1.8	3.0	2.1	2.9	1.3	S	2.4	3.5	5.4	7.2	10.3	10.0	9.7	9.4	10.3	4.2	24	
31	9.8	8.5	7.2	4.5	3.8	3.2	2.8	2.7	3.6	3.7	4.2	4.4	4.4	4.0	S	5.6	6.1	4.9	5.9	4.7	5.1	6.9	7.3	7.5	9.8	5.3	24	
HOURLY MAX	14.7	18.6	21.0	16.8	15.7	17.3	16.4	14.6	15.0	15.6	14.3	13.2	13.0	15.0	15.5	20.6	21.4	19.2	23.5	18.1	12.7	10.0	9.7	10.8				
HOURLY AVG	3.9	4.3	4.2	3.5	3.3	3.3	3.8	3.9	4.1	4.6	4.3	4.2	4.4	4.5	4.8	4.9	5.3	4.9	4.8	4.1	3.8	3.5	3.5	3.3				

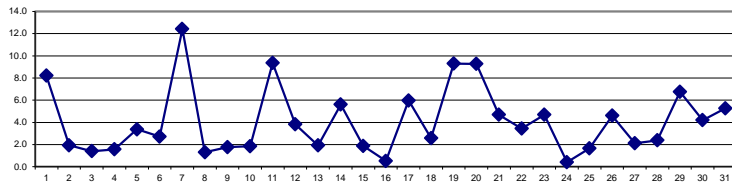
STATUS FLAG CODES

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

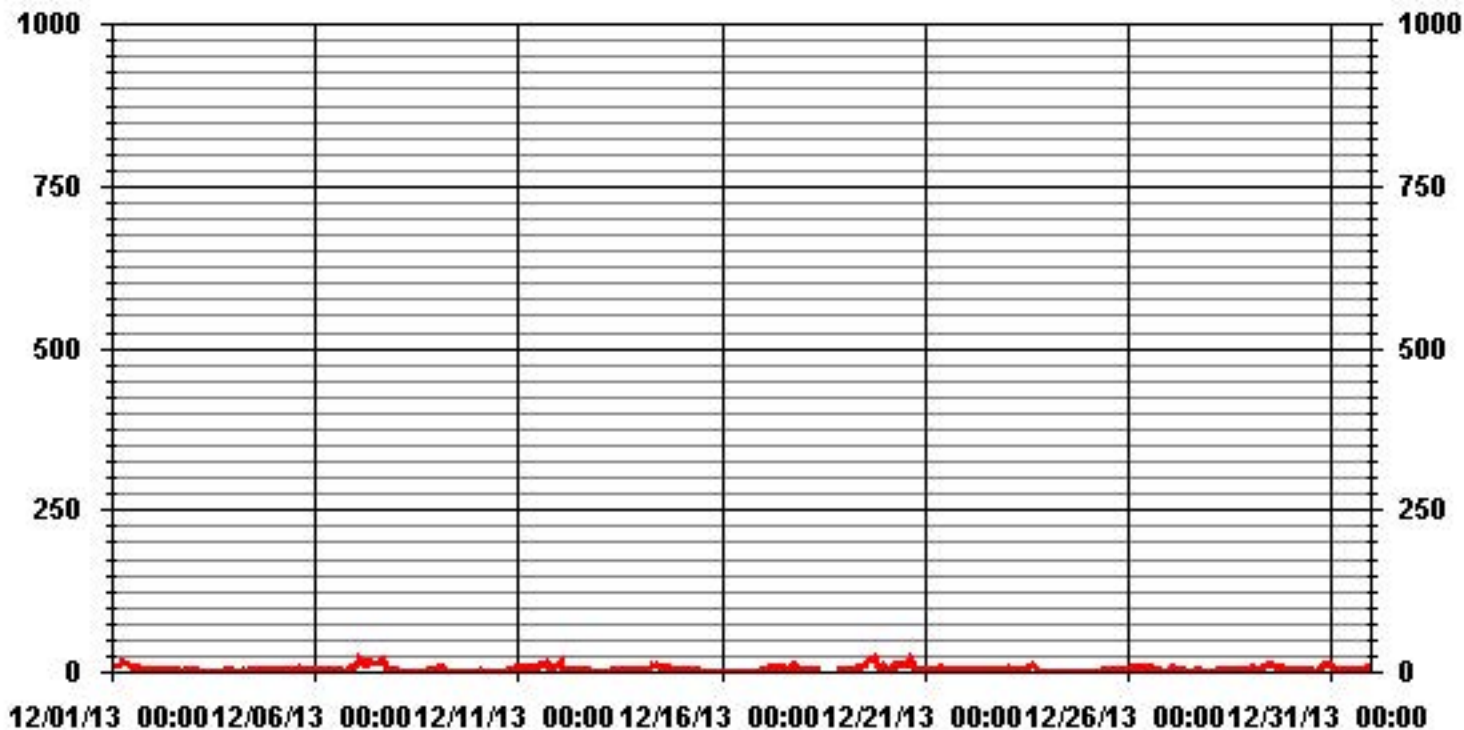
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677					
MAXIMUM 1-HR AVERAGE:	23.5	PPB	@ HOUR(S)	18	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	12.4	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.00		MONTHLY AVERAGE:	4.12	PPB	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
DAY																													
1	9.2	9.2	8.9	9.2	9.6	16.2	17.3	16.4	14.2	14.5	13.3	11.9	9.4	10.0	10.0	9.6	8.1	6.5	5.8	4.5	3.4	S	4.2	3.1	17.3	9.8	24		
2	4.3	3.6	3.1	3.4	3.0	3.8	3.5	3.8	3.4	3.1	2.4	2.6	2.3	2.1	2.2	3.9	3.9	2.6	1.8	0.8	S	2.2	1.9	4.4	4.4	3.0	24		
3	3.9	4.0	4.2	3.6	3.0	1.9	1.3	1.9	1.7	36.7	1.4	1.6	2.3	2.4	11.4	3.4	2.0	5.1	3.5	S	4.0	2.6	2.6	2.9	36.7	4.7	24		
4	2.2	1.9	1.9	1.9	1.4	1.9	3.4	2.4	2.0	2.6	3.8	3.6	4.1	2.4	4.0	7.9	5.3	3.8	S	3.2	3.0	3.2	3.1	3.6	7.9	3.2	24		
5	3.9	3.4	3.1	2.5	3.1	2.5	3.3	6.2	4.4	4.7	4.8	5.0	5.3	7.6	7.5	7.4	6.7	S	5.1	4.4	4.9	4.6	2.9	3.6	7.6	4.6	24		
6	3.3	2.7	2.0	2.1	2.6	2.6	2.6	2.8	2.9	3.2	3.2	4.6	4.4	2.7	1.6	2.2	S	2.8	3.4	5.7	4.6	15.3	12.6	8.3	15.3	4.3	24		
7	47.8	20.6	22.7	19.3	16.9	18.6	17.1	13.1	17.2	17.2	15.9	14.4	14.3	15.6	17.7	S	22.4	21.3	14.9	9.3	5.4	3.6	3.2	3.2	47.8	16.2	24		
8	3.4	2.4	2.4	2.4	1.4	1.0	0.9	0.8	1.7	0.9	0.8	0.4	0.1	0.7	S	2.2	1.9	2.1	4.8	3.4	4.9	5.0	5.3	5.7	5.7	2.4	24		
9	5.6	5.8	6.6	6.5	7.7	5.3	2.0	2.2	1.6	1.3	2.4	1.2	1.7	S	2.4	1.8	1.9	1.2	1.4	30.2	1.8	1.2	0.8	0.7	30.2	4.1	24		
10	1.3	2.2	2.5	2.7	1.0	1.1	1.5	1.2	2.7	2.0	1.8	3.5	S	4.6	2.8	2.9	3.1	3.4	5.8	6.8	4.5	6.9	6.2	8.7	8.7	3.4	24		
11	10.3	9.0	7.1	7.9	7.8	7.5	29.6	7.7	7.8	7.9	9.8	S	14.1	16.6	14.2	13.4	14.7	17.4	17.2	11.8	9.4	7.8	9.1	14.9	29.6	11.9	24		
12	17.2	21.1	15.0	9.3	4.2	2.2	2.8	3.1	3.8	4.1	S	2.9	2.7	3.7	3.7	3.7	2.9	3.9	3.9	3.0	1.9	1.6	1.4	1.1	21.1	5.2	24		
13	1.2	1.4	1.5	1.2	1.2	1.3	1.9	2.7	2.4	S	5.1	3.5	3.3	3.4	3.4	3.2	2.5	2.9	2.7	2.9	6.1	4.9	5.3	5.4	6.1	3.0	24		
14	4.7	4.2	3.1	3.0	3.9	4.6	11.7	13.3	S	10.5	11.7	12.2	9.8	7.0	6.9	6.3	6.2	6.6	6.5	5.9	5.5	5.8	5.3	5.0	13.3	6.9	24		
15	3.9	3.9	4.2	4.9	6.0	6.4	7.5	S	9.8	5.2	2.3	2.5	1.8	1.7	0.7	0.8	0.9	0.7	0.7	1.0	0.9	1.2	1.0	0.8	9.8	3.0	24		
16	0.9	1.2	1.0	0.9	0.9	1.0	S	1.9	1.7	1.4	1.0	2.0	1.0	1.7	1.5	3.0	1.9	1.5	2.3	2.2	1.7	1.7	1.7	3.5	3.5	1.6	24		
17	2.9	3.4	3.4	4.0	6.9	S	7.0	8.3	8.8	10.6	9.5	10.1	10.2	9.0	10.2	27.3	28.2	8.3	10.5	12.9	12.6	4.4	4.0	3.5	28.2	9.4	24		
18	2.3	2.9	4.4	5.3	S	5.6	4.5	3.4	3.2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.6	2.8	5.6	3.7	24
19	3.2	3.2	2.8	S	3.0	3.8	4.0	6.5	7.5	8.4	8.5	9.9	22.1	12.0	18.0	19.4	19.7	20.7	26.4	25.6	16.3	13.9	14.5	7.1	26.4	12.0	24		
20	15.3	17.5	S	4.9	5.2	6.1	10.8	12.2	13.5	13.1	11.4	11.4	11.8	11.7	18.7	23.3	22.0	12.2	9.5	8.9	6.3	5.0	5.1	4.4	23.3	11.3	24		
21	4.4	S	4.7	5.2	5.4	5.2	5.7	6.0	7.3	7.3	6.2	7.0	5.9	7.2	6.1	6.1	7.6	5.3	5.1	5.4	5.8	5.1	6.6	5.4	7.6	5.9	24		
22	S	5.1	4.5	4.4	4.3	3.7	3.2	2.7	3.2	4.1	5.4	6.1	7.4	4.7	4.9	5.2	4.9	4.7	4.1	4.2	4.7	5.0	6.3	S	7.4	4.7	24		
23	8.0	8.9	9.2	5.4	4.1	3.6	3.8	3.9	3.6	4.3	4.5	6.6	5.5	17.6	9.6	12.1	14.0	12.5	6.9	3.8	1.8	1.0	S	1.8	17.6	6.6	24		
24	1.2	1.6	1.4	1.4	1.1	0.9	1.4	1.6	1.1	1.7	1.6	1.8	1.1	1.2	1.6	0.8	1.3	1.4	0.8	0.9	1.3	S	2.1	2.0	2.1	1.4	24		
25	1.1	1.1	1.5	1.6	1.2	1.4	1.3	1.4	2.5	2.2	2.0	2.4	3.9	3.3	4.8	5.4	5.2	5.0	4.0	2.4	S	2.5	2.3	2.0	5.4	2.6	24		
26	2.1	2.1	5.2	6.7	7.0	6.5	8.2	9.6	8.7	8.8	8.9	6.5	6.8	20.5	7.7	7.1	5.7	5.7	5.3	S	3.0	1.7	1.6	1.3	20.5	6.4	24		
27	5.0	6.5	8.9	8.4	4.5	2.7	3.7	4.6	3.9	3.0	2.4	2.2	1.9	2.2	1.8	2.9	2.9	2.6	S	3.1	2.3	1.3	0.9	1.1	8.9	3.4	24		
28	2.2	1.6	2.0	1.7	2.3	3.3	3.7	3.8	3.3	5.0	6.6	3.0	5.7	3.8	3.5	2.6	4.2	S	4.3	3.8	3.6	4.8	5.1	5.1	6.6	3.7	24		
29	5.8	6.7	6.9	6.4	4.9	6.0	4.9	5.5	10.6	10.7	12.2	11.2	12.6	13.9	11.4	10.5	S	9.0	7.4	6.7	7.1	7.1	6.4	4.7	13.9	8.2	24		
30	4.6	4.8	4.8	4.4	3.6	3.7	2.8	2.9	2.5	2.9	2.5	9.8	4.2	7.3	2.3	S	3.2	6.0	6.2	9.1	12.2	11.5	10.9	10.5	12.2	5.8	24		
31	10.6	9.7	8.9	5.3	4.5	4.5	3.8	3.8	4.6	4.6	4.9	5.4	5.3	4.8	S	6.4	7.0	5.9	7.7	5.4	6.7	7.9	8.1	8.3	10.6	6.3	24		
HOURLY MAX	47.8	21.1	22.7	19.3	16.9	18.6	29.6	16.4	17.2	36.7	15.9	14.4	22.1	20.5	18.7	27.3	28.2	21.3	26.4	30.2	16.3	15.3	14.5	14.9					
HOURLY AVG	6.4	5.7	5.3	4.9	4.4	4.5	5.8	5.2	5.4	7.0	5.7	5.7	6.2	6.9	6.8	7.2	7.5	6.5	6.4	6.7	5.2	5.0	4.8	4.5					

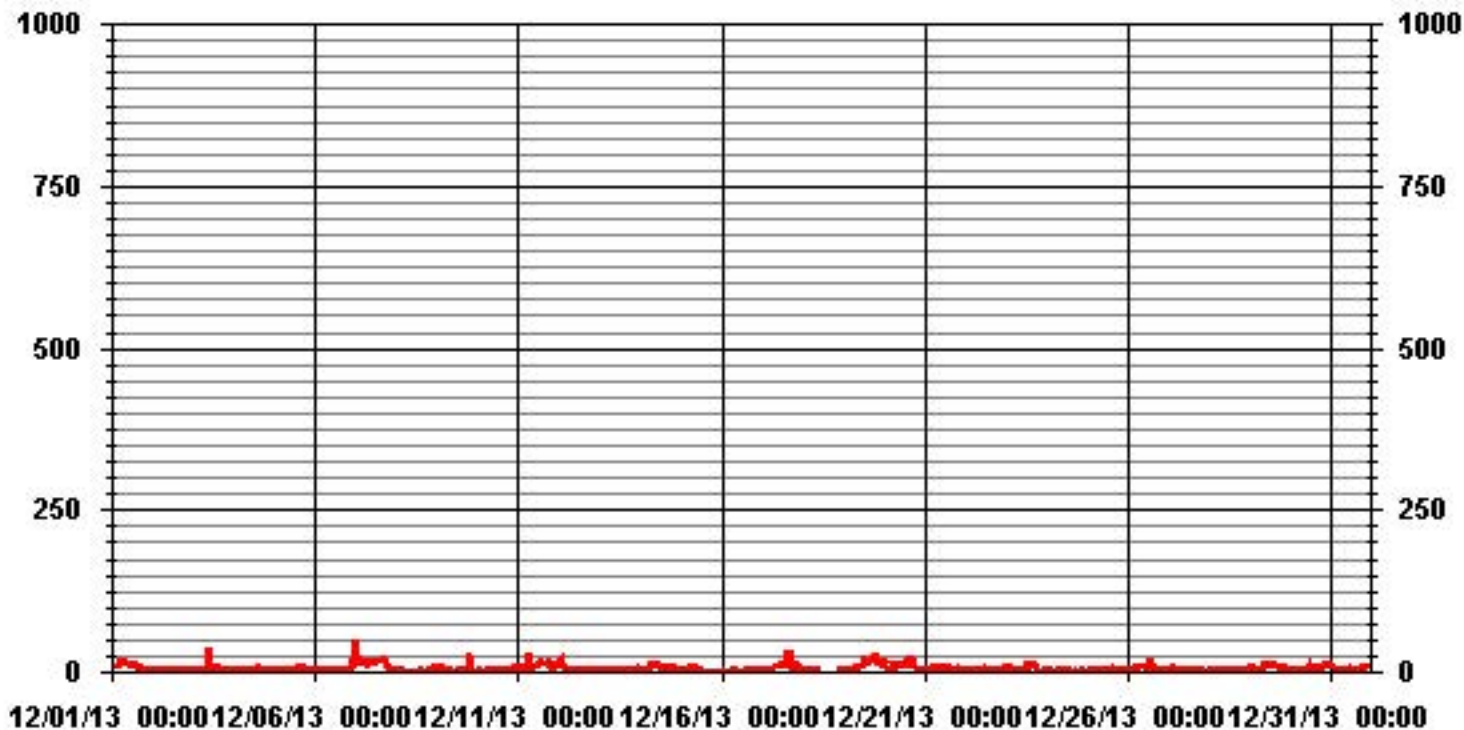
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	47.8	PPB	@ HOUR(S)	0	ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	5.24					

01 Hour Averages

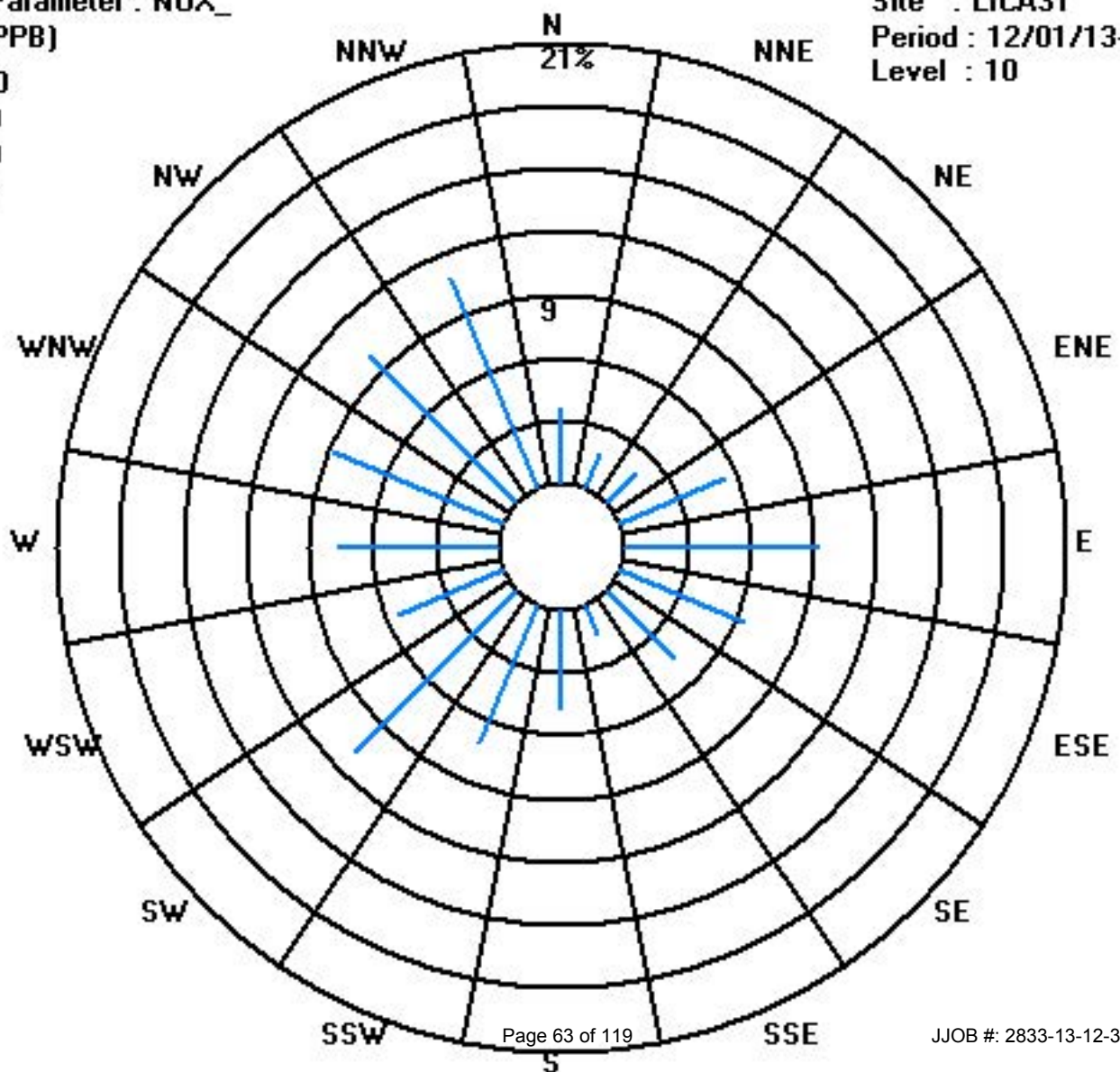


— LICA31 NOXMAX PPB

Class Limits (PPB)

Period : 12/01/13-12/31/13

Level : 10



LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 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	3.63	1.81	1.98	5.44	9.24	6.43	4.62	1.48	4.78	7.09	10.89	5.44	7.59	8.74	9.90	10.89	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	3.63	1.81	1.98	5.44	9.24	6.43	4.62	1.48	4.78	7.09	10.89	5.44	7.59	8.74	9.90	10.89	

Calm : .00 %

Total # Operational Hours : 606

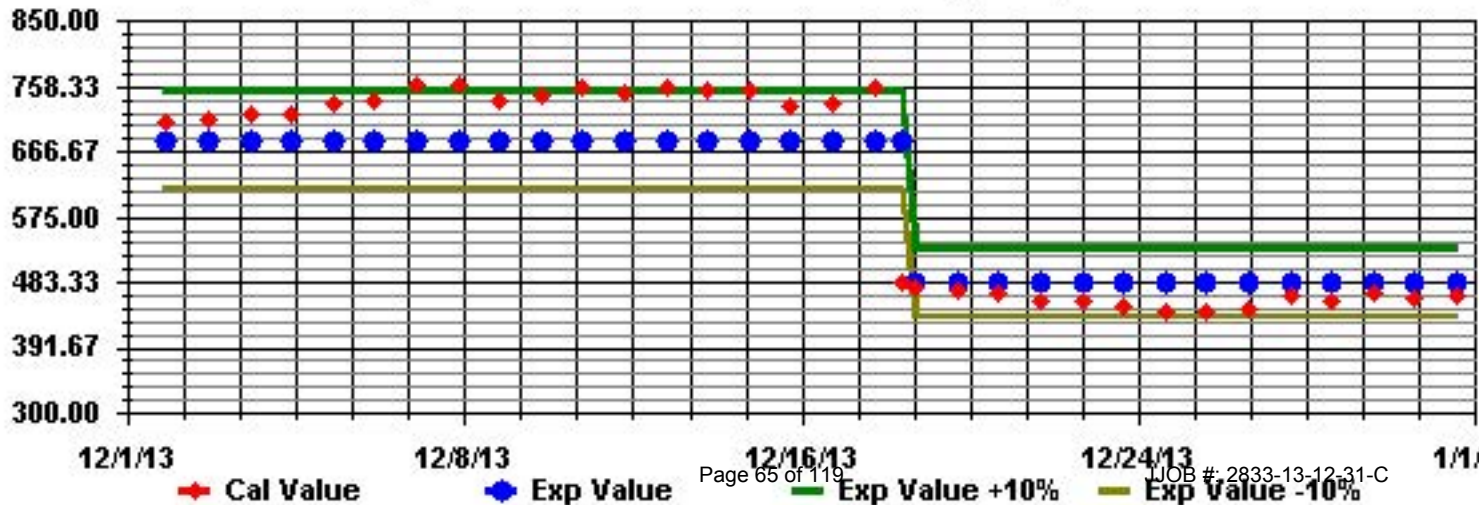
Distribution By Samples

Limit	Direction															Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW		NNW
< 50.0	22	11	12	33	56	39	28	9	29	43	66	33	46	53	60	66	606
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	22	11	12	33	56	39	28	9	29	43	66	33	46	53	60	66	

Calm : .00 %

Total # Operational Hours : 606

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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

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

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	6	5	7	8	9	7	7	6	5	6	5	4	0	1	4	7	7	7	8	8	5	7	7	6	9	5.9	24
2	6	5	4	5	4	4	5	4	4	2	3	1	2	2	3	3	2	2	3	2	3	2	2	2	6	3.1	24
3	2	1	2	2	1	0	0	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	0.8	24
4	2	2	1	1	2	2	2	3	4	3	3	2	1	1	2	4	3	3	2	2	3	2	2	3	4	2.3	24
5	4	5	5	5	5	5	5	4	5	5	3	3	2	3	4	5	4	4	3	4	3	4	3	5	5	4.1	24
6	4	3	3	3	2	2	2	2	3	3	3	3	1	2	2	3	3	3	3	5	4	7	8	8	8	3.4	24
7	8	9	13	13	10	6	4	3	4	5	5	4	4	5	6	10	12	10	6	2	2	1	2	1	13	6.0	24
8	1	2	2	2	2	1	2	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24
9	0	4	0	0	4	6	3	5	1	1	1	0	0	0	0	1	0	0	0	0	1	1	2	3	6	1.4	24
10	3	3	3	3	2	2	1	2	2	2	0	0	0	0	1	0	1	0	0	0	0	0	0	1	3	1.1	24
11	3	3	0	1	0	2	2	3	4	4	5	3	3	2	3	2	2	3	3	3	4	2	4	4	5	2.7	24
12	4	4	3	1	0	0	1	0	2	2	0	0	0	1	2	2	1	1	1	2	1	1	0	1	4	1.3	24
13	0	0	0	0	0	1	1	1	2	3	2	0	2	2	3	4	2	4	0	2	1	1	1	2	4	1.4	24
14	1	3	1	0	1	0	1	1	0	0	2	0	1	1	2	2	0	1	1	1	2	0	0	2	3	1.0	24
15	1	1	1	3	2	2	3	4	3	4	0	0	0	1	2	1	0	0	1	0	0	1	1	4	1.3	24	
16	0	1	1	1	2	0	3	3	0	0	3	0	0	0	1	1	1	0	0	0	0	0	0	3	0.7	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	9	6	5	2	4	4	9	1.4	24
18	5	5	4	3	4	6	5	2	3	3	0	3	0	0	2	3	2	2	2	5	1	1	0	0	6	2.5	24
19	0	0	2	0	0	0	0	1	3	C	C	C	4	4	4	5	6	7	8	4	4	3	4	3	8	3.0	24
20	5	6	4	3	2	4	3	5	6	4	3	3	3	3	4	7	4	3	4	4	3	5	4	2	7	3.9	24
21	3	2	3	1	2	3	4	3	2	3	1	1	1	1	3	3	5	2	3	3	3	4	4	6	6	2.8	24
22	4	6	5	3	2	2	2	1	1	3	3	1	1	1	3	4	2	2	0	2	0	0	1	1	6	2.1	24
23	3	3	1	1	0	0	2	2	0	2	4	1	3	3	4	7	7	5	2	2	1	1	0	0	7	2.3	24
24	0	1	0	0	0	0	0	0	0	1	2	1	1	3	1	1	2	0	1	0	0	0	0	0	3	0.6	24
25	0	1	0	0	0	0	0	0	0	0	0	0	0	X	0	0	2	1	1	0	1	0	0	2	0.3	23	
26	0	0	3	2	1	0	1	0	0	1	0	0	0	0	0	1	1	1	1	2	2	2	3	3	0.9	24	
27	0	2	4	4	3	2	0	0	1	0	0	0	0	0	2	3	4	5	5	3	4	5	3	5	2.1	24	
28	2	4	2	3	3	4	5	4	3	4	4	3	3	4	4	4	4	3	3	4	3	3	5	7	7	3.7	24
29	7	4	5	2	2	1	1	0	2	4	3	3	3	4	5	6	6	6	5	5	4	4	3	4	7	3.7	24
30	2	2	3	2	3	4	2	0	2	2	1	0	1	1	1	0	1	2	1	4	4	6	5	6	6	2.3	24
31	6	6	5	4	3	2	3	2	3	4	3	4	2	3	4	4	6	5	5	4	4	3	4	5	6	3.9	24
HOURLY MAX	8	9	13	13	10	7	7	6	6	6	5	4	4	5	6	10	12	10	9	8	5	7	8	8			
HOURLY AVG	2.6	3.0	2.8	2.5	2.3	2.2	2.3	2.0	2.2	2.4	2.0	1.3	1.2	1.6	2.3	3.1	2.9	2.7	2.6	2.6	2.2	2.2	2.4	2.7			

STATUS FLAG CODES

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

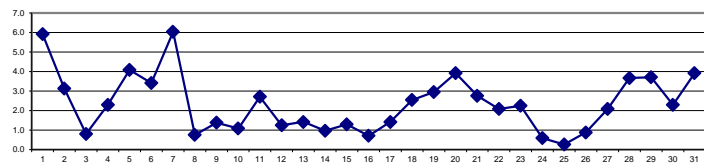
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

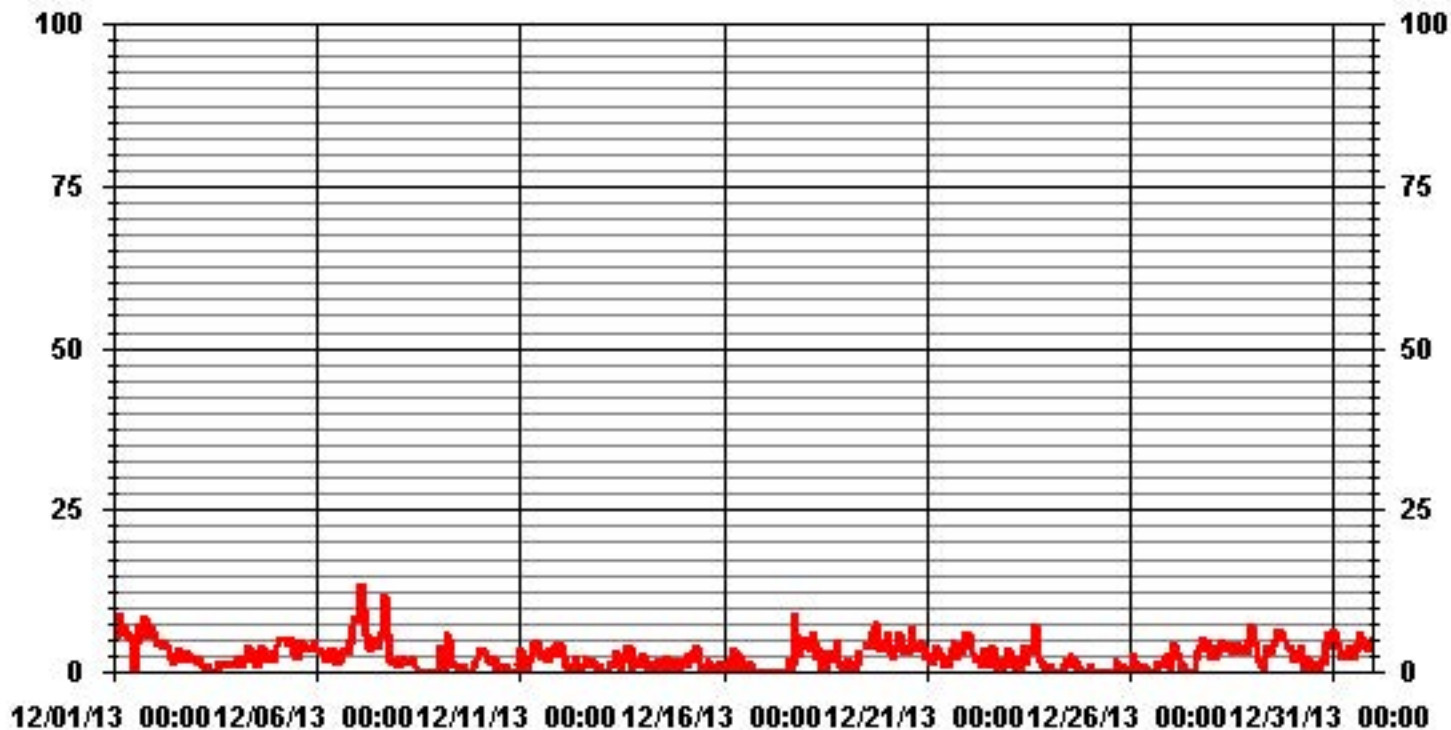
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	560
MAXIMUM 1-HR AVERAGE:	13 UG/M ³ @ HOUR(S) 2,3 ON DAY(S) 7
MAXIMUM 24-HR AVERAGE:	6.0 UG/M ³ ON DAY(S) 7
MONTHLY CALIBRATION TIME:	3 HRS
STANDARD DEVIATION:	2.14
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	2.34 UG/M ³

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

December 2013

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	3.73	1.86	2.17	5.28	9.33	6.22	4.66	1.39	4.51	6.68	10.10	5.28	7.30	8.86	10.57	11.97	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	3.73	1.86	2.17	5.28	9.33	6.22	4.66	1.39	4.51	6.68	10.10	5.28	7.30	8.86	10.57	11.97	

Calm : .00 %

Total # Operational Hours : 643

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	24	12	14	34	60	40	30	9	29	43	65	34	47	57	68	77	643
< 60																	
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	24	12	14	34	60	40	30	9	29	43	65	34	47	57	68	77	

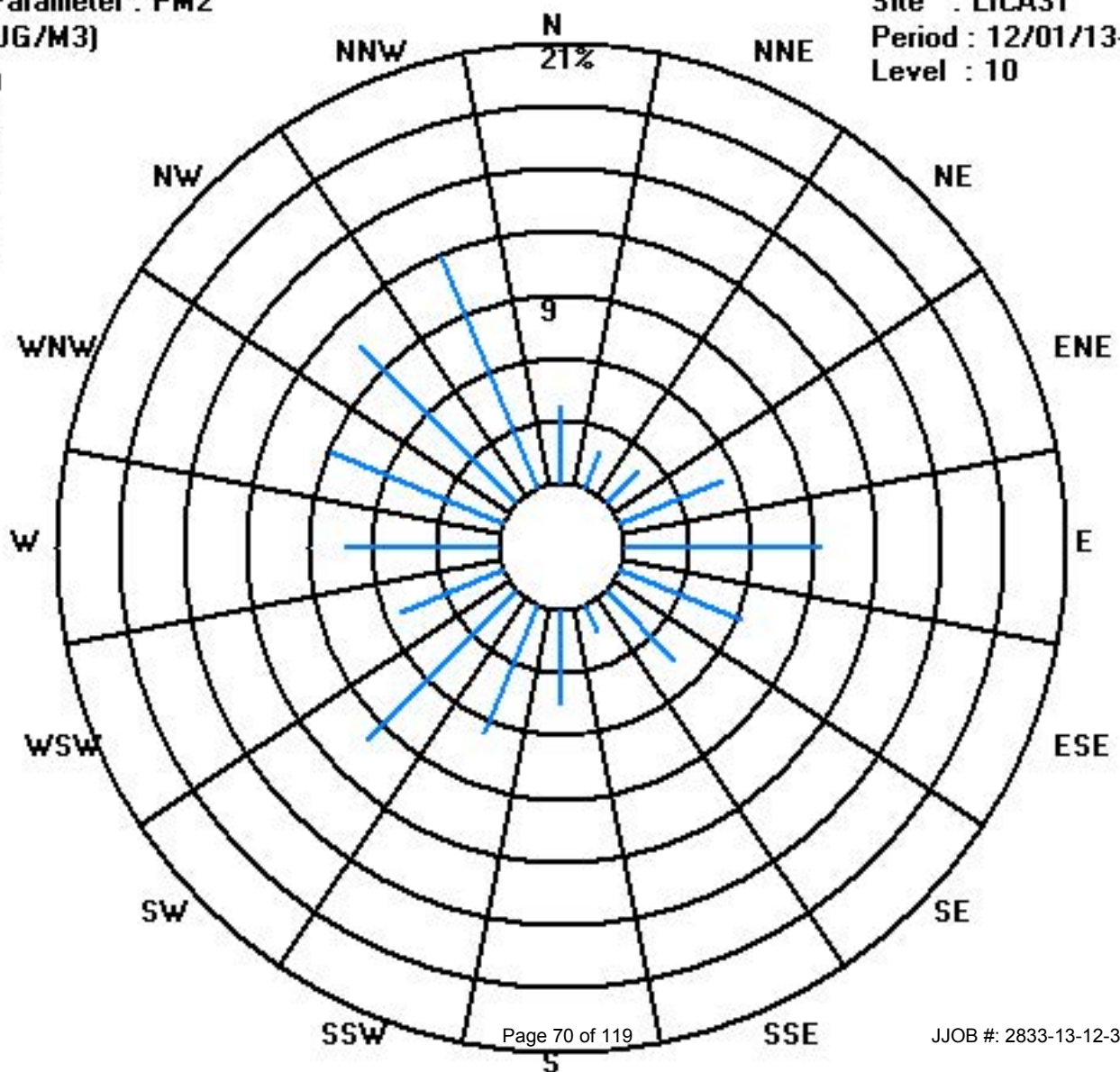
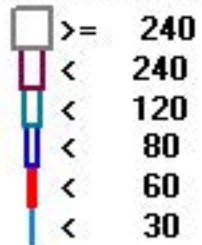
Calm : .00 %

Total # Operational Hours : 643

Class Limits (UG/M3)

Period : 12/01/13-12/31/13

Level : 10



Temperature

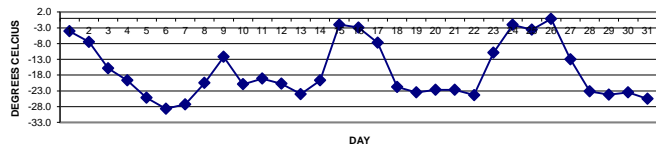
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2013
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		-4.1	-3.7	-3.6	-3.4	-3.2	-3.4	-4.2	-4.5	-4.7	-4.4	-4	-3.6	-3.1	-3.1	-3.4	-3.8	-4	-4	-4.1	-4.3	-4.6	-5	-5.6	-6	-3.1	-4.1	24	
2		-5.8	-5.8	-5.8	-5.8	-5.8	-5.9	-6.2	-6.8	-7.2	-7.2	-7.1	-7.1	-7.7	-7.3	-7.4	-7.8	-8.1	-8.6	-8.9	-8.9	-9.1	-9.4	-9.5	-10.7	-5.8	-7.5	24	
3		-12.2	-13.2	-14.4	-14.4	-14.6	-15.1	-15.4	-15.5	-15.5	-15.3	-15.5	-13.9	-14.7	-15.3	-15.7	-16.5	-17	-17.6	-18.3	-18.6	-18.3	-17.9	-18.1	-18.2	-12.2	-15.9	24	
4		-17.9	-18.4	-19.5	-19.5	-19.9	-20.6	-21.3	-21.5	-21	-19.8	-17.9	-14.7	-13.9	-14.2	-16.3	-18.7	-21.2	-22	-22.3	-21.3	-21.6	-22.3	-23.4	-24	-13.9	-19.7	24	
5		-24.7	-25.2	-25.6	-25.8	-25.8	-26.1	-26.7	-27.3	-27.5	-26.1	-23.6	-21.6	-21.7	-21.3	-22.7	-24.4	-25.6	-25.6	-25	-25.9	-26.4	-26.2	-26.7	-27.7	-21.3	-25.2	24	
6		-28.7	-29.2	-29.7	-30.1	-30.4	-30.6	-30.7	-30.9	-31.1	-29.6	-27.1	-25.5	-23	-21.5	-23.8	-25.4	-27	-28	-29.1	-29.9	-29.8	-31.9	-33	-32.6	-21.5	-28.7	24	
7		-33.5	-33.7	-33.5	-34	-34.2	-34.2	-34.3	-33.9	-31.3	-28.6	-26.4	-25.4	-23.9	-23.1	-23	-22.8	-22.4	-21.4	-20.5	-20.2	-19.9	-20.1	-20.2	-19.9	-20.2	-19.9	-27.3	24
8		-20.9	-20.1	-20.7	-20.4	-20	-19.7	-20.3	-20.5	-21	-19.2	-17.7	-17.2	-16.5	-16.2	-17.4	-19	-21.4	-22.8	-23.7	-24	-24.1	-23.9	-23.5	-22.6	-16.2	-20.5	24	
9		-21.2	-19.8	-18.8	-18.2	-16.8	-13.1	-12.3	-12.5	-12.7	-12.3	-10.9	-9	-7.7	-7.2	-7.5	-8	-8.4	-8.8	-10.2	-10.2	-10.7	-11.1	-12.1	-13.5	-7.2	-12.2	24	
10		-14.7	-16.5	-18	-19.7	-20.8	-21.9	-22.5	-22.9	-23.1	-20.8	-18.5	-16.9	-16.7	-16.3	-17.8	-19.3	-22.5	-23.5	-24.4	-24.9	-25.1	-25.4	-25	-24.8	-14.7	-20.9	24	
11		-24.3	-22.9	-21.8	-21.7	-21.3	-20.8	-20.5	-19.8	-19.1	-18.2	-17.3	-16.7	-16.3	-16.5	-17.5	-17.6	-17.9	-18.2	-18.1	-18.2	-18.1	-18.2	-18.5	-18.8	-16.3	-19.1	24	
12		-18.9	-19	-19.1	-19.3	-19.6	-20	-20.1	-20.4	-20.6	-20.7	-20.5	-20.4	-20.3	-20.4	-20.8	-21	-21.4	-21.7	-21.8	-22	-22.1	-22.3	-22.8	-23.1	-18.9	-20.8	24	
13		-23.3	-23.6	-23.7	-23.8	-23.7	-23.4	-23.4	-23.4	-23.3	-23.2	-23.8	-23.4	-21.7	-20.1	-23	-24.8	-25.5	-25.9	-25.7	-25.7	-26.1	-25.6	-25.6	-25.4	-20.1	-24.0	24	
14		-24.9	-24.1	-23.3	-22.9	-22.4	-22	-21.8	-21.8	-21.1	-20.2	-19.6	-19.2	-18.4	-18.3	-18.3	-18.1	-18	-17.5	-17	-16.7	-16.1	-15.2	-14.1	-14.1	-19.7	24		
15		-13	-12.5	-11.9	-10.6	-9.2	-8.3	-6.4	-4.1	-2.2	2.3	4.4	5.6	6.1	4.3	3.5	2.8	2.2	1.9	1.1	-0.1	-0.9	-1.2	-1.1	-1.5	6.1	-2.0	24	
16		-2.1	-2.2	-1.6	-1.2	-1.1	-1.4	-1.3	-2.2	-2.4	-1.9	-2.3	0	-0.6	0.3	0.3	-1.2	-2.8	-3.9	-4.9	-5.6	-6.6	-7	-8.2	-10.4	0.3	-2.9	24	
17		-10.5	-9.7	-10.4	-9.9	-9.7	-9	-9.4	-9.5	-10.3	-10.6	-8	-7.5	-6.8	-6.1	-5	-3.7	-3.6	-4.5	-4.6	-3.4	-3.4	-5.8	-10.2	-13.8	-3.4	-7.7	24	
18		-16.9	-18.2	-19.1	-19.9	-20.8	-21.6	-22.6	-22.9	-22.7	-21.8	-21	-20.8	-20.7	-21.1	-21.7	-22.4	-22.4	-22.4	-23.2	-23.1	-24	-24.8	-25.2	-16.9	-21.8	24		
19		-25.2	-25.8	-26.6	-26.8	-27.1	-27.8	-27.7	-27.7	-27.5	-25.8	-24.2	-22.2	-20.9	-20.5	-18.6	-19.2	-20.3	-21.1	-22.2	-22.1	-21.3	-21.5	-21.3	-21	-18.6	-23.5	24	
20		-22	-21.8	-21.5	-21.5	-22.2	-23.3	-24.1	-24.8	-25	-23.8	-22.6	-22.2	-21	-20.1	-21.1	-23.3	-23.6	-23.3	-23.1	-22.9	-22.8	-22.7	-23	-20.1	-22.7	24		
21		-23.5	-23.5	-23.6	-23.8	-23.9	-23.8	-23.7	-23.4	-23.9	-23.5	-22.1	-19.9	-19.6	-17.9	-18.3	-20.7	-23	-23.3	-23.4	-23.1	-23.2	-23.7	-24.5	-24.3	-17.9	-22.7	24	
22		-24.4	-25.1	-25.4	-26.1	-26.6	-27	-26.1	-25.7	-26.4	-22.6	-20.6	-21	-19.8	-18.8	-20.9	-23.7	-25.2	-25.7	-25.9	-26.7	-26.6	-25.2	-25	-24.2	-18.8	-24.4	24	
23		-23.6	-22.6	-21.1	-19.2	-18	-17.1	-16.3	-15.6	-15	-14.2	-13.1	-11.9	-9.9	-8.4	-7.4	-6.7	-5.9	-5.2	-3	-1.3	-0.7	-1.2	-1.8	-2.6	-0.7	-10.9	24	
24		-2.9	-3.2	-3.7	-3.7	-3.4	-3.6	-3.7	-3.2	-2.1	-1.3	-0.3	0.3	0	-0.2	-0.9	-1.3	-1.5	-1.4	-1.6	-1.8	-2	-2.4	-3	-3.4	0.3	-2.1	24	
25		-3.4	-3.9	-3.6	-4.1	-4.4	-5	-5.4	-5.3	-6	-5.7	-5.1	-5	-4.1	-3.3	-3.7	-3.8	-3.1	-1.9	-1	-0.8	-1.2	-2.9	-2.3	-2.2	-0.8	-3.6	24	
26		-2.6	-2.5	-2.6	-3.2	-3	-3	-3.8	-3.7	-2.9	-2.2	-1.9	-1.6	-1.1	-0.5	0.1	0.4	2.1	3.3	4	4.5	4.3	4.2	4.1	3.6	4.5	-0.2	24	
27		0.3	-2.9	-4.9	-6.8	-8.2	-9.6	-10.6	-11.7	-12.4	-12.7	-13.4	-14	-14.3	-14.7	-15.4	-16.2	-16.9	-17.1	-17.1	-17.3	-17.7	-18.1	-19.1	-20.9	0.3	-13.0	24	
28		-21	-21.2	-21.8	-22.3	-22.5	-22.9	-23.2	-23.2	-23.4	-23.4	-22.8	-22	-18.4	-16.3	-18.2	-21	-24.4	-25	-26	-26.2	-26.4	-27.3	-28.5	-28.9	-16.3	-23.2	24	
29		-28.8	-28.6	-28.3	-28	-26.6	-25.6	-24	-22.8	-24.8	-24.8	-24.5	-23.6	-22.9	-23.2	-23.1	-23	-23	-23	-22.4	-22.1	-22	-22.1	-22	-22.0	-24.2	24		
30		-21.8	-21.7	-21.6	-22.6	-22.9	-22.7	-22.8	-23.4	-24.4	-22.5	-21.2	-18.9	-19.9	-21	-22.4	-23.3	-24.7	-25.6	-26	-26.6	-27.1	-27	-27.2	-27.2	-18.9	-23.5	24	
31		-27.3	-27.1	-26.2	-25.9	-25.8	-25.8	-25.7	-25.6	-25.6	-25.4	-24.8	-24.1	-22.3	-22.4	-21.3	-23.3	-26.2	-27	-26.9	-26.7	-26.7	-26.5	-26.8	-27.1	-21.3	-25.5	24	
HOURLY MAX		0.3	-2.2	-1.6	-1.2	-1.1	-1.4	-1.3	-2.2	-2.1	2.3	4.4	5.6	6.1	4.3	3.5	2.8	2.2	3.3	4.0	4.5	4.3	4.2	4.1	3.6				
HOURLY AVG		-17.5	-17.7	-17.8	-17.9	-17.9	-18.0	-18.0	-18.1	-17.1	-16.0	-15.0	-14.3	-13.9	-14.5	-15.4	-16.2	-16.5	-16.6	-16.7	-16.8	-17.1	-17.5	-17.9					

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-34.3 °C	@ HOUR(S)	6	ON DAY(S)	7
MAXIMUM 1-HR AVERAGE:	6.1 °C	@ HOUR(S)	12	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	-0.2 °C			ON DAY(S)	26
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	9.21		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	-16.76	°C

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

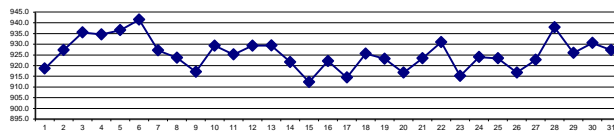
BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		922	922	921	921	920	920	919	919	919	918	918	917	917	917	917	917	917	917	917	918	918	918	918	919	922	918.6	24		
2		919	919	920	921	921	922	922	923	925	925	926	927	928	928	929	930	931	932	933	934	934	935	935	935	935	935	935	935	935
3		935	936	936	936	936	936	936	936	936	936	936	936	936	935	935	935	935	935	935	935	935	935	935	935	935	934	936	935.5	
4		935	935	935	935	935	935	935	935	935	935	935	935	935	934	934	934	934	934	934	934	934	934	934	934	934	935	934.5	24	
5		934	934	934	934	934	934	934	935	935	936	936	936	936	936	936	937	937	938	938	939	939	940	940	941	941	941	936.6	24	
6		941	941	941	942	942	942	942	942	943	943	943	943	942	942	942	942	941	941	941	941	941	940	940	939	939	943	941.5	24	
7		938	937	937	936	934	933	932	931	930	929	928	926	925	924	922	922	921	921	921	921	921	921	921	921	921	921	938	927.2	24
8		921	921	922	922	922	923	924	924	925	926	927	927	927	927	926	926	926	925	924	923	922	921	919	918	927	923.7	24		
9		916	915	914	913	912	913	914	916	917	917	918	918	918	918	918	918	919	919	919	919	919	920	920	921	921	917.1	24		
10		923	924	925	926	927	928	929	930	931	932	932	932	932	932	932	932	931	930	929	928	927	927	927	927	932	929.3	24		
11		926	925	924	924	923	923	923	923	923	924	924	925	925	926	926	926	926	926	926	927	927	927	927	927	927	927	925.2	24	
12		928	928	928	929	929	929	929	929	929	930	930	930	929	929	929	930	930	930	929	930	930	930	930	930	930	930	929.3	24	
13		930	929	929	929	928	928	928	928	928	928	929	929	929	929	930	930	930	931	931	931	931	930	930	930	931	929.4	24		
14		930	929	929	928	927	926	925	924	923	922	922	922	921	920	920	920	919	918	917	917	917	916	914	914	930	921.7	24		
15		913	912	911	911	910	909	909	909	909	909	910	911	911	912	912	913	914	915	915	916	916	916	916	917	917	917	912.3	24	
16		917	917	917	918	918	918	919	919	920	921	922	922	923	923	924	925	925	926	926	926	927	927	926	926	927	926	927	922.2	24
17		926	925	924	924	922	921	919	917	915	913	912	911	911	909	909	909	908	908	909	910	911	912	913	912	913	926	914.5	24	
18		914	916	917	919	919	921	922	923	925	926	926	927	928	928	928	929	930	931	931	931	932	932	931	932	931	932	925.5	24	
19		931	930	930	930	930	929	927	926	926	925	924	923	922	920	920	919	919	918	918	918	918	918	918	918	918	931	923.2	24	
20		917	917	917	918	917	917	917	917	917	917	917	916	916	916	915	916	916	916	916	916	917	917	918	918	918	916.7	24		
21		919	919	919	920	920	921	921	922	922	923	923	924	924	924	924	924	925	926	926	926	927	927	928	928	928	928	923.4	24	
22		928	929	930	931	931	932	932	933	933	933	934	934	933	933	933	933	933	932	931	930	930	929	928	927	925	934	931.0	24	
23		924	922	921	919	918	916	915	914	913	912	912	911	911	911	910	911	912	913	914	915	916	917	918	919	924	915.2	24		
24		919	920	920	920	920	920	921	921	921	921	922	923	924	925	925	926	927	928	928	929	929	929	929	929	929	929	924.0	24	
25		929	929	930	930	929	929	928	928	927	926	925	923	922	920	919	918	918	918	919	919	919	919	919	919	919	930	923.4	24	
26		919	919	920	920	920	919	919	918	918	918	918	916	915	915	914	913	913	914	914	915	915	916	917	918	920	916.8	24		
27		919	919	920	920	921	921	921	921	921	921	921	921	921	920	920	921	922	923	924	926	928	929	931	933	933	922.7	24		
28		933	935	936	936	937	938	938	939	939	939	940	940	940	939	939	939	939	939	939	938	938	937	936	935	940	937.8	24		
29		934	933	932	930	929	928	927	925	924	923	923	922	921	921	921	921	922	923	924	926	927	928	929	930	934	926.0	24		
30		930	930	931	931	931	932	932	932	932	932	932	932	931	931	931	930	930	930	929	929	929	929	929	928	932	930.5	24		
31		927	927	927	927	926	926	926	926	926	926	926	926	926	926	926	926	927	927	928	928	929	929	930	930	930	930	927.2	24	
HOURLY MAX		941	941	941	942	942	942	942	942	943	943	943	943	942	942	942	942	941	941	941	941	940	940	941	941					
HOURLY AVG		926	926	926	926	925	925	925	925	925	925	926	925	925	925	925	925	925	925	925	925	926	926	926	926					

STATUS FLAG CODES

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

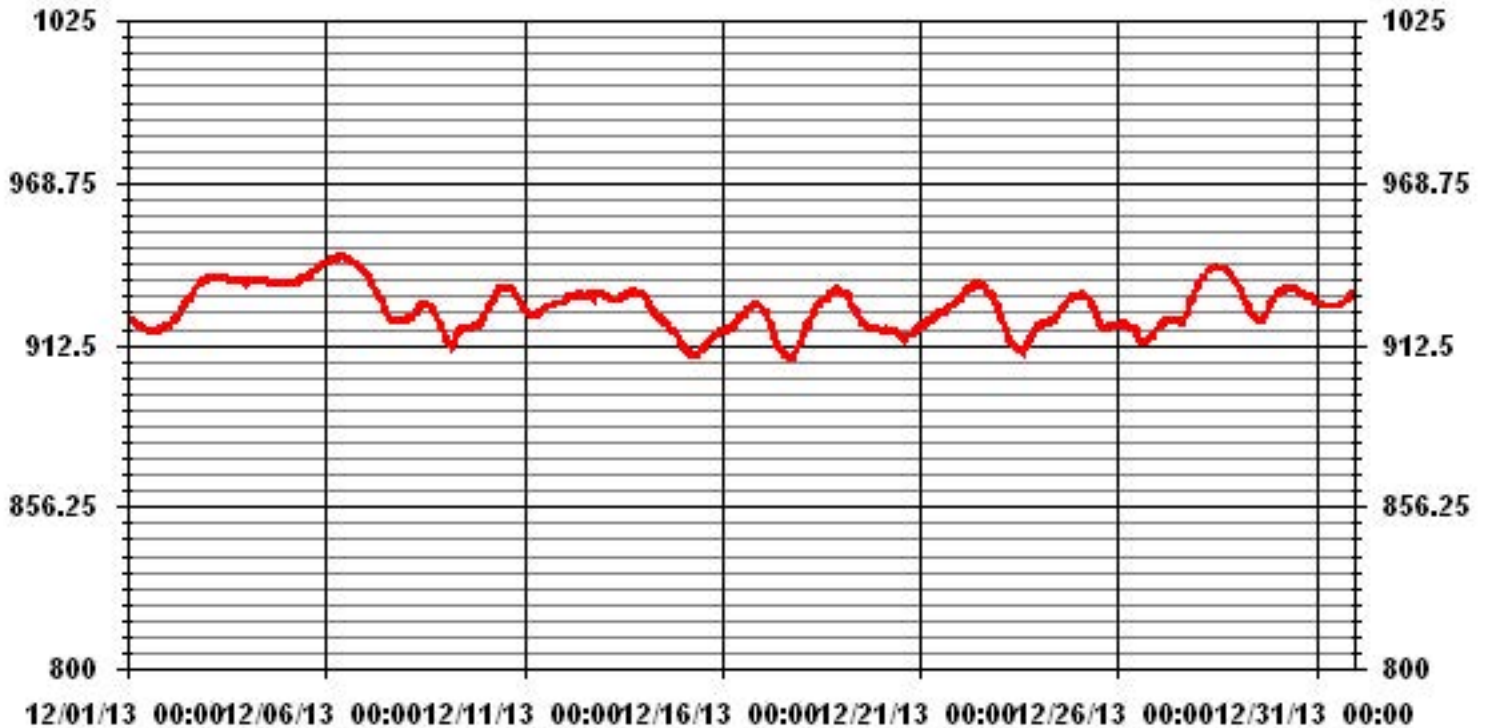
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	943 MB	@ HOUR(S)	VAR	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	941.5 MB			ON DAY(S)	6
				VAR-VARIOUS	
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:		744 HRS	
STANDARD DEVIATION:	7.79	AMD OPERATION UPTIME:		100.0 %	
		MONTHLY AVERAGE:		925 MB	

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

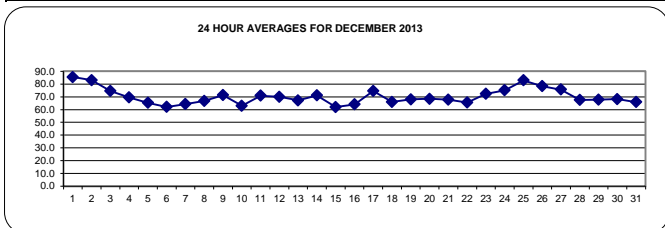
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		83	81	81	83	87	87	87	86	86	86	86	86	86	86	86	87	87	86	86	86	86	85	85	85	85	87	85.5	24	
2		85	85	85	85	85	85	85	84	84	83	83	82	81	81	82	83	83	82	82	82	82	82	81	80	85	85	83.0	24	
3		79	78	77	77	77	76	76	75	76	75	74	72	70	71	71	72	73	74	74	74	74	74	74	74	79	74.5	24		
4		74	73	73	73	73	72	72	71	71	71	69	64	59	58	61	66	71	72	72	71	71	71	71	70	74	69.5	24		
5		70	69	69	68	68	67	67	66	66	66	64	61	58	57	59	63	66	67	67	66	66	66	66	65	65	70	65.3	24	
6		66	65	65	64	64	64	64	63	63	62	58	57	52	51	56	61	66	66	66	66	65	65	62	62	62	66	62.0	24	
7		61	61	61	61	60	60	60	60	60	59	60	62	63	64	65	66	66	67	69	71	71	71	72	72	72	72	72	64.3	24
8		72	72	72	73	72	72	72	72	71	67	59	54	52	50	54	60	67	69	71	71	70	70	69	69	73	66.7	24		
9		70	72	72	73	75	77	76	73	72	75	77	76	70	64	63	71	80	75	68	66	68	69	66	64	80	71.3	24		
10		64	63	67	69	63	69	70	69	69	62	53	47	46	45	49	53	66	70	71	70	69	69	69	69	71	63.0	24		
11		70	70	70	70	70	70	71	71	71	72	71	70	69	69	70	71	72	73	72	72	72	72	72	72	72	73	70.9	24	
12		72	72	72	72	71	71	71	71	71	70	69	69	69	69	69	70	70	70	70	69	69	69	69	68	68	72	70.0	24	
13		68	68	68	68	68	68	68	68	68	68	67	67	66	64	66	67	67	67	67	67	67	67	67	67	67	68	67.2	24	
14		67	68	68	69	69	69	70	69	69	70	70	70	71	71	72	72	72	73	73	74	74	75	76	77	77	71.2	24		
15		78	78	79	80	81	81	82	81	79	68	62	58	50	42	43	45	46	46	47	49	51	52	53	55	82	61.9	24		
16		59	61	62	62	67	67	67	82	79	73	78	61	57	52	49	50	53	56	59	61	65	68	72	78	82	64.1	24		
17		80	77	79	77	77	76	76	77	78	78	73	72	71	71	70	71	72	74	75	72	74	74	74	72	80	74.6	24		
18		71	68	68	68	69	70	70	69	68	66	61	58	60	60	61	61	62	64	64	67	68	69	71	71	71	66.0	24		
19		69	70	69	69	68	67	67	67	67	64	62	63	63	65	66	68	70	71	71	71	70	71	71	71	71	71	67.9	24	
20		71	72	70	70	70	70	70	70	69	67	66	66	65	63	65	67	68	69	69	69	69	69	69	69	72	68.4	24		
21		68	68	68	68	68	68	68	67	68	68	69	69	66	64	61	64	68	70	69	70	70	70	69	70	70	67.8	24		
22		69	68	67	67	67	67	67	68	67	68	62	56	55	55	61	66	69	68	68	67	67	67	67	67	68	69	65.5	24	
23		68	69	70	72	73	73	73	74	75	75	75	74	68	65	63	67	71	77	79	79	80	76	69	70	80	72.3	24		
24		66	68	74	77	78	83	85	84	77	73	69	68	72	78	83	82	79	73	70	71	72	74	74	74	85	75.1	24		
25		74	76	78	79	81	82	81	78	82	84	82	83	84	84	85	86	87	87	86	86	86	87	87	84	87	82.9	24		
26		84	84	83	83	81	80	80	78	74	71	70	70	69	70	77	80	85	82	79	78	79	79	81	82	85	78.3	24		
27		82	77	79	78	76	78	78	77	77	76	76	76	76	75	75	75	74	74	74	74	73	73	72	71	82	75.7	24		
28		70	70	69	69	69	68	68	68	68	68	67	67	67	68	68	68	68	69	69	69	69	67	66	65	70	67.5	24		
29		65	65	65	65	66	67	68	68	67	67	67	67	67	68	68	68	68	69	69	69	70	70	69	70	70	67.7	24		
30		70	70	70	69	69	69	69	68	68	70	71	74	70	68	68	67	67	67	66	66	66	65	65	65	65	74	68.2	24	
31		65	65	66	66	66	66	66	66	66	66	66	66	66	66	65	65	66	66	66	66	66	66	66	66	67	65.9	24		
HOURLY MAX		85	85	85	85	87	87	87	86	86	86	86	86	86	86	86	87	87	86	86	86	86	87	87	85					
HOURLY AVG		71.3	71.1	71.5	71.7	71.9	72.2	72.4	72.3	71.8	70.6	68.9	67.3	65.9	64.9	66.1	68.0	70.3	70.7	70.5	70.6	70.8	70.9	70.7	70.8					

STATUS FLAG CODES

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

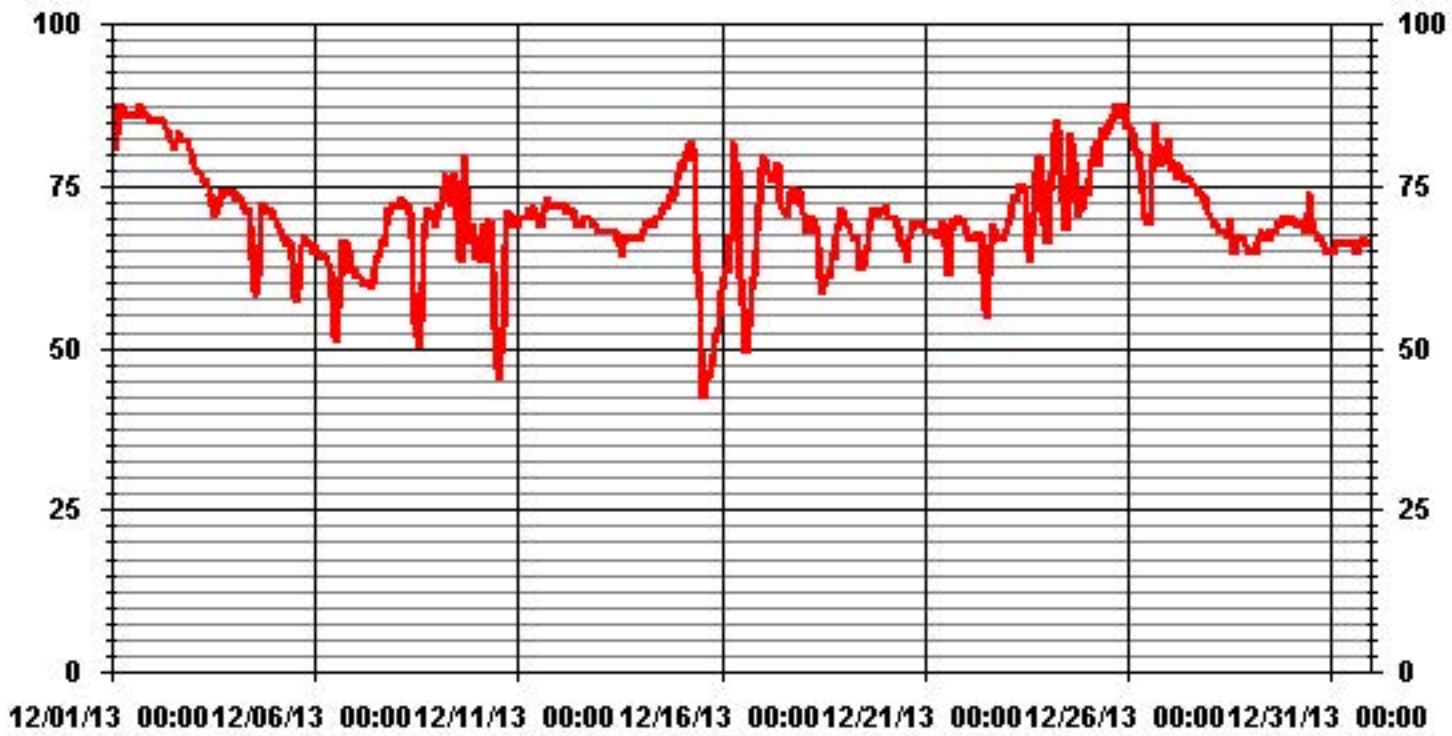
24 HOUR AVERAGES FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	87	%	@ HOUR(S)	VAR	ON DAY(S)	1, 25
MAXIMUM 24-HR AVERAGE:	85.5	%			ON DAY(S)	1
VAR-VARIOUS						
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	7.67		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	70.13	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

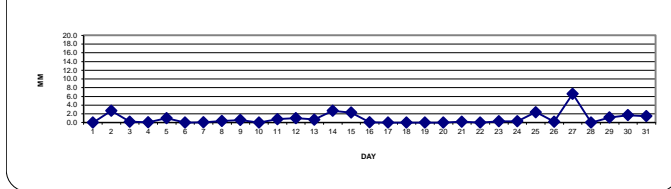
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	DAILY TOTAL	DAILY RDGS.	
DAY		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
2		0	0	0	0.1	0.4	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0	0	0.1	0	0	0.1	0.1	0	0.1	0	0	0	0.4	2.7	24	
3		0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.1	24	
5		0	0	0	0	0	0	0	0	0	0	0	0	0.8	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0.8	1.0	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	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	0.1	0.1	0.1	24	
8		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	0.4	0.4	24	
9		0	0	0.3	0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6	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	0.0	0.0	24	
11		0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0.1	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	24
12		0	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	0.1	0	0	0	0	0	0	0	0.1	1.0	24	
13		0	0.1	0	0	0	0	0.1	0	0.2	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0.2	0.7	24	
14		0	0.1	0	0	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0	0	0	0	0.1	0	0.1	0	0.5	0.5	0	0.5	2.7	24		
15		0.1	0	0.1	0.1	0.1	0.1	0.2	1.2	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2	2.3	24	
16		0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	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	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	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	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	24	
24		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24	
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	1.2	0.1	0.3	0	0	0	0	0	0	0	1.2	2.4	24	
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0.1	0.2	24	
27		0	0	0	0	0	0.1	0.1	0	0.1	0.1	0.1	0.4	0.8	0.4	0.6	1.1	1.2	0.7	0.3	0.3	0.2	0.1	0	0	1.2	6.6	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	0.0	0.0	24	
29		0.1	0	0	0	0	0	0	0	0	0	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0	0.1	0	0	0	0	0	0	0.2	1.2	24	
30		0	0	0	0.1	0.1	0.1	0.9	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	1.7	24	
31		0	0	0	0	0	0.2	0.2	0.2	0.1	0.3	0.1	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1.5	24	
HOURLY MAX		0.4	0.1	0.3	0.1	0.4	0.3	0.9	1.2	0.4	0.3	0.3	0.4	0.8	0.4	0.8	1.2	1.2	0.7	0.3	0.3	0.2	0.5	0.5	0.1					

STATUS FLAG CODES

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

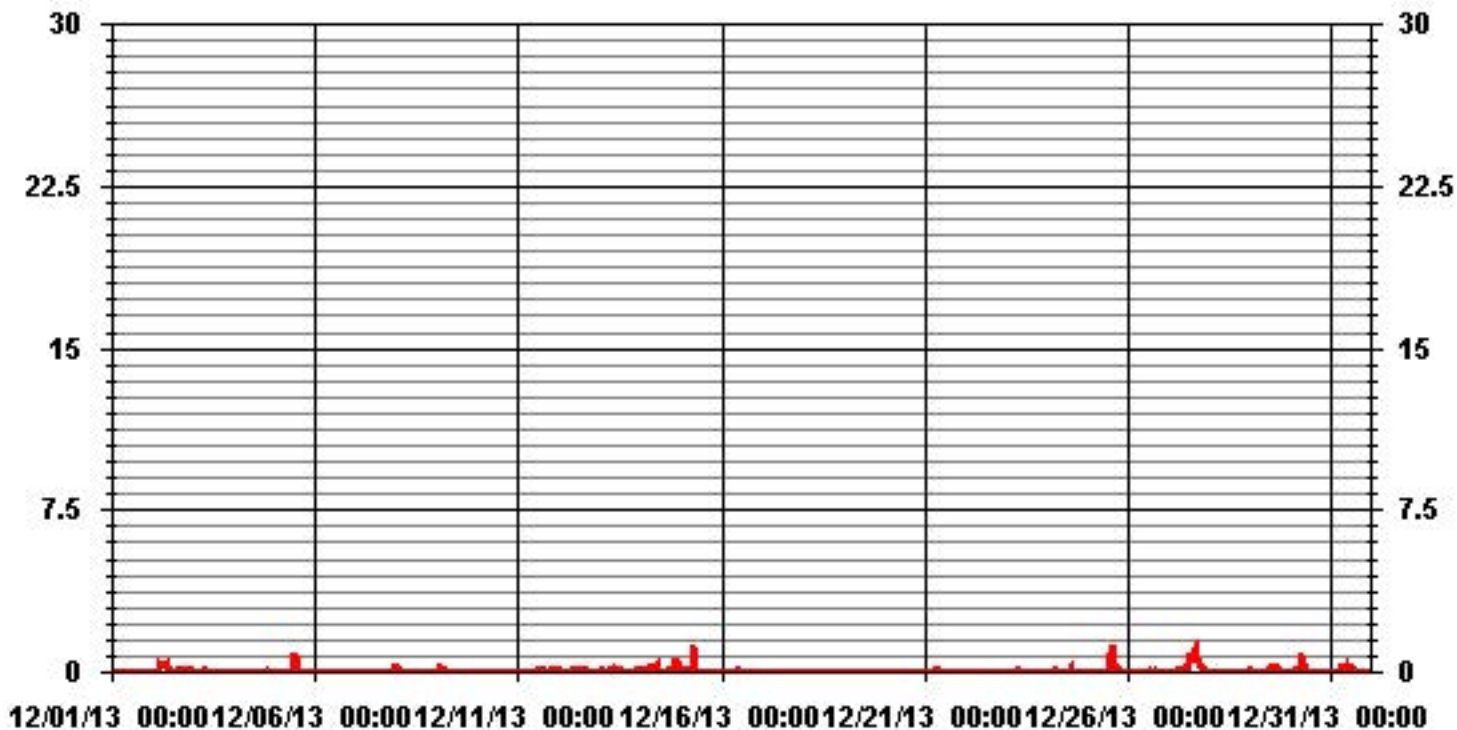
DAILY TOTALS FOR DECEMBER 2013



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.2	MM	HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM DAILY TOTAL	6.6	MM			ON DAY(S)	27
MONTHLY TOTAL	27.1	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.13		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.04	MM	

01 Hour Averages



— LICA31 PRECIP MM

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2013

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	6	5.5	5.8	3.7	2.8	6.9	7.9	8.4	8.4	9.1	6.2	7.4	8.1	10.2	9.4	X	X	X	X	X	X	X	X	X	10.2	5.1	15
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12.8	12.8	13.3	11.4	12.7	12.1	10.7	10.1	13.3	11.9	8
6	10.1	10.9	10.1	8.6	8.8	10.5	9.6	10.5	9.7	9.1	9.8	6.3	7.5	6.1	7.9	8.2	7.9	6	7.7	8.2	7.8	7.4	8.9	9.7	10.9	7.7	24
7	9.9	10.7	9.9	11.9	12.6	10.5	10.5	11.4	12.9	15.8	14.3	16.3	17.5	18.3	20.3	19.6	16.9	12.4	11.1	9.8	9.8	9.8	6.6	5.7	20.3	10.9	24
8	9.1	9.7	8.1	9.9	10	10.7	11.9	13.5	14.1	13	15	14.8	13.3	11.5	7.6	6.2	7.2	8.7	11.6	10.1	8	9.3	9.5	11.1	15	7.4	24
9	10.1	7.7	9.3	12.1	11.7	26.9	28.2	27.9	20.4	13.7	14.3	19.2	20.3	21	20	15.9	14.3	16.6	14.5	15.5	12.9	16.4	20.3	18.2	28.2	14.4	24
10	19	16.7	16.2	14.2	13	10.8	12.7	12.7	11.8	12.6	11	10.7	12	9.6	8.8	5.6	6.4	9.3	10.2	9.1	9.2	8.8	10.1	10.3	19	6.6	24
11	8.7	9.5	8.8	8.2	8.2	6.3	7.8	4.7	1.5	2.3	6.1	6.4	7.3	7.3	9.3	8.4	7.4	5.8	7.8	9	8.6	8.9	10.1	10.5	10.5	3	24
12	10.7	10	10.1	11	11.2	12.5	12.7	16	13.7	14.7	17.8	17.8	15.9	13.7	14.6	12.3	14.6	15.5	16.8	19.5	17.7	16.3	17.3	14.6	19.5	14.4	24
13	14.1	15.7	15.1	13.8	12.2	13	13	13.9	12.2	10.4	10.9	11.6	8.7	8.9	6	5.4	13.3	12	7.3	5.4	6.4	5.9	5.5	4.8	15.7	7.4	24
14	3.8	6.2	8	9.7	10.2	10.4	11.1	10.6	12.4	15	14.9	14.6	12.7	14	14.2	12.1	12.9	12.9	12.2	12.4	12.8	12.5	13.4	15.7	15.7	11.6	24
15	13.9	14.1	12.8	12.5	16.2	13.8	14.2	15.4	16	27.5	29.8	27.1	33.1	37.2	35.1	30	26.8	24.6	20	16.7	16.9	19	19.4	19.1	37.2	16.8	24
16	19.3	21.7	20.5	18.9	17.3	13.9	12.5	13.2	12.5	12.1	16.7	15.4	16.7	21.1	16.7	14.6	13.7	11.4	9.7	10.4	10	10.6	9.3	9.8	21.7	13.8	24
17	8.5	6.7	6.9	7.6	8	8.6	10.4	11.7	14.8	16.7	14.7	12.8	11.1	12.9	11.2	11.3	11.2	11.2	10.5	12.1	10.3	20.8	20.9	20.2	20.9	2.8	24
18	19.1	21.6	19.1	20.1	19.4	13.3	13.3	12.3	15.2	15.2	16.3	11.4	11.6	10.7	12.7	14.1	9.8	9.9	7.7	5.9	5.6	6	5.7	9.1	21.6	12.2	24
19	8.6	7.7	8.7	10.1	8.9	11.1	12.4	13.8	12.9	12.7	16.3	17.4	14.8	15.9	15.8	16.1	12.1	9.6	9.7	9.5	7.8	5.1	7.6	5.3	17.4	9.7	24
20	2.1	0.7	8.8	6	1.9	8.8	11.1	10.3	10.6	11.9	10.1	8.5	7.4	8.8	9.6	10.9	10.8	10.2	11	11.3	12.2	10.9	9.3	9.6	12.2	8.6	24
21	10	10	9.3	9.1	8.3	8.1	7.2	5.9	7.4	7.4	7	8.1	9.3	6.9	5.3	2.8	4	3.7	6.3	8.2	9.8	10.6	8.6	12.3	12.3	0.5	24
22	11.9	9.7	7.4	8.6	6.7	5.9	9.5	8.2	5.3	6.4	5.1	5	6.4	9.1	7.7	9.5	11.5	14.2	14.4	13.1	15.9	20.2	18.8	21.3	21.3	5.1	24
23	21.3	19.8	21.7	24.6	25.2	26.6	23.7	26.5	25.5	24.4	19.9	21.2	20.2	16.2	11	14.8	13.7	13.2	12.2	13.1	16.9	17.5	16.6	15	26.6	13.3	24
24	12.6	9.8	9	9.4	10.5	9.1	8.1	9.1	11.6	10.9	11.7	16.4	15.7	15.2	11.2	14.9	13	13.6	13.2	12	10.1	8.1	7.9	9	16.4	10.9	24
25	8.8	8.7	7.4	6	5	3.4	6	4.3	4.9	5.1	8	9.4	11.4	15.2	14.8	12.8	13	12.6	13	13.3	11.2	11.2	14	13.6	15.2	6.7	24
26	13.2	12.5	12.4	13.4	14.3	13.4	11.5	12.2	11.8	12.2	10.6	8.9	8.2	10.7	7.6	13.3	18.1	16.1	17.4	19.1	18.6	15.6	15.3	13.2	19.1	11.5	24
27	17.3	13.4	12.5	12.4	9.3	10.5	12.5	14.2	13.2	19.3	21.2	18.5	17.8	21.2	21.9	21	21.4	20.9	20.6	19.2	17.1	16.1	14	13.1	21.9	14.8	24
28	12.3	13.6	10.9	9.5	7.5	8.1	7.8	7.1	8.2	6.5	6.5	6.8	4.9	3.7	4.6	4.4	5.7	9	9.2	10.4	7.8	7.5	7.6	9.5	13.6	4.9	24
29	9.3	9.5	9	8.8	9.5	10.1	8.8	7	8.4	11.1	12.4	12.4	10.7	12.8	16.2	16	14.4	13.7	15.3	12.7	9.9	7.3	5	6.1	16.2	6.1	24
30	5.9	7	7.8	6.5	7.1	8.3	8.4	7.1	6.9	5.9	7.6	7.3	5.5	4.3	5.4	5.8	2.3	4.7	7.7	9.7	9.3	10	10	10.3	10.3	3.5	24
31	11.3	10.6	10.8	11.6	10.2	12.9	12.8	12.3	12.7	13.2	12.8	10	8.4	8.4	6.6	4.1	8.7	9.6	9.9	6.9	7.8	7	7.9	7.4	13.2	8.1	24
HOURLY MAX	21.3	21.7	21.7	24.6	25.2	26.9	28.2	27.9	25.5	27.5	29.8	27.1	33.1	37.2	35.1	30.0	26.8	24.6	20.6	19.5	18.6	20.8	20.9	21.3			
HOURLY AVG	11.4	11.1	11.0	11.0	10.6	11.3	11.7	11.9	11.7	12.4	12.9	12.7	12.5	13.0	12.3	11.9	12.0	11.9	11.9	11.6	11.2	11.5	11.5	11.7			

STATUS FLAG CODES

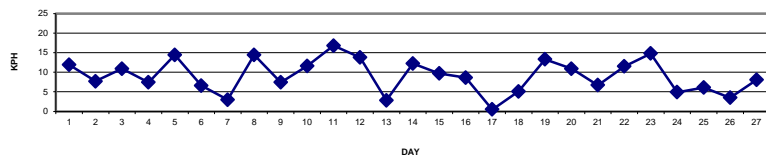
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

LAST CALIBRATION: June 12, 2012

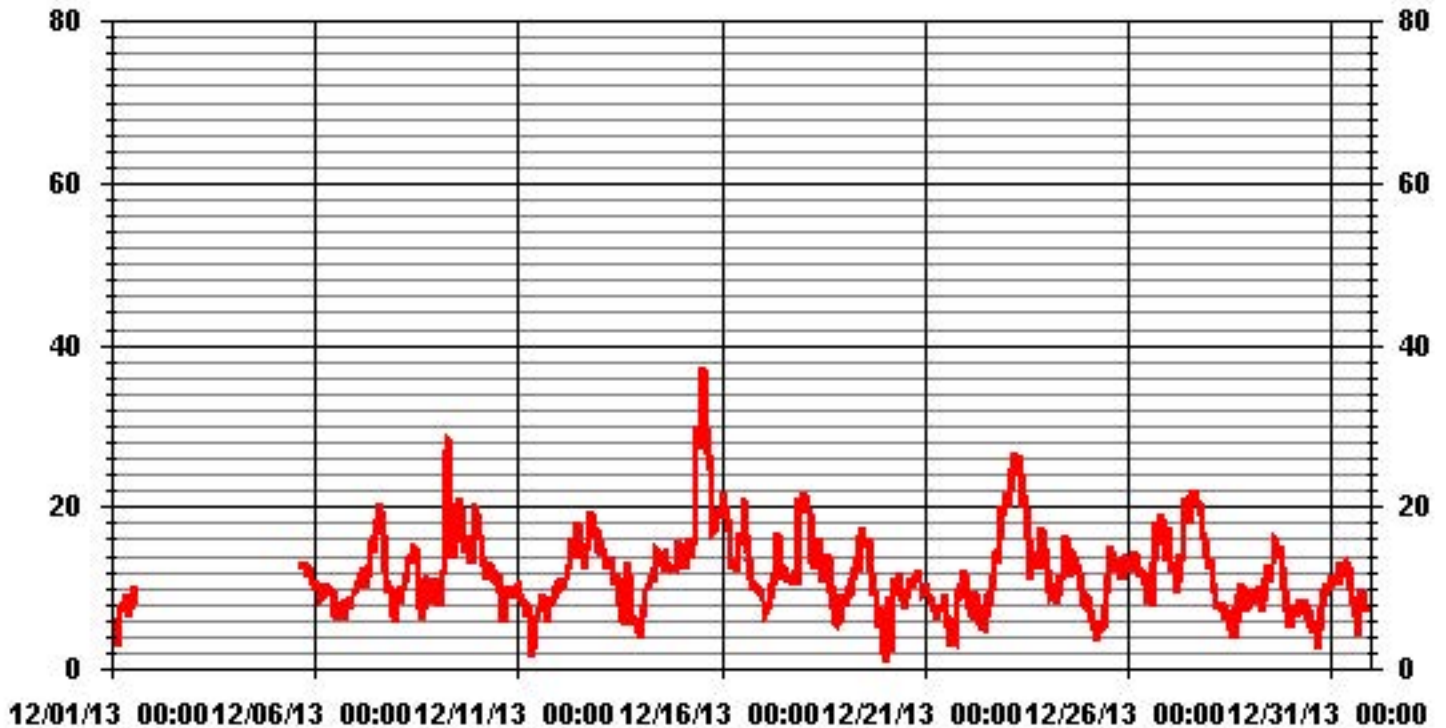
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	37.2 KPH	@ HOUR(S)	13	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	16.8 KPH			ON DAY(S)	15
CALMS (≤ 0 KPH)	0.13 %	OPERATIONAL TIME:	647	HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:	87.0	%	
STANDARD DEVIATION:	5.02	MONTHLY AVERAGE:	11.76	KPH	

24 HOUR AVERAGES FOR DECEMBER 2013



01 Hour Averages



— LICA31 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST																								DAILY		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00		
DAY																										
1	10.8	10.6	9.9	8.6	6.8	13	13	14.7	20.4	25	16.3	20.7	22.6	30.9	31.4	X	X	X	X	X	X	X	X	X	X	31.4
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27	31.6	31.8	32.5	29.2	32	23.3	20.6	32.5	
6	21.9	21.9	20	15.8	18.1	18.9	17.4	18.2	18.5	18.5	19.1	14.8	16.7	16.9	15.4	15.8	17.2	22.6	16.1	16.5	19.1	9.9	12.6	13.6	22.6	
7	15.6	15.6	15.6	19.1	20.4	20.2	16.5	17.6	21.1	22.4	24.8	25.7	27.4	29.5	30.3	29.6	28.8	23.7	21.7	23	21.5	23.9	18	13.4	30.3	
8	21.5	18.4	15.4	21.1	19.1	25	31.8	31.2	36.8	25.7	47.3	37.7	33.6	24.8	23.3	14.1	16	15	16.5	17.8	14.7	18.5	18	20.2	47.3	
9	19.8	21.7	15.2	18	34.7	74.5	67.2	64.4	56.1	32.9	30.9	44.7	46.5	49.7	49.3	46.2	35.5	50.4	34.2	42.1	30.3	58.5	51.5	48.2	74.5	
10	48.9	45.4	36.2	50.2	43.6	25	27.7	27.4	23.5	29.8	23.9	24.8	29.2	21.9	24.1	13.4	12.5	13.2	15.4	15.2	14.7	15.4	17.8	19.6	50.2	
11	18.7	19.5	21.3	20.6	20	18.4	12.5	29	18.5	28.8	18.7	18	16.7	16.5	18.7	20	16.3	19.3	19.8	20.4	21.1	21.5	26.1	23.5	29	
12	27.4	22.2	21.3	24.8	27	28.3	31.8	39.5	30.1	31.4	38.4	43.4	38.6	29	32.5	25.2	41.2	35.5	36.4	39.7	43.9	34.9	39.9	31.6	43.9	
13	30.1	30.9	31.2	26.5	26.8	25.2	24.1	26.6	23.3	25.2	24.4	25	21.1	19.5	43	12.1	179.4	30.5	179.4	24.6	13.6	8.4	11.9	11.7	179.4	
14	42.1	12.1	17.8	19.1	18.7	20.4	21.9	22.9	24.6	29.8	28.4	26.1	23.3	29.4	29.2	26.5	26.8	25.9	24.3	27.6	29.8	29.6	31.4	36.2	42.1	
15	34.4	33.8	29.4	28.7	31.4	30.3	26.3	28.3	39.9	65.7	56.6	56.9	89.3	83.8	76.8	81.2	71.2	57.8	48.2	42.1	34	50.9	50.4	43.6	89.3	
16	47.3	48.6	46.4	51	47.7	28.5	30.9	45.1	34.9	56.9	55.4	35.9	35.3	45.3	41.4	39.2	31.8	23.5	18.5	19.7	16.7	19.1	13	16	56.9	
17	11.9	11.4	16.7	17.1	19.1	17.1	18.7	19.8	27.8	29	30.5	27.4	24.1	30.7	24.3	18.9	19.1	17.5	17.2	21.5	35.3	50.6	43.8	47.8	50.6	
18	38.4	53	52.2	50	47.1	33.8	33.4	33.1	33.1	34.9	43	26.1	25.9	23.6	33.8	27.6	23.3	23	18.9	18.3	32.9	14.8	23.3	20.6	53	
19	20.4	16	18.3	20.2	15.8	16.9	21.1	25	20.9	25.5	23.7	26.3	26.5	27.6	24.8	21.7	18	14.3	13	16.9	14.9	39	27	31.6	39	
20	28.1	179.3	79.3	29	71.4	179.4	25	19.3	20.6	23.7	23.5	18.7	23.7	21.9	22.2	24.6	22.4	23.5	23.7	25.9	25.9	23.7	22.2	21.3	179.4	
21	24.4	18.7	23.3	21.3	20	18	22.6	12.8	18.9	17.4	17.4	15	14.5	14.1	14.7	29.4	104.5	63.8	60.3	17.1	22.4	22.8	20.6	25	104.5	
22	23.9	20.4	17.1	15.8	16.7	22.6	20	19.1	14.5	15	28.5	56.8	15.2	18.9	21.1	22.8	23.7	30.1	39.1	27.2	38.8	43.9	42.3	60.7	60.7	
23	46.3	43.9	48	53.7	59	60.9	58.5	53.7	56.5	53.9	38.6	40.6	39	31.1	20.6	22.6	23.7	23.7	23.5	26.1	42.8	42.7	39.4	35.5	60.9	
24	30.3	21.3	20.4	16.7	21.9	16	12.7	19.1	22.8	22.1	32.5	38.8	36.4	30.3	28.5	31.1	28.1	31.4	29.8	24.6	20.4	19.5	11.9	13.8	38.8	
25	17.5	19.6	15.6	9.4	8.6	11.4	10.1	9.4	14.5	13.8	20.2	22.6	24.3	35.3	31.1	26.1	21.7	30.7	26.3	27.2	23.2	18	24.5	20.6	35.3	
26	20.4	21.7	19.3	17.8	19.7	18	16.3	16.7	17.1	17.3	16.5	15.9	14.5	19.7	16.5	23.7	30.1	49.7	41.8	43.2	44	36.8	35.7	37	49.7	
27	45.1	29	33.8	27.9	22.6	23.5	25.4	27.8	25.2	41.9	46.7	42.3	39.9	49.7	45.8	43	41.4	43.6	46.7	40.6	36.6	33.1	33.1	28.5	49.7	
28	26.1	31.8	26.8	23.7	19.5	22.2	20	17.8	22.4	18.4	16.7	16.9	14.5	24.6	15.2	13.8	50.9	13	12.8	19.1	15.8	16	15	16.9	50.9	
29	18.9	20.6	19.1	21.6	21.7	23	21.8	16.9	22.2	25	25.5	25	25.5	29.6	30.3	27	28.4	28.3	27.2	29	20.9	19.1	15	13.8	30.3	
30	15.6	15.8	18.2	15.4	16.3	18.9	21.3	17.4	16.5	49.6	19.3	19.2	17.4	15.8	17.8	15.8	179.4	67.3	23.5	27.6	26.3	24.1	21.5	19.8	179.4	
31	25.7	22.2	22.4	20.4	19.3	24.8	23.7	24.4	27.7	26.8	26.6	23.9	18.9	23.3	51.7	80.9	179.4	179.4	179.4	15.2	16.3	10.1	12.5	15	179.4	
PEAK	48.9	179.3	79.3	53.7	71.4	179.4	67.2	64.4	56.5	65.7	56.6	56.9	89.3	83.8	76.8	81.2	179.4	179.4	179.4	43.2	44.0	58.5	51.5	60.7		

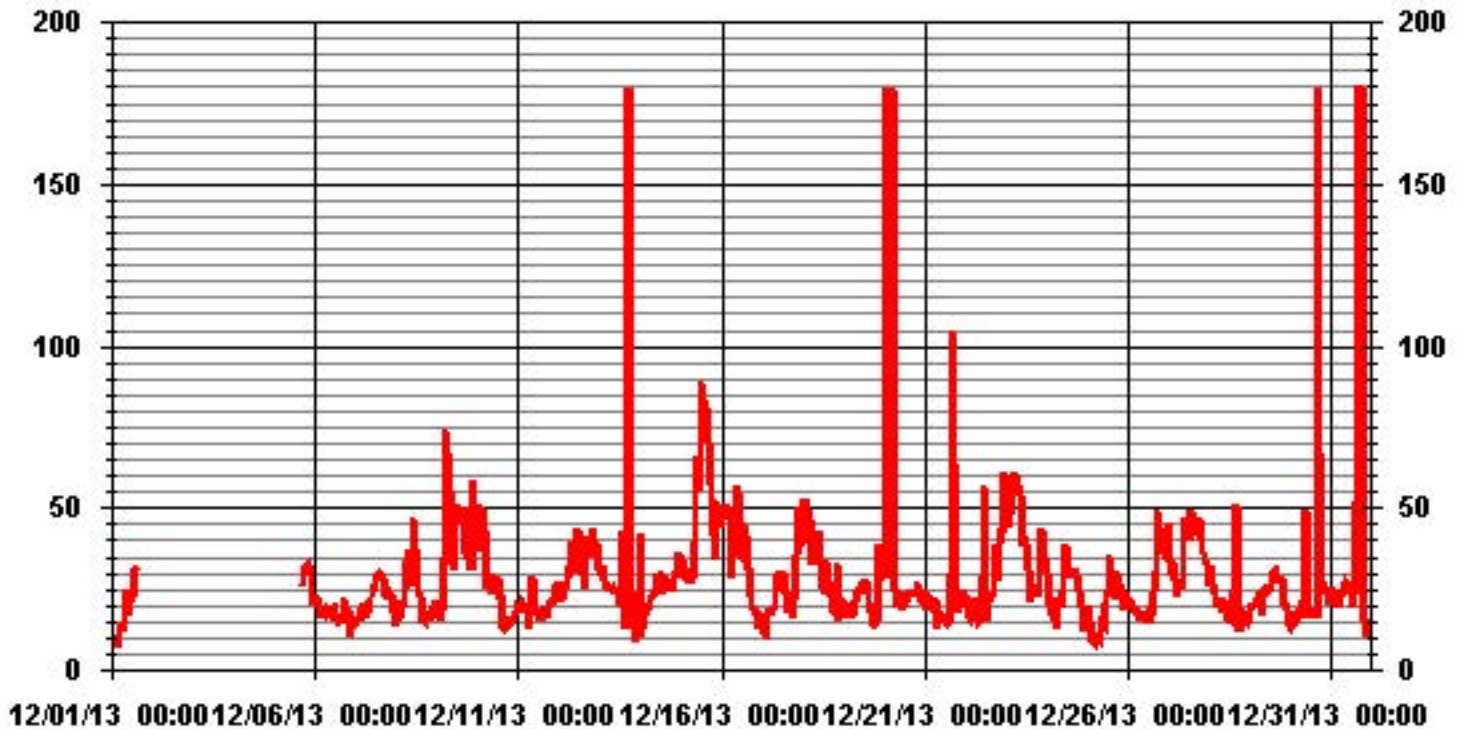
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	179.4	KPH	@ HOUR(S) ON DAY(S)	VAR VAR
-------------------------------	-------	-----	------------------------	------------

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

December 2013

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	.15	.61	.30	.15	.15	.46	.30	.30	.30	.77	.61	.77	.30	.92	1.39	.46	8.03
< 12.0	1.08	.61	.61	2.47	5.71	3.40	2.31	.61	1.70	3.70	6.18	2.00	3.86	3.55	5.71	5.40	48.99
< 20.0	2.16	.61	.77	2.00	3.40	2.31	2.00	.46	2.00	.77	3.40	2.47	2.31	3.40	2.62	4.79	35.54
< 29.0	.30	.00	.46	.61	.00	.00	.00	.00	.61	1.39	.00	.15	.61	.30	.77	1.23	6.49
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.61	.00	.00	.77
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.70	1.85	2.16	5.25	9.27	6.18	4.63	1.39	4.63	6.64	10.20	5.40	7.26	8.80	10.51	11.90	

Calm : .15 %

Total # Operational Hours : 647

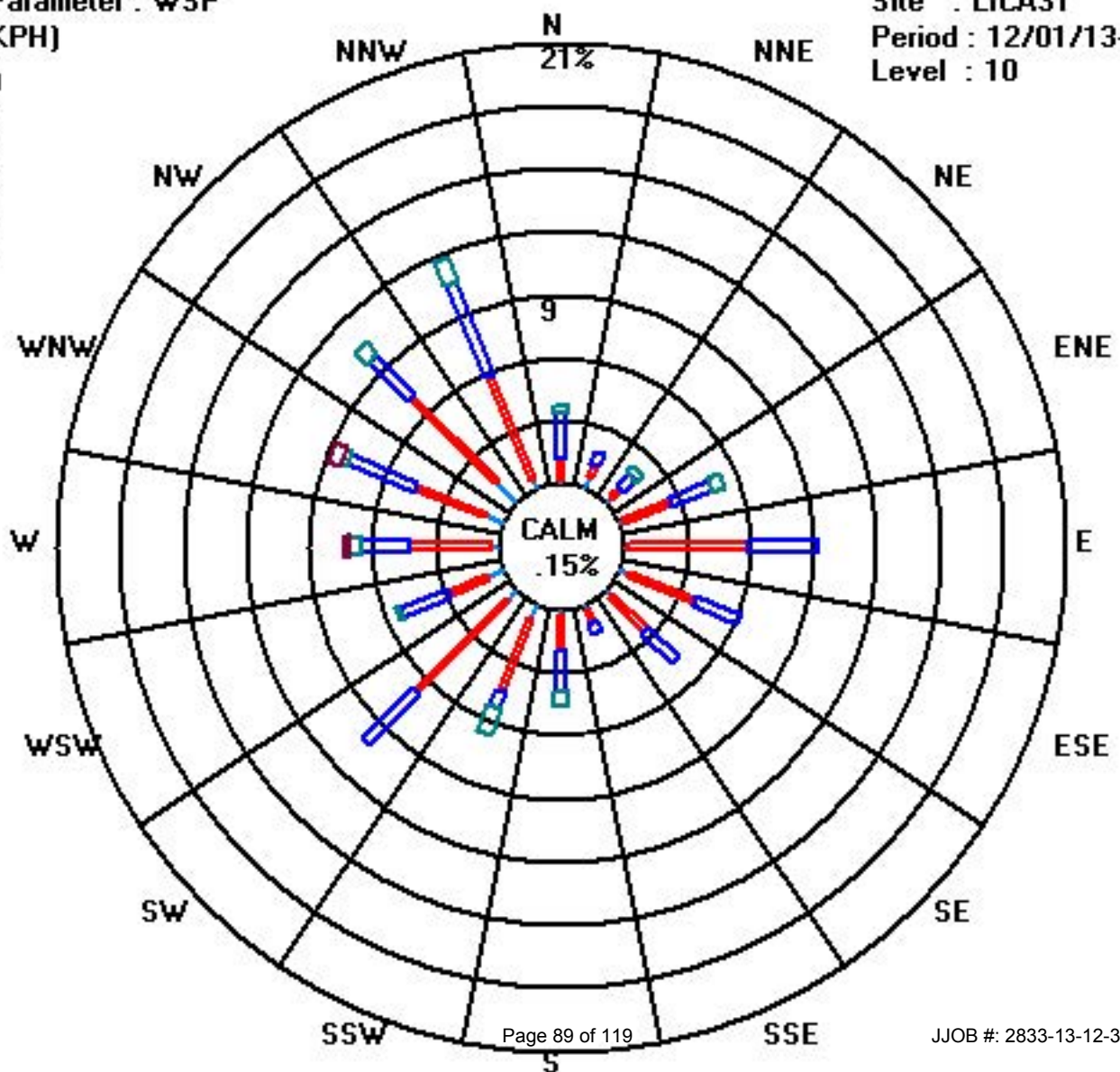
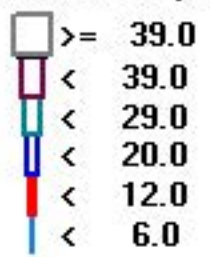
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1	4	2	1	1	3	2	2	2	5	4	5	2	6	9	3	52
< 12.0	7	4	4	16	37	22	15	4	11	24	40	13	25	23	37	35	317
< 20.0	14	4	5	13	22	15	13	3	13	5	22	16	15	22	17	31	230
< 29.0	2		3	4					4	9		1	4	2	5	8	42
< 39.0													1	4			5
>= 39.0																	
Totals	24	12	14	34	60	40	30	9	30	43	66	35	47	57	68	77	

Calm : .15 %

Total # Operational Hours : 647

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2013

WIND DIRECTION 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	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.
DAY 1	199	193	203	177	102	80	69	66	76	93	107	89	86	83	67	X	X	X	X	X	X	X	X	X			15
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			0
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	336	341	348	339	341	349	342	329	341	NNW	8
6	312	318	322	318	312	311	316	310	306	304	304	310	310	309	298	299	294	275	269	268	265	225	228	239	296	WNW	24
7	228	231	230	232	232	225	225	225	224	232	231	236	233	238	240	253	255	265	298	308	322	328	328	305	248	WSW	24
8	272	283	295	308	324	328	336	335	337	330	337	341	332	333	324	283	266	236	244	230	217	204	215	224	299	WNW	24
9	218	237	226	232	283	333	334	338	342	314	303	310	316	317	322	312	302	347	345	337	342	351	350	357	323	NW	24
10	1	354	0	5	356	333	333	339	330	349	337	330	329	328	314	296	236	229	232	211	217	212	205	198	322	NW	24
11	199	183	187	196	187	215	237	244	346	27	5	15	32	43	51	64	74	78	82	81	77	82	86	78	96	E	24
12	79	86	77	72	75	77	76	80	80	82	96	90	90	83	83	76	83	81	85	91	93	92	90	92	85	E	24
13	98	95	99	105	108	116	128	123	120	96	82	98	87	74	69	43	173	217	141	210	217	215	216	214	118	ESE	24
14	183	136	135	128	135	137	132	132	137	135	131	125	129	138	133	136	137	131	140	148	159	145	154	172	139	SE	24
15	179	175	177	190	204	202	216	235	250	265	266	268	290	302	296	296	299	304	298	292	284	285	285	272	271	W	24
16	268	270	276	280	284	279	309	301	300	293	311	290	295	306	295	295	303	310	302	294	285	291	263	221	289	WNW	24
17	231	237	203	184	161	132	115	111	109	109	118	113	122	176	206	219	216	208	244	276	306	333	329	334	182	S	24
18	329	335	346	353	357	342	329	335	329	335	355	338	326	334	335	338	340	340	335	316	318	321	276	275	335	NNW	24
19	277	263	264	269	237	225	218	225	229	221	233	239	234	240	256	246	256	237	234	280	296	308	3	22	247	WSW	24
20	133	229	79	71	168	89	92	94	94	99	105	108	103	97	93	78	77	86	87	88	92	94	92	102	93	E	24
21	95	111	98	98	110	112	106	128	175	196	209	225	235	244	293	323	256	288	286	297	322	334	330	323	236	SW	24
22	322	331	338	326	340	342	359	348	309	281	256	213	218	229	213	200	186	182	184	189	186	188	189	185	219	SW	24
23	192	195	194	196	191	189	192	196	199	202	216	213	209	215	215	244	261	276	287	311	332	327	328	321	220	SW	24
24	314	299	305	283	285	276	254	266	279	279	297	313	314	314	307	293	302	304	305	302	297	264	267	296	296	WNW	24
25	284	332	319	263	277	253	271	235	192	162	166	175	192	188	199	212	240	272	294	304	286	261	276	270	250	WSW	24
26	259	252	248	247	247	236	219	220	222	229	214	201	203	229	213	228	246	274	281	287	281	292	299	314	252	WSW	24
27	335	338	358	19	29	52	61	65	64	69	71	74	72	69	67	57	54	53	49	40	37	29	14	19	47	NE	24
28	7	359	355	352	343	334	338	342	340	319	319	304	291	327	292	295	249	245	243	263	262	217	208	195	307	NW	24
29	199	208	193	171	184	177	162	136	94	88	98	101	91	74	70	60	58	56	55	51	50	31	321	316	91	E	24
30	319	313	324	327	326	327	335	338	331	326	11	10	8	26	26	48	89	119	109	102	101	97	106	107	25	NNE	24
31	105	107	123	122	125	114	115	114	113	115	111	111	120	124	87	102	134	127	127	152	191	225	222	251	125	SE	24
HOURLY AVG	335	359	358	353	357	342	359	348	346	349	355	341	332	334	335	338	340	347	348	339	342	351	350	357			

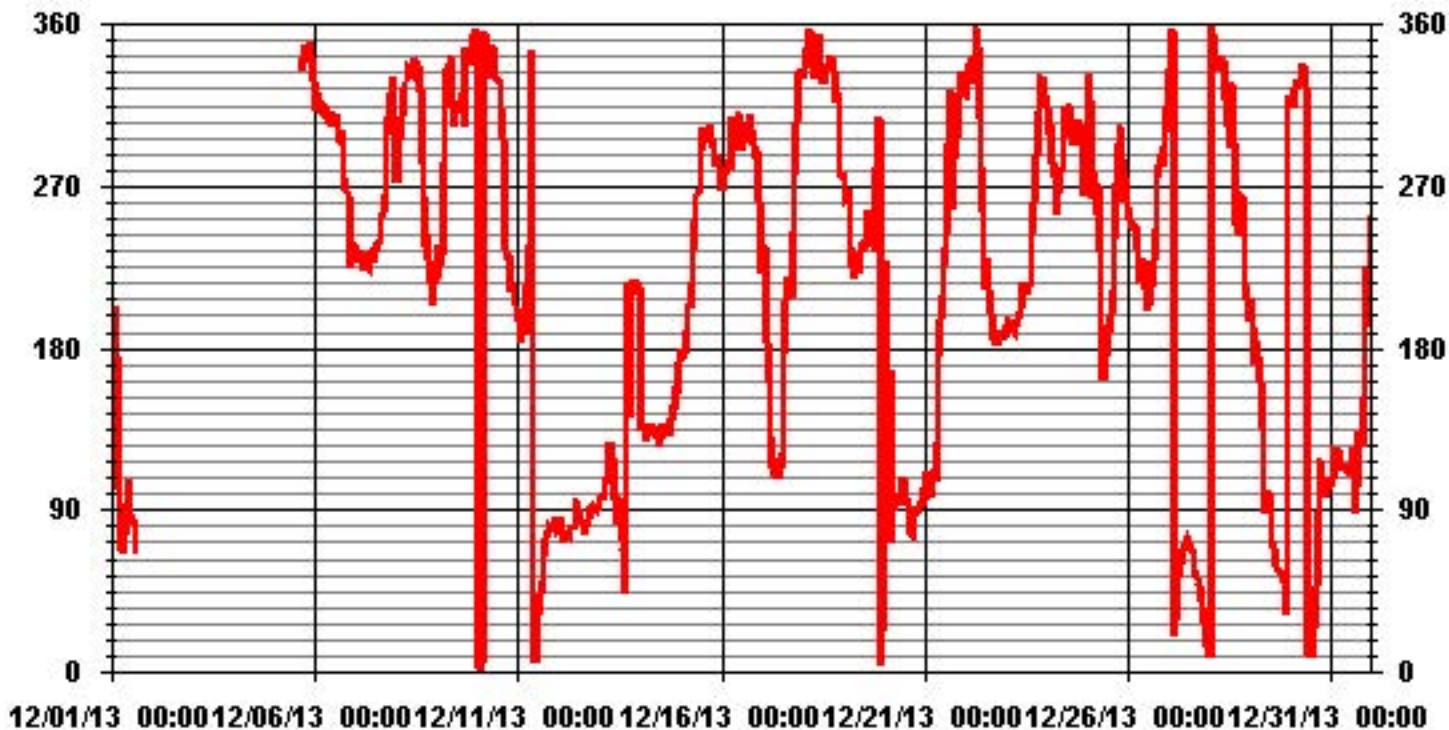
STATUS FLAG CODES

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:	June 12, 2012
DECLINATION:	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	647	HRS
STANDARD DEVIATION:	97.93		AMD OPERATION UPTIME:	87.0	%
			MONTHLY AVERAGE:	286	DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2013

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	12	12	11	16	23	10	8	8	12	16	16	14	15	15	33	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14	13	16	14	14	17	14	11
6	11	12	12	12	11	11	11	11	12	12	13	17	16	19	17	14	12	14	9	6	9	7	4	7
7	6	4	7	5	7	8	7	7	7	5	7	7	8	7	7	7	7	9	15	15	14	15	16	16
8	7	10	12	13	12	14	15	14	14	15	14	17	16	16	14	12	6	6	5	7	9	11	11	9
9	12	16	6	8	13	14	14	14	17	15	15	15	15	15	14	15	16	15	15	15	17	16	15	15
10	18	15	14	15	14	11	11	12	12	14	13	15	13	14	16	16	8	4	4	8	8	8	8	8
11	9	9	11	10	12	13	6	40	36	27	18	16	12	11	11	10	10	14	11	10	11	11	11	11
12	12	11	11	11	11	11	12	11	11	11	12	12	12	13	11	11	12	11	11	11	11	11	10	11
13	10	10	10	9	10	11	12	12	11	13	12	11	13	10	21	9	35	29	53	18	9	7	7	6
14	23	10	12	12	11	12	12	14	12	12	13	12	12	14	13	15	14	13	13	15	15	17	15	13
15	13	12	15	14	11	12	10	9	7	8	8	9	15	16	16	16	15	16	15	15	12	13	13	10
16	9	10	11	12	13	11	16	16	17	15	16	16	15	16	16	15	14	13	12	11	8	9	8	9
17	5	9	5	7	11	14	12	9	11	9	12	13	13	12	12	8	7	7	8	8	15	14	13	15
18	13	13	16	14	14	15	13	15	14	13	18	15	14	16	15	14	14	14	14	13	13	11	12	8
19	10	5	4	5	7	6	8	7	6	8	5	6	8	7	7	5	5	6	5	10	11	21	24	19
20	28	59	33	33	28	31	7	7	8	9	11	14	14	12	13	11	11	11	11	12	11	12	14	10
21	10	10	10	12	12	11	14	11	14	11	12	10	6	8	19	20	26	33	15	12	12	11	11	10
22	11	13	14	11	13	14	10	13	13	7	12	13	12	9	15	12	9	10	12	11	11	12	13	12
23	13	13	12	12	12	12	13	12	12	12	11	9	10	9	9	7	6	8	11	14	14	15	14	14
24	14	15	14	11	11	11	8	10	12	10	15	14	14	15	15	14	14	14	15	14	14	12	6	7
25	12	13	14	7	9	27	12	13	11	12	12	11	11	11	12	13	7	10	13	13	12	5	8	7
26	6	6	6	3	4	3	5	5	4	4	7	8	11	8	10	8	6	11	12	13	12	14	15	16
27	13	14	16	18	16	13	12	11	11	11	10	11	11	11	10	11	11	11	12	12	12	12	15	14
28	14	14	17	16	16	13	15	16	15	17	15	17	26	28	21	19	11	3	4	3	5	7	6	6
29	8	9	9	9	12	12	12	14	10	10	10	10	12	10	9	9	10	10	9	10	11	16	13	15
30	14	15	15	13	12	14	16	16	15	18	18	19	21	18	16	12	54	36	7	9	11	13	10	10
31	9	10	13	12	13	10	10	10	11	10	11	14	17	16	19	44	57	49	40	8	11	6	7	7

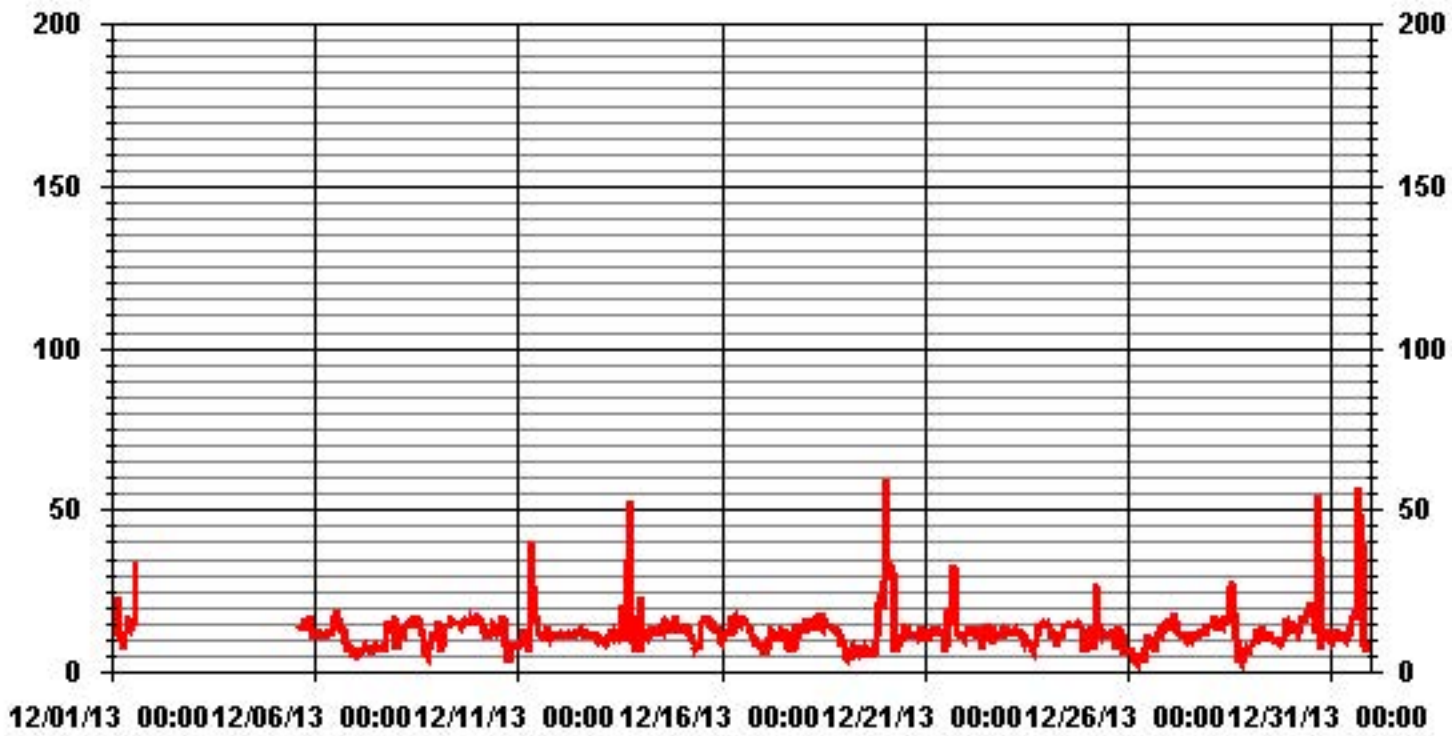
STATUS FLAG CODES

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

LAST CALIBRATION: June 12, 2012

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 647 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 11, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	ST. LINA		
Start Time (MST)	14:20	End Time (MST)	17:00
Reason:	Post Repair Calibration		
Barometric Pressure	27.68 atm	Station Temperature	22 Deg C
Cal Gas	49.7 ppm	Gas Cyl. #	BAL3165
		Cal Gas Expiry date	29/12/2016
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	551 ccm	32 Deg C	553 ccm	32.1 Deg C	
HVPS / Lamp Setting	580	1848(100.8%)	560	1848(100.8%)	
PMT / RxCell Temp	7.8 Deg C	50 Deg C	7.8 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	40 Deg C	NA Deg C	40.0 Deg C	
Offset / Slope	164	0.787	129.8	1.038	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	0.0000
4918	81.8	813	813	1.0000
4959	40.9	407	405	1.0038
4981	20.5	204	202	1.0085
5000	0	0	0	0.0000
Sum of Least Squares				1.0012
New Correction Factor				1.0000

IZS alibration Data

Before Calibration		After Calibration	
Auto Zero	0.0	Auto Zero	0.0
Auto Span	233.1	Auto Span	234.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	0.0%

Notes:

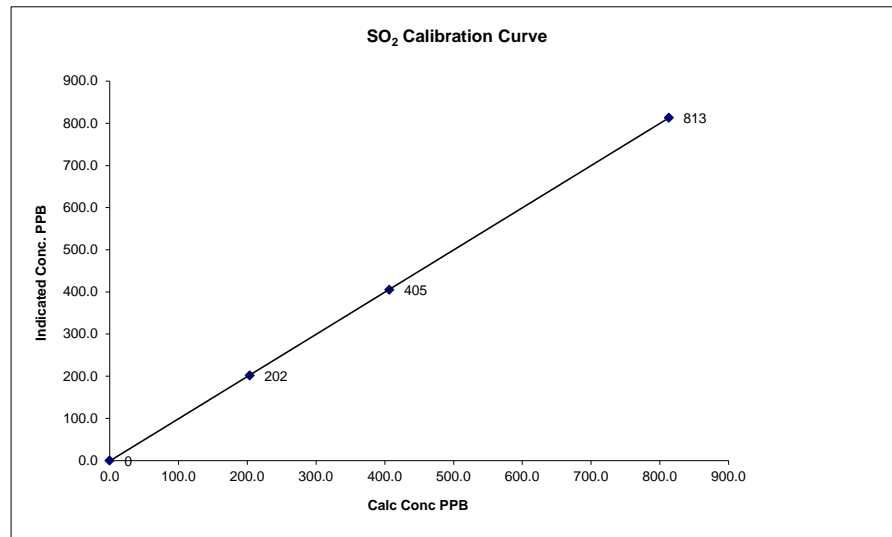
Change sample filter.
After as found point, adjust HVPS due to high Offset.

Calibration Performed by: Limin Li

SO₂ Calibration Curve

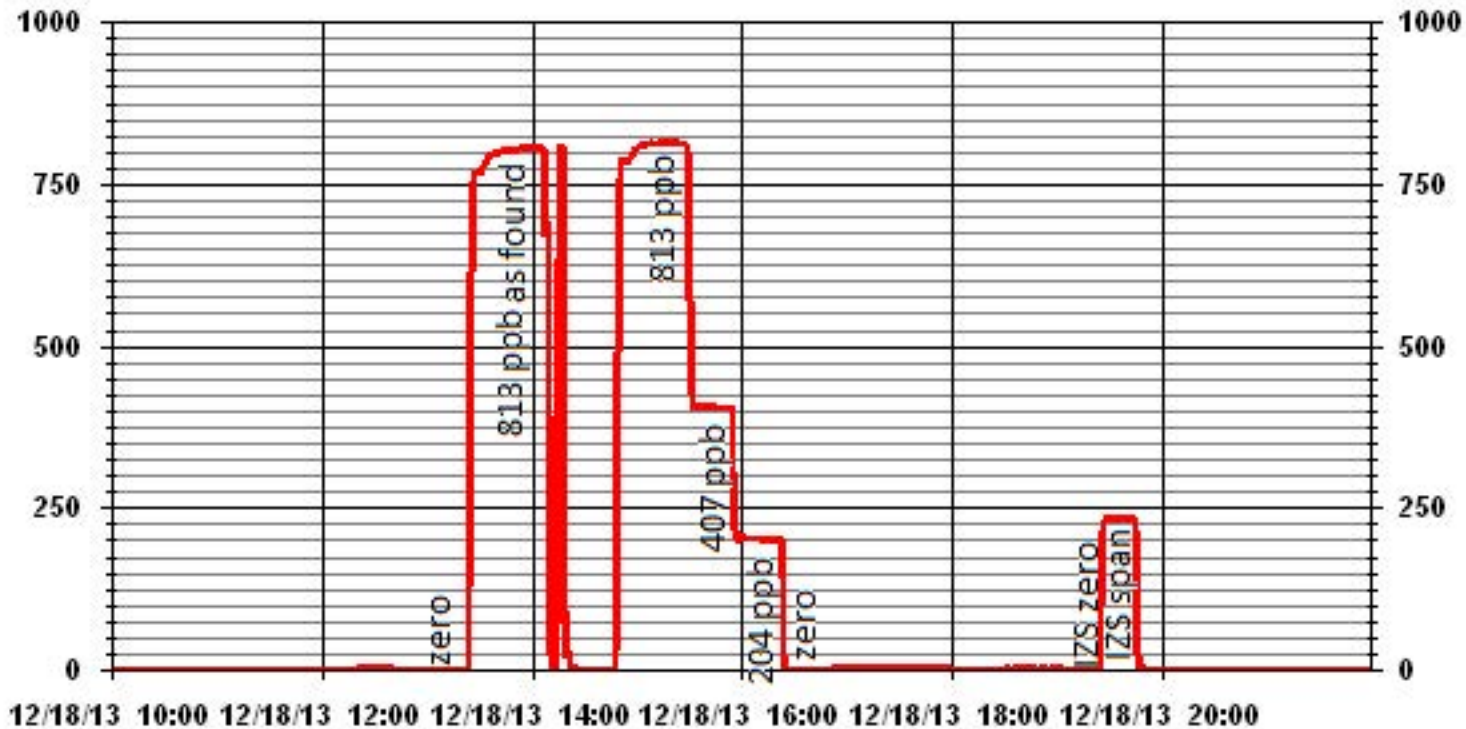
Calibration Date	December 18, 2013
Company	Lakeland Industry & Community Association
Plant / Location	ST. LINA
Start Time (MST)	14:20
End Time (MST)	17:00

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999993
204	202	1.0085		1.000344
407	405	1.0038		-0.969199
813	813	1.0000		

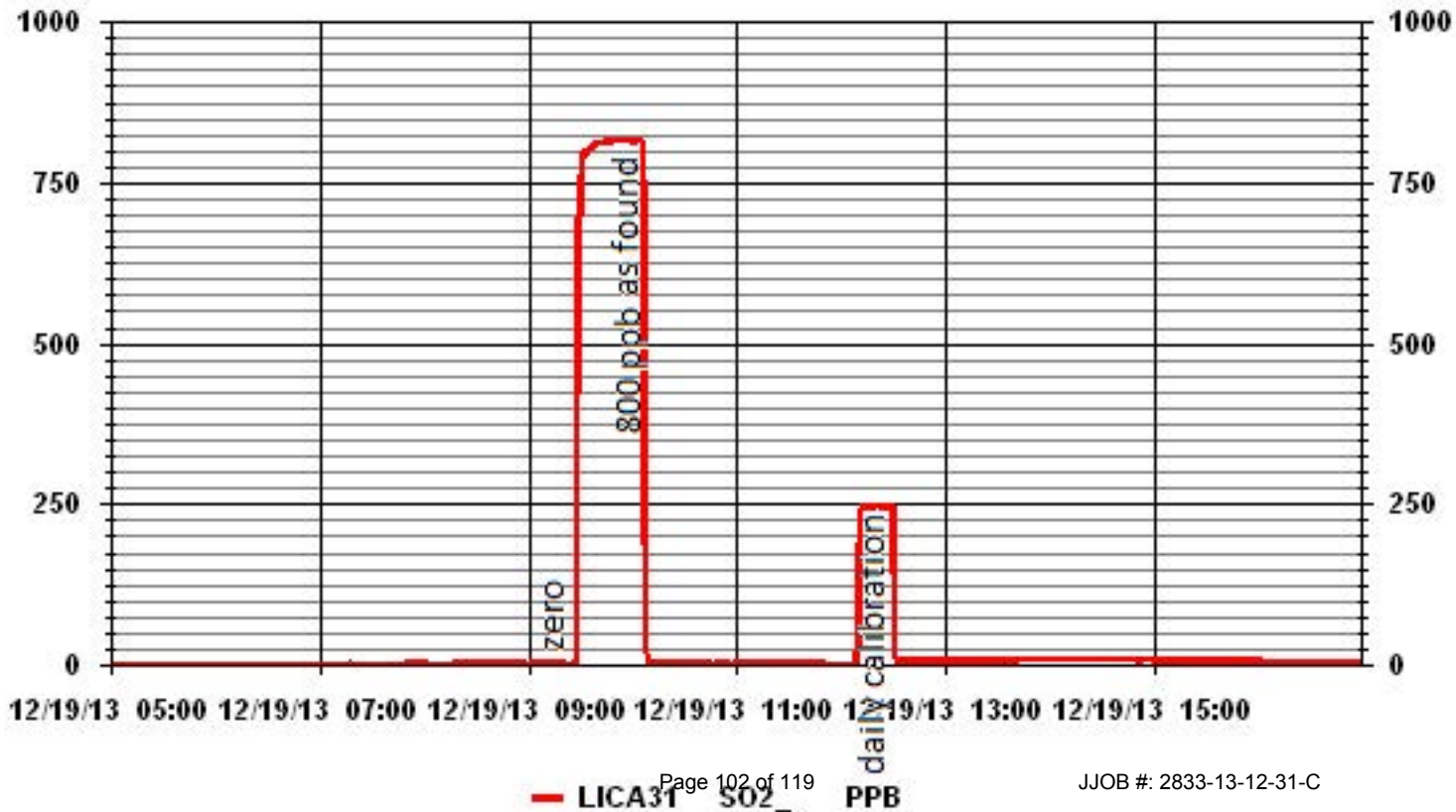


Notes:

01 Minute Averages



01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 11, 2013
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	13:30	End Time (MST)	16:00
Reason:	PR Calibration		
Barometric Pressure	27.68	inHG	Station Temperature 22 Deg C
Cal Gas	10.1	ppm	Gas Cyl. # BLM5049 Cal Gas Expiry date December 25, 2015
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output NA Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100	ppb	
Sample Flow / Box Temp	529 ccm 35.1 Deg C	552 ccm 35.1 Deg C	
HVPS / Lamp Setting	530 1536(87%)	542 1533(100%)	
PMT / RxCell Temp	8.4 Deg C 50 Deg C	8.4 Deg C 50 Deg C	
Converter / IZS Temp	315 Deg C 45 Deg C	315.5 Deg C 45.0 Deg C	
Offset / Slope	109.4 1.23	116.9 1.069	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	0.0000
	No zero Adj.			
4960	39.6	80	80	1.0000
	No Span Adj.			
4980	19.8	40	40	1.0000
4988	12.0	24	24	1.0000
5000	0	0	0	0.0000
Sum of Least Squares				1.0007
New Correction Factor				

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	38.0	34.4
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	0.0%

Notes:

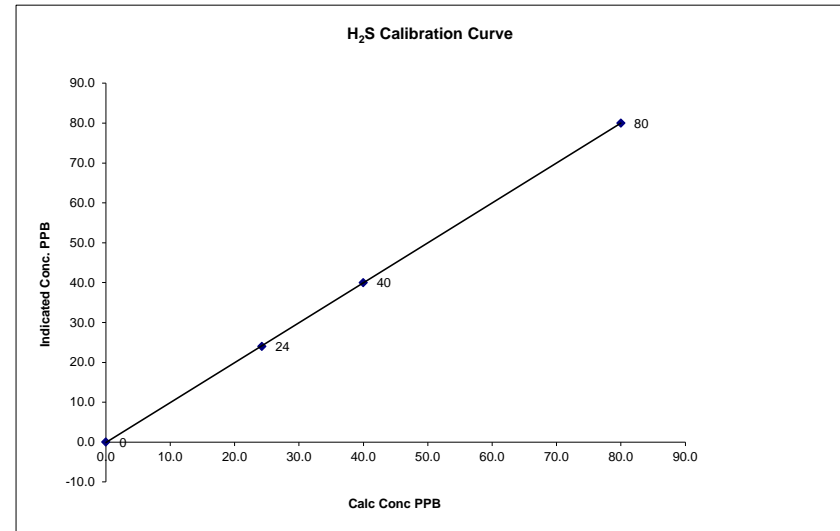
Change Sample filter.
After as found point, calibrate UV Lamp and adjust HVSP.

Calibration Performed by: Limin Li

H₂S Calibration Curve

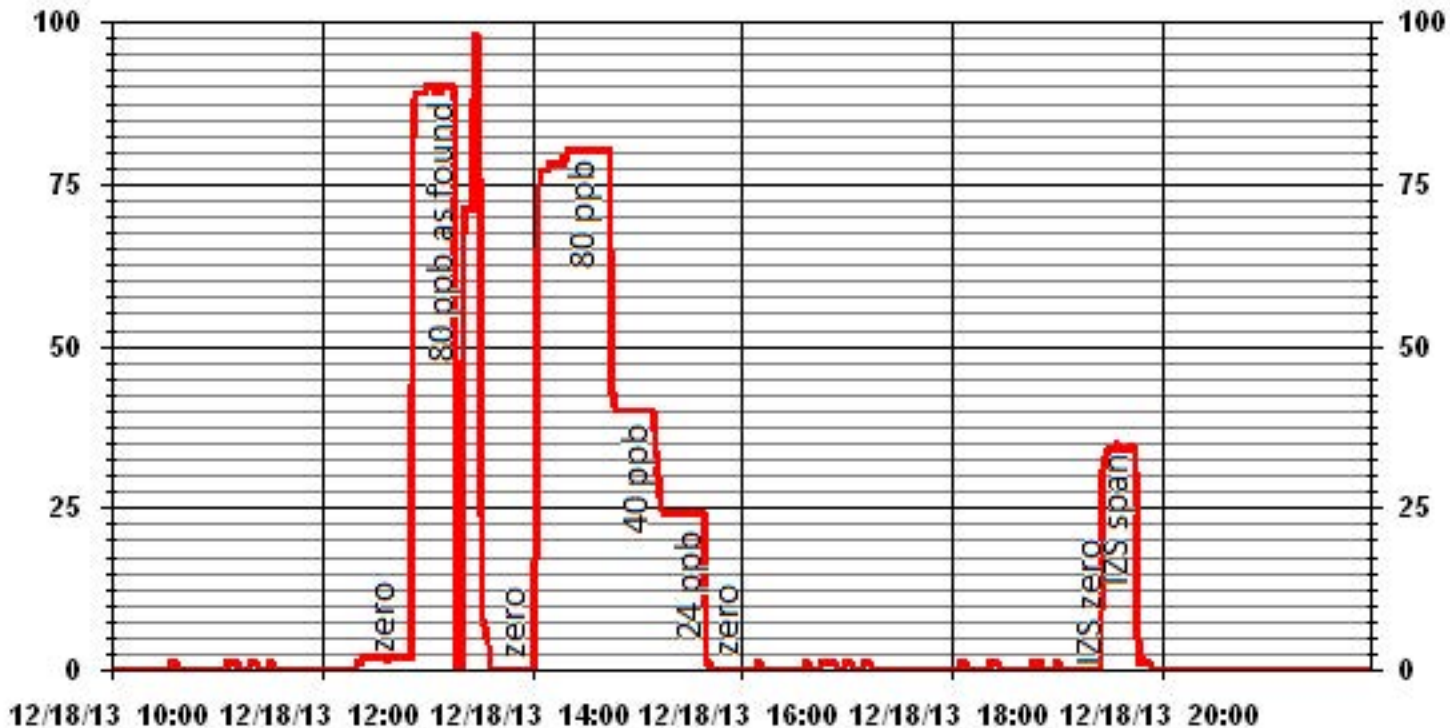
Calibration Date	December 18, 2013
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	13:30
End Time (MST)	16:00

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)
ppb	ppb		Slope	0.999988
0	0		Intercept	1.000861
			(± 3% F.S.)	-0.090056
24	24	1.0100		
40	40	0.9999		
80	80	1.0000		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	December 18, 2013	Previous Calibration	May 14, 2013
Company:	Lakeland Industry & Community Association		
Plant / Location:	ST. LINA		
Start Time (MST)	16:20	End Time (MST)	18:40
Reason:	Monthly calibration		
Barometric Pressure:	27.59 inHG	Station Temperature:	25 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 609 PPM	C3H8 201 PPM	
	TOTAL CH4 1161.8 PPM	Gas Cyl. # LL36542	Cal Gas Expiry Date: July 11, 2013
DAS make & Model:	ESC 8832	S/N :	AO 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

Make / Model	Thermo 51C-LT	S/N :	043669739	Method	Flame Ionization
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Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.8	psi	6.8	psi
Hydrogen Pressure	9	psi	9	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.3	0.0000
	No Zero Adfj.			
2000	73.8	41.3	43.8	0.9439
2000	73.8	41.3	41.3	1.0000
2000	36.8	21.0	20.7	1.0140
2000	18.0	10.4	10.3	1.0061
2000	0.0	0.0	0.3	0.0000
New Correction Factor:				1.0000

Percent Change

Previous Calibration Correction Factor:	1.0092
Current Correction Factor Before Span Adjust:	0.9439
Percent Change:	6.9%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	34.9	32.1
Sample Lines Connected		yes

Cylinder Pressures			
Span	2000 psi	Hydrogen	950 psi
		Zero Air	34 psi

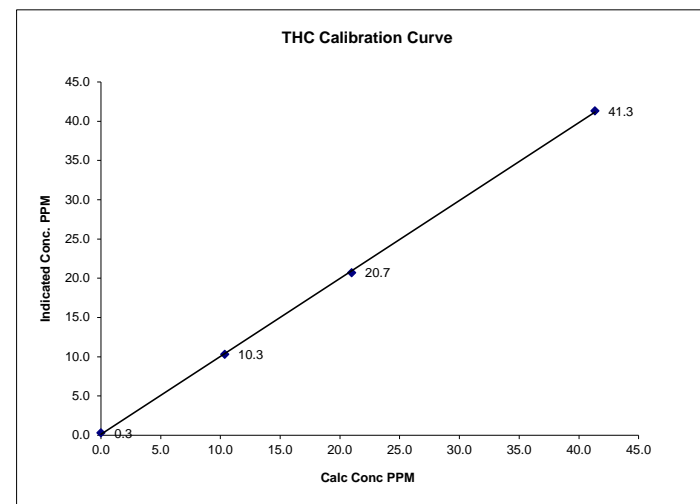
Notes:	Change sample filter
	Spare 3 of H2 2 of Span

Calibration Performed by: Limin Li

THC Calibration Curve

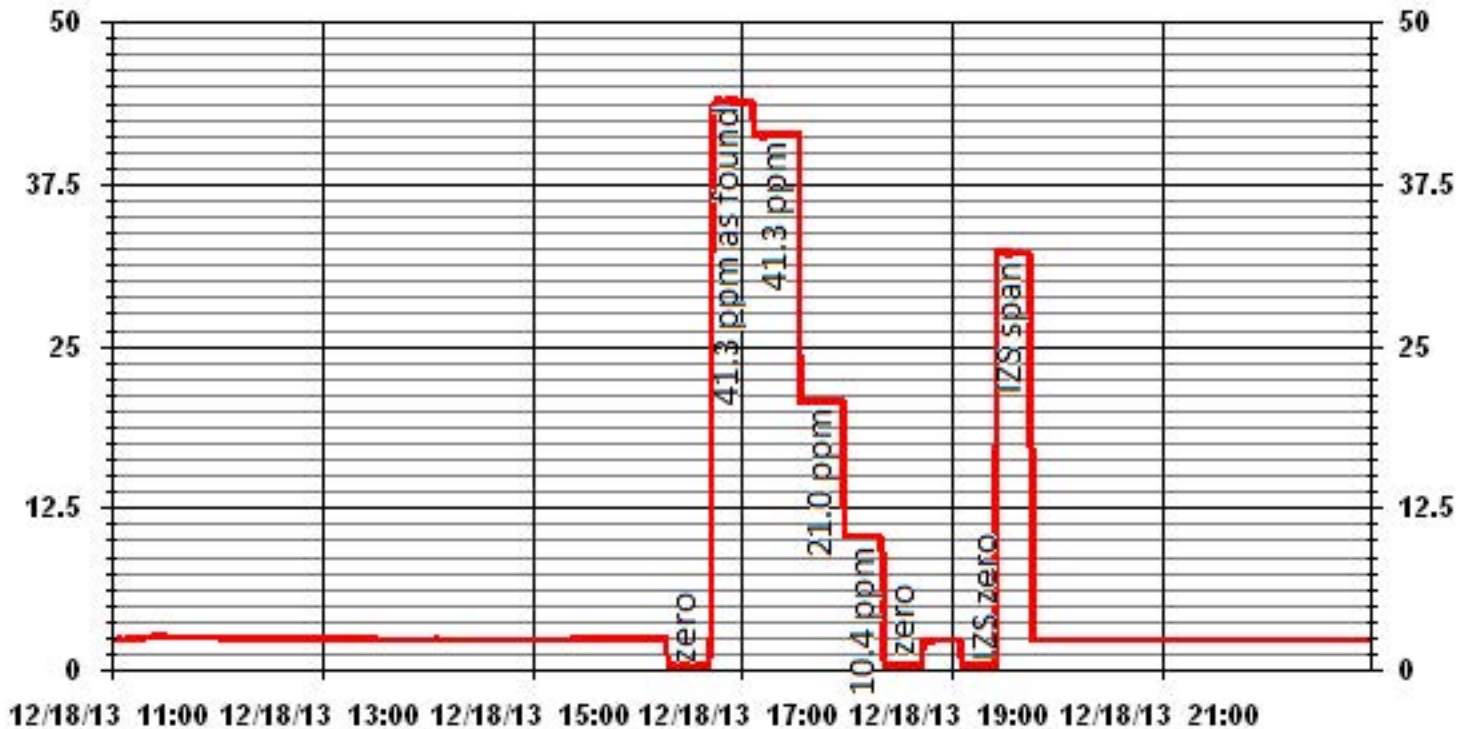
Calibration Date	December 18, 2013
Company	Lakeland Industry & Community Association
Plant / Location	ST. LINA
Start Time (MST)	16:20
End Time (MST)	18:40

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0.0	0.3	0.0000	0.999861	0.992760	0.10771
10.4	10.3	1.0061			
21.0	20.7	1.0140			
41.3	41.3	1.0010			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 11, 2013
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	12:20	End Time (MST)	14:10
Reason:	As Found		
Barometric Pressure	27.68 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.0 ppm	NO	48.9 ppm
Cal Gas Cylinder #	BAL3165	Cal Gas Expiry date	29-Dec-16
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	592	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	484 ccm	316 Deg C		484 ccm	315 Deg C		
Ozone Flow / Vacuum	74 ccm	9.4 *Hg-A		74 ccm	9.4 *Hg-A		
HVPS / A ZERO	670 Volts	23.8 MV		670 Volts	23.8 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C		50.0 Deg C	6.8 Deg C		
Box Temp / IZS Temp	30.5 Deg C	45.1 Deg C		30.5 Deg C	40 Deg C		
Offset	0.6 NOx	0.0 NO		0.6 NOx	0.0 NO		
Slope	0.865 NOx	0.864 NO		0.865 NOx	0.864 NO		
NO2 COEF / Conv Efficiency	N/A NO2	0.993		N/A NO2	0.993		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	-1	-1	0	0	0
5000	0.0	0	0	0	0	0	0	0	0	0
4918	81.8	0	802	800	0	868	867	0	0.9225	0.9217

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.9225	NO= 0.9217	NO2=
			Average Converter Efficiency=			

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	683 NOx	664 NO2		683 NOx	664 NO2		
	Sample Lines Connected:			NO			

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	1.000	0.998	1.002
Current Correction Factor Before Span Adjust	0.923	0.922	
Percent Change	8.4%	8.2%	

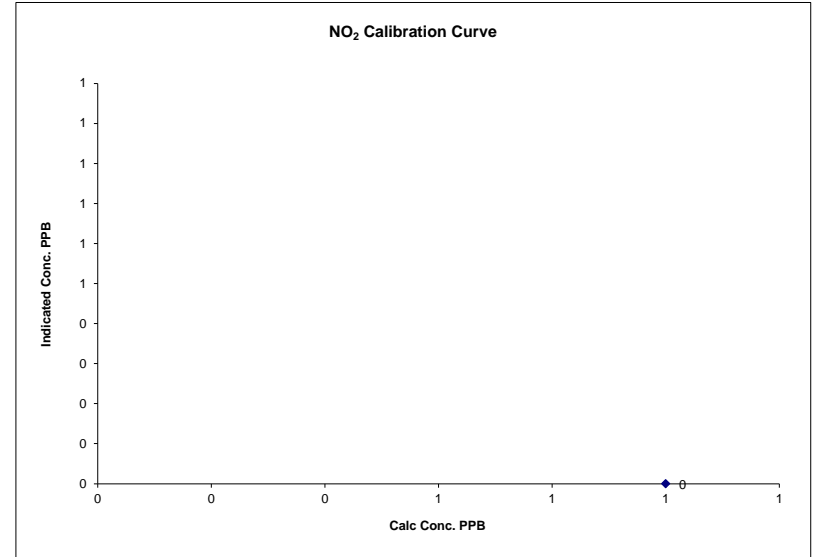
Notes: **Change sample filter.**
 After as found point, adjust HVPS.
 Adjust IZS temperature from 45 to 40 degree.

Calibration Performed by: Limin Li

NO2 Calibration Curve

Calibration Date	December 18, 2013
Company	LICA
Plant / Location	St. Lina
Start Time (MST)	12:20
End Time (MST)	14:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)
0			Slope (0.85 to 1.15)
			Intercept (± 3% F.S.)



Notes:

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 18, 2013	Previous Calibration	November 11, 2013
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	14:20	End Time (MST)	19:20
Reason:	PR calibration		
Barometric Pressure	27.68 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.0 ppm	NO	48.9 ppm
Cal Gas Cylinder #	BAL3165	Cal Gas Expiry date	29/12/2016
DAS Output Voltage	0-1 Volts	Chart Rec. Output	N/A Volts
		MFCF	1

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	592	Method:	Chemiluminescent
Calibrator Make / Model:	Envionics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	N/A	S/N:	N/A		
Flow Meter:	Envionics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	484 ccm	316 Deg C		484 ccm	317 Deg C		
Ozone Flow / Vacuum	74 ccm	9.4 °Hg-A		74 ccm	9.6 °Hg-A		
HVPS / A ZERO	670 Volts	23.8 MV		650 Volts	22 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C		50.0 Deg C	6.9 Deg C		
Box Temp / IZS Temp	30.5 Deg C	45.1 Deg C		31 Deg C	40.2 Deg C		
Offset	0.6 NOx	0.0 NO		-1 NOx	-1.0 NO		
Slope	0.865 NOx	0.864 NO		1.007 NOx	1.002 NO		
NO2 COEF / Conv Efficiency	N/A NO2	0.993		N/A NO2	0.993		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5000	0.0	0	0	0	0	0	0	0	0	0
	No Zero Adj.									
4918	81.8	0	802	800	0	802	800	2	1.0000	1.0000
	No Span Adj.									
4959	40.9	0	401	400	0	401	400	1	1.0000	1.0000
4981	20.5	0	201	200	0	203	202	1	0.9894	0.9922
5000	0.0	0	0	0	0	0	0	0	0.0000	0.0000

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4918	81.8	0	802	800	0	806	801	5	0	0.00%
4918	81.8	500	802	0.0	564	809	242	567	0.9947	100.54%
4918	81.8	220	802	0.0	252	810	554	256	0.9844	101.62%
4918	81.8	100	802	0.0	112	811	694	117	0.9573	104.67%
4918	81.8	350	802	0.0	398	812	408	404	0.9851	101.53%

Linearity	Sum of Least Squares		NOx= 0.999	NO= 1.000	NO2= 0.983
OK?	Yes	No	Correction Factors: NOx= 1.0000	NO= 1.0000	NO2= 0.9844
			Average Converter Efficiency= 102.61%		

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	683 NOx	664 NO2		483 NOx	468 NO2		
	Sample Lines Connected:			YES			

Percent Change

	NOx	NO	NO2
Previous Month's Calibration Correction Factor	1.000	0.998	1.002
Current Correction Factor Before Span Adjust	1.000	1.000	0.995
Percent Change	0.0%	-0.2%	0.7%

Notes

Change sample filter.

After as found point, adjust HVPS.

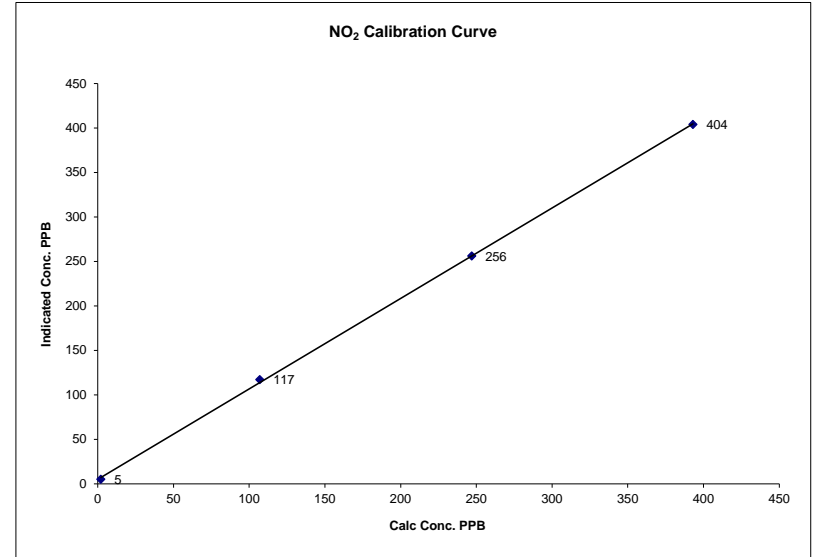
Adjust IZS temperature from 45 to 40 degree.

Calibration Performed by: Limin Li

NO2 Calibration Curve

Calibration Date	December 18, 2013
Company	LICA
Plant / Location	St. Lina
Start Time (MST)	14:20
End Time (MST)	19:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999836
2	5	0.0000	Intercept	(± 3% F.S.)	5.13261
393	404	0.9728			
107	117	0.9145			
247	256	0.9648			

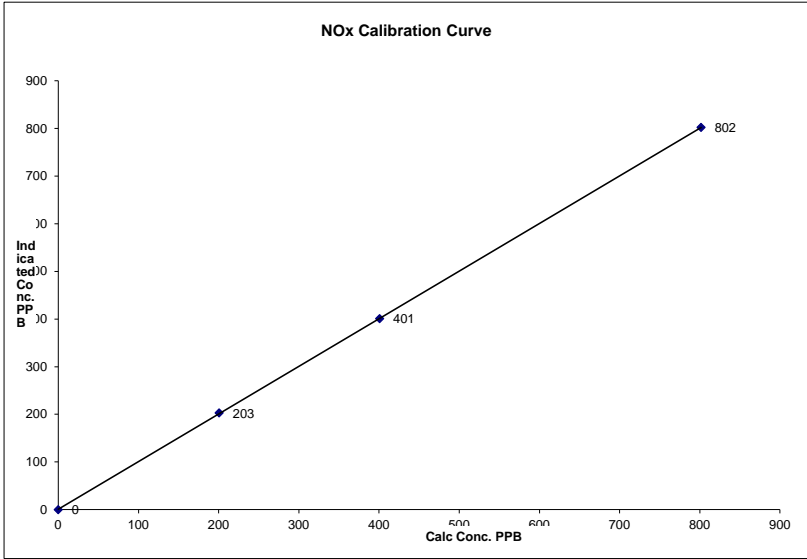


Notes:

NOx Calibration Curve

Calibration Date	December 18, 2013	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	14:20	End Time (MST) 19:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999992
0	0	0.0000	Slope (0.85 to 1.15)	0.999523
201	203	0.9894	Intercept (± 3% F.S.)	0.83239
401	401	1.0000		
802	802	1.0000		

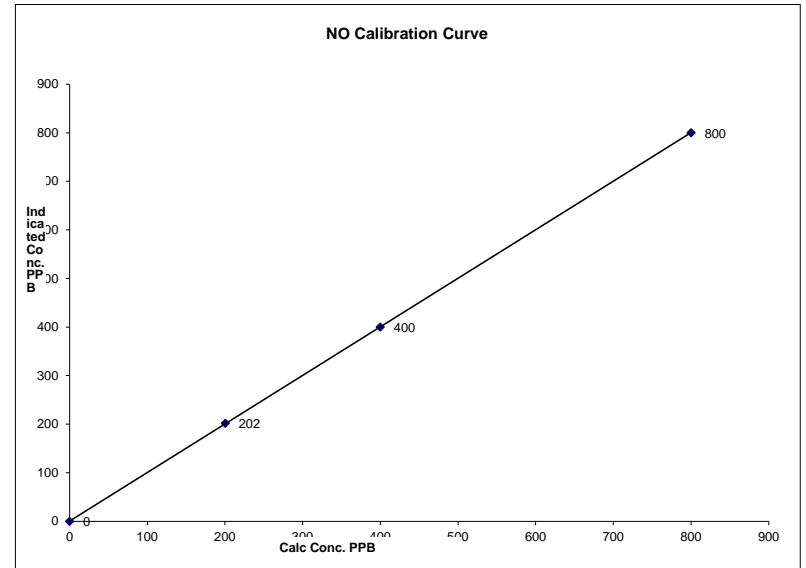


Notes:

NO Calibration Curve

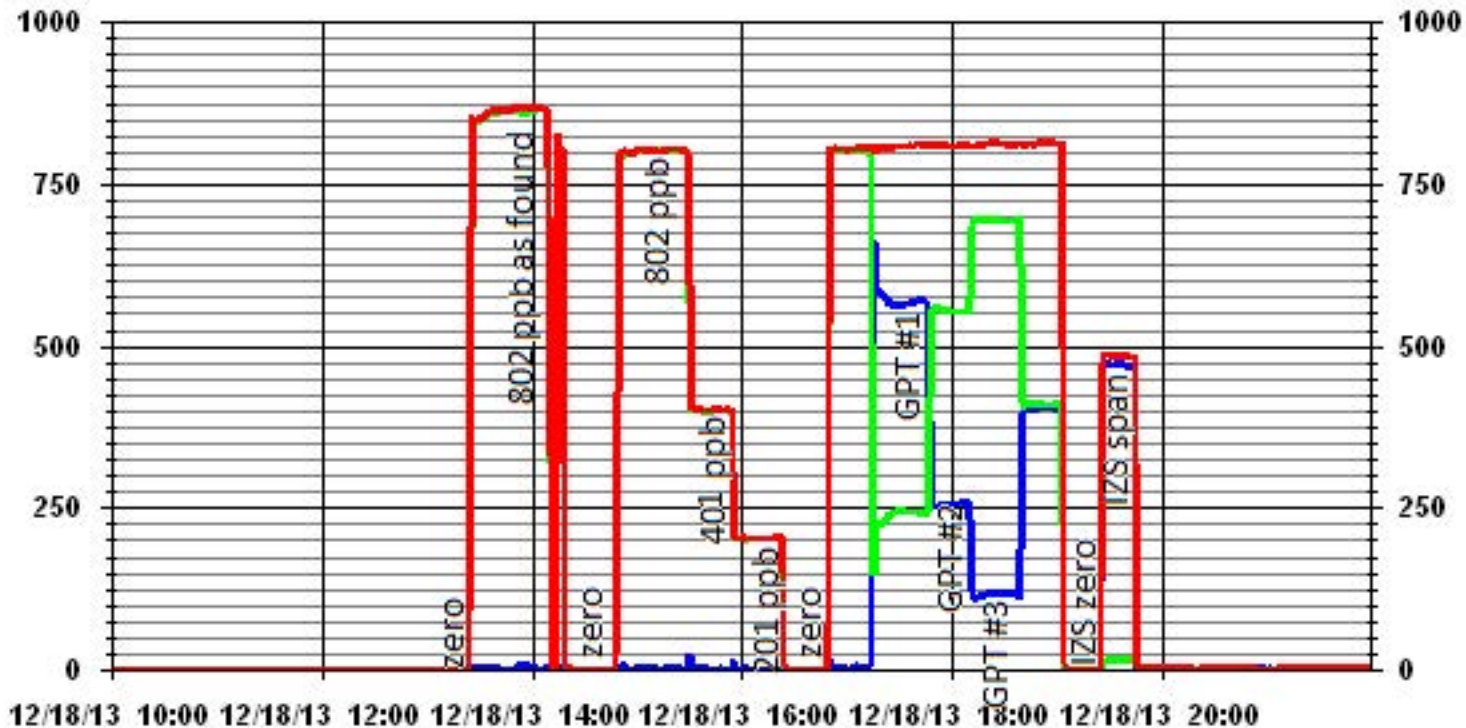
Calibration Date	December 18, 2013	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	14:20	End Time (MST) 19:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999995
0	0	0.0000	Slope (0.85 to 1.15)	0.999281
200	202	0.9922	Intercept (± 3% F.S.)	0.63291
400	400	1.0000		
800	800	1.0000		



Notes:

01 Minute Averages



— LICA31 IIOX_ PPB
 — LICA31 IIO_ PPB
 — LICA31 IIO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 19, 2013	Previous Calibration	November 12, 2013
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	9:00	End Time (MST)	12:45
Reason:	Monthly Calibration		
Barometric Pressure	27.6 atm	Station Temperature	22 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240371	Method:	Photometric
Calibrator Make / Model:	Enviro-nics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0-500 ppb							
Cell A Flow / Cell B Flow	736 LPM	731 LPM	735 LPM	730 LPM				
O ₃ Set Level	679 mmHg		679 mmHg					
Bench Lamp	53.4 Deg C		53.6 Deg C					
O ₃ Lamp / Box Temp	67.7 Deg	26.3 Deg C	67.7 Deg C	27 Deg C				
Offset / Slope	-0.2	0.98	-0.2	0.993				

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	N/A
	No Zero Adj			
5000	350	393	386	1.0181
5000	350	393	393	1.0000
5000	220	247	251	0.9841
5000	100	107	112	0.9554
5000	0	0	0	N/A
Sum of Least Squares				0.9933
New Correction Factor				1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	321	321
Sample Lines Connected		Yes
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		1.0181
Percent Change:		-1.8%

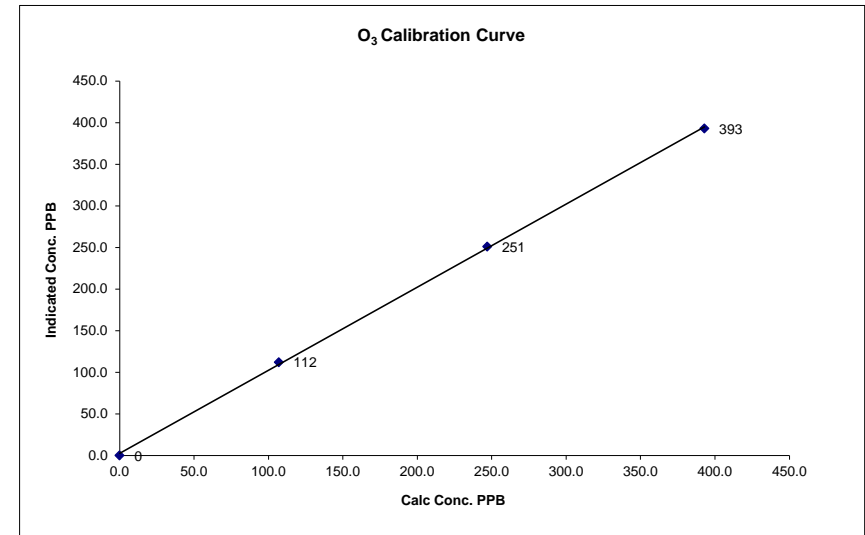
Note: N/A : Not Applicable
Change sample filter.

Calibration Performed by: Limin Li

O₃ Calibration Curve

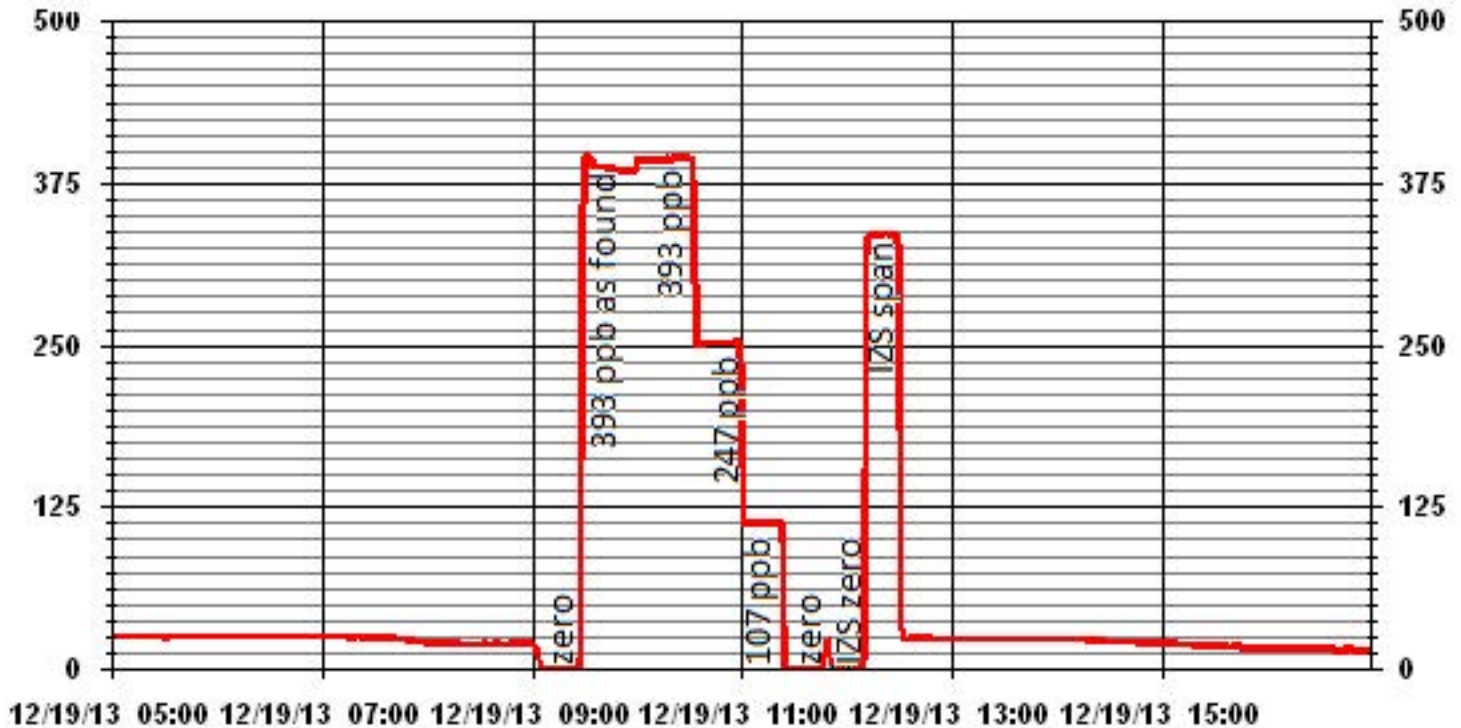
Calibration Date	December 19, 2013		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	9:00	End Time (MST)	12:45

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
0	0	N/A	Slope (0.85 to 1.15)	0.999765
107	112	0.9554	Intercept (± 3% F.S.)	0.998195
247	251	0.9841		2.587050
393	393	1.0000		



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM® Calibration

	<u>Station</u>		<u>Transfer Standard</u>
Date:	December 19, 2013	Make/Model:	Streamline FTS
Station Name:	LICA St.Lina (CASA#31)	Serial Number:	Hi 091001,Lo 091099
Location:	St. Lina Station	Cell s/n:	na
Operator:	Maxxam Analytics	Thermometer:	Station Temp. & pres. Sensor

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	R&P Teom 1400a	F-Main Set Pt (l/min)	3.00
Unit #	20001	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB228720001	Filter Load (%)	45%
Transducer s/n	1200C153540001	K _o Factor	15003
Parameter	PM2.5	Temp (°C)	-24.7
		Press (ATM)	0.924

Conversion from mmHg or "Hg to ATM (Atmospheres)

ATM = (mmHg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow				
	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.05		(45-60 Sec)	45
F-Aux (l/min)	0.11		(45-60 Sec)	55
Temperature/Pressure				
Measured Temp (± 1 °C)	-25.4	Δ °C	-0.7	
Measured Press (± 1.5% ATM)	0.925	Δ % ATM	0.1%	
Flow Audit				
Indicated Main/Aux Flow (l/min)	2.98 / 13.61	Δ % from Set-pt		
Total Flow = Main + Aux (l/min)	16.59	(± 2%)	0.7% / 0.4%	
Measured Total Flow (l/min)	17.24	(± 2%)	0.5%	
Measured Main Flow (l/min)	3.070	(± 1.0 l/min. (5.65%))	-3.8%	
		(± 0.2 l/min. (6.25%))	-2.9%	
Leak Check				
Main (< 0.15 l/min)	0.06	Actual leakage = Pump On - Pump Off		
Aux (< 0.15 l/min)	0.13	0.01		
		0.02		
K_o Factor				
Measured	na			
K _o Difference (± 2.5%)	na			

Start Time: 10:00 **Finish Time:** 11:30
Sample Inlet Cleaned: Yes **Sample Inlet Connected:** Yes
Comments: Change sample filter.

Calibrator/s: Limin Li