Lakeland Industry & Community Association

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

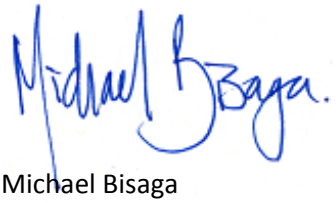
March 10, 2015

RE: December 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

Maxxam
A Bureau Veritas Group Company

maxxam.ca

MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary
AB T2E 6P7

Toll Free 800-386-7247
Fax 403-219-3673

February 23, 2015

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

ATTENTION: Mr. Mike Bisaga
REFERENCE: Ambient Air Monitoring Report for Cold Lake South Site for December 2014 (JOB #: 2833-14-12-01-C)

Maxxam is pleased to submit this report based on data collected at the Ambient Air Monitoring Station located at the Lakeland Industry & Community Assoc. Cold Lake site for the month of December 2014.

Included are reports of the monthly continuous hourly average for each parameter, equipment calibration, and a brief description of the calibration procedure. The passive network data is also included in this report.

During the month of December 2014 the following proceedings were noted:

Cold Lake South Site

- All analyzers and met systems were above the 90% uptime for the month.
- All data was within Provincial objectives for the month.
- All data was corrected using daily zero calibration data. Furthermore, PM2.5 data was corrected using the Alberta Environment correction standards.
- PM2.5: 2 hours of data were invalidated as the data were below –3 ug/m3.
- WS/WD/STDWDIR: 54 hours of data were invalidated due to a UPS failure.
- Temperature: 44 hours of data were invalidated due to a UPS failure.
- Relative Humidity: 44 hours of data were invalidated due to a UPS failure.
- THC: 2 hours of data were invalidated as the analyzer was recovering from a power outage.

Passive Network

A summary of the passive monitoring are reported as follows:

- Monitoring period averages for SO_2 ranged from <0.3 to 0.8 ppb.
- Monitoring period averages for H_2S ranged from 0.06 to 0.24 ppb.
- Monitoring period averages for NO_2 ranged from 0.7 to 11.3 ppb.
- Monitoring period averages for O_3 ranged from 20.82 to 29.05 ppb.
- The samplers installed at site #2 had been removed, so no sample filters were installed.

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Please feel free to contact Lily Lin at (403) 219-3661 should you have any questions concerning this report.

Sincerely,
Maxxam

Prepared by:

Wunmi Adekanmbi
Project Manager Assistant
Source Testing

Reviewed by:

Lily Lin
Customer Service Supervisor
Air Services

Lakeland Industry & Community Association

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

Prepared By:

Maxxam
A Bureau Veritas Group Company

February 17, 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: December 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 – December 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	0.19	2	3, 4	VAR	VAR	VAR	1.0	17	100.0
TRS (PPB)	-	-	-	-	0.00	1	10	9	0.4	15(NNE)	0.0	ALL	100.0
NO_2 (PPB)	159	-	0	-	7.57	30.5	1	17	0.3	143(SE)	19.8	10	100.0
NO (PPB)	-	-	-	-	2.15	104.6	10	9	0.4	15(NNE)	25.4	10	100.0
NOx (PPB)	-	-	-	-	9.72	132.5	10	9	0.4	15(NNE)	45.2	10	100.0
O_3 (PPB)	82	-	0	-	21.39	40	2	13, 14	10.8 9.1	306(NW) 299(WNW)	35.7	31	100.0
THC (PPM)	-	-	-	-	2.34	3.7	24	9	2.3	277(W)	2.7	10, 28	99.7
PM 2.5 (UG/M^3)	-	30	-	0	7.02	67	9	14	3.5	82(E)	13.5	9	99.6
TEMPERATURE (DEG C)	-	-	-	-	-10.06	8.5	11	13	11.7	242(WSW)	3.2	11	93.8
RELATIVE HUMIDITY (%)	-	-	-	-	82.82	97	12	20, 21	3.0 3.7	353(N) 22(NNE)	93.5	22	93.8
VECTOR WS (KPH)	-	-	-	-	4.23	14.9	11	1	-	138(SE)	7.4	11	91.9
VECTOR WD (DEGREES)	-	-	-	-	225(SW)	-	-	-	-	-	-	-	91.9

VAR-VARIOUS NA: NOT AVAILABLE

JOB #: 2833-14-12-01-C

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

Passive Ambient Monitoring Network – December 2014

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO_2	#14	1.1	0.56
H_2S	#32	0.22	0.17
NO_2	#28	7.3	3.4
O_3	#8	30.18	24.49

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 December 4th. 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 December 4th. 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 December 4th. The inlet filter was changed before the monthly calibration. Two hours of data on December 23rd hour 7 and hour 8 were invalidated because the analyzer was recovering from a power outage. Data was corrected using daily zero information.

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 performed on December 4th, and the other audit was completed on December 23rd. 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. Two 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 was 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 December 4th. 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 December 4th. 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
On December 18th the UPS failed, it was reset on December 19th. The UPS failed again on December 20th and it was replaced on December 21st. 44 hours of data from December 18th hour 18 to December 19th hour 9 and December 20th hour 12 to December 21st hour 15 were invalidated due to this event.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

On December 18th the UPS failed, it was reset on December 19th. The UPS failed again on December 20th and it was replaced on December 21st. 44 hours of data from December 18th hour 18 to December 19th hour 9 and December 20th hour 12 to December 21st hour 15 were invalidated due to this event. Data on December 23rd hour 7 was invalidated because the wind system was recovering from a small power outage.

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 December 28th, 2012. On December 18th the UPS failed, it was reset on December 19th. The UPS failed again on December 20th and it was replaced on December 21st. 54 hours of data from December 18th hour 18 to December 19th hour 19 and December 20th hour 12 to December 21st hour 15 were invalidated due to this event. Data on December 23rd hour 7 was invalidated because the wind system was recovering from a small power outage.

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 December 4th.

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 because access to the site was blocked by extreme snow. The result for site #13 is based on November data as the filters could not be replaced in November due to extreme snow.

Partisol

Samples were collected for laboratory analysis on December 19th, 25th, and 31st.

Volatile Organic Compounds

Samples were collected for laboratory analysis on December 1st, 7th, 13th, 19th, 25th, and 31st. The canister valve for the December 1st sampling was found closed at the lab. Therefore, there are no results for that date.

Poly-Aromatic Hydrocarbons

Samples were collected for laboratory analysis on December 1st, 7th, 13th, 19th, 25th, and 31st.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Cold Lake South Site

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

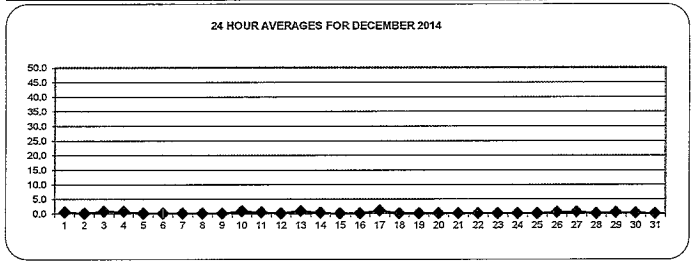
STATUS FLAG CODES

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

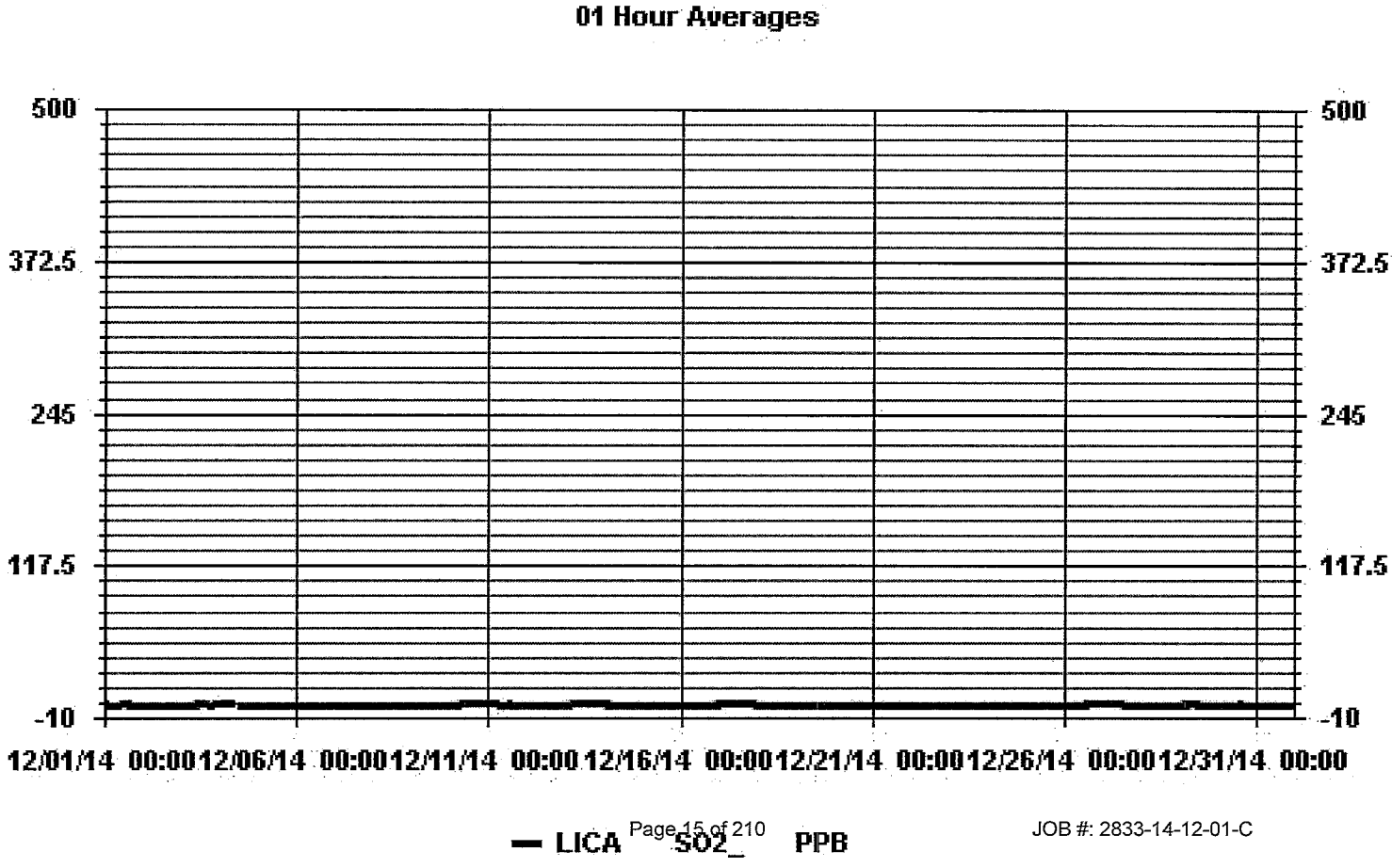
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	131					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	3, 4
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	17
				VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.41		MONTHLY AVERAGE:		0.19	PPB



JOB #: 2833-14-12-01-C



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

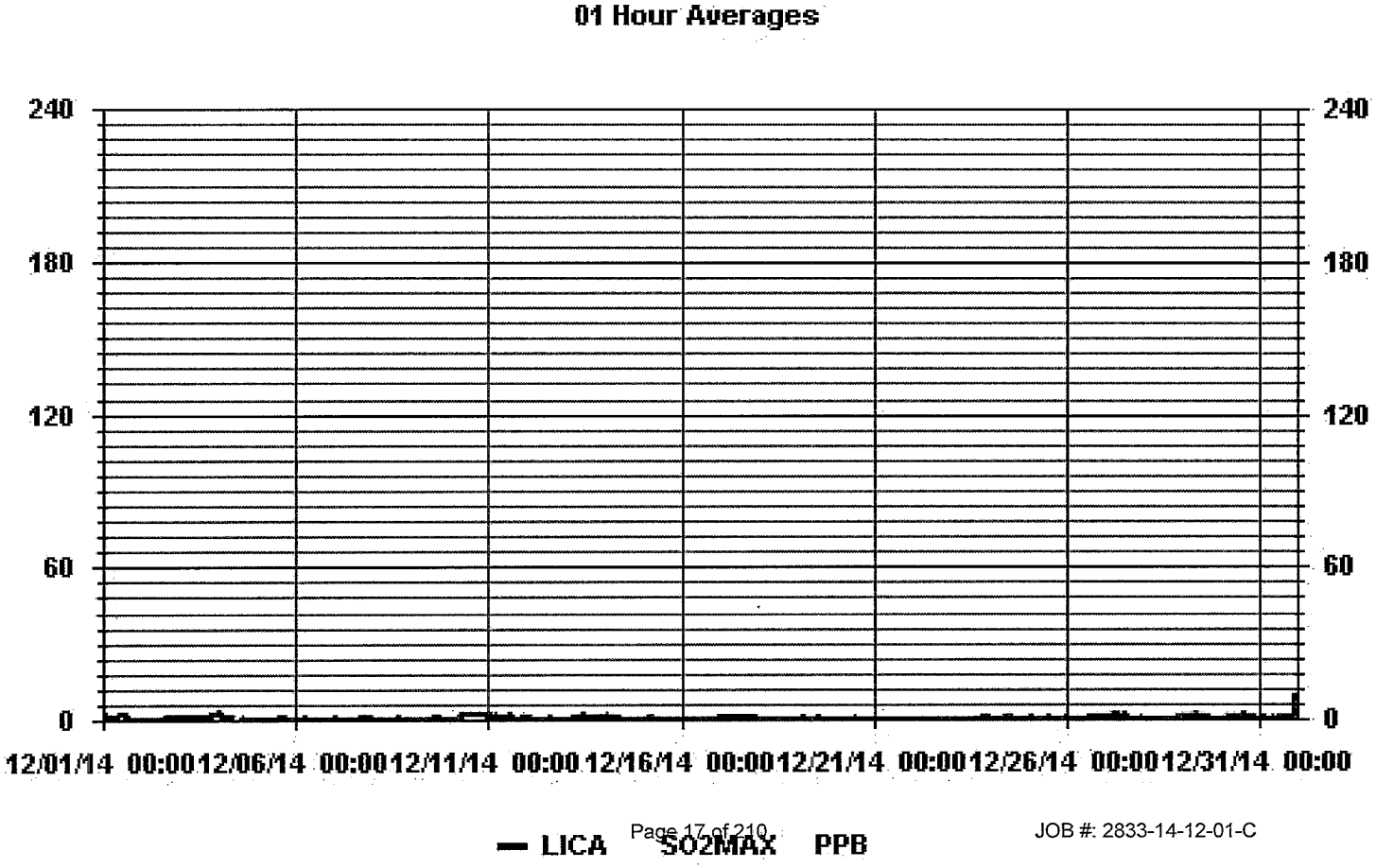
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2	1	2	1	1	1	1	1	1	1	2	2	2	2	2	1	S	0	0	0	0	0	0	0	2	1.0	24
2	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
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	2	2	2	2	2	1.2	24
4	3	2	2	2	1	1	1	1	1	C	C	C	C	C	0	1	0	0	0	0	0	0	0	0	3	0.8	24
5	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	0	1	0	0	0	0	0	0	1	0.1	24
6	0	0	0	0	0	0	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
7	1	1	1	0	0	0	0	0	0	0	S	0	0	0	0	0	1	1	1	1	0	1	1	1	1	0.4	24
8	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.0	24
9	0	0	0	0	0	0	0	0	S	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	0.1	24
10	0	0	0	0	0	0	1	S	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*1.4*	24
11	1	2	1	1	1	2	S	0	0	1	1	1	1	2	2	1	1	0	0	0	0	1	1	0	2	0.9	24
12	1	0	1	0	0	S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24
13	0	0	0	0	S	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24
14	1	1	2	S	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24
15	0	0	S	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
16	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
17	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
18	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
19	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	1	0.1	24
20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	S	0	0	0	1	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	24
22	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
23	0	0	0	0	0	0	0	P	0	0	0	0	0	0	0	0	0	S	0	1	0	1	0	1	1	0.1	23
24	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	S	0	0	0	0	0	0	0	1	0.1	24
25	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	1	1	0.2	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	0.4	24
27	1	1	1	1	1	1	2	2	2	1	1	1	2	S	0	0	0	0	0	0	0	0	1	0	2	0.8	24
28	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
29	1	1	1	1	1	1	1	2	2	1	1	S	1	1	1	1	1	0	0	0	0	0	0	0	2	0.8	24
30	0	0	0	0	1	1	1	1	1	0	S	1	1	1	2	2	1	1	1	0	1	1	0	0	2	0.7	24
31	0	0	1	0	0	0	0	0	1	S	0	1	1	0	1	1	1	1	1	0	0	0	*10*	1	*10*	0.9	24
HOURLY MAX	3	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	10	2			
HOURLY AVG	0.4	0.4	0.5	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.7	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:	240					
MAXIMUM INSTANTANEOUS VALUE:	10	PPB	@ HOUR(S)	22	ON DAY(S)	31
				VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.71					



JOB #: 2833-14-12-01-C

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

December 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	3.70	1.77	1.29	3.06	8.54	3.87	12.25	10.16	3.06	2.74	5.16	16.61	15.16	5.48	4.51	2.58	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	3.70	1.77	1.29	3.06	8.54	3.87	12.25	10.16	3.06	2.74	5.16	16.61	15.16	5.48	4.51	2.58	

Calm : .00 %

Total # Operational Hours : 620

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	23	11	8	19	53	24	76	63	19	17	32	103	94	34	28	16	620
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	94	34	28	16	

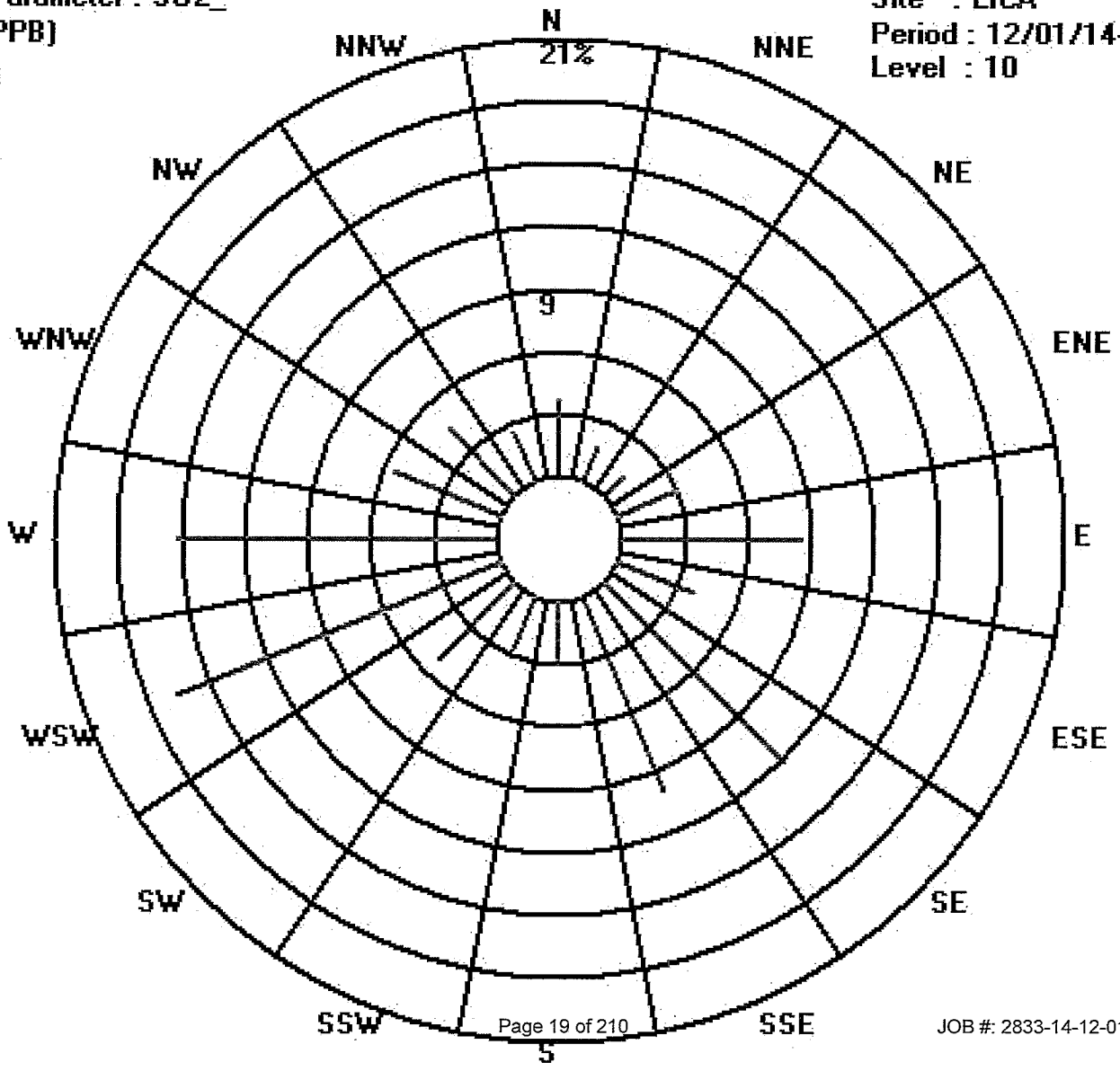
Calm : .00 %

Total # Operational Hours : 620

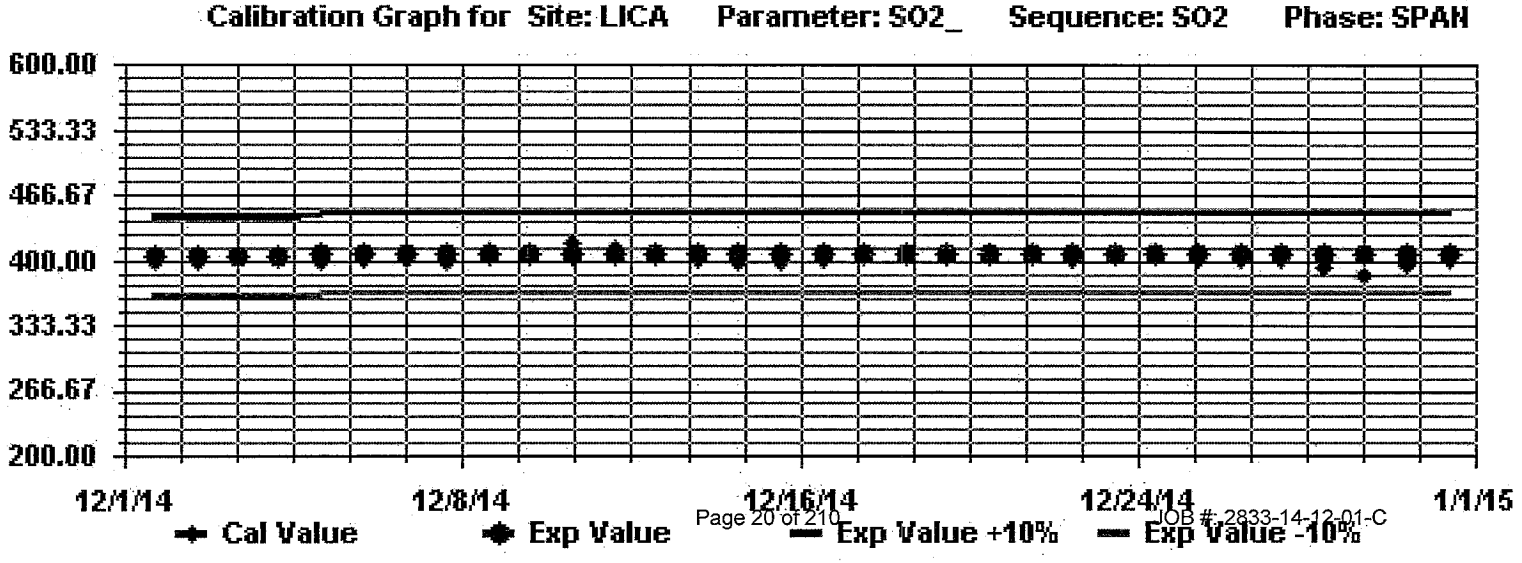
Logger : 01 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C


Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Reduced Sulphur

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

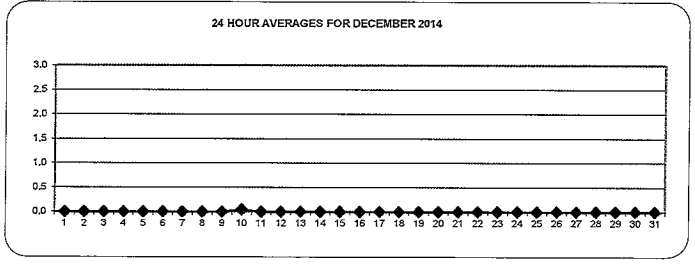
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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	S	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	S	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	S	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	S	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	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	S	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	S	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	S	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	S	0	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	I	0.0	24
11	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
12	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
13	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
14	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
15	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
16	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
17	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
18	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
19	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
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	24
22	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
23	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
24	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
25	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
26	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
27	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
28	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
29	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
30	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
31	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
HOURLY MAX	0	0	0	0	0	0	0	0	0	1	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

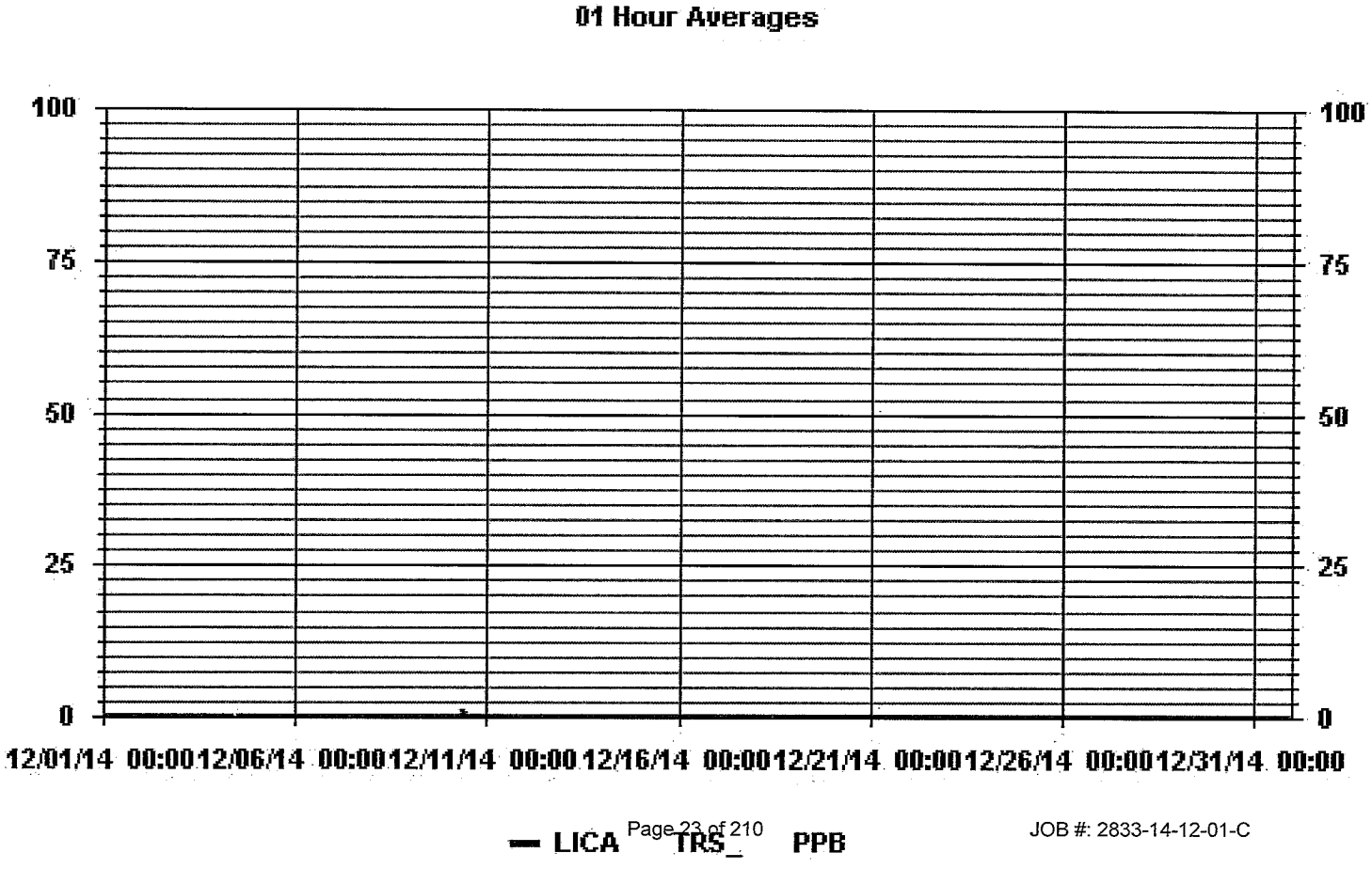
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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:	1						
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	9	ON DAY(S)	10	
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S)	ALL	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:		0.00	PPB	



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 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	0	0	0	0	0	0	0	0	0	0	I	0	0	0	0	S	I	0	I	0	0	0	0	I	0.1	24
2	0	0	0	I	0	I	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	I	0.1	24
3	0	0	0	I	0	0	0	0	0	I	0	0	0	0	S	0	0	I	0	0	0	I	I	I	I	0.3	24
4	0	0	0	0	0	0	0	0	0	C	C	C	C	C	I	I	0	0	0	0	I	I	0	I	I	0.3	24
5	I	I	0	0	0	0	0	0	I	I	I	0	S	I	I	I	I	I	I	I	I	0	I	I	I	0.7	24
6	I	I	I	I	I	I	I	I	I	I	I	S	I	I	I	I	0	0	0	I	I	0	0	I	I	0.8	24
7	I	I	I	I	I	0	0	I	I	I	S	I	I	I	I	I	I	0	I	I	I	I	I	I	I	0.9	24
8	I	I	0	I	I	I	I	I	I	S	0	I	I	I	I	I	0	0	0	0	I	0	I	I	I	0.7	24
9	0	0	I	I	0	I	I	I	S	I	0	0	I	0	I	I	I	I	I	I	I	I	I	0	I	0.7	24
10	I	I	I	0	I	I	I	S	I	I	I	I	I	0	I	I	I	I	I	I	I	I	I	I	I	*0.9*	24
11	I	I	I	I	0	I	S	I	I	0	0	0	I	0	0	0	I	I	0	I	I	I	I	0	I	0.6	24
12	0	I	0	0	I	S	0	I	0	I	I	I	I	I	I	0	I	I	I	I	0	0	0	I	I	0.6	24
13	0	I	I	I	S	I	I	I	0	I	I	I	I	I	I	0	0	I	0	0	0	0	I	0	I	0.6	24
14	0	I	I	S	0	I	I	I	0	0	I	0	I	I	0	I	0	I	I	0	I	0	I	0	I	0.6	24
15	0	0	S	I	I	0	0	0	0	0	I	0	0	I	I	I	0	0	0	0	0	I	I	I	I	0.4	24
16	0	S	I	I	I	I	0	0	I	0	I	0	0	I	I	0	0	0	I	I	0	I	I	I	I	0.6	24
17	S	I	0	0	0	0	I	I	0	0	0	0	I	0	0	I	0	I	I	0	0	I	I	S	I	0.4	24
18	0	0	I	I	0	I	0	I	I	I	I	0	I	I	I	0	I	I	I	I	I	I	S	I	I	0.7	24
19	I	I	I	0	0	0	I	I	I	I	0	I	0	I	I	I	0	I	I	I	I	S	0	I	I	0.7	24
20	I	0	I	0	0	0	I	I	0	I	I	I	0	I	I	I	0	I	0	I	S	I	0	0	I	0.6	24
21	I	I	0	0	0	I	0	I	I	I	0	0	I	I	0	0	0	I	0	S	I	0	0	0	I	0.4	24
22	I	0	0	0	0	0	0	I	I	I	0	I	I	I	I	I	I	I	S	0	I	I	I	0	I	0.6	24
23	I	0	I	I	0	0	0	P	I	I	I	0	I	I	0	I	0	S	0	I	I	I	0	I	I	0.6	23
24	0	I	0	I	0	I	0	0	I	I	I	I	I	I	I	I	S	0	0	0	I	I	0	I	I	0.6	24
25	I	0	0	0	0	0	I	0	0	I	0	0	0	0	0	S	I	0	I	0	I	0	I	0	I	0.3	24
26	0	0	0	I	0	0	0	0	I	I	I	0	0	0	S	I	I	I	0	0	0	0	I	0	I	0.4	24
27	0	0	I	I	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	I	0.1	24
28	0	0	0	0	0	I	0	0	0	I	0	0	S	0	I	0	0	I	I	I	I	I	0	I	I	0.4	24
29	I	I	0	0	I	I	0	0	0	I	I	S	I	I	I	I	I	0	I	I	I	I	0	I	I	0.7	24
30	I	0	I	0	0	0	0	0	I	0	S	I	I	I	I	I	I	I	0	0	0	0	0	0	I	0.4	24
31	0	0	0	0	0	I	0	I	0	S	0	0	I	I	0	0	0	0	0	I	I	0	I	0	I	0.3	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.5	0.5	0.5	0.5	0.3	0.5	0.3	0.5	0.5	0.7	0.5	0.4	0.6	0.7	0.6	0.7	0.4	0.6	0.5	0.5	0.6	0.6	0.5	0.6			

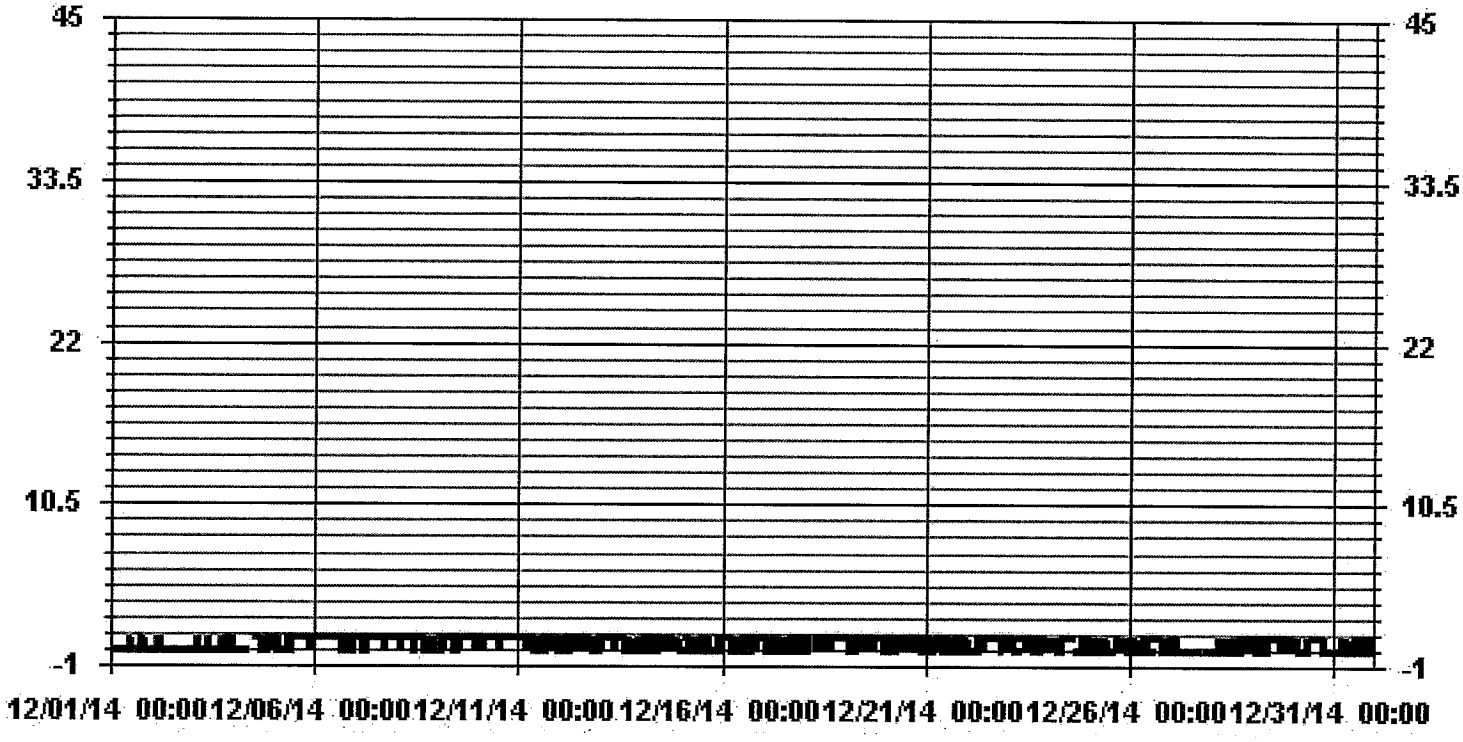
STATUS FLAG CODES

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:	364					
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
				VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.50					

01 Hour Averages



JOB #: 2833-14-12-01-C

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

December 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	3.71	1.77	1.29	3.06	8.56	3.87	12.27	10.17	3.06	2.74	5.16	16.63	15.02	5.49	4.52	2.58	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	3.71	1.77	1.29	3.06	8.56	3.87	12.27	10.17	3.06	2.74	5.16	16.63	15.02	5.49	4.52	2.58	

Calm : .00 %

Total # Operational Hours : 619

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	23	11	8	19	53	24	76	63	19	17	32	103	93	34	28	16	619
<	10																	
<	50																	
>=	50																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	93	34	28	16	

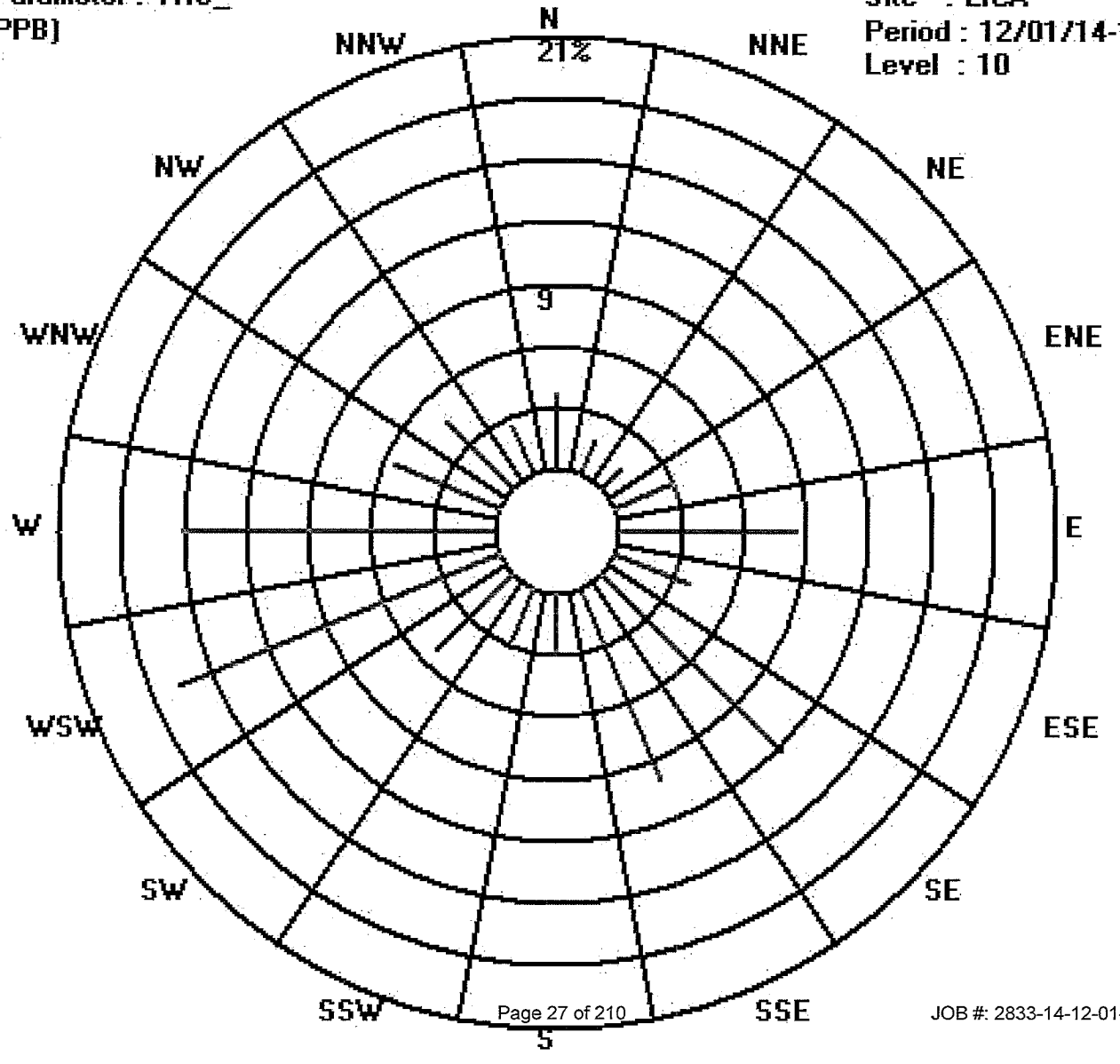
Calm : .00 %

Total # Operational Hours : 619

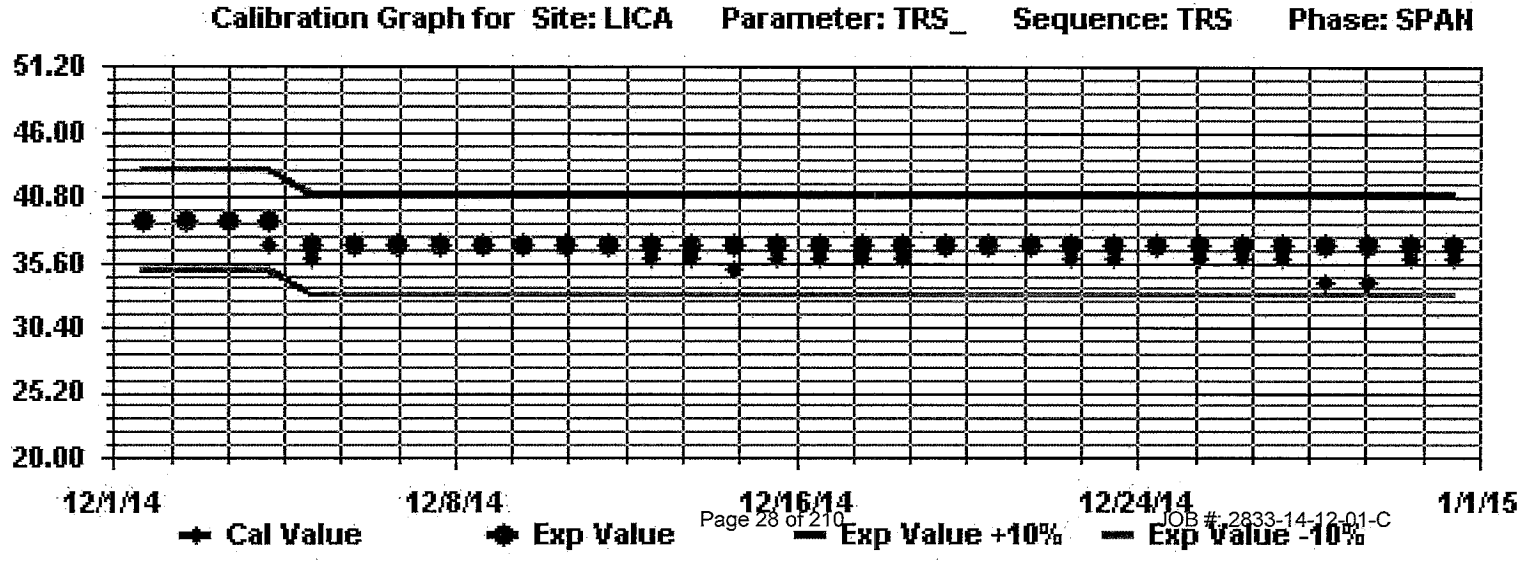
Logger : 01 Parameter : TRS_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-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
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

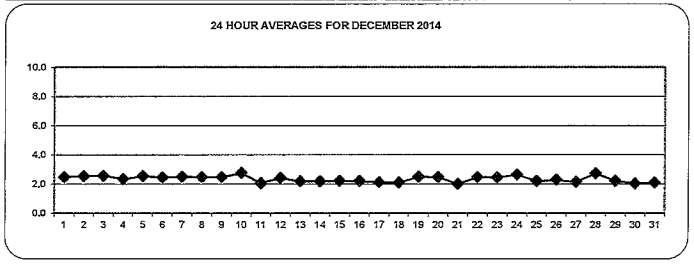
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.2	2.2	2.2	2.3	2.7	2.7	2.6	2.6	2.5	2.7	2.5	2.3	2.2	2.0	2.1	2.4	S	2.7	2.7	2.6	2.6	2.7	2.6	2.7	2.7	2.5	24
2	2.8	2.8	2.7	3.0	3.0	3.1	2.8	2.8	2.9	2.7	2.4	2.3	2.2	2.0	2.0	S	2.1	2.2	2.3	2.3	2.4	2.5	2.5	2.7	3.1	2.5	24
3	2.7	2.7	2.6	2.8	2.8	2.5	2.3	2.4	2.4	2.5	2.4	2.4	2.5	2.6	S	2.7	2.8	2.9	2.8	2.9	2.5	2.2	2.2	2.3	2.9	2.6	24
4	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.6	2.6	2.7	2.7	C	C	C	C	C	C	2.1	2.1	2.2	2.4	2.4	2.4	2.7	2.3	24
5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.5	2.4	2.4	2.4	S	2.3	2.3	2.4	2.4	2.4	2.4	2.6	2.7	2.7	2.8	3.0	3.0	2.5	24
6	2.9	3.0	3.0	2.8	2.8	2.6	2.4	2.3	2.3	2.4	2.3	S	2.5	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.3	2.3	3.0	2.5	24
7	2.3	2.4	2.3	2.4	2.4	2.4	2.6	3.0	2.8	2.7	S	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.3	2.4	2.4	2.3	2.4	2.4	3.0	2.5	24
8	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.5	2.5	S	2.5	2.6	2.7	2.7	2.5	2.6	2.5	2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.7	2.5	24
9	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	S	2.4	2.3	2.3	2.4	2.4	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	24
10	2.6	2.6	2.7	2.8	2.9	3.0	3.3	S	3.3	3.6	3.3	3.1	2.6	2.3	2.5	2.7	2.7	2.4	2.3	2.5	2.6	2.5	2.5	2.3	3.6	2.7	24
11	2.1	2.0	1.9	1.9	1.8	1.8	S	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.5	2.2	2.5	2.1	24
12	2.0	2.0	2.0	2.0	2.0	S	2.2	2.1	2.2	2.2	2.3	2.5	2.8	2.7	2.6	2.8	2.9	3.0	3.0	2.7	2.4	2.3	2.3	2.3	3.0	2.4	24
13	2.3	2.3	2.3	2.3	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	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	24
14	2.2	2.2	2.3	S	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
15	2.2	2.3	S	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.2	24
16	2.4	S	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.4	2.2	24
17	S	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	S	2.2	2.1	24
18	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	S	2.2	2.3	2.1	24
19	2.3	2.3	2.3	2.5	2.6	2.5	2.5	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.4	S	2.3	2.3	2.6	2.5	24
20	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	2.8	2.7	2.8	2.7	2.7	2.7	2.6	2.5	2.5	S	2.4	2.4	2.2	2.8	2.5	24
21	2.2	2.2	2.3	2.3	2.3	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	1.9	S	1.8	1.8	1.9	2.0	2.3	2.0	24
22	2.1	2.0	2.0	2.0	2.0	2.1	2.4	2.9	3.2	3.1	3.1	3.0	2.7	2.5	2.5	2.5	2.5	2.5	S	2.3	2.2	2.3	2.4	2.2	3.2	2.5	24
23	2.3	2.3	2.2	2.2	2.3	2.3	2.2	R	R	2.4	2.5	2.4	2.5	2.5	2.5	2.6	2.5	S	2.5	2.4	2.5	2.7	2.7	2.7	2.7	2.4	22
24	2.6	2.7	2.7	2.7	3.0	3.1	3.1	3.4	3.6	3.7	3.5	3.1	2.6	2.1	2.0	2.0	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.7	2.6	24
25	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	S	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.2	24
26	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.5	2.4	2.4	S	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.3	24
27	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	S	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
28	2.3	2.4	2.5	2.5	2.5	2.6	2.7	2.7	2.7	2.8	3.1	3.1	S	2.3	2.3	2.5	2.6	2.7	2.8	3.0	3.1	3.2	3.4	2.9	3.4	2.7	24
29	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.4	2.5	2.5	S	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.0	2.5	2.2	24
30	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	S	2.3	2.1	2.0	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.0	24
31	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	S	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.6	2.5	2.0	2.6	2.1	24
HOURLY MAX	3	3	3	3	3	3	3	3	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3			
HOURLY AVG	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3			

STATUS FLAG CODES

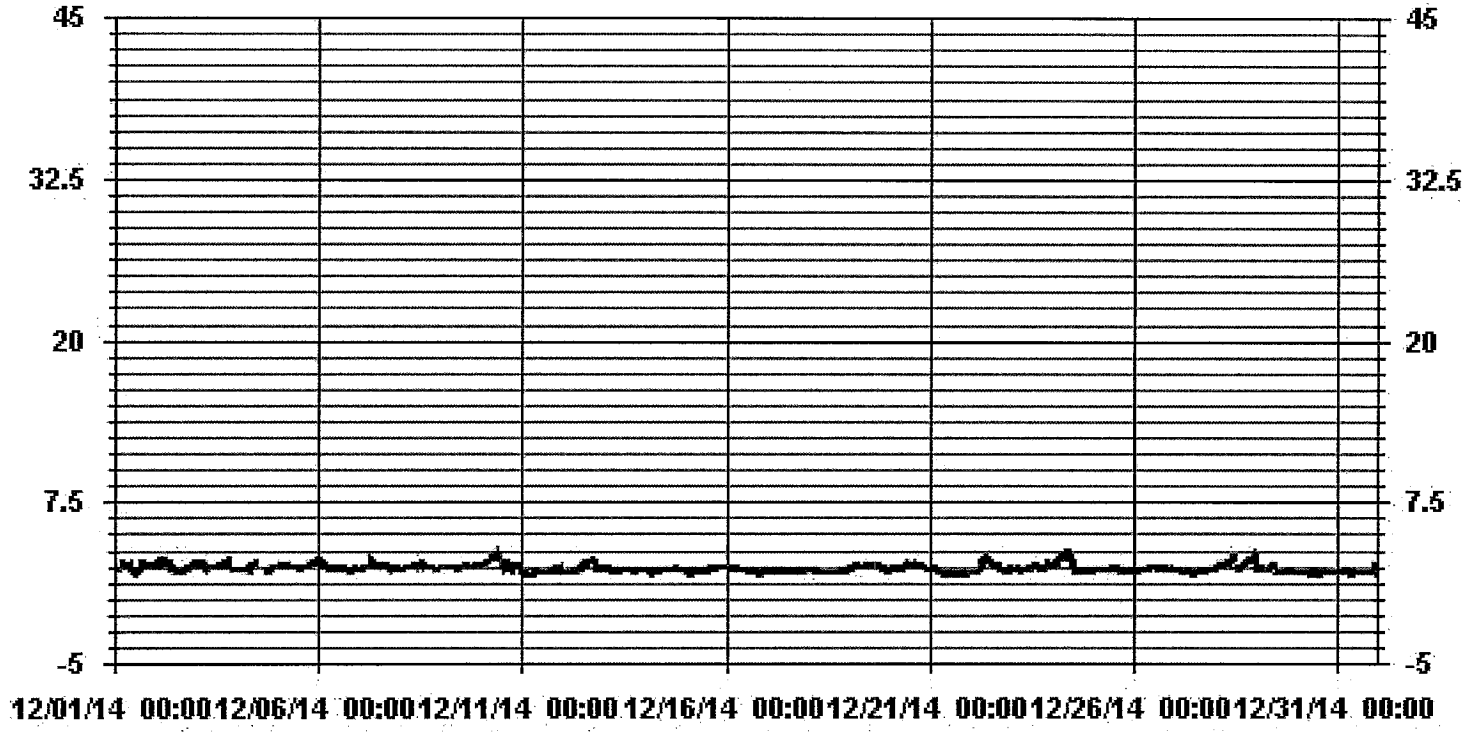
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705						
MAXIMUM 1-HR AVERAGE:	3.7	PPM	@ HOUR(S)	9	ON DAY(S)	24	
MAXIMUM 24-HR AVERAGE:	2.7	PPM			ON DAY(S)	10, 28	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		742	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		99.7	%	
STANDARD DEVIATION:	0.30		MONTHLY AVERAGE:		2.34	PPM	

01 Hour Averages



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

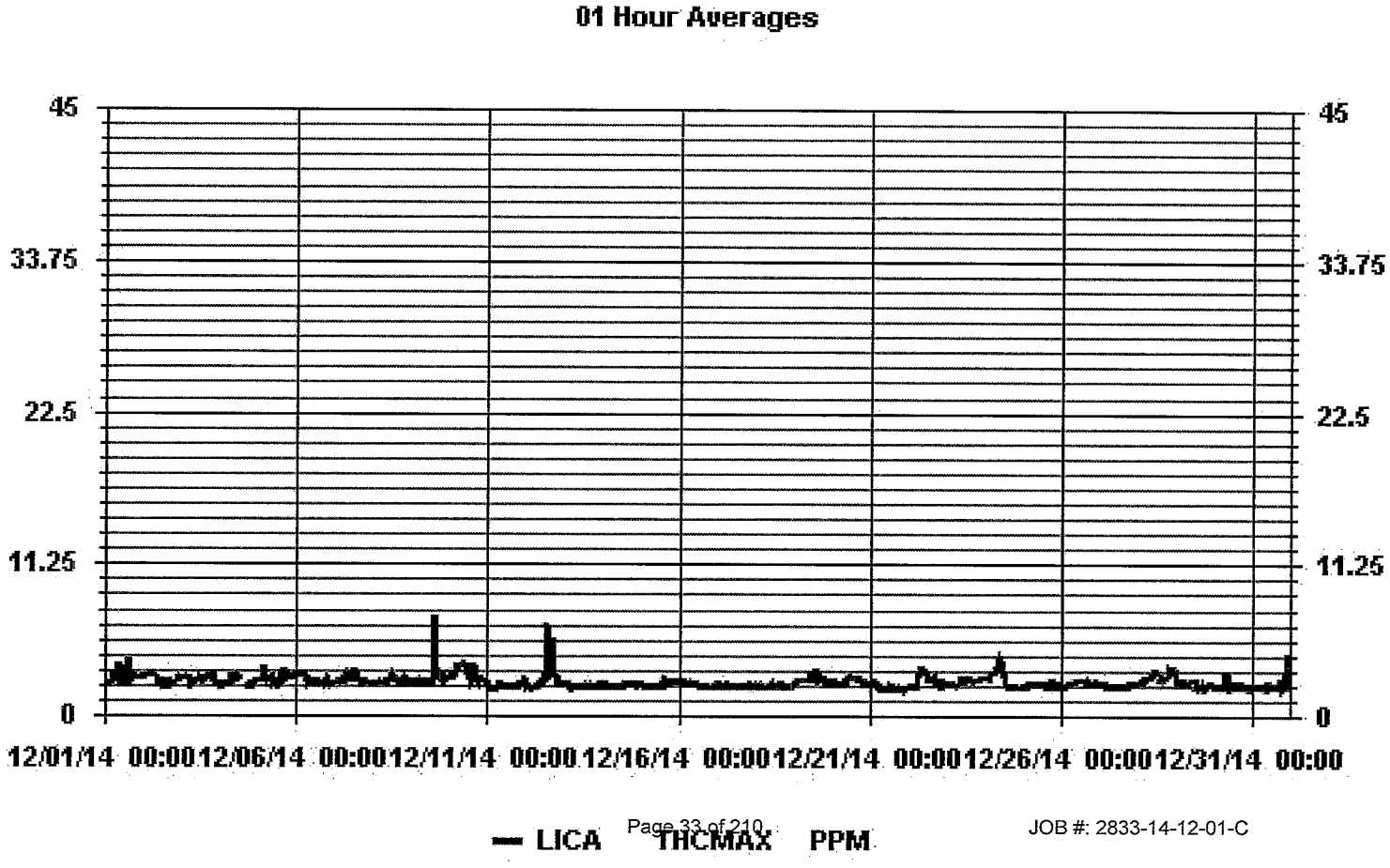
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG.	RDGS.
DAY																											
1	2.3	2.3	2.3	2.5	3	2.9	2.7	2.8	2.7	3.9	2.9	2.5	2.4	2.3	2.4	4.1	S	2.8	3	2.8	2.8	2.8	2.8	2.9	4.1	2.8	24
2	2.9	2.9	3	3.1	3.1	3.2	3.1	3	3	2.9	2.6	2.4	2.5	2.1	2.1	S	2.6	2.3	2.4	2.4	2.5	2.7	2.7	2.9	3.2	2.7	24
3	2.8	2.8	2.8	3	3	2.9	2.4	2.5	2.5	2.6	2.6	2.9	2.6	2.7	S	2.9	3	3.1	2.9	3.1	3.1	2.3	2.3	2.3	3.1	2.7	24
4	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.4	3.1	2.7	3	2.8	C	C	C	C	C	C	2.2	2.2	2.4	2.5	2.5	2.6	3.1	2.5	24
5	2.6	2.6	2.6	3.2	3.6	2.9	2.7	2.8	2.9	2.5	2.7	2.6	S	2.3	2.4	3.3	3.1	3.5	3	2.9	2.9	2.9	3	3.1	3.6	2.9	24
6	3.1	3.1	3.2	3	3	3.1	2.7	2.4	2.6	2.4	2.4	S	2.6	2.5	2.5	2.4	2.5	2.3	2.4	2.8	2.6	2.3	2.4	2.4	3.2	2.6	24
7	2.4	2.4	2.5	2.5	2.5	2.5	2.9	3.2	3	2.9	S	2.6	2.6	3.5	3	2.6	2.6	2.6	2.4	2.5	2.5	2.4	2.4	2.4	3.5	2.6	24
8	2.4	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.6	S	2.6	2.7	3.1	2.9	2.7	2.7	2.6	2.5	2.5	2.8	2.5	2.5	2.4	2.5	3.1	2.6	24
9	2.5	2.5	2.5	2.6	2.5	2.7	2.5	2.6	S	2.7	2.5	2.4	2.5	2.5	4.3	*7.5*	2.6	3.2	3	2.7	2.9	2.7	2.8	2.9	*7.5*	2.9	24
10	2.8	2.8	3.3	2.9	3.2	3.6	3.6	S	3.8	4.1	3.7	3.3	3.1	2.6	2.8	3.8	3	2.7	2.5	2.8	2.7	2.7	2.6	2.6	4.1	*3.1*	24
11	2.3	2.1	2	1.9	1.9	1.9	S	2.1	2.5	2.2	2.2	2.1	2.1	2.3	2.2	2.1	2.2	2.2	2.2	2.4	2.4	2.5	2.7	2.7	2.7	2.2	24
12	2.1	2.2	2.1	2.1	2	S	2.3	2.2	2.3	2.3	2.5	2.8	3.2	6.8	2.8	2.9	3.6	5.7	3.2	3.1	2.4	2.4	2.4	2.4	6.8	2.9	24
13	2.3	2.3	2.3	2.3	S	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.4	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	24
14	2.2	2.3	2.3	S	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.4	2.4	2.3	2.3	2.5	2.4	2.4	2.4	2.2	2.3	2.3	2.5	2.3	24
15	2.3	2.3	S	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.5	3	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.5	3	2.3	24
16	2.5	S	2.5	2.5	2.4	2.5	2.5	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.6	2.3	24
17	S	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	S	2.3	2.2	24
18	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.4	2.1	2.1	2.1	2.2	2.5	2.1	2.1	2.1	2.2	2.2	S	2.3	2.5	2.2	24
19	2.4	2.4	2.4	2.6	2.7	2.6	2.6	2.6	2.6	2.7	3.1	3	2.8	2.7	3.5	2.9	3.2	2.8	2.7	2.8	2.6	S	2.4	2.8	3.5	2.7	24
20	2.3	2.8	2.5	2.4	2.5	2.4	2.4	2.5	2.4	2.7	2.8	2.9	2.9	2.9	2.8	2.8	2.8	2.7	2.8	2.6	S	2.5	2.5	2.4	2.9	2.6	24
21	2.3	2.3	2.4	2.5	2.5	2.2	2.1	2.1	2	2	2	2	2.3	2.1	2.1	2.1	2	2.2	2	S	2	1.9	2	2.1	2.5	2.1	24
22	2.2	2.1	2.1	2.1	2.1	2.2	2.8	3.1	3.6	3.2	3.2	3.2	3	2.7	2.7	2.7	2.9	2.6	S	2.4	2.3	2.5	2.5	2.3	3.6	2.6	24
23	2.4	2.4	2.3	2.3	2.4	2.4	2.3	R	R	2.7	2.7	2.6	2.7	2.8	2.7	2.8	2.6	S	2.6	2.6	2.6	2.8	2.8	2.8	2.8	2.6	22
24	2.8	2.8	2.9	2.8	3.1	3.2	3.3	3.6	3.7	4.3	4.1	3.5	3.1	2.3	2.1	2.1	S	2.2	2.2	2.2	2.2	2.2	2.1	2.2	4.3	2.8	24
25	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.4	S	2.2	2.5	2.5	2.5	2.2	2.3	2.3	2.3	2.5	2.3	24
26	2.2	2.2	2.3	2.2	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.7	S	2.4	2.6	2.4	2.4	2.4	2.5	2.4	2.6	2.5	2.7	2.4	24
27	2.4	2.3	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	S	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.2	24
28	2.4	2.5	2.7	2.6	2.7	2.7	2.8	2.8	2.9	3	3.3	3.3	S	2.6	2.6	3.1	2.7	2.8	3	3.5	3.3	3.5	3.5	3.5	3.5	2.9	24
29	2.4	2.3	2.4	2.5	2.5	2.5	2.4	2.5	2.6	2.6	S	2.2	2.4	2.1	2.2	2.1	2.4	2.2	2.2	2.3	2.3	2.3	2.1	2.6	2.3	24
30	2.1	2.2	2.1	2.1	2.2	2.1	2.1	3.4	2.1	2	S	2.5	2.4	2.2	2.3	2.3	2.4	2.2	2.1	2.2	2.2	2.1	2.1	2	3.4	2.2	24
31	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	S	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.8	2	2.1	2.9	3.2	4.7	2.1	4.7	2.4	24
HOURLY MAX	3	3	3	3	4	4	4	4	4	4	4	4	3	7	4	8	4	6	3	4	3	4	5	4			
HOURLY AVG	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.6	2.5	2.8	2.6	2.6	2.5	2.5	2.5	2.5	2.6	2.5			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM INSTANTANEOUS VALUE:	7.5	PPM	@ HOUR(S)	15	ON DAY(S)	9
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			742 HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.48					



JOB #: 2833-14-12-01-C

LICA
THC / WD Joint Frequency Distribution (Percent)

December 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	3.72	1.62	1.13	2.43	8.26	3.72	12.31	10.21	2.91	2.75	5.18	15.39	13.93	4.37	4.37	2.59	94.97
<	10.0	.00	.16	.16	.64	.32	.16	.00	.00	.16	.00	.00	1.29	1.29	.64	.16	.00	5.02
<	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	3.72	1.78	1.29	3.07	8.58	3.88	12.31	10.21	3.07	2.75	5.18	16.69	15.23	5.02	4.53	2.59	

Calm : .00 %

Total # Operational Hours : 617

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	23	10	7	15	51	23	76	63	18	17	32	95	86	27	27	16	586
<	10.0		1	1	4	2	1			1			8	8	4	1		31
<	50.0																	
>=	50.0																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	94	31	28	16	

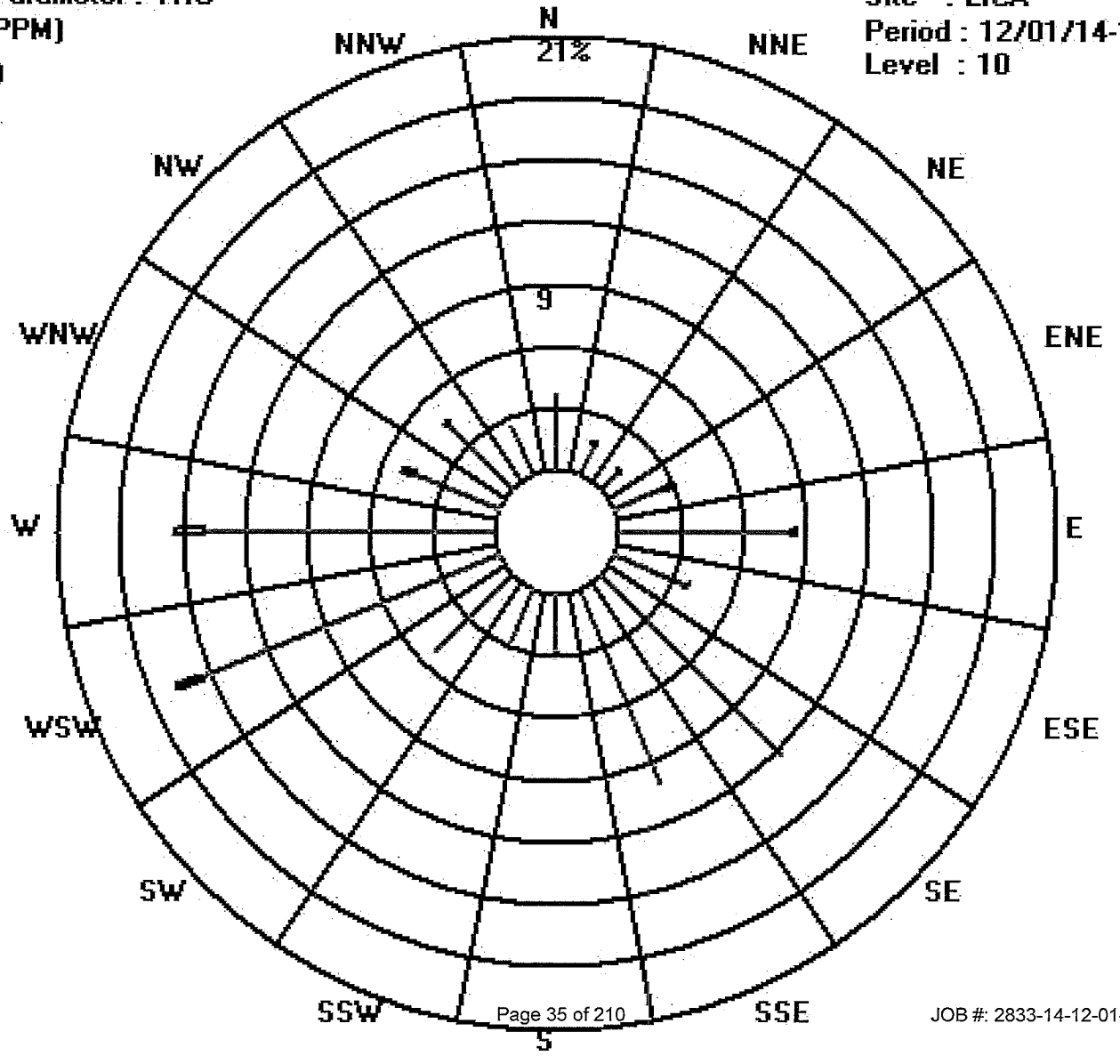
Calm : .00 %

Total # Operational Hours : 617

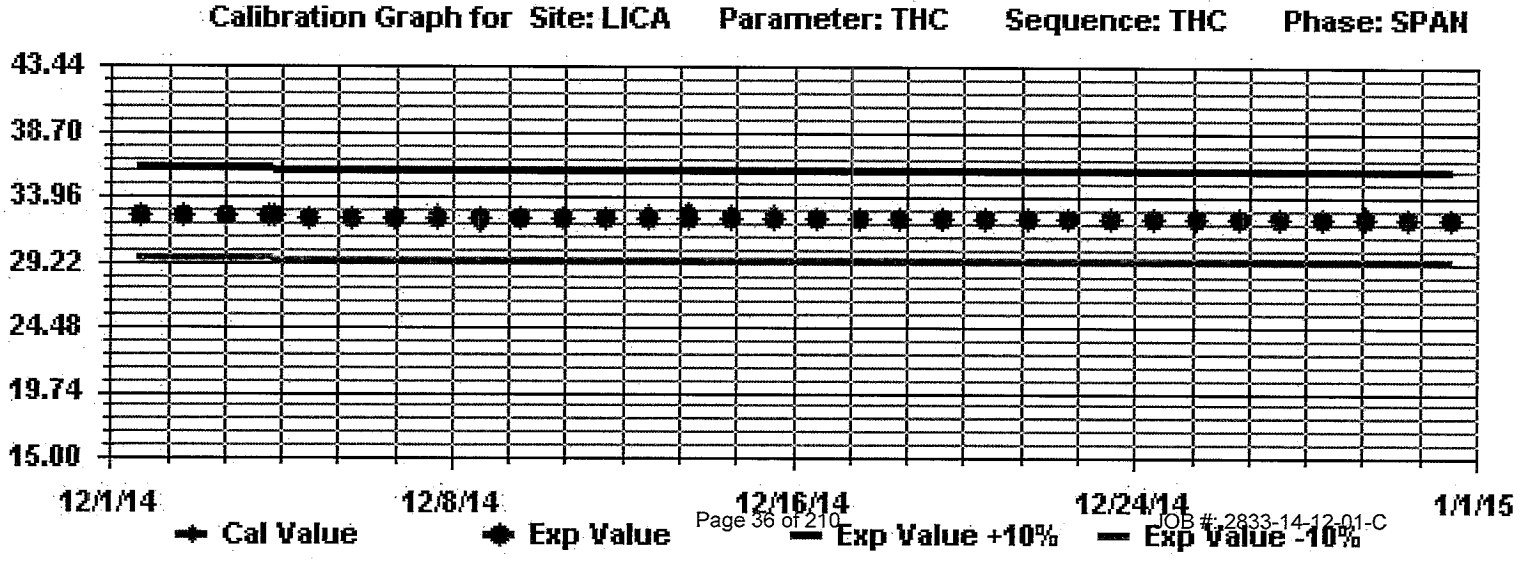
Logger : 01 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN
43.44
38.70
33.96
29.22
24.48
19.74
15.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

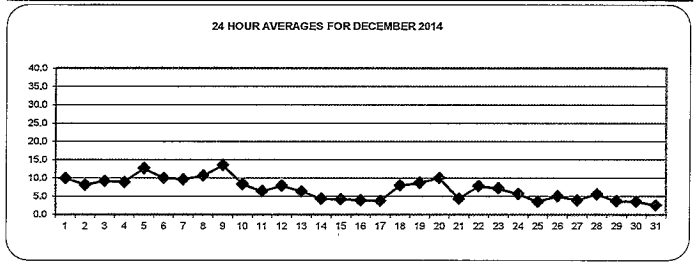
PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

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	5	5	7	6	4	7	4	6	4	10	16	13	16	18	11	13	13	14	14	10	12	11	13	18	10.0	24
2	13	12	13	13	14	18	17	12	11	9	8	4	4	3	6	4	2	2	3	6	5	7	5	5	18	8.2	24
3	4	7	7	6	8	8	6	8	8	7	10	7	10	12	2	12	11	10	10	15	13	11	12	17	17	9.2	24
4	15	13	10	15	15	18	15	14	8	11	6	C	C	C	4	3	0	6	0	2	X	8	9	7	18	9.0	23
5	0	19	13	6	7	5	6	11	14	17	12	11	17	14	17	14	12	13	12	14	15	17	17	21	21	12.7	24
6	17	18	18	12	10	12	9	10	11	9	6	9	11	6	6	8	8	5	6	11	10	11	8	9	18	10.0	24
7	6	9	13	4	6	12	9	11	10	13	9	11	11	16	14	15	12	10	8	6	4	7	10	6	16	9.7	24
8	13	8	13	11	12	5	10	10	14	8	8	7	11	15	11	11	10	11	6	14	14	9	10	14	15	10.6	24
9	9	12	18	12	9	7	11	15	6	7	7	10	8	10	*67*	16	12	12	19	16	10	9	11	12	*67*	*13.5*	24
10	6	10	9	6	10	8	13	15	9	24	10	15	5	0	6	10	8	4	1	8	6	7	4	6	24	8.3	24
11	4	2	3	5	3	6	6	5	2	5	5	4	5	6	9	7	9	6	8	2	9	11	19	13	19	6.4	24
12	11	3	6	7	5	9	1	11	10	10	12	10	7	8	13	4	4	8	10	11	9	9	7	5	13	7.9	24
13	5	7	5	9	6	4	5	2	7	6	4	5	6	9	12	4	2	12	7	4	10	5	12	5	12	6.4	24
14	6	9	8	9	3	3	4	0	5	3	3	3	3	6	3	5	5	5	5	5	1	3	4	3	9	4.3	24
15	1	4	4	4	5	6	5	3	3	2	6	5	7	4	7	8	4	5	1	0	4	4	5	4	8	4.2	24
16	7	5	4	3	3	3	4	1	0	2	4	3	2	5	3	3	7	7	6	6	6	4	6	1	7	4.0	24
17	5	7	7	3	6	4	0	0	3	2	4	3	3	2	4	6	3	0	3	1	6	7	4	8	8	3.8	24
18	5	6	4	4	3	6	7	3	7	6	5	7	8	7	8	12	9	7	8	16	11	9	15	19	19	8.0	24
19	6	10	15	10	12	16	12	11	10	7	7	10	7	9	6	7	9	5	5	1	8	7	10	9	16	8.7	24
20	6	7	13	11	12	12	9	8	7	11	8	8	9	11	10	8	13	12	15	10	14	11	8	8	15	10.0	24
21	9	4	2	11	5	1	2	0	0	7	3	3	3	4	5	4	0	4	7	7	2	6	8	8	11	4.4	24
22	9	8	3	7	3	6	3	7	9	9	6	8	10	9	11	13	12	12	12	7	8	5	5	6	13	7.8	24
23	6	9	10	7	6	9	11	R	8	9	6	3	3	C	4	3	6	10	9	8	8	8	8	7	11	7.2	23
24	6	6	7	1	6	8	7	7	8	11	8	13	10	3	6	4	11	5	0	1	1	3	0	3	13	5.6	24
25	3	5	2	4	1	2	0	6	3	3	6	4	4	3	4	7	5	0	4	5	3	4	6	2	7	3.6	24
26	5	2	1	6	3	4	3	3	4	8	8	8	6	5	7	1	7	5	0	9	7	7	5	7	9	5.0	24
27	1	2	1	7	2	2	3	3	3	5	5	3	4	5	3	5	6	6	4	6	7	4	5	3	7	4.0	24
28	3	3	4	6	4	4	4	4	4	4	5	9	4	5	5	5	7	9	5	9	8	10	7	5	10	5.5	24
29	3	4	4	1	7	4	4	5	4	6	4	3	3	5	2	5	3	2	0	2	4	3	8	8	3.7	24	
30	4	4	2	4	5	7	7	5	3	5	6	1	X	7	4	3	3	1	1	4	0	1	2	3	7	3.6	23
31	0	2	6	3	1	3	3	0	1	1	4	1	8	5	0	4	2	3	3	1	6	2	0	3	8	2.6	24
HOURLY MAX	17	19	18	15	15	18	17	15	14	24	12	16	17	16	67	16	13	13	19	16	15	17	19	21			
HOURLY AVG	6.3	7.2	7.4	6.9	6.4	7.0	6.5	6.5	6.4	7.5	6.6	6.8	7.0	7.2	9.0	7.1	7.0	6.8	6.3	7.1	7.2	7.2	7.6	7.7			

STATUS FLAG CODES

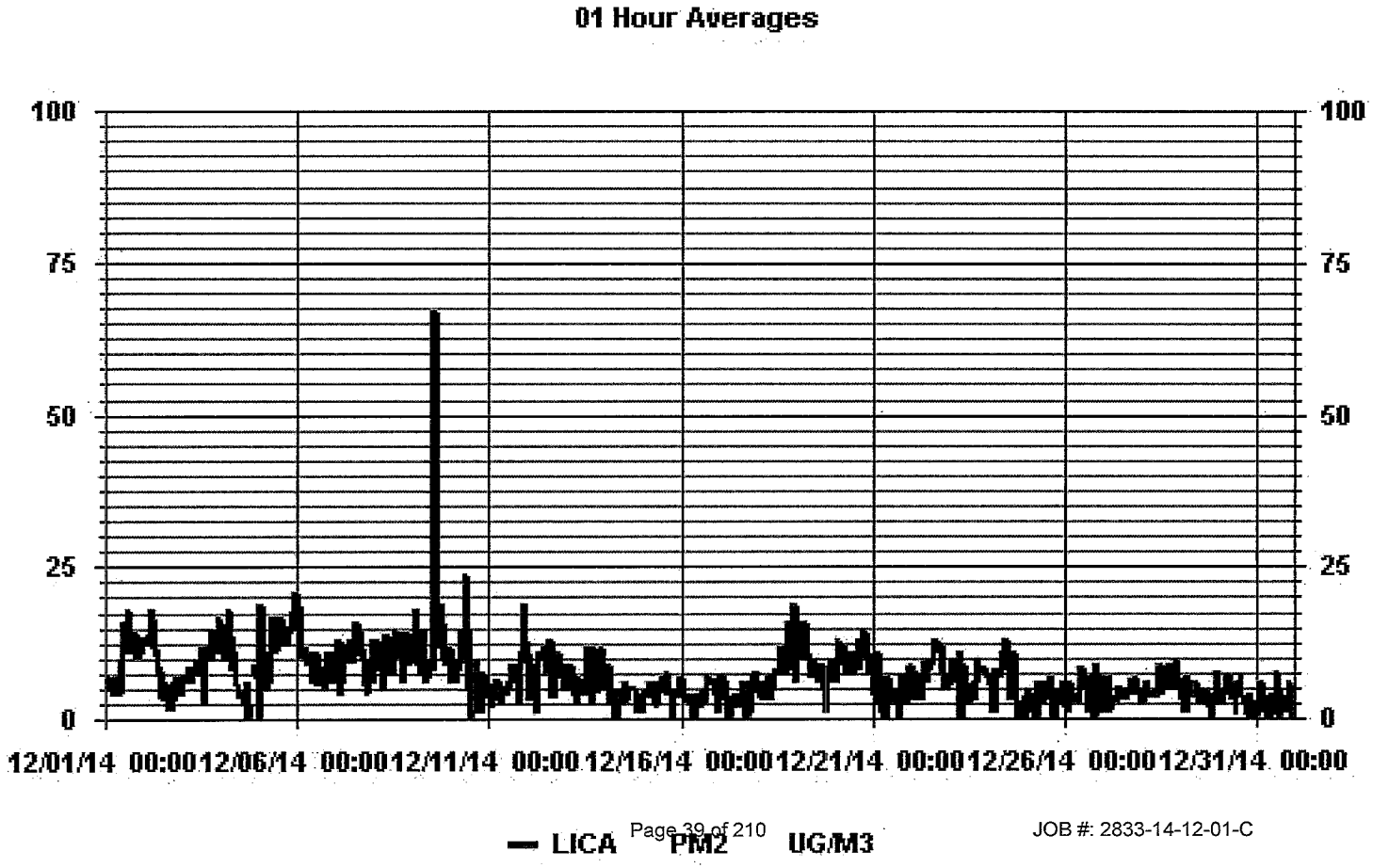
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	713					
MAXIMUM 1-HR AVERAGE:	67	ug/m3	@ HOUR(S)	14	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	13.5	ug/m3			ON DAY(S)	9
					VAR-VARIOUS	
			OPERATIONAL TIME:		741	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.6	%
STANDARD DEVIATION:	4.71		MONTHLY AVERAGE:		7.02	ug/m3



JOB #: 2833-14-12-01-C

LICA
PM2 / WD Joint Frequency Distribution (Percent)

December 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	3.69	1.69	1.23	3.08	8.47	3.69	12.32	10.16	3.08	2.92	5.23	16.02	15.71	5.39	4.46	2.61	99.84
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	80	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.69	1.69	1.23	3.08	8.62	3.69	12.32	10.16	3.08	2.92	5.23	16.02	15.71	5.39	4.46	2.61	

Calm : .00 %

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
<	30	24	11	8	20	55	24	80	66	20	19	34	104	102	35	29	17	648
<	60																	
<	80					1												1
<	120																	
<	240																	
>=	240																	
	Totals	24	11	8	20	56	24	80	66	20	19	34	104	102	35	29	17	

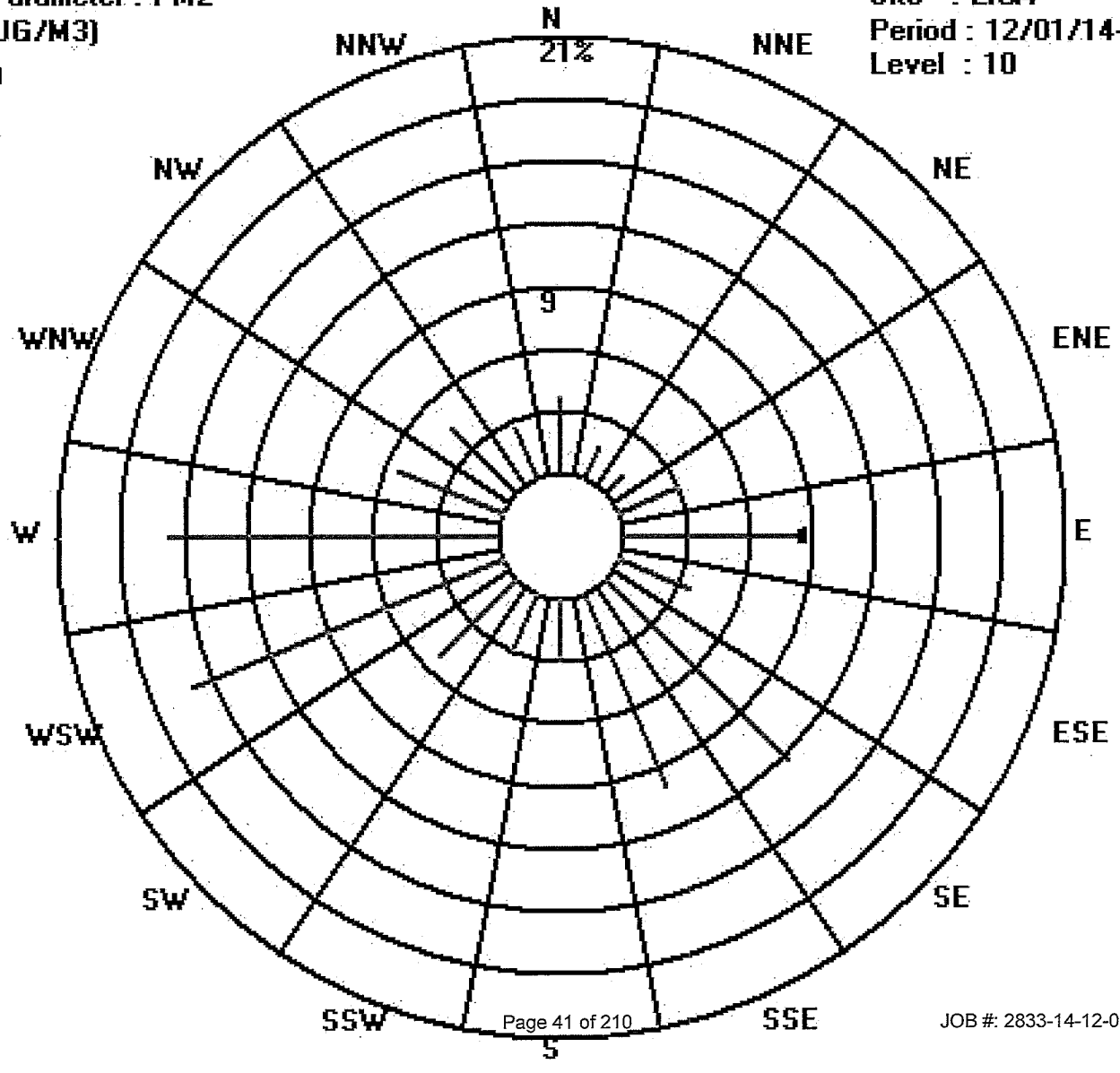
Calm : .00 %

Total # Operational Hours : 649

Logger : 01 Parameter : PM2
Class Limits (UG/M3)

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

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C

Nitrogen Dioxide

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

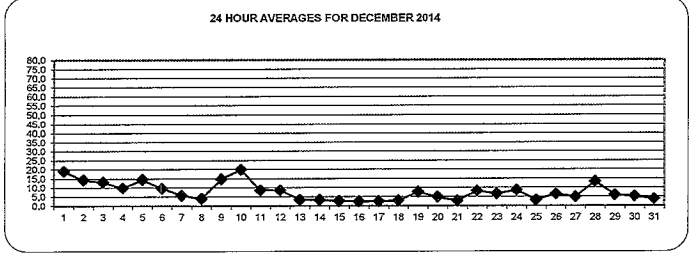
MST

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	5.5	5	10.8	18.1	17.8	16.9	20.8	21	18.4	17.8	19.6	15.6	11.8	13.9	25.8	S	***30.5***	28.2	28.6	24.4	24.5	25.1	25.5	***30.5***	18.8	24
2	21.3	18.7	18.3	18.5	18.5	25.3	25.7	22.7	21.4	15.3	7.7	5.6	3.8	1.4	1.4	S	7.3	8.8	14.4	11.6	14.6	17	13.2	11.1	25.7	14.1	24
3	7.9	11	14	21.3	23.8	12	10.2	8.2	15	10.2	5.7	5.2	7.4	7.9	S	14	15.5	17.8	16	19.2	13.9	12.1	15.5	15.6	23.8	13.0	24
4	15.4	13.6	12.5	11.4	11.8	12	13.6	14.7	17.1	C	C	C	C	C	C	8.6	2.6	2.7	4	5.4	5	6.9	7.6	10	17.1	9.7	24
5	9.8	7.8	6.6	8.4	12	9.3	8.5	8.5	11.8	13.9	10.1	9.1	S	9.2	10.4	14.3	25.6	26.4	19.3	19.4	21.3	22.7	20.7	22.9	26.4	14.3	24
6	21.6	24.6	21.6	20.4	20.1	13.1	11.1	8.1	8.1	6.4	6.6	S	5.4	5.8	5.1	4.9	5.1	4.3	4.3	4.8	5	4.8	3.7	3.3	24.6	9.5	24
7	3.6	2.5	2.2	3.5	3.5	3.5	5.9	11.5	8.8	6.8	S	6.5	6.1	6.4	7.2	5.7	6.7	7.4	4.6	4.2	5.4	5.7	5.5	4.1	11.5	5.5	24
8	3.2	3.3	3.5	4	5	4.3	3.7	4.2	4.2	S	3.6	3.4	4.1	3.9	3.3	3.8	4.3	3.5	3.1	3.2	3	3.4	3.3	5.5	5.5	3.8	24
9	8.3	7.5	14.2	16	14.9	7	12.4	10.7	S	7.9	6.2	7.4	6.5	6.8	11.1	19.5	22.2	24.3	25.8	23.9	18.8	25.8	20.8	16.3	25.8	14.5	24
10	17.1	14.4	14.2	12.7	17.7	17.9	25.3	S	22.8	27.9	27	28.9	16.5	9.9	23.5	24.7	25.6	13.4	9.7	21.1	26.3	19.9	18.2	20	28.9	***19.8***	24
11	3.6	2.4	2	2.6	2	2.2	S	4.7	4.3	4.3	3.8	5.1	5.9	6.3	9.5	9.3	8.9	7.1	6.9	12.7	25.3	19.9	27.7	16.8	27.7	8.4	24
12	4.9	3.8	4.4	5	3.6	S	13.2	8.4	5.4	4.6	6.1	6.8	7.9	10.2	11.2	17.7	20.1	18.9	16.1	9.6	4.6	5.1	3.9	2.8	20.1	8.4	24
13	2.4	2.3	2.5	2.5	S	2.8	2.6	2.2	2.2	3	4.5	4.7	4.2	5.2	3.9	3.7	5	4	2	2.7	2.3	2.6	3.4	2.6	5.2	3.2	24
14	3.7	4.9	5.2	S	3.3	3.3	1.7	3.1	4.6	3.7	1.9	1.4	1.7	1.9	2.9	3.9	3.7	2.9	4	5.6	3.1	1.3	1.9	1.4	5.6	3.1	24
15	1.6	2.3	S	3.4	2.6	2.8	2.7	2.5	1.8	2.1	1.6	2.1	1.7	2	3.4	3.9	3.2	3.2	2.6	2.6	2.2	2.4	2.5	2.6	3.9	2.5	24
16	2.5	S	2.8	1.9	1.5	2	2.8	2.6	2.5	1.7	2	1.8	2.6	2.1	2.7	2.8	2.4	2.3	2.4	2.2	1.9	1.7	2.1	2.1	2.8	2.2	24
17	S	2.2	1.9	1.6	1.6	1.5	1.8	2.6	2.3	1.9	2	1.8	2.4	2	2.3	3.3	3.3	2.4	3.1	3	4	2.4	2.2	S	4	2.3	24
18	1.6	1.5	2	2.2	2.2	1.9	1.9	2.2	1.9	1.9	2.5	2.8	2.5	2.8	3.4	3	3.2	3.8	3.5	3.7	3.4	3	S	3.6	3.8	2.6	24
19	3.2	3.9	4.4	6.7	5.9	8.6	7.2	7	12.2	7.9	8.1	6.9	6.2	7	9.6	15.3	14.7	11.1	7.8	6.4	3.2	S	4.8	3.6	15.3	7.5	24
20	2.4	2.3	2.5	2	2.1	2.8	3.4	3	3.4	4.9	5.3	6.2	5.9	7.5	7.3	6.7	8	6.1	5.9	6.1	S	4.8	4.4	3.7	8	4.6	24
21	3.2	2.7	3.1	3.5	3.1	4.1	2.7	2.7	2.9	2.4	2.3	2.6	2.6	2.1	2.5	2.8	2.1	1.3	0.7	S	2.4	2.2	2.4	2.6	4.1	2.6	24
22	6	6.1	4.3	4.4	4.2	3.7	10.3	17.2	18	14.4	12.5	10.5	7.4	6.4	7	7.8	8.7	7.8	S	5.9	5.6	5.4	6.6	4.1	18	8.0	24
23	3.3	4	4.9	5.2	5	4.2	4	4.6	4.4	5.3	5.2	6.1	8.8	8.6	10.2	11.4	7.6	S	9.8	7.1	7.6	6.9	6.6	6.1	11.4	6.4	24
24	7.1	7.8	5.2	4.2	7.9	9.8	16.3	18.6	22.3	19.9	17.8	14.3	11	7.4	6.5	4.4	S	3	1.9	1.6	2.1	2	1.4	1.5	22.3	8.4	24
25	2.4	3.3	2.8	2.8	2.3	1.6	2	2.5	3.3	2.6	2.1	3.3	3.5	3.4	4.1	S	5.2	4	2.6	3	3.3	3.1	3.7	3	5.2	3.0	24
26	3.6	4.4	2.6	2.9	6.9	5	3.7	4.8	6.6	6.2	6.5	5.9	5.8	6.2	S	6.1	6.8	7.4	6.2	7.3	8.5	9.5	14.6	8.2	14.6	6.3	24
27	6	5.1	4.7	5.1	3.8	3.1	3.5	3.6	3.9	3.5	3.1	2.9	3.1	S	2.9	2.6	3	6.1	6.5	8	7.2	6.6	6.5	7	8	4.7	24
28	7.5	8.7	6.4	6.9	6.1	9.3	8.6	9.2	11.7	8	10	12.5	S	6.7	7.5	11.1	17.4	20.1	22.3	23.4	24.3	23.3	25.7	17	25.7	13.2	24
29	4.6	5.9	6.7	9.9	10.4	8.4	7.5	5.6	5.8	7.3	7.3	S	4.2	2.9	2.6	2.4	2.5	3.5	4.2	5.6	8.7	5.9	5.9	3.6	10.4	5.7	24
30	3.1	2.4	2.2	2.3	4.7	7.7	7.3	6.9	7.3	6.7	S	5.5	3.7	4.5	6.6	8.8	10.2	6.4	4.4	3.2	3	2.5	2.2	2.4	10.2	5.0	24
31	2.2	2.8	2.2	3.8	6.4	6.4	7.3	5.5	3.4	S	5	3.5	2.5	2.4	2.8	3.3	3	2.7	2.1	3.3	2.6	2.9	4.7	2.5	7.3	3.6	24
HOURLY MAX	22	25	22	21	24	25	26	23	23	28	27	29	17	12	24	26	26	31	28	29	26	26	28	26			
HOURLY AVG	6.3	6.3	6.2	6.9	7.7	7.1	8.1	7.6	8.7	7.8	6.9	6.9	5.7	5.5	6.6	8.7	8.8	8.8	8.1	8.8	8.8	8.5	8.9	7.7			

STATUS FLAG CODES

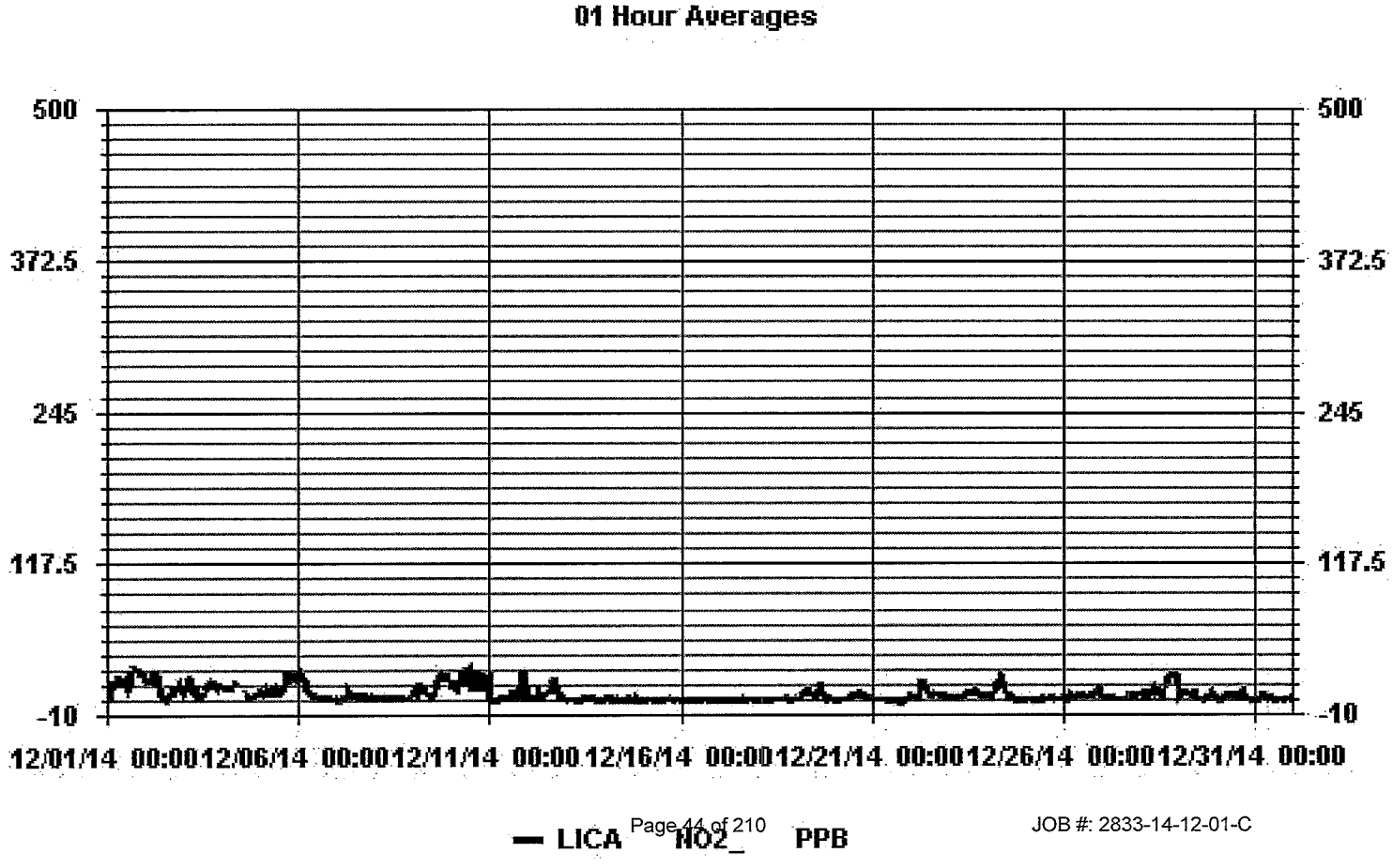
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	30.5	PPB	@ HOUR(S)	17	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	19.8	PPB			ON DAY(S)	10
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	6.43		MONTHLY AVERAGE:		7.57	PPB



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

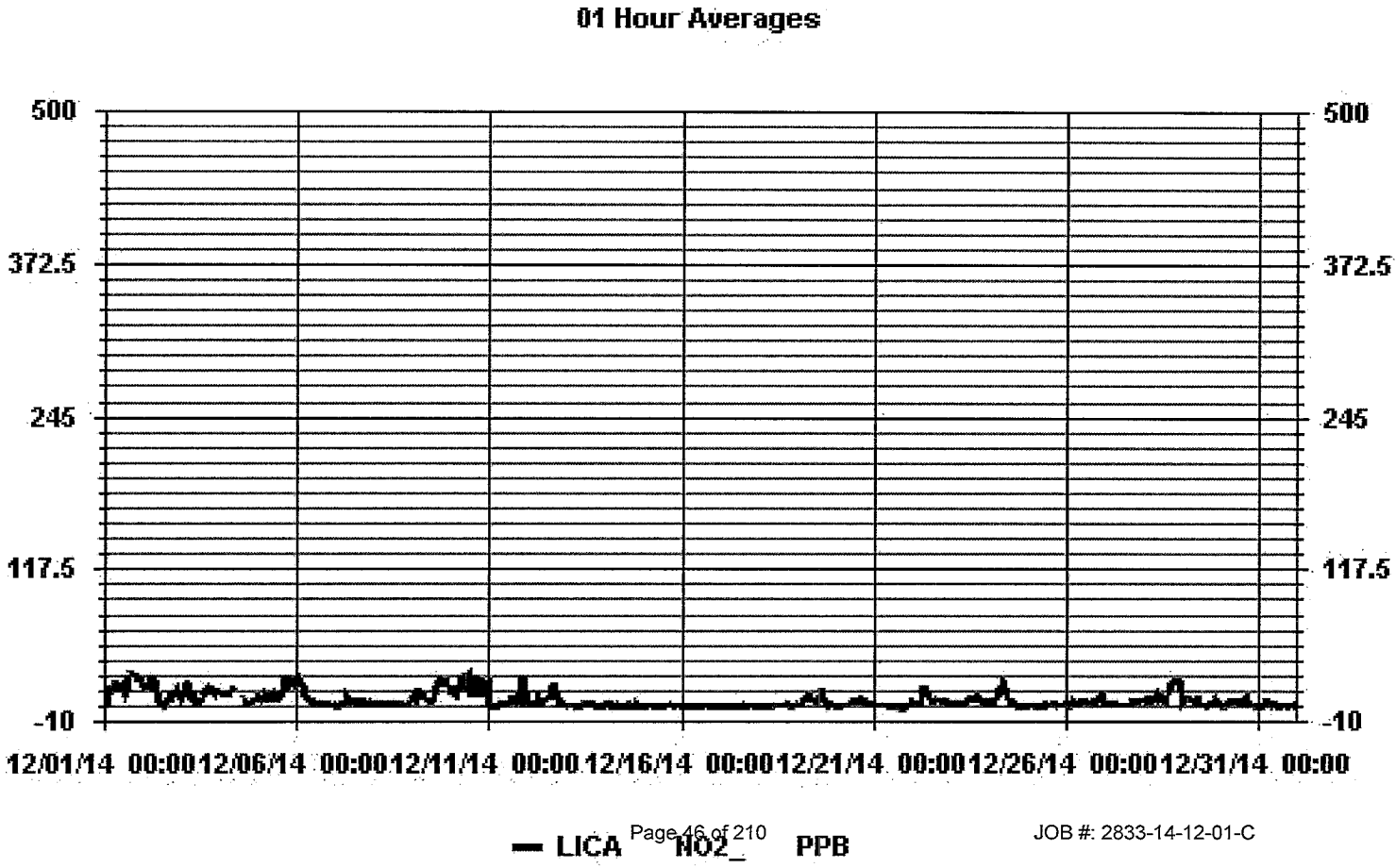
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.5	7	6	17.5	22.5	20.5	19.5	25	26.5	22	23.5	26	20.5	17.5	20.5	31	S	37.6	32.1	31.1	30.6	31.6	28.1	28.6	37.6	23.2	24
2	25.1	23.6	21.1	20.6	22.6	28.6	28.6	25.6	24.7	18.2	11.2	7.6	5.7	2.1	2.6	S	9.5	12.5	18.1	16	18.6	21.5	21	17.5	28.6	17.5	24
3	10.5	15	19.5	25.5	26.5	25	14.5	12.5	28	18	8.5	10	10.5	10	S	18.1	17.6	24.1	17.6	22.1	20.5	15	18.6	16.5	28	17.6	24
4	16	15	13.5	13	17	14	16	47.5	23.5	C	C	C	C	C	C	C	3.9	4.3	8.8	9.3	5.8	8.3	8.8	11.8	47.5	13.9	24
5	12.3	10.8	9.8	15.8	22.8	11.8	14.8	12.8	22.8	15.3	13.3	20.3	S	16.8	13.3	27.3	44.8	***98.3***	31.8	23.8	25.3	26.3	26.8	24.8	***98.3***	23.6	24
6	26.8	26.8	23.8	22.3	24.3	19.8	16.3	10.8	11.8	10.3	8.8	S	7.3	10.3	6.8	6.3	6.3	5.8	4.8	10.8	7.3	5.8	4.3	4.3	26.8	12.3	24
7	4.8	3.8	5.8	6.3	4.8	4.8	8.8	12.8	11.3	7.8	S	7.5	10	7.5	8.5	7.5	7	8.5	6	5	6.5	7.5	7.5	5	12.8	7.2	24
8	4	4	4.5	5	7	6.5	5.5	4.5	5.5	S	4	4	5.5	6.5	4	6.5	10.5	10.5	11.5	6.5	3.5	6	5.5	10	11.5	6.1	24
9	13.5	11.5	20.5	20	19.5	13.5	19	15.5	S	11.1	9.1	14.6	12.6	25.1	37.1	24.1	29.1	28.1	38.1	29.1	25.1	32.1	28.6	19.1	38.1	21.6	24
10	19.6	19.1	17.1	17.6	24.1	24.6	31.6	S	41.1	42.6	42.1	34.6	36.6	19.1	33.1	35.6	38.1	32.6	24.7	30.2	38.2	41.7	29.1	35.6	42.6	***30.8***	24
11	10.1	2.7	2.2	5.2	2.7	3.7	S	7.9	8.5	6.5	5	7.9	8.5	9.5	14.4	11.5	11	15.4	8.5	25.4	30.9	25.9	31.9	30	31.9	12.4	24
12	6.5	6.4	6.5	6.4	5	S	19.9	13.4	11.5	6	8	11.5	10	12.4	23.5	31	24	22	19.4	18.9	5.9	7.4	5	3.5	31	12.4	24
13	3.5	3	3	3	S	4.1	4.1	4.1	5.1	6.1	6.1	6.5	5.1	6	5.1	5.6	6.6	6	2.6	3.1	3.6	3.1	4.6	4.6	6.6	4.5	24
14	4.6	6.1	6.1	S	4.6	4.6	2.5	4.6	5.6	6.1	2.6	2.1	2.5	3.1	4.1	5	5	4.6	6.1	8	7	2.1	2.5	3	8	4.5	24
15	4.1	4.5	S	4.5	4.5	4.5	4	3.5	3	8	2.5	23.5	24	4	4	9	4.5	5.5	3	3.5	3	3	3	3	24	5.9	24
16	3	S	3	3	1.5	4	4	3.5	21.5	2	4	2.5	22.5	6.5	10.5	13	3.5	5	3	2.5	2.5	2.5	3	2.5	22.5	5.6	24
17	S	2.5	2.5	2	2	1.5	2	3.5	2.5	4.5	2.5	3.5	11.5	3	2.5	4.5	5	4.5	4.5	4.5	6.5	4	2.5	S	11.5	3.7	24
18	2.5	2.5	3.5	3	3.5	3	3	4	3.5	4.5	4	7	6.5	4	6.5	4.5	10	5	5	5	4	4	S	4.5	10	4.5	24
19	4	4.5	5.5	10	7	10.5	10	9.5	15.5	15	14	10	11.5	9	15	23.5	23.5	15	11.5	12	5	S	5.5	5	23.5	11.0	24
20	2	2.5	8.5	2	2	4.5	4	3.5	4	8.5	7	7	6.5	8.5	8.5	8	9	7	7.5	7	S	6.5	6	5	9	5.9	24
21	4.5	4.5	5	5	4	6	5	4	6	4.5	4	4.5	12.5	4	5	5	6	3	2	S	3.5	3	2.5	4.5	12.5	4.7	24
22	7	7	5.5	5	6.5	4.5	16	20	20	17.5	15.5	11.5	9.5	8	8	10.5	12	9	S	8	8	8	8.5	5.5	20	10.0	24
23	4.5	6.5	7	6.5	6	4.5	5	P	6	8	7	10	12	11	11.5	15	9.5	S	12.2	9.2	9.2	7.2	7.2	8.2	15	8.3	23
24	12.2	12.2	8.2	6.2	10.2	13.7	18.2	21.2	23.7	21.7	19.7	15.7	14.7	8.2	8.2	5.2	S	3.5	2.5	2	2.5	3	2	2	23.7	10.3	24
25	3.5	4	4	4	3.5	2.5	2.5	5	5.5	6	4	5.5	5	6	5.5	S	7.5	6	5.5	5.5	11.5	5	6.5	4	11.5	5.1	24
26	4.5	7	4	4	8.5	7.5	4	6	7.5	7.5	8	6.5	7	7	S	8	23	9	6.5	10.5	10	13.5	17	12	23	8.6	24
27	8.5	6.5	6	6.5	5	4	5.5	5.5	8	8	5	5	4.5	S	6	4	4.5	10	9	11.5	10	9	9	9.5	11.5	7.0	24
28	13.5	17	10.5	10	11.5	12	11.5	11	15	9.5	12.5	16	S	9.4	9.9	17.9	18.4	22.4	23.4	23.9	25.9	25.9	26.9	25.9	26.9	16.5	24
29	5.4	6.4	7.9	10.9	12.4	9.9	10.9	7.9	6.9	8.4	8.4	S	7	4.5	5	3	4	17.5	6.5	6	13.5	8	7	6	17.5	8.0	24
30	4.5	3	3	5.5	8	9	9	10	9	8.5	S	6.5	6	5	8.5	10.5	11.5	11	6.5	5	4.5	4	3	5	11.5	6.8	24
31	4	4	3.5	8.5	9.5	10	10	7	4	S	6.5	6.5	3	3	5	5	3.5	3.5	3.5	4	3.5	3.5	5.5	5	10	5.3	24
HOURLY MAX	27	27	24	26	27	29	32	48	41	43	42	35	37	25	37	36	45	98	38	31	38	42	32	36			
HOURLY AVG	8.5	8.3	8.2	9.2	10.3	9.8	10.9	11.1	12.9	11.1	9.5	10.5	10.7	8.5	10.5	12.7	12.7	14.9	11.4	12.0	11.7	11.5	11.2	10.7			

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:	705					
MAXIMUM INSTANTANEOUS VALUE:	98.3	PPB	@ HOUR(S)	17	ON DAY(S)	5
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	9.15					



JOB #: 2833-14-12-01-C

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

December 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	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	

Calm : .00 %

Total # Operational Hours : 618

Distribution By Samples

Direction

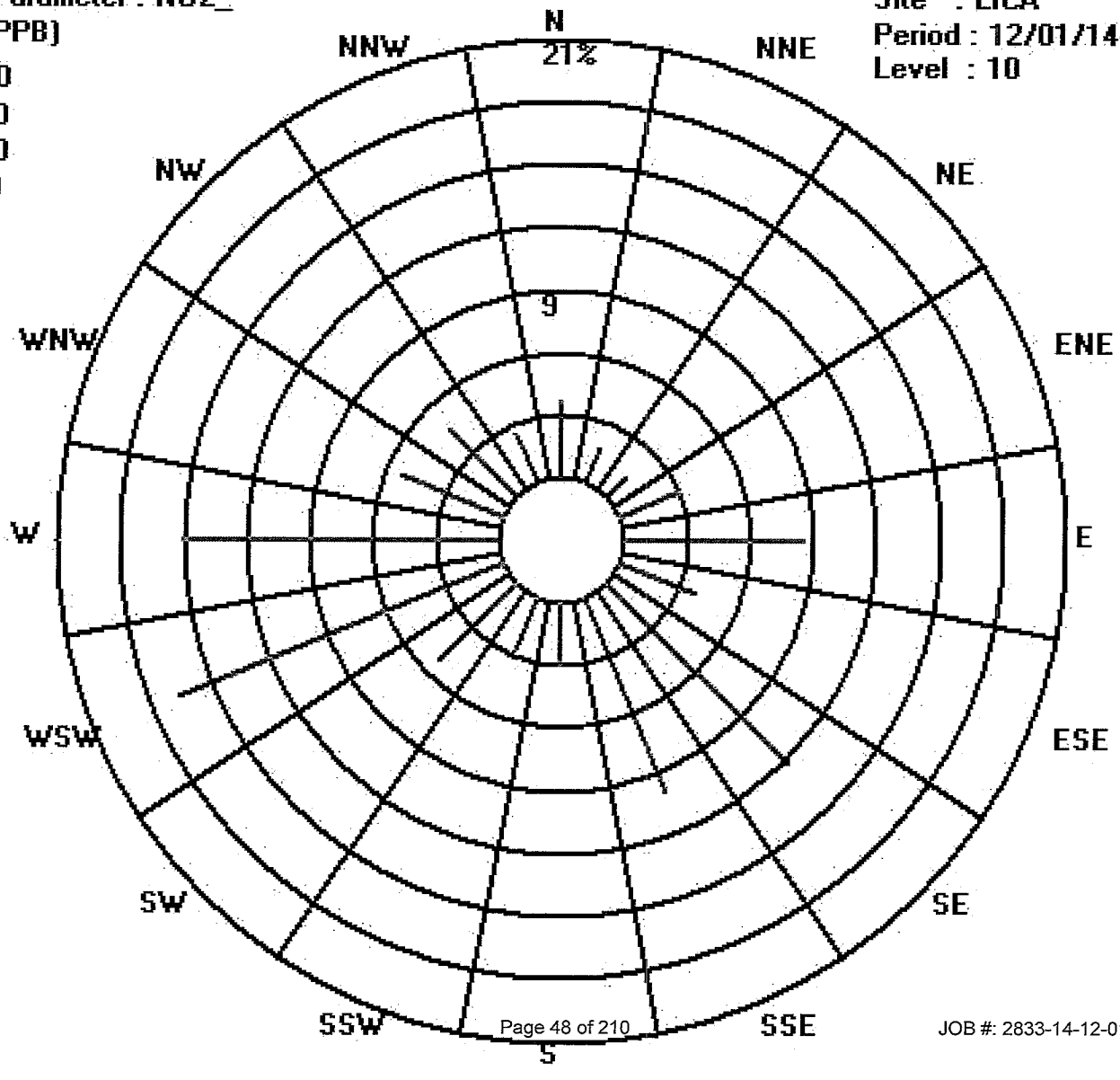
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	23	11	8	19	53	24	76	63	19	17	32	103	93	33	28	16	618
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	93	33	28	16	

Calm : .00 %

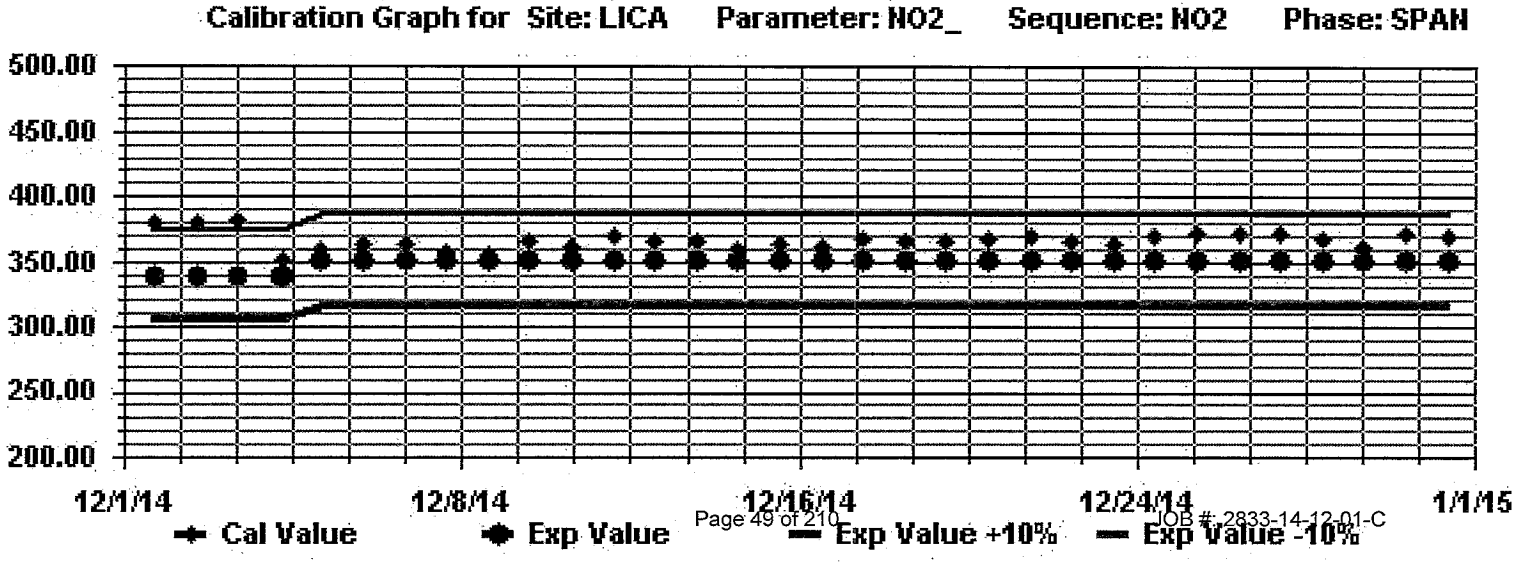
Total # Operational Hours : 618

Logger : 01 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

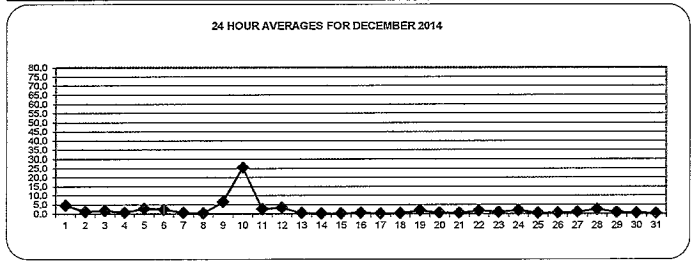
MST

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	0.5	0.3	0.2	0.6	0.7	1	1	1.6	5.1	12.3	12.6	16.6	11.1	5.1	4.1	5.4	S	3.9	2.4	5.4	3.5	3.3	2.3	4.7	16.6	4.5	24
2	0.8	0.6	0.7	0.8	0.9	1.4	1.4	1.4	2.3	3.6	2.1	2.1	1.3	0.5	0.3	S	0.7	0.6	0.7	0.6	0.5	1.4	1.3	1.2	3.6	1.2	24
3	0.2	0.4	0.8	4	9.1	2.9	0.9	0.6	2.3	2.3	1.5	1.9	3.1	2.4	S	1.6	0.6	1.1	0.5	0.7	0.6	0.6	0.6	0.6	9.1	1.7	24
4	0.6	0.7	0.5	0.5	0.9	0.9	0.8	4.2	1.8	C	C	C	C	C	C	0.5	0.1	0.2	0.3	0.3	0.1	0.5	0.2	0.2	4.2	0.7	24
5	0.4	0.1	0.1	0.4	1.8	0.7	0.6	0.9	1.6	2.6	3.5	4.3	S	3.4	2.3	2.1	6.7	7.1	6.3	1.4	3.5	6.9	3.3	2.9	7.1	2.7	24
6	7.2	12	9	5.4	3.2	0.9	1	0.8	1.7	1.7	2.4	S	2	1.8	1.2	0.7	0.6	0.4	0.3	0.5	0.5	0.3	0.1	0.1	12	2.3	24
7	0.1	0	0	0.1	0.1	0.3	0.3	0.4	0.6	1.1	S	1.8	2	1.7	1.3	0.3	0	0	0	0.1	0.3	0.3	0.3	0.2	2	0.5	24
8	0.2	0.1	0.1	0.1	0.2	0	0.1	0.1	0.4	S	0.5	0.7	1	1	0.4	0.3	0.1	0.2	0.3	0.1	0.1	0.3	0.1	0.2	1	0.3	24
9	0.7	0.6	1	1.5	0.9	0.3	1.2	0.5	S	1.9	2.6	4.2	3.1	2.7	4.6	5.3	5.9	11.4	13.9	18	12.4	26.7	17.7	11.6	26.7	6.5	24
10	4.8	0.7	0.7	0.9	8.2	16	51.1	S	59.2	***104.6***	76.8	61	15.5	3.5	14.2	30.2	32.1	3.7	1.4	8.3	29.4	20.4	22.6	19	***104.6***	***25.4***	24
11	1.5	0	0	0	0	0.1	S	0.2	0.5	0.6	0.9	1.6	2.1	1.7	1.7	0.7	0.2	0.4	0.1	0.7	5.3	6.3	27.4	5.4	27.4	2.5	24
12	0.3	0.2	0.6	0.5	0.5	S	1.2	0.9	1	0.6	2	3.1	3.6	4.6	3.6	8.8	8.5	17.9	13.7	3.5	0.1	0.5	0.1	0	17.9	3.3	24
13	0.1	0	0	0.1	S	0.3	0.4	0.5	0.5	0.8	1.4	1.2	1.2	1.6	0.7	0.4	0.1	0.2	0	0	0	0	0	0	1.6	0.4	24
14	0	0	0	S	0	0	0	0	0.1	0.4	0.2	0.3	0.4	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0	0	0	0	0.5	0.1	24
15	0	0	S	0	0	0	0.1	0	0	0	0	0.4	0.8	0.1	0.3	0.3	0.1	0	0	0	0	0	0	0	0.8	0.1	24
16	0	S	0	0	0	0	0.2	0	2.2	0.1	0.3	0.2	4.1	0.9	2	1.1	0	0.1	0	0	0	0	0	0	4.1	0.5	24
17	S	0	0	0	0	0	0	0	0	0.4	0	0.1	0.3	0.3	0	0.1	0	0.1	0	0	0	0	0	S	0.4	0.1	24
18	0	0	0	0	0	0.1	0	0.3	0.1	0.1	0.3	1.2	0.5	0.4	0.4	0.2	1.3	0	0.2	0.1	0	0	S	0.2	1.3	0.2	24
19	0.1	0	0.1	0.1	0.1	0.2	0.2	0.3	2.4	2.4	5	4.5	4.4	3.8	3.4	6.4	2.9	1.8	0.7	0.6	0.3	S	0.3	0.7	6.4	1.8	24
20	0	0.1	0.2	0	0	0	0	0	0	1.1	1	2.1	2.3	2.4	1.7	0.4	0.2	0.2	0.5	0.2	S	0.2	0.2	0.2	2.4	0.6	24
21	0.3	0.2	0.3	0.2	0.4	0.5	0.3	0.4	0.7	0.6	0.6	0.7	1	0.6	0.7	0.4	0.3	0	0	S	0.1	0	0	0.1	1	0.4	24
22	0.2	0.3	0.4	0.3	0.6	0.5	0.9	1.7	3	5	7	6.4	3.3	2.3	1.8	1.4	0.8	0.4	S	0.4	0.5	0.3	0.3	0.3	7	1.7	24
23	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.4	0.4	0.9	1.4	2.4	4.1	3.2	1.9	1.4	0.6	S	0.6	0.2	0.3	0.2	0.1	0.2	4.1	0.9	24
24	0.3	0.1	0.5	0.1	0.5	0.1	0.9	0.9	3.8	9.1	9.8	9.1	4	1.1	1	0.5	S	0	0	0	0.1	0	0.1	0.1	9.8	1.8	24
25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.4	1.5	1.4	1.2	0.8	S	0.9	0.2	0.8	0.1	0.7	0.1	0.1	0.1	1.5	0.4	24
26	0.1	0.1	0.1	0.1	0	0	0.1	0.2	0.2	0.7	1.6	1.5	1.7	1.8	S	0.6	1.7	0.1	0	0.1	0.7	0.3	1.4	0.6	1.8	0.6	24
27	0.7	0.6	0.6	0.8	0.8	0.6	0.7	0.6	0.6	0.9	1	1.1	1.2	S	1	0.8	0.7	1.3	1.1	1.3	1.1	1.1	1.2	1.3	1.3	0.9	24
28	1	0.4	0.2	0.2	0.2	0.3	0.3	0.2	1	3.4	9.5	14.8	S	4.1	3.1	2.1	1.4	0.7	1	1	1.5	1.4	5.9	3.2	14.8	2.5	24
29	0	0	0.5	0.6	0.6	0.5	0.9	0.4	0.7	1.8	2.9	S	2.7	1.2	1	0.5	0.2	1	0.4	0.5	0.5	0.5	0.4	0.7	2.9	0.8	24
30	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.8	S	1.8	1.2	1	1.6	1.3	0.9	0.7	0.7	0.2	0.3	0.1	0.1	0.3	1.8	0.5	24
31	0.3	0.4	0.2	0.2	0.3	0.3	0.6	0.5	0.1	S	0.8	0.8	0.5	0.5	0.5	0.3	0.2	0.2	0.2	0	0	0	0	0.2	0.8	0.3	24
HOURLY MAX	7	12	9	5	9	16	51	4	59	105	77	61	16	5	14	30	32	18	14	18	29	27	27	19			
HOURLY AVG	0.7	0.6	0.6	0.6	1.0	0.9	2.2	0.6	3.1	5.7	5.3	5.3	2.9	1.9	2.0	2.6	2.3	1.8	1.5	1.5	2.1	2.4	2.9	1.8			

STATUS FLAG CODES

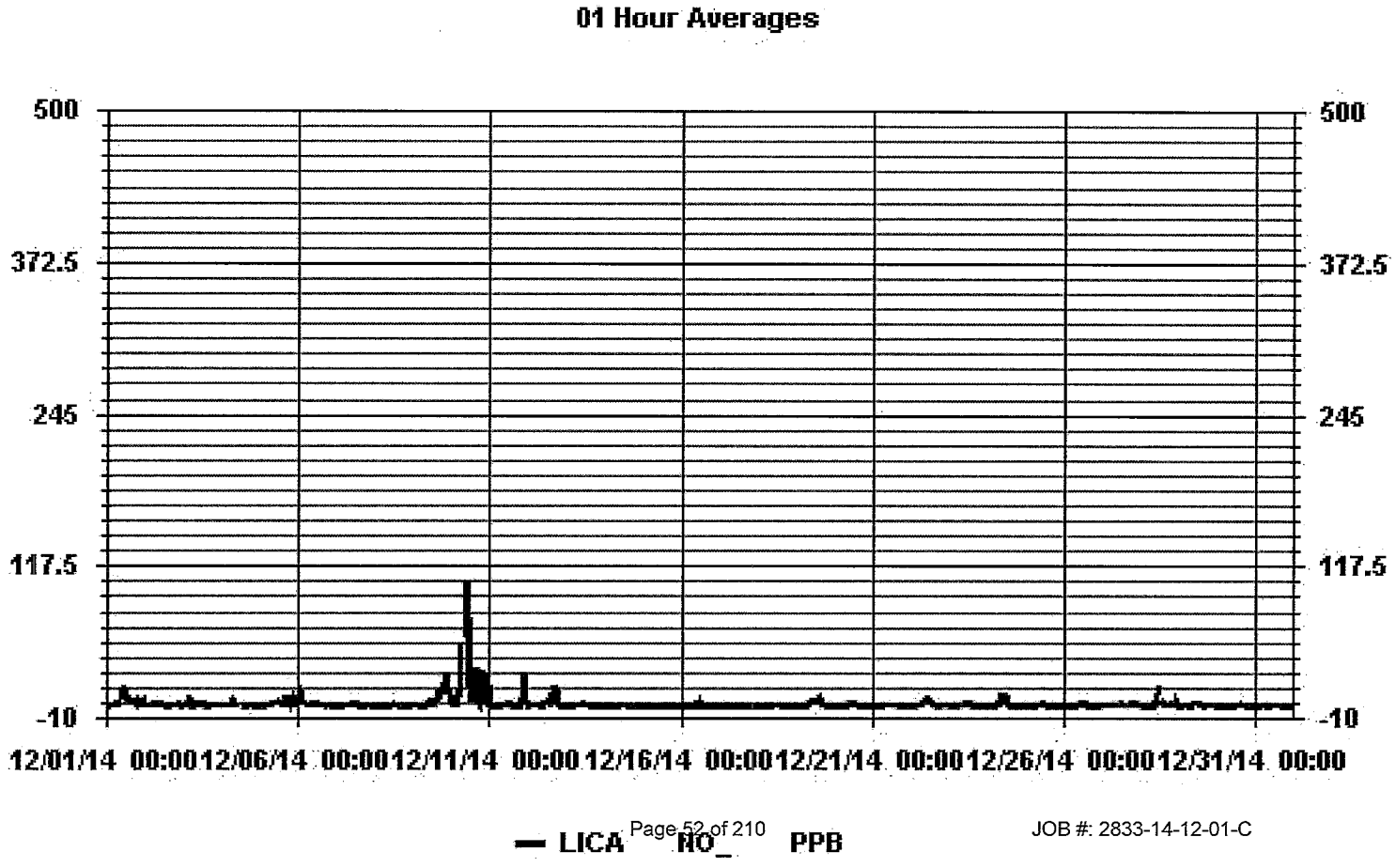
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA						
NUMBER OF NON-ZERO READINGS:	598						
MAXIMUM 1-HR AVERAGE:	104.6	PPB	@ HOUR(S)	9	ON DAY(S)		10
MAXIMUM 24-HR AVERAGE:	25.4	PPB			ON DAY(S)		10
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	7.04		MONTHLY AVERAGE:			2.15	PPB



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

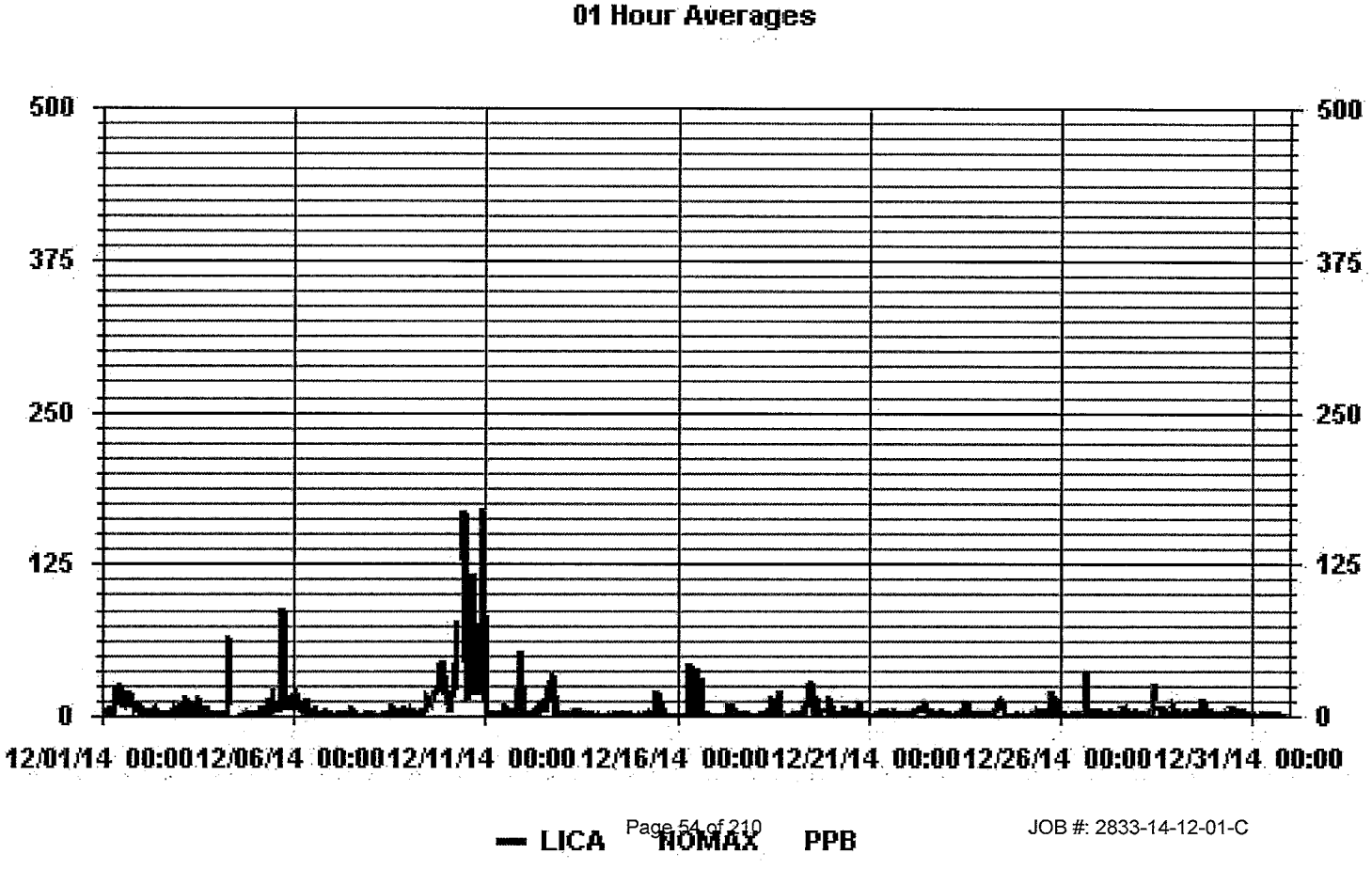
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.5	1.5	1.5	4.5	1.5	3.5	3.5	7	8.5	24.5	22	26.5	21	7	10	8.5	S	17.9	6.9	13.4	7.4	9.4	5.9	9.4	26.5	9.7	24
2	1.9	3.9	2.4	5.4	4.9	3.4	3.9	3.5	4.5	6.5	3	3	2	3	0.9	S	3	2.5	2	2	1.4	7.4	5.4	6.9	7.4	3.6	24
3	0.5	0.9	3.9	9.9	13.9	12.9	2.4	3.9	10.9	5.4	2.9	7.4	15.9	5	S	3.5	2.4	7.4	2.5	2.5	2.5	2	2	3	15.9	5.4	24
4	1.5	2	1.5	1	3	4	3.5	65.4	12	C	C	C	C	C	C	C	0.5	1.4	3.4	1.4	2.4	2.9	1.9	1.4	65.4	6.4	24
5	2.4	2.9	1.9	2.4	7.9	1.9	4.9	4.4	14.4	5.4	4.9	19.4	S	8.5	3.5	11	31.5	89.1	69.5	5	12	15	9	8.5	89.1	14.6	24
6	17	19.5	16.5	11.5	8	6	3.5	2.5	14.5	8	4	S	3.9	5.4	2.9	1.9	1.9	0.9	1.4	2.9	3.9	0.9	0.9	1.4	19.5	6.1	24
7	0.9	0	0.4	1.4	2.9	1.9	1.4	2.9	1.9	2.4	S	2.5	6.6	2.5	2.5	0.5	0.5	0	0	1	2	1.5	1	1	6.6	1.6	24
8	1	1	0.5	0.5	1	0.5	1.5	0.5	2	S	1.5	1.5	3	10	1	2	1	2	3.5	1	1	7	1	1.5	10	2.0	24
9	5	2	3	4.5	4.5	1.5	3	4	S	4	6	15	13	11	14.5	14.5	19	20	24	43.5	31	44.6	35.5	20	44.6	14.9	24
10	11.5	6	3	14.5	20.5	44	75	S	129.9	149.4	169.5	80.4	45.5	13.4	36.5	74	116.5	55.5	16.5	51.9	76.5	55	*172*	84	*172*	*65.3*	24
11	15.4	0	0.5	0.5	0.5	0.9	S	2.1	2.6	1.6	2.1	4.1	9.1	3.6	4.1	1.1	1.6	6	1.1	4.6	10.1	22.1	52.6	26.1	52.6	7.5	24
12	1.6	2.1	2.1	2.1	2.1	S	4.5	4	7.5	2	3.5	12.9	6	5.5	13.5	24.5	16	28	35.5	18	1	3	0.9	0.5	35.5	8.6	24
13	1	1	0.5	0.5	S	1	1.5	2	4	4	4.5	2.5	2	2.5	1.5	1.5	1.5	2.5	0.5	0.5	0.5	0	0.5	0.5	4.5	1.6	24
14	0	1.5	0.5	S	0	0.5	0.5	0.9	0.5	0.9	1.5	0.9	0.9	0.9	0.9	0.9	0.9	2.5	1.4	1.4	0.9	0.5	0.5	0.9	2.5	0.9	24
15	0.9	0.4	S	1.4	0.9	0.9	2.9	0.4	0	0.9	0.4	18.9	18.9	0.9	1.4	5.4	2.4	0.4	0.4	0.4	0	0	0.4	0	18.9	2.5	24
16	0	S	0.5	0	0	0.5	1.5	0.5	43	1.5	2.5	0.5	38.5	9.5	27.5	28.5	0.5	2	0	0.5	0.5	0	0	0	43	6.9	24
17	S	0	0.4	0	0.4	0.4	0.4	0.4	0.4	9.9	0.4	2.4	5.4	2.9	0.4	1.9	0.9	1.4	0.9	0.4	1.4	0.9	0	S	9.9	1.4	24
18	0	0.4	1.4	0	0.9	0.9	0.9	1.9	2.9	1.4	5.4	15.9	7.4	1.4	1.9	1.4	19.9	0.9	1.4	0.9	1.4	0.9	S	1.5	19.9	3.1	24
19	0.5	0.5	1	1	0.5	1.5	2	1.5	6.5	9.5	10	26	29	5.5	7	16	7.5	4	2.5	4	4	S	1.9	15.9	29	6.9	24
20	0.4	2.4	4.4	0.9	0.9	0.9	1.4	0.4	0.9	6.9	1.4	3.9	3.9	4.9	5.4	0.9	1.9	2.4	12.4	0.9	S	0.5	1	1	12.4	2.6	24
21	1	1	1	0.5	1.5	1.5	1.5	1	5.5	2	1.5	3	3.5	2	1.5	1	6	0.5	0.5	S	2	0	0	2	6	1.7	24
22	2	2	2	1.5	4.5	3.5	4	5	5	6.5	9	9	6	3.5	3	3	3.5	1.5	S	1.5	2.5	3.5	1.5	1.5	9	3.7	24
23	1	1.5	2	1	1.5	0.5	0.5	P	3	2.5	2.5	5	7.5	11.5	3	4	2.5	S	2	1	1.5	1	0.5	1.5	11.5	2.6	23
24	2.5	1.5	2.5	0.5	2.5	2	2.5	4.5	6	12	13.5	11	11.5	2	1.5	1	S	0	0	0	0.5	0.5	0.5	1	13.5	3.5	24
25	0.5	0.5	1	0.5	1	0.5	1	1.5	1.5	4	2	3	4	4.5	2	S	3	1	20	1.5	15.5	1	0.5	1	20	3.1	24
26	1.5	1	1	0.5	0.5	1	0.5	2.5	2	2	3	2	2.5	2.5	S	2	36.5	1	0.5	1	5.5	1.5	3.5	2	36.5	3.3	24
27	3.5	1.5	1.5	2.5	1.5	2	2	3.5	2	2	3	2	3	S	7	1.5	2	5.5	3	3.5	2.5	2.5	3.5	3	7	2.8	24
28	3.5	2.5	1.5	2	1	1.5	1.5	2.5	2.5	5.5	12.5	24.5	S	7.5	5	4.5	7.5	2	4	2	3	4.5	9.5	7.5	24.5	5.1	24
29	0	0.5	3.5	2	2.5	2.5	3.5	1.5	2.5	3	4	S	4	2	2.5	1	1	14	1.5	1.5	2	2.5	4	2	14	2.8	24
30	2.5	1	1	2.5	0.5	1	1	3	1.5	2	S	7	3	2	3.5	3	5	4.5	4	1	1.5	1	0.5	2	7	2.3	24
31	2	1	1	1	2	1.5	2	2	0.5	S	2	2	1	1	2	1.5	1	1	1	0	0.5	0	0	1	2	1.2	24
HOURLY MAX	17	20	17	15	21	44	75	65	130	149	170	80	46	13	37	74	117	89	70	52	77	55	172	84			
HOURLY AVG	2.8	2.1	2.1	2.6	3.1	3.5	4.6	4.7	10.0	10.2	10.7	11.2	9.9	4.9	5.9	7.9	10.3	9.3	7.4	5.6	6.6	6.4	10.5	6.9			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	673					
MAXIMUM INSTANTANEOUS VALUE:	172	PPB	@ HOUR(S)	22	ON DAY(S)	10
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	16.22					



JOB #: 2833-14-12-01-C

LICA
NO_ / WD Joint Frequency Distribution (Percent)

December 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	3.72	1.61	1.29	2.75	8.25	3.88	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	99.19
<	110.0	.00	.16	.00	.32	.32	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.80
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	

Calm : .00 %

Total # Operational Hours : 618

Distribution By Samples

Direction

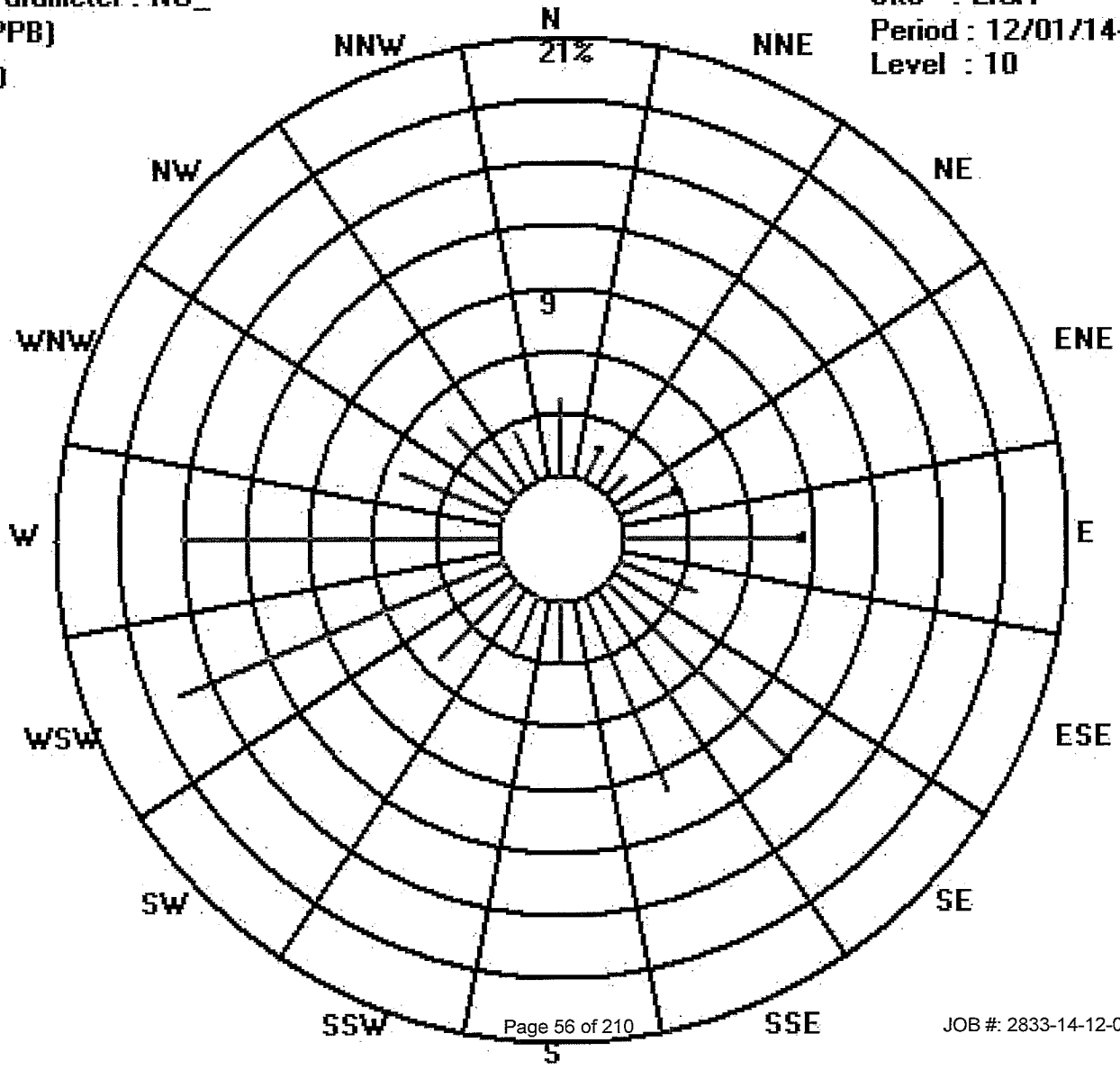
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	23	10	8	17	51	24	76	63	19	17	32	103	93	33	28	16	613
<	110.0		1		2	2												5
<	210.0																	
>=	210.0																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	93	33	28	16	

Calm : .00 %

Total # Operational Hours : 618

Logger : 01 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

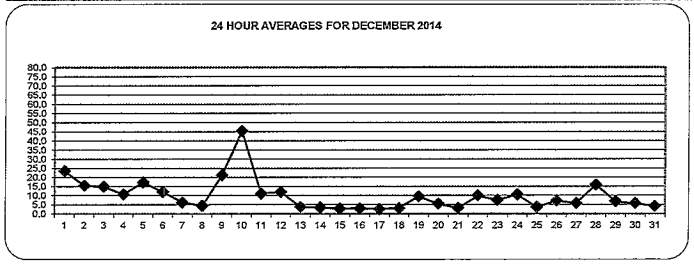
OXIDES OF NITROGEN (NOx) hourly averages in ppb

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	7.5	5.8	5.2	11.4	18.8	18.8	17.9	22.4	26.1	30.7	30.4	36.2	26.7	16.9	18	31.2	S	34.4	30.6	34	27.9	27.8	27.4	30.2	36.2	23.3	24
2	22.1	19.3	19	19.3	19.4	26.7	27.1	24.1	23.7	18.9	9.8	7.7	5.1	1.9	1.7	S	8	9.4	15.1	12.2	15.1	18.4	14.5	12.3	27.1	15.3	24
3	8.1	11.4	14.8	25.3	32.9	14.9	11.1	8.8	17.3	12.5	7.2	7.1	10.5	10.3	S	15.6	16.1	18.9	16.5	19.9	14.5	12.7	16.1	16.2	32.9	14.7	24
4	16	14.3	13	11.9	12.7	12.9	14.4	18.9	18.9	C	C	C	C	C	C	9.1	2.7	2.9	4.3	5.7	5.1	7.4	7.8	10.2	18.9	10.5	24
5	10.2	7.9	6.7	8.8	13.8	10	9.1	9.4	13.4	16.5	13.6	13.4	S	12.6	12.7	16.4	32.3	33.5	25.6	20.8	24.8	29.6	24	25.8	33.5	17.0	24
6	28.8	36.6	30.6	25.8	23.3	14	12.1	8.9	9.8	8.1	9	S	7.4	7.6	6.3	5.6	5.7	4.7	4.6	5.3	5.5	5.1	3.8	3.4	36.6	11.8	24
7	3.7	2.5	2.2	3.6	3.6	3.8	6.2	11.9	9.4	7.9	S	8.3	8.1	8.1	8.5	6	6.7	7.4	4.6	4.3	5.7	6	5.8	4.3	11.9	6.0	24
8	3.4	3.4	3.6	4.1	5.2	4.3	3.8	4.3	4.6	S	4.1	4.1	5.1	4.9	3.7	4.1	4.4	3.7	3.4	3.3	3.1	3.7	3.4	5.7	5.7	4.1	24
9	9	8.1	15.2	17.5	15.8	7.3	13.6	11.2	S	9.8	8.8	11.6	9.6	9.5	15.7	24.8	28.1	35.7	39.7	41.9	31.2	52.5	38.5	27.9	52.5	21.0	24
10	21.9	15.1	14.9	13.6	25.9	33.9	76.4	S	82	*132.5*	103.8	89.9	32	13.4	37.7	54.9	57.7	17.1	11.1	29.4	55.7	40.3	40.8	39	*132.5*	*45.2*	24
11	5.1	2.4	2	2.6	2	2.3	S	4.9	4.8	4.9	4.7	6.7	8	8	11.2	10	9.1	7.5	7	13.4	30.6	26.2	55.1	22.2	55.1	10.9	24
12	5.2	4	5	5.5	4.1	S	14.4	9.3	6.4	5.2	8.1	9.9	11.5	14.8	14.8	26.5	28.6	36.8	29.8	13.1	4.7	5.6	4	2.8	36.8	11.7	24
13	2.5	2.3	2.5	2.6	S	3.1	3	2.7	2.7	3.8	5.9	5.9	5.4	6.8	4.6	4.1	5.1	4.2	2	2.7	2.3	2.6	3.4	2.6	6.8	3.6	24
14	3.7	4.9	5.2	S	3.3	3.3	1.7	3.1	4.7	4.1	2.1	1.7	2.1	2.4	3.4	4.1	3.9	3.1	4.2	5.8	3.1	1.3	1.9	1.4	5.8	3.2	24
15	1.6	2.3	S	3.4	2.6	2.8	2.8	2.5	1.8	2.1	1.6	2.5	2.5	2.1	3.7	4.2	3.3	3.2	2.6	2.6	2.2	2.4	2.5	2.6	4.2	2.6	24
16	2.5	S	2.8	1.9	1.5	2	3	2.6	4.7	1.8	2.3	2	6.7	3	4.7	3.9	2.4	2.4	2.4	2.2	1.9	1.7	2.1	2.1	6.7	2.7	24
17	S	2.2	1.9	1.6	1.6	1.5	1.8	2.6	2.3	2.3	2	1.9	2.7	2.3	2.3	3.4	3.3	2.5	3.1	3	4	2.4	2.2	S	4	2.4	24
18	1.6	1.5	2	2.2	2.2	2	1.9	2.5	2	2	2.8	4	3	3.2	3.8	3.2	4.5	3.8	3.7	3.8	3.4	3	S	3.8	4.5	2.9	24
19	3.3	3.9	4.5	6.8	6	8.8	7.4	7.3	14.6	10.3	13.1	11.4	10.6	10.8	13	21.7	17.6	12.9	8.5	7	3.5	S	5.1	4.3	21.7	9.2	24
20	2.4	2.4	2.7	2	2.1	2.8	3.4	3	3.4	6	6.3	8.3	8.2	9.9	9	7.1	8.2	6.3	6.4	6.3	S	5	4.6	3.9	9.9	5.2	24
21	3.5	2.9	3.4	3.7	3.5	4.6	3	3.1	3.6	3	2.9	3.3	3.6	2.7	3.2	3.2	2.4	1.3	0.7	S	2.5	2.2	2.4	2.7	4.6	2.9	24
22	6.2	6.4	4.7	4.7	4.8	4.2	11.2	18.9	21	19.4	19.5	16.9	10.7	8.7	8.8	9.2	9.5	8.2	S	6.3	6.1	5.7	6.9	4.4	21	9.7	24
23	3.5	4.2	5.2	5.4	5.3	4.3	4.1	5	4.8	6.2	6.6	8.5	12.9	11.8	12.1	12.8	8.2	S	10.4	7.3	7.9	7.1	6.7	6.3	12.9	7.2	24
24	7.4	7.9	5.7	4.3	8.4	9.9	17.2	19.5	26.1	29	27.6	23.4	15	8.5	7.5	4.9	S	3	1.9	1.6	2.2	2	1.5	1.6	29	10.3	24
25	2.5	3.4	2.9	2.9	2.4	1.7	2.1	2.8	3.7	2.9	2.5	4.8	4.9	4.6	4.9	S	6.1	4.2	3.4	3.1	4	3.2	3.8	3.1	6.1	3.5	24
26	3.7	4.5	2.7	3	6.9	5	3.8	5	6.8	6.9	8.1	7.4	7.5	8	S	6.7	8.5	7.5	6.2	7.4	9.2	9.8	16	8.8	16	6.9	24
27	6.7	5.7	5.3	5.9	4.6	3.7	4.2	4.2	4.5	4.4	4.1	4	4.3	S	3.9	3.4	3.7	7.4	7.6	9.3	8.3	7.7	7.7	8.3	9.3	5.6	24
28	8.5	9.1	6.6	7.1	6.3	9.6	8.9	9.4	12.7	11.4	19.5	27.3	S	10.8	10.6	13.2	18.8	20.8	23.3	24.4	25.8	24.7	31.6	20.2	31.6	15.7	24
29	4.6	5.9	7.2	10.5	11	8.9	8.4	6	6.5	9.1	10.2	S	6.9	4.1	3.6	2.9	2.7	4.5	4.6	6.1	9.2	6.4	6.3	4.3	11	6.5	24
30	3.3	2.6	2.5	2.5	4.8	7.8	7.4	7.1	7.5	7.5	S	7.3	4.9	5.5	8.2	10.1	11.1	7.1	5.1	3.4	3.3	2.6	2.3	2.7	11.1	5.5	24
31	2.5	3.2	2.4	4	6.7	6.7	7.9	6	3.5	S	5.8	4.3	3	2.9	3.3	3.6	3.2	2.9	2.3	3.3	2.6	2.9	4.7	2.7	7.9	3.9	24
HOURLY MAX	29	37	31	26	33	34	76	24	82	133	104	90	32	17	38	55	58	37	40	42	56	53	55	39			
HOURLY AVG	7.0	6.9	6.7	7.5	8.7	8.1	10.3	8.2	11.8	13.5	12.2	12.1	8.5	7.5	8.6	11.2	11.1	10.6	9.7	10.3	10.8	10.9	11.8	9.5			

STATUS FLAG CODES

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

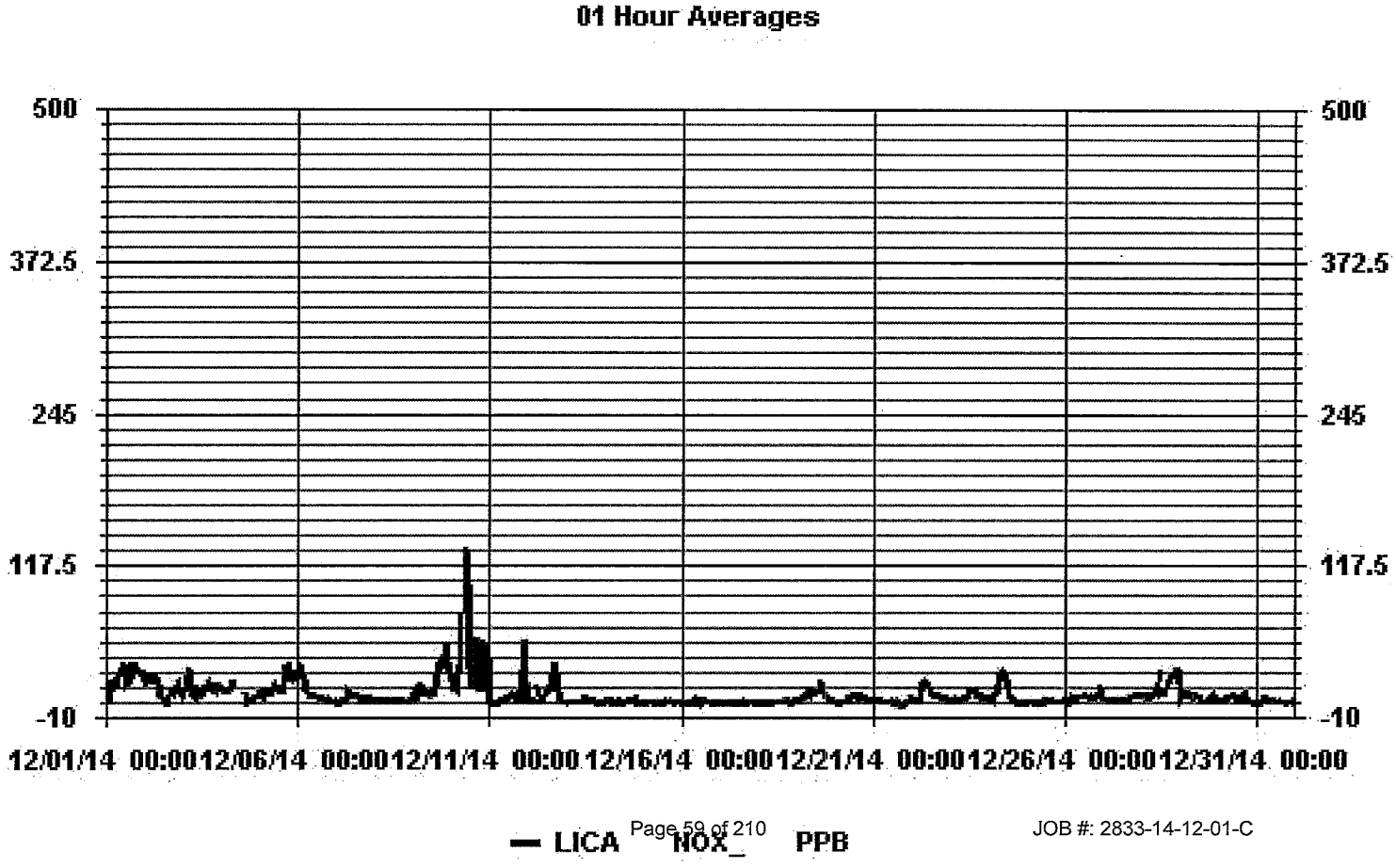


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA						
NUMBER OF NON-ZERO READINGS:	707						
MAXIMUM 1-HR AVERAGE:	132.5	PPB	@ HOUR(S)	9	ON DAY(S)		10
MAXIMUM 24-HR AVERAGE:	45.2	PPB			ON DAY(S)		10
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	11.75		MONTHLY AVERAGE:			9.72	PPB

JOB #: 2833-14-12-01-C



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

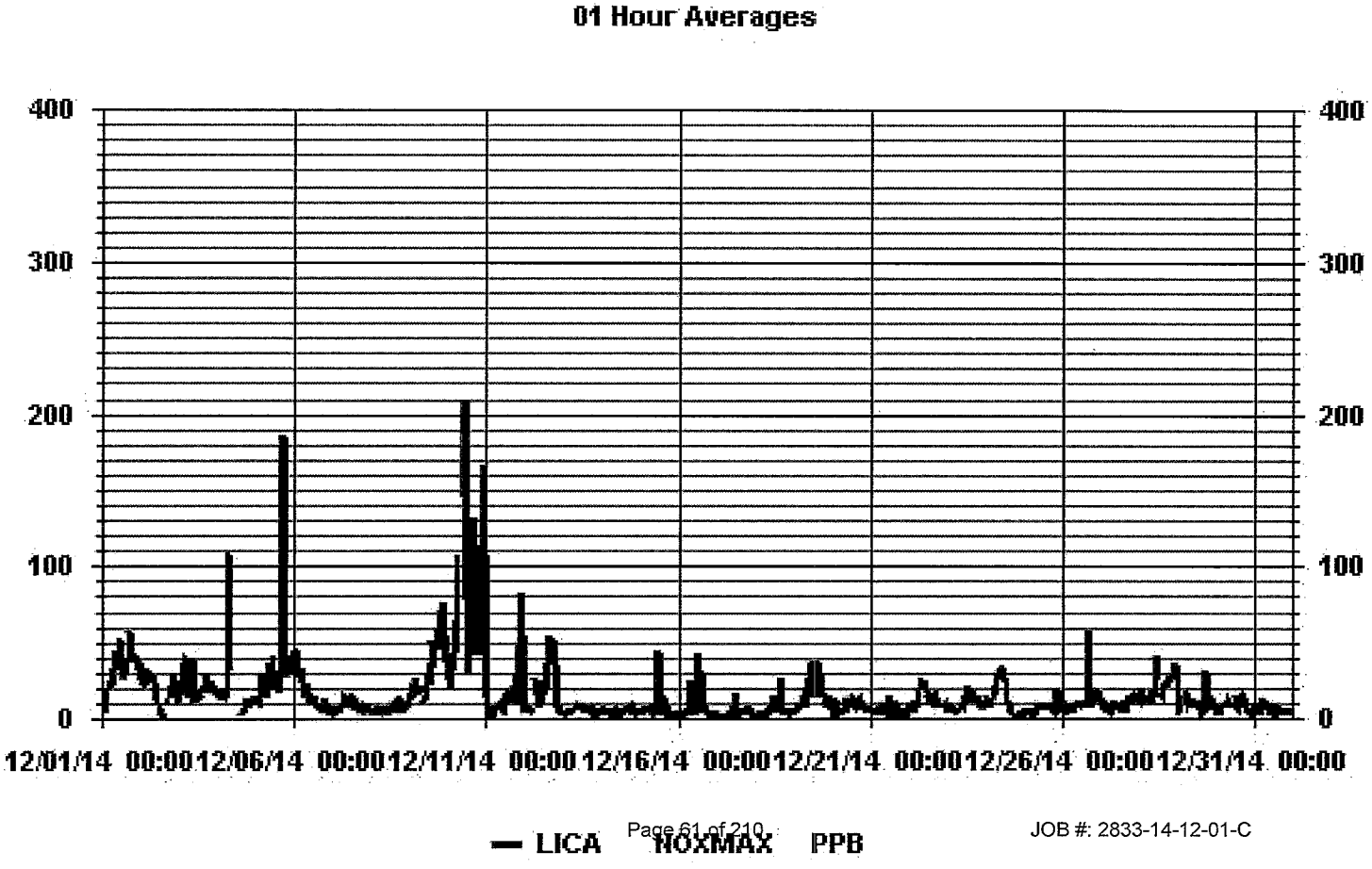
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	9.5	8.5	7.5	18.5	23.5	23	21	31.5	33	44.5	41	52	41	25	29.5	37	S	55.5	39	43.5	37	40.5	32	37	55.5	31.8	24
2	26.5	24.5	22.5	24	24.5	31	30.5	27.6	27.6	24.1	13.5	10.1	7.6	4.6	3.1	S	11.1	13.5	18.6	17.6	19.5	29	26	22.5	31	20.0	24
3	11	15.5	23.5	35.5	39.5	38	16	14.5	39.5	23	11	17.6	16.6	15.1	S	20	19.5	30.1	20.1	23.1	21.1	16.6	20.1	18.1	39.5	22.0	24
4	17.6	16.6	14.1	14.1	19	16.1	18.1	108.5	33	C	C	C	C	C	C	C	4.4	5.9	12.3	10.3	7.3	10.3	10.3	13.3	108.5	19.5	24
5	13.3	13.3	11.8	17.8	30.3	13.3	17.3	14.3	36.8	20.8	18.3	39.3	S	25.5	16.5	32	75.5	186	93.5	27.5	37.5	40.5	34.5	33	186	36.9	24
6	43.5	46.5	40.5	31	31.5	25	18	13	23	18.5	12.5	S	10.4	13.9	8.4	7.9	7.4	6.9	6.4	13.4	10.9	6.5	5.4	4.9	46.5	17.6	24
7	5.9	3.9	6.5	6.5	6.5	6	9.9	14.4	12.4	9.9	S	9.5	16	9.5	10.5	8	7.1	8.5	6	5	7.5	8	8.5	5.6	16	8.3	24
8	5	4.5	4.5	5.5	7.5	6.5	7	5	6.5	S	5.5	5	7	8.5	4.5	8.5	11	12.5	14.5	8	4.5	9.5	6.6	11	14.5	7.3	24
9	15.5	13	22.5	24	24	15	22	19	S	13	15	29	22.5	36	50.5	32.5	47	47	57	70	53.5	75	56	37.5	75	34.6	24
10	27	21	19	32	43	64.5	105	S	147	188.5	*210*	108.5	78.5	27.6	66.5	91	131.5	75	41	80	113.1	81.6	166	108	*210*	***88.1***	24
11	15.1	3.1	2.6	5.1	2.6	4.6	S	8.5	10	7.5	6.5	11	16.5	12.5	18	12	12	20.5	9	30	41	47.4	82.9	55.5	82.9	18.9	24
12	7	7.5	8	7.5	5.5	S	24	16.5	19	8	11	24.5	15.5	18	36.5	54.5	38.9	49	53.5	36.5	7	10	5.5	4	54.5	20.3	24
13	4.5	3	3.5	3.5	S	5	5.5	6	8	10	9	8.5	6.5	7.5	6	6.5	7	7	2.5	3.5	3.5	3	4.5	4.5	10	5.6	24
14	4.5	6.5	6	S	4.5	4.5	2.5	5	5.5	7	4	3	3	4	4.5	5.5	5.5	7	6	9	8	2.5	3	4	9	5.0	24
15	4.5	4.4	S	5.5	5.5	5.5	6.6	4	3	9	3	42.5	42.5	5	4.5	14	4.5	5.5	3	4	3	3	3.5	3	42.5	8.2	24
16	3	S	3.5	3	1.5	4.5	5	3.5	25.5	2.5	5.5	3.5	43.5	15.5	29	27.5	3.5	7.1	3.5	3	2.5	2.5	3.5	2.5	43.5	8.9	24
17	S	2.5	2.5	2	2.5	2	2.5	3.5	3	5.5	2.5	5	16.5	4.5	3.5	5.5	6	5	5	4.5	8	4	2.5	S	16.5	4.5	24
18	2	2	3.5	2.5	4	3	3.5	5	4	5.5	7.5	14	13.5	4.5	8	6	26.5	5	5.5	5	4.5	3.5	S	4.9	26.5	6.2	24
19	3.9	4.5	5.9	9.9	7.4	11.9	10.9	10.4	19.9	24.4	23.4	35.4	38.4	13.9	19.4	37.4	30.4	18.9	13.4	15.9	8.9	S	7.4	14.9	38.4	16.8	24
20	2.9	4.4	13.4	2.4	3.4	5.9	5.4	4.4	5.9	12.9	8.9	10.9	9.9	13.4	12.4	8.9	10.4	9.9	11.9	7.9	S	6.1	6.6	5.5	13.4	8.0	24
21	5	5	5	5	4.5	7	5	4.5	9.5	5.5	4.5	6.6	15.5	4.5	6	5.5	11	2.5	1.5	S	5.5	3	2.5	6.5	15.5	5.7	24
22	9	8.5	7.1	6.5	10.5	7.5	19	23.5	23.5	23.5	24	18.5	15.5	11	10.5	13.5	15	10.5	S	8.5	8.5	9	10	6	24	13.0	24
23	5.5	7.5	8.5	7.1	6.5	5	5.5	P	8	10.5	9	15	19.5	19.5	14.5	19	12.5	S	13.5	10	10.5	8	7.5	10	19.5	10.6	23
24	12.5	12.5	10.5	7.1	12.5	15	21	25	30	33.5	33	27	25	10.5	10	6.6	S	3.5	2.5	2	3	3	2	2.5	33.5	13.5	24
25	4	4	4.6	4	4	2.5	3	6	7.1	9.5	5.5	8	7.5	9	8	S	9.5	7	9	6	19.5	5.5	6.5	5	19.5	6.7	24
26	5	7.5	4.5	5	8.5	8	4.5	7.1	9	9.5	10.5	8.5	9	9	S	9.5	57.5	9.5	7.1	11.5	15	14	20	13.5	57.5	11.4	24
27	11	7.5	6.5	8.5	6.5	5	7.5	6.5	10	10	7.1	6	7.1	S	10	5.5	5.5	12	12	14	11.5	11.5	12	12	14	8.9	24
28	16.5	19.5	11	12	12.5	14	13	13	17.5	13.5	25	40	S	15.9	14.9	21.9	23.4	22.9	25.9	25.4	28.4	29.4	35.4	32.4	40	21.0	24
29	5.9	6.4	10.9	12.9	14.9	10.4	12.4	8.9	8.9	10.9	11.9	S	10.5	6	7.5	4	5	31.5	7	7	14.5	9.5	9	8	31.5	10.2	24
30	5	4	4	7.5	8.5	10	10	12.5	10.5	9.5	S	12.5	7.5	6.5	12	12	15.5	13.5	9	5.5	5.5	4.5	3	6.5	15.5	8.5	24
31	5	5	4.5	9.5	11	10.5	11	8	4.5	S	7.5	8	3.5	4	5.5	5.5	4	4.5	4.5	4.5	3.5	3.5	5.5	6	11	6.0	24
HOURLY MAX	44	47	41	36	43	65	105	109	147	189	210	109	79	36	67	91	132	186	94	80	113	82	166	108			
HOURLY AVG	10.2	9.8	9.9	11.2	12.9	12.7	14.8	14.8	20.0	20.4	19.5	20.7	18.8	12.4	15.4	18.5	21.3	23.1	17.1	17.1	17.5	16.7	19.9	16.6			

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:	705					
MAXIMUM INSTANTANEOUS VALUE:	210	PPB	@ HOUR(S)	10	ON DAY(S)	10
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	21.68					



JOB #: 2833-14-12-01-C

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

December 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	3.72	1.61	1.29	2.42	7.92	3.72	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	98.38
<	110.0	.00	.00	.00	.64	.64	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.45
<	210.0	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.66	15.04	5.33	4.53	2.58	

Calm : .00 %

Total # Operational Hours : 618

Distribution By Samples

Direction

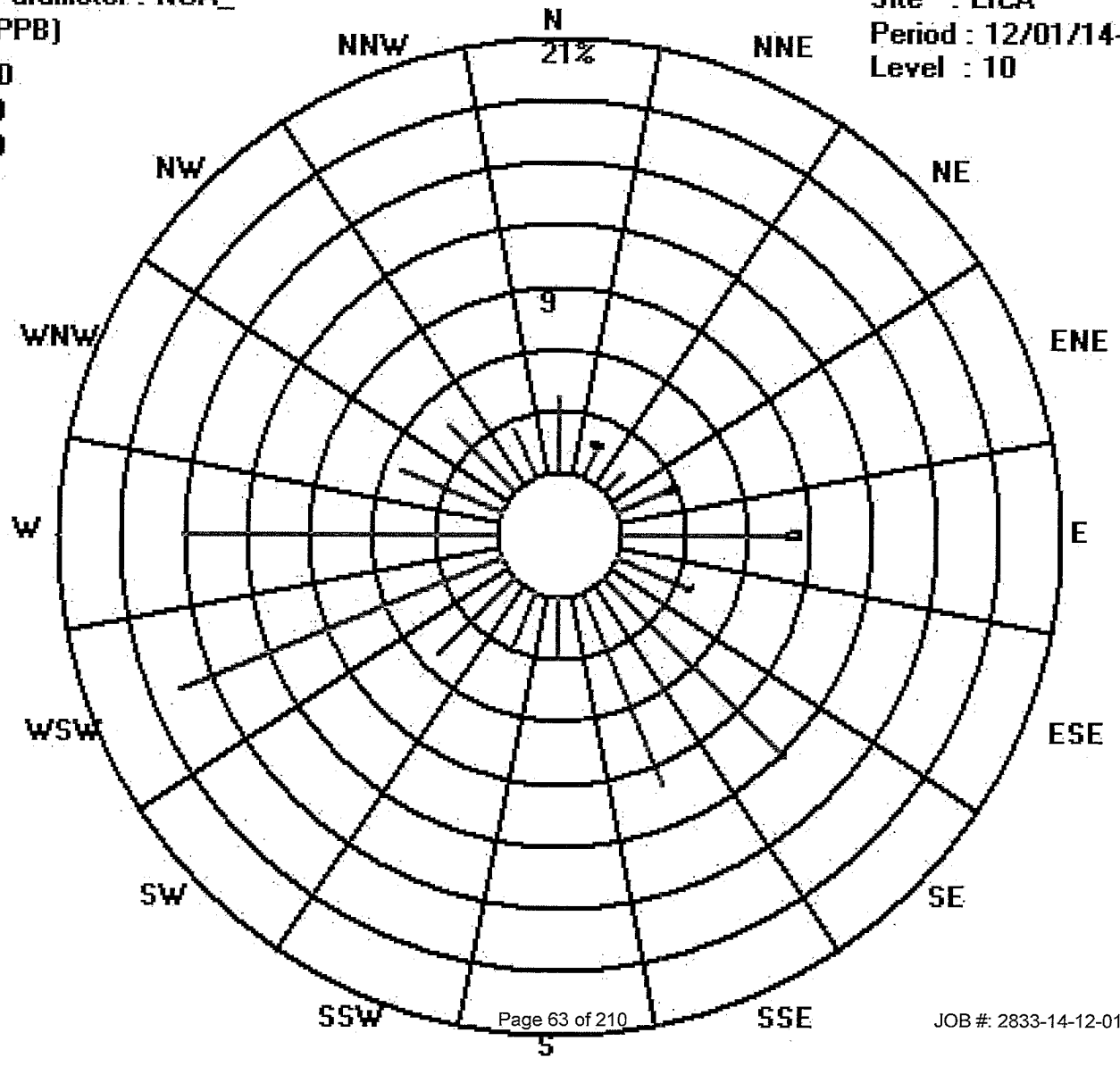
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	23	10	8	15	49	23	76	63	19	17	32	103	93	33	28	16	608
<	110.0				4	4	1											9
<	210.0		1															1
>=	210.0																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	103	93	33	28	16	

Calm : .00 %

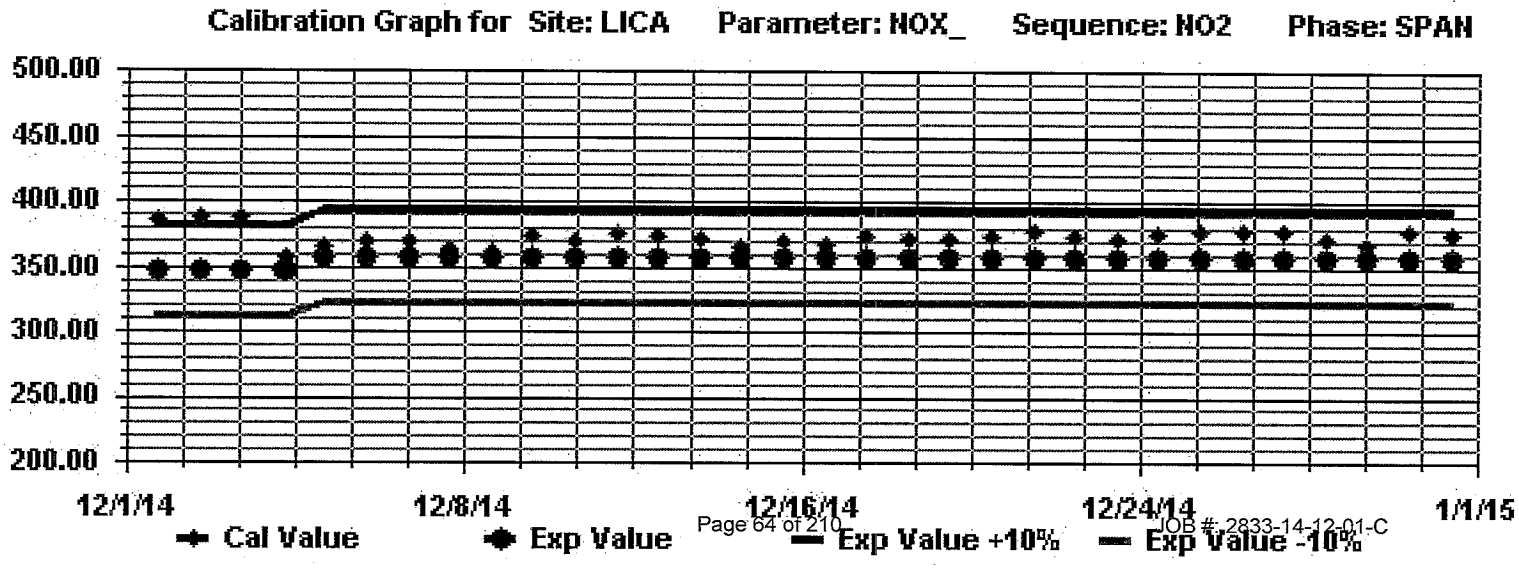
Total # Operational Hours : 618

Logger : 01 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

OZONE (O3) hourly averages in ppb

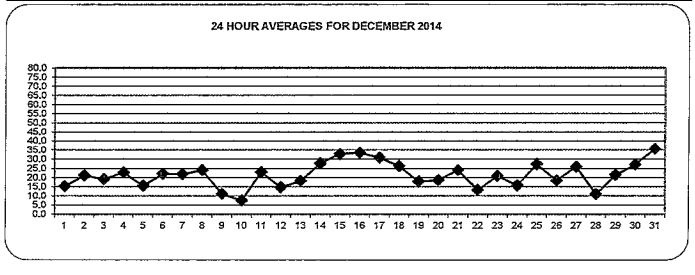
MST

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 / DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	30	32	34	22	13	11	10	8	7	11	20	21	25	29	28	17	S	5	5	4	5	5	4	4	34	15.2	24
2	6	9	14	14	13	6	8	15	17	24	32	34	37	***40***	***40***	S	33	31	24	25	20	14	14	17	***40***	21.2	24
3	17	13	11	4	2	19	26	26	19	24	28	28	26	25	S	20	18	15	15	12	21	26	22	21	28	19.0	24
4	21	23	24	24	23	23	20	19	15	16	19	18	18	C	C	C	C	C	C	34	33	29	27	23	34	22.7	24
5	22	23	20	17	12	12	14	19	20	22	26	29	S	28	27	22	9	5	7	8	4	3	5	4	29	15.6	24
6	4	2	1	4	2	14	21	24	24	25	26	S	26	27	29	30	31	32	31	31	30	30	31	31	32	22.0	24
7	31	30	30	28	29	28	26	18	20	22	S	21	21	20	18	18	16	15	19	19	18	18	19	20	31	21.9	24
8	21	21	20	19	17	18	20	20	20	S	24	26	26	27	29	29	28	30	30	28	27	26	25	21	30	24.0	24
9	19	18	11	7	7	17	15	13	S	16	20	20	21	21	23	9	5	3	2	2	2	2	1	1	23	11.1	24
10	4	8	7	7	2	1	1	S	2	3	4	7	18	24	9	3	2	19	22	9	2	6	3	9	24	7.5	24
11	25	26	27	26	27	26	S	23	23	24	29	31	31	33	31	28	28	28	25	16	3	2	2	12	33	22.9	24
12	22	23	21	21	26	S	10	18	20	19	15	17	17	16	14	7	1	1	1	9	14	13	15	19	26	14.7	24
13	22	21	19	16	S	15	15	16	16	16	14	15	15	13	16	17	17	19	22	21	23	23	22	23	23	18.1	24
14	23	21	20	S	26	25	26	27	28	29	29	28	27	28	28	27	28	29	28	25	30	34	34	34	34	27.6	24
15	33	32	S	32	33	33	33	33	34	34	34	34	34	34	32	32	33	33	33	32	32	32	31	31	34	32.8	24
16	32	S	32	32	32	31	30	31	31	34	34	34	33	34	35	35	36	36	35	35	35	34	34	34	36	33.4	24
17	S	33	33	34	33	34	33	33	33	33	32	32	31	30	30	29	29	29	28	28	26	27	27	S	34	30.8	24
18	27	27	27	26	26	28	28	28	28	28	27	27	27	26	25	26	25	25	25	25	25	25	S	25	28	26.3	24
19	24	23	22	18	17	14	16	16	12	15	16	18	20	20	18	12	13	16	18	20	20	S	21	22	24	17.9	24
20	22	21	22	22	22	20	19	19	18	15	16	16	17	16	17	17	15	17	17	17	S	19	20	23	23	18.6	24
21	24	24	24	24	26	24	23	22	21	23	25	26	26	26	25	25	25	26	25	S	23	22	22	22	26	24.0	24
22	18	17	19	18	18	17	10	2	1	5	7	8	11	11	11	10	9	11	S	17	21	21	20	22	22	13.2	24
23	23	20	21	20	21	19	22	20	23	21	23	21	20	19	19	16	20	S	20	22	22	23	23	21	23	20.8	24
24	18	13	12	12	13	11	6	5	1	4	5	9	15	19	14	16	S	19	22	24	26	30	34	34	34	15.7	24
25	32	30	30	30	30	31	30	29	28	27	28	27	27	27	26	S	24	25	25	25	25	24	24	24	32	27.3	24
26	24	23	24	23	18	20	21	20	18	19	20	21	21	21	S	21	19	16	16	14	12	10	6	14	24	18.3	24
27	19	19	19	17	18	19	21	23	25	29	32	34	36	S	34	34	32	28	28	26	26	27	26	24	36	25.9	24
28	23	18	17	16	15	11	11	10	8	10	11	12	S	18	18	16	10	7	5	3	2	2	0	9	23	11.0	24
29	23	23	21	17	16	18	20	21	19	18	18	S	23	25	25	25	25	24	22	21	19	22	23	26	26	21.5	24
30	27	27	25	23	20	18	18	20	20	21	S	27	33	33	31	28	26	29	31	32	33	34	34	34	34	27.1	24
31	35	34	36	34	30	30	30	32	36	S	36	38	39	39	39	39	39	39	39	37	37	36	32	34	39	*35.7*	24
HOURLY MAX	35	34	36	34	33	34	33	33	36	34	36	38	39	40	40	39	39	39	39	37	37	36	34	34			
HOURLY AVG	22.4	21.8	21.4	20.2	19.6	19.8	19.4	20.3	19.6	20.2	22.4	23.4	24.9	25.1	24.7	21.7	21.3	21.1	21.4	20.7	20.5	20.6	20.0	21.3			

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

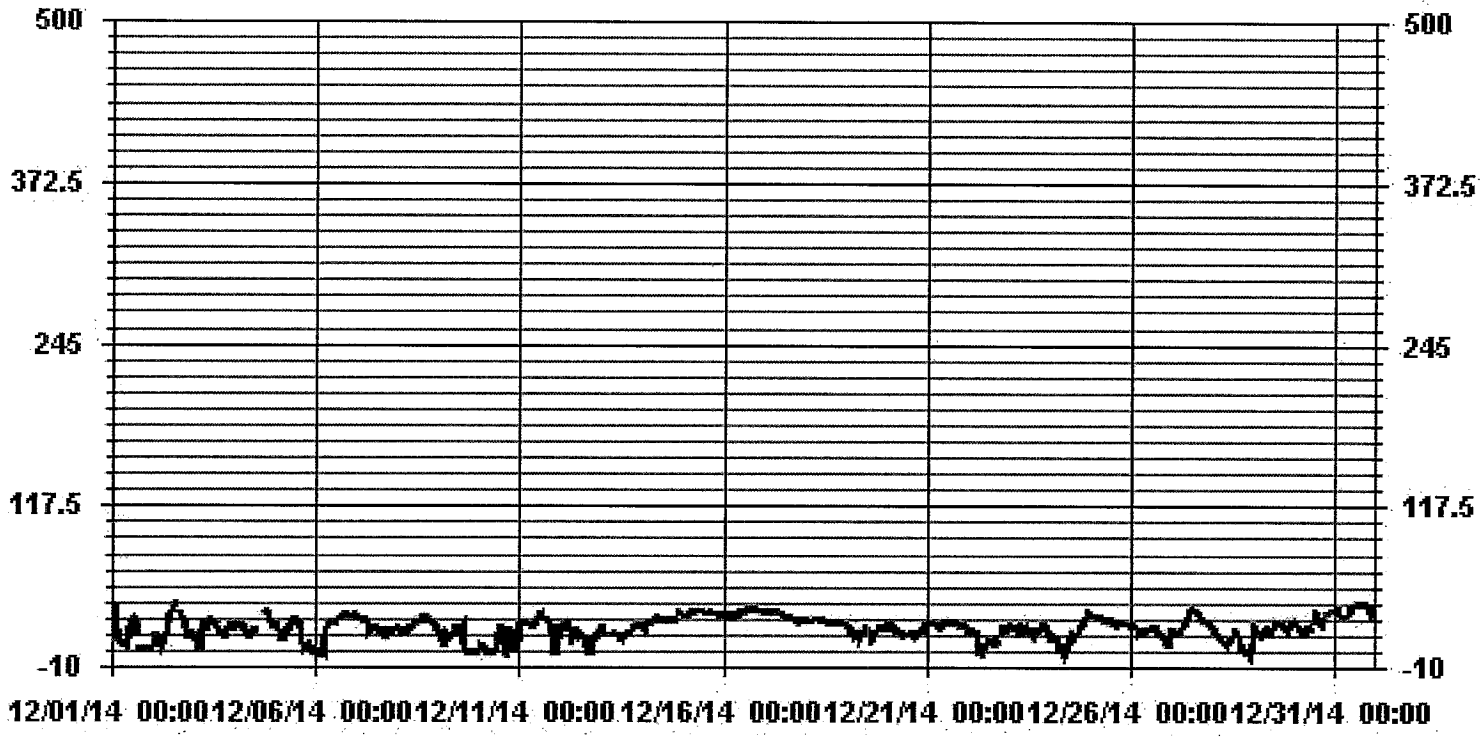
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	706						
MAXIMUM 1-HR AVERAGE:	40	PPB	@ HOUR(S)	13, 14	ON DAY(S)		2
MAXIMUM 24-HR AVERAGE:	35.7	PPB			ON DAY(S)		31
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	8.98		MONTHLY AVERAGE:			21.39	PPB

01 Hour Averages



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

OZONE MAX instantaneous maximum in ppb

MST

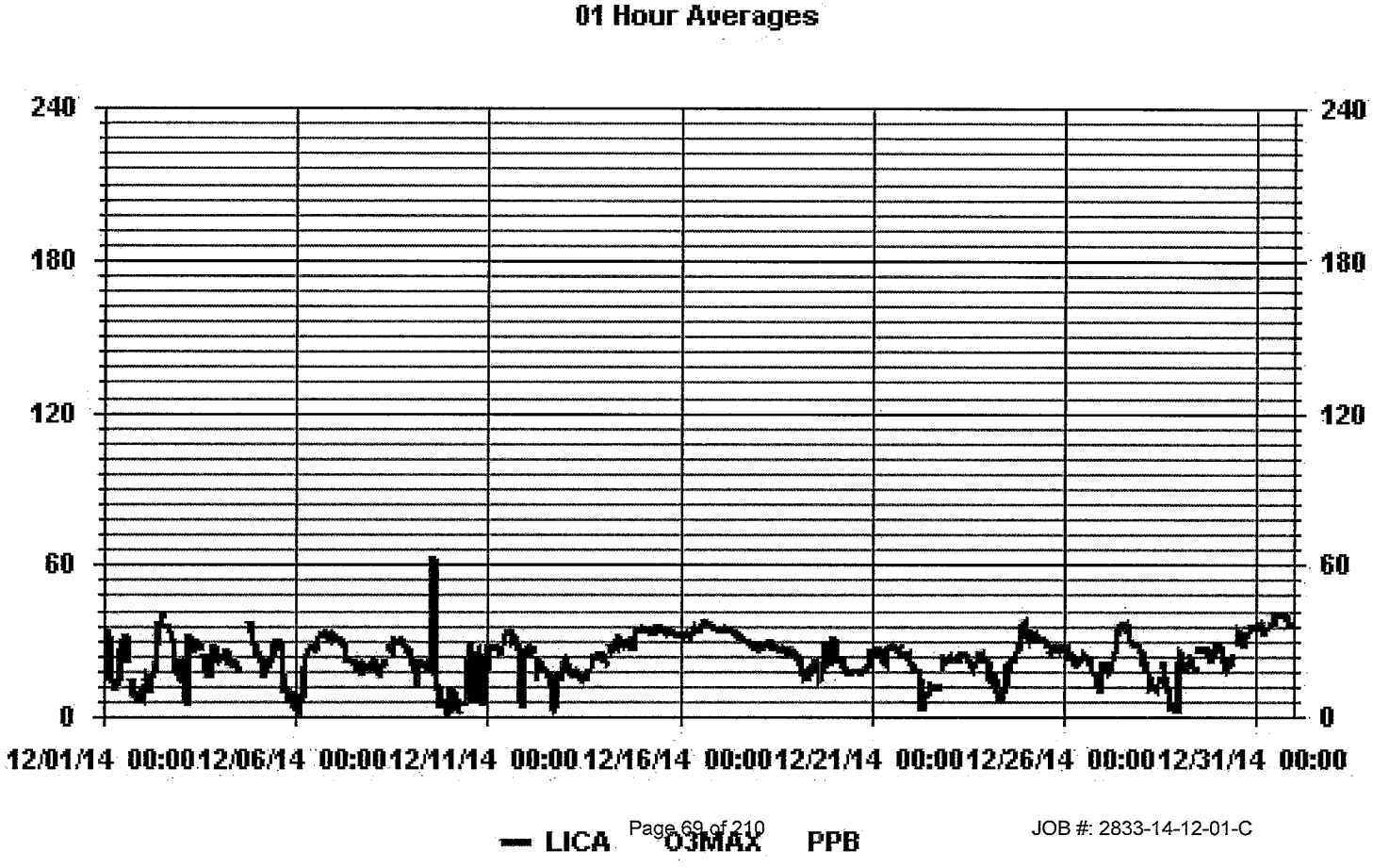
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	31	34	34	32	15	15	14	10	12	14	25	25	30	31	31	22	S	14	9	8	9	9	5	9	34	19.0	24
2	8	13	16	15	14	9	15	17	22	28	36	36	40	40	40	S	36	34	30	30	24	18	17	21	40	24.3	24
3	21	17	16	6	4	31	31	29	25	29	29	29	27	27	S	24	19	16	16	16	29	28	23	22	31	22.3	24
4	23	23	24	25	25	25	21	21	21	19	21	20	19	C	C	C	C	C	C	37	34	30	29	25	37	24.6	24
5	25	24	22	22	16	17	19	23	21	24	28	30	S	29	29	27	18	10	11	11	7	6	10	6	30	18.9	24
6	9	3	2	6	7	20	24	25	26	27	27	S	27	28	31	32	32	33	32	33	32	31	33	32	33	24.0	24
7	32	31	31	30	30	29	28	22	22	23	S	22	21	21	19	19	17	17	20	19	19	19	20	21	32	23.1	24
8	22	22	20	19	18	20	21	21	21	S	27	27	26	30	30	29	29	30	30	29	28	26	26	24	30	25.0	24
9	21	21	19	15	11	23	22	20	S	19	21	22	23	22	*63*	17	10	13	3	5	3	7	2	1	*63*	16.7	24
10	11	11	10	10	8	3	2	S	5	5	6	13	24	30	16	7	6	25	26	21	4	13	6	18	30	12.2	24
11	27	27	27	27	27	27	S	25	25	28	32	33	33	34	33	30	31	31	29	27	6	6	3	23	34	25.7	24
12	26	27	23	25	27	S	15	22	22	21	19	19	19	18	16	12	3	2	3	16	16	14	18	21	27	17.6	24
13	23	22	21	17	S	16	16	18	17	17	16	15	17	14	18	18	19	23	23	23	24	24	23	24	24	19.5	24
14	24	22	21	S	28	26	27	29	28	32	30	29	28	29	29	28	29	30	30	26	34	34	34	35	35	28.8	24
15	34	34	S	34	34	33	33	34	35	34	35	35	35	35	34	33	34	34	34	33	33	32	32	32	35	33.7	24
16	33	S	32	33	32	32	31	32	33	35	34	34	34	35	36	37	37	37	36	36	36	35	35	34	37	34.3	24
17	S	34	34	35	34	34	34	34	34	34	33	33	32	31	31	30	30	30	29	29	28	28	28	S	35	31.8	24
18	27	28	28	27	27	28	29	28	29	29	28	27	27	27	26	26	27	26	26	25	26	26	S	25	29	27.0	24
19	25	23	23	21	18	16	17	18	14	17	18	20	21	21	21	16	17	18	19	30	21	S	22	23	30	20.0	24
20	32	22	23	23	22	22	21	20	19	17	17	18	18	18	18	18	16	18	18	18	S	20	21	27	32	20.3	24
21	26	26	25	26	26	26	24	23	22	26	27	27	27	28	27	27	26	27	28	S	24	24	23	24	28	25.6	24
22	21	20	20	19	19	18	16	3	3	7	9	9	13	13	12	12	10	12	S	19	23	23	22	23	23	15.0	24
23	24	22	22	22	22	22	24	P	24	24	24	24	23	22	20	19	21	S	22	24	24	25	24	23	25	22.8	23
24	22	15	15	14	16	15	10	9	6	8	9	12	20	21	18	18	S	22	25	26	30	34	36	37	37	19.0	24
25	35	32	30	31	33	32	33	31	30	30	30	30	28	28	28	S	26	27	27	27	27	26	27	27	35	29.3	24
26	26	26	28	26	22	24	23	22	21	22	22	23	25	24	S	23	21	18	17	17	15	12	9	17	28	21.0	24
27	20	20	20	18	19	20	22	25	26	32	34	36	37	S	35	36	34	31	29	28	28	28	28	26	37	27.5	24
28	27	21	21	19	18	13	14	12	12	11	13	15	S	20	20	17	13	10	6	4	3	3	1	22	27	13.7	24
29	25	24	22	20	17	19	23	23	20	19	19	S	26	26	26	26	26	26	24	22	22	23	25	28	28	23.1	24
30	28	28	27	24	22	19	20	21	21	24	S	29	34	33	33	30	27	32	32	33	35	35	35	35	35	28.6	24
31	35	36	37	36	33	33	34	35	37	S	37	40	40	40	40	40	40	40	40	39	38	37	35	37	40	*37.3*	24
HOURLY MAX	35	36	37	36	34	34	34	35	37	35	37	40	40	40	63	40	40	40	40	39	38	37	36	37			
HOURLY AVG	24.8	23.6	23.1	22.6	21.5	22.2	22.1	22.5	21.8	22.6	24.3	25.2	26.7	26.7	27.9	24.0	23.4	23.7	23.2	23.7	22.7	22.5	21.7	24.1			

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:	706					
MAXIMUM INSTANTANEOUS VALUE:	63	PPB	@ HOUR(S)	14	ON DAY(S)	9
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	8.56					



JOB #: 2833-14-12-01-C

LICA
O3_ / WD Joint Frequency Distribution (Percent)

December 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	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.82	15.21	5.01	4.53	2.58	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	3.72	1.77	1.29	3.07	8.57	3.88	12.29	10.19	3.07	2.75	5.17	16.82	15.21	5.01	4.53	2.58	

Calm : .00 %

Total # Operational Hours : 618

Distribution By Samples

Direction

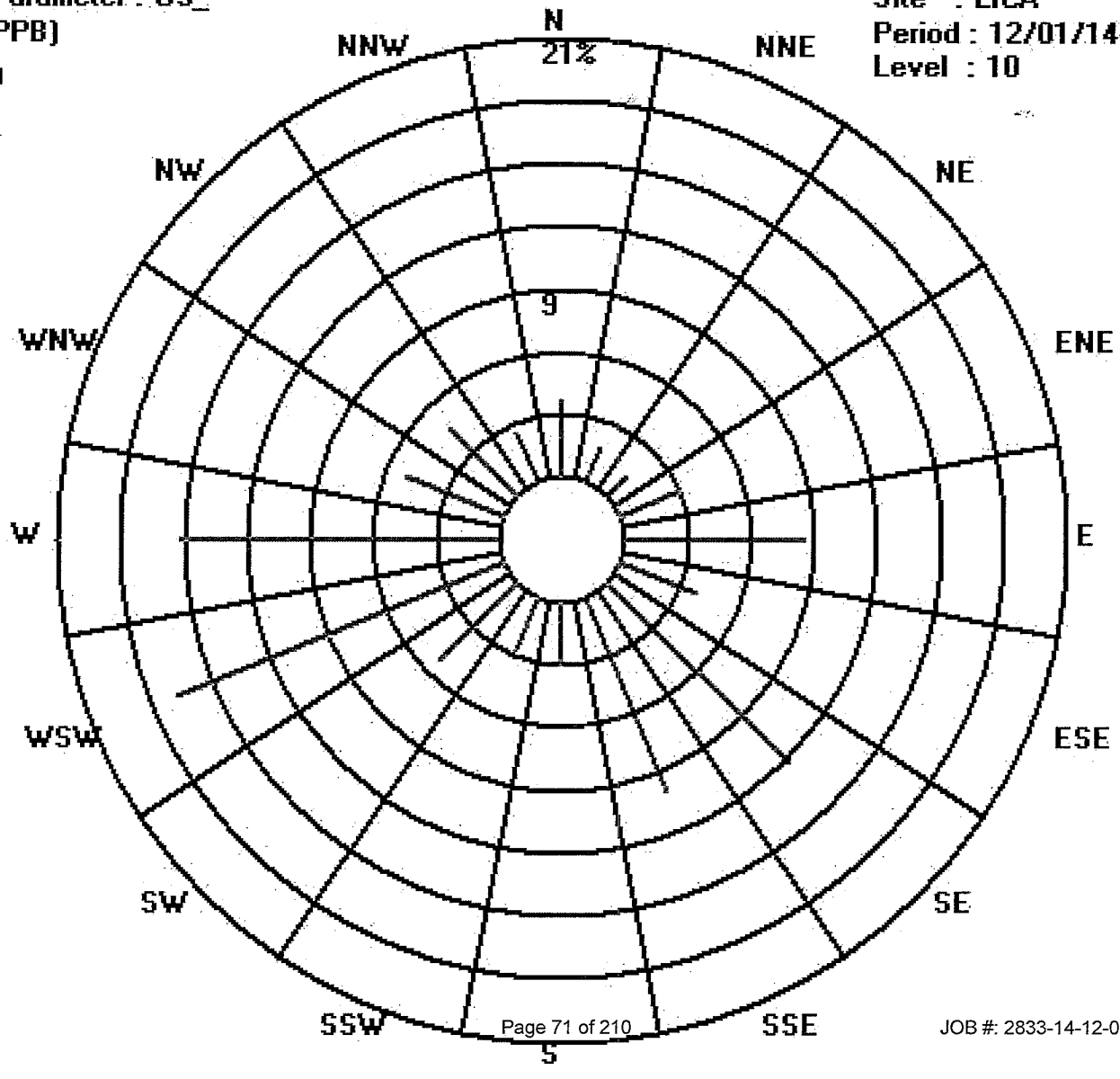
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	23	11	8	19	53	24	76	63	19	17	32	104	94	31	28	16	618
<	110																	
<	210																	
>=	210																	
	Totals	23	11	8	19	53	24	76	63	19	17	32	104	94	31	28	16	

Calm : .00 %

Total # Operational Hours : 618

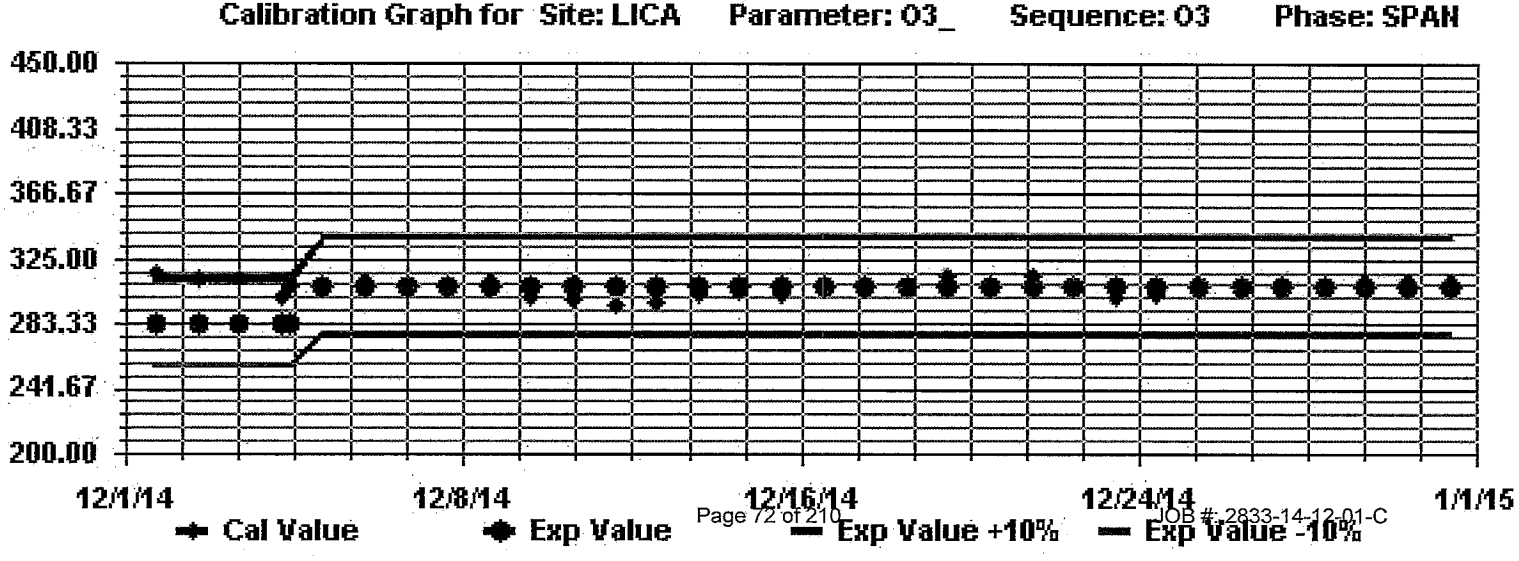
Logger : 01 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50



Site : LICA
Period : 12/01/14-12/31/14
Level : 10

JOB #: 2833-14-12-01-C


Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN
450.00
408.33
366.67
325.00
283.33
241.67
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ambient Temperature

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

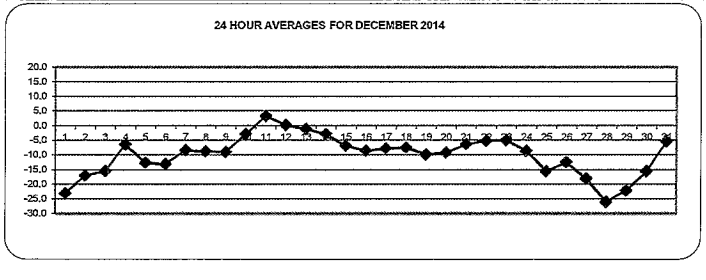
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST

HOUR START / HOUR END / DAY	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	-23.6	-23.6	-22.4	-26.1	-27.4	-27.8	-28.2	-27.9	-27.9	-25.9	-21.5	-19.5	-17.5	-16.1	-16.4	-17.4	-20.2	-22.2	-23.7	-24.3	-24.3	-24.6	-24.5	-23.1	-16.1	-23.2	24
2	-21.8	-20.6	-19.5	-19	-19	-19.7	-18.1	-16.3	-16.1	-14.9	-14	-12.5	-11.4	-11.1	-10.9	-12	-13.7	-14.5	-15.8	-17.4	-19.4	-21.7	-23.8	-24.3	-10.9	-17.0	24
3	-25.1	-25.6	-26.1	-25.3	-24.5	-20.7	-18.4	-19	-19.9	-18.4	-16.9	-16	-14.6	-13.1	-11.7	-11.2	-10.6	-10.3	-10.2	-10.2	-7.2	-4.8	-4.9	-5.2	-4.8	-15.4	24
4	-5.5	-5.4	-5.4	-6.5	-8	-8.4	-8.1	-7.3	-6.9	-6.5	-5.9	-5.6	-5.2	-5	-5	-4.9	-5.2	-5.8	-6.6	-6.3	-6.2	-6.8	-8.3	-9.7	-4.9	-6.4	24
5	-11	-12.3	-14.6	-15.6	-16.5	-17.3	-15.4	-11.7	-9.7	-8.8	-8.3	-7.7	-7.2	-6.8	-7.4	-9.4	-12.4	-14.4	-15.2	-15.5	-16	-16.4	-16.8	-17.2	-6.8	-12.7	24
6	-17.9	-18.3	-18.9	-18.4	-17.9	-14.7	-13.2	-14.2	-14.1	-13.5	-12.7	-12.5	-12.6	-12.2	-11.9	-11.6	-11.3	-10.9	-10.4	-10	-9.8	-9.6	-9.4	-9.3	-9.3	-13.1	24
7	-9.3	-9.1	-9	-8.9	-9	-9.1	-9.4	-9.4	-9.3	-8.9	-8.2	-7.8	-7.4	-7.3	-7.2	-7	-7.1	-7.6	-8	-8.2	-8.2	-8.6	-8.8	-9.1	-7	-8.4	24
8	-9.3	-9.5	-9.5	-9.5	-9.5	-9.2	-9.2	-9.3	-9.5	-9.7	-9.5	-9	-8.2	-7.4	-7.3	-7.3	-7.4	-7.5	-7.7	-8.3	-8.9	-9.6	-9.8	-10.4	-7.3	-8.9	24
9	-11.1	-11.7	-12.1	-12.5	-12.5	-11.3	-10.7	-12	-11.8	-11.1	-9.4	-7	-6.2	-5.7	-5.5	-5.5	-6.2	-6.4	-7.2	-7.6	-8.7	-7.3	-7.3	-8.6	-5.5	-9.0	24
10	-7.3	-5.5	-4.8	-4.6	-6	-7.5	-8.2	-8.9	-9.4	-7.2	-3.4	1.1	4.9	5.1	2.2	-0.3	-1.6	0.7	1	-1.4	-2.8	-2.3	-3.3	-1.3	5.1	-3.0	24
11	2.1	2	2.4	2.8	2.8	2.9	2.6	2.2	2.2	3.7	6.3	6.8	7.2	***8.5***	7.7	5.8	4.3	3.6	2.4	1	-0.7	-1	-0.4	0.7	***8.5***	***3.2***	24
12	1.4	1.3	0.5	0.6	1.8	1.4	-0.5	0	-0.2	-0.4	-0.2	0.3	1.6	2.4	2.2	0.7	-1.3	-2.4	-3	-1.3	-0.2	0	-0.1	-0.2	2.4	0.2	24
13	-0.2	-0.3	-0.3	-0.6	-0.9	-1.3	-1.6	-1.8	-1.9	-2	-1.9	-1.7	-1.4	-0.8	-0.7	-0.7	-0.9	-1.1	-1.3	-1.1	-1.2	-1	-0.9	-0.9	-0.2	-1.1	24
14	-1.2	-1.1	-1.2	-1.2	-1.4	-2	-3.1	-3.3	-3.5	-3.8	-3.8	-4.3	-3.7	-3.1	-3.1	-3.2	-3.4	-3.1	-2.9	-2.9	-3	-3.4	-4	-4.4	-1.1	-2.9	24
15	-4.5	-4.7	-5	-5.3	-5.6	-5.9	-6.1	-6.3	-6.4	-6.5	-6.5	-6.9	-7.1	-7	-7.1	-7.1	-7	-7.3	-7.8	-8.2	-8.5	-8.6	-8.7	-9.2	-4.5	-6.8	24
16	-9.5	-9.9	-9.7	-9.5	-9.6	-9.3	-9.1	-8.8	-8.3	-8.4	-8.4	-8.2	-8.2	-8	-7.7	-7.3	-7.3	-7.6	-8.1	-8.3	-8.4	-8.5	-8.5	-8.8	-7.3	-8.6	24
17	-8.8	-8.9	-8.7	-8.8	-8.7	-8.7	-8.7	-8.6	-8.4	-8	-7.6	-7.4	-7.2	-7	-6.9	-6.8	-6.8	-7.1	-7.2	-7.3	-7.4	-7.3	-7.2	-7.2	-6.8	-7.8	24
18	-7.3	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.5	-7.7	-7.6	-7.5	-7.5	-7.6	-7.5	-7.4	-7.4	-7.4	-7.6	**P**	**P**	**P**	**P**	**P**	**P**	-7.3	-7.5	18
19	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	-11.7	-10.4	-9.4	-8.5	-8.4	-9.3	-10	-10.2	-9.9	-9.8	-10.2	-10.3	-10	-10	-8.4	-9.9	14
20	-10	-9.9	-9.7	-9.5	-9.4	-9	-8.9	-9	-9.1	-9.1	-8.4	-7.8	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	-7.8	-9.2	12
21	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**Y**	**Y**	-6.3	-6.4	-6.3	-6.4	-6.3	-6.1	-6.1	-6.3	6
22	-5.9	-5.9	-6	-6	-6.1	-6.3	-6.3	-6.2	-6.2	-6	-5.7	-4.9	-4.3	-4.1	-4	-4.1	-4.2	-4.3	-4.5	-4.6	-4.7	-4.7	-4.5	-4.4	-4	-5.2	24
23	-4.5	-5.6	-5.9	-6.2	-5.1	-5.3	-5.1	**R**	-6.2	-6.5	-5.4	-4.3	-3.8	-4.1	-4.3	-4.2	-4.3	-4.3	-4.3	-4.5	-4.7	-4.9	-5	-5.7	-3.8	-5.0	24
24	-6.6	-8.3	-10.2	-11.6	-10.2	-10.4	-9.1	-8.4	-7.7	-7.1	-6.6	-4.9	-4.4	-3.7	-5.7	-6.8	-7.5	-8.4	-9.6	-10.6	-11.4	-12	-12.8	-13.8	-3.7	-8.7	24
25	-15.3	-15.4	-15.1	-14.6	-14.5	-14.5	-14.9	-15.2	-15.2	-15.5	-15.2	-16.4	-16.2	-15.7	-15.2	-15	-15.6	-15.7	-16.2	-16.4	-16.3	-16.1	-15.8	-16.2	-14.5	-15.5	24
26	-16	-15.7	-15.5	-15.4	-15.3	-14.9	-14.7	-13.9	-13.5	-13	-11.9	-11.3	-10.8	-10.4	-10.1	-10	-10.3	-10.6	-10.7	-10.7	-10.9	-11.3	-11.5	-11.8	-10	-12.5	24
27	-12	-12.1	-12.3	-12.8	-13.9	-15	-16.3	-16.8	-16.9	-17.7	-18.1	-18.1	-18.2	-17.9	-17.9	-18.9	-19.7	-20.8	-21.5	-22.2	-22.8	-23.7	-24.3	-24.8	-12	-18.1	24
28	-25.2	-27	-28.1	-29.5	-30.6	-31	-31.8	***-32.5***	-32.1	-31.4	-28.5	-25.8	-23.5	-22.2	-21.8	-22.3	-23.4	-23.8	-23.3	-23	-22.8	-23.1	-22.4	-21.8	-21.8	-26.1	24
29	-21.5	-22.8	-24	-25	-24.8	-25.4	-25.1	-24.8	-24.5	-23.9	-23.3	-21.9	-20.2	-19.3	-19.2	-18.9	-19.5	-20.8	-21.9	-22	-21.5	-20.7	-20.1	-20.1	-18.9	-22.1	24
30	-21.3	-21.7	-22.5	-23.5	-22.9	-22.5	-21.8	-20.7	-19.8	-18.7	-17.1	-15.2	-12.3	-11.4	-11.4	-11.4	-12.2	-11.7	-11.1	-10.6	-9.8	-9.1	-8.8	-8.3	-8.3	-15.7	24
31	-8.2	-7.8	-7.5	-8.8	-9.4	-9.1	-7.9	-6.5	-5.2	-4.6	-4	-3.6	-3.6	-3.5	-3.3	-3.6	-3.9	-4	-3.8	-3.8	-3.9	-4.3	-4.6	-5.3	-3.3	-5.4	24
HOURLY MAX	2.1	2	2.4	2.8	2.8	2.9	2.6	2.2	2.2	3.7	6.3	6.8	7.2	8.5	7.7	5.8	4.3	3.6	2.4	1	-0.2	0	-0.1	0.7			
HOURLY AVG	-10.9	-11.1	-11.3	-11.7	-11.8	-11.7	-11.5	-11.6	-11.2	-10.7	-9.8	-9.0	-8.2	-7.7	-7.8	-8.2	-8.8	-9.2	-9.5	-9.7	-9.9	-9.9	-10.1	-10.2			

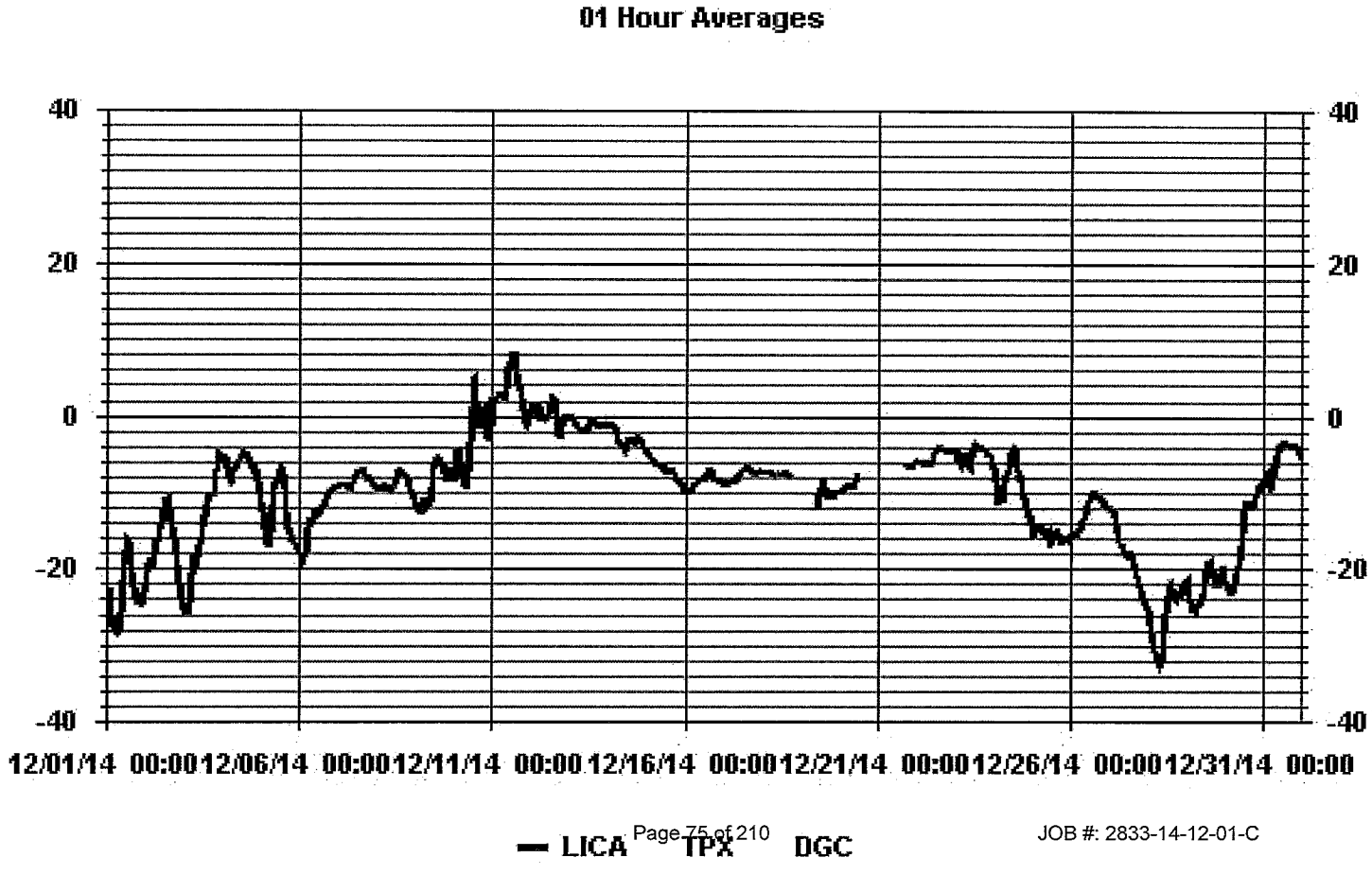
STATUS FLAG CODES

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:	-32.5	°C	@ HOUR(S)	7	ON DAY(S)	28
MAXIMUM 1-HR AVERAGE:	8.5	°C	@ HOUR(S)	13	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	3.2	°C			ON DAY(S)	11
					VAR-VARIOUS	
			OPERATIONAL TIME:		698	HRS
			AMD OPERATION UPTIME:		93.8	%
STANDARD DEVIATION:	7.41		MONTHLY AVERAGE:		-10.06	°C



JOB #: 2833-14-12-01-C

Relative Humidity

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

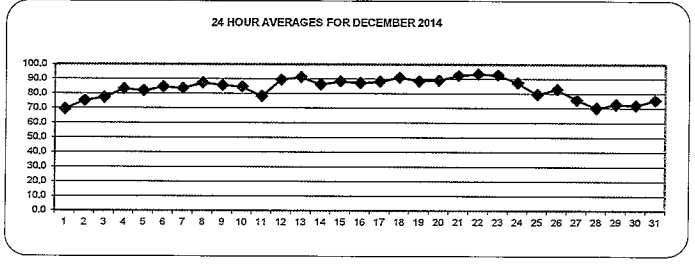
RELATIVE HUMIDITY (RH) hourly averages in %

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	68	69	65	70	71	71	71	72	71	68	65	62	59	58	62	67	75	76	75	74	73	73	73	74	76	69.3	24
2	75	75	76	76	77	76	78	81	82	80	77	72	66	61	63	70	76	78	80	79	78	76	75	75	82	75.1	24
3	73	73	73	74	73	78	79	78	76	77	77	78	78	78	77	78	79	80	81	82	81	76	76	77	82	77.2	24
4	77	79	79	81	83	84	85	85	85	84	83	82	82	83	86	84	82	78	82	83	83	86	89	89	89	83.1	24
5	88	86	83	81	81	80	81	86	87	87	83	81	77	74	75	80	84	84	82	83	81	81	81	80	88	81.9	24
6	80	79	78	80	79	83	84	84	84	83	82	83	85	87	87	87	87	88	89	88	88	87	87	86	89	84.4	24
7	87	87	87	86	86	86	86	86	85	84	85	84	83	83	84	84	82	82	79	79	79	80	79	80	87	83.5	24
8	80	81	84	84	86	87	88	90	90	90	89	89	89	88	88	88	88	88	87	87	87	88	88	88	90	87.2	24
9	88	87	86	85	85	86	87	85	86	85	83	81	81	80	81	83	86	87	89	89	88	90	88	88	90	85.6	24
10	90	90	90	90	91	90	89	88	87	83	77	69	63	63	80	87	90	78	80	87	91	91	92	91	92	84.5	24
11	84	84	83	82	82	80	81	83	83	78	65	63	61	*55*	58	66	73	78	82	86	92	93	92	90	93	78.1	24
12	86	87	91	90	85	86	93	91	90	91	89	86	81	78	80	85	91	93	94	96	*97*	*97*	94	93	*97*	89.3	24
13	93	93	93	94	93	94	94	94	93	93	92	91	91	90	90	89	91	90	89	89	89	88	88	86	94	91.1	24
14	85	85	86	86	87	86	85	84	86	87	88	89	88	86	87	89	91	89	87	87	84	82	82	82	91	86.2	24
15	83	83	83	84	85	87	87	88	89	90	90	90	89	89	88	88	88	90	92	92	91	91	90	90	92	88.2	24
16	90	89	89	89	89	89	90	90	90	89	88	85	84	84	83	84	85	85	87	87	87	87	86	85	90	87.1	24
17	86	86	86	87	87	88	88	88	88	88	87	86	86	84	86	88	89	91	91	90	91	92	90	90	92	88.0	24
18	89	89	89	90	90	91	92	92	91	91	92	92	91	92	92	92	92	92	**P**	**P**	**P**	**P**	**P**	**P**	92	91.1	18
19	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	87	88	89	89	89	89	89	89	89	89	88	88	88	88	89	88.5	14
20	89	89	89	89	89	89	89	89	89	89	89	88	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	89	88.9	12
21	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**Y**	**Y**	92	92	92	92	93	93	93	92.3	6
22	93	93	93	93	93	92	92	92	92	93	93	94	94	94	95	95	94	94	94	94	94	94	94	94	95	***93.5***	24
23	94	93	93	92	93	93	93	92	92	91	91	92	92	93	93	93	94	94	94	94	93	93	92	92	94	92.7	24
24	92	90	88	86	88	88	89	90	90	90	91	91	92	92	89	87	86	85	85	84	83	80	77	79	92	87.2	24
25	79	79	80	80	79	77	78	78	78	79	78	78	78	78	79	80	80	81	81	80	80	81	82	82	82	79.4	24
26	82	81	81	82	82	81	82	83	83	83	82	82	81	80	81	81	83	85	85	86	86	85	86	85	86	82.8	24
27	84	84	84	83	82	81	79	78	77	75	71	70	69	69	69	70	72	75	75	74	74	74	74	75	84	75.8	24
28	75	73	73	71	71	71	69	69	70	68	67	65	64	66	67	69	71	71	71	71	72	73	73	74	75	70.2	24
29	73	72	72	73	72	72	73	73	73	73	72	72	68	66	68	70	71	73	75	76	76	76	76	76	76	72.5	24
30	77	76	75	76	76	75	76	75	76	75	73	68	60	60	63	66	71	73	74	73	72	72	73	74	77	72.0	24
31	76	77	78	82	84	85	82	77	71	69	67	66	64	65	66	70	75	78	77	75	78	83	85	82	85	75.5	24
HOURLY MAX	94	93	93	94	93	94	94	94	93	93	93	94	94	94	95	95	94	94	94	96	97	97	94	94			
HOURLY AVG	83.3	83.1	83.0	83.3	83.4	83.7	84.1	84.2	83.9	83.2	81.8	80.6	78.8	78.1	79.5	81.3	83.3	83.6	84.1	84.3	84.4	84.4	84.2	84.1			

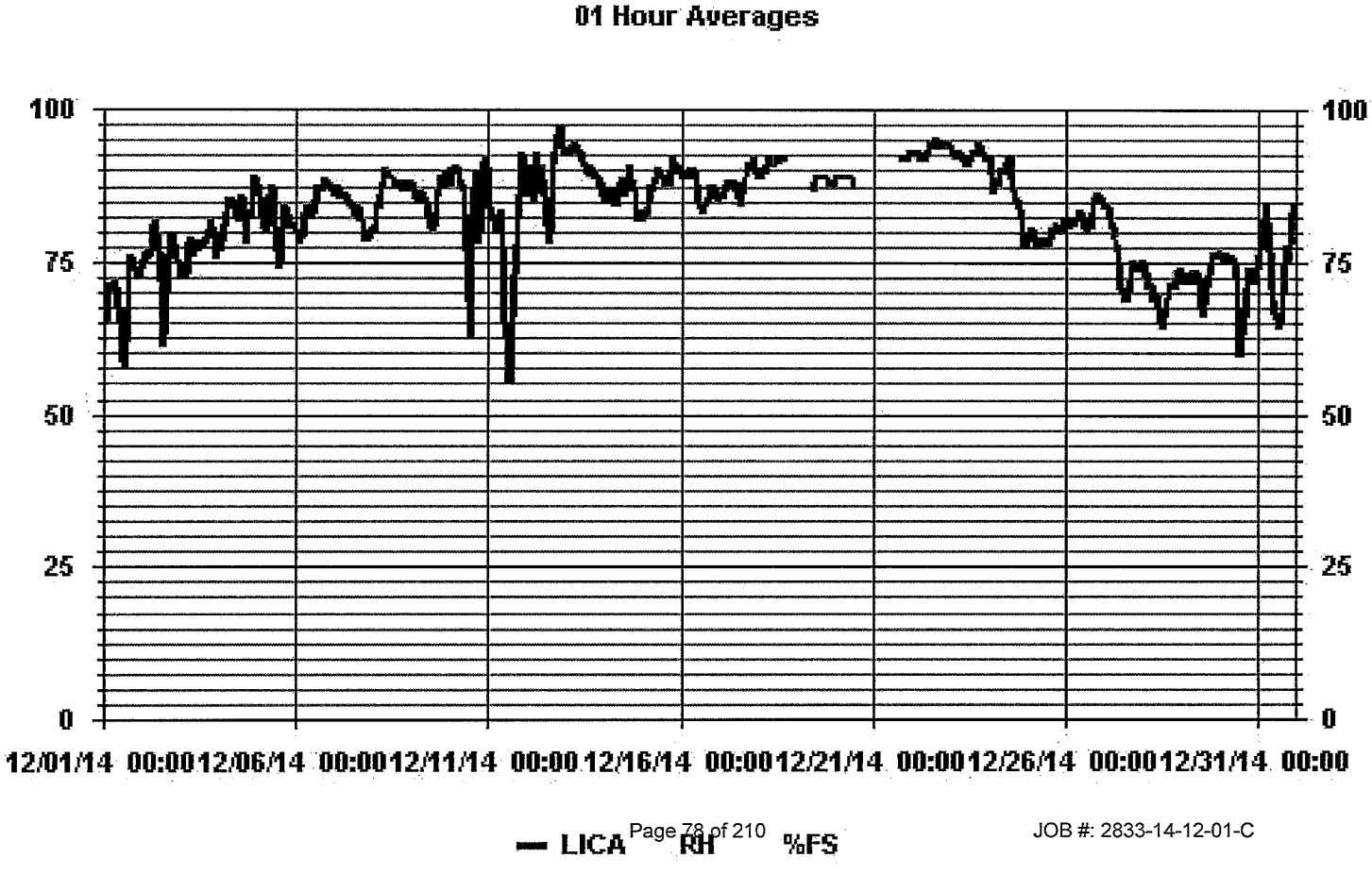
STATUS FLAG CODES

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:	97	%	@ HOUR(S)	20, 21	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	93.5	%			ON DAY(S)	22
					VAR-VARIOUS	
			OPERATIONAL TIME:		698	HRS
			AMD OPERATION UPTIME:		93.8	%
STANDARD DEVIATION:	7.98		MONTHLY AVERAGE:		82.82	%



JOB #: 2833-14-12-01-C

Vector Wind Speed

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

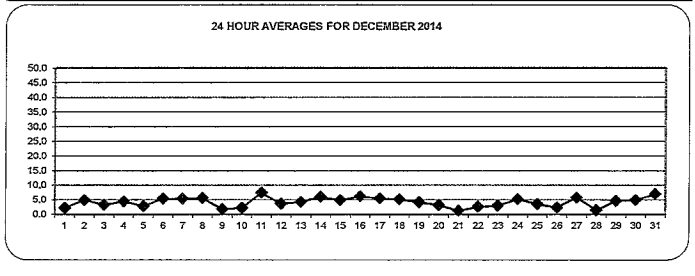
WIND SPEED (WS) hourly averages in km/hr

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	2.3	3.2	3.4	3.5	1.5	1.3	1.1	0.9	0.2	1	2.4	5.5	5.9	5.6	6.2	3.4	0.7	0.3	0.5	0.3	1	0.8	0.1	0.3	6.2	2.1	24
2	0.6	0.7	3	3.7	3.9	3	4.3	5.9	7.6	7.4	6.5	7.9	7.6	10.8	9.1	6.4	5.9	5.6	6	4	3.6	0.5	0.9	1.1	10.8	4.8	24
3	0.5	0.7	0.1	0.8	0.1	3.8	3.9	3.4	1.7	3.1	5.9	5.2	2.5	2.3	1.3	2.5	2	2.3	2.2	2.8	5.5	8.7	7.5	7.5	8.7	3.2	24
4	7.4	6.1	6.7	4.8	5.9	6	3.9	4.1	2.2	3	1.8	2.5	2.6	3.3	4.1	5.7	4.1	5	3.1	4	3.9	5.7	4.7	4.3	7.4	4.4	24
5	4.5	2.8	1.7	0.6	0.8	0.2	1.7	3.3	5.1	5.8	6.4	6.1	5.7	5.1	6.1	1.7	0.6	0.4	1.2	1.4	0.7	0.9	1.2	1.2	6.4	2.7	24
6	1.5	1.5	0.9	2.2	1.3	1.1	3.9	6.6	6	5.2	5.4	6.4	6.9	7.1	7.9	7.7	8.6	8.9	8.9	8.5	6.9	6.7	4.5	3.4	8.9	5.3	24
7	2.8	1.2	0.8	2.4	3.4	4.2	6.1	6.3	8.4	8.8	6.3	6.4	7.2	8.3	5.9	7.6	6.9	7	6.9	6.1	3.2	4.7	4	3.2	8.8	5.3	24
8	2.3	1.5	1.5	2.2	3.1	2	2.7	4	5.7	6.4	5.5	6.8	6.6	9.3	10.3	8.9	10	9.7	8.9	6.4	5.4	5.5	4.6	2.4	10.3	5.5	24
9	2.3	2	1.1	1.2	0.7	2.4	1.9	1.8	2.8	1	3.1	2	2.8	3.7	3.5	1.2	0.3	1.8	0.6	1.3	0.3	2.4	0.2	1.6	3.7	1.8	24
10	2.8	2.9	2.7	2.7	1.1	0.3	1.7	1.1	1.7	0.4	1.9	2.2	2.2	2.7	1.1	1.7	2.6	5.4	2.5	1.4	2.1	2.6	2.6	3.2	5.4	2.2	24
11	12.6	***14.9***	13.8	10	10.8	8.6	8.3	5.4	5.1	3.1	10.9	10.5	8.3	11.7	10.6	7.7	7.4	4.4	4.9	0.7	1.5	0.2	2.2	3.6	***14.9***	***7.4***	24
12	2.9	4.2	6.1	5.7	7.4	1.7	1.8	3.7	5	2.9	1	4.3	4.2	3.6	3.5	1.8	1.3	1	1.5	4.3	3	3.7	5.5	4.4	7.4	3.5	24
13	4.3	5	5	3.7	6	4.1	3.7	3.3	3.4	4.4	2.8	1.9	1.4	1.8	5.6	4.9	5.2	6.8	7.1	3.8	5.2	4.1	3.1	4.4	7.1	4.2	24
14	5.1	3.5	3.9	3.7	9.3	8.4	7.5	4.9	6.3	6	5.9	6.4	6.3	6.1	7.5	7.9	6.1	6.3	6	4.2	4.6	5.5	6.6	4.6	9.3	5.9	24
15	3.1	2.5	3.8	2.6	1.1	1.2	1.7	1.7	2.5	3	3.6	4.4	5.9	7.2	5.7	5.5	6.3	8.7	10.1	6.9	6.5	7.9	5.6	8.6	10.1	4.8	24
16	8.6	7	6	3.7	4.1	3.7	6.5	7.2	5.6	6.2	5.9	6.2	7.9	7.1	5.9	4.7	6.9	5.6	7	8.9	6.7	5	5.9	5.9	8.9	6.2	24
17	7.6	6.7	4.7	4.6	4.6	5.4	4.5	6.6	6.1	6.3	5.8	5.5	6.6	4.6	5.5	5	5.8	8.1	5.9	5.3	4.9	2.8	3.7	3.2	8.1	5.4	24
18	2.3	3.3	3.6	3.8	3.9	5.2	4.3	4.8	5	5.5	6.2	6.9	6.8	6.9	6.2	5.5	4.9	5.8	**P**	**P**	**P**	**P**	**P**	**P**	6.9	5.1	18
19	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	5.1	3.8	3.3	5.1	4.1	3
20	6.7	5.2	5.3	4.8	4.7	0.8	1.5	1.3	0.9	1.7	2	2.7	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	6.7	3.1	12
21	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**Y**	**Y**	0.7	1	0.8	1	2	1.8	2.0	1.2	6
22	1.1	1.9	1.8	1.6	2.1	2.1	2	1.4	1.9	2.8	2.9	2.4	2.9	3.5	3.4	3.3	2.8	3.3	4	3.6	3.1	3	2.8	2.6	4.0	2.6	24
23	3.4	3.1	3.4	3.2	2.9	1.2	2.3	**R**	2.3	1.8	2	0.6	**Y**	**Y**	3.1	1.2	3.2	4.8	2.5	3.7	4.2	5.8	4	2.3	5.8	2.9	21
24	1.3	0.8	0.5	1.4	2.4	2.6	3.8	4.6	2.7	2.3	2.9	2.5	4.2	7.2	12.6	8.9	9.4	9.1	7.5	6.1	7.6	9	9.4	6.3	12.6	5.2	24
25	5	6.8	5.8	4	4.3	6.3	4.4	4.2	2	1.7	0.3	5	3.1	2.1	1.7	2.8	3.6	2.4	3.7	3.9	2.5	1	2.5	3.8	6.8	3.5	24
26	2.6	2	1.6	2.4	1.2	1.7	2.4	2	2.5	3.7	4.5	5.6	5.1	5	3.8	2.1	0.5	0.4	0.8	0.3	0.3	0.3	0.9	2.9	5.6	2.3	24
27	4	4.5	5.2	5	6	7.4	6.8	5.4	5.8	6.3	6.9	6.4	6.2	7.5	6.4	8	8.3	4.9	4.5	3.6	4.5	4.8	5.2	3.2	8.3	5.7	24
28	1.7	0.6	0.4	0.5	0.1	0.3	0.4	0.4	0.3	0.6	0.9	1.9	2.3	2.1	2.2	2.7	2.4	2.2	2.3	1.1	0.6	1.9	2.9	3.6	3.6	1.4	24
29	6.7	3.4	2.3	3.4	3.2	2.7	4.1	4.4	5.2	8.2	8.1	4	4.5	5.9	6.8	5.5	5.5	3.5	3.5	4	3.9	3.9	2.9	3.9	8.2	4.6	24
30	4.8	4	3.1	1.6	2.3	1.6	1.4	1.8	1.9	2.4	3.9	5.5	9.5	11.3	8.4	8.6	7	4.9	4.9	5.2	5.8	5	6.5	5.5	11.3	4.9	24
31	7.7	6.5	5.9	5.1	4.3	5.2	7.1	8.5	9.1	9.7	10.9	10.7	8.7	9.6	6.7	8.4	7.1	7	4.2	4.8	5.6	4	4.8	6.5	10.9	7.0	24
HOURLY MAX	12.6	14.9	13.8	10.0	10.8	8.6	8.3	8.5	9.1	9.7	10.9	10.7	9.5	11.7	12.6	8.9	10.0	9.7	10.1	8.9	7.6	9.0	9.4	8.6			
HOURLY AVG	4.1	3.7	3.6	3.3	3.5	3.3	3.6	3.9	4.0	4.2	4.6	5.0	5.3	6.0	5.8	5.0	4.8	4.8	4.4	3.8	3.7	3.9	3.8	3.7			

STATUS FLAG CODES

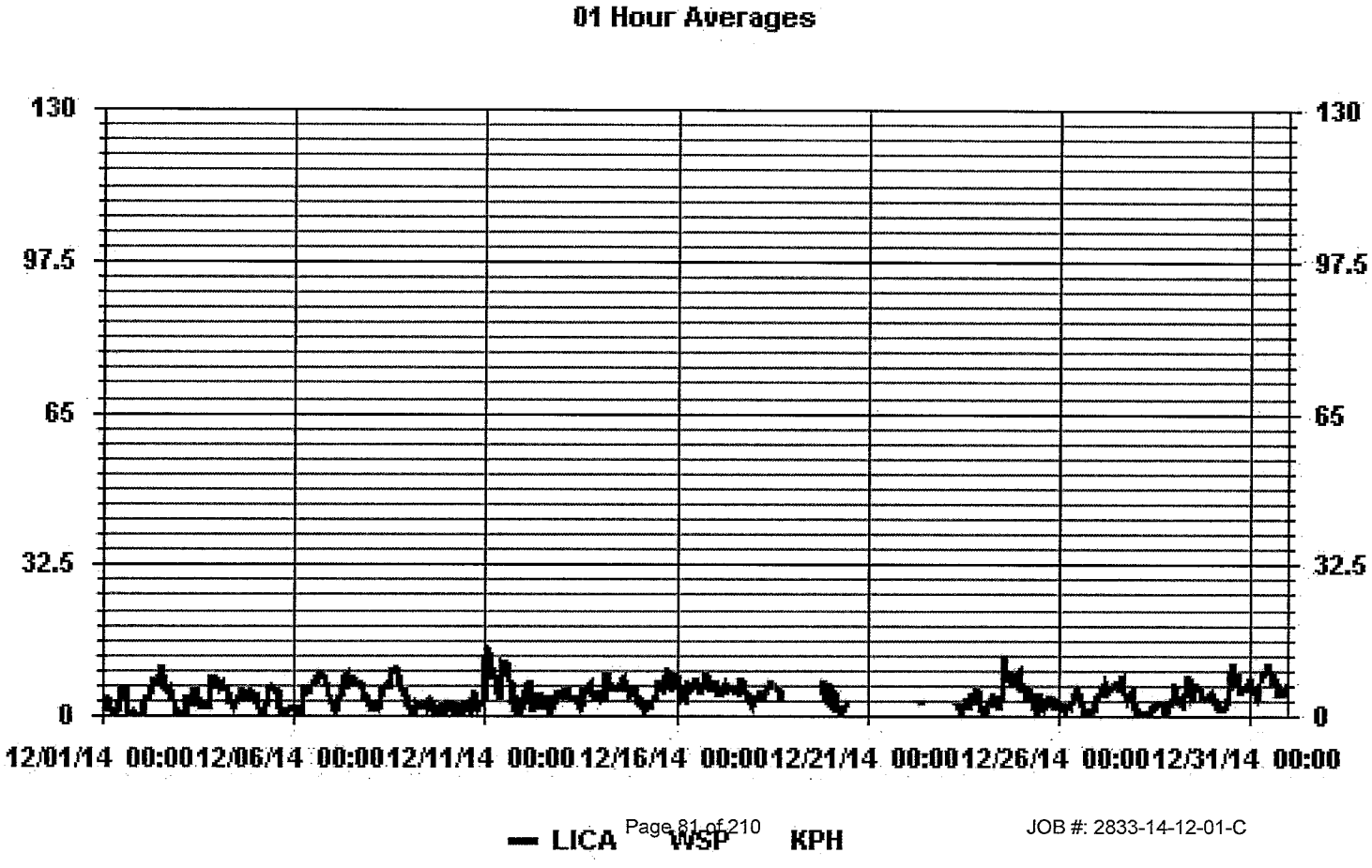
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		684					
MAXIMUM 1-HR AVERAGE:		14.9	KPH	@ HOUR(S)	1	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:		7.4	KPH			ON DAY(S)	11
						VAR-VARIOUS	
				OPERATIONAL TIME:		684	HRS
MONTHLY CALIBRATION TIME:	0	HRS		AMD OPERATION UPTIME:		91.9	%
STANDARD DEVIATION:	2.59			MONTHLY AVERAGE:		4.23	KPH



JOB #: 2833-14-12-01-C

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

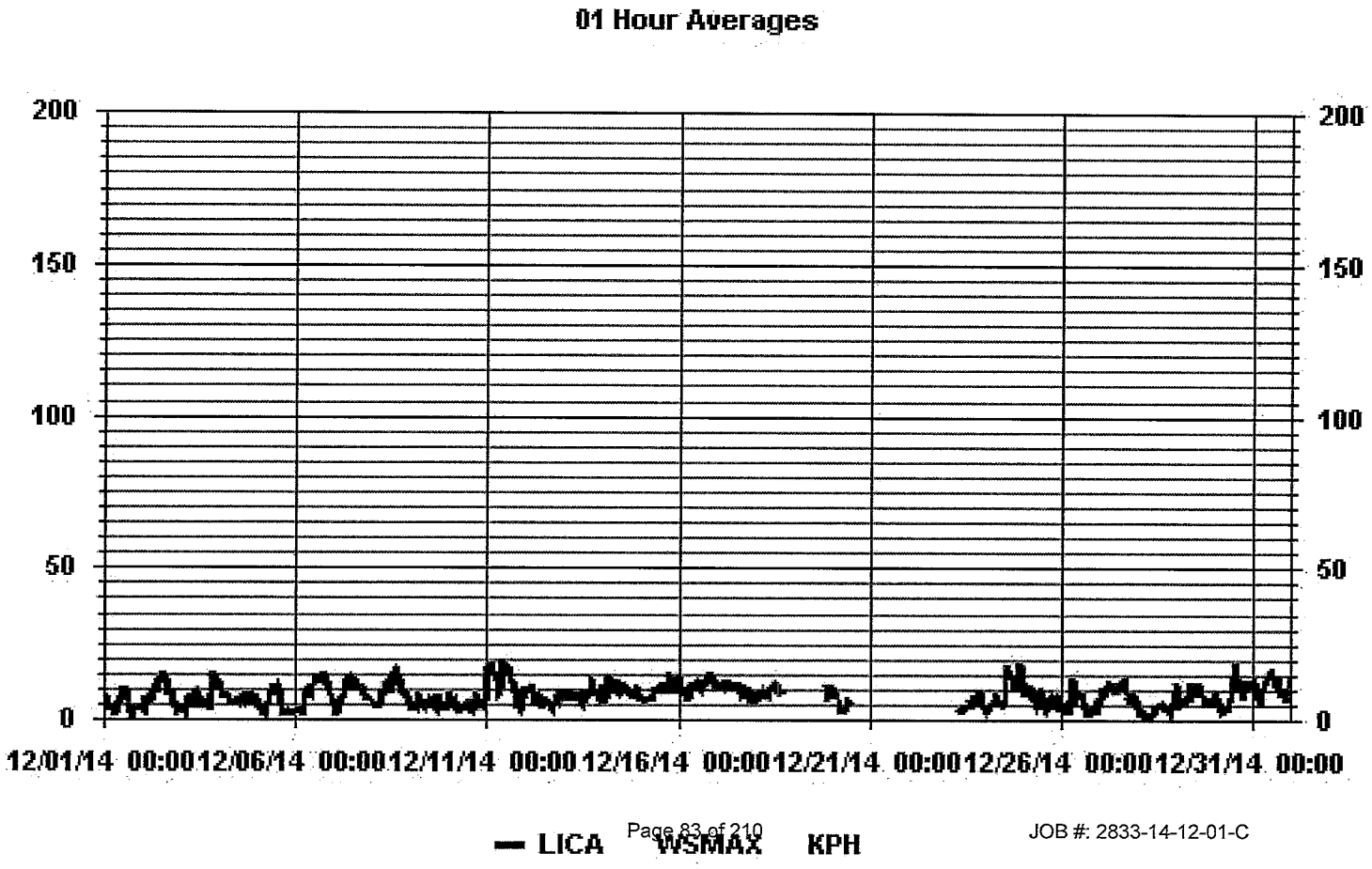
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	4.8	7.7	5.5	5.3	3.7	3.5	3.7	2.4	1.5	5.7	6.9	10.2	10.4	8.4	10.2	6.5	2.6	1.5	2.3	3.3	3.9	4.3	3.3	3.3	10	5.0	24
2	4	3.5	7.5	6.2	7.6	6.6	6.9	8.5	10.9	12.1	11.1	12.5	13	15.9	14	13.4	8.1	9	9.3	6.1	5.8	4.1	5.3	3.2	16	8.5	24
3	3.8	3.6	3.3	2.4	4.4	6.8	7.8	7.7	3.7	8.7	9.4	7.6	5.5	7.1	3.5	6.6	4.9	4.6	6.6	5.8	9.3	15.6	11.4	11.4	16	6.7	24
4	12.2	11.2	9.2	6.9	8.5	8.1	6.5	6.5	4.5	5.9	4.3	6.6	6.5	5.6	6.8	8	7.4	8.5	5.8	6.4	6.6	8.6	7.2	5.8	12	7.2	24
5	6.8	5.8	3.5	4.1	3.3	2.5	5	5.3	8.2	9	11.1	9.3	9.5	11.2	10.2	5.9	2.1	1.9	2.8	2.5	3.4	2.9	2.7	2.5	11	5.5	24
6	3	3.1	3.6	3.8	3	2.8	6.9	9.5	10.4	9.6	8.8	11.1	14.3	12.1	13.3	14.3	13.2	14.6	15.7	13.4	11.1	11.1	8.6	5.7	16	9.3	24
7	5.2	2.6	2.8	5.9	5.7	7.3	8.3	10.3	12.7	13.5	9.5	11	11.7	13.9	9.4	11.7	11.3	9.6	11.3	8.6	6.4	7.9	7.4	6.8	14	8.8	24
8	5.5	4.8	4.8	4.6	4.6	4.7	8.8	8.9	11.5	12.3	10.1	10.7	10.4	15.3	16.2	13.9	14.9	12.9	12.8	9.4	8.7	8.9	7.9	4.9	16	9.5	24
9	6.5	4.1	3.8	4.8	4.2	9.3	5.4	5.5	5.2	4.2	5.8	6.1	7	6.9	7.3	4.9	4.1	7.4	8.4	4.4	4.9	5.2	2.5	5.1	9	5.5	24
10	9.1	6	5.9	4.9	5.8	2.8	3.9	2.4	4.9	2.9	4.7	4.1	5.6	6.8	4.4	3.4	4.8	8.7	7.1	3.7	4.8	5.5	4.8	6.1	9	5.1	24
11	17.4	18.4	18.6	14.5	16.5	15	13.3	8.5	9	9.9	***20***	17.1	15	18.4	15.3	12.5	12.2	8.9	9.9	4.3	4.4	3.3	4.5	6.8	***20***	***12.2***	24
12	10.9	9.6	10.5	10	11.8	8.1	5.5	7.4	8	7.1	3.9	7	6.6	6.4	5.6	5.4	4.3	3.3	4.7	6.8	6	7.3	9.8	7.2	12	7.2	24
13	7.6	9.9	8.5	6.3	10	7.6	7.2	7.1	6.9	9.1	6.7	5.3	4.7	6	10.2	7.7	8.6	13.3	12.7	8.8	9	8.9	7.2	8.2	13	8.2	24
14	11.5	5.2	7.5	6.7	13.7	14.2	13.7	8.7	12.4	9.6	9.1	12.8	10.2	9.3	10.1	11.2	10.8	9.4	8.7	7	9.8	8.8	11.6	8.7	14	10.0	24
15	5.9	7.1	6.9	6.6	6.1	6.4	7.1	6.6	6.7	10.4	8.6	9.9	10.9	11.4	10.2	8.8	11.8	12.4	15.4	12.2	10.2	10.7	10.4	13.3	15	9.4	24
16	13.9	13	10.3	8.4	8.4	5.8	10	10.7	9.7	11.6	11.4	12.5	11.5	11.9	10.5	9.8	11	12.5	14.6	13.4	15.4	11.9	13.8	10.3	15	11.3	24
17	13.1	12	9.3	11.4	9.3	13.5	10.8	11.6	10.4	10.7	12	11.8	11.1	9.8	12.2	8.8	9.6	11.6	8.5	8.7	10.4	5.2	8.2	8.4	14	10.4	24
18	5.1	8.3	6.5	8.5	7.2	9.2	8.3	8.9	8.2	9.9	10.3	11.1	11.9	12.4	12	9.9	9.1	9.7	**P**	**P**	**P**	**P**	**P**	**P**	12	9.3	18
19	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	7.6	7.1	7.6	8	7.4	3
20	11.4	8.9	8.7	8.1	7.3	3	3.2	3.7	3.2	4.2	6.2	5.6	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	11	6.1	12
21	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**Y**	**Y**	2.1	2.3	2.2	2.3	3.6	2.8	4	2.6	6
22	2.5	3.7	3.4	3.9	3.8	3.4	3.5	2.5	3.7	4.7	5.3	5.1	5.1	7.5	5.3	5.5	5	5.4	5.6	5.9	5.5	5	5.1	5.5	8	4.7	24
23	6.7	5.2	7.1	5	5	4	5	**P**	**R**	3.4	3.8	3.8	**Y**	**Y**	5.7	3.2	5.9	8.1	4.5	6.1	7	10.1	6.5	5.6	10	5.6	20
24	4.6	2.9	3.9	2.9	5.7	4.2	6.2	8.8	7.2	6.6	5.7	5.1	6.4	17.7	17.9	16.9	13.8	15.1	11.1	9.2	12.2	16	19.1	10.3	19	9.6	24
25	7.8	12.2	10.2	7.5	8.8	11.3	7.7	6.6	4.7	5.6	9	10.4	6	4.6	3.7	5.4	7	6.2	7.8	6.8	5.1	4.7	7.3	6.7	12	7.2	24
26	5.3	4.9	3.9	4.9	3.4	3.6	8	14.2	4.5	6.9	9	8.8	8.7	8.5	6.3	4.5	2.1	1.8	2.2	3.3	4.5	2.7	2.7	4.9	14	5.4	24
27	7.3	10.2	8.7	9.6	11.4	12	12	9.9	11.1	8.9	11.6	11.8	11	12.2	10.9	12.9	12.8	9.3	7.9	5.2	8.2	8.6	8.5	7.2	13	10.0	24
28	4.4	1.8	1.7	2.2	1.5	0.5	1.3	1.8	1	1.7	2.2	4.1	4.5	4.4	4.8	5.4	4.5	4.1	4.3	2.9	2.2	4.6	4.5	9.7	10	3.3	24
29	12	6.9	5.5	6	5.9	6.2	6.6	8.3	7.9	12.6	11.3	7.4	9.5	11	11	8.1	9.2	5.7	5.7	6.1	6.7	7	6.1	7	13	7.9	24
30	8.4	7.7	5.2	3.8	4.8	4.8	3.3	3.7	3.8	7.5	6.1	9.4	14.5	18.9	11.9	13.8	9.9	8	7.9	9.7	13.3	11.4	13.2	11	19	8.8	24
31	10.9	12.4	11.6	7.4	6.2	6.8	10.1	12.3	12.9	14.5	15.6	16.1	13.3	14.5	11.3	14.6	11.3	10.5	8.1	9.6	10.7	5.9	7.9	12.8	16	11.1	24
HOURLY MAX	17	18	19	15	17	15	14	14	13	15	20	17	15	19	18	17	15	15	16	13	15	16	19	13			
HOURLY AVG	7.8	7.3	6.8	6.3	6.8	6.7	7.1	7.4	7.3	8.2	8.6	9.1	9.4	10.7	9.7	9.0	8.3	8.4	8.0	6.9	7.4	7.5	7.5	7.2			

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 INSTANTANEOUS VALUE:	20	KPH	@ HOUR(S)	10	ON DAY(S)	11
					VAR-VARIOUS	
OPERATIONAL TIME:					683	HRS



JOB #: 2833-14-12-01-C

LICA
WSP / WD Joint Frequency Distribution (Percent)

December 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	2.15	1.53	1.07	2.76	4.91	3.53	7.68	7.06	2.45	2.61	4.14	12.59	9.83	3.84	3.07	1.07	70.35
<	12.0	1.22	.15	.00	.15	3.68	.15	3.68	2.91	.15	.00	.61	3.68	5.83	1.07	1.07	1.53	25.96
<	20.0	.15	.00	.00	.00	.00	.00	.46	.00	.00	.00	.00	.00	.00	.00	.00	.00	.61
<	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	3.53	1.68	1.07	2.91	8.60	3.68	11.82	9.98	2.61	2.61	4.76	16.28	15.66	4.91	4.14	2.61	

Calm : 3.07 %

Total # Operational Hours : 651

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	14	10	7	18	32	23	50	46	16	17	27	82	64	25	20	7	458
<	12.0	8	1		1	24	1	24	19	1		4	24	38	7	7	10	169
<	20.0	1						3										4
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	23	11	7	19	56	24	77	65	17	17	31	106	102	32	27	17	

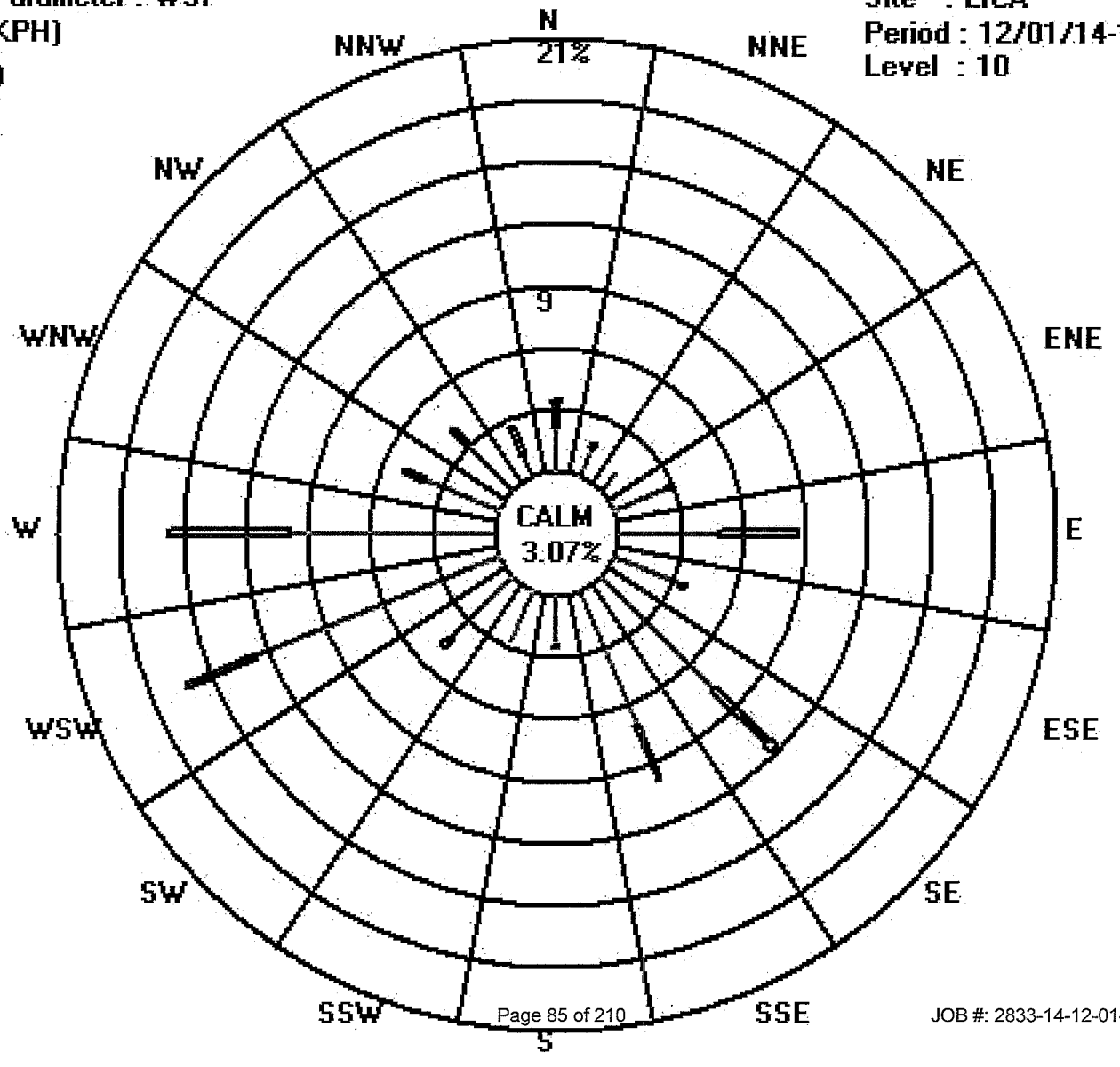
Calm : 3.07 %

Total # Operational Hours : 651

Logger : 01 Parameter : WSP
Class Limits (KPH)

>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0

Site : LICA
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-01-C

Vector Wind Direction

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

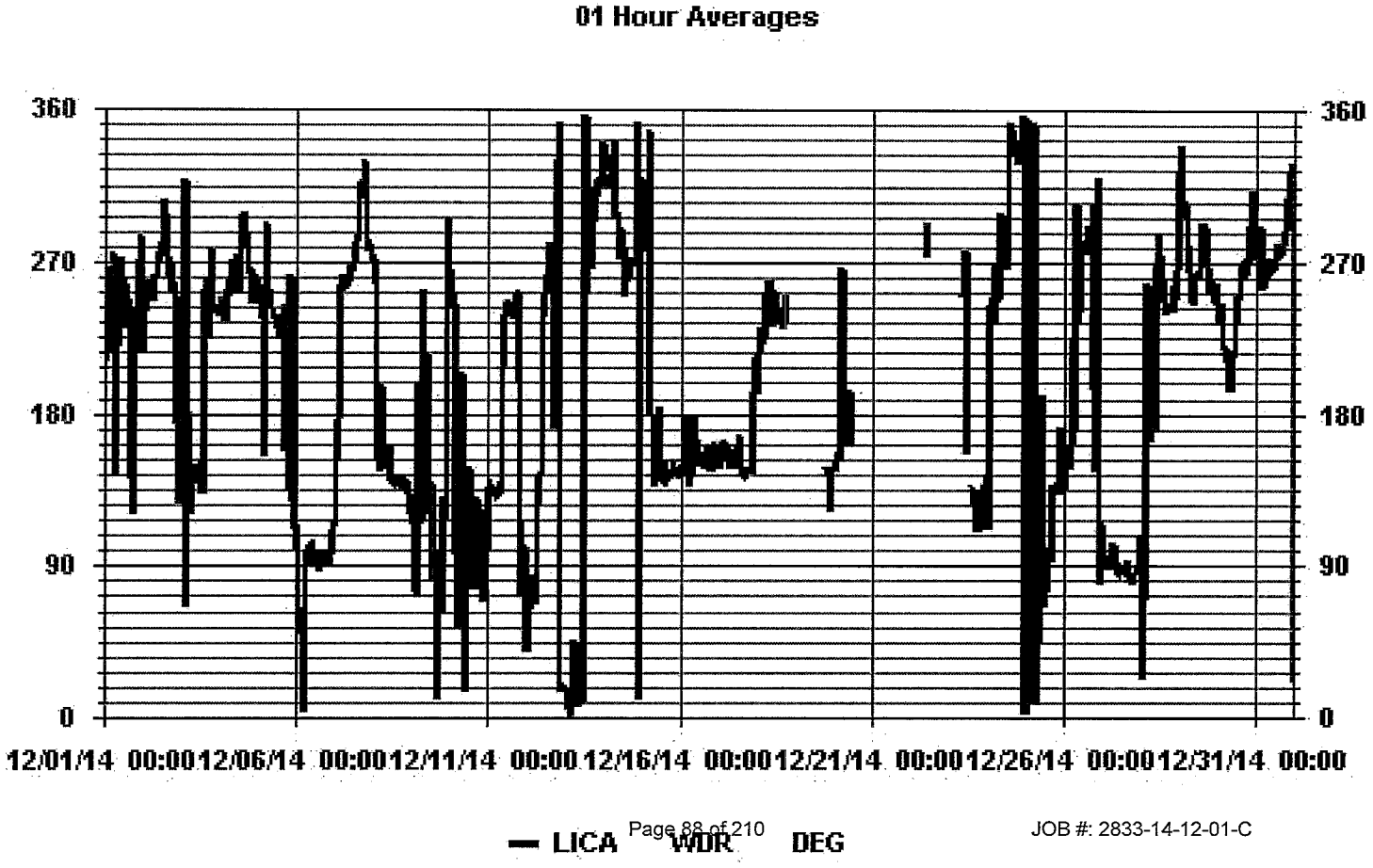
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	213	217	223	264	267	276	243	142	219	256	273	262	258	231	233	247	188	143	120	235	241	272	286	215	286	WNW	24
2	234	241	258	249	260	256	246	262	260	268	276	281	298	306	299	274	264	265	252	258	250	173	193	126	306	NW	24
3	249	228	319	66	183	128	121	150	147	138	141	141	152	132	253	261	259	224	279	269	241	244	241	237	319	NW	24
4	243	249	243	235	251	251	259	257	271	262	274	251	260	280	298	300	289	279	265	265	245	253	257	259	300	WNW	24
5	257	246	236	256	154	293	254	250	243	238	238	236	232	224	237	239	244	157	171	135	263	129	112	116	293	WNW	24
6	101	67	58	50	53	3	89	97	102	103	100	90	97	97	86	99	93	91	99	92	90	97	111	114	114	ESE	24
7	117	152	176	256	253	260	260	261	258	259	269	264	269	282	286	316	317	318	330	309	284	277	280	275	330	NNW	24
8	272	258	179	153	145	197	166	151	147	153	162	142	141	139	141	141	140	139	143	140	137	140	134	122	272	W	24
9	114	119	76	71	198	158	115	253	130	217	123	121	138	137	82	100	10	72	100	63	131	118	296	257	296	WNW	24
10	265	242	251	246	98	54	72	204	85	15	77	97	148	135	95	76	91	130	124	91	69	80	76	99	265	W	24
11	136	138	136	131	133	131	132	133	140	207	238	246	248	242	245	236	245	250	253	200	118	72	93	103	253	WSW	24
12	39	42	64	85	79	67	81	125	143	145	238	251	262	258	282	264	266	170	310	331	353	22	15	18	353	N	24
13	17	9	10	8	1	32	46	36	13	7	22	9	358	250	277	274	265	293	314	309	318	320	332	341	358	N	24
14	323	314	319	314	316	332	343	296	299	280	271	291	280	249	260	261	264	267	273	268	336	353	10	320	353	N	24
15	295	305	276	304	348	180	179	172	136	173	171	184	142	141	151	143	146	142	143	150	149	145	148	142	348	NNW	24
16	144	148	148	164	180	145	136	143	156	180	166	157	149	152	149	157	147	160	150	146	153	163	153	160	180	S	24
17	147	152	162	163	161	161	160	147	150	147	151	160	152	167	149	145	143	144	145	146	146	193	214	197	214	SSW	24
18	192	216	231	223	224	252	241	260	255	239	231	253	244	242	238	239	231	234	P	P	P	P	P	P	260	WSW	18
19	P	P	P	P	P	P	P	P	P	P	X	X	X	X	X	X	X	X	X	X	Y	144	122	146	146	SE	3
20	150	149	155	154	154	267	244	182	192	162	194	162	P	P	P	P	P	P	P	P	P	P	P	P	267	W	12
21	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Y	Y	191	174	219	202	243	249	249	WSW	6
22	307	281	293	303	282	289	276	267	268	275	292	293	296	289	285	283	284	289	280	279	273	259	258	261	307	NW	24
23	252	256	271	261	266	242	243	R	252	262	277	158	Y	Y	136	127	129	133	110	135	132	136	135	144	277	W	21
24	111	245	249	233	249	269	257	247	300	277	284	266	283	336	353	350	336	336	328	330	343	349	357	4	357	N	24
25	4	8	354	9	351	353	7	19	45	160	191	66	74	75	101	96	92	136	136	139	132	172	153	140	354	N	24
26	139	149	155	147	162	224	171	305	234	240	266	277	277	282	283	292	277	194	304	146	210	320	78	116	320	NW	24
27	92	93	94	89	91	92	91	103	99	87	86	89	88	88	90	83	94	82	81	79	85	87	85	92	103	ESE	24
28	107	22	70	258	202	163	254	254	171	270	288	275	247	251	260	239	241	242	246	241	254	253	266	325	325	NW	24
29	338	338	308	297	304	281	266	248	245	260	262	262	265	293	281	293	291	268	256	257	254	249	248	258	338	NNW	24
30	233	238	246	218	221	212	197	193	198	214	218	233	249	249	269	270	263	264	268	292	284	313	302	285	313	NW	24
31	272	275	292	254	260	256	263	266	272	266	267	272	276	281	274	275	277	280	289	308	320	324	329	23	329	NNW	24

STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	684	HRS
STANDARD DEVIATION:	84.35		AMD OPERATION UPTIME:	91.9	%
			MONTHLY AVERAGE:	225	DEG



JOB #: 2833-14-12-01-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Cold Lake South Site

DECEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

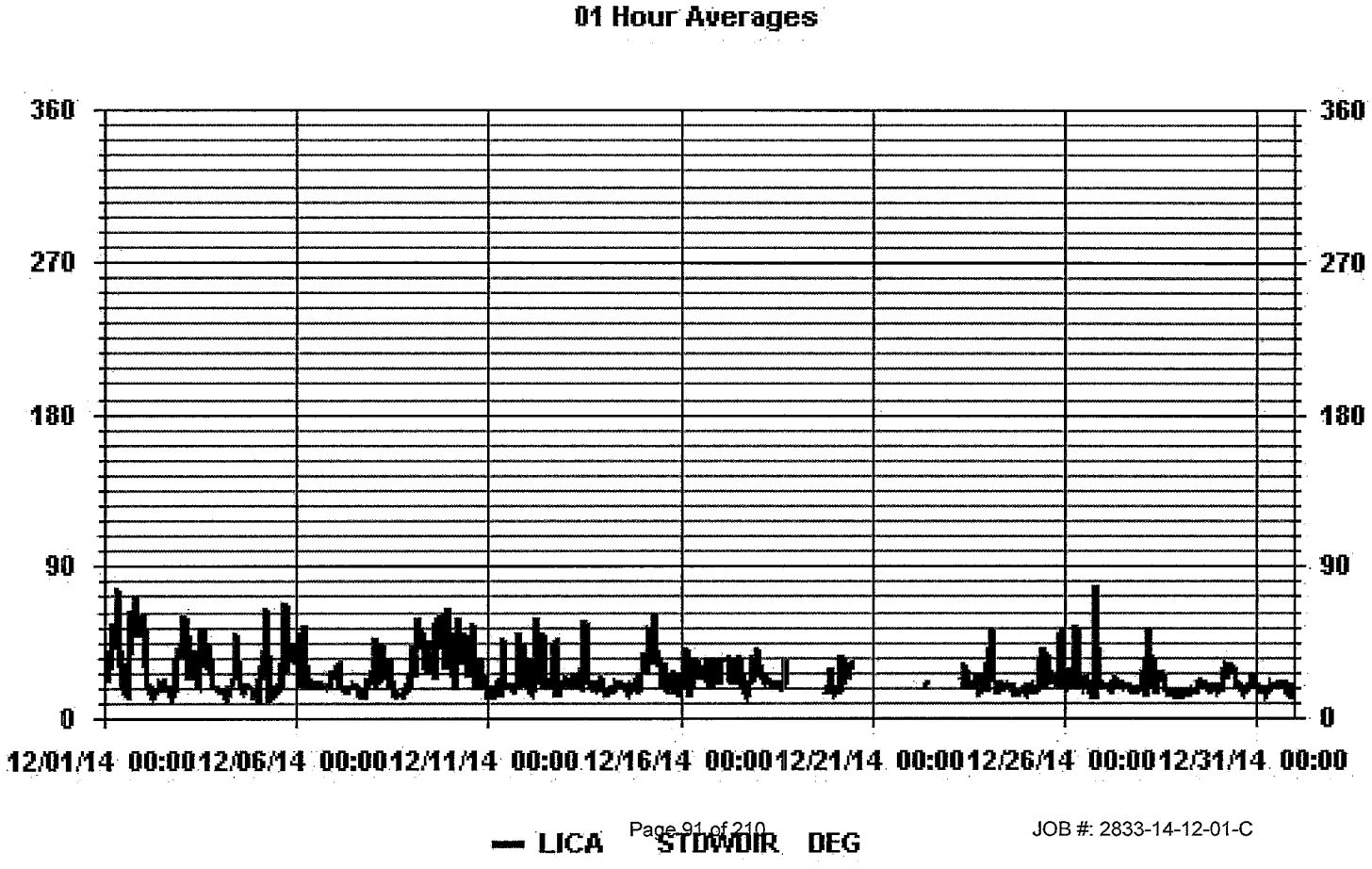
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	40	35	21	28	36	56	45	46	77	42	31	21	18	16	15	33	38	64	56	72	58	48	58	59
2	50	54	32	17	20	15	13	15	15	18	21	20	21	16	18	18	16	19	12	13	15	36	41	36
3	44	49	60	49	49	23	29	32	34	40	20	19	30	54	46	44	43	28	35	28	19	19	18	18
4	17	16	17	16	12	13	19	16	23	24	51	36	28	22	19	16	17	19	19	18	18	15	16	13
5	12	23	31	37	36	65	39	10	16	18	18	15	16	21	17	32	57	68	27	33	42	44	35	43
6	34	33	51	18	34	55	32	17	20	22	21	18	22	18	20	21	19	19	19	18	19	19	26	25
7	26	30	31	19	19	17	16	16	16	18	19	21	20	19	19	14	14	12	16	15	23	21	23	28
8	26	48	38	22	23	45	38	30	22	33	35	17	22	15	14	15	14	14	15	14	18	17	19	27
9	43	24	40	46	59	40	52	49	29	33	25	46	34	29	23	56	60	42	61	55	42	28	66	40
10	50	35	25	17	45	59	32	39	34	50	36	24	43	38	57	26	20	17	30	36	27	21	22	20
11	13	12	12	17	16	19	17	16	24	47	18	18	18	19	19	18	17	19	19	51	41	42	31	18
12	36	28	16	15	20	60	49	34	19	32	50	19	21	20	23	18	39	43	44	13	17	20	20	18
13	23	22	20	18	23	26	21	22	20	19	30	56	56	42	23	21	19	18	15	22	19	21	25	19
14	18	17	12	15	15	17	17	20	18	22	20	21	21	20	18	16	19	17	17	20	23	17	15	26
15	27	39	26	31	52	51	50	62	31	41	37	31	25	18	32	16	19	16	16	25	28	18	26	13
16	17	19	22	40	40	26	12	16	29	34	34	32	23	27	26	28	21	35	25	18	26	36	27	29
17	20	27	34	34	34	35	35	21	25	19	27	35	30	37	28	20	16	14	17	21	22	37	34	36
18	42	32	24	26	25	22	24	22	21	21	18	22	20	20	19	21	19	20	P	P	P	P	P	P
19	P	P	P	P	P	P	P	P	P	P	X	X	X	X	X	X	X	X	X	X	Y	19	30	20
20	15	16	15	15	16	37	20	24	24	32	28	33	P	P	P	P	P	P	P	P	P	P	P	P
21	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Y	Y	29	20	23	27	17	17
22	23	16	22	15	16	17	14	12	15	19	21	22	22	20	19	20	22	21	19	19	19	20	19	19
23	22	16	28	21	21	31	32	P	25	33	17	27	Y	Y	20	22	18	18	26	16	17	17	23	15
24	32	41	54	32	23	15	15	19	22	16	21	17	20	19	18	19	15	14	14	14	15	16	18	16
25	15	18	17	19	17	16	17	17	27	35	41	19	19	38	30	26	20	23	21	18	25	50	54	20
26	19	27	27	18	29	22	28	55	20	20	22	19	21	23	20	22	14	22	11	79	37	41	20	22
27	18	18	18	19	18	17	21	23	23	21	20	21	21	18	19	20	19	17	17	17	16	17	17	18
28	19	28	12	35	54	19	22	37	30	14	21	25	26	24	24	19	17	13	15	16	18	14	11	18
29	13	15	14	15	16	12	16	18	17	16	16	19	21	22	20	21	21	20	17	16	17	19	19	16
30	17	17	21	29	23	31	30	32	26	31	27	20	20	20	18	17	15	17	17	20	22	26	23	20
31	17	20	19	14	16	13	14	17	20	18	19	20	19	20	20	20	19	19	22	16	15	13	13	19

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- 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:	684 HRS



JOB #: 2833-14-12-01-C

Non-Continuous Monitoring

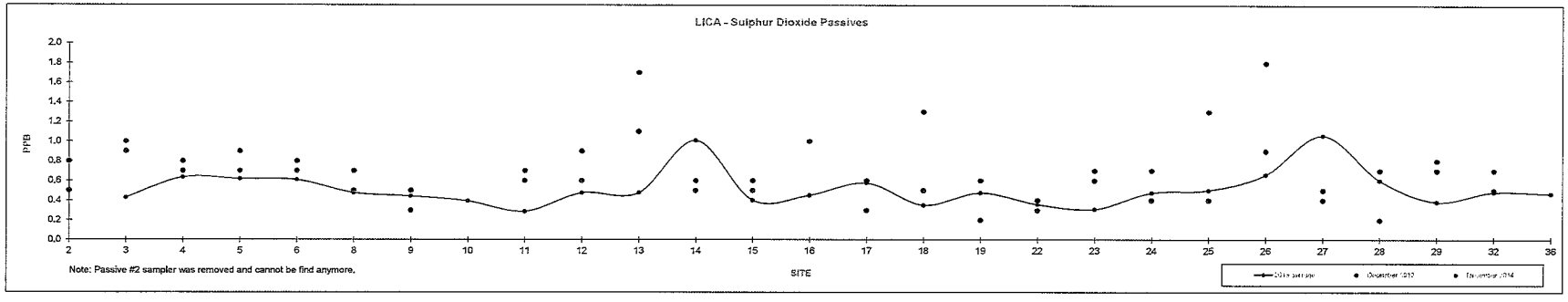
Passive Summary

Passive Summary Results for December 2014

Lakeland Industry & Community Association

Sulphur Dioxide
ppb

	2013																									December 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	0.6	-
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	0.2	#22, #29
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	1.1	#14

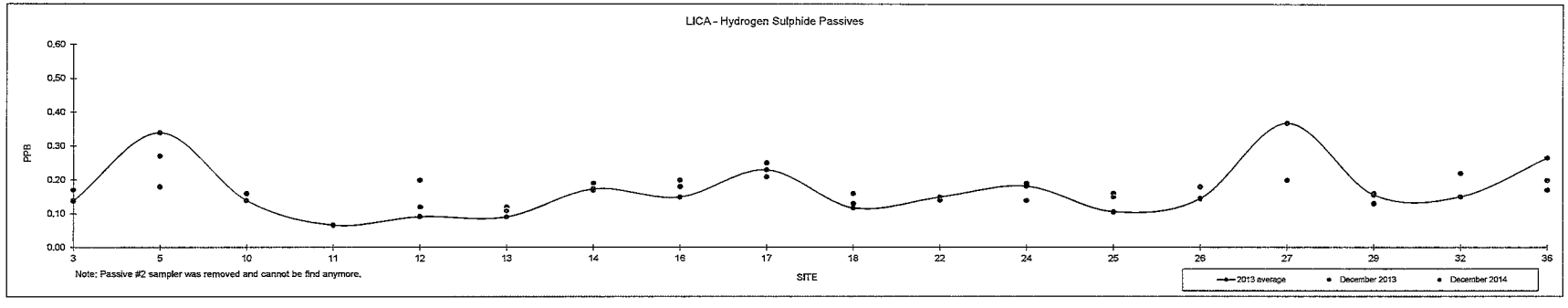


Passive Summary Results for December 2014

Lakeland Industry & Community Association

Hydrogen Sulphide
ppb

	2013																	December 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	0.17	-
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	0.11	#13
Maximum	0.24	0.97	0.31	0.11	0.20	0.16	0.30	0.29	0.44	0.17	0.32	0.32	0.16	0.21	1.23	0.33	0.26	1.38	0.22	#32

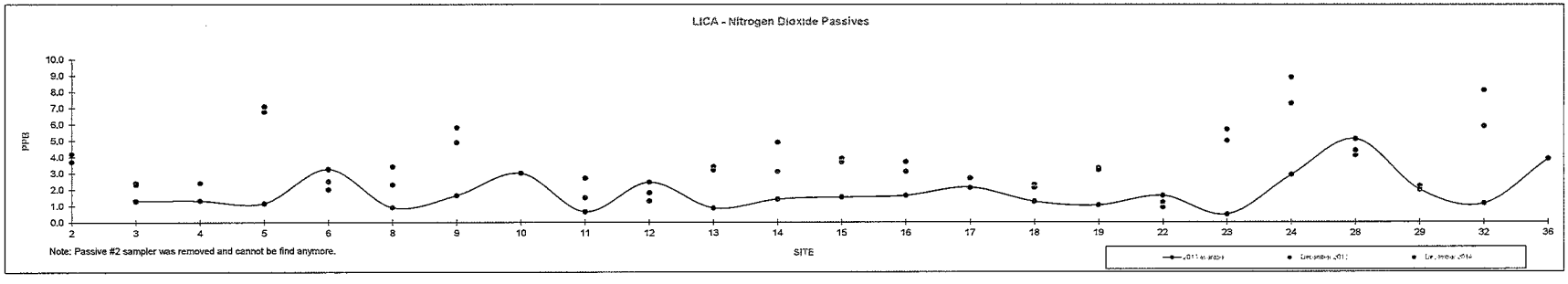


Passive Summary Results for December 2014

Lakeland Industry & Community Association

Nitrogen Dioxide
ppb

	2013																							December 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	1.2	#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	7.3	#28



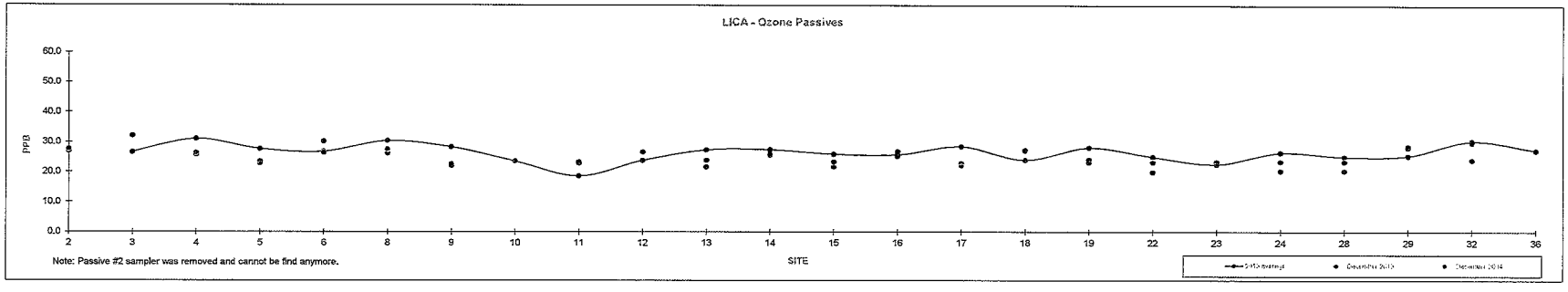
Passive Summary Results for December 2014

Lakeland Industry & Community Association

Ozone
ppb

	2	3	4	5	6	8	9	10	11	12	2013 13	14	15	16	17	18	19	22	23	24	26	29	32	36
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	26.4	23.9	28.1	25.0	22.5	26.5	25.0	25.4	30.3	27.2
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
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

December 2014	
Reading	Site
24.49	-
19.93	#23
30.18	#8



VOC Monitoring

Sample ID: 14120055-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Dec 1, 2014

Priority: Normal

AIR FCD-01320/2

Maxxam
A Bureau Veritas Group Company

RECEIVED
DEC 09 2014

VOC Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: CLS LICA 01
Field Sample ID: LICA/UUC/DEC01, 2014

Sampler S/N: 006167
Canister ID: 42833
Canister Installation Date/Time: Nov 28 2014 @ 09:31
Canister Removal Date/Time:

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 1/14	0000	0000	2400

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	~~22~~

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

-27"Hg on arrival in lab, Sample not taken. JNP.

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: Valve found closed w/ -30" Hg when I walked up to it had 22" Hg? may have been off . . . . don't know how . . . .

Technician Signature: Install

JOB #: 2833-14-12-01-C

Sample ID: 14120107-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 7, 2014

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 1
Field Sample ID: LICA/VOC/CLS/Dec 7 2014

Sampler S/N: 6167
Canister ID: 5625
Canister Installation Date/Time: Dec 4 2014 @ 1012
Canister Removal Date/Time: Dec 7, 2014 @ 8:46

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Dec-14	00:00	24:00	24 HRS

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	648	29

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

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

Comments: 760 psi

installed by Tom Bourque

Technician Signiture: Tom Bourque I SAMPLE OUT FLASK ABID.

Maxxam
A Bureau Veritas Group Company

Date: December 7, 2014
Canister ID: 5625

Parameters	Concentrations (ug/m3)
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	0.26
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	0.18
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

Maxxam
A Bureau Veritas Group Company

Date: December 7, 2014
Canister ID: 5625

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
Chloromethane	0.68
cis-1,2-Dichloroethene	< 0.06
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	0.30
Cyclopentane	< 0.06
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.18
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.63
Hexachloro-1,3-butadiene	< 0.06
Isobutane	1.10
Isopentane	1.98
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	0.37
Methylcyclopentane	< 0.06
Methylene chloride	< 0.06
n-Butane	2.08
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	0.38

Maxxam
A Bureau Veritas Group Company

Date: December 7, 2014
Canister ID: 5625

Parameters	Concentrations (ug/m3)
n-Nonane	< 0.06
n-Octane	< 0.06
n-Pentane	1.78
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	0.12
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: 14120168-003

Customer ID: LICA

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

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 1.
Field Sample ID: LICA VOC/CLS DEC 13, 2014.

Sampler S/N: 6167.
Canister ID: 55587.
Canister Installation Date/Time: DEC 9, 2014 8:46.
Canister Removal Date/Time: DEC 17, 2014 19:45.

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-DEC-14	00:00	24:00	24.

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	648	29.

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	25

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: 21 psi

Technician Signature: Sample in and out RAJA ABID

MaxXam
A Bureau Veritas Group Company

Date: December 13, 2014
Canister ID: S5587

Parameters	Concentrations (ug/m3)
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	0.26
3-Methylheptane	< 0.06
3-Methylhexane	< 0.06
3-Methylpentane	0.18
Acetone	1.57
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	0.08
Chlorobenzene	< 0.06
Chloroethane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: December 13, 2014
Canister ID: S5587

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
Chloromethane	0.62
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	0.16
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.42
Hexachloro-1,3-butadiene	< 0.06
Isobutane	0.29
Isopentane	0.58
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	0.11
n-Butane	0.77
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: December 13, 2014
Canister ID: S5587

Parameters	Concentrations (ug/m3)
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
p-Diethylbenzene	< 0.06
p-Ethyltoluene	< 0.06
Styrene	< 0.06
Tetrachloroethylene	< 0.06
Tetrahydrofuran	< 0.06
Toluene	0.20
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: 15010004-002

Customer ID: LICA

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

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 1
Field Sample ID: LICA/VOC/CLS/ DEC 19, 2014.

Sampler S/N: 6167
Canister ID: ~~2479~~ 2476 → Dec 23, 2014
Canister Installation Date/Time: DEC 17, 2014 19:45
Canister Removal Date/Time: ~~DEC 17, 2014 19:45~~ Dec 23, 2014 @ 14:21
RA

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-DEC-14.	00:00	24:00	24

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.1 → ~~10.0~~ Dec 23, 2014	649	29

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	+23

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

Comments:

Technician Signature: SAMPLE IN RAJA ABID / Removal

Maxxam
A Bureau Veritas Group Company

Date: December 19, 2014
Canister ID: 2476

Parameters	Concentrations (ug/m3)
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	0.40
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

Maxxam
A Bureau Veritas Group Company

Date: December 19, 2014
Canister ID: 2476

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
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	1.43
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.20
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.51
Hexachloro-1,3-butadiene	< 0.06
Isobutane	1.25
Isopentane	1.11
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	2.77
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: December 19, 2014
Canister ID: 2476

Parameters	Concentrations (ug/m3)
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
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: 15010004-004

Customer ID: LICA

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

Maxxam Analytics Inc.

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 1
Field Sample ID: LICA/VOC/CLS/Dec 25, 2014

Sampler s/n: 6167
Canister ID: 5535
Canister Installation Date/Time: Dec 23, 2014 @ 14:30
Canister Removal Date/Time: Dec 28, 2014 @ 20:00

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

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	23

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

Comments:

Technician Signature: Install: [signature]

JOB #: 2833-14-12-01-C

Maxxam
A Bureau Veritas Group Company

Date: December 25, 2014
Canister ID: S5535

Parameters	Concentrations (ug/m3)
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

Maxxam
A Bureau Veritas Group Company

Date: December 25, 2014
Canister ID: S5535

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
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	0.36
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.20
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.50
Hexachloro-1,3-butadiene	< 0.06
Isobutane	0.51
Isopentane	0.76
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	1.95
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06

Maxxam
A Bureau Veritas Group Company

Date: December 25, 2014
Canister ID: S5535

Parameters	Concentrations (ug/m3)
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
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: 15010016-002

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 31, 2014

AIR ECD-01320/2

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Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA1
Field Sample ID: LICA/VOC/CLS/Dec 31, 2014

Sampler S/N: 6167
Canister ID: S5633
Canister Installation Date/Time: Dec 28, 2014 @ 20:01
Canister Removal Date/Time: Jan 5, 2015 @ 12:02

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 31, 2014	00:00	24:00	24

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	23

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

Comments:

Technician Signiture: Alex Yakupov

Maxxam
A Bureau Veritas Group Company

Date: December 31, 2014
Canister ID: S5633

Parameters	Concentrations (ug/m3)
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

Maxxam
A Bureau Veritas Group Company

Date: December 31, 2014
Canister ID: S5633

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
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	0.20
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.50
Hexachloro-1,3-butadiene	< 0.06
Isobutane	0.62
Isopentane	0.60
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	1.75
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	< 0.06

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Date: December 31, 2014
Canister ID: S5633

Parameters	Concentrations (ug/m3)
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
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

PAH Monitoring

Sample ID: 14120055-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Dec 1, 2014

Priority: Normal

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: COLD LAKE SOUTH
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/DEC 01, 2014

Puf+ S/N: TE06
Motor S/N: 1020 - 1020
Installation Date/Time: NOV 28, 2014 @ 09:18
Removal Date/Time:

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
DEC-01-14	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: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
713	296.14	-22.1	330.14

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: [signature]

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

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	1.36
2-Methylnaphthalene	2.11
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.15
Acenaphthylene	0.09
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	< 0.01
Chrysene	0.03
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	0.22
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	2.95
Perylene	< 0.01
Phenanthrene	0.27
Pyrene	0.05
Retene	0.09

Sample ID: 14120107-002

Customer ID: LICA

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

Puf+ S/N: TE-02
Motor S/N: 100-1020
Installation Date/Time: Dec 4, 2014 @ 10:55
Removal Date/Time: Dec 9, 2014 ~~Dec 8~~ ~~8:46~~ 8:46 RA

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Dec-14	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: 01-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
716	229	-7.0	330.16.

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

Comments: INSTALLED BY TOM

Technician Signiture: Tom Bourque SAMPLE OUT RAJA ABIS.

Maxxam
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Date: December 7, 2014
PUF S/N: TE02

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.18
2-Methylnaphthalene	0.23
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.04
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	0.07
Fluorene	0.19
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	0.29
Perylene	< 0.01
Phenanthrene	0.31
Pyrene	0.04
Retene	0.07

Sample ID: 14120168-004

Customer ID: LICA

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

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 1
Field Sample ID: LICA PUF1 CLS DEC 13, 2014

Puf+ S/N: TE 11
Motor S/N:
Installation Date/Time: DEC 9, 2014 @ 8:46
Removal Date/Time: DEC 22, 2014 @ 8:45

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-DEC-14	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: 01 SEP 11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
712	229.	0	330.18

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

Comments:

Technician Signature: SAMPLE IN RAIN ABID

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Date: December 13, 2014
PUF S/N: TE11

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.08
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.05
Acenaphthylene	0.02
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
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	0.06
Fluorene	0.15
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.17
Perylene	< 0.01
Phenanthrene	0.21
Pyrene	0.04
Retene	0.04

Sample ID: 15010004-003

Customer ID: LICA

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

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Hi-Vol PUF+ Sample Collection Data Sheet Dec 23, 2014

Client: LICA
Location: CLS
Station ID: LICA 1
Field Sample ID: LICA/PUF/CLS/ DEC 19, 2014

Puf+ S/N: ~~P13-01~~ P13-01
Motor S/N: 1
Installation Date/Time: DEC 17, 2014 @ 19:45
Removal Date/Time: Dec 23 2014 @ 14:37

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-DEC 14	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: 01 SEP-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
711	229	-9.6	330.16

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

Comments:

Technician Signiture: SAMPLE IN RAJA ABID / Removed

Maxxam
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Date: December 19, 2014
PUF S/N: P13-01

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.25
2-Methylnaphthalene	0.35
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.07
Acenaphthylene	0.07
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.04
Benzo(c)phenanthrene	0.02
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.08
Fluorene	0.13
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.38
Perylene	< 0.01
Phenanthrene	0.25
Pyrene	0.07
Retene	0.10

Sample ID: 15010004-005
Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 25, 2014

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Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA / PUF / CLS / Dec 25 2014

Puf+ s/n: TE 07
Motor s/n: 1021 - 1022
Installation Date/Time: Dec 25 2014 @ 14:39
Removal Date/Time: Dec 28, 2014 @ 20:10

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 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: 9-Sep-2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m^3)
715	229	-14.4	330.18

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

Comments:

Technician Signature: SAMPLE IN CHRIS WESSON SAMPLE OUT · RAJA ABBAS.

JOB #: 2833-14-12-01-C

Maxxam
A Bureau Veritas Group Company

Date: December 25, 2014
PUF S/N: TE07

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.23
2-Methylnaphthalene	0.34
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	0.04
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.48
Perylene	< 0.01
Phenanthrene	0.16
Pyrene	0.04
Retene	0.04

Sample ID: 15010016-003

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Dec 31, 2014

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Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA01
Field Sample ID: LICA/PUF/CLS/Dec 31, 2014

Puf+ S/N: 9702
Motor S/N: 100-1020
Installation Date/Time: Dec 28, 2014 @ 20:14
Removal Date/Time: Jan 5, 2015 @ 11:20

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 31, 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: 01 Sep - 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
714	229	-4.5	330.20

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

Comments:

Technician Signiture: Sample in Alex Vakupov / Sample out: Alex Vakupov

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Date: December 31, 2014
PUF S/N: 9702

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.11
2-Methylnaphthalene	0.18
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	0.03
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	0.07
Fluorene	0.14
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.25
Perylene	< 0.01
Phenanthrene	0.23
Pyrene	0.05
Retene	0.03

Partisol

Sample ID: 15010005-001

Customer ID: LICA

Cust Samp ID: P4089561

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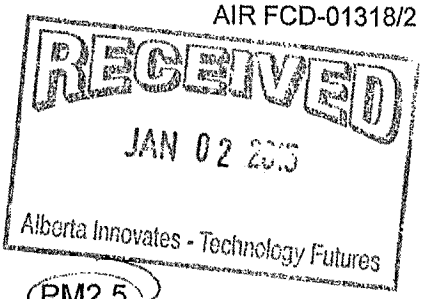
Partisol Sample Data Sheet



Priority: Normal

Date Sampled: Dec 19, 2014

Location: CLS

Parameter: ~~TSP~~ PM10 (PM2.5)

Filter #: P4089-561

Start Time Dec 19, 2014 [illegible]

End Time Dec 20, 2014 [illegible]

Status OK

Std Vol 20.443

Valid Time 24.05

Total Time 24.00

Comments: Weather Conditions, etc.

Technician Signature: _____

Programming

1) Make sure system is in "Stop Mode"
2) "ESC" to Time Screen then "Program"
3) Enter Beg 1 — 0:00
4) Enter Dur — 24:00:00
5) Enter Beg D — dd-Aug
6) Enter End D — dd-Aug
7) "Stop/Run"
8) **Make Sure it is left in RUN mode**

Note: Beginning & End Date should be same date

Sample ID: 15010005-002

Customer ID: LICA

Cust Samp ID: P4089558

Priority: Normal

Partisol Sample Data Sheet

Date Sampled: Dec 25, 2014

Location: CL>

Parameter: ~~TSP~~ PM10 (PM2.5)

Filter #: P4089558

Start Time 00:00

End Time 24:00

Status O.K. 1

Std Vol 20,543

Valid Time 19:09

Total Time 24:00

Comments: Weather Conditions, etc.

Technician Signature:

Programming
1) Make sure system is in "Stop Mode"
2) "ESC" to Time Screen then "Program"
3) Enter Beg 1 0:00
4) Enter Dur 24:00:00
5) Enter Beg D dd-Aug
6) Enter End D dd-Aug
7) "Stop/Run"
8) **Make Sure it is left in RUN mode**

Note: Beginning & End Date should be same date

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Partisol Sample Data Sheet

Date Sampled: DEC 31, 2014

Location: CLS

Parameter: TSP PM10 (NA) PM2.5

Filter #: P4089 S6059

Start Time 00:00

End Time 24:00

Status OK

Std Vol 22,934

Valid Time 22:18

Total Time 24:00

Sample ID: 15010019-001

Customer ID: LICA

Cust Samp ID: CLS - Filter # P4089559

Priority: Normal

Comments: Weather Conditions, etc.

Technician Signature: ALEX

Programming
1) Make sure system is in "Stop Mode"
2) "ESC" to Time Screen then "Program"
3) Enter Beg 1 0:00
4) Enter Dur 24:00:00
5) Enter Beg D dd-Aug
6) Enter End D dd-Aug
7) "Stop/Run"
8) **Make Sure it is left in RUN mode**

Note: Beginning & End Date should be same date

Calibration Reports

Sulphur Dioxide

Maxxam Thermo 43i SO2 Analyzer Calibration

Date:	4-Dec-14	**Start/End Time (mst):**	0932-1224
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-18

Analyzer:

Serial Number:	AMU 1771	**Range ppb:**	500
Last Calibration Date:	5-Nov-14	**As Found C.F.**	1.018
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.995

		As found:		As left:
	BKG:	6.8	BKG:	7.7
	COEF:	1.128	COEF:	1.147
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	23.9	24.0	23.9
	-3.3	-3.2	-3.3	-3.2
INTERFACE BOARD:	PMT:	-631.6	PMT:	-631.6
	FLASH:	714	FLASH:	714
	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:	44.9	CHAMBER:	44.9
	PERM OVEN GAS:	45.00	PERM OVEN GAS:	45.00
	PERM OVEN HEATER:	44.18	PERM OVEN HEATER:	44.18
	PRESSURE:	674.7	PRESSURE:	674.7
	SAMPLE FLOW:	.437	SAMPLE FLOW:	.437
	LAMP INTENSITY:	76 %	LAMP INTENSITY:	76 %
	CONVERTER:	na	CONVERTER:	na
	CONVERTER SET:	na	CONVERTER SET:	na
	Internal Span:	403.5	Internal Span:	407

Calibrator:

Flow Meter ID's:	na
Make & Model:	Environics 6100
Serial #:	4760
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	0.4	NA
adjusted zero	5000	0.0	5000	0	-0.3	NA
as found high	4995	34.87	5030	334.2	328.0	1.018
adjusted high	4995	34.87	5030	334.2	334.0	1.000
mid	4995	17.94	5013	172.5	173.3	0.994
low	4995	8.97	5004	86.4	86.8	0.992
callbrator zero	5000	0.00	5000	0	-0.1	NA
					Average C.F.=	0.995

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	1.000	> or = 0.995	PASS
Slope =	1.000	0.85-1.15	PASS
b (Intercept as % of full scale)=	-0.03%	± 3% F.S.	PASS
% change in C.F. from last cal	-1.68%	± 15%	PASS

Converter Effeciency Check for H_2S/TRS application:

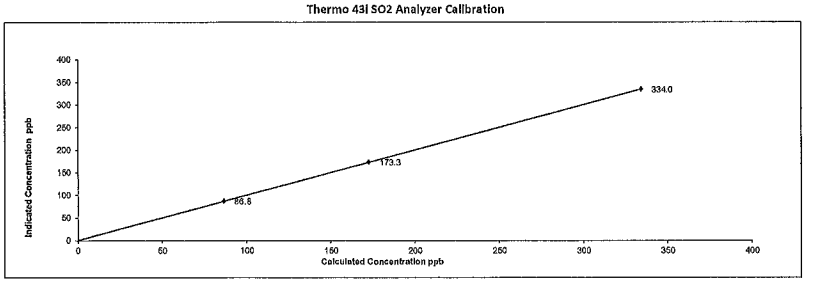
****run converter effeciency test immediately following zero adjust****

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

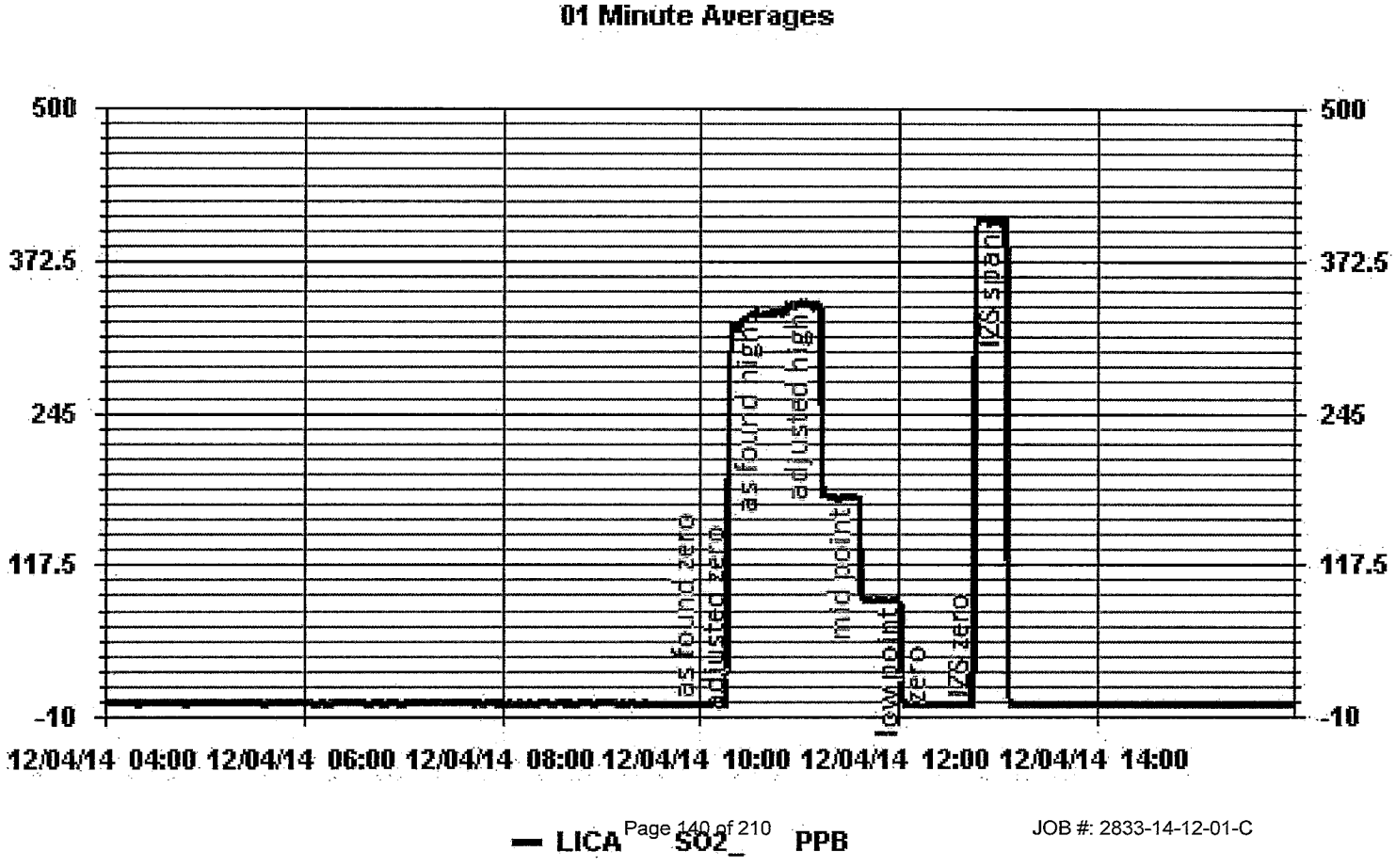
Comments:

changed filter

Thermo 43i SO2 Analyzer Calibration



JOB #: 2833-14-12-01-C



JOB #: 2833-14-12-01-C

Total Reduced Sulphur

Maxxam Thermo 450i TRS Analyzer Calibration

Date:	4-Dec-14	**Start/End Time (mst):**	0944-1238
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:	5-Nov-14	**As Found C.F.**	0.958
Previous Cal High Point C.F.:	0.998	**New C.F.:**	0.984

		As found:	As left:
	BKG:	13.9	13.0
	COEF:	.988	.933
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:	-650.5	-650.5
	FLASH:	743	743
	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:	44.9	44.9
	CONVERTER TEMP:	326.8	326.8
	CONVERTER SET:	325	325
	PERM OVEN GAS:	45.00	45.00
	PERM OVEN HTR:	44.38	44.38
	PRESSURE:	653.8	653.8
	SAMPLE FLOW:	.507	.507
	LAMP INTENSITY:	92 %	92 %
	Internal Span:	39.09	37.00

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	831
Cal Gas Cylinder I.D. # :	BLM005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	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	-0.2	NA
as found high	4996	39.00	5035	78.2	81.5	0.958
adjusted high	4996	39.00	5035	78.2	78.3	0.997
mid	4996	19.00	5015	38.3	38.8	0.982
low	4996	11.00	5007	22.2	22.6	0.974
calibrator zero	5000	0.00	5000	0	0.2	NA
					Average C.F.=	0.984

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	1.000	> or = 0.995	PASS
Slope =	0.998	0.85-1.15	PASS
b (Intercept as % of full scale)=	-0.14%	± 3% F.S.	PASS
% change in C.F. from last cal	4.04%	± 15%	PASS

Converter Effeciency Check for H_2S/TRS application:

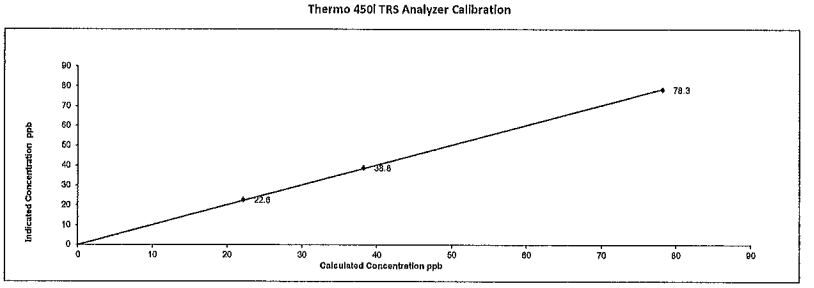
****run converter effeciency test immediately following zero adjust****

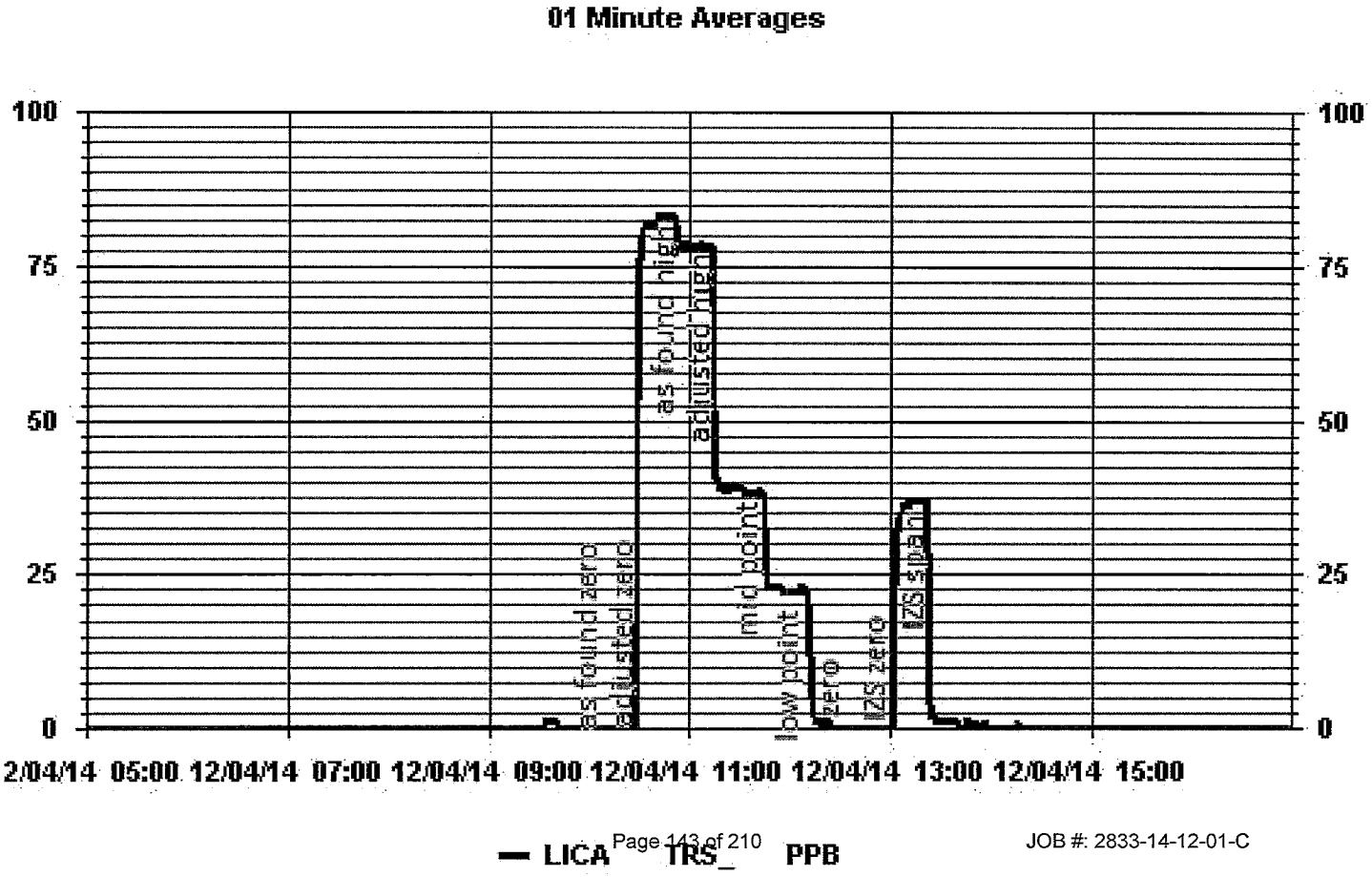
SO_2 High Point gas concentration:	86.8	Time gas run (mst):	0926-0930
Zero corrrected analyzer response:	0.24		

Comments:

changed filter

Thermo 450I TRS Analyzer Calibration





JOB #: 2833-14-12-01-C

Total Hydrocarbons

Maxxam Thermo 51C THC Analyzer Calibration

Date:	4-Dec-14	**Start Time (mst):**	13:13
Company:	LICA	**End Time (mst):**	16:34
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:	5-Nov-14	**As Found C.F.**	1.008
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.005

		As found:	As left:
	H_2 cylinder (psi):	1800	1800
	H_2 cylinder reg set (psi):	20	20
	Span Cylinder (psi):	1500	1500
	Span Cylinder Reg Set (psi):	24	24
	Zero Air Gen Pressure:	35	35
	measurement alarms:	none	none
	service alarms:	none	none
FID status:	cnt:	14246	14246
	rng:	1	1
	try:	5	5
	flm:	182.5	182.5
	det:	125.4	125.4
Oven Readings:	Flame:	182	182
	Filter:	125	125
	Base:	125	125
	Pump:	6.50	6.50
Voltages:	+5	5	5
	+15	15	15
	-15	-15	-15
	Internal Span:	32.71	32.52

Calibrator:

Flow Meter ID's:	na	
Make & Model:	API 700	
Serial #:	831	
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	3000	0	3000
high	3000	80	3080
mid	3000	40	3040
low	3000	20	3020

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	3000	0.00	3000	0	-0.04	NA
adjusted zero	3000	0.00	3000	0	-0.01	NA
as found high	3000	80.00	3080	30.05	29.81	1.008
adjusted high	3000	80.00	3080	30.05	30.04	1.000
mid	3000	40.00	3040	15.22	15.06	1.010
low	3000	20.00	3020	7.66	7.62	1.004
calibrator zero	3000	0.00	3000	0	0.05	NA
					Average C.F.=	1.005

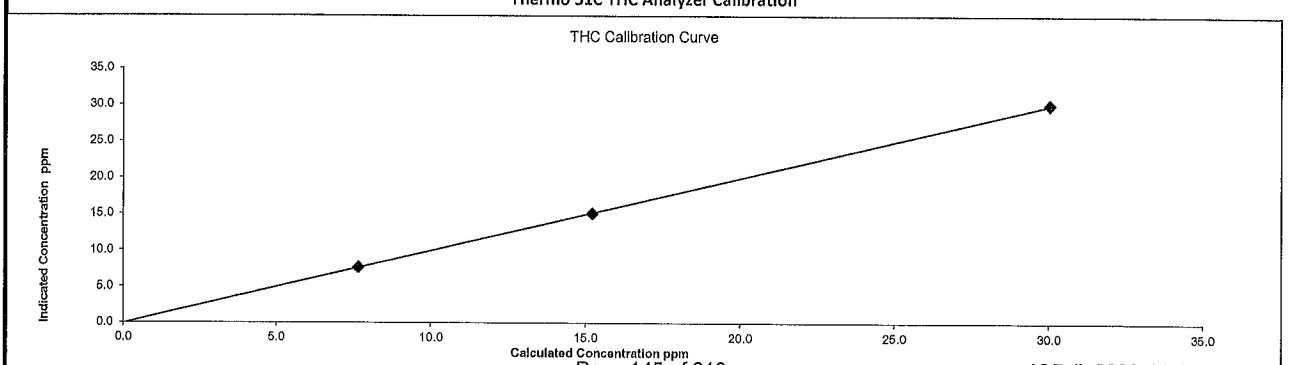
Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.000**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.105%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-0.77%**	**± 15%**	**PASS**

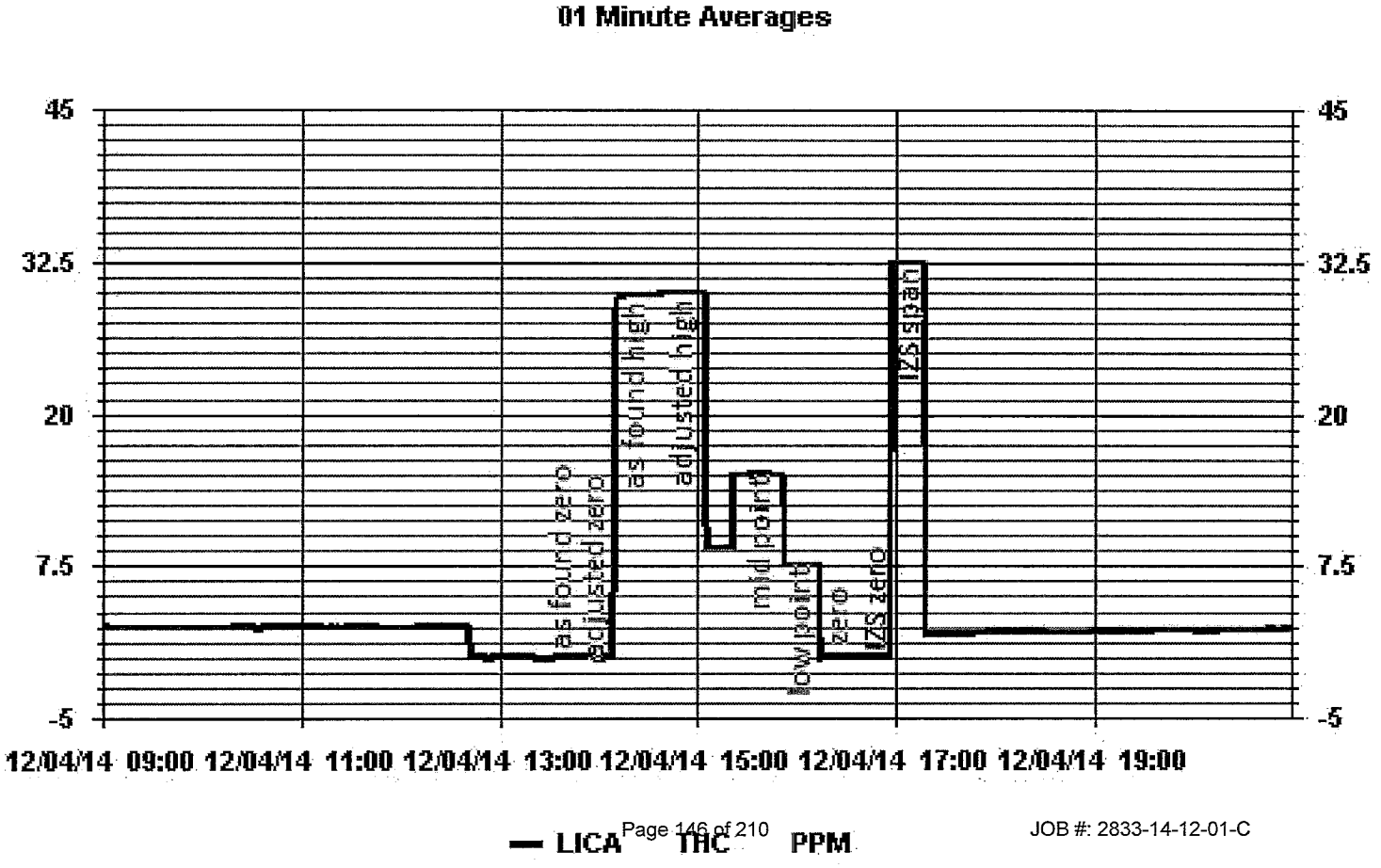
Comments:

changed filter, daily z/s program interrupted as found zero

Thermo 51C THC Analyzer Calibration



JOB #: 2833-14-12-01-C



JOB #: 2833-14-12-01-C

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	4-Dec-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	Cold Lake South	**Start/End Time (mst):**	1127-1418
Previous Audit Date:	28-Nov-14	**Calibration Purpose:**	routine monthly

1400A Information and Status:

Serial Number:	1405A201620804	**As Found Filter Loading %:**	23.28 %
Ko Factor:	14578	**As Left Filter Loading %:**	20.23
Ambient Temperature °C:	-5.95	**As Found Noise:**	0.004
Ambient Pressure atm:	.934	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.34
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	0.22	0.03	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.26	0.27	0.23	0.27
	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	0.22	0.03	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.26	0.27	0.23	0.27
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-6.0	**1405F pressure atm:**	0.934
reference temperature °C:	-6.8	**reference pressure:**	0.945
difference °C:	-0.9	**difference :**	-0.011

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

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-6.0	**1405F pressure atm:**	0.942
reference temperature °C:	-6.8	**reference pressure:**	0.945
difference °C:	-0.9	**difference :**	0.003

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:	2.96	**reference total/aux flow lpm:**	16.83
difference lpm:	-0.04	**difference lpm:**	0.16

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:	2.96	**reference total/aux flow lpm:**	16.83
difference lpm:	-0.04	**difference lpm:**	0.16

K_o Audit:

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

Comments:

JOB #: 2833-14-12-01-C

change sample filter and zero reference filter, attempted Ko audit - would not pass - then noticed date of weight on filter was in 2010 - will get new filter and re-attempt

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	23-Dec-14	**Parameter:**	PM 2.5
Company:	LICA	**Performed by:**	Chris W / Alex Y
Station Name/Location:	Cold Lake South	**Start/End Time (mst):**	13:25 - 14:12
Previous Audit Date:	4-Dec-14	**Calibration Purpose:**	2nd Audit

1400A Information and Status:

Serial Number:	1405A20620804	**As Found Filter Loading %:**	34.10
Ko Factor:	14578	**As Left Filter Loading %:**	22.26
Ambient Temperature °C:	-4.50	**As Found Noise:**	0.005
Ambient Pressure atm:	0.944	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.35
Aux Flow Reading lpm:	13.64	**Warnings:**	None

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher	Brunton
Model:	475 Mark III	FB61291	APC-Summitt
Serial Number:	NA	130168457	NA
Calibration Date:	NA	25-Mar-14	NA

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.22	0.03	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.26	0.27	0.22	0.27
	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	0.22	0.03	0.22
	limit	0.15		0.15	
Bypass Flow	actual	0.26	0.27	0.22	0.27
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**
1405F temperature °C:	-4.5	**1405F pressure atm:**	0.944
reference temperature °C:	-4.2	**reference pressure:**	0.935
difference °C:	0.3	**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:	-4.5	**1405F pressure atm:**	0.944
reference temperature °C:	-4.2	**reference pressure:**	0.935
difference °C:	0.3	**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:**	13.64
reference main flow lpm:	2.96	**reference total/aux flow lpm:**	13.72
difference lpm:	-0.04	**difference lpm:**	0.08

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:**	13.64
reference main flow lpm:	2.96	**reference total/aux flow lpm:**	13.72
difference lpm:	-0.04	**difference lpm:**	0.08

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 #: 2833-14-12-01-C

Nitrogen Dioxide

Maxxam

Thermo 42C NOx Analyzer Calibration

Date:	4-Dec-14	**Start Time (mst):**	9:32
Company:	LICA	**End Time (mst):**	14:15
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:	5-Nov-14
Range ppb:	500

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	0.973	0.997
NOx=	0.973	0.997
NO_2=	1.006	1.001

	As found:	As left:
NO Bkg ppb:	4.9	4.9
NOx Bkg ppb:	5.3	5.7
NO Coef:	1.027	.997
NOx Coef:	1.017	1.018
NO_2 Coef:	1.003	1.003
PMT:	-850	-850
+5:	5.0	5.0
+15:	15.1	15.1
-15:	-15.1	-15.1
Battery:	3.2	3.2
Internal:	26.1	26.1
Chamber:	49.5	49.5
Cooler:	-2.4	-2.4
Converter:	318	318
Converter Set:	320	320
Pressure:	188.5	188.5
Sample Flow:	.538	.538
Ozonator Flow:	ok	ok
Internal Span:	6.8/339.6/346.4	7/351/358

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	0.5	NA	NA
adjusted zero	5000	0.0	5000	0	0	-0.1	0.5	NA	NA
as found high	4995	34.87	5030	347.3	348.0	357	358	0.973	0.973
adjusted high	4995	34.87	5030	347.3	348.0	346	347	1.004	1.004
mid	4995	17.94	5013	179.3	179.7	180	180	0.996	1.001
low	4995	8.97	5004	89.8	90.0	91	91	0.990	0.994
calibrator zero	5000	0.00	5000	0	0	-0.1	0.1	NA	NA
							Average C.F.=	0.997	1.000

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	34.87	5030	0.0	346.0	346.0	0.1	-0.1	0.5	
as found NO_2	4995	34.87	5030	225.0	65.4	345.0	279.0	280.6	278.9	1.006
gpt mid	4995	34.87	5030	125.0	189.0	346.0	157.0	157.0	156.9	1.001
gpt low	4995	34.87	5030	75.0	255.0	346.0	91.5	91.0	91.4	0.996
									Average NO_2 C.F.=	1.001

Linear Regression/Calibration Results:

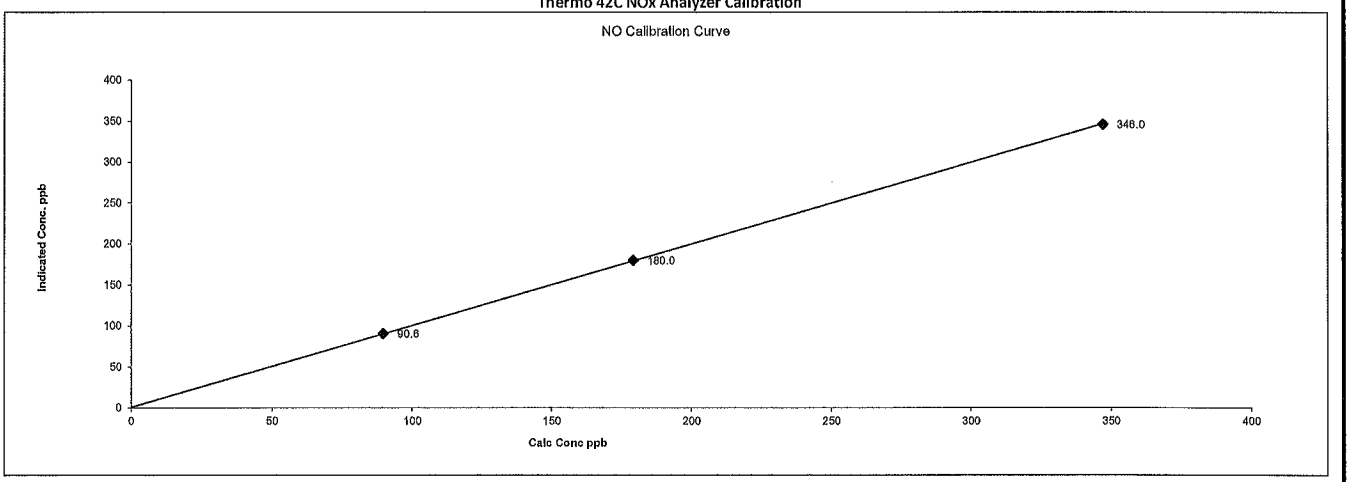
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.996	0.995	0.993	0.85-1.15
b (Intercept as % of full scale)=	0.14%	0.19%	0.12%	± 3% F.S.
% change in C.F. from last cal=	2.44%	2.37%	-0.52%	+/-15%
NO2 converter effeciency			99.9%	>85%

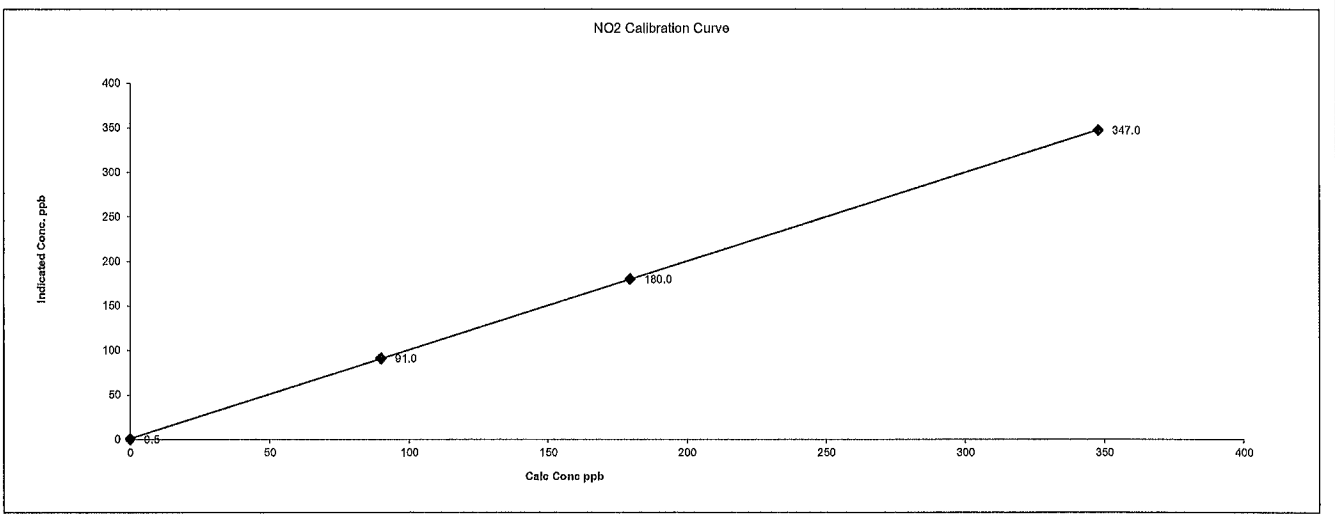
Comments:

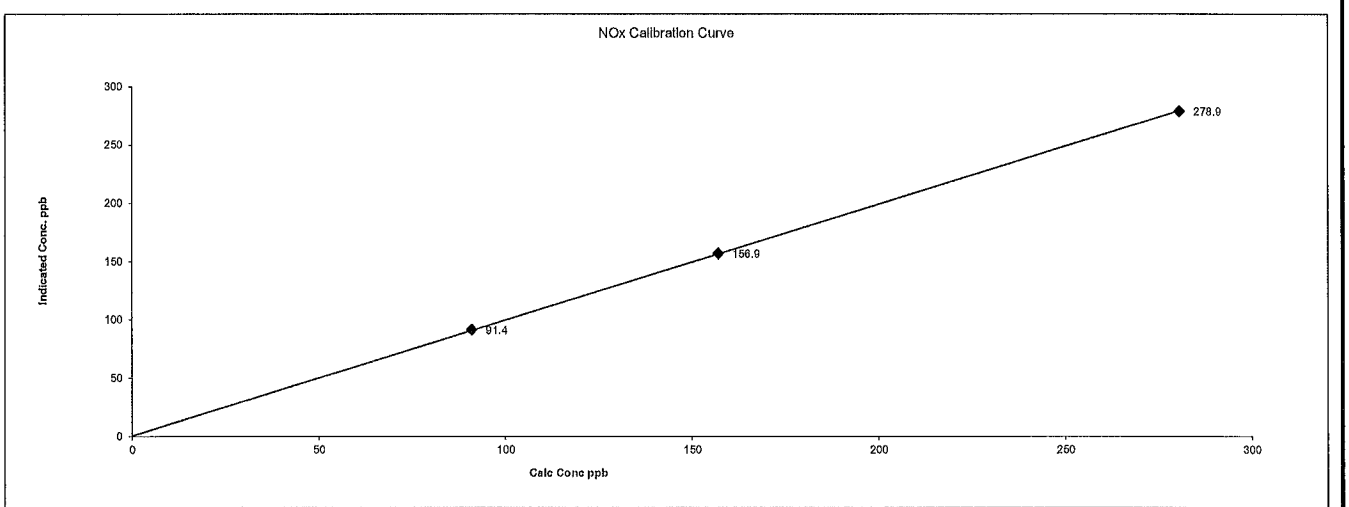
changed filter, daily z/s program interrupted GPT high point, no NO2 adjust

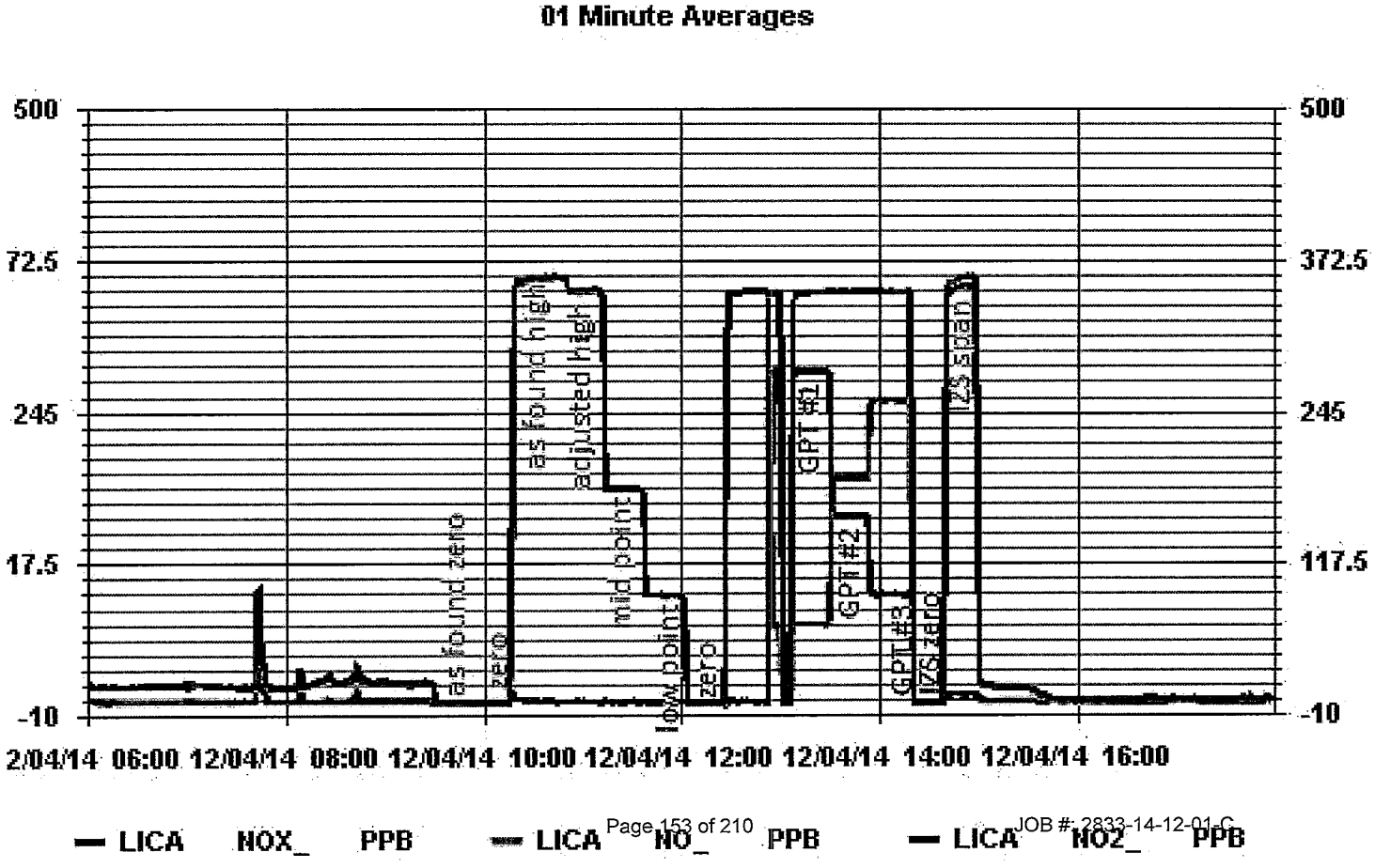
Date:	4-Dec-14	**Start Time (mst):**	9:32
Company:	LICA	**End Time (mst):**	14:15
Station Name/Location:	Cold Lake South	**Calibration Purpose:**	monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

Thermo 42C NOx Analyzer Calibration








01 Minute Averages
500
72.5
245
17.5
-10
500
372.5
245
117.5
-10
as found zero
zero
as found high
adjusted high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
2/04/14 06:00 12/04/14 08:00 12/04/14 10:00 12/04/14 12:00 12/04/14 14:00 12/04/14 16:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	4-Dec-14	Start Time (mst):	14:45
Company:	LICA	End Time (mst):	17:50
Station Name/Location:	Cold Lake South	Calibration Purpose:	routine monthly
Performed by:	Tom Bourque	G.P.T. Date:	4-Dec-14

Analyzer:

Serial Number:	700419951	Range ppm:	500
Last Calibration Date:	5-Nov-14	As Found C.F.	1.005
Previous Cal High Point C.F.:	0.999	New C.F.:	1.002

		As found:	As left:
	O_3 Bkg:	3.7	.7
	O_3 Coef:	1.055	1.062
Motherboard:	3.3	3.3	3.3
	15.0	4.9	4.9
	24.0	15.1	15.1
	-3.3	-3.2	-3.2
Interface Board:	3.3	3.2	3.2
	5.0	4.9	4.9
	15.0	14.8	14.8
	-15.0	-14.8	-14.8
	Photo Lamp	23.7	23.7
	24.0	8.7	8.7
	O_3 Lamp	9.0	9.0
	Bench:	28.5	28.5
	Bench Lamp:	53.5	53.5
	O_3 Lamp:	67.4	67.4
	Pressure:	705.6	705.6
	Cell A lpm:	.713	.713
	Cell B lpm:	.752	.752
	O_3 ppb:	152.5	152.5
	Cell A ppb:	137.9	137.9
	Cell B ppb:	168.1	168.1
	Cell A int:	62493	62493
	Cell B int:	59741	59741
	Internal Span:	284	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	-2.9	NA
adjusted zero	5029	0.0	5029	0.0	0.0	NA
as found high	5029	0.00	5029	281	279.1	1.005
adjusted high	5029	0.00	5029	281	281.8	0.996
mid	5029	0.00	5029	157	156.2	1.005
low	5029	0.00	5029	91.0	90.6	1.005
calibrator zero	5029	0.00	5029	0.0	-0.5	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration Average C.F.= 1.002

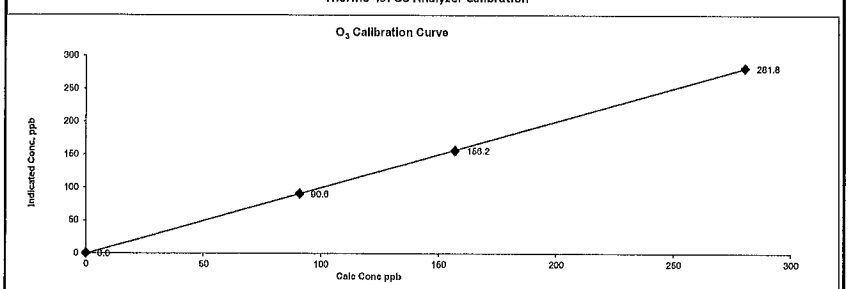
Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	1.000	> or = 0.995	PASS
Slope =	1.004	0.85-1.15	PASS
b (Intercept as % of full scale)=	-0.106%	± 3% F.S.	PASS
% change in C.F. from last cal	-1%	± 15%	PASS

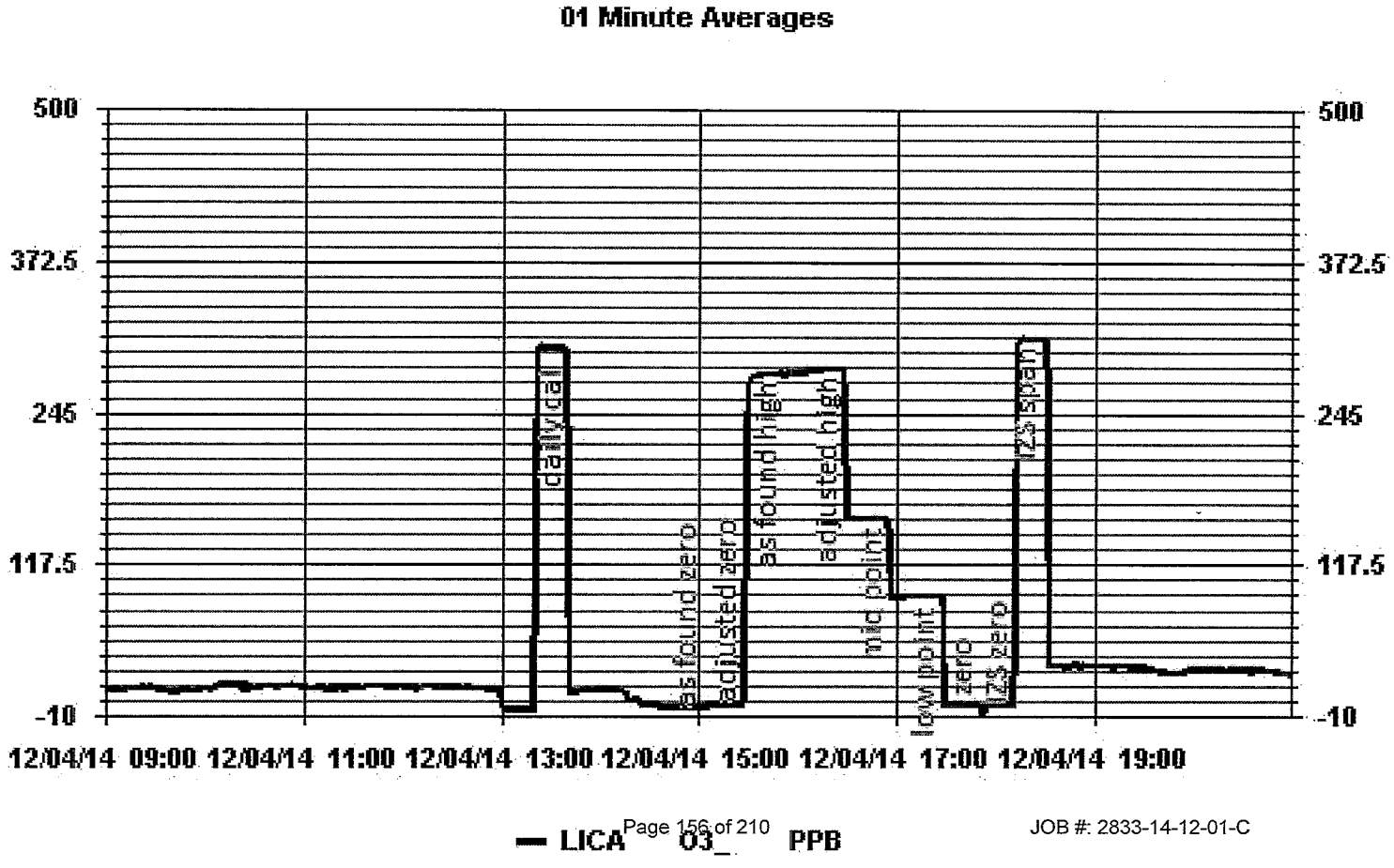
Comments:

changed sample filter

Thermo 49i O3 Analyzer Calibration



JOB #: 2833-14-12-01-C



JOB #: 2833-14-12-01-C

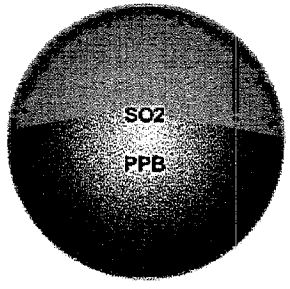
Passive Bubble Maps

Lakeland Industry & Community Association
SO_2 Passive Bubble Map

DECEMBER 2014

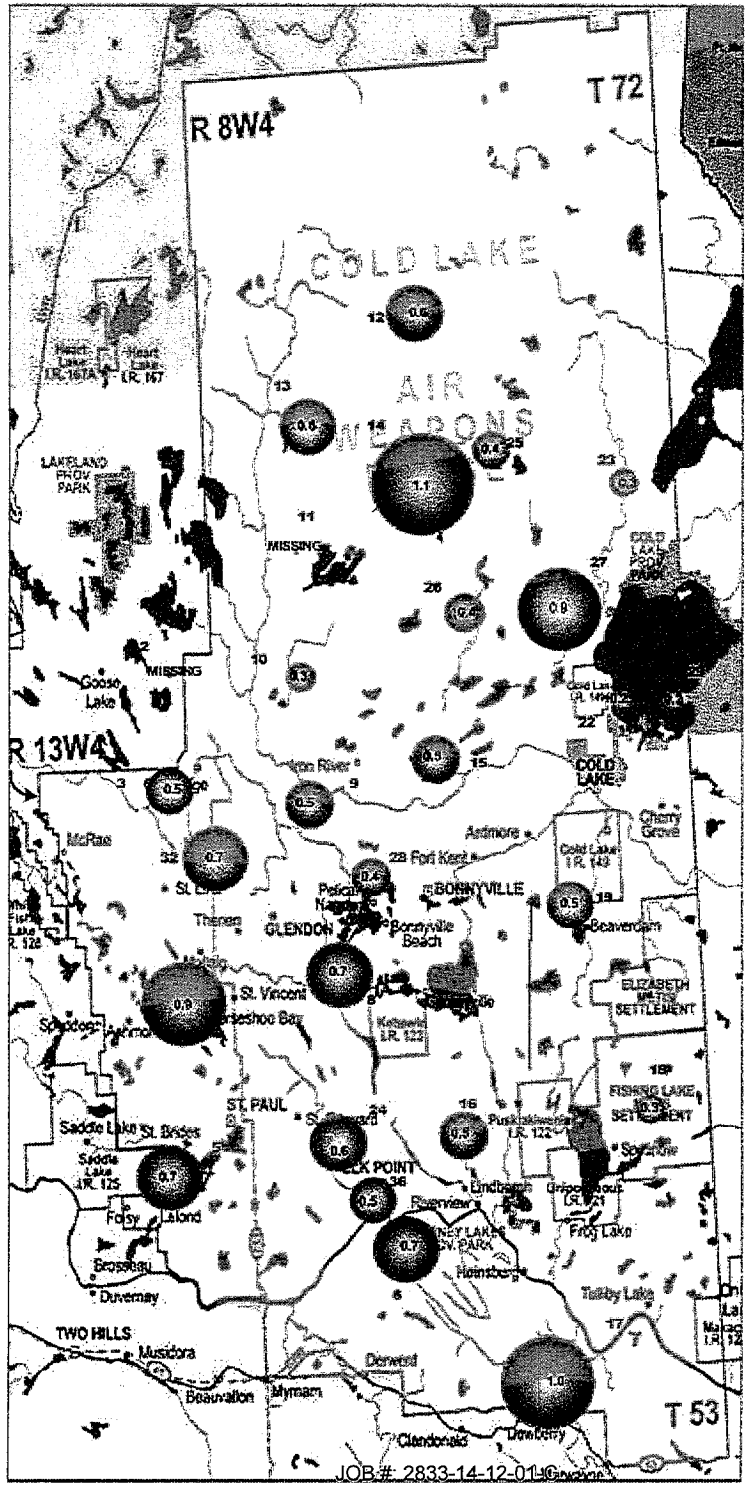
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.9 PPB	NA
5 – Lake Eliza	0.7 PPB	NA
6 – Telegraph Creek	0.7 PPB	NA
8 – Muriel-Kehewin	0.7 PPB	NA
9 – Dupre	0.5 PPB	NA
10 – La Corey	0.3 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.6 PPB	NA
13 – Primrose	0.6 PPB	NA
14 – Maskwa	1.1 PPB	NA
15 – Ardmore	0.5 PPB	NA
16 – Frog Lake	0.5 PPB	NA
17 – Clear Range	1.0 PPB	NA
18 – Fishing Lake	0.3 PPB	NA
19 – Beaverdam	0.5 PPB	NA
22 – Cold Lake South	0.2 PPB	0.2 PPB
23 – Medley-Martineau	0.2 PPB	0.3 PPB
24 – Fort George	0.5 PPB	0.3 PPB
25 – Burnt Lake	0.4 PPB	NA
26 – Mahikan	0.4 PPB	NA
27 – Mahkeses	0.9 PPB	NA
28 – Town of Bonnyville	0.4 PPB	NA
29 – Cold Lake South 2	0.2 PPB	NA
32 – St. Lina	0.7 PPB	NA
36 – Elk Point	0.5 PPB	NA



Summary

Minimum : 0.2 PPB – Cold Lake South and Cold Lake South 2
Maximum: 1.1 PPB – Maskwa
Average: 0.6 PPB *Includes Duplicates



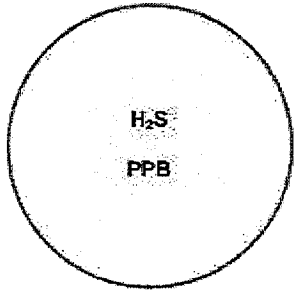
JOB #: 2833-14-12-01-G

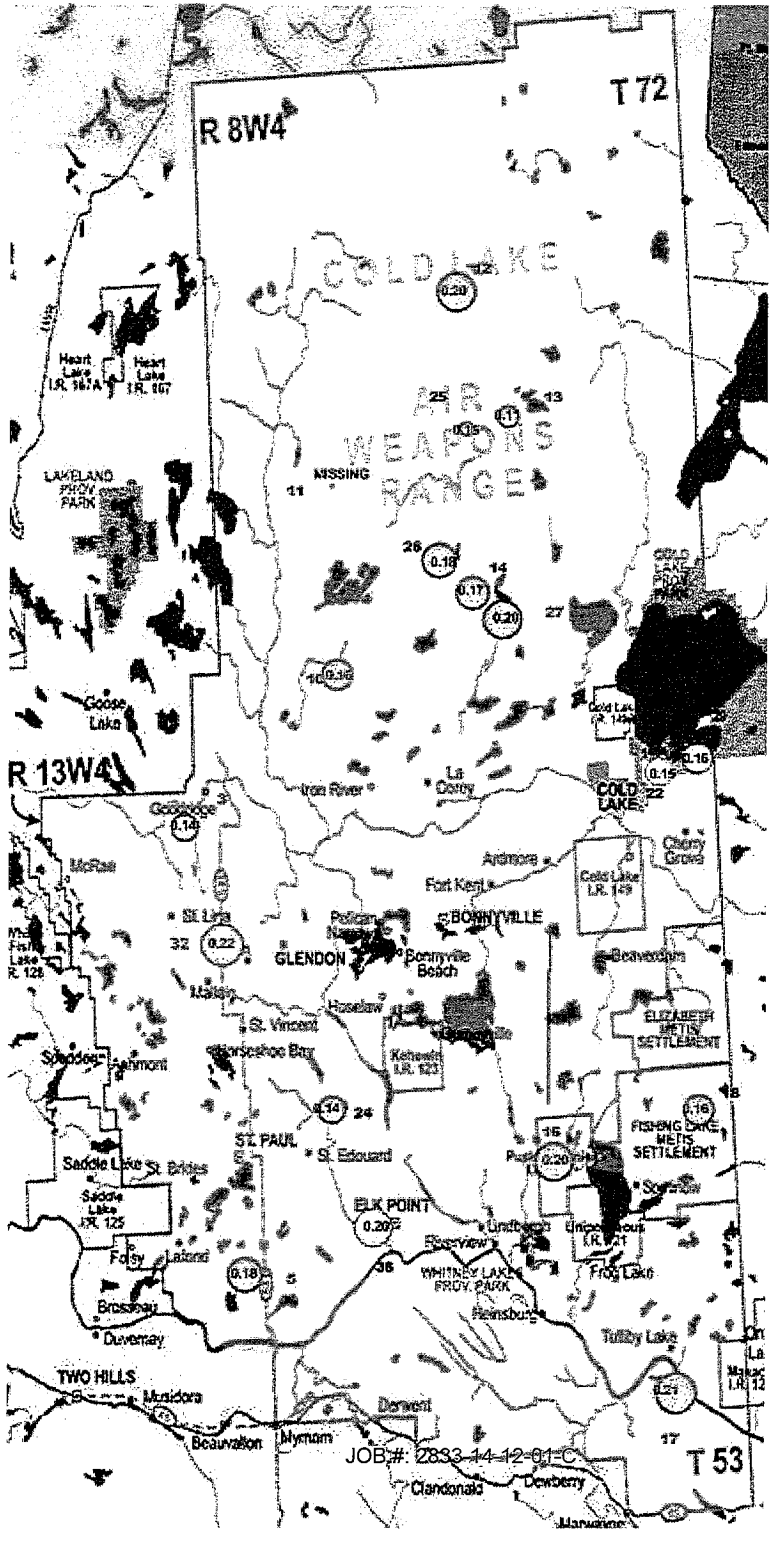
Lakeland Industry & Community Association
H_2S Passive Bubble Map

DECEMBER 2014

PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.14 PPB	NA
5 – Lake Eliza	0.18 PPB	NA
10 – La Corey	0.16 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	0.20 PPB	NA
13 – Primrose	0.11 PPB	NA
14 – Maskwa	0.17 PPB	NA
16 – Frog Lake	0.20 PPB	NA
17 – Clear Range	0.21 PPB	NA
18 – Fishing Lake	0.16 PPB	NA
22 – Cold Lake South	0.15 PPB	NA
24 – Fort George	0.14 PPB	NA
25 – Burnt Lake	0.15 PPB	NA
26 – Mahihkan	0.18 PPB	NA
27 – Mahkeses	0.21 PPB	0.19 PPB
29 – Cold Lake South 2	0.16 PPB	0.18 PPB
32 – St. Lina	0.22 PPB	NA
36 – Elk Point	0.20 PPB	NA





Summary

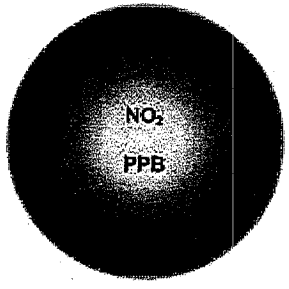
Minimum : 0.11 PPB – Primrose
Maximum: 0.22 PPB – St. Lina
Average: 0.17 PPB (Includes Duplicates)

Lakeland Industry & Community Association
NO_2 Passive Bubble Map

DECEMBER 2014

PASSIVE STATIONS

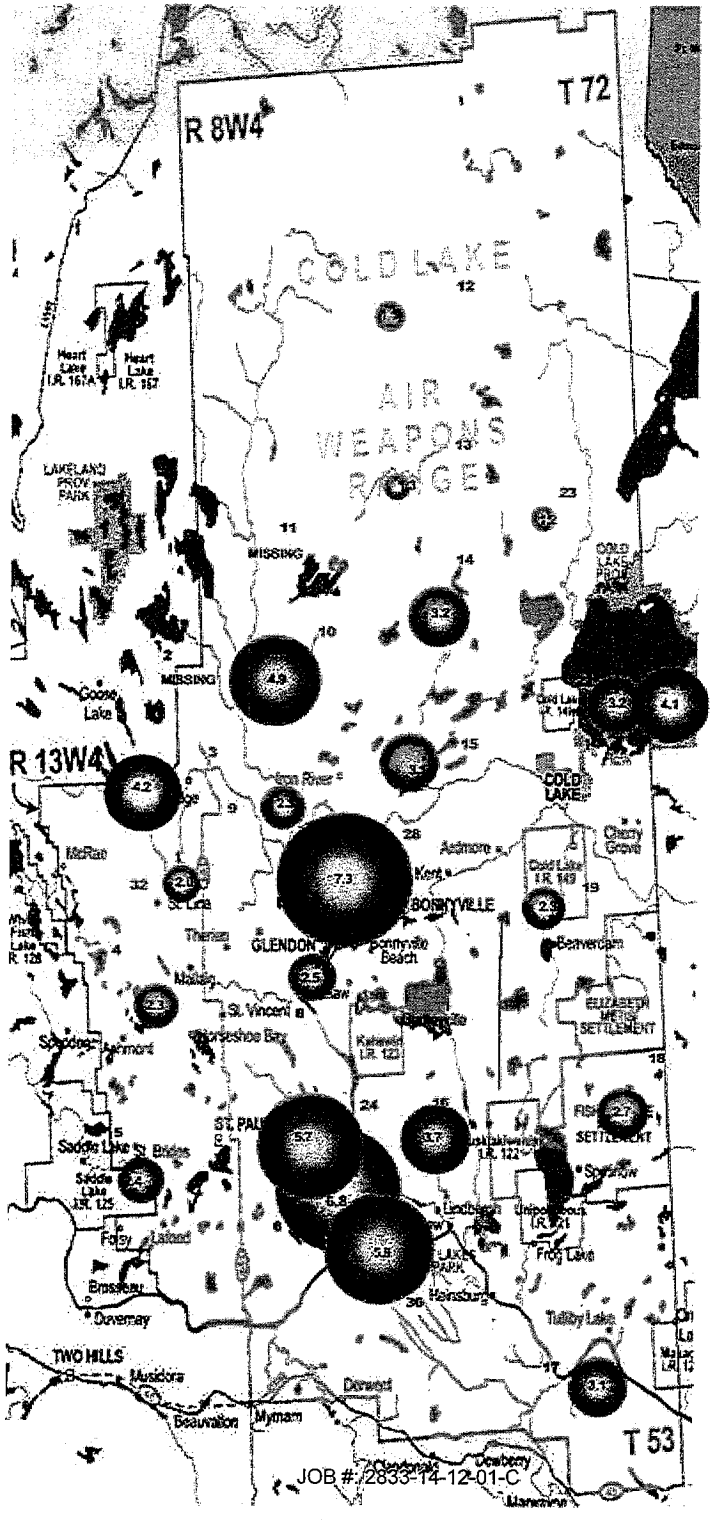
		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	4.2 PPB	NA
4 – Flat Lake	2.3 PPB	NA
5 – Lake Eliza	2.4 PPB	NA
6 – Telegraph Creek	6.8 PPB	NA
8 – Muriel-Kehewin	2.5 PPB	NA
9 – Dupre	2.3 PPB	NA
10 – La Corey	4.9 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	1.5 PPB	NA
13 – Primrose	1.3 PPB	NA
14 – Maskwa	3.2 PPB	NA
15 – Ardmore	3.1 PPB	NA
16 – Frog Lake	3.7 PPB	NA
17 – Clear Range	3.1 PPB	NA
18 – Fishing Lake	2.7 PPB	NA
19 – Beaverdam	2.3 PPB	NA
22 – Cold Lake South	3.2 PPB	NA
23 – Medley-Martineau	1.2 PPB	NA
24 – Fort George	6.3 PPB	5.1 PPB
28 – Town of Bonnyville	7.7 PPB	6.8 PPB
29 – Cold Lake South 2	4.1 PPB	NA
32 – St. Lina	2.0 PPB	NA
36 – Elk Point	5.9 PPB	NA



Summary

Minimum : 1.2 PPB – Medley-Martineau
Maximum: 7.3 PPB – Town of Bonnyville

Average: 3.4 PPB *Includes Duplicates

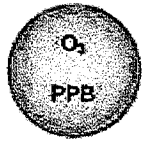


Lakeland Industry & Community Association
O_3 Passive Bubble Map

DECEMBER 2014

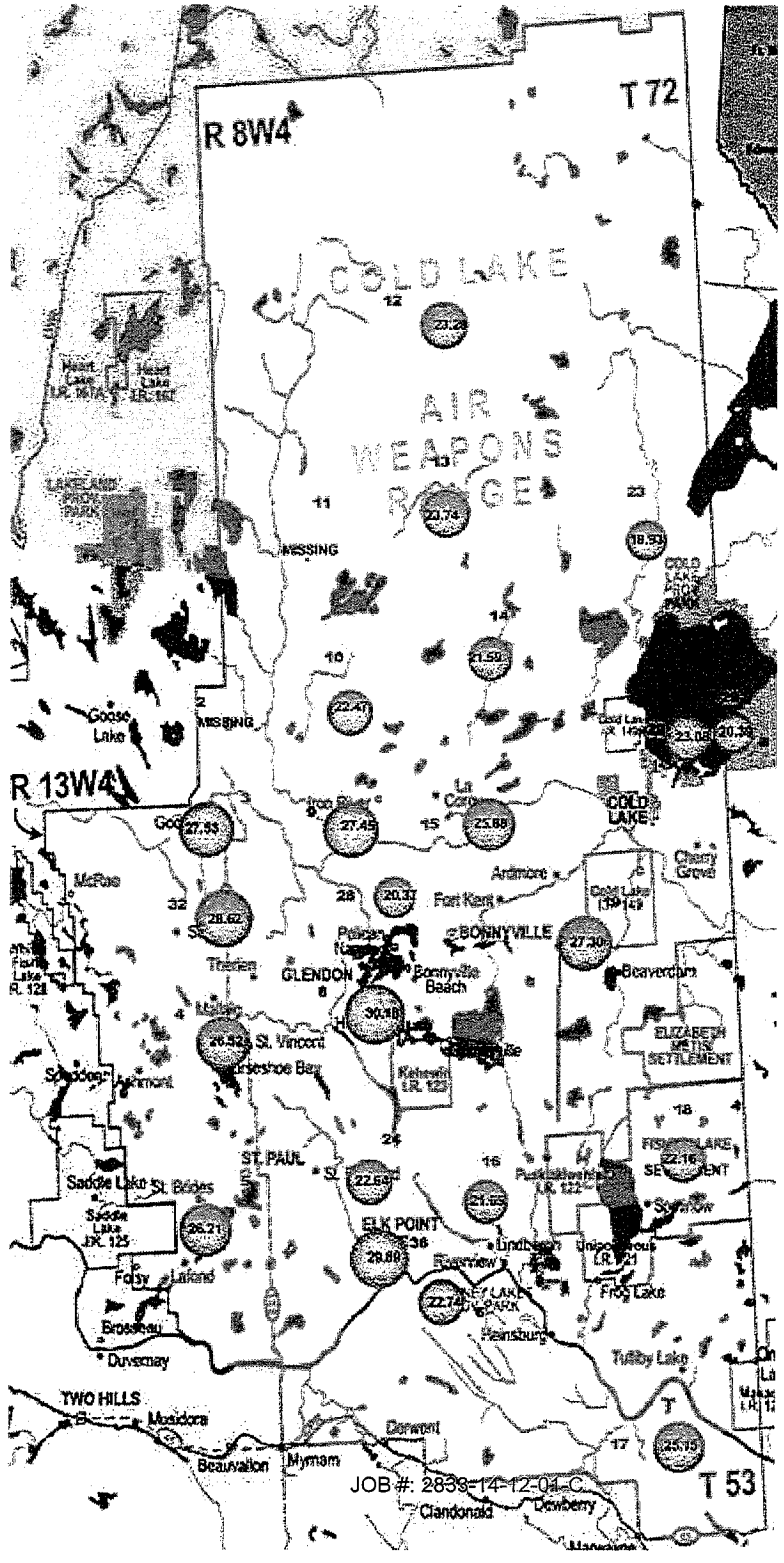
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	MISSING	NA
3 – Therien	27.53 PPB	NA
4 – Flat Lake	26.52 PPB	NA
5 – Lake Eliza	26.21 PPB	NA
6 – Telegraph Creek	22.74 PPB	NA
8 – Muriel-Kehewin	30.18 PPB	NA
9 – Dupre	27.45 PPB	NA
10 – La Corey	22.47 PPB	NA
11 – Wolf Lake	MISSING	NA
12 – Foster Creek	23.28 PPB	NA
13 – Primrose	23.74 PPB	NA
14 – Maskwa	21.59 PPB	NA
15 – Ardmore	25.88 PPB	NA
16 – Frog Lake	21.65 PPB	NA
17 – Clear Range	25.15 PPB	NA
18 – Fishing Lake	22.16 PPB	NA
19 – Beaverdam	27.30 PPB	NA
22 – Cold Lake South	23.08 PPB	NA
23 – Medley-Martineau	19.93 PPB	NA
24 – Fort George	22.58 PPB	22.70 PPB
28 – Town of Bonnyville	20.45 PPB	20.29 PPB
29 – Cold Lake South 2	20.39PPB	NA
32 – St. Lina	28.62 PPB	NA
36 – Elk Point	29.89 PPB	NA



Summary

Minimum : 19.93 PPB – Medley-Martineau
Maximum: 30.18 PPB – Muriel-Kehewin
Average: 24.49 PPB *Includes Duplicates



Passive Field Data

Passive Sampler Data Sheet for December

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	$H_2S/SO_2/NO_2/O_3$	2014/11/27	17:24	2014/12/29	15:42	
4	$SO_2/NO_2/O_3$	2014/11/27	15:24	2014/12/29	14:22	
5	$H_2S/SO_2/NO_2/O_3$	2014/11/27	14:37	2014/12/29	13:34	
6	$SO_2/NO_2/O_3$	2014/11/27	12:28	2014/12/29	12:33	
8	$SO_2/NO_2/O_3$	2014/11/28	18:58	2014/12/29	16:34	
9	$SO_2/NO_2/O_3$	2014/11/27	19:00	2014/12/30	17:17	
10	$H_2S/SO_2/NO_2/O_3$	2014/11/28	17:26	2014/12/30	13:30	
11	$H_2S/SO_2/NO_2/O_3$					No access due to snow
12	$H_2S/SO_2/NO_2/O_3$	2014/11/26	17:24	2014/12/30	11:11	
13	$H_2S/SO_2/NO_2/O_3$			2014/12/30	14:25	For November
14	$H_2S/SO_2/NO_2/O_3$	2014/11/28	10:12	2014/12/30	15:11	
15	$SO_2/NO_2/O_3$	2014/11/28	13:33	2014/12/30	16:16	
16	$H_2S/SO_2/NO_2/O_3$	2014/11/27	09:16	2014/12/29	10:01	
17	$H_2S/SO_2/NO_2/O_3$	2014/11/27	11:11	2014/12/29	11:42	
18	$H_2S/SO_2/NO_2/O_3$	2014/11/27	10:00	2014/12/29	10:35	
19	$SO_2/NO_2/O_3$	2014/11/27	08:23	2014/12/29	08:32	
22	$H_2S/SO_2/NO_2/O_3$	2014/11/27	08:48	2014/12/28	21:15	
23	$SO_2/NO_2/O_3$	2014/11/28	14:57	2014/12/29	18:19	
24	$H_2S/SO_2/NO_2/O_3$	2014/11/27	13:08	2014/12/30	13:03	
25	H_2S/SO_2	2014/11/26	18:39	2014/12/30	12:09	
26	H_2S/SO_2	2014/11/28	11:28	2014/12/30	14:52	
27	H_2S/SO_2	2014/11/28	10:54	2014/12/29	15:27	
28	$SO_2/NO_2/O_3$	2014/11/27	18:24	2014/12/28	17:16	
29	$H_2S/SO_2/NO_2/O_3$	2014/11/28	08:56	2014/12/29	21:15	
32	$H_2S/SO_2/NO_2/O_3$	2014/11/27	16:14	2014/12/28	15:04	
36	$H_2S/SO_2/NO_2/O_3$	2014/11/27	13:31	2014/12/28	16:40	

Passive Network Laboratory Analysis

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 2014/11/27 - 2014/12/29
Site Location: LICA

Attention:MICHAEL BISAGA

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

Report Date: 2015/01/19
Report #: R1789339
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B500387
Received: 2015/01/05, 12:58

Sample Matrix: Air
Samples Received: 33

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	1	2015/01/15	2015/01/19	PTC SOP-00150	Tang.Passive H2S in
H2S Passive Analysis (1)	19	2015/01/17	2015/01/19	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	25	2015/01/14	2015/01/19	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2015/01/08	2015/01/19	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	16	2015/01/13	2015/01/19	PTC SOP-00149	Tang Passive SO2 in
SO2 Passive Analysis (1)	13	2015/01/14	2015/01/19	PTC SOP-00149	Tang Passive SO2 in

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

Encryption Key

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.

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Success Through Science®

Maxxam Job #: B500387
Report Date: 2015/01/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/11/27 - 2014/12/29
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LL6154	LL6155	LL6156	LL6157	LL6158	LL6159	LL6160		
Sampling Date		2014/11/27 17:24	2014/11/27 15:21	2014/11/27 14:32	2014/11/27 12:29	2014/11/28 18:58	2014/11/27 19:00	2014/11/28 17:26		
	Units	3	4	5	6	8	9	10	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.14		0.18				0.16	0.02	7780979
Calculated NO2	ppb	4.2	2.3	2.4	6.8	2.5	2.3	4.9	0.1	7777614
Calculated O3	ppb	27.53	26.52	26.21	22.74	30.18	27.45	22.47	0.1	7772883
Calculated SO2	ppb	0.5	0.9	0.7	0.7	0.7	0.5	0.3	0.1	7776680
RDL = Reportable Detection Limit										

Maxxam ID		LL6161	LL6162	LL6163	LL6164	LL6165	LL6166		
Sampling Date		2014/11/27 17:24	2014/11/26 17:25	2014/10/30 14:01	2014/11/28 10:14	2014/11/28 13:34	2014/11/27 09:16		
	Units	11	12	13	14	15	16	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	MISSING	0.20	0.11	0.17		0.20	0.02	7780979
Calculated NO2	ppb	MISSING	1.5	1.3	3.2	3.1	3.7	0.1	7777614
Calculated O3	ppb	MISSING	23.28	23.74	21.59	25.88	21.65	0.1	7772883
Calculated SO2	ppb	MISSING	0.6	0.6	1.1	0.5	0.5	0.1	7776680
RDL = Reportable Detection Limit									

Maxxam ID		LL6167	LL6168	LL6169		LL6170	LL6171	LL6172		
Sampling Date		2014/11/27 11:11	2014/11/27 10:10	2014/11/27 08:23		2014/11/28 08:57	2014/11/28 14:58	2014/11/27 13:08		
	Units	17	18	19	QC Batch	22	23	24	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.21	0.16		7780979	0.15		0.14	0.02	7780979
Calculated NO2	ppb	3.1	2.7	2.3	7777614	3.2	1.2	6.3	0.1	7777614
Calculated O3	ppb	25.15	22.16	27.30	7772917	23.08	19.93	22.58	0.1	7772917
Calculated SO2	ppb	1.0	0.3	0.5	7776680	0.2	0.2	0.5	0.1	7777552
RDL = Reportable Detection Limit										

Maxxam ID		LL6173	LL6174	LL6175		LL6176	LL6177	LL6178		
Sampling Date		2014/11/26 18:34	2014/11/28 11:29	2014/11/26 10:55		2014/11/27 18:25	2014/11/28 08:57	2014/11/27 16:14		
	Units	25	26	27	QC Batch	28	29	32	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.15	0.18	0.21	7780979		0.16	0.22	0.02	7780979
Calculated NO2	ppb				7777614	7.7	4.1	2.0	0.1	7777620
Calculated O3	ppb				7772917	20.45	20.39	28.62	0.1	7772917
Calculated SO2	ppb	0.4	0.4	0.9	7777552	0.4	0.2	0.7	0.1	7777552
RDL = Reportable Detection Limit										

Maxxam Job #: B500387
Report Date: 2015/01/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/11/27 - 2014/12/29
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		LL6179	LL6182	LL6183	LL6184	LL6185	LL6186	LL6189		
Sampling Date		2014/11/27 13:31	2014/11/28 08:57	2014/11/28 14:58	2014/11/27 13:08	2014/11/27 13:08	2014/11/27 18:25	2014/11/28 10:55		
	Units	**36**	**22 DUP**	**23 DUP**	**24 DUP**	**24 DUP**	**28 DUP**	**27 DUP**	**RDL**	**QC Batch**
Passive Monitoring										
Calculated H2S	ppb	0.20						0.19	0.02	7780979
Calculated NO2	ppb	5.9				5.1	6.8		0.1	7777620
Calculated O3	ppb	29.89				22.70	20.29		0.1	7772917
Calculated SO2	ppb	0.5	0.2	0.3	0.6				0.1	7777552
RDL = Reportable Detection Limit										

Maxxam ID		LL6190		
Sampling Date		2014/11/28 08:57		
	Units	**29 DUP**	**RDL**	**QC Batch**
Passive Monitoring				
Calculated H2S	ppb	0.18	0.02	7780979
RDL = Reportable Detection Limit				

Maxxam Job #: B500387
Report Date: 2015/01/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/11/27 - 2014/12/29
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Samples #11 for all parameters (LL6161) were not returned to the Lab. SS/OZ

Sample LL6161-01 : Site inaccessible due to snow.

Sample LL6163-01 : Samples exposed from 2014/10/30 - 2014/12/30; site inaccessible for November change-out.

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 #: B500387
Report Date: 2015/01/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/11/27 - 2014/12/29
Site Location: LICA
Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
7772883	OZ	Spiked Blank	Calculated O3	2015/01/08		101	%	90 - 110
7772883	OZ	Method Blank	Calculated O3	2015/01/08	<0.1		ppb	
7772917	OZ	Spiked Blank	Calculated O3	2015/01/08		100	%	90 - 110
7772917	OZ	Method Blank	Calculated O3	2015/01/08	<0.1		ppb	
7776680	SS6	Spiked Blank	Calculated SO2	2015/01/13		104	%	90 - 110
7776680	SS6	Method Blank	Calculated SO2	2015/01/13	<0.1		ppb	
7777552	SS6	Spiked Blank	Calculated SO2	2015/01/14		101	%	90 - 110
7777552	SS6	Method Blank	Calculated SO2	2015/01/14	<0.1		ppb	
7777614	SS6	Spiked Blank	Calculated NO2	2015/01/14		98	%	90 - 110
7777614	SS6	Method Blank	Calculated NO2	2015/01/14	<0.1		ppb	
7777620	SS6	Spiked Blank	Calculated NO2	2015/01/14		98	%	90 - 110
7777620	SS6	Method Blank	Calculated NO2	2015/01/14	<0.1		ppb	
7780979	SSZ	Spiked Blank	Calculated H2S	2015/01/19		100	%	90 - 110

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

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

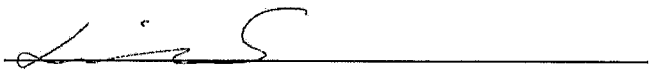
Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

Maxxam Job #: B500387
Report Date: 2015/01/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2014/11/27 - 2014/12/29
Site Location: LICA
Sampler Initials: WA

VALIDATION SIGNATURE PAGE

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



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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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: 14120107-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 7, 2014
CANISTER ID: 5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
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	12-Dec-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-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 #: 2833-14-12-01-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: 14120107-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 7, 2014
CANISTER ID: 5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
2-Methylpentane	I	0.26	ppbv	0.03	AC-058	12-Dec-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	12-Dec-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
3-Methylpentane	I	0.18	ppbv	0.03	AC-058	12-Dec-14
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Chloromethane		0.68	ppbv	0.03	AC-058	12-Dec-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Cyclohexane	I	0.30	ppbv	0.03	AC-058	12-Dec-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-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

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

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(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: 14120107-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 7, 2014
CANISTER ID: 5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Freon-11	I	0.18	ppbv	0.03	AC-058	12-Dec-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Freon-12		0.63	ppbv	0.03	AC-058	12-Dec-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Isobutane		1.10	ppbv	0.03	AC-058	12-Dec-14
Isopentane		1.98	ppbv	0.03	AC-058	12-Dec-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Dec-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	12-Dec-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methylcyclohexane	I	0.37	ppbv	0.03	AC-058	12-Dec-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Butane		2.08	ppbv	0.03	AC-058	12-Dec-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14

Qualifiers
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JOB #: 2833-14-12-01-C

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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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: 14120107-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 7, 2014
CANISTER ID: 5625
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Hexane	I	0.38	ppbv	0.03	AC-058	12-Dec-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Pentane		1.78	ppbv	0.03	AC-058	12-Dec-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Toluene	I	0.12	ppbv	0.03	AC-058	12-Dec-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	12-Dec-14

Qualifiers
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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: 14120107-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 7, 2014
CANISTER ID: TE-02
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.18	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		0.23	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		0.03	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		0.04	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		0.07	ug/PUF	0.01	NA-017	31-Dec-14
Fluorene		0.19	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		0.29	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		0.31	ug/PUF	0.01	NA-017	31-Dec-14
Pyrene		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
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

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

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

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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: 14120107-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 7, 2014
CANISTER ID: TE-02
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.07	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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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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

JOB #: 2833-14-12-01-C

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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: 14120168-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/DEC 13, 2014
CANISTER ID: 6167
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
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	23-Dec-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-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

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LABORATORY SAMPLE ID: 14120168-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/DEC 13, 2014
CANISTER ID: 6167
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
2-Methylpentane	I	0.26	ppbv	0.03	AC-058	23-Dec-14
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	23-Dec-14
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
3-Methylpentane	I	0.18	ppbv	0.03	AC-058	23-Dec-14
Acetone		1.57	ppbv	0.03	AC-058	23-Dec-14
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Carbon tetrachloride	I	0.08	ppbv	0.03	AC-058	23-Dec-14
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Chloromethane		0.62	ppbv	0.03	AC-058	23-Dec-14
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-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

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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: 14120168-003
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/CLS/DEC 13, 2014
CANISTER ID: 6167
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Freon-11	I	0.16	ppbv	0.03	AC-058	23-Dec-14
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Freon-12	I	0.42	ppbv	0.03	AC-058	23-Dec-14
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Isobutane	I	0.29	ppbv	0.03	AC-058	23-Dec-14
Isopentane	I	0.58	ppbv	0.03	AC-058	23-Dec-14
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	23-Dec-14
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	23-Dec-14
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Methylene chloride	I	0.11	ppbv	0.03	AC-058	23-Dec-14
n-Butane		0.77	ppbv	0.03	AC-058	23-Dec-14
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14

Qualifiers
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CANISTER ID: 6167
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Toluene	I	0.20	ppbv	0.03	AC-058	23-Dec-14
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	23-Dec-14

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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: 15010004-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 19, 2014
CANISTER ID: 2476
DESCRIPTION: CLS
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
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	08-Jan-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

Qualifiers

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

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Alberta Innovates Technology Futures
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Vegreville, Alberta
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(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: 15010004-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 19, 2014
CANISTER ID: 2476
DESCRIPTION: CLS
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylpentane	I	0.40	ppbv	0.03	AC-058	08-Jan-15
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	08-Jan-15
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

Qualifiers
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.43	ppbv	0.03	AC-058	08-Jan-15
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-11	I	0.20	ppbv	0.03	AC-058	08-Jan-15
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-12	I	0.51	ppbv	0.03	AC-058	08-Jan-15
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isobutane		1.25	ppbv	0.03	AC-058	08-Jan-15
Isopentane		1.11	ppbv	0.03	AC-058	08-Jan-15
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jan-15
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	08-Jan-15
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Butane		2.77	ppbv	0.03	AC-058	08-Jan-15
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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

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

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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: 15010004-004
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 25, 2014
CANISTER ID: S5535
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
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	08-Jan-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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

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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: 15010004-004
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 25, 2014
CANISTER ID: S5535
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	08-Jan-15
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

Qualifiers
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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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AB T2E 6P8

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

LABORATORY SAMPLE ID: 15010004-004
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 25, 2014
CANISTER ID: S5535
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	I	0.36	ppbv	0.03	AC-058	08-Jan-15
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-11	I	0.20	ppbv	0.03	AC-058	08-Jan-15
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-12	I	0.50	ppbv	0.03	AC-058	08-Jan-15
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isobutane	I	0.51	ppbv	0.03	AC-058	08-Jan-15
Isopentane		0.76	ppbv	0.03	AC-058	08-Jan-15
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jan-15
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	08-Jan-15
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Butane		1.95	ppbv	0.03	AC-058	08-Jan-15
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

JOB #: 2833-14-12-01-C

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Vegreville, Alberta
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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: 15010004-004
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 25, 2014
CANISTER ID: S5535
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Lily Lin 403-219-3661
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4000, 19 St NE

Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 15010016-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 31, 2014
CANISTER ID: S5633
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
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	08-Jan-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1,2-Trichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,1-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2,4-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dibromoethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,2-Dichloropropane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,3-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dichlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1,4-Dioxane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Hexene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
1-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,2-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3,4-Trimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylbutane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,3-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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

Inquiries: (780) 632 8455
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JOB #: 2833-14-12-01-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: 15010016-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 31, 2014
CANISTER ID: S5633
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
2-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
3-Methylheptane	K, T, U	< 0.06	ppbv	0.02	AC-058	08-Jan-15
3-Methylhexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
3-Methylpentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acetone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Acrolein	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Benzyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromodichloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromoform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Bromomethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon disulfide	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Carbon tetrachloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chlorobenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloroform	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Chloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,2-Dichloroethene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-1,3-Dichloropropene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
cis-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Cyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Dibromochloromethane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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

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

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

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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: 15010016-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 31, 2014
CANISTER ID: S5633
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Ethyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Ethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-11	I	0.20	ppbv	0.03	AC-058	08-Jan-15
Freon-113	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-114	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Freon-12	I	0.50	ppbv	0.03	AC-058	08-Jan-15
Hexachloro-1,3-butadiene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isobutane		0.62	ppbv	0.03	AC-058	08-Jan-15
Isopentane	I	0.60	ppbv	0.03	AC-058	08-Jan-15
Isoprene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Isopropyl alcohol	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jan-15
Isopropylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m,p-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
m-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl butyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl ethyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl isobutyl ketone	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methyl methacrylate	K, T, U	< 0.06	ppbv	0.05	AC-058	08-Jan-15
Methyl tert butyl ether	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclohexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylcyclopentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Methylene chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Butane		1.75	ppbv	0.03	AC-058	08-Jan-15
n-Decane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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

Inquiries: (780) 632 8455
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JOB #: 2833-14-12-01-C

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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: 15010016-002
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA/VOC/CLS/Dec 31, 2014
CANISTER ID: S5633
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Heptane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Hexane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Octane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Pentane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Propylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Undecane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Naphthalene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
n-Nonane	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
o-Xylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Diethylbenzene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Styrene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrachloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Tetrahydrofuran	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Toluene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-1,3-Dichloropropylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Butene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
trans-2-Pentene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Trichloroethylene	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl acetate	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15
Vinyl chloride	K, T, U	< 0.06	ppbv	0.03	AC-058	08-Jan-15

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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PAH Monitoring Laboratory Analysis

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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Calgary
AB T2E 6P8

INVOICE TO:
Charmain Code 780-812-2182
5107W-50th Street
Box 8237
Bonnyville
AB

LABORATORY SAMPLE ID: 14120055-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 1, 2014
CANISTER ID: TE06
DESCRIPTION: Cold Lake South
DATE SAMPLED: 01-Dec-14 0:00
DATE RECEIVED: 09-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		1.36	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		2.11	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		0.15	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthylene		0.09	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		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		0.05	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		0.03	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,l)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		0.22	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		2.95	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		0.27	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
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 #: 2833-14-12-01-C

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(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:
Charmain Code 780-812-2182
5107W-50th Street
Box 8237
Bonnyville
AB

LABORATORY SAMPLE ID: 14120055-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 1, 2014
CANISTER ID: TE06
DESCRIPTION: Cold Lake South
DATE SAMPLED: 01-Dec-14 0:00
DATE RECEIVED: 09-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.09	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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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

JOB #: 2833-14-12-01-C

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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: 14120168-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/CLS DEC 13, 2014
CANISTER ID: TE-11
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.10	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.05	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.06	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.15	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.17	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.21	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.04	ug/Filter	0.01	NA-017	24-Jan-15

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

Inquiries: (780) 632 8455
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JOB #: 2833-14-12-01-C

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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: 14120168-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA PUF/CLS DEC 13, 2014
CANISTER ID: TE-11
DESCRIPTION: CLS
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/Filter	0.01	NA-017	24-Jan-15

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

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JOB #: 2833-14-12-01-C

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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: 15010004-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 19, 2014
CANISTER ID: P13-01
DESCRIPTION: CLS
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.25	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.35	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.07	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.07	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.13	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.38	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.25	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.07	ug/Filter	0.01	NA-017	24-Jan-15

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

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

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JOB #: 2833-14-12-01-C

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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
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15010004-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 19, 2014
CANISTER ID: P13-01
DESCRIPTION: CLS
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.10	ug/Filter	0.01	NA-017	24-Jan-15

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

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

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

JOB #: 2833-14-12-01-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: 15010004-005
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 25, 2014
CANISTER ID: TE-07
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.23	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.34	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.05	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.48	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.16	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.04	ug/Filter	0.01	NA-017	24-Jan-15

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

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Calgary
AB T2E 6P8

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

LABORATORY SAMPLE ID: 15010004-005
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 25, 2014
CANISTER ID: TE-07
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers
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LABORATORY SAMPLE ID: 15010004-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 25, 2014
CANISTER ID: TE-08
DESCRIPTION: EP
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.32	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.53	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.61	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.02	ug/Filter	0.01	NA-017	24-Jan-15

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

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

JOB #: 2833-14-12-01-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: 15010004-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 25, 2014
CANISTER ID: TE-08
DESCRIPTION: EP
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.01	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15010016-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 31, 2014
CANISTER ID: 9702
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.11	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.18	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.07	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.14	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.25	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.23	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.05	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
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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 #: 2833-14-12-01-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: 15010016-003
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 31, 2014
CANISTER ID: 9702
DESCRIPTION: CLS
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
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JOB #: 2833-14-12-01-C

Partisol

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: 15010005-001
MATRIX: Air Filter
CLIENT SAMPLE ID: P4089561
CANISTER ID:
DESCRIPTION: Cold Lake South
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 21-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.153	mg	0.004	AC-029	06-Jan-15

Qualifiers

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

Inquiries: (780) 632 8455
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JOB #: 2833-14-12-01-C

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ENVIRONMENTAL ANALYTICAL SERVICES

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AB T2E 6P8

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

LABORATORY SAMPLE ID: 15010005-002
MATRIX: Air Filter
CLIENT SAMPLE ID: P4089558
CANISTER ID:
DESCRIPTION: CLS
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 21-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.036	mg	0.004	AC-029	06-Jan-15

Qualifiers

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 #: 2833-14-12-01-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: 15010019-001
MATRIX: Air Filter
CLIENT SAMPLE ID: CLS - Filter # P4089559
CANISTER ID:
DESCRIPTION:
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 21-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.034	mg	0.004	AC-029	09-Jan-15

Qualifiers

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 #: 2833-14-12-01-C

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2014

Prepared By:

January 9, 2015

JOB #: 2833-14-12-30-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: December 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 – December 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	0.89	13	30	18	8.6	304(WNW)	2.6	30	100.0
H2S (PPB)	10	3	0	0	0.16	2	9	14	2.9	61(ENE)	0.7	9	100.0
THC (PPM)	-	-	-	-	2.30	3.4	1	21	4.1	214(SSW)	2.7	1	100.0
NO2 (PPB)	159	-	0	-	5.33	34.9	1	18	0.7	145(SE)	15.2	1	98.3
NO (PPB)	-	-	-	-	1.17	18	9	8	1.1	84(E)	3.3	10	98.3
NO_x (PPB)	-	-	-	-	6.50	48.8	1	18	0.7	145(SE)	17.9	1	98.3
VECTOR WS (KPH)	-	-	-	-	4.20	9.8	1	0	9.8	209(SSW)	7.2	16	99.9
VECTOR WD (DEGREES)	-	-	-	-	227(SW)	-	-	-	-	-	-	-	99.9
RELATIVE HUMIDITY (%)	-	-	-	-	79.94	90	VAR	VAR	VAR	VAR	87.6	12	100.0
TEMPERATURE (DEG C)	-	-	-	-	-9.99	6.5	11	13, 14	8.8, 6.1	219(SW) 235(SW)	1.7	11	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	939.0	969	29	VAR	VAR	VAR	967.9	29	100.0
PRECIPITATION (MM)	-	-	-	-	0.01	2.9	3	21	6.2	229 (SW)	0.2	3	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 December 23rd. 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 December 23rd. 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

The analyzer spanned low on December 19th due to running empty of span gas. The span gas was replaced on December 19th. The monthly calibration was performed on December 22nd. The inlet filter was changed before the monthly calibration was started. The hydrogen cylinder was replaced prior to the calibration. The expected span value was adjusted after the calibration on December 22nd. 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 replaced with API 200E, S/N: 593

The analyzer spanned high on December 7th and 8th. A zero/span check was initiated in the 9th. The result was within acceptance limits. The cause of the high span was the unstable zero/span system. This issue did not affect data quality. A removal calibration was performed on the API 200E, S/N: 594, analyzer on December 22nd. The API 200E, S/N: 593 was installed on the same day. The analyzer was allowed to warm up overnight and an installation calibration was performed on December 23rd. The API 200E, S/N: 594 was brought back to Maxxam Calgary shop for maintenance on the zero/span system. 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 - 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 data collected on December 25th at hour 5 was invalidated due to a spike that affected data quality. 7 hourly maximum data for wind speed were invalidated due to the 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.

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 December 23rd.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

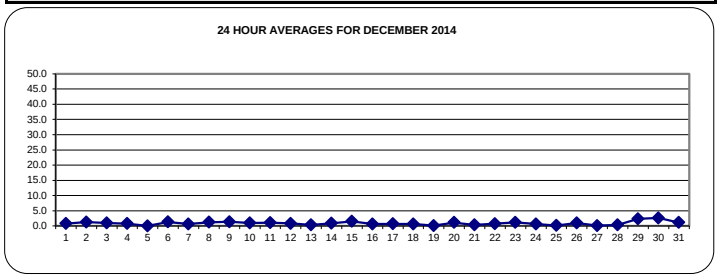
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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	1	1	1	1	**S**	1	1	1	1	1	1	1	1	2	2	1	0	0	0	1	0	0	0	0	2	0.8	24
2	1	1	1	**S**	1	1	1	1	1	1	1	6	4	4	3	2	0	0	0	0	0	0	0	0	6	1.3	24
3	0	0	**S**	0	0	0	0	0	0	1	2	1	1	1	1	1	2	2	1	3	2	1	2	2	3	1.0	24
4	2	**S**	1	1	1	1	1	1	1	1	1	1	1	0	1	2	1	0	0	0	0	0	0	1	2	0.8	24
5	**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
6	0	0	0	0	0	0	0	0	1	2	0	1	3	2	2	3	5	3	3	2	1	2	**S**	0	5	1.3	24
7	0	1	1	1	1	0	0	0	0	0	1	1	1	4	1	0	0	0	0	0	0	**S**	1	1	4	0.6	24
8	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	2	2	**S**	1	1	1	2	1.2	24
9	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	**S**	1	1	1	1	2	1.3	24
10	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1.0	24
11	1	1	1	1	1	1	1	1	2	2	1	2	2	1	1	1	1	**S**	1	1	0	0	1	1	2	1.1	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	0	0	0	0	1	0.8	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	2	1	1	1	1	0	2	0.3	24
14	1	1	0	1	0	0	0	0	0	1	1	0	0	0	**S**	2	2	2	3	2	1	1	1	1	3	0.9	24
15	1	2	2	1	3	4	4	2	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	4	1.5	24
16	1	1	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	1	1	0	0	0	1	0.6	24
17	0	0	0	0	0	0	1	1	1	1	1	**S**	0	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
18	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	1	1	1	1	0	0	1	0	1	0.7	24
19	0	1	1	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
20	0	2	2	1	1	0	0	1	**S**	0	0	1	1	2	2	1	1	1	1	1	2	3	2	1	3	1.1	24
21	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
22	0	0	0	0	0	0	**S**	0	0	1	2	2	3	2	3	2	2	0	0	0	0	0	0	0	3	0.7	24
23	0	0	0	0	0	**S**	1	1	**C**	**C**	**C**	**C**	**C**	1	1	1	2	2	2	2	2	2	2	2	2	1.2	24
24	2	2	2	2	**S**	0	1	1	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0.6	24
25	0	0	0	**S**	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
26	0	0	**S**	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1.0	24
27	1	**S**	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
28	**S**	0	0	0	0	0	0	0	0	0	0	1	2	2	3	0	0	0	0	0	0	0	0	**S**	3	0.4	24
29	0	0	0	0	0	0	10	8	7	10	1	5	1	2	3	0	0	0	6	0	0	0	**S**	0	10	2.3	24
30	1	0	0	0	1	1	1	1	1	1	2	2	2	3	3	3	3	4	***13***	11	5	**S**	1	1	***13***	***2.6***	24
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	4	**S**	1	0	0	4	1.1	24
HOURLY MAX	2	2	2	2	3	4	10	8	7	10	2	6	4	4	3	3	5	4	13	11	5	3	2	2			
HOURLY AVG	0.7	0.7	0.7	0.6	0.6	0.6	1.0	0.9	0.9	1.1	0.8	1.2	1.1	1.2	1.3	0.9	1.0	0.9	1.4	1.2	0.7	0.6	0.6	0.6			

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

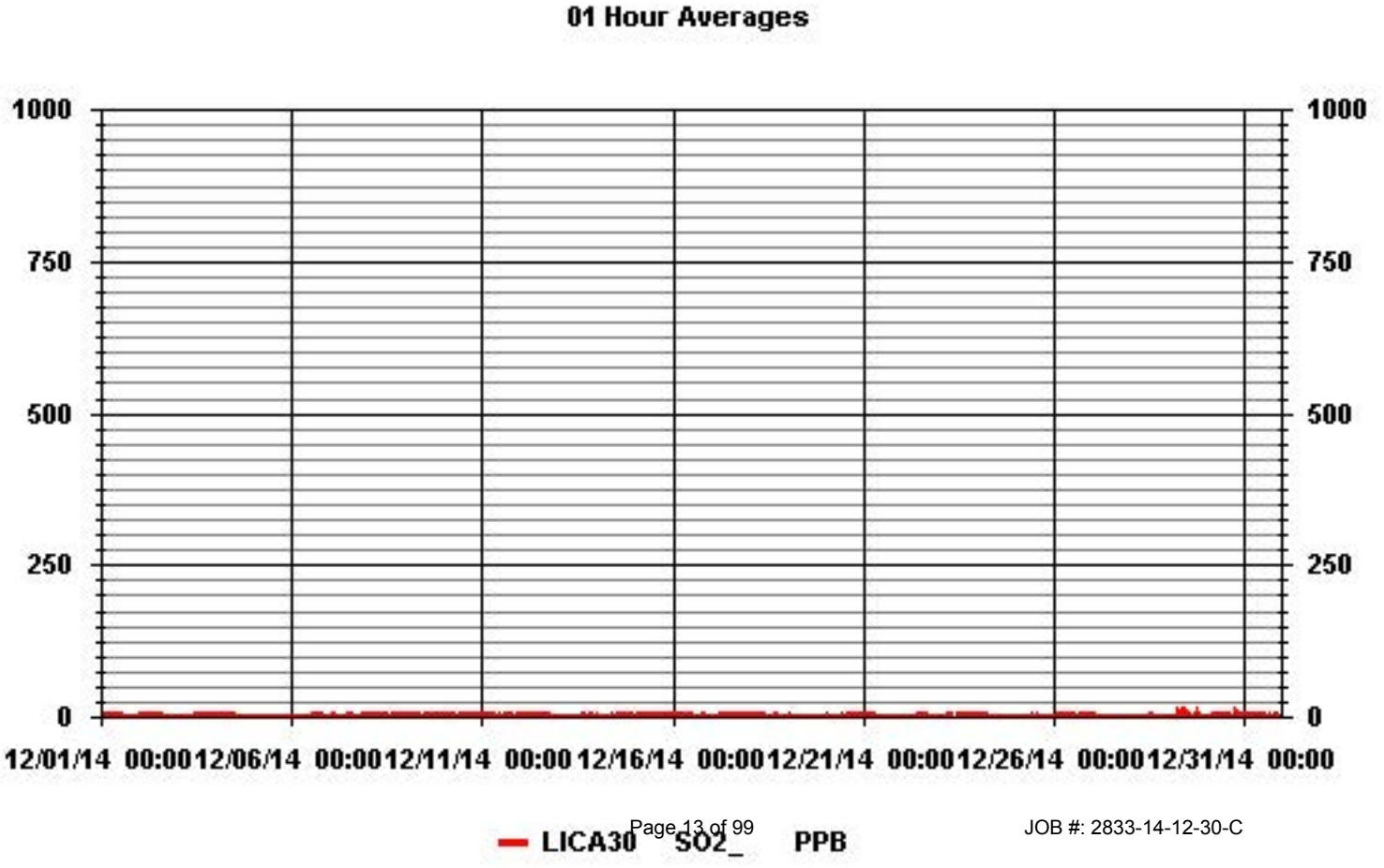


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	422					
MAXIMUM 1-HR AVERAGE:	13	PPB	@ HOUR(S)	18	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	2.6	PPB			ON DAY(S)	30
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	1.23		MONTHLY AVERAGE:		0.89	PPB

JOB #: 2833-14-12-30-C



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	2	2	2	**S**	1	1	1	2	2	2	1	4	4	2	2	1	1	1	1	1	1	1	1	4	1.6	24
2	1	1	1	**S**	2	2	2	1	2	1	6	16	14	10	7	4	2	1	1	0	1	0	1	1	16	3.3	24
3	0	0	**S**	0	0	1	1	1	1	3	3	2	1	2	2	2	3	5	3	4	3	3	3	2	5	2.0	24
4	2	**S**	2	1	4	1	1	1	1	1	1	2	1	1	1	4	2	1	1	1	1	1	1	5	5	1.6	24
5	**S**	2	0	0	0	0	1	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	**S**	2	0.4	24
6	0	0	0	0	1	1	1	1	2	5	1	5	4	3	4	6	7	5	5	4	4	6	**S**	1	7	2.9	24
7	1	1	1	2	1	1	1	1	1	1	2	1	4	10	7	3	1	0	1	0	0	**S**	1	1	10	1.8	24
8	2	2	2	1	1	1	2	2	2	1	1	2	2	2	2	2	2	2	3	3	**S**	2	2	1	3	1.8	24
9	1	2	2	2	2	2	2	2	3	3	2	3	3	2	4	2	2	2	2	**S**	1	1	1	1	4	2.0	24
10	2	1	1	1	2	2	2	2	1	1	1	1	2	1	1	2	2	2	**S**	1	1	1	1	1	2	1.4	24
11	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	**S**	1	1	1	1	1	1	2	1.6	24
12	1	1	1	1	1	1	1	2	2	2	1	2	1	2	1	3	**S**	1	1	1	1	1	1	1	3	1.3	24
13	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	**S**	2	3	5	2	3	1	1	1	5	1.0	24
14	3	3	2	4	3	1	3	1	1	2	3	2	2	2	**S**	4	4	6	5	6	4	2	2	2	6	2.9	24
15	2	3	3	2	4	6	6	4	1	1	1	1	2	**S**	2	1	2	1	2	2	2	2	2	2	6	2.3	24
16	2	2	1	2	2	2	2	2	2	2	2	2	**S**	1	1	1	1	1	1	1	1	1	1	1	2	1.5	24
17	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
18	1	1	1	1	2	1	2	2	1	2	**S**	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.2	24
19	1	2	2	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
20	1	3	3	2	2	1	1	1	**S**	1	1	1	1	4	4	2	2	2	2	3	4	4	3	3	4	2.2	24
21	2	2	2	2	2	2	2	**S**	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1	0	2	1.0	24
22	0	0	0	0	0	0	**S**	1	1	3	3	3	6	6	7	4	5	1	1	1	0	0	0	0	7	1.8	24
23	0	1	0	0	0	**S**	1	1	**C**	**C**	**C**	**C**	**C**	2	2	2	3	3	2	2	3	3	3	2	3	1.7	24
24	3	2	2	2	**S**	1	2	2	6	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	6	1.3	24
25	0	0	0	**S**	1	0	1	0	0	1	3	2	1	2	2	1	0	0	0	0	0	0	0	0	3	0.6	24
26	0	0	**S**	1	1	1	2	1	1	2	1	1	3	3	3	2	2	1	1	1	1	1	1	1	3	1.3	24
27	1	**S**	0	0	0	0	0	1	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0.3	24
28	**S**	1	1	1	1	0	1	0	0	0	0	3	3	3	5	3	1	1	0	0	0	0	0	**S**	5	1.1	24
29	1	1	1	0	0	1	18	20	15	19	4	12	9	7	9	4	0	4	12	1	1	0	**S**	0	20	***6.0***	24
30	2	1	1	0	2	2	2	2	2	2	2	2	3	4	4	4	4	6	26	***27***	7	**S**	1	1	***27***	4.7	24
31	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	2	2	2	8	**S**	5	1	1	8	2.0	24
HOURLY MAX	3	3	3	4	4	6	18	20	15	19	6	16	14	10	9	6	7	6	26	27	7	6	3	5			
HOURLY AVG	1.2	1.3	1.2	1.1	1.4	1.2	2.1	1.9	2.0	2.2	1.7	2.5	2.6	2.8	2.7	2.2	1.8	1.8	2.7	2.4	1.5	1.4	1.1	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: 588

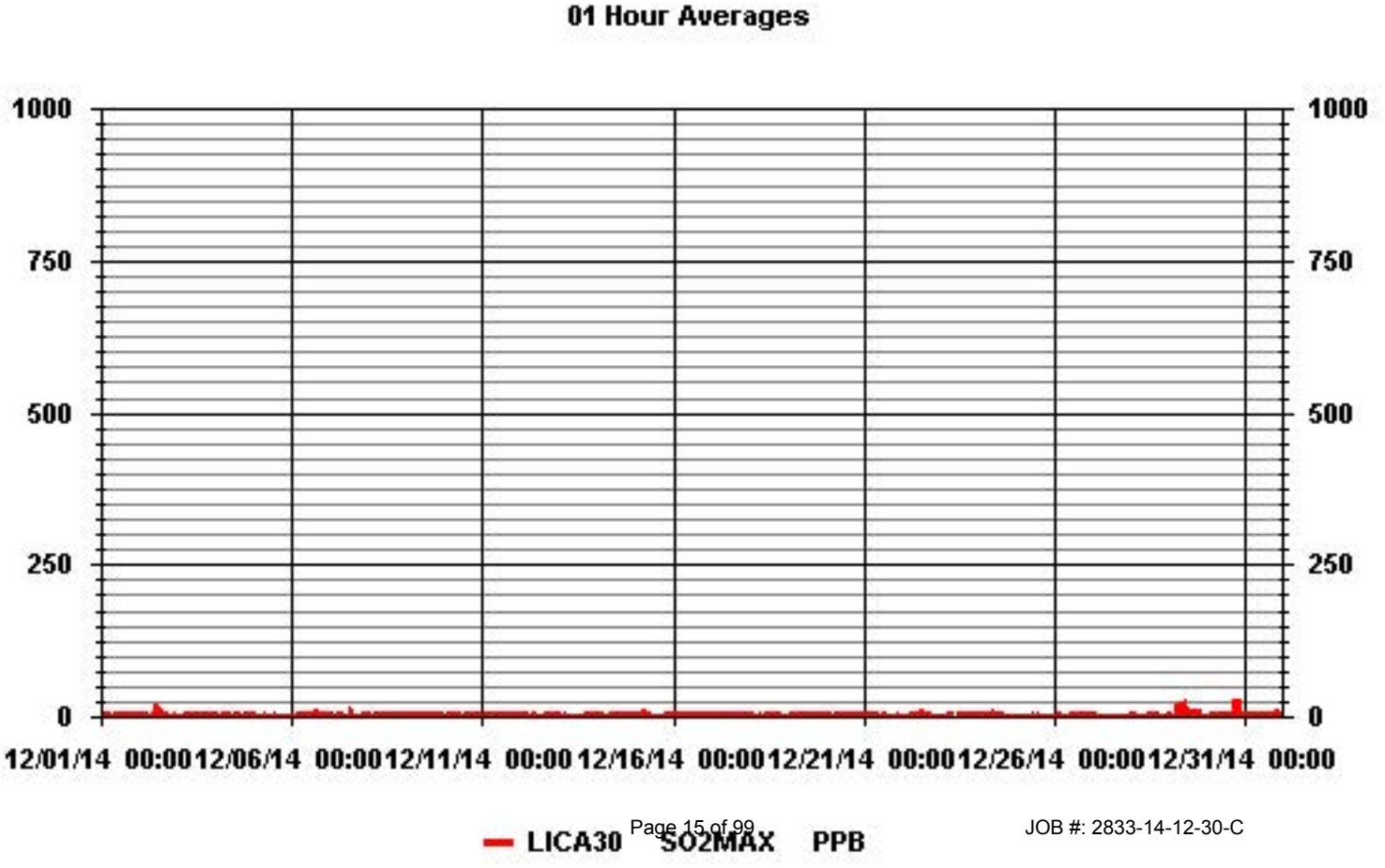
MAXIMUM INSTANTANEOUS VALUE: 27 PPB @ HOUR(S) 19 ON DAY(S) 30

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 2.49



JOB #: 2833-14-12-30-C

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

December 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	6.51	2.69	6.65	6.65	4.39	4.67	3.82	6.23	6.51	8.21	14.58	4.24	7.93	6.51	5.52	4.81	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.51	2.69	6.65	6.65	4.39	4.67	3.82	6.23	6.51	8.21	14.58	4.24	7.93	6.51	5.52	4.81	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	46	19	47	47	31	33	27	44	46	58	103	30	56	46	39	34	706
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	46	19	47	47	31	33	27	44	46	58	103	30	56	46	39	34	

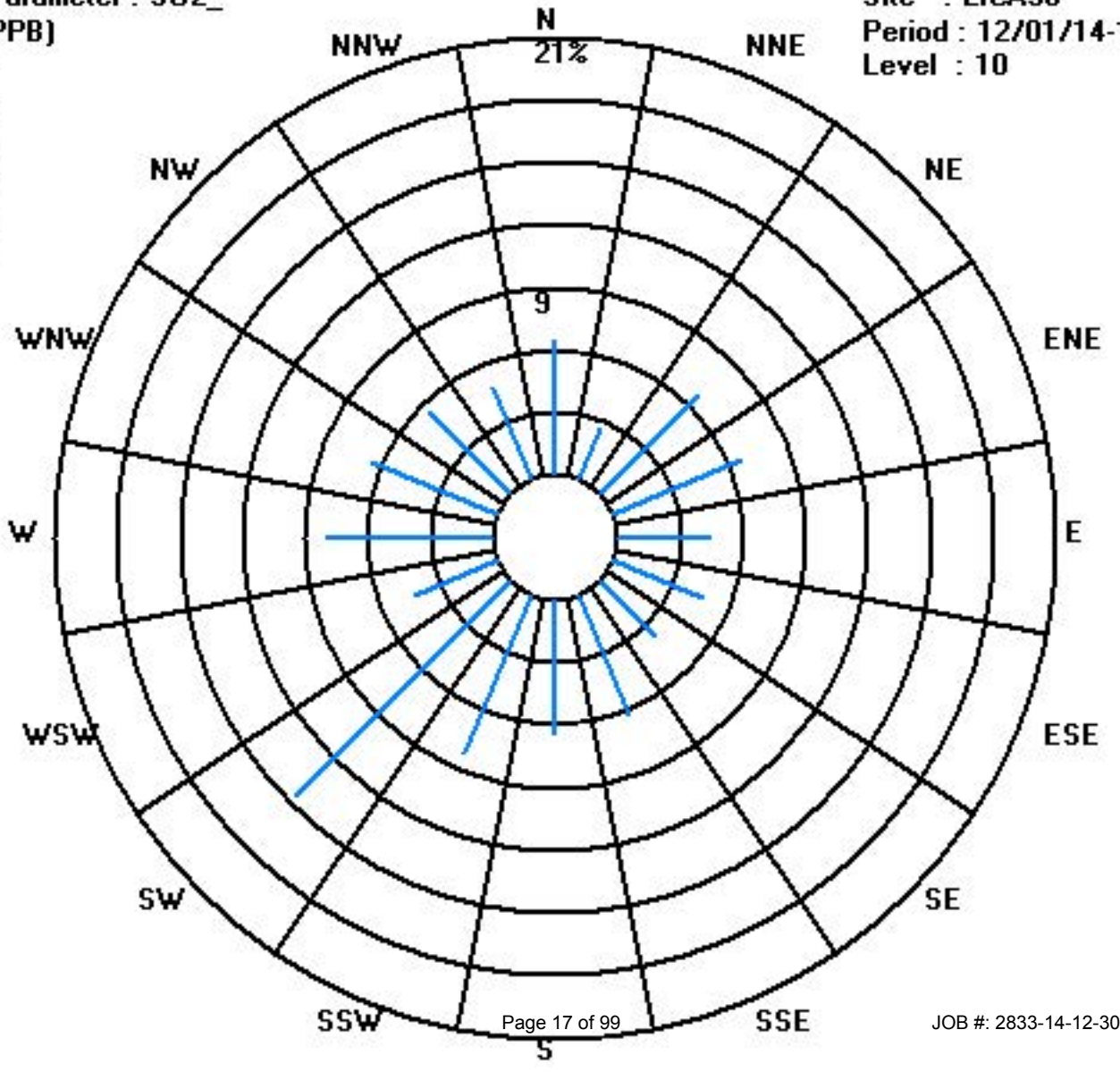
Calm : .00 %

Total # Operational Hours : 706

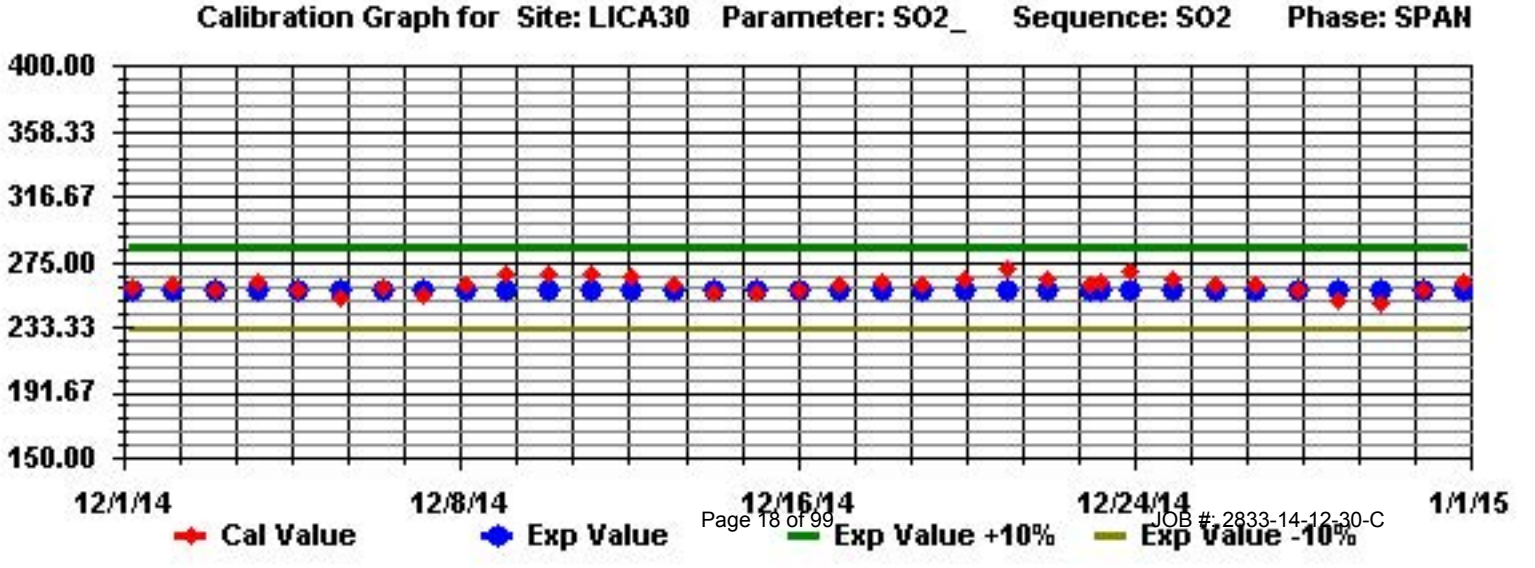
Logger : 30 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA30
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-30-C


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN
400.00
358.33
316.67
275.00
233.33
191.67
150.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

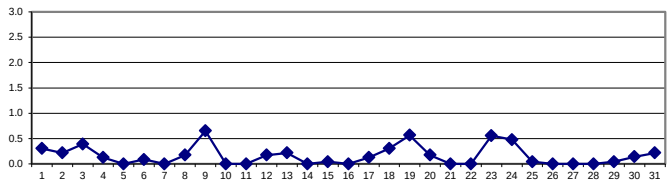
MST

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	**S**	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	1	1	1	0	1	0.3	0
2	0	1	1	**S**	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0
3	0	0	**S**	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0	1	1	0	0	1	1	0.4	0
4	1	**S**	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0
5	**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	0
6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	**S**	0	1	0.1	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0.0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**S**	0	1	1	1	0.2	0
9	0	0	0	0	1	0	1	1	1	1	1	1	1	1	***2***	1	1	1	1	**S**	0	0	0	0	***2***	***0.7***	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0.0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0.0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	0	0	1	1	0	1	1	0.2	0
13	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	**S**	0	0	0	0	0	1	1	0	1	0.2	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0.0	0
15	0	0	0	0	0	1	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	1	0.0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
17	0	0	0	0	0	1	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	1	1	1	0.1	0
18	1	0	1	1	0	1	1	0	0	0	**S**	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0.3	0
19	1	1	1	1	0	1	0	1	1	**S**	0	0	1	0	0	0	1	1	0	1	1	0	1	0	1	0.6	0
20	0	0	1	0	0	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0
21	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
22	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
23	0	0	0	0	0	**S**	0	1	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	0	0	1	1	1	1	1	0.6	0
24	0	1	1	0	**S**	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0	1	0.5	0
25	0	0	0	**S**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	0
26	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
27	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
28	**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	0
29	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	0
30	1	1	0	0	0	0	1	**S**	**S**	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	1	0.1	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	**S**	1	0	0	1	0.2	0
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2			

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR DECEMBER 2014

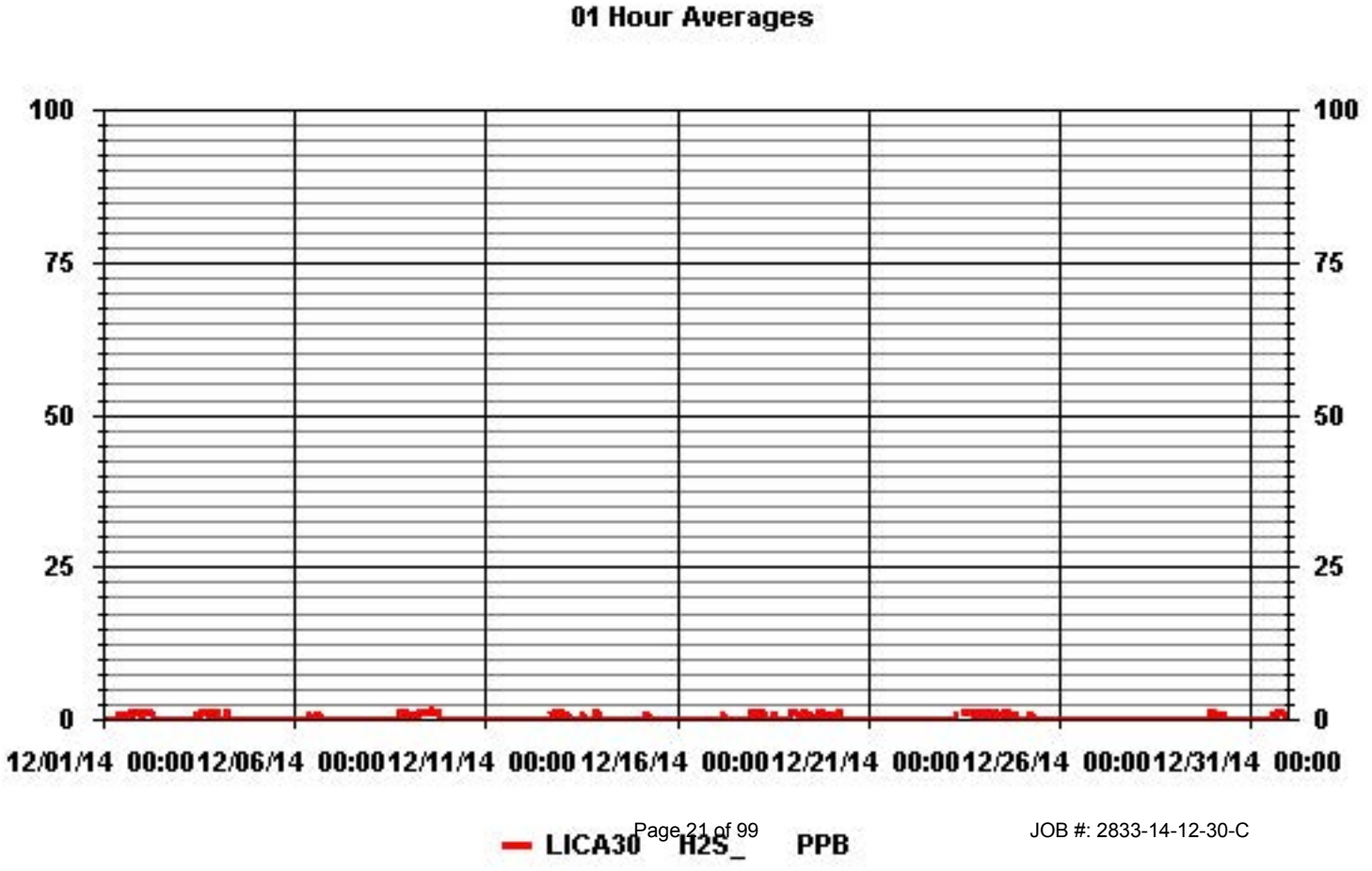


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	112					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	14	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S)	9
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.37		MONTHLY AVERAGE:		0.16	PPB

JOB #: 2833-14-12-30-C



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	1.1	24
2	1	1	1	**S**	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
3	1	1	**S**	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
4	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0.9	24
5	**S**	0	***3***	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	**S**	***3***	0.9	24
6	1	2	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	2	0.9	24
7	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	**S**	0	0	1	0.8	24
8	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	**S**	1	1	1	1	0.8	24
9	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	2	1	**S**	1	0	0	1	2	***1.3***	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	**S**	0	0	0	1	0	1	0.3	24
11	0	1	1	1	1	0	0	1	1	1	1	1	1	0	1	0	0	**S**	0	0	0	0	0	0	1	0.5	24
12	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	**S**	1	1	1	1	1	1	1	1	0.4	24
13	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	**S**	0	0	0	0	1	1	1	1	1	0.7	24
14	1	1	0	1	1	1	1	1	1	1	1	0	0	0	**S**	1	1	1	1	1	0	1	1	0	1	0.7	24
15	0	1	1	0	1	1	1	0	1	1	1	1	1	**S**	1	0	0	0	0	1	1	0	0	0	1	0.6	24
16	0	0	0	0	0	0	1	0	1	0	0	1	**S**	1	1	1	0	1	1	1	0	1	1	0	1	0.5	24
17	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	0	1	1	1	1.0	24
18	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
19	1	1	1	1	1	1	1	2	2	**S**	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1.1	24
20	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	2	0	0	0	0	1	1	1	0	0	2	0.6	24
21	0	0	0	0	0	1	0	**S**	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.2	24
22	0	0	0	0	0	0	**S**	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
23	0	0	0	0	0	**S**	1	1	**C**	**C**	**C**	**C**	**C**	1	***3***	2	1	1	1	1	2	1	1	1	***3***	0.9	24
24	1	1	1	1	**S**	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0	24
25	1	1	1	**S**	1	1	1	2	0	1	1	1	1	1	1	1	1	1	1	***3***	1	0	1	1	***3***	1.0	24
26	1	1	**S**	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0.7	24
27	1	**S**	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	1	1	0.7	24
28	**S**	0	1	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	**S**	2	0.2	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	1	1	0.0	24
30	2	1	1	1	1	1	1	**S**	**S**	0	0	1	1	1	1	1	1	1	1	1	1	**S**	1	1	2	1.0	24
31	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1.0	24
HOURLY MAX	2	2	3	1	1	1	1	2	2	2	2	2	2	2	3	2	2	2	2	3	2	1	1	1			
HOURLY AVG	0.7	0.7	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.9	0.8	1.0	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.7	0.6			

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: 491

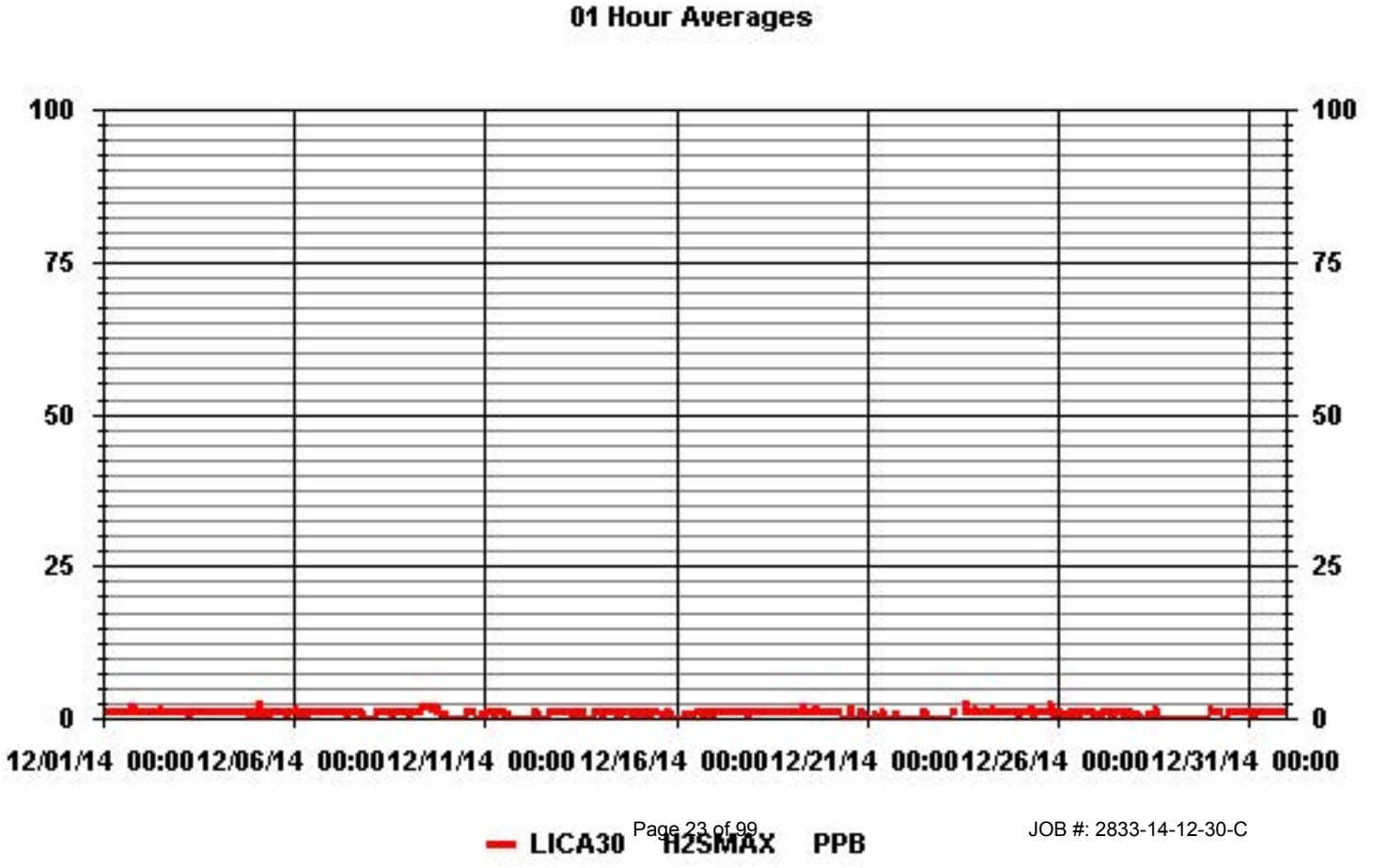
MAXIMUM INSTANTANEOUS VALUE: 3 PPB @ HOUR(S) VAR ON DAY(S) VAR

VAR-VARIOUS

IZS CALIBRATION TIME: 35 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.53



JOB #: 2833-14-12-30-C

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

December 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	6.53	2.69	6.67	6.67	4.40	4.68	3.83	6.25	6.53	7.95	14.63	4.26	7.95	6.53	5.53	4.82	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.53	2.69	6.67	6.67	4.40	4.68	3.83	6.25	6.53	7.95	14.63	4.26	7.95	6.53	5.53	4.82	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	46	19	47	47	31	33	27	44	46	56	103	30	56	46	39	34	704
< 10																	
< 50																	
>= 50																	
Totals	46	19	47	47	31	33	27	44	46	56	103	30	56	46	39	34	

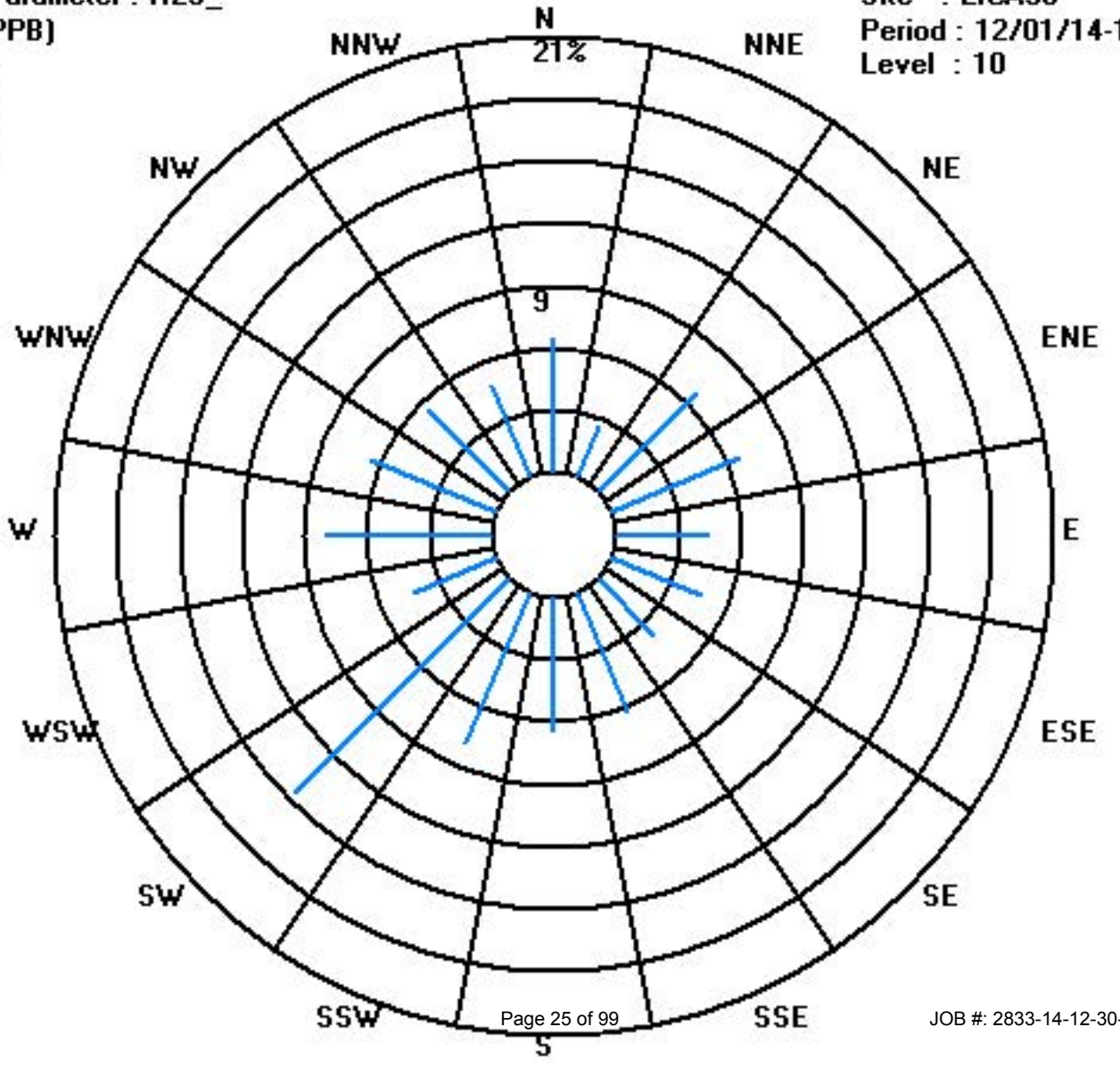
Calm : .00 %

Total # Operational Hours : 704

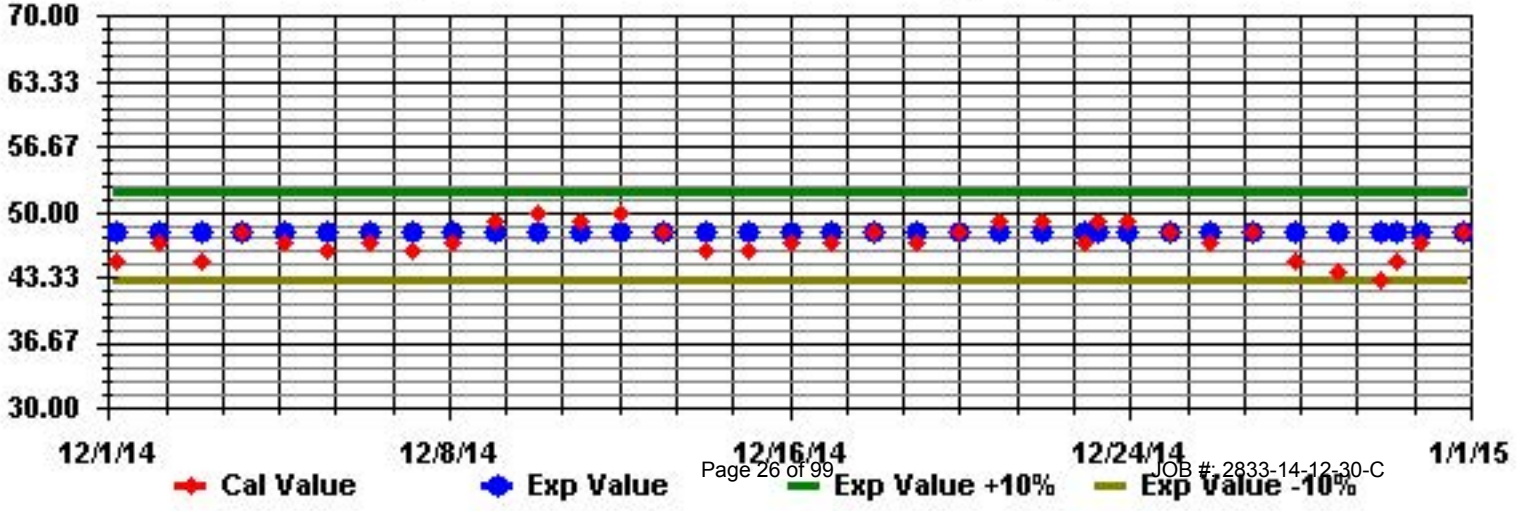
Logger : 30 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA30
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-30-C


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN
70.00
63.33
56.67
50.00
43.33
36.67
30.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

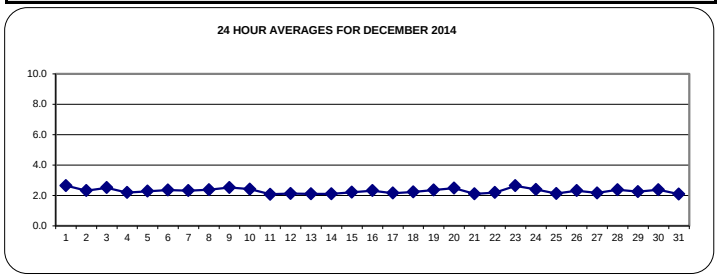
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.4	2.4	2.4	2.4	S	2.4	2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.1	2.1	2.5	3.1	3.2	3.2	3.2	3.3	***3.4***	3.2	3.0	***3.4***	***2.7***	24
2	2.8	3.0	3.2	S	3.0	3.1	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	3.2	2.3	24
3	2.1	2.1	S	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.6	2.7	2.7	2.7	2.8	3.0	3.0	3.0	2.9	2.7	2.5	2.6	2.5	3.0	2.5	24
4	2.8	S	2.4	2.3	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.2	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.8	2.2	24
5	S	2.0	2.0	2.0	2.0	2.1	2.5	2.6	2.6	2.5	2.2	2.0	2.2	2.3	2.4	2.4	2.2	2.3	2.3	2.3	2.4	2.5	2.5	S	2.6	2.3	24
6	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.2	2.6	2.4	24
7	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	S	2.3	2.3	2.4	2.3	24
8	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.6	2.5	2.4	2.4	2.3	2.4	S	2.4	2.4	2.4	2.6	2.4	24
9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.7	2.8	2.8	2.8	2.6	2.5	2.5	2.5	S	2.5	2.5	2.5	2.5	2.8	2.5	24
10	2.6	2.4	2.3	2.3	2.4	2.5	2.6	2.6	2.5	2.3	2.1	2.2	2.4	2.5	2.6	2.5	2.5	2.5	S	2.4	2.4	2.4	2.3	2.3	2.6	2.4	24
11	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	S	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.1	24
12	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.3	2.3	2.4	2.4	S	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.1	24
13	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
14	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24
15	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	S	2.2	2.2	2.3	2.4	2.3	2.3	2.4	2.5	2.5	2.4	2.5	2.2	24
16	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.3	2.3	2.3	2.3	S	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	24
17	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	24
18	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.3	2.3	S	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	24
19	2.3	2.3	2.3	2.4	2.4	2.4	2.4	S	2.3	S	2.4	S	S	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.3	2.3	2.3	2.3	2.5	2.4	24
20	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	S	2.5	2.5	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.5	2.3	2.3	2.3	2.7	2.5	24
21	2.3	2.3	2.2	2.2	2.4	2.3	2.3	S	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.4	2.1	24
22	2.1	2.0	2.1	2.1	2.2	2.2	S	2.3	2.3	2.3	2.2	2.1	1.9	C	C	C	C	C	2.4	2.3	2.2	2.2	2.3	2.3	2.4	2.2	24
23	2.6	2.7	2.6	2.4	2.5	S	2.9	3.1	3.2	3.1	2.9	2.6	2.5	2.5	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.6	2.7	3.2	2.6	24
24	2.7	2.7	2.7	2.8	S	2.9	2.8	2.6	2.6	2.5	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9	2.4	24
25	2.2	2.2	2.2	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	24
26	2.3	2.3	S	2.2	2.2	2.3	2.3	2.4	2.6	2.8	2.9	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9	2.3	24
27	2.2	S	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
28	S	2.1	2.1	2.1	2.1	2.1	2.2	2.4	3.0	3.2	3.3	2.8	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	S	3.3	2.4	24
29	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	S	2.8	2.8	2.3	24
30	2.9	2.8	2.6	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.2	S	2.2	2.1	2.9	2.4	24
31	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.0	2.0	2.0	2.1	2.1	24
HOURLY MAX	2.9	3.0	3.2	2.8	3.0	3.1	2.9	3.1	3.2	3.2	3.3	2.8	2.8	2.8	2.8	2.8	3.1	3.2	3.2	3.2	3.3	3.4	3.2	3.0			
HOURLY AVG	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3			

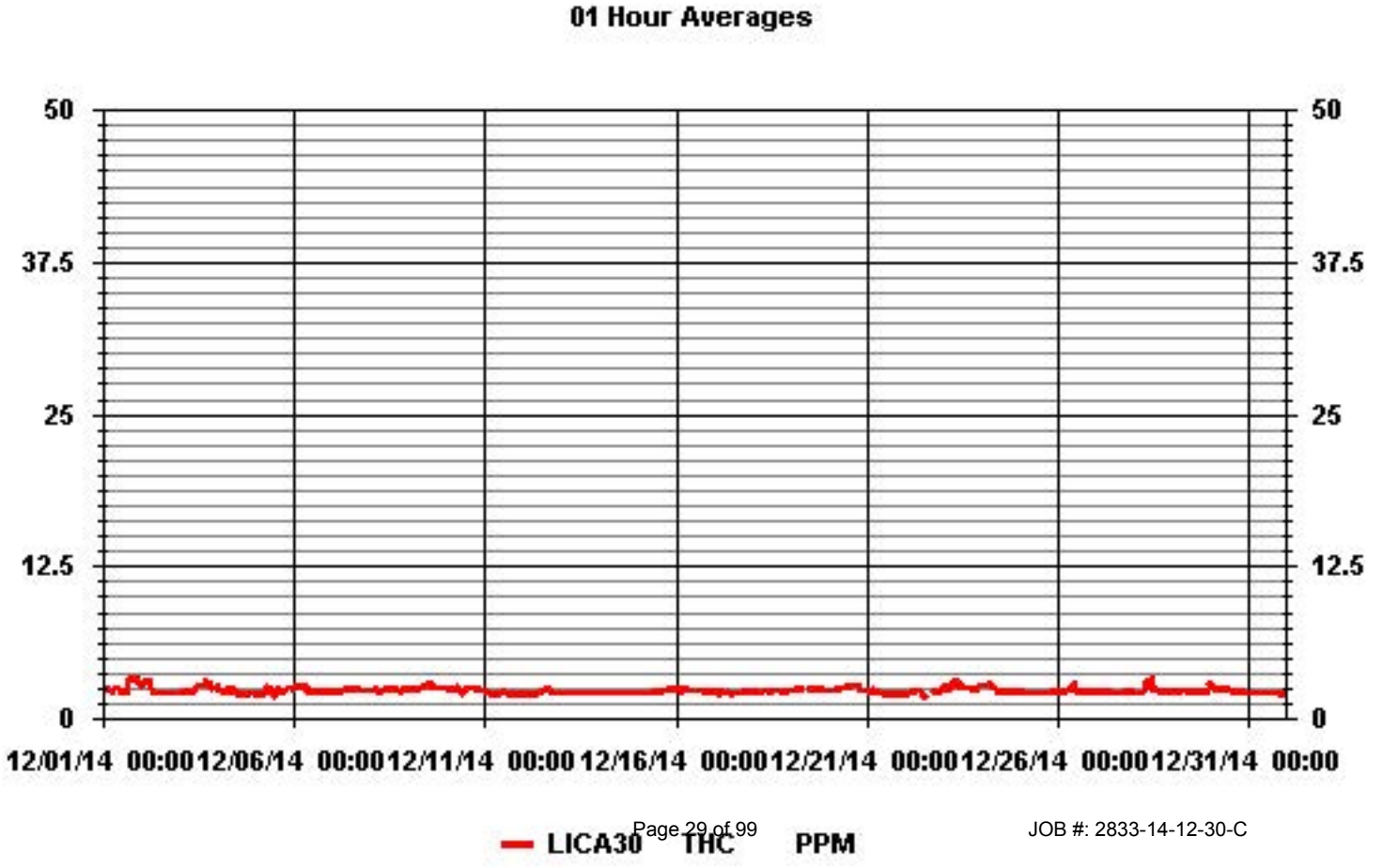
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM 1-HR AVERAGE:	3.4	PPM	@ HOUR(S)	21	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	2.7	PPM			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	36	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE:		2.30	PPM



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	2.4	2.4	2.4	2.4	**S**	2.4	2.4	2.4	2.5	2.6	2.5	2.3	2.4	2.1	2.2	3	3.2	3.3	3.3	3.4	3.3	3.6	3.5	3.3	3.6	***2.8***	24
2	3	3.4	3.4	**S**	3.1	3.2	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	3.4	2.4	24
3	2.1	2.2	**S**	2.2	2.4	2.3	2.2	2.2	2.2	2.5	2.6	2.7	2.7	2.7	2.7	2.9	3	3	3.1	3.1	2.8	2.6	2.6	2.7	3.1	2.6	24
4	2.8	**S**	2.5	2.3	2.4	2.5	2.4	2.2	2.5	2.5	2.4	2.3	2.1	2	2.2	2.1	2.1	2	2	2.1	2.1	2.2	2.1	2.1	2.8	2.3	24
5	**S**	2	2	2	2	2.5	2.6	2.6	2.7	2.6	2.4	2.1	2.4	2.4	2.6	2.5	2.3	2.3	2.4	2.4	2.5	2.5	2.6	**S**	2.7	2.4	24
6	2.6	2.6	2.7	2.7	2.7	2.9	2.8	2.9	2.5	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	**S**	2.2	2.9	2.5	24
7	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.5	**S**	2.3	2.3	2.5	2.4	24
8	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.4	2.4	**S**	2.4	2.4	2.4	2.6	2.4	24
9	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.8	2.9	2.9	3	2.6	2.6	2.7	2.6	**S**	2.5	2.5	2.5	2.6	3	2.6	24
10	2.6	2.5	2.4	2.4	2.5	2.6	2.7	2.6	2.6	2.8	2.4	2.3	2.5	2.7	2.7	2.6	2.7	2.7	**S**	2.5	2.4	2.4	2.4	2.4	2.8	2.5	24
11	2.3	2.3	2.1	2.1	2	2	2	2	2.1	2.1	2.2	2.3	2.3	2.1	2.1	2.1	2	**S**	2.1	2	2.1	2.5	2.2	2.2	2.5	2.1	24
12	2.1	2	2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	**S**	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.5	2.2	24
13	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	**S**	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
14	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	**S**	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
15	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	**S**	2.2	2.3	2.4	2.4	2.3	2.4	2.5	2.6	2.6	2.4	2.6	2.3	24
16	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.3	2.3	2.4	**S**	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.5	2.3	24
17	2.3	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	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	24
18	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.4	**S**	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.3	24
19	2.3	2.3	2.4	2.5	2.5	2.4	2.4	**S**	**S**	**S**	2.4	**S**	**S**	2.4	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.3	2.3	2.3	2.5	2.4	24
20	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	**S**	2.5	2.6	2.7	2.7	2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.6	2.4	2.3	2.4	2.8	2.5	24
21	2.4	2.3	2.3	2.3	2.4	2.4	2.3	**S**	2.1	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2	2	2	2.4	2.1	2.1	2.4	2.2	24
22	2.1	2.1	2.1	2.1	2.2	2.2	**S**	2.3	2.3	2.3	2.3	2.2	2	**C**	**C**	**C**	**C**	**C**	2.5	2.4	2.3	2.2	2.3	2.5	2.5	2.2	24
23	2.7	2.8	2.6	2.6	2.6	**S**	3.1	3.2	3.3	3.3	3	2.7	2.6	2.6	2.9	2.6	2.6	2.6	2.6	2.4	2.5	2.6	2.7	2.7	3.3	***2.8***	24
24	2.8	2.8	2.8	2.8	**S**	2.9	2.9	2.7	2.7	2.6	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.9	2.4	24
25	2.2	2.2	2.2	**S**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
26	2.3	2.3	**S**	2.3	2.3	2.3	2.3	2.5	2.7	2.9	2.9	2.7	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9	2.4	24
27	2.2	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
28	**S**	2.1	2.1	2.1	2.1	2.2	2.4	2.6	***4.3***	3.8	3.5	3.3	2.4	2.4	2.3	2.4	2.4	2.2	2.2	2.3	2.3	2.2	2.2	**S**	***4.3***	2.5	24
29	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.5	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.2	**S**	2.9	2.9	2.3	24
30	3	3	2.7	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	**S**	2.2	2.2	3	2.4	24
31	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	**S**	2	2	2	2.2	2.1	24
HOURLY MAX	3	3	3	3	3	3	3	3	4	4	4	3	3	3	3	3	3	3	3	3	3	4	4	3			
HOURLY AVG	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.3	2.4	2.4	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: 702

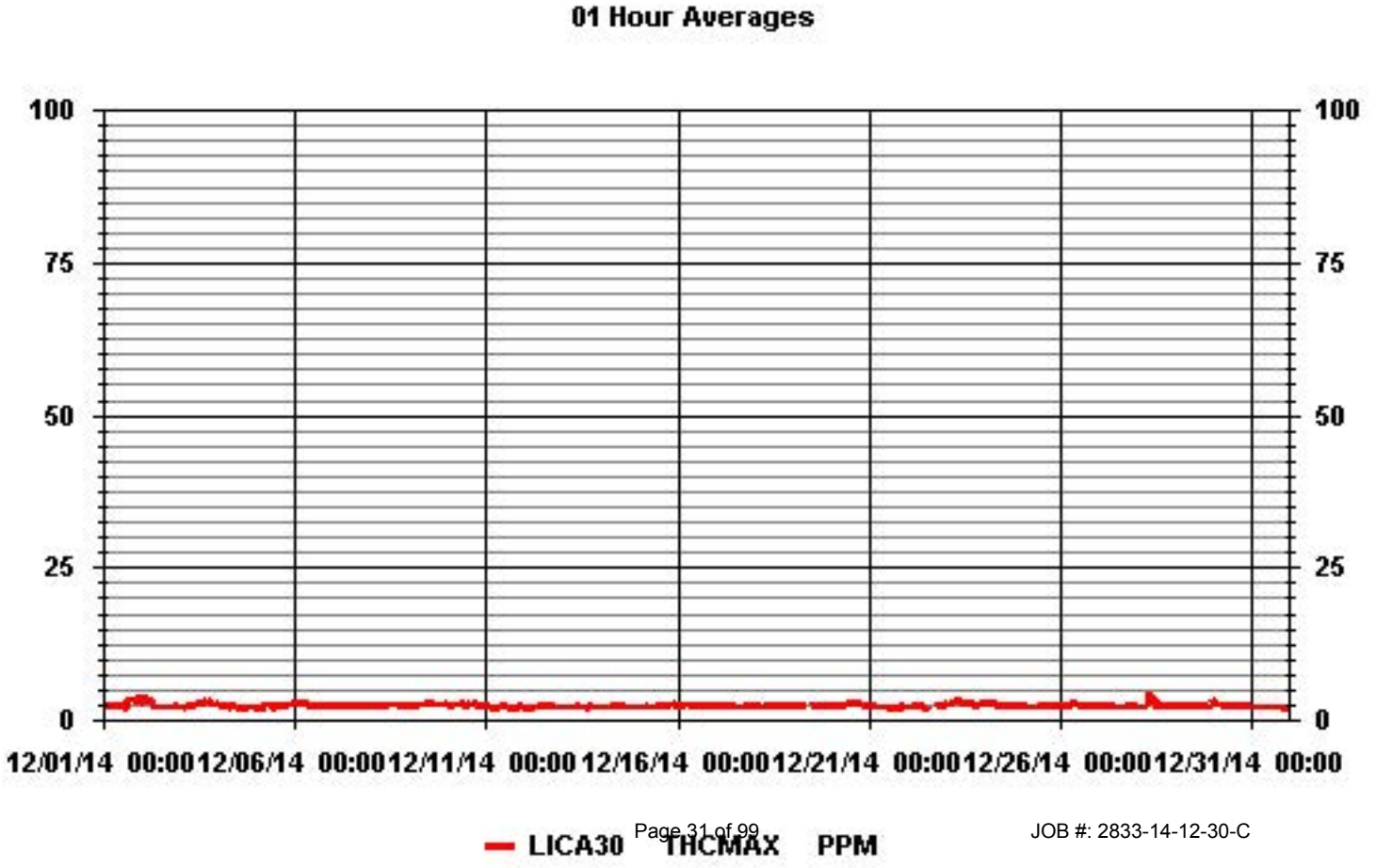
MAXIMUM INSTANTANEOUS VALUE: 4.3 PPM @ HOUR(S) 8 ON DAY(S) 28

VAR-VARIOUS

IZS CALIBRATION TIME: 37 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.29



JOB #: 2833-14-12-30-C

LICA30
THC / WDR Joint Frequency Distribution (Percent)

December 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	6.54	2.70	6.54	6.40	4.40	4.55	3.69	5.97	6.54	8.25	13.08	4.12	7.82	6.54	4.97	4.83	97.01
< 10.0	.00	.00	.00	.00	.00	.14	.14	.28	.00	.56	1.70	.14	.00	.00	.00	.00	2.98
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.54	2.70	6.54	6.40	4.40	4.69	3.84	6.25	6.54	8.81	14.79	4.26	7.82	6.54	4.97	4.83	

Calm : .00 %

Total # Operational Hours : 703

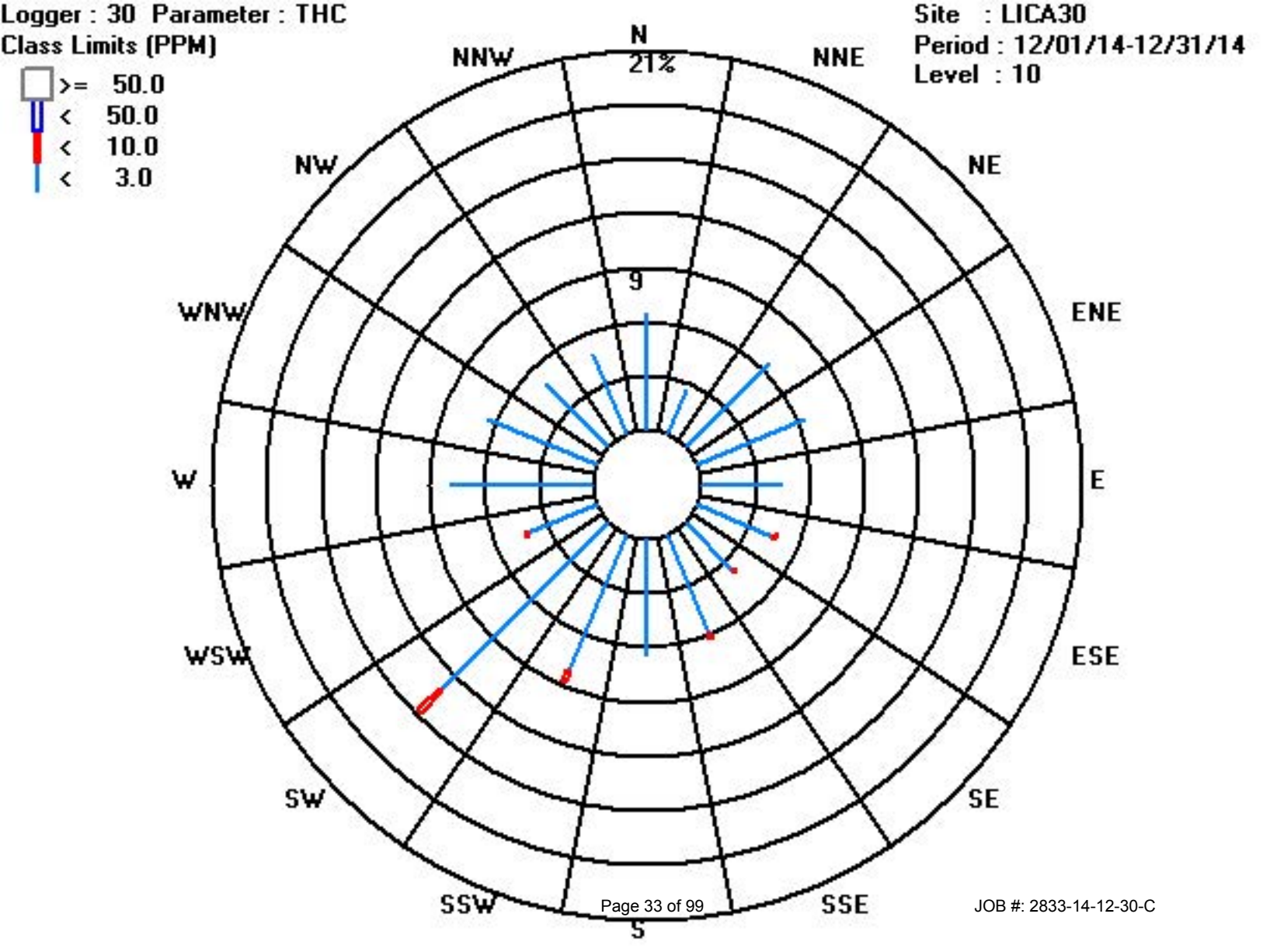
Distribution By Samples

Direction

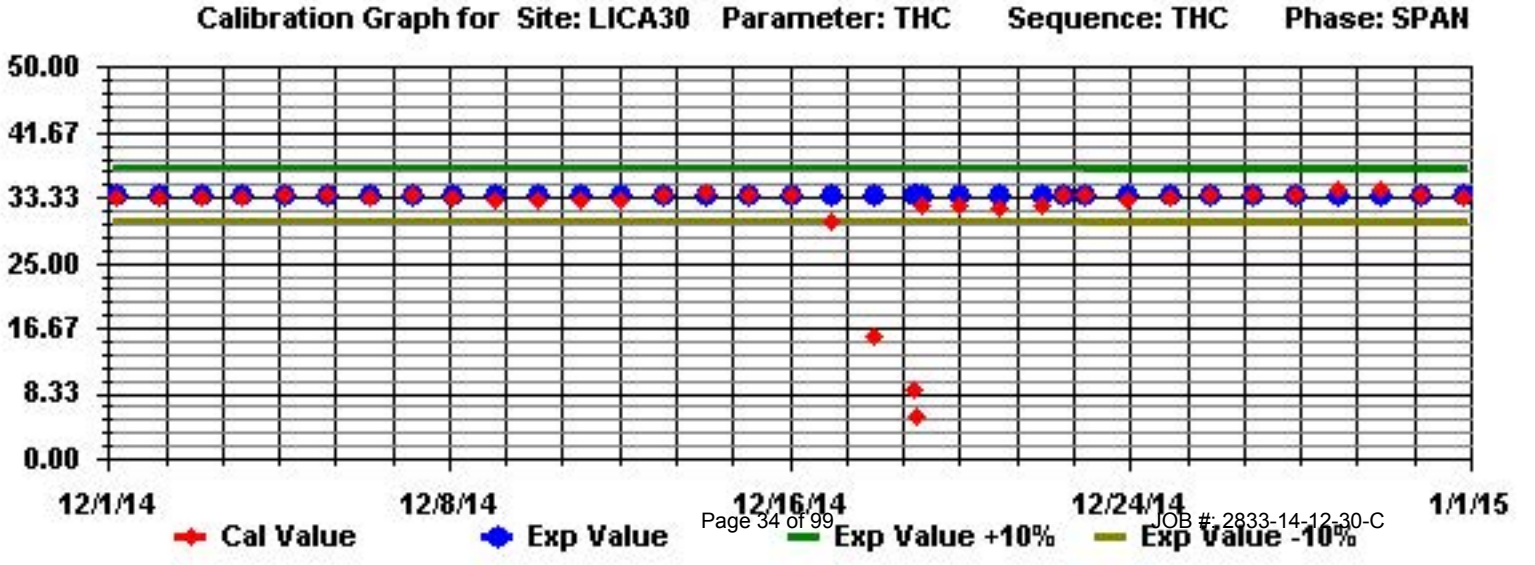
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	46	19	46	45	31	32	26	42	46	58	92	29	55	46	35	34	682
< 10.0						1	1	2		4	12	1					21
< 50.0																	
>= 50.0																	
Totals	46	19	46	45	31	33	27	44	46	62	104	30	55	46	35	34	

Calm : .00 %

Total # Operational Hours : 703



JOB #: 2833-14-12-30-C


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN
50.00
41.67
33.33
25.00
16.67
8.33
0.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

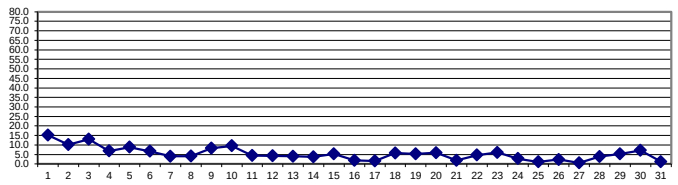
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8.1	7.5	7.2	7.6	S	6.2	7.5	9.3	11.2	12.2	12	5.6	7.6	3.9	8.9	12.5	26.9	29	***34.9***	30.2	26.2	29	26.6	18.6	***34.9***	***15.2***	24
2	16.7	20.7	26.8	S	23.2	25.6	16.3	3.2	7.7	1.6	5.9	8.4	5.2	5.6	6.3	9.6	8.8	2.1	4.9	2.5	9.6	7.7	5.6	7.7	26.8	10.1	24
3	3.2	12.8	S	17.5	5.6	3.9	5.4	11.2	16.5	15.4	7.8	7.7	9	9.2	13.1	14.4	21.3	24.7	20.1	22.4	16	12.6	15.8	13.5	24.7	13.0	24
4	18	S	8.9	6.2	5.1	8.5	8.4	10.2	15.5	18.7	18.2	9	2	1.4	2.2	6.2	3.2	2.2	0.6	0.8	1.1	4.6	2	3.2	18.7	6.8	24
5	S	2.6	1.1	1	1.4	3.3	11.8	14.3	14.5	10.7	5.5	7.8	4.9	7.8	8.4	9.3	10.9	11.4	12.4	12.6	13.4	13.3	16.2	S	16.2	8.8	24
6	10.6	10.7	9.6	7.6	6.9	6.2	5.8	S	3.5	9.3	3.1	5.2	8.4	4.8	5.4	8.5	11.6	6.5	6.3	5.4	3.5	5.6	S	2.1	11.6	6.7	24
7	3.3	2.1	2.2	2.4	2.1	1.6	4	4	4.2	3.9	6.7	7.6	6.9	8	4.3	3.8	3.4	4.7	3.4	3.1	2.9	S	4.1	4.2	8	4.0	24
8	6.3	4.6	4.2	3.3	3.6	2.6	1.6	S	S	2.2	2.5	3.4	4.4	4.2	5.8	4.3	4	4.2	3.9	4.6	S	3.3	5.7	8	8	4.1	24
9	3.8	6.3	5.4	5.4	5.3	6.2	8.3	11.8	21.3	18.5	13.5	7.2	8.2	9.6	10	9.1	8.1	5.7	4.2	S	4.4	7.7	6.5	4.6	21.3	8.3	24
10	7.4	6.6	6.1	5.3	12.8	14.1	17.8	16.3	11.9	12.2	7.6	6.2	10.9	10.3	14.1	18.1	10.6	13.2	S	6.4	3.1	3	2.3	2.2	18.1	9.5	24
11	4.3	3.7	2	1.2	0.9	1.1	1	5.6	5.4	S	5.8	7.3	7.1	6.5	9	5	4	S	3	2.7	3	8.2	7.3	2.5	9	4.4	24
12	2.6	2.4	1.3	0.9	0.8	0.8	0.7	3.6	7	4.2	7.1	5.8	4.5	5.9	5.7	9	S	7.7	8	7	3.8	3.6	3.2	3.3	9	4.3	24
13	3.2	3.6	3.7	4.6	6.3	5.4	5	4.6	4.4	5.3	4.4	4	5.1	4.6	3.2	S	4.1	4.6	5.4	1.4	2.9	1.7	3	1.6	6.3	4.0	24
14	1.9	1.9	0.8	4.3	1.8	2.6	2.9	S	S	12.2	5.7	2.8	5.3	3.8	S	4.5	6.5	6.4	6.5	3.2	1.3	1	1.4	2.1	12.2	3.8	24
15	3.4	7	7.4	6.6	14.3	18.8	19.4	5.6	1.6	2.1	1.1	1.7	2.5	S	2.9	3.2	3.7	3.4	3.1	2.7	2.6	2.9	2.2	1.7	19.4	5.2	24
16	2.4	1.9	1.6	1.3	1.6	1.7	1.4	1.4	1.5	2.1	1.5	1.6	S	2.6	3	2.1	2.6	2.4	1.9	1.8	2.1	1.6	1.8	1.5	3	1.9	24
17	1.5	1.5	1.3	1.3	1.2	1.1	1.2	1.3	1.3	1.8	1.6	S	1.2	1.3	1.6	1.5	1.6	1.5	2.1	1.9	2	2.1	2.1	2.4	2.4	1.6	24
18	1.9	2	2.1	1.6	3.1	2	3	3.7	S	7.9	S	5.3	5.3	5.1	5.9	8.6	9.4	9.2	7.9	8.2	5.5	8.1	11.3	9.7	11.3	5.8	24
19	9.6	14.2	13.5	10.3	9.7	9	8.6	8	10.5	S	3.6	2.5	1.8	2.9	3	2.7	1.7	1.4	1.4	1.3	1.3	1	1.2	0.7	14.2	5.2	24
20	0.7	2.6	3.8	2.8	3.3	2.3	3.1	3.7	S	6	4.7	6.6	6	6.8	8.2	10.2	10.7	10.7	8.8	7.8	7.7	8.1	5.9	4.3	10.7	5.9	24
21	3.1	2.5	2.3	1.7	2	1.8	1.8	S	1.4	1	0.7	0.8	0.8	0.7	0.7	0.7	0.5	1.4	1.7	1.2	2	4.6	7.3	2.6	7.3	1.9	24
22	2	2.1	2.5	2.2	2.1	2.1	S	5.4	4.6	8.2	12.5	5.6	6.3	C	C	C	C	C	C	Y	Y	Y	Y	Y	12.5	4.6	19
23	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	8.8	6.8	7.6	7.8	6.3	4.7	4.3	4.7	4.7	4.6	8.8	6.0	16
24	4.2	3.9	3.8	4.1	S	4	7.4	7.7	9.7	4	1.3	0.9	2.5	4.6	2.3	1.5	0.7	0.4	0.2	0.3	0.7	0.5	0	0	9.7	2.8	24
25	0.6	0.2	0.4	S	0.4	0	0	0	0	2.6	4.1	3.1	0.8	2.2	2.7	0.7	0	0	0.7	1.3	0.8	1.3	1.6	0.8	4.1	1.1	24
26	0.8	1.1	S	0.6	1	1.3	2.6	3.2	6.1	11.2	10.7	3.2	2	4.4	2.6	1.8	0.3	0.2	0.1	0.1	0	0.2	0	0	11.2	2.3	24
27	0	S	0.8	0.6	0.6	0.7	0.8	1.2	2.5	0.4	0.3	0.2	0.2	1	0	0	0	0.2	0.4	0.2	0.2	0.3	0.3	0.2	2.5	0.5	24
28	S	0	0	0	0	0	0	0	1.4	7.3	7.5	7.2	10.7	8.4	11.5	6.6	6.1	3.7	2.7	4.5	3.4	1.3	2.2	S	11.5	3.8	24
29	4.2	6.2	5.2	3.9	1.4	2.7	13.1	10.2	9.3	10.1	2.1	5.6	2.2	3	5.6	2.5	1	1.1	10.1	6.7	4.3	0	S	9.3	13.1	5.2	24
30	12.6	9.2	3.2	1.7	3.7	4.3	3.9	6.2	6	6.5	4.9	3.9	3.6	5.9	5.5	11.3	9.1	7.9	14.9	14.2	16.8	S	8.9	1	16.8	7.2	24
31	0	0	0	0	0	0	0.1	0.1	0.5	0.6	0.4	0	2.1	2.5	3.8	0	0	0	0.6	8.3	S	4.8	1.6	1.1	8.3	1.2	24
HOURLY MAX	18.0	20.7	26.8	17.5	23.2	25.6	19.4	16.3	21.3	18.7	18.2	9.0	10.9	10.3	14.1	18.1	26.9	29.0	34.9	30.2	26.2	29.0	26.6	18.6			
HOURLY AVG	4.9	5.0	4.5	3.8	4.3	4.7	5.6	5.8	6.9	7.1	5.6	4.7	4.7	4.9	5.7	6.0	6.2	6.0	6.1	5.8	5.2	5.1	5.4	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

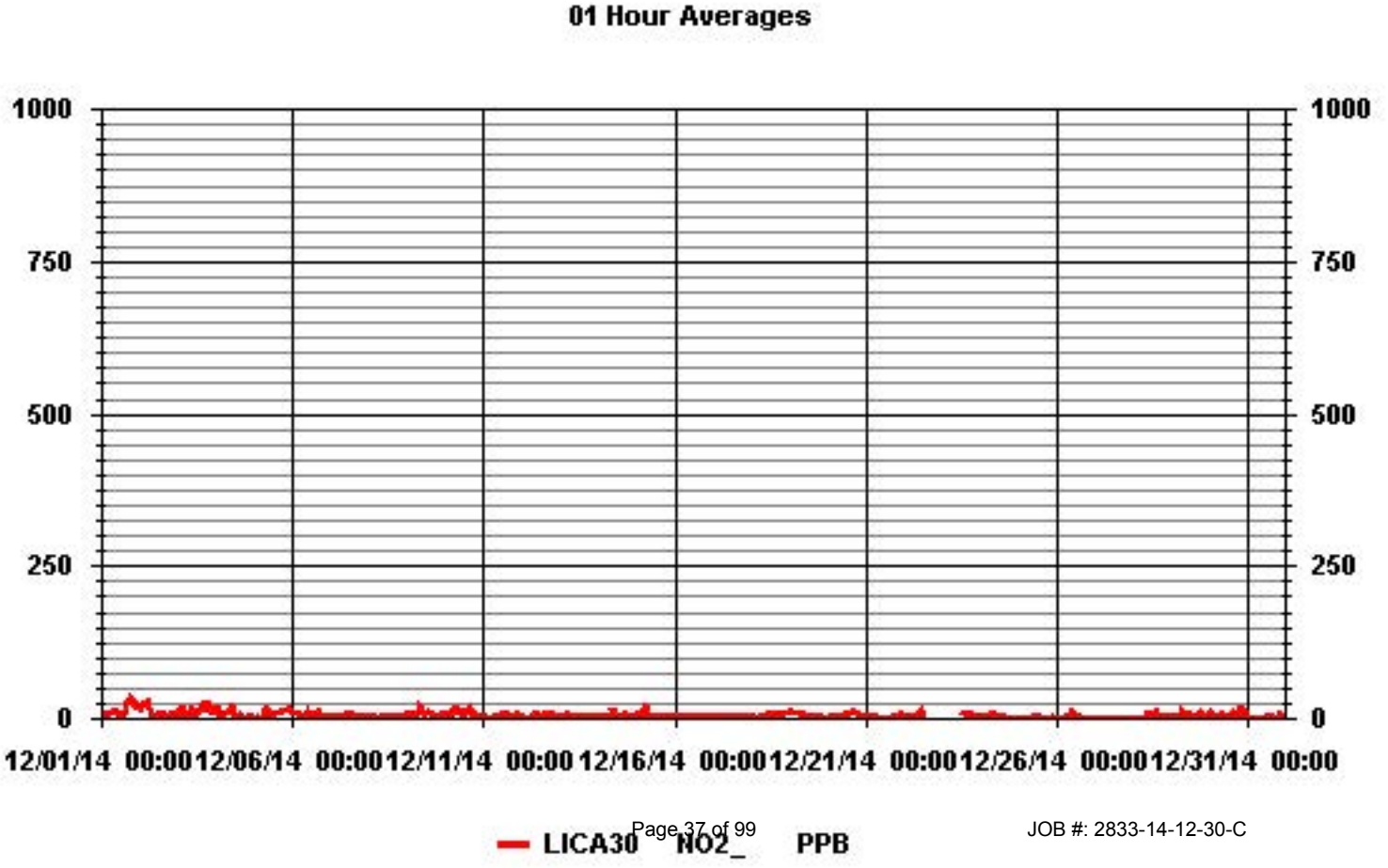
24 HOUR AVERAGES FOR DECEMBER 2014



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	647					
MAXIMUM 1-HR AVERAGE:	34.9	PPB	@ HOUR(S)	18	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	15.2	PPB			ON DAY(S) VAR-VARIOUS	1

IZS CALIBRATION TIME:	39	HRS	OPERATIONAL TIME:	731	HRS
MONTHLY CALIBRATION TIME:	12	HRS	AMD OPERATION UPTIME:	98.3	%
STANDARD DEVIATION:	5.18		MONTHLY AVERAGE:	5.33	PPB



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	8.5	8.2	8.2	8.4	**S**	7.3	10.2	20.2	14.8	14.2	17.3	8.3	26.5	7.9	12.7	22.5	31.6	31.3	55.1	47.1	30.3	31.8	29.9	23.3	55.1	20.7	24
2	20.9	29.8	30.3	**S**	25.2	27.5	25.7	6.6	21.1	3.1	12.6	18	16.3	13.7	10.8	***75.4***	68.8	5	6.9	3.8	33.4	19.4	12.3	51.8	***75.4***	***23.4***	24
3	5.3	21.1	**S**	28.8	9.7	4.7	10.7	23.5	24.9	21.8	9.3	9.1	9.9	11.5	15.8	18.6	23.2	30.3	24.6	25	19.8	17.9	18.5	16.8	30.3	17.4	24
4	20.3	**S**	11.9	7.4	6.8	9.6	26.9	14.8	20.6	21.2	20.4	15.2	4.5	2.3	4.8	10.9	6	3.9	2	2.3	2	6.7	3.3	11.4	26.9	10.2	24
5	**S**	6.8	1.9	2	2.2	9.4	14.4	16.8	15.9	13.3	9.3	17.2	18.8	16.1	10.3	10.9	12.5	12.5	13.4	13.6	15	14.7	23.2	**S**	23.2	12.3	24
6	11	11.1	12.6	7.8	7.2	6.2	6.6	**S**	**S**	13.9	5.1	12	10.5	8.2	12.3	14.2	14.9	12	10.7	9.4	10.8	11.7	**S**	3.2	14.9	10.1	24
7	5.2	3.2	2.7	2.9	3.3	2.1	4.9	5.1	7.9	4.8	10.4	9	9.6	13.1	8.8	5.8	4.3	7.9	4	3.6	3.8	**S**	6.2	7.7	13.1	5.9	24
8	8.5	8.2	5.6	5.6	5	4	3.1	**S**	**S**	3.3	3.3	4.2	5.5	5.1	8	6	4.9	5.2	4.5	5.3	**S**	4.5	7.9	15.5	15.5	5.9	24
9	7.1	10.4	39.2	8.2	7.6	7.7	10.8	22.3	40.7	28.4	17.9	9.9	9.3	12.5	14.8	10.2	22.2	9.5	5.2	**S**	5.9	14.3	8.4	6	40.7	14.3	24
10	10.9	7.3	7.5	10.2	15.8	15.7	19.9	19.1	17.9	35.9	16.5	7.1	21.6	17.4	22.3	27.4	36.6	24.9	**S**	15.8	3.8	3.9	3.3	3.5	36.6	15.8	24
11	12.9	10.4	4.6	2	1.7	2	1.9	8.9	**S**	**S**	8.9	24.6	8.3	6.8	10.4	6.3	5.1	**S**	4.2	3.9	7.9	17.1	17.9	5.3	24.6	8.1	24
12	4.8	3.4	2.1	1.5	1.6	1.4	2.7	8.4	11.6	8.6	12.3	8.3	6.7	8.2	6.2	13.6	**S**	9.4	14.7	9	4.8	4.4	4.5	4.5	14.7	6.6	24
13	4.3	4.6	5	6.2	7.5	6.4	6.3	7.1	6.1	6.3	5.6	5.9	6.5	6.8	6.8	**S**	13.9	9.6	12.8	3.9	7.5	3.4	4.9	3.6	13.9	6.6	24
14	5.7	6.5	2.5	11.2	5.6	3.6	8.9	**S**	**S**	16.1	16.3	6.8	7.5	9.7	**S**	9.6	9.6	15.3	9.9	9.6	6.3	2.1	2.4	3.3	16.3	8.0	24
15	5.5	13.8	13.9	14.5	17.1	23.6	25.1	9.7	3.1	30.1	2.2	3.4	6.3	**S**	4.6	24	4.4	4.3	3.9	3.8	3.3	3.6	3.6	2.2	30.1	9.8	24
16	3.2	2.6	2.3	1.8	2.2	2.4	1.9	2	2.4	3.2	1.9	2.1	**S**	3.2	3.6	2.5	3.5	3.1	2.6	2.6	2.7	2.2	2.3	2.3	3.6	2.5	24
17	2.5	1.8	1.8	1.8	1.8	1.7	1.5	2.1	2	2.2	2.4	**S**	1.9	2.6	2.3	2.3	2.3	2.5	2.6	2.6	2.9	2.7	3	3.2	3.2	2.3	24
18	3	3.1	3.3	2.5	4.6	3.3	4.8	6	**S**	**S**	**S**	6.4	6.9	5.6	6.7	11.5	11.4	10.6	9.9	10.1	6.6	10.8	12.8	10.8	12.8	7.2	24
19	10.2	16.1	15.5	10.8	10.1	9.8	9.5	8.6	30.9	**S**	5.2	3.5	2.9	3.7	3.8	3.7	2.7	2.4	2.4	2.3	2.6	2.1	2.2	1.6	30.9	7.1	24
20	2.2	4.7	5.3	4.1	4.8	4	5.7	6.9	**S**	7.7	5.3	8.2	6.5	8.9	9.4	11.9	11.2	11.4	11.3	10.4	10.2	9.6	9.2	7.7	11.9	7.7	24
21	4.1	3.3	2.8	2.1	2.3	2.1	1.9	**S**	1.7	1.5	1.2	1.3	1.3	1.3	1.3	1.4	1	4.4	5.5	2.4	4.2	8.8	9.9	4.8	9.9	3.1	24
22	3.2	3.2	3.3	2.9	2.9	3.8	**S**	8.3	8.5	13.5	13.8	11.2	9.6	**C**	**C**	**C**	**C**	**C**	**C**	**Y**	**Y**	**Y**	**Y**	**Y**	13.8	7.0	19
23	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	7.6	9.6	9.2	7	5.5	5.3	5	5	4.8	9.6	6.6	16
24	4.5	4.3	4.2	4.6	**S**	6.9	11	11.5	13.6	8	3	2.4	5	6.6	5	3.1	2.3	2	1.5	2.1	2.1	2.3	1.2	1.9	13.6	4.7	24
25	2.8	1.5	2.1	**S**	2	1.3	1.1	0.4	1.1	7.1	8.1	8.8	3.1	5.1	6.3	3.1	1.5	1.3	2.4	3	2.7	3	3.1	2.2	8.8	3.2	24
26	2.3	2.8	**S**	2.3	3.3	3.1	4.9	5.1	9.7	13.3	12.6	8.8	5.4	8.2	5.7	4.9	1.7	1.6	1.6	1.6	1.3	1.6	1.4	1	13.3	4.5	24
27	0.8	**S**	2.3	2.4	2.1	2.2	2.1	3.8	7.1	1.8	1.8	1.5	1.5	6	1.4	1.4	1.3	1.7	1.9	1.6	1.6	1.6	1.9	1.5	7.1	2.2	24
28	**S**	0.9	0.8	0.7	0.5	0.5	0.7	3	4.5	13.4	10.4	13.1	14.4	11.6	14.4	12.8	10.5	6.8	4.3	6.8	6.9	3.1	3.9	**S**	14.4	6.5	24
29	7	8.6	6.9	6	4.3	5.3	19.4	19.8	14	17.4	5.5	12.7	7.1	8.6	11.8	8.7	8.3	7.3	17.2	12	12.9	1.7	**S**	14.9	19.8	10.3	24
30	17.8	15.5	6.5	4.5	7	7.2	6.7	9.9	9	9.7	8.6	7.6	6.7	9.5	8.6	16.8	17.9	13.7	29.9	28.5	28.1	**S**	15.2	4.8	29.9	12.6	24
31	1.9	1.2	1.4	1.1	1.6	1.3	4.3	1.4	4	11.7	2.5	1.8	6.8	12.5	12	1.1	1.6	2.1	7.9	12.8	**S**	10.5	4.2	2.6	12.8	4.7	24
HOURLY MAX	21	30	39	29	25	28	27	24	41	36	20	25	27	17	22	75	69	31	55	47	33	32	30	52			
HOURLY AVG	7.0	7.7	7.4	5.9	5.9	6.2	8.7	9.7	12.2	12.3	8.6	8.6	8.5	8.3	8.6	12.0	11.9	9.0	9.7	9.0	8.7	7.9	7.9	7.9			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 676

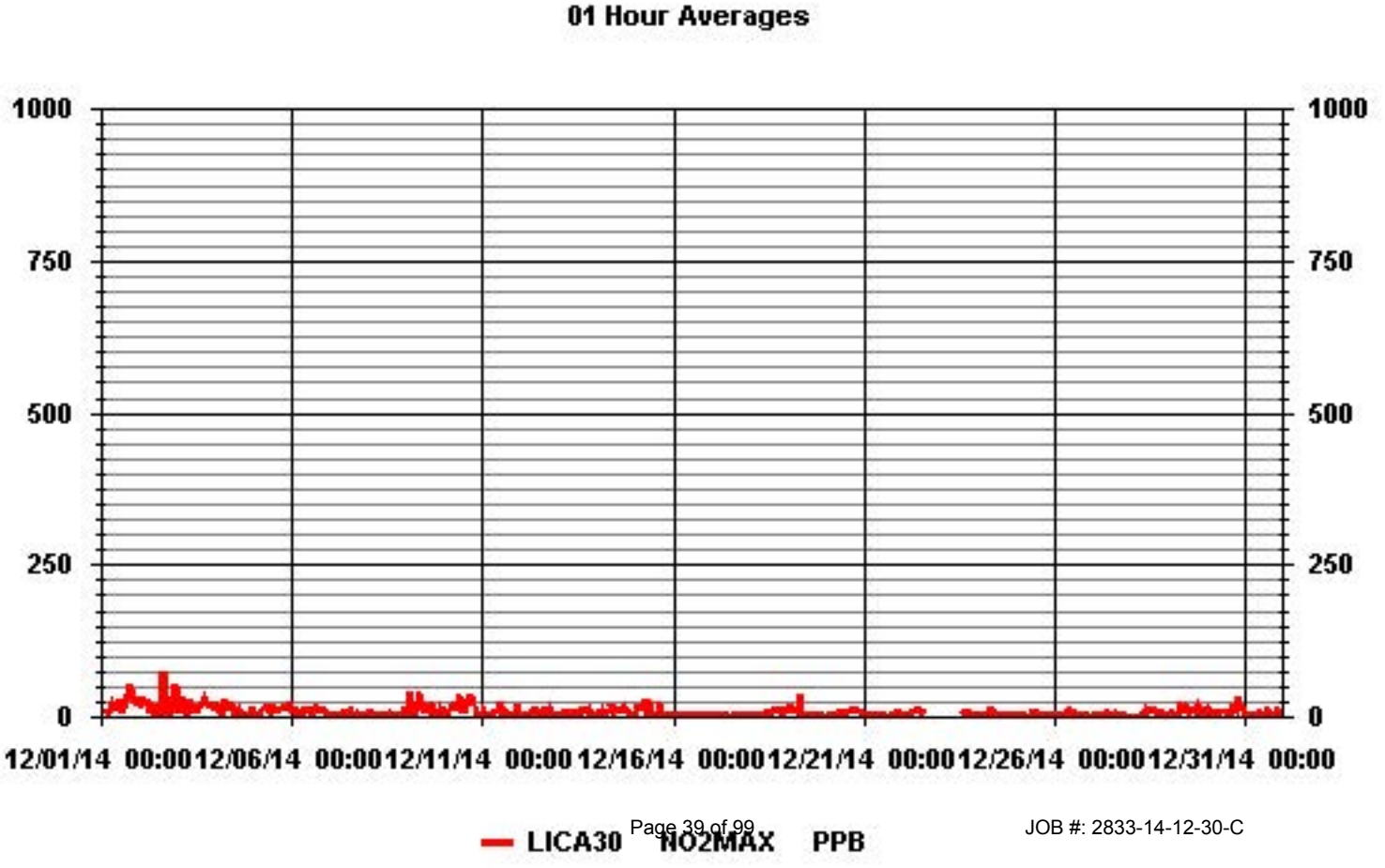
MAXIMUM INSTANTANEOUS VALUE: 75.4 PPB @ HOUR(S) 15 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 42 HRS OPERATIONAL TIME: 731 HRS

MONTHLY CALIBRATION TIME: 13 HRS

STANDARD DEVIATION: 8.35



JOB #: 2833-14-12-30-C

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

December 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	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	

Calm : .00 %

Total # Operational Hours : 680

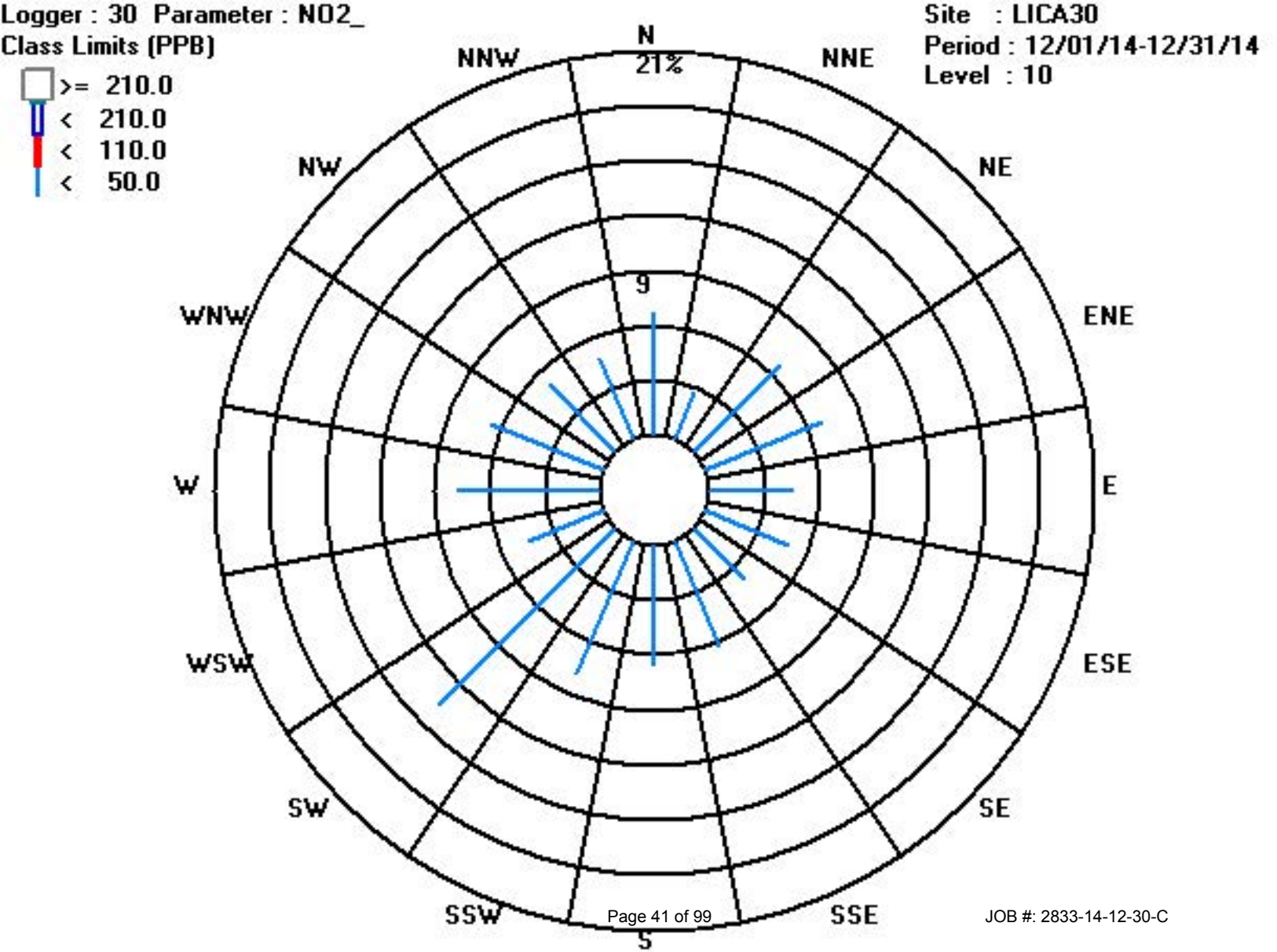
Distribution By Samples

Direction

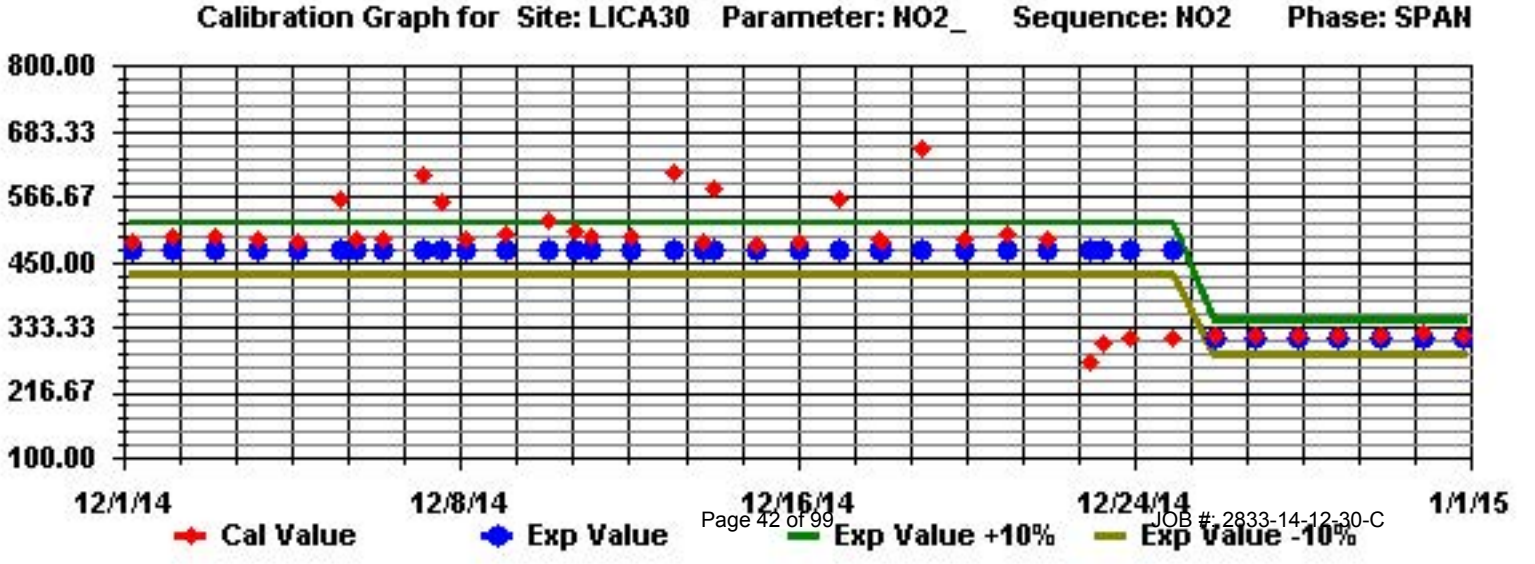
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	

Calm : .00 %

Total # Operational Hours : 680



JOB #: 2833-14-12-30-C


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN
800.00
683.33
566.67
450.00
333.33
216.67
100.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

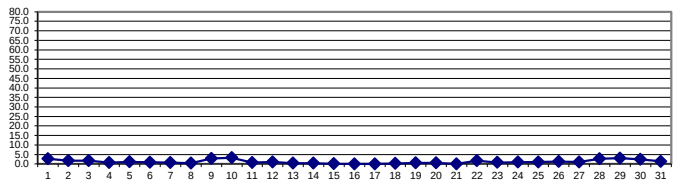
MST

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	0.2	0.1	0.2	**S**	0.3	0.6	1.5	1.2	3.9	6.6	3.1	5.1	2	2.6	1.8	2.3	1.2	13.9	10	2.2	1.8	1.2	0.7	13.9	2.7	24
2	0.5	0.7	0.8	**S**	0.8	1	1.1	0.3	1	0.5	2.1	5.6	3.5	2.9	2.1	1.7	9.3	0.2	0	0	2.3	0.3	0.2	2.2	9.3	1.7	24
3	0.3	0.8	**S**	1.6	0.6	0.3	0.9	2.6	4.3	6.2	2	2.6	2.8	2.9	3.6	2.1	1.9	2.2	0.8	0.7	0.4	0.2	0	0.2	6.2	1.7	24
4	0.1	**S**	0.2	0	0.1	0	2	1	1.1	3.5	5.3	1.4	0.2	0.1	0.2	0.5	0.2	0	0	0	0	0	0.1	0.1	5.3	0.7	24
5	**S**	0.2	0.1	0	0.1	0.1	0.3	0.9	1.1	2.1	1.9	4.8	2.4	4.5	2.2	1	0.7	0.3	0.2	0.2	0.3	0.3	0.5	**S**	4.8	1.1	24
6	0.3	0.4	0.4	0.3	0.2	0.3	0.3	**S**	0.4	2	1.1	1.3	1.8	1.1	1.1	1.4	1.8	1	1.1	0.7	0.3	0.3	**S**	0.3	2	0.8	24
7	0.3	0.1	0	0	0	0	0.1	0	0.9	0.4	1.7	2.2	2.4	3.9	1.2	0.7	0.1	0.8	0	0.1	0	**S**	0.3	0.1	3.9	0.7	24
8	0	0.2	0	0	0.1	0	0	**S**	**S**	0.6	0.4	0.9	1.2	1	1.3	0.4	0.1	0.3	0.2	0.1	**S**	0	0.3	0.8	1.3	0.4	24
9	0.3	0.2	2.3	0.3	0.1	0.2	0.4	2.1	***18***	13.8	9.9	4	4.3	4.6	2.6	0.8	1.5	0	0	**S**	0	1	0	0.1	***18***	2.9	24
10	0.1	0	0	0	0	0	1.1	0.6	0.9	10.3	2.7	1.6	7.7	8.1	3.8	7	14.5	13.5	**S**	3.2	0	0	0	0	14.5	***3.3***	24
11	2.5	0.8	0	0	0	0	0	0.2	0	**S**	1.3	4.2	2.3	1.6	1.4	0	0	**S**	0	0	0	1.3	1	0.1	4.2	0.8	24
12	0	0	0	0	0	0	0	0	2.2	2.9	7	2	1.7	1.8	0.8	1.2	**S**	0.8	1.6	0.2	0.3	0.1	0.2	0.2	7	1.0	24
13	0.2	0.3	0.1	0.1	0	0.3	0.4	0	0	1.2	0.6	0.9	1.2	0.7	0.7	**S**	0.5	0.3	1.4	0	0.2	0	0	0	1.4	0.4	24
14	0	0	0	0.3	0	0	0	**S**	**S**	1.7	1.3	0.6	1.4	0.6	**S**	0.7	0.6	0.7	0.8	0.3	0	0	0	0	1.7	0.4	24
15	0	0	0	0	0	0.2	0.4	0	0	0.3	0	0.2	0.4	**S**	0.2	0.8	0	0	0	0	0	0	0	0	0.8	0.1	24
16	0	0	0	0	0	0	0.1	0	0	0.2	0	0.2	**S**	0.4	0	0	0	0	0	0	0.1	0	0	0	0.4	0.0	24
17	0	0.1	0	0	0	0	0	0	0.1	0	0	**S**	0.2	0.1	0.1	0	0	0	0	0	0	0	0	0	0.2	0.0	24
18	0	0.1	0	0	0	0	0	0	**S**	0.8	**S**	1	1.2	0.9	0.7	0.7	0.1	0.2	0	0	0	0.2	0.2	0.2	1.2	0.3	24
19	0	0.1	0.2	0.1	0.1	0.2	0.2	0.3	5.5	**S**	2	1.7	1.4	1.4	0.6	0.2	0.1	0.1	0	0	0	0	0	0.1	5.5	0.6	24
20	0	0	0	0	0	0	0.1	0	**S**	0.6	1.3	2.9	1.9	1.9	1.4	0.8	0	0	0.1	0.2	0.1	0.1	0	0	2.9	0.5	24
21	0	0	0	0	0	0	0	**S**	0.1	0	0	0.1	0.1	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.0	24
22	0	0	0	0	0	0	**S**	0.3	0.3	2.4	9.4	3.2	4.4	**C**	**C**	**C**	**C**	**C**	**C**	**Y**	**Y**	**Y**	**Y**	**Y**	9.4	1.7	19
23	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**C**	**C**	**C**	**C**	**C**	**C**	2	1.1	0.8	0.7	0.6	0.6	0.6	0.6	0.4	0.5	2	0.8	16
24	0.5	0.6	0.6	0.6	**S**	0.7	1.2	1.5	3.1	1.1	0.9	1	1	1.6	1.1	0.9	0.6	0.7	0.7	0.7	0.6	0.6	0.7	0.6	3.1	0.9	24
25	0.6	0.7	0.8	**S**	0.8	0.8	0.8	0.8	0.8	1.1	1.8	1.9	1.4	1.6	1.5	0.9	0.8	0.9	0.9	0.7	0.7	0.7	0.7	0.7	1.9	1.0	24
26	0.8	0.8	**S**	0.9	0.9	1.1	0.8	0.9	0.9	2.4	3.4	1.9	1.5	2.1	1.4	1	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.8	3.4	1.2	24
27	0.9	**S**	1	0.9	0.9	1	1	1	1.3	1	1	0.9	1	1.1	1.1	1.1	0.9	1	1.1	1	0.9	0.9	0.8	0.9	1.3	1.0	24
28	**S**	1.1	1.1	1.1	1.1	1	1	1	1.2	4.2	6.7	9.6	9.2	5.1	5.6	2.3	1.4	1.1	1.1	1.2	1.1	1.2	1	**S**	9.6	2.7	24
29	1.3	1.3	1.2	1.2	1.2	1	6.9	6.2	5.3	8.4	2.5	6.7	3.7	3.6	4.8	2.3	2.2	1.2	4	1.3	1.3	1.1	**S**	1.4	8.4	3.0	24
30	1.6	1.6	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.9	2.6	2.9	2.5	2.7	2.6	2.9	1.7	2.6	7.6	7.2	2.2	**S**	1.5	1.2	7.6	2.3	24
31	1.1	1.2	1.2	1.1	1.1	1.1	1.3	1	1.6	1.9	1.5	1.4	1.9	1.8	2	1	1	1	1	1.6	**S**	1.5	1.1	1	2	1.3	24
HOURLY MAX	2.5	1.6	2.3	1.6	1.2	1.2	6.9	6.2	18.0	13.8	9.9	9.6	9.2	8.1	5.6	7.0	14.5	13.5	13.9	10.0	2.3	1.8	1.5	2.2			
HOURLY AVG	0.4	0.4	0.4	0.4	0.3	0.4	0.8	0.9	2.0	2.7	2.7	2.4	2.4	2.1	1.7	1.2	1.5	1.1	1.3	1.1	0.5	0.5	0.4	0.4			

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR DECEMBER 2014



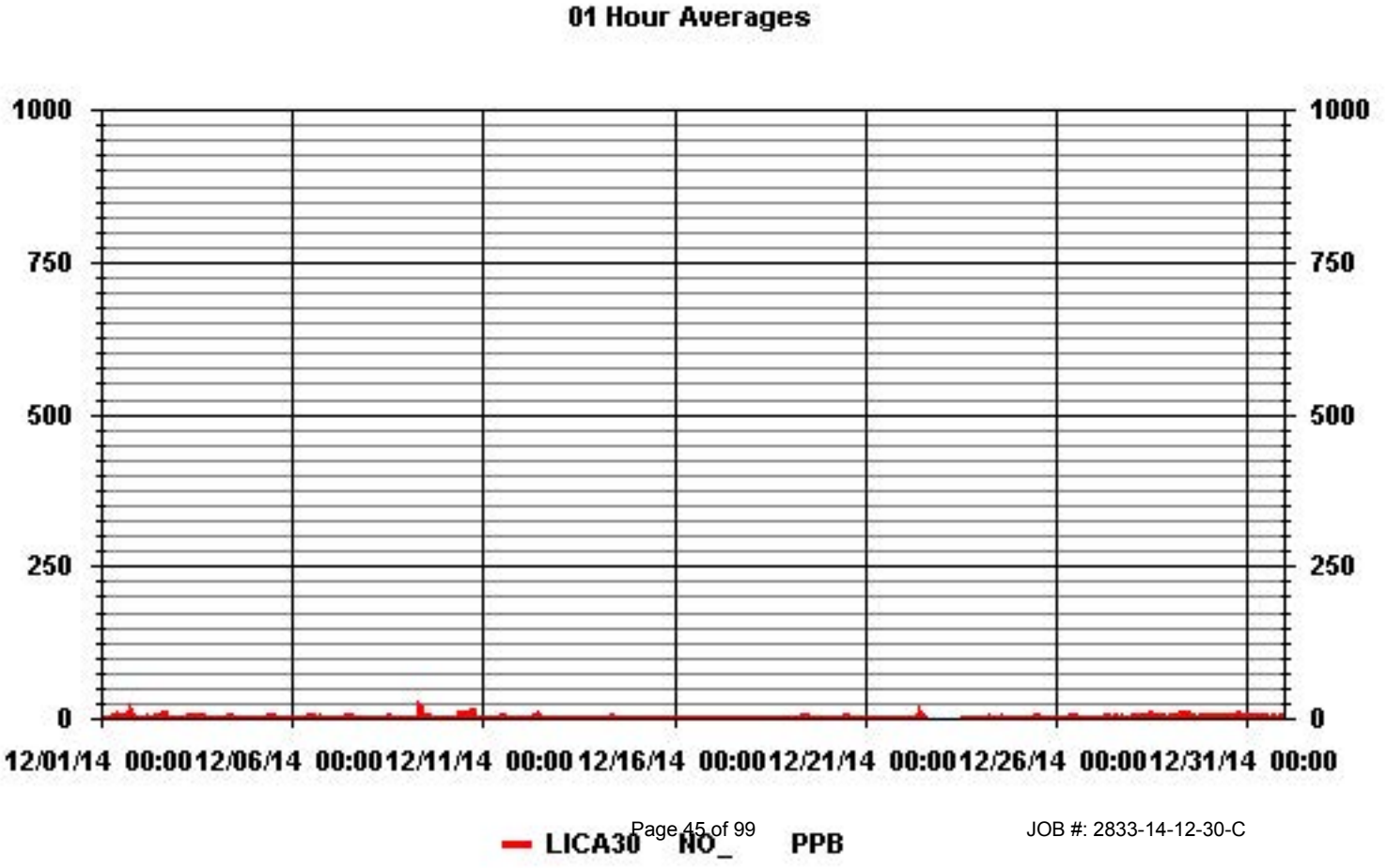
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR NA PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	502					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	8	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	3.3	PPB			ON DAY(S) VAR-VARIOUS	10

IZS CALIBRATION TIME:	39	HRS	OPERATIONAL TIME:	731	HRS
MONTHLY CALIBRATION TIME:	12	HRS	AMD OPERATION UPTIME:	98.3	%
STANDARD DEVIATION:	1.99		MONTHLY AVERAGE:	1.17	PPB



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	0.6	0.6	0.8	**S**	1	2.9	12.9	3.1	6.3	11.4	4.9	34.8	4.1	3.8	3.7	5.3	2.3	56.7	56.9	9	4	2.7	1.3	56.9	10.0	24
2	1	1.4	1.4	**S**	1.6	1.5	2.6	1.7	12.3	1.7	7.1	14.6	12.7	7.9	5.5	18.2	69.4	0.7	0.7	0.7	21.9	1.5	0.8	29.1	69.4	9.4	24
3	0.8	2.2	**S**	6	1.2	0.8	5.2	8	9.8	11.4	2.8	3.2	3.5	4.3	5.3	5.8	7.1	6	1.9	1.6	1.3	0.9	0.7	0.7	11.4	3.9	24
4	0.7	**S**	0.8	0.4	0.5	0.5	27.8	4.3	2.5	5.3	8.6	2.8	1.2	0.7	0.8	1.6	1	0.4	0.2	0.3	0.4	0.6	0.6	2.7	27.8	2.8	24
5	**S**	0.6	0.6	0.6	0.6	0.8	1.4	7.2	2.2	3.5	3.1	26.3	16.1	28.6	3.7	2	2.4	1.3	0.8	0.8	0.9	0.9	2	**S**	28.6	4.8	24
6	1.1	0.9	1	1	0.8	0.7	0.9	**S**	**S**	4	2.2	3.9	2.9	2.4	2.9	3	3	2.6	1.9	1.6	1.1	1.4	**S**	0.8	4	1.9	24
7	0.9	0.6	0.5	0.5	0.3	0.6	0.8	0.4	4.6	0.8	3.3	3.5	5.9	10.8	5.7	2.8	0.8	3	0.6	0.6	0.5	**S**	0.8	0.8	10.8	2.1	24
8	0.6	0.8	0.8	0.5	0.7	0.8	0.6	**S**	**S**	1.5	1.3	1.8	1.9	1.6	2.4	1.2	0.7	1.1	0.8	0.6	**S**	0.7	1	3.2	3.2	1.2	24
9	1	3.3	38.6	0.8	0.5	0.8	2.8	22.2	101.2	37.8	17.1	6.6	5.6	7.9	4.9	2.1	25.3	0.9	0.4	**S**	0.7	4	0.7	1	101.2	12.4	24
10	0.7	0.6	0.4	0.6	0.6	0.5	4	2.8	6.9	57.9	10.4	2.6	20.7	25.1	8.8	14.7	***104.4***	49.5	**S**	22.9	0.4	0.2	0.2	1.3	***104.4***	***14.6***	24
11	17	9.3	0.2	0.2	0.4	0.5	0.3	1.4	**S**	**S**	4.8	37.2	3.5	3	3.1	1.2	1.6	**S**	1.1	0.2	0.3	12.6	12.2	2.3	37.2	5.4	24
12	0.5	0.7	0.1	0	0.1	0.1	0.2	0.6	10.6	13.2	18.3	6.1	6.2	3.5	1.8	4.1	**S**	3	11.4	1.3	1.3	1.7	1.4	1.4	18.3	3.8	24
13	1.4	1.2	1.2	1.2	0.4	1.4	1.7	2	0.4	3	1.5	3	2.7	1.6	3.4	**S**	10.1	3.5	7.2	0.6	2.4	0.5	0.6	0.6	10.1	2.2	24
14	1	1.5	0.2	2.4	1.6	0.3	2.1	**S**	**S**	3.8	7	2.2	2.4	3	**S**	3	1.8	3.3	2.1	2.2	0.6	0.3	0.5	0.4	7	2.0	24
15	0.5	0.5	0.6	0.4	0.6	0.9	1.8	0.4	0.6	21.1	0.6	1.1	3	**S**	1.5	28.5	0.5	0.5	0.4	0.6	0.6	0.6	0.5	0.5	28.5	2.9	24
16	0.5	0.4	0.5	0.4	0.6	0.5	0.5	0.5	1	1.1	0.7	0.9	**S**	1.1	0.6	0.4	0.4	0.4	0.5	0.5	0.6	0.3	0.4	0.4	1.1	0.6	24
17	0.5	0.7	0.5	0.4	0.4	0.4	0.5	0.2	0.7	0.5	0.5	**S**	0.8	1.2	0.8	0.4	0.4	0.3	0.6	0.5	0.8	0.5	0.3	0.4	1.2	0.5	24
18	0.9	0.9	0.3	0.5	0.4	0.7	0.9	0.6	**S**	**S**	**S**	2.6	2	1.7	1.3	1.8	1.5	0.6	0.5	0.7	0.6	0.8	0.7	0.8	2.6	1.0	24
19	0.6	1.3	0.9	0.9	0.8	0.8	2.1	2.1	67.6	**S**	2.7	2.8	2.2	2.1	1.1	1.1	0.7	0.8	0.2	0.4	0.5	0.4	0.6	0.7	67.6	4.1	24
20	0.4	0.4	0.6	0.4	0.4	0.6	1.7	0.3	**S**	1.1	2	5.2	3.3	3.1	2.6	1.4	0.7	0.5	0.7	1.2	1.2	0.9	1	0.5	5.2	1.3	24
21	0.5	0.5	0.7	0.5	0.4	0.6	0.5	**S**	0.6	0.7	0.4	0.8	0.8	0.6	0.5	0.4	0.4	1.5	1.3	0.4	0.7	0.5	0.4	0.4	1.5	0.6	24
22	0.2	0.5	0.5	0.5	0.4	0.3	**S**	2.9	1	7.7	11.5	8.4	7.8	**C**	**C**	**C**	**C**	**C**	**C**	**Y**	**Y**	**Y**	**Y**	**Y**	11.5	3.5	19
23	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2.2	1.6	1.3	1.2	1.3	1.4	1.3	0.9	1.2	2.2	1.4	16
24	1.4	1.2	1.4	1.4	**S**	1.4	2.5	3.6	7.1	2.3	1.7	1.6	1.6	2.3	1.8	1.7	1.5	1.4	1.5	1.4	1.2	1.3	1.5	1.2	7.1	1.9	24
25	1.5	1.5	1.4	**S**	1.5	1.8	1.4	1.8	1.7	2	2.8	3.3	2.6	2.7	2.3	1.8	1.5	1.5	1.6	1.6	1.4	1.5	1.8	1.4	3.3	1.8	24
26	1.6	1.5	**S**	1.8	1.4	1.7	1.9	1.5	1.6	3.4	4.2	3.5	2.7	3.2	2.5	1.6	1.4	1.4	1.4	1.7	1.4	1.5	1.4	1.4	4.2	2.0	24
27	1.5	**S**	1.6	1.8	1.8	1.8	1.6	1.9	2.7	1.8	1.6	1.7	1.6	2.8	1.9	1.8	1.7	1.7	1.8	1.6	1.4	1.5	1.5	1.6	2.8	1.8	24
28	**S**	1.6	1.9	1.8	1.8	1.9	1.7	3	3	8.8	7.6	18.2	13.5	6.2	7	4.3	3.5	1.8	1.8	1.8	1.7	2	2	**S**	18.2	4.4	24
29	2	2.3	2.2	1.9	2	1.7	15.6	17.3	10.2	15.8	5	14	9	6.7	9.8	5.4	10.8	3.8	6.9	2.5	3.1	1.8	**S**	2.2	17.3	6.6	24
30	2.2	2.3	2.1	1.8	2	1.8	1.8	1.9	2.4	3	3.8	4.8	3.3	3.5	3.8	5.2	3	4.1	17.1	19.1	4.6	**S**	2.3	1.8	19.1	4.2	24
31	1.9	1.8	2.1	1.6	1.9	1.8	2.8	1.6	5.3	15.5	2.8	2.3	3.1	4.7	4.3	1.6	1.6	1.8	1.8	2.6	**S**	2.4	1.8	2	15.5	3.0	24
HOURLY MAX	17	9	39	6	2	2	28	22	101	58	18	37	35	29	10	29	104	50	57	57	22	13	12	29			
HOURLY AVG	1.6	1.5	2.3	1.1	0.9	1.0	3.1	4.0	10.8	8.7	5.1	6.5	6.1	5.2	3.4	4.2	9.1	3.5	4.3	4.4	2.2	1.7	1.5	2.2			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 675

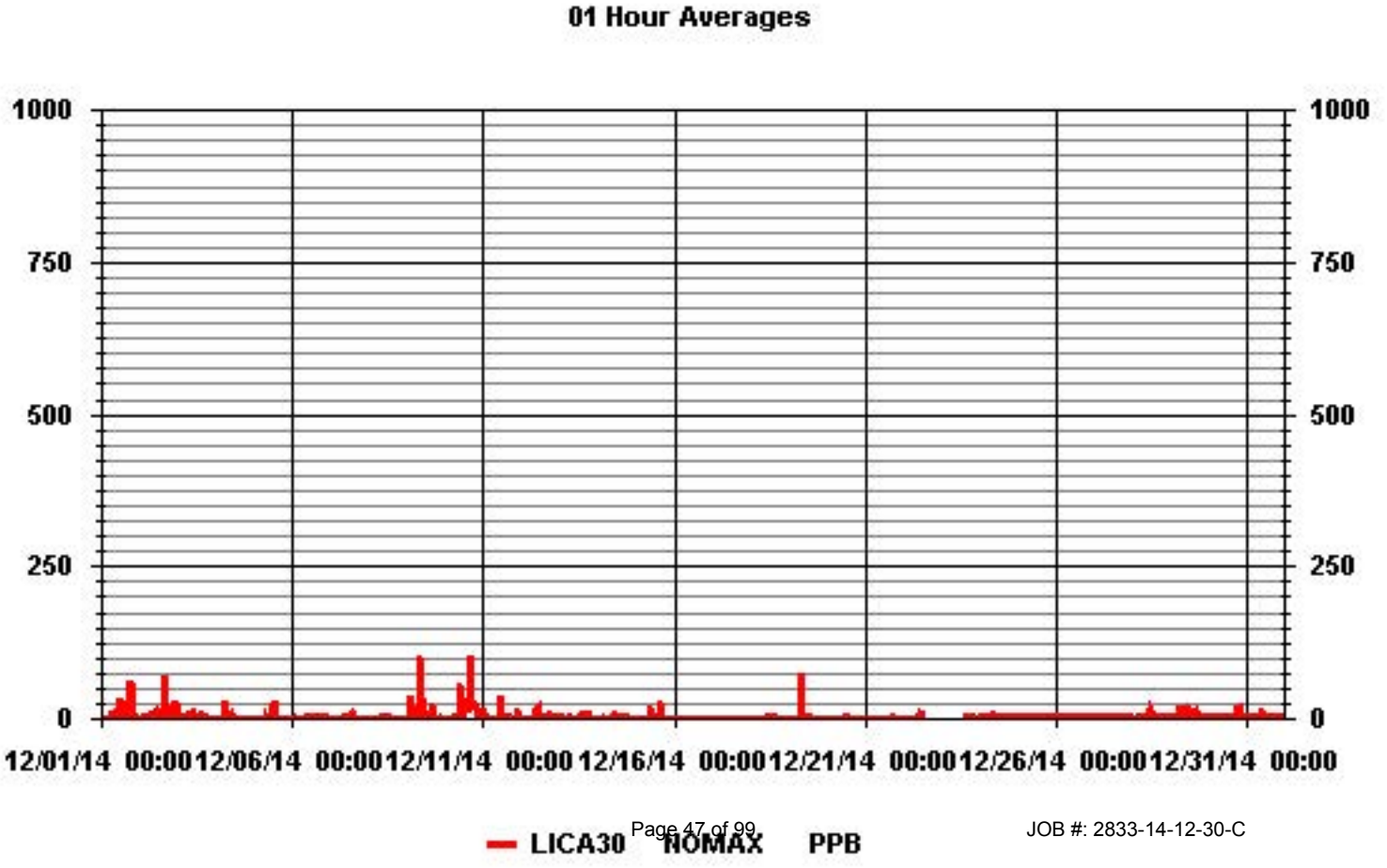
MAXIMUM INSTANTANEOUS VALUE: 104 PPB @ HOUR(S) 16 ON DAY(S) 10

VAR-VARIOUS

IZS CALIBRATION TIME: 42 HRS OPERATIONAL TIME: 731 HRS

MONTHLY CALIBRATION TIME: 13 HRS

STANDARD DEVIATION: 9.13



JOB #: 2833-14-12-30-C

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

December 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	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

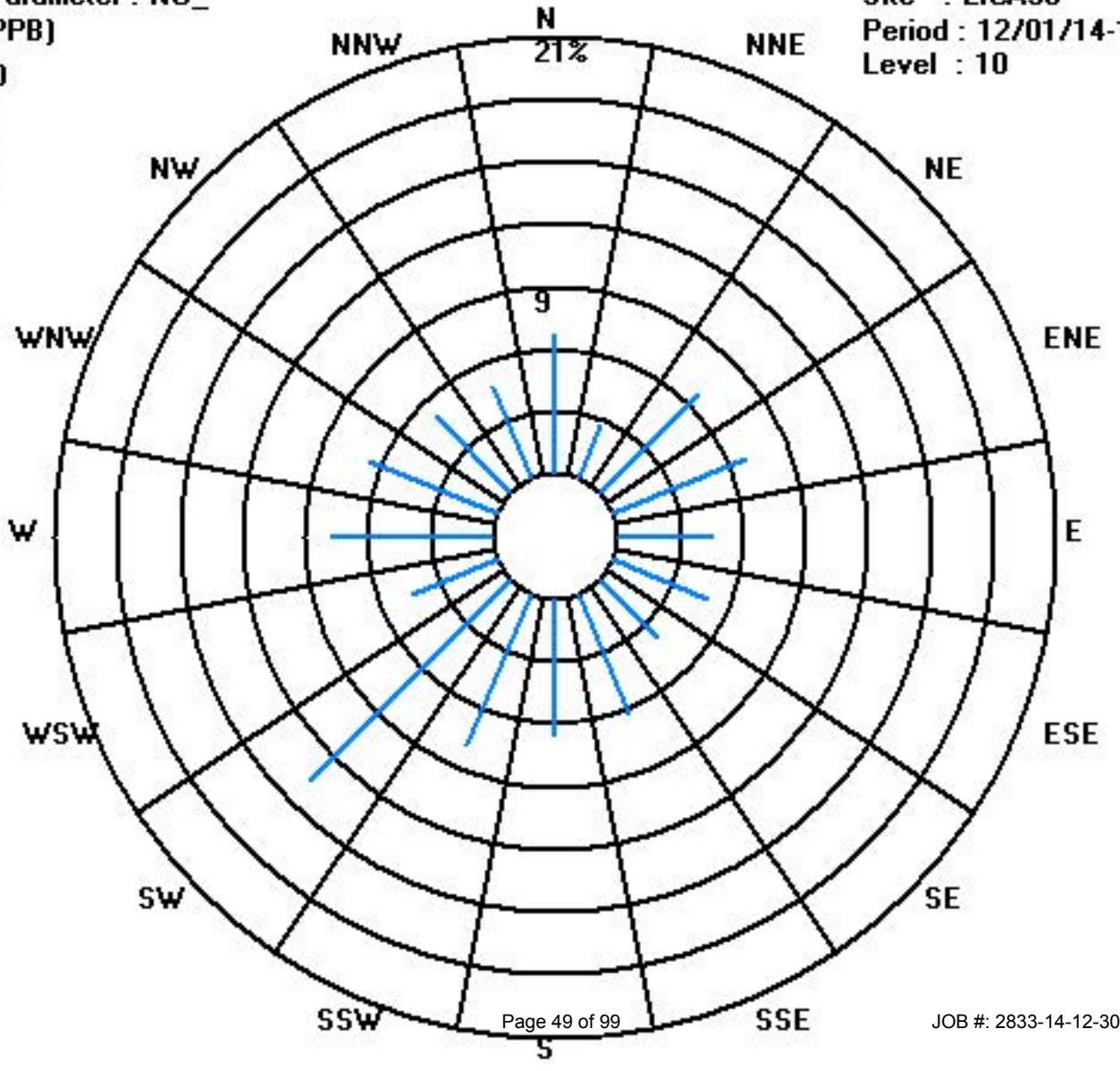
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	

Calm : .00 %

Total # Operational Hours : 680

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

Site : LICA30
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-30-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	8.1	7.7	7.3	7.8	S	6.5	8.1	10.8	12.4	16.1	18.6	8.7	12.7	5.9	11.5	14.3	29.2	30.2	***48.8***	40.2	28.4	30.8	27.8	19.3	***48.8***	***17.9***	24
2	17.2	21.4	27.6	S	24	26.6	17.4	3.5	8.7	2.1	8	14	8.7	8.5	8.4	11.3	18.1	2.3	4.9	2.5	11.9	8	5.8	9.9	27.6	11.8	24
3	3.5	13.6	S	19.1	6.2	4.2	6.3	13.8	20.8	21.6	9.8	10.3	11.8	12.1	16.7	16.5	23.2	26.9	20.9	23.1	16.4	12.8	15.8	13.7	26.9	14.7	24
4	18.1	S	9.1	6.2	5.2	8.5	10.4	11.2	16.6	22.2	23.5	10.4	2.2	1.5	2.4	6.7	3.4	2.2	0.6	0.8	1.1	4.6	2.1	3.3	23.5	7.5	24
5	S	2.8	1.2	1	1.5	3.4	12.1	15.2	15.6	12.8	7.4	12.6	7.3	12.3	10.6	10.3	11.6	11.7	12.6	12.8	13.7	13.6	16.7	S	16.7	9.9	24
6	10.9	11.1	10	7.9	7.1	6.5	6.1	S	3.9	11.3	4.2	6.5	10.2	5.9	6.5	9.9	13.4	7.5	7.4	6.1	3.8	5.9	S	2.4	13.4	7.5	24
7	3.6	2.2	2.2	2.4	2.1	1.6	4.1	4	5.1	4.3	8.4	9.8	9.3	11.9	5.5	4.5	3.5	5.5	3.4	3.2	2.9	S	4.4	4.3	11.9	4.7	24
8	6.3	4.8	4.2	3.3	3.7	2.6	1.6	S	S	2.8	2.9	4.3	5.6	5.2	7.1	4.7	4.1	4.5	4.1	4.7	S	3.3	6	8.8	8.8	4.5	24
9	4.1	6.5	7.7	5.7	5.4	6.4	8.7	13.9	39.3	32.3	23.4	11.2	12.5	14.2	12.6	9.9	9.6	5.7	4.2	S	4.4	8.7	6.5	4.7	39.3	11.2	24
10	7.5	6.6	6.1	5.3	12.8	14.1	18.9	16.9	12.8	22.5	10.3	7.8	18.6	18.4	17.9	25.1	25.1	26.7	S	9.6	3.1	3	2.3	2.2	26.7	12.8	24
11	6.8	4.5	2	1.2	0.9	1.1	1	5.8	5.4	S	7.1	11.5	9.4	8.1	10.4	5	4	S	3	2.7	3	9.5	8.3	2.6	11.5	5.2	24
12	2.6	2.4	1.3	0.9	0.8	0.8	0.7	3.6	9.2	7.1	14.1	7.8	6.2	7.7	6.5	10.2	S	8.5	9.6	7.2	4.1	3.7	3.4	3.5	14.1	5.3	24
13	3.4	3.9	3.8	4.7	6.3	5.7	5.4	4.6	4.4	6.5	5	4.9	6.3	5.3	3.9	S	4.6	4.9	6.8	1.4	3.1	1.7	3	1.6	6.8	4.4	24
14	1.9	1.9	0.8	4.6	1.8	2.6	2.9	S	S	13.9	7	3.4	6.7	4.4	S	5.2	7.1	7.1	7.3	3.5	1.3	1	1.4	2.1	13.9	4.2	24
15	3.4	7	7.4	6.6	14.3	19	19.8	5.6	1.6	2.4	1.1	1.9	2.9	S	3.1	4	3.7	3.4	3.1	2.7	2.6	2.9	2.2	1.7	19.8	5.3	24
16	2.4	1.9	1.6	1.3	1.6	1.7	1.5	1.4	1.5	2.3	1.5	1.8	S	3	3	2.1	2.6	2.4	1.9	1.8	2.2	1.6	1.8	1.5	3	1.9	24
17	1.5	1.6	1.3	1.3	1.2	1.1	1.2	1.3	1.4	1.8	1.6	S	1.4	1.4	1.7	1.5	1.6	1.5	2.1	1.9	2	2.1	2.1	2.4	2.4	1.6	24
18	1.9	2.1	2.1	1.6	3.1	2	3	3.7	S	8.7	S	6.3	6.5	6	6.6	9.3	9.5	9.4	7.9	8.2	5.5	8.3	11.5	9.9	11.5	6.1	24
19	9.6	14.3	13.7	10.4	9.8	9.2	8.8	8.3	16	S	5.6	4.2	3.2	4.3	3.6	2.9	1.8	1.5	1.4	1.3	1.3	1	1.2	0.8	16	5.8	24
20	0.7	2.6	3.8	2.8	3.3	2.3	3.2	3.7	S	6.6	6	9.5	7.9	8.7	9.6	11	10.7	10.7	8.9	8	7.8	8.2	5.9	4.3	11	6.4	24
21	3.1	2.5	2.3	1.7	2	1.8	1.8	S	1.5	1	0.7	0.9	0.9	0.7	0.7	0.7	0.5	1.4	1.7	1.2	2.1	4.6	7.3	2.6	7.3	1.9	24
22	2	2.1	2.5	2.2	2.1	2.1	S	5.7	4.9	10.6	21.9	8.8	10.7	C	C	C	C	C	C	Y	Y	Y	Y	Y	21.9	6.3	19
23	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	10.8	7.9	8.4	8.5	6.9	5.3	4.9	5.3	5.1	5.1	10.8	6.8	16
24	4.7	4.5	4.4	4.7	S	4.7	8.6	9.2	12.8	5.1	2.2	1.9	3.5	6.2	3.4	2.4	1.3	1.1	0.9	1	1.3	1.1	0.7	0.6	12.8	3.8	24
25	1.2	0.9	1.2	S	1.2	0.8	0.8	0.8	0.8	3.7	5.9	5	2.2	3.8	4.2	1.6	0.8	0.9	1.6	2	1.5	2	2.3	1.5	5.9	2.0	24
26	1.6	1.9	S	1.5	1.9	2.4	3.4	4.1	7	13.6	14.1	5.1	3.5	6.5	4	2.8	1.2	1.1	1	0.9	0.8	1	0.9	0.8	14.1	3.5	24
27	0.9	S	1.8	1.5	1.5	1.7	1.8	2.2	3.8	1.4	1.3	1.1	1.2	2.1	1.1	1.1	0.9	1.2	1.5	1.2	1.1	1.2	1.1	1.1	3.8	1.5	24
28	S	1.1	1.1	1.1	1.1	1	1	1	2.6	11.5	14.2	16.8	19.9	13.5	17.1	8.9	7.5	4.8	3.8	5.7	4.5	2.5	3.2	S	19.9	6.5	24
29	5.5	7.5	6.4	5.1	2.6	3.7	20	16.4	14.6	18.5	4.6	12.3	5.9	6.6	10.4	4.8	3.2	2.3	14.1	8	5.6	1.1	S	10.7	20	8.3	24
30	14.2	10.8	4.4	2.9	4.9	5.5	5.1	7.4	7.5	8.4	7.5	6.8	6.1	8.6	8.1	14.2	10.8	10.5	22.5	21.4	19	S	10.4	2.2	22.5	9.5	24
31	1.1	1.2	1.2	1.1	1.1	1.1	1.4	1.1	2.1	2.5	1.9	1.4	4	4.3	5.8	1	1	1	1.6	9.9	S	6.3	2.7	2.1	9.9	2.5	24
HOURLY MAX	18.1	21.4	27.6	19.1	24.0	26.6	20.0	16.9	39.3	32.3	23.5	16.8	19.9	18.4	17.9	25.1	29.2	30.2	48.8	40.2	28.4	30.8	27.8	19.3			
HOURLY AVG	5.3	5.4	4.9	4.1	4.6	5.0	6.4	6.7	8.9	9.8	8.3	7.1	7.1	7.0	7.4	7.2	7.7	7.1	7.4	6.8	5.7	5.6	5.8	4.5			

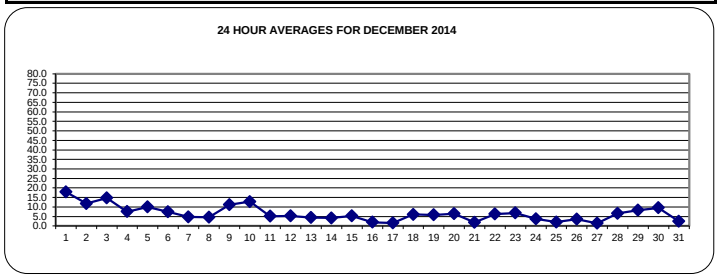
STATUS FLAG CODES

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

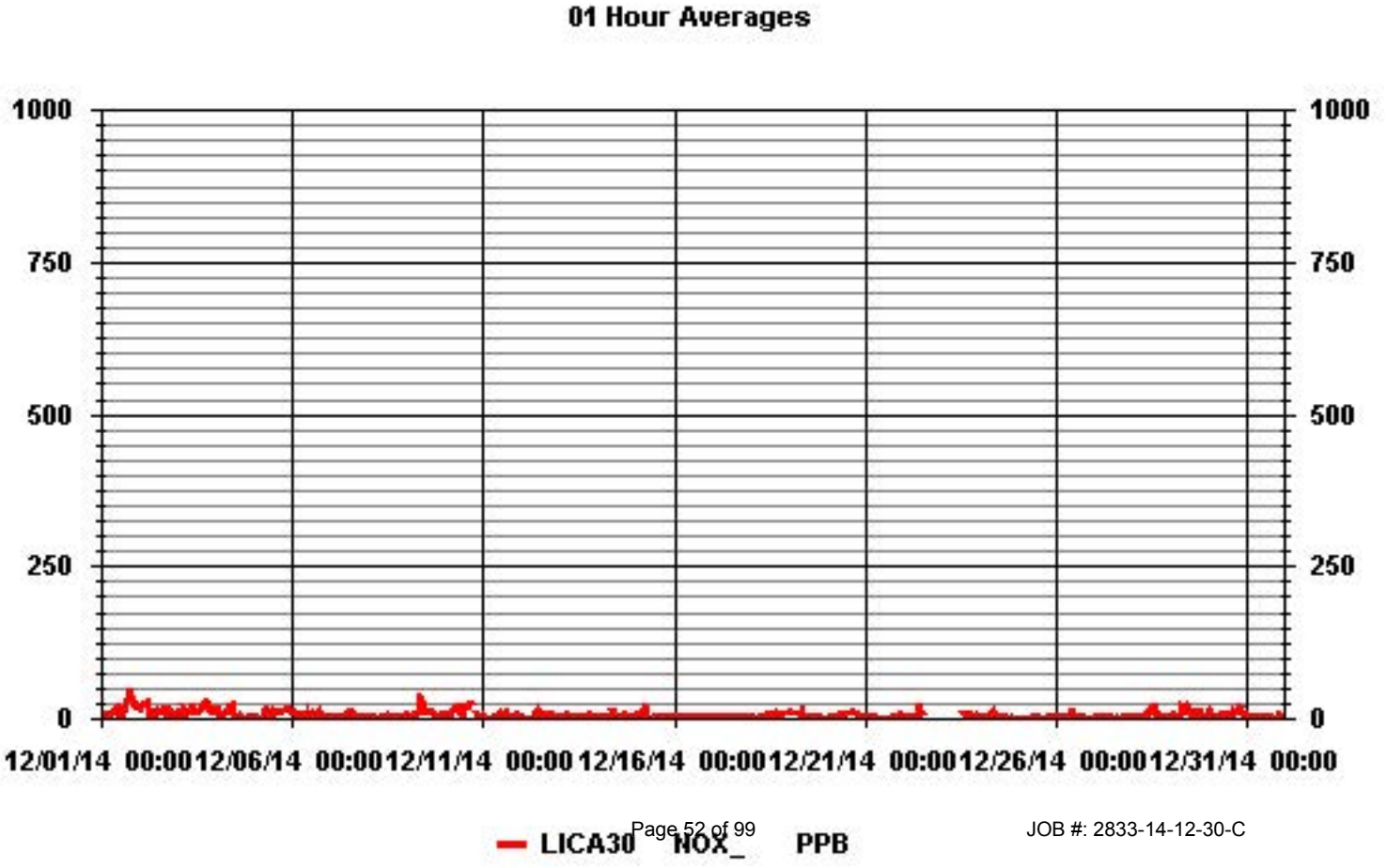
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	680					
MAXIMUM 1-HR AVERAGE:	48.8	PPB	@ HOUR(S)	18	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	17.9	PPB			ON DAY(S) VAR-VARIOUS	1
IZS CALIBRATION TIME:	39	HRS	OPERATIONAL TIME:		731	HRS
MONTHLY CALIBRATION TIME:	12	HRS	AMD OPERATION UPTIME:		98.3	%
STANDARD DEVIATION:	6.30		MONTHLY AVERAGE:		6.50	PPB



JOB #: 2833-14-12-30-C



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 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	8.8	8.4	8.4	8.7	**S**	7.3	12.4	30	17.1	19.7	27.9	12.9	50.5	10.6	15.3	24.4	36.2	32.7	100.7	101.4	38.7	33.4	31.8	23.6	101.4	28.7	24
2	21.2	30.3	30.7	**S**	26	28.1	26.4	8	32.9	3.8	19.2	31.7	28.6	21.1	15.8	92.9	114.7	4.7	6.9	3.6	54.7	20.4	12.6	80.2	114.7	***31.1***	24
3	5.2	22.6	**S**	34.5	10.4	4.9	15.7	31.3	33.5	32.7	11.6	11.6	12.8	15.5	19.6	24.5	28.1	36.3	25.5	26.1	20.2	18.5	18.8	17	36.3	20.7	24
4	20.1	**S**	12.3	7.7	7.1	9.8	49.4	17.7	22.9	26.3	28.5	17.7	5.6	2.5	4.9	12.3	6.7	4.1	1.9	1.7	1.9	6.7	3.7	13.7	49.4	12.4	24
5	**S**	7	1.9	1.7	2.5	9.5	15.1	23.1	17.1	16	11.6	42.2	33.5	35.5	13.8	12.4	14.4	12.8	13.6	13.6	15.2	14.7	24.6	**S**	42.2	16.0	24
6	12.4	12.3	14	8.7	8	7	7.3	**S**	**S**	17.7	7.1	15.8	13.3	10.7	14.5	16.7	17.5	14.3	12.3	10.8	11.6	12.8	**S**	3.7	17.7	11.8	24
7	5.9	3.3	3	3.1	3.5	2.3	5.6	5.2	12.5	5.1	13.4	11.8	15.5	23.7	14.5	8.8	4.9	10.7	4.2	3.8	4.2	**S**	5.9	7.1	23.7	7.7	24
8	8.1	8.1	5	5.2	4.7	3.8	2.3	**S**	**S**	4.5	4.5	5.6	7.1	6.4	10.2	7	5.3	5.8	5	5.7	**S**	4.7	8.4	17.8	17.8	6.4	24
9	7.4	13.6	75.9	8.5	7.6	7.8	12.6	42.7	***135.4***	63.4	34.9	16	14.2	19.6	19.3	11.8	43.1	10.3	4.9	**S**	5.8	17.7	8.4	6.2	***135.4***	25.5	24
10	11.1	7.4	7.4	10.2	16.3	15.6	23.5	21.8	24.2	88	26.2	9.5	42.4	41.8	31.3	41.5	130.6	72.6	**S**	38	3.9	3.8	2.9	4.4	130.6	29.3	24
11	29.4	19.5	4.6	1.7	1.8	1.8	1.9	10.2	**S**	**S**	14.4	59.9	12	9.9	14.2	7.8	7.4	**S**	5.6	4.3	8.4	29.8	29.7	7.9	59.9	13.4	24
12	5.3	4.3	1.9	1.5	1.3	1.4	2.8	9.1	19.8	18.8	30.5	12.5	12.7	11.8	7.6	17.7	**S**	12.5	26	10.3	6.2	5.6	5.9	6.1	30.5	10.1	24
13	5.5	5.7	6.2	7.1	7.6	8	7.9	9.1	6.6	9.2	7.1	9.1	8.5	8.7	7.9	**S**	18.1	12	20.1	4.6	10	3.8	5.5	4.3	20.1	8.4	24
14	7	7.9	2.9	13.8	7.4	3.6	11	**S**	**S**	20.1	23.4	9	9.9	12.8	**S**	12.2	11.1	18.1	11.8	11.5	6.4	2.1	2.2	3	23.4	9.9	24
15	5.4	13.9	14	14.5	17.1	24	26.4	9.9	2.8	50.5	2.4	4.6	9.1	**S**	6.2	49.7	4.6	4.4	4	4.2	3.3	3.7	3.5	2.3	50.5	12.2	24
16	3.3	2.8	2.6	1.9	2.6	2.3	2.3	2	3.2	4.3	2.5	2.5	**S**	4	4.3	2.6	3.7	3.1	2.8	2.7	3.1	2.1	2.5	2.4	4.3	2.9	24
17	2.4	2.2	1.9	1.8	1.8	1.6	1.6	1.9	2.1	2.6	2.6	**S**	2.1	3.3	2.4	2.3	2.2	2.4	2.6	2.4	2.8	2.8	3	3.1	3.3	2.3	24
18	3.3	3.5	3	2.3	4.6	3.3	4.9	5.8	**S**	**S**	**S**	9	9.2	7.2	8.1	12.9	12.9	11.4	10.4	10.4	7	11.5	13.2	11.6	13.2	7.9	24
19	10.5	16.5	15.9	11.6	10.6	10.2	10.1	10.6	85.4	**S**	7.1	5.5	4.3	4.9	4.4	4.2	2.5	2.1	2.1	2	2.2	1.6	1.9	1.5	85.4	9.9	24
20	2.1	4.4	5	3.6	4.6	3.6	5.6	6.3	**S**	8.9	7.1	13.9	10.1	12	12	13.4	11.7	12.1	11.8	11.8	11.6	10.6	10.4	8.3	13.9	8.7	24
21	4.8	3.7	3.2	2.4	2.6	2.4	2.4	**S**	2.2	1.7	1.3	1.8	1.6	1.4	1.4	1.6	1.2	5.9	6.5	2.1	4.5	8.9	9.8	5	9.8	3.4	24
22	3	3.3	3.2	3	2.7	4.1	**S**	10.4	8.8	20.5	24.1	18.9	16.7	**C**	**C**	**C**	**C**	**C**	**C**	**Y**	**Y**	**Y**	**Y**	**Y**	24.1	9.9	19
23	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	9.4	10.6	10.2	8	6.3	6.2	6	6	5.7	10.6	7.6	16
24	5.5	5.2	5	5.2	**S**	7	12	13	19.9	9.4	3.2	2.6	5.5	7.7	5.5	3.1	2.3	1.8	1.4	1.9	2.1	2.1	1.2	1.7	19.9	5.4	24
25	2.7	1.4	2	**S**	2	1.1	1	0.6	0.9	8.1	10	10.9	4.1	6.3	7.5	3.3	1.3	1.2	2.6	2.8	2.4	3	3	2.4	10.9	3.5	24
26	2.2	2.6	**S**	2.6	3.2	3.2	5.1	4.9	10.2	15.7	15.5	11.2	6.9	9.7	6.8	5.4	1.8	1.6	1.6	1.6	1.3	1.6	1.5	1	15.7	5.1	24
27	0.8	**S**	2.5	2.3	2	2.4	2.3	4.6	8.7	1.9	2	1.6	1.8	7.3	1.6	1.4	1.3	1.6	2.1	1.6	1.5	1.8	1.6	1.5	8.7	2.4	24
28	**S**	1	1	0.7	0.7	0.7	0.8	4.6	4.7	20.2	16.4	30.2	25.1	16.6	19.7	16.3	11.7	7.1	4.6	7.1	7.1	3.3	4.1	**S**	30.2	9.3	24
29	7.7	8.9	7.3	6	4.5	5.6	33.3	36.1	23.1	31.9	9.3	25.6	14.8	13.7	20.4	12.9	18	10.3	22.2	12.7	13.2	1.7	**S**	14.2	36.1	15.4	24
30	17.5	15	5.6	3.7	6.1	6.7	5.9	8.9	9.1	9.7	9.9	8.7	7.8	10.7	10	19	18.7	15.6	44.6	45.8	29.1	**S**	16.1	5.4	45.8	14.3	24
31	2.1	1.5	1.7	1.2	1.6	1.7	5.8	1.6	7.5	25.5	4.1	2.5	8.7	16.1	15.3	1.4	1.7	2.3	8.3	14.2	**S**	11.7	4.7	2.9	25.5	6.3	24
HOURLY MAX	29	30	76	35	26	28	49	43	135	88	35	60	51	42	31	93	131	73	101	101	55	33	32	80			
HOURLY AVG	7.9	8.4	8.9	6.3	6.1	6.4	10.8	12.7	21.3	19.9	13.0	14.3	13.6	12.6	11.2	15.5	18.8	11.7	12.9	12.6	10.2	8.8	8.7	9.4			

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: 676

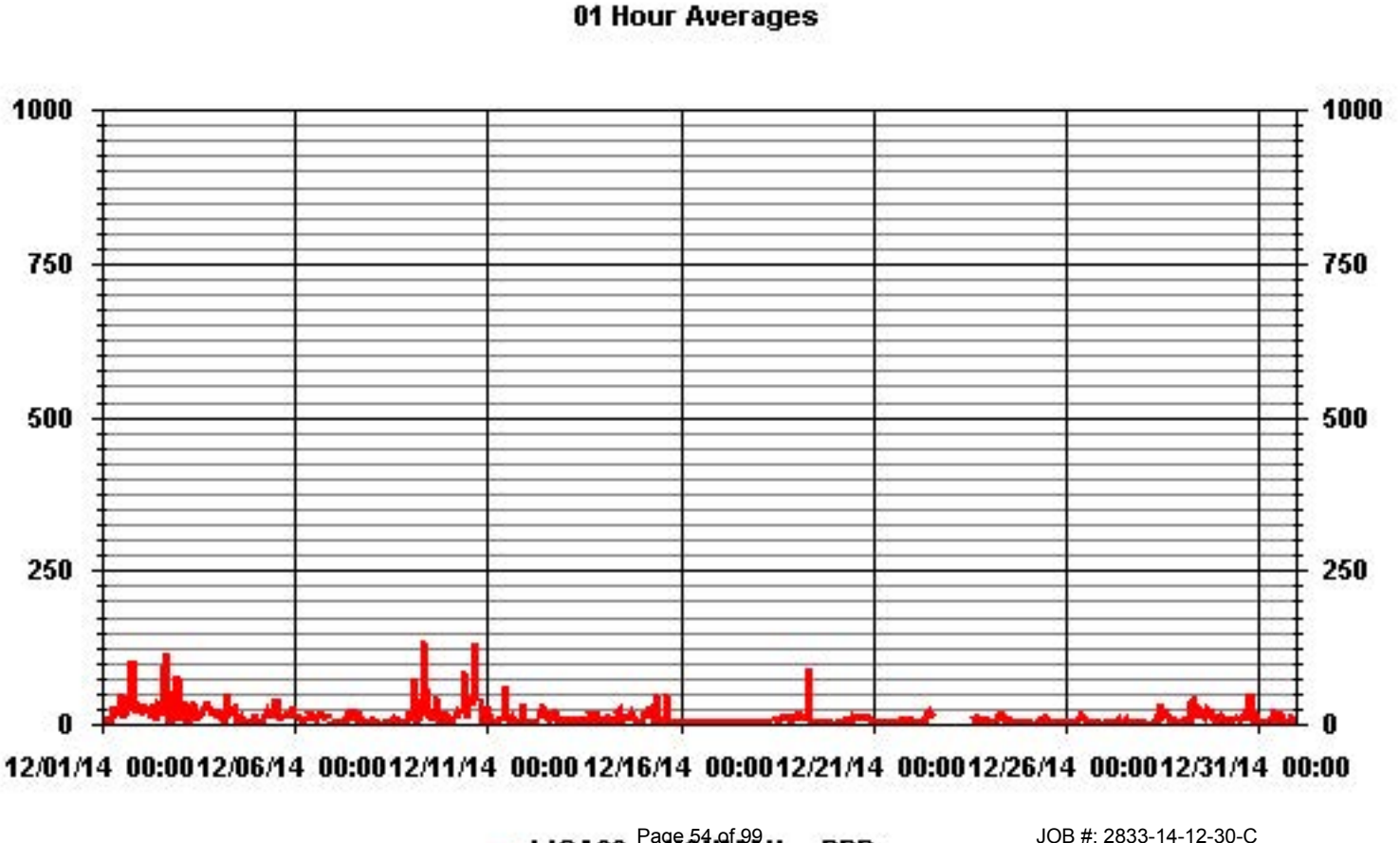
MAXIMUM INSTANTANEOUS VALUE: 135 PPB @ HOUR(S) 8 ON DAY(S) 9

VAR-VARIOUS

IZS CALIBRATION TIME: 42 HRS OPERATIONAL TIME: 731 HRS

MONTHLY CALIBRATION TIME: 13 HRS

STANDARD DEVIATION: 15.04



JOB #: 2833-14-12-30-C

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

December 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	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.76	2.79	6.76	6.91	4.55	4.85	3.97	6.32	6.61	7.94	13.67	4.41	7.79	6.61	5.14	4.85	

Calm : .00 %

Total # Operational Hours : 680

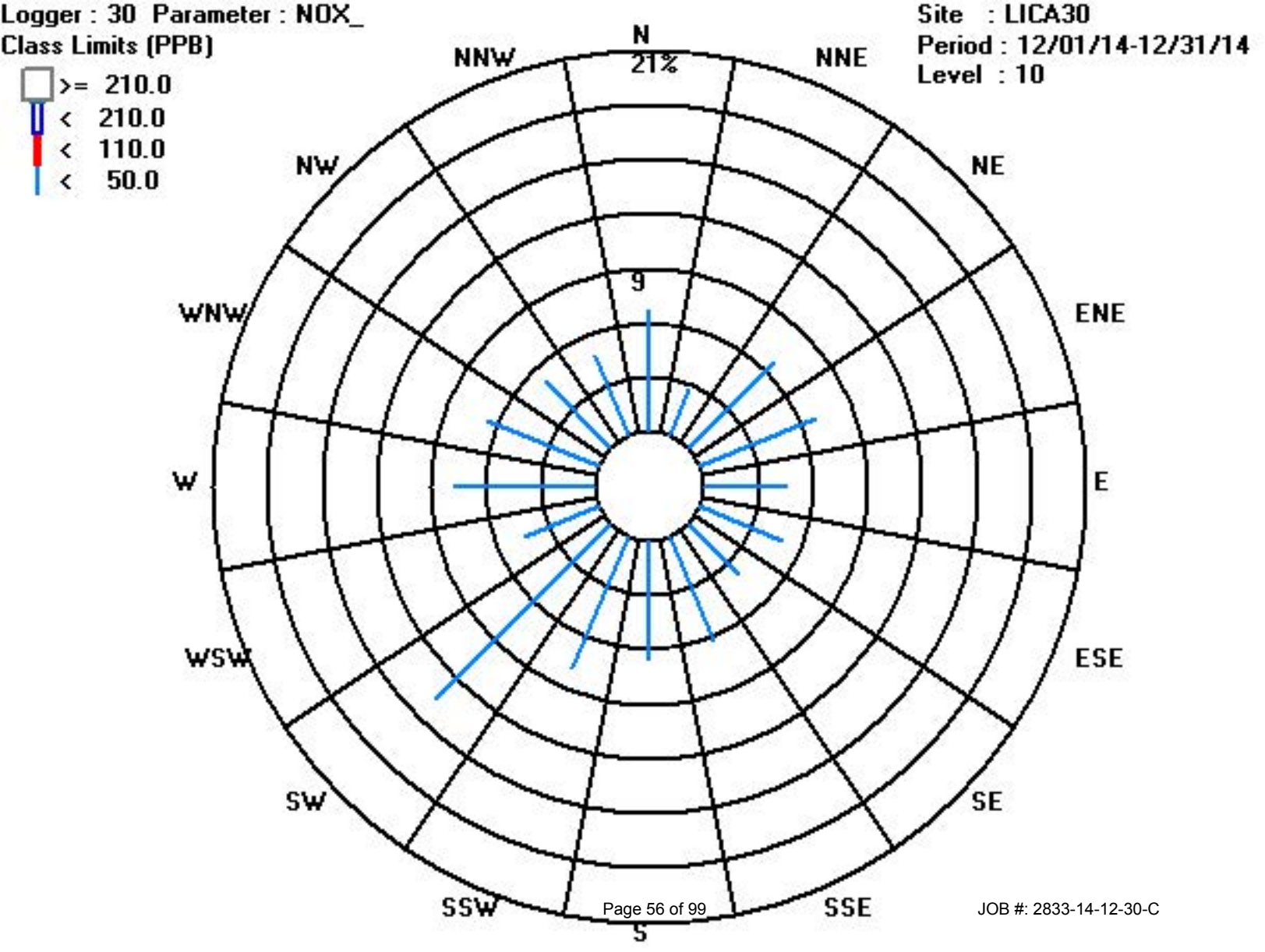
Distribution By Samples

Direction

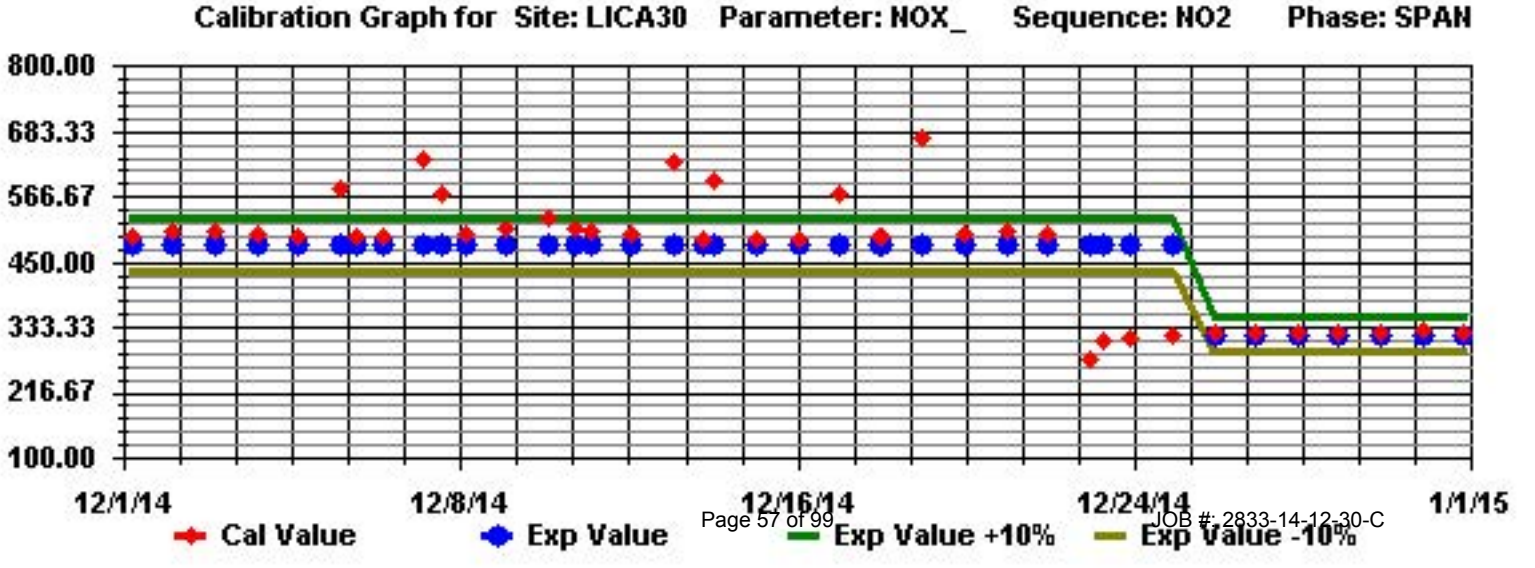
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	46	19	46	47	31	33	27	43	45	54	93	30	53	45	35	33	

Calm : .00 %

Total # Operational Hours : 680



JOB #: 2833-14-12-30-C


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN
800.00
683.33
566.67
450.00
333.33
216.67
100.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Temperature

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

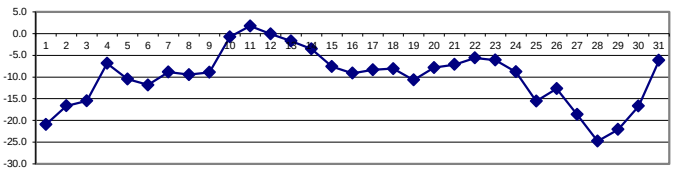
MST

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	-23.7	-23.7	-24	-24	-24.2	-24.5	-24.4	-24.8	-24.8	-23.4	-19.1	-15.9	-13.8	-11.5	-13.1	-16.8	-20.3	-21.7	-22.7	-21.9	-21.9	-21.2	-20.8	-19.8	-11.5	-20.9	24
2	-18.3	-17.7	-19	-18.8	-18.3	-18.9	-17.6	-15	-14.7	-14.3	-13.5	-11.8	-11.1	-10.3	-10.8	-13	-14.8	-15.9	-17.4	-18.5	-20.7	-22.2	-22.4	-24.1	-10.3	-16.6	24
3	-25.4	-26.1	-26.3	-25.7	-24.3	-22.5	-21.7	-22.4	-21.5	-17.9	-15	-13.8	-13.4	-12.4	-11.4	-11.2	-10.6	-9.1	-8.6	-7.8	-6.7	-5.9	-5.8	-5.8	-5.8	-15.5	24
4	-6.2	-6.1	-6	-7.1	-9	-8.9	-7.3	-6.8	-7	-6.5	-5.5	-4.9	-4.8	-5.2	-5.7	-5.8	-6.4	-8.3	-7.6	-7.2	-7	-8.3	-9.3	-8.1	-4.8	-6.9	24
5	-8.6	-9.9	-11.2	-12.5	-14	-12	-9.7	-9.3	-9.7	-8.9	-7.1	-4.6	-4.4	-4.5	-5.6	-8.3	-10.7	-11.6	-12.2	-12.9	-13.8	-15.7	-16.5	-17.4	-4.4	-10.5	24
6	-18.5	-19	-17.7	-15.8	-15.5	-13.9	-12.7	-13.7	-12	-11	-10	-9.7	-9.6	-9.8	-9.5	-9.7	-9.8	-9.8	-9.6	-9.5	-9.5	-9.2	-9.2	-9.3	-9.2	-11.8	24
7	-9.3	-9.3	-9.3	-9.4	-9.4	-9.5	-9.6	-9.4	-9.2	-8.5	-7.8	-7.1	-6.9	-7	-7.2	-7.7	-8.5	-9	-9.2	-9.4	-9.5	-9.8	-10	-10.1	-6.9	-8.8	24
8	-10.3	-10.4	-10.4	-10.3	-10.2	-10.2	-10.3	-10.3	-10.3	-10.2	-9.9	-9.3	-8.9	-8.5	-7.9	-7.9	-7.9	-7.9	-7.9	-8	-8.6	-9.6	-10.4	-11.7	-7.9	-9.5	24
9	-11.9	-12.3	-11.8	-12	-11.9	-11.2	-12.1	-12.7	-12.7	-11.6	-9	-7.2	-5.6	-5	-4.9	-5.7	-6.5	-6.7	-7.5	-7.8	-7.4	-6.8	-6.5	-6.9	-4.9	-8.9	24
10	-4	-1.3	-0.2	-0.9	-0.6	-1	-1.5	-2.3	-1.7	-0.9	3.2	4.9	5.7	4.1	2	-0.3	-1.7	-2.2	-3	-3.5	-3.3	-3.4	-3.3	-3.4	5.7	-0.8	24
11	-3.6	-0.3	0.4	0.9	1.4	1.4	1.5	1.4	1.9	2.9	3.5	5.1	5.8	***6.5***	***6.5***	4.2	2.8	1.5	1.2	-0.2	-1.1	-0.9	-0.8	-0.5	***6.5***	***1.7***	24
12	-0.1	0.1	-0.9	-0.4	0	-0.2	-1	-1.1	-1.8	-2.3	-1.2	0.8	2.8	3.2	2.2	0.7	-0.3	-0.2	-0.3	-0.5	-0.5	-0.5	-0.7	-0.8	3.2	-0.1	24
13	-1	-1.1	-1.3	-1.5	-1.7	-2	-2.4	-2.6	-2.6	-2.4	-1.8	-1.5	-1	-1	-1.1	-1.5	-1.8	-1.9	-2	-1.8	-1.7	-1.8	-1.8	-1.7	-1	-1.7	24
14	-1.7	-1.6	-1.8	-2.2	-2.8	-3.9	-4.1	-4.4	-4.7	-5	-4.8	-4.5	-3.6	-2.7	-2.7	-3.1	-3.2	-3.1	-3.1	-3.4	-3.6	-4.3	-4.9	-5.4	-1.6	-3.5	24
15	-5.8	-6.2	-6.3	-6.7	-6.8	-7	-7.5	-7.7	-7.7	-7.5	-7.6	-7.4	-7.1	-7.4	-7.8	-8.1	-8	-7.9	-7.8	-8.1	-8.4	-8.8	-9.1	-9.5	-5.8	-7.6	24
16	-9.7	-10	-10.2	-10.2	-10.1	-9.8	-9.5	-9.3	-9.1	-8.7	-8.9	-8.8	-8.6	-8.5	-8.4	-8.4	-8.1	-8.2	-8.4	-8.9	-9.1	-9.3	-9.4	-9.5	-8.1	-9.1	24
17	-9.7	-9.6	-9.5	-9.6	-9.6	-9.7	-9.5	-9.3	-9.2	-8.8	-8.3	-7.8	-7.8	-7.8	-7.8	-7.7	-7.6	-7.4	-7.3	-7.2	-7.3	-7.4	-7.5	-7.5	-7.2	-8.4	24
18	-7.6	-7.7	-7.8	-7.7	-7.8	-7.9	-7.8	-7.8	-7.8	-7.7	-7.9	-7.9	-7.6	-7.5	-7.6	-8	-8.1	-8.2	-8.3	-8.5	-8.8	-9	-9.3	-9.6	-7.5	-8.1	24
19	-9.7	-10.2	-11.1	-12.5	-13	-13.2	-13.7	-15.2	-15.8	-15	-11.2	-7.3	-6.7	-7	-8.1	-9.1	-10.1	-10.7	-11.3	-11.2	-9.1	-8.6	-8.6	-8.5	-6.7	-10.7	24
20	-8.6	-8.9	-8.9	-9	-9.2	-9.6	-9.4	-9.5	-9.7	-9.4	-8.8	-7.9	-7.3	-6.4	-6.4	-6.8	-7	-6.8	-6.6	-6.5	-6.5	-6.4	-6.4	-6.5	-6.4	-7.9	24
21	-6.7	-6.8	-7.3	-7.6	-7.8	-8	-8.1	-8	-8.1	-8.2	-8.2	-7.9	-7.3	-7	-6.5	-6.4	-6.3	-6.3	-6.2	-6.4	-6.4	-6.4	-6.6	-6.6	-6.2	-7.1	24
22	-6.6	-6.8	-6.9	-7	-6.8	-6.8	-6.8	-6.8	-6.4	-6	-5.2	-4.5	-4.3	-4.2	-4.3	-4.6	-4.8	-4.8	-4.9	-5.1	-5.3	-5.2	-5.3	-5.6	-4.2	-5.6	24
23	-6.3	-6.7	-7.9	-7	-6.7	-6.6	-6.8	-7.3	-7.2	-7.3	-6.5	-5.1	-4.3	-4.9	-4.7	-5.4	-6	-5.9	-5.8	-5.6	-5.5	-5.3	-5.4	-6.6	-4.3	-6.1	24
24	-7.7	-9.2	-10.7	-11.4	-10.9	-9.6	-8	-7	-6.4	-5.7	-4.4	-3.3	-3.7	-5.4	-7	-7.7	-8.7	-9.6	-10.8	-11.6	-12.4	-13	-13.3	-14.2	-3.3	-8.8	24
25	-14.4	-14.7	-14.5	-14.7	-15	-15.2	-15.4	-15.8	-16.1	-16.1	-15.9	-15.6	-15.4	-15.3	-15.3	-15.7	-15.9	-15.8	-15.5	-15.9	-16.3	-16.3	-16.1	-15.8	-14.4	-15.5	24
26	-15.5	-15.4	-15.2	-15	-14.8	-14.4	-14.1	-13.7	-13.5	-13.4	-12.5	-11.4	-10.5	-10.2	-10.1	-10.5	-10.9	-11.4	-11.4	-11.3	-11.7	-12	-12.8	-13.1	-10.1	-12.7	24
27	-13.1	-13.3	-13.4	-13.6	-14.7	-15.9	-16.5	-16.6	-16.1	-16.2	-16.6	-16.3	-16.2	-16.5	-17.4	-19	-20.5	-22.1	-23.3	-24.3	-24.9	-25.7	-26.5	-27.9	-13.1	-18.6	24
28	-27.9	-28.8	-29.4	-30.5	-31.5	-32.0	-32.0	-32.1	***-32.2***	-30.8	-26.1	-21.2	-20.6	-19.7	-18.7	-19.5	-20.1	-19.8	-19.6	-19.6	-20	-20	-20.4	-21.6	-18.7	-24.8	24
29	-23.3	-24.3	-25.1	-24.6	-24.7	-25.1	-24.9	-24.2	-23.7	-22.9	-22	-20.8	-19.2	-18.7	-18.9	-20	-22	-22	-20.5	-20.6	-20.3	-19.9	-20.2	-22	-18.7	-22.1	24
30	-22.6	-23	-23.5	-23.7	-24	-23.4	-22.3	-21.6	-20.8	-19.8	-18.1	-16.1	-14	-12.9	-12	-12.7	-12.7	-12	-11.7	-11.5	-11.4	-11.2	-10.3	-9.6	-9.6	-16.7	24
31	-9.6	-8.8	-9.5	-9.8	-9.3	-8.1	-8	-6.4	-6	-5.5	-4.7	-3.9	-4	-4.1	-4.2	-4.6	-5	-5	-4.9	-4.8	-5	-5.4	-5.8	-6.4	-3.9	-6.2	24
HOURLY MAX	-0.1	0.1	0.4	0.9	1.4	1.4	1.5	1.4	1.9	2.9	3.5	5.1	5.8	6.5	6.5	4.2	2.8	1.5	1.2	-0.2	-0.5	-0.5	-0.7	-0.5			
HOURLY AVG	-11.2	-11.3	-11.5	-11.6	-11.7	-11.6	-11.4	-11.3	-11.2	-10.6	-9.4	-8.2	-7.5	-7.3	-7.6	-8.4	-9.1	-9.3	-9.5	-9.7	-9.8	-10.0	-10.2	-10.5			

STATUS FLAG CODES

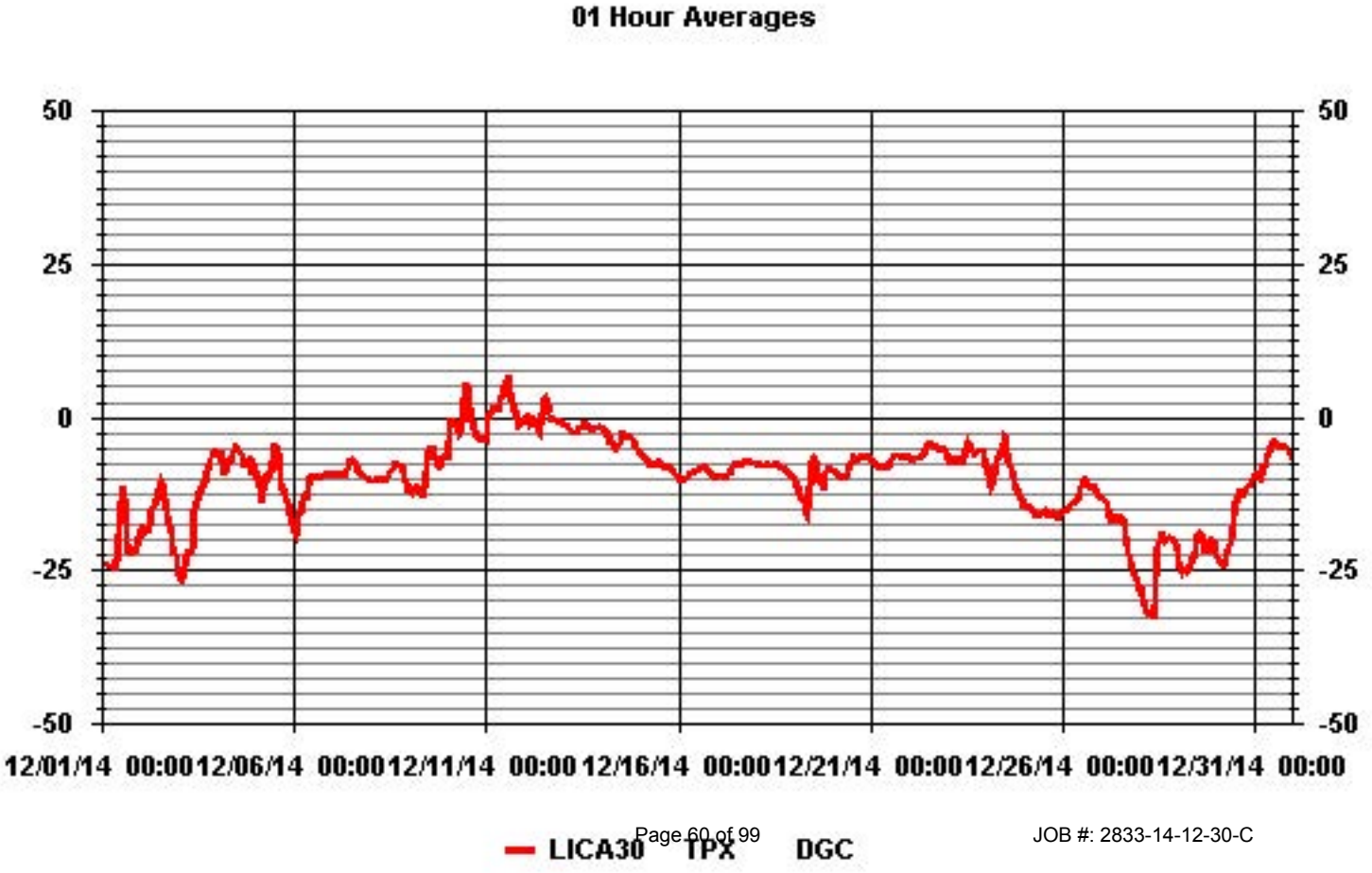
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR DECEMBER 2014



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-32.2	°C	@ HOUR(S)	8	ON DAY(S)	28
MAXIMUM 1-HR AVERAGE:	6.5	°C	@ HOUR(S)	13, 14	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	1.7	°C			ON DAY(S)	11
				VAR-VARIOUS		
OPERATIONAL TIME:					744	HRS
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	6.91		MONTHLY AVERAGE:		-9.99	°C



JOB #: 2833-14-12-30-C

Precipitation

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

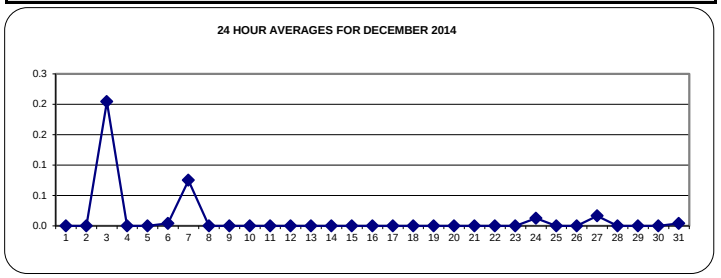
PRECIPITATION hourly averages in millimeter

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	0.1	0	0	0.6	***2.9***	1.2	0.1	***2.9***	***0.2***	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.0	24
7	0.6	0.4	0.2	0	0	0	0.1	0	0.1	0.3	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0.1	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	0	0	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	0	0	0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0.1	0	0.1	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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
31	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	0.1	0.0	24
HOURLY MAX	0.6	0.4	0.2	0	0.1	0	0.1	0.1	0.1	0.3	0.1	0.1	0	0	0.1	0	0	0.1	0	0	0.6	2.9	1.2	0.1			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			

STATUS FLAG CODES

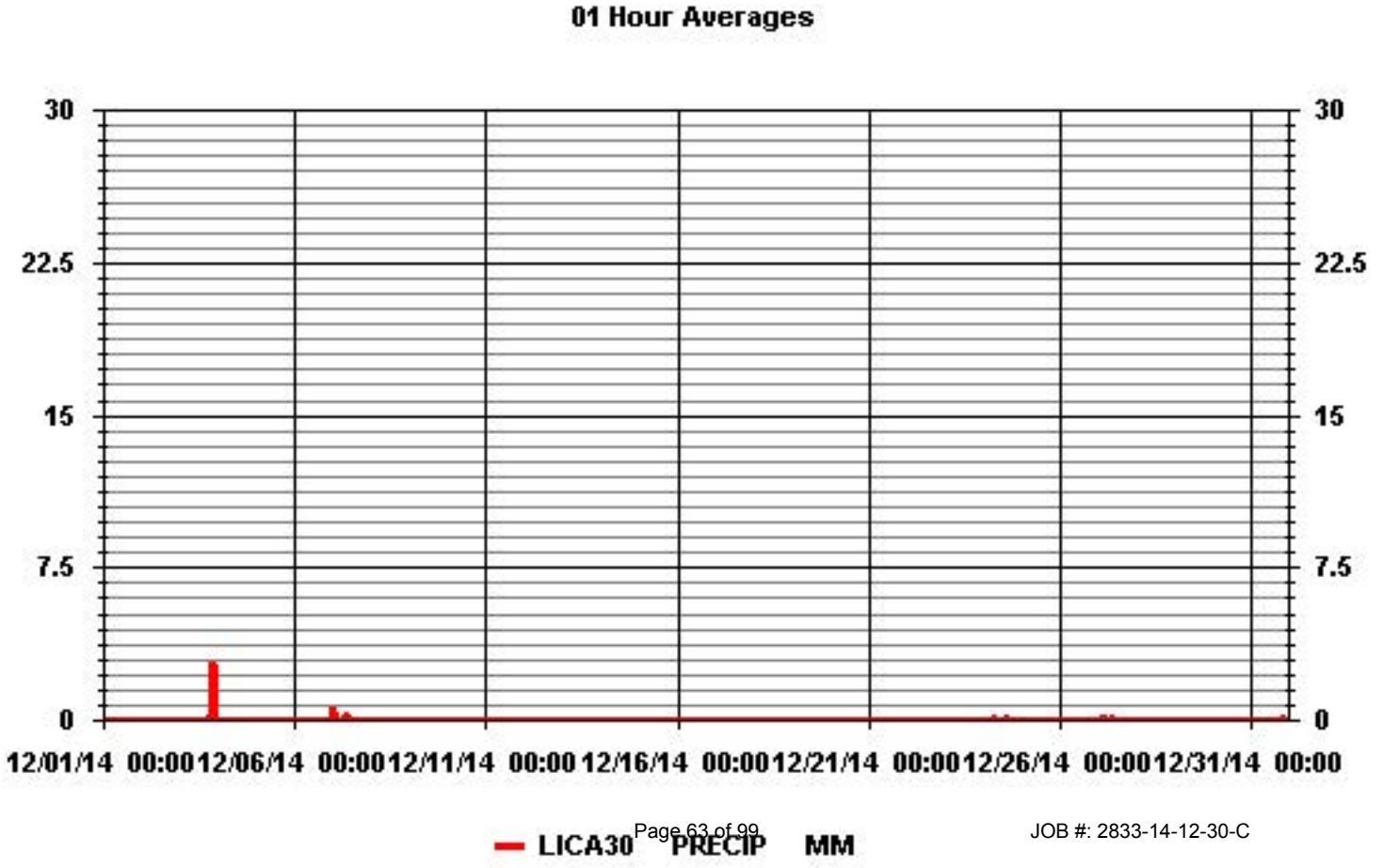
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		2.9	MM	@ HOUR(S)	21	ON DAY(S)	3
MAXIMUM 24-HR AVERAGE:		0.2	MM			ON DAY(S)	3
MONTHLY TOTAL	7.5	MM				VAR-VARIOUS	
						VAR-VARIOUS	
				OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.12			MONTHLY AVERAGE:		0.01	MM

JOB #: 2833-14-12-30-C



JOB #: 2833-14-12-30-C

Relative Humidity

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

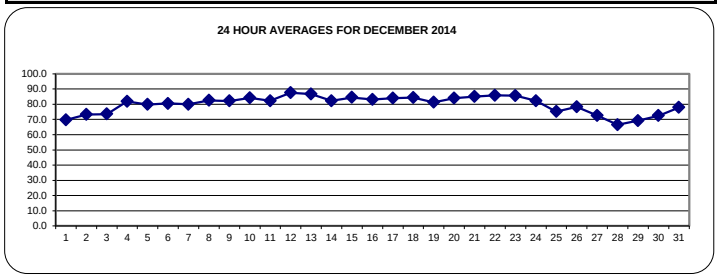
RELATIVE HUMIDITY (RH) hourly averages in %

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	66	67	67	68	68	68	69	69	69	68	68	68	68	67	69	73	73	73	72	71	71	73	73	73	73	69.6	24
2	74	74	73	74	75	74	76	78	77	77	75	71	68	64	63	69	76	76	77	77	74	73	73	70	78	73.3	24
3	69	68	68	67	69	70	70	70	71	73	74	73	73	73	74	76	77	79	78	79	79	78	78	79	79	73.5	24
4	80	80	81	83	84	84	85	84	84	83	81	80	79	79	80	79	79	83	82	82	82	84	85	83	85	81.9	24
5	82	83	83	82	81	83	83	83	83	82	80	73	72	73	75	80	80	81	81	81	81	79	78	77	83	79.8	24
6	76	75	77	77	78	78	80	79	82	81	79	80	81	82	82	82	82	83	83	83	83	83	83	83	83	80.5	24
7	82	82	82	82	82	82	82	82	81	81	80	78	79	80	79	79	79	79	78	78	77	78	78	78	82	79.9	24
8	78	80	80	81	82	83	84	84	83	83	83	82	82	83	83	84	84	84	84	84	83	83	82	82	84	82.5	24
9	82	81	82	81	81	81	81	80	80	80	80	79	79	80	82	83	84	85	85	85	85	85	85	85	85	82.1	24
10	87	88	88	89	87	86	87	88	87	81	72	66	66	71	77	86	***90***	89	89	89	89	89	89	89	***90***	84.1	24
11	89	89	89	87	86	85	85	84	82	78	77	72	69	66	66	75	79	83	85	88	***90***	***90***	***90***	***90***	***90***	82.3	24
12	89	88	***90***	***90***	89	89	***90***	***90***	***90***	***90***	***90***	84	78	77	80	85	88	89	***90***	***90***	***90***	89	89	89	***90***	***87.6***	24
13	89	89	89	89	88	88	88	88	88	88	87	86	85	85	85	86	86	87	86	86	85	85	85	84	89	86.8	24
14	83	83	83	85	84	84	83	84	85	85	84	82	80	79	82	82	83	81	81	80	80	80	80	81	85	82.3	24
15	82	83	84	84	85	85	86	86	86	85	85	85	84	84	84	84	84	85	85	85	85	84	84	83	86	84.5	24
16	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	83	83	83	83	83	84	83.2	24
17	83	83	83	83	83	83	83	83	83	84	84	84	84	84	84	84	85	85	85	85	85	85	84	85	85	83.9	24
18	85	85	85	85	85	84	85	85	85	85	84	84	84	84	84	84	84	84	84	84	84	84	83	83	85	84.3	24
19	83	83	82	81	80	80	79	78	78	79	80	80	81	81	82	82	83	82	82	82	84	83	83	83	84	81.3	24
20	83	83	83	83	83	83	83	83	82	82	82	82	82	84	85	85	85	86	86	86	86	86	86	86	86	84.0	24
21	86	85	85	85	85	85	84	84	84	84	84	84	84	85	85	85	86	86	86	86	86	86	85	85	86	85.0	24
22	85	85	85	85	85	85	85	85	86	86	86	86	86	86	86	86	86	87	87	86	86	87	86	86	87	85.8	24
23	86	86	85	86	86	86	85	85	85	85	85	85	85	85	86	86	86	86	86	86	86	86	86	86	86	85.6	24
24	85	84	82	82	82	83	84	85	85	86	87	86	86	84	83	82	81	80	80	79	78	77	77	77	87	82.3	24
25	77	77	76	74	75	75	75	75	75	75	75	74	73	74	74	74	75	75	75	75	76	76	77	78	78	75.2	24
26	78	78	77	78	78	78	78	78	79	78	78	78	77	76	77	78	79	80	80	79	79	79	79	79	80	78.3	24
27	78	78	78	78	77	76	76	76	76	75	72	70	68	68	70	71	71	72	71	70	69	68	68	67	78	72.6	24
28	66	66	67	66	65	64	64	64	64	64	64	***59***	62	65	65	68	70	71	71	71	70	70	70	69	71	66.5	24
29	69	68	68	67	68	68	70	69	69	69	67	66	63	65	66	69	71	72	73	72	73	73	73	73	73	69.2	24
30	72	71	71	71	70	71	71	71	71	72	71	69	67	70	69	74	75	75	75	76	76	77	77	78	78	72.5	24
31	79	79	81	82	82	80	79	76	77	76	74	70	70	71	73	77	79	80	77	77	81	83	84	83	84	77.9	24
HOURLY MAX	89	89	90	90	89	89	90	90	90	90	90	86	86	86	86	86	90	89	90	90	90	90	90	90			
HOURLY AVG	80.2	80.1	80.2	80.3	80.2	80.1	80.4	80.3	80.3	79.9	79.1	77.4	76.7	77.0	77.8	79.7	80.8	81.4	81.2	81.1	81.2	81.2	81.1	80.9			

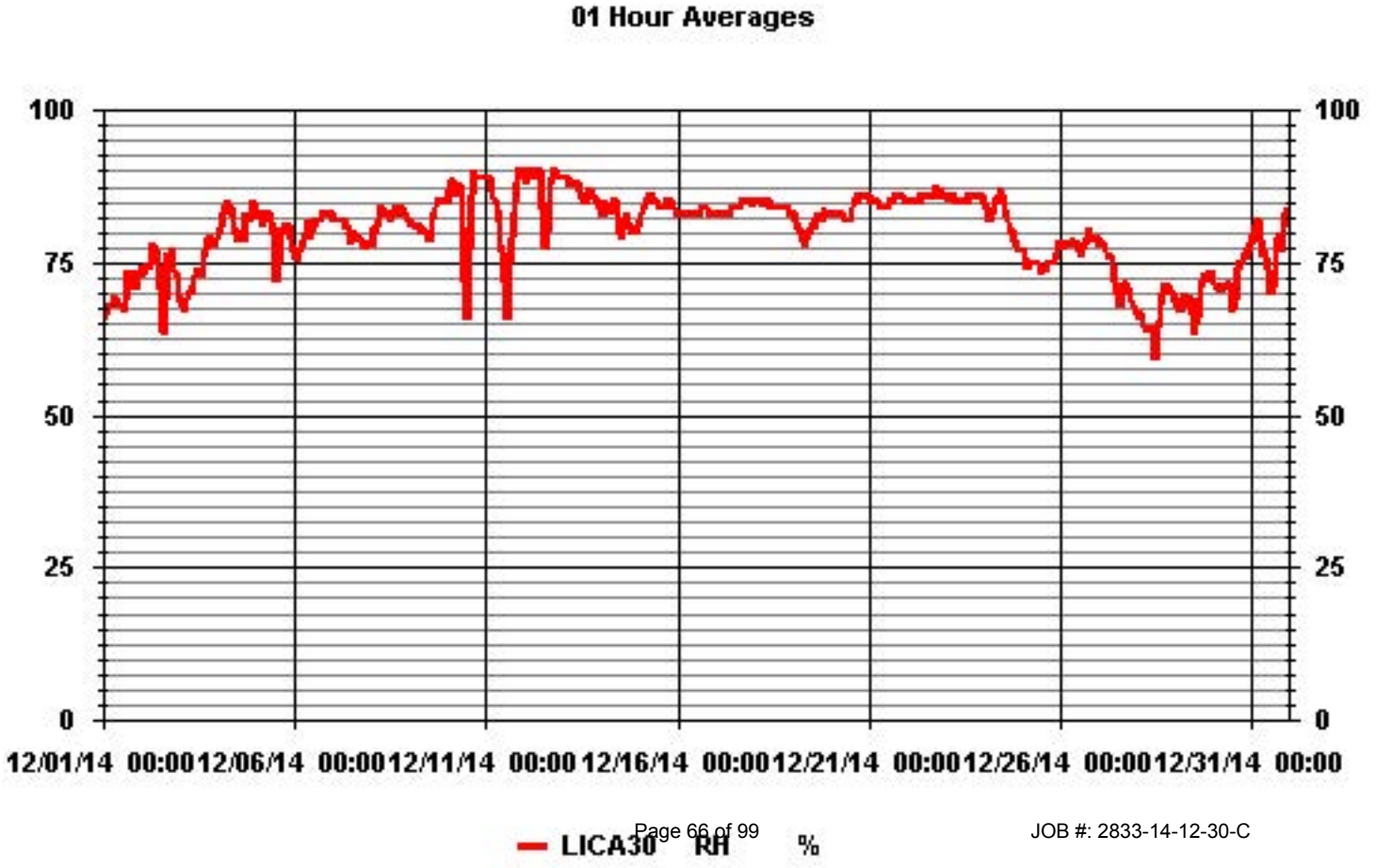
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	87.6	%			ON DAY(S)	12
					VAR-VARIOUS	
			OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	6.32		MONTHLY AVERAGE:		79.94	%



JOB #: 2833-14-12-30-C

Barometric Pressure

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

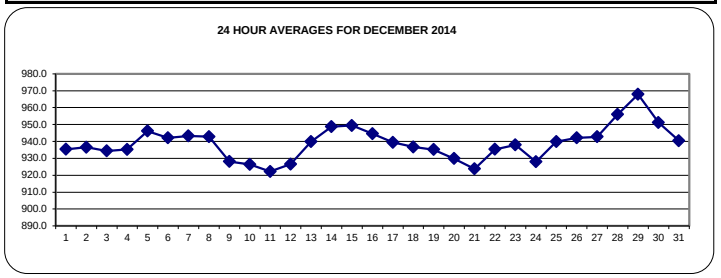
BAROMETRIC PRESSURE (BP) hourly averages in millibar

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	939	938	938	937	936	936	936	935	933	935	935	935	935	935	935	935	935	935	935	935	934	934	934	934	939	935.4	24
2	933	933	933	933	932	933	933	933	934	935	936	937	937	937	938	938	939	939	940	940	941	941	941	941	941	936.5	24
3	941	940	939	939	938	937	936	936	936	935	934	934	933	932	932	932	932	932	931	931	931	931	931	931	941	934.3	24
4	931	931	931	932	932	933	933	934	934	935	935	935	935	936	935	935	937	937	938	938	939	939	940	941	941	935.3	24
5	942	943	943	943	944	944	944	945	945	946	947	948	948	948	947	947	948	948	948	948	948	948	948	948	948	946.2	24
6	947	947	946	946	945	945	945	944	943	943	943	942	941	941	940	940	940	939	939	939	939	939	939	939	947	942.1	24
7	939	939	940	940	940	940	941	940	940	942	942	942	943	943	944	945	946	946	946	947	947	948	948	948	948	943.2	24
8	948	948	948	948	947	947	946	945	945	946	946	944	944	943	942	941	940	940	939	937	937	936	935	935	948	942.8	24
9	934	933	933	932	932	931	931	930	930	930	930	929	928	928	926	926	926	925	924	923	923	923	923	924	934	928.1	24
10	924	925	927	928	928	929	928	928	929	929	930	929	929	929	927	926	925	925	925	924	923	923	922	922	930	926.4	24
11	921	921	921	920	919	918	918	918	***917***	***917***	919	920	921	923	924	924	925	926	927	927	927	927	927	926	927	922.2	24
12	926	926	925	924	923	923	923	922	922	923	924	925	926	926	927	927	927	928	929	930	931	932	933	934	934	926.5	24
13	934	935	935	936	936	936	937	938	939	939	940	941	941	941	941	940	941	943	943	943	943	944	944	945	945	939.8	24
14	945	945	946	946	947	947	947	948	948	949	949	950	950	950	949	949	950	950	950	951	951	951	951	951	951	948.8	24
15	951	951	951	951	951	951	950	950	950	950	950	950	950	949	949	949	949	948	948	948	948	948	947	947	951	949.4	24
16	947	947	947	946	945	945	945	945	945	945	945	945	944	944	944	944	944	944	943	943	943	943	943	943	947	944.5	24
17	942	942	942	941	941	941	941	940	940	940	940	940	939	939	939	938	938	938	938	938	937	937	937	937	942	939.4	24
18	937	937	937	937	937	937	936	937	936	937	937	936	936	936	936	937	937	937	937	937	937	936	937	937	937	936.7	24
19	937	937	937	937	937	937	937	936	936	936	936	936	935	935	935	935	934	934	933	933	933	933	933	932	937	935.2	24
20	932	932	932	932	932	932	932	932	931	931	931	931	930	930	929	930	929	929	928	928	927	926	926	925	932	929.9	24
21	924	924	923	923	922	922	921	921	921	922	922	923	922	922	923	924	925	926	926	926	927	927	928	928	928	923.8	24
22	928	929	929	930	930	931	931	932	933	934	934	935	936	936	937	938	939	940	940	941	941	941	941	942	942	935.3	24
23	942	942	942	943	943	942	942	942	942	942	941	941	940	939	938	937	935	934	933	932	931	930	929	928	943	937.9	24
24	927	927	926	925	925	925	925	924	925	925	926	926	926	927	927	928	929	930	931	932	932	933	934	935	935	927.9	24
25	935	936	935	937	938	938	939	939	939	940	940	941	940	940	941	941	941	942	942	942	943	943	943	943	943	939.9	24
26	943	942	943	943	943	943	943	943	942	942	942	942	942	942	942	942	942	942	942	942	941	941	940	940	943	942.0	24
27	941	941	940	941	941	941	941	941	941	942	942	942	942	942	942	943	943	944	945	945	946	946	947	947	947	942.8	24
28	948	949	950	951	951	952	953	954	954	955	955	955	955	956	956	956	958	959	960	961	962	963	964	965	965	955.9	24
29	966	966	967	968	968	968	968	968	968	***969***	***969***	***969***	968	967	968	***969***	***969***	***969***	968	968	968	967	967	967	***969***	***967.9***	24
30	966	965	964	962	961	959	957	955	952	951	949	947	946	944	944	944	944	944	945	945	946	946	946	946	966	951.2	24
31	946	946	946	946	946	943	943	943	942	942	941	940	940	939	938	938	937	937	936	936	936	936	937	936	946	940.4	24
HOURLY MAX	966	966	967	968	968	968	968	968	968	969	969	969	968	967	968	969	969	969	968	968	968	967	967	967			
HOURLY AVG	939.2	939.3	939.2	939.3	939.0	938.9	938.8	938.6	938.5	938.9	939.0	939.0	938.8	938.7	938.5	938.6	938.8	939.0	939.0	939.0	939.1	939.1	939.2	939.3			

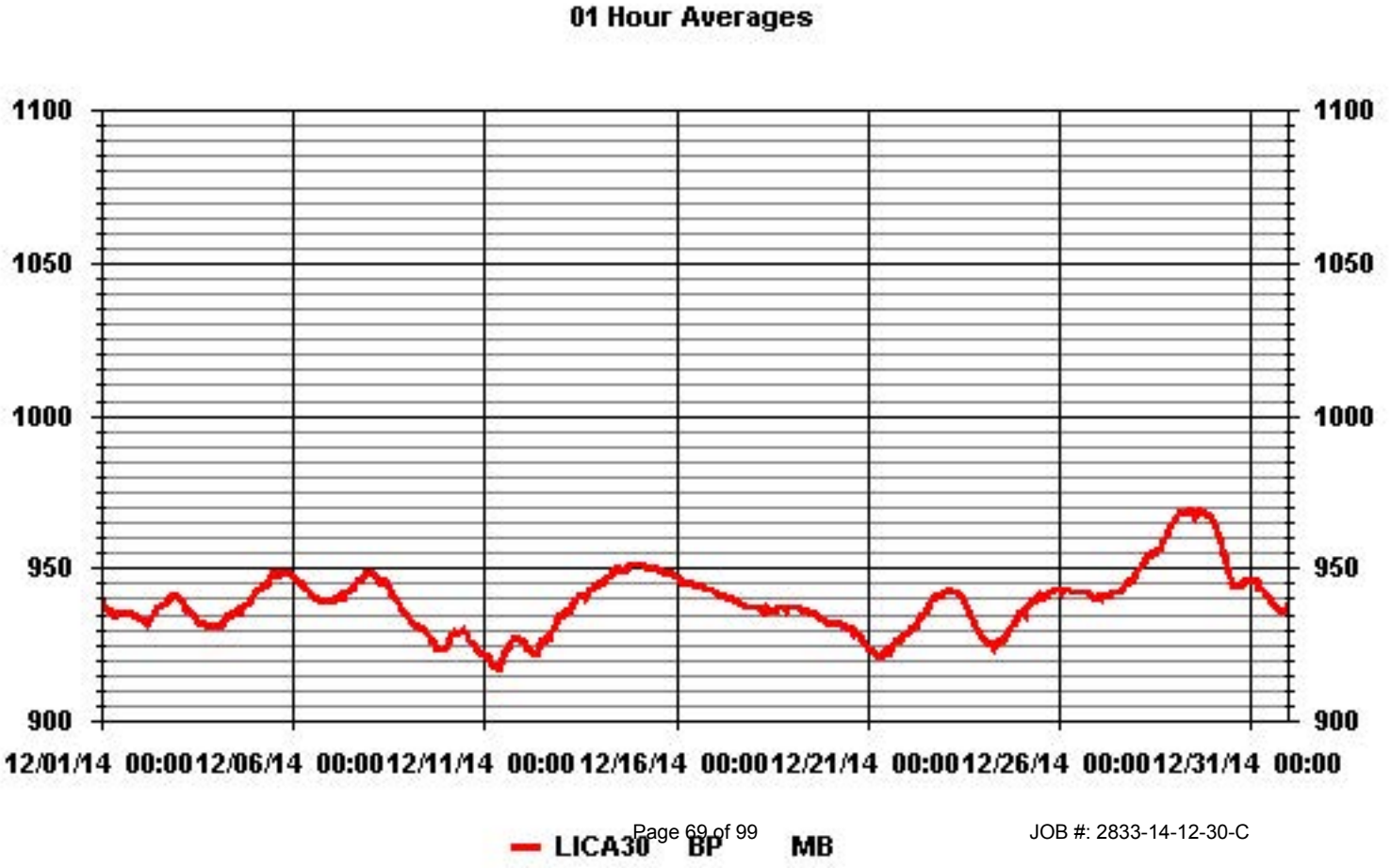
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	969	MB	@ HOUR(S)	VAR	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	967.9	MB			ON DAY(S)	29
				VAR-VARIOUS		
OPERATIONAL TIME:					744	HRS
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	10.11		MONTHLY AVERAGE:		939.0	MB



JOB #: 2833-14-12-30-C

Vector Wind Speed

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

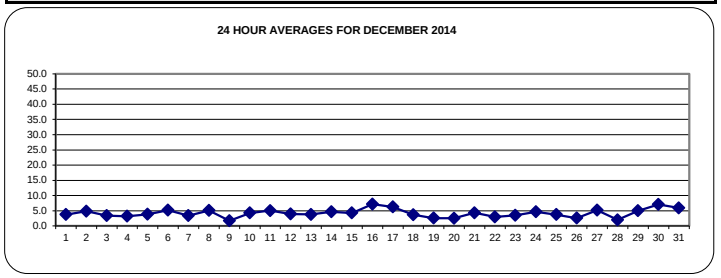
WIND SPEED (WS) hourly averages in km/hr

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	***9.8***	9.6	5.9	6.3	5.3	4.4	5	4.3	4.2	3.3	1.9	3.3	3.5	4.3	2.5	1.4	2.5	2.5	0.7	0.5	0.8	4.1	1.9	1.4	***9.8***	3.7	24
2	4.7	5.2	4.7	4.9	6.3	4.3	4.9	7.9	8.6	8.9	7.2	7.1	5.3	5.9	5	6.2	5.3	4.1	3.4	2.4	1.2	0.5	2.1	0.5	8.9	4.9	24
3	0.5	0.7	0.6	1.3	1.1	0.7	1.6	0.8	0.9	1	4.7	4	4.5	4.3	3.3	3.9	3.6	6.5	6.9	6.4	6.2	6	5.7	5.3	6.9	3.4	24
4	6.3	5.2	3.6	4.2	2.9	2.4	2.3	2.9	2.7	1.7	0.6	1.6	3.7	3	3.3	4.6	3.6	2.9	2.7	2.7	3.5	3.8	4.3	3.1	6.3	3.2	24
5	2.7	3	2.8	1.9	2.3	3.6	4.1	5.8	4.1	4.3	4.4	3.6	4.4	5.4	6.7	5.9	5.5	6.2	5.2	3.3	2.2	0.6	1	2.2	6.7	3.8	24
6	2.2	1.4	2.9	2.9	3	3.1	3.7	4	4.6	4.6	7	7.2	6.5	6.1	7.1	7.3	8	7.4	8.2	7.2	5.4	4.7	5.3	4.5	8.2	5.2	24
7	2.4	2	1.8	1.6	1.9	2.5	2.8	2.8	3.2	3.2	3.4	4.2	5.6	5.9	5.4	6.1	4.6	4.2	4.3	3.4	2.5	2.5	3	2	6.1	3.4	24
8	0.4	2.4	2.2	3.3	4.6	5.5	4.7	4.7	5.8	7.1	6	6.1	6	6.1	6.1	7	8.2	7.7	6.8	7	5.2	4.9	2.2	2.4	8.2	5.1	24
9	3.1	1.7	2.2	2.1	1	0.5	0.9	0.4	1.1	1.3	2.5	2	1.3	1	2.9	3	2.4	3.3	2.7	1.2	1	1.4	0.7	1.4	3.3	1.7	24
10	4.7	3	3.3	4.3	6.5	6.1	4.8	4.2	6.5	4.1	7.7	8.1	1.4	1.8	2.8	2.7	2.5	3.8	3	4	4.1	4.1	4.6	4.4	8.1	4.3	24
11	3.4	5.9	5.4	6.1	5.9	5.8	6.2	4.9	5.2	7.3	8	6.7	6.1	8.8	6.1	5.8	4.6	4.3	3.6	2.7	0.8	1.1	2.7	3.2	8.8	5.0	24
12	5	2.9	5.3	7.3	6	4.4	3.9	3.3	0.6	0.4	1.4	4.3	2.6	3.7	3.6	4	2.8	4.6	4.6	5.3	4.9	3.9	4.8	4.2	7.3	3.9	24
13	5	4.9	4.1	4.6	3.6	5	3.6	2	2.5	2.8	2.1	1.4	2.1	4	4.1	3.7	4.7	5.7	5.4	4.3	4.3	3.4	3.3	3.9	5.7	3.8	24
14	4	3.4	3.9	5.9	6.1	5.5	3.3	3	3.6	4.8	5.1	4.4	3.9	4.5	6.9	7.1	5.1	5.3	4.9	4.6	3.7	4.9	3.4	3.8	7.1	4.6	24
15	3.2	1.9	1.9	2.2	2	0.4	3.8	3	2.4	3.5	6.1	5	5.1	5.1	5.9	5.9	4.9	5.8	5.3	5.7	5.8	6.7	6.3	4.9	6.7	4.3	24
16	5.9	7	7.1	6.8	7.7	7.7	6.7	6.5	7.3	6.9	9	7.3	7.4	8.3	6.6	5.7	5.8	8.4	6.9	7.2	6.6	7.5	7.7	7.6	9.0	***7.2***	24
17	8.4	7.4	6.9	5.8	6.6	7.4	5.6	6.9	5.8	5.9	6.2	6.4	7.1	7.2	5	4.9	4.2	4.7	6.1	5.1	6.5	8.1	6.2	5.2	8.4	6.2	24
18	5.1	5.3	5.9	3.8	2.9	2.9	2.4	2.7	2.6	3.8	5.1	4.5	3.6	3.3	3.2	4.1	3.6	3.9	3.3	3.4	3.9	3.3	2.5	3.3	5.9	3.7	24
19	1.9	1.1	1.6	1.4	0.4	1	1.5	1.9	0.3	2.9	3	1.8	3.8	4.7	3.1	2.8	4.5	3.9	2.9	2	3.8	4.1	3.5	3.7	4.7	2.6	24
20	3.8	2.6	2.4	3.1	2.3	1.1	2.2	1.6	1.7	3.5	3.1	2.8	2.7	1.6	2.1	2	2.1	1	1.5	2.9	3.2	3.3	4.3	3.8	4.3	2.5	24
21	4.4	4.1	6.1	5.7	6.2	6.8	5.8	5.5	6	6.1	5.7	5.7	6	5.4	4.4	3.6	3.4	1.9	1.8	2.6	1.4	1.3	1.8	1.6	6.8	4.3	24
22	2	2.1	1.7	0.5	1.1	1.5	1.9	1.6	2.5	3.7	2.9	5.2	3.8	5	3.1	3.6	3.3	3.7	4.1	3.8	3	2.7	3.8	4.5	5.2	3.0	24
23	4.8	5.6	2.7	3.2	3.7	4.5	4.2	4.6	4.1	5.1	4.6	4.5	4.5	4.2	1.4	1.3	2.5	2	2.7	2.7	3.2	3.6	1.7	1.5	5.6	3.5	24
24	0.8	0.4	0.9	2.5	1.2	1.8	2.9	2.8	3.5	4.4	5	3.3	6.1	7.8	8.7	7.6	7.1	5.6	4.9	6.1	6.7	6	9.2	7	9.2	4.7	24
25	6.2	5	5.8	6.2	5	**X**	4.9	4.9	2.9	3.9	3.4	3.3	3.4	2.7	3.1	3.9	3.1	1.7	2	3	2.6	2.1	3.5	2.5	6.2	3.7	23
26	1.2	2	3.2	2.7	2.7	4.4	2.7	2.6	3.7	3.8	2.9	3.4	3.2	3	1.7	1.4	0.1	0.4	1	1.9	1.3	3.6	4.7	4	4.7	2.6	24
27	4.2	4.6	5	5.2	5.7	6.6	5.8	4.8	5.8	6.1	6.2	5.5	5.1	5.6	6	5.9	4.9	4.4	4.1	4.3	4.9	4.7	4.2	3.5	6.6	5.1	24
28	3.5	1.8	2.7	0.7	0.4	0.5	0.6	0.8	0.2	0.5	1	1.7	2.6	1.1	0.9	1.7	2.2	2.4	2.1	1.8	3.7	3.9	4.6	6	6.0	2.0	24
29	4.7	4.6	4.4	5	5.7	3.5	5.2	5.6	6.2	6.8	6.6	6.4	5.7	5.4	4.9	4.3	4.1	4	4.2	5	5.8	4	4.2	3.4	6.8	5.0	24
30	5.6	5.8	6.8	7.4	6	6.6	7.2	9.1	9	5.5	6.9	6.8	5.4	5.4	6.7	6.3	8.1	8	8.6	7.3	9.1	7.1	6.9	6.9	9.1	7.0	24
31	6.1	7.2	6.8	5.9	6.2	5.6	5.4	6.5	5.4	5.4	5.8	8.1	9.2	8.3	5.7	6.4	6.4	6.5	6	5.9	3.8	2.8	2	4.6	9.2	5.9	24
HOURLY MAX	9.8	9.6	7.1	7.4	7.7	7.7	7.2	9.1	9.0	8.9	9.0	8.1	9.2	8.8	8.7	7.6	8.2	8.4	8.6	7.3	9.1	8.1	9.2	7.6			
HOURLY AVG	4.1	3.9	3.9	4.0	3.9	3.9	3.9	3.9	4.0	4.3	4.7	4.7	4.6	4.8	4.5	4.5	4.3	4.4	4.2	4.1	3.9	3.9	3.9	3.8			

STATUS FLAG CODES

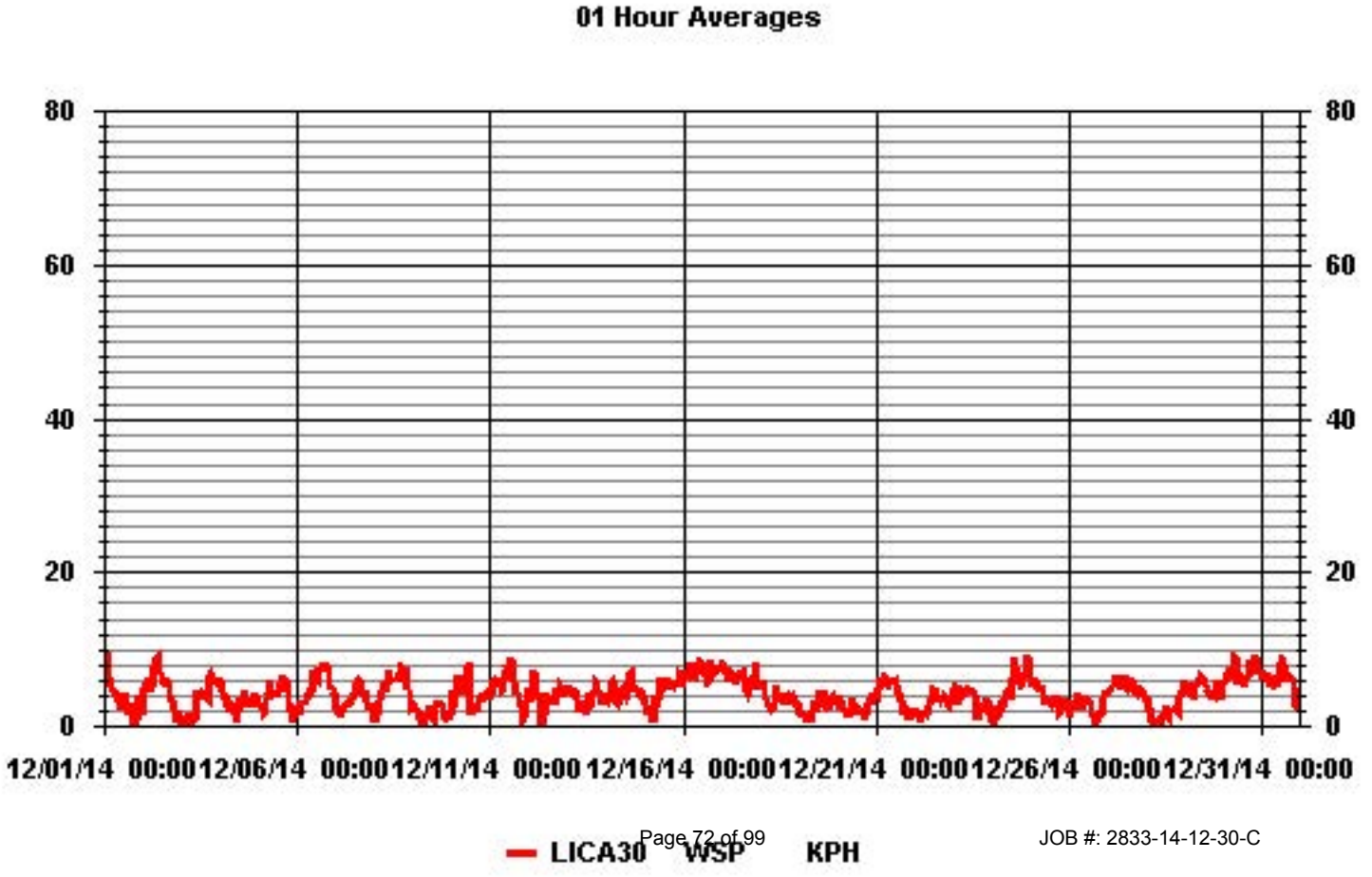
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	743						
MAXIMUM 1-HR AVERAGE:	9.8	KPH	@ HOUR(S)	0	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	7.2	KPH			ON DAY(S)	16	
					VAR-VARIOUS		
			OPERATIONAL TIME:		743	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	2.02		MONTHLY AVERAGE:		4.17	KPH	



JOB #: 2833-14-12-30-C

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

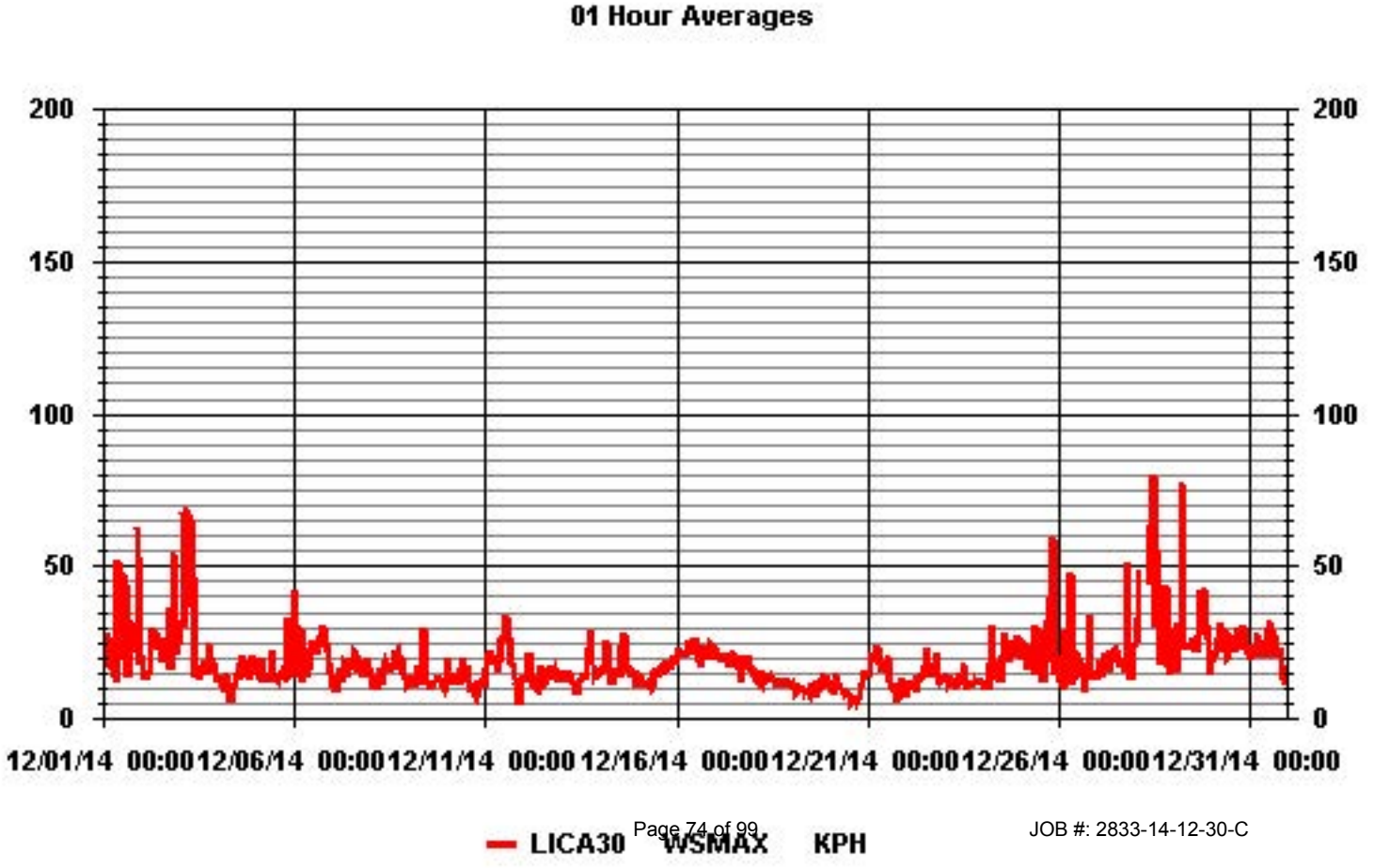
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	23.9	22	28.2	20.1	16.3	26.1	16.9	14.2	11.6	51.7	26.3	37.1	47.6	19	44.5	14.6	13.3	32.4	22.8	**X**	**X**	61.6	53.3	18.2	62	28.3	22
2	18.9	14.2	14.6	12.4	14.4	15.9	26.5	29.1	27.6	28.8	23.8	23.2	18.6	23.6	23.6	26.3	20.1	36.6	15.7	24	54.7	20.8	22.5	32.2	55	23.7	24
3	24.7	**X**	66.5	30.1	68.9	67.1	45	65.6	36.6	46.5	13.7	14.6	12.4	15.5	16.8	18.6	14.5	18.8	24.7	17	20.6	18.4	15.5	12	69	29.7	23
4	14.2	12.4	13.1	13.3	8.5	14.4	11.8	6.8	6.5	11.1	10	14	13.9	12.7	18.1	20.4	15.3	15.9	15.1	19.2	12.2	15.1	20.2	16.2	20	13.8	24
5	14.2	15.5	14	14.6	19.7	15.1	12.2	13.5	14.6	14	22.3	15.8	13.3	12.4	13.9	14.4	12.7	15.9	15.4	12.1	33.3	30.7	17.1	13.3	33	16.3	24
6	41.7	30.9	19	15.5	29.4	11.8	16.2	13.1	16.2	15.4	22.7	25.8	22.7	21.6	21.6	25.1	26.8	28.4	30.2	23.6	25.4	22.7	18.9	14.9	42	22.5	24
7	11.1	9.8	8.7	14	16.6	13.6	13.3	18.6	17.9	13.7	16.2	19.3	19.7	16.8	21.9	21.2	14.8	18.8	15.3	14.4	13.5	19	19.2	16.8	22	16.0	24
8	14	11.4	10.7	10.5	14	16.4	13.3	12.9	16.4	19.5	18.8	15.7	15.7	17	17	21.6	21.4	22.5	20.6	20.3	15.1	13.8	10.5	11.1	23	15.8	24
9	14	10.7	12	11.6	14	17	15.7	12.4	11.3	30	12.4	12	10.9	10.7	12	10.1	11.8	13.3	13.5	11.8	13.3	11.1	9.6	10.7	30	13.0	24
10	19.7	12.6	10.7	13.5	13.7	15	12.4	10.9	16.4	11.3	19.8	15.4	13.8	17.2	8.7	9.6	10.4	7.8	6.9	9.1	11.8	12.4	10.7	10.7	20	12.5	24
11	16.2	21.4	17.5	22.3	21	19.2	18.1	15	20.1	19.9	25.7	26.4	25.6	34.1	28	26.9	18.6	17.2	13.3	10.9	11.5	4.3	11.6	12.2	34	19.0	24
12	14.2	11.4	14.4	21.8	19.9	12.6	10	13.7	10.2	9.6	11.4	17.5	11.1	11.5	15	15.3	12.4	17.5	15	16.2	14.4	11.8	15.2	14.7	22	14.0	24
13	12.9	15.3	12.6	12.7	13.5	15.3	13.3	10.9	12.1	7.4	10.7	13.1	11.8	15	13.7	13.7	17.2	23	29.1	18	14	14.8	13.1	15.7	29	14.5	24
14	15.5	17	15.5	21	25.4	22.6	14.8	11.1	15.3	16.6	14	15.1	14.8	23.5	21.5	28.4	17	16.8	16.4	14.8	14	14	11.6	11.4	28	17.0	24
15	14.6	14.2	12.7	11.3	11.6	11.1	10.5	12.9	9.8	10.5	15.1	16.4	13.5	15.5	16.6	15.7	14.8	18.8	17.9	17.7	17.3	19.2	19.2	17.9	19	14.8	24
16	19.9	22.5	20.2	21.9	19.9	22.3	20.1	24.7	24.9	20.6	26.7	21.9	26.5	21.9	19.5	16.4	19.9	23.2	23	23.4	19	24.3	23.6	21.5	27	22.0	24
17	23.6	20.3	19.9	18.4	19.9	21.5	18.8	21.6	17.3	17.3	20.1	21.7	18.9	21	17	17	11.3	18.1	20.6	17.1	17.3	20.8	17.9	15.7	24	18.9	24
18	14.4	16	15.4	12.4	11.6	15.7	11.3	14.6	13.1	13.6	14.4	13.5	12.7	12.7	12.4	11.3	10.3	13.1	12	11.1	11.3	12.9	11.3	11.1	16	12.8	24
19	11.8	10.2	8.7	9.6	10.9	10.5	8.3	10.9	8.7	9.4	8.8	7.6	9.1	11.1	7.6	7.6	11.8	12.1	10	10.9	14.4	13.5	12.2	12.9	14	10.4	24
20	11.3	9.6	7.8	11.3	14.4	12	10.8	10.2	8.7	9.8	7.6	8	8	5.2	5.9	6.3	6.5	5.2	6.5	10.7	10.7	12.9	15.9	14.6	16	9.6	24
21	14.8	13.7	21.6	20.8	20.7	19.9	23.8	22.3	19.9	15.5	17.5	16.9	18.1	20.3	12.2	10.2	9.6	11.3	5.1	6.1	11.3	10.7	13.1	11.8	24	15.3	24
22	6.5	10.5	11.9	9.4	11.1	10.9	8.3	13.1	12.9	14.2	13.3	17.5	15.1	22.7	13.7	16.2	13.1	16.2	15.4	21.2	12	11.6	12	13.7	23	13.4	24
23	14.4	14.2	11.4	12.2	11.6	12.9	12.4	11.1	11.6	14.5	12.6	10.9	17.7	12.2	9.1	10.5	11.6	12	11.6	12.9	12	12.2	12.2	12	18	12.3	24
24	10.2	10.3	11.6	9.1	17.9	12.4	30.6	16.2	15.1	15.1	18.8	11.6	20.6	27.1	28	20.1	25.6	18.8	20.1	25.6	24.7	19.9	27.4	21.7	31	19.1	24
25	20.8	19.5	25.2	24.3	17.1	**X**	21	16.4	14.3	30.2	19.7	29.6	17.1	18.4	12.2	13.3	31.8	17.9	39.7	44.7	59.2	15.5	14.9	14.9	59	23.4	23
26	20.8	12.7	10.9	9.8	28.7	12.9	17.9	47.8	10.9	12.5	14	22.1	17.5	19.7	14.6	13.8	8.3	17.7	13.3	33.5	12.7	13.6	15.7	12.9	48	17.3	24
27	14.2	15.3	18.7	13.8	14.8	21.2	16.8	16.6	21.4	21.7	22.3	21	21.9	20.6	16.4	19	17.9	15.7	15.7	51.3	14	13.3	13.3	23.3	51	19.2	24
28	25	32.9	47.6	**X**	51.2	**X**	47.2	**X**	45	63.7	59.7	***80.3***	29.8	56.1	29.4	41.4	17.5	41.7	28.1	43.4	17.5	16.6	14.7	26.7	***80***	***38.8***	21
29	29.8	24.1	14.9	31.1	24.1	77.5	24.7	23.2	23.2	23.9	23.9	25.8	24.2	24.5	21.9	27.4	40.9	41.9	27.1	42.5	31	26.1	14.2	21.9	78	28.7	24
30	18.6	20.1	22.1	26.5	21.7	31.3	21.7	29.8	25.2	20.1	20.6	28.2	25.4	24.5	24.5	22.1	29.6	28.4	28.4	25.4	30.4	23.4	21.3	24.1	31	24.7	24
31	19.2	23.4	22.3	22.7	28.3	19.9	23.6	24.3	22.9	19.7	25.1	29.8	31.8	29.6	20.1	27.6	23.4	20.8	20.8	23.2	17.9	13.1	11.1	16.6	32	22.4	24
HOURLY MAX	42	33	67	31	69	78	47	66	45	64	60	80	48	56	45	41	41	42	40	51	59	62	53	32			
HOURLY AVG	17.6	16.5	18.1	16.6	20.3	20.5	18.3	18.8	17.3	20.3	19.0	20.9	18.7	19.8	18.0	18.1	17.1	19.9	18.4	21.1	19.6	17.7	16.7	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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	80	KPH	@ HOUR(S)	11	ON DAY(S)	28
					VAR-VARIOUS	
OPERATIONAL TIME:					737	HRS



JOB #: 2833-14-12-30-C

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

December 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	4.71	2.69	6.32	5.65	3.36	3.49	3.36	3.49	3.63	6.05	12.51	4.30	6.59	3.76	4.71	4.57	79.27
<	12.0	1.48	.13	.26	1.07	.94	.94	.53	2.69	2.82	2.55	2.28	.00	1.21	2.69	.67	.40	20.72
<	20.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	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	6.19	2.82	6.59	6.72	4.30	4.44	3.90	6.19	6.46	8.61	14.80	4.30	7.80	6.46	5.38	4.97	

Calm : .00 %

Total # Operational Hours : 743

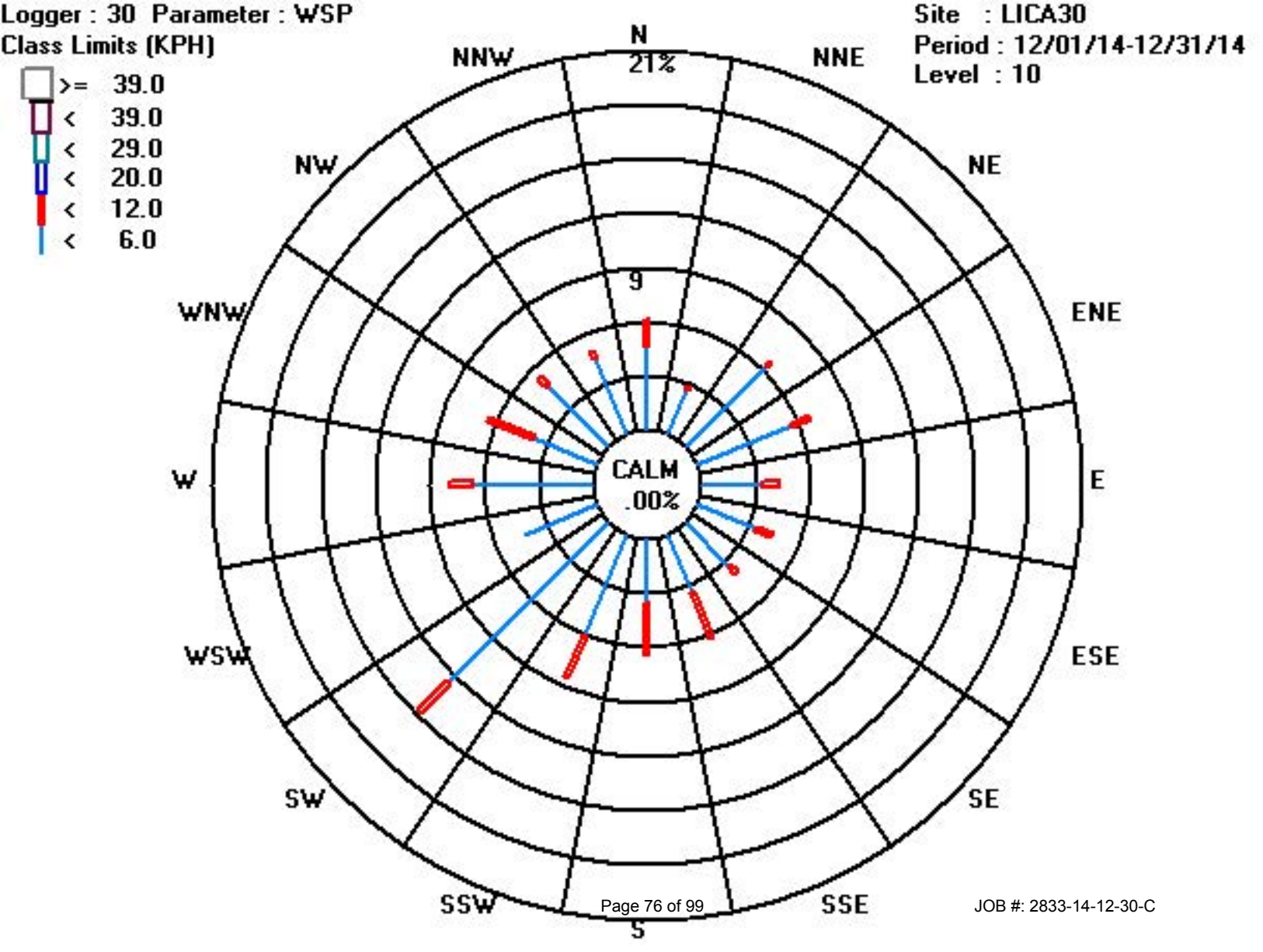
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	35	20	47	42	25	26	25	26	27	45	93	32	49	28	35	34	589
<	12.0	11	1	2	8	7	7	4	20	21	19	17		9	20	5	3	154
<	20.0																	
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	46	21	49	50	32	33	29	46	48	64	110	32	58	48	40	37	

Calm : .00 %

Total # Operational Hours : 743



JOB #: 2833-14-12-30-C

Vector Wind Direction

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

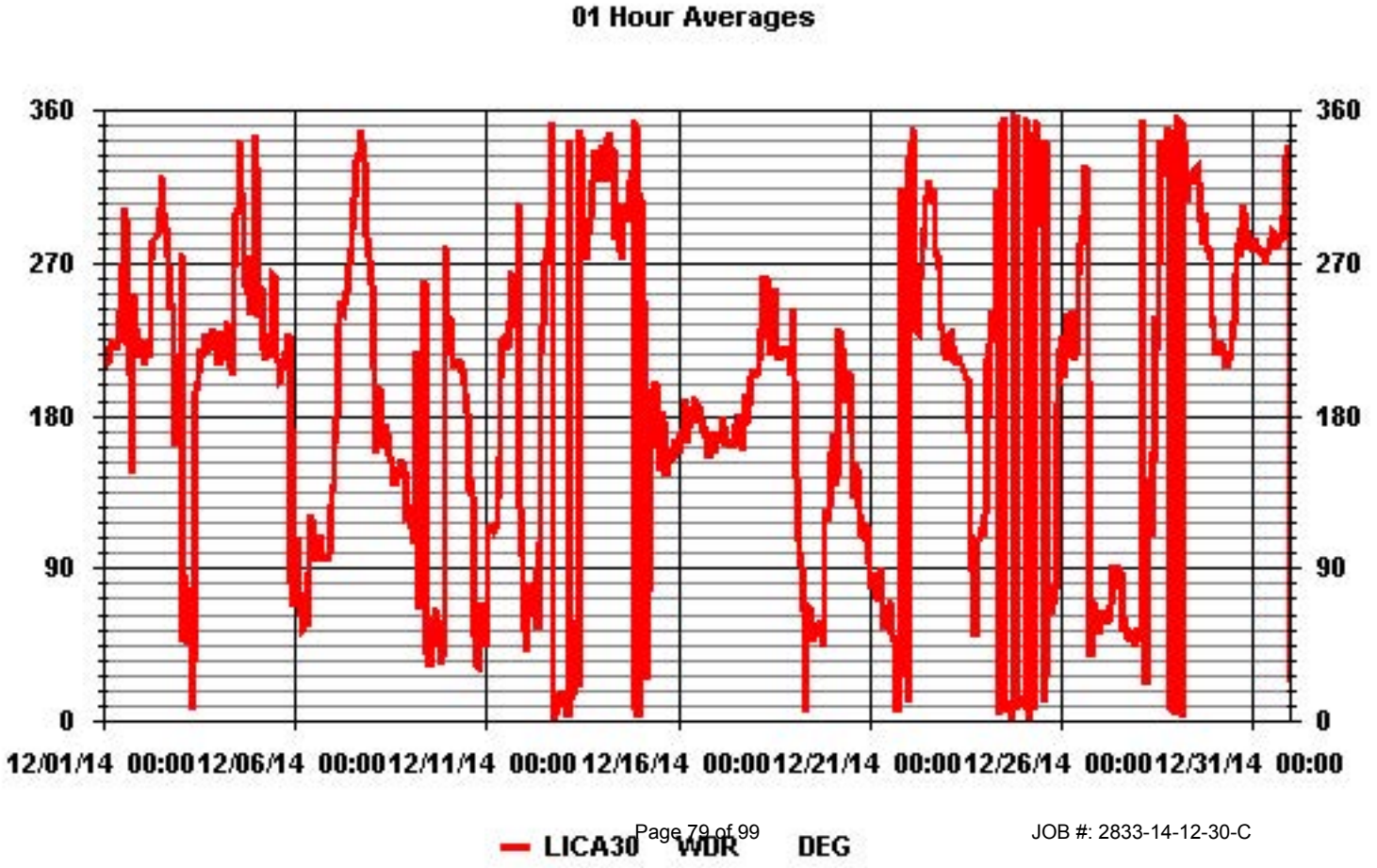
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	209	210	213	213	220	225	221	221	219	223	241	263	270	302	297	222	204	214	145	252	232	214	225	224	302	WNW	24
2	215	210	216	218	214	225	272	283	284	285	288	303	321	308	301	292	274	269	244	244	181	162	217	168	321	NW	24
3	213	276	46	86	80	47	47	6	34	173	194	200	205	219	215	220	228	218	219	227	229	229	225	222	276	W	24
4	210	215	230	218	217	236	226	214	209	204	267	299	303	343	313	303	275	258	257	252	240	243	274	345	345	NNW	24
5	328	238	247	257	219	213	216	214	228	226	264	263	215	212	200	201	206	209	218	214	228	80	173	67	328	NNW	24
6	80	77	109	63	54	55	75	55	88	115	122	120	109	96	96	107	109	99	94	97	94	98	128	137	137	SE	24
7	137	163	179	234	247	242	241	254	245	252	268	279	290	308	330	334	330	349	342	339	331	286	275	272	349	NNW	24
8	258	209	157	184	173	197	191	169	161	175	170	157	153	142	138	143	147	146	148	154	145	148	121	122	258	WSW	24
9	128	115	104	136	218	130	65	181	84	260	41	38	31	54	61	43	67	60	51	33	43	38	280	231	280	W	24
10	235	239	217	209	209	212	212	212	205	209	199	194	182	135	144	134	51	34	33	45	70	68	54	43	239	WSW	24
11	51	116	110	115	112	114	117	130	155	202	225	226	224	219	235	266	250	253	232	235	305	126	98	52	305	WNW	24
12	82	40	67	70	61	80	82	91	53	106	217	233	271	269	279	296	333	353	0	3	10	10	16	17	353	N	24
13	16	16	16	2	342	13	15	26	59	20	349	345	293	277	293	271	287	297	318	337	325	336	317	331	349	NNW	24
14	340	338	337	318	343	347	338	337	284	296	303	305	278	272	297	294	306	297	318	325	355	6	351	2	355	N	24
15	311	308	249	219	24	76	196	184	160	176	200	184	153	147	182	178	144	146	158	158	154	155	166	164	311	NW	24
16	157	169	164	172	190	186	164	173	180	176	191	179	176	187	179	171	167	174	164	155	164	171	157	162	191	S	24
17	168	167	166	169	179	175	165	163	164	160	165	166	174	178	181	164	159	174	193	175	185	203	207	203	207	SSW	24
18	205	204	205	212	231	262	235	263	228	228	215	221	238	255	222	213	217	219	219	214	217	216	221	204	263	W	24
19	243	201	144	107	100	92	64	70	4	69	47	66	47	49	56	57	54	51	43	52	124	122	118	126	243	WSW	24
20	159	169	138	144	182	231	215	221	187	197	198	206	171	144	130	152	150	126	123	111	110	116	115	93	231	SW	24
21	78	87	80	87	73	71	78	90	70	54	59	55	60	71	52	47	32	5	14	25	315	312	287	301	315	NW	24
22	10	332	341	350	270	230	229	262	260	279	290	306	309	319	315	309	310	278	275	267	235	232	217	214	350	N	24
23	214	215	227	228	222	213	212	210	214	212	208	207	201	203	171	88	110	68	49	63	106	113	113	109	228	SW	24
24	122	213	180	222	242	223	238	283	313	3	7	352	356	5	11	9	9	1	359	6	358	9	14	11	359	N	24
25	10	12	356	335	1	**X**	347	6	355	290	311	316	310	11	342	26	82	74	62	69	78	187	198	219	356	N	23
26	227	202	206	219	240	214	223	242	212	216	235	263	281	298	307	327	290	201	37	61	71	60	60	50	327	NW	24
27	61	64	64	64	57	64	58	68	92	78	89	86	91	89	53	57	61	48	55	47	49	45	45	54	92	E	24
28	50	46	77	355	52	21	142	138	109	159	153	238	218	269	342	330	322	322	340	350	8	7	6	3	355	N	24
29	357	346	337	354	1	343	306	317	320	316	323	320	326	327	318	295	280	288	299	277	280	273	231	239	357	N	24
30	216	222	220	221	223	216	220	209	209	215	212	224	235	264	279	278	290	300	304	300	290	280	279	282	304	WNW	24
31	278	285	281	278	279	278	276	275	269	274	279	284	289	288	278	280	283	283	284	298	304	334	339	25	339	NNW	24

STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	97.16		AMD OPERATION UPTIME:	99.9 %
			MONTHLY AVERAGE:	227 DEG



JOB #: 2833-14-12-30-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Maskwa Site

DECEMBER 2014

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

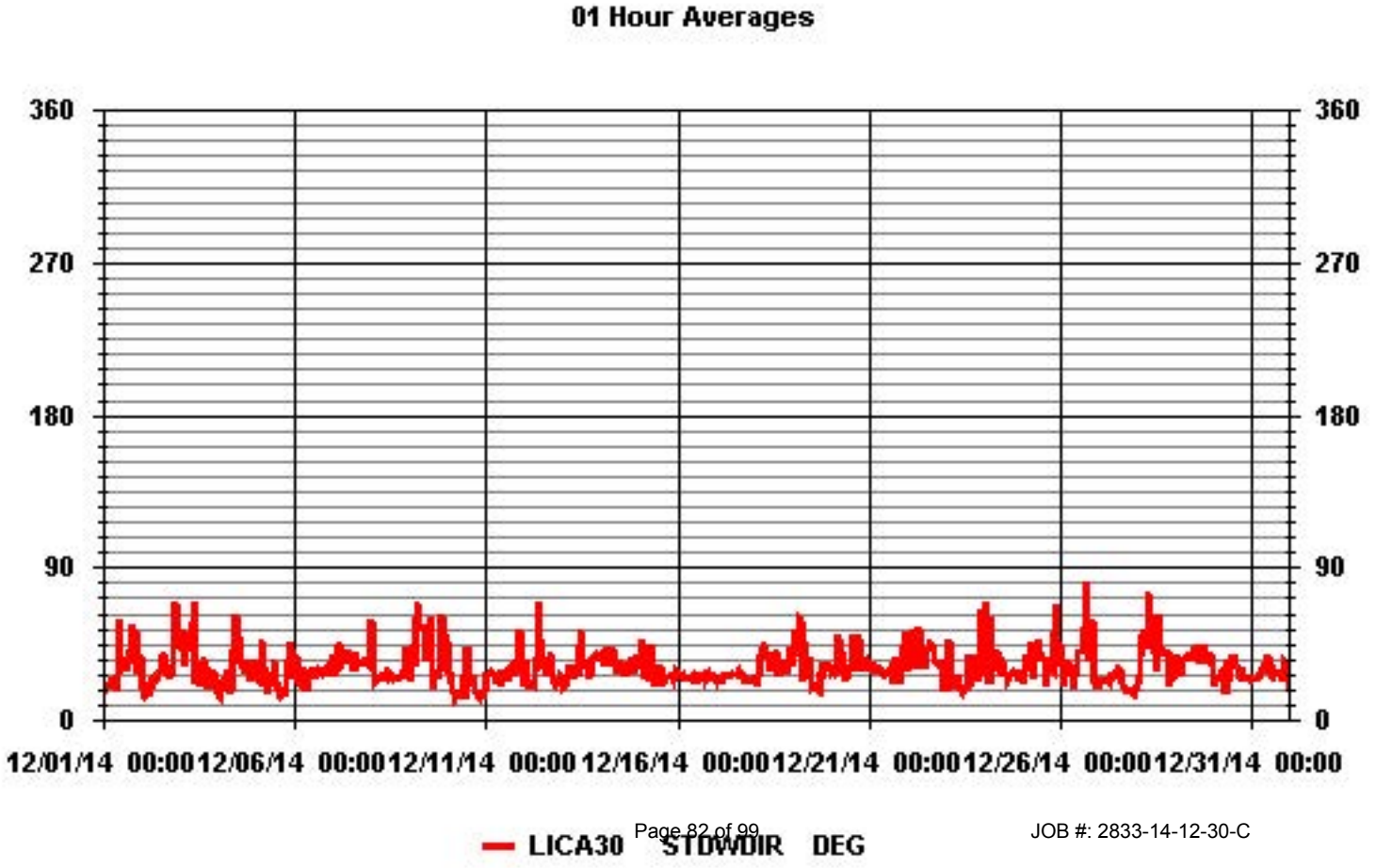
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	17	17	19	21	23	23	21	23	16	27	59	33	31	32	37	28	33	41	57	46	53	29	27	38
2	19	13	22	15	16	16	25	23	26	23	27	30	39	37	40	28	28	28	25	33	45	69	45	42
3	54	41	53	31	41	47	46	44	58	69	21	25	20	33	34	36	32	18	20	22	26	29	20	17
4	15	14	23	17	25	30	26	21	16	42	52	63	34	50	35	33	35	27	34	34	25	25	27	35
5	33	25	24	47	21	32	17	17	22	20	28	36	23	19	15	14	15	15	19	30	35	46	43	24
6	28	39	23	21	19	27	31	17	27	28	24	28	24	29	30	28	29	29	27	28	31	32	28	26
7	39	26	32	44	46	32	33	36	35	35	42	35	32	28	40	34	34	33	33	35	37	33	32	45
8	59	43	23	24	25	24	24	28	26	25	31	26	26	25	27	26	25	25	26	28	26	24	43	26
9	23	35	44	31	61	70	56	56	53	57	35	43	42	61	23	18	29	25	27	60	60	28	52	47
10	32	29	22	17	12	13	15	17	13	27	14	14	43	41	20	24	26	15	18	14	13	16	15	17
11	27	27	27	29	28	27	22	26	28	20	29	27	28	22	27	32	33	26	29	30	45	53	28	23
12	20	36	19	21	22	22	21	29	37	69	49	30	37	28	28	34	40	31	27	23	21	23	26	24
13	19	20	26	24	33	26	26	33	27	27	44	54	36	34	33	34	29	25	37	38	39	34	40	35
14	39	40	32	36	36	31	40	43	32	36	27	29	35	31	30	26	33	31	33	37	30	27	35	34
15	39	48	46	26	26	32	23	38	45	27	19	26	29	32	27	23	24	25	26	27	26	24	27	30
16	29	26	26	27	24	24	25	25	26	27	22	25	26	24	25	26	27	24	26	28	25	25	26	26
17	23	25	24	26	27	25	27	27	26	27	28	27	27	27	29	26	26	28	22	26	23	23	24	24
18	27	23	20	25	38	43	46	41	38	38	29	31	39	40	40	26	30	32	34	34	31	28	43	31
19	40	53	37	46	60	59	22	36	46	34	24	37	20	21	20	19	18	26	26	32	32	29	32	32
20	28	29	27	28	50	48	27	41	32	23	25	29	33	51	34	34	29	50	48	29	32	35	36	32
21	30	31	30	32	31	27	31	31	28	27	28	27	27	30	28	21	24	37	28	21	36	42	42	52
22	29	42	37	54	47	32	32	55	41	33	36	30	41	43	48	40	45	33	35	34	33	36	21	17
23	23	17	47	24	18	25	25	22	26	19	17	19	19	20	38	28	22	23	38	26	23	26	65	52
24	56	70	52	21	61	35	28	34	42	32	26	35	34	30	23	24	27	27	29	28	30	26	23	26
25	24	22	31	39	29	**X**	34	24	46	35	47	40	40	38	37	20	29	37	30	29	52	68	32	38
26	46	34	19	29	36	25	34	32	18	26	33	40	40	40	55	51	81	60	35	47	59	23	20	20
27	23	24	24	23	23	23	22	27	27	26	28	28	32	30	23	21	20	17	17	18	18	16	15	17
28	21	27	38	50	54	42	54	76	63	61	43	41	29	43	63	38	43	39	39	42	20	23	27	25
29	29	36	36	30	25	36	37	38	36	36	40	43	38	38	44	35	33	37	45	34	36	40	31	39
30	19	24	24	26	28	26	24	17	17	35	22	30	39	36	32	31	27	26	28	26	24	24	25	24
31	25	24	24	24	26	26	29	29	33	36	36	31	27	26	29	27	27	28	25	25	36	35	32	18

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- 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: 743 HRS



JOB #: 2833-14-12-30-C

Calibration Reports

Sulphur Dioxide

API 100E SO2 Analyzer Calibration

Date:	23-Dec-14	**Start/End Time (mst):**	0831-1150
Company:	LICA	**Calibration Purpose:**	monthly
Station Name/Location:	Maskwa	**Converter Make & Model:**	na
Performed by:	Tom Bourque	**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:	19-Nov-14	**As Found C.F.**	1.001
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.004

	As found:	**As left:**
SLOPE:	1.012	1.014
OFFSET:	114.5	116.6
HVPS:	495	495
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.0	31.0
PMT TEMP:	7.7	7.7
IZS TEMP:	45.0	45.0
TEST:	na	na
STABIL:	0.1	0.1
PRES:	24.4	24.4
SAMP FL:	585	585
PMT:	106.7	106.7
NORM PMT:	116.6	116.6
UV LAMP:	3145.6	3145.6
LAMP RATIO:	98.1 %	98.1 %
STR. LGT	58.0	58.0
DRK PMT:	11.9	11.9
DRK LMP:	-1.8	-1.8
Internal Span:	258	262

Calibrator:

Flow Meter ID's:	na
Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	LL42475
Cal Gas Conc. (ppm):	50.3

Calibrator Flow Targets:

point	diluent (cc/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	1.5	NA
adjusted zero	5000	0.0	5000	0	0.5	NA
as found high	4996	76.89	5073	762.4	762.0	1.001
adjusted high	4996	76.89	5073	762.4	763.5	0.999
mid	4998	36.93	5035	368.9	369.0	1.001
low	4998	16.94	5015	169.9	168.3	1.012
calibrator zero	5000	0.00	5000	0	0.7	NA
					Average C.F.=	1.004

Linear Regression/Calibration Results:

		LIMITS	**Pass/Fail ?**
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**0.998**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**0.06%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-0.11%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

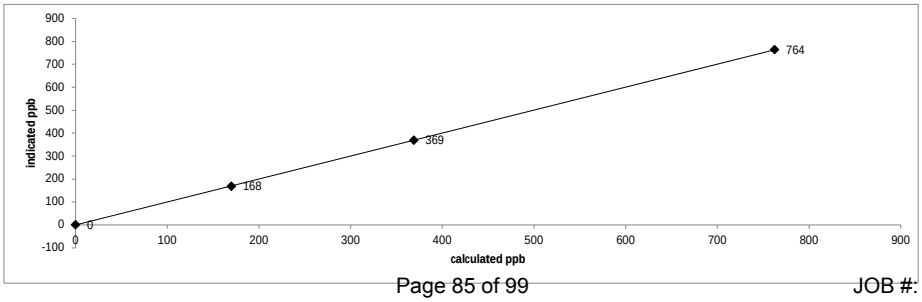
****run converter effeciency test immediately following zero adjust****

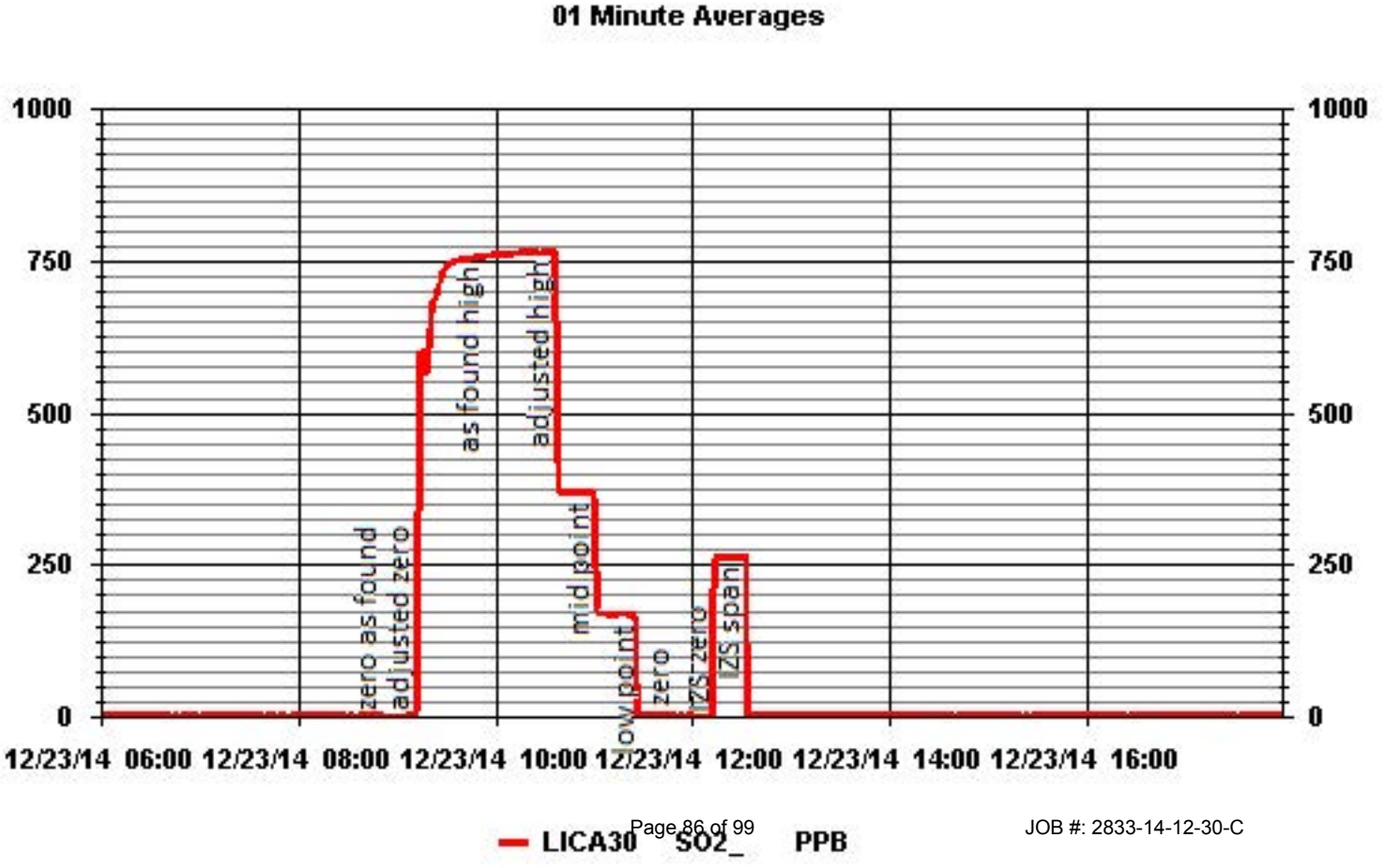
SO_2 High Point gas concentration:	na	Time gas run (mst):	na
Zero corrrected analyzer response:	na		

Comments:

changed filter

API 100E SO2 Analyzer Calibration





JOB #: 2833-14-12-30-C

Hydrogen Sulphide

API 101E H2S Analyzer Calibration

Date:	23-Dec-14	**Start/End Time (mst):**	0840-1151
Company:	LICA	**Calibration Purpose:**	monthly
Station Name/Location:	Maskwa	**Converter Make & Model:**	na
Performed by:	Tom Bourque	**Converter Serial #:**	na
Application H_2S/TRS/SO_2:	H2S	**Cal Gas Expiry Date:**	25-Dec-15

Analyzer:

Serial Number:	511	**Range ppb:**	100
Last Calibration Date:	19-Nov-14	**As Found C.F.**	1.026
Previous Cal High Point C.F.:	0.999	**New C.F.:**	1.000

	As found:	As left:
SLOPE:	.888	.905
OFFSET:	45.1	45.1
HVPS:	616	616
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.5	31.5
PMT TEMP:	7.9	7.9
IZS TEMP:	45.0	45.0
TEST:	na	na
STABIL:	0.1	0.1
PRES:	29.2	29.2
SAMP FL:	656	656
PMT:	78.7	78.7
NORM PMT:	44.6	44.6
UV LAMP:	3027.1	3027.1
LAMP RATIO:	97.3 %	97.3 %
STR. LGT	20.0	20.0
DRK PMT:	33.7	33.7
DRK LMP:	5.6	5.6
Internal Span:	47.5	49.12

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	627
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	35	5035
mid	5000	17	5017
low	5000	7	5007

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	4996	35.00	5031	70.3	68.5	1.026
adjusted high	4996	35.00	5031	70.3	70.4	0.998
mid	4996	17.00	5013	34.3	34.9	0.979
low	4996	7.00	5003	14.1	13.8	1.023
calibrator zero	5000	0.00	5000	0	0.1	NA
					Average C.F.=	1.000

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)=	**0.07%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-2.68%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

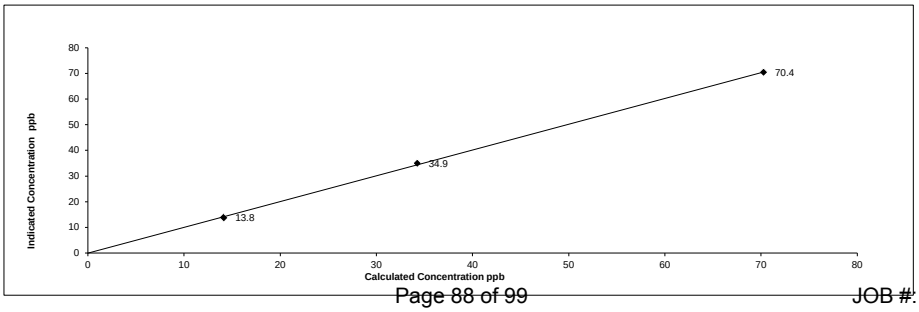
****run converter effeciency test immediately following zero adjust****

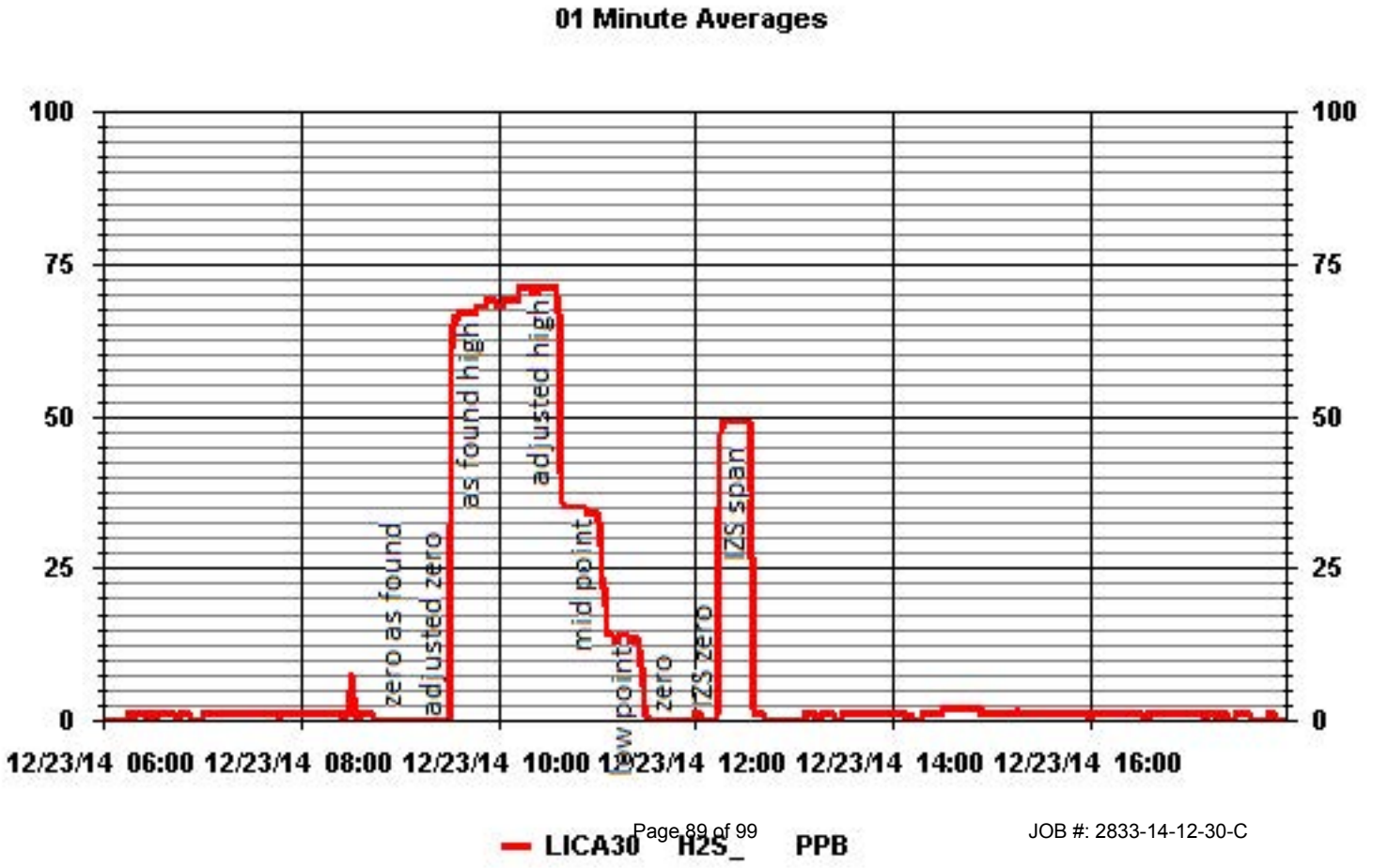
SO_2 High Point gas concentration:	169.9	Time gas run (mst):	0824-0827
Zero corrrected analyzer response:	0.21		

Comments:

changed filter

API 101E H2S Analyzer Calibration





JOB #: 2833-14-12-30-C

Total Hydrocarbons

Maxxam Thermo 51C THC Analyzer Calibration

Date:	22-Dec-14	**Start Time (mst):**	14:12
Company:	LICA	**End Time (mst):**	17:04
Station Name/Location:	Maskwa	**Calibration Purpose:**	monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Analyzer:

Serial Number:	436609738	**Range ppm:**	50
Last Calibration Date:	19-Nov-14	**As Found C.F.**	1.027
Previous Cal High Point C.F.:	1.000	**New C.F.:**	1.002

		As found:		**As left:**
	H_2 cylinder (psi):	<50	H_2 cylinder (psi):	2000
	H_2 cylinder reg set (psi):	20	H_2 cylinder reg set (psi):	20
	Span Cylinder (psi):	2100	Span Cylinder (psi):	2100
	Span Cylinder Reg Set (psi):	25	Span Cylinder Reg Set (psi):	25
	Zero Air Gen Pressure:	31	Zero Air Gen Pressure:	31
	measurement alarms:	none	measurement alarms:	none
	service alarms:	none	service alarms:	none
FID status:	cnt:	974	cnt:	974
	rng:	1	rng:	1
	try:	2	try:	2
	flm:	179.8	flm:	179.8
	det:	125.7	det:	125.7
Oven Readings:	Flame:	179	Flame:	179
	Filter:	125	Filter:	125
	Base:	125	Base:	125
	Pump:	7.50	Pump:	7.50
Voltages:	+5	4.9	+5	4.9
	+15	14.8	+15	14.8
	-15	-15.0	-15	-15.0
	Internal Span:	33.7	Internal Span:	33.6

Calibrator:

Flow Meter ID's:	na	
Make & Model:	API 700	
Serial #:	627	
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	3000	0	3000
high	3000	80	3080
mid	3000	40	3040
low	3000	20	3020

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	3000	0.00	3000	0	0.12	NA
adjusted zero	3000	0.00	3000	0	0.00	NA
as found high	2999	80.00	3079	30.06	29.28	1.027
adjusted high	2999	80.00	3079	30.06	30.08	0.999
mid	2999	40.00	3039	15.23	15.15	1.005
low	2999	20.00	3019	7.66	7.65	1.002
calibrator zero	3000	0.00	3000	0	0.01	NA
					Average C.F.=	1.002

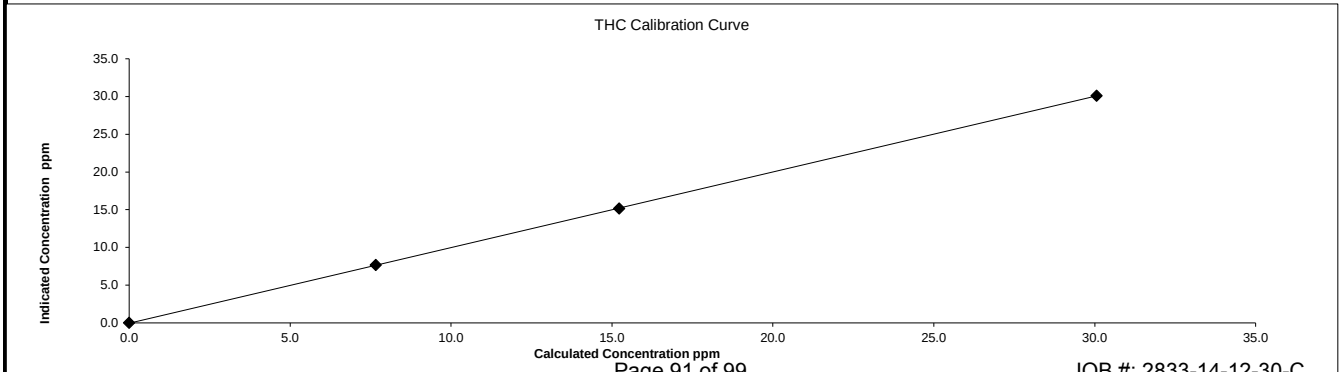
Linear Regression/Calibration Results:

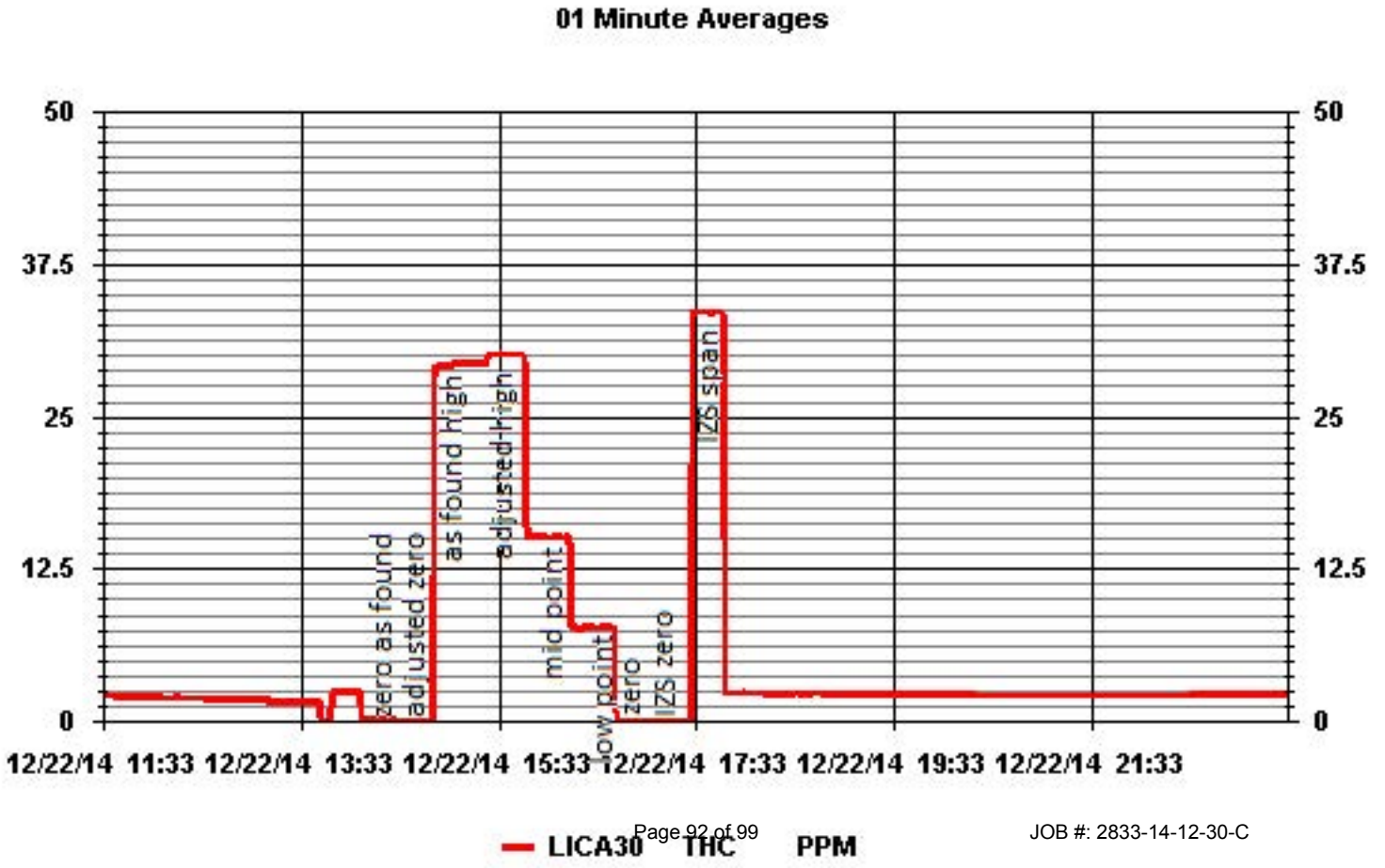
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.001**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.050%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-2.66%**	**± 15%**	**PASS**

Comments:

changed filter, installed new H2 cylinder

Thermo 51C THC Analyzer Calibration





JOB #: 2833-14-12-30-C

Nitrogen Dioxide

Maxxam

API 200E NOx Analyzer Calibration

Date:	22-Dec-14	**Start Time (mst):**	13:36
Company:	LICA	**End Time (mst):**	17:36
Station Name/Location:	Maskwa	**Calibration Purpose:**	removal
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	12-Aug-17

Analyzer Serial Number:	594
Last Calibration Date:	19-Nov-14
Range ppb:	1000

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	0.994	0.999
NOx=	0.986	0.999
NO_2=	0.998	1.002

	As found:	**As left:**
NOx SLOPE:	1.040	N/A
NOx OFFS:	.4	N/A
NO SLOPE:	1.033	N/A
NO OFFS:	.1	N/A
SAMP FLW:	446	N/A
OZONE FL:	78	N/A
PMT:	1071.4	N/A
NORM PMT:	1446.7	N/A
AZERO:	15.1	N/A
HVPS:	750	N/A
RCELL TEMP:	49.7	N/A
BOX TEMP:	29.1	N/A
PMT TEMP:	6.6	N/A
IZS TEMP:	42.2	N/A
MOLY TEMP:	313.9	N/A
RCEL:	6.1	N/A
SAMP:	26.9	N/A
Internal Span:	7.1/473/480	N/A

Calibrator Flow Targets:

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

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	500.00	5077
mid	5000	37	270.00	5037
low	5000	17	95.00	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	0.3	NA	NA
as found high	4997	76.92	5074	735.3	735.3	740	746	0.994	0.986
mid	4997	36.94	5034	355.9	355.9	358	361	0.994	0.987
low	4997	16.94	5014	163.9	163.9	164	167	0.999	0.983
calibrator zero	5000	0.00	5000	0	0	-0.3	0.4	NA	NA
							Average C.F.=	0.995	0.985

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	4997	76.96	5074	0.0	742.0	750.0	7.2	-0.1	0.3	
as found NO_2	4997	76.96	5074	500.0	300.0	751.0	450.0	442.0	442.9	0.998
gpt mid	4997	76.96	5074	270.0	497.0	751.0	253.0	245.0	245.9	0.997
gpt low	4997	76.96	5074	95.0	658.0	753.0	95.0	84.0	87.9	0.956
									Average NO_2 C.F.=	0.984

Linear Regression/Calibration Results:

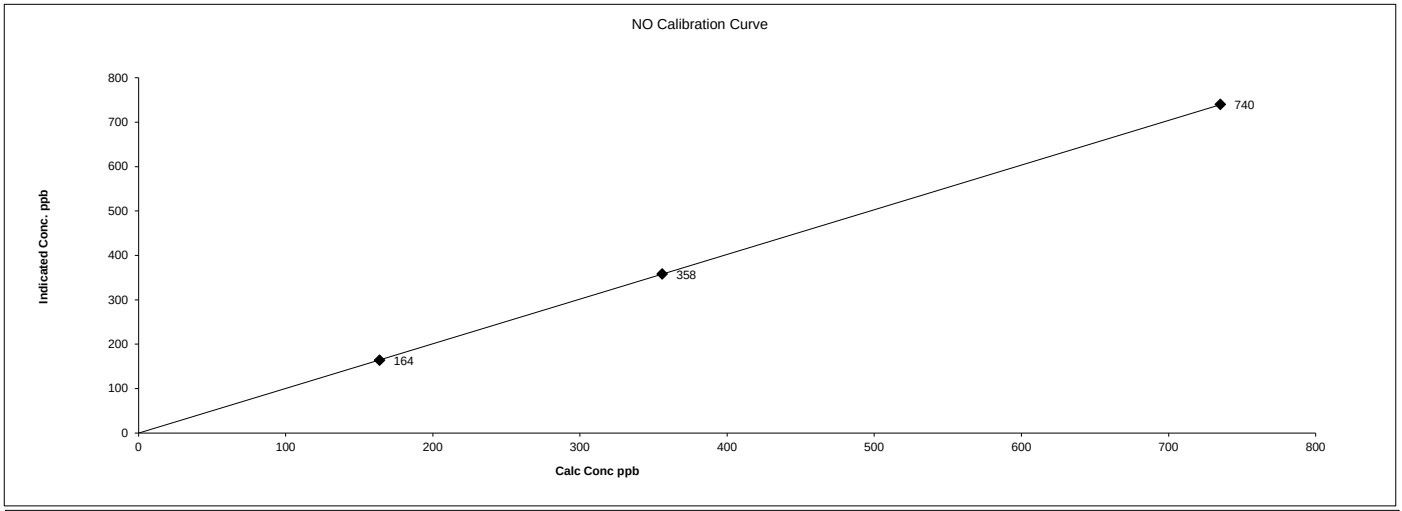
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.007**	**1.014**	**0.998**	**0.85-1.15**
b (Intercept as % of full scale)=	**-0.04%**	**0.04%**	**0.19%**	**± 3% F.S.**
NO2 converter effeciency			**101.7%**	**>85%**

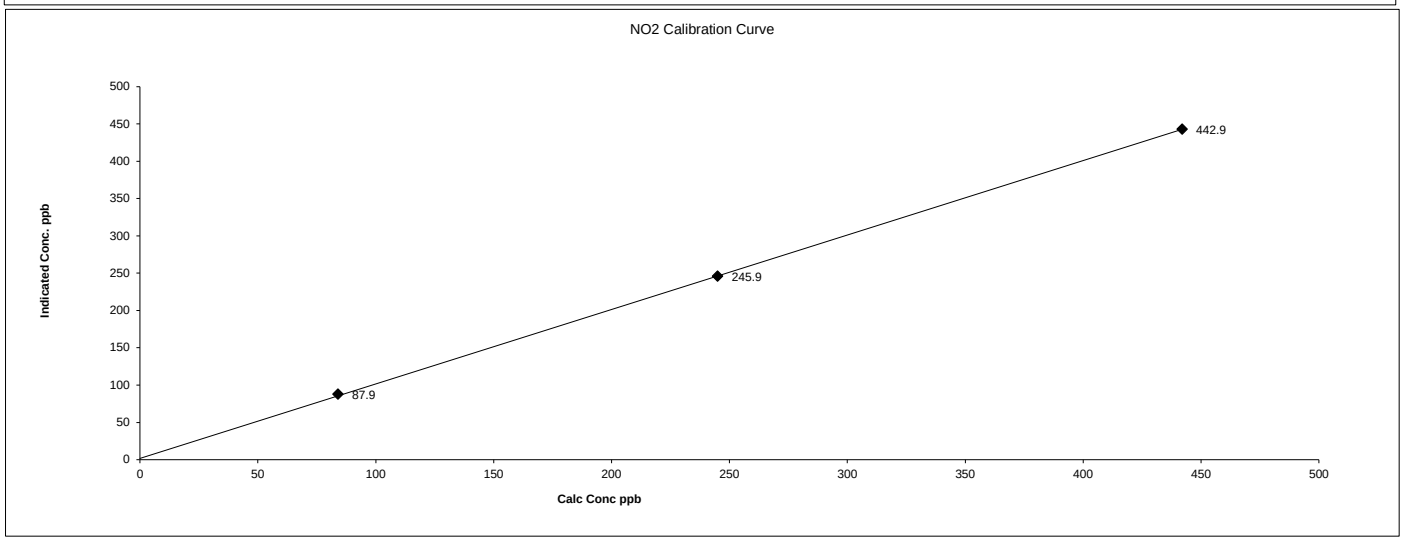
Comments:

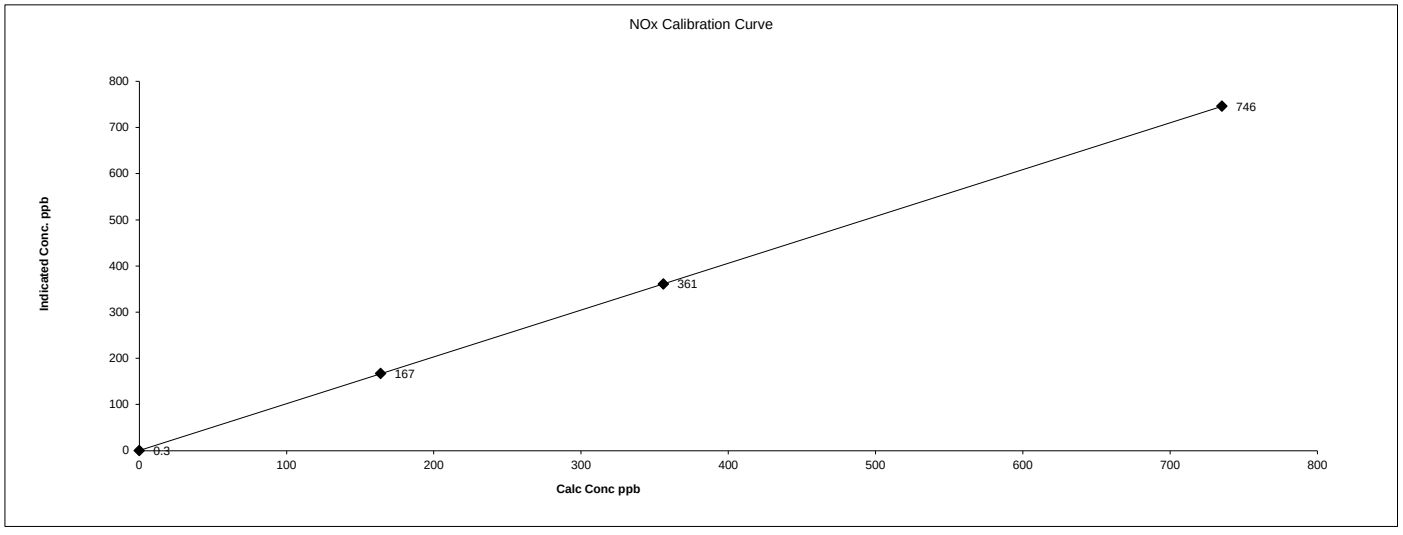
this is a removal cal

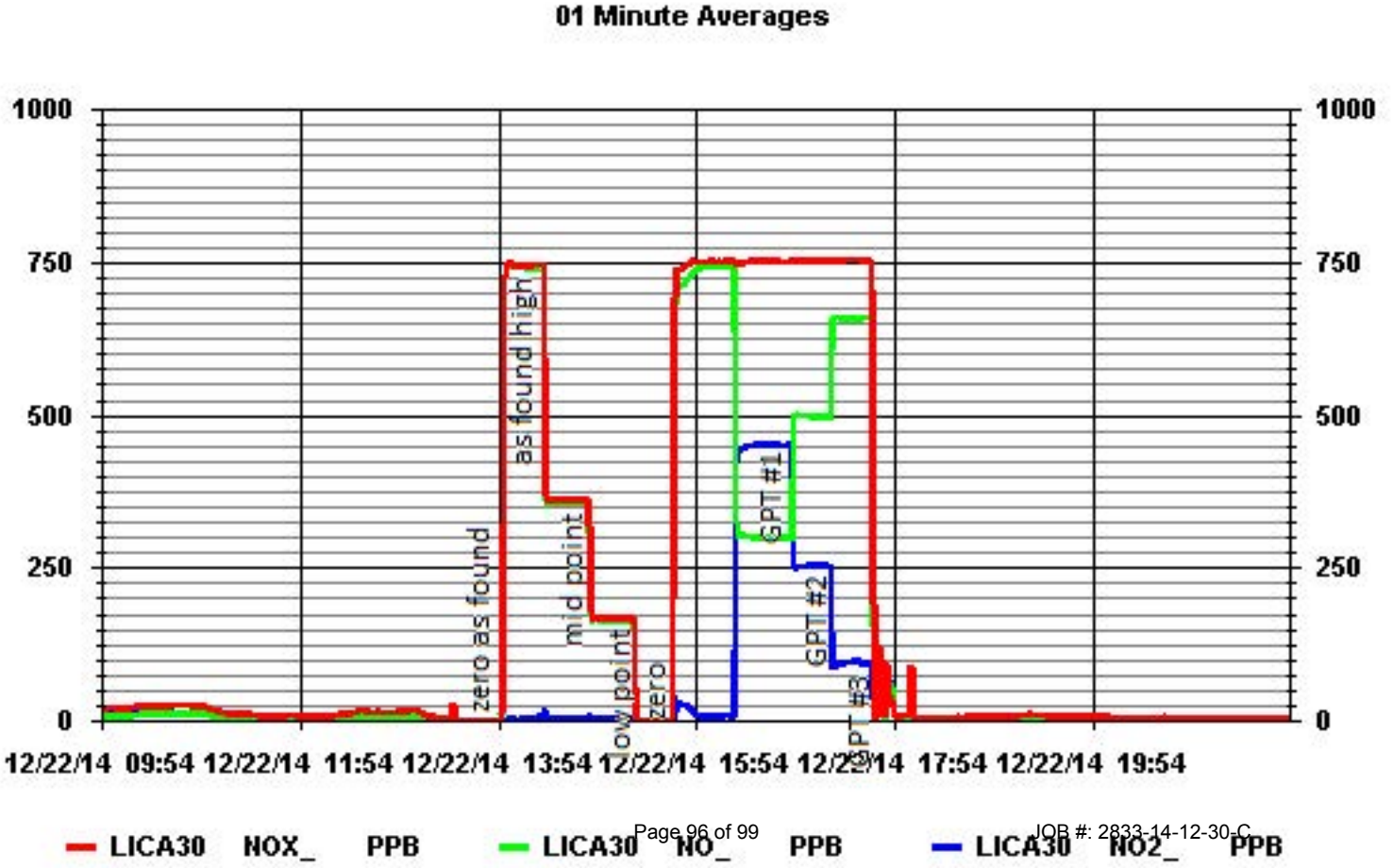
Date:	22-Dec-14	**Start Time (mst):**	13:36
Company:	LICA	**End Time (mst):**	17:36
Station Name/Location:	Maskwa	**Calibration Purpose:**	removal
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	12-Aug-17

API 200E NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
zero as found
as found high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
12/22/14 09:54
12/22/14 11:54
12/22/14 13:54
12/22/14 15:54
12/22/14 17:54
12/22/14 19:54
LICA30 NOX_ PPB
LICA30 NO_ PPB
LICA30 NO2_ PPB

Maxxam

API 200E NOx Analyzer Calibration

Date:	23-Dec-14	**Start Time (mst):**	8:31
Company:	LICA	**End Time (mst):**	13:28
Station Name/Location:	Maskwa	**Calibration Purpose:**	install
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	12-Aug-17

Analyzer Serial Number:	593
Last Calibration Date:	NA
Range ppb:	1000

Correction Factors:

	As found C.F.	Previous Cal High Point C.F.:
NO=	NA	na
NOx=	NA	na
NO_2=	NA	na

	As found:	As left:
NOx SLOPE:	NA	.945
NOx OFFS:	NA	-.1
NO SLOPE:	NA	.932
NO OFFS:	NA	-1.5
SAMP FLW:	NA	470
OZONE FL:	NA	77
PMT:	NA	511.1
NORM PMT:	NA	769.7
AZERO:	NA	11.5
HVPS:	NA	634
RCELL TEMP:	NA	50.0
BOX TEMP:	NA	32.2
PMT TEMP:	NA	6.8
IZS TEMP:	NA	50.1
MOLY TEMP:	NA	314.0
RCEL:	NA	6.9
SAMP:	NA	27.2
Internal Span:	7/473/488	7/473/488

Calibrator Flow Targets:

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

point	diluent (cc/min)	cal gas (cc/min)	O_3 setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	500.00	5077
mid	5000	37	270.00	5037
low	5000	17	95.00	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	1.0	NA	NA
adjusted high	4996	76.89	5073	735.1	735.1	736	735	1.001	1.001
mid	4998	36.93	5035	355.7	355.7	356	357	1.003	0.999
low	4998	16.94	5015	163.8	163.8	164	163	1.008	1.011
calibrator zero	5000	0.00	5000	0	0	1.2	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	4998	76.96	5075	0.0	734.0	732.0	-0.6	1.4	-0.4	
adjusted NO_2	4998	76.96	5075	500.0	296.0	734.0	439.0	438.0	439.6	0.996
gpt mid	4998	76.96	5075	270.0	488.0	734.0	247.0	246.0	247.6	0.993
gpt low	4998	76.96	5075	95.0	645.0	732.0	89.0	89.0	89.6	0.993
									Average NO_2 C.F.=	0.994

Linear Regression/Calibration Results:

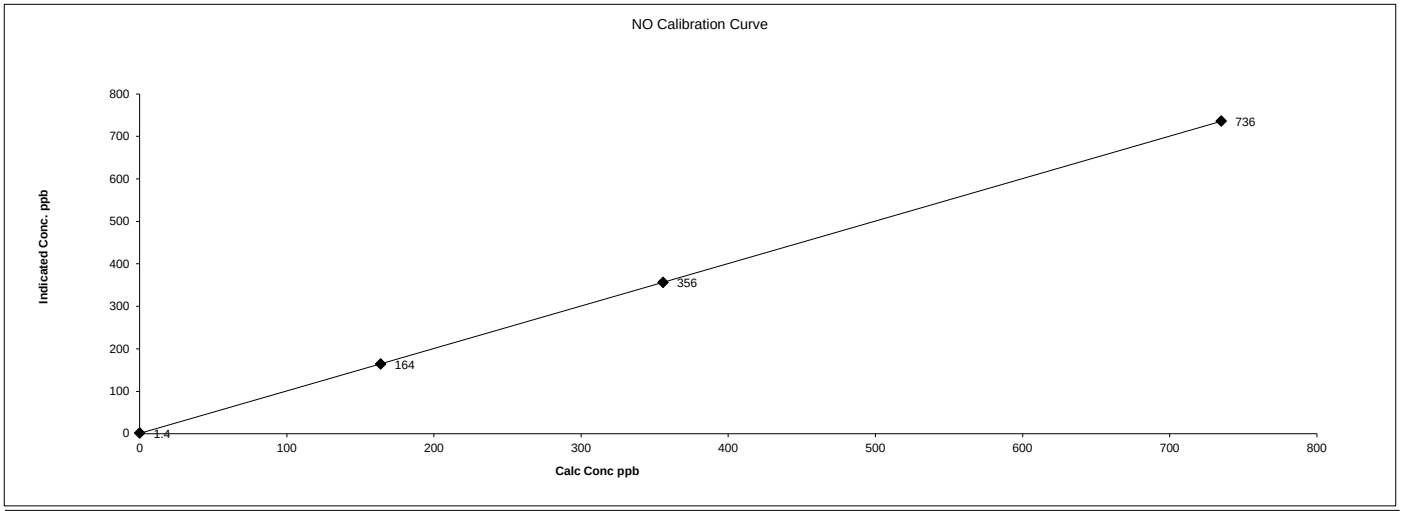
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**0.999**	**1.007**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.08%**	**0.05%**	**-0.08%**	**± 3% F.S.**
% change in C.F. from last cal=	**#VALUE!**	**#VALUE!**	**#VALUE!**	**+/-15%**
NO2 converter effeciency			**100.6%**	**>85%**

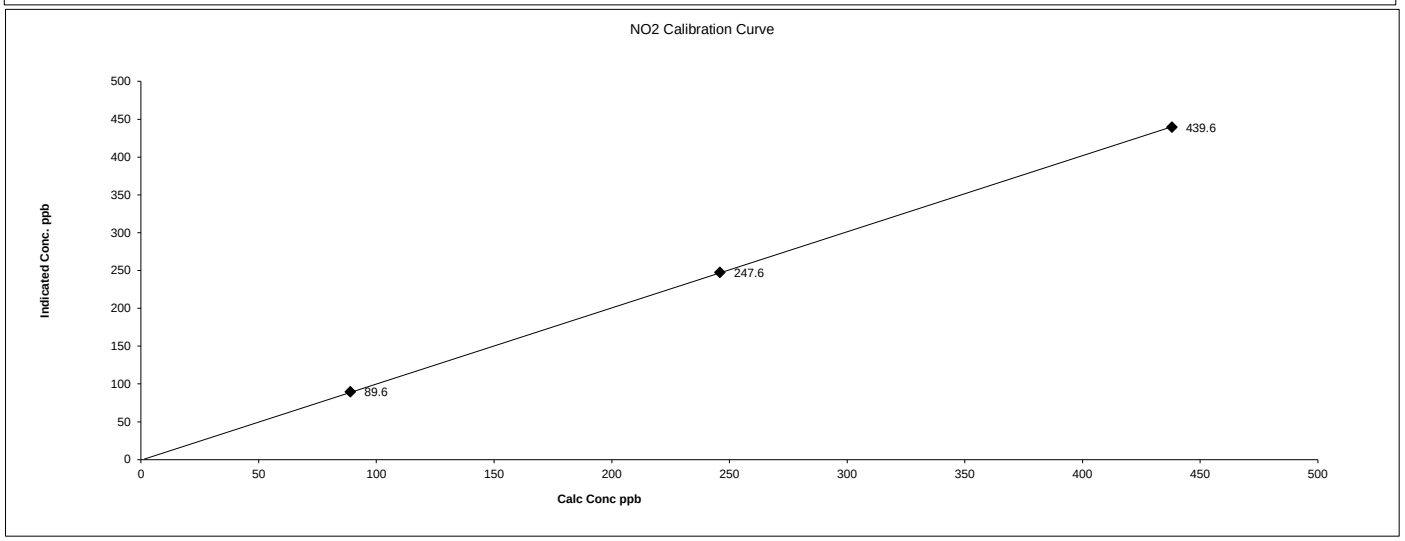
Comments:

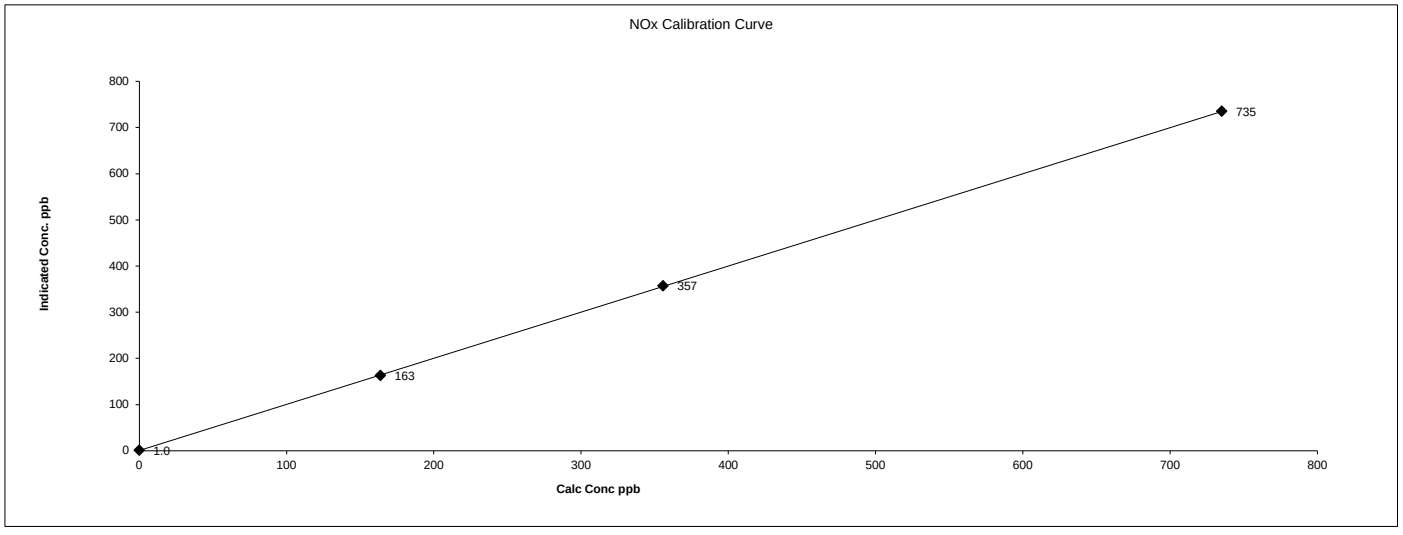
this is an installation cal

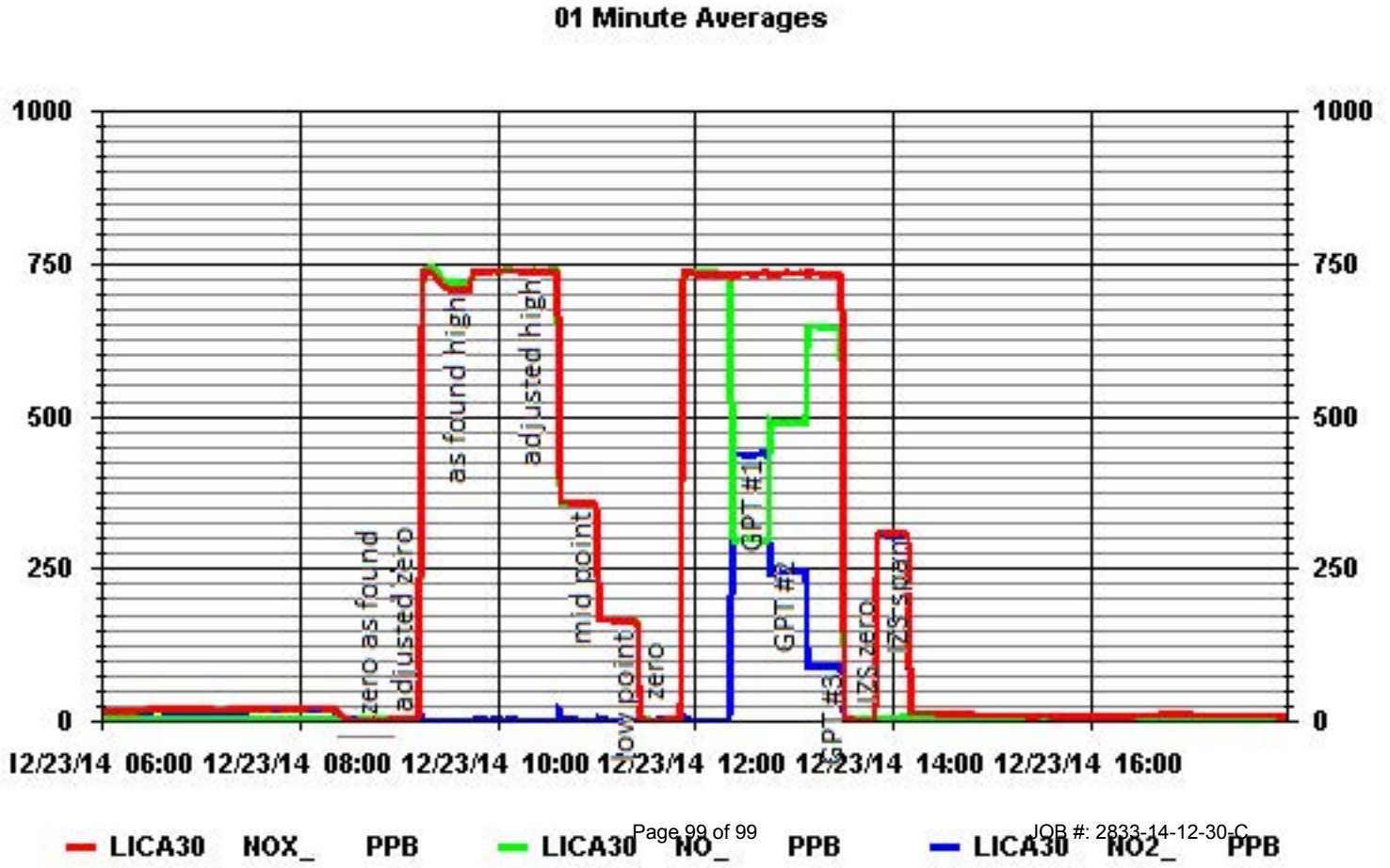
Date:	23-Dec-14	**Start Time (mst):**	8:31
Company:	LICA	**End Time (mst):**	13:28
Station Name/Location:	Maskwa	**Calibration Purpose:**	install
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	12-Aug-17

API 200E NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
zero as found
adjusted zero
as found high
adjusted high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
12/23/14 06:00
12/23/14 08:00
12/23/14 10:00
12/23/14 12:00
12/23/14 14:00
12/23/14 16:00
LICA30 NOX_ PPB
LICA30 NO_ PPB
LICA30 NO2_ PPB

Lakeland Industry & Community Association

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

Prepared By:

Maxxam
A Bureau Veritas Group Company

January 19, 2015

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: December 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 – December 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	0.23	6	11	9	20.6	220(SW)	1.4	11	98.8
H2S (PPB)	10	3	0	0	0.07	1	VAR	VAR	VAR	VAR	0.7	3	98.9
THC (PPM)	-	-	-	-	2.30	3.7	20	19	10.6	96(E)	3.0	20	98.9
OZONE (PPB)	82	-	0	-	26.27	44	31	19	2.9	320(NW)	41.3	31	99.1
NO2 (PPB)	159	-	-	-	4.33	26.3	2	3	10.2	236(SW)	10.6	1	98.9
NO (PPB)	-	-	-	-	0.43	11.3	20	13	3.3	127(SE)	1.5	20	98.9
NO_x (PPB)	-	-	-	-	4.76	26.9	2	3	10.2	236(SW)	11.9	1, 20	98.9
PM2.5 (ug/m3)	-	30	-	-	9.52	52	31	20	5.3	353(N)	19.7	5	96.8
TEMPERATURE (DEGREE C)	-	-	-	-	-9.42	7.8	11	12	22.3	226(SW)	3.3	11	99.1
BP (MILLIBAR)	-	-	-	-	924.8	954	29	VAR	VAR	VAR	952.5	29	99.1
RH (%)	-	-	-	-	78.63	89	12	VAR	VAR	VAR	87.5	13	99.1
PRECIPITATION (MM)	-	-	-	-	0.01	2.7	2	10	11.3	258(WSW)	0.2	2	99.5
VECTOR WS (KPH)	-	-	-	-	9.00	30.7	9	17	-	12(NNE)	13.5	11	94.9
VECTOR WD (DEGREES)	-	-	-	-	205(SSW)	-	-	-	-	-	-	-	94.9

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 December 11th. The inlet filter was changed before the calibration was started. The analyzer was put into Maintenance mode between hour 18 and hour 19 on December 11th during the time at which the Ozone calibration was being performed as both the SO_2 and O_3 are on the same relay. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. Four hourly maximum data on December 18th hour 21, December 21st hour 3 and hour 9 and December 22nd hour four are also missing due to small power outages. 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 December 11th. The inlet filter was changed before the calibration was started. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. Data at hour 18 on December 22nd was invalidated as the analyzer was recovering from the power failure. Four hourly maximum data on December 18th hour 21, December 21st hour 3 and hour 9 and December 22nd hour four are also missing due to small power outages. 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 December 11th. The inlet filter was changed before the calibration was started. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. Data at hour 18 on December 22nd was invalidated as the analyzer was recovering from the power failure. Four hourly maximum data on December 18th hour 21, December 21st hour 3 and hour 9 and December 22nd hour four are also missing due to small power outages. 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 monthly calibration was performed on December 11th. The inlet filter was changed before the calibration was started. The analyzer showed low daily zero results on December 11th after the calibration. The offset was added on datalogger remotely on December 17th to correct the drift. The daily zero/span check was run after the change. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. Four hourly maximum data on December 18th hour 21, December 21st hour 3 and hour 9 and December 22nd hour four are also missing due to small power outages. Data was corrected using daily zero information.

Ozone (PPB)
Analyzer make / model - Thermo 49i, S/N: 1002240371
The analyzer was working well throughout the month. The monthly calibration was performed on December 11th. The inlet filter was changed before the calibration was started. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. Four hourly maximum data on December 18th hour 21, December 21st hour 3 and hour 9 and December 22nd hour four are also missing due to small power outages. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)
Analyzer make / model – Thermo Teom 1400A S/N: 1405A208301003
Two Teom audits were performed this month: one was performed on December 11th, and the other audit was completed on December 23rd. The filter was changed prior to the calibration on December 11th. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. The Teom unit failed after the power failure. It was found that the bypass connection on the system had a leak. The unit was fixed and calibrated on December 23rd. Due to this issue, sixteen hours of data between December 22nd hour 18 and December 23rd hour 9 were invalidated. 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. One hourly data was invalidated as it was below –3 ug/m3.

General Monthly Summary

AQM STATION – LICA - St. Lina

Temperature (Degree C)
Analyzer make / model – Met One 060
No operational issues were observed during the month. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure.

Barometric Pressure (Millibar)
Analyzer make / model - Met One 092
No operational issues were observed during the month. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure.

Relative Humidity (%)
Analyzer make / model - Met One 083
No operational issues were observed during the month. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure.

Precipitation (MM)
Analyzer make / model - Met One 387
No operational issues were observed during the month. Four hourly data between hour 12 and hour 15 on December 22nd are missing due to a power failure.

General Monthly Summary

AQM STATION – LICA – St. Lina

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.
Following a small power outage that occurred on December 21st at hour 3, there was a malfunction of the wind system. 31 hours of data between December 21st hour 4 and December 22nd hour 10 were invalidated due to this event. Seven hourly data between hour 11 and hour 17 on December 22nd are missing due to a power failure. One hourly maximum data on December 9th hour 17 was invalidated due to a spike. Hourly maximum data on December 18th hour 21 and December 21st hour 3 were invalidated due to small power outages.

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 December 11th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

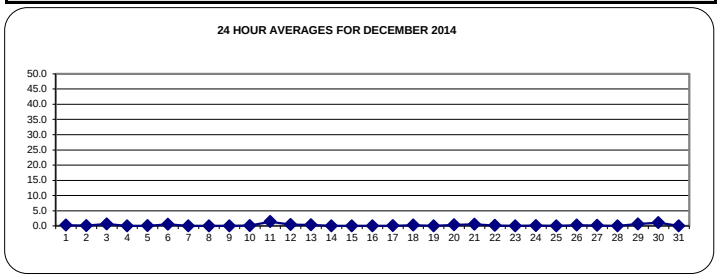
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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	S	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0.3	24
2	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
3	0	S	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0	1	1	2	2	2	1	2	0.7	24
4	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
5	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
6	3	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	3	0.5	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	0	1	0.1	24
11	1	1	1	1	1	1	1	1	1	*6*	C	C	C	C	2	2	2	2	Y	Y	S	S	0	0	*6*	*1.4*	22
12	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	0	0	0	0	S	1	1	1	1	2	0.5	24
13	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	1	0.3	24
14	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
15	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
16	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
17	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
18	0	0	0	0	0	0	0	0	0	0	0	0	2	3	S	0	0	1	0	0	0	0	0	0	3	0.3	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	S	0	1	1	0	0	1	1	1	1	1	0	1	0.3	24
21	1	1	1	2	1	1	1	1	1	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5	24
22	0	0	0	0	2	0	0	0	0	S	0	P	P	P	P	P	P	P	0	0	0	0	0	0	2	0.1	17
23	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24
25	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	S	0	0	1	0	0	0	0	0	1	0	1	1	1	0	0	0	0	1	1	0.3	24
27	1	1	1	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
28	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	S	2	3	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.7	24
30	0	S	0	0	0	0	1	1	1	1	1	1	3	4	2	1	1	1	1	1	1	1	1	1	4	1.0	24
31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
HOURLY MAX	3	1	1	2	3	4	3	2	1	6	1	2	3	4	2	2	2	2	1	1	2	2	2	1			
HOURLY AVG	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.1	0.2	0.3	0.3	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2			

STATUS FLAG CODES

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

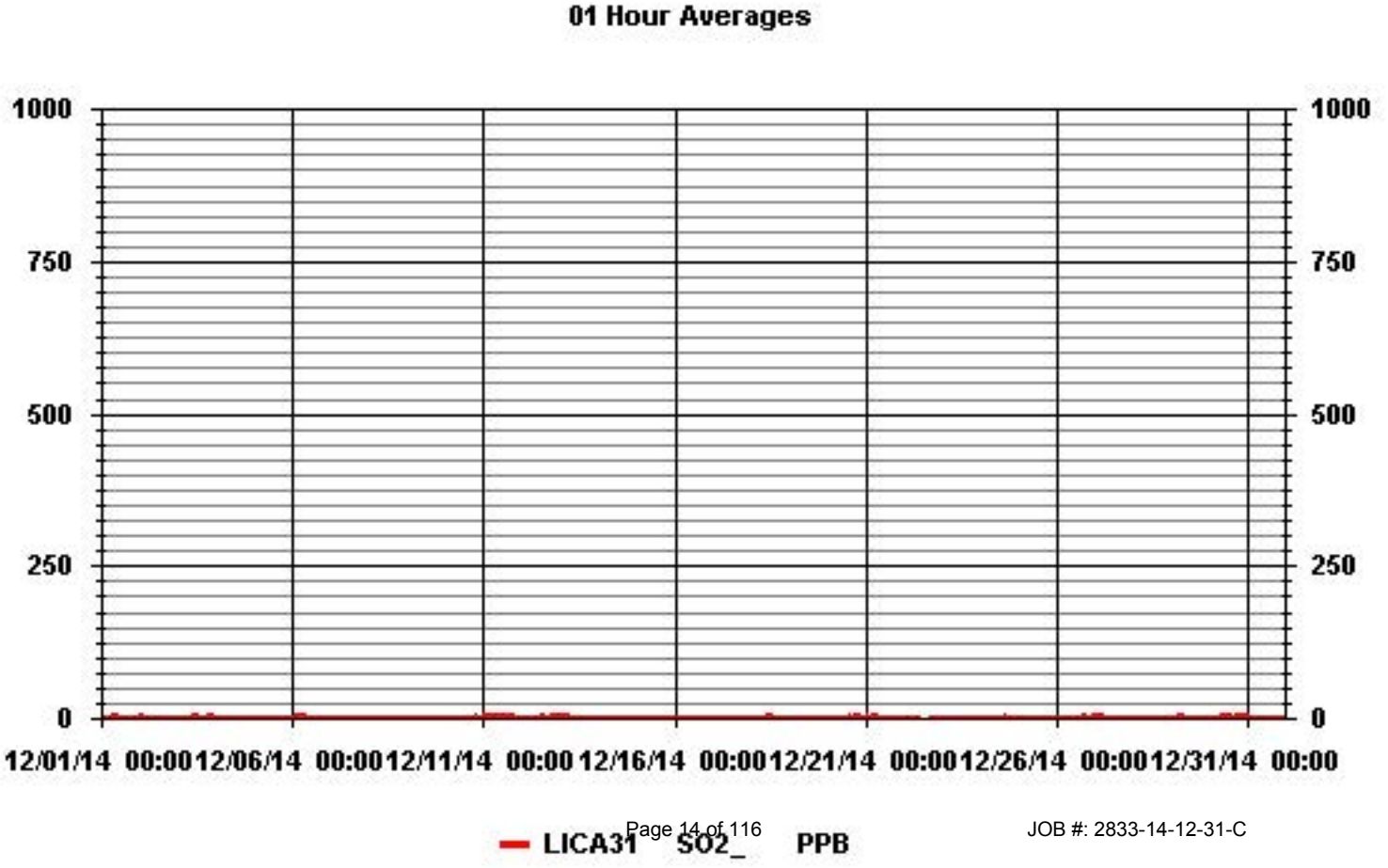


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	120						
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	9	ON DAY(S)		11
MAXIMUM 24-HR AVERAGE:	1.4	PPB			ON DAY(S)		11
					VAR-VARIOUS		
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			735	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			98.8	%
STANDARD DEVIATION:	0.59		MONTHLY AVERAGE:			0.23	PPB

JOB #: 2833-14-12-31-C



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	**S**	0	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	3	2	3	1.3	24
2	2	2	**S**	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
3	0	**S**	1	1	1	1	1	1	1	2	3	2	2	2	1	2	2	1	2	3	3	4	4	2	4	1.8	24
4	**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
5	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	**S**	4	4	0.3	24
6	4	3	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	**S**	0	0	4	1.5	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	1	1	0.0	24
8	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	**S**	0	0	0	0	2	0.7	24
9	0	0	0	0	0	0	1	0	1	1	0	1	1	1	1	1	1	1	**S**	0	0	0	0	0	1	0.4	24
10	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**S**	1	2	2	1	2	1	2	0.5	24
11	0	2	2	2	2	2	2	2	2	**C**	**C**	**C**	**C**	**C**	3	3	3	3	**Y**	**Y**	**S**	**S**	1	0	3	1.9	22
12	0	0	0	0	0	0	0	0	0	1	1	3	3	4	3	2	0	0	0	**S**	2	2	2	2	4	1.1	24
13	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1	1	1	1	**S**	1	1	1	1	1	2	1.4	24
14	1	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	0	**S**	0	0	0	0	0	0	1	0.4	24
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	**S**	1	2	1	1	1	1	1	2	0.5	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	1.0	24
17	1	1	1	1	1	1	2	1	1	2	1	2	1	2	**S**	0	0	1	1	1	1	1	1	1	2	1.1	24
18	1	1	1	1	1	1	1	1	1	1	2	4	4	**S**	1	2	2	1	1	0	0	**P**	0	0	4	1.2	23
19	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
20	0	0	0	0	0	0	0	0	0	0	0	**S**	1	2	2	1	2	2	2	2	2	2	1	1	2	0.9	24
21	2	2	2	**P**	2	2	2	2	2	**P**	**S**	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0.9	22
22	0	0	0	0	**P**	1	0	1	1	**S**	0	**P**	**P**	**P**	**P**	**P**	**P**	**P**	3	0	0	0	0	0	3	0.4	16
23	0	0	0	0	0	0	0	0	**S**	0	0	1	1	1	1	1	1	2	1	1	1	1	2	1	2	0.7	24
24	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	1	3	2	2	0	0	0	1	0	0	3	0.7	24
25	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	**S**	1	1	2	1	2	2	1	1	2	1	2	2	2	2	2	1	2	2	2	1.3	24
27	2	2	2	2	**S**	1	1	1	1	1	1	1	3	1	1	0	1	0	0	1	0	0	0	0	3	1.0	24
28	0	0	0	**S**	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
29	1	1	**S**	3	4	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1.0	24
30	0	**S**	1	1	1	2	2	2	2	2	2	3	5	***6***	4	2	2	2	2	2	2	2	2	2	***6***	***2.2***	24
31	**S**	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	0	**S**	2	0.7	24
HOURLY MAX	4	3	2	3	4	5	4	3	2	2	3	4	5	6	4	3	3	3	3	3	3	4	4	4			
HOURLY AVG	0.7	0.7	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.8	0.7	1.0	1.1	1.0	1.0	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.8	0.8			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 377

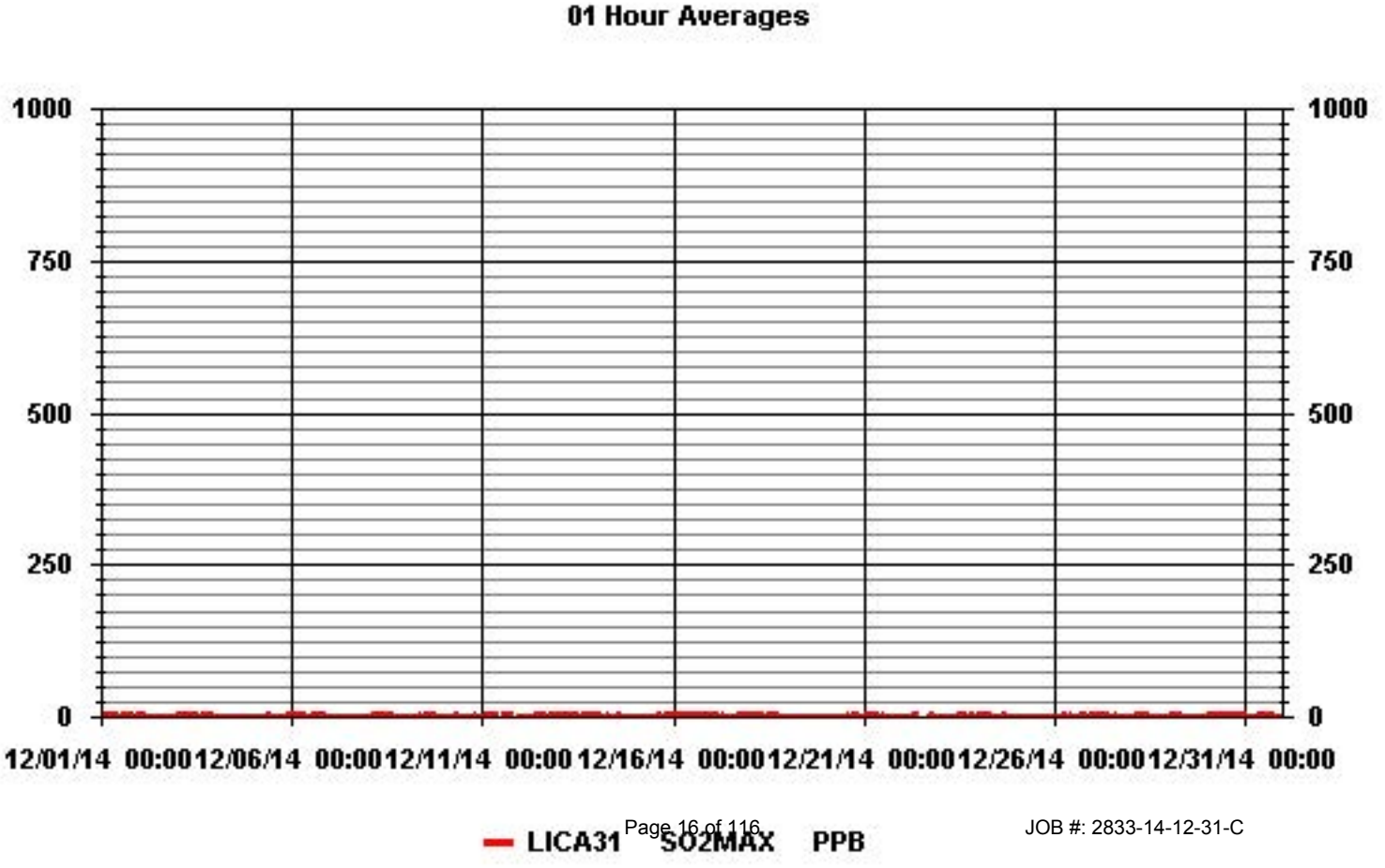
MAXIMUM INSTANTANEOUS VALUE: 6 PPB @ HOUR(S) 13 ON DAY(S) 30

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 731 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.95



JOB #: 2833-14-12-31-C

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

December 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	.59	.89	3.74	4.34	6.14	3.89	8.69	9.59	6.59	9.89	13.34	8.84	5.69	6.44	7.04	4.19	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	.59	.89	3.74	4.34	6.14	3.89	8.69	9.59	6.59	9.89	13.34	8.84	5.69	6.44	7.04	4.19	

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
<	20	4	6	25	29	41	26	58	64	44	66	89	59	38	43	47	28	667
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	4	6	25	29	41	26	58	64	44	66	89	59	38	43	47	28	

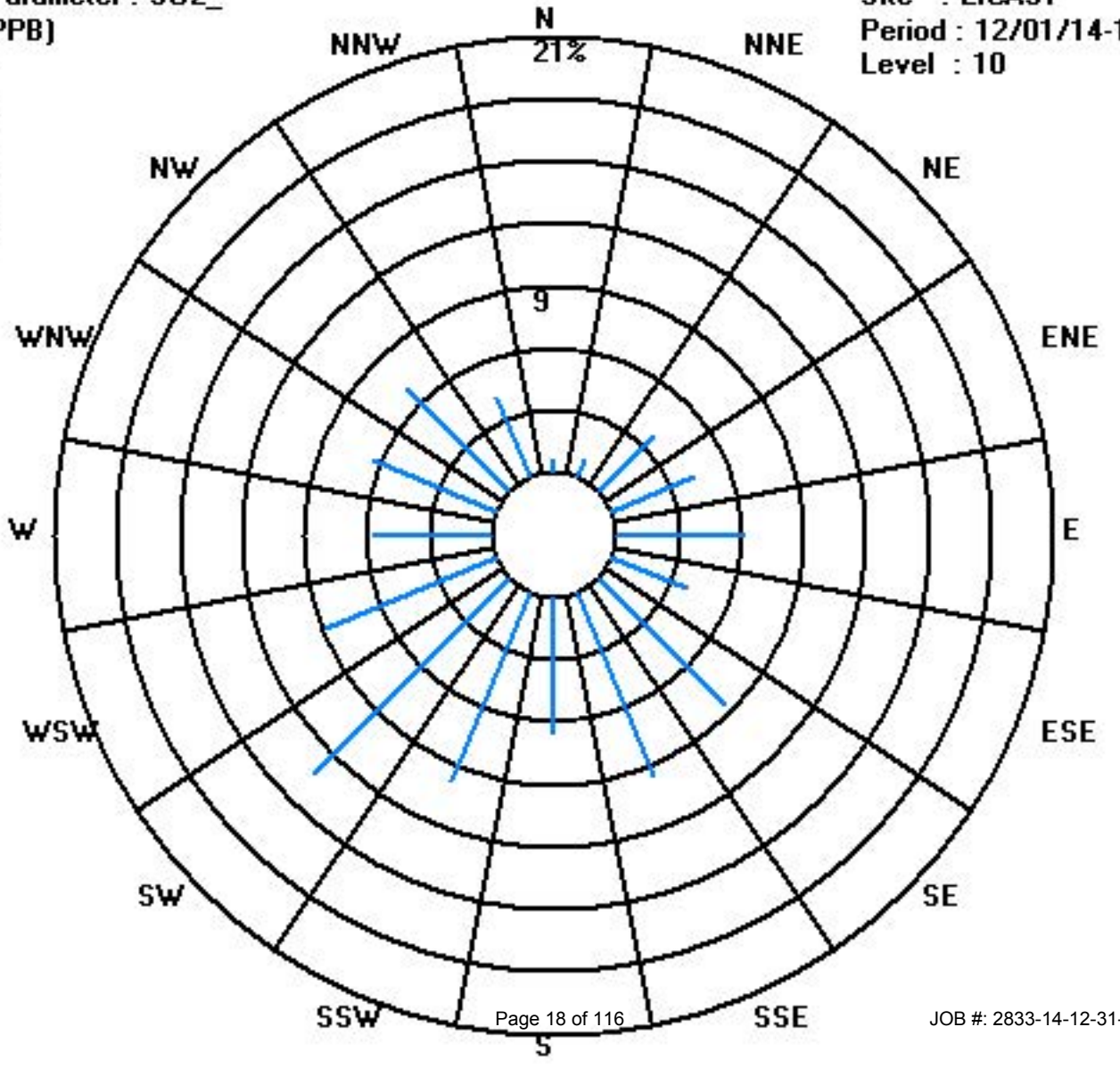
Calm : .00 %

Total # Operational Hours : 667

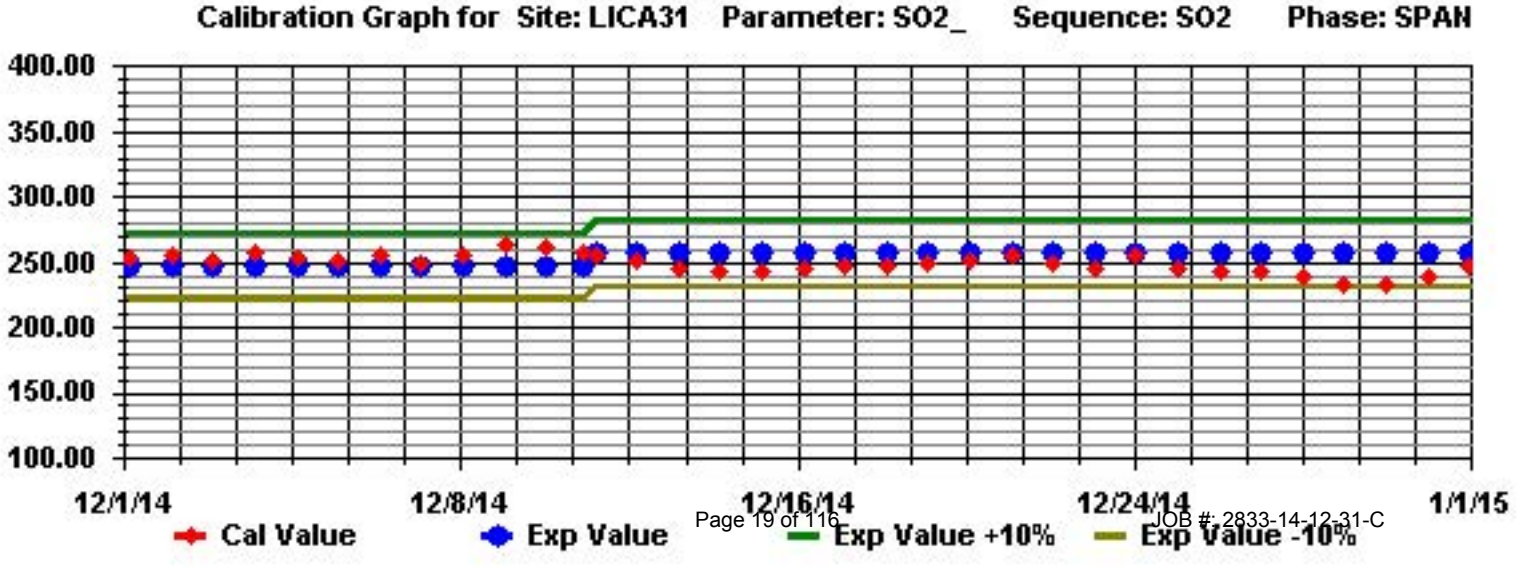
Logger : 31 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA31
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-31-C


Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN
400.00
350.00
300.00
250.00
200.00
150.00
100.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

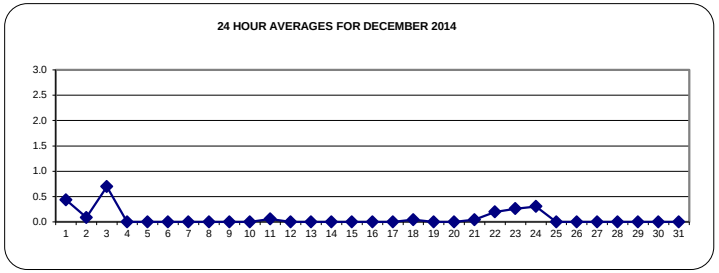
MST

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	S	0	0	0	0	0	0	*1*	*1*	*1*	*1*	0	0	0	*1*	*1*	*1*	*1*	*1*	*1*	0	*1*	0.4	24
2	*1*	*1*	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1*	0.1	24
3	0	S	0	0	0	0	*1*	*1*	*1*	*1*	0	*1*	*1*	*1*	0	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*0.7*	24
4	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
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	0	C	C	C	C	C	C	*1*	0	0	0	0	0	S	0	0	0	*1*	0.1	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	*1*	S	0	0	0	0	0	0	0	0	0	0	*1*	0.0	24
19	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
20	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
21	0	0	0	*1*	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	*1*	0.0	24
22	0	0	0	0	*1*	*1*	*1*	0	0	S	0	P	P	P	P	P	P	P	R	0	0	0	0	0	*1*	0.2	16
23	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	*1*	*1*	*1*	*1*	*1*	*1*	*1*	0.3	24
24	*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
25	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1			

STATUS FLAG CODES

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

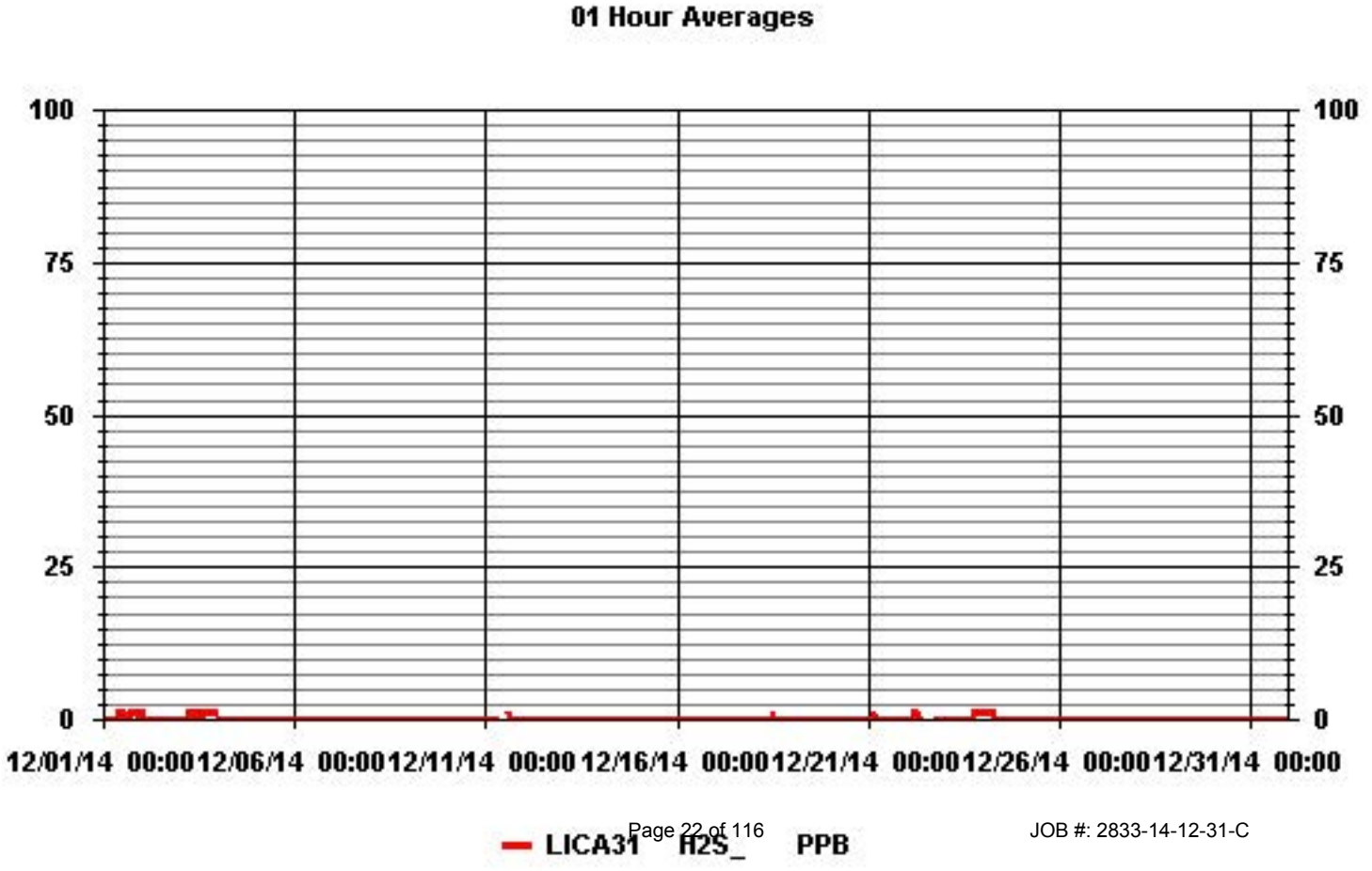
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB 24-HR 3 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	47					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S)	3
				VAR-VARIOUS		
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:		736	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		98.9	%
STANDARD DEVIATION:	0.25		MONTHLY AVERAGE:		0.07	PPB

JOB #: 2833-14-12-31-C



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
2	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
3	0	**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
4	**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
5	1	0	1	0	1	0	1	0	0	1	0	0	0	0	1	1	1	0	0	2	1	0	**S**	0	2	0.5	24
6	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	**S**	0	0	1	0.7	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	**S**	0	0	2	0	2	0.5	24
9	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	**S**	1	0	1	1	0	3	0.3	24
10	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	**S**	0	0	***6***	0	1	1	***6***	0.4	24
11	1	0	1	1	0	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	**S**	0	0	0	1	0.4	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	1	0	0	0	1	0.0	24
14	1	1	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	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**S**	0	0	0	0	2	0	0	2	0.1	24
16	0	0	0	0	0	3	1	0	0	0	0	0	0	0	2	**S**	0	0	0	0	0	1	1	1	3	0.4	24
17	1	2	0	1	1	1	1	1	1	0	1	1	1	1	**S**	1	1	1	1	1	1	1	1	1	2	***1.0***	24
18	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	**P**	0	1	0.6	23
19	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
20	0	0	0	0	0	0	0	0	0	0	0	**S**	0	1	1	0	0	0	0	1	1	1	0	0	1	0.2	24
21	0	0	2	**P**	0	0	0	1	1	**P**	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	22
22	0	0	0	0	**P**	1	2	1	1	**S**	1	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**R**	1	0	0	0	0	2	0.5	15
23	0	0	0	0	0	1	0	0	**S**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
24	1	1	1	1	1	1	1	**S**	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0.5	24
25	0	0	0	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	**S**	1	1	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24
27	1	1	1	1	**S**	1	1	1	1	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0.6	24
28	0	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	**S**	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0.1	24
31	**S**	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	**S**	1	0.6	24
HOURLY MAX	1	2	2	1	1	3	2	1	1	1	1	1	1	1	2	1	3	1	1	2	6	2	2	1			
HOURLY AVG	0.3	0.2	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.7	0.4	0.4	0.2			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 220

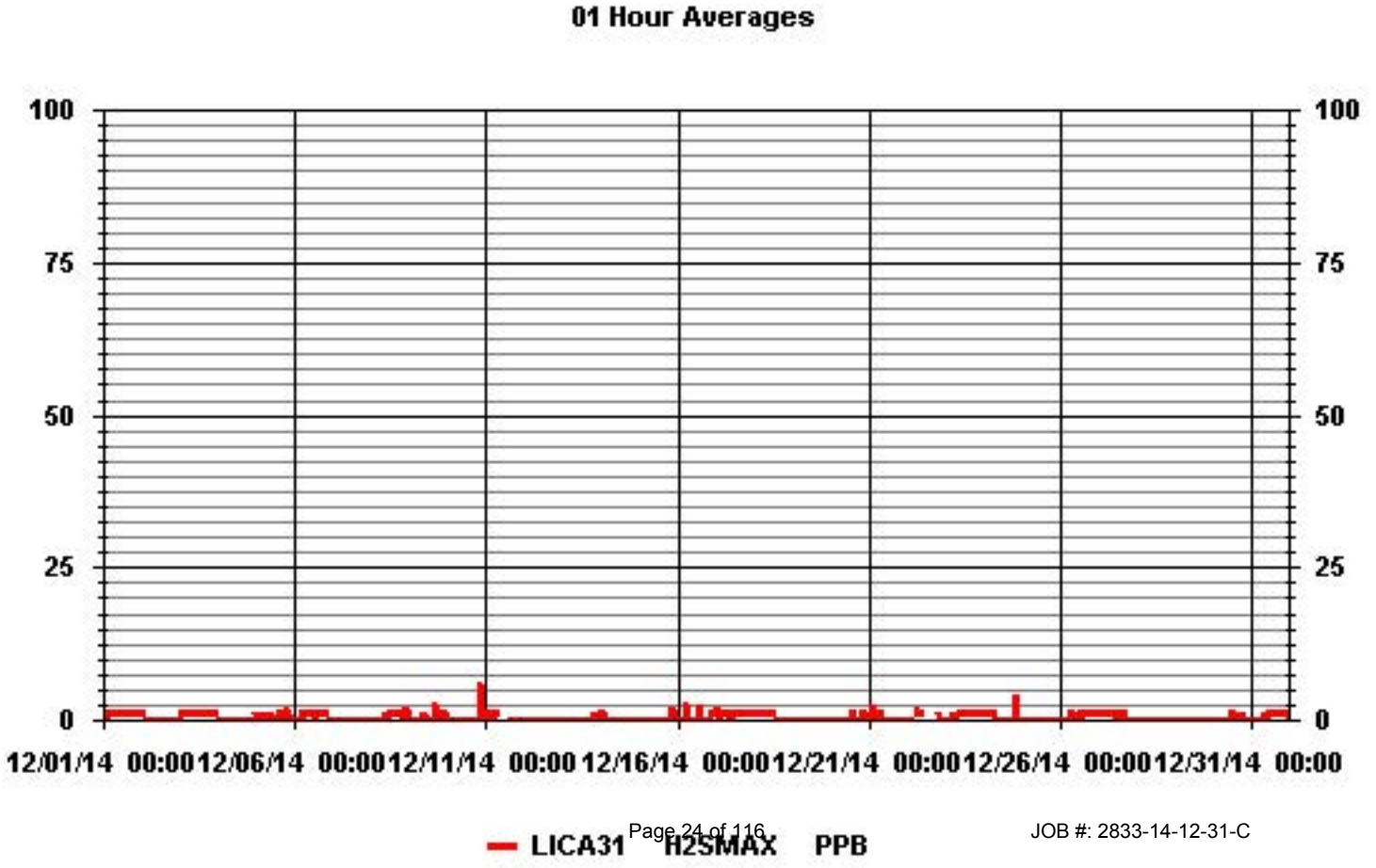
MAXIMUM INSTANTANEOUS VALUE: 6 PPB @ HOUR(S) 18 ON DAY(S) 10

VAR-VARIOUS

IZS CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 732 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 0.57



JOB #: 2833-14-12-31-C

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

December 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	.59	.89	3.74	4.34	6.14	3.89	8.84	9.59	6.59	9.89	13.19	8.84	5.69	6.44	7.04	4.19	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	.59	.89	3.74	4.34	6.14	3.89	8.84	9.59	6.59	9.89	13.19	8.84	5.69	6.44	7.04	4.19	

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	4	6	25	29	41	26	59	64	44	66	88	59	38	43	47	28	667
< 10																	
< 50																	
>= 50																	
Totals	4	6	25	29	41	26	59	64	44	66	88	59	38	43	47	28	

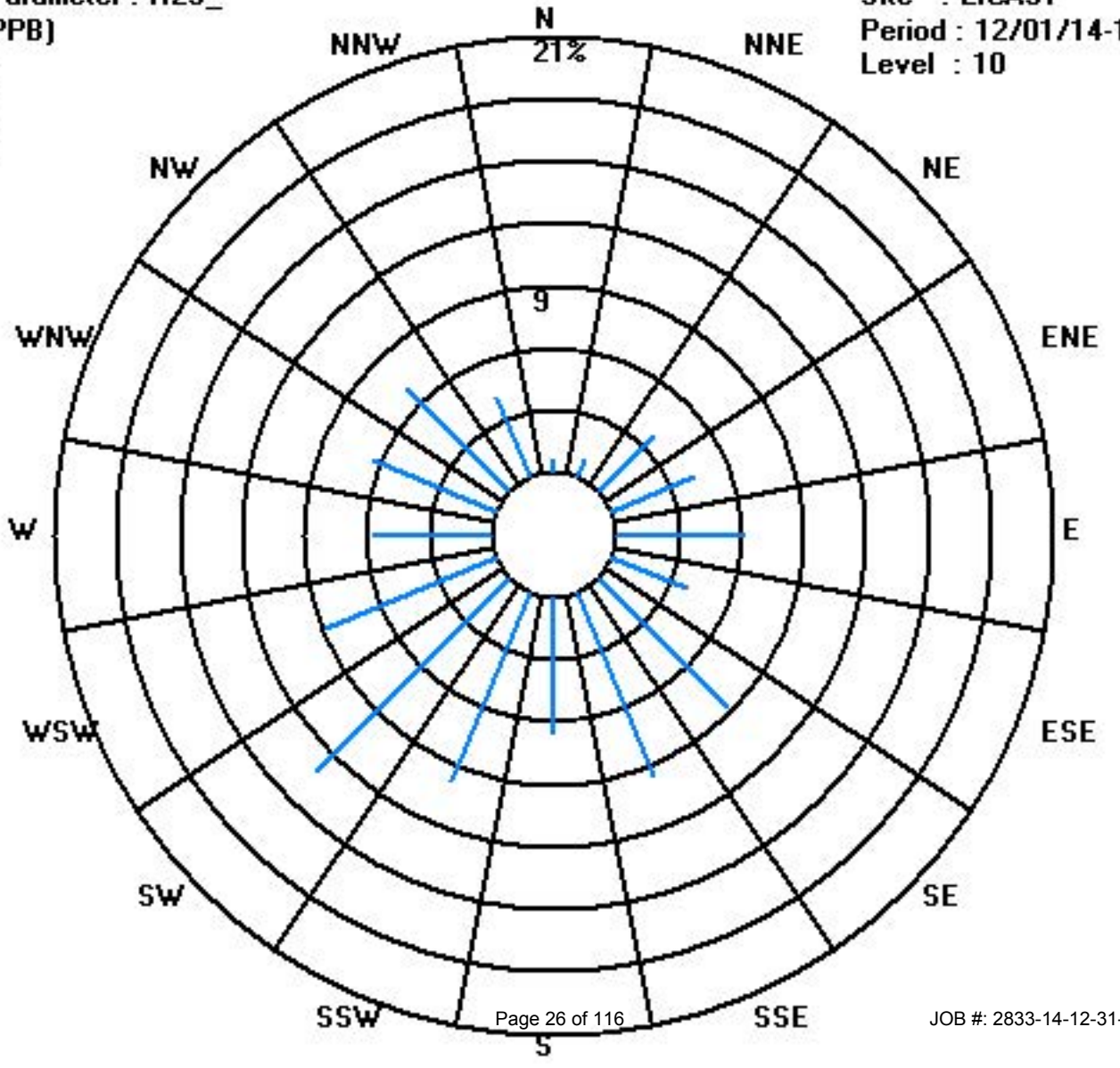
Calm : .00 %

Total # Operational Hours : 667

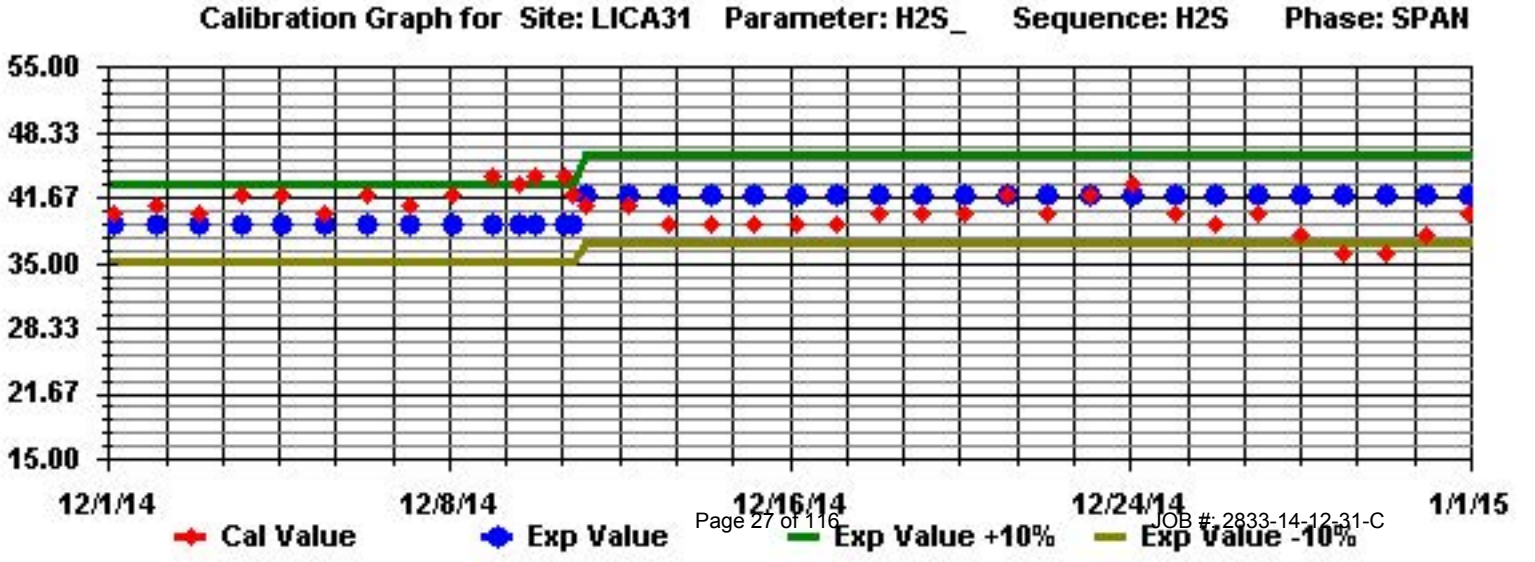
Logger : 31 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA31
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-31-C


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN
55.00
48.33
41.67
35.00
28.33
21.67
15.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

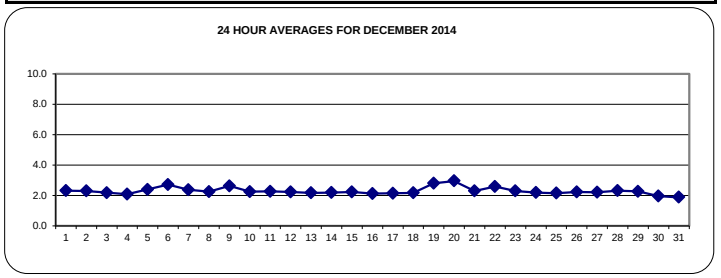
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.0	2.0	**S**	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.2	2.4	2.4	2.5	2.5	2.6	2.5	2.4	2.4	2.5	2.6	2.3	24
2	2.6	2.6	**S**	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.6	2.3	24
3	2.4	**S**	2.3	2.3	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	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.2	24
4	**S**	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	**S**	2.3	2.1	24
5	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.5	2.6	2.6	2.5	2.5	2.5	2.4	2.5	**S**	2.9	2.9	2.4	24
6	2.7	2.9	2.8	2.8	2.9	3.1	3.1	3.1	3.1	3.1	2.9	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.4	**S**	**2.2**	2.2	3.1	2.7	24
7	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	**S**	2.2	2.2	2.2	2.6	2.4	24
8	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	**S**	2.5	2.6	2.6	2.5	2.6	2.2	24
9	2.5	2.6	2.7	2.7	2.7	2.8	2.7	2.6	2.5	2.4	2.4	2.6	2.6	2.6	2.6	2.9	3.0	2.8	**S**	2.8	2.7	2.6	2.4	2.3	3.0	2.6	24
10	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.4	2.4	**S**	2.6	2.4	2.4	2.3	2.3	2.5	2.6	2.3	24
11	2.6	2.6	2.6	2.6	2.5	2.4	2.3	2.2	2.0	2.0	2.0	2.1	2.1	**C**	**C**	**C**	**C**	2.2	2.3	2.3	**S**	2.1	2.1	2.1	2.6	2.3	24
12	2.2	2.2	2.3	2.1	2.1	2.1	2.2	2.5	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	**S**	2.1	2.1	2.1	2.1	2.5	2.2	24
13	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
14	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	**S**	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	24
15	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.2	2.6	2.4	2.3	2.4	**S**	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.6	2.2	24
16	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	**S**	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
17	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	**S**	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
18	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	**S**	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.0	2.2	2.3	2.3	2.2	24
19	2.3	2.3	2.3	2.3	2.4	2.3	2.4	3.1	3.1	3.2	3.3	3.2	**S**	3.1	3.1	3.1	3.1	3.0	2.9	2.8	2.8	2.8	2.8	2.8	3.3	2.8	24
20	2.8	2.8	2.9	2.9	2.8	2.8	2.8	2.9	3.0	3.0	3.0	**S**	2.8	2.8	2.8	3.0	3.1	3.2	3.6	***3.7***	3.0	2.8	2.8	2.7	***3.7***	***3.0***	24
21	2.7	2.7	2.6	2.2	2.5	2.4	2.4	2.4	2.4	2.0	**S**	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.7	2.3	24
22	2.5	2.5	2.6	2.7	2.8	2.8	2.8	2.7	2.6	**S**	2.4	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**R**	2.5	2.5	2.5	2.5	2.5	2.8	2.6	16
23	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.4	**S**	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.5	2.5	2.5	2.5	2.4	2.3	2.5	2.3	24
24	2.2	2.1	2.0	2.0	2.0	2.1	2.0	**S**	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.2	24
25	2.4	2.4	2.4	2.4	2.4	2.4	**S**	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	2.1	2.2	2.2	2.4	2.2	24
26	2.2	2.3	2.3	2.4	2.4	**S**	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.2	24
27	2.3	2.3	2.3	2.3	**S**	2.4	2.6	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.6	2.2	24
28	2.2	2.2	2.3	**S**	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	24
29	2.4	2.4	**S**	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	24
30	2.2	**S**	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	1.9	1.9	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2	2.0	24
31	**S**	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.7	2.0	1.9	1.7	1.7	**S**	2.0	1.9	24
HOURLY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3			
HOURLY AVG	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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			

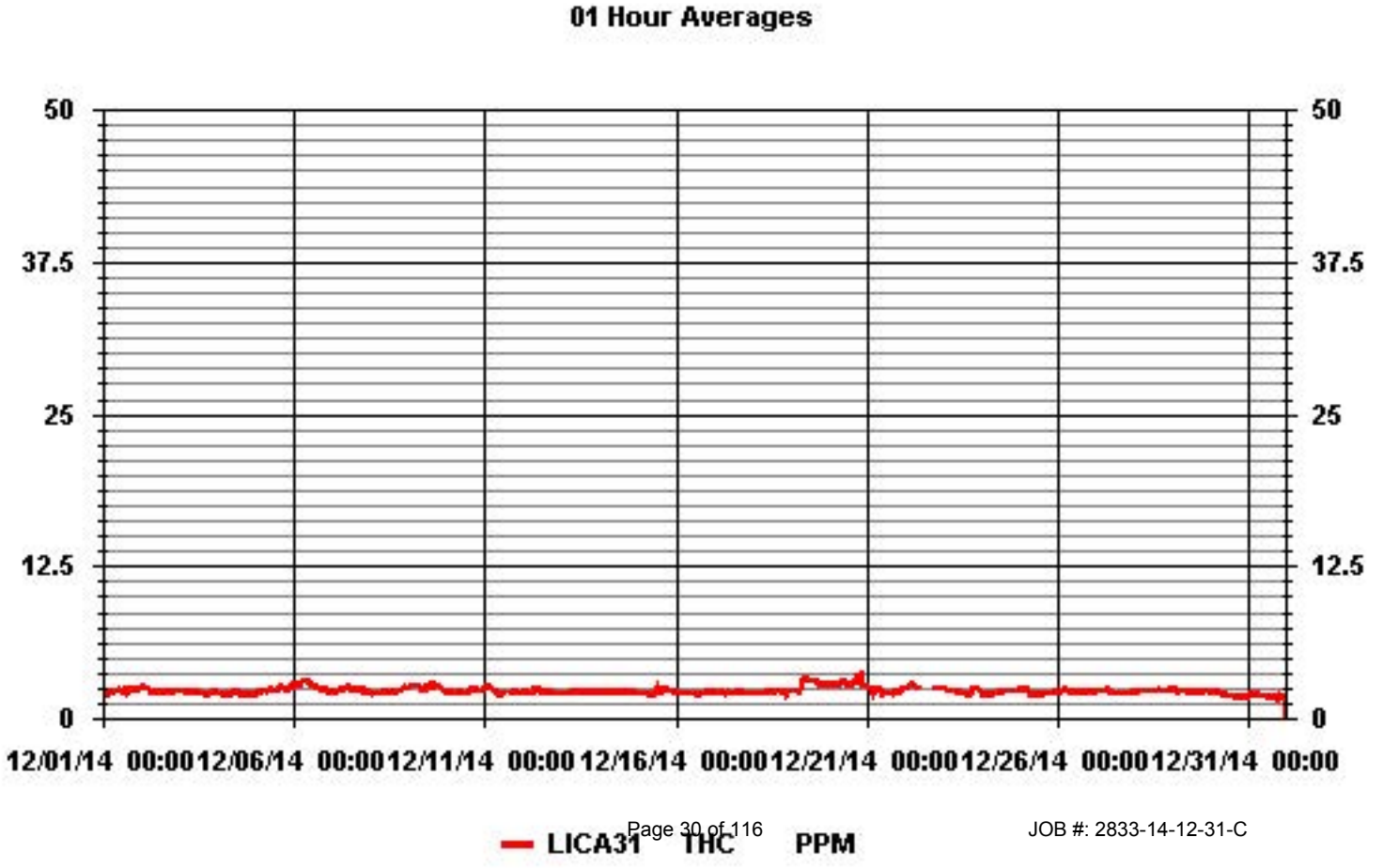
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM 1-HR AVERAGE:	3.7	PPM	@ HOUR(S)	19	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	3.0	PPM			ON DAY(S)	20
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		736	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		98.9	%
STANDARD DEVIATION:	0.27		MONTHLY AVERAGE:		2.30	PPM



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	2.1	2.1	2.1	**S**	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.6	2.4	24
2	2.6	2.6	**S**	2.6	2.6	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.6	2.3	24
3	2.4	**S**	2.4	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.4	2.2	24
4	**S**	2.2	2.2	2.2	2.1	2.1	2.1	2	2.2	2.2	2.3	2.3	2.4	2.3	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	**S**	2.4	2.1	24
5	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.5	2.6	2.6	2.5	2.7	**S**	3.1	3.1	2.5	24
6	2.8	2.9	2.9	2.9	3	3.3	3.3	3.3	3.2	3.3	3.1	3	2.9	2.8	2.7	2.7	2.6	2.6	2.5	2.4	2.5	**S**	2.2	2.2	3.3	2.8	24
7	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.4	2.5	2.7	2.5	2.5	2.5	2.4	**S**	2.2	2.2	2.3	2.7	2.4	24
8	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	**S**	2.6	2.6	2.6	2.6	2.6	2.3	24
9	2.6	2.7	2.9	2.9	3.1	2.8	2.8	2.7	2.5	2.5	2.5	2.8	2.8	2.6	2.7	3	3.1	2.9	**S**	2.9	2.8	2.7	2.6	2.4	3.1	2.8	24
10	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.2	2.3	2.4	2.5	**S**	2.7	2.5	2.5	2.5	2.4	2.8	2.8	2.3	24
11	2.7	2.7	2.7	2.7	2.6	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.2	**C**	**C**	**C**	**C**	2.3	2.4	2.3	**S**	2.2	2.2	2.2	2.7	2.4	24
12	2.9	2.4	2.4	2.2	2.3	2.2	2.5	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.4	2.4	2.4	**S**	2.1	2.1	2.1	2.1	2.9	2.3	24
13	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	**S**	2.3	2.3	2.2	2.2	2.3	2.3	2.3	24
14	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	2.3	2.3	2.3	4.2	**S**	2.2	2.2	2.4	2.2	2.2	2.2	4.2	2.3	24
15	2.2	2.1	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.8	2.7	2.4	2.6	**S**	2.6	2.5	2.5	2.4	2.3	2.3	2.4	2.8	2.3	24
16	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	**S**	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.2	24
17	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
18	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	**S**	2.3	2.3	2.4	2.3	2.3	2.3	2.2	**P**	2.3	2.3	2.4	2.2	23
19	2.3	2.3	2.5	2.8	2.8	2.7	2.9	3.5	3.4	3.3	3.5	3.3	**S**	3.2	3.2	3.3	3.3	3.2	2.9	2.9	2.9	2.9	3.2	2.9	3.5	3.0	24
20	2.9	3	3	3	2.9	2.8	2.9	3	3	3	3.1	**S**	2.8	2.9	3.1	3.5	3.4	3.4	4	4.1	3.4	3	3	2.8	4.1	***3.1***	24
21	2.9	2.9	2.7	**P**	2.6	2.5	2.5	2.5	2.5	**P**	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.9	2.4	22
22	2.5	2.6	2.7	2.8	**P**	2.8	2.9	2.8	2.7	**S**	2.4	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**R**	2.6	2.5	2.5	2.5	2.5	2.9	2.6	15
23	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	**S**	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.3	2.6	2.6	2.6	2.5	2.4	2.3	2.6	2.4	24
24	2.3	2.2	2.1	2	2.2	2.1	2	**S**	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	24
25	2.4	2.4	2.4	2.4	2.4	2.4	**S**	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	2.2	2.3	2.4	2.4	2.2	2.4	2.2	24
26	2.3	2.3	2.4	2.4	2.5	**S**	2.5	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.5	2.3	24
27	2.5	2.4	2.6	2.5	**S**	2.6	2.7	2.7	2.6	2.4	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.7	2.3	24
28	2.3	2.3	2.4	**S**	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.4	24
29	2.4	2.4	**S**	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.3	24
30	2.3	**S**	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	2.0	24
31	**S**	2	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	***7.6***	4.5	1.7	1.7	**S**	***7.6***	2.3	24
HOURLY MAX	3	3	3	3	3	3	3	4	3	3	4	3	3	3	3	4	4	3	4	8	5	3	3	3			
HOURLY AVG	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.6	2.5	2.3	2.3	2.4			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 695

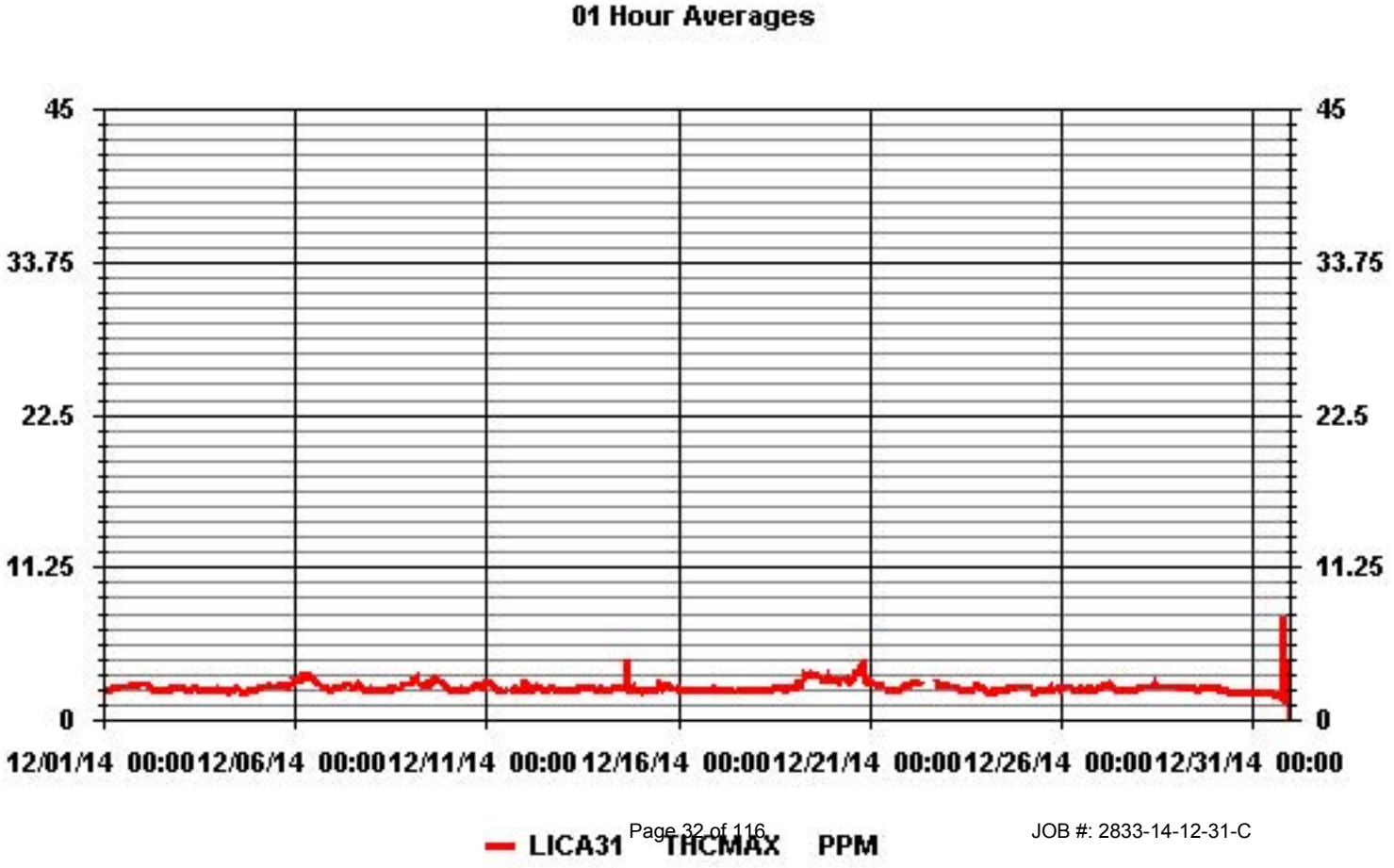
MAXIMUM INSTANTANEOUS VALUE: 7.6 PPM @ HOUR(S) 19 ON DAY(S) 31

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 732 HRS

MONTHLY CALIBRATION TIME: 4 HRS

STANDARD DEVIATION: 0.38



JOB #: 2833-14-12-31-C

LICA31
THC / WDR Joint Frequency Distribution (Percent)

December 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	.59	.89	3.73	3.73	3.88	3.73	8.65	9.55	6.26	9.70	13.73	8.50	5.67	6.41	7.01	4.17	96.26
<	10.0	.00	.00	.00	.59	2.23	.14	.14	.14	.29	.14	.00	.00	.00	.00	.00	.00	3.73
<	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	.59	.89	3.73	4.32	6.11	3.88	8.80	9.70	6.56	9.85	13.73	8.50	5.67	6.41	7.01	4.17	

Calm : .00 %

Total # Operational Hours : 670

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4	6	25	25	26	25	58	64	42	65	92	57	38	43	47	28	645
<	10.0				4	15	1	1	1	2	1							25
<	50.0																	
>=	50.0																	
	Totals	4	6	25	29	41	26	59	65	44	66	92	57	38	43	47	28	

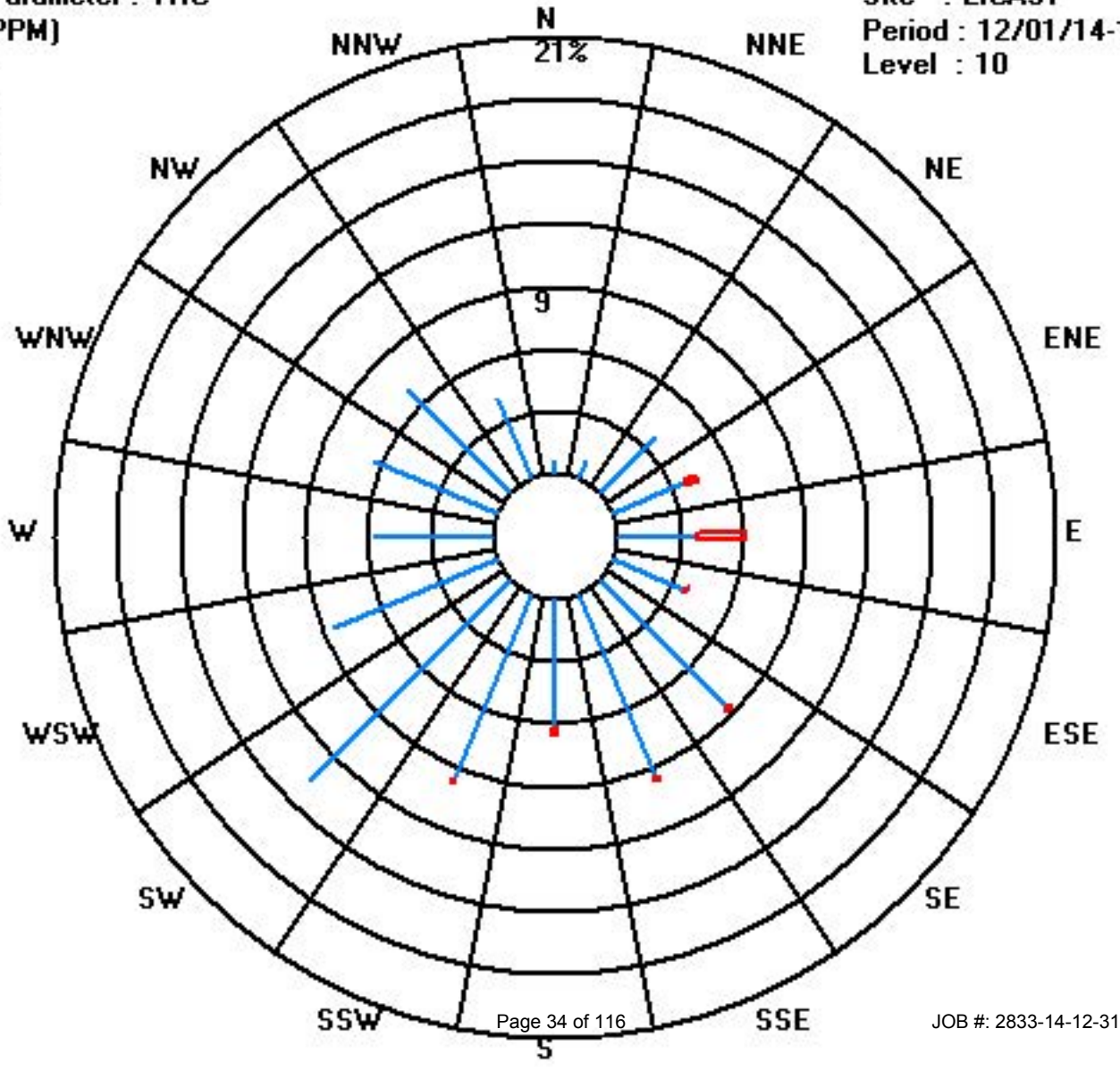
Calm : .00 %

Total # Operational Hours : 670

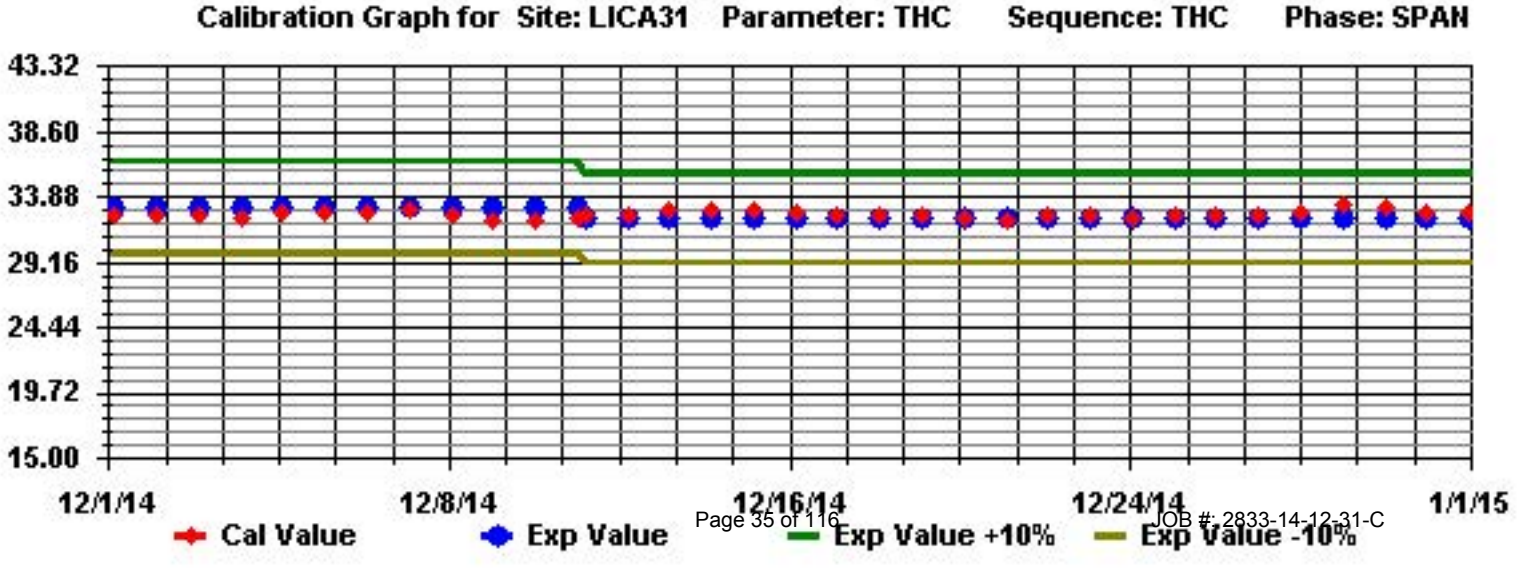
Logger : 31 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA31
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-31-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
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

OZONE (O3) hourly averages in ppb

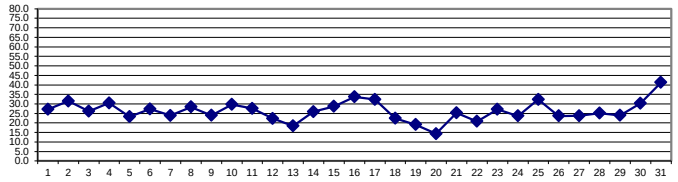
MST

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	35	35	35	**S**	35	34	32	29	27	26	28	29	33	29	35	27	25	18	17	16	21	22	22	15	35	27.2	24
2	12	13	**S**	10	14	20	27	33	36	37	38	38	38	39	39	38	38	38	38	37	36	36	34	35	39	31.5	24
3	32	**S**	28	22	25	27	26	26	26	26	27	27	30	31	32	30	28	30	29	26	19	16	18	19	32	26.1	24
4	**S**	22	27	26	31	32	32	33	29	27	26	27	25	25	30	36	36	36	33	34	34	35	34	**S**	36	30.5	24
5	31	28	27	27	24	18	19	24	22	22	26	27	29	30	21	14	13	19	21	23	24	24	**S**	23	31	23.3	24
6	25	26	28	28	27	25	23	22	24	25	27	28	29	29	28	27	28	29	29	29	30	**S**	31	31	31	27.3	24
7	31	30	30	30	29	27	25	25	23	22	21	20	23	25	22	20	19	19	19	22	**S**	23	22	22	31	23.9	24
8	22	23	25	27	28	28	28	29	28	28	29	30	30	30	31	30	30	31	31	**S**	30	29	28	28	31	28.4	24
9	27	26	25	24	24	23	23	22	22	22	23	24	26	27	26	22	20	22	**S**	24	24	24	26	26	27	24.0	24
10	27	27	29	29	34	35	32	30	32	32	33	34	33	33	31	29	28	**S**	26	26	26	27	28	23	35	29.7	24
11	24	25	25	25	25	27	28	29	31	31	29	24	26	**S**	33	**C**	**C**	**C**	**C**	**C**	**C**	**C**	31	28	33	27.6	24
12	28	25	25	25	25	24	24	23	22	22	21	21	22	22	20	21	22	22	19	**S**	22	20	20	19	28	22.3	24
13	17	17	17	18	18	18	17	18	18	18	18	18	18	18	18	19	20	20	**S**	16	19	21	22	21	22	18.4	24
14	21	24	27	26	28	29	29	28	27	27	28	28	29	29	28	28	26	**S**	23	23	23	22	21	22	29	25.9	24
15	24	27	27	26	27	27	28	30	31	30	30	29	27	29	30	30	**S**	29	30	30	31	30	29	29	31	28.7	24
16	30	32	33	33	33	32	32	32	31	31	33	34	35	36	36	**S**	36	36	36	35	35	35	35	35	36	33.7	24
17	35	35	35	35	35	35	35	35	34	33	32	32	31	31	**S**	31	31	31	30	30	30	29	29	29	35	32.3	24
18	29	28	28	27	26	26	26	26	26	26	25	21	19	**S**	16	13	9	10	16	23	25	24	24	22	29	22.4	24
19	20	21	23	24	23	21	19	12	12	14	16	18	**S**	19	22	20	16	16	21	22	20	21	20	19	24	19.1	24
20	19	19	18	18	17	17	17	16	15	16	17	**S**	15	12	11	12	9	7	5	6	9	14	18	22	22	14.3	24
21	22	23	25	25	26	27	26	26	25	24	**S**	27	29	29	28	27	26	26	25	25	25	24	22	21	29	25.3	24
22	21	20	19	18	16	15	14	15	16	**S**	19	**P**	**P**	**P**	**P**	**P**	**P**	**P**	29	28	27	26	25	25	29	20.8	17
23	24	26	28	31	30	29	30	28	**S**	27	27	26	26	27	29	31	29	27	24	23	24	25	26	27	31	27.1	24
24	26	24	24	26	27	25	26	**S**	30	29	29	25	26	24	17	9	12	17	21	23	24	25	27	28	30	23.7	24
25	29	31	32	34	35	35	**S**	34	34	34	33	33	33	33	33	33	32	31	31	31	31	31	31	30	35	32.3	24
26	29	28	27	27	27	**S**	27	27	26	26	26	26	25	25	24	24	23	22	21	19	18	17	16	14	29	23.7	24
27	13	13	11	11	**S**	16	15	16	16	19	21	22	25	27	29	30	31	33	34	34	34	33	32	31	34	23.7	24
28	30	28	27	**S**	25	24	24	24	23	26	26	26	26	27	26	24	24	24	25	25	24	24	23	24	30	25.2	24
29	25	26	**S**	20	19	17	19	18	22	24	25	26	27	28	28	28	27	27	26	24	23	24	24	24	28	24.0	24
30	24	**S**	20	18	21	22	23	23	23	27	30	32	33	28	33	37	37	37	37	37	38	39	39	39	39	30.3	24
31	**S**	40	41	41	41	41	40	40	40	42	42	43	43	43	43	43	42	41	42	***44***	40	39	38	**S**	***44***	***41.3***	24
HOURLY MAX	35	40	41	41	41	41	40	40	40	42	42	43	43	43	43	43	42	41	42	44	40	39	39	39			
HOURLY AVG	25.2	25.6	26.4	25.2	26.5	25.9	25.5	25.8	25.7	26.4	26.8	27.4	28.0	28.0	27.6	26.2	25.6	25.9	26.4	26.3	26.4	26.2	26.5	25.2			

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 DECEMBER 2014

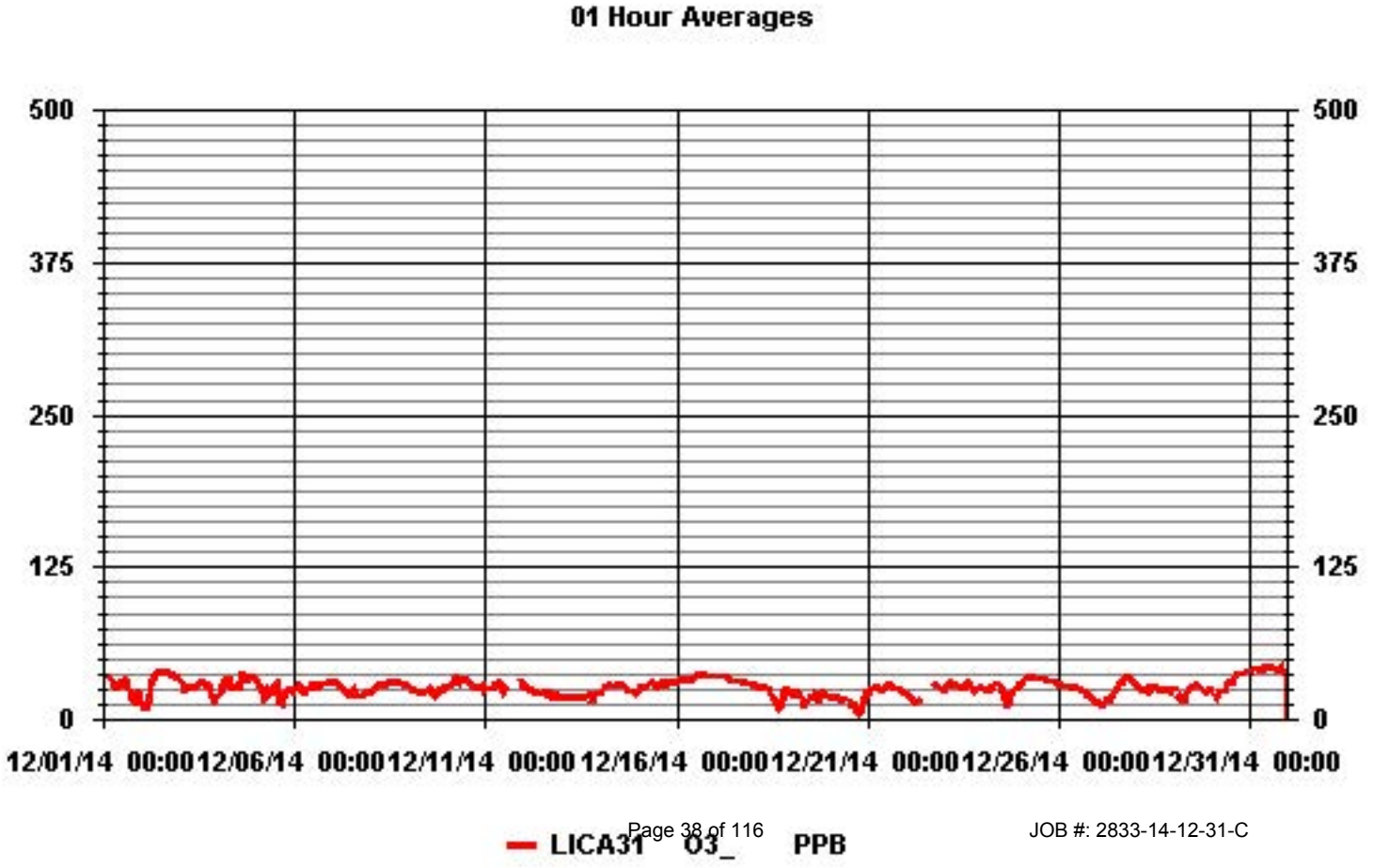


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM 1-HR AVERAGE:	44	PPB	@ HOUR(S)	19	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	41.3	PPB			ON DAY(S)	31
					VAR-VARIOUS	

IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	737	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.1	%
STANDARD DEVIATION:	6.60		MONTHLY AVERAGE:	26.27	PPB



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	35	33	35	**S**	35	35	33	31	29	27	29	33	37	36	37	30	28	20	18	18	24	27	27	17	37	29.3	24
2	13	13	**S**	12	22	23	31	34	37	38	38	38	39	40	40	39	38	38	38	38	38	37	35	35	40	32.8	24
3	34	**S**	30	24	27	29	26	26	26	27	28	28	31	32	33	32	29	31	31	28	22	17	20	20	34	27.4	24
4	**S**	25	29	30	32	33	33	33	32	28	28	28	25	28	33	37	37	37	34	35	35	35	35	**S**	37	31.9	24
5	33	31	28	27	26	22	21	26	23	25	27	28	30	30	29	16	17	21	22	24	25	25	**S**	24	33	25.2	24
6	26	27	29	29	29	27	25	24	24	26	27	28	29	30	29	28	29	29	29	30	31	**S**	32	32	32	28.2	24
7	32	31	30	30	30	28	26	26	24	23	22	21	26	26	23	21	19	20	20	27	**S**	25	23	23	32	25.0	24
8	24	23	26	28	28	28	28	29	29	28	30	31	31	31	31	31	31	31	31	**S**	31	30	29	29	31	29.0	24
9	28	27	26	25	24	24	23	23	22	23	24	25	28	27	27	24	21	23	**S**	24	25	25	26	27	28	24.8	24
10	27	28	30	31	36	37	34	31	33	33	33	34	34	34	33	30	29	**S**	26	27	27	28	29	27	37	30.9	24
11	25	26	26	26	26	27	28	30	32	31	31	31	33	**S**	33	**C**	**C**	**C**	**C**	**C**	**C**	**C**	34	30	34	29.3	24
12	28	27	26	26	25	25	24	24	23	22	21	21	23	23	21	23	23	23	21	**S**	23	21	20	20	28	23.2	24
13	18	17	18	18	18	18	18	18	19	18	19	18	19	19	19	20	21	20	**S**	19	23	22	24	24	24	19.4	24
14	22	26	28	28	29	30	30	29	29	28	29	30	30	30	29	29	29	**S**	24	24	24	23	22	24	30	27.2	24
15	28	28	27	27	28	28	30	31	31	31	30	30	29	30	31	30	**S**	31	30	31	32	32	30	30	32	29.8	24
16	31	33	33	34	34	34	33	32	32	32	34	35	36	36	37	**S**	37	37	36	36	36	36	35	35	37	34.5	24
17	36	36	36	36	36	36	36	35	35	34	33	33	32	31	**S**	31	31	31	31	31	30	30	29	29	36	33.0	24
18	29	29	28	28	27	26	26	26	26	26	26	23	20	**S**	18	15	10	12	21	26	26	**P**	25	24	29	23.5	23
19	22	23	25	25	24	22	22	15	13	15	18	19	**S**	21	23	22	18	19	23	23	21	22	22	20	25	20.7	24
20	20	20	20	19	18	18	18	17	16	16	17	**S**	17	14	12	13	11	8	7	8	11	17	22	23	23	15.7	24
21	24	25	25	**P**	27	27	27	27	26	**P**	**S**	28	30	29	29	28	27	26	26	25	25	25	23	22	30	26.2	22
22	21	21	20	19	**P**	15	15	17	17	**S**	20	**P**	**P**	**P**	**P**	**P**	**P**	**P**	30	30	28	27	26	25	30	22.1	16
23	26	27	30	32	31	30	30	29	**S**	29	28	27	27	28	31	32	30	29	26	24	25	25	27	27	32	28.3	24
24	27	26	27	30	31	26	27	**S**	31	30	30	27	28	26	22	11	15	18	23	24	25	27	28	29	31	25.6	24
25	30	32	34	35	35	36	**S**	35	34	34	34	34	34	34	34	33	33	32	32	32	32	31	31	31	36	33.1	24
26	29	28	28	28	28	**S**	28	27	27	26	27	27	27	25	25	24	24	23	21	21	18	18	17	15	29	24.4	24
27	14	14	12	12	**S**	17	16	16	18	20	22	24	26	28	30	31	32	35	35	35	34	33	33	32	35	24.7	24
28	31	29	28	**S**	26	25	26	24	25	27	27	29	28	28	27	25	25	25	26	26	25	24	24	25	31	26.3	24
29	26	27	**S**	22	19	18	19	21	23	25	26	27	28	28	29	28	28	28	28	25	25	25	25	25	29	25.0	24
30	25	**S**	21	19	22	24	24	23	24	29	31	34	35	30	36	38	37	37	37	38	39	39	39	40	40	31.3	24
31	**S**	41	41	42	42	41	41	40	42	42	43	43	43	43	43	44	43	42	43	***65***	53	40	39	**S**	***65***	***43.5***	24
HOURLY MAX	36	41	41	42	42	41	41	40	42	42	43	43	43	43	43	44	43	42	43	65	53	40	39	40			
HOURLY AVG	26.3	26.7	27.4	26.5	28.1	27.0	26.6	26.6	26.7	27.3	27.7	28.8	29.5	29.2	29.1	27.3	26.9	26.9	27.5	28.4	28.0	27.4	27.7	26.3			

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: 693

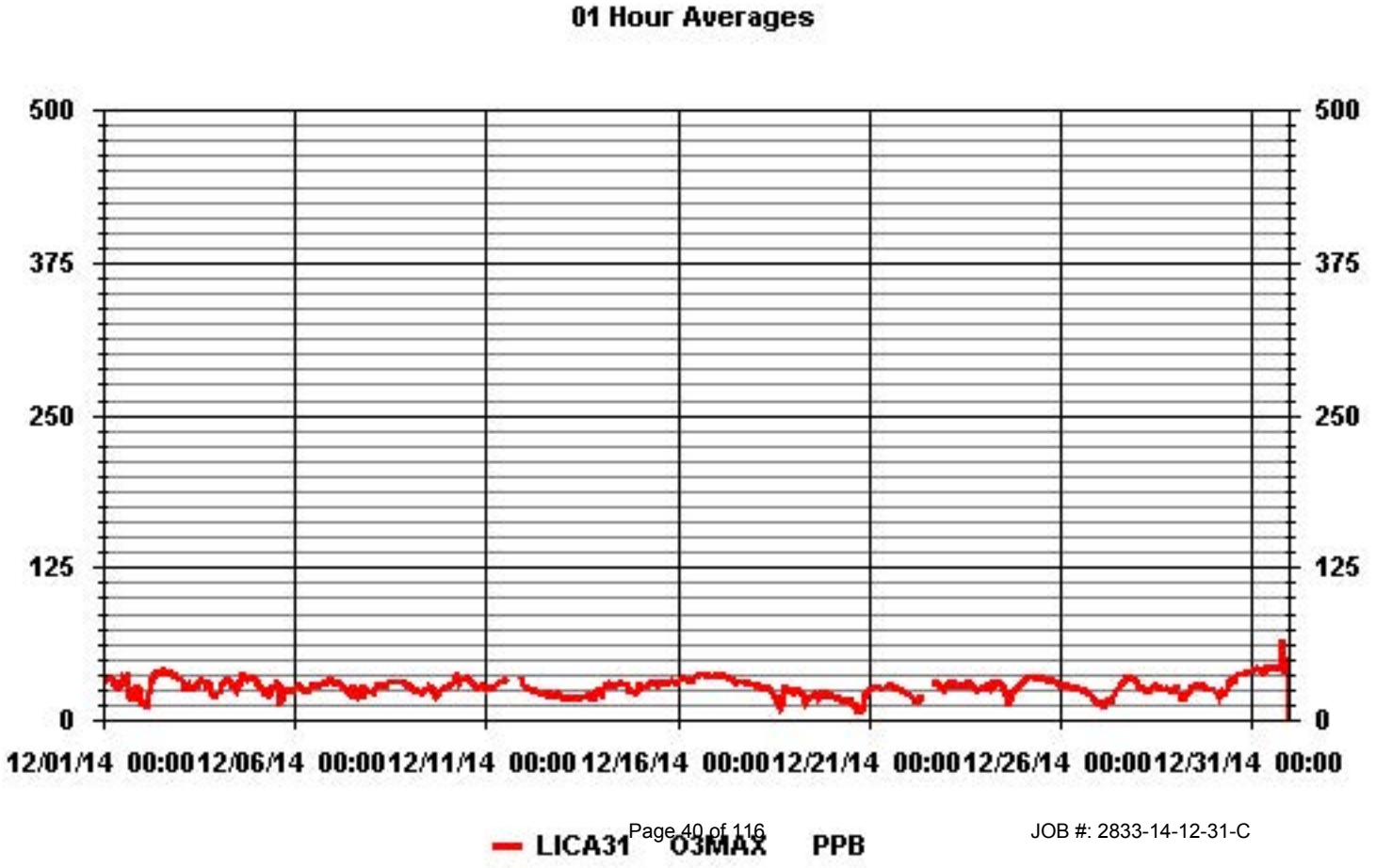
MAXIMUM INSTANTANEOUS VALUE: 65 PPB @ HOUR(S) 19 ON DAY(S) 31

VAR-VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 733 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 6.60



JOB #: 2833-14-12-31-C

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

December 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	.59	.89	3.74	4.34	6.14	3.89	8.69	9.59	6.29	9.89	13.79	8.69	5.69	6.44	7.04	4.19	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	.59	.89	3.74	4.34	6.14	3.89	8.69	9.59	6.29	9.89	13.79	8.69	5.69	6.44	7.04	4.19	

Calm : .00 %

Total # Operational Hours : 667

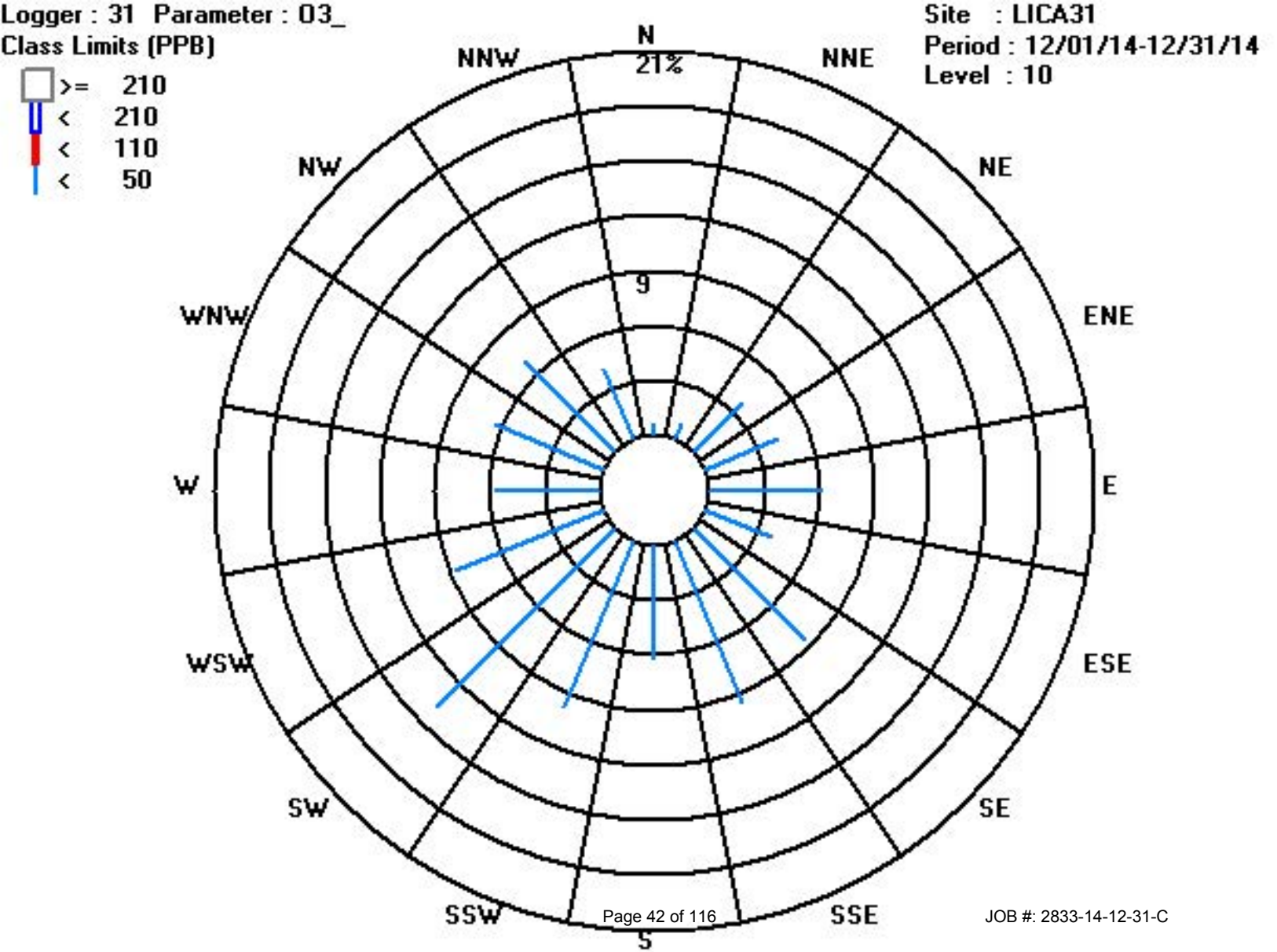
Distribution By Samples

Direction

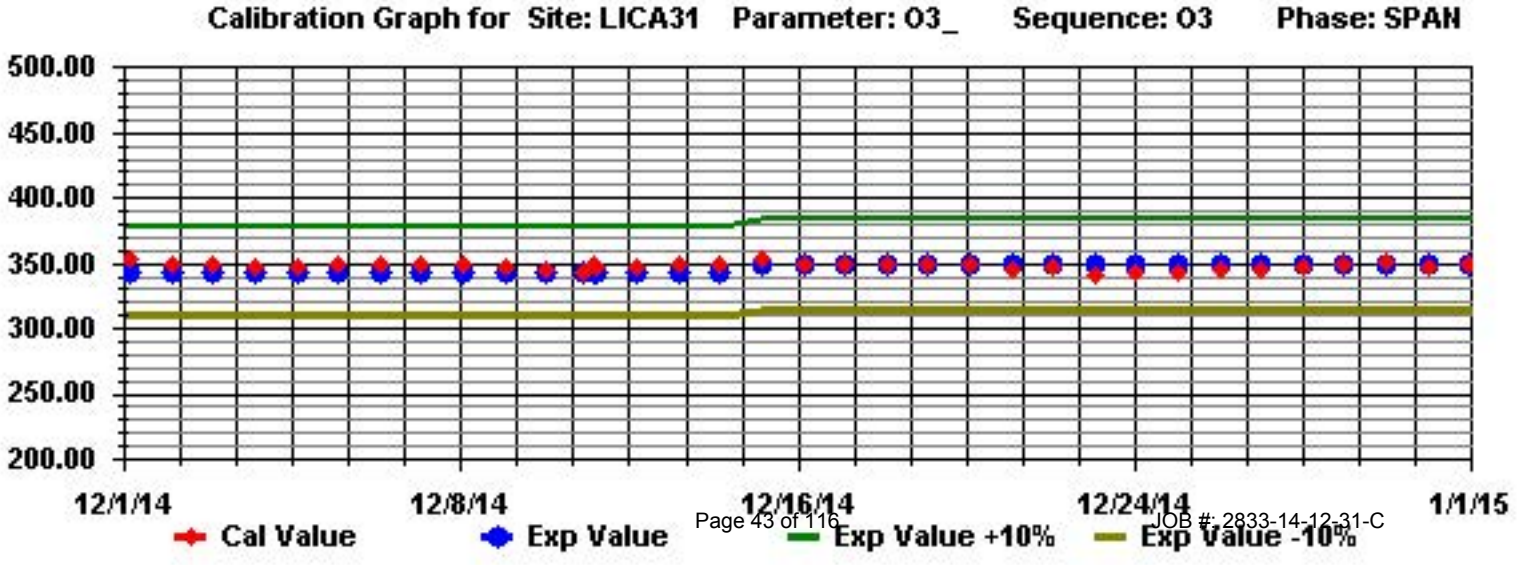
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4	6	25	29	41	26	58	64	42	66	92	58	38	43	47	28	667
< 110																	
< 210																	
>= 210																	
Totals	4	6	25	29	41	26	58	64	42	66	92	58	38	43	47	28	

Calm : .00 %

Total # Operational Hours : 667



JOB #: 2833-14-12-31-C


Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: O3 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

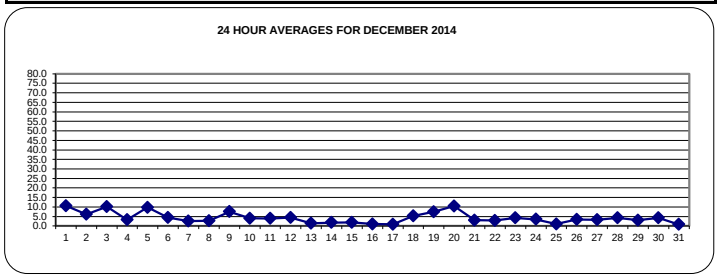
MST

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	4.8	4.1	3.9	S	3.4	4.1	5.4	7.9	9.3	10.7	9.8	8.7	5.6	8.4	4.6	10.3	12.9	18.9	19.9	20.7	16.8	16.7	15.6	21	21	***10.6***	24
2	24.9	24	S	***26.3***	24.4	18	10.3	4.5	1.6	0.8	0.2	0	0	0	0	0	0	0	0	0	1.3	1.1	1.9	1.2	***26.3***	6.1	24
3	3.1	S	8.2	14.2	10.6	8	8	7.3	6.8	6.6	7.2	7.5	7.4	6.2	6	7.8	10.6	8.5	8.7	11.5	18.4	21.7	20	17.4	21.7	10.1	24
4	S	12.2	7.7	7.9	3.8	2.6	2	1.6	3	3.5	4.8	4	5.4	5.5	2	0.5	0.5	0.6	0.9	0.7	0.5	0.5	0.7	S	12.2	3.2	24
5	2.5	3.6	4	4.5	6.2	12.5	13.1	8.9	9.6	9.6	7.5	6.4	5.7	5.6	12.1	19	21.2	15.6	14	12.8	10.3	9.7	S	9.7	21.2	9.7	24
6	7.8	6.5	5.4	5.1	5.3	6.2	6.5	7	6.6	5.9	4.8	4.5	4.2	3.7	3.8	4.7	3	2.2	2.1	1.8	1.6	S	1.5	1.4	7.8	4.4	24
7	1.3	1.2	1.3	1.3	1.2	1.6	1.8	2.3	3.1	3.4	4.1	4.3	3.7	3	2.9	3	3.3	3.3	2.9	2.4	S	2.4	2.6	2.2	4.3	2.5	24
8	2.2	2.1	1.9	2	1.8	1.7	2	1.9	2	2.6	2.9	2.9	3.2	3.2	3.4	3.7	3.7	3.3	3.4	S	3.4	3.3	3.6	3.3	3.7	2.8	24
9	3.7	4	4.7	4.9	5.2	5.4	5.7	6.2	6.6	9	7.2	8.1	8.1	8.5	9.6	12.9	14.8	13.2	S	9.5	8.3	7.2	5.6	4.6	14.8	7.5	24
10	4.3	4.5	3.5	3.2	2	1.8	3.1	5	3.2	3.7	3	2.4	3.7	2.9	4.2	5.6	5.9	S	6.7	5.5	4.6	4.1	3.8	5.8	6.7	4.0	24
11	5.8	5	5.1	4.7	4.1	3.2	2.8	2.1	1.9	0.9	C	C	C	C	C	C	4	4.7	4.1	5.3	S	5.6	3.7	4.4	5.8	4.0	24
12	4.5	5.2	5.1	3.4	3.2	2.4	3.1	3.8	3.9	3.6	3.3	4.3	5.6	7	9.8	8	5.4	4.6	5.4	S	2.1	2.4	1.9	2	9.8	4.3	24
13	1.9	1.6	1.1	1.4	1.3	1.5	1.3	1.1	1	1.1	1	1.1	1.3	0.9	1	1.3	1	0.8	S	2.4	2.7	2.3	2	2.2	2.7	1.4	24
14	2.2	1.9	1.4	1.3	1.2	1	0.9	1.2	1.2	1.2	1	1.2	0.8	1.1	1.6	1.5	1.9	S	2.6	3.4	2.9	2.9	3.7	3	3.7	1.8	24
15	2.4	1.8	1.4	1.5	1.3	1.1	0.8	0.6	0.6	0.9	1.2	1.6	2.9	2.1	2.3	3.1	S	3.8	3	2.9	2.2	1.9	2.1	1.7	3.8	1.9	24
16	1.4	1	0.7	0.6	0.8	1.1	1.3	1.2	1.4	1.4	0.9	0.6	0.5	0.6	0.8	S	0.9	1.2	1.2	1.2	1.3	1.2	1.1	1.1	1.4	1.0	24
17	1.1	0.9	0.9	0.7	0.8	0.9	0.8	1	0.9	Y	S	0.6	S	3.4	S	0.6	0.4	0.5	0.6	0.7	0.8	0.6	0.7	0.5	3.4	0.9	23
18	0.5	0.6	0.7	1	1	1.1	1.2	1.1	1.2	1.2	2.3	4.6	7	S	10.1	15.5	20	18.2	12.2	5.2	3.9	3.6	4	5.1	20	5.3	24
19	5.6	4.7	2.9	2.8	3.1	3.7	4.8	11.1	11.5	10.4	8.9	7.3	S	8.3	8.4	9.6	11.8	11.4	8.2	7.1	7.6	6.9	7	7.3	11.8	7.4	24
20	6.9	6.4	6.6	6.4	6.8	6.5	6.1	6.5	6.8	6.7	6	S	7.3	12.2	13.8	11.3	14.9	19.5	21.5	20.4	17.3	13.2	9.6	7	21.5	10.4	24
21	6.4	5.6	4.4	4.1	3.5	2.6	2.5	2.3	2.4	1.8	S	2.4	2.5	2.4	2.3	2.6	2.5	2.6	2.6	2.6	2.4	2.7	3.4	3.5	6.4	3.0	24
22	3.4	3.5	4	4.2	3.9	4.5	4.9	4.9	4.8	S	2.2	P	P	P	P	P	P	P	0.4	0.6	0.5	1	1.2	1.6	4.9	2.9	17
23	2.1	1.9	1.5	0.6	0.6	0.4	0.4	0.9	S	3.1	3.3	4.4	5.9	6	5.5	5.2	5.9	7.1	8.6	9.2	8.1	7.1	5.9	4.9	9.2	4.3	24
24	4.9	6.1	6.4	5.1	4.2	4.8	4.5	S	1.7	1.6	1.7	1.8	1.4	1.5	5.1	10.7	7.7	4.2	1.9	1	1.2	1.5	1.2	0	10.7	3.5	24
25	0.3	0	0	0	0	0	S	1	1	1.1	0.9	1.1	1.2	1.2	1.2	1	1.2	1.5	1.9	1.6	1.6	1.6	1.6	2.1	2.1	1.0	24
26	2.7	3.3	3.3	3.4	3.3	S	2	1.9	1.8	1.8	2	1.7	1.8	1.8	2.4	2.8	3.3	3.8	4.1	4.9	5.6	6	6.9	8.3	8.3	3.4	24
27	9.8	9.9	11.5	12.2	S	5.7	6.3	4.7	3.6	1.8	1.2	1.2	1.1	0.7	1	0.5	1	0.7	0.4	0.2	0.3	0.1	0.2	0.7	12.2	3.3	24
28	1.1	2.3	2.1	S	5	5.6	5.4	6.6	6.6	4.4	4.1	4.4	4.2	3.3	4.3	5.3	5.4	4.6	3.9	3.6	3.8	3.7	3.9	3.4	6.6	4.2	24
29	4	4.6	S	5.6	6.5	7.4	6.8	7.1	4.4	2.6	1.6	1	0.6	0.5	0.6	0.8	0.8	0.5	1.1	2.5	3.1	3	2.5	2.1	7.4	3.0	24
30	2	S	5.3	7.4	6.2	5.8	5.7	5.8	6.3	5.1	3.9	3.6	5.4	10.1	6.3	2.8	2.4	2.3	2.3	2	1.7	1.5	1.5	1.7	10.1	4.2	24
31	S	0.7	0.6	0.6	0.5	0.4	0.3	0.8	0.7	0.6	0.5	0.6	0.5	0.9	0.6	0.4	1	1.2	0.4	1.4	2.9	0.7	0.9	S	2.9	0.8	24
HOURLY MAX	25	24	12	26	24	18	13	11	12	11	10	9	8	12	14	19	21	20	22	21	18	22	20	21			
HOURLY AVG	4.3	4.5	3.6	4.7	4.0	4.1	4.0	3.9	3.9	3.7	3.5	3.3	3.6	4.0	4.5	5.4	5.8	5.7	5.0	4.9	4.7	4.5	4.0	4.5			

STATUS FLAG CODES

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

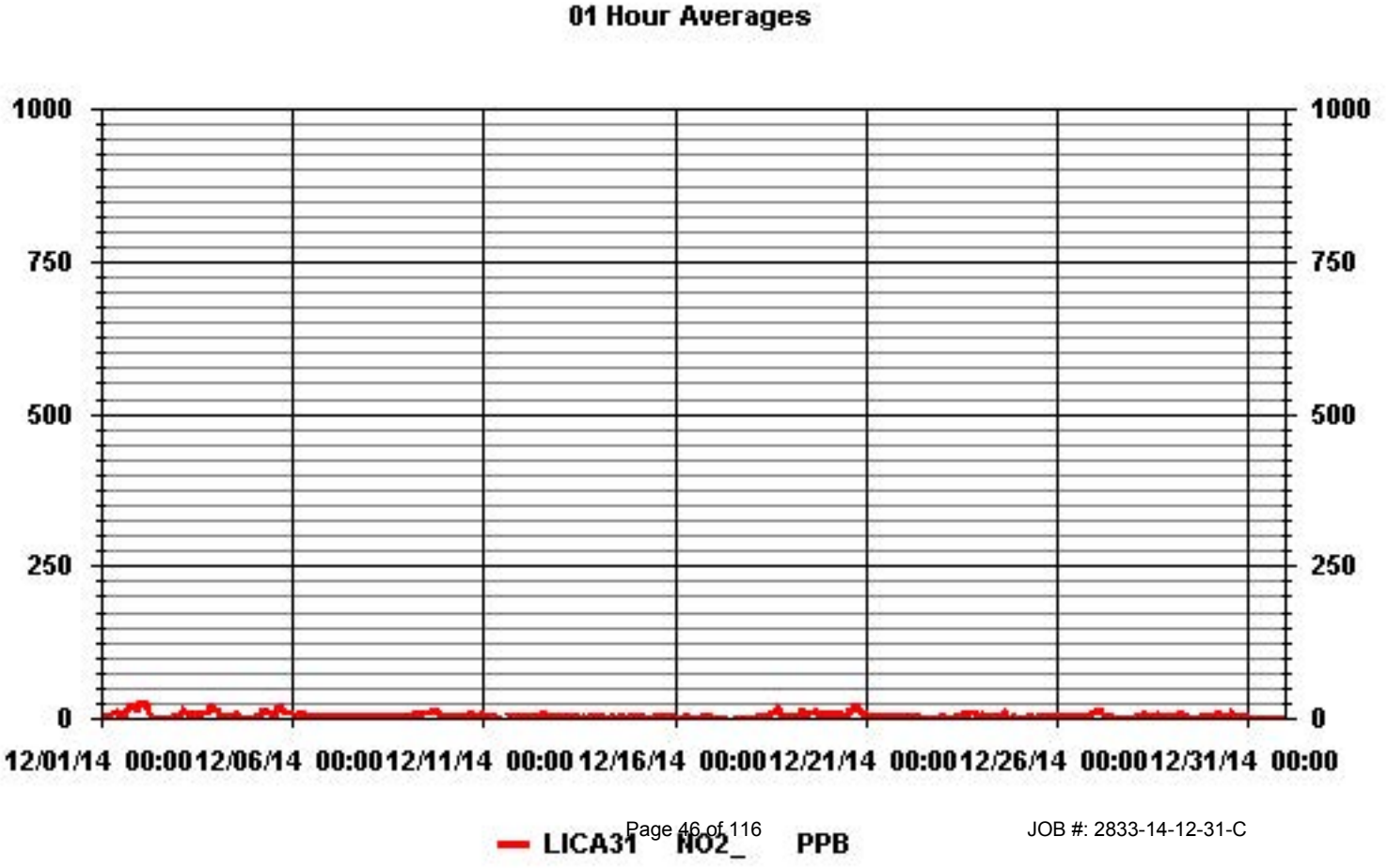
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	680					
MAXIMUM 1-HR AVERAGE:	26.3	PPB	@ HOUR(S)	3	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	10.6	PPB			ON DAY(S)	1
					VAR-VARIOUS	

IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:	736	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	98.9	%
STANDARD DEVIATION:	4.30		MONTHLY AVERAGE:	4.33	PPB



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	5.8	5.1	5.1	**S**	4.6	5.4	7.5	13.3	11.8	21.5	19	10.3	8.3	10.1	8.4	13.1	18.3	20.5	21.4	22.7	21.9	19.7	18.2	25.2	25.2	***13.8***	24
2	26.9	25.9	**S**	30.7	27.1	20.5	15.4	7.4	3.8	1.9	1.1	0.9	0.8	0.4	0.5	0.7	0.9	0.9	0.5	1.1	3.7	2.1	3	2.1	30.7	7.8	24
3	5	**S**	12.4	17	12.7	9.6	9.5	8.5	11.9	8	16.7	10.2	8.6	7.2	7.2	10	12.2	10.1	9.9	15.5	21.4	22.6	22.6	19.2	22.6	12.5	24
4	**S**	14.6	13.2	10.5	5.2	4	3.4	2.6	5	5.5	34.5	5.6	7.7	6.9	4.4	1.9	2.3	2.1	1.9	1.6	1.5	1.9	1.6	**S**	34.5	6.3	24
5	3.3	4.7	4.8	5	8.1	14.2	14.3	12.3	10.9	16.2	9	7.7	22.8	6.5	17.5	21.3	23.2	18.9	15.6	14.7	11.4	10.5	**S**	10.7	23.2	12.3	24
6	9.4	7.3	6.4	6.4	6.2	7.6	7.7	8	7.4	7.1	5.7	5.3	5.3	4.9	5.3	5.8	4.4	3.2	2.8	2.8	2.5	**S**	2.2	2.1	9.4	5.5	24
7	1.8	1.8	1.6	2	1.8	2	2.4	3.1	8.2	7.8	4.7	5.1	4.6	3.8	3.8	4.1	4.1	4.7	3.6	3.2	**S**	2.8	3.5	2.4	8.2	3.6	24
8	2.1	2.4	2	2	1.8	1.8	2.1	2	2.3	2.6	2.9	3	3.1	3.3	3.4	3.7	3.8	3.3	3.6	**S**	4.3	4.1	4.4	4.1	4.4	3.0	24
9	4.5	4.8	5.8	5.9	6.1	6.4	10.1	7	7.5	***52.7***	8	9.1	8.6	9.1	11.6	15.3	16.1	14.6	**S**	10.4	9.4	8.5	7.1	5.4	***52.7***	10.6	24
10	5.2	5.3	4.8	4.9	2.9	2.6	4.7	7.3	4.2	5.2	4	4.1	5.1	3.7	5.4	6.9	6.7	**S**	7.7	7	5.8	5.2	4.8	7.2	7.7	5.2	24
11	7	5.8	6.1	5.9	5	4.2	3.6	3.4	2.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	6.5	8.7	6.7	8	**S**	6.8	4.6	5.6	8.7	5.7	24
12	5.2	6.8	6.7	4.2	4.2	3.4	4	4.5	4.5	4.5	3.9	5.5	7	9.6	11	10.3	6.8	6.2	6.7	**S**	2.8	3	2.5	2.5	11	5.5	24
13	2.5	2.2	2.1	1.9	1.8	2.1	2	2.2	1.6	2	2.3	6.1	7.4	1.8	1.5	1.9	1.6	1.8	**S**	3.2	3.4	2.9	2.7	2.9	7.4	2.6	24
14	2.6	2.7	2	1.8	1.9	1.6	1.3	1.8	1.9	2.9	2.3	3.9	3.6	2.3	2.7	2.2	3.1	**S**	4.3	6.5	3.9	3.7	7.9	3.8	7.9	3.1	24
15	3.8	2.6	2.1	2.2	2.1	2.1	1.8	1.4	1.5	2	2	2.5	4.5	3.6	3.6	4.5	**S**	5	3.9	3.9	3.7	3.1	2.7	2.6	5	2.9	24
16	2.4	1.7	1.7	1.5	1.7	1.9	1.9	1.9	2.4	2.2	1.9	1.3	1.3	1.4	1.7	**S**	1.8	2.1	1.9	2.1	2.2	2.2	1.9	1.9	2.4	1.9	24
17	1.9	1.7	1.9	1.6	1.5	1.7	1.5	1.7	1.7	**Y**	**S**	**S**	**S**	4	**S**	1.5	1.5	1.6	1.8	1.5	2	1.5	1.8	1.4	4	1.8	23
18	1.5	1.7	1.7	2	2.1	2	2.3	2	2.3	2.2	3.6	5.8	8.5	**S**	11.5	19.1	20.5	19.5	16.5	7.5	6.7	**P**	3.9	5.6	20.5	6.8	23
19	5.8	5.3	3.1	2.9	3.1	3.7	7.3	12.4	11.7	10.7	9.3	7.3	**S**	7.8	8.2	10.2	11.9	11.6	9.2	6.8	7.6	7	6.7	7.1	12.4	7.7	24
20	6.7	6.1	6.6	6.1	6.5	6.3	6.3	6.2	7.2	6.7	6.6	**S**	9.5	13.2	15.2	11.7	17.4	20.5	22.7	22.6	17.9	15.9	10.7	6.9	22.7	11.1	24
21	6.1	6.2	4.4	**P**	3.6	2.3	2.2	2.3	2.2	**P**	**S**	2.3	2.4	2.1	1.9	2.3	2.3	2.5	2.3	2.7	2.2	2.4	3.1	3.1	6.2	2.9	22
22	3.2	3.4	3.8	4	**P**	5.8	5.8	6	5.8	**S**	3.6	**P**	**P**	**P**	**P**	**P**	**P**	**P**	2.1	2.3	2.1	3.2	2.6	3.2	6	3.8	16
23	3.5	3.5	3.2	2.3	2	2	1.5	2.7	**S**	6.3	6.6	5.3	7.1	7.4	5.8	5.7	6.7	7.8	9.3	9.8	9	7.9	6.7	5.4	9.8	5.5	24
24	5.4	6.7	6.8	6.1	5.2	5.3	4.8	**S**	2.6	2.3	2.3	2.5	2.3	2.2	10	11.8	10	5.8	3.8	2.2	2.2	2.8	2.2	2	11.8	4.7	24
25	1.6	0.7	0.8	0.2	0.1	0.1	**S**	1	1.3	1.3	1.5	1.6	1.6	1.5	1.6	1.5	1.3	2	2.2	1.8	1.9	1.9	1.9	2.6	2.6	1.4	24
26	3	3.9	3.6	3.9	3.6	**S**	2.1	1.8	2	2	2.2	1.7	2.6	2	11	3.3	3.6	4	5.6	5.6	5.8	6.5	7.6	8.7	11	4.2	24
27	10.2	10.4	11.6	12.8	**S**	7	7.1	6.2	4.6	3.3	1.9	1.9	1.9	1.4	1.4	1.4	1.9	1.6	1.4	1	0.8	1	0.8	2.9	12.8	4.1	24
28	3.2	3.1	3	**S**	6.2	6.5	6.8	7.8	8.4	5.2	4.9	8.9	6.9	5.4	6.7	6.9	7.9	7.3	4.9	4.3	4.6	4.4	4.6	4.3	8.9	5.7	24
29	4.8	5.4	**S**	6.6	7.4	8.4	7.9	8.1	5.9	3.6	2.4	1.9	1.5	1.8	2.1	2.1	1.7	1.6	2.4	4.6	4.6	3.9	3.4	2.9	8.4	4.1	24
30	2.9	**S**	6.7	8.4	7.4	6.8	6.4	6.7	7.1	6.4	4.5	4.7	9.8	11	8.8	4	2.9	3.4	3.2	2.6	2.6	2.1	2.3	2.3	11	5.3	24
31	**S**	1.8	1.4	1.3	1.3	1.4	1.4	1.8	1.6	1.4	1.4	1.1	1.4	7	1.2	1.3	2.2	2.1	1.3	6.1	26.1	3.7	1.6	**S**	26.1	3.2	24
HOURLY MAX	27	26	13	31	27	21	15	13	12	53	35	10	23	13	18	21	23	21	23	23	26	23	23	25			
HOURLY AVG	5.1	5.3	4.7	5.7	4.9	5.0	5.2	5.1	5.1	7.2	6.0	4.7	5.7	5.1	6.2	6.6	7.0	6.9	6.2	6.3	6.7	5.6	5.0	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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 689

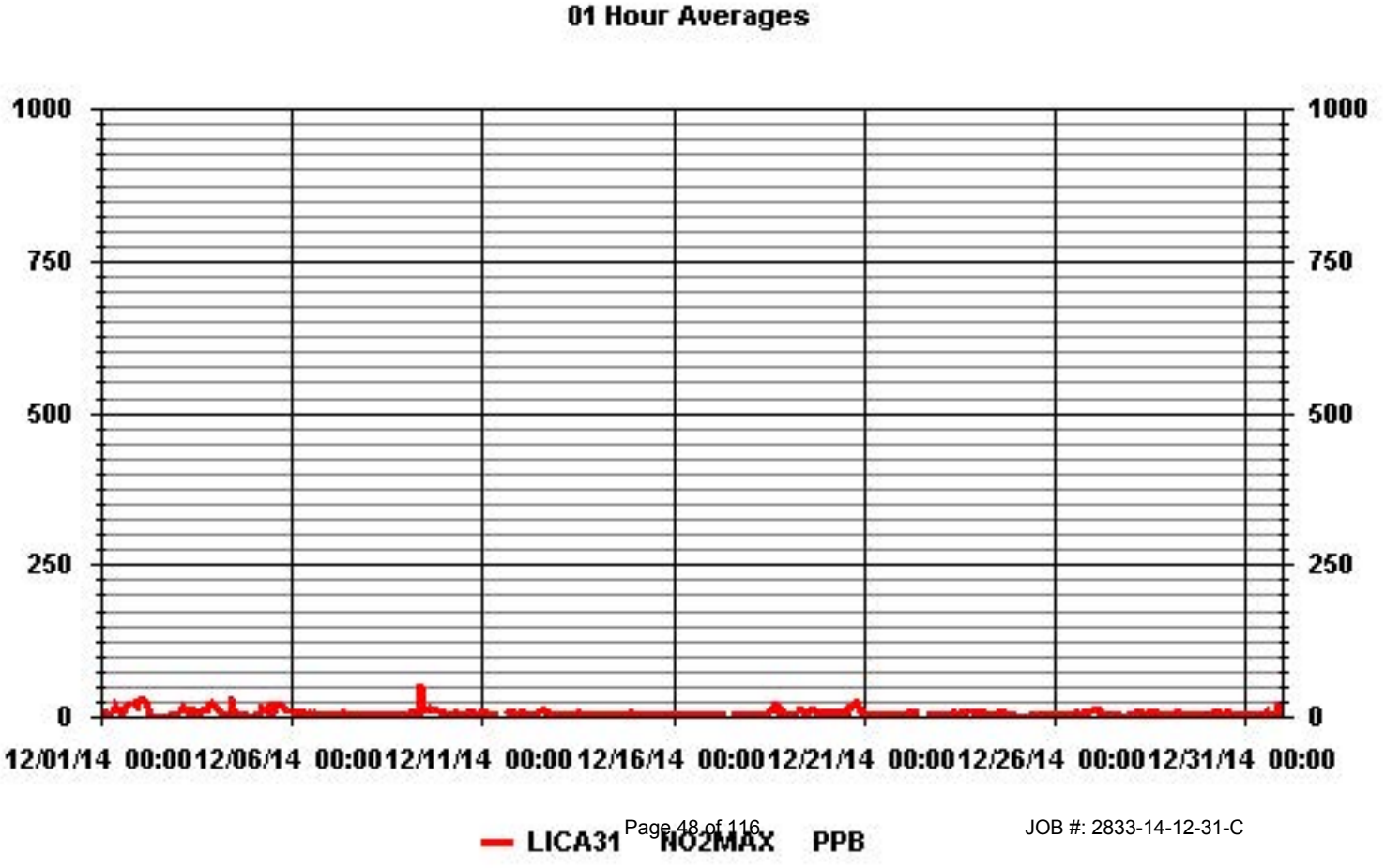
MAXIMUM INSTANTANEOUS VALUE: 52.7 PPB @ HOUR(S) 9 ON DAY(S) 9

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 732 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 5.34



JOB #: 2833-14-12-31-C

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

December 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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	

Calm : .00 %

Total # Operational Hours : 665

Distribution By Samples

Direction

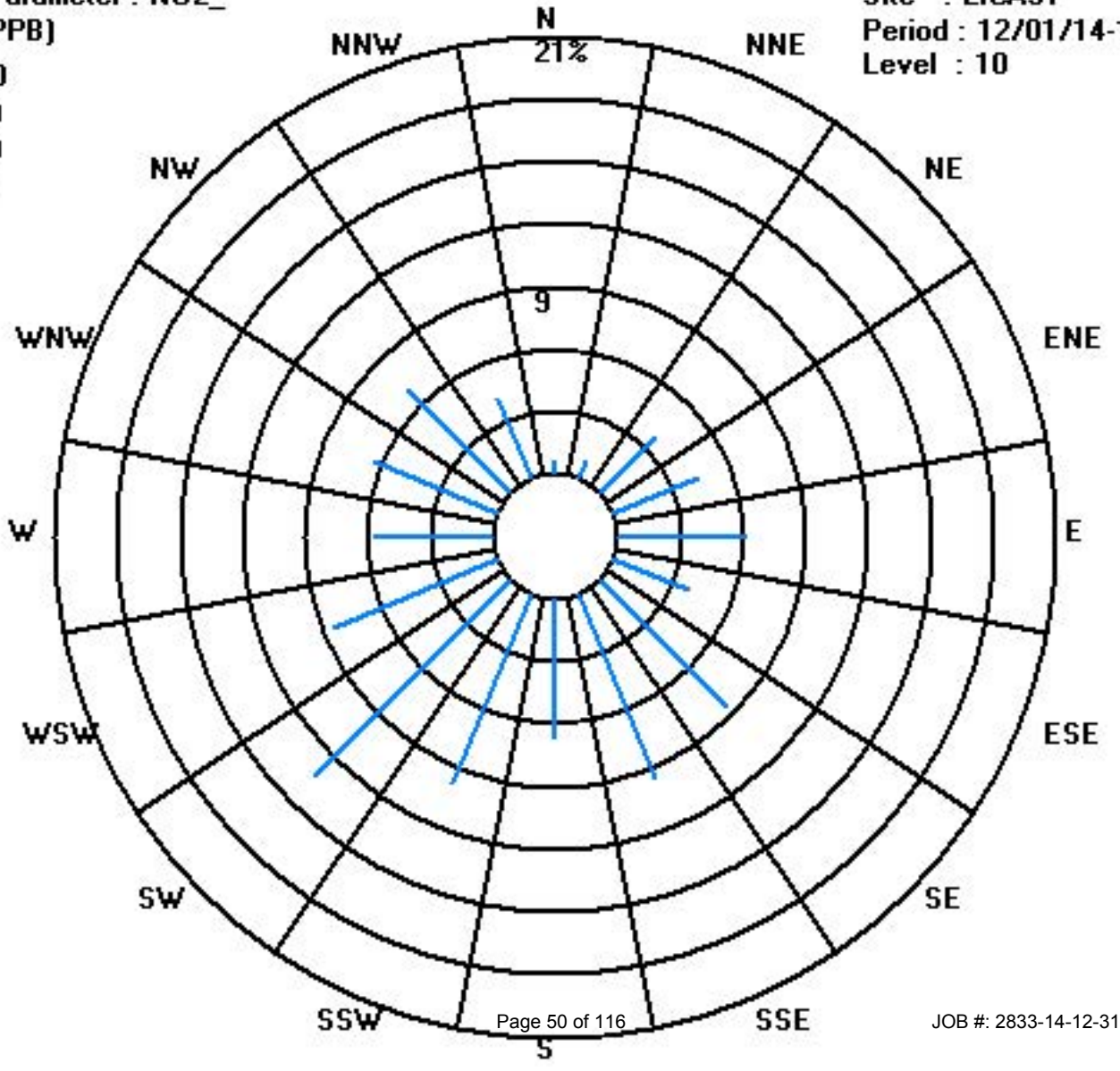
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	665
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	

Calm : .00 %

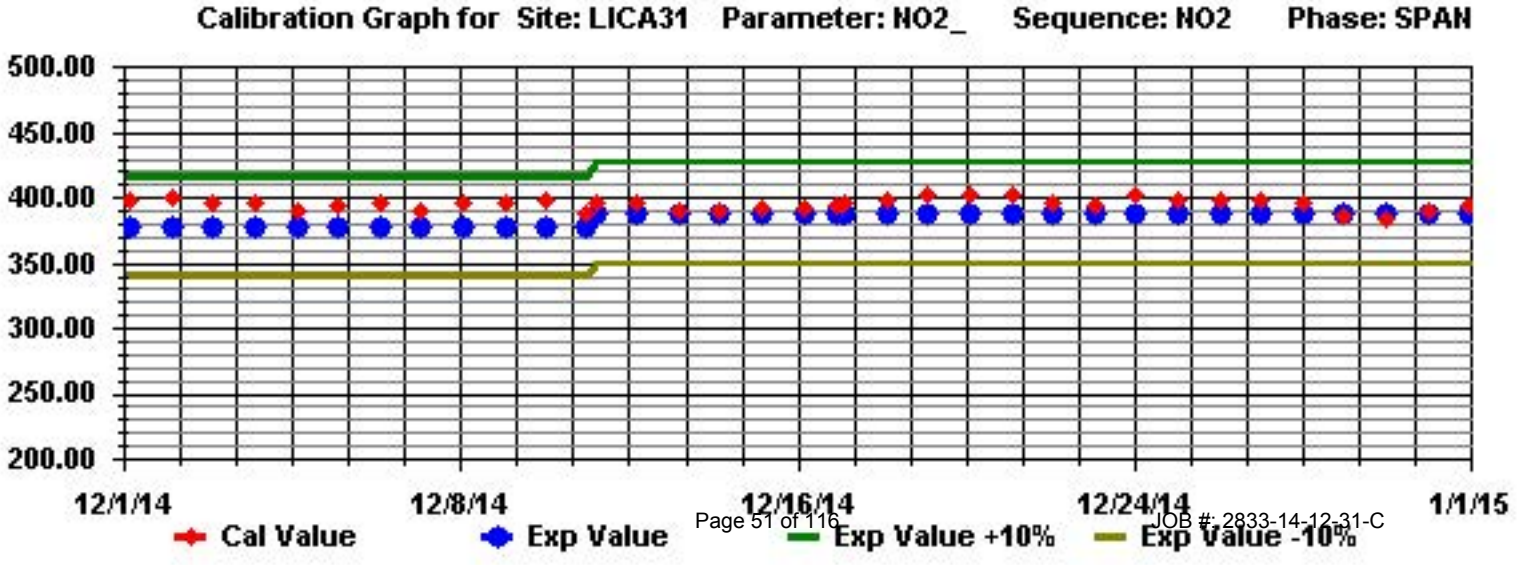
Total # Operational Hours : 665

Logger : 31 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA31
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-31-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
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

NITRIC OXIDE (NO) hourly averages in ppb

MST

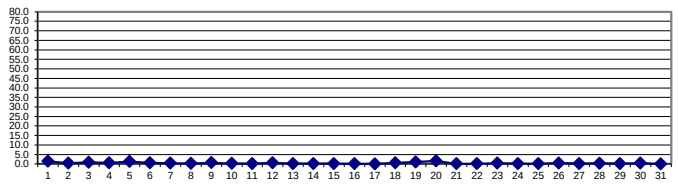
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0.2	0.2	0.2	**S**	0.5	0.3	0.3	0.4	0.8	3.4	5.2	5.3	3.1	4.5	1.5	1.9	0.5	0.3	0.7	0.4	0.4	0.4	0.1	0.4	5.3	1.3	24
2	0.7	0.6	**S**	0.6	0.7	0.6	0.5	0.4	0.3	0.4	0.6	0.6	0.6	0.4	0.4	0.1	0.1	0.3	0	0.1	0	0	0	0	0.7	0.3	24
3	0.1	**S**	0.2	0.1	0.3	0.2	0.3	0.4	0.7	1.5	2.6	3.6	3.5	2.1	1.3	0.9	0.3	0.3	0.1	0.1	0.3	0.1	0.3	0.4	3.6	0.9	24
4	**S**	0.5	0.2	0.1	0	0.1	0.6	0	0.2	0.5	1.6	1.3	2	1.7	0.7	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0	**S**	2	0.5	24
5	0.3	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.4	2.4	3.4	3.4	3.4	2.2	4	4.1	1.3	0.3	0.3	0.3	0.3	0.3	**S**	0.1	4.1	1.2	24
6	0.2	0.2	0.2	0	0.1	0.2	0	0.1	0.2	1	1.7	1.7	1.7	1.6	1.2	0.6	0.2	0	0	0	0.1	**S**	0.3	0.2	1.7	0.5	24
7	0	0.1	0	0	0	0	0.2	0.1	0.2	0.7	0.9	1.5	0.9	0.6	0.5	0.5	0.1	0.3	0.2	0.2	**S**	0.3	0.4	0.1	1.5	0.3	24
8	0	0.2	0	0	0.2	0	0	0	0.1	0.2	0.5	0.4	0.7	0.7	0.4	0.2	0.2	0.3	0.1	**S**	0.2	0.2	0.3	0.2	0.7	0.2	24
9	0.1	0.1	0.1	0	0	0	0.1	0	0.1	3.4	1.5	2.1	2	1.6	1.3	0.7	0.2	0.3	**S**	0.4	0.1	0.2	0	0.1	3.4	0.6	24
10	0.1	0.1	0	0	0	0	0	0.2	0	0.4	0.7	1	1.2	0.7	0.7	0.3	0.1	**S**	0.2	0.1	0.2	0.1	0.1	0	1.2	0.3	24
11	0	0.2	0	0	0	0	0	0	0	0.8	**C**	**C**	**C**	**C**	**C**	**C**	0.6	0.5	0	0.2	**S**	0.2	0	0.2	0.8	0.2	24
12	0.1	0.2	0.1	0	0	0	0	0.1	0.2	0.2	0.9	1.7	2	2.2	2.4	0.9	0	0	0.1	**S**	0.1	0.1	0.2	0	2.4	0.5	24
13	0	0	0	0.1	0	0.1	0	0.3	0.1	0	0.4	0.7	0.5	0.5	0.1	0.3	0.1	0	**S**	0.2	0	0	0	0.1	0.7	0.2	24
14	0	0.1	0.1	0	0	0.1	0.1	0.1	0	0.4	0.1	0.7	0.3	0.4	0.4	0.1	0.4	**S**	0	0.3	0	0	0.3	0	0.7	0.2	24
15	0	0	0	0.2	0	0	0	0	0	0	0.2	0.6	1	0.7	0.4	0.2	**S**	0.2	0.1	0	0.2	0	0	0	1	0.2	24
16	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0.1	0.1	0.2	0.2	**S**	0.2	0.1	0.3	0.1	0.2	0	0	0.1	0.3	0.1	24
17	0	0.1	0.1	0	0.2	0.2	0	0	0	**Y**	**S**	0.2	**S**	0.2	**S**	0	0	0	0	0	0	0	0	0	0.2	0.1	23
18	0	0	0	0	0	0	0	0	0	0	0	1	2.3	**S**	3.4	3.1	1	0.6	0.8	0.2	0.6	0.4	0.1	0.1	3.4	0.6	24
19	0.2	0.1	0	0.2	0.1	0.3	0.2	0.2	0.5	2.8	5.1	5.1	**S**	4.1	2.3	0.9	0.2	0	0	0	0	0	0	0	5.1	1.0	24
20	0	0	0	0	0	0	0	0	0.2	1.1	2.4	**S**	6	***11.3***	9	2.6	0.5	0.3	0.6	0.5	0	0	0	0	***11.3***	***1.5***	24
21	0	0	0	0.2	0	0	0	0	0	0.5	**S**	0.6	0.6	0.2	0.2	0	0	0	0.1	0	0.2	0.1	0	0	0.6	0.1	24
22	0.1	0	0.1	0.1	0.1	0.1	0.2	0.1	0.3	**S**	0.8	**P**	**P**	**P**	**P**	**P**	**P**	**P**	0	0	0	0	0	0	0.8	0.1	17
23	0	0	0	0	0	0	0	0	**S**	0.6	1.2	1.9	2.3	1.7	0.6	0.3	0.1	0	0	0.2	0.2	0.2	0.1	0.3	2.3	0.4	24
24	0.2	0.1	0.1	0.1	0	0.3	0.1	**S**	0	0	0.1	0	0	0	0.8	1.7	0	0	0	0	0	0	0	0	1.7	0.2	24
25	0	0	0	0	0	0	**S**	0.2	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0	0.1	0.1	0	0	0.1	0	0.3	0.1	24
26	0	0	0.2	0.1	0	**S**	0.4	0.4	0.4	0.6	1	0.9	1.2	0.9	1.1	0.5	0.4	0.3	0.5	0.5	0.2	0.5	0.5	0.4	1.2	0.5	24
27	0.4	0.5	0.6	0.6	**S**	0.1	0.1	0	0	0.2	0.3	0.3	0.3	0.3	0.3	0	0	0	0	0	0.1	0	0	0	0.6	0.2	24
28	0	0	0	**S**	0	0	0	0.1	0	0.2	0.9	1.6	1.8	1	1	0.7	0.2	0.1	0	0	0	0	0	0	1.8	0.3	24
29	0	0.1	**S**	0.2	0.2	0	0	0	0.1	0.2	0.5	0.1	0.3	0.4	0.7	0.3	0	0	0.1	0	0.2	0	0	0	0.7	0.1	24
30	0	**S**	0	0	0	0	0	0	0.2	0.5	0.7	1	1.5	3.2	1	0.2	0	0	0	0	0	0	0	0	3.2	0.4	24
31	**S**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	**S**	0.3	0.0	24
HOURLY MAX	1	1	1	1	1	1	1	0	1	3	5	5	6	11	9	4	1	1	1	1	1	1	1	0			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8	1.2	1.3	1.5	1.6	1.3	0.8	0.2	0.2	0.2	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

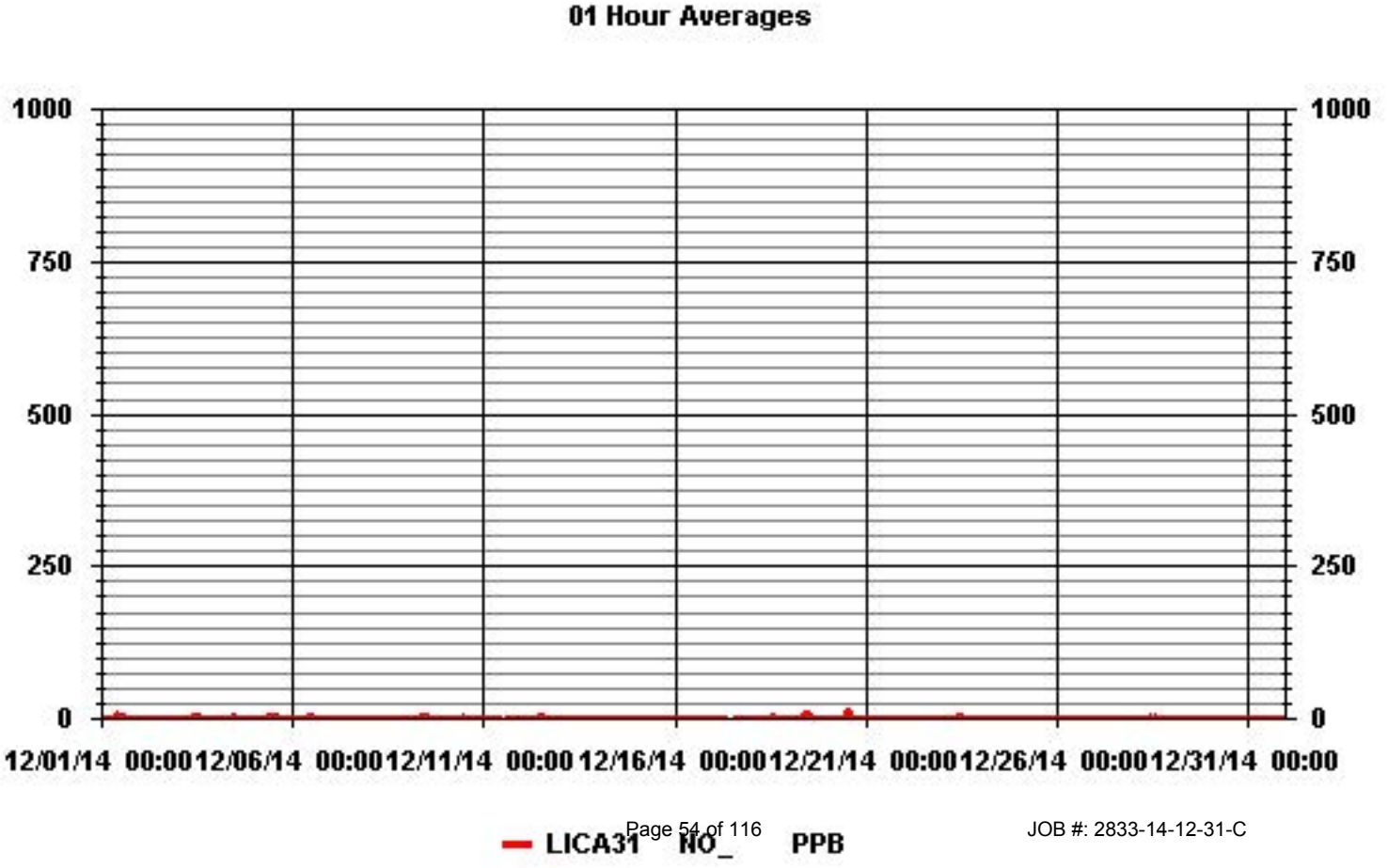
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB

24 HOUR AVERAGES FOR DECEMBER 2014



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	429					
MAXIMUM 1-HR AVERAGE:	11.3	PPB	@ HOUR(S)	13	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	1.5	PPB			ON DAY(S)	20
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		736	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		98.9	%
STANDARD DEVIATION:	0.95		MONTHLY AVERAGE:		0.43	PPB



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	0.9	0.9	0.8	**S**	1.2	1.1	1.1	10.6	2.1	15.4	8.1	6.8	5.6	6.3	3.2	3.3	2.1	0.9	1.7	1.2	1.4	0.9	0.9	0.9	15.4	3.4	24
2	1.2	1.2	**S**	1.5	1.4	1.3	1.2	1	1	1	1.2	1.5	1.5	0.9	1.4	1	1.1	1.6	0.9	0.7	0.7	0.6	0.7	0.8	1.6	1.1	24
3	0.7	**S**	1	0.7	1.1	0.9	0.9	1.4	10.3	2.6	16	5.8	4.8	3.1	2.2	1.8	1	0.9	0.9	1.1	1.6	0.6	0.7	0.9	16	2.7	24
4	**S**	1.3	1	0.9	0.7	0.8	2.8	0.8	1.7	2.3	13.1	2.5	3.9	2.8	1.5	1	1.3	1	0.9	0.8	0.7	1	0.6	**S**	13.1	2.0	24
5	0.9	0.8	0.9	0.7	0.8	0.7	0.9	0.9	1.5	11.6	4.6	4.4	35.8	2.9	5.7	5.9	3.2	1.1	1.1	0.9	0.7	0.9	**S**	0.7	35.8	***3.8***	24
6	0.8	0.9	0.8	0.6	0.7	0.9	0.6	0.7	0.9	1.7	2.3	2.3	2.4	2.3	1.8	1.3	0.9	0.7	0.9	0.6	0.9	**S**	0.8	0.9	2.4	1.2	24
7	0.6	0.8	0.6	0.7	0.7	0.8	0.9	0.8	12.1	5.3	2	2.5	2	1.3	1.7	1.5	0.7	1	0.8	0.9	**S**	1.1	1.3	0.7	12.1	1.8	24
8	0.9	0.9	0.4	0.6	0.9	0.7	0.6	0.7	0.6	0.9	1.1	1.1	1.1	1.5	1.2	0.9	0.8	1.1	0.7	**S**	0.9	0.8	0.9	0.7	1.5	0.9	24
9	0.6	0.8	0.9	0.6	0.6	0.5	7	0.9	1.1	***48.1***	2.3	3.4	3.4	2.2	1.9	1.7	0.8	1.1	**S**	1.4	0.6	0.9	0.6	0.7	***48.1***	3.6	24
10	0.8	0.7	0.7	0.7	0.8	0.7	0.6	1.9	0.8	1.3	1.6	3.2	3.4	1.6	1.3	0.9	0.7	**S**	0.9	0.8	0.9	0.9	0.8	0.8	3.4	1.2	24
11	0.7	0.9	0.6	0.6	0.6	0.3	0.5	0.3	0.6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1.6	1.4	0.8	1	**S**	0.9	0.6	0.8	1.6	0.8	24
12	0.6	0.7	0.9	0.8	0.5	0.5	0.8	1.3	1.3	1	1.5	2.5	2.8	3	3.2	1.8	0.6	0.8	0.7	**S**	1	0.7	0.9	0.6	3.2	1.2	24
13	0.6	0.6	0.4	0.7	0.9	0.7	0.5	1.5	1	1.2	2.1	16.7	16.7	2.4	0.6	1.4	0.7	0.3	**S**	1.1	1.1	0.7	0.4	0.8	16.7	2.3	24
14	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.6	2.6	1.9	3.4	2	2	2	0.9	1.9	**S**	0.8	2.5	0.6	0.6	4.3	0.6	4.3	1.4	24
15	0.7	0.5	0.6	0.8	0.6	0.6	0.5	0.8	0.6	0.6	0.9	1.3	1.7	1.7	1	0.9	**S**	0.9	0.8	0.7	0.7	0.6	0.8	0.5	1.7	0.8	24
16	0.6	0.8	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.9	0.7	0.7	0.7	0.9	0.7	**S**	0.8	0.7	1	0.7	0.9	0.6	0.7	0.6	1	0.7	24
17	0.7	0.7	0.6	0.7	0.9	0.9	0.8	0.7	0.6	**Y**	**S**	**S**	**S**	0.8	**S**	0.7	0.2	0.2	0.2	0.5	1	0.3	0.1	0	1	0.6	23
18	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.3	0.8	0.8	1.8	3.7	**S**	4.3	4	2.1	1.7	4.3	0.8	4.8	**P**	0.8	0.9	4.8	1.5	23
19	1	0.9	0.7	0.9	0.9	1	1	0.8	1.6	4.8	6.2	5.7	**S**	5.2	3.9	2	1.1	0.6	0.8	0.6	0.5	0.4	0.4	0.4	6.2	1.8	24
20	0.6	0.6	0.6	0.4	0.4	0.7	0.4	1	1.7	2.1	4.2	**S**	9.5	13.1	12.2	4.8	1.7	1	1.7	1.6	0.6	0.6	0.7	0.6	13.1	2.6	24
21	0.6	0.4	0.3	**P**	0.5	0.4	0.4	0.4	0.6	**P**	**S**	1.3	1.4	0.8	0.9	0.7	0.7	0.6	0.8	0.7	0.9	0.7	0.5	0.7	1.4	0.7	22
22	0.7	0.8	0.8	0.7	**P**	1.1	1	0.8	1.4	**S**	1.6	**P**	**P**	**P**	**P**	**P**	**P**	**P**	2.1	1.4	0.3	1.5	0.7	0.4	2.1	1.0	16
23	0.5	0.8	0.6	0.4	0.7	0.4	0.6	0.6	**S**	2.9	3.3	2.7	3.8	3.8	1.7	0.8	0.6	0.6	0.6	0.7	1	1	0.9	1.2	3.8	1.3	24
24	0.7	0.6	0.7	0.7	0.7	1	0.7	**S**	0.2	0.6	0.8	0.7	0.5	0.5	1.9	3.5	1.2	0.2	0.1	0.2	0.1	0.5	0.2	0.2	3.5	0.7	24
25	0.2	0.2	0.2	0	0.2	0.4	**S**	0.8	0.9	0.7	0.9	1.2	0.8	0.9	1	0.8	0.8	0.8	0.8	0.8	0.5	0.5	0.8	0.7	1.2	0.6	24
26	0.5	0.5	0.8	0.8	0.6	**S**	0.9	1	1.1	1.4	2.4	2.2	3.5	1.7	17.5	1.7	1.1	0.9	2.2	2.2	0.7	2.2	2.5	0.9	17.5	2.1	24
27	1.2	1.2	1.2	1.1	**S**	0.7	0.8	0.7	0.5	1	0.8	0.8	1	0.9	1.1	0.4	0.5	0.3	0.4	0.3	0.8	0.5	0.5	0.5	1.2	0.7	24
28	0.5	0.5	0.5	**S**	0.9	0.7	0.5	0.7	0.7	0.9	1.7	6	4.4	2.9	3.3	3.2	2.2	1.5	0.4	0.4	0.5	0.4	0.5	0.4	6	1.5	24
29	0.5	0.7	**S**	0.8	0.8	0.7	0.9	0.7	1	1	1.9	0.8	2.2	2.6	3.4	2.7	0.9	0.3	1.5	0.9	1	0.5	0.5	0.7	3.4	1.2	24
30	0.7	**S**	0.7	0.5	0.6	0.2	0.7	0.5	0.9	1.2	1.7	1.8	4.1	5.6	2.2	1.4	0.7	0.5	0.5	0.6	0.7	0.7	0.5	0.3	5.6	1.2	24
31	**S**	0.1	0.3	0.3	0.6	0.3	0.3	0.2	0.8	0.8	0.3	0.3	0.4	4.7	1.6	0.3	0.2	1.3	0.3	0.4	26.2	0.7	1.7	**S**	26.2	1.9	24
HOURLY MAX	1	1	1	2	1	1	7	11	12	48	16	17	36	13	18	6	3	2	4	3	26	2	4	1			
HOURLY AVG	0.7	0.7	0.7	0.7	0.7	0.7	1.0	1.1	1.6	4.2	3.1	3.1	4.6	2.8	3.0	1.8	1.1	0.9	1.0	0.9	1.8	0.8	0.9	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: 687

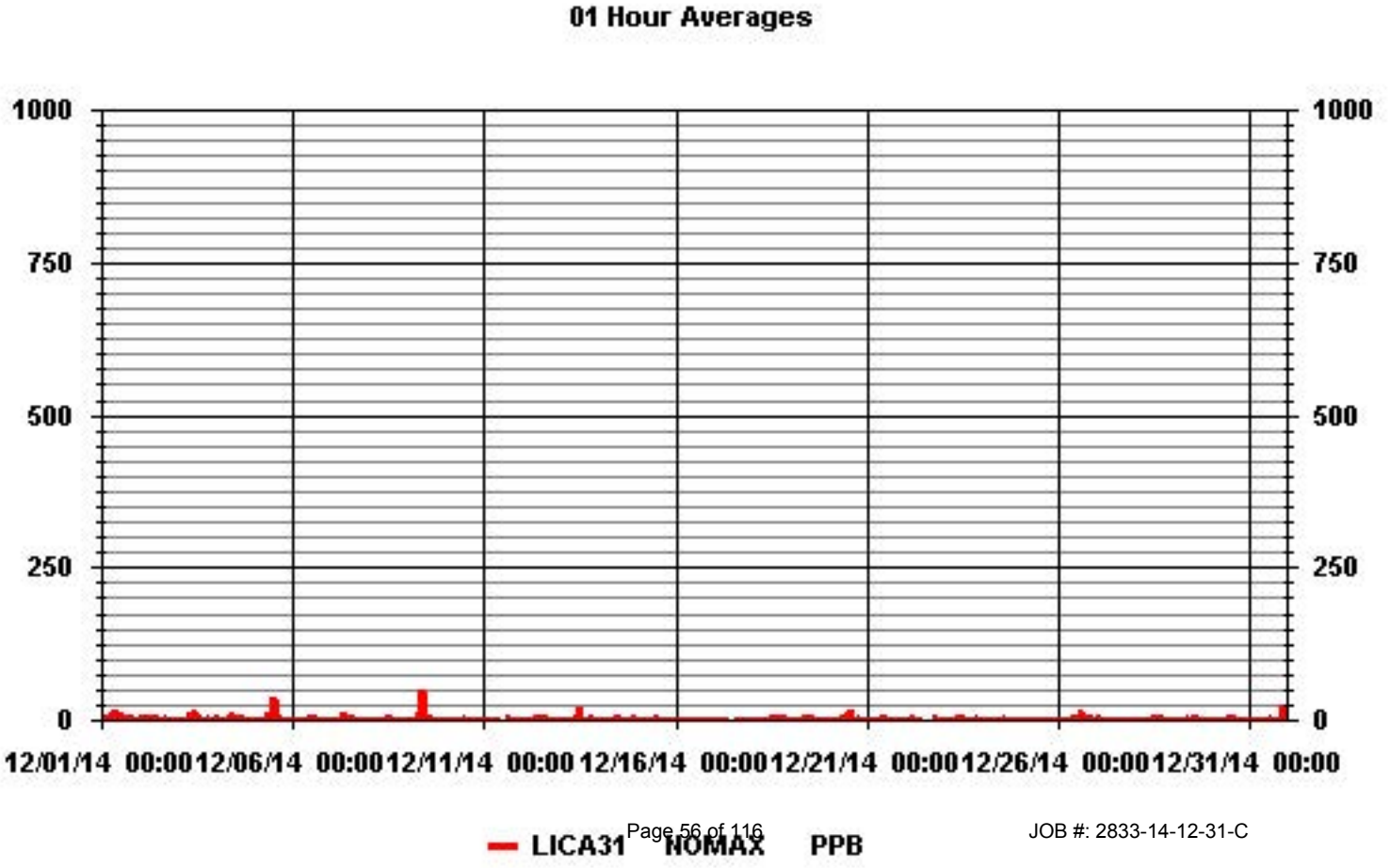
MAXIMUM INSTANTANEOUS VALUE: 48.1 PPB @ HOUR(S) 9 ON DAY(S) 9

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 732 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 3.14



JOB #: 2833-14-12-31-C

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

December 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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	

Calm : .00 %

Total # Operational Hours : 665

Distribution By Samples

Direction

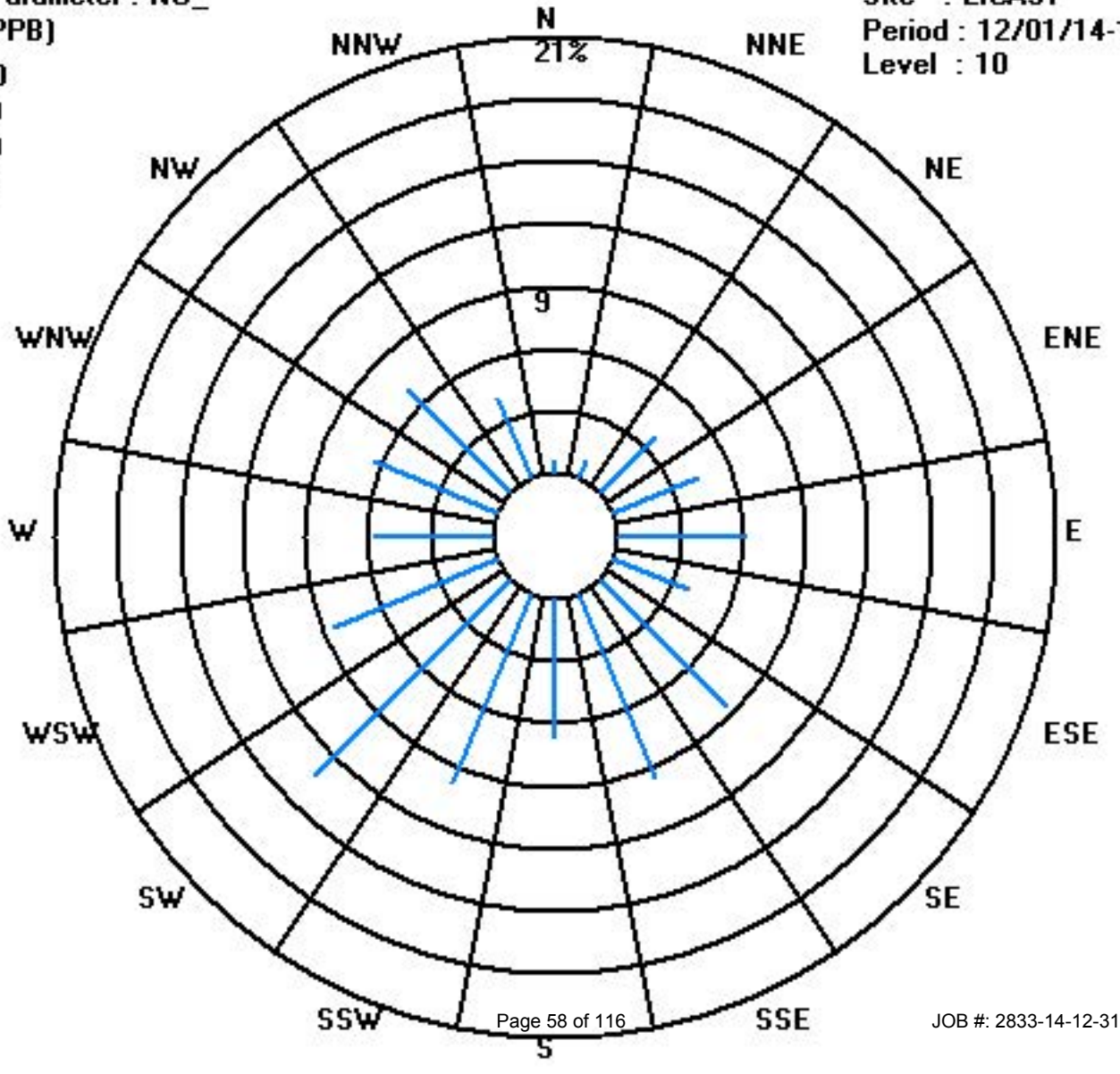
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	665
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	

Calm : .00 %

Total # Operational Hours : 665

Logger : 31 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA31
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-31-C

Oxides of Nitrogen

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

OXIDES OF NITROGEN (NOx) hourly averages in ppb

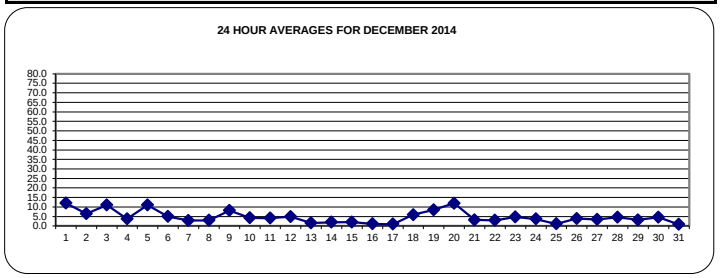
MST

HOUR START / HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	5	4.3	4.1	S	3.9	4.4	5.7	8.3	10.1	14.1	15	14	8.7	12.9	6.1	12.2	13.4	19.2	20.6	21.1	17.2	17.1	15.7	21.4	21.4	***11.9***	24
2	25.6	24.6	S	***26.9***	25.1	18.6	10.8	4.9	1.9	1.2	0.8	0.6	0.6	0.4	0.4	0.1	0.1	0.3	0	0.1	1.3	1.1	1.9	1.2	***26.9***	6.5	24
3	3.2	S	8.4	14.3	10.9	8.2	8.3	7.7	7.5	8.1	9.8	11.1	10.9	8.3	7.3	8.7	10.9	8.8	8.8	11.6	18.7	21.8	20.3	17.8	21.8	10.9	24
4	S	12.7	7.9	8	3.8	2.7	2.6	1.6	3.2	4	6.4	5.3	7.4	7.2	2.7	0.8	0.8	0.7	1.1	0.9	0.7	0.7	0.7	S	12.7	3.7	24
5	2.8	3.7	4.2	4.6	6.4	12.7	13.3	9	10	12	10.9	9.8	9.1	7.8	16.1	23.1	22.5	15.9	14.3	13.1	10.6	10	S	9.8	23.1	10.9	24
6	8	6.7	5.6	5.1	5.4	6.4	6.5	7.1	6.8	6.9	6.5	6.2	5.9	5.3	5	5.3	3.2	2.2	2.1	1.8	1.7	S	1.8	1.6	8	4.9	24
7	1.3	1.3	1.3	1.3	1.2	1.6	2	2.4	3.3	4.1	5	5.8	4.6	3.6	3.4	3.5	3.4	3.6	3.1	2.6	S	2.7	3	2.3	5.8	2.9	24
8	2.2	2.3	1.9	2	2	1.7	2	1.9	2.1	2.8	3.4	3.3	3.9	3.9	3.8	3.9	3.9	3.6	3.5	S	3.6	3.5	3.9	3.5	3.9	3.0	24
9	3.8	4.1	4.8	4.9	5.2	5.4	5.8	6.2	6.7	12.4	8.7	10.2	10.1	10.1	10.9	13.6	15	13.5	S	9.9	8.4	7.4	5.6	4.7	15	8.1	24
10	4.4	4.6	3.5	3.2	2	1.8	3.1	5.2	3.2	4.1	3.7	3.4	4.9	3.6	4.9	5.9	6	S	6.9	5.6	4.8	4.2	3.9	5.8	6.9	4.3	24
11	5.8	5.2	5.1	4.7	4.1	3.2	2.8	2.1	1.9	1.7	C	C	C	C	C	C	4.6	5.2	4.1	5.5	S	5.8	3.7	4.6	5.8	4.1	24
12	4.6	5.4	5.2	3.4	3.2	2.4	3.1	3.9	4.1	3.8	4.2	6	7.6	9.2	12.2	8.9	5.4	4.6	5.5	S	2.2	2.5	2.1	2	12.2	4.8	24
13	1.9	1.6	1.1	1.5	1.3	1.6	1.3	1.4	1.1	1.1	1.4	1.8	1.8	1.4	1.1	1.6	1.1	0.8	S	2.6	2.7	2.3	2	2.3	2.7	1.6	24
14	2.2	2	1.5	1.3	1.2	1.1	1	1.3	1.2	1.6	1.1	1.9	1.1	1.5	2	1.6	2.3	S	2.6	3.7	2.9	2.9	4	3	4	2.0	24
15	2.4	1.8	1.4	1.7	1.3	1.1	0.8	0.6	0.6	0.9	1.4	2.2	3.9	2.8	2.7	3.3	S	4	3.1	2.9	2.4	1.9	2.1	1.7	4	2.0	24
16	1.4	1	0.7	0.6	0.8	1.1	1.3	1.3	1.4	1.5	1	0.7	0.6	0.8	1	S	1.1	1.3	1.5	1.3	1.5	1.2	1.1	1.2	1.5	1.1	24
17	1.1	1	1	0.7	1	1.1	0.8	1	0.9	Y	S	0.8	S	3.6	S	0.6	0.4	0.5	0.6	0.7	0.8	0.6	0.7	0.5	3.6	0.9	23
18	0.5	0.6	0.7	1	1	1.1	1.2	1.1	1.2	1.2	2.3	5.6	9.3	S	13.5	18.6	21	18.8	13	5.4	4.5	4	4.1	5.2	21	5.9	24
19	5.8	4.8	2.9	3	3.2	4	5	11.3	12	13.2	14	12.4	S	12.4	10.7	10.5	12	11.4	8.2	7.1	7.6	6.9	7	7.3	14	8.4	24
20	6.9	6.4	6.6	6.4	6.8	6.5	6.1	6.5	7	7.8	8.4	S	13.3	23.5	22.8	13.9	15.4	19.8	22.1	20.9	17.3	13.2	9.6	7	23.5	***11.9***	24
21	6.4	5.6	4.4	4.3	3.5	2.6	2.5	2.3	2.4	2.3	S	3	3.1	2.6	2.5	2.6	2.5	2.6	2.7	2.6	2.6	2.8	3.4	3.5	6.4	3.2	24
22	3.5	3.5	4.1	4.3	4	4.6	5.1	5	5.1	S	3	P	P	P	P	P	P	P	0.4	0.6	0.5	1	1.2	1.6	5.1	3.0	17
23	2.1	1.9	1.5	0.6	0.6	0.4	0.4	0.9	S	3.7	4.5	6.3	8.2	7.7	6.1	5.5	6	7.1	8.6	9.4	8.3	7.3	6	5.2	9.4	4.7	24
24	5.1	6.2	6.5	5.2	4.2	5.1	4.6	S	1.7	1.6	1.8	1.8	1.4	1.5	5.9	12.4	7.7	4.2	1.9	1	1.2	1.5	1.2	0	12.4	3.6	24
25	0.3	0	0	0	0	0	S	1.2	1.3	1.2	1.1	1.3	1.4	1.3	1.3	1.2	1.3	1.5	2	1.7	1.6	1.6	1.7	2.1	2.1	1.1	24
26	2.7	3.3	3.5	3.5	3.3	S	2.4	2.3	2.2	2.4	3	2.6	3	2.7	3.5	3.3	3.7	4.1	4.6	5.4	5.8	6.5	7.4	8.7	8.7	3.9	24
27	10.2	10.4	12.1	12.8	S	5.8	6.4	4.7	3.6	2	1.5	1.5	1.4	1	1.3	0.5	1	0.7	0.4	0.2	0.4	0.1	0.2	0.7	12.8	3.4	24
28	1.1	2.3	2.1	S	5	5.6	5.4	6.7	6.6	4.6	5	6	6	4.3	5.3	6	5.6	4.7	3.9	3.6	3.8	3.7	3.9	3.4	6.7	4.5	24
29	4	4.7	S	5.8	6.7	7.4	6.8	7.1	4.5	2.8	2.1	1.1	0.9	0.9	1.3	1.1	0.8	0.5	1.2	2.5	3.3	3	2.5	2.1	7.4	3.2	24
30	2	S	5.3	7.4	6.2	5.8	5.7	5.8	6.5	5.6	4.6	4.6	6.9	13.3	7.3	3	2.4	2.3	2.3	2	1.7	1.5	1.5	1.7	13.3	4.6	24
31	S	0.7	0.6	0.6	0.5	0.4	0.3	0.8	0.7	0.6	0.5	0.6	0.5	0.9	0.6	0.4	1	1.2	0.4	1.4	3.2	0.7	0.9	S	3.2	0.8	24
HOURLY MAX	26	25	12	27	25	19	13	11	12	14	15	14	13	24	23	23	23	20	22	21	19	22	20	21			
HOURLY AVG	4.4	4.6	3.7	4.8	4.1	4.1	4.1	4.1	4.0	4.5	4.7	4.6	5.1	5.5	5.8	6.1	6.0	5.8	5.2	5.1	4.9	4.7	4.1	4.5			

STATUS FLAG CODES

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

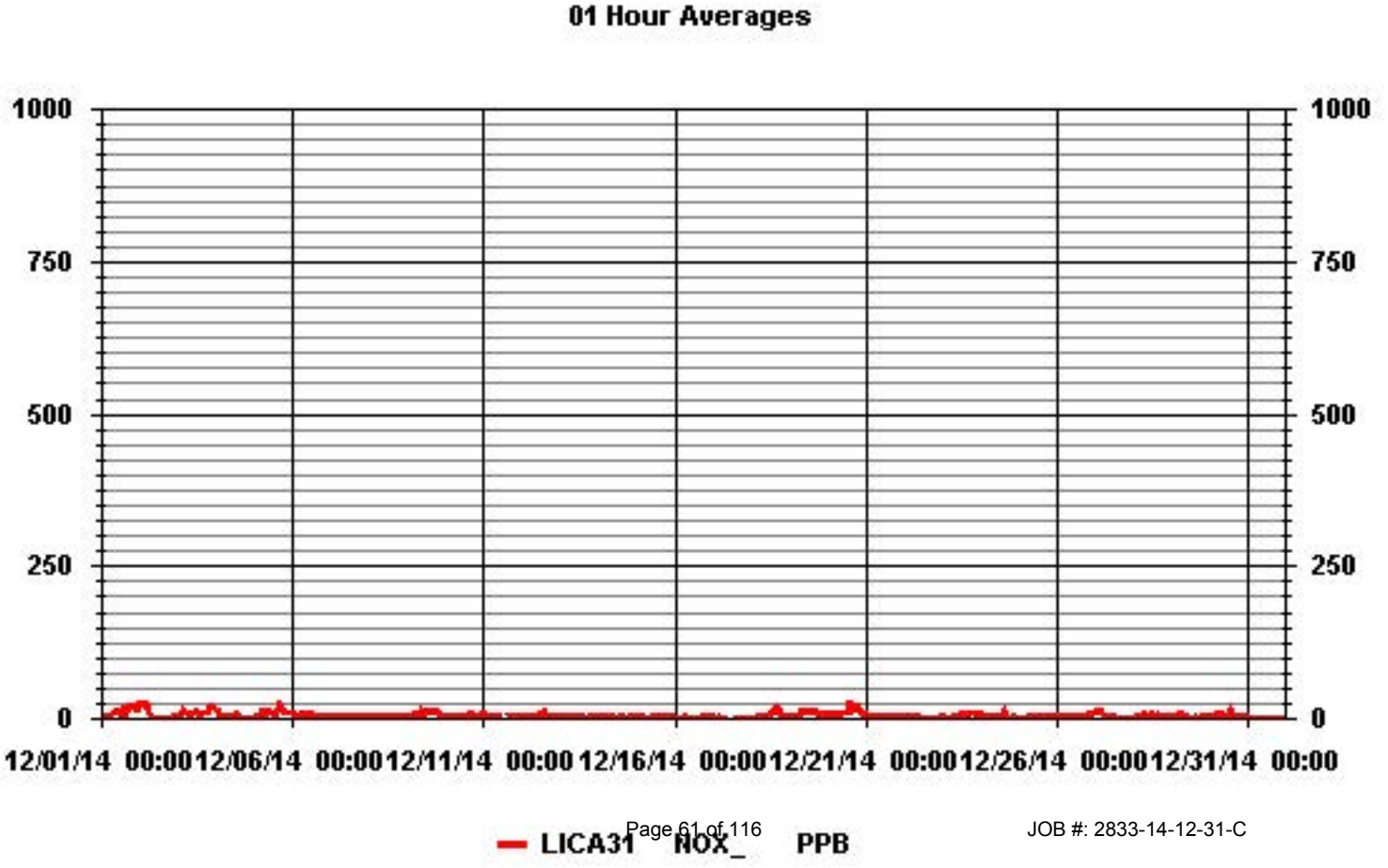
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	688					
MAXIMUM 1-HR AVERAGE:	26.9	PPB	@ HOUR(S)	3	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	11.9	PPB			ON DAY(S) VAR-VARIOUS	1, 20
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		736	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		98.9	%
STANDARD DEVIATION:	4.69		MONTHLY AVERAGE:		4.76	PPB

JOB #: 2833-14-12-31-C



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	5.8	5	5.3	**S**	4.8	5.5	7.1	19.9	12.9	31.6	25.9	15.8	12.3	15.4	10.6	14.8	18.5	20.5	22.3	22.6	21.7	19.3	17.8	25.1	31.6	***15.7***	24
2	27	25.9	**S**	30.9	27.4	20.7	15.8	7.2	3.9	2	1.5	1.2	1.5	0.5	1.2	0.5	1.4	1.9	0.6	1.1	3.7	2	3	1.9	30.9	7.9	24
3	4.9	**S**	12.7	17.1	12.8	9.8	9.6	9.1	19.3	9.5	31.6	14.9	13	9.4	8.9	10.5	12.1	10.3	10.1	15.6	21.3	22.7	22.4	19.2	31.6	14.2	24
4	**S**	14.9	13.4	10.5	5	3.5	4.5	2.6	5.8	7.1	47.1	6.9	10.4	8.8	5.1	2	2.8	2.3	2.1	1.6	1.3	1.8	1.3	**S**	47.1	7.3	24
5	3.5	4.8	5.2	5.4	8.5	14.3	14.6	12.1	11.9	25.7	12.6	11.7	53	9.2	22.9	24.6	25.8	18.9	15.7	15.1	11.6	10.7	**S**	10.8	53	15.2	24
6	9.3	7.6	6.5	6	6.2	7.8	7.3	8	7.5	7.8	7	6.8	6.7	6.1	5.7	6.2	4.4	3.2	2.7	2.4	2.4	**S**	2.7	2.5	9.3	5.8	24
7	2.1	1.9	1.8	2.1	1.8	2.3	2.7	3.3	17.5	13.5	6	7.5	6.4	4.6	5.2	4.8	4.4	4.9	3.8	3.5	**S**	4	5	3.2	17.5	4.9	24
8	2.8	3.1	2.7	2.5	2.6	2.6	2.8	2.7	2.9	3.6	4.1	4.4	4.5	4.7	4.5	4.7	4.5	4.2	4.3	**S**	4.5	4.3	4.4	4.2	4.7	3.7	24
9	4.6	4.7	6.2	5.9	6.1	6.2	16	7.2	7.7	***73.7***	9.9	11.5	11.6	11.2	12.4	15.4	15.9	14.7	**S**	11.4	9.5	8.7	6.9	5.5	***73.7***	12.3	24
10	5	5.4	4.8	5.2	2.8	2.5	4.6	9.1	3.9	5.8	4.7	6.8	7.9	4.4	5.8	6.7	6.7	**S**	7.8	6.9	5.6	5	4.9	6.9	9.1	5.6	24
11	6.8	5.9	6	5.7	4.9	3.9	3.4	3	2.7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	6.1	8.3	5.8	7.1	**S**	7	4.6	5.6	8.3	5.4	24
12	5.5	6.6	6.5	4.2	3.9	3.2	4	4.8	5.6	4.9	4.9	7.4	9.1	11.8	13.7	11.8	7.1	6	6.8	**S**	2.7	3.4	2.9	2.8	13.7	6.1	24
13	2.7	2.3	2.1	2.1	2.3	2.1	2	3.2	1.8	2.3	4.4	22.9	24.2	2.9	2	2.5	1.9	1.7	**S**	3.5	3.9	3	2.9	3.1	24.2	4.4	24
14	3	2.6	2.4	1.9	2.2	1.7	1.7	1.9	2.1	5	4.2	7	5.3	3.6	4.5	2.6	4.7	**S**	4.4	8.2	4.1	3.5	11.4	3.7	11.4	4.0	24
15	3.5	2.4	2.1	2.4	2.2	1.8	1.7	1.2	1.2	1.9	2	3.1	5.2	4.7	3.8	4.4	**S**	5.2	4	3.8	3.4	2.4	2.9	2.3	5.2	2.9	24
16	2.1	1.9	1.5	1.3	1.6	1.6	1.9	1.9	2.2	2.3	1.7	1.5	1.4	1.5	1.7	**S**	1.7	2	2.2	2.1	2.1	1.8	1.8	1.8	2.3	1.8	24
17	1.6	1.5	1.9	1.3	1.7	1.8	1.5	1.8	1.8	**Y**	**S**	**S**	**S**	4.3	**S**	1.5	1.3	1.2	1.7	1.4	2.6	1.3	1.5	1	4.3	1.7	23
18	1.3	1.4	1.4	1.8	1.5	1.9	2.2	1.7	2.1	2.8	3.9	7.4	11.8	**S**	15.7	22	22.9	20.5	21	8.6	11.6	**P**	4.9	6.4	22.9	7.9	23
19	6.7	5.9	3.8	3.8	4	4.8	8.2	13.2	13	14.5	15.2	13.2	**S**	13.6	12.4	11.6	12.8	12.5	10.1	7.9	8.4	7.8	7.8	8	15.2	9.5	24
20	7.6	7	7.5	7.2	7.6	7.3	7.1	7.7	9.7	8.4	11.5	**S**	19.9	26.4	26.4	15.6	18.9	21.7	24.8	24.7	19.1	16.9	12	7.9	26.4	14.0	24
21	7.3	7	5.4	**P**	4.4	3.3	3	3.1	3.2	**P**	**S**	3.8	4	3.5	3.1	3.3	3.4	3.2	3.3	3.7	3.4	3.5	4.1	4.1	7.3	4.0	22
22	4.1	4.2	4.8	5.2	**P**	6.3	6	5.9	6.3	**S**	4.2	**P**	**P**	**P**	**P**	**P**	**P**	**P**	2.9	2.9	1.5	3.7	2.3	2.4	6.3	4.2	16
23	2.7	2.9	2.2	1.3	1.3	1.1	1.1	2.4	**S**	9.7	9.7	7.9	11.1	11.4	7.4	6.5	7.1	8.2	9.6	10.3	9.4	8.5	7.2	6.4	11.4	6.3	24
24	5.8	7	7.5	6.7	5.5	6.1	5.6	**S**	2.5	2.8	2.6	2.8	2.4	2.7	11.8	14.6	10.8	5.4	3.6	2	1.9	3	1.9	1.6	14.6	5.1	24
25	1.3	0.5	0.3	0	0	0.4	**S**	1.9	1.9	1.8	2.6	2.8	2.4	2.2	2.4	1.8	1.8	2.4	2.7	2.3	2.2	2.2	2.5	3	3	1.8	24
26	3.4	4.3	4.3	4.1	3.9	**S**	3.1	2.9	3	3.5	4.8	3.6	6.1	3.4	27	5.1	4.8	4.9	8.1	8.3	6.4	8.7	9.7	9.7	27	6.2	24
27	11.1	11.4	12.8	13.9	**S**	7.2	7.2	6.3	4.5	3.2	2.4	2.2	2.4	1.8	2.1	1.5	1.6	1.5	1.1	0.8	1.1	0.7	0.8	2.3	13.9	4.3	24
28	3.2	3.2	2.8	**S**	6.3	6.7	6.8	8.3	8.1	5.4	6.2	14.8	10.9	8.1	9.7	9.7	9.9	7.8	5	4.2	4.5	4.4	4.6	4.1	14.8	6.7	24
29	4.9	5.4	**S**	6.8	7.8	8.4	7.8	8.4	5.9	3.8	3.5	2.3	3.4	4	3.8	4.3	2.3	1.4	3.7	4.8	5.4	4	3.4	3.1	8.4	4.7	24
30	2.6	**S**	6.6	8.3	7.4	6.5	6.5	6.5	7.2	6.9	5.5	6.1	13.7	16.3	11	4.5	3.2	3.5	3	2.9	2.7	2.2	2.5	2.5	16.3	6.0	24
31	**S**	1.6	1.2	1.1	1.3	1.3	1.1	1.6	2	1.8	1.4	1.2	1.3	11.1	2.5	1.3	2.2	3.3	1.1	6.1	51.8	4.3	3	**S**	51.8	4.7	24
HOURLY MAX	27	26	13	31	27	21	16	20	19	74	47	23	53	26	27	25	26	22	25	25	52	23	22	25			
HOURLY AVG	5.2	5.5	4.9	5.9	5.1	5.1	5.6	5.6	6.0	9.7	8.6	7.3	9.7	7.4	8.7	7.7	7.6	7.2	6.7	6.8	7.9	5.9	5.4	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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 687

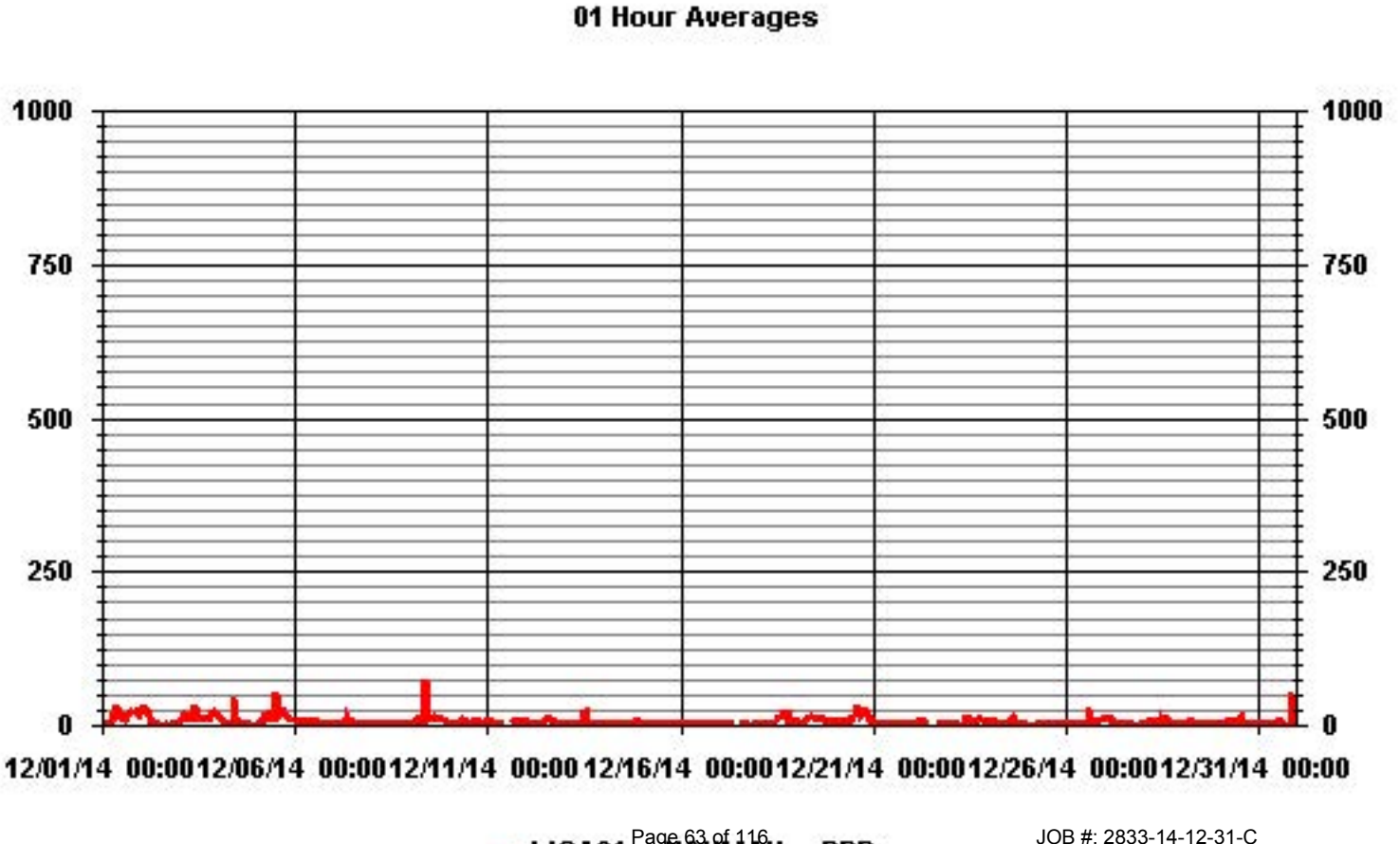
MAXIMUM INSTANTANEOUS VALUE: 73.7 PPB @ HOUR(S) 9 ON DAY(S) 9

VAR-VARIOUS

IZS CALIBRATION TIME: 36 HRS OPERATIONAL TIME: 732 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 6.86



JOB #: 2833-14-12-31-C

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

December 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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	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	.60	.90	3.75	4.36	6.16	3.90	8.57	9.62	6.76	9.92	13.38	8.57	5.71	6.46	7.06	4.21	

Calm : .00 %

Total # Operational Hours : 665

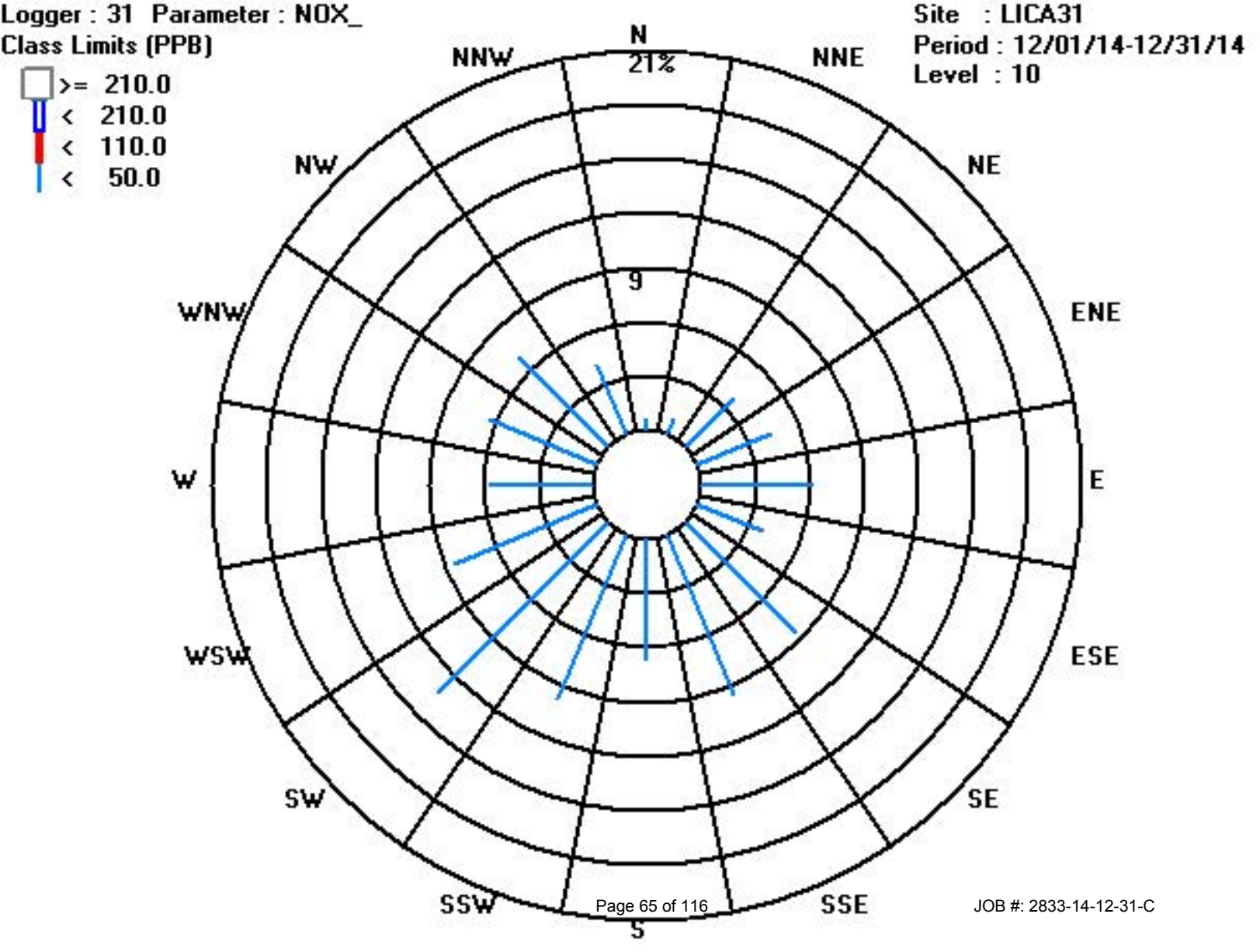
Distribution By Samples

Direction

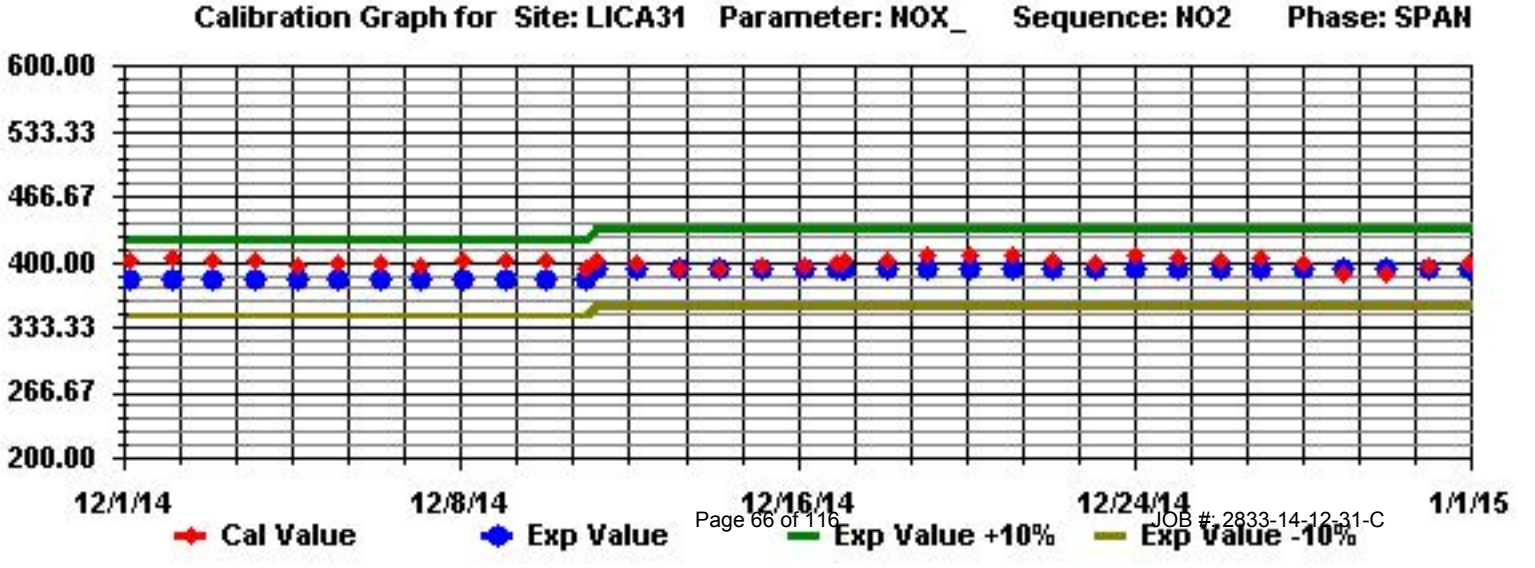
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	665
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	4	6	25	29	41	26	57	64	45	66	89	57	38	43	47	28	

Calm : .00 %

Total # Operational Hours : 665



JOB #: 2833-14-12-31-C


Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

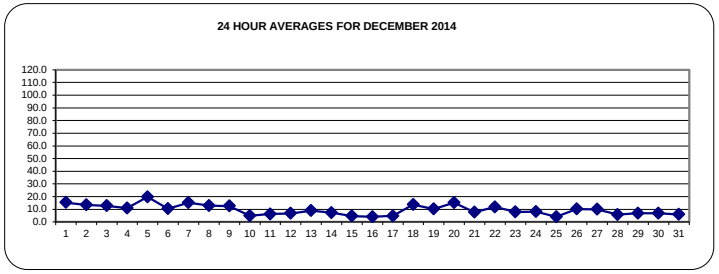
PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

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	8	5	11	12	9	13	13	13	16	21	19	20	6	20	8	13	15	18	25	22	17	20	22	22	25	15.3	24
2	32	27	36	33	22	19	13	13	10	10	8	7	5	5	6	10	5	9	8	7	6	8	9	16	36	13.5	24
3	20	16	16	18	15	15	13	12	15	10	17	14	9	8	8	7	9	9	9	8	10	18	16	15	20	12.8	24
4	15	15	14	15	13	11	4	7	16	13	12	10	12	16	5	9	6	4	11	11	13	8	10	10	16	10.8	24
5	13	14	15	15	16	13	13	16	16	15	18	14	16	17	27	32	31	19	26	35	27	26	22	16	35	***19.7***	24
6	13	14	9	8	9	11	9	10	5	13	12	8	11	6	10	4	10	17	13	15	16	8	9	12	17	10.5	24
7	18	9	11	11	17	11	18	16	21	16	23	18	21	19	13	15	14	17	15	13	9	10	14	15	23	15.2	24
8	15	15	14	14	13	13	17	16	18	14	8	14	15	11	10	6	15	10	12	14	10	15	10	11	18	12.9	24
9	16	14	17	14	13	14	16	14	16	21	17	18	15	13	8	15	9	11	11	6	9	8	6	0	21	12.5	24
10	5	8	8	6	4	7	4	2	5	6	3	**C**	**C**	**C**	**C**	4	5	1	9	4	6	1	2	6	9	4.8	24
11	4	2	5	3	3	2	2	6	6	14	6	4	4	4	4	0	1	14	16	8	6	17	8	12	17	6.3	24
12	13	7	4	9	1	4	8	1	8	7	7	9	5	5	10	13	9	11	11	5	1	3	5	6	13	6.8	24
13	11	0	10	11	7	9	6	2	6	14	14	11	11	13	14	11	6	6	7	4	16	14	6	4	16	8.9	24
14	9	10	8	1	7	1	9	4	3	8	12	6	1	6	3	10	8	10	7	10	11	12	8	11	12	7.3	24
15	11	8	8	12	5	2	7	7	2	0	2	9	4	2	5	1	2	2	8	4	2	4	0	6	12	4.7	24
16	0	5	2	6	3	6	5	2	2	3	5	2	1	0	2	5	6	3	5	6	6	11	5	8	11	4.1	24
17	4	7	7	3	4	1	8	4	1	10	4	4	3	6	3	2	6	6	8	5	1	8	5	4	10	4.8	24
18	5	7	10	5	8	12	11	5	10	4	12	22	23	23	27	29	37	30	28	11	2	0	0	6	37	13.6	24
19	7	9	13	9	10	9	9	14	19	11	11	11	7	9	6	13	8	11	8	13	6	12	11	9	19	10.2	24
20	10	9	9	8	13	15	13	11	8	13	8	20	21	25	27	20	13	13	20	24	23	20	12	9	27	15.2	24
21	10	16	5	0	2	5	8	5	9	0	0	4	9	5	7	12	9	9	14	13	9	5	16	11	16	7.6	24
22	7	10	14	14	0	13	11	13	17	15	16	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**X**	**X**	**X**	**X**	**X**	**X**	17	11.8	11
23	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	**Y**	**C**	1	15	9	8	9	6	2	10	8	8	8	10	9	15	7.9	14
24	13	12	17	11	3	14	11	9	10	11	9	8	5	6	8	13	9	8	3	1	0	2	4	6	17	8.0	24
25	2	1	3	4	5	3	5	2	3	4	4	**X**	4	5	3	2	5	5	9	5	3	3	2	11	11	4.0	23
26	14	12	7	6	8	7	7	7	8	3	6	5	8	8	5	9	8	10	14	12	20	17	19	24	24	10.2	24
27	20	24	22	26	23	16	10	6	8	7	8	4	6	4	7	10	5	4	4	11	9	4	0	2	26	10.0	24
28	11	3	13	5	4	6	6	7	2	7	7	7	5	11	10	3	0	12	5	7	2	0	2	3	13	5.8	24
29	5	6	7	6	11	9	8	8	8	6	8	9	8	5	3	12	5	4	8	7	5	6	6	4	12	6.8	24
30	6	10	14	14	12	3	8	9	4	4	6	1	12	11	5	5	4	11	7	0	5	6	3	3	14	6.8	24
31	2	2	4	6	4	5	5	8	5	2	5	3	0	0	1	5	3	1	6	11	***52***	4	5	3	***52***	5.9	24
HOURLY MAX	32	27	36	33	23	19	18	16	21	21	23	22	23	25	27	32	37	30	28	35	52	26	22	24			
HOURLY AVG	10.6	9.9	11.1	10.2	8.8	9.0	9.2	8.3	9.2	9.4	9.6	9.4	9.0	9.4	8.7	10.0	9.0	9.6	11.2	10.0	10.3	9.3	8.2	9.1			

STATUS FLAG CODES

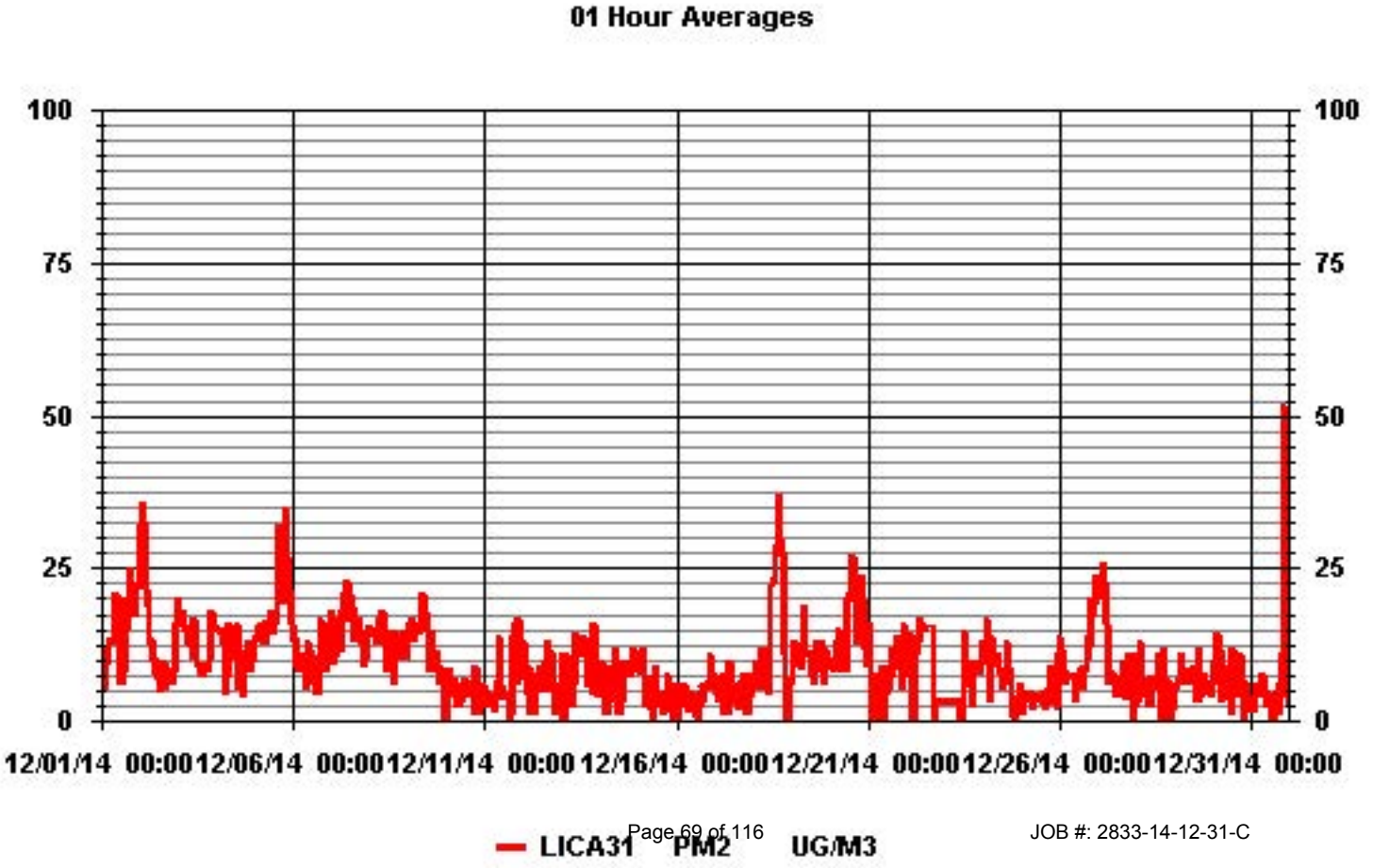
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	695						
MAXIMUM 1-HR AVERAGE:	52	ug/m3	@ HOUR(S)	20	ON DAY(S)	31	
MAXIMUM 24-HR AVERAGE:	19.7	ug/m3			ON DAY(S)	5	
					VAR-VARIOUS		
			OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			96.8	%
STANDARD DEVIATION:	6.43		MONTHLY AVERAGE:			9.52	ug/m3



JOB #: 2833-14-12-31-C

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

December 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	.42	.99	3.69	4.26	5.96	3.55	8.80	9.51	6.81	9.37	13.92	8.52	5.53	6.10	6.96	4.26	98.72
<	60	.14	.00	.00	.00	.00	.14	.00	.14	.28	.28	.28	.00	.00	.00	.00	.00	1.27
<	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	.56	.99	3.69	4.26	5.96	3.69	8.80	9.65	7.10	9.65	14.20	8.52	5.53	6.10	6.96	4.26	

Calm : .00 %

Total # Operational Hours : 704

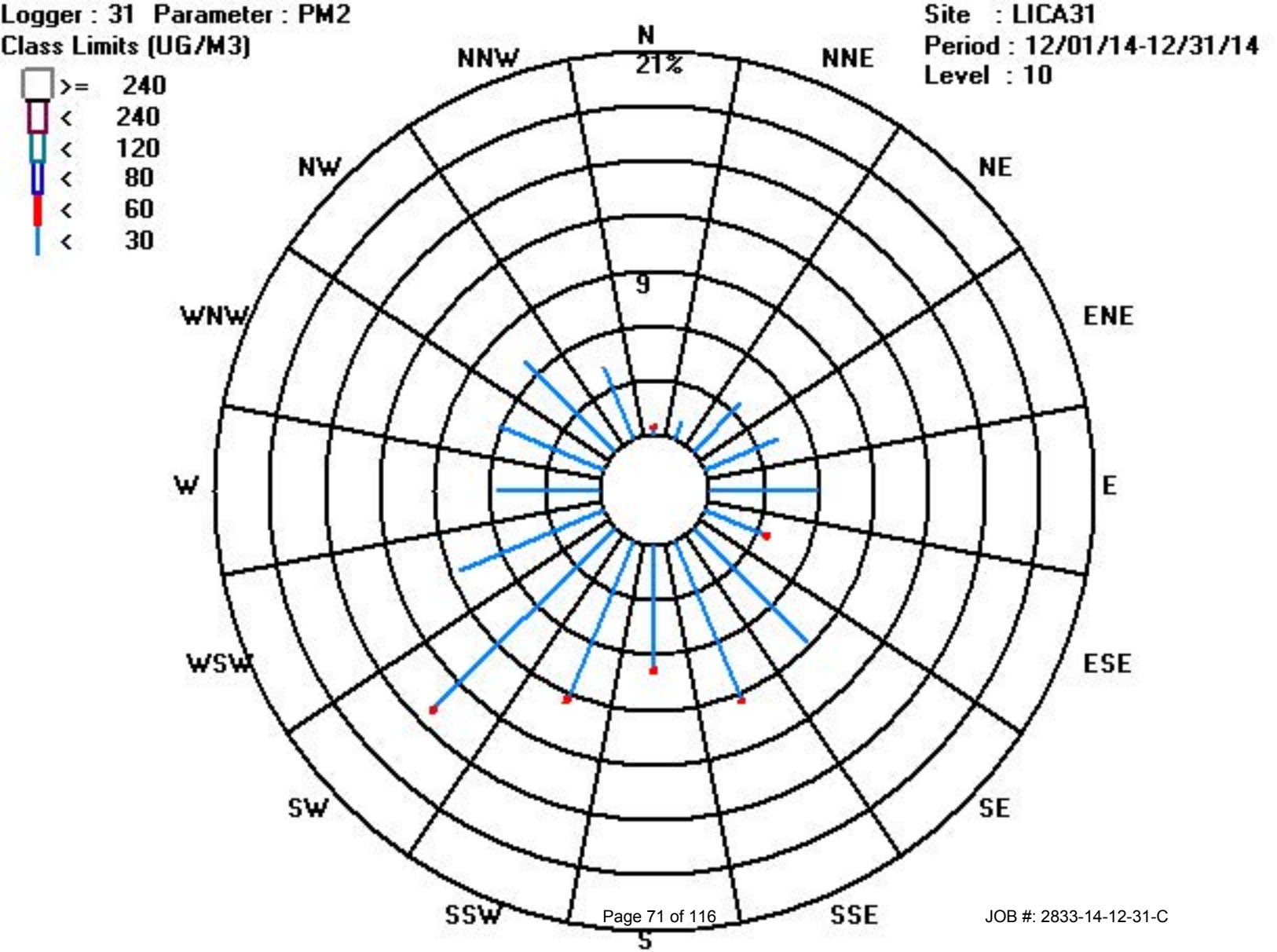
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	3	7	26	30	42	25	62	67	48	66	98	60	39	43	49	30	695
<	60	1					1		1	2	2	2						9
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	4	7	26	30	42	26	62	68	50	68	100	60	39	43	49	30	

Calm : .00 %

Total # Operational Hours : 704



JOB #: 2833-14-12-31-C

Temperature

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

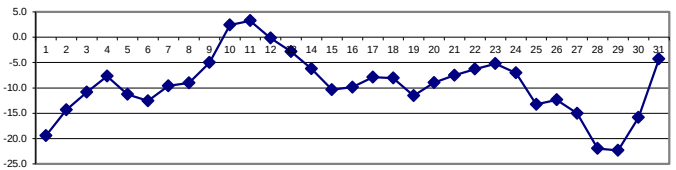
MST

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	-22	-22	-22.3	-23.1	-23.6	-24	-24	-23.3	-24	-22.9	-19.4	-16.4	-13.1	-12.6	-12.3	-14.7	-16.7	-18.1	-19.4	-20.8	-19.4	-17.4	-16.4	-18.8	-12.3	-19.4	24
2	-18.7	-18.6	-18.3	-17.7	-16.8	-15.1	-14.1	-13.7	-14.2	-12.4	-10.3	-9.8	-8.6	-8.4	-10	-11.1	-13	-13.9	-14.8	-16.2	-17	-16.4	-17.3	-17.9	-8.4	-14.3	24
3	-18.5	-18.9	-18.8	-18.1	-15.4	-14.6	-15.6	-15.6	-15	-13	-10.7	-8.1	-5.6	-5.1	-4.3	-4.7	-4.7	-5.2	-6.6	-7.3	-7.9	-8.6	-8.7	-9.5	-4.3	-10.9	24
4	-10.5	-10	-8.9	-9.6	-8.8	-7.9	-7.1	-7.2	-9.3	-9	-8	-6.8	-6.3	-5.6	-4.8	-5.1	-6.7	-8.1	-7.8	-7.3	-6.9	-7.4	-7.3	-7.6	-4.8	-7.7	24
5	-8	-8.5	-9.2	-10.6	-10.8	-10.8	-10.9	-10.6	-12.6	-12.6	-11.3	-9.6	-7.9	-8.1	-10.9	-13.3	-14	-13.7	-12.7	-11.9	-12.4	-13.1	-13.5	-13.5	-7.9	-11.3	24
6	-12.8	-12.2	-12.1	-12.2	-12.6	-13.8	-15	-15.7	-15.2	-15.2	-14.5	-13.7	-12.3	-11.1	-11.5	-11.7	-11.6	-11.6	-11.4	-11.4	-11.3	-11.1	-10.7	-10.5	-10.5	-12.6	24
7	-10	-9.8	-10.5	-11.3	-11.6	-11.8	-11.5	-11.9	-11	-9.9	-8	-6.9	-6.9	-7.2	-7.6	-8	-8.5	-9.1	-9.5	-9.7	-10	-10	-10	-10.1	-6.9	-9.6	24
8	-10.1	-10.1	-9.8	-9.7	-9.6	-9.7	-9.8	-9.8	-9.8	-9.5	-8.9	-8.3	-7.8	-7.5	-7.6	-7.7	-8	-8	-8	-8.3	-9	-9.5	-9.9	-10	-7.5	-9.0	24
9	-10.5	-10.8	-11.3	-11.1	-10.8	-10.3	-10.3	-9.4	-8.7	-7.3	-5.7	-4.2	-3.2	-2.1	-1.2	-1.4	-1.4	-0.8	-0.5	-0.4	-0.3	-0.2	0.3	0.9	0.9	-5.0	24
10	2.4	3.1	3.6	2.5	2.9	2.7	1.2	1.3	0.5	1.1	3	5	4.8	4.1	3.5	2.8	2	1.4	1	1.4	1.5	2.3	2.9	0.4	5	2.4	24
11	0.4	1.1	1.5	1.4	1.3	2	2.5	2.8	3.9	4.2	5.4	6.4	***7.8***	7.1	6.7	5.5	3.3	2.6	2.1	1.8	1.6	1.9	2.9	1.8	***7.8***	***3.3***	24
12	1.7	1	0.5	-0.2	-0.3	-0.8	-1.1	-0.1	-0.5	-0.2	0	1.2	2.4	3.1	2.4	1.4	-0.4	-1.4	-2.7	-2.3	-1.9	-1.8	-1.9	-1.9	3.1	-0.2	24
13	-1.9	-2	-2.2	-2.7	-3.1	-3.2	-3.5	-3.7	-3.7	-3.4	-2.9	-2.6	-2.3	-1.7	-1.6	-1.6	-1.9	-2.1	-3.1	-4.3	-3.8	-3.7	-3.7	-3.7	-1.6	-2.9	24
14	-4.1	-4.1	-4	-4.1	-4.5	-4.7	-4.8	-5.1	-5.2	-5.3	-5	-4.8	-4.4	-4.2	-4.9	-5.8	-6.6	-8.8	-9.8	-10.3	-10	-10	-10	-9.6	-4	-6.3	24
15	-9.1	-9.5	-10.2	-10.7	-11.1	-11.2	-10.9	-10.4	-10.4	-10.3	-10.5	-10.4	-10	-9.9	-9.9	-10.1	-10.2	-10.3	-10.6	-10.5	-10.3	-10.2	-10.8	-11	-9.1	-10.4	24
16	-10.7	-10.1	-10.3	-10.2	-10	-9.8	-10.1	-10.3	-10.5	-10.5	-10.9	-10.5	-9.7	-8.9	-8.6	-8.6	-8.7	-9.4	-9.8	-9.9	-10	-10	-9.8	-9.6	-8.6	-9.9	24
17	-9.7	-9.7	-9.4	-9.3	-9.5	-9.4	-9.1	-8.7	-8.1	-7.9	-7.7	-7.5	-7.2	-6.9	-6.9	-6.7	-6.6	-6.6	-6.7	-7.1	-7.2	-7.1	-7.1	-7.1	-6.6	-7.9	24
18	-7.3	-7.3	-7.4	-7.8	-7.8	-7.7	-7.6	-7.6	-7.7	-7.5	-7.4	-6.9	-6.7	-6.9	-6.9	-7.4	-8.1	-8.3	-8.6	-9.1	-9.8	-10.2	-10.6	-10.8	-6.7	-8.1	24
19	-11.3	-12.2	-13	-13.3	-13.6	-13.9	-14	-14.3	-14.3	-12.7	-11.3	-10.8	-11	-10.7	-10	-10.3	-10.8	-10.8	-10.2	-9.9	-9.8	-9.3	-9.4	-9.6	-9.3	-11.5	24
20	-9.3	-9.4	-9.8	-10.2	-10.8	-11	-11.3	-11.1	-11.4	-11.5	-9.3	-7.6	-6.1	-5	-5.9	-8.4	-9.3	-7.9	-8.7	-9.6	-9.2	-8	-7.3	-6.8	-5	-9.0	24
21	-6.7	-7	-7.1	-7.4	-7.8	-8.1	-8	-8.2	-8.6	-8.7	-8.5	-8.1	-7.7	-7.5	-7.2	-7.1	-7.4	-7.3	-7.2	-7	-7.1	-7.2	-7.1	-6.9	-6.7	-7.5	24
22	-6.9	-6.7	-6.9	-7.6	-7.9	-7.1	-7.5	-7	-6.8	-6.4	-6.5	**P**	**P**	**P**	**P**	**P**	**P**	**P**	-4.5	-4.7	-4.7	-4.6	-5.5	-5.4	-4.5	-6.3	17
23	-4.7	-4.4	-4.1	-3.7	-4.1	-5.1	-5.8	-6.8	-6.5	-6.4	-5.8	-5.4	-5.4	-5.6	-5.3	-4.6	-4.2	-4.5	-4.8	-4.8	-4.8	-5.2	-6.2	-7.5	-3.7	-5.2	24
24	-8.3	-7.1	-6	-5.2	-4.4	-5	-4.7	-4.1	-3.2	-3	-3.4	-3.5	-4.2	-4.5	-5.3	-6.9	-7.9	-9.1	-10.7	-11.9	-12.6	-13.2	-12.4	-12.8	-3	-7.1	24
25	-13.3	-12.6	-12.4	-12.6	-12.8	-13.1	-13.1	-13.4	-13.6	-13.4	-12.8	-12.6	-12.1	-11.7	-12	-12.5	-13.8	-14.5	-14.5	-14.5	-14.4	-14.2	-14.2	-14.2	-11.7	-13.3	24
26	-14.1	-13.7	-13.3	-12.8	-12.5	-12.2	-12	-12	-12.1	-11.8	-10.9	-10.9	-9.9	-10.7	-12.2	-12.6	-12.8	-12.7	-12.6	-13	-13.3	-13.3	-12.9	-12.7	-9.9	-12.4	24
27	-12.5	-12.4	-12.4	-12.1	-12.2	-12.4	-12.3	-12.3	-12.6	-13.6	-13.8	-14	-14.3	-15	-15.8	-16.3	-16.9	-17.1	-17.3	-17.7	-18.6	-19.1	-19.7	-20.2	-12.1	-15.0	24
28	-21.4	-23	-24.1	-24.2	-25.4	-26.6	-26.8	***-26.9***	-26.6	-24.9	-22.7	-19.6	-19.1	-17.5	-19.1	-20.2	-21	-20.2	-19.6	-19.3	-19.4	-19.4	-19.5	-19.7	-17.5	-21.9	24
29	-20.7	-22.2	-23.8	-24.4	-24.1	-24.2	-25.3	-25.6	-24.9	-23.7	-21.9	-20.1	-19	-18.7	-18.2	-20.2	-20.9	-21.5	-21	-21.4	-21.8	-23.2	-24	-24.5	-18.2	-22.3	24
30	-24.9	-25.4	-25.3	-25.5	-23.9	-23.1	-21.6	-21	-20.4	-18.7	-16.1	-14.2	-12.6	-12.1	-11.5	-10.8	-10.6	-10.1	-9.8	-9.5	-8.9	-8.4	-7.9	-7.3	-7.3	-15.8	24
31	-7.1	-6.7	-6.3	-6.2	-5.8	-5.8	-5.5	-5.3	-5.6	-4.8	-4	-3.3	-3	-3	-2.7	-2.3	-2.9	-3.3	-3.2	-3.2	-3.3	-3.4	-3.3	-3.4	-2.3	-4.3	24
HOURLY MAX	2.4	3.1	3.6	2.5	2.9	2.7	2.5	2.8	3.9	4.2	5.4	6.4	7.8	7.1	6.7	5.5	3.3	2.6	2.1	1.8	1.6	2.3	2.9	1.8			
HOURLY AVG	-10.3	-10.4	-10.4	-10.6	-10.6	-10.6	-10.6	-10.5	-10.6	-10.0	-9.0	-8.1	-7.4	-7.1	-7.4	-8.0	-8.7	-9.0	-9.1	-9.4	-9.4	-9.4	-9.4	-9.7			

STATUS FLAG CODES

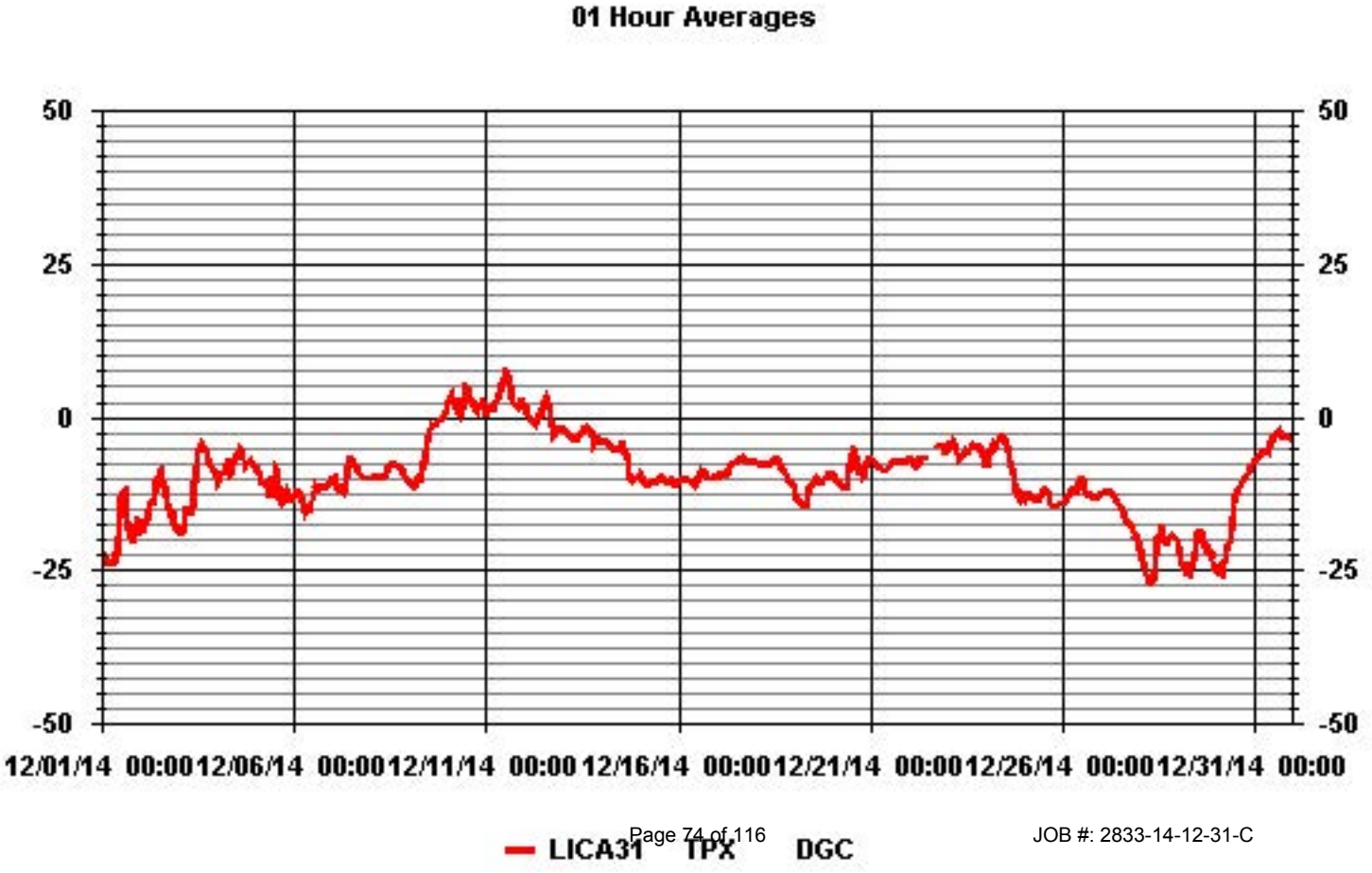
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR DECEMBER 2014



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-26.9	°C	@ HOUR(S)	7	ON DAY(S)	28
MAXIMUM 1-HR AVERAGE:	7.8	°C	@ HOUR(S)	12	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	3.3	°C			ON DAY(S)	11
					VAR-VARIOUS	
OPERATIONAL TIME:					737	HRS
AMD OPERATION UPTIME:					99.1	%
STANDARD DEVIATION:	6.44		MONTHLY AVERAGE:		-9.42	°C



JOB #: 2833-14-12-31-C

Barometric Pressure

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

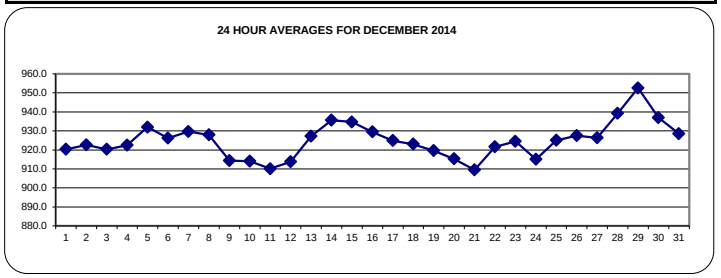
BAROMETRIC PRESSURE (BP) hourly averages in millibar

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	923	922	922	921	921	920	920	920	920	920	920	921	921	921	921	920	920	920	919	919	919	919	919	919	923	920.3	24
2	918	918	918	918	918	919	920	920	921	922	923	923	924	924	925	925	926	926	926	926	926	925	925	925	926	922.5	24
3	924	924	923	922	922	921	920	920	920	920	920	920	920	920	920	920	920	920	919	919	919	919	918	918	924	920.3	24
4	918	918	919	919	919	920	920	921	921	921	922	922	922	923	923	924	924	924	925	925	926	927	927	928	928	922.4	24
5	929	929	930	930	930	931	931	931	932	932	933	933	934	934	934	933	933	933	933	933	933	932	932	932	934	932.0	24
6	931	931	930	930	929	929	928	927	927	927	926	925	925	925	924	924	924	923	923	924	924	924	924	924	931	926.2	24
7	925	925	926	926	926	926	927	927	928	929	929	929	930	930	931	932	932	933	933	933	934	934	934	933	934	929.7	24
8	933	933	933	933	933	932	932	931	931	931	930	929	928	928	927	926	925	925	924	922	922	921	920	919	933	927.8	24
9	919	918	918	918	917	916	916	916	916	916	915	915	914	913	913	912	912	911	911	911	911	911	912	913	919	914.3	24
10	914	915	916	917	917	917	917	917	916	917	917	916	916	915	914	913	912	912	912	910	910	909	909	909	917	914.0	24
11	908	908	907	906	***905***	***905***	***905***	***905***	***905***	907	908	909	911	913	913	914	914	914	915	915	915	914	914	912	915	910.1	24
12	913	912	910	909	910	910	909	909	910	911	912	913	914	914	915	915	916	916	917	917	918	919	920	921	921	913.8	24
13	921	922	923	923	923	924	925	925	926	927	927	928	928	929	929	929	930	930	930	930	930	931	931	932	932	927.2	24
14	932	932	933	933	934	934	934	935	935	936	936	937	937	937	937	937	937	937	936	936	937	937	937	937	937	935.5	24
15	937	937	937	936	936	936	936	936	935	936	936	935	935	934	934	934	934	933	933	933	933	932	932	932	937	934.7	24
16	932	932	931	931	931	930	930	930	930	930	930	929	929	929	929	929	929	929	928	928	928	928	927	927	932	929.4	24
17	927	927	927	926	926	926	926	925	925	925	925	925	925	924	924	924	924	924	924	923	923	924	924	923	927	924.8	24
18	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923.0	24
19	923	922	922	921	921	921	921	920	920	920	920	920	919	919	919	919	918	918	918	918	918	918	918	918	923	919.6	24
20	918	918	918	918	918	918	917	917	917	917	916	916	916	916	916	915	914	914	913	912	911	911	910	910	918	915.3	24
21	909	909	908	907	906	906	906	906	906	907	907	908	908	909	910	911	911	912	912	913	913	914	914	915	915	909.5	24
22	915	916	916	916	917	917	918	919	920	921	921	**P**	**P**	**P**	**P**	**P**	**P**	**P**	928	928	928	929	929	929	929	921.6	17
23	929	929	930	931	930	930	930	929	929	928	928	927	926	925	924	922	921	920	919	918	917	916	915	914	931	924.5	24
24	914	913	913	913	913	913	912	912	912	913	914	914	914	914	915	916	916	917	918	918	919	919	920	920	920	915.1	24
25	921	921	922	923	923	924	924	924	924	925	925	926	925	925	926	926	926	926	926	927	927	928	928	928	928	925.0	24
26	928	928	928	928	928	928	928	928	928	928	929	929	928	928	927	927	927	927	927	927	926	926	926	926	929	927.5	24
27	925	925	925	925	925	925	925	925	925	925	926	926	925	926	926	926	927	927	927	928	928	929	929	930	930	926.3	24
28	930	931	932	933	933	934	935	935	936	937	938	939	939	940	941	942	942	943	944	945	946	947	948	949	949	939.1	24
29	950	950	951	952	952	952	953	953	953	***954***	***954***	***954***	953	953	***954***	***954***	***954***	953	953	953	952	952	951	951	***954***	***952.5***	24
30	950	949	948	946	944	943	941	939	937	935	934	933	932	931	931	931	931	932	932	933	933	933	934	934	950	936.9	24
31	934	934	934	934	933	933	932	931	930	930	929	929	928	927	926	926	925	924	924	924	924	924	924	925	934	928.5	24
HOURLY MAX	950	950	951	952	952	952	953	953	953	954	954	954	953	953	954	954	954	953	953	953	952	952	951	951			
HOURLY AVG	924.9	924.9	924.9	924.8	924.6	924.6	924.5	924.4	924.5	924.8	924.9	925.1	925.0	925.0	925.0	925.0	924.9	924.9	924.9	924.9	924.9	925.0	925.0	925.0			

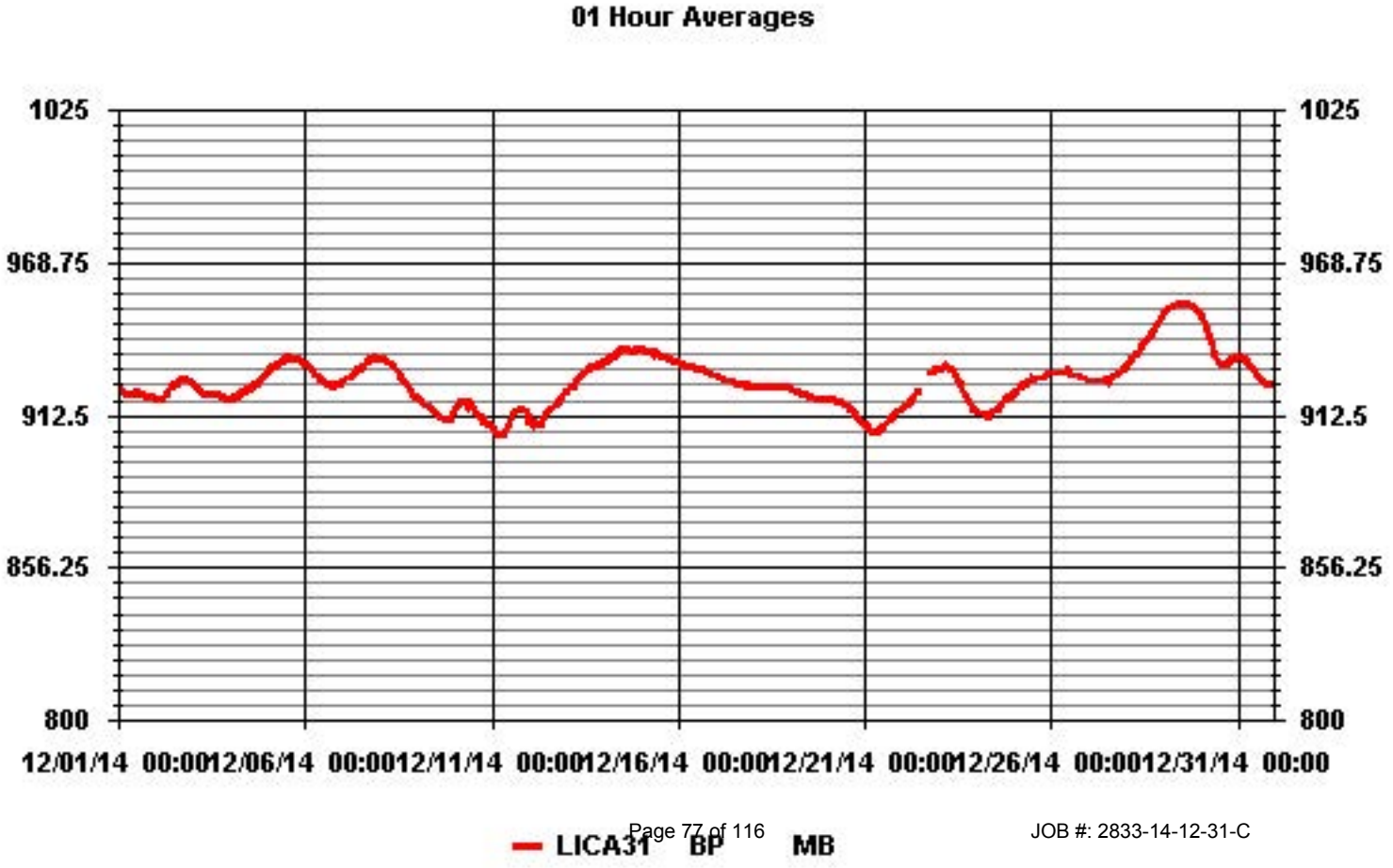
STATUS FLAG CODES

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:	954	MB	@ HOUR(S)	VAR	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	952.5	MB			ON DAY(S)	29
				VAR-VARIOUS		
OPERATIONAL TIME:					737	HRS
AMD OPERATION UPTIME:					99.1	%
STANDARD DEVIATION:	9.60		MONTHLY AVERAGE:		924.8	MB



JOB #: 2833-14-12-31-C

Relative Humidity

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

RELATIVE HUMIDITY (RH) hourly averages in %

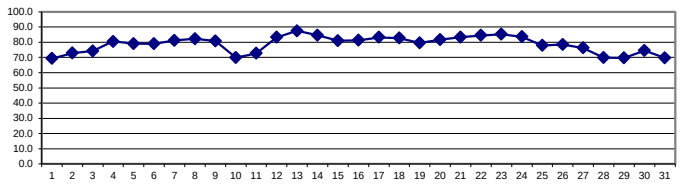
MST

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	67	67	67	67	68	68	69	69	69	69	69	68	68	66	66	67	70	70	72	73	74	74	73	72	74	69.3	24
2	73	74	74	75	76	77	78	78	78	77	72	71	66	60	61	63	69	70	71	76	77	77	78	77	78	72.8	24
3	75	75	74	74	75	75	76	77	77	76	75	71	68	69	69	70	71	72	74	75	76	78	79	80	80	74.2	24
4	82	81	80	81	81	80	79	80	82	81	79	78	77	77	78	76	79	83	83	82	82	84	83	84	84	80.5	24
5	84	83	83	82	81	81	81	82	80	77	75	71	70	71	76	79	80	80	81	80	80	80	80	80	84	79.0	24
6	80	80	80	80	79	78	77	77	77	76	76	77	78	78	79	80	80	80	80	80	80	80	81	81	81	78.9	24
7	81	81	81	80	80	80	80	79	80	81	83	83	83	83	82	82	82	81	81	81	81	81	81	81	83	81.2	24
8	81	81	82	82	82	82	82	82	82	82	82	82	82	83	83	83	83	83	83	83	82	82	82	82	83	82.2	24
9	81	81	80	80	81	81	81	82	82	83	84	84	83	82	81	79	79	78	78	79	80	80	80	79	84	80.8	24
10	74	71	68	71	68	68	72	71	71	67	62	55	56	59	62	67	71	74	78	79	79	78	76	82	82	70.0	24
11	82	80	79	80	80	77	75	74	71	70	65	60	56	59	61	66	73	75	77	78	78	77	74	78	82	72.7	24
12	79	81	83	85	86	87	87	83	84	84	83	79	74	71	74	77	84	86	87	88	88	***89***	***89***	***89***	***89***	83.2	24
13	88	88	88	88	87	87	87	87	87	87	87	87	88	88	88	88	88	88	88	87	87	87	87	87	88	***87.5***	24
14	86	87	87	86	86	86	86	86	85	85	86	86	86	86	85	85	84	82	82	81	81	81	81	82	87	84.5	24
15	82	82	81	81	80	80	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	82	81.0	24
16	81	81	81	81	81	81	81	81	81	81	80	81	81	82	82	82	82	82	81	81	81	81	82	82	82	81.3	24
17	82	82	82	82	82	82	82	83	83	83	83	83	84	84	84	84	84	84	84	84	84	84	84	84	84	83.2	24
18	84	83	83	83	83	83	83	83	83	83	83	84	84	84	84	83	83	83	82	82	81	81	81	81	84	82.8	24
19	80	79	79	78	78	78	78	77	77	78	78	78	79	80	81	81	80	81	81	81	81	82	81	81	82	79.5	24
20	82	81	81	81	80	80	80	80	80	80	81	82	83	83	83	82	82	83	82	82	83	83	84	84	84	81.8	24
21	84	84	84	84	83	83	83	83	83	82	82	82	83	83	83	83	83	83	83	84	84	84	84	84	84	83.3	24
22	84	84	84	83	83	84	83	84	84	84	84	**P**	**P**	**P**	**P**	**P**	**P**	**P**	86	86	86	86	85	86	86	84.5	17
23	86	86	86	87	86	86	85	84	85	84	84	84	84	85	85	86	86	86	85	86	86	85	85	84	87	85.3	24
24	83	84	85	86	86	85	86	86	87	87	86	85	85	85	85	84	83	82	81	80	79	79	79	79	87	83.6	24
25	79	79	79	79	79	78	78	78	78	78	78	78	78	78	79	78	78	77	77	77	77	77	77	77	79	78.0	24
26	78	78	78	79	79	79	79	79	79	79	78	79	79	78	78	78	78	79	79	78	78	78	78	79	79	78.5	24
27	79	79	79	79	79	79	79	79	79	78	77	76	76	75	75	75	75	75	74	74	73	73	72	72	79	76.3	24
28	71	69	69	68	68	67	67	67	67	68	68	70	71	71	71	71	71	72	72	73	72	72	72	72	73	70.0	24
29	71	70	69	68	69	68	68	68	68	68	70	70	71	71	71	71	71	71	71	71	70	70	69	69	71	69.7	24
30	68	68	68	68	69	69	70	71	72	73	74	75	77	77	78	78	79	79	79	79	79	79	79	79	79	74.5	24
31	79	78	77	77	75	72	69	68	67	62	60	54	***52***	54	55	56	61	68	83	84	82	81	80	79	84	69.7	24
HOURLY MAX	88.0	88.0	88.0	88.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	89.0	89.0	89.0			
HOURLY AVG	79.5	79.3	79.1	79.2	79.0	78.7	78.8	78.7	78.7	78.2	77.6	76.5	76.1	76.1	76.7	77.2	78.3	78.9	79.9	80.2	80.1	80.1	79.9	80.2			

STATUS FLAG CODES

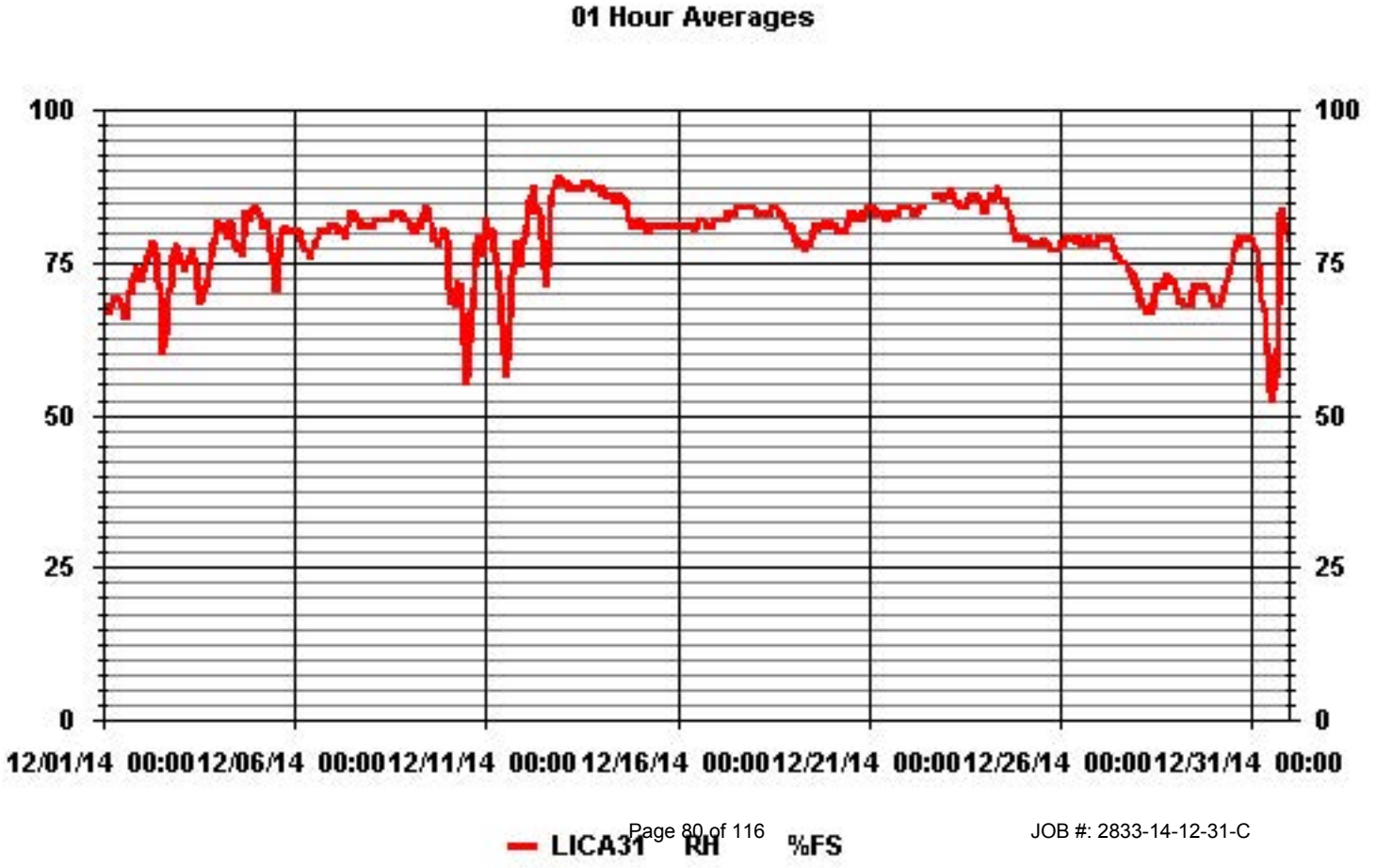
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

24 HOUR AVERAGES FOR DECEMBER 2014



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	VAR	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	87.5	%			ON DAY(S)	13
				VAR-VARIOUS		
OPERATIONAL TIME:					737	HRS
AMD OPERATION UPTIME:					99.1	%
STANDARD DEVIATION:	6.27		MONTHLY AVERAGE:		78.63	%



JOB #: 2833-14-12-31-C

Precipitation

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

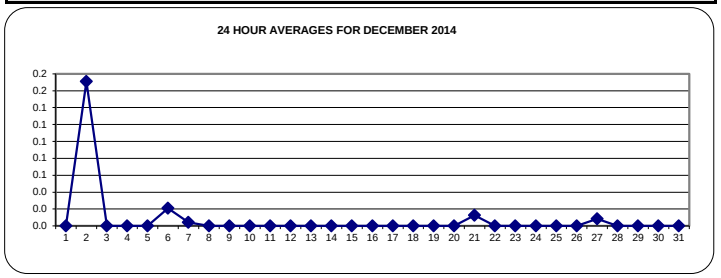
PRECIPITATION hourly averages in millimeter

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	0.1	0	0	0	**2.7**	1.2	0.1	0	0	0	0	0	0	0	0	0	0	0	***2.7***	0.2	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	0	0	0	0.1	0.4	0.4	0.0	24
7	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	0	0	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	0	0	0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0	0	0.2	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	**P**	**P**	**P**	**P**	0	0	0	0	0	0	0	0	0	0.0	20
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	0.1	0	0	0.1	0	0	0.1	0	0	0	2.7	1.2	0.1	0.1	0	0	0	0	0	0.2	0	0.1	0.1	0.4			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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			

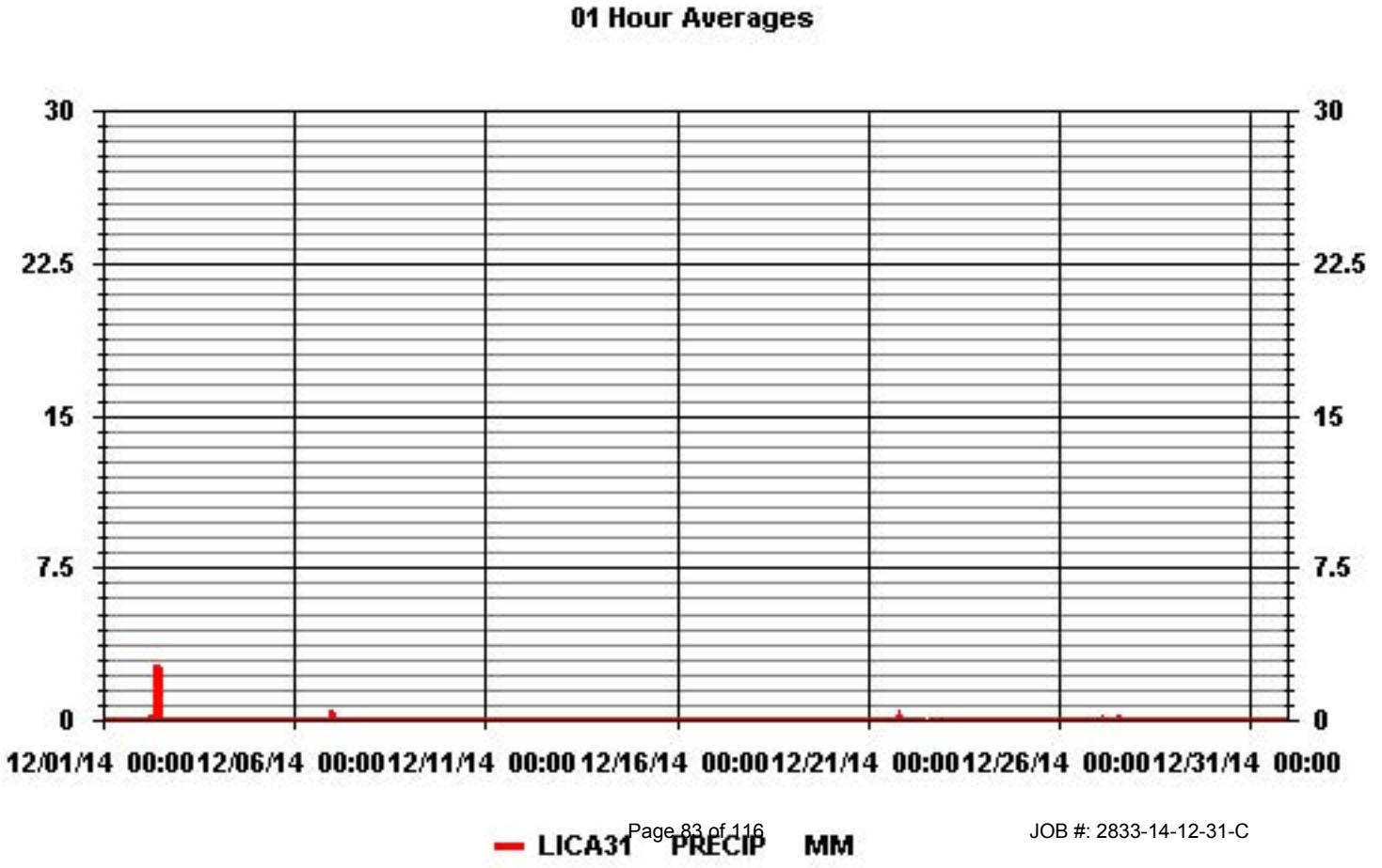
STATUS FLAG CODES

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



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	2.7	MM	@ HOUR(S)	10	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	0.2	MM			ON DAY(S)	2
					VAR-VARIOUS	
			OPERATIONAL TIME:		740	HRS
			AMD OPERATION UPTIME:		99.5	%
STANDARD DEVIATION:	0.11		MONTHLY AVERAGE:		0.01	MM



JOB #: 2833-14-12-31-C

Vector Wind Speed

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

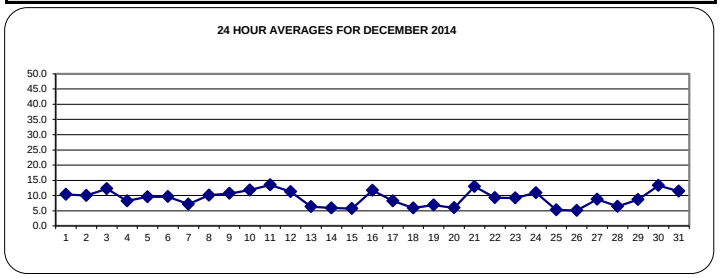
WIND SPEED (WS) hourly averages in km/hr

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	17.7	17.5	16.9	15.3	14.2	12.7	11.6	10.7	12.2	11.8	9.5	6.8	7.3	5.1	5.4	4.4	5.6	8.9	9	8.3	11.2	12	9.2	5.8	17.7	10.4	24
2	7.2	8.6	9.8	10.2	12.8	11.4	10.6	11.1	11.7	10.3	11.3	8	11.8	16.1	11.9	10.8	8.8	10.2	10.6	7.9	6.9	6.7	6.9	8.2	16.1	10.0	24
3	7.6	7.1	9.1	9.4	8.8	10.1	11.5	10.8	10.6	11.9	11.4	12.2	15.4	16	14.8	15.4	16.1	16.5	15.4	14.4	12.8	11.3	12.5	12.8	16.5	12.2	24
4	12.6	11.1	10	10.6	11.3	9.2	9.9	8.7	5.3	6.3	5.8	5.4	4.4	3.9	6.3	8.8	6	9	9.1	10	9.3	8.9	8.8	6.5	12.6	8.2	24
5	5.9	6.1	6	6.7	8.6	10.5	10.1	11	12.6	10.5	9.6	7.9	7	6.7	7.6	8.3	10.3	10.2	10.6	13.6	13.5	13.6	11.2	11.8	13.6	9.6	24
6	10.8	10.4	10.7	8.8	9.1	10.9	9.1	10	9.5	10.6	11.7	13.5	10.3	10.8	11.4	10.3	11.9	12	9.2	6.8	7.2	6.7	5.6	3.3	13.5	9.6	24
7	0.7	2.5	6.4	6.3	7.4	7.6	6.1	5.6	6.1	8.8	8.3	8.9	12.5	12.7	13.1	11.6	9.4	8.8	7.9	7.8	5.8	3.1	2.1	2.5	13.1	7.2	24
8	3	3.6	7.1	6.7	7.6	8.2	9.4	9.2	8	11.4	12.9	12.9	13.2	12.4	13.4	14.1	15.8	13.3	12.6	11.6	10.6	10.4	7.8	7.5	15.8	10.1	24
9	7.7	8	4.6	2.2	8.5	10.9	10.6	6.6	10.1	9.3	10.1	9.2	10.8	12.8	8.2	12.7	15.2	***30.7***	8.3	13.5	11.6	12.1	12	10.6	***30.7***	10.7	24
10	9.9	10	13	10.8	11	9.3	10.5	8.6	11.2	13.4	12.5	12	14.1	14.1	12	12.3	9.7	9.3	12	15.5	14.7	14.5	11.9	10.8	15.5	11.8	24
11	12.5	13.5	13.2	13.9	12.2	14	15.9	15.9	17.3	20.6	17	22.3	18.7	21.8	14.8	7.2	6.8	8.1	8.9	8.7	7.3	6.6	10.2	15.9	22.3	***13.5***	24
12	8	15.9	19.5	16.2	11.6	10.4	9.7	11.4	12.2	11.1	11.7	14.6	11.3	9.3	14.4	8.7	8.8	7.8	8.4	10.4	11.3	10.5	10.1	7.6	19.5	11.3	24
13	8.7	7.8	8.4	9	7.9	5.7	5.1	3.1	5.9	6.5	6.6	5.6	5.2	5.2	5.3	5.3	4.2	6.7	6.8	6.5	6.9	7.1	7.6	5.6	9.0	6.4	24
14	6.9	10.1	9.6	8.4	12	11.5	7.1	8.6	6.6	5.3	4.9	4	3.2	4.1	6.1	6.7	5.9	5.2	1.4	3.4	1.5	6.1	1.4	1.6	12.0	5.9	24
15	2.7	2.4	0.3	0.8	0.9	2.6	3.9	4.4	3.5	2.6	4.5	4.8	4.3	6.3	7	8.2	7.5	7.9	8.4	8.3	9.9	11.8	11.7	11.7	11.8	5.7	24
16	11.6	11.8	12.8	13.9	12.6	10.8	11.4	12.2	12.9	11.9	12.1	11.6	11.6	11.1	12.4	9.2	10.4	10.9	11.1	11.1	11.7	12	12.2	11.3	13.9	11.7	24
17	13.3	12.7	10	10	11	9.7	8.1	6.7	7.8	8.9	9	8.8	9.5	8.1	7.7	7.9	5.7	7.2	6.1	7.6	5.9	5.9	6.2	4.3	13.3	8.3	24
18	5	4.3	5.1	3.5	6.7	5.9	5.4	4.5	4.5	8.9	8.4	5.9	8.2	7.1	5	6.9	6.5	8.7	4.5	5.7	5.8	5.7	4.4	5.1	8.9	5.9	24
19	3.6	3.5	4.6	5.9	4	7.9	10.3	9.3	9.2	8.4	7.3	8.5	8.8	9.2	9.6	10.2	9.8	7.8	6.8	5.9	5.7	4.8	2.7	1.4	10.3	6.9	24
20	1.2	2.2	2.5	4.2	5.1	6	6.7	6.4	7.5	5.3	5.3	4.6	3	3.3	3.2	4.5	6.9	7.8	9.3	10.6	8.7	9.1	10	9.3	10.6	5.9	24
21	12	12.3	13.2	14.2	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	14.2	12.9	4
22	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	5.8	8	10.2	8.4	10.5	12.9	12.9	9.3	6
23	17.3	10.3	15	9.8	6.6	9.5	9	8.1	5.7	5.4	6.8	6.2	7.1	7.3	9.8	10.3	10.9	10.8	9.8	9.8	9.6	9.4	7.1	8.7	17.3	9.2	24
24	10.7	12.3	11.3	9.3	7.6	9.2	8.2	9.7	9.9	11	10.9	11.1	11.2	11.4	13.1	14	13.2	13.7	12.2	10.5	11.2	10.1	10.6	10	14.0	10.9	24
25	8	10	9.2	8.5	6.9	6.7	7.1	8.4	5.5	5	3.3	3.8	2.3	3.2	0.5	2.2	4.2	5.2	4.8	4.6	3.4	3.9	4.5	4.9	10.0	5.3	24
26	2.7	3.5	4.9	5.3	6.4	5.5	7.2	5.3	3.6	5.4	8.6	8.3	10.4	7.5	6.2	4.1	5.6	4.8	3	3.1	3	3.1	4.1	1.2	10.4	5.1	24
27	4.2	3.4	5	4.6	6.9	8.5	9.7	9.2	9.5	10.1	10.6	11.4	12.3	9.7	9.8	9.1	10.2	10.3	9.8	8.2	8.7	9.3	10.4	8.9	12.3	8.7	24
28	7.3	8.2	8.7	6.9	5.9	7.5	7	6.5	7	4.5	2.8	0.7	1.6	2.6	3.1	4.9	7.6	7.7	8.1	9.9	8	8.8	9.6	8.6	9.9	6.4	24
29	9.4	12	12.5	12.1	10.5	12.1	8.1	8.3	8.5	8	9.6	8.9	8.1	9.5	8.2	8	7	5.9	5.5	5	5.8	8.3	8.3	7.9	12.5	8.6	24
30	8.5	8.8	10.8	10.8	12.8	11.3	13	12.1	13.7	14	15	19.3	21.2	14.9	11	13.8	14.8	15.8	14	13.6	13.1	13.4	12.1	11	21.2	13.3	24
31	11.2	13.2	12.4	11.8	10.9	12.1	12.5	12.7	14	15.2	15.6	15.8	13.5	13.4	12.7	10.7	9.2	10.8	7.8	2.9	5.3	8.4	9.2	13.1	15.8	11.4	24
HOURLY MAX	17.7	17.5	19.5	16.2	14.2	14.0	15.9	15.9	17.3	20.6	17.0	22.3	21.2	21.8	14.8	15.4	16.1	30.7	15.4	15.5	14.7	14.5	12.5	15.9			
HOURLY AVG	8.3	8.8	9.4	8.9	8.9	9.2	9.1	8.8	9.0	9.4	9.4	9.4	9.6	9.5	9.1	9.0	9.1	10.1	8.6	8.8	8.6	8.7	8.4	8.0			

STATUS FLAG CODES

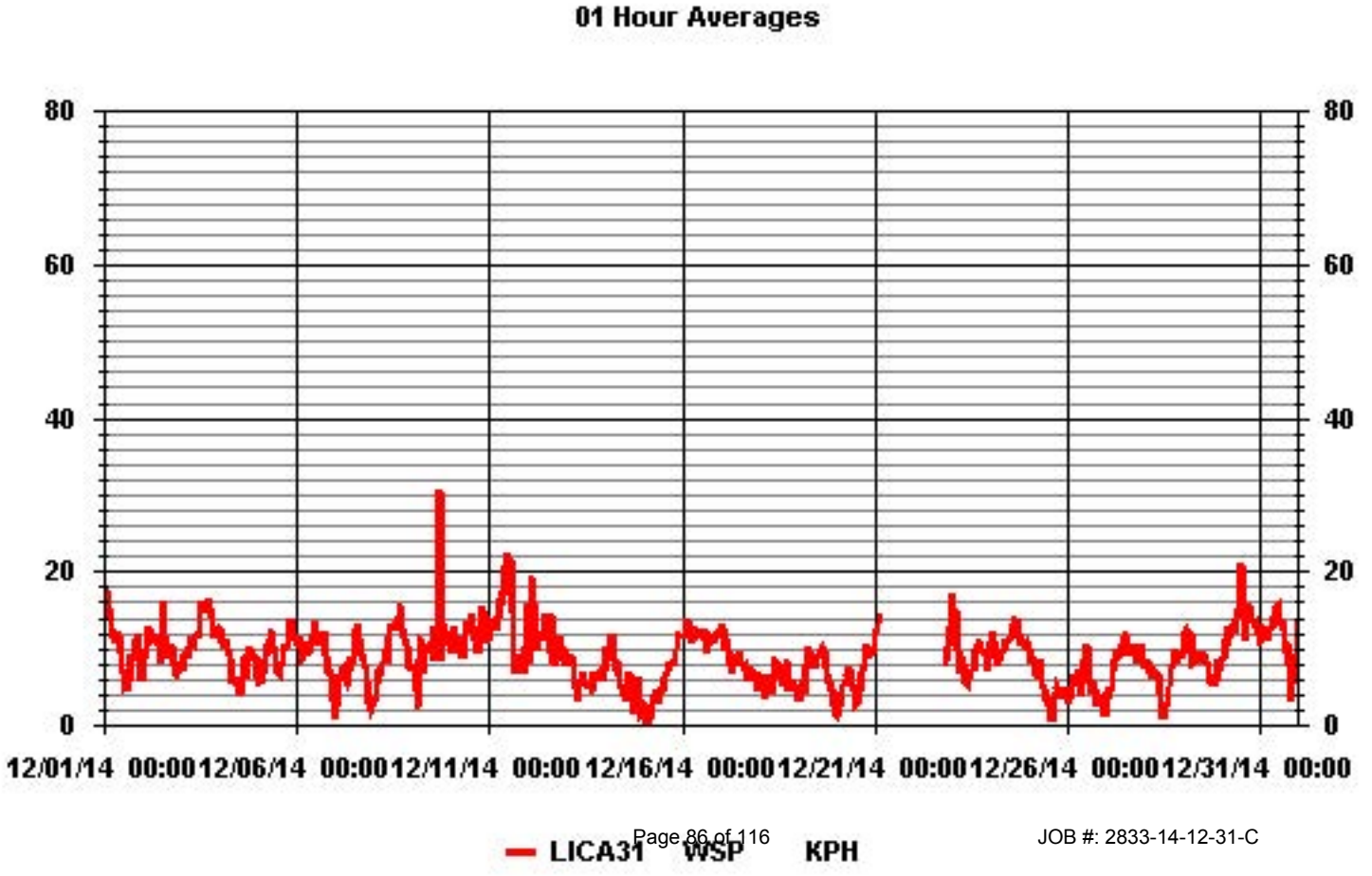
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



LAST CALIBRATION:	August 28, 2014
DECLINATION :	MAGNETIC DECLINATION 13 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706						
MAXIMUM 1-HR AVERAGE:	30.7	KPH	@ HOUR(S)	17	ON DAY(S)	9	
MAXIMUM 24-HR AVERAGE:	13.5	KPH			ON DAY(S)	11	
					VAR-VARIOUS		
			OPERATIONAL TIME:		706	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		94.9	%	
STANDARD DEVIATION:	3.70		MONTHLY AVERAGE:		9.00	KPH	



JOB #: 2833-14-12-31-C

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

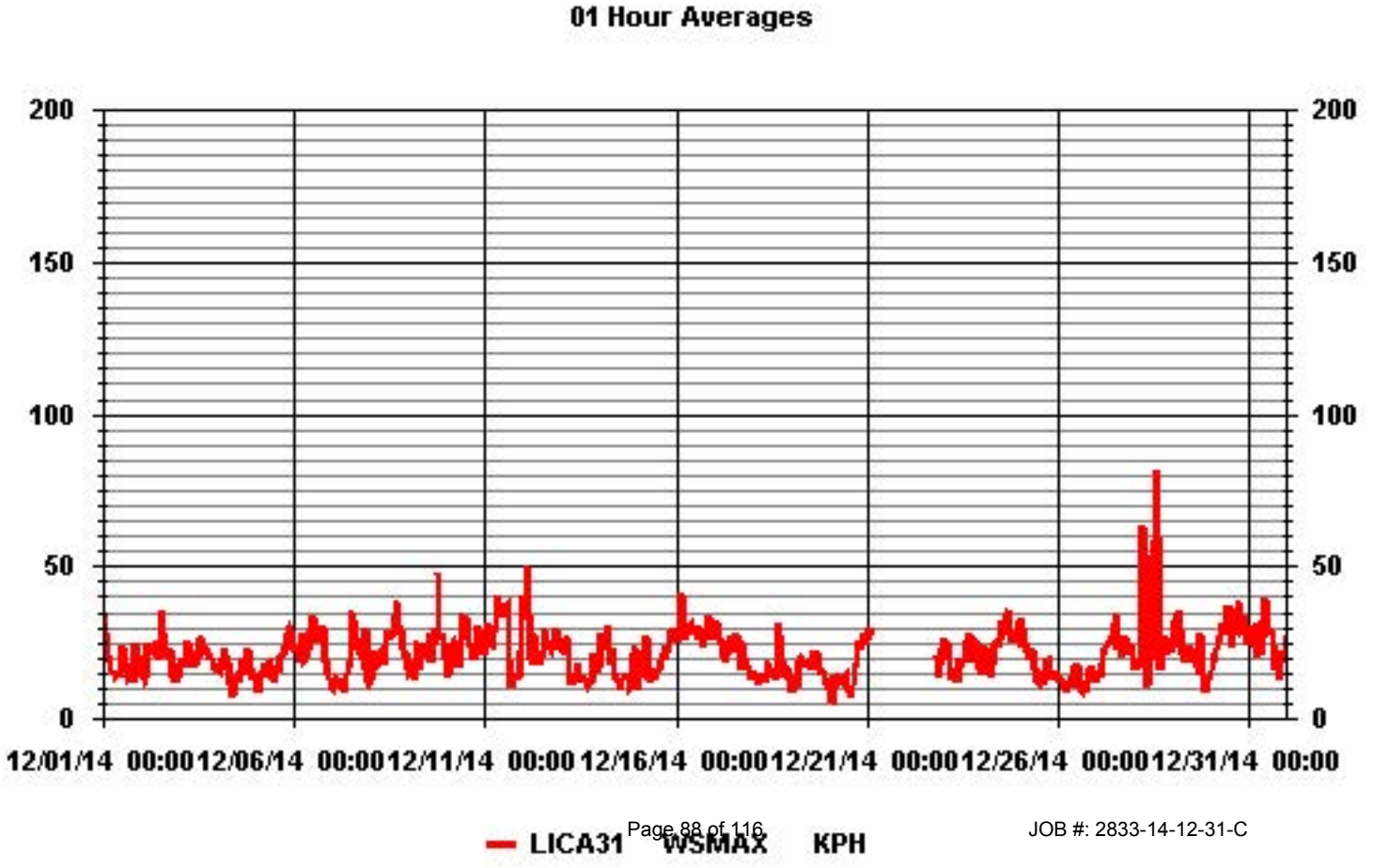
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	34.1	27.8	27.8	21.5	19.4	16.2	15.4	14	14.6	14.9	14	20.6	23.8	16.7	17.1	13.3	14	16.8	17.5	11.3	24	23.8	20.5	13.3	34	18.9	24
2	20.3	14.7	12.5	13.3	24.9	22.3	22.5	23.6	21.7	22.2	25.4	19.5	35.8	34.6	28.5	23.9	21	20.3	23.2	13.4	14.4	11.8	16.8	16.4	36	21.0	24
3	13.3	18.6	18.2	16.9	20.3	24.1	24.1	22.5	17.3	18.6	17.3	19.5	25.7	25.8	25.9	22.6	23.3	23.2	21.3	20.6	20	16.7	16.7	16.4	26	20.4	24
4	17.1	16.2	18.7	18.9	22.8	15.8	20.4	18.6	12.1	8.2	8.4	13.6	12.5	12.5	15.6	19.5	14.3	15.4	16.2	22.8	22	17.3	13.6	13.5	23	16.1	24
5	13	8.4	14.7	15.2	13.6	17.8	14.9	17.8	18.4	14.5	13.8	12.1	15	17	15.3	20	20.8	21.5	23.6	26.7	27.8	30.2	29.3	23.7	30	18.5	24
6	22.8	22.8	23	18.6	20.4	28.3	19.5	20.2	21.1	22.7	28.3	29.4	33.4	27	30.5	25	28.5	29.6	29.4	18.2	19.8	15	13.5	10.4	33	23.2	24
7	9.8	11	12.8	11.9	11.2	11.9	11	8.6	9.9	14.7	16.7	19.3	35.3	29.8	32.2	27	23.6	21.8	20.6	20.2	15.5	29.4	12.6	11.5	35	17.8	24
8	12.8	16	22.4	21.5	18	18.8	21.7	21.3	17.6	23.5	26.1	28.3	26.8	27	28.5	33.3	38.6	29.6	30.3	29.2	23.2	21.2	21.1	16.7	39	23.9	24
9	14.8	15.6	14.7	12.8	18.5	25.2	19.1	15.6	24.8	20.4	23.3	23.5	24.6	28.4	18.3	24	29	**X**	47	29	25.5	27.9	25.1	20.1	47	22.9	23
10	14.8	15	20.1	24.2	25.3	23.4	20.7	17.2	19.2	34.2	28.6	26.6	33.4	26.2	23.9	20.9	21.1	20.8	24.9	30.6	28.6	28.2	26.7	20.7	34	24.0	24
11	24.3	29.7	31.2	25.1	24.7	28.2	29.7	35.5	40	38.4	33.7	34.8	36.8	37.6	33.5	20.1	10.6	12.6	13.9	13.9	13.4	13.7	22.1	40.6	41	26.8	24
12	32.6	35.7	50.3	34.3	19.6	17.2	22.2	28.1	20.2	20.1	17.8	21.3	21.2	29.5	25.7	23.8	23.4	22.6	24.6	24.2	28.7	28.6	27	23.1	50	25.9	24
13	23.1	22.4	23.5	27	21.5	12.6	13	10.8	14.1	15	17.6	14.5	13	12.8	13.5	13	11.3	12.2	11.4	11.8	21.8	17.6	19.1	15	27	16.2	24
14	16.5	28.3	24.4	22.4	28.1	30.7	17.2	20	23	15.4	13.6	12.5	10.4	10.3	12.7	13.4	14	15.1	10.1	10.8	21.5	23.3	23.2	8.9	31	17.7	24
15	20.2	21.7	20.2	13.4	18	27.3	13.2	12.1	15.8	15.6	13.2	14.3	16.7	15.6	18.7	20.2	22.3	21.5	24.1	22.1	29.2	28.3	28.5	29.4	29	20.1	24
16	24.5	28.7	33.6	41	39.9	25.9	30.2	29.6	31.1	31.6	30	27.4	29.2	25.9	30.1	26.3	23.5	27	26.8	27.9	33	32.9	30.3	25.3	41	29.7	24
17	31.4	32.3	27.5	24.9	25	26.3	20.6	18.2	21.1	24.6	27	21.6	26.2	24.7	28.2	22.3	15.6	25.8	18.1	20.9	15.6	17.6	16.3	12.3	32	22.7	24
18	14.8	14.8	13.9	10.8	14.4	14.6	13.6	11.7	13.3	18.7	15.7	15.9	14.8	15.2	12.8	14.6	31	27.7	19.6	14.1	14.1	**P**	16.1	13.4	31	15.9	23
19	9.7	8.6	11.9	14	9.9	19.1	20.2	19.5	17	18.2	18.4	17.8	19.4	18.5	21	20.9	22.5	16.8	16.1	14.8	16.6	12.4	12.6	9.1	23	16.0	24
20	10.7	6.7	6.2	14.1	13.1	15	12.8	13.2	11.2	13.5	14.4	11.4	9.4	8.5	8.3	11	16.7	18	25.1	24.9	24.4	27.8	26.8	24	28	15.3	24
21	26	28.9	28.8	**P**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	29	27.9	3
22	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	19.5	19.9	17.3	13.5	17.8	22.6	23	18.4	6
23	26.1	22.6	25.5	20	12.6	15.2	15.6	12.5	13.5	13.2	19.8	17.2	18.3	19.6	25.9	18.2	28	22.9	18.5	25.5	25.5	24.9	17	15.5	28	19.7	24
24	15.7	20.1	24	19.4	15.7	15.9	13.5	17.2	24.4	25.2	24.8	26.1	31.9	27.7	32.1	34.5	33.6	35.6	28.8	25.5	26.6	27.7	29.6	28.5	36	25.2	24
25	23.1	32.9	30.7	25	22.4	20.8	18.9	20.8	23	16.9	13.1	12.5	11.9	15.7	11	13	14.5	19.5	19.8	13.9	13.9	13.9	13.5	15.2	33	18.2	24
26	11.5	14.1	12.3	10.2	10	9.7	12.3	13.4	13.6	10.3	17.2	16.1	18.2	11.7	9.7	8.9	9.9	8.6	12.3	16.7	14.7	17	13.4	12.1	18	12.7	24
27	14.8	14.6	16.5	15.9	20.7	22.4	23.9	25	25.5	27.2	29.9	29.2	34.2	23	23.8	20	25.7	23.2	27.2	21.1	25	24.4	22.1	20.5	34	23.2	24
28	15.8	19.5	17.9	19.5	24.8	63.7	17.4	18.3	10.4	44.4	19.1	53.9	58.5	44.7	***81.6***	60.4	17.5	17.3	23	26.9	21.5	22.6	25.2	22.1	***82***	***31.1***	24
29	23.7	31.9	34.6	29.8	35.6	29.3	21.6	18.1	21.4	18.6	23.8	21.8	21	22.5	19.9	17.3	14.4	27.6	15.3	9.2	9.2	13.5	13.3	14	36	21.1	24
30	15.6	20.4	20.1	22.6	26.5	26.2	28	31.1	27.8	32.8	36.6	35.7	37	23.5	27.4	30.7	36.2	38.6	34.2	29.2	29.8	34	28.5	23.7	39	29.0	24
31	27.5	29.7	30.1	23.9	21.4	19.8	23.5	20.7	32.3	30.3	39.3	36	28.6	29	28.1	24.7	15.6	21.6	20	12.6	22	18.3	22.2	26.6	39	25.2	24
HOURLY MAX	34	36	50	41	40	64	30	36	40	44	39	54	59	45	82	60	39	39	47	31	33	34	30	41			
HOURLY AVG	19.3	21.0	22.3	20.3	20.6	22.2	19.2	19.1	19.8	21.5	21.6	22.5	24.9	22.8	24.1	22.2	21.4	21.9	22.1	20.3	21.5	21.8	20.7	18.8			

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:	82	KPH	@ HOUR(S)	14	ON DAY(S) 28
					VAR-VARIOUS
OPERATIONAL TIME:					703 HRS



JOB #: 2833-14-12-31-C

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

December 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	.14	.28	.85	.70	1.41	1.27	1.56	.99	1.41	3.82	3.26	1.27	1.27	1.56	1.13	.28	21.27
<	12.0	.42	.56	2.55	2.69	3.82	1.70	4.82	5.67	4.68	4.11	7.51	4.96	3.40	3.12	4.39	3.40	57.87
<	20.0	.00	.00	.14	.85	.70	.56	2.41	2.83	.99	1.70	2.83	2.12	.85	1.41	1.41	.56	19.43
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.42	.14	.00	.00	.00	.00	.56
<	39.0	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	.56	.99	3.54	4.25	5.95	3.54	8.79	9.50	7.09	9.64	14.04	8.51	5.53	6.09	6.95	4.25	

Calm : .70 %

Total # Operational Hours : 705

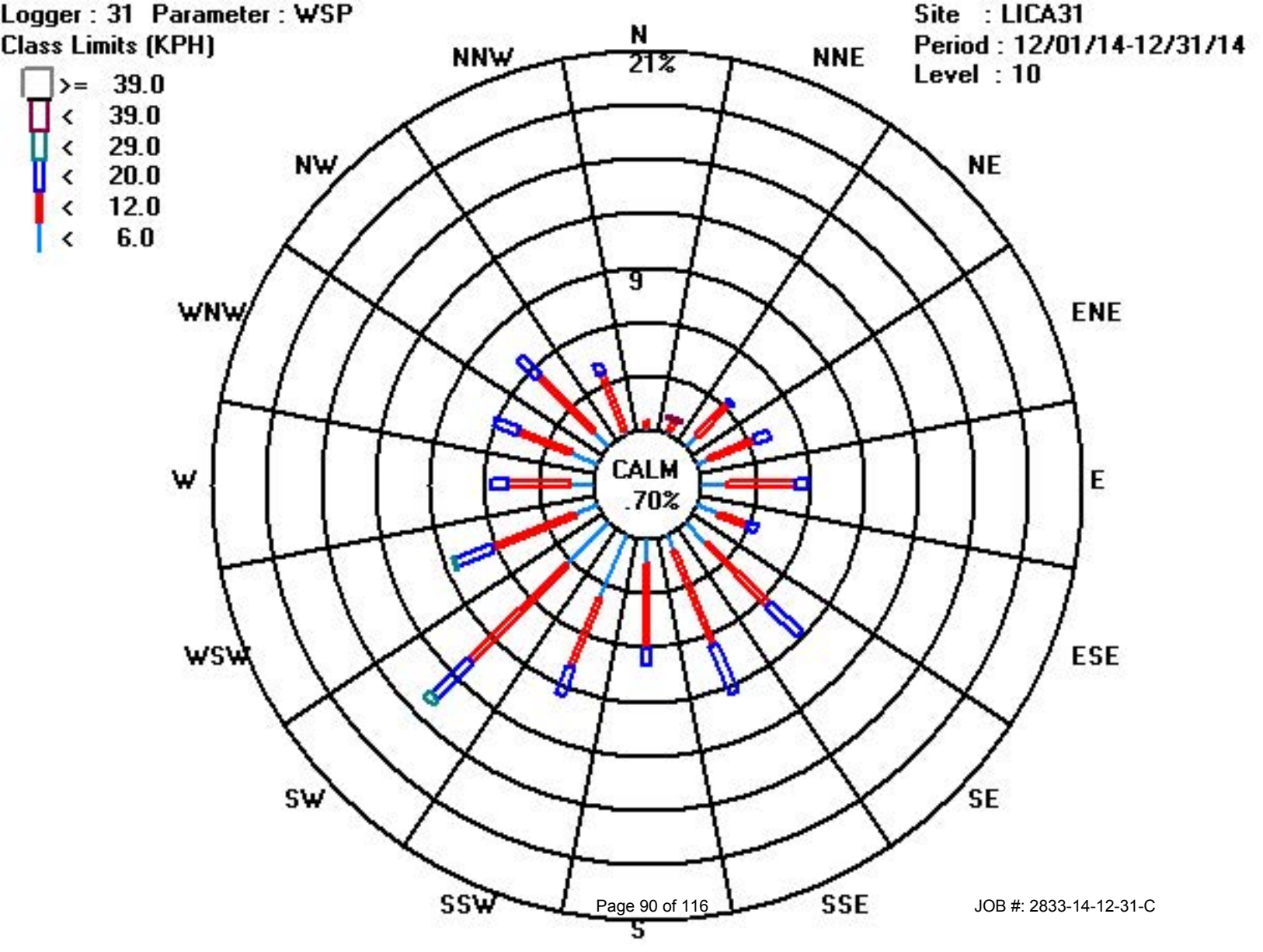
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1	2	6	5	10	9	11	7	10	27	23	9	9	11	8	2	150
<	12.0	3	4	18	19	27	12	34	40	33	29	53	35	24	22	31	24	408
<	20.0			1	6	5	4	17	20	7	12	20	15	6	10	10	4	137
<	29.0											3	1					4
<	39.0		1															1
>=	39.0																	
	Totals	4	7	25	30	42	25	62	67	50	68	99	60	39	43	49	30	

Calm : .70 %

Total # Operational Hours : 705



JOB #: 2833-14-12-31-C

Vector Wind Direction

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

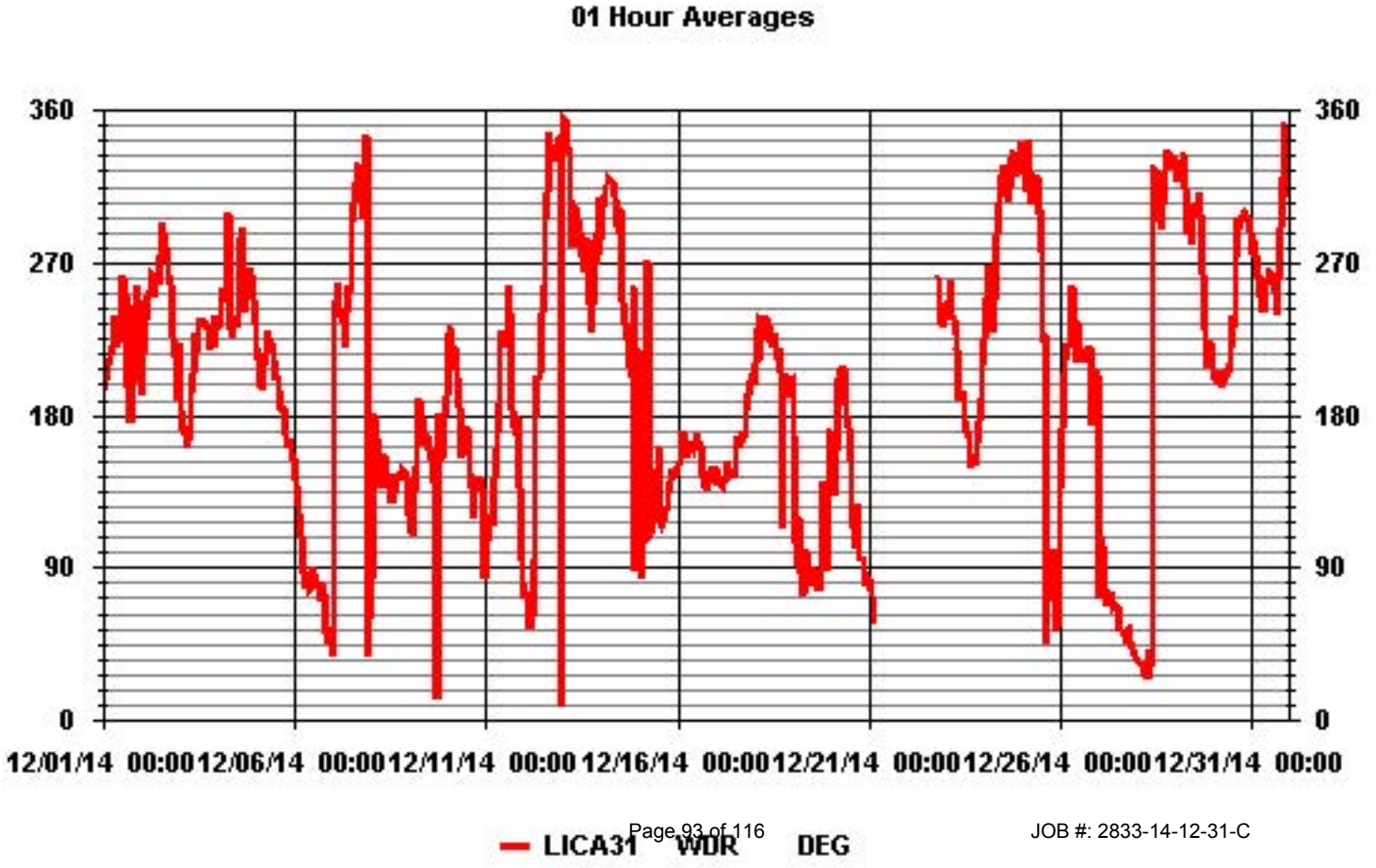
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	197	201	205	213	210	215	221	238	219	228	227	234	262	227	252	198	192	175	184	204	245	257	249	201	262	W	24
2	192	216	231	236	250	254	264	263	249	258	258	274	281	294	289	280	271	264	258	227	214	224	197	189	294	WNW	24
3	222	184	173	169	160	165	174	193	205	216	228	216	236	236	231	237	232	232	225	218	222	220	238	231	238	SW	24
4	232	236	255	246	250	265	298	298	231	225	237	238	232	249	285	291	266	241	252	259	266	264	249	235	298	WNW	24
5	220	214	198	195	217	209	216	230	220	223	221	213	202	202	196	185	182	185	169	162	162	166	158	155	230	SW	24
6	143	126	138	123	109	88	78	81	88	77	78	91	87	81	81	79	70	81	75	52	52	45	54	48	143	SE	24
7	37	247	256	256	238	243	236	220	234	240	257	253	294	306	317	329	325	320	309	295	298	346	37	59	346	NNW	24
8	83	131	181	167	147	139	139	152	157	144	141	142	130	130	135	137	145	146	145	141	148	147	144	122	181	S	24
9	120	112	109	135	150	178	190	162	179	169	164	169	161	154	140	150	154	12	181	157	154	170	179	191	191	S	24
10	228	233	228	214	221	208	203	185	154	171	163	167	174	157	146	138	119	135	138	143	139	140	137	84	233	SW	24
11	96	106	118	117	115	143	160	169	187	220	229	220	226	229	256	242	184	173	175	168	179	138	95	81	256	WSW	24
12	72	75	72	54	63	61	95	178	203	201	205	240	257	295	311	347	340	338	337	330	335	343	344	7	347	NNW	24
13	356	355	348	334	338	309	279	289	304	295	293	289	274	265	270	273	284	246	229	245	269	287	309	274	356	N	24
14	284	302	310	316	320	319	319	318	311	308	292	286	303	248	247	235	225	228	209	202	257	87	217	217	320	NW	24
15	90	83	156	115	150	271	109	110	135	148	126	134	161	118	115	117	126	124	134	141	148	143	144	145	271	W	24
16	150	153	165	170	163	155	161	161	162	162	160	163	169	165	161	161	144	139	135	141	146	150	147	139	170	SSE	24
17	149	141	140	139	138	144	151	151	144	145	146	143	148	165	165	161	164	171	167	182	192	200	202	202	202	SSW	24
18	198	210	231	212	237	236	235	238	226	223	233	222	222	228	216	217	206	113	196	202	202	195	190	200	238	SW	24
19	201	169	105	90	120	88	73	75	89	101	86	79	82	91	83	84	76	89	108	141	132	114	88	172	201	SSW	24
20	151	134	134	159	202	199	207	200	209	187	181	174	155	127	114	101	115	127	96	96	95	89	79	81	209	SSW	24
21	85	78	74	59	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	85	E	4
22	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	262	260	248	235	232	236	262	W	6
23	242	244	247	260	239	237	229	219	189	191	191	194	177	171	168	149	151	153	150	155	164	176	189	209	260	WSW	24
24	225	249	269	265	238	228	233	247	286	305	320	320	327	309	312	306	315	332	337	321	326	324	330	341	341	NNW	24
25	331	324	312	330	342	324	304	308	311	321	299	302	277	223	228	45	74	72	81	70	101	53	56	84	342	NNW	24
26	136	172	204	212	223	220	235	257	231	210	234	234	221	215	214	215	214	219	221	205	174	193	207	204	257	WSW	24
27	71	110	96	103	67	77	71	76	73	67	68	66	66	55	54	53	50	52	53	45	47	43	39	38	110	ESE	24
28	36	34	34	33	27	27	26	24	41	31	328	293	310	324	299	289	305	311	327	336	329	326	333	328	336	NNW	24
29	317	323	328	325	330	335	314	287	295	295	281	301	300	303	305	311	300	264	231	211	208	222	222	217	335	NNW	24
30	202	201	205	200	206	196	200	202	207	205	210	220	238	231	273	294	293	295	297	300	299	298	297	289	300	WNW	24
31	279	280	275	264	263	251	250	240	253	260	265	265	264	258	252	258	239	259	291	320	353	318	309	313	353	N	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:	706	HRS
STANDARD DEVIATION:	80.16		AMD OPERATION UPTIME:	94.9	%
			MONTHLY AVERAGE:	205	DEG



JOB #: 2833-14-12-31-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 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	9	8	7	4	4	3	3	4	3	4	4	8	16	19	15	7	4	4	5	4	5	6	9	8
2	8	7	4	3	7	7	11	10	5	10	12	15	15	15	15	15	12	10	8	8	7	8	8	6
3	6	7	7	7	10	12	9	9	6	7	6	6	7	7	8	7	5	6	5	4	4	4	4	3
4	4	5	7	5	7	9	12	11	10	6	6	7	9	13	17	15	11	6	9	11	11	9	6	8
5	9	9	7	7	7	6	6	6	5	4	5	4	7	7	7	8	8	9	8	8	9	8	11	12
6	12	12	14	13	13	15	11	12	11	12	13	12	13	13	13	13	13	13	16	14	13	12	12	13
7	53	16	9	10	5	5	10	7	10	7	13	15	17	15	15	15	15	15	14	14	19	18	22	16
8	17	16	15	18	15	15	16	15	16	15	14	15	14	15	14	15	15	14	14	14	13	14	14	13
9	10	13	25	33	12	11	10	17	10	9	11	13	12	11	14	11	10	47	38	10	11	10	10	9
10	7	7	6	10	10	10	8	9	8	9	10	11	10	8	11	10	13	12	12	11	11	11	11	10
11	11	12	13	11	11	11	9	10	11	9	15	8	9	7	12	13	8	9	10	7	10	13	11	9
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14	14	15	14	15	15	13	15	14	17	17	17	22	19	22	16	9	16	33	46	15	41	37	28	31
15	30	41	43	35	51	61	16	17	31	35	18	19	21	16	16	15	17	15	17	18	18	16	16	17
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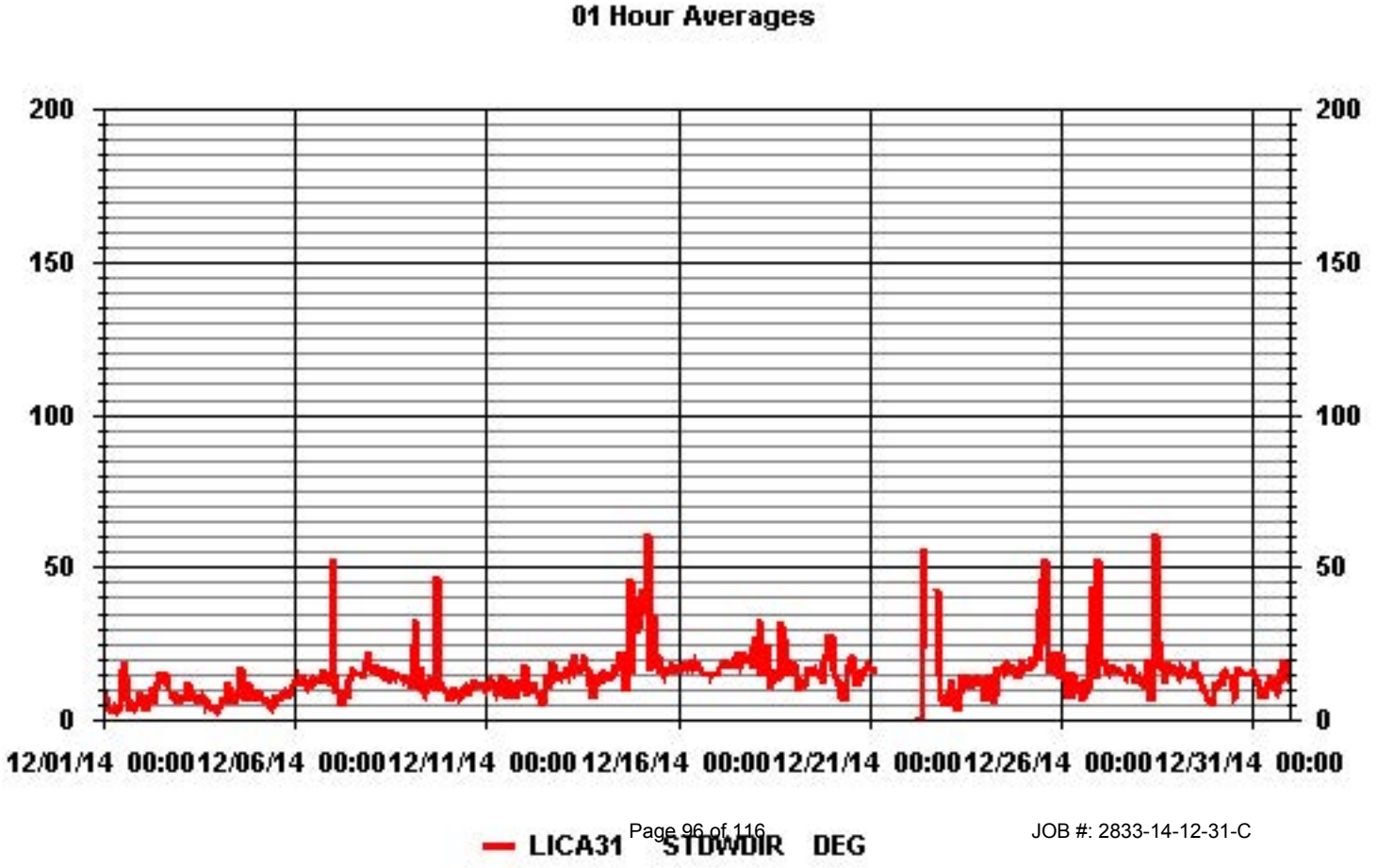
18	27	20	23	33	15	15	16	22	25	10	13	16	14	15	16	13	32	31	27	16	16	14	20	15
19	17	19	15	9	14	10	12	12	12	14	17	15	17	14	16	15	14	14	12	19	20	20	28	23
20	28	17	14	14	12	13	7	10	6	11	18	15	20	21	17	12	12	13	16	15	16	17	18	17
21	17	16	16	16	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
22	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**Y**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	42	15	9	7	5	5
23	6	9	8	13	7	5	4	4	9	9	15	14	14	14	11	11	12	12	12	14	14	13	14	11
24	6	10	12	15	12	7	5	8	16	16	16	17	18	16	17	15	17	17	17	16	14	14	15	20
25	16	18	17	17	18	18	20	18	25	19	36	34	46	41	53	26	22	15	18	17	22	15	14	17
26	22	16	13	9	7	10	7	15	15	13	9	9	9	6	7	13	9	10	25	32	44	18	13	53
27	19	20	18	20	15	17	16	17	17	17	16	16	16	15	15	15	14	15	15	17	17	15	12	13
28	14	13	12	13	13	10	20	11	6	19	31	61	36	26	18	17	13	13	16	19	16	16	17	17
29	16	15	17	16	17	16	15	15	14	14	16	18	18	16	15	13	12	10	9	7	6	6	6	5
30	9	12	10	13	11	15	16	15	14	14	14	10	8	9	16	16	16	15	15	15	15	15	15	16
31	15	15	14	12	11	7	9	7	10	12	14	14	13	11	10	12	11	12	16	19	19	14	14	13

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- 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: 706 HRS



JOB #: 2833-14-12-31-C

Calibration Reports

Sulphur Dioxide

API 100E SO2 Analyzer Calibration

Date:	11-Dec-14	**Start/End Time (mst):**	1001-1304
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:**	4-Feb-18

Analyzer:

Serial Number:	468	**Range ppb:**	100
Last Calibration Date:	14-Nov-14	**As Found C.F.**	0.983
Previous Cal High Point C.F.:	1.002	**New C.F.:**	1.000

	As found:	**As left:**
SLOPE:	.988	.972
OFFSET:	161.9	11.9
HVPS:	544	544
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.2	31.2
PMT TEMP:	7.9	7.9
IZS TEMP:	40.0	40.0
STABIL:	1.6	1.6
PRES:	23.3	23.3
SAMP FL:	564	564
PMT:	139.1	139.1
NORM PMT:	161.9	161.9
UV LAMP:	1742.5	1742.5
LAMP RATIO:	98.2 %	98.2 %
STR. LGT	80.3	80.3
DRK PMT:	16.9	16.9
DRK LMP:	3.6	3.6
Internal Span:	247.1	256.8

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	5.2	NA
adjusted zero	5000	0.0	5000	0	1.7	NA
as found high	4994	76.75	5071	729.5	744.0	0.983
adjusted high	4994	76.75	5071	729.5	732.0	0.999
mid	4995	36.87	5032	353.2	354.0	1.003
low	4994	16.95	5011	163.0	165.0	0.998
calibrator zero	5000	0.00	5000	0	1.3	NA
					Average C.F.=	1.000

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)=	**-1.48%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**1.92%**	**± 15%**	**PASS**

Converter Effeciency Check for H_2S/TRS application:

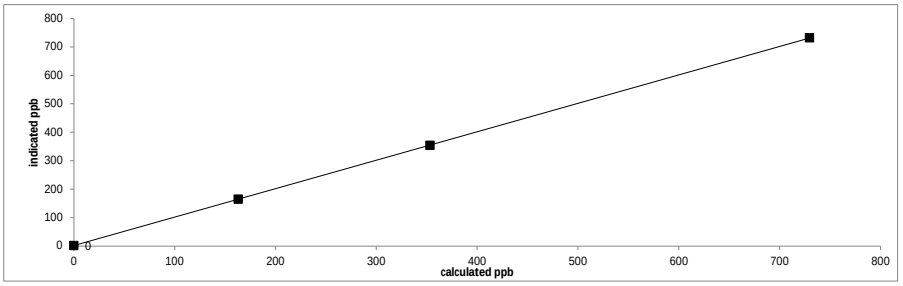
****run converter effeciency test immediately following zero adjust****

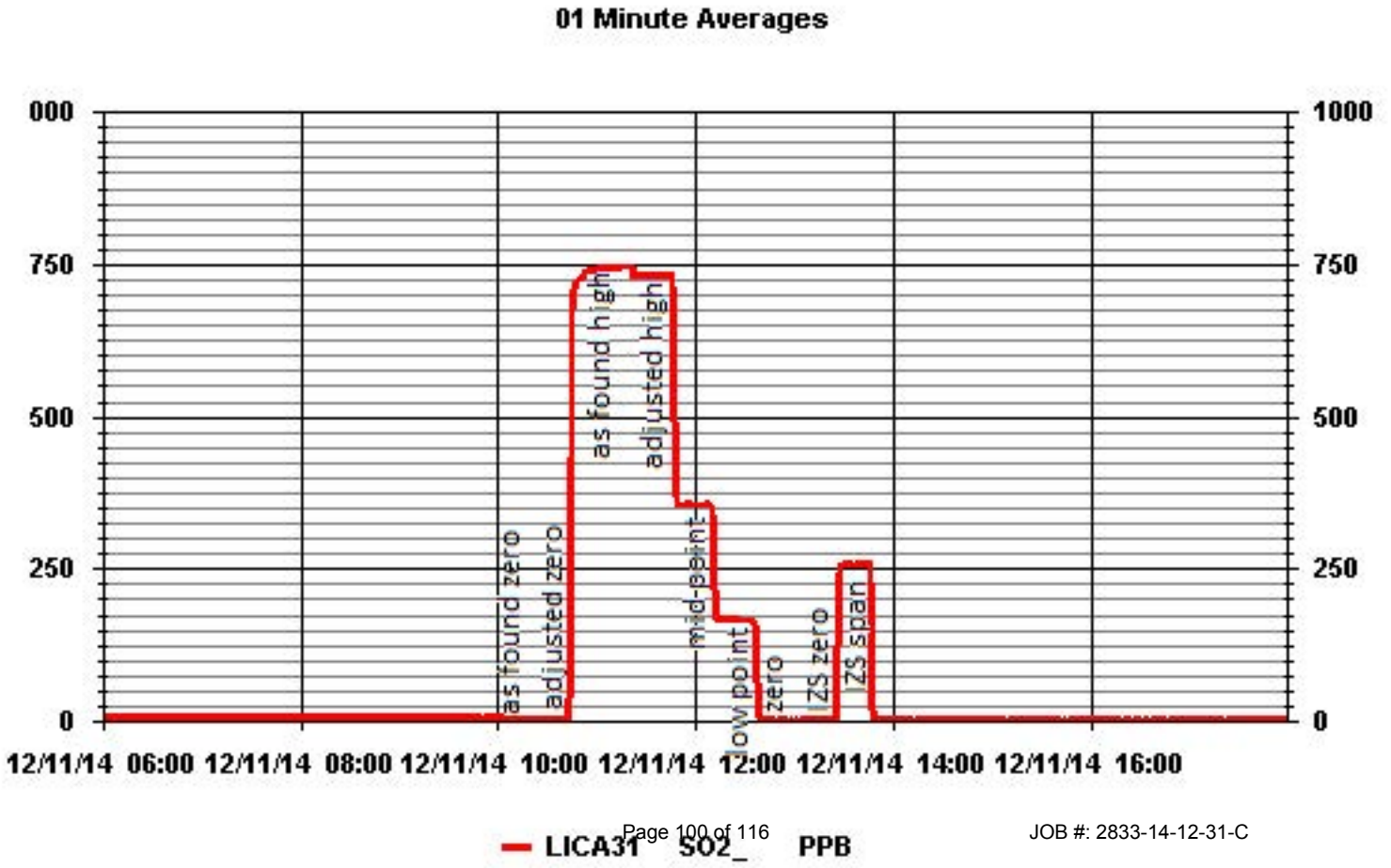
SO_2 High Point gas concentration:	na	Time gas run (mst):	na
Zero corrrected analyzer response:	na		

Comments:

changed analyzer filter

API 100E SO2 Analyzer Calibration





JOB #: 2833-14-12-31-C

Hydrogen Sulphide

API 101E H2S Analyzer Calibration

Date:	11-Dec-14	**Start/End Time (mst):**	10:01-13:12
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:	14-Nov-14	**As Found C.F.**	0.961
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.992

	As found:	As left:
SLOPE:	1.355	1.294
OFFSET:	44.2	44.2
HVPS:	595	595
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.7	31.7
PMT TEMP:	8.2	8.2
IZS TEMP:	45.0	45.0
CONVERTER TEMP: / TEST:	315.3	315.3
STAB: / STABIL:	.1	.1
PRES:	24.4	24.4
SAMP FL:	581	581
PMT:	63.6	63.6
NORM PMT:	44.6	44.6
UV LAMP:	2338.3	2338.3
LAMP RATIO:	101.6 %	101.6 %
STR. LGT	30.0	30.0
DRK PMT:	28.3	28.3
DRK LMP:	3.2	3.2
Internal Span:	39.02	41.52

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	831
Cal Gas Cylinder I.D. # :	BLM0005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	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	1.4	NA
adjusted zero	5000	0.0	5000	0	0.2	NA
as found high	4997	39.00	5036	78.2	81.5	0.961
adjusted high	4997	39.00	5036	78.2	78.2	1.002
mid	4996	19.00	5015	38.3	38.7	0.992
low	4994	11.00	5005	22.2	22.8	0.981
calibrator zero	5000	0.00	5000	0	0.5	NA
					Average C.F.=	0.992

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)=	**-0.41%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**3.96%**	**± 15%**	**PASS**

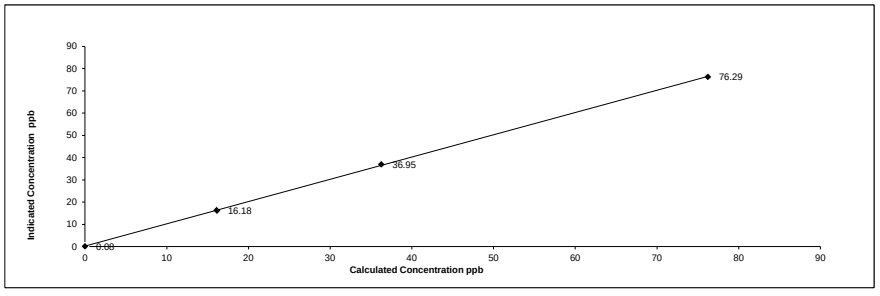
Converter Effeciency Check for H_2S/TRS application:

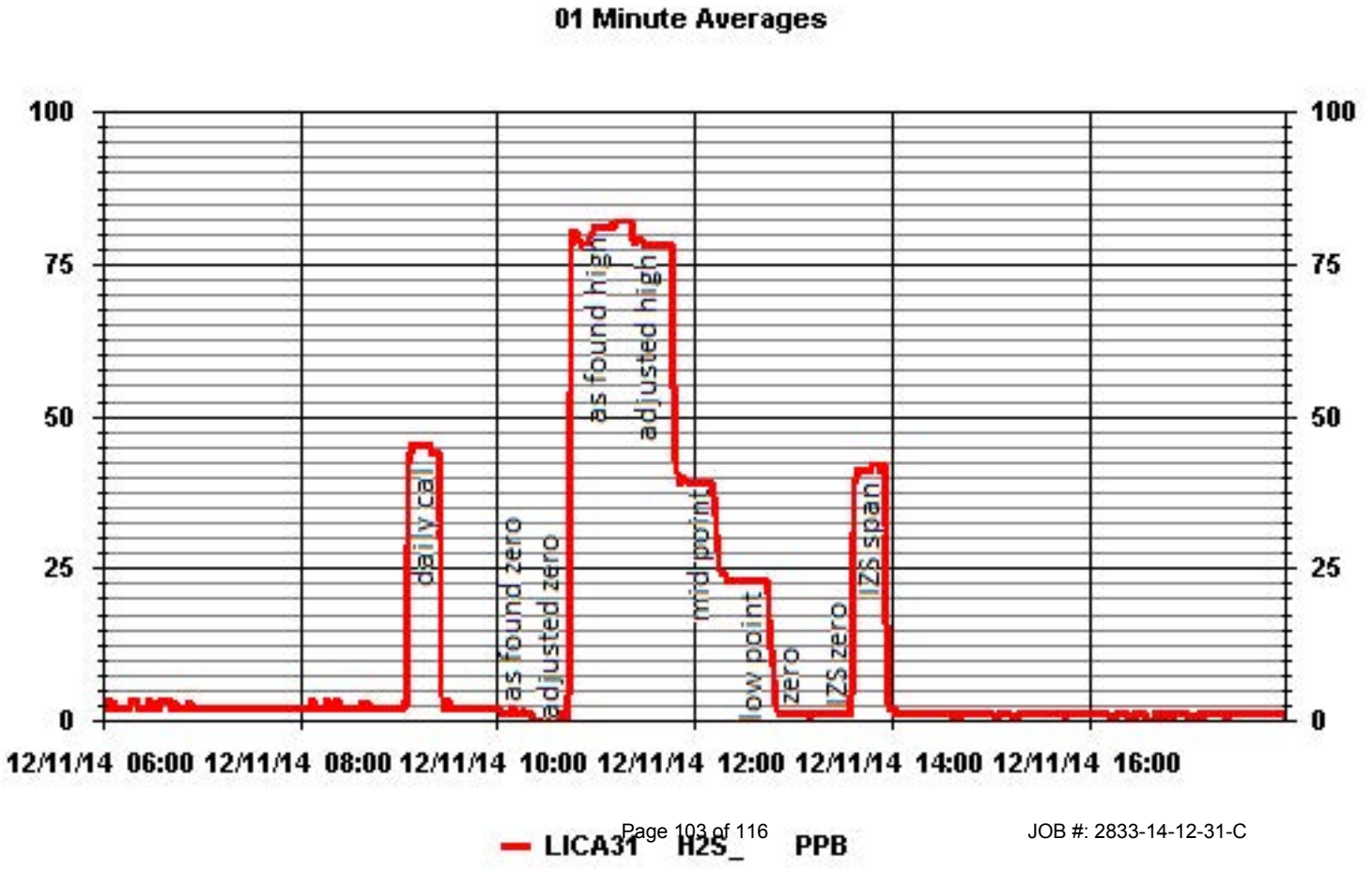
****run converter effeciency test immediately following zero adjust****

SO_2 Low Point gas concentration:	60.2	Time gas run (mst):	0945-0950
Zero corrrected analyzer response:	0.3		

Comments:

API 101E H2S Analyzer Calibration





JOB #: 2833-14-12-31-C

Total Hydrocarbons

Maxxam Thermo 51C THC Analyzer Calibration

Date:	11-Dec-14	**Start Time (mst):**	13:17
Company:	LICA	**End Time (mst):**	15:58
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:	6-Nov-14	**As Found C.F.**	1.003
Previous Cal High Point C.F.:	0.999	**New C.F.:**	1.001

		As found:	As left:
	H_2 cylinder (psi):	1200	1200
	H_2 cylinder reg set (psi):	28	28
	Span Cylinder (psi):	1600	1600
	Span Cylinder Reg Set (psi):	30	30
	Zero Air Gen Pressure:	47	47
	measurement alarms:	none	none
	service alarms:	none	none
FID status:	cnt:	1960	1960
	rng:	1	1
	try:	1	1
	flm:	202.9	202.9
	det:	125.7	125.7
Oven Readings:	Flame:	202	202
	Filter:	125	125
	Base:	125	125
	Pump:	6.82	6.82
Voltages:	+5	4.9	4.9
	+15	14.9	14.9
	-15	-15	-15
	Internal Span:	33.06	32.3

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	3000	0	3000
high	3000	80	3080
mid	3000	40	3040
low	3000	20	3020

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	3000	0.00	3000	0	-0.19	NA
adjusted zero	3000	0.00	3000	0	0.00	NA
as found high	2999	80.00	3079	30.06	29.97	1.003
adjusted high	2999	80.00	3079	30.06	30.08	0.999
mid	2999	40.00	3039	15.23	15.12	1.007
low	2999	20.00	3019	7.66	7.69	0.997
calibrator zero	3000	0.00	3000	0	0.07	NA
					Average C.F.=	1.001

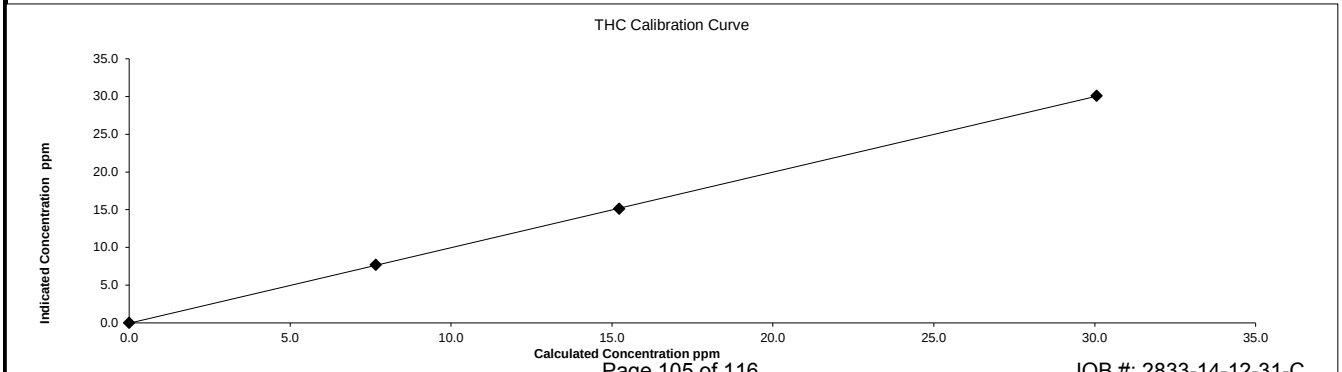
Linear Regression/Calibration Results:

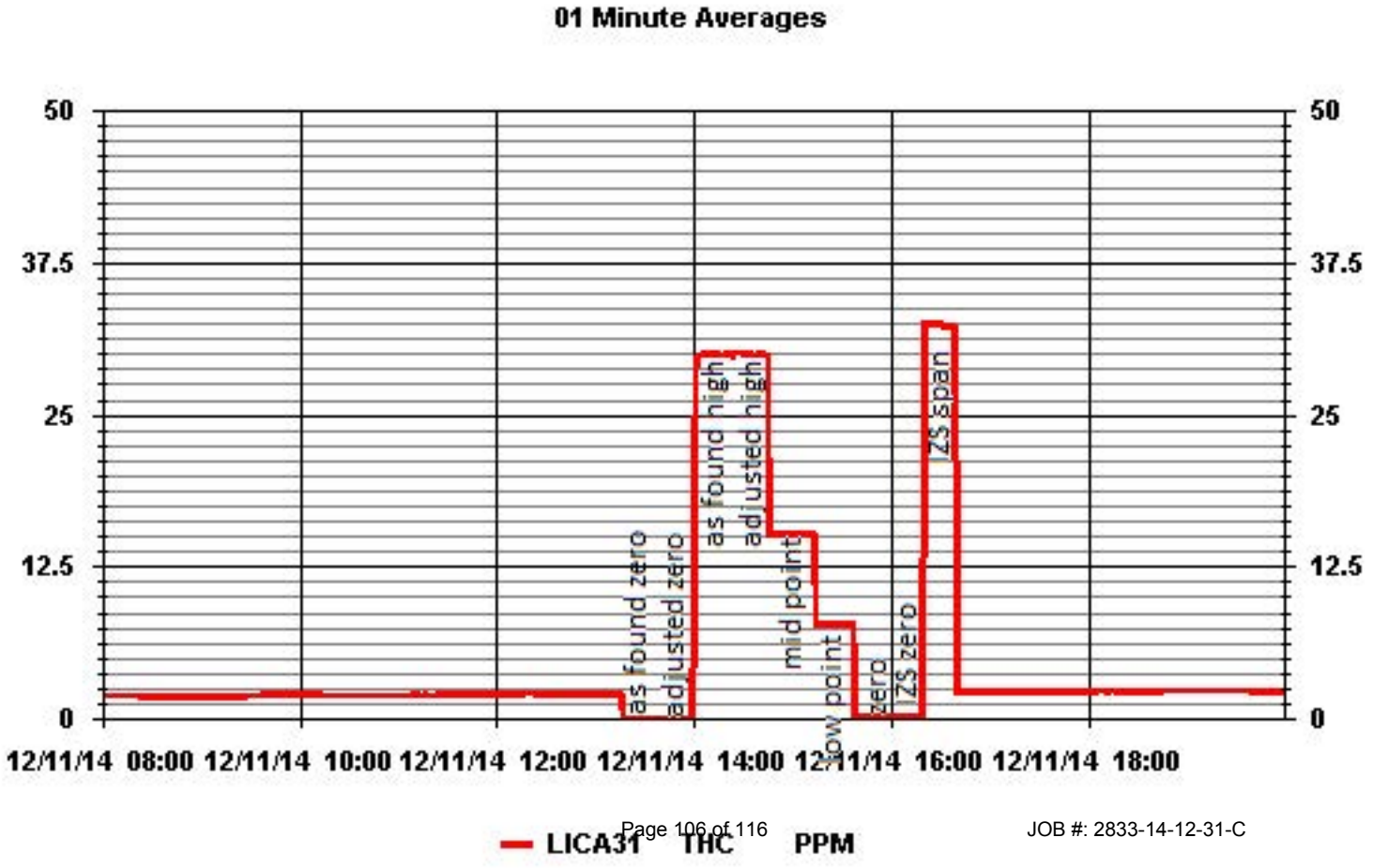
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	**1.000**	**> or = 0.995**	**PASS**
Slope =	**1.000**	**0.85-1.15**	**PASS**
b (Intercept as % of full scale)=	**-0.029%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-0.40%**	**± 15%**	**PASS**

Comments:

changed analyzer filter

Thermo 51C THC Analyzer Calibration





JOB #: 2833-14-12-31-C

Nitrogen Dioxide

API 200E NOx Analyzer Calibration

Date:	11-Dec-14	**Start Time (mst):**	10:01
Company:	LICA	**End Time (mst):**	15:10
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:	14-Nov-14
Range ppb:	1000

Correction Factors:

As found C.F.		Previous Cal High Point C.F.:	
NO=	1.014	NO=	1.002
NOx=	1.010	NOx=	0.996
NO_2=	0.997	NO_2=	1.004

	As found:	**As left:**
NOx SLOPE:	.910	.920
NOx OFFS:	5.2	7.4
NO SLOPE:	.909	.921
NO OFFS:	0.0	.1
TEST:	130.7	130.7
SAMP FLW:	457	457
OZONE FL:	72	72
PMT:	25.4	25.4
NORM PMT:	2.1	2.1
AZERO:	20.0	20.0
HVPS:	654	654
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.0	31.0
PMT TEMP:	6.9	6.9
IZS TEMP:	40.0	40.0
MOLY TEMP:	315.2	315.2
RCEL:	6.6	6.6
SAMP:	26.2	26.2
Internal Span:	6.1/378/383	5.9/388/393

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	420/340	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	1.1	NA	NA
adjusted zero	5000	0.0	5000	0	0	-0.1	-0.6	NA	NA
as found high	4994	76.75	5071	758.3	759.8	748	752	1.014	1.010
adjusted high	4994	76.75	5071	758.3	759.8	759	759	0.999	1.000
mid	4995	36.87	5032	367.1	367.8	368	365	0.997	1.006
low	4994	16.95	5011	169.5	169.8	170	168	0.996	1.007
calibrator zero	5000	0.00	5000	0	0	0.1	-2.8	NA	NA
							Average C.F.=	0.998	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	4995	76.68	5072	0.0	762.0	757.0	-4.4	-0.1	-0.5	
as found NO_2	4995	76.68	5072	420/340	257.0	759.0	502.0	505.0	506.4	0.997
gpt mid	4995	76.68	5072	220.0	491.0	758.0	267.0	271.0	271.4	0.999
gpt low	4995	76.68	5072	80.0	667.0	758.0	91.3	95.0	95.7	0.993
									Average NO_2 C.F.=	0.996

Linear Regression/Calibration Results:

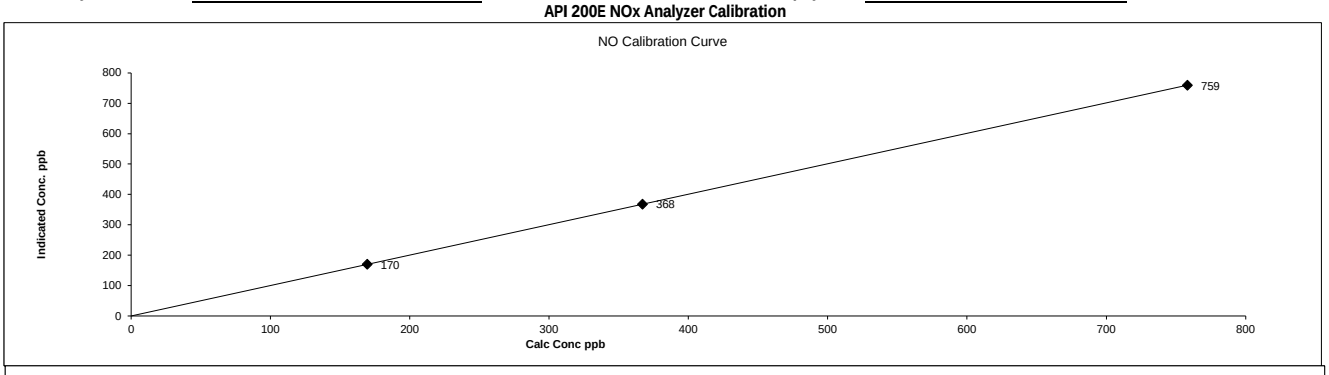
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.001**	**1.000**	**1.003**	**0.85-1.15**
b (Intercept as % of full scale)=	**0.02%**	**-0.15%**	**-0.01%**	**± 3% F.S.**
% change in C.F. from last cal=	**-1.16%**	**-1.36%**	**0.67%**	**+/-15%**
NO2 converter effeciency			**100.4%**	**>85%**

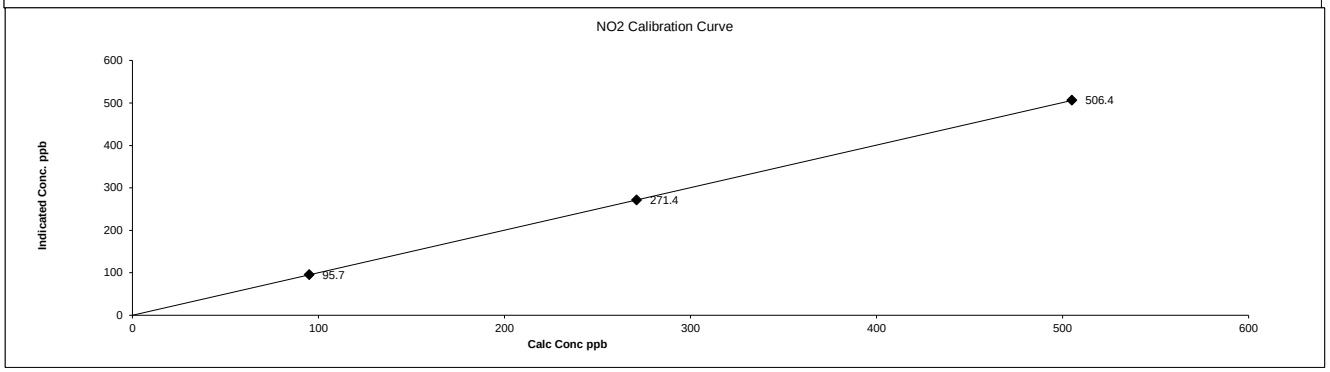
Comments:

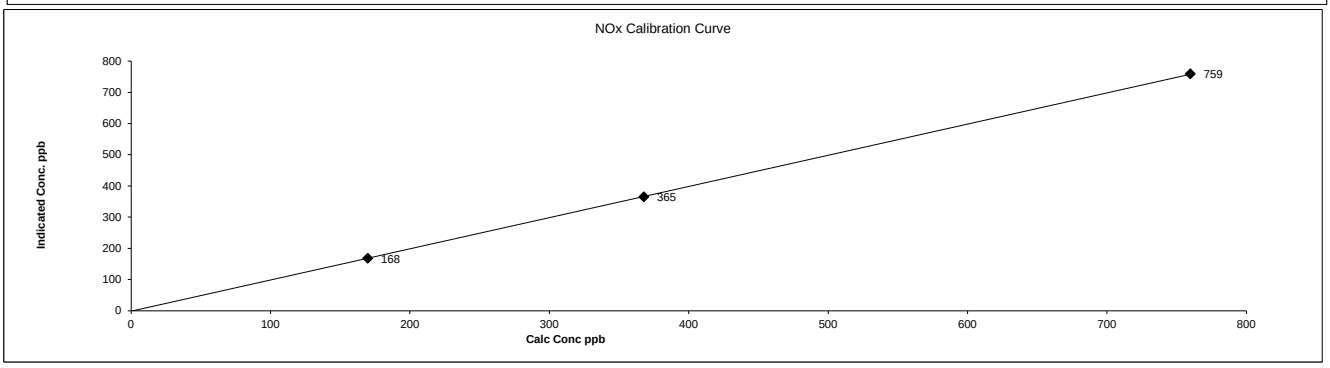
changed analyzer filter, did an extra gpt point for the ozone, no adjustment made on high NO2 point

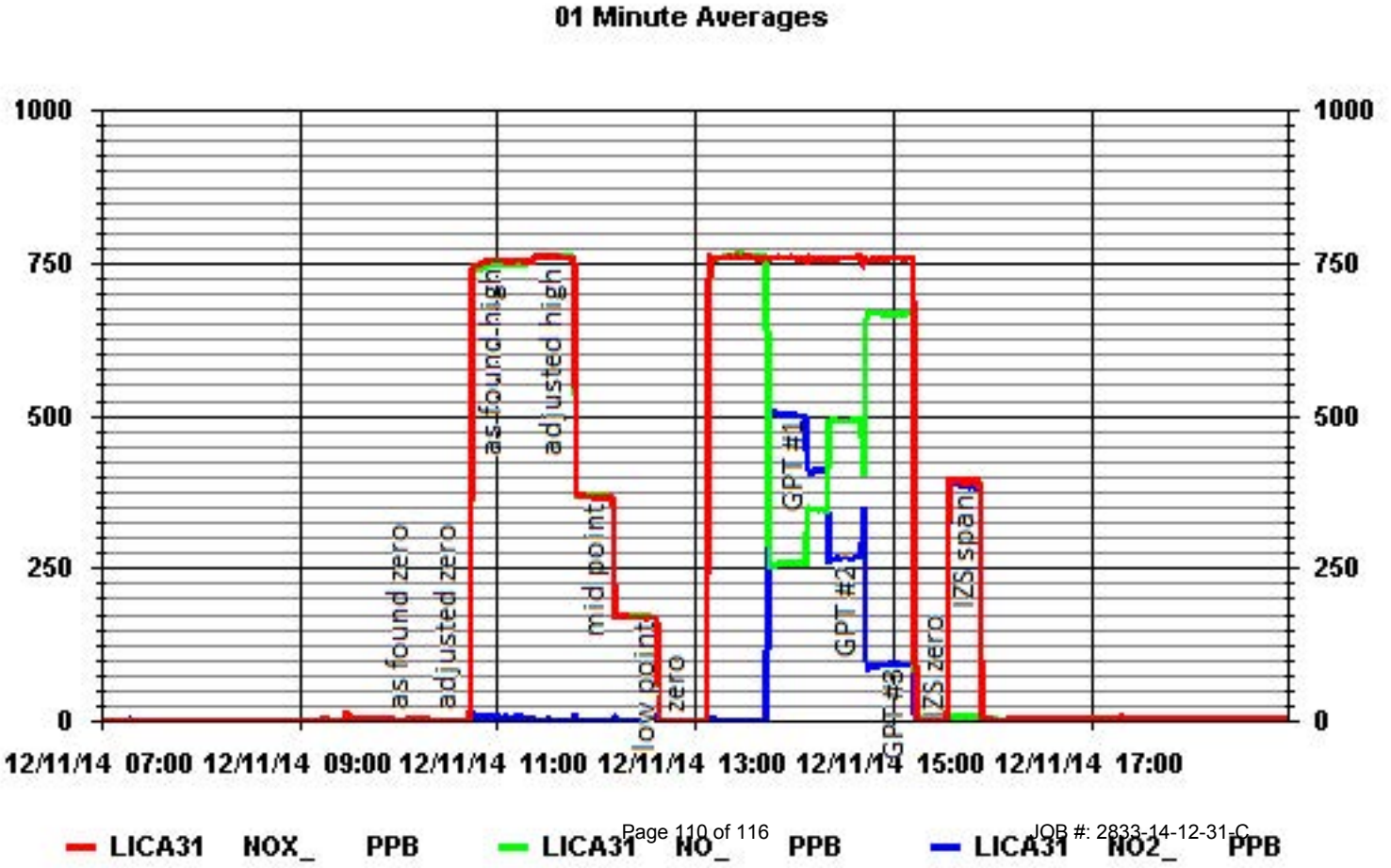
Date:	11-Dec-14	**Start Time (mst):**	10:01
Company:	LICA	**End Time (mst):**	15:10
Station Name/Location:	St Lina	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200E NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
as found zero
adjusted zero
as-found-high
adjusted high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
12/11/14 07:00
12/11/14 09:00
12/11/14 11:00
12/11/14 13:00
12/11/14 15:00
12/11/14 17:00
LICA31 NOX_ PPB
LICA31 NO_ PPB
LICA31 NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	11-Dec-14	**Start Time (mst):**	15:36
Company:	LICA	**End Time (mst):**	18:39
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:	14-Nov-14	**As Found C.F.**	1.018
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.998

		As found:	**As left:**
	O_3 Bkg:	-2.4	-1.8
	O_3 Coef:	1.009	1.026
Motherboard:	3.3	3.3	3.3
	15.0	14.8	14.8
	24.0	23.7	23.7
	-3.3	-3.2	-3.2
Interface Board:	3.3	3.2	3.2
	5.0	4.9	4.9
	15.0	14.7	14.7
	-15.0	-15.0	-15.0
	Photo Lamp	9.4	9.4
	24.0	23.4	23.4
	O_3 Lamp	8.3	8.3
	Bench:	29.7	29.7
	Bench Lamp:	53.6	53.6
	O_3 Lamp:	67.8	67.8
	Pressure:	666.9	666.9
	Cell A lpm:	.719	.719
	Cell B lpm:	.713	.713
	O_3 ppb:	2.4	2.4
	Cell A ppb:	2.4	2.4
	Cell B ppb:	-1.1	-1.1
	Cell A int:	64231	64231
	Cell B int:	74641	74641
	Internal Span:	344	349

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	0.00	5072	0.0	0.4	NA
adjusted zero	5072	0.00	5072	0.0	0.4	NA
as found high	5072	0.00	5072	416.0	409.0	1.018
adjusted high	5072	0.00	5072	416.0	416.0	1.001
mid	5072	0.00	5072	271.0	272.0	0.998
low	5072	0.00	5072	95.0	95.9	0.995
calibrator zero	5072	0.00	5072	0.0	1.3	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration **Average C.F.=** 0.998

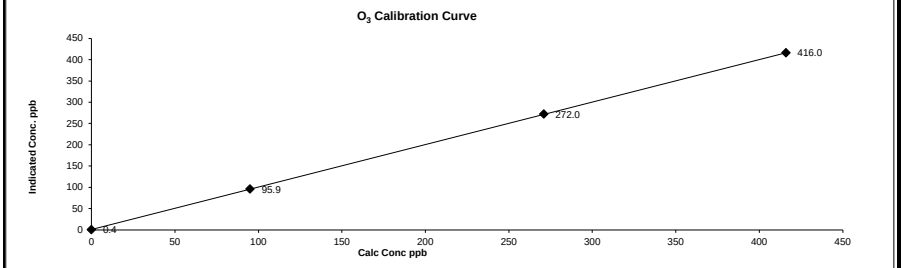
Linear Regression/Calibration Results:

		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)=	**0.154%**	**± 3% F.S.**	**PASS**
% change in C.F. from last cal	**-2%**	**± 15%**	**PASS**

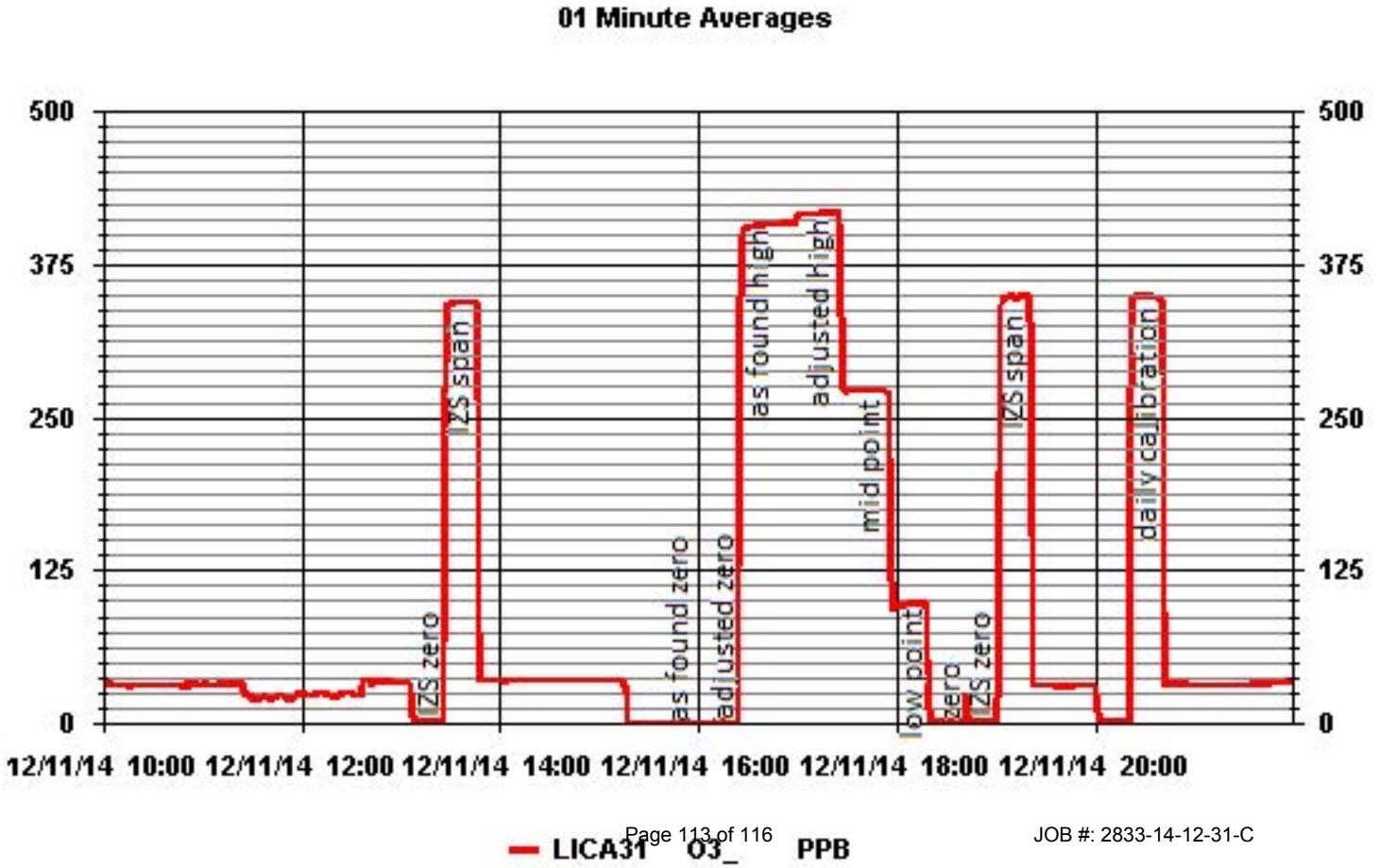
Comments:

changed filter and cleaned analyzer fan filter

Thermo 49i O3 Analyzer Calibration



JOB #: 2833-14-12-31-C


01 Minute Averages
500
375
250
125
0
IZS zero
IZS span
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
IZS zero
IZS span
daily calibration
12/11/14 10:00
12/11/14 12:00
12/11/14 14:00
12/11/14 16:00
12/11/14 18:00
12/11/14 20:00
LICA31 O3_ PPB

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	11-Dec-14	**Parameter:**	PM2.5
Company:	LICA	**Performed by:**	Tom Bourque
Station Name/Location:	St Lina	**Start/End Time (mst):**	1138-1511
Previous Audit Date:	n/a	**Calibration Purpose:**	installation

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	36 %
Ko Factor:	13125.0	**As Left Filter Loading %:**	22.26 %
Ambient Temperature °C:	7.13	**As Found Noise:**	0.009
Ambient Pressure atm:	.914	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.30
Aux Flow Reading lpm:	13.67	**Warnings:**	none

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	Dwyer	Fisher 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:	7.1	**1405F pressure atm:**	0.914
reference temperature °C:	8.6	**reference pressure:**	0.914
difference °C:	1.5	**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:	7.1	**1405F pressure atm:**	0.914
reference temperature °C:	8.6	**reference pressure:**	0.914
difference °C:	1.5	**difference :**	0.000

As found flows:

	main flow tolerance 3.00 lpm +/- 0.20 lpm		**total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%**
1405F main flow lpm:	3.00	**1400A total/aux flow lpm:**	16.67
reference main flow lpm:	3.17	**reference total/aux flow lpm:**	17.61
difference lpm:	0.17	**difference lpm:**	0.94

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:	3.02	**reference total/aux flow lpm:**	16.71
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:	NA
% difference:	NA

Comments:

JOB #: 2833-14-12-31-C

flows on outer linit of passing - made an adjustment, cleaned TEOM head

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	Dec 22-23, 2014	**Parameter:**	PM 2.5
Company:	LICA	**Performed by:**	Chris W / Alex Y
Station Name/Location:	St Lina	**Start/End Time (mst):**	18:44 (Dec22) - 10:21 (Dec 23)
Previous Audit Date:	11-Dec-14	**Calibration Purpose:**	2nd Audit

1400A Information and Status:

Serial Number:	1405A208301003	**As Found Filter Loading %:**	30.84
Ko Factor:	13125.0	**As Left Filter Loading %:**	30.02
Ambient Temperature °C:	-4.5	**As Found Noise:**	0.012
Ambient Pressure atm:	0.930	**As Left Noise:**	0.000
Main Flow Reading lpm:	3.00	**Pump Vacuum:**	0.28
Aux Flow Reading lpm:	13.68	**Warnings:**	None

Reference Standards:

	Flow:	**Pressure:**	**Temperature:**
Make:	Dwyer	Fisher	MetOne
Model:	475 Mark III	FB61291	Station
Serial Number:	NA	130168457	NA
Calibration Date:	NA	25-Mar-14	NA

As found leak check:

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.05	-0.15	0.11	-0.15
	limit	0.15		0.15	
Bypass Flow	actual	0.74	-0.68	0.87	-0.68
	limit	0.60		0.60	

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

		Base	**Zero**	**Reference**	**Zero**
PM 2.5 Flow	actual	0.03	-0.15	0.04	-0.15
	limit	0.15		0.15	
Bypass Flow	actual	0.54	-0.68	0.42	-0.68
	limit	0.60		0.60	

As found temperature and pressure:

tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**	
1405F temperature °C:	-6.5	**1405F pressure atm:**	0.930
reference temperature °C:	-6.5	**reference pressure:**	0.920
difference °C:	-0.1	**difference :**	0.010

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

tolerance +/- 2.0°C		**tolerance +/- 0.01 atm**	
1405F temperature °C:	-6.5	**1405F pressure atm:**	0.930
reference temperature °C:	-6.5	**reference pressure:**	0.920
difference °C:	0.0	**difference :**	-0.010

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:	2.84	**reference total/aux flow lpm:**	12.76
difference lpm:	-0.16	**difference lpm:**	-0.91

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:	2.84	**reference total/aux flow lpm:**	12.76
difference lpm:	-0.16	**difference lpm:**	-0.91

K_o Audit:

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

Comments:

Ko Audit not completed due to time constraints
Filters not changed

JOB #: 2833-14-12-31-C

Maxxam
A Bureau Veritas Group Company

maxxam.ca

MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary
AB T2E 6P7

Toll Free 800-386-7247
Fax 403-219-3673

February 13, 2015

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

ATTENTION: Mr. Mike Bisaga
REFERENCE: Ambient Air Monitoring Report For Portable Elk Point Airport Site For December 2014 (JOB #: 2833-14-12-35-C)

Maxxam is pleased to submit this data report collected at the Ambient Air Monitoring Station located at the Lakeland Industry & Community Assoc. Portable –Elk Point Airport site for the month of December 2014.

Included are reports of the monthly continuous hourly average for each parameter, equipment calibration, and a brief description of the calibration procedure.

Continuous monitoring data summary

During the month December 2014 the following proceedings were noted:

- All data was within provincial objectives for the month.
- All the analyzers and meteorological systems were above 90% uptime this month, except SO2 (77.0%) and THC/CH4/NMHC (88.7%)
- SO2: 162 hours of data were invalidated due to the instability of the internal zero/span system. Uptime was 77.0%. Ref #: 294885
- THC/CH4/NMHC: 83 hours of data were invalidated due to the flaming out of the analyzer following a power failure. Uptime was 88.7%. Ref #: 294885
- PM2.5: 17 hours of data were invalidated as the data were below –3 ug/m3.
- Wind System: 16 hours of data were invalidated due to the freezing of the wind system.

Please feel free to contact Lily Lin (403) 219-3661 should you have any questions concerning this report.

Sincerely,
Maxxam

Prepared by: _____
Wunmi Adekanmbi
Project Manager Assistant
Source Testing

Reviewed by: _____
For Lily Lin
Customer Service Supervisor,
Air Services

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site
Ambient Air Monitoring Data Report
For
December 2014

Prepared By:

MaxxAm
A Bureau Veritas Group Company

February 13, 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: December 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 – December 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	0.44	3	6	2, 3	8.3, 8.8	109(ESE) 101(E)	1.3	3	77.0
H_2S (PPB)	10	3	0	0	0.33	2	VAR	VAR	VAR	VAR)	1.0	VAR	99.9
THC (55i) (PPM)	-	-	-	-	2.63	7.9	1	23	0.3	165(SSE)	4.2	3	88.7
Methane (PPM)	-	-	-	-	2.62	7.7	1	23	0.3	165(SSE)	4.2	3	88.7
NMHC (PPM)	-	-	-	-	0.01	0.2	VAR	VAR	VAR	VAR	0.1	12	88.7
NO_2 (PPB)	159	-	0	-	10.04	39.7	1, 3	19, 0	1.4, 2.2	300(WNW) 205(SSW)	26.0	3	99.9
NO (PPB)	-	-	-	-	4.20	72.1	1	23	0.3	165(SSE)	20.6	1	99.9
NOx (PPB)	-	-	-	-	14.24	110.4	1	23	0.3	165(SSE)	45.3	1	99.9
O_3 (PPB)	82	-	0	-	19.60	41	31	11, 12	22.7, 21.9	267(W) 274(W)	37.1	31	99.9
PM 2.5 (UG/M^3)	-	30	-	0	6.11	29	7	13	14.6	294(WNW)	15.6	5	97.6
VECTOR WS (KPH)	-	-	-	-	8.74	25.8	31	7	-	271(W)	15.0	31	97.6
VECTOR WD (DEGREES)	-	-	-	-	253(WSW)	-	-	-	-	-	-	-	97.6

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 spanned high on December 13th. It was discovered during the visit on December 19th that the exhaust tube at the exhaust pump had broken. The tube was replaced followed by a post-repair calibration on December 19th. As it is not certain when the issue occurred, data was invalidated back to the last good calibration, which was December 12th. A total of 170 hours of data were discarded due to this event. One hour of data collected on December 25th hour 6 is missing due to a power failure. Data was corrected using daily zero information. The operational uptime was 77.0%.
Ref #:294885

Hydrogen Sulphide (PPB)
- Analyzer make / model –API 101E, S/N: 510

The analyzer was working well throughout the month. The monthly calibration was performed on December 2nd. The inlet filter was changed before the calibration was started. One hour of data collected on December 25th hour 6 is missing due to a power failure. 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 December 2nd. The inlet filter was changed before the calibration was started. One hour of data collected on December 25th hour 6 is missing due to a power failure. 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 analyzer was working well throughout the month. The monthly calibration was performed on December 2nd. The inlet filter was changed before the calibration was started. The perm tube was replaced on December 2nd .The perm tube was allowed time to stabilize. The expected span value was changed on December 5th. One hour of data collected on December 25th hour 6 is missing due to a power failure. Some daily span results drifted outside the +/-10% acceptance limits. This did not affect data quality. 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 December 2nd. The inlet filter was changed before the calibration was started. One hour of data collected on December 25th hour 6 is missing due to a power failure. The analyzer flamed out after the power failure, and it was relit on December 28th. 83 hours of data were invalidated due to this event. Data was corrected using daily zero information. The operational uptime was 88.7%. Ref#:294885

.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Particulate Matter 2.5 (ug/m^3)

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

There were no operational issues this month. Two Teom audits were performed this month: one was completed on December 3rd and the other was done on December 23rd. 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. 17 hours of data were invalidated as the value was below -3ug/m3. One hour of data collected on December 25th hour 6 is missing due to a power failure.

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.

16 hours of data collected between December 21st hour 14 and December 22nd hour 5 were invalidated due to the freezing of the wind system. Both the WS and WD channels were put into the Maintenance mode on December 26th hour 6 to monitor the wind system's functionality. One hour of data collected on December 25th hour 6 is missing due to a power failure.

Datalogger

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

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

Trailer

The manifold system was cleaned on December 2nd.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

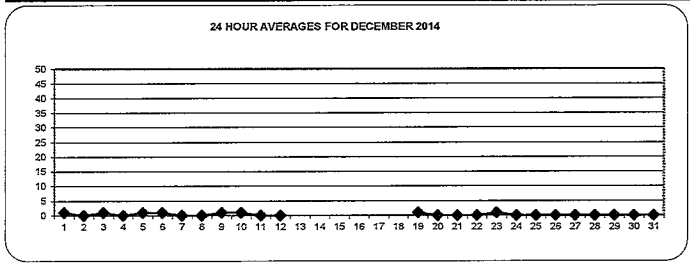
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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	1	1	1	2	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
2	1	1	1	S	1	1	1	1	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	1	0.4	24
3	0	0	S	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	*1.3*	24
4	2	S	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24
5	S	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	S	2	1.2	24
6	1	2	*3*	*3*	2	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	S	1	*3*	1.2	24
7	1	1	0	0	1	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	S	0	0	1	0.4	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	S	0	1	1	2	0.4	24
9	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
10	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
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	X	X	X	X	X	X	X	X	1	0.2	16
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1	1	1	1	1	1	1	1.0	6
20	1	1	1	1	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2	24
21	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
22	0	0	0	0	0	0	S	S	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	S	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
24	1	1	2	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
25	0	0	0	S	0	0	P	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	23
26	0	0	S	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
27	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
28	S	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	S	1	0.1	24
29	0	0	0	0	1	0	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	S	0	2	0.3	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	S	0	0	1	0.1	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	24
HOURLY MAX	2	2	3	3	2	1	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2			
HOURLY AVG	0.5	0.4	0.5	0.5	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4			

STATUS FLAG CODES

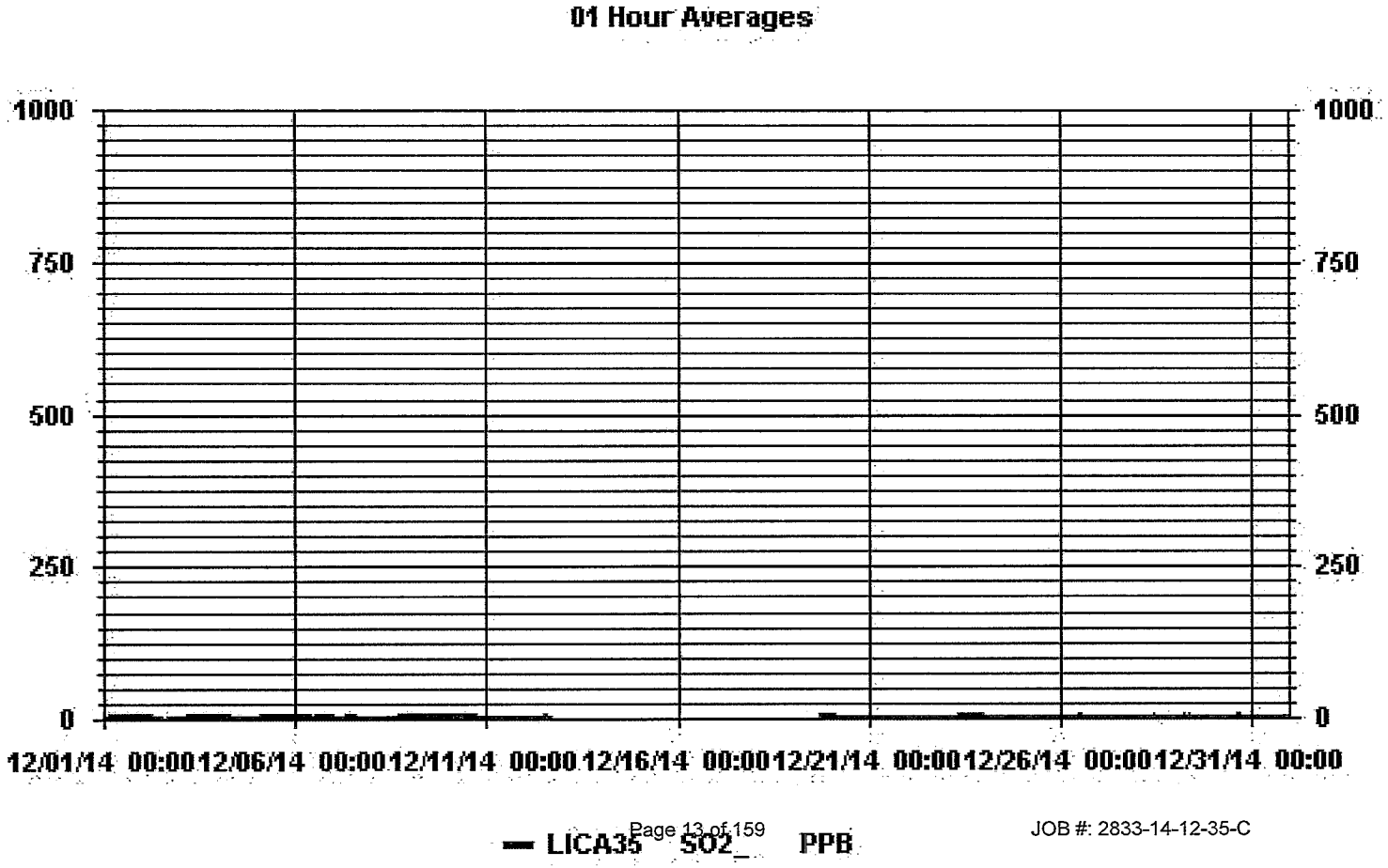
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	210					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	2, 3	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	1.3	PPB			ON DAY(S)	3
					VAR-VARIOUS	
IZS CALIBRATION TIME:	27	HRS	OPERATIONAL TIME:		573	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		77.0	%
STANDARD DEVIATION:	0.60		MONTHLY AVERAGE:		0.44	PPB



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

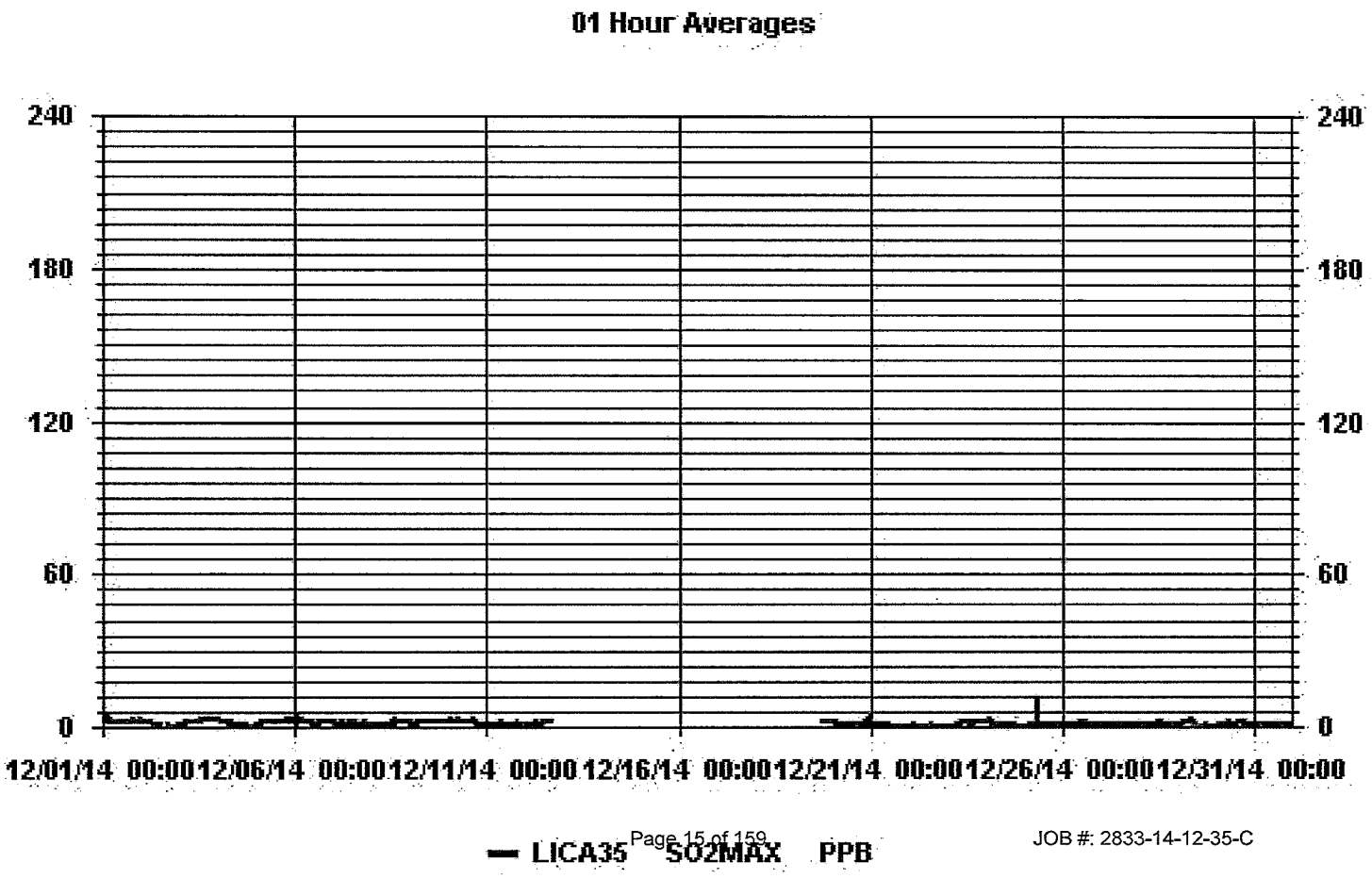
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2	2	3	4	S	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	3	4	2.3	24
2	2	2	2	S	2	2	2	2	1	1	1	1	C	C	C	C	C	1	1	0	0	0	0	1	2	1.2	24
3	1	1	S	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	*2.3*	24
4	3	S	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	0	1	0	0	0	0	0	3	1.1	24
5	S	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	S	3	2.1	24
6	2	3	4	3	3	3	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	S	2	4	2.1	24
7	2	2	1	1	1	1	2	1	1	1	2	2	2	2	2	1	1	1	1	1	2	S	1	1	2	1.4	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	2	2	2	S	2	2	2	3	1.4	24
9	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1.9	24
10	2	3	2	2	2	2	3	2	2	2	2	2	2	2	2	3	3	2	S	1	1	1	1	1	3	2.0	24
11	1	1	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	S	1	2	1	1	1	1	2	1.0	24
12	1	1	1	1	1	1	1	2	1	1	1	2	2	2	2	2	X	X	X	X	X	X	X	X	2	1.4	16
13	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
14	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
15	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
16	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
17	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
18	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
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	2	2.0	6
20	2	2	2	1	1	1	1	1	S	1	1	1	1	1	0	0	1	1	1	0	1	2	3	1	3	1.1	24
21	1	1	1	1	1	1	1	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
22	0	0	0	1	0	0	S	S	S	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24
23	0	0	0	0	0	S	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1.4	24
24	2	2	4	2	S	1	0	1	1	1	1	0	1	0	1	1	0	1	1	1	1	0	0	0	4	0.9	24
25	0	0	0	S	1	1	P	*11*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	*11*	1.3	23
26	1	1	S	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1.2	24
27	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
28	S	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1		2	1.1	23
29	1	1	1	2	2	2	2	2	3	3	2	1	1	0	0	0	0	1	0	0	0	0		0	3	1.0	23
30	0	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	1	1	1		1	1	2	1.2	23
31	1	1	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	23
HOURLY MAX	3	3	4	4	3	3	3	11	3	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3			
HOURLY AVG	1.3	1.3	1.4	1.4	1.3	1.4	1.5	2.0	1.5	1.4	1.3	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	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:	471						
MAXIMUM INSTANTANEOUS VALUE:	11	PPB	@ HOUR(S)	7	ON DAY(S)	VAR-VARIOUS	25
IZS CALIBRATION TIME:	23	HRS	OPERATIONAL TIME:				569 HRS
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.90						



JOB #: 2833-14-12-35-C

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

December 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	.76	.38	.57	5.32	16.15	15.39	3.61	1.71	.76	1.14	2.85	13.87	11.40	10.07	13.11	2.85	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	.76	.38	.57	5.32	16.15	15.39	3.61	1.71	.76	1.14	2.85	13.87	11.40	10.07	13.11	2.85	

Calm : .00 %

Total # Operational Hours : 526

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	4	2	3	28	85	81	19	9	4	6	15	73	60	53	69	15	526
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	4	2	3	28	85	81	19	9	4	6	15	73	60	53	69	15	

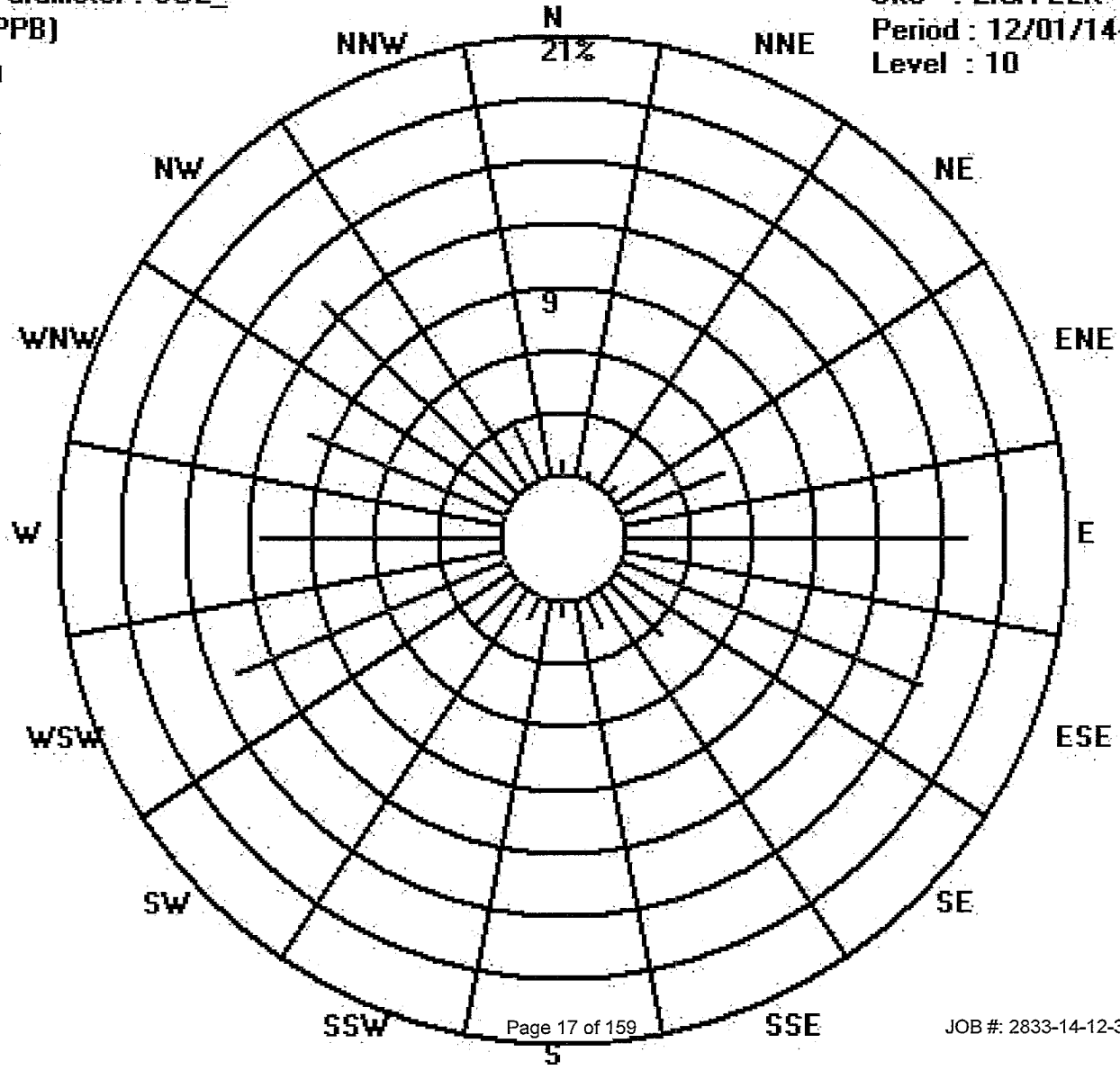
Calm : .00 %

Total # Operational Hours : 526

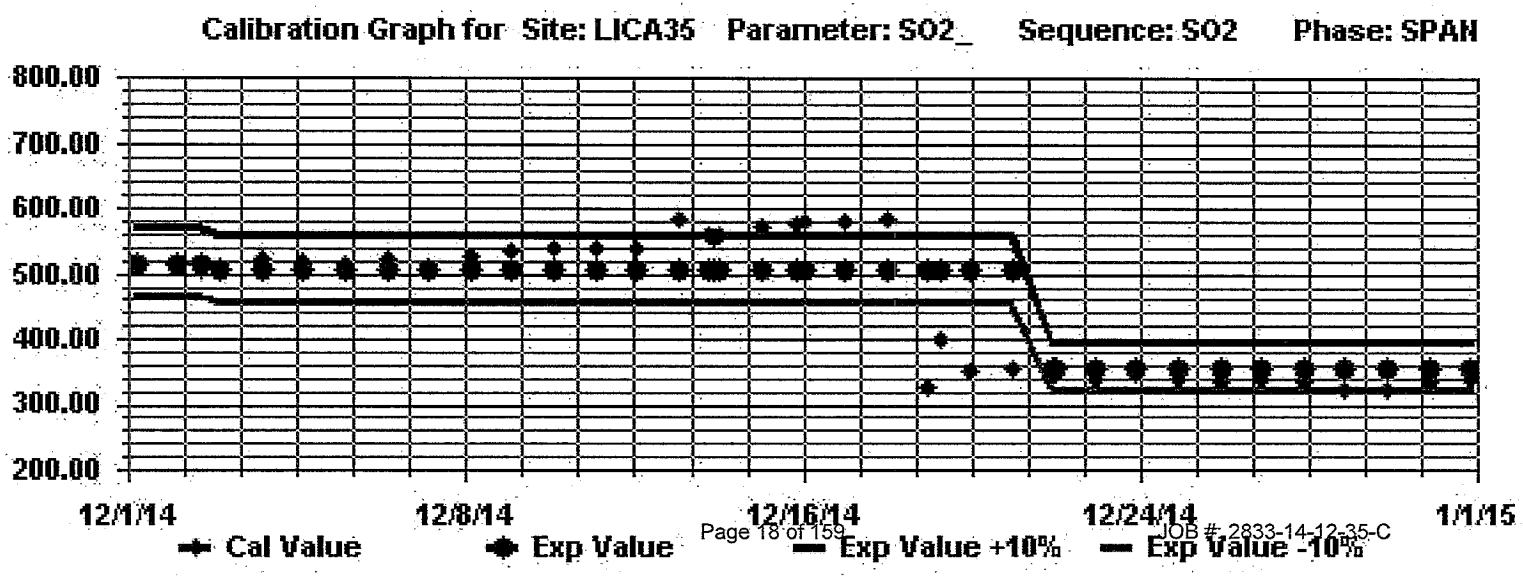
Logger : 35 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN
800.00
700.00
600.00
500.00
400.00
300.00
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

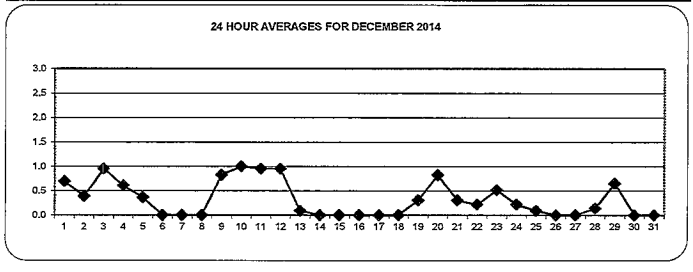
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

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	S	0	1	1	1	1	1	0	0	0	0	0	1	0	1	2	2	1	2	2	2	0.7	24
2	2	2	1	S	1	1	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	2	0.4	24
3	0	0	S	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1.0	24
4	1	S	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.6	24
5	S	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	S	1	0.4	24
6	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
7	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
8	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
9	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	0.8	24
10	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
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	S	1	1	1	1	1	1	1	1.0	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	2	2	1	1	0	0	0	2	1.0	24
13	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	1	0	1	0.1	24
14	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
15	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
16	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
17	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
18	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	1	0	1	S	1	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0.3	24
20	1	1	0	1	0	0	0	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
21	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
22	0	0	0	0	0	0	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
23	0	0	0	0	0	S	0	0	0	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0.5	24
24	1	1	2	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
25	0	0	0	S	0	0	P	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	23
26	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
27	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
28	S	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	S	1	0.1	24
29	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	1	0	S	0	1	0.7	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.0	24
HOURLY MAX	2	2	2	1	1	1	1	2	1	1	1	1	1	2	1	1	1	2	2	2	2	1	2	2			
HOURLY AVG	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3			

STATUS FLAG CODES

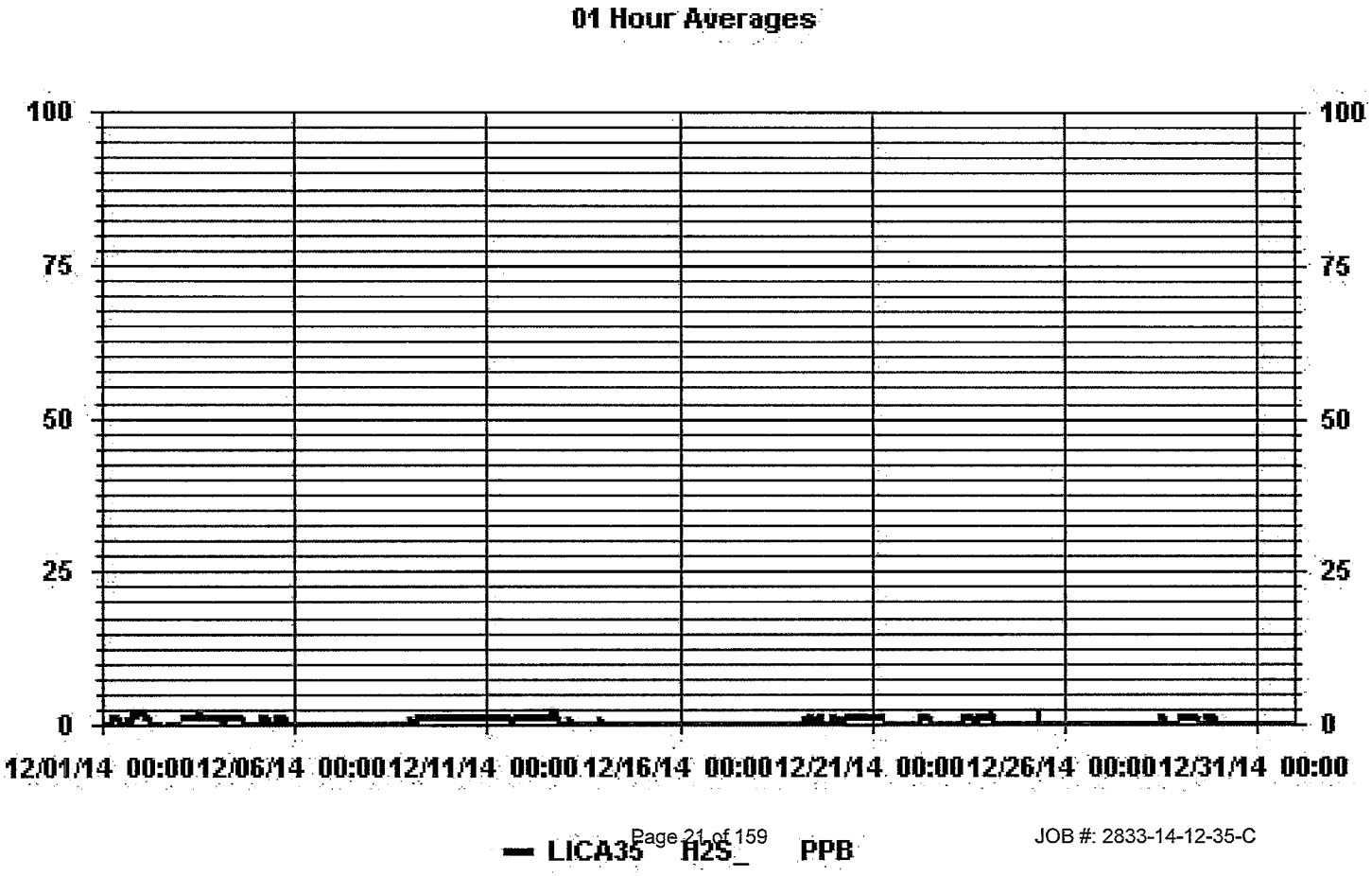
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 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:	219						
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)		VAR
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)		VAR
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			743	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			99.9	%
STANDARD DEVIATION:	0.50		MONTHLY AVERAGE:			0.33	PPB



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

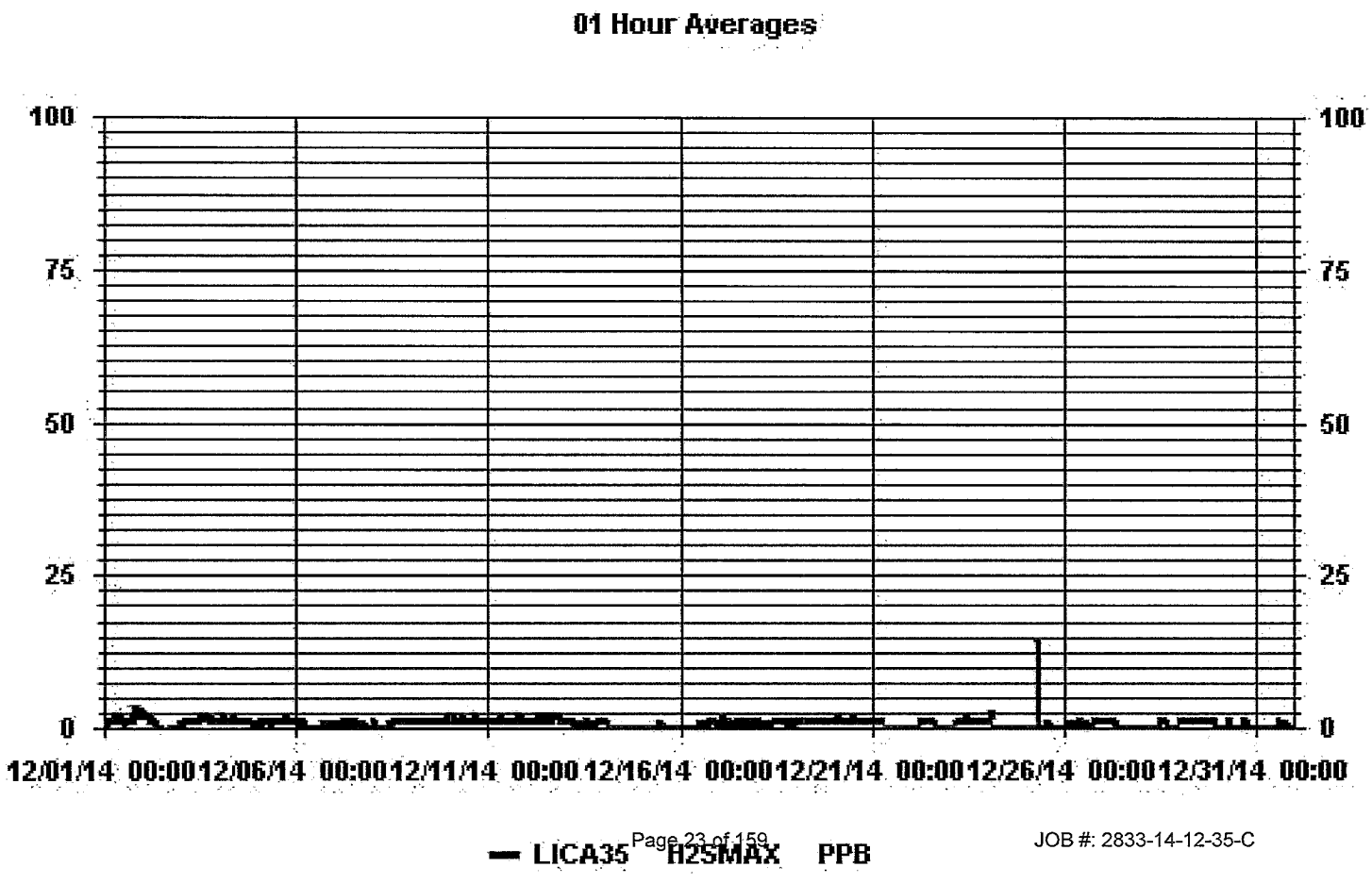
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	0	1	S	1	1	2	2	2	2	1	1	0	1	1	1	1	2	3	3	2	2	3	3	*1.5*	24
2	2	2	2	S	2	1	1	1	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	2	0.6	24
3	1	0	S	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	1	2	1	1	1	2	1.2	24
4	1	S	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0	1	0	2	1.0	24
5	S	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	S	2	1.0	24
6	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	S	1	1	0.3	24
7	0	0	0	0	1	0	1	1	1	0	0	1	1	1	0	0	0	0	1	0	0	S	0	0	1	0.3	24
8	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	S	1	1	1	1	0.6	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	2	1	2	1.0	24
10	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	S	1	1	1	1	1	2	1.2	24
11	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	S	1	2	2	1	1	1	2	1.1	24
12	1	1	1	1	1	1	1	2	2	1	1	2	2	2	1	1	S	2	2	2	2	1	1	1	2	1.4	24
13	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	S	1	0	0	0	1	1	1	1	1	0.7	24
14	1	1	1	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0.1	24
15	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	0	0	0	1	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	1	S	0	0	1	0	0	1	1	1	1	0	0	1	0.3	24
17	0	0	0	2	0	1	1	0	0	1	0	S	1	1	1	0	0	1	1	1	1	0	0	0	2	0.5	24
18	1	1	0	1	0	1	0	0	0	1	S	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0.7	24
19	0	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20	1	1	1	2	1	1	1	1	S	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
21	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
22	0	0	0	0	0	0	S	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3	24
23	0	0	0	0	1	S	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24
24	1	1	3	2	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
25	0	0	0	S	0	0	P	*14*	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	*14*	0.7	23
26	0	0	S	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0	1	1	1	1	1	1	1	0.5	24
27	1	S	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
28	S	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	S	1	0.2	24
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	0	1	1.0	24
30	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	S	0	0	1	0.2	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	S	0	0	0	1	0.1	24
HOURLY MAX	2	2	3	2	2	1	1	14	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	3			
HOURLY AVG	0.7	0.6	0.7	0.7	0.7	0.6	0.6	1.1	0.6	0.6	0.5	0.7	0.7	0.7	0.8	0.6	0.6	0.6	0.7	0.7	0.8	0.6	0.6	0.5			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	402					
MAXIMUM INSTANTANEOUS VALUE:	14	PPB	@ HOUR(S)	7	ON DAY(S)	25
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.80					



JOB #: 2833-14-12-35-C

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

December 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	1.01	.29	.43	4.06	13.51	12.93	8.57	4.79	1.30	1.30	3.63	11.91	11.19	9.73	12.50	2.76	100.00
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.01	.29	.43	4.06	13.51	12.93	8.57	4.79	1.30	1.30	3.63	11.91	11.19	9.73	12.50	2.76	

Calm : .00 %

Total # Operational Hours : 688

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	7	2	3	28	93	89	59	33	9	9	25	82	77	67	86	19	688
<	10																	
<	50																	
>=	50																	
	Totals	7	2	3	28	93	89	59	33	9	9	25	82	77	67	86	19	

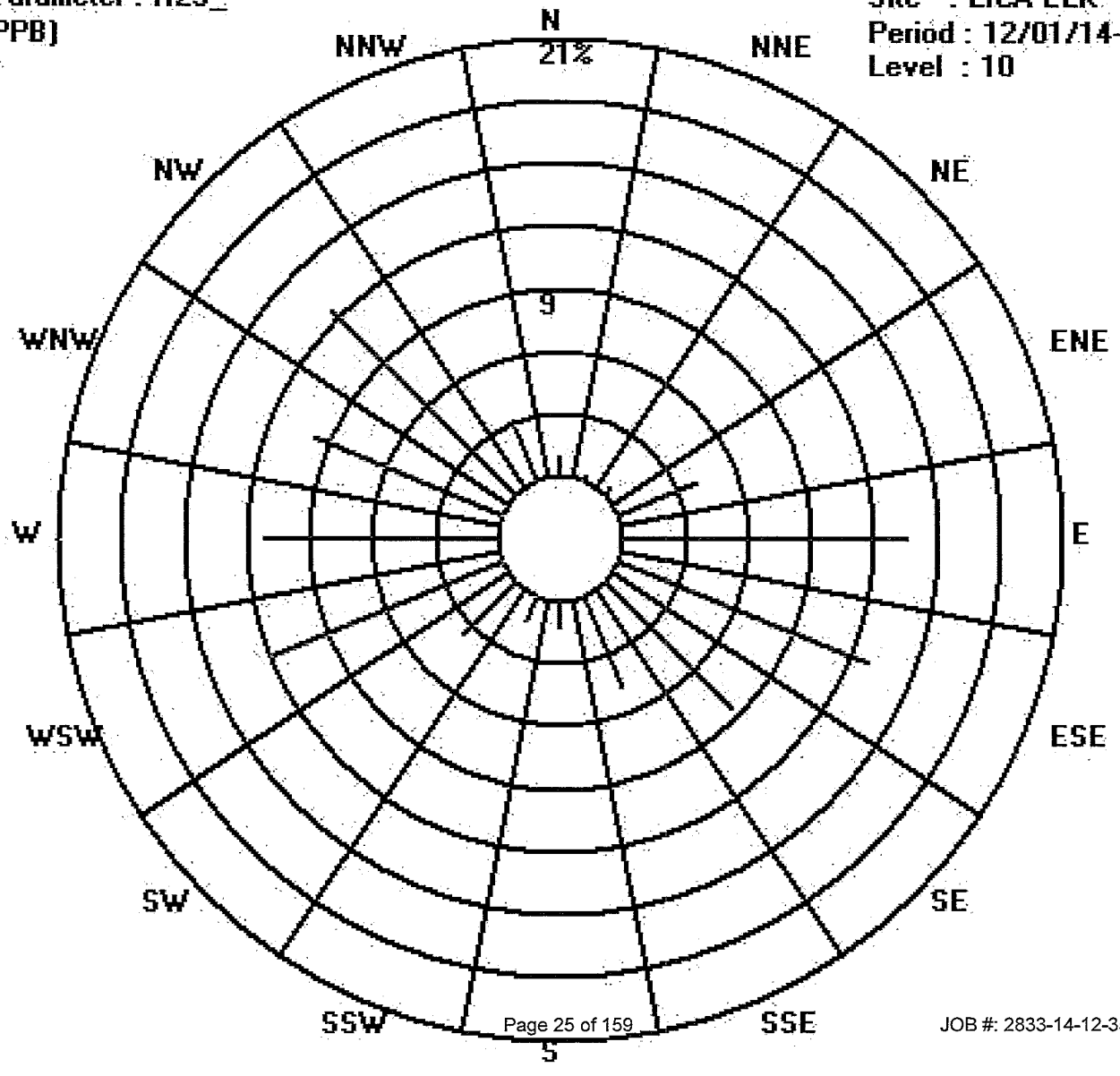
Calm : .00 %

Total # Operational Hours : 688

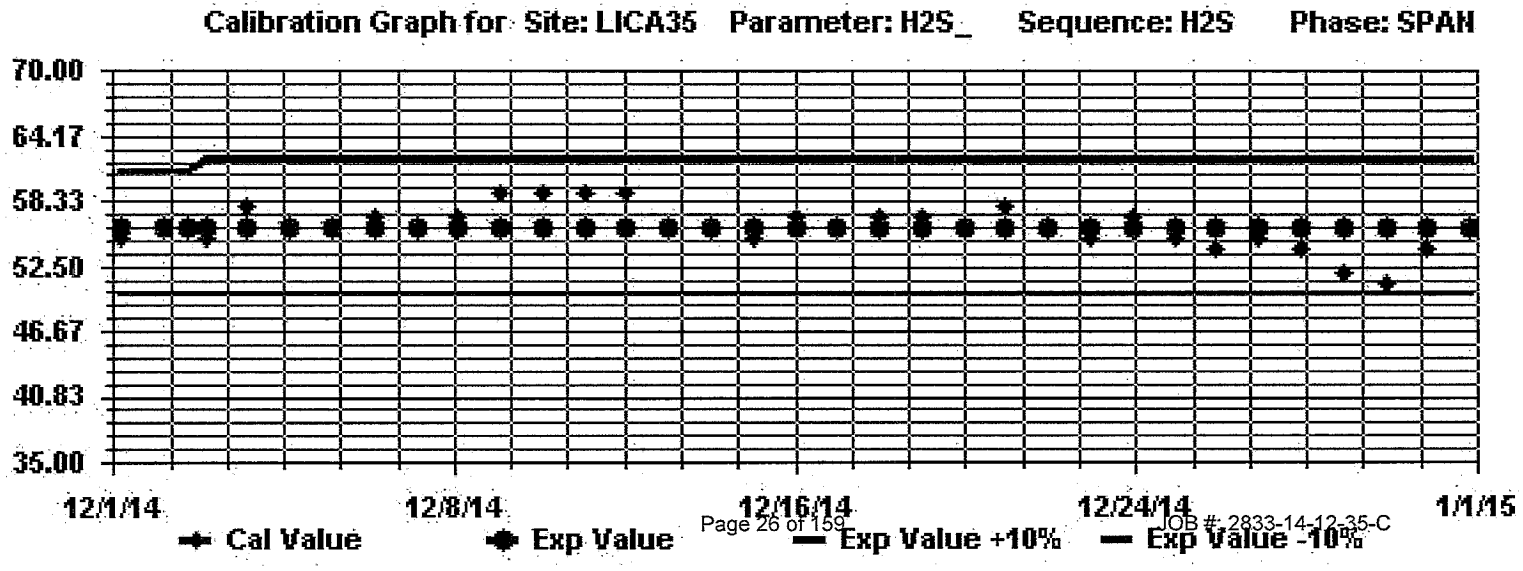
Logger : 35 Parameter : H2S_
Class Limits (PPB)

>=	50
<	50
<	10
<	3

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN
70.00
64.17
58.33
52.50
46.67
40.83
35.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

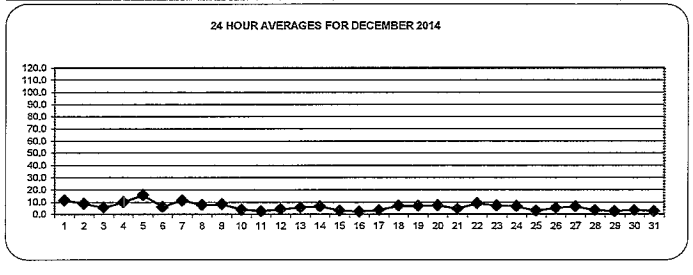
PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5) hourly averages in ug/m3

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	8	20	X	3	11	14	0	3	0	6	2	0	15	14	5	4	25	23	17	5	17	26	21	22	26	11.3	23
2	16	9	7	4	21	18	13	7	4	2	27	6	14	1	4	6	4	14	11	4	3	1	4	7	27	8.6	24
3	5	1	8	0	5	0	6	7	6	4	7	6	3	C	0	8	9	0	7	10	4	6	12	12	12	5.5	24
4	12	14	10	9	8	9	7	10	7	16	12	11	14	12	12	10	15	5	6	8	6	8	6	7	16	9.8	24
5	4	6	5	15	18	22	24	18	13	14	16	19	12	16	22	16	19	23	15	15	16	18	13	15	24	***15.6***	24
6	12	10	7	10	9	5	3	2	0	3	1	1	4	5	6	1	9	8	8	5	13	8	10	4	13	6.0	24
7	9	6	7	9	12	11	10	9	12	6	8	15	23	***29***	14	10	13	14	13	6	7	17	9	4	***29***	11.4	24
8	4	7	8	5	12	6	5	8	1	13	12	9	12	7	14	5	6	6	4	10	8	5	10	7	14	7.7	24
9	4	10	5	13	10	10	13	7	10	12	2	8	11	8	14	6	5	9	4	8	9	5	7	8	14	8.3	24
10	6	10	3	4	3	5	4	5	8	6	2	0	6	0	6	4	4	0	4	2	0	0	3	5	10	3.8	24
11	6	6	0	4	0	0	5	4	0	1	0	0	0	0	0	3	X	1	X	1	X	17	5	1	17	2.6	21
12	0	14	13	X	9	5	4	6	0	2	1	1	0	2	1	0	4	4	10	4	8	3	0	0	14	4.0	23
13	7	7	0	7	3	13	0	0	6	8	7	8	6	4	0	2	3	8	4	7	2	13	7	10	13	5.5	24
14	11	10	15	7	14	1	0	6	0	11	4	0	10	4	2	10	4	5	4	8	6	9	7	8	15	6.5	24
15	8	7	3	6	5	6	2	2	2	1	0	2	0	6	4	2	2	2	1	5	3	3	0	0	8	3.0	24
16	1	0	3	0	0	3	0	0	3	0	4	0	4	5	6	X	2	4	0	2	3	1	6	1	6	2.1	23
17	6	4	5	5	3	0	4	4	1	4	1	6	2	2	0	3	4	3	2	1	5	6	4	6	6	3.4	24
18	5	4	7	7	3	5	5	5	3	6	2	4	8	6	6	14	15	13	10	10	6	11	6	7	15	7.0	24
19	6	7	7	8	13	16	3	6	5	8	9	8	2	9	5	9	5	6	0	0	X	0	16	9	16	6.8	23
20	7	6	6	6	5	8	2	2	0	1	9	2	13	9	5	12	15	13	18	22	0	0	13	1	22	7.3	24
21	4	0	9	6	1	13	3	7	7	6	0	0	4	2	5	0	2	6	4	4	2	5	6	9	13	4.4	24
22	7	8	8	8	5	11	12	20	15	12	16	13	10	11	8	6	6	6	7	6	3	6	6	5	20	9.0	24
23	6	8	6	4	9	5	6	10	2	12	7	9	11	7	9	11	C	0	5	7	9	10	7	2	12	7.0	24
24	3	10	6	1	12	9	11	5	9	5	8	7	6	5	1	3	2	3	0	16	13	X	8	X	16	6.5	22
25	10	X	11	X	X	7	P	0	0	1	1	0	3	0	2	5	0	0	0	2	5	1	0	6	11	2.7	20
26	1	2	4	4	4	8	2	3	6	2	1	3	7	6	11	9	5	5	3	11	9	8	5	3	11	5.1	24
27	11	10	15	7	9	18	3	11	0	8	7	5	4	0	2	0	7	4	4	4	2	8	4	5	18	6.2	24
28	5	0	3	6	1	6	0	2	3	0	2	4	4	7	3	3	0	5	6	7	3	0	3	X	7	3.2	23
29	4	5	2	3	0	0	2	0	0	2	4	3	0	0	2	1	0	7	1	4	5	4	2	4	7	2.3	24
30	1	0	4	7	2	5	5	7	3	0	1	0	0	6	0	X	6	7	X	0	7	0	X	8	8	3.3	21
31	7	8	1	X	0	5	0	4	0	5	4	2	7	0	4	0	0	0	0	3	4	0	1	0	8	2.4	23
HOURLY MAX	16	20	15	15	21	22	24	20	15	16	27	19	23	29	22	16	25	23	18	22	17	26	21	22			
HOURLY AVG	6.3	7.0	6.3	6.0	6.9	7.9	5.1	5.8	4.1	5.7	5.7	4.9	6.9	6.1	5.6	5.6	6.6	6.6	5.8	6.4	6.1	6.6	6.7	6.1			

STATUS FLAG CODES

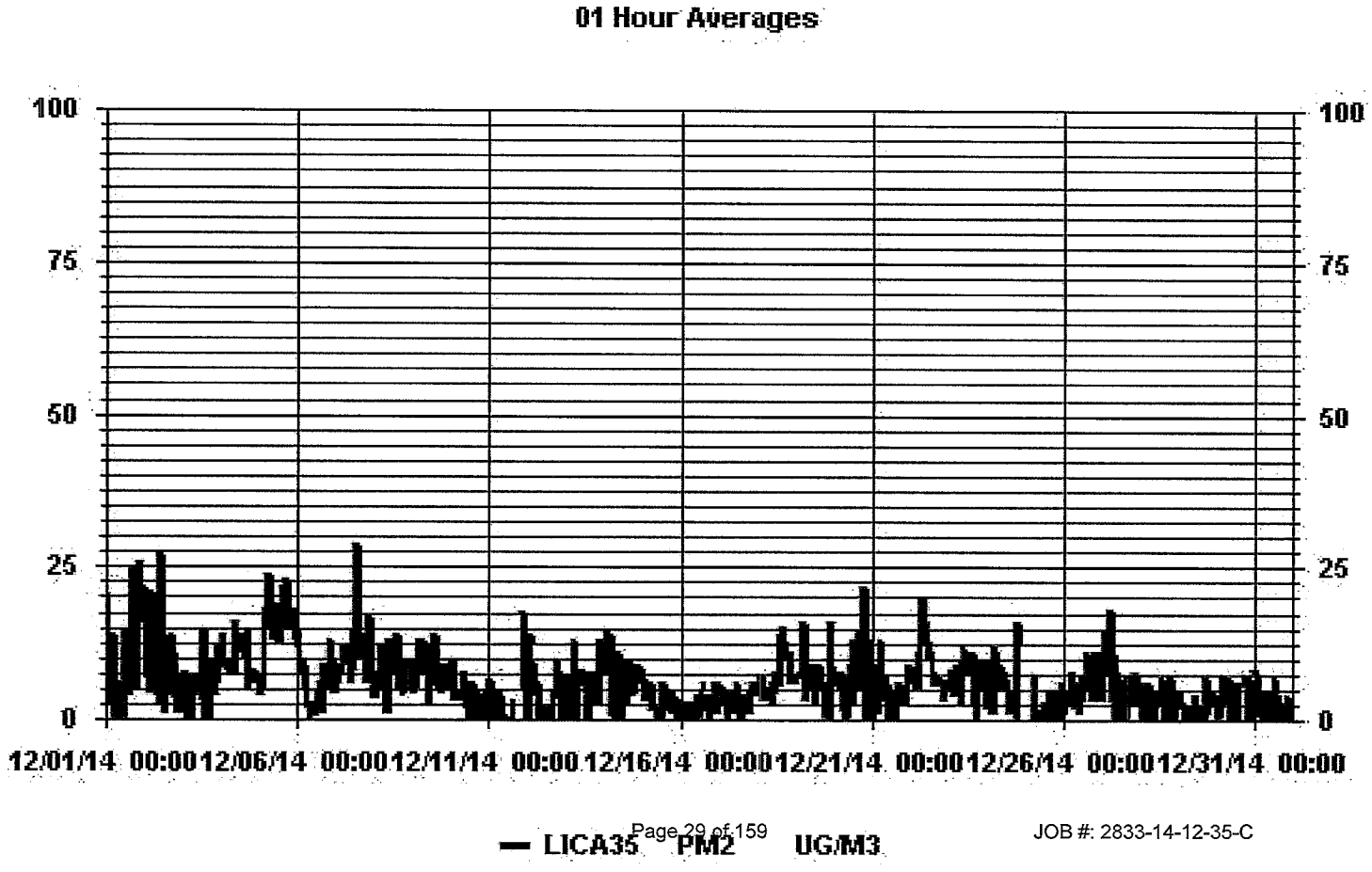
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	623					
MAXIMUM 1-HR AVERAGE:	29	ug/m3	@ HOUR(S)	13	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	15.6	ug/m3			ON DAY(S)	5
					VAR-VARIOUS	
			OPERATIONAL TIME:		726	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:		97.6	%
STANDARD DEVIATION:	5.07		MONTHLY AVERAGE:		6.11	ug/m3



JOB #: 2833-14-12-35-C

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

December 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	.98	.28	.42	4.37	13.54	12.83	8.60	4.65	1.26	1.26	3.66	11.98	11.70	9.87	11.98	2.53	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	.98	.28	.42	4.37	13.54	12.83	8.60	4.65	1.26	1.26	3.66	11.98	11.70	9.87	11.98	2.53	

Calm : .00 %

Total # Operational Hours : 709

Distribution By Samples

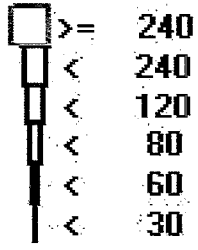
Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	7	2	3	31	96	91	61	33	9	9	26	85	83	70	85	18	709
<	60																	
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	7	2	3	31	96	91	61	33	9	9	26	85	83	70	85	18	

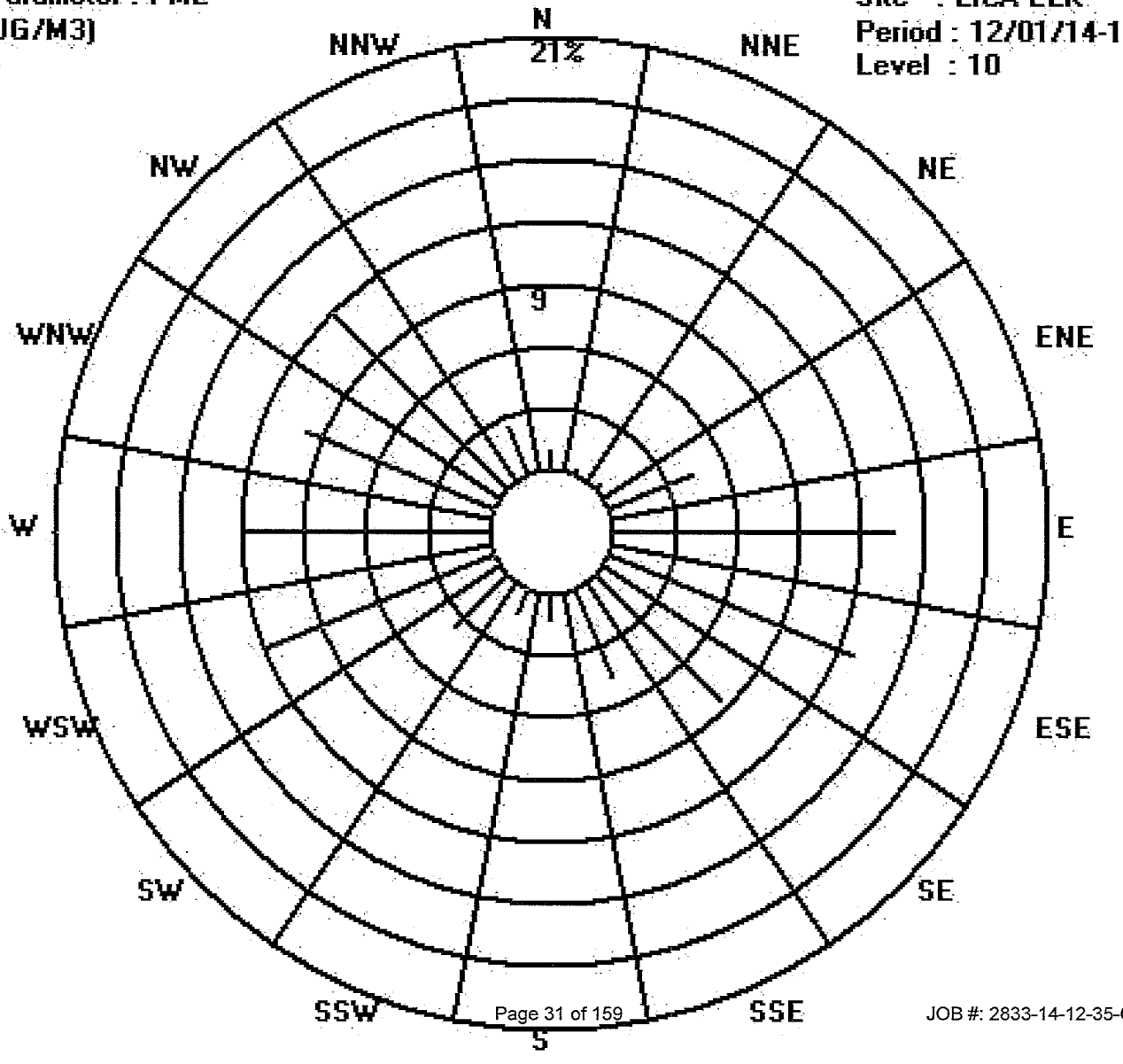
Calm : .00 %

Total # Operational Hours : 709

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



Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C

Nitrogen Dioxide

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

NITROGEN DIOXIDE (NO2) hourly averages in ppb

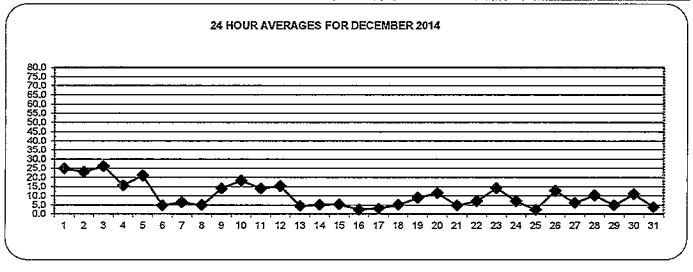
MST

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	20.3	19.3	17.4	22.1	S	23.8	29.7	S	S	29.2	23.3	9.2	8.2	9.7	12.7	17	26.7	25.6	36.8	***39.7***	36.7	35.4	37.4	38.3	***39.7***	24.7	24
2	35.1	35.6	33.4	S	35	26.4	23.7	22.5	16.2	10.2	4	3.8	C	C	C	C	C	C	C	20.8	14	20.7	29.2	36.3	36.3	22.9	24
3	***39.7***	35.6	S	32.6	27.1	18.7	18.7	23.1	22.1	16.1	12.4	12.9	14.7	20.5	26.4	30.8	34.1	36.8	28.1	26.8	26.7	29.3	32.1	31.9	***39.7***	***26.0***	24
4	26.6	S	28.8	17.8	14.9	20.6	20.9	19.6	21.6	23.3	12.5	10.8	10.3	12.7	15.3	16.5	11.7	12.4	10.2	10	13.7	10.6	8.7	9.9	28.8	15.6	24
5	S	15.6	26	27.7	29.6	31.4	29	23.2	13.2	13	11.6	9.6	9.1	16.1	20.1	25.6	30.8	31	23.8	21.2	20.7	17.7	15.1	S	31.4	21.0	24
6	11.8	9.5	7.2	6.1	6.8	8.6	9.9	6.5	3.8	3.6	2.1	1.5	1.6	1.8	2.2	3	3.9	4.6	2.7	1.8	2	2.1	S	5.2	11.8	4.7	24
7	3	2.9	3.2	5.8	8.5	5.5	13.2	17.3	19	11.1	5.8	5.2	7.5	7.8	3.4	3.1	2.8	3	5.6	2.9	3.1	S	4.2	2.5	19	6.4	24
8	1.7	1.6	3.4	5.1	4.4	4.4	4	2.5	2.7	3.9	3.4	3.8	3.9	3.9	5.9	6.5	6.9	6.8	7	6.4	S	7.1	6.4	8.2	8.2	4.8	24
9	8.2	9.4	9.4	10	11.1	10.6	14.2	16.7	15.4	11.6	9.2	8.9	10.7	11.2	12.6	15.5	18.8	17.6	19.4	S	15.9	20.1	22.8	20.7	22.8	13.9	24
10	25.7	25.3	22.7	24.3	16.7	23.1	28.2	27.3	28	21.8	17.2	13.5	12.1	10.8	10.2	20.6	20.4	15.4	S	14.3	10.5	9.9	8.7	10.9	28.2	18.2	24
11	6.7	4.9	4.2	2.9	4.7	5.5	9.3	11.2	21.8	10.5	3.9	4.2	3.7	5.1	8.6	13.7	21.9	S	31.3	35.3	32.1	27.4	27.4	22	35.3	13.8	24
12	16.4	12.4	9.1	7.3	6.5	8.8	13.4	17.3	20.2	16.4	11	15.5	16	17	18.4	18.7	S	26.6	25.7	24.2	22.8	11.2	7.9	4.6	26.6	15.1	24
13	3.4	4.4	5.5	5.3	5	4.8	4.3	1.8	2.2	3.1	2.2	2.8	2.4	2.7	3.7	S	3.3	3.3	2.4	4	4.3	5.5	11.5	14.6	14.6	4.5	24
14	9.6	12.4	6.2	1.8	1.1	1	1.4	1.4	2	1.2	1.6	1.5	2	2.6	S	4.1	4	3.4	5.5	7.9	12.1	11.9	11.2	10.1	12.4	5.0	24
15	8.7	3.8	3.2	4.6	8.9	9.1	4.1	3.7	6.6	7.3	6.5	4	3.4	S	6.8	6.2	5.9	4.7	4.7	4.3	4.1	4	3.7	3.5	9.1	5.3	24
16	3.5	1.6	1.6	1.9	2.6	2	2.3	1.8	2.7	1.3	1.9	2.9	S	3.6	3	2.2	2.4	2.7	3.2	3.3	2.8	2.2	2.4	1.9	3.6	2.4	24
17	1.3	2	1.8	1.9	1.9	1.7	2.4	2.7	2.6	2.5	2.3	S	3.4	3.1	3.1	2.9	3.7	3.6	4.4	4.2	4.3	3.5	5.5	4	5.5	3.0	24
18	3.2	2.3	2.8	3.4	3.8	1.7	2.5	1.9	3.5	3.1	S	5.1	5.3	3.9	3.9	5.4	7.9	8.5	6.6	6.4	8.9	8.4	7.2	7.4	8.9	4.9	24
19	8.5	12.9	16.7	12.6	13.2	14	19.4	11.2	11.2	S	7.8	4.7	4.5	5.1	5.7	6.5	8.5	7.9	6.7	5.3	6.3	6.7	4.4	3.7	19.4	8.8	24
20	4.3	4.2	4.3	5.8	7.7	6.5	8.5	16	S	20.1	16.4	11	15.4	13	11.4	14	20.7	15.5	17	15.5	9.5	8.1	9.5	6.9	20.7	11.4	24
21	6	5.9	5.9	5.9	4.6	4.8	4.7	S	3.8	2.3	1.5	1.7	0.5	0.7	1.9	7.1	12.1	13.5	4.2	2	6.1	2.7	5.2	4.6	13.5	4.7	24
22	4.5	6.6	4.5	12.2	8.6	13	S	13.3	13.8	13.6	10.3	7.5	4.1	3	4.8	4.2	5.2	2.9	2.9	4.2	4.6	6.4	7.8	4.8	13.8	7.1	24
23	6	5.1	5.8	4.2	10.7	S	8.9	18.9	20.5	23	19.3	19.6	19.1	18.6	17.4	14	14	13.6	13.8	15.6	15	14.5	14.6	14.4	23	14.2	24
24	15.3	21.1	26.7	19.5	S	9.5	10	9.9	9.9	12.9	3	2.6	2.9	3.3	2.5	2.4	2.5	2.6	2.9	0.9	0.5	0.2	0.7	2.7	26.7	7.2	24
25	1	1	0.2	S	2.6	1.2	P	1	0.8	1.1	0.7	1	0.8	1.1	1.2	0.7	1.5	3	3.8	4.9	2.9	7.7	7.9	6.4	7.9	2.4	23
26	9.7	11.5	S	14.9	19	21.1	21.4	17.5	20	9.2	10	7.7	3.9	3.7	5	8.9	11.7	14.8	10.4	15.4	12.8	14.8	14.9	14.1	21.4	12.7	24
27	15.6	S	22.3	22.4	20.6	17.7	13.9	7.8	5.7	1.6	1.4	1	0.9	0.7	0.6	1	1.1	1.3	1.3	0.8	0.2	0.9	0.9	1.3	22.4	6.1	24
28	S	3.1	2.5	2.7	2.6	3.3	3.4	5.3	4	4.4	7.4	18.6	19.1	19.9	15.8	19.5	24.8	25	16.9	12.7	6.3	4.8	5.5	S	25	10.3	24
29	5.7	3.7	2.5	3.1	3.8	2.5	3	7	6.8	5.8	2.8	2.1	1.3	1.3	0.9	1.6	3.7	6	7.3	10.6	8.8	6.3	S	14.6	14.6	4.8	24
30	14.3	19.1	23.1	23.8	23.5	20.5	24.6	23.1	8	5.4	5	4.3	5.3	6.5	6.8	8.2	7.8	7.9	2.9	4	1.5	S	1.7	6.7	24.6	11.0	24
31	2.2	2.2	2.5	3.6	5.5	6.3	4.3	3.7	4.9	3.5	2.2	1.5	1.2	2.6	3.6	6.3	7.2	6.7	6.1	2.4	S	3.5	2.4	1.7	7.2	3.7	24
HOURLY MAX	40	36	33	33	35	31	30	27	28	29	23	20	19	21	26	31	34	37	37	40	37	35	37	38			
HOURLY AVG	11.0	10.2	10.4	10.7	10.7	10.9	12.2	11.6	10.8	9.7	7.3	6.6	6.7	7.3	8.1	9.9	11.2	11.3	10.8	10.9	10.7	10.5	10.9	10.8			

STATUS FLAG CODES

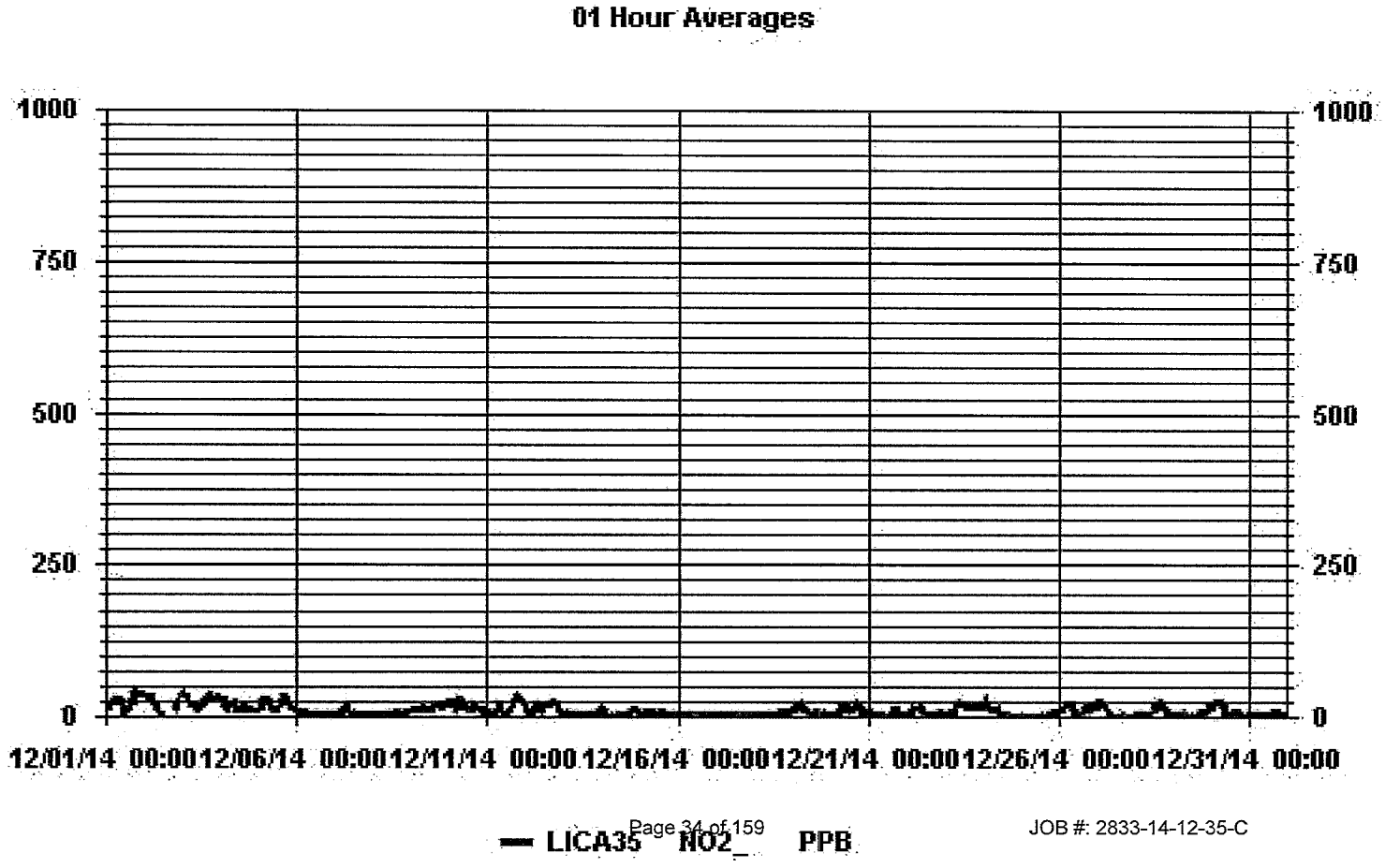
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM 1-HR AVERAGE:	39.7	PPB	@ HOUR(S)	19, 0	ON DAY(S)	1, 3
MAXIMUM 24-HR AVERAGE:	26.0	PPB			ON DAY(S)	3
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	8.67		MONTHLY AVERAGE:		10.04	PPB



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

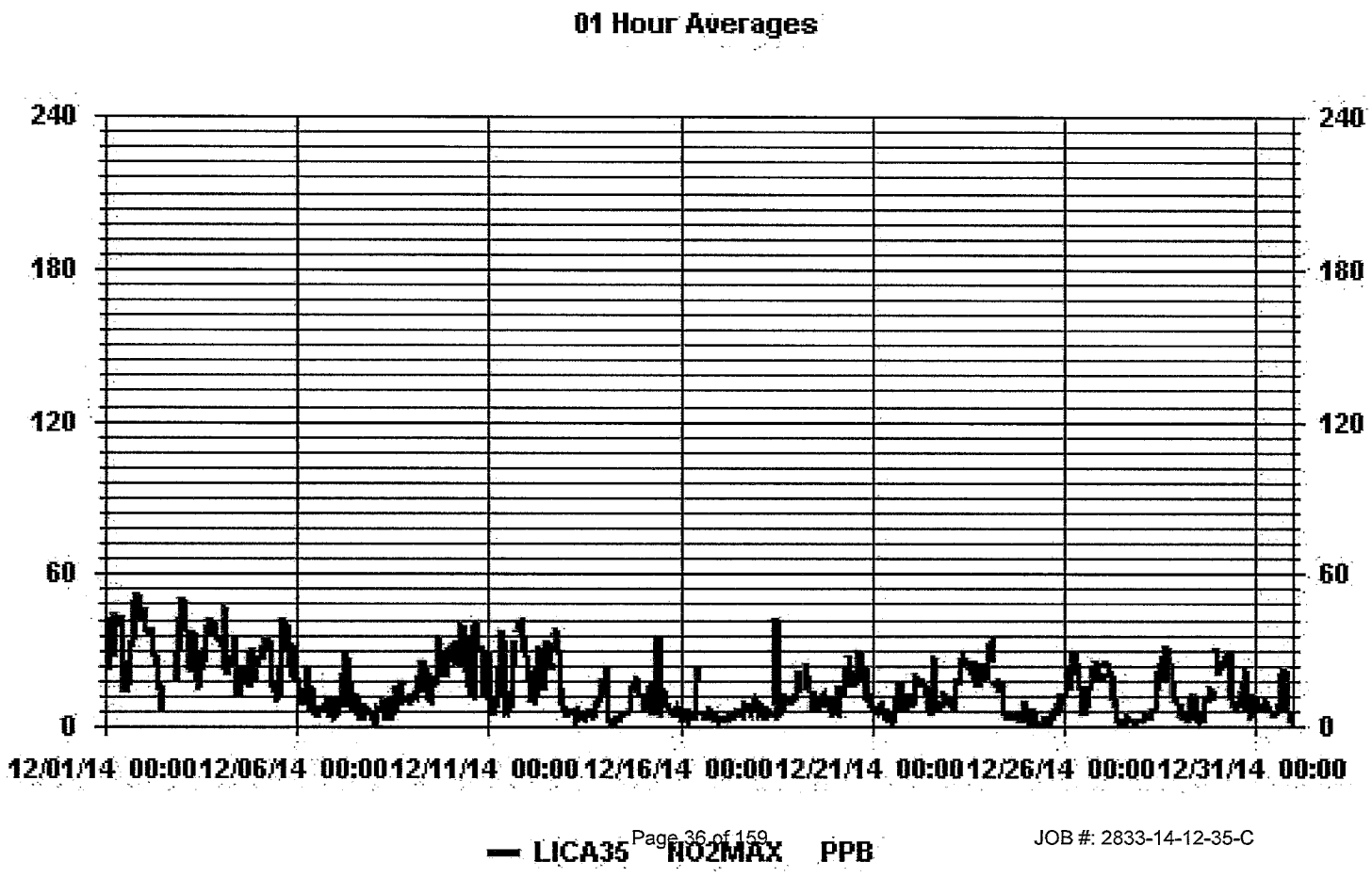
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	32.9	42.9	21.8	24.8	S	27.7	43.4	S	S	42.9	39.4	16.6	14.8	13	16	25.9	31.2	33.5	49.4	51.1	*52.2*	43.4	42.3	46.4	*52.2*	*33.9*	24
2	45.2	38.2	37	S	37.6	35.3	28.9	28.3	23.6	14.2	17.1	7.2	C	C	C	C	C	C	C	C	18.9	29.4	35.3	42.3	45.2	29.2	24
3	50.6	39.4	S	36.9	30.5	22.8	21.1	37.5	30.5	18.8	16.4	16.9	22.3	24.6	30.4	37.5	39.3	42.7	35.7	35.7	41	35.1	35.1	34	50.6	31.9	24
4	32.2	S	46.3	22.9	19.9	25.7	26.4	25.2	26.4	35.7	15.2	15.8	12.3	15.8	23.4	22.3	18.1	21.1	15.2	28.7	31	17.6	23.4	26.4	46.3	23.8	24
5	S	27	31.1	34.1	32.3	33.5	33.5	31.1	18.8	16.5	14.2	11.3	11.9	23.6	28.8	42.3	38.8	40	39.3	24.2	32.9	20.6	19.4	S	42.3	27.5	24
6	18.8	13.6	10.7	8.3	10.7	14.8	23.6	12.5	6.5	15.4	7.1	5.4	4.2	4.2	7.1	7.1	7.2	8.9	5.3	11.9	4.8	4.8	S	9.8	23.6	9.7	24
7	3.9	4.4	6.8	10.4	20.3	7.4	29.7	27.3	22.1	17.3	8	6.8	10.3	12.7	5.1	4	3.3	3.4	9.2	4	6.3	S	5.8	3.6	29.7	10.1	24
8	1.8	1.8	7	6.5	5.3	11.8	7	3.5	3.5	4.7	4.2	11.2	8.2	4.7	15.8	12.3	8.2	16.9	16.9	16.9	S	10.6	10	11.8	16.9	8.7	24
9	12.3	13.5	12.3	14.7	19.3	12.9	25.8	24.6	23.4	21.7	11.8	11.2	19.9	15.2	16.9	18.1	35.1	18.7	28.7	S	20	26.5	30	28.8	35.1	20.1	24
10	31.1	31.7	28.2	26.5	24.7	26.5	40.5	31.7	39.9	35.3	24.1	24.7	15.9	13	12.5	39.3	40.5	30.6	S	30.6	13	13	11.9	30	40.5	26.7	24
11	11.3	6	5.4	4.2	7.7	10.7	22.9	19.4	37.6	34.6	6.5	7.2	6	7.7	13.6	24.2	32.9	S	38.2	40.6	41.1	35.8	31.1	28.2	41.1	20.6	24
12	19.5	20	12.5	10.7	10.1	11.9	22.4	31.7	28.2	24.1	13.6	21.8	32.3	32.3	25.9	23	S	37.6	38.7	30.6	28.8	15.9	8.9	7.2	38.7	22.1	24
13	3.7	5.4	5.9	5.4	5.3	5.9	6.5	1.9	2.5	5.3	4.2	4.2	3.7	5.4	6.5	S	5.2	4	4.5	6.8	9.8	11	15.7	18.5	18.5	6.4	24
14	12.2	22.1	22.1	2.8	1.6	1.6	2.2	1.6	3.4	1.6	3.4	4	5.1	5.2	S	5.9	6.5	15.4	13.6	17.1	19.5	14.8	12.5	11.9	22.1	9.0	24
15	11.9	7.7	7.1	7.7	15.4	15.9	5.4	5.4	16	11.3	35.3	18.2	4.9	S	13.6	8.3	7.7	7.2	6.5	5.9	4.9	5.3	7.2	6	35.3	10.2	24
16	4.9	2.5	2.5	3	6.5	3.1	4.2	4.2	3.7	2.5	17	21.8	S	5.4	4.2	3.7	3.6	3.7	7.7	3.7	3.7	3.1	3.7	2.5	21.8	5.3	24
17	1.9	2.5	2.5	2.5	3.1	2.5	3.7	3.7	3.7	3.7	4.2	S	6.6	5.3	5.4	4.9	9.5	6	7.2	7.2	6	8.9	10.1	7.7	10.1	5.2	24
18	9.5	8.9	4.9	5.4	7.1	2.5	8.3	3.1	5.4	4.9	S	8.9	42.3	4.9	5.4	6	12.5	10.7	10.1	8.3	10.7	11.3	10.1	10.7	42.3	9.2	24
19	11.3	16.5	21.8	14.8	15.4	17.6	24.2	13.6	18.8	S	13	6.5	6.5	7.2	7.2	8.3	11.3	12.5	9.6	7.2	10.1	10.7	7.2	5.4	24.2	12.0	24
20	6	6.6	6	16	13.6	11.9	14.8	21.2	S	26.9	19.9	15.2	17	17	21.6	25.1	29.3	19.3	19.9	20.5	11.7	10.5	11.1	8.7	29.3	16.1	24
21	7.5	6.4	7.6	8.1	5.8	6.4	8.7	S	6	3.7	2.5	2.5	1.3	1.9	4.9	11.9	16	15.4	15.4	6	8.9	6.6	12.5	11.3	16	7.7	24
22	7.2	13	7.7	20.6	16	17.1	S	17.7	16.6	16	13.6	11.3	7.2	4.3	27.7	7.2	9.5	7.2	7.2	7.7	12.5	11.9	10.7	10.7	27.7	12.2	24
23	9.5	7.2	10.1	6	17.7	S	17.7	27.1	25.9	27.1	24.8	24.2	23	25.9	20.6	18.3	25.3	16	16	20.1	17.7	18.3	24.2	18.2	27.1	19.2	24
24	24.8	32.3	32.9	26.5	S	16.6	17.1	18.3	13.6	17.2	5.4	3.7	3.7	4.9	4.3	3.7	3.7	4.3	4.9	3.1	1.9	1.9	1.9	9.5	32.9	11.1	24
25	3.7	4.3	1.9	S	5.4	1.2	P	1.2	0.7	1.2	0.7	2.4	1.8	3.6	1.2	0.8	2.4	4.8	6	7.1	4.8	11.2	11.2	8.2	11.2	3.9	23
26	11.2	14.7	S	15.4	23.6	28.3	28.3	20.1	24.8	16	15.4	11.9	4.9	6	7.7	16	14.8	18.3	21.8	22.4	25.9	16.6	21.8	18.3	28.3	17.6	24
27	20.1	S	24.3	24.3	22.5	20.2	16.1	11.4	7.8	2.6	2.6	2	1.4	1.4	1.4	3.2	3.2	2.6	2.6	2	1.4	2	2	2.6	24.3	7.8	24
28	S	4.8	2.5	3.1	3.1	3.7	3.7	7.2	5.4	7.2	13.6	21.2	24.7	27.7	17.2	25.9	31.2	26.5	25.3	18.9	13	10.7	10.1	S	31.2	13.9	24
29	8	4.6	2.8	4.6	4.6	2.8	4.5	10.4	11.6	11.6	3.4	2.8	2.2	4	1.6	4.6	12.2	9.8	11.6	15.7	14.5	11.6	S	29.9	29.9	8.2	24
30	19.9	22.3	24.7	24.7	25.3	27.6	27	27.6	10.6	7.1	9.4	5.4	8.2	8.8	10.6	13.5	17.7	22.9	5.4	7.1	3.6	S	4.2	13	27.6	15.1	24
31	7.1	8.8	8.2	7.7	7.7	8.2	11.2	5.9	7.7	6.5	4.2	4.2	4.8	5.9	8.8	13	21.1	10.6	22.9	6.5	S	5.4	2.5	1.3	22.9	8.3	24
HOURLY MAX	51	43	46	37	38	35	43	38	40	43	39	25	42	32	30	42	41	43	49	51	52	43	42	46			
HOURLY AVG	15.2	14.8	14.3	13.7	14.4	14.5	18.2	16.4	15.3	15.1	12.3	10.9	11.3	10.7	12.6	15.0	17.1	16.2	17.1	16.1	16.2	14.6	14.9	16.0			

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:	700					
MAXIMUM INSTANTANEOUS VALUE:	52.2	PPB	@ HOUR(S)	20	ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	11.10					



JOB #: 2833-14-12-35-C

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

December 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	1.02	.29	.43	4.09	13.59	13.01	8.62	4.82	1.31	1.31	3.65	11.69	11.25	9.64	12.57	2.63	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.02	.29	.43	4.09	13.59	13.01	8.62	4.82	1.31	1.31	3.65	11.69	11.25	9.64	12.57	2.63	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Direction

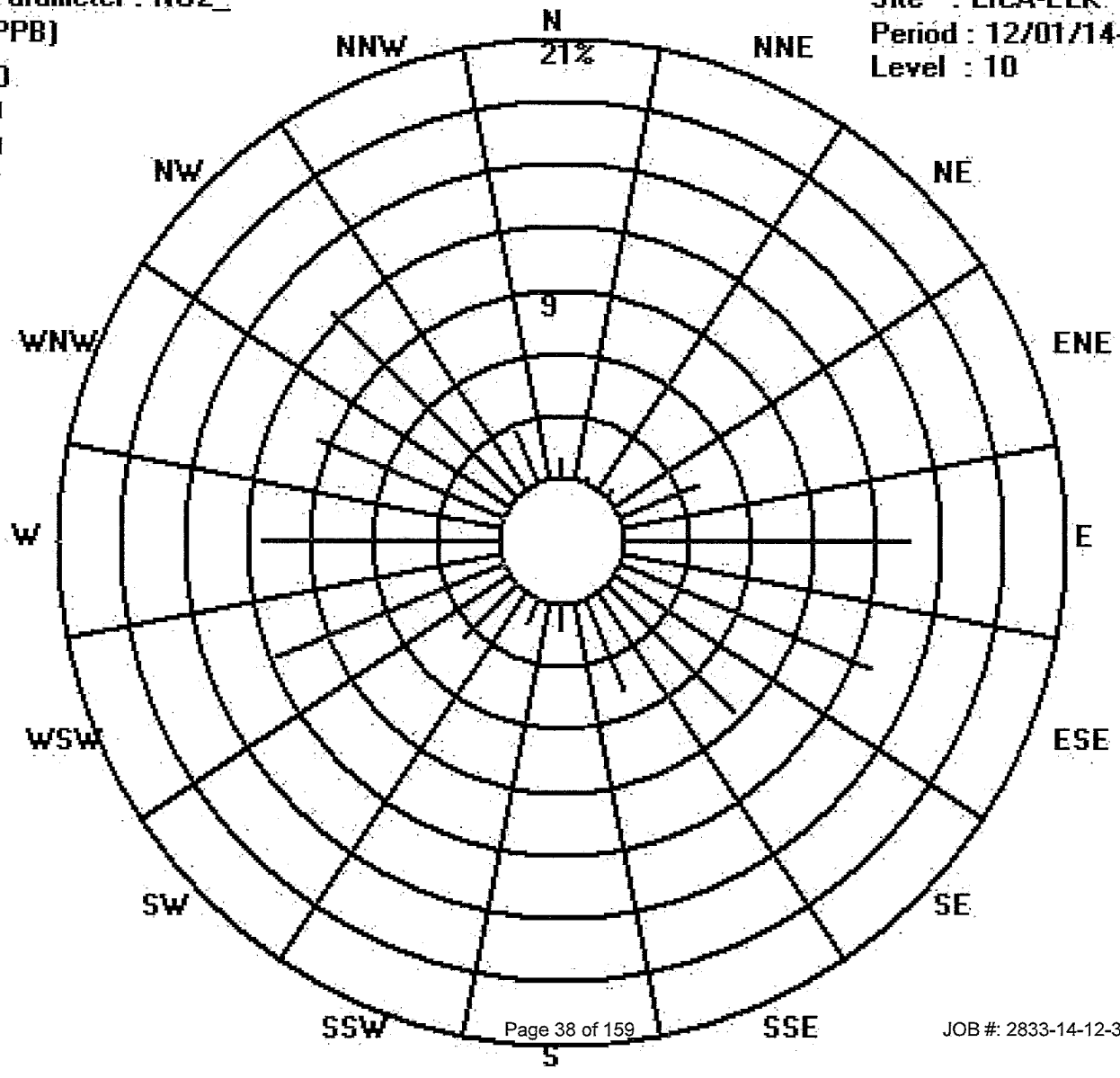
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	7	2	3	28	93	89	59	33	9	9	25	80	77	66	86	18	684
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	7	2	3	28	93	89	59	33	9	9	25	80	77	66	86	18	

Calm : .00 %

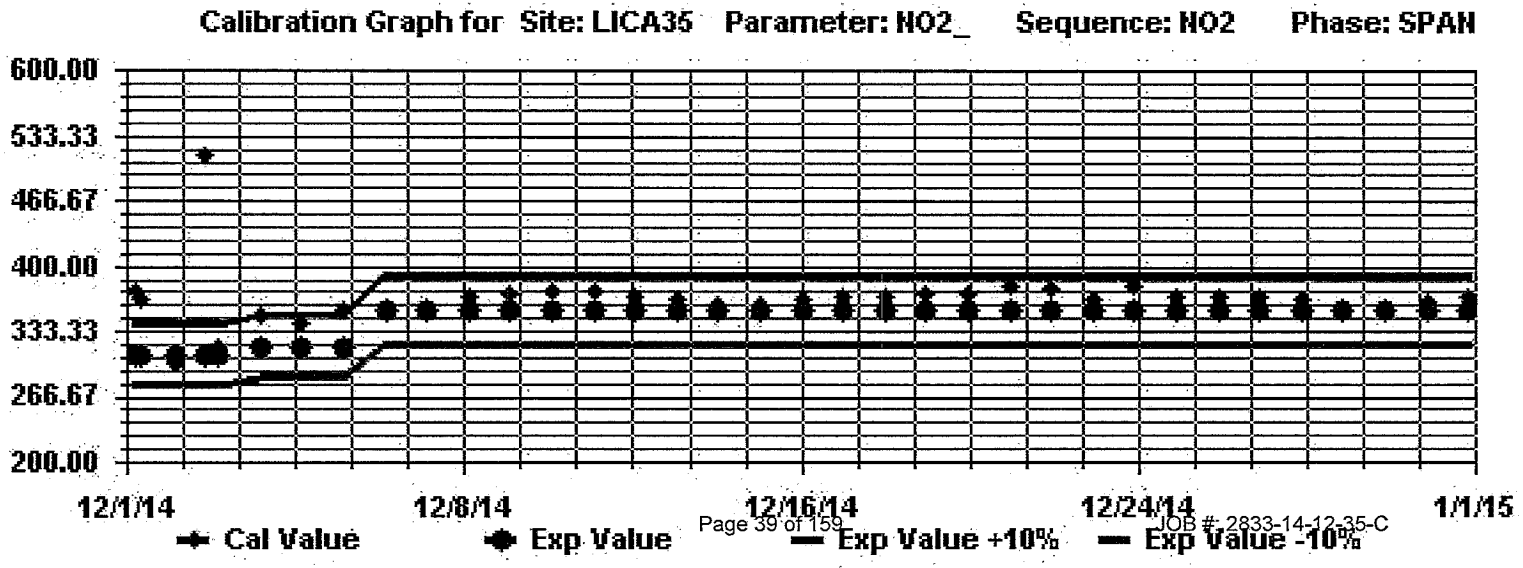
Total # Operational Hours : 684

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

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-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
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

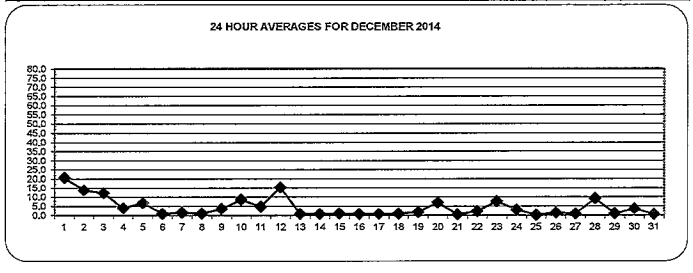
NITRIC OXIDE (NO) hourly averages in ppb

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	4.2	3.6	1	1.1	S	1.6	11.8	S	S	33.2	32.4	8.4	7.5	7.8	6.6	5	5.6	3.8	35.9	54	45	35.1	56.5	***72.1***	***72.1***	***20.6***	24
2	51.8	54.6	38.8	S	40.1	8.3	2.5	1.5	1.3	2.5	2	2	C	C	C	C	C	C	C	0.4	0.4	1.5	3.3	8.2	54.6	13.7	24
3	20.2	14.9	S	6.1	1.7	1.1	0.7	4.7	6.9	9.8	11.6	12.9	20	22.2	30.5	33.1	24.8	26.7	5.1	4.9	8.4	3.6	5.1	5.4	33.1	12.2	24
4	1.5	S	11.1	0.7	0.4	1.7	3.5	2.1	6.2	18.3	6.2	6	5.4	6.5	6.8	3.5	0.5	0.5	0.5	1.6	1.9	0.4	0.6	1	18.3	3.8	24
5	S	1.2	2.6	3.6	6.9	7.9	3.9	2.2	1.7	4.7	6.2	6.1	6.8	15.1	14.6	17.4	16.8	17.3	8.1	1.6	1.8	0.9	1.3	S	17.4	6.8	24
6	0.6	0.4	0.2	0.4	0.4	0.7	2.3	1.6	1	1.9	1.7	1.7	1.6	1.4	1.3	1.2	0.5	0.6	0.2	0.3	0.1	0	S	0.2	2.3	0.9	24
7	0	0.2	0.1	0.4	0.8	0.6	5.6	3.3	2.4	3.3	3	3.2	4.8	3.8	0.7	0.2	0	0.2	1	0.2	0.4	S	0.2	0.3	5.6	1.5	24
8	0	0	0.3	0.4	0.2	1	0.3	0.5	0.3	0.9	1.2	1.7	2	2	2.8	2.1	1.4	1.8	1.6	1	S	0.7	0.8	0.4	2.8	1.0	24
9	0.1	0.5	0.5	0.6	0.7	0.3	2	2.9	2.9	5.5	6.9	7.4	10.4	7.9	6.3	3.4	2.2	0.7	2.4	S	0.5	1.7	5.6	5.8	10.4	3.4	24
10	16.3	20	2.3	3.3	1.8	1.1	10.3	9.1	25	23.5	18.6	15.8	10.6	6.5	4.6	10.9	6.9	2.3	S	2	0.7	1.4	0.5	2.3	25	8.5	24
11	0.5	0.1	0.5	0.2	0.4	0.7	1.5	0.8	15.8	4.4	1.6	2.4	2.4	2.6	3	2.1	3.3	S	5.9	16.5	23.1	9	8.5	2	23.1	4.7	24
12	0.7	1	0.4	0.3	0.6	0.6	2.1	8.8	8.6	9.8	8.5	25.3	28.1	22.2	18.8	17.9	S	52.7	55.1	44.6	40.9	0.4	0.4	0.2	55.1	15.1	24
13	0.3	0.3	0.1	0.2	0	0.1	0	0	0.1	1	1.1	2	1.6	2	2.9	S	0.3	0	0.1	0.7	0.7	0.5	0.9	2.6	2.9	0.8	24
14	0.6	3.1	1.7	0.1	0	0.1	0	0	0.1	0.1	0.8	0.9	1.1	1.2	S	0.7	0.5	0.6	0.6	0.8	1	0.8	0.6	0.3	3.1	0.7	24
15	0.5	0.4	0.4	0.4	0.7	0.3	0.3	0.3	1	1.5	3.6	2.1	1.9	S	2.6	1.7	1	0.8	0.9	0.7	0.5	0.4	0.5	0.4	3.6	1.0	24
16	0.2	0.2	0.2	0.2	0.8	0.3	0.5	0.7	0.4	0.6	2.4	3	S	0.8	0.9	0.6	0.6	0.4	0.7	0.5	0.4	0.5	0.1	0.1	3	0.7	24
17	0.3	0.2	0.2	0	0.3	0.2	0.4	0.6	0.4	0.7	1	S	0.9	1.4	1.2	0.7	0.7	0.6	0.7	0.9	0.6	0.6	1.6	0.6	1.6	0.6	24
18	0.4	0.4	0.5	0.3	0.5	0.4	0.4	0.3	0.5	0.8	S	2.8	3.4	1.7	1.2	0.9	1.1	0.9	0.8	0.6	0.6	0.4	0.6	0.3	3.4	0.9	24
19	0.3	1.1	1.3	0.7	0.8	1.4	6.1	1	3.6	S	5.7	4.5	4.6	3.9	2.7	1.1	0	0.2	0.1	0	0.4	0.3	0	0	6.1	1.7	24
20	0	0	0	0.5	0	0.1	0.3	1.8	S	23.8	24.6	16.4	32.7	19.3	9.7	6.9	15.2	1.7	1.5	2.1	0.9	0.5	0.4	0.2	32.7	6.9	24
21	0.1	0.3	0.2	0.2	0	0.3	0.8	S	0.5	0.3	0.5	0.6	0.6	0.6	0.8	1.3	0.7	0.7	0.2	0.1	0.4	0.4	0.1	0.4	1.3	0.4	24
22	1.1	0.5	0.4	2.1	0.5	1	S	2.3	4.4	10.4	10.4	7.9	2.7	1.2	2.2	0.7	0.4	0.2	0.6	0.2	0.4	0.5	0.3	0.1	10.4	2.2	24
23	0	0.1	0.3	0.2	0.5	S	0.9	2.1	5.4	19	21.9	37.9	35.6	24.2	10.9	3.1	1.6	0.9	0.5	0.7	0.9	1	1.3	0.6	37.9	7.4	24
24	1.6	3.8	52.4	6.1	S	0.3	0.3	0.3	0.2	1.5	0.7	0.6	0.7	0.8	0.2	0	0	0	0	0	0	0	0	0.3	52.4	3.0	24
25	0	0	0	S	0.3	0.2	P	0.6	0	0	0.2	0.3	0.3	0.5	0.1	0	0.1	0.3	0	0.3	0	0	0	0	0.6	0.1	23
26	0	0.2	S	0.2	1.8	1.9	1	0.2	1.8	1.7	4.9	5.7	2.1	1.7	1.9	2	1	1.3	0.8	1.2	1.3	0.1	0.4	0.4	5.7	1.5	24
27	0.4	S	4.3	4.5	2.3	1.9	1	0.5	0.3	0.4	0.8	1	0.8	0.6	0.5	0.3	0.1	0.1	0	0	0.1	0.1	0	0.1	4.5	0.9	24
28	S	0.2	0.1	0.1	0.4	0.1	0.2	0.7	1	3.3	8.1	41.9	43.5	36.6	17	16.1	11.4	8.8	4.8	1.3	0.4	0.5	0.5	S	43.5	9.0	24
29	0.4	0	0.2	0.1	0	0	0.1	1.4	1.5	2.4	1.3	1.5	1.2	1.2	0.4	0.4	1.1	1	1	1.4	1.4	0.9	S	2.2	2.4	0.9	24
30	1.5	1	5.1	16.9	13.1	3.3	10.9	11.1	1.4	1.6	2.5	2.1	2.6	2.9	1.7	1.5	0.2	0.9	0	0.1	0	S	0.1	1.3	16.9	3.6	24
31	0.2	0.4	0.4	0.2	0.2	0.1	0.4	0.3	0	0.6	0.6	0.6	0.9	1.3	1	0.9	0.6	0.3	0.6	0.3	S	0.1	0	0.2	1.3	0.4	24
HOURLY MAX	52	55	52	17	40	8	12	11	25	33	32	42	44	37	31	33	25	53	55	54	45	35	57	72			
HOURLY AVG	3.6	3.7	4.3	1.7	2.6	1.3	2.4	2.1	3.3	6.3	6.4	7.5	8.2	6.9	5.3	4.7	3.4	4.4	4.5	4.6	4.6	2.1	3.1	3.7			

STATUS FLAG CODES

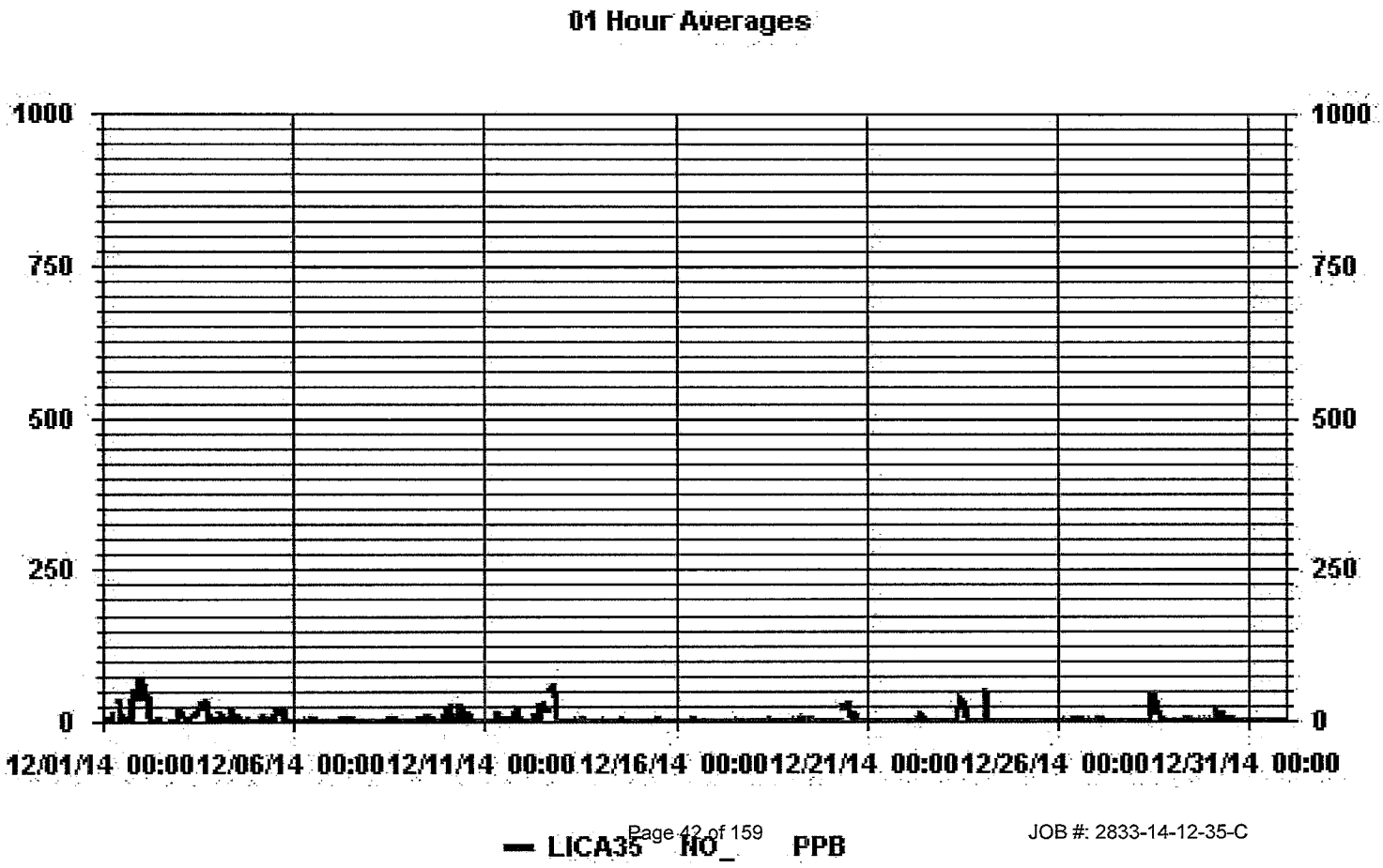
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



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

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	648					
MAXIMUM 1-HR AVERAGE:	72.1	PPB	@ HOUR(S)	23	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	20.6	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	9.12		MONTHLY AVERAGE:		4.20	PPB



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

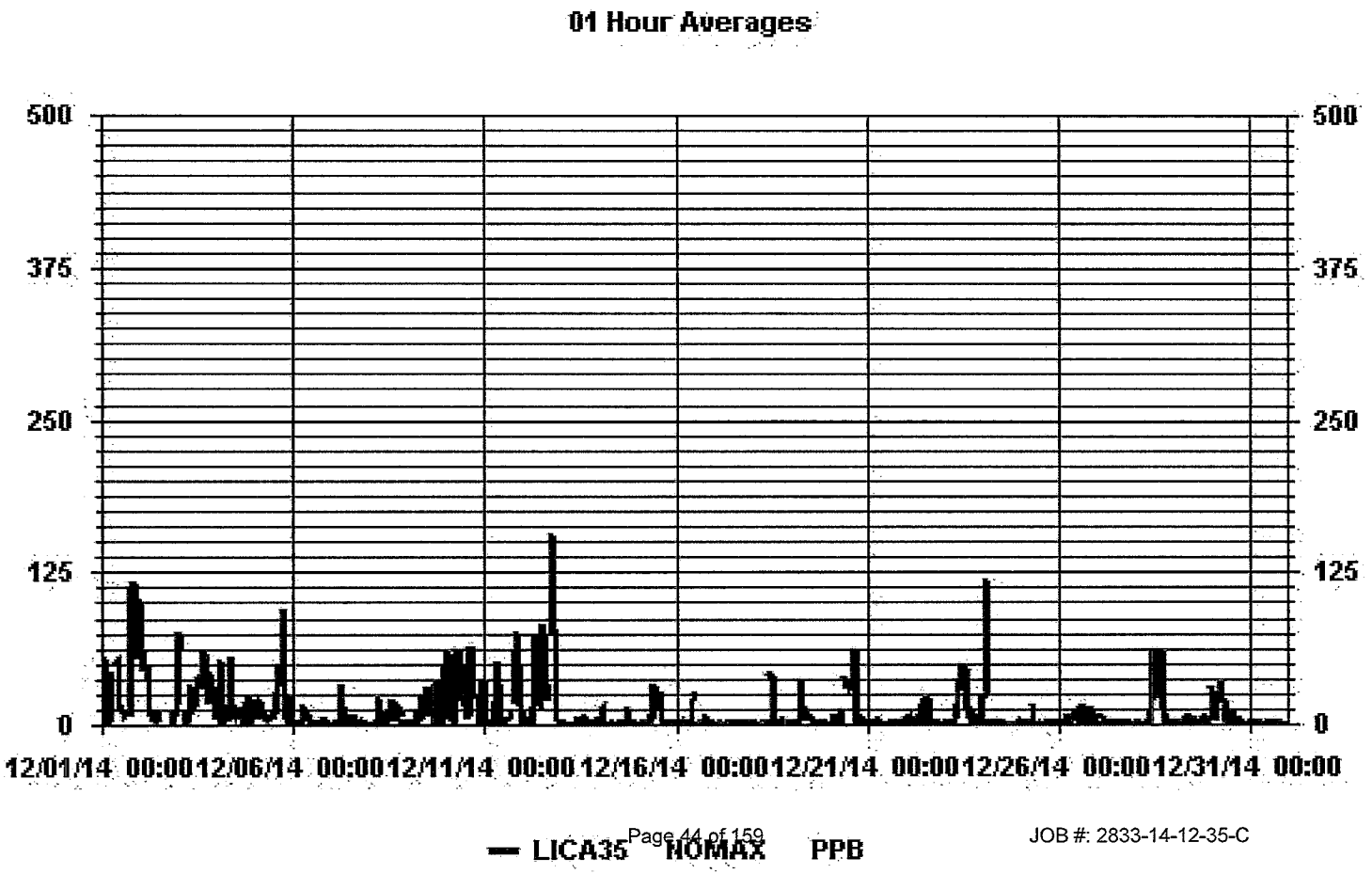
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG.	RDGS.
DAY																											
1	28.7	55.1	3.5	2.9	S	5.3	40.4	S	S	52.1	53.3	18.8	13.5	11.1	7.6	8.8	10.6	9.9	111.4	115	117.9	53.9	68	103.8	117.9	***42.5***	24
2	88.5	63.3	45.8	S	47	36.4	8.2	5.2	3.5	3.5	11.7	4.7	C	C	C	C	C	C	C	C	2.1	10.9	8.5	16.8	88.5	23.7	24
3	76	63.6	S	10.8	6.1	2.6	1.4	33.6	17.8	14.9	17.3	17.2	39	29	39.5	41.8	59.5	51.8	23.1	17.8	42.4	22	17.2	30.2	76	29.3	24
4	6.6	S	50.5	1.2	0.6	6.5	6.4	5.9	17.1	56.4	7.7	10.6	7	8.9	14.1	8.9	1.2	1.2	1.2	18.2	21.8	1.2	10.6	17.6	56.4	12.2	24
5	S	13	5.4	18.2	16.5	13.6	7.7	4.7	3	6.5	7.1	7.6	8.8	25.9	32.3	46.4	48.2	33.5	95.1	4.7	24.1	1.9	2.4	S	95.1	19.4	24
6	1.2	1.2	0.6	0.6	0.6	1.2	17	10	1.9	7	5.9	3.6	2.4	2.4	3	2.4	1.2	1.9	0.6	5.4	0.6	0	S	0.6	17	3.1	24
7	0.6	1.8	0.6	0.6	3	1.8	32.3	15.9	4.2	6.5	4.2	4.7	6.5	7	1.8	0.6	0.6	0.6	3	0.6	1.2	S	0.6	0.6	32.3	4.3	24
8	0	0.6	1.2	0.7	0.7	22.4	1.8	1.2	1.2	1.8	1.8	8.8	10	3	18.8	18.2	3	11.8	13.6	10.6	S	3	1.8	0.6	22.4	5.9	24
9	0.6	1.2	1.2	2.4	2.4	0.6	9.4	11.8	14.7	23.5	9.4	11.2	31.7	13	12.4	5.9	32.9	1.2	31.7	S	0.6	4.8	48.8	24.1	48.8	12.8	24
10	38.8	60.5	7	5.9	4.2	3.6	62.8	18.8	60.5	48.8	32.9	47	17.6	8.2	5.9	62.2	64.6	23	S	20	1.8	3.6	2.4	36.4	64.6	27.7	24
11	3	0.6	1.2	0.6	1.9	3	18.8	4.7	50.5	34	2.4	4.2	4.2	3.6	4.2	5.3	11.2	S	19.4	59.9	75.7	50.5	17.6	6.5	75.7	16.7	24
12	1.2	4.2	0.6	0.7	1.9	2.4	14.7	75.1	35.2	18.8	17.6	51.1	82.8	73.9	35.2	21.8	S	98	***156***	72.8	78.7	4.2	0.6	0.6	***156***	36.9	24
13	0.6	0.7	0.6	0.6	0	0.7	0	0	0.6	3.6	3	3.6	3	4.7	6.5	S	0.6	0.6	1.2	2.4	1.2	2.4	2.4	6.5	6.5	2.0	24
14	2.4	14.1	15.3	0.6	0	0.6	0	0.6	0.6	0.6	1.2	2.4	2.4	2.4	S	1.8	1.2	13.5	1.8	2.4	3.6	3	1.2	0.7	15.3	3.1	24
15	1.2	0.6	1.2	1.9	2.4	0.6	1.2	1.2	8.2	3.6	32.9	16.5	15.3	S	24.1	3	3	2.4	1.9	1.2	1.2	1.2	1.9	1.2	32.9	5.6	24
16	0.6	0.6	0.7	1.2	3	0.6	1.2	1.2	1.2	1.9	20	25.3	S	1.8	2.4	1.2	1.2	1.2	7.6	1.8	0.6	1.8	0.6	0.6	25.3	3.4	24
17	0.6	1.2	0.6	0.6	0.6	0.6	1.2	2.4	1.2	1.2	2.4	S	1.8	2.4	1.8	1.2	2.4	1.8	1.8	3	1.2	3	3.6	1.8	3.6	1.7	24
18	1.8	1.2	1.2	1.2	0.6	1.2	1.2	1.2	1.2	1.8	S	41.7	39.9	2.4	3	1.8	2.4	2.4	3.6	1.8	0.6	1.8	1.8	1.8	41.7	5.1	24
19	1.2	3	3.6	2.4	1.8	4.2	36.4	1.8	12.4	S	7.8	5.5	5.5	5.5	3.8	2	0.8	1.4	0.8	0.8	1.4	2	1.4	0.2	36.4	4.6	24
20	0.2	0.2	0.8	7.8	0.8	0.8	2	9.6	S	37	33.5	30.6	35.8	30.6	31.7	27	62.2	5.9	7	6.5	2.4	1.8	1.9	1.2	62.2	14.7	24
21	0.6	0.6	0.6	0.6	0.6	0.6	4.2	S	0.6	0.6	0.6	1.2	0.6	1.2	1.8	2.4	1.2	1.2	1.8	0.6	1.8	1.2	0.6	0.6	4.2	1.1	24
22	4.7	5.9	1.8	5.3	1.8	1.8	S	4.2	8.8	15.9	18.2	13	5.3	1.2	23.5	1.8	1.2	1.8	1.8	1.2	1.2	1.2	1.2	0.6	23.5	5.4	24
23	0.6	0.6	1.8	0.6	1.8	S	2.4	4.7	15.3	26.4	37	49.9	46.3	45.7	15.3	5.3	14.7	1.8	0.6	1.8	2.4	5.3	8.8	1.2	49.9	12.6	24
24	25.3	20.6	119.1	25.8	S	0.8	0.8	0.8	0.8	2.6	1.4	0.8	0.8	1.4	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0	0.2	2.6	119.1	8.9	24
25	0.2	0.2	0.2	S	0.6	0.6	P	13.5	0	0.6	0.6	1.2	1.2	1.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	13.5	1.2	23
26	0.6	0.6	S	0.8	6.6	6.6	4.3	0.8	5.5	2.6	10.8	12	3.2	4.3	4.3	15.5	3.2	2.6	2.6	3.2	14.9	2	9.6	3.8	15.5	5.2	24
27	1.4	S	7	6.6	5.3	3	1.8	1.2	0.6	0.6	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0	0.6	7	1.6	24
28	S	0.6	0.6	0.6	1.2	0.6	0.6	1.8	2.4	10.6	18.8	59.3	59.9	62.2	20	47.6	61.6	15.9	10.6	3	1.2	2.4	3	S	62.2	17.5	24
29	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.6	6.4	7	1.7	1.7	1.7	3.5	1.1	1.1	3.5	2.3	4.6	5.8	2.9	2.9	S	27.5	27.5	3.6	24
30	8.1	2.9	12.3	26.4	19.9	33.9	21	19.3	2.9	2.9	2.2	2.9	4	10.5	2.9	3.5	1.1	4.6	0.5	1.1	0.5	S	0.6	2.4	33.9	8.1	24
31	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.8	1.8	1.8	1.8	2.4	1.2	2.4	1.2	S	0.6	0	0.6	2.4	1.1	24
HOURLY MAX	89	64	119	26	47	36	63	75	61	56	53	59	83	74	40	62	65	98	156	115	118	54	68	104			
HOURLY AVG	10.2	11.0	9.9	4.4	4.6	5.3	10.4	8.8	9.6	13.2	12.2	15.3	15.6	12.8	11.1	11.7	13.7	10.2	17.5	12.6	14.0	6.5	7.5	10.1			

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:	689					
MAXIMUM INSTANTANEOUS VALUE:	156	PPB	@ HOUR(S)	18	ON DAY(S)	12
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	19.36					



JOB #: 2833-14-12-35-C

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

December 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	1.02	.29	.43	4.09	13.59	12.71	8.62	4.67	1.02	1.31	3.50	11.69	11.25	9.35	12.57	2.63	98.83
<	110.0	.00	.00	.00	.00	.00	.29	.00	.14	.29	.00	.14	.00	.00	.29	.00	.00	1.16
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.02	.29	.43	4.09	13.59	13.01	8.62	4.82	1.31	1.31	3.65	11.69	11.25	9.64	12.57	2.63	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Direction

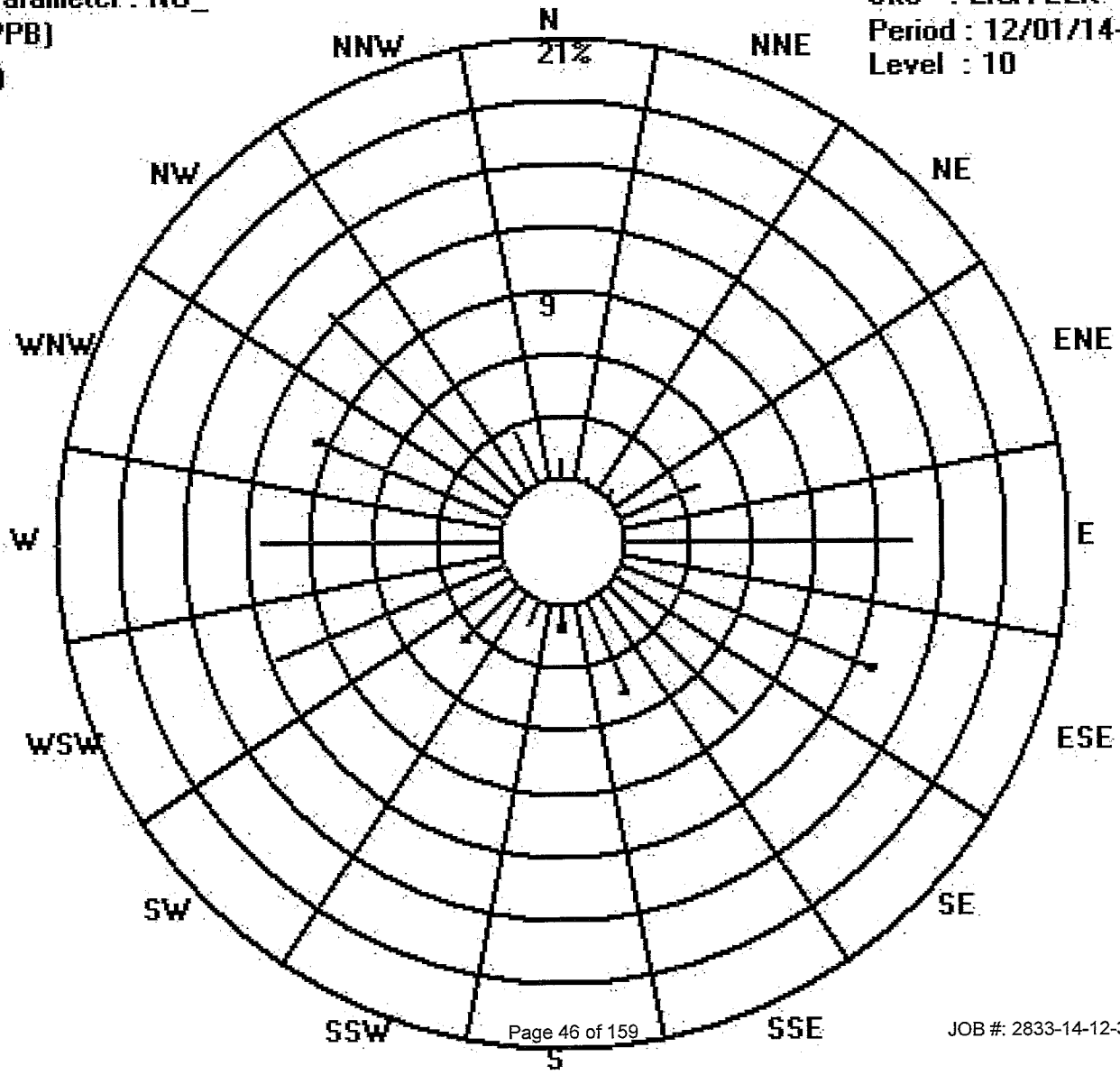
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	7	2	3	28	93	87	59	32	7	9	24	80	77	64	86	18	676
<	110.0						2		1	2		1			2			8
<	210.0																	
>=	210.0																	
	Totals	7	2	3	28	93	89	59	33	9	9	25	80	77	66	86	18	

Calm : .00 %

Total # Operational Hours : 684

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

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C

Oxides of Nitrogen

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 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	24.5	22.9	18.4	23.2	S	25.4	41.5	S	S	62.4	55.7	17.6	15.7	17.5	19.3	22	32.3	29.4	72.7	93.7	81.7	70.5	93.9	***110.4***	***110.4***	***45.3***	24
2	86.9	90.2	72.2	S	75.1	34.7	26.2	24	17.5	12.7	6	5.8	C	C	C	C	C	C	C	21.2	14.4	22.2	32.5	44.5	90.2	36.6	24
3	59.9	50.5	S	38.7	28.8	19.8	19.4	27.8	29	25.9	24	25.8	34.7	42.7	56.9	63.9	58.9	63.5	33.2	31.7	35.1	32.9	37.2	37.3	63.9	38.2	24
4	28.1	S	39.9	18.5	15.3	22.3	24.4	21.7	27.8	41.6	18.7	16.8	15.7	19.2	22.1	20	12.2	12.9	10.7	11.6	15.6	11	9.3	10.9	41.6	19.4	24
5	S	16.8	28.6	31.3	36.5	39.3	32.9	25.4	14.9	17.7	17.8	15.7	15.9	31.2	34.7	43	47.6	48.3	31.9	22.8	22.5	18.6	16.4	S	48.3	27.7	24
6	12.4	9.9	7.4	6.5	7.2	9.3	12.2	8.1	4.8	5.5	3.8	3.2	3.2	3.2	3.5	4.2	4.4	5.2	2.9	2.1	2.1	2.1	S	5.4	12.4	5.6	24
7	3	3.1	3.3	6.2	9.3	6.1	18.8	20.6	21.4	14.4	8.8	8.4	12.3	11.6	4.1	3.3	2.8	3.2	6.6	3.1	3.5	S	4.4	2.8	21.4	7.9	24
8	1.7	1.6	3.7	5.5	4.6	5.4	4.3	3	3	4.8	4.6	5.5	5.9	5.9	8.7	8.6	8.3	8.6	8.6	7.4	S	7.8	7.2	8.6	8.7	5.8	24
9	8.3	9.9	9.9	10.6	11.8	10.9	16.2	19.6	18.3	17.1	16.1	16.3	21.1	19.1	18.9	18.9	21	18.3	21.8	S	16.4	21.8	28.4	26.5	28.4	17.3	24
10	42	45.3	25	27.6	18.5	24.2	38.5	36.4	53	45.3	35.8	29.3	22.7	17.3	14.8	31.5	27.3	17.7	S	16.3	11.2	11.3	9.2	13.2	53	26.7	24
11	7.2	5	4.7	3.1	5.1	6.2	10.8	12	37.6	14.9	5.5	6.6	6.1	7.7	11.6	15.8	25.2	S	37.2	51.8	55.2	36.4	35.9	24	55.2	18.5	24
12	17.1	13.4	9.5	7.6	7.1	9.4	15.5	26.1	28.8	26.2	19.5	40.8	44.1	39.2	37.2	36.6	S	79.3	80.8	68.8	63.7	11.6	8.3	4.8	80.8	30.2	24
13	3.7	4.7	5.6	5.5	5	4.9	4.3	1.8	2.3	4.1	3.3	4.8	4	4.7	6.6	S	3.6	3.3	2.5	4.7	5	6	12.4	17.2	17.2	5.2	24
14	10.2	15.5	7.9	1.9	1.1	1.1	1.4	1.4	2.1	1.3	2.4	2.4	3.1	3.8	S	4.8	4.5	4	6.1	8.7	13.1	12.7	11.8	10.4	15.5	5.7	24
15	9.2	4.2	3.6	5	9.6	9.4	4.4	4	7.6	8.8	10.1	6.1	5.3	S	9.4	7.9	6.9	5.5	5.6	5	4.6	4.4	4.2	3.9	10.1	6.3	24
16	3.7	1.8	1.8	2.1	3.4	2.3	2.8	2.5	3.1	1.9	4.3	5.9	S	4.4	3.9	2.8	3	3.1	3.9	3.8	3.2	2.7	2.5	2	5.9	3.1	24
17	1.6	2.2	2	1.9	2.2	1.9	2.8	3.3	3	3.2	3.3	S	4.3	4.5	4.3	3.6	4.4	4.2	5.1	5.1	4.9	4.1	7.1	4.6	7.1	3.6	24
18	3.6	2.7	3.3	3.7	4.3	2.1	2.9	2.2	4	3.9	S	7.9	8.7	5.6	5.1	6.3	9	9.4	7.4	7	9.5	8.8	7.8	7.7	9.5	5.8	24
19	8.8	14	18	13.3	14	15.4	25.5	12.2	14.8	S	13.5	9.2	9.1	9	8.4	7.6	8.5	8.1	6.8	5.3	6.7	7	4.4	3.7	25.5	10.6	24
20	4.3	4.2	4.3	6.3	7.7	6.6	8.8	17.8	S	43.9	41	27.4	48.1	32.3	21.1	20.9	35.9	17.2	18.5	17.6	10.4	8.6	9.9	7.1	48.1	18.3	24
21	6.1	6.2	6.1	6.1	4.6	5.1	5.5	S	4.3	2.6	2	2.3	1.1	1.3	2.7	8.4	12.8	14.2	4.4	2.1	6.5	3.1	5.3	5	14.2	5.1	24
22	5.6	7.1	4.9	14.3	9.1	14	S	15.6	18.2	24	20.7	15.4	6.8	4.2	7	4.9	5.6	3.1	3.5	4.4	5	6.9	8.1	4.9	24	9.3	24
23	6	5.2	6.1	4.4	11.2	S	9.8	21	25.9	42	41.2	57.5	54.7	42.8	28.3	17.1	15.6	14.5	14.3	16.3	15.9	15.5	15.9	15	57.5	21.6	24
24	16.9	24.9	79.1	25.6	S	9.8	10.3	10.2	10.1	14.4	3.7	3.2	3.6	4.1	2.7	2.4	2.5	2.6	2.9	0.9	0.5	0.2	0.7	3	79.1	10.2	24
25	1	1	0.2	S	2.9	1.4	P	1.6	0.8	1.1	0.9	1.3	1.1	1.6	1.3	0.7	1.6	3.3	3.8	5.2	2.9	7.7	7.9	6.4	7.9	2.5	23
26	9.7	11.7	S	15.1	20.8	23	22.4	17.7	21.8	10.9	14.9	13.4	6	5.4	6.9	10.9	12.7	16.1	11.2	16.6	14.1	14.9	15.3	14.5	23	14.2	24
27	16	S	26.6	26.9	22.9	19.6	14.9	8.3	6	2	2.2	2	1.7	1.3	1.1	1.3	1.2	1.4	1.3	0.8	0.3	1	0.9	1.4	26.9	7.0	24
28	S	3.3	2.6	2.8	3	3.4	3.6	6	5	7.7	15.5	60.5	62.6	56.5	32.8	35.6	36.2	33.8	21.7	14	6.7	5.3	6	S	62.6	19.3	24
29	6.1	3.7	2.7	3.2	3.8	2.5	3.1	8.4	8.3	8.2	4.1	3.6	2.5	2.5	1.3	2	4.8	7	8.3	12	10.2	7.2	S	16.8	16.8	5.8	24
30	15.8	20.1	28.2	40.7	36.6	23.8	35.5	34.2	9.4	7	7.5	6.4	7.9	9.4	8.5	9.7	8	8.8	2.9	4.1	1.5	S	1.8	8	40.7	14.6	24
31	2.4	2.6	2.9	3.8	5.7	6.4	4.7	4	4.9	4.1	2.8	2.1	2.1	3.9	4.6	7.2	7.8	7	6.7	2.7	S	3.6	2.4	1.9	7.8	4.2	24
HOURLY MAX	87	90	79	41	75	39	42	36	53	62	56	61	63	57	57	64	59	79	81	94	82	71	94	110			
HOURLY AVG	14.5	13.9	14.8	12.5	13.4	12.2	14.6	13.7	14.1	16.0	13.7	14.1	14.8	14.2	13.4	14.5	14.6	15.6	15.3	15.6	15.3	12.6	14.0	14.5			

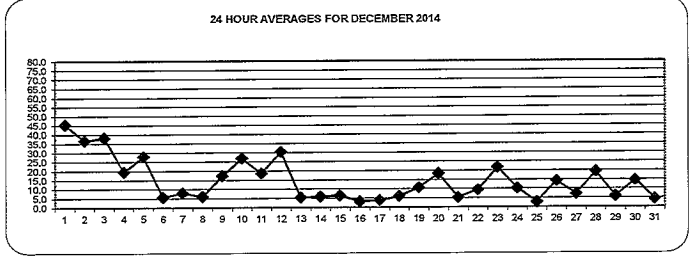
STATUS FLAG CODES

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

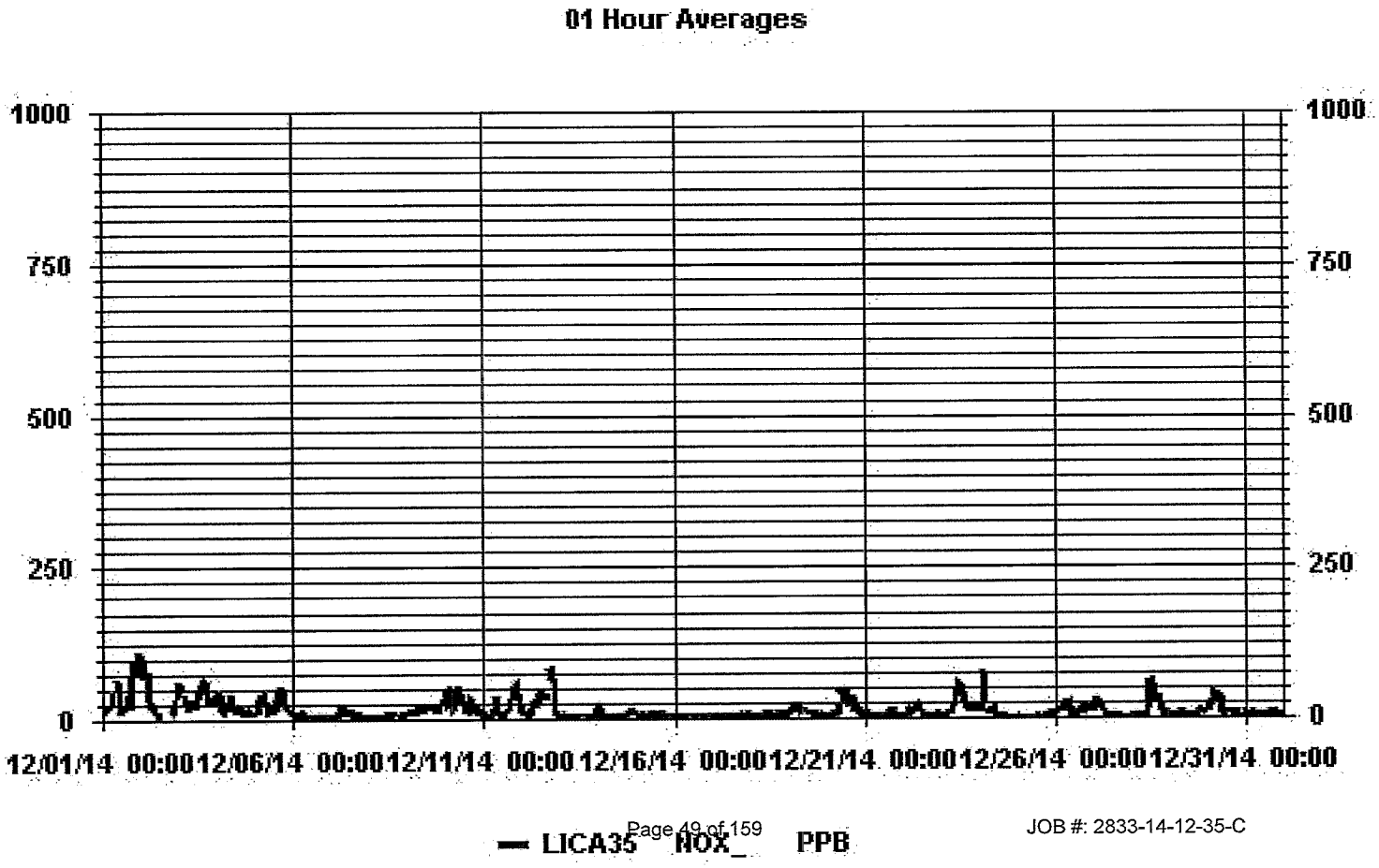
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR NA PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	NA					
NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM 1-HR AVERAGE:	110.4	PPB	@ HOUR(S)	23	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	45.3	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	16.08		MONTHLY AVERAGE:		14.24	PPB



JOB #: 2833-14-12-35-C



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

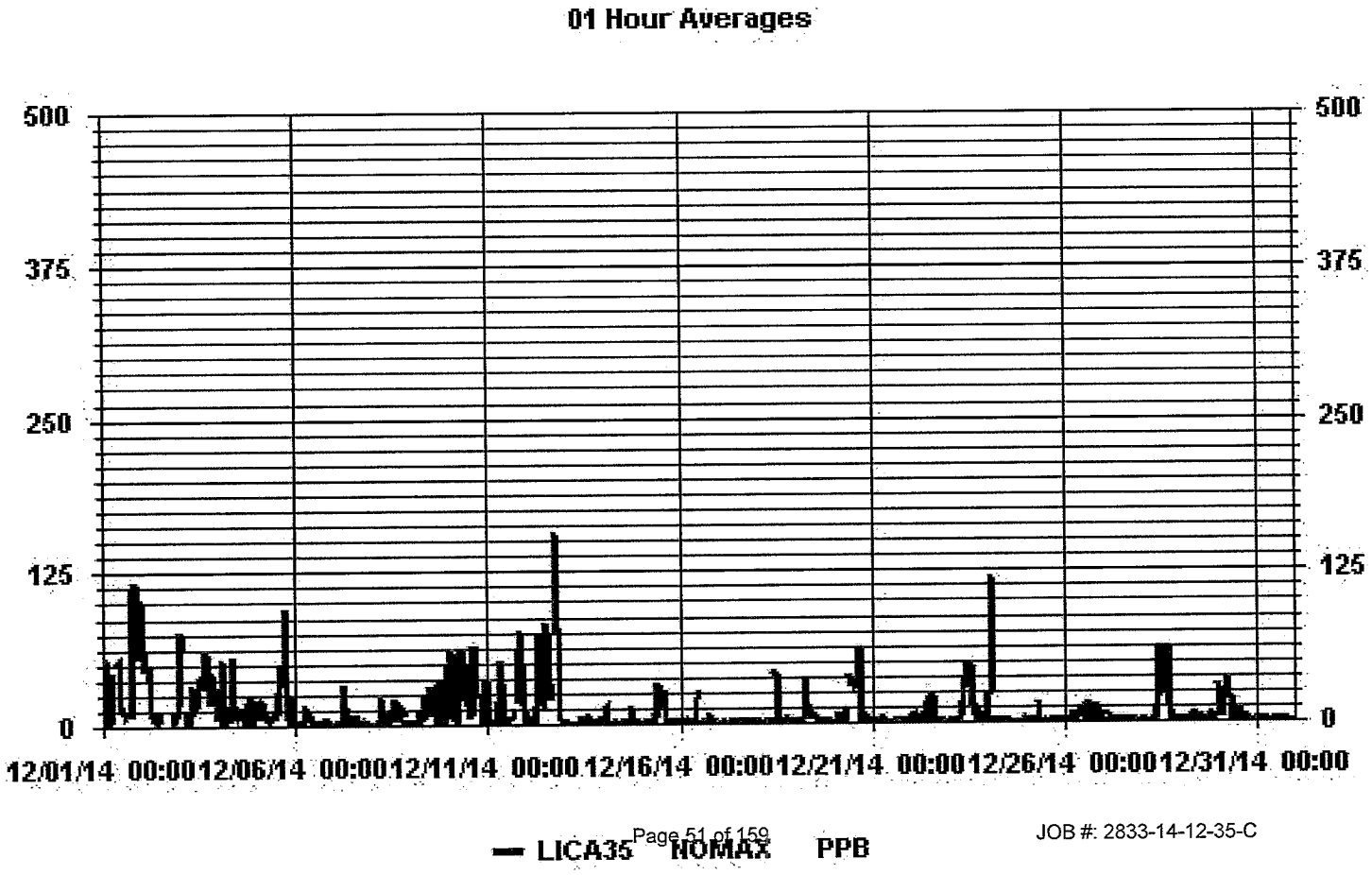
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	58.8	94.5	23.5	27.7	S	32.9	82.2	S	S	89.2	88.6	34	27.6	22.9	21.7	31.7	38.2	42.3	154.3	163.7	160.3	95	106.2	143.8	163.7	*73.3*	24
2	126.2	100.4	80.4	S	83	71.2	36	32.5	24.3	16.6	28.4	10.8	C	C	C	C	C	C	C	C	21.8	37.1	44.7	57	126.2	51.4	24
3	115.7	102.8	S	48.3	36.6	24.8	23	65.3	46.5	33.6	33.6	34.2	59.4	53.6	68.8	73.5	98.1	85.8	54.1	51.2	73.5	52.3	51.8	55.9	115.7	58.4	24
4	38.9	S	95.7	23.6	20	31.1	32.3	30.5	42.9	89.9	21.8	26.5	18.8	24.7	37.1	29.4	18.8	21.7	15.3	42.3	52.2	18.8	33.5	41.2	95.7	35.1	24
5	S	38.5	35	49.2	48	46.8	39.1	33.8	19.1	20.3	20.9	17.9	20.3	47.9	57.9	81.9	86.6	68.5	119.5	26.2	54.9	21.5	20.9	S	119.5	44.3	24
6	18.2	13	9.5	7.1	9.5	14.2	37	15.8	5.9	20.6	11.2	7.7	5.3	4.7	8.3	7.6	6.5	8.9	4.1	15.3	3.6	3	S	10.1	37	10.7	24
7	3.6	5.9	7.7	10.7	23	8.9	58.8	43.5	23.6	23.6	11.9	11.8	15.9	19.4	7.1	4.2	3	3.6	12.4	3.6	7.7	S	6.5	4.2	58.8	13.9	24
8	1.9	1.9	7.7	7.7	5.9	32.9	8.8	4.2	5.3	6.5	6	17.6	17.6	7.7	25.9	25.9	11.3	25.9	25.9	27.1	S	11.9	10.1	11.8	32.9	13.4	24
9	12.4	14.2	13	17	20.6	12.4	32.9	35.8	37.1	42.3	20.6	21.8	49.9	27.6	28.8	21.8	64.6	19.4	58.2	S	19.5	30.1	77.6	47.7	77.6	31.5	24
10	67	88.2	34.2	31.2	27.7	28.9	96.4	47.2	91.1	75.3	55.9	68.3	32.4	19.5	16.6	97	96.4	49.5	S	48.8	14.2	15.4	13.6	64.6	97	51.3	24
11	13.6	6	5.9	3.6	9.5	13	41.2	23.6	84	67	8.3	10.7	9.5	10.1	17.1	28.8	40.6	S	55.2	96.3	110.9	82.8	47.1	31.8	110.9	35.5	24
12	20.6	23	12.5	10.7	11.3	12.5	35.8	106.3	54.6	42.3	31.2	71.7	106.3	102.8	59.4	43.5	S	128	193.8	103.4	103.4	20	9.5	7.7	193.8	57.0	24
13	4.2	5.4	5.9	5.9	5.4	6.5	6.5	2.5	3	9.4	7.1	7.7	6.5	10.7	13	S	5.4	4.2	5.4	8.9	10.7	11.9	17.6	24.2	24.2	8.2	24
14	14.2	35.9	37.1	3	1.9	1.9	1.9	1.9	3.6	1.9	4.2	5.9	7.1	7.1	S	6.5	7.7	25.9	14.8	19.5	23.6	17.6	13.6	12.5	37.1	11.7	24
15	12.5	8.3	7.7	8.9	17.6	16	6.5	6.5	22.4	14.8	60.6	28.8	18.8	S	35	10.4	9.2	8	7.4	6.8	5.6	6.2	8.6	6.8	60.6	14.5	24
16	5.1	2.2	3.3	3.9	9.2	3.3	5.6	5.6	*436.1*	3.9	29.1	45.6	S	6.5	5.9	4.8	4.2	4.8	13.6	5.9	4.8	4.2	4.2	2.5	*436.1*	26.7	24
17	2.5	3.6	3.6	3	4.2	3	4.8	6	4.2	4.8	6.5	S	7.7	7.1	7.1	5.3	11.3	7.1	8.3	10.1	5.9	11.3	13	8.9	13	6.5	24
18	10.7	10.1	5.3	5.3	7.1	3	8.9	3.6	5.9	5.3	S	50.6	75.8	7.1	7.7	7.7	14.2	11.9	13.6	10.1	11.3	11.8	11.9	13.1	75.8	13.6	24
19	11.9	18.8	25.3	17.6	17.1	20.7	58.8	14.8	31.2	S	20	10.7	11.8	11.3	9.5	9.5	11.3	12.4	9.5	6.5	10.6	11.8	6.5	5.4	58.8	15.8	24
20	4.8	6	6	23	13	11.8	15.9	30	S	63.5	52.9	45.3	52.4	47.1	50	50.6	86.9	24.8	26.5	26.5	13	11.8	12.5	8.9	86.9	29.7	24
21	7.7	6.6	7.7	7.7	5.4	6.6	13	S	6	3.6	2.4	3	1.3	2.4	6	12.4	15.9	15.9	17.1	5.4	9.5	7.1	13	11.2	17.1	8.1	24
22	10.7	17.1	8.3	25.3	16.5	17.7	S	21.2	24.2	29.4	31.1	22.9	11.9	4.8	48.8	8.3	9.5	8.9	8.3	8.3	13	12.4	10.7	10.7	48.8	16.5	24
23	10.1	7.1	10.1	6	18.2	S	18.2	31.2	40.6	53.4	60.5	72.8	68.7	68.7	35.3	23.5	39.4	17.1	15.9	20.6	18.2	23.5	31.8	18.8	72.8	30.9	24
24	42.9	48.8	147.9	51.2	S	16.5	17.1	18.2	13.6	18.8	6	4.2	4.2	6	4.2	3	3	3.6	4.2	2.4	0.7	0.7	1.8	11.3	147.9	18.7	24
25	3	3.5	1.3	S	6	1.9	P	14.8	1.3	1.3	1.3	3.6	3	5.4	2.5	1.3	2.5	4.8	6	8.3	5.4	11.9	11.9	8.3	14.8	5.0	23
26	11.3	15.4	S	16	30	35.3	32.4	20.6	30.6	18.3	26.5	24.2	8.3	10.6	12.4	27.7	18.3	20.6	24.7	25.9	40.7	17.1	31.2	22.9	40.7	22.7	24
27	21.8	S	31.2	30	27.1	22.9	16.5	11.8	7.7	3	3	2.4	1.9	1.9	1.3	2.4	2.4	2.4	1.9	1.3	0.7	1.3	1.3	1.9	31.2	8.6	24
28	S	5.4	3	3.6	4.8	4.2	4.2	8.3	8.3	15.3	32.9	79.3	83.4	84.6	36.4	70.5	89.3	42.3	35.9	21.8	14.8	13	13	S	89.3	30.7	24
29	7.7	4.8	3	4.7	4.8	3	4.8	14.8	17.7	18.3	4.8	4.2	4.2	7.2	2.4	5.4	14.8	10.6	15.9	19.4	17.1	13	S	51.7	51.7	11.1	24
30	27.6	24.7	36.5	50	43.5	55.2	48.2	44.7	11.8	9.5	15.4	8.3	11.3	17.1	13	15.9	18.3	27.7	4.8	7.7	3	S	3	14.8	55.2	22.3	24
31	7.1	8.9	8.3	7.1	7.1	7.7	10.7	5.4	6.5	6.5	3.6	4.2	5.4	6.5	9.5	14.2	22.4	9.5	24.7	6	S	6.6	3	2.5	24.7	8.4	24
HOURLY MAX	126	103	148	51	83	71	96	106	436	90	89	79	106	103	69	97	98	128	194	164	160	95	106	144			
HOURLY AVG	23.9	24.9	23.3	17.6	18.4	18.9	27.5	24.2	38.2	26.9	23.5	25.2	25.7	22.5	22.4	25.0	29.3	24.7	32.8	27.6	28.6	20.0	21.7	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:	700					
MAXIMUM INSTANTANEOUS VALUE:	436.1	PPB	@ HOUR(S)	8	ON DAY(S)	16
					VAR-VARIOUS	
IZS CALIBRATION TIME:	35	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	31.52					



JOB #: 2833-14-12-35-C

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

December 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	.87	.29	.29	4.09	13.15	12.57	8.62	4.67	1.02	1.16	3.50	11.25	10.52	8.77	11.98	2.63	95.46
<	110.0	.14	.00	.14	.00	.43	.43	.00	.00	.29	.14	.14	.43	.73	.87	.58	.00	4.38
<	210.0	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.14
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.02	.29	.43	4.09	13.59	13.01	8.62	4.82	1.31	1.31	3.65	11.69	11.25	9.64	12.57	2.63	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Direction

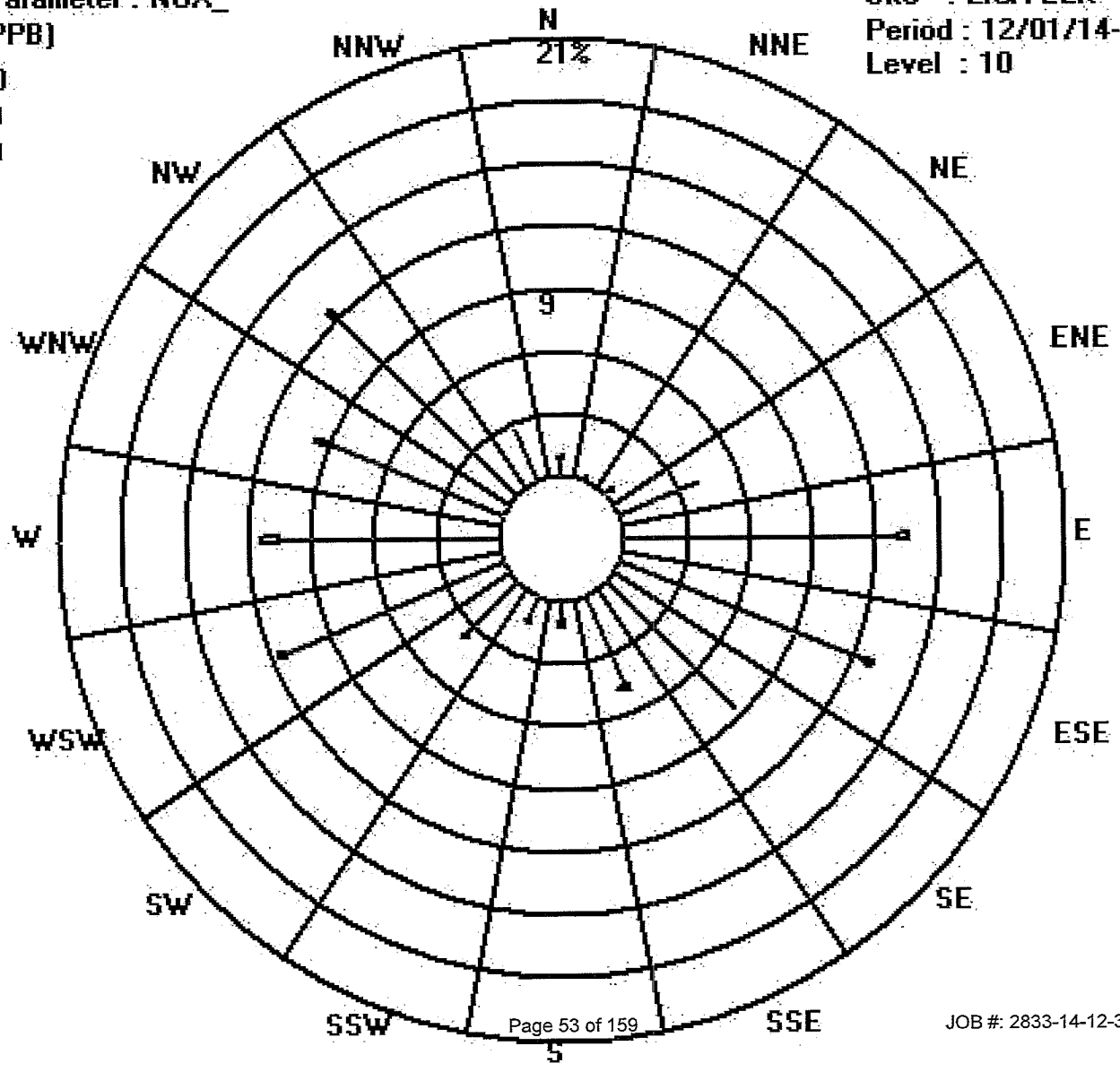
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	6	2	2	28	90	86	59	32	7	8	24	77	72	60	82	18	653
<	110.0	1		1		3	3			2	1	1	3	5	6	4		30
<	210.0								1									1
>=	210.0																	
	Totals	7	2	3	28	93	89	59	33	9	9	25	80	77	66	86	18	

Calm : .00 %

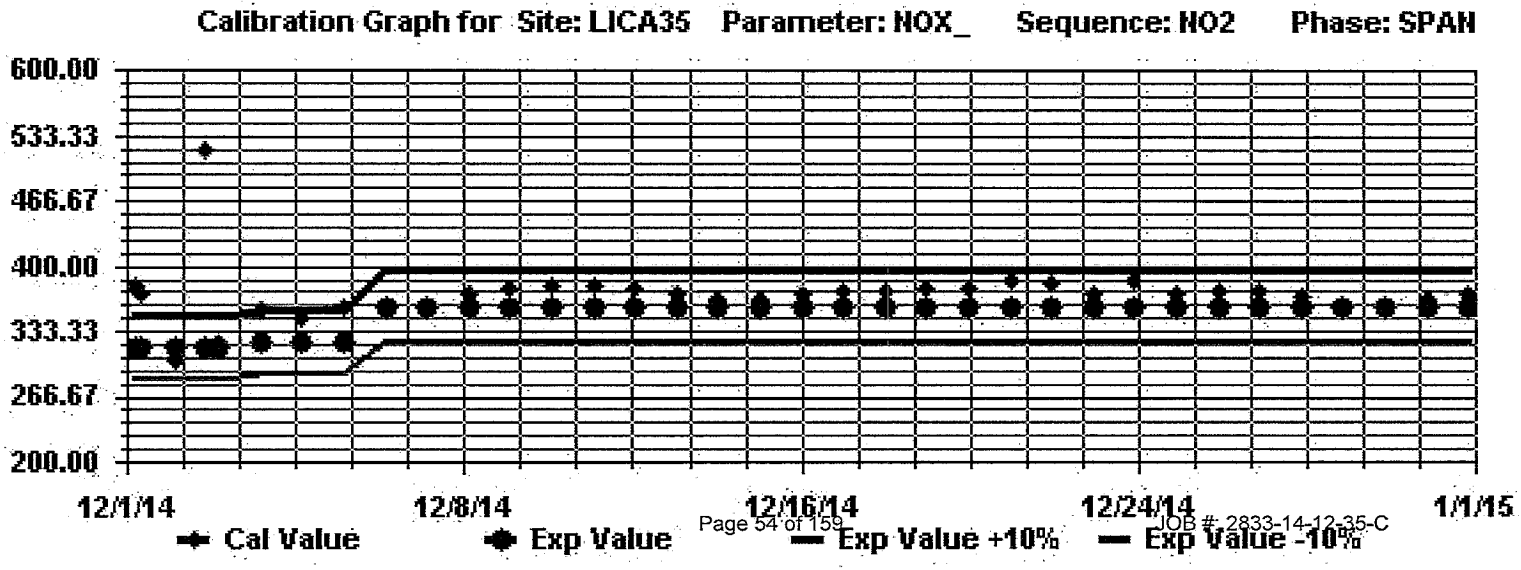
Total # Operational Hours : 684

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

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN
600.00
533.33
466.67
400.00
333.33
266.67
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

Lakeland Industry & Community Association - St. Lina Site

DECEMBER 2014

OZONE (O3) hourly averages in ppb

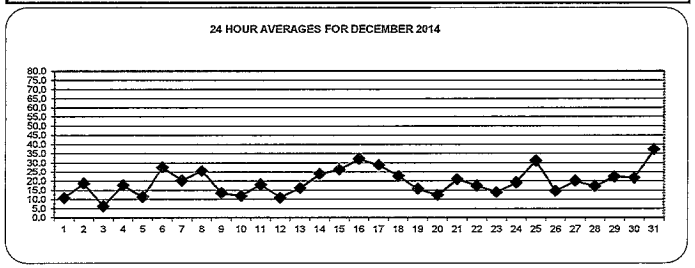
MST

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	16	17	17	11	S	11	5	0	3	8	13	27	28	27	24	20	9	10	0	0	1	0	0	0	28	10.7	24
2	0	0	0	S	1	5	10	13	21	29	36	36	37	32	36	26	15	21	24	27	28	19	9	2	37	18.6	24
3	1	1	S	2	6	14	13	9	9	C	C	C	C	C	C	C	1	1	11	10	10	7	3	3	14	6.3	24
4	8	S	9	17	19	12	12	12	10	10	19	21	21	19	16	17	22	22	24	23	21	24	26	25	26	17.8	24
5	S	19	6	3	2	2	4	10	20	19	20	24	24	17	14	8	2	2	6	9	9	12	15	S	24	11.2	24
6	19	20	23	24	23	22	23	27	29	29	32	32	32	31	31	30	29	28	30	31	30	30	S	27	32	27.5	24
7	27	26	26	23	21	24	16	11	9	17	21	21	19	20	23	21	19	18	15	19	19	S	22	26	27	20.1	24
8	27	26	24	23	25	26	27	29	28	27	28	28	28	28	27	25	25	26	25	23	S	21	21	19	29	25.5	24
9	20	18	18	17	16	15	12	9	10	14	16	17	17	16	16	13	10	12	10	S	13	8	5	6	20	13.4	24
10	1	3	6	4	15	8	2	1	2	6	15	18	18	19	21	12	12	16	S	18	19	19	19	17	21	11.8	24
11	21	23	24	25	23	22	17	16	6	22	28	29	32	34	31	26	15	S	6	1	1	2	1	9	34	18.0	24
12	14	20	23	25	24	20	13	9	5	8	11	8	8	9	7	3	S	1	1	1	2	10	12	17	25	10.9	24
13	18	15	13	12	13	14	16	20	18	16	16	17	17	17	17	S	20	20	22	20	19	17	8	6	22	16.1	24
14	12	9	22	27	27	26	27	27	27	27	27	29	29	27	S	29	29	29	25	23	16	16	16	18	29	23.7	24
15	19	28	29	27	20	22	28	29	25	24	25	27	28	S	27	26	26	28	27	27	28	28	28	27	29	26.2	24
16	27	31	31	31	30	31	31	31	31	32	33	32	S	35	34	35	34	34	33	32	32	32	33	33	35	32.1	24
17	33	32	33	32	34	34	32	31	30	30	30	S	29	29	28	27	26	26	25	24	24	24	23	24	34	28.7	24
18	24	25	25	23	23	26	25	26	24	24	S	24	22	23	23	22	19	19	21	21	19	20	20	20	26	22.5	24
19	18	13	7	11	10	9	3	11	11	S	16	19	20	20	19	18	17	18	20	21	20	19	21	21	21	15.7	24
20	19	19	19	17	15	15	13	5	S	4	8	11	8	11	13	10	3	7	5	8	16	18	16	21	21	12.2	24
21	22	19	19	20	22	22	21	S	24	24	23	24	26	25	24	19	14	12	22	23	18	21	18	19	26	20.9	24
22	18	17	19	10	12	6	S	5	4	5	9	13	19	21	21	26	25	27	25	25	26	23	20	23	27	17.3	24
23	20	20	21	23	18	S	21	9	7	7	10	8	8	9	11	16	16	15	15	13	13	13	13	12	23	13.8	24
24	10	3	1	7	S	19	18	20	21	18	28	25	24	22	22	21	20	17	16	22	26	29	26	22	29	19.0	24
25	29	30	32	S	33	34	P	34	34	34	34	34	34	34	34	34	32	30	29	28	30	24	23	24	34	31.1	23
26	21	18	S	13	9	8	7	9	8	19	18	21	25	25	23	19	16	12	15	10	12	8	7	8	25	14.4	24
27	6	S	1	1	2	5	8	14	16	21	22	23	25	27	27	26	26	28	31	32	31	31	30	32	20.0	24	
28	S	28	27	26	25	24	23	20	21	21	18	9	10	11	12	8	3	2	12	14	21	21	20	S	28	17.1	24
29	22	25	26	24	23	26	25	19	18	20	23	24	25	26	27	26	24	22	21	17	16	20	S	11	27	22.2	24
30	11	6	1	0	1	3	1	5	22	27	29	32	31	30	32	30	29	30	35	34	37	S	38	32	38	21.6	24
31	37	38	37	35	34	33	35	36	35	38	40	*41*	*41*	39	39	36	34	35	35	39	S	39	39	39	*41*	*37.1*	24
HOURLY MAX	37	38	37	35	34	34	35	36	35	38	40	41	41	39	39	36	34	35	35	39	37	39	39	39			
HOURLY AVG	17.9	18.9	18.6	17.7	18.1	17.9	16.8	16.6	17.6	20.0	22.3	23.2	23.6	23.6	23.4	21.7	19.1	18.9	19.4	19.8	19.2	19.1	18.4	18.7			

STATUS FLAG CODES

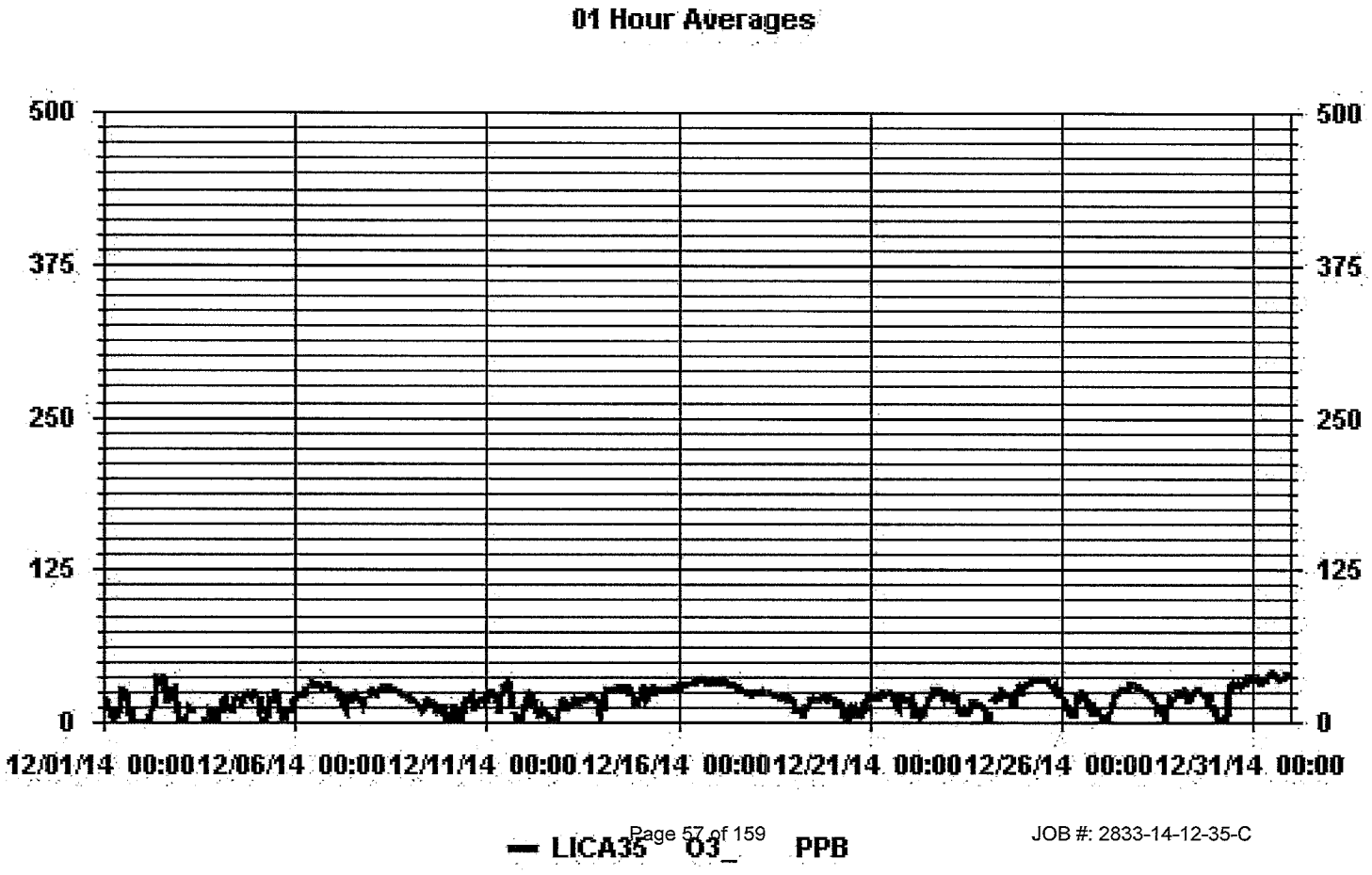
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	693					
MAXIMUM 1-HR AVERAGE:	41	PPB	@ HOUR(S)	11, 12	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	37.1	PPB			ON DAY(S)	31
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	9.53		MONTHLY AVERAGE:		19.60	PPB



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

OZONE MAX instantaneous maximum in ppb

MST

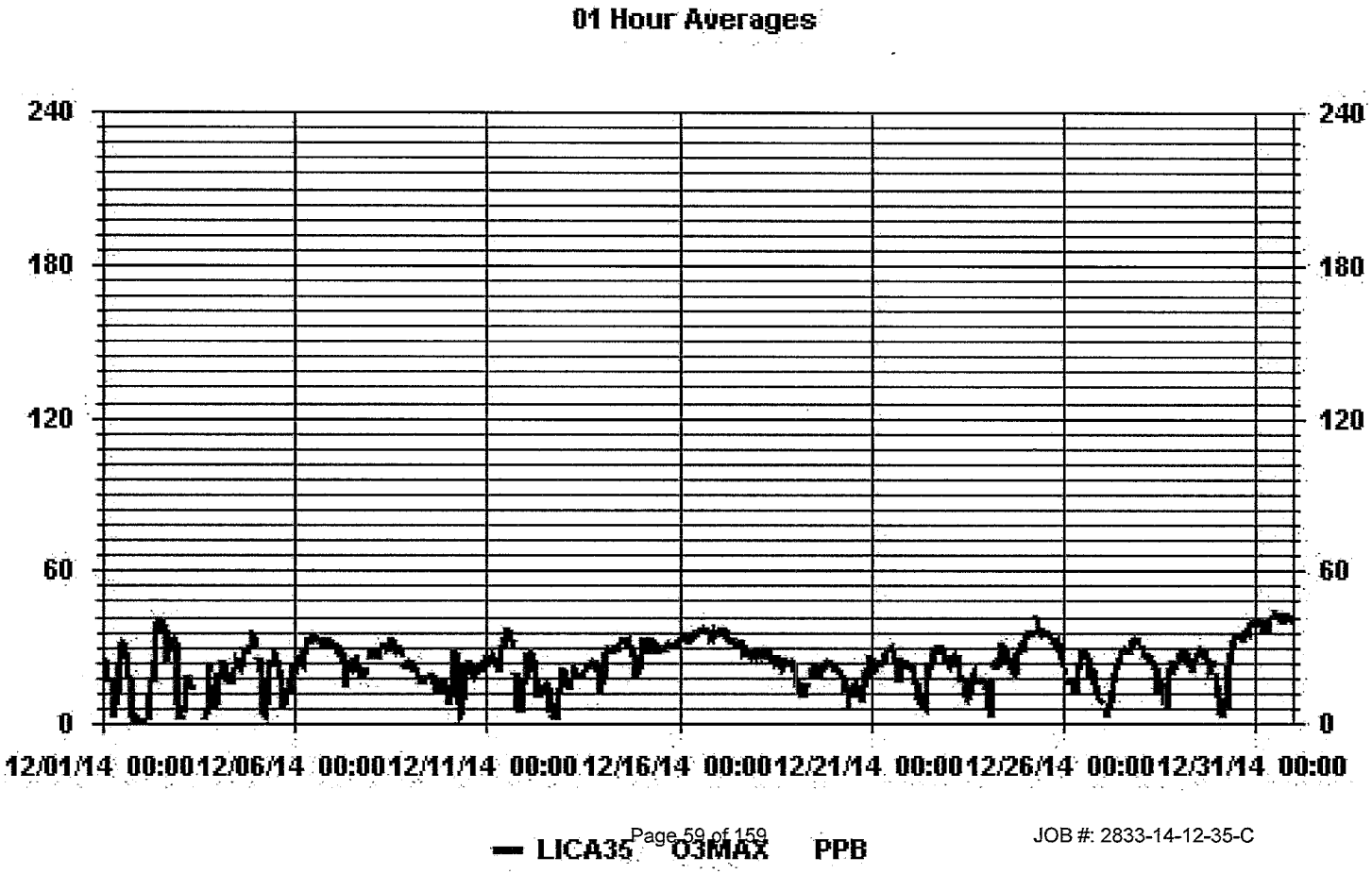
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	23	24	23	17	S	17	17	2	7	11	24	30	32	31	26	26	18	18	3	2	4	2	1	1	32	15.6	24
2	1	1	1	S	2	11	17	17	25	36	39	40	40	36	38	37	24	29	29	32	33	32	22	8	40	23.9	24
3	2	3	S	5	13	19	18	14	14	C	C	C	C	C	C	C	3	5	20	23	S	14	6	7	23	11.1	24
4	19	S	18	23	23	17	17	18	15	20	22	25	24	23	22	25	28	28	28	30	31	36	34	31	36	24.2	24
5	S	25	21	8	5	4	7	17	25	22	24	27	26	25	22	18	6	7	11	13	13	17	22	S	27	16.6	24
6	21	22	25	25	24	28	28	32	32	32	34	34	34	33	33	32	31	31	32	32	32	32	S	31	34	30.0	24
7	31	30	30	28	27	27	25	19	14	23	24	23	22	24	25	23	21	19	19	20	21	S	26	28	31	23.9	24
8	28	28	27	25	28	29	30	30	30	29	30	30	32	32	29	28	29	29	29	27	S	23	24	23	32	28.2	24
9	23	22	23	22	21	18	18	16	16	18	18	18	19	19	19	16	13	13	15	S	16	14	11	13	23	17.4	24
10	7	10	15	11	29	18	8	4	5	9	22	23	21	22	23	21	19	20	S	21	21	23	23	22	29	17.3	24
11	25	25	26	27	26	25	23	21	21	29	30	33	35	37	35	33	30	S	19	6	6	5	5	16	37	23.4	24
12	17	26	26	27	27	25	21	19	11	12	15	12	14	15	14	5	S	3	2	2	8	12	14	20	27	15.1	24
13	20	18	15	14	14	17	21	21	20	18	18	19	19	20	22	S	22	22	24	23	23	21	17	12	24	19.1	24
14	16	17	27	29	28	28	28	29	29	29	30	31	32	32	S	32	33	31	30	27	26	18	19	21	33	27.0	24
15	27	34	33	32	27	30	32	32	30	28	28	30	29	S	30	29	29	31	30	30	30	30	30	30	34	30.0	24
16	32	33	34	33	34	32	32	33	33	34	35	35	S	36	36	37	36	36	36	34	35	34	36	35	37	34.4	24
17	35	36	36	36	36	36	34	33	32	32	32	S	31	31	31	31	28	29	27	27	26	27	27	26	36	31.3	24
18	27	28	27	26	27	28	28	28	26	25	S	26	24	25	25	24	22	23	24	24	23	23	24	23	28	25.2	24
19	21	19	15	13	14	13	10	15	15	S	19	21	22	24	20	20	19	20	22	23	24	23	23	23	24	19.0	24
20	21	21	22	20	20	18	18	13	S	6	14	14	10	15	16	15	10	13	8	14	20	21	18	25	25	16.2	24
21	25	24	22	23	23	23	24	S	25	27	28	29	30	29	26	25	19	16	26	25	21	23	23	21	30	24.2	24
22	23	21	21	17	16	10	S	8	8	7	12	17	22	23	24	30	29	29	28	28	30	28	23	27	30	20.9	24
23	24	23	25	26	23	S	26	20	17	17	18	11	10	12	16	19	20	17	16	16	16	17	17	15	26	18.3	24
24	14	7	2	16	S	23	24	23	24	30	30	29	27	26	24	23	22	20	19	27	29	31	30	28	31	23.0	24
25	34	34	36	S	35	35	P	41	36	35	36	36	36	35	35	35	34	33	32	31	32	29	26	26	41	33.7	23
26	23	20	S	16	16	18	13	13	13	22	23	27	27	27	27	26	19	18	22	18	16	13	10	10	27	19.0	24
27	9	S	5	2	5	8	13	16	20	22	23	25	27	28	29	28	28	28	30	32	33	32	32	32	33	22.0	24
28	S	30	28	27	26	26	24	24	23	23	22	12	12	15	14	14	8	5	20	20	23	23	22	S	30	20.0	24
29	25	27	28	27	26	27	26	23	20	23	24	26	27	29	28	28	28	26	24	21	22	24	S	19	29	25.1	24
30	16	11	4	2	6	7	5	23	27	29	32	34	34	34	34	34	32	36	37	36	39	S	39	39	39	25.7	24
31	39	40	40	39	36	36	39	39	38	41	42	*43*	*43*	42	42	42	41	39	42	42	S	41	41	40	*43*	*40.3*	24
HOURLY MAX	39	40	40	39	36	36	39	41	38	41	42	43	43	42	42	42	41	39	42	42	39	41	41	40			
HOURLY AVG	21.7	22.7	22.6	21.2	22.0	21.8	21.6	21.4	21.7	23.8	25.8	26.2	26.2	26.9	26.4	26.1	23.4	22.5	23.5	23.5	23.3	23.0	22.2	22.5			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM INSTANTANEOUS VALUE:	43	PPB	@ HOUR(S)	11, 12	ON DAY(S)	31
				VAR-VARIOUS		
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	8.98					



JOB #: 2833-14-12-35-C

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

December 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	1.02	.29	.43	3.93	13.26	12.82	8.60	4.81	1.31	1.31	3.64	11.95	11.66	9.76	12.39	2.76	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.02	.29	.43	3.93	13.26	12.82	8.60	4.81	1.31	1.31	3.64	11.95	11.66	9.76	12.39	2.76	

Calm : .00 %

Total # Operational Hours : 686

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	7	2	3	27	91	88	59	33	9	9	25	82	80	67	85	19	686
<	110																	
<	210																	
>=	210																	
	Totals	7	2	3	27	91	88	59	33	9	9	25	82	80	67	85	19	

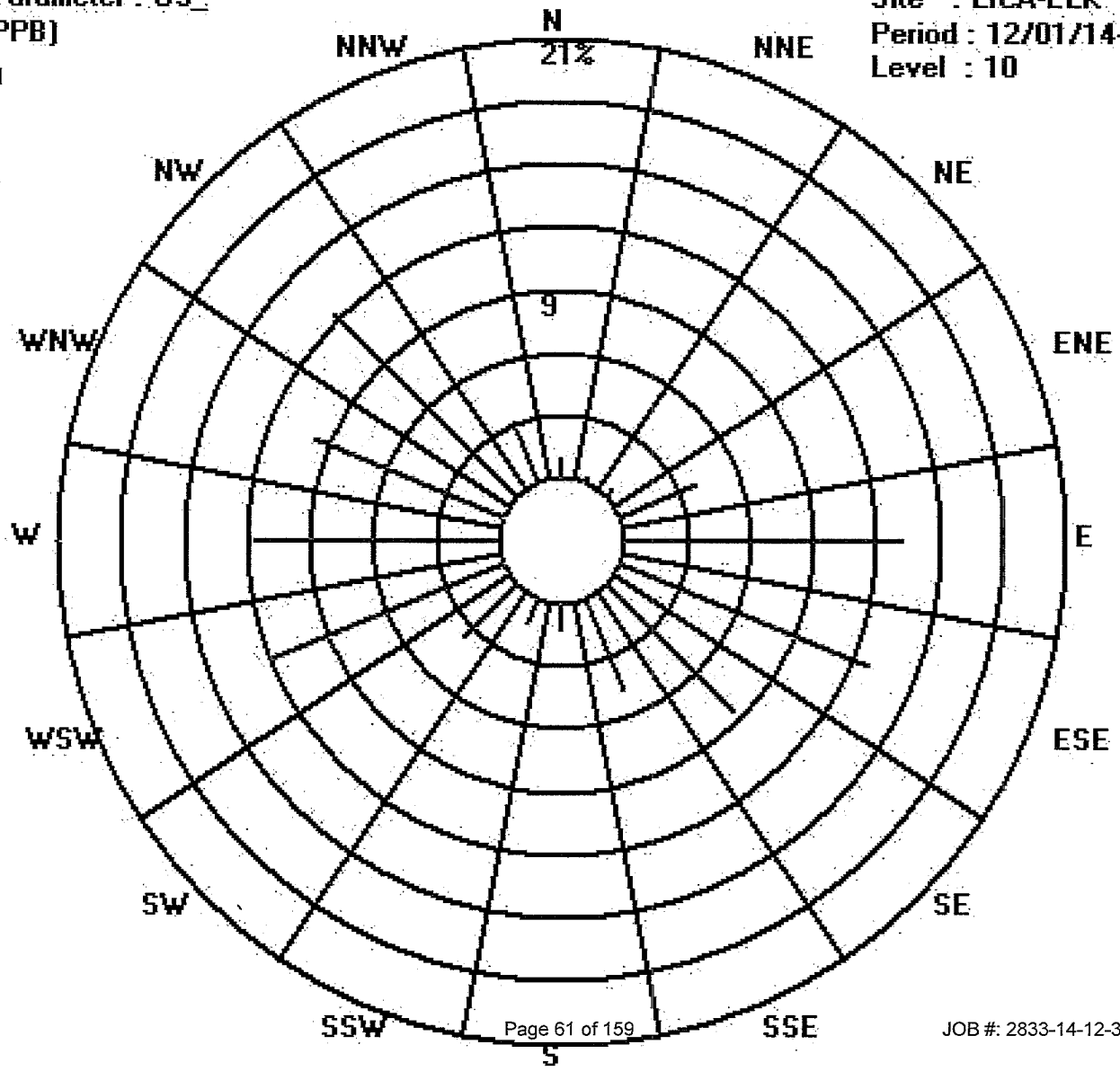
Calm : .00 %

Total # Operational Hours : 686

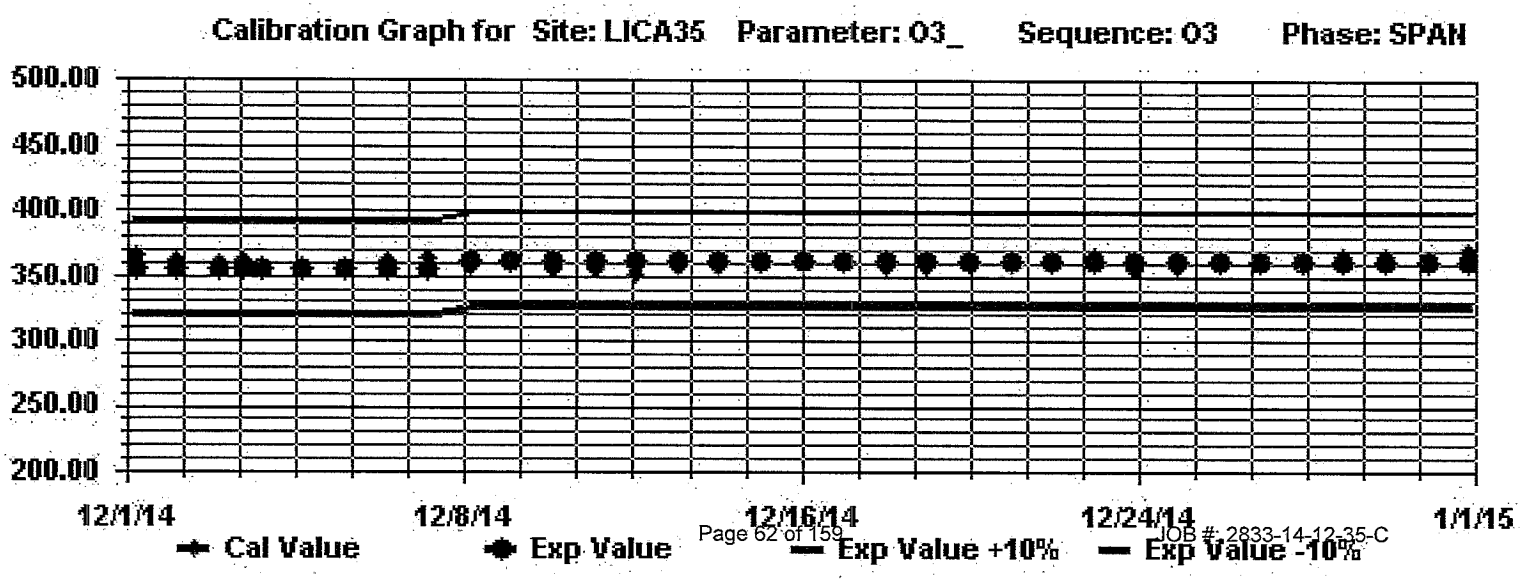
Logger : 35 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA-ELK
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons (55i)

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

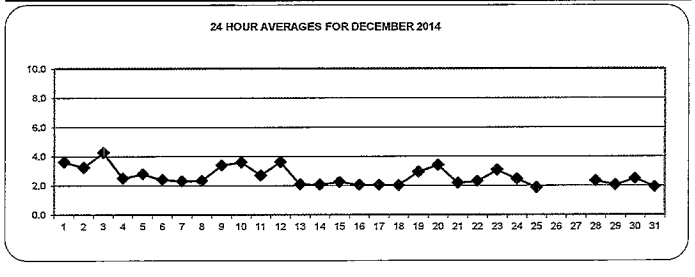
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.8	2.9	3.0	3.3	S	3.1	3.2	3.6	4.4	4.6	4.5	2.4	2.3	2.3	2.4	2.2	2.4	2.6	3.8	4.5	4.1	4.7	5.8	*7.9*	*7.9*	3.6	24
2	6.2	7.6	6.7	S	6.9	3.7	2.5	2.3	2.1	2.3	2.0	2.0	2.0	2.2	2.0	2.3	2.7	2.2	2.1	2.1	2.1	2.6	3.5	4.1	7.6	3.2	24
3	5.0	6.2	S	5.2	4.1	3.5	3.9	4.2	4.7	C	C	C	C	C	5.2	6.0	5.1	4.3	2.8	3.1	3.3	2.9	3.3	3.5	6.2	*4.2*	24
4	2.9	S	3.6	2.4	2.4	2.6	2.7	2.4	2.5	2.8	2.3	2.5	2.3	2.4	2.6	2.5	2.2	2.4	2.2	2.1	2.3	2.4	2.2	2.3	3.6	2.5	24
5	S	2.5	2.9	2.7	2.9	2.8	2.5	2.3	2.2	2.2	2.1	2.1	2.1	2.6	3.4	3.0	3.5	3.6	3.1	3.3	3.1	3.1	3.3	S	3.6	2.8	24
6	2.8	2.8	2.7	2.6	2.7	2.8	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.3	S	2.2	2.8	2.4	24
7	2.2	2.2	2.1	2.4	2.5	2.3	2.9	2.9	2.7	2.5	2.3	2.3	2.4	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.1	S	2.1	2.0	2.9	2.3	24
8	2.0	2.0	2.1	2.3	2.3	2.3	2.3	2.1	2.1	2.3	2.3	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.5	S	2.5	2.6	2.8	2.8	2.3	24
9	2.6	2.8	2.9	3.1	3.2	3.5	3.4	3.5	3.5	3.7	3.4	3.4	3.7	3.4	3.5	3.6	3.7	3.5	3.7	S	3.2	3.4	3.3	3.5	3.7	3.4	24
10	4.6	5.0	3.2	3.4	2.8	3.1	3.4	4.1	4.7	5.3	4.4	3.6	3.7	3.4	3.1	3.5	3.4	3.1	S	2.8	3.0	2.9	2.9	2.9	5.3	3.6	24
11	2.6	2.4	2.3	2.2	2.3	2.3	2.4	2.6	2.8	2.5	1.9	2.0	2.0	2.0	2.1	2.1	2.4	S	2.8	4.2	3.9	3.7	4.4	4.1	4.4	2.7	24
12	3.7	3.2	2.8	2.7	2.8	3.0	3.3	3.1	3.4	3.5	3.3	4.6	5.1	3.0	2.9	4.1	S	5.6	5.1	4.6	5.9	2.6	2.4	2.2	5.9	3.6	24
13	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	S	1.9	2.0	1.9	2.0	2.0	2.3	2.4	2.6	2.6	2.1	24
14	2.2	2.6	2.2	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.0	2.0	S	2.0	1.9	2.0	2.0	2.2	2.3	2.2	2.2	2.1	2.6	2.1	24
15	2.1	2.0	2.0	2.2	2.3	2.2	2.1	2.1	2.3	2.4	2.6	2.4	2.3	S	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	2.2	24
16	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.2	2.0	24
17	1.9	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	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.0	24
18	2.1	2.0	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.4	2.4	2.0	24
19	2.8	3.1	3.8	2.8	2.8	3.0	3.6	3.2	2.8	S	3.2	3.0	3.1	3.1	3.1	2.9	2.9	2.8	2.8	2.4	2.5	2.5	2.5	2.5	3.8	2.9	24
20	2.6	2.6	2.5	2.6	2.7	2.7	2.5	3.0	S	4.4	5.8	4.4	5.3	4.5	3.6	3.5	3.6	3.5	3.6	3.2	2.9	2.8	3.1	2.8	5.8	3.4	24
21	2.6	2.6	2.5	2.5	2.3	2.3	2.2	S	2.1	2.0	2.0	2.0	1.9	1.9	1.9	2.2	S	2.2	2.1	2.0	2.2	2.0	2.1	2.1	2.6	2.2	24
22	2.1	2.4	2.1	2.9	2.6	2.6	S	2.6	2.8	2.8	2.8	2.5	2.2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.1	2.9	2.3	24
23	2.1	2.0	2.1	2.0	2.2	S	2.0	2.6	2.8	3.4	3.3	4.7	4.2	4.1	4.0	3.1	2.8	2.9	3.0	3.3	3.4	3.3	3.4	3.5	4.7	3.1	24
24	3.9	4.8	6.0	3.8	S	2.2	2.2	2.1	2.0	2.3	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	6.0	2.4	24
25	1.9	1.9	1.9	S	1.8	1.8	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.9	1.9	6
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.7	2.5	2.2	2.1	2.1	S	2.7	2.3	6
29	2.1	2.0	1.9	2.0	2.0	1.9	2.0	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.1	S	2.4	2.0	24
30	2.5	2.7	3.1	3.8	4.2	3.2	3.7	3.6	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	1.9	2.0	1.9	S	1.8	1.9	4.2	2.5	24
31	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0	1.9	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	1.8	S	1.8	1.8	1.8	2.1	1.9	24
HOURLY MAX	6	8	7	5	7	4	4	4	5	5	6	5	5	5	5	6	6	5	6	5	5	6	5	6	8		
HOURLY AVG	2.8	2.9	2.8	2.6	2.7	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.6	2.6	2.5	2.6	2.5	2.6	2.7	2.6	2.7	2.8			

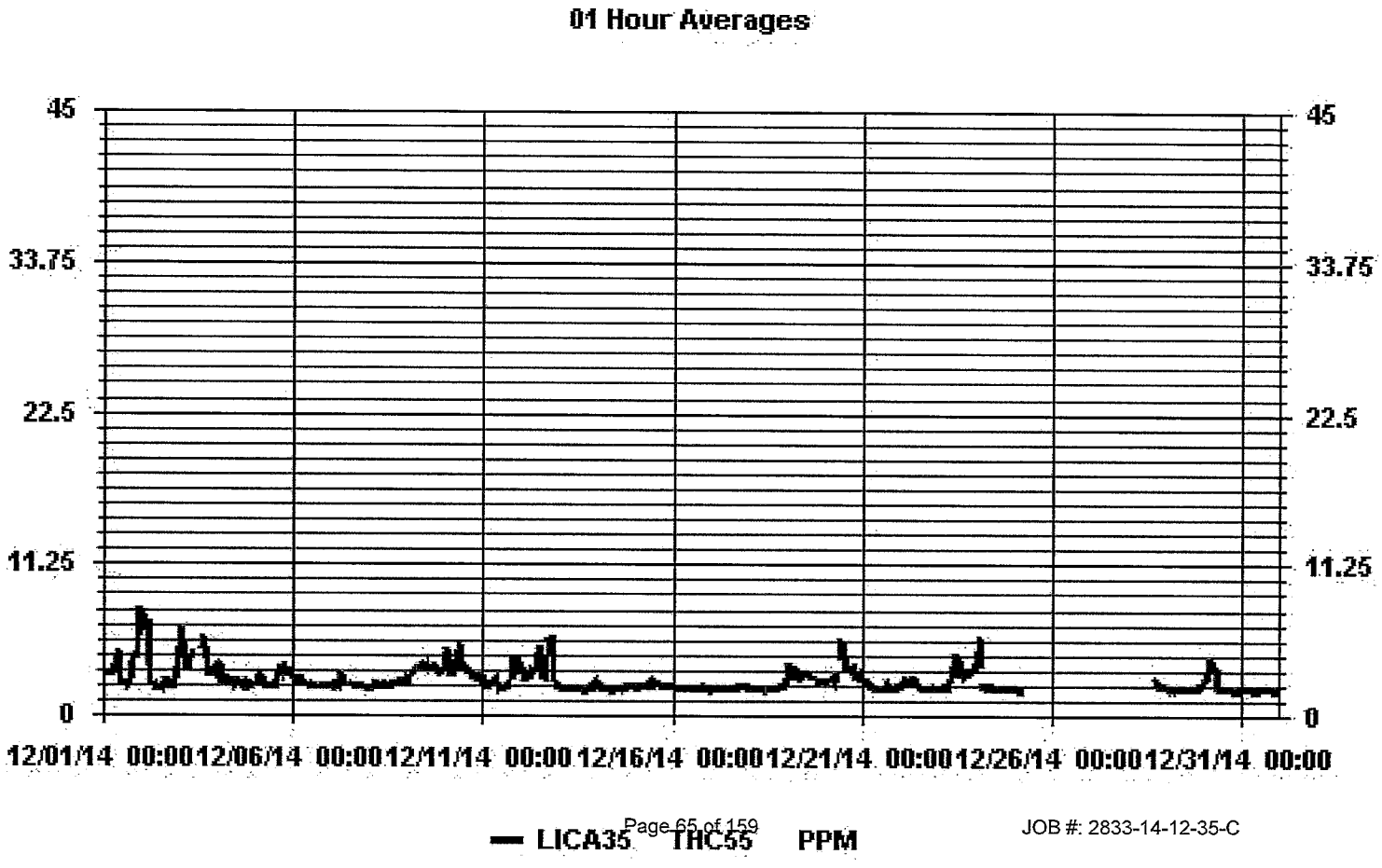
STATUS FLAG CODES

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:	624						
MAXIMUM 1-HR AVERAGE:	7.9	PPM	@ HOUR(S)	23	ON DAY(S)		1
MAXIMUM 24-HR AVERAGE:	4.2	PPM			ON DAY(S)		3
					VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			660	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			88.7	%
STANDARD DEVIATION:	0.90		MONTHLY AVERAGE:			2.63	PPM



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 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	3.16	3.25	3.44	4.16	S	3.25	3.84	4.14	5.16	5.11	5.15	3.76	2.57	2.48	2.59	2.31	2.63	2.98	4.76	5.41	5.03	5.78	8.32	10.14	10.14	4.3	24
2	7.11	8.26	7.28	S	7.49	6.53	2.75	2.4	2.28	2.54	2.33	2.32	2.19	2.41	2.23	3.16	3.96	2.5	2.26	2.23	2.25	3.07	6.88	4.82	8.26	3.9	24
3	*12.73*	*12.73*	S	7.07	4.64	3.98	5.55	5.07	7.67	C	C	C	C	C	C	6.85	5.6	4.95	3.66	4.76	5.39	3.42	3.65	4.07	*12.73*	*6.0*	24
4	3.53	S	5.56	2.92	2.62	2.89	3.36	2.86	3.01	4.75	2.69	2.75	2.71	2.71	3.69	2.95	2.64	2.65	2.32	2.27	2.66	2.86	2.46	2.62	5.56	3.0	24
5	S	2.99	3.54	3.2	3.91	3.29	2.93	2.71	2.74	2.4	2.24	2.27	2.23	3.12	7.03	3.71	4.03	4.01	3.54	4.11	3.89	4.21	4.6	S	7.03	3.5	24
6	3.17	3.07	2.84	2.9	3.01	3.42	2.8	2.66	2.54	2.57	2.6	2.44	2.33	2.26	2.26	2.32	2.23	2.34	2.3	2.21	2.38	3.73	S	2.38	3.73	2.6	24
7	2.35	2.33	2.44	2.62	3.05	2.44	3.98	4.01	2.94	2.86	2.39	2.46	2.62	2.89	2.21	2.22	2.29	2.27	2.35	2.2	2.25	S	2.21	2.17	4.01	2.6	24
8	2.03	2.03	2.43	2.58	2.79	2.68	2.61	2.23	2.23	2.99	2.48	2.33	2.33	2.35	2.57	2.62	2.69	2.57	2.71	2.7	S	2.8	3.04	4.39	4.39	2.6	24
9	2.85	3.24	3.25	3.53	4.59	3.98	4.44	3.83	4.22	4.68	3.7	3.66	4.09	3.64	3.88	4.08	4.07	3.76	5.75	S	3.43	3.82	3.73	4.4	5.75	3.9	24
10	6.94	8.32	3.87	3.84	3.28	3.46	4.63	4.62	5.41	6.02	5.41	4.28	4.17	3.79	3.39	5.43	4.61	3.34	S	3.31	4.06	3.8	3.27	3.53	8.32	4.5	24
11	2.89	2.59	2.55	2.34	2.49	2.43	2.66	3.56	3.59	3.68	2.13	2.33	2.17	2.38	2.54	2.45	3.23	S	3.38	5.44	4.63	4.71	6.99	4.57	6.99	3.3	24
12	4.82	3.82	3.91	3.08	3.35	3.4	4.05	3.8	4.28	4.11	3.75	7.42	7.56	3.42	3.48	4.6	S	9.52	6.75	5.27	8.46	3.48	2.47	2.37	9.52	4.7	24
13	2.19	2.17	2.17	2.11	2.06	2.09	2.34	2.06	2.11	2.34	2.2	2.11	2.12	2.12	2.17	S	1.99	2.13	2.06	2.08	2.43	2.89	2.76	3.29	3.29	2.3	24
14	2.44	3.79	3.06	2.02	1.97	1.94	2.07	1.96	2.07	1.99	2.16	2.37	2.37	2.11	S	2.24	2.03	2.22	2.33	2.4	2.6	2.5	2.52	2.4	3.79	2.3	24
15	2.19	2.44	2.17	2.38	2.76	2.44	2.21	2.19	2.62	2.62	2.79	2.55	2.47	S	2.57	2.48	2.45	2.33	2.34	2.33	2.37	2.34	2.37	2.43	2.79	2.4	24
16	2.39	2.09	2.21	2.13	2.3	2.12	2.19	2.16	2.15	2.08	2.09	2.14	S	2.03	2.09	2.08	2.07	2.13	2.18	2.19	2.2	2.14	2.18	2.09	2.39	2.1	24
17	2.02	2.04	2.05	2.07	2.09	2.08	2.1	2.16	2.11	2.12	2.08	S	2.12	2.13	2.2	2.17	2.13	2.17	2.28	2.23	2.26	2.24	2.58	2.25	2.58	2.2	24
18	2.43	2.3	2.12	2.24	2.19	1.94	2.08	1.98	2	2.02	S	1.99	2.09	2.01	2.03	2.04	2.08	2.18	2.08	2.22	2.4	2.38	2.42	2.74	2.74	2.2	24
19	2.98	3.86	4.5	2.93	2.97	3.34	3.98	3.86	3.05	S	3.89	3.19	3.24	3.31	3.51	3.32	3.19	3.1	3.87	2.79	2.73	2.79	2.78	2.6	4.5	3.3	24
20	2.69	3.18	2.76	2.82	2.94	3.06	2.76	3.32	S	5.93	7.17	5.3	6.01	5.55	5.26	4.93	4.09	4.02	4.89	4.06	3.21	2.97	3.29	3.26	7.17	4.1	24
21	2.69	2.74	2.62	2.62	2.53	2.45	2.41	S	2.19	2.14	2.07	2.06	2.02	2	1.99	2.7	2.71	2.5	2.84	2.22	2.37	2.33	2.46	2.63	2.84	2.4	24
22	2.35	2.88	2.36	3.37	2.93	2.93	S	3.09	3.29	2.97	3.59	2.88	2.76	2.13	2.33	2.08	2.15	2.02	2.06	2.36	2.54	2.75	2.19	2.23	3.59	2.6	24
23	2.74	2.16	2.25	2.14	2.57	S	2.28	3.4	4.22	4.76	3.86	5.95	4.57	5.17	5.07	3.71	3.13	3.44	3.25	4.37	3.95	4.16	3.72	4.55	5.95	3.7	24
24	4.9	7.69	9.08	7.98	S	2.56	2.73	2.89	2.13	2.69	2.02	2.01	2.05	2.09	2	1.95	1.94	1.94	1.94	1.92	1.96	1.95	2	2.51	9.08	3.1	24
25	2.07	2.06	1.95	S	2.13	1.89	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.13	2.0	6
26	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
27	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
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3.2	3.03	2.56	2.32	2.23	S	3.2	2.7	6
29	2.13	2.06	2	2.03	2.03	2	2.07	2.43	2.25	2.32	2.04	2.06	2.05	2	2.02	2.11	2.4	2.21	2.4	2.61	2.66	2.31	S	2.84	2.84	2.2	24
30	2.71	2.99	3.37	4.57	6.62	3.65	4.62	5.18	2.42	2.21	2.21	2.07	2.2	2.41	2.15	2.43	2.56	2.83	2.16	2.13	2.09	S	1.93	2.09	6.62	2.9	24
31	2.01	2	2.2	2.14	2.14	2.27	2.36	2.02	2.09	2.08	1.97	2	2.02	2.05	2.15	2.22	2.51	2.11	2.78	1.94	S	2	1.9	1.89	2.78	2.1	24
HOURLY MAX	13	13	9	8	7	7	6	5	8	6	7	7	8	6	7	7	6	10	7	5	8	6	8	10			
HOURLY AVG	3.4	3.7	3.3	3.1	3.1	2.9	3.1	3.1	3.1	3.2	3.0	3.0	2.9	2.7	2.9	3.0	2.9	3.0	3.1	3.0	3.2	3.1	3.3	3.3			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 624

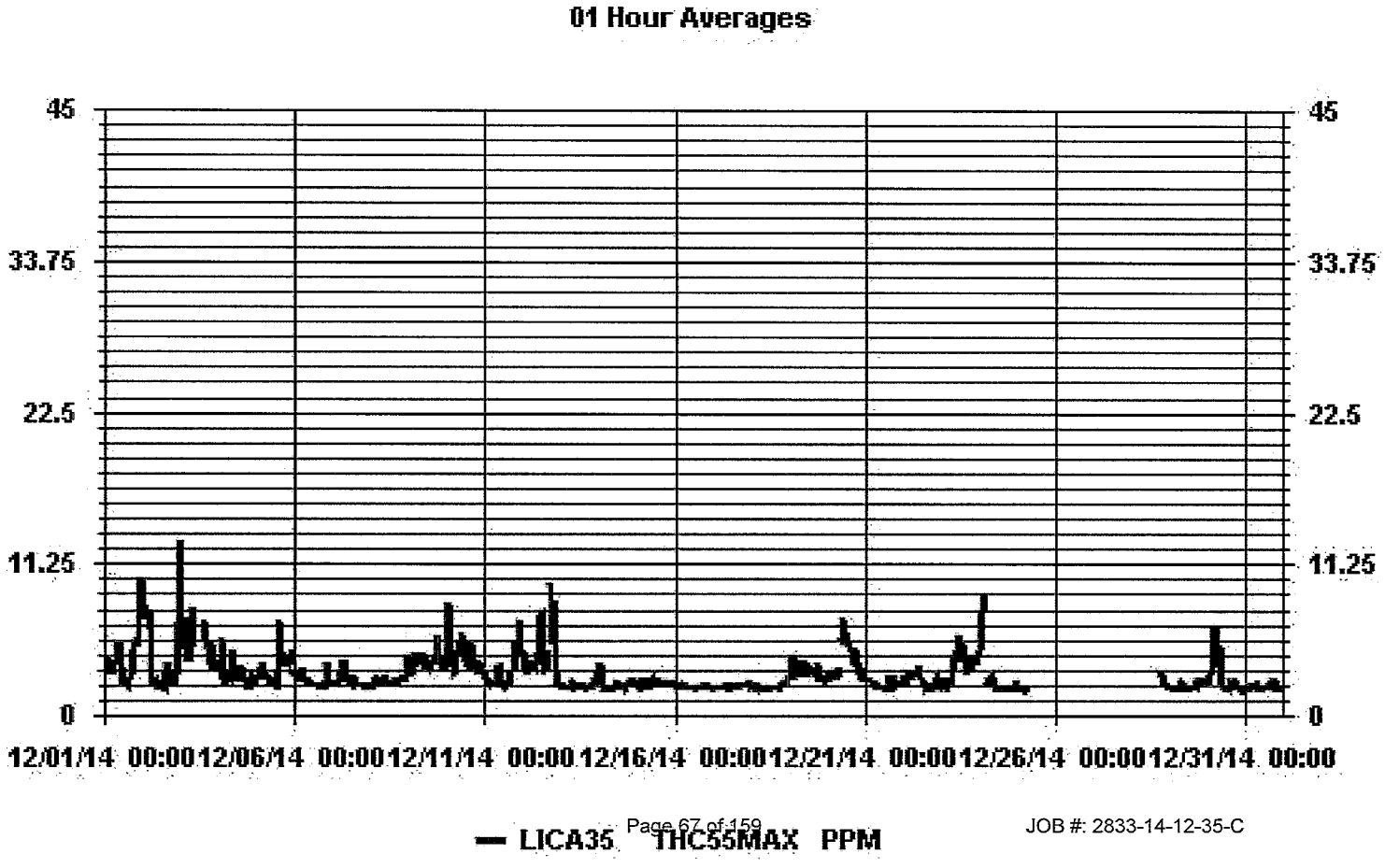
MAXIMUM INSTANTANEOUS VALUE: 12.73 PPM @ HOUR(S) 0 ON DAY(S) 3

VAR-VARIOUS

IZS CALIBRATION TIME: 30 HRS OPERATIONAL TIME: 660 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 1.42



JOB #: 2833-14-12-35-C

LICA35
THC55 / WDR Joint Frequency Distribution (Percent)

December 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	.65	.00	.16	.82	3.94	9.68	8.37	4.59	.49	.82	3.44	10.34	10.83	8.70	10.01	2.13	75.04
<	10.0	.16	.16	.32	.82	9.19	4.43	.82	.65	.65	.49	.16	1.64	1.31	1.80	1.64	.65	24.95
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	.82	.16	.49	1.64	13.13	14.12	9.19	5.25	1.14	1.31	3.61	11.98	12.15	10.50	11.65	2.79	

Calm : .00 %

Total # Operational Hours : 609

Distribution By Samples

Direction

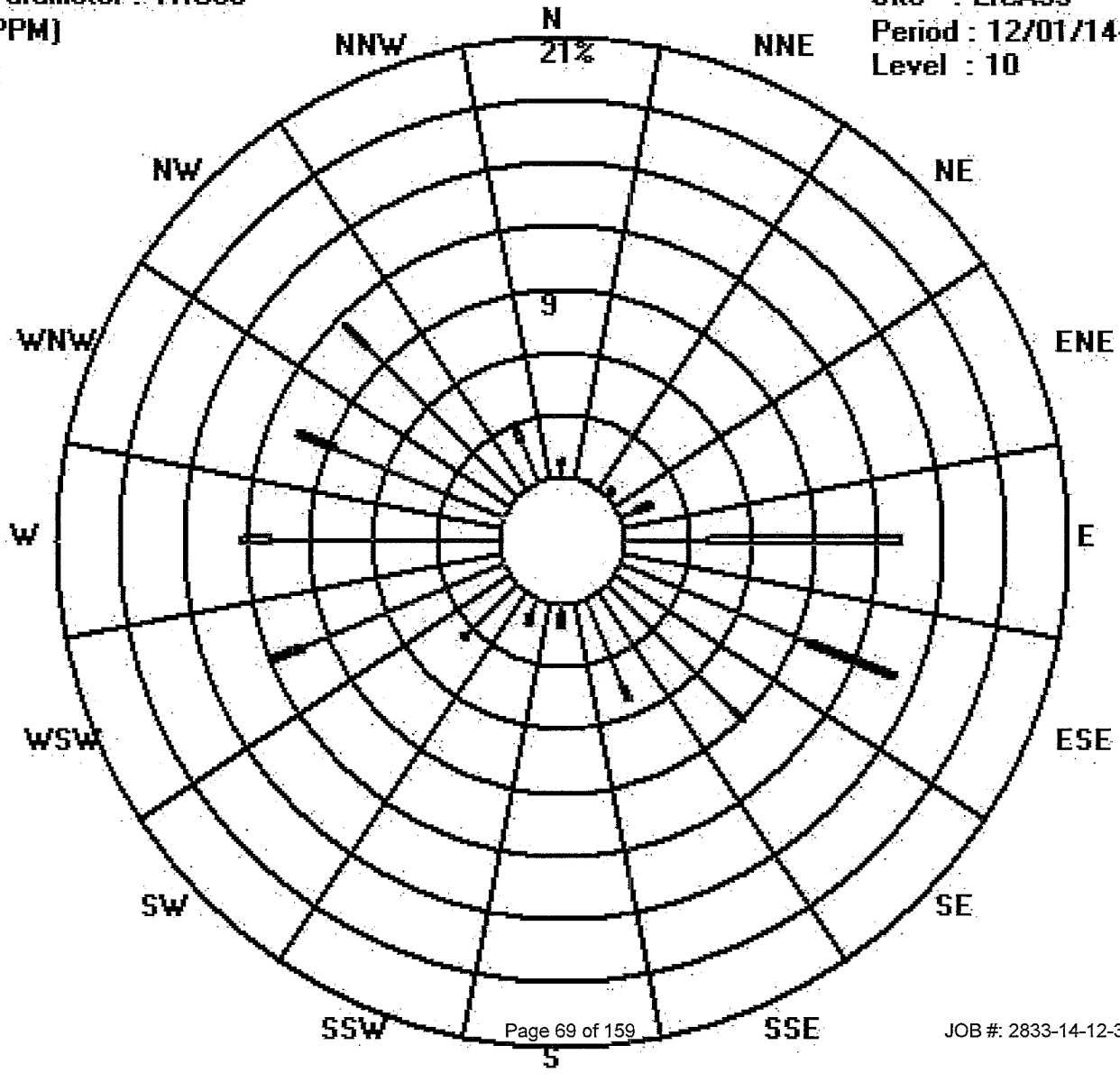
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4		1	5	24	59	51	28	3	5	21	63	66	53	61	13	457
<	10.0	1	1	2	5	56	27	5	4	4	3	1	10	8	11	10	4	152
<	50.0																	
>=	50.0																	
	Totals	5	1	3	10	80	86	56	32	7	8	22	73	74	64	71	17	

Calm : .00 %

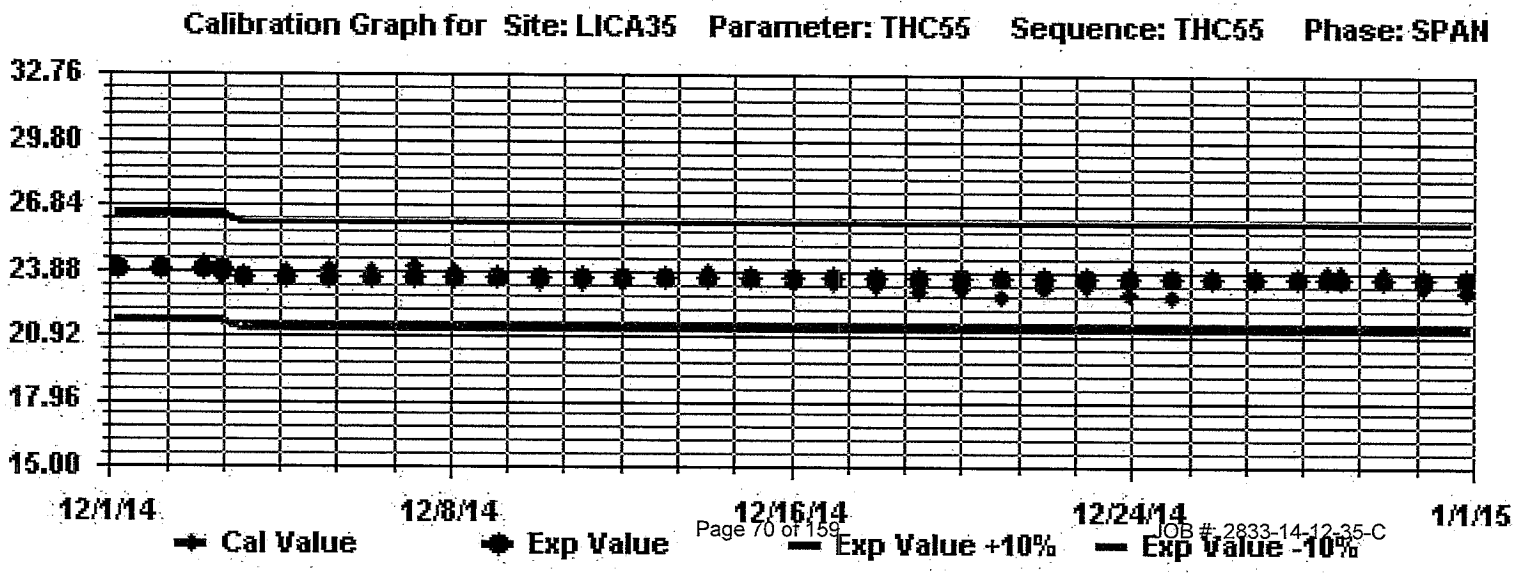
Total # Operational Hours : 609

Logger : 35 Parameter : THC55
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN
32.76
29.80
26.84
23.88
20.92
17.96
15.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Methane

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

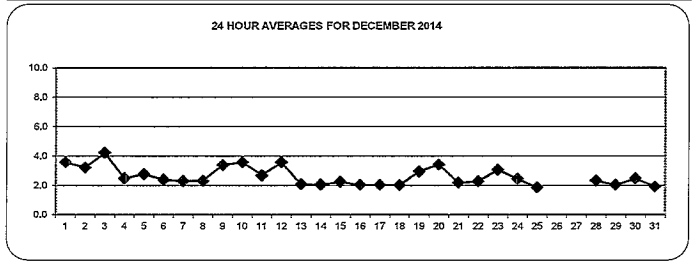
METHANE (CH4) hourly averages in ppm

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	2.8	2.9	3.0	3.3	S	3.1	3.2	3.6	4.3	4.6	4.5	2.4	2.3	2.3	2.4	2.2	2.4	2.6	3.7	4.4	4.0	4.6	5.7	7.7	7.7	3.6	24
2	6.1	7.5	6.6	S	6.8	3.7	2.5	2.3	2.1	2.3	2.0	2.0	2.2	2.0	2.3	2.7	2.2	2.1	2.1	2.1	2.6	3.5	4.0	7.5	7.5	3.2	24
3	4.9	6.1	S	5.2	4.1	3.5	3.9	4.2	4.7	C	C	C	C	C	5.2	6.0	5.1	4.3	2.8	3.0	3.3	2.9	3.3	3.4	6.1	4.2	24
4	2.9	S	3.6	2.4	2.4	2.6	2.7	2.4	2.5	2.8	2.3	2.5	2.3	2.4	2.5	2.5	2.2	2.4	2.2	2.1	2.2	2.4	2.2	2.3	3.6	2.5	24
5	S	2.5	2.9	2.7	2.8	2.8	2.5	2.3	2.2	2.2	2.1	2.1	2.1	2.6	3.2	3.0	3.4	3.5	3.0	3.3	3.0	3.1	3.3	S	3.5	2.8	24
6	2.7	2.7	2.7	2.6	2.7	2.8	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.3	S	2.2	2.8	2.4	24
7	2.1	2.1	2.1	2.4	2.5	2.3	2.9	2.9	2.7	2.5	2.3	2.3	2.4	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.1	S	2.1	2.0	2.9	2.3	24
8	2.0	2.0	2.1	2.3	2.3	2.3	2.3	2.1	2.1	2.3	2.3	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.4	2.5	S	2.5	2.6	2.8	2.8	2.3	24
9	2.6	2.8	2.9	3.1	3.2	3.5	3.4	3.5	3.5	3.7	3.4	3.3	3.7	3.4	3.5	3.6	3.7	3.5	3.7	S	3.2	3.4	3.3	3.5	3.7	3.4	24
10	4.5	5.0	3.2	3.4	2.8	3.0	3.4	4.0	4.6	5.2	4.4	3.5	3.7	3.4	3.1	3.5	3.4	3.1	S	2.8	3.0	2.9	2.9	2.9	5.2	3.6	24
11	2.6	2.4	2.3	2.2	2.3	2.3	2.4	2.6	2.8	2.5	1.9	2.0	2.0	2.0	2.1	2.1	2.3	S	2.7	4.0	3.8	3.6	4.4	4.1	4.4	2.7	24
12	3.7	3.2	2.8	2.7	2.8	2.9	3.3	3.1	3.3	3.5	3.3	4.5	4.9	2.9	2.8	4.0	S	5.4	5.0	4.5	5.8	2.6	2.4	2.2	5.8	3.5	24
13	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	S	1.9	2.0	1.9	2.0	2.0	2.3	2.4	2.6	2.6	2.1	24
14	2.2	2.6	2.2	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.0	2.0	S	2.0	1.9	2.0	2.0	2.2	2.3	2.2	2.2	2.1	2.6	2.1	24
15	2.1	2.0	2.0	2.2	2.3	2.2	2.1	2.1	2.3	2.4	2.6	2.4	2.3	S	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	2.2	24
16	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	S	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.2	2.0	24
17	1.9	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	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.0	24
18	2.1	2.0	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	S	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.4	2.4	2.0	24
19	2.8	3.1	3.8	2.8	2.8	3.0	3.6	3.2	2.8	S	3.2	3.0	3.1	3.1	3.1	2.9	2.9	2.8	2.8	2.4	2.5	2.5	2.5	2.5	3.8	2.9	24
20	2.6	2.6	2.5	2.6	2.7	2.7	2.5	3.0	S	4.4	5.7	4.4	5.2	4.5	3.6	3.5	3.6	3.5	3.6	3.2	2.9	2.8	3.1	2.8	5.7	3.4	24
21	2.6	2.6	2.5	2.5	2.3	2.3	2.2	S	2.1	2.0	2.0	2.0	1.9	1.9	1.9	2.2	2.4	2.2	2.1	2.0	2.2	2.0	2.1	2.1	2.6	2.2	24
22	2.1	2.4	2.1	2.9	2.6	2.6	S	2.6	2.8	2.7	2.8	2.5	2.2	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.1	2.0	2.9	2.3	24
23	2.1	2.0	2.1	2.0	2.2	S	2.0	2.6	2.8	3.4	3.2	4.7	4.2	4.1	4.0	3.1	2.8	2.9	3.0	3.3	3.4	3.3	3.4	3.4	4.7	3.0	24
24	3.9	4.8	5.9	3.7	S	2.2	2.2	2.1	2.0	2.3	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	5.9	2.4	24
25	1.9	1.9	1.9	S	1.8	1.8	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.9	1.9	6
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.7	2.5	2.2	2.1	2.1	S	2.7	2.3	6
29	2.1	2.0	1.9	2.0	2.0	1.9	2.0	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.1	2.0	2.1	2.2	2.1	S	2.4	2.4	2.0	24
30	2.5	2.7	3.1	3.7	4.1	3.2	3.7	3.6	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	1.9	2.0	1.9	S	1.8	1.9	4.1	2.5	24
31	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0	1.9	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	1.8	S	1.8	1.8	1.8	2.1	1.9	24
HOURLY MAX	6	8	7	5	7	4	4	4	5	5	6	5	5	5	5	6	5	5	5	5	6	5	6	8			
HOURLY AVG	2.7	2.9	2.7	2.6	2.7	2.5	2.6	2.6	2.6	2.7	2.6	2.5	2.6	2.5	2.5	2.6	2.5	2.6	2.5	2.5	2.7	2.6	2.7	2.7			

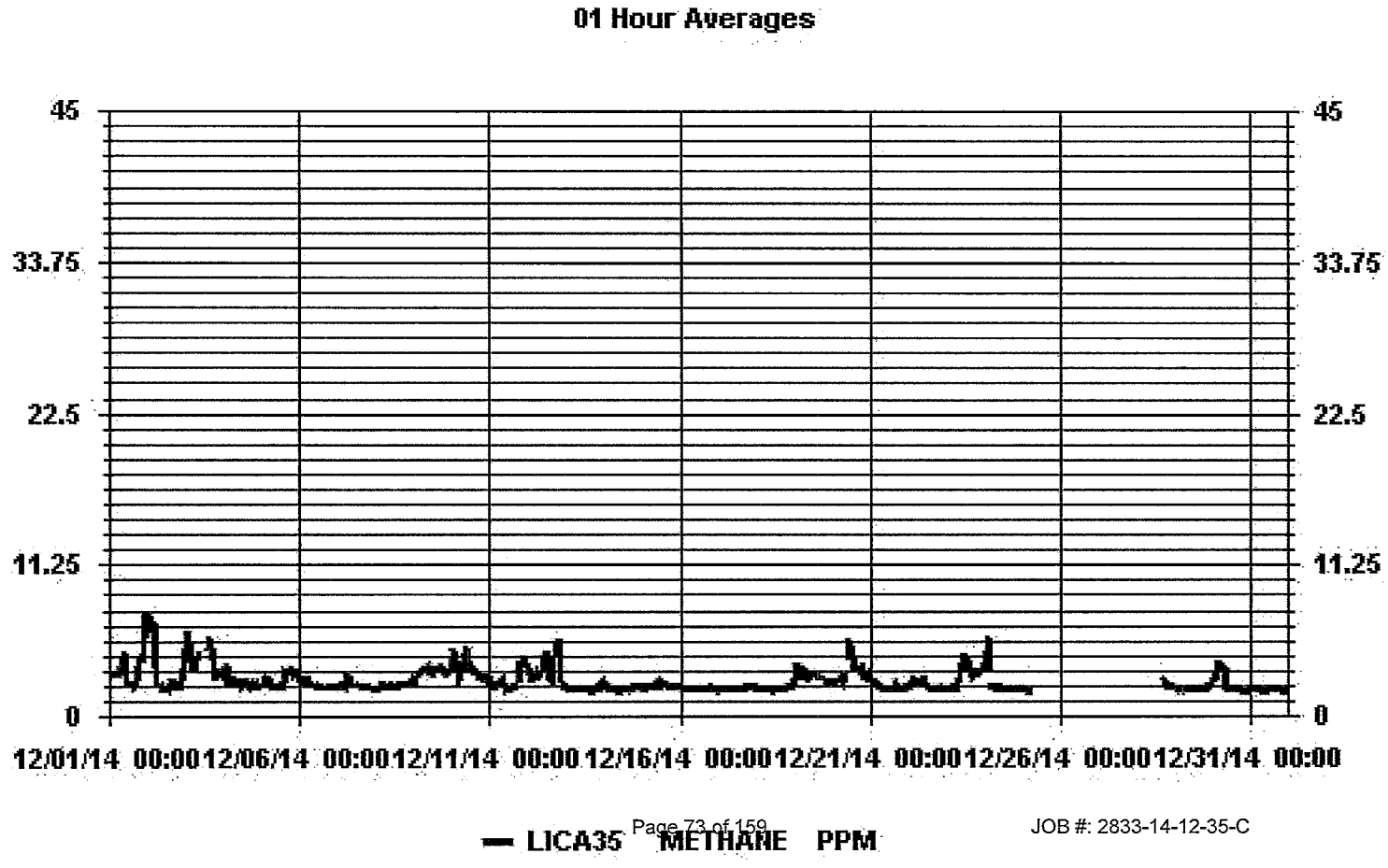
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	625						
MAXIMUM 1-HR AVERAGE:	7.7	PPM	@ HOUR(S)	23	ON DAY(S)	1	
MAXIMUM 24-HR AVERAGE:	4.2	PPM			ON DAY(S)	3	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:			660	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			88.7	%
STANDARD DEVIATION:	0.88		MONTHLY AVERAGE:			2.62	PPM



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

METHANE MAX instantaneous maximum in ppm

MST

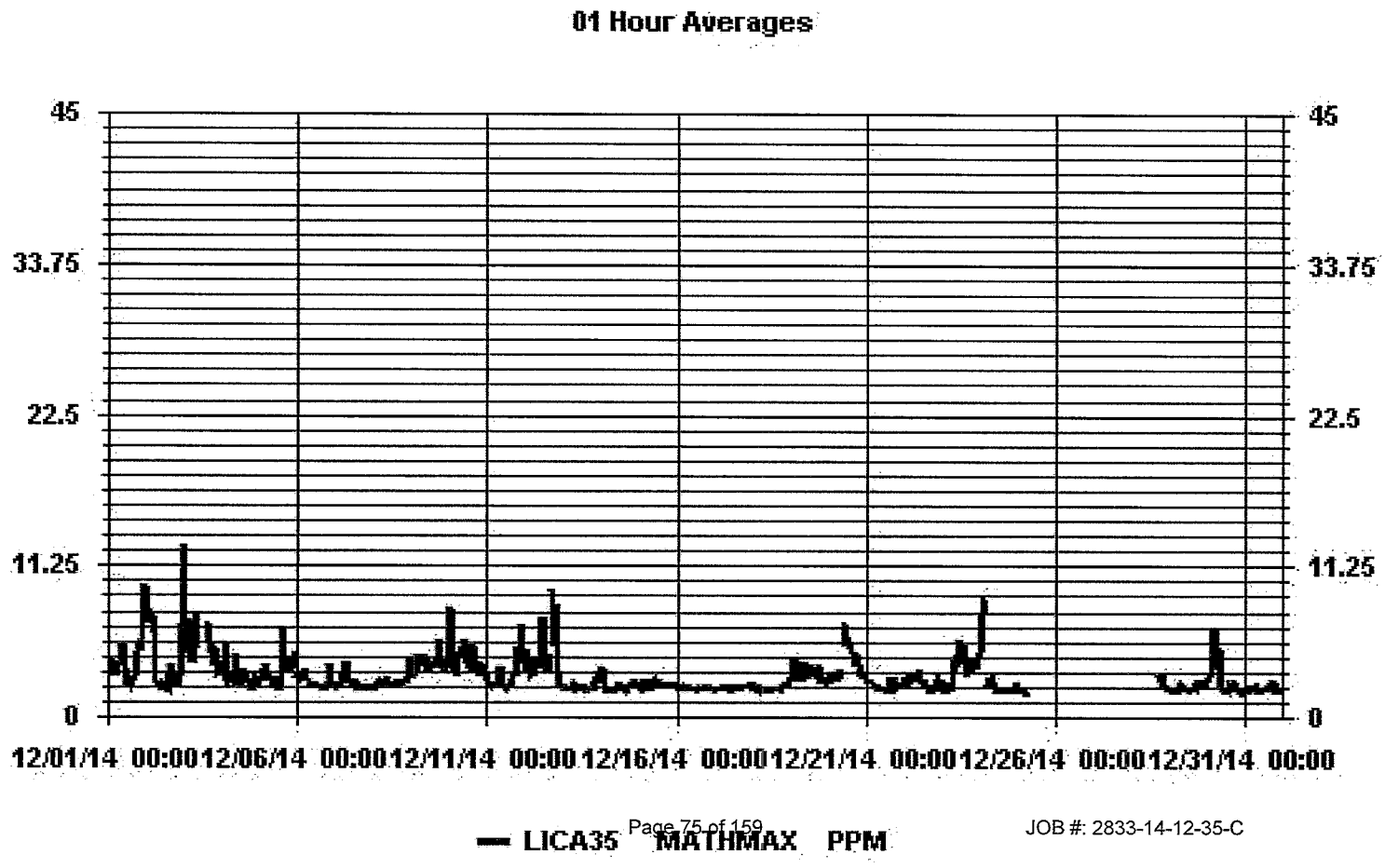
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3.16	3.26	3.43	4.16	S	3.26	3.84	4.13	5.09	5.11	5.12	3.76	2.57	2.48	2.6	2.31	2.6	2.98	4.76	5.31	4.9	5.71	8.19	9.9	9.9	4.3	24
2	6.94	8.08	7.18	S	7.31	6.39	2.69	2.39	2.29	2.54	2.34	2.33	2.19	2.4	2.23	3.17	3.96	2.5	2.27	2.23	2.26	3.07	6.89	4.72	8.08	3.8	24
3	*12.51*	*12.51*	S	7.01	4.63	3.98	5.56	5.08	7.63	C	C	C	C	C	C	6.75	5.52	4.79	3.66	4.61	5.2	3.42	3.57	3.97	*12.51*	*5.9*	24
4	3.34	S	5.39	2.87	2.63	2.84	3.29	2.85	3.01	4.59	2.6	2.67	2.56	2.6	3.51	2.95	2.62	2.63	2.32	2.27	2.66	2.87	2.46	2.63	5.39	3.0	24
5	S	2.99	3.54	3.11	3.79	3.29	2.85	2.64	2.74	2.35	2.24	2.22	2.16	2.94	6.63	3.71	3.84	3.9	3.41	3.99	3.77	4.2	4.6	S	6.63	3.4	24
6	3.11	3.04	2.79	2.9	3.01	3.42	2.81	2.67	2.55	2.58	2.5	2.4	2.33	2.27	2.26	2.32	2.24	2.35	2.31	2.21	2.37	3.73	S	2.36	3.73	2.6	24
7	2.22	2.32	2.43	2.63	3.05	2.44	3.92	3.95	2.9	2.85	2.39	2.39	2.52	2.8	2.21	2.22	2.18	2.28	2.33	2.2	2.25	S	2.21	2.17	3.95	2.6	24
8	2.04	2.04	2.42	2.58	2.8	2.69	2.62	2.23	2.23	2.99	2.48	2.34	2.33	2.36	2.56	2.63	2.55	2.5	2.65	2.62	S	2.81	3.01	4.39	4.39	2.6	24
9	2.84	3.25	3.26	3.49	4.58	3.97	4.35	3.71	4.21	4.67	3.7	3.59	4.08	3.55	3.83	4.01	3.9	3.61	5.57	S	3.4	3.73	3.72	4.34	5.57	3.9	24
10	6.85	8.14	3.77	3.68	3.29	3.3	4.58	4.56	5.21	5.8	5.41	4.23	4.13	3.78	3.4	5.43	4.61	3.34	S	3.31	4.05	3.61	3.27	3.53	8.14	4.4	24
11	2.89	2.53	2.54	2.35	2.49	2.42	2.65	3.56	3.49	3.55	2.14	2.34	2.17	2.37	2.55	2.44	2.92	S	3.25	5.12	4.43	4.65	6.91	4.54	6.91	3.2	24
12	4.67	3.81	3.91	3.08	3.19	3.24	3.97	3.79	4.11	3.94	3.7	7.18	7.19	3.35	3.36	4.39	S	9.16	6.52	5.2	8.28	3.48	2.45	2.37	9.16	4.5	24
13	2.19	2.17	2.17	2.08	2.06	2.1	2.34	2.07	2.13	2.35	2.2	2.12	2.13	2.13	2.17	S	1.99	2.14	2.07	2.09	2.43	2.75	2.76	3.24	3.24	2.3	24
14	2.44	3.66	3.07	2.03	1.97	1.94	1.96	1.96	2.08	1.99	2.16	2.37	2.38	2.13	S	2.24	2.04	2.22	2.33	2.4	2.61	2.51	2.52	2.4	3.66	2.3	24
15	2.19	2.44	2.17	2.38	2.77	2.44	2.21	2.19	2.63	2.63	2.8	2.55	2.47	S	2.58	2.47	2.45	2.34	2.35	2.32	2.37	2.35	2.36	2.43	2.8	2.4	24
16	2.39	2.1	2.21	2.14	2.31	2.13	2.19	2.16	2.15	2.09	2.1	2.15	S	2.04	2.1	2.09	2.08	2.14	2.18	2.19	2.21	2.15	2.18	2.1	2.39	2.2	24
17	2.02	2.05	2.05	2.07	2.1	2.09	2.11	2.16	2.12	2.13	2.08	S	2.14	2.14	2.21	2.18	2.15	2.17	2.29	2.23	2.26	2.24	2.59	2.26	2.59	2.2	24
18	2.31	2.31	2.13	2.25	2.2	1.95	2.1	1.99	1.99	2.02	S	1.98	2.1	2.01	2.04	2.05	2.09	2.18	2.09	2.23	2.39	2.38	2.42	2.74	2.74	2.2	24
19	2.98	3.85	4.36	2.93	2.97	3.22	3.97	3.75	2.93	S	3.88	3.19	3.25	3.26	3.52	3.32	3.19	3.11	3.86	2.79	2.73	2.8	2.78	2.61	4.36	3.3	24
20	2.69	3.18	2.76	2.83	2.92	3.07	2.76	3.32	S	5.72	7.06	5.25	5.78	5.56	5.26	4.93	4.08	4.02	4.88	4.06	3.21	2.89	3.24	3.22	7.06	4.0	24
21	2.69	2.74	2.63	2.63	2.53	2.45	2.34	S	2.19	2.15	2.08	2.06	2.02	2.01	1.98	2.7	2.71	2.51	2.84	2.22	2.38	2.34	2.46	2.64	2.84	2.4	24
22	2.35	2.87	2.36	3.38	2.93	2.8	S	2.97	3.17	2.87	3.51	2.85	2.66	2.06	2.34	2.09	2.16	2.03	2.06	2.37	2.54	2.75	2.19	2.23	3.51	2.6	24
23	2.75	2.16	2.26	2.15	2.48	S	2.22	3.31	4.16	4.57	3.85	5.83	4.42	5.08	5.08	3.7	3.14	3.44	3.22	4.36	3.95	4.15	3.62	4.35	5.83	3.7	24
24	4.78	7.71	8.84	7.86	S	2.56	2.73	2.82	2.1	2.61	2.03	2.01	2.04	2.1	2.01	1.95	1.94	1.94	1.94	1.92	1.96	1.95	1.99	2.51	8.84	3.1	24
25	2.06	2.05	1.95	S	2.14	1.89	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.14	2.0	6
26	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
27	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
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3.04	2.56	2.32	2.23	S	3.04	2.6	6
29	2.14	2.06	2	2.04	2.04	2.01	2.07	2.43	2.26	2.33	2.04	2.05	2.04	2.01	2.02	2.12	2.41	2.22	2.41	2.61	2.67	2.31	S	2.85	2.85	2.2	24
30	2.71	2.99	3.37	4.57	6.62	3.64	4.61	5.18	2.42	2.22	2.22	2.07	2.2	2.4	2.16	2.43	2.56	2.84	2.16	2.14	2.1	S	1.93	2.1	6.62	2.9	24
31	2.02	2	2.2	2.15	2.16	2.28	2.37	2.03	2.11	2.09	1.97	1.99	2.03	2.05	2.16	2.23	2.52	2.13	2.79	1.94	S	1.99	1.9	1.89	2.79	2.1	24
HOURLY MAX	13	13	9	8	7	6	6	5	8	6	7	7	7	6	7	7	6	9	7	5	8	6	8	10			
HOURLY AVG	3.4	3.6	3.2	3.1	3.1	2.9	3.0	3.1	3.1	3.1	3.0	3.0	2.9	2.7	2.9	3.0	2.9	3.0	3.0	3.0	3.2	3.0	3.2	3.2			

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	624					
MAXIMUM INSTANTANEOUS VALUE:	12.51	PPM	@ HOUR(S)	0, 1	ON DAY(S)	3
				VAR-VARIOUS		
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		660	HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	1.38					



JOB #: 2833-14-12-35-C

LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

December 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	.65	.00	.16	.82	4.10	9.68	8.37	4.59	.49	.82	3.44	10.50	10.83	8.70	10.01	2.13	75.36
<	10.0	.16	.16	.32	.82	9.03	4.43	.82	.65	.65	.49	.16	1.47	1.31	1.80	1.64	.65	24.63
<	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	.82	.16	.49	1.64	13.13	14.12	9.19	5.25	1.14	1.31	3.61	11.98	12.15	10.50	11.65	2.79	

Calm : .00 %

Total # Operational Hours : 609

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4		1	5	25	59	51	28	3	5	21	64	66	53	61	13	459
<	10.0	1	1	2	5	55	27	5	4	4	3	1	9	8	11	10	4	150
<	50.0																	
>=	50.0																	
	Totals	5	1	3	10	80	86	56	32	7	8	22	73	74	64	71	17	

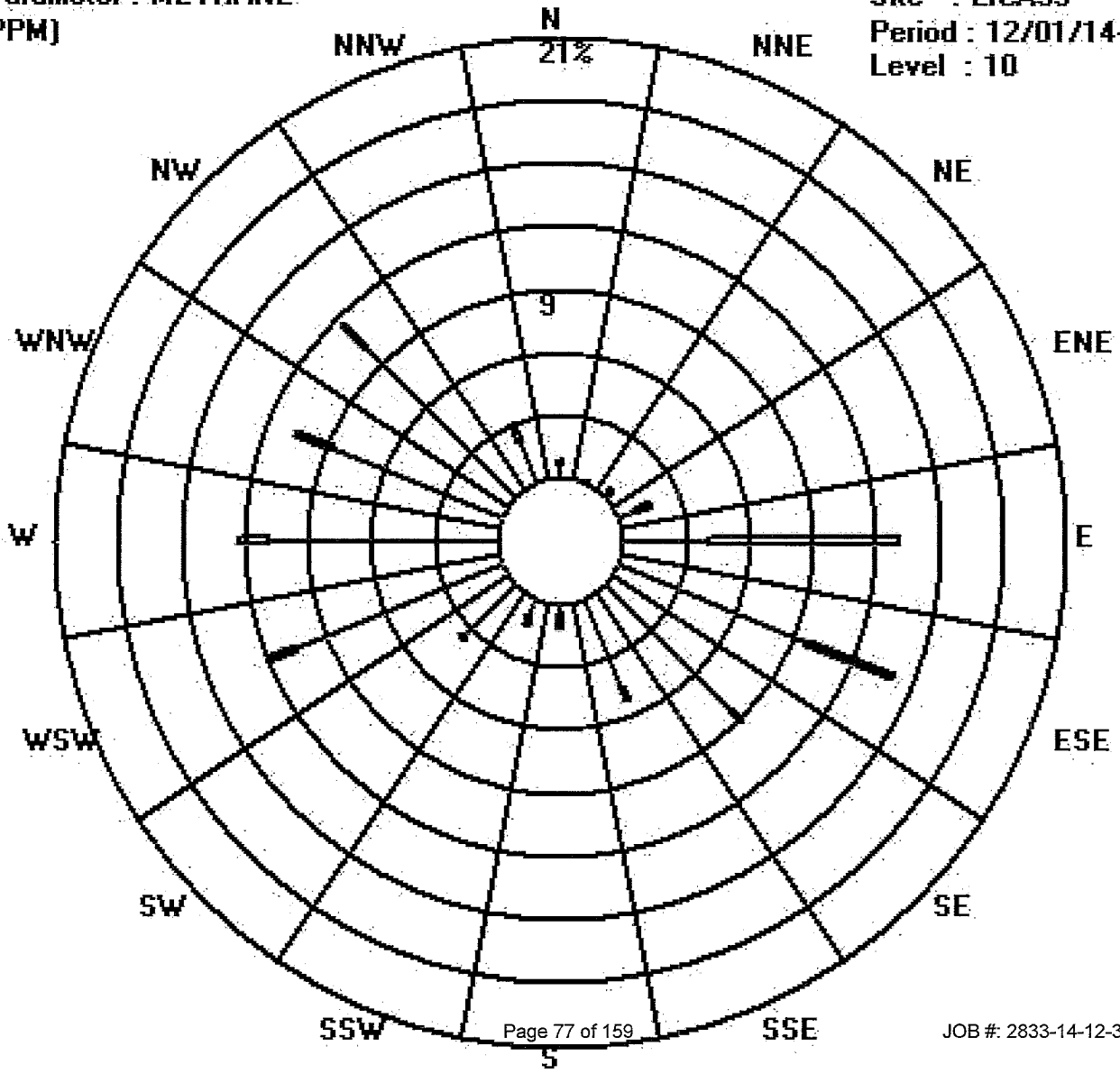
Calm : .00 %

Total # Operational Hours : 609

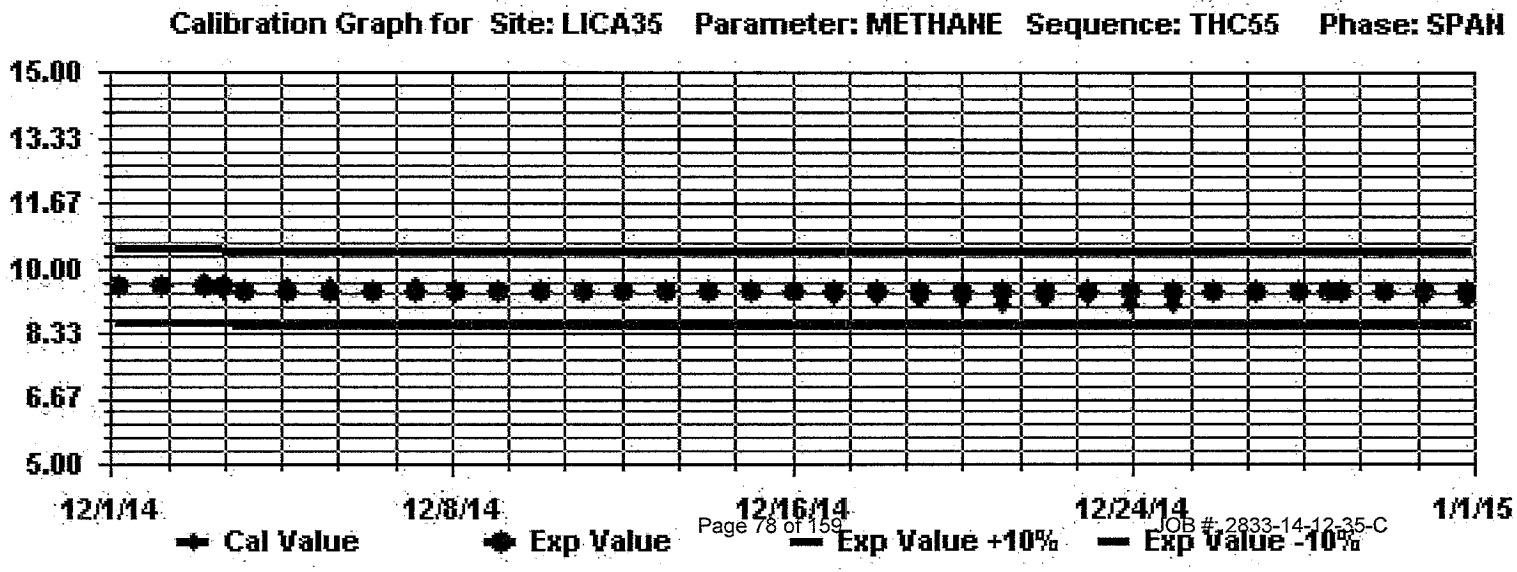
Logger : 35 Parameter : METHANE
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN
15.00
13.33
11.67
10.00
8.33
6.67
5.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Non-Methane Hydrocarbons

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

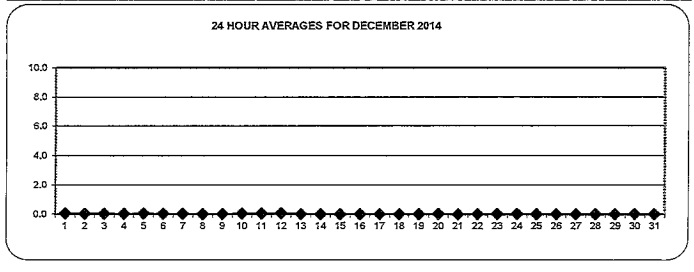
NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

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	S	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	*0.2*	*0.2*	0.0	24
2	0.1	0.1	0.1	S	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.0	24
3	0.1	0.1	S	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0.1	0	0	0	0.1	0.1	0.0	24
4	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0.1	0	0	0	0.1	0.0	24
5	S	0	0	0	0.1	0	0	0	0	0	0	0	0	0	*0.2*	0	0.1	0.1	0.1	0	0.1	0	0	S	*0.2*	0.0	24
6	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.1	0.0	24
7	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.1	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	S	0	0	0	0.1	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	S	0	0	0	0	0.1	0.0	24
10	0.1	0	0	0	0	0.1	0	0.1	0.1	0.1	0	0.1	0	0	0	0	0	0	0	S	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	0.1	S	0.1	*0.2*	0.1	0.1	0	0	*0.2*	0.0	24
12	0	0	0	0	0	0.1	0	0	0.1	0	0	0.1	*0.2*	0.1	0.1	0.1	S	*0.2*	0.1	0.1	0.1	0	0	0	*0.2*	*0.1*	24
13	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
14	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
15	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
16	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
17	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
18	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19	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
20	0	0	0	0	0	0	0	0	S	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
21	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
22	0	0	0	0	0	0	S	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
23	0	0	0	0	0	S	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.0	24
24	0	0	0.1	0.1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0	24
25	0	0	0	S	0	0	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	0.0	6
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	0	0	0	0	S	0	0.0	6
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	24
30	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.1	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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			

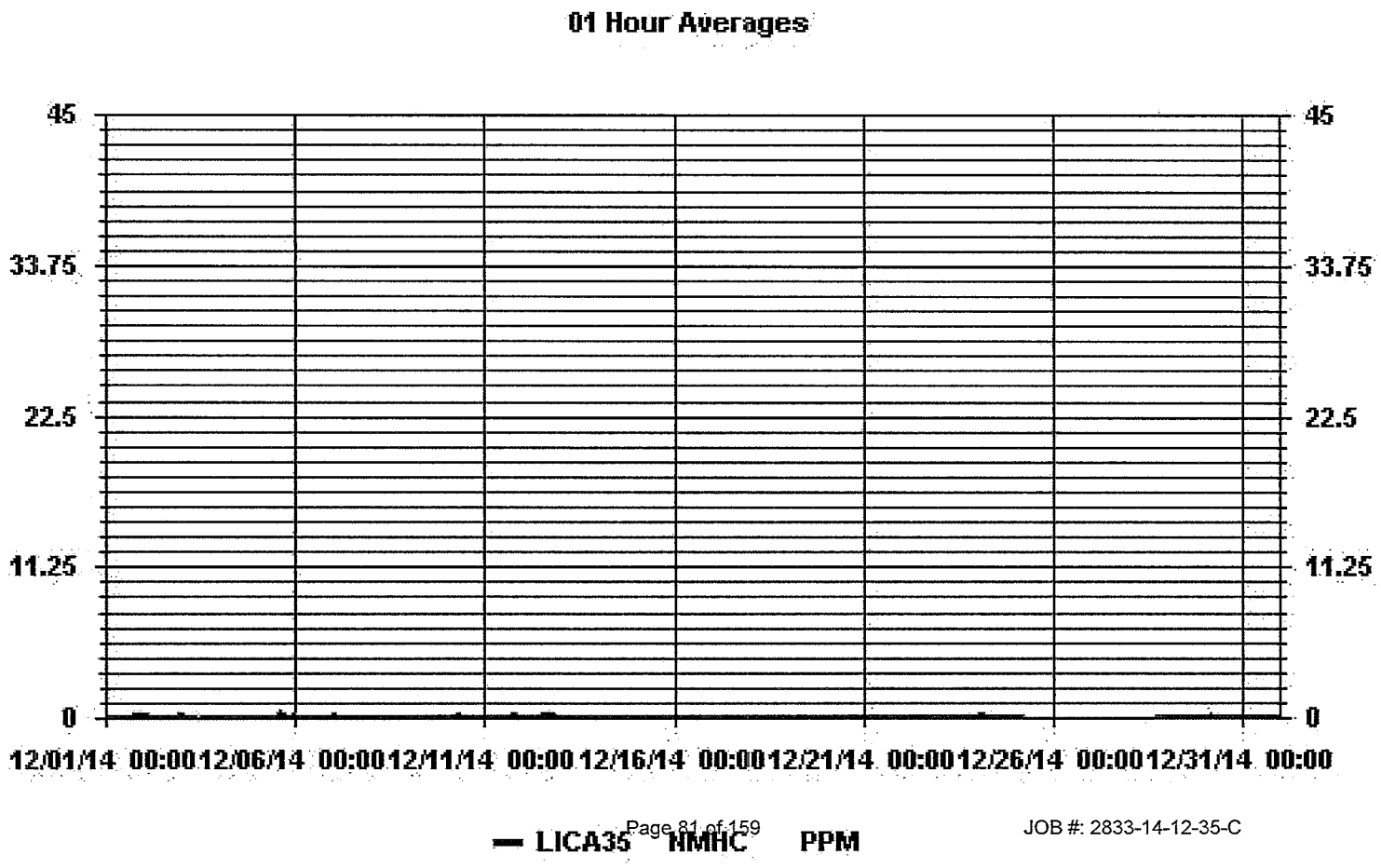
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	61					
MAXIMUM 1-HR AVERAGE:	0.2	PPM	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.1	PPM			ON DAY(S)	12
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		660	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		88.7	%
STANDARD DEVIATION:	0.03		MONTHLY AVERAGE:		0.01	PPM



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST

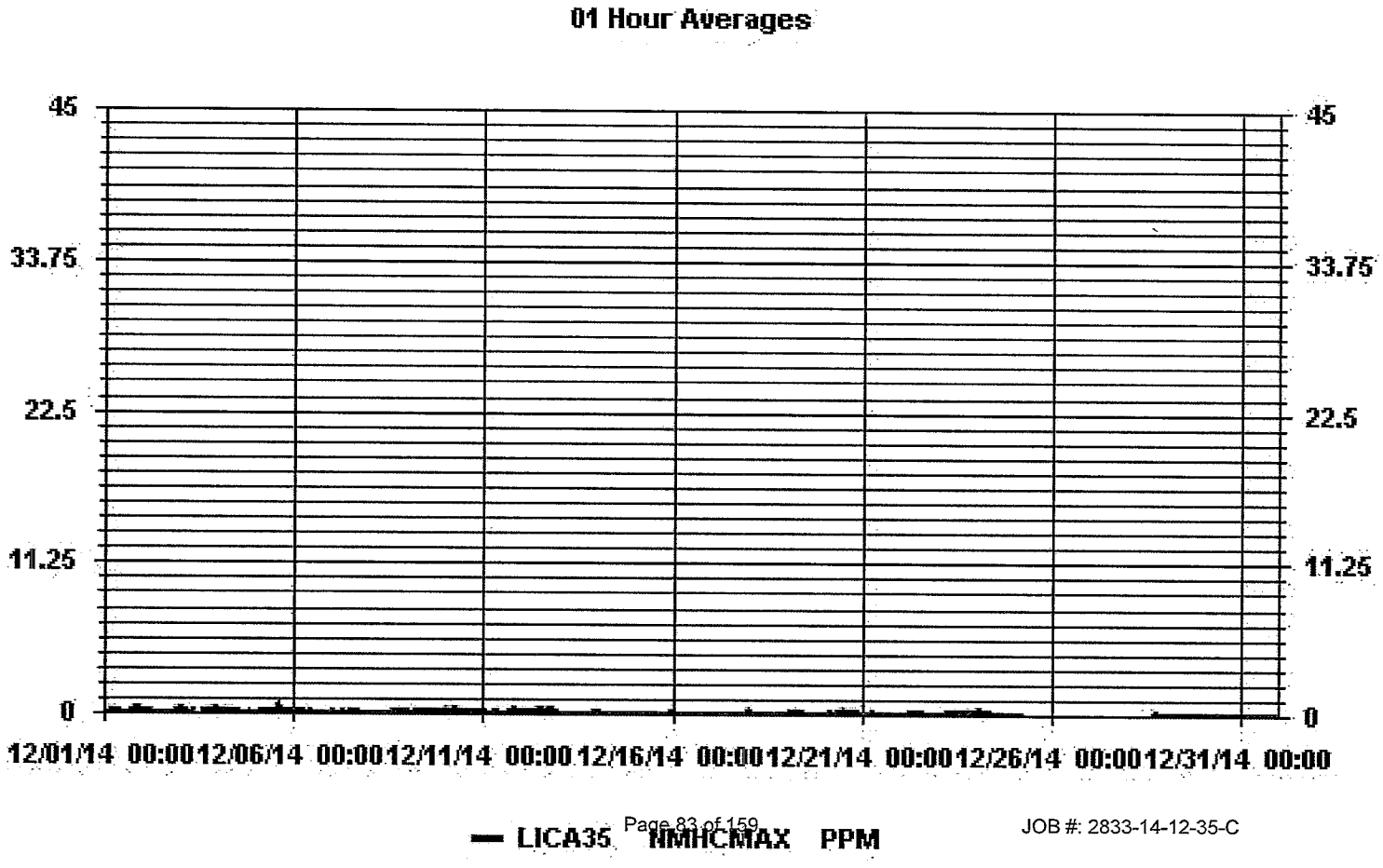
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	S	0.06	0.05	0.19	0.25	0.18	0.14	0	0	0	0	0	0.08	0	0.15	0.25	0.33	0.16	0.24	0.24	0.33	0.1	24
2	0.25	0.21	0.27	S	0.31	0.17	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.16	0.09	0.31	0.1	24
3	0.32	0.24	S	0.23	0.15	0.01	0	0.09	0.08	C	C	C	C	C	C	0.25	0.21	0.22	0.09	0.14	0.19	0	0.16	0.32	0.32	0.2	24
4	0.18	S	0.18	0.11	0.08	0.21	0.14	0.09	0.11	0.17	0.14	0.16	0.14	0.14	0.17	0	0.06	0.11	0	0	0.15	0	0	0	0.21	0.1	24
5	S	0	0.1	0.15	0.19	0.17	0.1	0.15	0.15	0.12	0.1	0.07	0.1	0.24	***0.49***	0.13	0.22	0.25	0.16	0.14	0.18	0.13	0.22	S	***0.49***	0.2	24
6	0.19	0.16	0.13	0.09	0.17	0.11	0.12	0	0	0	0.14	0.1	0	0	0	0	0	0	0	0	0.02	0.07	S	0.12	0.19	0.1	24
7	0.16	0.12	0	0.03	0	0	0.11	0.12	0.14	0.05	0	0.11	0.18	0.15	0.09	0	0.13	0	0.09	0	0	S	0	0	0.18	0.1	24
8	0	0	0	0	0	0	0	0	0	0.07	0	0.03	0	0	0.1	0.09	0.16	0.13	0.16	0.13	S	0.13	0.14	0.1	0.16	0.1	24
9	0.12	0.1	0	0.1	0.24	0.18	0.14	0.14	0.16	0.26	0.15	0.29	0.17	0.15	0.2	0.19	0.22	0.17	0.17	S	0.13	0.16	0.19	0.21	0.29	0.2	24
10	0.26	0.27	0.21	0.18	0.17	0.21	0.35	0.22	0.22	0.23	0.15	0.13	0.14	0.13	0.13	0.16	0.19	0.16	S	0.14	0.12	0.17	0.16	0.18	0.35	0.2	24
11	0.14	0.12	0.1	0	0	0	0.1	0.11	0.09	0.12	0	0	0	0	0	0.12	0.31	S	0.23	0.32	0.31	0.23	0.2	0.2	0.32	0.1	24
12	0.16	0.16	0.15	0.11	0.16	0.18	0.17	0.17	0.2	0.22	0.17	0.35	0.39	0.19	0.23	0.25	S	0.37	0.29	0.39	0.34	0.09	0.08	0.08	0.39	***0.2***	24
13	0	0	0	0.06	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0.01	0.14	0.1	0.07	0.14	0.0	24
14	0.06	0.17	0.05	0	0	0	0.11	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0.11	0	0.17	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.1	0	0	0	0	0	0	0	0.13	0.13	0.0	24
16	0.13	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0.13	0.0	24
17	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
18	0.2	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.0	24
19	0	0	0.14	0.02	0	0.13	0.13	0.13	0.13	S	0.13	0	0.03	0.13	0	0	0	0.01	0	0.07	0	0	0	0	0.14	0.0	24
20	0	0	0	0	0.1	0.15	0	0	S	0.22	0.12	0.23	0.25	0.25	0.12	0	0.14	0.16	0.12	0.08	0.12	0.12	0.11	0.05	0.25	0.1	24
21	0	0	0	0	0	0	0.13	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13	0.0	24
22	0	0	0	0	0	0.18	S	0.14	0.13	0.18	0.16	0.13	0.13	0.09	0.07	0.07	0	0	0	0	0	0.08	0	0	0.18	0.1	24
23	0	0.1	0	0	0.08	S	0.1	0.1	0.19	0.23	0.18	0.26	0.19	0.21	0.17	0.06	0.08	0.12	0.13	0.13	0.15	0.2	0.2	0.19	0.26	0.1	24
24	0.21	0.23	0.36	0.26	S	0.07	0.14	0.14	0.09	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.36	0.1	24
25	0	0	0	S	0	0	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	0.0	6
26	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
27	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
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.19	0.04	0	0	0	S	0.19	0.0	6
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0.0	24
30	0	0	0	0.07	0.05	0	0	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0.07	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- 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:	280					
MAXIMUM INSTANTANEOUS VALUE:	0.49	PPM	@ HOUR(S)	14	ON DAY(S)	5
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		660	HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.09					



JOB #: 2833-14-12-35-C

LICA35
NMHC / WDR Joint Frequency Distribution (Percent)

December 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	.82	.16	.49	1.64	13.15	14.14	9.21	5.26	1.15	1.31	3.61	12.00	12.00	10.52	11.67	2.79	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	.82	.16	.49	1.64	13.15	14.14	9.21	5.26	1.15	1.31	3.61	12.00	12.00	10.52	11.67	2.79	

Calm : .00 %

Total # Operational Hours : 608

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	.2	5	1	3	10	80	86	56	32	7	8	22	73	73	64	71	17	608
<	.5																	
<	1.0																	
<	2.0																	
<	4.0																	
>=	4.0																	
	Totals	5	1	3	10	80	86	56	32	7	8	22	73	73	64	71	17	

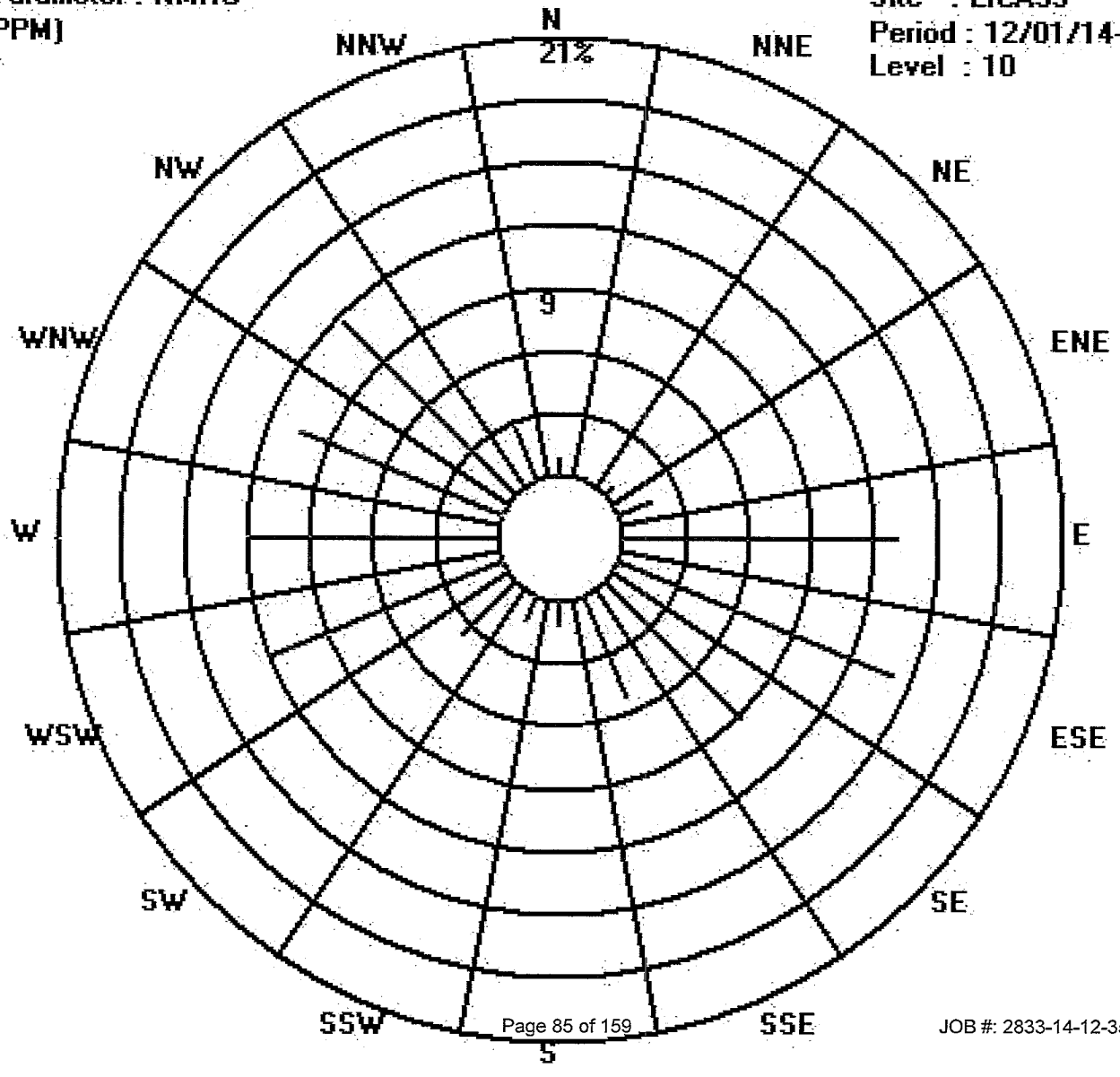
Calm : .00 %

Total # Operational Hours : 608

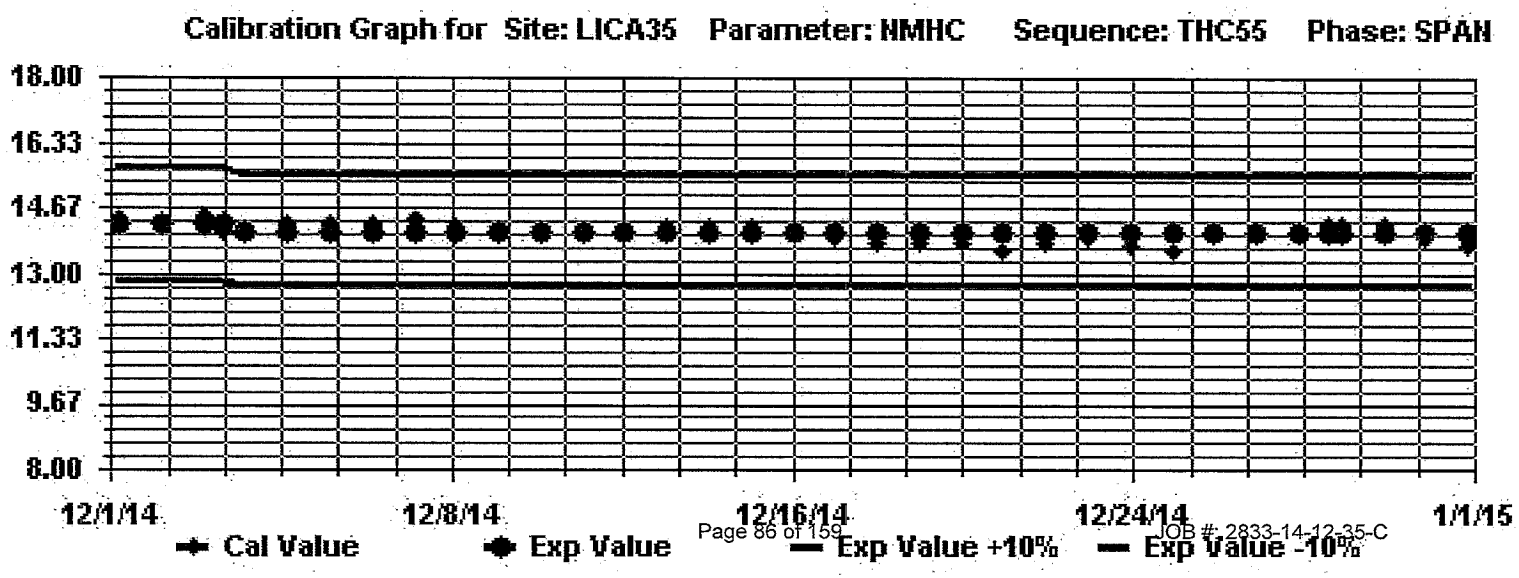
Logger : 35 Parameter : NMHC
Class Limits (PPM)

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

Site : LICA35
Period : 12/01/14-12/31/14
Level : 10



JOB #: 2833-14-12-35-C


Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN
18.00
16.33
14.67
13.00
11.33
9.67
8.00
12/1/14
12/8/14
12/16/14
12/24/14
1/1/15
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Vector Wind Speed

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

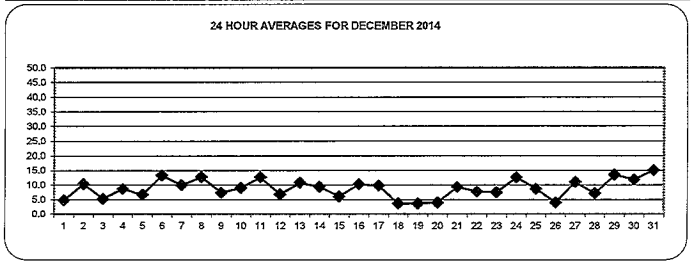
WIND SPEED (WS) hourly averages in km/hr

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	9.3	7.5	4.8	4.8	3.6	1.2	2.2	0.5	2.1	3.1	5.5	10.1	12	7.1	4.9	7.4	7.1	9.1	1	1.4	2.2	2.7	2.5	0.3	12.0	4.7	24
2	3	0.5	1.5	0.6	2.9	7.3	9.7	8.7	11.1	14.1	23.3	21.7	19.5	16.5	14.6	10	8.8	10.3	11.9	12.5	12.4	13.5	8.4	3.6	23.3	10.3	24
3	2.2	2.3	5.1	5.2	6.2	7.9	7.3	6.8	6	7.1	4.6	3.7	1.5	0.3	2.9	4.3	4.2	5.1	11.9	7.8	9.3	4.6	4.7	3.9	11.9	5.2	24
4	4.4	4.6	8.2	13.1	14.8	8	10	7.5	8.4	4.1	8.3	10.2	8.5	6.3	9.2	7.6	9.6	9.6	16.3	7.4	3.7	9.7	7.7	9.2	16.3	8.6	24
5	8.6	8.1	4.9	8.6	9.3	10.3	4.5	8.2	7.5	5.2	9.2	9.2	8.8	1.9	4.2	4.2	5.2	6.8	7.2	4.2	3.3	5.8	7.6	4.8	10.3	6.6	24
6	7.8	4.9	8.3	8.8	9.1	9.6	10.6	11.6	12.8	12.7	15.1	14.6	15.3	23.2	19.6	19.8	17.2	18.2	20.2	21.6	15.8	9.2	6.6	4.5	23.2	13.2	24
7	1.5	4.4	5.6	7.1	11.1	10.5	8.8	7.2	8.5	7.1	6.5	11	11.7	14.6	18.9	18.5	19.2	12.1	10.8	9.3	8.6	9.9	8.9	6.9	19.2	9.9	24
8	6.2	3.1	3.7	4.9	6.3	8.9	10.9	11.3	9.8	10.1	11.3	12.7	16.3	21.2	20.5	20.1	20.1	21	17.9	19.3	15.5	13	10.4	10.2	21.2	12.7	24
9	8.3	7.2	8.7	7.4	6.3	4.8	4.9	6.9	3.8	6.6	7.7	7.2	6.4	10.3	11.4	8.1	9.5	11.3	8.9	8.2	6.9	5.8	4.3	3.4	11.4	7.3	24
10	7.7	5.6	4.3	5.6	9.6	5.6	0.8	4.1	7.6	7.7	8.7	11.2	9.1	9.7	8.4	9.5	11.2	11.2	11.8	13.1	10.9	14.2	12.9	13	14.2	8.9	24
11	16.6	22.2	22	23.6	19.7	14.3	11.9	8.1	7	14.6	20.3	17.3	19.7	18.1	11.5	10.5	2.6	4.6	3.5	0.4	1.8	4.5	8.9	18	23.6	12.6	24
12	9.5	3.4	11.4	19	15.3	3.9	6.6	7	6.7	3.1	3.7	7.8	6.3	5.2	2.2	2.3	3.3	2.8	2.4	2.1	7.2	10.9	7.9	10.3	19.0	6.7	24
13	9.7	9.8	7.4	8.2	7.8	5.6	8.7	11.4	13.2	12.9	12.3	12.2	10.7	10.1	14.6	14.2	12.6	15.9	15.2	12.7	10.1	8.3	6.3	6.2	15.9	10.7	24
14	7.7	12.6	13.3	16	13.8	10.8	11.3	7.9	11.7	9.5	9.3	10.4	11.1	7.8	9	8.3	9.3	10.3	8.3	5.4	5	5.4	5.1	4.4	16.0	9.3	24
15	3.5	2	2.3	2.2	1.4	1	3	2.4	2.8	3.7	3.6	3.2	4.2	3.9	5.5	12.3	12.5	12.1	10.1	11.5	10.6	11.4	9.4	9.4	12.5	6.0	24
16	10	9.5	9.3	9.3	9.1	7.6	8	8.3	7.4	9.5	8.7	9.9	9.6	8.3	9	10.3	11.7	9.9	13.5	14	12.8	12.7	12.1	12.8	14.0	10.1	24
17	12.5	11.3	10.3	10.1	9.7	10.7	11.1	11.5	11.1	9.7	9.6	11.1	12.3	10.4	12.5	9.8	8.9	8.8	7.8	6.8	7.3	6.4	6.9	6.1	12.5	9.7	24
18	4.9	5.4	3	2.7	3.7	4.7	4.6	4	2.5	2.6	3.5	3.7	4.2	4.8	5.5	3.9	3.8	3.2	2.1	3.3	1.7	2.5	2.3	2.3	5.5	3.5	24
19	2.4	2.7	2.7	4.5	3.1	1.6	2.7	1.1	1.4	1.7	2.2	2.6	3.1	5.8	5.9	5.5	4.7	5.1	5.5	5	3.7	4.2	4.5	3.6	5.9	3.6	24
20	3.2	3.1	3.2	2.9	2	0.7	0.2	0	0	0	1.6	2.1	2.6	3.4	2.1	2	2.9	2.4	2.9	6.9	9.7	13.1	13.4	14.3	14.3	3.9	24
21	11.3	12.4	12.5	11.3	10.7	12.9	11.5	10.3	8.7	6.4	6.9	5.6	4.5	4.1	X	X	X	X	X	X	X	X	X	X	12.9	9.2	14
22	X	X	X	X	X	X	1.2	Y	4.1	5	5.8	5.8	9.6	9	6.2	6	2.4	9.7	10.8	7.8	14.7	8.8	8.2	13.3	14.7	7.6	17
23	13.8	12.2	14	11.7	6.7	6	8.7	4.7	3.6	3.9	0.4	1.9	1.5	7.3	8.7	10.1	10.1	11	8	6.7	9.6	6.3	6.9	3.9	14.0	7.4	24
24	2.4	1.2	5.2	10.7	10.9	8.8	7.4	11.4	10.3	5	16.4	14.7	12.2	15.8	17.5	19.6	16.3	20.4	21.5	17.5	17.8	17.6	9.5	10	21.5	12.5	24
25	10.8	10	16.9	15.8	13.9	14.6	P	12.9	11	9.2	7.2	8.9	9.5	7.5	4.7	3.3	4.7	5.7	6.2	5.5	6.1	3.8	4.8	5.1	16.9	8.6	23
26	6	0.8	1.9	0.7	0.9	0.9	0.7	1.7	2.2	7	8.4	10.1	10.4	8.7	5.1	6.9	3.4	4.8	6.8	4.1	1.5	0.3	0.5	0.9	10.4	3.9	24
27	4	7	4.1	6.8	7.8	11.2	13.3	14	13.9	14.6	14.6	12.5	13.5	13	12.7	10	10.3	10.9	13.8	13.2	14	9.7	8.2	8.7	14.6	10.9	24
28	5.3	8.1	10.8	9.4	8	10.5	10.7	9.3	7.4	4.5	6.1	5.6	4.6	2.9	4.6	4.2	4.5	7.8	8.1	5.2	6.5	6.7	8.8	8.8	10.8	7.0	24
29	10.1	16.2	12.7	16.3	19.8	16.7	13.6	16.1	16.7	15.2	15.1	15.8	16.9	17.5	14.6	11.9	14	14.3	10.7	8.8	6.6	11.8	6.1	3.2	19.8	13.4	24
30	0.8	2.1	1.8	3.2	0.8	1.3	2.6	2.9	7.9	10.3	12	17.4	22.9	11.3	19.6	19	19.9	18	15.1	18.1	21.9	21.1	18.4	13.7	22.9	11.8	24
31	16.4	18.1	15	13.3	8.7	9.6	17.2	***25.8***	20.5	13.8	18.3	22.7	21.9	18.6	10.7	11.9	8	12.7	20.1	15.1	9.6	8.7	10.5	13.7	***25.8***	***15.0***	24
HOURLY MAX	16.6	22.2	22.0	23.6	19.8	16.7	17.2	25.8	20.5	15.2	23.3	22.7	22.9	23.2	20.5	20.1	20.1	21.0	21.5	21.6	21.9	21.1	18.4	18.0			
HOURLY AVG	7.3	7.3	7.8	8.8	8.4	7.6	7.5	8.1	8.0	7.7	9.2	10.1	10.3	9.8	9.9	9.7	9.3	10.2	10.3	9.2	8.9	8.8	7.8	7.6			

STATUS FLAG CODES

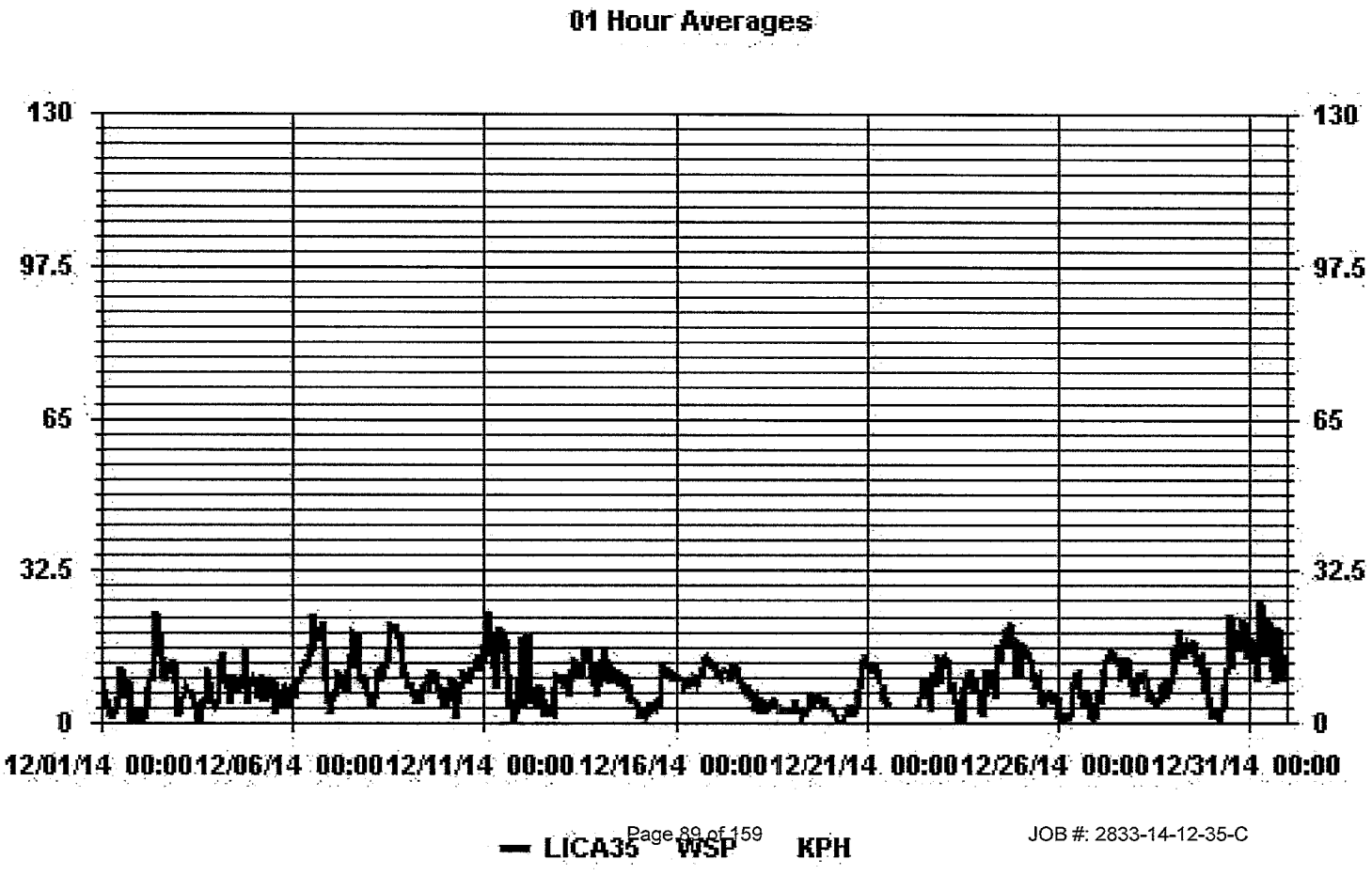
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



LAST CALIBRATION:	February 21, 2014
DECLINATION :	MAEGNETIC DECLINATION 19 DEGREES EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	723						
MAXIMUM 1-HR AVERAGE:	25.8	KPH	@ HOUR(S)	7	ON DAY(S)	31	
MAXIMUM 24-HR AVERAGE:	15.0	KPH			ON DAY(S)	31	
					VAR-VARIOUS		
			OPERATIONAL TIME:			726	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			97.6	%
STANDARD DEVIATION:	5.13		MONTHLY AVERAGE:			8.74	KPH



JOB #: 2833-14-12-35-C

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

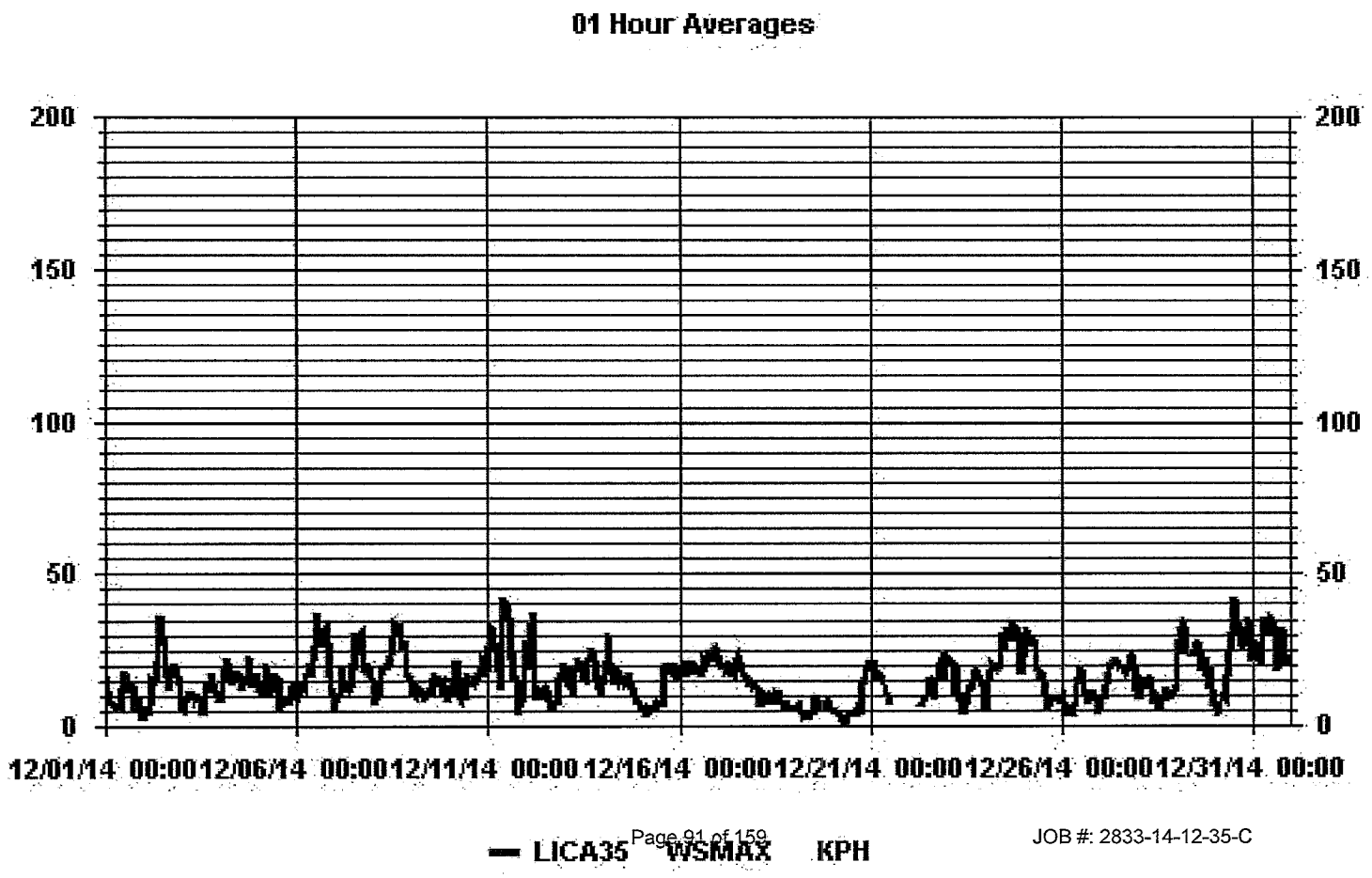
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG.	RDGS.
DAY																											
1	16.4	12	10.9	7.8	7.3	7.3	6.4	6.4	5.3	5.3	12.4	17.4	17.2	14.6	10.7	12.5	13.1	14.2	5.1	7.3	6.7	7.7	5.6	2.2	17	9.7	24
2	6.9	3.7	4.8	3.5	6.9	15.3	14.6	14.7	21.1	27.3	35.6	35.8	30	27.4	20.6	16.8	12.1	16.2	18	19.8	19.6	17.4	14.1	7.7	36	17.1	24
3	6	5.4	7.7	9.8	8.5	11.6	10.3	10.4	8.9	10.1	10	8.5	6.4	3.8	6.9	14.4	10.6	13.6	17.6	16.1	14.4	12.4	10.3	10.4	18	10.2	24
4	8.2	9.6	14.2	19.4	22.1	21	19.1	13.5	14.7	16.2	14.5	18.1	16.7	11.8	16.6	13.4	14.4	15.5	23	16.9	12.6	16.3	14.8	17.6	23	15.8	24
5	13.2	12	11.4	13.6	15	20.5	9	17.5	14.1	10.9	16.5	16.6	16.1	5.3	9.8	5.9	9.2	9.7	9.5	6.8	9.1	12.5	13.6	8.8	21	11.9	24
6	12.2	10.6	11.8	13.3	13.3	12.7	16.4	18.3	17.4	17.2	20.6	21.8	26.7	37.3	32	30.5	25.8	27.8	31.8	32.6	28.1	16.5	13.2	9.8	37	20.7	24
7	4.6	7.5	10	10.4	19.7	14.5	12.6	13	13.8	12	13.1	20.3	17.9	30	29.8	30	30.7	23.7	18.9	18.4	20.8	19.2	16.9	15.5	31	17.6	24
8	14.8	7.4	8.8	10.8	10.9	17	18.8	19.4	19.4	20.8	20.5	23.1	28.5	33.3	32.5	30.8	31.3	34.1	27	27.4	25.3	17.8	16.8	15.5	34	21.3	24
9	11.4	10.7	12.1	14.3	10.3	11.1	11.6	11.5	9.3	9.8	11.6	11.2	10.9	15.6	16.9	12.8	14.8	16.1	13.7	14.5	10.3	11.3	8.2	9.5	17	12.1	24
10	13	15.6	10.2	11	21.8	19.1	9.7	8.9	11.9	11.2	15.1	16.8	14.6	13.2	14.8	13.9	15	15.8	17	19.3	16.1	22.3	21.9	17.5	22	15.2	24
11	25.9	29.3	32.1	31.3	27.5	25.1	18.1	13	12	40.7	42	35.1	40.4	36.2	23	23.1	15.4	16.8	7.3	3.9	5.8	7.4	14.9	28.4	42	23.1	24
12	24.9	21.7	18.4	33.9	36.8	8.4	13	12.5	10.6	9.6	9.9	10.5	12.6	11.7	8.7	5.5	6.9	6.4	7.4	7.7	15.4	16.8	14.2	20.6	37	14.3	24
13	17.3	17.7	12.4	15.7	12.7	9.1	18	18.3	22.4	19	21	17.7	16.1	15.5	20.9	22	23.1	25.4	23.7	22.3	15.8	12.4	11.5	10	25	17.5	24
14	13.3	16.6	21.2	30.3	21	18.8	19.9	13.7	19	18.6	15	15.8	14.8	13.9	14.7	13.8	17.6	14.9	12.8	10.9	8.3	7.7	7.8	7.1	30	15.3	24
15	6.2	5.3	5.8	3.7	3.9	5.2	5.8	5.4	5.9	7.4	6.5	6.7	7.3	7.3	18.6	19.5	19.4	19.3	16.9	18.6	16	20.7	15.4	16.8	21	11.0	24
16	17.9	16.8	19.7	20.2	17	17.1	18.9	17.3	21	18.4	17.4	17.4	17.9	15.9	17.5	21.6	20.9	19.6	23.8	24.8	20.5	24.5	24.4	25.3	25	19.8	24
17	24	20.3	18.5	20.2	17.9	18.3	20.4	20.4	17.6	17.9	16.9	19.3	22.1	23.2	21.4	18.6	17.4	16.7	15.3	15.2	12.8	14.9	12.7	13	24	18.1	24
18	13.3	12.9	7.6	7.3	11	10.4	10.3	10	6.8	9.9	9.4	8.9	10.6	9.6	10.2	8.2	7.8	7.5	5.6	7.7	4.9	6.2	5.7	6.1	13	8.7	24
19	5.1	5.1	6.5	6.9	4.7	3.3	4	3	2.9	2.8	3.9	4.2	4.3	8.5	9.9	7.7	6.5	6.6	7.8	8	6.9	8.1	7.4	5.6	10	5.8	24
20	4.9	5.1	4.9	4.3	3.3	3.8	2.3	0	0	0	3.5	3.7	3.7	4.6	3.6	3.7	5.6	4.7	4.5	13.8	15.4	19.7	18.2	21.3	21	6.4	24
21	17.7	19.1	19.8	16.4	16.2	17.9	16.5	15.4	14	10.6	10.7	10.4	8.1	8.1	X	X	X	X	X	X	X	X	X	X	20	14.4	14
22	X	X	X	X	X	X	9.9	Y	7	8.2	8.5	9.7	15.3	15.5	9	11.7	8.4	14.4	15.2	20.8	22.4	16	15.2	23.5	24	13.6	17
23	20.7	19	22.2	20.9	20.8	10.4	19.8	8.4	9.2	10.5	3.9	5.5	6.8	10.6	13.3	14.5	13.9	17.5	18.6	14.2	16.6	15.3	13	6.5	22	13.8	24
24	7.1	5.2	16.6	16.2	20.7	20.1	19.8	18.7	19.6	18.5	30.7	25.4	25.2	28.7	31.7	32.1	27.6	34.5	33.1	32.4	29.3	30.9	16.7	21	35	23.4	24
25	24.1	22.7	32.1	30.1	26.1	29	P	27.1	19.9	18.1	13.8	17.6	17	14.4	10.5	6.6	6.8	8.9	8.8	9.4	8.8	8.7	7.2	9	32	16.4	23
26	9.7	7.9	4.7	3.8	4.2	5.1	4.7	6.4	7.7	13.9	15.6	16.8	19.1	16.8	10.8	10.5	7	11	10.8	11	7.5	9.1	3.7	4.9	19	9.3	24
27	7.9	9.8	8.4	13	13.6	17.4	20.5	21.2	20.3	21	22.3	19.6	20.1	20	19.2	18	16.8	17.5	21.9	21.4	23.5	19.5	13.7	14.4	24	17.5	24
28	8.8	14.6	14.7	13.9	13.4	14.9	14.5	16	12.3	8.1	8.1	8.8	6.8	6.5	9.7	8.5	8.4	11.3	11.3	9	10.3	10.8	12	11.9	16	11.0	24
29	23.4	27.7	26.7	31.6	33.4	32.6	23.5	24.8	24.4	22.3	24.5	25	26.5	28.1	24.6	17.7	20.3	20.9	16.7	13.6	12.1	19.1	12.5	6.7	33	22.4	24
30	5.7	4.3	4.6	7.6	10.1	9.8	9.1	16.3	18.2	23.7	30.6	34.7	*42.3*	30.5	34.1	30.3	26.8	26.3	27.3	31.8	34.6	34.3	33.8	20.7	*42*	22.8	24
31	24.4	27.9	26.9	25	20.4	20.6	30.4	35.3	33.2	29.1	31.3	35.2	34.5	30.1	17.7	21.4	18.6	22.2	31.9	28.5	23.2	19.6	22.2	22	35	*26.3*	24
HOURLY MAX	26	29	32	34	37	33	30	35	33	41	42	36	42	37	34	32	31	35	33	33	35	34	34	28			
HOURLY AVG	13.6	13.5	14.2	15.5	15.7	14.9	14.3	14.6	14.2	15.1	16.6	17.3	18.0	17.7	17.3	16.5	15.7	17.0	16.7	16.8	15.8	15.8	13.9	13.6			

STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	42	KPH	@ HOUR(S)	12	ON DAY(S)	30
					VAR-VARIOUS	
OPERATIONAL TIME:					726	HRS



JOB #: 2833-14-12-35-C

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

December 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	.55	.27	.41	1.79	5.23	4.54	1.37	1.65	.96	1.10	1.79	3.16	4.26	2.75	2.34	.55	32.78
<	12.0	.41	.00	.00	1.51	6.88	4.26	4.40	2.75	.27	.00	.68	7.16	4.68	4.40	5.09	.68	43.25
<	20.0	.00	.00	.00	.96	1.23	3.30	2.06	.13	.00	.00	.82	1.37	1.92	2.47	4.82	1.10	20.24
<	29.0	.00	.00	.00	.00	.00	.96	.55	.00	.00	.00	.13	.13	.68	.27	.27	.27	3.30
<	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	.96	.27	.41	4.26	13.36	13.08	8.40	4.54	1.23	1.10	3.44	11.84	11.57	9.91	12.53	2.61	

Calm : .41 %

Total # Operational Hours : 726

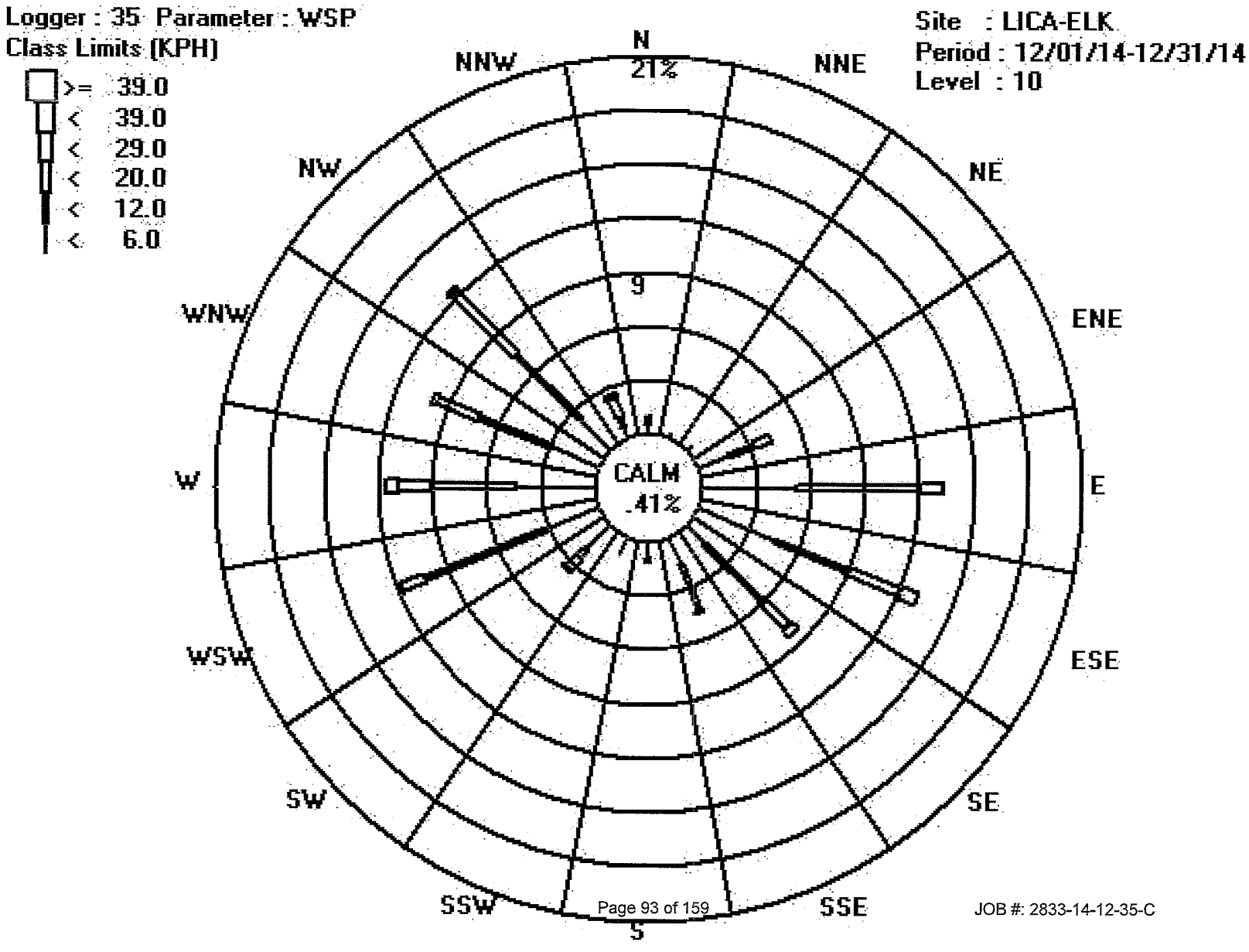
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	4	2	3	13	38	33	10	12	7	8	13	23	31	20	17	4	238
<	12.0	3			11	50	31	32	20	2		5	52	34	32	37	5	314
<	20.0				7	9	24	15	1			6	10	14	18	35	8	147
<	29.0						7	4				1	1	5	2	2	2	24
<	39.0																	
>=	39.0																	
	Totals	7	2	3	31	97	95	61	33	9	8	25	86	84	72	91	19	

Calm : .41 %

Total # Operational Hours : 726



JOB #: 2833-14-12-35-C

Vector Wind Direction

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 2014

WIND DIRECTION (WD) hourly averages in degrees

MST

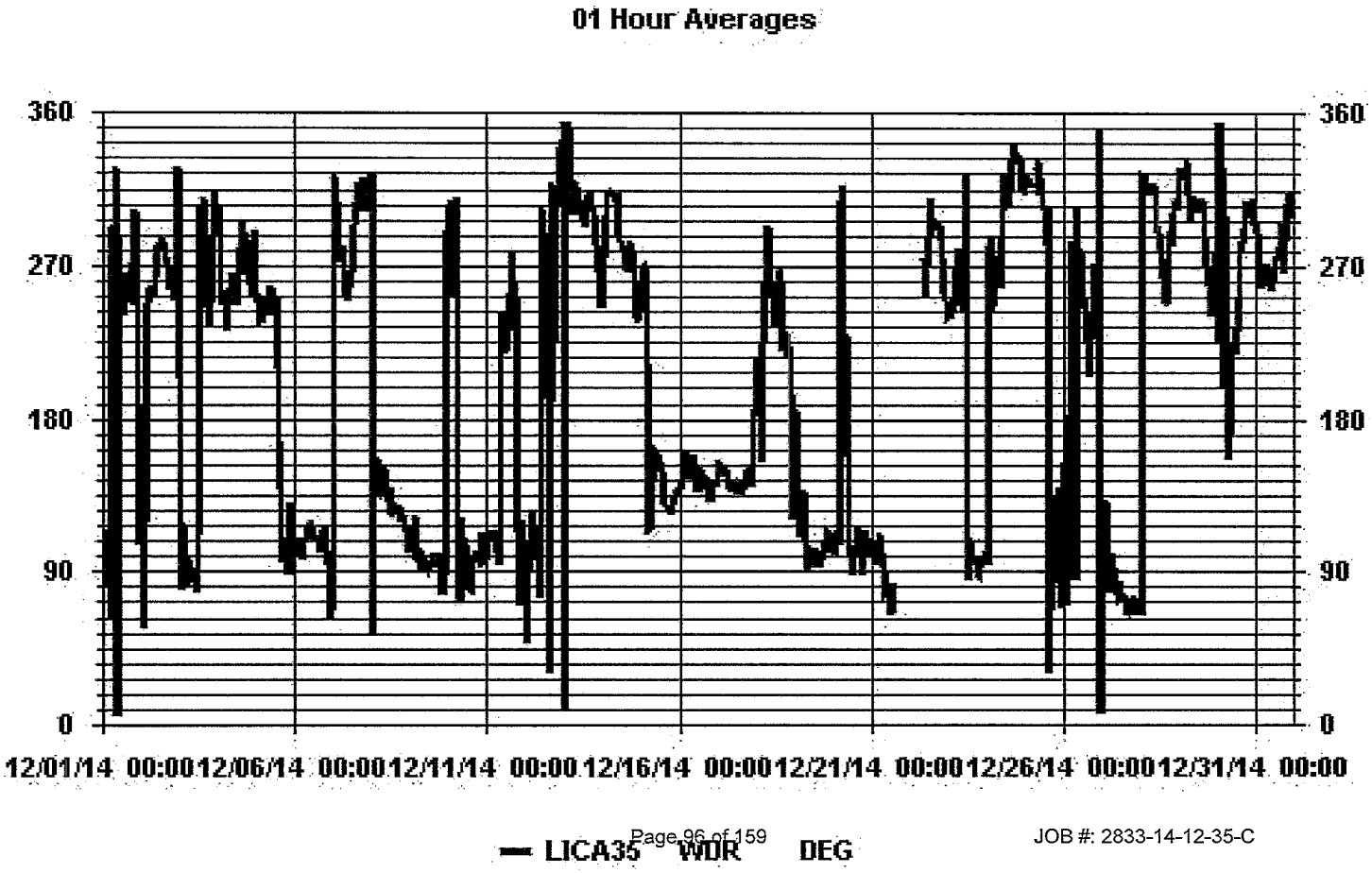
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	114	110	102	97	81	63	292	293	328	4	287	259	241	250	266	252	252	251	272	300	300	265	105	165	328	NNW	24
2	116	188	56	119	248	257	251	257	253	262	281	283	287	277	284	272	272	258	255	258	270	249	254	328	328	NNW	24
3	205	79	119	86	81	98	86	89	84	91	90	78	112	302	302	310	269	246	235	260	247	288	314	288	314	NW	24
4	306	297	246	254	252	255	232	256	254	264	264	246	252	264	280	296	290	283	271	266	259	284	252	291	306	NW	24
5	254	249	237	238	238	241	251	248	240	258	255	253	251	211	168	139	95	105	110	103	87	128	128	103	258	WSW	24
6	100	100	109	101	104	97	108	110	117	118	113	114	112	111	110	109	101	106	113	114	103	95	63	67	118	ESE	24
7	81	323	308	291	277	272	282	264	254	249	257	267	265	294	307	318	315	315	301	321	302	304	312	309	323	NW	24
8	325	53	155	155	140	137	139	139	150	149	135	136	125	123	130	124	126	127	127	120	123	114	117	101	325	NW	24
9	106	107	102	123	98	96	103	89	101	97	89	95	92	94	101	96	97	92	101	94	76	90	90	290	290	WNW	24
10	304	262	309	305	250	310	117	71	122	95	109	107	96	81	80	95	98	102	96	100	93	112	98	98	310	NW	24
11	110	112	111	112	114	106	107	94	114	230	242	224	219	231	253	278	253	261	113	250	80	70	120	109	278	W	24
12	93	48	91	105	124	96	103	112	116	75	304	290	269	257	193	30	319	190	226	304	311	317	339	344	344	NNW	24
13	9	355	348	352	341	301	303	318	317	304	305	297	300	293	301	310	311	304	304	300	283	267	265	247	355	N	24
14	247	274	300	312	310	314	313	312	309	310	289	285	282	281	272	269	267	284	278	269	262	240	237	242	314	NW	24
15	248	269	270	267	213	116	117	144	145	161	160	154	154	150	131	129	126	126	128	124	130	135	137	138	270	W	24
16	139	142	151	162	160	144	151	154	156	159	147	136	144	151	149	148	138	142	132	132	142	141	141	142	162	SSE	24
17	155	146	149	146	149	149	140	140	138	144	139	136	142	141	135	143	139	141	149	151	140	153	185	182	185	S	24
18	197	216	186	155	225	260	269	293	252	261	252	247	234	241	269	262	219	227	231	216	219	223	196	120	293	WNW	24
19	158	185	129	110	119	138	108	91	105	104	93	96	97	104	99	93	97	98	101	107	116	102	106	113	185	S	24
20	110	100	114	106	115	309	318	208	230	158	106	101	87	100	104	108	115	101	87	107	114	111	102	103	318	NW	24
21	107	105	103	95	97	113	102	94	90	77	78	68	65	81	X	X	X	X	X	X	X	X	X	X	113	ESE	14
22	X	X	X	X	X	X	258	Y	272	252	266	269	286	310	300	291	295	291	295	287	276	256	251	240	310	NW	17
23	241	241	244	250	269	265	247	280	272	243	274	324	84	109	97	96	96	98	89	88	94	95	97	100	324	NW	24
24	99	281	287	243	246	261	275	270	257	288	302	325	322	304	312	315	333	341	333	336	330	333	316	315	341	NNW	24
25	321	321	321	319	319	318	P	329	332	312	321	304	306	282	306	30	67	83	106	133	117	139	68	93	332	NNW	23
26	154	70	76	182	171	284	281	84	304	245	255	280	250	249	230	225	205	243	237	249	272	227	352	6	352	N	24
27	91	103	132	95	77	90	100	93	89	80	81	74	75	76	75	65	69	66	68	73	76	70	67	66	132	SE	24
28	66	322	321	323	315	314	313	313	318	313	295	291	279	262	274	249	247	271	287	286	301	307	308	303	323	NW	24
29	323	328	325	327	323	332	313	295	302	306	311	309	305	302	309	307	287	271	260	249	241	244	260	279	332	NNW	24
30	226	355	340	329	197	300	156	171	216	221	220	220	232	251	278	284	292	299	308	305	307	306	310	296	355	N	24
31	292	290	271	259	259	260	266	271	264	255	261	267	274	275	282	295	274	265	285	304	303	313	308	307	313	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:	February 21, 2014
DECLINATION :	MAEGNETIC DECLINATION 19 DEGREES EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	726	HRS
STANDARD DEVIATION:	89.40		AMD OPERATION UPTIME:	97.6	%
			MONTHLY AVERAGE:	253	DEG



JOB #: 2833-14-12-35-C

Standard Deviation Wind Direction

Lakeland Industry & Community Association - Elk Point Site

DECEMBER 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	6	9	9	8	16	28	10	29	15	16	10	9	6	12	15	7	7	41	20	12	21	18	16	20
2	26	40	28	29	26	20	7	10	13	12	6	7	6	5	4	7	7	8	9	9	8	5	9	10
3	13	23	10	11	9	7	7	8	6	10	20	25	38	25	28	31	27	13	7	15	8	28	11	19
4	11	14	8	9	7	18	11	8	8	24	12	9	10	13	7	8	7	8	6	10	41	9	11	11
5	9	8	9	5	6	9	12	12	12	15	13	11	11	15	13	10	13	8	7	9	15	11	10	7
6	6	7	7	6	6	5	5	6	6	5	6	6	6	7	7	7	7	6	7	7	8	7	11	12
7	13	27	7	4	6	5	9	9	9	10	13	10	9	10	7	9	8	8	9	8	10	11	11	12
8	15	15	24	15	13	12	14	12	12	12	10	10	9	7	8	7	7	7	7	5	6	5	8	5
9	6	7	7	9	12	44	47	8	22	10	6	8	13	7	9	8	8	6	8	9	10	11	15	13
10	15	36	31	23	15	24	36	28	10	10	7	5	13	7	9	8	5	5	5	6	9	8	7	5
11	5	5	5	4	5	8	5	9	13	18	10	10	10	11	16	14	27	35	44	30	39	18	7	7
12	14	40	7	5	16	26	11	12	10	29	18	6	16	19	51	24	38	15	16	20	6	7	8	10
13	13	14	12	11	8	8	6	9	8	7	6	5	5	5	6	7	8	7	6	6	8	9	10	11
14	10	7	7	9	7	9	8	9	7	8	8	7	6	13	7	9	11	7	7	13	11	6	8	8
15	12	20	18	9	17	35	18	20	16	17	13	18	16	13	12	9	9	9	9	7	10	10	11	11
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19	19	14	17	9	11	16	6	5	5	6	6	6	6	7	7	6	6	4	6	6	8	10	9	7
20	7	8	7	5	6	32	25	17	0	41	6	10	8	5	7	18	12	10	8	7	7	7	7	7
21	8	7	7	7	7	11	8	8	10	12	10	12	13	14	X	X	X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	10	Y	8	10	10	8	8	9	7	8	8	5	6	10	5	10	11	8
23	6	6	8	12	18	8	17	9	22	17	25	40	34	7	8	9	7	6	12	12	10	31	17	12
24	23	13	13	9	10	13	18	10	13	19	6	10	9	7	9	9	8	8	8	8	9	9	10	14
25	14	11	10	10	9	9	P	11	10	11	13	12	12	16	18	25	9	8	6	12	9	18	14	10
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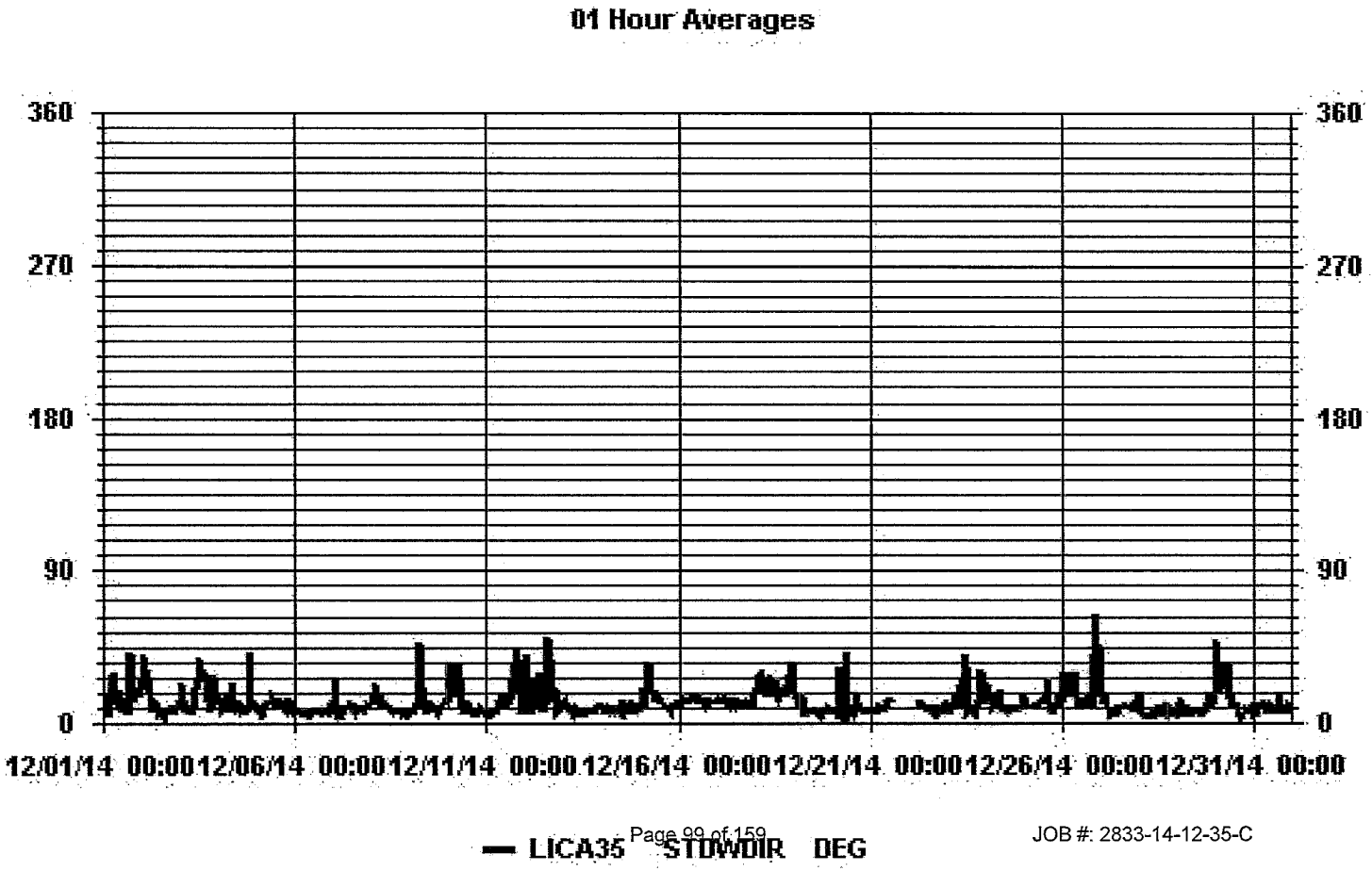
28	17	9	6	4	4	5	4	4	4	6	7	4	8	8	7	9	10	7	5	8	6	6	6	5
29	9	8	15	9	7	9	9	5	5	6	7	7	7	6	7	6	8	6	11	7	18	9	11	14
30	49	31	17	30	19	33	32	36	15	13	14	12	10	12	7	5	3	5	8	7	6	6	8	5
31	6	4	10	10	10	11	9	5	9	11	10	8	6	6	10	8	17	11	5	7	8	11	10	7

STATUS FLAG CODES

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

LAST CALIBRATION:	February 21, 2014

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	727	HRS



JOB #: 2833-14-12-35-C

Non-Continuous Monitoring

VOC Monitoring

Sample ID: 14120055-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Dec 1, 2014

Priority: Normal

AIR FCD-01320/2

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DEC 09 2014

Maxxam

VOC Sample Collection Data Sheet

Client:	LICA	**Sampler S/N:**	6200
Location:	Elk Point	**Canister ID:**	na
Station ID:	LICA	**Canister Installation Date/Time:**	na
Field Sample ID:	LICA/VOC/EP/Dec 1, 2014	**Canister Removal Date/Time:**	na

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Dec-14	na	na	na

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)
na	na

-27"Hg on arrival - not sampled.

JMP

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 voc sampler out for repair

Technician Signature: Tom Bourque

JOB #: 2833-14-12-35-C

Sample ID: 14120168-001

Customer ID: LICA

Cust Samp ID: LICA VOC/ELK/DEC 9 - DEC 17 2014

Maxxam Analytics Inc.

Canister Collection Data Sheet

Client: LICA
Location: ELK Point Airport
Station ID: Lica 35
Field Sample ID: LICA VOC/ ELK / DEC9-DEC17 2014.

Canister ID: 1135
Canister Installation Date/Time: DEC 9, 2014 18:26 (MST)
Canister Removal Date/Time: DEC 17, 2014 18:13 (MST)

Date and Time Information
Sample Date and time (MST)

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-30	0 PSI

Canister valve open after to connection?: YES

Canister valve closed prior to disconnection?: YES

Comments: 0 psi.

Technician Signature: RAJA ABID SAMPLER OUT RAJA ABID.

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A Bureau Veritas Group Company

Date: December 9, 2014
Canister ID: 1516

Parameters	Concentrations (ug/m3)
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	0.10
1,2,4-Trichlorobenzene	< 0.06
1,2,4-Trimethylbenzene	0.18
1,2-Dibromoethane	< 0.06
1,2-Dichlorobenzene	< 0.06
1,2-Dichloroethane	< 0.06
1,2-Dichloropropane	< 0.06
1,3,5-Trimethylbenzene	0.15
1,3-Butadiene	< 0.06
1,3-Dichlorobenzene	< 0.06
1,4-Dichlorobenzene	< 0.06
1,4-Dioxane	< 0.06
1-Butene	0.83
1-Hexene	< 0.06
1-Pentene	< 0.06
2,2,4-Trimethylpentane	< 0.06
2,2-Dimethylbutane	0.17
2,3,4-Trimethylpentane	< 0.06
2,3-Dimethylbutane	0.35
2,3-Dimethylpentane	< 0.06
2,4-Dimethylpentane	< 0.06
2-Methylheptane	0.24
2-Methylhexane	0.52
2-Methylpentane	0.61
3-Methylheptane	0.17
3-Methylhexane	0.46
3-Methylpentane	0.63
Acetone	19.0
Acrolein	< 0.06
Benzene	< 0.06
Benzyl chloride	< 0.06
Bromodichloromethane	< 0.06
Bromoform	< 0.06
Bromomethane	< 0.06
Carbon disulfide	2.99
Carbon tetrachloride	0.09
Chlorobenzene	< 0.06
Chloroethane	< 0.06

Parameters	Concentrations (ug/m3)
Chloroform	< 0.06
Chloromethane	0.81
cis-1,2-Dichloroethene	< 0.06
cis-1,3-Dichloropropene	< 0.06
cis-2-Butene	< 0.06
cis-2-Pentene	< 0.06
Cyclohexane	0.69
Cyclopentane	0.59
Dibromochloromethane	< 0.06
Ethanol	< 0.06
Ethyl acetate	< 0.06
Ethylbenzene	< 0.06
Freon-11	0.13
Freon-113	< 0.06
Freon-114	< 0.06
Freon-12	0.57
Hexachloro-1,3-butadiene	< 0.06
Isobutane	2.40
Isopentane	2.12
Isoprene	< 0.06
Isopropyl alcohol	< 0.06
Isopropylbenzene	< 0.06
m,p-Xylene	0.39
m-Diethylbenzene	< 0.06
m-Ethyltoluene	0.13
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	1.13
Methylcyclopentane	0.45
Methylene chloride	0.53
n-Butane	3.63
n-Decane	< 0.06
n-Dodecane	< 0.06
n-Heptane	< 0.06
n-Hexane	5.22

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Date: December 9, 2014
Canister ID: 1516

Parameters	Concentrations (ug/m3)
n-Nonane	< 0.06
n-Octane	0.23
n-Pentane	< 0.06
n-Propylbenzene	< 0.06
n-Undecane	< 0.06
Naphthalene	0.69
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	0.76
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: 15010004-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Dec 19, 2014

Priority: Normal

NO VOC AT ELK POINT FOR.

DEC 25, 2014.

RAJA ABID.
FIELD TECH. MAXXAM ANALYTICS.

DEC 29, 2014.

PAH Monitoring

Sample ID: 14120055-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Dec 1, 2014

Priority: Normal

AIR FCD-01321/2

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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/Dec 01, 2014 ~~Nov 26, 2014~~

Puf+ S/N: 9801
Motor S/N: 1010 - 1015
Installation Date/Time: Nov 26 2014 @ 12:55
Removal Date/Time: Dec 3, 2014 @ 1439

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 1, 2014	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: Sep 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
709	330.17	-23.6	296.21

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

Comments:

Technician Signature: Install Case / Removed TB

Maxxam
A Bureau Veritas Group Company

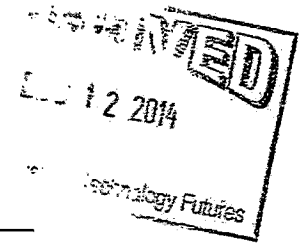
Date: December 1, 2014
PUF S/N: 9801

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	1.11
2-Methylnaphthalene	1.79
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.14
Acenaphthylene	0.16
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	0.02
Benzo(a)pyrene	0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	0.11
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	< 0.01
Chrysene	0.03
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	0.22
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	2.17
Perylene	< 0.01
Phenanthrene	0.28
Pyrene	0.04
Retene	0.15

Sample ID: 14120107-004

Customer ID: LICA
Cust Samp ID: LICA/PUF/ELK/Dec 7, 2014
Priority: Normal

Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA.
Location: ELK POINT
Station ID: LICA
Field Sample ID: LICA / PUF / DEC 7, 2014.

Puf+ S/N: TE-04
Motor S/N: 1139.
Installation Date/Time: DEC 4, 2014 @ 11:12.
Removal Date/Time: DEC 9, 2014, 18:18

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
7 DEC 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 2014.

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
712	229	-8.7	330.19

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

Comments:

Technician Signiture: SAMPLE IN TOM BORQUE SAMPLE OUT ROSA ABID

MaxXam
A Bureau Veritas Group Company

Date: December 7, 2014
PUF S/N: TE04

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.25
2-Methylnaphthalene	0.30
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	0.08
Fluorene	0.22
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	0.46
Perylene	< 0.01
Phenanthrene	0.38
Pyrene	0.04
Retene	0.04

Sample ID: 14120168-002

Customer ID: LiCA

Cust Samp ID: LICA/PUF/EP/DEC 13, 2014

AIR FCD-01321/2

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DEC 22 2014

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: BLKPOINT
Station ID: LICA
Field Sample ID: LICA/PUF/EP/DEC13 2014.

Puf+ S/N: TE 01.
Motor S/N: 1139.
Installation Date/Time: DEC 9, 2014 18:18.
Removal Date/Time: DEC 17, 2014 17:01.

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-DEC 2014	00:00	24:00	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 2011.

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
708	229	-2	330.21

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

Comments:

Technician Signature: SAMPLE IN = RAJA ABID. SAMPLE OUT :- RAJA ABID

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.16
2-Methylnaphthalene	0.21
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.05
Acenaphthylene	0.06
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	0.07
Fluorene	0.19
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.34
Perylene	< 0.01
Phenanthrene	0.30
Pyrene	0.04
Retene	0.02

Sample ID: 15010004-001

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Dec 19, 2014

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: BLK POINT
Station ID: LICA
Field Sample ID: LICA / PUF / EP / DEC 19, 2014.

Puf+ S/N: P-13-02.
Motor S/N: 1139.
Installation Date/Time: DEC 17, 2014. - 16:47
Removal Date/Time: ~~16:47~~ RA Dec 23, 2014 @ 17:35

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-DEC-14.	00:00	24:00.	24 HRS

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-2014.

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
705	229	-11.6	330.15

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: Canister 43782 not used (-30" Hg)

Technician Signature: SAMPLE IN RACK ABOVE. / Removed

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Date: December 19, 2014
PUF S/N: P13-02

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.30
2-Methylnaphthalene	0.43
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.09
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	0.02
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	0.09
Fluorene	0.17
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.21
Perylene	< 0.01
Phenanthrene	0.31
Pyrene	0.06
Retene	0.01

Sample ID: 15010004-006

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Dec 25, 2014

Priority: Normal

Maxxam
A Bureau Veritas Group Company

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: ELK POINT
Station ID: LICA 35
Field Sample ID: LICA/PUF/EP/Dec 25 2014

Puf+ S/N: TE-08
Motor S/N: 1134
Installation Date/Time: Dec 23, 2014 @ 17:39
Removal Date/Time: Dec 29, 2014 @ 16:42

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Dec 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 25, 2011

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
709	229	-12.5	325.06

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 / Sample out Raja Arjo.

JOB #: 2833-14-12-35-C

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.32
2-Methylnaphthalene	0.53
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	0.03
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.61
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.02
Retene	0.01

Sample ID: 15010016-001

AIR FCD-01321/2

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/Dec 31, 2014

Priority: Normal

Maxxam

RECEIVED
JAN 08 2015

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: ELK POINT
Station ID: LICA 35
Field Sample ID: LICA PUF IEP DEC 31, 2014

Puf+ S/N: TE-09
Motor S/N: 1139
Installation Date/Time: DEC 23, 2014 16:47
Removal Date/Time: JAN 5, 2015 16:50

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
DEC 31, 2014	00:00 DEC 31, 2014	00:00 JAN 1, 2015	24

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

Set Flow Rate (slpm): 230

Date of Last Calibration: SEP 25, 2011.

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (°C)	Volume (Vstd m^3)
710	229	−4.2°	330.14

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: AX

Technician Signature: SAMPLE IN RAJA ABID. Sample out Alex Yakupov

JOB #: 2833-14-12-35-C

Parameters	Concentrations (ug/m3)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.08
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.09
Perylene	< 0.01
Phenanthrene	0.14
Pyrene	0.03
Retene	0.03

Calibration Reports

Sulphur Dioxide

Maxxam — API 100A SO2 Analyzer Calibration

Date:	2-Dec-14	**Start/End Time (mst):**	1237-1555
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:	4-Nov-14	**As Found C.F.**	0.993
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.999

	As found:	As left:
SLOPE:	.976	.965
OFFSET:	33.8	34.2
HVPS:	528	528
DCPS:	n/a	n/a
RCELL TEMP:	50.0	50.0
BOX TEMP:	30.0	30.0
PMT TEMP:	8.1	8.1
IZS TEMP:	45.0	45.0
STABIL:	0.0	0.0
PRES:	25.7	25.7
SAMP FL:	420	420
PMT:	39.9	39.9
UV LAMP:	2533	2533
STR. LGT	16.5	16.5
DRK PMT:	12.9	12.9
DRK LMP:	2.7	2.7
Internal Span:	517	506

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	0.6	NA
adjusted zero	5000	0.0	5000	0	0.4	NA
as found high	4995	76.74	5072	729.3	734.5	0.993
adjusted high	4995	76.74	5072	729.3	729.8	1.000
mid	4995	36.87	5032	353.2	352.9	1.002
low	4995	16.94	5012	162.9	164.2	0.994
calibrator zero	5000	0.00	5000	0	0.5	NA
					Average C.F.=	0.999

Linear Regression/Calibration Results:

		LIMITS	Pass/Fail ?
Correlation Coeffecient =	1.000	> or = 0.995	PASS
Slope =	1.000	0.85-1.15	PASS
b (Intercept as % of full scale)=	-0.06%	± 3% F.S.	PASS
% change in C.F. from last cal	0.76%	± 15%	PASS

Converter Effeciency Check for H_2S/TRS application:

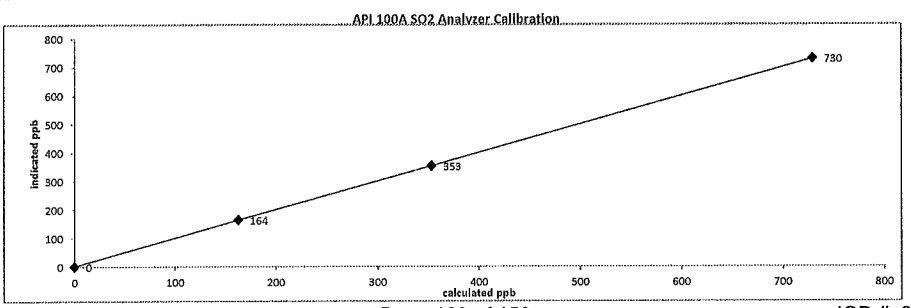
****run converter effeciency test immediately following zero adjust****

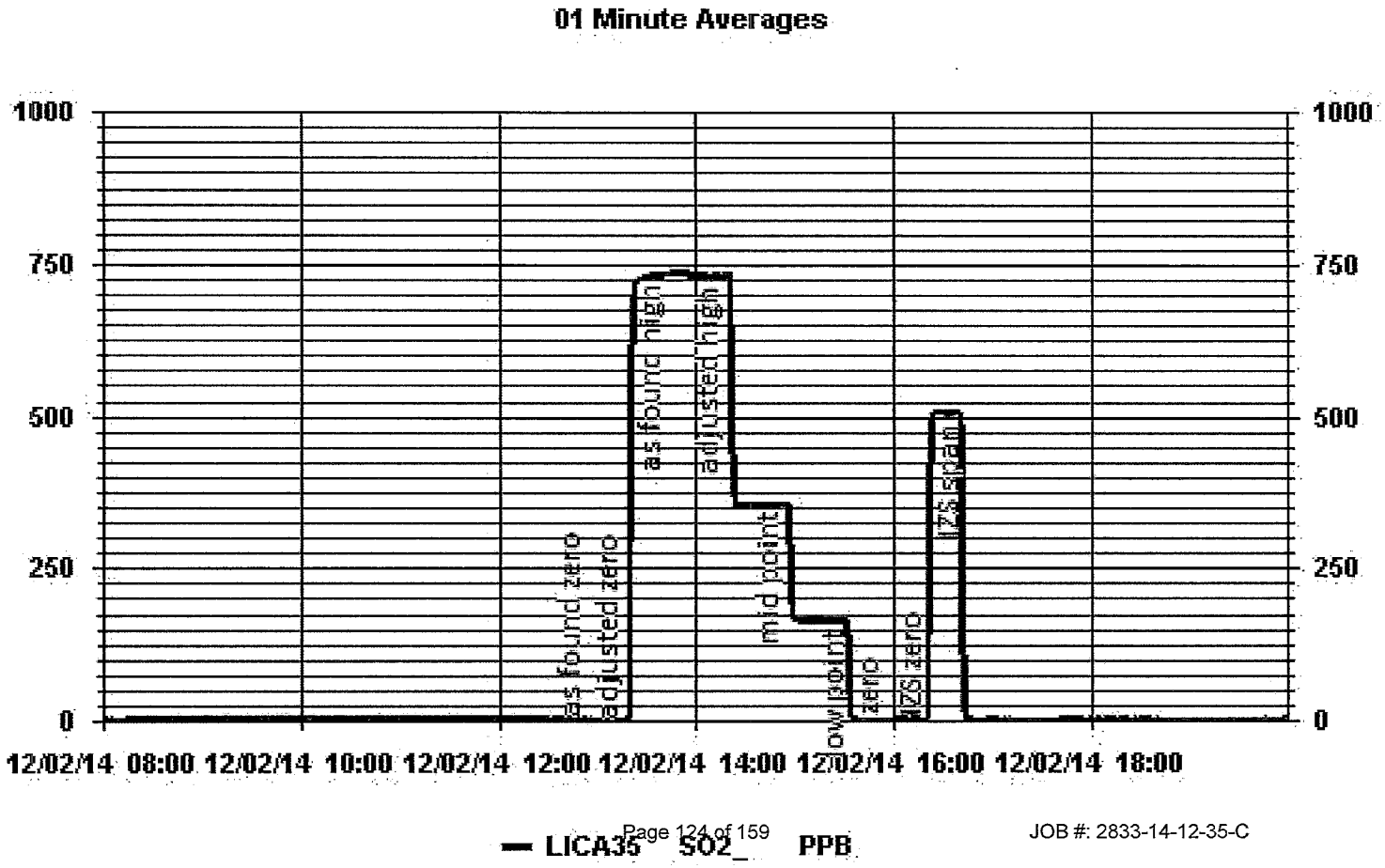
SO_2 High Point gas concentration: na Time gas run (mst): na

Zero corrrected analyzer response: na

Comments:

changed filter





JOB #: 2833-14-12-35-C

MaXXam — API 100E SO2 Analyzer Calibration

Date:	19-Dec-14	**Start/End Time (mst):**	13:53 - 17:09
Company:	LICA	**Calibration Purpose:**	Post Repair
Station Name/Location:	Elk Point	**Converter Make & Model:**	NA
Performed by:	Chris w / Alex Y	**Converter Serial #:**	NA
Application H_2S/TRS/SO_2:	SO2	**Cal Gas Expiry Date:**	4-Feb-18

Analyzer:

Serial Number:	467	**Range ppb:**	1000
Last Calibration Date:	NA	**As Found C.F.**	NA
Previous Cal High Point C.F.:	NA	**New C.F.:**	1.007

	As found:	As left:
SLOPE:	0.965	0.953
OFFSET:	34.2	36.0
HVPS:	513	528
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.2	30.4
PMT TEMP:	8.1	8.1
IZS TEMP:	45.0	45.0
TEST:	NA	NA
STABIL:	0.1	0.0
PRES:	24.4	24.4
SAMP FL:	613	613
PMT:	42.0	41.6
NORM PMT:	34.8	35.4
UV LAMP:	2513.5	2513.4
LAMP RATIO:	95.1	95.1
STR. LGT	16.5	17.1
DRK PMT:	14.9	14.0
DRK LMP:	2.8	2.7
Internal Span:	506	506

Calibrator:

Flow Meter ID's:	NA
Make & Model:	API 700
Serial #:	829
Cal Gas Cylinder I.D. # :	BLM00711
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	80	5080
mid	5000	40	5040
low	5000	20	5020

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	5000	0.0	5000	0	0.0	NA
as found high		NA				
adjusted high	4916	80.90	4997	780.4	781.0	0.999
mid	4964	39.40	5003	379.6	375.0	1.012
low	4978	19.70	4998	190.0	188.0	1.011
calibrator zero	4998	0.00	4998	0	0.0	NA
					Average C.F.=	1.007

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	#VALUE!	± 15%	#######

Converter Effeciency Check for H_2S/TRS application:

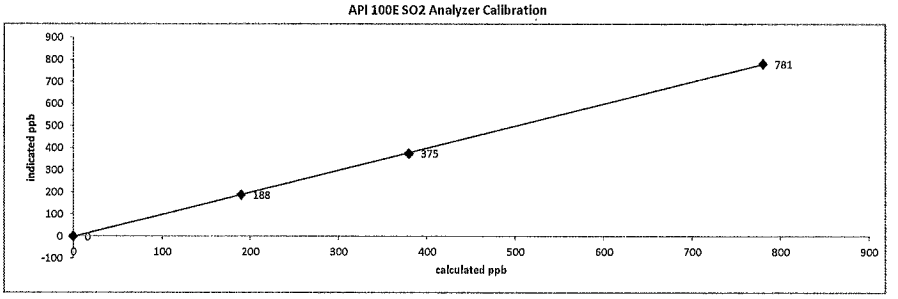
****run converter effeciency test immediately following zero adjust****

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

Comments:

Post-repair calibartion following repair of exhaust tube

API 100E SO2 Analyzer Calibration



Hydrogen Sulphide

MaXXam — API 101E H2S Analyzer Calibration

Date:	2-Dec-14	**Start/End Time (mst):**	1255-1620
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:	510	**Range ppb:**	100
Last Calibration Date:	26-Nov-14	**As Found C.F.**	1.021
Previous Cal High Point C.F.:	1.001	**New C.F.:**	0.998

	As found:	As left:
SLOPE:	1.107	1.136
OFFSET:	28.1	29.5
HVPS:	526	526
RCELL TEMP:	50.0	50.0
BOX TEMP:	31.4	31.4
PMT TEMP:	8.4	8.4
IZS TEMP:	45.0	45.0
STABIL:	0.1	0.1
PRES:	22.3	22.3
SAMP FL:	521	521
PMT:	63.7	63.7
NORM PMT:	29.7	29.7
UV LAMP:	3531	3531
LAMP RATIO:	100.3	100.3
STR. LGT	15.6	15.6
DRK PMT:	42.0	42.0
DRK LMP:	-1.6	-1.6
Internal Span:	55.6	55.91

Calibrator:

Flow Meter ID's:	na
Make & Model:	API 700
Serial #:	831
Cal Gas Cylinder I.D. # :	BLM0005049
Cal Gas Conc. (ppm):	10.1

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	38	5038
mid	5000	18	5018
low	5000	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	0.9	NA
adjusted zero	5000	0.0	5000	0	0.0	NA
as found high	4996	38.00	5034	76.2	74.7	1.021
adjusted high	4996	38.00	5034	76.2	76.4	0.998
mid	4995	18.00	5013	36.3	36.7	0.987
low	4998	8.00	5006	16.1	16.0	1.007
calibrator zero	5000	0.00	5000	0	0.1	NA
					Average C.F.=	0.998

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)=	-0.04%	± 3% F.S.	PASS
% change in C.F. from last cal	-2.00%	± 15%	PASS

Converter Effeciency Check for H_2S/TRS application:

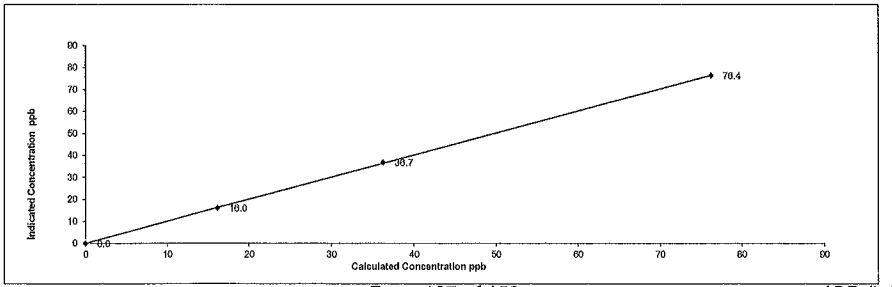
****run converter effeciency test immediately following zero adjust****

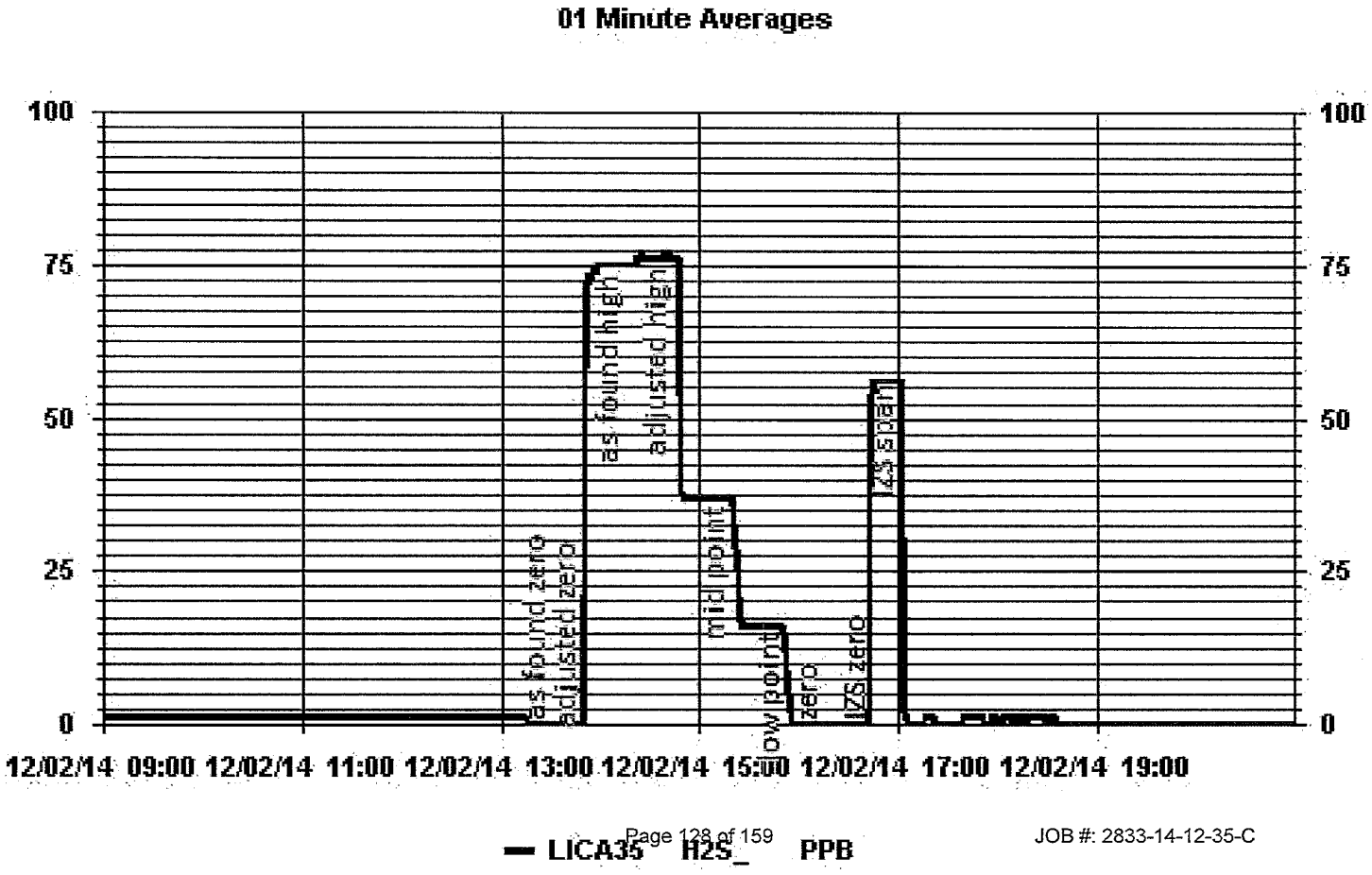
SO_2 High Point gas concentration:	NA	Time gas run (mst):	NA
Zero corrrected analyzer response:	NA		

Comments:

changed filter

API 101E H2S Analyzer Calibration





JOB #: 2833-14-12-35-C

Total Hydrocarbons (55i)

Maxxam — Thermo 55I Methane/Non-Methane Analyzer Calibration

Date:	3-Dec-14	**Start Time (mst):**	10:09
Company:	LICA	**End Time (mst):**	13:13
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= 0.991	CH_4= 0.996	CH_4= 20
Last Calibration Date:	4-Nov-14	NMHC= 0.995	NMHC= 0.991	NMHC= 20
		THC= 0.993	THC= 0.993	THC= 40

Mother Board Voltages:	3.3:	3.3	Calibration History cnt'd>1:	CH_4 SP Ratio:	NA
	5.0:	4.9		CH_4 RT:	NA
	15.0:	14.9		CH_4 PK IDX:	NA
	24.0:	23.9		CH_4 PK HT:	NA
	-3.3:	-3.2		NM Span Conc:	NA
Interface Board Voltages:	3.3:	3.3		NM SP Ratio:	NA
	5.0:	5.0		NM Peak Area:	NA
	15.0:	15.0	Run History>1:	Date:	DEC 3, 2014
	24.0:	23.5		Time:	1117
	-15.0:	-15.1		CH_4 PK HT:	108
	Bias Supply:	-292.7		CH_4 RT:	12.2
Temperatures:	Detector Oven:	175.0		CH_4 Baseline:	2173
	Filter:	175.0		CH_4 LOD:	56
	Column Oven:	74.9		CH_4 SD:	60
	Flame:	378.7		CH_4 CONC:	20
	Internal:	33.6		NM PK HT:	.05
Pressures cylinder/reg.:	Carrier:	1000 / 55		NM Peak Area:	0
	Fuel:	2000 / 50		NM CONC:	0
	Air:	NA / 47		NM Base Start:	2189
FID Status:	Status:	LIT		NM Base End:	2189
	Counts:	25899		NM LOD:	7
	Flame:	378.0		NM Start IDX:	5
	Det Base:	175.0		NM End IDX:	85
Flame and Power Stats:	Last Power On:	NOV 23 @ 2116		NM Max Slope:	.99
	Flameouts:	3		NM Min Slope:	-1.2
	Det Oven at Start:	170.0		NM PT Count:	-.5
	Col Oven at Start:	74.5	Daily Zero/Span Values:	Previous CH4:	9.6
Calibration History>1:	Time:	NA		Previous NMHC	14.3
	Type:	NA		Previous THC:	24
	Status:	NA		New CH4:	9.48
	Check/Adjust:	NA		New NMHC	14.13
	CH_4 Span Conc:	NA		New THC:	23.64

Calibrator and Gas Information:

Make & Model:	API 700		
Serial #:	831		
Cal Gas Cylinder I.D. # :	LL33674		
CH_4 Cylinder Conc.=	601.4	202.0	=C_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 CH_4 (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH_4 (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH_4	NMHC	THC
20 min as found zero	3000	0.00	3000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
20 min as found high point	2999	36.00	3035	7.13	6.59	13.72	7.20	6.62	13.82	0.991	0.995	0.993
20 min adjusted high	2999	36.00	3035	7.13	6.59	13.72	7.12	6.56	13.67	1.002	1.004	1.004
20 min mid	2999	18.00	3017	3.59	3.31	6.90	3.64	3.36	6.99	0.986	0.986	0.988
20 min low	2999	10.00	3009	2.00	1.85	3.84	2.05	1.94	3.99	0.975	0.952	0.964
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	0.981	0.985

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.997	0.992	0.993	0.85-1.15
b (Intercept as % of full scale)=	0.17%	0.26%	0.21%	± 3% F.S.
% change in C.F. from last cal=	0.52%	0.43%	0.00%	+/-15%

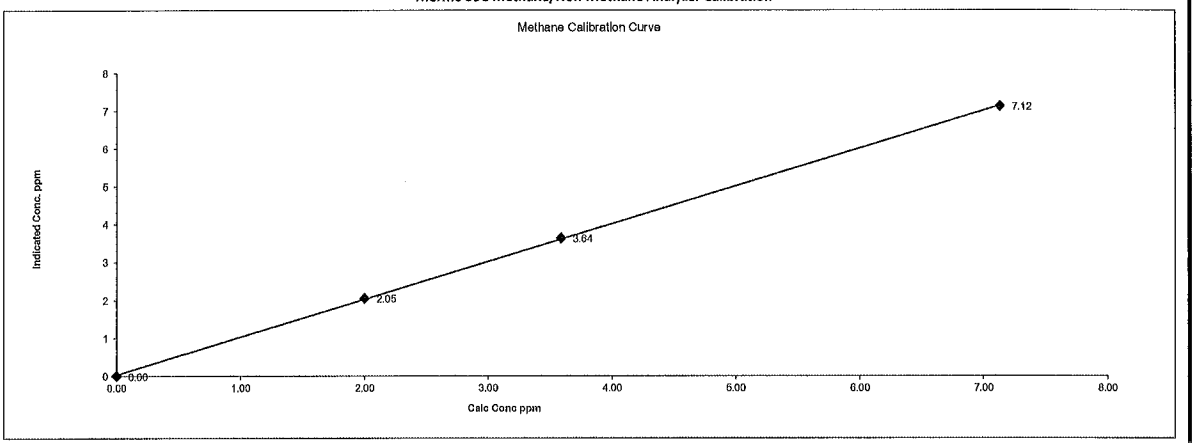
Comments:

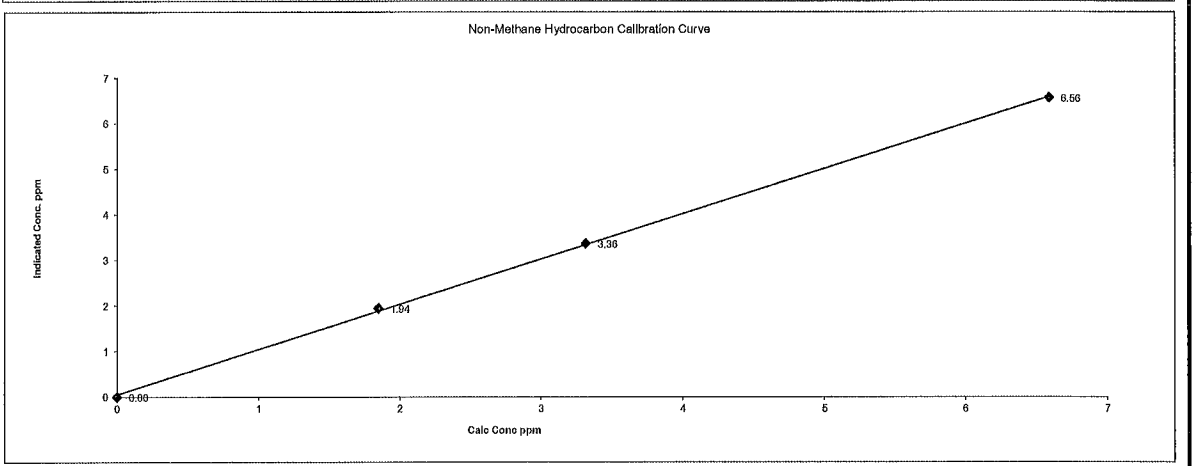
changed filter, no zero adjust, cleaned analyzer fan filter

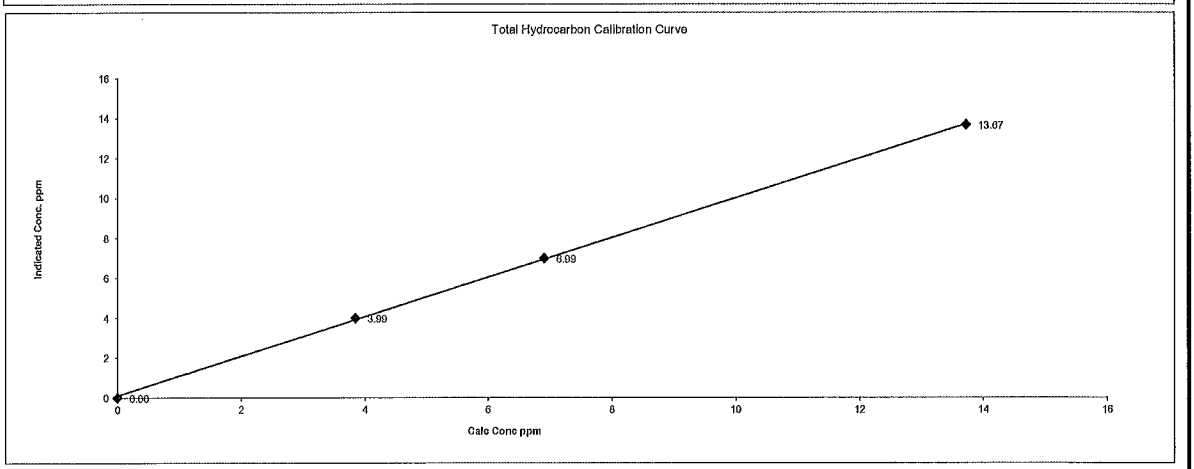
JOB #: 2833-14-12-35-0

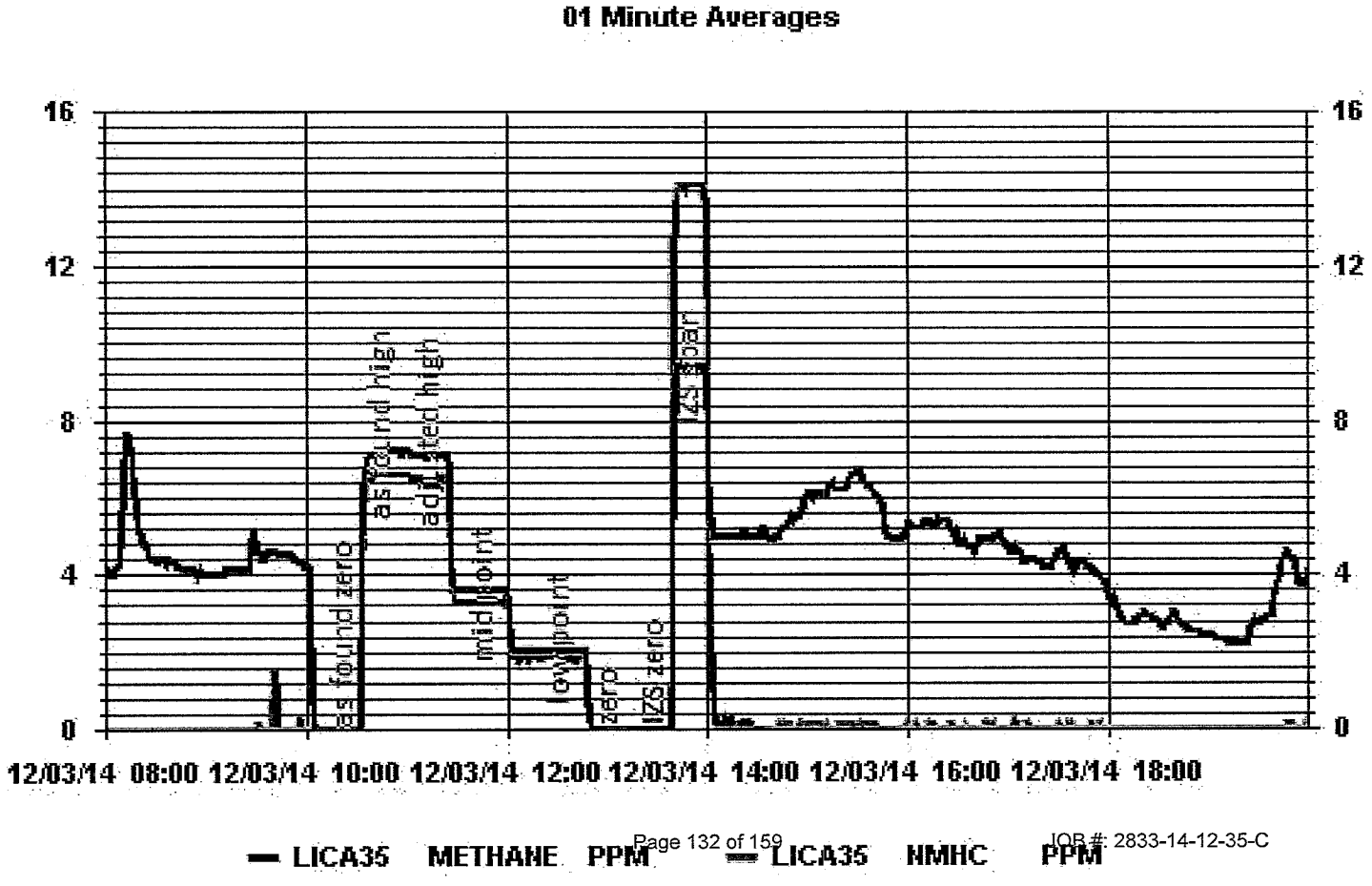
Date:	3-Dec-14	**Start Time (mst):**	10:09
Company:	LICA	**End Time (mst):**	13:13
Station Name:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	26-Mar-17

Thermo 55C Methane/Non-Methane Analyzer Calibration









JOB #: 2833-14-12-35-C

Particulate Matter 2.5

R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date:	3-Dec-14	Parameter:	PM2.5
Company:	LICA	Performed by:	Tom Bourque
Station Name/Location:	Elk Point	Start/End Time (mst):	13:59-14:31
Previous Audit Date:	26-Nov-14	Calibration Purpose:	monthly routine

1400A Information and Status:

Serial Number:	1405A207691003	As Found Filter Loading %:	36 %
Ko Factor:	15634	As Left Filter Loading %:	20.01 %
Ambient Temperature °C:	-13.48	As Found Noise:	0.018
Ambient Pressure atm:	.925	As Left Noise:	0.000
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	0.00	0.04	0.00	0.04
	limit	0.15		0.15	
Bypass Flow	actual	0.00	0.46	0.00	0.46
	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	0.46	0.00	0.46
	limit	0.60		0.60	

As found temperature and pressure:

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	-13.5	1405F pressure atm:	0.925
reference temperature °C:	-12.9	reference pressure:	0.928
difference °C:	0.6	difference :	-0.003

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

	tolerance +/- 2.0°C		tolerance +/- 0.01 atm
1405F temperature °C:	-13.5	1405F pressure atm:	0.925
reference temperature °C:	-12.9	reference pressure:	0.928
difference °C:	0.6	difference :	0.003

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:	3.02	reference total/aux flow lpm:	13.42
difference lpm:	0.02	difference lpm:	-0.25

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:	3.02	reference total/aux flow lpm:	13.42
difference lpm:	0.02	difference lpm:	-0.25

K_o Audit:

Last K_o audit date:	na
1405F K_o factor:	15634
Measured K_o factor:	na
% difference:	

Comments:

Nitrogen Dioxide

Maxxam

API 200E NOx Analyzer Calibration

Date:	2-Dec-14	**Start Time (mst):**	12:37
Company:	LICA	**End Time (mst):**	18:10
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:	4-Nov-14
Range ppb:	1000

Correction Factors:

As found C.F.		Previous Cal High Point C.F.:	
NO=	1.028	NO=	1.002
NOx=	1.028	NOx=	1.000
NO_2=	0.996	NO_2=	1.005

As found:		As left:	
NOx SLOPE:	.944	NOx SLOPE:	.975
NOx OFFS:	-.05	NOx OFFS:	2.4
NO SLOPE:	.94	NO SLOPE:	.970
NO OFFS:	-2.9	NO OFFS:	.4
TEST:	1381.5	TEST:	1381.5
SAMP FLW:	484	SAMP FLW:	484
OZONE FL:	75	OZONE FL:	75
PMT:	1.7	PMT:	1.7
NORM PMT:	1.5	NORM PMT:	1.5
AZERO:	11.9	AZERO:	11.9
HVPS:	691	HVPS:	691
RCELL TEMP:	50.7	RCELL TEMP:	50.7
BOX TEMP:	26.2	BOX TEMP:	26.2
PMT TEMP:	7.1	PMT TEMP:	7.1
IZS TEMP:	45.1	IZS TEMP:	45.1
MOLY TEMP:	314.3	MOLY TEMP:	314.3
RCEL:	7.8	RCEL:	7.8
SAMP:	26.2	SAMP:	26.2
Internal Span:	7.2/309.2/316.5	Internal Span:	4.2/318/322

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	0.550	5077
mid	5000	37	0.220	5037
low	5000	17	0.080	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	1.4	1.9	NA	NA
adjusted zero	5000	0.0	5000	0	0	-0.4	-0.6	NA	NA
as found high	4995	76.74	5072	758.1	759.6	737	739	1.028	1.028
adjusted high	4995	76.74	5072	758.1	759.6	759	760	0.999	0.999
mid	4995	36.87	5032	367.1	367.8	363	362	1.011	1.016
low	4995	16.94	5012	169.3	169.7	165	165	1.024	1.025
calibrator zero	5000	0.00	5000	0	0	-0.4	-1.2	NA	NA
							Average C.F.=	1.011	1.013

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	76.77	5072	0.0	756.4	757.2	0.9	-0.4	-0.2	
as found NO_2	4995	76.77	5072	0.6	86.3	760.0	673.7	670.1	672.9	0.996
gpt mid	4995	76.77	5072	0.2	482.0	759.0	277.0	274.4	276.2	0.994
gpt low	4995	76.77	5072	0.1	664.0	758.7	95.0	92.4	94.2	0.981
									Average NO_2 C.F.=	0.990

Linear Regression/Calibration Results:

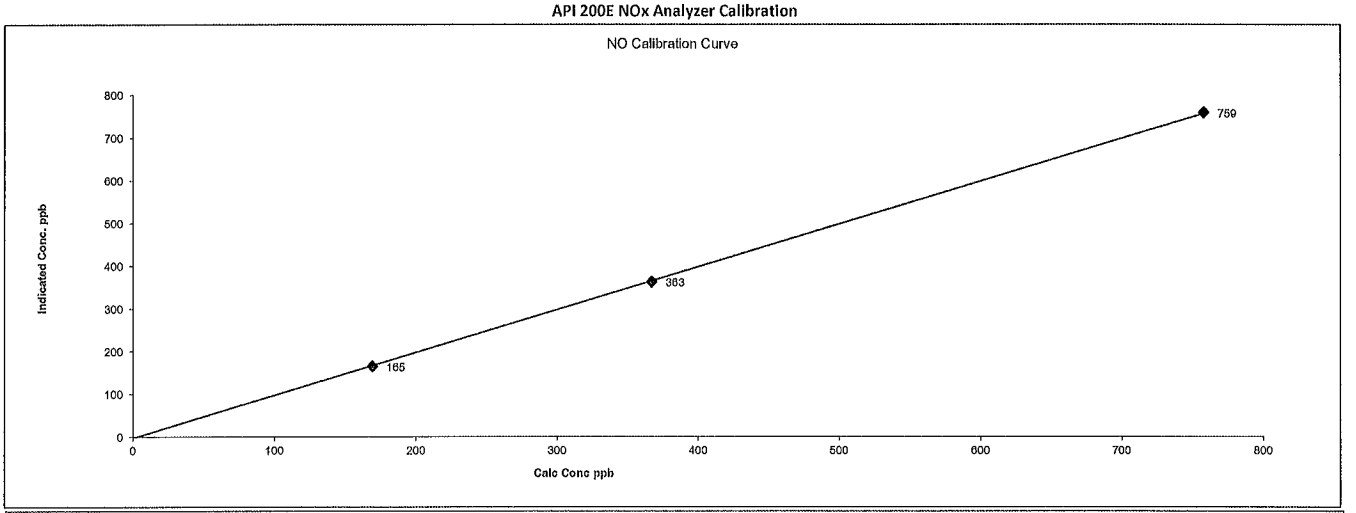
	NO	NOx	NO_2	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.003	1.003	1.003	0.85-1.15
b (Intercept as % of full scale)=	-0.31%	-0.37%	0.07%	± 3% F.S.
% change in C.F. from last cal=	-2.59%	-2.77%	0.90%	+/-15%
NO2 converter effeciency			101.0%	>85%

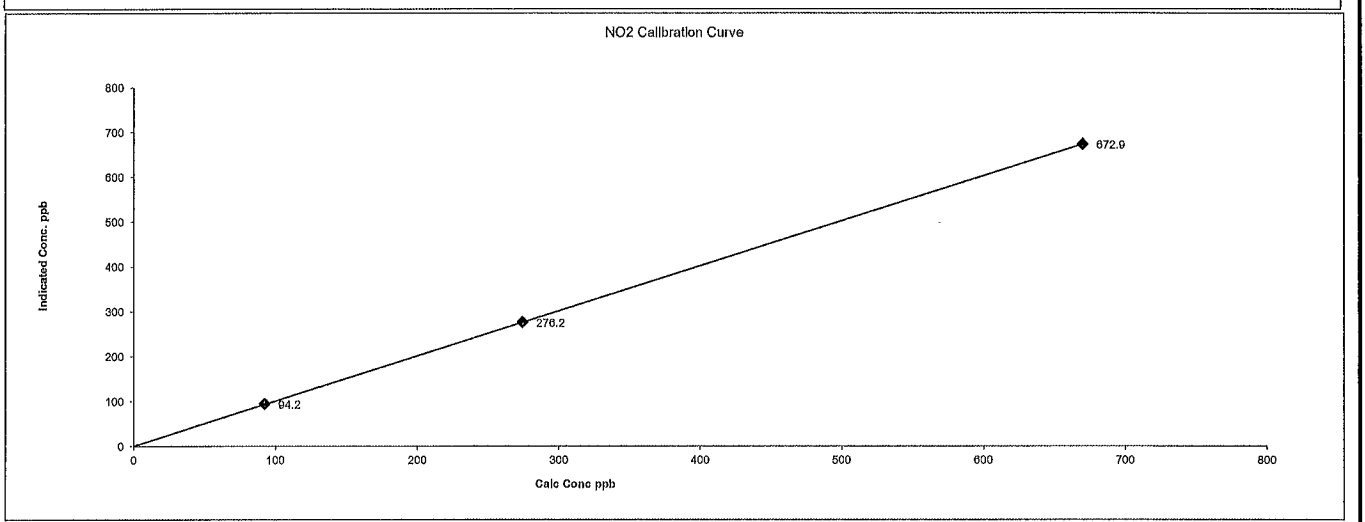
Comments:

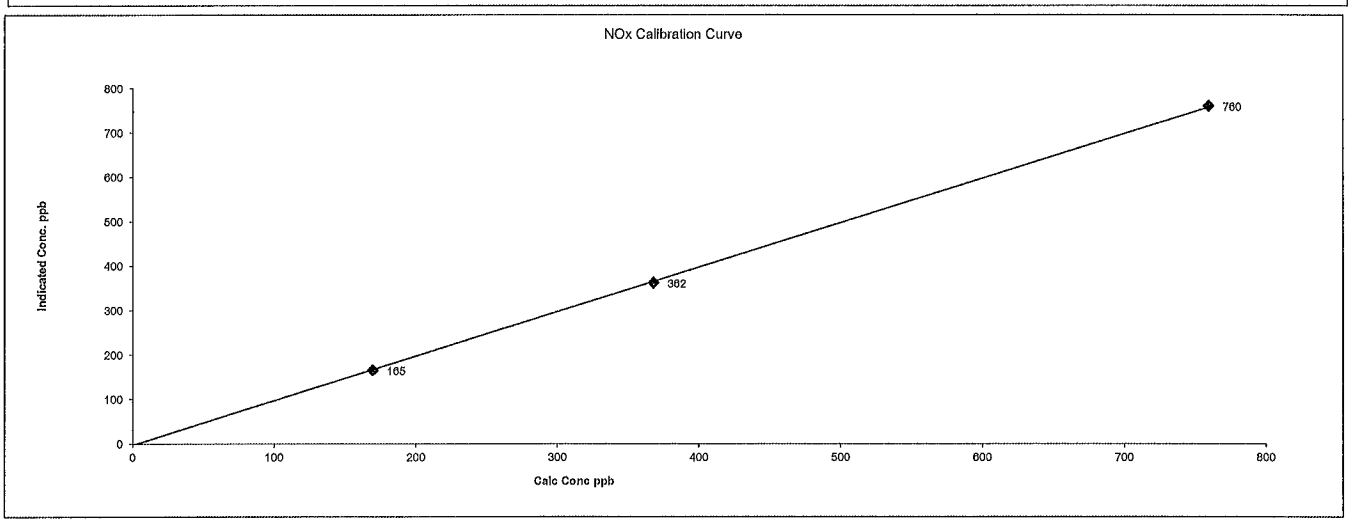
changed filter and perm tube, no adjustment made on NO2, did a quick extra 10 min gpt point for the ozone

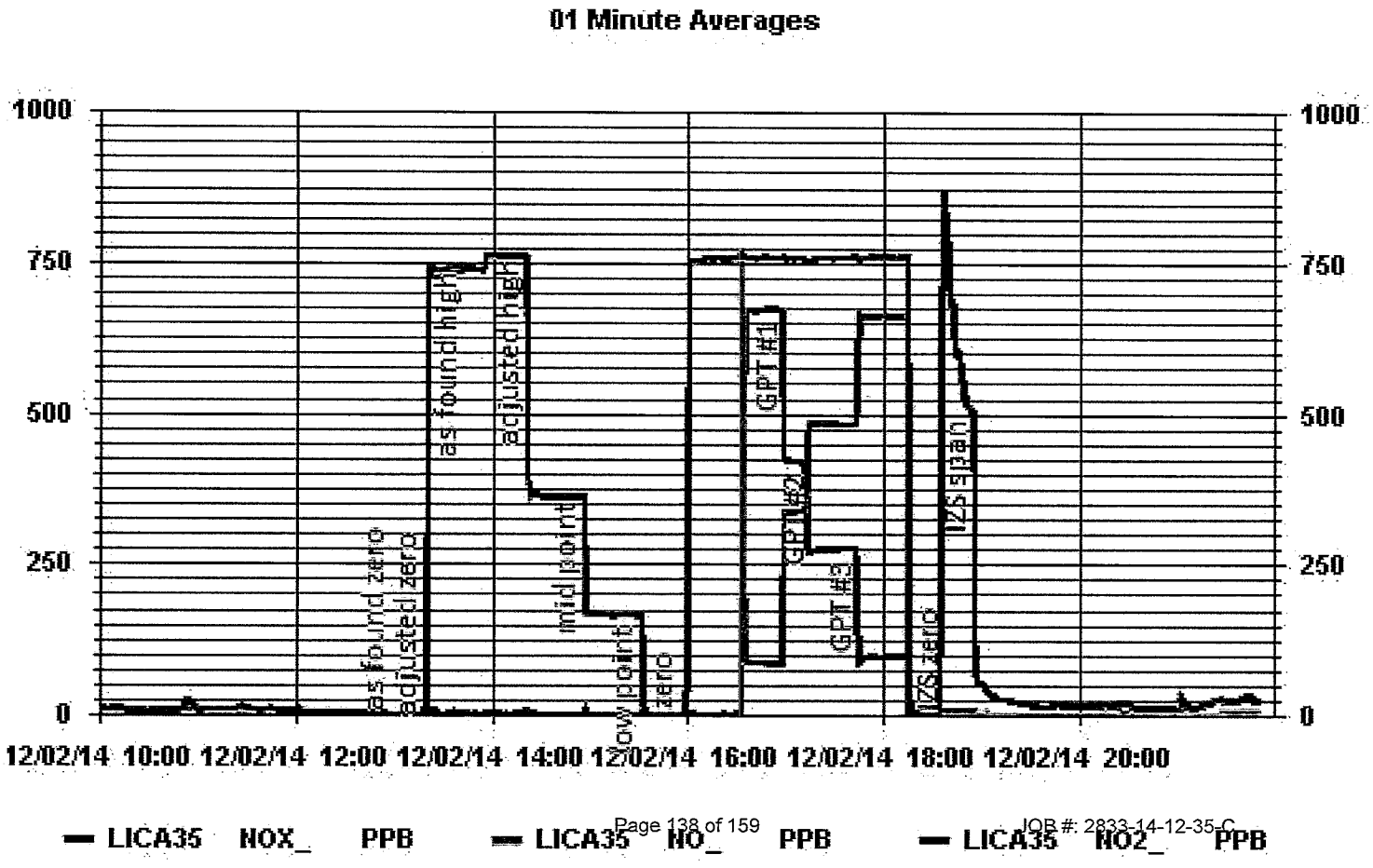
Date:	2-Dec-14	**Start Time (mst):**	12:37
Company:	LICA	**End Time (mst):**	18:10
Station Name/Location:	Elk Point	**Calibration Purpose:**	routine monthly
Performed by:	Tom Bourque	**Cal Gas Expiry Date:**	4-Feb-18

API 200E NOx Analyzer Calibration








01 Minute Averages
1000
750
500
250
0
as found zero
adjusted zero
as found high
adjusted high
mid point
low point
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
12/02/14 10:00
12/02/14 12:00
12/02/14 14:00
12/02/14 16:00
12/02/14 18:00
12/02/14 20:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

Ozone

Maxxam Thermo 49i O_3 Analyzer Calibration

Date:	3-Dec-14	Start Time (mst):	10:09
Company:	LICA	End Time (mst):	14:43
Station Name/Location:	Elk Point	Calibration Purpose:	routine monthly
Performed by:	Tom Bourque	G.P.T. Date:	2-Dec-14

Analyzer:

Serial Number:	1002240372		Range ppm:	500	
Last Calibration Date:	4-Nov-14		As Found C.F.	1.002	
Previous Cal High Point C.F.:	0.999		New C.F.:	0.990	
		As found:			As left:
	O_3 Bkg:	-.5		O_3 Bkg:	
	O_3 Coef:	1.056		O_3 Coef:	
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:	28.7		Bench:	28.7
	Bench Lamp:	54.1		Bench Lamp:	54.1
	O_3 Lamp:	68.1		O_3 Lamp:	68.1
	Pressure:	693.5		Pressure:	693.5
	Cell A lpm:	.747		Cell A lpm:	.747
	Cell B lpm:	.753		Cell B lpm:	.753
	O_3 ppb:	.2		O_3 ppb:	.2
	Cell A ppb:	3		Cell A ppb:	3
	Cell B ppb:	-2.6		Cell B ppb:	-2.6
	Cell A int:	44520		Cell A int:	44520
	Cell B int:	47968		Cell B int:	47968
	Internal Span:	356		Internal Span:	362

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	0.340
mid	5071	0.220
low	5071	0.080

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	-0.2	NA
adjusted zero	5072	0.0	5072	0.0	-0.2	NA
as found high	5072	0.00	5072	417.0	416.0	1.002
adjusted high	5072	0.00	5072	417.0	417.0	1.000
mid	5072	0.00	5072	274.4	273.5	1.003
low	5072	0.00	5072	92.4	95.3	0.967
calibrator zero	5072	0.00	5072	0.0	-0.1	NA

copy and paste flows and NO decrease from NOx cal in to calculated concentration Average C.F.= 0.990

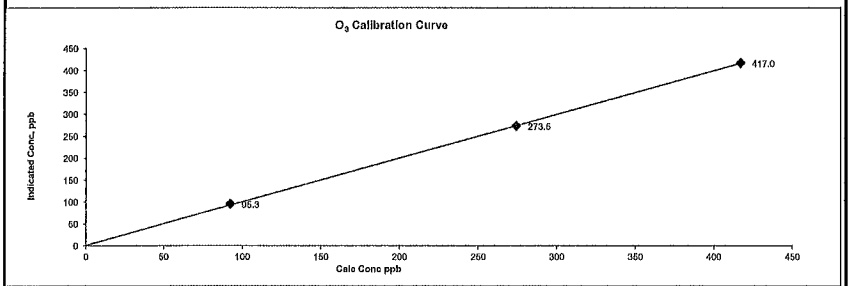
Linear Regression/Calibration Results:

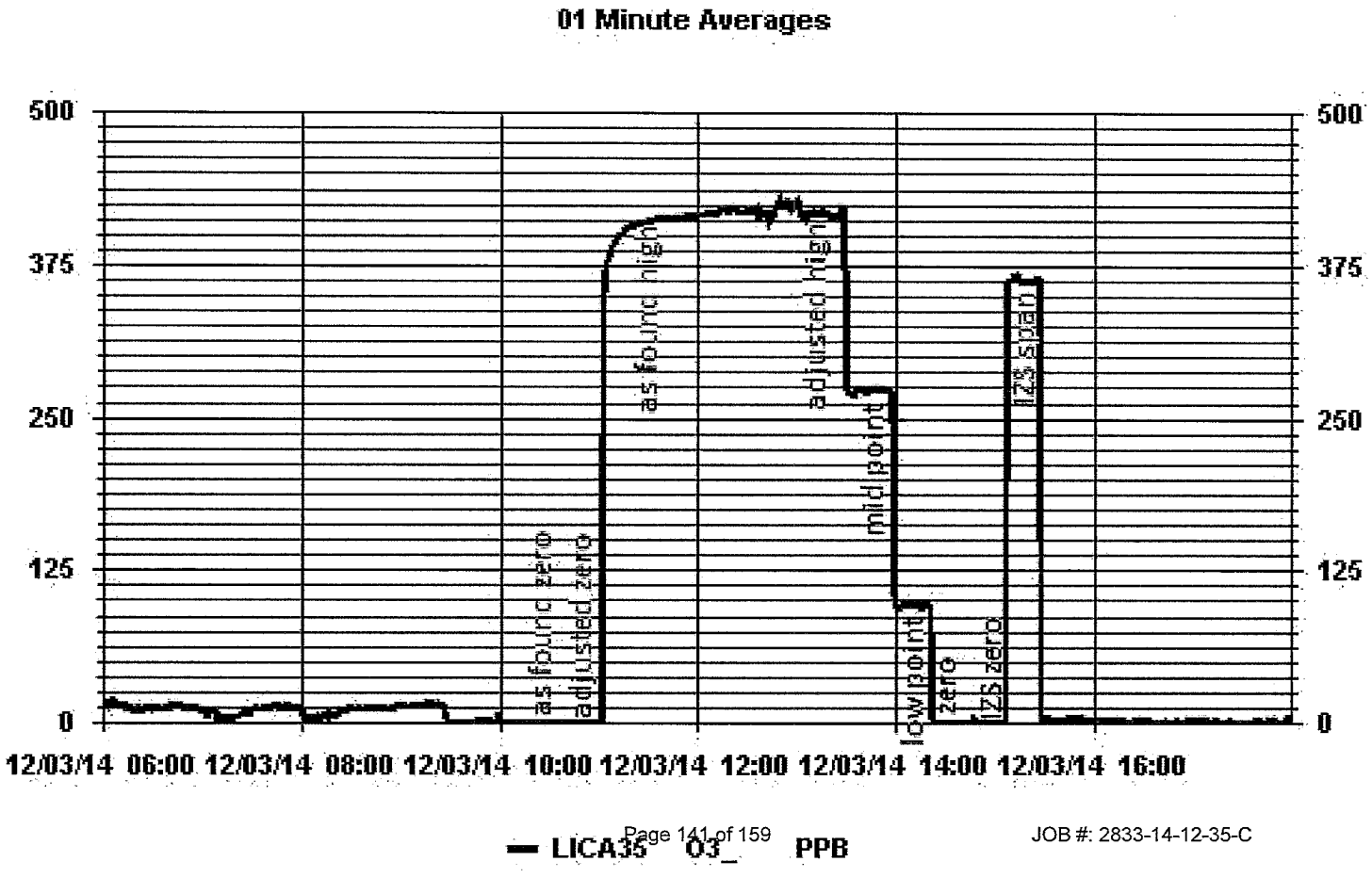
		LIMITS	Pass/Fail ?
Correlation Coeffecient =	1.000	> or = 0.995	PASS
Slope =	0.997	0.85-1.15	PASS
b (Intercept as % of full scale)=	0.218%	± 3% F.S.	PASS
% change in C.F. from last cal	0%	± 15%	PASS

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 #: 2833-14-12-35-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: 14120168-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/ELK/DEC 9 - DEC 17 201
CANISTER ID: 1135
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 12-Dec-14 12:05
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,1,2,2-Tetrachloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,1,2-Trichloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,1-Dichloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,1-Dichloroethylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2,4-Trichlorobenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2,4-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2-Dibromoethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichlorobenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,2-Dichloropropane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,3,5-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,3-Butadiene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,3-Dichlorobenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,4-Dichlorobenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1,4-Dioxane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1-Butene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1-Hexene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
1-Pentene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2,2,4-Trimethylpentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2,2-Dimethylbutane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2,3,4-Trimethylpentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2,3-Dimethylbutane	I	0.43	ppbv	0.03	AC-058	23-Dec-14
2,3-Dimethylpentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2,4-Dimethylpentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-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 #: 2833-14-12-35-C

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LABORATORY SAMPLE ID: 14120168-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/ELK/DEC 9 - DEC 17 201
CANISTER ID: 1135
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 12-Dec-14 12:05
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
2-Methylhexane	I	0.38	ppbv	0.03	AC-058	23-Dec-14
2-Methylpentane		0.76	ppbv	0.03	AC-058	23-Dec-14
3-Methylheptane	K, T, U	< 0.07	ppbv	0.02	AC-058	23-Dec-14
3-Methylhexane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
3-Methylpentane	I	0.52	ppbv	0.03	AC-058	23-Dec-14
Acetone		7.84	ppbv	0.03	AC-058	23-Dec-14
Acrolein	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Benzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Benzyl chloride	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Bromodichloromethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Bromoform	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Bromomethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Carbon disulfide	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Carbon tetrachloride	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Chlorobenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Chloroethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Chloroform	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Chloromethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
cis-1,2-Dichloroethene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
cis-1,3-Dichloropropene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
cis-2-Butene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
cis-2-Pentene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Cyclohexane		0.78	ppbv	0.03	AC-058	23-Dec-14
Cyclopentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Dibromochloromethane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-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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Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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DESCRIPTION: Elk Point Airport
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REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		4.22	ppbv	0.03	AC-058	23-Dec-14
Ethyl acetate	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Ethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Freon-11	I	0.26	ppbv	0.03	AC-058	23-Dec-14
Freon-113	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Freon-114	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Freon-12	I	0.59	ppbv	0.03	AC-058	23-Dec-14
Hexachloro-1,3-butadiene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Isobutane		4.15	ppbv	0.03	AC-058	23-Dec-14
Isopentane		2.55	ppbv	0.03	AC-058	23-Dec-14
Isoprene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Isopropyl alcohol	K, T, U	< 0.07	ppbv	0.06	AC-058	23-Dec-14
Isopropylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
m,p-Xylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
m-Diethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
m-Ethyltoluene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methyl butyl ketone	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methyl ethyl ketone	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methyl isobutyl ketone	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.05	AC-058	23-Dec-14
Methyl tert butyl ether	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methylcyclohexane		1.19	ppbv	0.03	AC-058	23-Dec-14
Methylcyclopentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Methylene chloride	I	0.65	ppbv	0.03	AC-058	23-Dec-14
n-Butane		5.23	ppbv	0.03	AC-058	23-Dec-14
n-Decane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-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 #: 2833-14-12-35-C

Alberta Innovates Technology Futures
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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: 14120168-001
MATRIX: Ambient Air
CLIENT SAMPLE ID: LICA VOC/ELK/DEC 9 - DEC 17 201
CANISTER ID: 1135
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 12-Dec-14 12:05
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Heptane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Hexane		3.04	ppbv	0.03	AC-058	23-Dec-14
n-Octane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Pentane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Propylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Undecane	I	0.09	ppbv	0.03	AC-058	23-Dec-14
Naphthalene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
n-Nonane	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
o-Ethyltoluene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
o-Xylene	I	0.17	ppbv	0.03	AC-058	23-Dec-14
p-Diethylbenzene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Styrene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Tetrachloroethylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Tetrahydrofuran	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Toluene	I	0.52	ppbv	0.03	AC-058	23-Dec-14
trans-1,2-Dichloroethylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
trans-1,3-Dichloropropylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
trans-2-Butene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
trans-2-Pentene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Trichloroethylene	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Vinyl acetate	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14
Vinyl chloride	K, T, U	< 0.07	ppbv	0.03	AC-058	23-Dec-14

Qualifiers
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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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PAH Monitoring Laboratory Analysis

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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LICA
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmain Code 780-812-2182
5107W-50th Street
Box 8237
Bonnyville
AB

LABORATORY SAMPLE ID: 14120055-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Dec 1, 2014
CANISTER ID: 9801
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 01-Dec-14 0:00
DATE RECEIVED: 09-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		1.11	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		1.79	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		0.14	ug/PUF	0.01	NA-017	31-Dec-14
Acenaphthylene		0.16	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		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)anthracene		0.02	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(a)pyrene		0.01	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(b,j,k)fluoranthene		0.05	ug/PUF	0.01	NA-017	31-Dec-14
Benzo(c)phenanthrene		0.11	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		0.03	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,l)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		0.05	ug/PUF	0.01	NA-017	31-Dec-14
Fluorene		0.22	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		2.17	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		0.28	ug/PUF	0.01	NA-017	31-Dec-14
Pyrene		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
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 #: 2833-14-12-35-C

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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LICA
4000, 19 St NE

Calgary
AB T2E 6P8

INVOICE TO:
Charmain Code 780-812-2182
5107W-50th Street
Box 8237
Bonnyville
AB

LABORATORY SAMPLE ID: 14120055-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Dec 1, 2014
CANISTER ID: 9801
DESCRIPTION: Elk Point Airport
DATE SAMPLED: 01-Dec-14 0:00
DATE RECEIVED: 09-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.15	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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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
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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: 14120107-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Dec 7, 2014
CANISTER ID: TE-04
DESCRIPTION: Elk Point
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.25	ug/PUF	0.01	NA-017	31-Dec-14
2-Methylnaphthalene		0.30	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	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		0.04	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		0.08	ug/PUF	0.01	NA-017	31-Dec-14
Fluorene		0.22	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		0.46	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		0.38	ug/PUF	0.01	NA-017	31-Dec-14
Pyrene		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
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

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

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

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PO Bag 4000
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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: 14120107-004
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/ELK/Dec 7, 2014
CANISTER ID: TE-04
DESCRIPTION: Elk Point
DATE SAMPLED: 07-Dec-14 0:00
DATE RECEIVED: 12-Dec-14
REPORT CREATED: 08-Jan-15
REPORT VERSION: Version 01

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

Inquiries: (780) 632 8455
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JOB #: 2833-14-12-35-C

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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: 14120168-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/DEC 13, 2014
CANISTER ID: TE-01
DESCRIPTION: Elk Point
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.16	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.21	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.05	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.06	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.07	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.19	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.34	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.30	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.04	ug/Filter	0.01	NA-017	24-Jan-15

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

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

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JOB #: 2833-14-12-35-C

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS TO:
Lily Lin 403-219-3661
LICA
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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: 14120168-002
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/DEC 13, 2014
CANISTER ID: TE-01
DESCRIPTION: Elk Point
DATE SAMPLED: 13-Dec-14 0:00
DATE RECEIVED: 22-Dec-14
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.02	ug/Filter	0.01	NA-017	24-Jan-15

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

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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JOB #: 2833-14-12-35-C

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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
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Bonnyville
AB T9N 2J5

LABORATORY SAMPLE ID: 15010004-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 19, 2014
CANISTER ID: P13-02
DESCRIPTION: Elk Point
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.30	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.43	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.09	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene		0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.09	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.17	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.21	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.31	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.06	ug/Filter	0.01	NA-017	24-Jan-15

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

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

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JOB #: 2833-14-12-35-C

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PO Bag 4000
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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: 15010004-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 19, 2014
CANISTER ID: P13-02
DESCRIPTION: Elk Point
DATE SAMPLED: 19-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.01	ug/Filter	0.01	NA-017	24-Jan-15

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

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

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

JOB #: 2833-14-12-35-C

Alberta Innovates Technology Futures
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ENVIRONMENTAL ANALYTICAL SERVICES

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AB T2E 6P8

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

LABORATORY SAMPLE ID: 15010004-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 25, 2014
CANISTER ID: TE-08
DESCRIPTION: EP
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.32	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.53	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene		0.02	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.61	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.02	ug/Filter	0.01	NA-017	24-Jan-15

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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LICA
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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: 15010004-006
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 25, 2014
CANISTER ID: TE-08
DESCRIPTION: EP
DATE SAMPLED: 25-Dec-14 0:00
DATE RECEIVED: 02-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.01	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers
K Off-scale low. Actual value is known to be less than the value given
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JOB #: 2833-14-12-35-C

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ENVIRONMENTAL ANALYTICAL SERVICES

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

LABORATORY SAMPLE ID: 15010016-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 31, 2014
CANISTER ID: TE-09
DESCRIPTION: Elk Point
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	24-Jan-15
2-Methylnaphthalene		0.08	ug/Filter	0.01	NA-017	24-Jan-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Fluoranthene		0.05	ug/Filter	0.01	NA-017	24-Jan-15
Fluorene		0.09	ug/Filter	0.01	NA-017	24-Jan-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Naphthalene		0.09	ug/Filter	0.01	NA-017	24-Jan-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	24-Jan-15
Phenanthrene		0.14	ug/Filter	0.01	NA-017	24-Jan-15
Pyrene		0.03	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers
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LABORATORY SAMPLE ID: 15010016-001
MATRIX: Air Filter
CLIENT SAMPLE ID: LICA/PUF/EP/Dec 31, 2014
CANISTER ID: TE-09
DESCRIPTION: Elk Point
DATE SAMPLED: 31-Dec-14 0:00
DATE RECEIVED: 08-Jan-15
REPORT CREATED: 29-Jan-15
REPORT VERSION: Version 01

Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.03	ug/Filter	0.01	NA-017	24-Jan-15

Qualifiers

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