Lakeland Industry & Community Association

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

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

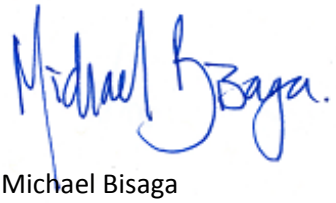
February 3, 2015

RE: November 2014 Ambient Air Monitoring Monthly Reports

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

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

Respectfully,



Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
November 2014

Prepared By:

Maxxam
A Bureau Veritas Group Company

January 22, 2015

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

Table of Contents

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: Cold Lake
Data Period: November 2014

The monthly ambient data report:

- Prepared by Wunmi Adekanmbi
- Reviewed by Lily Lin

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 – November 2014

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	0.26	3	12, 13	2, 15	4.1, 5.5	314(NW) 249(WSW)	0.8	18	100.0
TRS (PPB)	-	-	-	-	0.00	0	VAR	VAR	VAR	VAR	0.0	VAR	100.0
NO_2 (PPB)	159	-	0	-	4.52	22.7	14	4	4.4	270(W)	9.3	13	100.0
NO (PPB)	-	-	-	-	0.62	10.9	13	8	0.3	184(S)	2.1	13	100.0
NOx (PPB)	-	-	-	-	5.14	26.6	14	5	4.4	258(WSW)	11.4	13	100.0
O_3 (PPB)	82	-	0	-	24.31	41	16	11, 12	13.4 11.9	335(NNW) 322(NW)	36.2	16	100.0
THC (PPM)	-	-	-	-	2.15	3.5	14	5	4.4	258(WSW)	2.4	VAR	100.0
PM 2.5 (UG/M^3)	-	30	-	0	8.39	36	VAR	VAR	VAR	VAR	24.4	21	98.1
TEMPERATURE (DEG C)	-	-	-	-	-9.16	10.6	1	13	7.9	338(NNW)	4.1	1	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	75.85	99	21	8	4.9	331(NNW)	90.0	21	100.0
VECTOR WS (KPH)	-	-	-	-	6.50	17.3	7	3	-	327(NW)	11.6	7	100.0
VECTOR WD (DEGREES)	-	-	-	-	330(NNW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – November 2014

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO_2	#14	0.8	0.4
H_2S	#27	0.24	0.11
NO_2	#28	11.3	3.4
O_3	#32	29.05	23.46

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

The analyzer was working well throughout the month. The monthly calibration was performed on November 5th. The inlet filter was changed before the monthly calibration. 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: 501

The analyzer was working well throughout the month. The monthly calibration was performed on November 5th. The inlet filter was changed before the monthly calibration. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)
- Analyzer make / model - Thermo 51C, S/N: 427408718

The analyzer was working well throughout the month. The monthly calibration was performed on November 5th. The inlet filter was changed before the monthly calibration. Data was corrected using daily zero information. The span bottle was changed on November 5th.

General Monthly Summary

AQM STATION – LICA - COLD LAKE SOUTH

Particulate Matter 2.5 (UG/M3)

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

Two Teom audits were performed this month: one was completed on November 5th, and the other audit was performed on November 28th. The sample filter was replaced on November 28th. 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. 14 hours of data were invalidated as the data were below –3 ug/m3.

Partisol

· Analyzer make / model – Dwyer 475 Mark III

The Partisol unit was installed on November 28th for the sampling program. The sampling program is scheduled to start on December 1st. The Partisol unit was calibrated by Alberta Environment before it was installed in the field.

Nitrogen Dioxide (PPB)

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

The analyzer was working well throughout the month. The monthly calibration was performed on November 5th. The inlet filter was changed before the monthly calibration. Data was corrected using daily zero information.

Ozone (PPB)

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

The analyzer was working well throughout the month. The monthly calibration was performed on November 1st. The inlet filter was changed before the monthly calibration. Data was corrected using daily zero information.

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 wind direction data included in this report represents where the wind was coming from. The last wind system calibration was performed on November 28th, 2012. No operational issues were observed during the month.

Trailer Temperature (DEGC)
· System make / model - R&R 61
No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA - COLD LAKE SOUTH

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 November 5th. The HVAC unit was maintained by Allied on November 15th.

Passive Network

The samplers installed at site #2 had been removed, so no sample filters were installed.
Sample filters were not replaced at site #11 and site #13 because access to the sites was blocked by extreme snow.
The NO_2 sample filter installed at site #29 and both the NO_2 and O_3 duplicate sample filters installed at site #23 were broken and therefore could not be analyzed.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

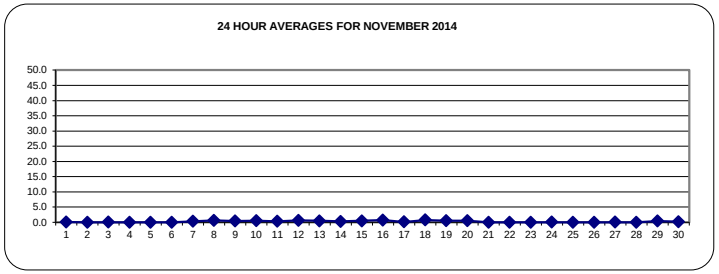
SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

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

STATUS FLAG CODES

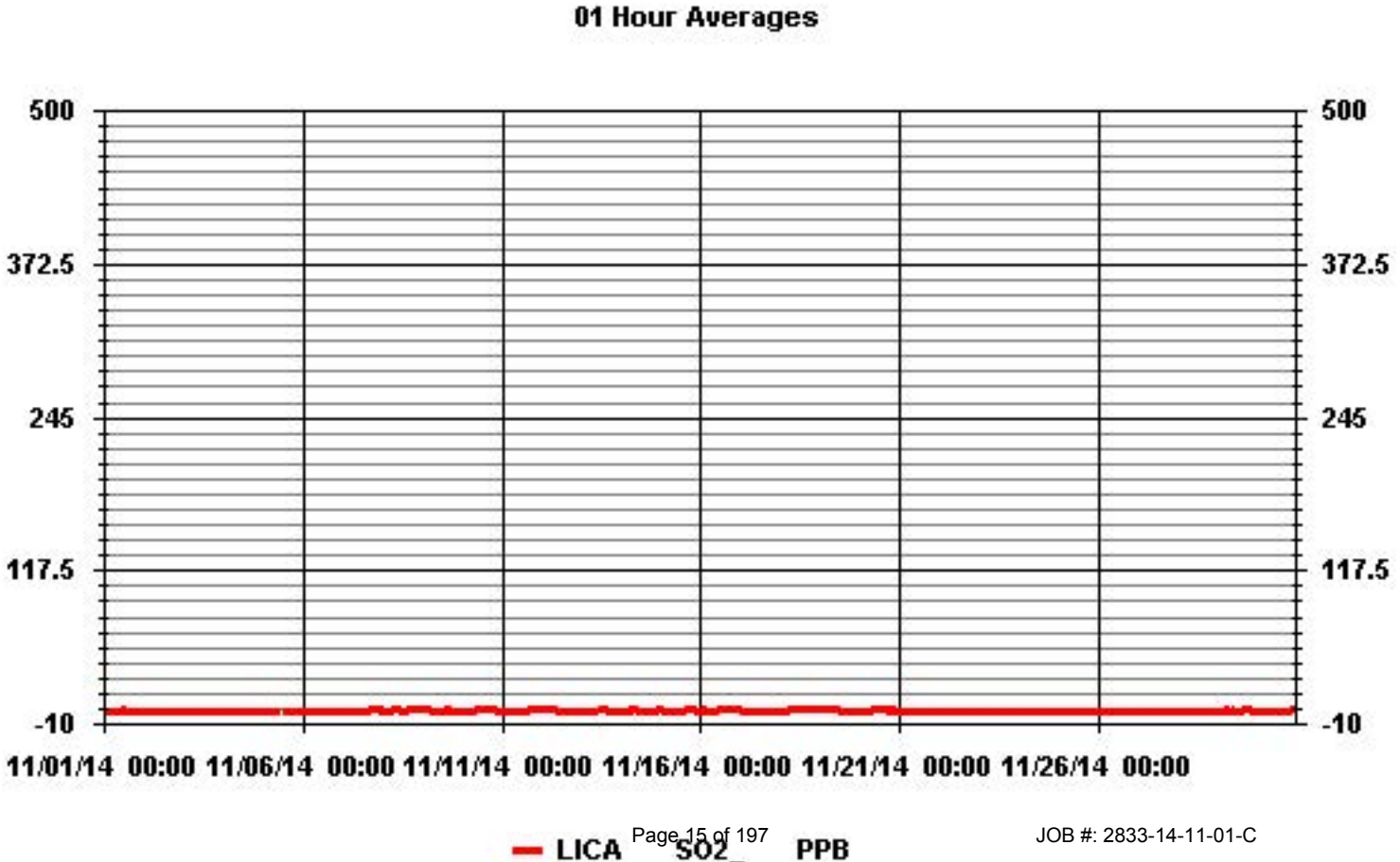
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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:	170						
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	2, 15	ON DAY(S)	12, 13	
MAXIMUM 24-HR AVERAGE:	0.8	PPB			ON DAY(S)	18	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.46		MONTHLY AVERAGE:			0.26	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

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	0	1	0	0	0	1	1	0	1	1	1	1	1	0	0	1	S	0	0	0	1	0.4	24
2	0	1	0	1	0	1	1	0	1	1	1	1	1	0	1	1	1	0	1	S	0	0	0	1	1	0.6	24
3	0	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	0.7	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	0	0	0	1	1	0.9	24
5	0	1	0	1	0	0	0	0	0	S	C	C	C	C	1	1	1	1	1	S	1	1	1	1	1	0.6	24
6	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
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	1	2	1	1	2	1.1	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	1	1	1	1	1	2	1.0	24
9	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	S	2	2	1	1	1	1	1	1	2	1.2	24
10	1	1	1	1	1	1	1	1	1	2	1	2	2	2	S	2	1	1	1	1	1	1	1	1	2	1.2	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	2	1	1	1	1	2	2	2	1.2	24
12	2	2	***4***	3	2	2	1	1	2	2	1	1	S	1	1	1	1	1	1	1	1	1	1	1	***4***	***1.5***	24
13	1	1	1	1	1	1	1	1	1	1	2	S	2	2	3	***4***	3	1	1	1	1	1	1	1	***4***	1.4	24
14	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1.0	24
15	2	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1.1	24
16	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	2	1	1	1	2	1	2	2	1	2	1.2	24
17	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
18	1	1	1	1	1	1	S	1	1	1	2	2	2	2	2	2	1	2	2	2	1	1	1	1	2	1.4	24
19	1	1	2	1	2	S	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24
20	1	1	1	1	S	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	2	1.1	24
21	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
22	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
23	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
24	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1.0	24
25	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
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1.0	24
27	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
28	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
29	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
30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	2	2	2	2	1.2	24
HOURLY MAX	2	2	4	3	2	2	2	2	2	2	2	2	2	2	3	4	3	2	2	2	2	2	2	2			
HOURLY AVG	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.1	1.1	1.0	1.1	1.1	1.2	1.2	1.2	1.0	1.0	1.1	1.0	1.0	1.0	1.1			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 645

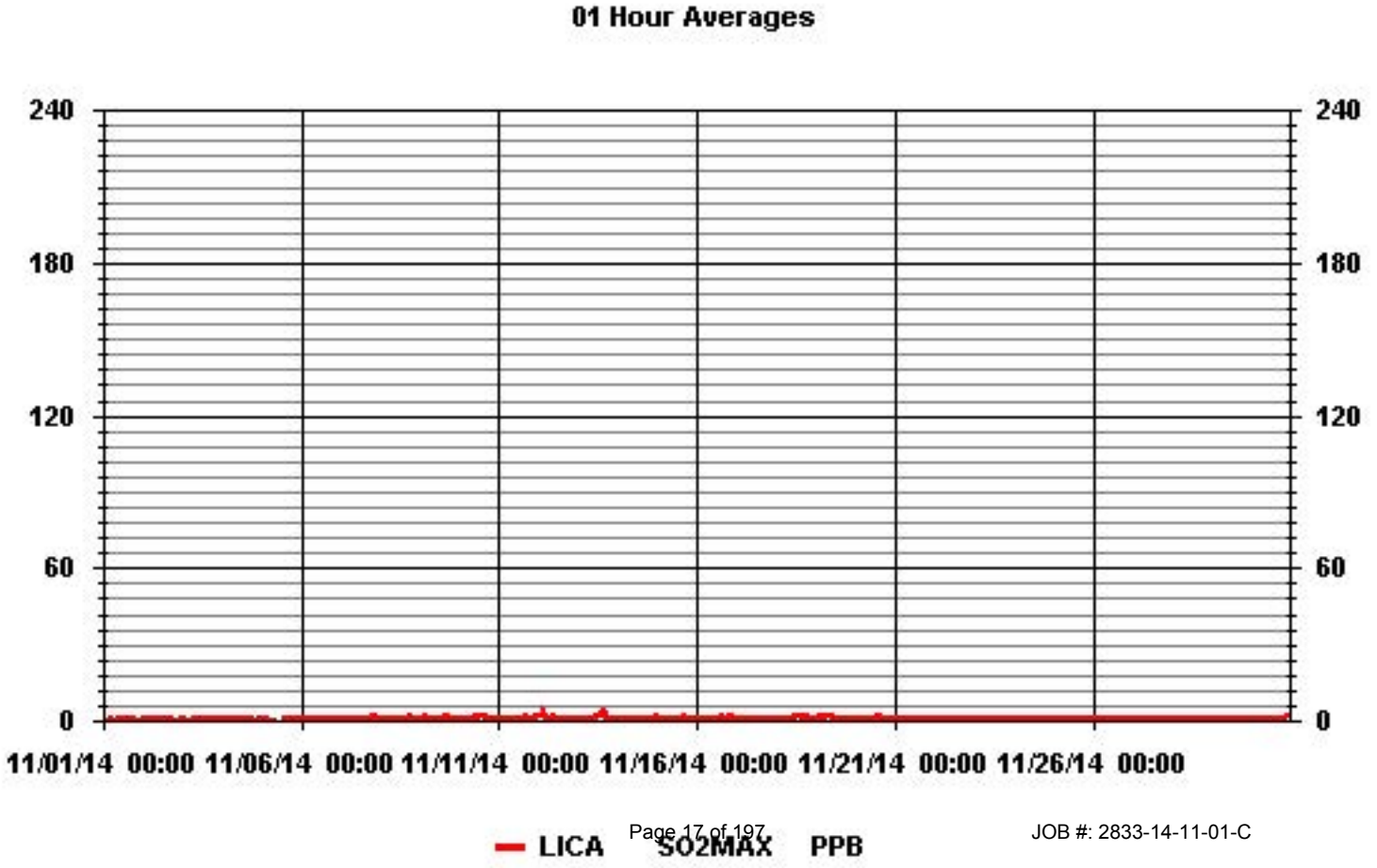
MAXIMUM INSTANTANEOUS VALUE: 4 PPB @ HOUR(S) 2, 15 ON DAY(S) 12, 13

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 4 HRS

STANDARD DEVIATION: 0.43



JOB #: 2833-14-11-01-C

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	4.23	1.75	.87	7.89	4.09	1.75	10.81	2.33	2.33	3.07	6.87	10.08	8.33	7.89	13.74	13.88	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.23	1.75	.87	7.89	4.09	1.75	10.81	2.33	2.33	3.07	6.87	10.08	8.33	7.89	13.74	13.88	

Calm : .00 %

Total # Operational Hours : 684

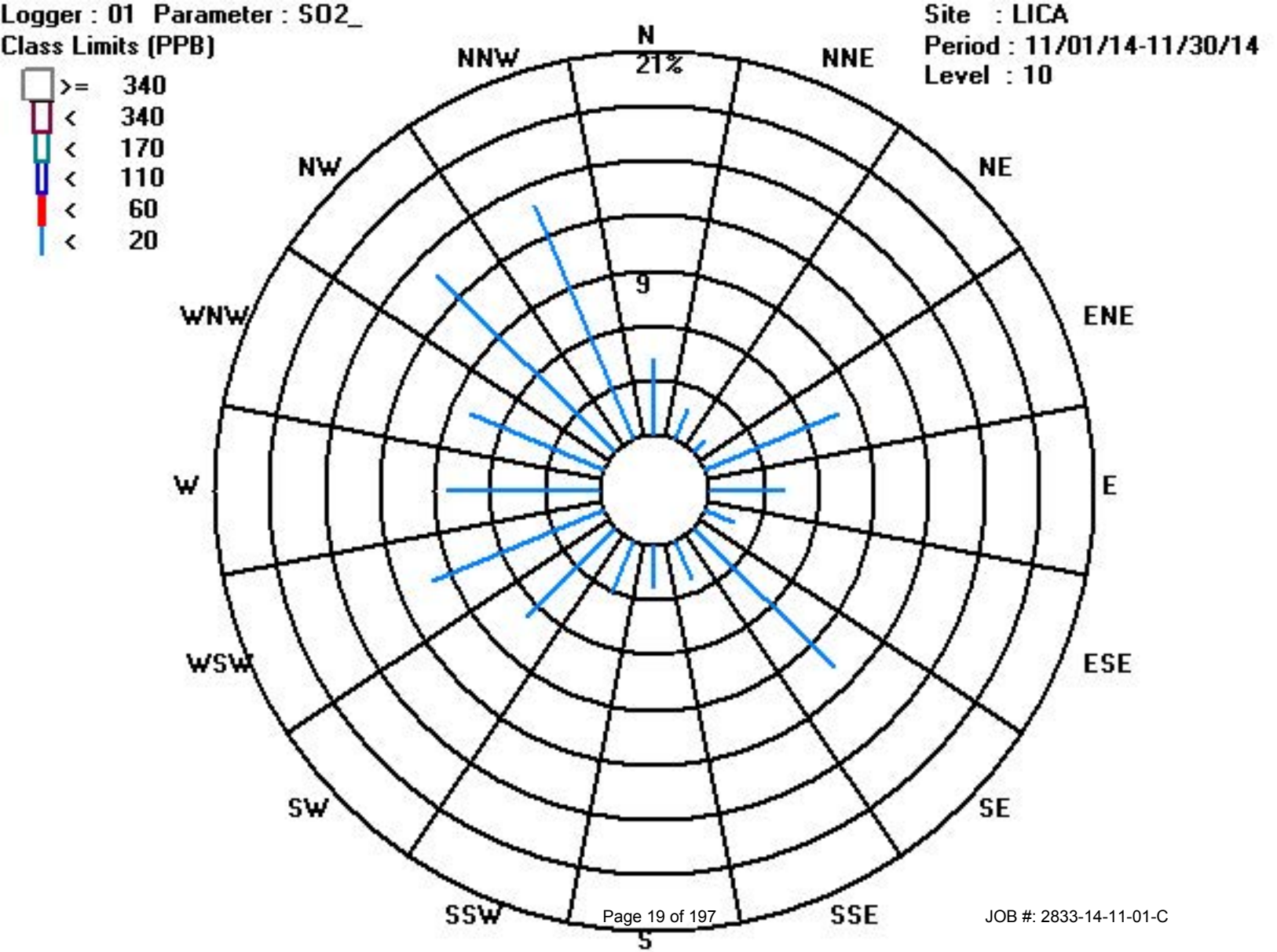
Distribution By Samples

Direction

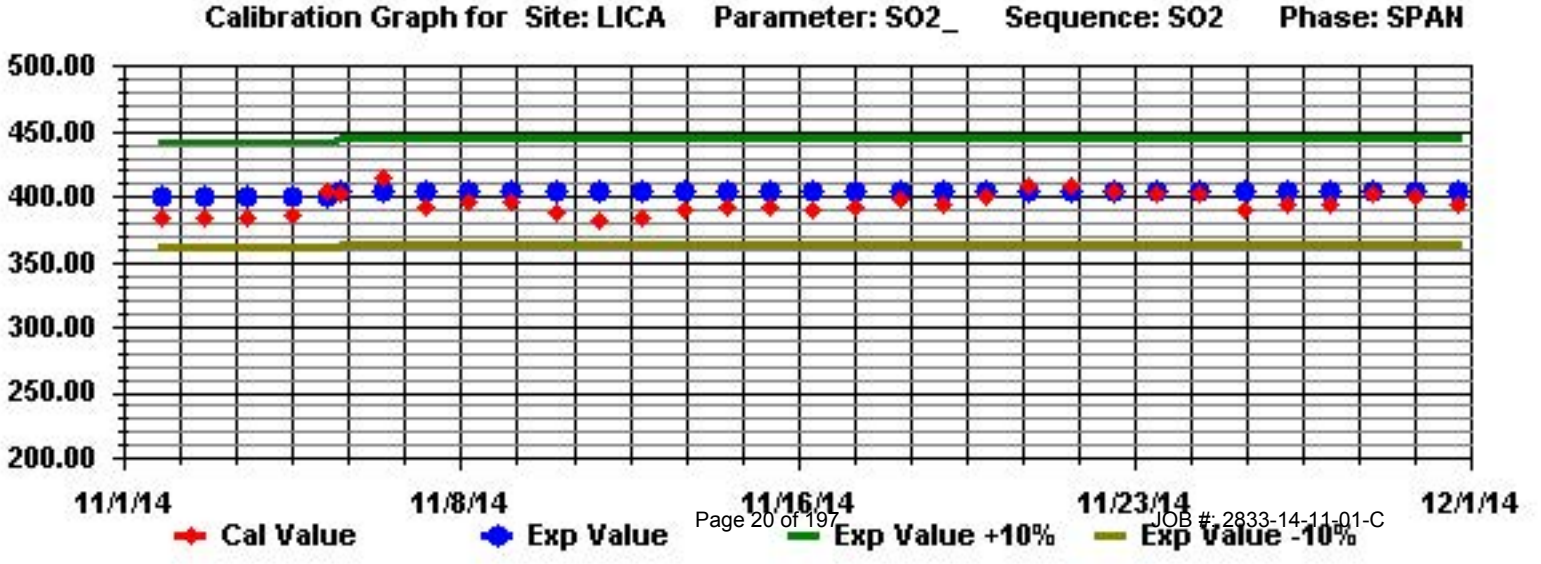
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	29	12	6	54	28	12	74	16	16	21	47	69	57	54	94	95	684
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	29	12	6	54	28	12	74	16	16	21	47	69	57	54	94	95	

Calm : .00 %

Total # Operational Hours : 684



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Reduced Sulphur

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

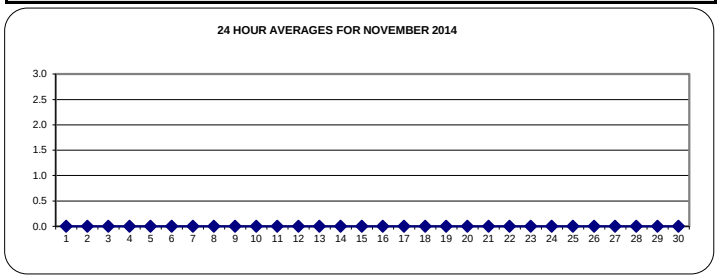
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

MST

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

STATUS FLAG CODES

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

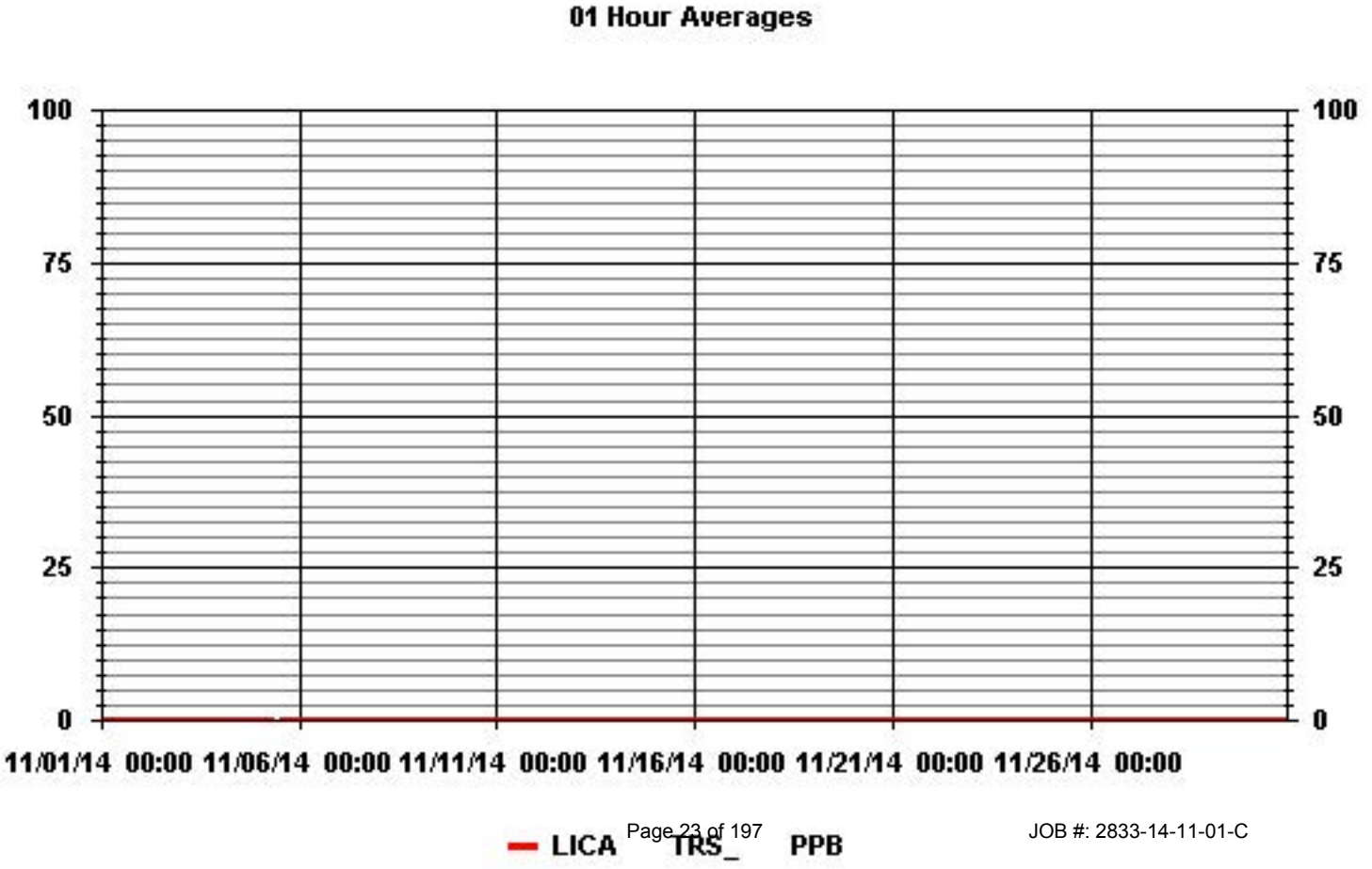


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB | 24-HR NA PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF 24-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	0					
MAXIMUM 1-HR AVERAGE:	0	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S)	VAR
					VAR-VARIOUS	

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

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

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 117

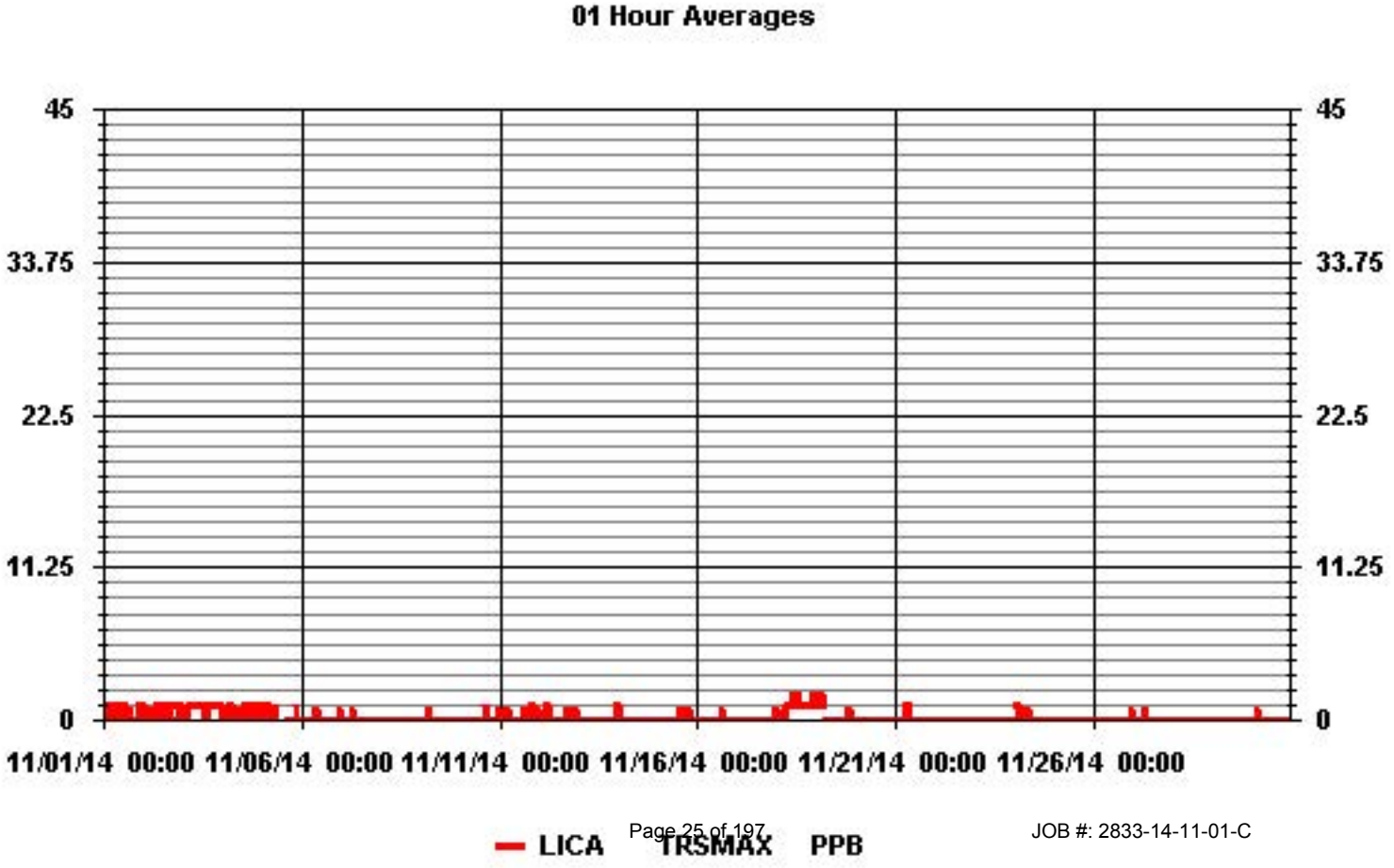
MAXIMUM INSTANTANEOUS VALUE: 2 PPB @ HOUR(S) VAR ON DAY(S) 18, 19

VAR-VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 0.40



JOB #: 2833-14-11-01-C

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	4.24	1.75	.87	7.90	4.09	1.75	10.83	2.34	2.34	3.07	6.88	10.10	8.34	7.75	13.76	13.90	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	4.24	1.75	.87	7.90	4.09	1.75	10.83	2.34	2.34	3.07	6.88	10.10	8.34	7.75	13.76	13.90	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	29	12	6	54	28	12	74	16	16	21	47	69	57	53	94	95	683
< 10																	
< 50																	
>= 50																	
Totals	29	12	6	54	28	12	74	16	16	21	47	69	57	53	94	95	

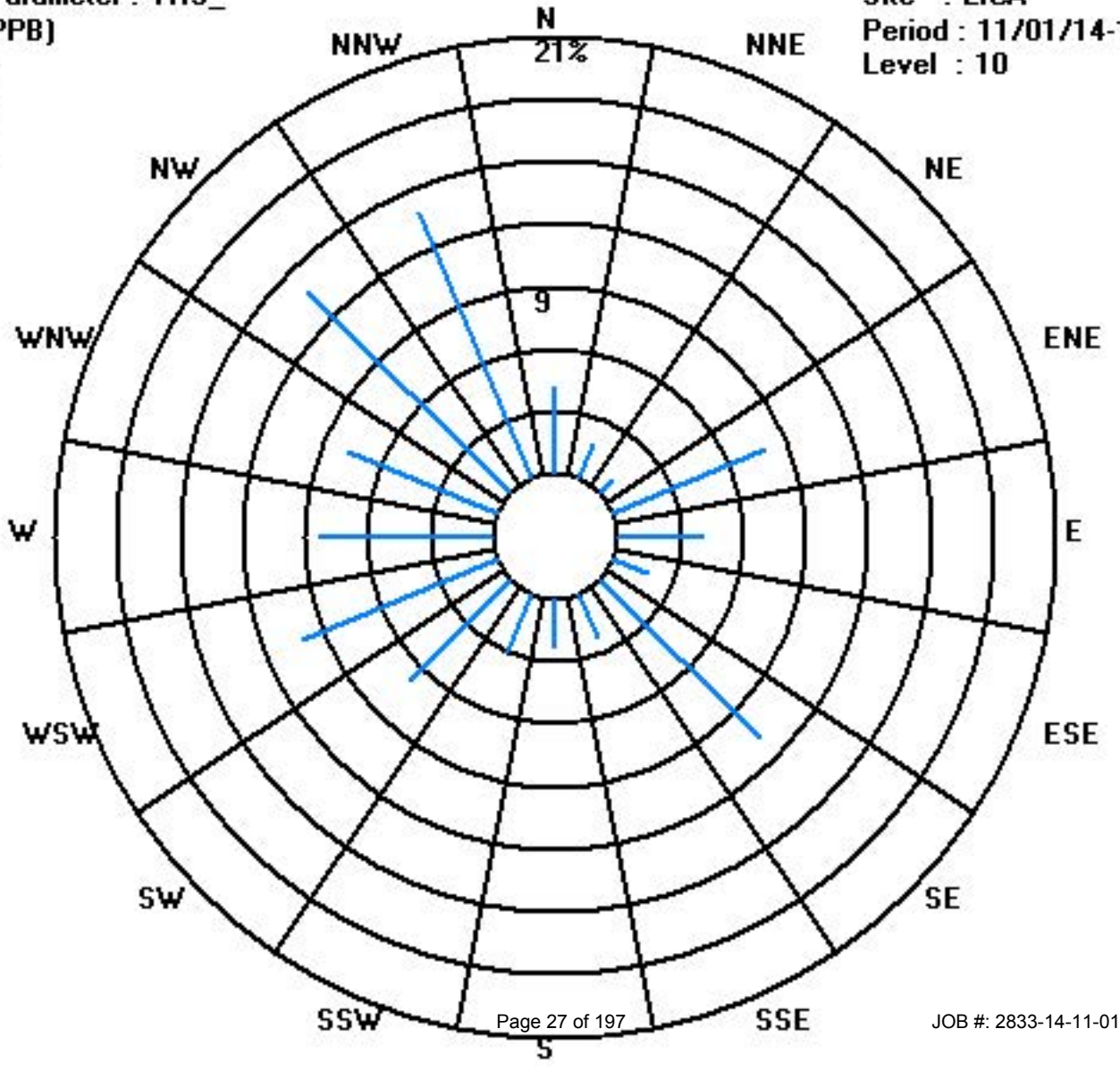
Calm : .00 %

Total # Operational Hours : 683

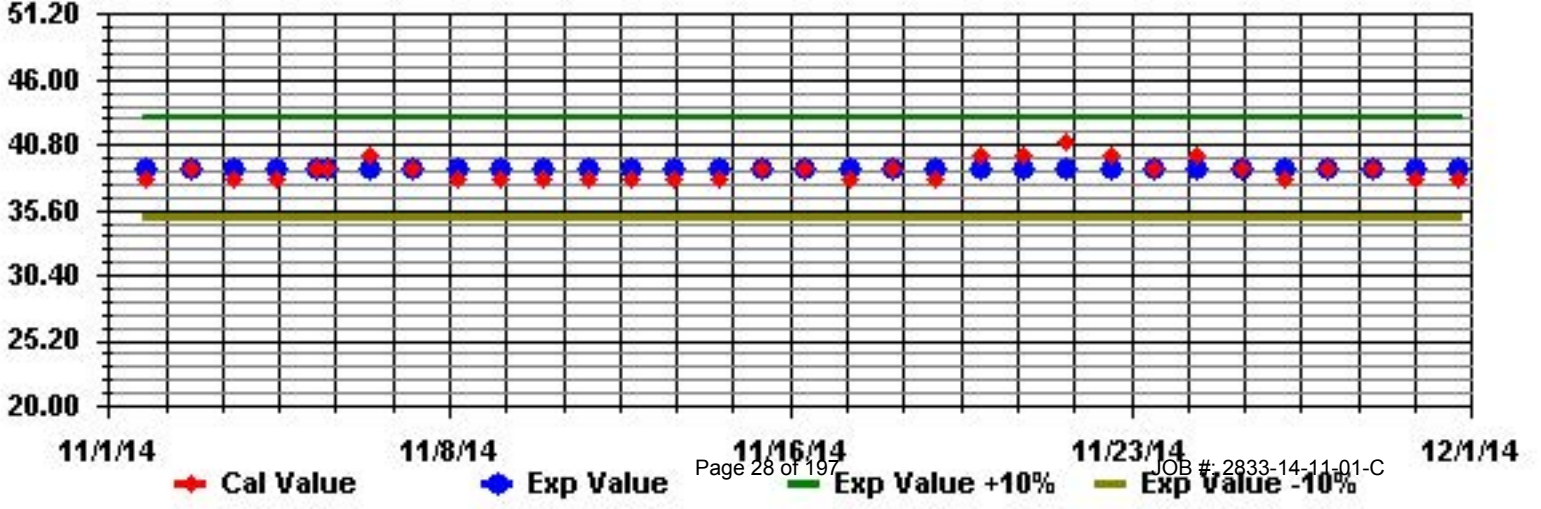
Logger : 01 Parameter : TRS_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN
51.20
46.00
40.80
35.60
30.40
25.20
20.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

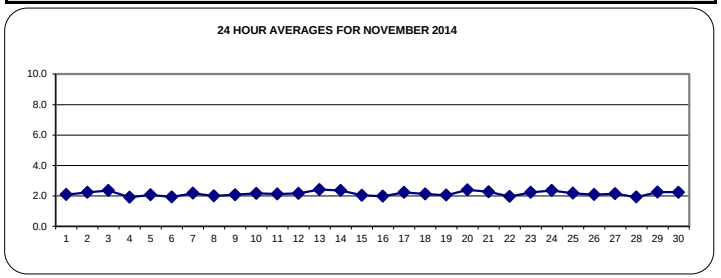
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

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

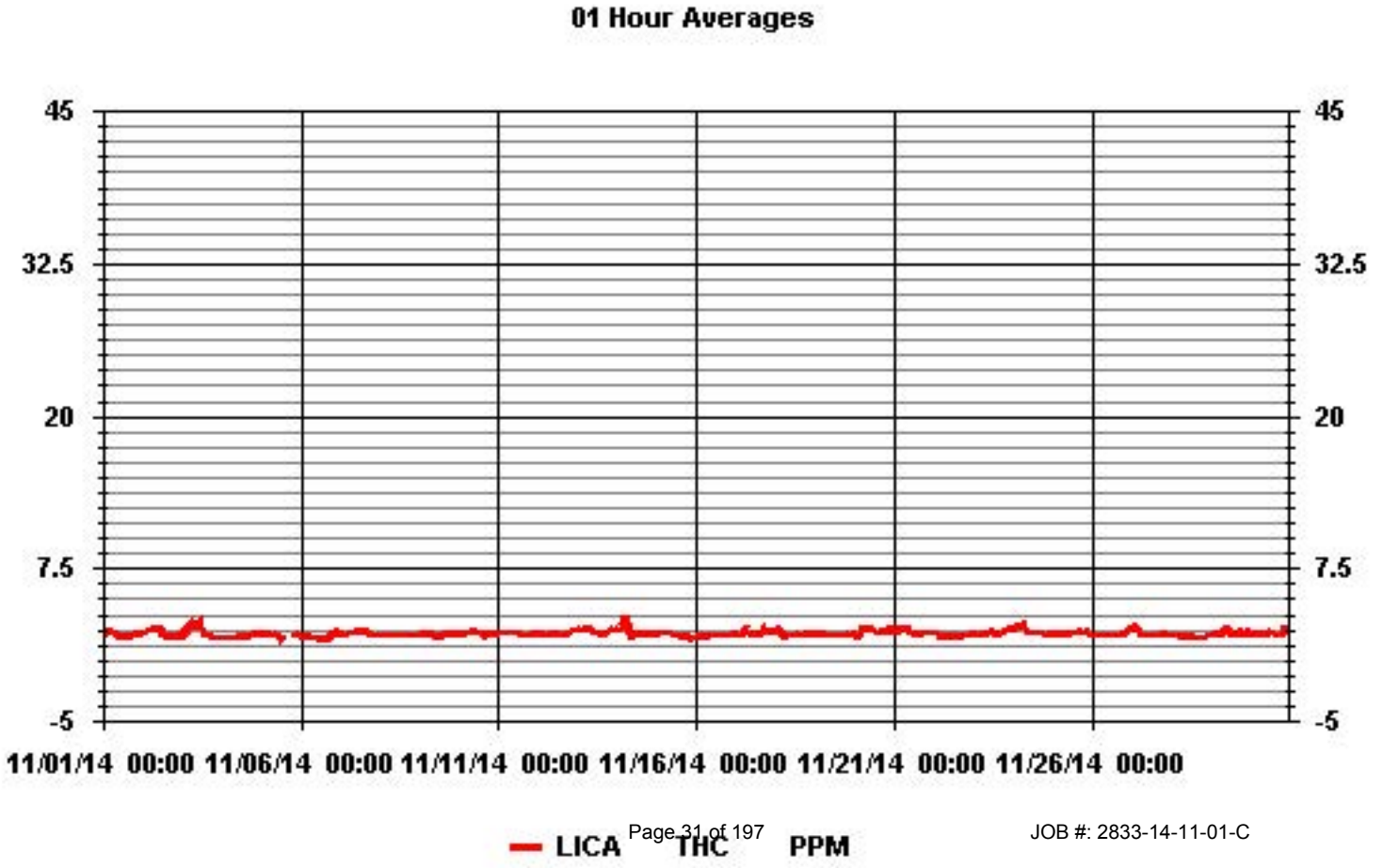
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685						
MAXIMUM 1-HR AVERAGE:	3.5	PPM	@ HOUR(S)	5	ON DAY(S)	14	
MAXIMUM 24-HR AVERAGE:	2.4	PPM			ON DAY(S)	VAR	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE:			2.15	PPM



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

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	F	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.2	2.2	2.1	2	2	1.9	1.9	1.9	2	2.4	2.3	3.2	**S**	2.1	2.4	2.2	3.2	2.3	23
2	2.4	2.6	2.5	2.5	2.5	2.6	2.7	2.8	2.9	2.8	2.6	2.7	2.5	2.1	2.1	2	2	2.3	2	**S**	1.9	2.1	2.2	2.5	2.9	2.4	24
3	2.4	2.6	2.3	2.6	3	3.1	3.2	3.1	2.9	2.9	3.2	3.4	3.3	2.4	2.2	2.1	2.1	2.1	**S**	1.9	2	1.8	1.9	2.5	3.4	2.6	24
4	2.2	2.1	1.9	1.8	1.9	1.9	1.8	1.9	3	1.9	2	2.1	2	2	2	2.3	2.2	**S**	2.4	2.4	2.3	2.2	2.3	2.4	3	2.1	24
5	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.5	2.7	2.2	2.3	4.1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2.2	2.2	2.2	2.2	4.1	2.4	24
6	2.1	2	2	2	2	1.9	1.9	2	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9	2.4	**S**	2.6	2.4	2.5	2.5	2.5	2.6	2.1	24
7	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	**S**	2	2.1	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	2	2	2	2	2.1	2.1	2	2	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
9	2.3	2.3	2.4	2.3	2.2	2.2	2.4	2.4	2.3	2.1	2	2	2	2	2	**S**	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.4	2.2	24
10	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	24
11	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.2	2.3	2.2	24
12	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.6	2.1	2.1	**S**	2.2	2.8	2.3	2.3	***6***	2.3	2.4	2.5	2.6	2.6	2.6	***6***	2.5	24
13	2.5	2.7	2.7	2.8	2.7	2.8	2.7	2.6	2.6	2.6	2.5	**S**	2.4	2.2	2.6	3.3	2.3	2.3	2.6	2.6	2.7	2.7	2.9	2.8	3.3	***2.6***	24
14	2.8	2.6	2.8	3.2	3.6	3.7	3.7	2.5	2.2	2.1	**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	3.7	2.5	24
15	2.2	2.3	2.2	2.3	2.3	2.4	2.3	2.3	2.3	**S**	2.1	2.2	2.2	2.2	2.1	2	2	2.1	2.2	2.1	1.9	1.9	1.9	1.9	2.4	2.1	24
16	1.9	2	2	2	2	2	2	2	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24
17	2.2	2.2	2.1	2.1	2.5	2.7	2.8	**S**	2.3	2.5	2.2	2.2	2.3	2.2	3.3	2.6	2.6	3	2.3	2.4	2.3	3.1	2.5	2.4	3.3	2.5	24
18	2.5	2.5	2.7	2.7	2.3	2	**S**	2	2.1	2.3	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.7	2.2	24
19	2.2	2.2	2.1	2.2	2.2	**S**	2.1	2.1	2.2	2.1	2.1	2.2	2.1	3.3	2.1	2.5	2.1	2.7	2.1	2.2	2.2	2.2	2.3	2.4	3.3	2.3	24
20	2.1	2.2	2.1	2.3	**S**	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.5	2.4	2.6	2.6	2.5	2.6	2.6	2.7	2.8	2.8	2.8	2.5	24
21	2.5	2.3	2.3	**S**	2.5	2.5	2.6	2.9	2.9	3.1	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	3.1	2.4	24
22	2.3	2.3	**S**	2	2	2.1	2	2	2	2	2	2	2	2.3	2	2.2	2	2	2	2.3	2.3	2.1	2.2	2.1	2.3	2.1	24
23	2.2	**S**	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.9	2.4	2.5	2.4	2.2	2.3	2.4	2.3	2.4	2.9	2.8	2.6	2.7	2.7	2.7	2.9	2.4	24
24	**S**	2.7	2.8	2.8	2.9	3	3.1	2.9	2.6	2.5	2.3	2.2	2.2	2.4	2.3	2.5	2.5	2.3	2.3	2.3	3.1	2.2	2.2	**S**	3.1	2.6	24
25	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.6	2.3	2.3	2.3	2.3	2.3	2.4	2.7	2.3	2.3	2.4	2.4	**S**	2.1	2.7	2.3	24
26	2.1	2.2	2.1	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.4	2.4	2.4	**S**	2.6	2.7	2.7	2.2	24
27	2.7	2.7	2.9	2.8	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.4	**S**	2.1	2.1	2.1	2.9	2.3	24
28	2.1	2.1	2	2.1	2	2.2	2	2	2.1	2.2	2.6	2.2	2.2	2.2	1.9	1.9	1.9	1.9	1.9	**S**	2	2.1	2.1	2.1	2.6	2.1	24
29	2.1	2.1	2.2	2.2	2.3	2.4	2.3	2.4	2.7	2.9	2.8	2.7	2.4	2.3	2.4	2.3	2.6	2.4	**S**	2.2	2.2	2.3	2.4	2.4	2.9	2.4	24
30	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.7	2.3	2.4	2.4	2.3	3.1	2.3	2.2	**S**	2.2	2.3	2.6	2.6	2.6	2.5	3.1	2.4	24
HOURLY MAX	3	3	3	3	4	4	4	3	3	3	3	3	4	3	3	3	3	6	3	3	3	3	3	3			
HOURLY AVG	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.4	2.2	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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 682

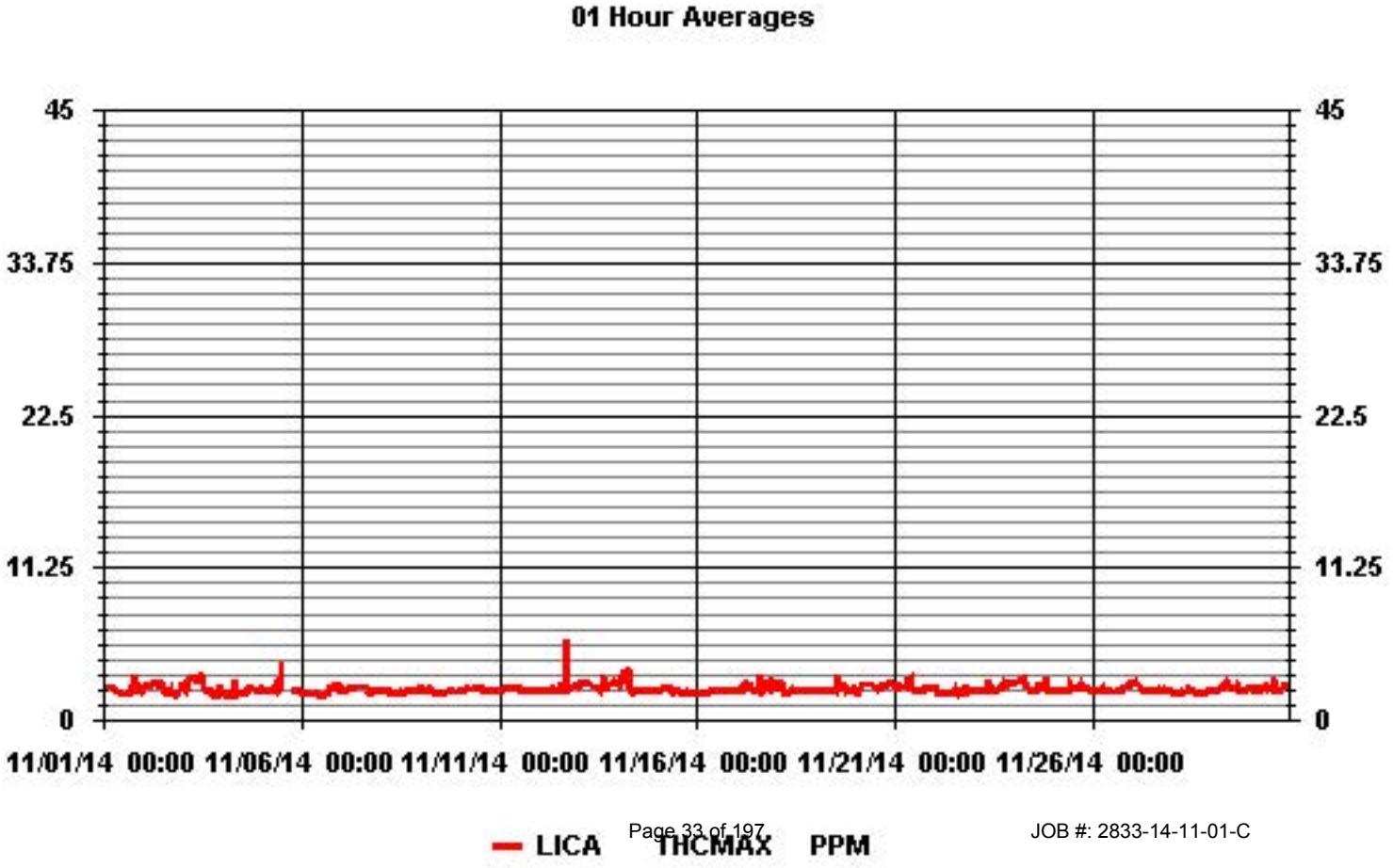
MAXIMUM INSTANTANEOUS VALUE: 6 PPM @ HOUR(S) 17 ON DAY(S) 12

VAR-VARIOUS

IZS CALIBRATION TIME: 30 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 0.33



JOB #: 2833-14-11-01-C

LICA
THC / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4.23	1.75	.87	7.88	4.08	1.75	10.80	2.33	2.33	3.06	6.86	9.78	8.17	7.88	13.28	13.86	98.97
<	10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.58	.14	.00	.00	1.02
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.23	1.75	.87	7.88	4.08	1.75	10.80	2.33	2.33	3.06	6.86	10.07	8.75	8.02	13.28	13.86	

Calm : .00 %

Total # Operational Hours : 685

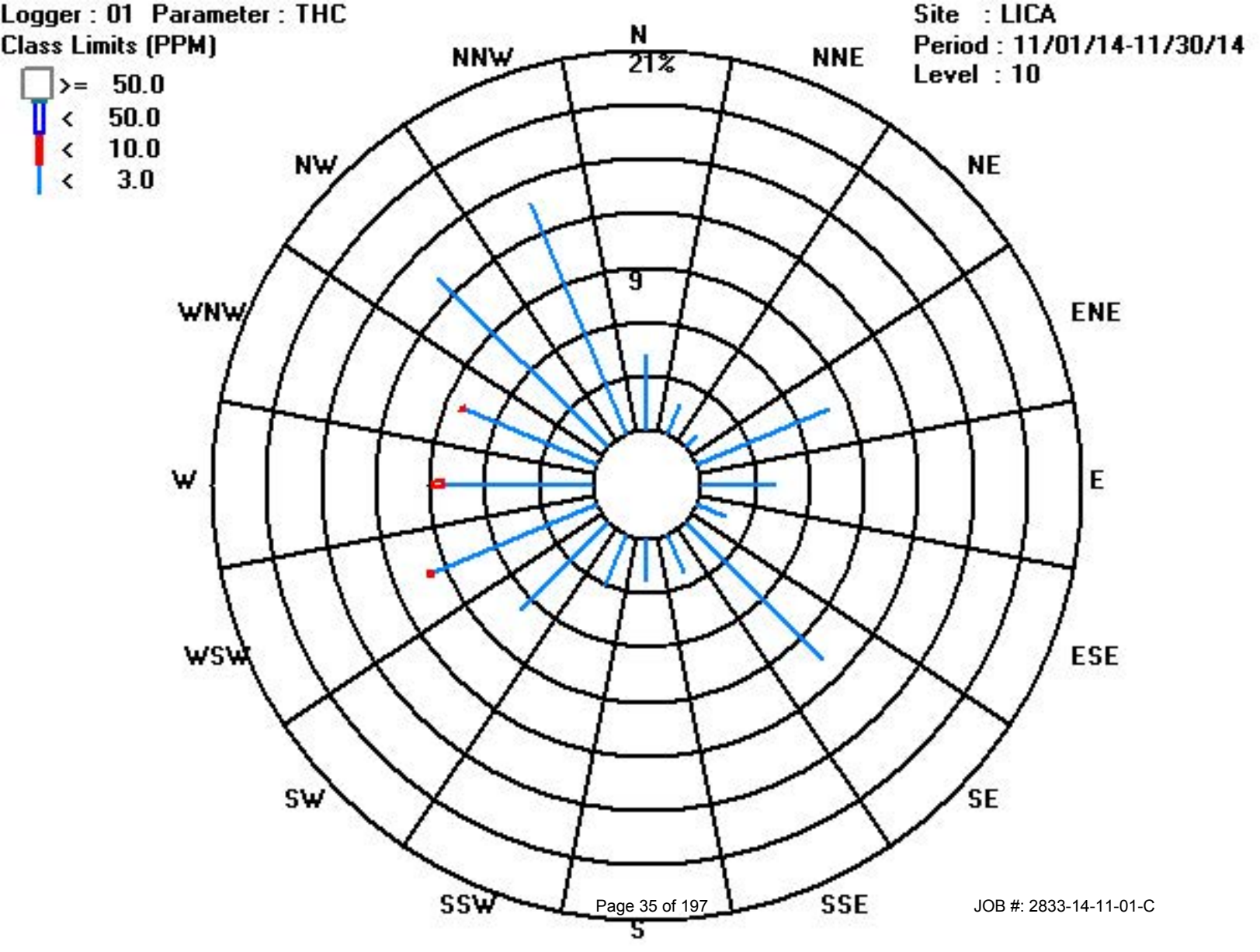
Distribution By Samples

Direction

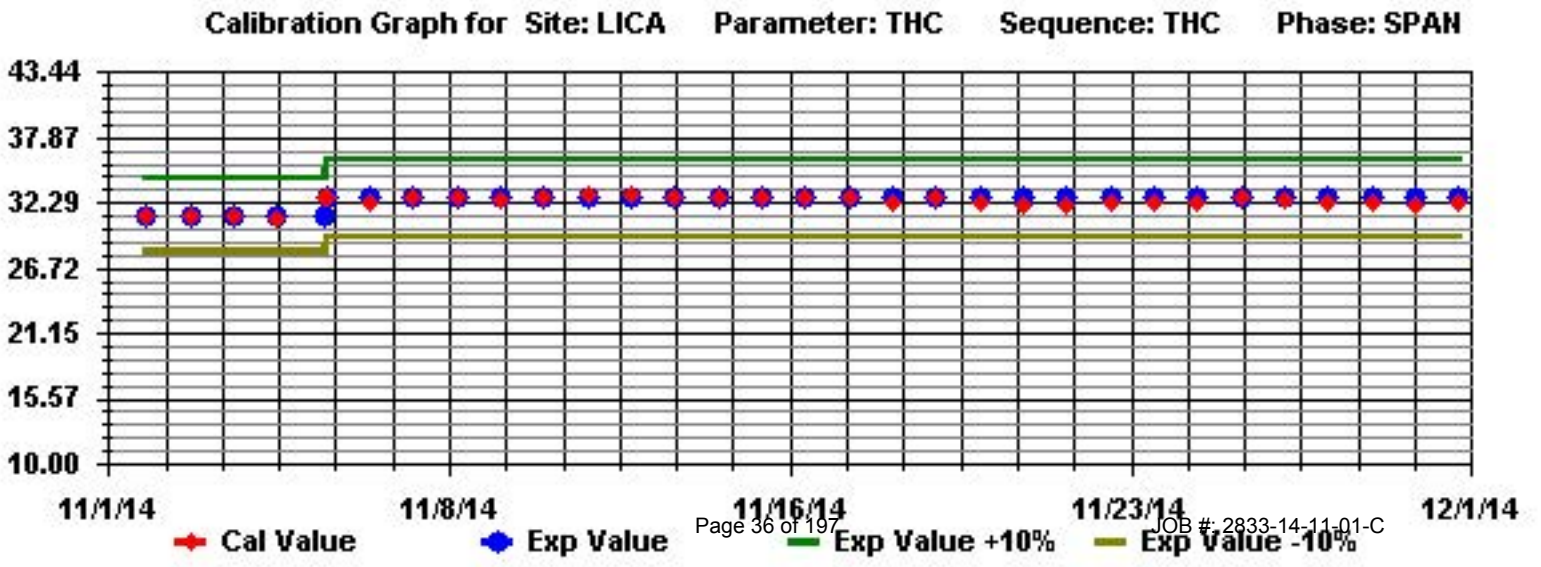
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	29	12	6	54	28	12	74	16	16	21	47	67	56	54	91	95	678
<	10.0												2	4	1			7
<	50.0																	
>=	50.0																	
	Totals	29	12	6	54	28	12	74	16	16	21	47	69	60	55	91	95	

Calm : .00 %

Total # Operational Hours : 685



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN
43.44
37.87
32.29
26.72
21.15
15.57
10.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

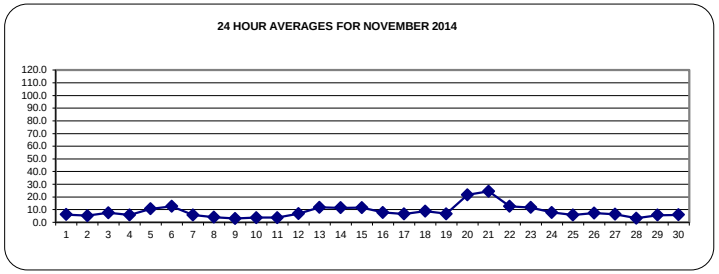
PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14	6	10	7	9	8	11	10	6	6	3	0	2	0	10	6	6	10	4	4	6	2	6	2	14	6.2	24
2	5	6	6	7	6	3	0	5	5	6	3	4	7	6	8	9	3	6	6	9	2	3	6	4	9	5.2	24
3	4	2	5	7	8	3	17	10	15	5	12	14	14	9	5	8	7	4	7	3	4	6	8	5	17	7.6	24
4	4	7	5	7	5	3	5	7	5	5	6	6	7	7	7	6	5	6	5	6	7	6	3	8	8	5.8	24
5	9	7	8	10	10	13	6	3	**X**	28	8	2	**C**	**C**	**C**	**C**	7	23	4	22	17	14	6	6	28	10.7	23
6	9	11	10	12	15	21	30	30	***36***	19	12	9	7	4	4	5	6	5	11	6	6	8	13	13	***36***	12.6	24
7	17	5	20	20	9	17	2	5	4	8	1	7	2	5	1	0	0	5	1	3	1	1	2	3	20	5.8	24
8	4	3	0	5	8	2	8	4	8	5	2	0	4	3	8	8	6	8	0	2	0	4	2	5	8	4.1	24
9	3	2	1	4	7	4	7	3	3	4	0	2	3	0	5	0	2	2	0	4	4	5	4	2	7	3.0	24
10	6	3	2	7	2	1	0	0	6	6	4	4	6	1	8	5	4	1	1	6	3	3	5	5	8	3.7	24
11	1	6	2	4	4	0	1	3	0	0	3	2	4	8	4	0	9	7	0	7	8	5	3	8	9	3.7	24
12	4	1	8	2	0	2	4	3	4	5	0	5	3	9	5	11	15	19	18	11	6	7	10	10	19	6.8	24
13	12	13	12	13	12	17	13	13	6	9	15	10	10	9	10	13	11	13	10	18	7	12	12	13	18	11.8	24
14	11	11	14	23	31	26	27	23	7	11	6	7	10	7	8	9	5	8	6	6	2	5	9	3	31	11.5	24
15	9	7	8	6	2	7	7	5	10	19	12	15	17	26	20	17	21	22	16	15	6	3	8	1	26	11.6	24
16	4	5	14	12	6	6	**X**	4	5	10	8	1	1	8	11	21	10	11	**X**	**X**	0	19	**X**	0	21	7.8	20
17	2	5	5	4	2	2	0	7	4	5	6	5	6	0	2	3	10	12	11	12	11	11	12	21	21	6.6	24
18	21	21	21	17	14	6	12	7	10	3	0	16	0	10	**X**	13	4	0	2	0	1	9	7	8	21	8.8	23
19	1	**X**	9	9	3	2	2	16	**X**	5	0	1	4	11	5	4	8	8	11	13	5	8	9	14	16	6.7	22
20	8	15	18	16	14	18	24	18	31	30	29	***36***	***36***	31	22	20	18	19	16	19	15	21	21	26	***36***	21.7	24
21	24	24	23	23	20	20	20	18	16	20	20	23	28	31	35	31	30	24	30	30	26	24	22	24	35	***24.4***	24
22	18	32	28	23	8	16	9	10	3	4	0	**X**	8	10	0	17	32	18	13	7	8	10	7	8	32	12.6	23
23	6	8	33	**X**	8	29	15	**X**	14	**X**	22	0	0	9	15	23	6	3	5	6	0	23	9	**X**	33	11.7	20
24	1	4	14	8	12	6	12	14	8	7	8	6	6	4	5	2	2	8	17	12	9	1	11	9	17	7.8	24
25	11	10	12	0	6	8	7	**X**	1	13	4	0	4	2	8	1	2	3	5	8	3	0	8	15	15	5.7	23
26	13	7	7	8	7	8	5	5	4	3	4	4	0	3	5	8	8	2	8	14	17	14	11	9	17	7.3	24
27	10	18	19	16	15	10	6	3	7	4	3	1	4	3	1	5	4	5	0	5	6	0	3	6	19	6.4	24
28	6	6	3	1	3	5	10	2	**C**	**C**	**C**	0	0	0	6	3	3	3	4	4	1	1	3	3	10	3.2	24
29	0	3	2	3	4	6	6	5	3	6	8	9	8	7	6	5	9	11	9	8	5	5	5	3	11	5.7	24
30	7	6	3	1	5	4	5	6	4	6	5	6	6	6	8	7	8	7	7	8	5	8	9	4	9	5.9	24
HOURLY MAX	24	32	33	23	31	29	30	30	36	30	29	36	36	31	35	31	32	24	30	30	26	24	22	26			
HOURLY AVG	8.1	8.8	10.7	9.5	8.5	9.1	9.3	8.5	8.3	9.0	7.0	6.7	7.1	7.9	8.3	9.0	8.7	9.1	7.8	9.2	6.4	7.9	8.1	8.2			

STATUS FLAG CODES

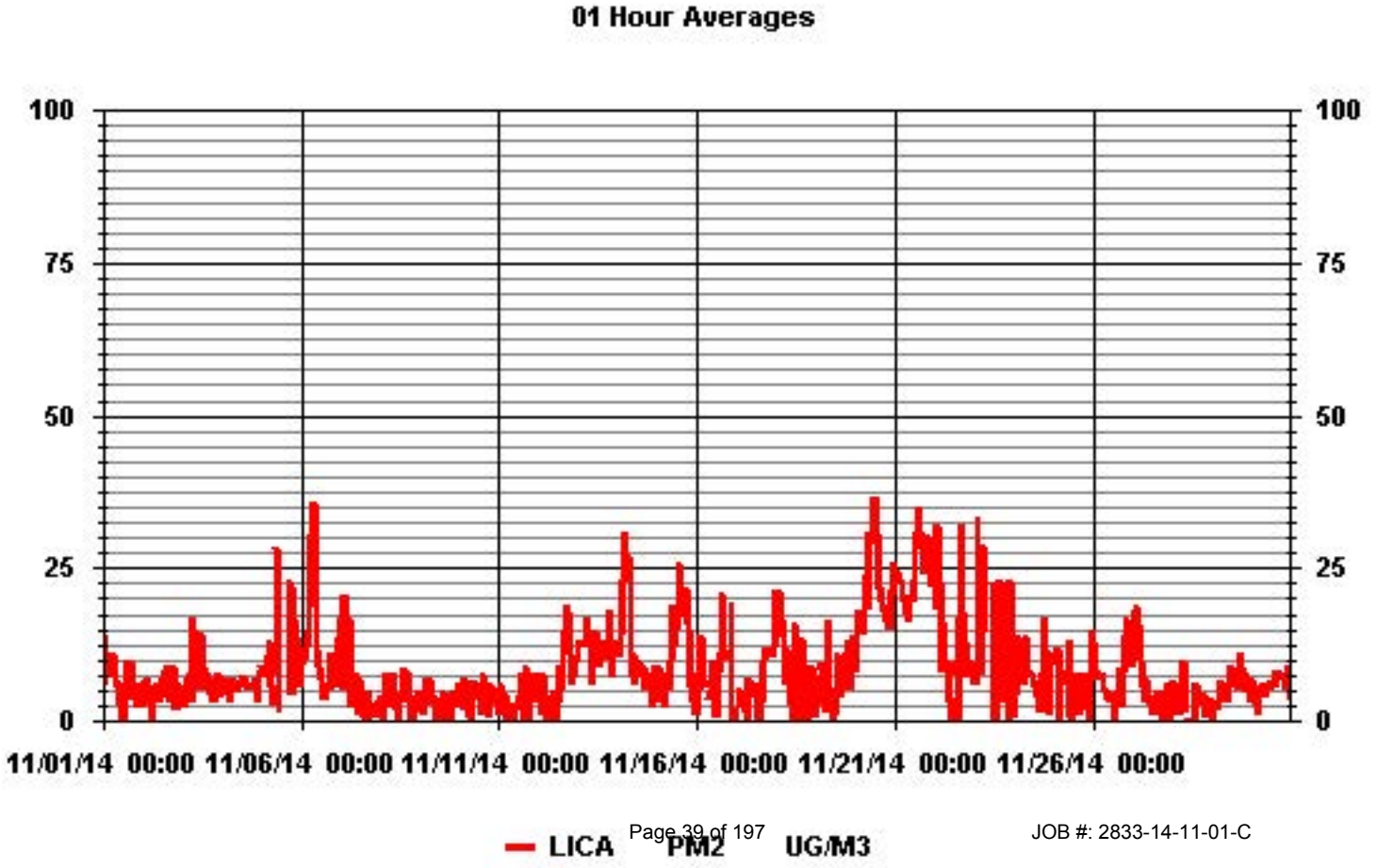
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 24-HR 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	653						
MAXIMUM 1-HR AVERAGE:	36	ug/m3	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	24.4	ug/m3			ON DAY(S)	21	
				VAR-VARIOUS			
			OPERATIONAL TIME:			706	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			98.1	%
STANDARD DEVIATION:	7.14		MONTHLY AVERAGE:			8.39	ug/m3



JOB #: 2833-14-11-01-C

LICA
PM2 / WD Joint Frequency Distribution (Percent)

November 2014

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	4.13	1.71	.42	7.41	3.99	1.85	9.98	2.13	2.28	3.42	6.27	10.41	8.41	7.41	13.26	14.26	97.43
<	60	.00	.14	.42	.42	.14	.00	.71	.14	.00	.00	.28	.00	.14	.00	.14	.00	2.56
<	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	4.13	1.85	.85	7.84	4.13	1.85	10.69	2.28	2.28	3.42	6.56	10.41	8.55	7.41	13.40	14.26	

Calm : .00 %

Total # Operational Hours : 701

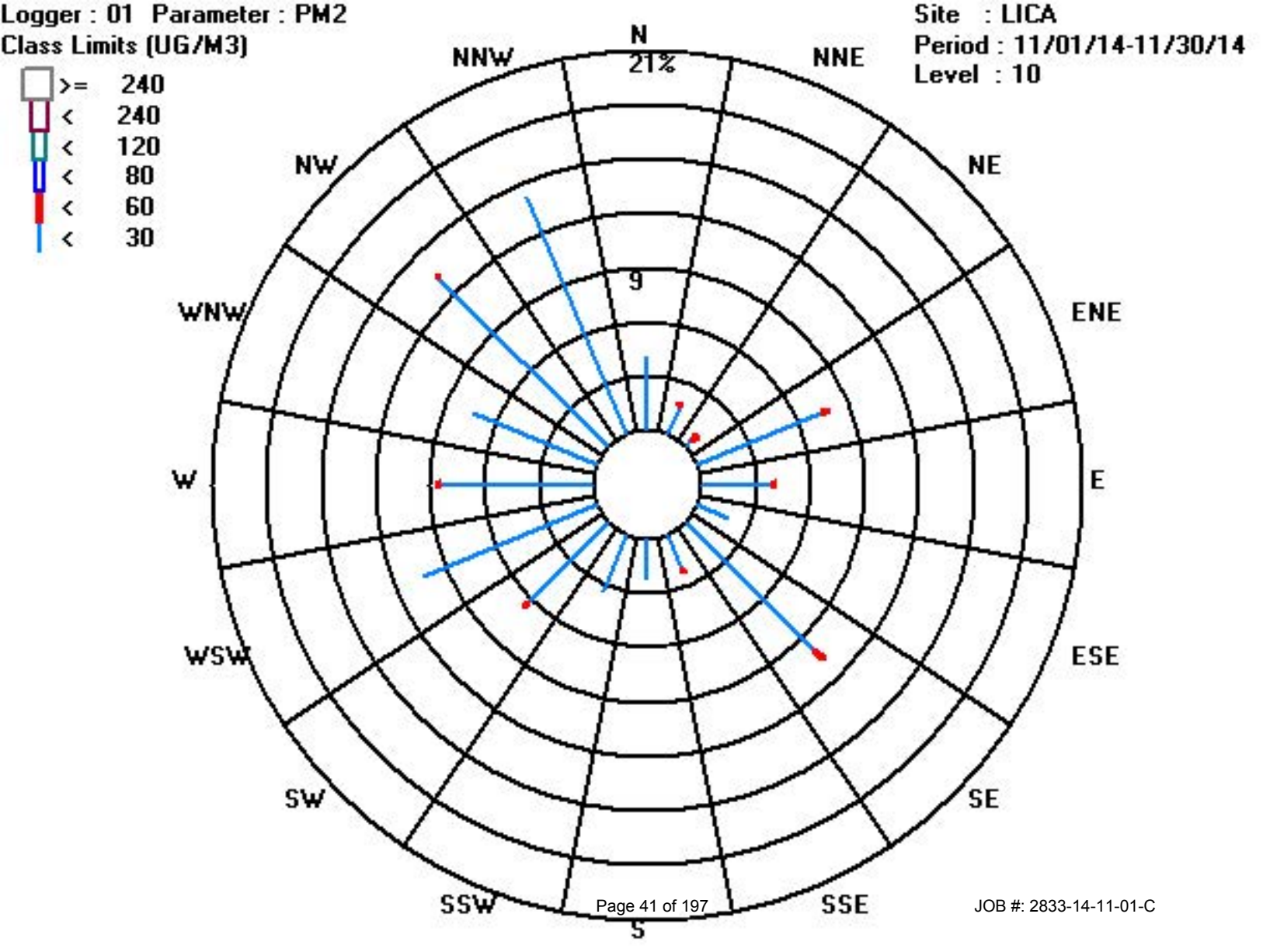
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	29	12	3	52	28	13	70	15	16	24	44	73	59	52	93	100	683
<	60		1	3	3	1		5	1			2		1		1		18
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	29	13	6	55	29	13	75	16	16	24	46	73	60	52	94	100	

Calm : .00 %

Total # Operational Hours : 701


Logger : 01 Parameter : PM2
Class Limits (UG/M3)
>= 240
< 240
< 120
< 80
< 60
< 30
Site : LICA
Period : 11/01/14-11/30/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitrogen Dioxide

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

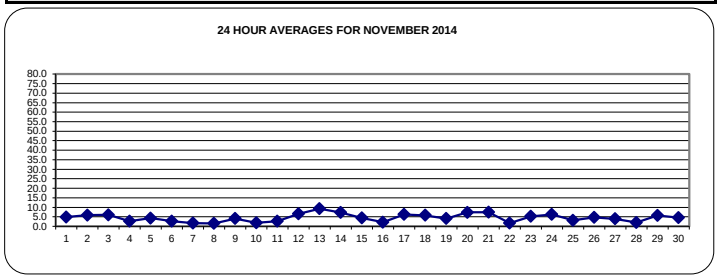
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.8	3.2	5.9	7.6	6.7	5	5.9	5.3	3.2	3.5	2.3	1.2	2.2	2.7	2.6	2.3	7.3	7.4	7.4	7.6	**S**	5.9	6.5	6.9	7.6	4.9	24
2	6.1	8	6.7	5.8	4.9	4.5	7.6	9.2	7.7	8.4	7.7	6.8	4.9	3.2	2.8	3.6	6	3.1	5.8	**S**	3.9	4.1	7.6	5.7	9.2	5.8	24
3	2.6	8.8	5.5	5.4	9.1	11.9	11.5	8.8	8.8	7.7	8.2	9.1	8	2.8	2.3	2.1	2.6	4	**S**	4.8	4.6	1.8	3.4	3.9	11.9	6.0	24
4	2.5	1.5	1.6	1.7	1.7	2.5	1.7	1.8	2.2	2	1.7	1.8	1.7	1.7	2.3	3.3	2.6	**S**	5.6	9	3.7	2.7	2.7	4.6	9	2.7	24
5	4.5	6.1	3.9	2.9	3.2	3.2	3.3	4.2	5.8	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1.9	2	3.4	**S**	7.5	7.9	7.5	1.7	7.9	4.3	24
6	1.2	1.1	1	1	0.9	1	1.4	1.7	1.9	1.5	1.7	1.6	1.5	1.8	2.1	3.6	4.4	6	**S**	5.2	4.6	6.1	6.3	4.9	6.3	2.7	24
7	2.4	2.6	1.9	1.1	1.1	1.3	1.8	1	1.3	0.6	0.9	1.1	1	1.6	1.4	1.3	1.4	**S**	2.3	2.2	3.6	2.9	1.8	2.1	3.6	1.7	24
8	1.2	0.8	1	0.8	0.5	0.7	0.7	1.4	1.3	1.6	0.9	0.7	0.5	0.4	0.7	1.2	**S**	1.9	2.6	2.6	2.7	3.2	4	2.8	4	1.5	24
9	4.9	9.3	12.1	8.7	8.8	8	8.2	8	6.7	1.4	0.7	0.9	0.8	0.5	0.3	**S**	4.9	3.8	2.6	1.3	0.6	0.6	0.5	0.4	12.1	4.1	24
10	0.4	0.2	0.1	0	0.1	0.7	1	1.5	3.7	3.7	2.1	2.8	3.2	2.1	**S**	2.6	2.7	2.5	3	3.5	2.9	2.4	1.4	0.8	3.7	1.9	24
11	0.5	0.4	0.5	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.8	**S**	1.2	2.2	6.3	8	6.4	5.6	6.4	6.5	7.4	8.7	8.7	2.7	24
12	8.5	9.4	13.5	7.1	4	2.6	2.6	3.7	5.7	5.3	1	0.8	**S**	1.2	2.4	3.3	8.4	15.7	11.4	9.8	8.9	8.7	8.2	9	15.7	6.6	24
13	10.4	9.1	9.8	7.7	10.5	10.7	11.9	13.5	11.9	10.7	8.1	**S**	3.2	3.2	4	6	10.1	16.6	11.6	9.8	9.6	8.3	8.5	9.1	16.6	***9.3***	24
14	9.5	10.5	11.2	19.8	***22.7***	22.4	20.7	9.9	4.5	3.1	**S**	4.7	2.5	2.2	1.5	1.2	1.9	2.6	2.3	1.1	1.3	2.2	3.1	4.9	***22.7***	7.2	24
15	5.4	3.3	2	2.2	2.7	3.1	3.2	2.7	2.5	**S**	2.5	2.3	2.7	4.1	4.8	8.9	11.7	12.1	10.3	6.6	2	2.7	2.5	0.9	12.1	4.4	24
16	1.2	1.3	1.6	1.5	1.1	1.1	1.2	0.8	**S**	1.7	1	1.1	1.4	1.6	2.2	2.5	2.2	2.2	1.8	2.5	3.1	4.1	5.2	6	6	2.1	24
17	7.8	5.6	2.2	2.6	5	7.8	11	**S**	4.2	3.7	2.8	3.5	3.4	3.1	4.2	6	8.5	5.3	5.4	7.7	8.3	10.6	11.2	13.2	13.2	6.2	24
18	18.7	18.5	21.7	16.9	10.5	4.8	**S**	2.8	3.2	2.6	3	3	3.5	3.6	3.1	2.6	1.6	3.3	3	2.7	1.1	0.9	1	1.2	21.7	5.8	24
19	1	1	1.8	2	2.4	**S**	3.3	4.2	2.9	1.8	1.4	1.4	1.5	1.6	2.5	3.2	8	13.5	9.4	8.5	7.5	6.2	5.5	3.7	13.5	4.1	24
20	2.7	2.3	2.7	3.3	**S**	3.7	3.6	4.5	5.5	4.9	5.4	5.4	5.2	6	6.8	8.5	15.7	11.9	10.9	14.7	10.9	10.6	11.2	12.4	15.7	7.3	24
21	14.6	17.8	20.1	**S**	18.7	17.7	16.1	16.6	15.1	5.1	4.2	2.8	2.6	3	2	1.5	1.6	1.7	1.5	1.4	1.8	1.2	1.4	1.2	20.1	7.4	24
22	0.5	0.6	**S**	1.4	1.1	1.5	1.5	1.4	1.6	1.5	1.5	2	1.6	1.9	2.1	1.4	1.9	1.5	1.3	2.1	2.3	2	2.3	2.8	2.8	1.6	24
23	2.6	**S**	0.5	0.5	0.6	1	1.1	1	4.1	3.8	3.8	4.1	3	1.8	2.3	4.8	11.5	14.8	15.9	15	7.7	6.7	6.4	7.4	15.9	5.2	24
24	**S**	6.3	8.7	10.5	11.2	12.3	15.1	14.9	7.1	5.4	3.2	1.6	1.2	2.1	**S**	**S**	3	2.8	3.5	5	4	3.6	3.5	**S**	15.1	6.3	24
25	3.8	3	3.3	2.7	3.5	3.9	4.6	3.9	5.4	3.5	3.2	3.4	2.7	0.9	2.1	2.1	1.5	5	3.1	2	3.3	3.1	**S**	2.8	5.4	3.2	24
26	3.4	5.5	1.9	2.6	3.3	3.9	6	4.7	7.4	1.5	1	1.5	2.3	1.8	3.3	4.1	4.5	4	5	7.9	11.6	**S**	10.4	9.5	11.6	4.7	24
27	8.7	9.9	13.9	10.8	10	4.1	2.4	2.2	**S**	2.6	2	1.7	1.4	1.4	1.4	2.1	2.5	2.4	1.6	1.7	**S**	1.3	1.2	1.3	13.9	3.9	24
28	1.1	1.2	0.9	1.1	1.3	2.1	2.4	2.1	2.3	2.3	2.2	2.1	2.3	2.3	3.2	3.1	2.9	3	4.5	**S**	0.9	0.7	0.7	0.2	4.5	2.0	24
29	0.1	0.2	0.9	1.6	1.9	8.9	12.7	10	**S**	10.2	8.4	4.6	3.3	2.9	2.8	3.8	5.8	8.8	**S**	6.5	5.8	6.6	10.1	9.1	12.7	5.7	24
30	6.4	4.5	3.3	3.4	2	1.5	1.6	2	1.9	5.3	3.2	3.1	3	2.3	1.9	2.3	3.5	**S**	5.9	6.4	10.3	12.4	11	7.6	12.4	4.6	24
HOURLY MAX	19	19	22	20	23	22	21	17	15	11	8	9	8	6	7	9	16	17	16	15	12	12	11	13			
HOURLY AVG	4.7	5.2	5.5	4.6	5.2	5.2	5.7	5.0	4.7	3.8	3.0	2.7	2.6	2.3	2.5	3.3	5.1	6.1	5.5	5.7	5.0	4.7	5.3	5.0			

STATUS FLAG CODES

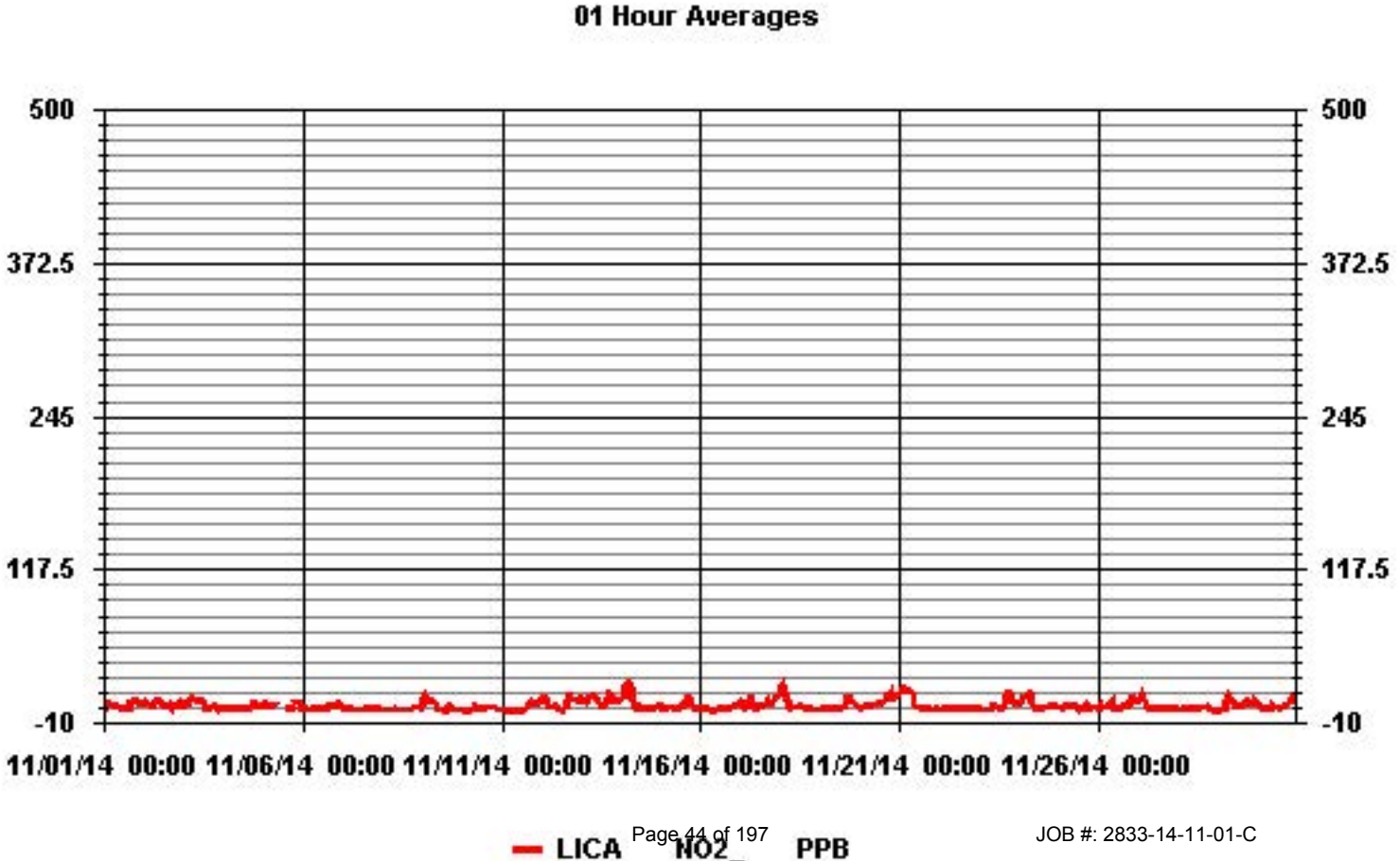
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	677					
MAXIMUM 1-HR AVERAGE:	22.7	PPB	@ HOUR(S)	4	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	9.3	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.02		MONTHLY AVERAGE:		4.52	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	5	5	9	10	9	7	7	7	3.5	4	3.5	2	3.1	3.1	3.1	2.6	13	11.1	11.1	16	**S**	7.8	9.8	8.8	16	7.0	24
2	7.3	12.8	8.3	7.8	5.8	6.3	10.3	11.3	8.8	10.8	8.3	7.3	6.3	3.8	3.3	4.8	21.8	4.3	8.3	**S**	8	9	10.5	9	21.8	8.4	24
3	6	11	13.5	8	10.5	13.5	14	11	12.5	8.5	9.5	9.5	9	7	3	3	4	5	**S**	5.5	6	2.5	4.5	5.5	14	7.9	24
4	3	2	3.5	5.5	3	5.5	3	3.5	6	4	3	2.5	3.5	2	5	5.5	5.5	**S**	11	11	6	3.5	4.5	7.5	11	4.8	24
5	7.5	8	6.5	3.5	3.5	4	4	6.5	8	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2.5	2.5	4.9	**S**	9.6	12.5	10.6	5.1	12.5	6.2	24
6	2	1.6	1.6	1.6	1.6	1.6	3.6	3.1	3.6	2.6	6.5	3.1	2.6	5.1	5.6	10.1	13.5	10.6	**S**	7.4	7.4	8.5	8	6.9	13.5	5.1	24
7	3.5	3.5	3	2	1.5	2	2.5	2.5	4	1	1.5	1.5	1.5	2	5.5	4	2	**S**	3.6	3.1	4.6	4.1	2.1	3.1	5.5	2.8	24
8	3.1	2	1.6	2	1	1	2	3.1	2.1	5.1	1.6	1.1	1	1	2	2.1	**S**	2.6	3.1	3	3.5	4	4.5	3.5	5.1	2.4	24
9	8.5	11.5	15	10.5	9.5	11	14.5	13.5	10	2.5	1.5	2	2	1.5	1	**S**	6	5	4.5	2	1	1	1.1	1	15	5.9	24
10	1	1	0.5	0.5	0.5	1	1.5	2.5	4.5	5	2.5	3.5	3.5	2.5	**S**	3.6	3.5	3	3.5	4	3.5	2.6	2	1	5	2.5	24
11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0.5	1	**S**	2	3.5	7.5	9.5	8	6	7.5	7.5	9	9.5	9.5	3.3	24
12	9.5	11.5	15	12.5	5.5	3.5	3.5	5	7	6.5	2	1.5	**S**	2	4	5	15	31.5	16.5	12.5	13.5	11	10	10.5	31.5	9.3	24
13	11.5	10	12	9.5	13	14	15	16	14	13	10.5	**S**	4.5	16	5.5	9.5	19.5	20	15	11.5	11.5	10	12.5	11	20	***12.4***	24
14	10.5	12	13.5	23.5	23.5	23.5	22.5	15	6.5	3.5	**S**	6.5	4	3	2	1.5	2.5	3.1	3.1	1.6	2.1	3.1	4.1	6.5	23.5	8.6	24
15	8.1	4	3	3.5	5	4	4	3.5	3.5	**S**	12	3	3.5	5.5	7	14	15.5	15	11.6	11	2.5	3.6	3.6	1.1	15.5	6.4	24
16	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1	**S**	2	1.6	1.6	1.6	2.5	2.5	3.1	2.5	3	3	3.1	4.1	5.1	8.5	9	9	2.8	24
17	13	7.5	4.5	4.5	7.5	11.1	12.1	**S**	5.5	5	4	6.5	5.1	3.6	15	7.5	10.5	9	6.1	10.6	10.6	24.6	13	15.5	24.6	9.2	24
18	25.5	22.6	23.5	20.5	13.5	7.5	**S**	4.1	4	3.1	4.6	4.6	4.1	4.6	4.5	3.6	2	4.1	3.6	3.6	2	1.5	1.6	1.6	25.5	7.4	24
19	1.6	1.6	2.5	3.1	3.6	**S**	3.8	5.8	4.7	2.2	2.2	3.3	3.7	3.2	3.8	4.3	15.2	***32.2***	25.7	14.2	10.2	9.8	9.3	5.8	***32.2***	7.5	24
20	3.3	3.8	3.8	3.8	**S**	5.1	4.1	5.1	6.5	5.6	7.5	11.1	8	8.6	8.6	11.6	21.6	17	16.6	19.5	15.6	12.1	13	13.5	21.6	9.8	24
21	18.1	19.5	21	**S**	20	19.5	18	19	19	8.6	6.5	3.6	3.5	7	3.1	3.1	2.6	2.6	4.6	2.6	2.6	2.1	2.6	2.1	21	9.2	24
22	1.5	1.1	**S**	2.6	2	2.6	3.1	2	2.5	2.1	2.5	6.5	3.6	3.6	3.6	2.5	4.1	3.6	2.5	9.1	7	5.1	4.1	4.6	9.1	3.6	24
23	4.5	**S**	0.5	1.6	1	1.6	3.1	2	10.5	8.5	5.1	5	4	2.5	4	9.5	14.5	19	24	23.1	9.1	7.5	7.5	8	24	7.7	24
24	**S**	7	10.1	12.1	13	13.5	16.5	16	13.5	6.5	4.6	2	2	4.5	**S**	**S**	4.6	4.5	5.1	8.5	7.5	4.6	4.1	**S**	16.5	8.0	24
25	5.1	4	5.1	7	5.6	6	8	8	10	6.5	8	13	7	2.5	5.1	4.5	3.5	11	6.5	4	5	4.5	**S**	4	13	6.3	24
26	6	9	4	5	5.5	6	13	8	11	3.5	2.5	3	5	3	5.5	8.5	7.5	13	8	10.5	19	**S**	13.5	11.6	19	7.9	24
27	12.6	12	17	11.1	13.5	5.1	3.6	3	**S**	4	4	3	2	2.5	2.5	4.5	4.5	4	3	4	**S**	2	2	3.5	17	5.6	24
28	2.5	2.5	1.5	3	3	4	3.5	4	3.5	3.5	4	4.5	4.5	4.5	5	5.5	4	6	7	**S**	1.6	1.1	1.6	0.5	7	3.5	24
29	0.5	0.5	1.5	2	5	12.5	14.5	**S**	**S**	11	9.5	6	3.5	3	5	5.5	9	10	**S**	8	7	9.5	13	12	14.5	7.1	24
30	7.5	7	5	5	4	3	3	3	2.5	7	4.5	3.5	4	3	2.5	3.5	5.5	**S**	11	16	13	14.5	16.5	9	16.5	6.7	24
HOURLY MAX	26	23	24	24	24	24	23	19	19	13	12	13	9	16	15	14	22	32	26	23	19	25	17	16			
HOURLY AVG	6.6	6.8	7.2	6.3	6.6	6.8	7.4	6.6	7.0	5.2	4.8	4.3	3.8	4.0	4.4	5.4	8.4	9.7	8.6	8.6	7.2	6.7	7.1	6.6			

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

NUMBER OF NON-ZERO READINGS: 676

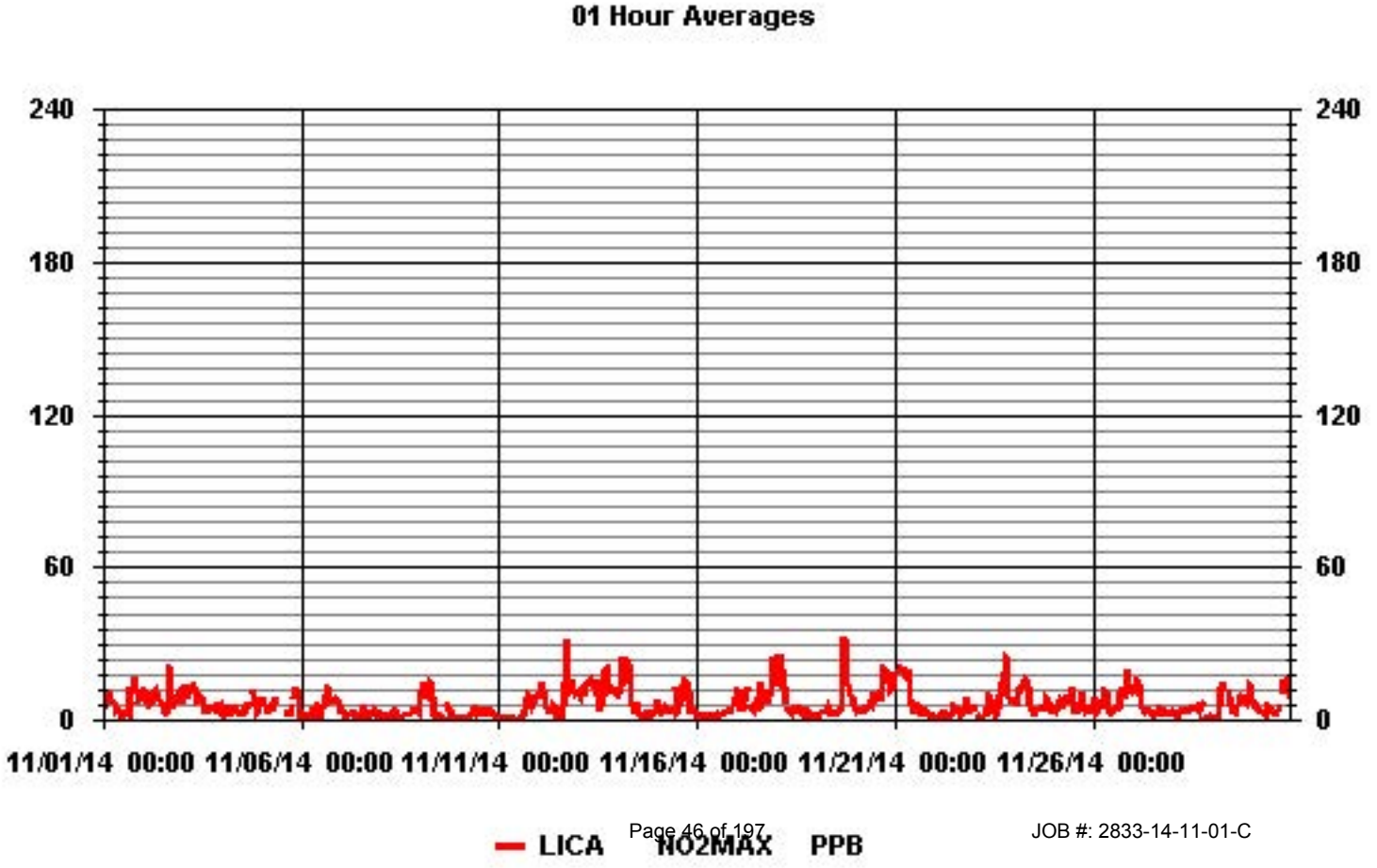
MAXIMUM INSTANTANEOUS VALUE: 32.2 PPB @ HOUR(S) 17 ON DAY(S) 19

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 5.18



JOB #: 2833-14-11-01-C

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	

Calm : .00 %

Total # Operational Hours : 678

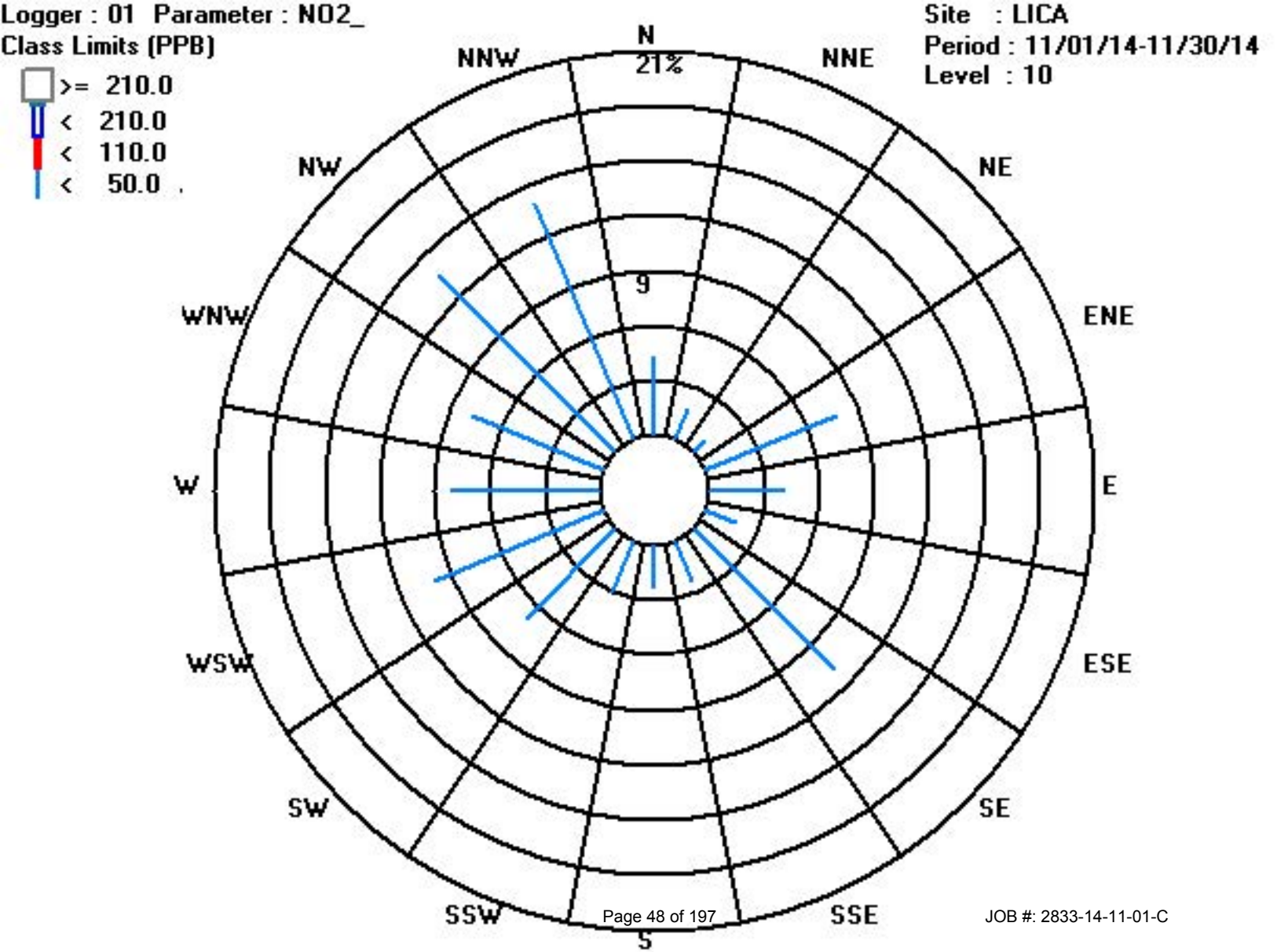
Distribution By Samples

Direction

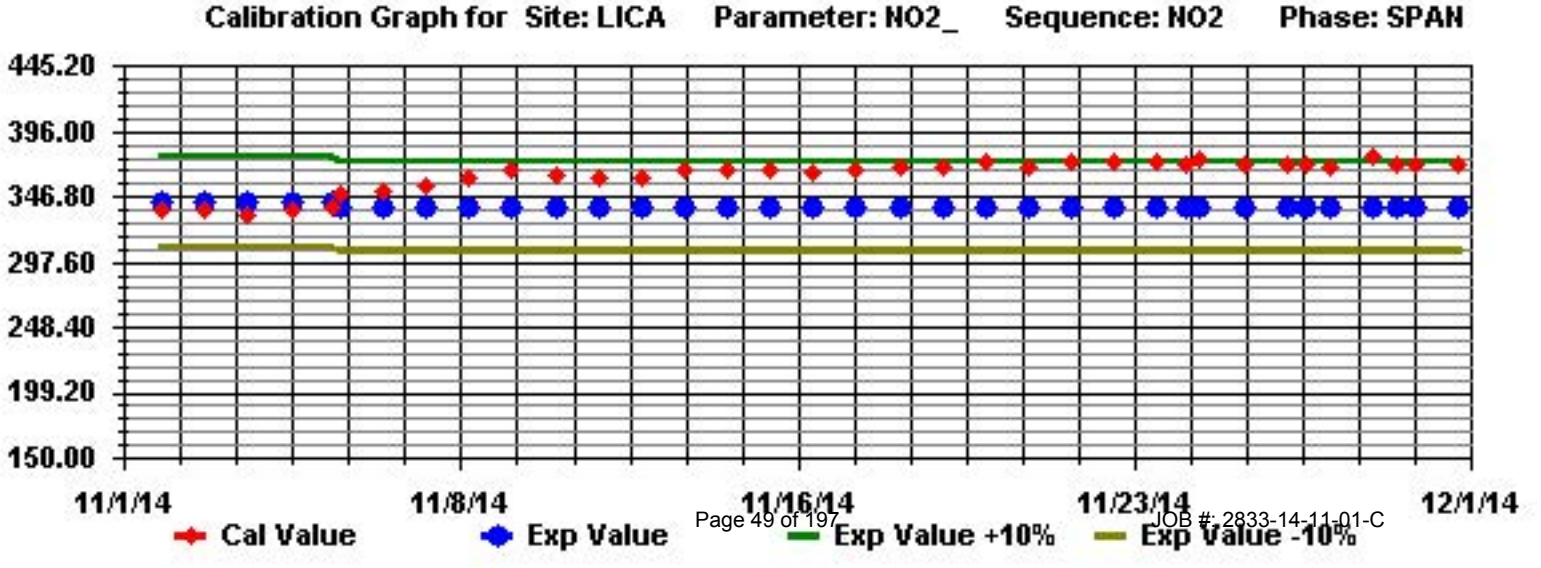
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	678
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	

Calm : .00 %

Total # Operational Hours : 678



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN
445.20
396.00
346.80
297.60
248.40
199.20
150.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

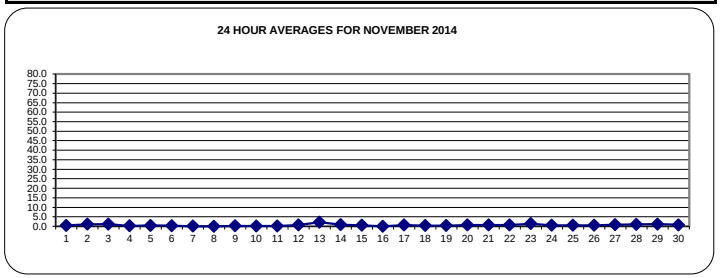
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.1	0.1	0.1	1	0.7	0.2	0.4	0.7	0.2	0.7	0.7	0.2	0.6	0.5	0.2	0	0.1	0	0.1	3.4	**S**	0.1	0.4	0	3.4	0.5	24
2	0.1	0.9	0.6	0.3	0	0	1.5	3.8	5.6	3.6	2.2	2.1	1	0.5	0.3	0.3	1.3	0	0.2	**S**	0.1	0	0	0.1	5.6	1.1	24
3	0.1	0.2	0.1	0.3	0	0.1	0.4	0.4	2.1	2.6	5	8.3	5.9	0.4	0	0	0	0	**S**	0	0	0	0.1	0	8.3	1.1	24
4	0	0	0	0	0	0.1	0	0	0.1	0.2	0.4	0	0.7	0.1	0.6	0.4	1.1	**S**	1.2	0.2	0.1	0	0	0	1.2	0.2	24
5	0.2	0.3	0	0	0	0.1	0	0.6	1.5	**S**	**C**	**C**	**C**	**C**	**C**	**C**	0.1	0	0.1	**S**	0.4	1.8	1.5	0.1	1.8	0.4	24
6	0.2	0	0	0	0	0	0.3	0.1	0.4	0.5	0.6	0.4	0.2	0.5	0.7	0.3	0.4	0.3	**S**	0	0	0.7	0.4	0.2	0.7	0.3	24
7	0	0	0	0	0	0	0	0	0.3	0	0	0.4	0	0	0.8	0.2	0	**S**	0	0	0	0	0	0	0.8	0.1	24
8	0	0	0	0	0	0	0	0.2	0.1	0.5	0.1	0	0	0	0.1	0.1	**S**	0	0	0	0	0	0	0	0.5	0.0	24
9	0	0.2	0.7	0.3	0.2	0	0.2	0.3	1	0.5	0.3	0.5	0.3	0	0	**S**	0.1	0	0	0.1	0.1	0	0.1	0	1	0.2	24
10	0.1	0	0	0	0	0	0	0	0.3	0.7	0.5	0.8	0.9	0.5	**S**	0.1	0	0	0	0	0.2	0	0	0	0.9	0.2	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0.3	**S**	0.3	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.1	0.6	0.6	0.1	24
12	0.2	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.5	1	0.2	0.3	**S**	0.4	0.5	0.5	0.3	6.8	0.4	0.5	0.5	0.4	0.5	0.4	6.8	0.6	24
13	0.7	0.6	0.9	0.4	1.7	1.2	1.7	5.2	***10.9***	9.3	4.7	**S**	1.3	1.2	1.1	1.5	0.9	1.4	0.9	0.8	0.6	0.4	0.5	0.6	***10.9***	***2.1***	24
14	0.6	0.4	1	5.5	2.4	4.2	4.6	0.3	0	0.2	**S**	0.6	0.3	0.1	0	0	0	0	0	0	0	0	0	0.1	5.5	0.9	24
15	0.2	0.1	0.3	0.2	0.4	0.3	0.3	0.3	0.4	**S**	0.8	0.7	0.9	1.5	1.2	1.3	1.1	0.6	0.6	0.4	0.1	0	0.2	0.1	1.5	0.5	24
16	0	0	0	0	0	0.1	0.1	0.1	**S**	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0.2	0.4	0.4	0.0	24
17	0.7	0.3	0.2	0.2	0.1	0.4	0.5	**S**	0.5	0.9	1	1.7	1.5	1.3	1.1	0.7	0.4	0.3	0	0.3	0.2	1.9	0.6	0.9	1.9	0.7	24
18	1.9	0.9	1.3	1.1	0.6	0	**S**	0.1	0.1	0.4	0.6	0.6	0.6	0.5	0.4	0.1	0	0	0	0	0	0	0	0	1.9	0.4	24
19	0	0	0	0.1	0	**S**	0	0.1	0.1	0.2	0.4	0.7	0.5	0.5	0.7	0.5	0.3	2.3	1.1	0.7	0.3	0.3	0.3	0.2	2.3	0.4	24
20	0.1	0.1	0.1	0	**S**	0.3	0.1	0.1	0.4	0.7	1	1.7	1.1	1.2	1.4	0.9	1.4	1.3	0.5	1	0.3	0.4	0.4	0.4	1.7	0.6	24
21	0.5	0.8	0.7	**S**	0.9	1.1	0.8	0.8	2.2	0.9	1.2	0.5	0.6	1.1	0.4	0.3	0.4	0.5	0.7	0.5	0.4	0.3	0.3	0.2	2.2	0.7	24
22	0.2	0.2	**S**	0.4	0.3	0.6	0.5	0.4	0.6	0.6	0.8	0.9	0.8	1.1	0.8	0.5	0.9	0.8	0.8	1.2	0.9	1	0.8	0.4	1.2	0.7	24
23	0.4	**S**	0	0	0	0	0	0	0.9	1.8	1.6	2.5	2	1	1	1.4	1	6.9	5.2	5	0.4	0.2	0.3	0.1	6.9	1.4	24
24	**S**	0.1	0.6	0.7	0.7	0.5	0.8	0.9	0.6	1	0.7	0.4	0.3	0.6	**S**	**S**	0.2	0	0.1	0.5	0.6	0.5	0.4	**S**	1	0.5	24
25	0.5	0.3	0.6	0.6	0.6	0.5	0.7	0.6	1	1.1	1.7	1.1	0.9	0.2	0.8	0.1	0	0.3	0	0	0.1	0.1	**S**	0.5	1.7	0.5	24
26	0.3	0.6	0.1	0.3	0.3	0.6	0.8	0.4	1.1	0.4	0.5	0.5	0.7	0.5	0.8	0.7	0.3	0.7	0.4	0.4	0.6	**S**	0.4	0.2	1.1	0.5	24
27	0.3	0.3	0.5	0.3	0.6	0.7	0.9	0.7	**S**	1	1.2	1.1	0.9	1.1	0.9	1.1	0.8	1	0.9	0.9	**S**	0.9	0.7	0.8	1.2	0.8	24
28	0.9	0.8	0.8	1	0.8	1.1	1.1	0.8	1	1.2	1.3	1.4	1.5	1.3	1.3	1.6	1.4	1.7	1.1	**S**	0.5	0.3	0.1	0	1.7	1.0	24
29	0	0	0	0	0	0.6	0.9	0.7	**S**	4.5	5.9	3.1	2	1.5	1	0.7	0.6	0.5	**S**	0.4	0.5	0.5	0.9	0.8	5.9	1.1	24
30	0.8	0.6	0.6	0.4	0.1	0.2	0.2	0.4	0.5	1.8	1.5	2	1.8	1.2	0.7	0.4	0.2	**S**	0.6	1.1	0.8	0.7	0.7	0.3	2	0.8	24
HOURLY MAX	2	1	1	6	2	4	5	5	11	9	6	8	6	2	1	2	1	7	5	5	1	2	2	1			
HOURLY AVG	0.3	0.3	0.3	0.5	0.4	0.4	0.6	0.6	1.2	1.3	1.2	1.2	1.0	0.7	0.6	0.5	0.5	1.0	0.6	0.6	0.3	0.4	0.3	0.3			

STATUS FLAG CODES

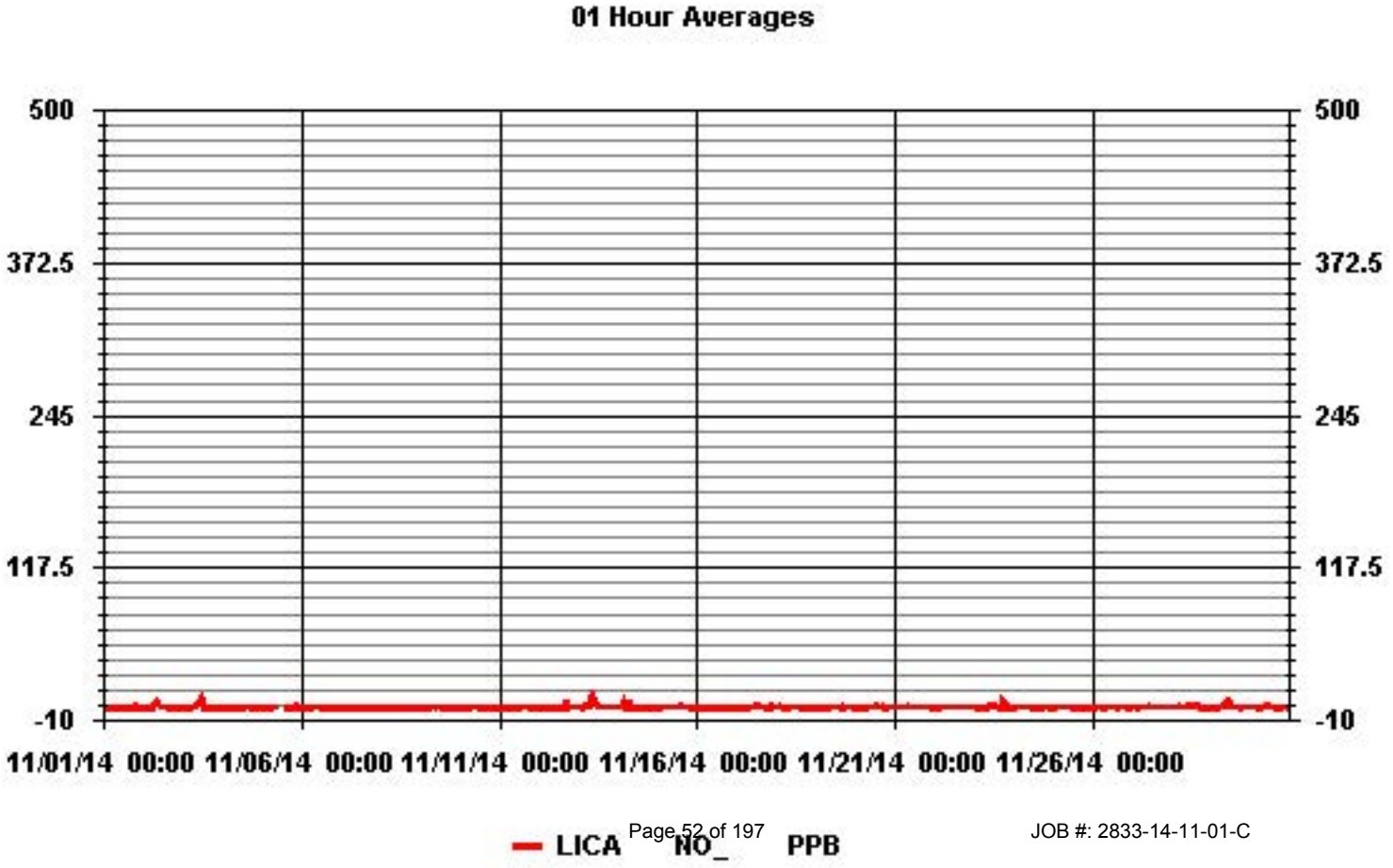
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	509					
MAXIMUM 1-HR AVERAGE:	10.9	PPB	@ HOUR(S)	8	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	2.1	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	1.07		MONTHLY AVERAGE:		0.62	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

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	0.4	2.9	2.4	3.9	2.4	0.9	1.4	3.4	0.9	1.4	1.4	0.9	4	1	0.5	0.5	0.5	0	0.5	34.4	**S**	3.4	4.9	0.5	34.4	3.2	24
2	0.5	3.4	2.9	1.9	0.9	0.4	3.9	6.9	9.4	5.4	2.9	2.9	2.4	0.9	0.5	0.9	26.9	0.9	1.4	**S**	1.9	1.4	0.9	1.4	26.9	3.5	24
3	2.4	2.4	1.9	1.9	0.5	0.4	2.9	1.9	3.9	4.4	7.9	10.4	13.4	1.9	1.4	0.4	0	0	**S**	0	0.5	1.9	0.9	1.9	13.4	2.7	24
4	0	0	0.9	1.4	0.5	0.9	1.4	0.4	0.9	1.4	4.9	0.4	12.4	1.4	8.4	2.4	11.4	**S**	22.9	1.4	3.9	0.9	0.9	1.4	22.9	3.5	24
5	1.9	1.9	0.9	1.4	0.4	1.4	0.9	2.9	3.9	**S**	**C**	**C**	**C**	**C**	**C**	**C**	0.5	0.4	0.5	**S**	2	6.5	4.5	1	6.5	1.9	24
6	0.9	0.5	0.5	0.5	1	0.5	6.4	1	3	4.5	4	2	1.5	4	7.5	2.5	8	3.5	**S**	0.5	0.5	3	1.5	2	8	2.6	24
7	0	0	0	0	0	0	0	0	5.5	2	2	1	1	0.5	11	1.5	0.5	**S**	0.5	0.5	0.5	0.5	0	0	11	1.2	24
8	0.5	0.5	0.5	0.5	0	0.5	0.5	2.5	1	4.5	0.9	0.5	0.5	0.5	0.5	0.5	**S**	0	0	0.4	0	0.4	0.4	0	4.5	0.7	24
9	0.4	2.9	1.9	1.4	1.4	0.4	0.9	1.9	2.9	1.4	1.9	5.9	1.9	0.9	0.5	**S**	0.6	0	0	0.5	0.5	0.5	0.6	0.1	5.9	1.3	24
10	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	2	1	0.5	1	1.5	0.5	**S**	0.5	0	0	0	0.4	0.5	0.5	0.4	0.4	2	0.4	24
11	0.4	0	0.4	0	0	0	0.4	0	0	0	0	0.4	0.4	**S**	1	0.5	0.5	1.5	2	0.5	1.5	1.5	0.5	3	3	0.6	24
12	0.5	3	0.5	0.5	1	0.5	0.5	0.5	1	1.5	0.6	0.5	**S**	0.9	1.9	1.9	0.9	***80.5***	1.9	1.9	0.9	0.9	1.4	0.9	***80.5***	4.5	24
13	1.9	1.4	1.4	1.4	5.4	4.4	8.4	9.4	19.9	15.9	6.9	**S**	1.9	7.4	1.9	8.5	5.4	7.4	3.9	2.4	1.4	1.4	1.4	1.4	19.9	5.3	24
14	1.9	0.9	2.9	10.9	3.9	8.4	10.4	1.9	0.4	0.4	**S**	1.4	1.4	0.5	0.5	0	0.5	0	0.9	0.5	0	0	0	0.5	10.9	2.1	24
15	1.5	1.4	1.4	0.9	1.4	0.9	0.9	0.9	0.9	**S**	5.5	1	3.5	2	2	5.5	7	1.5	1.6	2.1	0.6	0.5	0.6	0.6	7	1.9	24
16	0.1	0.1	0.1	0.6	0.1	0.6	0.6	0.6	**S**	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0	0	0.4	0.5	1.5	1.9	1.9	0.5	24
17	7.9	2.4	1.4	1.5	0.9	2	2	**S**	3.9	1.9	2.9	6	2.5	2.4	4	2.5	1.4	2.9	0.5	1.5	0.9	17.5	2	3.5	17.5	3.2	24
18	6.5	3	2.5	6.5	2	0.5	**S**	0.6	0.6	0.6	1	1	1	1	0.6	1.6	0	0	0	0	0.6	0.5	0.6	0	6.5	1.3	24
19	0	0.1	0.1	0.6	0	**S**	0.5	1.5	1.4	0.9	0.5	6.9	1.4	1.4	6.4	2.4	1.4	19.4	14.4	3.5	1.4	1.5	0.9	1	19.4	2.9	24
20	0.5	0.9	0.5	0.5	**S**	3	0.9	0.5	0.9	2.5	4.5	14.9	6.4	2.4	12.9	3	7.4	9.5	4	2.5	1	0.9	1	0.5	14.9	3.5	24
21	1	4	2.5	**S**	1.5	2.5	1.5	2	3	3.5	3.5	1	1	5	1	0.9	1.5	1.5	2.5	1.5	1.5	1	0.5	1	5	2.0	24
22	0.9	0.9	**S**	1	0.9	2.5	1.5	0.9	1.5	0.9	5	6.4	2	6	3	1.4	2.5	3.5	2	6	2.5	2.4	2.4	2	6.4	2.5	24
23	2.5	**S**	0.5	0.9	0.5	0.4	0.9	0.9	4.4	7.9	2.4	3	3	1.5	3	12.5	2.5	36.4	19.4	16.5	2	0.5	1.4	0.5	36.4	***5.4***	24
24	**S**	1.4	2.5	2	2	1.4	1.9	2	0.9	2.4	2	0.9	0.5	2	**S**	**S**	1.4	0.5	1.5	2.9	3.5	0.9	1.5	**S**	3.5	1.7	24
25	1.9	1.4	2.4	3.4	2.4	2.3	3.3	3.3	4.3	5.3	15.8	8.8	3.3	0.8	2.9	0.8	0.8	4.3	0.3	0.8	0.8	0.8	**S**	1.9	15.8	3.1	24
26	1.9	2.9	1.4	0.9	0.9	1.4	8.4	1.4	2.4	0.9	3.4	1.4	1.4	0.9	1.9	1.4	1.4	11.9	1.9	1.4	1.9	**S**	2	0.5	11.9	2.3	24
27	0.5	1.4	1.4	0.5	2.5	2	3	1.4	**S**	2	2.5	2	2	2.5	1.5	5.5	2	2	1.5	3	**S**	2	1.5	2	5.5	2.0	24
28	2	1.5	2	2.5	2	3	3	2	2.5	2	5.5	3.5	2.5	2.5	2.5	5.5	11	11.5	2	**S**	0.9	0.9	1	0.4	11.5	3.1	24
29	0.4	0.4	0.4	0.4	0.4	1.9	2.9	**S**	**S**	5.9	6.4	3.9	2.9	2.4	2.9	1.4	5.4	1.4	**S**	1.4	1.4	0.9	2.4	1.9	6.4	2.3	24
30	1.9	1.9	2.9	1.4	0.9	1.4	0.9	1.4	1.4	2.9	2.4	2.9	2.4	1.9	1.4	0.9	0.9	**S**	1.5	17.5	3.5	1.5	1.5	0.5	17.5	2.4	24
HOURLY MAX	8	4	3	11	5	8	10	9	20	16	16	15	13	7	13	13	27	81	23	34	4	18	5	4			
HOURLY AVG	1.4	1.5	1.4	1.7	1.2	1.5	2.4	1.9	3.1	3.0	3.5	3.3	2.8	2.0	3.0	2.4	3.5	7.4	3.2	3.9	1.3	1.9	1.3	1.1			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 628

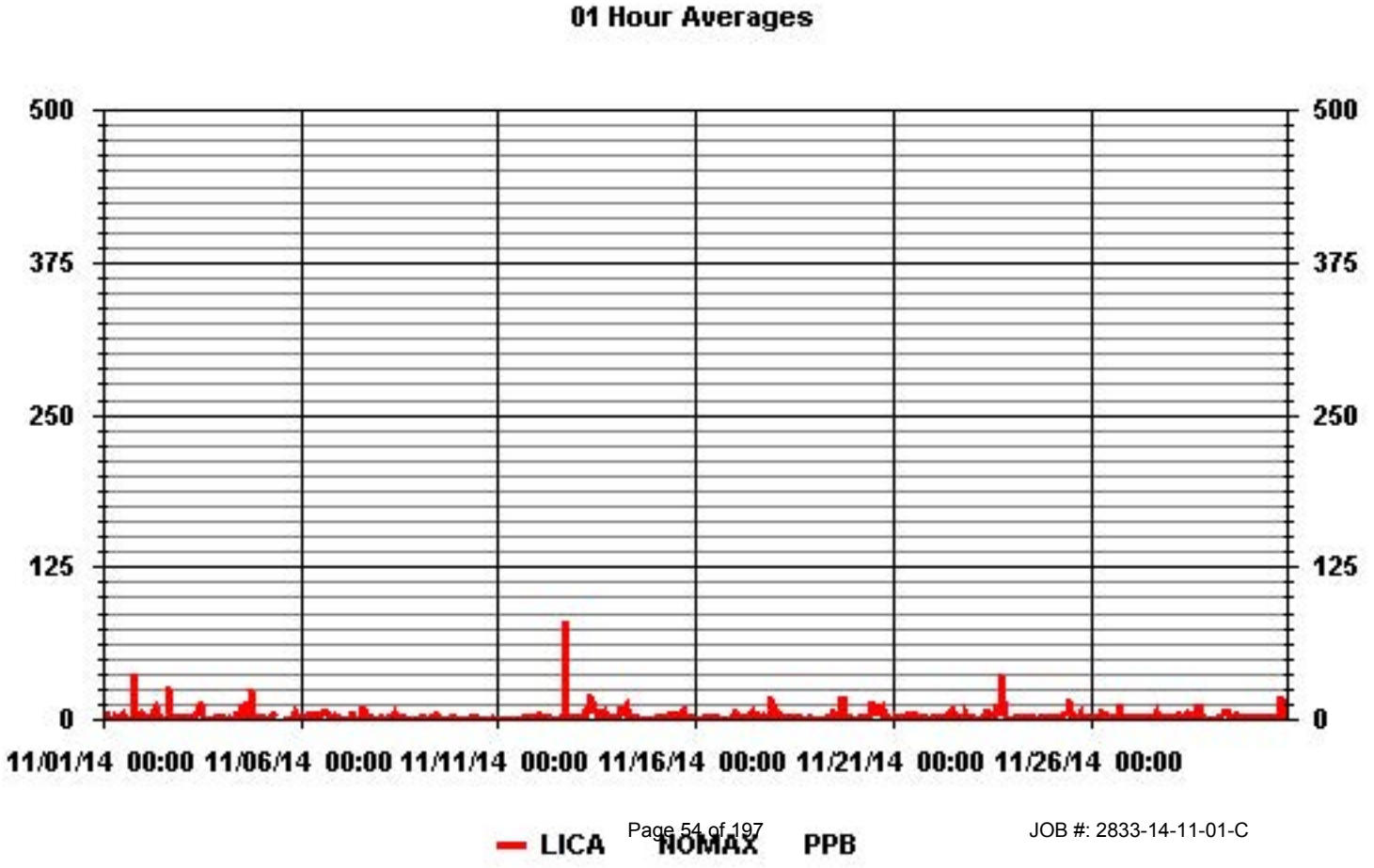
MAXIMUM INSTANTANEOUS VALUE: 80.5 PPB @ HOUR(S) 17 ON DAY(S) 12

VAR-VARIOUS

IZS CALIBRATION TIME: 37 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 4.68



JOB #: 2833-14-11-01-C

LICA
NO_ / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	

Calm : .00 %

Total # Operational Hours : 678

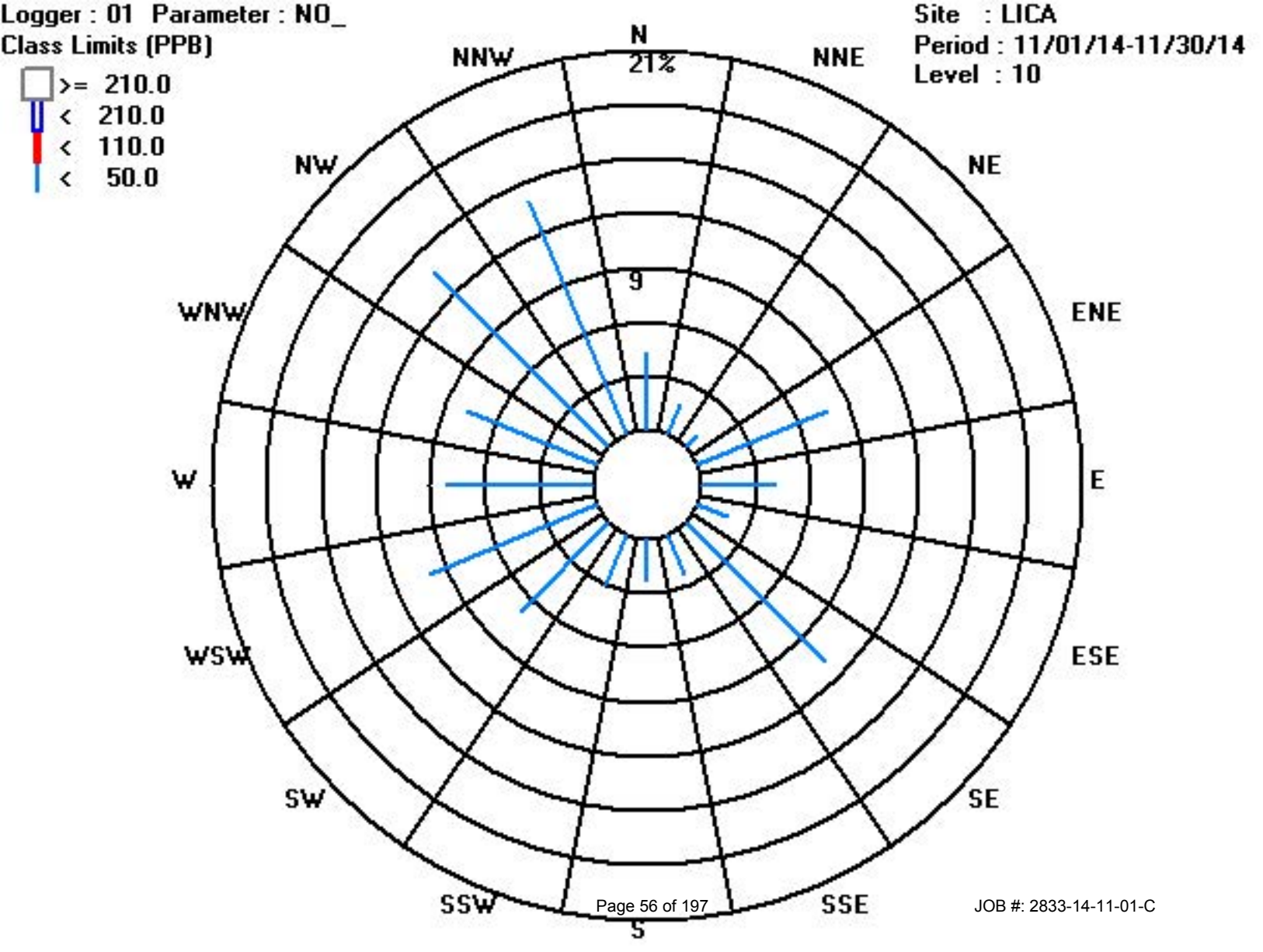
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	678
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	

Calm : .00 %

Total # Operational Hours : 678



JOB #: 2833-14-11-01-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST

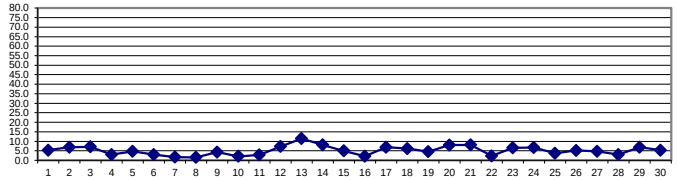
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.9	3.3	6	8.6	7.4	5.2	6.3	6	3.4	4.2	3	1.4	2.8	3.2	2.8	2.3	7.4	7.4	7.5	11	**S**	6	6.9	6.9	11	5.3	24
2	6.2	8.9	7.3	6.1	4.9	4.5	9.1	13	13.3	12	9.9	8.9	5.9	3.7	3.1	3.9	7.3	3.1	6	**S**	4	4.1	7.6	5.8	13.3	6.9	24
3	2.7	9	5.6	5.7	9.1	12	11.9	9.2	10.9	10.3	13.2	17.4	13.9	3.2	2.3	2.1	2.6	4	**S**	4.8	4.6	1.8	3.5	3.9	17.4	7.1	24
4	2.5	1.5	1.6	1.7	1.7	2.6	1.7	1.8	2.3	2.2	2.1	1.8	2.4	1.8	2.9	3.7	3.7	**S**	6.8	9.2	3.8	2.7	2.7	4.6	9.2	2.9	24
5	4.7	6.4	3.9	2.9	3.2	3.3	3.3	4.8	7.3	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2	2	3.5	**S**	7.9	9.7	9	1.8	9.7	4.7	24
6	1.4	1.1	1	1	0.9	1	1.7	1.8	2.3	2	2.3	2	1.7	2.3	2.8	3.9	4.8	6.3	**S**	5.2	4.6	6.8	6.7	5.1	6.8	3.0	24
7	2.4	2.6	1.9	1.1	1.1	1.3	1.8	1	1.6	0.6	0.9	1.5	1	1.6	2.2	1.5	1.4	**S**	2.3	2.2	3.6	2.9	1.8	2.1	3.6	1.8	24
8	1.2	0.8	1	0.8	0.5	0.7	0.7	1.6	1.4	2.1	1	0.7	0.5	0.4	0.8	1.3	**S**	1.9	2.6	2.6	2.7	3.2	4	2.8	4	1.5	24
9	4.9	9.5	12.8	9	9	8	8.4	8.3	7.7	1.9	1	1.4	1.1	0.5	0.3	**S**	5	3.8	2.6	1.4	0.7	0.6	0.6	0.4	12.8	4.3	24
10	0.5	0.2	0.1	0	0.1	0.7	1	1.5	4	4.4	2.6	3.6	4.1	2.6	**S**	2.7	2.7	2.5	3	3.5	3.1	2.4	1.4	0.8	4.4	2.1	24
11	0.5	0.4	0.5	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	1.1	**S**	1.5	2.5	6.6	8.3	6.7	5.7	6.6	6.7	7.5	9.3	9.3	2.8	24
12	8.7	9.8	13.8	7.2	4.1	2.7	2.7	3.8	6.2	6.3	1.2	1.1	**S**	1.6	2.9	3.8	8.7	22.5	11.8	10.3	9.4	9.1	8.7	9.4	22.5	7.2	24
13	11.1	9.7	10.7	8.1	12.2	11.9	13.6	18.7	22.8	20	12.8	**S**	4.5	4.4	5.1	7.5	11	18	12.5	10.6	10.2	8.7	9	9.7	22.8	***11.4***	24
14	10.1	10.9	12.2	25.3	25.1	***26.6***	25.3	10.2	4.5	3.3	**S**	5.3	2.8	2.3	1.5	1.2	1.9	2.6	2.3	1.1	1.3	2.2	3.1	5	***26.6***	8.1	24
15	5.6	3.4	2.3	2.4	3.1	3.4	3.5	3	2.9	**S**	3.3	3	3.6	5.6	6	10.2	12.8	12.7	10.9	7	2.1	2.7	2.7	1	12.8	4.9	24
16	1.2	1.3	1.6	1.5	1.1	1.2	1.3	0.9	**S**	1.7	1	1.1	1.4	1.7	2.3	2.5	2.2	2.2	1.8	2.5	3.1	4.1	5.4	6.4	6.4	2.2	24
17	8.5	5.9	2.4	2.8	5.1	8.2	11.5	**S**	4.7	4.6	3.8	5.2	4.9	4.4	5.3	6.7	8.9	5.6	5.4	8	8.5	12.5	11.8	14.1	14.1	6.9	24
18	20.6	19.4	23	18	11.1	4.8	**S**	2.9	3.3	3	3.6	3.6	4.1	4.1	3.5	2.7	1.6	3.3	3	2.7	1.1	0.9	1	1.2	23	6.2	24
19	1	1	1.8	2.1	2.4	**S**	3.3	4.3	3	2	1.8	2.1	2	2.1	3.2	3.7	8.3	15.8	10.5	9.2	7.8	6.5	5.8	3.9	15.8	4.5	24
20	2.8	2.4	2.8	3.3	**S**	4	3.7	4.6	5.9	5.6	6.4	7.1	6.3	7.2	8.2	9.4	17.1	13.2	11.4	15.7	11.2	11	11.6	12.8	17.1	8.0	24
21	15.1	18.6	20.8	**S**	19.6	18.8	16.9	17.4	17.3	6	5.4	3.3	3.2	4.1	2.4	1.8	2	2.2	2.2	1.9	2.2	1.5	1.7	1.4	20.8	8.1	24
22	0.7	0.8	**S**	1.8	1.4	2.1	2	1.8	2.2	2.1	2.3	2.9	2.4	3	2.9	1.9	2.8	2.3	2.1	3.3	3.2	3	3.1	3.2	3.3	2.3	24
23	3	**S**	0.5	0.5	0.6	1	1.1	1	5	5.6	5.4	6.6	5	2.8	3.3	6.2	12.5	21.7	21.1	20	8.1	6.9	6.7	7.5	21.7	6.6	24
24	**S**	6.4	9.3	11.2	11.9	12.8	15.9	15.8	7.7	6.4	3.9	2	1.5	2.7	**S**	**S**	3.2	2.8	3.6	5.5	4.6	4.1	3.9	**S**	15.9	6.8	24
25	4.3	3.3	3.9	3.3	4.1	4.4	5.3	4.5	6.4	4.6	4.9	4.5	3.6	1.1	2.9	2.2	1.5	5.3	3.1	2	3.4	3.2	**S**	3.3	6.4	3.7	24
26	3.7	6.1	2	2.9	3.6	4.5	6.8	5.1	8.5	1.9	1.5	2	3	2.3	4.1	4.8	4.8	4.7	5.4	8.3	12.2	**S**	10.8	9.7	12.2	5.2	24
27	9	10.2	14.4	11.1	10.6	4.8	3.3	2.9	**S**	3.6	3.2	2.8	2.3	2.5	2.3	3.2	3.3	3.4	2.5	2.6	**S**	2.2	1.9	2.1	14.4	4.7	24
28	2	2	1.7	2.1	2.1	3.2	3.5	2.9	3.3	3.5	3.5	3.5	3.8	3.6	4.5	4.7	4.3	4.7	5.6	**S**	1.4	1	0.8	0.2	5.6	3.0	24
29	0.1	0.2	0.9	1.6	1.9	9.5	13.6	10.7	**S**	14.7	14.3	7.7	5.3	4.4	3.8	4.5	6.4	9.3	**S**	6.9	6.3	7.1	11	9.9	14.7	6.8	24
30	7.2	5.1	3.9	3.8	2.1	1.7	1.8	2.4	2.4	7.1	4.7	5.1	4.8	3.5	2.6	2.7	3.7	**S**	6.5	7.5	11.1	13.1	11.7	7.9	13.1	5.3	24
HOURLY MAX	21	19	23	25	25	27	25	19	23	20	14	17	14	7	8	10	17	23	21	20	12	13	12	14			
HOURLY AVG	5.0	5.5	5.9	5.0	5.5	5.7	6.2	5.6	5.9	5.1	4.3	3.8	3.5	3.0	3.2	3.8	5.5	7.1	6.0	6.3	5.3	5.1	5.6	5.2			

STATUS FLAG CODES

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

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

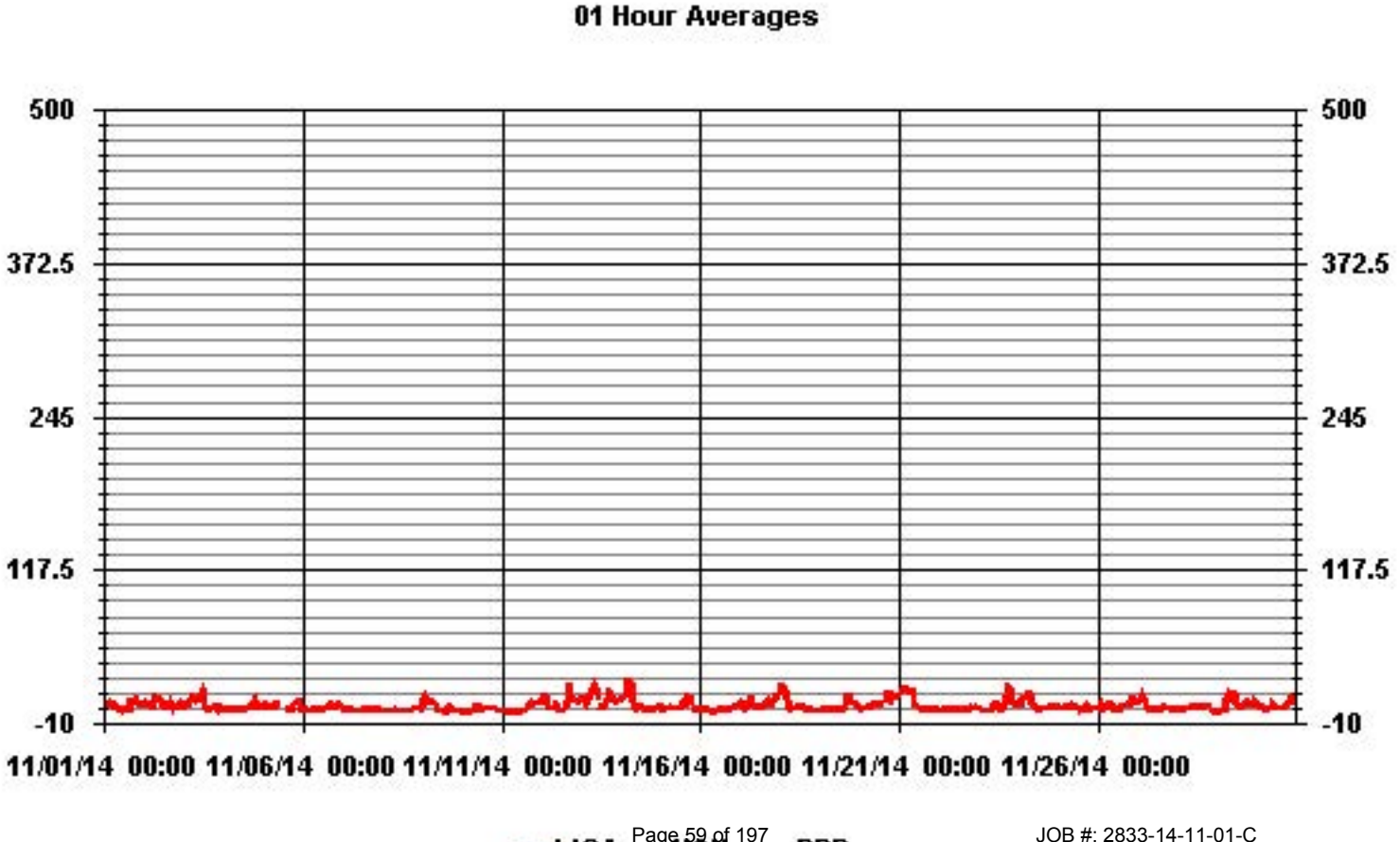
24 HOUR AVERAGES FOR NOVEMBER 2014



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	677					
MAXIMUM 1-HR AVERAGE:	26.6	PPB	@ HOUR(S)	5	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	11.4	PPB			ON DAY(S)	13
					VAR-VARIOUS	

IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	4.58		MONTHLY AVERAGE:	5.14	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

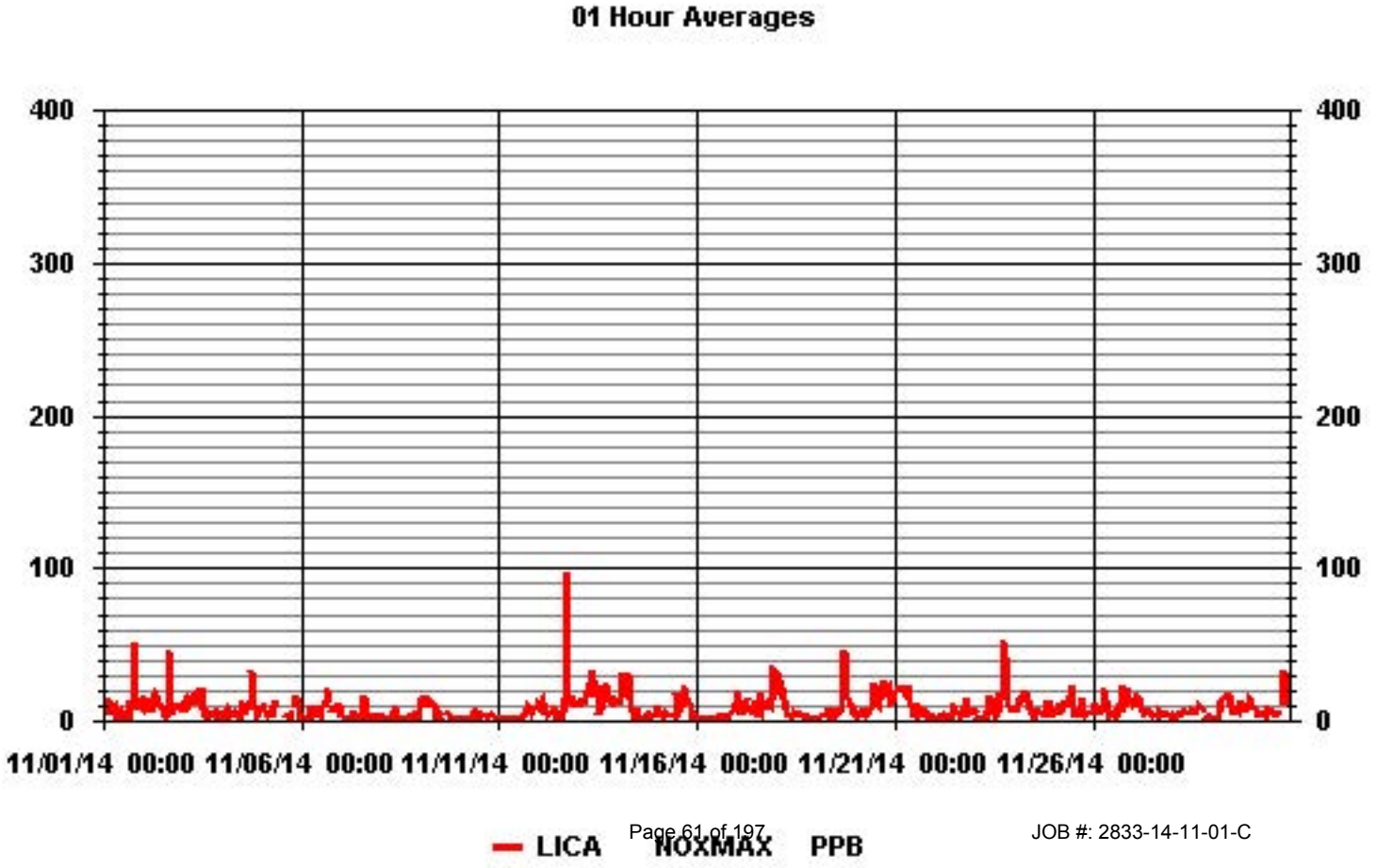
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	5.5	6.5	10.4	13.9	10.4	7.4	8.4	10	4.4	5.5	5.5	2.9	6	4	3.5	2.5	13.5	11	11.5	48.4	**S**	9.9	14.4	8.9	48.4	9.8	24
2	7.9	16.4	10.9	9.4	6.5	6.5	14.4	18.4	16.9	14.4	11.4	10.4	8.4	4.9	4	5.5	46.4	4.4	9.9	**S**	8.9	8.9	10.4	9.9	46.4	11.5	24
3	6.5	11.4	13.4	9.4	10.9	13.4	15.4	10.9	16.9	11.9	15.9	19.9	20.4	9.4	4.4	2.9	4	4.9	**S**	5.5	6.5	2.9	5.5	6	20.4	9.9	24
4	2.9	1.9	4.4	6.9	3.4	6	3.4	3.4	6.4	5.4	3.9	2.9	13.4	3.4	10.9	6.5	11.4	**S**	30.9	11.9	9.4	4.4	5.4	8.4	30.9	7.3	24
5	8.4	9.4	7.4	4.9	3.9	4.9	4.4	8.9	11.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.5	2.5	5.5	**S**	10.5	16.5	14	6	16.5	7.7	24
6	2.5	1.5	2	1.5	2	1.5	9.5	3.5	6	5.5	9.5	4.5	4	9	12.5	12	21.5	13.5	**S**	8	7.5	10	9	9	21.5	7.2	24
7	3.5	3.5	3.5	2	1.5	2	2.5	2	6.5	2	2.5	2	2	2	16.5	5.5	2	**S**	3.5	3	4.5	4	2	3	16.5	3.5	24
8	3	2.5	1.5	2.5	1	1.5	2	5	2.5	9.5	2	1.5	1.5	1.5	2	2.5	**S**	2.5	3	3.9	3.4	4.4	4.9	3.5	9.5	2.9	24
9	8.4	13.9	16.9	11.9	10.9	10.9	14.9	13.9	12.9	3.4	2.4	6	3.5	2.4	0.9	**S**	6.1	5.5	4.5	2.5	1.5	1.1	1.1	1	16.9	6.8	24
10	1	0.5	0.5	0.5	0.5	1	1.5	2	5	6.1	3	4.5	5	3.5	**S**	3.6	3.5	3	3.6	4	4	3.1	2	1.5	6.1	2.7	24
11	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.5	**S**	2.5	4	8	10.5	9.5	6.5	9	8.5	9	11.5	11.5	3.8	24
12	9.5	13	15	13	5.6	3.5	4.5	5.5	8	8	2.5	2	**S**	2.4	5.9	6.4	15.4	***97.4***	17.4	13.4	14.4	11.4	10.9	10.9	***97.4***	12.9	24
13	12.9	11.4	12.9	10.4	18.4	17.9	22.4	24.9	31.9	28.4	17.4	**S**	6.4	23.4	7.4	12.5	21.9	23.9	17.9	13.9	12.4	11.4	13.9	11.9	31.9	***16.8***	24
14	11.9	12.9	15.9	30.9	27.4	30.4	32	15.9	6.5	3.5	**S**	7.4	4.4	2.9	2	2	2.5	3	4	1.5	2	3	4	6.5	32	10.1	24
15	9	4.4	4.4	3.4	5.5	4.4	4.4	4.4	3.9	**S**	17	3.5	4.5	7	8.5	17.5	23	15.5	12.6	11.6	3.1	4.1	4.1	1.1	23	7.7	24
16	1.6	1.6	1.6	1.6	1.6	1.6	2.1	1.6	**S**	2.5	2	1.5	1.5	2.5	3	3	3	3	3	3.5	4.5	5.5	10	9.9	10	3.1	24
17	18.9	8.4	5.4	5.5	8	12.5	14	**S**	8.5	7	6	12.6	7.6	6.1	18.6	9.6	11.6	11.6	6.6	11.6	10.6	35.6	14.1	16.6	35.6	11.6	24
18	32.1	25.1	25.5	22.1	14.6	8.6	**S**	4	4	3.5	5.5	5.5	5	5.5	5	4	2.5	4	3.5	3.5	2	1.5	2	1.5	32.1	8.3	24
19	1.5	1.5	2.5	3.5	3.5	**S**	4	6	6	3	2.5	7.5	4	4.5	8.5	6	16.5	45.4	39.4	15.5	11	10.5	10	6.5	45.4	9.5	24
20	3.5	4	4	4	**S**	7	4.5	5.5	6.9	7.5	11.5	24.5	12	10.5	17.5	14.5	24	24	20.5	22	16.5	12.4	13.5	14	24.5	12.4	24
21	18.5	21.5	22	**S**	21	21.5	19	21	21.5	11	10	4.5	4	11.9	4	4	4	4	7	3.5	4	3	2.5	2.5	22	10.7	24
22	2	2	**S**	3	2.5	5	4	3	3	3	4.5	12	5.5	5	5.5	3.5	6.5	4	4	15	8.5	7	5.5	5.5	15	5.2	24
23	6.9	**S**	1	2	1.5	1.5	4	2.5	13.9	15.9	7.4	7.5	6.5	4	6	16.9	16.5	52.4	42.4	39.4	10	8.5	9	8.5	52.4	12.4	24
24	**S**	8	11.5	13.5	14.4	14.9	18	18	13.9	9	5.5	2.5	2.5	6.5	**S**	**S**	5.6	4.6	6.6	11.1	11.6	5.6	5.1	**S**	18	9.4	24
25	6.5	6	6.5	10.5	6.9	7.9	10.9	10.9	13.9	10.9	20.9	20.9	10.4	3	8	4.9	4.4	15.4	6.4	3.9	5.5	5.4	**S**	6.1	20.9	9.0	24
26	6.5	12	6.1	5.6	6.5	7.5	21.5	8.5	13.5	4	5.6	4.5	6.1	4	7.5	10	9	22.5	9.5	11.5	19.5	**S**	14	11.6	22.5	9.9	24
27	13	12	17.5	11.6	14.1	7	5.6	4.5	**S**	6	6	5	3.5	4.5	3.5	7	6	5	4.5	6	**S**	4	3.5	4.5	17.5	7.0	24
28	4.1	3.5	3	5	4	5	6.5	6	5.5	5	5.5	7.5	6.5	6.1	7.5	10.5	9.5	9.5	8	**S**	2.6	2.1	2.1	0.6	10.5	5.5	24
29	0.5	0.5	1.5	2	5.5	13.5	16	**S**	**S**	16	16	10.5	6.5	6	7.5	6.5	13.5	10.5	**S**	8.5	8	11	15	13.5	16	9.0	24
30	9.5	8.5	5.5	6.5	4.5	4	4	4.5	3.5	10	6.5	6.5	6	4.5	4	4.5	6	**S**	12.5	32.5	15.5	16	18	10	32.5	8.8	24
HOURLY MAX	32	25	26	31	27	30	32	25	32	28	21	25	20	23	19	18	46	97	42	48	20	36	18	17			
HOURLY AVG	7.6	7.8	8.1	7.5	7.5	7.9	9.5	8.0	9.4	7.8	7.5	7.2	6.0	5.7	6.9	7.0	11.1	15.3	11.4	11.9	8.1	8.0	8.1	7.3			

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 INSTANTANEOUS VALUE:	97.4	PPB	@ HOUR(S)	17	ON DAY(S)	12
					VAR-VARIOUS	
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	7.92					



JOB #: 2833-14-11-01-C

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.27	1.76	.88	7.81	4.12	1.76	10.91	2.35	2.35	3.09	6.93	10.02	8.11	7.81	13.71	14.01	

Calm : .00 %

Total # Operational Hours : 678

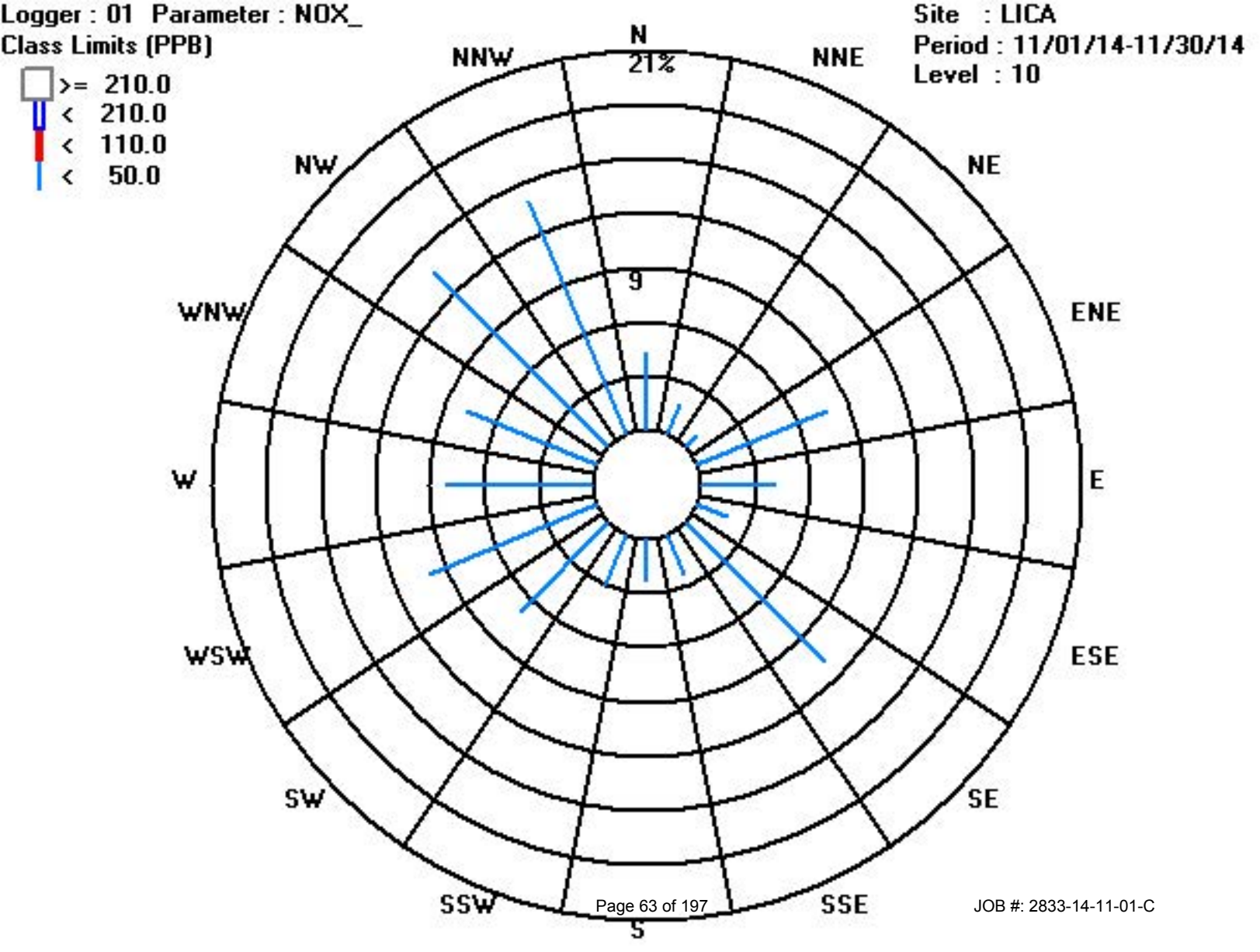
Distribution By Samples

Direction

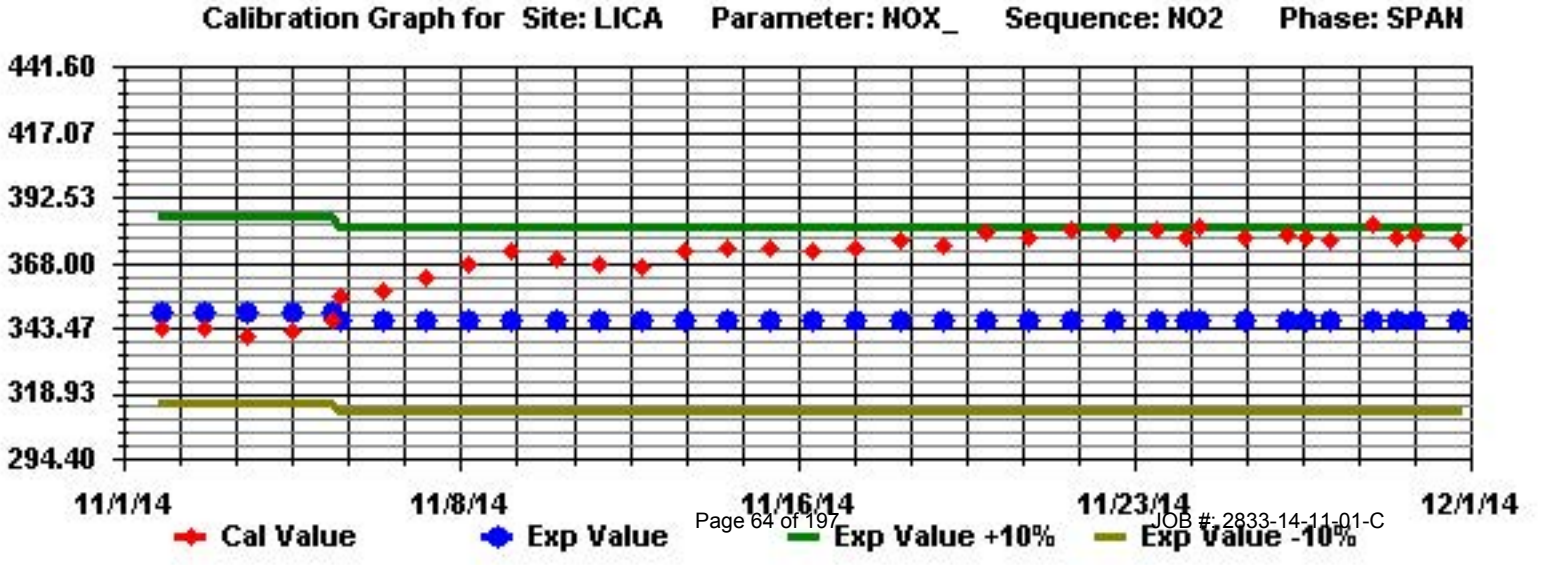
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	678
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	29	12	6	53	28	12	74	16	16	21	47	68	55	53	93	95	

Calm : .00 %

Total # Operational Hours : 678



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN
441.60
417.07
392.53
368.00
343.47
318.93
294.40
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

OZONE (O3) hourly averages in ppb

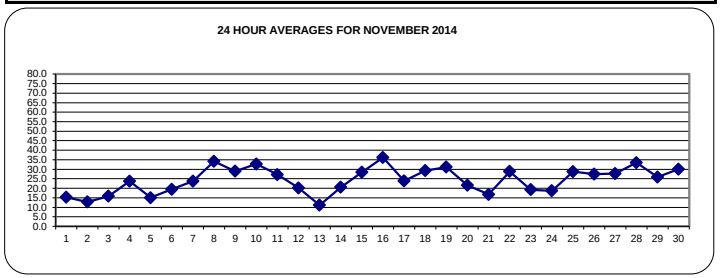
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7	9	5	2	2	3	3	5	14	16	26	33	34	36	37	37	26	19	12	10	**S**	8	4	3	37	15.3	24
2	3	2	1	2	3	2	1	1	1	5	8	13	17	25	27	27	23	25	24	**S**	22	17	22	23	27	12.8	24
3	26	13	12	9	8	7	7	10	10	11	8	7	9	20	23	23	21	21	**S**	22	22	27	26	23	27	15.9	24
4	24	27	28	31	29	30	31	29	28	27	26	26	26	25	25	23	23	**S**	17	11	15	15	15	13	31	23.7	24
5	11	10	14	16	14	15	15	12	12	17	19	20	25	25	26	**C**	**C**	**C**	**C**	**C**	8	4	7	16	26	15.1	24
6	16	15	16	17	18	19	21	23	24	25	27	28	28	27	25	23	21	18	**S**	10	10	12	11	13	28	19.4	24
7	19	20	23	25	24	25	25	25	24	22	21	19	20	21	22	23	24	**S**	26	26	25	26	29	30	30	23.7	24
8	31	31	32	34	35	35	36	36	36	37	36	38	37	37	37	37	**S**	35	33	32	31	30	29	30	38	34.1	24
9	26	19	17	19	18	20	21	20	22	32	36	35	36	35	37	**S**	31	32	32	36	36	36	35	35	37	29.0	24
10	35	36	35	35	34	34	35	35	33	32	33	32	33	34	**S**	33	32	31	30	30	30	30	30	31	36	32.7	24
11	31	31	31	31	31	31	31	31	31	31	32	32	30	**S**	31	30	23	21	22	22	20	19	18	16	32	27.2	24
12	16	15	11	17	23	27	27	26	24	26	35	35	**S**	34	33	31	23	12	13	11	7	6	6	5	35	20.1	24
13	3	3	2	5	3	3	2	3	4	12	21	**S**	30	30	29	27	22	10	10	10	8	8	7	5	30	11.2	24
14	4	3	3	2	3	2	3	16	24	26	**S**	25	31	30	33	33	31	29	29	32	31	29	28	26	33	20.6	24
15	25	28	30	30	29	27	26	28	28	**S**	28	29	29	28	29	27	24	23	24	29	34	33	32	33	34	28.4	24
16	32	33	34	35	36	36	36	38	**S**	36	39	***41***	***41***	40	40	39	38	36	37	37	35	34	31	29	***41***	***36.2***	24
17	24	27	31	30	25	20	16	**S**	27	26	27	27	28	28	28	28	25	28	27	20	15	14	16	13	31	23.9	24
18	8	9	7	11	18	29	**S**	33	32	32	32	31	30	33	35	36	37	36	37	37	38	38	38	38	38	29.3	24
19	38	38	37	36	36	**S**	34	31	34	36	37	37	38	37	37	35	27	18	16	15	14	25	29	30	38	31.1	24
20	32	32	31	29	**S**	28	27	25	23	24	24	23	27	27	26	23	11	18	17	8	12	12	8	8	32	21.5	24
21	7	4	3	**S**	3	3	3	3	4	11	13	17	17	19	21	27	30	29	29	29	29	28	28	28	30	16.7	24
22	28	29	**S**	31	32	31	30	29	29	29	30	30	30	29	29	29	28	28	28	27	27	27	27	26	32	28.8	24
23	26	**S**	26	26	26	25	24	24	18	17	20	21	22	24	24	20	10	5	5	8	16	19	19	17	26	19.2	24
24	**S**	17	15	13	11	9	7	7	13	16	22	27	26	25	24	24	25	23	22	18	21	22	24	**S**	27	18.7	24
25	23	24	24	25	26	26	26	27	26	27	28	30	31	34	32	31	31	28	32	34	32	32	**S**	33	34	28.8	24
26	31	27	30	30	30	31	29	30	28	33	33	32	31	31	29	28	27	26	24	21	17	**S**	16	16	33	27.4	24
27	17	15	11	13	13	21	29	29	26	28	30	31	33	33	33	33	34	34	35	35	**S**	35	35	34	35	27.7	24
28	34	34	34	34	35	34	34	34	35	34	34	34	33	33	32	32	32	32	31	**S**	34	34	33	33	35	33.4	24
29	32	32	30	28	27	20	16	18	15	18	21	26	29	31	31	31	29	26	**S**	28	29	28	25	26	32	25.9	24
30	29	31	31	31	33	33	33	33	**S**	29	31	31	32	32	33	33	32	**S**	26	27	24	22	25	30	33	30.0	24
HOURLY MAX	38	38	37	36	36	36	36	38	36	37	39	41	41	40	40	39	38	36	37	37	38	38	38	38			
HOURLY AVG	22.0	21.2	20.8	22.3	21.6	21.6	21.7	22.8	22.3	24.7	26.8	27.9	28.7	29.8	29.9	29.4	26.4	24.7	24.5	23.1	22.9	23.1	22.5	22.9			

STATUS FLAG CODES

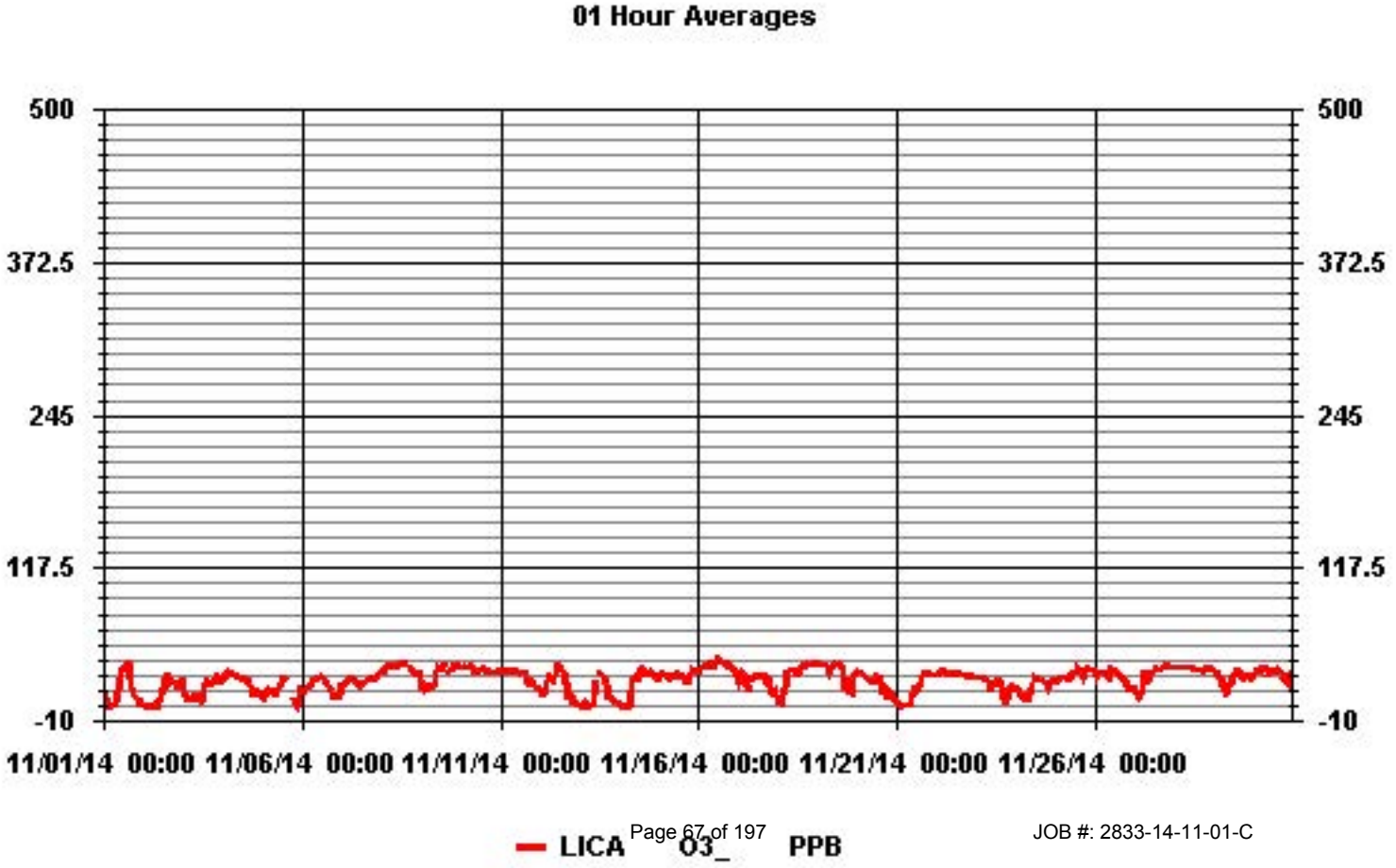
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	41	PPB	@ HOUR(S)	11, 12	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	36.2	PPB			ON DAY(S)	16
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.68		MONTHLY AVERAGE:		24.31	PPB



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

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	10	7	4	5	5	4	13	16	19	31	35	36	38	38	38	36	27	16	18	**S**	12	7	5	38	18.7	24
2	5	4	2	4	5	3	3	2	3	7	11	15	20	30	31	30	28	27	29	**S**	30	21	26	31	31	16.0	24
3	31	22	15	10	9	9	9	13	12	13	9	8	12	22	24	23	22	23	**S**	23	26	28	28	29	31	18.3	24
4	30	30	32	33	31	32	32	31	29	28	27	27	28	26	26	25	25	**S**	21	14	17	17	17	15	33	25.8	24
5	12	13	16	18	16	16	16	13	15	20	20	23	26	27	27	**C**	**C**	**C**	**C**	**C**	12	6	13	18	27	17.2	24
6	17	16	17	18	19	20	22	25	25	26	29	29	29	28	26	25	23	21	**S**	15	15	14	12	15	29	21.1	24
7	20	20	25	27	26	27	26	26	25	23	21	20	21	22	24	25	26	**S**	27	27	27	28	30	31	31	25.0	24
8	32	32	35	35	36	37	37	39	38	39	39	39	38	38	38	39	**S**	36	34	33	32	31	31	31	39	35.6	24
9	30	21	22	22	19	27	28	22	29	36	37	36	37	36	39	**S**	34	34	34	37	37	36	36	35	39	31.5	24
10	36	36	36	36	35	35	36	36	35	33	34	34	34	35	**S**	34	33	32	31	30	30	30	31	31	36	33.6	24
11	32	31	31	31	31	32	31	32	32	32	32	33	32	**S**	31	31	28	22	23	23	21	20	19	17	33	28.1	24
12	17	16	13	21	27	29	28	28	27	34	36	36	**S**	35	35	33	30	19	17	16	10	9	9	6	36	23.1	24
13	4	4	4	7	5	5	3	4	5	18	23	**S**	32	31	30	29	27	14	12	13	10	10	11	6	32	13.3	24
14	6	5	3	3	4	3	10	22	25	28	**S**	28	33	33	33	34	33	30	31	33	33	30	30	28	34	22.5	24
15	28	28	32	31	31	28	27	29	29	**S**	29	30	30	28	31	28	26	25	25	34	35	34	33	34	35	29.8	24
16	33	34	34	36	37	37	39	38	**S**	37	***41***	***41***	***41***	***41***	***41***	40	39	37	39	38	36	35	34	31	***41***	***37.3***	24
17	26	29	33	32	28	23	18	**S**	28	27	28	29	29	29	29	29	28	29	28	26	17	16	18	16	33	25.9	24
18	13	11	10	15	23	31	**S**	34	33	32	34	32	32	34	36	37	38	37	38	38	39	39	39	39	39	31.0	24
19	39	39	38	37	37	**S**	35	33	36	37	37	38	38	38	38	37	34	24	25	21	19	29	31	33	39	33.6	24
20	33	33	32	30	**S**	29	27	26	25	25	25	25	28	27	27	26	19	22	21	12	16	14	10	9	33	23.5	24
21	9	5	3	**S**	3	4	5	4	9	13	16	18	19	21	23	30	31	31	30	30	30	29	30	29	31	18.3	24
22	29	31	**S**	33	33	32	31	30	30	30	31	31	31	30	30	29	29	29	29	28	29	29	27	27	33	29.9	24
23	27	**S**	26	27	27	26	25	26	24	23	23	22	24	25	25	23	16	9	10	16	17	21	21	19	27	21.8	24
24	**S**	18	17	14	13	12	8	8	15	20	25	28	27	26	25	25	26	25	24	22	23	24	25	**S**	28	20.5	24
25	24	25	25	27	27	27	28	28	28	29	30	31	34	35	34	32	31	31	34	36	34	33	**S**	34	36	30.3	24
26	33	29	31	31	31	32	31	32	31	33	33	33	32	31	30	30	28	28	26	23	20	**S**	18	18	33	28.9	24
27	19	18	14	15	19	27	31	30	27	29	32	32	34	34	34	34	35	36	36	**S**	36	36	35	36	36	29.5	24
28	35	34	34	35	35	36	35	35	36	36	35	35	34	34	34	34	33	33	33	**S**	34	34	34	34	36	34.4	24
29	33	32	31	29	29	24	18	19	18	19	24	28	31	31	31	32	31	27	**S**	29	29	29	27	30	33	27.4	24
30	30	32	32	33	33	34	34	**S**	**S**	32	32	32	33	33	34	34	33	**S**	29	29	26	25	27	31	34	31.3	24
HOURLY MAX	39	39	38	37	37	37	39	39	38	39	41	41	41	41	41	40	39	37	39	38	39	39	39	39			
HOURLY AVG	23.9	22.7	22.4	23.9	23.2	23.5	23.3	24.2	24.5	26.8	28.4	29.2	30.2	31.0	31.2	30.9	29.4	27.2	27.0	25.9	25.1	24.8	24.5	24.7			

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: 683

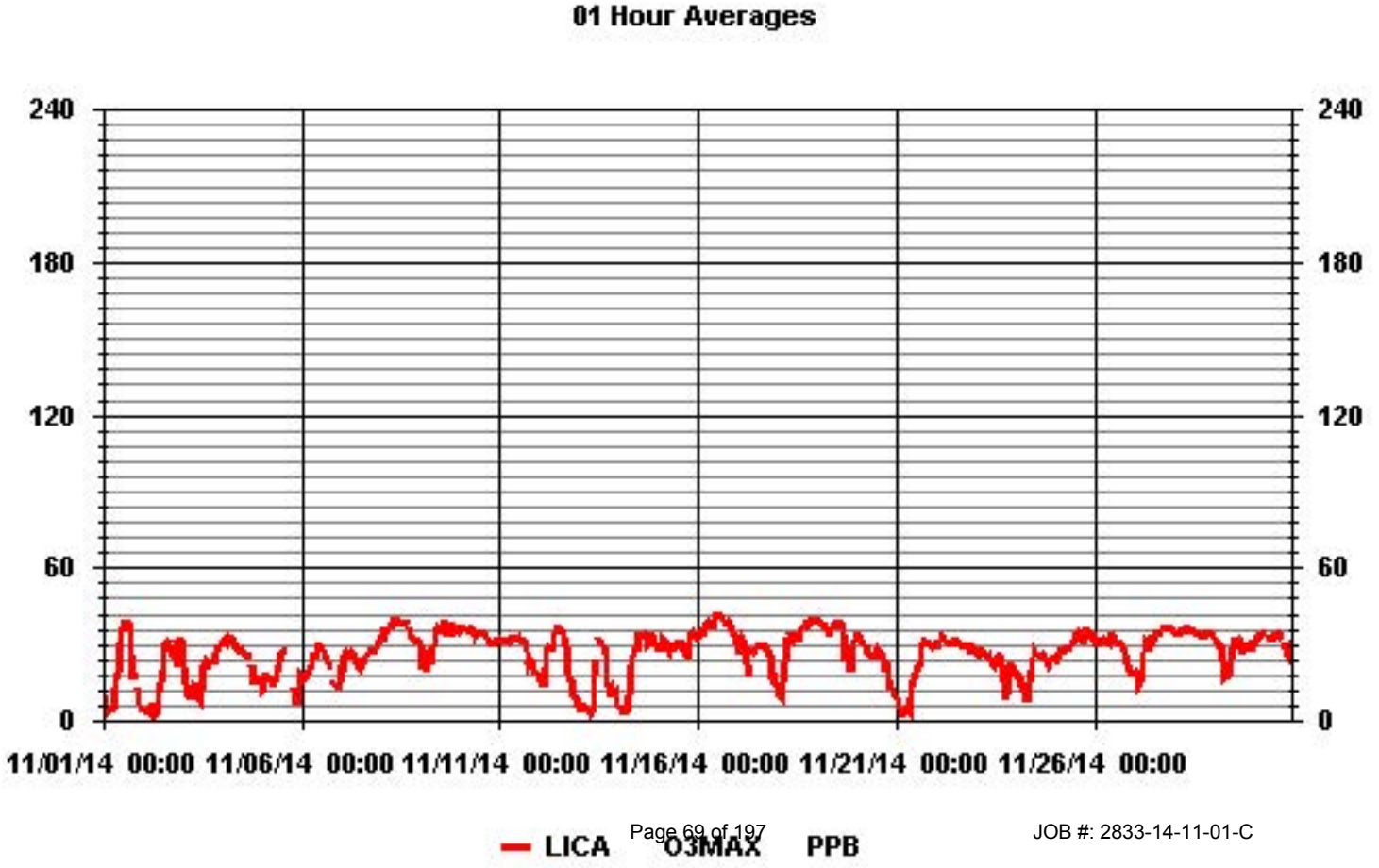
MAXIMUM INSTANTANEOUS VALUE: 41 PPB @ HOUR(S) VAR ON DAY(S) 16

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 9.24



JOB #: 2833-14-11-01-C

LICA
O3_ / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	4.23	1.75	.87	7.89	4.09	1.75	10.81	2.33	2.33	3.07	6.87	10.08	8.77	7.89	13.30	13.88	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	4.23	1.75	.87	7.89	4.09	1.75	10.81	2.33	2.33	3.07	6.87	10.08	8.77	7.89	13.30	13.88	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	29	12	6	54	28	12	74	16	16	21	47	69	60	54	91	95	684
<	110																	
<	210																	
>=	210																	
	Totals	29	12	6	54	28	12	74	16	16	21	47	69	60	54	91	95	

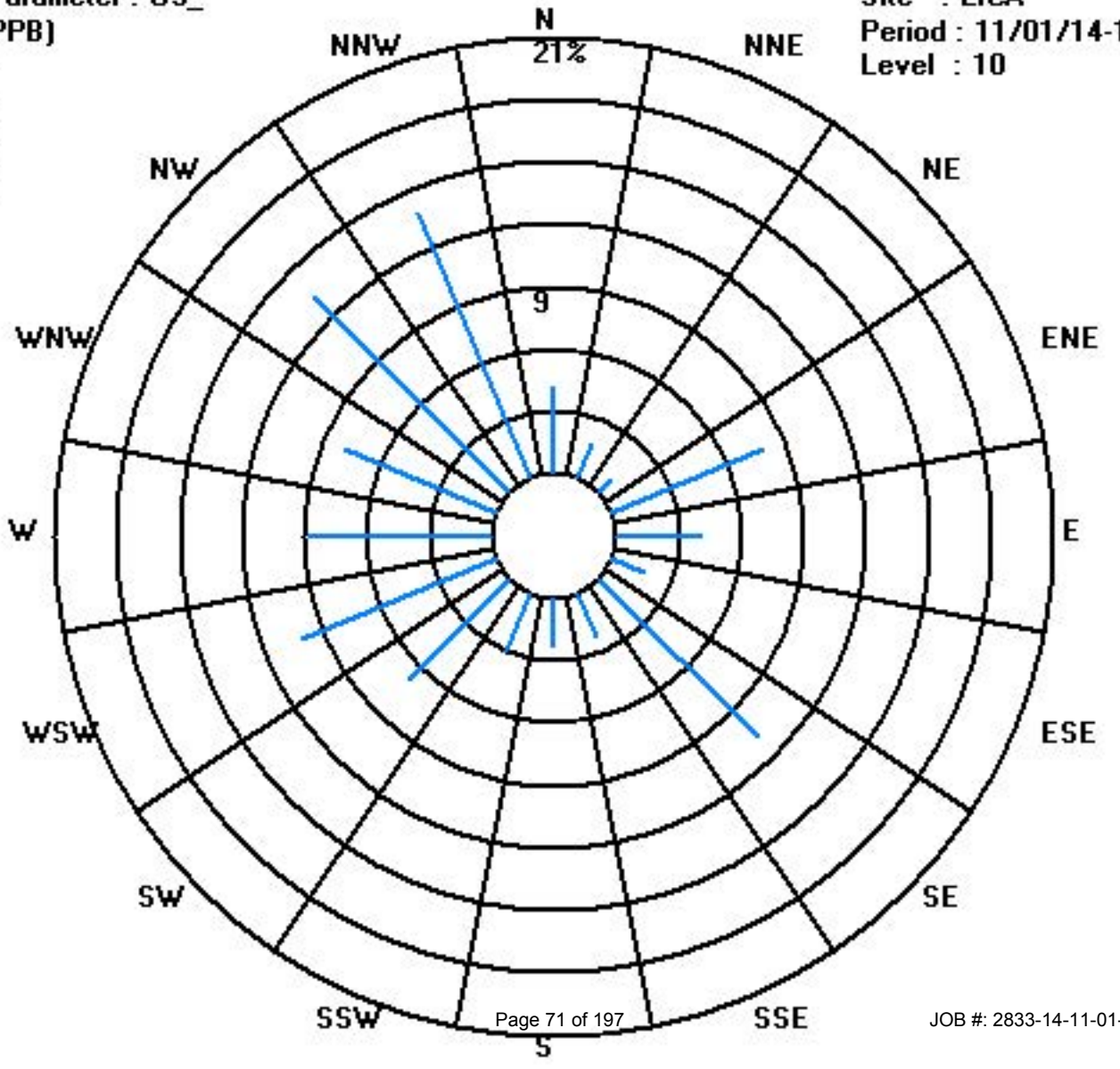
Calm : .00 %

Total # Operational Hours : 684

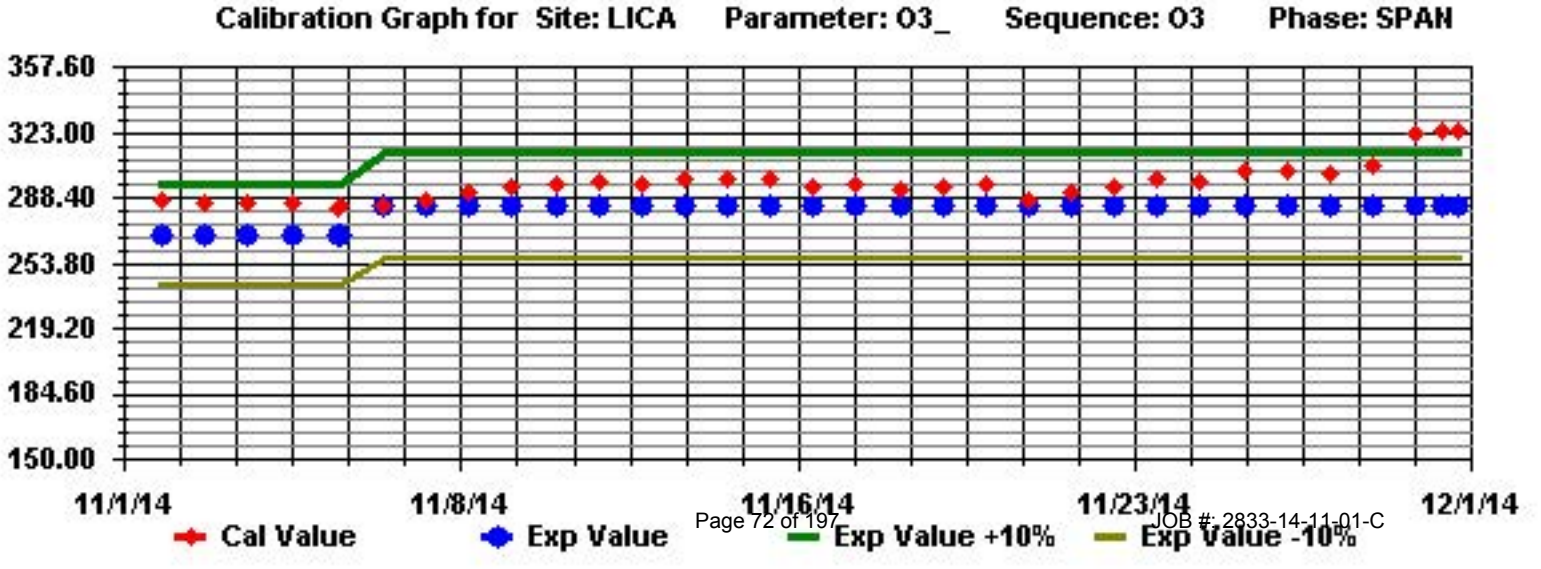
Logger : 01 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-01-C


Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN
357.60
323.00
288.40
253.80
219.20
184.60
150.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ambient Temperature

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

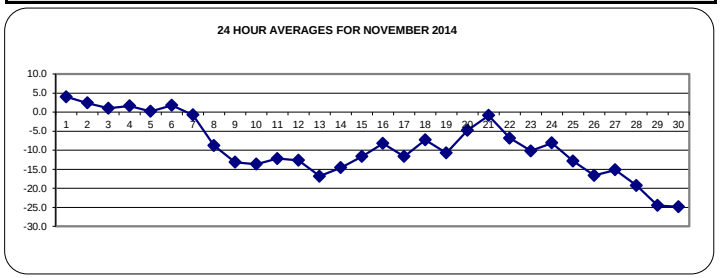
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.4	3.3	1.9	1.1	2.2	3.1	3.9	4	4.6	5.5	7.4	8.8	10.1	***10.6***	10.4	9.5	7.3	3.6	1.2	-0.1	-0.9	-1.6	-1	-1	***10.6***	***4.1***	24
2	-0.8	-0.7	-0.2	0.1	0.2	0.2	0	0.3	0.9	1.9	2.6	3.9	4.9	5.4	5.6	5.2	4.8	4.3	3.8	3.5	3	2.9	3.1	3.3	5.6	2.4	24
3	3.2	1.6	0.1	-1	-2.2	-2.8	-3.7	-3.6	-3.2	-2.2	-1.5	0	2.6	3.9	3.8	3.7	3.7	3.6	3.5	3.4	3.3	3	3.3	2.8	3.9	1.1	24
4	2.9	2.5	2.4	2.3	2	1.7	1.4	1.1	1.2	1.3	1.6	1.9	2.2	2.4	2.4	2.4	2.1	1.5	0.7	0.8	0.7	0.8	0.8	0.9	2.9	1.7	24
5	0.8	0.4	0	0.7	0.7	0.4	-0.1	-1.2	-1	-0.1	0.9	1.3	1.7	2.1	1.9	1.8	1.5	1.2	1	0.6	-1.4	-2.4	-2.8	-2.4	2.1	0.2	24
6	-1.9	-1.7	-1.5	-1.2	-1.2	-1.2	-0.7	0.1	0.7	1.4	3.1	4.1	4.7	4.5	4.4	4.4	4	3.8	3.5	3	2.6	2.4	2.5	2.9	4.7	1.8	24
7	3.4	3.4	3.5	2.7	1.7	1.3	1.2	1	0.7	0.6	0.5	0	-0.8	-1.5	-1.7	-1.9	-2.8	-3.5	-3.5	-3.8	-4	-4.2	-4.6	-4.9	3.5	-0.7	24
8	-5.2	-5.5	-6	-6.6	-7	-7.2	-7.5	-8.5	-9	-8.7	-8.7	-8.5	-8.3	-8	-7.8	-7.8	-8.5	-9.2	-10.1	-10.9	-11.8	-12.5	-13.3	-13.9	-5.2	-8.8	24
9	-14.7	-15.7	-16.1	-16.1	-16.5	-16.7	-16.5	-17	-16.2	-13	-11.5	-11.2	-10.5	-10.2	-10.2	-10	-10.1	-10.5	-10.9	-11.2	-11.7	-12.4	-13	-13.8	-10	-13.2	24
10	-14	-14.2	-14.7	-14.7	-15.4	-16	-16.3	-16.1	-15.7	-15	-14.2	-13	-11.9	-11.5	-11.4	-11.7	-12.1	-12.2	-12.4	-12.3	-12.6	-13.2	-13.4	-13.6	-11.4	-13.7	24
11	-14	-14.4	-14.8	-15	-14.9	-14.8	-14.5	-14.2	-14	-13.4	-13	-12.1	-11.2	-10.4	-10.1	-10	-10.1	-10.1	-10.1	-10.2	-10.1	-10.2	-10.3	-10.2	-10	-12.2	24
12	-10.6	-10.6	-10.8	-11.1	-11.3	-11.5	-11.5	-11.5	-11.2	-10.9	-10.6	-10.6	-10.1	-9.8	-9.6	-9.9	-10.8	-13.2	-15.2	-16.8	-17.9	-18.7	-19.3	-20	-9.6	-12.6	24
13	-20.6	-20.9	-21.4	-21.7	-21.9	-20	-19.1	-19.5	-18.9	-15.5	-13.2	-11.3	-10.2	-9.6	-9.4	-9.8	-11.8	-14.5	-16.6	-17.8	-18.6	-19.6	-20.6	-21.4	-9.4	-16.8	24
14	-22	-22.8	-22.6	-19.3	-18.6	-17.7	-16.7	-14.6	-14.1	-13.5	-12.3	-11.9	-11	-11.1	-11.3	-11.5	-12	-12.1	-12.3	-12.2	-12.2	-12.4	-12.6	-12.8	-11	-14.6	24
15	-12.8	-13.1	-13.4	-13.3	-13.5	-13.9	-14.6	-15	-14.8	-14.3	-13.9	-13.5	-12.7	-11.2	-10.3	-9.8	-9.3	-8.9	-9.3	-9.4	-7.7	-7.5	-8.1	-9	-7.5	-11.6	24
16	-9.2	-9	-8.7	-8.3	-8	-7.8	-7.9	-7.8	-7.8	-7.7	-7.5	-7.1	-7	-6.9	-7.1	-7.3	-7.5	-7.6	-8	-8.4	-8.9	-9.4	-10.4	-11.9	-6.9	-8.2	24
17	-13	-12.4	-12	-12.7	-12.5	-13.3	-13.9	-13.4	-13.6	-13.9	-13.8	-12.6	-10.5	-8.7	-7.2	-7.5	-9.2	-10.3	-11.1	-12.6	-13.2	-11.7	-10.4	-9.5	-7.2	-11.6	24
18	-8.8	-7.7	-6.9	-6.9	-6.8	-6	-6.3	-7.7	-8.1	-7.7	-7.5	-7.4	-7.4	-7.2	-7	-7.1	-7.1	-7	-6.9	-7	-7.1	-7.3	-7.6	-7.8	-6	-7.3	24
19	-8	-8.2	-8.4	-8.8	-9.1	-9.3	-9.6	-9.7	-9.9	-9.9	-9.4	-9.1	-8.9	-8.3	-8.6	-9.3	-11.5	-13.8	-15.5	-16.5	-16.9	-14.3	-12.3	-11.7	-8	-10.7	24
20	-11.2	-10.6	-10.2	-10	-9.6	-8.9	-8.7	-8	-7.1	-6	-4.5	-3.2	-1.5	-0.2	0.1	-0.6	-2.2	-1.9	-2.5	-2.6	-1.8	-1.5	-1.3	0	0.1	-4.8	24
21	0.4	0.7	0.9	1.2	1.5	1.7	1.9	1.9	1.8	1.1	1	0.8	0.6	0.4	-0.5	-1.8	-2.6	-3	-3.6	-4.3	-4.6	-5.1	-5.4	-5.8	1.9	-0.9	24
22	-6.1	-6.5	-6.9	-7.1	-7.2	-7.3	-7.5	-7.4	-7.3	-7.1	-6.8	-6.4	-6	-5.7	-5.4	-5.7	-6.1	-6.1	-6.5	-7.1	-7.4	-7.7	-8.1	-8.4	-5.4	-6.8	24
23	-8.9	-9.2	-9.5	-9.8	-10.1	-9.9	-9.8	-10.3	-12.1	-10.7	-10.5	-10	-9.1	-8.3	-8.1	-8.8	-12	-14.1	-13.7	-11.2	-10.1	-9.8	-9.4	-9.1	-8.1	-10.2	24
24	-9	-8.9	-8.7	-8.4	-8.5	-8.5	-8.2	-7.8	-7.4	-7.1	-6.8	-7	-7	-6.7	-6.8	-6.9	-7.3	-7.3	-7.5	-8.7	-9.5	-9.8	-10.1	-10.3	-6.7	-8.1	24
25	-10.6	-11.1	-11.2	-11.4	-11.8	-11.8	-11.9	-12	-12.2	-12.1	-12.2	-12.5	-12	-12.2	-12.6	-13	-13.5	-13.6	-13.8	-14.3	-14.8	-15.2	-15.5	-16.3	-10.6	-12.8	24
26	-17.4	-18.8	-18.4	-17.5	-17.6	-17.7	-18.6	-18.9	-19.4	-19.2	-19.2	-18.8	-17.5	-16.6	-15.9	-15.7	-15.3	-15.1	-15.1	-14.3	-13.7	-13.4	-12.9	-12.9	-12.9	-16.7	24
27	-12.7	-12.5	-12.2	-11.8	-11	-10.5	-11.9	-12.7	-13	-14.1	-14.9	-15.3	-15.5	-15.9	-16.2	-16.6	-17.1	-17.5	-18	-18.3	-18.7	-18.9	-19.2	-19.3	-10.5	-15.2	24
28	-19.5	-19.6	-19.7	-19.4	-19.1	-18.9	-18.8	-18.9	-18.8	-19	-18.6	-18.5	-18.8	-18.8	-18.7	-19.3	-19.5	-19.5	-19.3	-19.2	-19.6	-19.7	-20.3	-20.9	-18.5	-19.3	24
29	-21.5	-21.7	-22.2	-22.9	-23.4	-24.3	-25.7	-26.4	***-27.9***	-26.8	-25.8	-25	-23.9	-22.9	-23.1	-23.7	-24.8	-25.4	-25.8	-25.8	-25.7	-25.2	-24	-24	-21.5	-24.5	24
30	-24.2	-24.2	-25.2	-25.7	-25.1	-25.1	-25.3	-25.8	-26.5	-25.7	-24.3	-23.6	-22.8	-22.1	-22.2	-22.8	-23.7	-25.1	-27	-26.6	-26.7	-26.5	-26	-23.8	-22.1	-24.8	24
HOURLY MAX	3.4	3.4	3.5	2.7	2.2	3.1	3.9	4	4.6	5.5	7.4	8.8	10.1	10.6	10.4	9.5	7.3	4.3	3.8	3.5	3.3	3	3.3	3.3			
HOURLY AVG	-9.4	-9.6	-9.8	-9.8	-9.8	-9.8	-9.9	-10.0	-10.0	-9.4	-8.8	-8.3	-7.6	-7.2	-7.1	-7.4	-8.1	-8.8	-9.4	-9.7	-9.9	-10.0	-10.1	-10.2			

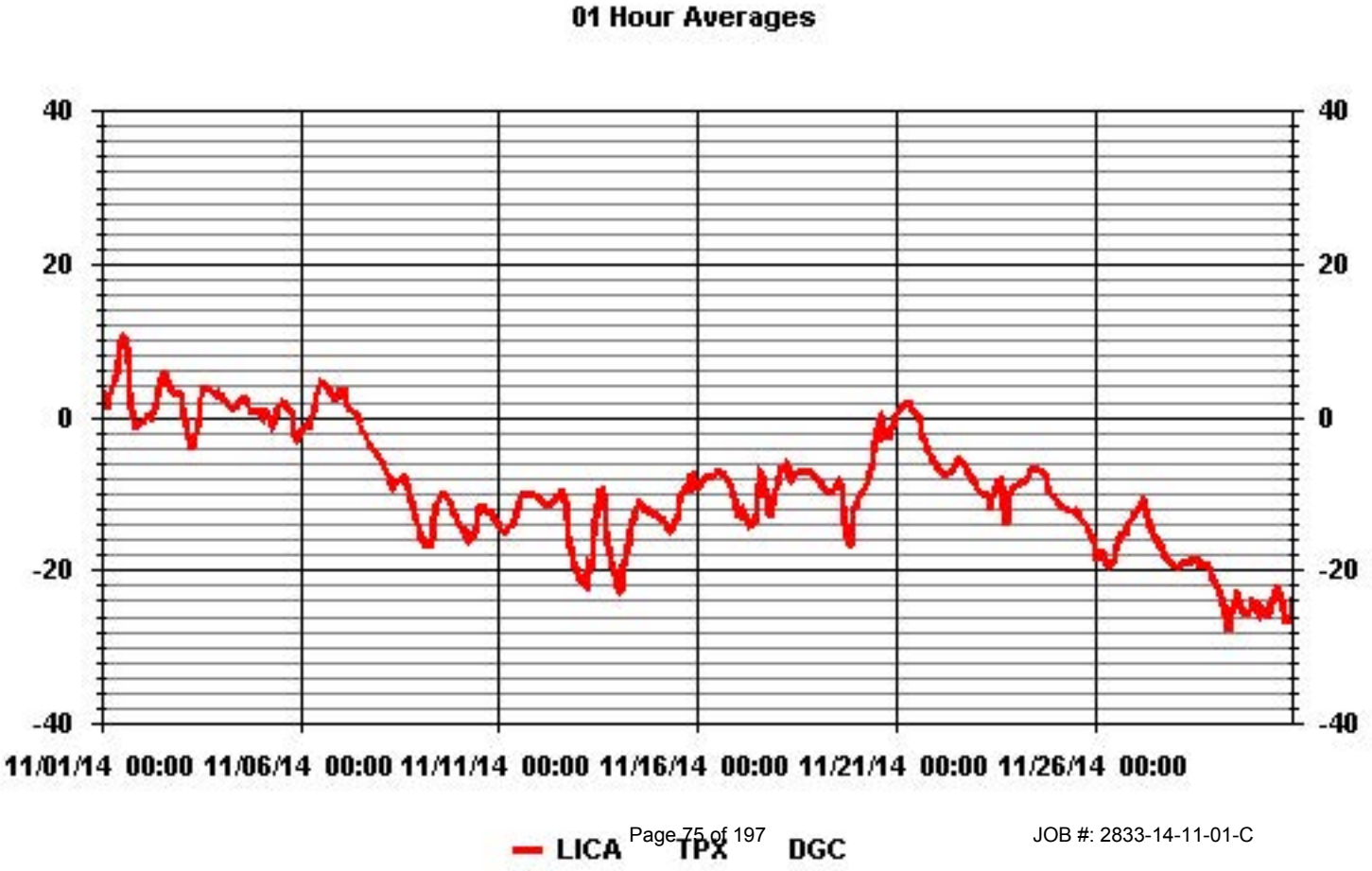
STATUS FLAG CODES

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



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-27.9	°C	@ HOUR(S)	8	ON DAY(S)	29
MAXIMUM 1-HR AVERAGE:	10.6	°C	@ HOUR(S)	13	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	4.1	°C			ON DAY(S)	1
					VAR-VARIOUS	
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	8.01		MONTHLY AVERAGE:		-9.16	°C



JOB #: 2833-14-11-01-C

Relative Humidity

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

RELATIVE HUMIDITY (RH) hourly averages in %

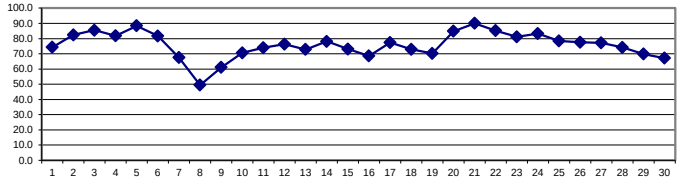
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	85	87	88	92	91	91	88	87	83	76	62	52	47	43	44	47	57	69	77	80	84	85	84	84	92	74.3	24
2	85	85	86	86	86	86	88	87	87	87	86	80	77	72	71	72	76	80	81	81	84	85	85	84	88	82.4	24
3	84	88	92	94	96	96	96	95	95	96	97	96	85	78	78	78	78	76	76	76	76	75	74	77	97	85.5	24
4	77	77	76	75	76	75	77	78	79	79	78	77	76	75	75	76	78	85	94	96	96	96	96	96	96	81.8	24
5	95	95	95	96	96	97	97	97	92	89	87	85	81	77	76	79	80	80	80	82	90	93	93	90	97	88.4	24
6	88	88	88	87	87	88	87	84	81	77	69	66	66	68	70	72	74	77	79	89	94	95	95	93	95	81.8	24
7	88	86	80	74	72	71	68	69	65	65	63	65	66	66	63	62	63	63	63	64	63	63	62	56	88	67.5	24
8	57	57	60	59	56	54	54	64	59	46	50	44	40	33	***32***	33	38	40	42	46	50	53	59	62	64	49.5	24
9	65	70	72	74	76	75	73	77	75	67	61	62	60	52	45	41	40	44	50	49	52	57	62	67	77	61.1	24
10	69	70	71	72	75	75	76	74	72	68	65	65	64	64	66	66	69	71	74	77	71	74	73	73	77	70.6	24
11	73	77	75	74	74	77	76	77	76	76	75	72	70	69	68	68	69	72	73	74	75	78	78	78	78	73.9	24
12	78	78	77	78	78	78	78	79	78	77	75	72	70	69	69	70	74	81	82	80	79	78	78	76	82	76.3	24
13	76	76	75	76	76	77	77	77	75	74	73	70	63	59	58	59	67	76	79	78	78	77	76	76	79	72.8	24
14	75	74	76	78	79	79	81	84	84	84	85	85	85	82	77	75	76	74	74	76	75	73	72	73	85	78.2	24
15	74	74	75	76	77	77	78	79	79	77	76	74	73	70	70	70	70	68	69	69	68	70	72	71	79	73.2	24
16	73	73	72	69	68	69	70	64	68	69	68	64	64	62	63	63	66	68	68	69	71	72	75	79	79	68.6	24
17	81	82	82	83	84	84	84	87	85	83	82	79	73	68	64	59	64	68	73	78	80	80	78	78	87	77.5	24
18	79	78	77	78	77	71	70	74	76	75	73	72	75	72	72	72	71	72	72	73	69	68	68	68	79	73.0	24
19	65	65	65	65	65	65	66	69	69	67	66	62	62	60	63	65	74	79	80	80	79	83	85	87	87	70.3	24
20	89	89	89	89	89	89	89	89	90	89	86	83	77	73	72	75	81	80	81	83	85	87	90	92	92	84.8	24
21	94	95	96	97	97	98	98	98	***99***	97	91	88	88	86	85	82	82	82	83	83	83	86	86	87	***99***	***90.0***	24
22	88	87	86	86	84	85	87	86	85	84	84	83	83	84	86	87	87	84	85	87	86	83	84	85	88	85.3	24
23	84	85	85	85	85	85	86	86	85	77	83	81	75	70	68	71	83	83	83	84	82	81	80	80	86	81.1	24
24	82	86	88	87	87	87	86	86	85	83	81	78	78	78	79	79	80	82	84	83	81	85	87	88	88	83.3	24
25	85	84	83	81	81	80	80	79	79	80	80	79	79	77	76	75	74	78	78	78	75	75	72	74	85	78.4	24
26	79	80	79	79	78	78	78	79	79	76	75	74	73	73	73	75	76	77	78	79	80	81	81	81	81	77.5	24
27	81	86	87	85	85	81	81	80	81	79	77	78	77	78	78	76	70	67	67	70	70	72	73	74	87	77.2	24
28	73	74	74	75	75	76	76	74	74	75	74	72	71	71	75	73	71	70	75	77	76	76	77	76	77	74.2	24
29	74	74	73	73	73	73	73	73	72	70	69	68	65	64	63	64	66	67	68	69	70	71	72	73	74	69.9	24
30	73	72	70	71	70	68	68	67	69	68	64	62	59	57	57	59	63	68	72	71	72	72	71	68	73	67.1	24
HOURLY MAX	95	95	96	97	97	98	98	98	99	97	97	96	88	86	86	87	87	85	94	96	96	96	96	96			
HOURLY AVG	79.0	79.7	79.7	79.8	79.8	79.5	79.5	80.0	79.2	77.0	75.2	72.9	70.7	68.3	67.9	68.1	70.6	72.7	74.7	76.0	76.5	77.5	77.9	78.2			

STATUS FLAG CODES

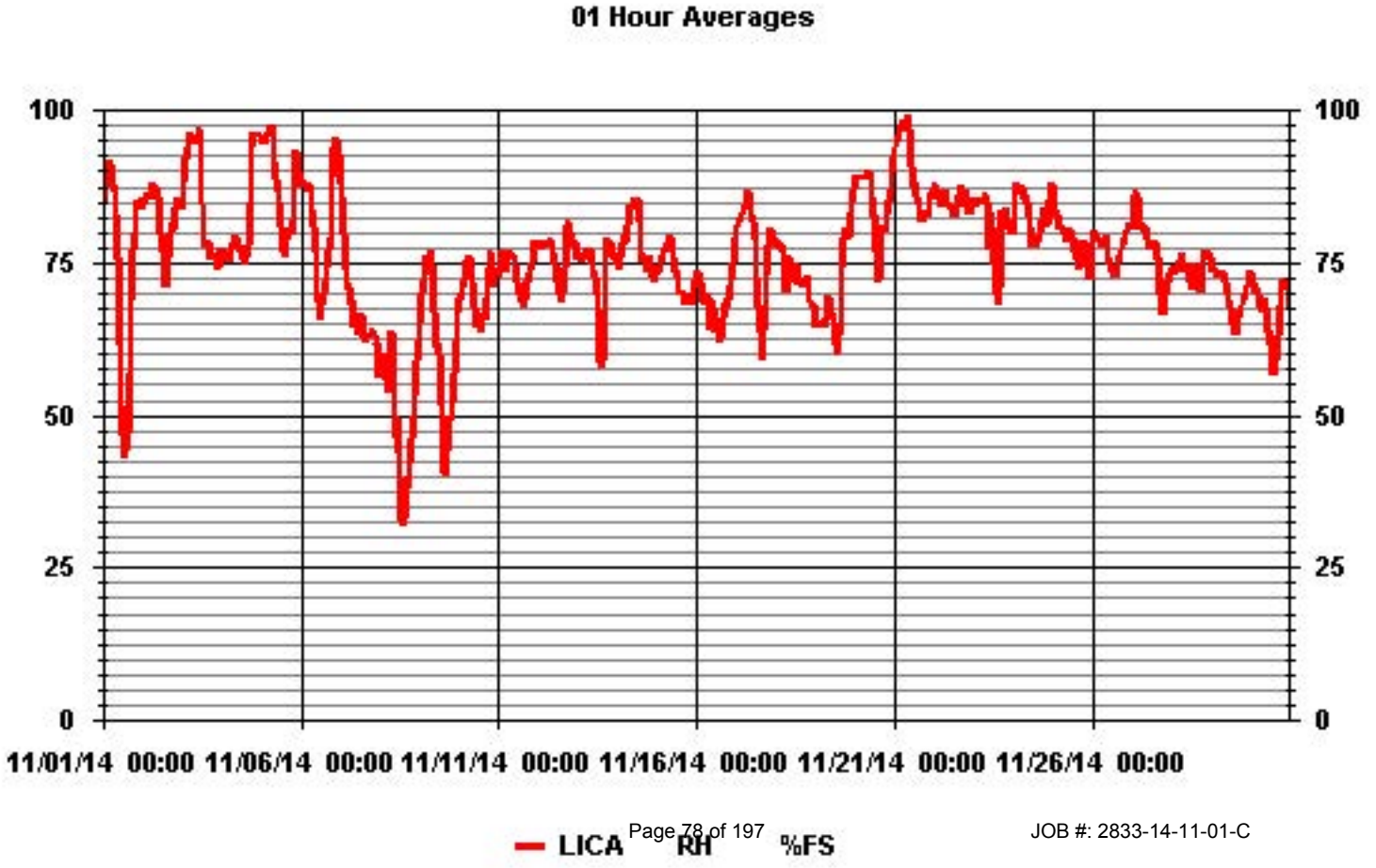
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR NOVEMBER 2014



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	99	%	@ HOUR(S)	8	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	90.0	%			ON DAY(S)	21
					VAR-VARIOUS	
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	10.66		MONTHLY AVERAGE:		75.85	%



JOB #: 2833-14-11-01-C

Vector Wind Speed

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

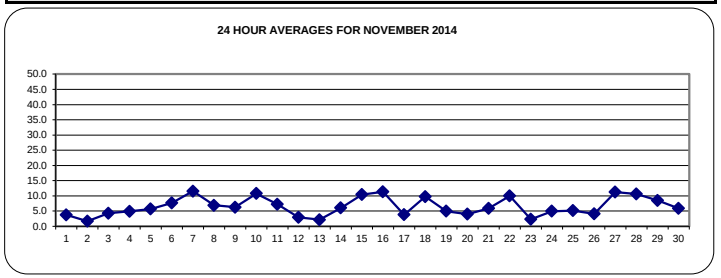
WIND SPEED (WS) hourly averages in km/hr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	2.8	4.3	2.9	3.9	3.8	3.8	2.9	3.8	4.2	5.7	9.5	6.4	6.8	7.9	7.6	5.8	2.1	2.4	1.1	0.4	0.3	0.8	0.5	0.9	9.5	3.8	24
2	0.3	1.2	0.7	0.9	0.5	0.9	0.6	0.2	0.8	0.3	3	1.8	1.6	1.4	3.1	4.3	3.2	1.8	1.7	1.5	1.3	4.1	2.4	2	4.3	1.7	24
3	1.4	3.1	4.7	4.1	2.8	2.7	3.4	1.2	0.2	3	5.8	5.2	6.6	9	8.2	6.6	6.1	6.6	6	4	3.3	4.2	2.7	1.9	9.0	4.3	24
4	2.1	2.5	1.7	3.1	3.5	5.5	7.4	6.2	6.9	8	8.1	9.3	10.9	9.2	7.7	5.6	5.9	1.7	1.7	0.9	1.6	1.4	2.8	3.9	10.9	4.9	24
5	5.7	4.9	5	5.6	7	8	7.2	5.9	4.8	7.8	9.6	8.8	8.8	10.4	9.4	5.8	5.4	3.5	1.8	1.4	0.7	1.1	2.3	5.5	10.4	5.7	24
6	7.8	10.7	9.1	9.2	11.9	11.3	9.6	10.5	10.4	11.7	12.8	11.3	11.1	11.2	8.4	4.7	2.8	0.9	0.7	0.7	2.9	4.6	5.4	5.5	12.8	7.7	24
7	11.3	11.5	14.8	***17.3***	15.3	13.9	11.2	12.1	13	13.5	15.2	14.6	15.6	14.5	12.8	10.2	10.4	7.9	7.6	7	7.6	6.2	6.9	6.8	***17.3***	***11.6***	24
8	4.9	6.2	6	6.6	6.4	5.8	7.9	8.9	6.2	7.7	8.1	8.7	8.2	6.9	7.5	7.6	7.9	7.7	6.9	6.3	6	5.8	5.8	5.5	8.9	6.9	24
9	5.6	4.6	4.7	5.8	4.7	5.3	4.8	4.2	3.4	6.8	8.1	6.6	6.1	6.2	7.8	5.2	5.6	6.5	5.3	7.5	8.5	8.5	9.5	8.8	9.5	6.3	24
10	9.4	8	9.1	10.3	8.5	7.8	7.4	9.9	9.6	11.8	12.4	11.4	12.9	14.9	13.6	15.1	11.8	11.4	9.8	10.4	12.4	10.7	9.9	10	15.1	10.8	24
11	11	10.4	10.5	10.9	9.2	9.3	10	10.6	10	10.2	10.1	8.6	6.3	5.9	4.4	5.2	5.2	4.1	3.3	4.7	3.2	4.2	3.8	2.7	11.0	7.2	24
12	4.4	3.7	4.1	3.3	4	3.8	2.1	1.6	0.8	4.3	6.2	6.5	5.6	6.4	5.9	3.8	0.6	0.5	0.6	1	0.5	0.5	0.1	0.4	6.5	2.9	24
13	0.5	0.2	0.6	0.5	0.3	0.9	1	0.4	0.3	1.6	3.7	4.4	7.1	6.8	6	5.5	3.9	1.6	0.6	2.2	1.7	0.8	1.1	0.2	7.1	2.2	24
14	0.6	0.9	1.3	5.2	4.4	4.4	5	6.1	9.1	6.9	3.1	3	4.7	9.5	10	9.5	8.6	7.2	7.5	8.1	8.2	8	8.2	5.4	10.0	6.0	24
15	4.2	6.2	7.6	7.3	9	9.9	11.3	12.2	11.7	12.2	12.9	13.2	13.6	12.2	11.3	10.2	9.9	6.6	5.3	7.2	10.6	13.1	16.7	16.5	16.7	10.5	24
16	14.3	14.6	13.8	15.3	15.7	14.3	12.7	13.5	11.3	10.7	11.9	13.4	11.9	12	12.7	9.9	7.8	10.5	11.3	10.2	7.1	7.3	5.2	4.3	15.7	11.3	24
17	3.7	3.9	3.7	2.6	3.1	4	4.7	4.8	5.6	5	5.7	4.8	3.3	3.5	3	3.7	3.8	3.6	4.3	2.1	1.6	2.2	4.6	4.6	5.7	3.8	24
18	3.9	5.6	5.7	4.5	3.9	10.9	13.3	13.1	11.6	12.4	13.1	13.8	11.4	11.4	11.3	10.6	9.5	9	10.4	9.3	10.5	11.6	8.6	8.3	13.8	9.7	24
19	9.2	8.4	8.1	6.9	7.7	8.2	5.9	3.3	5.3	6.2	3.6	4.5	3.4	5.1	7.8	4.1	2.5	2.3	1.5	1.1	1.2	2.9	4.7	5.6	9.2	5.0	24
20	6.2	5.2	7.1	8.2	6.7	6.4	7.6	4.9	4.1	4.4	4	3.1	4.7	4.2	3.1	1.7	1.1	3	1.5	0.9	2	2.1	1.8	2.6	8.2	4.0	24
21	3.9	3.7	3.9	4.4	3.3	3	2.3	4.1	4.9	6.1	5	5.1	4.8	5	7.9	7.9	6.5	8.2	9.8	8.8	6	8.8	9.2	8.9	9.8	5.9	24
22	9.7	11.2	12.1	12.7	13.5	12.3	11	12.1	12	12.5	12	10.6	10.3	9.1	8.3	10.5	10	9.7	9.7	7	7.3	8.3	5.2	3.2	13.5	10.0	24
23	2.4	2.5	2.4	3.1	2.6	0.7	0.8	1.7	0.8	1.8	4.6	5.2	5.8	5.5	4.8	2.4	0.4	0.7	0.4	1.3	2	1.7	1.6	1.3	5.8	2.4	24
24	1.7	3.7	4.9	5.3	5.7	4.8	5.7	5.1	6.7	4.4	6.7	8	5.7	5	4.5	3.3	3.1	0.3	1.1	6.2	7.1	6.2	7.5	6.8	8.0	5.0	24
25	6.8	7.4	6.3	7.2	6.4	4.5	4.5	5.8	5.4	5.6	6.1	4.6	5.3	7.7	6.3	4.6	3.7	1.1	3.4	4.5	4.7	3.8	3.8	4.6	7.7	5.2	24
26	4.5	3	6	4.6	4	3.9	3.6	4.6	4.7	7.5	7.5	6.8	4.7	6.3	3.8	4.9	4.4	4.6	3.7	0.4	0.6	0.9	1.4	1.8	7.5	4.1	24
27	1.6	1.9	1.8	1.2	3	12.1	14	14.7	12.3	15.1	15.5	15.3	15.5	15.6	14.7	13.1	11.2	11.8	14.1	13.8	15.8	13	11.7	11.8	15.8	11.3	24
28	12.4	12.7	14.9	12.7	11.4	10.8	11	13.1	12.3	11	9.7	10.8	11.2	9	8.3	9.2	9.1	11	6.5	8.5	10.7	8.3	8.4	12.9	14.9	10.7	24
29	12.8	12.7	10.7	9.6	9.4	5	5.8	5.1	4.5	5.5	7.2	9.9	10.2	11.6	10.8	8.7	9.7	10.1	8.4	7.3	7.5	6.8	8.2	6.7	12.8	8.5	24
30	6.1	6.4	5.8	6.7	7.3	8.3	7.6	6.6	6.1	7.3	8.7	9.3	9.5	9	9.1	7.5	6.4	1.5	1.2	1.9	1.6	2.6	2.1	3.3	9.5	5.9	24
HOURLY MAX	14.3	14.6	14.9	17.3	15.7	14.3	14.0	14.7	13.0	15.1	15.5	15.3	15.6	15.6	14.7	15.1	11.8	11.8	14.1	13.8	15.8	13.1	16.7	16.5			
HOURLY AVG	5.7	6.0	6.3	6.6	6.5	6.8	6.7	6.9	6.6	7.6	8.3	8.2	8.1	8.4	8.0	6.9	6.0	5.3	4.9	4.9	5.2	5.4	5.4	5.4			

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



LAST CALIBRATION: November 28, 2012

DECLINATION : MAGNETIC DELINATION 19 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 720

MAXIMUM 1-HR AVERAGE: 17.3 KPH @ HOUR(S) 3 ON DAY(S) 7

MAXIMUM 24-HR AVERAGE: 11.6 KPH ON DAY(S) 7

VAR-VARIOUS

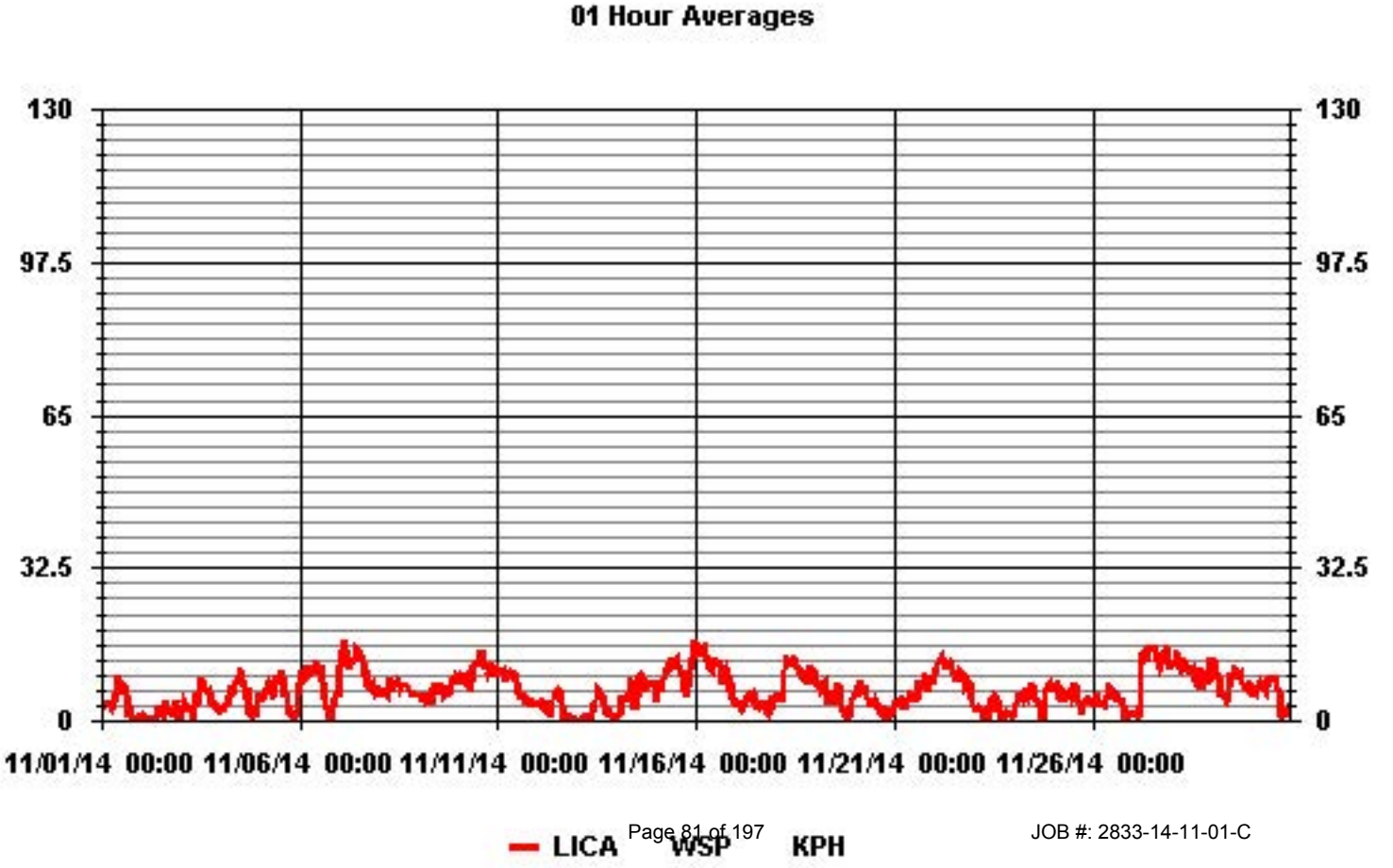
OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 0 HRS

AMD OPERATION UPTIME: 100.0 %

STANDARD DEVIATION: 3.91

MONTHLY AVERAGE: 6.50 KPH



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

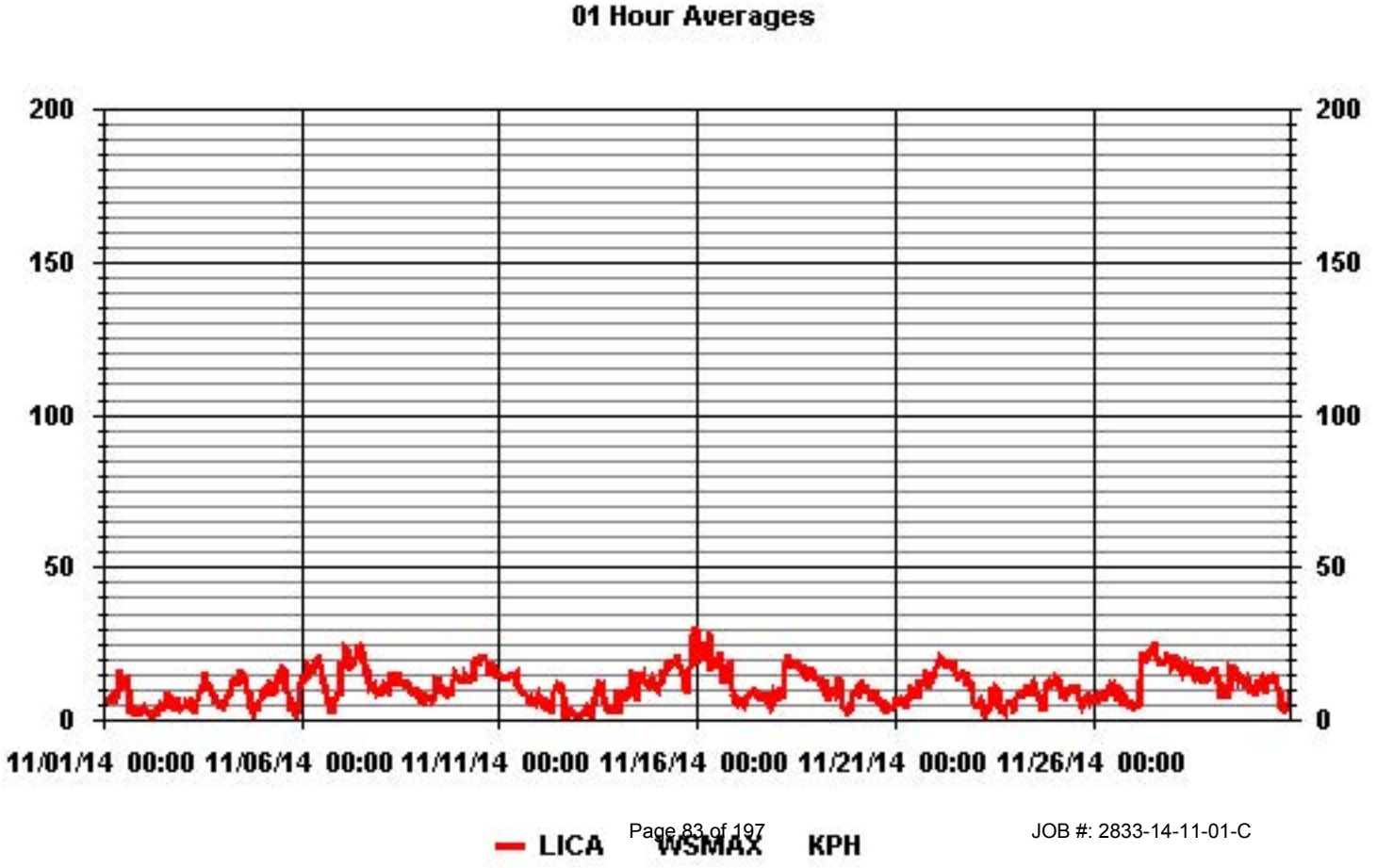
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7.3	6.5	5.7	6.3	6.8	7.8	5.1	9.3	6.8	9.6	16.2	11.6	11.5	13	13.6	10.6	3.8	4.2	2.3	2.5	3	3.1	2.7	2.4	16	7.2	24
2	3.3	4.2	3	2.8	2.6	1.9	1.6	2.4	3.3	2.8	4.9	4	3.7	4.1	5.7	8	8.1	6.3	4.7	4.4	3.5	7.4	4.5	3.4	8	4.2	24
3	4	4.9	6.7	6.2	5.3	6.9	6.6	3.8	2.5	5.8	9.2	9.8	11.6	14.1	15.8	11.2	11.7	11.1	9.5	8.5	5.4	6.7	4.7	4.7	16	7.8	24
4	4.2	6.5	5.3	6.8	7.7	9.5	12.8	11	13	12.7	13.9	16.1	15.9	14.2	12.3	8.7	10	4.2	3.1	2.1	3.5	3.5	5.6	6.3	16	8.7	24
5	8.5	8.1	9.8	9.4	11.4	12.9	10.5	9.3	8.3	12.2	14.5	16.3	17.8	17.6	17	10.1	9.5	7.9	3	5.6	2.5	1.9	4	10.7	18	10.0	24
6	11.9	15	13.6	13.9	17.6	16.7	16.5	16.4	18.9	18.8	19.6	16.8	18.3	14.9	12.3	9.4	5.9	3.2	3	1.8	6.4	6.5	8.2	8.5	20	12.3	24
7	18	17.9	24.5	24.1	23.3	20.5	17.5	18	20.2	20.4	24.6	21.3	23.9	23.1	19.1	15.7	15.8	12.6	10.5	11.1	11.6	9.4	10.2	9.9	25	17.6	24
8	7.7	9.1	11.8	11.1	10.2	9.7	12.2	15.2	10.6	13.8	13.1	15.5	13.9	12.3	11.8	12.6	12.1	12	9.7	9.7	8.9	9.1	10.6	7.6	16	11.3	24
9	7.7	6.7	6.2	8.2	7.9	7.4	7.2	5.9	6.5	12.9	12.3	12.8	9.9	9.7	11.6	8.8	8.3	10.1	7.6	10.8	13.1	15	13.8	13.8	15	9.8	24
10	13.1	12.7	12.8	14.9	13.8	13.7	12.3	14.6	12.8	18.5	20.6	17.5	19.6	21.6	19	21.1	19.7	17.7	14.5	17.5	18.9	16.8	15.1	14.8	22	16.4	24
11	15.6	14.8	14.7	14.2	13.7	14	14.7	14.9	14.4	14.6	15.3	12.3	11	9.4	9.1	8.4	8.2	5.7	5.7	6.8	4.8	7	5.8	6.9	16	10.9	24
12	8.2	6.6	6.2	5.2	6.3	5.9	3.7	3.2	3.5	9.1	11	11.8	11	12.3	9.4	8	1.8	1.5	1.7	3.6	2.1	1.9	1	1.5	12	5.7	24
13	1.5	1.2	1.6	2.6	2.8	4.3	3.7	2.6	1.9	4.2	7.6	10.7	13	10.2	11	8.2	6.3	3.6	1.8	4.3	3.9	3.2	3.1	9.8	13	5.1	24
14	3	3	9.1	9	8.2	7.7	8.4	11	16.6	10.8	8.5	6.2	11.5	15.2	13.3	14.8	13.5	12.4	11.6	12.9	12.3	13.9	13.1	10.2	17	10.7	24
15	9.7	11.4	12.1	15.2	15.2	17.8	17.4	18.5	18.6	18.1	18.6	19.4	21.6	18.8	17.2	15	14.4	10.2	9.2	17	17.6	28.1	27.1	***30.4***	***30***	17.4	24
16	18.3	22.1	19.3	25.7	21	25.5	22.6	29.2	17.4	17.8	17.6	19.8	19.9	17.6	22.3	17.6	11.6	16.3	17.1	17.9	12.3	10	8.9	6.5	29	***18.1***	24
17	5.6	6.3	6.5	5.3	4.7	7.1	7.7	8.3	9.2	8.9	9.5	8.8	6.5	9.1	6	7.8	7.3	8.1	8.4	5.9	4	4.8	9.3	8.5	10	7.2	24
18	6.1	9.2	10.8	6.7	8.5	18.4	20	21.7	17.1	18	17.9	19	18.9	17.2	17.5	16.4	18.2	14.7	14.3	15.7	15.2	17.3	14.2	13.3	22	15.3	24
19	13.3	13.6	12.2	13.5	11.2	11.7	8.7	5.9	9	9.4	9.6	9.8	8	8.7	14.3	8.9	4.6	3.8	2.6	2.9	3.1	5.8	8.2	8.2	14	8.6	24
20	9.6	9	11	11.7	10.5	8.9	11.5	9.2	7.3	7.3	9.5	6.3	9.7	8	6	5.2	2.9	6.1	3.2	3	3.7	4.2	4	4.5	12	7.2	24
21	7.6	6.6	5.9	6.8	5.9	5.1	3.9	6.4	7.9	11.5	8.2	8.5	7.6	7.8	12.5	12.3	10.8	13.1	16	13.8	10.1	14.4	13.8	15	16	9.6	24
22	17.3	18.4	18.4	20.6	20	18.8	18.1	17	19.8	18.7	17.6	18.2	15.1	14.1	14.4	14.7	15.4	14.4	14.8	11.5	12.5	12.5	9.9	6.4	21	15.8	24
23	5.6	4.7	4.5	6	4.8	2.6	1.8	5.2	2.5	4.6	9.3	8.9	10.8	10	9.9	4.3	2	3.5	2.7	4.3	6.2	4.4	6.2	3.8	11	5.4	24
24	4.3	6.9	8.5	8.9	8.1	8.4	10	7.4	11.4	7.6	11.4	12.2	10.4	8.7	8.3	6.8	7.9	2.5	4.2	11.7	12.3	10	12.1	12.4	12	8.9	24
25	11.3	14	13.2	11.2	10.3	8.4	8	9.7	9.2	10.5	9.7	8.5	11	11.3	10.7	7.6	7.1	4.8	5.7	7.9	8.3	6.2	7.1	7.8	14	9.1	24
26	7.4	5.1	8.4	7.7	7.2	7.7	6.4	8.9	9.1	11	9.8	10.8	8.9	9.2	6.3	11.1	7.5	8.4	8.3	5.6	5.5	5.5	3.4	5	11	7.7	24
27	4.1	4.4	5	4.2	12.8	19.1	22.4	19.7	20	21.8	22.7	20.8	22.5	25.4	20.8	20.3	17.8	19	18.7	18.8	22	20	21.3	17.7	25	17.6	24
28	18.4	18.5	21.4	19.2	16.6	15.2	16.5	18.6	17.8	17.6	15.1	16.7	15.5	13.9	14.5	14.9	13.2	17.1	12.2	14.8	15.2	14	15.3	16.1	21	16.2	24
29	16.6	16.9	15.4	12.2	13.4	7.3	8.4	9.3	7.4	8.8	9.8	17.4	16.8	17.2	15.9	13.1	14	14.3	12.5	10.1	12.1	13.4	12.2	9.9	17	12.7	24
30	9.2	9.2	8	11.6	11.1	13.2	14.2	13.1	8.8	11.5	13.8	13.2	14.1	13.3	14.5	11.3	9.8	4.7	3.9	5.1	4.1	4.8	5.9	8.1	15	9.9	24
HOURLY MAX	18	22	25	26	23	26	23	29	20	22	25	21	24	25	22	21	20	19	19	19	22	28	27	30			
HOURLY AVG	9.3	9.8	10.4	10.7	10.6	11.1	11.0	11.5	11.1	12.3	13.4	13.4	13.7	13.4	13.1	11.4	10.0	9.1	8.1	8.9	8.8	9.4	9.4	9.5			

STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	30	KPH	@ HOUR(S)	23	ON DAY(S)	15
					VAR-VARIOUS	
OPERATIONAL TIME:					720	HRS



JOB #: 2833-14-11-01-C

LICA
WSP / WD Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	.55	.27	.27	1.25	.83	1.11	5.41	2.08	2.22	3.19	5.41	6.52	5.69	5.41	5.13	2.36	47.77
<	12.0	2.77	1.52	.55	3.75	2.22	.55	4.72	.13	.00	.00	.97	2.91	2.36	2.36	6.94	8.33	40.13
<	20.0	.55	.00	.00	2.91	1.11	.00	.13	.00	.00	.00	.00	.83	.00	.00	1.52	3.47	10.55
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.88	1.80	.83	7.91	4.16	1.66	10.27	2.22	2.22	3.19	6.38	10.27	8.05	7.77	13.61	14.16	

Calm : 1.52 %

Total # Operational Hours : 720

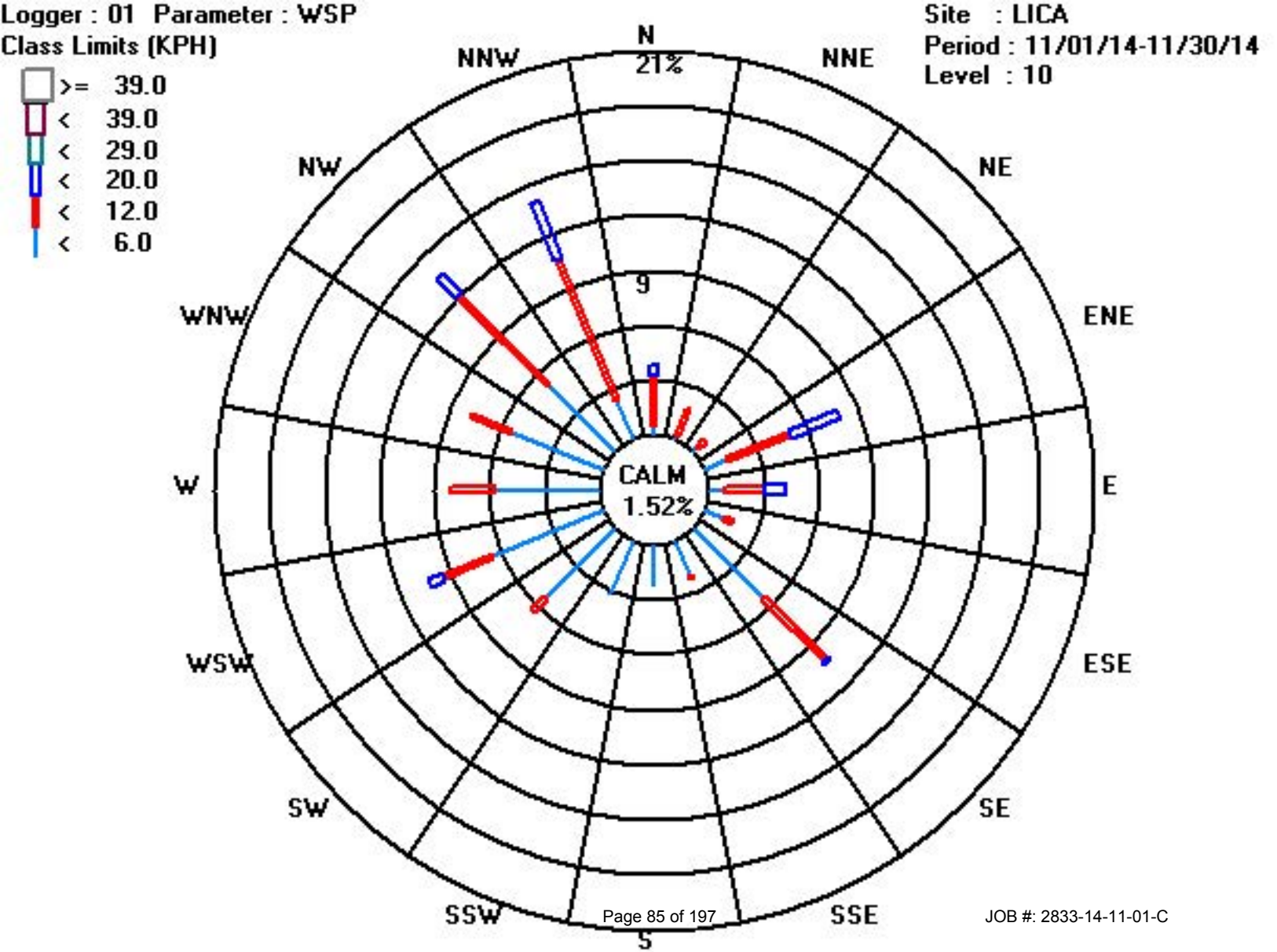
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	4	2	2	9	6	8	39	15	16	23	39	47	41	39	37	17	344
<	12.0	20	11	4	27	16	4	34	1			7	21	17	17	50	60	289
<	20.0	4			21	8		1					6			11	25	76
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	28	13	6	57	30	12	74	16	16	23	46	74	58	56	98	102	

Calm : 1.52 %

Total # Operational Hours : 720



JOB #: 2833-14-11-01-C

Vector Wind Direction

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

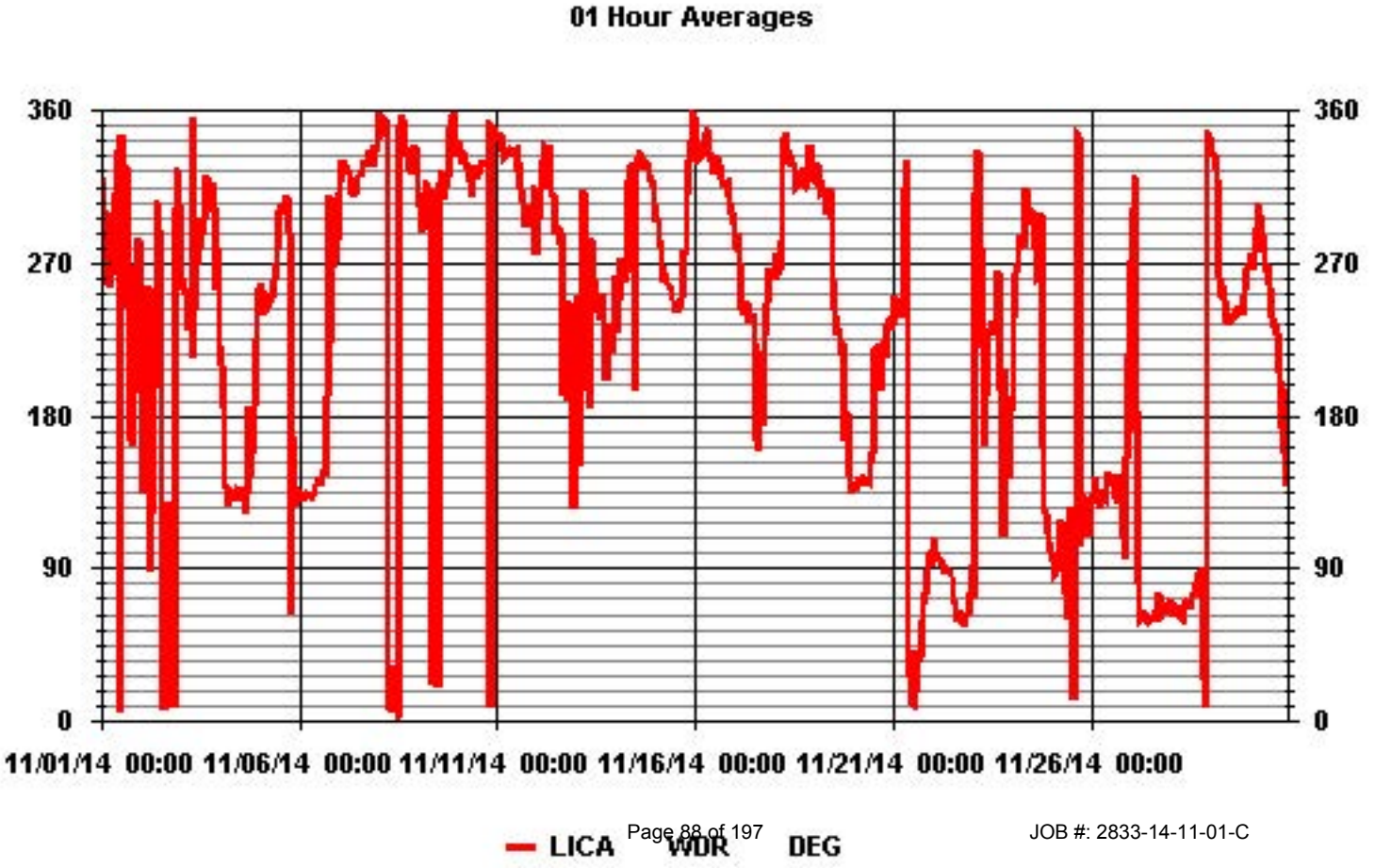
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	319	306	270	301	258	256	262	286	287	312	337	5	346	338	313	327	243	255	166	163	196	269	193	285	346	NNW	24
2	270	133	244	231	222	257	87	121	196	217	307	290	283	63	6	69	109	129	70	70	7	303	326	302	326	NW	24
3	302	262	256	252	233	230	241	213	356	242	281	269	277	297	287	295	321	318	313	314	300	304	253	278	356	N	24
4	223	210	186	137	140	127	133	133	135	134	130	136	135	136	136	122	133	185	144	176	157	186	226	249	249	WSW	24
5	255	258	239	254	241	247	251	248	250	259	269	278	300	303	302	306	304	310	289	62	169	139	127	138	310	NW	24
6	130	135	134	133	135	134	133	134	133	135	139	142	144	138	144	149	148	191	310	222	308	268	270	283	310	NW	24
7	311	318	330	327	328	326	324	314	315	309	311	320	321	322	324	328	328	329	336	330	328	328	340	335	340	NNW	24
8	343	358	354	357	344	355	6	21	5	32	6	8	1	351	357	355	339	334	323	329	322	333	339	328	358	N	24
9	312	304	288	290	298	318	309	305	315	21	32	44	20	317	324	322	307	314	321	349	352	356	358	333	358	N	24
10	342	336	328	336	330	327	327	319	309	321	327	320	322	327	328	328	328	329	327	354	8	349	350	348	354	N	24
11	345	343	347	337	332	333	337	334	337	336	335	336	324	330	314	308	304	291	294	302	302	304	316	275	347	NNW	24
12	303	295	314	330	340	339	321	313	340	311	310	288	288	292	280	289	192	201	188	248	205	231	125	205	340	NNW	24
13	250	150	232	194	313	263	283	202	184	284	261	257	245	242	236	249	252	225	200	234	232	216	230	262	313	NW	24
14	228	254	248	273	270	258	264	319	325	325	329	194	328	332	337	331	325	327	330	329	322	320	316	306	337	NNW	24
15	294	296	284	281	270	259	263	258	256	255	249	244	245	240	244	248	250	276	276	310	331	343	358	357	358	N	24
16	331	330	331	339	340	341	347	350	334	329	335	322	331	332	331	328	320	316	316	317	311	307	300	293	350	N	24
17	279	278	288	272	243	239	245	248	236	236	236	240	224	166	159	199	174	218	227	246	267	260	265	264	288	WNW	24
18	276	266	264	266	283	328	343	347	337	334	327	330	314	315	323	323	324	316	315	317	327	338	338	320	347	NNW	24
19	319	326	329	320	312	313	311	299	302	314	297	261	243	240	228	231	215	224	165	169	183	146	135	137	329	NNW	24
20	139	138	141	142	143	139	142	143	142	141	152	158	218	219	210	207	194	218	223	214	234	237	230	238	238	SW	24
21	233	250	241	240	238	243	271	314	331	26	28	12	11	41	16	34	38	59	69	75	89	96	95	101	331	NNW	24
22	108	101	96	95	95	92	86	89	92	89	89	86	72	70	66	58	65	59	58	56	62	63	75	92	108	ESE	24
23	72	312	309	336	330	280	221	161	192	229	231	227	235	227	240	265	196	175	109	207	152	174	143	182	336	NNW	24
24	192	238	264	269	277	286	284	283	314	311	302	301	293	279	261	262	296	299	162	126	123	111	107	101	314	NW	24
25	95	86	87	88	95	118	91	75	87	59	77	126	53	12	26	346	345	102	135	132	132	130	111	111	346	NNW	24
26	132	132	143	132	133	125	133	132	131	139	147	142	143	140	133	128	143	142	143	108	95	155	217	170	217	SW	24
27	272	302	322	184	81	60	61	61	64	61	59	61	60	60	60	65	73	73	63	64	64	66	70	69	322	NW	24
28	69	64	63	63	66	66	62	61	70	71	70	66	71	76	73	81	87	88	78	31	26	8	348	338	348	NNW	24
29	340	336	334	326	320	262	253	254	249	237	236	234	239	238	239	242	243	241	242	239	250	254	267	269	340	NNW	24
30	276	266	268	290	303	303	299	276	286	265	270	259	256	239	234	234	229	207	202	173	159	144	138	194	303	WNW	24

STATUS FLAG CODES

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

LAST CALIBRATION:	November 28, 2012
DECLINATION :	MAGNETIC DELINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	97.85		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	330	DEG



JOB #: 2833-14-11-01-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Cold Lake South Site

NOVEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

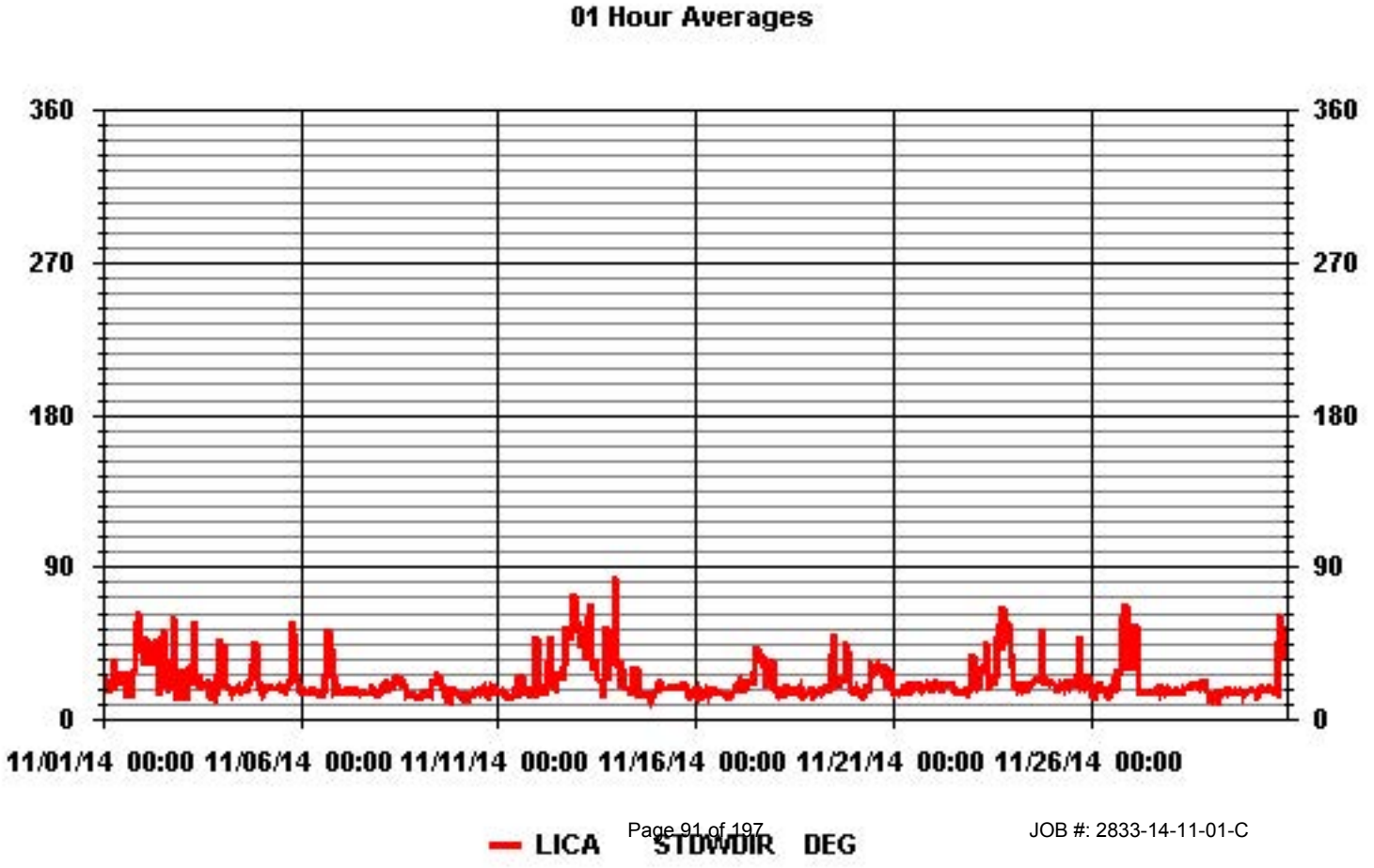
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	22	23	23	16	19	22	21	36	22	21	21	28	25	26	21	15	14	14	28	30	56	56	64	43
2	41	32	49	42	48	34	32	44	31	48	13	45	48	53	33	20	16	36	28	61	26	10	20	19
3	29	14	11	15	30	31	20	47	58	22	21	27	22	20	20	21	16	15	14	13	19	18	26	48
4	18	25	45	20	19	19	16	18	18	18	20	18	17	18	16	22	20	24	32	36	34	46	24	18
5	16	19	17	19	19	20	19	18	18	18	18	20	18	19	18	17	20	21	24	58	52	28	23	17
6	17	14	18	17	16	16	18	17	18	17	16	15	16	13	16	26	29	53	46	43	26	17	18	19
7	16	15	15	16	17	15	15	17	17	16	17	17	15	16	17	16	15	15	15	20	16	16	15	16
8	15	16	20	21	16	18	19	19	21	23	20	24	23	25	20	20	15	16	15	15	12	15	15	13
9	12	12	15	16	16	12	16	15	24	21	21	26	25	22	17	20	14	12	11	16	17	17	17	15
10	15	15	14	13	16	13	12	14	14	17	16	17	18	16	18	16	18	15	14	18	16	17	21	16
11	15	15	17	15	15	14	14	13	13	14	17	16	25	23	26	17	16	17	19	13	16	15	18	49
12	16	17	14	19	18	14	18	34	49	20	19	26	26	26	27	23	31	55	50	46	53	56	74	51
13	58	56	42	54	50	36	36	60	68	28	32	35	24	24	23	18	13	26	55	23	45	47	32	85
14	37	30	36	18	29	19	18	18	15	15	31	29	31	14	14	14	14	15	15	15	12	14	14	17
15	20	19	22	21	19	19	18	18	19	19	20	19	19	19	19	19	20	20	18	15	14	16	18	17
16	15	18	16	15	14	15	19	18	15	17	16	17	17	16	17	16	16	15	15	14	15	14	16	18
17	16	21	21	23	19	20	16	24	22	22	22	28	36	43	40	33	38	32	19	21	27	29	35	19
18	19	17	14	15	19	13	17	20	15	15	17	17	18	18	17	19	15	14	15	15	15	15	19	14
19	15	15	16	17	15	16	17	19	20	16	38	28	51	24	18	23	22	24	22	46	42	22	17	15
20	15	18	16	15	16	14	15	18	21	16	32	31	28	29	31	27	33	29	31	33	18	21	29	18
21	15	16	16	15	16	18	21	14	16	20	20	17	18	22	17	19	20	17	18	18	21	20	19	21
22	22	19	20	18	19	18	20	20	20	20	20	21	19	18	16	16	17	16	16	17	17	16	19	23
23	39	17	21	19	20	30	31	32	46	28	20	21	21	26	24	49	56	40	66	48	47	48	58	35
24	36	20	19	17	18	22	18	19	15	20	20	20	21	23	24	23	24	24	54	22	22	24	23	21
25	22	21	19	20	19	22	21	19	22	22	20	22	24	19	21	22	26	49	20	21	19	20	26	21
26	16	14	12	19	19	22	19	16	19	14	13	14	20	15	22	21	30	25	39	61	52	68	29	32
27	29	37	41	56	40	16	16	16	17	16	16	16	16	16	16	18	19	19	16	18	16	17	19	18
28	18	16	15	15	17	17	16	16	19	18	19	18	18	21	21	20	21	19	21	22	20	24	17	13
29	14	12	14	13	12	18	12	15	17	18	16	17	18	18	17	18	18	17	18	17	14	16	16	17
30	18	18	18	17	14	15	18	19	17	17	18	19	19	18	18	17	16	46	63	34	55	35	48	43

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: 720 HRS



JOB #: 2833-14-11-01-C

Non-Continuous Monitoring

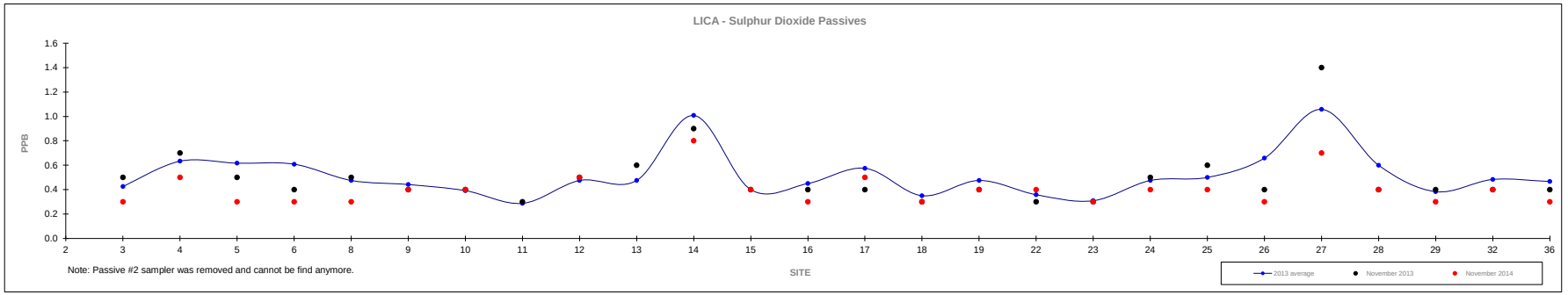
Passive Summary

Passive Summary Results for November 2014

Lakeland Industry & Community Association

Sulphur Dioxide
ppb

	2013																									November 2014	
	2	**3**	**4**	**5**	**6**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**32**	**36**	**Reading**	**Site**
Mean	NA	0.4	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.5	0.5	1.0	0.4	0.5	0.6	0.4	0.5	0.4	0.3	0.5	0.5	0.7	1.1	0.6	0.4	0.5	0.5	0.4	-
Minimum	NA	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.5	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.4	0.3	0.4	0.2	0.2	0.2	0.3	VAR
Maximum	NA	0.8	1.0	0.9	1.0	0.8	0.8	0.6	0.4	1.0	0.9	1.7	0.6	0.8	1.0	0.6	1.3	0.6	0.5	0.8	1.0	1.3	1.8	0.9	0.7	0.9	0.8	0.8	#14



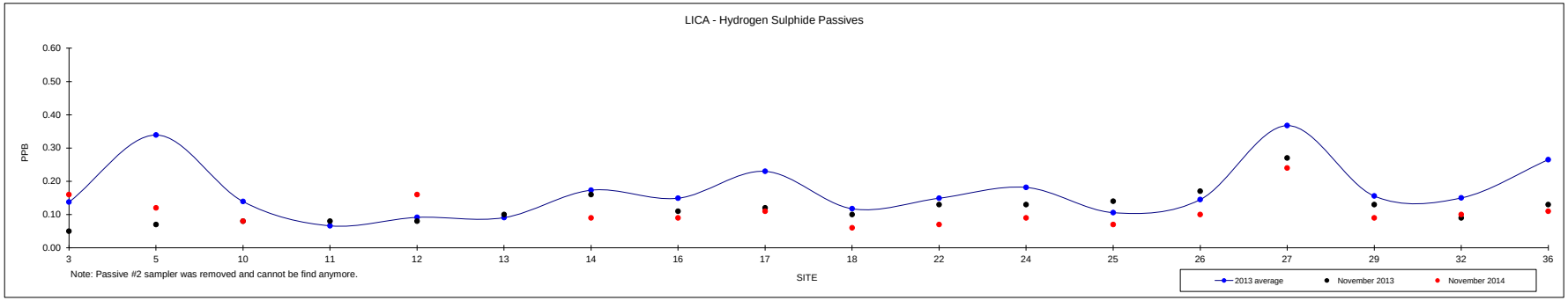
Note: Passive #2 sampler was removed and cannot be find anymore.

Passive Summary Results for November 2014

Lakeland Industry & Community Association

Hydrogen Sulphide
ppb

	2013																		November 2014	
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	36	Reading	Site
Mean	0.14	0.34	0.14	0.07	0.09	0.09	0.17	0.15	0.23	0.12	0.15	0.18	0.11	0.15	0.37	0.16	0.15	0.27	0.11	-
Minimum	0.05	0.07	0.06	0.04	0.02	0.02	0.05	0.07	0.11	0.04	0.04	0.06	0.03	0.06	0.04	0.05	0.05	0.07	0.06	#18
Maximum	0.24	0.97	0.31	0.11	0.20	0.16	0.30	0.29	0.44	0.17	0.32	0.32	0.16	0.21	1.23	0.33	0.26	1.36	0.24	#27



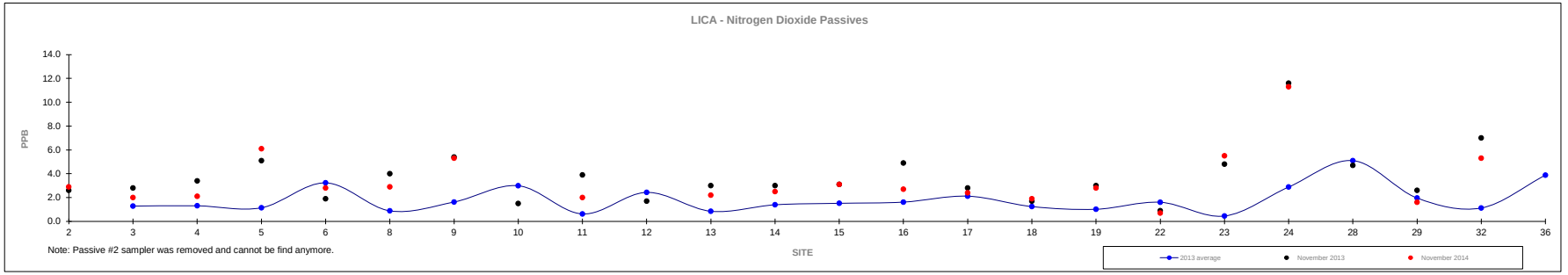
Note: Passive #2 sampler was removed and cannot be find anymore.

Passive Summary Results for November 2014

Lakeland Industry & Community Association

Nitrogen Dioxide
ppb

	2013																							November 2014	
	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	NA	1.3	1.3	1.1	3.2	0.9	1.6	3.0	0.6	2.4	0.9	1.4	1.5	1.6	2.1	1.2	1.0	1.6	0.5	2.9	5.1	2.0	1.1	3.9	3.4	-
Minimum	NA	0.2	0.2	0.1	1.5	0.1	0.3	0.8	0.1	0.6	0.1	0.3	0.2	0.4	0.8	0.2	0.1	0.4	0.1	0.9	1.2	0.5	0.2	1.4	0.7	#23
Maximum	NA	3.7	2.8	3.4	7.1	2.0	4.0	6.7	1.5	4.7	1.9	3.4	4.9	3.9	4.9	2.8	3.1	4.3	1.0	5.7	11.6	4.7	2.6	8.1	11.3	#28



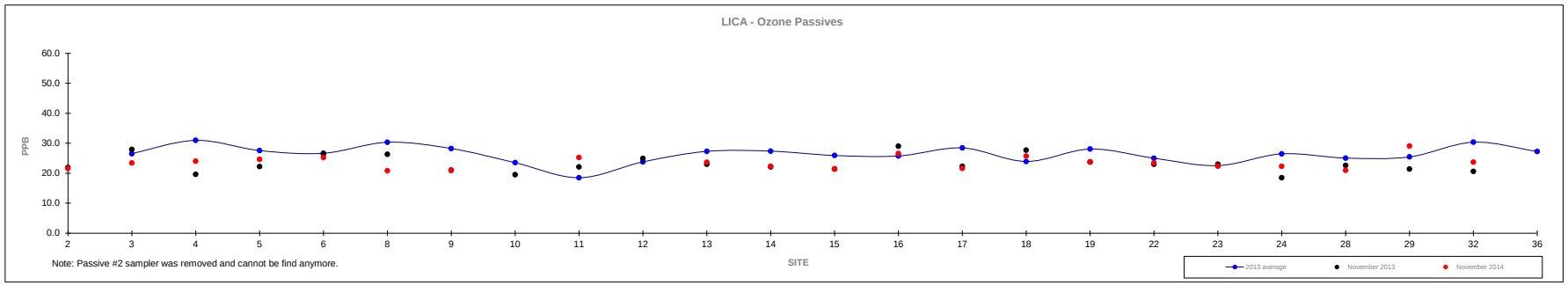
Note: Passive #2 sampler was removed and cannot be find anymore.

Passive Summary Results for November 2014

Lakeland Industry & Community Association

Ozone
ppb

	2013																							November 2014	
	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	NA	26.5	31.0	27.6	26.7	30.3	28.2	23.5	18.5	23.8	27.3	27.4	25.9	25.7	28.4	23.9	28.1	25.0	22.5	26.5	25.0	25.4	30.3	27.2	23.46	-
Minimum	NA	15.9	16.7	16.3	13.2	18.9	17.6	12.1	11.1	14.8	18.1	16.8	14.7	14.1	14.4	12.0	17.6	13.5	12.5	15.5	14.8	15.4	20.7	15.5	20.82	#9
Maximum	NA	37.0	48.1	47.1	43.3	45.1	43.3	36.3	31.5	34.0	38.6	37.5	39.3	40.2	44.1	36.2	41.8	36.1	35.1	38.7	36.3	38.9	40.5	39.4	29.05	#32



Note: Passive #2 sampler was removed and cannot be find anymore.

VOC Monitoring

Sample ID: 14110056-002

Customer ID: Maxxam AB

Cust Samp ID: LICA VOC/CLS/Nov 01, 14

Priority: Normal

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Nov 01, 14

Sampler s/n: 6167
Canister ID: H3292
Canister Installation Date/Time: Oct 30 , 14 @ 19:22 mst
Canister Removal Date/Time: Nov 5 , 14 @ 11:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11/01/14	11/01/14 00:00	11/02/14 00:00	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	648	28

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	24.0

22psi
VOC
only

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

Comments:

Technician Signiture: Sample in: Limin Li /Sample out:

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 1, 2014
Canister ID: H3292

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	< 0.06
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	< 0.06
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	< 0.06
2-Methylhexane	< 0.06
2-Methylpentane	< 0.06
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	< 0.06
Acetone	< 0.06
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	< 0.06
Carbon tetrachloride	< 0.06
Chlorobenzene	< 0.06
Chloroethane	< 0.06
Chloroform	< 0.06
Chloromethane	< 0.06
cis-1,2-Dichloroethene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 1, 2014
Canister ID: H3292

Parameters	Concentrations (ppb)
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	< 0.06
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.26
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	< 0.06
Hexachloro-1,3-butadiene	< 0.06
Isobutane	0.41
Isopentane	0.81
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	< 0.06
Methylcyclopentane	0.23
Methylene chloride	< 0.06
n-Butane	1.04
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 1, 2014
Canister ID: H3292

Parameters	Concentrations (ppb)
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	< 0.06
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

Sample ID: 14110100-001

Customer ID: Maxxam AB

Cust Samp ID: LICA/VOC/CLS/Nov 7 2014

Priority: Normal

Maxxam

VOC Sample Collection Data Sheet

Client:	LICA	**Sampler S/N:**	6167
Location:	CLS	**Canister ID:**	H3295
Station ID:	LICA 1	**Canister Installation Date/Time:**	Nov 5 2014 @ 1250
Field Sample ID:	LICA/VOC/CLS/Nov 7 2014	**Canister Removal Date/Time:**	Nov 2014 @

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Nov-14	0000	0000	2400

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	648	28

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29.5	24.5

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

Comments: 24 psi

installed by Tom Bourque

Technician Signature: Tom Bourque

JMP-chk

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 7, 2014
Canister ID: H3295

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	< 0.06
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	< 0.06
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	< 0.06
2-Methylhexane	< 0.06
2-Methylpentane	< 0.06
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	< 0.06
Acetone	< 0.06
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	< 0.06
Carbon tetrachloride	< 0.06
Chlorobenzene	< 0.06
Chloroethane	< 0.06
Chloroform	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 7, 2014
Canister ID: H3295

Parameters	Concentrations (ppb)
Chloromethane	< 0.06
cis-1,2-Dichloroethene	< 0.06
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	< 0.06
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.69
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	< 0.06
Hexachloro-1,3-butadiene	< 0.06
Isobutane	< 0.06
Isopentane	1.31
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	< 0.06
Methylcyclopentane	< 0.06
Methylene chloride	< 0.06
n-Butane	2.32
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	1.54
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 7, 2014
Canister ID: H3295

Parameters	Concentrations (ppb)
Toluene	< 0.06
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

Sample ID: 14110169-002

Customer ID: Maxxam AB

Cust Samp ID: LICA/VOC/CLS/Nov 13, 2014

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Maxxam
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VOC Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LICA/VOC/CLS/NOV 13, 2014

Sampler S/N: 006167
Canister ID: H3302
Canister Installation Date/Time: Nov 12, 2014 @ 09:22
Canister Removal Date/Time: Nov 18, 2014 @ 09:38

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 13, 2014	09:00	24:00	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	649	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	+25

* Initial canister vacuum should be around -27~-28inHg
* Final canister pressure should be around 25 psig

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

Comments: 23 psi

Technician Signature:

JOB #: 2833-14-11-01-C

Maxxam
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Date: November 13, 2014
Canister ID: H3302

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	< 0.06
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	< 0.06
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	< 0.06
2-Methylhexane	< 0.06
2-Methylpentane	< 0.06
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	0.23
Acetone	< 0.06
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	< 0.06
Carbon tetrachloride	< 0.06
Chlorobenzene	< 0.06
Chloroethane	< 0.06
Chloroform	< 0.06
Chloromethane	< 0.06
cis-1,2-Dichloroethene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
Canister ID: H3302

Parameters	Concentrations (ppb)
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	< 0.06
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.67
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	< 0.06
Hexachloro-1,3-butadiene	< 0.06
Isobutane	< 0.06
Isopentane	1.30
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	< 0.06
Methylcyclopentane	< 0.06
Methylene chloride	< 0.06
n-Butane	2.28
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06

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Date: November 13, 2014
Canister ID: H3302

Parameters	Concentrations (ppb)
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	< 0.06
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

Sample ID: 14110169-005

Customer ID: Maxxam AB

Cust Samp ID: LICA/VOC/CLS/Nov 19, 2014

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Maxxam
A Bureau Veritas Group Company

VOC Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LICA/VOC/CLS/Nov 19, 2014

Sampler S/N: 006167
Canister ID: 5561
Canister Installation Date/Time: Nov 18, 2014 @ 09:41
Canister Removal Date/Time: Nov 20, 2014 @ 15:31

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 19, 2014	00:00	24:00	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	649	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	+24

* Initial canister vacuum should be around -27~-28inHg
* Final canister pressure should be around 25 psig

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

Comments: LM 760 psi

Technician Signature: Install [signature] / Remove [signature]

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 19, 2014
Canister ID: 55611

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	1.20
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	< 0.06
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	< 0.06
2-Methylhexane	< 0.06
2-Methylpentane	< 0.06
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	< 0.06
Acetone	< 0.06
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	< 0.06
Carbon tetrachloride	< 0.06
Chlorobenzene	< 0.06
Chloroethane	< 0.06
Chloroform	< 0.06
Chloromethane	< 0.06
cis-1,2-Dichloroethene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 19, 2014
Canister ID: 55611

Parameters	Concentrations (ppb)
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	< 0.06
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	< 0.06
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	< 0.06
Hexachloro-1,3-butadiene	< 0.06
Isobutane	< 0.06
Isopentane	0.97
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	< 0.06
Methylcyclopentane	< 0.06
Methylene chloride	< 0.06
n-Butane	2.07
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 19, 2014
Canister ID: 55611

Parameters	Concentrations (ppb)
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	< 0.06
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

Sample ID: 14120010-002

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 25, 2014

Maxxam
A Bureau Veritas Group Company

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VOC Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LICA/VOC/CLS/NOV 25, 2014

Sampler S/N: 006167
Canister ID: 1515
Canister Installation Date/Time: Nov 20, 2014 @ 15:37
Canister Removal Date/Time: Nov 28, 2014 @ 05:25

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 25, 2014	00:00	24:00	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	649	+29

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	+24

* Initial canister vacuum should be around -27~-28inHg
* Final canister pressure should be around 25 psig

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

Comments: KM 22 psi

Technician Signature: Install [signature] / Removal [signature]

Maxxam
A Bureau Veritas Group Company

Date: November 25, 2014
Canister ID: 1515

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	0.09
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	0.18
1-Hexene	0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	1.17
2,3-Dimethylbutane	< 0.06
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	< 0.06
2-Methylhexane	< 0.06
2-Methylpentane	< 0.06
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	0.13
Acetone	< 0.06
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	1.35
Carbon tetrachloride	0.08
Chlorobenzene	< 0.06
Chloroethane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 25, 2014
Canister ID: 1515

Parameters	Concentrations (ppb)
Chloroform	0.08
Chloromethane	1.05
cis-1,2-Dichloroethene	< 0.06
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	0.28
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	1.74
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.25
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.80
Hexachloro-1,3-butadiene	< 0.06
Isobutane	0.51
Isopentane	0.24
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	< 0.06
Methylcyclopentane	< 0.06
Methylene chloride	0.52
n-Butane	0.54
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	6.04
n-Nonane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 25, 2014
Canister ID: 1515

Parameters	Concentrations (ppb)
n-Octane	< 0.06
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	0.21
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

PAH Monitoring

Sample ID: 14110056-003

Customer ID: Maxxam AB

Cust Samp ID: LICA PUF/CLS/Nov 01, 14

Priority: Normal

Maxxam Analytics Inc.

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA1
Field Sample ID: LICA PUF/CLS/Nov 01, 14

Puf+ s/n: TE06
Motor s/n: 100-1020
Installation Date/Time: Oct 30 , 14 @ 18:44 mst
Removal Date/Time: Nov , 14 @ mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Nov-14	11/01/14 00:00	11/02/14 00:00	24.00

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
704	351.25	5.1	350.20

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

Comments:

Technician Signiture: Sample in: Limin Li / Sample out:

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 1, 2014
PUF S/N: TE06

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.04
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.01
Benzo(c)phenanthrene	0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.09
Perylene	< 0.01
Phenanthrene	0.11
Pyrene	0.02
Retene	0.03

Sample ID: 14110100-002

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/CLS/Nov 7 2014

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: LICA1
Field Sample ID: LICA PUF/CLS/nov 7 2014

Puf+ S/N: TE-11
Motor S/N: 100-01-1020
Installation Date/Time: NOV 5, 2014 @ 1315 MST
Removal Date/Time: Nov 12 , 2014 @ 0925

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Nov-14	0000	0000	2400

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
715	330.20	0.0	321.55

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

Comments: INSTALLED BY TOM

Technician Signiture:

IMP-chk.

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 7, 2014
PUF S/N: TE11

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.01
Benzo(c)phenanthrene	0.10
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.03
Retene	0.03

Sample ID: 14110169-003

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/CLS/Nov 13, 2014

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Maxxam
A Bureau Veritas Group Company

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LICA/PUF/CLS/NOV 13, 2014

Puf+ S/N: TE07
Motor S/N: /
Installation Date/Time: NOV 12, 2014 @ 09:27
Removal Date/Time: NOV 13, 2014 @ 09:25

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
NOV 13, 2014	09:00	24:00	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
208	229	-15.9	330.18

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

Comments:

Technician Signature:

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
PUF S/N: TE07

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.39
2-Methylnaphthalene	0.67
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	0.08
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	0.02
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.10
Indeno(1,2,3-cd)pyrene	0.04
Naphthalene	0.69
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.03
Retene	0.04

Sample ID: 14110169-006

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/CLS/Nov 19, 2014

AIR FCD-01321/2

Maxxam
A Bureau Veritas Group Company

RECEIVED
NOV 25 2014

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LCA/PUF/CLS/ NOV 19, 2014

Puf+ S/N: TE04
Motor S/N: 1100 - 1020
Installation Date/Time: Nov 18, 2014 @ 09:24
Removal Date/Time: Nov 20, 2014 @ 15:52

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 19, 2014	00:00	24:00	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
215	229	-9.8	330.21

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

Comments:

Technician Signiture: Install [signature] / Remove [signature]

JOB #: 2833-14-11-01-C

Maxxam
A Bureau Veritas Group Company

Date: November 19, 2014
PUF S/N: TE09

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.58
2-Methylnaphthalene	0.93
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.11
Acenaphthylene	0.07
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.04
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.03
Benzo(ghi)perylene	0.02
Chrysene	0.03
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	0.02
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.07
Fluorene	0.12
Indeno(1,2,3-cd)pyrene	0.05
Naphthalene	0.93
Perylene	< 0.01
Phenanthrene	0.15
Pyrene	0.04
Retene	0.06

Sample ID: 14120010-003

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Nov 25, 2014

Maxxam
A Bureau Veritas Group Company

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS
Field Sample ID: LICA/PUF/CLS/NOV 25 2014

Puf+ S/N: TEOT
Motor S/N: 1020-1020
Installation Date/Time: NOV 20, 2014 @ 15:54
Removal Date/Time: NOV 28, 2014 @ 09:15

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
NOV 25, 2014	00:00	24:00	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
717	229	42.0	330

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

Comments:

Technician Signature: Install / Removal

Maxxam
A Bureau Veritas Group Company

Date: November 25, 2014
PUF S/N: TE05

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.30
2-Methylnaphthalene	0.44
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	0.04
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.04
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	< 0.01
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.06
Fluorene	0.11
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	0.84
Perylene	< 0.01
Phenanthrene	0.23
Pyrene	0.05
Retene	0.21

Calibration Reports

Sulphur Dioxide

Thermo 43i SO2 Analyzer Calibration

Date:	5-Nov-14	**Start/End Time (mst):**	0943-1237
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	Cold Lake South	**Converter Make & Model:**	na
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	SO2	**Cal Gas Expiry Date:**	4-Feb-14

Analyzer:

Serial Number:	AMU 1771	**Range ppb:**	500
Last Calibration Date:		**As Found C.F.**	1.060
Previous Cal High Point C.F.:		**New C.F.:**	0.995

		As found:		**As left:**
	BKG:	6.7	BKG:	6.8
	COEF:	1.066	COEF:	1.128
MOTHERBOARD:	3.3	3.3	3.3	3.3
	5.0	5.0	5.0	5.0
	15.0	15.0	15.0	15.0
	24.0	24.0	24.0	24.0
	-3.3	-3.2	-3.3	-3.2
INTERFACE BOARD:	PMT:	-623.0	PMT:	-623.0
	FLASH:	712	FLASH:	712
	3.3	3.3	3.3	3.3
	5.0	5.0	5.0	5.0
	15.0	14.8	15.0	14.8
	-15.0	-15.1	-15.0	-15.1
	24.0	23.6	24.0	23.6
	INTERNAL:	27.6	INTERNAL:	27.6
	CHAMBER:	45.2	CHAMBER:	45.2
	PERM OVEN GAS:	45.00	PERM OVEN GAS:	45.00
	PERM OVEN HEATER:	44.18	PERM OVEN HEATER:	44.18
	PRESSURE:	681.0	PRESSURE:	681.0
	SAMPLE FLOW:	.434	SAMPLE FLOW:	.434
	LAMP INTENSITY:	77 %	LAMP INTENSITY:	77 %
	CONVERTER:	na	CONVERTER:	na
	CONVERTER SET:	na	CONVERTER SET:	na
	Internal Span:	400.8	Internal Span:	403.5

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BLM000711
Cal Gas Conc. (ppm):	48.2

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	19	5019
low	5000	9	5009

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.1	NA
adjusted zero	5000	0.0	5000	0	0.0	NA
as found high	4995	34.75	5030	333.0	314.3	1.060
adjusted high	4995	34.75	5030	333.0	333.0	1.000
mid	4994	17.93	5012	172.4	173.0	0.997
low	4994	8.96	5003	86.3	87.3	0.989
calibrator zero	5000	0.00	5000	0	0.0	NA
					Average C.F.=	0.995

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.001**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.10%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal		**± 15%**	

Converter Effeciency Check for H_2S/TRS application:

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

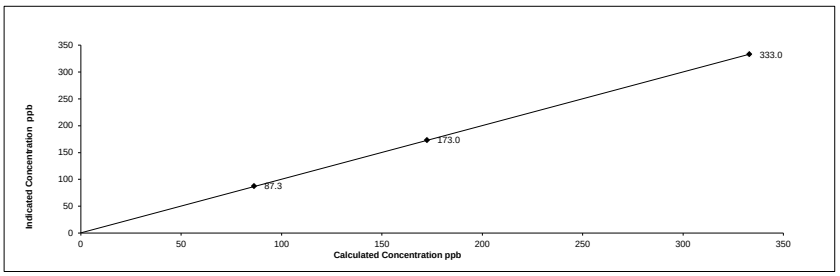
SO_2 High Point gas concentration: na Time gas run (mst): na

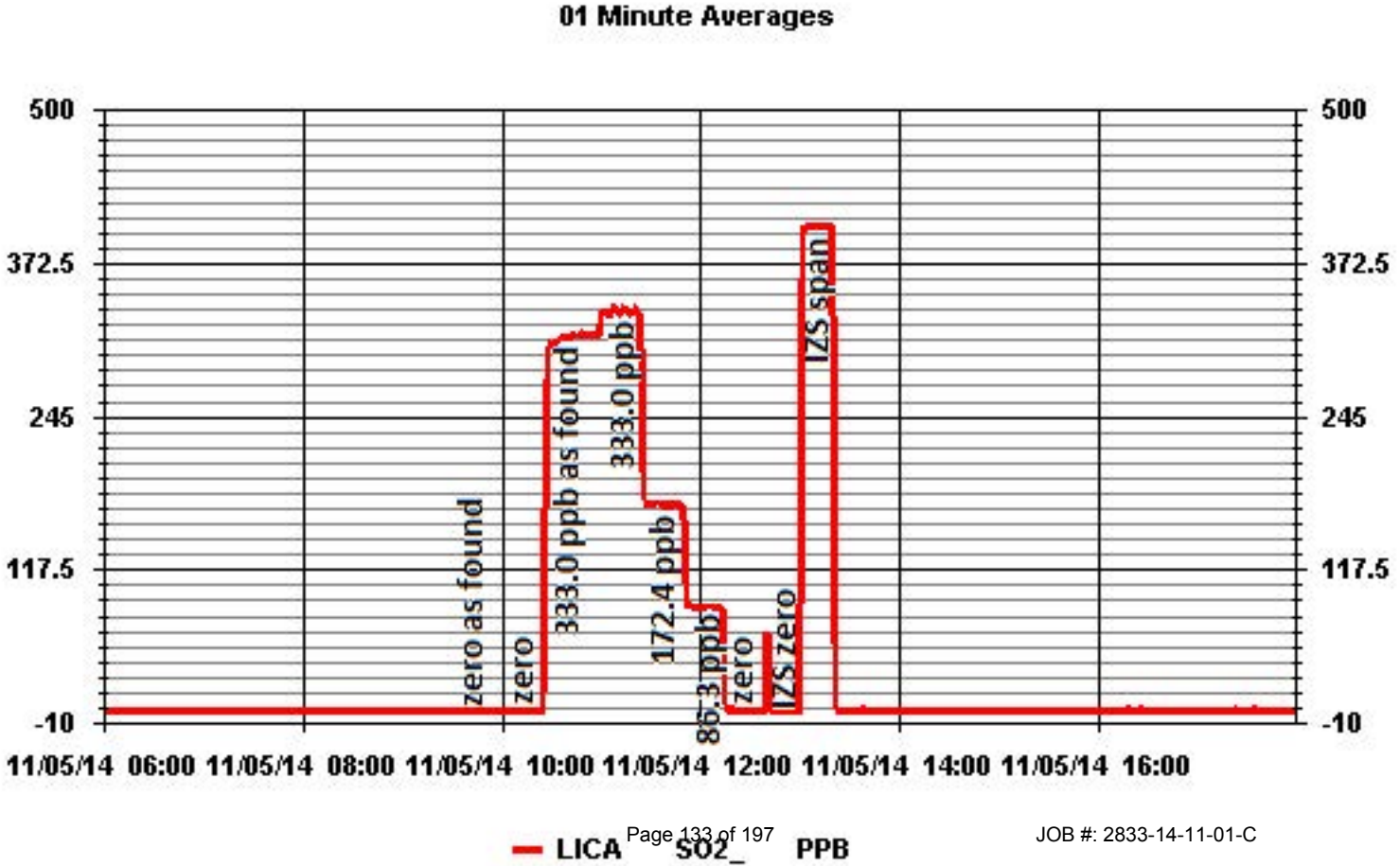
Zero corrrected analyzer response: na

Comments:

changed filter

Thermo 43i SO2 Analyzer Calibration





JOB #: 2833-14-11-01-C

Total Reduced Sulphur

Maxxam Thermo 450i TRS Analyzer Calibration

Date:	5-Nov-14	**Start/End Time (mst):**	1021-1407
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	Cold Lake South	**Converter Make & Model:**	Thermo CDN-101
Performed by:	Tom Bourque	**Converter Serial #:**	501
Application H_2S/TRS/SO_2:	TRS	**Cal Gas Expiry Date:**	5-Dec-15

Analyzer:

Serial Number:	812728560		**Range ppb:**	100
Last Calibration Date:			**As Found C.F.**	1.015
Previous Cal High Point C.F.:			**New C.F.:**	0.993

		As found:	As left:
	BKG:	13.5	13.7
	COEF:	.976	.988
MOTHERBOARD:	3.3	3.3	3.3
	5.0	5.0	5.0
	15.0	15.0	15.0
	24.0	23.9	23.9
	-3.3	-3.2	-3.2
INTERFACE BOARD:	PMT:	-650.8	-650.8
	FLASH:	742	742
	3.3	3.2	3.2
	5.0	5.0	5.0
	15.0	14.7	14.7
	-15.0	-15.0	-15.0
	24.0	23.3	23.3
	INTERNAL:	31.2	31.2
	CHAMBER:	45.0	45.0
	CONVERTER TEMP:	327.5	327.5
	CONVERTER SET:	325	325
	PERM OVEN GAS:	45.00	45.00
	PERM OVEN HTR:	45.39	45.39
	PRESSURE:	659.3	659.3
	SAMPLE FLOW:	.509	.509
	LAMP INTENSITY:	92 %	92 %
	Internal Span:	38.9	39.09

Calibrator:

Flow Meter ID's:	na
Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	39	5039
mid	5000	19	5019
low	5000	11	5011

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.0	NA
adjusted zero	5000	0.0	5000	0	-0.1	NA
as found high	4996	39.00	5035	78.2	76.9	1.015
adjusted high	4996	39.00	5035	78.2	78.2	0.998
mid	4997	19.00	5016	38.3	38.8	0.983
low	4997	11.00	5008	22.2	22.1	0.998
calibrator zero	5000	0.00	5000	0	0.2	NA
					Average C.F.=	0.993

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.997**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.02%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal		**± 15%**	

Converter Effeciency Check for H_2S/TRS application:

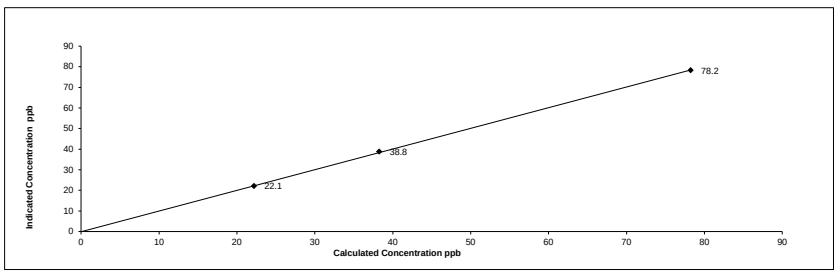
****run converter effeciency test immediately following zero adjust****

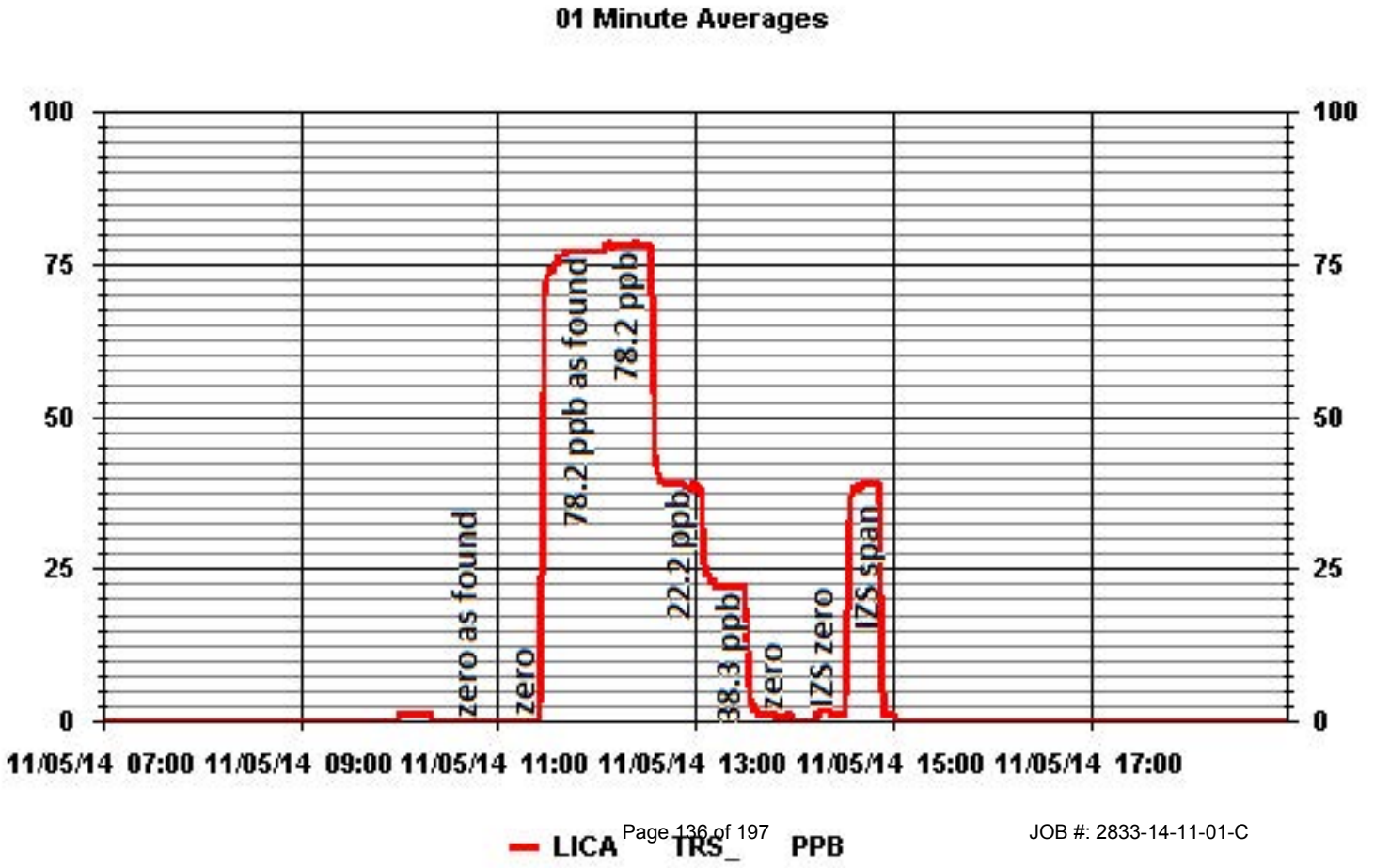
SO_2 High Point gas concentration:	86.3	Time gas run (mst):	0930-0935
Zero corrrected analyzer response:	0.6		

Comments:

changed filter

Thermo 450i TRS Analyzer Calibration





JOB #: 2833-14-11-01-C

Total Hydrocarbons

Thermo 51C THC Analyzer Calibration

Date:	5-Nov-14	**Start Time (mst):**	14:11
Company:	LICA	**End Time (mst):**	17:14
Station Name/Location:	Cold Lake South	**Calibration Purpose:**	monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Analyzer:

Serial Number:	51CLT-77021-384	**Range ppm:**	50
Last Calibration Date:	1-Oct-14	**As Found C.F.**	1.041
Previous Cal High Point C.F.:	1.001	**New C.F.:**	1.006

		As found:		As left:
	H_2 cylinder (psi):	900	H_2 cylinder (psi):	900
	H_2 cylinder reg set (psi):	22	H_2 cylinder reg set (psi):	22
	Span Cylinder (psi):	<100	Span Cylinder (psi):	2050
	Span Cylinder Reg Set (psi):	23	Span Cylinder Reg Set (psi):	23
	Zero Air Gen Pressure:	33	Zero Air Gen Pressure:	33
	measurement alarms:	service alarm-cleared	measurement alarms:	none
	service alarms:	-15 low - cleared	service alarms:	none
FID status:	cnt:	1443	cnt:	1443
	rng:	1	rng:	1
	try:	5	try:	5
	flm:	183.1	flm:	183.1
	det:	125.6	det:	125.6
Oven Readings:	Flame:	183	Flame:	183
	Filter:	125	Filter:	125
	Base:	125	Base:	125
	Pump:	6.50	Pump:	6.50
Voltages:	+5	5	+5	5
	+15	15	+15	15
	-15	-15	-15	-15
	Internal Span:	31.25	Internal Span:	32.71

Calibrator:

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

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	2000	65	2065
mid	2000	30	2030
low	2000	15	2015

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	2000	0.00	2000	0	0.02	NA
adjusted zero	2000	0.00	2000	0	0.00	NA
as found high	2000	65.00	2065	36.42	34.97	1.041
adjusted high	2000	65.00	2065	36.42	36.43	1.000
mid	2000	30.00	2030	17.10	16.93	1.010
low	2000	15.00	2015	8.61	8.54	1.008
calibrator zero	2000	0.00	2000	0	0.02	NA
					Average C.F.=	1.006

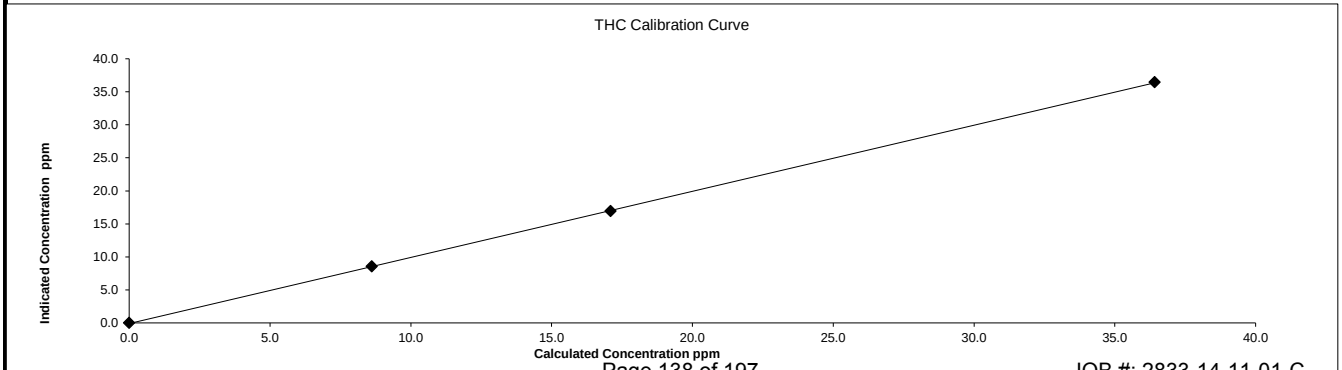
Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.001**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.135%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-4.03%**	**± 15%**	**PASS**

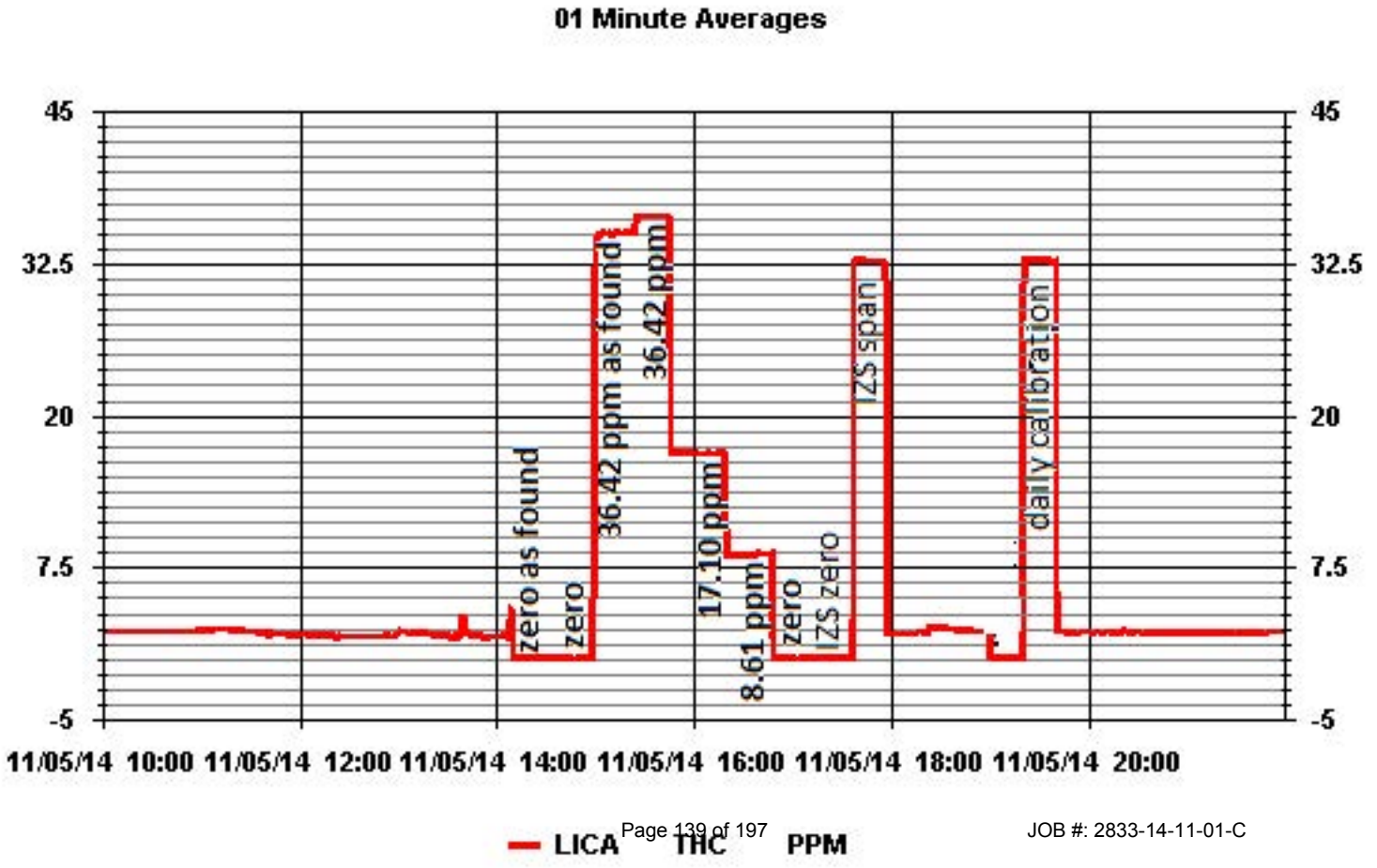
Comments:

changed analyzer filter, installed new span cylinder, had alarm - cleared - did not come back

Thermo 51C THC Analyzer Calibration



JOB #: 2833-14-11-01-C



JOB #: 2833-14-11-01-C

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	5-Nov-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	Cold Lake South	**Start/End Time (mst):**	1500-1610
Previous Audit Date:	23-Oct-14	**Calibration Purpose:**	routine monthly

1400A Information and Status:

Serial Number:	1405A201620804	**As Found Filter Loading %:**	36.96 %
Ko Factor:	14578	**As Left Filter Loading %:**	
Ambient Temperature °C:	1.29	**As Found Noise:**	0.013
Ambient Pressure atm:	.945	**As Left Noise:**	
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.33
Aux Flow Reading lpm:	13.67	**Warnings:**	none

Reference Standards:

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

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.11	0.22	0.12	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.09	0.28	0.09	0.28
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.11	0.22	0.12	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.09	0.28	0.09	0.28
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	1.3	**1405F pressure atm:**	0.945
reference temperature °C:	2.1	**reference pressure:**	0.953
difference °C:	0.8	**difference :**	-0.008

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	1.3	**1405F pressure atm:**	0.945
reference temperature °C:	2.1	**reference pressure:**	0.953
difference °C:	0.8	**difference :**	0.008

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	15.95
reference main flow lpm:	2.93	**reference total/aux flow lpm:**	16.26
difference lpm:	-0.07	**difference lpm:**	0.31

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	15.95
reference main flow lpm:	2.93	**reference total/aux flow lpm:**	16.26
difference lpm:	-0.07	**difference lpm:**	0.31

K_o Audit:

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

Comments:

JOB #: 2833-14-11-01-C

change sample filter and zero reference filter

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	28-Nov-14	**Parameter:**	PM 2.5
Company:	LICA	**Performed by:**	Chris Wesson
Station Name/Location:	Cold Lake South	**Start/End Time (mst):**	0948/1132
Previous Audit Date:	5-Nov-14	**Calibration Purpose:**	2nd Audit

1400A Information and Status:

Serial Number:	1405A20620804	**As Found Filter Loading %:**	34.31
Ko Factor:	14578	**As Left Filter Loading %:**	21.03
Ambient Temperature °C:	-19.35	**As Found Noise:**	0.028
Ambient Pressure atm:	0.934	**As Left Noise:**	0.009
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.32
Aux Flow Reading lpm:	10.28	**Warnings:**	Bypass Flow Rate

Reference Standards:

	Flow:	**Pressure:**	**Temperature:**
Make:	Dwyer	Brunton	Brunton
Model:	475 Mark III	ADC-Summit	ADC-Summit
Serial Number:	NA	NA	NA
Calibration Date:	NA	NA	NA

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.15	0.20	0.15	0.21
	limit	0.15		0.15	
Bypass Flow	actual	0.09	0.26	0.08	0.26
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.15	0.20	0.15	0.21
	limit	0.15		0.15	
Bypass Flow	actual	0.09	0.26	0.08	0.26
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-19.1	**1405F pressure atm:**	0.935
reference temperature °C:	-18.9	**reference pressure:**	0.935
difference °C:	0.3	**difference :**	0.000

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-19.1	**1405F pressure atm:**	0.935
reference temperature °C:	-18.9	**reference pressure:**	0.935
difference °C:	0.3	**difference :**	0.000

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	10.28
reference main flow lpm:	2.99	**reference total/aux flow lpm:**	10.18
difference lpm:	-0.01	**difference lpm:**	-0.10

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	13.67
reference main flow lpm:	2.94	**reference total/aux flow lpm:**	13.66
difference lpm:	-0.06	**difference lpm:**	-0.01

K_o Audit:

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

Comments:

Ko Audit not completed due to time constraints
Filters changed

JOB #: 2833-14-11-01-C

Partisol

PARTISOL

Station		Audit Transfer Standard	
Date:	November 28, 2014	Make/Model:	Dwyer 475 Mark III
Company:	LICA	S/N Flow/Cell:	91001
Plant:	Cold Lake South	Temperature (^{o}C):	Station
Station:	Lica 01	Serial Number:	NA

Sampler		Ambient Data	
Make/Model:	R&P 2000H	Temperature (^{o}C):	-18.7
Unit #:	AMU #1517	Pressure (ATM):	0.935
S/N:	2000A204009710	Set Flow (l/min):	16.7

Note: Tolerances are noted as BOLD in Brackets

Calibration Data

Calibration Constants

Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.05	NA	0.0054	NA	0.9894	NA
Temperature	-17.8	NA	NA	NA	1.0017	NA
Pressure	0.934	NA	NA	NA	0.9961	NA
Flow	-0.1	NA	-0.0436	NA	0.9989	NA

Interface Board Calibration

Item	Acceptable	Pre Calibration	Post Calibration
R21	6.00 VDC **(±0.05 V)**	NA	NA
R44	10.000 VDC **(±0.002 V)**	NA	NA

Analog Input Calibration

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

Temperature/Pressure Calibration

Calc Temp **(±2 ^{o}C)**	-17.9	**∆ ^{o}C**	
Calc Press **(±0.02 ATM)**	0.934	**∆ ATM**	

Leak Check

Unit	Flow Controller Valve Closed **(V1)**	Pump Valve Closed after 10 Secs. **(V2)**	**VL**=1/2*V1	Leakage Calculation **(V2 > VL) After 10 Secs**
Hub	-12.5 inHg	-12 inHg	6.25 inHg	OK inHg

Flow Calibration

Item	Acceptable	Calculated	Actual
"Zero" Offset	Enter Zero for "Actual"	-0.1	Zero
"Flow" Span	±7.0 % Adjust to 16.7 L	16.6	16.7

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

Comments: **Audit Start Time (MST):** 12.08 **Audit End Time (MST):** 12.35

Calibration Performed By: Chris Wesson

Nitrogen Dioxide

Thermo 42C NOx Analyzer Calibration

Date:	5-Nov-14	**Start Time (mst):**	9:43
Company:	LICA	**End Time (mst):**	15:09
Station Name/Location:	Cold Lake South	**Calibration Purpose:**	monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer Serial Number:	427408716
Last Calibration Date:	1-Oct-14
Range ppb:	500

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	1.006	0.999
NOx=	1.009	0.999
NO_2=	1.012	0.996

	As found:	**As left:**
NO Bkg ppb:	5.0	4.9
NOx Bkg ppb:	5.1	5.3
NO Coef:	1.019	1.027
NOx Coef:	1.017	1.017
NO_2 Coef:	1.010	1.003
PMT:	-850	-850
+5:	5.0	5.0
+15:	15.0	15.0
-15:	-15.1	-15.1
Battery:	3.2	3.2
Internal:	26.3	26.3
Chamber:	49.6	49.6
Cooler:	-2.4	-2.4
Converter:	317	317
Converter Set:	320	320
Pressure:	191.5	191.5
Sample Flow:	.519	.519
Ozonator Flow:	ok	ok
Internal Span:	7/343/350	6.8/339.6/346.4

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM000711
NO Cylinder Conc. (ppm):	50.1
NOx Cylinder Conc. (ppm):	50.2

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	35	225.00	5035
mid	5000	18	125.00	5018
low	5000	9	75.00	5009

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5000	0.0	5000	0	0	-0.1	0.1	NA	NA
adjusted zero	5000	0.0	5000	0	0	-0.1	0.1	NA	NA
as found high	4995	34.75	5030	346.1	346.8	344	344	1.006	1.009
adjusted high	4995	34.75	5030	346.1	346.8	347	348	0.997	0.997
mid	4994	17.93	5012	179.2	179.6	178	179	1.007	1.004
low	4994	8.96	5003	89.7	89.9	89	89	1.013	1.011
calibrator zero	5000	0.00	5000	0	0	0.0	0.1	NA	NA
							Average C.F.=	1.006	1.004

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4994	34.80	5029	0.0	343.0	343.0	0.9	-0.1	0.2	
as found NO_2	4994	34.80	5029	225.0	66.6	341.0	274.0	276.4	273.1	1.012
adjusted NO_2	4994	34.80	5029	225.0	65.5	343.0	278.0	277.5	277.1	1.001
gpt mid	4994	34.80	5029	125.0	188.0	344.0	156.0	155.0	155.1	0.999
gpt low	4994	34.80	5029	75.0	253.0	344.3	91.6	90.0	90.7	0.992
									Average NO_2 C.F.=	0.998

Linear Regression/Calibration Results:

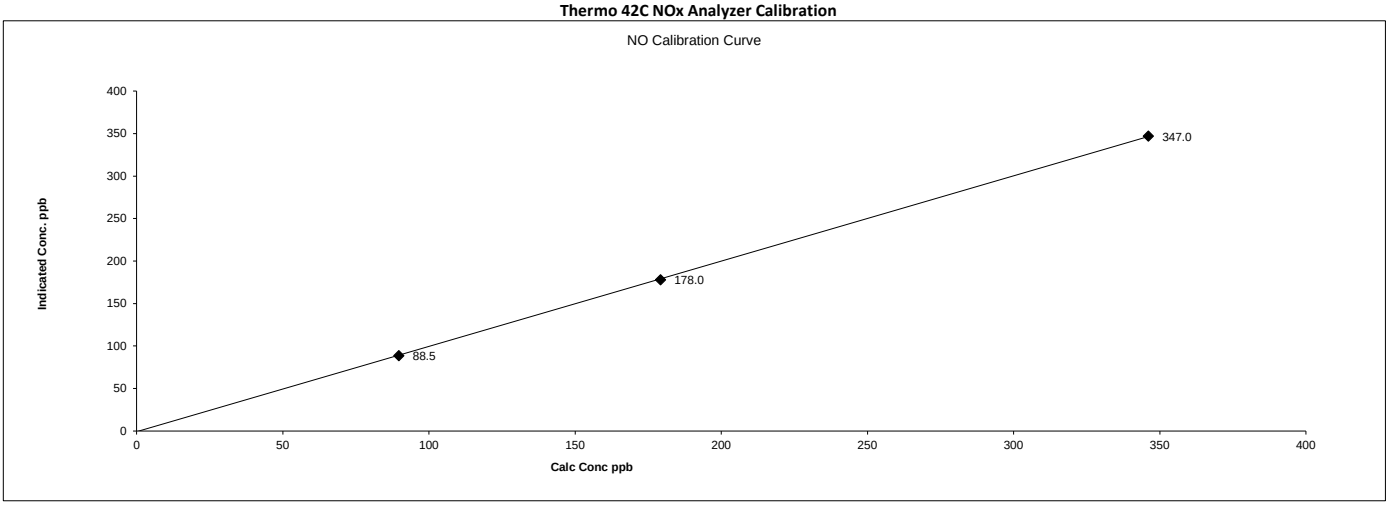
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.003**	**1.004**	**0.998**	**0.85-1.15**
b (Intercept as % of full scale)=	**-0.19%**	**-0.12%**	**0.09%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.70%**	**-0.96%**	**-1.61%**	**+/-15%**
NO2 converter effeciency			**100.2%**	**>85%**

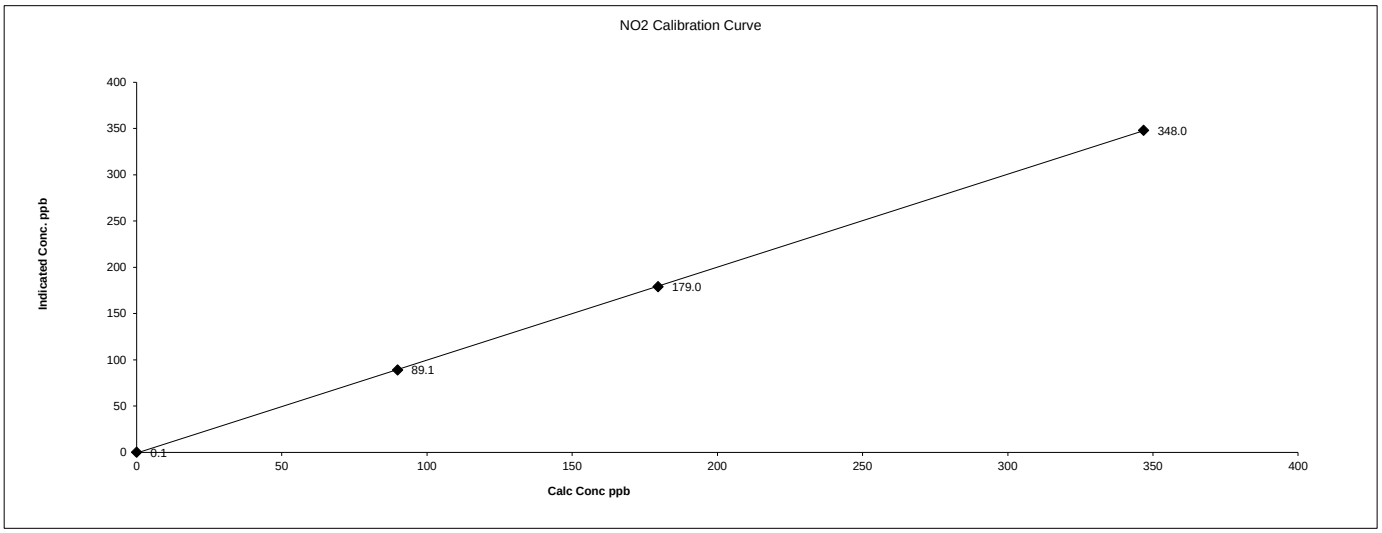
Comments:

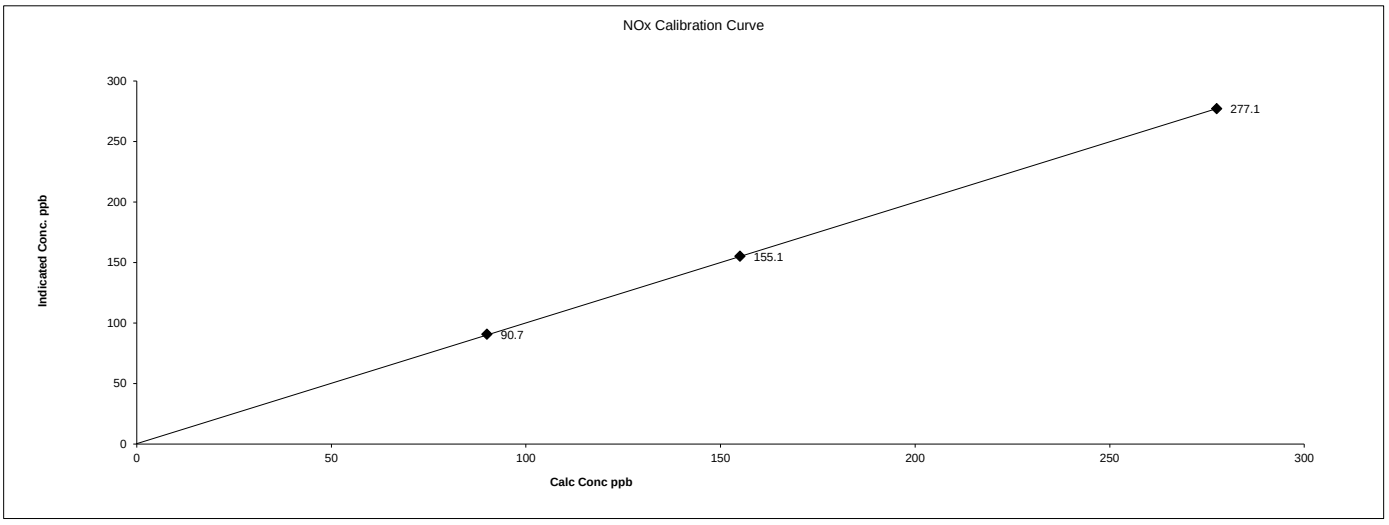
changed analyzer filter

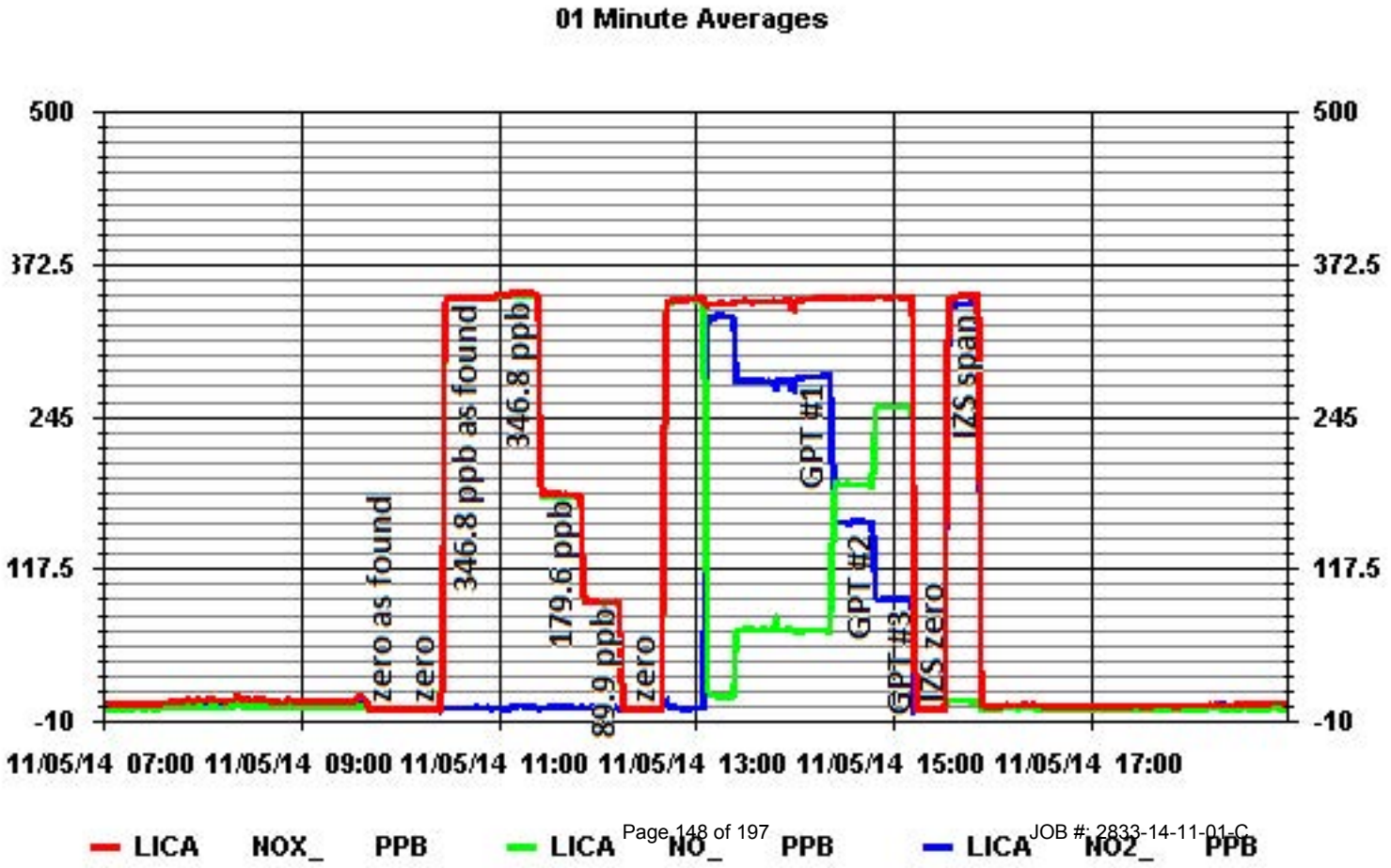
Date:	5-Nov-14	**Start Time (mst):**	9:43
Company:	LICA	**End Time (mst):**	15:09
Station Name/Location:	Cold Lake South	**Calibration Purpose:**	monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Thermo 42C NOx Analyzer Calibration








01 Minute Averages
500
372.5
245
117.5
-10
zero as found
zero
346.8 ppb as found
346.8 ppb
179.6 ppb
89.9 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/05/14 07:00
11/05/14 09:00
11/05/14 11:00
11/05/14 13:00
11/05/14 15:00
11/05/14 17:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	5-Nov-14	**Start Time (mst):**	15:26
Company:	LICA	**End Time (mst):**	18:09
Station Name/Location:	Cold Lake South	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**G.P.T. Date:**	5-Nov-14

Analyzer:

Serial Number:	700419951	**Range ppm:**	500
Last Calibration Date:		**As Found C.F.**	1.027
Previous Cal High Point C.F.:		**New C.F.:**	1.015

		As found:		As left:
	O_3 Bkg:	0.0	O_3 Bkg:	3.7
	O_3 Coef:	1.026	O_3 Coef:	1.055
Motherboard:	3.3	3.3	3.3	3.3
	15.0	4.9	15.0	4.9
	24.0	15.1	24.0	15.1
	-3.3	-3.2	-3.3	-3.2
Interface Board:	3.3	3.2	3.3	3.2
	5.0	4.9	5.0	4.9
	15.0	14.8	15.0	14.8
	-15.0	-14.8	-15.0	-14.8
	Photo Lamp	23.7	Photo Lamp	23.7
	24.0	8.7	24.0	8.7
	O_3 Lamp	9.0	O_3 Lamp	9.0
	Bench:	28.5	Bench:	28.5
	Bench Lamp:	53.5	Bench Lamp:	53.5
	O_3 Lamp:	67.4	O_3 Lamp:	67.4
	Pressure:	705.6	Pressure:	705.6
	Cell A lpm:	.713	Cell A lpm:	.713
	Cell B lpm:	.752	Cell B lpm:	.752
	O_3 ppb:	152.5	O_3 ppb:	152.5
	Cell A ppb:	137.9	Cell A ppb:	137.9
	Cell B ppb:	168.1	Cell B ppb:	168.1
	Cell A int:	62493	Cell A int:	62493
	Cell B int:	59741	Cell B int:	59741
	Internal Span:	268.5	Internal Span:	284

Calibrator:

Make & Model:	Environics 6100
Serial #:	4760
NOx Gas Cylinder I.D. # :	BLM000711
NOx Cylinder Conc. (ppm):	50.1

Calibrator Flow Targets:

point	total flow (cc/min)	O_3 setting (v or ppb)
zero	5029	0
high	5029	225
mid	5029	125
low	5029	75

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5029	0.0	5029	0.0	4.3	NA
adjusted zero	5029	0.0	5029	0.0	0.0	NA
as found high	5029	0.00	5029	277.5	270.2	1.027
adjusted high	5029	0.00	5029	277.5	277.9	0.999
mid	5029	0.00	5029	155.0	152.7	1.015
low	5029	0.00	5029	90.0	87.4	1.030
calibrator zero	5029	0.00	5029	0.0	-3.2	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration **Average C.F.=** 1.015

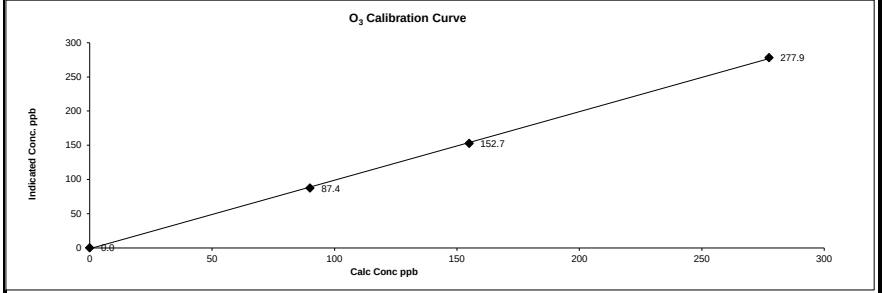
Linear Regression/Calibration Results:

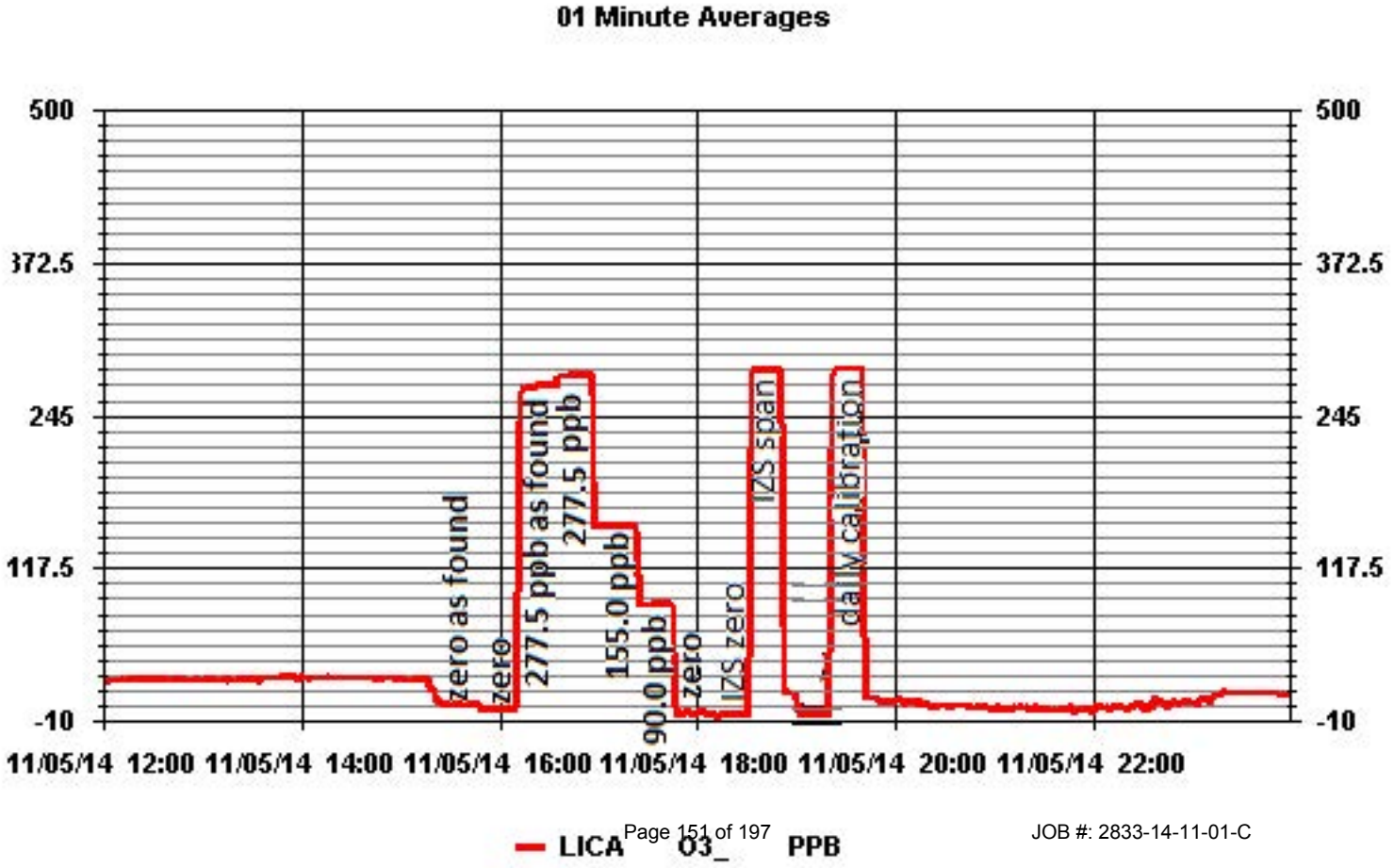
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.003**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.290%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal		**± 15%**	

Comments:

changed sample filter

Thermo 49i O3 Analyzer Calibration





JOB #: 2833-14-11-01-C

Passive Bubble Maps

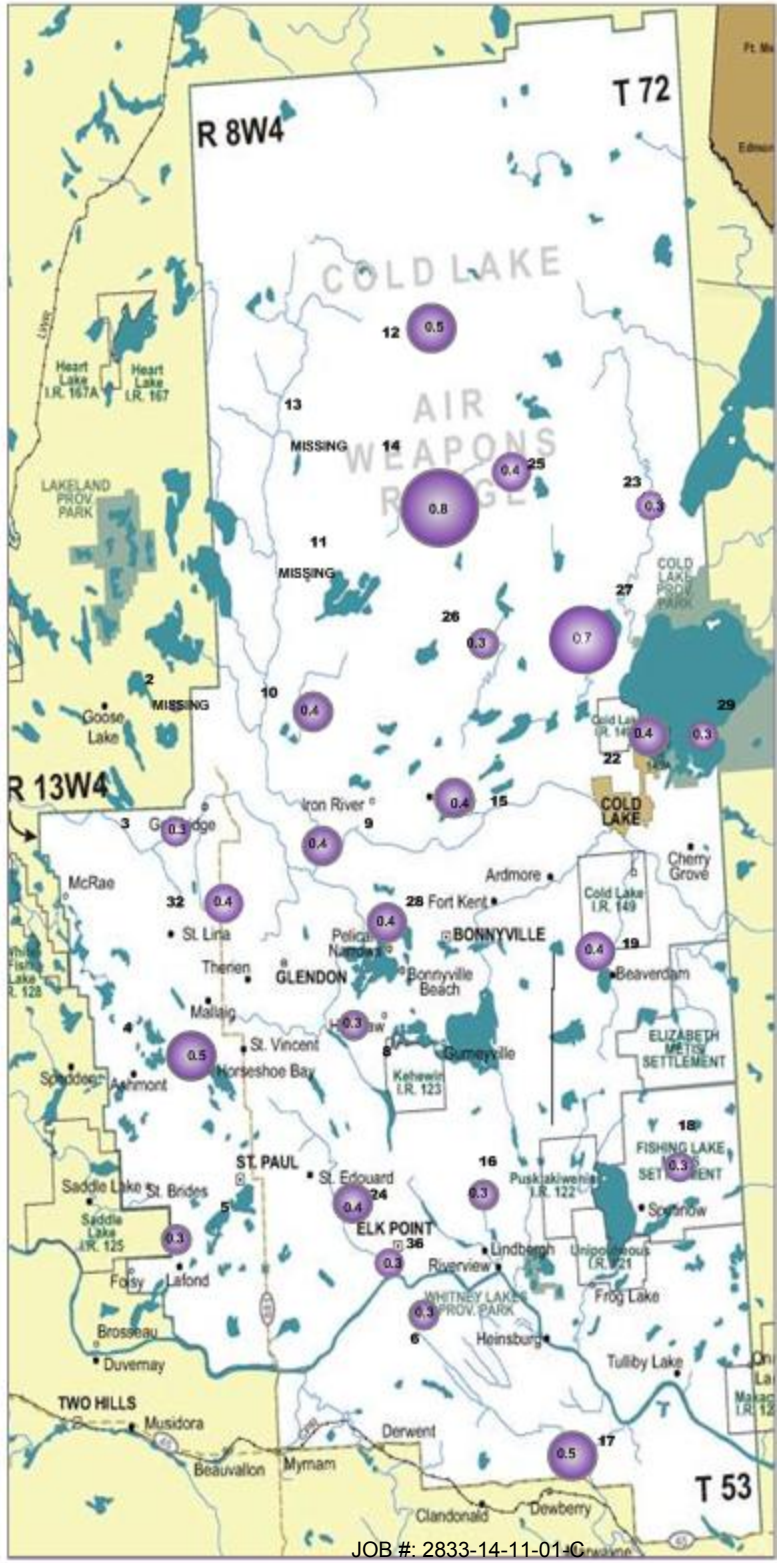
Lakeland Industry & Community Association
SO_2 Passive Bubble Map

NOVEMBER 2014

PASSIVE STATIONS		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	0.3 PPB	NA
4 – Flat Lake	0.5 PPB	NA
5 – Lake Eliza	0.3 PPB	NA
6 – Telegraph Creek	0.3 PPB	NA
8 – Muriel-Kehewin	0.3 PPB	NA
9 – Dupre	0.4 PPB	NA
10 – La Corey	0.4 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.5 PPB	NA
13 – Primrose	MISSING	NA
14 – Maskwa	0.8 PPB	NA
15 – Ardmore	0.4 PPB	NA
16 – Frog Lake	0.3 PPB	NA
17 – Clear Range	0.5 PPB	0.4 PPB
18 – Fishing Lake	0.3 PPB	0.2 PPB
19 – Beaverdam	0.4 PPB	0.4 PPB
22 – Cold Lake South	0.4 PPB	NA
23 – Medley-Martineau	0.3 PPB	NA
24 – Fort George	0.4 PPB	NA
25 – Burnt Lake	0.4 PPB	NA
26 – Mahikan	0.3 PPB	NA
27 – Mahkeses	0.7 PPB	NA
28 – Town of Bonnyville	0.4 PPB	NA
29 – Cold Lake South 2	0.3 PPB	NA
32 – St. Lina	0.4 PPB	NA
36 – Elk Point	0.3 PPB	NA

Summary

Minimum : 0.3 PPB – Various Stations
Maximum: 0.8 PPB – Maskwa
Average: 0.4 PPB *Includes Duplicates



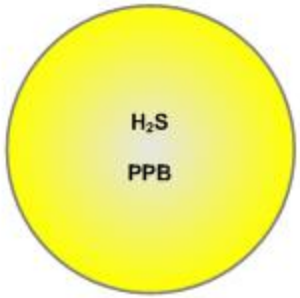
JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association
H_2S Passive Bubble Map

NOVEMBER 2014

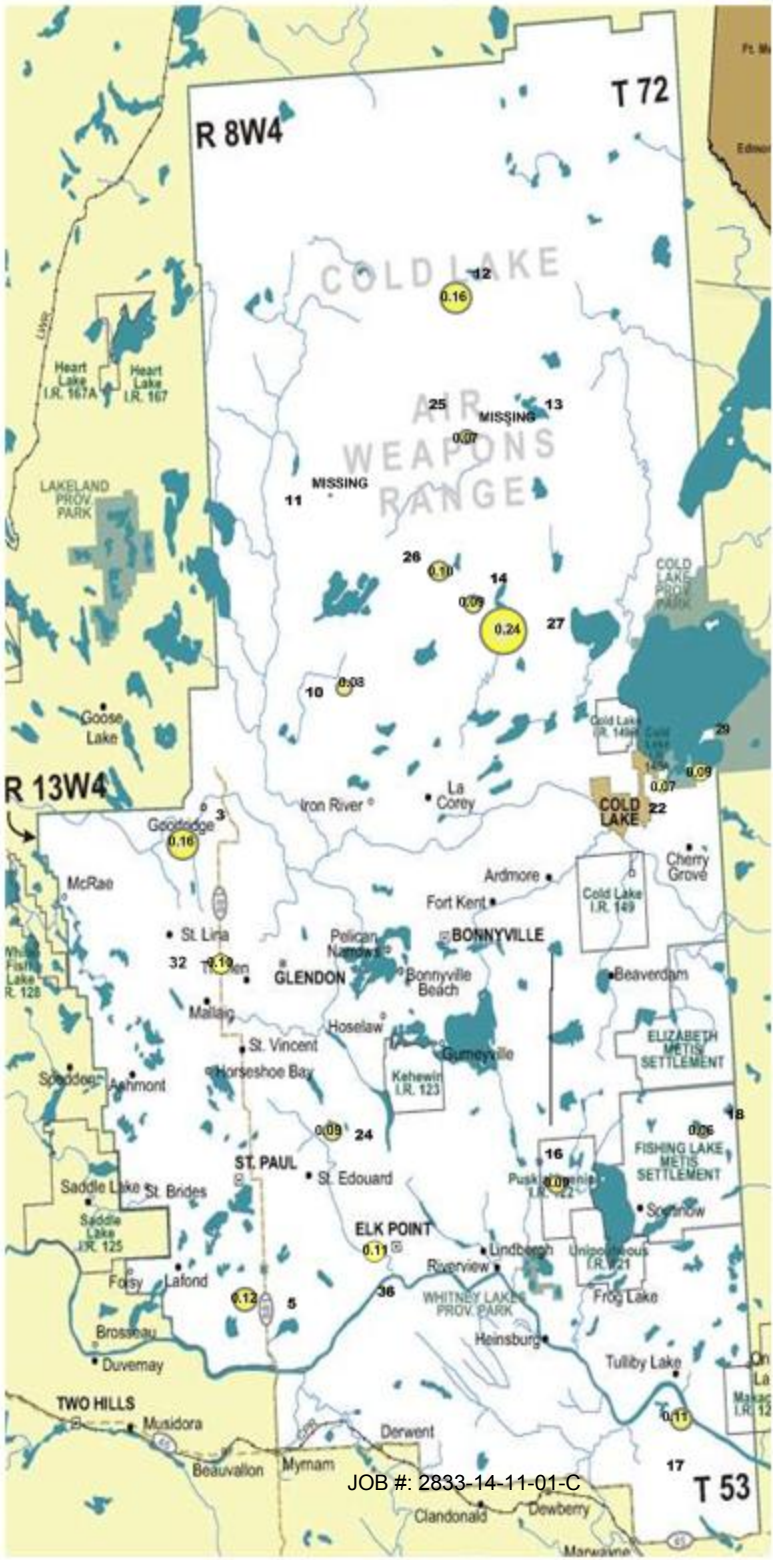
PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.16 PPB	NA
5 – Lake Eliza	0.12 PPB	NA
10 – La Corey	0.08 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.16 PPB	NA
13 – Primrose	MISSING	NA
14 – Maskwa	0.09 PPB	NA
16 – Frog Lake	0.09 PPB	NA
17 – Clear Range	0.11 PPB	NA
18 – Fishing Lake	0.06 PPB	NA
22 – Cold Lake South	0.07 PPB	NA
24 – Fort George	0.09 PPB	NA
25 – Burnt Lake	0.07 PPB	0.07 PPB
26 – Mahihkan	0.11 PPB	0.09 PPB
27 – Mahkeses	0.24 PPB	NA
29 – Cold Lake South 2	0.09 PPB	NA
32 – St. Lina	0.10 PPB	NA
36 – Elk Point	0.11 PPB	NA



Summary

Minimum : 0.06 PPB – ishing Lake
Maximum: 0.24 PPB – Mahkeses
Average: 0.11 PPB (Includes Duplicates)



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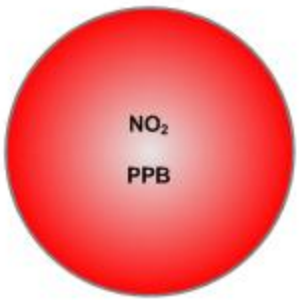
Lakeland Industry & Community Association
NO_2 Passive Bubble Map

NOVEMBER 2014

PASSIVE STATIONS

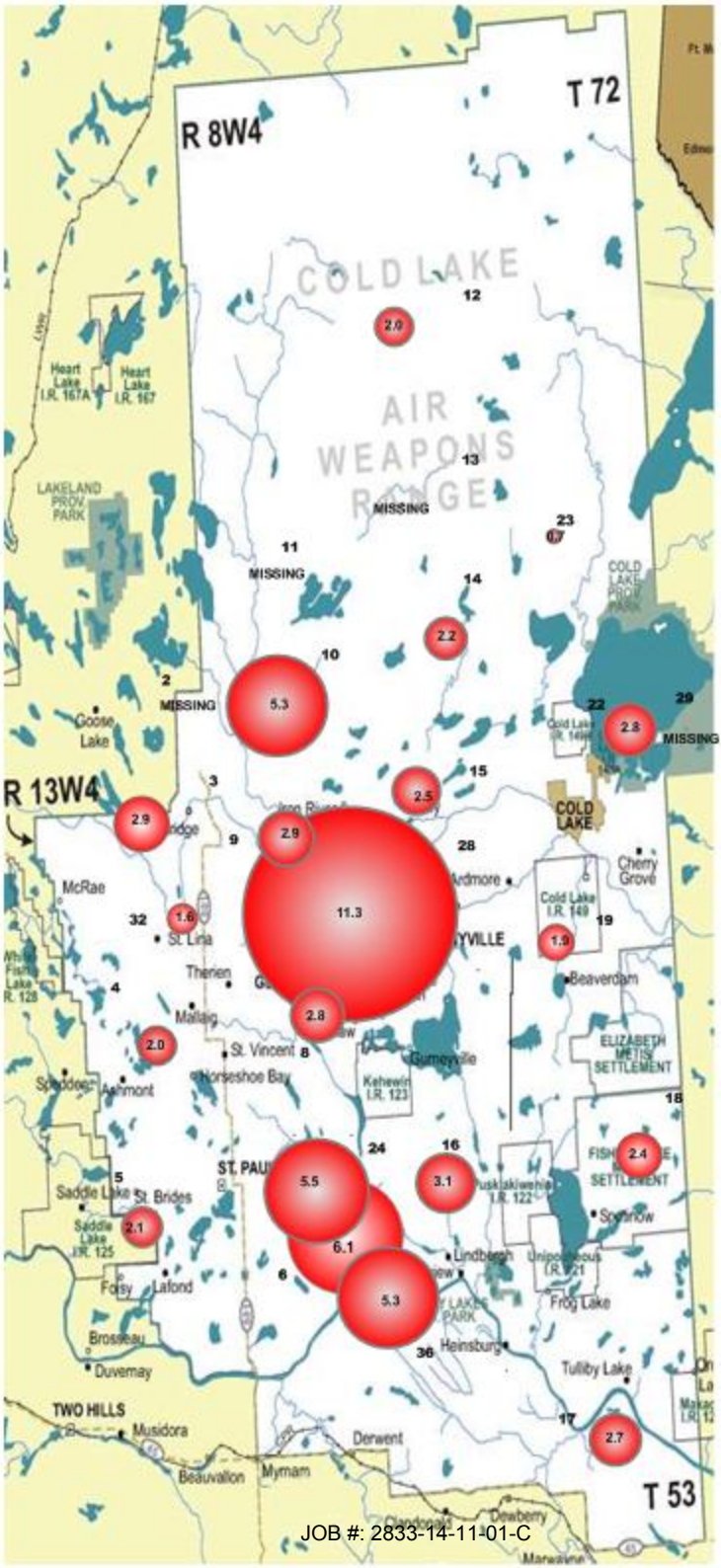
		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	2.9 PPB	NA
4 – Flat Lake	2.0 PPB	NA
5 – Lake Eliza	2.1 PPB	NA
6 – Telegraph Creek	6.1 PPB	NA
8 – Muriel-Kehewin	2.8 PPB	NA
9 – Dupre	2.9 PPB	NA
10 – La Corey	5.3 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	2.0 PPB	NA
13 – Primrose	MISSING	NA
14 – Maskwa	2.2 PPB	NA
15 – Ardmore	2.5 PPB	NA
16 – Frog Lake	3.1 PPB	NA
17 – Clear Range	2.7 PPB	NA
18 – Fishing Lake	2.4 PPB	NA
19 – Beaverdam	1.9 PPB	NA
22 – Cold Lake South	2.4 PPB	3.2 PPB
23 – Medley-Martineau	0.7 PPB	MISSING
24 – Fort George	5.5 PPB	NA
28 – Town of Bonnyville	11.3 PPB	NA
29 – Cold Lake South 2	MISSING	NA
32 – St. Lina	1.6 PPB	NA
36 – Elk Point	5.6 PPB	NA



Summary

Minimum : 0.7 PPB – Medley-Martineau
Maximum: 11.3 PPB – Telegraph Creek

Average: 3.4 PPB *Includes Duplicates



JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association
O_3 Passive Bubble Map

NOVEMBER 2014

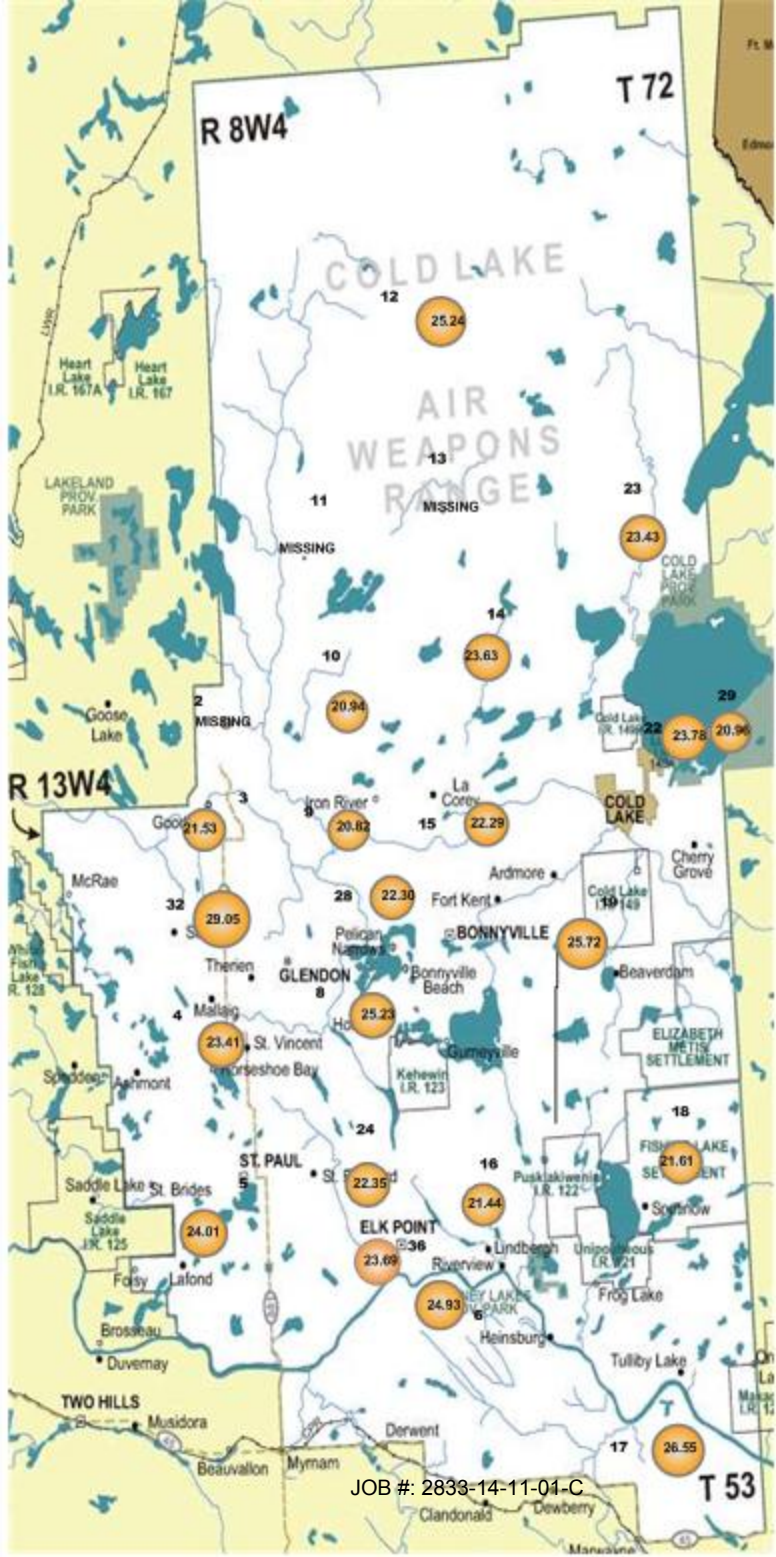
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	21.58 PPB	NA
4 – Flat Lake	23.41 PPB	NA
5 – Lake Eliza	24.01 PPB	NA
6 – Telegraph Creek	24.93 PPB	NA
8 – Muriel-Kehewin	25.23 PPB	NA
9 – Dupre	20.82 PPB	NA
10 – La Corey	20.94 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	25.24 PPB	NA
13 – Primrose	MISSING	NA
14 – Maskwa	23.63 PPB	NA
15 – Ardmore	22.29 PPB	NA
16 – Frog Lake	21.44 PPB	NA
17 – Clear Range	26.55 PPB	NA
18 – Fishing Lake	21.61 PPB	NA
19 – Beaverdam	25.72 PPB	NA
22 – Cold Lake South	23.85 PPB	23.71 PPB
23 – Medley-Martineau	23.43 PPB	MISSING
24 – Fort George	22.35 PPB	NA
28 – Town of Bonnyville	22.30 PPB	NA
29 – Cold Lake South 2	20.96PPB	NA
32 – St. Lina	29.05 PPB	NA
36 – Elk Point	23.69 PPB	NA

O_3 PPB

Summary

Minimum : 20.82 PPB – Dupre
Maximum: 29.05 PPB – St. Lina
Average: 23.46 PPB *Includes Duplicates



JOB #: 2833-14-11-01-C

Passive Field Data

Passive Sampler Data Sheet for November

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. No sampler was installed.
3	$H_2S/SO_2/NO_2/O_3$	2014/10/31	11:43	2014/11/27	17:24	
4	$SO_2/NO_2/O_3$	2014/10/29	10:08	2014/11/27	15:24	
5	$H_2S/SO_2/NO_2/O_3$	2014/10/29	11:23	2014/11/27	14:37	
6	$SO_2/NO_2/O_3$	2014/10/29	13:32	2014/11/27	12:28	
8	$SO_2/NO_2/O_3$	2014/10/31	10:14	2014/11/28	18:58	
9	$SO_2/NO_2/O_3$	2014/10/31	11:07	2014/11/27	19:00	
10	$H_2S/SO_2/NO_2/O_3$	2014/10/30	12:58	2014/11/28	17:26	
11	$H_2S/SO_2/NO_2/O_3$	2014/10/30	12:17			No access due to snow
12	$H_2S/SO_2/NO_2/O_3$	2014/10/30	10:23	2014/11/26	17:24	
13	$H_2S/SO_2/NO_2/O_3$	2014/10/30	14:01			No access due to extreme weather conditions
14	$H_2S/SO_2/NO_2/O_3$	2014/10/30	14:54	2014/11/28	10:12	
15	$SO_2/NO_2/O_3$	2014/10/30	17:44	2014/11/28	13:33	
16	$H_2S/SO_2/NO_2/O_3$	2014/10/29	16:32	2014/11/27	09:16	
17	$H_2S/SO_2/NO_2/O_3$	2014/10/29	14:21	2014/11/27	11:11	
18	$H_2S/SO_2/NO_2/O_3$	2014/10/29	15:42	2014/11/27	10:00	
19	$SO_2/NO_2/O_3$	2014/10/29	17:23	2014/11/27	08:23	
22	$H_2S/SO_2/NO_2/O_3$	2014/10/29	18:23	2014/11/27	08:48	
23	$SO_2/NO_2/O_3$	2014/10/30	16:45	2014/11/28	14:57	
24	$H_2S/SO_2/NO_2/O_3$	2014/10/29	12:55	2014/11/27	13:08	
25	H_2S/SO_2	2014/10/30	11:30	2014/11/26	18:39	
26	H_2S/SO_2	2014/10/30	14:36	2014/11/28	11:28	
27	H_2S/SO_2	2014/10/30	15:21	2014/11/28	10:54	
28	$SO_2/NO_2/O_3$	2014/10/31	09:12	2014/11/27	18:24	
29	$H_2S/SO_2/NO_2/O_3$	2014/10/29	18:23	2014/11/28	08:56	
32	$H_2S/SO_2/NO_2/O_3$	2014/10/31	12:29	2014/11/27	16:14	
36	$H_2S/SO_2/NO_2/O_3$	2014/10/29	12:19	2014/11/27	13:31	

Passive Sampler Data Sheet for November

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 17	SO_2	2014/10/29	14:21	2014/11/27	11:11	
Duplicate # 18	SO_2	2014/10/29	15:42	2014/11/27	10:00	
Duplicate # 19	SO_2	2014/10/29	17:23	2014/11/27	08:23	
Duplicate # 25	H_2S	2014/10/30	11:30	2014/11/26	18:34	
Duplicate # 26	H_2S	2014/10/30	14:35	2014/11/28	11:28	
Duplicate # 22	$O3,NO_2$	2014/10/29	18:23	2014/11/27	08:45	
Duplicate # 23	$O3, NO_2$					Sampler broken

Passive Network Laboratory Analysis

Your Project #: 2014/10/29 - 2014/11/27
Site Location: LICA

Attention:MICHAEL BISAGA

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

Report Date: 2014/12/09
Report #: R1701386
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4A8952
Received: 2014/12/01, 13:38

Sample Matrix: Air
Samples Received: 33

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	2	2014/12/05	2014/12/08	PTC SOP-00150	Tang.Passive H2S in
H2S Passive Analysis (1)	18	2014/12/05	2014/12/09	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	4	2014/12/03	2014/12/08	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	21	2014/12/03	2014/12/09	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2014/12/09	2014/12/09	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	2	2014/12/03	2014/12/08	PTC SOP-00149	Tang Passive SO2 in
SO2 Passive Analysis (1)	27	2014/12/03	2014/12/09	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
==
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 #: B4A8952
Report Date: 2014/12/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/10/29 - 2014/11/27
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LG8376	LG8377	LG8379	LG8380	LG8381	LG8382	LG8383		
Sampling Date		2014/10/31 11:42	2014/10/29 10:38	2014/10/29 11:23	2014/10/29 13:32	2014/10/31 10:12	2014/10/31 11:07	2014/10/30 12:58		
	Units	3	4	5	6	8	9	10	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.16		0.12				0.08	0.02	7743510
Calculated NO2	ppb	2.9	2.0	2.1	6.1	2.8	2.9	5.3	0.1	7740988
Calculated O3	ppb	21.58	23.41	24.01	24.93	25.23	20.82	20.94	0.1	7747826
Calculated SO2	ppb	0.3	0.5	0.3	0.3	0.3	0.4	0.4	0.1	7740721
RDL = Reportable Detection Limit										

Maxxam ID		LG8385	LG8386		LG8387	LG8388	LG8389	LG8390		
Sampling Date		2014/10/30 12:17	2014/10/30 10:23		2014/10/30 14:01	2014/10/30 14:54	2014/10/30 17:44	2014/10/29 16:32		
	Units	11	12	QC Batch	13	14	15	16	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	MISSING	0.16	7743510	MISSING	0.09		0.09	0.02	7743510
Calculated NO2	ppb	MISSING	2.0	7740988	MISSING	2.2	2.5	3.1	0.1	7740988
Calculated O3	ppb	MISSING	25.24	7747826	MISSING	23.63	22.29	21.44	0.1	7747826
Calculated SO2	ppb	MISSING	0.5	7740721	MISSING	0.8	0.4	0.3	0.1	7740724
RDL = Reportable Detection Limit										

Maxxam ID		LG8391	LG8392	LG8393	LG8394	LG8395	LG8396	LG8397		
Sampling Date		2014/10/29 14:21	2014/10/29 15:42	2014/10/29 17:23	2014/10/29 18:23	2014/10/30 16:45	2014/10/31 11:42	2014/10/30 11:30		
	Units	17	18	19	22	23	24	25	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.11	0.06		0.07		0.09	0.07	0.02	7743510
Calculated NO2	ppb	2.7	2.4	1.9	2.4	0.7	5.5		0.1	7740988
Calculated O3	ppb	26.55	21.61	25.72	23.85	23.43	22.35		0.1	7747826
Calculated SO2	ppb	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.1	7740724
RDL = Reportable Detection Limit										

Maxxam ID		LG8398	LG8399	LG8400	LG8401	LG8402	LG8403	LG8406		
Sampling Date		2014/10/30 14:35	2014/10/30 15:45	2014/10/31 09:12	2014/10/29 18:23	2014/10/31 12:29	2014/10/29 12:19	2014/10/29 14:21		
	Units	26	27	28	29	32	36	17 DUP	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.11	0.24		0.09	0.10	0.11		0.02	7743510
Calculated NO2	ppb			11.3	MISSING	1.6	5.3		0.1	7740988
Calculated O3	ppb			22.30	20.96	29.05	23.69		0.1	7747826
Calculated SO2	ppb	0.3	0.7	0.4	0.3	0.4	0.3	0.4	0.1	7740724
RDL = Reportable Detection Limit										

Maxxam Analytics International Corporation o/a Maxxam Analytics, Edmonton, 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8933

Maxxam Job #: B4A8952
Report Date: 2014/12/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/10/29 - 2014/11/27
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LG8407	LG8408	LG8409	LG8410	LG8412	LG8544		
Sampling Date		2014/10/29 15:42	2014/10/29 17:23	2014/10/29 18:23	2014/10/31 11:42	2014/10/30 11:30	2014/10/30 14:35		
	Units	18 DUP	19 DUP	22 DUP	23 DUP	25 DUP	26 DUP	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb					0.07	0.09	0.02	7743510
Calculated NO2	ppb			3.2	MISSING			0.1	7740988
Calculated O3	ppb			23.71	MISSING			0.1	7747826
Calculated SO2	ppb	0.2	0.4					0.1	7740724
RDL = Reportable Detection Limit									

Maxxam Job #: B4A8952
Report Date: 2014/12/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/10/29 - 2014/11/27
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Sample LG8385-01 : No access to station due to extreme snowfall.

Sample LG8387-01 : No access to station due to extreme snowfall.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

Maxxam Job #: B4A8952
Report Date: 2014/12/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/10/29 - 2014/11/27
Site Location: LICA
Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
7740721	SS6	Spiked Blank	Calculated SO2	2014/12/03		99	%	90 - 110
7740721	SS6	Method Blank	Calculated SO2	2014/12/03	<0.1		ppb	
7740724	SS6	Spiked Blank	Calculated SO2	2014/12/03		104	%	90 - 110
7740724	SS6	Method Blank	Calculated SO2	2014/12/03	<0.1		ppb	
7740988	SS6	Spiked Blank	Calculated NO2	2014/12/03		101	%	90 - 110
7740988	SS6	Method Blank	Calculated NO2	2014/12/03	<0.1		ppb	
7743510	SSZ	Spiked Blank	Calculated H2S	2014/12/05		101	%	90 - 110
7747826	OZ	Spiked Blank	Calculated O3	2014/12/09		100	%	90 - 110
7747826	OZ	Method Blank	Calculated O3	2014/12/09	<0.1		ppb	

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

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

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Maxxam Job #: B4A8952
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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/10/29 - 2014/11/27
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.

VOC Monitoring Laboratory Analysis

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/Nov 01, 14
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	14-Nov-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/Nov 01, 14
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Freon-11	I	0.26	ppbv	0.03	AC-058	14-Nov-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Freon-12	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Isobutane	I	0.41	ppbv	0.03	AC-058	14-Nov-14
Isopentane		0.81	ppbv	0.03	AC-058	14-Nov-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Nov-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	14-Nov-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Methylcyclopentane	I	0.23	ppbv	0.03	AC-058	14-Nov-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Butane		1.04	ppbv	0.03	AC-058	14-Nov-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/Nov 01, 14
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	14-Nov-14

Qualifiers
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 7 2014
CANISTER ID: H3295
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 7 2014
CANISTER ID: H3295
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	20-Nov-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 7 2014
CANISTER ID: H3295
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
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REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Freon-11		0.69	ppbv	0.03	AC-058	20-Nov-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Freon-12	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Isobutane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Isopentane		1.31	ppbv	0.03	AC-058	20-Nov-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	20-Nov-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	20-Nov-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Butane		2.32	ppbv	0.03	AC-058	20-Nov-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14

Qualifiers
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 7 2014
CANISTER ID: H3295
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Pentane		1.54	ppbv	0.03	AC-058	20-Nov-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	20-Nov-14

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
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Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 13, 2014
CANISTER ID: H3302
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers

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

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

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

JOB #: 2833-14-11-01-C

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

LABORATORY SAMPLE ID: 14110169-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 13, 2014
CANISTER ID: H3302
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	25-Nov-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
3-Methylpentane	I	0.23	ppbv	0.03	AC-058	25-Nov-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

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

Inquiries: (780) 632 8455
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Calgary
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CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 13, 2014
CANISTER ID: H3302
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-11		0.67	ppbv	0.03	AC-058	25-Nov-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-12	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isobutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isopentane		1.30	ppbv	0.03	AC-058	25-Nov-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Nov-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	25-Nov-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Butane		2.28	ppbv	0.03	AC-058	25-Nov-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 13, 2014
CANISTER ID: H3302
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 19, 2014
CANISTER ID: S5611
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Butene		1.20	ppbv	0.03	AC-058	25-Nov-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 19, 2014
CANISTER ID: S5611
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	25-Nov-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

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

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 19, 2014
CANISTER ID: S5611
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-11	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-12	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isobutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isopentane		0.97	ppbv	0.03	AC-058	25-Nov-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Nov-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	25-Nov-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Butane		2.07	ppbv	0.03	AC-058	25-Nov-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-005
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 19, 2014
CANISTER ID: S5611
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers
K Offscale low. Actual value is known to be less than the value given
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E-mail: EAS.Results@albertainnovates.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 25, 2014
CANISTER ID: 1515
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2,4-Trichlorobenzene	I	0.09	ppbv	0.03	AC-058	04-Dec-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
1-Butene	I	0.18	ppbv	0.03	AC-058	04-Dec-14
1-Hexene	I	0.06	ppbv	0.03	AC-058	04-Dec-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2,3,4-Trimethylpentane		1.17	ppbv	0.03	AC-058	04-Dec-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14

Qualifiers

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 25, 2014
CANISTER ID: 1515
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	04-Dec-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
3-Methylpentane	I	0.13	ppbv	0.03	AC-058	04-Dec-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Carbon disulfide		1.35	ppbv	0.03	AC-058	04-Dec-14
Carbon tetrachloride	I	0.08	ppbv	0.03	AC-058	04-Dec-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Chloroform	I	0.08	ppbv	0.03	AC-058	04-Dec-14
Chloromethane		1.05	ppbv	0.03	AC-058	04-Dec-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Cyclohexane	I	0.28	ppbv	0.03	AC-058	04-Dec-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 25, 2014
CANISTER ID: 1515
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.74	ppbv	0.03	AC-058	04-Dec-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Freon-11	I	0.25	ppbv	0.03	AC-058	04-Dec-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Freon-12		0.80	ppbv	0.03	AC-058	04-Dec-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Isobutane	I	0.51	ppbv	0.03	AC-058	04-Dec-14
Isopentane	I	0.24	ppbv	0.03	AC-058	04-Dec-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Dec-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	04-Dec-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Methylene chloride	I	0.52	ppbv	0.03	AC-058	04-Dec-14
n-Butane	I	0.54	ppbv	0.03	AC-058	04-Dec-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14

Qualifiers
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Nov 25, 2014
CANISTER ID: 1515
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Hexane		6.04	ppbv	0.03	AC-058	04-Dec-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Toluene	I	0.21	ppbv	0.03	AC-058	04-Dec-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	04-Dec-14

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

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

PAH Monitoring Laboratory Analysis

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/CLS/Nov 01, 14
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
2-Methylnaphthalene		0.04	ug/PUF	0.01	NA-017	23-Nov-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthene		0.02	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthylene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(c)phenanthrene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Fluoranthene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
Fluorene		0.08	ug/PUF	0.01	NA-017	23-Nov-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Naphthalene		0.09	ug/PUF	0.01	NA-017	23-Nov-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Phenanthrene		0.11	ug/PUF	0.01	NA-017	23-Nov-14
Pyrene		0.02	ug/PUF	0.01	NA-017	23-Nov-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/CLS/Nov 01, 14
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 7 2014
CANISTER ID: TE-11
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.06	ug/PUF	0.01	NA-017	23-Nov-14
2-Methylnaphthalene		0.10	ug/PUF	0.01	NA-017	23-Nov-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthylene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Anthracene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(c)phenanthrene		0.10	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Fluoranthene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
Fluorene		0.06	ug/PUF	0.01	NA-017	23-Nov-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Naphthalene		0.08	ug/PUF	0.01	NA-017	23-Nov-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Phenanthrene		0.08	ug/PUF	0.01	NA-017	23-Nov-14
Pyrene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

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

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

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

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 7 2014
CANISTER ID: TE-11
DESCRIPTION: Cold Lake South
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
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Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

JOB #: 2833-14-11-01-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 13, 2014
CANISTER ID: TE07
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.39	ug/PUF	0.01	NA-017	15-Dec-14
2-Methylnaphthalene		0.67	ug/PUF	0.01	NA-017	15-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthene		0.06	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthylene		0.08	ug/PUF	0.01	NA-017	15-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(b,j,k)fluoranthene		0.03	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(e)pyrene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(ghi)perylene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Chrysene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Fluoranthene		0.05	ug/PUF	0.01	NA-017	15-Dec-14
Fluorene		0.10	ug/PUF	0.01	NA-017	15-Dec-14
Indeno(1,2,3-cd)pyrene		0.04	ug/PUF	0.01	NA-017	15-Dec-14
Naphthalene		0.69	ug/PUF	0.01	NA-017	15-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Phenanthrene		0.13	ug/PUF	0.01	NA-017	15-Dec-14
Pyrene		0.03	ug/PUF	0.01	NA-017	15-Dec-14

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

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

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LABORATORY SAMPLE ID: 14110169-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 13, 2014
CANISTER ID: TE07
DESCRIPTION: Cold Lake South
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/PUF	0.01	NA-017	15-Dec-14

Qualifiers

K Offscale low. Actual value is known to be less than the value given
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LABORATORY SAMPLE ID: 14110169-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 19, 2014
CANISTER ID: TE09
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.58	ug/PUF	0.01	NA-017	15-Dec-14
2-Methylnaphthalene		0.93	ug/PUF	0.01	NA-017	15-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthene		0.11	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthylene		0.07	ug/PUF	0.01	NA-017	15-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(b,j,k)fluoranthene		0.04	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(e)pyrene		0.03	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(ghi)perylene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Chrysene		0.03	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,l)pyrene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Fluoranthene		0.07	ug/PUF	0.01	NA-017	15-Dec-14
Fluorene		0.12	ug/PUF	0.01	NA-017	15-Dec-14
Indeno(1,2,3-cd)pyrene		0.05	ug/PUF	0.01	NA-017	15-Dec-14
Naphthalene		0.93	ug/PUF	0.01	NA-017	15-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Phenanthrene		0.15	ug/PUF	0.01	NA-017	15-Dec-14
Pyrene		0.04	ug/PUF	0.01	NA-017	15-Dec-14

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

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ENVIRONMENTAL ANALYTICAL SERVICES

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Calgary
AB T2E 6P8

INVOICE TO:
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PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 14110169-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 19, 2014
CANISTER ID: TE09
DESCRIPTION: Cold Lake South
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.06	ug/PUF	0.01	NA-017	15-Dec-14

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
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JOB #: 2833-14-11-01-C

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

LABORATORY SAMPLE ID: 14120010-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 25, 2014
CANISTER ID: TE-05
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.30	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		0.44	ug/PUF	0.01	NA-017	31-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthene		0.06	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthylene		0.04	ug/PUF	0.01	NA-017	31-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Anthracene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(b,j,k)fluoranthene		0.04	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(e)pyrene		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Chrysene		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Fluoranthene		0.06	ug/PUF	0.01	NA-017	31-Dec-14
Fluorene		0.11	ug/PUF	0.01	NA-017	31-Dec-14
Indeno(1,2,3-cd)pyrene		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Naphthalene		0.84	ug/PUF	0.01	NA-017	31-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Phenanthrene		0.23	ug/PUF	0.01	NA-017	31-Dec-14
Pyrene		0.05	ug/PUF	0.01	NA-017	31-Dec-14

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Lily Lin 403-219-3661
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INVOICE TO:
Charmaine Code 780 812-2182
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 14120010-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 25, 2014
CANISTER ID: TE-05
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.21	ug/PUF	0.01	NA-017	31-Dec-14

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
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JOB #: 2833-14-11-01-C

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
November 2014

Prepared By:

December 8, 2014

JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association
Ambient Air Monitoring
Maskwa

Table of Contents

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: November 2014

The monthly ambient data report:

- Prepared by Wunmi Adekanmbi
- 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:

- AIR SOP-00211
- AIR SOP-00209
- AIR SOP-00213
- AIR SOP-00214
- AIR 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 – November 2014

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	0.60	11	30	1	7.5	308(NW)	2.3	30	100.0
H2S (PPB)	10	3	0	0	0.06	2	5	22	2.8	109(ESE)	0.3	6, 22	100.0
THC (PPM)	-	-	-	-	2.17	3.5	13	4	3.9	211(SSW)	2.5	13	100.0
NO2 (PPB)	159	-	0	-	3.50	22.3	13	4	3.9	211(SSW)	8.0	13	100.0
NO (PPB)	-	-	-	-	0.79	19.3	6	22	6.8	311(NW)	2.6	13	100.0
NO_x (PPB)	-	-	-	-	4.28	35.8	13	4	3.9	211(SSW)	10.5	13	100.0
VECTOR WS (KPH)	-	-	-	-	5.54	16.2	27	9	16.2	34(NE)	11.6	27	100.0
VECTOR WD (DEGREES)	-	-	-	-	360(N)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	73.69	91	VAR	VAR	VAR	VAR	85.9	2	100.0
TEMPERATURE (DEG C)	-	-	-	-	-9.82	10.5	1	13	6.0	320(NW)	3.8	1	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	942.3	965	11, 12	VAR	VAR	VAR	964.3	11	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	1.5	4	18	1.5	158(SSE)	0.3	22	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. The monthly calibration was performed on November 19th. The inlet filter was changed before the monthly calibration was started. 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 November 19th. 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 November 19th. 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. The monthly calibration was performed on November 19th. The inlet filter was changed before the monthly calibration was started.. Data was corrected using daily zero information.

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

- System make / model - RM Young 5103VK, S/N: 129612 replaced with MetOne 50.5H Sonic, S/N: H10703

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.
The 2-year calibration was performed on March 4th, 2014 by MetOne manufacture. Hourly maximum data collected on November 9th at 12:00 was invalidated due to a spike.

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. The rain gauge was checked and functionality was confirmed on November 25th.

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

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.

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

No operational issues were observed during the month.

Trailer
The manifold system was cleaned on November 19th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

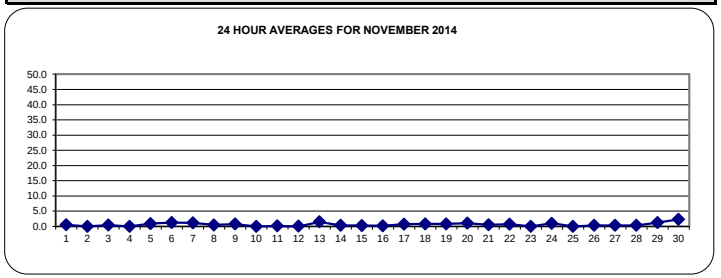
SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	2	3	2	3	1	0	0	**S**	0	0	1	0	0	0	0	0	0	0	0	0	3	0.5	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	24
3	0	0	0	0	0	0	0	0	0	**S**	1	1	2	3	2	1	0	0	0	0	0	0	0	0	3	0.4	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	24
5	0	0	0	0	0	0	0	**S**	1	0	0	1	1	3	4	4	6	1	0	0	0	0	0	0	6	0.9	24
6	0	0	0	0	0	0	**S**	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	9	9	9	1.2	24
7	5	2	0	0	0	**S**	0	2	5	3	5	5	0	0	0	0	0	0	0	0	0	0	0	0	5	1.2	24
8	0	0	0	0	**S**	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.5	24
9	1	1	1	**S**	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0.8	24
10	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	**S**	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	2	0.1	24
12	**S**	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**S**	1	0.0	24
13	0	0	0	0	1	1	1	1	1	1	3	2	2	2	2	2	4	5	2	2	1	1	**S**	0	5	1.5	24
14	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	**S**	0	1	1	0.3	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	**S**	1	1	0	2	0.3	24
16	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	1	0.2	24
17	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	**S**	0	0	1	3	6	6	0.7	24
18	1	1	3	5	1	0	0	0	0	1	0	0	1	1	0	0	0	**S**	1	0	1	1	1	1	5	0.8	24
19	1	1	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	0	0	0	1	0	1	1	1	1	1	0.8	24
20	1	1	1	1	1	1	2	1	1	1	2	2	2	2	2	**S**	0	0	0	0	1	1	1	1	2	1.1	24
21	1	1	1	1	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	0.6	24
22	2	2	1	1	1	1	1	1	1	1	1	1	2	**S**	0	0	0	0	0	0	0	0	0	0	2	0.7	24
23	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
24	0	0	0	0	4	1	6	5	2	1	2	**S**	1	0	0	0	0	0	0	0	0	0	1	0	6	1.0	24
25	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
26	0	0	0	0	1	0	0	0	0	**S**	0	0	0	1	0	1	1	1	1	0	0	0	1	0	1	0.3	24
27	0	0	0	0	0	1	1	0	**S**	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	0.3	24
28	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
29	0	0	0	0	1	2	**S**	3	2	1	1	2	2	1	1	1	1	2	2	1	1	2	1	1	3	1.2	24
30	2	***11***	4	4	7	**S**	9	8	6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	***11***	***2.3***	24
HOURLY MAX	5	11	4	5	7	3	9	8	6	3	5	5	2	3	4	4	6	5	2	2	1	2	9	9			
HOURLY AVG	0.5	0.8	0.5	0.6	0.8	0.5	0.9	1.0	0.8	0.4	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.4	0.2	0.3	0.4	0.8	0.8			

STATUS FLAG CODES

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

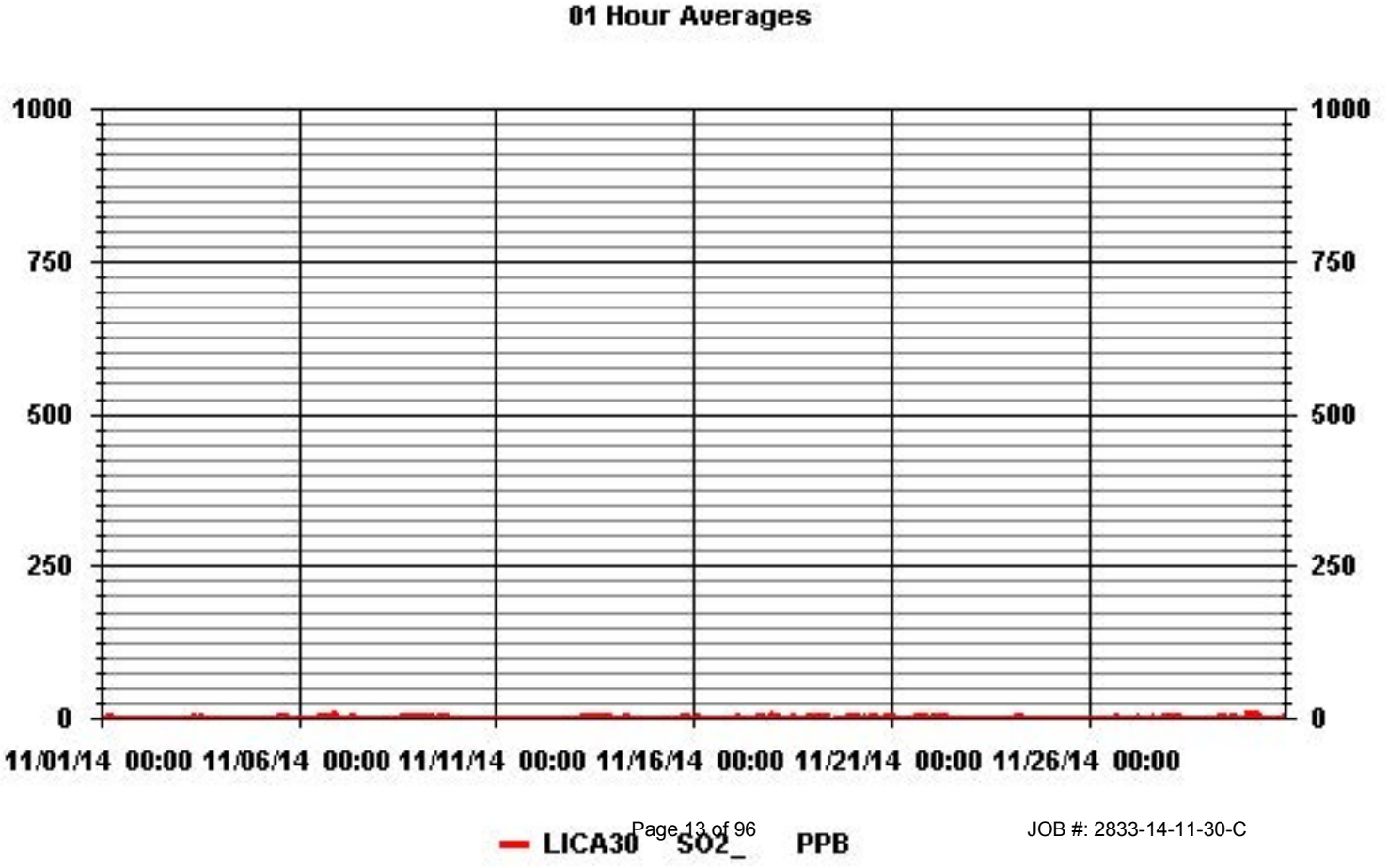


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	248					
MAXIMUM 1-HR AVERAGE:	11	PPB	@ HOUR(S)	1	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	2.3	PPB			ON DAY(S)	30
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	1.23		MONTHLY AVERAGE:		0.60	PPB

JOB #: 2833-14-11-30-C



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

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	2	5	6	6	8	7	1	1	**S**	2	2	3	2	1	0	0	1	0	0	0	0	8	2.2	24
2	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	1	0	1	1	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	0	0	0	0	1	**S**	4	4	5	6	7	3	1	1	1	0	0	0	0	1	7	1.5	24
4	1	1	0	0	0	0	0	0	**S**	0	0	0	1	1	1	1	1	1	1	1	0	0	1	0	1	0.5	24
5	0	0	0	0	0	0	0	**S**	1	1	1	2	2	6	7	8	12	6	1	1	1	1	1	1	12	2.3	24
6	1	1	1	1	1	1	**S**	0	1	1	1	1	1	2	2	1	1	1	1	1	1	2	15	16	16	2.3	24
7	11	6	1	1	0	**S**	3	10	8	10	10	12	2	3	1	3	5	1	0	0	0	0	0	0	12	3.8	24
8	0	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	0.9	24
9	2	2	2	**S**	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	1.3	24
10	1	1	**S**	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	1	0.3	24
11	0	**S**	0	0	0	0	0	0	0	0	0	0	1	6	3	1	2	0	0	0	1	1	1	1	6	0.7	24
12	**S**	1	1	0	0	1	0	0	3	1	1	2	1	0	0	1	1	1	1	1	1	0	1	**S**	3	0.8	24
13	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	6	6	3	2	2	2	**S**	1	6	2.3	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	**S**	1	4	4	1.0	24
15	5	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	12	13	1	**S**	2	2	1	13	1.8	24	
16	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	2	2	1	0	**S**	0	0	0	2	2	0.9	24
17	1	1	2	4	4	1	1	0	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	8	***17***	***17***	2.3	24
18	6	2	8	***17***	3	1	1	1	1	1	1	3	5	6	3	0	0	**S**	6	1	1	1	1	1	***17***	3.0	24
19	1	1	1	1	1	1	2	4	2	3	**C**	**C**	**C**	**C**	**C**	1	**S**	1	1	1	1	1	1	1	4	1.4	24
20	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	**S**	1	1	1	1	1	1	1	1	3	1.7	24
21	1	1	1	1	1	1	1	1	1	1	1	1	0	0	**S**	1	1	1	1	1	1	1	1	2	2	1.0	24
22	3	3	3	2	2	2	2	2	2	2	2	2	2	**S**	1	1	1	1	1	0	0	0	0	0	3	1.5	24
23	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
24	1	1	1	2	8	9	12	12	10	4	9	**S**	4	1	0	0	0	1	1	1	1	1	1	1	12	3.5	24
25	1	1	1	1	1	1	0	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0.7	24
26	0	0	0	2	2	1	1	0	0	**S**	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	1.0	24
27	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
28	1	1	1	1	2	1	2	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
29	1	1	1	1	1	9	**S**	5	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	9	2.3	24
30	2	16	16	10	15	**S**	16	***17***	13	1	1	0	0	0	1	0	0	0	0	0	1	1	1	1	***17***	***4.9***	24
HOURLY MAX	11	16	16	17	15	9	16	17	13	10	10	12	5	6	7	8	12	12	13	2	2	3	15	17			
HOURLY AVG	1.6	1.7	1.6	1.8	1.9	1.5	2.0	2.4	2.2	1.5	1.8	1.7	1.6	1.9	1.8	1.3	1.7	1.7	1.4	0.8	0.8	0.9	1.6	2.1			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 518

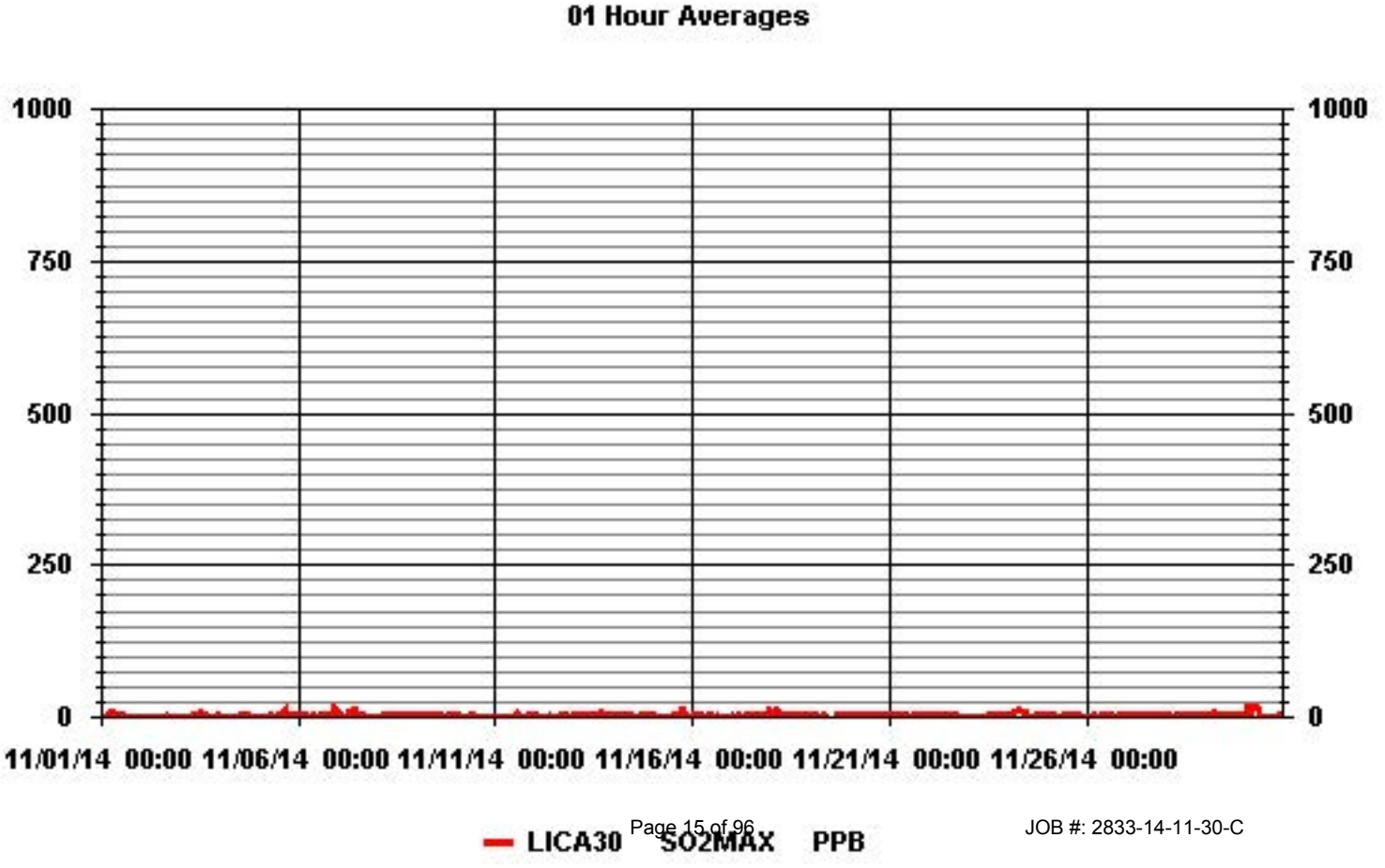
MAXIMUM INSTANTANEOUS VALUE: 17 PPB @ HOUR(S) VAR ON DAY(S) VAR

VAR-VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 2.59



JOB #: 2833-14-11-30-C

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

November 2014
Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	14.89	10.94	9.34	3.94	1.75	1.31	3.79	2.48	3.21	9.19	8.46	4.08	3.94	4.67	7.59	10.36	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	14.89	10.94	9.34	3.94	1.75	1.31	3.79	2.48	3.21	9.19	8.46	4.08	3.94	4.67	7.59	10.36	

Calm : .00 %

Total # Operational Hours : 685

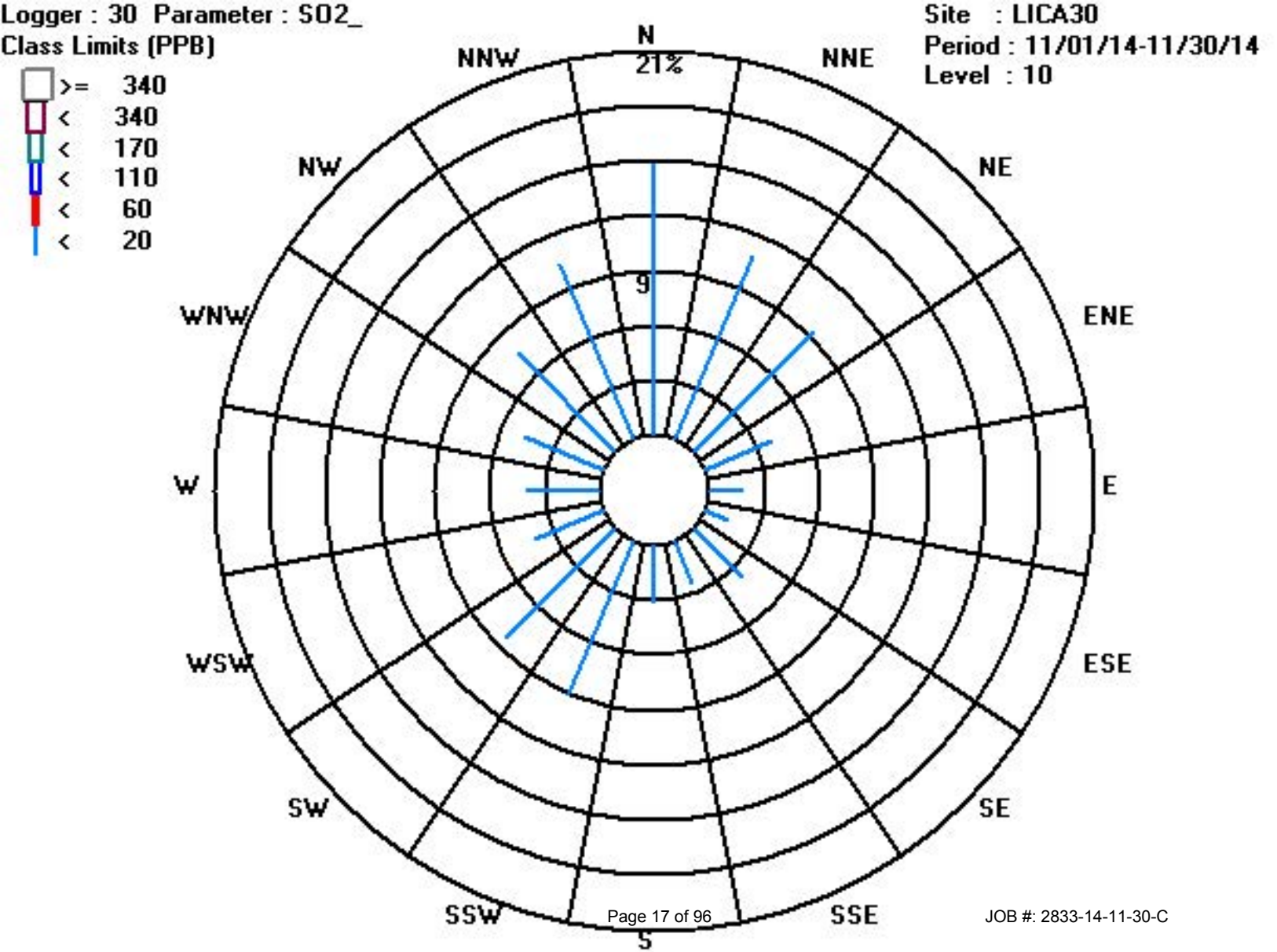
Distribution By Samples

Direction

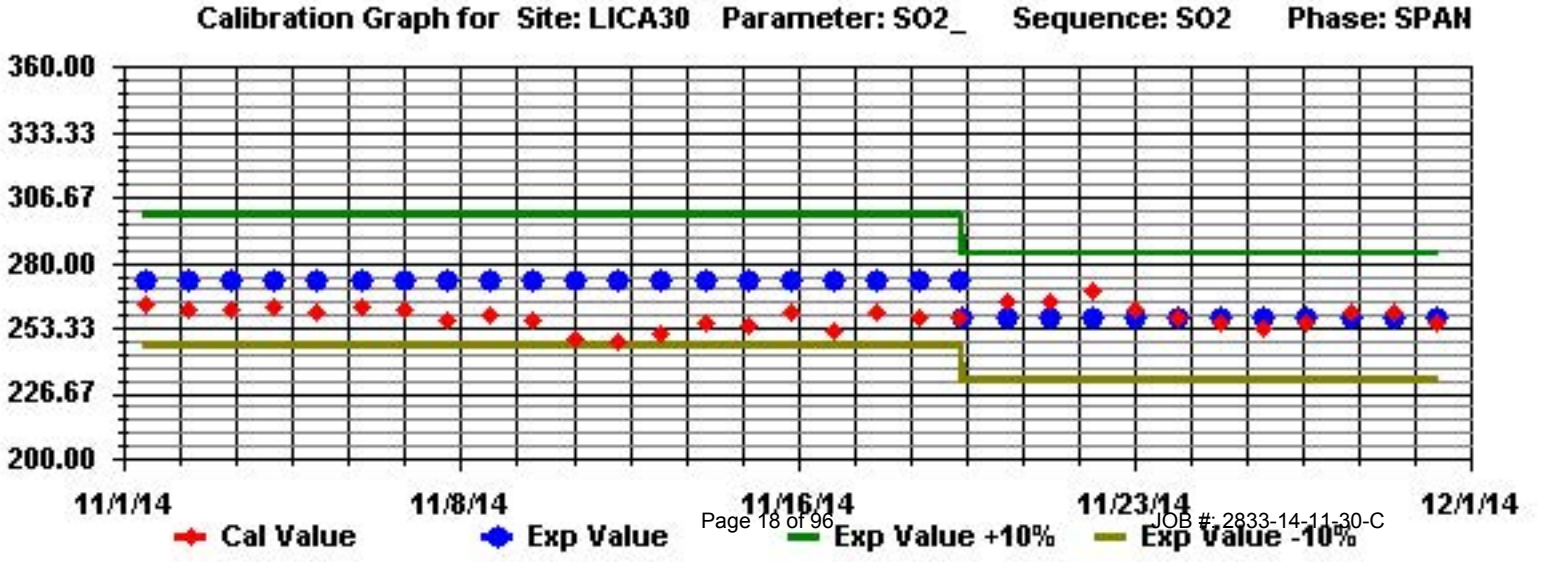
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	102	75	64	27	12	9	26	17	22	63	58	28	27	32	52	71	685
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	102	75	64	27	12	9	26	17	22	63	58	28	27	32	52	71	

Calm : .00 %

Total # Operational Hours : 685



JOB #: 2833-14-11-30-C


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN
360.00
333.33
306.67
280.00
253.33
226.67
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

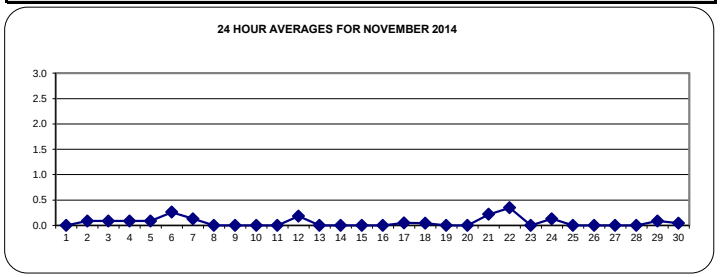
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

STATUS FLAG CODES

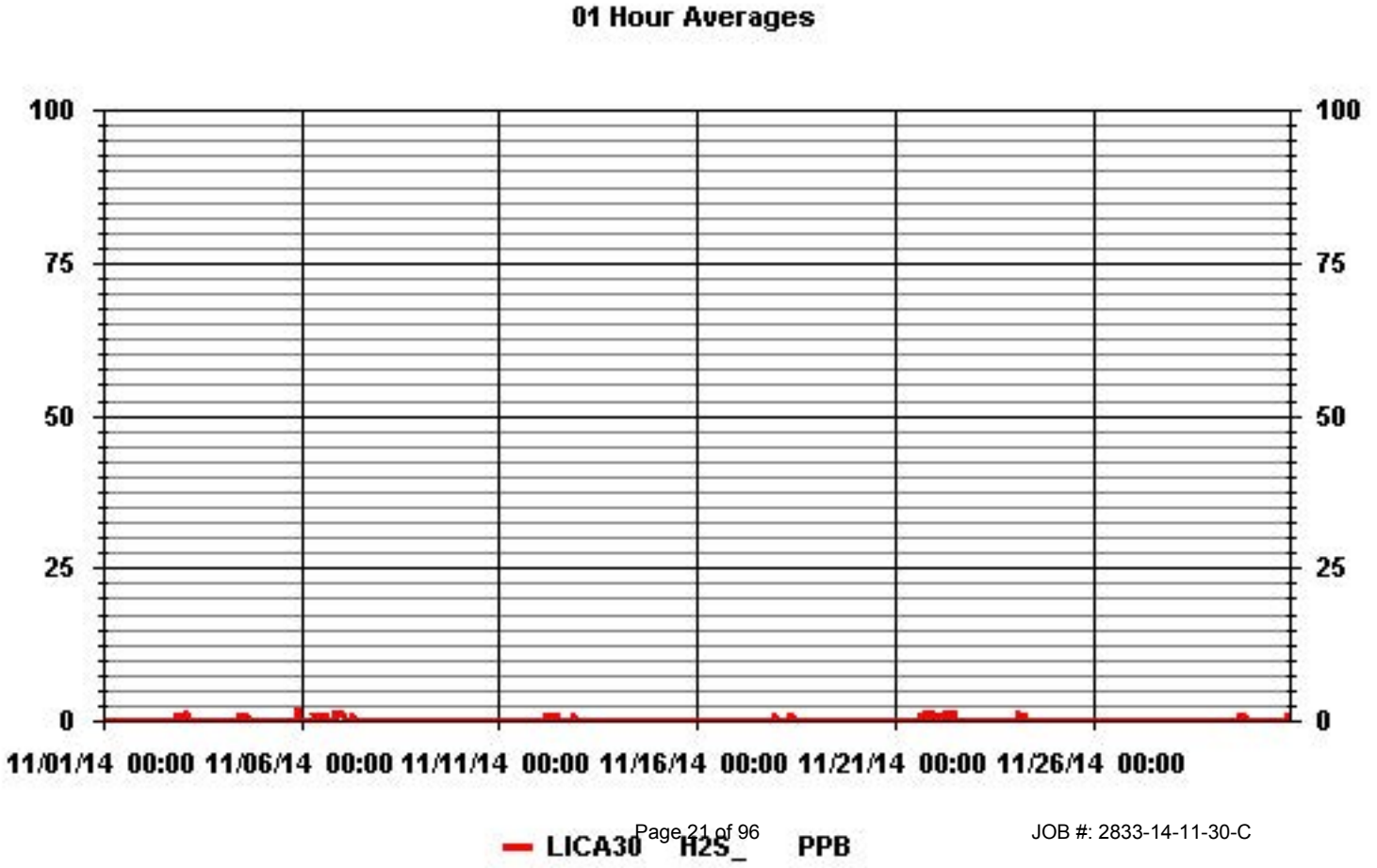
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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:	41					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	22	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S) VAR-VARIOUS	6, 22
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.25		MONTHLY AVERAGE:		0.06	PPB



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

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	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	0	0	0	1	1	1	1	1	0.4	24
2	1	1	1	1	1	1	1	1	1	1	**S**	1	1	0	1	1	2	1	1	1	1	1	1	1	2	1.0	24
3	1	1	2	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24
4	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	0.7	24
5	1	1	1	0	1	1	1	**S**	1	1	1	1	1	1	1	1	0	1	1	0	0	1	***4***	1	***4***	1.0	24
6	0	0	1	1	1	1	**S**	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	***1.1***	24
7	1	1	1	1	1	**S**	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	1	0	0	1	0.7	24
8	0	1	0	0	**S**	0	1	1	1	1	1	0	0	1	0	0	1	1	1	0	0	1	1	1	1	0.6	24
9	1	0	0	**S**	0	1	1	0	1	0	0	0	0	0	1	3	0	0	0	0	1	1	1	0	3	0.5	24
10	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	**S**	1	1	1	1	1	**S**	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
12	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1.0	24
13	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	**S**	0	1	0.2	24
14	1	0	1	1	1	1	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	**S**	0	1	1	0.4	24
15	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	**S**	1	1	0	1	0.3	24
16	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	0.2	24
17	0	0	1	1	1	1	0	**S**	**S**	0	1	1	0	0	1	1	0	1	**S**	1	1	1	1	1	1	0.7	24
18	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	2	**S**	0	0	0	0	1	0	2	0.6	24
19	0	1	1	0	0	1	1	0	0	0	**C**	**C**	**C**	**C**	**C**	1	**S**	1	0	1	1	0	1	1	1	0.6	24
20	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	1	1	1	0.7	24
21	0	0	1	1	1	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	2	2	0.6	24
22	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
23	1	1	1	1	1	0	0	0	0	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
24	1	1	1	1	1	1	1	1	1	0	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25	0	1	1	1	1	1	0	1	1	1	**S**	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0.4	24
26	0	0	0	1	0	0	0	0	0	**S**	1	1	0	0	0	0	0	0	0	1	0	1	1	1	1	0.3	24
27	0	0	1	1	1	0	1	1	**S**	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0.3	24
28	0	1	1	1	0	1	1	**S**	0	1	1	0	0	0	1	1	1	0	1	1	0	1	1	1	1	0.7	24
29	1	0	0	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
30	0	1	1	1	1	**S**	0	1	0	0	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0.6	24
HOURLY MAX	1	1	2	1	1	1	1	2	2	1	1	1	1	1	1	3	2	1	1	1	1	1	4	2			
HOURLY AVG	0.4	0.5	0.7	0.7	0.6	0.6	0.5	0.6	0.7	0.6	0.6	0.5	0.4	0.5	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.7	1.0	0.7			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 388

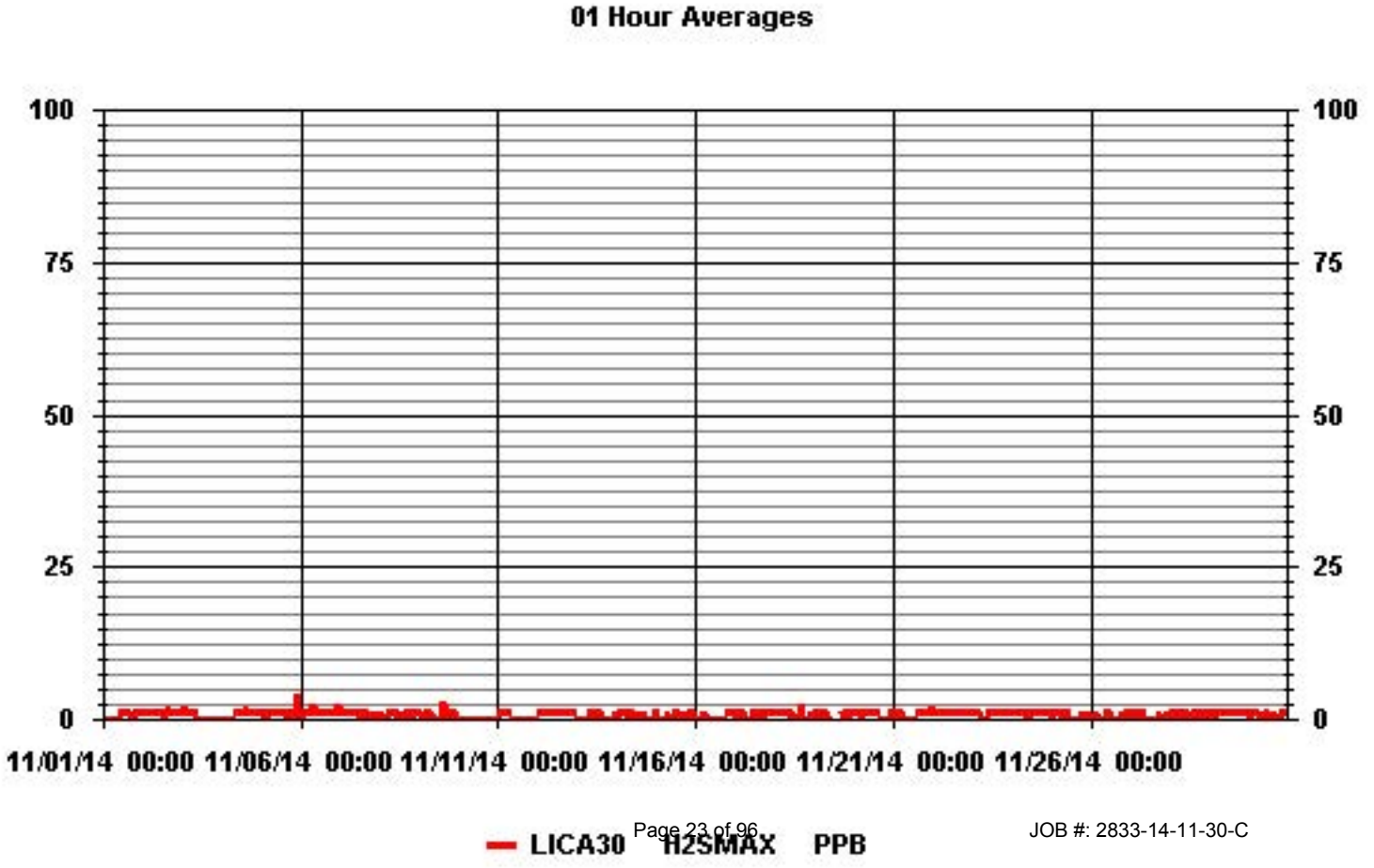
MAXIMUM INSTANTANEOUS VALUE: 4 PPB @ HOUR(S) 22 ON DAY(S) 5

VAR-VARIOUS

IZS CALIBRATION TIME: 35 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.54



JOB #: 2833-14-11-30-C

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	14.95	10.85	9.38	3.95	1.75	1.31	3.81	2.49	3.22	8.94	8.50	4.10	3.95	4.69	7.62	10.41	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	14.95	10.85	9.38	3.95	1.75	1.31	3.81	2.49	3.22	8.94	8.50	4.10	3.95	4.69	7.62	10.41	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	102	74	64	27	12	9	26	17	22	61	58	28	27	32	52	71	682
<	10																	
<	50																	
>=	50																	
	Totals	102	74	64	27	12	9	26	17	22	61	58	28	27	32	52	71	

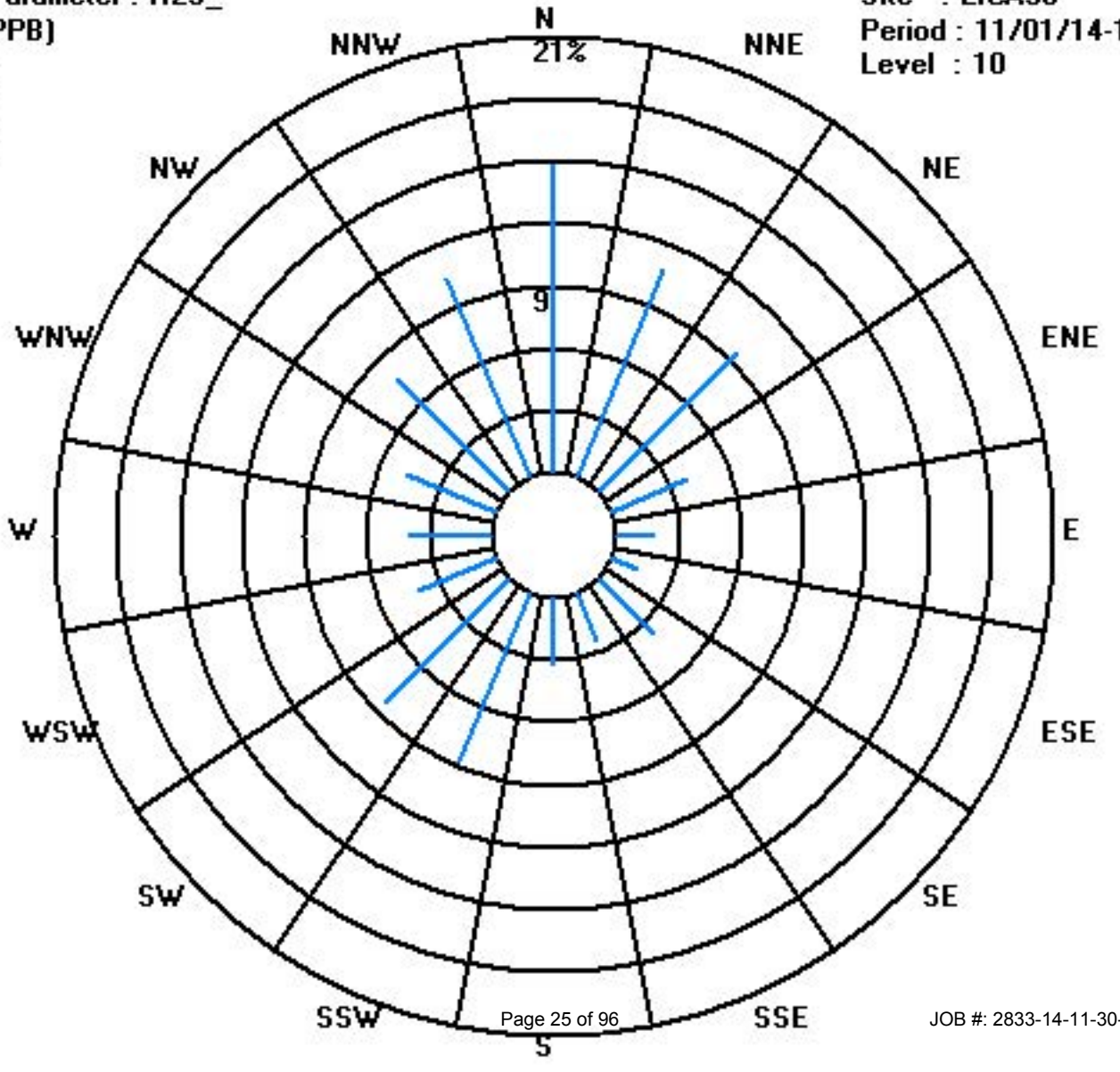
Calm : .00 %

Total # Operational Hours : 682

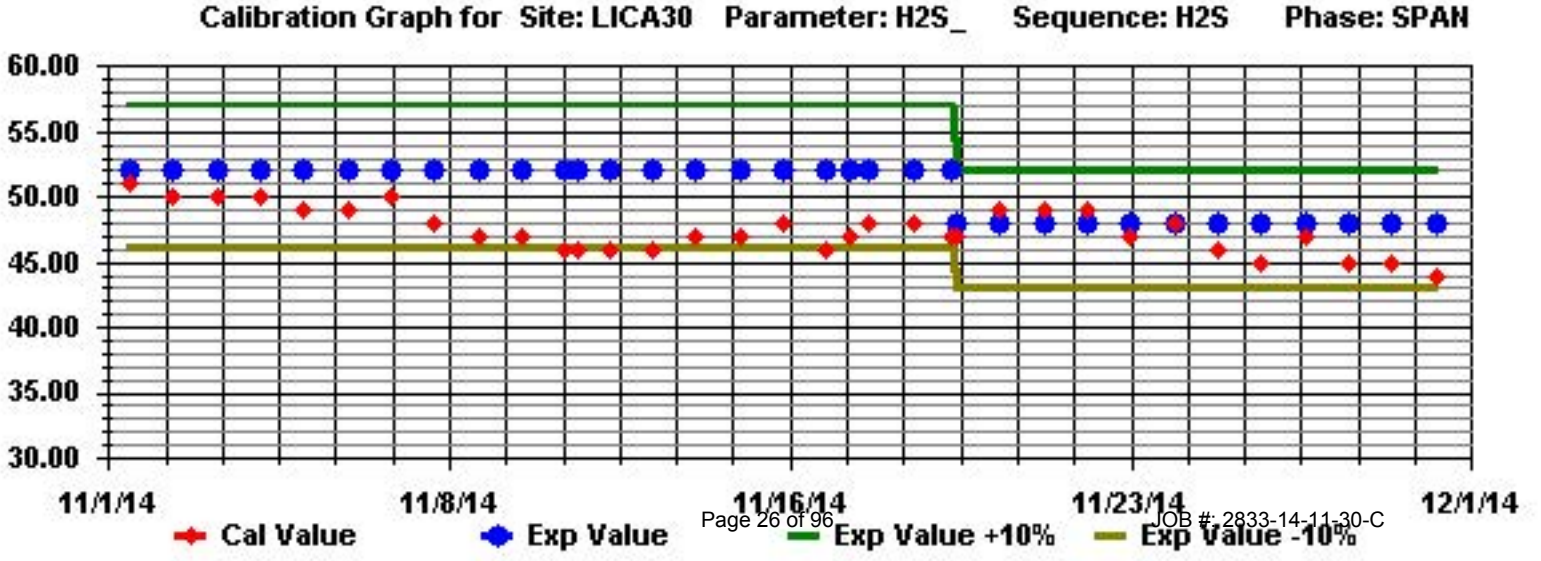
Logger : 30 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA30
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-30-C


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN
60.00
55.00
50.00
45.00
40.00
35.00
30.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

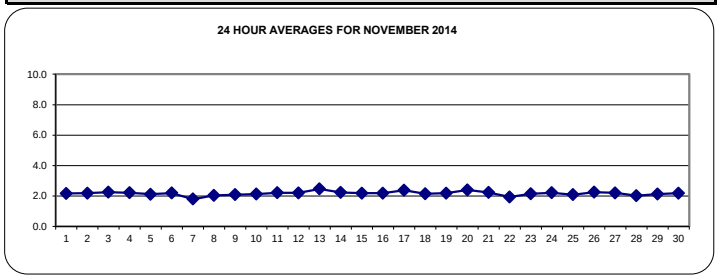
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
2	2.2	2.4	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	**S**	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.4	2.2	24
3	2.2	2.4	2.5	2.4	2.2	2.2	2.3	2.4	2.5	**S**	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.5	2.3	24
4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.4	2.6	2.5	2.6	2.2	24
5	2.3	2.1	2.1	2.2	2.1	2.2	2.2	**S**	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.1	24
6	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	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.4	2.2	24
7	2.2	2.1	2.1	2.1	2.1	**S**	1.6	1.6	1.7	1.7	1.7	1.7	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.2	1.8	24
8	1.7	1.7	1.7	1.7	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	24
9	2.2	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
10	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	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	24
11	2.1	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.2	24
12	**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	2.2	2.2	2.2	**S**	2.2	2.2	24
13	2.2	2.2	2.2	2.2	***3.5***	3.4	3.1	2.9	2.9	2.6	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	**S**	2.4	***3.5***	***2.5***	24
14	2.4	2.5	2.6	2.5	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	**S**	2.1	2.1	2.6	2.2	24
15	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	**S**	2.2	2.2	2.2	2.3	2.2	24
16	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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**	2.1	2.1	2.1	2.1	2.2	2.2	24
17	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.6	3.0	2.9	2.4	2.2	2.2	2.2	2.4	2.4	**S**	2.9	2.7	2.5	2.4	2.3	3.0	2.4	24
18	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
19	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	**C**	**C**	**C**	**C**	**C**	2.2	2.3	2.3	2.2	2.1	2.1	2.3	2.2	24
20	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.6	2.5	2.5	2.3	2.3	**S**	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.4	24
21	2.7	2.8	2.9	3.0	3.0	2.7	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	**S**	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	2.0	3.0	2.2	24
22	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	24
23	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	**S**	2.1	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.1	24
24	2.5	2.6	2.6	2.5	2.4	2.3	2.2	2.2	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	2.6	2.2	24
25	2.1	2.1	2.1	2.0	2.0	2.0	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	2.1	2.1	2.1	24
26	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	**S**	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.6	2.3	24
27	2.6	2.6	2.6	2.6	2.4	2.2	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	2.1	2.1	2.1	2.6	2.2	24
28	2.1	2.1	2.1	2.1	2.1	2.0	2.0	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	24
29	2.0	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	2.0	2.1	2.2	2.2	2.3	2.4	2.2	2.1	2.1	2.1	2.4	2.1	24
30	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	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.2	24
HOURLY MAX	3	3	3	3	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	3	3	3			
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2			

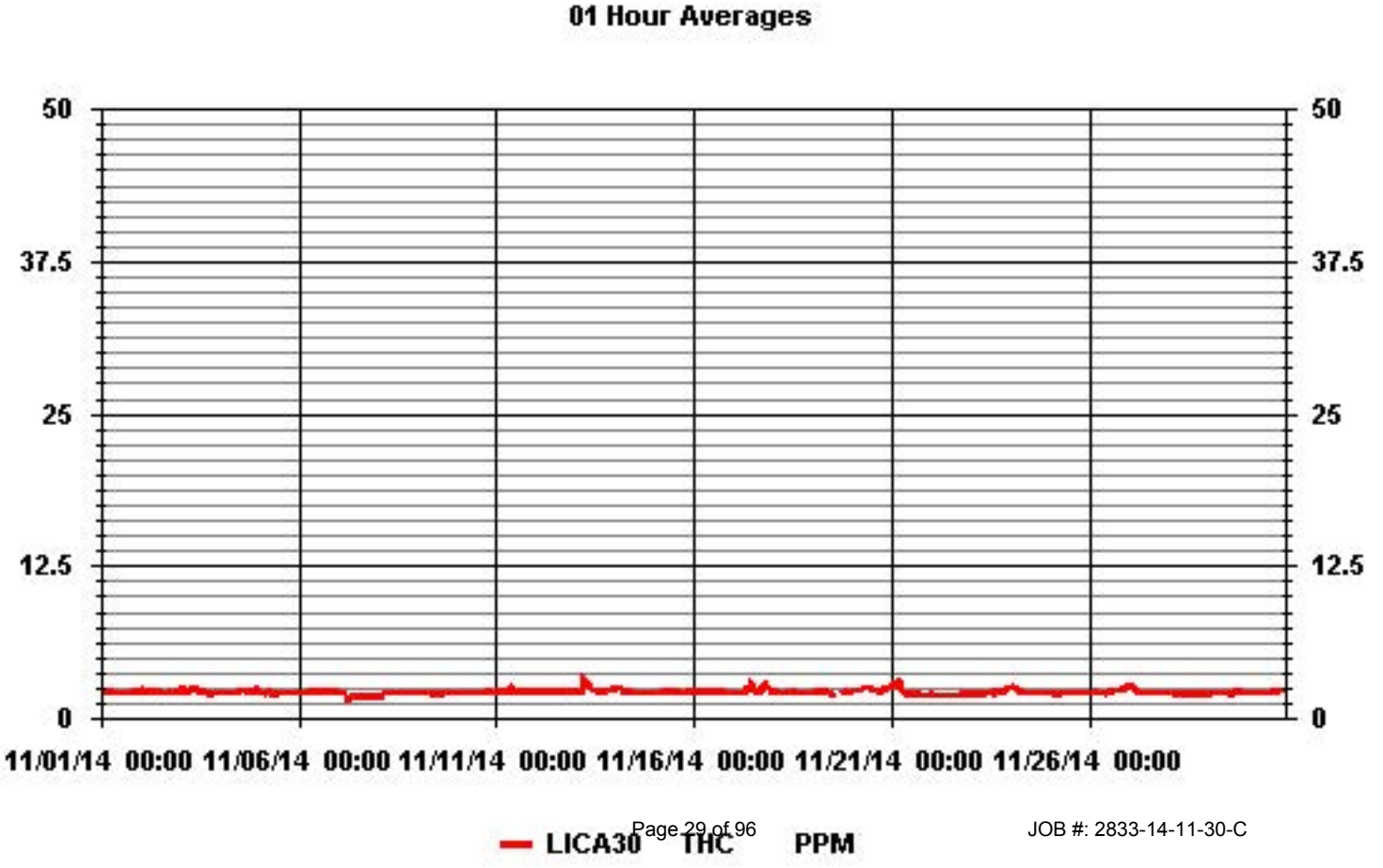
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	3.5	PPM	@ HOUR(S)	4	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	2.5	PPM			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.20		MONTHLY AVERAGE:		2.17	PPM



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

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	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	**S**	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.3	2.3	2.4	2.2	24
2	2.2	7.1	2.3	2.4	2.3	2.2	2.3	2.2	2.3	2.3	**S**	2.4	2.2	2.1	2.2	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.3	7.1	2.5	24
3	2.4	2.6	2.6	2.5	2.3	2.3	2.4	2.5	2.6	**S**	2.6	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.1	2.1	2.6	2.3	24
4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.6	2.6	2.3	24
5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	**S**	2.1	2.1	2	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.4	2.1	2.4	2.2	24
6	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	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.4	2.2	24
7	2.2	2.2	2.1	2.1	2.1	**S**	1.7	1.7	1.7	1.7	1.8	1.7	2.6	2.1	1.8	2	1.9	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.6	1.9	24
8	1.7	1.7	1.8	1.7	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.0	24
9	2.2	2.2	2.2	**S**	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
10	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
11	2.2	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	***14.7***	2.5	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	***14.7***	***2.8***	24
12	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.3	2.3	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**S**	2.7	2.2	24
13	2.2	2.3	2.3	2.4	3.9	3.9	3.7	3.1	3	2.7	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	**S**	2.4	3.9	2.6	24
14	2.4	2.5	2.6	2.5	2.5	2.4	2.3	2.4	3.7	2.6	3.1	7.6	2.2	2.1	2.1	2.1	2.2	2.5	2.2	2.2	2.2	**S**	2.2	2.2	7.6	2.6	24
15	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	**S**	2.2	2.2	2.2	2.3	2.2	24
16	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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**	2.1	2.1	2.1	2.1	2.2	2.2	24
17	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.5	2.6	2.8	3.1	3.1	2.6	2.3	2.2	2.3	2.4	2.6	**S**	2.9	2.8	2.6	2.5	2.3	3.1	2.5	24
18	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	**S**	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	24
19	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**C**	**C**	**C**	**C**	**C**	2.3	2.4	2.4	2.3	2.2	2.2	2.4	2.2	24
20	2.3	2.3	2.4	2.3	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.4	2.3	**S**	2.2	2.2	2.4	2.5	2.5	2.5	2.6	2.7	2.7	2.4	24
21	2.7	2.8	3	3.1	3.1	2.9	2.6	2.2	2.1	2.1	2.1	2	2.1	2.1	**S**	2	2	2	2	2	2	1.9	1.9	2	3.1	2.3	24
22	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	2	2	2	2	2	2	2	2	2.1	2.0	24
23	2	2	2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	**S**	2.3	2.4	2.4	2.2	2.4	2.3	2.2	2.3	2.4	2.5	2.5	2.5	2.2	24
24	2.6	2.6	2.7	2.6	2.4	2.3	2.3	2.2	2.2	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	2.7	2.2	24
25	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	2.1	2.1	2.1	24
26	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	**S**	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.3	24
27	2.6	2.7	2.7	2.6	2.5	2.2	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	2.1	2.1	2.1	2.7	2.2	24
28	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2	2.1	2.1	2	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24
29	2.1	2.1	2.1	2.1	2.1	2.2	**S**	2.3	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.4	2.2	24
30	2.1	2.2	2.1	2.1	2.1	**S**	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.2	24
HOURLY MAX	3	7	3	3	4	4	4	3	4	15	3	8	3	2	2	2	2	3	2	3	3	3	3	3			
HOURLY AVG	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.7	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 685

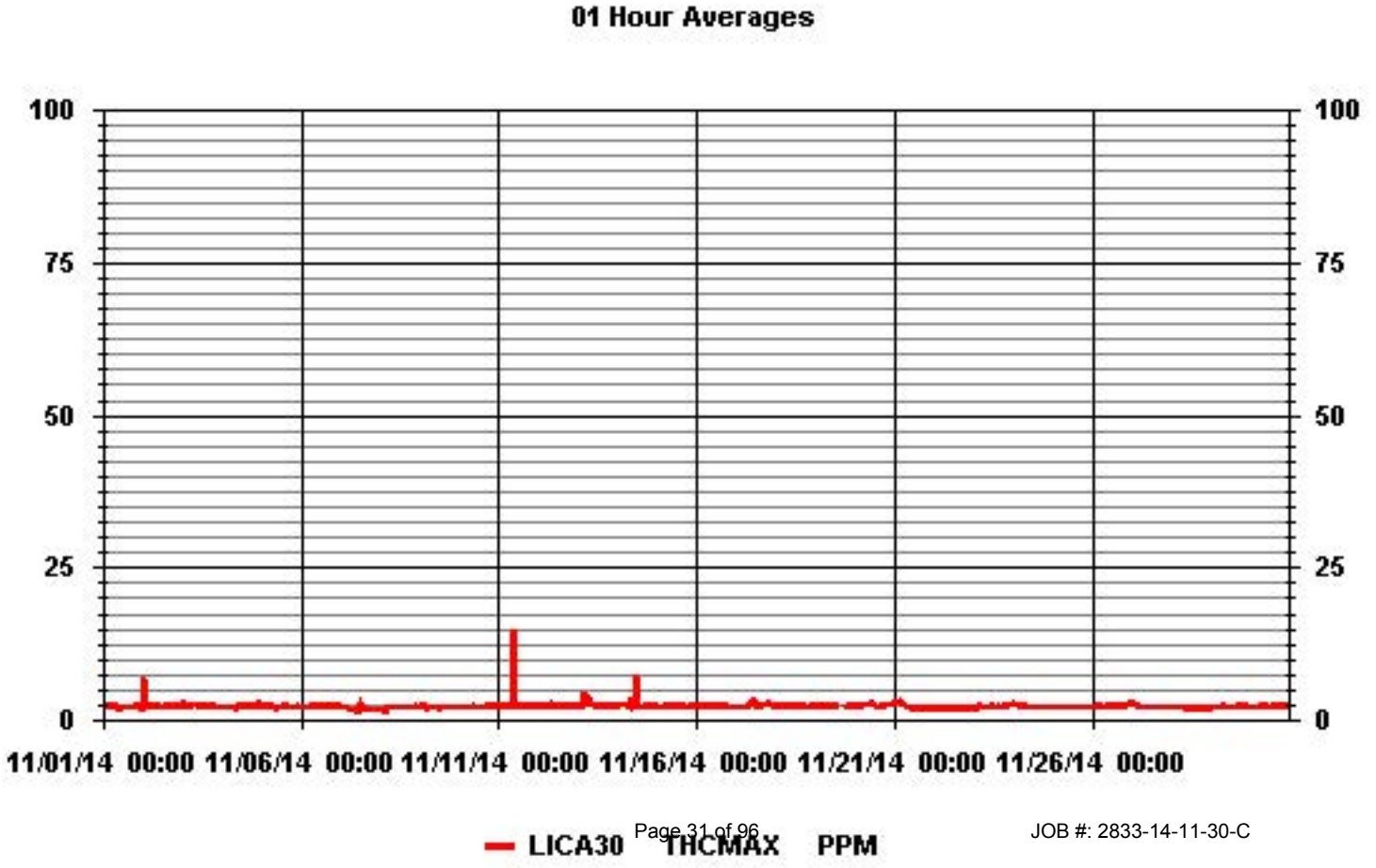
MAXIMUM INSTANTANEOUS VALUE: 14.7 PPM @ HOUR(S) 9 ON DAY(S) 11

VAR-VARIOUS

IZS CALIBRATION TIME: 30 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.60



JOB #: 2833-14-11-30-C

LICA30
THC / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	14.89	10.94	9.34	3.94	1.75	1.31	3.79	2.48	3.21	8.32	8.17	4.08	3.94	4.81	7.73	10.36	99.12
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43	.43	.00	.00	.00	.00	.00	.87
< 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	14.89	10.94	9.34	3.94	1.75	1.31	3.79	2.48	3.21	8.75	8.61	4.08	3.94	4.81	7.73	10.36	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	102	75	64	27	12	9	26	17	22	57	56	28	27	33	53	71	679
< 10.0										3	3						6
< 50.0																	
>= 50.0																	
Totals	102	75	64	27	12	9	26	17	22	60	59	28	27	33	53	71	

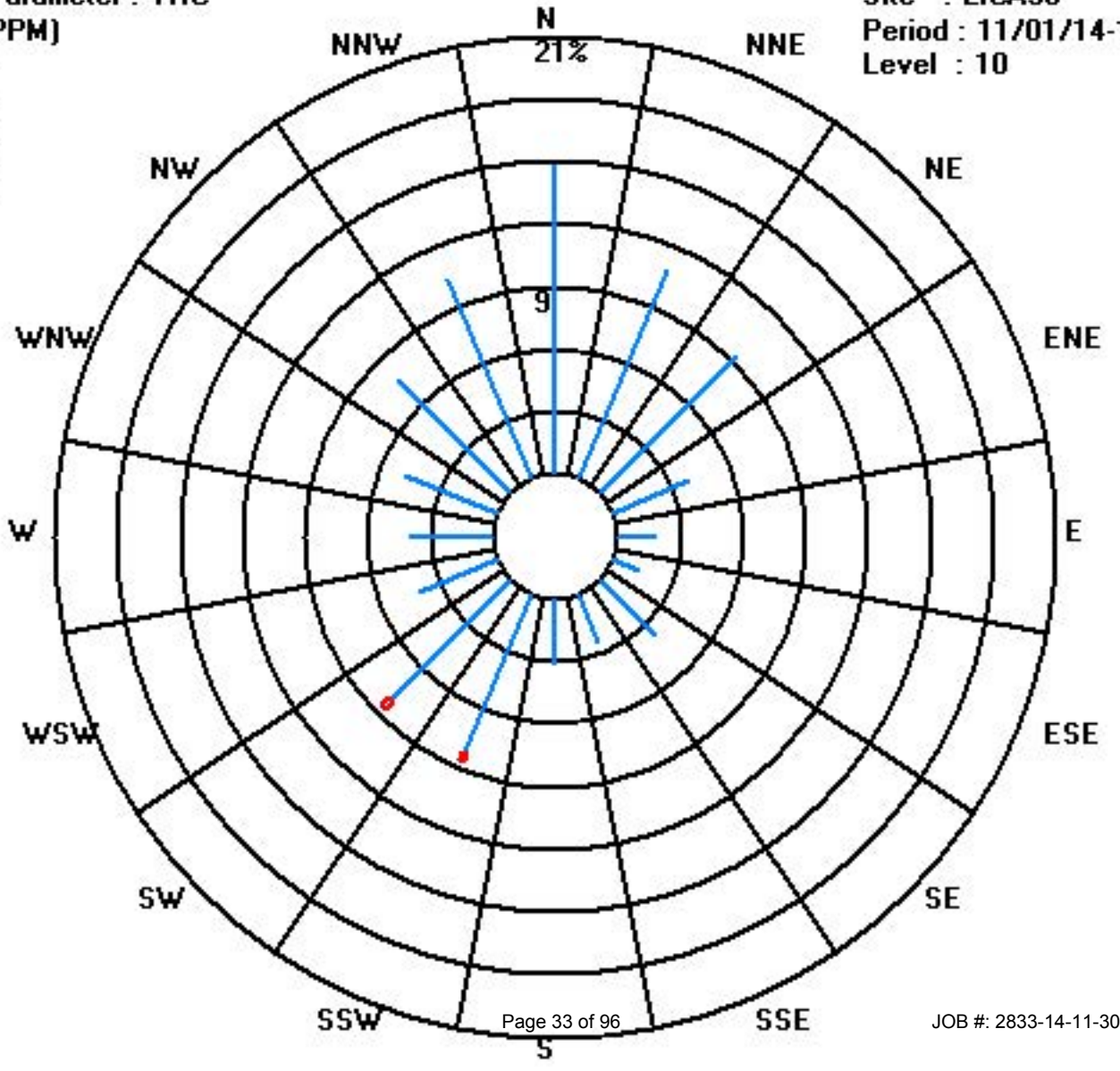
Calm : .00 %

Total # Operational Hours : 685

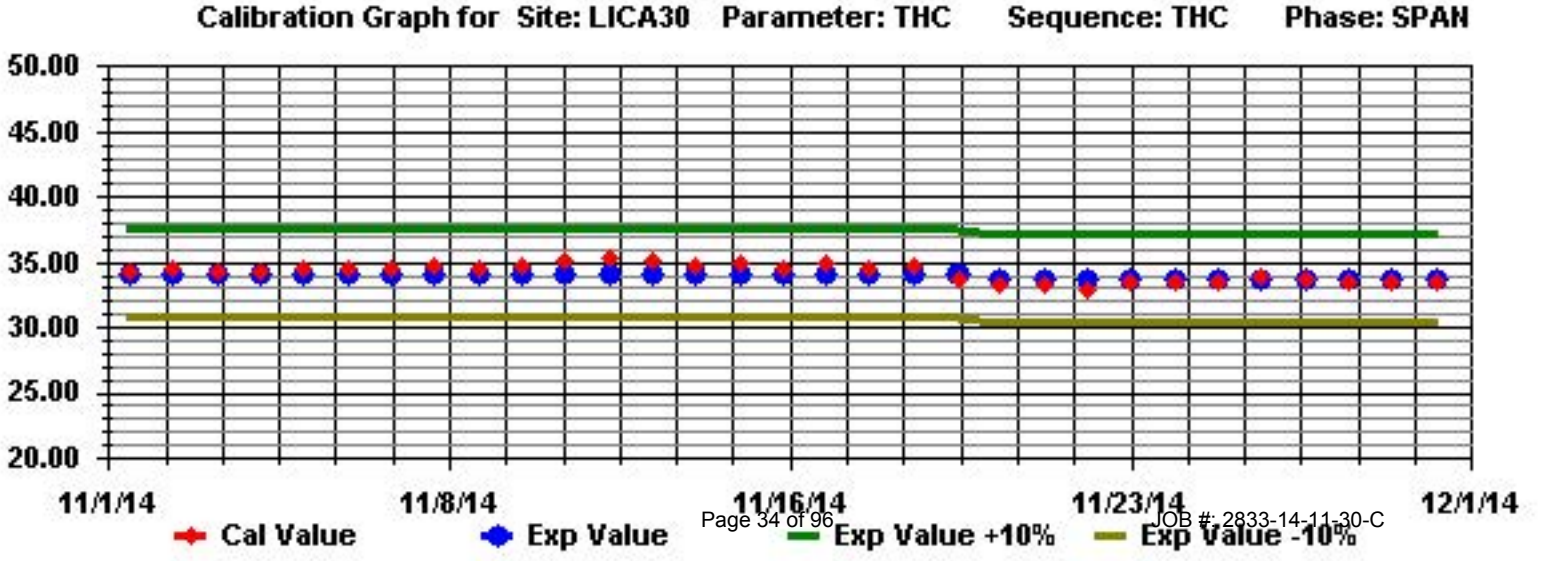
Logger : 30 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA30
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-30-C


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN
50.00
45.00
40.00
35.00
30.00
25.00
20.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

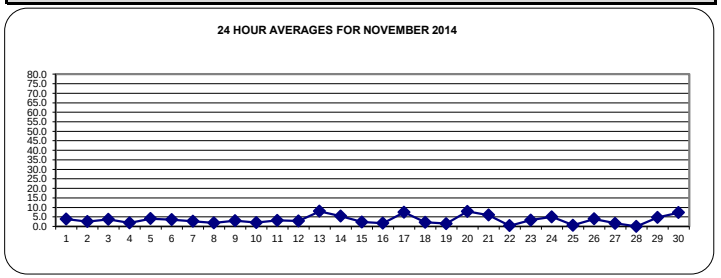
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	2.4	4	3.7	5.7	7.4	4.2	8.2	2.7	0.9	1.3	**S**	1.4	1.8	2.9	2.8	1.1	2.2	1.1	6.3	11.1	6.7	5	3.3	11.1	3.8	24
2	1.8	1.4	0.9	0.6	0.7	0.8	0.6	2.7	1.9	1.3	**S**	4.5	4.2	1.9	4.3	2.5	7.5	6.7	4.5	3.2	1.9	1.3	1.6	1.7	7.5	2.5	24
3	2	1.8	2.7	1.6	1.3	1.2	2	4.7	9.1	**S**	9.6	6.8	8.3	7.4	7.8	5.9	1.9	2	1.6	1	0.8	1.2	1.3	1.9	9.6	3.6	24
4	4.6	1.6	1	0.5	0.4	0.8	1	0.7	**S**	1.2	1	1.2	1.3	1.2	1.5	2.3	1.7	1.6	2.1	1.5	1.6	2.9	6.3	5.1	6.3	1.9	24
5	3	1.4	1.3	1.4	1.4	1.7	2.3	**S**	7.4	2.5	1.1	6.3	7	8.9	9.5	9.4	11.8	3.6	1.3	2.5	0.9	3.7	3.2	2.2	11.8	4.1	24
6	1.4	1.2	1.2	1	1.1	1.2	**S**	2.5	3.1	2.8	2.4	2.3	2.1	2.4	3.4	2.9	4.2	3.1	2.8	2.6	3.5	6.9	15.6	12.3	15.6	3.6	24
7	9	2.8	0.4	0.7	0.7	**S**	0.7	5.9	10.3	7.8	7.4	6.9	1.7	1.8	0.8	0.7	2	0.4	0	0	0.1	0	0	0.7	10.3	2.6	24
8	1	0.6	1.1	0.9	**S**	1.6	1.5	**S**	2.6	1.5	0.7	0.4	0.4	0.5	2.7	2.7	2	1.6	1.9	2.1	2.5	3.7	4.2	4.2	4.2	1.8	24
9	5.1	5.5	4.8	**S**	6.8	5.1	4.4	4.9	4.9	3.4	2.6	1.3	1	2.3	0.6	0.7	3.6	3.7	1.9	1.6	1.3	0.7	0.6	2.3	6.8	3.0	24
10	1.1	0	**S**	0.4	0	0.1	1.2	1.5	2.8	2.6	2.9	3	2.2	2.9	2	2.9	2.7	2.7	2.5	3.2	3.6	2.5	1.8	1	3.6	2.0	24
11	0.8	**S**	0.9	0.3	0.7	0.2	0.8	5.6	4.1	0.9	1	2	1.3	6.4	4.3	6	3.9	4.8	4.4	3.5	4.2	6.1	5.6	4.9	6.4	3.2	24
12	**S**	3.5	2.6	0.8	2	4.2	2.4	4	4	4.1	2.9	4.4	1	1.1	0.9	2.2	4.6	4.3	4.1	3.2	2.3	1.7	1.5	**S**	4.6	2.8	24
13	0.2	2.4	2.7	2.5	***22.3***	19.2	16.9	15.1	16.5	13.7	9.1	4.3	3.7	3.4	3.2	5.9	10.5	8.2	5.6	5.3	4.3	3.2	**S**	4.7	***22.3***	***8.0***	24
14	5.3	6.9	8.5	9.2	7.9	6.7	5.1	5.5	13.8	4.9	4.5	3.9	4.4	5.9	6.8	4.2	3.8	5.2	3.5	1.5	2.1	**S**	2.8	3.2	13.8	5.5	24
15	4.4	3.3	0	0	0	0	0.4	0.6	0.6	0.5	0.7	3.6	3.8	3.8	4.6	3.7	4	9.3	3.6	0.8	**S**	2.4	2.2	0.7	9.3	2.3	24
16	1	2	1.1	0.9	0.5	0.6	0.5	3.9	2.1	3	2.7	3	4.8	1.9	2.9	0.8	0.9	0.2	0	**S**	0.9	1	2	2.2	4.8	1.7	24
17	0.6	1.3	3.3	3.5	3.8	1.6	11.7	10.1	12.3	10.2	8.6	7	4.7	2.9	5.5	5.7	6.4	8	**S**	10.8	11.1	11.6	13.9	16.6	16.6	7.4	24
18	5.6	2.9	5.7	8.8	2.8	1.2	1.6	**S**	1.5	3.4	2	2.2	3.7	3.6	1.3	0.7	0.6	**S**	0.4	0	0	0	0	0	8.8	2.2	24
19	0	0	0	0	0	0	0	1.5	0.2	0.2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.3	3.5	5.3	4.1	2.8	2.5	5.3	1.5	24
20	3.6	4.7	4.5	4.1	3.6	3.1	5.5	5.3	4.5	4.6	4.6	5.7	6	7.3	7.5	**S**	9.7	9	10.6	11.4	12.1	15.5	18.8	19.2	19.2	7.9	24
21	18.9	20.6	20.1	18.9	17.7	14.8	10.7	3.8	2.8	1.9	1.1	0.9	1.1	0.8	**S**	0.8	1.3	0.7	0	0	0	0	0	0.3	20.6	6.0	24
22	2.9	3.7	1.4	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	3.7	0.3	24
23	0	0	0	0	0	0	0	0	0.4	5.8	4.1	5.2	**S**	3.2	4.3	5.8	5.5	5.1	5.1	4.7	5.1	6	7.7	8.1	8.1	3.3	24
24	7.9	9	9.4	10.7	12.1	6.5	11.9	9.8	4.8	3.7	4.5	**S**	4.3	2.1	1.1	1.3	1	0.9	1.8	2.8	2.8	2.8	2.6	1.9	12.1	5.0	24
25	1.9	1.7	0.8	0	0	0	0	0	0	0.6	**S**	0.1	0	0.5	1.8	1.9	1.7	1.8	0	0	0.1	0.4	0.5	0.4	1.9	0.6	24
26	0.6	0.9	0.8	1.9	3.7	1	1.7	4.2	6.1	**S**	2.3	2.3	2.3	2.8	3	5.1	5.9	5.3	5.3	6.6	6.1	6.5	8	8.3	8.3	3.9	24
27	7.1	7.3	6.5	5.6	3.9	2	0.8	1	**S**	1.5	0.6	0.2	0.2	0	0	0.1	0	0	0	0	0	0	0	0	7.3	1.6	24
28	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0	0	0	0.5	0.0	24
29	0	0	0.6	2.3	5.9	9.2	**S**	10.7	9.9	3.5	1.3	3.5	2.6	1.4	0.8	2.5	5.2	7.5	9	9.3	5.5	8	4.5	3.9	10.7	4.7	24
30	9	17.1	7.6	9.2	10.2	**S**	14.1	13.1	10.8	3.7	4.7	1.9	0.3	0.7	3	4.3	4.1	4.4	5.3	6.9	9.3	9.7	8.9	8.7	17.1	7.3	24
HOURLY MAX	19	21	20	19	22	19	17	15	17	14	10	7	8	9	10	9	12	9	11	11	12	16	19	19			
HOURLY AVG	3.5	3.7	3.2	3.1	4.0	3.2	3.6	4.8	5.0	3.2	3.1	3.1	2.6	2.8	3.1	3.0	3.7	3.7	2.8	3.3	3.4	3.7	4.2	4.1			

STATUS FLAG CODES

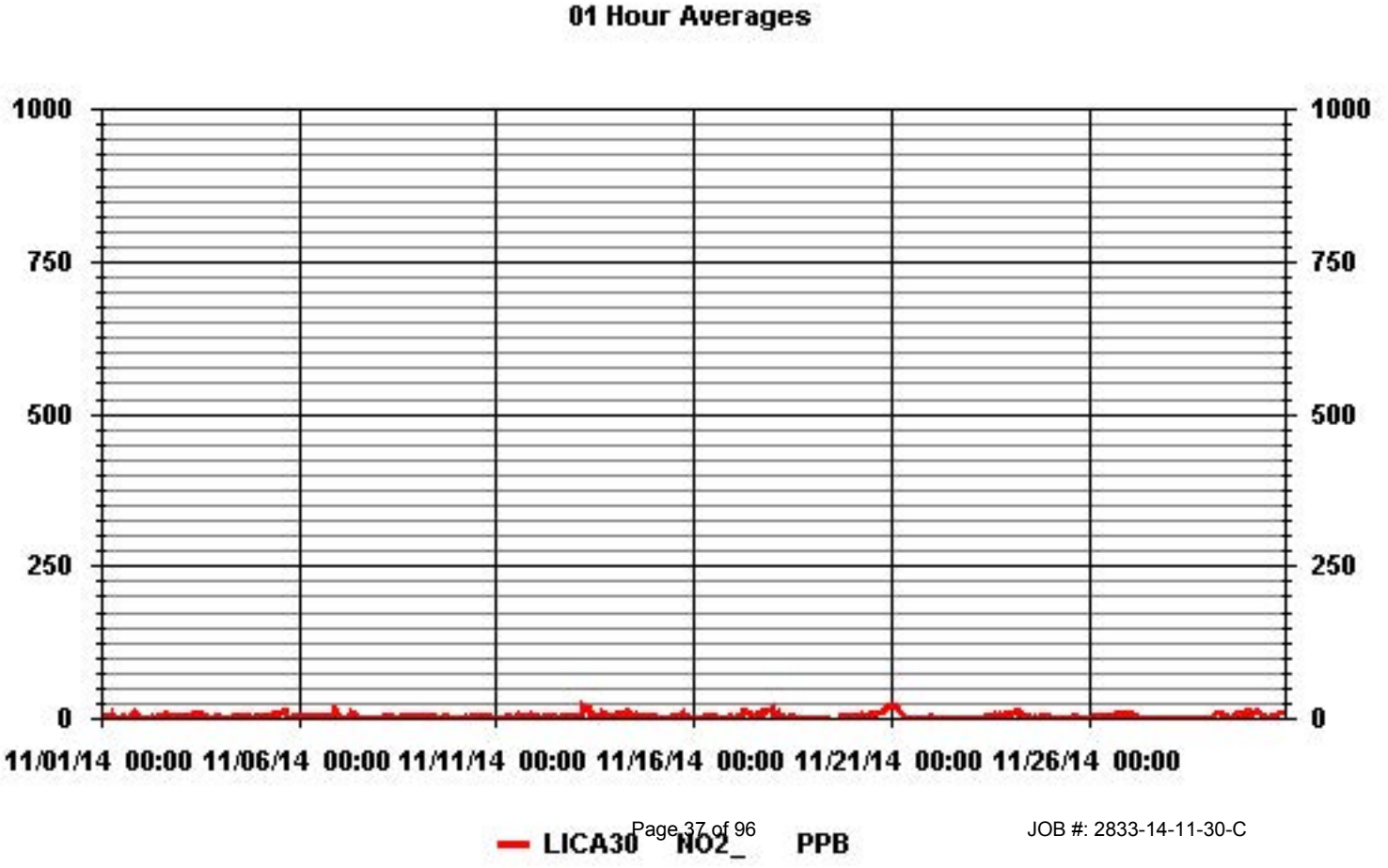
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	582					
MAXIMUM 1-HR AVERAGE:	22.3	PPB	@ HOUR(S)	4	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	8.0	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	3.79		MONTHLY AVERAGE:		3.50	PPB



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	4.6	6.4	7.1	7.5	11	12.8	12	15.1	14.3	3.8	5	**S**	9	3.8	8	8.4	2.7	6.6	2.9	9.7	17.6	11.2	6.7	5.5	17.6	8.3	24
2	2.9	2.1	1.6	1.4	1.3	1.5	1.5	9	3.7	2.6	**S**	9.7	6.3	3.5	8.4	5	***45.8***	24.3	5.7	4.3	2.6	2.5	2.5	3.1	***45.8***	6.6	24
3	2.9	3.1	4.4	2.6	2.6	2.2	3.1	8.2	11.7	**S**	26.3	13.5	11.9	13.3	17.4	10.1	5.2	3.5	3.7	2	2.2	2.8	2.3	4.7	26.3	6.9	24
4	6.8	2.8	2	1.5	1.5	1.9	2.4	1.7	**S**	2.3	1.5	1.6	1.9	1.6	2.1	2.9	2.4	2.4	2.7	2.1	1.9	4.3	7.7	6.6	7.7	2.8	24
5	4.9	2.1	1.9	1.8	1.9	2.1	3.8	**S**	9.8	6.8	4.1	10.7	10.3	16	14.4	16.7	21.4	11.4	2.8	4.4	1.8	7.9	6.9	7.6	21.4	7.5	24
6	2.1	1.7	1.8	1.6	1.5	1.7	**S**	4	5.1	3.7	3.2	3.3	2.7	2.9	4.3	3.8	7.6	4	4	3.4	5.1	12.3	21.3	20.9	21.3	5.3	24
7	16.6	9.1	1.5	2	1.6	**S**	7.2	18.6	16.6	14.6	13.4	19.3	4.3	6.7	2.3	4.5	8.7	2.9	0.7	0.7	1.4	0.7	0.7	1.6	19.3	6.8	24
8	1.8	1.7	1.7	2.2	**S**	3.2	3.2	**S**	**S**	3	1.4	1.3	1.1	1.7	5.8	5.3	2.7	2.3	2.5	2.6	3	4.1	4.7	5	5.8	2.9	24
9	6.4	6.2	5.5	**S**	8.4	6.9	5.3	6.8	8.6	4.6	3.4	2.2	2	3.6	2.6	2	4.8	4.8	2.8	2.6	2.3	1.4	1.9	3.6	8.6	4.3	24
10	3.5	0.9	**S**	0.8	0.8	1.1	2.1	2.9	3.6	2.9	3.9	4.4	4.2	4.2	2.5	4.2	3.4	3.6	3.2	4	4.2	3.6	2.4	2.4	4.4	3.0	24
11	2	**S**	1.8	1.2	2.6	0.9	2.5	10.3	10.6	2.2	1.9	4.1	3.5	11.2	7.2	7.6	6.3	6.7	6.2	4.2	5.6	8.6	7.1	6.5	11.2	5.3	24
12	**S**	4.6	3.7	2.2	5.7	9	6.6	8	17.7	8.3	6.2	9.5	2.6	2.7	1.9	4.5	10.5	10.6	5	4.4	3.1	2.5	2.8	**S**	17.7	6.0	24
13	2.2	4.7	4.8	4.5	27.3	27.1	22.7	19.4	20.1	19.4	15.2	7.7	6	5.8	6.6	36.6	17.8	11.7	8.3	7.3	6.3	5.5	**S**	4.8	36.6	***12.7***	24
14	5.3	7.4	8.5	11	8.8	7	5.3	13.1	20.5	10.2	8.3	7.7	7.2	9.1	20.8	6.3	4.3	6.4	8.3	1.3	2.1	**S**	4.5	10	20.8	8.4	24
15	12.4	9.2	3	2.2	1.8	2.1	2.8	3.8	2.8	2.7	2.6	8.7	6.5	5.8	7.5	6.8	6.1	22.9	23.5	3.7	**S**	3.6	3.6	1.4	23.5	6.3	24
16	2.3	2.9	1.8	1.5	1.4	1.1	1.2	7.8	6.9	5.5	4.1	26.5	10.2	3.9	5.1	3.9	3.8	1.1	0.8	**S**	1.5	2.1	3	3.7	26.5	4.4	24
17	3.7	4	6.8	8.9	8.3	3.5	20.6	17.2	16.1	13.1	9.3	9.2	6.4	4.1	22.2	7.8	7.5	10.1	**S**	10.8	11.6	12.4	21.2	23	23	11.2	24
18	11.1	3.6	12.5	24.8	5.1	1.7	2.6	**S**	**S**	5	3.7	4.8	9.5	10.8	5	1.6	2.1	**S**	8.4	1.5	1.6	1.2	1	1.5	24.8	5.7	24
19	1.6	1.3	1.8	1.6	1.8	1.6	2.5	9.6	3.6	4.5	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	4.6	4.7	6.9	6	3.8	4	9.6	3.7	24
20	5.7	5.9	5.8	5.1	5.1	4	7.4	7	12.1	5.8	5.4	7.4	7.3	8.7	9.2	**S**	11.1	10.5	11.9	12.4	14.3	17.3	21	21.2	21.2	9.6	24
21	19.7	21.2	20.7	19.7	18.8	16.6	13	6.2	3.7	2.6	2	1.7	1.8	1.7	**S**	1.7	2.4	1.3	0.7	0.5	0.5	0.9	0.6	2.7	21.2	7.0	24
22	11.3	7.3	6.1	1.1	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.2	**S**	0.6	0.3	0.2	0.5	0.5	0.4	0.2	0.4	0.4	0.3	11.3	1.4	24
23	0.8	0.6	0.9	1	1.2	1.1	0.8	0.7	5.7	22	6.8	7.1	**S**	4.6	6.2	6.5	6	6	6	5.2	6	7.1	8.5	8.6	22	5.2	24
24	8.6	10.2	10	12	16.2	15.8	16.7	15.8	20.7	7.7	10.8	**S**	8.4	4.7	1.8	1.7	1.9	1.7	3.2	3.4	3.3	3.3	3.3	2.8	20.7	8.0	24
25	2.5	2.5	2.1	0.5	0.4	0.4	0.4	0.7	0.8	1.3	**S**	0.6	0.7	1.7	3.1	4.7	4.6	5.3	0.6	0.5	1	1.3	1.1	1.2	5.3	1.7	24
26	1.4	1.5	1.5	4.9	5.4	1.6	4.4	8.8	13.4	**S**	2.8	2.8	2.9	4.1	3.8	6.4	7.4	7	5.7	7.3	6.7	7.4	9.2	9.2	13.4	5.5	24
27	8.1	9.2	8.6	6.2	5.4	2.9	1.4	1.9	**S**	2.7	1.3	0.9	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.3	0.6	0.6	0.6	9.2	2.4	24
28	0.6	0.4	0.4	0.3	0.6	0.4	0.4	**S**	0.4	0.4	0.4	0.4	0.5	0.7	0.4	0.2	0.3	0.4	0.6	1.8	1.9	0.7	1	0.4	1.9	0.6	24
29	0.5	0.7	1.6	4.1	7.2	17.1	**S**	14.1	23.2	6.1	2.3	6.6	4.9	2.6	1.7	12.4	6.8	17.6	10.3	10.1	8.5	13.8	14.8	6.3	23.2	8.4	24
30	12.4	21.9	19.3	14.3	17.3	**S**	21.1	21.3	17.6	10.7	6.6	4.4	1.6	2.3	4.1	5.5	4.7	5.2	6.5	8.5	10	10.6	9.7	9.7	21.9	10.7	24
HOURLY MAX	20	22	21	25	27	27	23	21	23	22	26	27	12	16	22	37	46	24	24	12	18	17	21	23			
HOURLY AVG	5.7	5.4	5.1	5.1	5.9	5.3	6.2	8.9	10.4	6.2	5.6	6.5	4.8	5.1	6.3	6.4	7.2	6.8	4.9	4.3	4.6	5.4	6.0	6.2			

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: 678

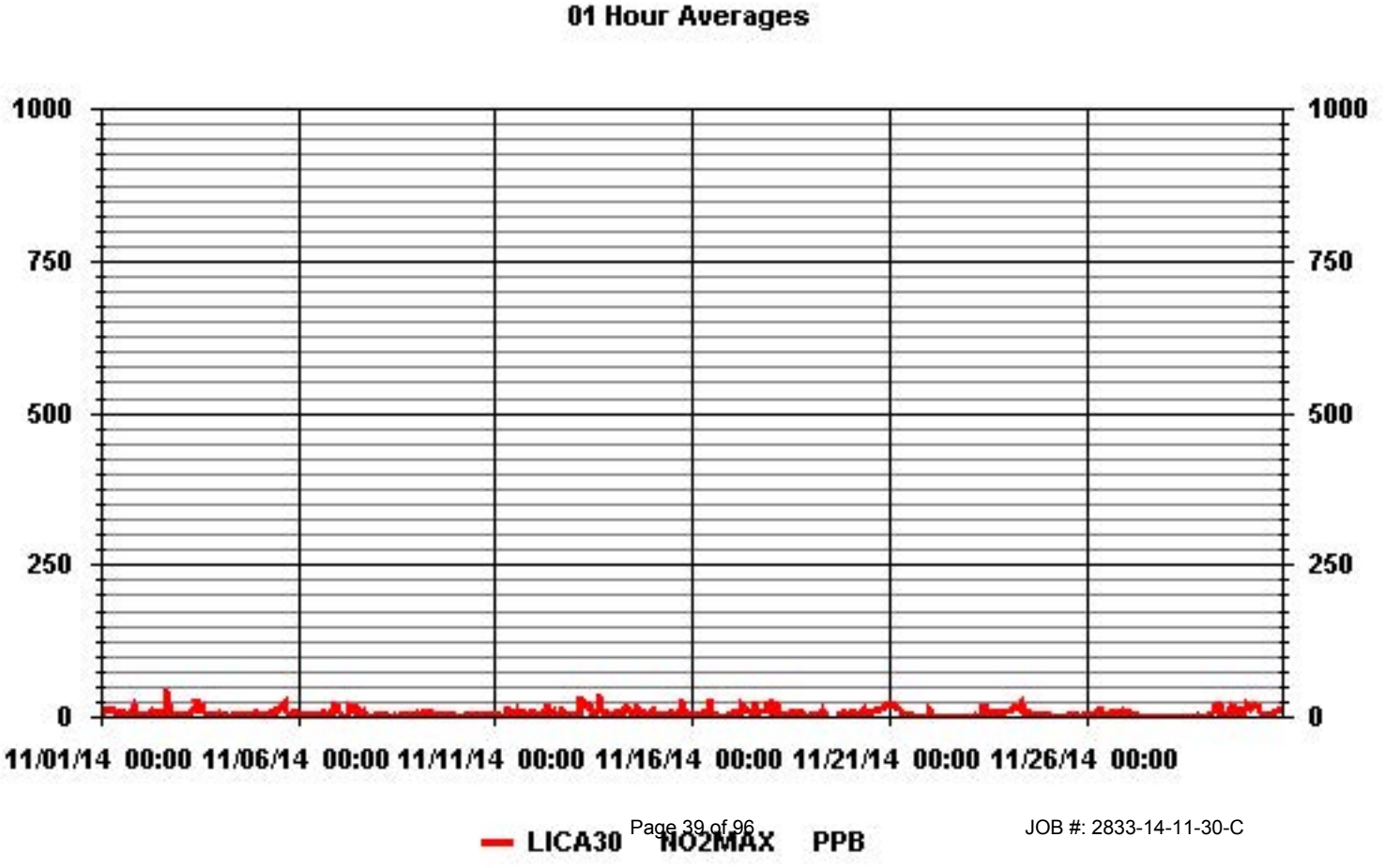
MAXIMUM INSTANTANEOUS VALUE: 45.8 PPB @ HOUR(S) 16 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 8 HRS

STANDARD DEVIATION: 5.85



JOB #: 2833-14-11-30-C

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	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	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

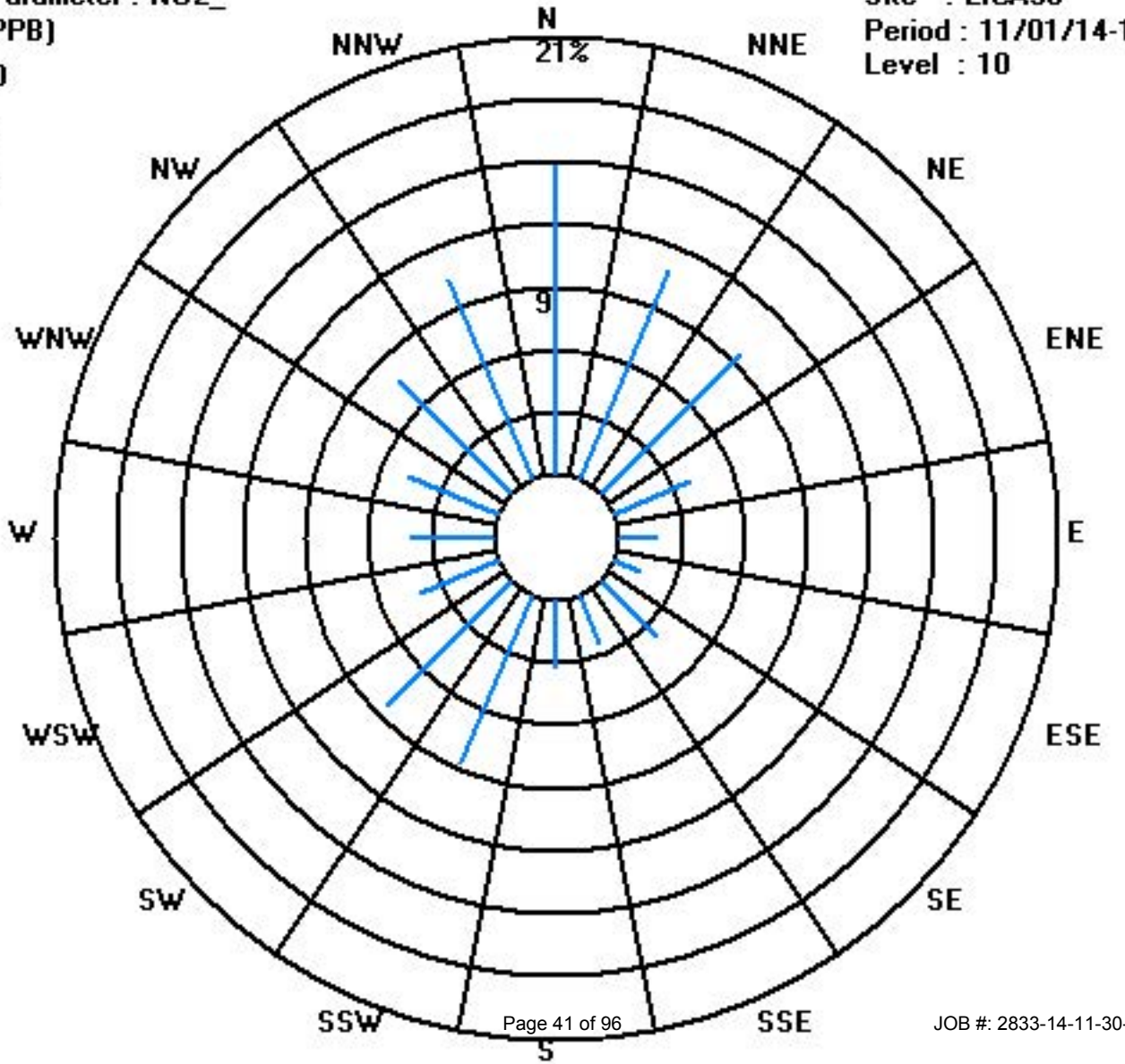
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	

Calm : .00 %

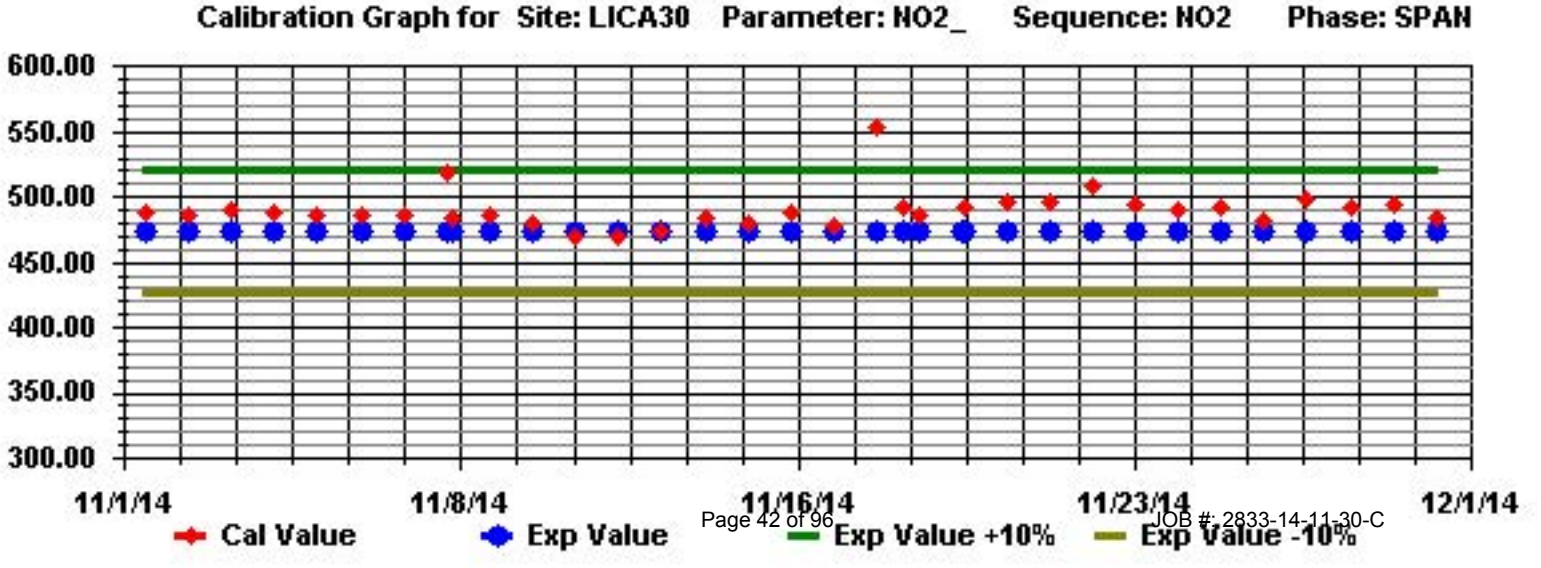
Total # Operational Hours : 680

Logger : 30 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-30-C


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN
600.00
550.00
500.00
450.00
400.00
350.00
300.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

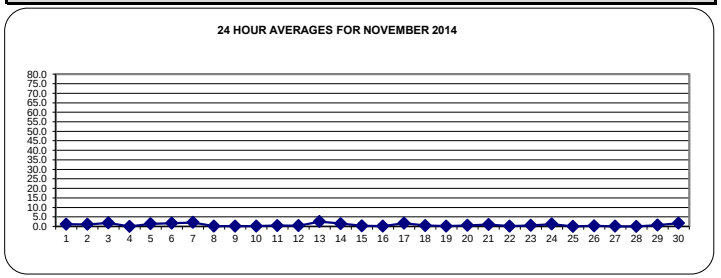
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0.8	0.6	7.5	6.5	2.2	5.4	1	0	0.5	**S**	0.6	0.4	0.8	0.4	0	0	0	0	0.1	0.2	0.2	0.2	7.5	1.2	24
2	0.1	0.1	0	0.1	0.1	0.1	0	2.3	0.3	0.4	**S**	3.2	1.1	0.3	0.5	0	13.7	2.1	0	0	0	0	0	0	13.7	1.1	24
3	0	0	0	0	0	0	0.1	1	3.4	**S**	15.6	5.8	6.1	5.1	3.8	1.8	0.1	0	0	0	0	0	0	0	15.6	1.9	24
4	0	0	0	0	0	0	0	0	**S**	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
5	0	0	0	0	0	0	0.3	**S**	1	0.5	1	1.7	2.1	5.3	6.6	5.9	6.6	1.4	0	0	0	0.1	0	0	6.6	1.4	24
6	0.1	0.1	0	0.2	0	0	**S**	0.4	0.7	0.6	0.5	0.3	0	0.1	0	0	0.3	0	0	0	0	1.6	***19.3***	14.1	***19.3***	1.7	24
7	6.2	1	0	0.1	0	**S**	0.1	3.6	7.5	7.6	9.8	9.1	0.8	1	0	0	0.7	0	0	0	0	0	0	0	9.8	2.1	24
8	0	0	0	0	**S**	0	0	**S**	0.3	0	0	0	0.2	0.2	1.2	0.5	0.1	0.2	0.2	0	0	0	0.1	0.2	1.2	0.1	24
9	0.2	0.1	0.1	**S**	0	0	0	0.1	0.5	0.8	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.8	0.1	24
10	0	0	**S**	0	0	0	0	0	0	0.2	0.5	0.5	0.6	0.7	0.1	0.4	0	0	0	0	0	0	0	0	0.7	0.1	24
11	0	**S**	0	0	0	0	0	2.7	1.3	0.2	0.1	1.1	0.1	2.3	1.5	0.6	0.1	0.3	0	0	0	0	0	0	2.7	0.4	24
12	**S**	0.2	0.1	0.1	0.1	0.4	0	0.6	1.5	1.7	0.7	1.2	0.1	0.5	0.1	0.5	0.4	0.2	0	0	0	0	0.1	**S**	1.7	0.4	24
13	0	0	0	0	13.5	6.9	3.4	1.7	9.5	7.7	5.6	2.4	2.4	1.5	0.9	2.6	1	0	0	0	0	0	**S**	0.5	13.5	***2.6***	24
14	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.9	7.7	1.7	1.8	1.8	1.9	4.1	4.7	1.9	0.7	1.8	1.2	0.2	0.3	**S**	0	0.2	7.7	1.5	24
15	0.2	0	0	0	0	0	0	0.1	0	0	0.1	1.7	1.4	1.1	0.8	0.1	0	0.9	0.8	0	**S**	0	0	0	1.7	0.3	24
16	0	0	0	0	0	0	0	0.4	0	0.2	0.3	0.8	1.6	0	0.3	0	0	0	0	**S**	0.2	0	0.1	0	1.6	0.2	24
17	0.1	0	0.2	0.4	0.3	0	1.9	0.7	2.5	4.3	5	4.5	2.8	1.1	4.5	1.1	0.5	0	**S**	0	0	0.1	2.3	5.4	5.4	1.6	24
18	0	0	0.6	2.9	0.1	0	0	**S**	0.9	0.5	0.8	0.6	1.3	1.1	0.3	0	0.1	**S**	0	0	0	0	0	0	2.9	0.4	24
19	0	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.2	0.4	0.3	0.3	0.2	0.3	0.4	0.1	24
20	0.2	0.1	0.2	0.3	0.2	0.3	0.3	0.4	0.7	0.7	1	1.5	1.7	1.8	1.6	**S**	0.5	0	0	0	0	0	0.2	0.7	1.8	0.5	24
21	1.1	2.9	3.5	6.4	5	0.9	0.1	0	0	0	0	0	0	0	**S**	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	6.4	0.9	24
22	1.1	0.8	0.5	0.1	0.3	0.1	0.1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	1.1	0.1	24
23	0	0	0	0	0	0	0	0	0	3.9	1.7	3.3	**S**	1.8	1.5	0.7	0	0	0	0	0	0	0	0	3.9	0.6	24
24	0	0	0.1	0.3	5.3	1.1	6.9	6.8	2	1.2	1.8	**S**	1.8	0.4	0	0	0	0	0	0	0	0	0	0	6.9	1.2	24
25	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.2	0.1	0	0	0	0	0	0	0	0	0.2	0.0	24
26	0	0	0	0	0	0	0	0	0.4	**S**	0.8	0.7	0.7	0.7	0.6	0.6	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.8	0.3	24
27	0.2	0.2	0	0	0	0.1	0.2	0	**S**	0.1	0.2	0	0	0.1	0	0	0	0	0	0.2	0	0	0	0.1	0.2	0.1	24
28	0.1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
29	0	0	0	0	0	0.4	**S**	2.2	3.3	1.2	0.5	2.5	1.7	0.9	0.6	0.9	0.2	0.3	0.1	0.2	0.2	0.3	0.4	0.2	3.3	0.7	24
30	0.3	7.1	1.9	2.3	4.3	**S**	6.3	5.8	4.2	0.8	2.3	1	0.2	0.4	0.9	0.7	0.1	0	0.2	0	0.3	0.2	0.2	0.1	7.1	1.7	24
HOURLY MAX	6	7	4	6	14	7	7	7	10	8	16	9	6	5	7	6	14	2	1	0	0	2	19	14			
HOURLY AVG	0.4	0.4	0.3	0.5	1.3	0.6	0.8	1.4	1.7	1.2	1.9	1.6	1.1	1.1	1.1	0.7	0.9	0.3	0.1	0.0	0.1	0.1	0.8	0.8			

STATUS FLAG CODES

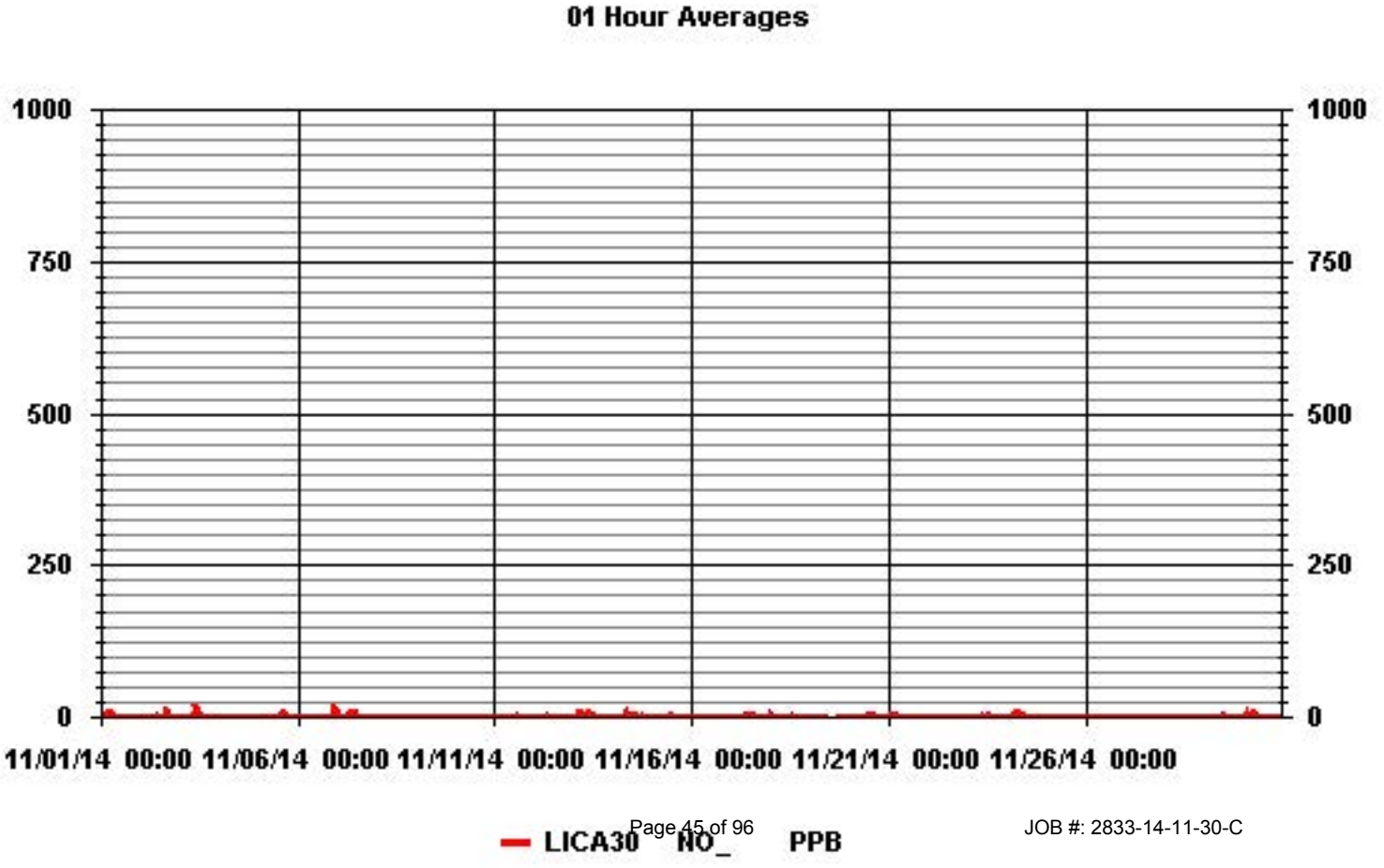
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	343					
MAXIMUM 1-HR AVERAGE:	19.3	PPB	@ HOUR(S)	22	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	2.6	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	1.97		MONTHLY AVERAGE:		0.79	PPB



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

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	0.3	1.4	3.3	4.3	22.7	14.9	11.6	13.7	11.3	1.4	2.7	**S**	9.2	1.5	2.9	10.3	0.6	0.8	0.7	0.8	0.9	0.9	0.8	0.7	22.7	5.1	24
2	0.7	0.7	0.5	0.7	0.7	0.9	0.6	13.5	0.8	1	**S**	47.9	2.5	2.7	1.9	0.7	***138.4***	32.5	0.2	0.4	0.2	0.2	0.3	0.3	***138.4***	***10.8***	24
3	0.5	0.1	0.2	0.2	0.1	0.3	2.2	7.8	12.6	**S**	77.7	30.9	12.5	15	12.5	9.4	1.8	0.9	0.4	0.5	0	0.3	0.2	0.2	77.7	8.1	24
4	0.5	0.3	0.2	0.1	0.2	0.1	0.3	0.4	**S**	0.5	0.6	0.8	1	0.6	0.6	0.5	0.3	0.6	0.4	0.6	0.5	0.6	0.6	0.5	1	0.5	24
5	0.7	0.4	0.4	0.5	0.4	0.6	2.5	**S**	2.5	1.7	54.4	5.3	4.7	14.7	11.7	15.8	28.8	32.4	0.3	0.3	0.6	1.3	0.9	0.8	54.4	7.9	24
6	0.9	0.6	0.8	0.7	0.4	0.5	**S**	1.4	1.7	1.4	1.3	0.9	0.8	0.9	0.6	1.1	3	0.5	0.2	0.4	0.5	6.7	40.4	38.4	40.4	4.5	24
7	17.9	6.4	0.4	1	0.6	**S**	3.6	16.3	14.6	21.6	22.8	37	2.7	5.9	2.7	2.3	4.8	0.5	0.3	0.2	0.5	0.3	0.3	0.5	37	7.1	24
8	0.4	0.5	0.6	0.5	**S**	0.4	0.2	**S**	**S**	0.5	0.9	0.7	1	1.3	3.5	2.1	0.8	0.8	0.9	0.7	0.8	0.8	0.8	0.9	3.5	0.9	24
9	0.7	0.7	0.8	**S**	1.6	0.4	0.4	1.7	2	1.9	1.5	0.6	0.8	1.4	0.4	0.4	0.4	0.4	0.1	0.1	0.4	0.3	0.3	0.4	2	0.8	24
10	0.4	0.3	**S**	0.3	0.3	0	0.3	0.2	0.7	0.8	1.6	1.4	3.9	2	0.8	1.9	0.7	0.1	0.1	0.3	0.4	0.7	0.9	0.9	3.9	0.8	24
11	0.7	**S**	0.7	0.4	1.1	0.5	0.9	5.6	5.5	0.9	1.1	4.3	1.2	5.3	4.5	1.7	1.4	2.2	0.7	0.5	0.7	0.7	0.7	0.6	5.6	1.8	24
12	**S**	0.8	0.7	0.7	0.8	2.1	1.5	2.3	40.1	4.8	1.3	2.6	1.2	2.8	0.8	2.2	2.4	1	0.6	0.4	0.5	0.6	0.7	**S**	40.1	3.2	24
13	0.4	0.5	0.5	0.3	20.4	11.5	9.2	5.3	20.9	12.6	11.6	4.2	3.7	3.7	2.2	48.3	5.4	0.7	0.3	0.5	0.4	0.3	**S**	1.1	48.3	7.1	24
14	1.1	1.1	0.9	1	1	1.1	1	4.4	15.2	5.9	4.8	5.9	5.5	6.9	34.1	4.1	1.9	3.7	4.9	0.9	1.1	**S**	0.5	3.3	34.1	4.8	24
15	2.7	0.6	0.6	0.5	0.3	0.2	0.5	3	0.6	0.8	1.2	28	2.3	2	1.6	0.7	0.4	8.2	8.5	0.2	**S**	0.7	0.3	0.1	28	2.8	24
16	0.3	0.4	0.3	0.3	0.4	0.3	0.1	2.8	2.3	1.7	1.1	34.5	5.3	3.2	1.8	1.2	0.8	1.1	0.1	**S**	0.8	0.6	0.7	0.7	34.5	2.6	24
17	0.8	0.9	1	1.3	0.9	0.8	18.2	4.4	4.2	9.6	6.1	6.3	5	2.6	42.3	3.4	1.3	0.6	**S**	0.7	0.6	0.8	9	17.3	42.3	6.0	24
18	1.9	0.4	4.5	14	1.1	0.4	0.2	**S**	**S**	1.2	1.7	2.2	3.8	4.4	1.8	0.6	0.8	**S**	2.4	0	0	0	0	0	14	2.0	24
19	0.1	0	0	0.1	0.1	0.1	0.2	0.9	0.8	0.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.7	0.8	0.8	0.9	0.7	0.7	0.9	0.5	24
20	0.7	0.6	0.8	1	0.7	0.8	0.9	1.1	11	1.5	1.7	2.8	2.3	2.9	2.6	**S**	2.5	0.4	0.4	0.2	0.2	0.2	1.4	1.7	11	1.7	24
21	2.7	3.6	4.3	8.6	8.4	2.6	2.2	0.3	0.4	0.4	0.4	0.2	0.6	0.3	**S**	0.9	0.7	0.7	0.7	0.7	0.6	0.7	0.5	0.9	8.6	1.8	24
22	4.4	2.2	1.9	0.9	0.8	0.5	0.5	0.5	0.4	0.7	0.8	0.7	0.8	**S**	0.1	0	0	0	0.1	0	0	0	0	0.5	4.4	0.7	24
23	0.2	0.2	0.2	0.4	0	0	0.1	0.2	2.8	33.8	3.8	4.2	**S**	3	2.5	1.6	0.6	0.5	0.7	0.6	0.3	0.4	0.4	0.4	33.8	2.5	24
24	0.6	0.6	0.7	1.4	12.6	12.3	16.9	42.4	35.7	4	7.5	**S**	4.8	1.6	0.7	0.7	0.6	0.2	0.4	0.4	0.5	0.6	0.6	0.4	42.4	6.4	24
25	0.4	0.4	0.4	0.2	0.5	0.6	0.6	0.4	0.5	0.6	**S**	0.3	0.2	0.5	1.4	1.9	0.5	1.4	0.3	0.3	0.3	0.4	0.3	0.3	1.9	0.6	24
26	0	0.3	0.3	0.5	0.6	0.5	0.4	0.8	2.2	**S**	1.3	1.5	2.1	1.9	1.2	1.7	1.2	0.6	0.7	0.9	0.6	0.6	0.7	0.8	2.2	0.9	24
27	0.7	0.8	0.9	0.9	0.5	0.7	0.9	0.5	**S**	0.7	0.6	0.6	0.6	0.8	0.6	0.5	0.8	0.5	0.6	0.9	0.6	0.4	0.5	0.6	0.9	0.7	24
28	0.6	0.6	0.5	0.6	0.3	0.4	0.3	**S**	0.1	0	0	0	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.6	0.2	24
29	0	0.2	0.2	0.4	0.4	4	**S**	4.2	39.1	3.8	1.4	5.1	4	2.9	1.6	8.9	2.6	10.1	1.3	0.9	1.2	1.5	1.1	1.1	39.1	4.2	24
30	1.7	11.6	8.4	5.6	9.3	**S**	13.5	12.5	8.6	2.3	3.9	3.4	1.1	1.1	1.4	2.2	0.9	0.6	0.6	0.5	1.3	0.8	0.7	0.7	13.5	4.0	24
HOURLY MAX	18	12	8	14	23	15	18	42	40	34	78	48	13	15	42	48	138	33	9	1	1	7	40	38			
HOURLY AVG	1.5	1.3	1.2	1.6	3.0	2.1	3.2	5.6	9.1	4.2	7.9	8.6	3.0	3.3	5.0	4.5	7.1	3.7	1.0	0.5	0.5	0.8	2.2	2.6			

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

NUMBER OF NON-ZERO READINGS: 655

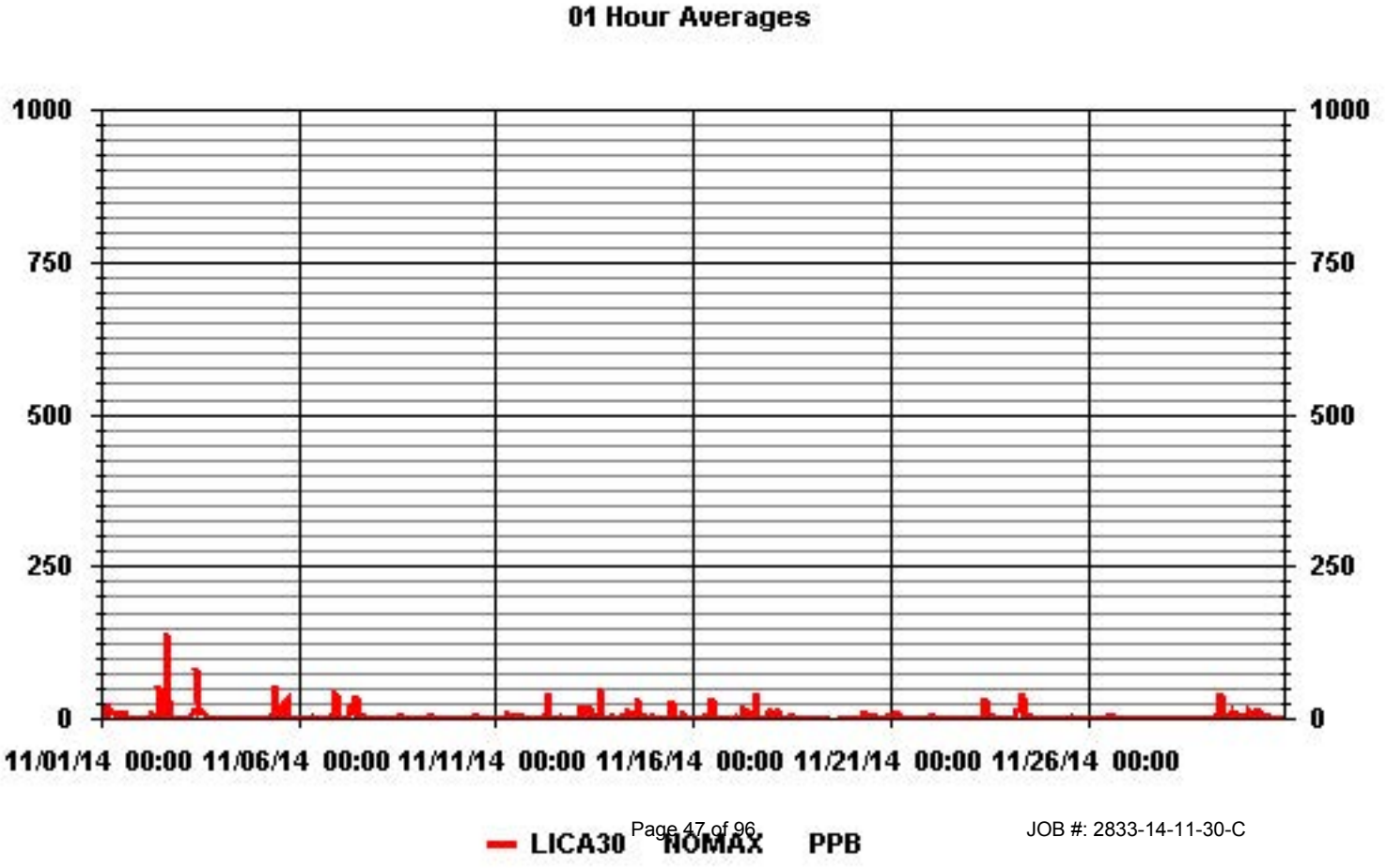
MAXIMUM INSTANTANEOUS VALUE: 138.4 PPB @ HOUR(S) 16 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 8 HRS

STANDARD DEVIATION: 9.15



JOB #: 2833-14-11-30-C

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	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	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

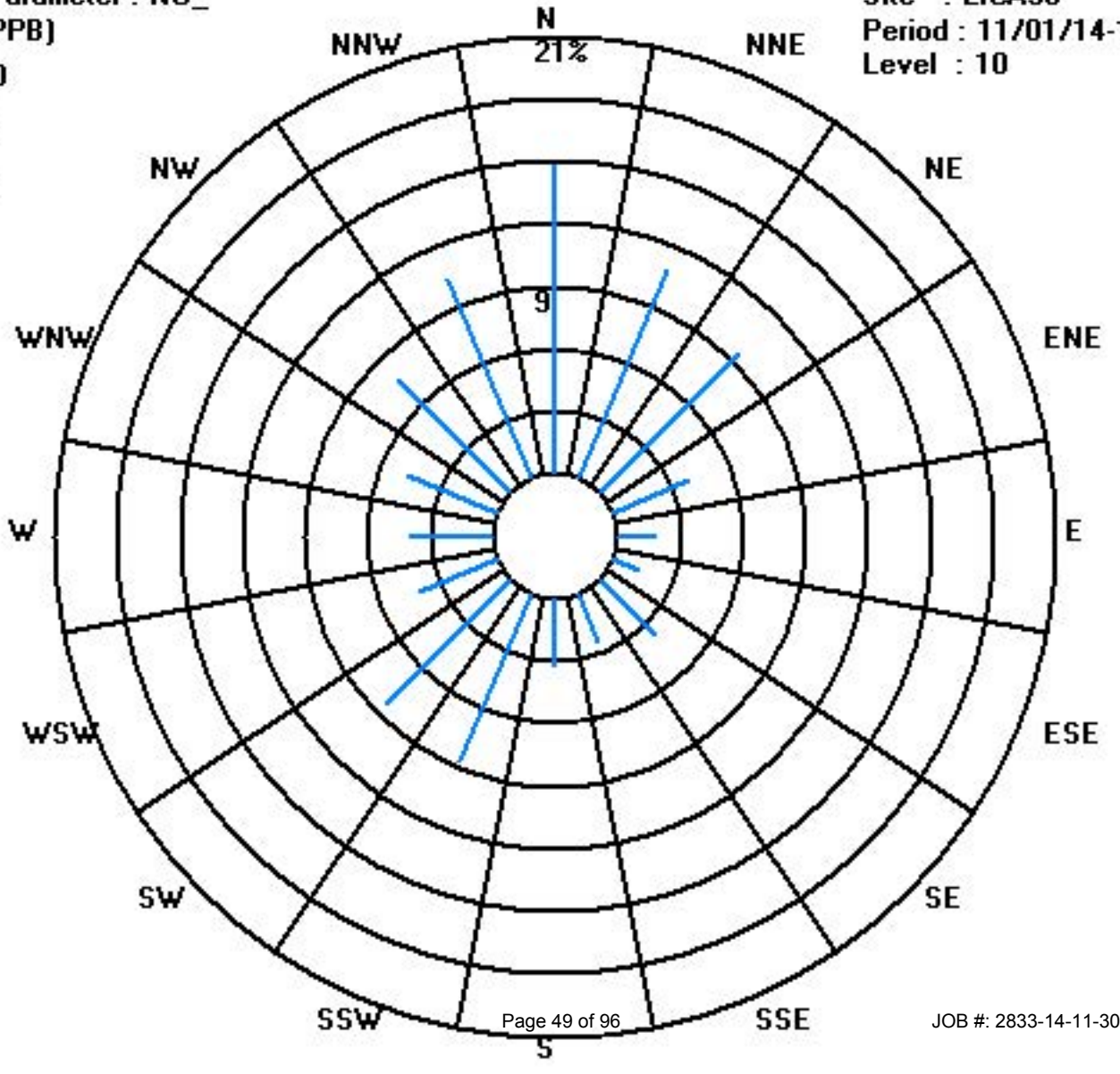
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	

Calm : .00 %

Total # Operational Hours : 680

Logger : 30 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-30-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

OXIDES OF NITROGEN (NOx) hourly averages in ppb

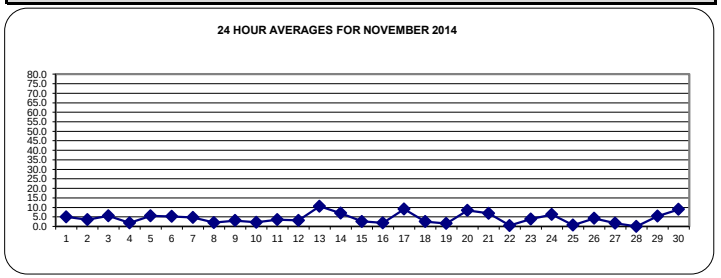
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	2.4	4.8	4.3	13.2	13.9	6.4	13.6	3.7	0.9	1.8	**S**	2	2.2	3.7	3.2	1.1	2.2	1.1	6.3	11.2	6.9	5.2	3.5	13.9	5.0	24
2	1.9	1.5	0.9	0.7	0.8	0.9	0.6	5	2.2	1.7	**S**	7.7	5.3	2.2	4.8	2.5	21.2	8.8	4.5	3.2	1.9	1.3	1.6	1.7	21.2	3.6	24
3	2	1.8	2.7	1.6	1.3	1.2	2.1	5.7	12.5	**S**	25.2	12.6	14.4	12.5	11.6	7.7	2	2	1.6	1	0.8	1.2	1.3	1.9	25.2	5.5	24
4	4.6	1.6	1	0.5	0.4	0.8	1	0.7	**S**	1.2	1	1.2	1.6	1.2	1.5	2.3	1.7	1.6	2.1	1.5	1.6	2.9	6.3	5.1	6.3	1.9	24
5	3	1.4	1.3	1.4	1.4	1.7	2.6	**S**	8.4	3	2.1	8	9.1	14.2	16.1	15.3	18.4	5	1.3	2.5	0.9	3.8	3.2	2.2	18.4	5.5	24
6	1.5	1.3	1.2	1.2	1.1	1.2	**S**	2.9	3.8	3.4	2.9	2.6	2.1	2.5	3.4	2.9	4.5	3.1	2.8	2.6	3.5	8.5	34.9	26.4	34.9	5.2	24
7	15.2	3.8	0.4	0.8	0.7	**S**	0.8	9.5	17.8	15.4	17.2	16	2.5	2.8	0.8	0.7	2.7	0.4	0	0	0.1	0	0	0.7	17.8	4.7	24
8	1	0.6	1.1	0.9	**S**	1.6	1.5	**S**	2.9	1.5	0.7	0.4	0.6	0.7	3.9	3.2	2.1	1.8	2.1	2.1	2.5	3.7	4.3	4.4	4.4	2.0	24
9	5.3	5.6	4.9	**S**	6.8	5.1	4.4	5	5.4	4.2	2.6	1.3	1	2.5	0.6	0.7	3.6	3.7	1.9	1.6	1.3	0.7	0.6	2.3	6.8	3.1	24
10	1.1	0	**S**	0.4	0	0.1	1.2	1.5	2.8	2.8	3.4	3.5	2.8	3.6	2.1	3.3	2.7	2.7	2.5	3.2	3.6	2.5	1.8	1	3.6	2.1	24
11	0.8	**S**	0.9	0.3	0.7	0.2	0.8	8.3	5.4	1.1	1.1	3.1	1.4	8.7	5.8	6.6	4	5.1	4.4	3.5	4.2	6.1	5.6	4.9	8.7	3.6	24
12	**S**	3.7	2.7	0.9	2.1	4.6	2.4	4.6	5.5	5.8	3.6	5.6	1.1	1.6	1	2.7	5	4.5	4.1	3.2	2.3	1.7	1.6	**S**	5.8	3.2	24
13	0.2	2.4	2.7	2.5	***35.8***	26.1	20.3	16.8	26	21.4	14.7	6.7	6.1	4.9	4.1	8.5	11.5	8.2	5.6	5.3	4.3	3.2	**S**	5.2	***35.8***	***10.5***	24
14	5.7	7.3	8.8	9.6	8.4	7.3	5.5	6.4	21.5	6.6	6.3	5.7	6.3	10	11.5	6.1	4.5	7	4.7	1.7	2.4	**S**	2.8	3.4	21.5	6.9	24
15	4.6	3.3	0	0	0	0	0.4	0.7	0.6	0.5	0.8	5.3	5.2	4.9	5.4	3.8	4	10.2	4.4	0.8	**S**	2.4	2.2	0.7	10.2	2.6	24
16	1	2	1.1	0.9	0.5	0.6	0.5	4.3	2.1	3.2	3	3.8	6.4	1.9	3.2	0.8	0.9	0.2	0	**S**	1.1	1	2.1	2.2	6.4	1.9	24
17	0.7	1.3	3.5	3.9	4.1	1.6	13.6	10.8	14.8	14.5	13.6	11.5	7.5	4	10	6.8	6.9	8	**S**	10.8	11.1	11.7	16.2	22	22	9.1	24
18	5.6	2.9	6.3	11.7	2.9	1.2	1.6	**S**	2.4	3.9	2.8	2.8	5	4.7	1.6	0.7	0.7	**S**	0.4	0	0	0	0	0	11.7	2.6	24
19	0	0	0	0	0	0	0	1.5	0.2	0.2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.5	3.9	5.6	4.4	3	2.8	5.6	1.6	24
20	3.8	4.8	4.7	4.4	3.8	3.4	5.8	5.7	5.2	5.3	5.6	7.2	7.7	9.1	9.1	**S**	10.2	9	10.6	11.4	12.1	15.5	19	19.9	19.9	8.4	24
21	20	23.5	23.6	25.3	22.7	15.7	10.8	3.8	2.8	1.9	1.1	0.9	1.1	0.8	**S**	1.1	1.5	0.9	0.1	0.1	0.1	0.1	0.1	0.6	25.3	6.9	24
22	4	4.5	1.9	0.1	0.3	0.1	0.1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	4.5	0.5	24
23	0	0	0	0	0	0	0	0	0.4	9.7	5.8	8.5	**S**	5	5.8	6.5	5.5	5.1	5.1	4.7	5.1	6	7.7	8.1	9.7	3.9	24
24	7.9	9	9.5	11	17.4	7.6	18.8	16.6	6.8	4.9	6.3	**S**	6.1	2.5	1.1	1.3	1	0.9	1.8	2.8	2.8	2.8	2.6	1.9	18.8	6.2	24
25	1.9	1.7	0.8	0	0	0	0	0	0	0.6	**S**	0.1	0	0.5	2	2	1.7	1.8	0	0	0.1	0.4	0.5	0.4	2	0.6	24
26	0.6	0.9	0.8	1.9	3.7	1	1.7	4.2	6.5	**S**	3.1	3	3	3.5	3.6	5.7	6.3	5.5	5.5	6.8	6.3	6.6	8.1	8.6	8.6	4.2	24
27	7.3	7.5	6.5	5.6	3.9	2.1	1	1	**S**	1.6	0.8	0.2	0.2	0.1	0	0.1	0	0	0	0.2	0	0	0	0.1	7.5	1.7	24
28	0.1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0	0	0	0.5	0.0	24
29	0	0	0.6	2.3	5.9	9.6	**S**	12.9	13.2	4.7	1.8	6	4.3	2.3	1.4	3.4	5.4	7.8	9.1	9.5	5.7	8.3	4.9	4.1	13.2	5.4	24
30	9.3	24.2	9.5	11.5	14.5	**S**	20.4	18.9	15	4.5	7	2.9	0.5	1.1	3.9	5	4.2	4.4	5.5	6.9	9.6	9.9	9.1	8.8	24.2	9.0	24
HOURLY MAX	20	24	24	25	36	26	20	19	26	21	25	16	14	14	16	15	21	10	11	11	12	16	35	26			
HOURLY AVG	3.8	4.1	3.5	3.6	5.3	3.8	4.4	6.2	6.7	4.4	5.0	4.7	3.7	3.9	4.2	3.7	4.6	3.9	2.9	3.3	3.5	3.8	5.0	4.9			

STATUS FLAG CODES

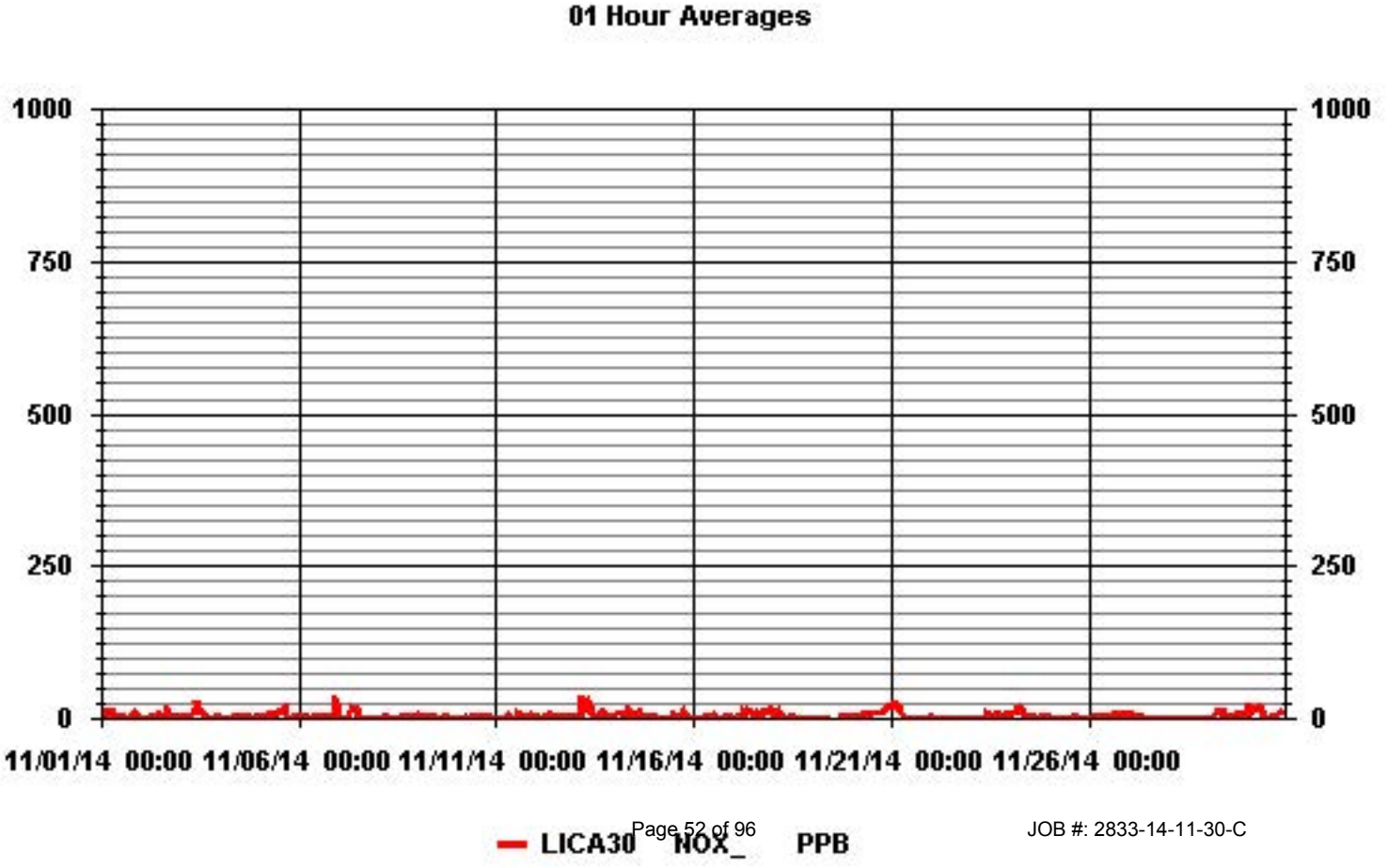
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	595					
MAXIMUM 1-HR AVERAGE:	35.8	PPB	@ HOUR(S)	4	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	10.5	PPB			ON DAY(S) VAR-VARIOUS	13
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	5.19		MONTHLY AVERAGE:		4.28	PPB



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.4	5.8	8.3	9.5	31.7	25.6	21.3	26.7	23.7	3	5.7	**S**	18.6	5.3	10.3	17	2.8	7	2.5	9.7	17.6	11.8	7	5.7	31.7	12.1	24
2	2.9	2.3	1.4	1.3	1.3	1.6	1.5	21.1	3.9	3.1	**S**	54.6	8.7	6	10.3	5.5	***173.2***	56.7	5.5	4.1	2.5	1.9	2.5	3.3	***173.2***	16.3	24
3	3	2.9	4.4	2.3	2.3	1.9	3.9	13.7	18.1	**S**	97.4	41.8	24.1	28.2	30.1	18.9	6.5	4.1	4	1.5	1.4	2.5	2	4.2	97.4	13.9	24
4	6.8	2.6	1.5	1.1	1	1.6	2.1	1.5	**S**	2.4	1.7	2	2.1	1.8	2.3	3.2	2.6	2.6	2.5	2.3	2.1	4.2	8	6.9	8	2.8	24
5	5	2.1	1.9	2	2	2.3	6.1	**S**	12	8.3	57	16.1	14.8	30.4	25.9	32.5	50.5	38.5	2.5	4.4	1.7	8.5	7.8	8.2	57	14.8	24
6	2.8	2.2	2.1	1.8	1.7	1.7	**S**	5.1	6.5	5	4.2	3.8	3	3.6	4.5	4	9.8	3.9	3.8	3.3	5.4	18.8	61.4	58.6	61.4	9.4	24
7	34.1	15.3	1.4	2.4	1.5	**S**	11.3	34.8	30.9	35.7	36.2	56.2	6.9	12.4	4.5	6.6	13	2.8	0.5	0.7	1.6	0.5	0.5	1.6	56.2	13.5	24
8	1.7	1.4	2	1.7	**S**	3.4	3.2	**S**	**S**	3.4	1.4	1.1	1.7	2.8	8.9	7	3	2.6	2.9	2.9	3.1	4.4	5	5.4	8.9	3.3	24
9	6.7	6.4	5.8	**S**	10.1	7.1	5	7.6	9.9	6.2	4.6	2.4	2.5	5	2.9	2.1	4.7	4.9	2.5	2.2	2	1.4	1.6	3.6	10.1	4.7	24
10	3.3	0.6	**S**	0.9	0.5	0.8	1.9	2.5	3.7	3.6	5.2	5.5	7.4	5.5	3	6.2	4	3.6	3.1	4	4.3	3.6	3	2.8	7.4	3.4	24
11	2.2	**S**	2	1.2	3.2	0.9	2.9	15.5	15.9	2.7	2.7	8.3	4.8	16.6	11.7	9.2	7	8.7	6.9	4.1	5.7	8.5	7.2	6.7	16.6	6.7	24
12	**S**	4.8	4	2.3	5.9	10.8	7.8	9.9	57.9	12.9	7.2	11.9	3.4	5	2.2	5.2	10.7	10.6	5	4.5	2.9	2.3	2.7	**S**	57.9	8.6	24
13	1	3.6	4.1	3.6	46.3	33.9	29.2	23.3	39.5	29.7	25.1	10.8	8.4	8.5	7.7	75.8	21.4	10.9	7	6.2	5.2	4.2	**S**	5.8	75.8	***17.9***	24
14	6.4	9.1	10.2	12.4	10.5	8.2	6.6	18.3	36.1	16.9	13.7	14.6	13.4	16.8	52.8	11.3	6.6	10.8	14.1	2.5	3.2	**S**	3.3	12.2	52.8	13.5	24
15	13.8	8.2	1.8	1	0.3	0.5	1.2	5.1	1.7	2	2.3	34.4	7.2	6.3	7.5	6.3	5	30	30.8	2.5	**S**	3.5	4	1.4	34.4	7.7	24
16	2	2.7	1.8	1.5	1.2	1	1.2	10.5	9.2	7.4	5.2	59.4	15.9	6.6	6.7	4.9	4.6	2.2	0.6	**S**	1.7	2.1	3	4.3	59.4	6.8	24
17	4	3.9	7.3	9.5	8.9	3.8	36.2	21.6	20.1	22.1	15.3	15.3	11.2	6.5	53.8	10.3	8.3	10.1	**S**	11.4	12.3	13.4	30.6	40.8	53.8	16.4	24
18	13.8	4.7	17.8	39	5.9	2.4	3	**S**	**S**	5.4	4.1	6.2	13	14.9	6.4	1.3	2.3	**S**	9.3	0	0.1	0	0	0	39	7.1	24
19	0	0	0	0	0.2	0	1.2	8.8	2.6	3.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	4.8	4.7	6.8	6	3.7	3.9	8.8	2.9	24
20	5.4	5.6	5.8	5.3	5.1	3.8	7.8	7.1	22.1	6.5	6.3	9.4	9	11	10.4	**S**	13.7	10.2	11.6	12	14.3	17.2	22.5	22.8	22.8	10.6	24
21	22.3	24.5	24.5	27.2	26.7	19	14.8	6.2	3.8	2.7	1.8	1.5	2.2	1.9	**S**	1.8	2.6	1.6	1	0.6	0.6	0.7	0.4	3.3	27.2	8.3	24
22	15.4	8.8	8	1.6	0.6	0.2	0.2	0.3	0	0.3	0.3	0.5	0.5	**S**	0.3	0	0	0	0	0	0	0	0.1	0.3	15.4	1.6	24
23	0.3	0.5	0.4	0.7	0.7	0.7	0.4	0.3	8.6	51.8	10.6	11.1	**S**	7.6	8.6	8.2	6.5	6	6	5.2	6.1	7	8.5	8.6	51.8	7.1	24
24	8.8	10.9	10.3	12.8	28.6	27.9	33.5	43.2	54	11.3	18.3	**S**	13.2	6	1.8	1.8	2	1.6	3.2	3.5	3.4	3.3	3.4	2.5	54	13.3	24
25	2.5	2.5	1.7	0.4	0.1	0.4	0.3	0.6	1	1.3	**S**	0.9	0.6	2	3.3	5.1	4.6	6.6	0.6	0.3	0.9	1	0.9	1.2	6.6	1.7	24
26	1.2	1.5	1.4	5.3	5.4	1.6	4.7	9.6	15.4	**S**	3.8	3.9	4.6	5.4	4.6	7.8	8.2	7.5	6.1	7.7	7.1	7.6	9.6	9.6	15.4	6.1	24
27	8.5	9.6	9.2	6.2	5.7	3	1.7	1.7	**S**	2.8	1.6	1	1	0.7	0.6	0.7	0.6	0.4	0.7	0.8	0.4	0.4	0.4	0.6	9.6	2.5	24
28	0.5	0.8	0.6	0.6	0.3	0.4	0.4	**S**	0.3	0.4	0.1	0.2	0.2	0.5	0.1	0.1	0.1	0.1	0.4	1.4	1.6	0.5	0.9	0.2	1.6	0.5	24
29	0	0.7	1.6	4	7	21.2	**S**	18	55	9.7	3.4	11.8	8.5	5	2.6	21.1	9.1	25.9	11.4	10.5	9.3	14.9	15.7	7.2	55	11.9	24
30	13	32.7	27.7	19.5	26.2	**S**	34.4	33.6	25.7	12.6	10.4	7.6	2.3	3.2	5.1	6.5	5.2	5.3	6.6	8.6	11.2	10.7	0	9.9	34.4	13.8	24
HOURLY MAX	34	33	28	39	46	34	36	43	58	52	97	59	24	30	54	76	173	57	31	12	18	19	61	59			
HOURLY AVG	6.5	6.1	5.8	6.1	8.3	6.6	8.7	13.3	18.4	9.8	12.8	14.5	7.5	8.1	10.3	10.0	13.4	9.8	5.4	4.2	4.6	5.5	7.4	8.3			

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: 659

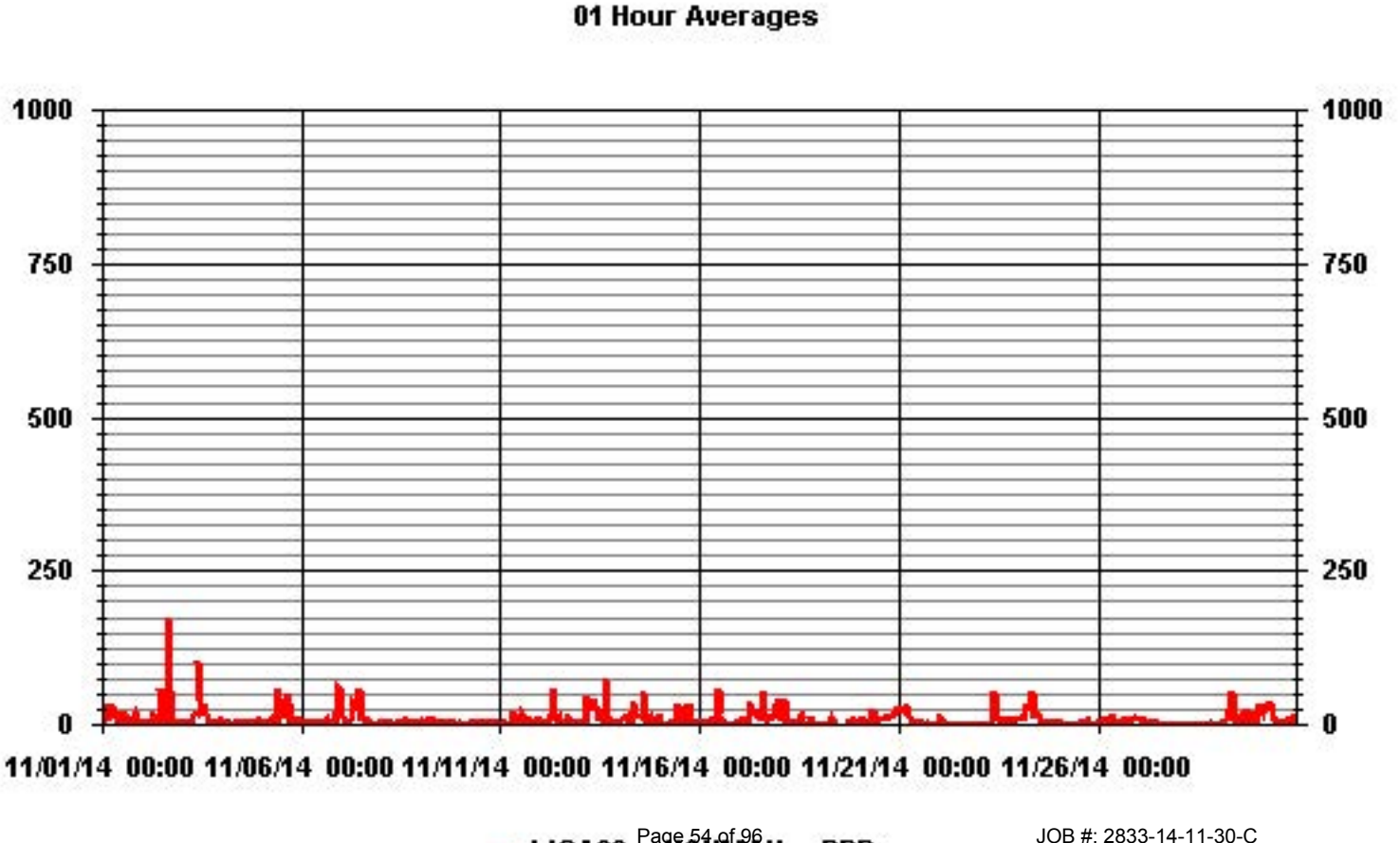
MAXIMUM INSTANTANEOUS VALUE: 173.2 PPB @ HOUR(S) 16 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 8 HRS

STANDARD DEVIATION: 13.19



JOB #: 2833-14-11-30-C

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	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	14.85	10.88	9.41	3.97	1.76	1.32	3.82	2.50	3.23	8.82	8.52	4.11	3.97	4.70	7.64	10.44	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	101	74	64	27	12	9	26	17	22	60	58	28	27	32	52	71	

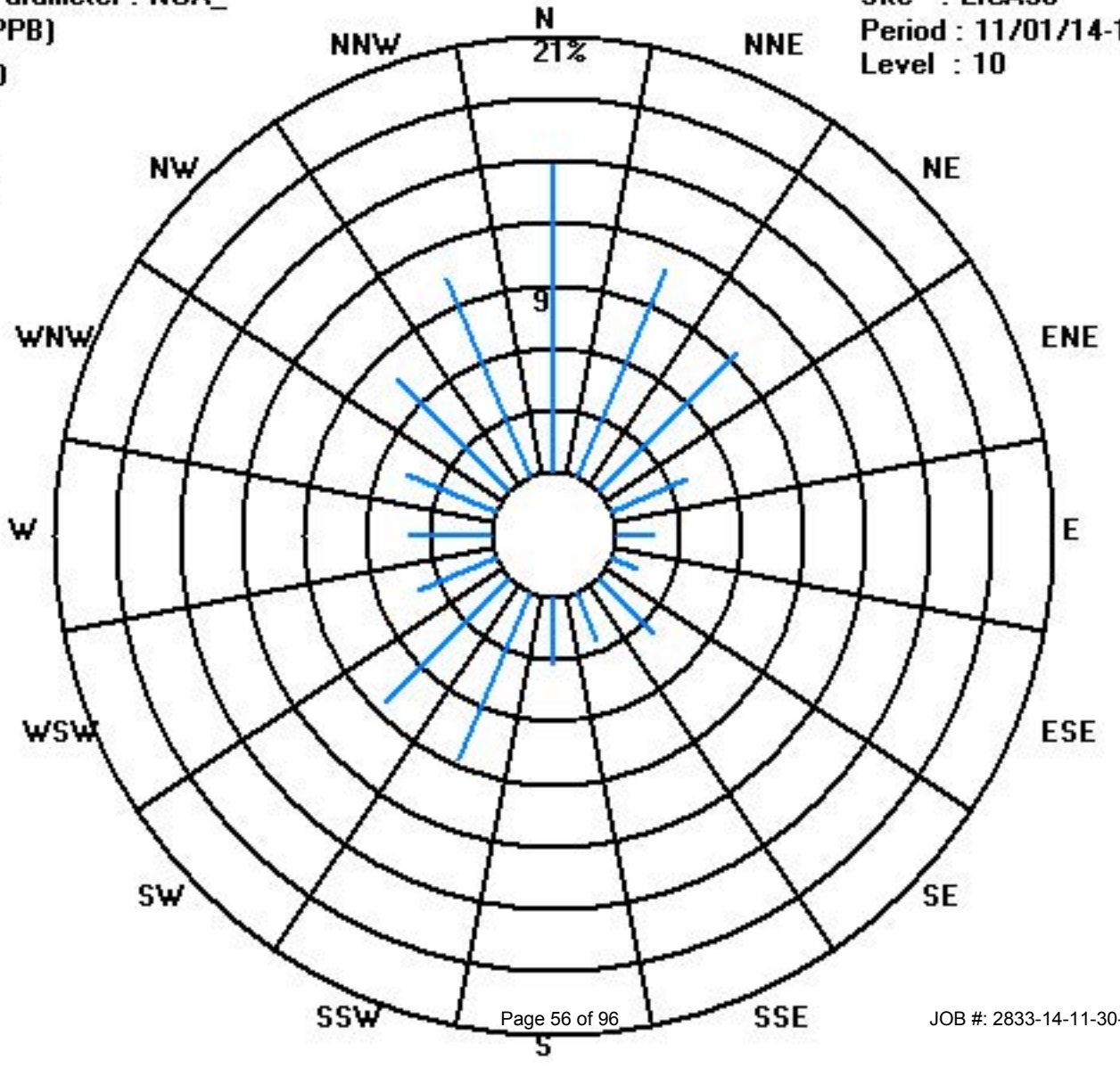
Calm : .00 %

Total # Operational Hours : 680

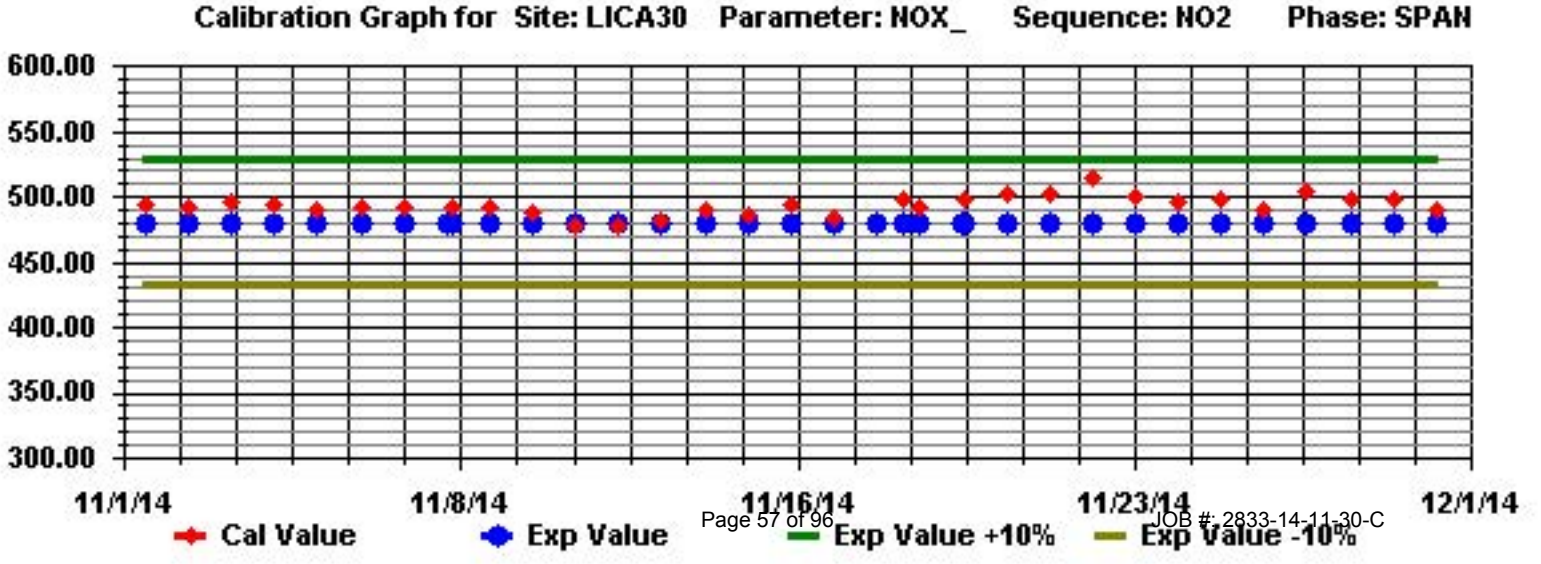
Logger : 30 Parameter : NOX_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-30-C


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN
600.00
550.00
500.00
450.00
400.00
350.00
300.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Temperature

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

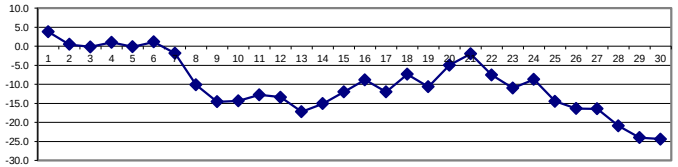
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	1.8	2.4	2.7	3.2	3.5	3.6	3.6	4	5.1	6.7	9.3	10.3	***10.5***	10.1	9	6.1	2.8	1.8	-0.2	-1.2	-1.8	-2	-1.9	***10.5***	***3.8***	24
2	-2	-2	-1.9	-1.8	-1.6	-1.4	-1.3	-0.9	-0.5	0.4	1.6	2.7	4.3	5	5.3	4.8	3.6	2.3	1.1	0.2	-0.6	-1	-2.1	-2.4	5.3	0.5	24
3	-3.2	-3.3	-3.2	-3.5	-4	-5.1	-5.1	-4.2	-2.9	-1.8	0.6	2.5	2.6	3.3	3	3	2.9	2.7	2.6	2.3	2	1.9	1.6	1.2	3.3	-0.2	24
4	1.4	1.5	1.3	1.3	1.4	1	0.8	0.6	0.6	0.9	1.2	1.3	1.7	1.9	1.9	1.6	1.5	1	0.3	0.2	0.2	0.3	0.3	0.4	1.9	1.0	24
5	0.1	0	-0.3	0.1	0.2	0.2	0	0	0.6	0.9	1.2	1.3	1.2	1.2	1	0.9	0.6	0.2	0	-0.4	-1.9	-3.1	-3.7	-3	1.3	-0.1	24
6	-2.5	-1.9	-1.7	-1.5	-1.7	-1.6	-1.3	-0.8	-0.3	0.9	2.4	3.4	4.2	4.4	3.7	3.5	3	2.6	2.1	2	1.8	1.9	2.5	2.8	4.4	1.2	24
7	2.6	2.7	2.3	1.2	0.7	0.4	0.3	0	-0.2	-0.3	-0.6	-1.2	-2	-2.4	-2.7	-3.2	-4	-4.7	-5	-4.9	-5.1	-5.5	-5.8	-6.2	2.7	-1.8	24
8	-6.6	-6.9	-7.4	-8	-8.5	-8.7	-9.1	-10.2	-10.5	-10.2	-10	-9.4	-9.1	-8.3	-8.4	-8.9	-10.1	-10.6	-10.9	-11.9	-13.1	-14.3	-15.1	-16.5	-6.6	-10.1	24
9	-16.2	-17.1	-18.6	-18.2	-18.9	-19.2	-18.5	-19	-18.1	-15.2	-13.4	-12.4	-11.6	-10.6	-10.3	-10.5	-10.9	-11.3	-11.9	-12.3	-12.9	-13.4	-14.3	-15	-10.3	-14.6	24
10	-15.5	-16	-16.1	-16.5	-16.7	-16.8	-16.4	-16.6	-16.4	-15.3	-14.1	-12.6	-12.1	-11.8	-11.8	-12.3	-12.6	-13	-13	-13.1	-13.4	-13.8	-14.2	-15	-11.8	-14.4	24
11	-15.4	-16	-16.4	-16.6	-15.7	-15.3	-15	-14.8	-14.6	-13.8	-12.6	-11.7	-10.7	-10.1	-9.8	-10.1	-10.5	-10.6	-10.8	-10.9	-11	-11.1	-11.1	-11.4	-9.8	-12.8	24
12	-11.7	-11.8	-12.1	-12.2	-12.3	-12.3	-12.2	-12.3	-12.3	-11.8	-11.2	-10.4	-9.8	-8.5	-8.4	-10.2	-13.6	-15.5	-17	-17.7	-18.3	-18.9	-20	-20.8	-8.4	-13.4	24
13	-21.2	-21	-21.4	-21.9	-20	-21.2	-19.7	-19.6	-20.2	-15.2	-13	-11.9	-10.5	-10.1	-9.9	-11.3	-13.4	-15	-16.4	-17.7	-18.9	-20.3	-21	-21.7	-9.9	-17.2	24
14	-21.6	-21.9	-21.8	-21.8	-19.1	-17.1	-15.7	-15.9	-16.2	-14.6	-12.9	-11.8	-11.5	-11.9	-12	-12.4	-12.6	-12.8	-12.8	-12.8	-12.9	-13.3	-13.3	-13.5	-11.5	-15.1	24
15	-14	-14	-14.2	-14.2	-14.6	-14.8	-15.2	-16	-15.6	-14.6	-13.8	-12.8	-11.6	-10.8	-10	-9.3	-9.7	-8.9	-8.7	-8.7	-8.1	-8.5	-9.3	-10.1	-8.1	-12.0	24
16	-9.7	-9.4	-9	-8.8	-8.7	-8.6	-8.5	-8.6	-8.5	-8.2	-7.9	-7.3	-7.1	-7.3	-7.7	-7.7	-8	-8.5	-8.9	-9.3	-9.8	-10.5	-11.7	-11.9	-7.1	-8.8	24
17	-11.8	-12	-12.5	-12.7	-12.8	-14.1	-15.4	-15.9	-15.9	-14.6	-13.3	-11.9	-10.4	-9.4	-8.9	-10.4	-11.1	-12.2	-12.3	-12.3	-11.5	-10.7	-9.2	-6.8	-6.8	-12.0	24
18	-6	-4.6	-4.8	-5.4	-5.8	-6.5	-7.4	-8.6	-8.6	-8.6	-8.2	-8.3	-7.8	-7.4	-7.5	-7.5	-7.5	-7.4	-7.6	-7.7	-7.8	-8.2	-8.4	-8.5	-4.6	-7.3	24
19	-8.7	-9	-9.3	-9.6	-9.9	-10	-10.2	-10.5	-10.6	-10.3	-9	-8.3	-7.9	-8.5	-8.2	-10	-11.9	-13.6	-14.8	-15.4	-14.8	-12.5	-11.1	-10.7	-7.9	-10.6	24
20	-10.5	-10.3	-9.9	-9.6	-9.3	-8.7	-8.5	-8.1	-7.6	-6.5	-5.3	-4.3	-2.7	-1.2	-0.3	-1.3	-1.9	-2.2	-2.3	-1.9	-1.9	-2	-1.6	-1.1	-0.3	-5.0	24
21	-0.7	-0.1	0.2	0.2	0.4	0.6	1	1.5	0.8	0.3	0.1	-0.1	-0.4	-1.6	-2.9	-3.8	-4.4	-4.8	-5.1	-5.4	-5.7	-5.9	-6	-5.8	1.5	-2.0	24
22	-5.8	-6.1	-6.4	-6.5	-6.9	-7	-7.1	-7.3	-7.3	-7.3	-7.2	-6.9	-6.6	-6.9	-6.9	-7.2	-7.6	-7.9	-8.3	-8.8	-9.3	-9.9	-10.2	-10.4	-5.8	-7.6	24
23	-10.5	-10.8	-10.9	-11.2	-11.3	-11.2	-11.1	-13.2	-15.3	-12.5	-10	-8.9	-7.8	-7.3	-8.2	-10.6	-13.1	-14.6	-12.5	-11.1	-10.4	-10.2	-10.2	-10.1	-7.3	-11.0	24
24	-9.8	-9.6	-9.4	-8.9	-8.4	-8.4	-8.1	-8	-7.9	-7.7	-7.7	-7.8	-7.7	-7.4	-7.6	-7.8	-8.2	-8.5	-8.8	-9.8	-9.9	-10.2	-10.6	-10.9	-7.4	-8.7	24
25	-11	-11.4	-11.8	-12.8	-13.4	-13.2	-13.8	-14.2	-14.2	-14	-13.8	-13.3	-13	-12.7	-13.5	-14.6	-16.8	-15.7	-15.5	-16.3	-16.9	-17.6	-18.3	-19.5	-11	-14.5	24
26	-21.9	-20.6	-19.7	-18.5	-17.7	-17.5	-17.7	-19.3	-19.5	-17.6	-16.5	-16.1	-15.1	-14.6	-14.6	-14.6	-14.8	-14.4	-14.3	-14.1	-13.9	-13.4	-13.1	-12.8	-12.8	-16.3	24
27	-12.5	-12.4	-12.2	-12	-11.7	-12.5	-13.5	-14.1	-15	-16.2	-16.6	-16.7	-17	-17.5	-17.8	-18.3	-18.8	-19.3	-19.6	-19.8	-20.1	-20.4	-20.4	-20.5	-11.7	-16.5	24
28	-21	-21.3	-21.2	-21	-20.9	-20.7	-20.6	-20.3	-20.1	-20.2	-20.3	-20.8	-20.6	-20.8	-20.7	-20.7	-20.7	-20.8	-20.9	-21.1	-21.1	-21.4	-21.8	-22.5	-20.1	-20.9	24
29	-22.8	-23.4	-23.9	-24.9	-24.7	-25.8	-27.1	-27.7	***-27.9***	-26	-22.9	-21.6	-21	-20	-19.7	-21.6	-23.6	-24.8	-25.8	-26.7	-25.9	-23	-22.7	-23.4	-19.7	-24.0	24
30	-23.9	-23.9	-24.7	-24.9	-24.7	-25.4	-25.8	-26.2	-26.4	-25.7	-23.8	-22.1	-21	-20	-21.1	-22.8	-24.3	-25.6	-26.3	-26.7	-26.4	-25.6	-24.8	-23.7	-20	-24.4	24
HOURLY MAX	2.6	2.7	2.4	2.7	3.2	3.5	3.6	3.6	4	5.1	6.7	9.3	10.3	10.5	10.1	9	6.1	2.8	2.6	2.3	2	1.9	2.5	2.8			
HOURLY AVG	-10.4	-10.4	-10.5	-10.6	-10.4	-10.6	-10.6	-10.9	-10.9	-10.0	-9.0	-8.3	-7.7	-7.4	-7.5	-8.1	-9.1	-9.7	-10.1	-10.4	-10.6	-10.7	-10.9	-11.1			

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR NOVEMBER 2014

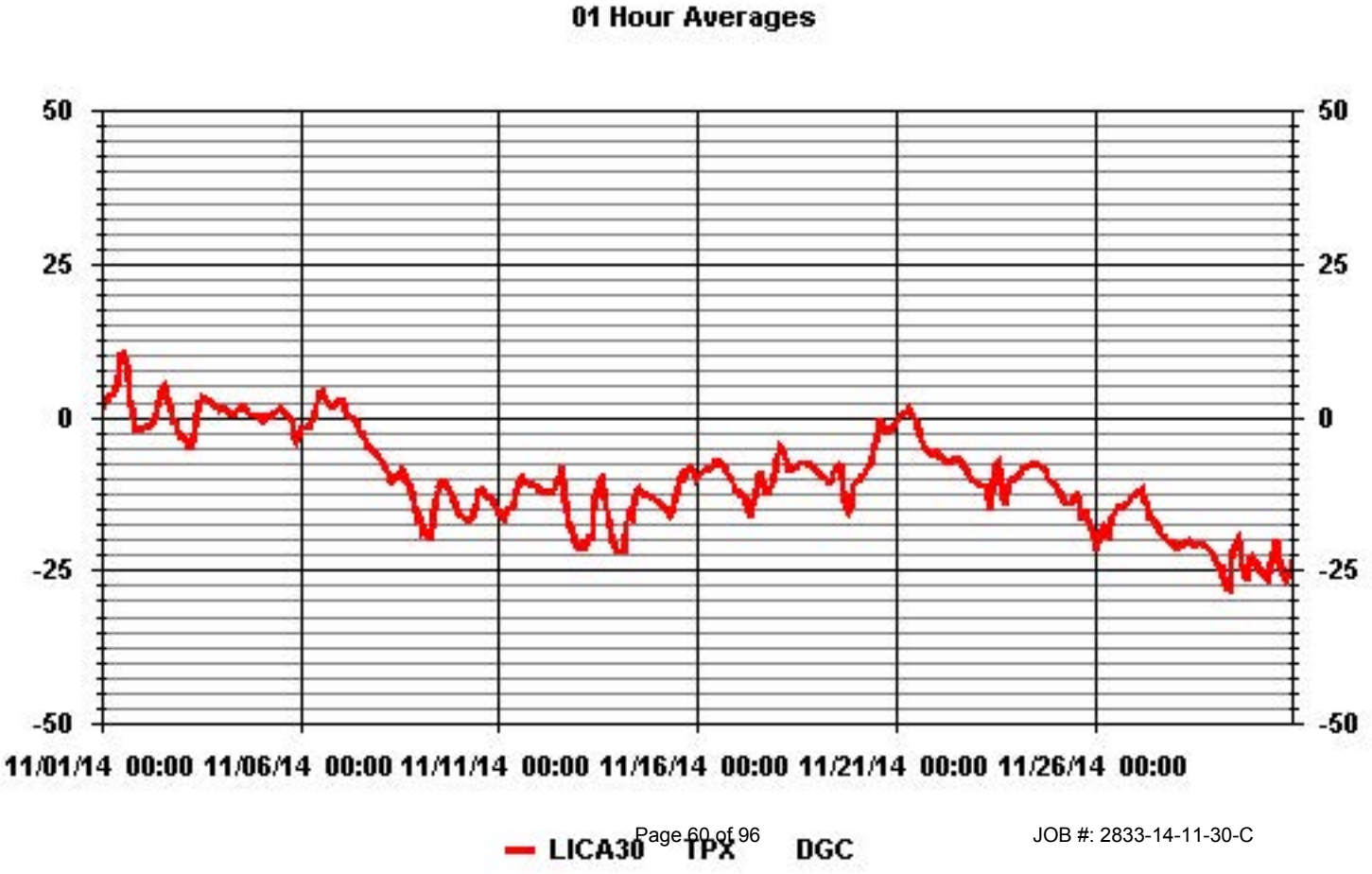


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-27.9	℃	@ HOUR(S)	8	ON DAY(S)	29
MAXIMUM 1-HR AVERAGE:	10.5	℃	@ HOUR(S)	13	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	3.8	℃			ON DAY(S)	1
					VAR-VARIOUS	

OPERATIONAL TIME:		720	HRS
AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	7.89	MONTHLY AVERAGE:	-9.82 ℃

JOB #: 2833-14-11-30-C



JOB #: 2833-14-11-30-C

Precipitation

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

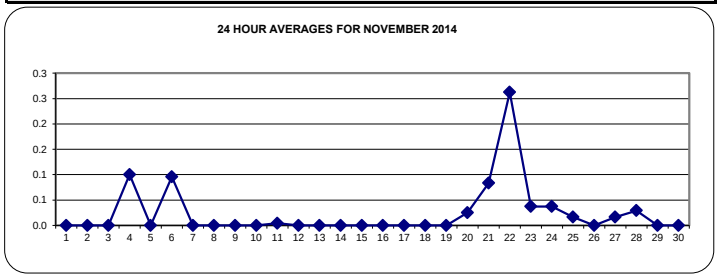
PRECIPITATION hourly averages in millimeter

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	***1.5***	0.6	0.1	0	0	0	***1.5***	0.1	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	1	0.4	0	0	0	1	0.1	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	0.4	0.0	24
21	0.3	0.5	0.3	0.2	0.5	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.1	24
22	0	0	0	0	0	0.1	0.5	0.4	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.5	0.3	0.1	0.2	0.6	***0.3***	24
23	0.2	0	0.1	0.2	0	0.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
24	0.1	0.4	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	0.0	24
25	0.2	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	0.2	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.1	0.2	0.0	24
28	0	0.2	0.3	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	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	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	24
HOURLY MAX	0.3	0.5	0.3	0.2	0.5	0.3	0.5	0.4	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.3	0.4	0.4	1.5	1	0.5	0.3	0.2	0.4			
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	0.1	0.1	0.0	0.0	0.0	0.0			

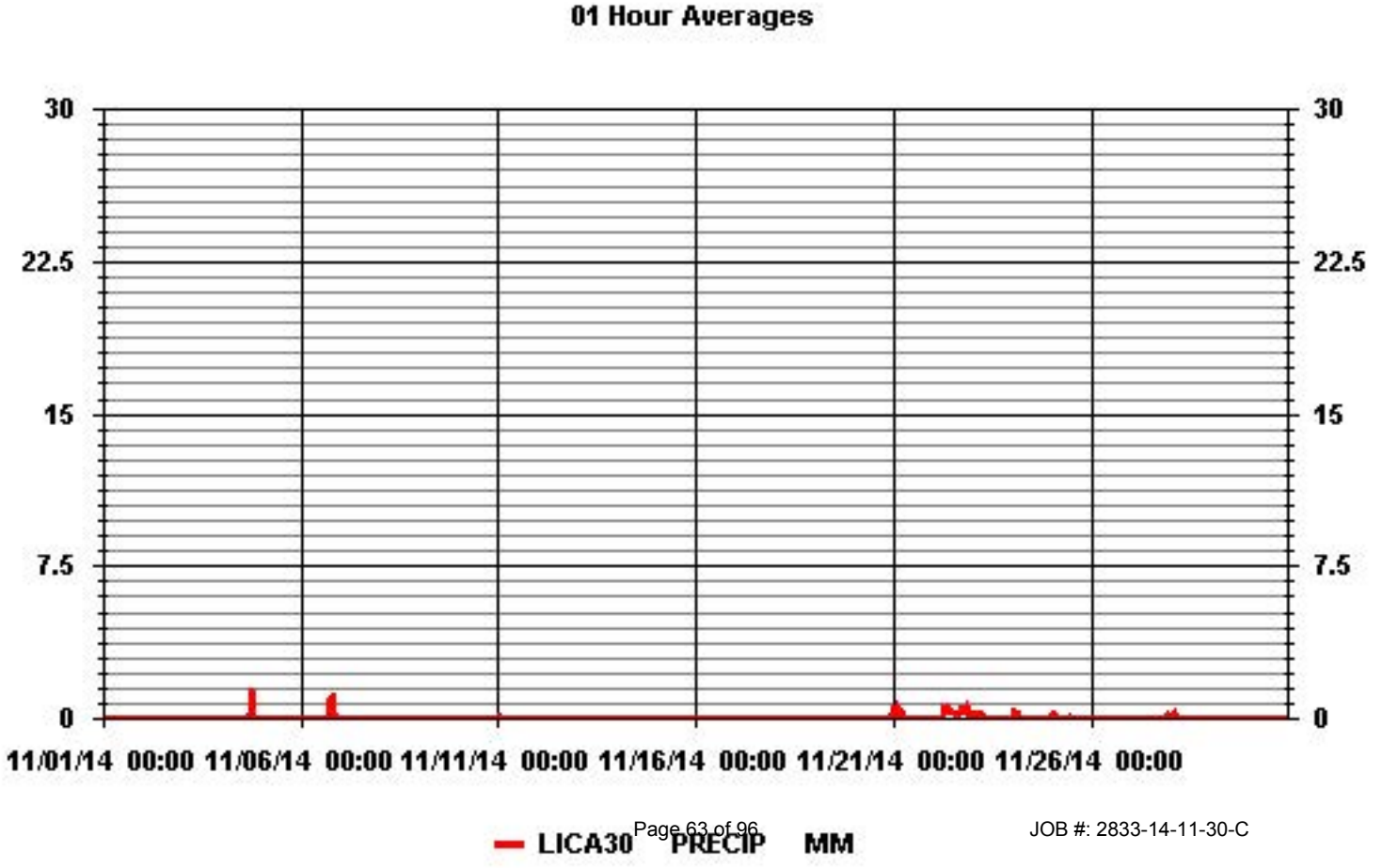
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		1.5	MM	@ HOUR(S)	18	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:		0.3	MM			ON DAY(S)	22
MONTHLY TOTAL	17 MM					VAR-VARIOUS	
				OPERATIONAL TIME:		720	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.11			MONTHLY AVERAGE:		0.02	MM



JOB #: 2833-14-11-30-C

Relative Humidity

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

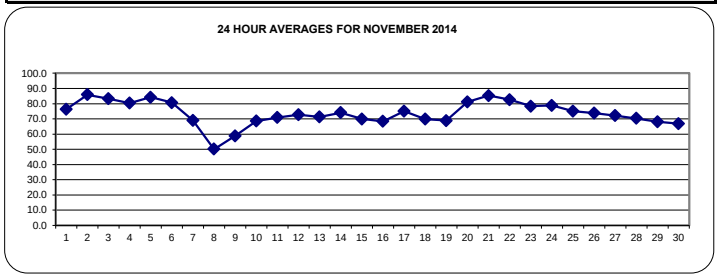
RELATIVE HUMIDITY (RH) hourly averages in %

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	88	88	88	87	85	83	82	82	78	74	67	54	50	50	49	52	65	77	82	88	90	90	90	***91***	***91***	76.3	24
2	90	90	90	90	90	90	89	89	89	89	88	85	80	74	72	74	77	81	86	88	90	90	90	90	90	***85.9***	24
3	90	90	90	90	90	89	89	89	89	89	88	81	80	78	77	77	78	77	77	77	78	78	78	80	90	83.3	24
4	78	78	78	77	75	77	77	77	77	77	77	77	76	76	76	77	78	82	88	89	90	90	90	***91***	***91***	80.3	24
5	***91***	90	90	90	90	90	90	89	87	84	83	81	81	78	77	76	75	77	78	79	84	87	88	87	***91***	84.3	24
6	86	85	84	84	84	85	84	84	82	78	72	69	68	69	71	73	75	78	84	89	90	89	87	86	90	80.7	24
7	86	83	81	75	75	72	71	71	69	69	66	68	67	66	64	64	64	66	66	66	65	62	59	60	86	69.0	24
8	59	58	60	58	59	58	60	61	46	46	41	38	36	35	36	37	39	42	46	47	50	57	64	70	70	50.1	24
9	71	73	76	75	75	76	75	75	73	65	51	42	39	37	36	39	47	51	48	52	55	56	59	65	76	58.8	24
10	67	69	70	71	72	73	72	71	69	65	64	62	64	62	63	65	67	67	70	71	72	75	72	72	75	68.5	24
11	74	73	74	75	74	75	74	73	73	71	69	67	65	65	64	67	69	70	70	71	72	72	73	73	75	71.0	24
12	72	74	74	75	75	75	75	76	76	74	72	68	67	62	61	66	76	78	77	76	75	75	74	73	78	72.8	24
13	72	72	72	72	74	72	74	73	73	76	75	71	65	61	60	63	69	72	74	76	75	74	73	72	76	71.3	24
14	72	72	72	72	75	76	77	76	76	77	78	78	76	75	73	73	74	72	74	74	72	71	72	72	78	74.1	24
15	73	74	74	75	75	76	76	76	76	74	71	69	65	64	62	62	65	64	63	66	68	70	70	71	76	70.0	24
16	71	70	68	69	70	68	68	72	71	67	67	64	63	62	62	64	66	66	68	69	71	73	76	77	77	68.4	24
17	77	78	80	80	80	79	78	77	77	77	74	71	70	68	66	71	75	79	76	75	74	75	74	71	80	75.1	24
18	69	66	67	68	68	70	71	73	74	73	72	74	72	70	68	70	70	70	71	70	68	68	68	66	74	69.8	24
19	66	65	65	65	66	67	68	68	67	64	60	60	58	61	60	66	72	77	79	78	79	80	81	81	81	68.9	24
20	82	82	82	83	83	83	83	84	84	85	85	84	80	76	72	74	77	78	78	77	80	83	84	87	87	81.1	24
21	88	89	90	90	90	***91***	***91***	***91***	90	88	86	84	81	80	79	79	80	81	82	83	83	83	84	84	***91***	85.3	24
22	84	83	82	83	82	82	83	83	83	83	83	83	83	83	83	83	83	83	83	82	81	81	81	81	84	82.5	24
23	81	80	80	80	80	80	80	80	79	79	79	77	75	72	71	77	80	80	79	79	78	78	78	78	81	78.3	24
24	79	80	81	82	82	81	81	81	80	79	77	75	74	74	75	76	78	79	80	80	80	80	79	80	82	78.9	24
25	80	80	78	78	78	78	77	77	76	75	74	73	70	69	70	73	77	76	75	75	74	73	73	73	80	75.1	24
26	74	72	73	73	75	75	75	75	75	74	72	71	70	70	72	73	74	74	75	75	76	76	77	77	77	73.9	24
27	77	78	78	79	78	76	75	75	74	72	70	69	67	67	68	69	69	69	70	70	70	70	71	70	79	72.1	24
28	69	69	70	70	70	71	71	71	71	71	70	70	70	69	70	71	71	71	71	71	71	70	70	70	71	70.3	24
29	70	69	69	69	69	68	67	67	67	67	67	66	66	67	67	69	69	68	68	68	69	70	70	70	70	68.2	24
30	70	69	68	68	68	67	68	67	67	66	65	64	64	64	65	66	67	67	68	67	67	67	67	67	70	66.8	24
HOURLY MAX	91	90	90	90	90	91	91	91	90	89	88	85	83	83	83	83	83	83	83	89	90	90	90	91			
HOURLY AVG	76.9	76.6	76.8	76.8	76.9	76.8	76.7	76.8	75.6	74.3	72.1	69.8	68.1	66.8	66.3	68.2	70.9	72.4	73.5	74.3	74.9	75.4	75.7	76.2			

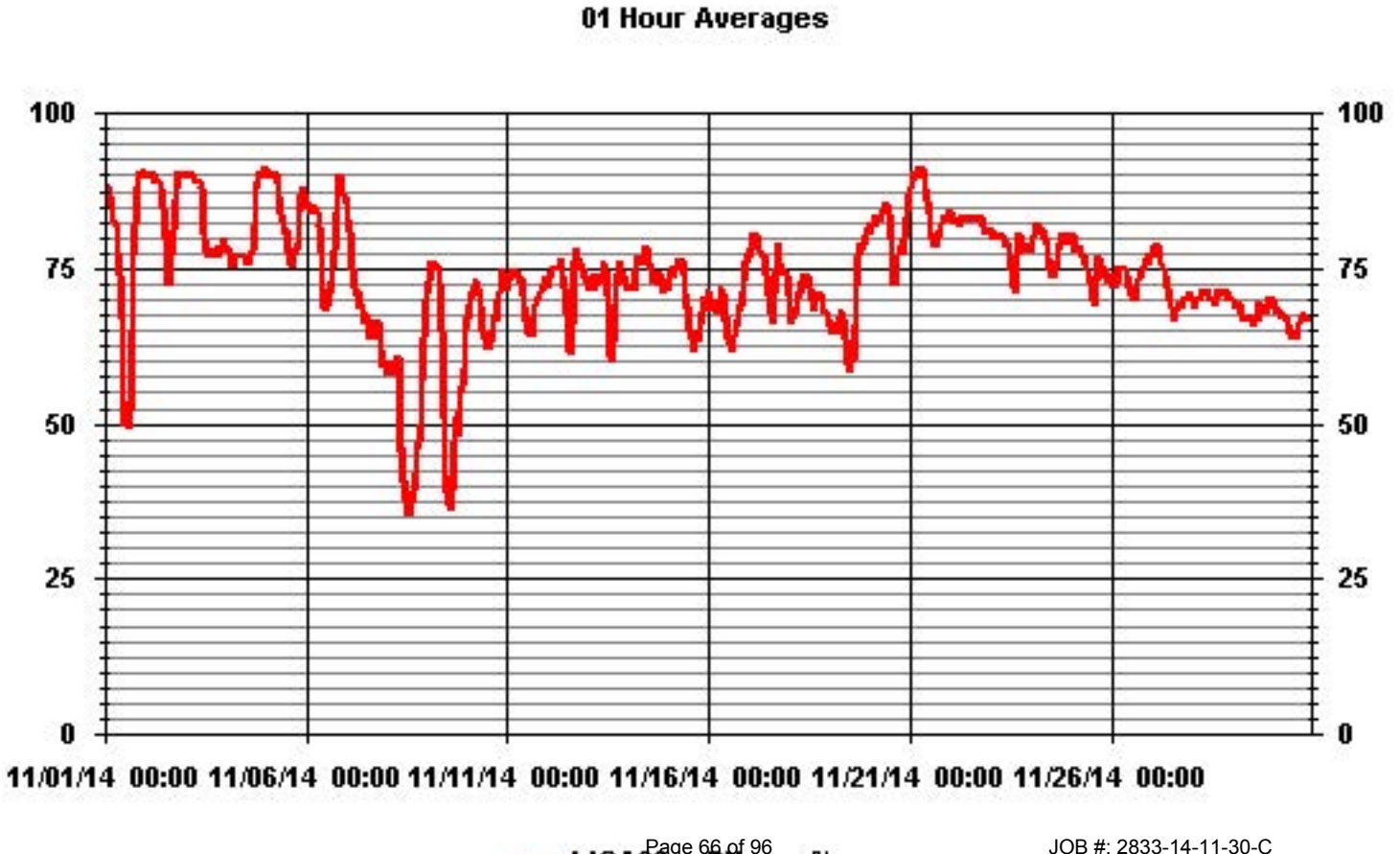
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	85.9	%			ON DAY(S)	2
					VAR-VARIOUS	
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.62		MONTHLY AVERAGE:		73.69	%



JOB #: 2833-14-11-30-C

Barometric Pressure

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

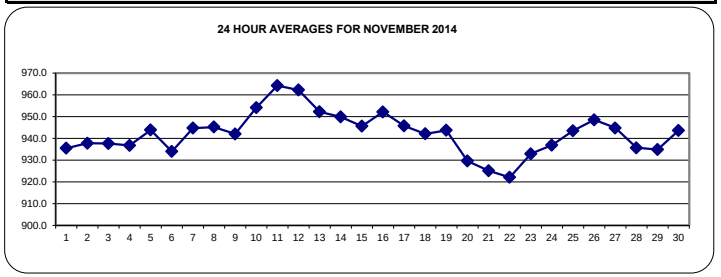
BAROMETRIC PRESSURE (BP) hourly averages in millibar

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	931	931	932	931	932	933	933	934	935	936	936	937	937	937	938	938	938	938	937	937	936	938	938	939	939	935.5	24
2	938	938	938	938	938	939	938	938	939	939	939	939	939	938	938	938	937	937	937	937	937	937	936	936	939	937.8	24
3	935	935	935	935	935	935	935	935	936	936	937	937	938	938	939	939	940	940	941	941	941	941	940	940	941	937.7	24
4	940	940	940	939	939	938	937	936	937	937	937	936	935	935	935	934	935	935	935	936	936	936	937	937	940	936.8	24
5	938	939	939	940	940	941	941	941	942	943	944	944	945	945	946	947	947	948	948	948	947	947	947	946	948	943.9	24
6	946	945	944	943	942	939	939	938	937	936	935	933	932	930	929	928	927	927	927	927	927	928	928	930	946	934.0	24
7	931	933	935	937	939	940	942	943	944	946	947	948	948	949	949	949	950	950	950	950	950	949	948	947	950	944.8	24
8	947	948	947	947	946	946	946	946	946	945	945	945	945	945	944	944	944	944	944	945	944	945	944	944	948	945.3	24
9	944	944	943	943	943	942	942	942	941	941	941	941	940	940	940	941	941	942	942	943	942	943	944	945	945	942.1	24
10	946	946	947	948	949	950	951	952	953	954	954	955	955	955	956	956	957	958	958	959	959	960	961	961	961	954.2	24
11	962	962	962	963	963	963	964	964	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***965***	***964.3***	24
12	964	***965***	***965***	964	964	964	963	963	963	963	964	963	963	963	962	962	962	961	961	960	960	959	959	959	***965***	962.3	24
13	959	958	958	957	956	956	955	954	953	953	953	952	952	951	951	950	949	949	949	948	948	948	948	948	959	952.3	24
14	948	948	948	948	948	948	948	949	949	949	950	950	950	950	950	951	951	952	952	952	952	952	952	952	952	950.0	24
15	952	952	952	951	951	950	950	949	949	948	947	946	944	943	941	940	939	939	939	940	941	942	944	946	952	945.6	24
16	946	947	948	949	949	950	951	952	953	953	954	954	954	954	954	954	954	954	954	954	953	954	954	954	954	952.2	24
17	954	953	953	952	952	951	951	951	950	949	949	948	947	946	945	944	942	941	939	938	937	936	935	935	954	945.8	24
18	935	935	936	936	936	937	938	939	940	941	942	943	944	944	945	945	946	946	947	947	947	947	947	948	948	942.1	24
19	948	948	948	947	947	947	947	946	945	946	946	945	944	944	943	942	942	941	941	940	939	939	938	937	948	943.8	24
20	937	936	936	935	934	933	933	932	931	931	930	930	929	928	928	927	927	926	925	925	925	924	924	924	937	929.6	24
21	923	923	923	922	922	921	922	923	924	925	926	926	927	928	928	928	928	928	927	927	927	926	925	925	928	925.2	24
22	924	924	923	922	921	921	920	919	919	918	918	918	919	919	920	921	922	923	924	925	926	927	928	929	929	922.1	24
23	930	931	931	932	933	933	933	933	934	934	934	934	934	934	933	933	933	933	933	933	933	933	933	934	934	932.9	24
24	932	933	934	935	936	936	937	938	939	939	940	940	940	939	939	939	939	938	937	937	936	936	934	934	940	937.0	24
25	934	935	936	936	937	938	939	940	942	943	944	944	945	946	946	947	948	948	949	949	949	949	950	950	950	943.5	24
26	950	951	951	951	951	950	950	950	950	950	950	950	949	949	948	947	947	947	947	946	944	945	946	946	951	948.5	24
27	946	946	946	945	945	945	945	945	945	946	946	946	945	945	945	945	945	945	945	944	944	943	942	942	946	944.8	24
28	941	941	940	939	938	937	937	937	935	934	935	935	934	934	934	934	934	934	934	934	934	934	934	934	941	935.7	24
29	934	935	935	935	935	936	936	936	937	936	934	934	934	934	934	934	934	934	934	935	935	935	936	937	937	935.0	24
30	938	939	940	941	942	943	944	945	946	946	946	947	946	946	946	946	946	946	945	945	943	942	941	940	947	943.7	24
HOURLY MAX	964	965	965	964	964	964	964	964	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965			
HOURLY AVG	941.8	942.0	942.2	942.0	942.1	942.1	942.2	942.3	942.6	942.7	942.9	942.8	942.6	942.5	942.4	942.3	942.3	942.3	942.2	942.2	941.9	942.0	941.9	942.1			

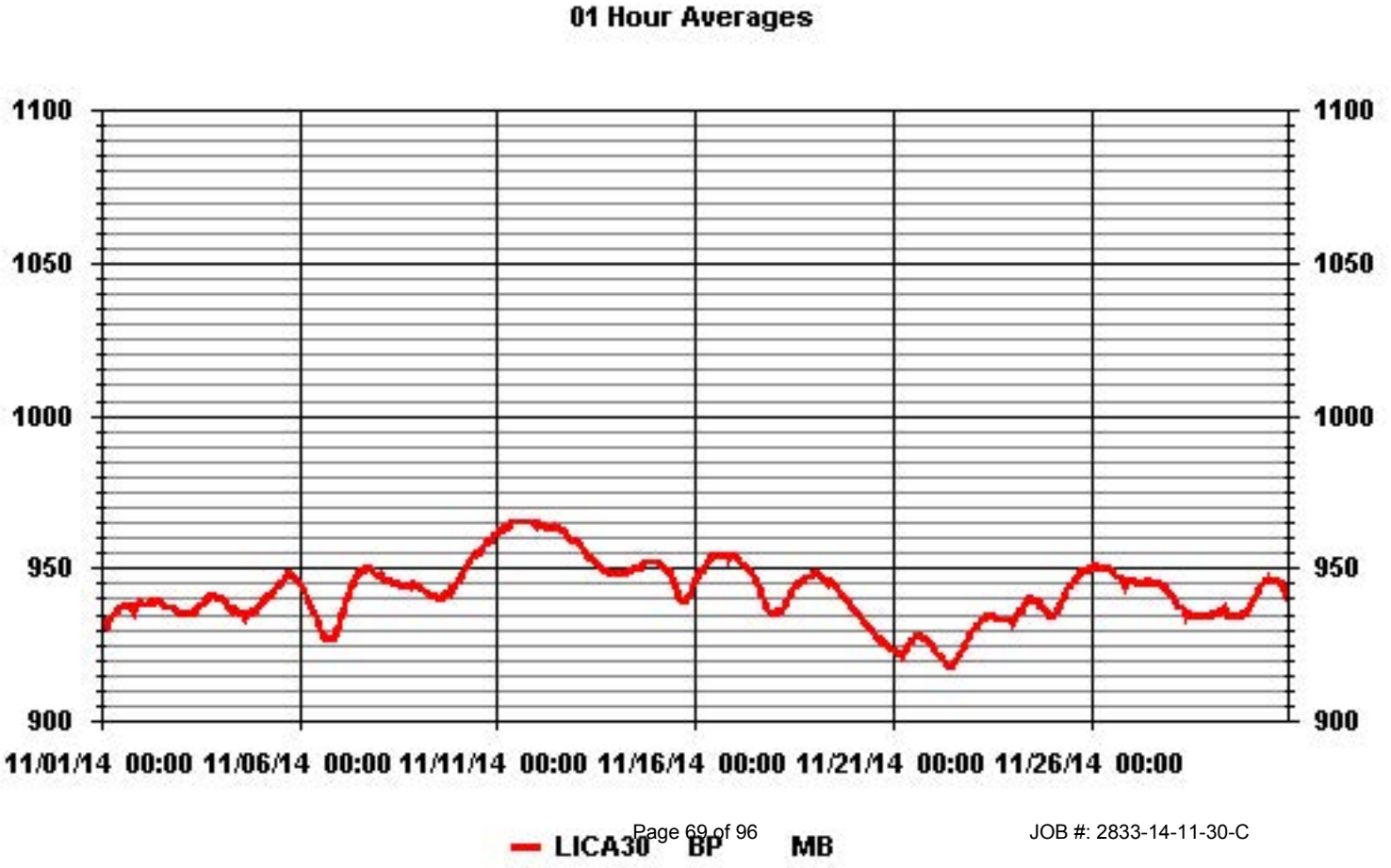
STATUS FLAG CODES

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

MAXIMUM 1-HR AVERAGE:	965	MB	@ HOUR(S)	VAR	ON DAY(S)	11,12
MAXIMUM 24-HR AVERAGE:	964.3	MB			ON DAY(S)	11
				VAR-VARIOUS		
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.94		MONTHLY AVERAGE:		942.3	MB



JOB #: 2833-14-11-30-C

Vector Wind Speed

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

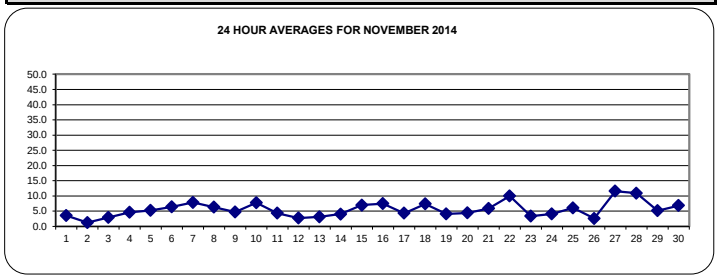
WIND SPEED (WS) hourly averages in km/hr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.8	1.8	2.1	4	6.2	6.5	3.8	5.6	5.6	5.5	4.3	5.5	5.3	6	5.5	4.6	3.8	0.9	1.7	0.9	1.2	1.3	1.4	0.9	6.5	3.6	24
2	0.4	2.1	1.6	0.7	0.9	2	2.4	2.1	1.5	1.4	1.1	0.5	0.8	2.5	0.9	1.9	1.4	1.3	0.6	0.7	0.3	1.8	0.5	1.3	2.5	1.3	24
3	0.8	1.7	1.5	1.9	0.7	0.2	1.2	0.7	0.5	2.3	4.2	5.6	7	6.2	6.2	5.7	4.3	4.6	5.2	3.2	3.2	2.3	0.4	1	7.0	2.9	24
4	2	2.8	2.6	4.4	4	5	6.2	5.9	6.6	7.7	7.2	7.4	6.6	6.9	5	6.1	3.4	2.9	1.5	2.6	4	4.3	3.9	3.1	7.7	4.7	24
5	4.2	3.9	4	3.4	4	4.6	4.5	5	7.1	8.1	7.5	10.7	9.9	8.7	7.9	6.6	6.4	3	1.3	1.4	3.2	2.8	2.8	4.9	10.7	5.2	24
6	6.3	8.3	6	7.4	8.1	8	8.6	8.5	8.5	7.4	9.1	8.6	8	8.2	7.4	4.8	2.1	1.1	1.1	1.8	3.2	5.8	6.8	8	9.1	6.4	24
7	8.3	9.4	8.2	10.7	8.8	8.4	7.3	7.5	8.9	10.4	11.8	10.5	9.2	8.7	8.1	8.1	7.3	5.1	4.7	4.2	5.6	5.9	5.2	5.8	11.8	7.8	24
8	5.1	6.2	6.9	5.8	5.4	5.8	8.4	9.6	8.7	6.5	6.8	7.4	6.2	5.8	7.3	6.7	5.8	5.4	5.3	6.5	5.7	5.6	5.7	2.5	9.6	6.3	24
9	3	2.7	2.2	1.6	1.2	2.3	3.3	4.5	4.6	6.9	6.9	6.3	4.8	2.5	4	4.3	3.8	4.1	6	5.8	6.1	8.9	10.4	6.7	10.4	4.7	24
10	7.9	6.7	5.5	6	6.2	5.2	6.7	6.8	6.6	7.4	8.1	7.9	9.3	9.6	9.2	8.8	8.3	9.2	7.8	8.2	7.8	7.8	9.6	9.2	9.6	7.7	24
11	7.6	8.4	6.1	4.7	4.4	4.9	6.5	6.4	3.5	3.2	4.5	5.9	4	3.7	3.6	3.4	3.4	3.4	3.8	2.1	2.8	2.3	2.2	3.6	8.4	4.4	24
12	3.2	3.6	4.2	3.6	3.2	2	1.9	4.1	4	3.7	3.6	4.3	4.2	5.1	4.5	2.6	0.5	1.5	1.4	1.8	0.6	0.7	0.6	0.7	5.1	2.7	24
13	1.2	1.7	1.2	2	3.9	2.4	5.2	2.7	2.2	3.1	4.2	6.5	5	6.3	6.1	4.2	3.4	3.7	2.3	2	2	1.5	1.4	1.1	6.5	3.1	24
14	2.1	2.4	1.9	0.6	1.6	2	3.1	2.7	3.4	2.6	3.3	4.8	6.6	8.1	6.2	6.5	5.5	6	4.5	4.6	4.9	5.2	3.8	4.9	8.1	4.1	24
15	4.3	5.9	6	5.8	5	5.8	5.5	5	5.8	6.9	7	6.9	6.8	7.2	6.8	5.9	4.5	6.2	7.6	8.1	8.6	11.1	13.7	11.5	13.7	7.0	24
16	10.4	11.2	12.1	11.1	11.1	11.1	10	6.8	5.6	6.3	6.6	6.9	6.7	8.2	7.3	6.2	6.6	7.5	6.7	5.3	5	4.2	3.5	2.7	12.1	7.5	24
17	4.2	5.2	4.3	2.9	2.1	0.8	2.8	4.7	4.2	4.3	5.5	4.9	5.5	5.8	7.1	6.8	4.6	3.5	4.7	4.7	3.8	3.2	3.5	4.9	7.1	4.3	24
18	3.6	4.6	6.1	6.6	8	8.6	9.6	10	7.2	7.7	9.1	9.5	8.4	7.7	9	8.9	6.8	6.7	6.5	6.5	7.2	7.5	5.4	5.8	10.0	7.4	24
19	4.7	5.4	5.2	5.3	5.3	4	3.4	3.9	4.2	3.7	3.7	2.6	3.9	4.3	4.7	5.2	4.5	4	4.2	3.2	4.4	3.3	2.4	3.5	5.4	4.1	24
20	4.2	3	3.2	4.4	4.7	3.2	3.1	4	4	3.8	5.1	5.6	5.6	5.6	6.2	5.3	5.4	5.2	5	4.8	3.2	3.6	3.5	4.6	6.2	4.4	24
21	3.7	3.4	4.6	4.5	3.5	3.5	2.2	4.6	5.7	5.3	4.7	5.7	8.4	8.2	7.4	7.3	7	8.3	7.7	7.1	6.1	6.6	8.2	7	8.4	5.9	24
22	8.6	9.6	9.1	9.2	10.3	9.6	11.1	10.3	9.7	10.9	10.6	10.6	10.4	10.4	10.1	11.3	11	9.4	9.5	10.9	11.2	9.7	8.6	7	11.3	10.0	24
23	4.9	4.7	3.6	5	4.3	3.5	2.5	0.9	0.9	2.5	3.7	4.8	5.3	6.2	6.8	6.1	2.6	1.5	1.2	1.8	2.4	2.2	2.1	2	6.8	3.4	24
24	2.6	2.4	2.4	2.6	4.5	2.2	4.9	5	4.7	4.9	5.6	5.5	4.3	3.3	1.8	2.8	2.2	2.6	4	5.6	5.6	6	6.2	6.1	6.2	4.1	24
25	6.6	6.9	7.6	10.9	7.7	8.8	9.7	10.2	9.8	8.6	8.4	7.2	5.7	5	5.3	2	0.9	2.5	4.6	4.4	3.7	3	3.4	3.6	10.9	6.1	24
26	1.3	0.7	0.2	1.2	3.4	3.8	3.7	4.1	4	4.9	4.1	4.8	3.8	4.6	3.8	3.9	2.4	1.7	0.4	1	0.9	1.8	1.6	0.7	4.9	2.6	24
27	1.2	1.9	4	5.5	8.9	12.5	12.8	12.8	14.3	***16.2***	15.4	15.2	14.7	14.6	12.6	14.1	13.3	13.2	13.7	14.8	13.9	11.6	9.7	11.2	***16.2***	***11.6***	24
28	12.3	12.2	11.4	11.6	11.2	11.3	11.7	11	11	10.7	12.6	12.8	14	13.2	10.5	11.1	10.5	10.9	10.1	8.5	7.9	10	7.9	7	14.0	10.9	24
29	5.9	4.6	3	2.9	3.5	4	3.5	4.1	2	2.7	4.9	6.1	5.6	6.3	6.2	4.5	7.2	7.3	7.5	6.2	4.2	5.9	8.2	7.3	8.2	5.2	24
30	8.4	7.5	6.4	7.2	8.2	7.7	8.4	8.6	8	6.1	7.3	6	5.7	4.7	6.7	6.7	6	5.3	4.8	5.4	6.3	7.7	6.9	8.8	8.8	6.9	24
HOURLY MAX	12.3	12.2	12.1	11.6	11.2	12.5	12.8	12.8	14.3	16.2	15.4	15.2	14.7	14.6	12.6	14.1	13.3	13.2	13.7	14.8	13.9	11.6	13.7	11.5			
HOURLY AVG	4.7	5.0	4.8	5.1	5.3	5.3	5.8	5.9	5.8	6.1	6.6	6.9	6.7	6.8	6.5	6.1	5.2	4.9	4.8	4.8	4.8	5.1	5.0	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

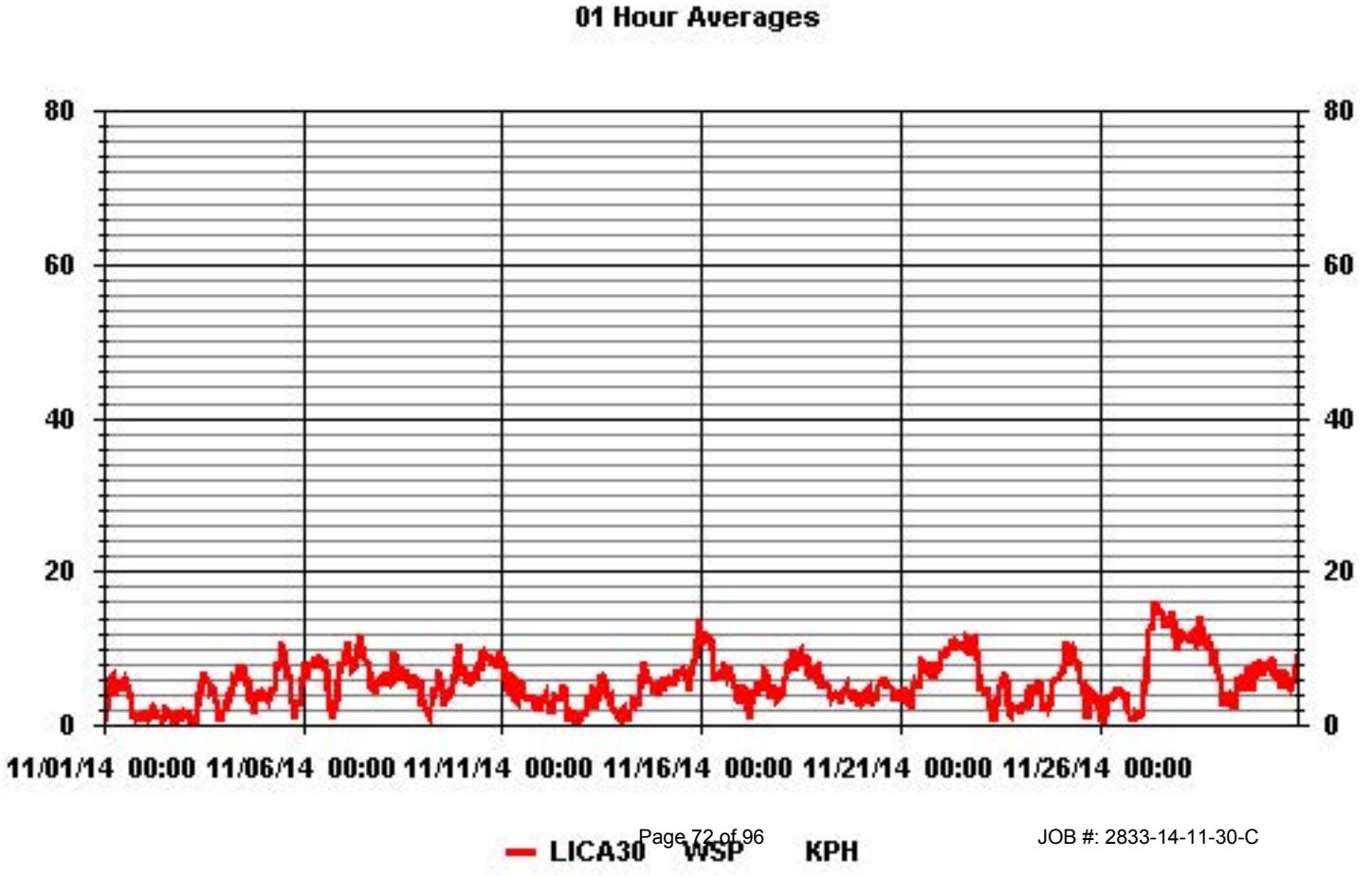


LAST CALIBRATION:	March 04, 2014
DECLINATION :	19 DEGREE FROM MAGNETIC NORTH

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	720						
MAXIMUM 1-HR AVERAGE:	16.2	KPH	@ HOUR(S)	9	ON DAY(S)	27	
MAXIMUM 24-HR AVERAGE:	11.6	KPH			ON DAY(S)	27	
					VAR-VARIOUS		
			OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.09		MONTHLY AVERAGE:			5.54	KPH

JOB #: 2833-14-11-30-C



JOB #: 2833-14-11-30-C

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

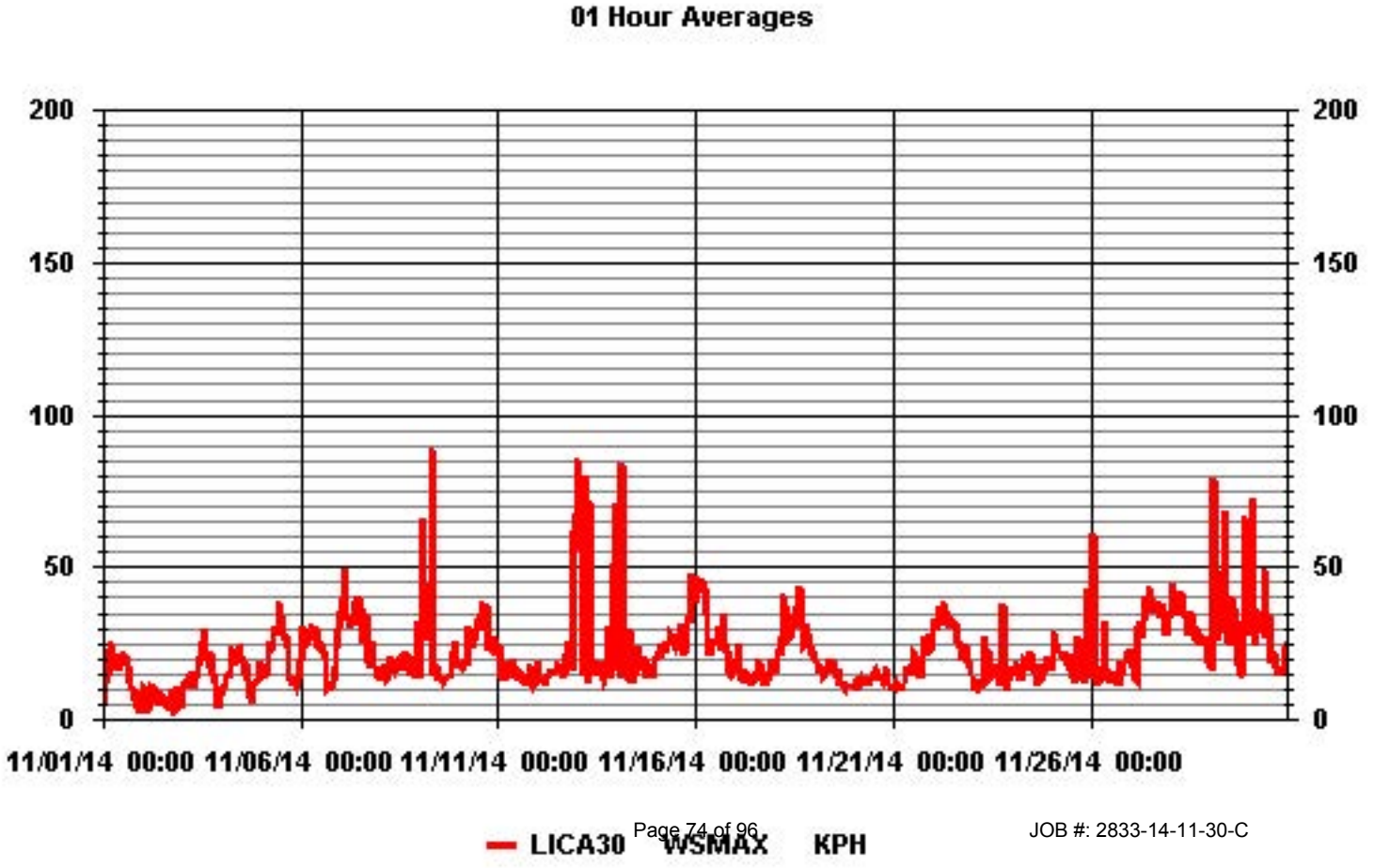
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	5.4	9.6	11.5	14.4	22.8	25.4	16.4	17.5	20.7	20.1	15.5	21	21.4	19.6	21	18.1	12.6	9.6	10.9	6.7	3.9	8.8	3.6	3.4	25	14.2	24
2	8.7	10.9	10.2	2.1	3	11.3	10.9	11.8	5.3	10	4.1	6.1	8	7.6	5.6	4.8	5.4	3	9.6	3	3.4	10.9	9.8	3.2	12	7.0	24
3	10	12	12.4	11.5	10.2	14.4	15.4	10.7	11.8	13.3	17.2	20.3	24	23.4	29.3	19.7	18.3	18.9	22.3	15.3	12.2	8.7	3.9	7.1	29	15.1	24
4	7.8	10.2	11.3	14.2	15	14.7	24	17.9	19	22.3	23.4	23.8	21.2	19	14.4	19.2	13.5	7.5	4.8	9.6	11.3	12.2	12.6	12.9	24	15.1	24
5	19	15.5	15.3	15	15.6	25.3	22.9	23.6	30.4	27.3	28.6	38.7	32.4	32.8	26.9	27	23.7	14.4	13.1	10.9	12.2	10.9	12.6	13.5	39	21.2	24
6	19.4	30.1	22.9	26.4	24	27.3	26.4	31.5	27.1	26.2	30.4	24.1	22.8	25.1	22.9	21	10.2	10.7	10.2	10.4	12.6	17	22.9	29.7	32	22.1	24
7	35.5	39.2	37	49.7	33.5	32.8	29.5	32.8	32.4	38.3	39.8	39.5	35.7	37.4	24.9	30.6	34.8	19	16.8	18.4	25.1	17.8	17.2	14	50	30.5	24
8	12.4	17.5	14	18.4	13.6	14.2	19.7	20.1	18.6	16.4	17.5	18.8	17.1	15.7	18.8	19	21.9	18.1	14	19.3	18.6	14.9	14.7	32.2	32	17.7	24
9	13.5	28.2	66	38.9	44.3	26.1	29.4	26.3	***88.6***	14.2	18.2	13.4	**X**	13.3	12.2	12.9	13.1	13.6	14.4	14.8	19.7	22.1	25.8	16.5	***89***	25.5	23
10	18.8	18.4	17.1	17.8	18.8	18.8	30.2	24.1	24.1	26	28.2	30	32.4	34.2	38.3	29.3	34.4	37.9	24.1	24.5	23.6	26.5	26.3	24.7	38	26.2	24
11	20.8	24.7	14.6	13.7	13.8	14.4	18.6	17.7	13.1	19.8	15.5	17.3	13.3	13.3	13.1	15.5	14.4	11.3	12.7	17.9	13.5	11.3	12.2	12.4	25	15.2	24
12	19	12.9	12.9	12.4	13.3	11.3	13.5	15.1	16.7	14.2	15.9	16.4	19	17	17.1	14.8	14	21.4	25.8	17.1	25	15.9	61.9	67.3	67	20.4	24
13	85.6	55	71.1	80.1	14.4	79.8	12	71.6	23.4	14.2	19.5	19	17.5	16.4	18.6	14.2	12.4	13.5	17.7	30.7	12.9	21	50.7	70.5	86	35.1	24
14	19.3	16.6	13.2	83.8	31.3	15.5	14.6	18.4	29.6	12.9	12.9	14.4	18.8	24.1	16.4	17.3	18.1	20.6	13.6	15.3	17.3	17.7	13.3	20.4	84	20.6	24
15	19	22.3	24.3	19.9	23.4	23	24.9	25.4	27.9	26.9	27.3	25.4	23.6	24.5	24.8	31.3	20.8	25.2	24.5	33.9	31.3	48	42.9	38.3	48	27.5	24
16	39.4	46.7	41.4	45	45.1	43.4	34.8	24.9	21.2	23.4	26	24.5	26.5	30.4	28.7	29.1	22.7	34.7	25.2	22.7	15.7	14.6	15.5	16.4	47	29.1	24
17	16.6	19.9	24.5	15.5	13.6	12.2	16.6	12	13.7	12.3	12.4	14.6	12.9	15.7	18.4	18	14.2	10.9	14	15.5	13.7	14.6	19	18.8	25	15.4	24
18	14.8	17.5	21.9	21.9	27.2	41.4	34.2	37.4	26.5	27.1	33.9	33.4	29.5	35.7	35.2	43.8	35.7	24.5	25.2	31.1	28.7	24.3	21.2	22.5	44	28.9	24
19	20.3	19.5	18.8	15.7	17	14.2	14.9	15.6	19.9	16.4	15.5	19.9	16.8	14.9	15.4	11.3	12.9	10.9	10	11.3	10.7	10.7	10.7	11.3	20	14.8	24
20	10.9	12.1	11.1	12.2	13.7	12.4	11.1	14	11.2	13.3	13.5	13.9	15.5	16.4	14.8	13.5	13.6	12.5	13.5	17	12	11.6	9.6	10.9	17	12.9	24
21	11.1	12.2	11.1	12.2	9	11.1	11.8	15.9	15.9	16.6	14.2	15.3	22.1	21.4	16.8	15.1	14.8	17.9	26.2	26.2	21	22.1	27.8	22.7	28	17.1	24
22	32.8	31.7	31.1	35.2	36.8	30.4	38.8	35.8	32.8	30.2	32	32.6	31.7	30.9	31.8	26	24.3	22.1	19.2	22.3	24.5	19.3	17.9	14.9	39	28.5	24
23	11.3	11.8	11.1	13.2	11.6	11.3	10.5	27.6	18.6	22.8	13.1	13.7	15.7	17.7	15.9	14.2	10.9	22.7	37.9	11.6	10	10	12.4	17.5	38	15.5	24
24	16.6	14	17.7	17.7	17.3	12.4	15.9	19.5	18.6	20.6	18.8	21.9	17	15.5	11.6	11.6	12.2	17.7	12.9	14.8	17.9	20.6	17.5	17.3	22	16.6	24
25	17.6	28.7	22.7	24.3	23	21.2	21.5	21.7	19.9	18.8	19.5	16.9	14.4	12.9	12.9	13.1	27.4	18.6	13.7	13.5	13.3	39.4	43	12.9	43	20.5	24
26	20.6	61	42.5	17.9	11.1	12	12.7	14.6	32.2	15.6	16.6	12	13.1	15.1	13.8	12	12	18.6	14.4	15.8	18.1	21.9	20.1	18.6	61	19.3	24
27	23.2	17.8	14	13.3	29.8	29.8	32.3	26.5	32	40.3	38.3	43.2	37.3	35.1	39.2	36.7	38.3	35.1	33.8	37.5	33	27.1	30.5	33.6	43	31.6	24
28	35.1	44.5	35.5	33.8	40.1	37	42.1	36	35.5	33.3	35.1	27.6	32.2	35.7	26.3	26.3	25.8	28	26.9	26.1	24.7	27.2	19.3	18	45	31.3	24
29	17.7	16	79.2	44.7	26.1	28.1	32.5	45.8	48.8	68	25.4	26.3	24.1	40.3	26.9	36.6	17.5	19.7	15.3	13.8	32.2	66.5	64.3	27.4	79	***35.1***	24
30	31.8	30.2	72.6	24.3	36	31.6	28.3	32.5	35.1	49.8	26.5	30.3	34.6	19.3	19	22	17.7	15.5	15.8	15.3	15.8	22.6	22.3	25	73	28.1	24
HOURLY MAX	86	61	79	84	45	80	42	72	89	68	40	43	37	40	39	44	38	38	38	38	33	67	64	71			
HOURLY AVG	21.1	23.6	27.0	25.5	21.8	23.4	22.2	24.8	25.7	23.7	21.8	22.5	22.4	22.7	21.0	20.8	18.9	18.5	18.0	18.1	17.8	20.5	22.7	21.8			

STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	89	KPH	@ HOUR(S)	8	ON DAY(S)	9
					VAR-VARIOUS	
OPERATIONAL TIME:					719	HRS



JOB #: 2833-14-11-30-C

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

November 2014
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	10.13	3.47	2.50	1.80	.83	.55	1.80	2.08	3.05	6.94	7.77	3.19	3.61	2.77	4.30	4.44	59.30
<	12.0	4.44	7.08	4.16	1.80	.83	.83	2.08	.41	.00	2.08	.97	.83	.55	1.94	3.33	5.97	37.36
<	20.0	.27	.13	2.77	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.33
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	14.86	10.69	9.44	3.75	1.66	1.38	3.88	2.50	3.05	9.02	8.75	4.02	4.16	4.72	7.63	10.41	

Calm : .00 %

Total # Operational Hours : 720

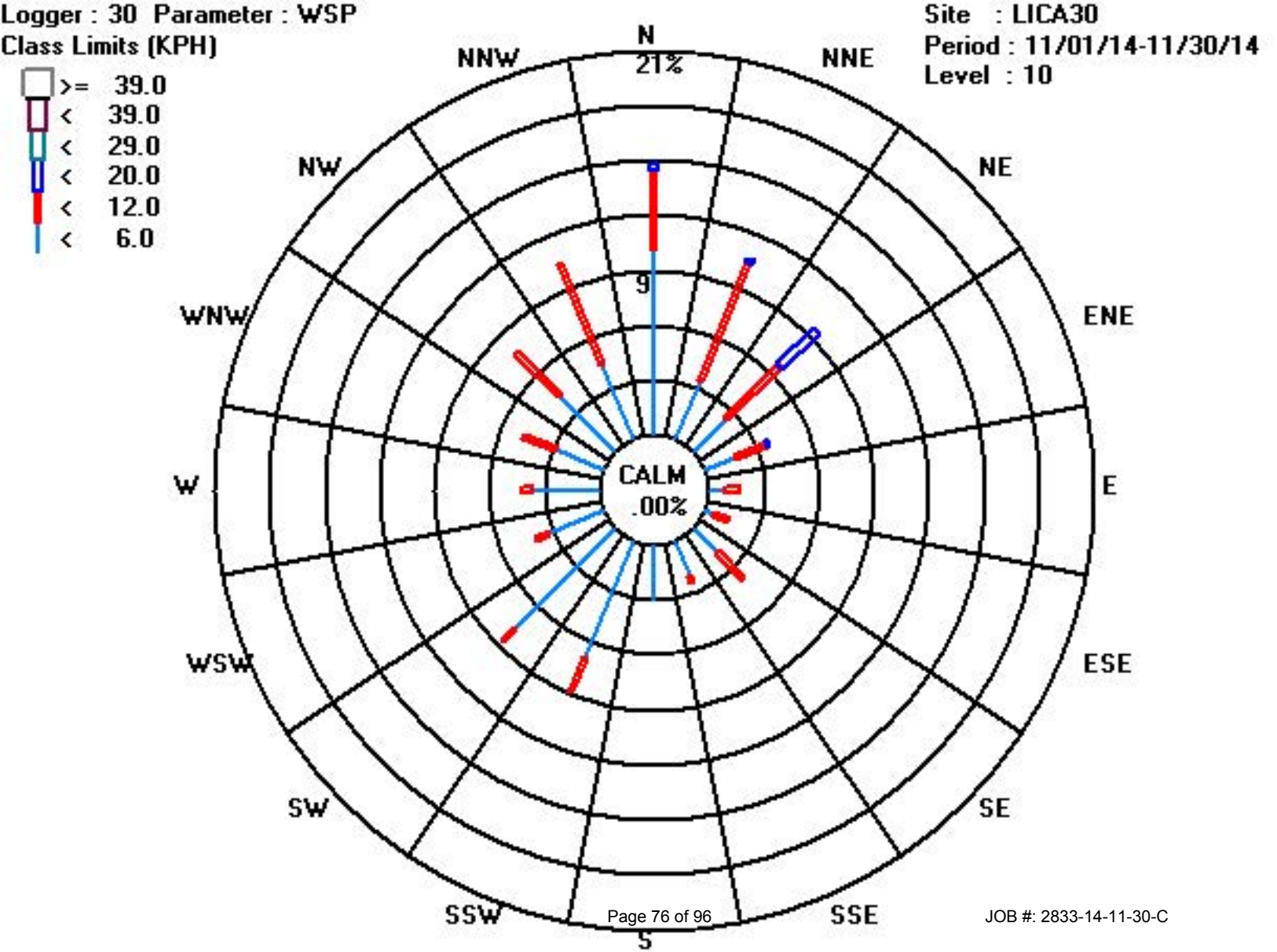
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	73	25	18	13	6	4	13	15	22	50	56	23	26	20	31	32	427
<	12.0	32	51	30	13	6	6	15	3		15	7	6	4	14	24	43	269
<	20.0	2	1	20	1													24
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	107	77	68	27	12	10	28	18	22	65	63	29	30	34	55	75	

Calm : .00 %

Total # Operational Hours : 720



JOB #: 2833-14-11-30-C

Vector Wind Direction

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

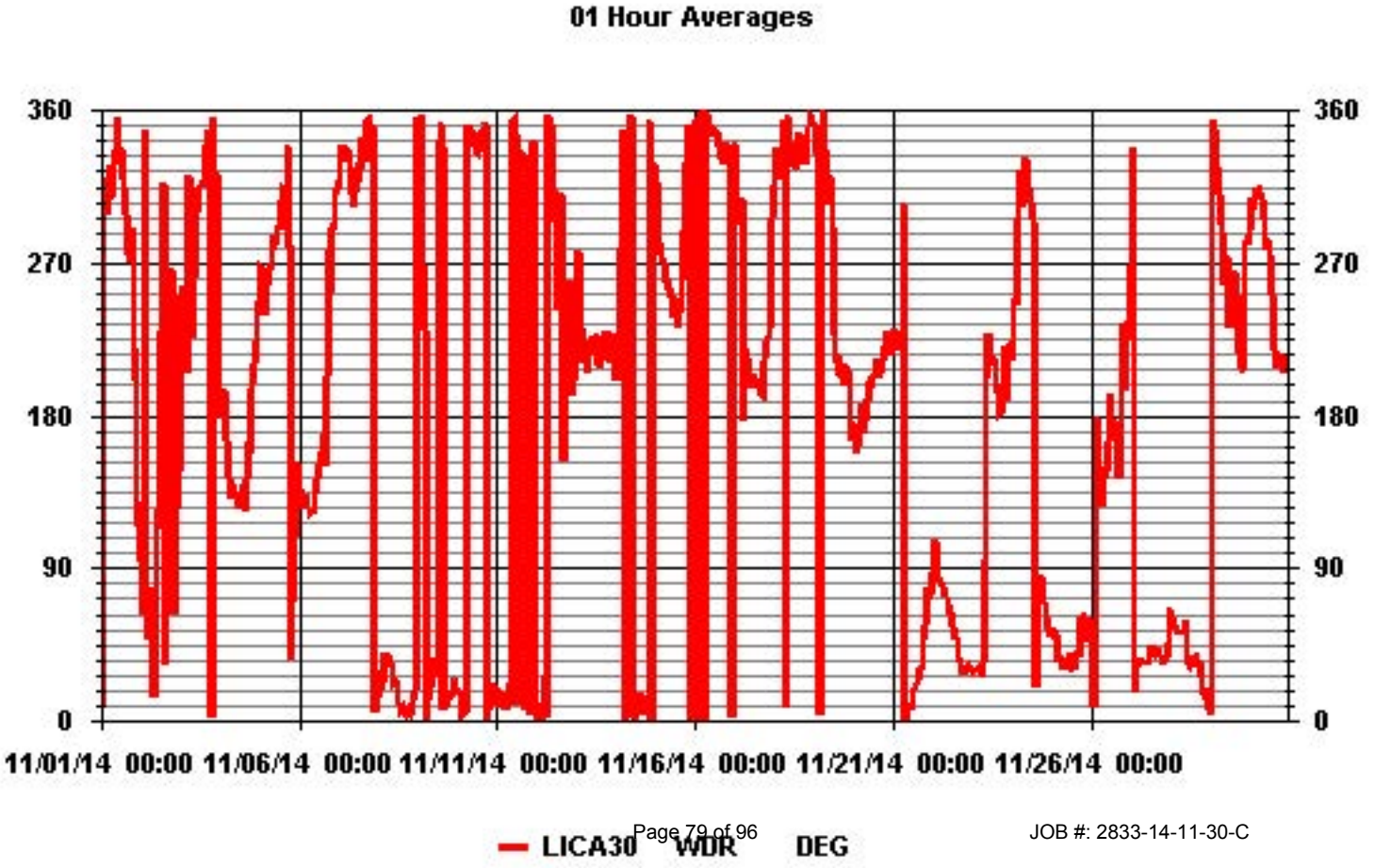
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	10	302	312	320	299	307	328	308	328	337	356	330	338	320	315	300	276	270	277	290	201	219	115	129	356	N	24
2	95	73	62	348	48	73	67	79	14	53	125	113	229	235	317	33	71	130	101	267	63	118	125	147	348	NNW	24
3	250	256	233	235	204	322	263	255	226	261	300	314	315	316	318	321	339	348	331	2	356	323	322	209	356	N	24
4	192	179	181	196	166	145	143	131	133	135	132	127	127	136	135	123	143	165	158	196	199	210	224	248	248	WSW	24
5	268	267	239	250	239	256	266	270	286	282	284	292	290	307	315	314	311	340	281	35	70	127	109	153	340	NNW	24
6	133	136	125	129	134	126	122	123	123	123	134	142	150	151	159	169	150	203	278	252	290	293	311	314	314	NW	24
7	319	330	340	336	340	333	334	328	311	302	311	318	327	327	344	338	329	354	355	346	350	350	4	17	355	N	24
8	14	18	30	22	38	38	38	32	34	23	24	23	11	6	7	9	7	5	7	5	7	13	18	356	356	N	24
9	351	354	357	270	231	1	12	19	20	30	37	30	26	342	353	6	338	8	14	14	15	18	25	19	357	N	24
10	18	17	4	5	5	6	352	348	338	347	347	336	335	342	340	348	350	353	1	6	10	14	20	19	353	N	24
11	17	8	17	11	8	8	15	22	19	354	355	9	346	319	336	310	335	7	9	3	325	340	342	8	355	N	24
12	3	4	11	1	18	26	1	357	335	353	314	295	283	242	252	312	153	188	239	209	259	191	200	245	357	N	24
13	231	277	226	232	211	217	205	223	224	222	227	215	229	211	209	223	212	222	230	228	211	220	218	229	277	W	24
14	201	204	214	279	349	1	2	9	21	358	4	3	6	16	14	14	3	12	11	8	355	0	2	329	358	N	24
15	318	287	283	277	274	271	260	260	256	252	251	240	239	232	241	249	259	289	329	348	351	1	7	0	351	N	24
16	353	353	355	357	358	0	0	359	353	352	351	345	348	338	347	333	328	338	333	341	337	4	2	337	359	N	24
17	341	293	302	304	309	177	221	200	214	206	196	205	197	199	202	194	193	211	214	224	226	231	296	315	341	NNW	24
18	332	338	327	319	324	333	355	7	357	342	339	329	329	326	335	347	338	333	328	342	350	357	356	351	357	N	24
19	353	334	350	3	7	360	338	304	309	322	314	292	228	211	216	206	205	204	198	210	207	201	165	176	360	N	24
20	173	157	162	171	187	169	173	177	189	200	196	202	204	213	202	210	209	213	221	226	230	224	216	218	230	SW	24
21	220	231	218	221	226	228	305	1	11	9	6	9	19	21	22	24	30	32	48	56	78	72	74	87	305	WNW	24
22	98	106	97	85	83	80	74	76	74	70	64	64	56	49	51	37	37	34	28	30	30	32	30	30	106	ESE	24
23	28	29	30	32	33	25	34	95	202	229	220	210	215	212	199	195	181	182	194	221	196	189	222	223	229	SW	24
24	212	249	245	296	307	324	303	313	332	325	316	307	297	295	19	46	82	86	70	70	58	59	54	52	332	NNW	24
25	51	55	52	35	37	39	32	32	34	33	32	40	38	34	31	42	37	60	61	47	51	49	61	49	61	ENE	24
26	42	7	41	179	151	139	126	148	143	147	164	193	176	176	173	158	143	177	209	234	195	224	235	269	269	W	24
27	237	338	17	37	32	34	37	34	34	34	34	39	44	37	44	40	41	39	35	35	36	38	46	67	338	NNW	24
28	62	56	55	55	52	52	52	52	57	60	35	33	36	37	38	33	33	33	27	18	16	19	13	8	62	ENE	24
29	4	355	349	346	328	312	294	289	256	271	274	231	241	256	266	244	218	220	209	206	250	282	284	281	355	N	24
30	289	308	302	307	313	314	312	308	296	278	284	279	275	252	220	219	208	213	215	215	209	210	205	207	314	NW	24

STATUS FLAG CODES

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

LAST CALIBRATION:	March 04, 2014
DECLINATION :	19 DEGREE FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	122.64		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	360	DEG



JOB #: 2833-14-11-30-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Maskwa Site

NOVEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	61	45	49	37	30	36	38	33	40	38	35	36	38	35	39	38	26	62	32	40	36	41	46	74
2	63	16	15	41	31	19	20	28	27	33	44	50	39	40	52	25	49	27	46	31	66	19	42	35
3	43	34	34	25	38	39	53	62	67	46	39	33	31	35	37	36	40	36	36	27	31	43	56	57
4	43	33	23	20	22	21	23	28	27	24	25	27	32	28	30	30	26	20	26	22	19	19	29	35
5	30	30	30	33	30	36	33	31	28	26	31	28	26	32	33	36	34	47	56	63	20	19	21	22
6	26	24	31	26	25	27	24	26	26	31	24	26	25	27	27	28	42	57	51	25	24	27	34	28
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8	21	20	15	24	17	18	17	16	16	22	22	21	25	30	26	25	26	23	26	23	21	18	17	32
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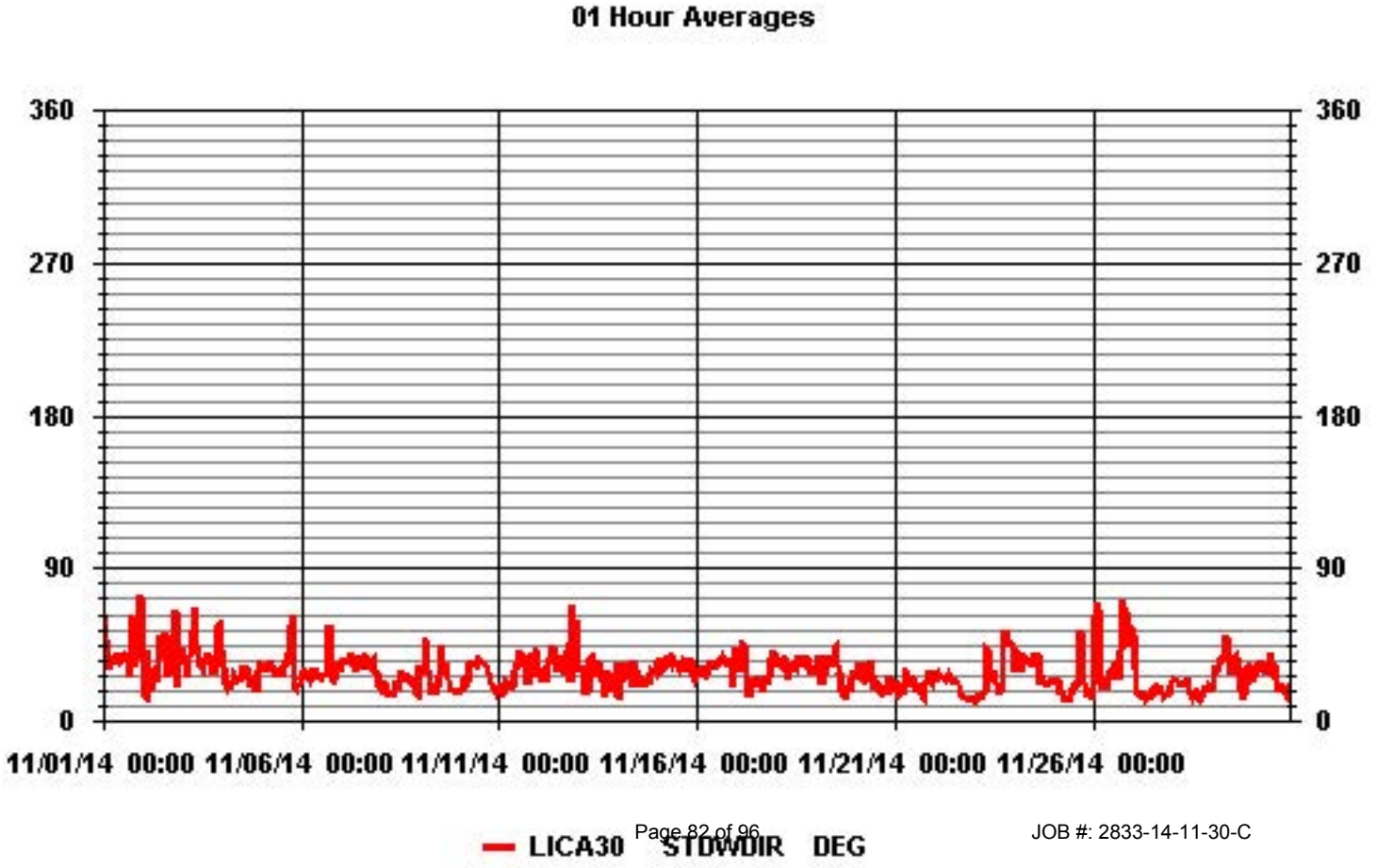
STATUS FLAG CODES

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

LAST CALIBRATION: March 04, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS



JOB #: 2833-14-11-30-C

Calibration Reports

Sulphur Dioxide

API 100E SO2 Analyzer Calibration

Date:	19-Nov-14	**Start/End Time (mst):**	10:11-14:35
Company:	LICA	**Calibration Purpose:**	Monthly Calibration
Station Name/Location:	Maskwa	**Converter Make & Model:**	NA
Performed by:	Chris Wesson	**Converter Serial #:**	NA
Application H_2S/TRS/SO_2:	SO2	**Cal Gas Expiry Date:**	12-Aug-17

Analyzer:

Serial Number:	508	**Range ppb:**	1000
Last Calibration Date:	23-Oct-14	**As Found C.F.**	0.983
Previous Cal High Point C.F.:	0.999	**New C.F.:**	1.009

	As found:	As left:
SLOPE:	1.030	1.012
OFFSET:	115.7	114.5
HVPS:	495	495
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.2	31.2
PMT TEMP:	7.7	7.7
IZS TEMP:	45.0	45.0
TEST:	NA	NA
STABIL:	0.2	0.2
PRES:	24.5	24.5
SAMP FL:	588	588
PMT:	108.4	106.6
NORM PMT:	114.2	114
UV LAMP:	3192	3190
LAMP RATIO:	99.5	99.5
STR. LGT	59.6	58.0
DRK PMT:	11.9	12.2
DRK LMP:	-1.8	-1.6
Internal Span:	273	258

Calibrator:

Flow Meter ID's:	NA
Make & Model:	Environics 6100
Serial #:	5212
Cal Gas Cylinder I.D. # :	BR000418M400
Cal Gas Conc. (ppm):	50.7

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4920	80	5000
mid	4960	40	5000
low	4980	20	5000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4996	0.0	4996	0	-0.5	NA
adjusted zero	4998	0.0	4998	0	0.0	NA
as found high	4917	78.44	4995	796.1	810.0	0.983
adjusted high	4917	78.44	4995	796.1	796.0	1.000
mid	4957	38.18	4995	387.6	385.0	1.007
low	4977	19.08	4996	193.6	190.0	1.019
calibrator zero	4999	0.00	4999	0	0.5	NA
					Average C.F.=	1.009

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.999**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.20%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**1.62%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

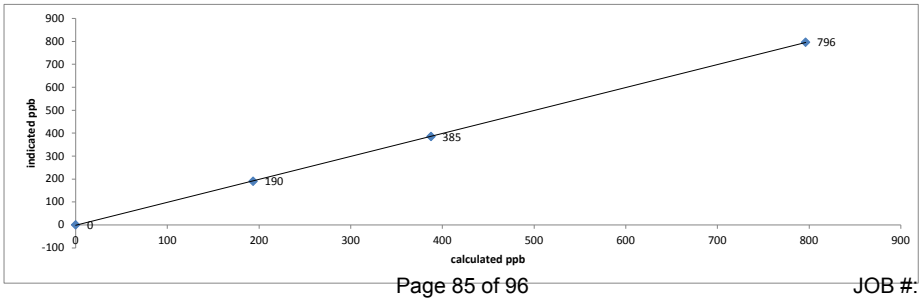
****run converter effeciency test immediately following zero adjust****

SO_2 High Point gas concentration:	NA	Time gas run (mst):	NA
Zero corrrected analyzer response:	NA		

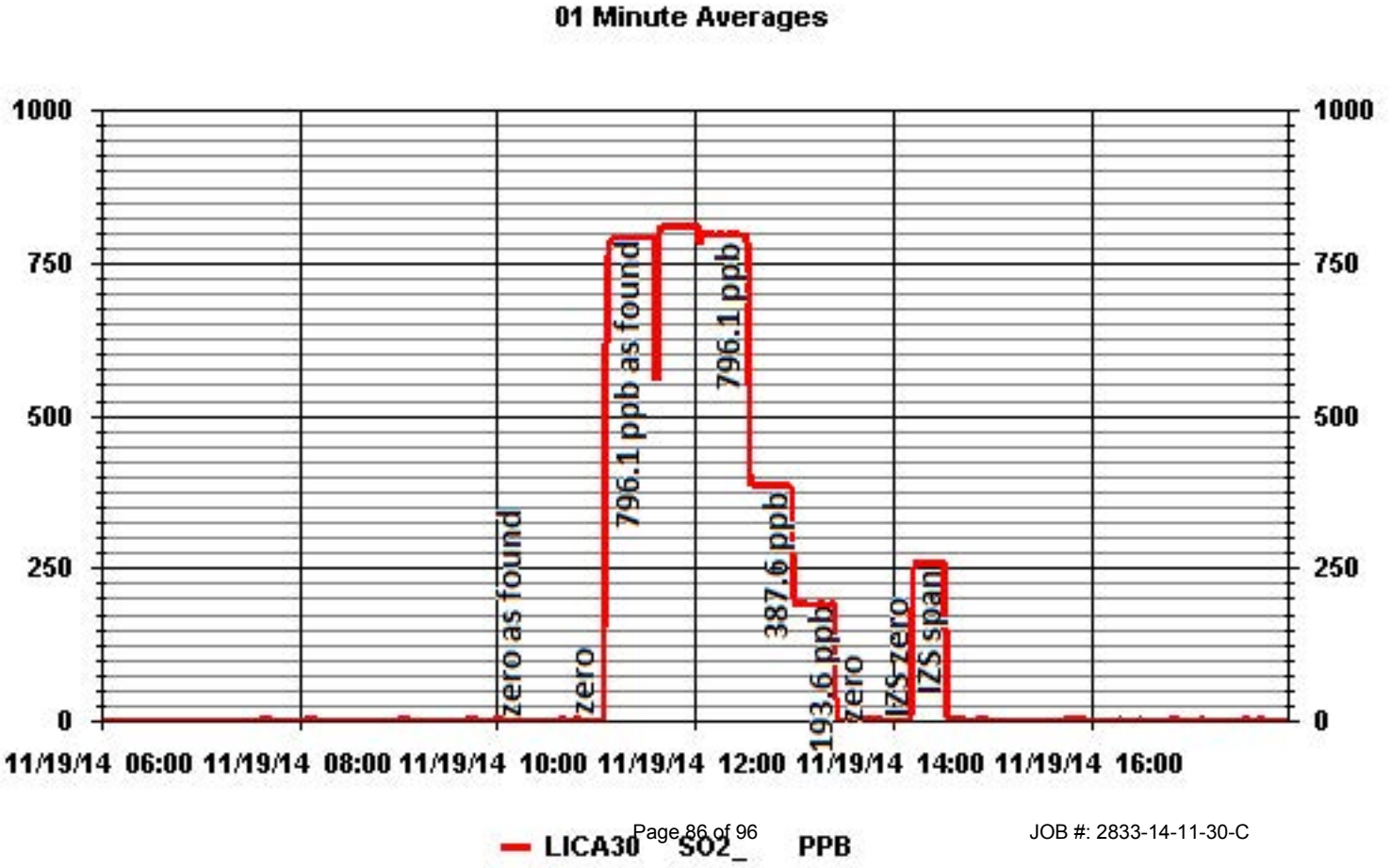
Comments:

Sample filter changed.
11:36 - Calibrator set-up checked as calculated did not match target. As-found restarted at 11:39

API 100E SO2 Analyzer Calibration



JOB #: 2833-14-11-30-C



JOB #: 2833-14-11-30-C

Hydrogen Sulphide

API 101E H2S Analyzer Calibration

Date:	19-Nov-14	**Start/End Time (mst):**	10:11-14:11
Company:	LICA	**Calibration Purpose:**	Monthly Calibration
Station Name/Location:	Maskwa	**Converter Make & Model:**	Internal
Performed by:	Chris Wesson	**Converter Serial #:**	NA
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	8-Jul-16

Analyzer:

Serial Number:	511	**Range ppb:**	100
Last Calibration Date:	23-Oct-14	**As Found C.F.**	0.974
Previous Cal High Point C.F.:	0.997	**New C.F.:**	0.992

	As found:	As left:
SLOPE:	0.919	0.888
OFFSET:	44.9	45.0
HVPS:	616	616
RCELL TEMP:	50.0	50.0
BOX TEMP:	32.1	31.4
PMT TEMP:	7.9	7.9
IZS TEMP:	45.0	45.0
TEST:	ConvTemp=315.4	ConvTemp=315.0
STABIL:	0.0	0.8
PRES:	29.3	29.2
SAMP FL:	658	657
PMT:	80.0	75.3
NORM PMT:	45.2	45.2
UV LAMP:	3067.5	3067
LAMP RATIO:	98.6	98.6
STR. LGT	20.6	20.0
DRK PMT:	32.8	33.0
DRK LMP:	5.8	5.9
Internal Span:	51.62	47.5

Calibrator:

Flow Meter ID's:	NA
Make & Model:	API 700
Serial #:	829
Cal Gas Cylinder I.D. # :	BLM001434
Cal Gas Conc. (ppm):	10.3

Calibrator Flow Targets:

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

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4998	0.0	4998	0	0.2	NA
adjusted zero	4998	0.0	4998	0	0.1	NA
as found high	4962	37.85	5000	78.1	80.3	0.974
adjusted high	4963	37.85	5001	78.1	78.1	1.001
mid	4982	18.40	5000	38.0	38.5	0.989
low	4989	10.70	5000	22.1	22.5	0.986
calibrator zero	4999	0.00	4999	0	0.2	NA
					Average C.F.=	0.992

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.002**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.33%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**2.30%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

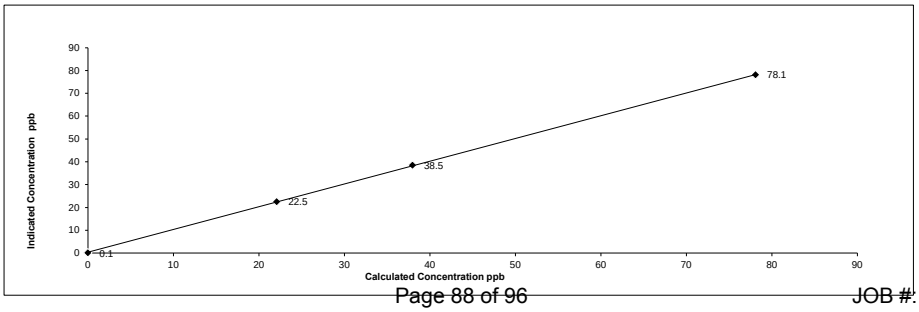
****run converter effeciency test immediately following zero adjust****

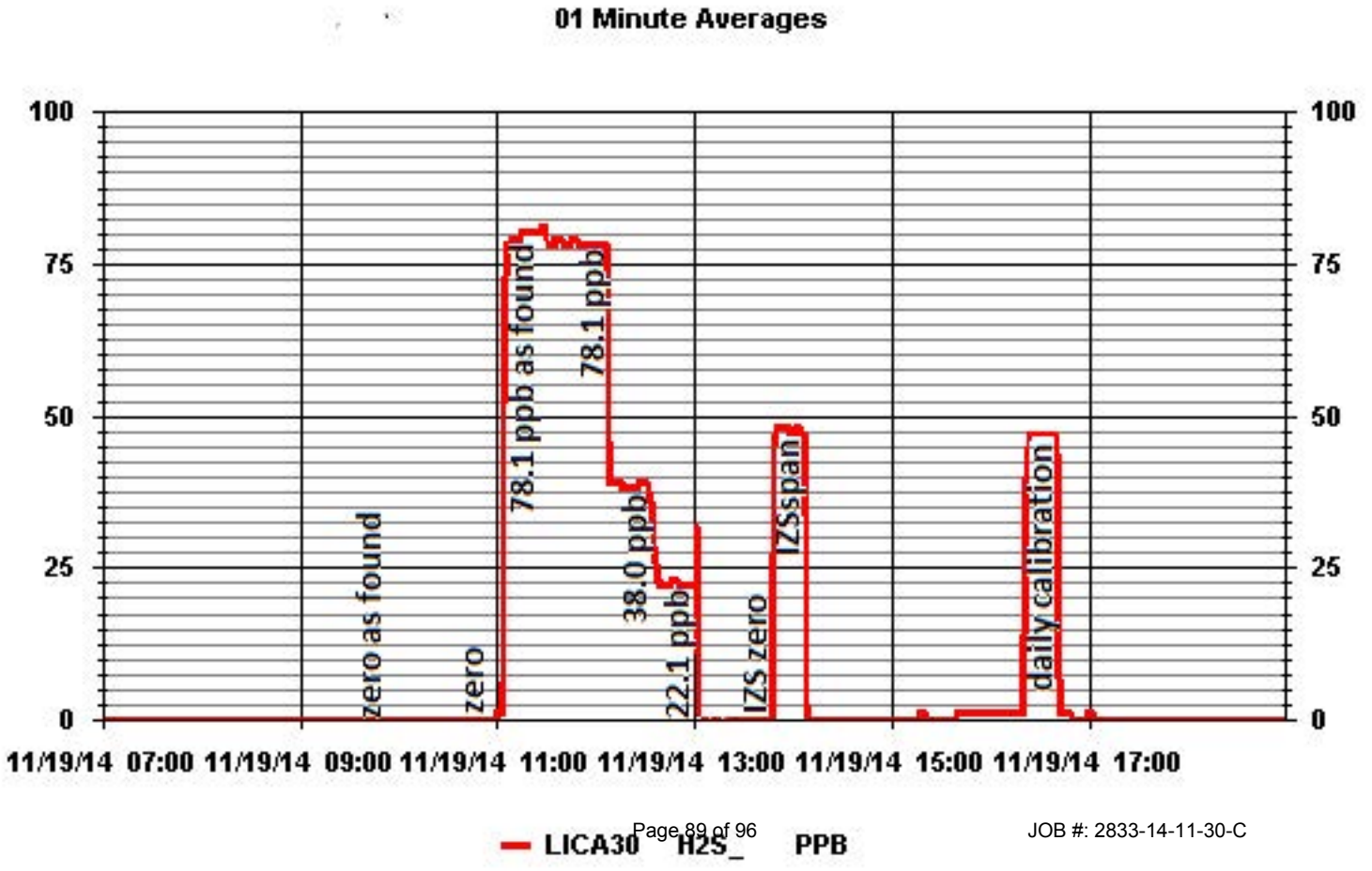
SO_2 High Point gas concentration:	100 ppb	Time gas run (mst):	10:54-10:59
Zero corrrected analyzer response:	0.5		

Comments:

Sample filter changed.

API 101E H2S Analyzer Calibration





JOB #: 2833-14-11-30-C

Total Hydrocarbons

Thermo 51C THC Analyzer Calibration

Date:	19-Nov-14	**Start Time (mst):**	13:40
Company:	LICA	**End Time (mst):**	17:33
Station Name/Location:	Maskwa	**Calibration Purpose:**	Monthly Calibration
Performed by:	Chris Wesson	**Cal Gas Expiry Date:**	11-Jul-21

Analyzer:

Serial Number:	436609738	**Range ppm:**	50
Last Calibration Date:	23-Oct-14	**As Found C.F.**	0.968
Previous Cal High Point C.F.:	0.998	**New C.F.:**	1.005

		As found:		**As left:**
	H_2 cylinder (psi):	700	H_2 cylinder (psi):	700
	H_2 cylinder reg set (psi):	25	H_2 cylinder reg set (psi):	25
	Span Cylinder (psi):	600	Span Cylinder (psi):	600
	Span Cylinder Reg Set (psi):	27	Span Cylinder Reg Set (psi):	27
	Zero Air Gen Pressure:	33	Zero Air Gen Pressure:	33
	measurement alarms:	None	measurement alarms:	None
	service alarms:	None	service alarms:	None
FID status:	cnt:	894	cnt:	905
	rng:	1	rng:	1
	try:	3	try:	3
	flm:	179.5	flm:	179.5
	det:	125.3	det:	125.3
Oven Readings:	Flame:	179	Flame:	179
	Filter:	125	Filter:	125
	Base:	125	Base:	125
	Pump:	7.49	Pump:	7.49
Voltages:	+5	4.9	+5	4.9
	+15	14.8	+15	14.8
	-15	-15.0	-15	-15.0
	Internal Span:	34.11	Internal Span:	33.7

Calibrator:

Flow Meter ID's:	NA	
Make & Model:	API 700	
Serial #:	829	
Cal Gas Cylinder I.D. # :	LL109092	
CH_4/C_3H_8 Cylinder Conc. (ppm):	607.0	202.0
CH_4 as propane/total CH_4 equivilants (ppm):	555.5	1162.5

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	2418	82	2500
mid	2461	39	2500
low	2481	19	2500

Calibration:

Calibrator Flow Rates (cc/min)				**Calculated Concentration:**	**Indicated Concentration:**	**Correction Factors:**
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	2497	0.00	2497	0	0.02	NA
adjusted zero	2498	0.00	2498	0	0.01	NA
as found high	2416	81.90	2498	38.12	39.38	0.968
adjusted high	2415	81.90	2497	38.13	38.15	1.000
mid	2462	39.00	2501	18.13	18.00	1.008
low	2482	19.00	2501	8.83	8.78	1.007
calibrator zero	2497	0.00	2497	0	0.04	NA
					Average C.F.=	1.005

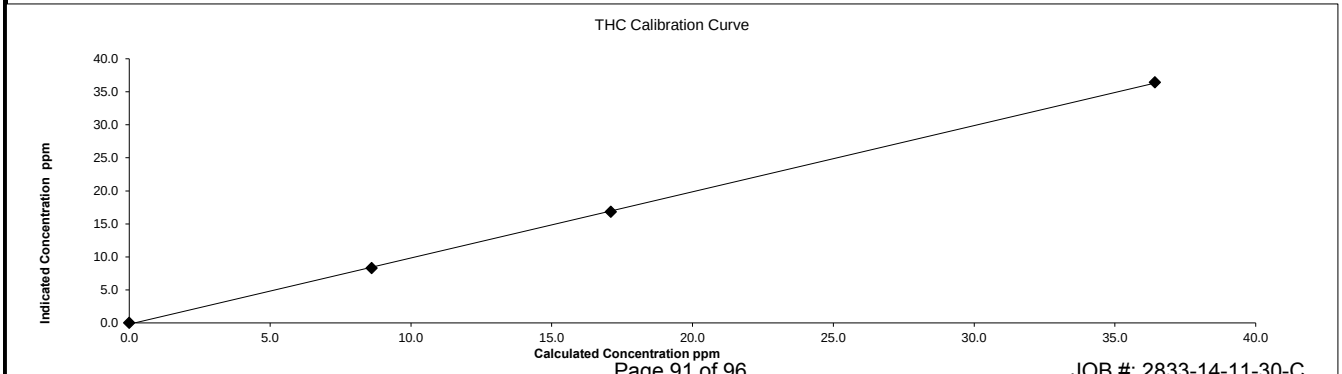
Linear Regression/Calibration Results:

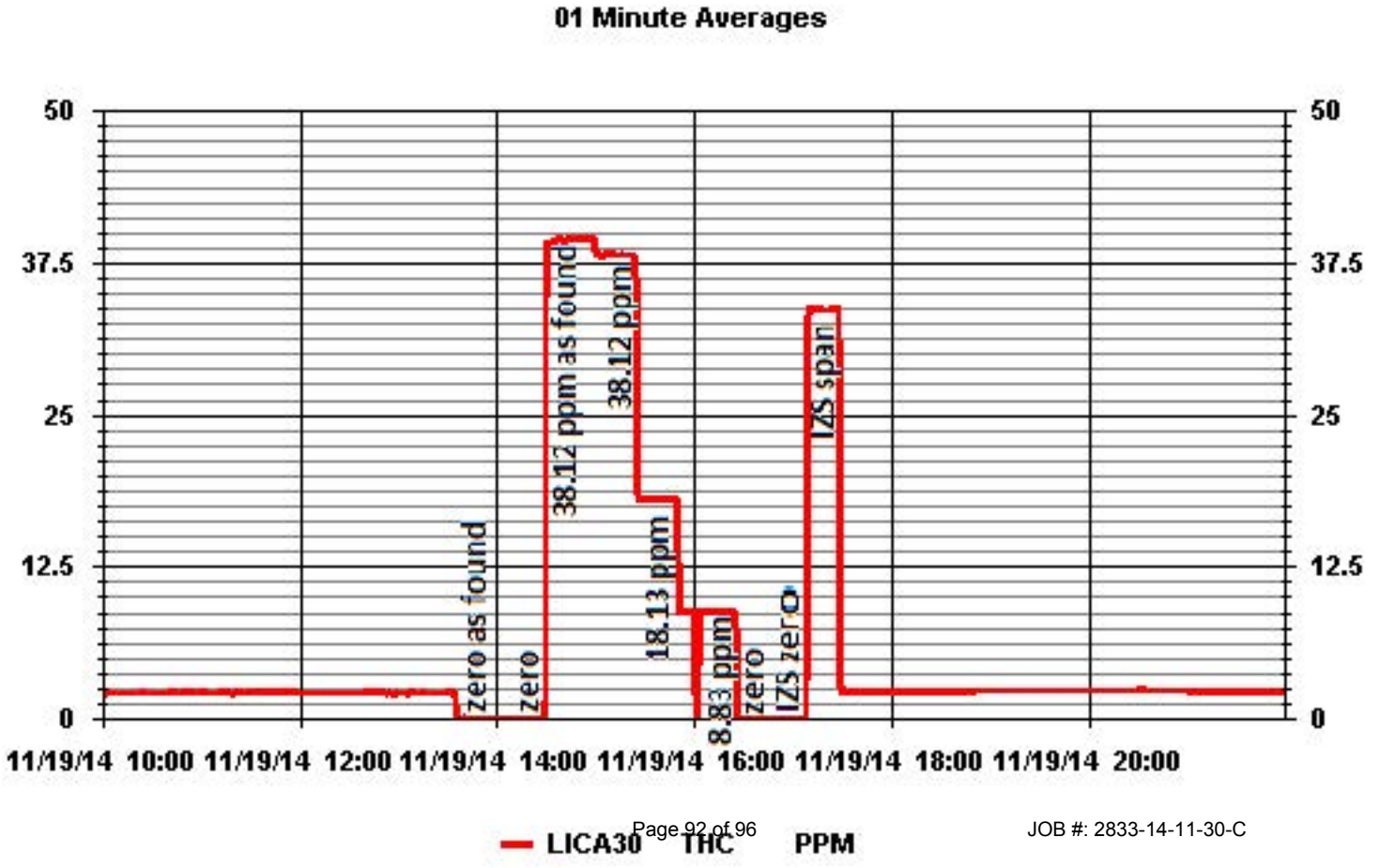
		LIMITS	**Pass/Fail ?**
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.002**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.369%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**3.00%**	**± 15%**	**PASS**

Comments:

Sample filter changed.
16:00 daily IZS triggered. Low point restarted at 16:03

Thermo 51C THC Analyzer Calibration





JOB #: 2833-14-11-30-C

Nitrogen Dioxide

API 200E NOx Analyzer Calibration

Date:	19-Nov-14	**Start Time (mst):**	10:11
Company:	LICA	**End Time (mst):**	17:20
Station Name/Location:	Maskwa	**Calibration Purpose:**	Monthly Calibration
Performed by:	Chris Wesson	**Cal Gas Expiry Date:**	12-Aug-17

Analyzer Serial Number:	594
Last Calibration Date:	23-Oct-14
Range ppb:	1000

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	0.987	0.999
NOx=	0.995	0.997
NO_2=	1.002	0.998

	As found:	**As left:**
NOx SLOPE:	1.049	1.040
NOx OFFS:	4.0	0.4
NO SLOPE:	1.047	1.033
NO OFFS:	-0.1	0.1
TEST:	NA	NA
SAMP FLW:	459	459
OZONE FL:	79	78
PMT:	15.7	13.7
NORM PMT:	-0.3	-0.6
AZERO:	15.2	16.2
HVPS:	750	750
RCELL TEMP:	49.8	50.3
BOX TEMP:	31.9	32.4
PMT TEMP:	6.6	6.7
IZS TEMP:	42.2	42.4
MOLY TEMP:	316.3	313.8
RCEL:	6.2	6.1
SAMP:	26.7	26.3
Internal Span:	Nox=480, NO=7.1, NO2=473	Nox=480, NO=7.1, NO2=473

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	5212
Cal Gas Cylinder I.D. # :	BR000418M400
NO Cylinder Conc. (ppm):	49.7
NOx Cylinder Conc. (ppm):	49.7

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4920	80	550.00	5000
mid	4960	40	300.00	5000
low	4980	20	94.00	5000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4996	0.0	4996	0	0	-1.0	-3.0	NA	NA
adjusted zero	4998	0.0	4998	0	0	-1.0	-1.0	NA	NA
as found high	4917	78.44	4995	780.4	780.4	790	783	0.987	0.995
adjusted high	4917	78.44	4995	780.4	780.4	780	780	0.999	0.999
mid	4957	38.18	4995	379.9	379.9	378	378	1.002	1.002
low	4977	19.08	4996	189.8	189.8	187	187	1.010	1.010
calibrator zero	4998	0.00	4998	0	0	-1.0	-1.0	NA	NA
							Average C.F.=	1.004	1.004

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4918	78.44	4996	0.0	782.0	783.0	0.0	-1.0	0.0	
as found NO_2	4918	78.44	4996	550.0	297.0	782.0	484.0	485.0	484.0	1.002
adjusted NO_2	4918	78.44	4996	550.0	297.0	782.0	484.0	485.0	484.0	1.002
gpt mid	4918	78.44	4996	300.0	511.0	783.0	270.0	271.0	270.0	1.004
gpt low	4918	78.44	4996	94.0	683.0	786.0	102.0	99.0	102.0	0.971
								Average NO_2 C.F.=		0.992

Linear Regression/Calibration Results:

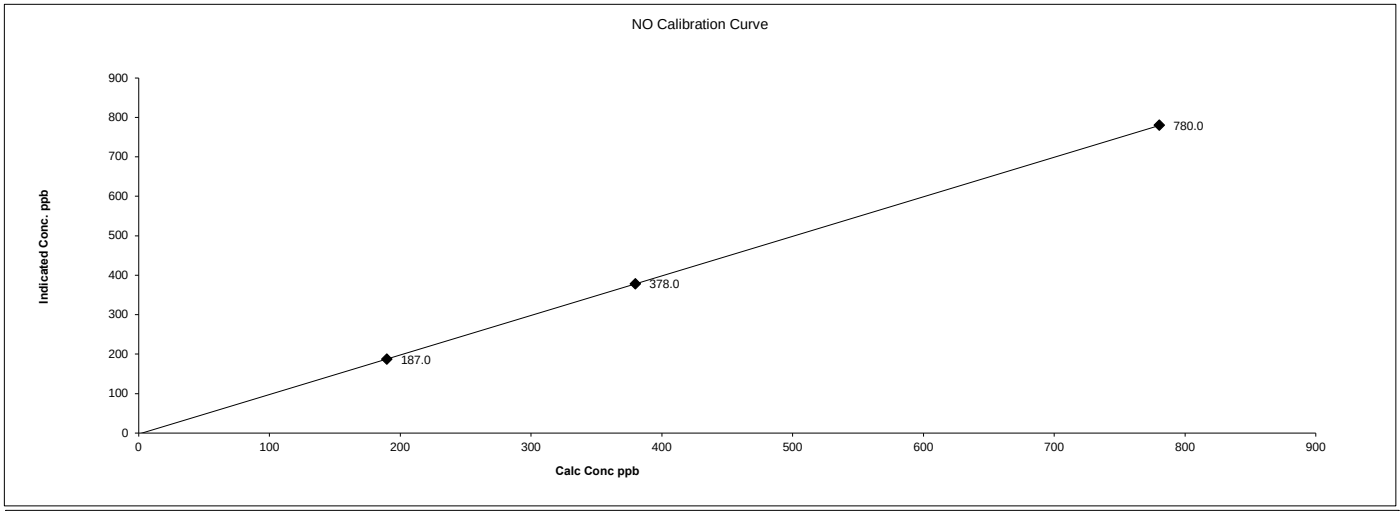
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.001**	**1.001**	**0.993**	**0.85-1.15**
b (Intercept as % of full scale)=	**-0.20%**	**-0.20%**	**0.19%**	**± 3% F.S.**
% change in C.F. from last cal=	**1.24%**	**0.16%**	**-0.41%**	**+/-15%**
NO2 converter effeciency			**100.8%**	**>85%**

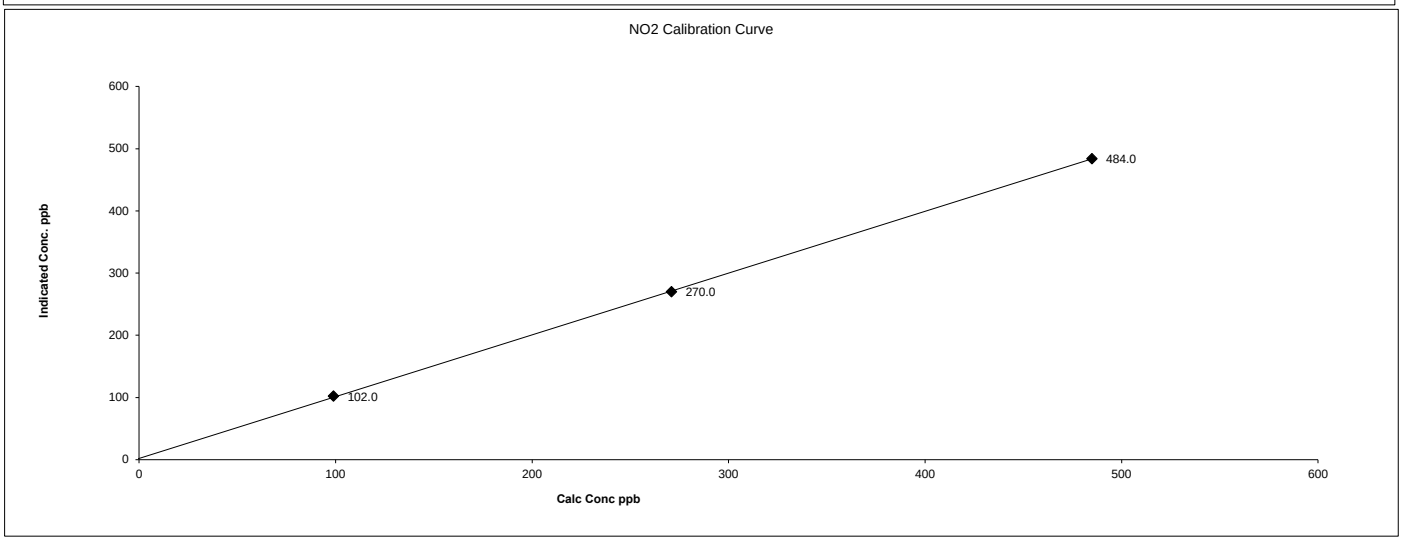
Comments:

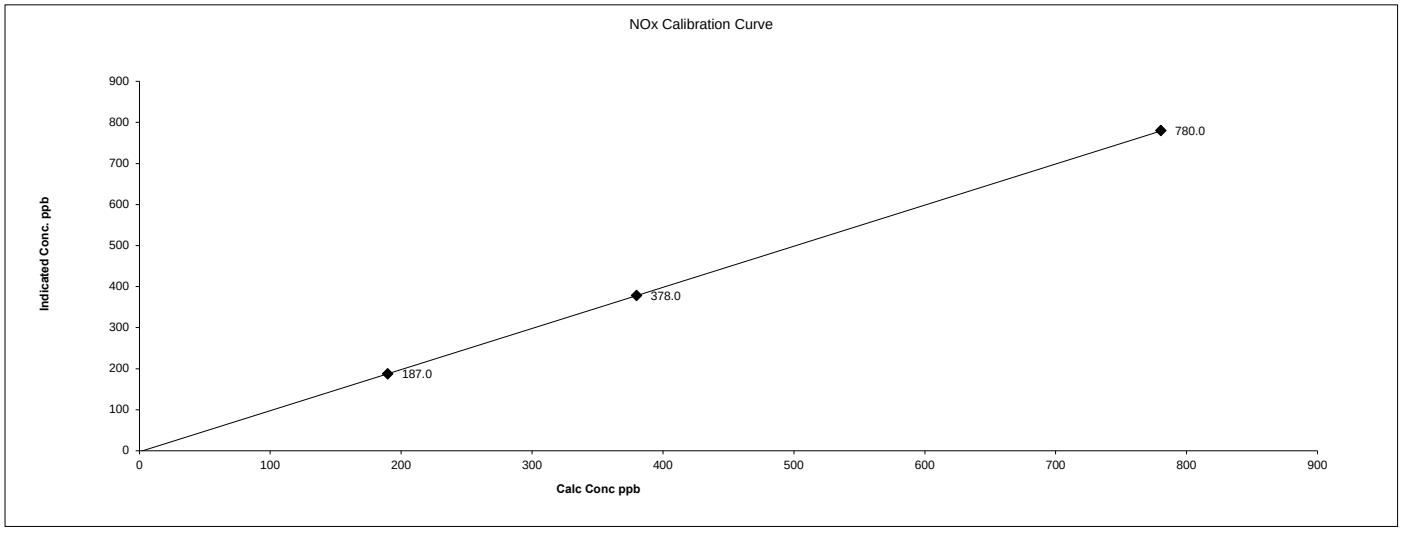
Sample filter changed.
11:36 - Calibrator set-up checked as calculated did not match target. As-found restarted at 11:39
No NO2 adjustment made. Data copied from as-found for calculation purposes only.
16:00 Daily IZS triggered. Low point restarted at 16:04

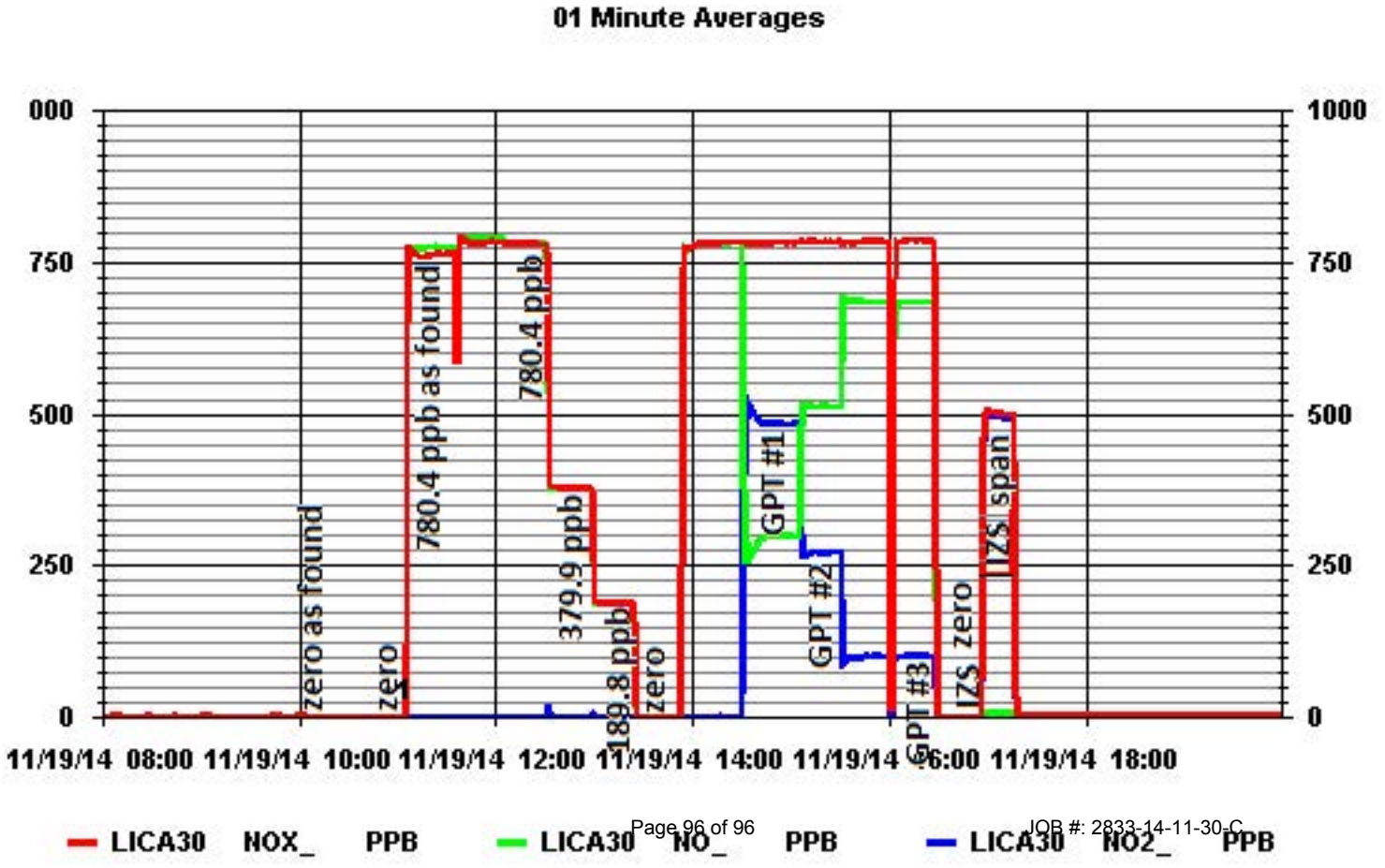
Date:	19-Nov-14	**Start Time (mst):**	10:11
Company:	LICA	**End Time (mst):**	17:20
Station Name/Location:	Maskwa	**Calibration Purpose:**	Monthly Calibration
Performed by:	Chris Wesson	**Cal Gas Expiry Date:**	12-Aug-17

API 200E NOx Analyzer Calibration








01 Minute Averages
000
750
500
250
0
1000
750
500
250
0
zero as found
zero
780.4 ppb as found
780.4 ppb
379.9 ppb
189.8 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/19/14 08:00
11/19/14 10:00
11/19/14 12:00
11/19/14 14:00
11/19/14 16:00
11/19/14 18:00
LICA30 NOX_ PPB
LICA30 NO_ PPB
LICA30 NO2_ PPB

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
November 2014

Prepared By:

Maxxam
A Bureau Veritas Group Company

December 16, 2014

Lakeland Industry & Community Association
St. Lina
Ambient Air Monitoring

Table of Contents

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: November 2014

The monthly ambient data report:

- Prepared by Wunmi Adekanmbi
- 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:

- AIR SOP-00211
- AIR SOP-00209
- AIR SOP-00213
- AIR SOP-00214
- AIR SOP-00208
- AIR 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 – November 2014

LICA ST. LINA 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	0.82	5	17	12	8.2	196(SSW)	2.4	6	100.0
H2S (PPB)	10	3	0	0	0.15	2	20	12, 13	11.9, 12.9	197(SSW) 196(SSW)	0.8	13, 14	100.0
THC (PPM)	-	-	-	-	2.13	3.2	27	3	11.3	27(NNE)	2.6	26	99.3
OZONE (PPB)	82	-	0	-	28.45	42	18	18, 19	14.3, 15	321(NW) 328(NNW)	39.0	19	100.0
NO2 (PPB)	159	-	-	-	2.64	22.5	21	0	9.8	230(SW)	8.1	20	100.0
NO (PPB)	-	-	-	-	0.22	3.1	17	11	NA	NA	0.6	VAR	100.0
NO_x (PPB)	-	-	-	-	2.86	23.1	21	0	9.8	230(SW)	8.7	20	100.0
PM2.5 (ug/m3)	-	30	-	1	12.74	105	13	6	NA	NA	33.5	13	79.7
TEMPERATURE (DEGREE C)	-	-	-	-	-9.20	10.0	1	14	8.2	312(NW)	5.0	1	100.0
BP (MILLIBAR)	-	-	-	-	928.3	951	11	VAR	VAR	VAR	949.5	11	100.0
RH (%)	-	-	-	-	74.58	90	4, 21	VAR	VAR	VAR	87.3	21	100.0
PRECIPITATION (MM)	-	-	-	-	0.04	1.6	22	13	NA	NA	0.4	22	100.0
VECTOR WS (KPH)	-	-	-	-	10.56	29.9	3	4	-	75(ENE)	20.9	22	90.1
VECTOR WD (DEGREES)	-	-	-	-	313(NW)	-	-	-	-	-	-	-	90.1

NA-NOT VALID 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. The monthly calibration was performed on November 14th. The inlet filter was changed before the calibration was started. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)
Analyzer make / model - API 101E, S/N: 722
The analyzer was working well throughout the month. The monthly calibration was performed on November 14th. The inlet filter was changed before the calibration was started. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)
Analyzer make / model – Thermo 51C-LT, S/N: 04366-09739
The analyzer was working well throughout the month. The monthly calibration was performed on November 6th. The inlet filter was changed before the calibration was started. On November 14th the pump for the zero air generator was replaced and both the hydrogen and span gas bottles were changed. A zero/span check was run after the replacements, and the result was within acceptable range. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Nitrogen Dioxide (PPB)
Analyzer make / model - API 200A S/N: 592
The analyzer was working well throughout the month. The monthly calibration was performed on November 14th. The inlet filter was changed before the calibration was started. 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 November 14th. 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 – Thermo Teom 1400A S/N: 140AB228720001
The Teom unit was removed from the trailer for repair on September 11th. The unit was installed back to the field followed by an installation audit on November 6th. A total of 132 hours of data are missing due to this event. Two other audits were performed this month to ensure the unit's functionality: one was performed on November 14th, and the other was completed on November 24th. Both the Teom filter and the FDMS filter were replaced on November 24th. Data was corrected using Alberta air quality guideline. If the data was between 0 and –3, correction was made to zero. If the data was below –3, it was invalidated. Fourteen hourly data were invalidated as they were below –3 ug/m3. One 24-Hour exceedance was recorded this month: concentration of 33.5 ug/m3 on November 13th. AESRD Ref# 291970.The operational uptime was 79.7%.

Temperature (Degree C)
Analyzer make / model – Met One 060
No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Barometric Pressure (Millibar)
Analyzer make / model - Met One 092
No operational issues were observed during the month.

Relative Humidity (%)
Analyzer make / model - Met One 083
No operational issues were observed during the month.

Precipitation (MM)
Analyzer make / model - Met One 387
No operational issues were observed during the 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 wind direction data included in this report represents where the wind was coming from. The last wind system calibration was performed on August 28th, 2014.
It was noticed that the wind system tended to freeze during extreme cold weather. A site visit was performed and the wind system was checked on November 24th. It was found out that the heater for the system was not operating properly. The power cable for the heater was replaced on November 24th. A total of 69 hours of data for wind speed/wind direction/ standard deviation wind direction was invalidated due to the wind system freeze this month.

General Monthly Summary

AQM STATION – LICA – St. Lina

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 sample manifold was cleaned on November 14th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

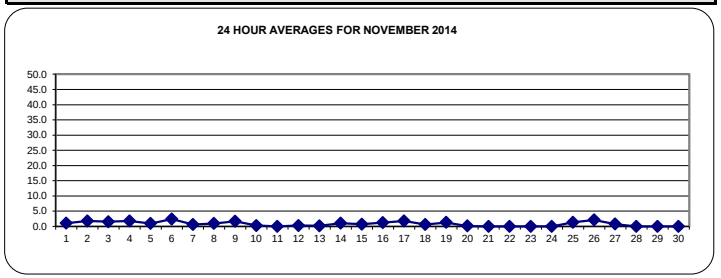
SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	**S**	2	1	2	2	2	2	1	1	2	2	2	2	1	1	1	2	1.0	24
2	1	1	1	1	1	2	4	**S**	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	4	1.8	24
3	2	2	2	2	2	2	**S**	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	2	1.5	24
4	1	1	1	1	2	**S**	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1.7	24
5	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1.0	24
6	1	1	1	**S**	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	***2.4***	24
7	2	2	**S**	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0.6	24
8	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
9	**S**	2	3	3	3	3	3	2	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	**S**	3	1.7	24
10	1	1	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	2	0.3	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	**S**	1	0	0	1	0.3	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	**S**	0	0	1	1	1	0.2	24
14	1	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	2	2	2	**S**	2	**S**	0	0	0	2	1.1	24
15	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	1	**S**	2	2	2	2	2	2	0.7	24
16	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	2	1.2	24
17	1	1	1	1	1	2	2	2	2	2	2	4	***5***	3	3	3	3	**S**	0	0	1	1	1	0	***5***	1.8	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	2	2	2	2	2	2	2	2	0.6	24
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**S**	0	0	0	0	0	0	0	0	2	1.3	24
20	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**S**	0	0	0	0	0	0	0	1	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	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	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	24
25	0	0	0	0	0	0	0	0	0	**S**	3	3	2	3	2	2	2	2	2	2	2	2	2	2	3	1.3	24
26	2	2	2	2	2	2	2	2	**S**	2	2	2	2	2	3	2	3	2	2	2	3	2	2	2	3	2.1	24
27	2	3	2	2	3	3	3	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.8	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	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	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	24
HOURLY MAX	2	3	3	3	3	3	4	2	2	2	3	4	5	3	3	3	3	3	3	3	3	3	3	2			
HOURLY AVG	0.7	0.8	0.8	0.7	0.8	0.8	0.9	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	0.8	0.8	0.8	0.7	0.8	0.9	0.8	0.8	0.7			

STATUS FLAG CODES

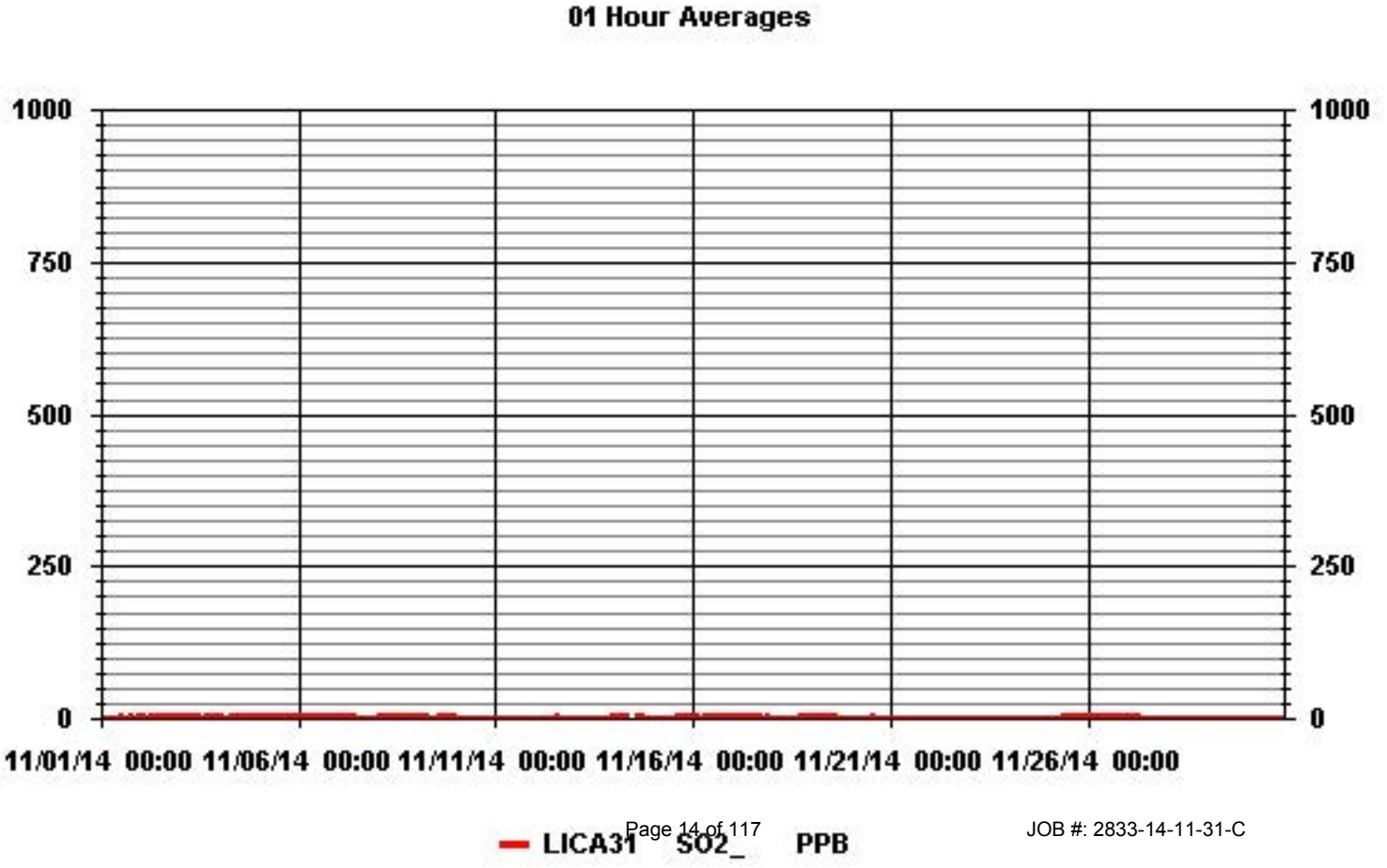
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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:	336					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	12	ON DAY(S)	17
MAXIMUM 24-HR AVERAGE:	2.4	PPB			ON DAY(S)	6
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.96		MONTHLY AVERAGE:		0.82	PPB



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

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	0	0	0	0	**S**	3	3	3	3	3	3	2	2	3	3	3	3	2	2	2	3	1.7	24
2	2	2	2	2	2	4	5	**S**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	2.9	24
3	3	3	3	3	3	3	**S**	3	3	3	3	3	2	2	3	2	2	2	2	2	2	2	2	2	3	2.5	24
4	2	2	2	3	3	**S**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2.9	24
5	2	2	2	2	**S**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
6	2	2	2	**S**	3	3	3	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	***3.5***	24
7	3	3	**S**	3	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	2	1	2	2	2	3	1.7	24
8	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	2.0	24
9	**S**	3	4	4	5	4	4	3	3	3	3	2	3	3	2	2	2	2	2	2	2	2	2	**S**	5	2.8	24
10	2	4	5	2	1	1	2	1	1	2	1	1	1	0	0	0	1	1	1	0	0	0	**S**	0	5	1.2	24
11	0	0	0	1	1	2	2	1	0	1	1	1	1	1	1	1	1	1	1	0	0	**S**	0	0	2	0.7	24
12	0	0	0	0	0	0	0	0	0	0	0	1	3	2	2	2	1	1	1	3	**S**	2	1	0	3	0.8	24
13	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	**S**	2	1	2	2	2	1.3	24
14	2	2	2	2	2	2	2	2	2	**C**	**C**	**C**	**C**	**C**	**C**	3	3	3	**S**	**S**	**S**	1	1	1	3	2.0	24
15	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	2	2	2	2	**S**	3	3	3	3	3	1.7	24
16	3	3	3	3	3	2	3	2	3	2	2	2	2	2	2	2	2	2	**S**	2	2	2	2	2	3	2.3	24
17	2	2	3	2	2	2	3	2	3	3	3	5	***7***	5	4	4	4	**S**	1	1	2	2	2	1	***7***	2.8	24
18	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	**S**	3	3	3	3	3	3	3	3	1.3	24
19	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	**S**	0	0	0	0	0	1	1	1	4	2.1	24
20	1	1	1	1	1	1	1	1	0	1	1	2	2	2	**S**	2	1	1	**S**	1	1	1	2	1	2	1.2	24
21	1	1	1	1	1	1	1	1	0	0	0	0	0	**S**	0	0	0	0	0	0	0	1	0	1	1	0.4	24
22	1	1	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
23	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
24	1	1	1	1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	1	0	1	1	0	1	1	1	0.4	24
25	1	1	1	0	0	1	0	0	0	**S**	4	4	3	4	3	3	3	3	3	3	3	3	3	3	4	2.1	24
26	3	3	3	3	3	3	3	3	**S**	3	3	3	3	4	4	4	4	3	3	4	3	4	3	3	4	3.3	24
27	3	4	3	3	4	4	4	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1.1	24
28	0	0	0	1	1	0	**S**	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	0	1	1	0.6	24
29	0	0	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
30	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	1	1	2	0.4	24
HOURLY MAX	3	4	5	4	5	4	5	4	4	3	4	5	7	5	4	4	4	4	4	4	4	4	4	3			
HOURLY AVG	1.4	1.6	1.7	1.6	1.7	1.6	1.8	1.4	1.4	1.5	1.6	1.8	1.9	1.9	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	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: 516

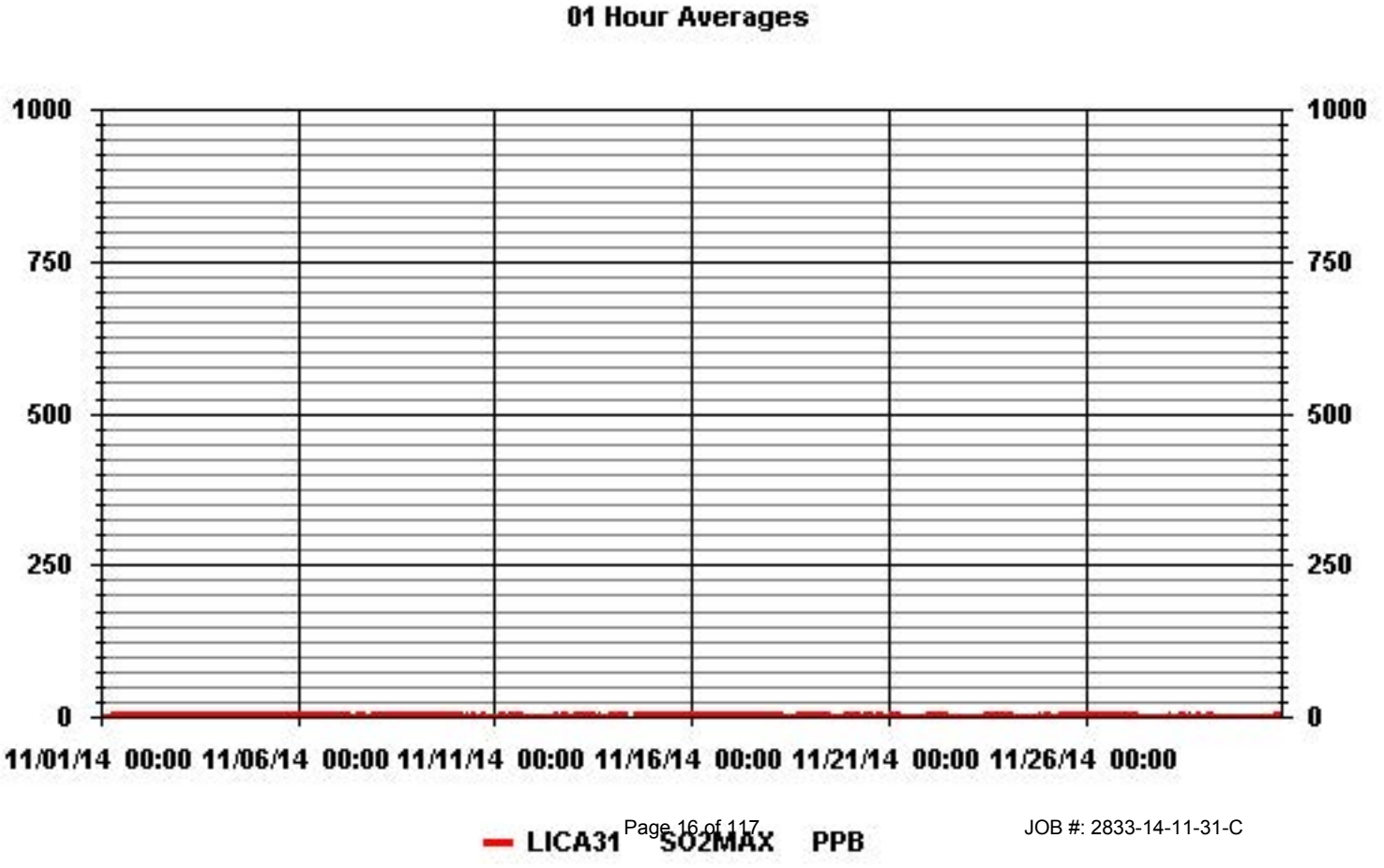
MAXIMUM INSTANTANEOUS VALUE: 7 PPB @ HOUR(S) 12 ON DAY(S) 17

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 1.27



JOB #: 2833-14-11-31-C

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	9.91	17.88	8.45	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	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	9.91	17.88	8.45	

Calm : .00 %

Total # Operational Hours : 615

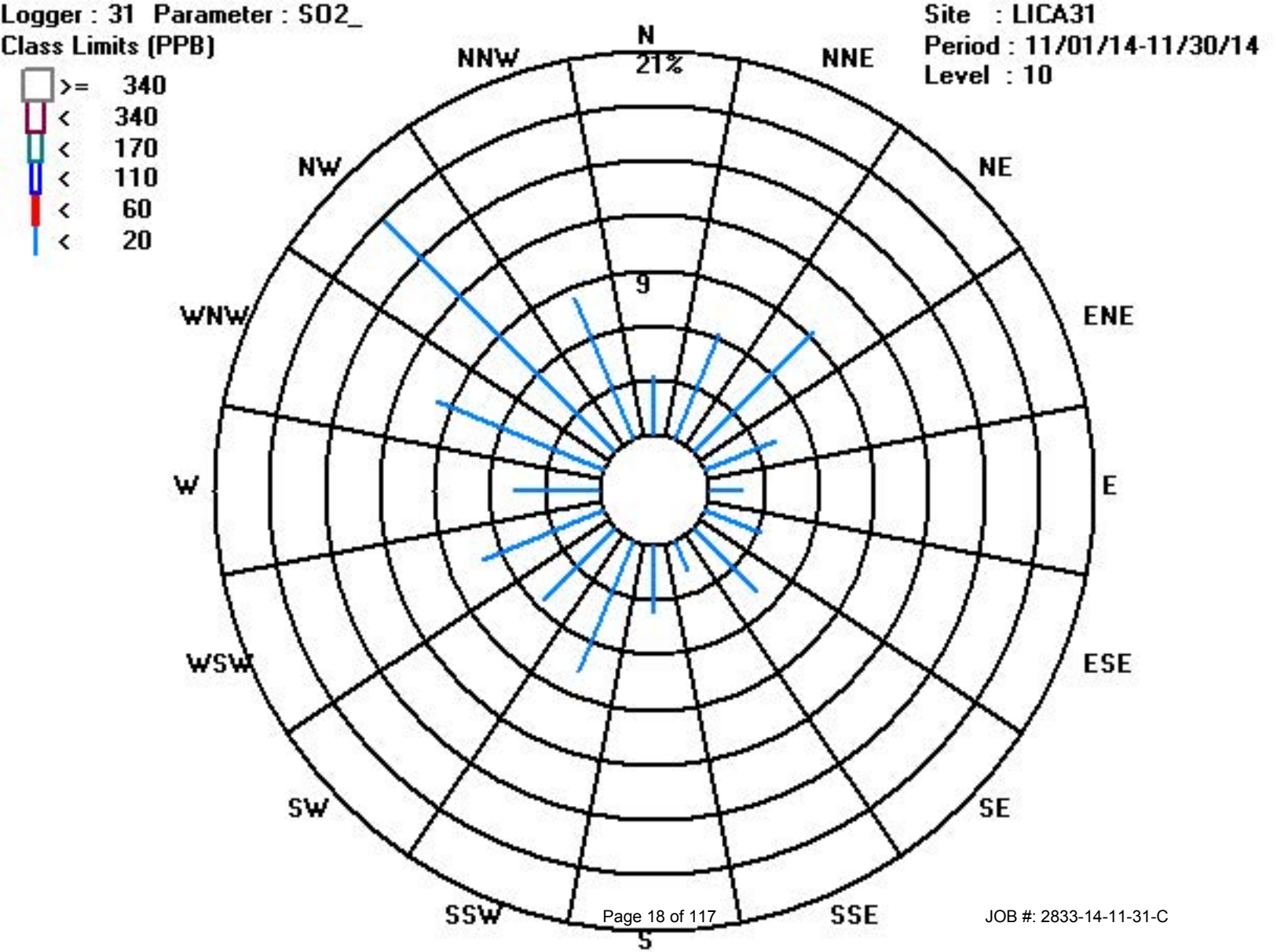
Distribution By Samples

Direction

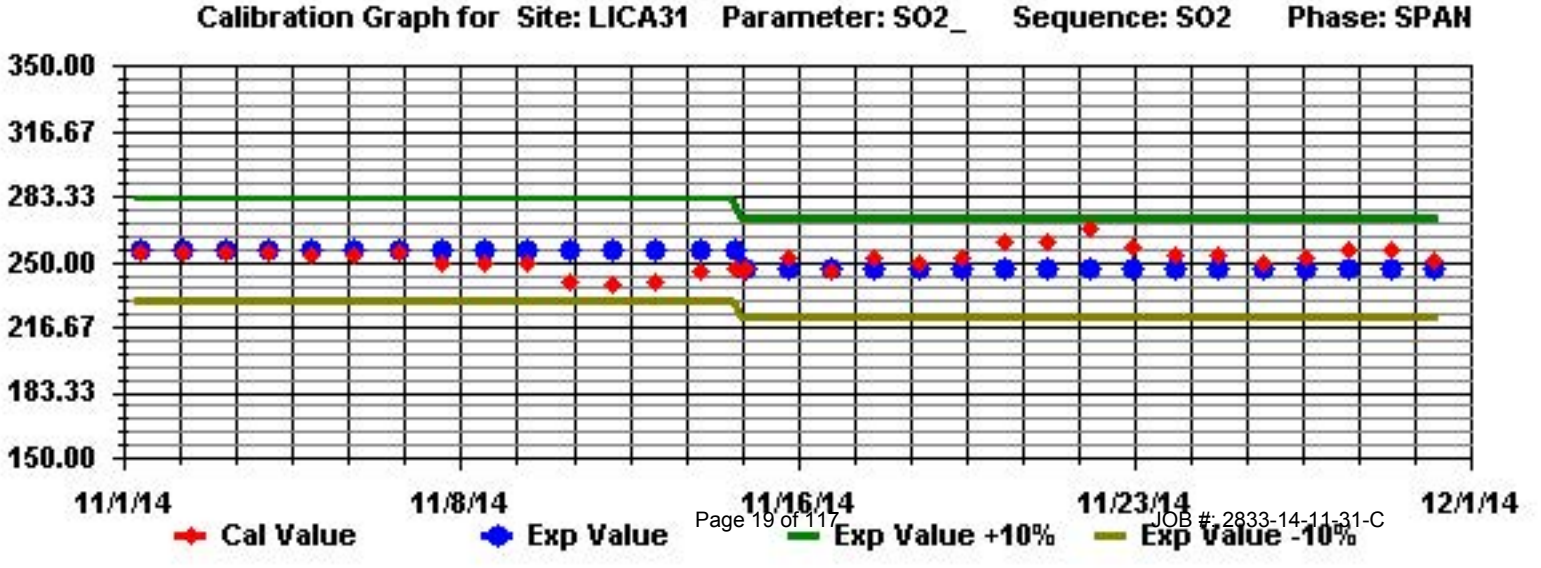
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	20	39	57	26	11	20	30	11	23	48	34	44	29	61	110	52	615
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	20	39	57	26	11	20	30	11	23	48	34	44	29	61	110	52	

Calm : .00 %

Total # Operational Hours : 615



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN
350.00
316.67
283.33
250.00
216.67
183.33
150.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

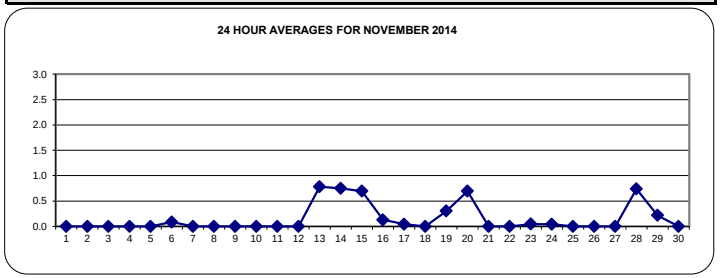
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

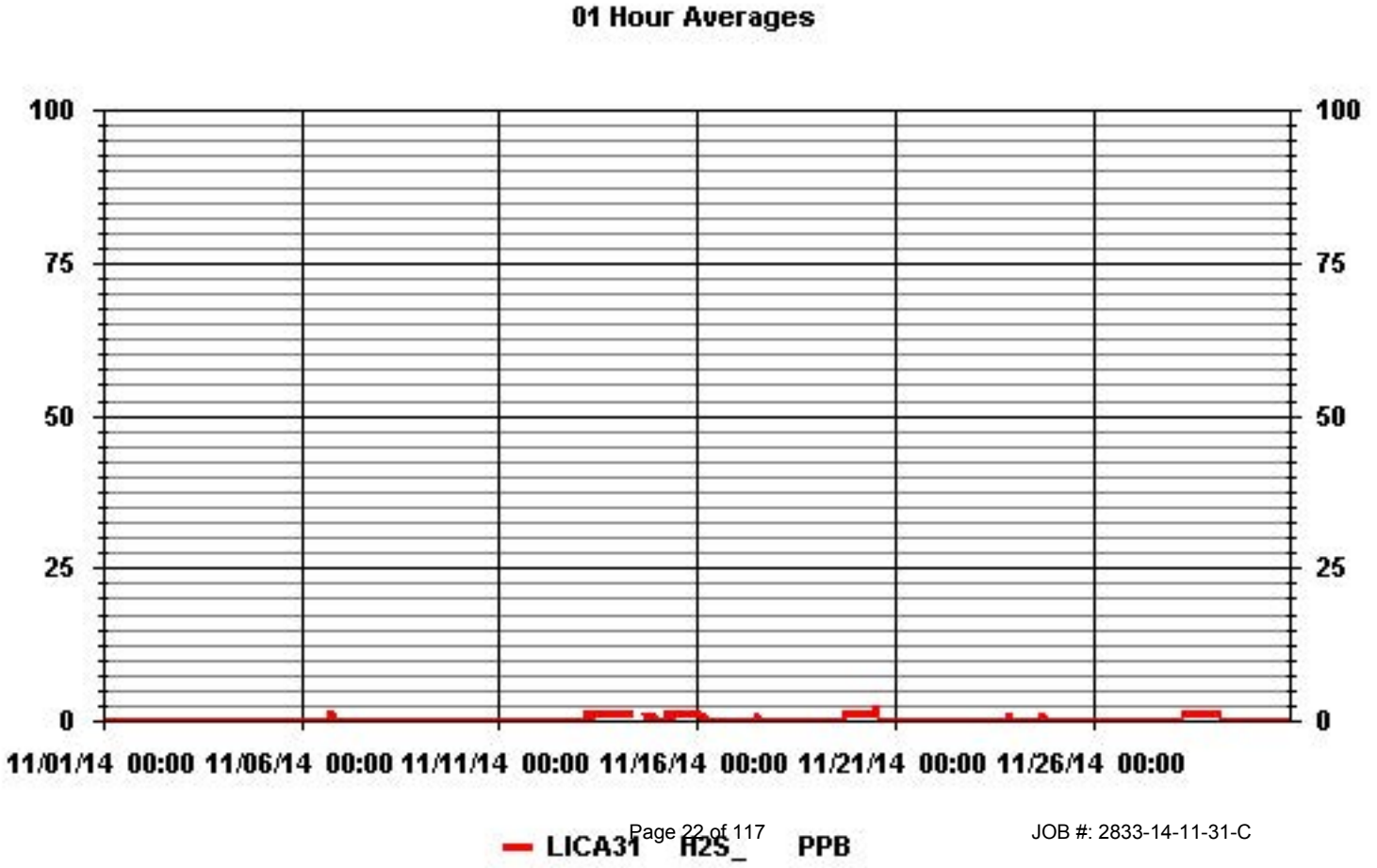


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	97					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	12, 13	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	0.8	PPB			ON DAY(S)	13, 14
					VAR-VARIOUS	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.36		MONTHLY AVERAGE:		0.15	PPB

JOB #: 2833-14-11-31-C



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

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	0	1	1	1	0	0	0	**S**	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0.3	24
2	0	0	0	0	0	0	0	**S**	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0.1	24
3	1	0	0	1	1	0	**S**	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0.3	24
4	0	0	0	0	0	**S**	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	1	0.4	24
5	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	**S**	1	0	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	0.9	24
7	1	0	**S**	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24
8	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	**S**	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	**S**	3	0.3	24
10	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
11	0	1	0	0	1	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	**S**	0	1	1	0.3	24
12	1	0	0	1	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	**S**	1	1	1	1	0.6	24
13	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
14	1	1	1	2	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	**S**	1	1	1	2	1.1	24
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	**S**	1	1	1	1	2	1.1	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	1	0.8	24
17	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	**S**	0	0	1	1	1	1	1	0.3	24
18	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	**S**	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	**S**	1	1	1	1	1	1	1	1	1	0.3	24
20	2	2	2	2	2	2	2	2	2	2	2	2	***4***	2	**S**	0	0	0	**S**	0	0	0	0	0	***4***	1.4	24
21	0	0	0	0	0	0	0	**S**	**S**	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	0	0	0	0.0	24
23	0	0	0	0	0	2	0	**S**	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	2	0.8	24
24	1	1	1	1	1	1	1	1	0	1	**S**	0	1	1	1	1	1	3	1	0	1	1	1	1	3	1.0	24
25	1	1	0	0	1	1	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
26	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	1	0	0	0	0	0	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	24
28	1	0	0	1	1	1	**S**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	***1.7***	24
29	2	2	2	2	2	**S**	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	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	24
HOURLY MAX	2	2	2	2	2	2	2	3	2	2	2	2	4	2	2	3	2	3	2	2	2	2	2	2			
HOURLY AVG	0.6	0.4	0.4	0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.7	0.4	0.3	0.4	0.4	0.4	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: 266

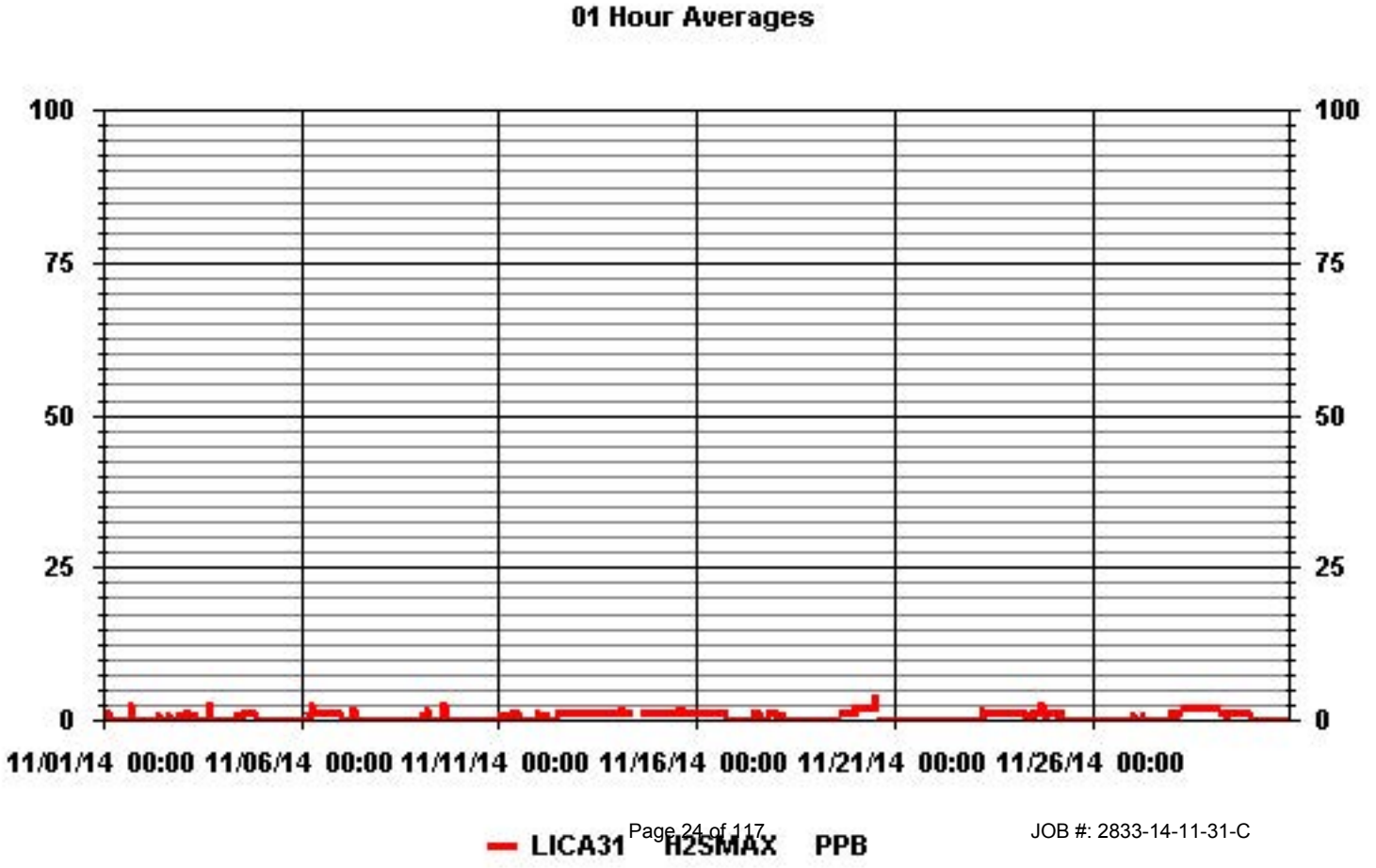
MAXIMUM INSTANTANEOUS VALUE: 4 PPB @ HOUR(S) 12 ON DAY(S) 20

VAR-VARIOUS

IZS CALIBRATION TIME: 35 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 0.66



JOB #: 2833-14-11-31-C

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

November 2014

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	3.26	6.36	9.29	4.24	1.79	3.26	4.89	1.79	3.75	7.83	5.54	7.17	4.56	9.95	17.78	8.48	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	3.26	6.36	9.29	4.24	1.79	3.26	4.89	1.79	3.75	7.83	5.54	7.17	4.56	9.95	17.78	8.48	

Calm : .00 %

Total # Operational Hours: 613

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	20	39	57	26	11	20	30	11	23	48	34	44	28	61	109	52	613
< 10																	
< 50																	
>= 50																	
Totals	20	39	57	26	11	20	30	11	23	48	34	44	28	61	109	52	

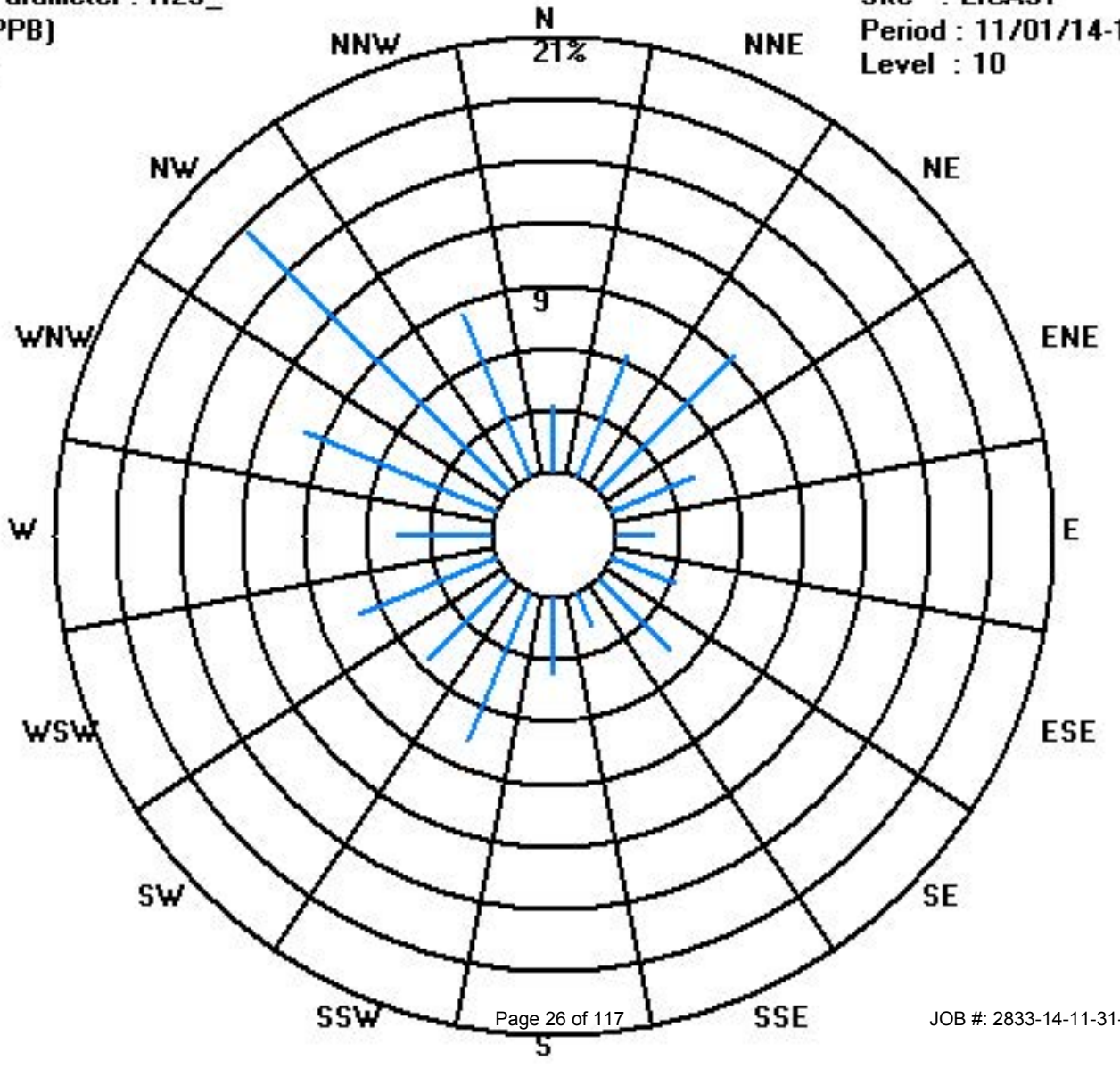
Calm : .00 %

Total # Operational Hours: 613

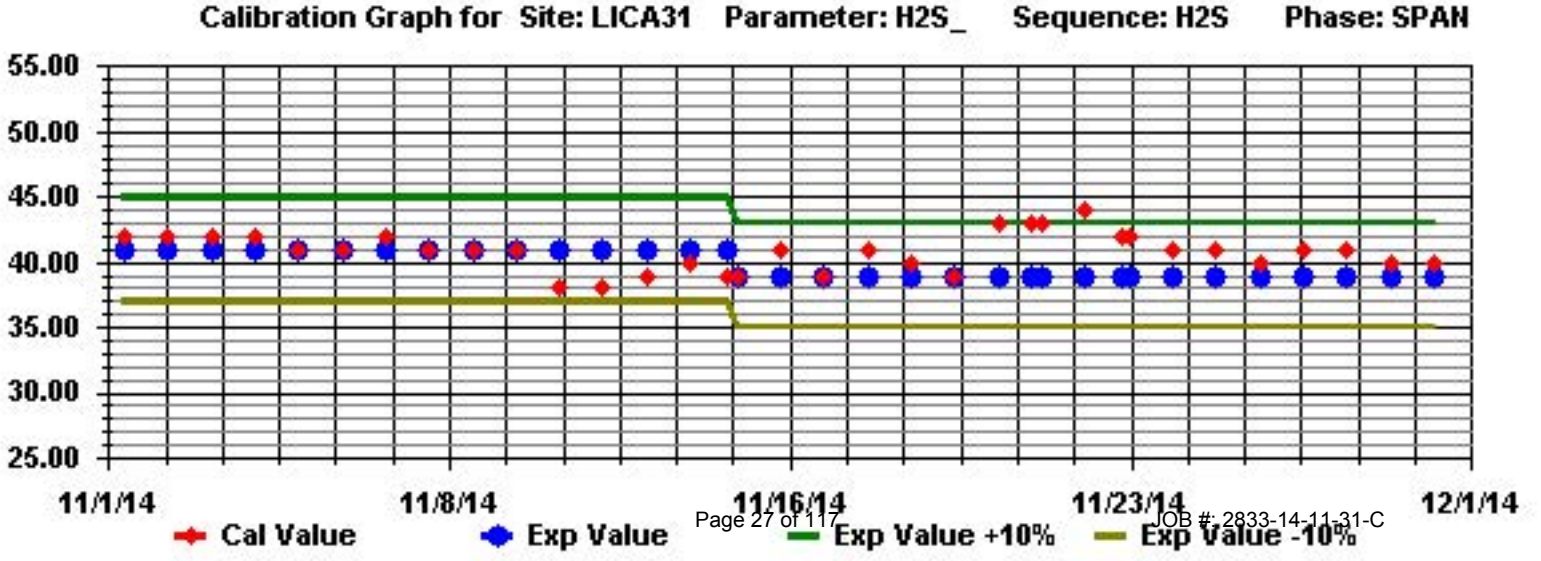
Logger : 31 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA31
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN
55.00
50.00
45.00
40.00
35.00
30.00
25.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

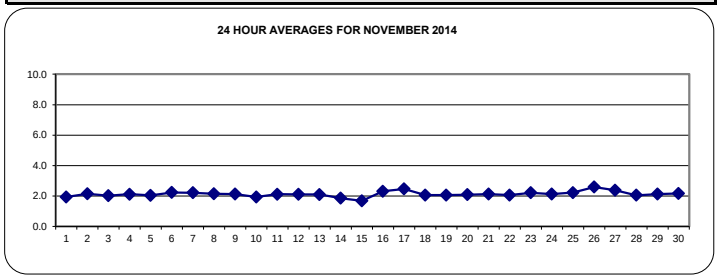
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	24
2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	**S**	2.0	2.1	2.1	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.1	2.7	2.7	2.6	2.6	2.4	2.7	2.1	24
3	2.3	2.2	2.2	2.2	2.2	2.2	**S**	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.3	2.0	24
4	1.9	2.0	2.0	1.9	1.9	**S**	2.4	2.5	2.4	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	2.0	2.0	2.5	2.1	24
5	2.0	2.0	2.1	2.1	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.0	24
6	2.3	2.3	2.3	**S**	2.5	2.3	2.2	2.1	2.1	2.2	2.1	**C**	**C**	**C**	**C**	**C**	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.1	2.5	2.2	24
7	2.1	2.1	**S**	2.0	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	2.3	2.3	2.3	2.3	2.3	2.3	2.2	24
8	2.3	**S**	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.1	24
9	**S**	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.1	2.2	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.3	**S**	2.3	2.1	24
10	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	**S**	2.0	2.1	1.9	24
11	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.2	2.1	24
12	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	**S**	2.1	2.1	2.1	2.2	2.1	24
13	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	**S**	2.2	2.2	2.2	2.1	2.3	2.1	24
14	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.5	1.5	**Y**	**Y**	**Y**	**Y**	**Y**	2.2	2.2	**S**	2.2	2.2	2.2	**S**	1.6	1.6	1.6	2.2	1.9	19
15	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	**S**	2.1	2.1	2.2	2.2	2.2	1.7	24
16	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	2.2	2.3	2.3	2.3	**S**	2.5	2.5	2.5	2.5	2.6	2.6	2.3	24
17	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.4	2.4	**S**	2.1	2.2	2.3	2.3	2.2	2.1	2.7	2.5	24
18	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
19	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	24
20	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**S**	2.0	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4	2.1	24
21	2.4	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	**S**	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.1	24
22	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**S**	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	24
23	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	**S**	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	24
24	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	**S**	2.0	2.0	2.0	2.0	2.0	2.0	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.1	24
25	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	**S**	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.5	2.2	24
26	2.4	2.4	2.5	2.8	2.9	2.9	2.6	2.5	**S**	2.6	2.6	2.7	2.7	2.8	2.7	2.7	2.7	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.9	***2.6***	24
27	2.6	2.8	3.0	***3.2***	3.0	2.7	2.4	**S**	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	***3.2***	2.4	24
28	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	24
29	2.0	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	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.1	24
30	2.1	2.2	2.2	2.2	**S**	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	24
HOURLY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
HOURLY AVG	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1			

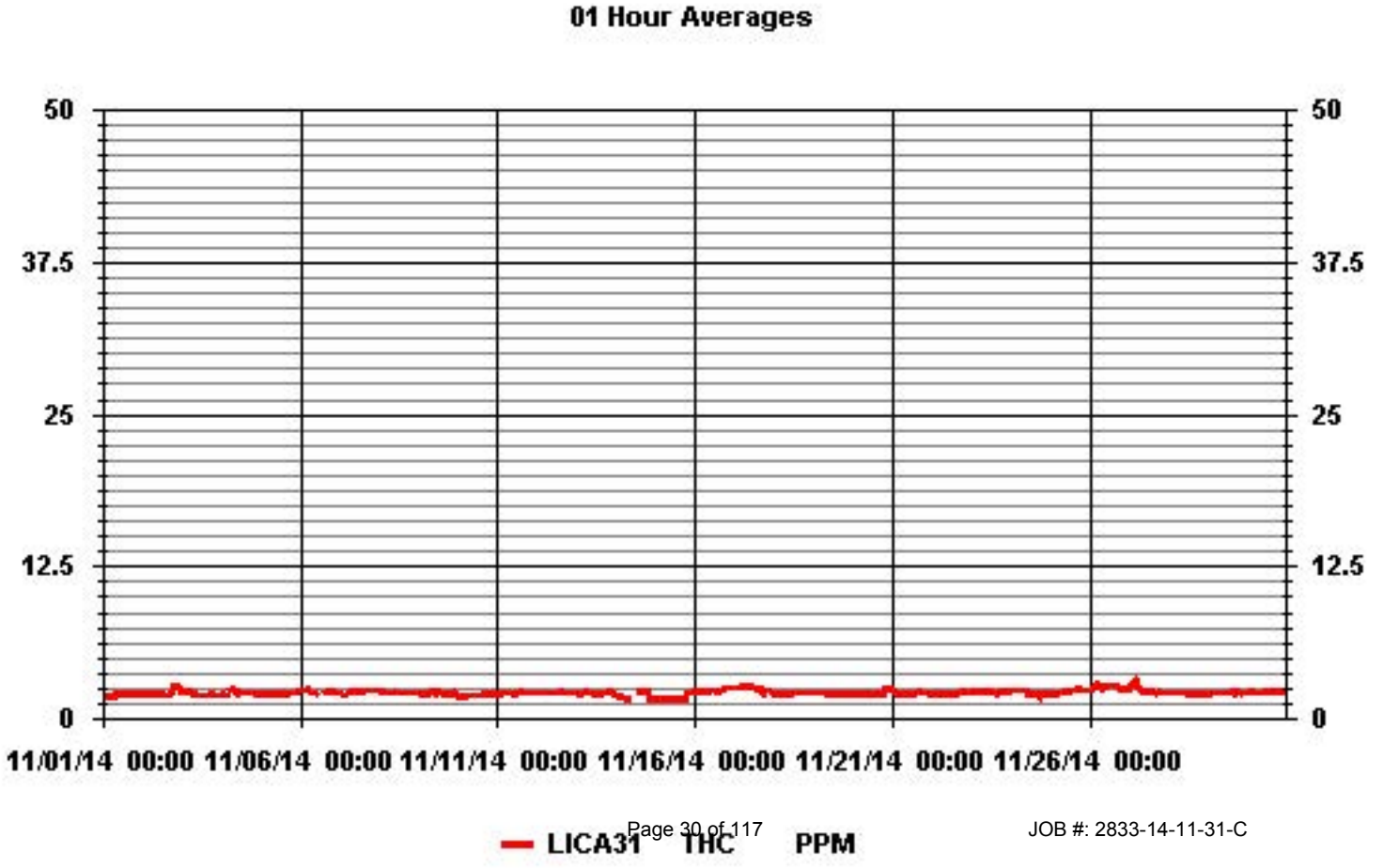
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677						
MAXIMUM 1-HR AVERAGE:	3.2	PPM	@ HOUR(S)	3	ON DAY(S)	27	
MAXIMUM 24-HR AVERAGE:	2.6	PPM			ON DAY(S)	26	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			715	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			99.3	%
STANDARD DEVIATION:	0.22		MONTHLY AVERAGE:			2.13	PPM



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	**S**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	24
2	2	2	2	2	2.1	2.1	2.1	**S**	2.1	2.1	2.4	2.1	2.1	2	2	2	2	2.1	2.2	3.1	2.9	2.7	2.6	2.5	3.1	2.2	24
3	2.4	2.3	2.3	2.2	2.2	2.3	**S**	2.2	2.1	2	2	2	1.9	2	2	2	2	2	2	2	2	2	2	2.2	2.4	2.1	24
4	2	2	2.1	2.1	2	**S**	2.5	2.6	2.5	2.3	2.2	2.3	2.2	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2	2.6	2.2	24
5	2	2	2.1	2.1	**S**	2	2.1	2.1	2.1	2	2	2.1	2	2	2	2	2.1	2.1	2.3	2.2	2.3	2.2	2.2	2.3	2.3	2.1	24
6	2.4	2.4	2.3	**S**	2.6	2.4	2.2	2.2	2.2	2.3	2.2	**C**	**C**	**C**	**C**	**C**	2.3	2.5	2.3	2.3	2.3	2.2	2.2	2.2	2.6	2.3	24
7	2.1	2.1	**S**	2.1	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	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.3	24
8	2.3	**S**	2.3	2.3	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	24
9	**S**	2.1	2.1	2.4	2	2.1	2.1	2.3	2.3	2.4	2.5	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4	**S**	2.5	2.2	24
10	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2.1	2.1	2.1	2.1	**S**	2.1	2.1	2.0	24
11	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	**S**	2.1	2.1	2.3	2.2	24
12	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.1	2.2	**S**	2.2	2.1	2.1	2.4	2.2	24
13	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**S**	2.2	2.2	2.3	2.3	2.5	2.2	24
14	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2	2	1.9	**Y**	**Y**	**Y**	**Y**	2.3	**S**	**S**	2.4	***3.9***	2.2	**S**	1.7	1.7	1.7	***3.9***	2.2	20
15	1.6	1.6	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.5	**S**	2.2	2.2	2.2	2.2	2.2	1.7	24
16	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	2.3	2.3	2.3	2.3	**S**	2.6	2.6	2.6	2.6	2.6	2.6	2.3	24
17	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.6	2.6	2.7	2.7	2.6	2.6	2.5	2.5	2.5	**S**	2.2	2.3	2.3	2.3	2.3	2.2	2.7	2.5	24
18	2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	**S**	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
19	2.2	2.2	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	**S**	2	2.1	2.1	2	2.1	2	2	2	2.2	2.1	24
20	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	2	**S**	2.1	2	2.1	**S**	2.5	2.5	2.5	2.5	2.5	2.5	2.2	24
21	2.5	2.5	2.4	2.2	2.1	2	2	2	2	2.1	2.2	2.2	2.1	**S**	2.1	2.4	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.5	2.2	24
22	2.1	2.1	2.1	2	2.1	2	2	2	2.1	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	2.1	24
23	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	**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
24	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2	2.1	2.1	2.4	2.2	24
25	2.1	2	2	2.1	2.1	2.2	2.1	2.1	2.2	**S**	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.7	2.6	2.5	2.4	2.4	2.4	2.5	2.7	2.3	24
26	2.5	2.5	2.7	2.9	2.9	2.9	2.8	2.6	**S**	2.7	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.9	***2.7***	24
27	2.7	3	3.1	3.4	3.4	2.8	2.6	**S**	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	3.4	2.5	24
28	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
29	2.1	2.1	2.1	2.2	2.1	**S**	2.1	2.1	2.1	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	2.2	2.2	2.2	2.2	24
30	2.2	2.2	2.2	2.2	**S**	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.3	2.2	24
HOURLY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3			
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	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: 677

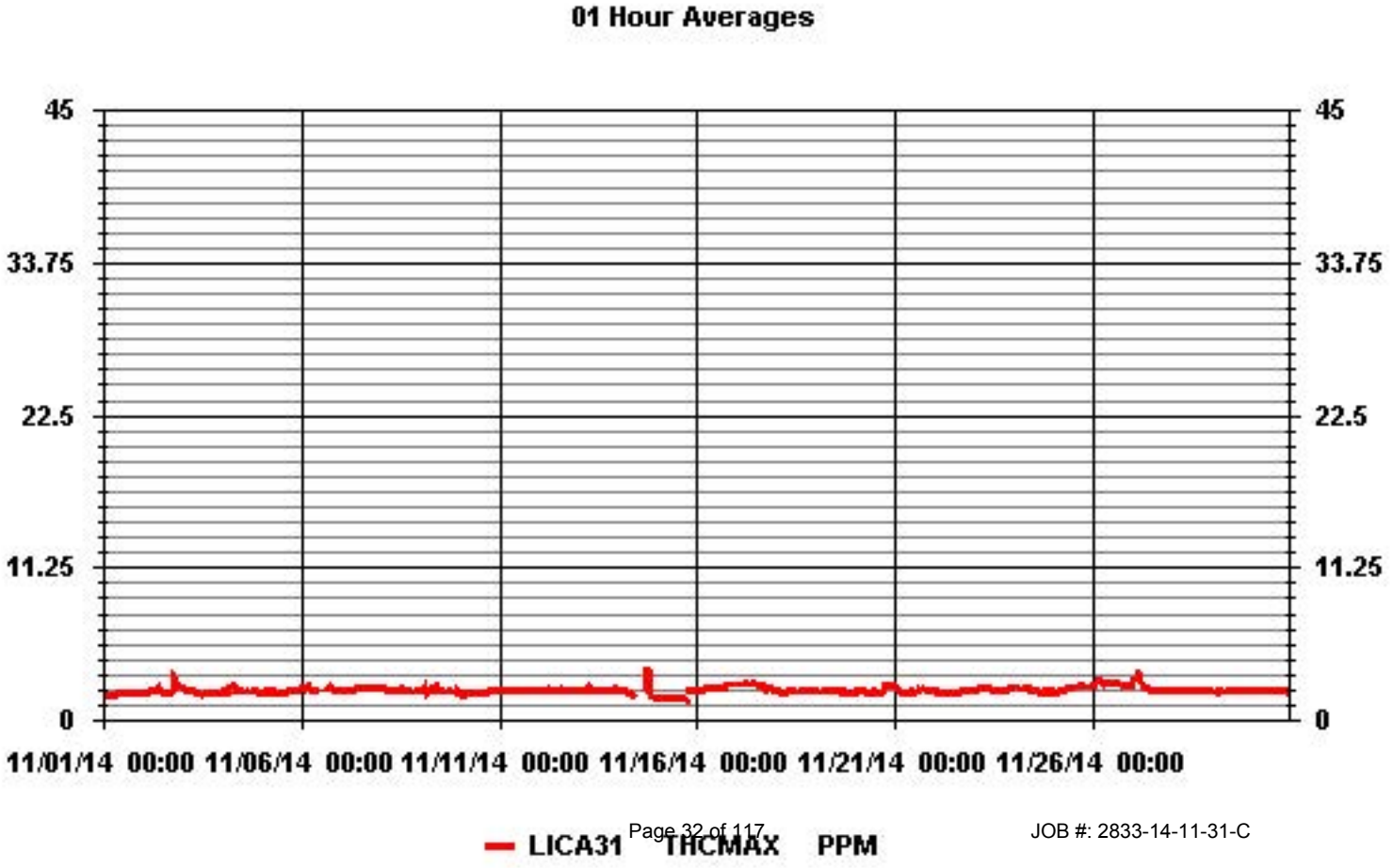
MAXIMUM INSTANTANEOUS VALUE: 3.9 PPM @ HOUR(S) 18 ON DAY(S) 14

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 716 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.24



JOB #: 2833-14-11-31-C

LICA31
THC / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	3.44	5.90	9.34	4.26	1.80	3.27	4.09	1.80	3.77	7.86	5.57	7.21	4.75	10.16	17.86	8.36	99.50
<	10.0	.00	.49	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.49
<	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	3.44	6.39	9.34	4.26	1.80	3.27	4.09	1.80	3.77	7.86	5.57	7.21	4.75	10.16	17.86	8.36	

Calm : .00 %

Total # Operational Hours : 610

Distribution By Samples

Direction

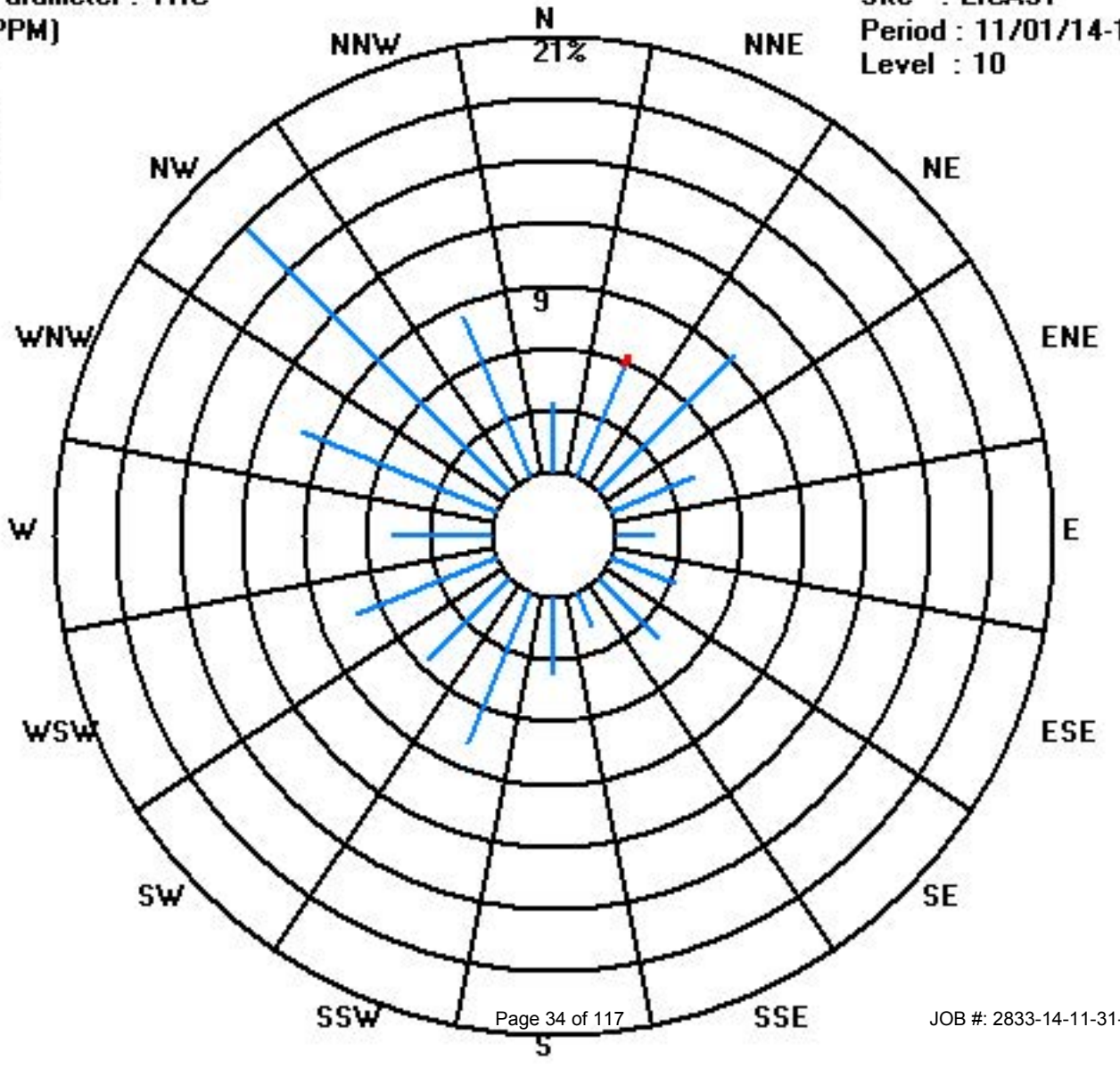
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	21	36	57	26	11	20	25	11	23	48	34	44	29	62	109	51	607
<	10.0		3															3
<	50.0																	
>=	50.0																	
	Totals	21	39	57	26	11	20	25	11	23	48	34	44	29	62	109	51	

Calm : .00 %

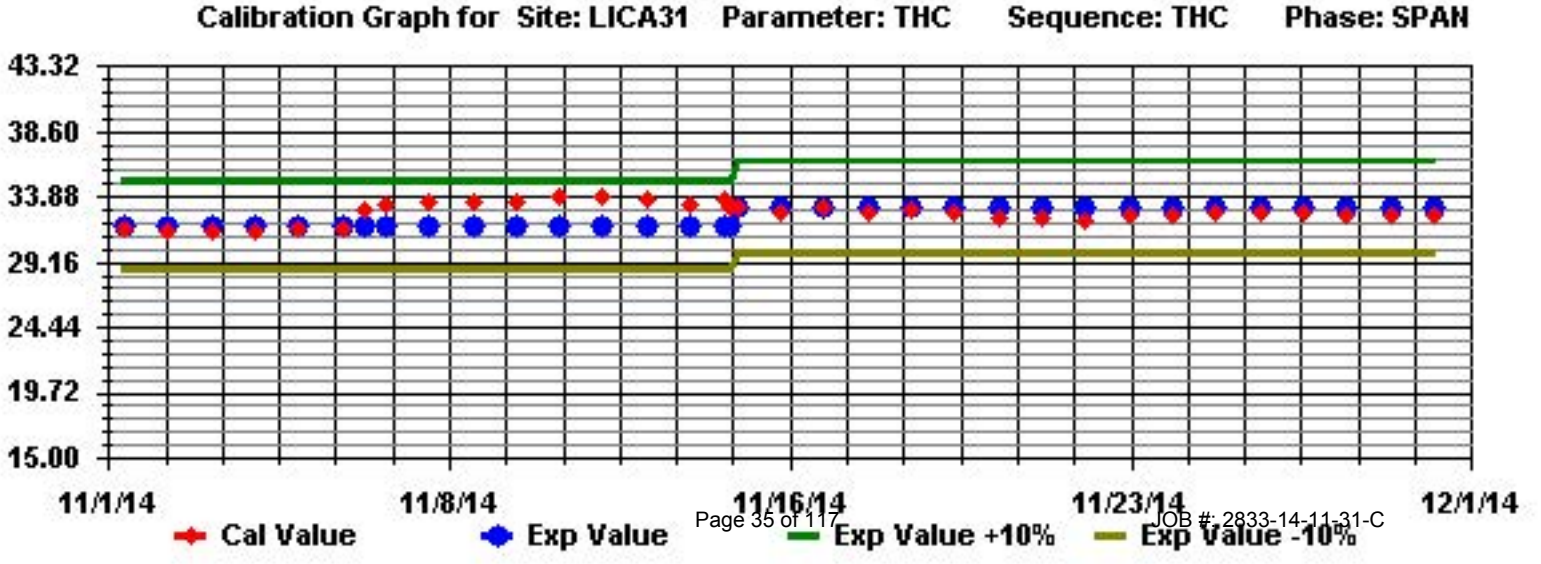
Total # Operational Hours : 610

Logger : 31 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA31
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAN
43.32
38.60
33.88
29.16
24.44
19.72
15.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

OZONE (O3) hourly averages in ppb

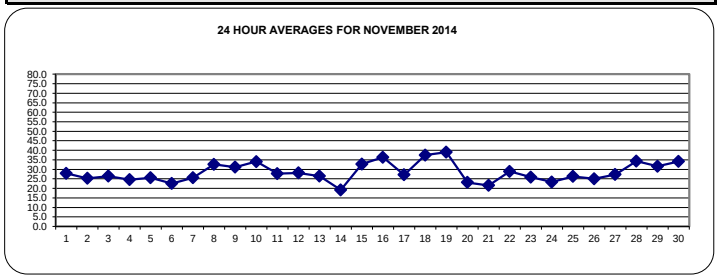
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	10	8	7	9	14	21	17	21	**S**	27	32	35	37	39	39	36	35	36	36	36	36	37	37	36	39	27.9	24
2	37	36	35	34	32	28	24	**S**	24	21	21	23	24	29	30	29	25	25	22	13	15	16	18	20	37	25.3	24
3	21	19	16	16	14	12	**S**	15	21	24	26	30	34	34	31	30	30	29	30	34	35	35	37	36	37	26.5	24
4	37	36	33	33	31	**S**	23	21	24	28	29	29	29	28	26	23	21	20	19	17	15	13	13	17	37	24.6	24
5	19	19	19	20	**S**	25	25	26	26	28	29	31	33	33	33	30	26	25	24	24	24	24	24	21	33	25.6	24
6	21	22	22	**S**	20	24	27	28	27	27	26	26	25	25	24	22	22	20	19	19	19	18	18	19	28	22.6	24
7	22	25	**S**	26	25	26	30	29	28	27	25	26	24	23	23	23	24	23	24	25	26	27	29	29	30	25.6	24
8	29	**S**	29	27	29	30	31	33	37	34	32	34	38	34	34	36	35	35	34	33	32	32	31	30	38	32.6	24
9	**S**	31	31	31	31	30	28	25	25	28	31	34	33	33	35	34	36	35	33	32	31	30	27	**S**	36	31.1	24
10	31	31	32	29	30	31	33	38	38	36	37	37	36	36	35	35	35	35	35	35	34	33	**S**	32	38	34.1	24
11	31	31	29	28	27	26	27	28	28	29	28	28	27	27	27	26	27	27	27	28	**S**	28	28	31	31	27.8	24
12	27	27	27	27	27	28	26	26	27	28	33	30	30	30	29	28	30	31	30	25	**S**	24	27	29	33	28.1	24
13	29	30	29	28	28	27	29	27	25	25	27	28	30	31	30	29	27	26	25	**S**	21	19	19	18	31	26.4	24
14	17	16	12	10	11	12	13	16	18	17	19	22	23	**C**	**C**	**C**	**C**	**C**	**C**	27	**S**	30	31	32	32	19.2	24
15	34	33	31	31	31	32	31	30	31	32	31	32	32	30	26	29	36	39	39	**S**	37	36	35	35	39	32.7	24
16	35	35	36	36	37	37	37	37	37	37	37	37	38	37	37	37	37	36	**S**	36	35	35	34	34	38	36.3	24
17	33	33	33	33	31	26	25	27	27	28	27	24	27	29	31	30	29	**S**	27	24	19	16	19	25	33	27.1	24
18	30	33	34	35	36	36	36	37	37	36	39	39	37	36	37	38	**S**	41	***42***	***42***	40	41	40	40	***42***	37.5	24
19	39	39	41	41	40	40	40	40	40	40	40	40	40	40	40	**S**	39	39	40	39	36	35	34	34	41	***39.0***	24
20	32	31	30	30	30	29	30	29	30	29	26	25	25	25	**S**	22	21	20	18	15	13	10	6	5	32	23.1	24
21	4	7	14	22	28	28	28	27	26	23	19	18	21	**S**	23	20	20	18	19	22	27	28	27	27	28	21.6	24
22	27	26	26	27	28	29	31	31	31	30	30	29	**S**	32	32	32	29	28	28	27	27	28	28	28	32	28.9	24
23	27	28	28	28	27	27	27	26	25	26	26	**S**	27	27	28	28	27	26	26	25	23	22	21	20	28	25.9	24
24	19	18	15	15	15	19	21	24	25	25	**S**	25	26	26	26	27	27	27	27	26	26	26	26	25	27	23.3	24
25	21	22	25	25	24	23	24	27	26	**S**	28	30	30	29	29	28	27	26	27	27	27	26	27	27	30	26.3	24
26	26	25	27	25	23	23	26	28	**S**	28	28	27	27	27	27	26	25	25	24	23	22	22	21	21	28	25.0	24
27	20	17	16	9	11	15	17	**S**	25	21	22	27	32	34	36	36	37	36	36	36	36	36	37	36	37	27.3	24
28	36	35	35	34	34	34	**S**	34	34	34	34	34	35	35	35	35	35	35	34	34	34	33	33	33	36	34.3	24
29	33	29	28	26	28	**S**	31	30	31	32	32	32	33	34	33	30	29	30	32	33	34	35	35	37	37	31.6	24
30	37	36	35	35	**S**	35	35	34	34	35	35	35	35	35	36	35	32	29	30	31	31	34	35	36	37	34.1	24
HOURLY MAX	39	39	41	41	40	40	40	40	40	40	40	40	40	40	40	39	41	41	42	42	42	40	41	40			
HOURLY AVG	27.0	26.8	26.7	26.6	26.5	26.9	27.6	28.4	28.8	28.8	29.3	29.9	30.6	31.4	31.1	29.8	29.4	29.4	28.8	28.1	28.0	27.6	27.5	27.9			

STATUS FLAG CODES

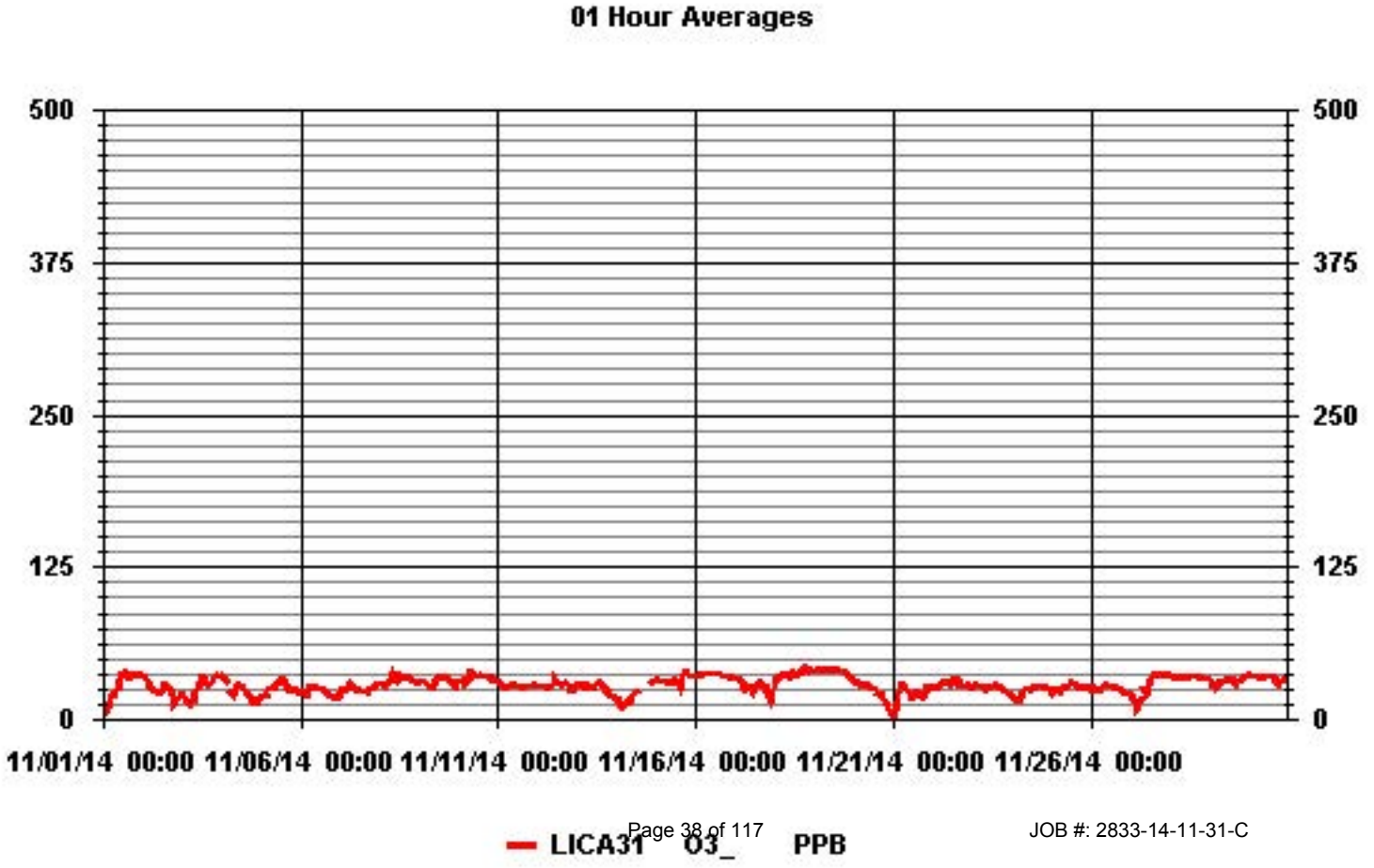
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM 1-HR AVERAGE:	42	PPB	@ HOUR(S)	18, 19	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	39.0	PPB			ON DAY(S)	19
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	6.77		MONTHLY AVERAGE:		28.45	PPB



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

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	11	9	8	10	19	24	20	22	**S**	30	35	37	39	42	41	39	37	37	37	36	37	38	37	37	42	29.7	24
2	37	36	36	35	34	30	26	**S**	26	22	24	26	27	31	33	32	26	26	25	21	16	16	20	22	37	27.3	24
3	22	22	20	17	19	13	**S**	20	24	26	28	32	35	35	32	31	31	30	34	36	37	38	38	38	38	28.6	24
4	37	37	34	34	32	**S**	25	22	27	29	30	29	30	29	28	25	23	23	20	18	17	14	15	19	37	26.0	24
5	20	20	20	21	**S**	26	26	27	27	29	30	33	33	34	34	33	28	26	25	26	25	25	25	22	34	26.7	24
6	22	22	23	**S**	20	27	28	28	28	27	27	27	26	26	25	23	23	22	21	20	20	19	19	21	28	23.7	24
7	24	27	**S**	27	27	27	31	31	29	29	26	27	25	24	24	24	25	24	25	25	28	28	30	31	31	26.9	24
8	30	**S**	34	32	31	30	32	38	38	37	34	38	41	36	37	37	36	36	35	34	33	33	31	31	41	34.5	24
9	**S**	32	31	32	31	31	30	27	29	30	34	35	34	34	37	37	37	36	34	33	32	31	29	**S**	37	32.5	24
10	32	33	34	30	31	32	37	39	39	37	38	38	37	36	36	36	35	36	35	35	35	34	**S**	32	39	35.1	24
11	32	31	31	29	27	27	28	29	29	29	29	28	28	28	28	28	27	27	28	28	29	**S**	29	29	32	28.6	24
12	28	28	28	27	30	30	27	26	28	30	35	32	32	31	31	31	31	32	31	28	**S**	28	28	30	35	29.7	24
13	30	31	30	29	29	28	31	29	27	25	28	29	31	31	31	30	29	28	26	**S**	22	19	19	19	31	27.4	24
14	18	18	14	12	12	14	15	18	**S**	19	21	24	25	**C**	**C**	**C**	**C**	**C**	**C**	**S**	**S**	31	32	34	34	20.5	24
15	35	35	32	31	32	33	32	31	32	32	32	33	33	32	29	33	38	40	40	**S**	37	37	36	36	40	34.0	24
16	35	36	36	37	38	38	38	38	38	38	38	38	39	38	37	37	37	37	**S**	36	36	35	34	34	39	36.9	24
17	34	34	34	34	33	30	26	28	28	29	28	26	29	30	31	31	31	**S**	28	26	23	18	22	28	34	28.7	24
18	32	34	34	36	37	37	37	38	37	38	41	40	40	38	39	41	**S**	42	***43***	***43***	41	41	41	40	***43***	38.7	24
19	40	40	41	41	41	41	40	40	41	41	41	41	41	40	41	**S**	40	40	40	40	38	36	35	35	41	***39.7***	24
20	33	31	31	30	30	30	31	30	31	30	28	26	25	25	**S**	23	22	21	**S**	17	14	13	8	6	33	24.3	24
21	5	10	18	26	28	29	28	28	27	25	22	19	23	**S**	25	22	21	20	21	26	29	28	27	28	29	23.3	24
22	27	27	27	28	28	31	31	32	31	31	30	30	**S**	33	33	32	30	29	29	29	28	29	29	29	33	29.7	24
23	28	29	29	29	28	27	27	27	26	26	26	**S**	28	28	29	29	28	27	26	25	24	23	22	21	29	26.6	24
24	20	19	16	16	16	20	24	26	27	26	**S**	26	26	27	27	28	28	27	28	27	27	27	27	26	28	24.4	24
25	24	25	25	26	26	26	26	27	27	**S**	29	30	30	30	30	29	28	26	28	28	28	27	28	28	30	27.4	24
26	27	26	28	27	24	24	27	29	**S**	29	28	28	28	28	28	27	26	25	25	24	23	22	22	22	29	26.0	24
27	22	19	17	16	15	16	20	**S**	27	23	24	30	34	36	36	37	37	36	36	36	37	37	37	37	37	28.9	24
28	36	36	35	35	35	35	**S**	34	35	36	34	35	35	35	35	36	36	35	35	35	35	33	33	33	36	34.9	24
29	34	31	29	27	30	**S**	31	31	31	32	32	33	34	34	34	31	30	31	32	34	34	35	36	37	37	32.3	24
30	37	37	36	35	**S**	36	35	35	35	35	35	36	36	36	36	36	35	30	31	31	32	35	36	36	37	34.9	24
HOURLY MAX	40	40	41	41	41	41	40	40	41	41	41	41	41	42	41	41	40	42	43	43	41	41	41	40			
HOURLY AVG	28.0	28.1	28.0	27.9	28.0	28.3	28.9	29.6	30.5	30.0	30.6	31.2	31.9	32.4	32.4	31.4	30.5	30.3	30.3	29.5	29.2	28.6	28.4	29.0			

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: 680

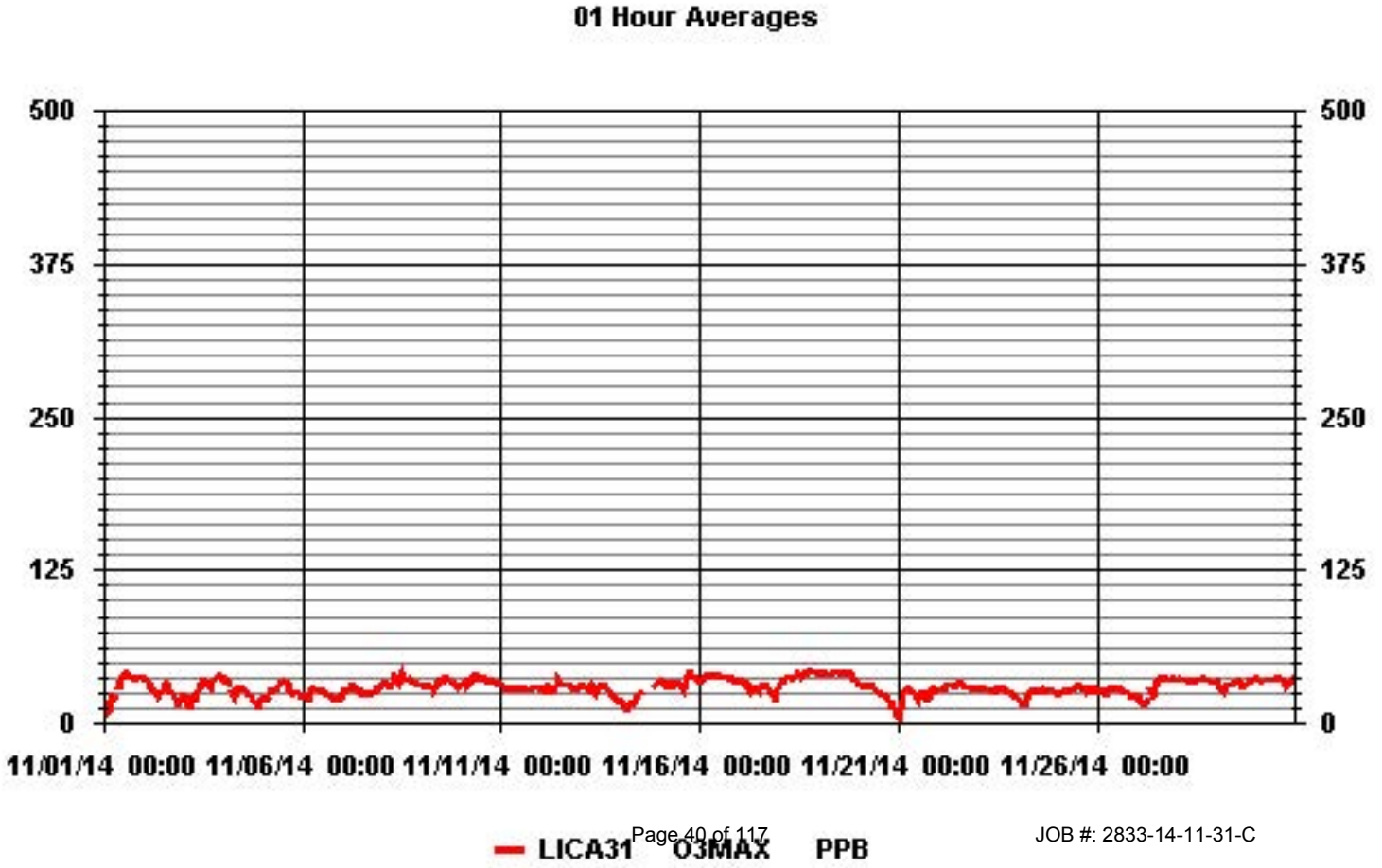
MAXIMUM INSTANTANEOUS VALUE: 43 PPB @ HOUR(S) 18, 19 ON DAY(S) 18

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 6.51



JOB #: 2833-14-11-31-C

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

November 2014

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	3.41	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.90	7.80	5.52	7.15	4.71	9.91	17.56	8.45	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	3.41	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.90	7.80	5.52	7.15	4.71	9.91	17.56	8.45	

Calm : .00 %

Total # Operational Hours : 615

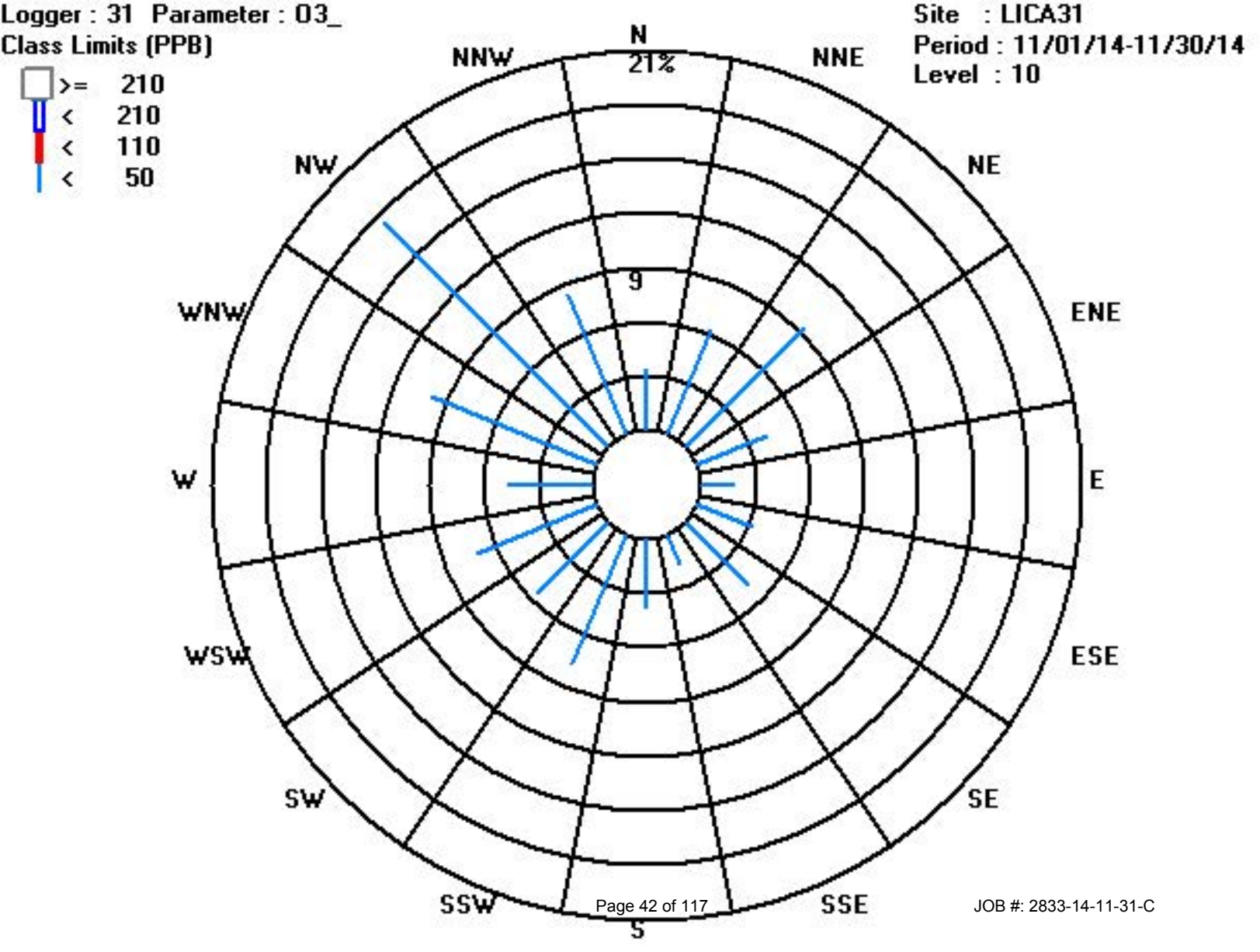
Distribution By Samples

Direction

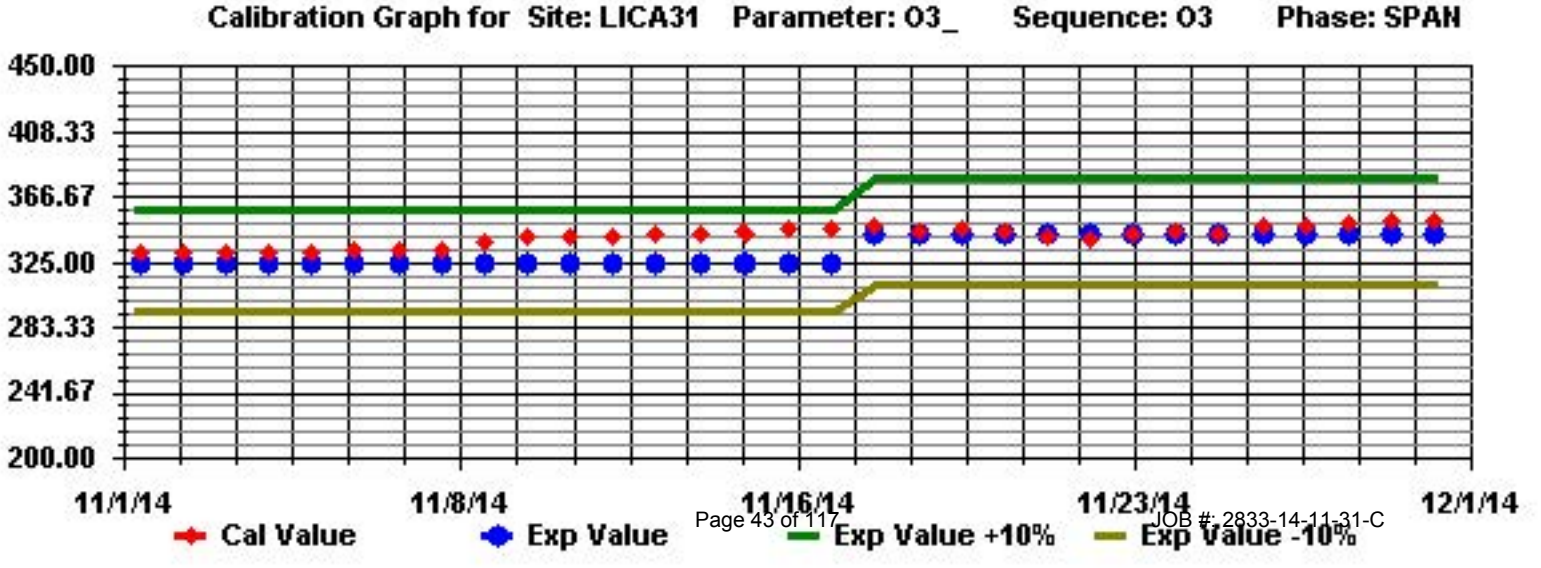
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	39	57	26	11	20	30	11	24	48	34	44	29	61	108	52	615
< 110																	
< 210																	
>= 210																	
Totals	21	39	57	26	11	20	30	11	24	48	34	44	29	61	108	52	

Calm : .00 %

Total # Operational Hours : 615



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: O3 Phase: SPAN
450.00
408.33
366.67
325.00
283.33
241.67
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

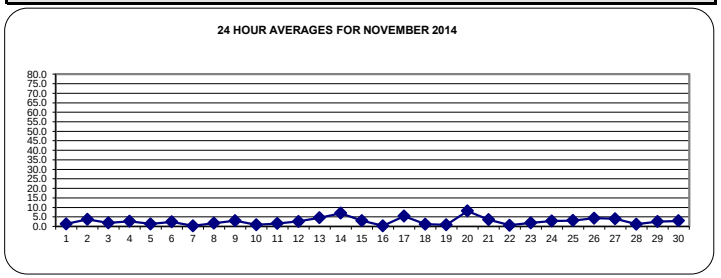
NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.9	2.2	1.9	2	1.8	1.3	1.3	1.2	**S**	1	0.8	1.7	1.3	0.4	0.7	1.8	2.2	1.2	1	1	0.6	0.3	0.3	1.2	2.2	1.3	24
2	0.5	0.1	0.5	0.4	0.9	2.8	5.4	**S**	4.6	5.5	4.2	3.2	2.8	2.1	1.7	2.4	3.5	2.3	3.4	10.7	9.7	8.3	6.4	5.2	10.7	3.8	24
3	5.3	4.5	3.5	3.2	3.4	2.9	**S**	5	3.8	2.1	1.5	1	0.7	0.6	0.8	0.7	0.6	0.6	0.5	0.2	0.1	0.6	0.2	0.2	5.3	1.8	24
4	0.3	0.2	0.2	0.2	0.3	**S**	4.6	5.7	4.2	1.7	1.7	2	2.5	2.7	2.9	3.5	3.2	3.6	3	2.7	3.1	4	4.5	3.7	5.7	2.6	24
5	2.7	2.6	2.6	2.2	**S**	1.1	1	1	0.9	0.7	0.4	0.5	0.3	0.3	0.4	0.7	1	1.3	0.9	1.3	1.4	1.3	1.6	2.9	2.9	1.3	24
6	3	2.9	2.4	**S**	4.1	2.9	2.1	1.9	2.2	2	1.8	1.9	2.1	2.2	2.6	2.5	2	2.7	2.7	2.5	2.1	2.3	2.2	1.9	4.1	2.4	24
7	1.3	0.6	**S**	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0	0.1	0.1	0.1	0.4	0.4	0.4	0.3	0.2	0	0.1	1.3	0.3	24
8	0	**S**	2.4	2.5	1.4	0.8	0.7	1.3	1	2.1	2.9	2.5	1.7	2.7	2.6	0.9	0.8	1	0.9	0.9	1.5	1.9	2.4	2.5	2.9	1.6	24
9	**S**	2	2.4	2.3	2.4	2.3	2.9	5	6.6	5.2	4.9	3	3.5	3.6	2.5	2.8	1.2	1	1.3	1.1	1.1	2.8	5.3	**S**	6.6	3.0	24
10	3.3	3	1.9	2.4	1.5	1.3	1.1	0.2	0.7	1.1	0.6	0.4	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.2	0.3	0.2	**S**	0.3	3.3	0.9	24
11	0.2	0.4	0.7	1.3	1.9	2.2	2.4	1.5	1.5	1.3	1.2	1.6	1.9	2.1	2.1	2.3	2.8	2.4	2.2	1.6	1.2	**S**	0.7	0.6	2.8	1.6	24
12	0.5	0.7	0.4	0.5	0.6	0.4	0.6	0.6	0.6	0.4	1	1.5	3	3.2	5.2	5.7	4.6	3.8	4	6.9	**S**	7.2	4.7	4	7.2	2.6	24
13	3	2.3	2.3	2	2	2.4	7	4.4	4.3	3.9	3.5	3.1	2.8	3	3.7	4.6	7.2	7.4	7.2	**S**	6.8	7.3	7.2	7.9	7.9	4.6	24
14	8.2	9.2	13.6	15.9	13.8	10.9	9.3	6.9	5.2	**S**	**C**	**C**	**C**	**C**	**C**	**C**	0	2	2.6	3	**S**	3.9	3	3.2	15.9	6.9	24
15	1.4	1.1	1.2	1.5	1.4	1.2	1.3	1.4	1.6	1.6	2	2.7	3.6	6.9	12.1	10.6	5.7	4.1	3	**S**	1.2	1.1	0.8	0.7	12.1	3.0	24
16	0.5	0.2	0.1	0.1	0.1	0	0	0	0.1	0	0.2	0.1	0.4	0.2	0	0.2	0	1.1	**S**	0.4	0.6	0.5	0.8	0.7	1.1	0.3	24
17	0.7	1.1	0.5	0.6	0.8	2.1	2.6	2.5	2.3	2.2	2.7	4.8	4.5	4	4.6	5.1	5.3	**S**	7.2	9.6	15.6	20.4	16.4	9.8	20.4	5.5	24
18	5.6	3.7	2.8	2.2	1.4	1.3	1	0.9	0.9	1	0.6	0.6	0.5	1.1	1.3	1	**S**	0.4	0	0	0.2	0.2	0.1	0	5.6	1.2	24
19	0	0	0	0	0	0	0	0	0	0	0	0.1	0	1.8	0.8	**S**	1	1.2	1	1.2	2.8	3.5	3.5	3.7	3.7	0.9	24
20	4	4.3	3.9	3.8	3.7	3.8	3.5	4	3.9	4.6	6.2	7.1	7.5	7.7	**S**	8.6	8.9	9.3	10.5	12	12.5	15.9	20.6	20.5	20.6	***8.1***	24
21	***22.5***	20.8	13.2	5	1.8	1.1	0.6	0.3	0.2	0.3	0.6	0.4	0.4	**S**	1.2	2.3	2.3	2.2	2.3	2.6	0.3	0.1	0	0	***22.5***	3.5	24
22	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0.1	0.4	0.7	2.3	2.5	2.5	1.9	1.8	0.8	0	0.6	2.5	0.6	24
23	0.5	0.2	0.3	0.2	0.7	0.9	0.5	1.1	1.5	1.2	0.9	**S**	0.9	1.5	1.3	1.5	2	2.4	2.5	3.3	3.9	4.8	5.1	5.4	5.4	1.9	24
24	5.7	6.4	8.1	7.3	6.8	4.8	3.3	1.5	1.3	1.1	**S**	0.7	0.5	1.5	1.1	1.7	1.9	2.1	1.2	1.8	1.4	1.5	1.3	1.7	8.1	2.8	24
25	2.3	1.7	1.2	1.3	2.2	3.1	3.6	1.9	2.4	**S**	2.1	1.7	1.9	2.9	2.6	3.8	4.3	5	4.6	4	4.6	5.7	4.5	4	5.7	3.1	24
26	5	5.6	4.2	6.1	6.8	6.8	4.6	3.5	**S**	3.6	3.8	3.4	3.2	3.3	3.5	3.8	4.3	4.1	3.9	3.7	4	4	4.1	3.8	6.8	4.3	24
27	5.1	7.8	9.1	16.1	14.5	8.7	6	**S**	2.7	4	3.8	2.3	1.3	1.1	1.2	1.4	1.2	1.3	1.4	1.3	1.2	0.9	0.5	0.4	16.1	4.1	24
28	0.6	0.7	0.8	1.1	0.8	1.3	**S**	2.3	2.4	2	2.4	1.8	1.5	1.4	1	1.4	1	0.6	0.6	0.7	0.5	1	0.8	0.7	2.4	1.2	24
29	1	2.9	3.4	4.7	3.4	**S**	0.9	1.1	1	0.6	0.9	0.8	1	1.7	2.5	5	5.9	5.9	4.7	3.7	3.2	2.4	1.8	1.3	5.9	2.6	24
30	1.1	1.4	1.6	1.5	**S**	0.4	0.5	0.7	0.8	0.1	0	0	0.1	1	0.9	1.8	4.9	8.6	8.6	8	8	6.2	5.7	5.5	8.6	2.9	24
HOURLY MAX	23	21	14	16	15	11	9	7	7	6	6	7	8	8	12	11	9	9	11	12	16	20	21	21			
HOURLY AVG	3.0	3.1	2.9	3.0	2.8	2.4	2.4	2.0	2.0	1.8	1.8	1.8	1.8	2.1	2.2	2.8	2.8	2.8	2.9	3.1	3.2	3.8	3.6	3.2			

STATUS FLAG CODES

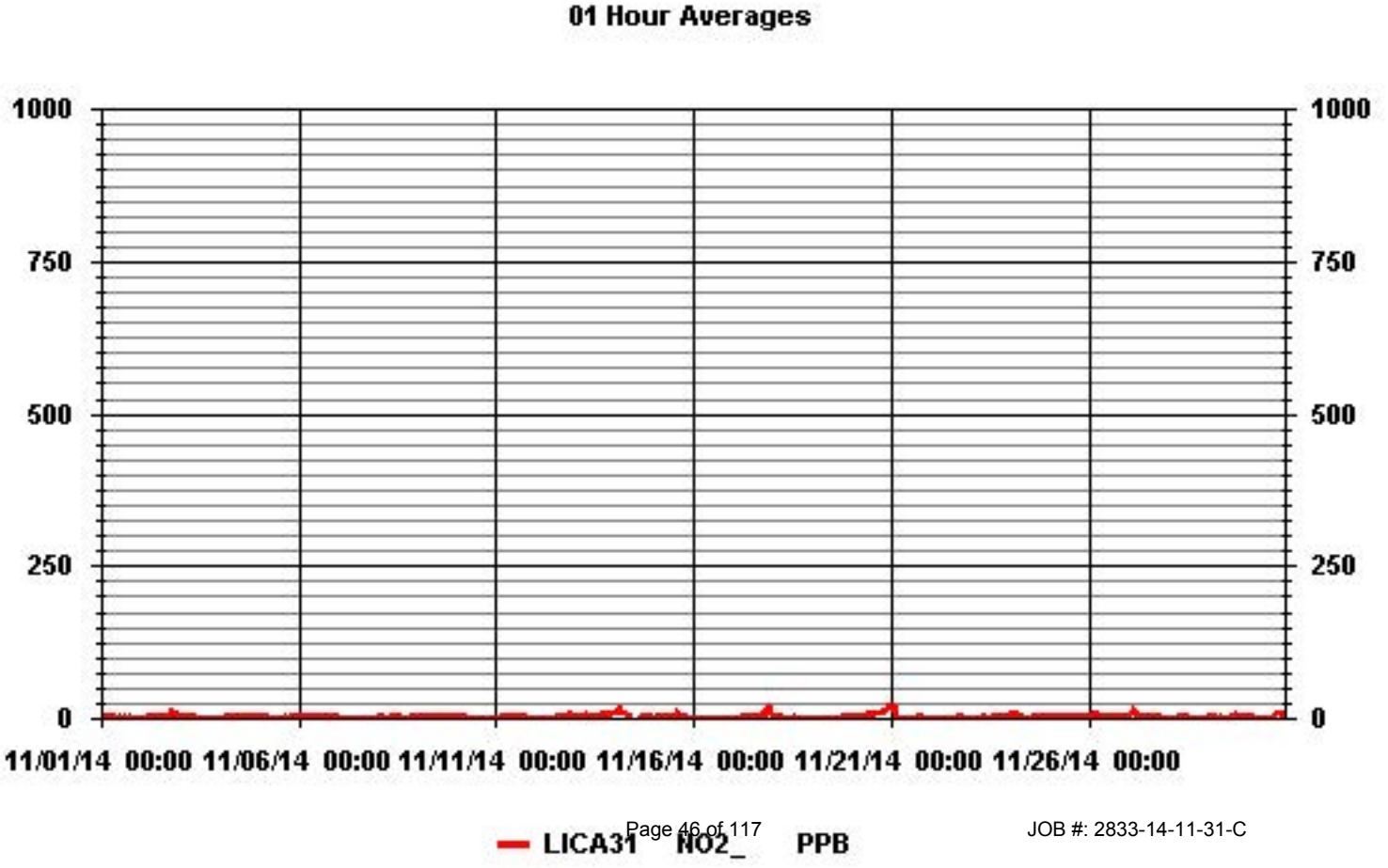
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	640					
MAXIMUM 1-HR AVERAGE:	22.5	PPB	@ HOUR(S)	0	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	8.1	PPB			ON DAY(S)	20
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	3.11		MONTHLY AVERAGE:		2.64	PPB



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

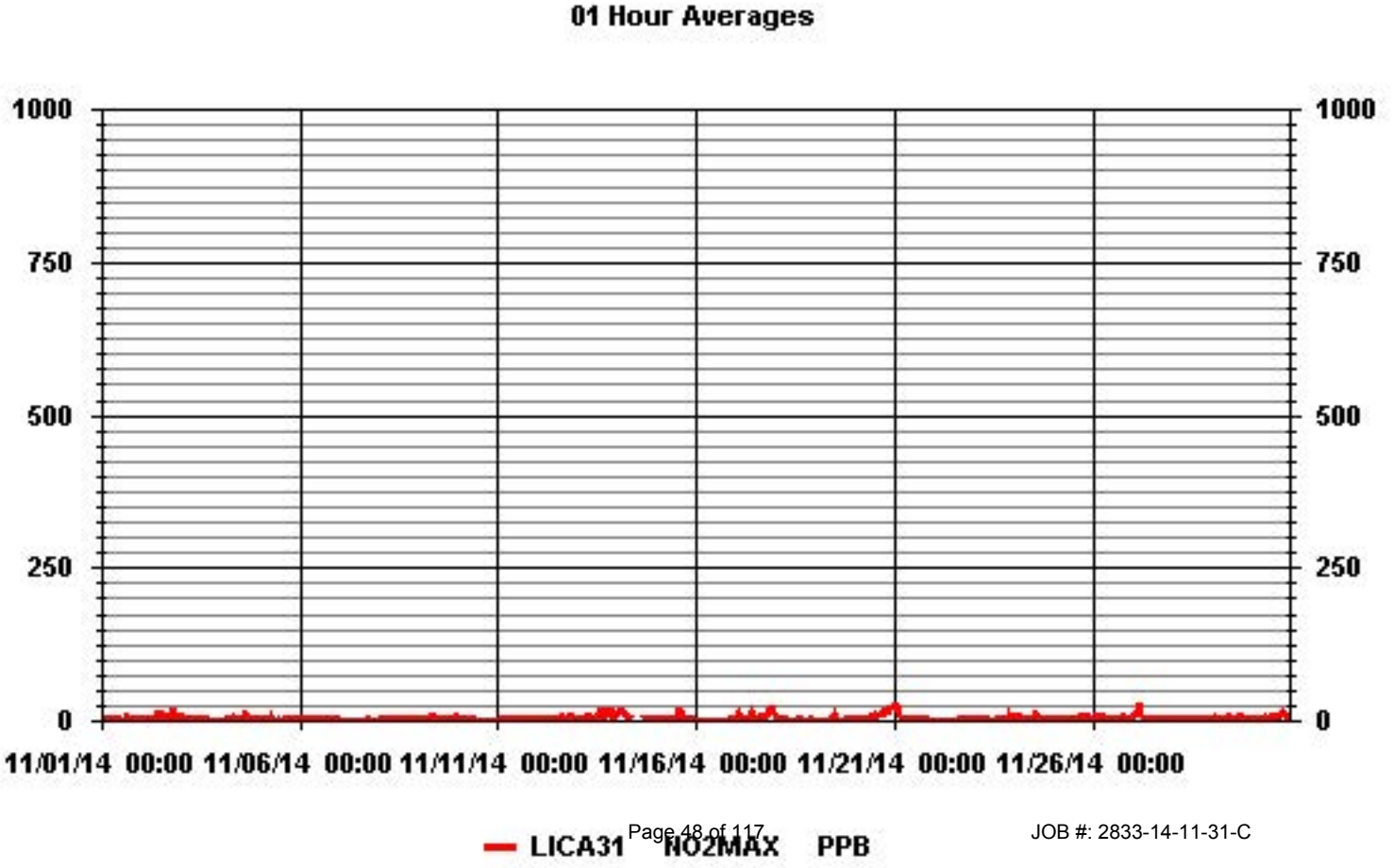
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3	3.4	3	2.7	2.8	2.1	2.5	1.9	**S**	2.8	3.3	4.1	2.2	1.9	3.1	6.8	7	4.3	3.2	3.5	2.4	1.9	2.1	2.9	7	3.2	24
2	2.1	1.7	1.9	1.8	2.6	5.8	6.9	**S**	5.4	6.4	5.6	15.6	3.7	16.8	2.6	5.4	7.4	4.1	4.6	16.8	15	10	8.2	6.3	16.8	6.8	24
3	7.3	6.5	4.5	4.4	5.4	4.1	**S**	5.6	4.9	2.8	2.1	1.8	1.1	1.3	1.5	1.3	1.6	1.6	1.1	0.9	0.9	2.3	0.6	0.6	7.3	2.8	24
4	0.8	0.7	0.9	1.2	0.9	**S**	6.1	6.6	5.8	2.7	2.7	3	3.6	3.8	4.1	14	5.8	5.3	4	3.6	4	4.9	5.4	5.1	14	4.1	24
5	3.7	3.2	3.2	3.2	**S**	1.5	1.4	7.1	1.7	1.1	0.9	1.1	1	0.9	0.8	2.5	1.5	2	1.4	2.1	2.1	1.7	2.7	3.5	7.1	2.2	24
6	3.6	3.8	3.3	**S**	4.8	4.4	2.6	2.8	2.9	2.6	2.5	2.5	3	3	3.4	3.4	3.1	5.4	3.9	3.9	3.3	3.2	3.1	2.8	5.4	3.4	24
7	2.6	1.7	**S**	0.9	0.9	0.7	0.7	0.5	0.8	0.9	0.9	1.2	1.1	0.7	0.7	0.7	0.9	1.2	1.4	1.8	1	0.9	0.7	0.5	2.6	1.0	24
8	0.7	**S**	5.1	4.5	2.6	1.9	1.7	2.7	2.1	3.5	4	3.8	2.9	4.3	4.3	2.3	1.9	1.9	2.3	2.2	2.8	3.7	3.6	4.5	5.1	3.0	24
9	**S**	2.7	3	2.9	2.9	3	3.8	7.2	7.1	6.6	6.9	3.3	4.2	4.8	2.9	3.6	3	3.8	2.4	2.5	2	5	7.2	**S**	7.2	4.1	24
10	4.3	5	2.6	3.1	2.6	1.9	1.9	1.1	1.6	2.2	1	1.3	0.8	1	0.9	0.8	0.8	1.2	0.9	0.7	0.9	0.9	**S**	0.7	5	1.7	24
11	0.6	0.9	1.4	2.1	2.4	2.8	3.3	2.2	2	1.7	1.4	2	2.2	2.2	2.4	2.8	3.8	3.5	3.3	2.6	2.3	**S**	1.6	1.3	3.8	2.2	24
12	1.3	1.3	1.3	1.3	1.3	1.2	1.5	1.5	1.8	1.5	3.1	3.4	3.8	4.9	7.1	6.8	6.9	4.9	4.9	9.3	**S**	8.9	6.1	4.7	9.3	3.9	24
13	4	3	3.6	2.8	2.8	3.4	9.1	7.7	6.2	5.3	5	3.8	3.5	10	21.6	6	13.5	9.9	14	**S**	16.2	8.5	7.7	8.6	21.6	7.7	24
14	8.9	11.7	15.4	17	16.3	12.1	10.6	9.1	6.6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.5	4	4.9	**S**	4.6	4	4.2	17	8.9	24
15	2.5	1.4	1.8	2	2.2	2	1.9	2	2.4	2	2.7	3.1	4.5	9.3	19.8	13.4	7.5	5	4.4	**S**	2	1.8	1.4	1.2	19.8	4.2	24
16	0.9	0.7	0.6	0.6	0.7	0.8	0.5	0.5	0.7	0.5	0.8	0.6	1.1	0.6	0.4	0.9	0.6	2.7	**S**	1.4	1.7	1.6	1.4	1.7	2.7	1.0	24
17	1.5	8.9	1.5	1.7	1.8	3.7	5	3.3	4.6	12.1	4.7	6	5.4	4.9	5.6	6.5	7.3	**S**	8.2	10.8	19.5	21.5	19.5	13.4	21.5	7.7	24
18	7.3	4.3	3.3	2.7	1.7	1.9	1.3	1.1	1	1.4	0.9	0.9	0.9	2.2	2.1	1.8	**S**	2.7	1	1.1	2.2	2.5	1.2	1	7.3	2.0	24
19	0.9	0.9	0.8	0.9	0.9	0.9	0.8	0.9	1.2	1.1	0.9	7.9	0.7	3.3	2.5	**S**	1.5	1.8	1.5	1.9	3.8	4.1	4.1	5.1	7.9	2.1	24
20	4.7	4.9	4.5	4.5	4.4	4.6	4.2	4.8	4.9	5.9	7.1	8.2	12	9.5	**S**	10.1	14.5	11.2	**S**	14.1	13.8	20.9	22.9	22	22.9	***9.7***	24
21	***24.9***	24.1	17.9	9.8	3.7	6.1	1.8	1.5	1.4	1.4	1.7	1.9	1.6	**S**	2.4	4.6	3.4	3.3	4.5	5	1.6	1.1	0.8	0.9	***24.9***	5.5	24
22	0.9	0.6	0.7	0.9	1	0.8	0.7	0.6	0.9	0.7	0.9	0.8	**S**	1	1.5	1.6	3.3	4.1	3.7	3.2	2.5	2.5	1.1	1.5	4.1	1.5	24
23	1.7	1.3	1.1	1	1.6	1.9	1.5	2.2	2.5	2.3	1.7	**S**	1.7	3.1	1.9	2.1	2.7	3.1	3.1	4.2	4.8	10.7	5.7	6.1	10.7	3.0	24
24	6.5	8	9	8.3	7.5	6.7	4.4	2.4	2	2	**S**	2	1.2	16.5	2.8	2.9	2.8	3	2.4	2.9	2	2.2	2	2.5	16.5	4.4	24
25	3.1	2.9	2.1	2.1	3.7	5.3	4.9	2.9	3.7	**S**	3.3	2.6	3	4.1	3.4	5.2	5.4	6	5.6	5.5	7.1	6.9	5.7	4.9	7.1	4.3	24
26	6.3	6.4	5.7	7.7	7.7	8.1	6.8	4.7	**S**	4.5	4.7	4.7	4.1	4.1	4.6	5	5.2	5	7.3	4.5	6.4	4.8	5	4.8	8.1	5.6	24
27	6.9	9.9	10.2	22.4	22.1	10	7.7	**S**	4.1	5.1	4.8	4	2.1	2	2.1	2.4	2.1	2.3	2.4	2.2	2.2	1.8	1.4	1.2	22.4	5.7	24
28	1.4	1.4	1.7	2	1.6	2.2	**S**	3	3.3	2.9	3.1	2.4	2.2	2.5	1.8	2.2	1.8	1.3	1.4	1.6	1.7	1.6	1.5	1.6	3.3	2.0	24
29	2.6	4.1	5.3	5.6	4.7	**S**	1.6	2.7	2.5	1.1	8.9	1.3	1.7	2.5	3.5	6.5	6.6	6.7	5.8	5.1	3.8	3.3	2.5	2.3	8.9	3.9	24
30	1.7	2.1	2.3	2.3	**S**	1.4	1.6	1.8	6.1	1	0.8	0.6	1	12.5	1.7	2.8	8	9.8	14.4	9.1	9	7.8	6.5	6.3	14.4	4.8	24
HOURLY MAX	25	24	18	22	22	12	11	9	7	12	9	16	12	17	22	14	15	11	14	17	20	22	23	22			
HOURLY AVG	4.0	4.4	4.1	4.2	4.1	3.6	3.5	3.2	3.2	3.0	3.1	3.4	2.7	4.8	4.0	4.4	4.6	4.2	4.2	4.6	4.9	5.2	4.7	4.2			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680					
MAXIMUM INSTANTANEOUS VALUE:	24.9	PPB	@ HOUR(S)	0	ON DAY(S)	21
				VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	3.89					



JOB #: 2833-14-11-31-C

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	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	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	

Calm : .00 %

Total # Operational Hours : 615

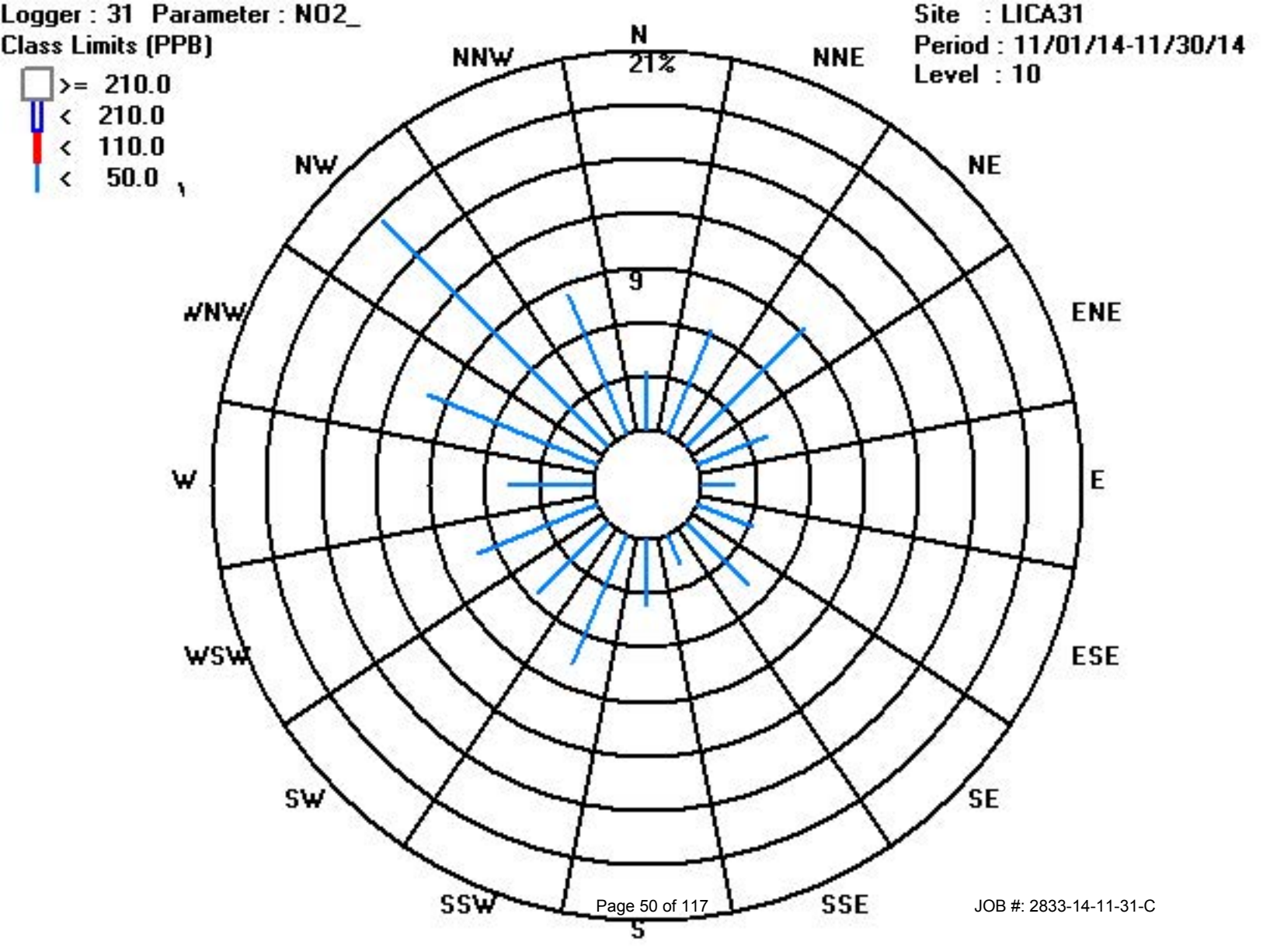
Distribution By Samples

Direction

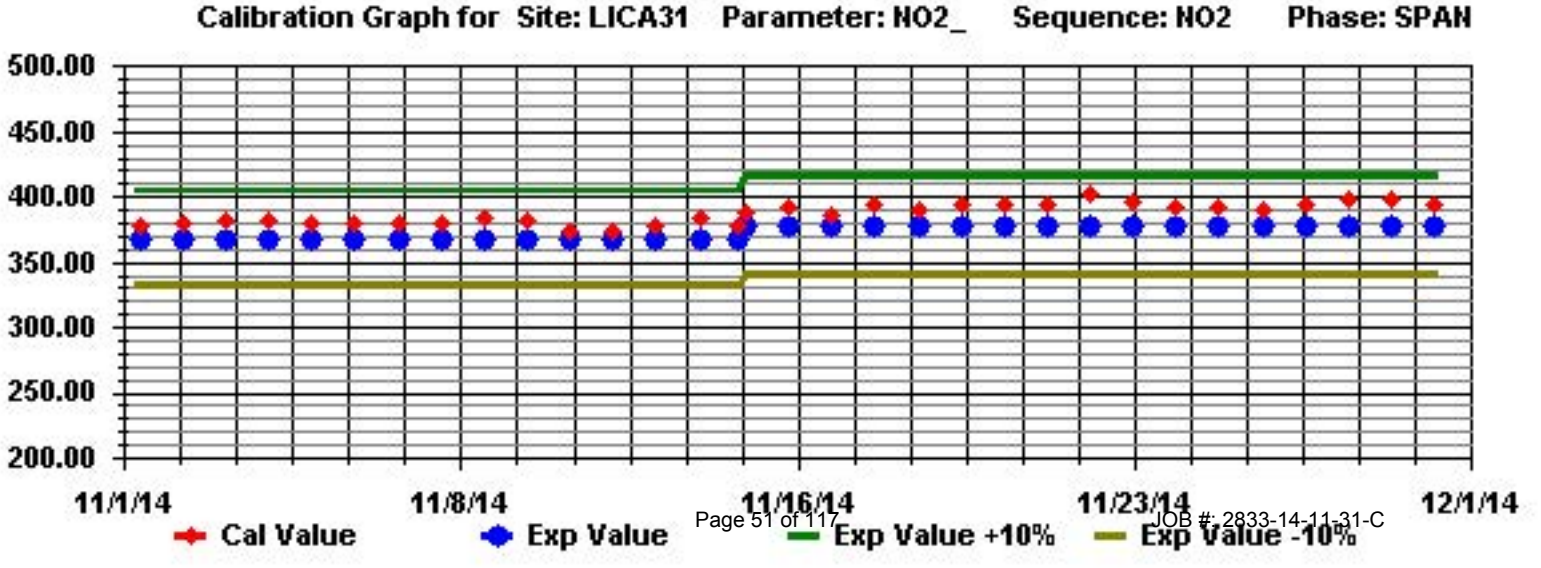
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	615
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	

Calm : .00 %

Total # Operational Hours : 615



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

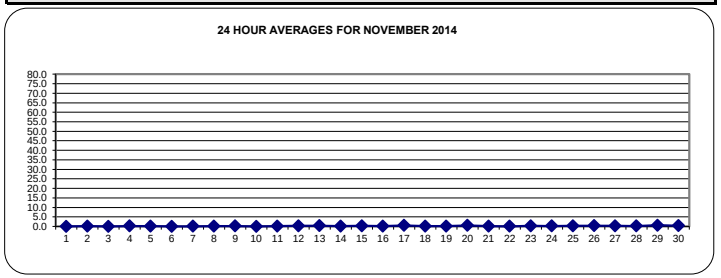
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0.1	0	0	0	0	**S**	0.1	0	0.4	0.3	0	0	0	0	0.1	0	0	0	0	0	0	0.4	0.0	24
2	0	0	0	0	0	0	0	**S**	0	0.4	0.4	0.9	0.5	0.4	0.1	0.4	0.1	0	0	0.1	0	0	0	0	0.9	0.1	24
3	0	0	0	0	0	0	**S**	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
4	0	0	0	0	0	**S**	0	0.3	0.2	0.3	0.2	0.6	0.6	0.5	0.4	0.6	0.3	0.3	0	0.1	0.2	0	0.1	0.2	0.6	0.2	24
5	0	0.1	0	0	**S**	0.2	0.1	0.3	0.2	0.2	0.6	0.4	0.3	0.4	0.5	0.4	0.1	0.1	0	0	0	0.1	0.1	0.1	0.6	0.2	24
6	0	0.1	0	**S**	0	0	0	0	0	0	0	0.3	0.2	0.3	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
7	0	0	**S**	0	0	0.1	0	0	0	0.1	0	0.3	0.2	0	0.2	0.1	0.2	0	0.1	0	0	0	0	0	0.3	0.1	24
8	0	**S**	0	0	0	0	0	0	0	0	0.5	0.3	0	0.5	0.5	0	0	0	0	0	0	0	0	0	0.5	0.1	24
9	**S**	0	0	0	0	0	0	0	0.1	0.9	1	0.7	0.4	0.8	0.5	0.1	0	0	0	0	0	0	0	**S**	1	0.2	24
10	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0	0	0	0	0.1	0	0.1	0	**S**	0.2	0.2	0.0	24
11	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0.6	0.5	0.7	0	0.2	0	0	0	0	**S**	0	0	0.7	0.1	24
12	0	0.1	0	0.1	0	0.1	0	0.1	0	0	0.2	0.5	1.2	0.9	1.5	0.8	0.2	0	0	0	**S**	0	0	0	1.5	0.2	24
13	0	0	0	0	0	0	0	0	0.6	1.3	1.5	1.4	0.9	0.9	0.9	0.5	0.2	0.3	0.5	**S**	0.4	0	0	0	1.5	0.4	24
14	0	0	0	0.2	0.4	0.1	0.2	0.1	0.7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.9	0	0	0	**S**	0.2	0	0	0.9	0.2	24
15	0	0	0	0	0	0	0	0	0	0	0.3	0.2	0.6	2.2	2.4	1.2	0.1	0	0	**S**	0.2	0.1	0.2	0.1	2.4	0.3	24
16	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0	0	0.1	0.1	0.2	0	0.1	0.3	0	0	**S**	0	0	0	0	0	0.3	0.1	24
17	0	0	0	0	0	0	0	0	0.5	0.6	1.4	***3.1***	2.7	1.6	1.1	0.4	0	**S**	0.4	0.3	0.4	0.4	0.1	0.2	***3.1***	***0.6***	24
18	0.1	0.2	0	0	0.1	0	0.2	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	**S**	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	24
19	0.2	0	0	0	0	0.1	0	0.3	0.1	0	0.1	0.6	0.1	0.6	0.3	**S**	0	0.1	0.2	0	0.2	0	0.2	0	0.6	0.1	24
20	0.2	0	0.3	0	0.1	0.1	0.1	0.2	0.3	0.4	0.7	1.6	2.8	2.2	**S**	1.3	0.6	0.2	0.3	0.2	0.2	0.2	0.6	0.4	2.8	***0.6***	24
21	0.6	0.3	0.3	0	0	0.4	0.1	0.2	0.1	0.1	0.2	0.3	0.2	**S**	0.4	0.3	0	0.1	0	0.2	0	0	0	0	0.6	0.2	24
22	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0.3	0.2	0.1	0	0.3	0.2	0	0.2	0	0.2	0	0.3	0.1	24
23	0	0	0.1	0	0	0.2	0	0	0.1	0.4	0.6	**S**	0.7	1	0.7	0.2	0.3	0.3	0.4	0.2	0.3	0.1	0.1	0.2	1	0.3	24
24	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.3	**S**	0.2	0.5	1.5	0.5	0.2	0.1	0.1	0	0	0	0.1	0	0.1	1.5	0.2	24
25	0.2	0.3	0	0	0.1	0.1	0.1	0.1	0.3	**S**	0.7	0.7	0.8	1.2	0.7	0.4	0.4	0.2	0.1	0.1	0	0	0	0.1	1.2	0.3	24
26	0.1	0	0.2	0.1	0.1	0.2	0.3	0.2	**S**	0.7	1.1	1.2	1.1	1	1	0.6	0.2	0.2	0.3	0	0.3	0.1	0.1	0.2	1.2	0.4	24
27	0	0	0	0.9	0.7	0	0.1	**S**	0.4	0.8	1.2	0.8	0.6	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0	0	1.2	0.3	24
28	0	0.1	0	0	0	0.2	**S**	0.2	0.1	0.3	0.5	0.6	0.4	0.6	0.5	0.2	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.6	0.2	24
29	0.2	0.1	0.1	0.2	0.1	**S**	0.4	0.6	0.6	0.5	1.1	0.7	1.2	1.4	1.7	1.1	0.6	0.4	0.4	0.5	0.4	0.5	0.5	0.2	1.7	***0.6***	24
30	0.5	0.4	0.5	0.6	**S**	0.3	0.2	0.2	0.5	0.3	0.3	0.3	0.4	0.8	0.7	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.2	0.1	0.8	0.4	24
HOURLY MAX	1	0	1	1	1	0	0	1	1	1	2	3	3	2	2	1	1	0	1	1	0	1	1	0			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.6	0.6	0.7	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1			

STATUS FLAG CODES

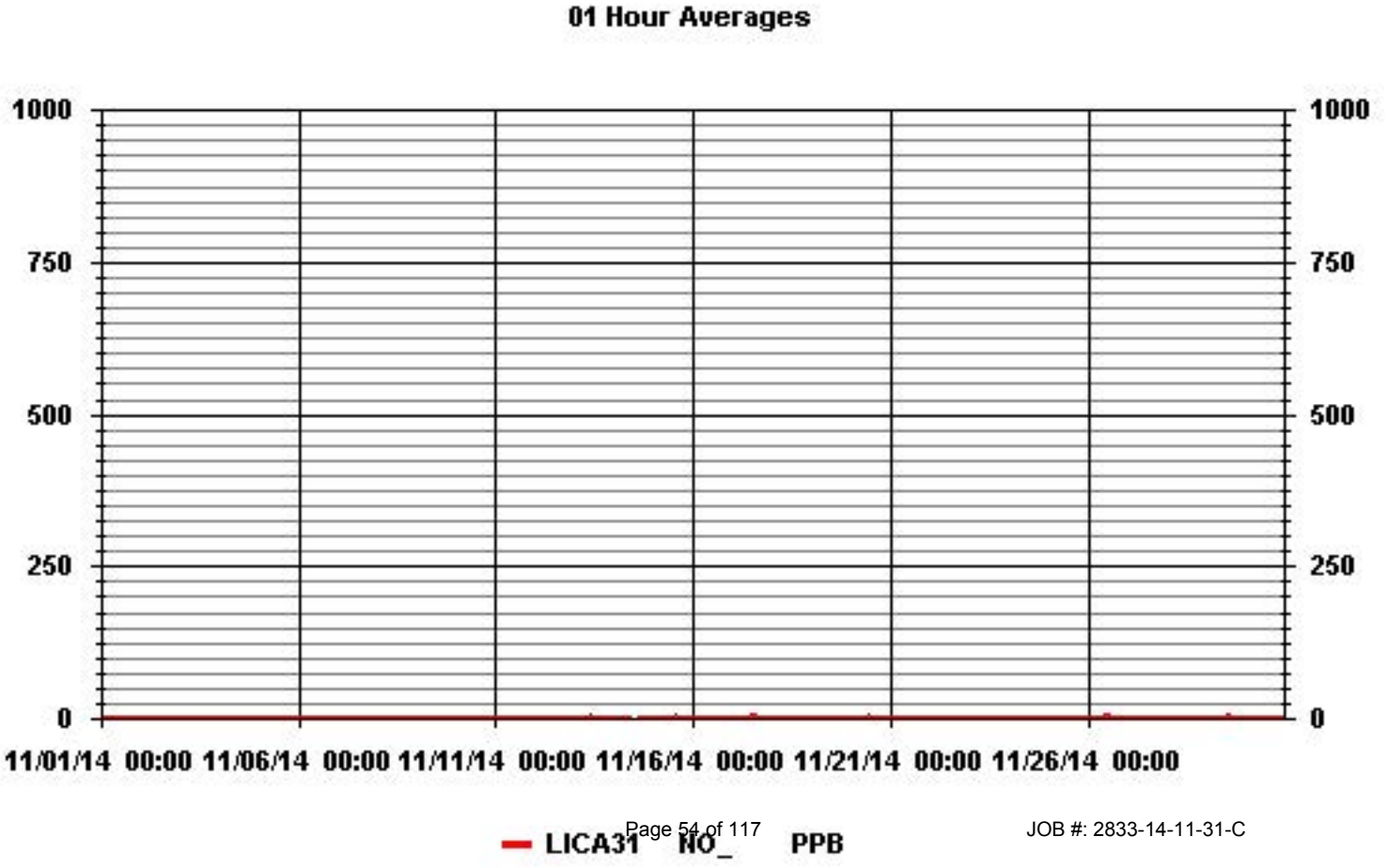
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	385					
MAXIMUM 1-HR AVERAGE:	3.1	PPB	@ HOUR(S)	11	ON DAY(S)	17
MAXIMUM 24-HR AVERAGE:	0.6	PPB			ON DAY(S)	VAR
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.37		MONTHLY AVERAGE:		0.22	PPB



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

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	0.6	0.7	0.5	0.8	0.5	0.6	0.6	0.6	**S**	1.5	0.8	2.5	2	0.6	0.7	2.1	0.7	2.2	0.7	0.7	0.1	0.5	0.4	0.7	2.5	0.9	24
2	0.2	0	0.2	0.4	0	0.4	0.4	**S**	0.6	1.3	1	***20.7***	2.4	16.6	0.8	2.3	1.3	0.3	0.7	0.9	0.6	0.6	0.5	0.3	***20.7***	2.3	24
3	1	0.2	0.4	0.5	0.7	0.7	**S**	1.1	1	0.7	0.7	0.4	0.7	0.7	0.5	0.5	1.2	0.7	0.3	0.2	0.2	0.3	0	0.3	1.2	0.6	24
4	0.1	0	0.4	0.1	0.3	**S**	1	1	0.7	0.9	1	1.1	1.4	1.1	1.1	15.1	1.6	1.9	0.8	0.8	0.8	0.6	0.7	1	15.1	1.5	24
5	0.6	1	0.6	0.5	**S**	0.9	0.7	11.9	0.8	0.9	1.2	1.1	1	0.9	1.4	1.3	0.6	0.8	0.6	0.6	0.7	0.7	0.7	0.7	11.9	1.3	24
6	0.8	0.8	0.5	**S**	0.4	0.4	0.5	0.4	0.5	0.6	0.5	1	1	1	0.8	0.5	0.2	0.9	1	0.5	0.5	0.5	0.7	0.4	1	0.6	24
7	0.3	0.3	**S**	0.6	0.4	0.7	0.6	0.6	0.7	1	0.7	1.4	1.1	0.7	0.9	0.7	0.9	1	1	1	0.7	0.6	0.7	0.7	1.4	0.8	24
8	0.6	**S**	0.8	0.5	0.7	0.5	0.5	0.5	0.4	0.7	1.3	1.1	0.8	1.2	1.4	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.7	0.4	1.4	0.7	24
9	**S**	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.9	2.4	2.7	1.5	1.1	1.6	1.2	1	0.5	0.9	0.5	0.3	0.4	0.6	0.7	**S**	2.7	0.9	24
10	0.5	0.5	0.5	0.7	0.4	0.4	0.8	0.3	0.5	0.7	0.6	0.5	1.3	1.4	0.9	0.6	0.6	0.6	0.8	0.5	0.6	0.6	**S**	0.9	1.4	0.7	24
11	0.5	0.5	0.2	0.4	0.5	0.4	0.5	0.4	1	0.7	1	1.1	1.5	1.2	1.5	0.6	2.2	0.9	1.2	1	1	**S**	1.9	0.6	2.2	0.9	24
12	0.3	0.7	0.7	0.7	0.6	0.9	0.9	1.4	0.6	0.5	2.1	1.9	2.2	1.8	2.4	2.4	2.2	1.4	1	0.6	**S**	0.7	0.7	0.7	2.4	1.2	24
13	0.7	1.6	0.6	0.5	0.6	0.6	0.6	2.1	3.2	3.4	2.6	2.1	1.6	12.6	17.8	2	3.3	2.7	13	**S**	15.6	0.7	0.6	0.5	17.8	***3.9***	24
14	0.9	0.6	0.7	0.9	1.1	0.9	0.7	1.3	1.9	**S**	**C**	**C**	**C**	**C**	**C**	**C**	0.3	1	0.4	**S**	1	0.6	1.1	1.9	0.9	24
15	0.5	0.7	0.4	0.6	0.4	0.3	0.6	0.4	0.9	0.6	0.9	0.9	2.2	3.1	6	2.7	0.9	1.2	0.4	**S**	0.9	0.7	1	1	6	1.2	24
16	1	1	0.8	1	0.7	0.7	0.9	0.7	0.7	0.6	0.9	0.6	0.9	0.9	0.7	1	0.4	0.6	**S**	0.5	0.3	0.6	0.5	0.2	1	0.7	24
17	0.3	10.1	0.4	0.4	0.7	1.7	0.6	1.2	20.1	20.3	4.7	4.9	4.2	2.4	2	1.3	1	**S**	1.1	1.1	1.2	2	0.7	0.9	20.3	3.6	24
18	0.8	0.9	0.9	0.6	0.8	1.1	0.6	0.6	0.8	0.7	0.7	0.7	0.7	0.9	0.7	0.9	**S**	1.4	0.7	0.7	1.1	1.3	1	0.7	1.4	0.8	24
19	0.8	0.7	0.7	0.9	0.7	0.9	0.8	1.1	0.7	0.8	0.8	14.2	0.7	1.9	1.4	**S**	0.7	0.7	1	0.7	0.7	0.5	0.7	0.9	14.2	1.4	24
20	1	0.8	0.9	0.6	0.7	0.9	0.7	1.1	2.4	1.7	1.7	2.6	11	2.9	**S**	2.2	10.5	1.5	**S**	1.9	0.9	0.8	1.6	1.6	11	2.3	24
21	1.4	0.9	0.9	0.5	0.7	15.1	2	1	0.9	0.7	0.9	1.2	0.9	**S**	1	0.9	0.8	0.9	0.7	0.9	0.6	0.6	0.6	0.6	15.1	1.5	24
22	0.8	0.8	0.6	0.5	0.8	0.6	0.6	0.4	0.6	0.6	0.7	0.6	**S**	1	0.9	0.7	0.7	0.9	0.9	0.6	0.9	0.6	1	0.8	1	0.7	24
23	0.6	0.7	0.8	0.8	0.6	0.7	0.4	0.7	0.9	1.1	1.3	**S**	1.5	2.3	1.8	1.2	0.8	0.8	1	1.1	0.8	10.2	0.8	0.8	10.2	1.4	24
24	1	1	1	0.8	0.8	1.3	0.8	1.3	1.4	1.2	**S**	1.5	1.4	17	2.1	0.9	0.6	0.8	0.4	0.7	0.6	0.8	0.7	0.9	17	1.7	24
25	0.8	0.7	0.7	0.7	0.8	0.6	0.7	0.7	0.9	**S**	1.2	1.2	1.6	2.3	1.3	1.1	1.3	0.9	0.9	0.7	0.7	0.7	0.7	0.8	2.3	1.0	24
26	0.7	0.7	0.9	0.7	0.8	0.8	0.9	1	**S**	1.5	1.8	2	1.8	1.6	1.8	1.4	1.3	0.9	3.9	1.1	19.5	0.9	0.9	0.8	19.5	2.1	24
27	0.6	0.6	0.5	3.2	3.2	0.6	0.9	**S**	1	1.7	1.8	1.5	1.4	0.8	1	0.9	0.7	0.7	0.9	0.9	0.7	0.7	0.6	0.9	3.2	1.1	24
28	0.6	0.6	0.6	0.6	0.6	0.8	**S**	0.9	0.9	1	1.1	1.3	1	1.5	1.1	1	0.9	0.8	1	1.3	0.8	0.8	0.8	0.9	1.5	0.9	24
29	0.9	0.7	0.7	0.7	0.9	**S**	0.9	2.1	1.2	1.2	6.8	1.5	2.3	2.4	3	2	1.9	1.4	1	1.1	1.1	1.3	1.5	0.9	6.8	1.6	24
30	1.2	1	1.1	1.1	**S**	1.1	1.1	1.1	11.8	1	0.9	0.9	1.4	11.8	2	1	1.2	1.1	11.4	1	0.9	1	0.9	0.7	11.8	2.5	24
HOURLY MAX	1	10	1	3	3	15	2	12	20	20	7	21	11	17	18	15	11	3	13	2	20	10	2	2			
HOURLY AVG	0.7	1.0	0.6	0.7	0.7	1.3	0.7	1.3	2.1	1.8	1.5	2.6	1.8	3.4	2.1	1.7	1.4	1.0	1.7	0.8	1.9	1.1	0.8	0.7			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 676

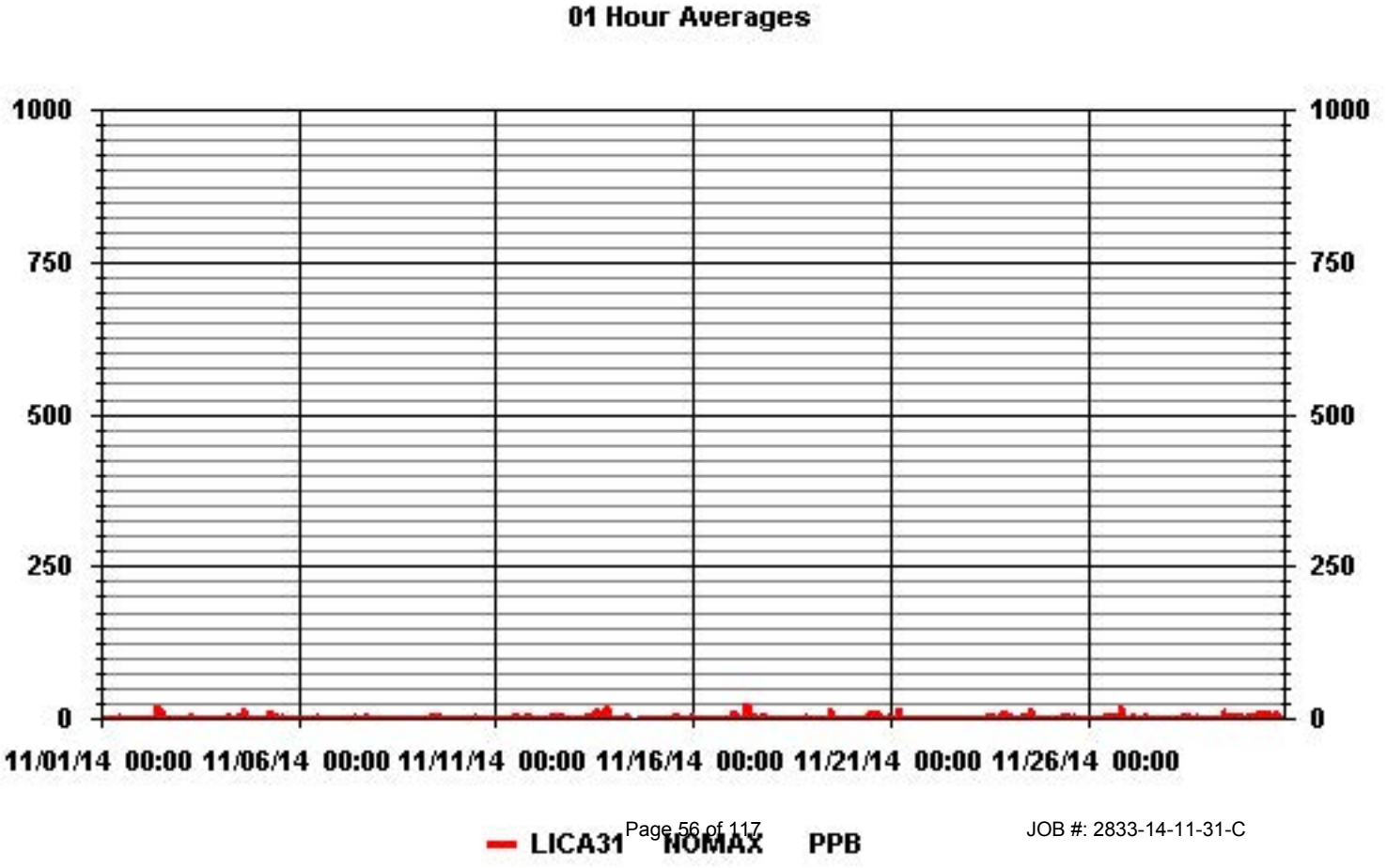
MAXIMUM INSTANTANEOUS VALUE: 20.7 PPB @ HOUR(S) 11 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 720 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 2.52



JOB #: 2833-14-11-31-C

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	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	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	

Calm : .00 %

Total # Operational Hours : 615

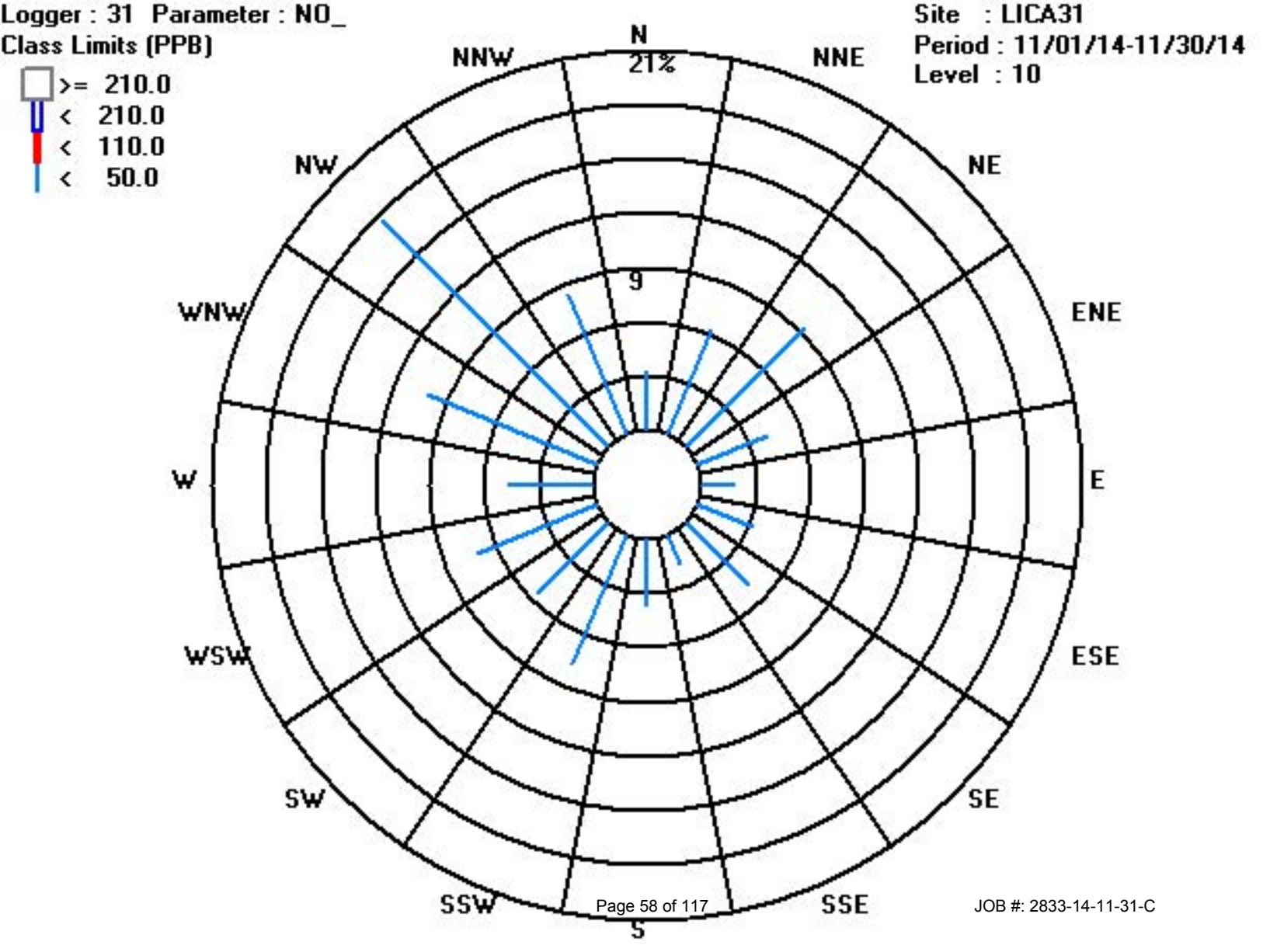
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	615
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	

Calm : .00 %

Total # Operational Hours : 615



JOB #: 2833-14-11-31-C

Oxides of Nitrogen

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

OXIDES OF NITROGEN (NOx) hourly averages in ppb

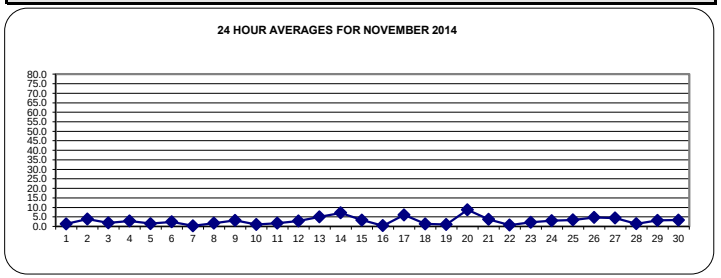
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.9	2.2	1.9	2.1	1.8	1.3	1.3	1.2	**S**	1.1	0.8	2.1	1.6	0.4	0.7	1.8	2.2	1.3	1	1	0.6	0.3	0.3	1.2	2.2	1.3	24
2	0.5	0.1	0.5	0.4	0.9	2.8	5.4	**S**	4.6	5.9	4.6	4.1	3.3	2.5	1.8	2.8	3.6	2.3	3.4	10.8	9.7	8.3	6.4	5.2	10.8	3.9	24
3	5.3	4.5	3.5	3.2	3.4	2.9	**S**	5.1	3.9	2.2	1.5	1	0.7	0.6	0.8	0.7	0.6	0.6	0.5	0.2	0.1	0.6	0.2	0.2	5.3	1.8	24
4	0.3	0.2	0.2	0.2	0.3	**S**	4.6	6	4.4	2	1.9	2.6	3.1	3.2	3.3	4.1	3.5	3.9	3	2.8	3.3	4	4.6	3.9	6	2.8	24
5	2.7	2.7	2.6	2.2	**S**	1.3	1.1	1.3	1.1	0.9	1	0.9	0.6	0.7	0.9	1.1	1.1	1.4	0.9	1.3	1.4	1.4	1.7	3	3	1.4	24
6	3	3	2.4	**S**	4.1	2.9	2.1	1.9	2.2	2	1.8	2.2	2.3	2.5	2.6	2.5	2	2.7	2.7	2.5	2.1	2.3	2.2	1.9	4.1	2.4	24
7	1.3	0.6	**S**	0.3	0.2	0.3	0.1	0.1	0.2	0.4	0.2	0.4	0.3	0	0.3	0.2	0.3	0.4	0.5	0.4	0.3	0.2	0	0.1	1.3	0.3	24
8	0	**S**	2.4	2.5	1.4	0.8	0.7	1.3	1	2.1	3.4	2.8	1.7	3.2	3.1	0.9	0.8	1	0.9	0.9	1.5	1.9	2.4	2.5	3.4	1.7	24
9	**S**	2	2.4	2.3	2.4	2.3	2.9	5	6.7	6.1	5.9	3.7	3.9	4.4	3	2.9	1.2	1	1.3	1.1	1.1	2.8	5.3	**S**	6.7	3.2	24
10	3.3	3	1.9	2.4	1.5	1.3	1.1	0.2	0.7	1.2	0.6	0.4	0.3	0.5	0.4	0.3	0.2	0.3	0.4	0.2	0.4	0.2	**S**	0.5	3.3	0.9	24
11	0.2	0.4	0.7	1.3	1.9	2.2	2.4	1.5	1.5	1.3	1.5	2.1	2.5	2.6	2.8	2.3	3	2.4	2.2	1.6	1.2	**S**	0.7	0.6	3	1.7	24
12	0.5	0.8	0.4	0.6	0.6	0.5	0.6	0.7	0.6	0.4	1.2	2	4.2	4.1	6.7	6.5	4.8	3.8	4	6.9	**S**	7.2	4.7	4	7.2	2.9	24
13	3	2.3	2.3	2	2	2.4	7	4.4	4.9	5.2	5	4.5	3.7	3.9	4.6	5.1	7.4	7.7	7.7	**S**	7.2	7.3	7.2	7.9	7.9	5.0	24
14	8.2	9.2	13.6	16.1	14.2	11	9.5	7	5.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.9	2	2.6	3	**S**	4.1	3	3.2	16.1	7.1	24
15	1.4	1.1	1.2	1.5	1.4	1.2	1.3	1.4	1.6	1.6	2.3	2.9	4.2	9.1	14.5	11.8	5.8	4.1	3	**S**	1.4	1.2	1	0.8	14.5	3.3	24
16	0.6	0.4	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0	0.3	0.2	0.6	0.2	0.1	0.5	0	1.1	**S**	0.4	0.6	0.5	0.8	0.7	1.1	0.4	24
17	0.7	1.1	0.5	0.6	0.8	2.1	2.6	2.5	2.8	2.8	4.1	7.9	7.2	5.6	5.7	5.5	5.3	**S**	7.6	9.9	16	20.8	16.5	10	20.8	6.0	24
18	5.7	3.9	2.8	2.2	1.5	1.3	1.2	0.9	1	1.1	0.7	0.7	0.7	1.3	1.5	1.3	**S**	0.7	0.1	0.1	0.3	0.3	0.2	0.1	5.7	1.3	24
19	0.2	0	0	0	0	0.1	0	0.3	0.1	0	0.1	0.7	0.1	2.4	1.1	**S**	1	1.3	1.2	1.2	3	3.5	3.7	3.7	3.7	1.0	24
20	4.2	4.3	4.2	3.8	3.8	3.9	3.6	4.2	4.2	5	6.9	8.7	10.3	9.9	**S**	9.9	9.5	9.5	10.8	12.2	12.7	16.1	21.2	20.9	21.2	***8.7***	24
21	***23.1***	21.1	13.5	5	1.8	1.5	0.7	0.5	0.3	0.4	0.8	0.7	0.6	**S**	1.6	2.6	2.3	2.3	2.3	2.8	0.3	0.1	0	0	***23.1***	3.7	24
22	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0.4	0.6	0.8	2.3	2.8	2.7	1.9	2	0.8	0.2	0.6	2.8	0.7	24
23	0.5	0.2	0.4	0.2	0.7	1.1	0.5	1.1	1.6	1.6	1.5	**S**	1.6	2.5	2	1.7	2.3	2.7	2.9	3.5	4.2	4.9	5.2	5.6	5.6	2.1	24
24	5.9	6.7	8.3	7.5	6.9	5	3.5	1.6	1.4	1.4	**S**	0.9	1	3	1.6	1.9	2	2.2	1.2	1.8	1.4	1.6	1.3	1.8	8.3	3.0	24
25	2.5	2	1.2	1.3	2.3	3.2	3.7	2	2.7	**S**	2.8	2.4	2.7	4.1	3.3	4.2	4.7	5.2	4.7	4.1	4.6	5.7	4.5	4.1	5.7	3.4	24
26	5.1	5.6	4.4	6.2	6.9	7	4.9	3.7	**S**	4.3	4.9	4.6	4.3	4.3	4.5	4.4	4.5	4.3	4.2	3.7	4.3	4.1	4.2	4	7	4.7	24
27	5.1	7.8	9.1	17	15.2	8.7	6.1	**S**	3.1	4.8	5	3.1	1.9	1.3	1.5	1.6	1.3	1.5	1.6	1.5	1.3	1	0.5	0.4	17	4.4	24
28	0.6	0.8	0.8	1.1	0.8	1.5	**S**	2.5	2.5	2.3	2.9	2.4	1.9	2	1.5	1.6	1.1	0.8	0.9	1	0.7	1.1	1	0.9	2.9	1.4	24
29	1.2	3	3.5	4.9	3.5	**S**	1.3	1.7	1.6	1.1	2	1.5	2.2	3.1	4.2	6.1	6.5	6.3	5.1	4.2	3.6	2.9	2.3	1.5	6.5	3.2	24
30	1.6	1.8	2.1	2.1	**S**	0.7	0.7	0.9	1.3	0.4	0.3	0.3	0.5	1.8	1.6	2.1	5.1	9	8.9	8.2	8.3	6.4	5.9	5.6	9	3.3	24
HOURLY MAX	23	21	14	17	15	11	10	7	7	6	7	9	10	10	15	12	10	10	11	12	16	21	21	21			
HOURLY AVG	3.1	3.1	3.0	3.1	2.9	2.5	2.5	2.1	2.2	2.1	2.3	2.4	2.4	2.8	2.7	3.1	2.9	2.9	3.0	3.2	3.3	3.8	3.7	3.3			

STATUS FLAG CODES

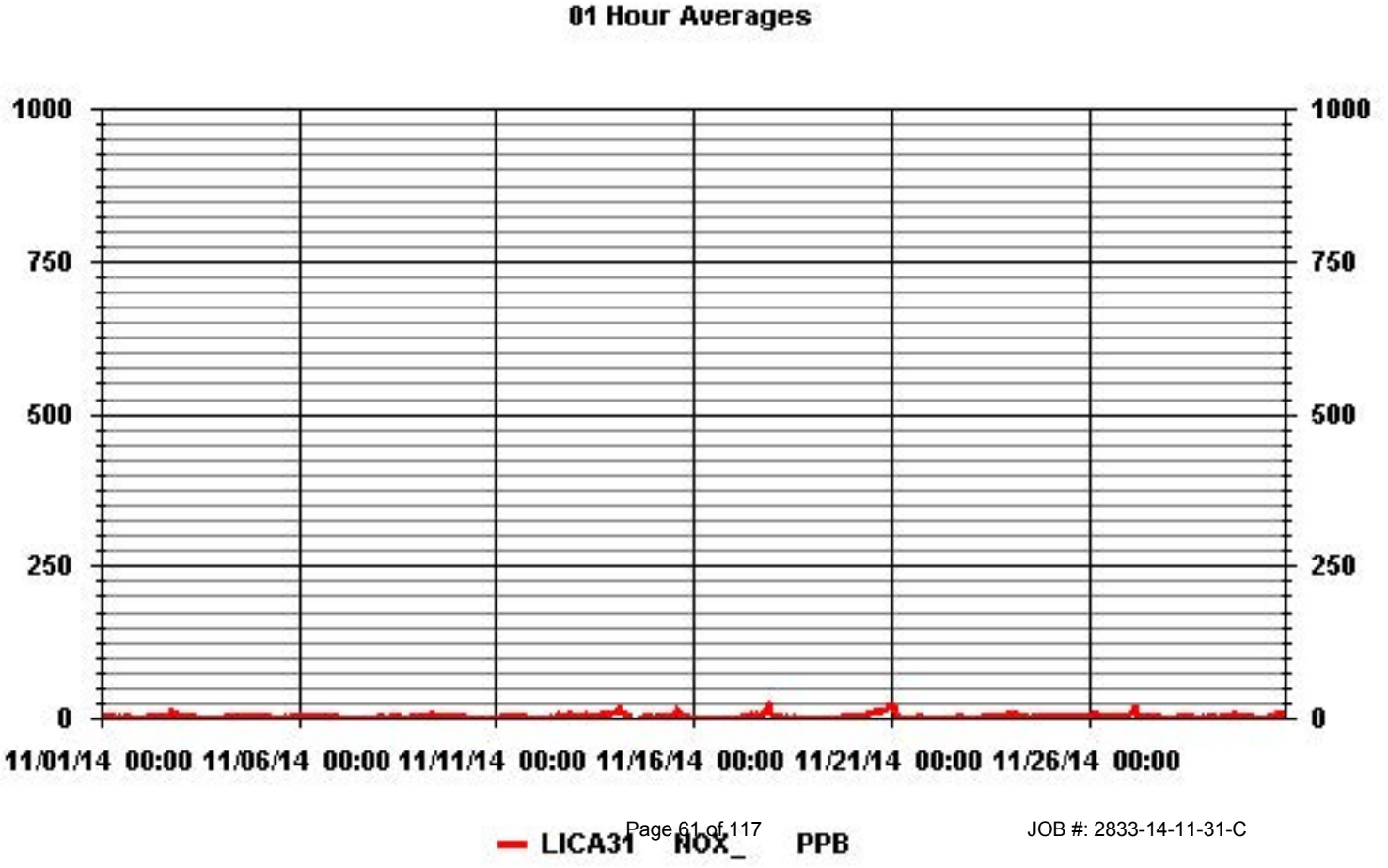
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	657					
MAXIMUM 1-HR AVERAGE:	23.1	PPB	@ HOUR(S)	0	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	8.7	PPB			ON DAY(S)	20
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	3.22		MONTHLY AVERAGE:		2.86	PPB



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

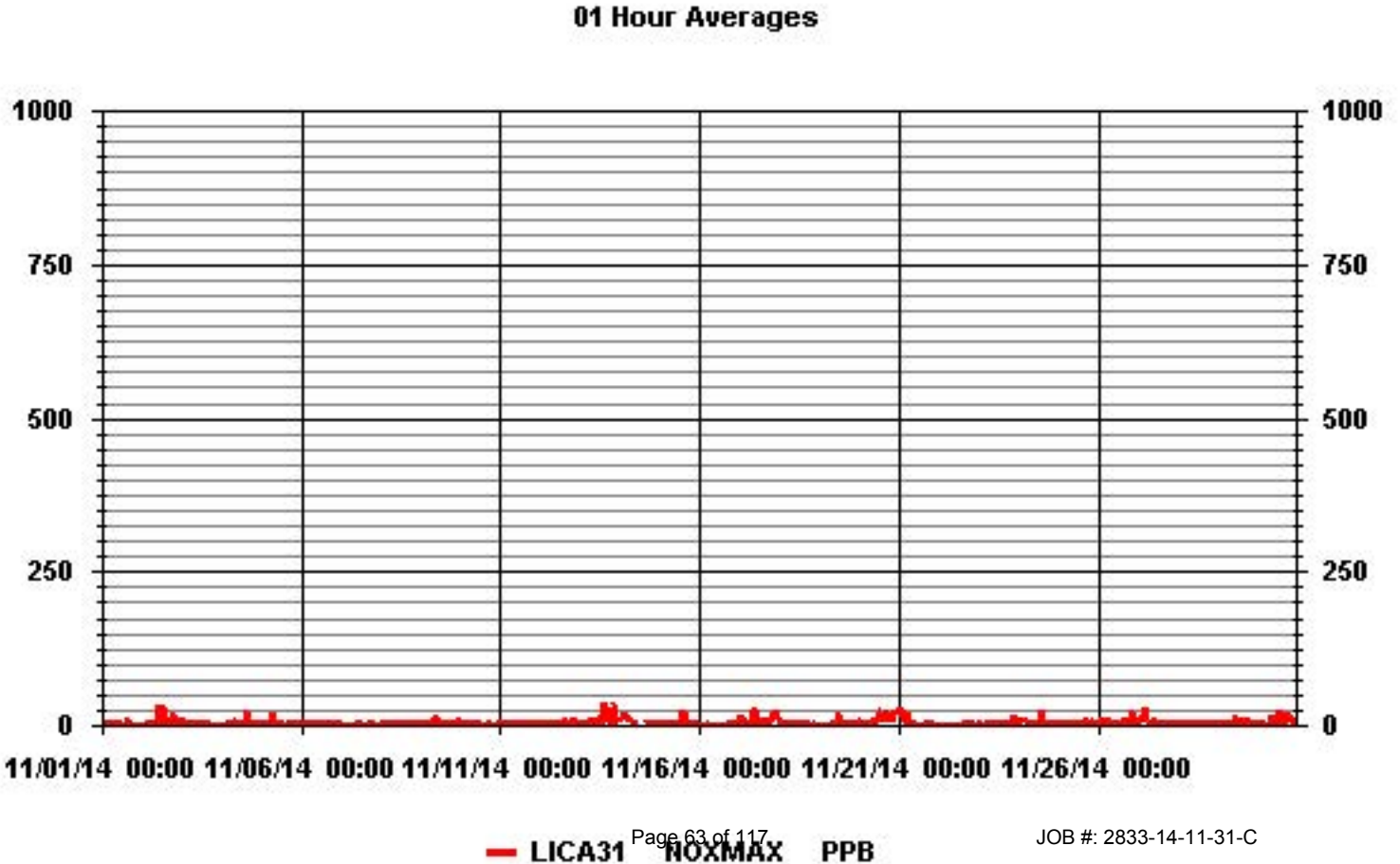
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.7	2.9	2.7	2.7	2.7	2	2.5	2.1	**S**	3.6	3.6	6	3.5	1.8	3	8	6.7	5.6	2.9	3.3	1.6	0.9	0.9	2.3	8	3.2	24
2	1.3	0.9	1.4	1.2	1.8	5	6.3	**S**	5.6	7	5.9	33.3	5.5	30.8	2.7	6.9	8	3.5	4.9	17	14.9	9.7	8.2	6.1	33.3	8.2	24
3	7.6	6.2	4.2	4.5	4.9	4	**S**	6.1	5.3	3.2	2.5	1.6	1.3	2	1.5	1.6	2.1	2	1.3	0.8	1	2.6	0.7	0.6	7.6	2.9	24
4	0.7	0.5	1	0.8	1	**S**	6	6.9	6.2	3	3	3.2	4.4	4.2	3.9	25.4	6.6	6.5	4.1	3.4	3.9	4.9	5.4	5.1	25.4	4.8	24
5	3.4	3.3	3.3	3	**S**	1.9	1.8	18.7	2.1	1.6	1.8	1.8	1.4	1.4	1.6	3.6	1.8	2.3	1.8	2.2	2.3	2	2.7	3.8	18.7	3.0	24
6	4	3.8	3.5	**S**	4.7	4.3	2.9	2.5	2.8	2.6	2.4	2.8	3.4	3.4	3.3	3.1	2.7	6	4.5	3.7	3	3	3	2.6	6	3.4	24
7	2.2	1.6	**S**	1	0.9	0.9	0.9	0.8	0.9	1.1	1	2.3	2.2	0.9	1	0.9	1.6	1.7	2	2.5	1.1	1.1	0.9	0.7	2.5	1.3	24
8	0.7	**S**	4.7	4.2	2.7	1.4	1.4	2.1	1.8	3.5	4.3	3.9	2.4	4.8	4.8	2.1	1.8	1.8	1.7	1.7	2.3	3.5	3.6	4.5	4.8	2.9	24
9	**S**	2.8	3.1	3.1	2.9	2.8	3.9	7.5	8	9.4	9.6	4.6	4.9	6	3.9	3.8	3.3	4.8	2.7	2.2	1.9	5.2	7.3	**S**	9.6	4.7	24
10	4.8	5.3	2.7	3.3	2.4	1.9	2	1.1	1.7	2.4	1.5	1.8	1.8	1.7	1	0.9	1	1.3	1.3	0.8	1.1	0.8	**S**	1.3	5.3	1.9	24
11	1	1	1.5	2.5	2.6	3.1	3.3	2.1	2.8	2.2	2.3	3	3.7	3.3	3.5	3.3	6.2	4.1	4.4	3.3	3	**S**	3.1	1.3	6.2	2.9	24
12	1.1	1.3	1.2	1.2	1.2	1.6	1.7	1.9	1.9	1	4.8	4.9	5.5	6.4	8.9	8.5	8.6	5.7	4.9	9.1	**S**	9.1	6.2	5.2	9.1	4.4	24
13	4	4.4	3.3	2.7	2.7	3.3	9.1	7.6	8.9	8.4	7.4	5.3	4.7	15.2	***38.2***	7.5	16.2	12.6	25.9	**S**	30.8	8.9	7.9	8.5	***38.2***	10.6	24
14	9.2	11.3	15.6	17.1	16.7	12.2	10.8	8.4	6.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.6	4	5.2	**S**	5	3.9	5.2	17.1	9.0	24
15	2.6	1.7	2.1	2.3	2	1.9	2.1	2.3	3	2.3	3.2	3.4	6.7	11.9	24	16	7.9	5.4	4.2	**S**	2.4	2.2	1.7	1.7	24	4.9	24
16	1.5	1	0.8	0.9	1	1	0.8	0.8	0.9	0.8	1	0.9	1.8	1.1	0.8	1.3	0.9	3.1	**S**	1.5	1.6	1.5	1.5	1.3	3.1	1.2	24
17	1.4	17.9	1.3	1.5	2	5.1	5	4.1	22.4	30.3	8.4	10.2	9.1	6.7	6.5	7.2	7	**S**	9.3	11.1	19.8	22.9	20.1	13.8	30.3	10.6	24
18	7.5	4.9	4.1	3.1	2.2	2.5	2	1.7	1.6	1.8	1.5	1.3	1.5	3	2.4	2.4	**S**	3.6	0.8	1	2.7	3.1	1	0.5	7.5	2.4	24
19	0.7	0.6	0.5	0.7	0.7	0.7	0.7	1.2	1.2	1.1	0.9	18.2	0.7	3.7	2.8	**S**	1.8	2	2.1	1.8	4	4.3	4.4	5.6	18.2	2.6	24
20	5.1	5.1	4.8	5	4.5	4.5	4.3	5.3	6.7	7.3	8.4	10.3	18.6	11.7	**S**	10.9	24.3	11.3	**S**	15.1	13.6	20.8	22.7	22.1	24.3	***11.0***	24
21	24.8	23.9	17.6	8.8	2.9	19.4	1.7	1.7	1	1.2	1.5	2.1	1.4	**S**	2.9	4.4	3.4	3.1	4.2	4.9	1.4	0.8	0.6	0.8	24.8	5.8	24
22	0.5	0.5	0.4	0.4	0.9	0.5	0.4	0.1	0.6	0.4	0.4	0.5	**S**	1.1	1.6	1.5	3.2	3.9	3.7	2.9	2.8	2.2	1	1.4	3.9	1.3	24
23	1.4	1	1.3	0.9	1.3	1.9	1.3	2.3	2.6	2.3	2.4	**S**	2.2	5.1	3	2.7	3	3.4	3.6	4.2	5.2	17.2	5.9	6.3	17.2	3.5	24
24	7	8.2	9.2	8.4	7.7	6.8	4.6	3.2	2.9	2.7	**S**	3.1	1.7	26.4	4.9	3.1	3.1	3	2.2	2.6	2.3	2.4	2	2.6	26.4	5.2	24
25	3.4	2.9	1.9	2.2	3.7	5.3	5.1	2.7	4	**S**	3.7	3	3.4	5.6	3.9	5.5	5.6	6.1	5.5	5.1	6.8	6.7	5.5	4.9	6.8	4.5	24
26	6.3	6.3	5.6	7.8	7.6	8	6.9	4.7	**S**	5.3	5.6	5.5	5	5	5.3	5.3	6	4.9	8.7	4.9	23.6	4.9	4.9	4.7	23.6	6.6	24
27	7	9.5	9.7	24.8	24.7	9.7	7.6	**S**	4.2	5.9	5.9	4.6	2.6	2.2	2.3	2.3	2	2	2.5	2.3	2.1	1.6	1.1	1.2	24.8	6.0	24
28	1.2	1.4	1.4	1.9	1.4	2.5	**S**	3.4	3.6	3.3	3.7	3.4	2.6	3.3	2.3	2.7	2.2	1.7	1.8	2.5	1.9	1.7	1.6	1.7	3.7	2.3	24
29	2.6	3.9	5.3	5.8	4.8	**S**	2	4.4	3.1	2	15	2.3	3.6	4.4	6.2	7.6	7.8	7	6.2	5.4	4.4	4	3.7	2.3	15	4.9	24
30	2.1	2.4	2.8	3	**S**	1.3	1.5	2.2	17.2	1.1	1.1	0.9	1.9	23.5	3	2.9	8	9.8	18.8	9.2	9.3	7.6	7	6.3	23.5	6.2	24
HOURLY MAX	25	24	18	25	25	19	11	19	22	30	15	33	19	31	38	25	24	13	26	17	31	23	23	22			
HOURLY AVG	4.1	4.7	4.0	4.3	4.1	4.1	3.5	3.9	4.6	4.2	4.0	5.2	3.8	7.0	5.3	5.4	5.5	4.5	5.0	4.6	6.1	5.5	4.8	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:	680					
MAXIMUM INSTANTANEOUS VALUE:	38.2	PPB	@ HOUR(S)	14	ON DAY(S)	13
				VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	5.16					



JOB #: 2833-14-11-31-C

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	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	3.25	6.34	9.26	4.22	1.78	3.25	4.87	1.78	3.73	7.80	5.52	7.15	4.71	10.08	17.72	8.45	

Calm : .00 %

Total # Operational Hours : 615

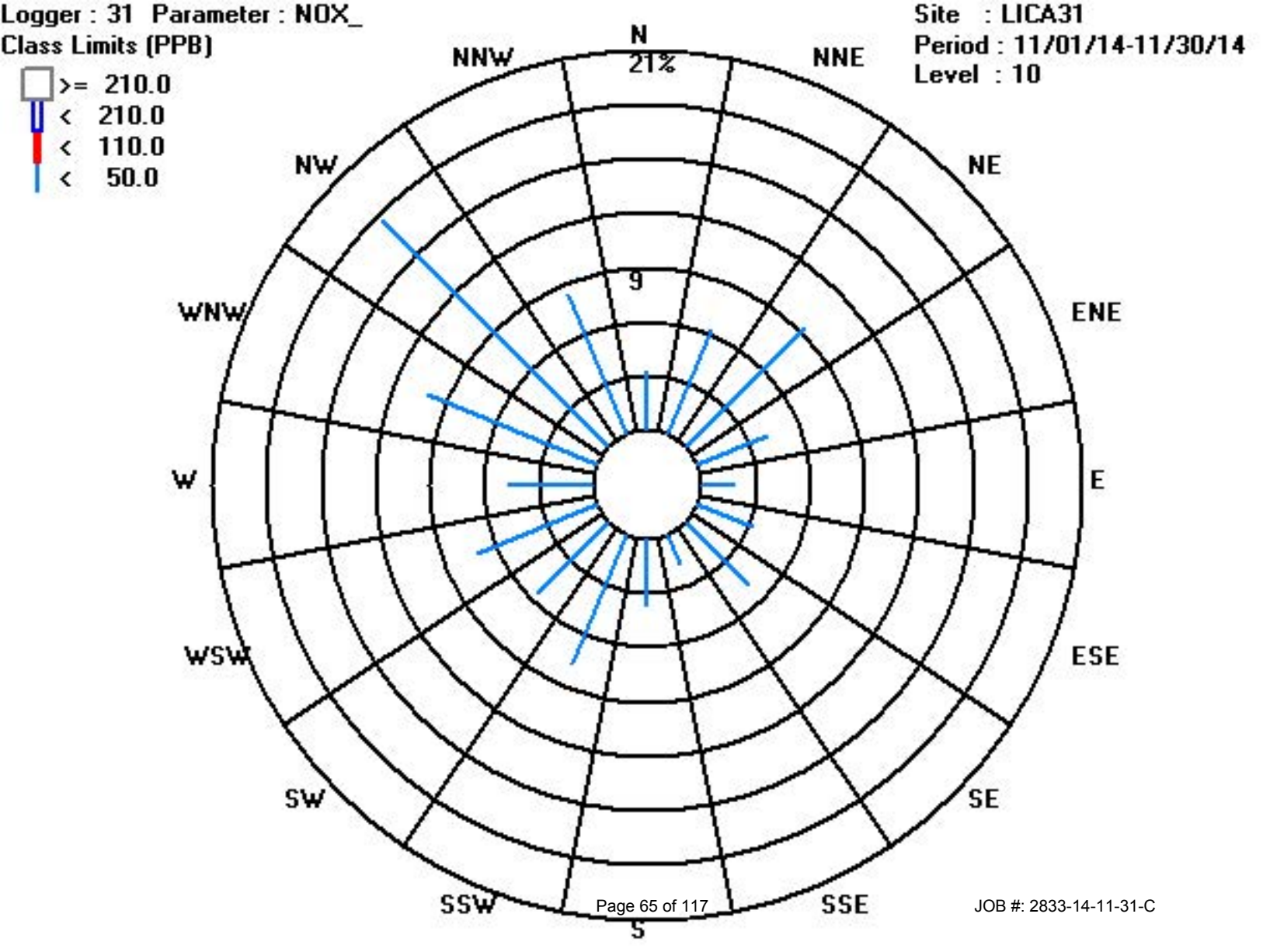
Distribution By Samples

Direction

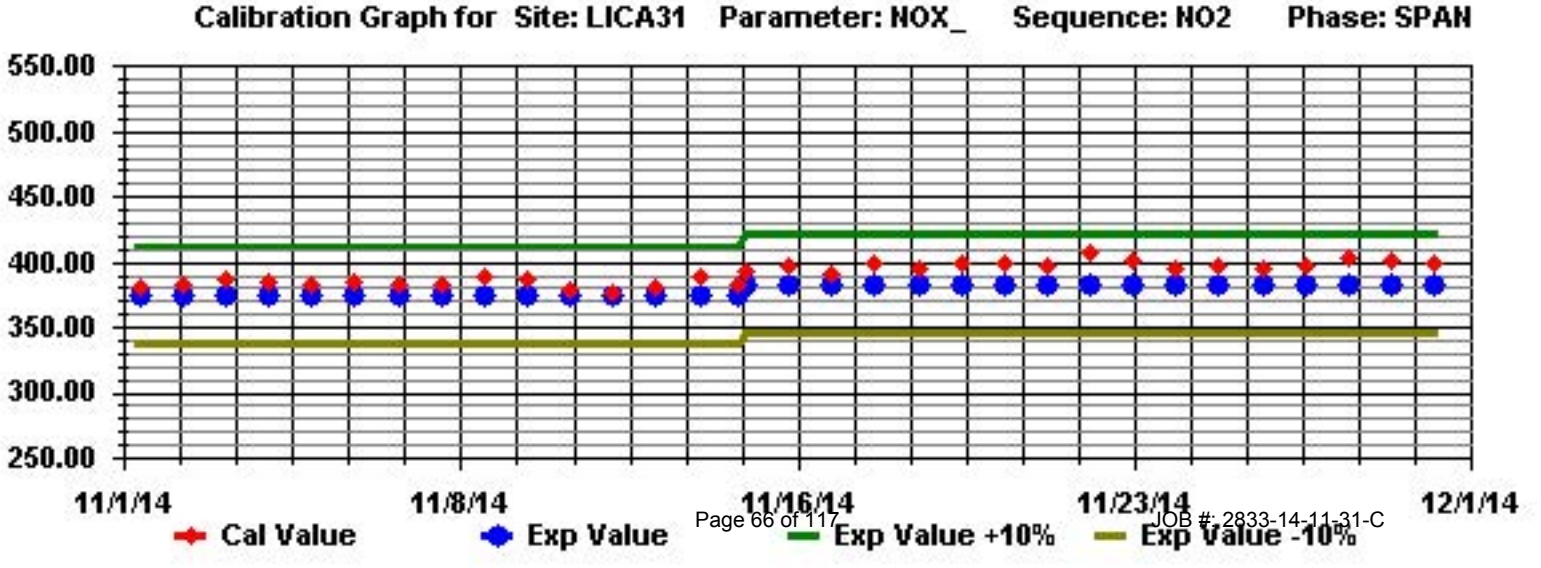
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	615
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	20	39	57	26	11	20	30	11	23	48	34	44	29	62	109	52	

Calm : .00 %

Total # Operational Hours : 615



JOB #: 2833-14-11-31-C


Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN
550.00
500.00
450.00
400.00
350.00
300.00
250.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

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

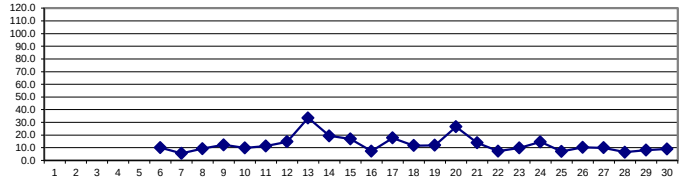
MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			0
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			0
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			0
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			0
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			0
6	G	G	G	G	G	G	G	G	G	G	G	G	C	C	0	0	6	18	12	10	9	11	13	21	21	10.0	12
7	8	10	9	3	0	12	0	8	X	X	10	8	0	9	2	8	9	1	0	4	0	12	X	X	12	5.7	20
8	12	13	X	0	24	7	4	9	X	9	0	X	1	8	11	13	16	1	14	19	3	22	1	7	24	9.2	21
9	11	15	3	10	6	5	7	18	5	14	11	X	20	22	21	7	25	18	18	X	X	0	11	10	25	12.2	21
10	16	24	5	8	8	8	7	9	7	12	12	0	5	2	7	6	21	X	0	11	5	10	26	17	26	9.8	23
11	X	7	9	12	8	12	12	6	6	28	9	13	X	12	9	11	11	X	21	14	8	6	17	9	28	11.4	21
12	7	5	4	9	9	10	8	25	12	10	16	8	16	27	20	13	15	18	10	39	16	24	14	18	39	14.7	24
13	9	13	11	14	14	29	***105***	66	55	43	29	27	25	19	23	28	58	61	25	29	35	36	26	25	***105***	***33.5***	24
14	33	29	33	40	39	24	34	16	21	18	23	16	7	9	0	0	10	18	10	14	8	14	25	23	40	19.3	24
15	14	14	9	3	16	14	17	18	22	18	23	22	27	25	31	27	18	17	9	11	12	13	12	16	31	17.0	24
16	5	16	8	9	8	6	6	1	3	6	4	4	11	7	5	5	0	0	20	11	9	7	11	14	20	7.3	24
17	11	13	8	6	15	9	11	12	12	13	19	29	25	17	27	18	21	13	26	28	20	24	23	25	29	17.7	24
18	18	24	22	8	9	12	7	6	14	12	9	6	12	13	17	15	5	13	12	6	13	3	12	12	24	11.7	24
19	7	12	5	5	10	6	20	0	17	2	11	9	12	11	21	20	5	8	11	21	10	13	27	23	27	11.9	24
20	29	22	19	20	20	24	16	27	19	26	30	27	30	27	29	33	35	33	30	35	24	32	25	26	35	26.6	24
21	21	29	18	15	8	14	7	10	10	13	15	14	14	20	18	13	8	16	17	8	9	14	7	15	29	13.9	24
22	4	2	7	7	11	3	10	12	2	6	9	4	15	6	4	10	7	10	6	5	12	8	11	4	15	7.3	24
23	4	4	5	7	7	5	8	4	12	12	10	13	13	8	10	9	10	C	C	14	9	14	19	18	19	9.8	24
24	23	16	22	17	20	18	14	11	13	12	11	10	11	13	14	15	15	28	28	0	10	7	9	13	28	14.6	24
25	7	6	6	7	7	12	9	11	7	2	3	6	8	5	1	10	5	6	2	12	14	12	7	4	14	7.0	24
26	5	5	12	3	4	5	9	12	5	4	4	4	12	14	10	9	10	12	12	15	16	22	25	17	25	10.3	24
27	18	21	17	14	16	12	16	17	10	6	9	7	4	0	10	9	5	8	8	8	8	7	4	5	21	10.0	24
28	5	10	13	4	9	5	0	2	6	6	12	5	2	6	6	11	10	4	10	9	4	4	2	10	13	6.5	24
29	8	4	6	4	10	6	8	7	15	6	10	12	8	11	12	10	10	9	9	5	6	9	6	5	15	8.2	24
30	8	6	10	2	7	9	8	8	7	8	13	3	6	8	9	15	17	17	10	4	9	12	9	11	17	9.0	24
HOURLY MAX	33	29	33	40	39	29	105	66	55	43	30	29	30	27	31	33	58	61	30	39	35	36	27	26			
HOURLY AVG	12.3	13.3	11.3	9.5	11.9	11.1	14.3	13.1	12.7	12.4	12.6	11.2	12.3	12.5	12.7	12.6	14.1	15.0	13.3	13.8	11.2	13.4	14.3	14.5			

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

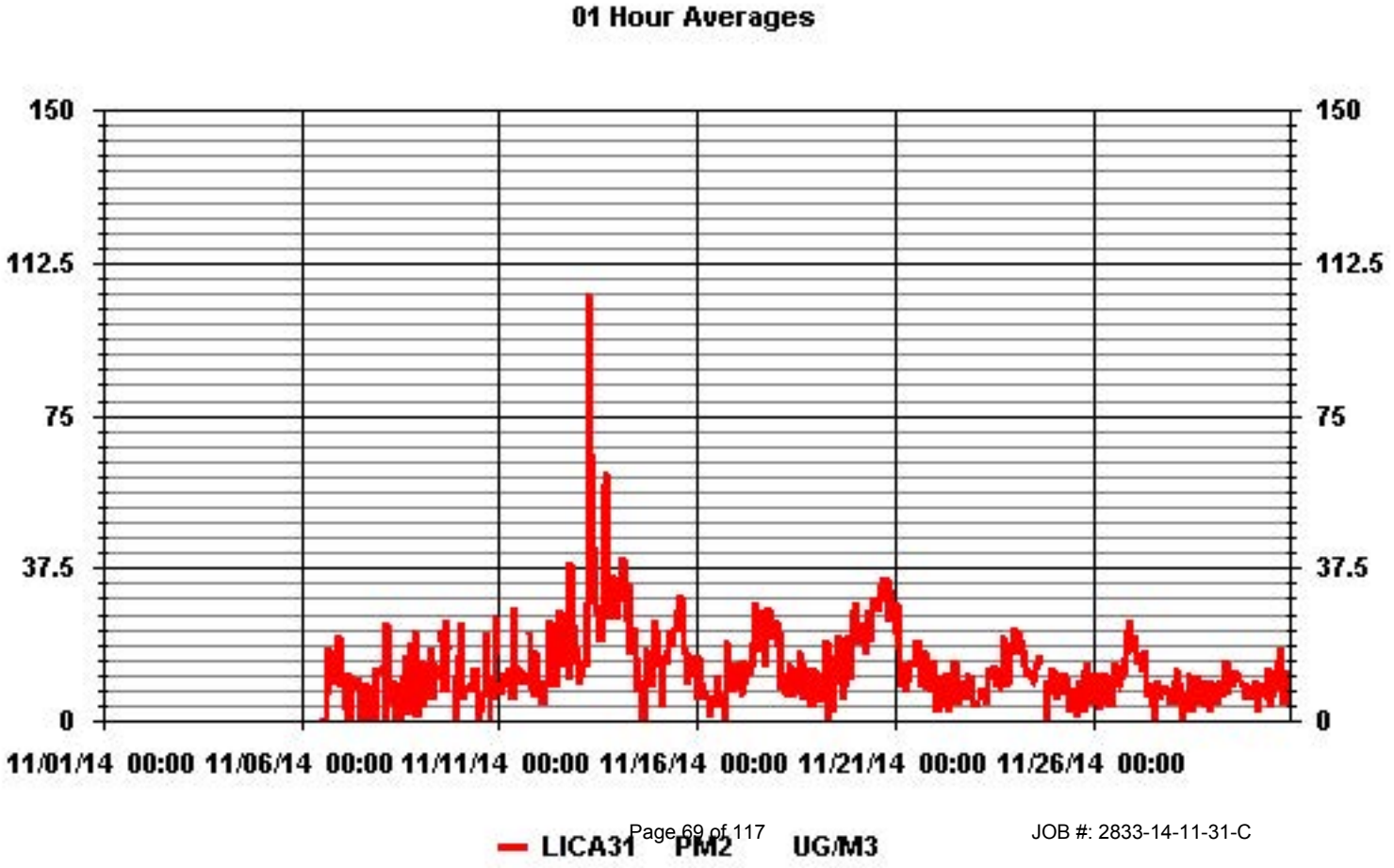
24 HOUR AVERAGES FOR NOVEMBER 2014



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 24-HR 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	1						
NUMBER OF NON-ZERO READINGS:	550						
MAXIMUM 1-HR AVERAGE:	105	ug/m3	@ HOUR(S)	6	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	33.5	ug/m3			ON DAY(S)	13	
					VAR-VARIOUS		
			OPERATIONAL TIME:			574	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			79.7	%
STANDARD DEVIATION:	9.66		MONTHLY AVERAGE:			12.74	ug/m3



JOB #: 2833-14-11-31-C

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

November 2014

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	4.16	7.53	9.52	4.56	.59	.99	2.57	1.98	3.96	7.53	6.54	5.35	5.35	7.73	19.24	9.32	97.02
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.19	1.38	.39	.39	.19	.19	.00	.00	2.77
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00	.19
<	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	4.16	7.53	9.52	4.56	.59	.99	2.57	1.98	4.36	8.92	6.94	5.75	5.55	7.93	19.24	9.32	

Calm : .00 %

Total # Operational Hours : 504

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	21	38	48	23	3	5	13	10	20	38	33	27	27	39	97	47	489
<	60									1	7	2	2	1	1			14
<	80									1								1
<	120																	
<	240																	
>=	240																	
	Totals	21	38	48	23	3	5	13	10	22	45	35	29	28	40	97	47	

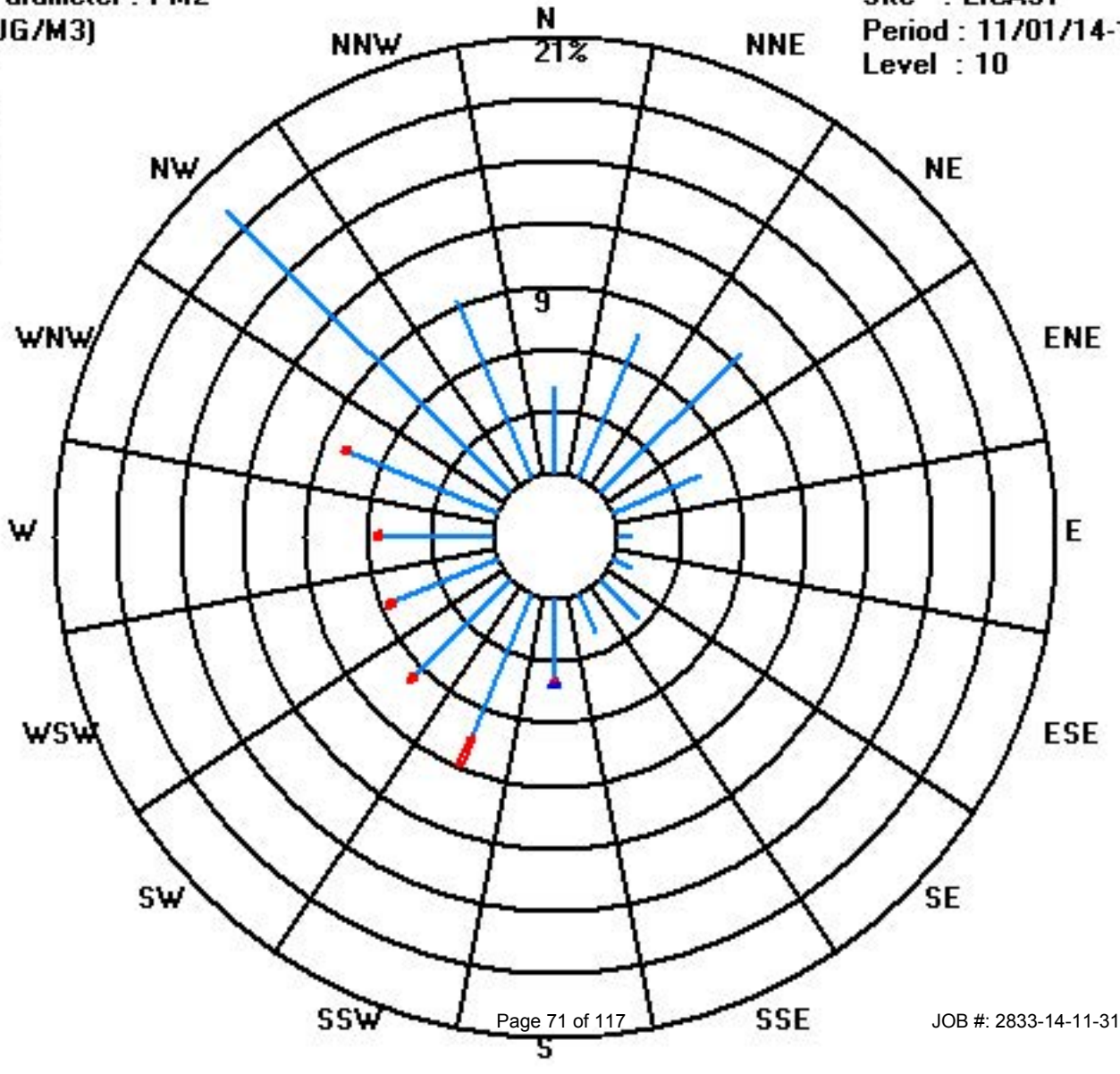
Calm : .00 %

Total # Operational Hours : 504

Logger : 31 Parameter : PM2
Class Limits (UG/M3)

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

Site : LICA31
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-31-C

Temperature

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

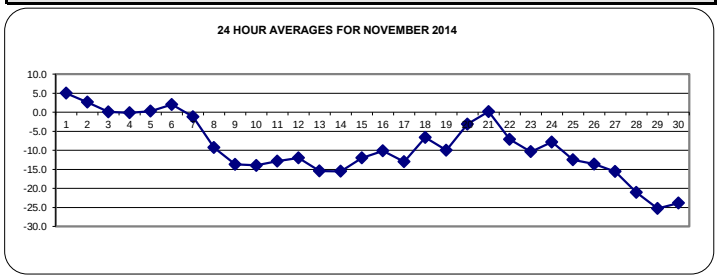
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.8	2.8	3	3.1	3.1	3.2	3	3.1	3.1	5.8	6.6	8.2	9.3	9.8	***10***	8.6	6.3	5.4	4.9	4.3	3.7	3.6	3.3	3.6	***10***	***5.0***	24
2	3.3	2.6	1.9	1.9	2	2	2.1	1.8	1.8	2.2	3.4	4.4	4.5	5	5.1	4.8	4.1	2.8	2.1	1.8	1.4	1.3	0.9	0.4	5.1	2.7	24
3	-0.4	-2.2	-4.2	-4.8	-4.9	-5.3	-4.4	-2.9	-0.8	1.2	2.2	2.7	3	2.9	2.8	2.8	2.7	2.5	2.2	1.8	1.8	1.6	1.6	1.2	3	0.1	24
4	0.7	-0.5	-1.6	-1.6	-1.5	-0.9	-1.1	-1.1	-0.4	0.2	0.7	1.5	1.9	1.6	1.1	0.7	0.3	0.2	0.2	0.1	-0.7	-1.2	-1.4	-0.9	1.9	-0.2	24
5	-1	-1.4	-1.5	-1.9	-1.8	-1.6	-1.9	-1.7	-0.1	2	3.5	4.2	4.6	5.4	5.4	4.7	1.8	-0.6	-1.4	-1.7	-2	-1.9	-1.9	-2	5.4	0.3	24
6	-1.3	-0.8	-0.5	-0.4	-0.9	0	0.9	1.2	0.9	1.5	2.6	3.2	4.4	5	4.7	4.4	4.1	3.6	3.1	2.9	2.7	2.4	2.6	2.7	5	2.0	24
7	2.8	2.8	2.1	1.1	0.7	0.3	0.1	0	-0.4	-0.2	-0.2	-0.7	-1.1	-0.6	-0.2	-1.9	-3	-3.4	-3.5	-3.7	-4	-4.5	-5.4	-5.6	2.8	-1.2	24
8	-5.8	-5.9	-6.2	-6.5	-7.2	-7.8	-8.5	-9.1	-9.6	-9.4	-8.7	-9	-9.4	-8.8	-8.6	-8.9	-9.4	-9.9	-9.9	-10.5	-12.2	-13.1	-13.8	-15	-5.8	-9.3	24
9	-16	-16.3	-16.3	-16.8	-16.4	-16.6	-17	-16.7	-15.8	-14.5	-13.4	-12	-11.6	-11	-10.1	-10.8	-11.7	-12.1	-12.2	-12.2	-12.2	-12.2	-12.4	-13.1	-10.1	-13.7	24
10	-13.5	-13.8	-14.5	-15.4	-15.6	-16.2	-16	-15.9	-16	-14.9	-12.8	-12.6	-11.7	-12.2	-12.7	-12.7	-13.2	-13	-13.2	-13.5	-13.8	-13.8	-14	-14.3	-11.7	-14.0	24
11	-14.1	-14.2	-14.4	-14.7	-14.8	-14.7	-15	-15	-14.7	-13.6	-12.6	-12	-11.1	-10.7	-10.5	-10.9	-11.5	-11.8	-12	-12	-12	-12	-12.1	-12.1	-10.5	-12.9	24
12	-12.1	-12.1	-12.1	-12.1	-12.1	-12	-12.2	-12.4	-12.3	-10.9	-9	-8.5	-7.9	-9	-8.9	-9.9	-11.6	-12.9	-13.5	-14.2	-14.6	-15	-15.7	-16.1	-7.9	-12.0	24
13	-16.8	-17.2	-17.5	-17.7	-17.8	-17.9	-18	-18.6	-17.6	-15.4	-13.4	-11.2	-10.5	-9.4	-10.1	-11.6	-14	-14.9	-15.6	-16.1	-17	-17.1	-17.3	-17.7	-9.4	-15.4	24
14	-18.1	-18.9	-19.2	-19.3	-19.9	-19.7	-18.6	-17.1	-15.9	-16	-14.8	-13.9	-13	-12.7	-13	-13.4	-13.5	-13.5	-13.5	-13.4	-13.6	-13.7	-13.7	-13.8	-12.7	-15.5	24
15	-14.1	-14.4	-14.6	-15.1	-15.7	-15.9	-16.1	-16.4	-16.3	-15.4	-13.8	-12.3	-11.4	-10.6	-10	-9	-8.2	-8	-7.6	-7.7	-8.1	-8.8	-9.4	-9.6	-7.6	-12.0	24
16	-10	-10.3	-10.4	-10.2	-9.8	-9.7	-9.7	-9.5	-9.2	-8.9	-8.4	-8	-7.7	-7.8	-8.2	-8.8	-9.5	-10	-10.4	-11.6	-12.7	-13.5	-14	-14.9	-7.7	-10.1	24
17	-15.5	-15.8	-16.3	-16.7	-17.9	-19.5	-19.8	-19.8	-19.4	-17.7	-14.7	-12.6	-10.6	-9.5	-9.8	-9.7	-9.8	-10.4	-9.9	-9.5	-8.7	-6.9	-5.8	-5.4	-5.4	-13.0	24
18	-4.7	-3.9	-3.7	-3.5	-3.4	-3.3	-4.3	-5.3	-6.1	-6.3	-6.5	-6.8	-7.2	-7.4	-7.9	-8.3	-8.4	-8.4	-8.4	-8.5	-8.7	-9	-9.2	-9.5	-3.3	-6.6	24
19	-9.8	-10	-10.3	-10.5	-10.7	-10.8	-11	-11.2	-11.3	-10.5	-9.9	-9.3	-9.5	-9.1	-9.1	-10.2	-10.5	-10.4	-10.3	-10	-9.6	-9.3	-8.7	-8.2	-8.2	-10.0	24
20	-7.8	-7.2	-6.8	-6.6	-6.7	-6.4	-5.6	-5	-4.4	-3.6	-2.9	-2.2	-0.4	0.2	0.1	-1.4	-2	-2.1	-1.6	-1.2	-0.8	-0.5	0	0.3	0.3	-3.1	24
21	0.8	1.3	1.8	2.3	2.9	2.9	2.9	2.8	2.7	1.9	1.3	1	0.5	0.9	0.9	0.3	-0.5	-1.1	-2	-2.7	-3.6	-4	-4.2	-4.6	2.9	0.2	24
22	-4.7	-4.8	-5.2	-6.1	-6.7	-7.1	-7.4	-7.6	-7.7	-7.7	-7.5	-7.5	-7.5	-7.3	-6.9	-6.7	-7.1	-7.5	-7.9	-8	-8.1	-8.1	-8.1	-8.3	-4.7	-7.1	24
23	-8.4	-8.8	-9.3	-10	-10.5	-11.5	-12.7	-13.5	-13.3	-10.9	-8.2	-8.2	-8	-7.5	-8.6	-9.9	-11	-11.4	-11.7	-11.5	-11.6	-11	-10.9	-10.6	-7.5	-10.4	24
24	-10.2	-9.5	-8.3	-7.8	-7.4	-6.7	-7	-8	-8.6	-8.6	-8.4	-7.5	-7	-6.8	-6.8	-6.9	-7.1	-7.3	-7.3	-7.4	-7.7	-8.3	-8.6	-8.7	-6.7	-7.8	24
25	-9.2	-10	-10.4	-10.8	-11.3	-11.7	-12.2	-13	-13.1	-12.7	-12.3	-11.6	-11.5	-11.1	-11.5	-12.6	-13.5	-13.7	-13.8	-14.1	-14.4	-14.8	-14.9	-15.2	-9.2	-12.5	24
26	-15.6	-15.8	-15.4	-15.2	-15.4	-15.5	-15.9	-15.8	-15.7	-15.2	-14.9	-14.2	-13.3	-12.4	-12.4	-12.4	-12.5	-12.4	-12	-11.4	-10.9	-10.7	-10.7	-10.8	-10.7	-13.6	24
27	-11.3	-11.5	-11.7	-11.9	-12.2	-12.4	-12.5	-13.2	-13.8	-14.5	-14.7	-15.3	-15.9	-16.2	-16.7	-17.3	-18	-18.4	-18.7	-19.1	-19.4	-19.6	-19.9	-20.2	-11.3	-15.6	24
28	-20.5	-20.7	-20.9	-21.1	-21.1	-21	-20.9	-21	-20.7	-20.3	-19.7	-19.4	-19.6	-19.4	-19.5	-20.5	-21.2	-21.9	-22.1	-22.3	-22.5	-22.6	-22.8	-23.4	-19.4	-21.0	24
29	-23.8	-24.4	-25.7	-26.4	-26.9	-27.1	-27.3	***-27.7***	-27.5	-25.5	-24.5	-23.9	-23	-23	-24.1	-25.7	-26.4	-26.5	-25.9	-25.3	-25.1	-24.3	-23.8	-22.7	-22.7	-25.3	24
30	-22.9	-23.5	-24.2	-24.6	-24.7	-25.1	-25.6	-26.2	-26.5	-24.7	-22.7	-20.9	-20.7	-21.5	-22	-22.6	-24.4	-25.5	-25.5	-25.2	-25	-23.7	-23.1	-22.3	-20.7	-23.9	24
HOURLY MAX	3.3	2.8	3	3.1	3.1	3.2	3	3.1	3.1	5.8	6.6	8.2	9.3	9.8	10	8.6	6.3	5.4	4.9	4.3	3.7	3.6	3.3	3.6			
HOURLY AVG	-9.2	-9.5	-9.7	-10.0	-10.2	-10.3	-10.4	-10.5	-10.3	-9.4	-8.5	-7.8	-7.4	-7.1	-7.3	-7.9	-8.6	-9.1	-9.2	-9.4	-9.6	-9.7	-9.8	-9.9			

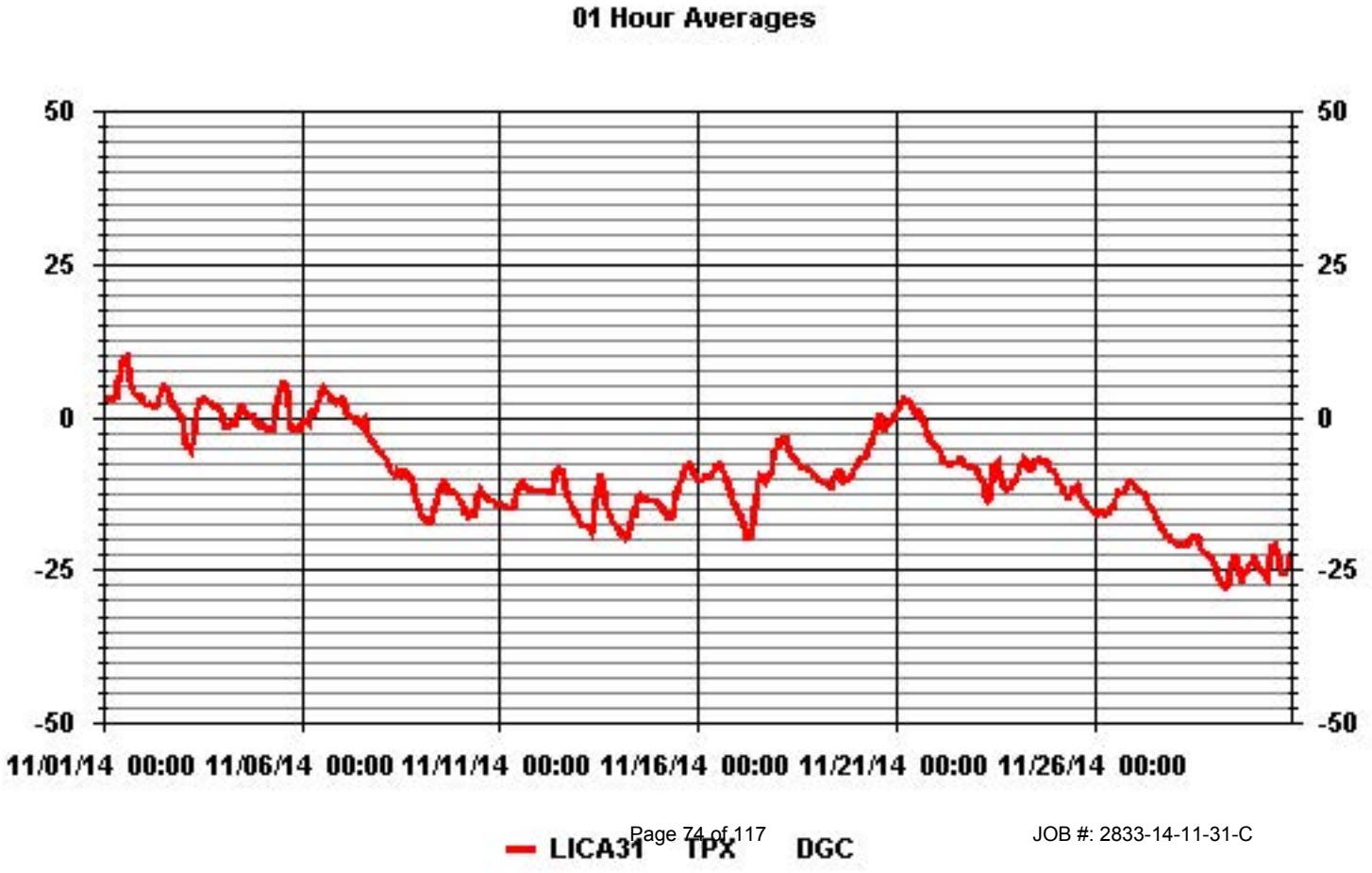
STATUS FLAG CODES

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

MINIMUM 1-HR AVERAGE:	-27.7	°C	@ HOUR(S)	7	ON DAY(S)	29
MAXIMUM 1-HR AVERAGE:	10.0	°C	@ HOUR(S)	14	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	5.0	°C			ON DAY(S)	1
					VAR-VARIOUS	
OPERATIONAL TIME:					720	HRS
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	8.02		MONTHLY AVERAGE:		-9.20	°C



JOB #: 2833-14-11-31-C

Barometric Pressure

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

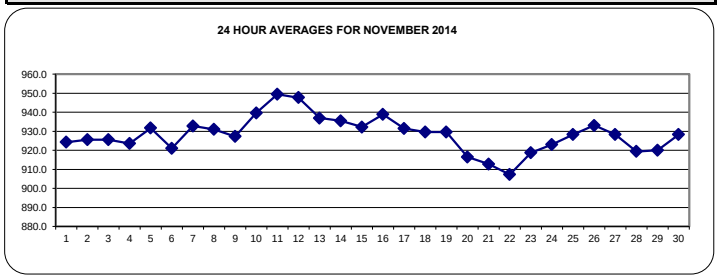
BAROMETRIC PRESSURE (BP) hourly averages in millibar

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	919	920	920	921	922	922	922	923	924	924	925	926	926	926	926	927	926	926	926	926	926	926	927	927	927	924.3	24
2	927	926	926	926	926	926	926	926	926	927	927	927	927	926	926	925	925	925	925	924	924	924	924	923	927	925.6	24
3	923	923	922	922	922	922	922	923	924	925	926	926	926	927	927	928	928	929	929	928	928	928	928	928	929	925.6	24
4	927	927	926	925	925	924	923	923	923	923	923	922	922	922	921	922	922	922	923	923	923	924	925	925	927	923.5	24
5	926	927	927	928	928	929	929	930	930	932	933	933	934	934	935	935	935	935	934	934	934	934	933	932	935	931.7	24
6	932	930	929	928	927	925	924	923	922	921	921	920	919	917	917	916	916	916	916	915	916	917	918	919	932	921.0	24
7	921	922	924	926	928	929	930	932	933	934	935	936	936	937	937	937	937	937	937	937	936	936	935	934	937	932.8	24
8	934	934	933	933	932	931	931	931	931	931	931	931	931	931	930	930	930	930	930	930	930	930	930	930	934	931.0	24
9	929	929	928	928	927	926	926	926	926	926	926	926	926	926	926	927	927	928	928	928	929	929	929	930	930	927.3	24
10	931	931	932	933	934	935	936	937	939	939	940	941	941	942	942	942	943	943	944	945	945	945	946	946	946	939.7	24
11	947	947	947	947	948	948	949	949	950	950	***951***	***951***	***951***	***951***	***951***	***951***	***951***	950	950	950	950	950	950	950	***951***	***949.5***	24
12	950	950	950	950	949	949	949	949	949	949	949	949	949	948	948	947	947	946	946	945	945	944	944	944	950	947.7	24
13	943	943	942	941	940	940	939	938	938	937	937	937	937	937	936	935	935	934	933	933	933	933	933	933	943	937.0	24
14	933	933	933	933	933	933	933	933	934	935	935	936	936	937	937	937	937	937	937	937	938	938	938	938	938	935.5	24
15	938	938	938	937	937	936	936	935	935	934	933	932	931	930	928	927	926	926	927	928	929	930	931	932	938	932.3	24
16	934	935	935	936	937	937	938	939	940	940	940	941	941	941	941	941	941	940	940	940	940	940	939	939	941	939.0	24
17	939	939	938	937	937	936	936	935	935	934	934	933	933	932	930	929	928	927	926	925	924	923	923	923	939	931.5	24
18	923	924	924	924	925	925	926	927	928	929	930	931	931	932	932	932	933	933	933	934	934	934	934	934	934	929.7	24
19	934	934	934	934	933	933	933	932	932	932	931	931	930	930	929	928	927	927	926	926	925	924	924	923	934	929.7	24
20	922	922	921	921	920	919	919	918	918	918	917	917	916	916	915	915	914	914	913	913	912	912	912	912	922	916.5	24
21	912	912	911	911	911	911	912	912	913	913	914	914	915	915	915	915	915	914	914	913	912	911	911	910	915	912.8	24
22	909	908	907	906	905	904	903	903	***902***	903	903	903	904	905	906	907	908	909	911	912	913	914	915	916	916	907.3	24
23	916	917	918	918	919	919	919	919	920	920	920	920	920	920	919	919	918	918	918	918	918	918	919	919	920	918.7	24
24	919	920	921	922	922	923	924	925	925	926	926	926	926	926	925	925	924	923	923	922	921	921	920	919	926	923.1	24
25	919	920	920	921	922	923	924	925	926	928	929	930	930	931	932	932	933	933	933	933	934	934	934	934	934	928.3	24
26	935	935	935	935	934	934	934	934	934	934	934	934	933	933	933	932	932	932	932	931	931	931	931	931	935	933.1	24
27	931	931	931	930	930	929	929	929	929	929	929	929	929	929	928	928	928	928	927	926	926	925	924	924	931	928.3	24
28	923	923	923	922	921	920	920	920	919	919	919	919	918	918	918	918	918	918	918	918	918	918	919	919	923	919.4	24
29	919	919	919	919	920	920	920	920	920	921	921	920	920	920	919	919	919	919	920	920	920	921	922	923	923	920.0	24
30	924	924	925	926	927	928	929	930	931	931	932	932	932	932	931	931	930	929	928	927	926	925	925	924	932	928.3	24
HOURLY MAX	950	950	950	950	949	949	949	949	950	950	951	951	951	951	951	951	951	950	950	950	950	950	950	950			
HOURLY AVG	928.0	928.1	928.0	928.0	928.0	927.9	928.0	928.2	928.5	928.8	929.0	929.1	929.0	929.0	928.7	928.6	928.4	928.3	928.2	928.0	928.0	928.0	928.1	928.0			

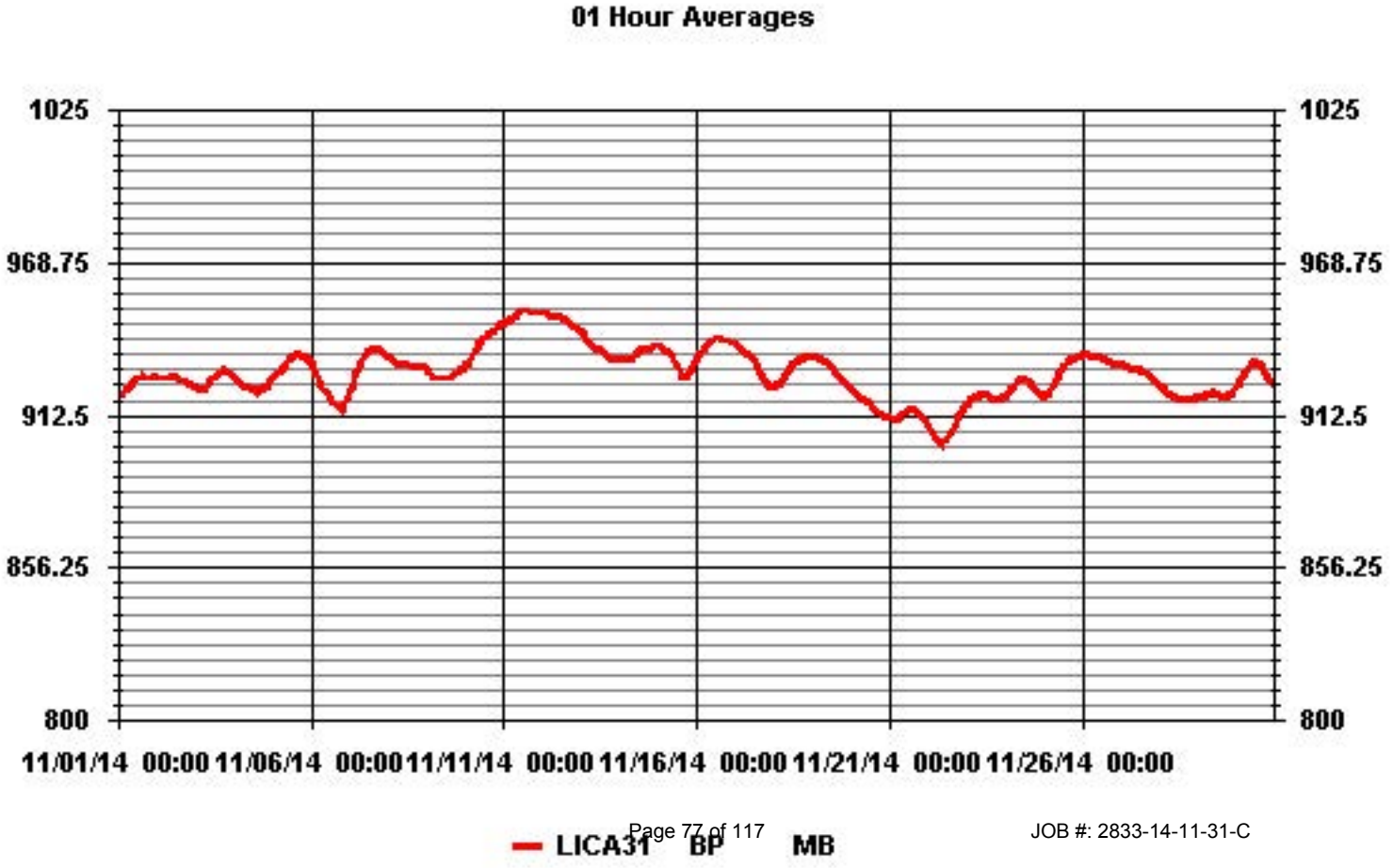
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	951	MB	@ HOUR(S)	VAR	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	949.5	MB			ON DAY(S)	11
				VAR-VARIOUS		
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.60		MONTHLY AVERAGE:		928.3	MB



JOB #: 2833-14-11-31-C

Relative Humidity

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

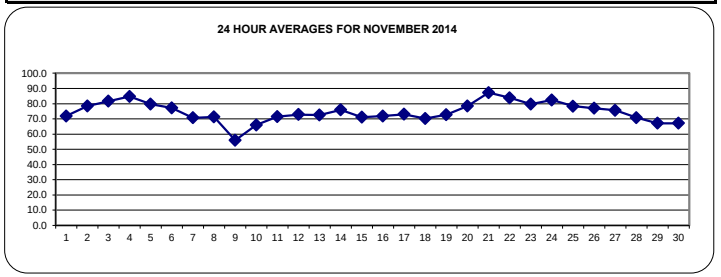
RELATIVE HUMIDITY (RH) hourly averages in %

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	88	89	88	87	86	83	82	81	81	71	68	60	56	52	51	56	63	65	67	68	71	70	72	70	89	71.9	24
2	69	72	75	76	77	77	77	79	81	81	79	75	74	72	71	73	75	80	83	85	87	87	88	88	88	78.4	24
3	89	89	87	87	86	86	87	88	89	88	87	82	77	76	77	78	78	78	78	75	74	75	74	75	89	81.7	24
4	76	80	85	85	85	85	85	85	85	84	81	78	76	79	84	87	88	89	89	89	89	89	89	***90***	***90***	84.7	24
5	89	88	89	88	87	85	85	84	78	74	71	69	66	63	61	65	76	84	86	86	85	85	85	86	89	79.8	24
6	85	84	82	81	82	77	71	70	71	70	69	68	68	67	70	73	74	78	85	87	87	86	85	84	87	77.3	24
7	83	80	77	75	73	72	68	68	70	69	67	65	66	63	61	64	66	67	67	69	70	74	81	82	83	70.7	24
8	82	83	83	82	82	82	80	80	79	79	78	77	75	73	71	65	56	54	54	58	60	59	59	60	83	71.3	24
9	61	61	60	62	62	65	68	70	69	61	53	42	42	41	***38***	44	43	49	56	60	62	62	57	56	70	56.0	24
10	60	60	62	68	71	73	72	67	66	61	56	59	59	63	64	67	71	73	67	66	67	68	71	72	73	66.0	24
11	73	74	74	74	74	74	74	75	74	70	66	66	64	64	65	67	70	72	73	74	74	75	75	75	75	71.5	24
12	76	77	77	77	78	77	78	79	78	73	62	62	58	61	60	64	70	73	75	78	79	79	79	78	79	72.8	24
13	78	77	77	77	77	77	77	76	72	69	68	66	63	58	59	64	71	75	77	77	77	77	77	77	78	72.6	24
14	77	75	76	75	74	73	74	75	76	75	76	76	76	76	76	77	77	77	77	78	77	77	77	77	78	76.0	24
15	76	76	76	76	75	76	76	76	75	74	73	73	73	70	68	65	62	62	61	65	67	70	71	71	76	71.1	24
16	72	72	73	73	72	72	71	71	70	71	68	66	65	64	67	68	70	72	74	77	79	80	80	79	80	71.9	24
17	78	77	77	76	74	73	73	73	73	73	72	71	70	69	69	71	73	75	74	75	77	74	69	67	78	73.0	24
18	65	64	64	63	63	62	64	67	70	71	73	73	74	74	75	75	74	74	73	73	77	73	73	73	77	70.3	24
19	72	72	71	71	71	71	71	72	71	69	66	65	65	64	65	70	73	76	79	80	81	83	83	83	83	72.7	24
20	84	84	84	84	84	85	85	85	86	83	77	73	66	65	65	69	71	72	72	77	79	81	85	87	87	78.5	24
21	88	89	***90***	***90***	***90***	***90***	***90***	***90***	***90***	89	88	87	87	85	84	85	84	86	85	84	86	86	86	86	***90***	***87.3***	24
22	87	86	86	85	84	84	84	84	83	83	83	83	83	83	84	84	84	84	83	83	83	83	83	83	87	83.8	24
23	83	82	82	81	81	80	80	79	79	80	79	78	79	78	78	78	79	80	79	79	80	80	80	80	83	79.8	24
24	80	81	83	83	84	84	82	81	82	82	82	81	80	81	81	82	83	84	84	84	83	83	83	83	84	82.3	24
25	82	81	81	81	80	80	79	79	78	78	78	77	76	77	77	77	78	78	78	77	77	77	77	77	82	78.3	24
26	76	76	77	76	76	76	76	76	75	75	75	75	75	75	75	77	77	78	79	80	81	81	81	81	81	77.0	24
27	80	80	80	80	80	79	79	78	78	77	76	75	74	73	73	73	73	73	73	73	72	72	72	72	80	75.6	24
28	72	71	71	71	71	71	71	71	72	72	71	71	71	71	70	71	71	71	71	70	70	70	70	69	72	70.8	24
29	69	69	68	67	67	67	67	66	66	67	67	67	67	66	66	66	66	66	67	67	68	68	69	69	69	67.2	24
30	69	69	69	68	68	68	68	67	67	67	66	66	65	66	66	66	67	67	67	67	67	67	67	67	69	67.1	24
HOURLY MAX	89	89	90	90	90	90	90	90	90	89	88	87	87	85	84	87	88	89	89	89	89	89	89	90			
HOURLY AVG	77.3	77.3	77.5	77.3	77.1	76.8	76.5	76.4	76.1	74.5	72.5	70.9	69.7	69.0	69.0	70.7	72.1	73.7	74.4	75.4	76.2	76.4	76.6	76.6			

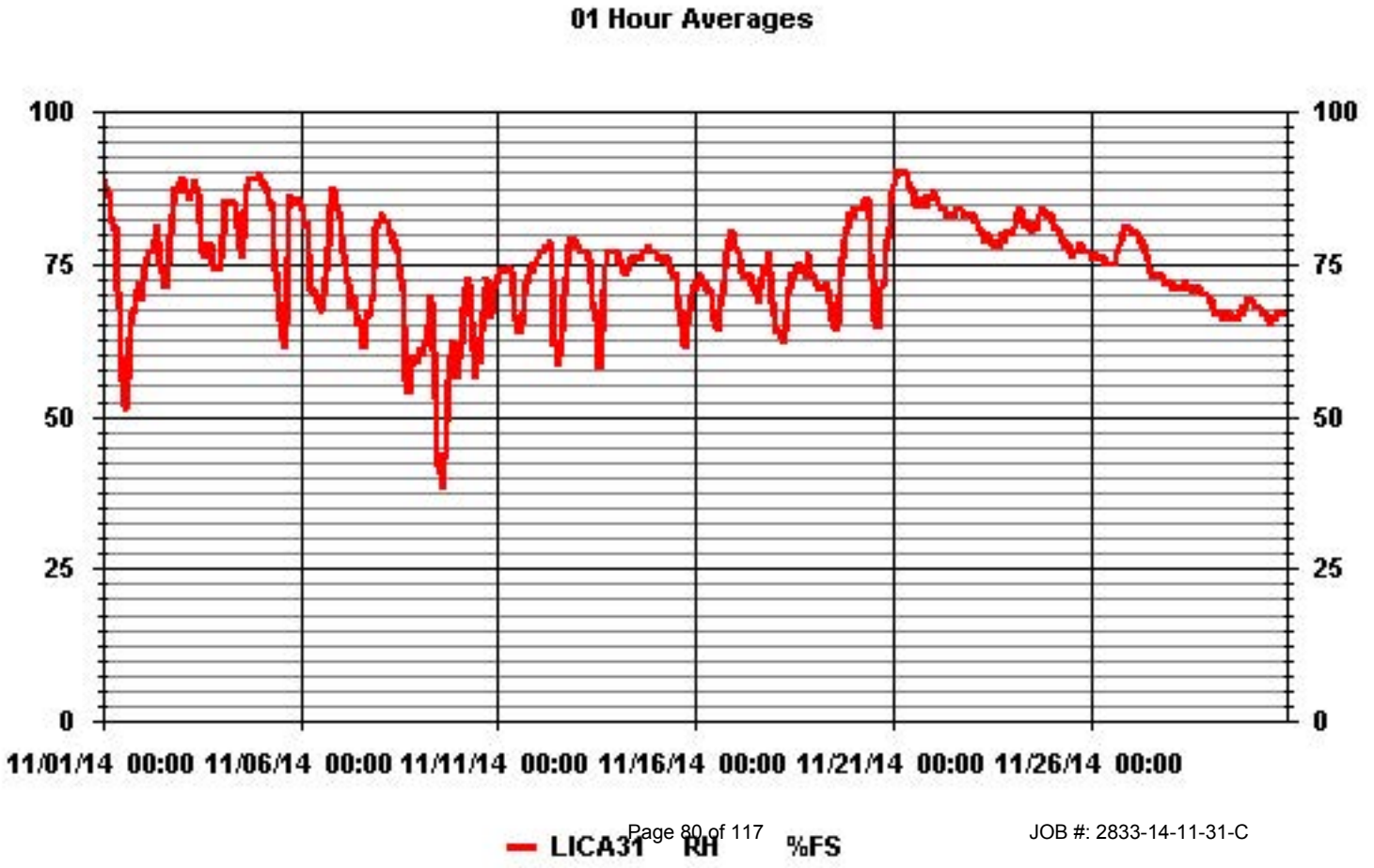
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR(S)	VAR	ON DAY(S)	4, 21	
MAXIMUM 24-HR AVERAGE:	87.3	%			ON DAY(S)	21	
					VAR-VARIOUS		
			OPERATIONAL TIME:		720	HRS	
			AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	8.40		MONTHLY AVERAGE:		74.58	%	



JOB #: 2833-14-11-31-C

Precipitation

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

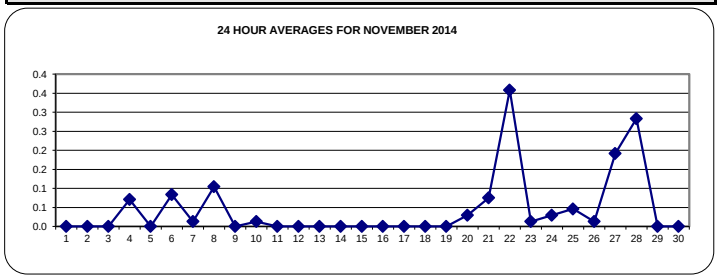
PRECIPITATION hourly averages in millimeter

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.2	1.1	0	0	0	0	0	0	0	1.1	0.1	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1	0.5	0.2	0	0	0	1	0.1	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.2	0.0	24
8	0.2	0.5	0.4	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0.5	0.1	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.1	0	0	0	0	0	0.1	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	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5	0.1	0.5	0.0	24
21	0.3	0.1	0.3	0.2	0.5	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.1	24
22	0	0	0	0	0	0	0	0.2	0.3	0.4	0.2	0.7	1.3	***1.6***	0.9	0.2	0.3	0.2	0.2	0.5	0.5	0.5	0.4	0.2	***1.6***	***0.4***	24
23	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.0	24
24	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.2	0.2	0.0	24
25	0.2	0.5	0.2	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0.1	0.0	24
27	0	0	0	0	0	0	0	0.1	0.1	0.3	0	0.1	0.4	0.1	0.1	0.2	0.1	0.2	0.7	0.5	0.3	0.3	0.3	0.8	0.8	0.2	24
28	0.7	0.7	1.1	1	1	0.6	0.5	0.4	0.2	0.2	0.2	0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	1.1	0.3	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	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	24
HOURLY MAX	0.7	0.7	1.1	1	1	0.6	0.5	0.4	0.3	0.4	0.2	0.7	1.3	1.6	0.9	0.2	1.1	0.3	1	0.5	0.5	0.5	0.5	0.8			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0			

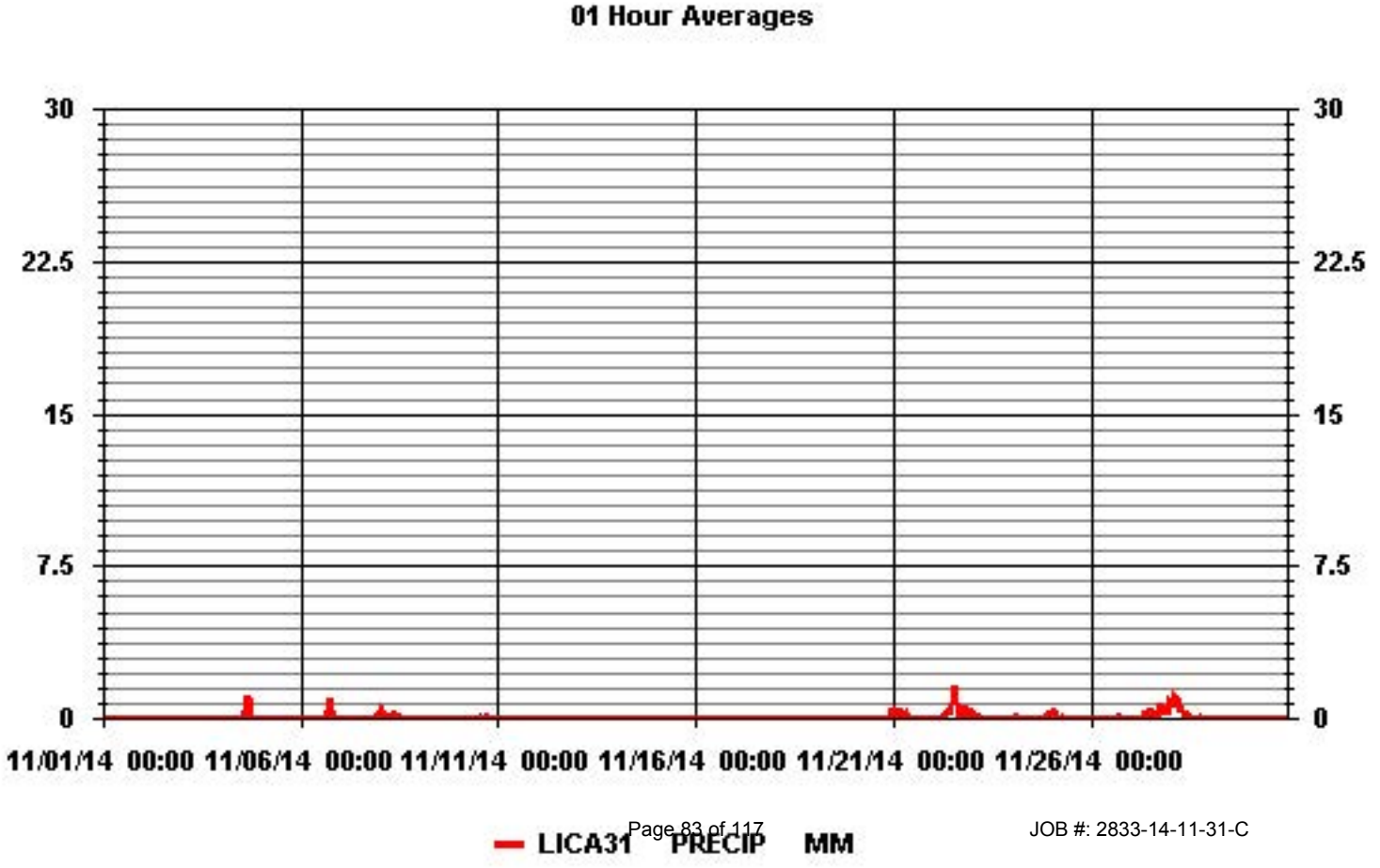
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.6	MM	@ HOUR(S)	13	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	0.4	MM			ON DAY(S)	22
					VAR-VARIOUS	
			OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.16		MONTHLY AVERAGE:		0.04	MM



JOB #: 2833-14-11-31-C

Vector Wind Speed

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

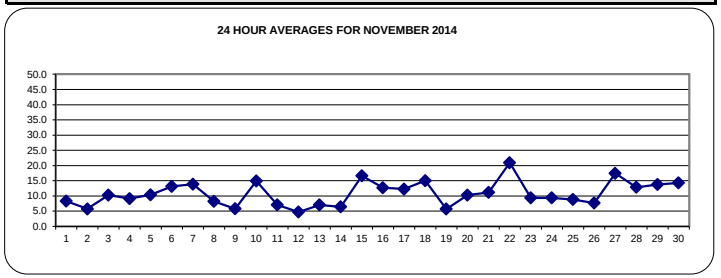
WIND SPEED (WS) hourly averages in km/hr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	5.6	5.1	4.3	11.5	13.8	11.2	12.1	12.9	10.7	9.4	9.5	9.4	9.6	9.2	8.2	5.3	5.3	6.3	6.4	6.5	6.5	6.5	6.4	6.6	13.8	8.3	24
2	7.4	6.8	7	6.8	7.2	7.8	7.7	8	5.8	4.6	1.8	3.3	6.4	8.2	5.8	3.9	3.3	4.1	4.1	4.1	4.6	5.4	6.8	6.6	8.2	5.7	24
3	6.9	7.5	7.4	6.4	***29.9***	X	X	X	X	19.4	15.3	15.8	14.5	14.8	13.1	13.8	10.4	8.2	7	5.7	3.5	1.8	1.7	2.8	***29.9***	10.3	20
4	4.4	5.6	6.6	10.2	10.9	12	10.6	8.2	11.1	12.9	14.9	16.6	14.9	11.1	7.7	3.7	2.4	1.6	8.1	9.1	9.1	8.9	8.8	9	16.6	9.1	24
5	9.1	8.6	8.8	8.8	9.1	10	9.9	10.5	11.4	14.6	12.6	13.9	16.6	13.8	13.2	7.9	5.5	7	7.6	7.8	9.6	9.1	11.3	12.7	16.6	10.4	24
6	13.6	16	14.9	16	17.2	19.8	20.1	20.2	21.7	18.3	15.8	14.2	13.2	12.5	11.9	4.7	1.4	1.8	5.4	5.4	12.1	12	13.7	12.6	21.7	13.1	24
7	15.2	21.3	19.2	19.7	19.8	18.8	18.9	14.5	16.8	18.2	17.5	19	15.9	15.8	14	12.9	10.4	7.4	7.6	5.8	5.9	5.7	7.1	4.6	21.3	13.8	24
8	3.8	5.8	6.2	8.4	10.2	10.3	13.1	14.3	15.6	12.3	10.9	10	9.6	8.2	7.3	7.3	6.8	5	3.2	5.3	4.6	5	6.6	8.1	15.6	8.2	24
9	7.4	8.9	7.5	1.7	6.8	8.5	8.4	10.7	10.3	7.6	4.6	1.7	2.9	3.9	4.7	4.4	3.8	3.9	4.6	4.2	4.8	5.1	7.2	6.3	10.7	5.8	24
10	6.3	8.3	11.6	8.8	10.7	11	10.1	14.2	14.2	14.8	15.9	18.6	16.8	18.1	17.6	18	16.8	16.2	21.3	21	18.8	17.3	17.9	14.6	21.3	15.0	24
11	11.7	13.1	11.1	11.4	11.8	10.7	9.2	7.1	7	8	8.8	7.3	5.3	5.8	5.5	4.7	4.5	4.9	5.3	5	3.3	2.7	3.2	2.7	13.1	7.1	24
12	2.7	3	3.5	3	2.2	1.4	2.7	3.3	2.6	0.4	3	5.5	8.1	7.1	8.2	6.7	6.2	6.5	6.9	7	5.2	6.3	6.3	6.3	8.2	4.8	24
13	5.7	6.8	6.4	4.4	20.7	X	X	X	X	X	X	X	X	4.2	4.4	5.1	4.7	6.8	7.6	7.6	8	7	7.3	5.8	20.7	7.0	16
14	5.5	4.6	X	X	X	X	X	X	X	X	9	7.3	9.4	4.3	5.2	6.5	6.9	6.4	5.2	6.7	6.7	6.5	6.2	6.5	9.4	6.4	16
15	7.4	7.1	9	10.7	13.1	15.3	16.9	13.9	15.7	17.1	17.7	17.2	20.3	22.1	20.2	20.1	21	14.9	18	22.4	20.3	20.1	18.8	19.7	22.4	16.6	24
16	17.8	16.4	16.1	19	18.7	16.8	16.8	14.4	14	13.8	13.1	13.4	13.3	12.7	13.1	13.9	13.2	7	8	8.1	6.3	6.6	6.2	5.6	19.0	12.7	24
17	X	X	X	X	X	X	X	X	X	X	X	X	8.2	10.2	12.1	14.5	14	14.2	14.1	12.9	12	11.1	11.7	12	14.5	12.3	12
18	14.2	14.5	14	16	16.8	18.1	21	20.6	18.7	17.9	18	15.5	17.1	15.6	18.3	15.7	13.9	14.3	15	10.1	7.5	10.3	9	8.5	21.0	15.0	24
19	7.3	6.2	6.9	5.6	5.9	6.2	4.9	4.7	5.5	4.7	3.7	3.6	8.4	7.3	7.2	5.5	3.2	4.1	5.4	3.6	5.5	6.3	6.4	9	9.0	5.7	24
20	10.3	11.1	7.8	5.6	8.7	8.9	10.2	10.1	11.4	12.1	12.4	11.9	12.9	11.1	10.7	10.3	9.1	10.4	10.5	11.4	9.7	9.9	10.8	9.4	12.9	10.3	24
21	9.8	7.4	10	11.7	13.4	13	12.3	12.3	10.6	9.7	10	7	7	3.9	4.8	5.6	9.4	11.2	13.7	14.7	18.5	16.8	16	19.1	19.1	11.2	24
22	19.3	20.2	23.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	23.2	***20.9***	3
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	7.7	11.5	9.7	12.2	5.6	12.6	9.6	6.2	12.6	9.4	8
24	9.7	8.5	8.8	8.4	8.8	12	11.8	11.7	10.1	10.4	9.4	5.5	5.8	6	4.8	4.2	Y	Y	6	8.4	11.5	12.1	15.7	16.9	16.9	9.4	22
25	16.2	16.1	15.1	15.8	15.6	12.2	9.3	11.6	11.1	9.2	7.6	5	6.5	4.6	3.9	4.6	3.9	4.7	6.2	4.6	6.2	6.6	7.2	7.3	16.2	8.8	24
26	7.9	6.6	7.6	9.2	8.6	8.1	8.1	7.8	8	7.7	8.4	7.2	7	6.8	8.2	11.3	11.7	10.5	10.3	8.5	3.6	2	4.5	4	11.7	7.7	24
27	5.2	6.6	7.3	11.3	14	15.5	17.2	18.7	17.1	17.8	17.8	19.3	16.4	18.6	19	20.9	22	22.7	21.1	22.2	22.4	22.1	22.7	21.1	22.7	17.5	24
28	18.9	15	15.1	13.8	15.9	14.2	10.8	12.1	15.5	11.9	10.9	12	13.2	11.6	11.8	10.9	8.1	9.8	9.8	12.9	12.5	13.1	14.7	14.1	18.9	12.9	24
29	14	13.6	10.9	11.5	9.8	11.6	10.9	12.2	13.9	12.7	13.1	15.5	14.1	15	17.6	16.8	18.4	17.4	16.6	15	13.1	12.8	11.4	11.7	18.4	13.7	24
30	10.2	11.5	12.3	13.7	15.3	13.2	12.4	11.3	8	12.6	14.2	11.1	13.6	13.3	15.8	14	13.5	16.5	17.7	17.5	20.1	18.5	17.5	18.6	20.1	14.3	24
HOURLY MAX	19.3	21.3	23.2	19.7	29.9	19.8	21.0	20.6	21.7	19.4	18.0	19.3	20.3	22.1	20.2	20.9	22.0	22.7	21.3	22.4	22.4	22.1	22.7	21.1			
HOURLY AVG	9.8	10.1	10.3	10.4	12.9	11.9	11.9	11.9	12.0	11.9	11.4	11.0	11.4	10.6	10.5	9.8	9.2	9.1	9.7	9.9	9.6	9.7	10.1	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

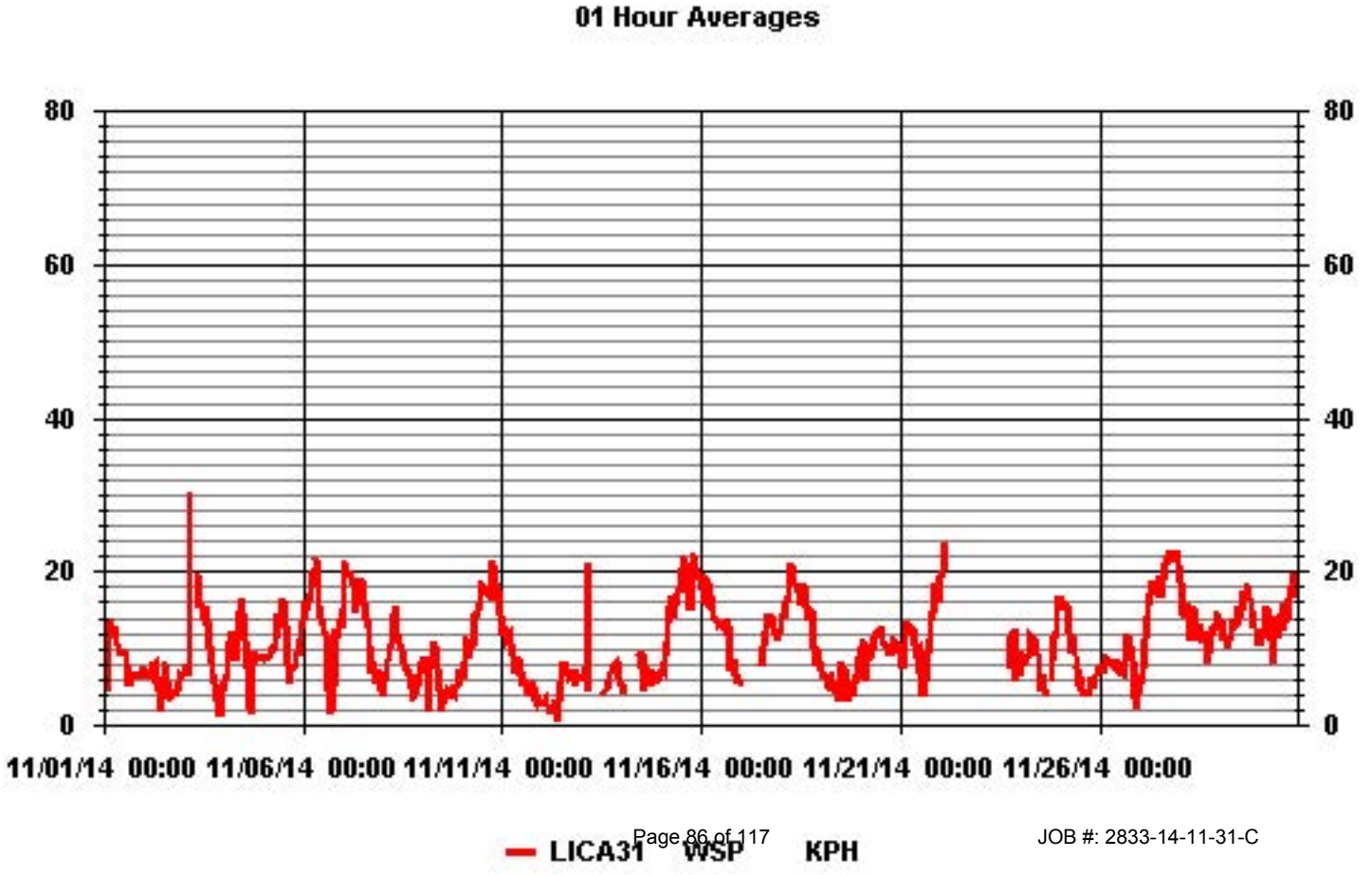


LAST CALIBRATION: August 28, 2014

DECLINATION : MAGNETIC DECLINATION 13 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	649					
MAXIMUM 1-HR AVERAGE:	29.9	KPH	@ HOUR(S)	4	ON DAY(S)	3
MAXIMUM 24-HR AVERAGE:	20.9	KPH			ON DAY(S)	22
					VAR-VARIOUS	
			OPERATIONAL TIME:		649	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		90.1	%
STANDARD DEVIATION:	5.05		MONTHLY AVERAGE:		10.56	KPH



JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

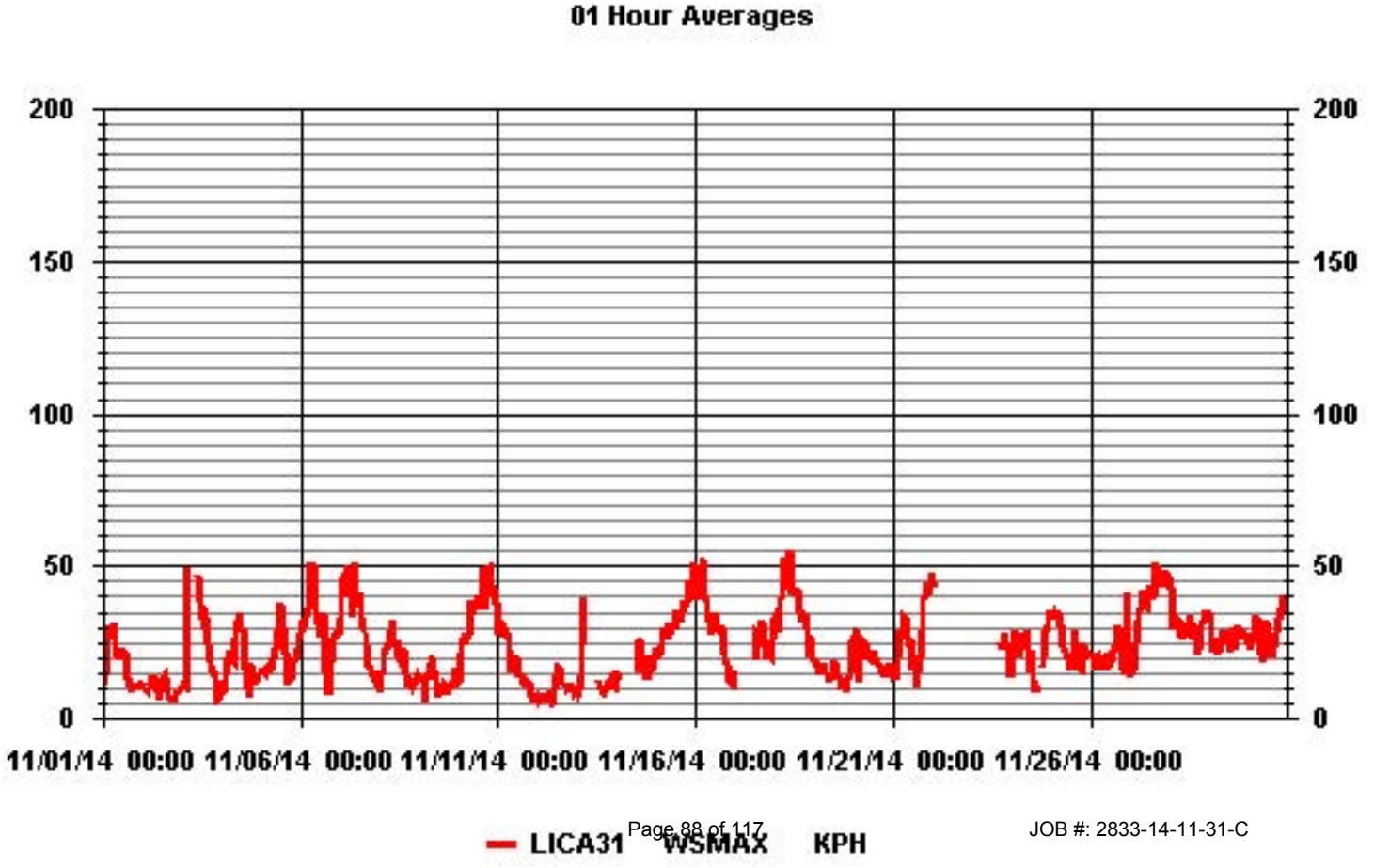
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14.3	10.8	14.3	27.9	30.2	26.3	27.6	31.5	22.3	21.1	19.8	23.3	21.5	21.3	22.6	13.6	11	9.5	9.7	11.2	11	10.6	10.3	11.5	32	18.1	24
2	11.4	10.4	9.3	8.6	9.5	11	13.4	13.6	13.2	8.9	6.2	8.4	13.2	14.1	11.2	11.7	6.8	6.6	5.8	5.8	7.1	8.2	8.8	9.5	14	9.7	24
3	10.1	11.4	10.8	48.5	X	X	X	X	X	X	45.8	38.8	32.4	37.4	31.3	31.8	24.5	19.3	17.8	16.2	14	6.2	6.7	11.7	49	23.0	18
4	11.5	9.7	10.6	14.5	19.3	21.7	19.5	18.8	26.2	30.5	32.3	34.9	28.3	29.6	16.9	9.7	10.9	6.6	17.9	17.1	14	12.8	13.2	14.5	35	18.4	24
5	15.6	15.6	15.1	16.2	15.1	16	16.2	19	19.3	22.8	29	36.3	38.2	33.4	30.5	21.9	11	12.3	13	14.3	18.4	19.5	22.6	25.6	38	20.7	24
6	28.3	32.4	29.7	32.9	36.2	41	50.7	48.8	51.3	36.4	35.3	31.3	28.1	28.3	34.6	16.1	9.7	7.4	11.4	18.4	26	27.6	27.2	28	51	29.9	24
7	33.3	46.5	40.5	48	50.3	40.3	41.8	32.8	39.4	51	41.6	39	39.6	33.3	29.8	28.7	24.5	17.7	17.1	16.4	14.4	13.2	14.9	11.8	51	31.9	24
8	8.6	15.8	14.2	21.1	22.8	24.3	26.9	28.9	31.8	24.3	24.5	20.7	20.5	19.1	17	22.7	15.1	10.9	10.9	12.6	10.2	10.9	12.9	14.2	32	18.4	24
9	12.9	12.7	13.1	5.5	10.7	13.8	13.7	17.9	20.5	15.9	13.7	6.7	8.1	9.8	11.5	10.9	9.6	7.8	9.4	11.1	11.6	12.2	16	12.1	21	12.0	24
10	12.5	21.2	26	24.5	27.9	26.5	27.5	39	33.6	37.6	37.3	40.2	37	36.9	40	49.1	35.8	48.3	49.8	50	39.5	43.5	42.6	38.3	50	36.0	24
11	27.6	31.7	29.9	26.6	29.7	28.8	26.8	23.1	15.4	19	19.2	20.3	13.5	14.6	14.1	12.4	11.5	11.9	12.4	11.8	8	6.7	6.5	7.4	32	17.9	24
12	5.7	6.5	8	6.3	6.1	6.3	7.6	6.5	8	3.9	9.2	13.8	18.4	13.1	16.6	12	10.9	10	10.9	10.6	10	11.5	8.7	9.4	18	9.6	24
13	8	9.4	14.4	24.2	38.7	X	X	X	X	X	X	X	X	11.6	10.1	9.2	8.7	10.9	10.2	10.9	12.9	12.2	11.8	11.1	39	13.4	16
14	15.3	13.7	X	X	X	X	X	X	X	X	X	X	15.7	25.1	26.1	17.9	18.7	15.9	12.6	20.7	18.1	15.7	16.1	20	26	18.0	14
15	22.5	20.3	20.9	23.8	28.6	28.4	29.7	25.5	31.5	27.5	30.6	28.8	35.3	32.5	34.3	31.9	38.9	37.5	38.9	45.4	44.4	40	40.7	51.4	51	32.9	24
16	41.8	43.5	39.3	46.6	52.5	39.8	38.9	33.7	31.9	27.5	34.5	29.7	34.3	28.4	29.5	28.8	30.8	22	19.5	17.9	13	12.4	11.8	14.6	53	30.1	24
17	X	X	X	X	X	X	X	X	X	X	X	X	19.9	28.4	27.8	29.9	31.7	24	23.4	19	21.1	20.3	25.8	33	33	25.4	12
18	34.3	32.6	28	39.2	39.8	46	52.9	48.5	42.4	***55.1***	41.1	41.1	40.9	40.5	42.7	35.9	31.7	33.2	34.9	29.9	20.1	26.8	22	18.6	***55***	36.6	24
19	19.9	16.6	18.8	14.2	17.4	17.6	16.3	15.3	13.3	12.2	14.8	12.5	17.5	17.5	14.5	13.7	9.8	11.3	11.5	8.3	12.9	13.8	14.8	25.6	26	15.0	24
20	26.9	29.4	28	11.8	23	24.9	24.9	24.7	19.1	21	19.9	21.1	22.4	19.7	18.9	17.3	15.3	14.7	X	16.1	13.3	17.2	17.2	14.2	29	20.0	23
21	14.8	12.4	18.1	20.3	28.8	26	34	33.4	27	23.3	26.3	16.3	18.1	11.6	11.8	15	20.2	28.6	39.6	40.2	44.2	40.2	43.5	47.8	48	26.7	24
22	45.2	44.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	45	***44.7***	2
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	24	23	28	25.4	24.4	18.7	13.4	28	22.4	7
24	17.5	21.3	29	21.1	20.2	26	26.9	27.4	22.6	28.7	23.3	14.8	22.6	13.2	9.9	9.7	Y	Y	17.8	20.2	28.6	30.1	34.7	35.1	35	22.8	22
25	34.9	32.5	34.9	34	35.3	30.9	24.5	23.6	22.8	20.2	20.4	16.3	18	16.5	28.7	16.9	17.1	16.9	16.5	25	19.7	20.2	21.5	20.9	35	23.7	24
26	20.9	20.8	15.8	19.7	20.6	18.4	15.8	20.7	18.1	17.8	21.7	16.6	18.7	21.7	23.9	28.5	30.6	26.7	22.6	16.8	13.9	16.5	41.2	13.7	41	20.9	24
27	14.7	16.1	16.4	24.5	32.2	35.3	35.9	41.6	37.9	37.3	40.9	43.2	39.3	40.7	39.4	50.8	46.7	43.1	47.7	43.4	44.6	47.6	47.7	46.7	51	38.1	24
28	43.2	30.4	30.7	31.1	33.3	32.8	27.4	26	30	30.4	28.6	28	33.9	29.1	31.3	26.3	20.9	22.7	24.8	31	31.7	35.6	32.1	35.7	43	30.3	24
29	31.9	27.1	21.9	23.4	20.9	26.5	22	24.8	29	27.3	25.7	24.6	21.6	26.8	29.5	22.5	26.5	29.4	29.3	28.4	25.4	28.7	26.4	24.9	32	26.0	24
30	22.5	27.9	25.1	30.2	34	30.6	26.4	21.8	18.7	28.8	32.3	28.1	27.1	20.3	25.3	22.9	28.3	32.8	33.2	36	40.7	35	38.9	36.3	41	29.3	24
HOURLY MAX	45	47	41	49	53	46	53	49	51	55	46	43	41	41	43	51	47	48	50	50	45	48	48	51			
HOURLY AVG	21.6	22.2	21.6	24.8	27.3	26.6	27.0	27.0	26.1	26.2	27.0	25.4	25.3	24.1	24.3	22.1	20.6	20.1	21.1	21.8	21.2	21.4	22.6	22.7			

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 VALUE:	55	KPH	@ HOUR(S)	9	ON DAY(S)	18
				VAR-VARIOUS		
OPERATIONAL TIME:					642	HRS



JOB #: 2833-14-11-31-C

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.54	1.84	.61	.77	.46	.15	1.23	.61	1.23	1.07	.61	1.23	2.00	2.00	2.77	1.69	19.87
<	12.0	1.84	4.00	3.08	1.38	1.23	1.84	1.69	.92	1.69	4.77	2.46	3.38	1.38	3.08	6.93	2.77	42.52
<	20.0	.15	.92	3.85	1.54	.00	1.38	1.38	.15	.77	1.84	2.00	2.15	1.23	4.62	7.55	3.23	32.81
<	29.0	.00	.00	1.54	.15	.00	.00	.46	.00	.15	.00	.61	.15	.00	.00	.92	.46	4.46
<	39.0	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.54	6.77	9.09	4.00	1.69	3.38	4.77	1.69	3.85	7.70	5.70	6.93	4.62	9.70	18.18	8.16	

Calm : .15 %

Total # Operational Hours : 649

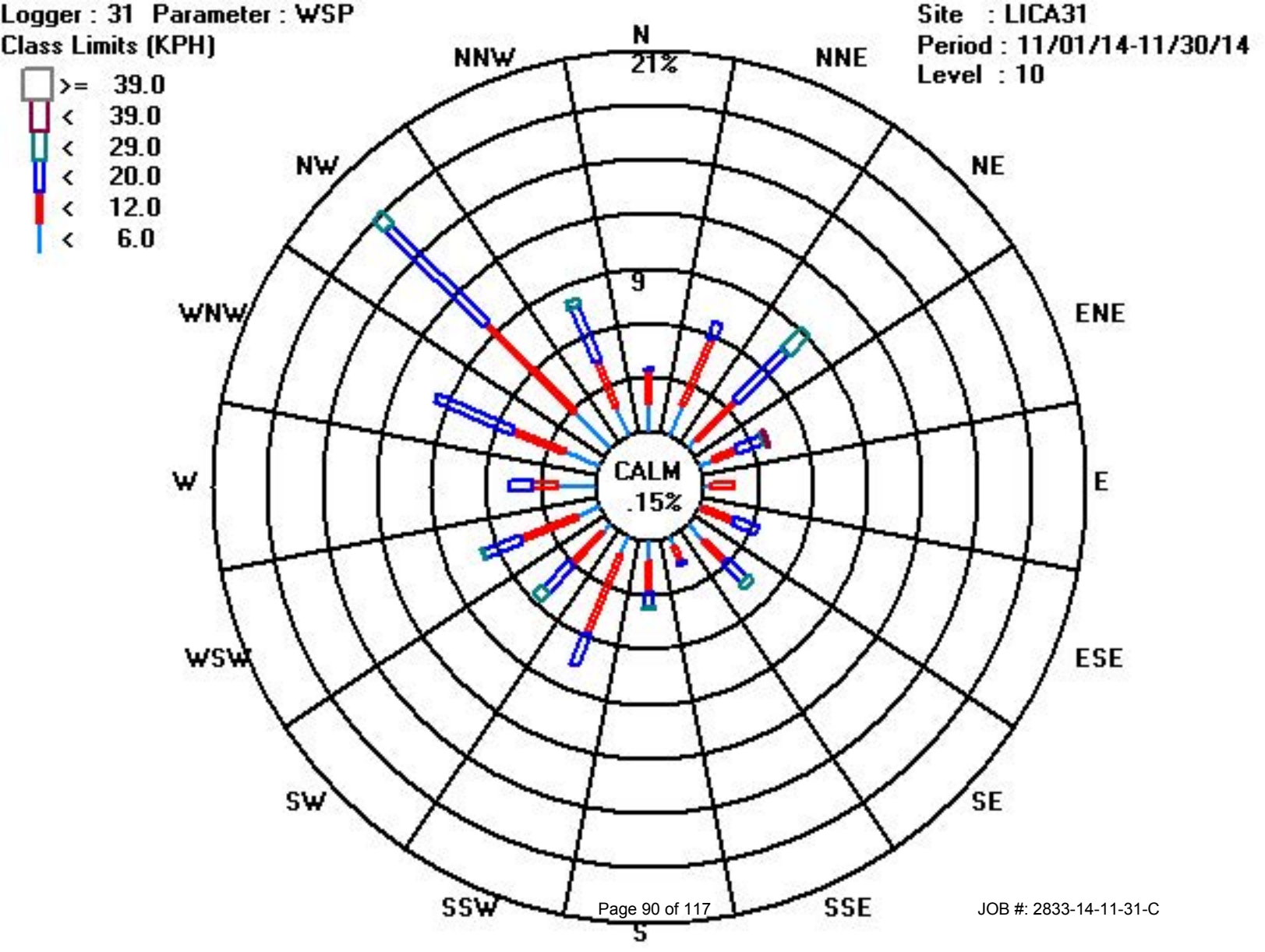
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	10	12	4	5	3	1	8	4	8	7	4	8	13	13	18	11	129
<	12.0	12	26	20	9	8	12	11	6	11	31	16	22	9	20	45	18	276
<	20.0	1	6	25	10		9	9	1	5	12	13	14	8	30	49	21	213
<	29.0			10	1			3		1		4	1			6	3	29
<	39.0				1													1
>=	39.0																	
	Totals	23	44	59	26	11	22	31	11	25	50	37	45	30	63	118	53	

Calm : .15 %

Total # Operational Hours : 649



JOB #: 2833-14-11-31-C

Vector Wind Direction

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

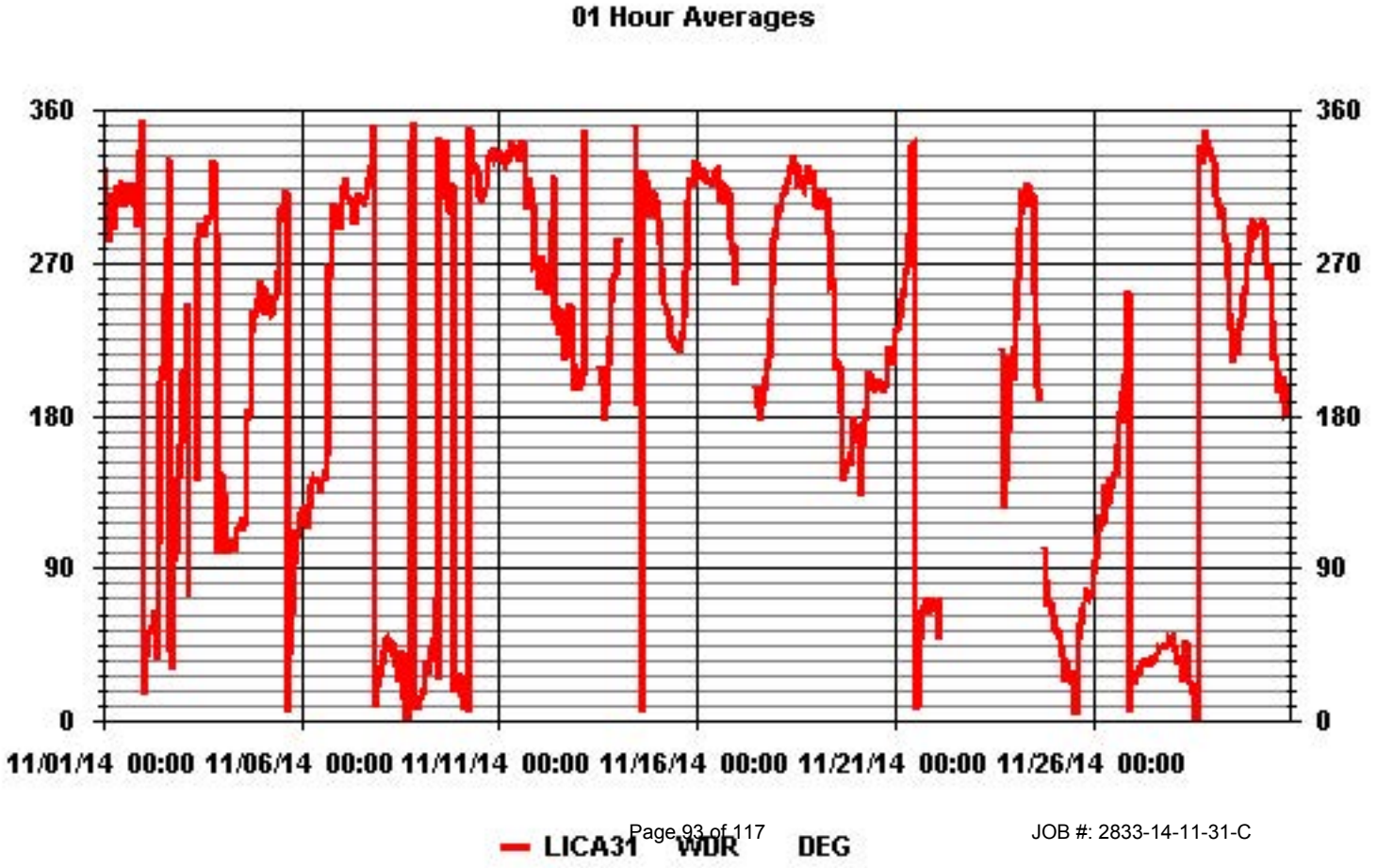
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	326	309	284	282	295	311	290	305	315	307	304	318	303	312	312	317	304	314	317	304	291	309	307	336	336	NNW	24
2	355	15	37	49	53	56	54	51	65	36	104	200	209	232	252	285	332	42	30	94	98	144	142	163	355	N	24
3	205	207	202	246	75	X	X	X	X	143	285	294	286	286	291	298	296	298	317	330	312	289	98	137	330	NNW	20
4	146	132	134	98	104	102	107	100	106	113	114	116	115	120	115	181	180	184	228	242	238	246	245	260	260	WSW	24
5	253	253	257	239	250	245	241	243	248	251	265	294	301	302	295	313	4	38	62	95	92	112	108	115	313	NW	24
6	123	125	127	116	113	124	139	143	141	141	143	136	134	141	146	145	156	266	265	289	305	299	294	289	305	WNW	24
7	302	315	309	320	310	309	306	296	292	298	306	311	304	307	306	308	316	320	314	327	352	7	20	22	352	N	24
8	25	33	42	48	49	45	43	47	41	36	37	22	27	41	14	1	5	4	340	342	353	10	6	12	353	N	24
9	13	15	19	27	36	27	34	44	49	39	72	24	344	311	308	323	342	310	301	298	317	17	20	22	344	NNW	24
10	28	14	20	7	10	5	350	338	327	327	322	324	310	308	310	311	314	330	333	335	332	334	336	336	350	N	24
11	335	335	331	329	333	331	332	342	333	338	338	340	330	332	342	335	301	311	320	316	306	269	270	267	342	NNW	24
12	253	266	274	271	269	251	268	269	295	322	238	234	227	241	240	219	213	223	237	246	231	212	194	202	322	NW	24
13	195	208	197	203	346	X	X	X	X	X	X	X	X	207	199	189	176	186	209	227	246	261	263	264	346	NNW	16
14	283	283	X	X	X	X	X	X	X	X	349	312	185	225	5	324	315	316	296	313	307	311	311	308	349	NNW	16
15	296	282	269	253	247	244	241	239	227	225	222	221	219	219	224	230	238	266	307	320	316	316	316	330	330	NNW	24
16	324	328	322	321	326	319	318	318	319	315	321	323	324	312	306	308	304	316	315	312	285	274	282	259	328	NNW	24
17	X	X	X	X	X	X	X	X	X	X	X	X	196	186	177	185	194	203	208	214	237	256	284	290	290	WNW	12
18	296	303	300	310	310	311	316	319	322	327	333	330	329	317	318	316	314	317	321	328	321	317	325	310	333	NNW	24
19	304	302	311	310	311	305	306	287	291	257	258	213	206	213	210	183	141	148	146	152	152	158	180	172	311	NW	24
20	163	173	172	132	162	176	184	195	206	200	198	201	197	198	200	200	194	197	198	213	221	215	210	214	221	SW	24
21	230	231	233	238	249	255	263	267	288	323	339	340	15	7	22	47	65	68	67	73	68	71	73	67	340	NNW	24
22	68	69	49	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	69	ENE	3
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	217	125	141	163	171	215	204	201	217	SW	8
24	221	236	260	291	298	312	308	307	317	311	310	312	252	234	197	191	Y	Y	101	85	67	70	70	64	317	NW	22
25	54	51	54	50	45	39	22	36	33	29	21	29	11	3	29	48	57	66	70	77	77	74	76	74	77	ENE	24
26	87	95	109	112	122	115	116	137	137	127	144	136	147	144	163	180	179	194	196	205	230	253	4	29	253	WSW	24
27	28	21	26	27	32	36	31	37	35	32	36	35	36	38	40	44	43	43	44	44	45	49	48	49	49	NE	24
28	45	42	37	34	39	36	22	32	47	35	21	24	17	13	1	6	340	331	329	349	343	337	337	334	349	NNW	24
29	331	330	310	304	295	304	300	288	283	262	241	232	210	226	224	216	230	237	251	252	257	269	276	292	331	NNW	24
30	296	286	287	291	292	293	296	293	272	259	269	266	237	215	214	208	193	199	200	188	181	182	188	195	296	WNW	24

STATUS FLAG CODES

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

LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 13 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	649	HRS
STANDARD DEVIATION:	109.47		AMD OPERATION UPTIME:	90.1	%
			MONTHLY AVERAGE:	313	DEG



JOB #: 2833-14-11-31-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	16	16	20	15	15	16	14	13	13	15	15	18	19	20	21	17	11	6	6	10	7	7	8	7
2	8	7	5	4	4	4	7	12	15	11	21	21	13	12	14	17	11	8	9	5	9	6	5	6
3	5	4	6	21	19	X	X	X	X	44	17	15	17	16	16	14	14	13	15	17	26	24	26	33
4	15	8	10	7	9	10	12	11	14	14	14	14	15	14	15	14	27	24	8	7	4	4	4	7
5	9	22	25	18	7	6	7	6	6	8	14	16	14	16	15	16	12	7	7	10	9	12	11	12
6	13	13	13	14	13	13	14	13	13	13	14	16	15	16	15	26	37	17	12	13	13	14	13	14
7	13	13	15	15	14	14	13	15	16	15	14	14	16	16	15	14	14	15	13	16	17	14	12	13
8	13	12	11	12	12	11	11	11	11	12	13	14	15	15	16	18	10	11	16	17	12	8	6	7
9	7	5	38	32	4	7	8	8	10	12	24	42	24	27	17	19	18	12	10	13	12	13	11	10
10	11	11	11	13	11	12	19	16	15	15	14	15	14	13	14	13	13	14	14	14	14	15	14	17
11	15	15	14	14	14	15	17	16	16	16	18	19	19	20	19	17	14	13	13	13	14	15	14	15
12	13	14	17	14	26	24	14	13	17	57	29	24	16	17	13	11	8	4	5	4	6	7	5	4
13	4	3	15	40	11	X	X	X	X	X	X	X	X	21	19	14	9	4	4	4	7	10	9	9
14	23	20	X	X	X	X	X	X	X	X	69	52	14	30	53	21	17	16	17	16	15	15	18	17
15	21	17	17	15	14	10	10	10	9	9	9	9	8	7	7	7	7	13	12	13	13	12	13	15
16	14	15	15	14	14	13	13	14	14	14	16	15	15	15	15	14	14	15	14	11	12	10	11	17
17	X	X	X	X	X	X	X	X	X	X	X	X	14	12	11	11	9	6	5	4	6	10	15	15
18	14	14	13	14	13	14	13	14	14	15	15	16	16	15	14	13	13	14	14	15	15	13	15	14
19	14	16	16	15	15	18	19	18	20	24	33	36	15	16	18	13	17	20	14	14	13	15	14	12
20	12	13	15	14	11	12	12	10	8	10	10	10	10	11	9	8	7	6	6	5	4	8	5	5
21	6	7	7	9	9	12	14	14	15	14	15	15	13	17	14	15	12	12	12	12	11	12	11	11
22	11	11	56	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	57	50	45	28	61	21	11	11
24	8	8	16	14	13	14	14	13	15	14	16	24	18	20	15	13	Y	Y	12	12	11	11	11	10
25	10	10	10	11	11	11	12	11	11	12	13	17	15	21	17	18	10	11	12	25	19	14	11	11
26	11	12	12	13	13	14	12	15	14	15	14	17	16	16	14	12	13	12	10	10	21	26	18	12
27	11	11	12	11	12	12	12	12	12	12	12	12	13	12	11	11	11	11	11	11	11	11	11	11
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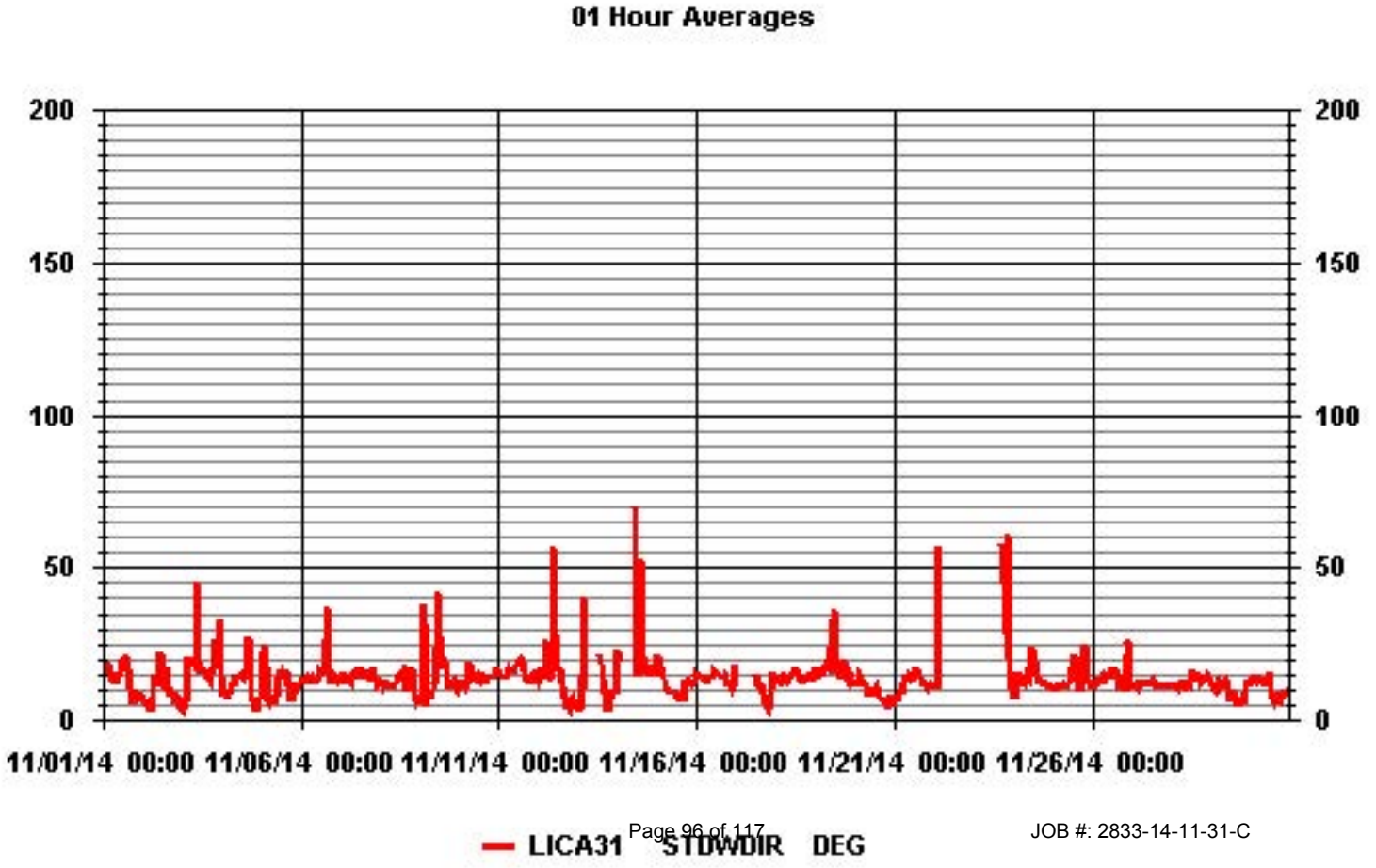
29	12	11	10	12	13	11	12	12	13	11	7	7	8	10	7	5	5	5	6	6	9	12	12	13
30	13	14	14	13	14	14	13	13	12	11	14	16	10	8	6	7	8	8	7	9	9	9	10	9

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: August 28, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 649 HRS



JOB #: 2833-14-11-31-C

Calibration Reports

Sulphur Dioxide

API 100E SO2 Analyzer Calibration

Date:	14-Nov-14	**Start/End Time (mst):**	1003-1335
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	St Lina	**Converter Make & Model:**	n/a
Performed by:	Tom Bourque	**Converter Serial #:**	n/a
Application $H_2S/TRS/SO_2$:	SO2	**Cal Gas Expiry Date:**	5-Dec-15

Analyzer:

Serial Number:	468	**Range ppb:**	100
Last Calibration Date:	8-Oct-14	**As Found C.F.**	1.013
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.999

	As found:	**As left:**
SLOPE:	.979	.988
OFFSET:	158.3	155.6
HVPS:	544	544
RCELL TEMP:	50.0	50.0
BOX TEMP:	29.9	29.9
PMT TEMP:	7.9	7.9
IZS TEMP:	40.0	40.0
STABIL:	0.9	0.9
PRES:	24.3	24.3
SAMP FL:	587	587
PMT:	138.2	138.2
NORM PMT:	155.5	155.5
UV LAMP:	1750.5	1750.5
LAMP RATIO:	98.7 %	98.7 %
STR. LGT	76.0	76.0
DRK PMT:	16.3	16.3
DRK LMP:	3.5	3.5
Internal Span:	256	247.1

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	831
Cal Gas Cylinder I.D. # :	BLM000711
Cal Gas Conc. (ppm):	48.2

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	77	5077
mid	5000	37	5037
low	5000	17	5017

Calibration:

Calibrator Flow Rates (cc/min)				**Calculated Concentration:**	**Indicated Concentration:**	**Correction Factors:**
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	-0.2	NA
adjusted zero	5000	0.0	5000	0	1.1	NA
as found high	4995	76.77	5072	729.6	721.3	1.013
adjusted high	4995	76.77	5072	729.6	729.0	1.002
mid	4994	36.88	5031	353.3	354.2	1.001
low	4995	16.95	5012	163.0	165.1	0.994
calibrator zero	5000	0.00	5000	0	1.3	NA
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS	**Pass/Fail ?**
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.003**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-1.78%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-1.20%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

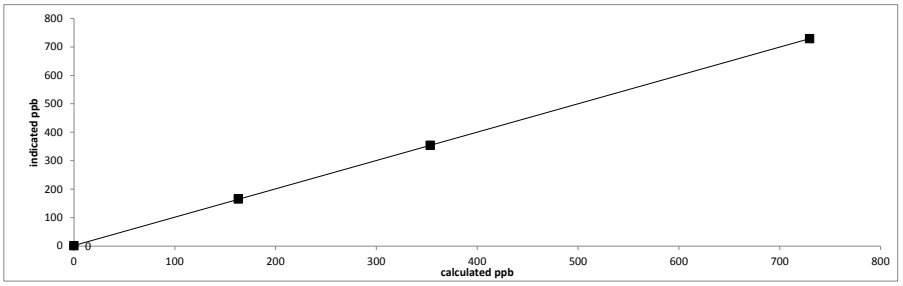
****run converter effeciency test immediately following zero adjust****

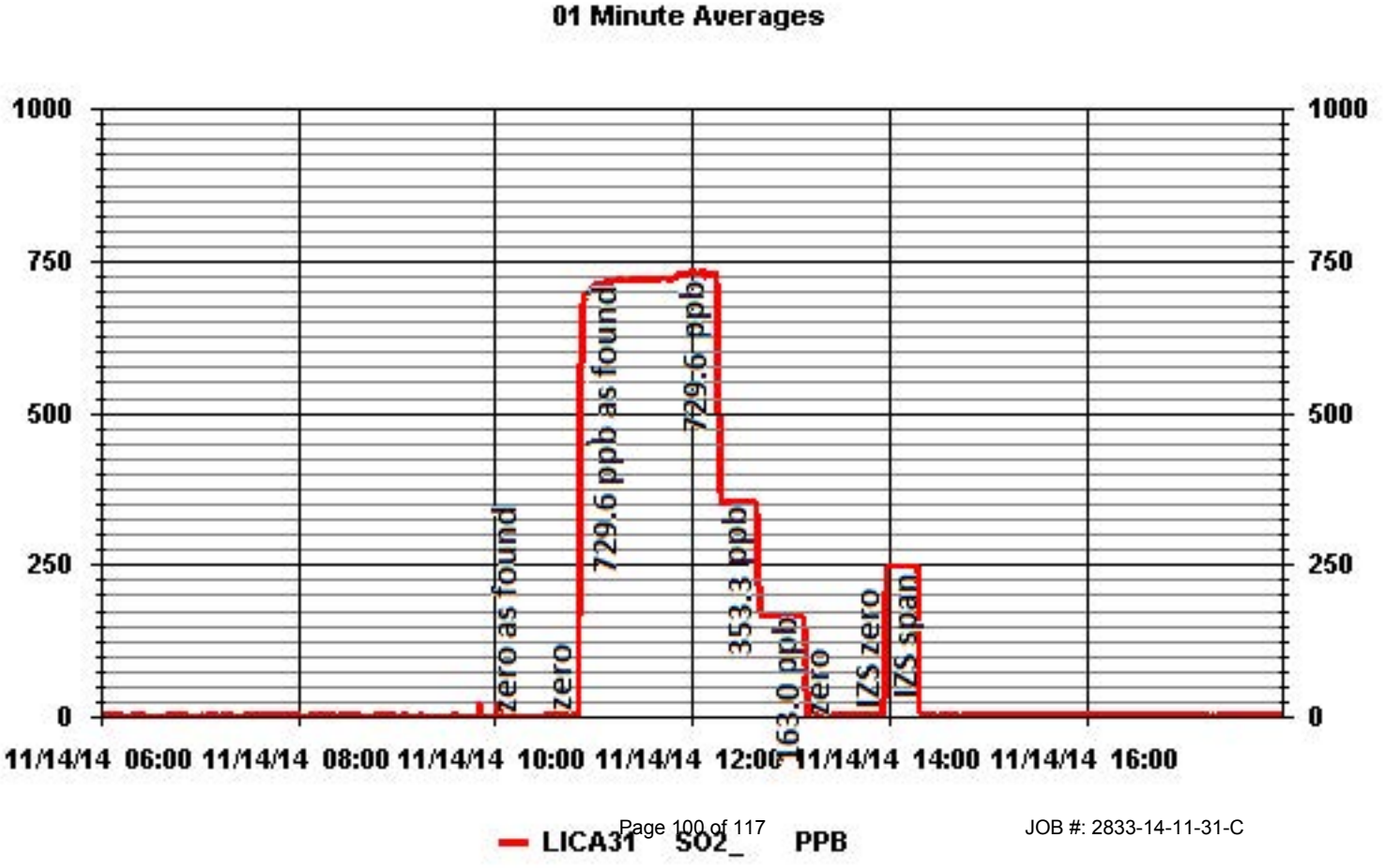
SO_2 High Point gas concentration:	na	Time gas run (mst):	na
Zero corrrected analyzer response:	na		

Comments:

changed analyzer filter

API 100E SO2 Analyzer Calibration





JOB #: 2833-14-11-31-C

Hydrogen Sulphide

API 101E H2S Analyzer Calibration

Date:	14-Nov-14	**Start/End Time (mst):**	0958-1452
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	St Lina	**Converter Make & Model:**	internal
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	25-Dec-15

Analyzer:

Serial Number:	722	**Range ppb:**	100
Last Calibration Date:	8-Oct-14	**As Found C.F.**	0.986
Previous Cal High Point C.F.:	1.000	**New C.F.:**	0.985

	As found:	As left:
SLOPE:	1.340	1.335
OFFSET:	42.6	42.5
HVPS:	595	595
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.0	31.0
PMT TEMP:	8.2	8.2
IZS TEMP:	45.0	45.0
CONVERTER TEMP:	315.1	TEST: 315.1
STAB:	.2	STABIL: .2
PRES:	25.4	25.4
SAMP FL:	611	611
PMT:	62.3	62.3
NORM PMT:	43.2	43.2
UV LAMP:	2326	2326
LAMP RATIO:	101.1 %	101.1 %
STR. LGT	28.5	28.5
DRK PMT:	28.3	28.3
DRK LMP:	3.5	3.5
Internal Span:	40.86	39.02

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BLM0005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	39	5039
mid	5000	19	5019
low	5000	11	5011

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.3	NA
adjusted zero	5000	0.0	5000	0	0.1	NA
as found high	5000	39.00	5039	78.2	79.4	0.986
adjusted high	5000	39.00	5039	78.2	78.1	1.001
mid	5000	19.00	5019	38.2	39.3	0.974
low	4997	11.00	5008	22.2	22.7	0.979
calibrator zero	5000	0.00	5000	0	0.5	NA
					Average C.F.=	0.985

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.002**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.46%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**1.44%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

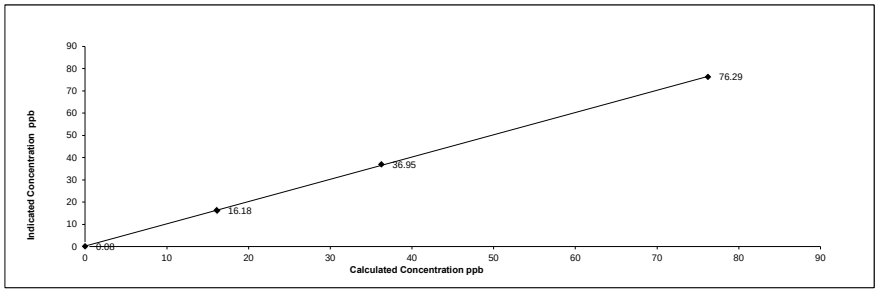
****run converter effeciency test immediately following zero adjust****

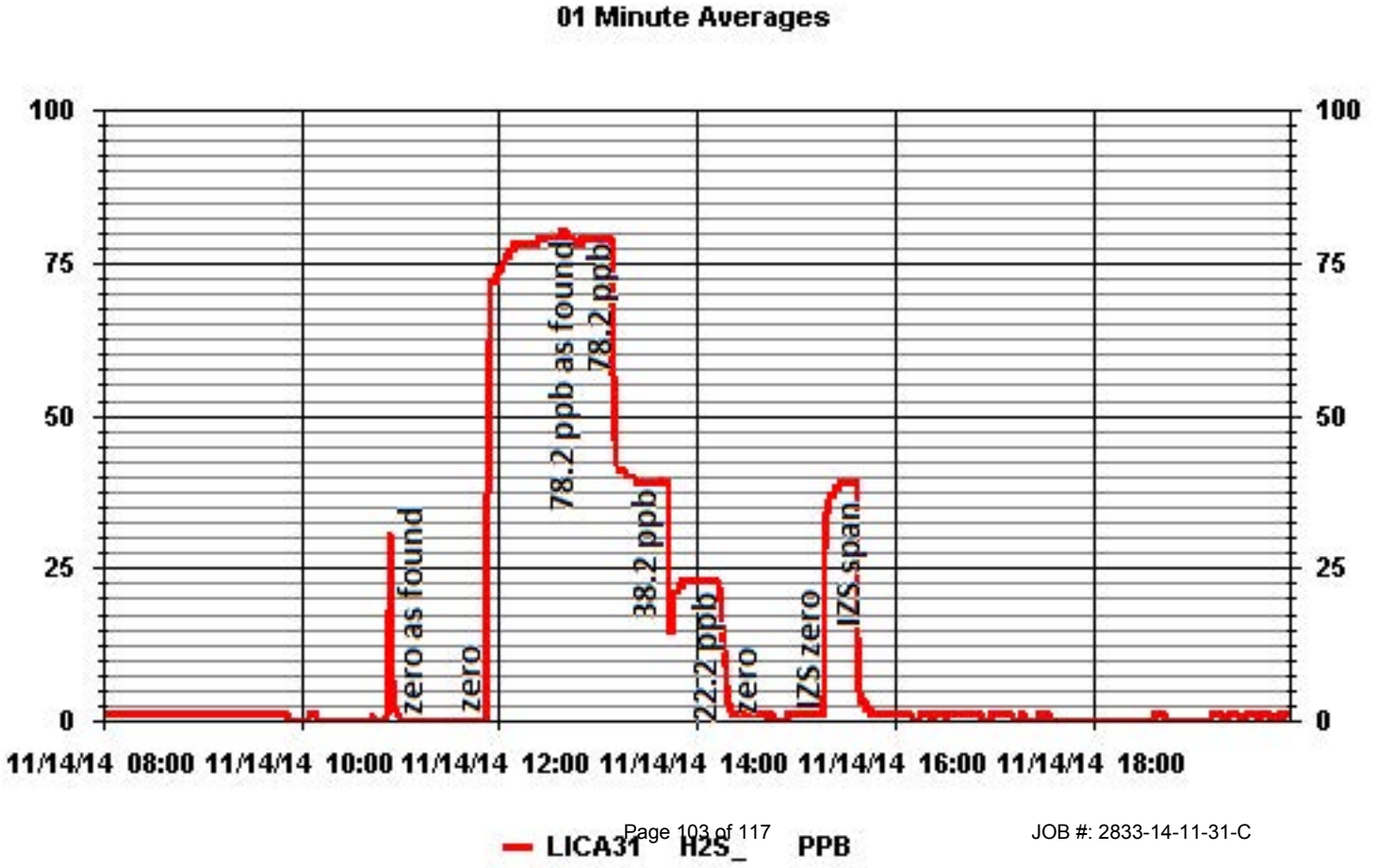
SO_2 Low Point gas concentration:	163.0	Time gas run (mst):	0950-0955
Zero corrrected analyzer response:	0.4		

Comments:

had to re-start -didn't realize calibrator cut out some time during the adjusted zero point, changed analyzer filter

API 101E H2S Analyzer Calibration





JOB #: 2833-14-11-31-C

Total Hydrocarbons

Thermo 51C THC Analyzer Calibration

Date:	6-Nov-14	**Start Time (mst):**	11:54
Company:	LICA	**End Time (mst):**	14:39
Station Name/Location:	St Lina	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Analyzer:

Serial Number:	436609739	**Range ppm:**	50
Last Calibration Date:	9-Oct-14	**As Found C.F.**	1.051
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.999

		As found:		**As left:**
	H_2 cylinder (psi):	650	H_2 cylinder (psi):	650
	H_2 cylinder reg set (psi):	25	H_2 cylinder reg set (psi):	25
	Span Cylinder (psi):	350	Span Cylinder (psi):	350
	Span Cylinder Reg Set (psi):	27.5	Span Cylinder Reg Set (psi):	27.5
	Zero Air Gen Pressure:	36	Zero Air Gen Pressure:	36
	measurement alarms:	none	measurement alarms:	none
	service alarms:	none	service alarms:	none
FID status:	cnt:	12883	cnt:	12883
	rng:	1	rng:	1
	try:	1	try:	1
	flm:	203.8	flm:	203.8
	det:	125.8	det:	125.8
Oven Readings:	Flame:	204	Flame:	204
	Filter:	125	Filter:	125
	Base:	125	Base:	125
	Pump:	6.80	Pump:	6.80
Voltages:	+5	5	+5	5
	+15	15	+15	15
	-15	-15	-15	-15
	Internal Span:	31.81	Internal Span:	31.81

Calibrator:

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

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	2000	60	2060
mid	2000	30	2030
low	2000	15	2015

Calibration:

Calibrator Flow Rates (cc/min)				**Calculated Concentration:**	**Indicated Concentration:**	**Correction Factors:**
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	2000	0.00	2000	0	-0.20	NA
adjusted zero	2000	0.00	2000	0	-0.03	NA
as found high	1997	60.00	2057	33.75	32.07	1.051
adjusted high	1997	60.00	2057	33.75	33.75	0.999
mid	1997	30.00	2027	17.12	17.08	1.001
low	1998	15.00	2013	8.62	8.61	0.998
calibrator zero	2000	0.00	2000	0	-0.04	NA
					Average C.F.=	0.999

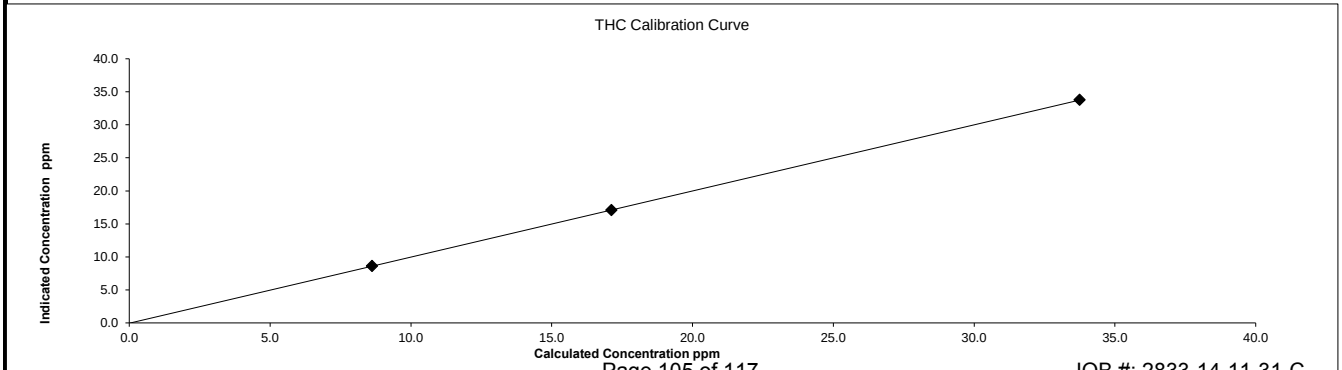
Linear Regression/Calibration Results:

		LIMITS	**Pass/Fail ?**
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.001**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.063%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-5.02%**	**± 15%**	**PASS**

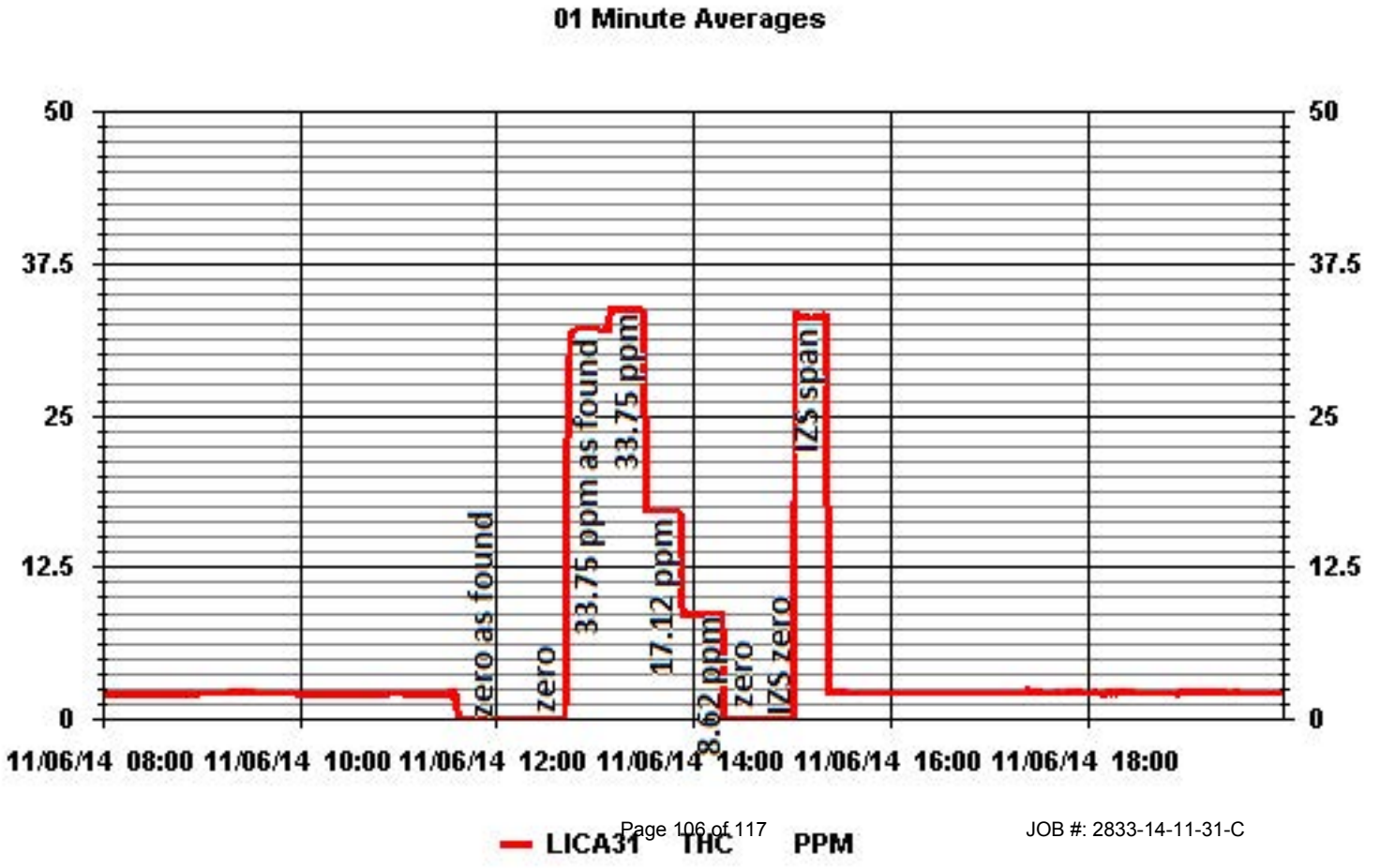
Comments:

changed analyzer filter

Thermo 51C THC Analyzer Calibration



JOB #: 2833-14-11-31-C



JOB #: 2833-14-11-31-C

Nitrogen Dioxide

API 200E NOx Analyzer Calibration

Date:	14-Nov-14	**Start Time (mst):**	10:03
Company:	LICA	**End Time (mst):**	15:17
Station Name/Location:	St Lina	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer Serial Number:	592
Last Calibration Date:	8-Oct-14
Range ppb:	1000

Correction Factors:

As found C.F.		Previous Cal High Point C.F.:	
NO=	1.014	NO=	1.000
NOx=	1.024	NOx=	1.000
NO_2=	1.004	NO_2=	1.002

As found:		**As left:**	
NOx SLOPE:	.886	NOx SLOPE:	.910
NOx OFFS:	1.0	NOx OFFS:	5.2
NO SLOPE:	.896	NO SLOPE:	.909
NO OFFS:	.8	NO OFFS:	0.0
TEST:	130.7	TEST:	130.7
SAMP FLW:	493	SAMP FLW:	493
OZONE FL:	74	OZONE FL:	74
PMT:	21.1	PMT:	21.1
NORM PMT:	-3.3	NORM PMT:	-3.3
AZERO:	19.5	AZERO:	19.5
HVPS:	654	HVPS:	654
RCELL TEMP:	50.0	RCELL TEMP:	50.0
BOX TEMP:	28.9	BOX TEMP:	28.9
PMT TEMP:	6.9	PMT TEMP:	6.9
IZS TEMP:	40.1	IZS TEMP:	40.1
MOLY TEMP:	314.3	MOLY TEMP:	314.3
RCEL:	6.9	RCEL:	6.9
SAMP:	27.1	SAMP:	27.1
Internal Span:	3/368/374	Internal Span:	6.1/378/383

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM000711
NO Cylinder Conc. (ppm):	50.1
NOx Cylinder Conc. (ppm):	50.2

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	420	5077
mid	5000	37	220	5037
low	5000	17	80	5017

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5000	0.0	5000	0	0	-0.1	2.6	NA	NA
adjusted zero	5000	0.0	5000	0	0	-0.2	-0.7	NA	NA
as found high	4995	76.77	5072	758.4	759.9	748	741	1.014	1.024
adjusted high	4995	76.77	5072	758.4	759.9	757	762	1.002	0.996
mid	4994	36.88	5031	367.3	368.0	367	368	1.000	0.998
low	4995	16.95	5012	169.4	169.8	172	170	0.984	0.995
calibrator zero	5000	0.00	5000	0	0	0.1	-1.9	NA	NA
							Average C.F.=	0.995	0.996

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4995	76.94	5072	0.0	758.0	758.0	0.0	-0.2	-0.5	
as found NO_2	4995	76.94	5072	420.0	251.0	755.0	505.0	507.0	505.0	1.004
gpt mid	4995	76.94	5072	220.0	490.0	757.0	268.0	268.0	268.0	1.000
gpt low	4995	76.94	5072	80.0	666.0	758.0	93.0	92.0	93.0	0.989
									Average NO_2 C.F.=	0.998

Linear Regression/Calibration Results:

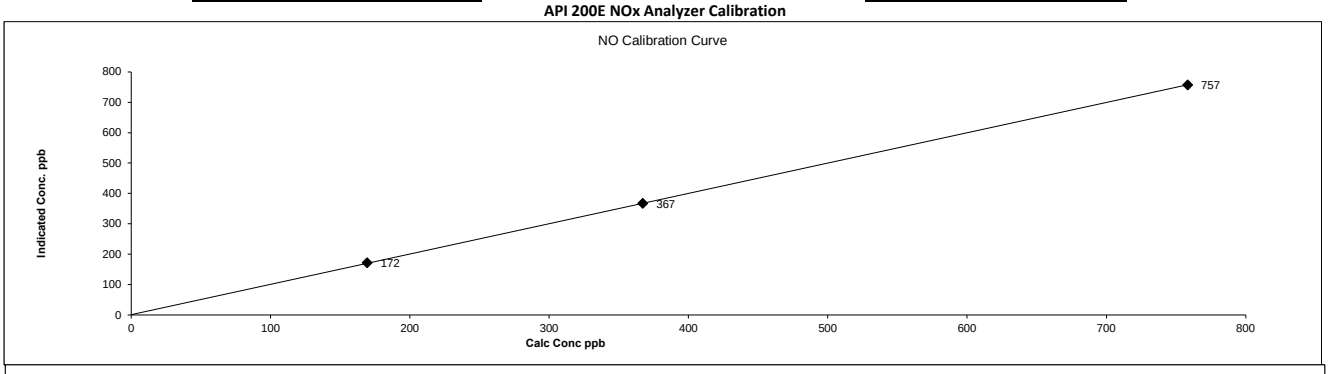
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**0.997**	**1.004**	**0.996**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.11%**	**-0.07%**	**0.07%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.36%**	**-2.45%**	**-0.19%**	**+/-15%**
NO2 converter effeciency			**100.2%**	**>85%**

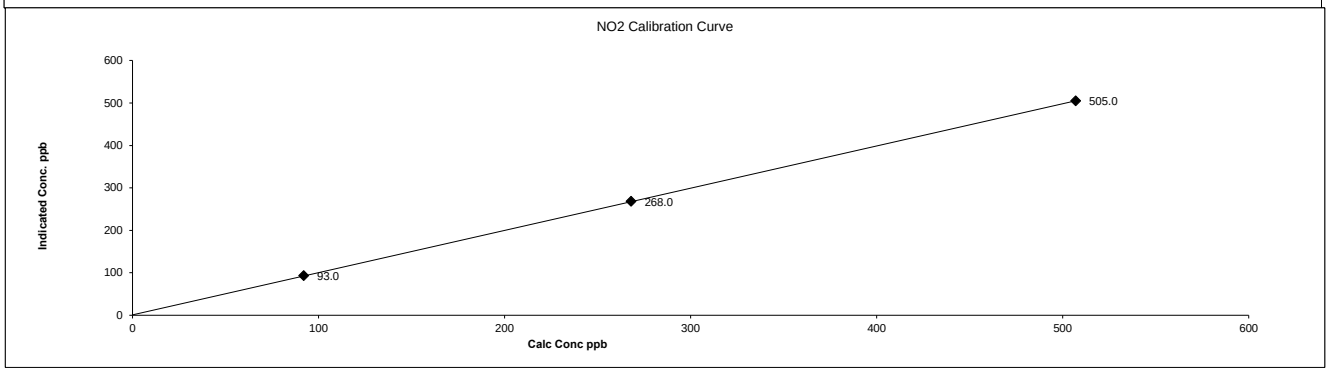
Comments:

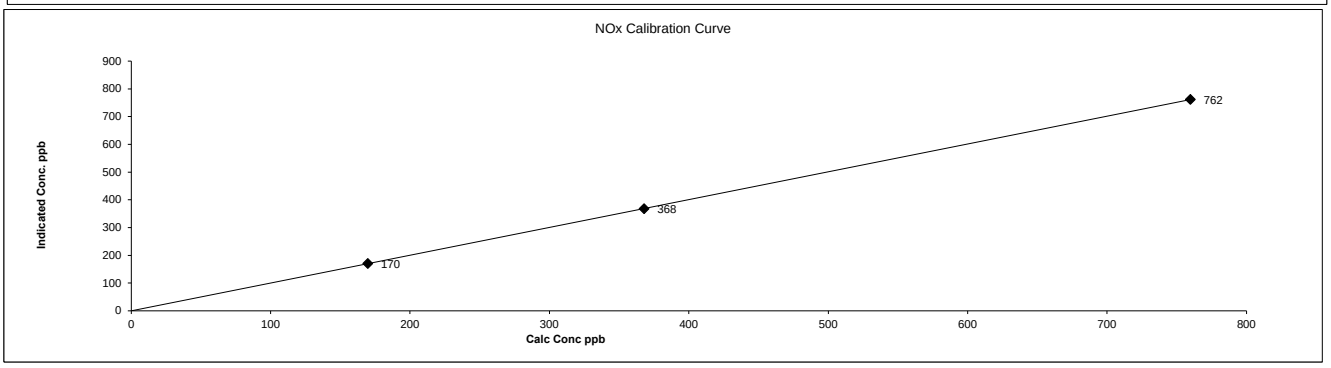
changed analyzer filter, did an extra gpt point for the ozone, no adjustment made on high NO2 point

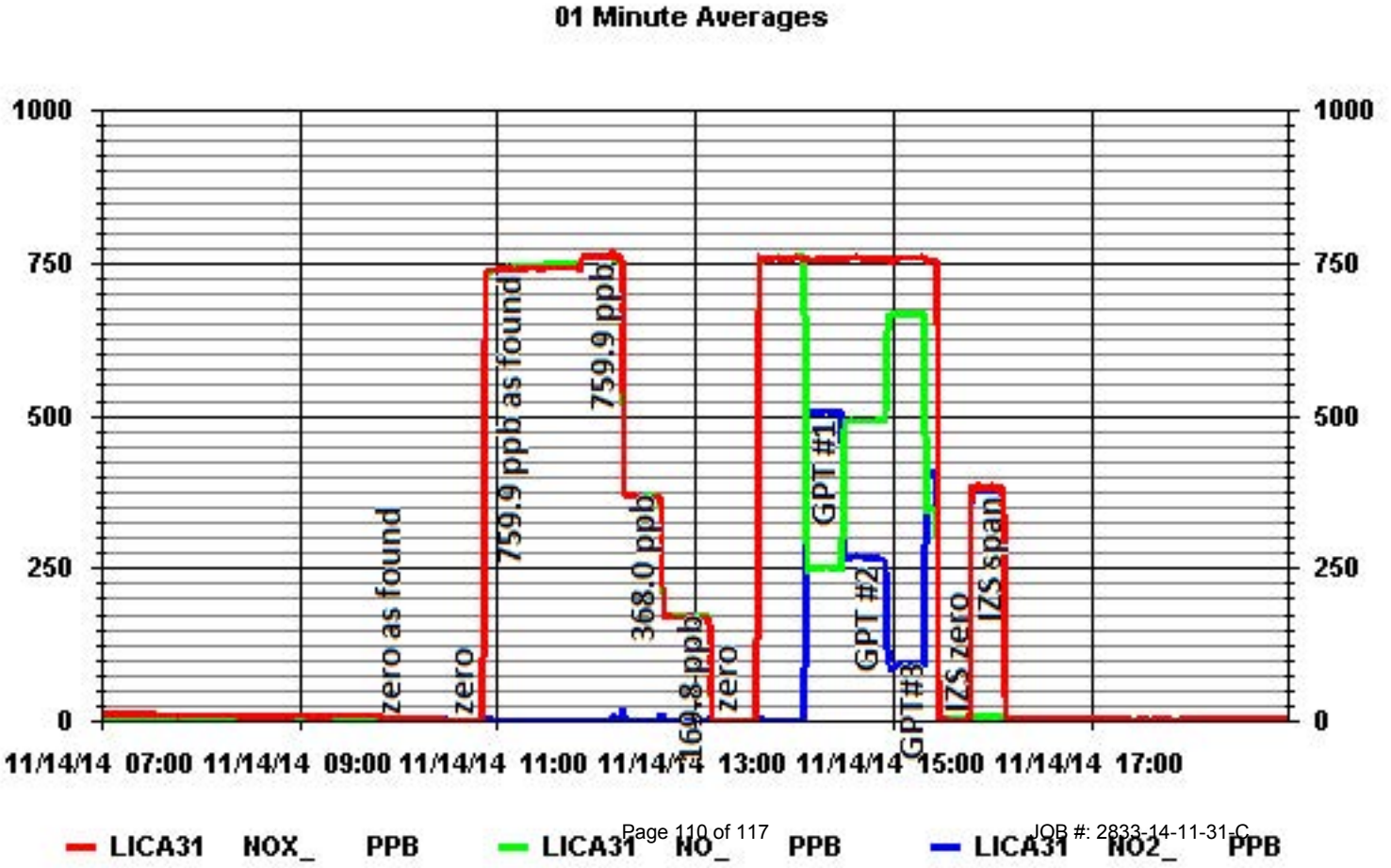
Date:	14-Nov-14	**Start Time (mst):**	10:03
Company:	LICA	**End Time (mst):**	15:17
Station Name/Location:	St Lina	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200E NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
zero as found
zero
759.9 ppb as found
759.9 ppb
368.0 ppb
160.8 ppb
zero
GPT #1
GPT #2
GPT#3
IZS zero
IZS span
11/14/14 07:00
11/14/14 09:00
11/14/14 11:00
11/14/14 13:00
11/14/14 15:00
11/14/14 17:00
LICA31 NOX_ PPB
LICA31 NO_ PPB
LICA31 NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	14-Nov-14	**Start Time (mst):**	15:35
Company:	LICA	**End Time (mst):**	18:21
Station Name/Location:	St Lina	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**G.P.T. Date:**	14-Nov-14

Analyzer:

Serial Number:	1002240371	**Range ppm:**	500
Last Calibration Date:	9-Oct-14	**As Found C.F.**	1.013
Previous Cal High Point C.F.:	1.000	**New C.F.:**	0.991

		As found:		As left:
	O_3 Bkg:	-.8	O_3 Bkg:	-2.3
	O_3 Coef:	1.000	O_3 Coef:	1.009
Motherboard:	3.3	3.3	3.3	3.3
	15.0	5.0	15.0	5.0
	24.0	23.7	24.0	23.7
	-3.3	-3.2	-3.3	-3.2
Interface Board:	3.3	3.2	3.3	3.2
	5.0	4.9	5.0	4.9
	15.0	14.7	15.0	14.7
	-15.0	-15.0	-15.0	-15.0
	Photo Lamp	9.4	Photo Lamp	9.4
	24.0	23.4	24.0	23.4
	O_3 Lamp	8.3	O_3 Lamp	8.3
	Bench:	28.2	Bench:	28.2
	Bench Lamp:	53.6	Bench Lamp:	53.6
	O_3 Lamp:	67.8	O_3 Lamp:	67.8
	Pressure:	687.1	Pressure:	687.1
	Cell A lpm:	.732	Cell A lpm:	.732
	Cell B lpm:	.726	Cell B lpm:	.726
	O_3 ppb:	.5	O_3 ppb:	.5
	Cell A ppb:	-4.9	Cell A ppb:	-4.9
	Cell B ppb:	7.1	Cell B ppb:	7.1
	Cell A int:	64981	Cell A int:	64981
	Cell B int:	75184	Cell B int:	75184
	Internal Span:	325	Internal Span:	344

Calibrator:

Make & Model:	Environics 6100
Serial #:	4760
NOx Gas Cylinder I.D. # :	BLM000711
NOx Cylinder Conc. (ppm):	50.2

Calibrator Flow Targets:

point	total flow (cc/min)	O_3 setting (v or ppb)
zero	5072	0
high	5072	340
mid	5072	220
low	5072	80

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5072	0.0	5072	0.0	-2.7	NA
adjusted zero	5072	0.0	5072	0.0	0.7	NA
as found high	5072	0.00	5072	409.0	404.6	1.013
adjusted high	5072	0.00	5072	409.0	409.2	1.001
mid	5072	0.00	5072	268.0	268.0	1.003
low	5072	0.00	5072	92.0	95.7	0.969
calibrator zero	5072	0.00	5072	0.0	2.0	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration **Average C.F.=** 0.991

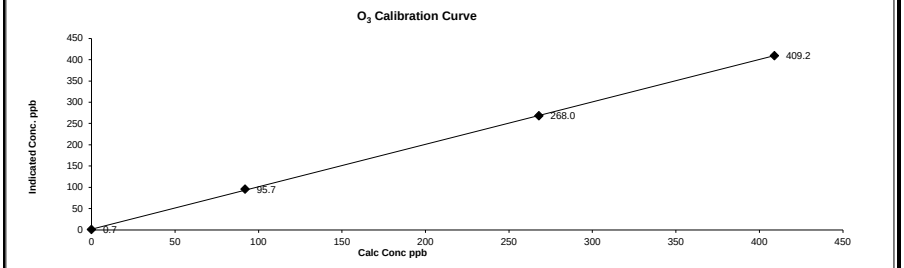
Linear Regression/Calibration Results:

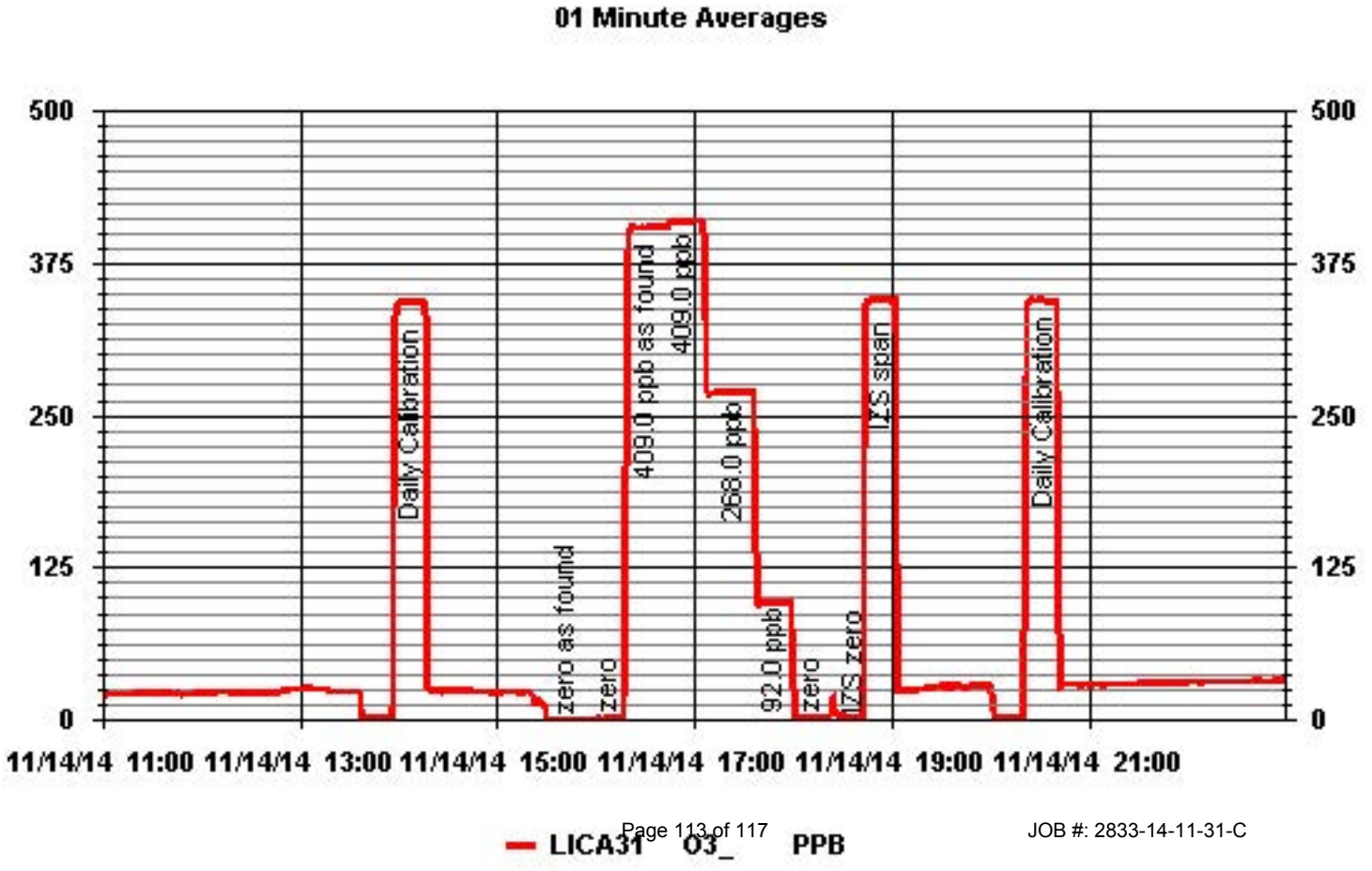
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.995**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.407%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-1%**	**± 15%**	**PASS**

Comments:

changed filter and cleaned analyzer fan filter

Thermo 49i O3 Analyzer Calibration





JOB #: 2833-14-11-31-C

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	6-Nov-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	St Lina	**Start/End Time (mst):**	1230-1430
Previous Audit Date:	n/a	**Calibration Purpose:**	installation

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	n/a
Ko Factor:	13125.0	**As Left Filter Loading %:**	21.65
Ambient Temperature °C:	4.35	**As Found Noise:**	n/a
Ambient Pressure atm:	.919	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.27
Aux Flow Reading lpm:	13.67	**Warnings:**	none

Reference Standards:

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

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.01	-0.16	0.02	-0.16
	limit	0.15		0.15	
Bypass Flow	actual	0.41	-0.69	0.31	-0.69
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.01	-0.16	0.02	-0.16
	limit	0.15		0.15	
Bypass Flow	actual	0.41	-0.69	0.31	-0.69
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	4.4	**1405F pressure atm:**	0.919
reference temperature °C:	4.2	**reference pressure:**	0.920
difference °C:	-0.1	**difference :**	-0.001

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	4.4	**1405F pressure atm:**	0.919
reference temperature °C:	4.2	**reference pressure:**	0.920
difference °C:	-0.1	**difference :**	0.001

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	2.99	**reference total/aux flow lpm:**	16.71
difference lpm:	-0.01	**difference lpm:**	0.04

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	2.99	**reference total/aux flow lpm:**	16.71
difference lpm:	-0.01	**difference lpm:**	0.04

K_o Audit:

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

Comments:

this was an installation audit following a repair, following the repair the auxillary in-station knockout system was leaking - this system has been removed from service, it will have no impact on TEOM operation as there is still another knockout trap in line - upon removal of this system it was discovered that the auxillary line was too short to reach the back of the TEOM threfore the line that was too short was removed and another longer line installed, the initial flows were outside of tolerance (2.79 and 115.61 lpm) and the flows were subsequently calibrated

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	14-Nov-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	St Lina	**Start/End Time (mst):**	1333-1455
Previous Audit Date:	6-Nov-14	**Calibration Purpose:**	repeat

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	24.30
Ko Factor:	13125.0	**As Left Filter Loading %:**	23.28
Ambient Temperature °C:	-13.38	**As Found Noise:**	0.013
Ambient Pressure atm:	.940	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.29
Aux Flow Reading lpm:	13.67	**Warnings:**	none

Reference Standards:

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

As found leak check:

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

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

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

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-13.4	**1405F pressure atm:**	0.940
reference temperature °C:	-12.8	**reference pressure:**	0.935
difference °C:	0.6	**difference :**	0.005

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-13.4	**1405F pressure atm:**	0.940
reference temperature °C:	-12.8	**reference pressure:**	0.935
difference °C:	0.6	**difference :**	-0.005

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.69
reference main flow lpm:	2.81	**reference total/aux flow lpm:**	15.85
difference lpm:	-0.19	**difference lpm:**	-0.84

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.69
reference main flow lpm:	2.98	**reference total/aux flow lpm:**	16.65
difference lpm:	-0.02	**difference lpm:**	-0.04

K_o Audit:

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

Comments:

JOB #: 2833-14-11-31-C

this repeat is to verify performance as a result of a 24 exceedance November 13th, adjusted main and auxillary flow

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	24-Nov-14	**Parameter:**	PM 2.5
Company:	LICA	**Performed by:**	Chris Wesson
Station Name/Location:	St Lina	**Start/End Time (mst):**	17:59-19:20
Previous Audit Date:	14-Nov-14	**Calibration Purpose:**	2nd Audit

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	27.98
Ko Factor:	13125.0	**As Left Filter Loading %:**	24.10
Ambient Temperature °C:	-7.30	**As Found Noise:**	0.033ug
Ambient Pressure atm:	0.911	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.30
Aux Flow Reading lpm:	13.68	**Warnings:**	None

Reference Standards:

	Flow:	**Pressure:**	**Temperature:**
Make:	Dwyer	Brunton	Brunton
Model:	475 Mark III	ADC-Summit	ADC-Summit
Serial Number:	NA	NA	NA
Calibration Date:	NA	NA	NA

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.01	-0.14	0.03	-0.14
	limit	0.15		0.15	
Bypass Flow	actual	0.16	-0.62	0.26	-0.62
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.01	-0.14	0.03	-0.14
	limit	0.15		0.15	
Bypass Flow	actual	0.16	-0.62	0.26	-0.62
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-7.3	**1405F pressure atm:**	0.925
reference temperature °C:	-7.3	**reference pressure:**	0.917
difference °C:	0.0	**difference :**	0.008

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-7.3	**1405F pressure atm:**	0.925
reference temperature °C:	-7.3	**reference pressure:**	0.917
difference °C:	0.0	**difference :**	-0.008

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.68
reference main flow lpm:	3.10	**reference total/aux flow lpm:**	17.06
difference lpm:	0.10	**difference lpm:**	0.38

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.68
reference main flow lpm:	3.10	**reference total/aux flow lpm:**	17.06
difference lpm:	0.10	**difference lpm:**	0.38

K_o Audit:

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

Comments:

Ko Audit not completed due to time constraints
Filters changed

JOB #: 2833-14-11-31-C

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site
Ambient Air Monitoring Data Report
For
November 2014

Prepared By:

Maxxam
A Bureau Veritas Group Company

January 23, 2015

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

Table of Contents

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: November 2014

The monthly ambient data report:

- Prepared by Wunmi Adekanmbi
- 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.

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 – November 2014

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABLE / ELK POINT AIRPORT 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	0.27	5	15	14	15.4	240(WSW)	1.1	13, 15	100.0
H_2S (PPB)	10	3	0	0	0.13	3	13, 17	8, 22	0.4, 10.8	262(W) 264(W)	1.4	13	100.0
THC (55i) (PPM)	-	-	-	-	2.36	7.9	13	8	0.4	144(SE)	4.9	13	97.8
Methane (PPM)	-	-	-	-	2.36	7.8	13	8	0.4	144(SE)	4.8	13	97.8
NMHC (PPM)	-	-	-	-	0.00	0.2	13, 14	23, 0	2.5, 3.1	300(WNW) 244(WSW)	0.0	ALL	97.8
NO_2 (PPB)	159	-	0	-	6.66	35.4	12	19	1.8	310(NW)	27.7	13	100.0
NO (PPB)	-	-	-	-	3.07	85.2	13	23	2.5	274(W)	50.3	13	100.0
NOx (PPB)	-	-	-	-	9.73	117.3	13	23	2.5	274(W)	78.0	13	100.0
O_3 (PPB)	82	-	0	-	22.62	42	16	12, 13	17.8, 18	329(NNW) 325(NW)	34.3	10	100.0
PM 2.5 (UG/M^3)	-	30	-	0	5.90	147	13	22	4.4	300(WNW)	17.2	13	88.9
VECTOR WS (KPH)	-	-	-	-	11.37	30.9	18	5	-	311(NW)	20.7	18	100.0
VECTOR WD (DEGREES)	-	-	-	-	326(NW)	-	-	-	-	-	-	-	100.0

NA-NOT APPLICABLE 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 November 4th. The inlet filter was changed before the calibration was started. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)
- Analyzer make / model – API 101E, S/N: 509 replaced with API 101E, S/N: 510
- Converter - Internal

The monthly calibration was performed on November 4th. As the analyzer showed instability in its daily zero check, two other calibrations were performed on November 13th and November 21st. Both results were good. It was decided to replace the analyzer to correct the issue of drifting on November 26th. The API 101E, S/N: 509 was removed following a removal calibration, and the API 101E, S/N: 510 analyzer was installed. An installation calibration was performed following by the installation. No data quality was affected by this event. Data was corrected using daily zero information.

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 November 4th. The inlet filter was changed before the calibration was started. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

· Analyzer make / model – API 200E, S/N: 593 replaced with API 200E, S/N: 2166

The monthly calibration was performed on November 4th. The inlet filter was changed before the calibration was started. As the analyzer showed instability in its daily zero check, the analyzer API 200E, S/N: 593, was replaced on November 13th following a removal calibration. An installation calibration was performed on the same day after the analyzer API 200E, S/N: 2166 was installed. An as found points check was performed on November 27th to verify analyzer functionality. All results were within acceptable range. Data was corrected using daily zero information.

THC 55i (PPM)

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

The monthly calibration was performed on November 4th. The inlet filter was changed before the calibration was started. After the calibration, the analyzer did not respond properly due to the zero/span system getting stuck. The issue was fixed remotely by Maxxam field technicians on November 5th. Sixteen hours of data were invalidated due to this event. Data was corrected using daily zero information.

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General Monthly Summary

AQM STATION – LICA - PORTABLE

Particulate Matter 2.5 (ug/m^3)

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

Two Teom audits were performed this month: one was done on November 4th and the second one was completed on November 26th. The audit results were all good. Both the Teom filter and the FDMS filter were replaced on November 26th. The Teom system crashed on November 19th and was restored on November 21st. 44 hours of data were invalidated due to this event. 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. 36 hours of data were invalidated as the value was below -3ug/m3. The operational uptime was 88.9%. Ref #: 293154

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

· System make / model –RM Young 5103VK, S/N 56589

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from. The most recent wind system calibration was done on February 21st, 2014.

No operational issues were observed during the month.

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 November 4th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

SULPHUR DIOXIDE (SO2) hourly averages in ppb

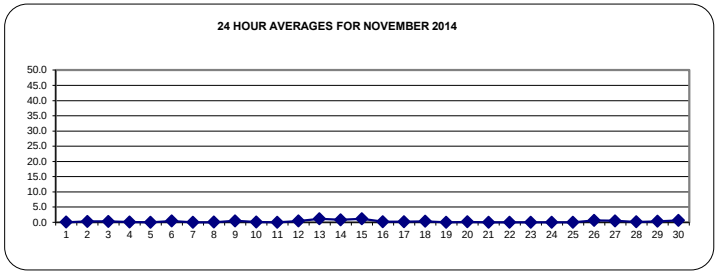
MST

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

STATUS FLAG CODES

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

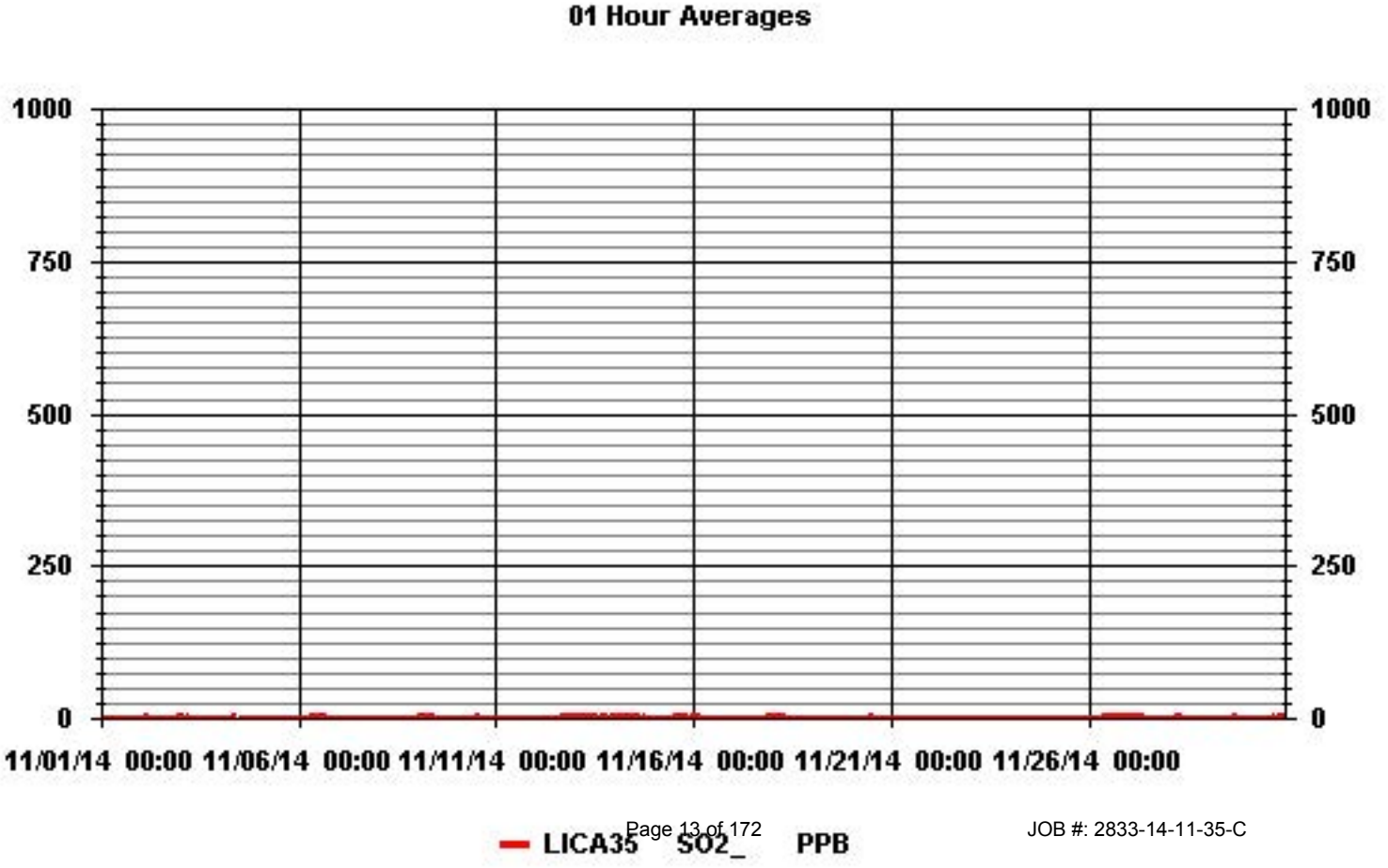
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 48 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	159					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	14	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	1.1	PPB			ON DAY(S)	13, 15
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.56		MONTHLY AVERAGE:		0.27	PPB

JOB #: 2833-14-11-35-C



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	2	2	0.1	24
2	2	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	**S**	1	2	2	1.3	24
3	2	2	2	1	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	**S**	1	1	1	2	1.3	24
4	1	1	1	1	1	1	1	2	2	**C**	**C**	**C**	**C**	**C**	0	0	0	0	1	**S**	0	0	0	1	2	0.7	24
5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	0.3	24
6	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	**S**	0	1	0	0	0	0	2	1.1	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	0.3	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	**S**	1	1	1	1	1	1	1	1	2	1.0	24
9	2	2	2	2	2	2	2	2	2	2	2	1	1	1	**S**	1	1	1	1	1	1	1	1	1	2	1.5	24
10	1	1	1	1	1	1	1	1	1	1	1	2	2	**S**	1	1	1	1	1	1	1	1	1	1	2	1.1	24
11	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
12	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	3	3	2	2	3	2	2	2	2	3	1.5	24
13	2	2	2	2	2	2	2	2	3	3	**S**	2	2	2	1	2	2	3	3	2	3	3	**S**	4	4	***2.3***	24
14	3	2	2	2	1	2	2	2	2	2	2	2	1	2	2	2	1	1	1	1	1	**S**	1	1	3	1.7	24
15	1	1	1	1	1	1	1	1	1	2	2	3	4	***6***	***6***	5	4	3	3	2	**S**	1	1	2	***6***	2.3	24
16	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	2	1.1	24
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	**S**	2	2	1	2	2	2	1.2	24
18	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	2	1.3	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	1	0.7	24
20	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	**S**	1	1	1	1	1	1	1	1	2	1.1	24
21	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
22	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
23	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	**P**	1	1	1	1	1	1.0	23
24	1	1	2	1	1	1	1	1	1	1	1	**S**	1	1	1	0	1	1	1	1	1	1	1	1	2	1.0	24
25	1	1	1	1	1	1	0	1	1	1	**S**	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.4	24
26	0	0	0	0	0	0	0	1	1	**S**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.3	24
27	2	2	2	2	2	2	2	2	**S**	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1.4	24
28	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	1	1	0.6	24
29	0	0	0	0	0	1	**S**	1	1	1	0	0	0	0	2	2	2	2	2	3	2	1	1	1	3	1.0	24
30	1	1	0	0	0	**S**	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	3	1.4	24
HOURLY MAX	3	2	2	2	2	2	2	2	3	3	2	3	4	6	6	5	4	3	3	3	3	3	3	4			
HOURLY AVG	1.1	1.1	1.1	1.0	0.9	1.0	1.0	1.1	1.0	1.1	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.2	1.3	1.1	1.0	1.0	1.2			

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: 566

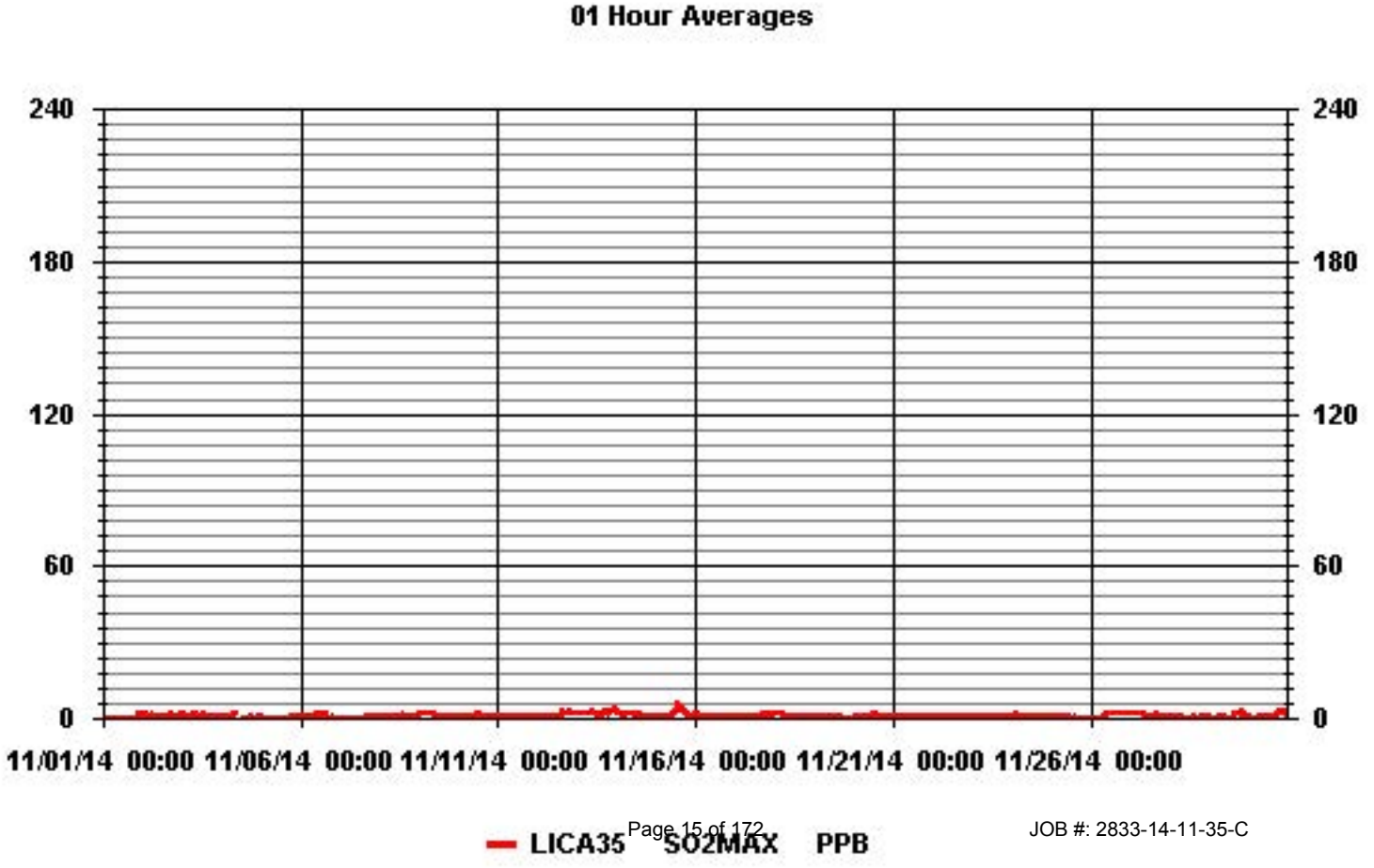
MAXIMUM INSTANTANEOUS VALUE: 6 PPB @ HOUR(S) 13, 14 ON DAY(S) 15

VAR-VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.77



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	2.33	3.94	5.83	4.23	5.54	9.05	3.21	.58	1.02	1.16	1.45	5.40	13.43	11.53	22.62	8.61	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.33	3.94	5.83	4.23	5.54	9.05	3.21	.58	1.02	1.16	1.45	5.40	13.43	11.53	22.62	8.61	

Calm : .00 %

Total # Operational Hours : 685

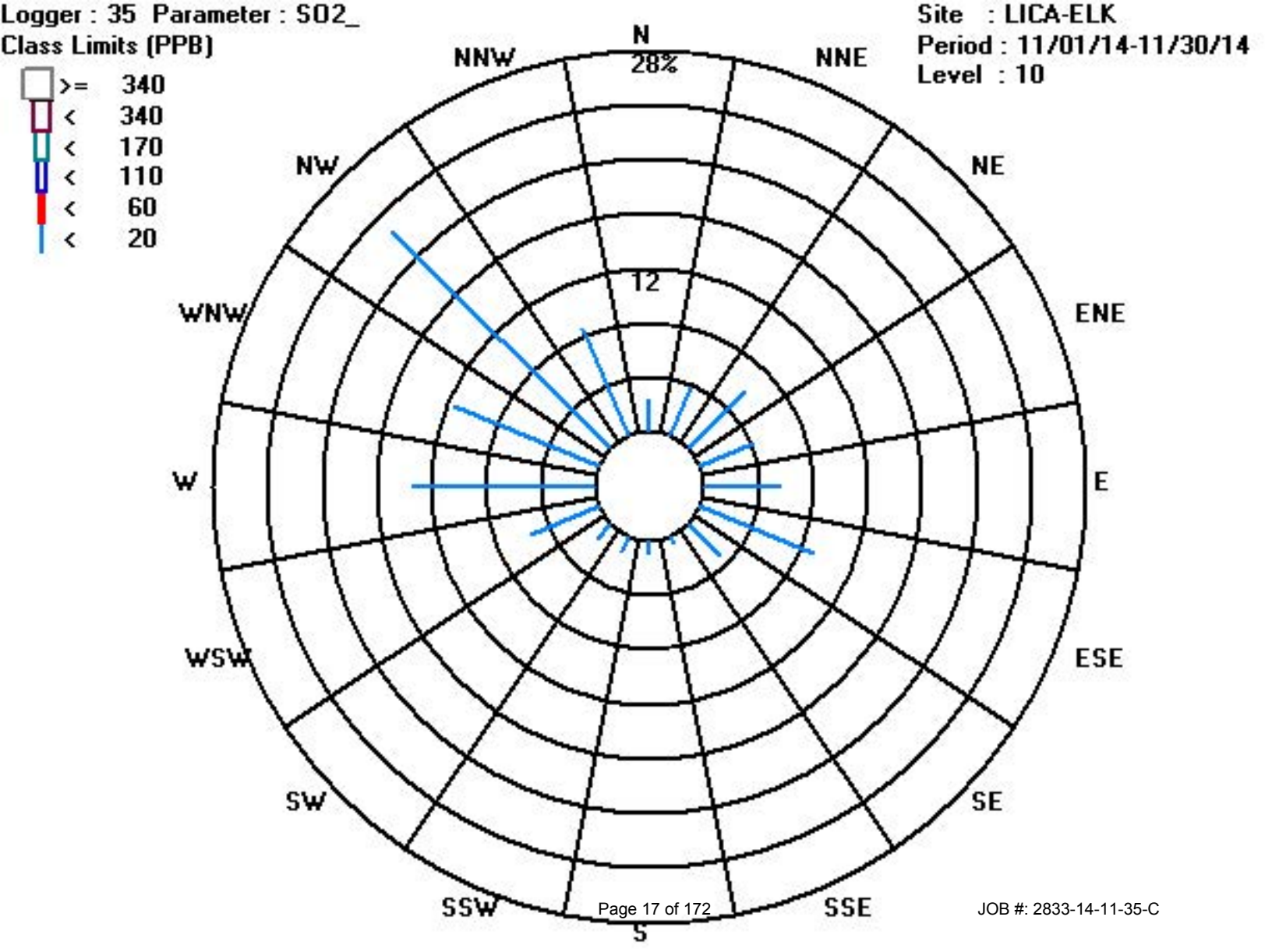
Distribution By Samples

Direction

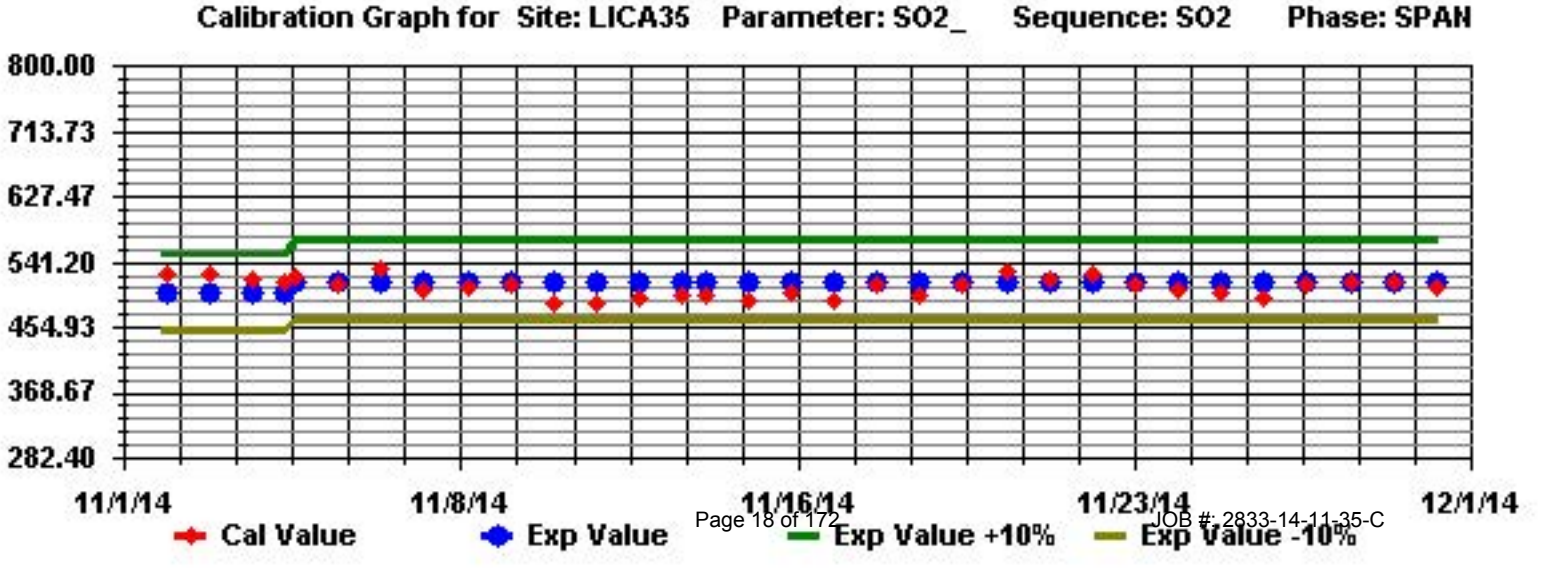
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	16	27	40	29	38	62	22	4	7	8	10	37	92	79	155	59	685
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	16	27	40	29	38	62	22	4	7	8	10	37	92	79	155	59	

Calm : .00 %

Total # Operational Hours : 685



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN
800.00
713.73
627.47
541.20
454.93
368.67
282.40
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

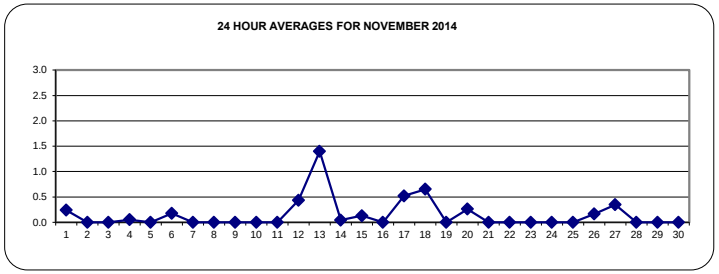
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

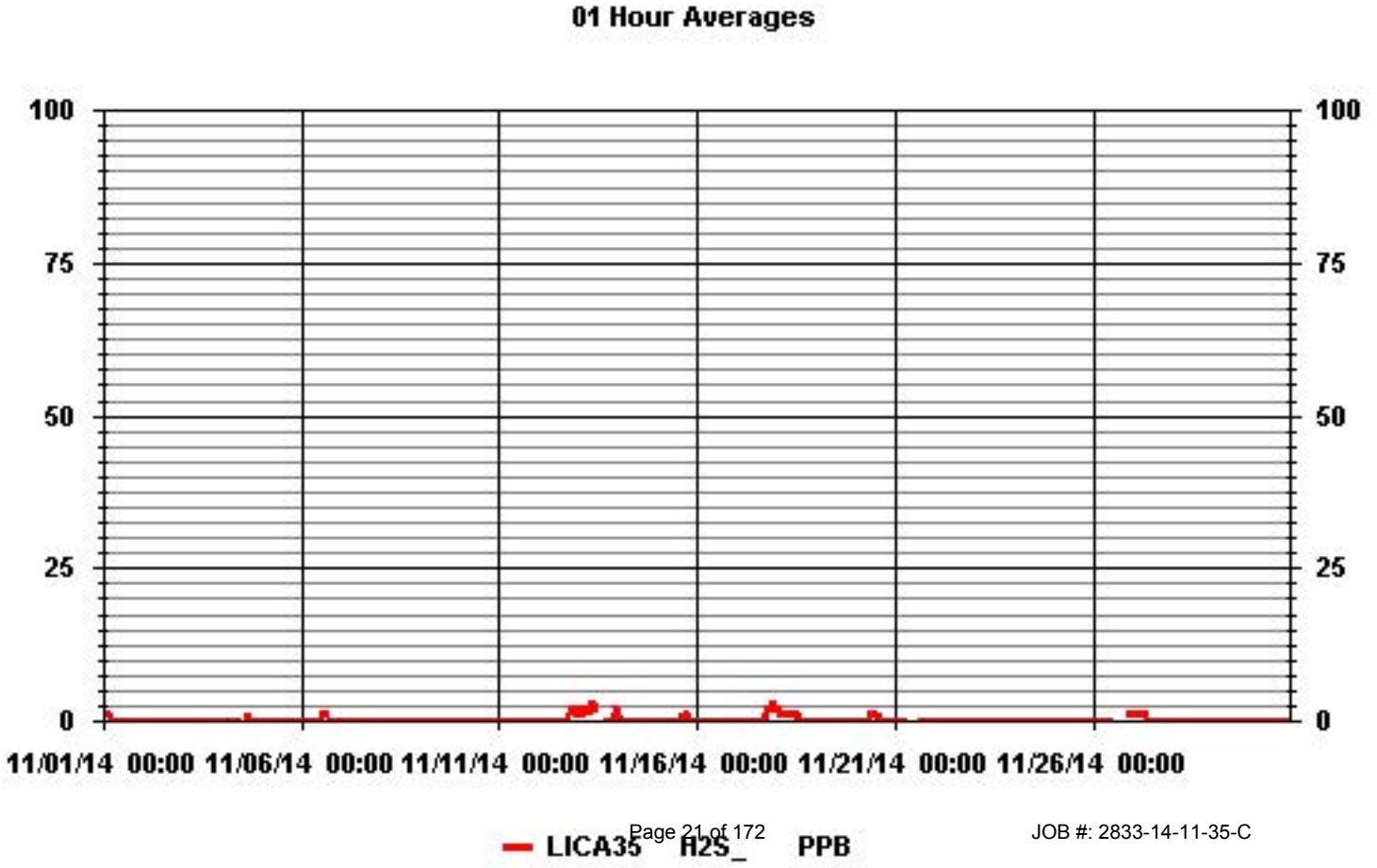


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	67					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	8, 22	ON DAY(S)	13, 17
MAXIMUM 24-HR AVERAGE:	1.4	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	38	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	28	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.43		MONTHLY AVERAGE:		0.13	PPB

JOB #: 2833-14-11-35-C



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	**S**	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	1	0.3	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	1	1	1	1	**S**	1	1	0	0	1	0.3	24
5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	1	0.0	24
6	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	**S**	0	0	0	0	0	0	1	0.3	24
7	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
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**S**	0	0	0	0	0	0	0	0	1	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	**S**	**S**	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	1	2	4	3	3	3	3	4	0.8	24
13	2	2	3	3	3	2	2	3	***5***	4	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	**S**	3	***5***	***2.4***	24
14	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	2	0.1	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	0	**S**	0	0	0	2	0.3	24
16	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
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	**S**	3	2	2	4	3	4	0.7	24
18	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	3	1.1	24
19	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
20	0	0	0	0	0	1	1	1	1	1	2	1	1	1	2	**S**	0	1	0	0	0	0	0	2	2	0.7	24
21	0	0	0	0	0	0	0	**S**	**S**	0	**C**	**C**	**C**	**C**	**C**	**C**	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	**S**	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	1	**P**	1	0	0	0	1	0.1	23
24	0	0	1	1	0	0	0	**S**	**S**	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
25	1	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
26	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	0.2	24
27	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
28	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
29	0	0	0	0	0	0	**S**	0	**S**	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0.2	24
30	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	0	1	1	3	0.3	24
HOURLY MAX	3	3	3	3	3	2	2	3	5	4	2	1	1	1	2	1	1	2	2	4	3	3	4	3			
HOURLY AVG	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	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: 112

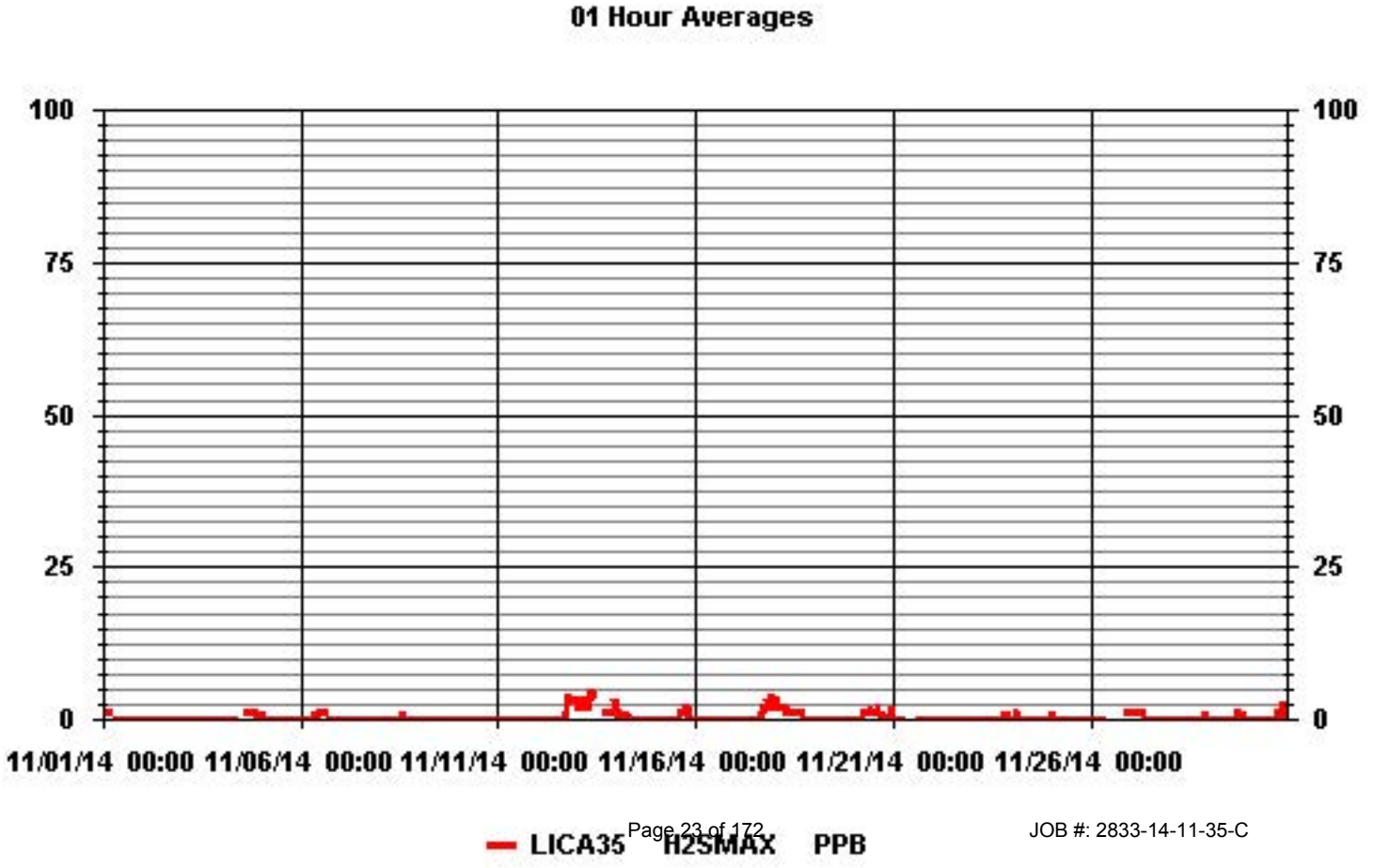
MAXIMUM INSTANTANEOUS VALUE: 5 PPB @ HOUR(S) 8 ON DAY(S) 12

VAR-VARIOUS

IZS CALIBRATION TIME: 37 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 33 HRS

STANDARD DEVIATION: 0.68



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	2.14	4.12	5.96	4.28	5.35	8.86	3.05	.61	.76	.91	1.07	5.50	13.45	11.92	23.08	8.56	99.69
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.30
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.14	4.12	5.96	4.28	5.35	8.86	3.05	.61	.76	.91	1.07	5.50	13.76	11.92	23.08	8.56	

Calm : .00 %

Total # Operational Hours : 654

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	14	27	39	28	35	58	20	4	5	6	7	36	88	78	151	56	652
<	10													2				2
<	50																	
>=	50																	
	Totals	14	27	39	28	35	58	20	4	5	6	7	36	90	78	151	56	

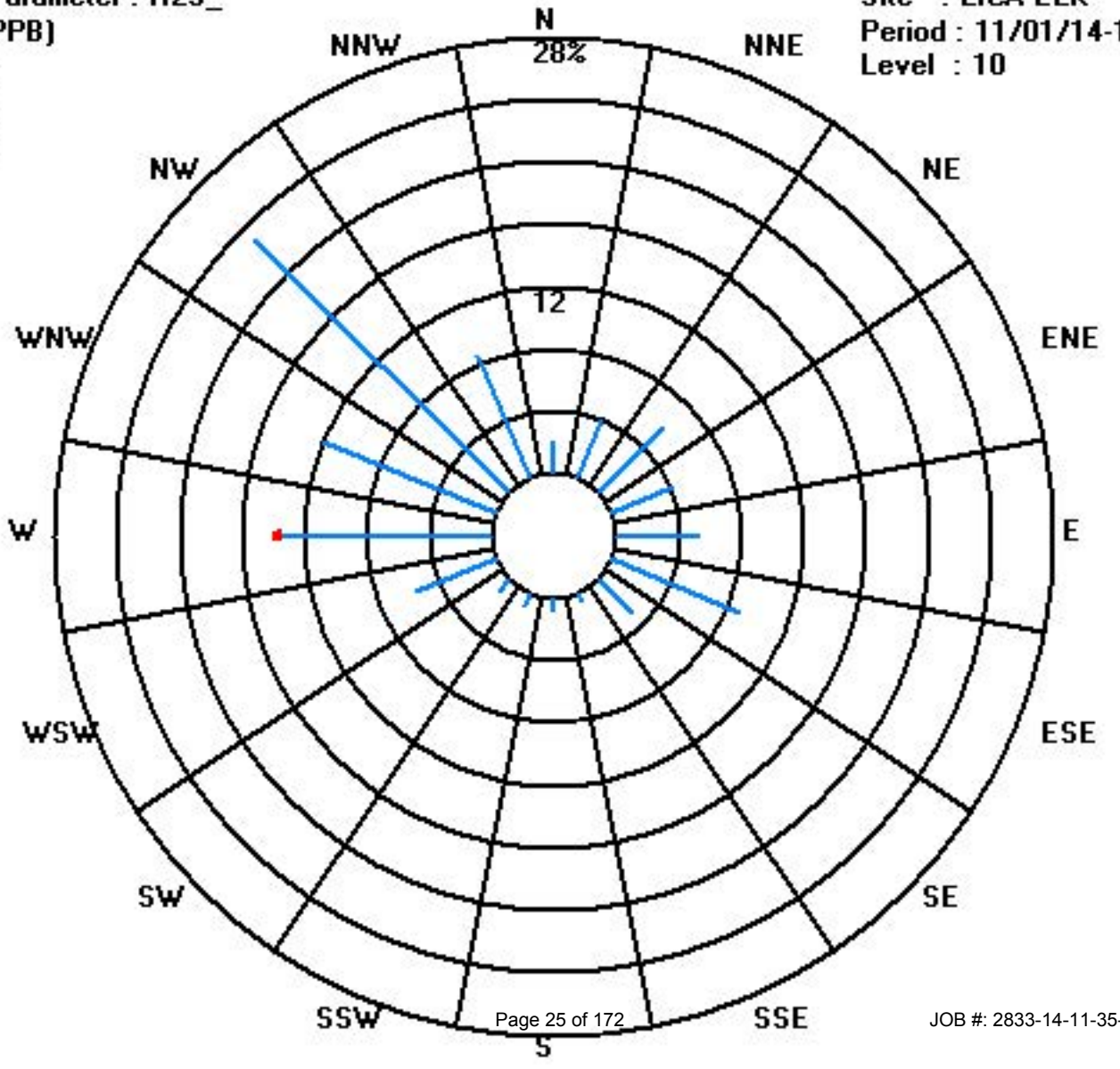
Calm : .00 %

Total # Operational Hours : 654

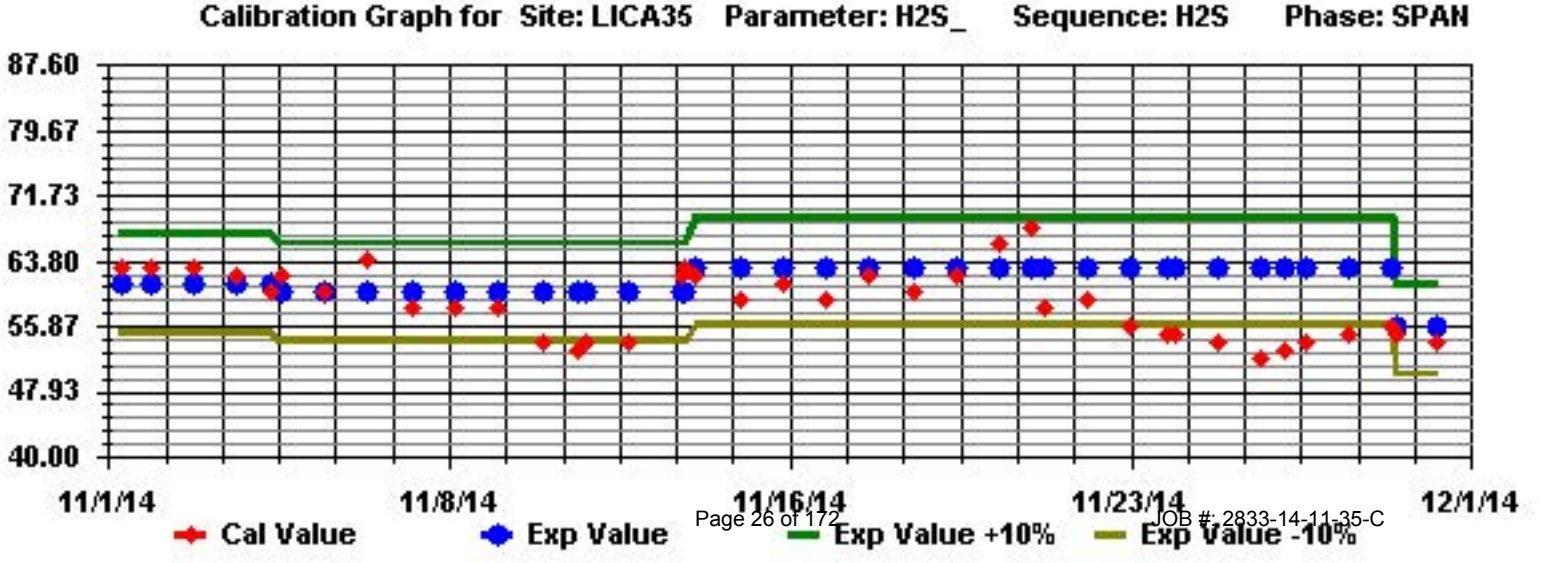
Logger : 35 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA-ELK
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN
87.60
79.67
71.73
63.80
55.87
47.93
40.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

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

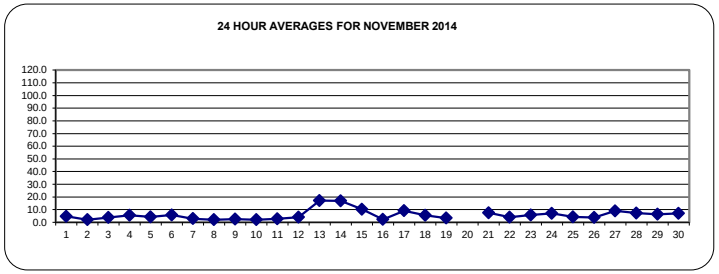
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7	12	7	12	9	6	3	10	5	0	4	X	0	0	3	0	6	4	5	10	4	1	0	1	12	4.7	23
2	0	0	0	2	0	0	1	2	5	0	2	4	4	3	2	4	0	3	5	4	5	0	1	3	5	2.1	24
3	2	3	2	2	3	0	2	4	2	8	6	6	6	5	6	5	3	0	1	3	3	12	3	3	12	3.8	24
4	3	1	5	5	4	9	7	7	6	3	6	4	C	C	0	3	6	X	8	8	4	6	7	13	13	5.5	23
5	5	7	8	5	0	4	X	0	1	X	1	3	4	1	6	5	3	9	4	11	2	3	6	7	11	4.3	22
6	9	9	8	6	7	5	5	8	13	0	6	9	4	2	4	4	7	X	2	3	5	8	7	1	13	5.7	23
7	4	6	0	4	5	5	4	4	1	3	3	3	3	4	5	0	2	2	0	0	X	3	4	1	6	2.9	23
8	0	0	0	1	0	3	1	0	2	8	0	0	6	0	0	7	8	0	3	0	1	2	3	4	8	2.0	24
9	0	1	2	3	3	3	7	0	1	7	1	2	0	0	0	4	3	0	2	5	8	0	5	3	8	2.5	24
10	5	3	1	1	0	0	3	3	2	3	2	7	1	5	0	4	0	1	0	2	5	1	0	0	7	2.0	24
11	3	1	1	2	3	0	2	2	1	2	7	3	6	6	1	1	0	3	4	1	2	4	5	7	7	2.8	24
12	5	8	3	1	1	0	2	0	0	2	0	2	0	4	5	9	8	9	8	9	9	5	4	5	9	4.1	24
13	7	11	9	6	10	6	8	7	11	6	3	9	15	18	25	4	6	19	9	18	13	14	***147***	32	***147***	***17.2***	24
14	10	13	16	12	17	19	25	24	39	72	51	23	14	9	10	0	11	9	6	9	2	4	8	2	72	16.9	24
15	7	5	8	7	8	4	4	13	8	16	19	13	14	13	16	14	13	5	13	13	9	10	9	5	19	10.3	24
16	7	3	6	2	X	2	0	X	X	0	0	5	2	0	4	4	1	3	0	X	2	2	0	2	7	2.3	20
17	2	0	4	4	5	4	2	7	5	6	9	9	10	12	4	9	11	13	17	12	13	13	27	22	27	9.2	24
18	24	21	13	13	10	8	5	4	3	5	4	1	0	2	0	0	3	X	5	X	0	0	0	0	24	5.5	22
19	7	4	X	X	5	0	3	6	2	5	3	0	X	2	X	X	X	X	X	X	X	X	X	X	7	3.4	11
20	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
21	X	X	X	X	X	X	X	X	X	X	C	C	8	8	7	7	11	9	9	6	7	17	0	1	17	7.5	14
22	13	9	11	5	5	6	1	0	5	6	0	5	0	0	0	0	4	4	1	6	9	4	4	1	13	4.1	24
23	1	1	5	X	8	X	2	7	3	8	4	3	0	5	4	0	6	12	0	0	0	16	21	22	22	5.8	22
24	4	10	20	16	10	14	10	3	7	7	8	7	5	2	3	2	2	8	4	6	0	4	7	9	20	7.0	24
25	2	2	3	5	16	0	6	X	X	0	X	3	7	X	9	5	X	5	2	2	4	1	0	9	16	4.3	19
26	3	0	0	6	3	1	5	3	1	1	3	6	0	C	C	C	8	X	3	6	18	11	0	0	18	3.9	23
27	0	12	25	20	4	1	7	23	27	2	X	3	16	0	0	20	X	0	12	8	13	6	0	0	27	9.0	22
28	13	6	27	12	0	18	5	11	3	1	8	2	11	18	X	0	0	X	X	0	2	2	X	X	27	7.3	19
29	6	9	7	9	0	9	13	0	X	10	4	0	0	1	1	5	18	X	16	9	5	12	7	0	18	6.4	22
30	4	12	14	11	11	X	X	0	X	X	8	17	5	11	4	4	17	7	0	6	0	12	0	0	17	7.2	20
HOURLY MAX	24	21	27	20	17	19	25	24	39	72	51	23	16	18	25	20	18	19	17	18	18	17	147	32			
HOURLY AVG	5.5	6.0	7.6	6.6	5.4	4.9	5.1	5.7	6.4	7.0	6.2	5.5	5.2	5.0	4.8	4.4	6.1	5.5	5.1	6.2	5.3	6.1	10.1	5.6			

STATUS FLAG CODES

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

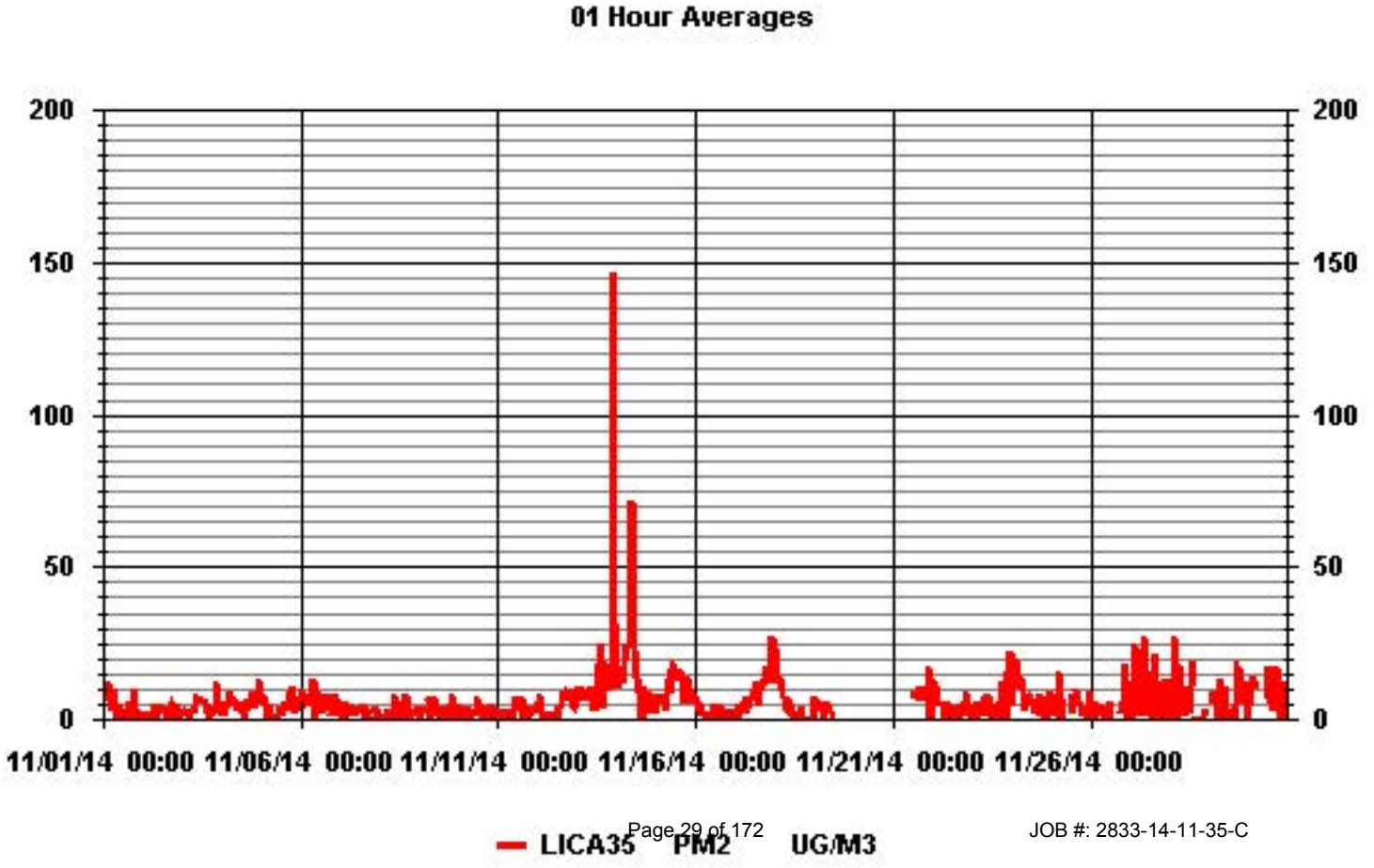
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 24-HR 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	520					
MAXIMUM 1-HR AVERAGE:	147	ug/m3	@ HOUR(S)	22	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	17.2	ug/m3			ON DAY(S)	13
					VAR-VARIOUS	
			OPERATIONAL TIME:		640	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		88.9	%
STANDARD DEVIATION:	8.50		MONTHLY AVERAGE:		5.90	ug/m3

JOB #: 2833-14-11-35-C



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	2.84	3.94	6.47	4.58	5.52	8.21	2.36	.47	.94	.47	1.42	5.05	12.79	11.53	23.53	9.00	99.21
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.15	.15	.00	.47
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.15
<	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	.15	.00	.00	.15
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.84	3.94	6.47	4.58	5.52	8.21	2.36	.47	.94	.47	1.42	5.05	12.95	12.00	23.69	9.00	

Calm : .00 %

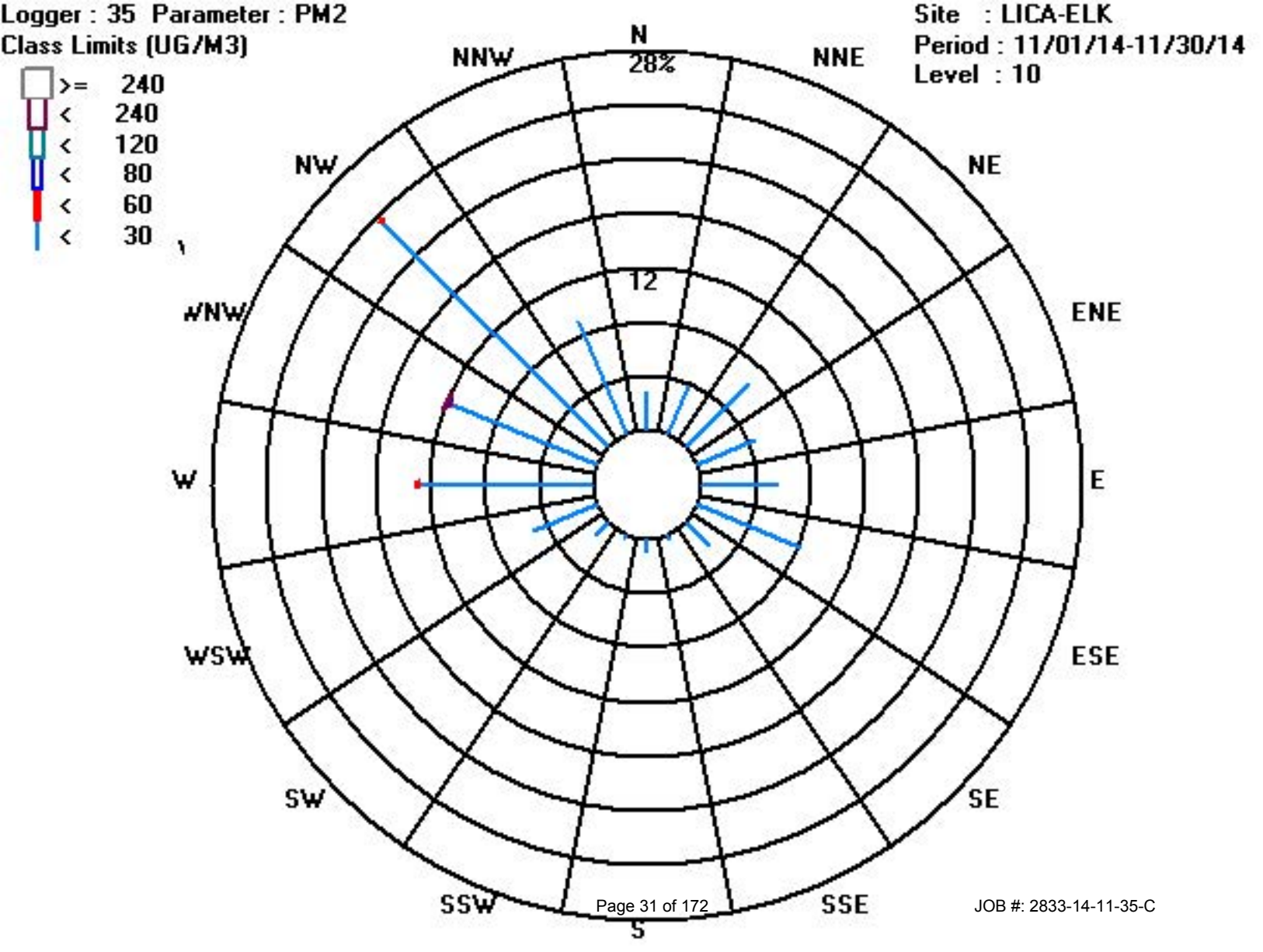
Total # Operational Hours : 633

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	18	25	41	29	35	52	15	3	6	3	9	32	81	73	149	57	628
<	60													1	1	1		3
<	80														1			1
<	120																	
<	240														1			1
>=	240																	
	Totals	18	25	41	29	35	52	15	3	6	3	9	32	82	76	150	57	

Calm : .00 %

Total # Operational Hours : 633



JOB #: 2833-14-11-35-C

Nitrogen Dioxide

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

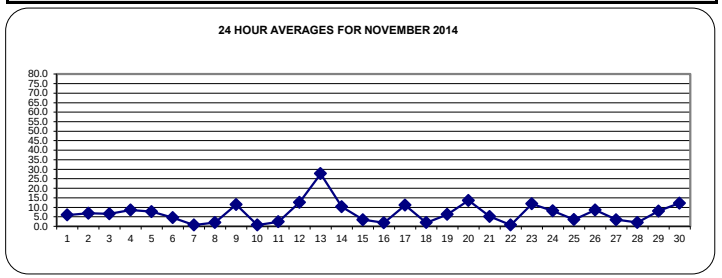
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7.8	6.6	5.6	6	6	1.7	1.5	3.6	2.4	0.6	0.6	0.5	0.6	0.7	0	0.1	1.6	8.6	16.8	21.3	12.3	7.7	**S**	23.8	23.8	5.9	24
2	13.7	5.9	4.2	7.7	6	3.6	4.4	6.3	6	9	11.4	5.5	4.5	2.4	2.8	3.1	3.4	4.5	5.4	4.4	6.9	**S**	13	24.5	24.5	6.9	24
3	23.3	18.3	15.4	11.8	11.5	11.6	10.5	10.5	**S**	6.9	4.9	2.1	1.2	1.7	1.2	1.8	2.8	1.6	0.6	0.7	**S**	1.2	1.4	2.2	23.3	6.5	24
4	1.3	2.9	8.8	10.1	10.8	10.3	6.2	3.2	4.2	4.1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	11.1	11.6	**S**	15.1	14.3	10.1	12	15.1	8.5	24
5	12.3	15.6	10.6	7.6	7.2	6.9	6.4	6.8	6.7	4.1	3.5	1.7	1.8	1.6	1.5	0.9	1.1	2.1	**S**	17.1	18.6	16	15.2	13.4	18.6	7.8	24
6	7.7	6.7	5.1	4.7	3.1	2.9	3.4	3.9	**S**	0.9	4	3.5	3.1	3.3	5	5.4	7	**S**	6.9	5.5	6.9	4.3	3.3	4.2	7.7	4.6	24
7	1.6	0.8	0.6	0.4	0.2	0.1	0	0.3	1.6	1.2	0.9	1.3	0.4	0.2	0	0	**S**	1	1.1	1.3	0.7	0.9	1	1.4	1.6	0.7	24
8	1.8	1.5	1.1	0.9	1.1	1.9	2.6	1.1	1.2	1.4	1.2	1.1	1.4	1.5	5.9	**S**	3.5	3.1	1.8	1.6	1.7	2.2	2.2	3.1	5.9	2.0	24
9	2.7	5.4	20.5	21.3	16.8	14.9	10.3	5.9	8.4	13	3.8	2.6	5.3	4.6	**S**	3.3	11.9	14.6	15	16.9	26	23.1	15.2	2.2	26	11.5	24
10	2.4	1.2	0.9	0.9	1.6	2	1.4	1	1.1	0.6	0.9	1.1	0.9	**S**	0	0	0	0	0	0	0	0	0	0	2.4	0.7	24
11	0.7	1	0.7	0.2	0	0	0	0	0	0	0	0	**S**	2.7	1.8	1.9	2.4	2.5	2.8	9.7	10.2	8	4.8	5.6	10.2	2.4	24
12	6.1	7.9	13	11.9	6.5	3	3	0.6	0.5	1.4	0.5	**S**	1.1	0.7	1.6	2.9	7.8	25.7	29	***35.4***	34.1	33.2	31.4	31.3	***35.4***	12.5	24
13	29.3	26.8	29.5	27.4	25.4	24.4	24.2	26.2	26.3	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	31	29.4	**S**	32.1	32.1	***27.7***	24
14	25.9	22.8	21.6	18.2	17.3	18.5	20	19.6	18.4	11.7	8.7	5.6	4.5	3.6	2.9	3.1	3.7	2.2	2.4	2.1	1.4	**S**	2.4	1.2	25.9	10.3	24
15	1.2	1.4	0.7	1.1	0.1	1.9	1.5	3.5	**S**	2.3	1.7	3	3.2	4.9	8.4	8.9	8.1	14.3	7.2	0	**S**	1.3	0.8	0.5	14.3	3.5	24
16	1.1	0.7	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	3.8	5.2	14.4	16.8	16.8	1.8	24
17	12.7	12.9	8.4	12	5.2	5.5	5.6	5.8	4.6	4.7	6.5	4.9	7.1	5.2	7.9	9.6	15.5	22.3	**S**	21.8	18.1	14.2	25	20.3	25	11.1	24
18	17.9	13	2.9	1.2	0.6	0.2	0	0	0	0	0	0	0	0	0	0	0	**S**	3.2	1.3	1	0.9	1.5	0.4	17.9	1.9	24
19	0.5	0.7	1	0.6	0.7	1.4	1.8	2.4	2.8	1.3	1	1.7	1.8	2.6	2.2	3.7	**S**	14.4	20.7	22.2	19.3	20.3	13.1	8.3	22.2	6.3	24
20	9.9	9.2	7.7	5.3	6.3	10.3	12.1	11.8	11.3	10.8	8.8	5.4	5.6	5.4	8.3	**S**	21	23.8	20.1	22.7	25.4	25.6	24.8	21.5	25.6	13.6	24
21	19.6	14.3	14	14.3	10.6	6.2	2.1	1.3	2.8	6.5	1.2	1.2	2.1	1.5	**S**	4.2	3.6	4.1	2.8	2.5	1.2	0.8	0.7	0.9	19.6	5.2	24
22	0.7	0.5	0.6	0.2	0.2	0.3	0	0.1	0	0	0	0	0.3	**S**	1.6	0.8	1.1	1.3	1	1.3	1.7	1.2	1.1	1.1	1.7	0.7	24
23	1.8	2	3.3	9.5	8.4	4.6	6.8	13.1	16.5	10.5	5.9	5.4	**S**	4	5.3	9.3	20.4	22.8	22.8	25.4	25.4	19.8	16.4	12.1	25.4	11.8	24
24	16.3	14.8	19.7	21.8	18.6	19.3	12	6.5	4.1	2.5	1.5	**S**	2.8	2.4	2.8	4.1	3.4	4.4	5.6	4.5	3.4	4.5	6.1	4.7	21.8	8.1	24
25	4	2.9	2.4	1.9	1.7	1.6	0.4	0.9	1.3	1.2	**S**	1.9	1.3	1.7	1.9	1.7	1.7	2.7	3.5	8.7	10.6	7.6	10	9.8	10.6	3.5	24
26	7	6.9	3.5	4.1	2.7	4	4.5	4.1	5.2	**S**	7.2	6.4	6.4	6.8	7.8	9.6	12.5	12.7	13.2	14.5	14.6	15.8	14.1	12.8	15.8	8.5	24
27	13.4	12.4	10.1	9.9	8.1	6	4.3	**S**	**S**	0	0	0	0	0.6	**C**	**C**	**C**	0.6	0.1	0.2	0.1	0	0	0	13.4	3.5	24
28	0	0	0	0.3	0	0	0	**S**	2.1	0.9	1.1	0.4	0.1	0.4	0.9	0.9	0.6	3.2	4.2	8.6	9.1	11.1	1.2	1	11.1	2.0	24
29	1	0.7	1.2	1.3	6	7	**S**	9.7	14.2	9.5	6.6	4.3	2.3	2	4.1	8	14.8	18.1	16.3	16.8	16.5	8	8.6	8.2	18.1	8.1	24
30	9	7.1	10.2	9.3	7.4	**S**	8.7	4.9	8.8	8.1	5.2	1.9	1.9	3.2	3.3	8.5	11.4	20.4	25	31.8	31.6	22.7	23.9	16.3	31.8	12.2	24
HOURLY MAX	29	27	30	27	25	24	24	26	26	13	11	6	7	7	8	10	21	26	29	35	34	33	31	32			
HOURLY AVG	8.4	7.4	7.5	7.4	6.3	5.9	5.3	5.5	5.8	4.0	3.2	2.4	2.3	2.5	3.1	3.7	6.4	9.0	8.9	11.0	12.4	10.7	9.3	9.7			

STATUS FLAG CODES

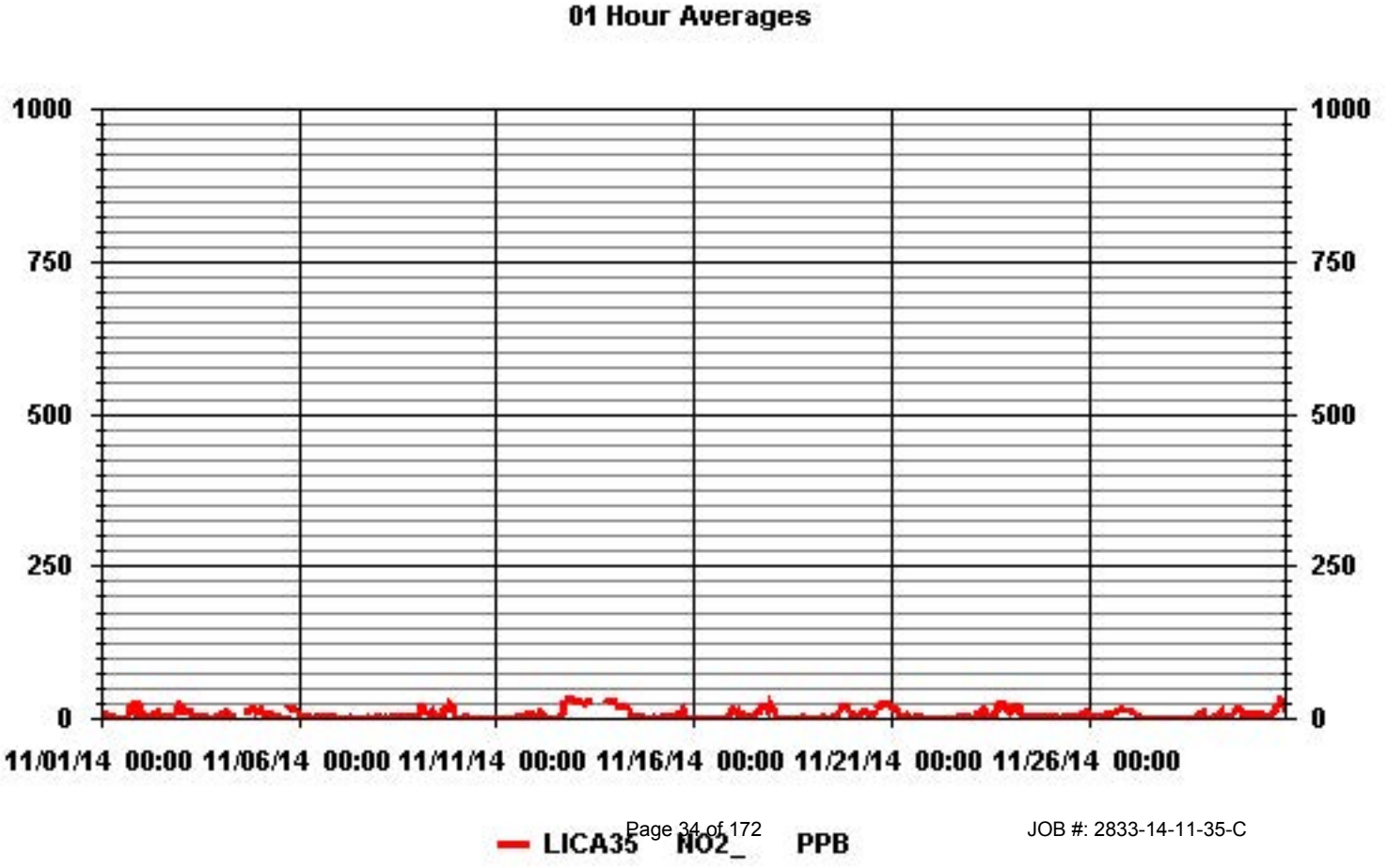
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	597					
MAXIMUM 1-HR AVERAGE:	35.4	PPB	@ HOUR(S)	19	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	27.7	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	21	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	7.55		MONTHLY AVERAGE:		6.66	PPB



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

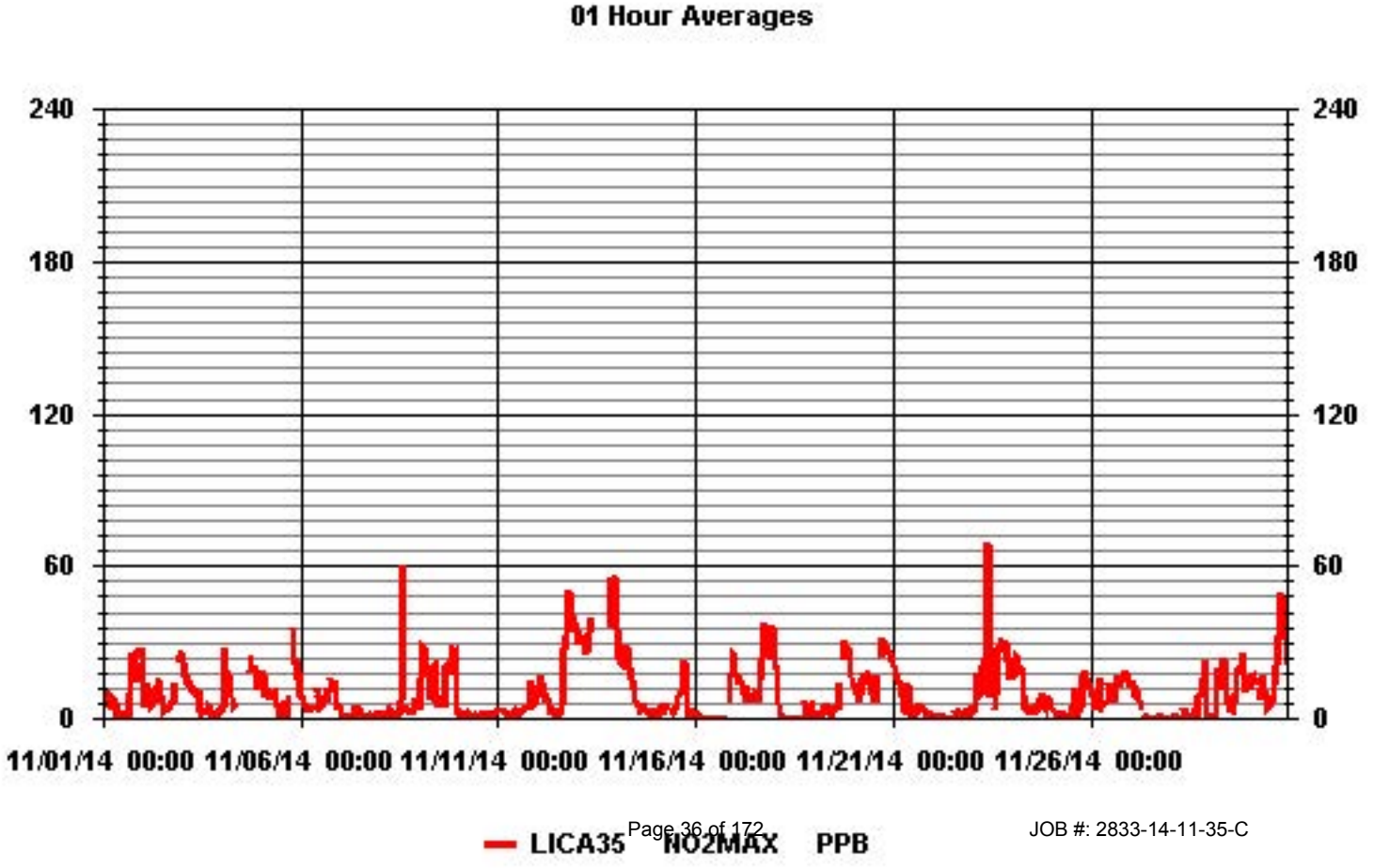
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	10.4	8.7	7.6	9.7	8.4	3.8	6.3	7.4	6.1	1.6	1.7	1.4	1.5	1.6	1.2	0.9	10.1	14.1	24.8	25.2	22.8	15.4	**S**	26.6	26.6	9.4	24
2	24.8	9.5	4.5	13.4	9	4.6	5.3	11.8	6.6	12.3	15.4	6.5	9.3	3	3.5	3.6	4.2	5.3	6.1	6.5	12.5	**S**	23	25.9	25.9	9.9	24
3	25.6	22.5	17.1	14.3	13.3	13.3	11.3	11.8	**S**	9.1	9.5	3.2	2	3.2	2.5	2.8	4.8	3.5	1.9	1.6	**S**	2.1	3.3	2.9	25.6	8.3	24
4	3	4.6	27.9	18.8	17.5	16.1	9	5.1	5.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	19.8	23.9	**S**	20.5	19.1	11.9	13.3	27.9	14.4	24
5	14.2	19.1	17.3	8.8	10	7.9	7.9	9.5	10.2	5.7	5.7	2.1	2.5	2.7	7	2	1.5	7.7	**S**	34.3	22.6	22.5	16.7	17	34.3	11.1	24
6	9	8.8	6.7	5.8	3.9	3.4	4.2	4.6	**S**	**S**	10.8	9.4	4	4.4	7.1	7.2	11	**S**	14.4	10.3	13.3	13.4	4.6	4.7	14.4	7.7	24
7	4.7	1.5	1	1	0.7	0.8	0.5	0.8	3.4	2.9	1.9	4.3	0.8	1.1	1.1	0.6	**S**	1.4	1.7	1.7	1	1.2	1.6	2.1	4.7	1.6	24
8	2.2	1.9	1.8	1.6	2.1	2.6	3.7	1.8	1.5	1.7	1.6	1.3	1.6	7.4	59.4	**S**	4.4	3.8	3	2.6	2.6	7.8	4.1	7.1	59.4	5.5	24
9	3.5	15.6	28.9	28.4	22.3	20.2	17.9	6.8	20.5	21.1	7.1	4.1	7.9	6.8	**S**	4.9	20.8	21.9	17	23.1	28.1	26.1	26.6	3	28.9	16.6	24
10	3.1	1.9	1.6	1.4	2.4	2.8	2.8	1.8	1.9	1.2	1.8	2	1.7	**S**	1.6	1.4	1.5	1.3	1.4	1.7	1.8	1.8	2.2	2.7	3.1	1.9	24
11	3.3	3.7	3.2	2.7	2.4	1.9	1.7	2.4	1.9	2.3	3.1	1.7	**S**	3.3	2.2	3	4.3	4.1	4.7	15.2	13.5	10.7	6.3	7.2	15.2	4.6	24
12	9	9.3	16.7	14.8	10.2	6.9	8.6	2.5	2.7	4.4	1.8	**S**	2.3	1.5	3.9	5.6	27.3	32.3	35.3	50.8	39.5	39.6	34.3	37.1	50.8	17.2	24
13	31.2	29.1	31.6	30.2	30	26.5	26.7	34	38.8	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	36.9	54.5	**S**	55	55	***35.4***	24
14	35.7	24.1	22.9	21.7	20.5	21.1	28.2	20.5	19.9	15.8	12.3	7	5.3	5.3	3.5	4.2	4.7	3.6	3.5	3	2.4	**S**	3.2	1.4	35.7	12.6	24
15	2	3.2	2	4.3	1.4	6	4.9	**S**	**S**	3.5	2.4	3.5	5.2	8.2	10	10.5	9.4	22.3	18.7	0.6	**S**	3.6	1.8	1.8	22.3	6.0	24
16	2.4	1.8	1.2	0.6	0.6	0	0	0	0	0	0	0	0	0	0.6	0	0	0	0	**S**	7.1	18.1	25.8	25.2	25.8	3.6	24
17	17.5	17	13.5	15.3	10.6	10.6	11.2	7.6	7.1	7	8.8	7	9.4	6.4	10.6	14.7	23.5	36.3	**S**	35.7	25.2	23.5	36.3	24.6	36.3	16.5	24
18	19.9	19.9	5.8	1.8	1.2	0.6	0	0	0.6	0	0	0	0	0	0	0	0	**S**	5.4	1.2	1.2	5.4	5.9	0.7	19.9	3.0	24
19	1.2	1.2	1.8	1.2	0.7	4.2	4.8	4.7	4.7	2.4	1.2	3	3	3.6	4.1	12.4	**S**	24	30.5	27	27	24.6	17	12.9	30.5	9.4	24
20	12.9	12.9	10.6	5.8	8.8	15.8	16.9	17.5	15.2	14.1	14.7	10	7	7	15.8	**S**	25.1	31.5	25.1	26.2	27.4	26.2	25.7	23.3	31.5	17.2	24
21	21	18.6	16.9	15.7	14.5	9.3	3.4	1.7	7.5	14	2.9	2.2	2.9	2.3	**S**	4.8	4.2	4.8	4.1	3.6	1.8	1.2	1.2	1.8	21	7.0	24
22	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.1	0.1	0.1	0.1	0.6	**S**	2.8	1.6	1.6	2.2	1.6	2.8	2.8	1.6	1.6	2.2	2.8	1.2	24
23	4.6	2.8	7.5	17.5	12.8	8.6	20.9	22.7	20.9	***69.5***	9.2	9.2	**S**	4.9	8.9	27.1	28.3	31.2	27.1	**P**	29.5	23.6	23.5	15.4	***69.5***	19.4	23
24	18.9	18.3	24.8	24.2	21.2	20	18.3	9.5	4.9	3.7	2.5	**S**	4.7	3	3.1	5.9	4.8	5.9	10	5.9	4.2	5.9	8.8	5.9	24.8	10.2	24
25	4.8	3	3	2.4	1.8	1.8	1.2	1.8	1.8	1.2	**S**	2.4	1.8	4.7	11.8	1.8	2.4	3	4.2	16.5	18.2	12.9	14.1	12.4	18.2	5.6	24
26	9.4	9.4	4.8	4.7	4.2	15.9	7.1	5.9	6.5	**S**	13	7.7	7.6	7.6	10.6	16.4	13.5	15.3	14.7	16.4	17.6	17.6	15.3	13.5	17.6	11.1	24
27	13.5	14.7	10.6	11.2	8.8	7.1	4.8	**S**	**S**	0.9	0	0	0	**S**	**S**	**S**	**S**	1.2	0.6	0.6	0.6	0.1	0.1	0.1	14.7	4.2	24
28	0.1	0.1	0.6	0.6	0.6	0.1	0.6	**S**	3	1.2	1.2	0.7	0	1.2	3	1.2	0.7	8.8	10	15.3	13	22.9	1.8	1.2	22.9	3.8	24
29	1.2	1.2	1.2	1.8	19.4	12.4	**S**	16	23.6	12.5	9.5	6.6	3.7	3.1	6	10.1	17.7	19.5	20.1	20.7	25.9	10.1	11.3	13.1	25.9	11.6	24
30	16	16.6	14.8	16.5	14.8	**S**	11.2	7.6	16.5	11.2	9.4	3.6	4.2	8.2	7	12.9	20.5	32.8	42.8	49.3	35.7	31.1	42.8	22.3	49.3	19.5	24
HOURLY MAX	36	29	32	30	30	27	28	34	39	70	15	10	9	8	59	27	28	36	43	51	40	55	43	55			
HOURLY AVG	10.9	10.1	10.3	9.9	9.2	8.4	8.3	8.0	8.9	8.4	5.5	3.8	3.4	4.0	7.5	6.2	9.9	13.2	13.1	15.3	16.2	15.8	13.2	12.7			

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:	633					
MAXIMUM INSTANTANEOUS VALUE:	69.5	PPB	@ HOUR(S)	9	ON DAY(S)	23
				VAR-VARIOUS		
IZS CALIBRATION TIME:	40	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	19	HRS				
STANDARD DEVIATION:	10.30					



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	2.40	4.06	5.41	4.21	5.71	8.87	3.15	.60	.60	.90	1.05	5.56	13.53	11.87	23.15	8.87	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.40	4.06	5.41	4.21	5.71	8.87	3.15	.60	.60	.90	1.05	5.56	13.53	11.87	23.15	8.87	

Calm : .00 %

Total # Operational Hours : 665

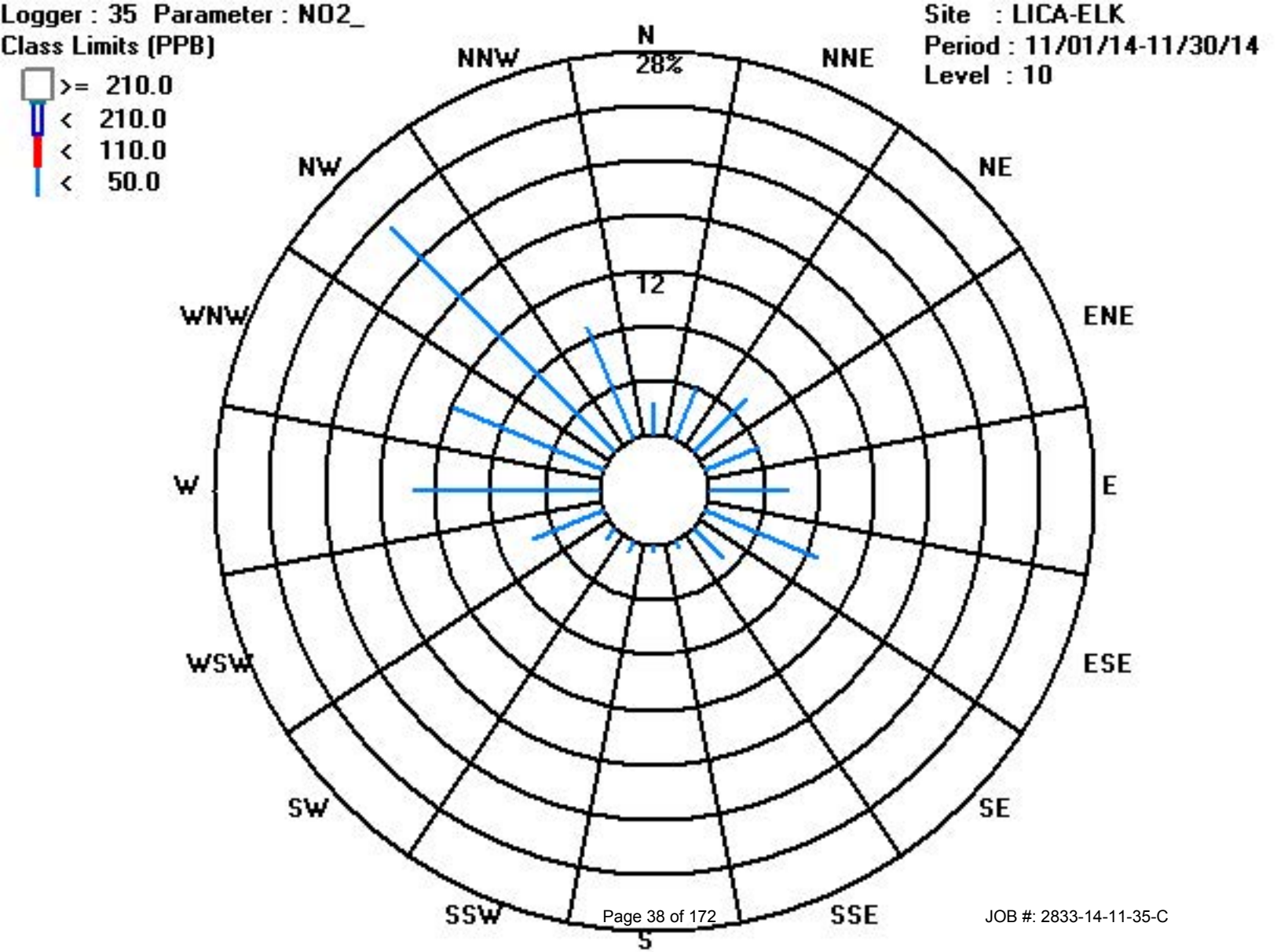
Distribution By Samples

Direction

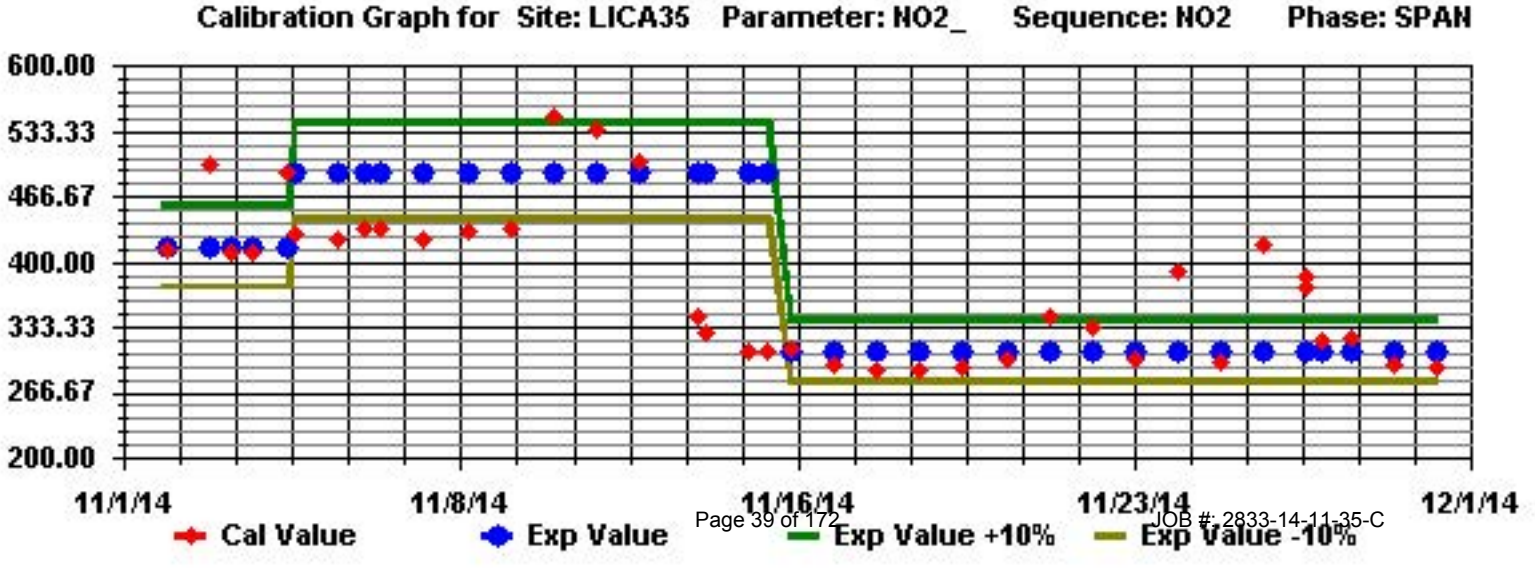
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	16	27	36	28	38	59	21	4	4	6	7	37	90	79	154	59	665
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	16	27	36	28	38	59	21	4	4	6	7	37	90	79	154	59	

Calm : .00 %

Total # Operational Hours : 665



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

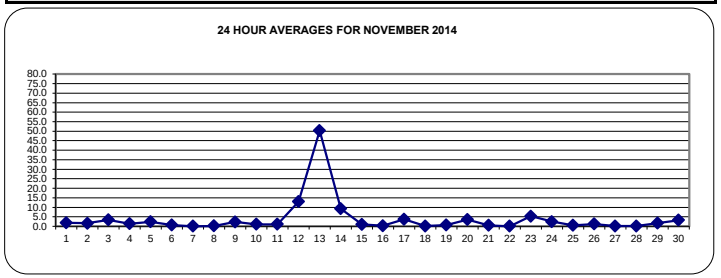
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1.5	0.9	3.3	3.2	0.2	0.3	0.9	0.5	0.7	0.6	0.5	0.4	0.5	0.4	0.3	0.4	0.5	0.5	1.8	0.3	0.4	S	24.6	24.6	1.9	24
2	4	0.4	0.1	0.8	0.1	0	0	0.8	0.5	2.6	3.9	0.9	1	0.8	0.4	0.2	0	0	0	0	0	S	2.8	17.5	17.5	1.6	24
3	19.3	18.8	7.1	3.5	4.5	5.6	3.6	2.9	S	4.3	2.9	0.5	0	0.2	0	0.2	0.6	0	0	0	S	0.1	0.2	0	19.3	3.4	24
4	0	0	2.1	0.2	0.7	1.3	0.4	0.2	0.6	0.4	C	C	C	C	C	C	C	0.5	3.6	S	5.8	3.8	0.7	1.8	5.8	1.4	24
5	2	8.2	1	0.2	0.1	0.2	0.1	0.7	1.9	1.6	1.8	0.5	0.6	0.2	0	0	0	0	S	11.6	11.1	9	3	1.8	11.6	2.4	24
6	0.3	0.1	0.5	0	0.2	0.1	0.3	0.3	S	2.8	1.8	1.2	1.3	1.2	1.4	0.9	0.9	S	0.7	0	1	0.4	0.1	0	2.8	0.7	24
7	0	0	0	0	0	0	0	0	0.1	0.1	0.2	0.5	0.1	0.2	0	0.2	S	0.1	0	0	0	0	0	0	0.5	0.1	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6	4.6	S	0	0	0	0	0	0	0	0.1	4.6	0.2	24
9	0	0.8	4.8	4.3	2	1.6	1.2	0.2	3.1	9.7	1.8	1.1	2.4	1.7	S	0.4	1.8	1.7	1.1	1.2	4.8	4.5	2.7	0	9.7	2.3	24
10	0	0	0	0	0.1	0.1	0.2	0.1	0.1	0.4	0.9	1.1	0.9	S	2.3	2.3	2.1	2.1	2.1	2	2	2	1.9	2	2.3	1.1	24
11	2.1	1.9	1.9	1.8	2	1.8	1.9	1.9	2	2.4	2.6	2.3	S	0	0	0	0	0	0	0.1	0	0	0	0	2.6	1.1	24
12	0	0.1	0	0	0	0	0	0	0	0	0	S	0.8	0.6	0.8	0.7	1.2	6.7	16.6	48.1	55.7	63.5	57.9	45.2	63.5	13.0	24
13	34.7	38	46.6	52.8	47	38.3	37.1	53.8	82.3	C	C	C	C	C	C	C	C	C	C	C	35.5	52.4	S	***85.2***	***85.2***	***50.3***	24
14	62.6	28.9	19.5	9.1	4	7.5	34.4	15.3	16.5	5.4	4.1	2.5	1.8	1	0.4	0.2	0	0	0	0	0	S	0.2	0.1	62.6	9.3	24
15	0.2	0.4	0.3	0.5	0.3	0.6	0.5	1.5	S	1.4	1.3	2.2	2.6	3.2	3.9	2.1	0.6	0.6	0.4	0	S	0	0	0	3.9	1.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0.3	0.7	2.7	2.8	2.8	0.3	24
17	0.2	0.6	0.9	0.5	0.3	0.6	0.7	0.5	1	2.5	5.8	5	7.5	4.3	4.8	3.6	4.6	12.1	S	10.6	3.8	2.7	10.9	2.6	12.1	3.7	24
18	0.8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0.1	0	0	0	0	0	1	0.1	24
19	0	0	0	0	0	0	0	0	0.1	0	0	0.6	0.6	1	0.7	1.3	S	1.6	3.5	1.6	1.6	1.6	0.7	0.4	3.5	0.7	24
20	0.4	0.5	0.5	0.3	0.5	1.3	1.3	0.9	2.1	4.6	3.6	1.9	2.7	2.5	3.4	S	3.1	12.3	2.5	2.3	5.3	11	11.3	8.6	12.3	3.6	24
21	4.5	0.8	1	0.3	0.2	0.1	0	0	0.3	2.1	0.3	0.2	0.6	0.5	S	0.4	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	4.5	0.5	24
22	0.1	0.1	0.2	0	0.2	0.1	0	0.1	0	0.2	0.1	0.2	0.2	S	0	0	0	0	0	0	0	0	0	0	0.2	0.1	24
23	0	0	0	0.6	0.3	0.6	1.9	3.6	6.4	8.5	5.6	6	S	2.3	3	4.6	13.1	9.6	6.3	25.1	21.2	1.5	1.5	0.3	25.1	5.3	24
24	1	0.9	18.9	13.2	3	12.1	3	0.8	0.2	0.1	0.2	S	0.5	0.5	0.7	0.5	0.1	0	0	0	0	0.1	0.2	0	18.9	2.4	24
25	0	0	0	0	0	0	0	0	0	0	S	1	1	1.7	1.3	0.6	0.6	0.6	0.5	1.2	1.6	0.9	0.8	0.6	1.7	0.5	24
26	0.8	0.6	0.7	0.6	0.8	1	1.2	1.3	1.3	S	2.7	2.8	2.6	2.6	2.7	2.4	1.3	0.8	1.2	0.4	0.5	0.4	0	0	2.8	1.2	24
27	0.1	0	0	0.1	0	0.1	0	S	S	0	0	0	0	1.4	C	C	C	0	0	0	0	0	0	0	1.4	0.1	24
28	0	0	0	0	0	0	0	S	0	0	0	0	0	0.1	0.2	0	0	0	0	0.9	0.6	1.3	0	0	1.3	0.1	24
29	0	0	0	0	1.2	1.9	S	1.3	3.5	5.6	5.6	4.2	2.3	1.6	2.3	2.4	1.1	1.2	0.8	0.9	2.4	0.6	0.5	0.7	5.6	1.7	24
30	0.3	0.7	0.5	0.5	0.9	S	0.7	0.4	2.8	4.2	4	2	1.9	3	2.2	3	2.9	7.4	7.4	9.9	10.9	2.1	5.3	1.2	10.9	3.2	24
HOURLY MAX	63	38	47	53	47	38	37	54	82	10	6	6	8	4	5	5	13	12	17	48	56	64	58	85			
HOURLY AVG	4.5	3.5	3.6	3.1	2.4	2.6	3.1	3.1	4.8	2.1	1.8	1.4	1.2	1.2	1.4	1.1	1.4	2.1	1.8	4.4	5.9	5.7	3.7	6.5			

STATUS FLAG CODES

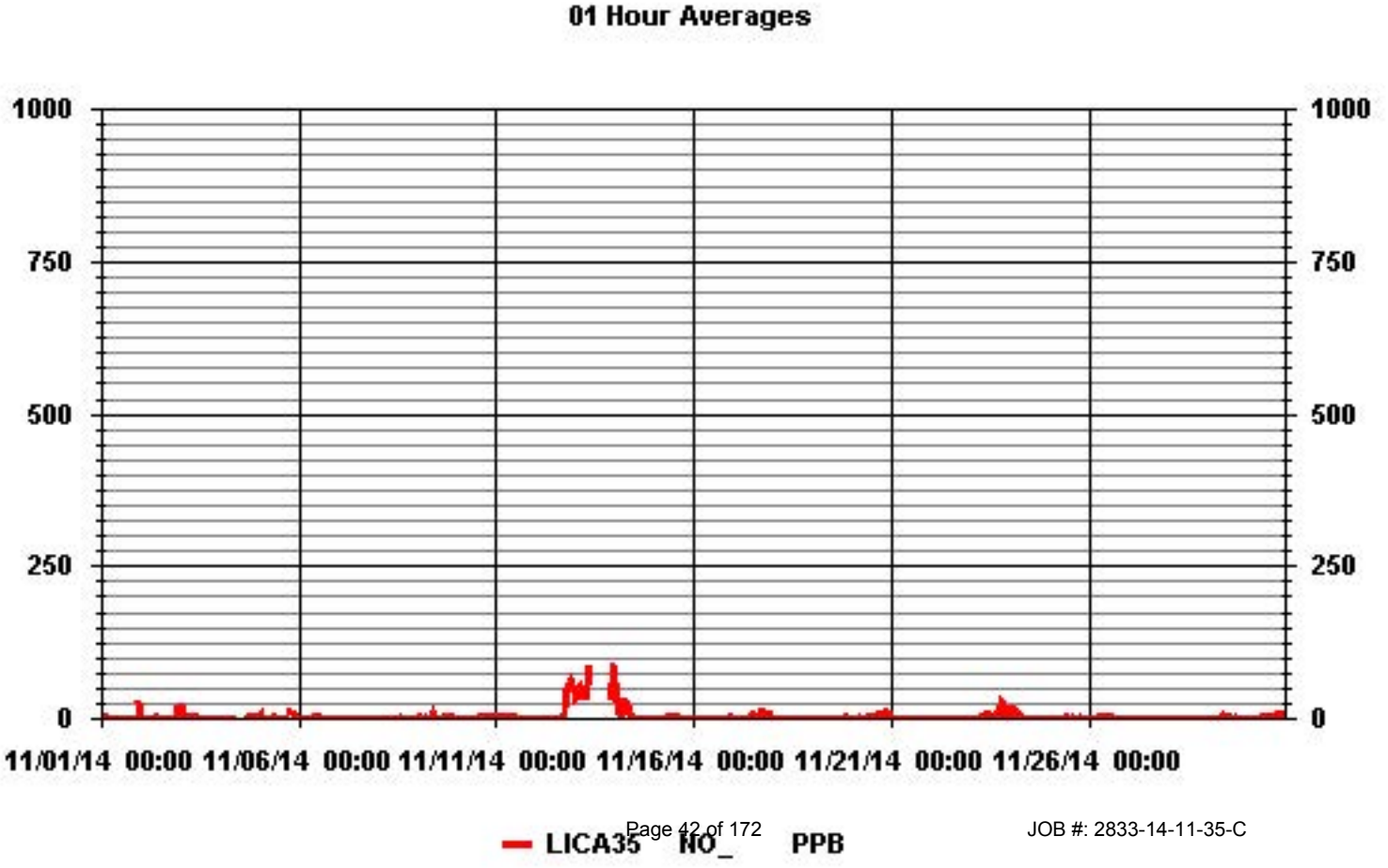
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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

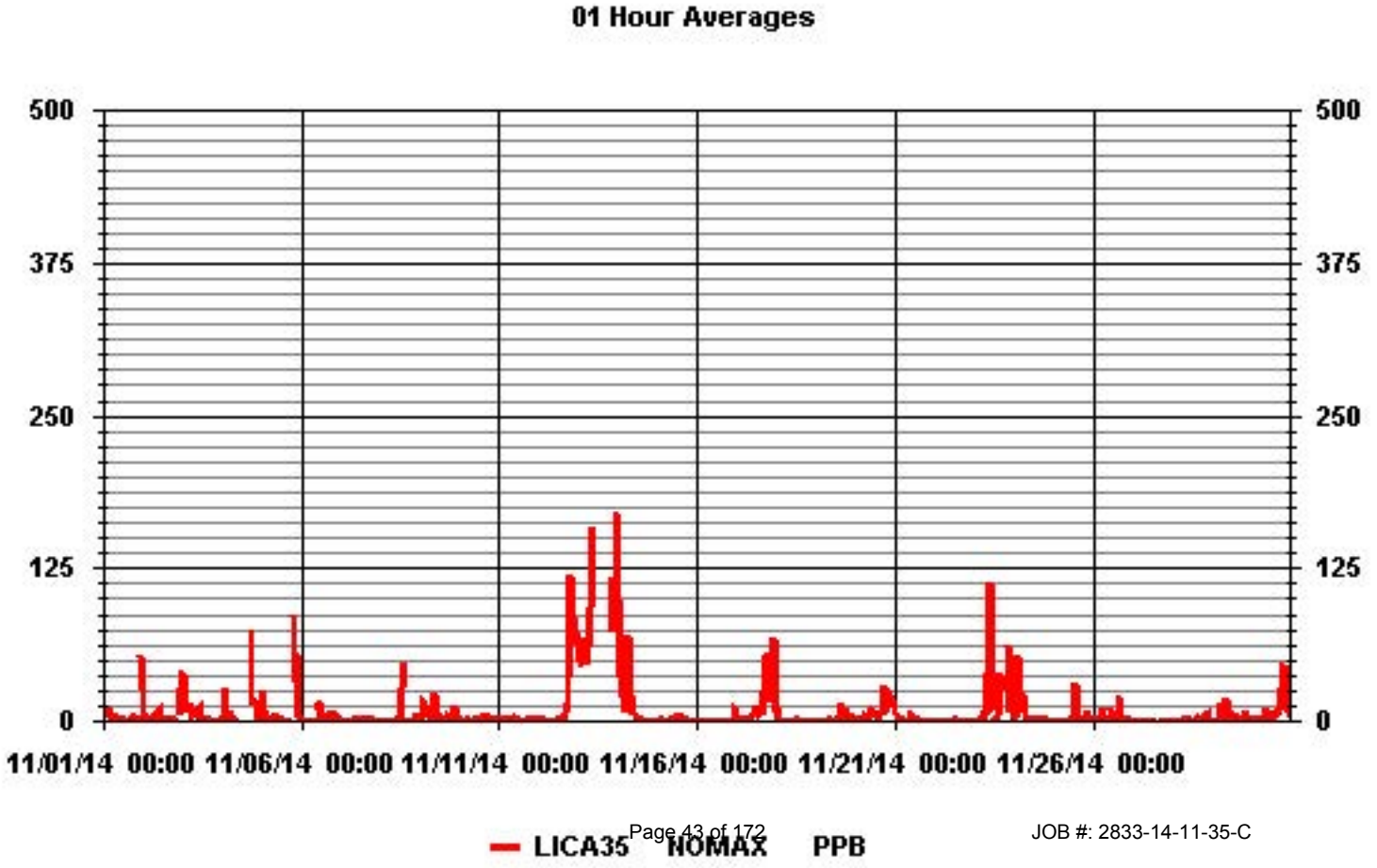


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	453					
MAXIMUM 1-HR AVERAGE:	85.2	PPB	@ HOUR(S)	23	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	50.3	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	21	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.22		MONTHLY AVERAGE:		3.07	PPB



JOB #: 2833-14-11-35-C



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

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	6.2	5.6	5.1	12.3	6	0.7	3.1	4	1.7	1.2	1.1	0.8	0.8	1.2	1.2	0.6	1.1	1.8	1.7	5.9	1.1	1.9	S	50.9	50.9	5.0	24
2	27	1.5	0.6	2.9	1.5	0.4	0.6	5.6	1.8	6.3	8.4	1.5	2.5	1.3	1.2	0.7	0.5	0.5	0.5	0.7	1.2	S	7.6	26.1	27	4.4	24
3	40.5	37.6	13.2	6.2	11.7	11.5	5.3	6.9	S	8	10.2	1.3	0.7	0.9	0.8	0.9	1.2	0.8	0.2	0.3	S	0.5	0.8	0.5	40.5	7.3	24
4	0.5	0.4	25.8	1.9	2.2	7.5	1.7	1.1	1.4	C	C	C	C	C	C	C	C	14.6	70.8	S	15.7	8.6	2	5	70.8	10.6	24
5	4.6	25	10.9	1	0.7	1.1	1.3	1.6	3.2	3.3	3.3	1.1	1.3	1.3	1	0.4	0.2	1.3	S	83.7	31.1	56	5.5	3.7	83.7	10.5	24
6	1.1	0.7	1.7	0.5	1.5	0.7	1.5	0.9	S	S	10.8	15.4	2.6	2.2	3	2	4.3	S	5.7	1.5	4.8	4.8	1.5	1.1	15.4	3.3	24
7	1.1	0.3	0.5	0.4	0.4	0.3	0.4	0.6	0.7	0.8	0.9	1.1	0.7	0.9	0.9	0.7	S	0.7	0.6	0.6	0.6	0.6	0.4	0.4	1.1	0.6	24
8	0.2	0.4	0.3	0.2	0.4	0.2	0.3	0.3	0.4	0.5	0.5	0.5	0.7	26.1	45.2	S	0.8	0.5	0.4	0.3	0.6	6.1	0.3	0.6	45.2	3.7	24
9	0.4	6.7	16.1	14.4	4.8	4.3	5.1	0.6	12.2	22.9	4	1.8	4.7	3.2	S	0.9	5.1	3.5	2.8	3.1	10.1	10.2	6.7	0.6	22.9	6.3	24
10	0.6	0.5	0.5	0.3	0.7	0.6	0.7	0.5	0.7	1	1.4	1.5	1.6	S	2.8	2.7	2.7	2.6	2.6	2.7	2.3	2.6	2.4	2.4	2.8	1.6	24
11	2.6	2.4	2.3	2.5	2.4	2.3	2.4	2.4	2.5	3.1	3.1	2.8	S	1.3	0.6	0.2	0	0	1.8	2.2	0.9	0.5	1.5	1.5	3.1	1.8	24
12	0.8	1.7	1.4	1.1	1.2	0.3	0.5	0	0	1.2	0.2	S	1.5	1.2	1.6	1.3	6.3	14.7	35.3	119.4	94.4	86.6	70.3	72.2	119.4	22.3	24
13	49.8	47.6	49.2	67.8	58.2	45.9	60.3	93.6	155.2	C	C	C	C	C	C	C	C	C	C	C	76	115.3	S	***168.4***	***168.4***	***82.3***	24
14	100.4	38.3	25.3	21.2	7.7	11.9	69.9	49.4	23	8.3	7.1	3	1.9	1.9	0.7	0.7	0.1	0.1	0.1	0.1	0.1	S	0.3	0.3	100.4	16.2	24
15	0.3	0.9	0.9	1.5	0.3	1.5	0.9	S	S	2	2	3.1	3.8	4.9	5.4	2.6	2	1.4	1.4	0.2	S	0	0	0	5.4	1.7	24
16	0	0.1	0.1	0	0	0	0	0	0.1	0	0	0	0	0	0.6	0	0.6	0	0	S	1.2	1.8	10.6	9.4	10.6	1.1	24
17	1.2	2.4	2.4	1.8	1.8	2.4	2.4	1.2	2.4	4.7	8.8	7	11.2	5.8	6.4	7	24.1	51	S	52.8	15.3	21.1	68	9.4	68	13.5	24
18	2.4	4.7	0	0	0	0	0	0	0	0	0	0	0.6	0.6	0.6	0	0	S	0.6	0	0	0	0	0	4.7	0.4	24
19	0.6	0	0	0	0	0.6	0	0.6	0.6	0.6	0.6	1.2	1.2	1.8	1.2	11.2	S	2.6	9	3.1	4.3	4.9	0.8	0.8	11.2	2.0	24
20	0.8	1.4	1.4	0.8	1.4	4.9	3.1	2.5	4.9	9	7.8	4.3	4.3	3.8	7.3	S	7	28.2	5.9	12.9	14.1	20	17.6	15.3	28.2	7.8	24
21	7	2.9	2.9	1.2	0.6	0.6	0.1	0.1	1.8	7	1.2	0.6	1.2	1.2	S	0.8	0.2	0.2	0.2	0.3	0.3	0.8	0.2	0.2	7	1.4	24
22	0.3	0.3	0.8	0.3	0.3	0.3	0.3	0.3	0.2	0.8	0.3	0.8	0.8	S	0	0	0	0	0	0	0	0	0	0	0.8	0.3	24
23	0	0.6	1.2	1.2	1.2	2.4	8.2	38.1	10.6	113.8	10.6	11.8	S	3.5	5.3	39.8	32.2	32.2	28.7	P	59.8	7.6	18.1	1.8	113.8	19.5	23
24	3.5	4.1	52.8	23.5	7	21.7	11.8	3.5	1.2	1.2	1.2	S	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	1.2	0	52.8	6.1	24
25	0	0	0	0	0	0.6	0	0	0	0.6	S	1.2	1.2	31.1	13.5	1.2	0.6	0.6	0.6	4.1	7.6	1.8	1.8	1.2	31.1	2.9	24
26	1.2	1.2	1.2	0.6	1.8	10.5	2.4	2.4	2.4	S	8.8	4.7	4.7	3	5.2	19.9	2.4	2.4	2.9	1.8	2.9	3.5	0.6	0	19.9	3.8	24
27	0.6	0	0	0.6	0	0.6	0	S	S	0.1	0.1	0.1	0.1	C	C	C	C	0	0	0.6	0	0	0	0	0.6	0.2	24
28	0	0	0	0.6	0	0	0	S	0.6	0.6	0.6	0.6	0	0.6	2.4	0	0	0	1.8	4.7	2.4	5.3	0	0	5.3	0.9	24
29	0.6	0	0	0	13.5	7.6	S	2.4	18.8	10	7.6	7	4.1	2.4	3.5	3.5	1.8	2.3	1.2	1.8	7.6	1.2	1.2	1.2	18.8	4.3	24
30	1.8	2.4	1.8	1.8	1.8	S	1.2	1.2	8.2	7.6	5.8	4.1	4.7	6.4	4.7	6.4	9.4	27	46.3	39.9	17	7	44.6	5.3	46.3	11.1	24
HOURLY MAX	100	48	53	68	58	46	70	94	155	114	11	15	11	31	45	40	32	51	71	119	94	115	70	168			
HOURLY AVG	8.5	6.3	7.3	5.6	4.3	4.9	6.3	8.1	9.8	8.3	3.9	3.0	2.2	4.3	4.7	4.2	4.1	7.0	8.2	13.2	13.3	13.2	9.4	12.6			

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

NUMBER OF NON-ZERO READINGS: 571

MAXIMUM INSTANTANEOUS VALUE: 168.4 PPB @ HOUR(S) 23 ON DAY(S) 13

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 23 HRS

STANDARD DEVIATION: 18.01

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	2.40	4.06	5.41	4.21	5.71	8.72	3.00	.60	.60	.90	1.05	5.41	13.23	11.57	22.85	8.87	98.64
<	110.0	.00	.00	.00	.00	.00	.15	.15	.00	.00	.00	.00	.15	.30	.30	.30	.00	1.35
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.40	4.06	5.41	4.21	5.71	8.87	3.15	.60	.60	.90	1.05	5.56	13.53	11.87	23.15	8.87	

Calm : .00 %

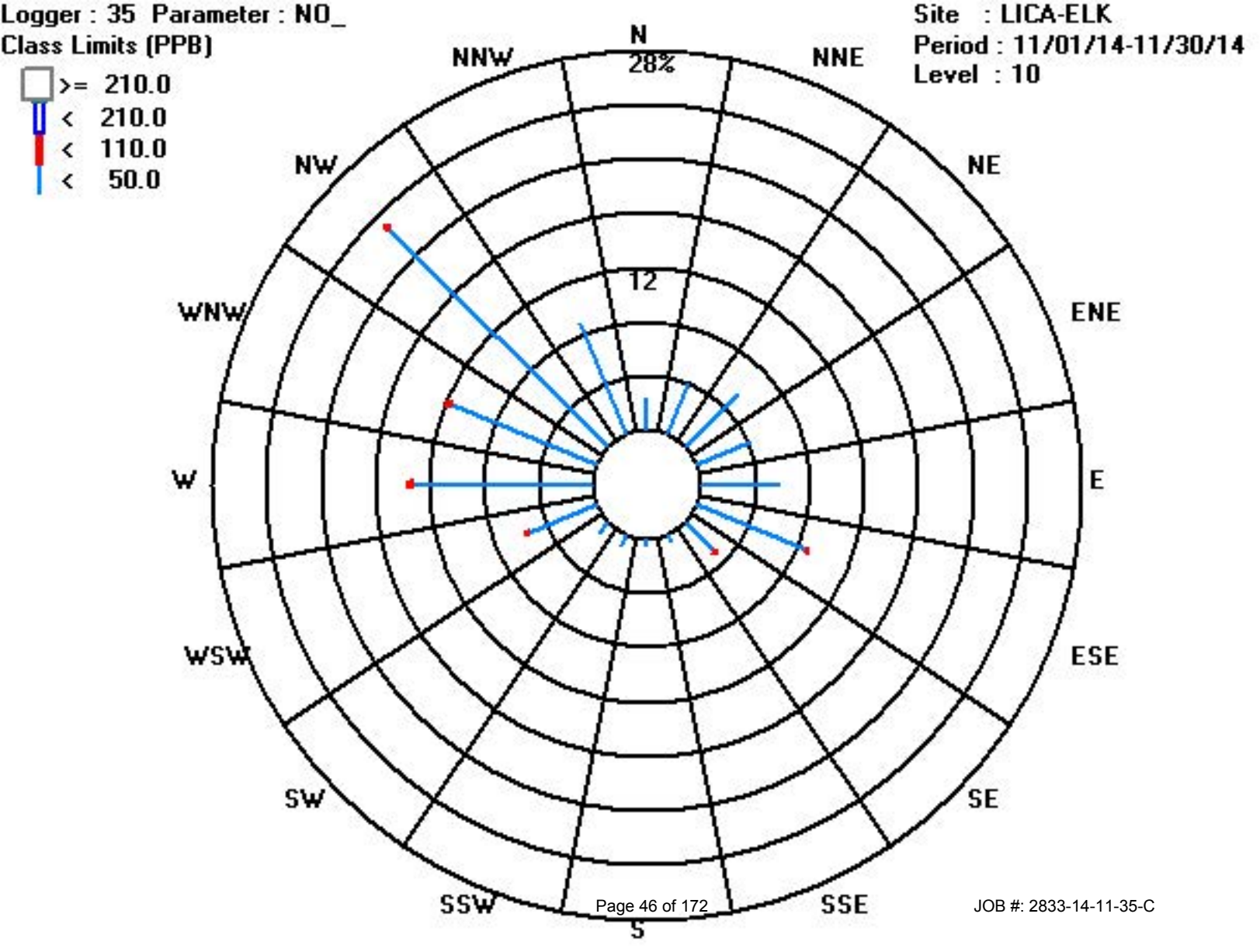
Total # Operational Hours : 665

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	16	27	36	28	38	58	20	4	4	6	7	36	88	77	152	59	656
<	110.0						1	1					1	2	2	2		9
<	210.0																	
>=	210.0																	
	Totals	16	27	36	28	38	59	21	4	4	6	7	37	90	79	154	59	

Calm : .00 %

Total # Operational Hours : 665



JOB #: 2833-14-11-35-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

OXIDES OF NITROGEN (NOx) hourly averages in ppb

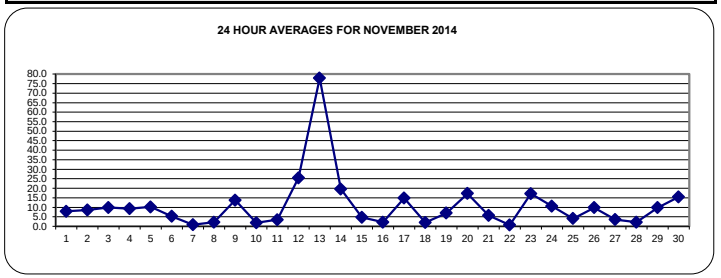
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.8	8.1	6.5	9.3	9.2	1.9	1.8	4.5	2.9	1.3	1.2	1	1	1.2	0.4	0.4	2	9.1	17.3	23.1	12.6	8.1	S	48.4	48.4	7.8	24
2	17.7	6.3	4.3	8.5	6.1	3.6	4.4	7.1	6.5	11.6	15.3	6.4	5.5	3.2	3.2	3.3	3.4	4.5	5.4	4.4	6.9	S	15.8	42	42	8.5	24
3	42.6	37.1	22.5	15.3	16	17.2	14.1	13.4	S	11.2	7.8	2.6	1.2	1.9	1.2	2	3.4	1.6	0.6	0.7	S	1.3	1.6	2.2	42.6	9.9	24
4	1.3	2.9	10.9	10.3	11.5	11.6	6.6	3.4	4.8	4.5	C	C	C	C	C	C	0	11.6	15.2	S	20.9	18.1	10.8	13.8	20.9	9.3	24
5	14.3	23.8	11.6	7.8	7.3	7.1	6.5	7.5	8.6	5.7	5.3	2.2	2.4	1.8	1.5	0.9	1.1	2.1	S	28.7	29.7	25	18.2	15.2	29.7	10.2	24
6	8	6.8	5.6	4.7	3.3	3	3.7	4.2	S	3.7	5.8	4.7	4.4	4.5	6.4	6.3	7.9	S	7.6	5.5	7.9	4.7	3.4	4.2	8	5.3	24
7	1.6	0.8	0.6	0.4	0.2	0.1	0	0.3	1.7	1.3	1.1	1.8	0.5	0.4	0	0.2	S	1.1	1.1	1.3	0.7	0.9	1	1.4	1.8	0.8	24
8	1.8	1.5	1.1	0.9	1.1	1.9	2.6	1.1	1.2	1.4	1.2	1.1	1.5	2.1	10.5	S	3.5	3.1	1.8	1.6	1.7	2.2	2.2	3.2	10.5	2.2	24
9	2.7	6.2	25.3	25.6	18.8	16.5	11.5	6.1	11.5	22.7	5.6	3.7	7.7	6.3	S	3.7	13.7	16.3	16.1	18.1	30.8	27.6	17.9	2.2	30.8	13.8	24
10	2.4	1.2	0.9	0.9	1.7	2.1	1.6	1.1	1.2	1	1.8	2.2	1.8	S	2.3	2.3	2.1	2.1	2.1	2	2	2	1.9	2	2.4	1.8	24
11	2.8	2.9	2.6	2	2	1.8	1.9	1.9	2	2.4	2.6	2.3	S	2.7	1.8	1.9	2.4	2.5	2.8	9.8	10.2	8	4.8	5.6	10.2	3.5	24
12	6.1	8	13	11.9	6.5	3	3	0.6	0.5	1.4	0.5	S	1.9	1.3	2.4	3.6	9	32.4	45.6	83.5	89.8	96.7	89.3	76.5	96.7	25.5	24
13	64	64.8	76.1	80.2	72.4	62.7	61.3	80	108.6	C	C	C	C	C	C	C	C	C	C	C	66.5	81.8	S	***117.3***	***117.3***	***78.0***	24
14	88.5	51.7	41.1	27.3	21.3	26	54.4	34.9	34.9	17.1	12.8	8.1	6.3	4.6	3.3	3.3	3.7	2.2	2.4	2.1	1.4	S	2.6	1.3	88.5	19.6	24
15	1.4	1.8	1	1.6	0.4	2.5	2	5	S	3.7	3	5.2	5.8	8.1	12.3	11	8.7	14.9	7.6	S	S	1.3	0.8	0.5	14.9	4.7	24
16	1.1	0.7	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	4.1	5.9	17.1	19.6	19.6	2.1	24
17	12.9	13.5	9.3	12.5	5.5	6.1	6.3	6.3	5.6	7.2	12.3	9.9	14.6	9.5	12.7	13.2	20.1	34.4	S	32.4	21.9	16.9	35.9	22.9	35.9	14.9	24
18	18.7	14	2.9	1.2	0.6	0.2	0	0	0	0	0	0	0	0	0	0	0	S	3.3	1.3	1	0.9	1.5	0.4	18.7	2.0	24
19	0.5	0.7	1	0.6	0.7	1.4	1.8	2.4	2.9	1.3	1	2.3	2.4	3.6	2.9	5	S	16	24.2	23.8	20.9	21.9	13.8	8.7	24.2	6.9	24
20	10.3	9.7	8.2	5.6	6.8	11.6	13.4	12.7	13.4	15.4	12.4	7.3	8.3	7.9	11.7	S	24.1	36.1	22.6	25	30.7	36.6	36.1	30.1	36.6	17.2	24
21	24.1	15.1	15	14.6	10.8	6.3	2.1	1.3	3.1	8.6	1.5	1.4	2.7	2	S	4.6	3.7	4.2	3	2.6	1.4	0.9	0.8	1.1	24.1	5.7	24
22	0.8	0.6	0.8	0.2	0.4	0.4	0	0.2	0	0.2	0.1	0.2	0.5	S	1.6	0.8	1.1	1.3	1	1.3	1.7	1.2	1.1	1.1	1.7	0.7	24
23	1.8	2	3.3	10.1	8.7	5.2	8.7	16.7	22.9	19	11.5	11.4	S	6.3	8.3	13.9	33.5	32.4	29.1	50.5	46.6	21.3	17.9	12.4	50.5	17.1	24
24	17.3	15.7	38.6	35	21.6	31.4	15	7.3	4.3	2.6	1.7	S	3.3	2.9	3.5	4.6	3.5	4.4	5.6	4.5	3.4	4.6	6.3	4.7	38.6	10.5	24
25	4	2.9	2.4	1.9	1.7	1.6	0.4	0.9	1.3	1.2	S	2.9	2.3	3.4	3.2	2.3	2.3	3.3	4	9.9	12.2	8.5	10.8	10.4	12.2	4.1	24
26	7.8	7.5	4.2	4.7	3.5	5	5.7	5.4	6.5	S	9.9	9.2	9	9.4	10.5	12	13.8	13.5	14.4	14.9	15.1	16.2	14.1	12.8	16.2	9.8	24
27	13.5	12.4	10.1	10	8.1	6.1	4.3	S	S	0	0	0	0	2	C	C	C	0.6	0.1	0.2	0.1	0	0	0	13.5	3.6	24
28	0	0	0	0.3	0	0	0	S	2.1	0.9	1.1	0.4	0.1	0.5	1.1	0.9	0.6	3.2	4.2	9.5	9.7	12.4	1.2	1	12.4	2.1	24
29	1	0.7	1.2	1.3	7.2	8.9	S	11	17.7	15.1	12.2	8.5	4.6	3.6	6.4	10.4	15.9	19.3	17.1	17.7	18.9	8.6	9.1	8.9	19.3	9.8	24
30	9.3	7.8	10.7	9.8	8.3	S	9.4	5.3	11.6	12.3	9.2	3.9	3.8	6.2	5.5	11.5	14.3	27.8	32.4	41.7	42.5	24.8	29.2	17.5	42.5	15.4	24
HOURLY MAX	89	65	76	80	72	63	61	80	109	23	15	11	15	10	13	14	34	36	46	84	90	97	89	117			
HOURLY AVG	12.9	10.9	11.0	10.5	8.7	8.5	8.4	8.6	10.6	6.2	5.1	3.8	3.5	3.7	4.5	4.7	7.5	11.1	10.6	16.0	18.3	16.4	13.0	16.2			

STATUS FLAG CODES

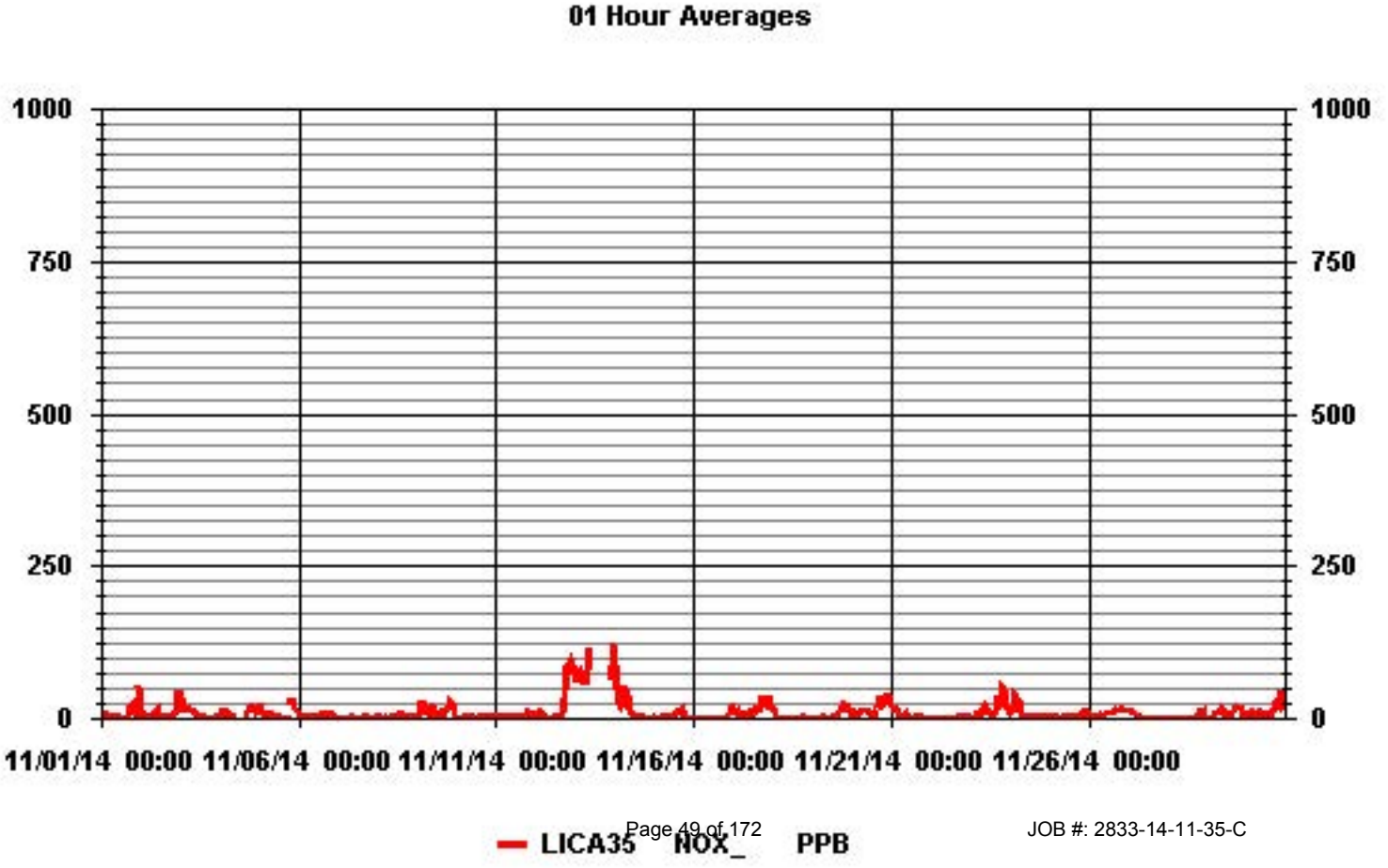
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	620					
MAXIMUM 1-HR AVERAGE:	117.3	PPB	@ HOUR(S)	23	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	78.0	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	20	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	15.30		MONTHLY AVERAGE:		9.73	PPB



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14.9	13.9	10.2	21.6	14	4.2	8.5	10.7	7.3	2	1.8	1.5	1.5	1.8	1.3	0.8	10.5	15.7	26.1	30.4	23.3	16.2	**S**	75.9	75.9	13.7	24
2	52.3	11	4.9	15.1	9.3	4.5	5.4	17.4	8.3	18.1	23.7	8	11.6	3.8	3.9	3.9	4.4	5.4	6.2	6.7	13.2	**S**	30.7	51.2	52.3	13.9	24
3	63.7	60.1	29.5	20.2	24.8	24.6	16.3	17.2	**S**	16	19.4	3.8	2.1	3.6	2.7	3.1	5.5	3.5	1.5	1.5	**S**	2.5	3.8	3	63.7	14.9	24
4	3	4.9	52.5	20.7	19.2	23.6	10.5	5.8	7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	31.2	88.4	**S**	35	27.1	13.4	18.3	88.4	24.0	24
5	18.9	44	28.3	9.2	10.7	8.9	8.4	10.9	13.3	8.8	8.7	3.2	3.5	3.9	7.2	2.4	1.6	8.9	**S**	115.5	49.5	77.8	21.2	20.7	115.5	21.1	24
6	9.8	9.1	7.9	5.9	5.3	3.7	5.6	5.5	**S**	**S**	18.3	24.5	6.2	6.7	9.7	9	15.2	**S**	20.4	11.9	18.3	18.4	6	6	24.5	10.6	24
7	5.8	1.4	1.2	0.9	0.8	0.6	0.5	1	3.6	2.9	2.4	4.7	1.2	1.6	1.8	0.7	**S**	2.3	1.9	2.1	1.4	1.5	1.9	2.2	5.8	1.9	24
8	2.5	2.2	1.9	1.8	2.1	2.8	3.8	2	1.8	1.9	2	2	2.1	28.7	84.3	**S**	4.4	3.7	2.7	2.3	2.3	13.5	3.8	7.3	84.3	7.9	24
9	3.4	22.1	44.7	42.9	26.9	23.5	22.6	6.9	32.6	43.7	10.8	5.5	12.1	9.6	**S**	5.4	25.5	24.4	19.2	25.1	38.1	36.1	33.1	2.9	44.7	22.5	24
10	3.1	2	2	1.6	2.2	2.8	2.5	1.8	2	1.8	2.5	2.6	2.9	**S**	2	1.7	1.6	1.3	1.5	1.7	1.6	1.7	2.2	2.6	3.1	2.1	24
11	3.4	3.6	3.3	2.8	2.5	1.7	1.5	2.2	2.2	3	3.9	2.2	**S**	4.4	2.3	2.8	3.7	3.9	6	16.9	13.7	10.4	6.3	7.4	16.9	4.8	24
12	8.9	10.4	17.5	15.3	9.9	6.4	9	2.2	2.5	5.2	1.7	**S**	3.6	2.5	5.3	6.8	33.8	45.2	69.9	155.7	128.6	124	100.6	103.1	155.7	37.7	24
13	80.4	76.9	80.6	97.3	87.7	70.8	81.3	123.4	187.3	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	109.8	164.4	**S**	***220.5***	***220.5***	***115.0***	24
14	136.1	61.5	46.3	42.8	24.6	32.8	91.5	69.8	42.2	24	19.3	10	7	7	4.1	4.7	4.7	3.4	3.5	2.9	2.3	**S**	3.5	1.7	136.1	28.1	24
15	2.3	4.1	2.9	5.8	1.7	7.6	6.4	**S**	**S**	4.7	4.1	6.4	8.8	13.5	15.2	13.5	10.6	23.5	20	0.6	**S**	3	1.2	1.2	23.5	7.5	24
16	1.8	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	8.4	19.6	36.1	34.2	36.1	4.4	24
17	18.4	17.2	14.9	16.1	11.4	12.6	13.2	8.5	9.1	11.4	17.2	13.7	20.2	12	17.2	21.4	45.4	87.1	**S**	82.7	39.8	44.6	94.9	33.3	94.9	28.8	24
18	22.3	25.2	5.8	2.3	1.1	0.5	0	0	0.5	0	0	0	0	0	0	0	0	**S**	6.5	1.8	1.3	5.4	6.5	0.7	25.2	3.5	24
19	1.3	1.3	1.8	1.3	1.3	4.8	5.4	5.4	5.4	3	1.8	4.8	4.8	5.9	5.3	21.8	**S**	27	39.9	29.9	28.8	28.8	17.6	13.5	39.9	11.3	24
20	13.6	13.6	12.4	6.5	10.1	20.6	19.4	20	18.8	22.4	20.6	14.1	10.6	10.6	21.8	**S**	30.7	59.4	30.7	38.3	41.3	45.4	43.1	37.8	59.4	24.4	24
21	27.8	21.3	19.6	17.2	14.8	9	3.1	1.9	9	20.8	4.3	2.5	3.1	2.6	**S**	5.4	4.2	5.4	4.2	3.6	2.4	1.2	1.2	1.8	27.8	8.1	24
22	1.2	1.2	1.2	0.7	0.7	0.7	0.6	0.7	0.1	0.6	0.1	0.6	0.7	**S**	3	1.3	1.8	1.8	1.8	2.4	2.4	1.8	1.3	1.8	3	1.2	24
23	4.2	3	8.3	18.2	13.6	10.6	28.8	52.8	30.6	140.9	19.4	21.2	**S**	8.3	14.2	65.8	55.2	58.7	55.8	**P**	83.4	30.5	41.7	15.9	140.9	35.5	23
24	22.3	22.4	76.9	47.1	26.4	41.1	30.5	13	6	4.8	3.6	**S**	5.4	4.2	4.8	6.5	5.4	6	10.6	6	4.8	6.5	10.1	6	76.9	16.1	24
25	5.4	3	3	2.4	1.8	2.4	1.2	1.8	1.8	1.8	**S**	4.2	3	34.1	22.9	3.1	3.1	4.2	5.4	20.6	25.9	14.2	15.3	13.6	34.1	8.4	24
26	10.7	10.7	5.4	6	6.5	25.3	8.9	8.3	8.9	**S**	20.6	12.4	12.4	10.6	15.3	32.9	15.9	16.4	17	17	19.4	20.6	15.9	13.6	32.9	14.4	24
27	14.2	15.3	11.3	11.3	8.9	7.7	4.8	**S**	**S**	0.9	0	0	0	**C**	**C**	**C**	**C**	1.1	0.6	0.6	0.6	0	0	0.5	15.3	4.3	24
28	0.6	0	0.6	0.6	0.6	0	0.5	**S**	3.6	1.8	1.3	1.3	0.7	1.8	5.4	1.3	1.2	9.4	11.8	20	15.3	28.2	1.8	1.3	28.2	4.7	24
29	1.3	1.3	1.8	1.8	31.2	20.6	**S**	18.8	39.4	22.4	17.6	14.2	7.7	5.4	9.5	12.4	18.8	21.8	21.2	21.2	34.1	11.2	11.8	14.2	39.4	15.6	24
30	17.1	18.8	16.5	18.8	16.5	**S**	12.4	8.9	24.1	18.8	15.3	7.7	9.4	13	12.4	19.4	30	57	88.1	84	52.9	38.2	85.1	27.1	88.1	30.1	24
HOURLY MAX	136	77	81	97	88	71	92	123	187	141	24	25	20	34	84	66	55	87	88	156	129	164	101	221			
HOURLY AVG	19.0	16.1	17.1	15.1	12.9	12.9	13.9	15.4	18.0	14.7	8.9	6.6	5.4	7.8	10.9	9.8	13.3	19.5	20.8	27.0	28.5	28.3	21.8	24.6			

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

NUMBER OF NON-ZERO READINGS: 627

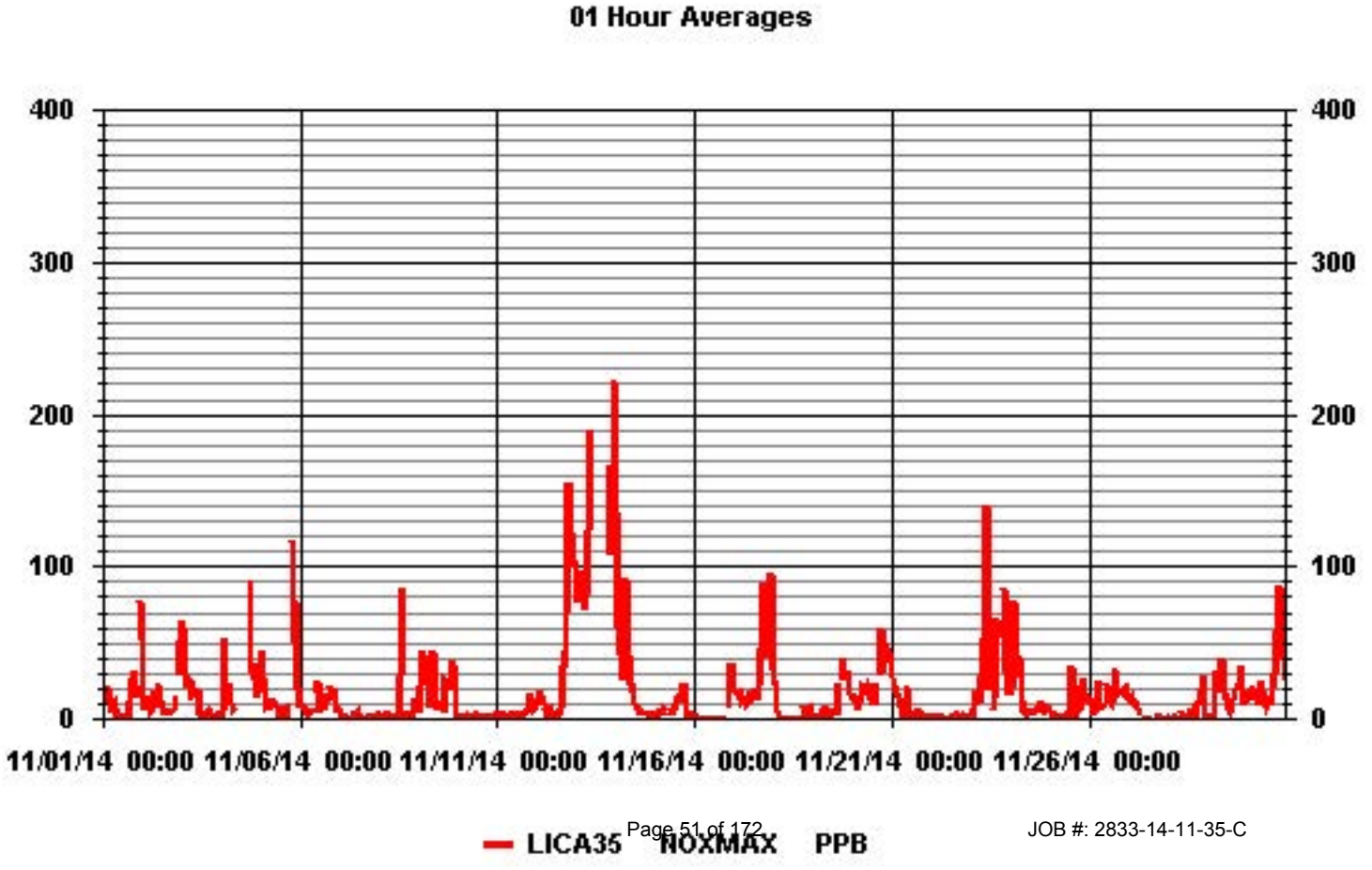
MAXIMUM INSTANTANEOUS VALUE: 220.5 PPB @ HOUR(S) 23 ON DAY(S) 13

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 23 HRS

STANDARD DEVIATION: 25.40



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	2.40	4.06	5.41	4.06	5.26	8.72	3.00	.60	.60	.90	1.05	5.26	12.93	11.42	22.25	8.87	96.84
<	110.0	.00	.00	.00	.15	.45	.15	.30	.00	.00	.00	.00	.30	.45	.45	.75	.00	3.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00	.15
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.40	4.06	5.41	4.21	5.71	8.87	3.30	.60	.60	.90	1.05	5.56	13.53	11.87	23.00	8.87	

Calm : .00 %

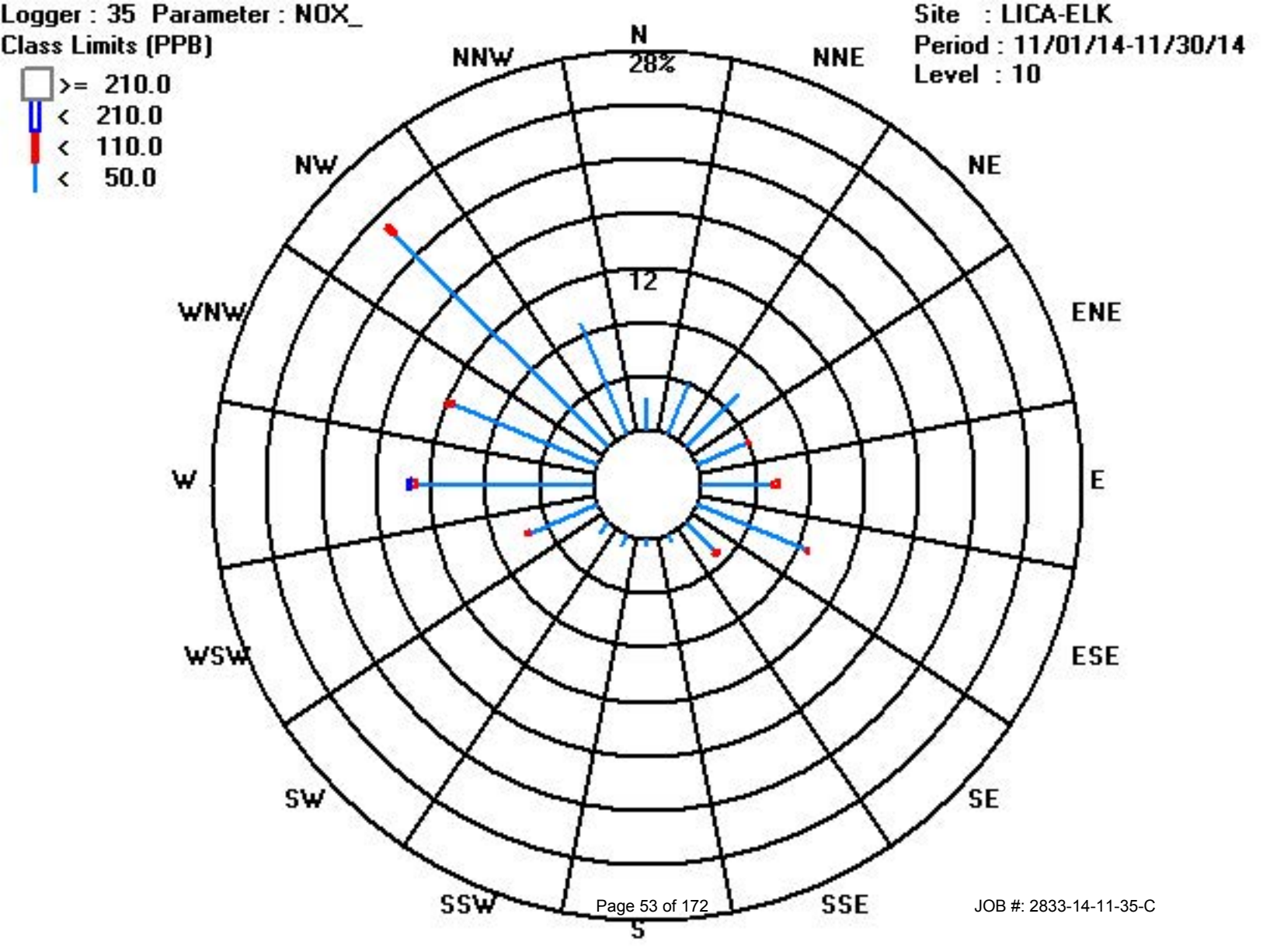
Total # Operational Hours : 665

Distribution By Samples

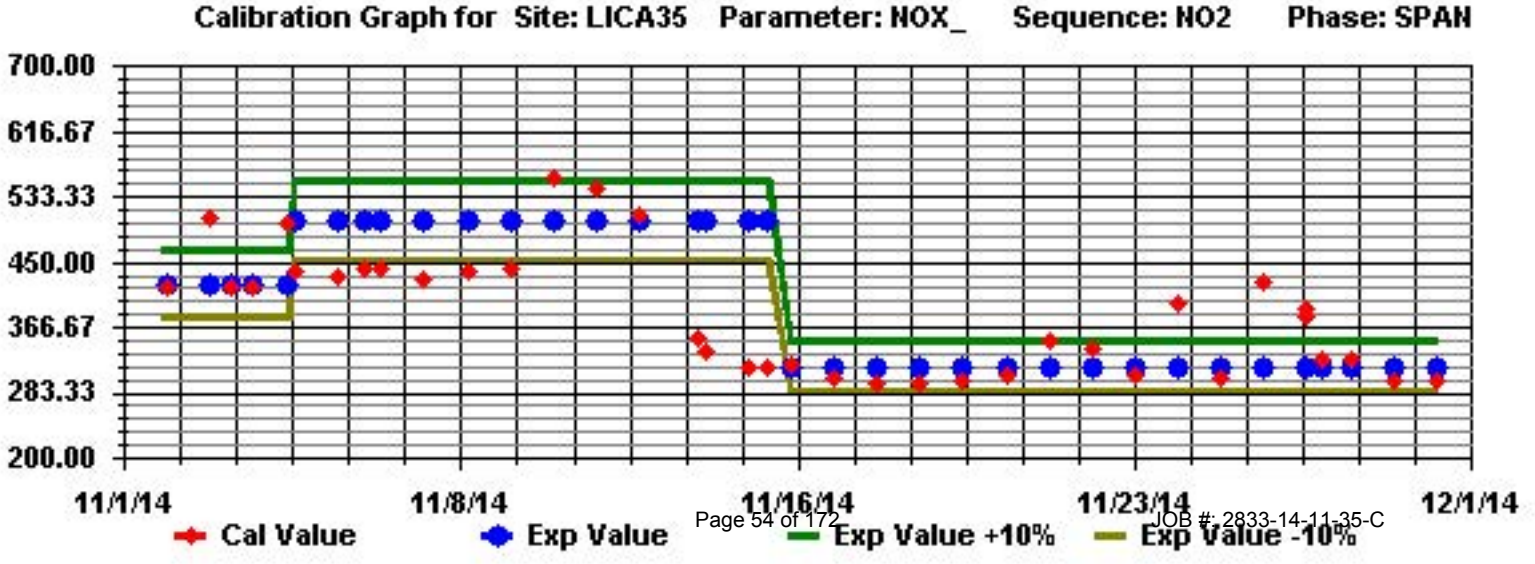
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	16	27	36	27	35	58	20	4	4	6	7	35	86	76	148	59	644
<	110.0				1	3	1	2					2	3	3	5		20
<	210.0													1				1
>=	210.0																	
	Totals	16	27	36	28	38	59	22	4	4	6	7	37	90	79	153	59	

Calm : .00 %

Total # Operational Hours : 665



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN
700.00
616.67
533.33
450.00
366.67
283.33
200.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - St. Lina Site

NOVEMBER 2014

OZONE (O3) hourly averages in ppb

MST

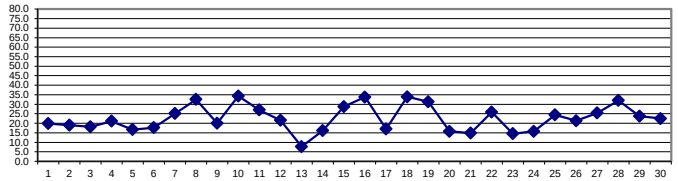
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	7	6	6	4	4	11	17	17	18	25	28	34	34	36	38	39	36	27	18	9	20	22	**S**	2	39	19.9	24
2	13	22	23	17	17	20	18	14	13	8	11	25	27	28	27	28	28	26	21	23	17	**S**	9	1	28	19.0	24
3	1	2	3	3	3	2	1	3	7	10	18	25	29	31	33	31	29	30	31	28	**S**	34	33	31	34	18.2	24
4	34	30	22	20	18	17	22	27	26	26	28	29	30	29	28	**C**	**C**	**C**	**C**	**C**	2	4	5	4	34	21.1	24
5	4	3	9	13	14	16	17	17	20	23	24	28	30	31	32	31	27	24	**S**	7	2	5	2	5	32	16.7	24
6	12	14	16	18	20	20	20	20	19	20	22	23	23	23	20	18	15	**S**	12	13	11	16	16	17	23	17.7	24
7	23	23	25	26	27	25	30	31	27	26	26	27	27	26	24	23	**S**	23	22	22	23	23	24	25	31	25.1	24
8	24	27	32	29	30	30	28	32	35	34	34	37	37	37	35	**S**	34	33	34	35	35	33	32	31	37	32.5	24
9	30	25	10	9	12	13	17	22	21	17	29	32	29	30	**S**	32	22	18	16	13	4	8	18	33	33	20.0	24
10	33	35	35	35	33	32	32	33	35	37	37	35	36	**S**	36	36	35	35	35	34	34	33	32	30	37	***34.3***	24
11	29	28	28	29	30	30	30	29	29	29	30	31	**S**	31	31	30	28	26	26	18	17	18	22	21	31	27.0	24
12	20	18	12	15	21	29	32	36	37	37	39	**S**	39	39	37	35	28	11	5	1	1	1	1	1	39	21.5	24
13	1	1	1	1	1	1	1	1	2	4	**S**	16	27	29	29	28	10	5	1	4	1	1	**S**	4	29	7.7	24
14	1	1	1	3	4	2	1	1	6	15	19	21	23	26	28	28	26	25	24	26	29	**S**	30	31	31	16.1	24
15	30	30	31	31	31	27	28	27	28	26	27	26	28	27	23	24	26	22	31	37	**S**	35	34	33	37	28.8	24
16	30	31	32	33	34	36	36	36	36	37	37	40	***42***	***42***	41	38	36	35	35	**S**	31	27	17	14	***42***	33.7	24
17	18	16	20	17	24	22	22	22	22	22	21	22	21	23	22	20	13	7	**S**	6	8	11	5	8	24	17.0	24
18	11	18	29	31	31	33	34	32	32	36	38	36	36	38	39	37	38	**S**	36	39	40	38	38	40	40	33.9	24
19	39	39	39	39	38	37	37	37	35	37	37	36	36	36	36	35	**S**	23	15	13	15	13	22	26	39	31.3	24
20	24	23	23	25	24	18	16	16	16	17	24	29	28	29	25	**S**	9	5	8	3	1	0	0	0	29	15.8	24
21	1	6	5	6	12	17	23	23	20	15	18	14	10	12	**S**	19	17	14	15	15	18	20	21	21	23	14.9	24
22	21	21	22	24	23	24	25	26	26	26	26	26	27	**S**	30	30	29	28	28	28	26	26	27	26	30	25.9	24
23	26	25	22	16	17	21	19	13	9	17	20	22	**S**	25	23	19	7	4	3	1	1	5	8	11	26	14.5	24
24	6	8	3	1	3	2	9	14	17	20	23	**S**	23	23	23	22	23	21	19	21	22	20	19	20	23	15.7	24
25	18	18	20	21	21	22	27	27	28	29	**S**	30	30	28	28	28	28	28	27	21	20	22	20	20	30	24.4	24
26	23	23	27	28	30	29	28	28	27	**S**	26	26	26	25	24	21	18	16	14	12	11	9	10	10	30	21.3	24
27	9	10	11	12	14	17	18	20	**S**	27	28	27	28	29	31	31	32	32	33	34	35	37	36	35	37	25.5	24
28	35	35	35	34	34	33	33	**S**	33	35	35	35	35	35	35	34	33	29	28	24	23	21	31	31	35	32.0	24
29	31	31	30	29	24	21	**S**	19	16	21	24	26	29	30	29	25	18	15	17	17	17	26	26	26	31	23.8	24
30	26	26	23	24	26	**S**	26	29	25	26	29	32	32	32	32	27	24	14	12	6	5	11	11	19	32	22.5	24
HOURLY MAX	39	39	39	39	38	37	37	37	37	37	39	40	42	42	41	39	38	35	36	39	40	38	38	40			
HOURLY AVG	19.3	19.8	19.8	19.8	20.7	20.9	22.3	22.5	22.9	24.2	27.1	28.2	29.4	29.6	30.0	28.5	24.8	21.3	21.0	18.2	16.8	18.5	19.6	19.2			

STATUS FLAG CODES

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

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

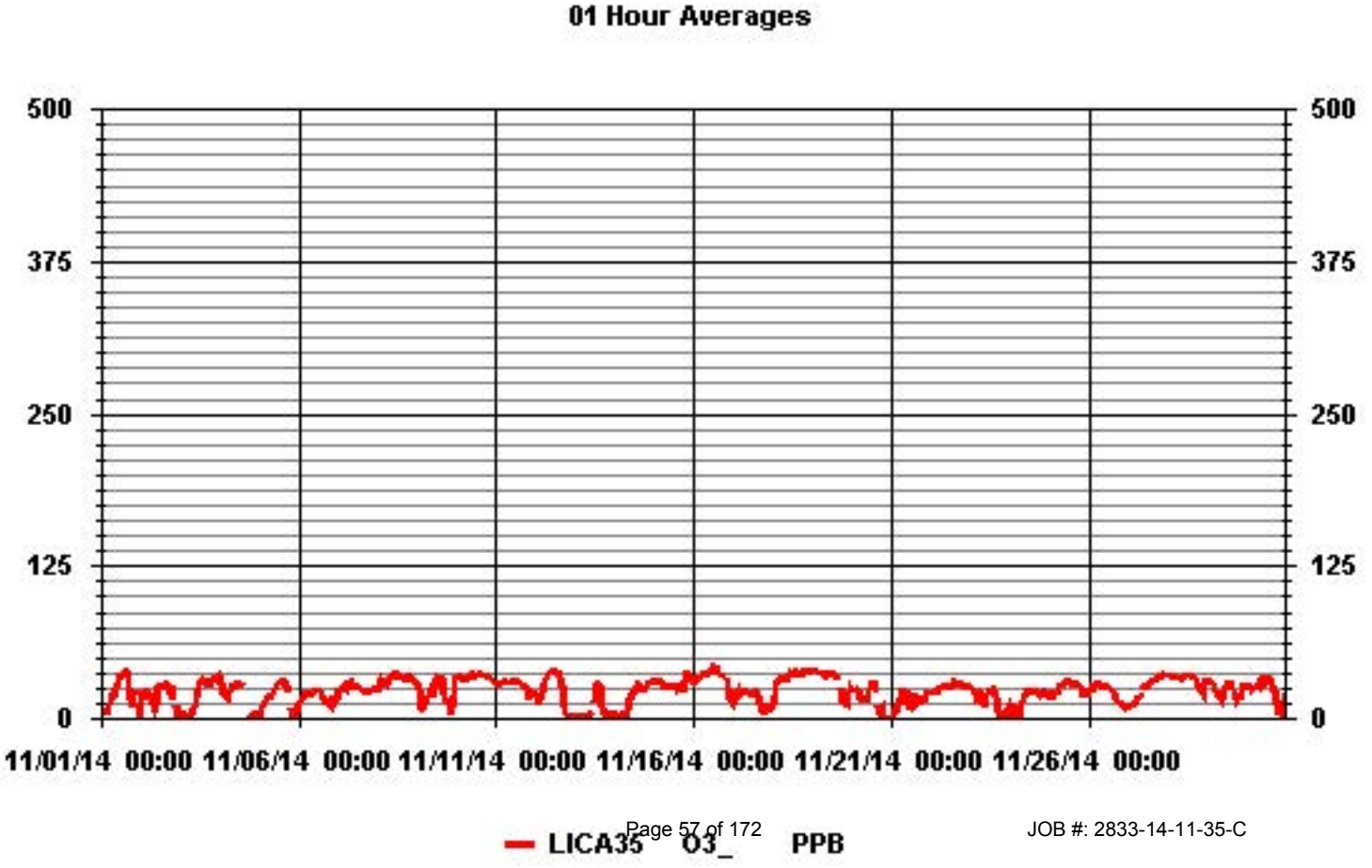
24 HOUR AVERAGES FOR NOVEMBER 2014



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM 1-HR AVERAGE:	42	PPB	@ HOUR(S)	12, 13	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	34.3	PPB			ON DAY(S)	10
					VAR-VARIOUS	

IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	10.45		MONTHLY AVERAGE:	22.62	PPB



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

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	8	8	8	7	7	15	19	19	21	30	32	37	36	37	40	40	39	32	26	15	27	30	**S**	10	40	23.6	24
2	21	26	26	23	22	23	21	17	14	12	24	28	32	32	29	30	31	29	25	26	28	**S**	19	1	32	23.4	24
3	1	4	8	5	6	3	2	6	10	11	23	28	31	34	35	34	32	31	32	30	**S**	36	35	34	36	20.5	24
4	36	34	29	26	23	22	27	28	28	29	30	31	31	31	30	**C**	**C**	**C**	**C**	**C**	5	9	8	6	36	24.4	24
5	5	6	12	17	17	17	19	20	24	24	27	30	32	32	33	32	29	26	**S**	15	5	9	4	10	33	19.3	24
6	14	16	18	20	21	21	21	21	20	23	24	24	25	24	21	20	18	**S**	15	15	15	18	18	21	25	19.7	24
7	25	25	27	28	29	27	34	33	30	28	27	28	29	28	25	24	**S**	24	24	24	24	24	27	26	34	27.0	24
8	25	29	34	30	31	31	29	36	36	35	36	38	39	38	37	**S**	36	33	35	36	36	35	33	32	39	33.9	24
9	31	29	21	15	17	19	22	25	24	25	32	33	31	34	**S**	33	32	25	18	17	10	12	32	34	34	24.8	24
10	36	36	36	36	35	33	34	35	38	38	37	36	37	**S**	37	36	36	36	35	35	35	34	32	31	38	35.4	24
11	30	28	29	29	30	31	30	30	30	30	31	33	**S**	33	31	31	30	27	27	25	21	22	23	23	33	28.4	24
12	23	20	21	21	25	37	38	39	39	40	40	**S**	40	41	39	39	35	24	24	9	1	1	1	1	41	26.0	24
13	1	1	1	1	1	1	2	2	4	7	**S**	25	30	31	31	30	28	14	6	10	2	2	**S**	12	31	11.0	24
14	2	3	3	7	6	4	2	2	16	18	22	23	24	29	29	29	27	26	25	28	31	**S**	32	32	32	18.3	24
15	31	32	32	33	33	31	29	29	29	27	28	28	30	29	25	26	28	28	37	38	**S**	36	36	34	38	30.8	24
16	31	32	32	34	35	37	37	37	37	37	39	42	***43***	***43***	42	39	37	36	35	**S**	34	32	29	27	***43***	***36.0***	24
17	25	23	25	21	27	26	26	24	25	25	25	24	23	25	24	23	17	14	**S**	16	14	14	8	11	27	21.1	24
18	13	26	31	31	32	34	35	33	33	40	40	38	38	39	40	39	38	**S**	38	40	41	40	41	41	41	35.7	24
19	40	41	40	40	39	39	39	39	38	38	38	38	37	37	37	37	**S**	29	25	19	24	20	25	29	41	34.3	24
20	28	25	26	26	25	23	20	20	19	20	31	30	29	30	29	**S**	18	14	13	6	4	1	1	1	31	19.1	24
21	3	10	8	8	16	22	24	24	23	21	20	19	11	16	**S**	22	19	17	17	17	20	23	22	23	24	17.6	24
22	23	23	24	25	25	26	26	38	28	27	27	27	29	**S**	31	31	30	30	30	30	28	28	28	28	38	27.9	24
23	28	27	25	22	21	27	27	19	13	21	23	25	**S**	27	26	26	20	10	9	**P**	2	8	13	15	28	19.7	23
24	9	10	10	3	5	3	16	17	20	23	25	**S**	25	25	25	25	25	25	21	22	23	23	21	21	25	18.3	24
25	20	20	21	22	22	26	29	28	30	30	**S**	31	31	30	30	30	30	30	29	28	27	26	24	23	31	26.8	24
26	26	27	30	31	32	31	30	30	30	**S**	28	28	28	29	26	25	21	19	17	14	14	12	12	11	32	24.0	24
27	10	12	13	16	16	18	20	22	**S**	29	30	29	29	31	32	33	33	34	34	35	37	38	37	37	38	27.2	24
28	37	36	36	35	35	35	34	**S**	34	36	36	37	37	36	37	36	34	34	31	29	27	32	32	33	37	34.3	24
29	32	32	32	30	28	26	**S**	24	23	24	26	29	31	32	31	28	22	18	20	20	25	29	29	31	32	27.0	24
30	31	30	27	29	30	**S**	30	33	31	30	33	34	34	35	35	32	31	28	21	13	11	17	18	24	35	27.7	24
HOURLY MAX	40	41	40	40	39	39	39	39	39	40	40	42	43	43	42	40	39	36	38	40	41	40	41	41			
HOURLY AVG	21.5	22.4	22.8	22.4	23.0	23.7	24.9	25.2	25.8	26.8	29.8	30.5	31.1	31.7	31.7	30.7	28.7	25.7	24.8	22.7	20.4	21.8	22.9	22.1			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 684

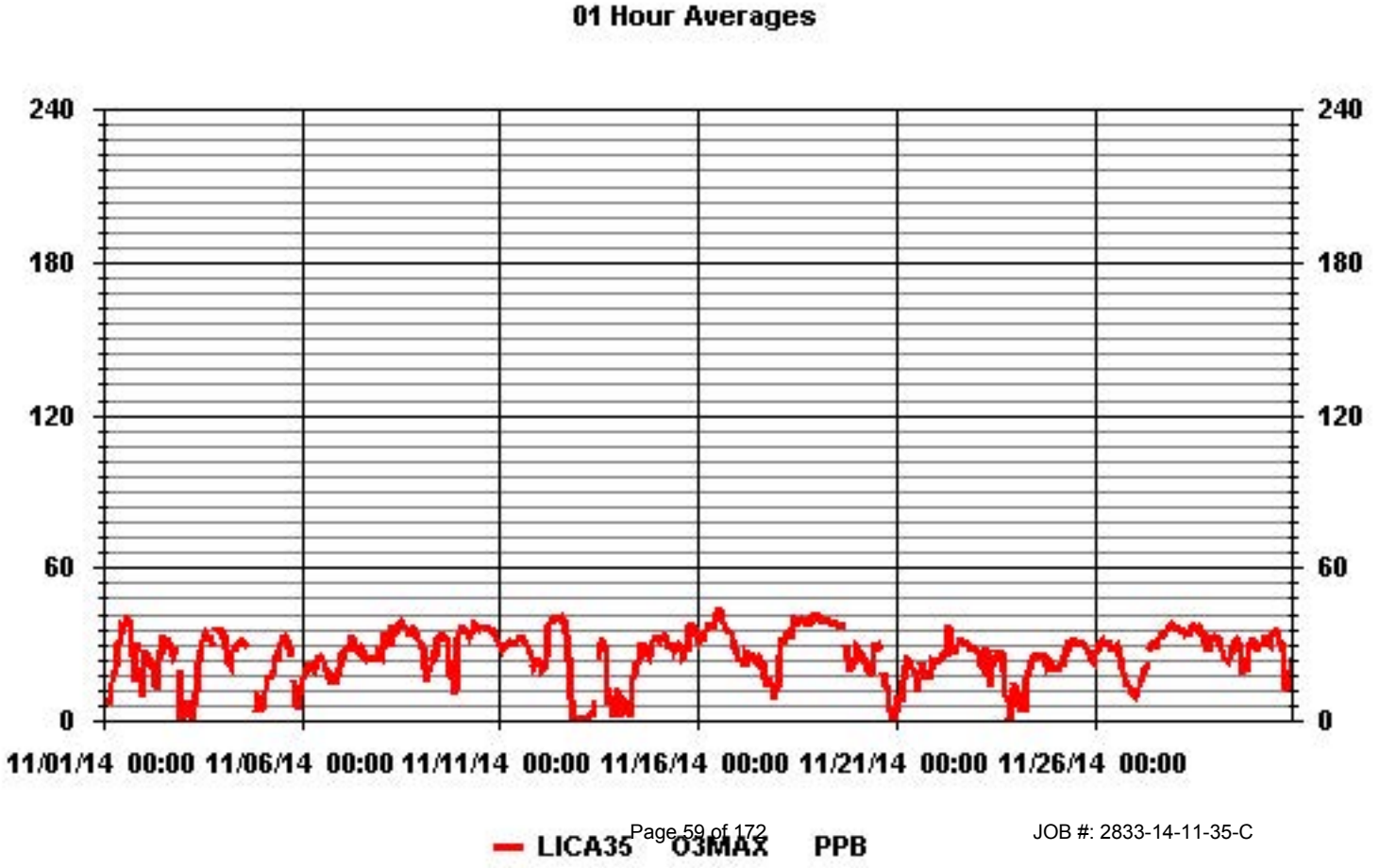
MAXIMUM INSTANTANEOUS VALUE: 43 PPB @ HOUR(S) 12, 13 ON DAY(S) 16

VAR-VARIOUS

IZS CALIBRATION TIME: 30 HRS OPERATIONAL TIME: 719 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 9.83



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2.33	3.94	5.83	4.23	5.40	9.48	3.06	.58	1.02	1.16	1.45	5.25	13.43	11.53	22.62	8.61	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.33	3.94	5.83	4.23	5.40	9.48	3.06	.58	1.02	1.16	1.45	5.25	13.43	11.53	22.62	8.61	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	16	27	40	29	37	65	21	4	7	8	10	36	92	79	155	59	685
< 110																	
< 210																	
>= 210																	
Totals	16	27	40	29	37	65	21	4	7	8	10	36	92	79	155	59	

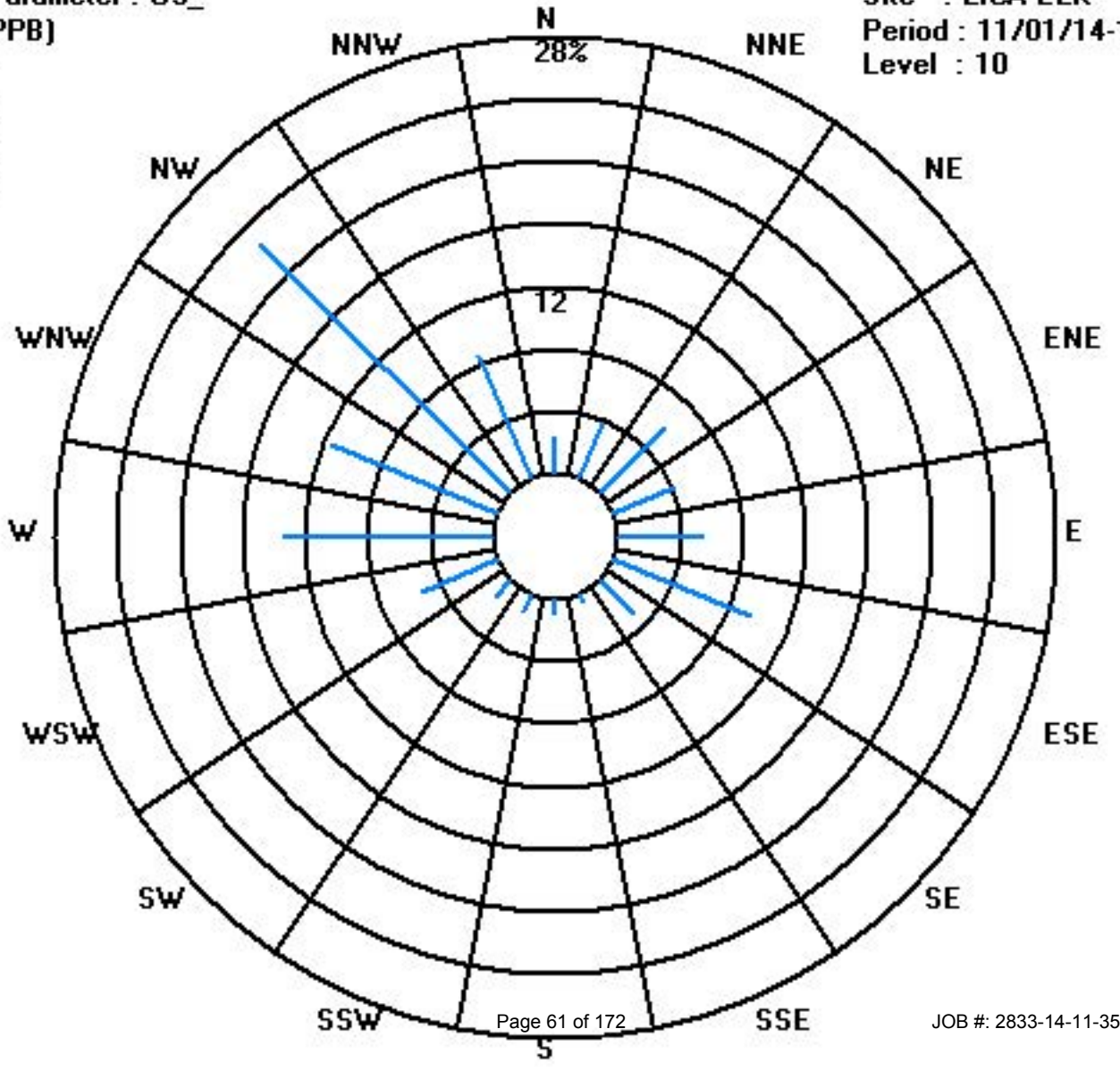
Calm : .00 %

Total # Operational Hours : 685

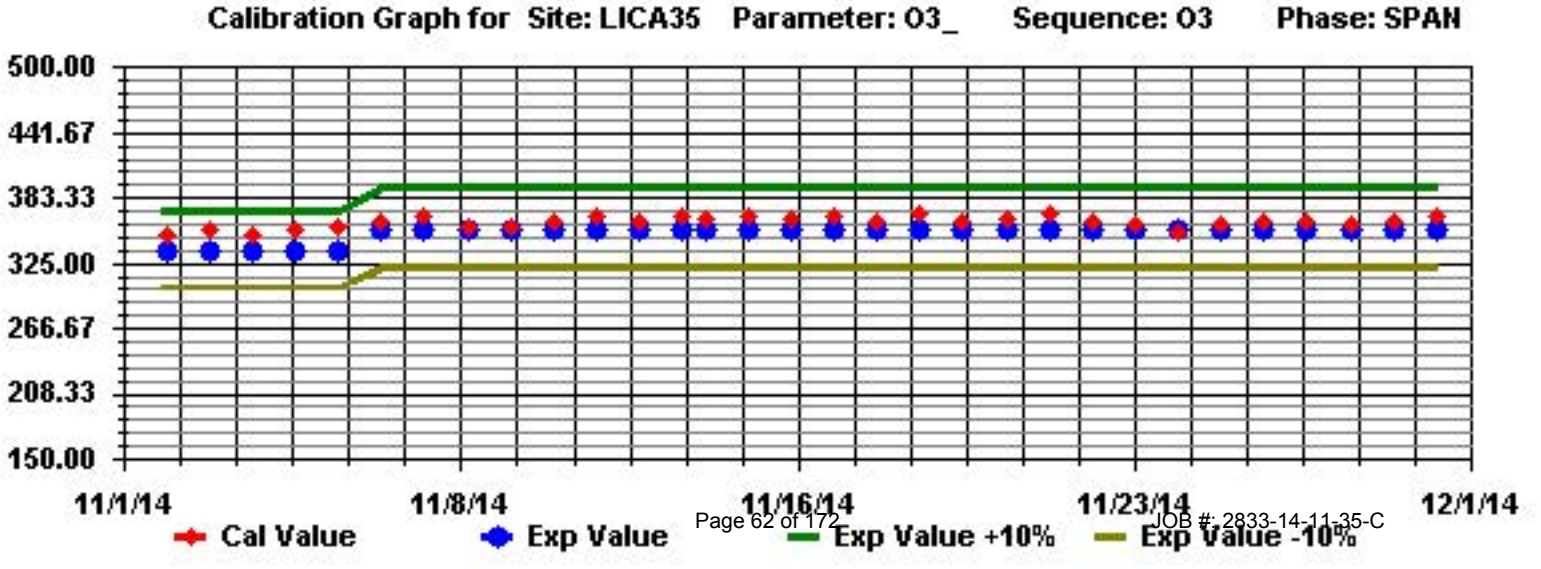
Logger : 35 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA-ELK
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN
500.00
441.67
383.33
325.00
266.67
208.33
150.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons (55i)

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

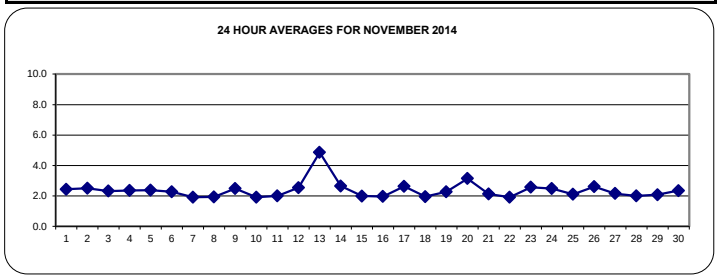
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.3	2.3	2.3	2.4	2.3	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	2.7	3.2	3.3	3.2	2.9	**S**	6.2	6.2	2.4	24
2	3.2	2.1	2.0	2.1	2.2	2.2	2.2	2.1	2.2	2.5	2.6	2.5	2.2	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.9	**S**	4.4	5.4	5.4	2.5	24
3	4.6	3.2	2.6	2.5	2.7	2.8	3.1	2.6	2.5	2.2	2.1	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	**S**	1.8	1.9	1.9	4.6	2.3	24
4	1.9	2.1	2.4	3.1	3.2	3.0	2.3	2.2	2.3	2.3	2.3	2.0	2.0	2.0	**C**	**C**	**C**	**C**	**C**	**C**	**X**	**X**	**X**	**X**	3.2	2.4	20
5	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.3	3.0	3.4	3.1	3.0	3.4	2.4	12
6	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	**S**	2.2	2.2	2.3	2.2	2.0	2.1	2.8	2.3	24
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	1.9	24
8	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
9	2.0	2.0	2.7	3.1	3.0	2.7	2.3	2.2	2.2	2.9	2.1	2.0	2.2	2.1	**S**	1.9	2.1	2.5	2.6	2.9	3.2	3.3	3.0	2.0	3.3	2.5	24
10	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
11	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	2.0	2.0	2.0	2.4	2.3	2.3	2.2	2.2	2.4	2.0	24
12	2.2	2.2	2.3	2.4	2.3	2.1	2.1	2.0	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	2.0	2.5	2.5	4.3	3.9	3.8	4.3	4.2	4.3	2.5	24
13	4.5	5.4	5.2	6.0	6.4	6.3	5.4	6.3	***7.9***	7.5	**S**	4.2	2.7	2.3	2.2	2.1	6.2	3.5	3.6	3.3	4.3	4.4	**S**	7.1	***7.9***	***4.9***	24
14	6.5	4.4	3.8	3.2	2.8	2.9	3.2	2.7	2.8	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**S**	2.0	1.9	6.5	2.6	24
15	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.1	1.9	**S**	1.9	1.9	1.9	2.2	2.0	24
16	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	2.0	2.4	2.6	2.6	2.0	24
17	2.4	2.9	2.4	2.5	2.1	2.0	2.1	2.0	2.1	2.2	2.5	2.6	2.6	2.7	3.0	2.8	3.0	3.2	**S**	3.1	3.2	2.8	3.5	2.8	3.5	2.6	24
18	2.5	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	1.9	1.9	1.9	1.9	1.9	2.5	2.0	24
19	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	**S**	2.7	2.9	3.4	3.4	3.5	3.1	2.7	3.5	2.3	24
20	3.0	2.9	2.8	2.6	3.0	3.3	3.0	3.2	3.3	3.6	2.6	2.0	2.0	2.0	2.2	**S**	2.8	3.6	3.9	4.4	3.7	4.2	4.2	3.9	4.4	3.1	24
21	3.3	2.4	2.3	2.3	2.1	2.1	2.0	1.9	2.1	2.2	2.0	2.0	2.0	**S**	**S**	2.0	2.0	2.1	2.0	2.0	2.0	1.9	2.0	2.0	3.3	2.1	24
22	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
23	2.0	1.9	2.0	2.4	2.4	2.2	2.2	2.4	2.8	2.4	2.3	2.2	**S**	2.1	2.2	2.3	2.6	3.5	3.5	3.0	3.6	3.1	3.1	3.0	3.6	2.6	24
24	3.2	3.1	4.8	3.9	3.1	3.4	2.4	2.1	2.0	2.0	1.9	**S**	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	4.8	2.5	24
25	2.2	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.3	2.6	2.6	2.6	2.1	24
26	2.7	2.6	2.2	2.4	2.3	2.4	2.4	2.3	2.3	**S**	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8	3.0	2.9	2.6	2.8	2.7	2.8	3.0	2.6	24
27	3.0	3.0	2.9	2.8	2.5	2.3	2.2	2.1	**S**	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.0	2.2	24
28	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.3	2.5	2.6	1.9	1.9	2.6	2.0	24
29	1.9	1.9	2.0	2.0	2.1	2.1	**S**	2.4	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.4	2.1	24
30	2.2	2.2	2.3	2.3	2.2	**S**	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.2	2.1	2.3	2.3	3.2	3.1	3.1	3.0	2.7	3.2	2.3	24
HOURLY MAX	7	5	5	6	6	6	5	6	8	8	3	4	3	3	3	3	6	4	4	4	4	4	4	7			
HOURLY AVG	2.6	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.8			

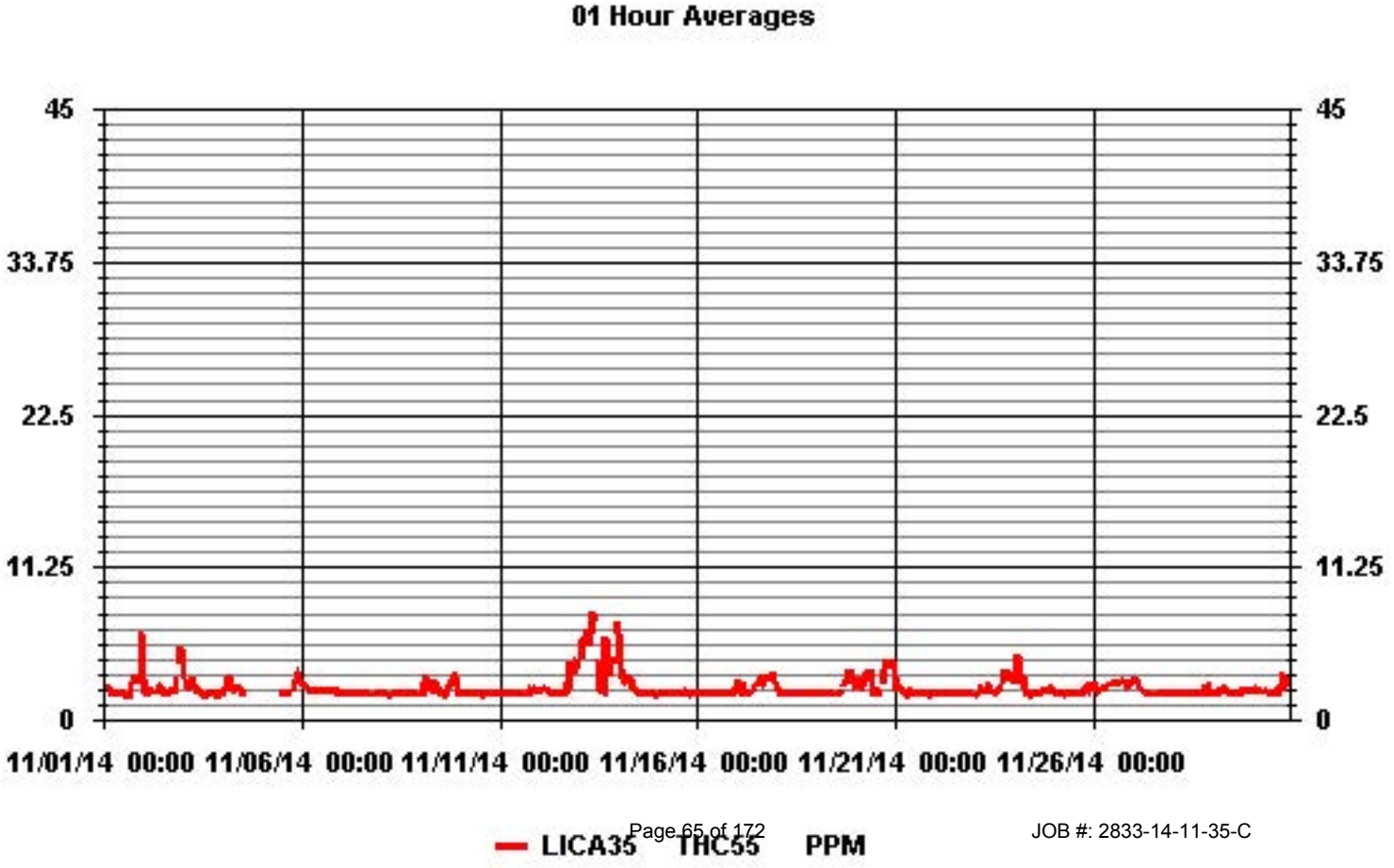
STATUS FLAG CODES

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:	667						
MAXIMUM 1-HR AVERAGE:	7.9	PPM	@ HOUR(S)	8	ON DAY(S)		13
MAXIMUM 24-HR AVERAGE:	4.9	PPM			ON DAY(S)		13
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			704	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			97.8	%
STANDARD DEVIATION:	0.79		MONTHLY AVERAGE:			2.36	PPM



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

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	**R**	2.56	2.69	3.07	2.6	2.21	2.17	2.19	2.13	2	1.95	1.95	1.94	1.95	1.92	1.94	2.24	4.4	3.63	3.7	3.9	4.12	**S**	9.31	9.31	2.9	23
2	7.75	2.3	2.24	2.31	2.43	2.51	2.37	2.26	2.28	2.99	2.94	2.86	2.6	2.18	2.13	2.13	2.17	2.29	2.33	2.42	4.28	**S**	7.37	7.6	7.75	3.2	24
3	8.35	4.34	3.06	2.92	3.21	3.04	3.81	3.24	3.61	2.5	2.59	1.97	1.94	1.92	1.93	1.96	1.97	2.04	2.01	1.95	**S**	1.93	2.05	2.03	8.35	2.8	24
4	2.02	2.44	2.98	4.57	4.04	3.9	2.84	2.42	2.46	3.61	3.19	2.13	2.04	2.33	**C**	**C**	**C**	**C**	**C**	**C**	**X**	**X**	**X**	**X**	4.57	2.9	20
5	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	1.95	1.96	1.98	1.98	1.98	2.09	**S**	3.07	4.47	4.1	3.52	3.43	4.47	2.8	12
6	3.06	2.89	2.71	2.68	2.54	2.45	2.35	2.33	2.3	2.39	2.38	2.31	2.29	2.27	2.36	2.47	2.27	**S**	2.57	2.75	3.01	2.7	2.16	2.2	3.06	2.5	24
7	2.1	1.95	1.95	1.96	1.94	1.95	1.95	1.95	2.04	2	2	1.98	1.97	2	1.97	1.97	**S**	1.99	2.09	2.09	1.96	1.98	2.01	2.06	2.1	2.0	24
8	2.08	2.04	2.07	2.07	2.04	1.96	2.05	2.02	2	2	1.97	1.97	2.03	2	1.96	**S**	1.97	2	2	1.98	1.96	2	2	2.01	2.08	2.0	24
9	2.02	2.39	3.23	3.6	3.4	3.02	2.61	2.29	2.4	4.09	2.48	2.09	2.43	2.22	**S**	2.07	2.34	3.56	2.93	3.54	3.54	3.82	4.11	2.05	4.11	2.9	24
10	2.01	2.09	1.97	1.94	1.96	1.94	1.96	1.96	1.97	1.92	1.92	1.95	1.93	**S**	1.91	1.93	1.93	1.94	1.95	1.93	1.94	1.94	1.95	1.96	2.09	2.0	24
11	1.98	2	2	1.98	1.97	1.97	1.96	2	1.98	1.98	2	1.96	**S**	2	1.99	2	2.08	2.11	2.03	2.93	2.6	2.55	2.36	2.29	2.93	2.1	24
12	2.38	2.5	2.5	2.68	2.51	2.4	2.51	2.14	2.03	2	2	**S**	2.22	2	2.24	1.98	2.53	2.84	3.65	8.21	5.44	4.77	4.81	4.53	8.21	3.1	24
13	5.44	7.67	5.69	7.36	6.77	6.8	6.43	7.15	***15.28***	10.53	**S**	5	3.28	2.75	2.25	2.21	9.82	6.91	4.19	3.98	7.5	6.34	**S**	9.98	***15.28***	***6.5***	24
14	11.71	5.67	4.52	3.83	4.2	4.3	3.99	2.96	3.11	2.54	2.33	2.18	2.16	2.14	2.06	2.11	2.11	2.08	2.08	2.07	2.07	**S**	2.05	2.01	11.71	3.2	24
15	2.07	2.05	2	2.17	2.13	2.37	2.29	2.1	2.07	2.08	2.08	2.36	2.06	2.21	2.33	2.17	2.06	2.63	2.44	2	**S**	1.95	1.96	1.96	2.63	2.2	24
16	1.95	1.93	1.95	1.98	1.97	1.97	1.95	1.95	1.96	1.96	1.95	1.93	1.93	1.93	1.97	1.97	1.96	2	2	**S**	2.07	2.45	2.8	3.63	3.63	2.1	24
17	2.81	4.32	2.71	2.74	2.4	2.27	2.27	2.14	2.26	2.39	2.97	3.16	3	3.04	3.79	3.02	3.25	4.24	**S**	3.48	3.94	2.95	4.55	3.47	4.55	3.1	24
18	2.71	3.59	2.06	2	2.05	1.98	1.96	1.98	1.99	1.96	1.94	1.94	1.96	1.95	1.93	1.94	1.95	**S**	2.08	1.97	2	1.99	2.06	1.95	3.59	2.1	24
19	2.02	2.01	2.07	2	2.01	2.07	2.06	2.06	2.06	2.13	2.01	2.04	2.05	2.04	2.02	2.04	**S**	3.12	3.65	3.72	4.63	4.13	3.56	3.34	4.63	2.6	24
20	3.48	3.44	3.3	2.87	3.45	4.48	3.33	3.74	4.22	4.6	3.51	2.22	2.09	2.22	2.59	**S**	3.82	4.43	4.33	4.92	4.01	4.9	5.07	4.34	5.07	3.7	24
21	3.83	3.01	2.66	2.5	2.4	2.22	2.09	2.2	2.56	2.67	2.12	2.09	2.2	**S**	**S**	2.26	2.23	2.19	2.16	2.16	2.08	2.02	2.07	2.08	3.83	2.4	24
22	2.06	2.02	2	1.97	1.97	1.99	2	2	1.97	1.97	1.94	1.95	1.96	**S**	1.97	1.95	2.01	2.01	2.03	2.02	2	1.96	1.98	2	2.06	2.0	24
23	2.13	2	2.57	2.89	2.58	2.58	3.35	3.25	4.23	3.09	2.59	2.66	**S**	2.21	3.21	2.86	2.96	3.99	3.85	**P**	3.74	3.63	3.42	3.31	4.23	3.1	23
24	3.37	3.33	7.44	5.41	3.36	3.89	3.13	2.21	2.13	2.05	2.01	**S**	2.06	2.04	2.06	2.15	2.07	2.18	2.23	2.17	2.17	2.39	2.42	2.44	7.44	2.8	24
25	2.4	2.14	2.11	2.05	2.02	2.07	2.02	2.08	2.06	2.06	**S**	2.06	2.06	2.07	2.03	2.02	2.09	2.08	2.23	2.41	3.01	2.48	3.27	2.84	3.27	2.2	24
26	2.99	2.84	2.48	2.55	2.5	2.51	2.5	2.42	2.41	**S**	2.64	2.69	2.72	2.75	2.75	3.24	3.19	3.11	3.38	3.34	3	3.13	2.84	3.16	3.38	2.8	24
27	3.23	3.32	3.09	3.08	2.6	2.52	2.3	2.21	**S**	2.04	2	2.01	2	2.04	2	1.98	2	2	2	1.96	1.96	1.95	1.96	1.97	3.32	2.3	24
28	1.96	1.95	1.96	1.96	1.98	1.99	2	**S**	2.04	2	1.97	1.96	1.97	1.98	2	2	2.01	2.55	3.16	3.16	3.14	3.53	2	1.98	3.53	2.2	24
29	1.99	2	2	2.02	2.4	2.57	**S**	3.28	2.4	2.3	2.39	2.28	2.08	2.08	2.06	2.06	2.16	2.13	2.42	2.44	2.61	2.13	2.21	2.49	3.28	2.3	24
30	2.58	2.57	2.47	2.63	2.48	**S**	2.27	2.22	2.82	2.35	2.31	2.12	2.35	2.65	2.14	2.5	2.28	2.66	2.69	4.32	3.37	3.9	3.36	3.04	4.32	2.7	24
HOURLY MAX	12	8	7	7	7	7	6	7	15	11	4	5	3	3	4	3	10	7	4	8	8	6	7	10			
HOURLY AVG	3.3	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.9	2.7	2.3	2.3	2.2	2.2	2.2	2.2	2.6	2.8	2.7	3.0	3.2	3.0	3.0	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: 665

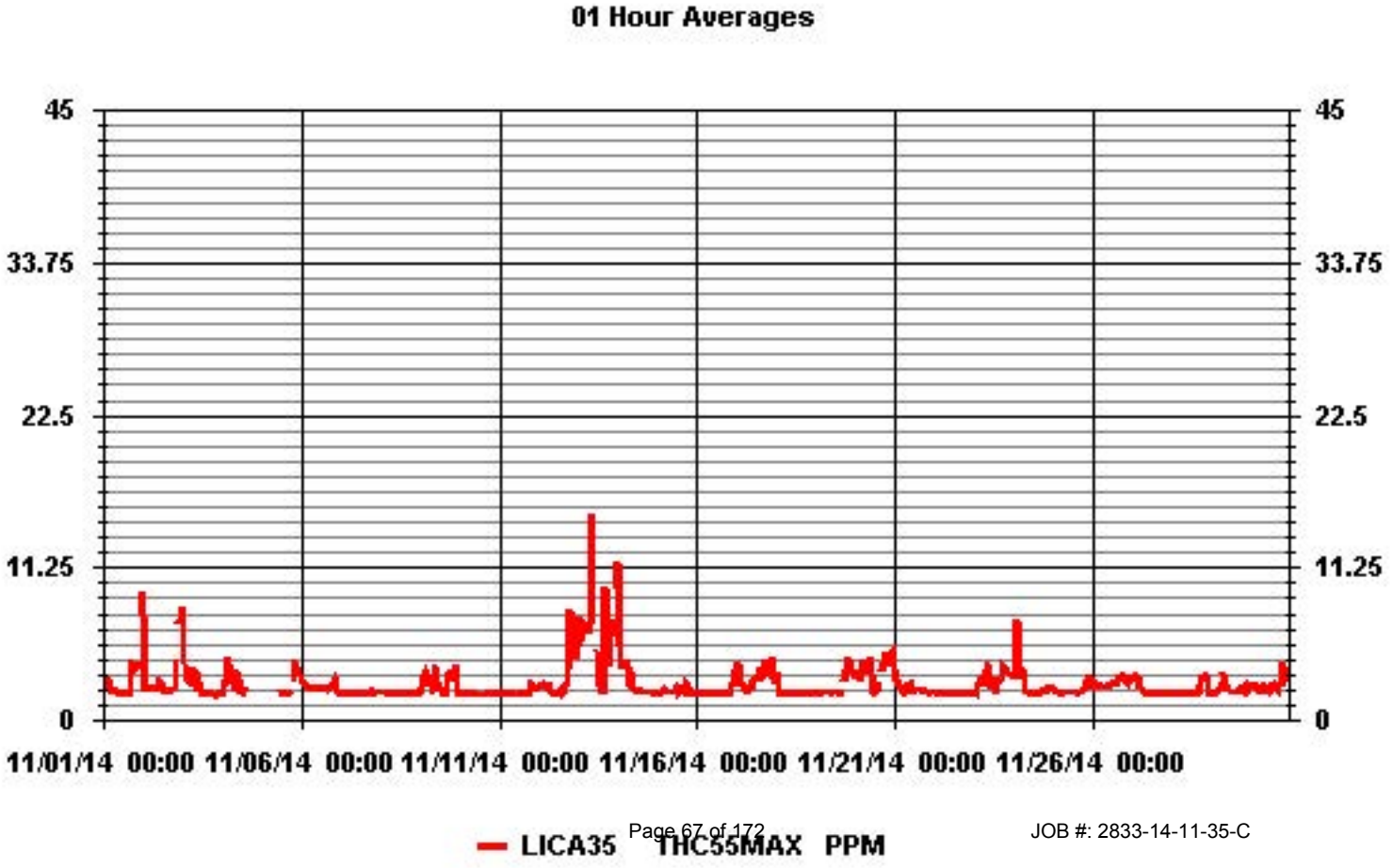
MAXIMUM INSTANTANEOUS VALUE: 15.28 PPM @ HOUR(S) 8 ON DAY(S) 13

VAR-VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 702 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 1.31



JOB #: 2833-14-11-35-C

LICA35
THC55 / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	2.09	4.04	5.84	3.44	3.44	6.74	1.64	.59	.59	1.04	1.49	4.49	9.89	9.89	21.58	8.84	85.75
<	10.0	.14	.00	.14	.89	2.09	2.84	1.49	.00	.44	.14	.00	.44	2.09	1.79	1.64	.00	14.24
<	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	2.24	4.04	5.99	4.34	5.54	9.59	3.14	.59	1.04	1.19	1.49	4.94	11.99	11.69	23.23	8.84	

Calm : .00 %

Total # Operational Hours : 667

Distribution By Samples

Direction

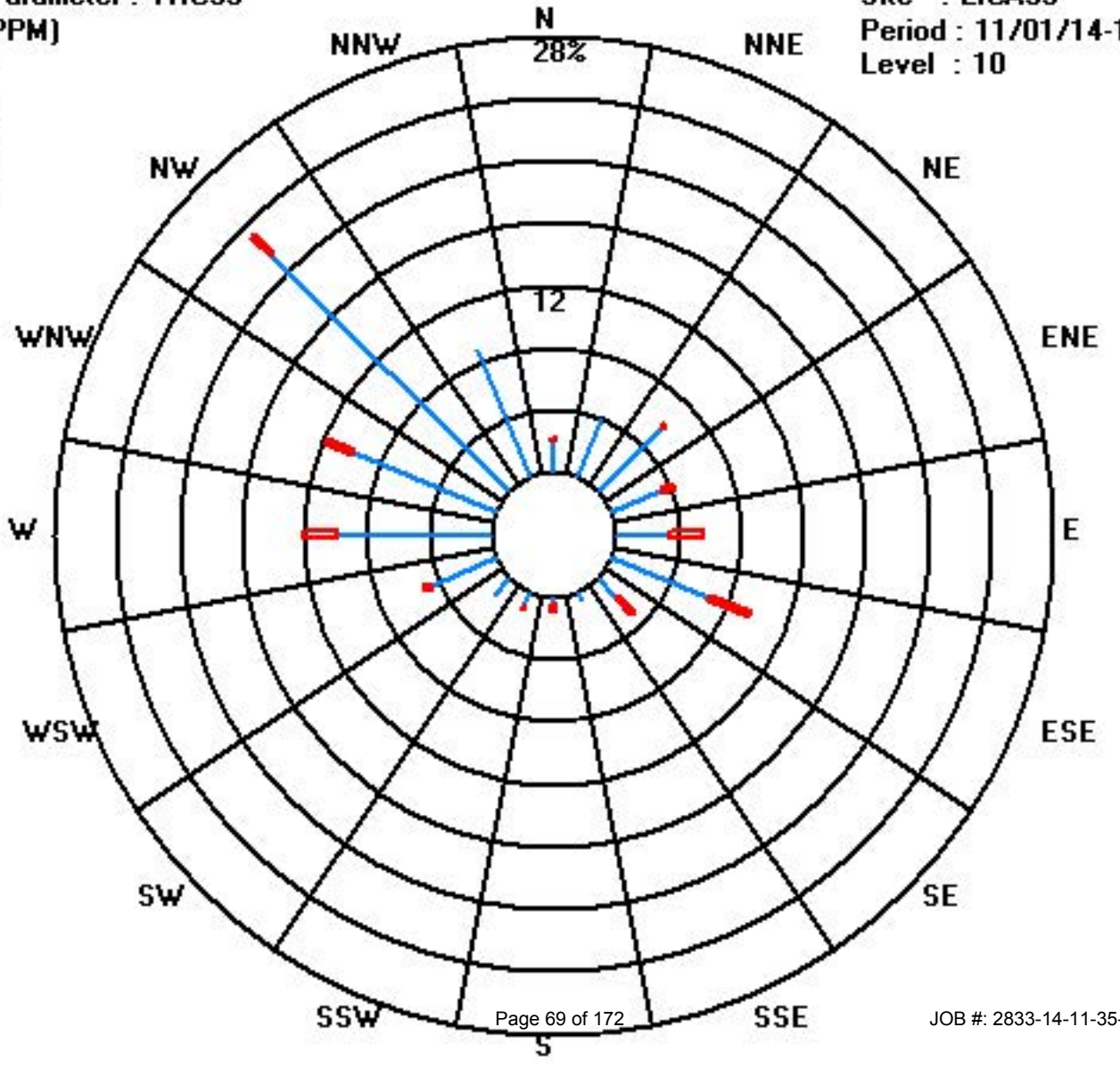
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	14	27	39	23	23	45	11	4	4	7	10	30	66	66	144	59	572
<	10.0	1		1	6	14	19	10		3	1		3	14	12	11		95
<	50.0																	
>=	50.0																	
	Totals	15	27	40	29	37	64	21	4	7	8	10	33	80	78	155	59	

Calm : .00 %

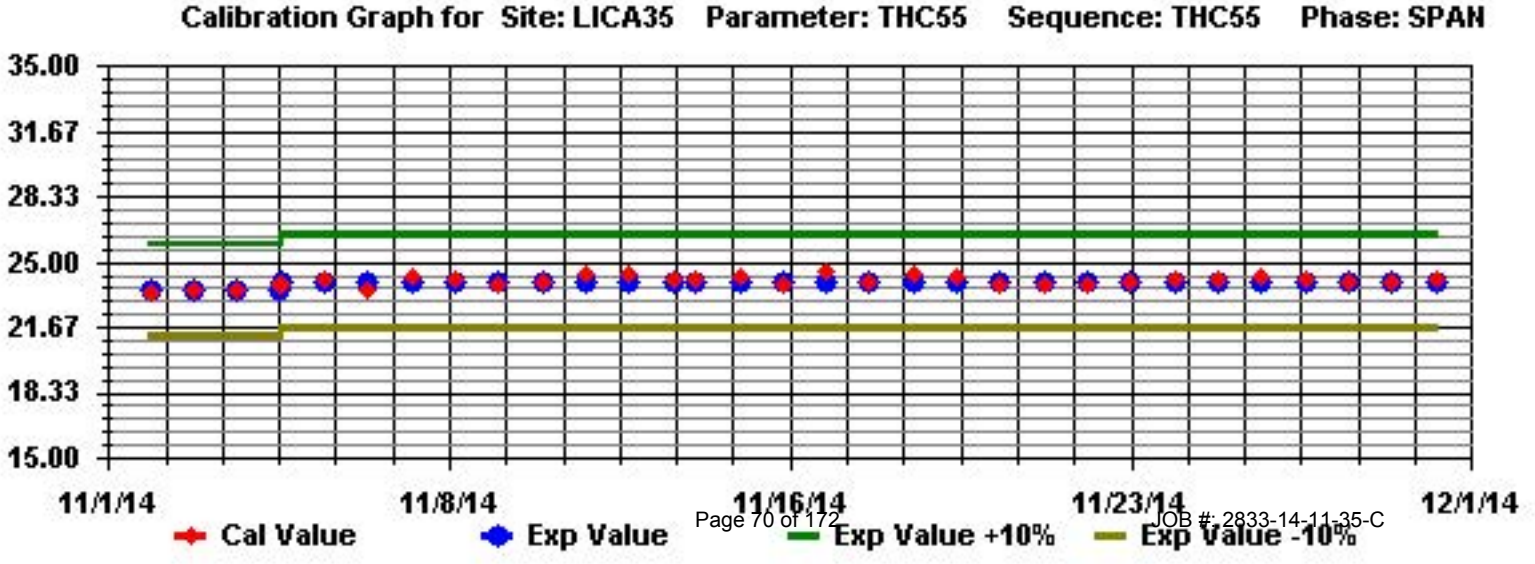
Total # Operational Hours : 667

Logger : 35 Parameter : THC55
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN
35.00
31.67
28.33
25.00
21.67
18.33
15.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Methane

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

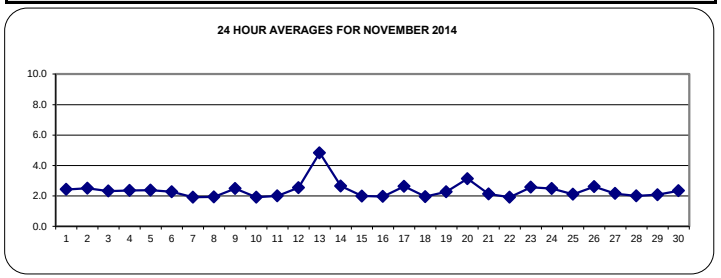
METHANE (CH4) hourly averages in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2.3	2.3	2.3	2.4	2.3	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	2.7	3.2	3.3	3.2	2.9	**S**	6.1	6.1	2.4	24
2	3.2	2.1	2.0	2.1	2.2	2.2	2.2	2.1	2.2	2.5	2.6	2.5	2.2	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.9	**S**	4.4	5.3	5.3	2.5	24
3	4.5	3.2	2.6	2.5	2.7	2.8	3.1	2.6	2.5	2.2	2.1	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	**S**	1.8	1.9	1.9	4.5	2.3	24
4	1.9	2.1	2.4	3.1	3.2	3.0	2.3	2.2	2.3	2.3	2.3	2.0	2.0	2.0	**C**	**C**	**C**	**C**	**C**	**C**	**X**	**X**	**X**	**X**	3.2	2.4	20
5	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.3	3.0	3.4	3.1	3.0	3.4	2.4	12
6	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	**S**	2.2	2.2	2.3	2.2	2.0	2.1	2.8	2.3	24
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	1.9	24
8	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
9	2.0	2.0	2.7	3.1	3.0	2.7	2.3	2.2	2.2	2.9	2.1	2.0	2.2	2.1	**S**	1.9	2.1	2.5	2.6	2.9	3.2	3.3	3.0	2.0	3.3	2.5	24
10	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
11	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	2.0	2.0	2.0	2.4	2.3	2.3	2.2	2.2	2.4	2.0	24
12	2.2	2.2	2.3	2.4	2.3	2.1	2.1	2.0	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	2.0	2.5	2.5	4.3	3.8	3.8	4.3	4.2	4.3	2.5	24
13	4.5	5.4	5.2	6.0	6.4	6.2	5.3	6.3	***7.8***	7.4	**S**	4.2	2.7	2.3	2.2	2.1	6.2	3.5	3.6	3.3	4.3	4.4	**S**	6.9	***7.8***	***4.8***	24
14	6.3	4.4	3.8	3.2	2.8	2.9	3.2	2.7	2.8	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**S**	2.0	6.3	2.6	24
15	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.1	1.9	**S**	1.9	1.9	1.9	2.2	2.0	24
16	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	2.0	2.4	2.6	2.6	2.0	24
17	2.4	2.9	2.4	2.5	2.1	2.0	2.1	2.0	2.1	2.2	2.5	2.6	2.6	2.7	3.0	2.8	3.0	3.2	**S**	3.1	3.2	2.8	3.5	2.8	3.5	2.6	24
18	2.5	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	1.9	1.9	1.9	1.9	1.9	2.5	2.0	24
19	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	**S**	2.7	2.9	3.4	3.4	3.5	3.1	2.7	3.5	2.3	24
20	3.0	2.9	2.8	2.6	3.0	3.3	3.0	3.2	3.3	3.6	2.6	2.0	2.0	2.0	2.2	**S**	2.8	3.6	3.9	4.3	3.7	4.2	4.1	3.9	4.3	3.1	24
21	3.3	2.4	2.3	2.2	2.1	2.1	2.0	1.9	2.1	2.2	2.0	2.0	2.0	**S**	**S**	2.0	2.0	2.1	2.0	2.0	2.0	1.9	2.0	2.0	3.3	2.1	24
22	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
23	2.0	1.9	2.0	2.4	2.4	2.2	2.2	2.4	2.8	2.4	2.3	2.2	**S**	2.1	2.2	2.3	2.6	3.5	3.5	3.0	3.6	3.1	3.1	3.0	3.6	2.6	24
24	3.2	3.1	4.8	3.9	3.1	3.4	2.4	2.1	2.0	2.0	1.9	**S**	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	4.8	2.5	24
25	2.2	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.3	2.6	2.6	2.6	2.1	24
26	2.7	2.6	2.2	2.4	2.3	2.4	2.4	2.3	2.3	**S**	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8	3.0	2.9	2.6	2.8	2.7	2.8	3.0	2.6	24
27	3.0	3.0	2.9	2.8	2.5	2.3	2.2	2.1	**S**	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.0	2.2	24
28	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**S**	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.3	2.5	2.6	1.9	1.9	2.6	2.0	24
29	1.9	1.9	1.9	2.0	2.1	2.1	**S**	2.4	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.4	2.1	24
30	2.2	2.2	2.3	2.3	2.2	**S**	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.2	2.1	2.2	2.3	3.2	3.1	3.1	3.0	2.7	3.2	2.3	24
HOURLY MAX	6	5	5	6	6	6	5	6	8	7	3	4	3	3	3	3	6	4	4	4	4	4	4	7			
HOURLY AVG	2.6	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.8			

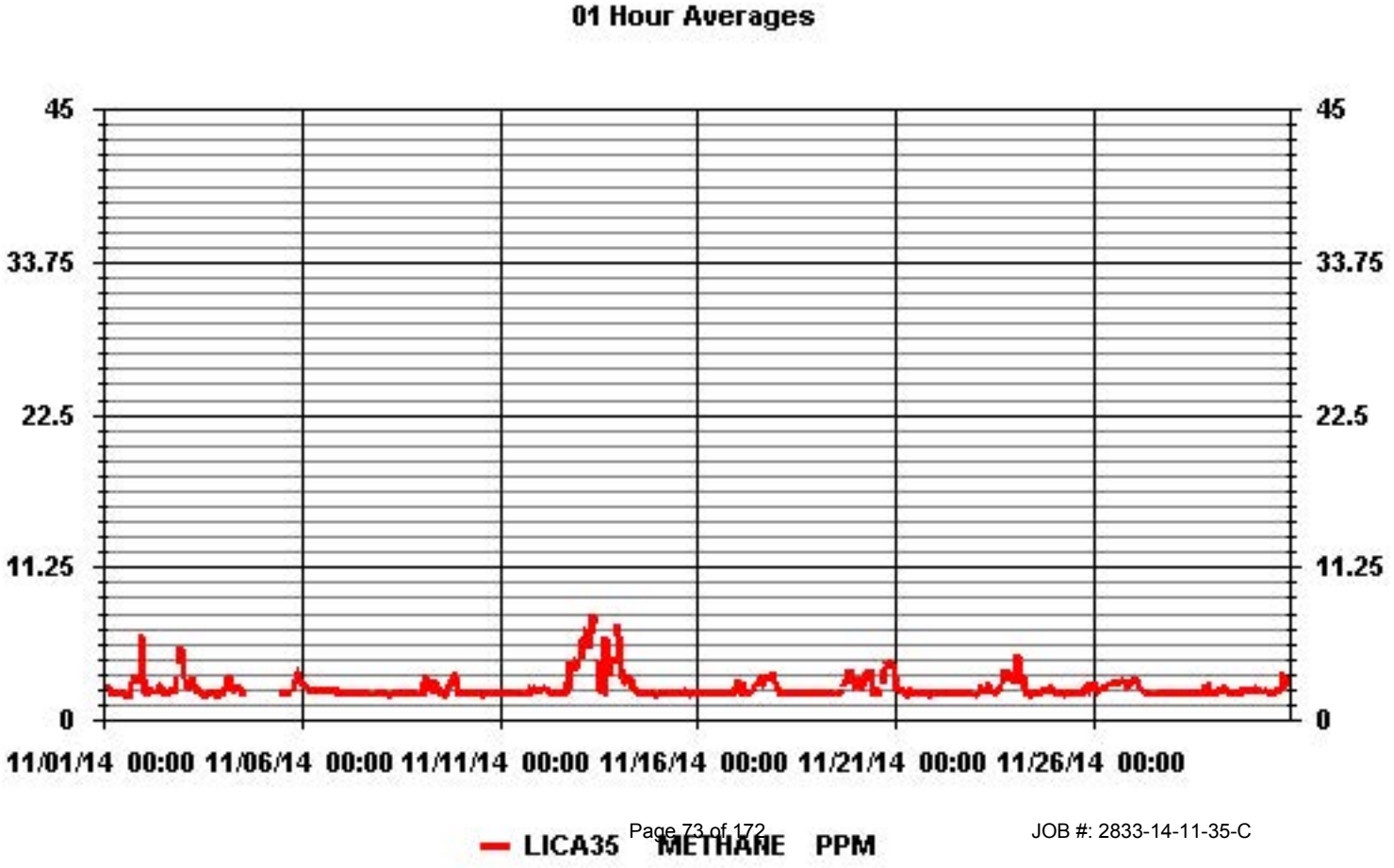
STATUS FLAG CODES

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:	667						
MAXIMUM 1-HR AVERAGE:	7.8	PPM	@ HOUR(S)	8	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	4.8	PPM			ON DAY(S)	13	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			704	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			97.8	%
STANDARD DEVIATION:	0.78		MONTHLY AVERAGE:			2.36	PPM



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

METHANE MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	**R**	2.52	2.57	3.07	2.58	2.21	2.17	2.2	2.15	2	1.95	1.95	1.94	1.95	1.92	1.94	2.25	4.31	3.62	3.7	3.9	4.12	**S**	9.15	9.15	2.9	23
2	7.67	2.31	2.18	2.32	2.43	2.37	2.36	2.27	2.29	2.99	2.95	2.85	2.6	2.18	2.14	2.14	2.18	2.3	2.33	2.41	4.28	**S**	7.26	7.46	7.67	3.1	24
3	8.38	4.17	3.06	2.91	3.13	3.04	3.66	3.24	3.61	2.5	2.59	1.98	1.94	1.92	1.93	1.96	1.97	2.04	2.02	1.95	**S**	1.93	2.06	2.04	8.38	2.8	24
4	2.01	2.44	2.98	4.56	4	3.83	2.84	2.42	2.46	3.49	3.18	2.14	2.04	2.33	**C**	**C**	**C**	**C**	**C**	**C**	**X**	**X**	**X**	**X**	4.56	2.9	20
5	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	1.95	1.96	1.98	1.99	1.98	1.96	**S**	2.92	4.31	4.1	3.52	3.43	4.31	2.7	12
6	3.06	2.88	2.71	2.68	2.52	2.44	2.36	2.33	2.31	2.39	2.37	2.31	2.3	2.28	2.35	2.47	2.27	**S**	2.44	2.75	2.86	2.7	2.16	2.2	3.06	2.5	24
7	2.11	1.95	1.95	1.96	1.94	1.95	1.95	1.96	2.03	2.01	2.01	1.98	1.98	1.99	1.97	1.97	**S**	1.99	2.1	2.1	1.97	1.98	2.01	2.06	2.11	2.0	24
8	2.08	2.05	2.06	2.08	2.05	1.96	2.06	2.02	2	2	1.97	1.98	2.03	2.01	1.96	**S**	1.97	1.99	2.01	1.99	1.96	2.01	2.01	2.02	2.08	2.0	24
9	2.03	2.38	3.23	3.59	3.41	3.03	2.62	2.29	2.4	4.08	2.47	2.1	2.43	2.22	**S**	2.07	2.35	3.57	2.93	3.55	3.55	3.82	4.11	2.05	4.11	2.9	24
10	2.02	2.1	1.97	1.95	1.96	1.95	1.96	1.96	1.97	1.93	1.92	1.95	1.93	**S**	1.91	1.93	1.93	1.94	1.96	1.94	1.94	1.94	1.95	1.96	2.1	2.0	24
11	1.98	2	1.99	1.98	1.98	1.97	1.96	1.99	1.98	1.99	1.99	1.96	**S**	1.99	1.98	2	2.09	2.12	2.03	2.94	2.6	2.55	2.37	2.29	2.94	2.1	24
12	2.37	2.5	2.5	2.68	2.51	2.39	2.51	2.15	2.04	2	1.99	**S**	2.02	1.97	2.04	1.98	2.47	2.84	3.62	8.23	5.25	4.52	4.63	4.41	8.23	3.0	24
13	5.45	7.7	5.57	7.28	6.78	6.73	6.23	7.09	***15.1***	10.35	**S**	4.99	3.29	2.75	2.25	2.21	9.68	6.93	4.18	3.88	7.52	6.35	**S**	9.7	***15.1***	***6.5***	24
14	11.36	5.68	4.34	3.83	4.19	4.29	3.99	2.96	3.11	2.54	2.33	2.19	2.16	2.15	2.05	2.12	2.12	2.09	2.08	2.07	2.07	**S**	2.05	2.02	11.36	3.2	24
15	2.08	2.05	1.99	2.17	2.14	2.38	2.29	2.11	2.07	2.09	2.09	2.36	2.06	2.21	2.33	2.17	2.07	2.64	2.44	2	**S**	1.95	1.96	1.97	2.64	2.2	24
16	1.95	1.93	1.95	1.98	1.98	1.97	1.95	1.95	1.96	1.96	1.95	1.93	1.93	1.93	1.97	1.97	1.96	2	1.99	**S**	2.07	2.44	2.8	3.63	3.63	2.1	24
17	2.82	4.32	2.71	2.74	2.41	2.28	2.28	2.15	2.26	2.38	2.97	3.16	3.01	3.04	3.78	3.03	3.25	4.23	**S**	3.48	3.94	2.95	4.54	3.47	4.54	3.1	24
18	2.71	3.59	2.06	2	2.04	1.98	1.96	1.98	1.99	1.96	1.94	1.94	1.96	1.95	1.93	1.94	1.95	**S**	2.1	1.97	2.01	1.99	2.06	1.95	3.59	2.1	24
19	2.02	2.01	2.07	1.99	2.01	2.07	2.06	2.05	2.06	2.14	2.01	2.04	2.05	2.05	2.03	2.04	**S**	3.12	3.64	3.72	4.57	4.13	3.56	3.35	4.57	2.6	24
20	3.48	3.44	3.26	2.87	3.45	4.47	3.33	3.74	4.13	4.5	3.51	2.23	2.1	2.19	2.45	**S**	3.76	4.42	4.32	4.83	3.9	4.8	4.82	4.17	4.83	3.7	24
21	3.68	2.89	2.55	2.44	2.22	2.23	2.1	2.2	2.56	2.56	2.13	2.08	2.12	**S**	**S**	2.06	2.1	2.19	2.16	2.16	2.09	2.03	2.06	2.09	3.68	2.3	24
22	2.05	2.02	1.99	1.97	1.97	1.98	2	2	1.98	1.97	1.94	1.95	1.96	**S**	1.97	1.96	2	2.01	2.02	2.02	2	1.97	1.98	2.01	2.05	2.0	24
23	2.14	2.01	2.57	2.89	2.58	2.58	3.35	3.26	4.22	3.09	2.6	2.67	**S**	2.21	3.2	2.85	2.87	3.99	3.84	**P**	3.74	3.63	3.4	3.31	4.22	3.0	23
24	3.37	3.33	7.32	5.43	3.37	3.83	3.14	2.21	2.14	2.04	2.02	**S**	2.06	2.04	2.06	2.16	2.08	2.18	2.23	2.17	2.17	2.39	2.42	2.44	7.32	2.8	24
25	2.39	2.15	2.12	2.05	2.02	2.06	2.02	2.08	2.06	2.05	**S**	2.05	2.06	2.07	2.03	2.03	2.1	2.08	2.23	2.41	3.01	2.47	3.27	2.84	3.27	2.2	24
26	2.99	2.85	2.48	2.55	2.5	2.51	2.5	2.41	2.4	**S**	2.65	2.69	2.73	2.75	2.75	3.24	3.19	3.11	3.39	3.35	3.01	3.14	2.84	3.08	3.39	2.8	24
27	3.12	3.22	2.97	3.03	2.61	2.52	2.31	2.21	**S**	2.04	2	2	2	2.04	1.99	1.98	1.99	1.99	2	1.96	1.96	1.95	1.96	1.97	3.22	2.3	24
28	1.96	1.95	1.97	1.96	1.99	2	1.99	**S**	2.03	2	1.97	1.97	1.97	1.98	1.99	2.01	2.02	2.55	3.15	3.15	3.14	3.53	2	1.98	3.53	2.2	24
29	1.98	2	2.01	2.03	2.4	2.58	**S**	3.28	2.4	2.3	2.38	2.29	2.07	2.08	2.06	2.06	2.16	2.14	2.42	2.44	2.62	2.15	2.21	2.49	3.28	2.3	24
30	2.58	2.58	2.46	2.63	2.48	**S**	2.27	2.22	2.83	2.35	2.32	2.13	2.35	2.66	2.15	2.5	2.24	2.53	2.53	4.32	3.37	3.9	3.37	3.04	4.32	2.7	24
HOURLY MAX	11	8	7	7	7	7	6	7	15	10	4	5	3	3	4	3	10	7	4	8	8	6	7	10			
HOURLY AVG	3.3	2.9	2.7	2.8	2.7	2.7	2.6	2.5	2.9	2.7	2.3	2.3	2.2	2.2	2.2	2.2	2.6	2.8	2.7	3.0	3.2	3.0	2.9	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: 665

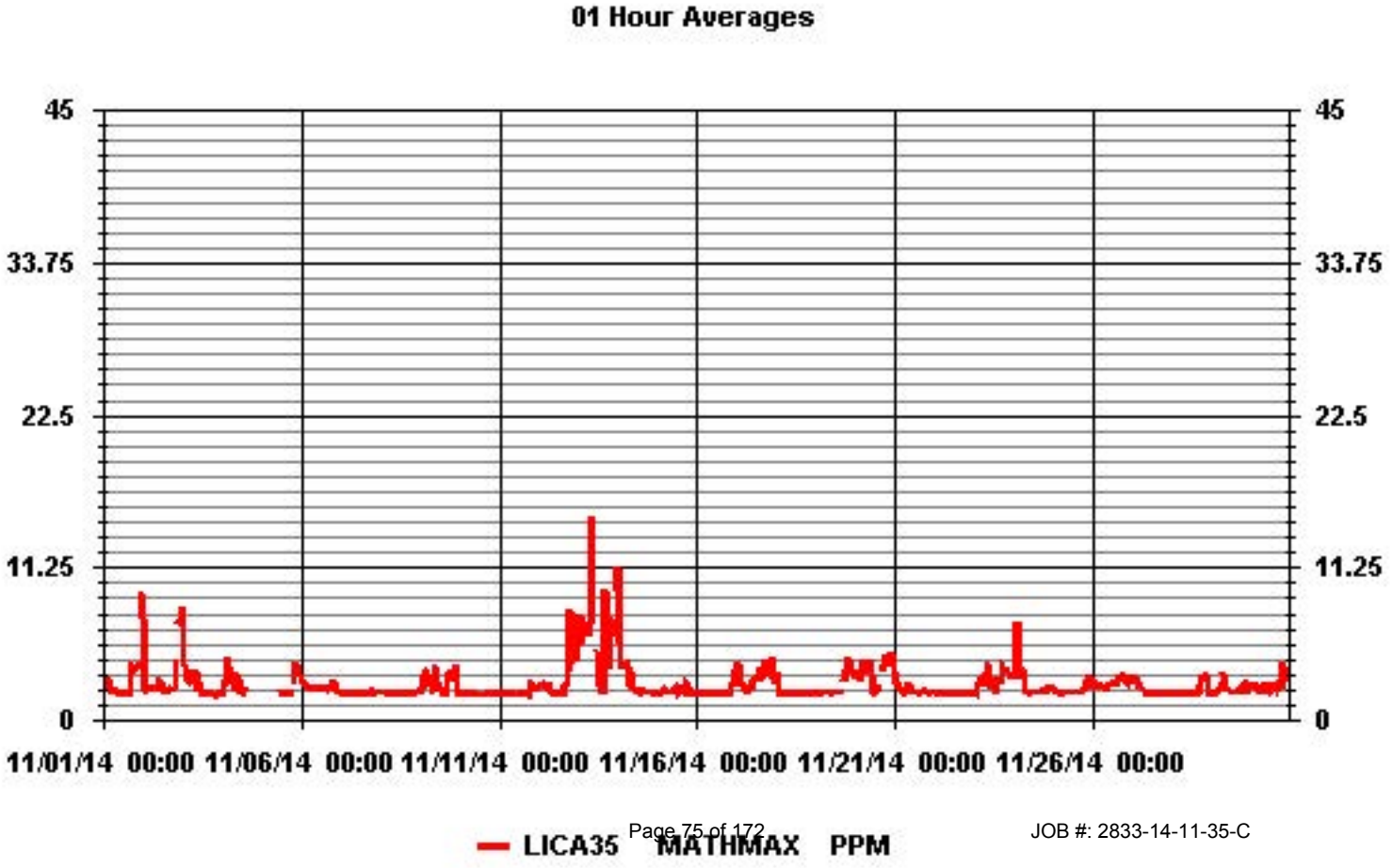
MAXIMUM INSTANTANEOUS VALUE: 15.1 PPM @ HOUR(S) 8 ON DAY(S) 13

VAR-VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 702 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 1.29



JOB #: 2833-14-11-35-C

LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	2.09	4.04	5.84	3.44	3.44	6.74	1.64	.59	.59	1.04	1.49	4.49	9.89	9.89	21.58	8.84	85.75
< 10.0	.14	.00	.14	.89	2.09	2.84	1.49	.00	.44	.14	.00	.44	2.09	1.79	1.64	.00	14.24
< 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	2.24	4.04	5.99	4.34	5.54	9.59	3.14	.59	1.04	1.19	1.49	4.94	11.99	11.69	23.23	8.84	

Calm : .00 %

Total # Operational Hours : 667

Distribution By Samples

Direction

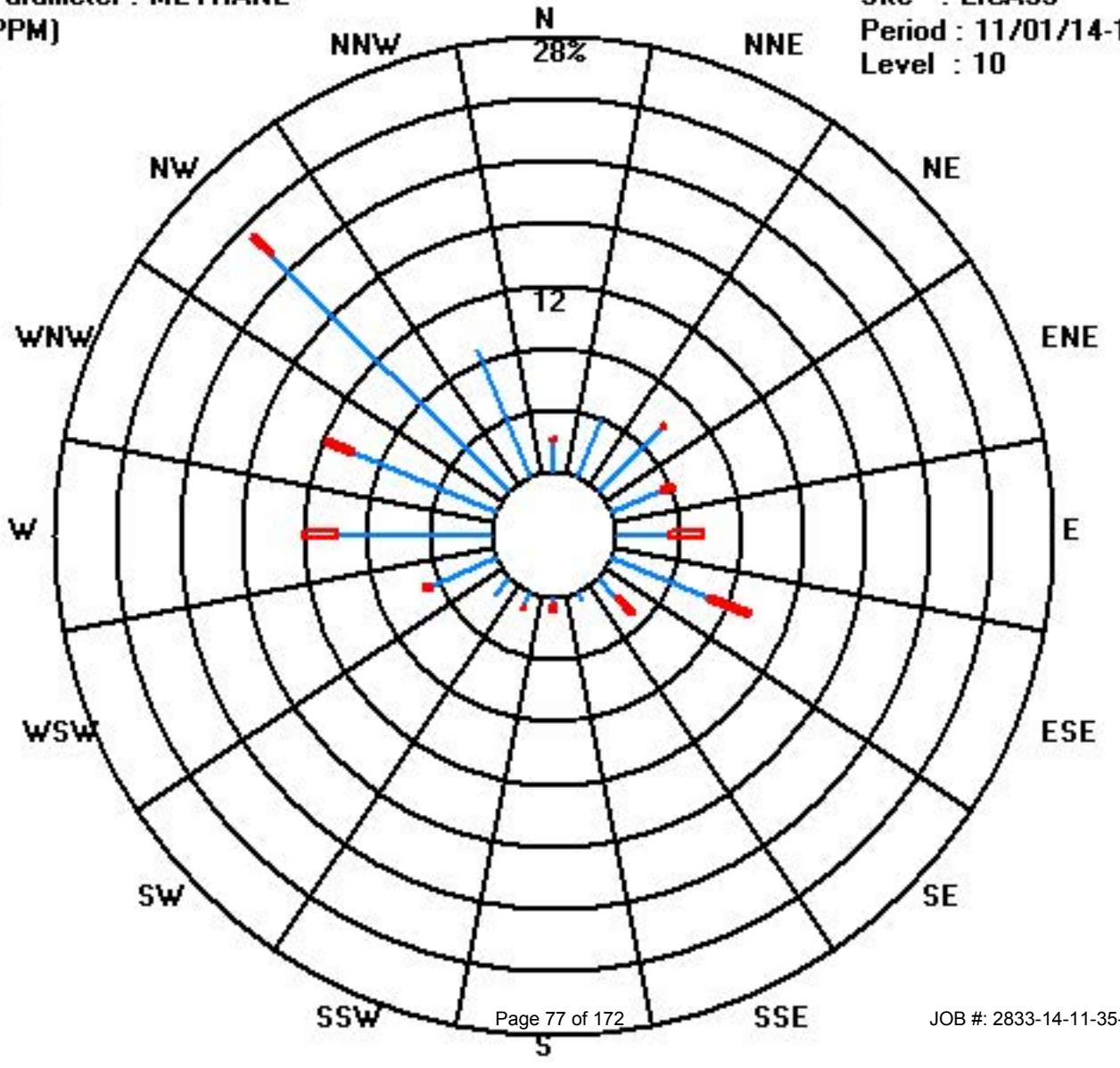
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	14	27	39	23	23	45	11	4	4	7	10	30	66	66	144	59	572
< 10.0	1		1	6	14	19	10		3	1		3	14	12	11		95
< 50.0																	
>= 50.0																	
Totals	15	27	40	29	37	64	21	4	7	8	10	33	80	78	155	59	

Calm : .00 %

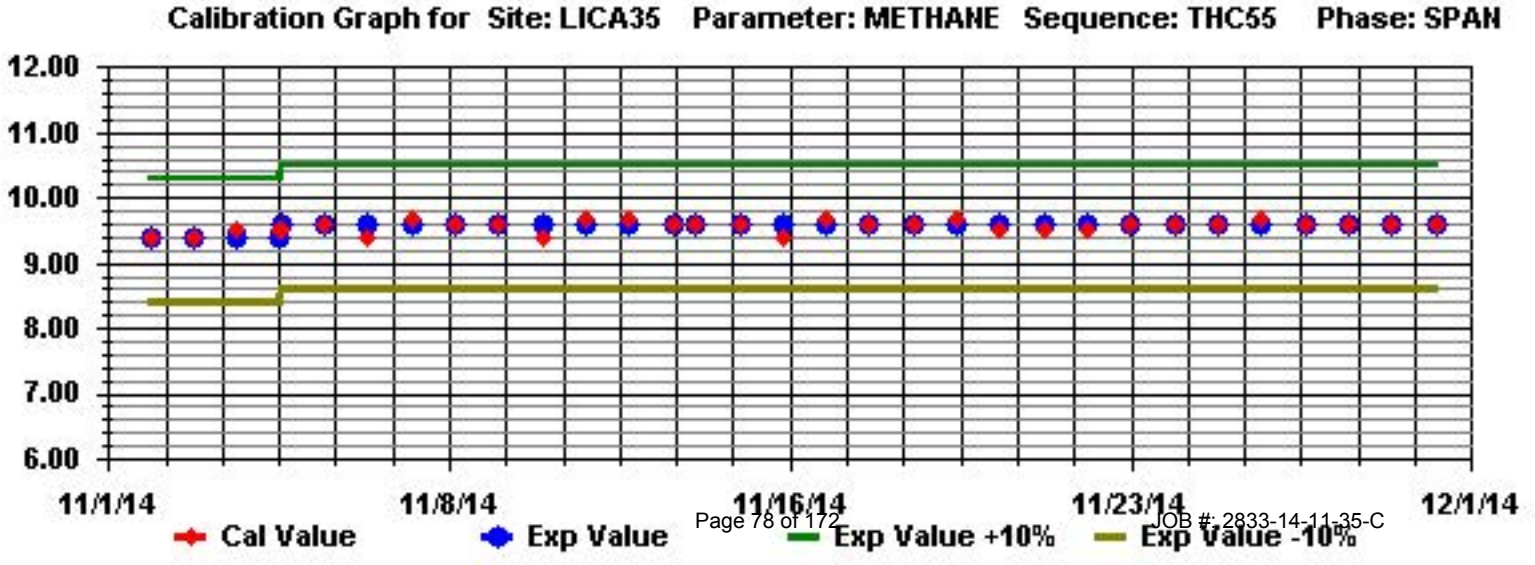
Total # Operational Hours : 667

Logger : 35 Parameter : METHANE
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN
12.00
11.00
10.00
9.00
8.00
7.00
6.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Non-Methane Hydrocarbons

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

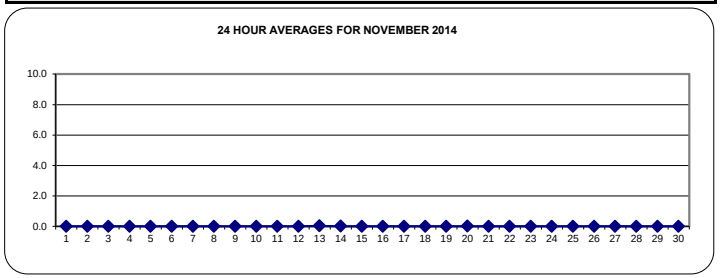
NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

MST

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

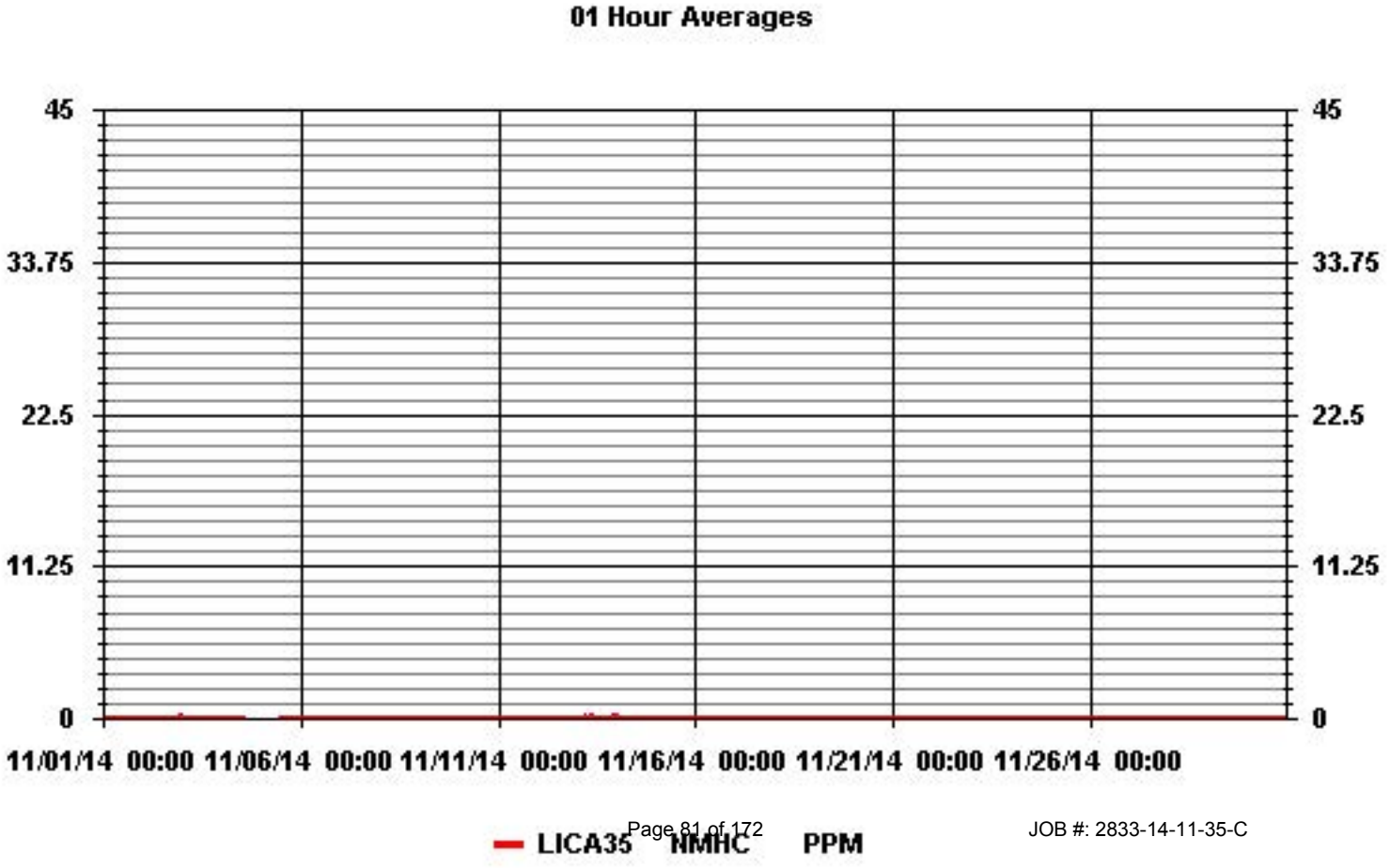
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	15						
MAXIMUM 1-HR AVERAGE:	0.2	PPM	@ HOUR(S)	23, 0	ON DAY(S)	13, 14	
MAXIMUM 24-HR AVERAGE:	0.0	PPM			ON DAY(S)	ALL	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			704	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			97.8	%
STANDARD DEVIATION:	0.02		MONTHLY AVERAGE:			0.00	PPM



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	**R**	0.19	0.15	0.13	0.17	0	**S**	0	0.1	0	0	0	0	0	0	0	0	0.1	0.12	0.13	0.05	0.12	**S**	0.27	0.27	0.1	23
2	0.25	0	0.18	0	0.01	0.22	0.01	0	0	0.12	0	0	0	0	0	0	0	0	0	0	0.14	**S**	0.26	0.19	0.26	0.1	24
3	0.22	0.18	0.12	0	0.11	0.1	0.15	0	0	0.07	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.22	0.0	24
4	0	0	0	0.11	0.15	0.06	0	0	0	0.14	0.06	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	**X**	**X**	**X**	**X**	0.15	0.0	20
5	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	0	0	0	0	0	0.15	**S**	0.19	0.16	0.15	0	0.16	0.19	0.1	12
6	0	0.05	0	0	0.11	0	0	0	0	0	0	0	0.1	0	0.06	0	0	**S**	0.32	0.12	0.15	0.09	0.09	0	0.32	0.0	24
7	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0.05	0.0	24
8	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
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0.01	0	0.01	0.0	24
10	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
11	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	**S**	0.27	0.07	0.22	0	0.14	0.16	0.02	0.15	0.19	0.25	0.19	0.17	0.27	0.1	24
13	0.23	0.21	0.23	0.23	0.23	0.27	0.22	0.22	0.17	0.27	**S**	0.06	0	0	0	0	0.29	0	0.08	0.11	0.23	0.24	**S**	***0.45***	***0.45***	***0.2***	24
14	0.35	0.21	0.19	0.15	0.02	0	0.13	0	0.19	0	0.04	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0.35	0.1	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0.07	0	**S**	0	0	0	0.07	0.0	24
16	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
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0.12	0	0.19	0.02	0.19	0.0	24
18	0.1	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0.11	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0.1	0	0.17	0	0	0	0.17	0.0	24
20	0	0	0.18	0	0	0.18	0	0.12	0.12	0.13	0.09	0	0	0.16	0.14	**S**	0.14	0.17	0.09	0.35	0.19	0.24	0.24	0.23	0.35	0.1	24
21	0.21	0.18	0.13	0.14	0.18	0.11	0	0	0.08	0.11	0	0.13	0.14	**S**	**S**	0.24	0.15	0	0	0	0	0	0	0	0.24	0.1	24
22	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
23	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.16	0	0.17	**P**	0	0	0.06	0	0.17	0.0	23
24	0	0	0.17	0.14	0.02	0.06	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0.0	24
25	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0.03	0	0	0	0.03	0.0	24
26	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0.18	0	0.09	0.07	0.12	0.18	0.0	24
27	0.15	0.11	0.14	0.11	0.04	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.0	24
28	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	**S**	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	**S**	0	0	0	0	0	0	0	0	0	0	0.1	0.24	0.18	0	0.04	0.07	0.06	0	0.24	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			
HOURLY AVG	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 144

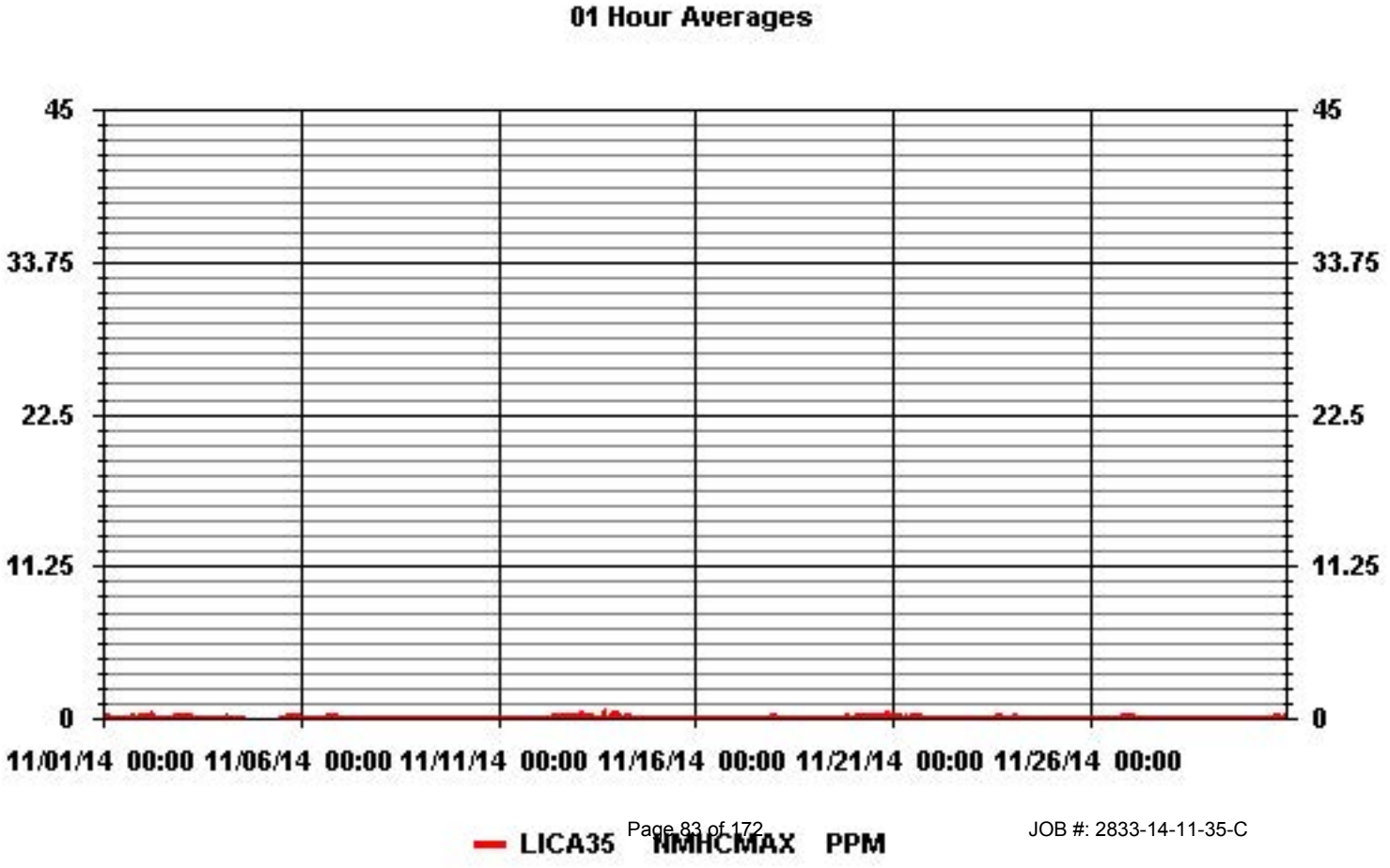
MAXIMUM INSTANTANEOUS VALUE: 0.45 PPM @ HOUR(S) 23 ON DAY(S) 13

VAR-VARIOUS

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 702 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 0.07



JOB #: 2833-14-11-35-C

LICA35
NMHC / WDR Joint Frequency Distribution (Percent)

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< .2	2.24	4.04	5.99	4.34	5.54	9.59	3.14	.59	1.04	1.19	1.49	4.94	11.99	11.69	23.23	8.84	100.00
< .5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 2.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.24	4.04	5.99	4.34	5.54	9.59	3.14	.59	1.04	1.19	1.49	4.94	11.99	11.69	23.23	8.84	

Calm : .00 %

Total # Operational Hours : 667

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< .2	15	27	40	29	37	64	21	4	7	8	10	33	80	78	155	59	667
< .5																	
< 1.0																	
< 2.0																	
< 4.0																	
>= 4.0																	
Totals	15	27	40	29	37	64	21	4	7	8	10	33	80	78	155	59	

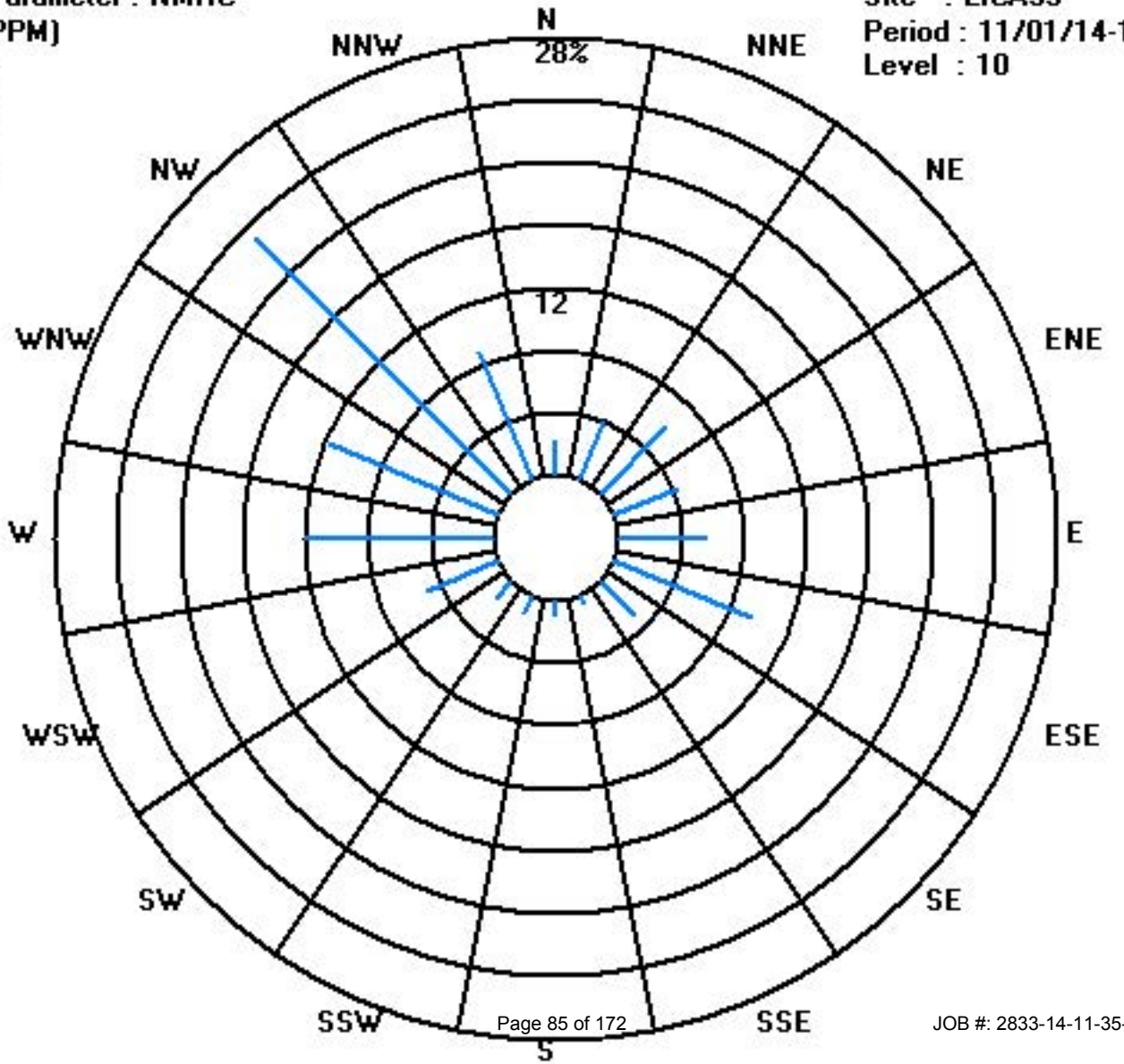
Calm : .00 %

Total # Operational Hours : 667

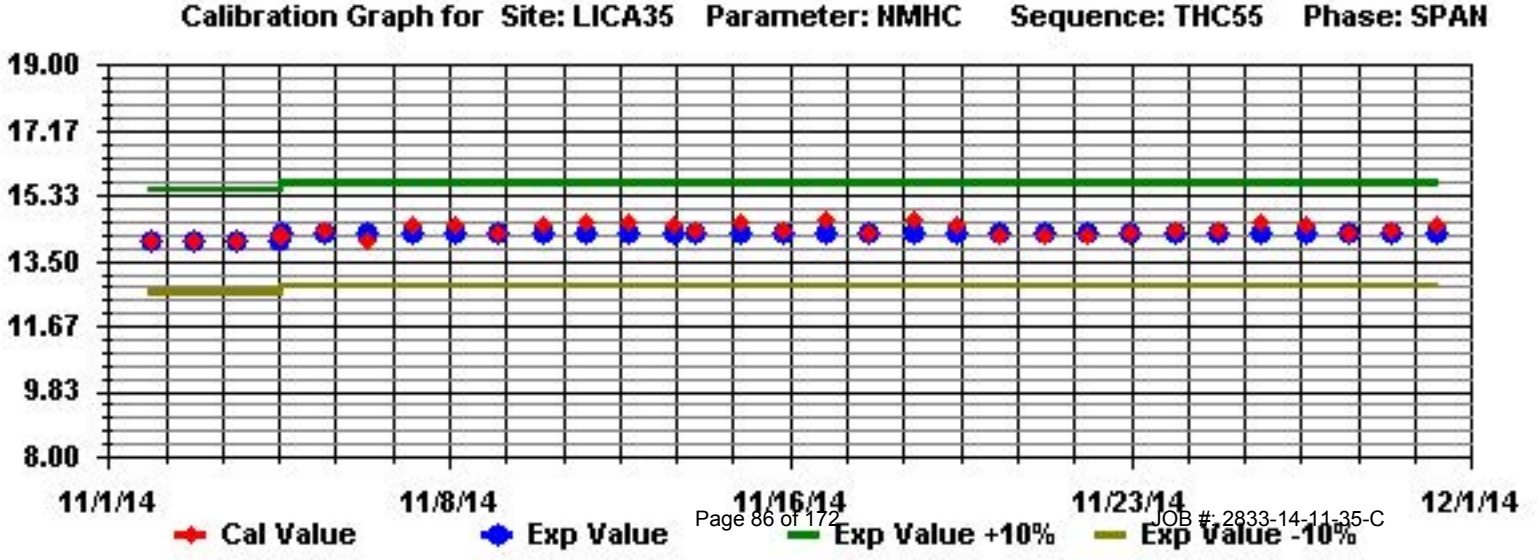
Logger : 35 Parameter : NMHC
Class Limits (PPM)

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

Site : LICA35
Period : 11/01/14-11/30/14
Level : 10



JOB #: 2833-14-11-35-C


Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN
19.00
17.17
15.33
13.50
11.67
9.83
8.00
11/1/14
11/8/14
11/16/14
11/23/14
12/1/14
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Vector Wind Speed

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

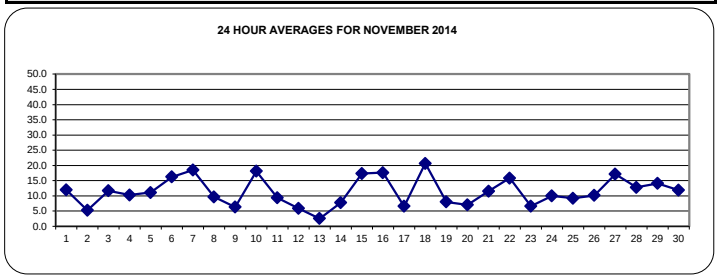
WIND SPEED (WS) hourly averages in km/hr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14.1	15.7	11.2	9.7	11.9	17.5	18.9	16.2	16.7	15	17.4	18.3	11.7	11.6	15	13.6	9.3	8.2	4.9	4.3	7.2	6.2	6.2	5.8	18.9	11.9	24
2	7.6	2.8	4.8	1.5	3.2	4.1	6	4.3	2.3	3.3	1.4	3.4	8.2	10.9	11.2	8.1	6.8	5.2	2	4.1	4.7	8.2	6.4	5.1	11.2	5.2	24
3	6.1	9.7	6.2	7.3	4.3	2.6	2.7	3.3	6.1	6.2	19.1	23.9	21.8	26.7	26.2	26.3	24.1	16.2	11.9	6.5	10.3	9.4	2.5	0.8	26.7	11.7	24
4	2.9	2.5	6.5	7.8	8.5	9.8	13.4	14.8	13.7	17.8	23	20.7	22.1	19.2	17	14	4.3	0.6	1.3	1.2	2.8	5.8	8.8	8	23.0	10.3	24
5	5.3	6.9	7.8	9.7	10.6	9.7	12.3	11.2	13.4	16.4	19.7	23.3	25.1	17.9	13	11.9	8	4.5	3.4	2.5	6.4	7.1	8.8	11.4	25.1	11.1	24
6	12.9	13.2	18.6	17.6	20.8	22.1	21	19.9	19.2	19.2	21.7	21.1	21.4	22.1	16.7	14.3	10	5.3	1.9	6.5	10.5	17	22.5	14	22.5	16.2	24
7	24.5	24	23	25.9	30.3	17.7	22.9	18.2	17.8	21.2	24.1	26.2	26.1	21.6	19.3	16.7	13.4	15.2	11.1	11.6	10.8	9.3	8.3	5.6	30.3	18.5	24
8	4.7	7.9	6.7	8.2	8.8	8.4	8.7	11.4	12.9	12	12.9	12.3	12	10.6	10.6	12.5	10.2	10.2	8.9	10.3	9.4	7.2	7.8	7.1	12.9	9.7	24
9	7.7	5.9	7.3	9.6	4.9	4.3	1.1	6.1	3.3	3.1	1.3	1	6.7	6.2	8.7	10.8	8.9	8.7	8	8.7	8.1	8.1	4.6	8.7	10.8	6.3	24
10	7.7	8.3	12.6	14.4	15.1	16.1	16.8	14.8	18.5	21.9	25.1	23.8	22.5	26.4	26.3	26.4	20.9	21.7	15.3	16.9	16.2	14.5	16.4	15.7	26.4	18.1	24
11	11.6	10.9	10.8	12.3	13.9	13.9	13.3	10.4	10.8	11.5	11.3	10.1	11	10.6	6.9	6.4	7.2	6.9	3.5	5.3	5.2	6.3	7.9	7.4	13.9	9.4	24
12	7.8	7.6	5.3	5.7	4.4	6	8.8	9.9	9.4	5.1	8.3	8.9	7.4	8.8	7.4	6.9	7	4.3	3.3	1.8	2	1.5	1.1	2.5	9.9	5.9	24
13	2.9	0.8	2.1	2	1.2	1.7	0.6	0.6	0.4	0.1	1.9	3.8	4.4	5.7	5.3	4.8	6.1	4.9	1.5	1.8	0.4	1	4.4	2.5	6.1	2.5	24
14	3.1	3.9	3.1	2.7	4	3.6	4	5.4	3.7	5.3	8.3	9	8.3	7.8	9.7	11.8	15.6	13.1	10.3	9	13.7	10.3	9	11.7	15.6	7.8	24
15	10.2	13.7	16.6	16.8	18.1	16.5	17.2	15	16	13.9	14.1	16.1	15.8	15	15.4	10.5	12.5	18.2	25.1	20.5	24.7	26.3	25.1	22.6	26.3	17.3	24
16	23.6	25.1	24.3	21.3	21	18.9	19.7	17.4	15.7	17	18	19.1	17.8	18	19	19.8	18.4	18.1	14.3	14.2	11.3	9.6	11.5	10.2	25.1	17.6	24
17	9.2	9.3	7.6	8.1	9.3	6.2	7	6.3	4.5	3.7	3.1	2	4.1	7	6.5	9	10.1	6.3	6.1	5.5	1.5	1.3	10.8	13	13.0	6.6	24
18	13.1	15.4	21.8	23.5	26.3	***30.9***	30.7	22.8	27.9	26.8	24.1	22.2	24.7	23.3	22.4	19.7	19.6	14.1	16.9	16.6	13.9	10.2	14.2	14.9	***30.9***	***20.7***	24
19	13	11.9	10.1	11.4	10.6	11.4	10.5	10.6	7.6	9.2	5.9	5.4	5.4	7.4	5.7	6.1	5.7	6.4	4	6.6	5.6	6.6	7.1	8.5	13.0	8.0	24
20	8.4	8.5	11.9	13.2	12.4	10.8	8.2	8.3	8.2	6	6.3	10.4	10.1	9.4	8.8	6.5	3.6	5.4	4.9	1.1	2.8	1.6	1.5	1.1	13.2	7.1	24
21	2.7	8.6	8.8	8.1	8.8	11.2	18.2	18.2	19.9	16.9	14.6	11.4	9.5	7.5	8.6	7.2	5.7	7.5	8	8.3	13.9	16	17.6	19.3	19.9	11.5	24
22	20.2	21.9	20.9	23.6	23.1	24.4	23.5	21.5	20.6	21.6	19.8	16.3	15.4	12.7	13.1	11.5	10.2	10.9	9.2	7.3	6.3	9.8	8.5	8.1	24.4	15.9	24
23	10.1	9.6	6.7	7.7	7.6	10.5	8.9	8.3	9	6.7	4.9	6.1	8.1	4.5	3.9	4.1	5.4	6.8	2.8	3.5	5.7	6.6	7	4.9	10.5	6.6	24
24	1.9	1.6	4.3	7.8	8.4	12.9	17.2	15.3	13.9	19.7	15.5	11.4	10.1	10.7	7.3	6.7	2.3	6.7	8.4	10.6	12.4	10.8	11.6	11.8	19.7	10.0	24
25	12.7	12.2	13.2	13.9	14.8	15.8	13.4	9.4	12.6	11	11	8.7	4.9	5.1	7.3	5.7	6.4	7.3	8	3.8	5.1	6.7	5.2	7.3	15.8	9.2	24
26	8.9	10.1	14.5	15.3	15.4	14.9	15.4	13.9	12	11.9	11.2	12.8	9.7	9.5	11.4	9.8	10.4	8.5	9	3.6	4.5	3.7	2.3	4.7	15.4	10.1	24
27	5.9	4.4	3.8	8.2	11.9	17.4	16.9	21	19.7	20.4	21.6	21.5	18.4	18.4	21.1	19.8	18.9	19	17.5	19.1	18.3	24.3	22.6	21.1	24.3	17.1	24
28	20.7	19.1	13.3	13.2	10.8	11.2	11.7	11	12.6	13.2	11.7	12.2	11.9	10.7	8.5	9.4	11.2	12.2	13.3	11.2	10.9	12.5	14.7	19.7	20.7	12.8	24
29	20.6	16.8	14.3	19.1	16.1	14	15.6	15.3	10.5	11.2	15.5	11	10.6	9.5	10.8	9.8	11.5	11.6	14.3	18.4	19.5	15.5	12.8	13.3	20.6	14.1	24
30	12.3	14.8	12.2	13.4	19.8	18.6	18.3	26.2	20.2	5.7	15.4	12.9	10.6	9.9	7.8	7	6.5	6.8	3.4	5.3	6.7	8.5	11.5	12.2	26.2	11.9	24
HOURLY MAX	24.5	25.1	24.3	25.9	30.3	30.9	30.7	26.2	27.9	26.8	25.1	26.2	26.1	26.7	26.3	26.4	24.1	21.7	25.1	20.5	24.7	26.3	25.1	22.6			
HOURLY AVG	10.4	10.8	11.0	12.0	12.5	12.8	13.4	12.9	12.6	12.4	13.6	13.5	13.2	12.8	12.4	11.6	10.3	9.7	8.4	8.2	9.0	9.4	10.0	10.0			

STATUS FLAG CODES

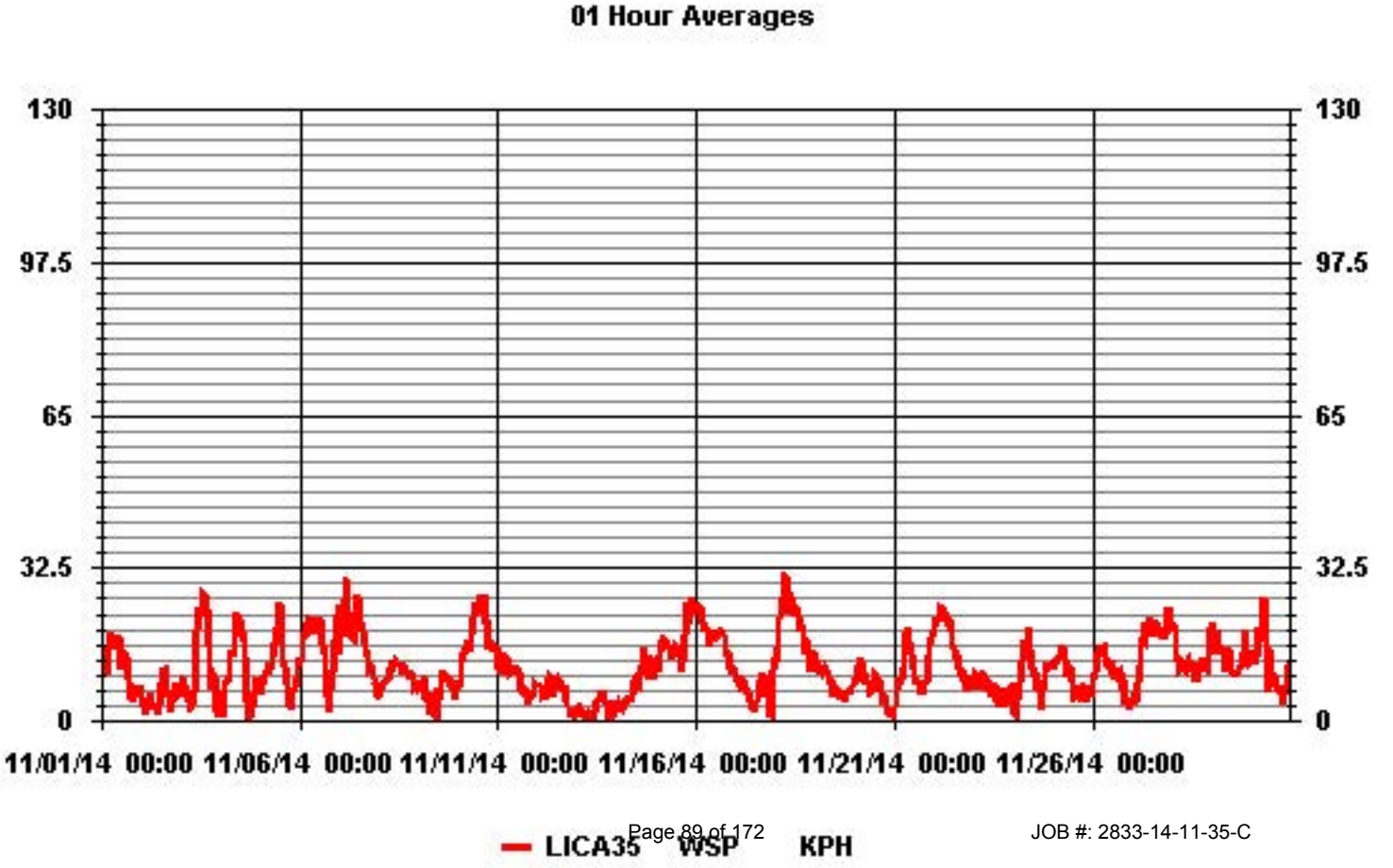
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



LAST CALIBRATION:	February 21, 2014
DECLINATION :	MAEGNETIC DECLINATION 19 DEGREES EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	720						
MAXIMUM 1-HR AVERAGE:	30.9	KPH	@ HOUR(S)	5	ON DAY(S)	18	
MAXIMUM 24-HR AVERAGE:	20.7	KPH			ON DAY(S)	18	
					VAR-VARIOUS		
			OPERATIONAL TIME:	720	HRS		
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%		
STANDARD DEVIATION:	6.44		MONTHLY AVERAGE:	11.37	KPH		



JOB #: 2833-14-11-35-C

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

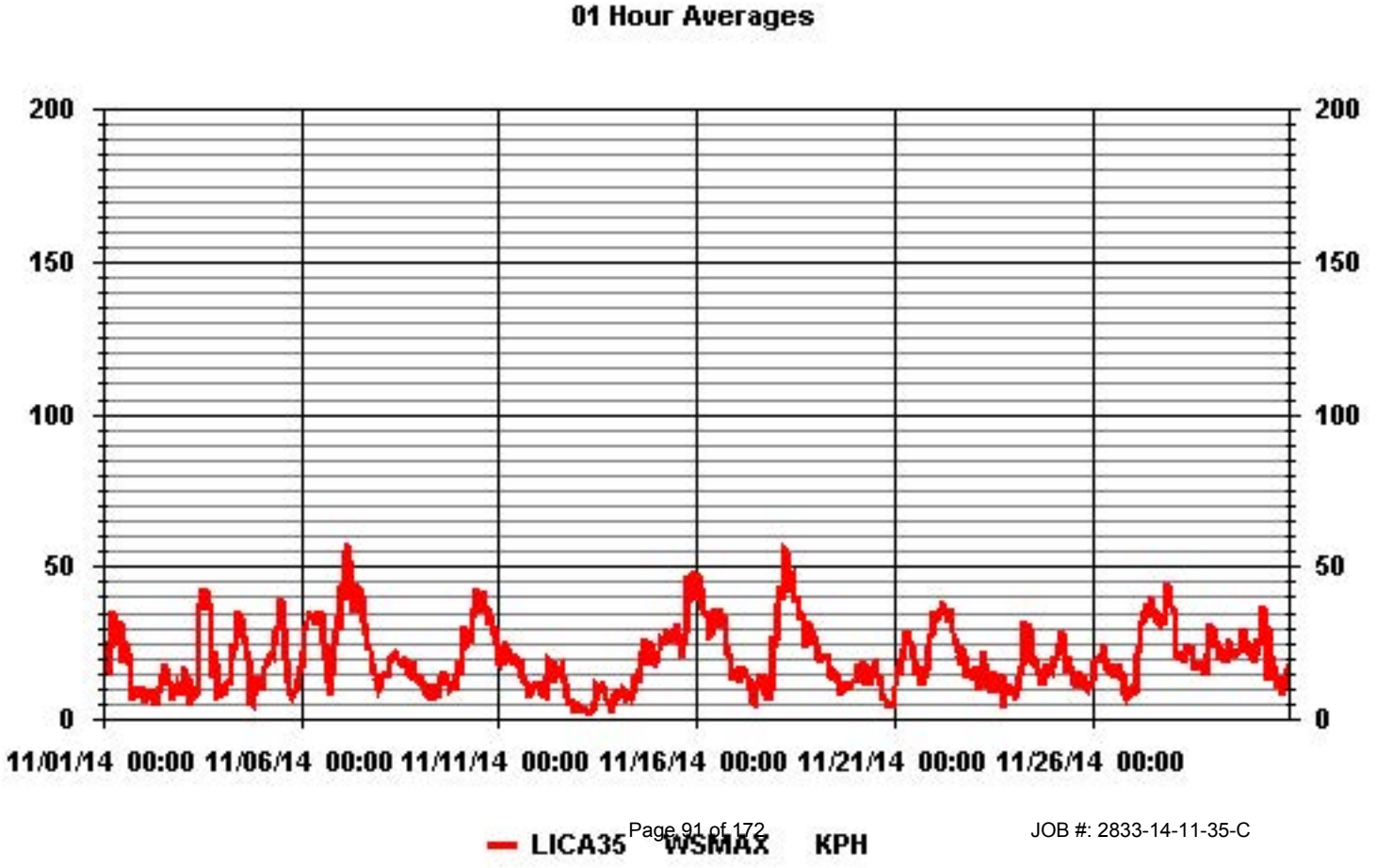
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	20.8	25.9	18.7	14	21.8	30.3	35.2	30.1	26.2	27	28.9	31.8	18.8	20.1	25.8	21.9	18.1	10.7	6.4	7.7	10.2	9	8.2	8.7	35	19.8	24
2	10.6	5.5	9.8	7.9	7.3	7.4	9.4	7.4	4.7	5.8	8.3	10.7	14.5	18.3	17.2	15.1	12.9	11.7	6.1	7.9	8.9	11.6	10.7	8	18	9.9	24
3	10.9	17	15.2	13.9	13.5	4.9	6.7	7.1	10	9.7	37.3	37.6	35.8	42.6	40	42.5	36.9	37.1	23.4	13.6	21.9	19.2	7.9	8.3	43	21.4	24
4	11.5	8.1	10.7	11.4	11.8	13.1	20.2	25	22.4	32.5	35.1	31.4	31.9	27.6	25.5	22.7	19.5	4.5	5.8	5.1	7.8	13	13.3	14.3	35	17.7	24
5	9.5	10.6	17.2	17.7	19.3	21.3	22	21.1	23.8	28.8	30.6	37.4	39.2	30.1	29.8	20	12.3	10	8.8	7.6	9.1	9.6	13.3	15.7	39	19.4	24
6	17	22.1	29.1	30.2	32.1	35.5	32.2	34.1	30.7	33.3	35.6	31.5	33	35	25.4	20.1	17	12.7	7.5	13.9	23.8	28.8	33.4	28.6	36	26.8	24
7	42.4	42.1	44.7	55.4	***57.8***	38.4	52.3	36	34.9	38.8	44.1	43.9	43.1	40.7	32.2	27.9	23	24.6	23	18.3	16.3	15.5	13.4	9.5	***58***	34.1	24
8	10.2	14.1	14.7	14.5	15.2	14.1	18.5	20.1	21.2	21.9	20.9	20.4	18.9	17.9	17.9	20.6	18.2	15.4	14.8	16.6	18.5	13.6	13	12.7	22	16.8	24
9	14.5	12	10.2	12.4	8.5	7.7	6.3	11.2	7.9	7.5	7.8	7.7	11.3	13.6	13.4	15.4	12.8	12	10.4	11.3	11.9	9.5	15.1	18.8	19	11.2	24
10	14.5	16.8	22	30.8	23	28	28.6	25.3	33.4	36.5	43.2	38.2	34.6	40	41.6	41.5	36	36	30.9	34.6	31.2	27.4	30.5	24.5	43	31.2	24
11	18.6	17.9	19.2	18.9	25.6	23.1	22.7	18.3	19.3	17.7	20.9	18.1	18.4	18.8	14.3	13	12.4	11.9	6.5	8.7	8.9	10.3	11	11.1	26	16.1	24
12	11.3	11.6	8.8	8.5	8	13.6	19.3	18.5	18.1	11.6	15.7	17	16	17.1	17.8	14.5	12.2	7.9	6.4	4.6	6.1	3.3	3.6	4.4	19	11.5	24
13	5.7	3.3	3.2	3.7	3.1	3	2.7	2.2	2.8	3.4	5.6	11.3	10.5	11.1	11.4	8.7	10.2	7.2	4.9	6.3	2.3	4.2	8.1	5.7	11	5.9	24
14	9.6	8.4	6.9	10	9.4	6.9	7.2	9.1	7.3	8.5	13.7	14.7	12	13.4	19	22.5	26.6	22.5	17.8	20.1	25.2	19.7	18.9	20.6	27	14.6	24
15	20.1	22.1	26.5	26	27.3	29.1	27.3	28.4	28.7	26.3	26.2	27.5	31.3	26.3	26.7	20.2	23.9	27.8	46.8	37.9	46.6	47.2	43.1	45.3	47	30.8	24
16	39	47.7	43.8	36.6	35	34.2	34.6	35.7	27.5	27.9	35.9	33.5	31.5	30.6	36.5	33.4	33.5	30.8	24.8	21.8	20.5	12.8	15.6	15.2	48	30.8	24
17	16.1	14.9	12.2	14.6	16.7	15.2	14.5	11.3	11.8	8.1	6.3	5.8	10.2	12.1	13.9	13.6	14.6	8.9	8.5	7.2	6.1	9.2	27.2	23.4	27	12.6	24
18	25.4	37.9	43.7	40.2	40.5	55.4	54.7	41.7	45.9	46.8	43.1	39.3	39.2	40.6	36.5	32.2	34.9	23.4	29.2	29.8	32.4	24	29.1	27.9	55	***37.2***	24
19	21.5	22.1	18	20.6	20.5	20.2	20.3	21.2	13.5	17.5	12.8	13.8	13.1	15.6	11.2	9.1	8.8	9.5	11.5	11.6	10.4	10.8	11.9	12.7	22	14.9	24
20	13.4	13.2	17.6	18	17.7	17.8	11.1	12.3	13.4	10.6	16.9	18.1	18.5	15.5	14.6	11.5	6.4	8.4	7.1	4.8	5	4.8	4.2	4.3	19	11.9	24
21	10.8	16.6	17	14.1	19.4	23.1	28.7	26.1	28.5	25.5	24.6	21.1	19.2	14	15.9	12.9	11.1	17.4	13.3	15.6	23.5	26.4	27.8	35.4	35	20.3	24
22	31.9	32.5	33.7	36.3	37.9	37.8	35.4	34.7	31.7	34.5	36	28.7	27	24.9	22.6	21.1	17.7	23.9	21.6	15	14.8	16.1	14	12.5	38	26.8	24
23	16.7	16.4	10.2	10.2	10.8	22.6	18.7	12.2	15.6	10.7	8.6	10.6	15.2	10.6	9.7	8.3	10.6	14.9	4.9	**P**	8.8	10.1	10.7	9.6	23	12.0	23
24	7.3	7.7	9.4	13.6	14.4	17.5	31.8	28.4	22.1	31.6	30.3	19.3	17.3	20.1	17.2	15.1	12.4	10.8	14.1	15	17.7	15.8	16.6	15.9	32	17.6	24
25	19.9	20.2	20.8	24.4	26.3	28.3	26.9	15	19.9	20.1	17.6	16.4	11.8	9.9	11.7	10.5	15.2	13.2	14.9	10.8	9.8	11.1	11.9	11.5	28	16.6	24
26	13	18.6	19.7	19.7	20.8	20.3	24.8	20.5	17.2	16.1	16.6	18.1	16.4	13.5	15.4	14.6	18.4	16.1	15.2	8.5	7.2	8.5	6.7	9.7	25	15.7	24
27	11	9.8	8	21.6	24.2	31	32.1	34.7	34.6	37.8	35.4	40.2	35.2	33.4	35.7	32.4	31.6	33	31.9	32.2	38.7	44.5	39	37.4	45	31.1	24
28	36	35.8	22.2	20.7	19.3	21.8	19.9	18.4	22.4	24.8	22.2	20.6	23.6	18.9	16.1	18.4	18.2	16.7	17.7	16.8	14	21.6	24.9	31.4	36	21.8	24
29	29.6	30.8	23.7	25.6	24.2	19.4	21	22.7	18.3	21.9	26.2	20.6	21.6	22	21.9	21.5	22.1	22.3	28	27.4	29.5	26.2	21.7	20.8	31	23.7	24
30	22.9	22.1	18.4	21.1	26.5	24.6	28.9	36.7	30.3	12.6	30.1	27.5	21	17.9	13.9	12.9	10.5	13.6	8.1	9.9	9.9	10.8	16	17.5	37	19.3	24
HOURLY MAX	42	48	45	55	58	55	55	42	46	47	44	44	43	43	42	43	37	37	47	38	47	47	43	45			
HOURLY AVG	18.1	19.5	19.2	20.4	21.3	22.2	23.8	22.2	21.5	21.9	24.6	23.8	23.0	22.4	21.7	19.8	18.6	17.2	15.7	15.2	16.6	16.5	17.4	17.4			

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 VALUE:	58	KPH	@ HOUR(S)	4	ON DAY(S)	7
					VAR-VARIOUS	
OPERATIONAL TIME:					719	HRS



JOB #: 2833-14-11-35-C

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

November 2014

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.11	.55	1.11	1.11	1.52	.97	1.52	.55	.55	.27	1.11	.97	3.47	3.33	2.36	.41	20.97
<	12.0	1.25	2.08	1.94	.83	2.22	3.61	1.11	.13	.55	.83	.27	3.05	5.69	4.30	7.77	4.02	39.72
<	20.0	.13	1.38	2.22	1.25	.69	3.47	.27	.00	.00	.00	.00	1.25	3.88	2.36	7.36	3.19	27.50
<	29.0	.00	.00	.69	.97	.97	1.25	.13	.00	.00	.00	.00	.00	.13	1.38	4.86	.97	11.38
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.13	.41
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.50	4.02	5.97	4.16	5.41	9.30	3.05	.69	1.11	1.11	1.38	5.27	13.19	11.38	22.63	8.75	

Calm : .00 %

Total # Operational Hours : 720

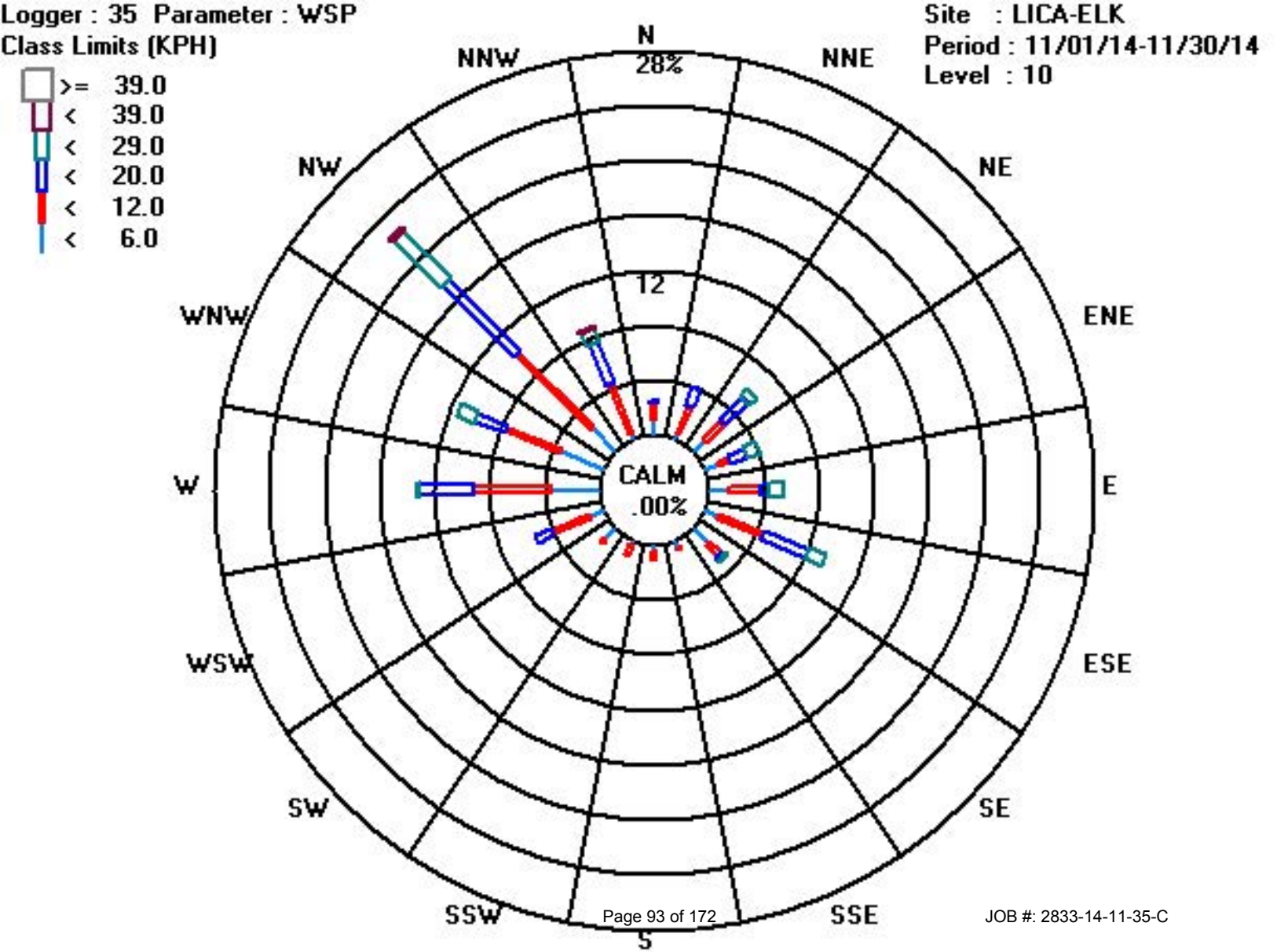
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	8	4	8	8	11	7	11	4	4	2	8	7	25	24	17	3	151
<	12.0	9	15	14	6	16	26	8	1	4	6	2	22	41	31	56	29	286
<	20.0	1	10	16	9	5	25	2					9	28	17	53	23	198
<	29.0			5	7	7	9	1						1	10	35	7	82
<	39.0															2	1	3
>=	39.0																	
	Totals	18	29	43	30	39	67	22	5	8	8	10	38	95	82	163	63	

Calm : .00 %

Total # Operational Hours : 720



JOB #: 2833-14-11-35-C

Vector Wind Direction

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

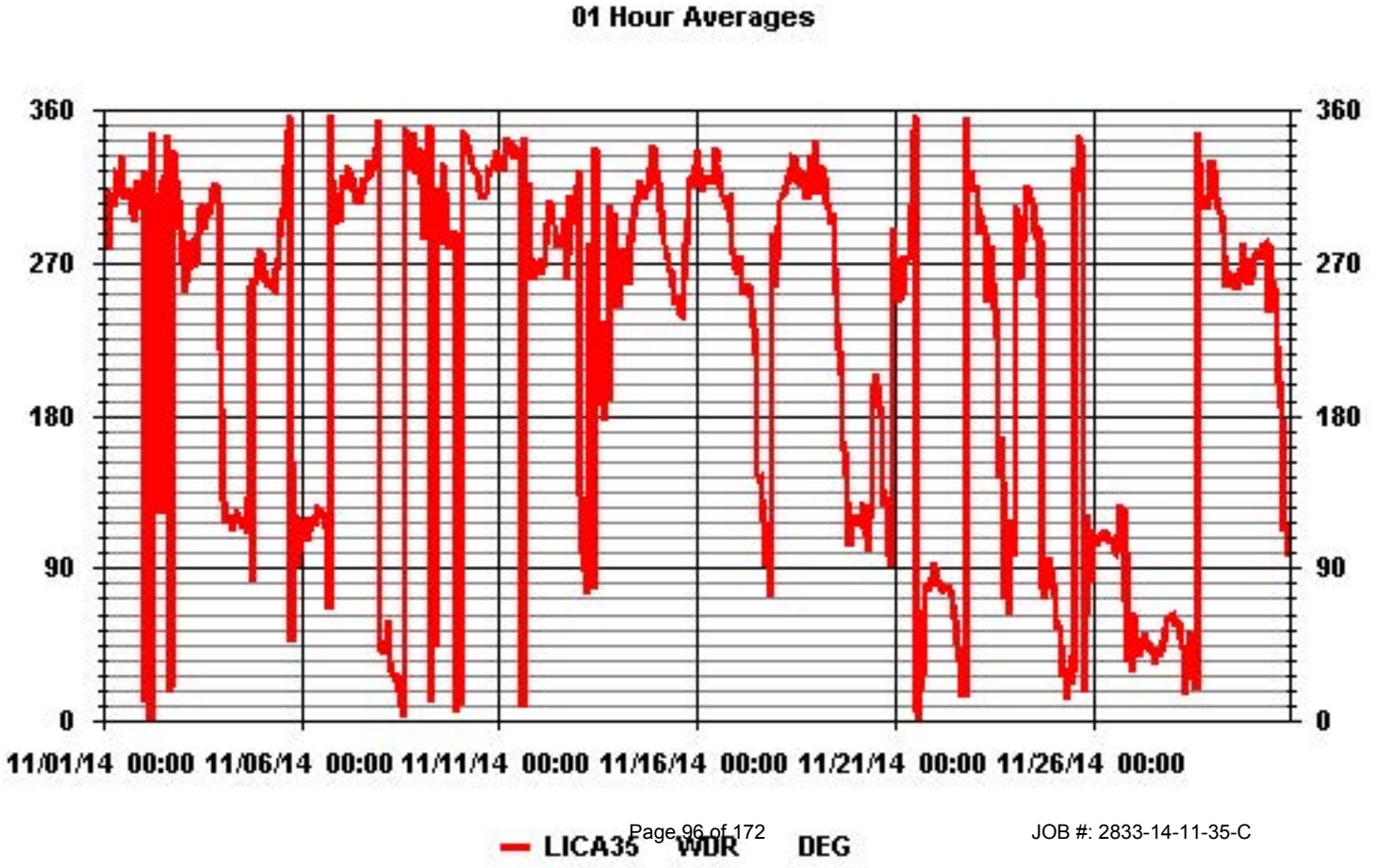
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	306	306	315	277	285	309	308	303	309	323	322	334	316	307	310	313	310	299	301	294	316	318	302	304	334	NNW	24
2	307	325	10	293	3	2	347	312	311	290	140	122	318	320	322	345	17	20	55	336	319	319	308	291	347	NNW	24
3	272	252	258	272	266	283	279	285	273	268	287	302	305	295	289	298	299	305	314	310	315	315	307	219	315	NW	24
4	186	130	116	122	121	120	112	116	121	124	121	117	114	118	118	110	132	257	82	261	259	260	272	278	278	W	24
5	272	275	267	260	255	259	259	256	255	266	272	285	296	302	312	328	348	357	46	153	100	121	90	100	357	N	24
6	113	106	118	105	118	118	116	118	115	118	127	119	123	123	122	114	100	66	358	320	292	305	300	294	358	N	24
7	311	319	321	313	327	321	323	321	313	308	306	306	312	312	319	319	320	331	321	326	329	333	338	355	355	N	24
8	40	45	40	42	47	59	36	30	26	27	27	18	15	9	2	350	344	336	325	336	347	336	324	322	350	N	24
9	338	317	283	299	292	299	351	10	291	289	43	315	280	284	329	312	303	282	278	283	280	289	5	17	351	N	24
10	20	9	348	346	336	340	335	330	326	324	324	322	313	308	311	308	311	325	324	326	329	331	337	335	348	NNW	24
11	326	325	325	334	342	342	334	339	341	333	333	338	334	335	7	344	316	315	318	273	260	266	270	269	344	NNW	24
12	269	272	263	267	281	293	295	307	298	294	281	281	283	282	286	297	284	260	275	310	307	292	304	315	315	NW	24
13	325	134	98	110	89	75	282	144	262	77	338	186	216	216	236	212	176	194	188	304	272	295	300	274	338	NNW	24
14	244	262	264	279	265	267	256	284	284	297	304	305	309	319	314	316	307	313	314	326	328	340	326	325	340	NNW	24
15	318	300	302	288	282	274	274	267	266	257	249	246	250	241	240	248	259	281	295	315	320	321	314	328	328	NNW	24
16	336	328	323	311	317	319	319	320	317	321	323	338	329	325	314	310	308	306	308	309	295	280	276	267	338	NNW	24
17	263	272	272	260	251	256	251	258	251	245	233	216	146	143	144	132	119	92	92	101	73	288	264	255	288	WNW	24
18	271	292	307	310	310	311	316	322	326	333	332	332	319	318	315	323	322	315	307	320	334	324	333	342	342	NNW	24
19	310	313	315	328	317	318	306	303	297	293	299	251	267	235	220	205	166	160	145	130	102	120	118	115	328	NNW	24
20	122	115	117	116	129	120	110	99	127	119	194	199	205	198	186	180	138	127	132	101	102	91	277	290	290	WNW	24
21	260	246	273	248	251	274	271	272	274	282	304	348	357	6	1	18	27	65	80	76	81	79	84	93	357	N	24
22	91	84	81	79	78	80	80	79	77	78	75	69	61	47	44	36	15	17	14	356	320	314	324	314	356	N	24
23	314	316	304	287	298	293	288	247	249	273	280	260	244	227	153	143	167	143	71	89	105	63	118	100	316	NW	24
24	98	304	286	260	262	282	298	306	316	308	310	305	290	283	292	249	285	79	72	78	83	96	91	81	316	NW	24
25	74	61	56	55	46	26	31	12	21	23	23	38	29	326	312	345	334	339	16	63	121	98	82	112	345	NNW	24
26	107	103	107	108	110	108	108	112	108	107	106	107	100	99	105	117	127	113	126	70	100	35	52	28	127	SE	24
27	64	48	45	38	40	43	49	52	48	43	40	43	41	33	43	41	38	41	47	54	60	61	62	61	64	ENE	24
28	62	57	57	57	50	46	43	15	24	45	53	42	37	23	18	347	331	305	310	305	302	308	325	331	347	NNW	24
29	327	325	309	303	301	299	289	276	255	263	265	256	259	257	254	263	266	259	281	270	272	271	256	272	327	NW	24
30	261	273	276	275	274	273	273	281	282	240	282	266	260	256	242	223	201	185	180	111	116	96	108	105	282	W	24

STATUS FLAG CODES

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

LAST CALIBRATION:	February 21, 2014
DECLINATION :	MAEGNETIC DECLINATION 19 DEGREES EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	108.27		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	326	DEG



JOB #: 2833-14-11-35-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Elk Point Site

NOVEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

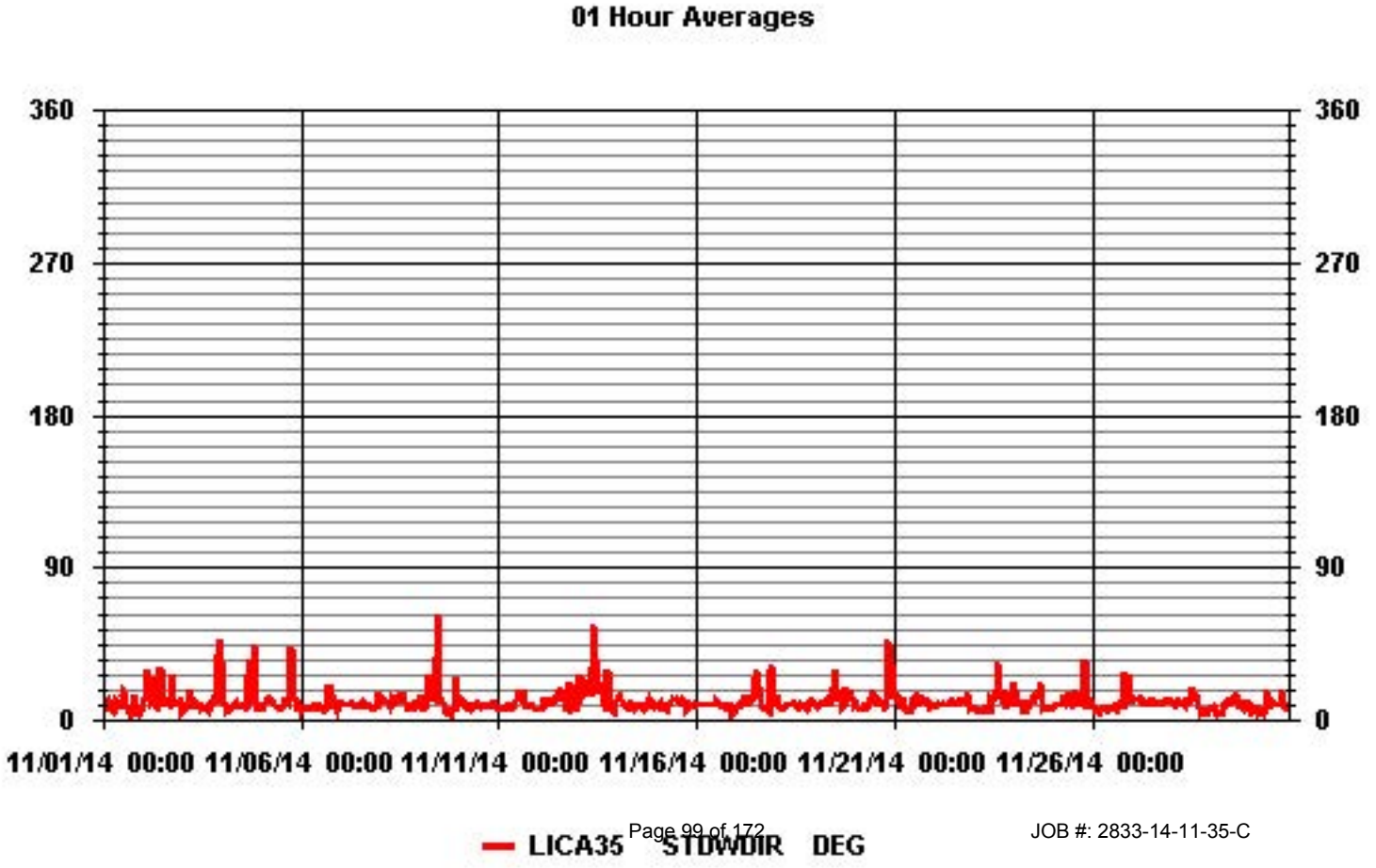
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	7	7	10	12	10	8	10	6	7	11	10	12	16	14	9	8	5	3	6	14	4	6	4	6
2	7	11	13	30	20	10	11	25	10	9	16	31	12	9	9	11	10	13	27	11	9	9	10	4
3	5	6	10	7	12	18	13	12	7	9	9	7	9	8	7	7	6	9	9	11	14	10	39	47
4	36	11	9	6	7	6	7	8	8	10	8	8	9	9	8	6	27	35	21	23	44	11	5	8
5	9	8	10	11	12	13	12	12	10	8	7	7	8	9	12	12	11	21	43	27	14	12	6	8
6	5	7	7	7	7	7	7	8	9	8	9	8	9	8	7	9	9	21	19	11	12	8	6	9
7	9	10	9	9	9	9	10	10	9	8	8	9	10	12	11	9	8	8	9	8	7	8	8	14
8	14	11	12	12	12	11	9	12	10	11	14	10	14	14	16	11	9	8	7	8	9	10	8	9
9	9	15	5	8	8	12	27	11	16	12	37	62	10	13	11	7	6	5	6	4	7	5	25	11
10	11	13	12	10	8	9	7	9	8	9	10	10	10	8	9	8	8	8	9	10	9	10	8	8
11	7	8	7	7	9	8	8	7	8	8	11	15	14	13	18	16	9	8	8	8	9	8	6	6
12	6	6	9	7	13	9	13	10	10	13	12	14	16	17	15	12	8	8	7	22	12	10	7	7
13	10	26	13	17	24	17	15	15	31	56	29	36	24	18	17	12	9	5	30	10	7	6	10	11
14	14	15	13	10	9	9	8	5	10	9	7	8	8	9	9	9	7	8	8	12	10	11	10	8
15	9	8	10	8	9	8	7	9	11	13	12	12	13	12	11	13	12	6	7	10	9	8	8	10
16	9	9	9	9	9	9	9	9	9	9	9	12	11	11	10	9	8	8	8	7	8	4	5	6
17	9	6	9	10	10	15	11	12	11	12	15	25	29	15	16	8	6	6	7	6	29	33	11	11
18	10	15	9	7	7	8	8	9	9	9	9	10	9	9	8	10	9	9	7	9	10	11	11	10
19	9	8	9	9	10	11	12	9	9	11	18	19	29	18	16	12	7	8	19	13	17	11	13	9
20	10	8	6	6	6	6	8	8	10	13	18	13	13	15	10	10	10	8	9	48	12	44	16	32
21	14	14	11	6	12	12	7	6	5	5	7	12	13	14	12	11	13	12	9	13	9	10	8	9
22	8	8	10	9	9	10	9	9	10	10	11	11	11	10	10	11	11	11	12	11	16	7	8	7
23	7	7	5	5	5	6	7	6	8	7	13	12	13	18	34	12	15	9	18	6	12	10	8	16
24	22	19	8	11	9	5	5	8	11	8	10	11	14	13	15	18	22	8	9	8	6	6	7	7
25	8	9	9	9	9	12	11	13	10	11	10	14	14	17	8	11	14	12	11	36	17	8	13	8
26	8	6	7	6	5	6	7	7	7	6	7	7	9	8	8	7	9	12	11	28	12	17	26	10
27	14	13	12	12	13	11	11	11	10	10	11	12	11	11	10	10	10	10	10	11	11	11	11	11
28	11	10	9	11	11	10	10	11	9	11	11	12	19	14	15	13	8	4	5	3	3	5	7	6
29	6	8	7	4	5	4	4	6	10	11	8	11	13	12	13	16	13	9	8	7	6	7	12	8
30	10	5	6	7	4	5	6	4	6	17	7	12	11	11	10	9	9	10	17	12	8	7	7	6

STATUS FLAG CODES

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

LAST CALIBRATION: February 21, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS



JOB #: 2833-14-11-35-C

Non-Continuous Monitoring

VOC Monitoring

Sample ID: 14110056-001

Customer ID: Maxxam AB

Cust Samp ID: LICA PUF/ELK/Nov 01, 2014

RECEIVED
NOV 10 2014

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: ELK Point Airport
Station ID: LICA 35 (Portable)
Field Sample ID: LICA VOC/ CLS /Nov 01, 2014

Sampler s/n: 6200
Canister ID: 2652 1C=20
Canister Installation Date/Time: Oct 30, 2014 @ ~~13:45~~ mst
Canister Removal Date/Time: Nov 4, 2014 @ 1130 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Nov-14	11/01/14 00:00	11/02/14 00:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1500	~~20~~ 20.5

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	-24

no sample Xontech pump failed

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

Comments: System leak check prior to sampling.
timer set right, valve open, timer showed 24 hrs elapsed but ends start vac the same
Xontech removed for repair

Technician Signiture: Sample in: Limin Li /Sample out:

JOB #: 2833-14-11-35-C

Sample ID: 14110100-001

Customer ID: Maxxam AB

Cust Samp ID: LICA/VOC/CLS/Nov 7 2014

Priority: Normal

Maxxam

VOC Sample Collection Data Sheet

Client:	LICA	**Sampler S/N:**	6200
Location:	Elk Point	**Canister ID:**	n/a
Station ID:	LICA	**Canister Installation Date/Time:**	n/a
Field Sample ID:	LICA/VOC/EP/Nov 6, 2014	**Canister Removal Date/Time:**	n/a

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
~~07-Nov-14~~ ~~06 Nov 14~~			

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	14.96	26.5

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

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

Comments: KM * No Canister received *

no sample for this date - pump on Xontech failed and has been removed for repair

Technician Signiture:

JMP-chk.

JOB #: 2833-14-11-35-C

14110169

AIR FCD-01320/2

RECEIVED
NOV 25 2014

Maxxam

VOC Sample Collection Data Sheet

Client: LIIA
Location: Elk Point
Station ID: LIIA 1
Field Sample ID: ~~ELK PT/VOC/GP/NOV 13 2014~~

Sampler S/N: 6200
Canister ID: 21414
Canister Installation Date/Time: Nov 11 2014 @ 1047
Canister Removal Date/Time: Nov 17 2014 @ 1958

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-Nov-14	NO	SAMPLE	

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	15.00 ~~14.96~~	26.5

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	

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

Comments:

NO sample

Technician Signiture:

JOB #: 2833-14-11-35-C

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
Canister ID: 2644

Parameters	Concentrations (ppb)
1,1,1-Trichloroethane	< 0.06
1,1,2,2-Tetrachloroethane	< 0.06
1,1,2-Trichloroethane	< 0.06
1,1-Dichloroethane	< 0.06
1,1-Dichloroethylene	< 0.06
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	< 0.06
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	< 0.06
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	0.50
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	< 0.06
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	0.79
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	0.60
2-Methylhexane	< 0.06
2-Methylpentane	1.15
3-Methylheptane	< 0.06
3-Methylhexane	0.57
3-Methylpentane	0.61
Acetone	< 0.06
Acrolein	< 0.06
Benzene	0.64
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	< 0.06
Carbon tetrachloride	< 0.06
Chlorobenzene	< 0.06
Chloroethane	< 0.06
Chloroform	< 0.06
Chloromethane	< 0.06
cis-1,2-Dichloroethene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
Canister ID: 2644

Parameters	Concentrations (ppb)
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	0.96
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	< 0.06
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	< 0.06
Hexachloro-1,3-butadiene	< 0.06
Isobutane	3.64
Isopentane	3.37
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	< 0.06
m-Diethylbenzene	< 0.06
m-Ethyltoluene	< 0.06
Methyl butyl ketone	< 0.06
Methyl ethyl ketone	< 0.06
Methyl isobutyl ketone	< 0.06
Methyl methacrylate	< 0.06
Methyl tert butyl ether	< 0.06
Methylcyclohexane	2.24
Methylcyclopentane	< 0.06
Methylene chloride	< 0.06
n-Butane	5.96
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	< 0.06
o-Ethyltoluene	< 0.06
o-Xylene	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
Canister ID: 2644

Parameters	Concentrations (ppb)
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	0.66
trans-1,2-Dichloroethylene	< 0.06
trans-1,3-Dichloropropylene	< 0.06
trans-2-Butene	< 0.06
trans-2-Pentene	< 0.06
Trichloroethylene	< 0.06
Vinyl acetate	< 0.06
Vinyl chloride	< 0.06

Maxxam Analytics Inc.

Canister Collection Data Sheet

Client: LICA
Location: ELK Point Airport
Station ID: Lica 35
Field Sample ID: LICA VOC/ ELK /

Canister ID: H2828
Canister Installation Date/Time: Nov 17, 2014 @ 19:23 (MST)
Canister Removal Date/Time: Nov 21, 2014 @ 11:52 (MST)

Date and Time Information
Sample Date and time (MST)
No Sample

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	-9 "Hg.

Canister valve open after to connection?: YES

Canister valve closed prior to disconnection?: YES

Comments:
No sample. Leak in sampling system.
Recharge only.

Technician Signiture: Install: [signature] / Remove: [signature]

NB:

No VOC sample.

Canister not used!

Sample ID: 14120010-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Nov 25, 2014

Nov 26, 2014

#2489

PAH Monitoring

Sample ID: 14110056-001

Customer ID: Maxxam AB

Cust Samp ID: LICA PUF/ELK/Nov 01, 2014

Maxxam Analytics Inc.

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: ELK Point Airport
Station ID: LICA 35 (Portable)
Field Sample ID: LICA PUF/ELK/Nov 01, 2014

Puf+ s/n: 9801
Motor s/n: P13-01
Installation Date/Time: Oct 30 , 2014 @ 13:30 mst
Removal Date/Time: Nov 4 , 2014 @ 1048 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Nov-14	11/01/14 00:00	11/02/14 00:00	24.00

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
703	332.28	4.5	330.19

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

Comments:

Technician Signiture: Sample in: Limin Li /Sample out: Tom Bourque

JOB #: 2833-14-11-35-C

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.07
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.15
Pyrene	0.03
Retene	0.03

Sample ID: 14110100-003

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/EP/Nov 7 2014

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point
Station ID: LICA1
Field Sample ID: LICA/PUF/EP/Nov 7, 2014

Puf+ S/N: TE-02
Motor S/N: p13-01
Installation Date/Time: Nov 4, 2014 @ 1150
Removal Date/Time:

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 7, 2014			

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
711	330.18	-.2	>23.59

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

Comments: Installed by Tom Bourque

Technician Signature:

TWP-dlk

Maxxam
A Bureau Veritas Group Company

Date: November 7, 2014
PUF S/N: TE02

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.14
2-Methylnaphthalene	0.23
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.05
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.01
Benzo(c)phenanthrene	0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.20
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.04
Retene	0.03

Sample ID: 14110169-004

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/EP/Nov 13, 2014

Priority: Normal

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Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point
Station ID: LICA1
Field Sample ID: LICA

Puf+ S/N: TE-08
Motor S/N: 013-01
Installation Date/Time: Nov 11, 2014 @ 1058
Removal Date/Time: Nov 17, 2014 @ 2031

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 13, 2014	00:00	24:00	24.

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
718	229	-17.2	330.18

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

Comments:

Technician Signiture:

JOB #: 2833-14-11-35-C

Maxxam
A Bureau Veritas Group Company

Date: November 13, 2014
PUF S/N: TE08

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.07
2-Methylnaphthalene	0.13
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	0.02
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	0.02
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.11
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.06
Perylene	< 0.01
Phenanthrene	0.14
Pyrene	0.04
Retene	0.04

Sample ID: 14110169-007

Customer ID: Maxxam AB

Cust Samp ID: LICA/PUF/EP/Nov 19, 2014

Priority: Normal

AIR FCD-01321/2

Maxxam
A Bureau Veritas Group Company

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: ELK POINT
Station ID: ELK POINT
Field Sample ID: LICA/PUF/EP/NOV 19, 2014

Puf+ S/N: ~~FE-08~~ PB-01 (on Nov 17, 2014)
Motor S/N: 1072-11015
Installation Date/Time: Nov 17, 2014 @ 20:31
Removal Date/Time: ~~Nov 17, 2014 @ 11:16~~ Nov 21, 2014 @ (on Nov 21, 2014)

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 19, 2014	00:00	24:00	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
216	229	-10.3	330.19

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

Comments:

Technician Signiture: Install: [signature] / Removal: [signature]

JOB #: 2833-14-11-35-C

Maxxam
A Bureau Veritas Group Company

Date: November 19, 2014
PUF S/N: P13-01

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.39
2-Methylnaphthalene	0.69
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	0.01
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	0.01
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.11
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.38
Perylene	< 0.01
Phenanthrene	0.18
Pyrene	0.03
Retene	0.06

AIR FCD-01321/2

Sample ID: 14120010-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Nov 25, 2014

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA / PUF / ELK / Nov 25, 2014

Puf+ S/N: TE03
Motor S/N: 100-1015
Installation Date/Time: Nov 21, 2014 @ 11:18
Removal Date/Time: Nov 26, 2014 @ 12:50

* CW Nov 24, 2014

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Nov 25, 2014	00:00	24:00	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
711	229	-11.9	330.19

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

Comments: ** POR
cc → Lily Lin LICA
Bc → Charmaine Code

Technician Signiture: Install [signature] / Removal [signature]

Maxxam
A Bureau Veritas Group Company

Date: November 25, 2014
PUF S/N: TE03

Parameters	Concentrations (ug)
1-Methylnaphthalene	0.16
2-Methylnaphthalene	0.26
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	0.02
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.01
Benzo(ghi)perylene	< 0.01
Chrysene	0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.04
Fluorene	0.07
Indeno(1,2,3-cd)pyrene	0.01
Naphthalene	0.27
Perylene	< 0.01
Phenanthrene	0.15
Pyrene	0.03
Retene	0.04

Calibration Reports

Sulphur Dioxide

API 100A SO2 Analyzer Calibration

Date:	4-Nov-14	**Start/End Time (mst):**	0950-1306
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	Elk Point	**Converter Make & Model:**	na
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	SO2	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer:

Serial Number:	837	**Range ppb:**	1000
Last Calibration Date:	7-Oct-14	**As Found C.F.**	0.995
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.002

	As found:	As left:
SLOPE:	.977	.976
OFFSET:	31.5	33.8
HVPS:	528	528
DCPS:	n/a	n/a
RCELL TEMP:	50.0	50.0
BOX TEMP:	34.9	34.9
PMT TEMP:	8.1	8.1
IZS TEMP:	45.0	45.0
STABIL:	.4	.4
PRES:	25.6	25.6
SAMP FL:	417	417
PMT:	41.3	41.3
UV LAMP:	34.0	34.0
STR. LGT	2577.8	2577.8
DRK PMT:	14.8	14.8
DRK LMP:	2.7	2.7
Internal Span:	500.7	517

Calibrator:

Flow Meter ID's:	na
Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM00071
Cal Gas Conc. (ppm):	48.2

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	77	5077
mid	5000	37	5037
low	5000	17	5017

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	1.1	NA
adjusted zero	5000	0.0	5000	0	-0.1	NA
as found high	4993	76.62	5070	728.5	731.8	0.995
adjusted high	4993	76.62	5070	728.5	727.7	1.001
mid	4995	36.87	5032	353.2	351.0	1.006
low	4994	16.94	5011	162.9	163.0	0.999
calibrator zero	5000	0.00	5000	0	0.5	NA
					Average C.F.=	1.002

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.001**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.04%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**0.47%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

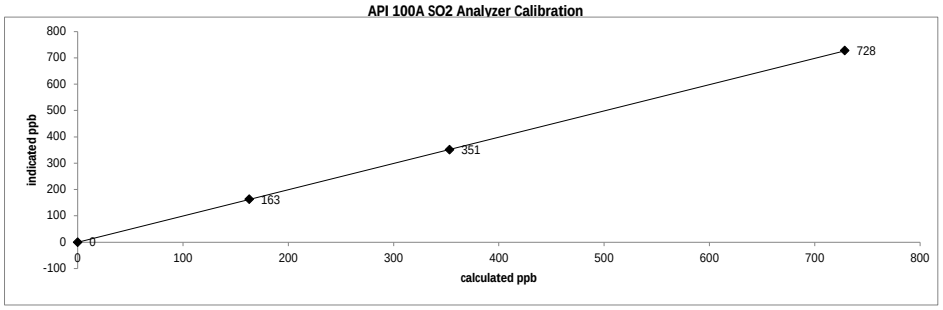
****run converter effeciency test immediately following zero adjust****

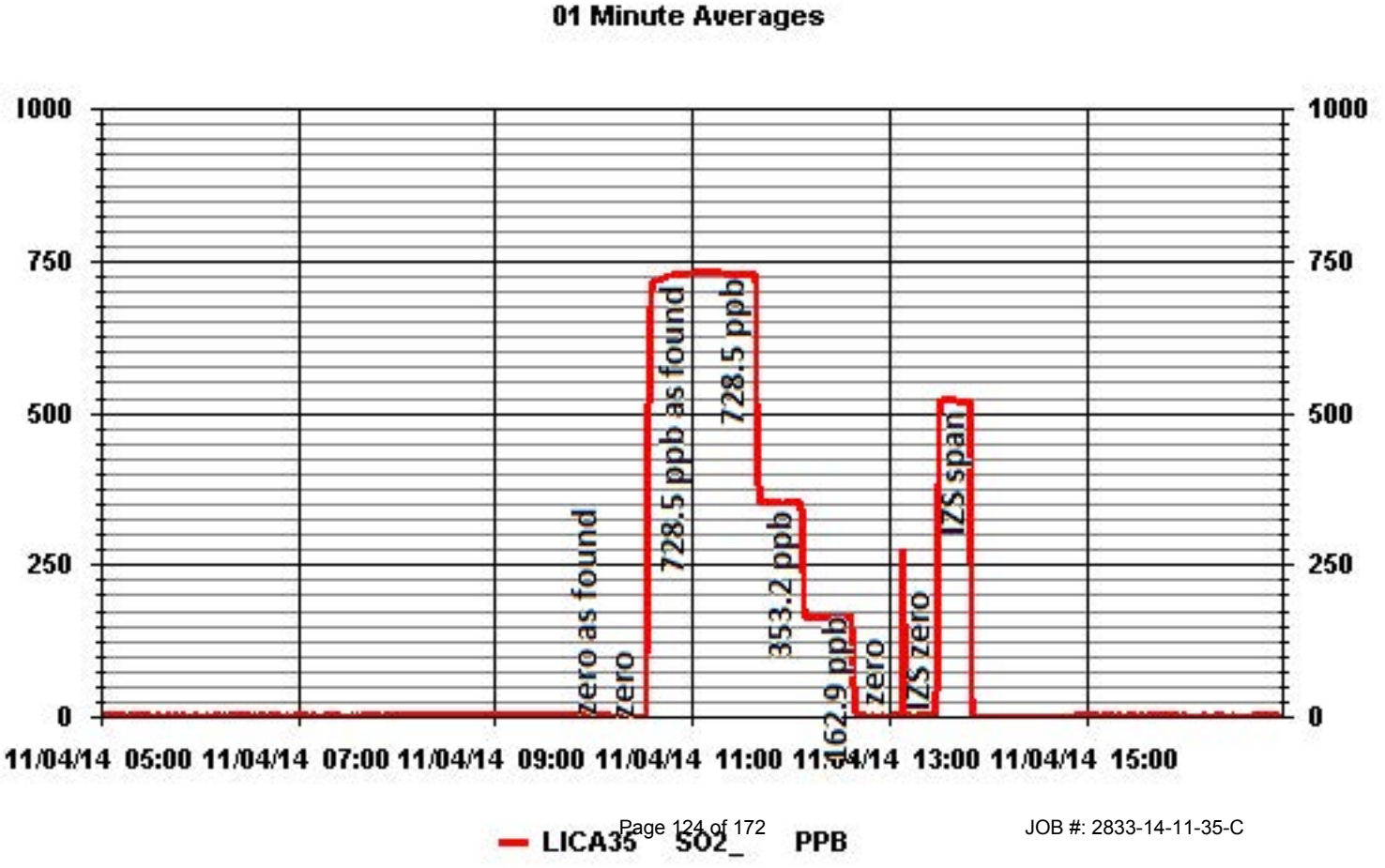
SO_2 High Point gas concentration: na Time gas run (mst): na

Zero corrrected analyzer response: na

Comments:

changed filter





JOB #: 2833-14-11-35-C

Hydrogen Sulphide

API 101E H2S Analyzer Calibration

Date:	4-Nov-14	**Start/End Time (mst):**	0950-1403
Company:	LICA	**Calibration Purpose:**	routine monthly
Station Name/Location:	Elk Point	**Converter Make & Model:**	internal
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	25-Dec-15

Analyzer:

Serial Number:	509	**Range ppb:**	100
Last Calibration Date:	7-Oct-14	**As Found C.F.**	0.996
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.991

	As found:	As left:
SLOPE:	1.214	1.226
OFFSET:	105.0	107.3
HVPS:	536	536
RCELL TEMP:	50.0	50.0
BOX TEMP:	33.9	33.9
PMT TEMP:	8.0	8.0
IZS TEMP:	45.0	45.0
TEST:	n/a	n/a
STABIL:	0.2	0.2
PRES:	27.5	27.5
SAMP FL:	578	578
PMT:	99.6	99.6
NORM PMT:	107.3	107.3
UV LAMP:	3267	3267
LAMP RATIO:	92.2	92.2
STR. LGT	66.3	66.3
DRK PMT:	10.8	10.8
DRK LMP:	0.3	0.3
Internal Span:	61.2	60.27

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BLM0005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	18	5018
low	5000	8	5008

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	1.4	NA
adjusted zero	5000	0.0	5000	0	0.0	NA
as found high	4996	38.00	5034	76.2	76.6	0.996
adjusted high	4996	38.00	5034	76.2	76.3	1.000
mid	4995	18.00	5013	36.3	37.2	0.977
low	4993	8.00	5001	16.2	16.3	0.996
calibrator zero	5000	0.00	5000	0	-0.5	NA
					Average C.F.=	0.991

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.999**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.25%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**0.48%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

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

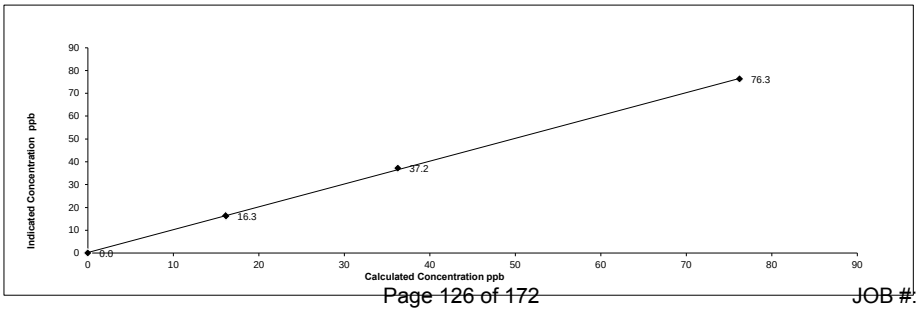
SO_2 High Point gas concentration: 162.9 Time gas run (mst): 0940-0946

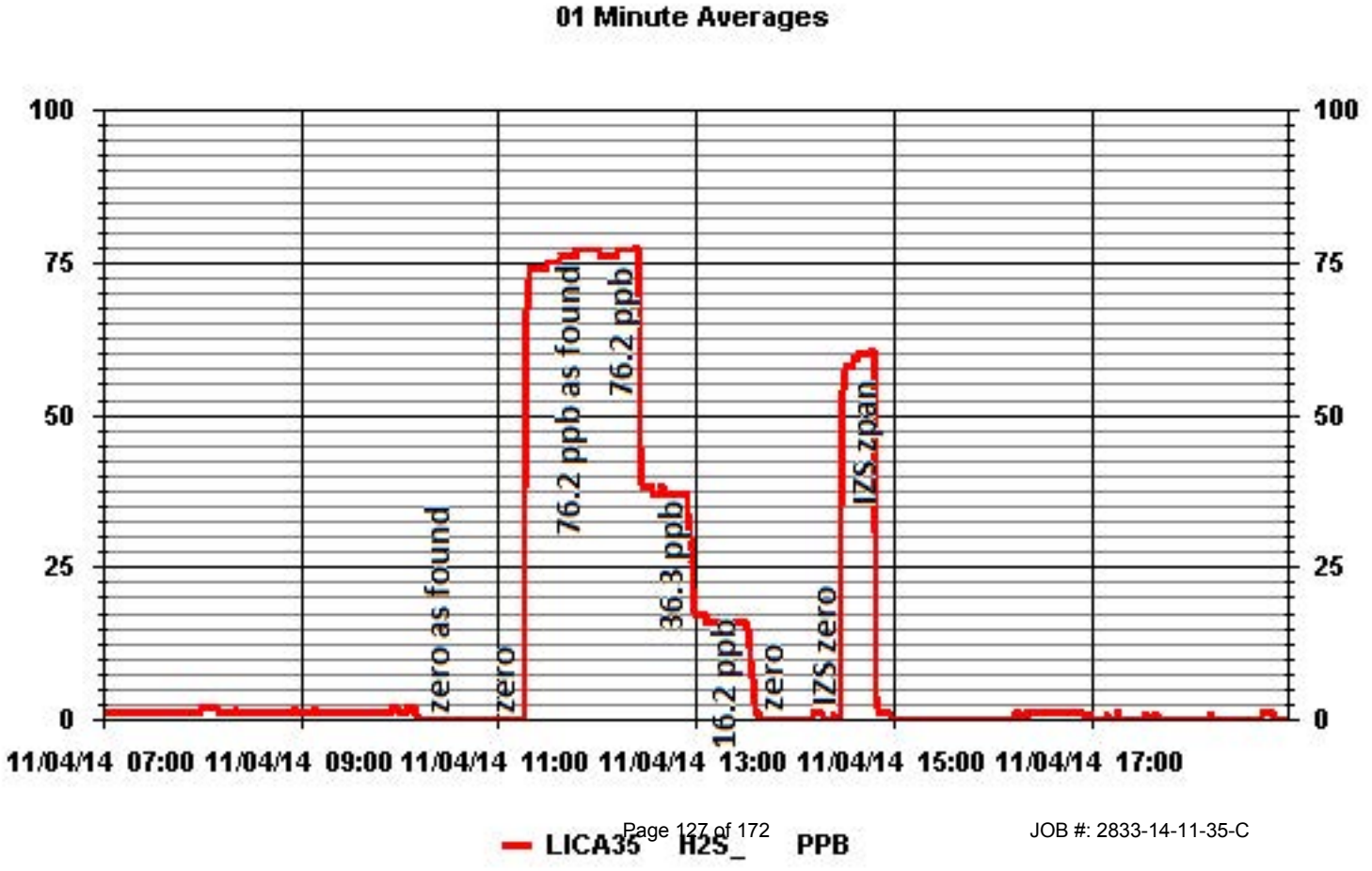
Zero corrrected analyzer response: 0.3

Comments:

changed filter

API 101E H2S Analyzer Calibration





JOB #: 2833-14-11-35-C

API 101E H2S Analyzer Calibration

Date:	13-Nov-14	**Start/End Time (mst):**	949-1725
Company:	LICA	**Calibration Purpose:**	repeat
Station Name/Location:	Elk Point	**Converter Make & Model:**	internal
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	25-Dec-15

Analyzer:

Serial Number:	509	**Range ppb:**	100
Last Calibration Date:	4-Nov-14	**As Found C.F.**	1.052
Previous Cal High Point C.F.:	1.000	**New C.F.:**	0.996

	As found:	As left:
SLOPE:	1.226	1.257
OFFSET:	107.3	104.1
HVPS:	536	536
RCELL TEMP:	50.0	50.0
BOX TEMP:	30.8	30.8
PMT TEMP:	7.9	7.9
IZS TEMP:	45.0	45.0
CONVERTER TEMP:	314.1	TEST: 314.1
STAB:	0.1	STABIL: 0.1
PRES:	28.3	PRES: 28.3
SAMP FL:	589	SAMP FL: 589
PMT:	96.6	PMT: 96.6
NORM PMT:	103.2	NORM PMT: 103.2
UV LAMP:	3257.4	UV LAMP: 3257.4
LAMP RATIO:	92 %	LAMP RATIO: 92 %
STR. LGT	65.8	STR. LGT 65.8
DRK PMT:	10.7	DRK PMT: 10.7
DRK LMP:	0.5	DRK LMP: 0.5
Internal Span:	60.27	Internal Span: 62.51

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BLM0005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	18	5018
low	5000	8	5008

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	-2.4	NA
adjusted zero	5000	0.0	5000	0	0.1	NA
as found high	4996	38.00	5034	76.2	72.5	1.052
adjusted high	4996	38.00	5034	76.2	76.3	1.000
mid	4994	18.00	5012	36.3	37.0	0.984
low	4996	8.00	5004	16.1	16.2	1.003
calibrator zero	5000	0.00	5000	0	0.6	NA
					Average C.F.=	0.996

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.999**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.19%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-5.22%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

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

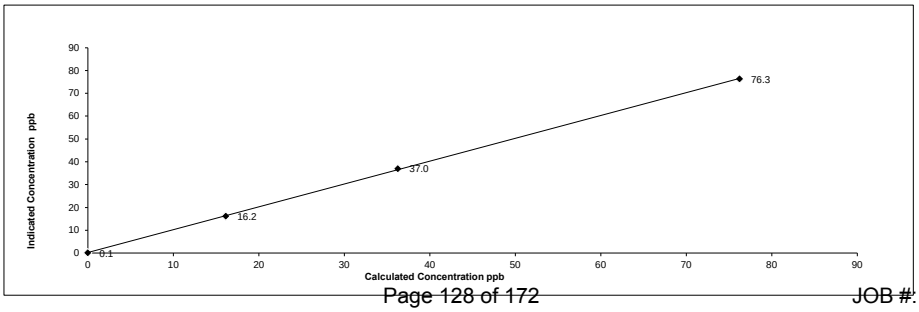
SO_2 High Point gas concentration: n/a Time gas run (mst): n/a

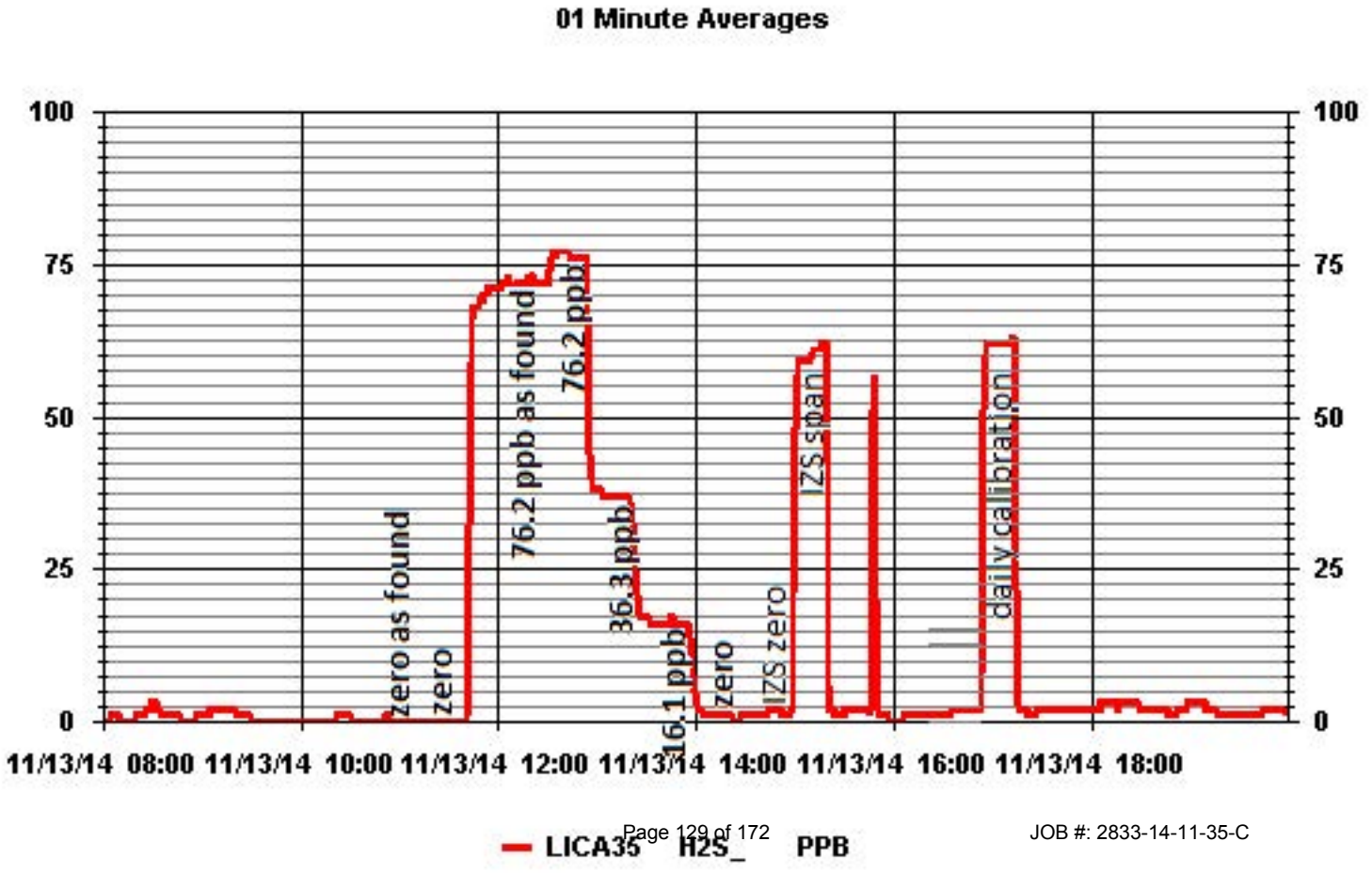
Zero corrrected analyzer response: n/a

Comments:

changed filter, adjusted zero and high, no scrubber check, already done this month, first internal z/s attempt the zero was high, approx 1.6, changed the charcoal and re-attempted the internal z/s-marginally -see fsr for further comments

API 101E H2S Analyzer Calibration





JOB #: 2833-14-11-35-C

API 101E H2S Analyzer Calibration

Date:	21-Nov-14	**Start Time (MST) (hh:mm)**	10:14
Company:	LICA	**End Time (MST) (hh:mm)**	11:26
Station Name/Location:	Elk Point	**Calibration Purpose:**	As-found
Performed by:	Chris Wesson	**Station Temp (°C)**	23.5
Application H_2S/TRS/SO_2:	H2S	**Atmospheric Pressure (mmHg)**	NA

Analyzer:

Serial Number:	509	**Range ppb:**	100
Last Calibration Date:	13-Nov-14	As Found C.F.	0.927
Previous Cal High Point C.F.:	1.000	New C.F.:	NA

	Pre-Calibration	Post-Calibration
SLOPE:	1.257	1.257
OFFSET:	104.1	1.04.1
HVPS:	536	536
RCELL TEMP:	50.0	50.0
BOX TEMP:	32.7	31.0
PMT TEMP:	8.0	8.0
IZS TEMP:	45.0	45.0
CONVERTER TEMP	315.6	315.4
PRES:	27.0	27.0
SAMP FL:	570	571
PMT:	99.7	101.7
UV LAMP:	3226	3230
LAMP RATIO:	91.1	91.2
DRK PMT:	10.7	11.0
DRK LMP:	0.4	0.5
Expected Value (EV)		

Calibration Method: Dilution

Calibrator Make & Model:	Environics 6100
Calibrator Serial #:	5212
Cal Gas Cylinder I.D. # :	BLM1434
Cal Gas Expiry Date:	8-Jul-16
Cal Gas Conc. (ppm):	10.3

Targets:

Point	Concentration Range (ppb)		Total Flow (ml/min)
	Min	Max	
High	50	80	
Mid	25	40	
Low	10	23	

Calibration:

	Calibrator Flow Rates (ml/min)			Concentration (ppb)		Correction Factors:
Point	**Diluent**	**Cal Gas**	Total	Calculated	**Indicated**	
as found zero	4997		4997	0.0	2.9	
adjusted zero	NA		NA	NA		
as found high	4957	37.75	4994.8	78.0	87.0	0.927
adjusted high	NA		NA	NA		NA
mid	NA		NA	NA		NA
low	NA		NA	NA		NA
calibrator zero	NA		NA	NA		
					Average C.F.=	NA

Calibration Results		LIMITS	**Pass/Fail ?**	Calibration Point	
Correlation Coeffecient =	NA	> or = 0.995	**NA**	AF High	**PASS**
Slope =	NA	0.85-1.15	**NA**	Adj High	**NA**
b (Intercept as % of full scale)=	NA	± 3% F.S.	**NA**	Mid	**NA**
% change in C.F. from last cal	7.26%	± 10%	**PASS**	Low	**NA**

SO2 Scrubber Check (H2S/TRS only)		**Converter Details (not SO2)**	
Time (MST) Start - End	NA	**Make**	Internal
SO2 Gas Concentration (ppb)	NA	**Model**	NA
Zero corrrected analyzer response:	NA	**Serial #**	NA

Comments:

As-found due to IZS drift

API 101E H2S Analyzer Calibration

Date:	21-Nov-14	**Start Time (MST) (hh:mm)**	11:32
Company:	LICA	**End Time (MST) (hh:mm)**	15:07
Station Name/Location:	Elk Point	**Calibration Purpose:**	Re-Calibration
Performed by:	Chris Wesson	**Station Temp (°c)**	23.2
Application H_2S/TRS/SO_2:	H2S	**Atmospheric Pressure (mmHg)**	NA

Analyzer:

Serial Number:	509	**Range ppb:**	100
Last Calibration Date:	13-Nov-14	As Found C.F.	NA
Previous Cal High Point C.F.:	NA	New C.F.:	1.008

	Pre-Calibration	Post-Calibration
SLOPE:	1.257	1.156
OFFSET:	104.1	108.5
HVPS:	536	536
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.0	27.3
PMT TEMP:	8.0	7.9
IZS TEMP:	45.0	45.0
CONVERTER TEMP	315.4	315.7
PRES:	27.0	27.1
SAMP FL:	571	575
PMT:	101.7	100.6
UV LAMP:	3230	3241.
LAMP RATIO:	91.2	91.5
DRK PMT:	11.0	10.1
DRK LMP:	0.5	1.0
Expected Value (EV)	62.51	62.51

Calibration Method: Dilution

Calibrator Make & Model:	Environics 6100
Calibrator Serial #:	5212
Cal Gas Cylinder I.D. # :	BLM1434
Cal Gas Expiry Date:	8-Jul-16
Cal Gas Conc. (ppm):	10.3

Targets:

Point	Concentration Range (ppb)		Total Flow (ml/min)
	Min	Max	
High	50	80	
Mid	25	40	
Low	10	23	

Calibration:

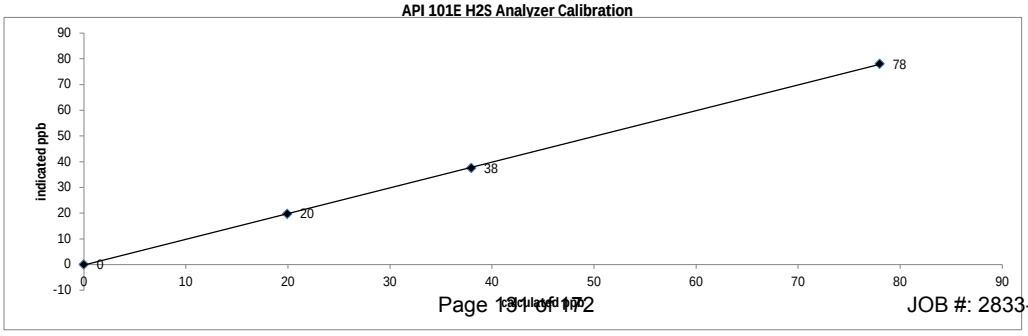
	Calibrator Flow Rates (ml/min)			Concentration (ppb)		Correction Factors:
Point	**Diluent**	**Cal Gas**	Total	Calculated	**Indicated**	
as found zero	NA		NA	NA		
adjusted zero	4999		4999	0.0	0.0	
as found high	NA		NA	NA		NA
adjusted high	4957	37.75	4994.8	78.0	78.0	1.000
mid	4979	18.39	4997.4	38.0	37.5	1.013
low	4987	9.65	4996.2	19.9	19.7	1.012
calibrator zero	4999		4999	0.0	0.0	
					Average C.F.=	1.008

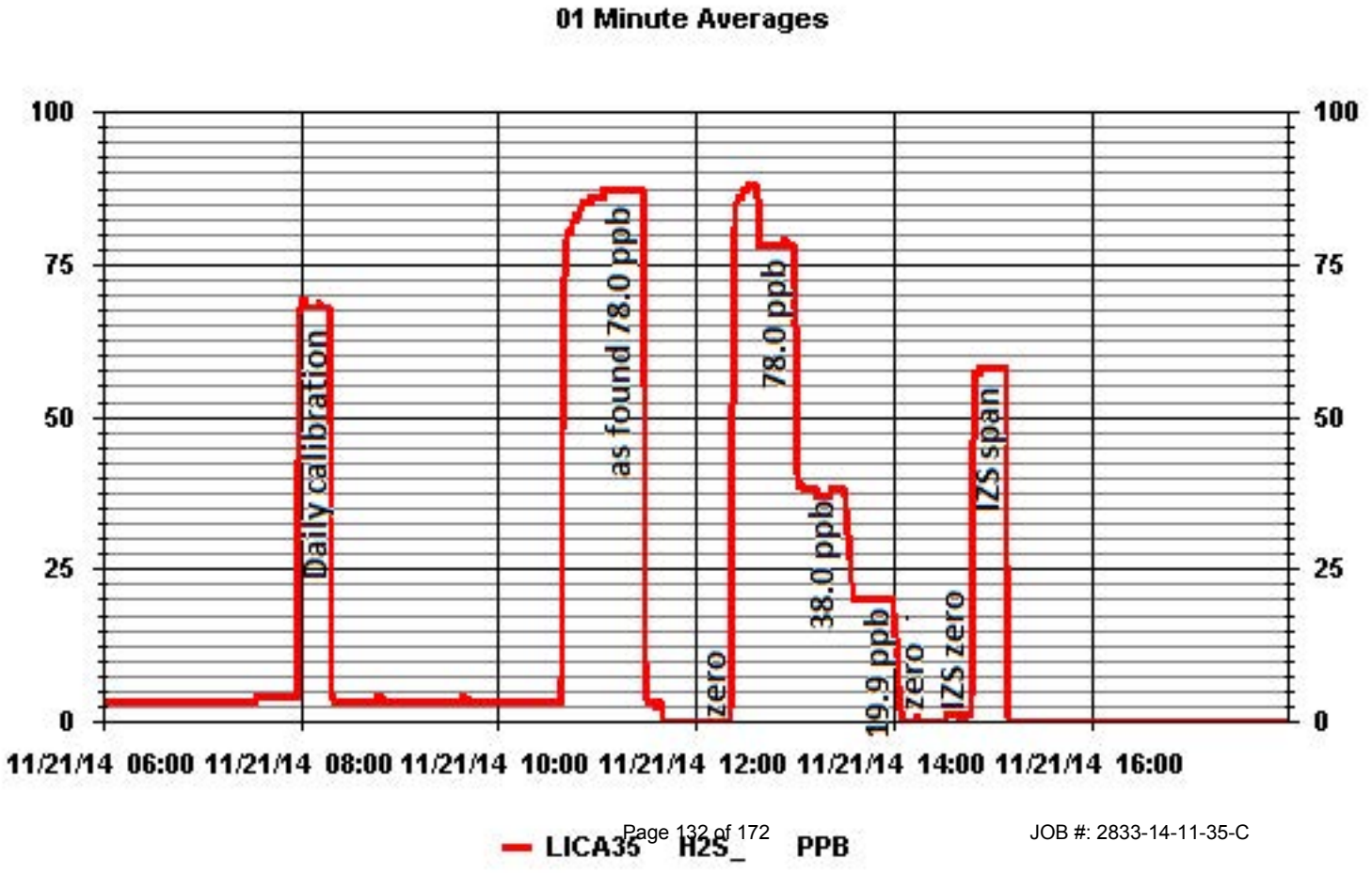
Calibration Results		LIMITS	**Pass/Fail ?**	Calibration Point	
Correlation Coeffecient =	1.000	> or = 0.995	**PASS**	AF High	**NA**
Slope =	1.000	0.85-1.15	**PASS**	Adj High	**PASS**
b (Intercept as % of full scale)=	0.19%	± 3% F.S.	**PASS**	Mid	**PASS**
% change in C.F. from last cal	NA	± 10%	**NA**	Low	**PASS**

SO2 Scrubber Check (H2S/TRS only)		**Converter Details (not SO2)**	
Time (MST) Start - End	NA	**Make**	Internal
SO2 Gas Concentration (ppb)	NA	**Model**	NA
Zero corrrected analyzer response:	NA	**Serial #**	NA

Comments:

Recalibrated due to instrument drift





JOB #: 2833-14-11-35-C

API 101E H2S Analyzer Calibration

Date:	26-Nov-14	**Start/End Time (mst):**	1115/1328
Company:	LICA	**Calibration Purpose:**	Removal
Station Name/Location:	Elk Point	**Converter Make & Model:**	Internal
Performed by:	Chris Wesson	**Converter Serial #:**	NA
Application $H_2S/TRS/SO_2$:	H2S	**Cal Gas Expiry Date:**	8-Jul-16

Analyzer:

Serial Number:	509	**Range ppb:**	100
Last Calibration Date:	21-Nov-14	**As Found C.F.**	1.030
Previous Cal High Point C.F.:	1.000	**New C.F.:**	0.679

	As found:	As left:
SLOPE:	1.156	NA
OFFSET:	108.5	NA
HVPS:	536	NA
RCELL TEMP:	50.0	NA
BOX TEMP:	27.2	NA
PMT TEMP:	7.9	NA
IZS TEMP:	45.0	NA
TEST:	ConvTemp=315.4	NA
STABIL:	0.1	NA
PRES:	28.1	NA
SAMP FL:	588	NA
PMT:	01.6	NA
NORM PMT:	104.4	NA
UV LAMP:	3218	NA
LAMP RATIO:	90.9	NA
STR. LGT	62.7	NA
DRK PMT:	9.6	NA
DRK LMP:	0.7	NA
Internal Span:	NA	NA

Calibrator:

Flow Meter ID's:	NA
Make & Model:	Api 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BAL4853
Cal Gas Conc. (ppm):	10.4

Calibrator Flow Targets:

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

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4999	0.0	4999	0	-2.4	NA
adjusted zero		na			-2.4	NA
as found high	4964	37.50	5002	78.3	73.6	1.030
adjusted high		NA				
mid	4979	18.30	4997	38.2	35.0	1.022
low	4990	10.60	5001	22.1	19.4	1.015
calibrator zero	NA	0.00		0		NA
					Average C.F.=	0.679

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.031**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**2.29%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-3.00%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

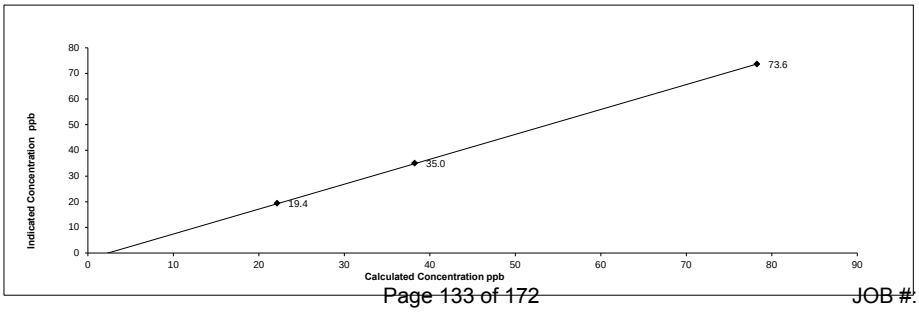
****run converter effeciency test immediately following zero adjust****

SO_2 High Point gas concentration:	NA	Time gas run (mst):	NA
Zero corrrected analyzer response:	NA		

Comments:

Removal cal due to continiung drift

API 101E H2S Analyzer Calibration



API 101E H2S Analyzer Calibration

Date:	26-Nov-14	**Start/End Time (mst):**	18:15-21:21
Company:	LICA	**Calibration Purpose:**	Install
Station Name/Location:	Elk Point	**Converter Make & Model:**	Internal
Performed by:	Chris Wesson	**Converter Serial #:**	NA
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	8-Jul-16

Analyzer:

Serial Number:	510	**Range ppb:**	100
Last Calibration Date:	NA	**As Found C.F.**	
Previous Cal High Point C.F.:	NA	**New C.F.:**	1.017

	As found:	As left:
SLOPE:	1.098	1.107
OFFSET:	28.6	28.1
HVPS:	526	526
RCELL TEMP:	37.0	50.0
BOX TEMP:	30.3	32.1
PMT TEMP:	8.4	8.4
IZS TEMP:	45.0	45.0
TEST:	ConvTemp=315.0	ConvTemp=314.4
STABIL:	0.6	0.2
PRES:	22.5	22.5
SAMP FL:	525	526
PMT:	104	98.7
NORM PMT:	17.9	27.3
UV LAMP:	3521	3523
LAMP RATIO:	100.2	100.0
STR. LGT	15.8	15.6
DRK PMT:	83.1	76.9
DRK LMP:	-1.1	-1.1
Internal Span:	62.51	62.51

Calibrator:

Flow Meter ID's:	NA
Make & Model:	Api 700
Serial #:	830
Cal Gas Cylinder I.D. # :	BAL4853
Cal Gas Conc. (ppm):	10.4

Calibrator Flow Targets:

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

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	NA	0.0		0		NA
adjusted zero	4999	na		0	0.0	NA
as found high		NA				
adjusted high	4963	37.50	5001	78.3	78.3	0.999
mid	4979	18.30	4997	38.2	37.6	1.016
low	4989	10.60	5000	22.1	21.3	1.037
calibrator zero	4999	0.00	4999	0	-0.5	NA
					Average C.F.=	1.017

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.997**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.46%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**NA**	**± 15%**	

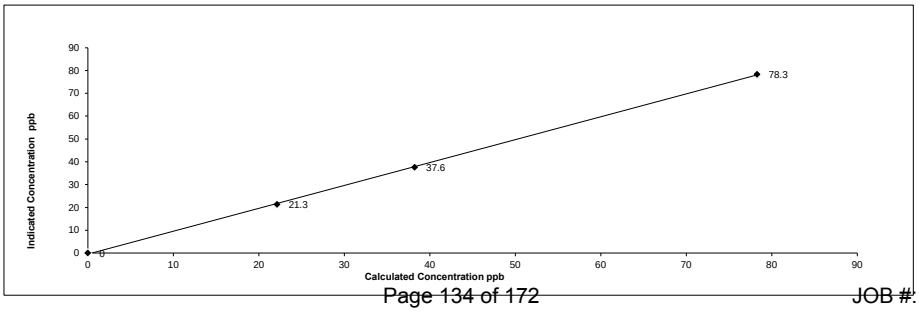
Converter Effeciency Check for H_2S/TRS application:

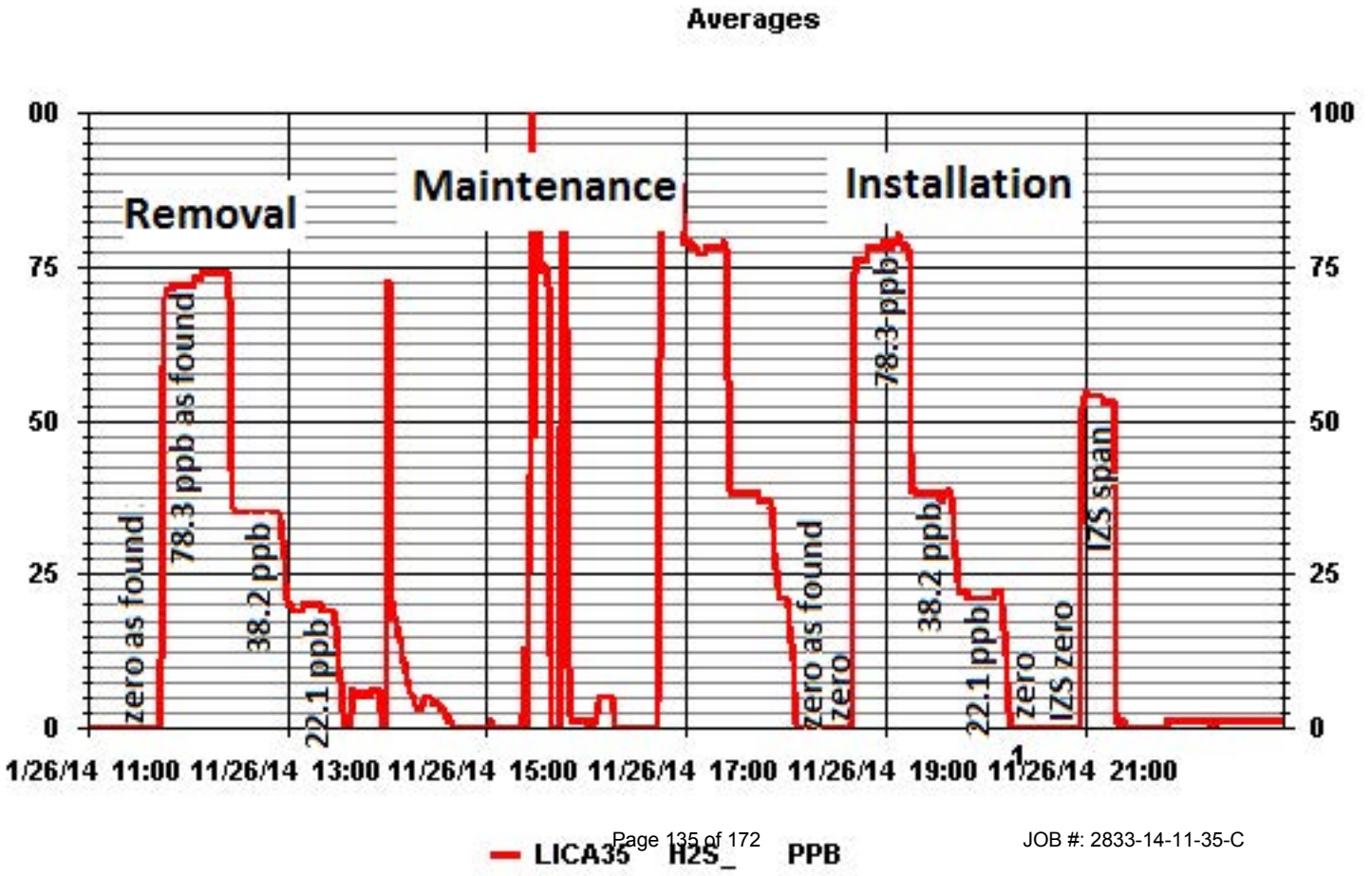
****run converter effeciency test immediately following zero adjust****

SO_2 High Point gas concentration:	NA	Time gas run (mst):	NA
Zero corrrected analyzer response:	NA		

Comments:

API 101E H2S Analyzer Calibration





JOB #: 2833-14-11-35-C

Total Hydrocarbons (55i)

Thermo 55I Methane/Non-Methane Analyzer Calibration

Date:	4-Nov-14	**Start Time (mst):**	14:38
Company:	LICA	**End Time (mst):**	17:27
Station Name:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Analyzer & Diagnostics:

		As found C.F.	Previous Cal High Point C.F.	Analyzer Range
Serial Number:	1236656107	CH_4= 1.014	CH_4= 1.002	CH_4= 20
Last Calibration Date:	7-Oct-14	NMHC= 1.010	NMHC= 0.997	NMHC= 20
		THC= 1.013	THC= 1.000	THC= 40

Mother Board Voltages:	3.3:	3.3	Calibration History cnt'd>1:	CH_4 SP Ratio:	.000723
	5.0:	4.9		CH_4 RT:	12.2
	15.0:	14.9		CH_4 PK IDX:	21
	24.0:	23.9		CH_4 PK HT:	9873
	-3.3:	-3.2		NM Span Conc:	6.59
Interface Board Voltages:	3.3:	3.3		NM SP Ratio:	.000158
	5.0:	5.0		NM Peak Area:	41759
	15.0:	15.0	Run History>1:	Date:	NOV 4, 2014
	24.0:	23.5		Time:	1634
	-15.0:	-15.1		CH_4 PK HT:	0.0
	Bias Supply:	-292.9		CH_4 RT:	12.0
Temperatures:	Detector Oven:	175.0		CH_4 Baseline:	2185
	Filter:	175.0		CH_4 LOD:	54
	Column Oven:	75.2		CH_4 SD:	18
	Flame:	379.1		CH_4 CONC:	0.00
	Internal:	34.0		NM PK HT:	0
Pressures cylinder/reg.:	Carrier:	1800 / 60		NM Peak Area:	0
	Fuel:	1100 / 50		NM CONC:	.00
	Air:	46 / N/A		NM Base Start:	2196
FID Status:	Status:	LIT		NM Base End:	2219
	Counts:	26104		NM LOD:	7
	Flame:	377.9		NM Start IDX:	7
	Det Base:	175.1		NM End IDX:	92
Flame and Power Stats:	Last Power On:	OCT 7, 2014 @1647		NM Max Slope:	.76
	Flameouts:	1		NM Min Slope:	-.41
	Det Oven at Start:	132.5		NM PT Count:	0.00
	Col Oven at Start:	66.7	Daily Zero/Span Values:	Previous CH4:	9.4
Calibration History>1:	Time:	OCT 7, 2014 @1850		Previous NMHC	14.1
	Type:	SPAN		Previous THC:	23.6
	Status:	GOOD		New CH4:	9.6
	Check/Adjust:	ADJUST		New NMHC	14.3
	CH_4 Span Conc:	7.14		New THC:	24.0

Calibrator and Gas Information:

Make & Model:	API 700		
Serial #:	830		
Cal Gas Cylinder I.D. # :	LL33674		
CH_4 Cylinder Conc.=	601.4	202.0	=C_3H_8 Cylinder Conc.
CH_4 as C_3H_8=	555.5	1156.9	=total CH_4 equivilant

Calibrator Flow Targets: (cc/min):

point	diluent	cal gas	total flow
zero	3000	0	3000
high	3000	36	3036
mid	3000	18	3018
low	3000	10	3010

Calibration Data:

Calibrator Flow Rates (cc/min)				Calculated	Calculated	Calculated	Indicated CH_4	Indicated NMHC	Indicated THC	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow	CH_4 (ppm)	NMHC (ppm)	THC (ppm)	(ppm)	(ppm)	(ppm)	CH4	NMHC	THC
20 min as found zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
20 min as found high point	3000	36.00	3036	7.13	6.59	13.72	7.03	6.52	13.54	1.014	1.010	1.013
20 min adjusted high	3000	36.00	3036	7.13	6.59	13.72	7.16	6.65	13.81	0.996	0.991	0.993
20 min mid	3000	18.00	3018	3.59	3.31	6.90	3.61	3.37	6.96	0.994	0.983	0.991
20 min low	3000	10.00	3010	2.00	1.85	3.84	2.05	1.92	3.96	0.975	0.961	0.971
20 min calibrator zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
									Average C.F.=	0.988	0.978	0.985

Linear Regression/Calibration Results:

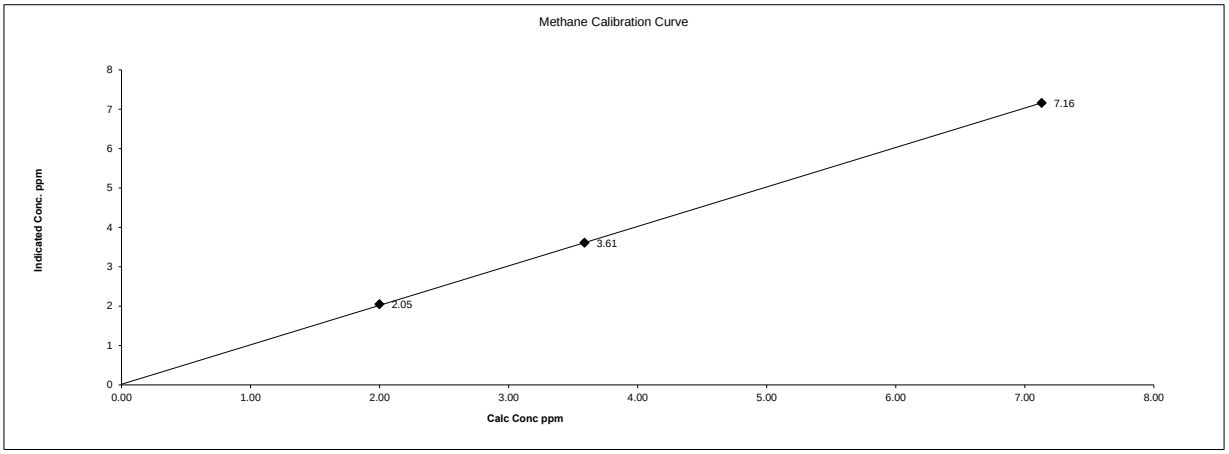
	CH_4	NMHC	THC	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.002**	**1.008**	**1.005**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.09%**	**0.13%**	**0.09%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.22%**	**1.32%**	**1.30%**	**+/-15%**

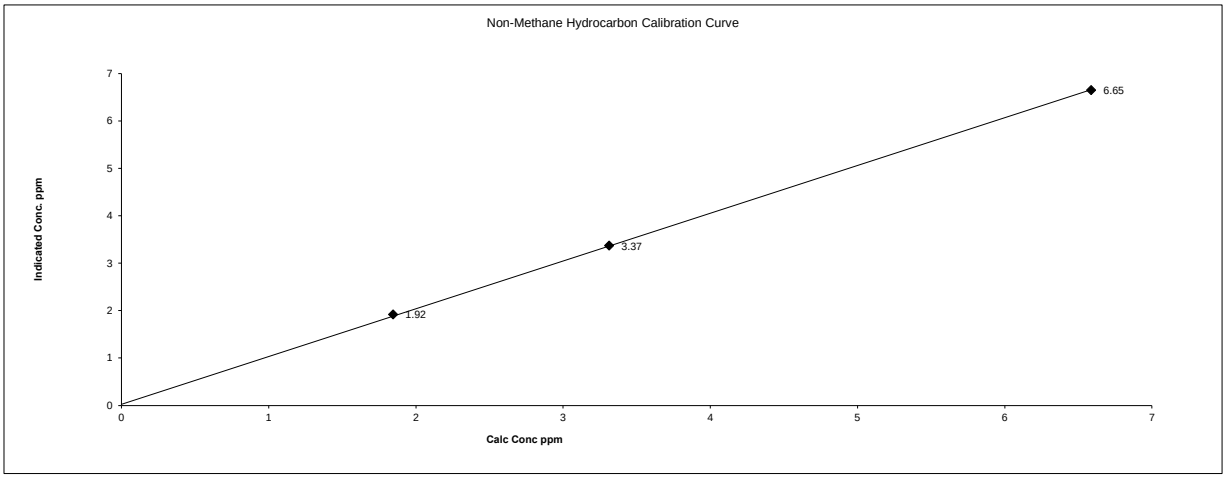
Comments:

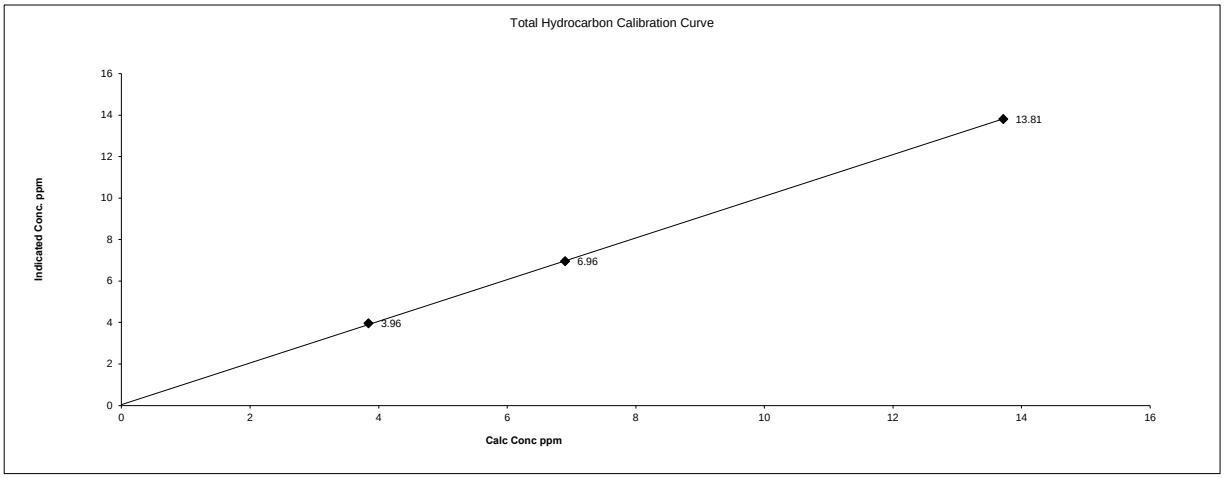
changed filter, no zero adjust, cleaned analyzer fan filter

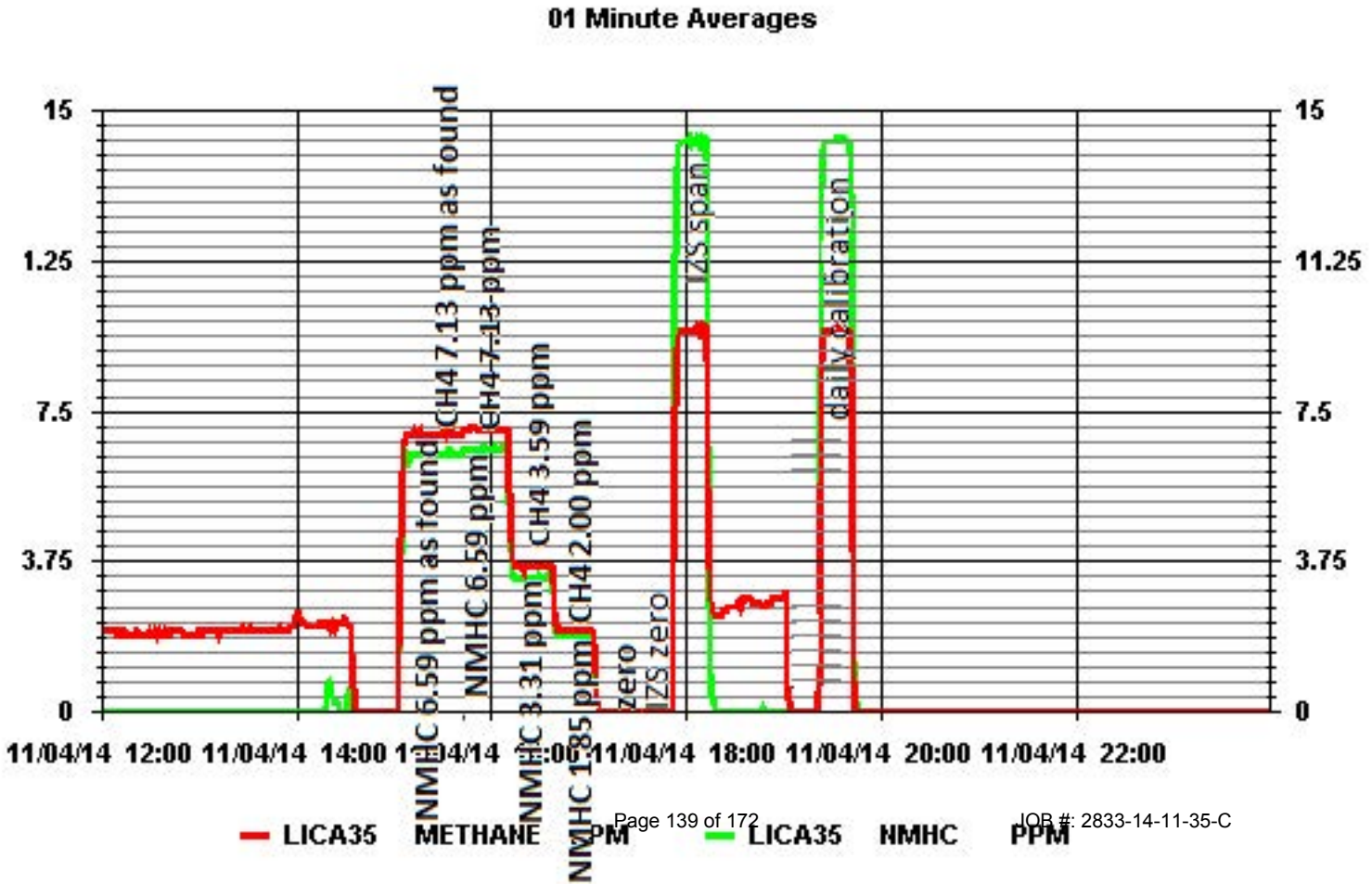
Date:	4-Nov-14	**Start Time (mst):**	14:38
Company:	LICA	**End Time (mst):**	17:27
Station Name:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Thermo 55C Methane/Non-Methane Analyzer Calibration








01 Minute Averages
15
1.25
7.5
3.75
0
11.25
11/04/14 12:00
11/04/14 14:00
11/04/14 16:00
11/04/14 18:00
11/04/14 20:00
11/04/14 22:00
NMHC 6.59 ppm as found
CH4 7.13 ppm as found
NMHC 6.59 ppm
CH4 7.13 ppm
NMHC 3.31 ppm
CH4 3.59 ppm
NMHC 1.85 ppm
CH4 2.00 ppm
zero
IZS zero
IZS span
daily calibration
LICA35 METHANE PPM
LICA35 NMHC PPM

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	4-Nov-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	Elk Point	**Start/End Time (mst):**	11:46-14:23
Previous Audit Date:	24-Oct-14	**Calibration Purpose:**	Routine

1400A Information and Status:

Serial Number:	1405A207691003	**As Found Filter Loading %:**	26.96
Ko Factor:	15634	**As Left Filter Loading %:**	17.15
Ambient Temperature °C:	1.88	**As Found Noise:**	0.014
Ambient Pressure atm:	.925	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.31
Aux Flow Reading lpm:	13.67	**Warnings:**	none

Reference Standards:

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

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.04	0.00	0.04
	limit	0.15		0.15	
Bypass Flow	actual	0.00	0.47	0.00	0.47
	limit	0.60		0.60	

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

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.04	0.00	0.04
	limit	0.15		0.15	
Bypass Flow	actual	0.00	0.47	0.00	0.47
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	1.9	**1405F pressure atm:**	0.925
reference temperature °C:	2.7	**reference pressure:**	0.934
difference °C:	0.8	**difference :**	-0.009

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	1.9	**1405F pressure atm:**	0.925
reference temperature °C:	2.7	**reference pressure:**	0.934
difference °C:	0.8	**difference :**	0.009

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.04	**reference total/aux flow lpm:**	17.10
difference lpm:	0.04	**difference lpm:**	0.43

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.04	**reference total/aux flow lpm:**	17.10
difference lpm:	0.04	**difference lpm:**	0.43

K_o Audit:

Last K_o audit date:	na
1405F K_o factor:	15634
Measured K_o factor:	na
% difference:	

Comments:

changed sample filter and zero reference filter, cleaned head

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	26-Nov-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Chris Wesson
Station Name/Location:	Elk Point	**Start/End Time (mst):**	13:15/15:08
Previous Audit Date:	4-Nov-14	**Calibration Purpose:**	Monthly #2

1400A Information and Status:

Serial Number:	1405A207691003	**As Found Filter Loading %:**	23.69
Ko Factor:	15634.0	**As Left Filter Loading %:**	18.99
Ambient Temperature °C:	-15.88	**As Found Noise:**	0.005
Ambient Pressure atm:	0.940	**As Left Noise:**	0.042
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.32
Aux Flow Reading lpm:	13.67	**Warnings:**	None

Reference Standards:

	Flow:	**Pressure:**	**Temperature:**
Make:	Dwyer	Brunton	Brunton
Model:	475 Mark III	ADC-Summit	ADC-Summit
Serial Number:	NA	NA	NA
Calibration Date:	NA	NA	NA

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.02	-0.12	0.03	-0.12
	limit	0.15		0.15	
Bypass Flow	actual	0.13	-0.45	0.26	-0.45
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.02	-0.12	0.03	-0.12
	limit	0.15		0.15	
Bypass Flow	actual	0.13	-0.45	0.26	-0.45
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-15.3	**1405F pressure atm:**	0.940
reference temperature °C:	-15.1	**reference pressure:**	0.940
difference °C:	0.2	**difference :**	0.000

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-15.3	**1405F pressure atm:**	0.940
reference temperature °C:	-15.1	**reference pressure:**	0.940
difference °C:	0.2	**difference :**	0.000

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	13.67
reference main flow lpm:	2.63	**reference total/aux flow lpm:**	12.90
difference lpm:	-0.37	**difference lpm:**	-0.77

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

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	13.67
reference main flow lpm:	2.90	**reference total/aux flow lpm:**	12.96
difference lpm:	-0.10	**difference lpm:**	-0.71

K_o Audit:

Last K_o audit date:	NA
1405F K_o factor:	15634.0
Measured K_o factor:	NA
% difference:	NA

Comments:

TEOM and Reference filter changed

JOB #: 2833-14-11-35-C

Nitrogen Dioxide

API 200E NOx Analyzer Calibration

Date:	4-Nov-14	**Start Time (mst):**	9:50
Company:	LICA	**End Time (mst):**	15:01
Station Name/Location:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer Serial Number:	593
Last Calibration Date:	7-Oct-14
Range ppb:	1000

Correction Factors:

As found C.F.		Previous Cal High Point C.F.:	
NO=	1.042	NO=	1.000
NOx=	1.037	NOx=	1.000
NO_2=	1.005	NO_2=	1.000

As found:		**As left:**	
NOx SLOPE:	.971	NOx SLOPE:	1.014
NOx OFFS:	1.8	NOx OFFS:	8.6
NO SLOPE:	.967	NO SLOPE:	1.007
NO OFFS:	-.1	NO OFFS:	-.9
TEST:	130.8	TEST:	130.8
SAMP FLW:	473	SAMP FLW:	473
OZONE FL:	99	OZONE FL:	99
PMT:	13.1	PMT:	13.1
NORM PMT:	-1.3	NORM PMT:	-1.3
AZERO:	0.6	AZERO:	0.6
HVPS:	654	HVPS:	654
RCELL TEMP:	49.9	RCELL TEMP:	49.9
BOX TEMP:	32.6	BOX TEMP:	32.6
PMT TEMP:	6.7	PMT TEMP:	6.7
IZS TEMP:	45.3	IZS TEMP:	45.3
MOLY TEMP:	315.3	MOLY TEMP:	315.3
RCEL:	6.2	RCEL:	6.2
SAMP:	27.0	SAMP:	27.0
Internal Span:	6.2/416/422	Internal Span:	9.1/493/502

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM000711
NO Cylinder Conc. (ppm):	50.1
NOx Cylinder Conc. (ppm):	50.2

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	550	5077
mid	5000	37	275	5037
low	5000	17	95	5017

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5000	0.0	5000	0	0	-0.2	3.2	NA	NA
adjusted zero	5000	0.0	5000	0	0	0.2	-0.4	NA	NA
as found high	4993	76.62	5070	757.2	758.7	727	731	1.042	1.037
adjusted high	4993	76.62	5070	757.2	758.7	756	758	1.002	1.000
mid	4995	36.87	5032	367.1	367.8	366	364	1.004	1.009
low	4994	16.94	5011	169.4	169.7	170	167	0.997	1.014
calibrator zero	5000	0.00	5000	0	0	0.4	-4.0	NA	NA
							Average C.F.=	1.001	1.008

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4994	76.69	5071	0.0	760.0	757.0	-1.9	0.2	-0.6	
as found NO_2	4994	76.69	5071	550.0	123.0	754.0	632.0	637.0	633.9	1.005
gpt mid	4994	76.69	5071	275.0	438.0	756.0	319.0	322.0	320.9	1.003
gpt low	4994	76.69	5071	95.0	647.0	754.0	107.0	113.0	108.9	1.038
									Average NO_2 C.F.=	1.015

Linear Regression/Calibration Results:

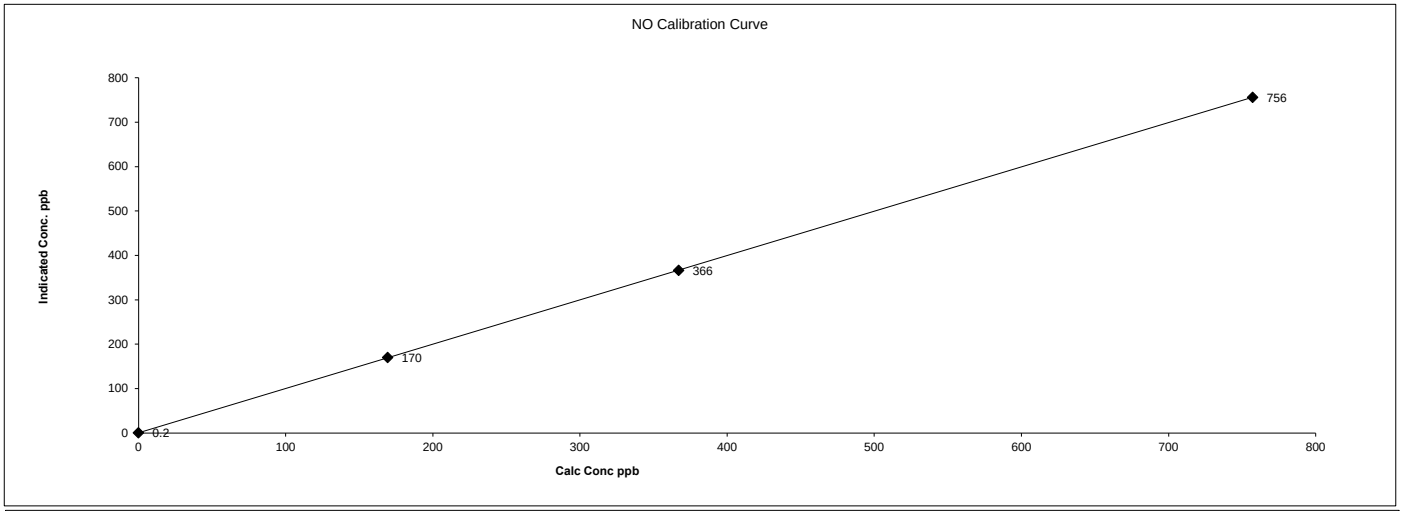
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**0.998**	**1.000**	**0.998**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.04%**	**-0.20%**	**-0.18%**	**± 3% F.S.**
% change in C.F. from last cal=	**-4.18%**	**-3.75%**	**-0.49%**	**+/-15%**
NO2 converter effeciency			**98.5%**	**>85%**

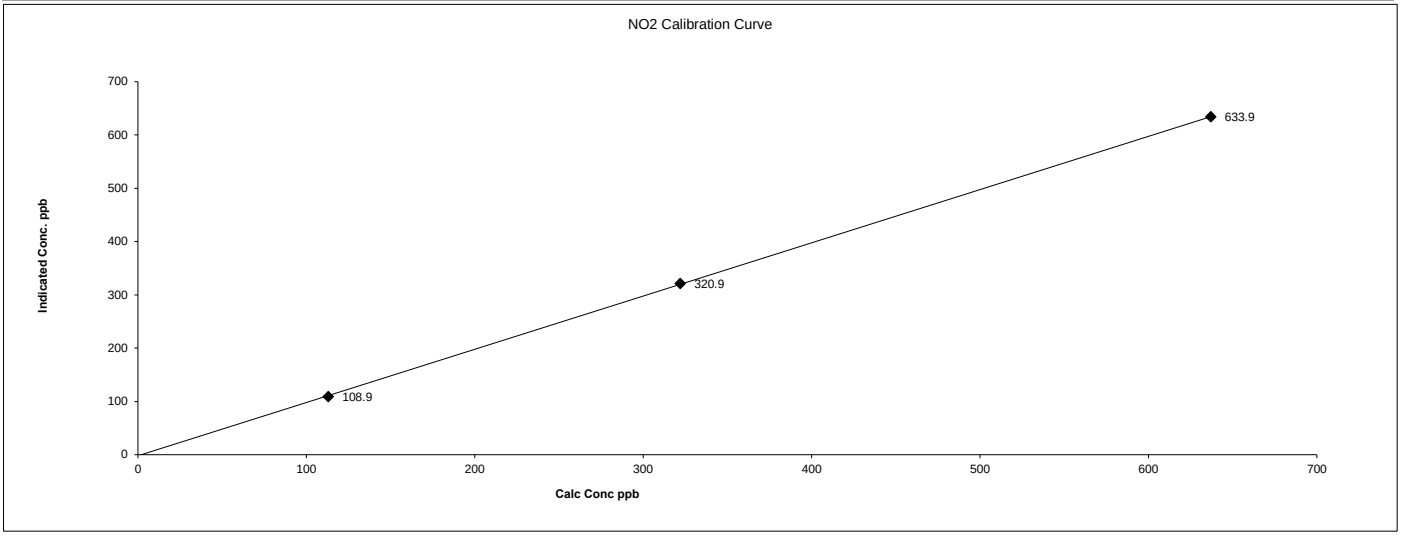
Comments:

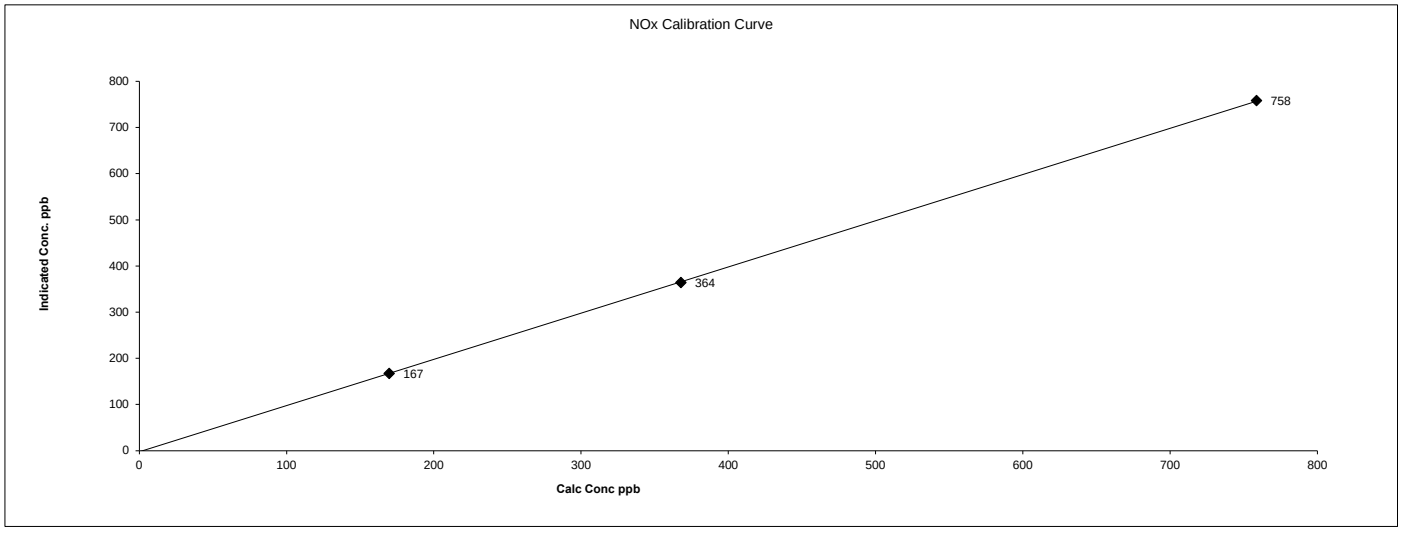
changed filter

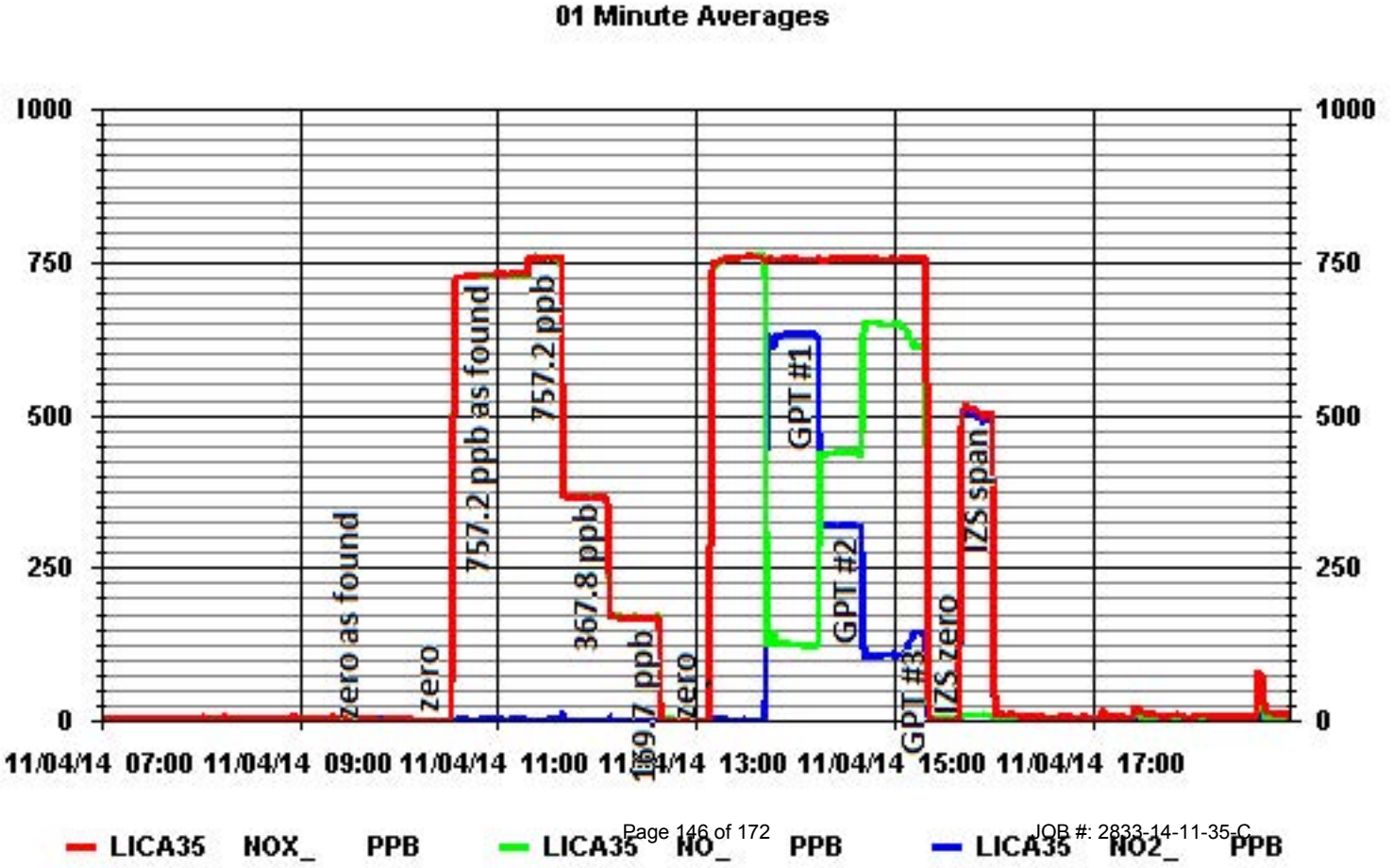
Date:	4-Nov-14	**Start Time (mst):**	9:50
Company:	LICA	**End Time (mst):**	15:01
Station Name/Location:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200E NOx Analyzer Calibration








01 Minute Averages
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750
500
250
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zero as found
zero
757.2 ppb as found
757.2 ppb
367.8 ppb
169.7 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/04/14 07:00
11/04/14 09:00
11/04/14 11:00
11/04/14 13:00
11/04/14 15:00
11/04/14 17:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

API 200E NOx Analyzer Calibration

Date:	13-Nov-14	**Start Time (mst):**	9:38
Company:	LICA	**End Time (mst):**	13:53
Station Name/Location:	Elk Point	**Calibration Purpose:**	Removal
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer Serial Number:	593
Last Calibration Date:	4-Nov-14
Range ppb:	1000

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	1.006	1.002
NOx=	1.001	1.000
NO_2=	0.997	1.005

	As found:	**As left:**
NOx SLOPE:	1.014	n/a
NOx OFFS:	8.6	n/a
NO SLOPE:	1.007	n/a
NO OFFS:	-.9	n/a
TEST:	130.8	n/a
SAMP FLW:	482	n/a
OZONE FL:	101	n/a
PMT:	12.0	n/a
NORM PMT:	3.3	n/a
AZERO:	8.0	n/a
HVPS:	654	n/a
RCELL TEMP:	50.0	n/a
BOX TEMP:	30.3	n/a
PMT TEMP:	6.7	n/a
IZS TEMP:	45.3	n/a
MOLY TEMP:	314.1	n/a
RCEL:	6.3	n/a
SAMP:	27.5	n/a
Internal Span:	9.1/493/502	n/a

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM000711
NO Cylinder Conc. (ppm):	50.1
NOx Cylinder Conc. (ppm):	50.2

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	550	5077
mid	5000	37	275	5037
low	5000	17	95	5017

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5000	0.0	5000	0	0	0.4	-2.7	NA	NA
as found high	4993	76.70	5070	758.0	759.5	754	756	1.006	1.001
mid	4994	36.86	5031	367.1	367.8	365	363	1.007	1.006
low	4994	16.94	5011	169.4	169.7	170	167	0.999	1.000
calibrator zero	5000	0.00	5000	0	0	0.7	-4.3	NA	NA
							Average C.F.=	1.004	1.002

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4994	76.60	5071	0.0	760.0	759.0	-1.0	0.4	-3.1	
as found NO_2	4994	76.60	5071	550.0	93.0	760.0	668.0	667.0	669.0	0.997
gpt mid	4994	76.60	5071	275.0	427.0	762.0	334.0	333.0	335.0	0.994
gpt low	4994	76.60	5071	95.0	651.0	762.0	111.0	109.0	112.0	0.973
									Average NO_2 C.F.=	0.988

Linear Regression/Calibration Results:

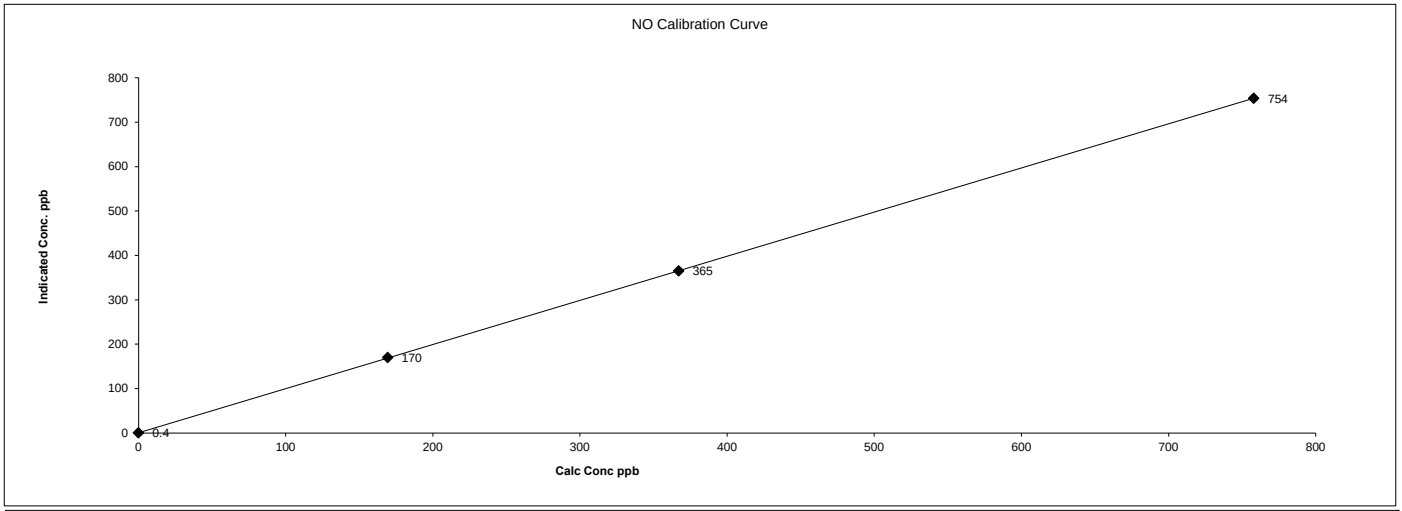
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**0.994**	**0.999**	**1.005**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.08%**	**-0.30%**	**-0.05%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.38%**	**-0.10%**	**0.79%**	**+/-15%**
NO2 converter effeciency			**101.2%**	**>85%**

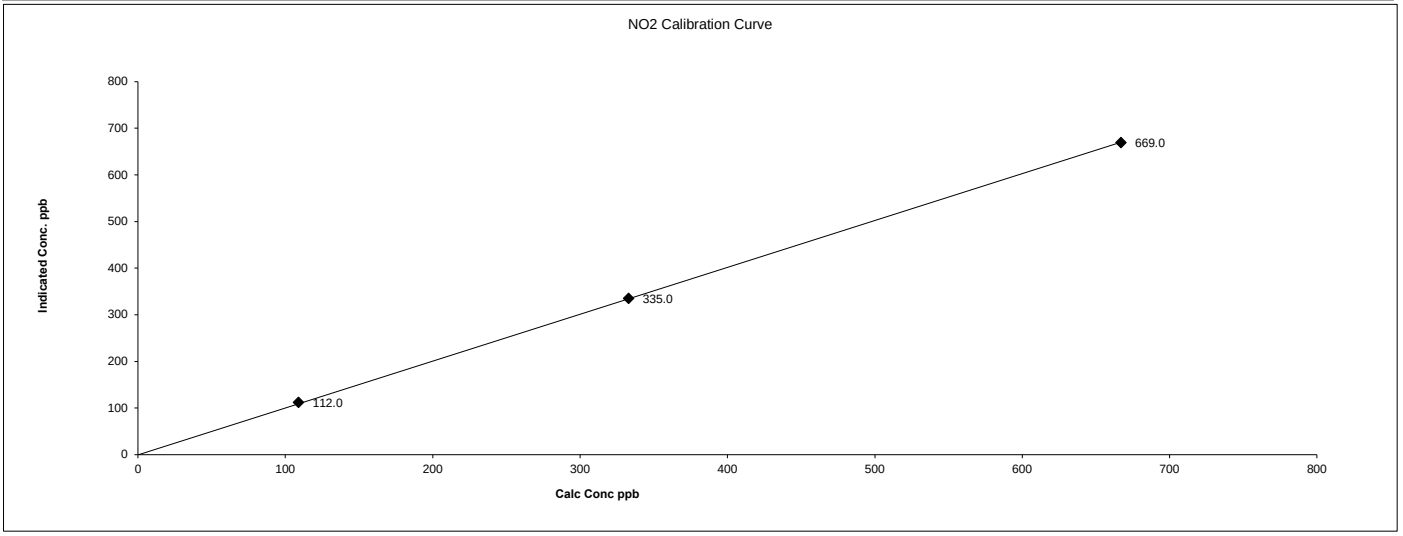
Comments:

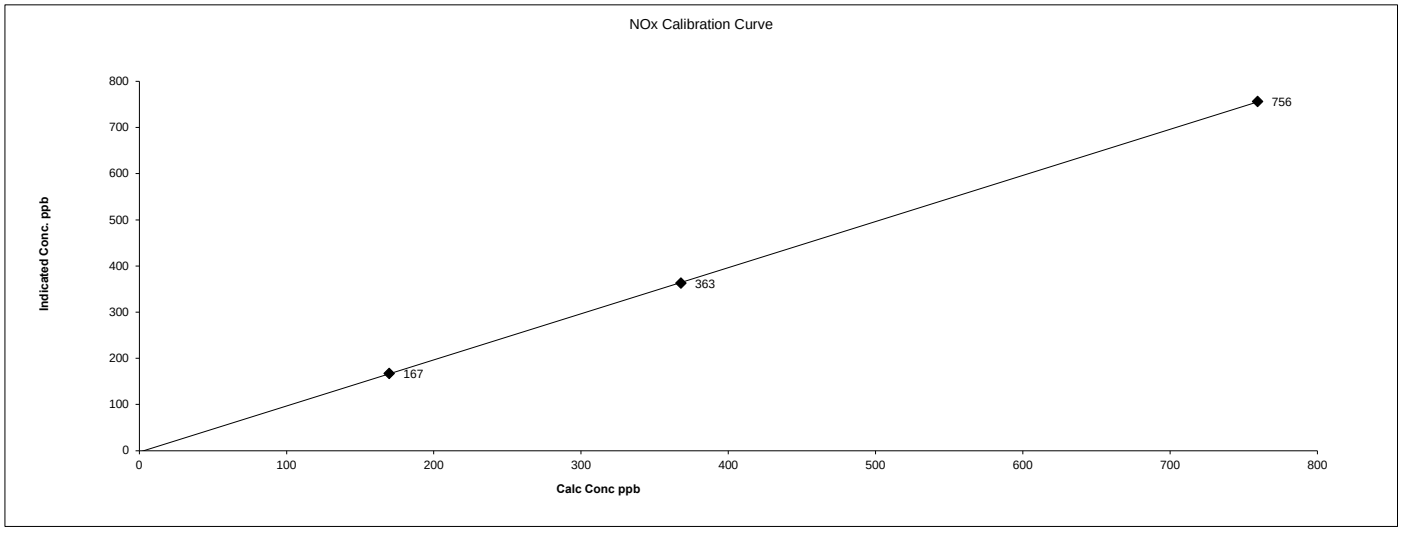
removed for maintenance - the span is not stable however calibrations are solid and stable

Date:	13-Nov-14	**Start Time (mst):**	9:38
Company:	LICA	**End Time (mst):**	13:53
Station Name/Location:	Elk Point	**Calibration Purpose:**	Removal
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200E NOx Analyzer Calibration







Maxxam

API 200A NOx Analyzer Calibration

Date:	13-Nov-14	**Start Time (mst):**	15:02
Company:	LICA	**End Time (mst):**	18:58
Station Name/Location:	Elk Point	**Calibration Purpose:**	installation
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer Serial Number:	2166
Last Calibration Date:	n/a
Range ppb:	1000

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	1.003	n/a
NOx=	1.006	n/a
NO_2=	0.994	n/a

	As found:	As left:
NOx SLOPE:	n/a	.944
NOx OFFS:	n/a	-.5
NO SLOPE:	n/a	.940
NO OFFS:	n/a	-2.9
NOx STB:	n/a	.2
SAMP FLW:	n/a	489
OZONE FL:	n/a	75
NORM PMT:	n/a	353.3
AZERO:	n/a	20.0
HVPS:	n/a	690
DCPS:	n/a	2542
RCELL:	n/a	50.0
BOX TEMP:	n/a	31.3
IZS TEMP:	n/a	45.0
MOLY TEMP:	n/a	315.1
RCEL:	n/a	7.8
SAMP:	n/a	26.4
Internal Span:	n/a	6.3/346/352

Calibrator Flow Targets:

Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM000711
NO Cylinder Conc. (ppm):	50.1
NOx Cylinder Conc. (ppm):	50.2

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	550	5077
mid	5000	37	275	5037
low	5000	17	95	5017

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
adjusted zero	5000	0.0	5000	0	0	1.4	0.6	NA	NA
adjusted high	4995	76.74	5072	758.1	759.6	757	756	1.003	1.006
mid	4995	36.86	5032	367.0	367.7	364	363	1.012	1.015
low	4995	16.94	5012	169.3	169.7	167	166	1.023	1.026
calibrator zero	5000	0.00	5000	0	0	0.9	0.0	NA	NA
							Average C.F.=	1.013	1.015

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4995	76.76	5072	0.0	766.0	764.0	-2.1	1.4	-0.8	
adjusted NO_2	4995	76.76	5072	550.0	80.2	768.0	688.0	685.8	690.1	0.994
gpt mid	4995	76.76	5072	275.0	415.0	765.0	350.0	351.0	352.1	0.997
gpt low	4995	76.76	5072	95.0	647.0	763.0	116.0	119.0	118.1	1.008
									Average NO_2 C.F.=	0.999

Linear Regression/Calibration Results:

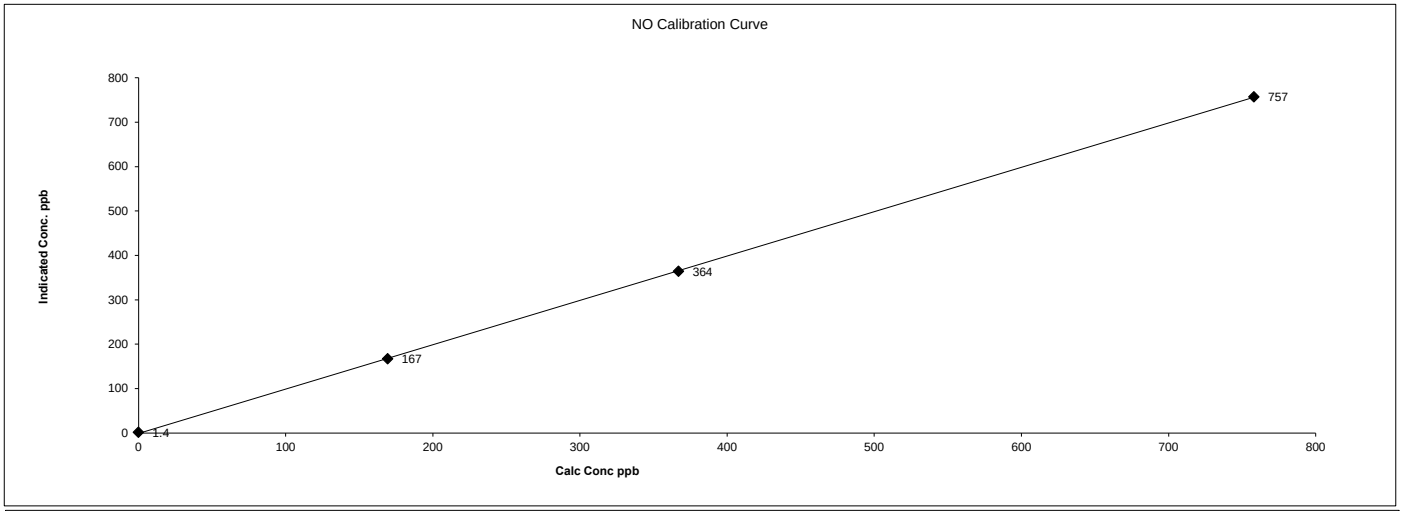
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**0.998**	**0.996**	**1.009**	**0.85-1.15**
b (Intercept as % of full scale)=	**-0.06%**	**-0.14%**	**-0.18%**	**± 3% F.S.**
NO2 converter effeciency			**100.1%**	**>85%**

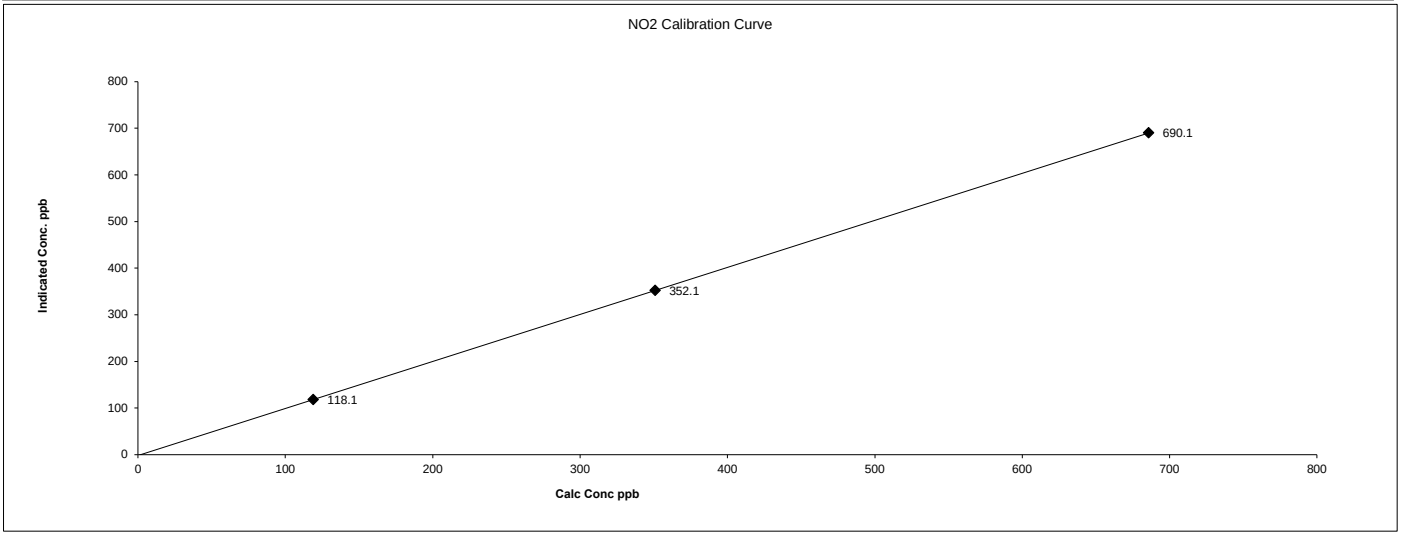
Comments:

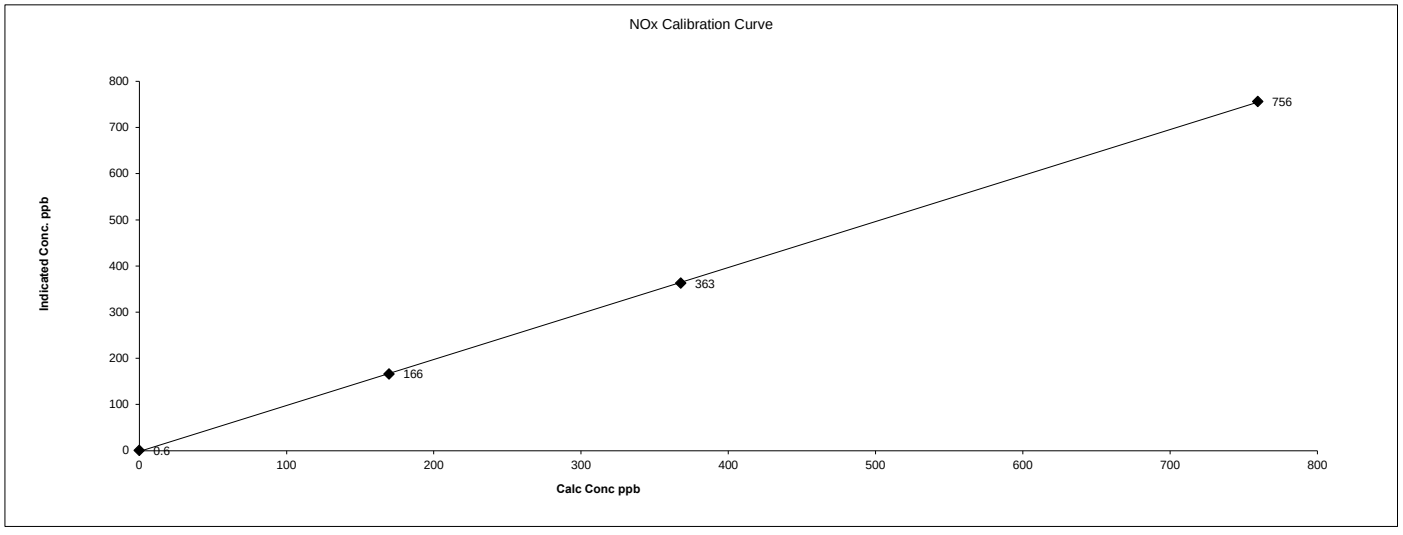
changed filter

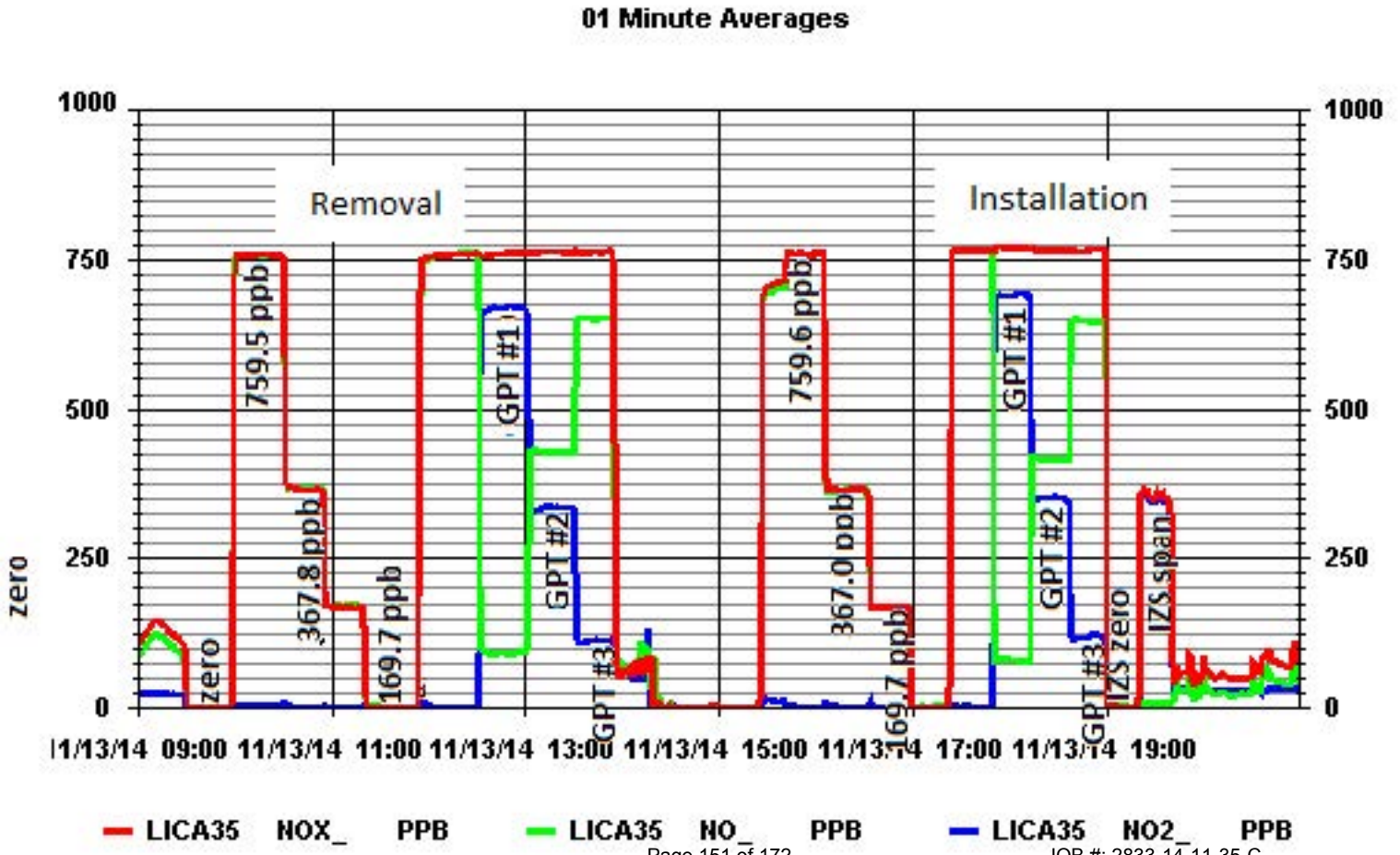
Date:	13-Nov-14	**Start Time (mst):**	15:02
Company:	LICA	**End Time (mst):**	18:58
Station Name/Location:	Elk Point	**Calibration Purpose:**	installation
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200A NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
zero
Removal
Installation
759.5 ppb
367.8 ppb
169.7 ppb
GPT #1
GPT #2
GPT #3
759.6 ppb
367.0 ppb
169.7 ppb
IZS zero
IZS span
11/13/14 09:00
11/13/14 11:00
11/13/14 13:00
11/13/14 15:00
11/13/14 17:00
11/13/14 19:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

API 200A NOx Analyzer Calibration

Date:	27-Nov-14	**Start Time (mst):**	13:55
Company:	LICA	**End Time (mst):**	15:09
Station Name/Location:	Elk Point	**Calibration Purpose:**	As-Found
Performed by:	Chris Wesson	**Cal Gas Expiry Date:**	12-Aug-17

Analyzer Serial Number:	2166
Last Calibration Date:	4-Nov-14
Range ppb:	1000

Correction Factors:

As found C.F.		Previous Cal High Point C.F.:	
NO=	0.989	NO=	1.002
NOx=	0.988	NOx=	1.000
NO_2=	1.010	NO_2=	1.005

As found:		**As left:**	
NOx SLOPE:	0.944	NOx SLOPE:	0.944
NOx OFFS:	-0.5	NOx OFFS:	-0.5
NO SLOPE:	0.940	NO SLOPE:	0.940
NO OFFS:	-2.9	NO OFFS:	-2.9
NOx STB:	0.1	NOx STB:	0.1
SAMP FLW:	487	SAMP FLW:	486
OZONE FL:	75	OZONE FL:	75
NORM PMT:	1.2	NORM PMT:	1.2
AZERO:	12.3	AZERO:	12.6
HVPS:	691	HVPS:	691
DCPS:	2537	DCPS:	2542
RCELL:	50.2	RCELL:	50.2
BOX TEMP:	26.1	BOX TEMP:	26.7
IZS TEMP:	PMT=7.1, IZS=45.3	IZS TEMP:	PMT=7.1, IZS=45.1
MOLY TEMP:	314.8	MOLY TEMP:	315.5
RCEL:	7.8	RCEL:	7.8
SAMP:	26.4	SAMP:	27.2
Internal Span:	Nox:472, NO:8, NO2:464	Internal Span:	Nox:472, NO:8, NO2:464

Calibrator Flow Targets:

Make & Model:	Environics 2000
Serial #:	1991
Cal Gas Cylinder I.D. # :	BR000418M400
NO Cylinder Conc. (ppm):	49.7
NOx Cylinder Conc. (ppm):	49.7

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4920	80	500.00	5000
mid	4960	40	300.00	5000
low	4980	20	100.00	5000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	5006	0.0	5006	0	0	2.0	1.0	NA	NA
adjusted zero	NA	0.0		0	0			NA	NA
as found high	4931	78.67	5010	780.5	780.5	789	790	0.989	0.988
adjusted high		NA							
mid		NA							
low		NA							
calibrator zero	NA	0.00		0	0			NA	NA
							Average C.F.=	0.989	0.988

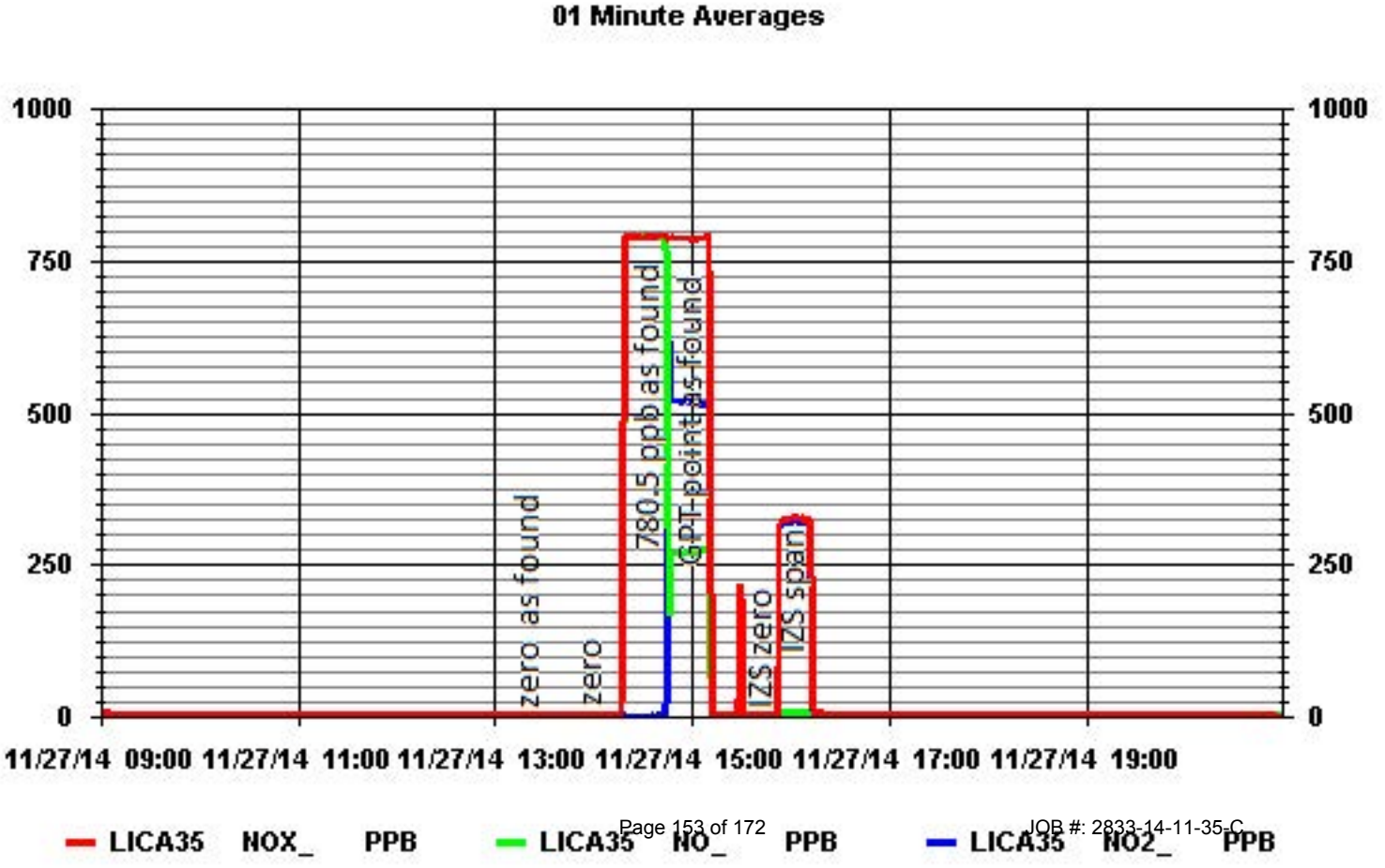
Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO_2	NO drop	NO_2 increase	NO_2 C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4931	78.67	5010	0.0	789.0	790.0	1.0	0.0	0.0	
as found NO_2	4931	78.67	5010	500.0	270.0	785.0	515.0	519.0	514.0	1.010
adjusted NO_2		NA								
gpt mid		NA								
gpt low		NA								
								Average NO_2 C.F.=		1.010

Linear Regression/Calibration Results:

	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =				**> or = 0.995**
Slope =				**0.85-1.15**
b (Intercept as % of full scale)=				**± 3% F.S.**
% change in C.F. from last cal=	**1.28%**	**1.21%**	**-0.47%**	**+/-15%**
NO2 converter effeciency				**>85%**

Comments:

As-found due to IZS variance


01 Minute Averages
1000
750
500
250
0
zero as found
zero
780.5 ppb as found
GPT points as found
IZS zero
IZS span
11/27/14 09:00
11/27/14 11:00
11/27/14 13:00
11/27/14 15:00
11/27/14 17:00
11/27/14 19:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	4-Nov-14	**Start Time (mst):**	15:28
Company:	LICA	**End Time (mst):**	18:26
Station Name/Location:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**G.P.T. Date:**	4-Nov-14

Analyzer:

Serial Number:	1002240372	**Range ppm:**	500
Last Calibration Date:	7-Oct-14	**As Found C.F.**	1.022
Previous Cal High Point C.F.:	1.002	**New C.F.:**	1.016

		As found:		As left:
	O_3 Bkg:	-.3	O_3 Bkg:	-.5
	O_3 Coef:	1.033	O_3 Coef:	1.056
Motherboard:	3.3	3.3	3.3	3.3
	15.0	5.0	15.0	5.0
	24.0	23.9	24.0	23.9
	-3.3	-3.2	-3.3	-3.2
Interface Board:	3.3	3.3	3.3	3.3
	5.0	5.0	5.0	5.0
	15.0	14.9	15.0	14.9
	-15.0	-15.1	-15.0	-15.1
	Photo Lamp	9.8	Photo Lamp	9.8
	24.0	23.4	24.0	23.4
	O_3 Lamp	9.4	O_3 Lamp	9.4
	Bench:	27.8	Bench:	27.8
	Bench Lamp:	54.0	Bench Lamp:	54.0
	O_3 Lamp:	68.1	O_3 Lamp:	68.1
	Pressure:	694.7	Pressure:	694.7
	Cell A lpm:	.750	Cell A lpm:	.750
	Cell B lpm:	.757	Cell B lpm:	.757
	O_3 ppb:	-.5	O_3 ppb:	-.5
	Cell A ppb:	-.5	Cell A ppb:	-.5
	Cell B ppb:	-.5	Cell B ppb:	-.5
	Cell A int:	47240	Cell A int:	47240
	Cell B int:	47715	Cell B int:	47715
	Internal Span:	337	Internal Span:	356

Calibrator:

Make & Model:	Environics 6100
Serial #:	4760
NOx Gas Cylinder I.D. # :	BLM000711
NOx Cylinder Conc. (ppm):	50.2

Calibrator Flow Targets:

point	total flow (cc/min)	O_3 setting (v or ppb)
zero	5071	0
high	5071	275
mid	5071	125
low	5071	95

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5071	0.0	5071	0.0	-0.1	NA
adjusted zero	5071	0.0	5071	0.0	0.0	NA
as found high	5071	0.00	5071	322.0	315.1	1.022
adjusted high	5071	0.00	5071	322.0	322.2	0.999
mid	5071	0.00	5071	148.0	146.4	1.011
low	5071	0.00	5071	113.0	108.9	1.038
calibrator zero	5071	0.00	5071	0.0	0.3	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration **Average C.F.=** 1.016

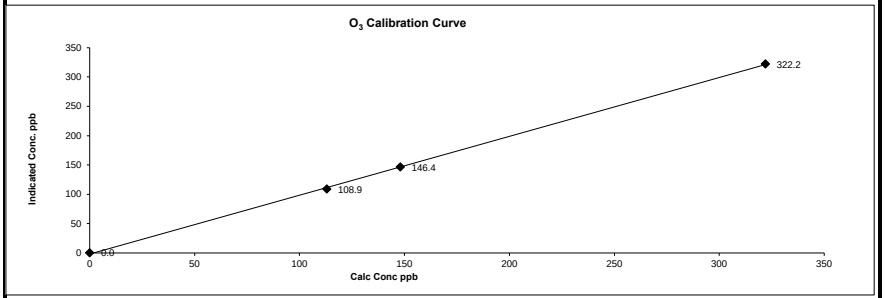
Linear Regression/Calibration Results:

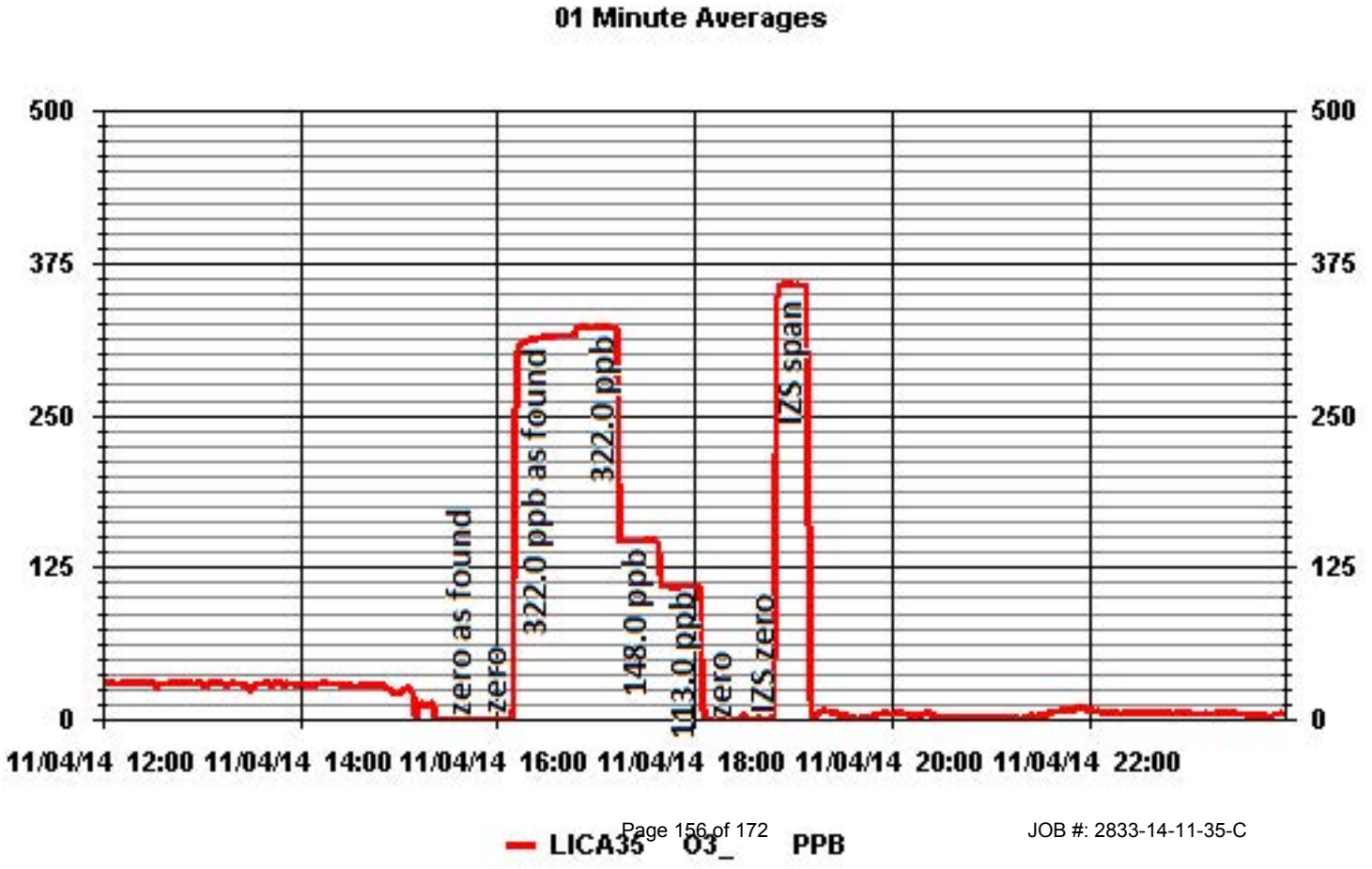
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.003**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.362%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-2%**	**± 15%**	**PASS**

Comments:

ran an extra gpt point to get O3 middle point, changed sample filter and cleaned analyzer fan filter

Thermo 49i O3 Analyzer Calibration





JOB #: 2833-14-11-35-C

VOC Monitoring Laboratory Analysis

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Nov 13, 2014
CANISTER ID: S5594
DESCRIPTION: Elk Point Airport
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Butene	I	0.50	ppbv	0.03	AC-058	25-Nov-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylbutane		0.79	ppbv	0.03	AC-058	25-Nov-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Nov 13, 2014
CANISTER ID: S5594
DESCRIPTION: Elk Point Airport
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.60	ppbv	0.03	AC-058	25-Nov-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
2-Methylpentane		1.15	ppbv	0.03	AC-058	25-Nov-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	25-Nov-14
3-Methylhexane	I	0.57	ppbv	0.03	AC-058	25-Nov-14
3-Methylpentane		0.61	ppbv	0.03	AC-058	25-Nov-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Benzene		0.64	ppbv	0.03	AC-058	25-Nov-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Cyclohexane		0.96	ppbv	0.03	AC-058	25-Nov-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Nov 13, 2014
CANISTER ID: S5594
DESCRIPTION: Elk Point Airport
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-11	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Freon-12	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isobutane		3.64	ppbv	0.03	AC-058	25-Nov-14
Isopentane		3.37	ppbv	0.03	AC-058	25-Nov-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Nov-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	25-Nov-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylcyclohexane		2.24	ppbv	0.03	AC-058	25-Nov-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Butane		5.96	ppbv	0.03	AC-058	25-Nov-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers
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U Compound was analyzed for but not detected
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/ELK/Nov 13, 2014
CANISTER ID: S5594
DESCRIPTION: Elk Point Airport
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Toluene		0.66	ppbv	0.03	AC-058	25-Nov-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	25-Nov-14

Qualifiers
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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

PAH Monitoring Laboratory Analysis

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/ELK/Nov 01, 2014
CANISTER ID:
DESCRIPTION: Elk Point Airport
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/PUF	0.01	NA-017	23-Nov-14
2-Methylnaphthalene		0.07	ug/PUF	0.01	NA-017	23-Nov-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthene		0.04	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthylene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(b,j,k)fluoranthene		0.02	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(c)phenanthrene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Fluoranthene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
Fluorene		0.09	ug/PUF	0.01	NA-017	23-Nov-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Naphthalene		0.08	ug/PUF	0.01	NA-017	23-Nov-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Phenanthrene		0.15	ug/PUF	0.01	NA-017	23-Nov-14
Pyrene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

Qualifiers

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110056-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/ELK/Nov 01, 2014
CANISTER ID:
DESCRIPTION: Elk Point Airport
DATE SAMPLED 01-Nov-14 0:00
DATE RECEIVED 10-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

Qualifiers

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 7 2014
CANISTER ID: TE-02
DESCRIPTION: Elk Point
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.14	ug/PUF	0.01	NA-017	23-Nov-14
2-Methylnaphthalene		0.23	ug/PUF	0.01	NA-017	23-Nov-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthene		0.05	ug/PUF	0.01	NA-017	23-Nov-14
Acenaphthylene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Anthracene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(c)phenanthrene		0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Fluoranthene		0.03	ug/PUF	0.01	NA-017	23-Nov-14
Fluorene		0.09	ug/PUF	0.01	NA-017	23-Nov-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Naphthalene		0.20	ug/PUF	0.01	NA-017	23-Nov-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	23-Nov-14
Phenanthrene		0.13	ug/PUF	0.01	NA-017	23-Nov-14
Pyrene		0.04	ug/PUF	0.01	NA-017	23-Nov-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110100-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 7 2014
CANISTER ID: TE-02
DESCRIPTION: Elk Point
DATE SAMPLED 07-Nov-14 0:00
DATE RECEIVED 18-Nov-14
REPORT DATE 05-Dec-14

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/PUF	0.01	NA-017	23-Nov-14

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 13, 2014
CANISTER ID: TE-08
DESCRIPTION: Elk Point
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.07	ug/PUF	0.01	NA-017	15-Dec-14
2-Methylnaphthalene		0.13	ug/PUF	0.01	NA-017	15-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthylene		0.03	ug/PUF	0.01	NA-017	15-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(b,j,k)fluoranthene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(c)phenanthrene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(e)pyrene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(ghi)perylene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Chrysene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Fluoranthene		0.05	ug/PUF	0.01	NA-017	15-Dec-14
Fluorene		0.11	ug/PUF	0.01	NA-017	15-Dec-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Naphthalene		0.06	ug/PUF	0.01	NA-017	15-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Phenanthrene		0.14	ug/PUF	0.01	NA-017	15-Dec-14
Pyrene		0.04	ug/PUF	0.01	NA-017	15-Dec-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 13, 2014
CANISTER ID: TE-08
DESCRIPTION: Elk Point
DATE SAMPLED 13-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/PUF	0.01	NA-017	15-Dec-14

Qualifiers

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-007
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 19, 2014
CANISTER ID: P13-01
DESCRIPTION: Elk Point
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.39	ug/PUF	0.01	NA-017	15-Dec-14
2-Methylnaphthalene		0.69	ug/PUF	0.01	NA-017	15-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthene		0.04	ug/PUF	0.01	NA-017	15-Dec-14
Acenaphthylene		0.03	ug/PUF	0.01	NA-017	15-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)anthracene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(b,j,k)fluoranthene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(c)phenanthrene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(e)pyrene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Benzo(ghi)perylene		0.01	ug/PUF	0.01	NA-017	15-Dec-14
Chrysene		0.02	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Fluoranthene		0.05	ug/PUF	0.01	NA-017	15-Dec-14
Fluorene		0.11	ug/PUF	0.01	NA-017	15-Dec-14
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Naphthalene		0.38	ug/PUF	0.01	NA-017	15-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	15-Dec-14
Phenanthrene		0.18	ug/PUF	0.01	NA-017	15-Dec-14
Pyrene		0.03	ug/PUF	0.01	NA-017	15-Dec-14

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

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14110169-007
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Nov 19, 2014
CANISTER ID: P13-01
DESCRIPTION: Elk Point
DATE SAMPLED 19-Nov-14 0:00
DATE RECEIVED 25-Nov-14
REPORT CREATED: 16-Dec-14
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.06	ug/PUF	0.01	NA-017	15-Dec-14

Qualifiers

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Nov 25, 2014
CANISTER ID: TE-03
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.16	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		0.26	ug/PUF	0.01	NA-017	31-Dec-14
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthene		0.03	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthylene		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(b,j,k)fluoranthene		0.03	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(e)pyrene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Chrysene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Fluoranthene		0.04	ug/PUF	0.01	NA-017	31-Dec-14
Fluorene		0.07	ug/PUF	0.01	NA-017	31-Dec-14
Indeno(1,2,3-cd)pyrene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Naphthalene		0.27	ug/PUF	0.01	NA-017	31-Dec-14
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	31-Dec-14
Phenanthrene		0.15	ug/PUF	0.01	NA-017	31-Dec-14
Pyrene		0.03	ug/PUF	0.01	NA-017	31-Dec-14

Qualifiers

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

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

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

JOB #: 2833-14-11-35-C

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 14120010-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Nov 25, 2014
CANISTER ID: TE-03
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 25-Nov-14 0:00
DATE RECEIVED: 02-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 02
REPORT REVISED: 08-Jan-15

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/PUF	0.01	NA-017	31-Dec-14

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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E-mail: EAS.Results@albertainnovates.ca

JOB #: 2833-14-11-35-C