Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2012

Prepared By:

January 23, 2013

Lakeland Industry & Community Association
Ambient Air Monitoring
Maskwa

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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 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Shawn Miner

Calibration Procedure

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

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

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – MASKWA

Continuous Ambient Monitoring – December 2012

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	0.64	12	29	18	5.8	305(WNW)	2.7	29	99.9
H2S (PPB)	10	3	0	0	0.23	1	VAR	VAR	VAR	VAR	0.9	14	81.5
THC (PPM)	-	-	-	-	2.43	3.9	29	0	4.3	212(SSW)	3.3	28	100.0
NOx (PPB)	-	-	-	-	5.76	40	29	7	1.8	246(WSW)	17.5	29	100.0
NO (PPB)	-	-	-	-	0.64	13	29	8	3.2	266(W)	3.4	29	100.0
NO_2 (PPB)	159	-	0	-	5.12	28	29	7	1.8	246(WSW)	14.2	29	100.0
VECTOR WS (KPH)	-	-	-	-	4.31	13.9	2	22	-	31(NNE)	8.0	4	100.0
VECTOR WD (DEGREES)	-	-	-	-	57(ENE)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	72.37	83	14, 15	VAR	VAR	VAR	80.0	17	100.0
TEMPERATURE (DEG C)	-	-	-	-	-16.68	-4.3	29	13	6.9	328(NNW)	-8.4	14	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	937	957	24	VAR	VAR	VAR	955.5	24	100.0
PRECIPITATION (MM)	-	-	-	-	0.00	0.1	1	0	4.8	17(NNE)	0.1	1	99.9

NA-NOT APPLICABLE 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 inlet filter was changed before the monthly calibration was started on December 19th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 511replaced to API 101A, S/N: 324

The routine calibration was performed on December 19th. The analyzer spanned low and the daily zero drifted on December 23rd. An as found points check was performed on December 24th, the result was outside -10% of the limited range. After the investigation, it was concluded that the issue was due to the relay board failure. As there was no spare part available, the analyzer was left on the Maintenance mode. The API 101A analyzer was installed on December 28th. The analyzer was allowed time to stabilize, then a daily zero/span check was performed. The check result was OK. An installation calibration was performed on API 101A analyzer on January 3rd, 2013. As we are not sure when the relay board failed, the data was invalidated back to the last good calibration check, which was hour 18 on December 22nd. A total of 137 hours of data was invalidated. Data was corrected using daily zero information. The operational uptime was 81.5%.

General Monthly Summary

AQM STATION – LICA – Maskwa

Total Hydrocarbon (PPM)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on December 19th. The last span point of the monthly calibration is missing due to operator error. However, as the daily calibration results were good, which indicated that the analyzer were functioning properly, we assume that data recorded this month were good. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was performed on December 19th. 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.
No operational issues were observed this month.

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

During the site visit on December 24th, the heater for the rain gauge sensor was checked. It was found that the heater was not working efficiently. The rain gauge sensor with a heater will be replaced during next site visit. Data collected in December should be used with caution.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issues were observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issues were observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Datalogger

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

No operational issues were observed during the month.

Trailer

The manifold was cleaned on December 19th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

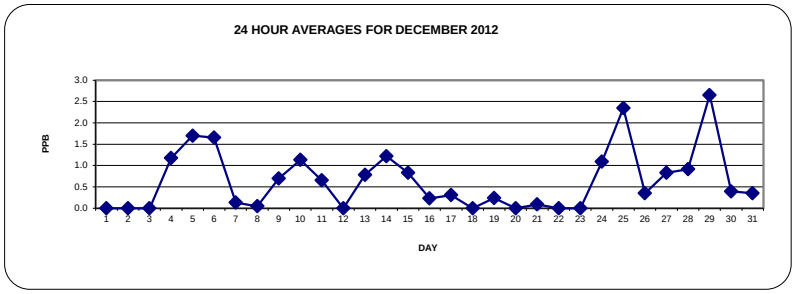
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	3	6	5	6	4	1	0	0	1	1	0	6	1.2	24
5	1	1	1	1	1	0	1	1	2	6	4	**IZS**	1	2	3	1	4	0	0	5	1	0	1	2	6	1.7	24
6	6	6	0	0	0	0	5	2	5	5	**IZS**	1	2	2	2	1	1	0	0	0	0	0	0	0	6	1.7	24
7	0	0	0	0	0	1	0	0	0	**IZS**	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24
8	0	0	0	0	0	0	0	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
9	0	0	0	0	0	0	0	**IZS**	0	0	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	0.7	24
10	1	1	1	4	3	3	**IZS**	1	0	0	0	1	1	1	3	4	2	0	0	0	0	0	0	0	4	1.1	24
11	0	0	3	3	6	**IZS**	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6	0.7	24
12	0	0	0	0	**IZS**	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	**IZS**	0	0	1	0	0	0	1	2	2	2	2	1	1	1	1	1	0	1	1	1	2	0.8	24
14	0	0	**IZS**	0	0	1	0	1	0	0	0	0	2	2	1	0	2	1	6	6	4	1	1	0	6	1.2	24
15	0	**IZS**	0	0	0	0	4	4	2	2	0	1	1	0	2	1	0	0	1	1	0	0	0	0	4	0.8	24
16	**IZS**	0	2	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**IZS**	2	0.2	24
17	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4	1	0	0	**IZS**	0	4	0.3	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	3	**M**	1	0	0	0	0	**IZS**	0	0	0	3	0.2	23
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0.0	24
21	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	2	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	1	1	**IZS**	1	1	2	5	6	3	4	1	6	1.1	24
25	1	4	1	1	4	5	3	7	5	1	1	2	4	4	**IZS**	2	2	1	1	1	1	1	1	1	7	2.3	24
26	1	1	0	0	0	1	1	0	0	0	0	1	2	**IZS**	1	0	0	0	0	0	0	0	0	0	2	0.3	24
27	0	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	0	0	0	1	0.8	24
28	0	0	0	0	0	0	0	0	0	1	1	**IZS**	1	2	1	2	2	2	2	3	1	1	1	1	3	0.9	24
29	2	2	1	1	0	0	0	0	0	0	**IZS**	5	6	0	2	7	9	5	**12**	8	0	0	0	1	**12**	**2.7**	24
30	0	0	0	0	0	0	1	4	2	**IZS**	0	0	0	0	1	0	0	0	0	0	0	1	0	0	4	0.4	24
31	0	0	0	0	0	0	0	0	**IZS**	0	0	0	1	1	1	0	0	0	0	0	1	1	2	1	2	0.3	24
HOURLY MAX	6	6	3	4	6	5	5	7	5	6	4	5	6	4	6	7	9	5	12	8	6	3	4	2			
HOURLY AVG	0.4	0.6	0.3	0.4	0.5	0.4	0.6	0.7	0.6	0.6	0.3	0.6	1.0	0.9	1.0	1.0	1.1	0.6	1.1	1.1	0.5	0.4	0.4	0.3			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

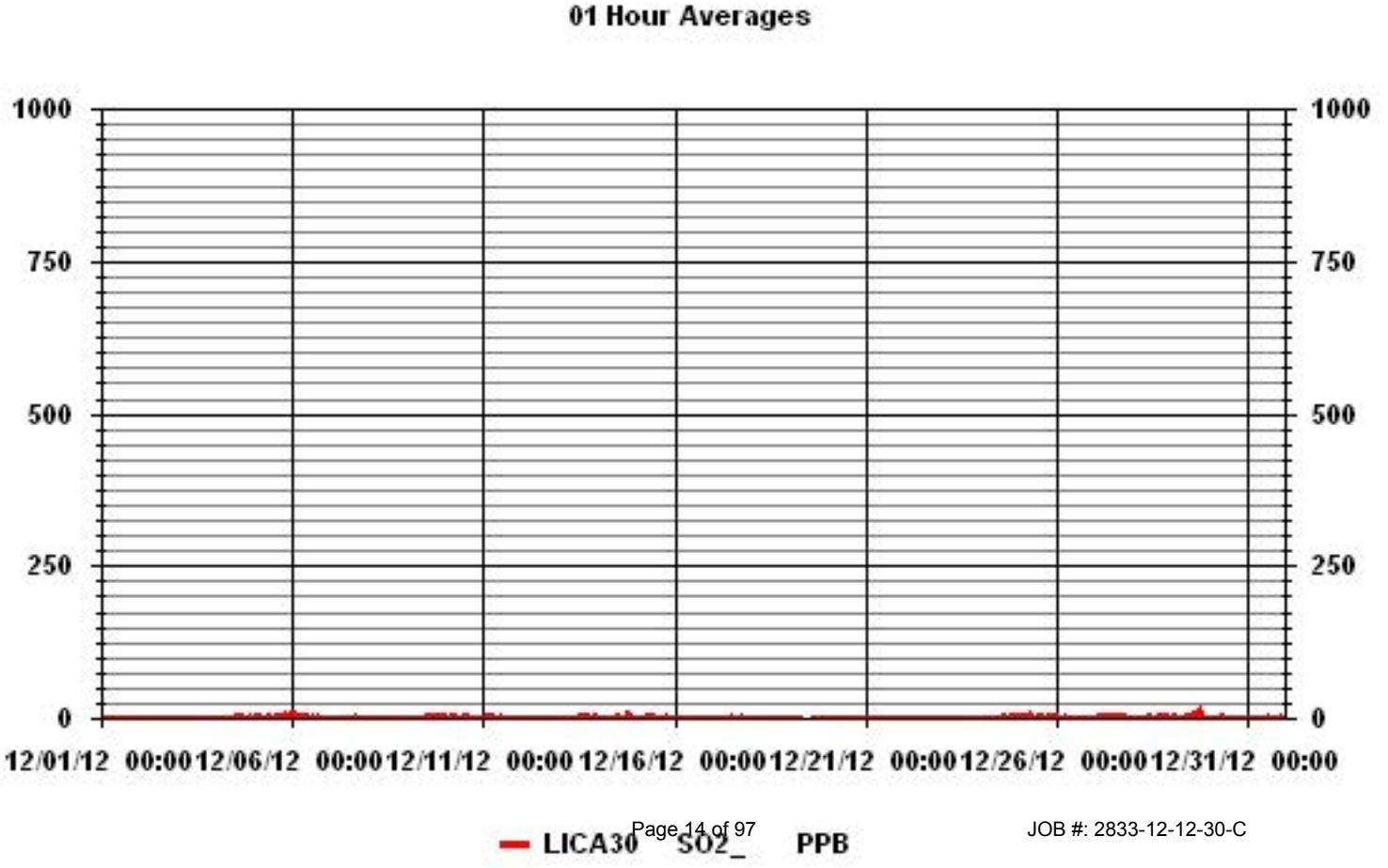


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	221					
MAXIMUM 1-HR AVERAGE:	12	PPB	@ HOUR(S)	18	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	2.7	PPB			ON DAY(S)	29
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	1.37		MONTHLY AVERAGE:		0.64	PPB

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

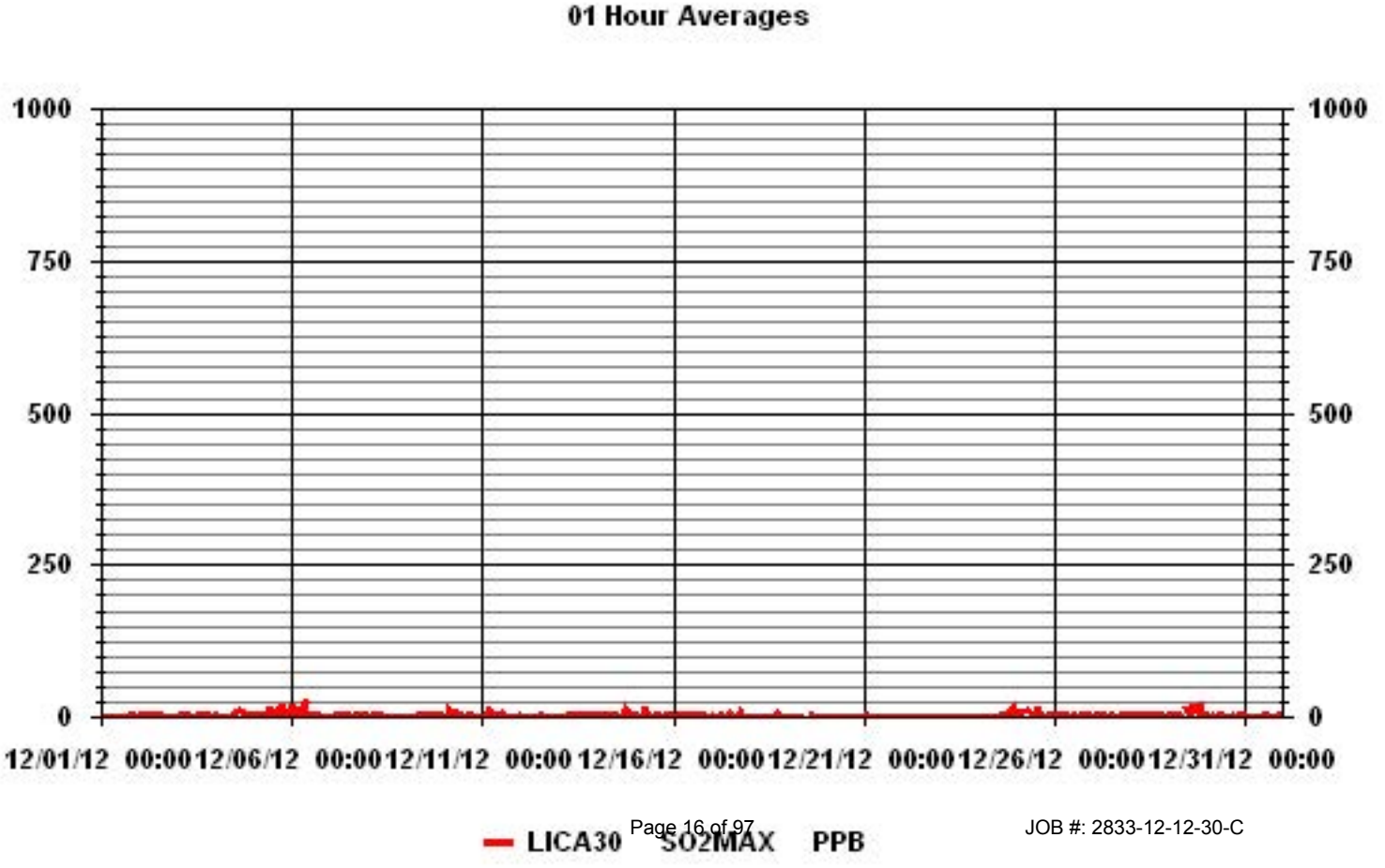
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	1	1	1	1	1	0	1	0.4	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	1	0	0	0	1	0.7	24
3	0	0	1	1	1	1	1	1	1	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	0	0	1	0.7	24
4	1	1	0	1	0	0	0	0	0	0	1	3	**IZS**	10	9	11	10	9	2	1	1	1	1	1	11	2.7	24
5	1	1	1	1	1	1	1	1	6	13	13	**IZS**	6	6	11	8	12	0	1	9	3	3	2	8	13	4.7	24
6	16	15	2	2	0	7	14	7	22	**25**	**IZS**	3	5	4	5	2	2	1	1	0	0	0	0	1	**25**	5.8	24
7	1	2	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	2	2	**M**	1	1	1	1	1	1	2	1.1	23
8	1	0	1	1	1	1	1	1	**IZS**	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
9	0	0	0	0	0	0	0	**IZS**	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1.1	24
10	2	1	2	12	9	7	**IZS**	9	1	1	2	4	2	2	4	4	3	2	0	0	0	0	0	1	12	3.0	24
11	0	1	8	12	10	**IZS**	3	1	1	0	3	3	7	1	0	0	0	0	0	0	0	0	0	1	12	2.2	24
12	1	0	0	0	**IZS**	0	0	0	0	0	0	0	4	1	1	0	0	0	0	1	0	0	0	0	4	0.3	24
13	0	0	0	**IZS**	1	0	1	1	1	1	2	3	2	3	3	2	1	1	1	1	1	1	1	1	3	1.2	24
14	1	1	**IZS**	1	1	1	1	1	1	1	1	1	4	2	2	1	4	5	13	7	7	3	3	1	13	2.7	24
15	1	**IZS**	0	0	0	1	17	10	3	4	1	2	4	1	3	3	0	0	1	1	1	1	1	1	17	2.4	24
16	**IZS**	1	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	**IZS**	4	1.2	24
17	0	1	1	0	1	0	1	1	0	1	2	7	3	0	0	0	0	0	8	4	0	0	**IZS**	0	8	1.3	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	**IZS**	0	0	5	0.3	24
19	0	0	0	0	0	0	0	1	**C**	**C**	**C**	**C**	**C**	5	**M**	1	1	0	0	0	**IZS**	0	0	0	5	0.5	23
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0.0	24
21	0	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	5	0.4	24
22	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	**IZS**	0	0	0	0	0	0	2	0.1	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	**IZS**	5	3	5	9	13	11	15	4	15	3.0	24
25	1	10	2	4	7	9	9	13	11	5	4	3	7	14	**IZS**	3	2	2	1	2	2	2	2	2	14	5.1	24
26	2	2	1	1	1	1	1	1	1	1	1	2	2	**IZS**	2	1	1	1	1	1	1	1	1	1	2	1.2	24
27	1	2	2	1	1	1	1	1	1	1	2	1	**IZS**	1	1	2	1	1	1	1	1	1	1	1	2	1.2	24
28	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	2	3	4	3	2	1	2	4	4	1.7	24
29	3	3	2	2	1	1	1	2	2	0	**IZS**	13	14	5	7	16	17	15	15	18	0	0	1	1	18	6.0	24
30	1	1	0	0	1	1	2	6	4	**IZS**	1	1	0	1	2	1	1	0	0	0	3	5	0	3	6	1.5	24
31	1	1	0	0	0	0	0	0	**IZS**	0	0	2	2	2	1	1	0	0	0	1	2	4	5	2	5	1.0	24
HOURLY MAX	16	15	8	12	10	9	17	13	22	25	13	13	14	14	11	16	17	15	15	18	13	11	15	8			
HOURLY AVG	1.2	1.7	1.1	1.5	1.4	1.2	1.9	2.0	2.1	2.1	1.4	2.0	2.5	2.3	2.1	2.2	2.3	1.8	1.9	2.2	1.5	1.3	1.2	1.1			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	429					
MAXIMUM INSTANTANEOUS VALUE:	25	PPB	@ HOUR(S)	9	ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		742	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	3.19					



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

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.54	11.47	18.13	9.91	5.09	6.23	5.80	3.82	6.23	8.21	3.68	2.54	2.12	4.24	5.52	3.39	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	3.54	11.47	18.13	9.91	5.09	6.23	5.80	3.82	6.23	8.21	3.68	2.54	2.12	4.24	5.52	3.39	

Calm : .00 %

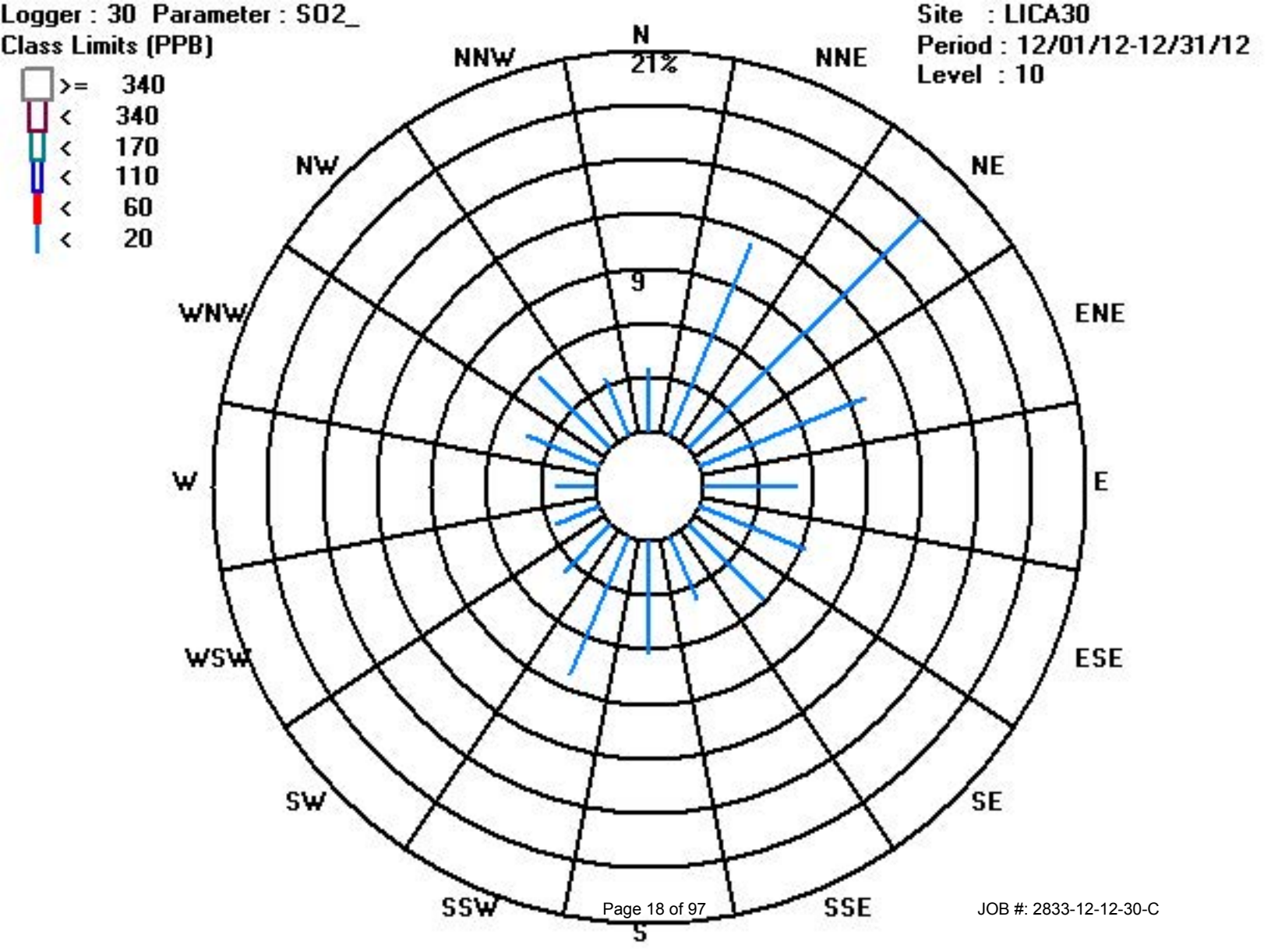
Total # Operational Hours : 706

Distribution By Samples

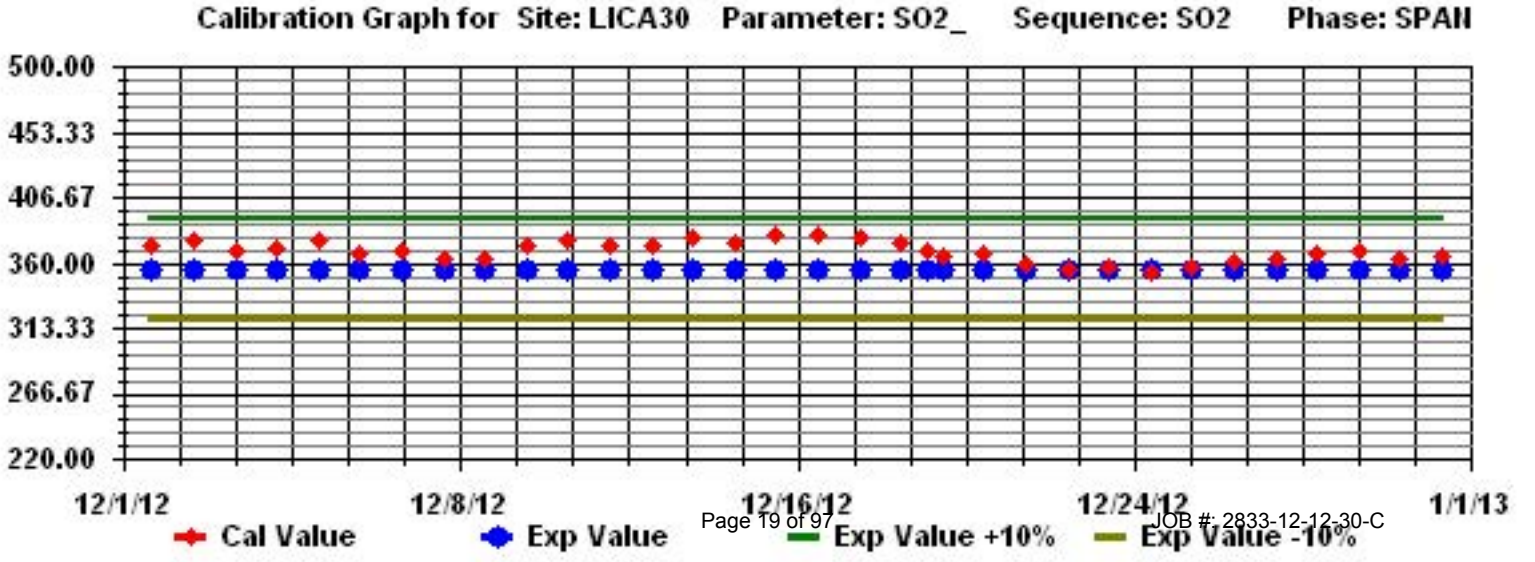
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	25	81	128	70	36	44	41	27	44	58	26	18	15	30	39	24	706
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	25	81	128	70	36	44	41	27	44	58	26	18	15	30	39	24	

Calm : .00 %

Total # Operational Hours : 706



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


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN
500.00
453.33
406.67
360.00
313.33
266.67
220.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

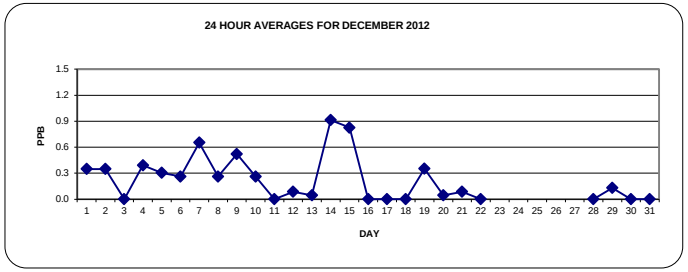
HYDROGEN SULPHIDE (H_2S) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	1	0	0	1	1	1	1	0	0	0	0	0	**IZS**	0	0	0	1	0	1	0	1	1	0.3	24
2	1	0	1	0	1	1	0	1	1	0	0	1	0	1	**IZS**	0	0	0	0	0	0	0	0	0	1	0.3	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	1	0	0	0	1	0	0	0	0	0	0	**IZS**	1	1	0	1	1	0	0	1	1	1	0	1	0.4	24
5	0	0	0	1	1	1	0	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
6	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0	0	0	0	0	1	0	1	1	1	1	1	0.3	24
7	1	1	1	1	1	1	1	1	1	**IZS**	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1	0.7	24
8	1	1	0	0	0	0	0	0	**IZS**	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0.3	24
9	0	0	1	1	1	1	1	**IZS**	0	0	1	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0.5	24
10	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
11	0	0	0	0	0	**IZS**	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	**IZS**	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
13	0	0	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
14	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**0.9**	24
15	1	**IZS**	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0.8	24
16	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0.0	24
19	0	0	0	0	0	0	1	1	**C**	**C**	**C**	**C**	**C**	1	**M**	1	1	1	0	0	**IZS**	0	0	0	1	0.4	23
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0	0	1	0.0	24
21	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	**N**	**N**	**N**	**N**	**N**	**N**	0	0.0	18
23	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
24	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
25	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
26	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
27	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
28	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**M**	**C**	**C**	0	0	0	0	0	0	0	0	0	0	0	0	0.0	13
29	0	1	0	0	0	0	0	1	1	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
30	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3			

STATUS FLAG CODES

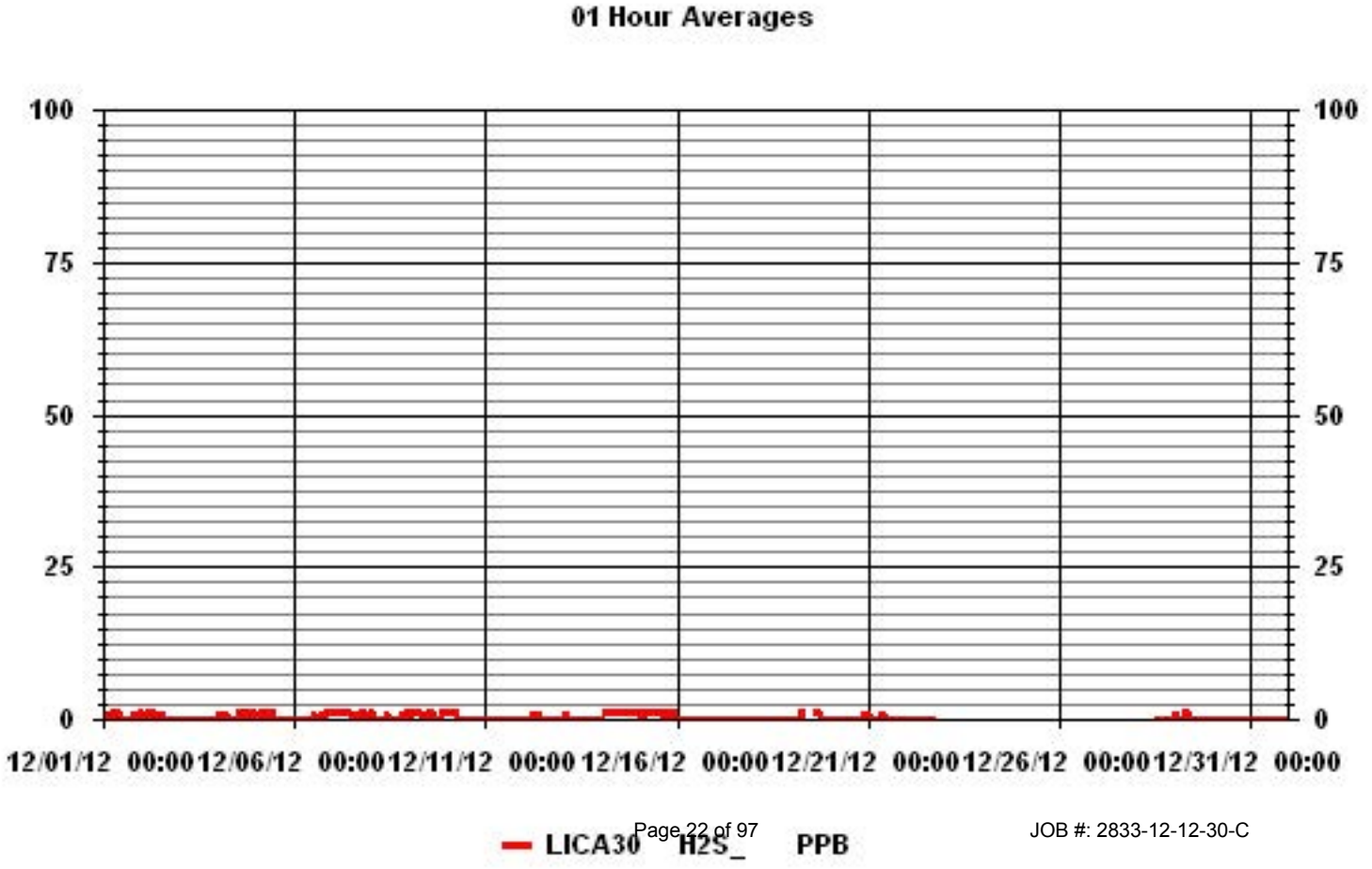
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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:	132						
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	14	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	26	HRS	OPERATIONAL TIME:			606	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:			81.5	%
STANDARD DEVIATION:	0.42		MONTHLY AVERAGE:			0.23	PPB



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

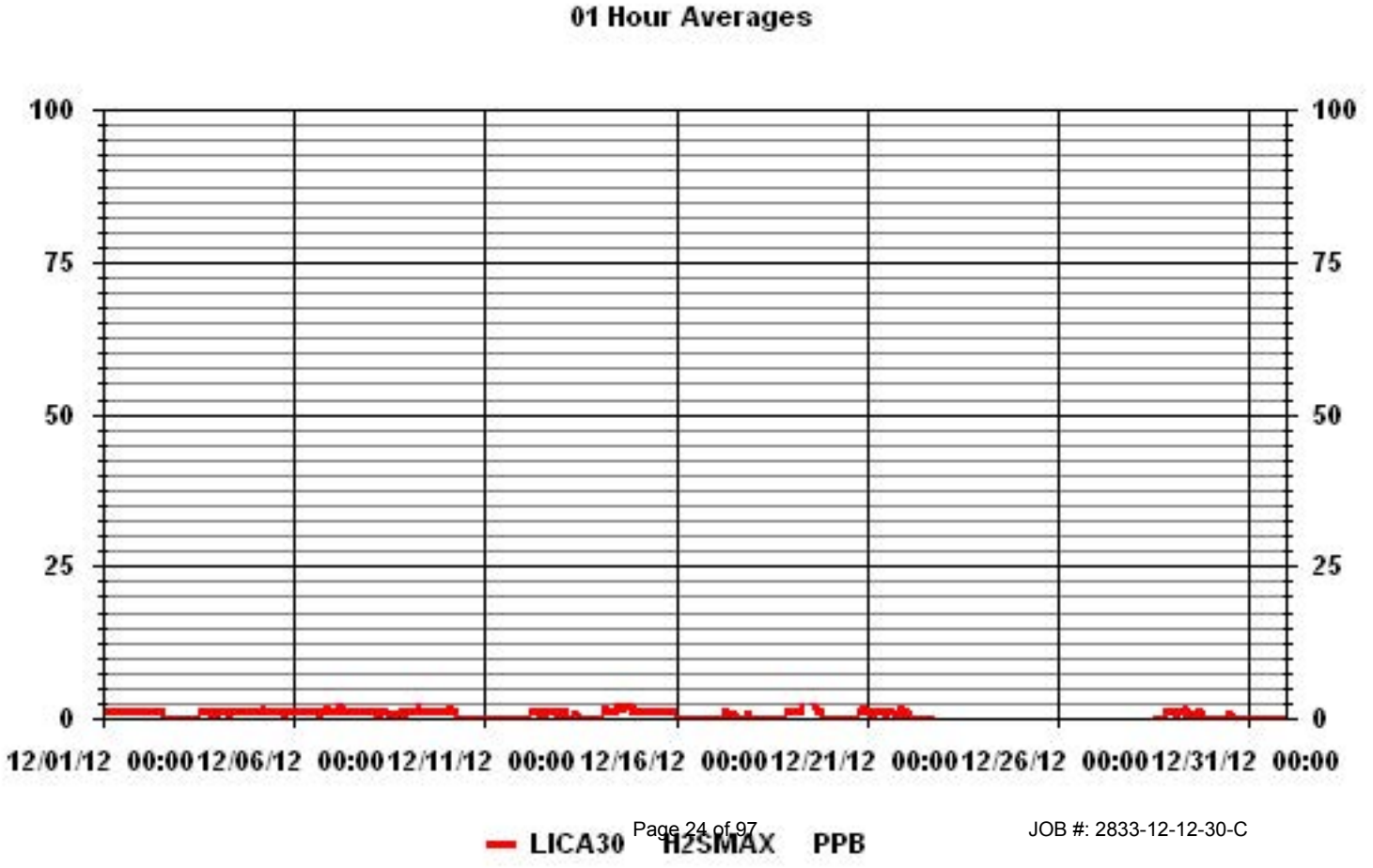
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	1	0.6	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	0	1	1	0	1	0.3	24
4	1	1	1	1	1	1	1	0	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
5	1	1	1	1	1	2	1	1	1	1	1	**IZS**	1	1	1	1	1	1	0	1	1	1	1	1	2	1.0	24
6	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	0	1	1	1	1	2	1	1	2	1.0	24
7	1	1	1	1	2	2	1	1	1	**IZS**	1	1	1	1	1	1	1	**M**	1	1	1	1	1	1	2	1.1	23
8	1	1	1	1	0	0	1	1	**IZS**	1	1	0	0	0	1	0	0	1	0	1	1	0	1	1	1	0.6	24
9	1	1	1	1	1	1	2	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
10	1	2	1	2	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
11	0	0	0	0	0	**IZS**	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	**IZS**	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	1	0.7	24
13	1	1	1	**IZS**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
14	0	0	**IZS**	1	2	1	1	1	1	1	1	2	2	2	1	2	2	2	2	2	2	1	1	1	2	1.3	24
15	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
16	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0.0	24
17	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	**IZS**	0	1	0.2	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	0.1	24
19	1	1	1	1	1	1	1	2	**C**	**C**	**C**	**C**	**C**	1	**M**	2	1	1	1	1	**IZS**	0	0	0	2	0.9	23
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	2	1	2	0.2	24
21	1	1	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	0	**IZS**	0	1	2	1	1	2	0.8	24
22	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	**N**	**N**	**N**	**N**	**N**	**N**	1	0.1	18
23	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
24	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
25	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
26	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
27	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**			0
28	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**M**	**C**	**C**	0	0	0	0	0	0	1	1	1	1	1	1	0.5	13
29	1	1	0	1	1	1	1	1	2	0	0	**IZS**	1	0	0	0	1	1	0	0	0	0	0	0	2	0.5	24
30	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
31	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	1	2	1	2	2	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	2	2	1			
HOURLY AVG	0.6	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	299					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	26	HRS	OPERATIONAL TIME:		605	HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.57					



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

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	4.01	13.08	15.35	11.34	6.10	6.80	6.10	4.36	6.28	7.15	3.49	2.44	2.44	3.66	4.53	2.79	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.01	13.08	15.35	11.34	6.10	6.80	6.10	4.36	6.28	7.15	3.49	2.44	2.44	3.66	4.53	2.79	

Calm : .00 %

Total # Operational Hours : 573

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	23	75	88	65	35	39	35	25	36	41	20	14	14	21	26	16	573
< 10																	
< 50																	
>= 50																	
Totals	23	75	88	65	35	39	35	25	36	41	20	14	14	21	26	16	

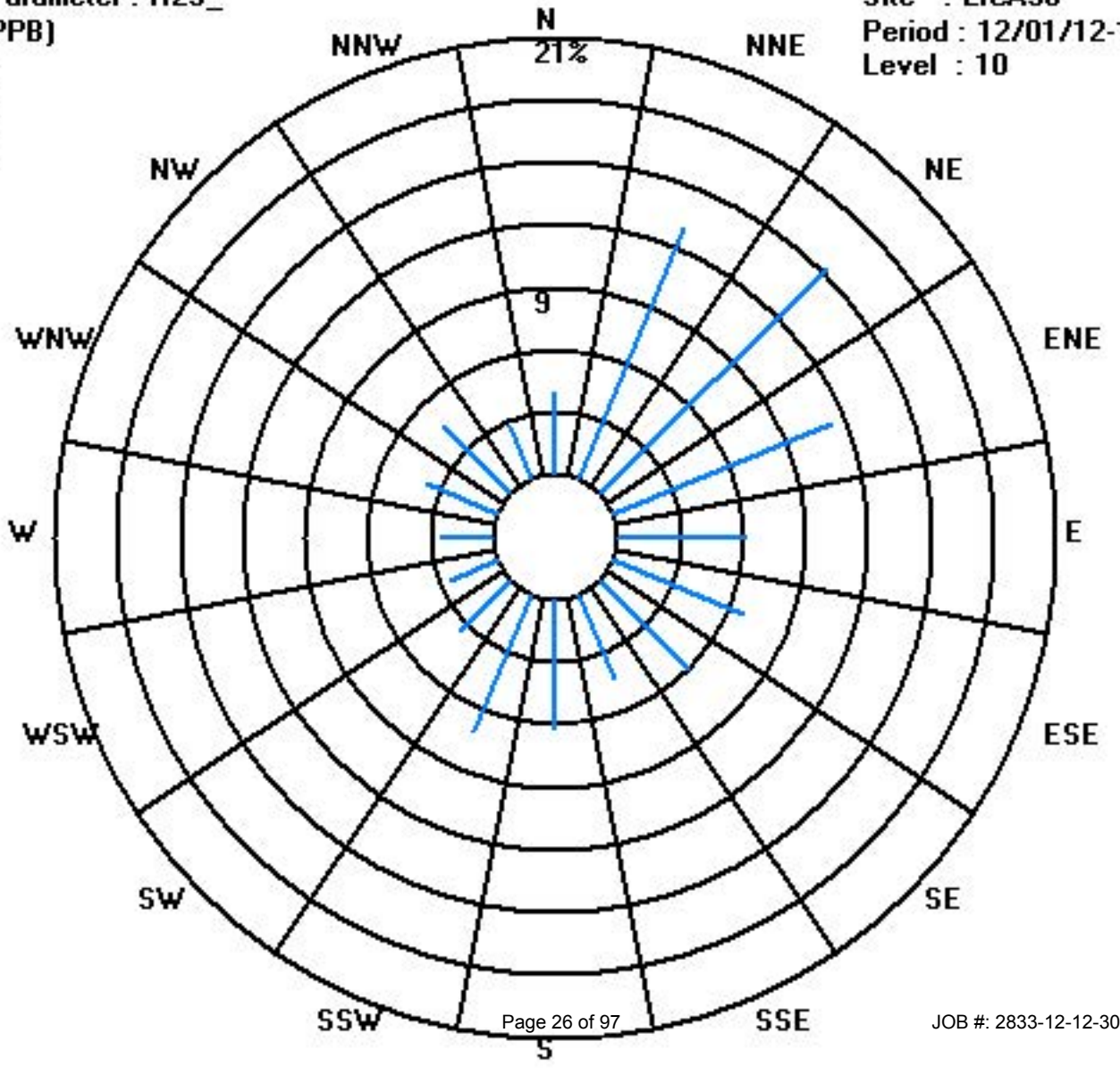
Calm : .00 %

Total # Operational Hours : 573

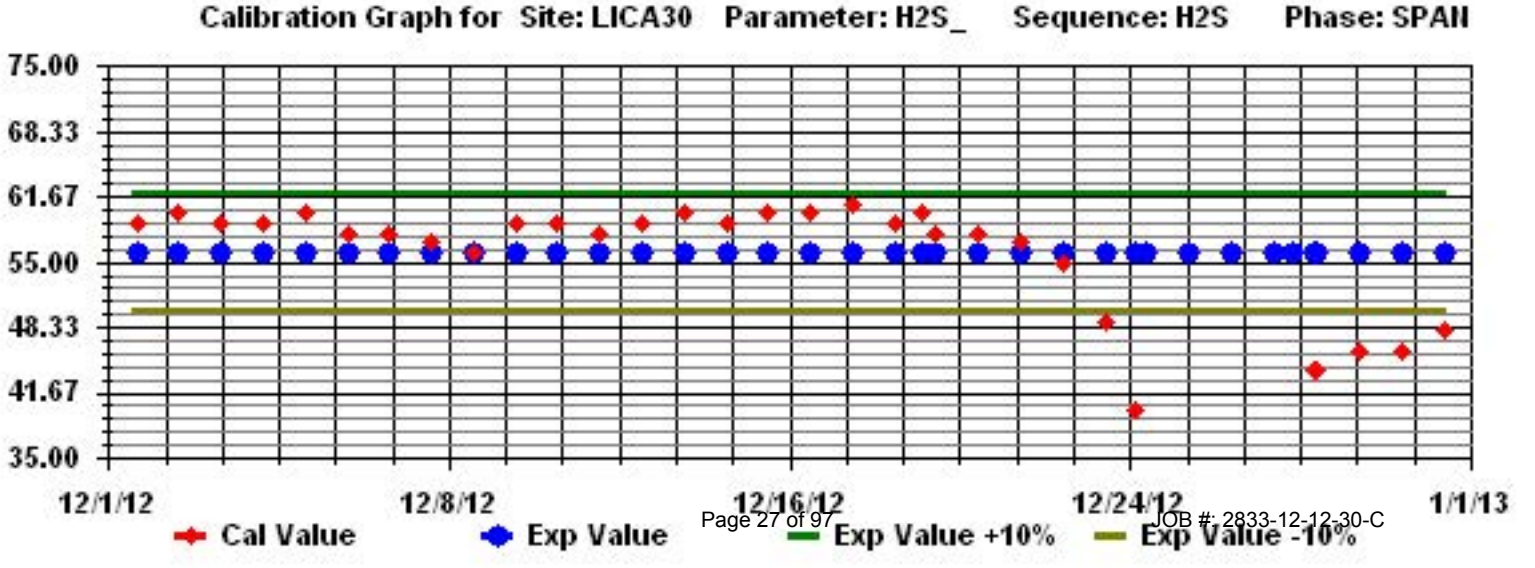
Logger : 30 Parameter : H2S_
Class Limits (PPB)

>=	50
<	50
<	10
<	3

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



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


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN
75.00
68.33
61.67
55.00
48.33
41.67
35.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

DECEMBER 2012

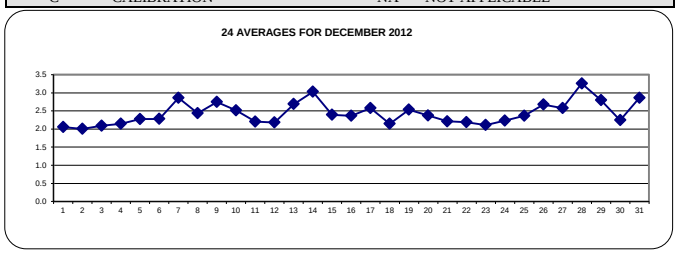
TOTAL HYDROCARBONS hourly averages in ppm

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	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	**IZS**	2	2	2	2	2	2	2	2.1	2.1	2.1	24
2	2	2	2.1	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2	2.1	2.0	24
3	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24
4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	**IZS**	2.2	2.3	2.3	2.4	2.2	2	2	2	2	2	2	2.4	2.1	24
5	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.5	2.5	2.2	**IZS**	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.5	2.3	24
6	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	**IZS**	2.3	2.2	2.4	2.2	2.2	2.4	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.5	2.3	24
7	2.5	2.6	2.7	2.8	2.5	2.7	2.8	2.7	2.7	**IZS**	2.5	2.6	2.9	3.2	3.2	3.2	3.2	3.1	3.1	3	2.9	2.8	3.1	3	3.2	2.9	24
8	2.9	2.8	2.8	2.8	2.9	2.4	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.8	3.2	3.2	2.4	24
9	2.6	2.5	2.5	2.5	2.5	2.6	2.9	**IZS**	3.3	3.2	2.8	2.8	2.8	2.7	2.8	2.7	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.7	3.3	2.7	24
10	2.7	3.2	2.9	2.9	2.6	2.6	**IZS**	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.4	2.3	3.2	2.5	24
11	2.3	2.3	2.4	2.4	2.5	**IZS**	2.3	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	2.1	2.5	2.2	24
12	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.7	2.7	2.2	24
13	2.7	2.7	2.6	**IZS**	2.7	2.7	2.7	2.7	2.8	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.6	2.7	2.7	2.7	2.7	2.7	2.8	2.9	2.9	2.7	24
14	2.9	2.9	**IZS**	3.1	3.2	3.2	3.2	3.3	3.3	3.4	3.2	3.4	3.2	3.1	3	3	3.8	3.2	3.6	3	2.3	2.1	2.1	2.1	3.8	3.0	24
15	2.2	**IZS**	2.2	2.5	2.7	2.4	2.3	2.2	2.1	2.5	2.5	2.5	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.7	2.4	24
16	**IZS**	2.2	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	2.4	2.4	2.4	2.4	2.4	2.6	3	3.1	**IZS**	3.1	2.4	24
17	3.2	3.1	3.1	3.1	3	2.9	3	3	2.6	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.2	2.3	**IZS**	2.2	3.2	2.6	24
18	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.2	2.2	2.2	2.1	24
19	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.6	3	3	2.9	**C**	**C**	**C**	**C**	2.7	2.6	2.7	2.7	2.7	**IZS**	2.7	2.7	2.7	3.0	2.5	24
20	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.7	2.4	24
21	2.2	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.2	2.4	2.2	24
22	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	24
23	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
24	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.5	2.3	2.4	2.3	2.3	2.2	**IZS**	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.5	2.2	24
25	2.2	2.2	2.2	2.2	2.4	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.3	2.3	**IZS**	2.2	2.3	2.7	2.9	2.7	2.4	2.3	2.2	2.2	2.9	2.4	24
26	2.2	2.6	3.1	3.1	3	2.8	2.7	2.6	2.6	2.6	2.8	3.3	2.4	**IZS**	2.5	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.8	2.8	3.3	2.7	24
27	2.7	2.6	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	**IZS**	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.8	2.8	2.8	2.6	24
28	2.9	2.8	2.9	3	3	3	3.2	3.1	2.9	2.9	3	**IZS**	3.2	3.1	3.2	3.4	3.5	3.5	3.6	3.7	3.8	3.7	3.7	3.8	3.8	**3.3**	24
29	**3.9**	3.8	3.8	3.8	3.7	3.5	3.6	3.7	3.1	2.5	**IZS**	2.4	2.3	2.1	2.2	2.3	2.2	2.2	2.3	2.2	2.1	2.2	2.2	2.2	**3.9**	2.8	24
30	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	**IZS**	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.4	2.4	2.2	24
31	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.9	**IZS**	3.2	2.9	2.9	3	3	2.9	2.9	3.1	3.1	3.1	3.2	3.1	2.9	2.9	2.9	3.2	2.9	24
HOURLY MAX	3.9	3.8	3.8	3.8	3.7	3.5	3.6	3.7	3.3	3.4	3.2	3.4	3.2	3.2	3.2	3.4	3.8	3.5	3.6	3.7	3.8	3.7	3.7	3.8			
HOURLY AVG	2.4	2.5	2.4	2.5	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4			

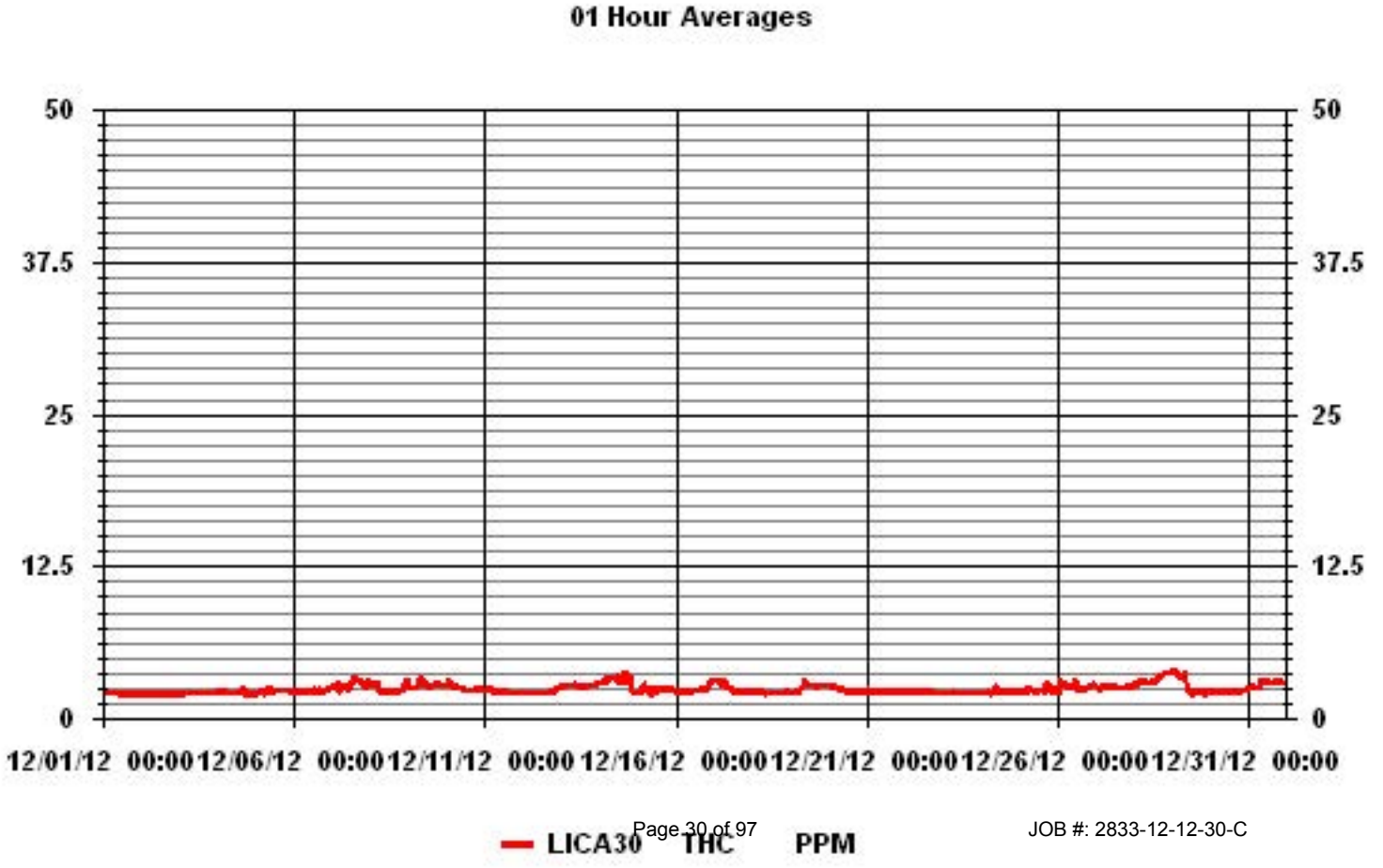
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708					
MAXIMUM 1-HR AVERAGE:	3.9	PPM	@ HOUR(S)	0	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	3.3	PPM			ON DAY(S)	28
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.38		MONTHLY AVERAGE:		2.43	PPM



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

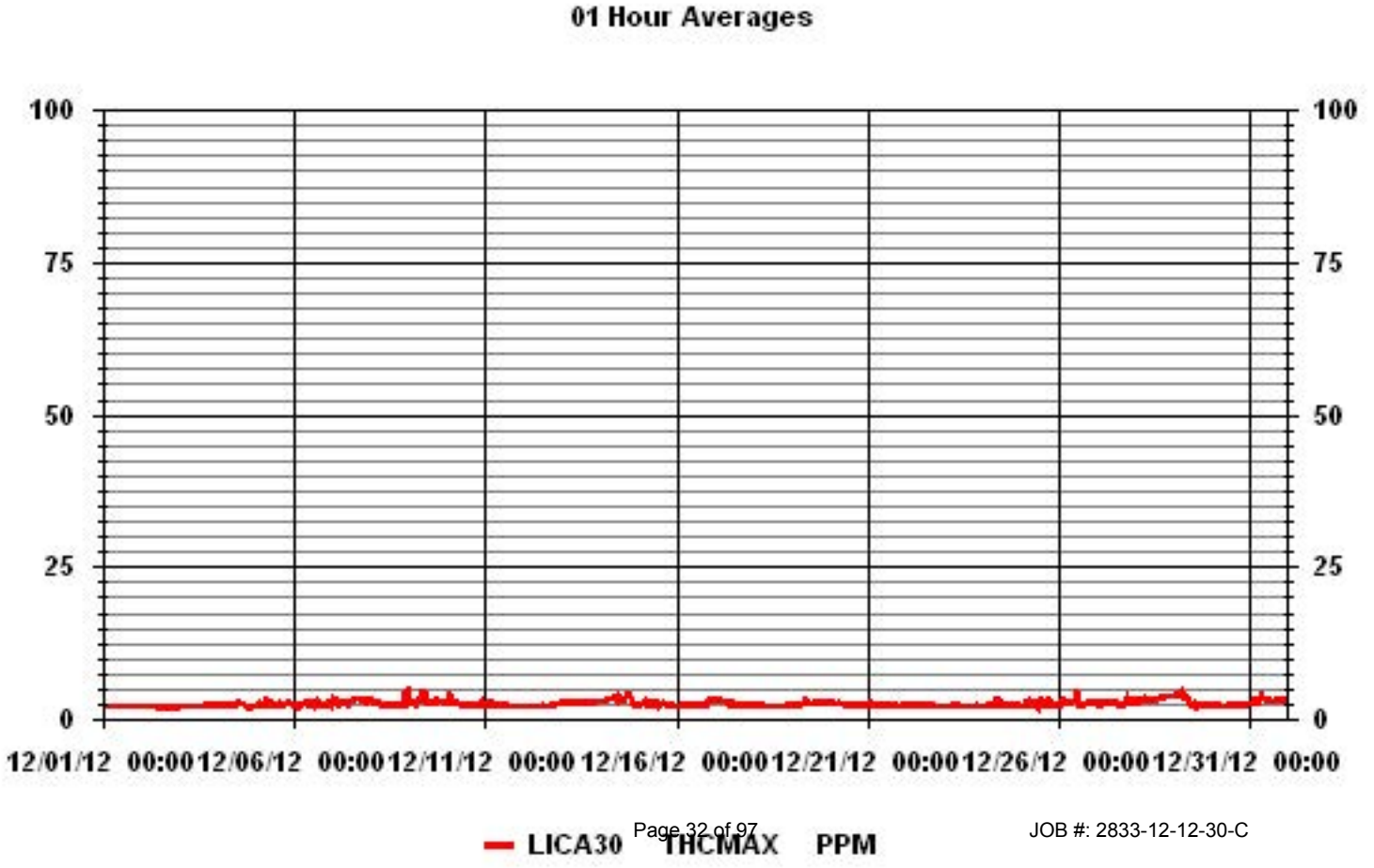
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
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	**IZS**	2	2	2.1	2	2	2	2	2	2	2.1	2.1	24
3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24
4	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	**IZS**	2.6	2.6	2.6	2.7	2.6	2.2	2.1	2	2	2.1	2.1	2.7	2.3	24
5	2.1	2.1	2.8	2.5	2.2	2.2	2.2	3.2	3.2	3.1	2.3	**IZS**	2.3	2.3	2.7	2.4	2.5	2.3	2.5	2.6	2.6	2.6	2.5	2.5	3.2	2.5	24
6	2.4	2.6	2.3	2.6	2.2	2.4	2.6	3	2.8	2.5	**IZS**	3	2.4	2.9	2.3	2.3	2.7	2.3	2.4	2.5	2.4	2.8	3	2.6	3	2.6	24
7	3.4	3.1	3	3	2.6	2.8	2.9	2.9	2.8	**IZS**	2.6	2.8	3.1	3.3	3.3	3.3	3.3	**M**	3.2	3.2	3.2	2.9	3.3	3.1	3.4	3.1	23
8	3	3	2.8	2.9	3	2.7	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.4	2.4	4.4	4.7	4.7	2.6	24
9	3	2.7	2.7	2.8	2.6	2.9	3.3	**IZS**	3.3	**4.9**	2.9	2.9	2.8	2.8	2.8	2.8	2.7	3.3	3	3	2.9	2.9	2.8	2.8	**4.9**	3.0	24
10	2.8	4.3	3.2	3.2	2.8	2.7	**IZS**	2.8	2.6	2.5	2.7	2.5	2.4	2.4	2.4	2.4	2.3	2.4	2.6	2.5	2.7	3.1	2.6	2.3	4.3	2.7	24
11	2.3	2.3	2.7	2.7	2.7	**IZS**	2.6	2.4	2.4	2.2	2.4	2.4	2.5	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.7	2.3	24
12	2.2	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.7	2.2	24
13	2.7	2.7	2.7	**IZS**	2.8	2.8	2.7	2.7	2.8	2.9	2.8	2.7	2.7	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.7	24
14	2.9	3	**IZS**	3.1	3.2	3.2	3.3	3.3	3.5	3.7	3.3	3.9	3.4	3.2	3.1	3.5	4	3.9	4.1	3.8	2.7	2.2	2.2	2.2	4.1	3.2	24
15	2.2	**IZS**	2.5	2.7	3.1	2.6	2.4	2.2	2.2	2.6	2.6	2.9	2.4	2.7	2.6	2.5	2.6	2.6	2.5	2.4	2.5	2.6	2.5	2.3	3.1	2.5	24
16	**IZS**	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.9	3.1	3.3	**IZS**	3.3	2.4	24
17	3.4	3.3	3.3	3.1	3.1	3	3.1	3	2.8	2.5	2.6	2.6	2.6	2.3	2.2	2.3	2.3	2.3	2.7	2.5	2.3	2.3	**IZS**	2.2	3.4	2.7	24
18	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	**IZS**	2.3	2.3	2.4	2.2	24
19	2.2	2.1	2.2	2.2	2.2	2.2	2.5	2.7	3.2	3.2	3	**C**	**C**	**C**	**C**	2.8	2.7	2.9	2.8	2.7	**IZS**	2.7	2.7	2.8	3.2	2.6	24
20	2.7	2.7	3	2.7	2.7	2.6	2.6	2.5	2.5	2.6	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	**IZS**	2.2	2.2	2.2	2.2	3	2.4	24
21	2.2	2.7	2.7	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	**IZS**	2.2	2.3	2.2	2.3	2.3	2.7	2.3	24
22	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.4	2.5	2.3	2.3	2.6	2.2	2.2	2.2	2.2	2.2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.2	24
23	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	24
24	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.6	2.8	2.9	2.6	2.6	2.4	**IZS**	2.3	2.3	2.5	2.5	2.6	2.4	2.5	2.2	3.6	2.4	24
25	2.2	2.4	2.2	2.2	3	3.1	3.2	2.6	2.8	2.5	2.6	2.2	3	3.2	**IZS**	2.3	2.3	3	3	2.9	2.7	2.5	2.3	2.3	3.2	2.6	24
26	2.3	2.9	3.1	3.2	3.1	2.9	2.7	2.7	2.7	2.8	3	4.7	2.7	**IZS**	2.5	2.4	2.5	2.6	2.7	2.7	2.9	2.9	2.8	4.7	4.7	2.8	24
27	2.8	2.7	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	**IZS**	2.7	2.5	2.6	2.5	2.7	3.4	2.7	2.6	2.7	2.7	3	3.4	2.7	24
28	3	2.9	3.1	3.1	3.1	3.1	3.6	3.2	3	3.2	3.3	**IZS**	3.3	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.8	3.8	3.8	3.8	3.4	24
29	3.9	3.8	4.1	3.9	3.9	4.4	3.7	3.8	3.7	2.7	**IZS**	2.5	2.5	2.2	2.9	2.7	2.4	2.5	2.6	2.2	2.2	2.2	2.2	2.3	4.4	3.0	24
30	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	**IZS**	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2.4	2.5	2.4	2.5	2.5	2.3	24
31	2.5	2.6	2.8	3.6	2.6	2.6	3	4.1	**IZS**	3.5	3	3.1	3	3	2.9	3	3.2	3.2	3.1	3.3	3.2	3	3	3	4.1	3.1	24
HOURLY MAX	4	4	4	4	4	4	4	4	4	5	3	5	3	3	3	4	4	4	4	4	4	4	4	5			
HOURLY AVG	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.6	2.6			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	4.9	PPM	@ HOUR(S)	9	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.47					



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

LICA30
THC / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.53	10.87	17.09	9.46	4.94	5.50	5.50	3.67	5.64	4.66	1.55	2.11	1.55	3.81	5.36	3.38	88.70
< 10.0	.00	.56	.98	.42	.14	.70	.28	.14	.56	3.81	2.11	.42	.56	.42	.14	.00	11.29
< 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	3.53	11.44	18.07	9.88	5.08	6.21	5.79	3.81	6.21	8.47	3.67	2.54	2.11	4.23	5.50	3.38	

Calm : .00 %

Total # Operational Hours : 708

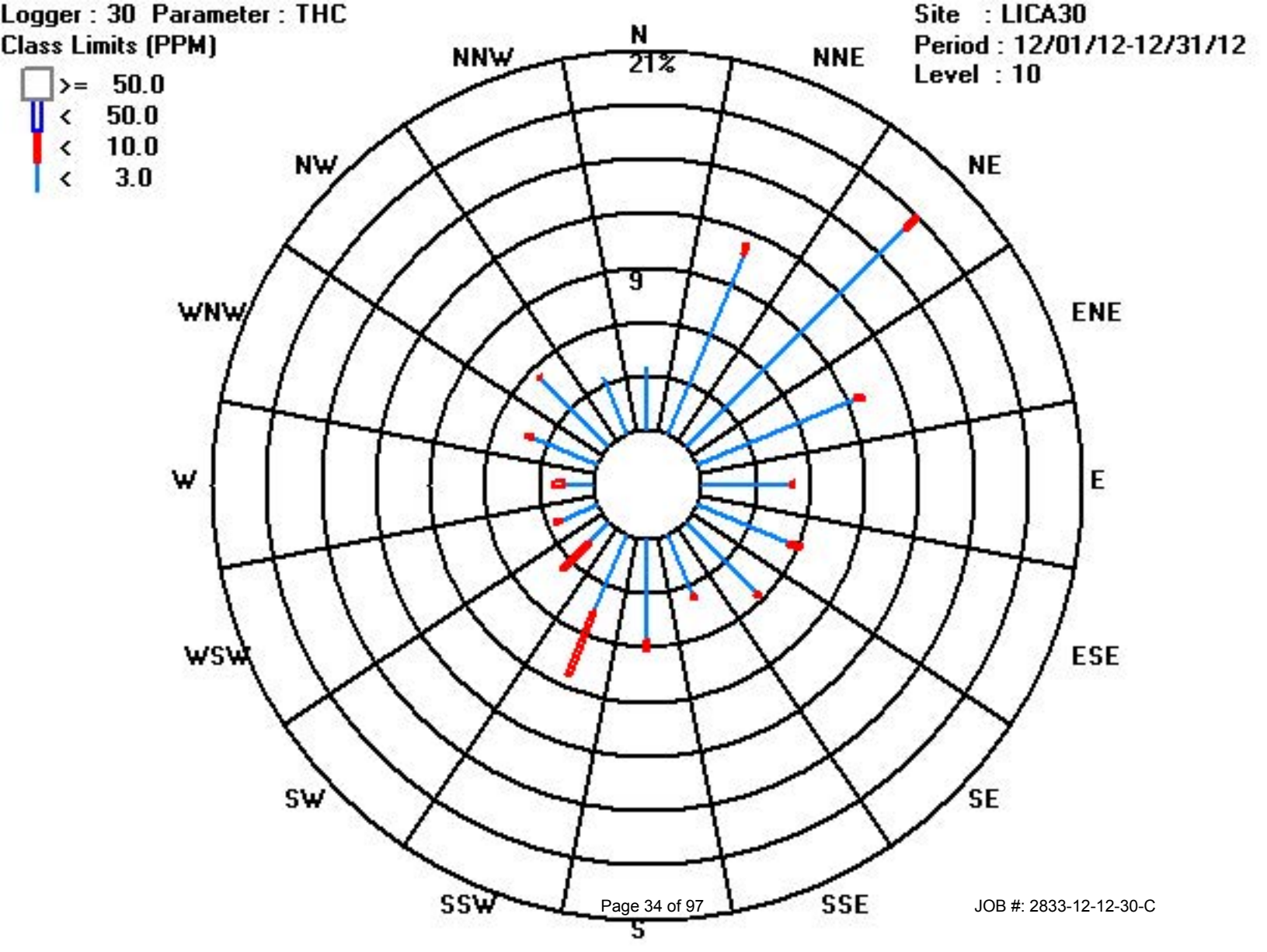
Distribution By Samples

Direction

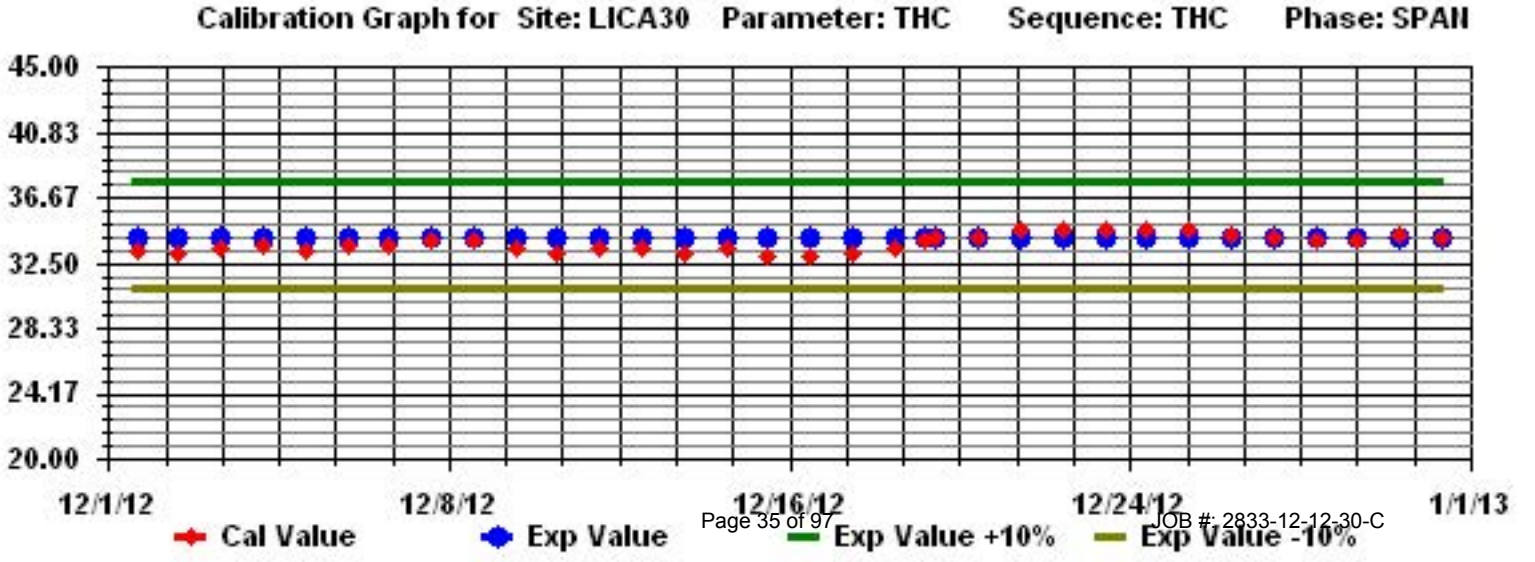
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	25	77	121	67	35	39	39	26	40	33	11	15	11	27	38	24	628
< 10.0		4	7	3	1	5	2	1	4	27	15	3	4	3	1		80
< 50.0																	
>= 50.0																	
Totals	25	81	128	70	36	44	41	27	44	60	26	18	15	30	39	24	

Calm : .00 %

Total # Operational Hours : 708



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


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN
45.00
40.83
36.67
32.50
28.33
24.17
20.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

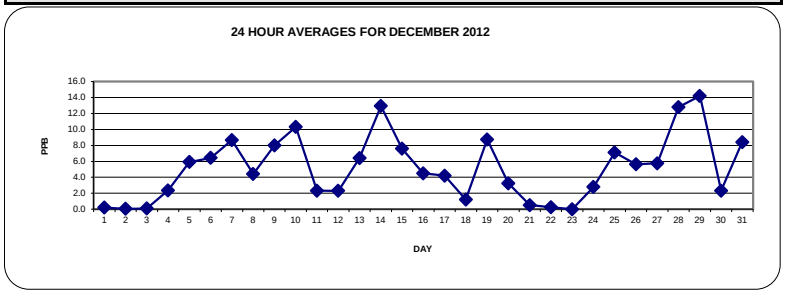
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	1	0.2	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0.1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	1	0	0	0	0	0	1	0.1	24
4	2	2	1	3	1	1	0	0	1	1	1	2	**IZS**	3	6	7	9	7	3	1	1	1	1	1	9	2.4	24
5	2	2	2	2	3	4	8	13	9	13	7	**IZS**	4	4	7	5	8	4	4	8	8	5	7	7	13	5.9	24
6	8	8	8	5	3	4	8	5	8	9	**IZS**	4	5	5	9	7	8	7	8	10	6	5	4	4	10	6.4	24
7	7	12	13	8	6	8	11	9	10	**IZS**	10	9	8	8	9	11	13	10	9	6	5	4	6	7	13	8.7	24
8	6	6	5	6	6	3	2	1	**IZS**	2	2	1	1	1	1	2	6	2	7	8	7	9	8	11	11	4.4	24
9	9	7	7	9	7	7	7	**IZS**	10	9	6	6	6	6	9	10	11	9	9	9	8	9	9	8	11	8.0	24
10	8	8	10	14	12	13	**IZS**	11	11	9	8	7	6	6	8	12	15	13	14	14	15	11	6	4	15	10.3	24
11	4	3	6	6	9	**IZS**	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	9	2.3	24
12	1	0	0	0	**IZS**	1	0	0	0	0	0	0	2	4	3	4	3	3	5	7	6	4	5	5	7	2.3	24
13	6	5	5	**IZS**	6	5	5	6	7	5	5	6	5	6	7	6	7	8	9	8	8	8	8	8	9	6.4	24
14	8	9	**IZS**	10	10	10	12	15	15	13	9	10	14	15	14	15	23	17	18	27	21	5	6	3	27	12.9	24
15	2	**IZS**	4	9	9	7	13	16	10	17	10	7	7	8	9	9	7	6	6	6	5	4	3	2	17	7.6	24
16	**IZS**	2	4	3	3	2	2	2	3	2	3	3	3	3	4	5	8	8	8	6	7	10	9	**IZS**	10	4.5	24
17	10	10	9	9	9	7	8	7	4	3	3	3	2	1	1	1	1	1	5	1	1	0	**IZS**	1	10	4.2	24
18	1	1	0	0	0	0	1	2	1	2	2	1	1	1	1	2	3	3	1	1	2	**IZS**	2	2	3	1.2	24
19	1	1	1	2	2	2	8	19	**C**	**C**	**C**	**C**	**C**	**C**	**C**	12	15	16	14	12	**IZS**	12	12	11	19	8.7	24
20	9	10	8	7	7	5	5	4	4	3	2	2	1	1	1	1	1	1	1	**IZS**	1	0	0	1	10	3.3	24
21	0	3	2	1	0	0	0	0	0	0	0	0	1	1	2	1	1	0	**IZS**	0	0	0	0	0	3	0.5	24
22	0	0	0	0	0	0	0	2	3	0	0	1	0	0	0	0	0	**IZS**	0	0	0	0	0	0	3	0.3	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	3	8	**IZS**	4	4	6	9	10	8	9	3	10	2.8	24
25	3	8	6	6	9	12	11	13	10	7	5	4	7	6	**IZS**	7	5	9	11	9	5	5	4	3	13	7.1	24
26	3	5	9	10	9	7	6	6	6	5	5	6	4	**IZS**	4	3	3	5	3	4	5	6	8	7	10	5.6	24
27	6	4	3	4	3	3	3	4	5	4	4	4	**IZS**	3	3	16	9	7	7	7	7	7	9	10	16	5.8	24
28	6	8	7	6	5	5	4	6	7	11	8	**IZS**	7	9	12	15	18	19	21	25	24	23	23	24	25	12.8	24
29	26	27	26	25	24	20	25	**28**	25	9	**IZS**	13	9	1	4	13	13	8	17	10	0	0	0	2	**28**	**14.2**	24
30	1	0	0	0	1	2	4	10	6	**IZS**	3	2	1	1	2	3	3	2	1	1	2	4	2	2	10	2.3	24
31	2	2	2	2	2	7	3	5	**IZS**	8	11	8	6	8	7	8	11	14	14	15	17	14	15	13	17	8.4	24
HOURLY MAX	26	27	26	25	24	20	25	28	25	17	11	13	14	15	14	16	23	19	21	27	24	23	23	24			
HOURLY AVG	4.3	4.8	4.6	4.9	4.9	4.5	5.0	6.2	5.6	4.8	3.7	3.6	3.6	3.8	4.6	6.0	6.8	6.0	6.8	6.9	5.7	5.3	5.2	4.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

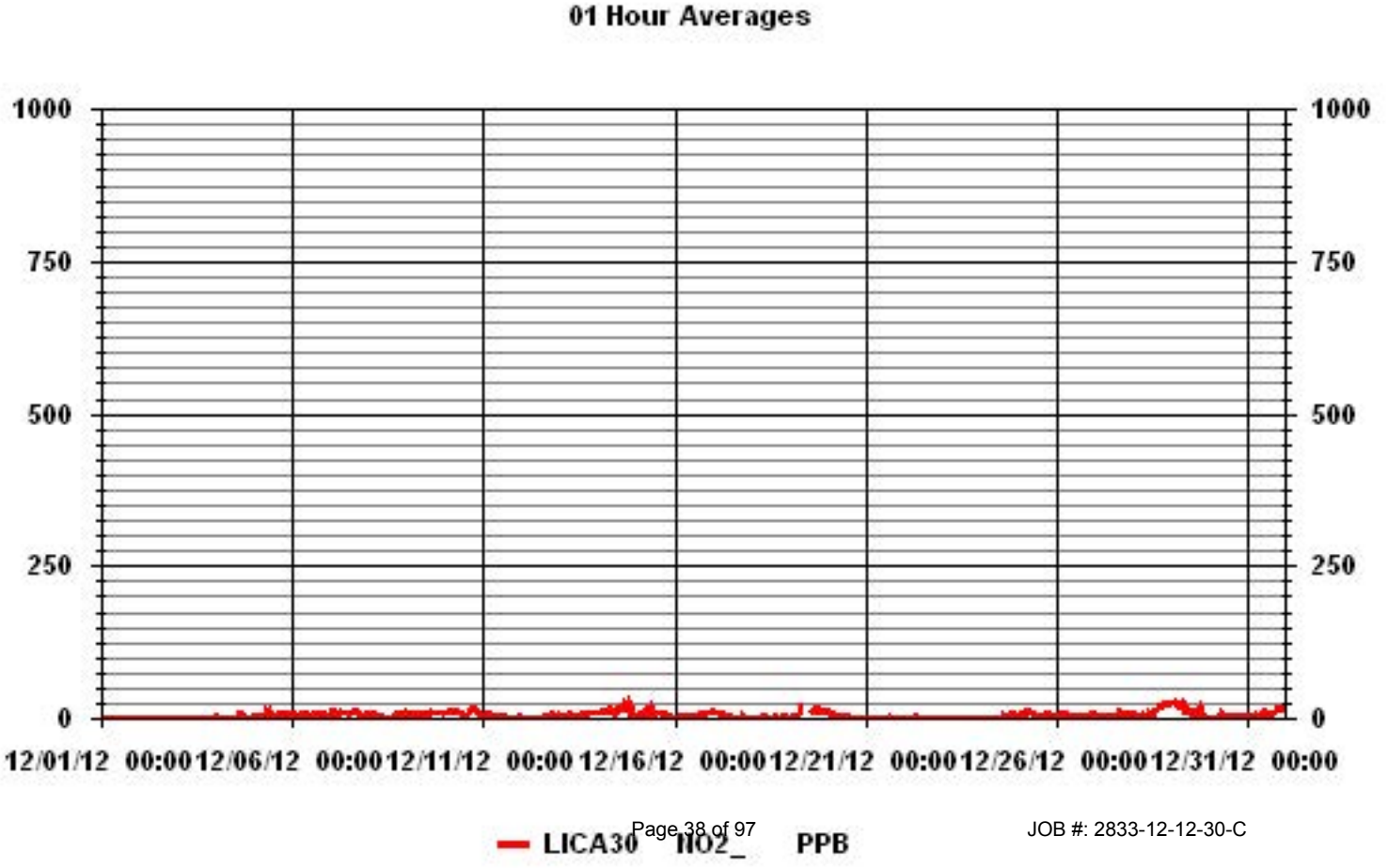


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	604					
MAXIMUM 1-HR AVERAGE:	28	PPB	@ HOUR(S)	7	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	14.2	PPB			ON DAY(S)	29

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	5.29		MONTHLY AVERAGE:	5.12	PPB

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

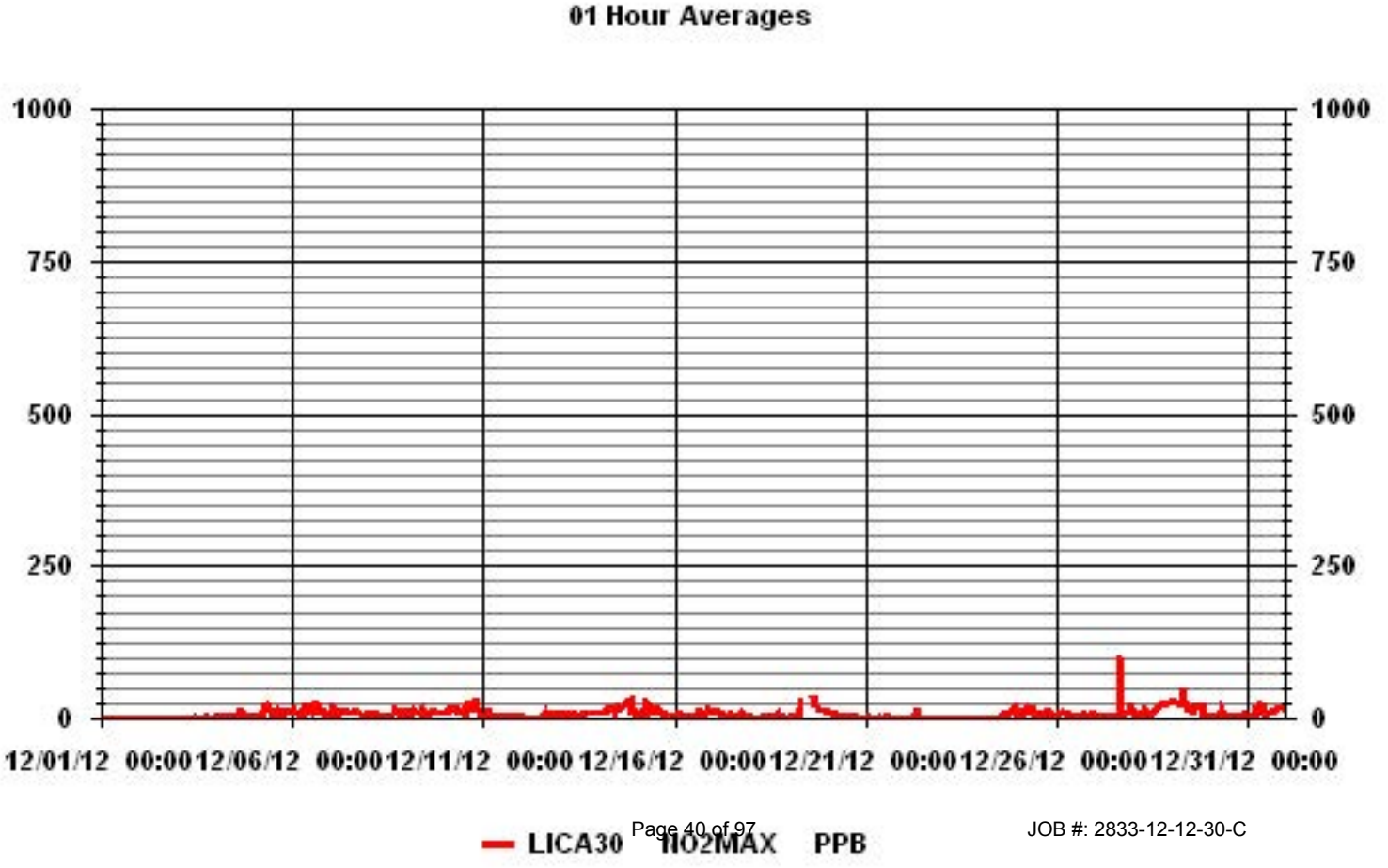
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1.3	1.4	1.6	0.7	0.6	0.5	0.8	0.6	0.5	0.6	0.7	0.5	0.6	0.4	1	**IZS**	0.3	0.4	0.4	0.4	0.4	0.7	0.7	0.5	1.6	0.7	24
2	0.4	0.4	0.4	0.4	0.4	0.3	0.3	1.1	0.7	0.4	0.4	0.7	0.5	0.3	**IZS**	0.9	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	0.5	24
3	0.4	0.3	0.5	0.5	0.5	0.5	0.7	0.9	0.8	0.6	1.7	1.1	2.2	**IZS**	0.7	0.4	0.4	1.2	1.6	1.3	0.8	0.4	0.7	1.6	2.2	0.9	24
4	2.7	3.2	2.7	3.8	2.7	1.5	1.6	1.6	1.3	1.4	2.2	4.5	**IZS**	5.5	7.4	10.4	11.2	10.8	5.6	2.4	2.1	2.3	2.3	1.7	11.2	4.0	24
5	2.2	2.3	3.1	3.5	5.6	6.3	9.3	21.8	11.7	19.8	14.3	**IZS**	6.2	6.1	12.8	8.6	15.4	7	6.4	12.8	11.8	10.2	12	11.2	21.8	9.6	24
6	16.5	14.8	12.4	10.1	6.8	8.4	14.9	9.9	18.3	20.7	**IZS**	12.8	17.9	9.7	10.9	26.2	11.7	10.4	11.7	13.1	7.4	6	6	5.9	26.2	12.3	24
7	9.9	18.9	16.4	11.1	7.4	8.9	14.4	12.4	10.9	**IZS**	11.2	10.1	9.4	9.2	10	14.4	13.7	**M**	9.9	8.3	6.1	5.2	7.6	7.9	18.9	10.6	23
8	6.9	6.3	6.4	6.7	7	7.1	3.2	2.6	**IZS**	3	2.8	2	1.3	1.5	2.1	6.2	20.9	4.8	11.2	10.3	8.1	17	8.5	14.2	20.9	7.0	24
9	13.3	8.1	7.6	12.5	8.3	8.6	9.3	**IZS**	10.6	15.1	6.7	6.2	6.2	7.1	9.5	11.9	14.2	10.5	10.3	9	8.9	9.4	9.1	8.6	15.1	9.6	24
10	8.4	10	10.6	16.5	15.6	16	**IZS**	15.8	12.1	10.7	10.9	8.9	14.2	7.7	11	29.7	17.8	15.8	17	31.7	16.4	14.2	8	4.9	31.7	14.1	24
11	4.4	3.5	10.7	11.5	11.3	**IZS**	4	3.5	2.9	2.5	4.1	3.8	6	1.8	1.7	1.7	1.5	1.5	1.4	1.5	1.5	1.5	1.7	1.8	11.5	3.7	24
12	1.8	1.2	0.6	0.6	**IZS**	1	0.8	0.9	0.9	0.7	0.8	0.8	4.8	4.2	4.2	10.1	3.8	3.4	6.6	7.6	6.7	4.8	5.3	5.8	10.1	3.4	24
13	6.2	5.6	5.3	**IZS**	6.3	6.1	6.6	6.4	7.5	6.1	6.1	6.4	5.4	6.5	7.4	6.9	8.3	8.5	9.8	8.9	8.9	8.9	9.2	9.1	9.8	7.2	24
14	8.5	10.2	**IZS**	10.3	11.3	11.5	14.9	16.8	16.4	15.7	9.2	17	20	15.9	16.1	19.5	24.8	23.7	26.4	30.6	31.9	12.5	13.8	3.8	31.9	16.6	24
15	4.4	**IZS**	8.9	10.5	11.3	8.3	30.6	25.3	12.4	23.4	12.2	9.2	9.3	21	10	9.2	8.3	6.4	6.6	6.5	5.2	4.9	4	3.1	30.6	10.9	24
16	**IZS**	2.6	7.6	5.6	5.8	2.3	2.6	3.5	3.8	3	3	3.6	5.2	4.3	5.4	13.7	14.4	10	9.4	7.1	8.4	17.4	10.2	**IZS**	17.4	6.8	24
17	11	10.7	10.1	10.1	10.1	8.1	8.7	8.5	6.4	4	5.2	7.4	4.1	1.6	1.4	2.1	2.2	1.4	8.3	4.6	1.2	1	**IZS**	1.5	11	5.6	24
18	1.3	1.1	0.9	0.9	1.2	0.9	1.7	2.6	2.4	2.8	2.6	1.3	1.2	3.1	3	3.5	4.2	8.1	2	2.3	3.1	**IZS**	2.5	3.2	8.1	2.4	24
19	2.1	1.6	1.7	2.1	1.9	4.4	15.2	29.1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	32.7	24.2	22	16.6	14.3	**IZS**	12.5	12	11.2	32.7	12.7	24
20	10.3	10.3	9.3	7.9	7.2	6.4	5.5	4.3	4.8	3.2	2.6	2.3	1.8	1.5	1.7	1.9	1.4	1.5	1.9	**IZS**	0.9	0.9	0.8	0.9	10.3	3.9	24
21	1	5.2	3.9	1.5	0.8	0.6	0.5	0.7	1.8	1.6	0.6	1	1.3	1.5	5.2	3.8	1.3	1	**IZS**	0.6	0.4	0.6	0.6	0.4	5.2	1.6	24
22	0.4	0.8	0.4	0.4	0.3	0.1	0.2	7.4	14.2	0.5	0.4	1.9	0.3	0.2	0.4	0.4	0.4	**IZS**	0.4	0.5	0.5	0.4	0.5	0.5	14.2	1.4	24
23	0.2	0.7	0.5	0.4	0.5	0.5	0.2	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.5	**IZS**	0.6	0.6	0.6	0.3	0.5	0.4	0.6	0.7	0.5	24
24	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.8	1	0.5	0.6	0.9	1.7	5.2	9.6	**IZS**	9	7.5	9.1	14.1	18.1	15.8	18.7	5.6	18.7	5.3	24
25	3.8	14.7	7.7	8.9	13.1	17.5	14	16.9	18.5	10.1	9.3	5	9.1	11.1	**IZS**	8.7	5.4	12.3	12	10.3	8.1	5.5	6.1	3.3	18.5	10.1	24
26	3.3	7.5	9.4	10	9.6	7.8	6.6	6.8	7	6.4	5.1	6.2	5	**IZS**	4.5	3.9	4	7.7	3.9	5	5.3	8.7	8.7	7.8	10	6.5	24
27	7.3	5.5	3.5	4.5	4.2	3.8	4	4.5	5.8	5.1	4.9	4.8	**IZS**	3.6	3.9	**102.4**	16.2	9.9	9.3	7.6	8.3	9.3	24.9	18.8	**102.4**	11.8	24
28	6.9	9.5	8	6.7	5.9	5.9	5	20.5	10.7	13.1	9.9	**IZS**	8.9	11	13.4	17.3	19.5	20.1	23.4	25.9	25.7	23.7	25	25.2	25.9	14.8	24
29	26.9	27.3	27	26.2	24.3	23	27.2	50.6	30.9	18.2	**IZS**	16.5	15.6	4.9	21.3	21.6	22.6	20.6	19.8	20.4	1.5	1.7	1.5	2.9	50.6	19.7	24
30	2.6	1.6	1.3	1.3	1.9	4.5	6.5	15.9	10	**IZS**	3.2	2.8	2.9	1.5	3.2	3.9	3.7	2.4	2.2	2.3	5.4	7.5	3.1	4.4	15.9	4.1	24
31	4.3	3.1	3.2	3.4	3.4	20.9	6.1	23.3	**IZS**	21	13.6	9.7	7.1	8.3	8	9.1	12.5	15.6	15.1	17.1	17.9	17.4	19.1	14.8	23.3	11.9	24
HOURLY MAX	27	27	27	26	24	23	31	51	31	23	14	17	20	21	21	102	25	24	26	32	32	24	25	25			
HOURLY AVG	5.6	6.3	6.1	6.3	6.2	6.4	7.2	10.5	8.0	7.5	5.2	5.3	6.0	5.5	6.7	13.2	9.8	8.5	8.6	9.3	7.4	7.4	7.5	6.1			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704						
MAXIMUM INSTANTANEOUS VALUE:	102.4	PPB	@ HOUR(S)	15	ON DAY(S)	27	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743	HRS
MONTHLY CALIBRATION TIME:	7	HRS					
STANDARD DEVIATION:	7.84						



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

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	

Calm : .00 %

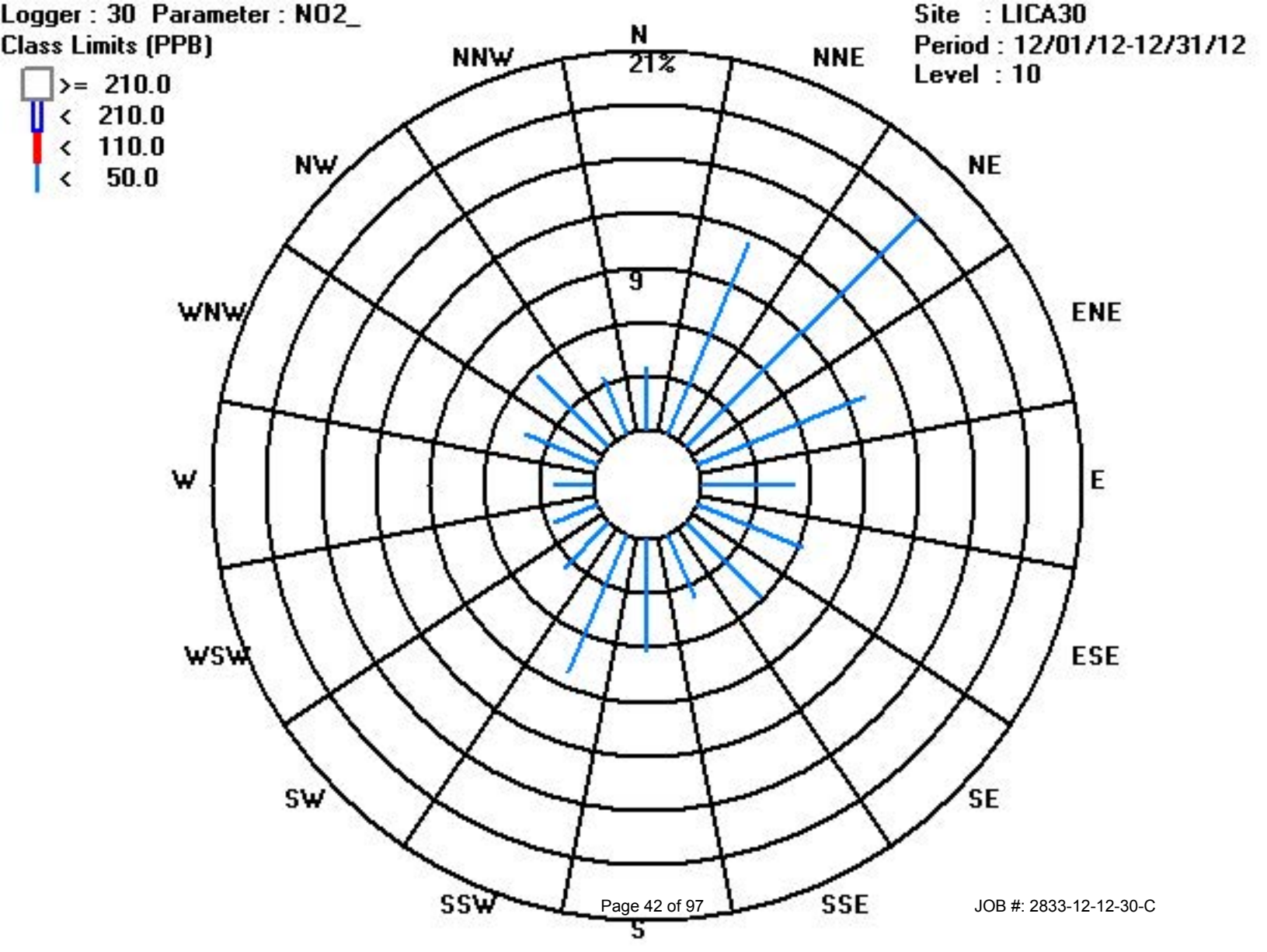
Total # Operational Hours : 705

Distribution By Samples

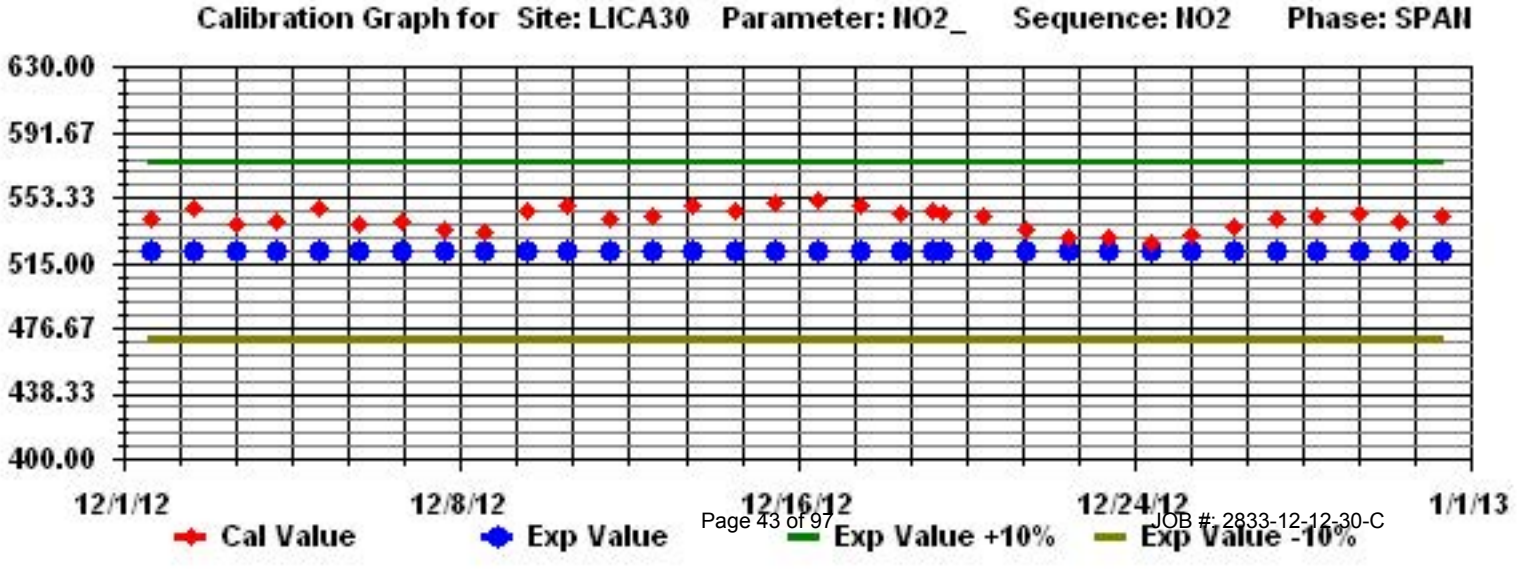
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	

Calm : .00 %

Total # Operational Hours : 705



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


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN
630.00
591.67
553.33
515.00
476.67
438.33
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSCOICATION - MASKWA

DECEMBER 2012

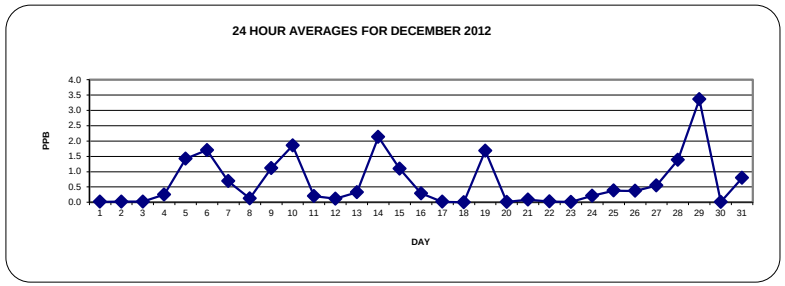
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	1	2	1	1	1	0	0	0	0	0	0	2	0.3	24
5	0	0	0	0	0	0	0	3	1	6	3	**IZS**	2	2	2	1	4	0	0	3	1	0	1	2	6	1.4	24
6	5	4	0	0	1	1	2	2	4	5	**IZS**	3	4	3	4	2	0	0	0	0	0	0	0	0	5	1.7	24
7	0	1	0	0	0	0	1	0	1	**IZS**	4	4	2	2	1	0	0	0	0	0	0	0	0	0	4	0.7	24
8	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	2	0.1	24
9	0	0	0	0	0	0	0	**IZS**	0	4	4	4	4	3	3	2	1	0	0	0	0	0	0	0	4	1.1	24
10	0	0	0	2	1	1	**IZS**	1	0	3	5	5	6	4	4	3	1	0	1	5	1	0	0	0	6	1.9	24
11	0	0	1	1	2	**IZS**	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
12	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0.1	24
13	0	0	0	**IZS**	0	0	0	0	0	1	1	1	2	2	1	0	0	0	0	0	0	0	0	0	2	0.3	24
14	0	0	**IZS**	0	0	0	0	1	1	2	2	6	9	7	4	2	7	3	2	2	2	0	0	0	9	2.1	24
15	0	**IZS**	0	0	0	0	2	0	0	6	4	3	4	4	2	0	0	0	0	0	0	0	0	0	6	1.1	24
16	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	**IZS**	1	0.3	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0.0	24
19	0	0	0	0	0	0	2	11	**C**	**C**	**C**	**C**	**C**	**C**	**C**	7	4	2	1	1	**IZS**	0	0	0	11	1.7	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0.0	24
21	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**IZS**	0	0	0	0	0	1	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	1	1	**IZS**	0	0	0	1	1	0	1	0	1	0.2	24
25	0	0	0	0	0	1	0	1	1	1	1	1	2	2	**IZS**	1	0	0	0	0	0	0	0	0	2	0.4	24
26	0	0	0	0	0	0	0	0	0	1	2	4	2	**IZS**	1	0	0	0	0	0	0	0	0	0	4	0.4	24
27	0	0	0	0	0	0	0	0	0	0	0	1	**IZS**	0	0	7	0	0	0	0	0	0	3	1	7	0.5	24
28	0	0	0	0	0	0	0	1	0	4	7	**IZS**	4	5	5	3	1	0	0	2	1	0	1	0	7	1.4	24
29	2	4	4	5	3	2	1	12	**13**	2	**IZS**	8	5	0	1	3	3	2	4	3	0	0	0	0	**13**	**3.4**	24
30	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	0	0	0	0	2	0	1	**IZS**	2	5	4	2	2	1	0	0	0	0	0	0	0	0	0	5	0.8	24
HOURLY MAX	5	4	4	5	3	2	2	12	13	6	7	8	9	7	5	7	7	3	4	5	2	1	3	2			
HOURLY AVG	0.3	0.3	0.2	0.3	0.2	0.2	0.3	1.1	0.7	1.3	1.4	1.6	1.8	1.4	1.2	1.2	0.8	0.3	0.3	0.5	0.2	0.1	0.2	0.1			

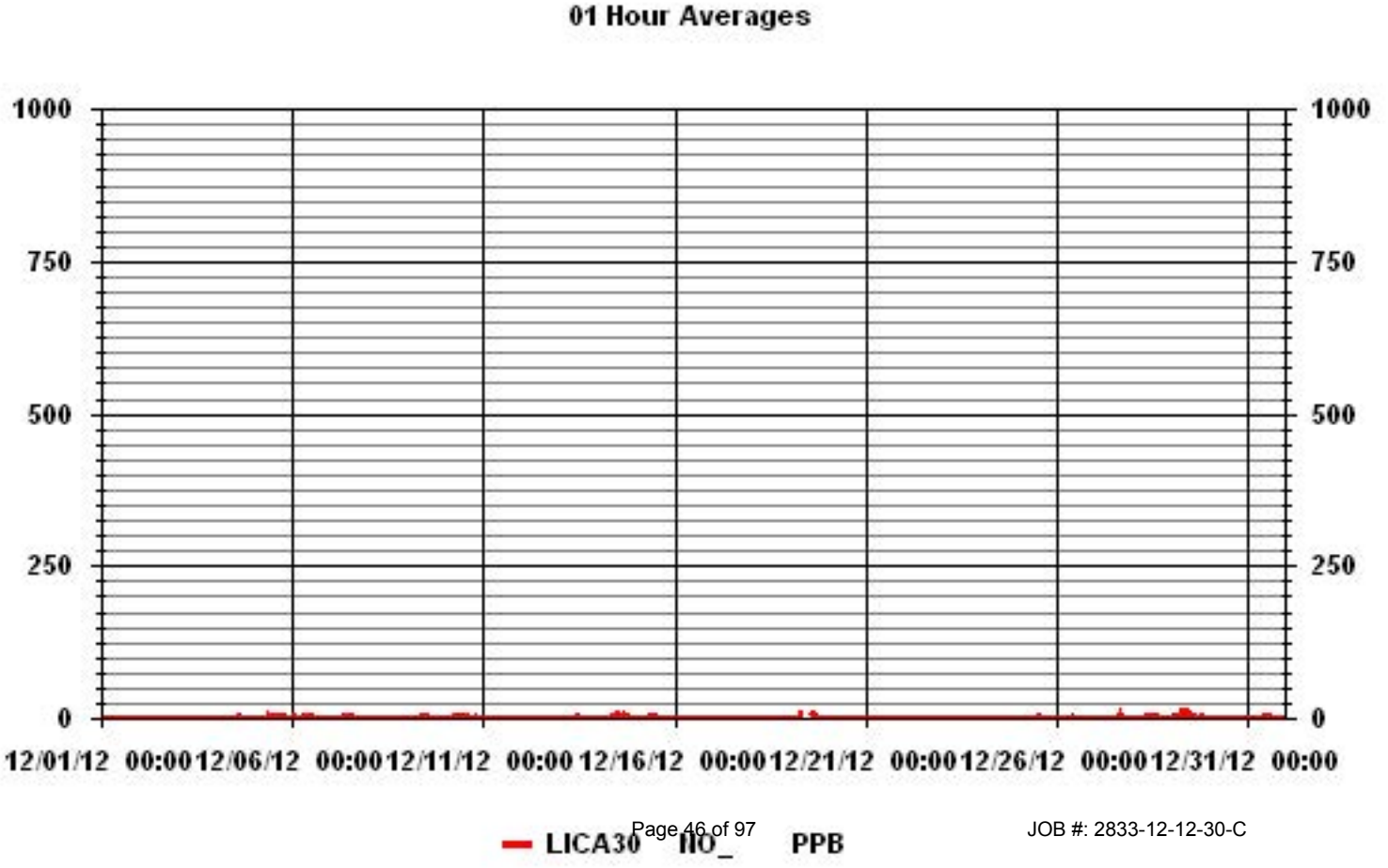
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	266						
MAXIMUM 1-HR AVERAGE:	13	PPB	@ HOUR(S)	8	ON DAY(S)	29	
MAXIMUM 24-HR AVERAGE:	3.4	PPB			ON DAY(S)	29	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	1.53		MONTHLY AVERAGE:		0.64	PPB	



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.2	0.2	0.2	0	0.2	0.2	0	**IZS**	0.5	0.5	0.7	0.5	0.7	0.7	0.7	0.5	0.7	0.3	24
2	0.5	0.5	0.6	0.5	0.7	0.6	0.5	0.7	0.7	0.5	0.7	0.7	0.5	0.3	**IZS**	0.6	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.4	0.7	0.5	24
3	0.4	0.4	0.5	0.3	0.5	0.4	0.5	0.6	0.4	0.4	0.6	0.7	1	**IZS**	0	0	0	0.1	0.3	0.3	0.1	0	0	0.1	1	0.3	24
4	0.2	0.2	0.3	0.3	0.1	0	0	0.1	0.1	0.3	0.2	0.8	**IZS**	2	2.7	3	2.3	2.2	0.5	0.3	0.4	0.3	0.7	0.3	3	0.8	24
5	0.5	0.3	0.5	0.5	2.4	1.5	1.6	13.5	2.4	44.5	9.9	**IZS**	5.2	5.5	7.5	4.1	31.9	4.8	0.7	7.7	2.9	2.5	1.6	6	44.5	6.9	24
6	17	9.4	1.1	0.7	4.9	5.7	7.6	5.6	15.9	19.7	**IZS**	35.4	30.8	6.6	6	25.7	1.6	0.6	0.9	0.8	0.3	0.5	0.6	0.3	35.4	8.6	24
7	0.6	2.7	0.8	0.6	1	1	2.4	0.6	2.5	**IZS**	5.3	4.6	3.9	2.7	2.3	1.2	0.5	**M**	0.3	0.1	0.2	0.1	0.2	0.1	5.3	1.5	23
8	0.1	0.2	0	0.3	0.5	0.4	0.4	0.1	**IZS**	0.7	1	0.5	0.6	0.4	0.7	1.6	21.7	0.3	0.5	0.5	0.4	6.3	0.6	0.7	21.7	1.7	24
9	0.6	0.4	0.4	1.7	0.6	1.4	4.4	**IZS**	1.1	10.7	4.6	5.9	5.9	4.5	4.7	3.7	6.9	0.2	0.3	0.2	0.1	0.2	0.2	0	10.7	2.6	24
10	0	0.3	0.5	8.3	4.7	3.9	**IZS**	7.5	1.2	3.9	8.4	6.5	33.9	5.4	6.6	28.4	2	0.8	3.4	58.1	2.5	1.1	0.4	0.4	58.1	8.2	24
11	0.1	0.4	2.8	3.3	3.3	**IZS**	0.7	0.4	0.6	0.7	1.5	1.3	3.1	0.7	0.4	0.4	0.2	0.2	0.1	0.2	0.1	0.4	0.3	0.5	3.3	0.9	24
12	0.4	0.3	0.1	0.2	**IZS**	0.6	0.6	0.5	0.6	0.4	0.4	0.4	2	1.5	1.9	16	0.6	0.4	0.4	0.5	0.5	0.5	0.5	0.3	16	1.3	24
13	0.7	0.5	0.7	**IZS**	0.3	0.3	0.3	0.4	0.6	1	1.9	2	2.2	2.2	1.7	1	1.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	2.2	0.8	24
14	0.3	0.2	**IZS**	0.9	1.9	2.1	1.5	5	1.5	2.7	3.8	15.3	20.6	8.7	6.6	4.4	10.5	12.2	8.1	3.3	4.5	0.7	1.2	0.7	20.6	5.1	24
15	0.3	**IZS**	0.4	0.5	1.3	1.1	9.6	3.6	1	10.3	4.9	4.4	5.1	28.4	3.9	1.3	0.4	0.5	0.3	0.6	0.3	0.3	0.2	0.2	28.4	3.4	24
16	**IZS**	0.7	0.8	0.8	0.7	0.5	0.7	0.9	0.6	0.8	0.8	1	2	1.2	1.3	2	2.1	0.8	0.7	0.7	0.8	23.8	0.8	**IZS**	23.8	2.0	24
17	0.3	0.3	0.6	0.3	0.4	0.4	0.2	0.3	0	0.3	0.8	2.1	1.1	0.3	0.3	0.1	0.1	0	0.9	0.1	0.1	0	**IZS**	0.3	2.1	0.4	24
18	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.4	0.2	0.7	0.8	0.4	0.6	1.1	0.9	1.4	0.3	1	0.1	0.2	0.1	**IZS**	0.5	0.6	1.4	0.5	24
19	0.6	0.6	0.6	0.7	0.4	0.4	32.9	**94.3**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	61.4	17	9.4	1.2	1.1	**IZS**	0.4	0.4	0.4	**94.3**	13.9	24
20	0.3	0.6	0.4	0.2	0.3	0.4	0.4	0.3	0.6	0.5	0.9	0.7	0.4	0.3	0.3	0.2	0.2	0.1	0.3	**IZS**	0.5	0.3	0.3	0.5	0.9	0.4	24
21	0.7	1.5	1	0.6	0.4	0.4	0.4	0.4	0.7	0.6	0.3	0.7	0.6	0.5	5	1.8	0.5	0.4	**IZS**	0.4	0.3	0.3	0	0.2	5	0.8	24
22	0.1	0.2	0.2	0.2	0.2	0.3	0.1	1.4	3.7	0.2	0.1	0.3	0.1	0.4	0.2	0.2	0.2	**IZS**	0.4	0.7	0.5	0.5	0.5	0.7	3.7	0.5	24
23	0.6	0.4	0.4	0.5	0.8	0.7	0.4	0.5	0.5	0.5	0.5	0.7	0.7	0.4	0.5	0.5	**IZS**	0.1	0.1	0	0.1	0	0.2	0.1	0.8	0.4	24
24	0.1	0.3	0.1	0	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.4	1.5	1.9	**IZS**	1.2	1.6	1	2.3	4.6	2.9	6.7	0.9	6.7	1.2	24
25	0.2	0.9	0.1	0.3	0.2	2.2	1.2	2.4	2.9	1.8	2.6	1.7	3.1	5.1	**IZS**	1.6	0.4	0.3	0.4	0.4	0.5	0.4	0.4	0.4	5.1	1.3	24
26	0.2	0.4	0.4	0.5	0.4	0.4	0.2	0.2	0.8	1.5	3.1	4.6	3.3	**IZS**	1.8	0.7	0.4	1.2	0.4	0.2	0.3	0.5	0.5	0.2	4.6	1.0	24
27	0.3	0.3	0.1	0.2	0.4	0.2	0.2	0.2	0.4	0.4	1.1	1.3	**IZS**	1	1	49.7	3.2	0.5	1.3	0.4	0	0.3	28.8	12.5	49.7	4.5	24
28	0	0.1	0.2	0.2	0	0	0.3	24.5	1.4	7.1	11.7	**IZS**	5.2	5.8	8	4.3	1.7	2.2	1.2	2.2	1.4	0.6	6.7	1.1	24.5	3.7	24
29	4.7	5.9	5.1	5.7	5.4	5.7	2.7	38.4	33.8	5.6	**IZS**	13.4	11.5	2.4	13.8	9.1	10	6.8	6.8	8.5	1	0.3	0	0.3	38.4	8.6	24
30	0	0	0	0	0.2	0.1	0.1	0.4	0.2	**IZS**	0.6	1.7	1.3	0.6	0.3	0.4	0.4	0.2	0.2	0.2	0.1	0.3	0.1	0.2	1.7	0.3	24
31	0.1	0.4	0.1	0.1	0.1	26.1	0.6	23.9	**IZS**	10.9	6.2	5.9	2.7	2.8	2.2	1.1	0.3	0.3	0.3	0.1	0.5	0.4	0.3	0.3	26.1	3.7	24
HOURLY MAX	17	9	5	8	5	26	33	94	34	45	12	35	34	28	14	61	32	12	8	58	5	24	29	13			
HOURLY AVG	1.0	1.0	0.6	1.0	1.1	1.9	2.4	7.6	2.7	4.5	2.6	4.0	5.3	3.3	2.9	7.8	4.0	1.7	1.1	3.0	0.8	1.5	1.8	1.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

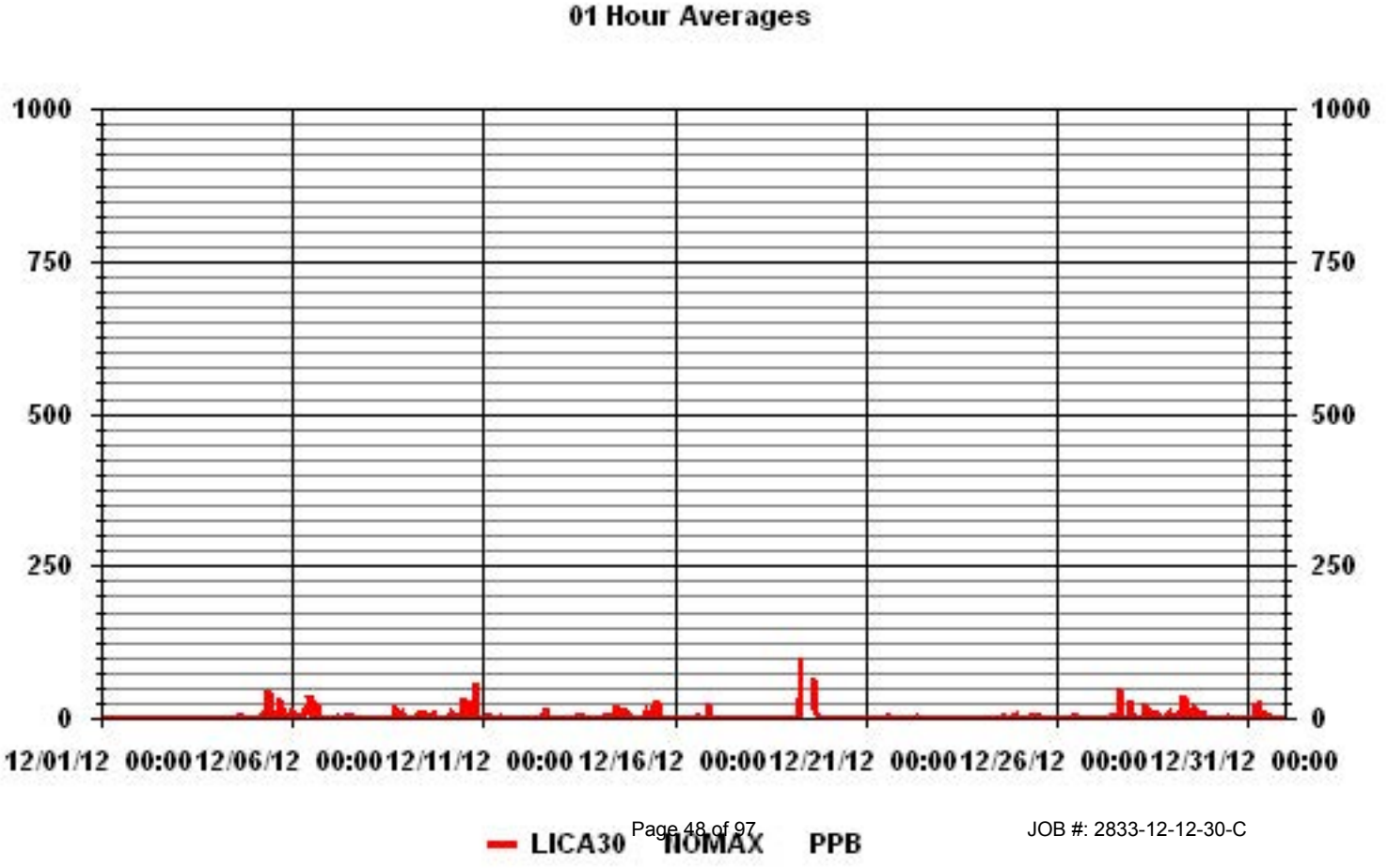
NUMBER OF NON-ZERO READINGS: 675

MAXIMUM INSTANTANEOUS VALUE: 94.3 PPB @ HOUR(S) 7 ON DAY(S) 19

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 743 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION: 7.22



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

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	

Calm : .00 %

Total # Operational Hours : 705

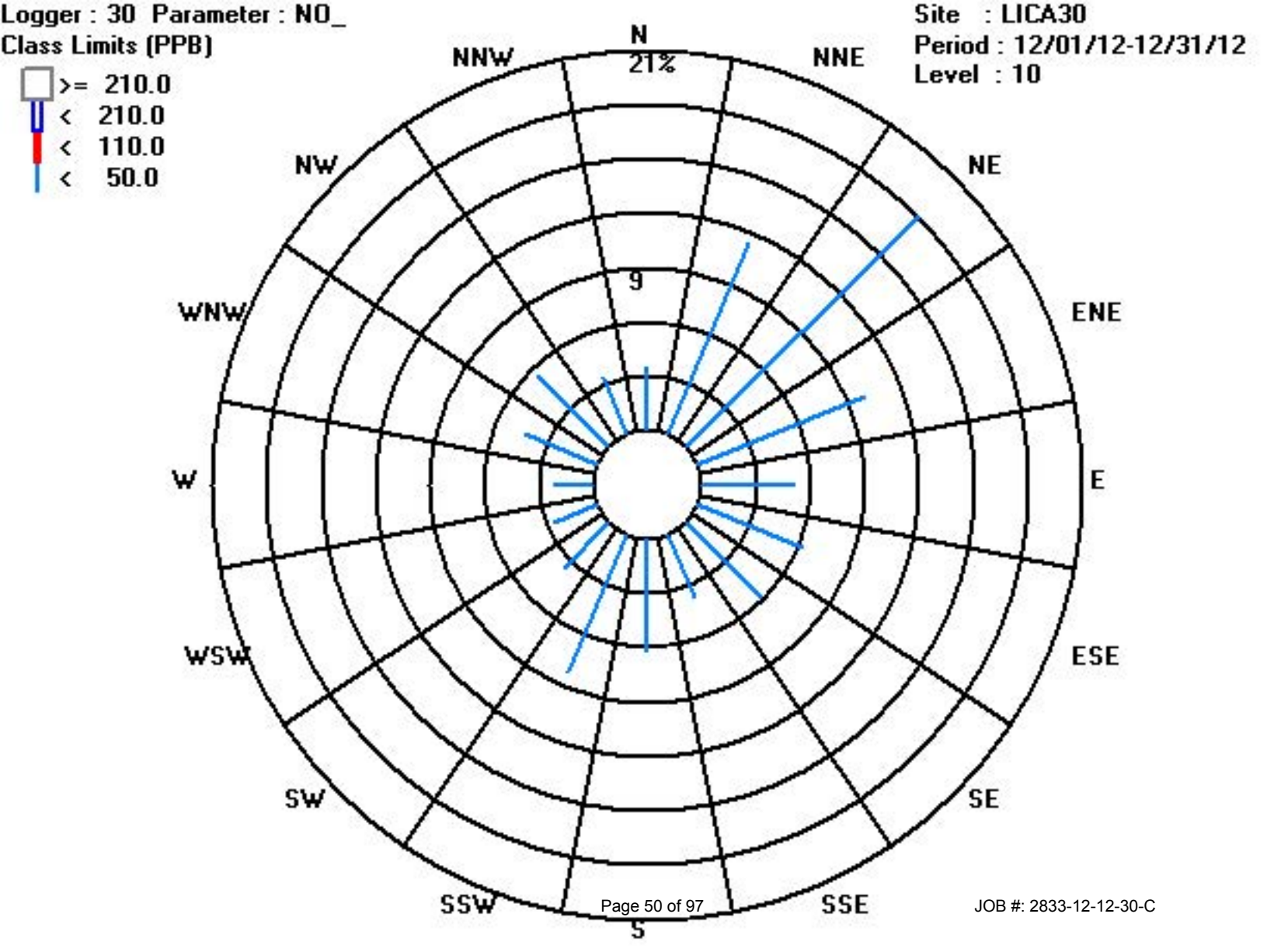
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	

Calm : .00 %

Total # Operational Hours : 705



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

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

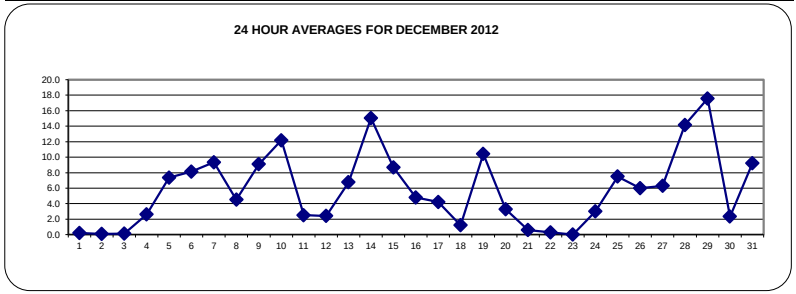
DECEMBER 2012

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	1	0	1	0.2	24
2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**IZS**	0	0	0	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	0	0	0	0	0	0	1	0	1	**IZS**	0	0	0	0	1	0	0	0	0	0	1	0.1	24
4	2	2	1	3	1	1	0	0	1	1	1	2	**IZS**	4	7	8	10	8	3	1	1	1	1	1	10	2.6	24
5	2	2	2	2	3	4	8	16	10	19	10	**IZS**	6	7	9	6	13	4	4	12	9	5	8	10	19	7.3	24
6	14	12	8	5	3	5	11	7	12	14	**IZS**	7	10	8	12	8	8	7	8	10	6	5	4	4	14	8.1	24
7	7	13	13	8	6	8	12	9	10	**IZS**	13	13	10	10	10	11	13	10	9	6	5	4	6	7	13	9.3	24
8	6	6	5	6	6	3	2	1	**IZS**	2	2	1	1	1	1	3	7	2	7	8	7	10	8	11	11	4.5	24
9	9	7	7	10	7	7	7	**IZS**	10	13	9	10	10	10	12	12	11	9	9	9	8	9	9	8	13	9.1	24
10	8	8	10	16	13	14	**IZS**	12	12	12	13	12	12	10	11	15	16	13	15	19	16	11	6	4	19	12.2	24
11	4	3	7	7	10	**IZS**	3	2	2	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	10	2.5	24
12	1	0	0	0	**IZS**	1	0	0	0	0	0	0	2	5	4	5	3	3	5	7	6	4	5	5	7	2.4	24
13	6	5	5	**IZS**	6	5	5	6	7	5	6	7	7	7	8	7	8	8	9	8	8	8	8	8	9	6.8	24
14	8	9	**IZS**	10	10	10	12	17	15	14	11	16	23	21	18	17	30	19	20	28	23	5	6	3	30	15.1	24
15	2	**IZS**	4	9	9	7	15	16	10	23	14	10	10	12	11	10	7	6	6	6	5	4	3	2	23	8.7	24
16	**IZS**	2	4	3	3	2	2	3	3	3	3	3	4	4	5	5	8	8	8	6	7	11	10	**IZS**	11	4.8	24
17	10	10	9	9	9	7	8	7	4	3	3	4	2	1	1	1	1	1	5	1	1	0	**IZS**	1	10	4.2	24
18	1	1	0	0	0	0	1	2	1	2	2	1	1	1	1	2	3	3	1	1	2	**IZS**	2	2	3	1.2	24
19	1	1	1	2	2	2	10	30	**C**	**C**	**C**	**C**	**C**	**C**	**C**	19	19	18	15	13	**IZS**	12	12	11	30	10.4	24
20	9	10	8	7	7	5	5	4	4	3	3	2	1	1	1	1	1	1	1	**IZS**	1	0	0	1	10	3.3	24
21	1	4	2	1	0	0	0	0	0	0	0	0	1	1	3	2	1	0	**IZS**	0	0	0	0	0	4	0.6	24
22	0	0	0	0	0	0	0	2	3	0	0	1	0	0	0	0	0	**IZS**	0	0	0	0	0	0	3	0.3	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	4	9	**IZS**	4	4	6	10	11	9	9	3	11	3.0	24
25	3	8	6	6	9	13	11	13	11	8	6	5	8	8	**IZS**	7	5	9	11	9	5	5	4	3	13	7.5	24
26	3	5	9	10	9	7	6	6	6	6	7	10	6	**IZS**	5	3	3	5	3	4	5	6	8	7	10	6.0	24
27	6	4	3	4	3	3	3	4	5	4	4	5	**IZS**	4	3	23	10	7	7	7	7	7	12	10	23	6.3	24
28	6	8	7	6	5	5	4	7	7	16	15	**IZS**	11	14	16	18	19	19	22	27	24	23	24	24	27	14.2	24
29	28	31	30	30	27	23	27	**40**	38	11	**IZS**	21	14	1	5	16	17	10	21	13	0	0	0	2	**40**	**17.5**	24
30	1	0	0	0	1	2	4	10	6	**IZS**	3	2	1	1	2	3	3	2	1	1	2	4	2	2	10	2.3	24
31	2	2	2	2	2	9	3	5	**IZS**	10	16	11	8	9	8	8	11	14	14	15	17	14	15	13	17	9.2	24
HOURLY MAX	28	31	30	30	27	23	27	40	38	23	16	21	23	21	18	23	30	19	22	28	24	23	24	24			
HOURLY AVG	4.6	5.1	4.8	5.2	5.1	4.8	5.3	7.3	6.3	6.1	5.1	5.2	5.4	5.2	5.8	7.2	7.6	6.3	7.1	7.4	5.9	5.3	5.4	4.8			

STATUS FLAG CODES

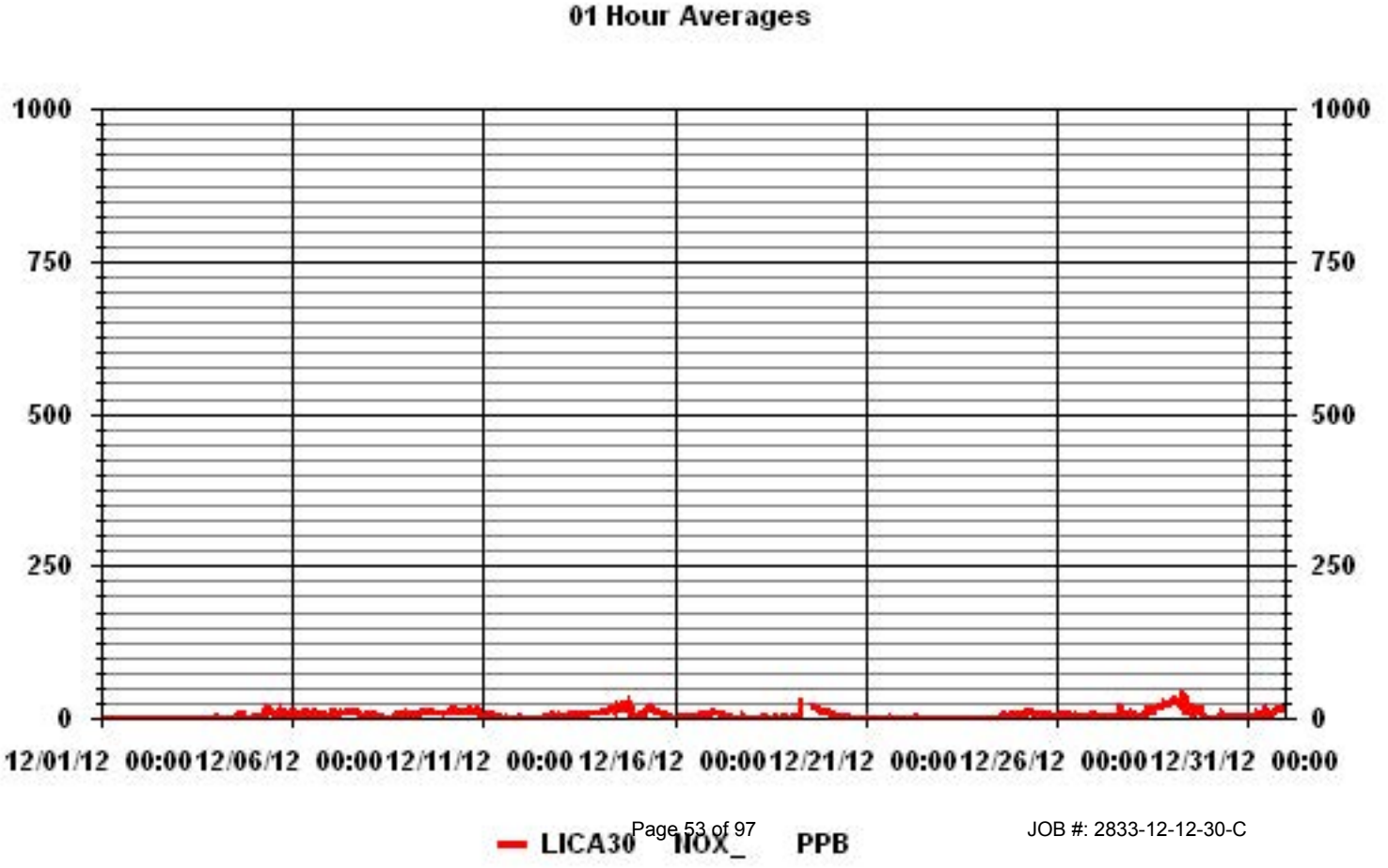
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	615					
MAXIMUM 1-HR AVERAGE:	40	PPB	@ HOUR(S)	7	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	17.5	PPB			ON DAY(S)	29

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	6.22		MONTHLY AVERAGE:	5.76	PPB



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

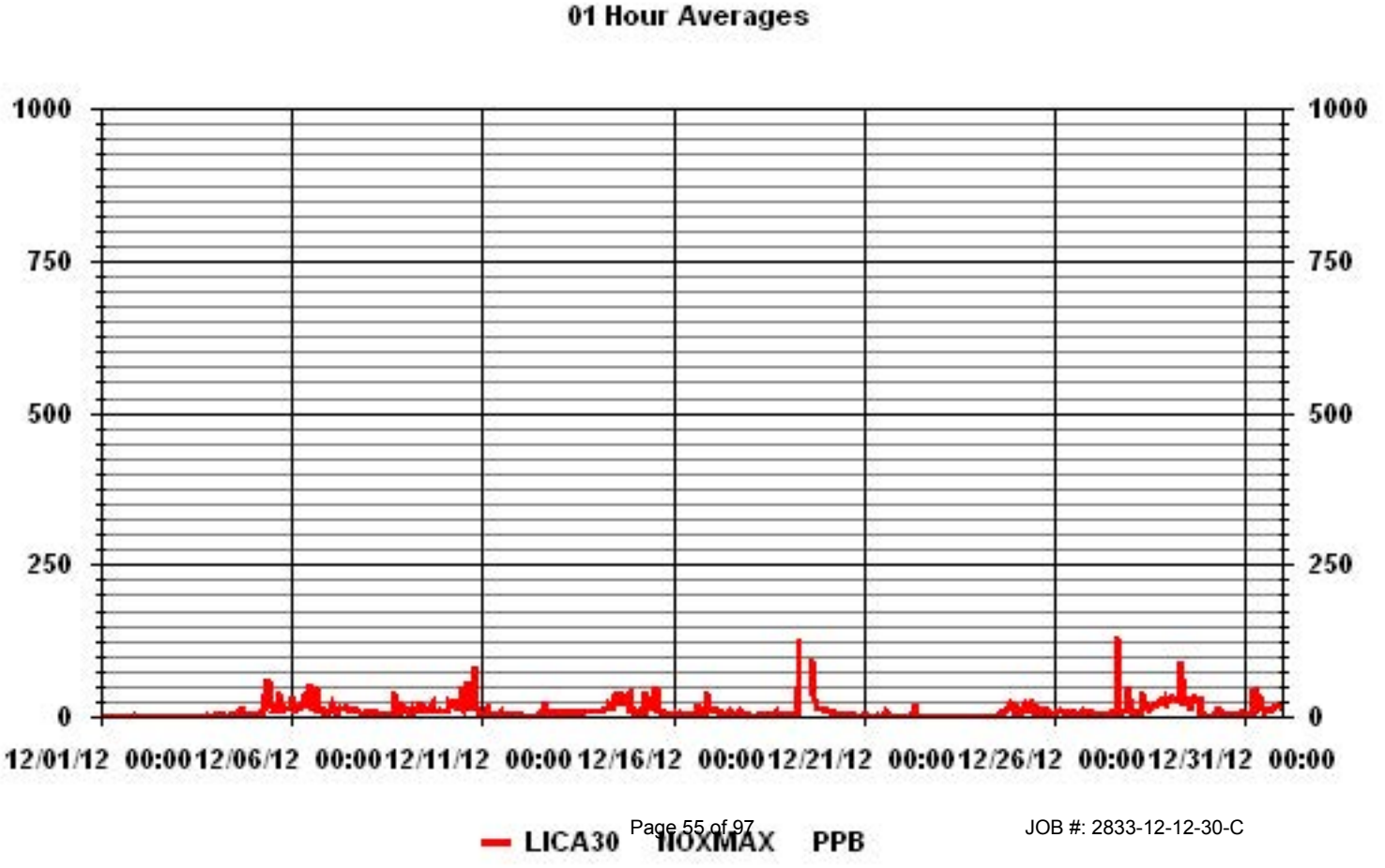
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1.2	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.5	0.7	0.9	0.3	0.6	0.4	1	**IZS**	0.5	0.7	0.8	0.7	0.7	1.2	1.1	0.7	1.5	0.8	24
2	0.8	0.5	0.9	0.6	0.6	0.7	0.4	1.9	1	0.6	0.9	0.9	0.7	0.7	**IZS**	0.8	0.6	0.3	0.4	0.3	0.3	0.3	0.3	0.3	1.9	0.6	24
3	0.1	0.1	0.4	0.1	0.3	0.2	0.5	0.7	0.6	0.6	1.8	1.1	2.6	**IZS**	0.7	0.5	0.2	0.9	1.5	1.3	0.5	0.3	0.5	1.3	2.6	0.7	24
4	2.4	2.9	2.6	3.7	2.2	1.3	1.2	1.5	1	1.3	2.2	5.3	**IZS**	7.6	9.9	13.1	13.6	12.9	5.6	2.4	2	2.5	2.3	1.9	13.6	4.4	24
5	2.2	2.2	2.9	3.4	7.8	7.7	10.4	35.3	13.6	60.1	24	**IZS**	11.4	10.8	19.9	12.2	42.2	11.7	6.4	19.9	13.4	12.4	12.7	15.5	60.1	15.6	24
6	33	23.8	12.8	10.3	11.5	14	21.9	15.3	34.4	39.9	**IZS**	48	47.9	16.2	16.5	47.3	12.8	10.5	12	13.8	7.3	6.1	6	5.8	48	20.3	24
7	9.7	21.5	16.8	11.2	8	9.7	16	12.7	12.8	**IZS**	16.3	14.5	13.5	11.7	11.5	14.6	13.7	**M**	10.1	8.5	6.1	5.1	7.7	7.7	21.5	11.8	23
8	6.7	6.4	6	6.3	7.4	7.3	3.7	2.8	**IZS**	3.2	3.1	1.8	1.5	1.5	2.2	7.3	42	4.7	11.3	10.3	7.9	23	8.5	14.3	42	8.2	24
9	13.4	7.9	7.6	13.8	8.4	9.3	13.3	**IZS**	10.6	25.6	11.4	12.3	12.1	11	14.1	15.8	21.3	10.6	10.3	9.1	9.1	9.5	9.3	8.5	25.6	11.9	24
10	8.4	9.8	11.3	24.5	20.4	19.3	**IZS**	23.4	12.4	12.4	19.3	15.5	48.3	12.3	16.9	57.2	18.4	16.5	20.4	82.2	18.4	15.3	8.1	4.9	82.2	21.5	24
11	4.4	3.5	12.9	14.3	14.5	**IZS**	4.6	3.7	3.2	2.3	5.3	4.8	9.2	2.1	1.7	1.6	1.2	1.2	1.1	1.4	1.2	1.4	1.5	1.7	14.5	4.3	24
12	1.7	1.3	0.4	0.3	**IZS**	1.1	0.9	0.9	0.9	0.9	0.7	0.9	6.3	5.5	5.9	25	4	3.5	6.6	7.7	6.9	4.9	5.5	6	25	4.3	24
13	6.2	5.8	5.3	**IZS**	6.5	6.1	6.6	6.6	7.8	6.4	7.5	7.8	7.4	8.3	8.9	7.3	9.5	8.5	9.7	8.9	8.8	8.7	9.3	9.1	9.7	7.7	24
14	8.6	10	**IZS**	10.7	13	13.2	15.7	21.7	17.5	17.8	12.7	31.9	40.2	23.6	22.5	22.1	34.9	35.3	34.1	33.7	36.2	13.2	14.5	3.6	40.2	21.2	24
15	4.4	**IZS**	9	10.8	11.5	9.2	39.9	29.2	12.5	33.6	16.4	13.8	14.1	48.1	12.5	10.5	8.7	6.5	6.7	6.4	5.3	4.8	3.9	3	48.1	13.9	24
16	**IZS**	2.8	7.8	5.8	5.9	2.3	2.6	3.5	3.7	3.2	3.3	4.2	6.9	4.7	6.4	15.9	16.4	10.3	9.6	7.4	8.7	39.5	10.4	**IZS**	39.5	8.2	24
17	11.1	10.6	10.1	9.9	10.1	8	8.7	8.4	6.2	3.9	5.9	9.3	4.9	1.5	1.2	1.5	1.5	1	8.8	4.5	1.1	0.8	**IZS**	1.4	11.1	5.7	24
18	1.2	1.1	1.1	0.9	0.8	0.8	1.6	2.6	2.7	3	3.4	1.5	1.5	3.9	3.9	5.1	4.6	9.1	1.8	2.1	2.6	**IZS**	2.7	3.3	9.1	2.7	24
19	2.5	1.6	2	2	2	4.5	47.5	122.6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	90.3	40.1	30.2	16.8	14.5	**IZS**	12.8	12.2	11.5	122.6	25.8	24
20	10.8	10.6	9.2	8.1	7.3	6.5	5.7	4.5	5.5	3.5	3.2	2.8	1.8	1.8	1.7	1.7	1.5	1.3	1.8	**IZS**	1	0.9	0.8	1	10.8	4.0	24
21	1.1	6.5	5	1.8	1	0.6	0.4	0.7	2.2	2.2	0.6	1.3	1.4	1.5	9.5	5.8	1.2	0.9	**IZS**	0.6	0.4	0.8	0.6	0.5	9.5	2.0	24
22	0.3	0.7	0.5	0.4	0.4	0.3	0.3	8.2	18.1	0.5	0.4	2.2	0.3	0.4	0.4	0.4	0.4	**IZS**	0.5	0.4	0.4	0.3	0.5	0.6	18.1	1.6	24
23	0.3	0.3	0.3	0.3	0.6	0.4	0.2	0.6	0.3	0.4	0.6	0.4	0.5	0.3	0.3	0.3	**IZS**	0.3	0.3	0.3	0.3	0	0.3	0.3	0.6	0.3	24
24	0.4	0.3	0.3	0	0.3	0.4	0.1	0.7	0.9	0.3	0.3	0.6	1.6	6.6	11.2	**IZS**	10.1	7.4	10.1	16.2	22.7	18.9	25.6	6.3	25.6	6.1	24
25	3.6	15.6	7.7	9.3	13.2	19.5	15.2	19.2	21.4	11.6	11.8	6.5	12.1	16.4	**IZS**	10.3	5.8	12.6	12.3	10.7	8.3	5.9	6.1	3.5	21.4	11.2	24
26	3.5	7.5	9.7	10.5	10	8.4	6.9	7	7.4	7.1	8.3	10.9	8.6	**IZS**	6.2	4.3	3.9	8.8	4.1	5.1	5.5	8.9	9.1	7.8	10.9	7.4	24
27	7.5	5.7	3.5	4.5	4.3	3.7	4.1	4.5	6	5.2	5.8	5.7	**IZS**	4.5	5.1	**132.8**	19.5	9.8	9.9	7.8	8.1	9.1	50.6	31.6	**132.8**	15.2	24
28	7.1	9.3	8.3	6.6	5.7	5.8	4.9	42.4	12.5	19.4	21.3	**IZS**	13.8	16.1	21.4	20.5	19.9	22	24.6	27.9	26.9	23.9	31.7	26.2	42.4	18.2	24
29	31.3	32.8	31.7	31.8	29	28.3	29.8	88.7	63.9	23.5	**IZS**	29.9	26.9	7.5	34.4	29.9	32.5	27.1	26.6	28.6	2.4	1.3	1.1	2.8	88.7	27.9	24
30	2.2	1.2	1.1	0.9	1.5	4.1	6.1	15.7	9.7	**IZS**	3.1	4.2	4.2	1.8	3.4	3.6	3.5	2.3	1.9	2.1	5	7.4	2.7	4.2	15.7	4.0	24
31	4.2	3	2.8	3	2.7	44.1	6.3	43.4	**IZS**	31.9	19.9	15.7	9.5	10.9	9.8	9.5	12.7	15.8	15.2	17.2	17.8	17.5	19.2	15	44.1	15.1	24
HOURLY MAX	33	33	32	32	29	44	48	123	64	60	24	48	48	48	34	133	42	35	34	82	36	40	51	32			
HOURLY AVG	6.3	6.9	6.4	6.9	6.9	7.9	9.2	17.6	10.3	11.5	7.5	9.1	11.1	8.5	9.3	19.6	13.2	9.7	9.4	11.7	7.8	8.6	8.8	6.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM INSTANTANEOUS VALUE:	132.8	PPB	@ HOUR(S)	15	ON DAY(S)	27
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	13.03					



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

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	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	3.54	11.48	18.15	9.92	5.10	6.24	5.81	3.82	6.24	8.22	3.54	2.55	2.12	4.25	5.53	3.40	

Calm : .00 %

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
<	50.0	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	705
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	81	128	70	36	44	41	27	44	58	25	18	15	30	39	24	

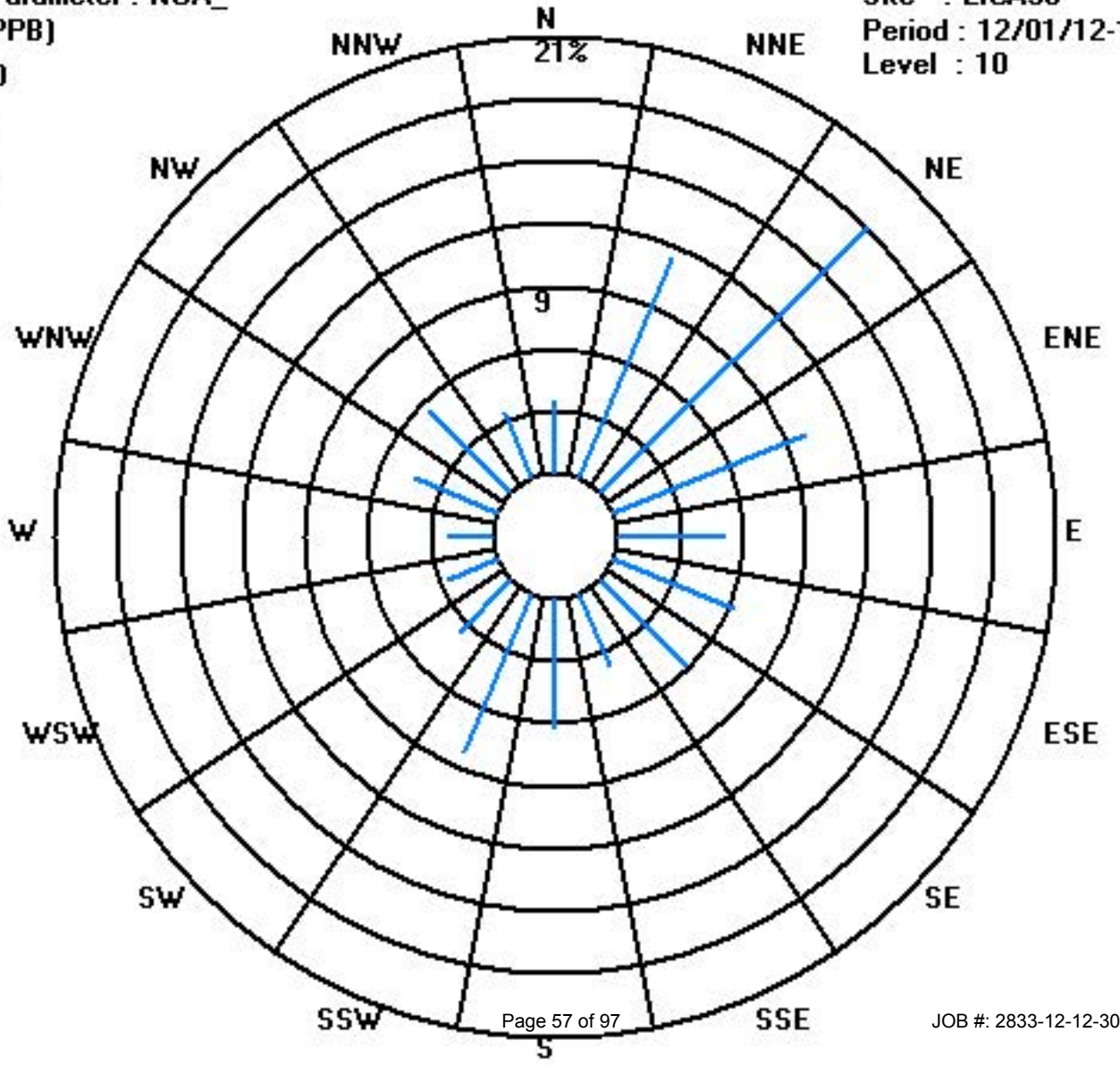
Calm : .00 %

Total # Operational Hours : 705

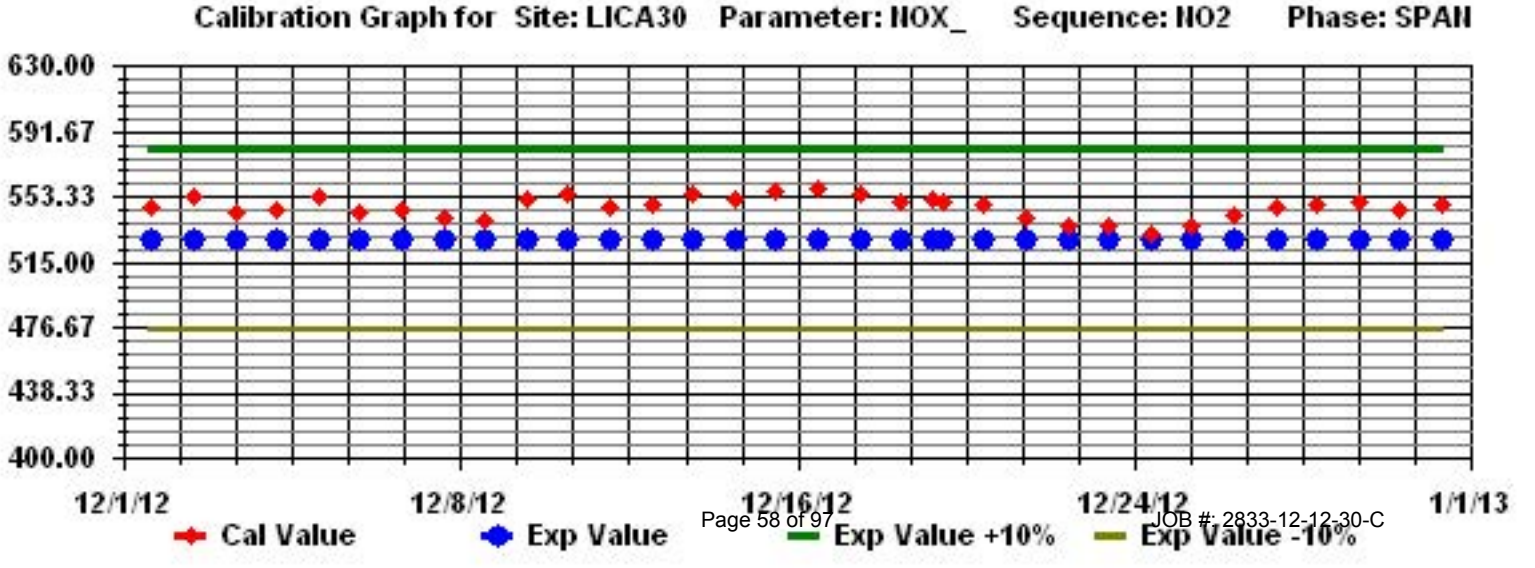
Logger : 30 Parameter : NOX_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

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



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


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN
630.00
591.67
553.33
515.00
476.67
438.33
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

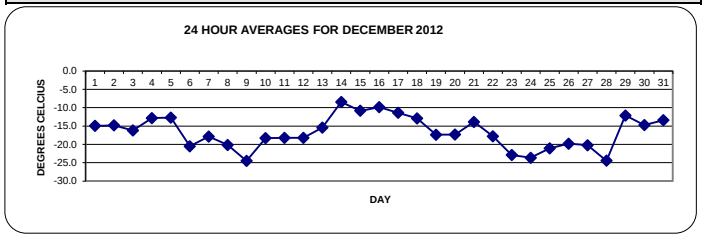
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	-14.6	-14.7	-14.9	-15	-15.2	-15.6	-15.8	-16	-16.1	-15.6	-15.1	-14.8	-14.4	-14.2	-14.6	-14.7	-14.8	-14.7	-14.7	-14.7	-14.6	-14.6	-14.6	-14.7	-14.2	-14.9	24
2	-15	-15.2	-15.3	-15.1	-15.2	-15.2	-15	-15	-14.9	-14.7	-14	-13.2	-13.5	-13.8	-14.2	-14.5	-14.7	-14.8	-15	-15.2	-15.4	-15.6	-15.8	-15.8	-13.2	-14.8	24
3	-15.9	-16	-17.1	-18.1	-18.7	-19.4	-19.8	-19.3	-18.9	-18	-16.8	-15.9	-15.1	-14.5	-14.3	-14.2	-14.4	-14.8	-14.8	-15	-14.8	-14.7	-14.5	-14.4	-14.2	-16.2	24
4	-14.3	-14.2	-14	-14.1	-14	-13.8	-13.5	-13.5	-13.7	-13.5	-13.1	-12.6	-12.1	-12	-12.3	-12.3	-12	-12	-12	-11.8	-11.8	-11.8	-11.8	-11.7	-11.7	-12.8	24
5	-11.6	-13	-14.7	-15.2	-14.4	-13.9	-13.9	-14.5	-14.3	-14	-12.9	-11.2	-10.1	-9.9	-10.3	-11.2	-11.8	-11.8	-11.7	-11.7	-12.2	-12.7	-13.6	-14.9	-9.9	-12.7	24
6	-16.2	-17.5	-18.5	-19.4	-20.4	-21	-21.5	-22.1	-22.7	-21.6	-19.2	-16.8	-15.4	-13.9	-14.2	-18	-20.5	-22.5	-23.7	-24.3	-25	-25.8	-25.5	-26.3	-13.9	-20.5	24
7	-27.2	-27.5	-25.6	-24	-22.5	-21.2	-20.1	-19.5	-18.9	-17.8	-16.5	-15	-14.2	-14.1	-14	-13.8	-13.9	-14	-14.6	-14.6	-15.2	-15.8	-14.8	-14.7	-13.8	-17.9	24
8	-14.3	-14	-13.8	-14.8	-15	-14.4	-15.1	-15.7	-16.4	-17.6	-18.7	-18.7	-17.2	-17.6	-18.4	-20.9	-23.5	-24.9	-26.1	-27.3	-28.8	-29.6	-30.1	-30.8	-13.8	-20.2	24
9	-31.4	-32	-32.5	-32.6	**-33**	-32.9	-32.6	-28.3	-26.5	-27.3	-24.3	-21.2	-20.4	-19.9	-20.5	-20.1	-20.4	-20.3	-19.5	-19.1	-18.7	-18.5	-18.1	-17.8	-17.8	-24.5	24
10	-17.6	-17.1	-17.7	-19.1	-18.4	-17.9	-17.3	-16.7	-16.8	-16.3	-15.5	-15.1	-13.1	-13	-15.1	-17.1	-19.9	-21.5	-21.8	-23	-24.7	-22.6	-21.6	-20.7	-13.0	-18.3	24
11	-20.1	-19.8	-19.5	-19.2	-19	-19.1	-19.3	-19.1	-18.9	-18.5	-17.9	-17.2	-16.9	-16.8	-17.2	-17.5	-17.6	-17.5	-17.6	-17.7	-17.6	-17.7	-18	-18	-16.8	-18.2	24
12	-17.9	-18	-18.2	-18.4	-18.3	-18.6	-18.7	-19.3	-20.1	-20	-19.4	-18.5	-17.6	-16.8	-17.4	-18.1	-18.4	-18.3	-18.1	-17.9	-17.7	-17.4	-17	-16.9	-16.8	-18.2	24
13	-17.8	-18.9	-18.1	-17.2	-17.6	-17.7	-17.1	-18.2	-19.3	-17.4	-15.6	-15	-13.4	-13.2	-12.9	-13	-13.2	-13.5	-13.2	-13.9	-14.2	-13.8	-13.9	-13	-12.9	-15.5	24
14	-13	-12.4	-12.2	-11.9	-11.4	-10.7	-10.2	-9.9	-9.5	-8.9	-8.4	-7.2	-5.6	-4.7	-4.7	-5.2	-7.1	-6.5	-5.2	-5.8	-6.8	-7.8	-8.1	-9.3	-4.7	**-8.4**	24
15	-9.6	-9.6	-10.4	-11.9	-12	-11.3	-11.5	-12.7	-13.5	-13.1	-11	-9.7	-7.8	-6.6	-6.6	-10.3	-13.9	-15.5	-11.5	-10.5	-10.7	-10.7	-10.6	-9.7	-6.6	-10.9	24
16	-9.4	-9.2	-8.8	-9.3	-9.1	-9.4	-9.5	-9.7	-9.6	-9.6	-9	-8.6	-8.1	-7.9	-8.2	-9.2	-10.4	-10.7	-10.8	-10.7	-10.7	-10.6	-12.9	-14.9	-7.9	-9.8	24
17	-14.8	-11.7	-11.1	-11	-10.8	-11.5	-11.2	-11	-11.2	-10.9	-10.4	-10.1	-10.4	-11	-11	-11.2	-10.7	-9.9	-10.1	-11.4	-12.1	-12.6	-13.3	-13.8	-9.9	-11.4	24
18	-14.7	-14.6	-14	-13.5	-13.2	-13.3	-13.3	-13.2	-13	-12.6	-12	-11.5	-11.1	-11.4	-11.4	-12	-12.5	-12.6	-12.7	-12.8	-13.3	-14.1	-14	-13.3	-11.1	-12.9	24
19	-13.3	-13	-13	-13.1	-13.5	-14.3	-16.3	-18.3	-19.3	-19.5	-17	-14.4	-13	-11.2	-12.1	-15.4	-18.5	-20.6	-22.1	-22.7	-22.7	-23.7	-25.1	-24.7	-11.2	-17.4	24
20	-23.4	-23.1	-23.4	-22.9	-22.5	-21.6	-21	-21.2	-21.8	-20.9	-18.1	-16.2	-14.7	-13.6	-13.3	-13.3	-13.4	-13.7	-14.1	-13.7	-12.7	-12.6	-12.3	-12	-12.0	-17.3	24
21	-12	-12.3	-12.9	-13.1	-13.2	-13.7	-14.2	-14.7	-15.4	-15.3	-14.3	-13.6	-13.3	-13.4	-13.3	-13.7	-13.8	-14	-14	-14.4	-14.7	-14.6	-14.6	-15	-12.0	-13.9	24
22	-15.6	-16.8	-17.3	-17.6	-18.1	-18.7	-20.3	-20.4	-18.9	-17.9	-17.1	-16.5	-16.5	-16.5	-16.8	-17.4	-17.8	-18.1	-18.1	-17.9	-17.8	-17.8	-18.2	-19.1	-15.6	-17.8	24
23	-20.9	-21.4	-22.2	-22.9	-23.1	-23.6	-23.9	-24.2	-24.3	-24	-23.4	-22.6	-22	-21.8	-21.8	-22.4	-22.8	-22.9	-22.8	-22.7	-22.9	-23.2	-23.8	-24.5	-20.9	-22.9	24
24	-25.1	-25.6	-26.2	-27.2	-28	-28.8	-28.4	-27.8	-27.7	-27	-25.1	-22.9	-21.2	-20.3	-20.8	-20.8	-20.8	-20.3	-20	-19.8	-19.8	-21.4	-21.2	-21.2	-19.8	-23.6	24
25	-21.1	-20.7	-22.2	-23.7	-24.5	-25.1	-25.9	-26	-26.9	-25.7	-22.7	-20.5	-19.1	-17.4	-16.4	-18.4	-18.7	-19	-19.2	-18.9	-18.6	-18.3	-18.3	-18.2	-16.4	-21.1	24
26	-18.2	-18.3	-18.7	-19	-19.4	-20.9	-23.1	-25.4	-26.2	-24.8	-21	-15.4	-15.6	-14.5	-15.8	-18.9	-21.9	-22.1	-20.8	-20	-19.5	-18.9	-18.8	-18.5	-14.5	-19.8	24
27	-18.4	-18.1	-18.2	-18.2	-18.3	-18.3	-18.3	-18.2	-18.3	-17.9	-17.3	-16.3	-15.7	-15.3	-16.1	-19.2	-21.6	-23.5	-24.4	-25.4	-26.5	-26.7	-27.3	-28.3	-15.3	-20.2	24
28	-29	-29.4	-30	-30.3	-31.1	-31.4	-31.6	-30.4	-27.5	-27.4	-23.9	-19.8	-19.9	-20.1	-20.9	-21.5	-21.2	-20.3	-19.7	-19.4	-20.5	-20.7	-20.7	-20.4	-19.4	-24.5	24
29	-20	-19.9	-21	-20.9	-20.5	-18.2	-16.2	-19.1	-17.3	-12.5	-9.3	-5.6	-4.4	**-4.3**	-5.9	-6.6	-6.9	-7.3	-7.6	-7.9	-8.3	-9.3	-10.1	-12.5	**-4.3**	-12.2	24
30	-13.6	-14.1	-14.5	-14.7	-15.1	-15.4	-15.5	-16	-16.2	-16.1	-15.6	-15	-14.6	-14.6	-15.4	-15.1	-14.9	-14.7	-14.5	-14.4	-14	-13.7	-13.5	-13.3	-13.3	-14.8	24
31	-13.2	-13.6	-16.2	-17.8	-19	-19.8	-20.3	-21.2	-20.9	-18	-15.1	-12.2	-10.6	-9.5	-9.3	-10.1	-10.4	-9.9	-9.9	-10.9	-10.1	-8.7	-7.8	-7.3	-7.3	-13.4	24
HOURLY MAX	-9.4	-9.2	-8.8	-9.3	-9.1	-9.4	-9.5	-9.7	-9.5	-8.9	-8.4	-5.6	-4.4	-4.3	-4.7	-5.2	-6.9	-6.5	-5.2	-5.8	-6.8	-7.8	-7.8	-7.3			
HOURLY AVG	-17.4	-17.5	-17.8	-18.1	-18.2	-18.3	-18.4	-18.6	-18.5	-17.9	-16.4	-14.9	-14.1	-13.7	-14.0	-15.0	-15.9	-16.2	-16.1	-16.3	-16.5	-16.6	-16.8	-17.0			

STATUS FLAG CODES

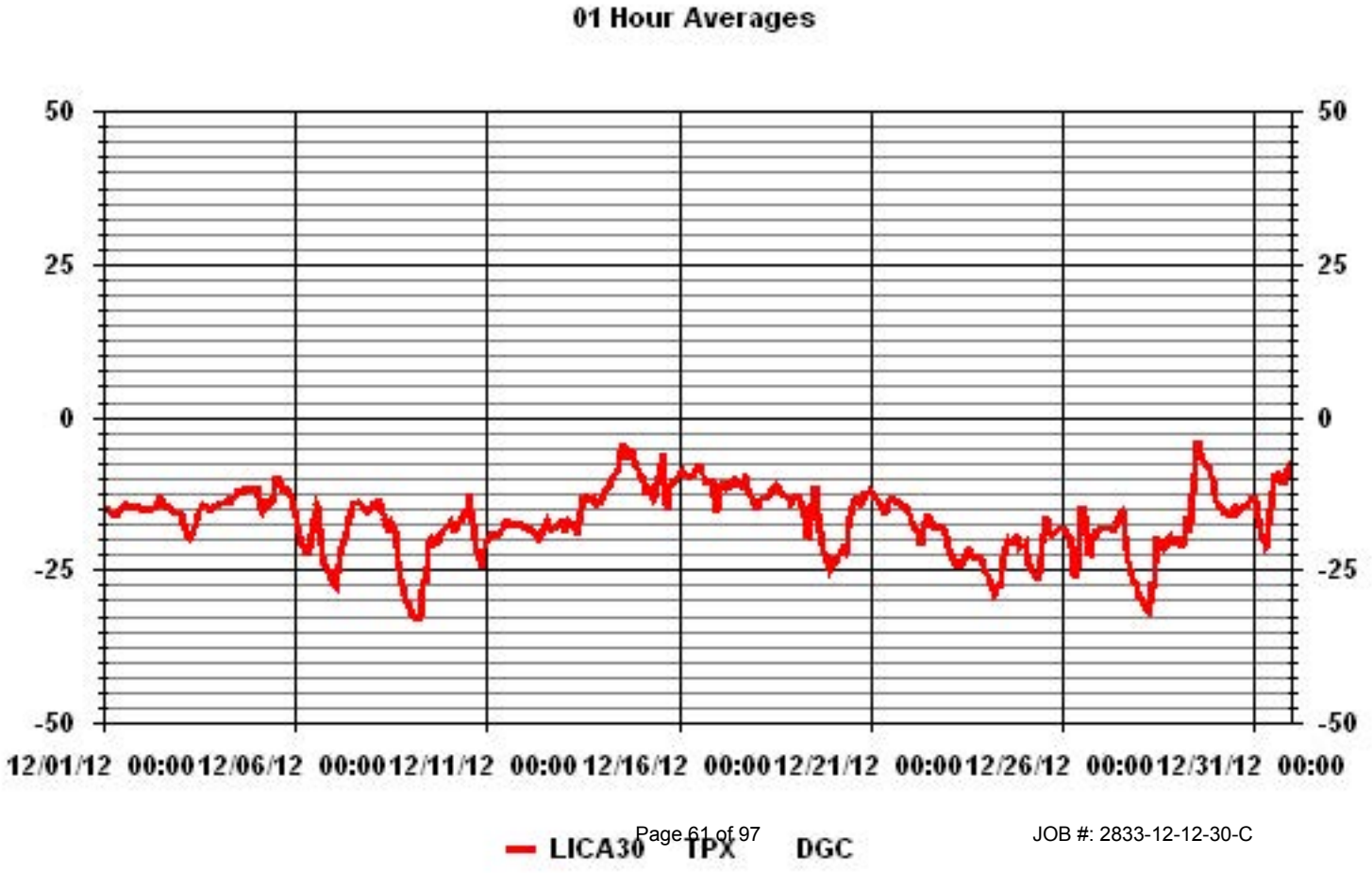
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-33	^{O}C	@ HOUR(S)	4	ON DAY(S)	9
MAXIMUM 1-HR AVERAGE:	-4.3	^{O}C	@ HOUR(S)	13	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	-8.4	^{O}C			ON DAY(S)	14

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	5.27		MONTHLY AVERAGE:	-16.68	^{O}C



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

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

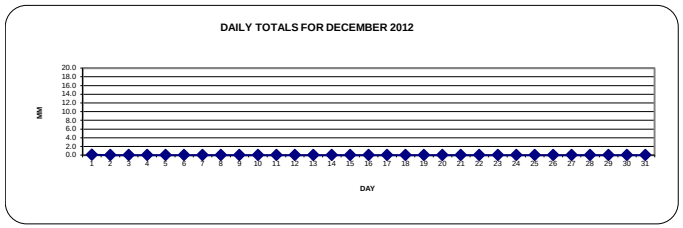
PRECIPITATION hourly averages (mm)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	TOTAL	RDGS.
DAY																											
1	**0.1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.1**	**0.1**	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**M**	0	0	0	0	0	0	0	0	0.0	0.0	23
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

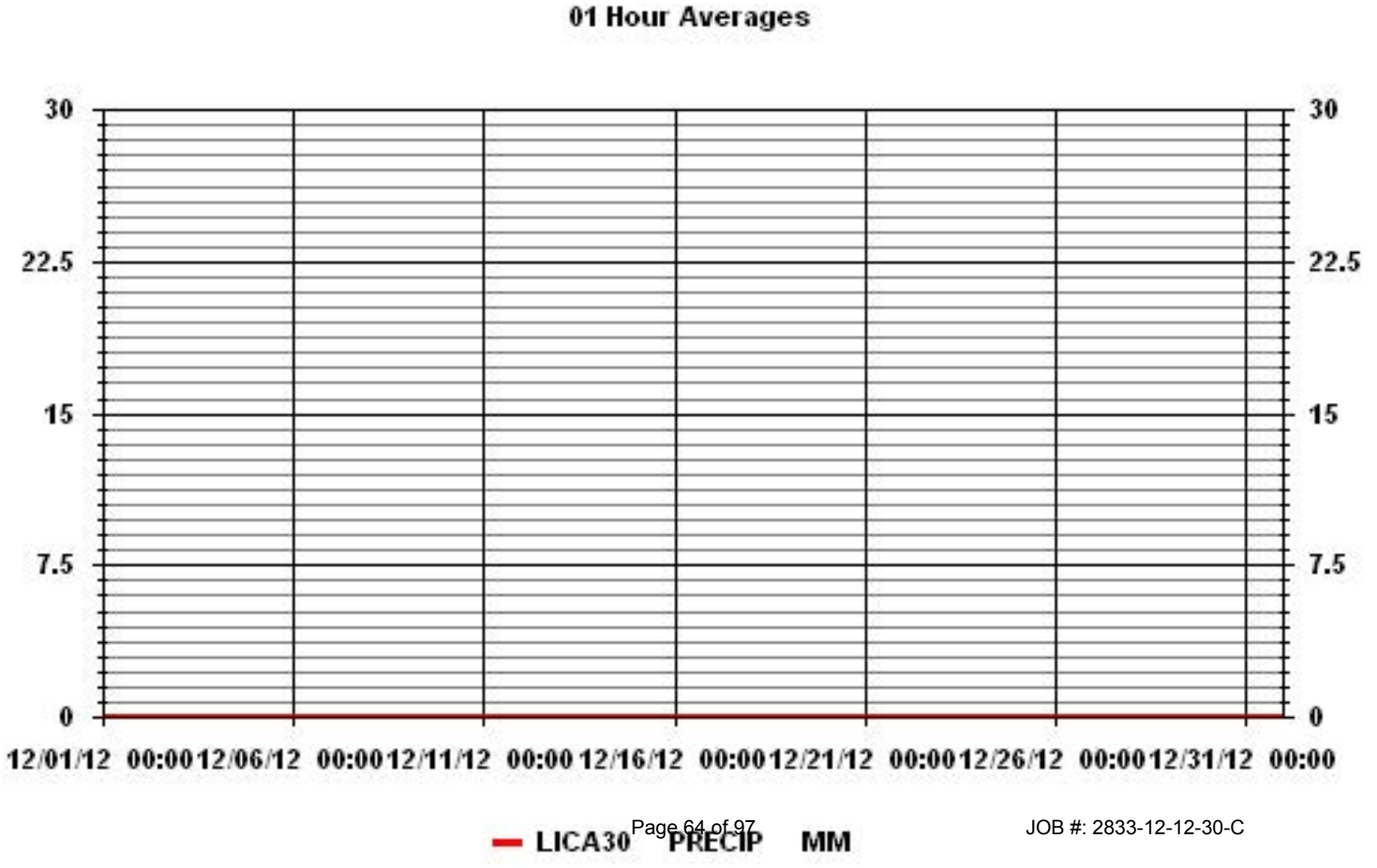
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	MD	-MISSING DATA



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		0.1	MM	HOUR(S)	0	ON DAY(S)	1
MAXIMUM DAILY TOTAL		0.1	MM			ON DAY(S)	1
MONTHLY TOTAL		0.1	MM				
CALIBRATION TIME:	0 HRS			OPERATIONAL TIME:		743	HRS
				AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.00			MONTHLY AVERAGE:		0.00	MM



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

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

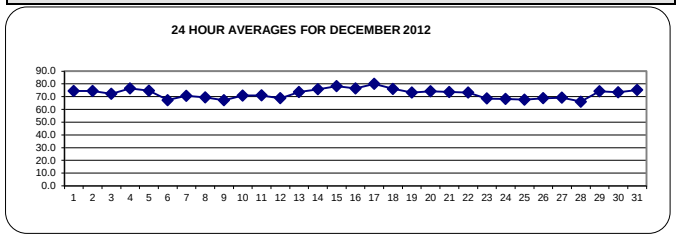
RELATIVE HUMIDITY hourly averages (%)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	75	75	74	74	74	74	74	74	74	74	73	72	72	72	73	74	76	76	76	76	77	76	76	76	77	74.5	24
2	75	75	75	74	75	75	75	76	75	75	74	72	72	72	74	75	76	75	74	74	74	74	75	75	76	74.4	24
3	75	75	73	72	72	72	72	72	72	71	69	68	67	69	70	71	73	75	74	75	74	74	74	75	75	72.3	24
4	75	76	76	77	77	77	78	78	78	78	77	75	74	73	75	76	77	77	77	77	77	77	77	77	78	76.5	24
5	77	79	79	79	78	78	78	78	78	78	74	68	67	68	72	74	75	76	76	75	73	73	70	69	79	74.7	24
6	70	70	72	72	73	73	72	71	71	67	59	54	52	50	53	66	72	74	73	72	70	70	70	69	74	67.3	24
7	67	67	67	68	69	70	71	72	72	72	70	68	65	66	66	68	70	73	75	75	76	77	75	76	77	70.6	24
8	76	76	76	76	77	76	74	73	72	69	68	64	60	59	61	68	72	71	70	68	66	66	65	64	77	69.5	24
9	64	63	63	62	62	62	62	68	67	65	66	67	67	67	69	70	71	71	71	71	71	71	71	72	72	67.2	24
10	72	73	73	75	75	74	74	73	72	71	68	67	61	60	67	72	75	74	72	71	70	70	71	72	75	70.9	24
11	72	72	72	72	72	72	71	71	72	71	70	69	69	69	70	71	72	72	71	71	71	71	71	71	72	71.0	24
12	71	71	71	71	71	71	70	70	69	67	64	62	61	60	63	66	68	70	71	72	72	73	73	74	74	68.8	24
13	75	76	75	75	74	75	75	75	74	74	72	73	70	71	71	72	72	73	73	74	75	74	75	73	76	73.6	24
14	74	73	73	73	72	72	72	72	74	75	75	73	74	73	74	76	79	80	78	79	80	82	83	83	**83**	75.8	24
15	83	83	83	81	81	81	81	80	79	79	79	78	75	69	68	78	80	80	81	78	77	76	75	73	**83**	78.3	24
16	74	75	77	78	78	77	78	78	77	76	74	73	71	70	71	74	78	80	80	79	79	79	81	79	81	76.5	24
17	79	80	79	80	79	79	81	81	81	81	81	81	80	79	80	81	81	82	81	80	80	79	78	78	82	**80.0**	24
18	78	78	78	78	78	78	78	78	78	78	77	75	73	71	71	73	73	74	75	75	76	78	78	77	78	76.1	24
19	77	77	78	78	77	77	78	76	75	74	74	70	65	60	63	74	77	75	73	73	73	71	70	71	78	73.2	24
20	73	72	71	71	71	72	72	72	72	72	73	74	75	75	76	76	77	77	77	77	76	76	76	77	77	74.2	24
21	77	76	76	75	76	76	75	75	74	72	70	69	70	71	71	72	73	75	75	74	75	74	73	73	77	73.6	24
22	73	74	75	75	74	74	74	73	73	74	74	73	72	71	71	72	73	73	73	73	74	74	73	72	75	73.2	24
23	73	72	71	71	70	69	69	69	68	68	67	66	65	65	66	67	68	68	69	69	69	69	69	68	73	68.5	24
24	68	67	66	67	67	66	65	65	66	67	66	68	68	66	68	69	70	70	71	70	71	72	72	71	72	68.2	24
25	70	70	71	71	71	70	69	69	68	68	67	65	61	58	56	65	67	68	69	70	71	70	70	70	71	67.7	24
26	71	71	72	72	72	73	71	70	69	68	66	55	60	58	61	70	73	71	71	71	71	72	72	71	73	68.8	24
27	71	71	71	71	71	71	72	71	72	71	69	65	62	62	64	72	74	72	71	70	68	68	67	66	74	69.3	24
28	66	65	65	64	63	63	63	63	65	65	63	61	62	63	66	68	69	69	69	69	71	71	71	71	71	66.0	24
29	70	71	72	72	73	76	76	74	77	80	81	73	68	66	71	74	75	77	78	78	78	77	74	72	81	74.3	24
30	73	73	72	73	74	75	75	76	77	77	75	72	70	68	72	73	73	73	73	74	74	74	74	74	77	73.5	24
31	75	76	78	77	76	75	74	73	73	71	72	71	70	72	71	73	75	76	77	79	81	81	80	80	81	75.3	24
HOURLY MAX	83	83	83	81	81	81	81	81	81	81	81	81	80	79	80	81	81	82	81	80	81	82	83	83			
HOURLY AVG	73.2	73.3	73.4	73.4	73.3	73.3	73.2	73.1	73.0	72.5	71.2	69.1	67.7	66.9	68.5	71.9	73.7	74.1	74.0	73.8	73.9	73.8	73.5	73.2			

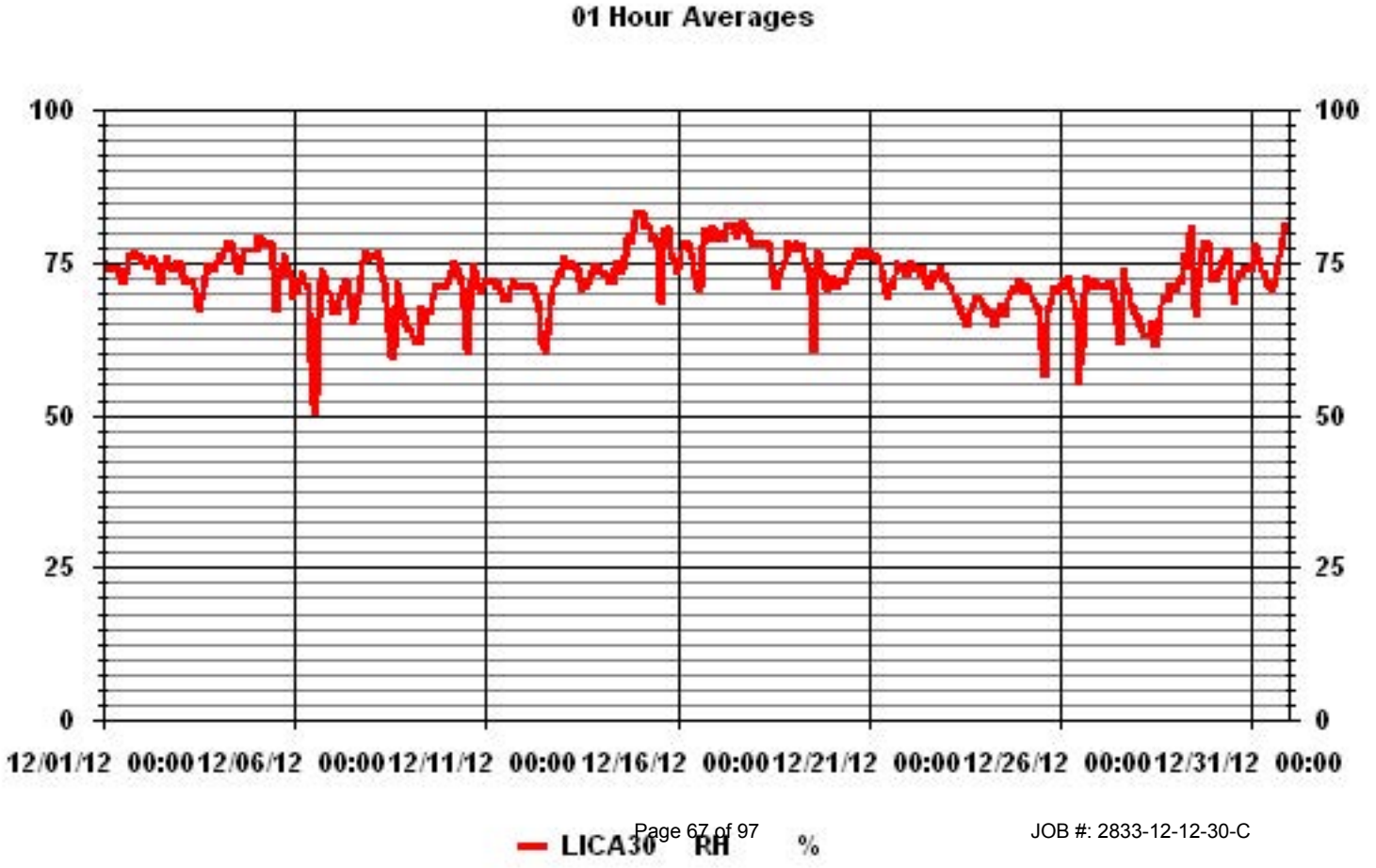
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		83	%	@ HOUR(S)	VAR	ON DAY(S)	14, 15
MAXIMUM 24-HR AVERAGE:		80.0	%			ON DAY(S)	17
						VAR-VARIOUS	
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.84			MONTHLY AVERAGE:		72.37	%



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

Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

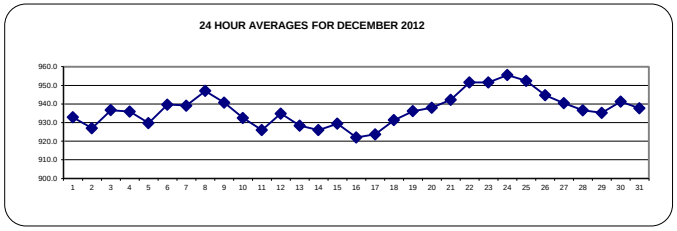
BAROMETRIC PRESSURE hourly averages (millibar)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	935	935	935	935	935	935	935	935	935	934	934	934	933	932	932	932	931	931	931	931	930	930	930	929	935	932.9	24
2	929	929	929	929	927	927	927	927	927	927	927	926	925	925	925	925	926	926	927	927	927	928	928	928	929	927.0	24
3	929	930	932	932	933	933	934	934	935	935	936	936	936	937	937	938	939	940	941	941	942	943	943	944	944	936.7	24
4	944	943	943	944	943	942	942	942	941	940	940	938	937	935	933	932	930	929	929	928	927	927	926	927	944	935.9	24
5	927	926	926	925	926	927	927	927	927	927	928	928	928	929	930	931	932	933	934	934	935	935	936	936	936	929.8	24
6	937	937	938	938	938	939	939	940	940	940	940	940	940	940	940	940	940	940	940	941	941	941	942	941	942	939.7	24
7	942	942	941	941	940	940	940	940	939	940	939	939	939	938	938	938	938	938	937	937	938	938	938	939	942	939.1	24
8	939	939	940	941	942	942	943	944	945	946	947	948	948	948	949	950	951	951	952	952	952	953	953	953	953	947.0	24
9	953	952	952	952	951	950	949	947	946	944	942	941	939	938	936	935	934	933	932	931	931	930	929	929	953	940.7	24
10	929	929	929	930	930	930	931	931	931	932	932	933	933	934	934	934	935	935	936	935	935	934	934	933	936	932.5	24
11	932	931	930	929	928	927	926	925	924	924	924	923	923	923	923	923	924	924	925	926	926	927	928	929	932	926.0	24
12	930	930	931	932	933	933	934	934	935	936	936	936	937	936	936	937	937	937	937	936	936	936	936	935	937	934.8	24
13	935	934	934	933	932	932	931	930	930	929	929	928	927	926	926	926	925	925	925	925	925	924	924	924	935	928.3	24
14	925	925	924	924	924	924	924	925	925	925	925	925	925	926	926	926	926	927	928	928	929	929	929	930	930	926.0	24
15	930	931	931	931	932	932	932	932	931	932	931	931	931	930	930	929	929	928	927	926	926	925	925	924	932	929.4	24
16	923	923	922	922	921	921	921	921	921	922	922	921	921	921	922	922	922	923	923	923	923	923	922	922	923	922.0	24
17	923	923	922	923	923	923	922	922	922	923	923	923	924	923	923	923	924	924	925	925	926	926	927	927	927	923.7	24
18	928	928	929	929	929	930	930	930	931	931	932	932	932	932	932	932	933	933	933	933	933	933	933	934	934	931.3	24
19	934	934	934	934	934	935	935	935	935	936	936	936	936	937	937	937	937	937	938	938	938	938	938	938	938	936.1	24
20	939	939	939	939	939	939	939	939	939	939	939	939	938	938	938	938	937	937	937	937	936	936	936	936	939	938.0	24
21	936	936	936	937	937	937	938	939	939	940	941	942	942	943	944	945	946	946	947	947	948	949	949	950	950	942.3	24
22	950	950	951	951	952	952	952	952	952	953	953	953	952	952	952	951	952	952	951	952	951	951	951	951	953	951.6	24
23	952	952	951	951	951	951	951	951	951	952	952	952	951	951	951	951	952	952	952	952	952	952	952	952	952	951.5	24
24	953	953	954	954	955	955	955	955	956	956	957	956	956	956	956	957	957	956	956	956	956	956	956	956	**957**	**955.5**	24
25	956	956	956	956	955	955	955	955	955	954	954	953	952	951	951	951	951	950	950	949	949	948	948	947	956	952.4	24
26	947	947	947	946	946	946	946	946	946	946	945	945	944	944	944	944	944	944	943	943	943	943	943	942	947	944.8	24
27	942	942	942	942	941	941	941	941	941	940	940	940	940	939	939	940	940	940	940	940	940	940	940	940	942	940.5	24
28	940	940	940	940	940	940	939	939	938	938	937	936	935	935	935	934	935	934	934	934	934	933	934	934	940	936.6	24
29	933	933	934	934	933	933	933	933	933	934	934	935	935	936	936	936	936	936	937	937	937	938	939	940	940	935.2	24
30	940	941	941	942	942	942	942	942	942	942	943	943	942	942	941	941	941	941	941	940	940	940	940	940	943	941.3	24
31	939	939	939	939	939	938	938	938	938	938	938	938	938	938	938	937	937	937	937	936	936	936	936	936	939	937.6	24
HOURLY MAX	956	956	956	956	955	955	955	956	956	956	957	956	956	956	956	957	957	956	956	956	956	956	956	956			
HOURLY AVG	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937			

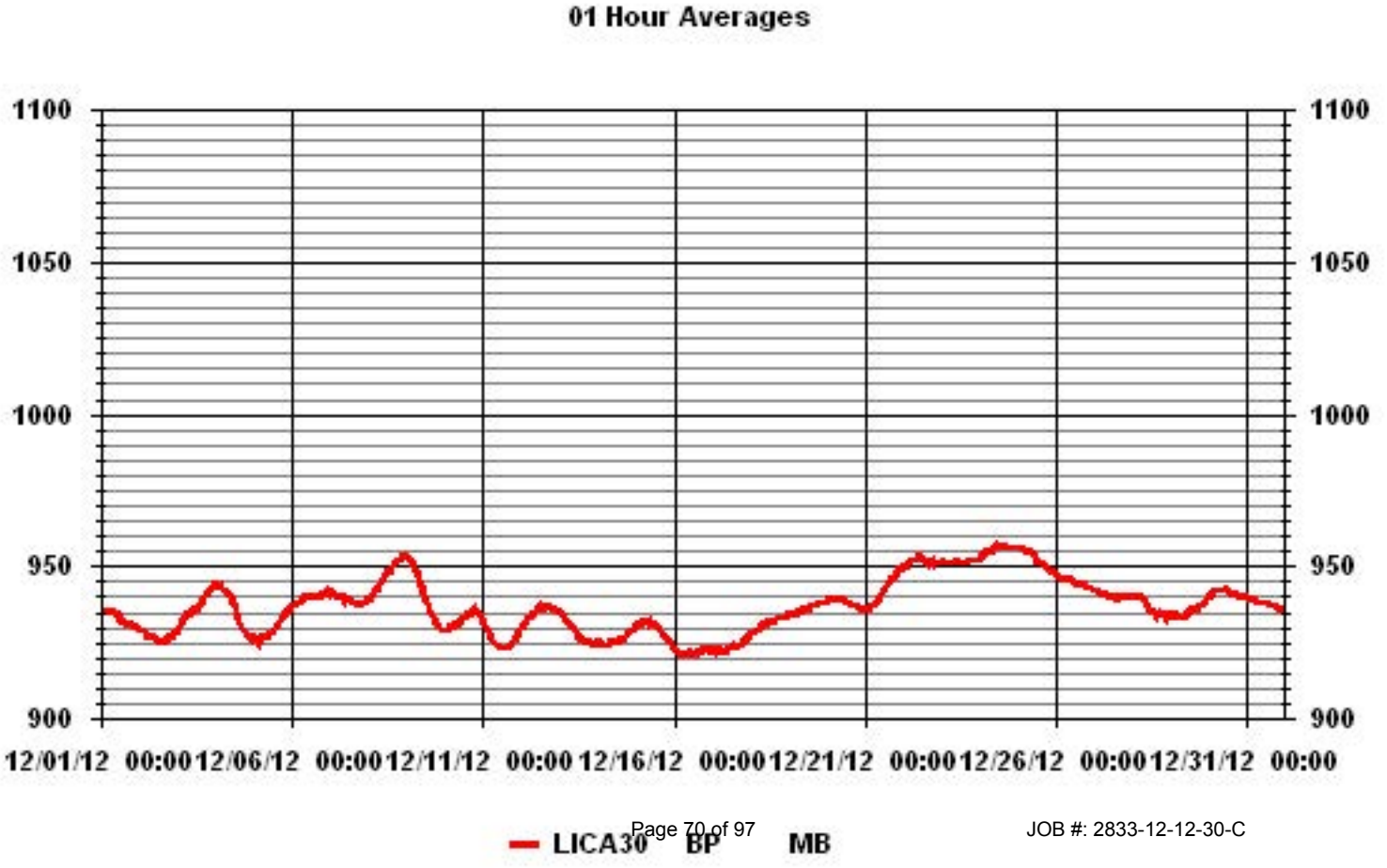
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		957	MB	@ HOUR(S)	VAR	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:		955.5	MB			ON DAY(S)	24
					VAR-VARIOUS		
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:			744	HRS
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	9.03		MONTHLY AVERAGE:			937	MB



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

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

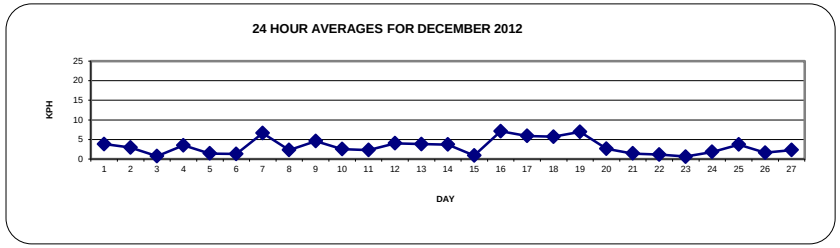
WIND SPEED hourly averages (km/hr)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	4.8	5.6	6.5	5.3	4.2	6.4	7.2	7.3	6	4.6	6.1	5.8	7	7.5	6.6	5.3	5.6	4.2	5.9	3.4	3.6	3.8	3.9	4.6	7.5	5.3	24
2	5.3	4.7	3.1	3.8	5.5	4.6	3.7	5.6	4.6	7.5	7.4	7.9	8.6	9.9	9.8	10.3	10.2	9.5	9	10.3	9.6	10.5	**13.9**	11.6	**13.9**	7.7	24
3	12.2	11.1	11.1	10.6	8.6	7.5	7.8	7.8	6.3	4.8	4.9	5.2	5.2	4.5	3.1	2.5	3.3	3.5	2.7	3.2	2.1	1.1	0.9	1.4	12.2	5.4	24
4	1.7	2.7	4.5	5.5	5.4	5.5	7.2	8.1	7.8	10.3	9.7	11	11.3	11.9	13.2	12	12	11.5	10.4	9.2	7.7	6.5	5	3.7	13.2	**8**	24
5	2.2	2.6	0.9	1.7	2.4	2.1	1.2	1.3	3.1	3.3	4.1	5.1	6.1	5.3	4.1	5.7	5.2	5.2	6.1	5.9	8.5	8.2	9.5	10.1	10.1	3.8	24
6	6.9	6.1	6	4.9	4.5	4.3	4.3	4.8	4.8	4.8	5.4	3.5	3.5	2.9	2.4	1.6	0.9	0.4	1.2	1.3	1.8	0.5	1.3	0.9	6.9	2.9	24
7	0.5	1.4	0.3	0.8	0.7	0.3	0.3	1.5	1.3	1.6	1.5	0.5	2.1	3.5	2.1	2.6	1.8	1.8	1.5	1.7	1.1	0.2	2.2	1.6	3.5	0.7	24
8	0.9	1.5	2.3	1.4	3	8	7.7	8.2	8.5	8	10	7.5	5.6	5.3	5.6	2.5	1.3	1.1	0.2	1.5	0.8	0.1	0.3	0.5	10	3.5	24
9	0.6	0.6	0.2	1.1	0.4	0.4	1.8	6	3.5	1.1	3.4	6.4	6.4	5	3.3	2.4	2	0.6	0.8	1.7	1.8	1.4	1.5	1.7	6.4	1.4	24
10	0.9	1.6	1.3	3.6	3.8	2.9	3.4	3.8	2.8	1.6	1.6	2.9	2.2	2.2	1.9	1.9	1.4	1.5	2.1	1.8	1.5	1.6	1.9	4.3	4.3	1.3	24
11	5.7	6.8	6.9	7.8	6.9	6.6	6.7	7.1	6.4	6.3	6.8	7.8	9	7.6	8.2	7.4	7.4	7.5	8.5	6.6	6.2	6	6.1	4.8	9	6.6	24
12	5.6	6.7	6.3	5	4.1	5.3	4.7	5.6	5.9	4.9	5.3	4.3	2.4	1.1	3.9	3.7	2.8	3.1	3.6	4.5	4.6	3.9	3.4	5.6	6.7	2.3	24
13	4.6	4.1	5.5	5.8	4.8	6.5	6	5	4.5	5.8	6.8	6.3	6.7	5.9	5.6	6.6	5.6	4.1	4	2.9	1.5	2.4	1.7	2.8	6.8	4.6	24
14	1.3	3.2	1.6	1.7	2.9	2	1.9	2.1	0.5	1.5	0.7	0.7	2.4	5.1	4.6	4.8	4.3	5.3	7.8	8.2	5.1	4	4.4	2.3	8.2	2.5	24
15	1.8	1.5	4.1	1.7	0.4	1.8	2.4	2.2	0.5	1.2	1	2.8	0.6	1.7	3	2.5	3.3	2.6	6.7	8.6	8.4	6.4	6.6	9.4	9.4	2.3	24
16	10.1	8.7	6.4	6.5	6.3	6.6	6.1	6	5.8	5.2	5.8	6.2	3.2	3.1	3.2	2.2	1.1	1	1.3	3.1	3	3	1.7	1	10.1	4	24
17	2.8	1.4	1.2	0.7	1.4	3	3.1	4.5	5	4.4	4.4	5.4	5.2	6.3	5.5	5.1	3.8	4.4	5.6	5.1	5.4	7.9	7.2	6.6	7.9	3.8	24
18	4.6	3.8	5.5	7.8	8.6	9.5	7.7	4.1	3.1	2.1	3.4	4.1	3.9	4.6	3.3	4	3.6	3.3	2.9	2.5	2.6	2.4	1.2	1.5	9.5	3.7	24
19	1.8	2.5	3.6	4	2.9	2.2	3.2	3.5	4.8	3.7	2.3	2.7	2.8	1.9	1.5	2	0.6	1.1	1.4	2.1	2	2.7	3.8	3.9	4.8	0.9	24
20	5.2	5.2	5.2	5.3	5.7	5.5	7.4	5.4	4.4	6.4	7.2	7.4	7.8	7.9	8.3	7.9	8.2	8.2	7.8	8	9.5	9.9	8.8	9.6	9.9	7.1	24
21	9.1	9.3	8.5	7.8	5.5	6.6	7.3	8.4	8.2	6.6	8.4	7.3	6.7	6.6	6.3	6	3.4	5.2	7.9	8	3.4	4.3	5.9	6.1	9.3	5.9	24
22	7.4	7.7	11.2	8.7	7	5.9	3.7	2.2	2.9	2.9	3.5	5	6.5	8.5	7.2	6.5	5.8	5	4.5	4.6	4.5	6.6	6.9	7.3	11.2	5.7	24
23	6.5	7.2	8.6	7.5	6.7	7.5	8.7	7.4	6.2	6.8	7.5	7.4	7.1	6.4	6.4	6.9	6.6	6.3	6.6	5.9	5.6	7.3	7.1	7	8.7	6.9	24
24	6.1	4.9	5.3	5.5	4.3	3.3	3.5	3.9	6.6	5.6	1.9	1.5	1.4	3.4	3.7	3.2	3.4	2.1	3.7	4.2	3.7	3.9	4.6	5	6.6	2.6	24
25	2.7	3.4	2.6	2	2.8	2.5	0.2	2.7	1.8	2	2.6	3.5	3.3	3.3	2.9	1.7	0.6	1.6	0.8	1.2	0.6	1.7	2.2	0.7	3.5	1.4	24
26	0.4	1.8	3	1.9	1	1.3	1.6	0.9	0.2	0.6	0.3	0.8	3.1	2.7	3.7	2.4	1	0.5	1.4	1	0.3	1.5	2.7	1.2	3.7	1.1	24
27	1.1	1.7	1.6	1.3	2.2	0.2	2.4	1.3	1.1	1.6	1.5	1.3	1.6	1.5	0.9	0.8	2.2	1.8	1.6	1.8	0.8	0.8	0.8	0.4	2.4	0.6	24
28	0.6	0.7	0.7	0.4	0.4	0.7	1.8	0.7	1.7	1.9	0.8	2.7	5.5	7.3	5.5	5.7	4.4	3.4	2	1.9	1.9	2.1	2	3.5	7.3	1.8	24
29	4.3	3.8	0.5	3.2	3.8	4.1	2.8	1.8	3.2	4.8	5.4	7.1	7.2	6.9	7.3	7.1	5.9	5.8	5.8	6	5.8	7.1	9.2	8.9	9.2	3.7	24
30	7.7	6.4	5.3	4	4.3	3	2.5	2.5	3.3	4.8	4.6	4.9	5.1	4.6	3.8	3.7	3	3.3	3.8	2.8	3.7	3.9	2.7	2.2	7.7	1.6	24
31	2.7	2.8	1.9	1.5	1.4	0.4	0.2	0.7	1.1	1.1	0.7	1	3.5	4	5	4.5	5.2	5.2	4.6	4	3.8	5.8	8.4	8.5	8.5	2.3	24
HOURLY MAX	12.2	11.1	11.2	10.6	8.6	9.5	8.7	8.4	8.5	10.3	10.0	11.0	11.3	11.9	13.2	12.0	12.0	11.5	10.4	10.3	9.6	10.5	13.9	11.6			
HOURLY AVG	4.1	4.2	4.2	4.2	3.9	4.1	4.1	4.3	4.1	4.1	4.4	4.7	4.9	5.1	4.9	4.6	4.1	3.9	4.3	4.3	3.9	4.1	4.4	4.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

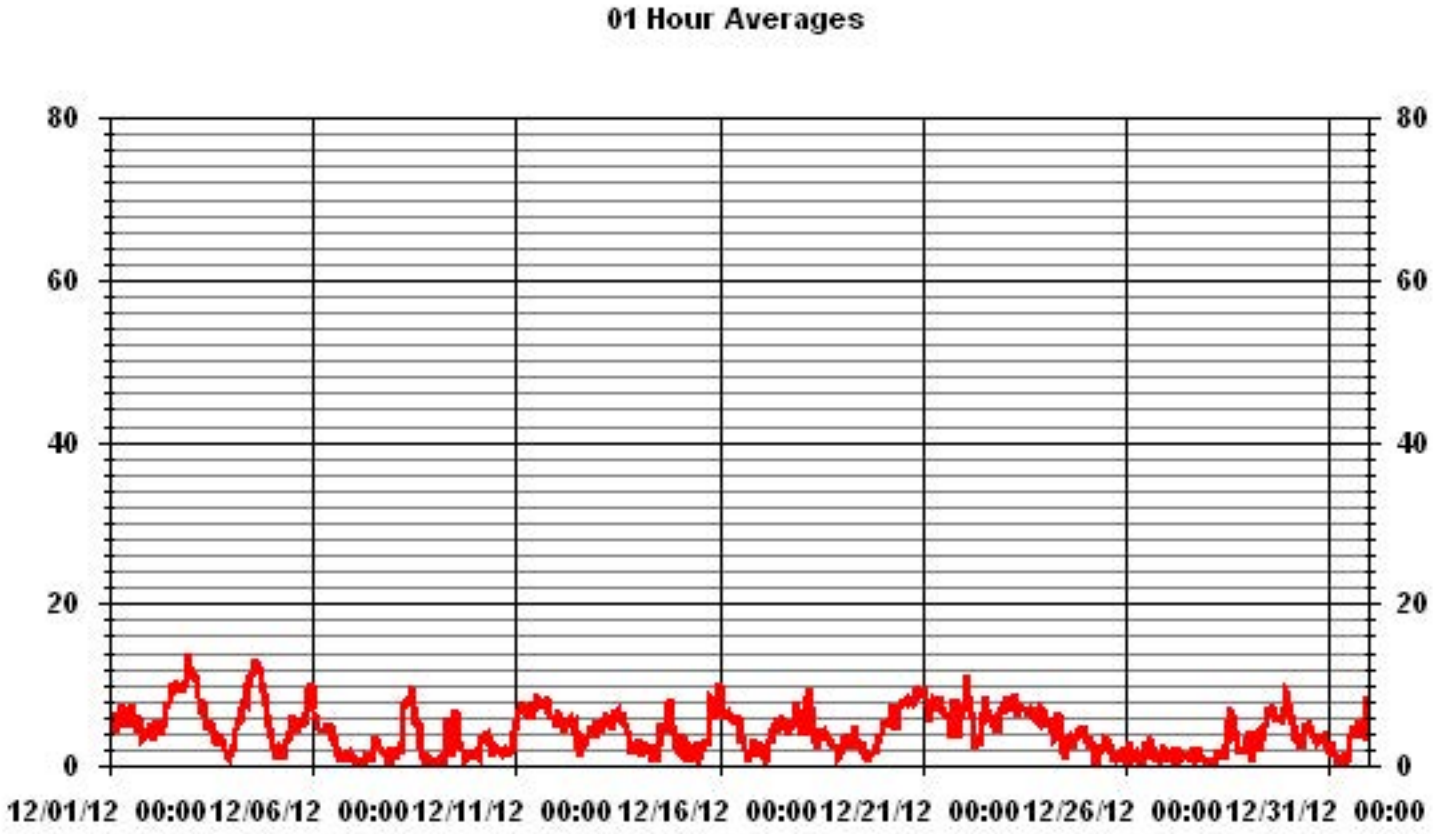


LAST CALIBRATION: December 20, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	13.9	KPH	@ HOUR(S)	22	ON DAY(S)	2	
MAXIMUM 24-HR AVERAGE:	8.0	KPH			ON DAY(S)	4	
CALMS (≤ 1 KPH)	8.20	%	OPERATIONAL TIME:		744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	2.72		MONTHLY AVERAGE:		4.31	KPH	

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	12.7	13.7	16.2	17.3	17.9	19.1	19	18.8	18.1	19.9	24.1	19	22.1	29.3	24.5	18	17.3	15.5	20.6	18.4	14.9	29.8	14.2	15.5	29.8
2	15.1	14.2	13.5	15.1	13.5	14.8	33.8	14	13.3	16.6	17.7	22.5	28	23.6	24.9	22.5	21.7	22.1	19.9	24.5	21.2	22.4	30.7	25	33.8
3	24.1	22.5	23.4	21.4	20.4	14.2	15.1	16.4	16.4	26.3	14.2	14.3	16.2	14.6	16.6	10.5	15.8	17	17.5	18.8	20.1	17.9	26.9	39.4	39.4
4	24.5	23.9	13.4	13.5	17.7	17	23.2	21.9	28.4	38.8	32.6	31.5	33.7	39.2	43.6	41.6	39.9	35.5	40.6	31.7	24.9	22.7	20.1	14	43.6
5	13.8	24.1	12.9	24.1	40.7	16	32.4	15.3	17.9	31.3	14.3	21.9	22.7	18.4	17.3	23.2	20.6	23.2	24.5	20.6	28.2	35	32.4	33.7	40.7
6	29.1	22.8	28.1	28.3	19	35.5	27.6	**115.9**	82.9	16	48.9	72.4	14.6	43.8	44.7	19.5	60.1	36.8	35.5	38	20.6	48.7	88.2	32.2	**115.9**
7	19	38.2	44.1	71.3	44.7	58.8	82	32.9	56.8	32.5	17.5	33.3	14.2	10.5	17.8	16	19.9	**M**	20.3	14	24.1	22.8	10.7	22.5	82
8	19.7	13.8	12.4	14.4	14.4	19.5	17.6	24.9	22.5	19.5	22.2	22.1	15.7	15.7	19.5	44.8	58.6	88.2	36.6	44.3	35.3	36.4	60.4	54.6	88.2
9	48.3	61	45	28.8	50	92	36.5	24.1	17.4	51.8	28.5	16.8	15.1	12.9	13.1	13.5	16	57.9	16.6	98.7	17.3	22.8	24.5	26.5	98.7
10	32	70.2	33.5	27.6	15.3	17.9	42.7	18.1	14.2	23	15.9	16.4	26.5	17.5	16.4	18.6	18.8	55.5	40.8	101.4	82.9	53.1	19.3	17.6	101.4
11	17.9	21.7	27.6	26.9	26.5	53.3	24.3	21.9	21.7	22.1	25.8	27.1	27.1	24.5	24.5	24.7	24.3	24.5	26	21.4	44.2	19.7	18.4	17.3	53.3
12	13.1	14.2	13.5	28.9	14.7	16.2	18.2	37.7	19.2	24.1	15.3	14.8	27.4	18	11.6	12.2	11.6	11.3	11.9	11.3	12.7	11.4	12	14.4	37.7
13	12.9	12.4	16.4	17.9	12.9	26	26.9	15.1	49.5	19.5	20.3	16.4	18.4	15.9	15.9	18.8	18.1	18.8	12.9	11.8	35.2	10.7	16.2	12.7	49.5
14	27.6	18.1	15.9	11	11.3	10.9	13.3	9.8	16.4	10.9	10.1	10	7.1	10.7	16.8	13.7	12.9	25.7	25.2	22.9	23.2	15.3	17	13.5	27.6
15	11.5	14	11.3	15.3	14	15.7	17.7	12.2	9.4	9.6	12.2	10.9	16.6	12.5	11.8	12.6	12.2	13.5	19.5	24.1	22.7	18.1	22.1	28.7	28.7
16	31.3	24.7	25.7	23.2	21.8	22.3	19.5	20.3	20.2	16.6	17.7	17.7	13.7	11.8	14.2	13.8	9.3	9.6	10.2	9.8	11.1	10.5	10.5	14.2	31.3
17	17.9	19.2	18.7	13.8	19	14.4	15.5	14.8	15.6	17.8	18.4	22.1	17.7	17.7	19.1	15.1	14.6	17.3	19.7	20.3	19.7	21.7	16.8	14.8	22.1
18	12.4	14	12.4	15.7	16.8	20.3	20.3	13.7	12.7	16.2	12	17.3	12	13.6	13.5	12.9	17	13.1	11.8	11.6	32.6	80	62	48.2	80
19	22.7	31.7	33.7	16.2	18.6	42.8	11.6	12	10.5	18.6	14.2	12.9	10.9	20.6	15.7	16.5	76.3	35.1	19.5	27.9	74.4	72.4	66.9	36.9	76.3
20	14.9	15.5	15.5	15.6	16.4	16.2	21.5	17.8	14.6	14.4	18.8	22.5	20.6	19	23.8	25.2	24.3	24.3	21.6	24.3	34.3	27.1	31.5	30.4	34.3
21	30.7	32.2	27	29.8	27.6	15.1	16.6	17.7	16.4	14	19.7	18.6	15.1	15.5	19.2	14.6	12.9	14.2	18.7	15.9	16.1	19	15	14.4	32.2
22	17.9	23	30.4	20.1	25.2	12.7	24.5	45.2	39.3	18.6	30.2	19.5	20.6	24.7	22.5	23	20.8	19	16.8	17.5	16.4	19.5	21.9	25.2	45.2
23	26.5	19.5	22.5	20.4	22.1	21.9	24.5	24.1	21	19.3	22.8	21	18.2	16.6	22.8	20.8	23.2	19.7	20.4	18.2	18.4	17.7	22.8	36.2	36.2
24	19.3	15.3	19	23.2	40.4	15.8	15.8	34.4	18.8	18.4	31.8	21.2	21.2	17.1	56.8	37	30.5	44.1	41.6	15.5	29.3	53.5	18.6	16.4	56.8
25	66.9	15.1	33.4	59.4	88.7	60.5	52.2	64.1	22.8	102.9	32.5	49.8	84.1	17.5	16.2	26.7	23.4	33.6	21.9	79.5	20.6	17.3	26.7	19.2	102.9
26	39.2	12.9	14	19.7	18.6	57.5	71.5	79	23.2	91.3	75.7	62.3	12.2	15.9	12	17.7	23.2	17.7	85.6	37.3	19.5	19	11.8	32.9	91.3
27	21.9	31.8	20.4	21	21.4	25	21	54.6	58.8	17.9	32.4	17.3	19	31.3	46.9	16.9	21.2	17.3	37	31.3	30	25.4	20.4	52.9	58.8
28	34	63.3	36.7	36.4	56	50.5	25.2	35.3	37.1	52.6	73.7	33.5	16.8	16.4	15.2	17.1	12.4	13.5	16.5	18.8	35.9	21.2	42.1	12	73.7
29	12.7	16.6	82.1	41	19.2	16.6	17.3	21.2	15.1	21.9	22.7	22.7	25.7	24.3	25.8	23.4	22.1	19.9	18.4	21.1	21.4	31.5	29.8	21.9	82.1
30	23.4	20.1	16	13.5	12.7	14.4	16.8	37.8	25.8	12.4	12.7	12.7	13	12.2	15.4	11.5	14.7	83.8	41.1	12.9	16.2	16.4	26.5	14.2	83.8
31	14	27.6	22.5	19.5	51.7	27.8	76.8	21.1	23.9	29.8	26	14.8	10.2	9.8	13.1	10.7	11.8	14	12.1	10.9	10.2	18.4	17	16.4	76.8
PEAK	66.9	70.2	82.1	71.3	88.7	92.0	82.0	115.9	82.9	102.9	75.7	72.4	84.1	43.8	56.8	44.8	76.3	88.2	85.6	101.4	82.9	80.0	88.2	54.6	

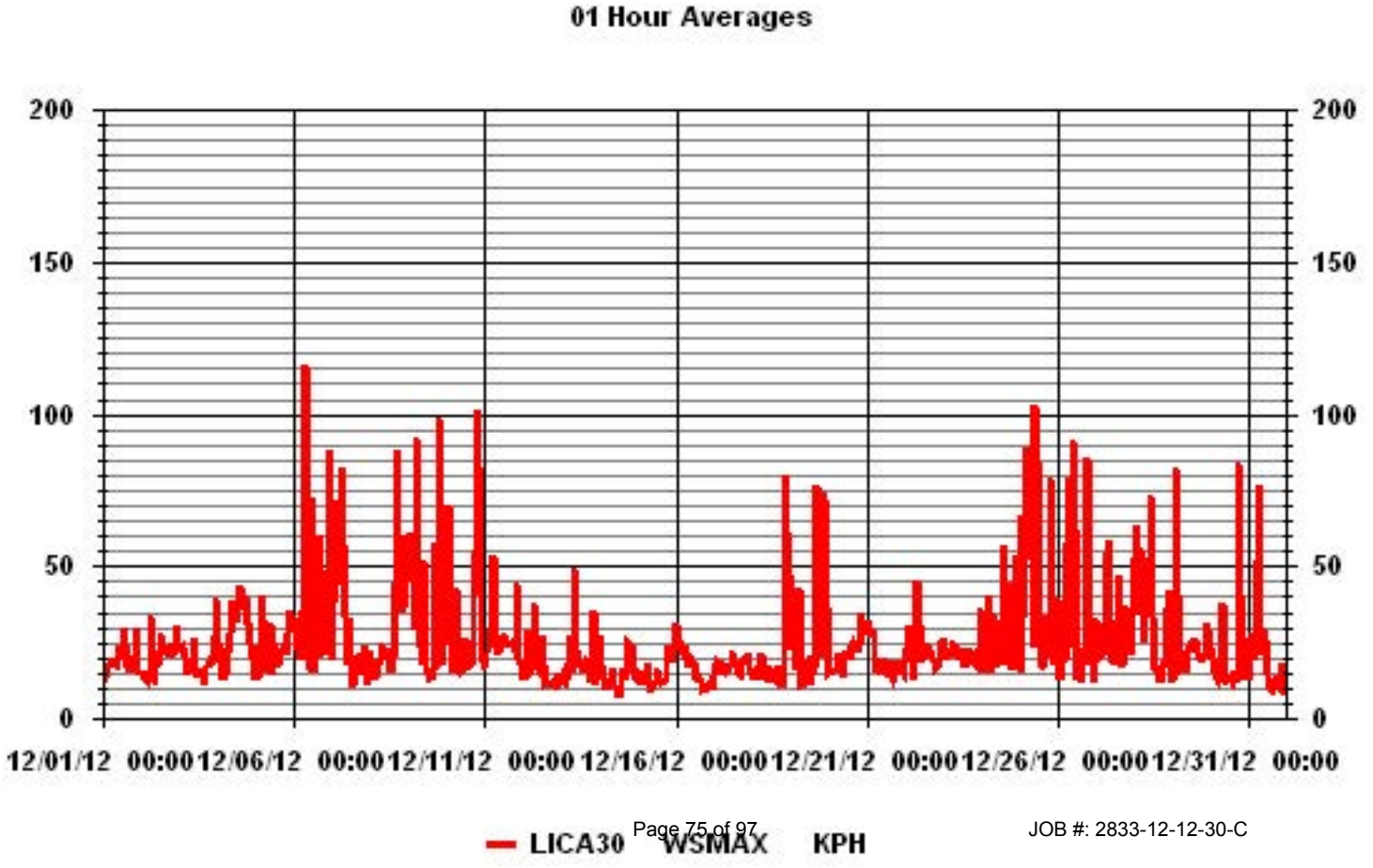
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	115.9	KPH	@ HOUR(S)	7
			ON DAY(S)	6

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



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

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

December 2012

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	2.68	5.64	9.27	7.39	2.95	3.22	3.89	3.36	6.18	7.79	3.89	2.55	2.15	3.22	4.56	3.36	72.17
<	12.0	.80	5.24	8.73	2.41	2.01	2.55	1.74	.40	.26	.67	.00	.00	.00	1.34	.80	.13	27.15
<	20.0	.00	.26	.00	.00	.00	.40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67
<	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	3.49	11.15	18.01	9.81	4.97	6.18	5.64	3.76	6.45	8.46	3.89	2.55	2.15	4.56	5.37	3.49	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	20	42	69	55	22	24	29	25	46	58	29	19	16	24	34	25	537
<	12.0	6	39	65	18	15	19	13	3	2	5				10	6	1	202
<	20.0		2				3											5
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	26	83	134	73	37	46	42	28	48	63	29	19	16	34	40	26	

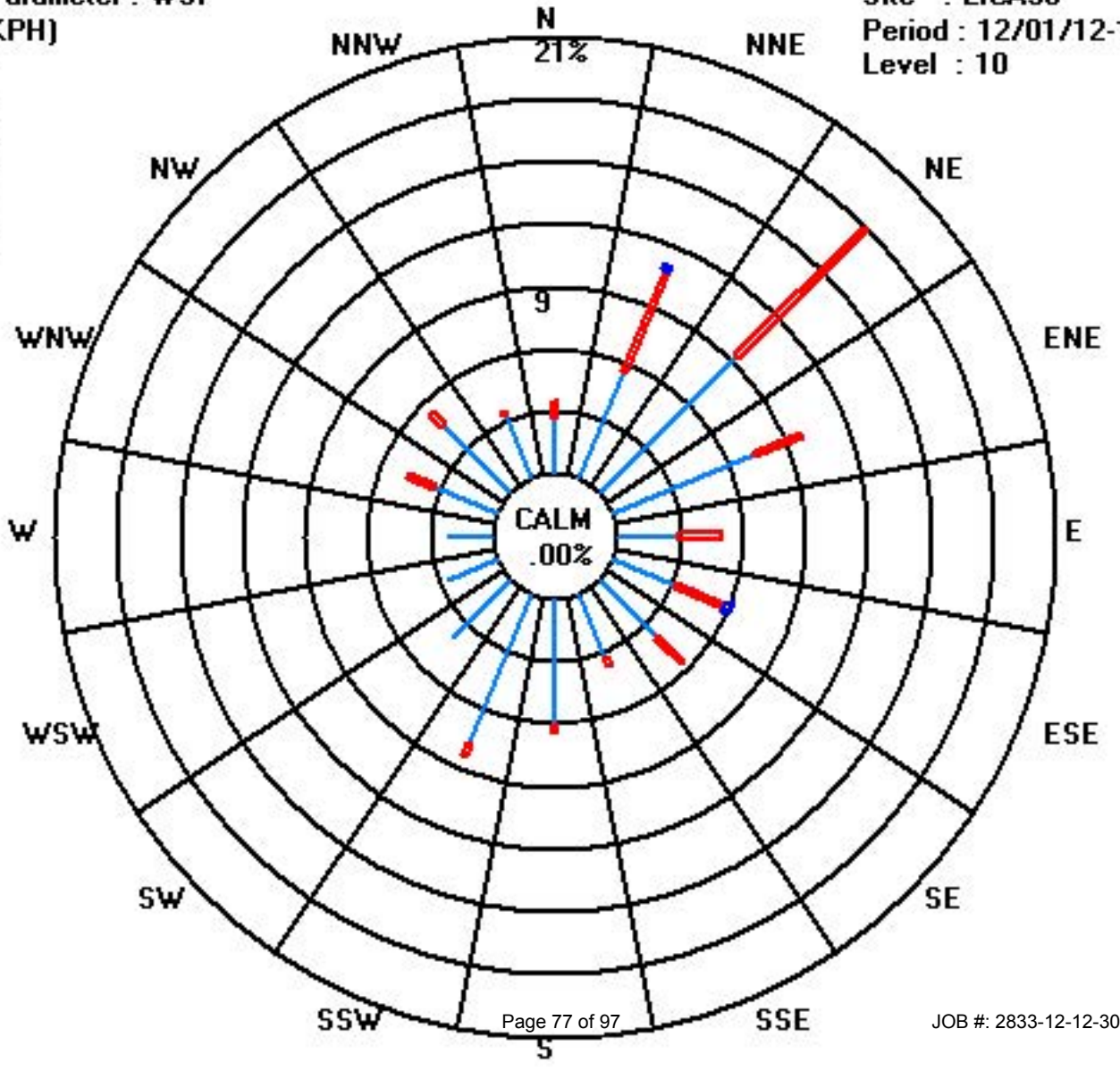
Calm : .00 %

Total # Operational Hours : 744

Logger : 30 Parameter : WSP
Class Limits (KPH)

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

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



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

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2012

WIND DIRECTION hourly averages in degrees

MST

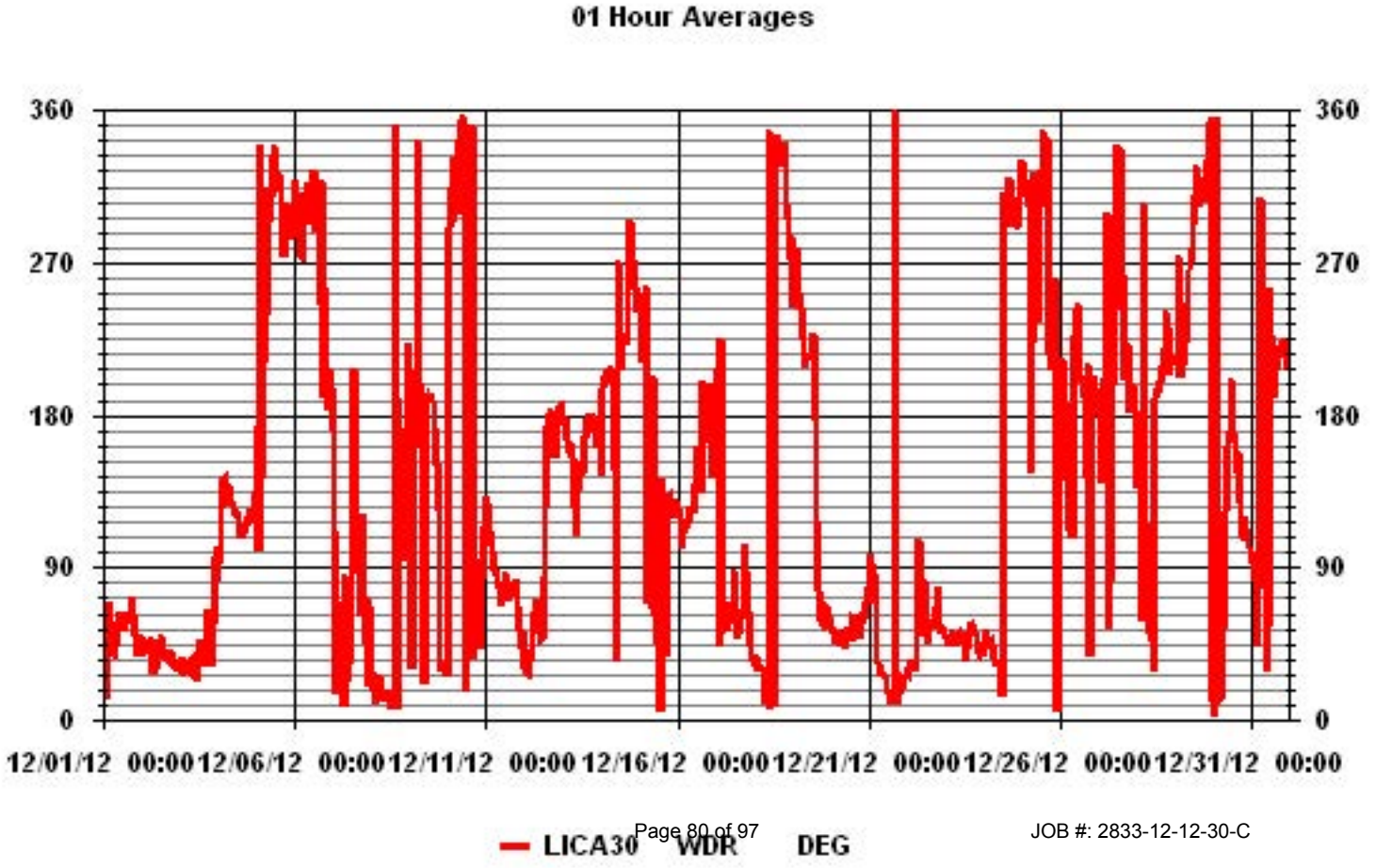
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	17	16	29	51	70	44	40	39	43	58	63	54	54	64	60	61	63	57	72	64	50	38	49	49	50	NE	24
2	38	42	40	48	40	46	49	27	32	32	38	47	50	41	37	37	36	39	41	32	37	32	31	32	38	NE	24
3	31	30	37	34	30	30	29	28	37	38	28	22	35	48	35	37	32	65	61	52	31	57	97	82	35	NE	24
4	103	92	142	143	128	129	134	139	127	129	122	122	120	116	107	112	110	116	119	122	124	119	120	135	121	ESE	24
5	174	99	340	143	285	210	239	315	294	308	334	339	325	314	314	322	287	273	284	305	289	284	291	297	299	WNW	24
6	319	306	286	275	274	312	302	292	315	315	298	298	324	288	298	315	244	319	190	255	182	208	196	196	296	WNW	24
7	172	112	15	47	69	31	7	86	8	23	33	58	202	208	172	104	87	61	102	121	44	72	20	68	90	E	24
8	30	18	9	15	15	26	23	18	11	13	15	17	6	12	16	352	6	190	174	93	132	152	155	222	16	NNE	24
9	160	30	71	206	160	342	189	199	184	21	189	192	190	191	189	188	174	152	124	30	30	34	29	26	181	S	24
10	44	290	314	293	332	318	298	342	354	357	335	16	316	316	335	352	36	97	73	86	71	41	83	114	356	N	24
11	132	129	103	111	100	90	87	83	79	67	82	79	88	76	71	73	77	82	78	83	68	54	42	53	83	E	24
12	32	29	28	40	39	51	63	68	71	61	48	49	84	124	173	180	184	159	157	155	163	174	184	185	88	E	24
13	176	180	167	161	162	164	156	126	109	135	153	145	146	154	167	178	181	174	181	175	171	160	179	176	160	SSE	24
14	144	196	203	205	203	202	209	201	148	35	40	271	218	207	228	222	225	278	295	289	272	254	256	240	243	WSW	24
15	252	241	211	218	256	68	85	66	85	203	62	44	67	5	142	89	37	63	133	134	129	119	121	131	120	ESE	24
16	122	122	101	114	112	114	117	117	126	124	124	140	162	150	133	151	200	163	178	199	196	192	142	187	130	SE	24
17	207	191	43	225	50	62	56	55	57	70	63	89	70	47	58	51	59	65	104	89	65	45	39	36	62	ENE	24
18	32	38	30	30	30	30	24	12	11	348	6	11	10	8	346	341	330	331	327	341	300	301	272	286	8	N	24
19	244	263	267	278	253	244	225	209	209	213	216	214	214	228	178	119	77	60	58	57	69	67	65	62	215	SSW	24
20	56	52	50	45	47	43	52	52	49	42	47	54	49	46	60	59	61	60	47	56	63	59	69	78	55	NE	24
21	85	98	93	87	70	35	29	30	28	27	26	19	16	18	10	14	360	9	25	28	18	19	26	28	37	NE	24
22	27	31	36	34	32	28	50	107	49	66	62	83	55	44	55	55	59	65	66	78	52	54	54	50	50	NE	24
23	50	49	44	49	53	48	44	51	52	49	48	52	35	42	51	55	54	56	53	50	41	39	41	38	48	NE	24
24	46	53	49	46	47	40	41	33	33	35	22	13	311	299	294	302	320	291	294	306	293	290	309	329	360	N	24
25	329	310	320	317	304	146	222	323	317	234	321	325	303	348	341	337	344	217	206	237	261	7	7	65	318	NW	24
26	163	214	204	188	142	112	126	107	227	243	204	246	204	201	203	192	143	211	37	72	188	203	193	180	189	S	24
27	182	139	195	202	180	**299**	53	81	121	198	241	339	316	338	332	264	201	210	222	183	183	198	196	136	201	SSW	24
28	173	145	183	58	306	116	113	55	52	48	28	190	195	200	198	200	209	220	242	233	204	215	213	213	197	SSW	24
29	212	209	275	203	206	209	223	246	266	276	275	292	310	328	317	302	317	320	305	319	331	353	356	12	305	WNW	24
30	2	356	354	12	13	22	54	123	162	171	163	201	170	166	146	159	129	109	107	120	105	112	103	96	109	ESE	24
31	97	99	83	43	77	308	228	121	139	29	55	255	229	206	190	207	212	214	221	223	225	217	207	209	202	SSW	24
HOURLY AVG	329	356	354	317	332	342	302	342	354	357	335	339	325	348	346	352	360	331	327	341	331	353	356	329			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	101.29		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	57	DEG



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

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

DECEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

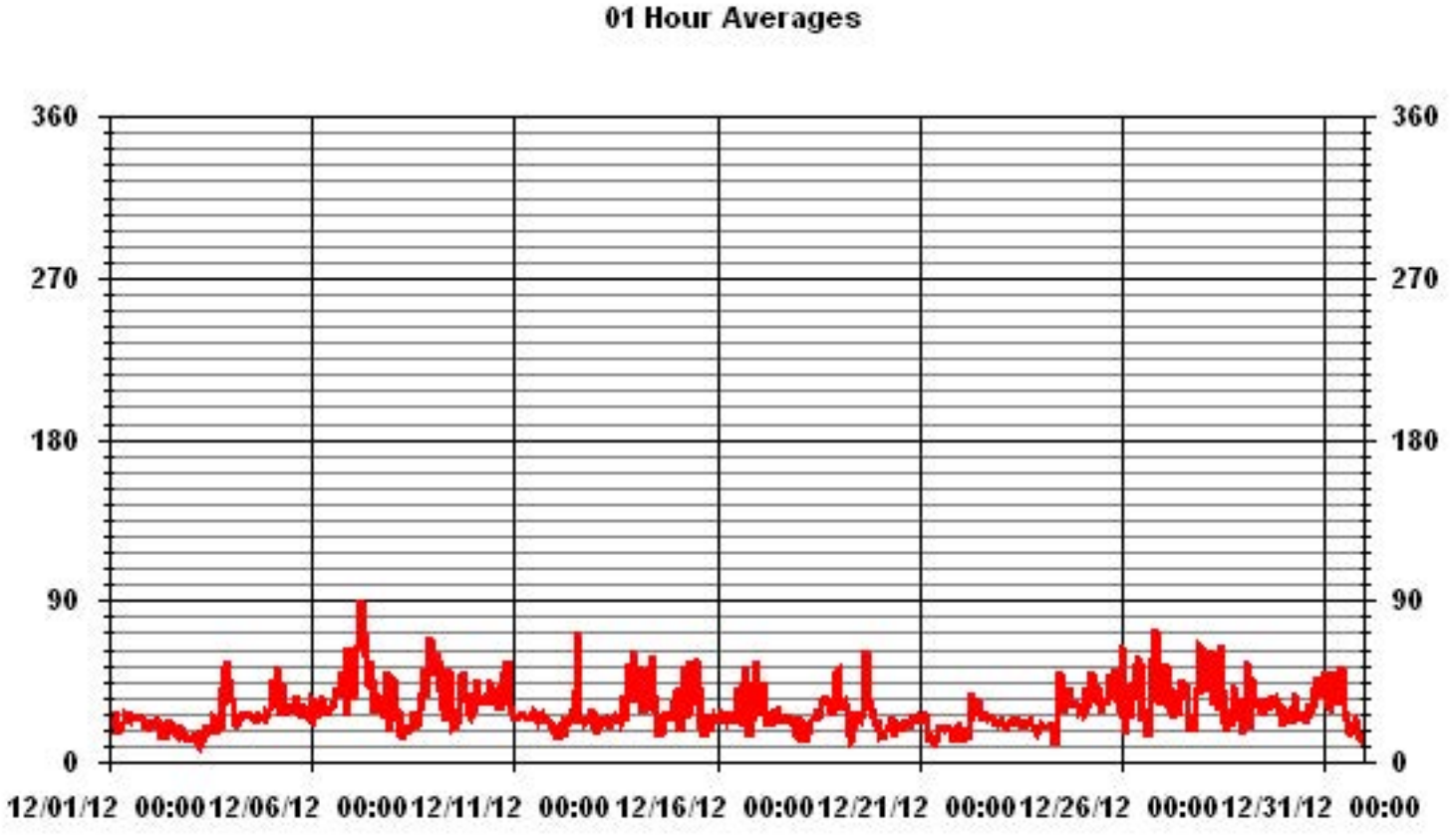
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	18	18	16	24	28	20	18	19	22	27	26	26	24	26	25	25	23	27	24	27	21	21	20	23
2	18	22	22	23	18	21	24	13	19	13	19	22	22	20	17	16	15	19	19	13	16	14	15	14
3	13	13	15	14	15	11	9	11	17	21	17	18	20	25	24	20	16	23	22	41	31	53	56	47
4	36	34	22	21	24	23	26	26	26	24	28	26	26	25	24	26	25	27	26	25	28	26	29	30
5	46	30	40	54	40	25	45	35	26	28	31	30	31	30	35	37	28	27	29	33	27	26	25	24
6	36	35	28	24	29	31	37	28	28	30	26	30	31	34	36	42	36	51	42	39	26	64	34	39
7	45	35	63	64	67	90	64	59	71	43	40	56	48	27	38	28	33	28	24	35	35	50	16	34
8	47	41	23	29	15	12	15	17	19	19	18	19	28	22	19	27	29	38	52	36	48	55	69	55
9	48	52	61	39	57	50	30	23	47	52	43	19	20	20	21	29	36	48	50	40	34	28	26	28
10	38	31	46	31	35	36	33	33	35	46	42	31	42	39	40	28	40	31	51	57	31	56	32	28
11	24	24	25	26	26	27	26	24	24	24	26	29	28	26	23	25	27	25	24	25	24	23	20	22
12	17	14	14	20	19	18	25	21	22	23	21	29	40	72	26	21	25	22	23	23	23	26	30	20
13	19	16	19	23	23	23	24	21	18	22	25	26	24	25	25	22	24	37	23	33	55	35	63	40
14	53	33	51	53	27	43	43	29	53	43	59	39	28	14	19	17	18	28	24	24	27	27	23	34
15	39	42	16	34	54	35	24	26	56	49	44	31	58	43	23	24	13	26	21	21	20	23	26	24
16	21	25	29	26	26	23	25	26	24	28	23	21	41	30	25	19	44	54	45	16	16	22	44	57
17	25	32	37	33	45	21	21	22	22	27	28	29	25	21	24	21	25	25	24	27	23	21	18	15
18	13	25	12	12	12	12	15	22	23	24	25	23	29	25	35	32	37	33	35	31	32	26	50	51
19	29	32	35	31	33	30	15	12	13	18	24	27	27	25	28	50	63	42	35	31	30	25	20	21
20	15	16	16	15	17	21	17	19	25	14	17	19	18	18	21	22	21	20	20	23	27	25	24	26
21	25	24	26	27	26	17	13	12	12	11	14	19	21	17	21	19	20	19	18	11	18	18	19	12
22	15	11	19	17	15	12	23	38	36	31	26	35	28	23	25	26	24	25	25	25	20	22	21	22
23	23	21	21	20	22	21	21	23	23	22	23	23	20	20	24	22	22	23	21	21	19	17	19	20
24	22	21	21	20	20	20	20	11	11	16	37	50	47	32	27	33	30	41	35	30	32	32	28	29
25	32	27	28	42	30	49	49	33	41	41	34	33	27	32	33	33	49	35	37	44	52	34	27	44
26	66	26	15	27	43	24	34	45	54	60	41	56	23	29	20	14	28	58	33	51	74	56	32	35
27	34	38	55	33	27	41	24	34	32	25	35	46	43	43	40	25	16	24	17	27	39	39	65	64
28	39	46	49	52	54	63	31	59	37	29	66	41	22	19	19	21	21	30	43	37	34	22	30	16
29	19	35	57	26	18	48	31	34	32	29	29	26	34	34	34	28	37	33	34	36	34	28	28	19
30	24	28	27	21	28	31	38	30	25	26	26	28	24	22	33	27	28	30	41	48	39	36	47	48
31	48	32	31	43	41	51	40	46	32	49	54	39	29	24	18	17	18	21	23	20	16	15	13	14

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: December 20, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS



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

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 19, 2012		Previous Calibration	November 9, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	08:32		End Time (MST)	12:32	
Reason:			Monthly Calibration		
Barometric Pressure	935	mBar	Station Temperature	22	Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42502	Cal Gas Expiry date	December 29, 2013
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	Environics 6100	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 1000	ppb				
Sample Flow / Box Temp	592	ccm	31	Deg C	594	ccm	32.4	Deg C
HVPS / Lamp Setting	515		2265		514		2264	
PMT / RxCell Temp	7.7	Deg C	50	Deg C	7.7	Deg C	50	Deg C
Converter / IZS Temp	NA	Deg C	45	Deg C	NA	Deg C	45.0	Deg C
Offset / Slope	64		1.013		65.9		1.009	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	2	N/A
4994	0	0	1	N/A
4918	74.6	741	744	0.9961
4918	74.6	741	742	0.9988
4955	39.8	395	391	1.0108
4974	19.9	198	195	1.0136
4994	0	0	0	N/A
			Sum of Least Squares	1.0021
			New Correction Factor	0.9988

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	2.9	1.4
Auto Span	374.0	368.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9980
Current Correction Factor Before Span Adjust:	0.9961
Percent Change:	0.2%

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

When finished the calibration,accidentally started GPT point before removed the calibration sample line, causing the first two minutes of daily cals high.

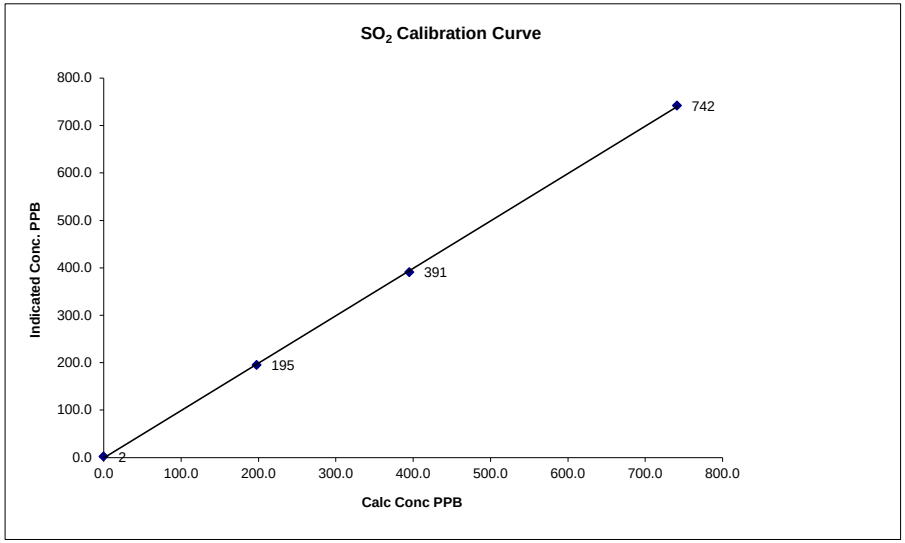
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

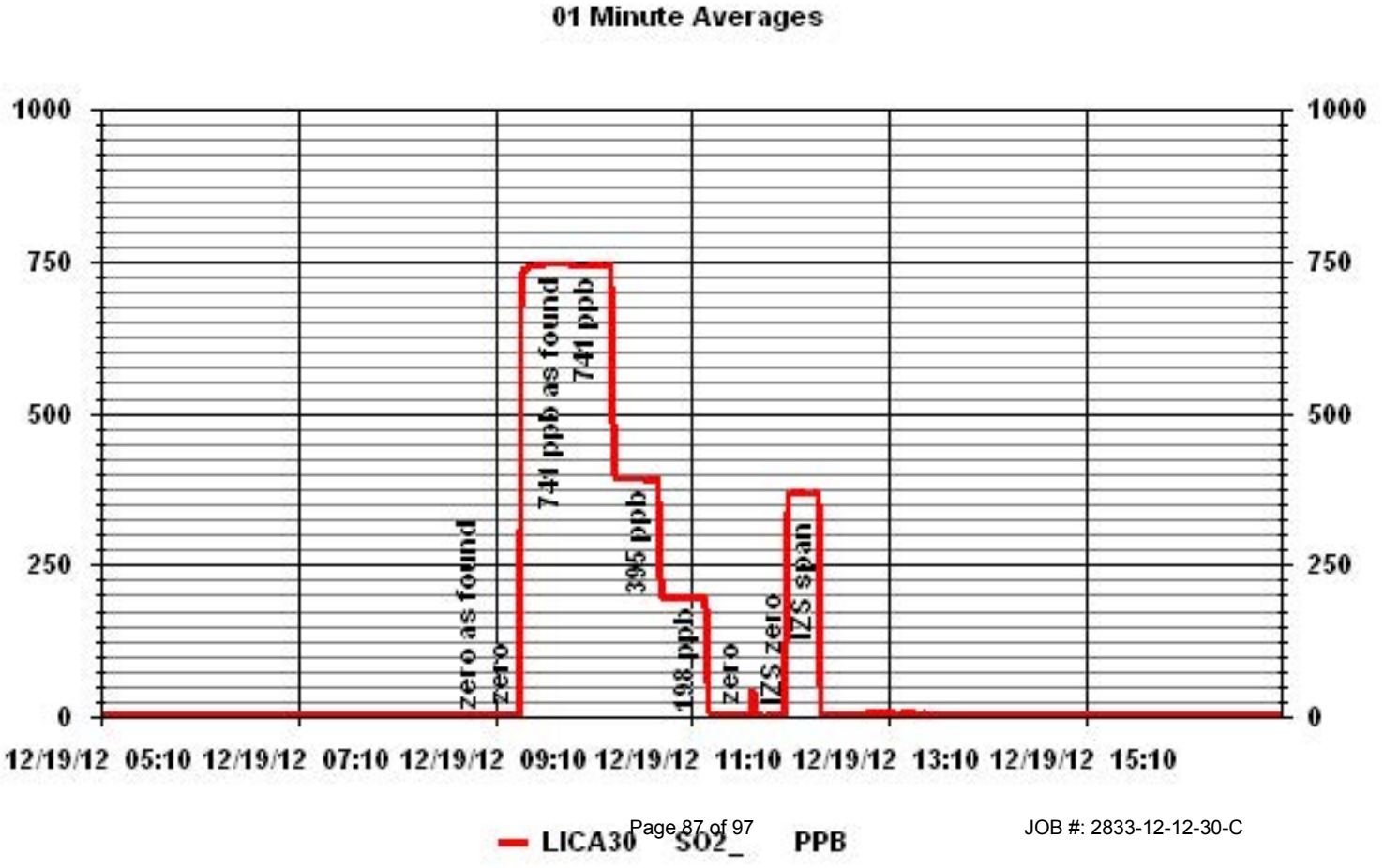
Calibration Date	December 19, 2012				
Company	Lakeland Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	08:32	End Time	(MST)	12:32	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	2	n/a
198	195	1.0136
395	391	1.0108
741	742	0.9988

Correlation Coefficient	(≥ 0.995)	0.999915
Slope	(0.85 to 1.15)	0.999289
Intercept	(± 3% F.S.)	-0.764271



Notes:



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

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 19, 2012		Previous Calibration	November 9, 2012	
Company	Lakelnad Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	08:32		End Time (MST)	12:16	
Reason:			Monthly Calibration		
Barometric Pressure	935	mBar	Station Temperature	22	Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648	Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	511	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	Not in use	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 100	ppb				
Sample Flow / Box Temp	474	ccm	32.5	Deg C	475	ccm	33.7	Deg C
HVPS / Lamp Setting	548		2240		548		2241	
PMT / RxCell Temp	7.9	Deg C	50	Deg C	7.9	Deg C	50	Deg C
Converter / IZS Temp	316	Deg C	45	Deg C	315	Deg C	45.0	Deg C
Offset / Slope	30.2		1		30.2		1.006	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	NA
	No Zero Adj.			
4958	40.0	80	79	1.0131
4958	40.0	80	80	1.0000
4977	20.0	40	41	0.9762
4986	11.5	23	24	0.9588
4996	0	0	1	NA
			Sum of Least Squares	0.9931
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.3	1.0
Auto Span	58.7	59.6
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0131
Percent Change:	-1.3%

Notes: **NA : Not Applicable**

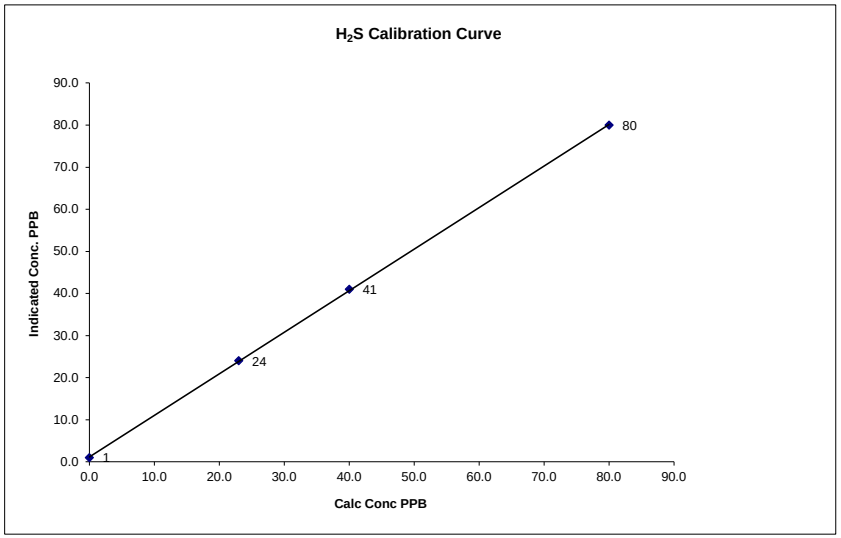
Calibration Performed by: Ting Xu

H_2S Calibration Curve

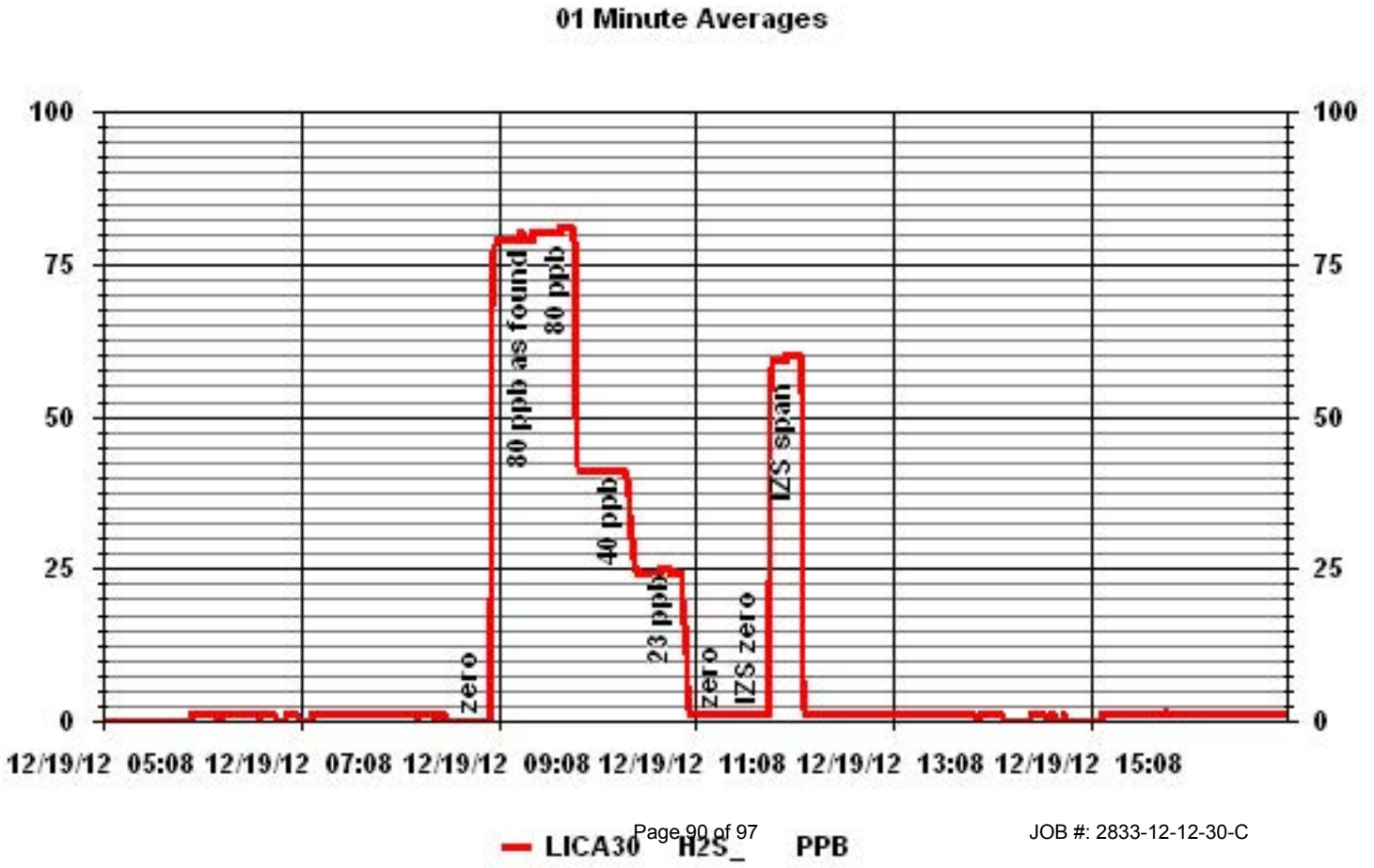
Calibration Date	December 19, 2012				
Company	Lakelnad Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	08:32		End Time (MST)	12:16	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	
23	24	0.9588
40	41	0.9762
80	80	1.0004

Correlation Coefficient	(≥ 0.995)	0.999948
Slope	(0.85 to 1.15)	0.986654
Intercept	(± 3% F.S.)	1.210473



Notes:



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

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 19, 2012		Previous Calibration	November 8, 2012	
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location:	Maskwa				
Start Time (MST)	11:39		End Time (MST)	14:56	
Reason:	Monthly Calibration				
Barometric Pressure:	936	mmHg	Station Temperature:	24	Deg C
Calibrator:	API 700		S/N:	831	
Cal Gas Concentration:	CH4 600 PPM		C3H8	204 PPM	
	TOTAL CH4 1161.0 PPM		Gas Cyl. #	LL155310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832		S/N :	AO 791	
Chart Recorder:	NA		S/N:	NA	
Output Voltage Range:	0 - 1	VDC	Chart Speed:	NA	mm/hr

Analyzer Information

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

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
	No Zero Adj.			
2000	74.0	41.4	40.9	1.0128
2000	74.0	41.4	41.5	0.9982
2000	37.0	21.1	21.2	0.9947
2000	20.0	11.5	11.7	0.9825
2000	0.0	0.0	0.0	NA
			New Correction Factor:	0.9982

Percent Change

Previous Calibration Correction Factor:	0.9934
Current Correction Factor Before Span Adjust:	1.0128
Percent Change:	-1.9%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.1
Auto Span	34.3	34.0
Sample Lines Connected		**YES**

Cylinder Pressures

Span 1000 psi Hydrogen 1000 psi Zero Air 32 psi

Notes: **NA : Not Applicable**

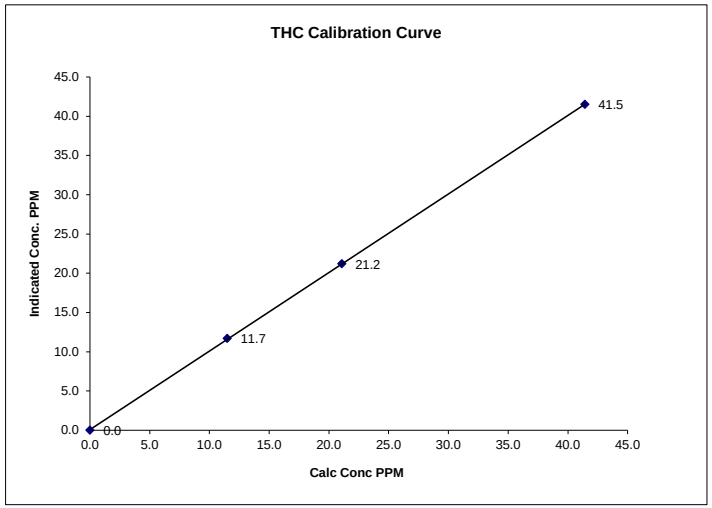
Calibration Performed by: Ting Xu

THC Calibration Curve

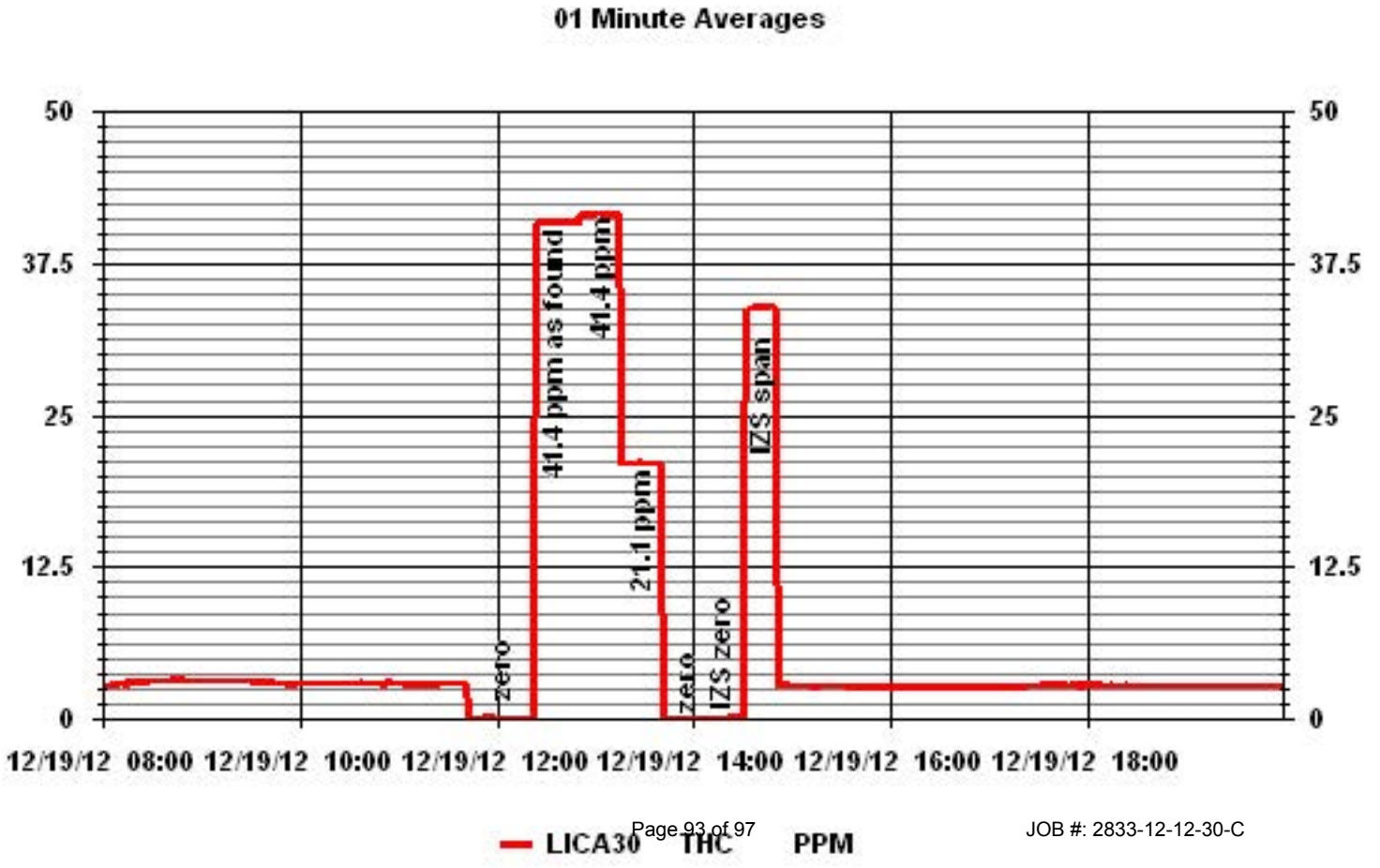
Calibration Date	December 19, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Maskwa				
Start Time (MST)	11:39	End Time	(MST)	14:56	

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	0.0	NA
11.5	11.7	0.9825
21.1	21.2	0.9947
41.4	41.5	0.9982

Correlation Coefficient	(≥ 0.995)	0.999977
Slope	(0.85 to 1.15)	1.000637
Intercept	(± 3% F.S.)	0.08629



Notes:



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

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 19, 2012		Previous Calibration	November 8, 2012	
Company	LICA		Plant/Location	Maskwa	
Start Time (MST)	08:32		End Time (MST)	14:40	
Reason:	Monthly Calibration				
Barometric Pressure	953 mBar	Station Temperature	22 Deg C	MFCF	1
Cal Gas Concentration	NOx 50.1 ppm	NO 50.1 ppm	Cal Gas Expiry date	December 29, 2013	
Cal Gas Cylinder #	LL42502				
DAS Output Voltage	0 - 10 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration					After Calibration			
Concentration Range			0 - 1000			ppb			
Sample Flow/Conv. Temp	452	ccm	315	Deg C		448	ccm	315	Deg C
Ozone Flow / Vacuum	79	ccm	4.5	"Hg-A		79	ccm	4.4	"Hg-A
HVPS / A ZERO	751	Volts	15.3	MV		751	Volts	15.7	MV
Rx/ Temp / PMT Temp	50.0	Deg C	6.6	Deg C		49.9	Deg C	6.6	Deg C
Box Temp / IZS Temp	31.3	Deg C	42.2	Deg C		30	Deg C	42.2	Deg C
Offset	0.4	NOx	0.3	NO		0.4	NOx	0.3	NO
Slope	1.058	NOx	1.057	NO		1.066	NOx	1.063	NO
NO_2 COEF / Conv Efficency	NA	NO2	0.994			NA	NO2	0.994	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	1	1	1	NA	NA
	No Zero Adj									
4919	74.6	NA	748	748	NA	744	745	-1	1.0073	1.0060
4919	74.6	NA	748	748	NA	750	750	1	0.9993	0.9993
4957	39.8	NA	399	399	NA	397	397	2	1.0077	1.0077
4974	19.9	NA	200	200	NA	199	199	1	1.0083	1.0083
4995	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO_2 Correction Factor	NO2 Conv Efficency
			NOx	NO	NO2	NOx	NO	NO2		
4920	74.6	NA	748	748	NA	750	750	1	NA	NA
4920	74.6	600	748	NA	556	749	195	555	1.0036	99.82%
	No Adj.									
4920	74.6	250	748	NA	234	751	517	234	1.0043	100.00%
4920	74.6	140	748	NA	132	750	619	132	1.0076	100.00%

Linearity		Sum of Least Squares	NOx=	1.000	NO=	1.000	NO2=	1.001
OK? Yes	No	Correction Factors:	NOx=	0.9993	NO=	0.9993	NO2=	1.0036
					Average Converter Efficiency=		99.94%	

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	1.0	NOx	1.2	NO2		0.9	NOx	0.7	NO2
Auto Span	550	NOx	544	NO2		552	NOx	546	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-0.5%	NO	-0.4%	NO2	-0.4%

Notes

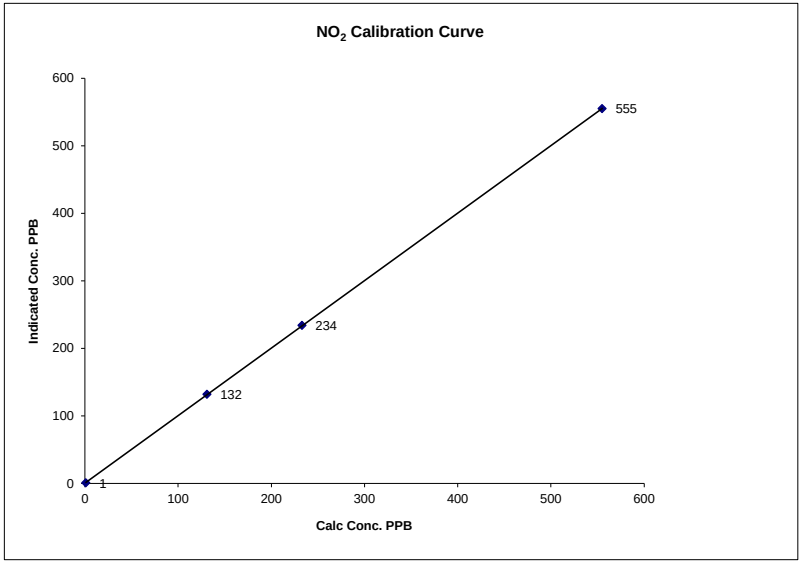
NA : Not Applicable

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	December 19, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	08:32	End Time (MST)	14:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
			Slope (0.85 to 1.15)	0.999428
1	1	N/A	Intercept (± 3% F.S.)	0.63153
131	132	0.9924		
233	234	0.9957		
555	555	1.0000		

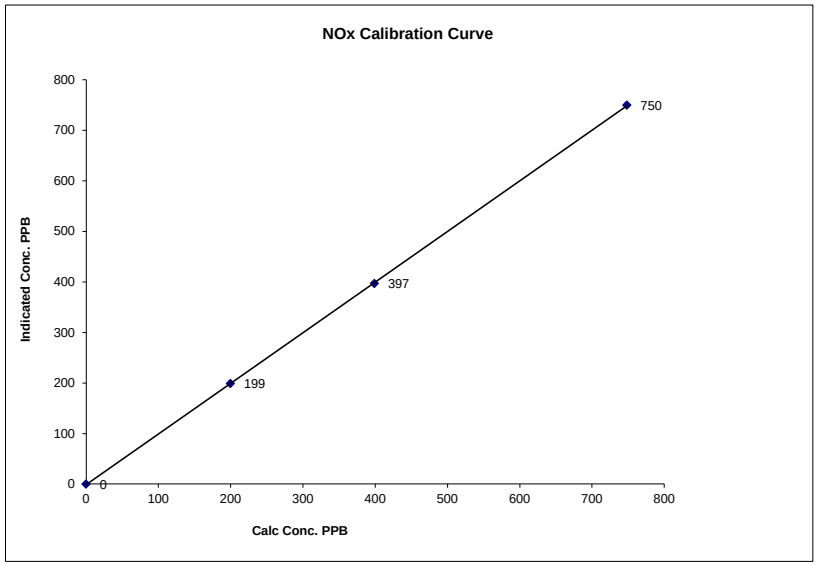


Notes:

NOx Calibration Curve

Calibration Date	December 19, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	08:32	End Time (MST)	14:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999982
			Slope (0.85 to 1.15)	1.001958
0	0	N/A	Intercept (± 3% F.S.)	-0.94518
200	199	1.0032		
399	397	1.0052		
748	750	0.9979		

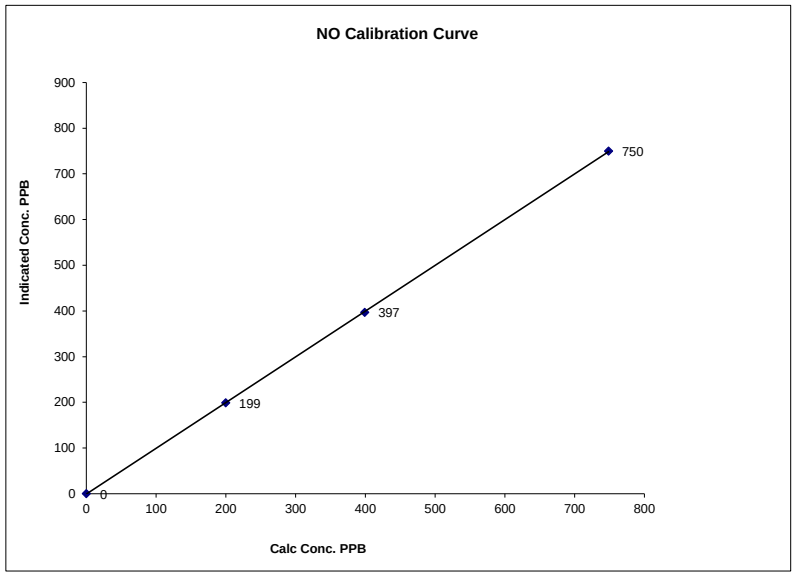


Notes:

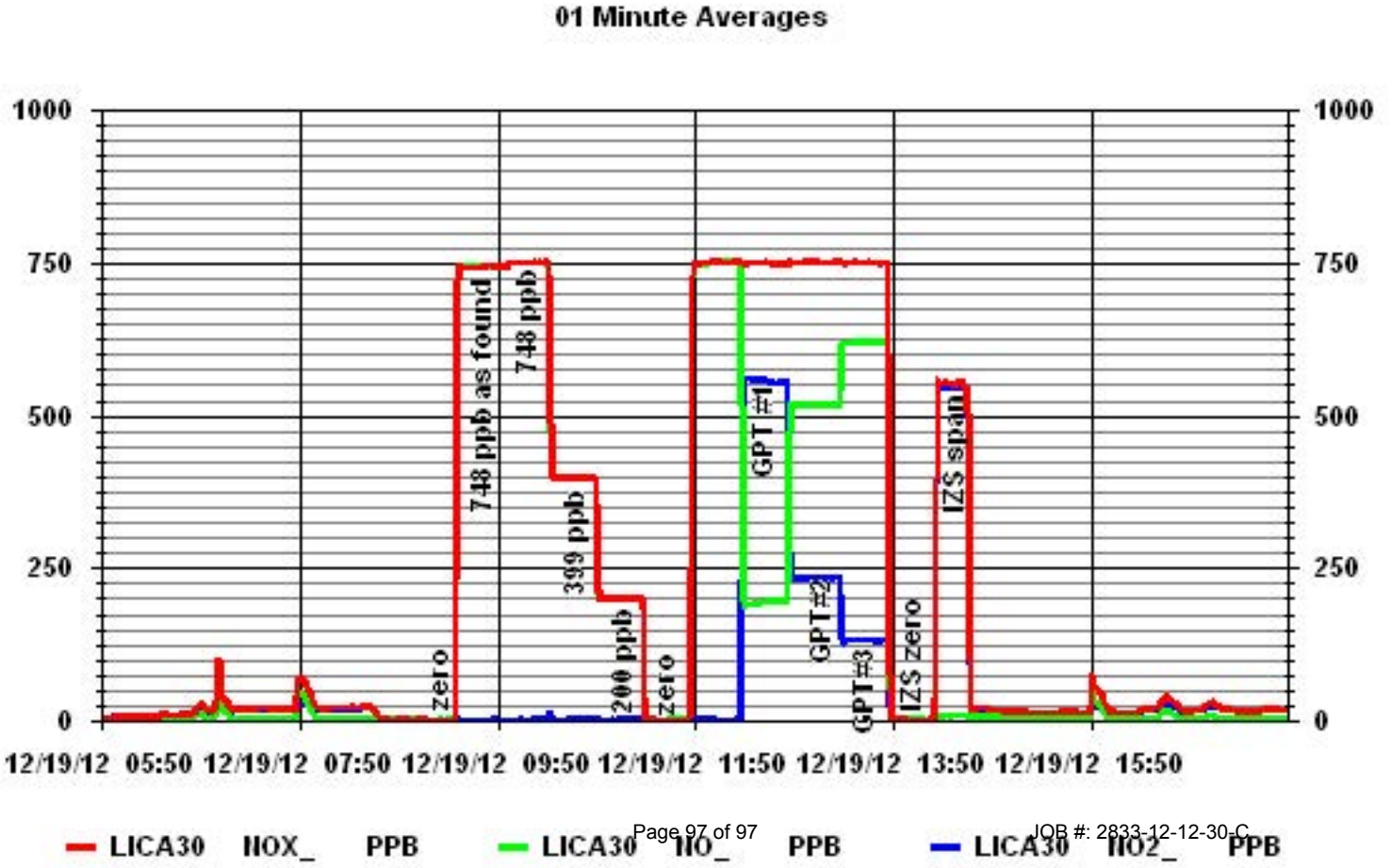
NO Calibration Curve

Calibration Date	December 19, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	08:32	End Time (MST)	14:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999982
			Slope (0.85 to 1.15)	1.004708
0	0	N/A	Intercept (± 3% F.S.)	-6.1646
200	199	1.0032		
399	397	1.0052		
748	750	0.9979		



Notes:



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

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site
Ambient Air Monitoring Data Report
For
December 2012

Prepared By:

January 24, 2013

JOB #: 2833-12-12-35-C

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 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

The 6-days analytical report for VOCs and PAHs:
Authorized by Petro Oh

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 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / 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	0.34	4	9	15	10.1	112(ESE)	2.3	20	100.0
H_2S (PPB)	10	3	0	0	0.09	1	VAR	VAR	VAR	VAR	0.5	4	99.9
THC (PPM)	-	-	-	-	3.82	16.1	31	19	2.2	315(NW)	7.4	26	99.6
NO_2 (PPB)	159	-	0	-	9.45	31.6	31	8	0.1	218(SW)	20.7	26	99.7
NO (PPB)	-	-	-	-	3.46	43.8	17	7	4.5	109(ESE)	10.3	26	99.7
NOx (PPB)	-	-	-	-	12.91	73.1	17	7	4.5	109(ESE)	31.0	26	99.7
O_3 (PPB)	82	-	0	-	18.51	37	VAR	VAR	VAR	VAR	32.4	23	100.0
PM 2.5 (UG/M^3)	-	30	-	0	11.04	65	28	19	2.6	84(E)	31.4	28	98.3
VECTOR WS (KPH)	-	-	-	-	9.10	37.9	4	14	-	117(ESE)	22.5	4	100.0
VECTOR WD (DEGREES)	-	-	-	-	82(E)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

Volatile Organics Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
- PORTABLE – Elk Point Airport Site

Xontech Model 910A – November 29th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A – December 5th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A – December 11th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A – December 18th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A – December 23rd, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: No sample was collected on December 23rd as the sample was not received when the scheduled time started.

Xontech Model 910A – December 29th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

- PORTABLE – Elk Point Airport Site

PUF cartridge – December 05th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

PUF cartridge – December 11th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

PUF cartridge – December 18th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

PUF cartridge – December 23rd, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

Note: No sample was collected on December 23rd as the sample was not received when the scheduled time started.

PUF cartridge – December 29th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

General Monthly Summary

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)
- Analyzer make / model – API 100E, S/N: 467

The analyzer was working well throughout the month. The monthly calibration was performed on December 7th. The inlet filter was replaced before the monthly calibration was started. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)
- Analyzer make / model –API 101E, S/N: 509
- Converter - Internal

The analyzer was working well throughout the month. The monthly calibration was performed on December 6th. The inlet filter was replaced before the monthly calibration was started. Data was corrected using daily zero information.

THC (PPM)
- Analyzer make / model –Thermo 51C, S/N: 77021-384

The analyzer was working well throughout the month. The monthly calibration was performed on December 6th.The thermocouple temperature for the zero air supply was checked on December 20th, and the result was good. Both the pressures for the zero air and for the air gauge were adjusted on December 20th in order to increase the stability of the daily zero. Two hourly data collected on Dec 16th were invalidated, as the data were below 1.5 ppm of the background concentration after the daily zero information was applied on the data. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Nitrogen Dioxide (PPB)

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

The analyzer was working well throughout the month. The monthly calibration was performed on December 6th. The inlet filter was replaced before the monthly calibration was started. The daily spanned went below -10% of the limited range on December 21st. An as found points check was performed on December 24th, and the result was good. The permeation tube was replaced following the as found points check. The expected value was adjusted on December 30th. This issue did not affect data quality. Data was corrected using daily zero information.

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 7th. The inlet filter was replaced before the monthly calibration was started. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model –TEOM 1400a, S/N: 30002 replaced to TEOM 1405F, S/N: 1405A208301003

Two routine Teom audits were performed on the Teom 1400a unit on December 14th and December 20th. A leak check was performed and the teom filter was replaced. The Teom 1405F unit was installed after the audit on the 1400a was completed on December 20th. Following the installation, a 3-point flow calibration, a leak check and the flow audit were performed. It shows differences between data analyzed by the 1400a and the 1405F. However, as the unit passed the manufacturer requirements. All data were kept. Maxxam is working with the manufacturer closely to try to see if further maintenance is required to improve the unit stability. Data was corrected using Alberta air quality guideline for PM2.5 analyzer. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. Twelve data were invalidated this month as the data were below -3 ug/m3.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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

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

The wind system is reported as vector wind speed and vector wind direction.
No operational issues were observed during the month.
The most recent wind system calibration was done on May 15th, 2012.

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 was cleaned on December 7th.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Air Quality Index (AQI)
No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

Volatile Organics (VOCs)
The volatile organics schedule to be sampled on December 5th, 11th, 17th, 23rd and 29th. However, no sample was collected on December 23rd as the sample was not received when the scheduled time started. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures.

Polycyclic Aromatic Hydrocarbons (PAHs)
The PAHs scheduled to be sampled on December 5th, 11th, 17th, 23rd and 29th. However, no sample was collected on December 23rd as the sample was not received when the scheduled time started. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *PORTABLE SITE*

DECEMBER 2012

SULPHUR DIOXIDE (SO_2) hourly averages in ppb

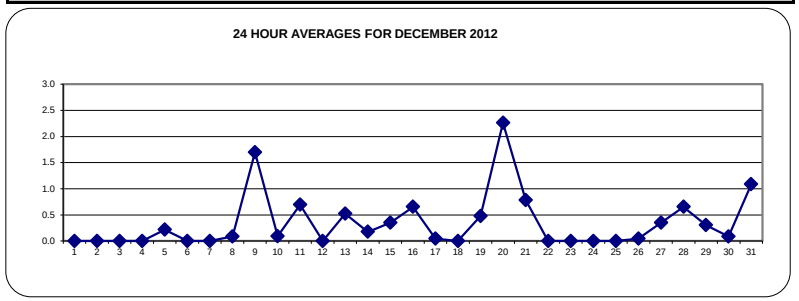
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
6	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	**IZS**	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	**IZS**	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
9	0	**IZS**	0	0	0	0	0	0	1	1	1	2	2	2	2	**4**	3	3	3	3	3	3	3	3	**4**	1.7	24
10	**IZS**	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0.1	24
11	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	0	**IZS**	0	1	0.7	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	2	0.5	24
14	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	**IZS**	0	0	0	0	1	0.2	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	**IZS**	1	1	1	1	1	1	0.3	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	**IZS**	0	0	0	0	0	0	1	0.7	24
17	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	1	1	1	1	1	1	1	2	2	2	0.5	24
20	2	2	2	2	2	2	2	2	2	2	3	3	3	**IZS**	3	3	3	2	2	2	2	2	2	2	3	**2.3**	24
21	2	2	2	2	2	1	2	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24
22	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	24
27	1	1	2	2	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
28	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	1	1	1	2	0.7	24
29	1	1	1	1	**IZS**	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
30	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.1	24
31	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1.1	24
HOURLY MAX	2	2	2	2	2	2	NA	2	2	2	3	3	3	2	3	4	3	3	3	3	3	3	3	3			
HOURLY AVG	0.3	0.3	0.4	0.4	0.3	0.2	NA	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

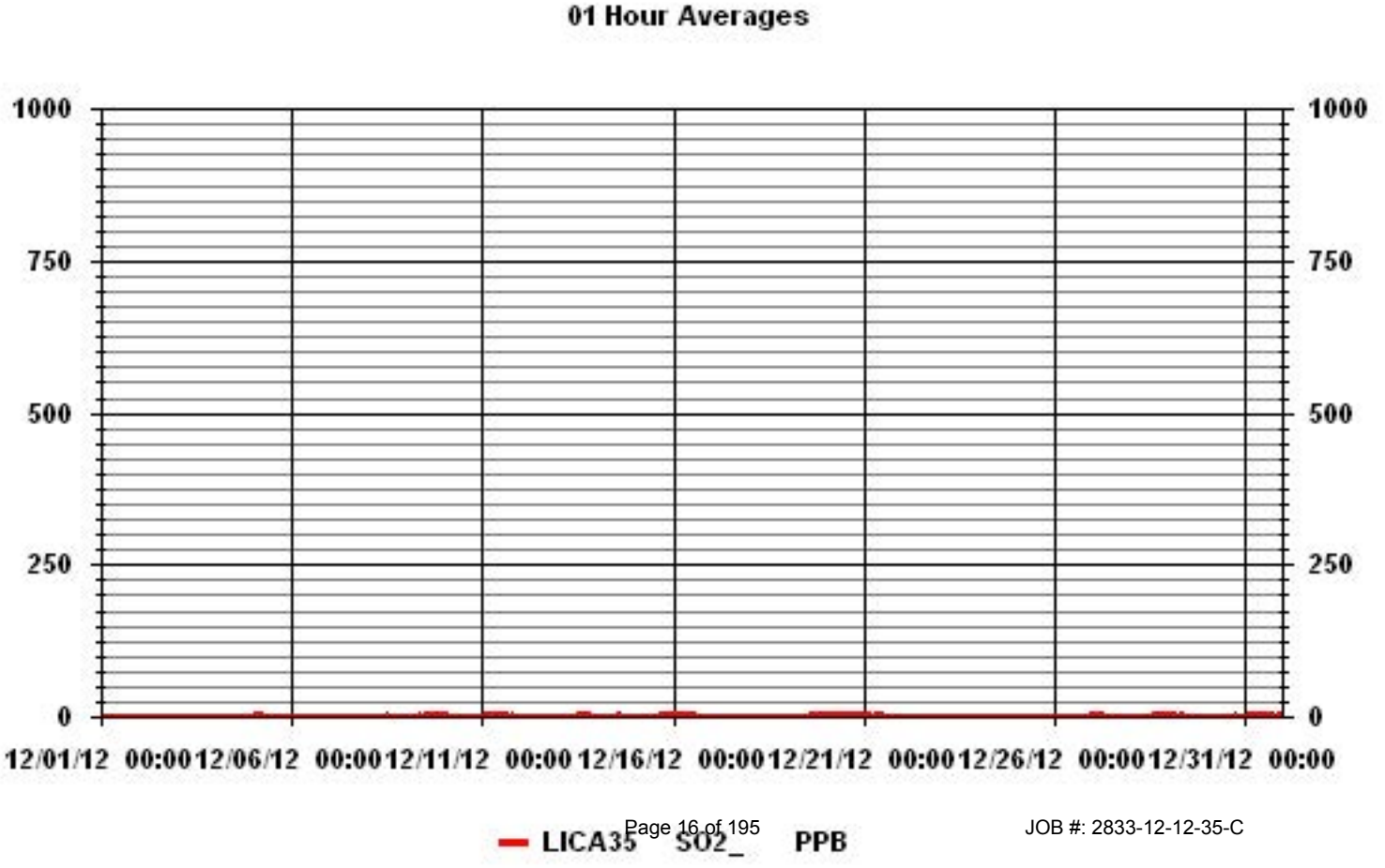


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	172					
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	15	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	2.3	PPB			ON DAY(S)	20

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.69		MONTHLY AVERAGE:	0.34	PPB

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

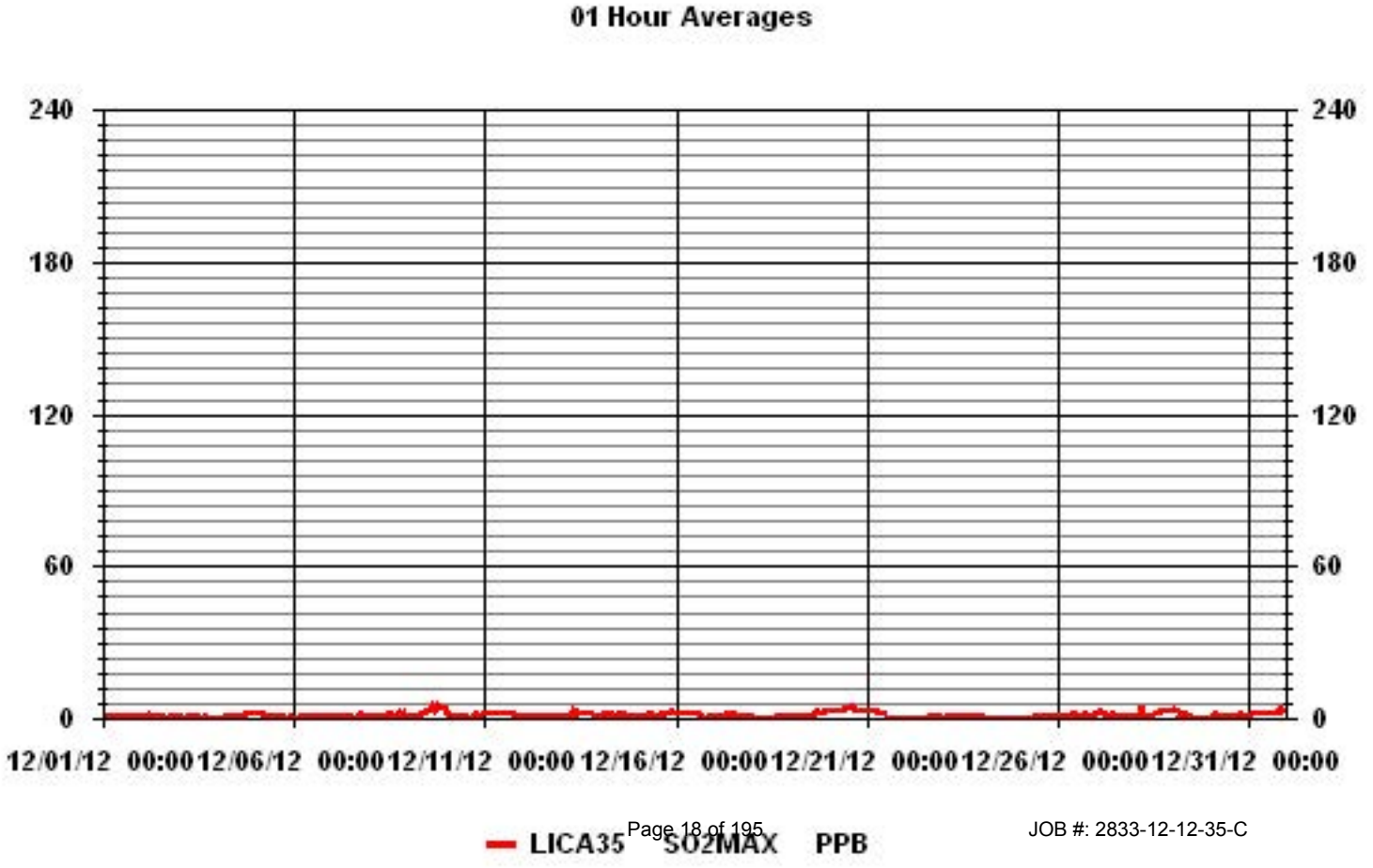
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
2	1	1	1	1	1	2	1	1	IZS	0	0	1	1	1	1	1	0	0	1	1	1	0	1	0	2	0.8	24
3	1	1	0	0	0	1	1	IZS	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	1	0.5	24
4	0	0	0	0	0	1	IZS	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1.1	24
5	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	2	1.0	24
6	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0.7	24
7	1	0	1	IZS	1	1	1	1	1	1	1	1	C	C	C	C	C	1	2	1	1	1	1	1	2	1.0	24
8	1	1	IZS	1	1	1	1	0	1	1	1	2	2	2	2	1	1	2	0	0	1	2	0	1	2	1.1	24
9	0	IZS	1	1	1	1	1	1	2	2	2	3	3	3	4	5	4	5	4	4	4	4	4	4	5	2.7	24
10	IZS	2	2	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1	2	1	1	1	IZS	2	1.0	24
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	IZS	1	2	1.9	24
12	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	0.9	24
13	1	1	1	1	1	1	1	3	2	3	3	2	2	2	2	2	2	2	2	2	IZS	1	1	1	3	1.7	24
14	1	1	1	2	1	2	2	2	2	1	1	1	2	2	2	2	2	1	1	IZS	1	1	1	1	2	1.4	24
15	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	1	2	2	IZS	2	2	3	2	2	3	1.5	24
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	IZS	0	0	0	1	1	1	2	1.6	24
17	0	1	1	1	1	0	1	2	2	2	2	1	2	1	1	1	IZS	1	1	1	1	0	1	0	2	1.0	24
18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	0.4	24
19	1	1	1	1	1	0	0	1	1	1	1	1	1	1	IZS	2	3	2	2	2	2	3	3	3	3	1.5	24
20	3	3	3	3	3	3	3	3	3	3	4	4	4	IZS	5	4	4	3	3	3	3	3	3	3	5	3.3	24
21	3	3	3	3	3	3	3	3	2	2	2	2	IZS	0	0	0	0	0	0	0	0	0	0	0	3	1.4	24
22	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	1	0	0	1	0	1	0	1	0.2	24
23	0	0	1	1	1	1	1	1	0	1	IZS	1	1	1	0	1	1	1	1	0	1	1	0	1	1	0.7	24
24	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
25	0	0	0	0	0	0	0	0	IZS	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.6	24
26	1	1	1	1	1	1	1	IZS	1	2	1	2	1	1	1	1	2	2	2	1	1	1	1	2	2	1.3	24
27	2	2	3	3	2	2	IZS	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4	24
28	0	1	1	0	4	IZS	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	4	1.9	24
29	3	4	3	3	IZS	1	2	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	4	1.1	24
30	0	0	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	1.0	24
31	1	1	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	3	3	3	4	2.2	24
HOURLY MAX	3	4	3	3	4	3	3	3	3	3	4	4	4	3	5	5	4	5	4	4	4	4	4	4			
HOURLY AVG	1.0	1.1	1.2	1.2	1.2	1.1	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.1	1.2	1.3	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	559					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	9, 20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.97					



JOB #: 2833-12-12-35-C

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

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	2.96	5.08	2.68	7.62	13.27	24.15	7.62	1.41	.70	.56	.42	3.53	9.60	7.48	10.45	2.40	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.96	5.08	2.68	7.62	13.27	24.15	7.62	1.41	.70	.56	.42	3.53	9.60	7.48	10.45	2.40	

Calm : .00 %

Total # Operational Hours : 708

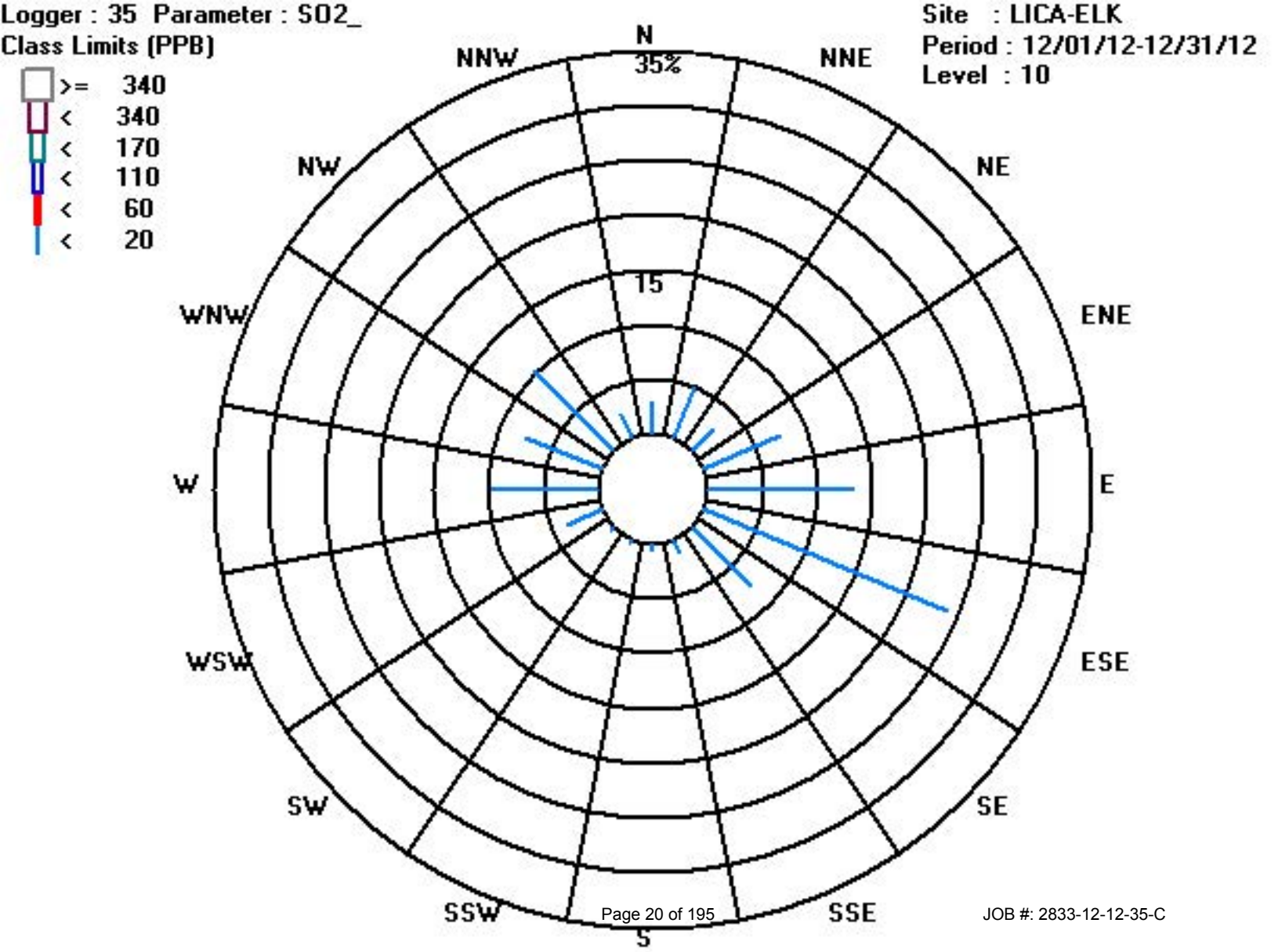
Distribution By Samples

Direction

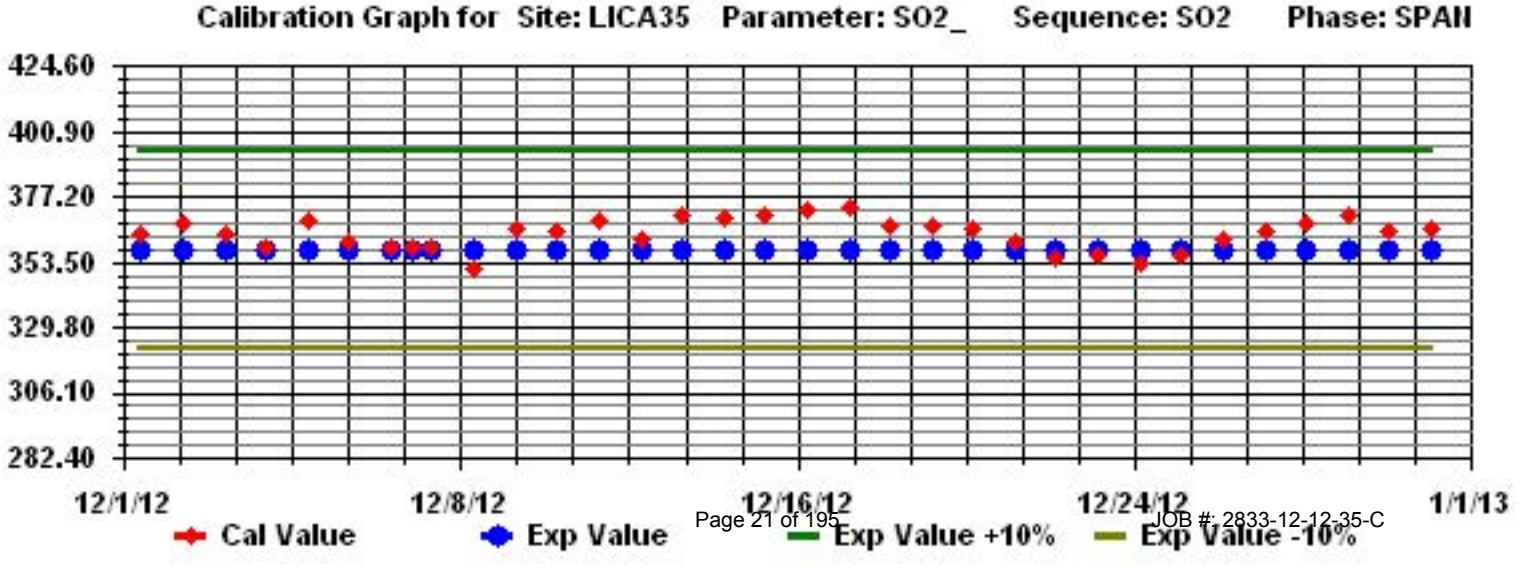
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	21	36	19	54	94	171	54	10	5	4	3	25	68	53	74	17	708
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	21	36	19	54	94	171	54	10	5	4	3	25	68	53	74	17	

Calm : .00 %

Total # Operational Hours : 708



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN
424.60
400.90
377.20
353.50
329.80
306.10
282.40
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

DECEMBER 2012

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

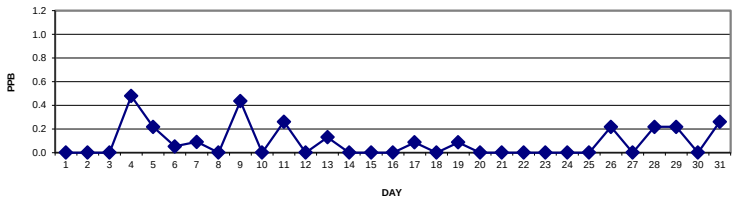
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	**0.5**	24
5	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
6	0	0	0	0	**IZS**	0	0	0	0	0	0	**C**	**C**	**C**	**C**	0	1	0	0	0	0	0	0	0	1	0.1	24
7	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	**M**	0	0	1	1	0	0	0	0	1	0.1	23
8	0	0	**IZS**	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.4	24
10	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0.0	24
11	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	0	0	0	0	0	**IZS**	0	1	0.3	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	**IZS**	0	0	0	1	0.1	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0.1	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	1	1	0	0	0	1	0.1	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
27	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0.2	24
29	1	1	1	1	**IZS**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
30	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	1	0.3	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

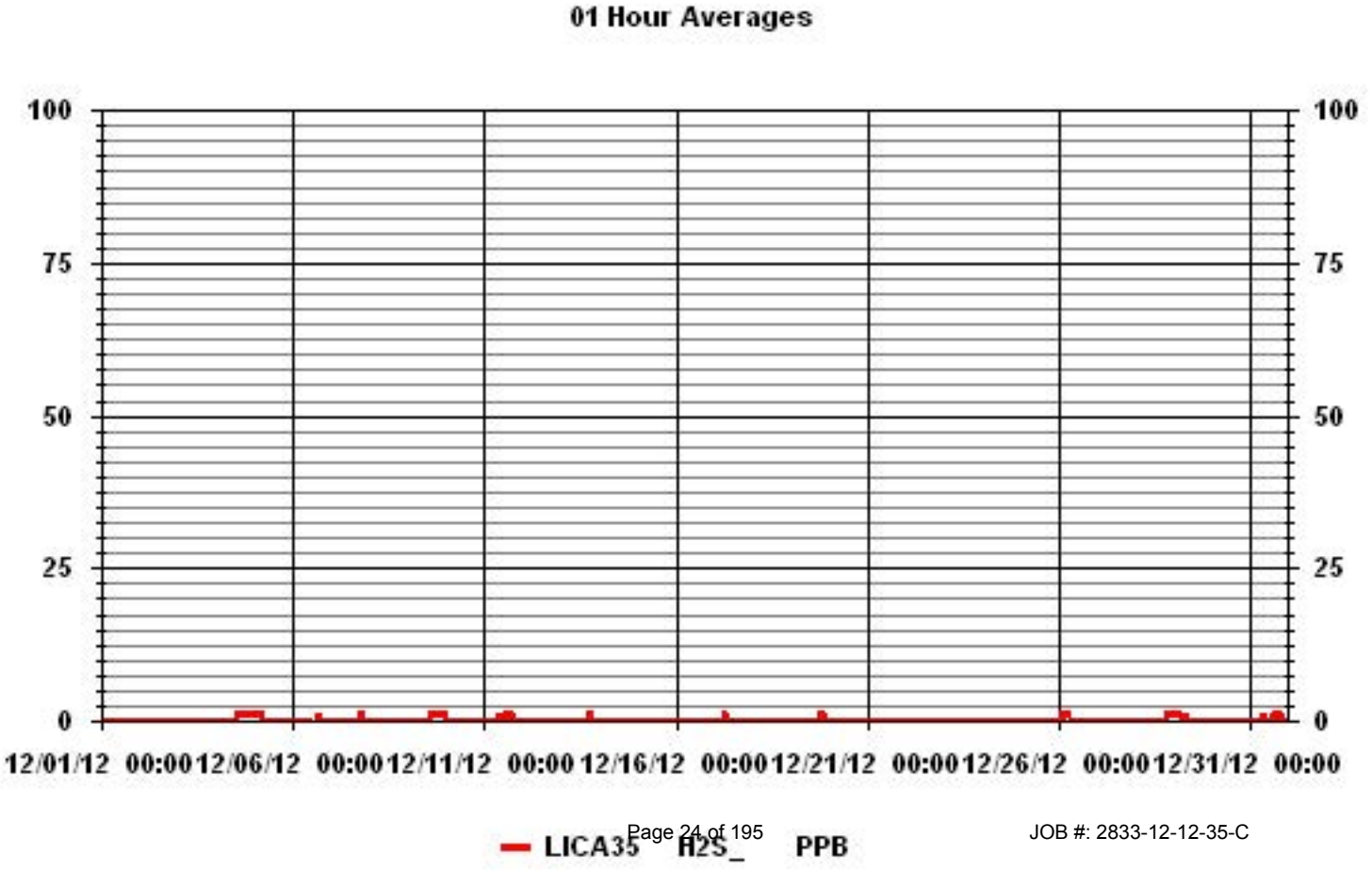
ALBERTA ENVIRONMENT: 1-HR 172 PPB | 24-HR 57 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	63					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.5	PPB			ON DAY(S)	4
				VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.28		MONTHLY AVERAGE:		0.09	PPB

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

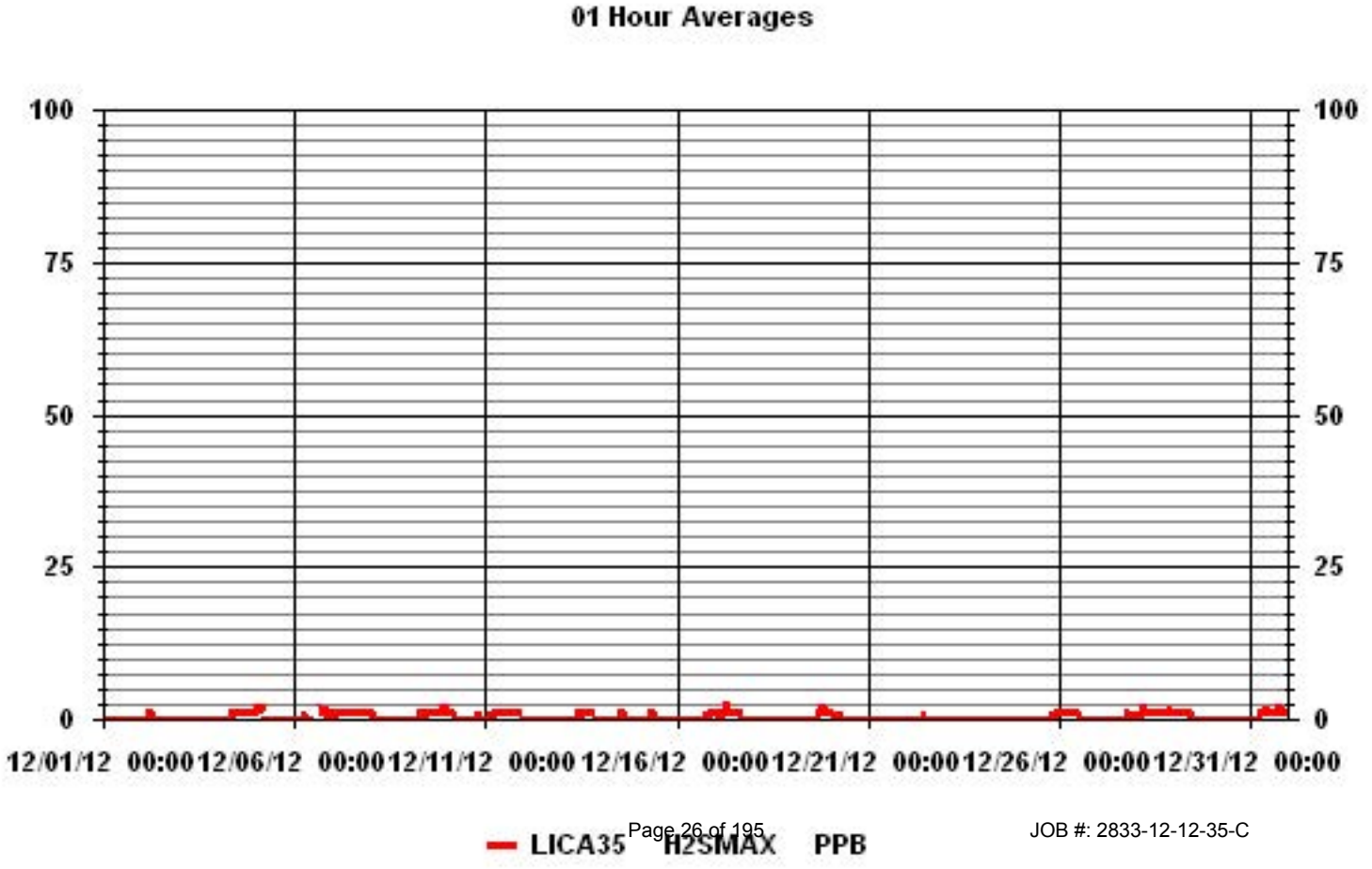
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	1	1	1	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
5	2	2	1	2	2	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24
6	0	0	0	0	**IZS**	0	1	0	0	0	0	**C**	**C**	**C**	**C**	**C**	2	1	1	2	0	0	0	1	2	0.4	24
7	1	1	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	**M**	1	1	1	1	1	1	1	1	1	1.0	23
8	1	0	**IZS**	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
9	0	**IZS**	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	0.9	24
10	**IZS**	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**IZS**	1	0.2	24
11	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	1	0.8	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	**IZS**	0	0	0	1	0.4	24
14	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	**IZS**	0	0	0	0	1	0.1	24
15	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	0.1	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0	1	1	1	1	0.2	24
17	1	1	0	0	0	1	1	**3**	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	**3**	0.7	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	1	1	1	2	2	1	1	1	2	0.4	24
20	1	1	0	1	0	0	1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	1	0.2	24
21	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0.1	24
26	1	1	1	1	1	1	1	**IZS**	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
27	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0.1	24
28	0	1	0	1	2	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1.0	24
29	1	1	1	1	**IZS**	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
30	0	0	0	**IZS**	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	**IZS**	0	0	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1.0	24
HOURLY MAX	2	2	1	2	2	1	1	3	1	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2			
HOURLY AVG	0.3	0.3	0.1	0.3	0.2	0.2	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.4	0.3	0.3			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	202					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	7	ON DAY(S)	17
				VAR - VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.52					



JOB #: 2833-12-12-35-C

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

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	2.97	5.09	2.68	7.63	13.29	24.61	7.63	1.41	.70	.56	.42	3.53	9.33	7.21	10.46	2.40	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	5.09	2.68	7.63	13.29	24.61	7.63	1.41	.70	.56	.42	3.53	9.33	7.21	10.46	2.40	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	21	36	19	54	94	174	54	10	5	4	3	25	66	51	74	17	707
< 10																	
< 50																	
>= 50																	
Totals	21	36	19	54	94	174	54	10	5	4	3	25	66	51	74	17	

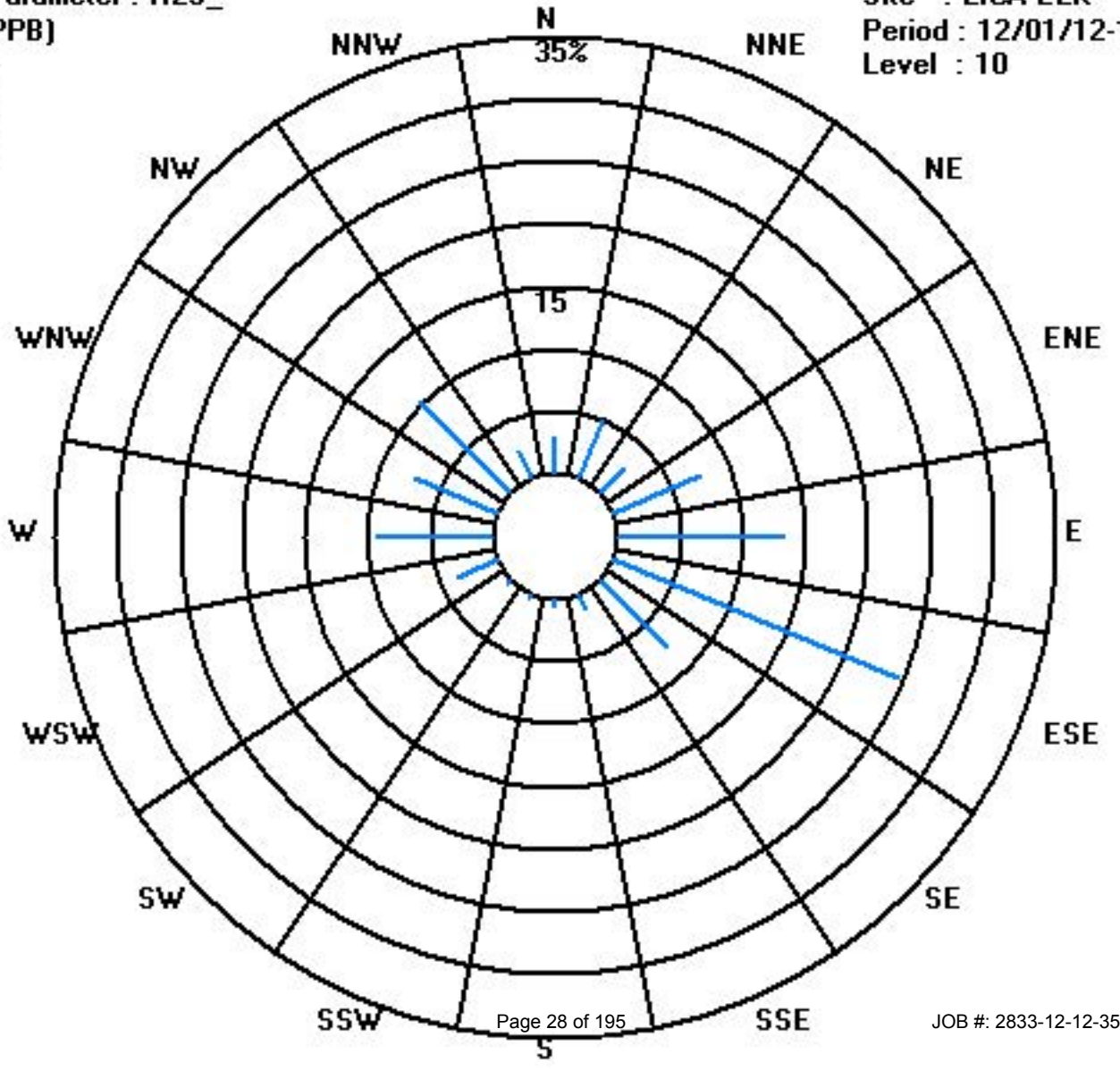
Calm : .00 %

Total # Operational Hours : 707

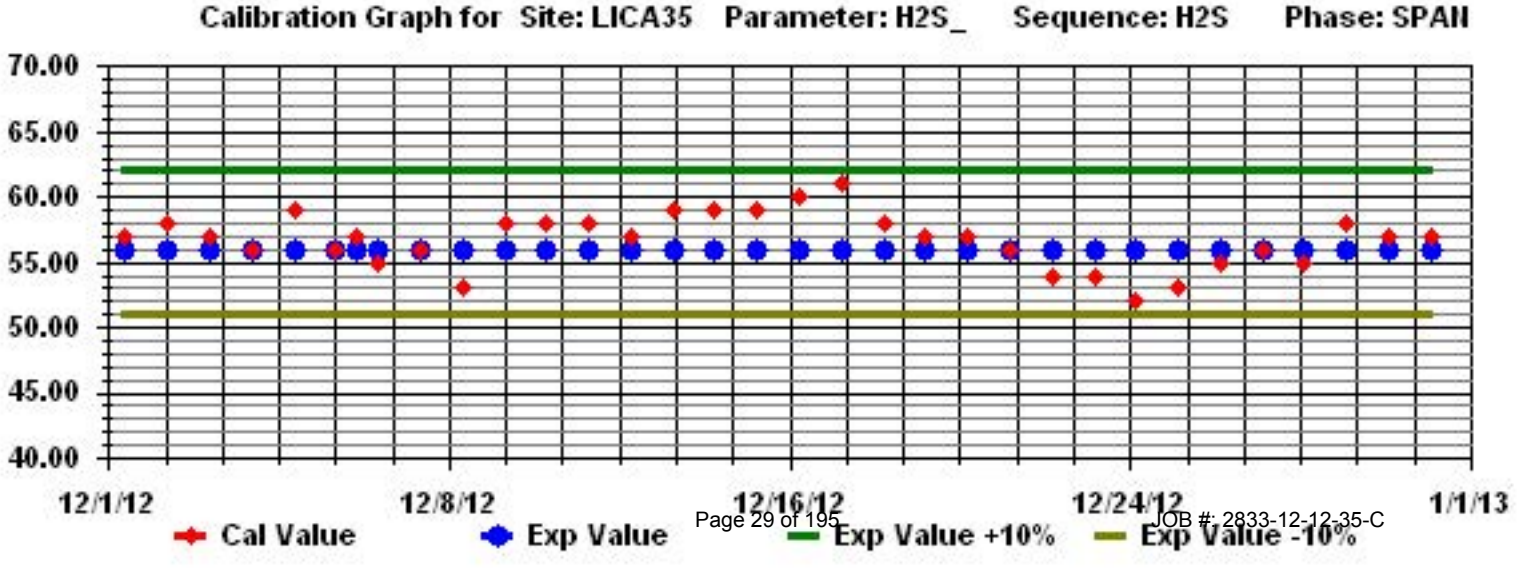
Logger : 35 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

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



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN
70.00
65.00
60.00
55.00
50.00
45.00
40.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *PORTABLE SITE - Elk Poinr Airport*

DECEMBER 2012

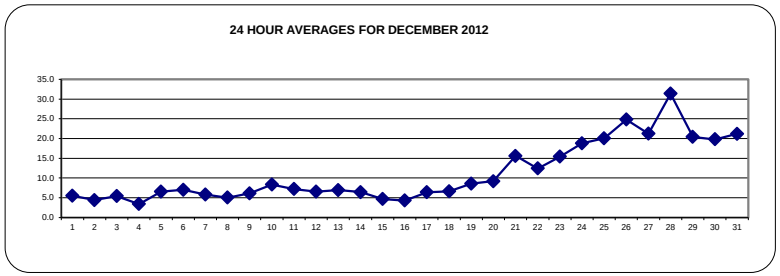
PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	6	7	7	6	6	5	5	6	7	5	7	5	5	6	5	5	5	5	6	5	5	5	4	4	7	5.5	24
2	4	5	5	1	3	4	4	3	4	4	6	6	5	5	5	4	5	5	4	4	4	5	6	5	6	4.4	24
3	6	6	6	5	4	5	4	5	5	5	5	5	5	6	7	6	5	5	5	6	6	7	4	7	7	5.4	24
4	4	7	7	5	3	4	6	2	3	2	0	1	1	1	4	1	2	4	4	3	3	4	5	6	7	3.4	24
5	4	3	6	5	8	4	4	6	5	5	6	6	8	6	9	10	10	8	7	7	8	8	8	7	10	6.6	24
6	8	8	7	7	7	8	8	9	9	10	9	8	5	5	4	6	7	7	6	6	6	6	6	6	10	7.0	24
7	6	6	6	5	5	6	6	7	7	7	7	5	5	**M**	5	6	5	5	5	6	6	5	6	7	7	5.8	23
8	5	5	6	6	6	8	7	7	7	5	5	4	5	4	5	5	4	5	3	4	5	3	3	4	8	5.0	24
9	4	4	5	4	3	5	5	7	8	7	6	6	5	6	6	7	7	8	7	7	7	7	8	8	8	6.1	24
10	9	8	11	13	9	6	7	8	8	9	8	8	7	7	7	8	8	8	8	8	8	9	9	9	13	8.3	24
11	8	8	6	6	7	6	6	6	7	7	7	5	7	8	8	8	9	9	8	8	8	7	7	7	9	7.2	24
12	8	6	7	7	7	6	7	6	7	7	7	6	6	5	5	7	7	6	7	7	7	7	7	6	8	6.6	24
13	5	8	7	7	6	7	6	6	7	8	5	5	6	6	9	8	8	8	7	7	7	7	8	8	9	6.9	24
14	8	8	7	7	7	8	8	8	8	8	10	8	**C**	8	8	6	7	3	2	3	3	4	4	5	10	6.4	24
15	4	4	4	5	4	4	5	5	5	8	5	6	5	5	5	5	5	5	4	5	4	3	4	3	8	4.7	24
16	3	3	3	4	4	3	4	4	4	5	4	4	4	5	5	6	5	5	6	4	4	5	3	6	6	4.3	24
17	4	5	6	5	6	4	4	6	7	8	8	8	7	8	6	7	6	6	4	5	8	9	9	8	9	6.4	24
18	8	7	7	7	7	7	7	7	7	7	7	6	6	6	5	6	6	6	7	7	6	6	7	7	8	6.6	24
19	6	5	6	6	8	9	9	10	12	10	11	10	8	9	9	9	10	8	9	8	9	9	8	7	12	8.5	24
20	8	8	8	8	6	7	7	4	8	7	**C**	**C**	**C**	**C**	20	0	11	10	3	21	6	6	3	33	33	9.2	24
21	6	6	26	1	23	16	0	28	29	25	20	8	6	0	6	28	19	10	20	17	22	12	27	19	29	15.6	24
22	0	14	30	3	23	6	17	16	22	14	12	**N**	0	3	**N**	0	3	13	19	12	0	31	23	12	31	12.4	22
23	31	7	31	13	26	14	15	18	10	12	31	17	0	8	13	15	16	19	15	11	8	17	8	15	31	15.4	24
24	11	20	16	17	6	27	19	15	28	8	3	9	**N**	29	16	43	8	17	37	6	50	10	31	6	50	18.8	23
25	21	27	9	18	18	19	39	10	15	30	20	20	14	**N**	**N**	10	24	7	35	15	29	8	22	31	39	20.0	22
26	14	24	10	13	27	22	49	32	20	33	18	31	12	51	48	33	10	17	42	26	0	7	38	18	51	24.8	24
27	10	42	26	**N**	1	0	34	39	30	25	20	21	30	**N**	4	**N**	5	18	18	**N**	26	21	43	12	43	21.3	20
28	44	6	46	7	45	0	40	0	47	18	33	24	15	36	12	2	52	17	57	**65**	59	57	56	15	**65**	**31.4**	24
29	3	7	0	18	7	56	59	33	38	55	**N**	16	14	14	10	12	7	23	9	11	26	7	23	21	59	20.4	23
30	11	9	15	8	19	3	23	8	17	61	17	7	22	4	30	2	32	10	23	27	9	58	58	2	61	19.8	24
31	36	25	13	18	51	**N**	21	18	12	7	9	**N**	35	14	23	18	15	14	17	37	18	38	18	9	51	21.2	22
HOURLY MAX	44	42	46	18	51	56	59	39	47	61	33	31	35	51	48	43	52	23	57	65	59	58	58	33			
HOURLY AVG	9.8	9.9	11.3	7.8	11.7	9.3	14.0	10.9	13.0	13.6	10.6	9.5	8.9	9.8	10.3	9.4	10.4	9.4	13.0	11.9	11.8	12.5	15.0	10.1			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

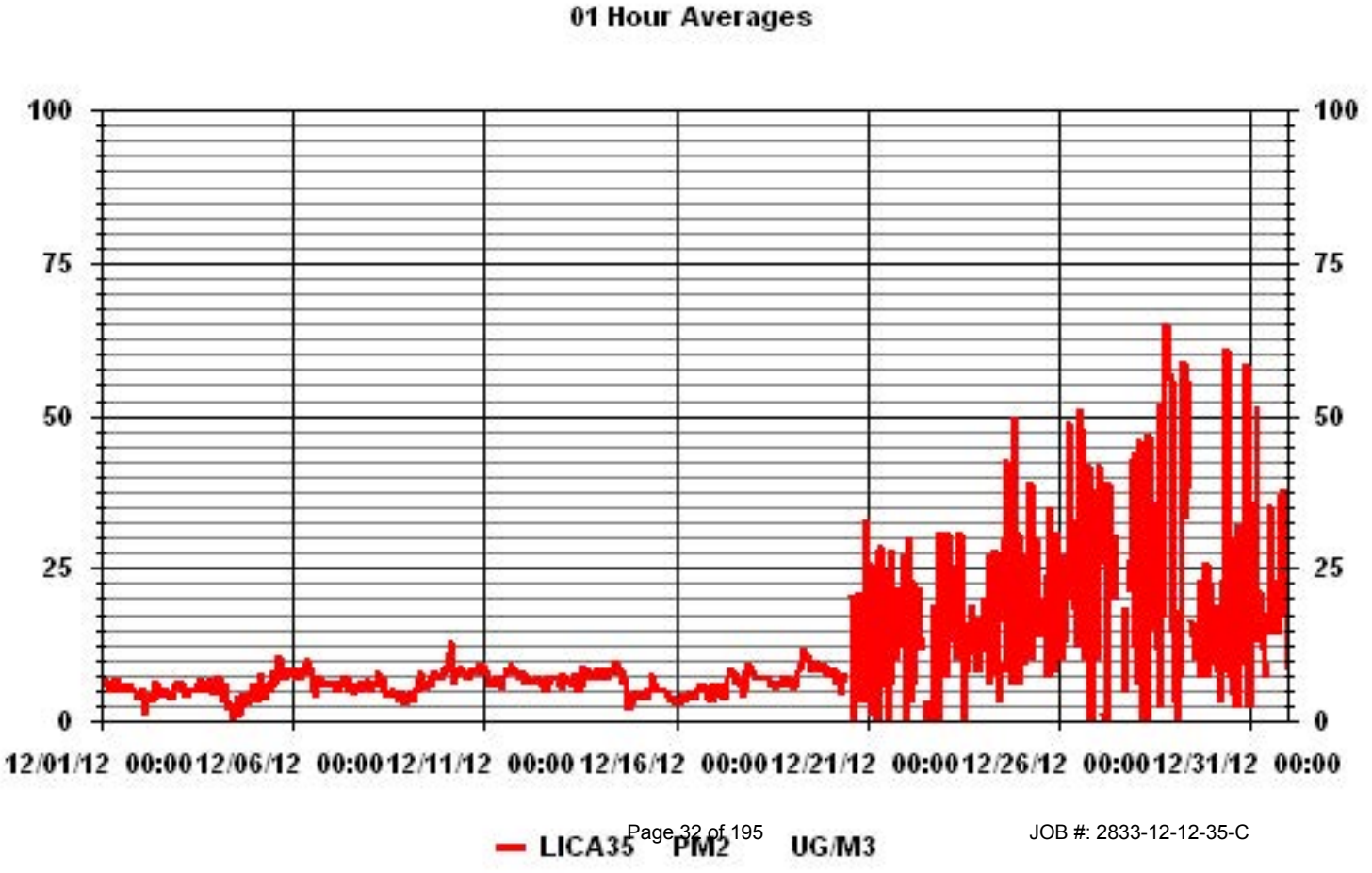


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR - PPB | 24-HR 30 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	712					
MAXIMUM 1-HR AVERAGE:	65	UG/M^3	@ HOUR(S)	19	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	31.4	UG/M^3			ON DAY(S)	28

IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	731	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.3	%
STANDARD DEVIATION:	10.88		MONTHLY AVERAGE:	11.04	UG/M^3



JOB #: 2833-12-12-35-C

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

December 2012

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	3.03	5.23	2.47	6.88	11.29	22.17	7.30	1.37	.68	.55	.41	2.89	7.98	7.43	9.91	2.47	92.14
<	60	.00	.00	.13	.68	1.79	2.06	.55	.00	.13	.00	.00	.27	1.10	.27	.55	.00	7.57
<	80	.00	.00	.00	.00	.13	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27
<	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	3.03	5.23	2.61	7.57	13.22	24.38	7.85	1.37	.82	.55	.41	3.16	9.09	7.71	10.46	2.47	

Calm : .00 %

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
<	30	22	38	18	50	82	161	53	10	5	4	3	21	58	54	72	18	669
<	60			1	5	13	15	4		1			2	8	2	4		55
<	80					1	1											2
<	120																	
<	240																	
>=	240																	
	Totals	22	38	19	55	96	177	57	10	6	4	3	23	66	56	76	18	

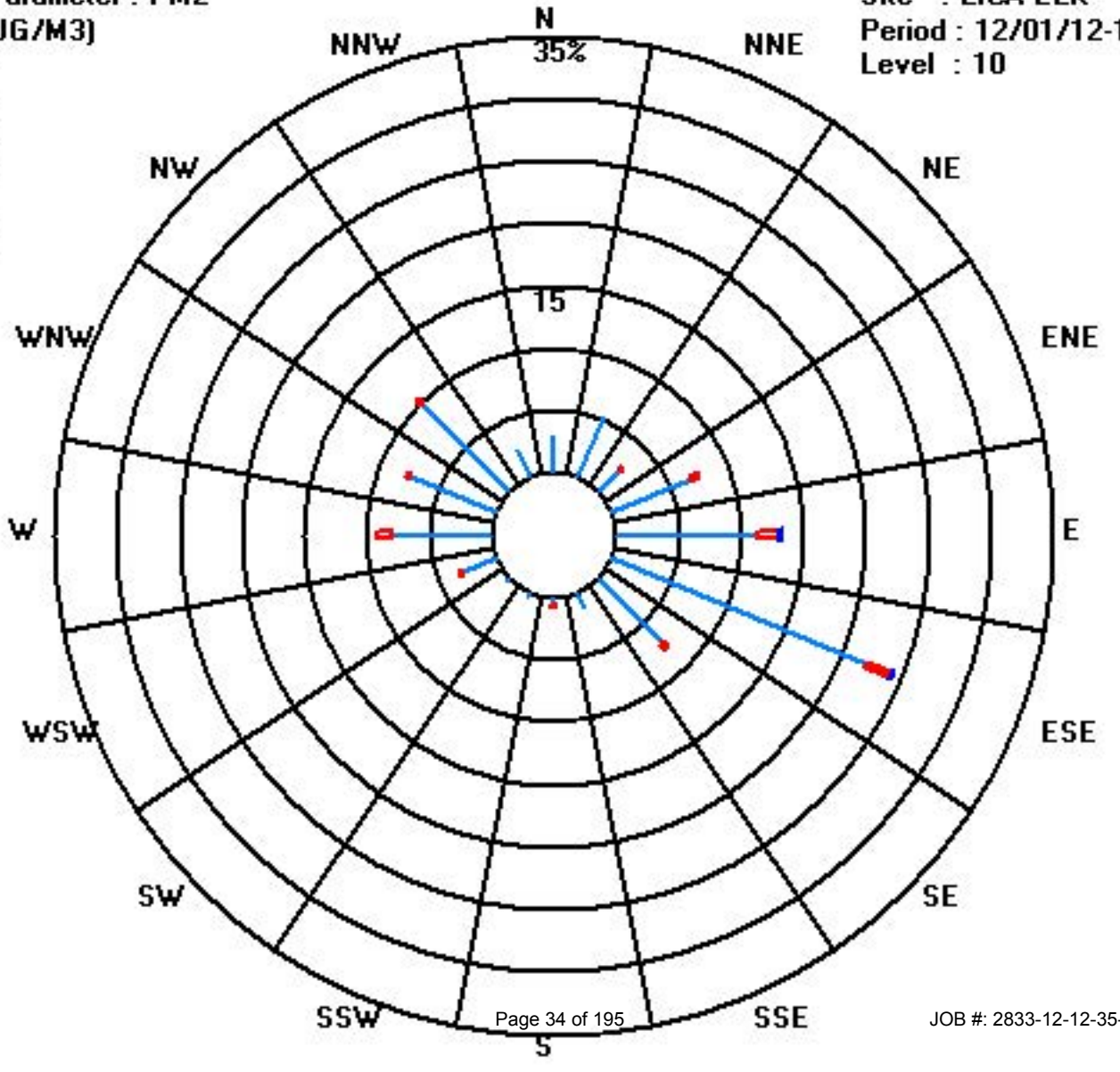
Calm : .00 %

Total # Operational Hours : 726

Logger : 35 Parameter : PM2
Class Limits (UG/M3)

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

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



JOB #: 2833-12-12-35-C

Nitrogen Dioxide

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

DECEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

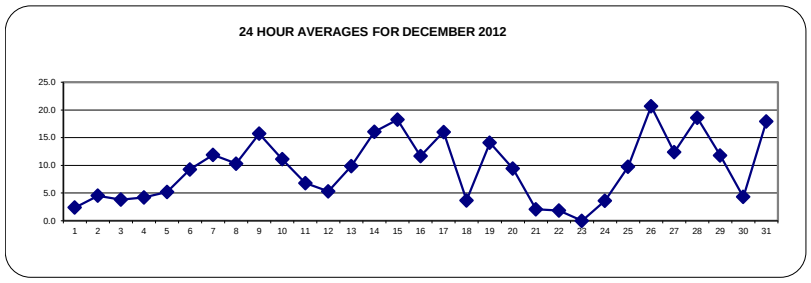
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3.6	3.1	3.4	4	2.3	1.6	0.7	1.1	1.1	**IZS**	2	3.3	2.5	1.8	3.1	2.3	2.6	2	1.4	1.8	2.1	2.6	3.1	2.9	4	2.4	24
2	3.1	2.8	3.6	2.8	7.5	13.9	16.5	8.8	**IZS**	6.4	4.5	9.1	10.2	5.8	3.7	1.1	0.8	1.1	0.3	0.3	0.5	0.2	0.6	0.2	16.5	4.5	24
3	0.1	0.2	0.3	0.1	0.2	0.5	0.3	**IZS**	1	1	0.9	0.6	1.3	2.4	4.4	4.9	4.7	4.9	5	5.6	5.8	17	12.9	13.6	17	3.8	24
4	14.5	7.6	6.1	5.6	4.1	5	**IZS**	4.8	2.7	1.9	2.4	1.4	1.4	1.7	2.1	3.4	3.4	2.9	2.8	3.9	5	3.6	4.2	6.5	14.5	4.2	24
5	4.9	4.5	5.2	4.3	13.7	**IZS**	4.9	7.9	4	3.4	4.8	4.8	3.9	4.3	4.7	7.9	7	5.6	6.2	5.5	3.8	2.9	3	2.4	13.7	5.2	24
6	4	3.8	7	9.5	**IZS**	11.7	7	10.6	11.1	9.8	6.3	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	16.1	9.6	6.8	6.1	19.6	19.6	9.3	24
7	18.6	14.2	12.1	**IZS**	18.2	15	14	17.9	16.2	12.4	9.9	8.6	7	7.3	8.4	**M**	9.6	10.6	13.9	11.7	10.8	9.6	8.5	7.4	18.6	11.9	23
8	6.3	6.5	**IZS**	6.9	8.8	9.3	10	12	9.6	2.7	1.4	1.3	1.8	2.3	3.6	4.9	5.5	6.7	15.1	18.6	24.9	25.1	27.6	26.5	27.6	10.3	24
9	26.1	**IZS**	25.6	25.1	22.3	19.7	22.3	23.5	17.2	11.9	8.2	6.3	6.8	8.4	8	11.1	13.8	15	14.8	15.4	15.6	13.9	15.4	15.3	26.1	15.7	24
10	**IZS**	13.8	21.2	21	9	6	7.8	8.4	11.9	9.5	6	5.8	4.4	3.7	4	5.6	7.8	10.5	12.2	19.6	20.9	19.2	16	**IZS**	21.2	11.1	24
11	12.4	11	10.9	10.6	9.5	8	7.4	7	7.5	5.9	3.9	3	3.6	4.2	4.9	5.8	8	6.8	6.2	6.9	6	3.8	**IZS**	2.7	12.4	6.8	24
12	2.5	1.9	1.8	2.2	2.2	1.6	1.4	1.5	4	4.5	5.7	5.9	5.9	7.3	6.3	7.6	10.1	9.3	9.9	7.6	8.2	**IZS**	6.6	7.8	10.1	5.3	24
13	7.6	8.4	8.1	6	5.4	8.7	10.9	9.3	10.6	6.7	6.9	5.9	5.8	5.3	6.5	9	10.4	10.4	15	14.7	**IZS**	19.4	19.5	15.9	19.5	9.8	24
14	16	16.6	16.1	16.5	16.5	16.5	18.9	18	18.1	15.6	12.9	13.5	17.1	18.4	18.6	19.8	24	16.3	7.7	**IZS**	20.3	9.9	11.6	10.1	24	16.0	24
15	8.9	14	15.8	15.6	22.3	30.8	30.8	31.5	29.7	26.2	20.9	13.6	12.8	12.2	13.4	16.3	23.2	19.8	**IZS**	18	15.1	11.4	9.7	7.6	31.5	18.2	24
16	7.4	5.6	6.2	5.1	5.7	5.5	6.3	8.1	5.7	6.3	5.2	5.9	5.3	7.9	7.6	7.3	18.3	**IZS**	23.4	30.3	20	27.1	26.8	21.1	30.3	11.7	24
17	24.7	23.8	20.7	21	22.9	24.9	27.6	29.3	24.9	17.1	14.4	13.9	13.8	16	18.4	20.9	**IZS**	14.5	5.4	3.1	2.8	3.1	3.5	2	29.3	16.0	24
18	2.6	2.6	1.7	1.3	1	0.8	0.7	0.6	0.8	0.5	0.7	0.7	0.9	0.3	1	**IZS**	6	6.2	12.1	11.7	6.8	8.2	11	5.9	12.1	3.7	24
19	6.6	5.6	6.7	7.5	9.9	8.5	9	13.6	13.3	15	11.4	9.4	9.6	10.5	**IZS**	12.6	21	20.2	21	22.2	23.4	22.2	22.2	22.2	23.4	14.1	24
20	21.6	21.4	19.6	15.7	16.3	14.3	16.2	12.9	15.3	10.6	5.1	5.6	5.4	**IZS**	4.8	4.8	4.8	3.9	3.6	2.9	3	3.2	2.9	2.4	21.6	9.4	24
21	3.5	3.5	3	3.9	3.3	1.9	1.7	2.8	4.1	1.1	1.8	1.9	**IZS**	0	0	0	0	0	0	0.7	9.6	4.4	0.4	0	9.6	2.1	24
22	2.6	12.6	16.5	10.8	0.1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	16.5	1.9	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0.1	0.2	0.8	0.8	0.4	0.2	0	0	**IZS**	**C**	**M**	**C**	3	1.7	0.5	8.1	8.9	11.5	7.6	10.8	7.9	5.9	4.1	11.5	3.6	23
25	4.7	4.8	10.2	12.6	12	10.8	7.3	10.5	**IZS**	8.6	6.5	3.6	4.5	4.9	7.2	9.8	11.6	10.9	17.3	16.9	11.4	8.8	15.2	14	17.3	9.7	24
26	22.5	24.8	28.7	28.2	27.1	24.7	25.6	**IZS**	25.6	22.1	18	17.3	14.5	15.2	16.3	20.6	25.1	27	20.3	17.2	15.5	14.2	13.3	12.3	28.7	**20.7**	24
27	10.9	8.4	10	10.3	7.4	8.5	**IZS**	11.3	9.7	9.1	7.9	6.5	6.3	9	9.2	9.5	11.6	14.1	21	24.4	18.8	24.8	16.8	18.8	24.8	12.4	24
28	12.8	22.8	20.5	18.4	28.3	**IZS**	26	22.2	23.5	19.8	12.9	9.8	9.5	8.8	10.2	14.3	16.6	18.7	19.7	19.6	18.4	27.2	24.4	23.3	28.3	18.6	24
29	24.7	24.7	24.9	24.8	**IZS**	22.3	22.8	24.1	22.4	20.8	16.7	5.6	1.9	0	0.1	8.6	6.5	6.6	5.8	7.4	0	0	0	0	24.9	11.8	24
30	0	0	0	**IZS**	2.8	1.8	3.2	3.6	7.6	8.5	7.6	3.9	3.2	2.8	2.9	4.7	5.7	5.3	5.8	7	7.1	5.1	4.9	5.1	8.5	4.3	24
31	5.1	4.9	**IZS**	6.1	6.8	7.4	15.4	26.4	**31.6**	20.3	16	11.6	11.6	15.8	17.5	18.5	30.6	30.6	30.8	30	23.1	19.4	19.4	13.9	**31.6**	17.9	24
HOURLY MAX	26	25	29	28	28	31	31	32	32	26	21	17	17	18	19	21	31	31	31	30	25	27	28	27			
HOURLY AVG	9.3	9.1	10.6	10.2	9.9	9.7	10.9	11.3	11.4	9.6	7.6	6.4	6.1	6.2	6.5	8.3	10.2	10.0	10.6	11.6	10.6	10.7	10.4	9.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

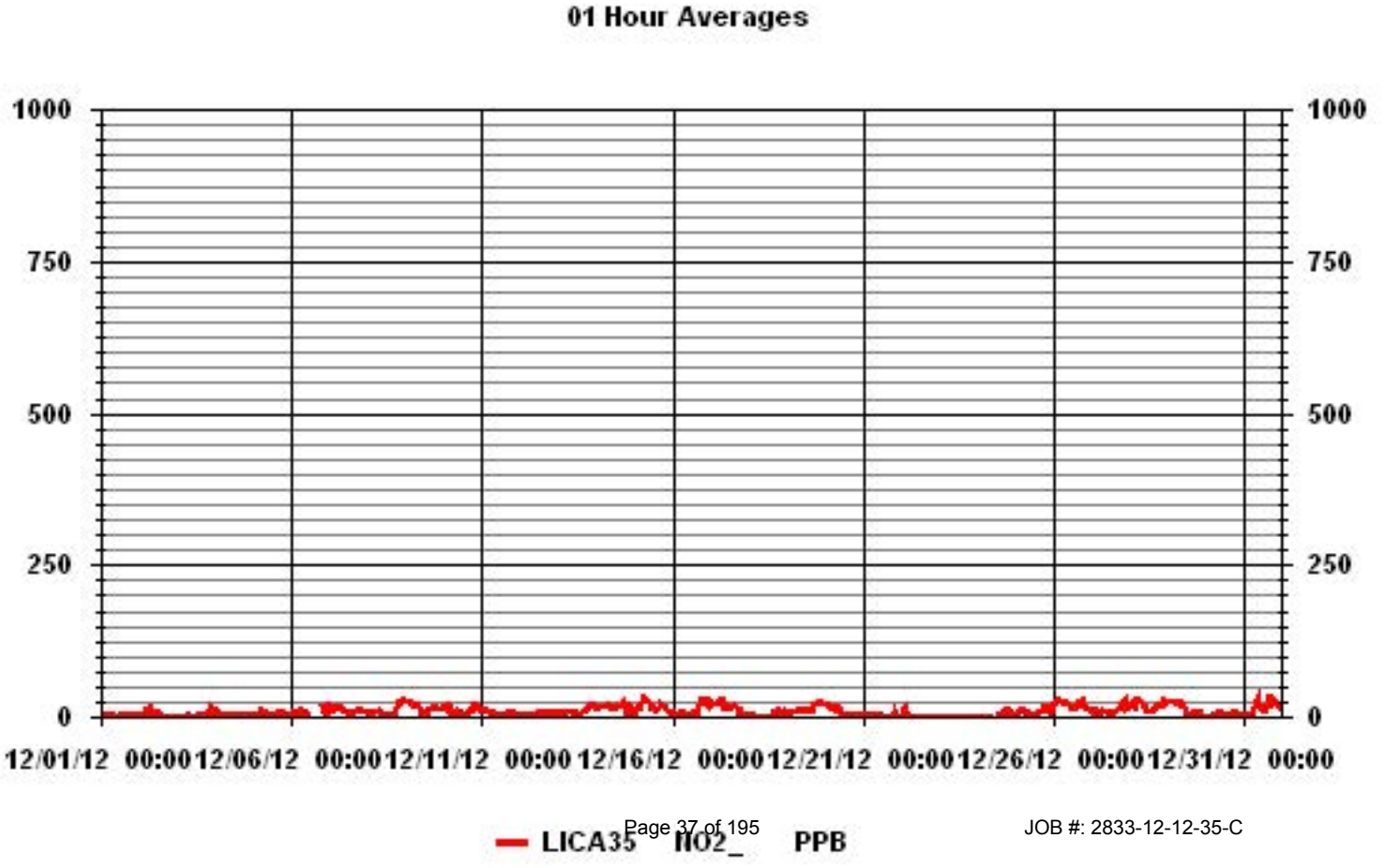
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	641						
MAXIMUM 1-HR AVERAGE:	31.6	PPB	@ HOUR(S)	8	ON DAY(S)	31	
MAXIMUM 24-HR AVERAGE:	20.7	PPB			ON DAY(S)	26	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		742	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:		99.7	%	
STANDARD DEVIATION:	7.88		MONTHLY AVERAGE:		9.45	PPB	

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

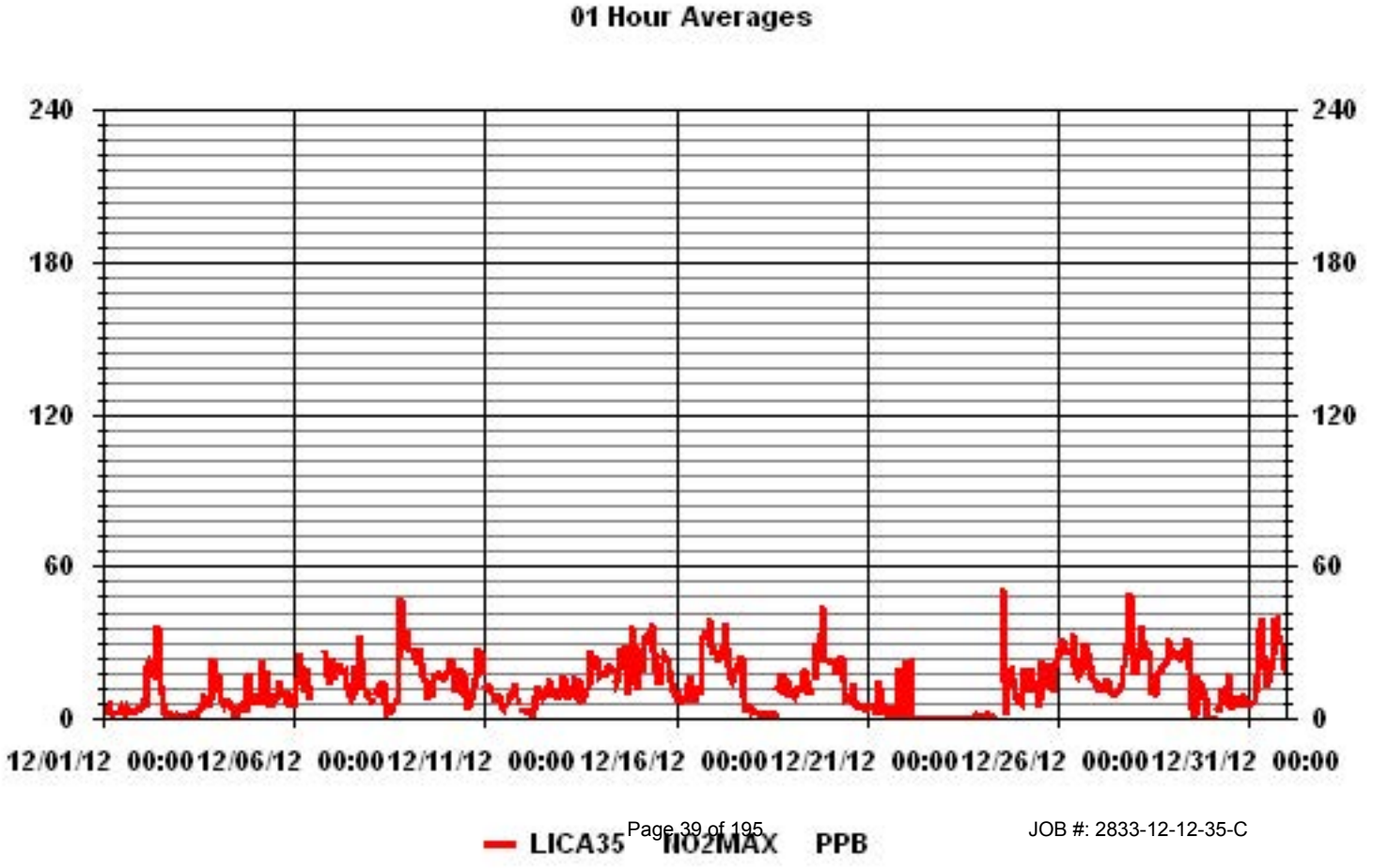
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	4.6	3.5	4.8	5.3	3.4	2.7	1.5	2.3	2.5	**IZS**	3.9	5	3.7	2.8	4.4	3.2	4	2.7	2.4	2.3	3.2	3.8	4	3.8	5.3	3.5	24
2	4.2	5	7.4	3.9	20.3	22.1	20.9	17.8	**IZS**	16.6	36.7	24	13.8	10.6	6.6	2.8	2	2.2	1	1	1	1	1.3	1.4	36.7	9.7	24
3	0.8	1	1	0.9	1.1	1.2	1	**IZS**	1.5	1.5	1.5	1.3	2.2	3.8	5.7	10.2	5.6	5.7	5.7	6.7	7.6	23.8	16.2	17.7	23.8	5.4	24
4	17.4	11	7.4	7.6	5.7	7.2	**IZS**	6.3	4.8	3.1	3.9	2.4	2	3.3	3.3	5.3	4.5	4.2	3.9	16.6	17.5	5.4	7.9	9.3	17.5	7.0	24
5	6.2	6.2	7.6	7.2	21.4	**IZS**	11.7	18.3	9.4	3.9	9.9	7.4	7.1	7.5	8.9	15.2	11.3	9.3	8.8	9.4	6.2	4.2	6.1	4.1	21.4	9.0	24
6	9.4	13.1	15.9	24.5	**IZS**	19.5	10	20.2	17	14.1	8.6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	25.9	16.2	19.3	13	23.9	25.9	16.7	24
7	22.6	17.8	16.3	**IZS**	21.1	19.3	17.1	19.2	19.6	15	12.1	9.6	8	9.2	20	**M**	12.2	32.4	23.5	14.2	12.8	10.3	9.8	8.3	32.4	15.9	23
8	7	7.4	**IZS**	10.2	11.8	10.3	11	13.6	13.6	5.8	2.1	2.4	2.5	3	5.2	5.6	6.7	7.7	23.7	47.8	38.4	31.4	29.4	28.7	47.8	14.1	24
9	33.1	**IZS**	27.2	27.4	24.1	21.1	25.4	26	22.8	16.9	14.9	8.3	8.2	9.5	9.5	14.3	17.1	16.8	16.8	19	16.4	16.1	17.3	16.1	33.1	18.4	24
10	**IZS**	18.6	22.9	22.6	18.1	9.9	13.5	18.8	18.3	18.5	9.2	16.7	8.7	4.9	5.3	7.5	10.5	12.1	16.2	27.5	22.6	26.5	18.4	**IZS**	27.5	15.8	24
11	13.2	12.7	12.5	11.3	10.2	8.8	8.3	7.6	8.3	8.3	4.4	3.5	4.6	5.4	5.7	7.1	9.4	10.3	8.1	14	9.1	6.5	**IZS**	3.2	14	8.4	24
12	3.3	2.3	2.4	3.1	2.9	2.2	2	3.3	8.3	13.1	8.1	10.9	8.9	10.4	8.5	10.9	15.6	14.4	11.3	9.9	11	**IZS**	8.3	9.5	15.6	7.9	24
13	15.4	15.3	10.4	8.8	7.6	11.2	12.5	13	17	9.6	8.7	15.3	10.2	6.4	8	11.1	11.8	13.2	26.3	18.9	**IZS**	21.5	24.2	20.3	26.3	13.8	24
14	17	17.9	17.5	18.6	18	19.9	20.6	19.3	19.4	18.6	13.7	14.5	18.9	28.1	22.5	24.3	28.3	21	10.8	**IZS**	35.5	12.7	18.5	28.6	35.5	20.2	24
15	11.5	22.8	17.9	24.7	28.6	32.1	33	34.8	32.3	37.8	26.6	18.6	14.5	12.9	16.6	21.8	25.1	24.2	**IZS**	22.9	19.8	14.7	11	9.4	37.8	22.3	24
16	9.5	6.3	8.2	7	7.2	7.2	8.8	13.3	9.5	16.8	8	7.4	7.4	12.5	11.3	9.1	31.3	**IZS**	31.8	34.4	32.8	40	29.1	25.2	40	16.3	24
17	27.4	25.9	23.4	23.6	25.9	26.6	28.9	38	28.3	20.9	16.7	15.3	16.5	18.1	21.8	23.5	**IZS**	23.4	9.2	3.8	3.6	4	4.6	2.8	38	18.8	24
18	3.4	3.5	2.7	2.1	2	1.7	1.7	1.5	1.5	1.3	1.3	2.3	1.7	1	1.9	**IZS**	12.3	11.6	18.2	15.2	11.7	16	15.6	8.6	18.2	6.0	24
19	10.7	9.8	8.9	10.1	12.3	10	11.7	17	18	20.1	15.3	10.3	10.5	10.9	**IZS**	15.9	29.4	26.3	30	33.5	44.9	23.3	23.2	23.5	44.9	18.5	24
20	22.7	22.5	21.9	20.1	20.6	17.3	24.1	17.2	25.1	15.4	8.1	8.7	7.5	**IZS**	6.6	13.9	6.5	5.8	4.7	4	4	5	5	2.8	25.1	12.6	24
21	4.8	4.6	4.3	4.8	4.9	2.9	2.6	14.6	12.8	2	5.7	2.5	**IZS**	1.1	0	5.3	1.3	0	0.9	1.1	19.6	8.4	3.6	0.4	19.6	4.7	24
22	8.9	22.7	21.6	22	1.6	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	22.7	3.3	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	1.3	0.3	0	0.8	1.3	0.1	24
24	0.7	1	1.2	1.6	1.7	1.4	1.2	1	0.2	**IZS**	**C**	**M**	**C**	**49.8**	15	1.2	14.5	18.8	19.3	12.2	16	10.3	8.3	5.1	**49.8**	9.0	23
25	6.7	6.1	16.3	19.4	17.9	15.1	9.9	18.3	**IZS**	13.4	13.4	4.7	7.8	6.6	22.4	13.1	14.3	13.8	22	19.1	15.9	10.2	22.4	19.9	22.4	14.3	24
26	24.4	27.9	30.6	30.5	28.6	27	26.5	**IZS**	29.9	33.8	20.1	21.2	18.4	17	18	23.2	28.4	28.7	26.7	20.6	20.4	16.5	15.5	14.7	33.8	23.9	24
27	13.6	11.5	11.8	12.8	10.1	12.2	**IZS**	14.6	12.4	10.5	10.3	7.9	9.9	10.9	10.9	12	14.2	20.4	28.6	28.2	33.5	49.4	25.6	22.9	49.4	17.1	24
28	16.7	26.7	26.2	25.6	35.1	**IZS**	29.9	25.3	27.2	23.5	18.9	10.9	10.5	10.2	11.5	17.9	18.8	20.1	21.1	21.5	23.4	31.6	28.7	24.7	35.1	22.0	24
29	25.3	25.3	25.9	26	**IZS**	23.7	24.3	26.6	27	31.6	19.9	8.4	4.3	0.5	1.5	17.2	12.6	15.1	9.5	9.9	8.2	0	0	0	31.6	14.9	24
30	0	0	0	**IZS**	3.8	2.5	5.7	11	11.2	12.3	10.8	17.7	5.3	3.6	5.5	7.2	7.2	6.6	7.9	8.4	8.6	6.2	5.8	6.1	17.7	6.7	24
31	5.8	6.6	**IZS**	7.5	10.2	16.9	18.7	35.8	39.7	25.4	23.5	12.5	13.8	19.4	19.6	25.1	38.8	39.2	32.2	32.3	29.6	21.4	21.8	19.4	39.7	22.4	24
HOURLY MAX	33	28	31	31	35	32	33	38	40	38	37	24	19	50	23	25	39	39	32	48	45	49	29	29			
HOURLY AVG	11.5	11.8	12.9	13.4	13.0	12.1	13.2	15.7	15.1	14.1	11.6	9.6	8.1	9.6	9.5	11.6	13.6	14.0	14.5	16.0	16.4	14.7	13.2	12.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	654					
MAXIMUM INSTANTANEOUS VALUE:	49.8	PPB	@ HOUR(S)	13	ON DAY(S)	24
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		742	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	9.76					



JOB #: 2833-12-12-35-C

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

December 2012

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	3.00	5.14	2.71	7.71	13.42	24.85	7.71	1.42	.71	.57	.42	3.28	9.14	7.28	10.14	2.42	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	3.00	5.14	2.71	7.71	13.42	24.85	7.71	1.42	.71	.57	.42	3.28	9.14	7.28	10.14	2.42	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

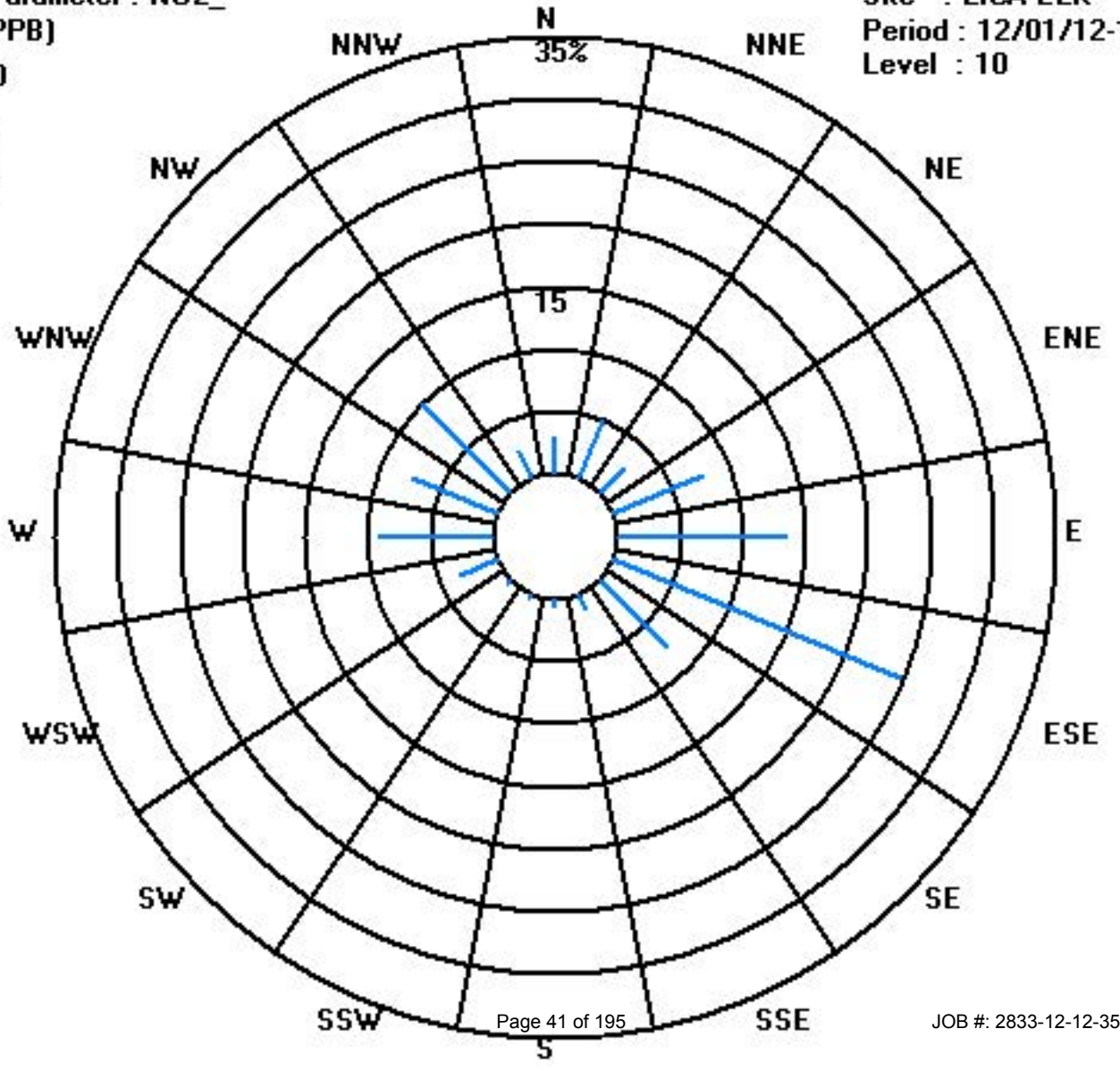
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	21	36	19	54	94	174	54	10	5	4	3	23	64	51	71	17	700
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	21	36	19	54	94	174	54	10	5	4	3	23	64	51	71	17	

Calm : .00 %

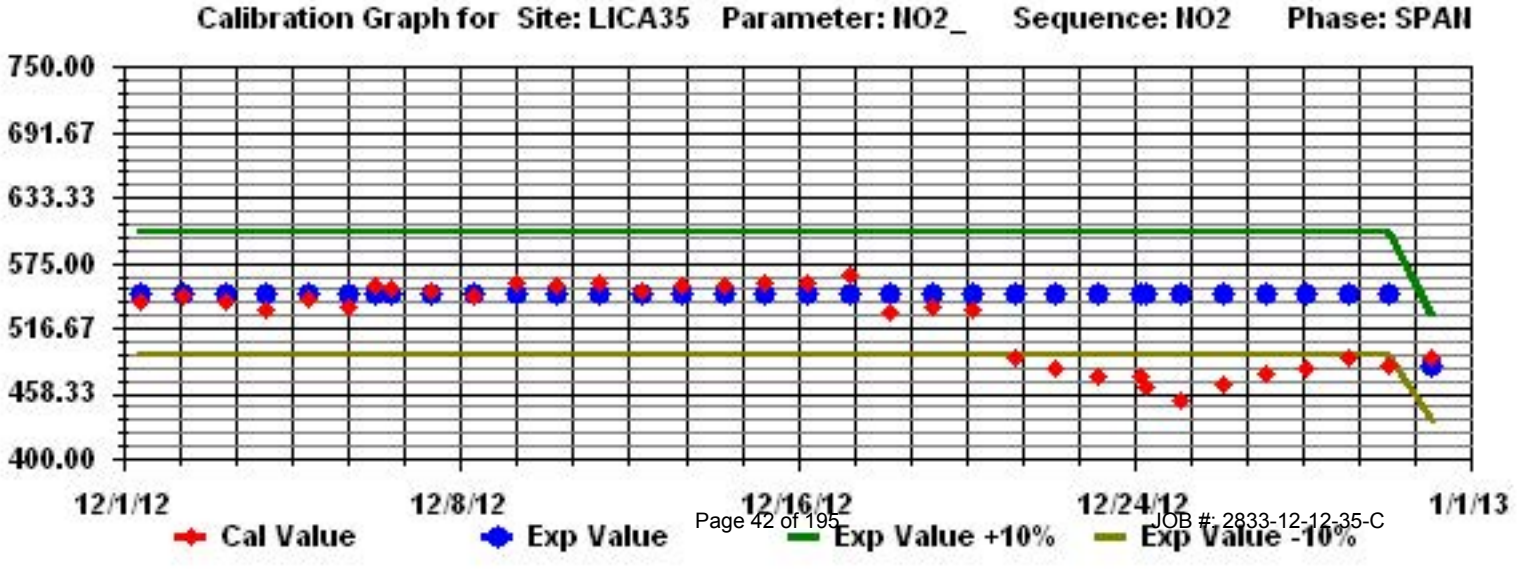
Total # Operational Hours : 700

Logger : 35 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

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



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN
750.00
691.67
633.33
575.00
516.67
458.33
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

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

DECEMBER 2012

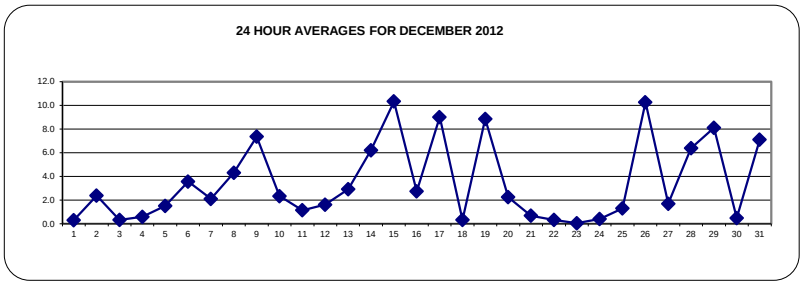
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.1	0	0	0	0	0	0	0	0	**IZS**	0.8	2	1.3	0.7	1	0.3	0.2	0.1	0	0	0	0.1	0.1	0	2	0.3	24
2	0.1	0	0.2	0.1	2.3	4.3	5.6	0.7	**IZS**	5.6	3.5	13.8	12	4.7	1.7	0.1	0	0	0	0	0	0	0	0	13.8	2.4	24
3	0	0	0	0	0	0	0	**IZS**	0	0.1	0.2	0.5	0.6	1.1	1.5	0.8	0.1	0.1	0	0	0.1	1.4	0.3	0.6	1.5	0.3	24
4	0.5	0.3	0.4	0.2	0.4	0.5	**IZS**	0.9	0.8	0.8	0.9	0.6	0.8	0.9	0.8	0.9	0.4	0.5	0.5	0.8	1.2	0.1	0.2	0.1	1.2	0.6	24
5	0.2	0.2	0.2	0.1	0.8	**IZS**	0.7	1.9	0.6	0.6	3.1	3.9	3.1	3.6	2.2	3	0.7	2	3.3	2.7	1.1	0.2	0.5	0.1	3.9	1.5	24
6	2.5	2.8	6.4	8.5	**IZS**	5	0.5	3.2	5.7	7.5	6.9	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1.6	1.3	0.5	0	0.8	8.5	3.5	24
7	0.7	0	0.1	**IZS**	0.8	1	1.5	2.5	3.5	6.8	5.7	5.7	4.8	4.3	3.4	**M**	1.2	1.5	1.9	0.3	0.2	0.2	0	0	6.8	2.1	23
8	0.1	0.1	**IZS**	0.4	1	0.3	0.1	0.2	0.4	0.5	0.5	0.6	1.1	1.1	1.7	1.1	0.1	0	2.5	5	9.5	12.6	36.7	23.3	36.7	4.3	24
9	25.5	**IZS**	20.7	19.8	8	1.9	9.4	21.4	5.4	9.6	10.1	7.3	7	7.7	4.8	3.8	1.1	1.8	1	1.1	0.6	0.4	0.5	0.3	25.5	7.4	24
10	**IZS**	0.9	5.4	2	0.2	0.5	1.4	1.9	1.5	2.1	2.8	3.8	2.2	1.6	1.1	0.9	0.1	0	0.1	7.2	8.3	6.3	1	**IZS**	8.3	2.3	24
11	0.9	1	1.3	0.7	0.6	0.4	1	1.1	1.5	1.8	1.7	1.6	2.1	2.6	2.4	1.5	1.1	0.8	0.6	1	0.2	0	**IZS**	0.2	2.6	1.1	24
12	0	0	0	0.1	0.3	0.1	0.2	0.1	0.4	1.4	3.4	4.5	4	5.9	3.5	3	3.1	2	1.5	1.3	1.5	**IZS**	0.3	0.4	5.9	1.6	24
13	0.4	0.5	0.3	0.2	0.1	1	1.2	2.3	5.4	3.8	5.5	5.6	6.1	4.3	4.2	3.1	2.1	2.2	4	2.7	**IZS**	5.6	5.2	1.2	6.1	2.9	24
14	0.8	0.9	1	0.7	0.9	1	2.8	1.4	2.4	6.1	8.2	11.8	28.8	28.6	17.3	11.4	8.1	0.4	0	**IZS**	7.9	0.2	0.8	1	28.8	6.2	24
15	0.1	0.4	0.4	1.3	2.3	17.1	17	34.3	35.8	36.2	31.7	16	13.7	10.1	7	3.9	3.1	1.8	**IZS**	2.3	1.6	0.7	0.6	0.1	36.2	10.3	24
16	0.4	0	0.1	0	0.1	0.1	0.7	1.1	1	1.7	1.9	2.9	2.5	4.4	2.9	1	2.7	**IZS**	3.1	10.7	4.4	13	6.5	1.5	13	2.7	24
17	3.3	2.6	1.8	1.8	4.1	4.8	21.7	**43.8**	13.6	10.1	14.6	16.6	15.5	18.8	18.8	13.1	**IZS**	1.7	0.3	0.2	0	0	0.1	0	**43.8**	9.0	24
18	0	0	0	0	0	0	0	0	0	0	0.2	0.2	0.3	0.1	0.3	**IZS**	2	1.1	0.7	0.6	0.3	0.4	1	0.1	2	0.3	24
19	0.3	0.6	0.8	0.2	0.2	0.4	0.3	1.4	2.7	14.8	15.5	14.5	15.8	15.9	**IZS**	7.4	19.5	8.4	11.8	18.4	23.2	12	10.5	8.8	23.2	8.8	24
20	7.5	6.6	2.8	1.6	2	1.4	3.8	1.1	5.1	3.7	2.9	4	3.6	**IZS**	2.2	1.4	0.9	0.7	0.2	0	0	0	0	0	7.5	2.2	24
21	0	0	0	0	0	0	0	0.8	1.4	0	0.7	0.8	**IZS**	0.8	0.2	1.4	0.2	0	0	0	5.8	3.1	0.3	0	5.8	0.7	24
22	0.7	2.3	1.7	2.6	0.1	0	0	0	0	0	0.1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	2.6	0.3	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	0.3	0.3	0.2	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
24	0	0	0	0	0	0	0	0	0	**IZS**	**C**	**M**	**C**	1.5	4	0	0.6	0.3	1.1	0.3	0.2	0	0	0	4	0.4	23
25	0	0	0	0.1	0.2	0.6	0	0.3	**IZS**	2.2	4.5	2.9	4	3.3	5	2.9	1.7	0.2	0.2	0.6	0.3	0.1	0.5	0.1	5	1.3	24
26	0.9	5.4	17.2	10.7	8.3	4.1	7.8	**IZS**	18.3	27.5	27.9	34	22.3	20.4	13.9	10.6	3.6	2.6	0.4	0.2	0	0	0	0	34	**10.3**	24
27	0	0	0	0	0	0	**IZS**	0.4	0	1.6	2.8	2.9	3.1	4.9	3.7	1.7	0	1	2.4	4.4	2.4	6.7	0.6	0.2	6.7	1.7	24
28	0	3.2	2.4	2.2	10.4	**IZS**	10.6	3	10.4	14.4	12.2	12.3	12.6	9.5	6.6	5.3	0.8	0.7	0.1	0	0	19.5	6.4	4.2	19.5	6.4	24
29	9.2	11.1	11.2	16.5	**IZS**	17.4	22.1	27.7	23	24.4	13.8	3.6	1.5	0.1	0.1	2.4	0	2.1	0	0	0	0	0	0	27.7	8.1	24
30	0	0	0	**IZS**	0	0	0	0.1	0.5	2	3	1.7	1.5	0.9	0.6	0.5	0	0	0	0	0	0	0	0	3	0.5	24
31	0	0	**IZS**	0.1	0.1	0.2	0.4	6	23	8.1	9.1	7.9	8.6	13.3	12.6	8.9	17.7	15.8	17	11.2	2.7	0.3	0.5	0.1	23	7.1	24
HOURLY MAX	26	11	21	20	10	17	22	44	36	36	32	34	29	29	19	13	20	16	17	18	23	20	37	23			
HOURLY AVG	1.8	1.3	2.6	2.4	1.5	2.1	3.8	5.4	5.6	6.7	6.7	6.5	6.4	5.9	4.3	3.2	2.5	1.6	1.8	2.4	2.4	2.8	2.4	1.4			

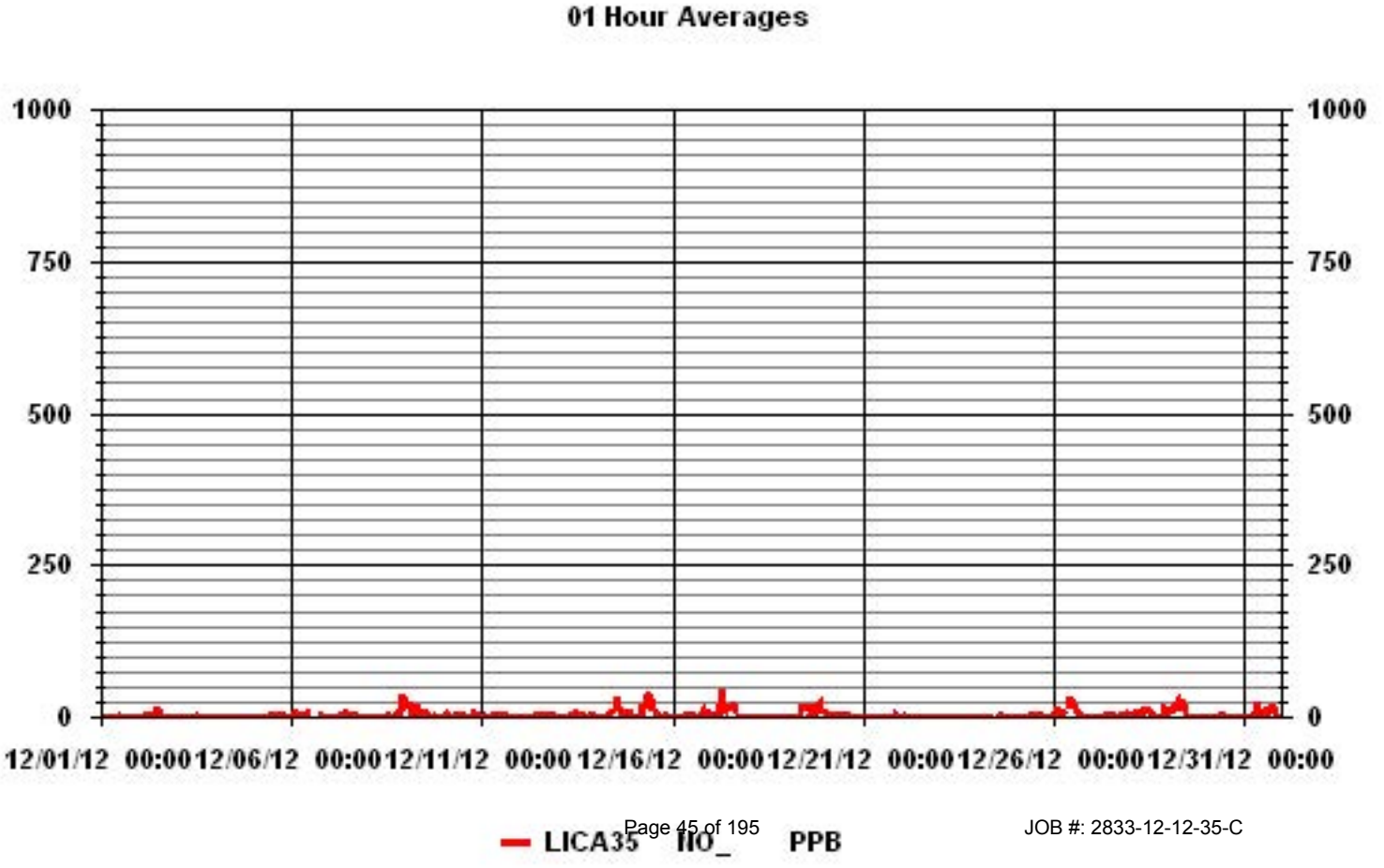
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		534					
MAXIMUM 1-HR AVERAGE:		43.8	PPB	@ HOUR(S)	7	ON DAY(S)	17
MAXIMUM 24-HR AVERAGE:		10.3	PPB			ON DAY(S)	26
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:		742	HRS
MONTHLY CALIBRATION TIME:	10	HRS		AMD OPERATION UPTIME:		99.7	%
STANDARD DEVIATION:	6.23			MONTHLY AVERAGE:		3.46	PPB



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

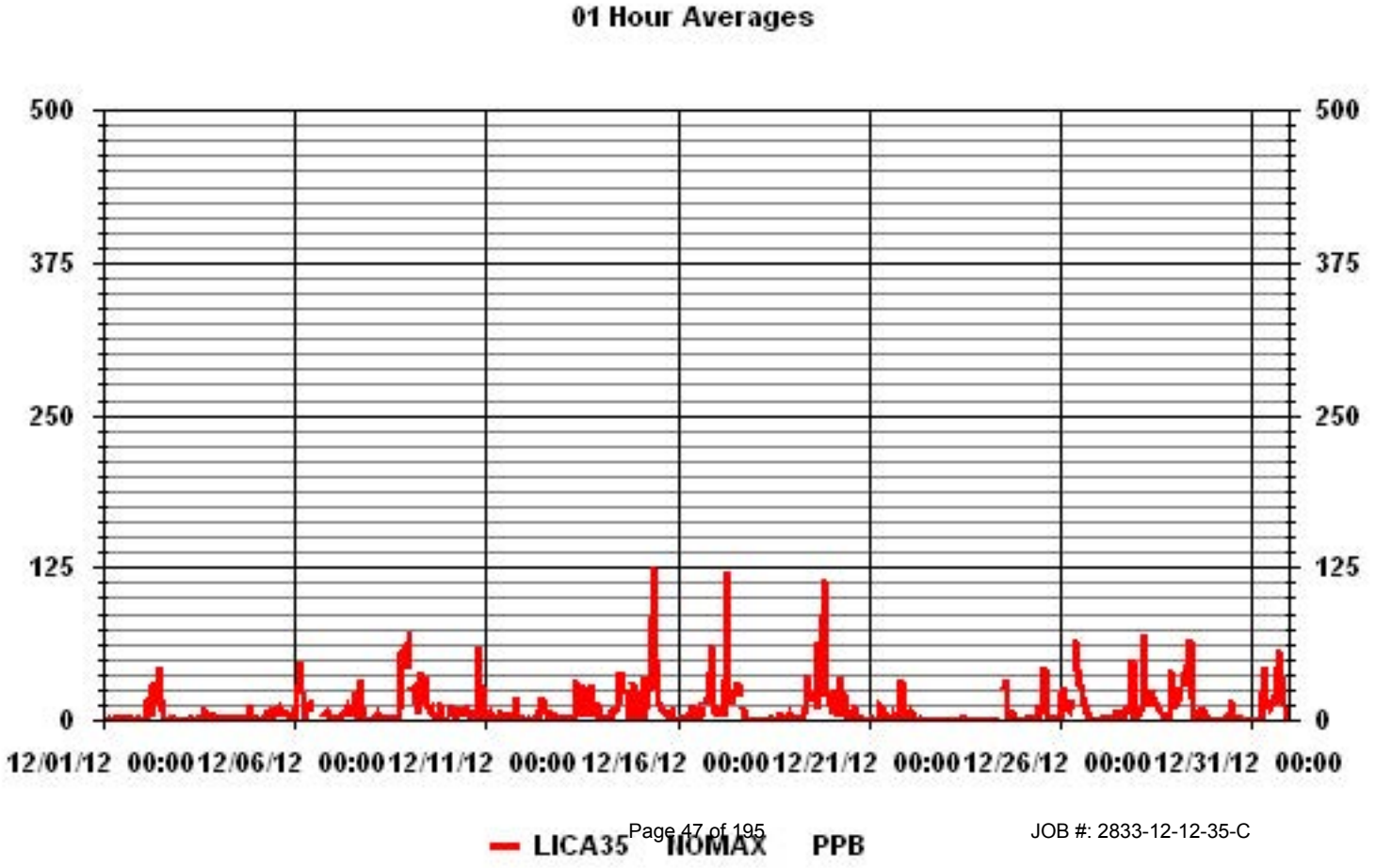
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.5	0.4	0.4	0.4	0.6	0.5	0.3	0.5	1	**IZS**	2.7	3.6	2.7	1.6	2.4	1	0.6	0.6	0.5	0.3	0.5	0.6	0.6	0.6	3.6	1.0	24
2	0.6	0.4	0.6	0.6	15.3	18.1	28.7	4.1	**IZS**	28.1	12.4	43.6	19.1	9	3.7	0.7	0.3	0.5	0.5	0.5	0.6	0.5	0.4	0.4	43.6	8.2	24
3	0.4	0.3	0.4	0.3	0.4	0.3	0.3	**IZS**	0.5	0.5	0.7	0.9	1.1	1.6	2.4	9.2	0.5	0.6	0.6	0.5	0.8	6.7	1.1	1.9	9.2	1.4	24
4	1.3	1	2.1	0.7	1.6	2.6	**IZS**	2.6	1.9	1.9	2	1.2	1.9	1.9	2.4	2.4	1.4	1.7	1.6	10.5	10.9	1	1	1	10.9	2.5	24
5	0.7	0.6	1.4	0.5	2.9	**IZS**	4	8.7	3.2	1.3	9.6	6.7	6.3	9	4.5	9.6	2.6	6.3	5.6	6.6	4.2	0.7	3.7	1	9.6	4.3	24
6	10.1	26.5	25.8	45.1	**IZS**	21	1.3	13.7	12.4	13.4	8.7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	5.5	7.4	4.8	0.3	2.5	45.1	13.2	24
7	1.8	0.5	0.6	**IZS**	1.9	2.2	4.3	4.8	7.6	11.1	7.7	6.9	7	5.7	20.1	**M**	3.7	33.6	12	1.1	0.9	0.7	0.5	0.4	33.6	6.1	23
8	0.6	0.6	**IZS**	2.2	4.9	0.9	0.7	0.6	1.1	1.2	0.9	1.1	1.9	1.6	2.3	2.3	0.6	0.5	7.8	55.4	57.8	51.3	44.6	41.5	57.8	12.3	24
9	69.2	**IZS**	27.2	28.3	15.3	4.7	24.3	40	14.1	16.5	34.6	11.5	9.3	10.7	6.1	5.6	3.5	4.2	2.1	13.9	1.1	1.2	1.5	1	69.2	15.0	24
10	**IZS**	4.5	11.8	4.8	0.9	3.1	6.6	10.5	5.1	4.7	6.4	8.3	4.7	2.3	1.8	8	0.6	0.5	1.2	60.8	17.4	29.7	3.2	**IZS**	60.8	9.0	24
11	1.8	2.2	5.4	1.9	1.5	1.4	2.3	3.4	5.3	5	3.3	3.3	3.5	4.6	4.7	3.9	2.2	3.9	2.9	19.1	1.9	0.4	**IZS**	0.8	19.1	3.7	24
12	0.6	0.5	0.4	0.6	0.7	0.5	0.6	0.5	1.6	6.6	6.5	18.6	6.8	9.5	4.4	6.7	5.7	5.5	3.1	2.5	4.4	**IZS**	0.9	1.1	18.6	3.8	24
13	1.6	1.7	1.8	1.3	0.8	2.4	2.3	4.6	32.6	6.6	8.1	16.6	28.3	5.8	6.1	6.1	5.1	4.8	28.8	6.6	**IZS**	10.5	15	3.2	32.6	8.7	24
14	1.8	2.1	1.6	1.9	1.7	3	5.4	2.2	5.1	8	10	13.2	40.1	35.3	23.8	23.6	23.4	2.5	0.5	**IZS**	28.8	2.1	4.4	22.1	40.1	11.4	24
15	0.6	1.3	1.3	35.6	8.7	24.1	29.1	72.3	85.3	**124.9**	51.7	27.3	16.7	12.5	8.7	8.4	7.1	4.4	**IZS**	7.1	8.1	3.8	1.5	0.4	**124.9**	23.5	24
16	1.4	0.6	0.6	0.5	0.5	0.5	2.2	3.8	2.6	13	4.2	5	4.4	9.4	6.6	1.9	8.7	**IZS**	15.7	17.7	38.6	60.9	13.9	4.8	60.9	9.5	24
17	11.3	5.9	4.3	4.3	9.5	8.3	33.8	121.8	26.2	13.7	18.8	21.1	21	24.5	30.7	22.6	**IZS**	8	0.9	0.6	0.5	0.4	0.4	0.4	121.8	16.9	24
18	0.4	0.3	0.3	0.4	0.4	0.3	0.1	0.3	0.4	0.4	0.7	0.9	0.9	0.5	0.7	**IZS**	5.2	4.9	1.8	1.3	0.8	2	5	0.6	5.2	1.2	24
19	2.5	2.3	2.6	1	0.9	1.4	0.8	4.2	10.5	37.1	20.9	19.2	19.3	17.9	**IZS**	10.3	64.6	37.2	56	86.2	115.6	21.2	20.3	13.1	115.6	24.6	24
20	9.4	11	5.1	23.9	5.8	2.8	34	5	23	6.8	4.8	8.5	7.2	**IZS**	3.8	11.5	2.4	2.3	1.3	0.4	0.5	0.5	0.4	0.4	34	7.4	24
21	0.4	0.5	0.5	0.5	0.4	0.3	0.3	11.8	9.8	0.4	4.4	1.3	**IZS**	2.9	0.8	5.1	1.9	0.3	0.5	0.5	33.8	9.9	2.3	0.5	33.8	3.9	24
22	4.2	7	4.1	8	0.6	0.4	0.4	0.2	0.5	0.5	0.7	**IZS**	0.4	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0	0	0	0	8	1.2	24
23	0	0	0	0	0	0	0	0	0	0.1	**IZS**	0.7	0.8	0.7	0.5	0.4	0.5	0.3	0.4	0.4	0.2	0.4	0.2	0.2	0.8	0.3	24
24	0.2	0.2	0.2	0.5	0.2	0.3	0.2	0.2	0.3	**IZS**	**C**	**M**	**C**	29	33.7	0.4	2.7	2.9	7.2	3.2	1.1	0.7	0.3	0	33.7	4.2	221
25	0.4	0.1	1.1	1.5	1.5	2.5	0.5	3.5	**IZS**	3.7	11.9	4.3	7.4	5.2	42.3	6.4	3.4	1.3	1	2.1	1.3	0.5	2.1	0.8	42.3	4.6	24
26	1.8	21.5	27.2	18.4	11.7	9.2	14.8	**IZS**	45.7	65.6	39.9	42.8	29.8	28.1	19.2	13.4	8	6.3	2.9	1.6	1.3	0.6	0	0	65.6	17.8	24
27	0.1	0	1	1	0	1.6	**IZS**	2.3	0.9	2.9	5.3	4.1	5.9	6.4	6.2	4.3	1.1	7.8	8.2	13.1	31.3	50.1	2.6	1.6	50.1	6.9	24
28	3.2	7.4	8.8	10.9	68.4	**IZS**	18.4	10.3	21.3	25.2	20	14.1	14.2	11.5	9	6.6	3.2	2.9	0.7	0.9	5.9	40.5	29.7	9.4	68.4	14.9	24
29	13.2	14.4	16.5	24.4	**IZS**	29.6	39	46	36.4	65.4	19.4	6.8	3.2	0.8	0.6	7.3	1.4	11	0	1.6	2.7	0	0	0	65.4	14.8	24
30	0	0	0	**IZS**	0.5	0.3	0.3	1.4	1.5	4	4.4	16.9	3	1.8	2.2	1.5	0.8	0.7	0.7	1.1	0.6	0.5	0.2	0.1	16.9	1.8	24
31	0.1	0.2	**IZS**	0.6	0.9	3.3	2.3	23	43	11.4	15.7	10.2	12	17.9	17.1	13.6	42.3	56.7	37.2	19.2	13.2	0.8	1.5	0.9	56.7	14.9	24
HOURLY MAX	69	27	27	45	68	30	39	122	85	125	52	44	40	35	42	24	65	57	56	86	116	61	45	42			
HOURLY AVG	4.7	3.8	5.3	7.6	5.5	5.0	8.9	13.9	13.8	16.6	11.6	11.4	10.0	9.2	9.2	6.9	7.0	7.3	7.0	11.3	13.1	10.1	5.3	3.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	675					
MAXIMUM INSTANTANEOUS VALUE:	124.9	PPB	@ HOUR(S)	9	ON DAY(S)	15
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		940	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	14.98					



JOB #: 2833-12-12-35-C

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

December 2012

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	3.00	5.14	2.71	7.71	13.42	24.85	7.71	1.42	.71	.57	.42	3.28	9.14	7.28	10.14	2.42	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	3.00	5.14	2.71	7.71	13.42	24.85	7.71	1.42	.71	.57	.42	3.28	9.14	7.28	10.14	2.42	

Calm : .00 %

Total # Operational Hours : 700

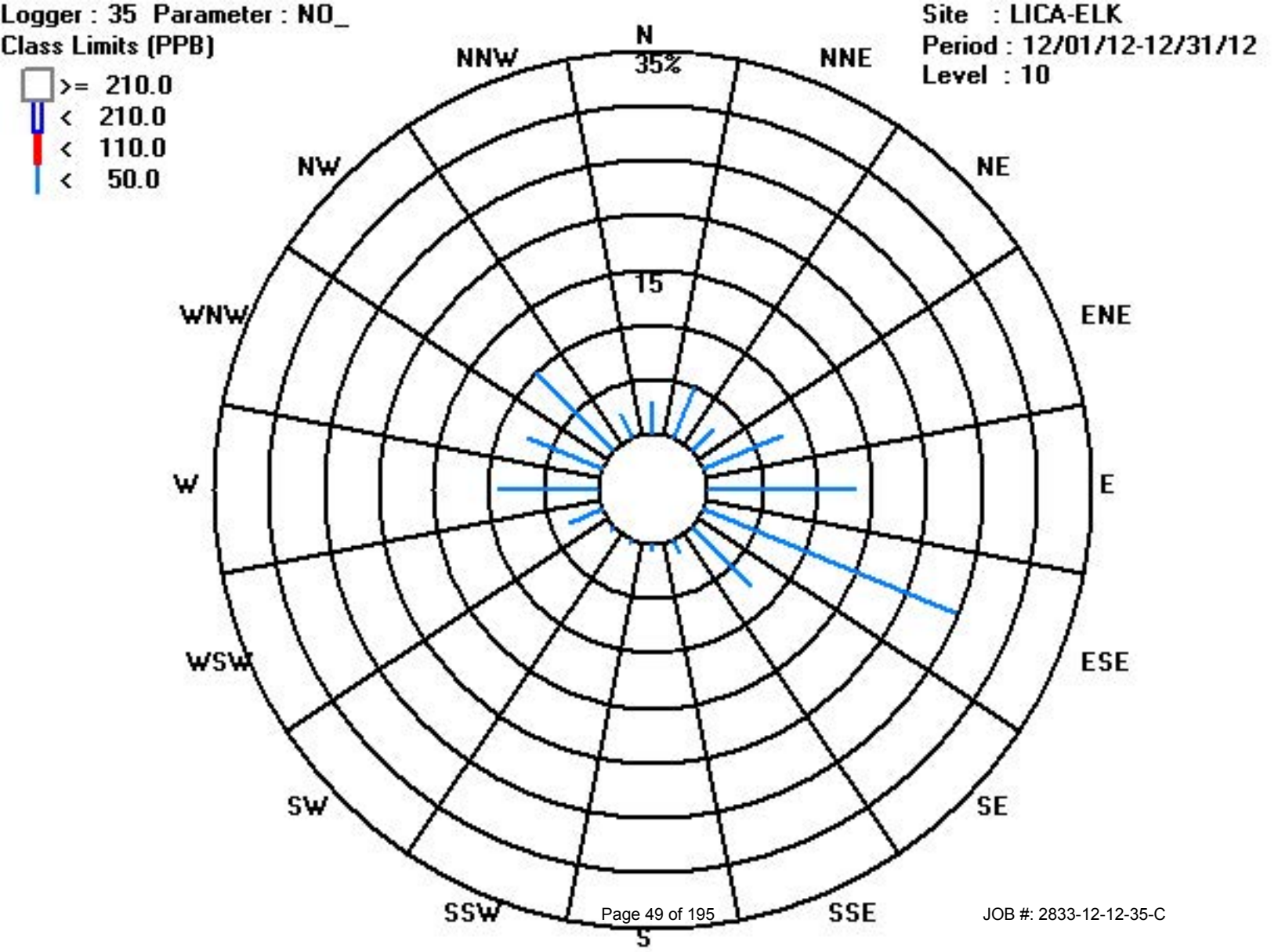
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	21	36	19	54	94	174	54	10	5	4	3	23	64	51	71	17	700
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	21	36	19	54	94	174	54	10	5	4	3	23	64	51	71	17	

Calm : .00 %

Total # Operational Hours : 700



JOB #: 2833-12-12-35-C

Oxides of Nitrogen

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

DECEMBER 2012

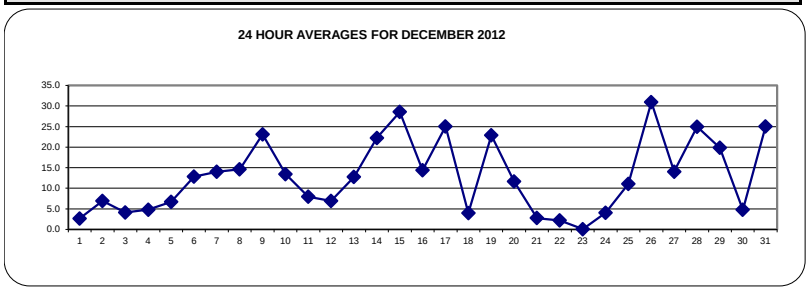
OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3.7	3.1	3.4	4	2.3	1.6	0.7	1.1	1.1	**IZS**	2.8	5.3	3.8	2.5	4.1	2.6	2.8	2.1	1.4	1.8	2.1	2.7	3.2	2.9	5.3	2.7	24
2	3.2	2.8	3.8	2.9	9.8	18.2	22.1	9.5	**IZS**	12	8	22.9	22.2	10.5	5.4	1.2	0.8	1.1	0.3	0.3	0.5	0.2	0.6	0.2	22.9	6.9	24
3	0.1	0.2	0.3	0.1	0.2	0.5	0.3	**IZS**	1	1.1	1.1	1.1	1.9	3.5	5.9	5.7	4.8	5	5	5.6	5.9	18.4	13.2	14.2	18.4	4.1	24
4	15	7.9	6.5	5.8	4.5	5.5	**IZS**	5.7	3.5	2.7	3.3	2	2.2	2.6	2.9	4.3	3.8	3.4	3.3	4.7	6.2	3.7	4.4	6.6	15	4.8	24
5	5.1	4.7	5.4	4.4	14.5	**IZS**	5.6	9.8	4.6	4	7.9	8.7	7	7.9	6.9	10.9	7.7	7.6	9.5	8.2	4.9	3.1	3.5	2.5	14.5	6.7	24
6	6.5	6.6	13.4	18	**IZS**	16.7	7.5	13.8	16.8	17.3	13.2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	17.7	10.9	7.3	6.1	20.4	20.4	12.8	24
7	19.3	14.2	12.2	**IZS**	19	16	15.5	20.4	19.7	19.2	15.6	14.3	11.8	11.6	11.8	**M**	10.8	12.1	15.8	12	11	9.8	8.5	7.4	20.4	14.0	23
8	6.4	6.6	**IZS**	7.3	9.8	9.6	10.1	12.2	10	3.2	1.9	1.9	2.9	3.4	5.3	6	5.6	6.7	17.6	23.6	34.4	37.7	64.3	49.8	64.3	14.6	24
9	51.6	**IZS**	46.3	44.9	30.3	21.6	31.7	44.9	22.6	21.5	18.3	13.6	13.8	16.1	12.8	14.9	14.9	16.8	15.8	16.5	16.2	14.3	15.9	15.6	51.6	23.1	24
10	**IZS**	14.7	26.6	23	9.2	6.5	9.2	10.3	13.4	11.6	8.8	9.6	6.6	5.3	5.1	6.5	7.9	10.5	12.3	26.8	29.2	25.5	17	**IZS**	29.2	13.4	24
11	13.3	12	12.2	11.3	10.1	8.4	8.4	8.1	9	7.7	5.6	4.6	5.7	6.8	7.3	7.3	9.1	7.6	6.8	7.9	6.2	3.8	**IZS**	2.9	13.3	7.9	24
12	2.5	1.9	1.8	2.3	2.5	1.7	1.6	1.6	4.4	5.9	9.1	10.4	9.9	13.2	9.8	10.6	13.2	11.3	11.4	8.9	9.7	**IZS**	6.9	8.2	13.2	6.9	24
13	8	8.9	8.4	6.2	5.5	9.7	12.1	11.6	16	10.5	12.4	11.5	11.9	9.6	10.7	12.1	12.5	12.6	19	17.4	**IZS**	25	24.7	17.1	25	12.8	24
14	16.8	17.5	17.1	17.2	17.4	17.5	21.7	19.4	20.5	21.7	21.1	25.3	45.9	47	35.9	31.2	32.1	16.7	7.7	**IZS**	28.2	10.1	12.4	11.1	47	22.2	24
15	9	14.4	16.2	16.9	24.6	47.9	47.8	65.8	65.5	62.4	52.6	29.6	26.5	22.3	20.4	20.2	26.3	21.6	**IZS**	20.3	16.7	12.1	10.3	7.7	65.8	28.6	24
16	7.8	5.6	6.3	5.1	5.8	5.6	7	9.2	6.7	8	7.1	8.8	7.8	12.3	10.5	8.3	21	**IZS**	26.5	41	24.4	40.1	33.3	22.6	41	14.4	24
17	28	26.4	22.5	22.8	27	29.7	49.3	**73.1**	38.5	27.2	29	30.5	29.3	34.8	37.2	34	**IZS**	16.2	5.7	3.3	2.8	3.1	3.6	2	**73.1**	25.0	24
18	2.6	2.6	1.7	1.3	1	0.8	0.7	0.6	0.8	0.5	0.9	0.9	1.2	0.4	1.3	**IZS**	8	7.3	12.8	12.3	7.1	8.6	12	6	12.8	4.0	24
19	6.9	6.2	7.5	7.7	10.1	8.9	9.3	15	16	29.8	26.9	23.9	25.4	26.4	**IZS**	20	40.5	28.6	32.8	40.6	46.6	34.2	32.7	31	46.6	22.9	24
20	29.1	28	22.4	17.3	18.3	15.7	20	14	20.4	14.3	8	9.6	9	**IZS**	7	6.2	5.7	4.6	3.8	2.9	3	3.2	2.9	2.4	29.1	11.6	24
21	3.5	3.5	3	3.9	3.3	1.9	1.7	3.6	5.5	1.1	2.5	2.7	**IZS**	0.8	0.2	1.4	0.2	0	0	0.7	15.4	7.5	0.7	0	15.4	2.7	24
22	3.3	14.9	18.2	13.4	0.2	0	0	0	0	0	0.1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	18.2	2.2	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	0.3	0.3	0.2	0	0	0	0	0	0	0	0	0	0	0.3	0.0	24
24	0	0.1	0.2	0.8	0.8	0.4	0.2	0	0	**IZS**	**C**	**M**	**C**	4.5	5.7	0.5	8.7	9.2	12.6	7.9	11	7.9	5.9	4.1	12.6	4.0	23
25	4.7	4.8	10.2	12.7	12.2	11.4	7.3	10.8	**IZS**	10.8	11	6.5	8.5	8.2	12.2	12.7	13.3	11.1	17.5	17.5	11.7	8.9	15.7	14.1	17.5	11.0	24
26	23.4	30.2	45.9	38.9	35.4	28.8	33.4	**IZS**	43.9	49.6	45.9	51.3	36.8	35.6	30.2	31.2	28.7	29.6	20.7	17.4	15.5	14.2	13.3	12.3	51.3	**31.0**	24
27	10.9	8.4	10	10.3	7.4	8.5	**IZS**	11.7	9.7	10.7	10.7	9.4	9.4	13.9	12.9	11.2	11.6	15.1	23.4	28.8	21.2	31.5	17.4	19	31.5	14.0	24
28	12.8	26	22.9	20.6	38.7	**IZS**	36.6	25.2	33.9	34.2	25.1	22.1	22.1	18.3	16.8	19.6	17.4	19.4	19.8	19.6	18.4	46.7	30.8	27.5	46.7	25.0	24
29	33.9	35.8	36.1	41.3	**IZS**	39.7	44.9	51.8	45.4	45.2	30.5	9.2	3.4	0.1	0.2	11	6.5	8.7	5.8	7.4	0	0	0	0	51.8	19.9	24
30	0	0	0	**IZS**	2.8	1.8	3.2	3.7	8.1	10.5	10.6	5.6	4.7	3.7	3.5	5.2	5.7	5.3	5.8	7	7.1	5.1	4.9	5.1	10.6	4.8	24
31	5.1	4.9	**IZS**	6.2	6.9	7.6	15.8	32.4	54.6	28.4	25.1	19.5	20.2	29.1	30.1	27.4	48.3	46.4	47.8	41.2	25.8	19.7	19.9	14	54.6	25.1	24
HOURLY MAX	52	36	46	45	39	48	49	73	66	62	53	51	46	47	37	34	48	46	48	41	47	47	64	50			
HOURLY AVG	11.1	10.4	13.1	12.6	11.4	11.8	14.6	16.7	17.0	16.2	14.3	12.9	12.5	12.1	10.8	11.5	12.7	11.6	12.4	14.0	13.1	13.5	12.8	10.9			

STATUS FLAG CODES

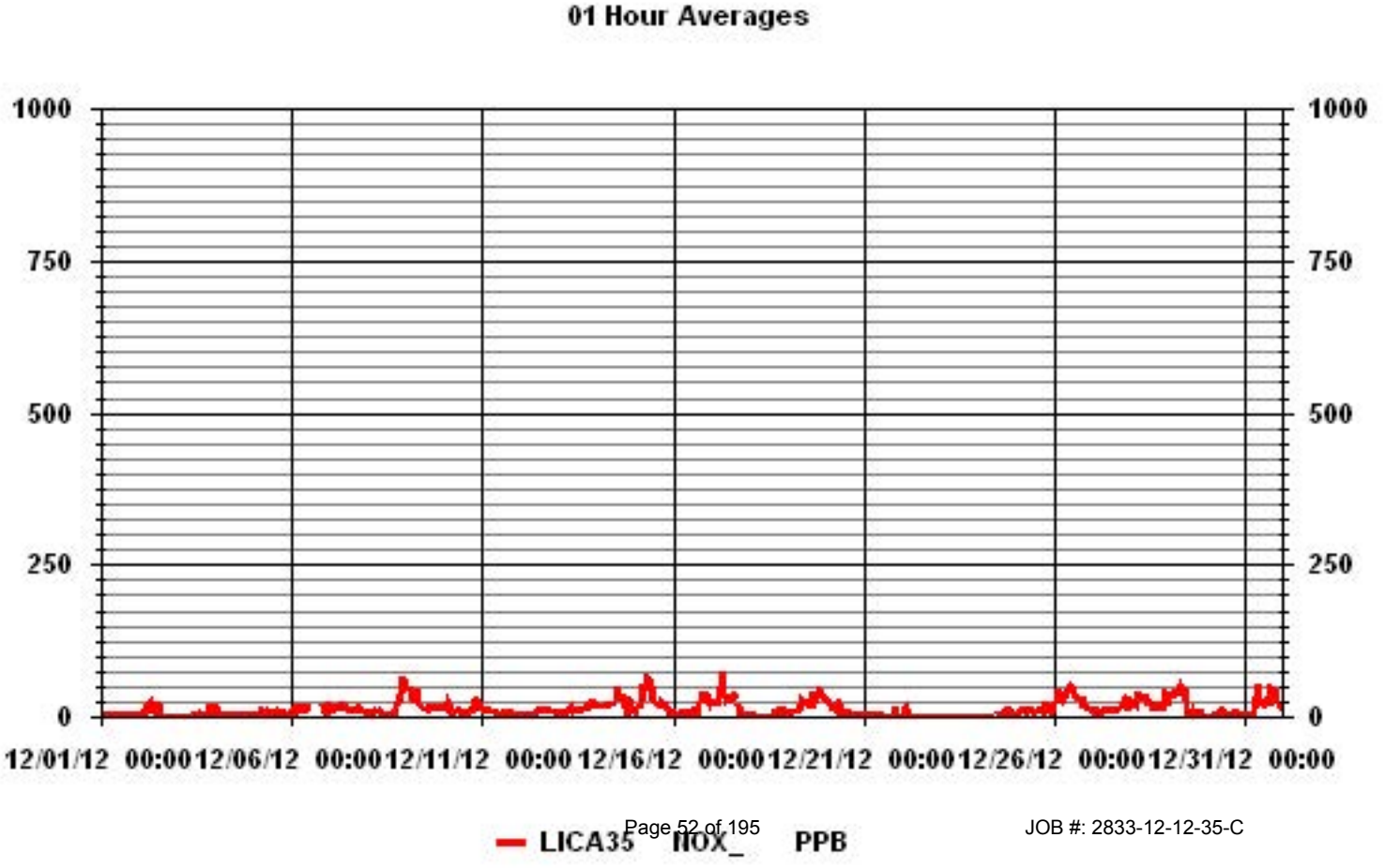
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	650						
MAXIMUM 1-HR AVERAGE:	73.1	PPB	@ HOUR(S)	7	ON DAY(S)	17	
MAXIMUM 24-HR AVERAGE:	31.0	PPB			ON DAY(S)	26	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		742	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:		99.7	%	
STANDARD DEVIATION:	12.72		MONTHLY AVERAGE:		12.91	PPB	

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

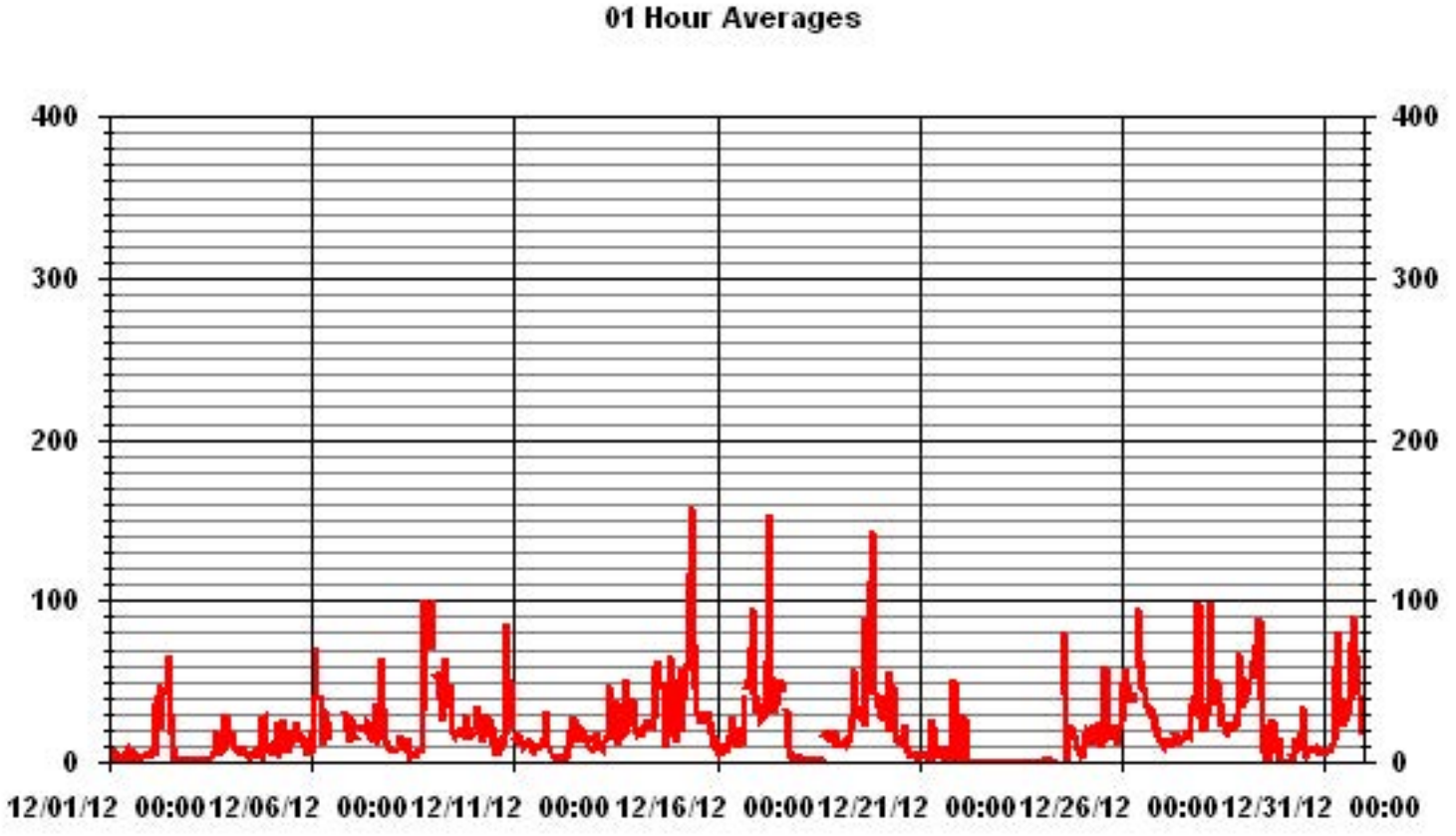
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	4.8	3.6	4.7	5.7	3.8	2.7	1.4	2.4	3	**IZS**	6.3	8.1	6.2	4	5.9	3.7	4.1	2.8	2.6	2.5	3.3	3.9	4.1	4.1	8.1	4.1	24
2	4.3	5.1	8	3.8	35.5	40.3	47.7	22	**IZS**	43.4	43.5	65.3	31.4	19.1	9.4	3.2	1.7	2.1	0.8	0.8	1	1	1.2	1.1	65.3	17.0	24
3	0.7	0.8	0.8	0.7	0.9	1	0.8	**IZS**	1.4	1.8	2	1.7	2.9	5	7.1	19.1	5.6	5.6	5.7	6.8	7.9	29.9	16.5	18.7	29.9	6.2	24
4	18.1	11.4	8.7	7.7	6.9	9.5	**IZS**	8.2	6	4.2	5	3.1	3.5	4.4	4.4	7	5	5.5	4.8	27.1	28.3	5.6	8.2	9.6	28.3	8.8	24
5	6.3	6	8.1	7	23.1	**IZS**	15.4	26.4	11.1	4.8	19.4	13.8	13	15.7	13.1	24.8	13.5	15.4	13.7	15.8	10.1	4.4	9.2	4.6	26.4	12.8	24
6	19.2	39.9	40.6	68.1	**IZS**	38.9	10.3	33.1	28.9	26.3	16.2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	30.2	22.3	23.2	12.3	25	68.1	29.0	24
7	23.5	16.9	15.6	**IZS**	22.4	20.7	20.8	22.7	26.7	25.9	19.3	16.4	14.5	13.7	33.7	**M**	15.5	64	35.3	15	13.3	10.8	9.9	8.2	64	21.1	23
8	7.1	7.6	**IZS**	12	16.5	10.6	11.1	13.7	13.9	6.6	2.5	3.2	3.8	3.8	7.1	7.2	6.8	7.7	31.4	100.4	86.4	76.1	73.2	69.5	100.4	25.1	24
9	99	**IZS**	54.2	54.7	39.1	25.3	48.4	64.8	36.9	33.3	47.8	19.7	17.2	20.1	14.7	18.5	19.5	20	18.1	29	16.9	16.4	18.3	16.8	99	32.6	24
10	**IZS**	22.2	34	26.7	18.3	12.1	19.3	28.7	21.2	22.7	15.3	22.5	12.5	6.4	6.4	14	10.1	11.5	16.5	86	39.4	51.6	21.4	**IZS**	86	23.6	24
11	15.2	14.1	18.1	12.7	11.8	9.4	10.7	11	13.4	13.4	7.3	6.7	8.5	10.2	10.5	9.7	10.9	14	9.7	31.8	11.1	7.2	**IZS**	3.8	31.8	11.8	24
12	3.5	2.4	2.4	3.1	3.2	2.3	2.1	3.4	9.3	19.5	12.4	27.6	15.5	19.7	12.5	17.2	20.8	19.5	13.7	12	14.8	**IZS**	8.8	9.7	27.6	11.1	24
13	16.8	16.7	12	9.3	8.1	13	14.3	16.7	47.6	16.2	16.2	25.6	38.3	11.8	13.8	16.9	16.7	17.3	50.4	24.9	**IZS**	31	38.9	22.8	50.4	21.5	24
14	18.3	19.9	18.8	20.1	19.3	22.5	25.3	21.2	23.8	24	22.6	27.3	58.6	62.9	44.8	47.6	47.3	23.6	10.8	**IZS**	64.1	14.7	22.6	50.8	64.1	30.9	24
15	11.5	23.8	18.7	57	37.4	56.1	61.7	106.6	116.6	**157.9**	74.6	46.1	30.7	25.2	25.2	26.2	31.2	25.7	**IZS**	30	26.8	18.5	11.5	9.6	**157.9**	44.7	24
16	11.1	6.6	8.7	6.9	7.3	7.6	10.8	16.3	11.4	28.6	11.8	12	11.6	21.9	17.8	10.5	39.9	**IZS**	47.3	50.3	71.4	96.4	42.8	29.6	96.4	25.2	24
17	38	31.6	25.8	26.9	33.8	33.8	62.1	154	53.9	31	35.1	36.1	37.4	42.5	51.2	45.1	**IZS**	31.1	9.5	4	3.4	4.1	4.4	2.7	154	34.7	24
18	3.2	3.1	2.6	1.9	1.6	1.3	1.3	1.1	1.1	1.1	1.3	2.7	2.1	1	1.9	**IZS**	17.2	16.1	19.8	16.1	12.1	17.7	20.3	9	20.3	6.8	24
19	12.8	11.1	11	10.5	12.9	10.9	12.1	20.8	28.4	57.2	36.5	29.6	29.9	28.6	**IZS**	24.2	89.4	60	83.7	111.5	143.8	44.2	42.5	35.6	143.8	41.2	24
20	31.3	32.9	25.7	41.8	25.9	18.8	56.6	21.2	47.7	21.2	12.3	15.9	12.9	**IZS**	10.3	22.4	9	8	5.4	4.3	4.3	5.2	5.2	2.9	56.6	19.2	24
21	5.1	4.8	4.3	4.9	5.1	3	2.6	26.7	23.1	1.9	10.1	3.5	**IZS**	3.8	0	10	2.7	0	1	1.3	51.5	18.4	5.7	0.4	51.5	8.3	24
22	13	29.7	25.7	28.6	1.6	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	29.7	4.3	24
23	0	0	0	0	0	0	0	0	0	0	**IZS**	0.1	0	0	0	0	0	0	0	0	0.8	0	0	0.6	0.8	0.1	24
24	0.4	0.7	0.8	1.3	1.2	1.3	0.8	0.5	0	**IZS**	**C**	**M**	**C**	79	43.7	1	16.8	20.2	22.5	14.6	16.9	10.2	8.3	5	79	12.3	23
25	6.4	5.8	17	20.6	19.2	16.5	10	21.3	**IZS**	15.8	25.3	8.7	15.1	11.5	60.1	18	17.4	14.9	22.8	20.9	16.8	10.2	23.4	20.4	60.1	18.2	24
26	25.8	49.4	57.9	48.6	40.3	36.3	41	**IZS**	75.3	94.8	59	63.4	46.1	44.4	35.7	35.1	32.6	34.9	28.7	21.8	21.5	16.6	14.8	14	94.8	40.8	24
27	13.1	10.6	12.7	12.7	9.2	13.1	**IZS**	16.7	13.5	13.2	15.6	11.6	15.7	17.4	17.3	16	15.2	28.1	36.4	41.4	62.1	99.4	28.3	24	99.4	23.6	24
28	19.5	33.4	32.3	36.7	97.1	**IZS**	47.3	35.5	48.2	47.5	38.6	24.5	24.4	20	18.9	24.2	19.1	22.4	21.5	22.1	29.4	67.5	53.6	33.5	97.1	35.5	24
29	38.3	38.9	41.4	50	**IZS**	52.9	62.5	72.4	63.8	89.6	39.2	15.5	7.4	1.1	1.8	22.8	13.7	26.3	9.2	9.8	11.1	0	0	0	89.6	29.0	24
30	0	0	0	**IZS**	3.9	2.4	5.9	12.4	12.5	16	15.3	35.1	8.4	5.1	7.4	7.7	8	7.5	8.7	9.8	9.1	6.5	5.9	6.2	35.1	8.4	24
31	5.9	6.8	**IZS**	7.7	11	20	18.9	58.8	80.6	36.5	39.1	22.5	26	36.8	34.9	38.6	73.7	91	68.3	49.5	42.8	22	23.1	19.8	91	36.3	24
HOURLY MAX	99	49	58	68	97	56	63	154	117	158	75	65	59	79	60	48	89	91	84	112	144	99	73	70			
HOURLY AVG	15.7	15.2	17.6	20.3	17.8	16.6	21.4	28.9	28.3	29.5	22.4	20.3	17.6	18.5	17.6	17.5	19.4	20.5	20.6	26.3	28.1	23.8	17.8	15.3			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	653					
MAXIMUM INSTANTANEOUS VALUE:	157.9	PPB	@ HOUR(S)	9	ON DAY(S)	15
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		742	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	22.04					



JOB #: 2833-12-12-35-C

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

December 2012

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	3.00	5.14	2.71	7.71	13.00	24.57	7.42	1.42	.71	.57	.28	3.28	8.85	7.28	10.14	2.42	98.57
<	110.0	.00	.00	.00	.00	.42	.28	.28	.00	.00	.00	.14	.00	.28	.00	.00	.00	1.42
<	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	3.00	5.14	2.71	7.71	13.42	24.85	7.71	1.42	.71	.57	.42	3.28	9.14	7.28	10.14	2.42	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

Direction

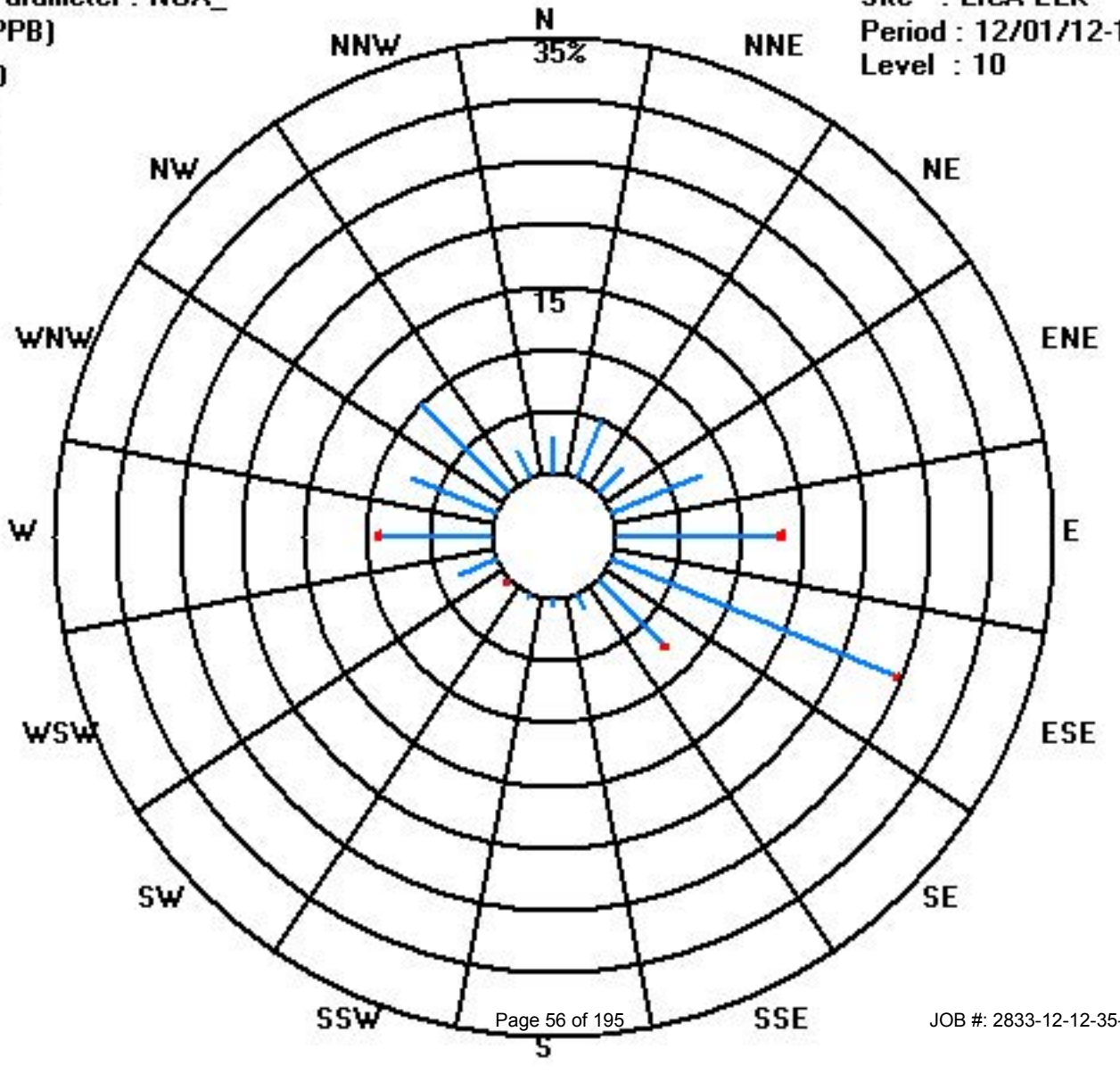
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	21	36	19	54	91	172	52	10	5	4	2	23	62	51	71	17	690
<	110.0					3	2	2				1		2				10
<	210.0																	
>=	210.0																	
	Totals	21	36	19	54	94	174	54	10	5	4	3	23	64	51	71	17	

Calm : .00 %

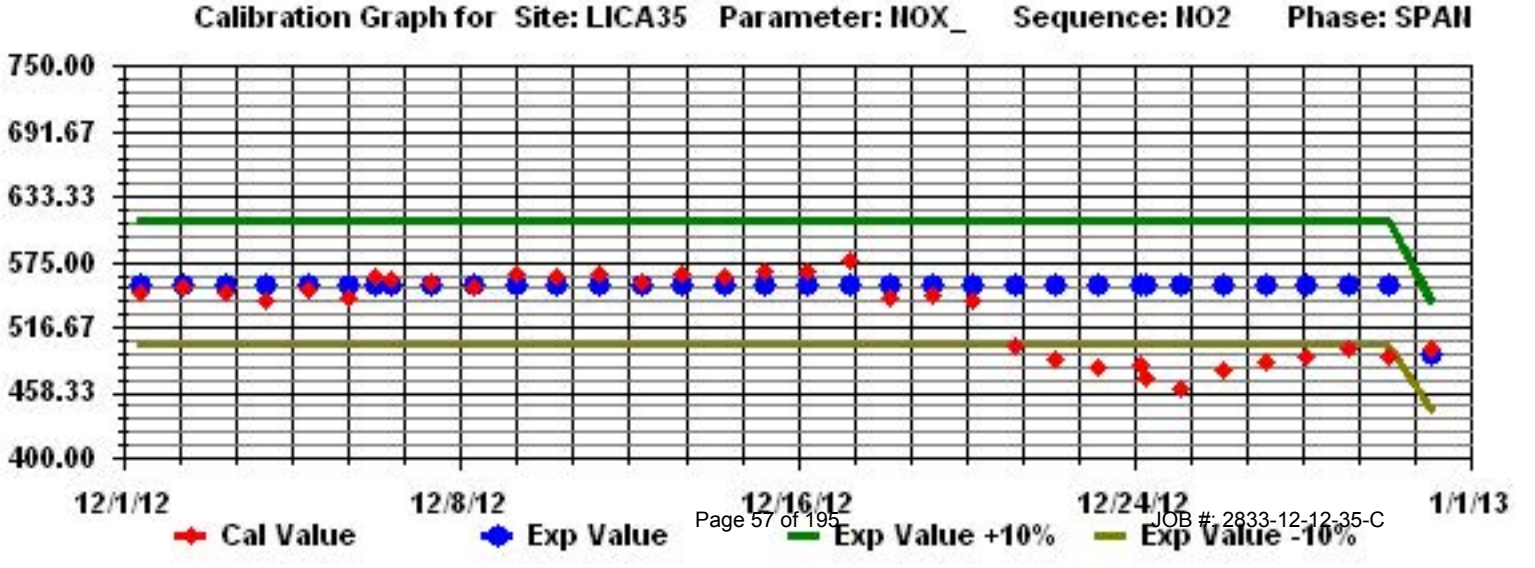
Total # Operational Hours : 700

Logger : 35 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

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



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN
750.00
691.67
633.33
575.00
516.67
458.33
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *PORTABLE SITE - Elk Poinr Airport*

DECEMBER 2012

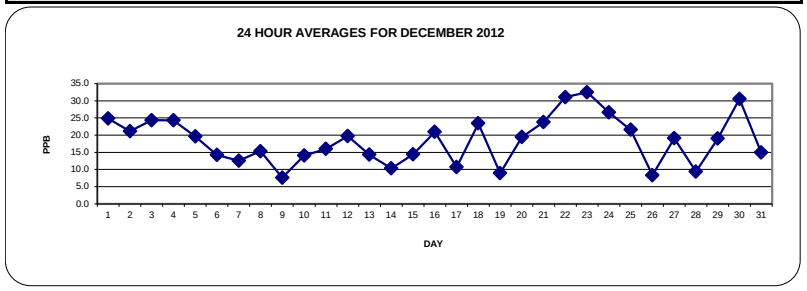
OZONE (O_3) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	24	24	23	22	26	27	27	27	26	**IZS**	26	25	26	26	25	25	25	25	25	25	24	23	23	23	27	24.9	24
2	22	22	21	21	16	10	8	14	**IZS**	16	20	16	14	18	22	27	27	26	27	28	28	28	27	27	28	21.1	24
3	27	27	27	27	28	28	29	**IZS**	29	28	29	29	28	27	25	24	24	24	23	22	21	10	12	12	29	24.3	24
4	11	18	20	22	23	22	**IZS**	23	27	28	27	28	28	28	28	26	26	26	26	25	25	25	24	22	28	24.3	24
5	22	22	21	22	12	**IZS**	21	18	22	23	21	21	22	21	19	15	16	18	18	19	20	20	19	20	23	19.7	24
6	18	18	14	13	**IZS**	10	14	10	10	12	16	20	20	20	19	15	7	11	11	10	15	19	18	6	20	14.2	24
7	6	10	12	**IZS**	6	9	9	4	6	10	15	18	**C**	**C**	**C**	**C**	18	18	14	15	15	17	17	19	19	12.5	24
8	20	20	**IZS**	17	14	12	11	9	12	20	23	24	24	23	22	22	23	22	14	10	5	3	1	1	24	15.3	24
9	0	**IZS**	1	1	1	2	1	1	5	9	13	16	16	15	15	12	10	9	9	8	7	9	7	7	16	7.6	24
10	**IZS**	7	1	4	20	23	20	19	15	18	21	22	22	23	23	21	16	12	9	2	2	3	5	**IZS**	23	14.0	24
11	6	7	7	8	10	14	16	15	13	15	19	21	21	20	19	18	17	18	19	19	21	23	**IZS**	21	23	16.0	24
12	21	22	22	22	23	25	25	25	22	21	20	21	21	18	18	16	13	14	14	17	17	**IZS**	19	18	25	19.7	24
13	17	17	17	19	19	15	13	15	14	17	18	19	19	19	18	15	14	13	9	8	**IZS**	4	3	6	19	14.3	24
14	6	6	6	5	5	5	3	4	3	6	9	9	6	6	8	5	7	19	29	**IZS**	17	26	24	24	29	10.3	24
15	23	18	16	17	8	1	1	1	1	5	10	17	18	21	20	17	11	15	**IZS**	16	19	23	25	28	28	14.4	24
16	29	31	30	30	28	28	26	25	27	26	27	27	28	25	26	25	13	**IZS**	8	3	9	3	2	6	31	21.0	24
17	2	3	6	5	3	1	1	1	2	9	12	12	12	11	9	6	**IZS**	12	22	23	24	23	23	23	24	10.7	24
18	23	23	23	24	24	24	24	24	25	25	26	27	27	28	28	**IZS**	24	23	17	17	22	20	18	22	28	23.4	24
19	22	22	19	17	13	13	11	6	7	7	11	13	13	12	**IZS**	9	2	2	1	1	1	1	1	1	22	8.9	24
20	1	1	3	7	6	8	9	11	12	17	24	24	26	**IZS**	28	30	31	33	31	30	30	29	29	28	33	19.5	24
21	27	26	26	24	25	26	25	24	24	26	26	26	**IZS**	26	27	24	26	25	22	21	12	17	21	21	27	23.8	24
22	20	11	7	13	28	33	34	35	35	35	34	**IZS**	34	35	35	35	36	35	37	37	37	37	36	35	37	31.0	24
23	35	34	34	34	33	33	32	31	30	30	**IZS**	31	32	32	31	31	32	33	35	34	33	34	32	30	35	**32.4**	24
24	30	30	30	29	29	29	30	30	29	**IZS**	28	27	27	27	27	28	21	21	19	24	20	24	25	27	30	26.6	24
25	26	26	20	19	20	21	24	21	**IZS**	22	24	28	28	29	26	23	21	22	15	14	19	20	13	14	29	21.5	24
26	6	3	1	1	1	2	1	**IZS**	2	5	10	11	14	13	12	8	5	4	11	14	16	17	17	17	17	8.3	24
27	19	22	19	18	22	23	**IZS**	20	22	23	25	26	26	23	23	22	19	17	11	9	14	8	15	13	26	19.1	24
28	19	8	11	11	2	**IZS**	2	4	4	10	16	18	19	20	18	13	10	8	6	6	7	1	2	1	20	9.4	24
29	1	1	1	1	**IZS**	1	1	1	1	6	17	28	33	36	35	25	28	28	27	26	33	35	35	37	37	19.0	24
30	37	37	35	**IZS**	30	31	29	30	27	25	27	31	33	33	33	31	30	30	29	27	27	30	30	30	37	30.5	24
31	29	29	**IZS**	28	27	25	17	7	4	12	17	20	20	16	15	13	3	2	1	2	9	13	13	21	29	14.9	24
HOURLY MAX	37	37	35	34	33	33	34	35	35	35	34	31	34	36	35	35	36	35	37	37	37	37	36	37			
HOURLY AVG	18.3	18.2	16.3	16.6	17.3	17.3	16.0	15.7	15.7	17.4	20.4	21.8	22.7	22.4	22.6	20.0	18.5	18.8	18.0	17.1	18.3	18.2	17.9	18.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



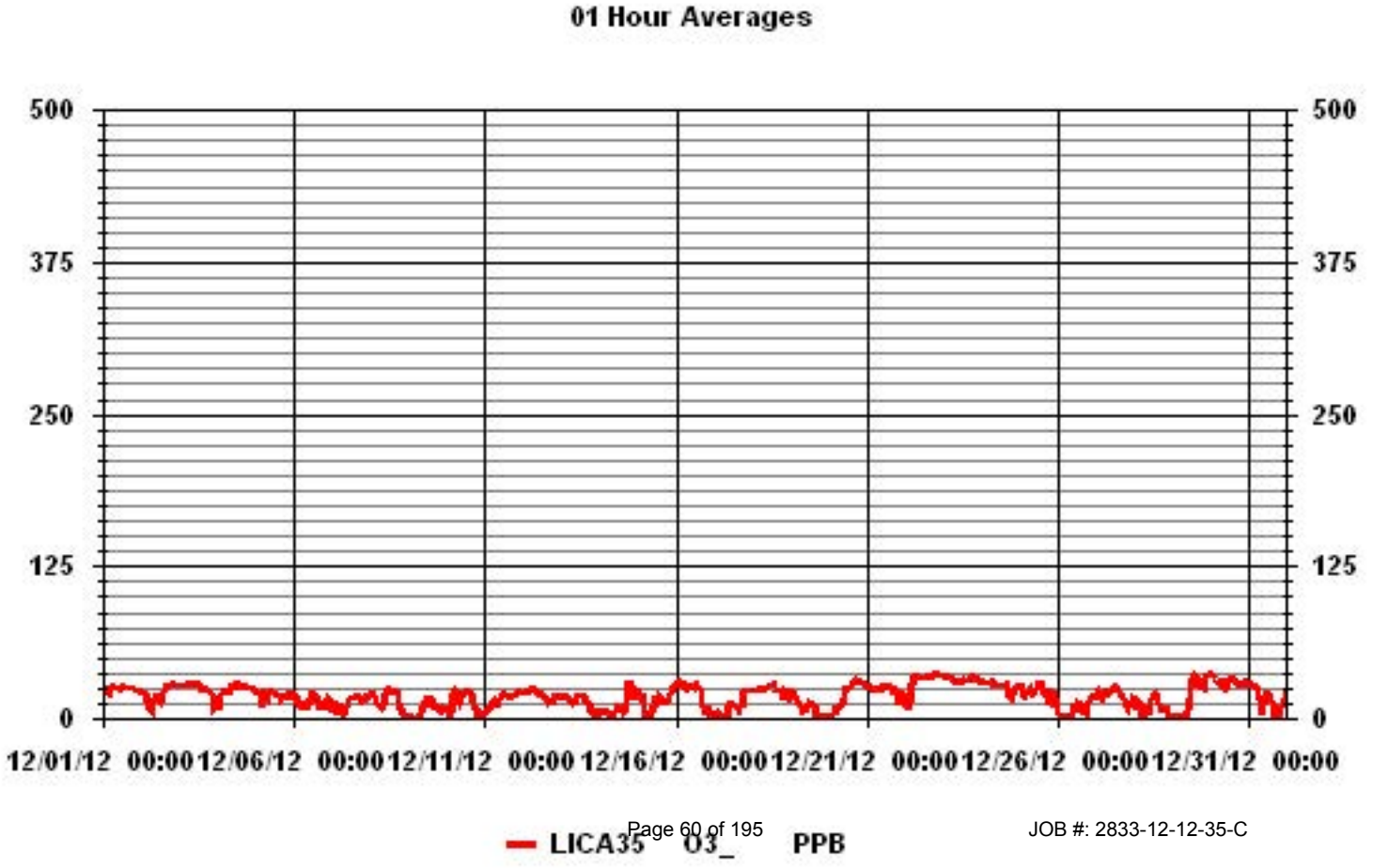
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	32.4	PPB			ON DAY(S)	23
					VAR-VARIOUS	

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	9.44		MONTHLY AVERAGE:	18.51	PPB

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

OZONE MAX instantaneous maximum in ppb

MST

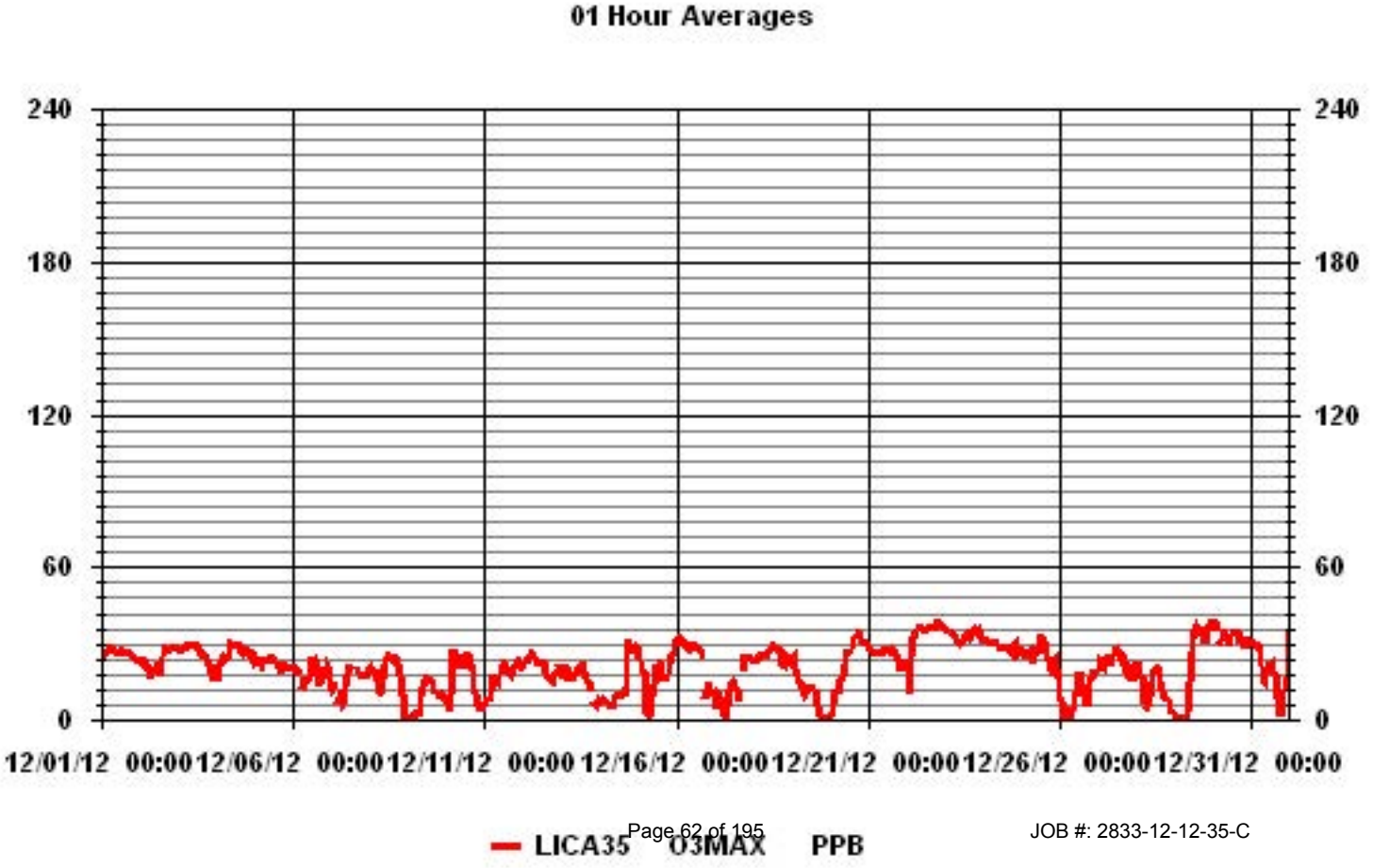
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	24	24	25	26	27	28	28	27	27	**IZS**	26	26	27	27	26	26	26	26	26	25	25	24	23	23	28	25.7	24
2	23	23	22	23	22	20	17	17	**IZS**	20	21	21	17	21	25	28	28	27	27	28	28	28	28	28	28	23.6	24
3	27	27	27	28	28	29	29	**IZS**	29	29	29	29	29	28	26	25	25	25	24	23	22	19	15	18	29	25.7	24
4	15	21	22	23	25	24	**IZS**	25	30	30	29	29	29	29	29	27	26	27	27	26	27	26	26	23	30	25.9	24
5	24	23	22	22	20	**IZS**	23	23	24	23	23	24	24	23	21	19	19	21	21	21	21	20	20	20	24	21.8	24
6	20	20	20	19	**IZS**	14	16	14	15	16	17	23	23	23	24	22	13	15	16	19	19	22	21	12	24	18.4	24
7	11	12	14	**IZS**	8	11	11	7	8	13	18	21	**C**	**C**	**C**	**C**	20	19	17	17	17	17	18	20	21	14.7	24
8	21	20	**IZS**	19	16	13	11	10	16	22	24	25	25	24	23	24	24	23	22	18	10	10	1	1	25	17.5	24
9	1	**IZS**	1	1	2	3	3	2	9	13	15	17	17	16	16	15	11	11	11	9	9	10	9	8	17	9.1	24
10	**IZS**	9	3	10	26	26	22	22	21	21	24	24	23	25	25	22	20	13	11	6	4	4	6	**IZS**	26	16.7	24
11	7	8	8	9	11	17	17	16	15	18	21	22	22	20	20	19	18	20	21	22	22	24	**IZS**	21	24	17.3	24
12	22	23	23	23	25	26	26	25	24	23	22	22	22	22	19	18	17	17	16	18	19	**IZS**	21	19	26	21.4	24
13	20	19	18	20	20	19	15	18	18	19	20	21	20	21	19	17	15	15	12	12	**IZS**	7	6	8	21	16.5	24
14	7	7	8	7	7	7	5	5	5	9	10	10	10	8	11	9	13	26	31	**IZS**	28	29	27	28	31	13.3	24
15	27	24	19	19	19	3	3	2	3	9	14	20	20	22	22	19	15	17	**IZS**	19	22	25	26	29	29	17.3	24
16	31	32	32	31	30	30	29	28	29	28	29	29	29	28	27	27	25	**IZS**	10	12	15	9	11	10	32	24.4	24
17	5	5	10	9	8	2	1	1	5	12	14	15	14	13	12	9	**IZS**	20	24	24	24	24	24	24	24	13.0	24
18	23	23	24	24	25	25	25	25	25	26	27	28	29	29	28	**IZS**	27	27	22	21	27	23	24	24	29	25.3	24
19	24	25	21	18	15	15	13	10	9	10	13	13	13	13	**IZS**	11	6	3	2	1	1	1	1	1	25	10.4	24
20	2	2	6	11	11	11	15	16	17	22	26	26	27	**IZS**	29	32	33	34	34	31	31	30	30	30	34	22.0	24
21	28	27	27	26	26	26	26	26	26	27	27	27	**IZS**	27	28	27	27	26	24	21	19	21	22	22	28	25.3	24
22	24	21	10	25	32	34	35	36	36	36	35	**IZS**	35	36	36	36	36	36	38	38	38	37	37	36	**38**	33.2	24
23	35	35	35	34	34	33	33	32	31	30	**IZS**	32	33	34	33	32	33	35	36	35	34	35	33	31	36	33.4	24
24	31	31	31	30	30	30	30	30	30	**IZS**	28	28	28	28	28	28	28	27	26	29	30	26	27	27	31	28.7	24
25	27	27	25	25	26	26	27	23	**IZS**	26	28	29	32	32	31	27	25	24	20	17	23	24	21	17	32	25.3	24
26	10	8	1	1	3	5	2	**IZS**	4	10	11	15	18	19	13	10	6	6	14	17	20	18	19	19	20	10.8	24
27	20	23	22	21	24	25	**IZS**	22	24	25	27	27	28	26	24	25	24	23	19	16	19	15	22	16	28	22.5	24
28	23	22	18	17	7	**IZS**	5	6	9	15	19	19	20	20	19	16	12	9	8	8	8	3	3	3	23	12.6	24
29	1	1	1	1	**IZS**	1	1	1	3	15	27	32	35	37	36	34	34	36	31	31	35	36	36	38	38	21.9	24
30	38	38	36	**IZS**	31	32	32	35	32	29	31	33	34	34	34	34	31	31	31	29	29	31	31	31	38	32.5	24
31	30	30	**IZS**	29	29	28	22	16	15	18	21	21	22	19	19	18	9	4	1	4	12	16	16	33	33	18.8	24
HOURLY MAX	38	38	36	34	34	34	35	36	36	36	35	33	35	37	36	36	36	36	38	38	38	37	37	38			
HOURLY AVG	20.0	20.3	18.3	19.0	20.2	19.4	18.0	17.9	18.6	20.5	22.5	23.6	24.3	24.3	24.2	22.6	21.5	21.4	20.7	19.9	21.3	20.5	20.1	20.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708					
MAXIMUM INSTANTANEOUS VALUE:	38	PPB	@ HOUR(S)	VAR	ON DAY(S)	22
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	9.05					



JOB #: 2833-12-12-35-C

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

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	2.96	5.08	2.68	7.62	13.27	24.15	7.62	1.41	.70	.56	.42	3.53	9.60	7.48	10.45	2.40	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.96	5.08	2.68	7.62	13.27	24.15	7.62	1.41	.70	.56	.42	3.53	9.60	7.48	10.45	2.40	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	21	36	19	54	94	171	54	10	5	4	3	25	68	53	74	17	708
<	110																	
<	210																	
>=	210																	
	Totals	21	36	19	54	94	171	54	10	5	4	3	25	68	53	74	17	

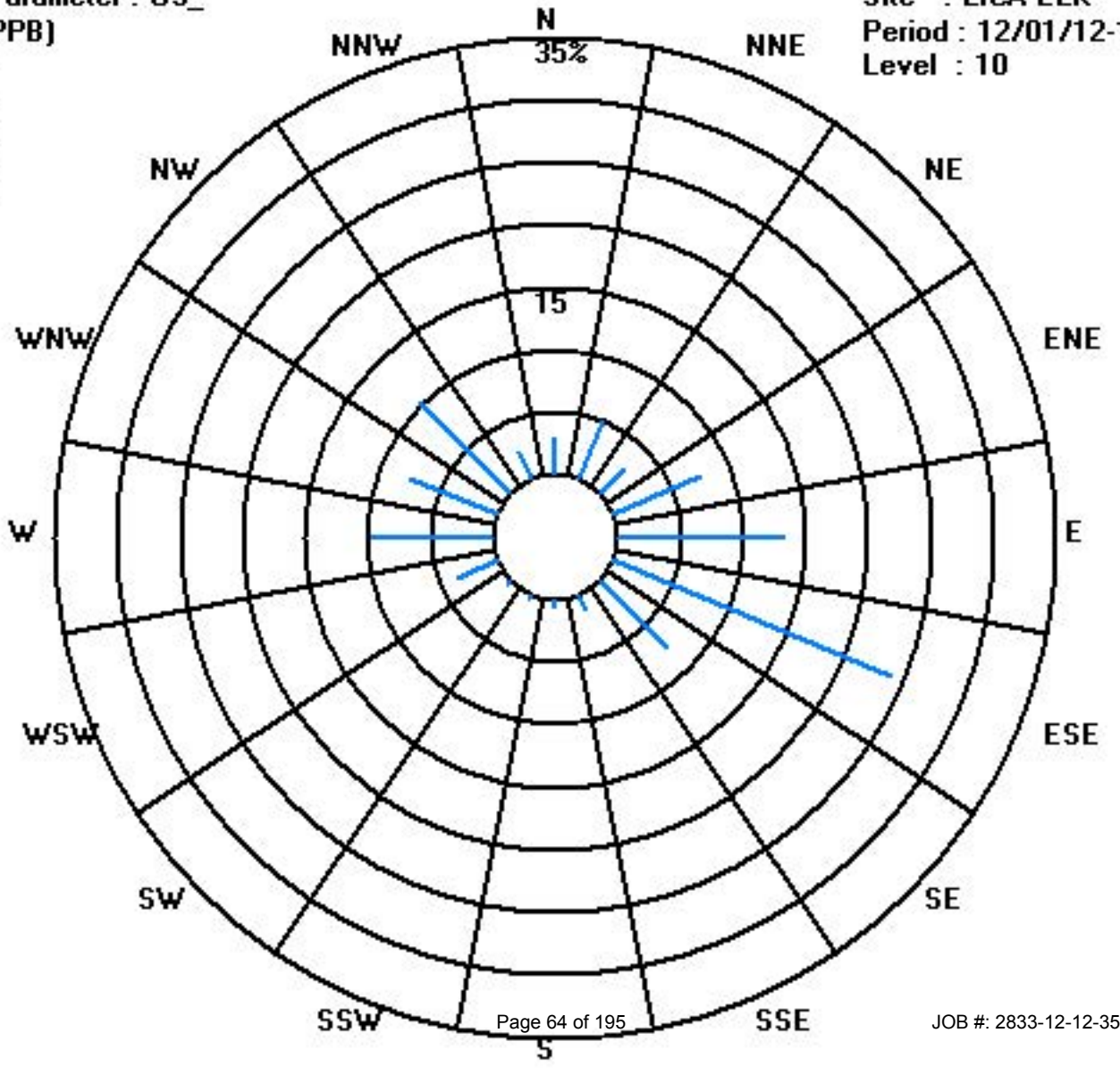
Calm : .00 %

Total # Operational Hours : 708

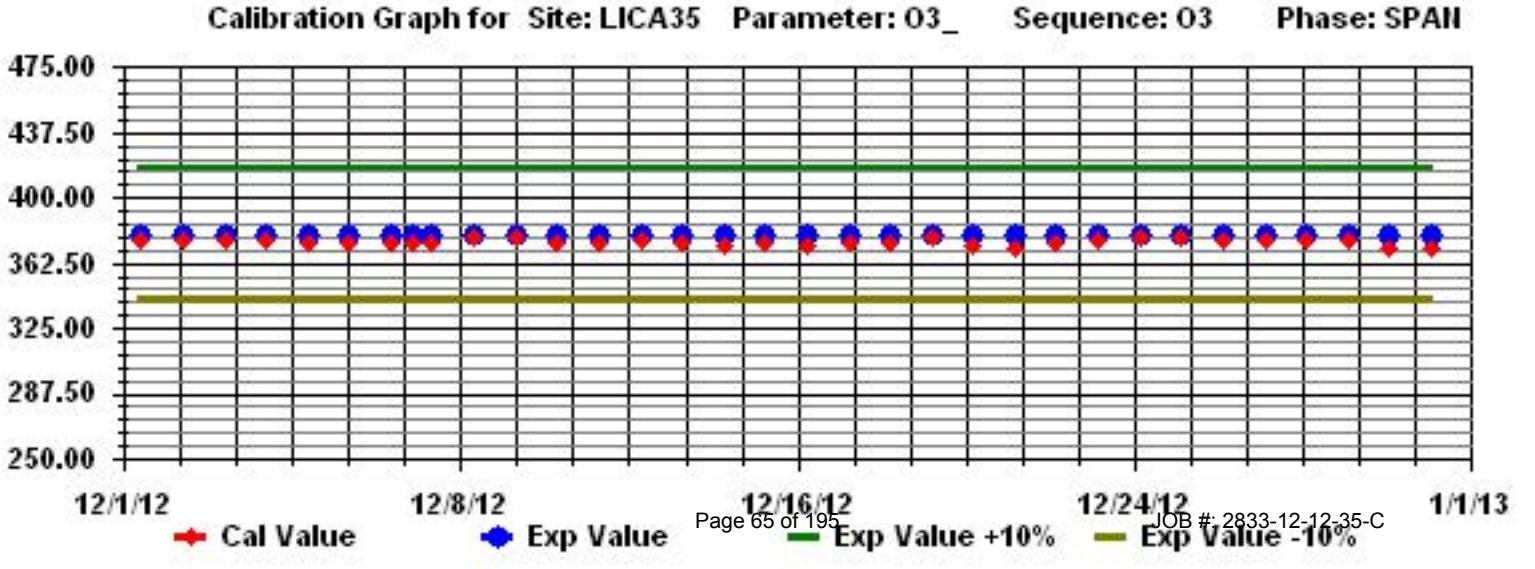
Logger : 35 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

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



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN
475.00
437.50
400.00
362.50
325.00
287.50
250.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

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

DECEMBER 2012

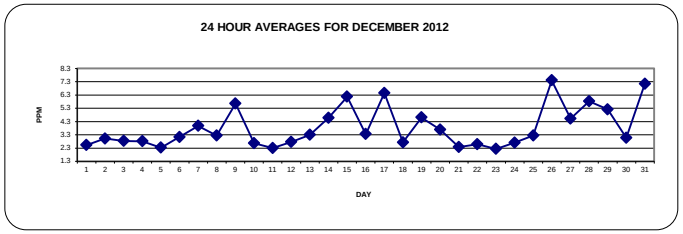
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.6	2.6	2.8	3	2.8	2.6	2.5	2.4	2.4	**IZS**	2.5	2.7	2.5	2.5	2.5	2.6	2.6	2.3	2.2	2.3	2.3	2.4	2.4	2.5	3.0	2.5	24
2	2.4	2.6	2.6	2.6	3.4	3.2	3.4	4.3	**IZS**	3.8	3	4.1	6.1	4.5	3.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	6.1	3.0	24
3	2.3	2.3	2.4	2.3	2.3	2.4	2.3	**IZS**	2.4	2.5	2.4	2.4	2.6	2.8	3.2	3.1	2.5	2.5	2.6	2.7	2.8	5	5	4.5	5.0	2.8	24
4	5.3	4.8	4.1	4.2	3.9	3.9	**IZS**	3.7	2.9	2.5	2.3	2.1	2	2	1.9	1.9	1.9	2	1.9	2	2.1	2.2	2.3	2.7	5.3	2.8	24
5	2.5	2.5	2.9	2.5	3.9	**IZS**	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.6	2.4	2.1	2.1	2.1	2	2	2	2.1	3.9	2.3	24
6	2	2.1	2.4	2.8	**IZS**	3.3	2.8	3.1	3.5	3.6	3.1	2.9	2.9	3.2	4.2	**C**	**C**	**C**	**C**	3.6	3.3	3	2.7	5	5.0	3.1	24
7	4.8	4.1	3.8	**IZS**	5.2	4.7	4.2	4.7	4.5	4.4	4.8	4.5	4.2	3.7	3.2	**M**	3	2.9	3.5	3.9	3.7	3.3	3.1	3	5.2	4.0	23
8	2.7	3	**IZS**	3.4	3.3	3.2	3.1	3.5	3.1	1.9	1.6	1.6	1.6	1.6	1.7	1.7	1.9	1.9	2.3	3	4.2	5.9	9.6	8.8	9.6	3.2	24
9	12.7	**IZS**	12.7	12.3	9.1	7.5	8.3	7	6.3	4.9	4.1	3.1	3.2	2.9	3.1	2.6	2.8	3	3.5	3.6	3.8	3.6	**C**	4.1	12.7	5.6	24
10	**IZS**	4	5.2	3.9	2	1.5	1.6	1.7	2.1	2.3	1.7	1.7	1.6	1.6	1.7	1.8	2.2	2.5	2.2	2.9	5.9	4.8	3.7	**IZS**	5.9	2.7	24
11	2.7	2.7	3.2	3.6	3.4	3	2.6	2.4	2.3	2.1	1.9	1.8	1.8	1.9	1.9	1.9	2	1.9	1.9	1.8	1.8	1.7	**IZS**	2.5	3.6	2.3	24
12	2.4	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.5	2.7	2.7	3.4	2.9	2.9	3.7	3.8	3.9	3.3	3.4	**IZS**	2.7	2.8	3.9	2.8	24
13	2.7	3	3.2	2.8	2.5	2.9	3.2	3.5	3.9	2.7	3.4	3.2	2.8	2.8	2.8	3	2.9	3	3.4	3.8	**IZS**	4.4	4.7	5.1	5.1	3.3	24
14	4.5	4.6	4.6	4.8	4.9	5.1	5.8	5.2	5.3	5.7	5.7	**C**	**C**	8.2	5.9	5.1	3.5	3.2	2.5	**IZS**	3.1	2.6	2.8	2.8	8.2	4.6	24
15	2.8	3.3	3.6	3.9	4.7	8.7	10.6	9.7	10.8	10.2	9.3	7.6	6.6	6.2	5.8	5.6	6.6	6.7	**IZS**	5.5	4.8	3.4	2.9	2.4	10.8	6.2	24
16	2.2	1.7	1.6	1.5	1.5	**N**	**N**	1.5	1.7	1.9	1.5	1.5	1.6	1.5	1.6	1.6	2.1	**IZS**	3.8	6	10.7	8.4	9.8	6.6	10.7	3.3	22
17	8.7	10.5	7.1	6.6	6.6	7.4	9.6	10.5	9.3	7.3	7.6	7.3	7	7.5	7.8	6.7	**IZS**	5.4	3.1	2.5	2.3	2.4	2.5	2.6	10.5	6.4	24
18	2.8	2.8	2.6	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	**IZS**	2.5	2.9	4.2	3.8	3.5	3.2	3.1	2.7	4.2	2.7	24
19	2.7	2.6	3.3	3.2	3.8	3.5	3.6	4.1	4.2	5.1	7	6	6	5.1	**IZS**	3.3	4.4	3.9	4.1	4.8	5.7	6.4	6.6	6.4	7.0	4.6	24
20	7.5	6.6	5.2	3.8	4.1	3.8	3.9	3.3	3.5	1.9	1.9	1.7	3	**IZS**	13.7	2.2	2.2	2.1	2.3	2.3	2.4	2.4	2.6	2.4	13.7	3.7	24
21	2.9	2.6	2.5	2.6	2.6	2.3	2.6	2.3	2.3	2.2	2.2	2.3	**IZS**	2.1	2.1	2.1	2.2	2.1	2.2	2.2	3.1	2.6	2.3	2.3	3.1	2.4	24
22	2.4	3.5	5.9	4.2	2.9	2.5	2.3	2.2	2.3	2.4	2.3	**IZS**	2.3	2.3	2.2	2.2	2.2	2.3	2.1	2.2	2.2	2.1	2.1	2.2	5.9	2.6	24
23	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.2	2.3	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.3	2.2	2.3	2.5	2.5	2.2	24
24	2.5	2.5	2.6	2.8	2.8	2.6	2.5	2.6	2.4	**IZS**	2.4	2.5	2.6	2.5	2.4	2.4	2.9	3.2	3.7	3.1	3.1	3	2.7	2.5	3.7	2.7	24
25	2.6	2.6	3.5	3.9	3.4	2.7	2.8	2.7	**IZS**	2.7	2.6	2.4	2.7	2.3	2.5	3.2	3.4	3.4	4.3	4.8	3.2	3.6	4.2	5.2	5.2	3.2	24
26	7.8	9.5	12.2	8.7	10.4	8.6	9	**IZS**	6.3	7.4	10.4	10.6	8.4	8.7	6.8	7.9	7	6.1	4.5	4.2	4.3	3.8	3.4	4.1	12.2	**7.4**	24
27	4.3	4.1	4.6	5	4.4	4.2	**IZS**	5.2	4.7	4.1	4	4.2	4.3	4.7	4.9	4.6	4.7	4.4	4.6	3.9	4.2	5.7	4	4.9	5.7	4.5	24
28	4	3.9	6.1	7.6	12.2	**IZS**	8.4	7.9	6.8	6	7.1	6.6	6.3	5.4	4.5	4	3.8	3.6	3.7	3.9	3.6	3.7	5.1	9.8	12.2	5.8	24
29	9.7	9.1	8.4	9.4	**IZS**	9.4	8.5	8.6	10.1	9.4	3.6	3	2.5	2.4	2.4	3.2	3.3	2.6	2.9	2.9	2.2	2.1	2.1	2.1	10.1	5.2	24
30	2.1	2.1	2.2	**IZS**	2.4	2.5	2.7	2.6	3.7	4.9	3.2	3.3	2.8	2.5	2.6	2.8	3.1	3	3.3	3.4	3.6	3.8	4	4.1	4.9	3.1	24
31	4.2	4.2	**IZS**	3.5	4	3.7	4.6	5.1	6.8	9.8	8.3	7.2	6.9	8.1	8.2	9.9	9.6	13.3	14.1	**16.1**	6.6	3.2	3	3.7	**16.1**	7.1	24
HOURLY MAX	12.7	10.5	12.7	12.3	12.2	9.4	10.6	10.5	10.8	10.2	10.4	10.6	8.4	8.7	13.7	9.9	9.6	13.3	14.1	16.1	10.7	8.4	9.8	9.8			
HOURLY AVG	4.0	3.8	4.3	4.2	4.1	4.0	4.3	4.1	4.2	4.2	3.9	3.6	3.6	3.6	3.7	3.4	3.3	3.5	3.4	3.7	3.6	3.5	3.7	3.8			

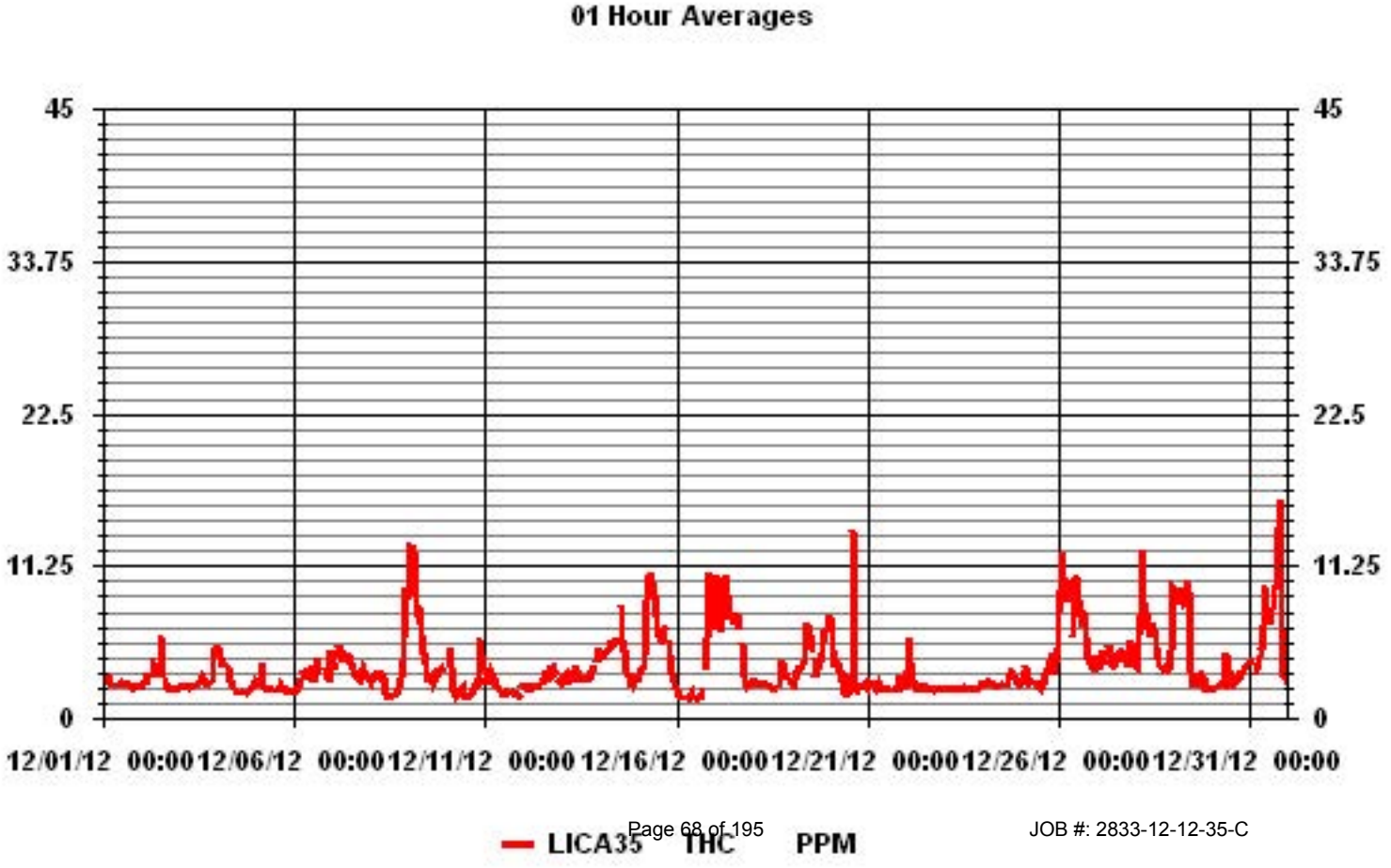
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM 1-HR AVERAGE:	16.1	PPM	@ HOUR(S)	19	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	7.4	PPM			ON DAY(S)	26
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		741	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.6	%
STANDARD DEVIATION:	2.28		MONTHLY AVERAGE:		3.82	PPM



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

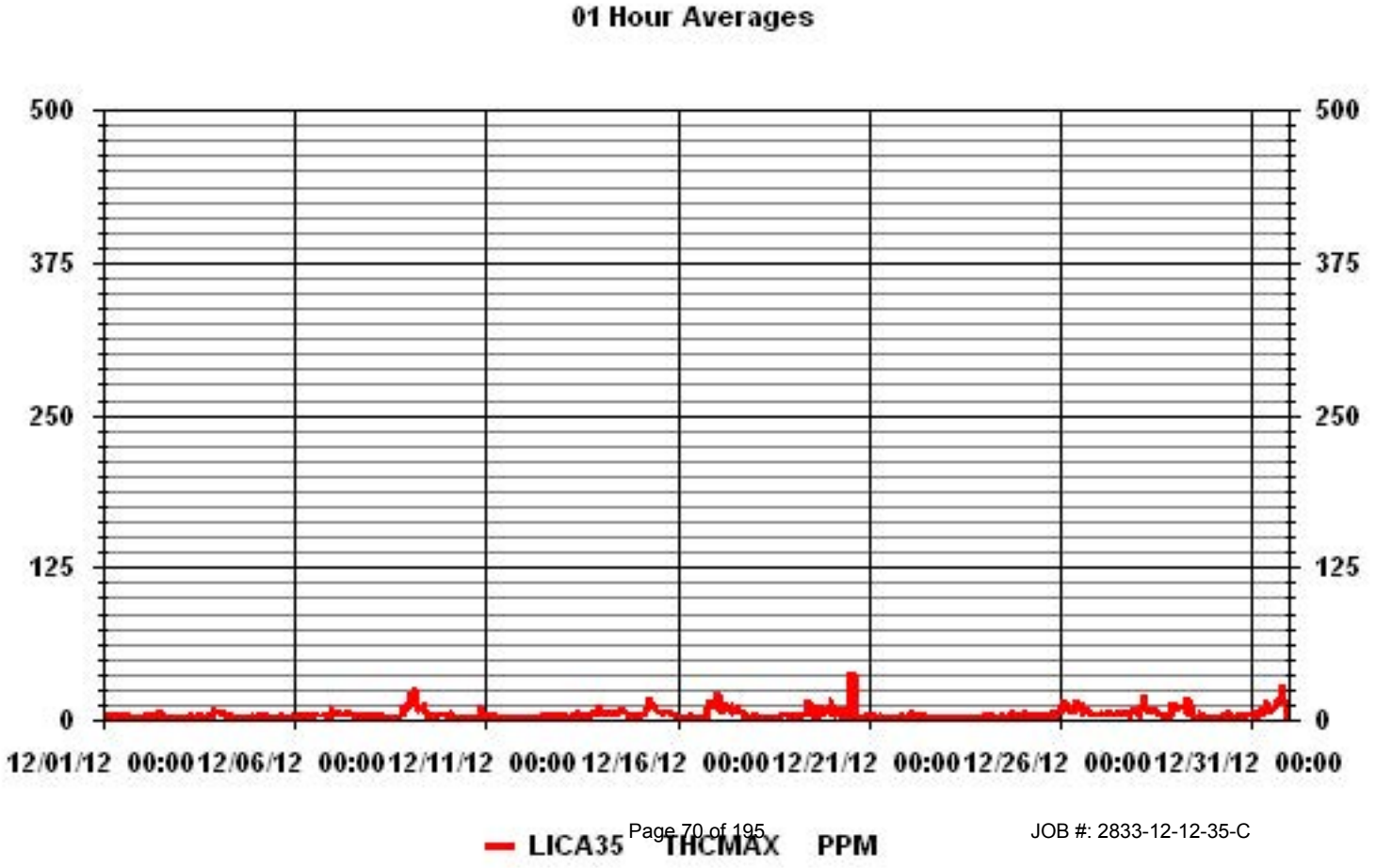
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.7	2.7	3.3	3.3	3.3	2.7	2.7	2.6	3	**IZS**	2.8	2.9	2.7	2.8	3	3	2.8	2.7	2.4	2.4	2.4	2.5	2.5	2.6	3.3	2.8	24
2	2.5	2.8	2.8	2.8	4.6	3.5	3.7	5.2	**IZS**	4.7	3.3	6.1	7	6.7	4.2	2.7	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	7	3.5	24
3	2.4	2.4	2.4	2.4	2.4	2.5	2.4	**IZS**	2.6	2.6	2.5	2.6	2.8	3.1	3.6	3.6	2.6	2.6	2.7	3.3	3.4	8	8.3	6.1	8.3	3.4	24
4	6.1	6	5	5.1	5	4.4	**IZS**	4	4	3.1	3	2.5	2.3	2.1	2	2	2.2	2.3	2	2.1	2.2	2.6	2.7	3.5	6.1	3.3	24
5	2.7	2.7	4	2.8	5.7	**IZS**	2.8	2.6	2.4	2.3	2.5	2.3	2.3	2.4	2.8	3.7	3	2.3	2.3	2.3	2.2	2.6	2.8	2.7	5.7	2.8	24
6	2.3	2.4	4.2	3.8	**IZS**	4.6	3.5	3.9	4.6	4.5	3.2	3.4	3.3	4.2	**C**	**C**	**C**	**C**	**C**	4.5	3.6	3.7	3.3	7.7	7.7	3.9	24
7	5.7	4.5	4.4	**IZS**	5.8	5.8	4.6	5.3	5.1	5.2	5.3	5	4.6	4	3.5	M	3.3	3.1	4.3	4.9	4.2	3.6	3.4	3.2	5.8	4.5	23
8	3	3.4	**IZS**	4.2	4.1	3.5	3.3	3.8	3.8	2.5	1.7	1.6	1.7	1.7	1.7	1.8	2.1	2.2	3.1	11.1	10.9	8.9	12.3	12.1	12.3	4.5	24
9	21	**IZS**	15.1	26.1	12.3	8.8	10	9.1	10.6	6.6	6.8	4	4.3	3.3	4.2	3.2	3.6	3.2	4.4	4.4	4.5	4.4	**C**	4.7	26.1	7.9	24
10	**IZS**	3.8	5.9	4.6	2.5	1.4	1.6	1.6	2.5	2.6	1.5	1.6	1.3	1.3	1.4	1.5	2.3	2.4	2.1	4.7	12.8	7.9	3.7	**IZS**	12.8	3.2	24
11	3	2.8	3.5	3.8	3.5	3.2	2.8	2.5	2.4	2.3	2.1	1.9	1.9	1.9	1.9	2	2.2	2.1	2	2	2	1.9	**IZS**	2.6	3.8	2.4	24
12	2.7	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.7	3.1	2.9	4.1	3.1	3.3	4.5	4.3	4.2	3.9	4.6	**IZS**	3.2	3.5	4.6	3.1	24
13	3.1	3.9	3.6	3.7	2.6	3.4	3.3	5.4	6.4	3.5	4.1	4.3	4.4	3.5	3.6	3.6	3.9	3.9	5.1	5.3	**IZS**	6.1	5.7	12.3	12.3	4.6	24
14	4.8	4.8	4.8	5.2	5.2	5.9	6.8	5.4	5.5	6.1	5.9	**C**	**C**	9.8	6.9	6.6	6.5	3.6	3	**IZS**	3.4	3	3.3	3.2	9.8	5.2	24
15	3.1	4.8	4.2	4.7	7.9	10.4	18.5	10.8	13.6	11.1	10.3	8.9	6.9	6.6	6.1	5.8	7.3	7.1	**IZS**	7.5	5.5	4.4	3.6	2.8	18.5	7.5	24
16	3	2.1	2.4	1.6	1.6	1.5	1.6	2.5	2.9	3	1.8	1.6	1.9	1.6	1.7	1.7	3.5	**IZS**	4.1	10	15.1	9.7	12.5	8.7	15.1	4.2	24
17	12.4	22	8.7	7	7	8.2	11.9	11.4	10.7	8.1	10.7	7.9	7.5	8	10	7.5	**IZS**	7.1	3.6	2.7	2.4	2.5	2.6	2.9	22	7.9	24
18	2.9	2.9	2.8	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.4	2.3	**IZS**	2.8	4.4	5.5	4.6	5.2	3.9	3.5	2.9	5.5	3.1	24
19	2.8	2.8	4.6	3.5	4.2	3.7	4.2	4.6	5.2	6.2	16.7	6.5	6.6	5.4	**IZS**	3.8	12	5.6	5.5	9.1	8	7.5	9.9	8.4	16.7	6.4	24
20	12.6	10	6.2	4.6	5.7	4.7	10.3	4.4	6.5	4.5	2.5	1.8	36.5	**IZS**	**36.9**	2.3	2.2	2.6	2.4	2.4	2.5	2.6	4	2.6	**36.9**	7.4	24
21	4.1	3.4	2.7	2.7	2.9	2.5	2.9	2.7	2.6	2.2	2.5	2.4	**IZS**	2.3	2.1	2.3	2.3	2.2	2.3	2.6	3.9	3.5	2.6	2.5	4.1	2.7	24
22	2.8	5.1	6.9	6.4	3.1	2.8	2.7	2.8	2.8	2.7	2.6	**IZS**	2.6	2.6	2.5	2.6	2.7	2.4	2.4	2.6	2.5	2.2	2.2	2.5	6.9	3.1	24
23	2.2	2.6	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	**IZS**	2.3	2.4	2.4	2.3	2.5	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.6	2.6	2.4	24
24	2.6	2.7	2.7	3	3	2.8	2.7	2.8	2.4	**IZS**	2.4	3.2	3	3.1	2.5	2.4	4.1	4.2	5.5	4.1	3.4	3.2	2.9	2.6	5.5	3.1	24
25	2.8	2.8	4.8	4.7	3.9	3.1	3	2.9	**IZS**	3.2	3	3	3.1	2.5	3.7	4.5	4.2	4	5.9	6	3.7	3.8	5.6	6.4	6.4	3.9	24
26	10.4	11.5	15.9	10.4	12	10.5	10	**IZS**	7.3	9.4	16.2	11.8	10.3	14.3	7.4	8.7	8.9	6.8	5.9	5	5.7	4.1	4	4.4	16.2	9.2	24
27	4.8	4.6	5	5.6	4.9	4.9	**IZS**	5.7	5.2	4.5	4.5	4.9	5.1	5.1	5.2	5.1	5.7	5.3	5.4	4.1	6.5	8.2	7.2	7.4	8.2	5.4	24
28	5.4	4.8	13	10.5	19.2	**IZS**	9.2	9.4	8.4	9.6	8.5	7.7	7	6.3	5.7	4.7	4.4	3.9	4	4.1	3.7	4.2	12.1	12.8	19.2	7.8	24
29	11.4	10.2	10.5	11.5	**IZS**	12.2	9.9	16.5	16	13.3	5.8	3.8	2.8	2.6	3.1	5.1	3.8	3.8	3.2	3.5	2.5	2.1	2.1	2.1	16.5	6.9	24
30	2.2	2.2	2.3	**IZS**	2.5	2.8	3	3.2	5.7	8.6	3.6	4.1	3.1	2.6	3.6	3.2	3.2	3.2	3.4	3.6	3.9	3.9	4.2	4.2	8.6	3.6	24
31	4.3	5.6	**IZS**	3.8	6.3	3.9	5.4	6.4	9.1	15.4	10.5	8.8	7.8	8.6	9.8	16.3	12.3	16.8	16.3	29.1	17.9	3.4	4.8	5.7	29.1	9.9	24
HOURLY MAX	21.0	22.0	15.9	26.1	19.2	12.2	18.5	16.5	16.0	15.4	16.7	11.8	36.5	14.3	36.9	16.3	12.3	16.8	16.3	29.1	17.9	9.7	12.5	12.8			
HOURLY AVG	5.1	4.8	5.4	5.3	5.1	4.5	5.2	5.0	5.5	5.3	5.1	4.2	5.2	4.2	5.1	4.1	4.2	4.1	4.1	5.2	5.1	4.3	4.8	4.9			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	36.9	PPB	@ HOUR(S)	14	ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	3.85					



JOB #: 2833-12-12-35-C

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

December 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
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	2.84	4.84	2.27	6.69	3.27	8.83	1.85	.42	.14	.28	.28	1.13	3.41	3.98	7.54	1.85	49.71
<	10.0	.14	.14	.42	.99	9.25	14.52	5.27	.99	.56	.28	.14	2.13	5.84	3.56	2.70	.56	47.57
<	50.0	.00	.00	.00	.00	.71	1.13	.56	.00	.00	.00	.00	.00	.14	.00	.14	.00	2.70
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.99	4.98	2.70	7.69	13.24	24.50	7.69	1.42	.71	.56	.42	3.27	9.40	7.54	10.39	2.42	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	20	34	16	47	23	62	13	3	1	2	2	8	24	28	53	13	349
<	10.0	1	1	3	7	65	102	37	7	4	2	1	15	41	25	19	4	334
<	50.0					5	8	4						1		1		19
>=	50.0																	
	Totals	21	35	19	54	93	172	54	10	5	4	3	23	66	53	73	17	

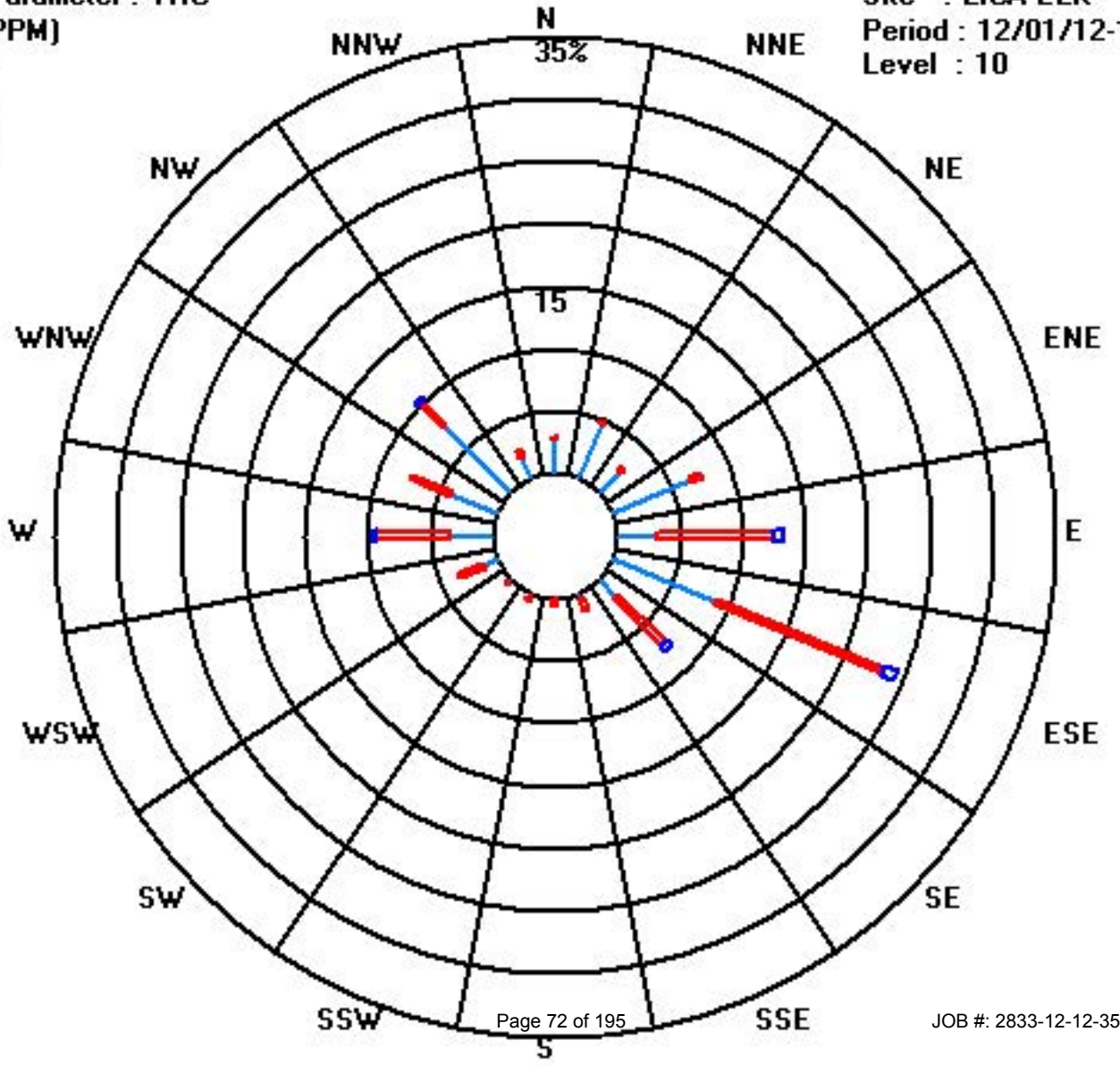
Calm : .00 %

Total # Operational Hours : 702

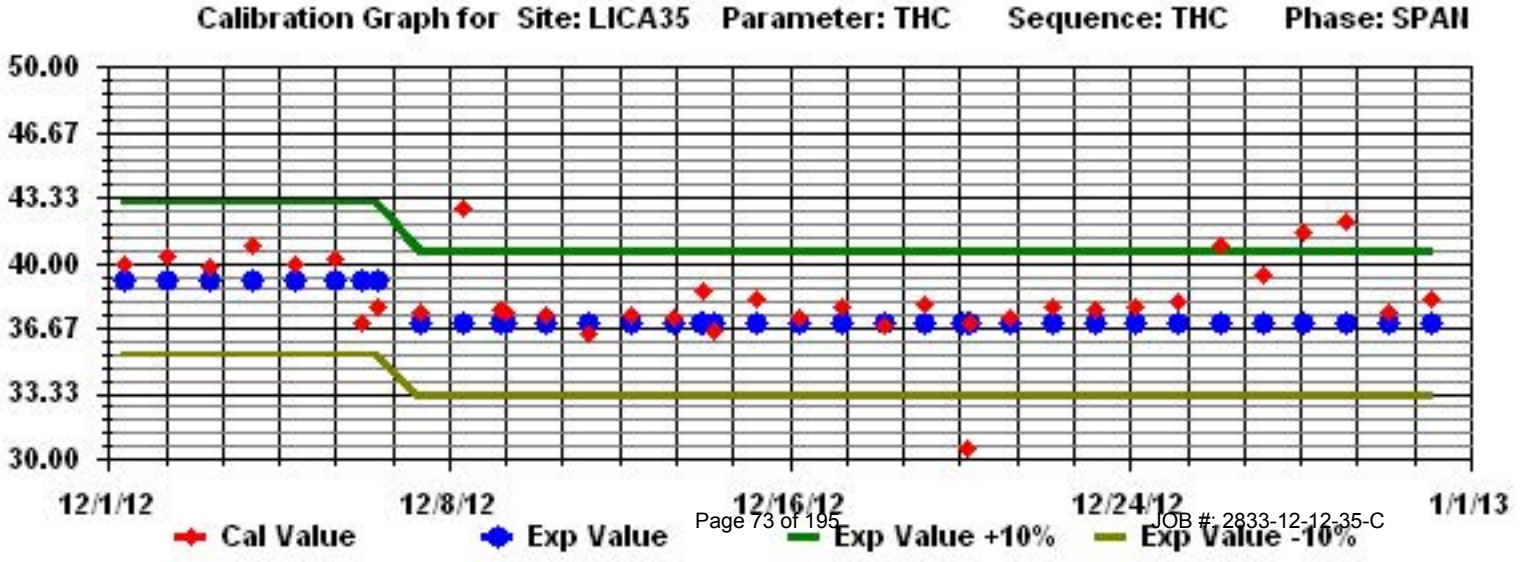
Logger : 35 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

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



JOB #: 2833-12-12-35-C


Calibration Graph for Site: LICA35 Parameter: THC Sequence: THC Phase: SPAN
50.00
46.67
43.33
40.00
36.67
33.33
30.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Vector Wind Speed

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

DECEMBER 2012

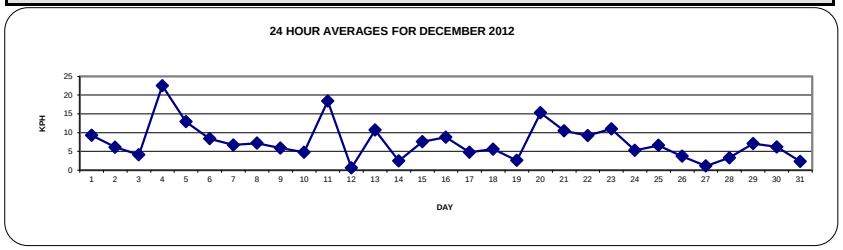
VECTOR WIND SPEED (WS) hourly averages (km/hr)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	7.7	5.8	3.6	3.6	5.3	8.2	10	9	8.8	13.1	14	13.4	14.7	13.1	12.8	11.9	11.8	13.8	12.1	12.8	11.1	7.3	7.9	7.3	14.7	9.3	24
2	4.7	2.7	3	3.9	1.9	1.4	0.3	1.5	3.5	4.4	4	3.4	4.2	4.8	8.3	13.1	11.7	9.9	12.2	15.9	15.1	15.5	12.3	11.8	15.9	6.1	24
3	9.2	8.9	7.8	9.9	10.3	8.2	8.8	6.3	5	4.7	6.5	4.1	3.2	3.9	1.3	1.4	5.6	5	3.5	3	4.7	3.4	2.6	4.7	10.3	4.1	24
4	6.3	10.1	10.8	11.6	13.7	18.1	18	20.1	27.8	31.1	32.1	33.2	36.5	35.7	**37.9**	33.3	37.5	33	28.3	24.8	19.7	15.2	8	2	**37.9**	**22.5**	24
5	1.5	2.6	5.4	2	6.4	9.4	11.6	7.6	9.9	18	8.7	8.1	13.1	13.5	15.8	16.2	18.2	19.2	20.4	20.4	23.1	22	22.2	25.7	25.7	12.9	24
6	21.8	20.8	18.1	13.9	13.3	10.8	14.3	11.4	7.4	10.1	8.5	7.5	7	7.3	6.7	6	6.7	5.3	3.4	4.7	3.8	1.4	0.6	3.2	21.8	8.4	24
7	4.9	4.2	5.1	4.1	3.3	7	7.3	6.8	6.3	6.9	6.3	6.9	9.6	12.8	11.2	12.9	12.5	10.8	8.8	7.6	5.9	4.6	2.8	6.2	12.9	6.7	24
8	5.7	5.6	5.7	7.7	9.9	8.1	10.1	11.8	9.1	12.2	10.4	12.4	13.9	10.1	11.9	13.3	8.8	8.1	2.7	3.6	4	2.1	2.1	2	13.9	7.2	24
9	0.3	2.6	3.9	7	3.1	2.3	4.5	5.4	4.8	6.6	7.7	7.4	7.5	7.9	8.4	10.1	8.4	9.1	8.3	6.4	5	6.1	6.3	4.3	10.1	5.9	24
10	0.6	2	5.4	3.5	12.8	19.9	7.6	12.3	6.7	5.9	10.2	14.5	18.2	14.8	17.1	9.3	5.6	5.3	4.8	3.5	6.4	8.6	11	13.1	19.9	4.8	24
11	15.3	18.6	18.9	19.9	20.4	21.4	23.3	23.9	22.7	26.2	25.8	28.4	27.3	25	25.5	24	21.7	16.8	14.1	11.9	6.3	6.9	10.9	11.5	28.4	18.4	24
12	9.1	8.7	9	8.4	9	7.6	3.3	2	1.4	1.1	2.2	1.9	1.5	2.5	2.3	4.2	5.7	5.1	5.6	8.3	9.8	10.1	5.9	7.7	10.1	0.6	24
13	8.4	10	9.4	7.5	10.8	10	10	11.6	11.6	12.7	15.6	16.7	14.6	15.3	13	14.9	11.4	9.5	8.1	8.9	7.9	6.9	6.5	8.7	16.7	10.7	24
14	7.7	7.4	6	4.8	4.9	5.1	4	5.5	5.5	6.6	1.7	0.3	1.9	4.5	5.3	3.7	7.5	12.5	18.5	20.7	12.7	10.6	8.3	11.7	20.7	2.5	24
15	10.7	4.1	2.8	10.1	5.1	2.5	2	0.4	2.2	1.4	2.5	7.3	9.1	9.7	11.1	12.5	13.2	15.3	14.3	19.6	23.5	24.7	23	24.3	24.7	7.6	24
16	19.8	12.9	11	13.8	12.6	13.6	16.3	15.1	17.6	14	12.3	10.8	6.7	8.9	8.2	4.1	3.5	2.4	0.5	1.4	5.1	2.4	3.9	0.7	19.8	8.8	24
17	0.9	3.7	3.6	4.6	6.4	5.1	4.5	4.5	5.7	4.5	2.4	2.2	1.8	0.4	3	4.2	4.3	7.5	10.1	11	14.9	12.7	6.5	5.9	14.9	4.8	24
18	7	9.1	8.4	7.5	7.9	8.2	7.3	4.6	5.7	6.4	6.7	6.7	8.9	7.7	8.7	8.6	9.9	8.4	8.9	8.3	7.4	6.5	6.8	8.5	9.9	5.6	24
19	6.6	8.9	10.9	4.6	4.4	9	4.7	2.6	1.4	0.7	3.2	4.7	5.9	6.9	9.4	9.9	9.2	10	9.5	9.3	6.4	7.2	9.9	7.8	10.9	2.6	24
20	9	9.7	11.1	10.9	12.7	9.6	6.3	7.8	8.4	8	20.4	20.6	22.5	25.8	25.2	23.1	28.9	27.9	19.9	16.1	15.3	12.1	13.3	12.4	28.9	15.3	24
21	9.9	6.4	5	2.6	4.6	4.7	4.6	11	12.5	12.6	13	15.5	15.8	19.2	19.7	19.8	18.7	14.5	14.8	15	13.9	14.5	11.6	9.6	19.8	10.5	24
22	5.8	8.4	6.8	6.3	6.4	11.7	9.4	9.4	9.9	11.2	13.1	13.9	14.2	12.2	9.4	11.2	12	9.9	11.6	13.1	14	15.1	17.8	17	17.8	9.2	24
23	17.4	17.7	15.6	15.5	13.8	13.5	15	14.3	10.5	9	9.2	9.3	10.4	8.5	8.4	10.6	11.3	10.3	9.9	10.1	9	7.6	8	8.8	17.7	11	24
24	9.9	7.5	6.8	5.6	6	7.9	8.4	5.4	9.6	6.9	4.9	6	5.1	7.7	9.3	8	9.1	9.8	9.4	9.4	9.4	8.5	8.7	9.9	9.9	5.3	24
25	8.8	9.2	8.9	9.9	9.2	10.4	13.9	10.5	8.6	7.6	8	6.7	6.2	5.4	6.2	5.9	10.3	7	3	2	1.8	0.6	1.3	1	13.9	6.6	24
26	1.3	1.8	2.1	2.5	2.5	3.4	3	1.2	0.5	2.2	1.2	2.5	6.2	5.7	4.2	6.4	5.2	6.1	5.5	4	2.9	5.7	8.1	8	8.1	3.7	24
27	6.5	8.2	9.2	6.9	7.3	7.9	5.5	4.1	2.7	4.3	3.5	2	4	5.3	5.9	6.5	8.3	8.6	7	6.8	7.9	4.5	1.8	1.6	9.2	1.1	24
28	5.1	4.1	0.3	1.6	3.8	4.8	4.4	4.5	5.4	4.8	4.9	5.8	5.7	6.2	6.7	7.4	8.5	6.8	3.6	2.6	1.6	0.3	1.1	1.9	8.5	3.3	24
29	1	0.7	3	2.7	1.2	2	1.8	1.8	4	3.4	7.7	10.6	19.6	18.3	14.8	10.1	13.2	15.6	10.7	10	13.9	15.4	18.2	23.1	23.1	7.1	24
30	16.2	18.3	7	5.1	3.1	2.3	2.4	2.3	3.4	6.8	5.9	8.4	10.7	11.9	11.7	10.9	11.3	11.3	11.8	11.8	12.1	14.6	13.3	12.2	18.3	6.2	24
31	10.4	10.7	8.7	8.7	8.2	5.6	2.8	0.9	0.1	1.8	2.7	2.8	1.8	0.6	2.3	5	3.3	0.4	0.5	2.2	7.1	5.9	2.4	5	10.7	2.3	24
HOURLY MAX	21.8	20.8	18.9	19.9	20.4	21.4	23.3	23.9	27.8	31.1	32.1	33.2	36.5	35.7	37.9	33.3	37.5	33.0	28.3	24.8	23.5	24.7	23.0	25.7			
HOURLY AVG	8.0	8.1	7.5	7.3	7.8	8.4	7.9	7.6	7.7	8.6	8.9	9.5	10.6	10.7	11.0	10.9	11.4	10.8	9.7	9.8	9.7	9.0	8.5	9.0			

STATUS FLAG CODES

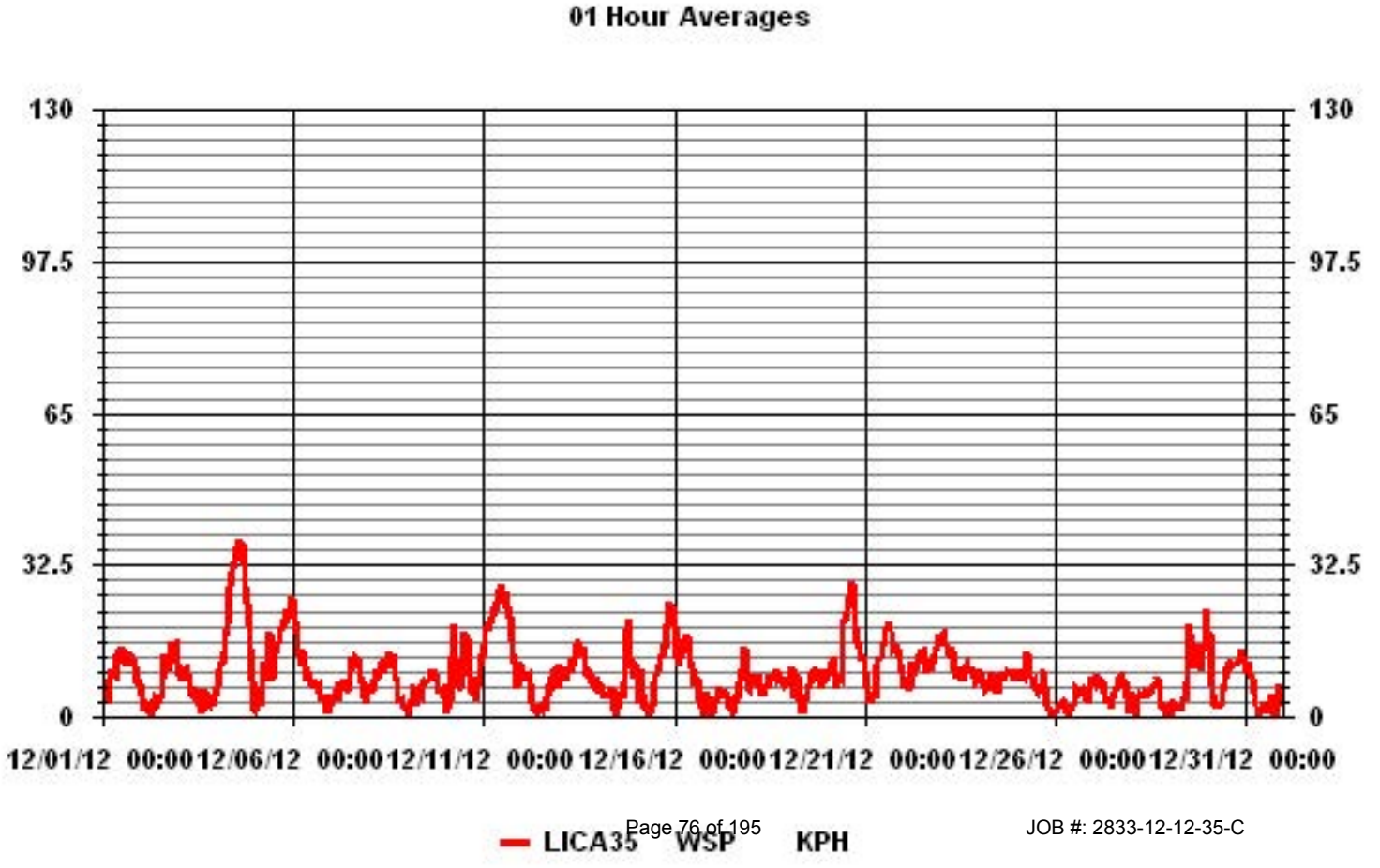
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



LAST CALIBRATION: November 24, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	37.9	KPH	@ HOUR(S)	14	ON DAY(S)	4	
MAXIMUM 24-HR AVERAGE:	22.5	KPH			ON DAY(S)	4	
CALMS (≤ 1 KPH)	0.81	%	OPERATIONAL TIME:		744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	6.31		MONTHLY AVERAGE:		9.10	KPH	



JOB #: 2833-12-12-35-C

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

DECEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

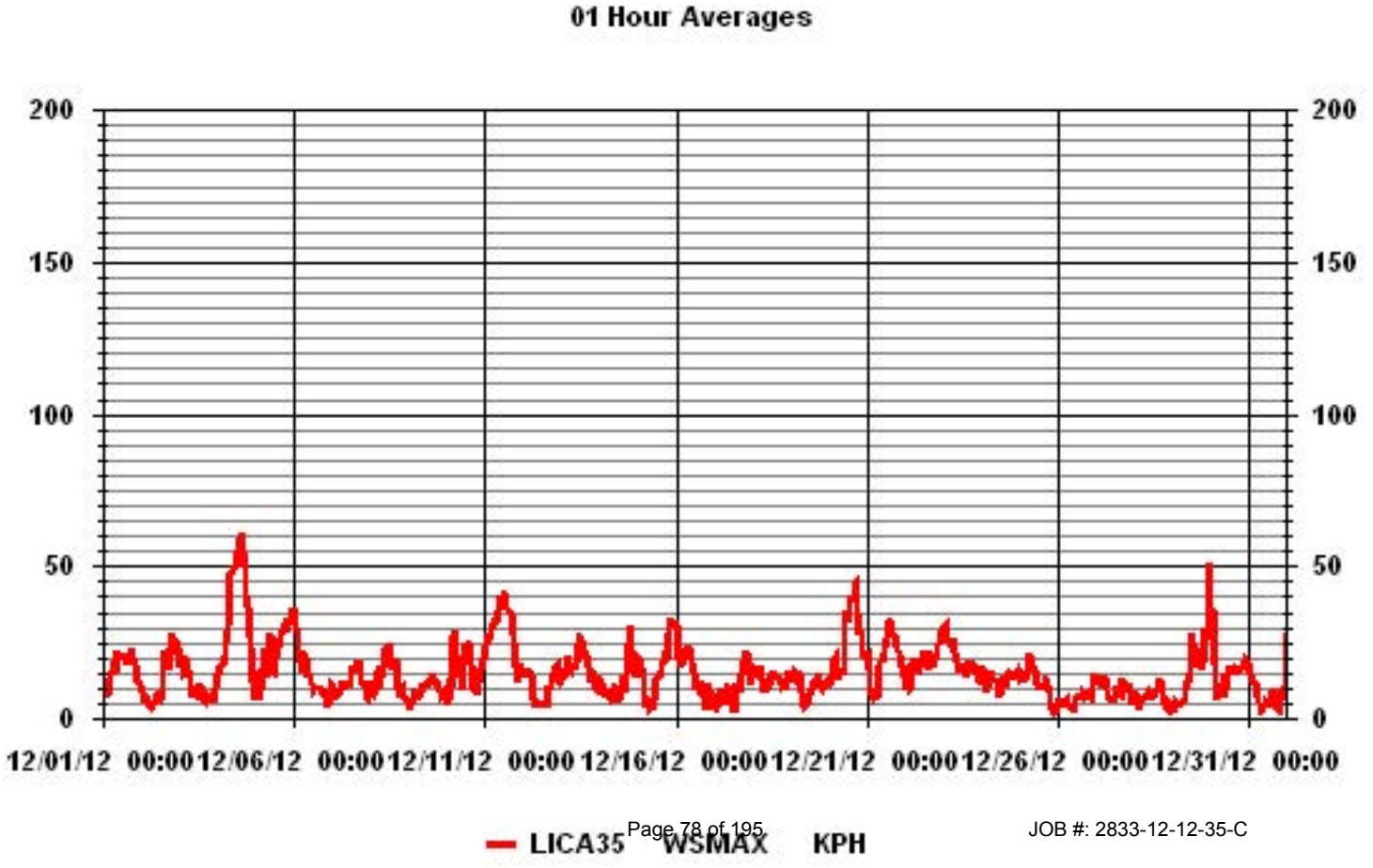
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	13.1	12.5	8.1	8.2	12.2	15.4	17.1	16.1	14.9	22	21.2	19.4	20.9	21.2	20.9	18.6	18.4	19.7	22.6	20.5	18.3	12.8	12.5	11.5	22.6
2	9.5	7.2	5.7	7.7	5.9	4.8	3.9	4.6	5.9	7.8	8.1	7	6.3	8.2	18.1	22.3	20.6	15.6	22.6	27.9	26.6	25.8	20.6	23.7	27.9
3	17.8	17.6	15.7	16.8	20.3	16.1	14.3	11.3	7.6	7.6	10.6	7.7	8.1	11.2	6.9	6.2	8.5	8.4	6.6	6.4	7.5	7	9.3	10.4	20.3
4	14.4	16.8	17.4	17.7	20.9	29	28.1	30.7	47.2	48.4	48.9	50	54.7	53.4	59.3	**60.7**	55.5	50.5	40.8	37	27.7	24.2	12.1	6.4	**60.7**
5	7.8	6.1	15.8	9.2	16.3	15.2	23	13.2	19.2	27.7	15.5	15.1	26.6	19.7	25.8	23.7	27.8	28.3	31.1	28.2	33.1	31.8	33.2	36.5	36.5
6	34.1	30.3	28.7	21.4	19.5	15.4	22.1	20.5	13.8	15.7	14.3	11.9	9	9.6	10.3	10	10.3	9.1	8.5	9.2	9.2	4.8	4.9	11.7	34.1
7	11.1	6.6	7.9	7.7	8.2	9.9	11.2	11.2	9.8	12.4	10.2	11.8	15.3	17.4	15.3	17.6	18.2	19.2	12.5	12.1	10.7	7.5	6.9	9.9	19.2
8	12.1	8.8	8	9.6	15.2	10.4	15.8	15.4	17.1	22.8	20.9	23.2	24.5	16.8	16.5	19	18.8	10.2	7.4	8.8	9.8	7.4	6.4	5.7	24.5
9	3.1	4.7	6.4	9.9	8	7.4	7.1	7.3	8.3	10.7	11.1	11.6	11.3	12.1	12.1	14.4	12.5	12.3	11.2	9.7	7.6	8.4	9.3	8.5	14.4
10	4.3	5.8	13.1	9.6	27	29.2	21.2	17.4	14	8.9	15.4	20.3	24.8	23.8	25.9	18	10.1	10.2	9.7	7.9	14.3	13.7	16.1	19.3	29.2
11	23.9	26.6	26.1	28	29	30.8	32.9	34.2	33.7	40.2	38.7	40.4	42	36.8	36.5	36	34.8	28.4	25.8	17.4	11.4	14.8	18.2	17.3	42
12	15.4	14.5	14.5	13.5	16.2	14.8	7.1	4.2	4.2	5.2	4.4	4.5	5	5.3	5	9.9	9.5	10.7	13.2	14.8	17	17.7	12.6	11.8	17.7
13	12.9	16.3	13.6	17.6	20.9	17.2	16.2	18.2	15.6	18	24.5	27.6	23.1	25.8	19.7	22.1	21	17.5	12.3	13.2	10.4	10.6	9.9	11.7	27.6
14	13.9	11.9	8.9	7.6	7.7	8.6	7.6	9.8	8.2	11.2	5.9	6.8	5.6	10.4	14.2	8	14.1	20.1	24.6	30.7	18.2	18.9	13	16.3	30.7
15	20.6	20.1	13.3	16.5	7.9	4.9	4.4	2.9	3.6	2.7	6.3	12.8	13.1	13.5	15.5	18.5	19	21.7	19.2	27.9	29.8	32.8	29.7	32.3	32.8
16	30.9	20.2	16.3	20.9	18	20.2	22.2	22.7	24.2	20.3	18.5	15.6	11.1	11.5	11.8	8.8	6.9	8.5	3.4	4.5	11.7	6.7	8.7	3.9	30.9
17	3.5	5.6	5.3	6.7	10	7.4	6	6.5	11.2	8.4	5.3	3.3	3.4	1.8	11.6	10.2	8.6	14.4	18.2	18.9	21.9	19.2	14.7	10.8	21.9
18	13.3	16.7	16.2	14.6	15.2	16.8	13.8	8.9	10.6	11.3	9.4	11	14.5	15.8	13.6	13.6	13.5	12.8	11	12	11.4	9.1	12.7	15.7	16.8
19	11.7	12.9	15	14.1	10.9	15.8	9	5	3.8	4.4	5	7.7	7.9	9.5	11.9	13	13.8	14.1	12.3	11.3	10.3	12.2	12.9	11.3	15.8
20	11.1	12.3	15.5	19.7	20.5	15.7	12.5	16	14.2	16.2	35.7	31.8	34.4	38	40.4	38.2	44.8	45.4	35.4	27.7	29.2	21.6	21.2	20.2	45.4
21	20.9	16.8	8.8	7	8.2	7.2	6.3	17.2	18.6	19.1	21.4	23.6	26.4	31.3	32.5	28	26.4	27.8	24.2	22.7	18.9	19.5	17.9	14.2	32.5
22	9.7	10.7	9.4	9.7	18.3	19.9	17	16.4	17.8	16.9	19.5	22.4	21.4	21.7	15.9	22.2	20.4	16.7	19	20.4	24.1	25	28.8	27.2	28.8
23	29.9	30.7	26	25.8	24.2	23.4	26.2	22.3	18.9	15.6	16.7	16.7	16.8	17.9	13.7	16.9	18.8	17.1	17.7	17.8	15.5	13.1	12.8	15.3	30.7
24	17.4	14.2	10.9	8.5	10.3	14.7	15	13	12.5	12.5	7.9	7.8	8.6	11.6	13.9	9.9	13.6	14.9	13.8	13.8	15.2	15.4	14.2	15.8	17.4
25	14.6	15.9	12.1	13.1	14.6	19.7	21.1	16.5	16.7	13.4	14	12.1	10.7	10.2	10.6	9.4	13.8	11.4	8.9	4.7	3.9	2.6	4.2	3.1	21.1
26	4.1	4.4	5.8	5.8	5.8	6.6	4.8	4.5	3.4	4	3.7	7.1	7.6	7.8	5.9	8.3	7.4	8.3	7.6	7.7	7.3	9.8	11.6	14.9	14.9
27	12.7	12.1	14.2	11.3	11.6	13.7	10.1	7.3	6.1	6.2	7.6	5	10.4	8.1	9.3	8.7	12.5	12.4	9.7	9.7	11.7	9.9	5.3	5.4	14.2
28	9.1	6.8	2.7	4.2	5.8	6.2	6.5	6.9	8.5	7.3	7.1	7.6	7.8	8.9	9.4	10.1	13	9.8	8.2	5.3	3.6	3.2	5.5	4.9	13
29	2.9	3.1	5.7	5	3.4	4.8	6.2	6.7	9.4	12.1	14.8	19.7	28.1	25.4	23.4	16.3	20.9	23.2	16.1	18.5	28.4	27.9	41.7	51.4	51.4
30	30.3	36.2	18	12.1	7.7	7.4	7.8	9.4	6.7	14.5	9.5	17.6	15.8	15.4	16.6	16	15.2	15.5	17.3	15.9	17.9	19.8	18.9	18.3	36.2
31	15.3	14.1	13.2	12	11.5	7.6	5.8	3	3.5	4.5	6.1	5.6	6.7	3.5	8.5	9.6	5.8	3.9	3.3	7.7	9.6	10.4	6.3	27.3	27.3
PEAK	34.1	36.2	28.7	28.0	29.0	30.8	32.9	34.2	47.2	48.4	48.9	50.0	54.7	53.4	59.3	60.7	55.5	50.5	40.8	37.0	33.1	32.8	41.7	51.4	

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	60.7	KPH	@ HOUR(S)	15
			ON DAY(S)	4



JOB #: 2833-12-12-35-C

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

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.20	1.34	.53	1.88	6.72	5.91	3.09	1.07	.40	.53	.40	1.34	3.36	1.74	3.76	1.07	34.40
<	12.0	1.34	3.22	1.88	3.22	4.43	9.94	2.28	.26	.40	.00	.00	2.01	4.83	2.68	3.76	.94	41.26
<	20.0	.40	.53	.13	2.41	2.01	4.56	1.47	.00	.00	.00	.00	.00	1.07	2.01	2.95	.26	17.87
<	29.0	.00	.00	.00	.00	.00	3.22	.67	.00	.00	.00	.00	.00	.13	1.07	.00	.13	5.24
<	39.0	.00	.00	.00	.00	.00	1.07	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.20
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.95	5.10	2.55	7.52	13.17	24.73	7.66	1.34	.80	.53	.40	3.36	9.40	7.52	10.48	2.41	

Calm : .00 %

Total # Operational Hours : 744

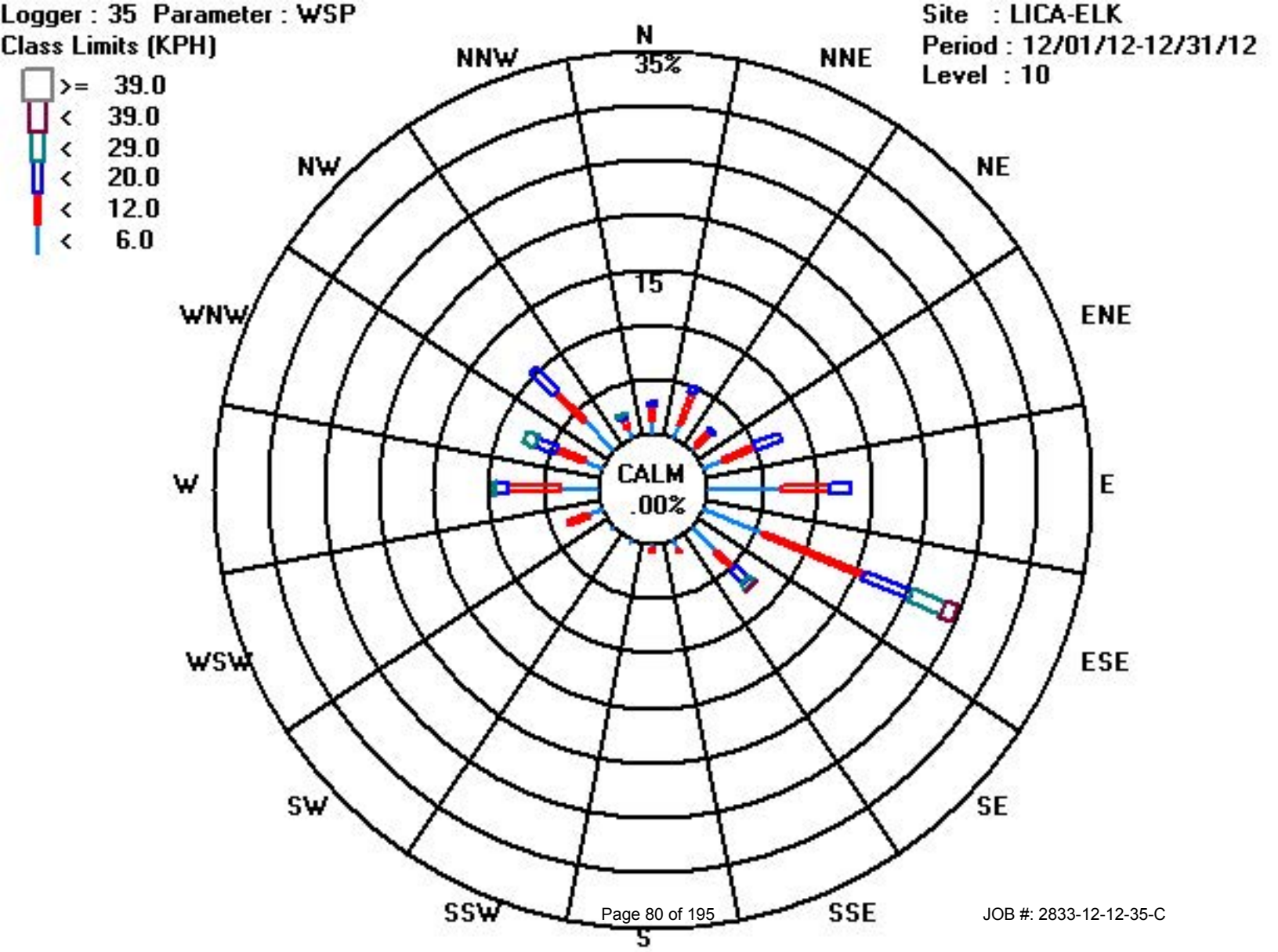
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	9	10	4	14	50	44	23	8	3	4	3	10	25	13	28	8	256
<	12.0	10	24	14	24	33	74	17	2	3			15	36	20	28	7	307
<	20.0	3	4	1	18	15	34	11						8	15	22	2	133
<	29.0						24	5						1	8		1	39
<	39.0						8	1										9
>=	39.0																	
	Totals	22	38	19	56	98	184	57	10	6	4	3	25	70	56	78	18	

Calm : .00 %

Total # Operational Hours : 744



JOB #: 2833-12-12-35-C

Vector Wind Direction

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

DECEMBER 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

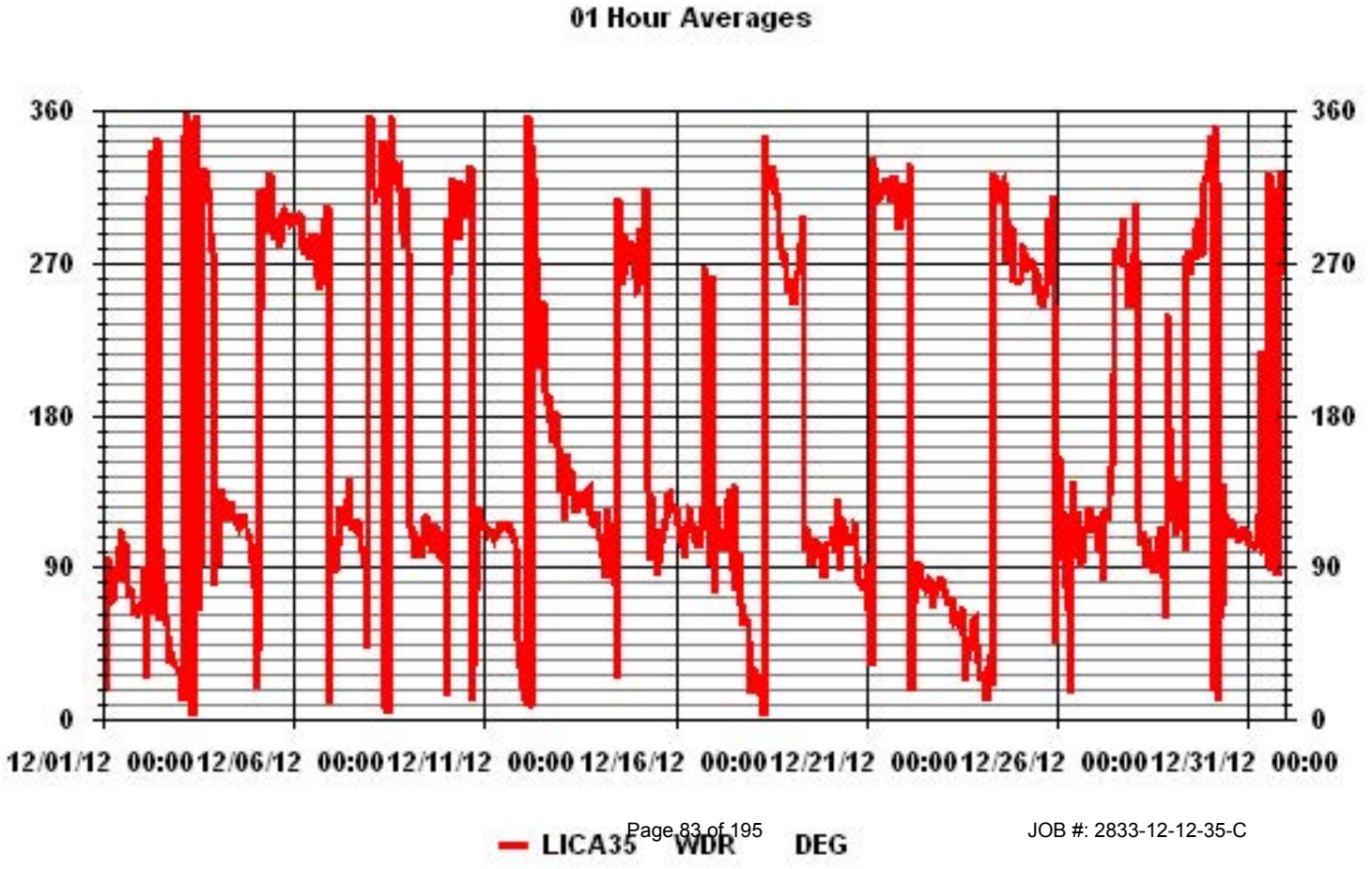
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	22	21	74	97	85	70	71	73	87	86	102	112	106	103	105	82	72	79	74	69	64	63	67	68	81	E	24
2	63	65	90	24	80	310	62	337	299	313	344	58	102	90	81	62	57	51	33	40	33	33	32	29	43	NE	24
3	29	22	11	345	359	356	352	341	1	331	310	358	64	90	147	311	324	324	314	307	289	277	79	117	354	N	24
4	90	127	137	131	125	117	126	117	127	129	123	121	116	114	117	115	119	122	114	111	108	105	94	79	118	ESE	24
5	18	40	313	308	242	288	315	288	308	323	293	283	297	294	296	279	282	299	302	300	297	293	294	292	296	WNW	24
6	299	297	297	299	298	280	274	284	279	272	282	287	281	276	287	263	254	258	260	297	302	304	9	106	287	WNW	24
7	108	94	87	106	103	126	119	118	117	119	131	143	120	114	113	115	118	110	100	100	90	99	41	354	110	ESE	24
8	358	319	315	309	310	311	314	312	342	9	8	4	10	357	316	324	330	326	327	313	290	281	281	314	333	NNW	24
9	278	115	107	112	95	107	99	101	95	108	120	122	103	107	98	112	108	116	108	103	98	97	104	111	107	ESE	24
10	13	296	263	283	320	304	309	303	284	318	299	299	308	313	313	328	11	31	76	113	126	118	114	117	317	NW	24
11	112	116	110	111	109	107	110	109	110	112	117	114	115	115	113	116	113	109	106	108	102	47	32	23	108	ESE	24
12	19	12	8	357	12	7	339	322	274	222	221	208	238	248	194	185	192	177	164	170	176	182	162	134	147	SE	24
13	145	135	117	147	157	146	146	134	126	122	130	131	134	129	125	132	136	137	122	115	117	116	115	123	131	SE	24
14	106	109	95	109	83	125	117	94	93	96	80	24	308	277	256	287	262	275	277	281	283	271	262	253	265	W	24
15	254	291	261	257	274	315	136	115	94	133	95	112	85	92	101	104	112	118	119	133	134	124	127	124	124	ESE	24
16	124	116	104	114	103	95	111	117	124	123	110	115	106	106	103	101	112	126	269	165	112	153	91	262	113	ESE	24
17	74	104	126	99	110	107	113	109	100	131	137	88	98	139	77	79	99	69	55	58	59	57	47	17	78	ENE	24
18	17	31	25	28	25	15	12	2	345	322	313	323	324	328	321	312	302	289	279	271	277	269	252	261	325	NW	24
19	259	250	247	245	263	265	281	294	298	99	114	108	96	91	99	100	107	96	98	104	96	84	95	104	115	ESE	24
20	104	105	109	114	99	102	130	87	120	103	115	112	110	109	103	110	116	115	98	84	80	77	82	79	104	ESE	24
21	92	65	54	31	332	327	319	307	308	313	310	316	320	315	315	306	310	320	320	311	289	297	313	317	316	NW	24
22	308	297	305	329	17	55	69	77	94	92	90	84	80	77	78	84	83	66	75	75	78	81	77	85	73	ENE	24
23	77	77	73	68	70	72	59	57	58	57	61	63	66	51	23	34	45	42	44	59	60	46	34	24	58	ENE	24
24	24	28	26	10	31	35	38	20	323	321	315	305	316	318	320	318	270	295	290	290	258	261	260	259	319	NW	24
25	259	260	282	277	269	265	273	265	273	268	255	256	264	257	246	244	250	257	297	279	274	310	246	44	265	W	24
26	151	155	94	96	123	77	94	66	15	136	141	95	107	123	90	92	112	112	112	124	126	114	114	113	111	ESE	24
27	111	99	120	99	82	123	121	125	117	132	150	204	268	278	271	275	285	297	269	268	251	244	263	276	203	SSW	24
28	274	305	273	118	110	103	111	94	89	106	97	100	87	93	87	108	113	113	93	84	60	240	174	121	100	E	24
29	146	119	109	130	132	141	111	135	99	274	277	262	273	274	272	291	284	297	277	274	317	322	326	331	293	WNW	24
30	345	339	16	351	319	10	60	67	140	123	117	119	107	111	118	114	110	106	106	107	109	113	113	112	95	E	24
31	104	104	103	103	102	103	122	126	218	142	101	102	91	323	87	115	108	129	85	315	309	324	293	264	99	E	24
HOURLY AVG	358	339	315	357	359	356	352	341	345	331	344	358	324	357	321	328	330	326	327	315	317	324	326	354			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	100.60		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	82	DEG



JOB #: 2833-12-12-35-C

Standard Deviation Wind Direction

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

DECEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

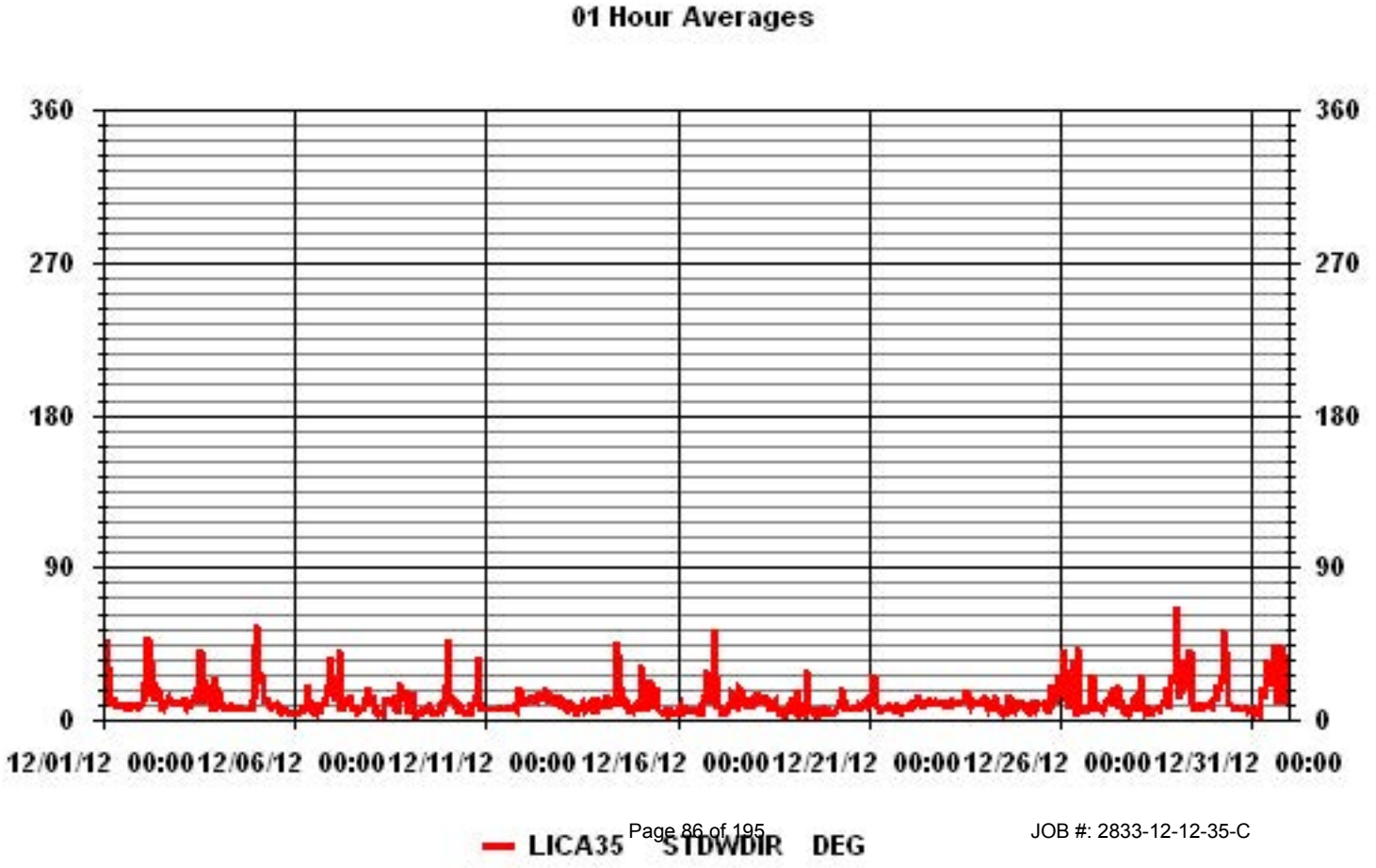
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	11	19	47	33	13	10	10	11	9	8	8	8	9	8	9	8	9	8	9	9	9	9	8	9
2	10	22	12	14	49	29	36	24	12	14	19	13	9	10	8	10	12	9	13	12	11	10	10	10
3	10	11	11	9	12	12	11	10	13	12	9	19	39	39	33	25	11	11	12	20	6	6	25	21
4	18	12	9	8	8	7	7	7	8	8	7	7	7	7	7	7	7	6	6	6	7	5	12	45
5	57	21	23	28	24	12	9	13	8	7	8	8	9	6	10	6	5	6	5	5	5	4	4	4
6	4	4	4	5	5	9	7	9	21	7	6	9	8	7	5	8	7	9	9	13	20	13	37	26
7	25	11	14	16	42	7	7	9	9	11	11	14	9	5	8	5	6	6	6	7	11	11	19	8
8	12	15	5	4	6	4	5	4	12	12	12	12	11	12	9	5	7	4	22	16	11	16	18	4
9	13	14	5	5	1	3	3	3	7	5	5	8	9	7	5	5	4	5	6	9	10	7	9	21
10	47	14	10	15	11	6	12	4	9	6	5	4	5	6	5	9	10	13	12	37	12	7	7	7
11	6	6	6	6	6	6	6	6	7	7	6	6	6	7	6	6	6	8	7	6	10	19	9	9
12	11	11	12	13	12	11	11	15	13	16	12	16	14	17	16	16	9	14	12	12	10	8	14	7
13	9	8	7	12	10	10	9	7	4	4	6	7	9	6	7	7	10	11	7	8	4	13	11	6
14	10	7	10	10	14	7	11	11	10	8	46	40	21	11	10	12	11	6	4	8	6	8	7	5
15	12	33	21	7	5	24	15	23	6	15	16	9	7	5	4	4	5	5	4	6	6	4	4	4
16	5	7	9	6	7	5	6	6	5	5	6	6	6	4	4	10	14	15	30	12	10	28	23	53
17	26	6	10	6	5	4	5	5	9	10	17	16	9	8	12	20	19	14	9	9	8	8	10	13
18	14	10	11	14	13	13	12	15	11	7	7	11	9	11	8	7	4	4	3	7	5	8	8	11
19	11	6	5	18	7	7	8	4	3	30	7	5	5	5	4	3	7	5	4	4	8	5	5	5
20	4	4	5	6	7	10	12	19	9	10	6	6	6	6	7	7	6	6	9	8	10	11	9	8
21	9	13	13	26	19	9	8	4	6	6	6	7	8	8	7	5	5	8	8	5	4	5	7	7
22	8	5	8	8	11	8	13	13	10	7	10	10	10	12	12	9	9	11	9	9	9	10	10	9
23	10	9	10	9	11	11	9	9	9	10	11	12	12	17	11	8	10	11	11	10	10	10	11	12
24	8	10	7	9	8	10	8	14	5	8	5	4	6	6	5	7	14	6	7	6	9	10	10	9
25	10	8	7	6	9	10	7	9	10	7	9	9	9	10	8	6	3	7	20	14	11	11	14	27
26	20	17	42	16	17	7	9	29	35	11	2	43	5	5	7	6	7	6	7	13	27	8	7	7
27	9	8	6	8	12	9	12	12	16	8	19	16	20	7	12	6	5	6	7	4	6	6	12	13
28	8	9	27	12	6	4	5	8	4	2	6	6	7	7	6	8	10	11	15	19	6	26	22	27
29	45	67	13	16	36	21	24	18	21	41	11	10	6	6	6	10	5	9	6	9	9	10	9	8
30	12	12	20	17	21	27	54	41	25	10	10	9	6	6	7	7	7	6	6	7	7	5	6	6
31	7	5	7	6	5	4	19	14	14	36	19	27	23	34	45	9	25	28	45	21	9	12	19	37

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 24, 2011

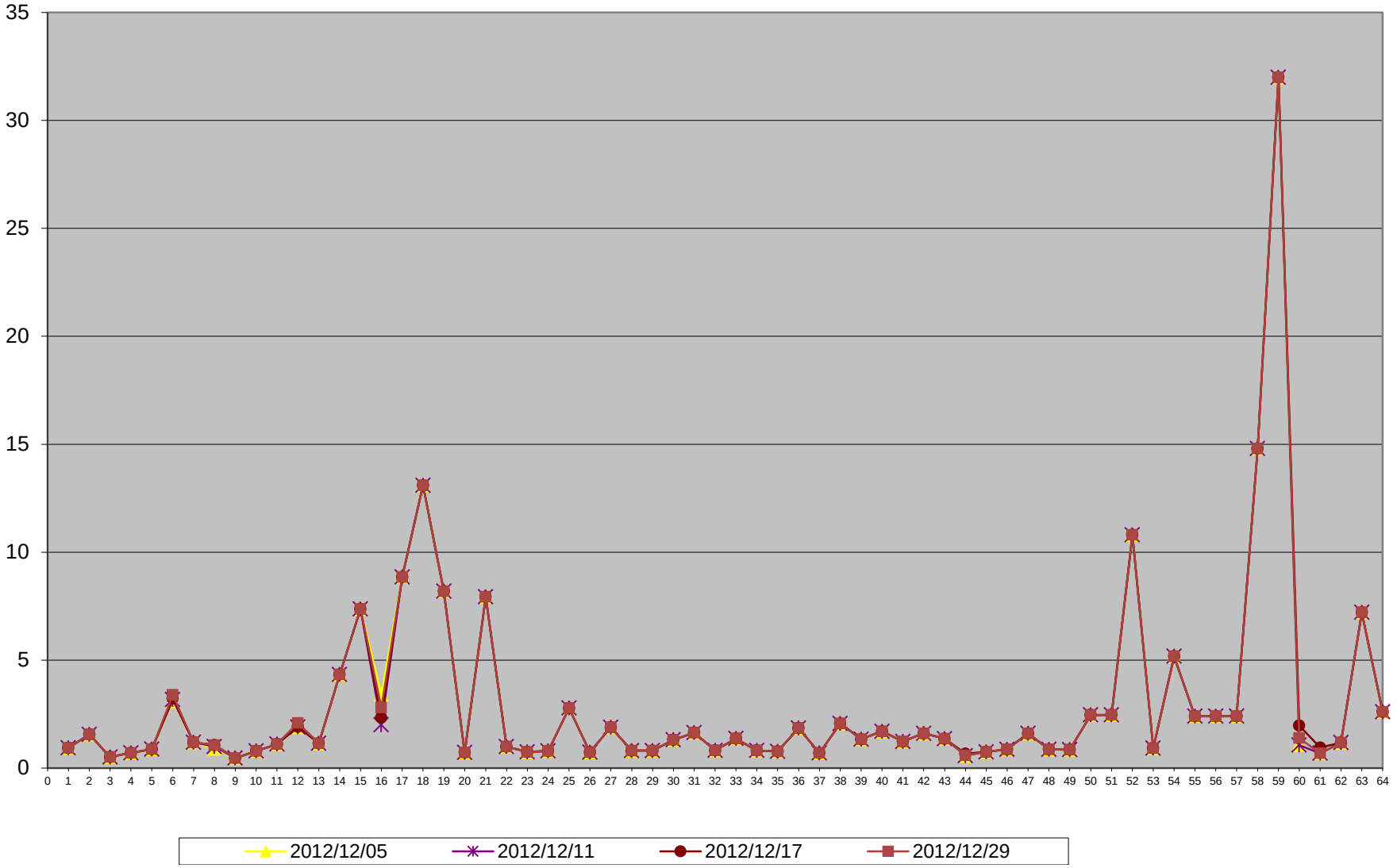
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS



JOB #: 2833-12-12-35-C

Volatile Organics

Volatile Organics in ug/m3 Site: LICA - Portable - Elk Point Airport



1	2,2,4-Trimethylpentane	33	1,1,2,2-Tetrachloroethane
2	Carbon Disulfide	34	cis-1,3-Dichloropropene
3	Propene	35	trans-1,3-Dichloropropene
4	Vinyl Acetate	36	1,2-Dichloropropane
5	Vinyl Bromide	37	Bromomethane
6	Dichlorodifluoromethane (FREON 12)	38	Bromoform
7	1,2-Dichlorotetrafluoroethane	39	Bromodichloromethane
8	Chloromethane	40	Dibromochloromethane
9	Vinyl Chloride	41	Heptane
10	Chloroethane	42	Trichloroethylene
11	1,3-Butadiene	43	Tetrachloroethylene
12	Trichlorofluoromethane (FREON 11)	44	Benzene
13	Trichlorotrifluoroethane	45	Toluene
14	Ethanol	46	Ethylbenzeze
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Wethyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2012

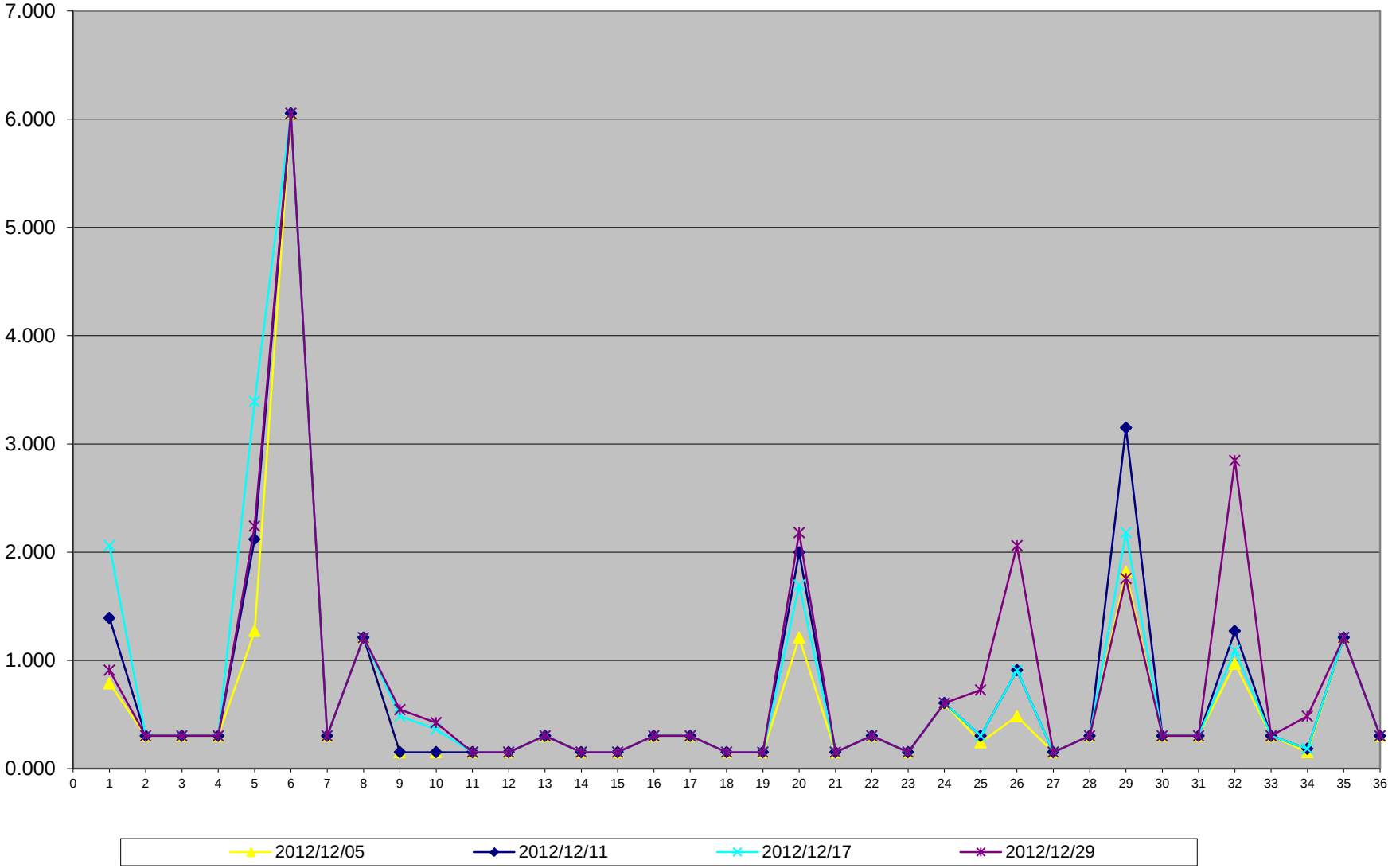
LICA - Portable Site - Elk Point Airport

Unit: ng/m3

	PAHs	2012/12/05	2012/12/11	2012/12/17	2012/12/23	2012/12/29
	Sample Volume (unit: m3)	330.37	330.36	330.36	NA	330.35
1	1-Methylnaphthalene	0.787	1.392	2.058	NA	0.908
2	1-Methylphenanthrene	0.303	0.303	0.303	NA	0.303
3	2-Chloronaphthalene	0.303	0.303	0.303	NA	0.303
4	2-Methlyanthracene	0.303	0.303	0.303	NA	0.303
5	2-Methylnaphthalene	1.271	2.119	3.390	NA	2.240
6	3-Methylcholanthrene	6.054	6.054	6.054	NA	6.054
7	7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	NA	0.303
8	9,10-Dimethylanthracene	1.211	1.211	1.211	NA	1.211
9	Acenaphthene	0.151	0.151	0.484	NA	0.545
10	Acenaphthylene	0.151	0.151	0.363	NA	0.424
11	Anthracene	0.151	0.151	0.151	NA	0.151
12	Benzo(a)anthracene	0.151	0.151	0.151	NA	0.151
13	Benzo(a)fluorene	0.303	0.303	0.303	NA	0.303
14	Benzo(a)pyrene	0.151	0.151	0.151	NA	0.151
15	Benzo(b)fluoranthene	0.151	0.151	0.151	NA	0.151
16	Benzo(b)fluorene	0.303	0.303	0.303	NA	0.303
17	Benzo(e)pyrene	0.303	0.303	0.303	NA	0.303
18	Benzo(g,h,I)perylene	0.151	0.151	0.151	NA	0.151
19	Benzo(k)fluoranthene	0.151	0.151	0.151	NA	0.151
20	Biphenyl	1.211	1.998	1.695	NA	2.179
21	Chrysene	0.151	0.151	0.151	NA	0.151
22	Coronene	0.303	0.303	0.303	NA	0.303
23	Dibenz(a,h)anthracene	0.151	0.151	0.151	NA	0.151
24	Dibenzo(a,e)pyrene	0.605	0.605	0.605	NA	0.605
25	Fluoranthene	0.242	0.303	0.303	NA	0.726
26	Fluorene	0.484	0.908	0.908	NA	2.058
27	Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	NA	0.151
28	m-Terphenyl	0.303	0.303	0.303	NA	0.303
29	Naphthalene	1.816	3.148	2.179	NA	1.756
30	o-Terphenyl	0.303	0.303	0.303	NA	0.303
31	Perylene	0.303	0.303	0.303	NA	0.303
32	Phenanthrene	0.969	1.271	1.090	NA	2.845
33	p-Terphenyl	0.303	0.303	0.303	NA	0.303
34	Pyrene	0.151	0.182	0.182	NA	0.484
35	Quinoline	1.211	1.211	1.211	NA	1.211
36	Tetralin	0.303	0.303	0.303	NA	0.303

Note: - Values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
- Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.
- No sample was collected on December 23rd as the sample was not received when the scheduled time started.

PAHs in ng/m3 Site: LICA - Portable - Elk Point Airport



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methlyanthracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylanthracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,I)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	2012/2/12/07		Previous Calibration	November 14, 2012	
Company	Lakeland Community and Industry Association				
Plant / Location	Portable / Elk Poin Airport				
Start Time (MST)	12:31		End Time (MST)	16:04	
Reason:			Monthly Calibration		
Barometric Pressure	27.82	inHg	Station Temperature	19	Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42502	Cal Gas Expiry date	December 29, 2013
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 - 1000 ppb							
Sample Flow / Box Temp	581	ccm	30.3	Deg C	582	ccm	30.8	Deg C
HVPS / Lamp Setting	612		1652		612		1653	
PMT / RxCell Temp	8.1	Deg C	50	Deg C	8.1	Deg C	50	Deg C
Converter / IZS Temp	NA	Deg C	45	Deg C	97.9	Deg C	45.0	Deg C
Offset / Slope	97.9		1.192		97.9		1.192	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj.			
4924	75.6	750	749	1.0014
	No Span Adj.			
4960	40.3	400	401	0.9969
4981	17.1	170	170	1.0000
4995	0	0	0	N/A
			Sum of Least Squares	1.0003
			New Correction Factor	1.0014

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	1.0	1.2
Auto Span	359.0	359.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0014
Percent Change:	-0.1%

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

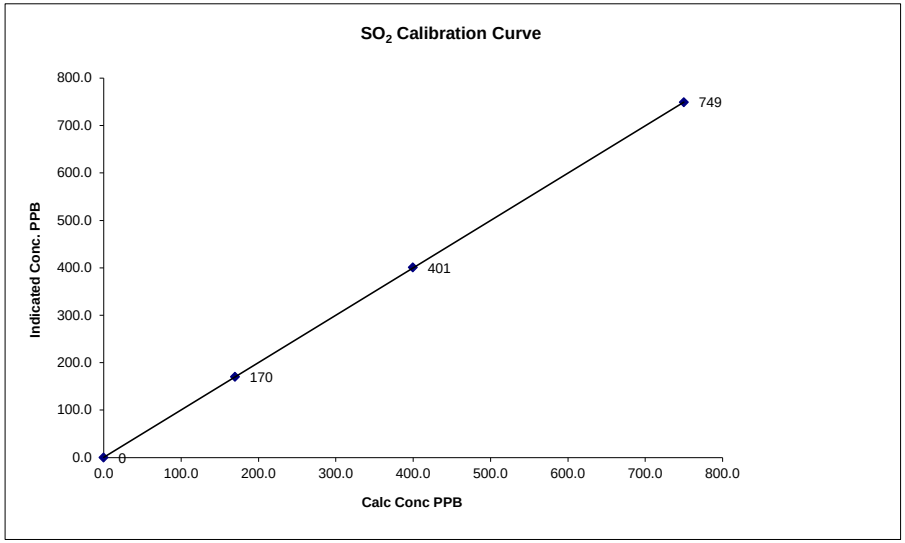
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	2012/2/12/07				
Company	Lakeland Community and Industry Association				
Plant / Location	Portable / Elk Poin Airport				
Start Time (MST)	12:31	End Time (MST)	16:04		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
170	170	0.9982
400	401	0.9969
750	749	1.0014

Correlation Coefficient	(≥ 0.995)	0.999993
Slope	(0.85 to 1.15)	0.998776
Intercept	(± 3% F.S.)	0.538585



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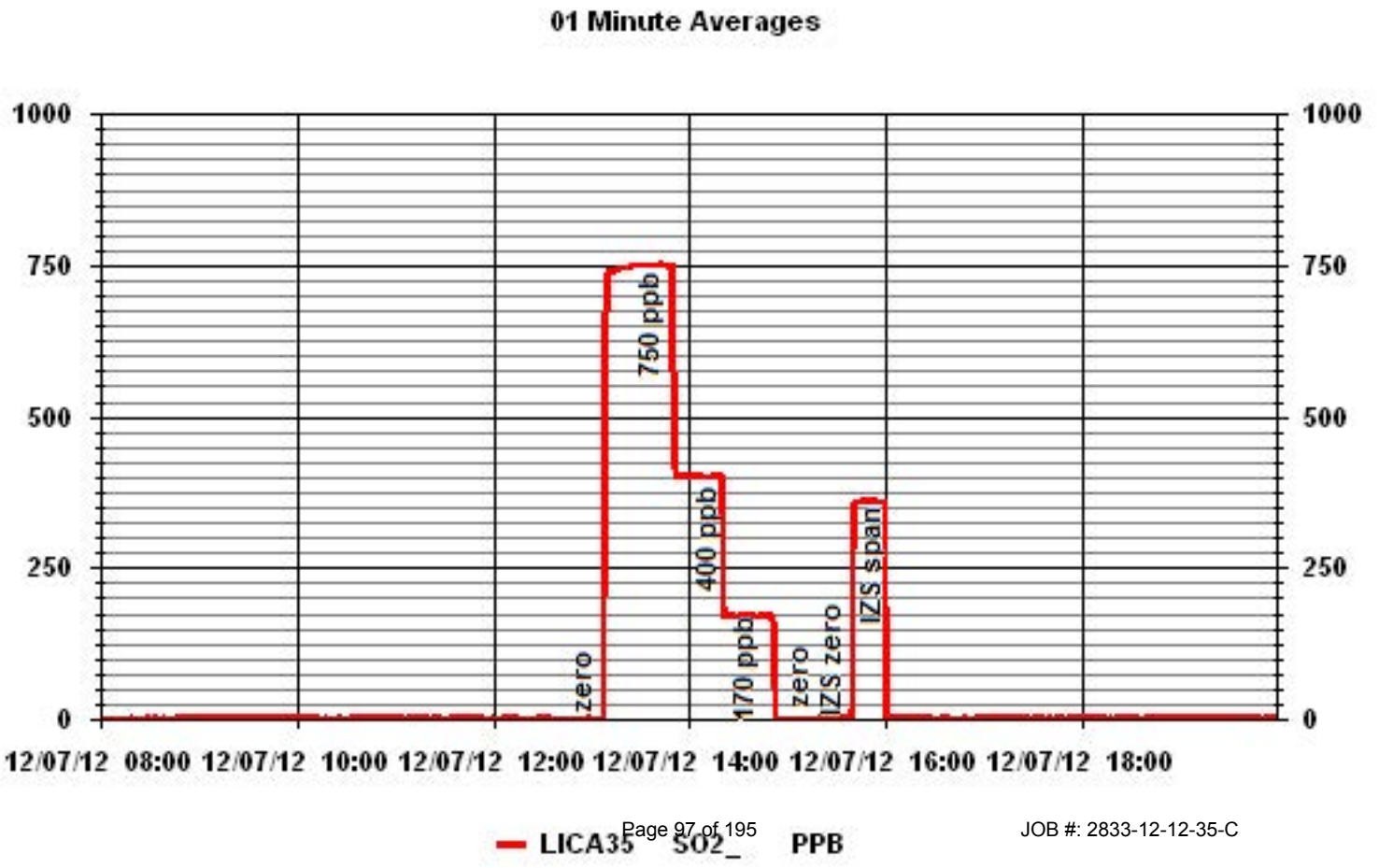


JOB #: 2833-12-12-35-C

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 6, 2012		Previous Calibration	November 14, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Portable/ Elk Point Airport				
Start Time (MST)	11:35		End Time (MST)	15:10	
Reason:	Monthly Calibration				
Barometric Pressure	27.88	inHg	Station Temperature	20	Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648	Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 1 Volts		Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	509	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 100	ppb				
Sample Flow / Box Temp	515	ccm	28.7	Deg C	515	ccm	29.8	Deg C
HVPS / Lamp Setting	540		1908		540		1905	
PMT / RxCell Temp	7.9	Deg C	50	Deg C	7.9	Deg C	50	Deg C
Converter / IZS Temp	315	Deg C	45	Deg C	315	Deg C	45.0	Deg C
Offset / Slope	96		1.024		96		1.024	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	NA
	No Zero Adj.			
4960	40.0	80	81	0.9877
	No Span Adj.			
4975	20.0	40	42	0.9533
4985	11.5	23	24	0.9590
4996	0	0	0	NA
			Sum of Least Squares	0.9792
			New Correction Factor	

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.8	0.4
Auto Span	56.4	56.7
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9877
Percent Change:	1.3%

Notes: **NA : Not Applicable**

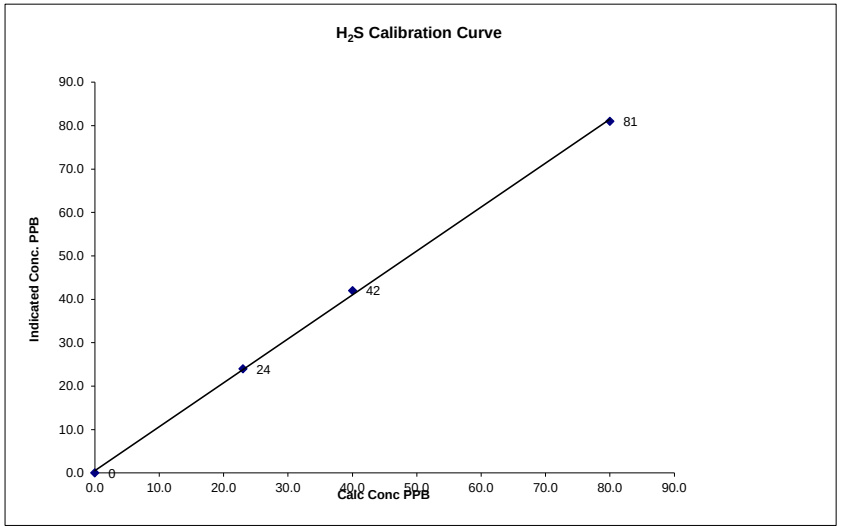
Calibration Performed by: Ting Xu

H_2S Calibration Curve

Calibration Date	December 6, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Portable/ Elk Point Airport				
Start Time (MST)	11:35		End Time (MST)	15:10	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	
23	24	0.9590
40	42	0.9533
80	81	0.9877

Correlation Coefficient	(≥ 0.995)	0.999585
Slope	(0.85 to 1.15)	1.011729
Intercept	(± 3% F.S.)	0.566486



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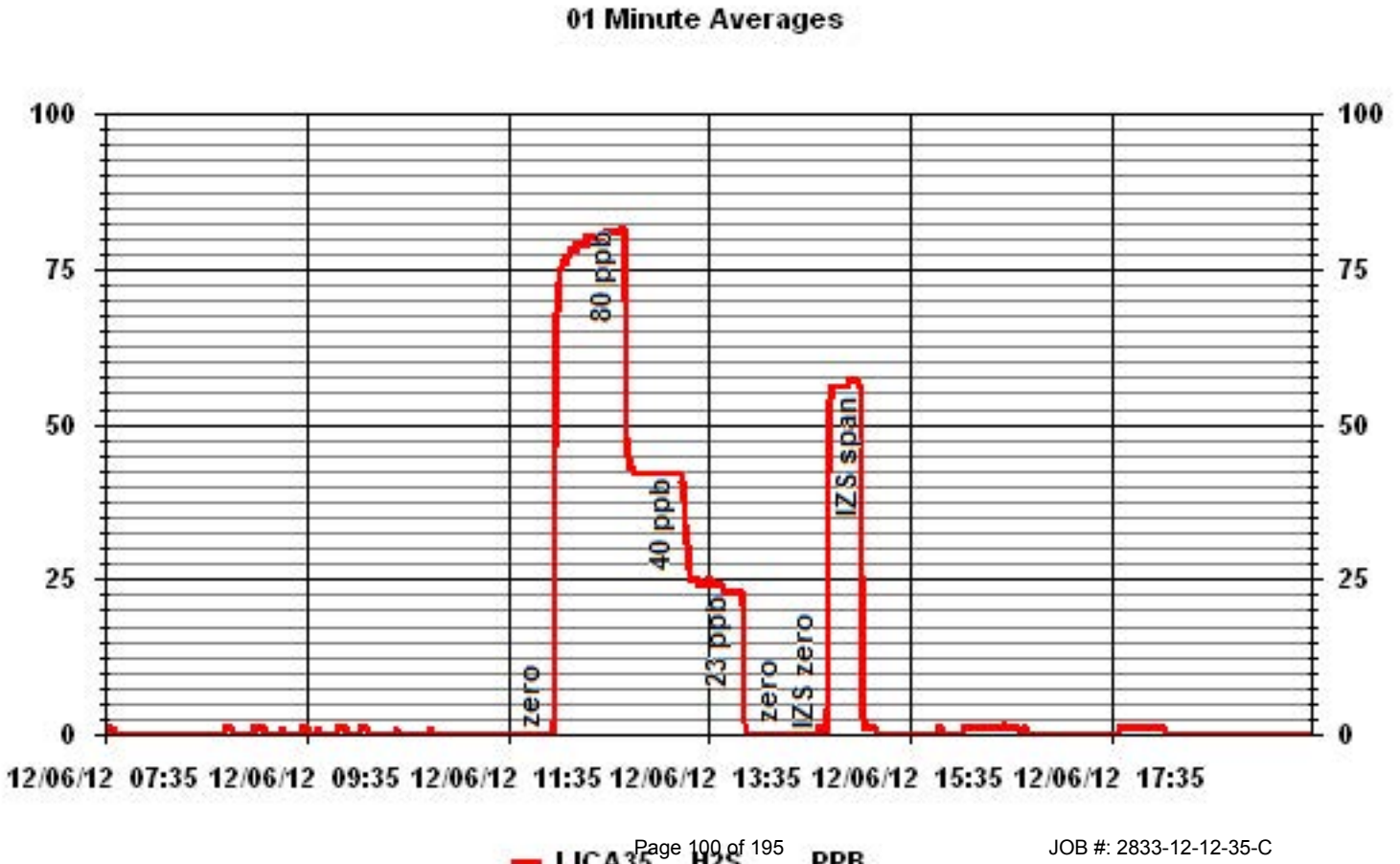


JOB #: 2833-12-12-35-C

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 6, 2012		Previous Calibration	November 14, 2012	
Company:	**Lakeland Industry and Community Association**				
Plant / Location:	**ELICA Portable Station / Elk Point Airport**				
Start Time (MST)	14:52		End Time (MST)	18:25	
Reason:	Monthly Calibration				
Barometric Pressure:	27.86	inHg	Station Temperature:	22	Deg C
Calibrator:	API 700		S/N:	831	
Cal Gas Concentration:	CH4 600 PPM		C3H8	204 PPM	
	TOTAL CH4 1161.0 PPM		Gas Cyl. #	LL155310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832		S/N :	AO 717	
Chart Recorder:	NA		S/N:	NA	
Output Voltage Range:	0 - 10	VDC	Chart Speed:	NA	mm/hr

Analyzer Information

Make / Model	Thermo 51C	S/N :	04366-09739	Method	Flame Ionization

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.9	psi	6.9	psi
Hydrogen Pressure	8.5	psi	8.5	psi
Air Pressure	22	psi	22	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
	No Zero Adj.			
2000	74.0	41.4	44.8	0.9246
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	21.3	0.9901
2000	20.0	11.5	11.8	0.9742
2000	0.0	0.0	0.2	NA
			New Correction Factor:	0.9958

Percent Change

Previous Calibration Correction Factor:	0.9982
Current Correction Factor Before Span Adjust:	0.9246
Percent Change:	8.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	40.2	36.9
Sample Lines Connected		**YES**

Cylinder Pressures

Span 1500 psi Hydrogen 800 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

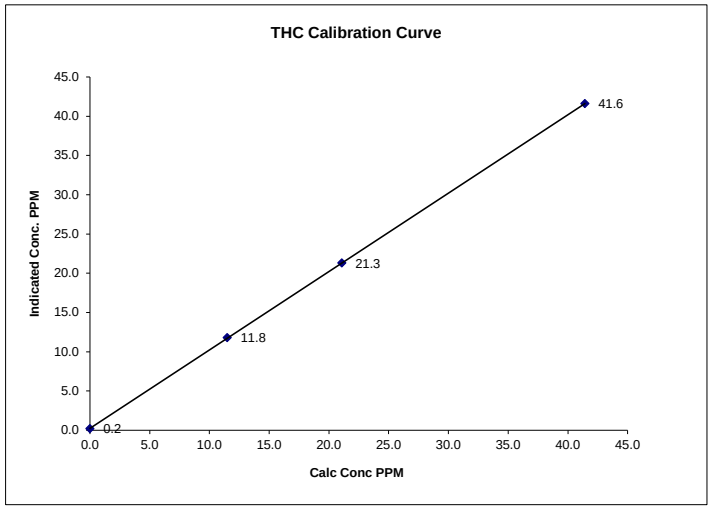
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	December 6, 2012				
Company	**Lakeland Industry and Community Association**				
Plant / Location	**ELICA Portable Station / Elk Point Airport**				
Start Time (MST)	14:52	End Time	(MST)	18:25	

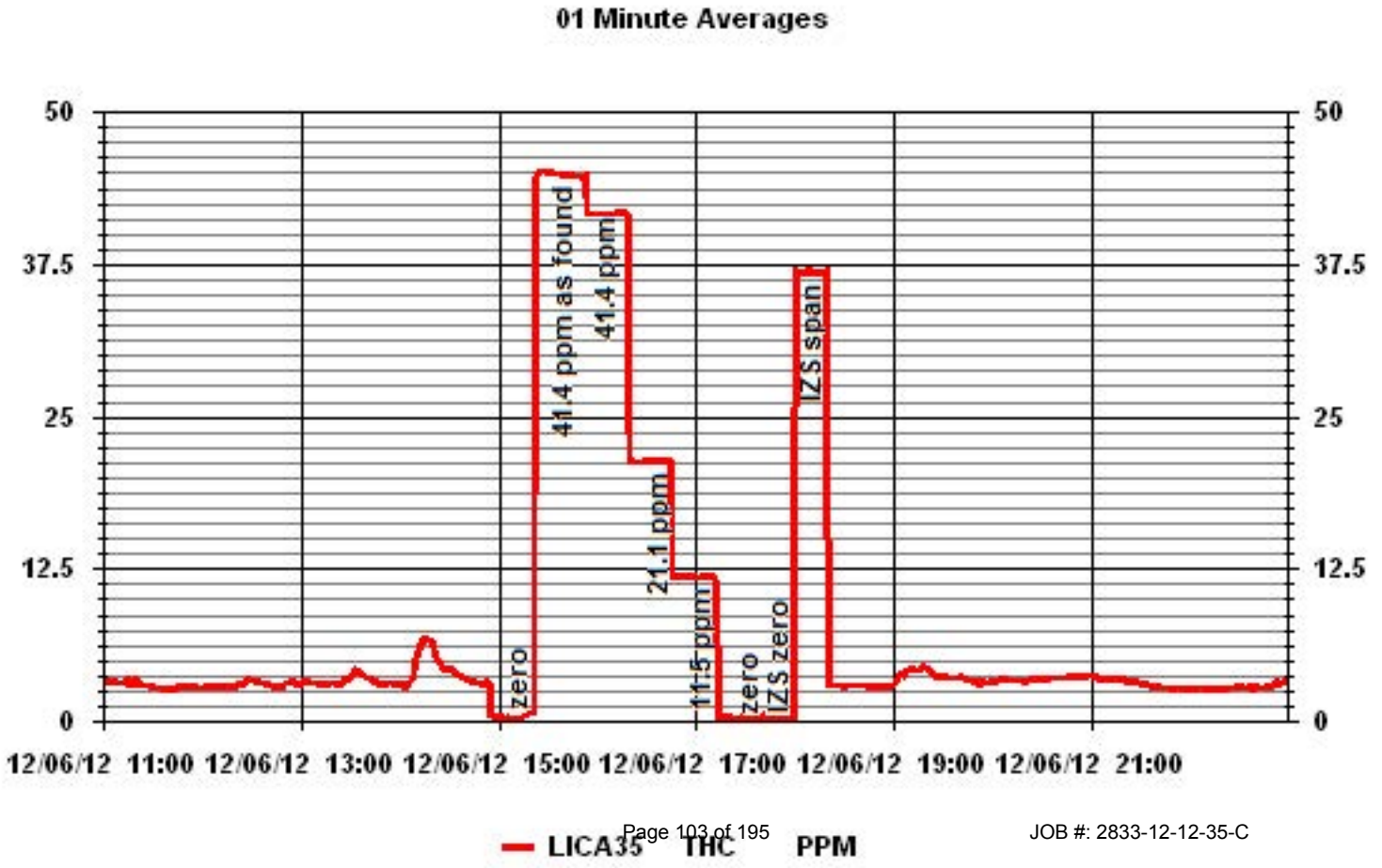
Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	0.2	NA
11.5	11.8	0.9742
21.1	21.3	0.9901
41.4	41.6	0.9958

Correlation Coefficient	(≥ 0.995)	0.999991
Slope	(0.85 to 1.15)	0.998633
Intercept	(± 3% F.S.)	0.24836



Notes:

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

Particulate Matter 2.5

TEOM Calibration

Station		Transfer Standard	
Date:	December 14, 2012	Make/Model:	Streamline FTS
Station Name:	LICA PORTABLE	Serial Number:	Lo091099, Hi 091001
Location:	ELK AIRPORT	Cell s/n:	NA
Operator:	Maxxam Analytics	Thermometer s/n:	Fisher Brand 15-021B

Sampler		Set-up and current Sampler readings	
Make/Model	R&P Teom 1400a	F-Main Set Pt (l/min)	3.00
Unit #	30002	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB228730001	Filter Load (%)	37%
Transducer s/n	1200C140189708	K_o Factor	14568
Parameter	PM 2.5	Temp (^oC)	-8.7
		Press (ATM)	0.913

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow

	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.06		**(45-60 Sec)**	45
F-Aux (l/min)	0.15		**(45-60 Sec)**	55

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	-8.1	**D ^oC**	0.6
Measured Press **(± 1.5% ATM)**	0.917	**D % ATM**	0.4%

Flow Audit

			D % from Set-pt	
Indicated Main/Aux Flow (l/min)	2.98 / 13.64		**(± 2%)**	0.7% / 0.2%
Total Flow = Main + Aux (l/min)	16.62		**(± 2%)**	0.3%
Measured Total Flow (l/min)	16.67		**(± 1.0 l/min. (5.65%))**	-0.3%
Measured Main Flow (l/min)	2.95		**(± 0.2 l/min. (6.25%))**	1.0%

Leak Check

		Actual leakage = Pump On - Pump Off
Main **(< 0.15 l/min)**	0.05	-0.01
Aux **(< 0.15 l/min)**	0.17	0.02

K_o Factor

Measured	N/A
K_o Difference **(± 2.5%)**	N/A

Start Time: 12:01 **Finish Time:** 13:12

Sample Inlet Cleaned: YES **Sample Inlet Connected:** YES

Comments: N/A

Calibrator/s: Ting Xu

TEOM Calibration

Station		Transfer Standard	
Date:	December 20, 2012	Make/Model:	Streamline FTS
Station Name:	LICA PORTABLE	Serial Number:	Lo091099, Hi 091001
Location:	ELK AIRPORT	Cell s/n:	NA
Operator:	Maxxam Analytics	Thermometer s/n:	Fisher Brand 15-021B

Sampler		Set-up and current Sampler readings	
Make/Model	R&P Teom 1400a	F-Main Set Pt (l/min)	3.00
Unit #	30002	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB228730001	Filter Load (%)	16%
Transducer s/n	1200C140189708	K_o Factor	14568
Parameter	PM 2.5	Temp (^oC)	-16.6
		Press (ATM)	0.926

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow

	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.06		**(45-60 Sec)**	45
F-Aux (l/min)	0.16		**(45-60 Sec)**	56

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	-16.77	**D ^oC**	-0.17
Measured Press **(± 1.5% ATM)**	0.930	**D % ATM**	0.4%

Flow Audit

			D % from Set-pt
Indicated Main/Aux Flow (l/min)	2.98 / 13.66	**(± 2%)**	0.7% / 0.1%
Total Flow = Main + Aux (l/min)	16.64	**(± 2%)**	0.2%
Measured Total Flow (l/min)	16.89	**(± 1.0 l/min. (5.65%))**	-1.5%
Measured Main Flow (l/min)	2.99	**(± 0.2 l/min. (6.25%))**	-0.3%

Leak Check

		Actual leakage = Pump On - Pump Off
Main **(< 0.15 l/min)**	0.05	-0.01
Aux **(< 0.15 l/min)**	0.16	0.00

K_o Factor

Measured	N/A
K_o Difference **(± 2.5%)**	N/A

Start Time: 10:00 **Finish Time:** 10:40

Sample Inlet Cleaned: NO **Sample Inlet Connected:** YES

Comments: Following the audit, the Teom 1400a was removed and a Teom 1405F was installed.

Calibrator/s: Ting Xu / Limin Li

TEOM 1405F Audit

Station		Audit Transfer Standard	
Date:	December 20, 2012	Make/Model:	Streamline FTS
Station Name:	Lica Portable (CASA # 35)	Serial Number:	Hi 091001, Low 091099
Location:	Elk Point Airport	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	Fisher Brand 15-021B

Sampler		Set-up and current Sampler readings	
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A208301003	Filter Load (%)	42.6%
Firmware Ver.	1.52	K_o Factor	13125
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-12.1
		Press (ATM)	0.930

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status

Noise **<0.10*u* g**	NA	Warnings	None
Pump Vacuum **<0.40atm**	0.34	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	-12.0	**D ^oC**	-0.1
Measured Press **(± 0.01atm)**	0.927	**DATM**	0.003

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	0.38%
Measured Main Flow (l/min)	3.02	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	0.02%
Measured Bypass Flow (l/min)	13.65	Flow Adjusted to Measured?	Yes

Leak Check

Main **(< 0.15 l/min)**	Base=-0.02 Ref=-0.02
Aux **(< 0.6 l/min)**	Base=0.00 Ref=0.00

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

Measured	NA
K_o Difference **(± 2.5%)**	NA

Start Time: 12:15 **Finish Time:** 13:40

Sample Inlet Cleaned: No **New Filters Installed:** Yes

New Filter Loading %: 22.1%

Comments:

Auditor/s: Ting Xu é Limin Li

JOB #: 2833-12-12-35-C

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 6, 2012		Previous Calibration	November 13, 2012	
Company	LICA		Plant/Location	Elk Point	
Start Time (MST)	11:35		End Time (MST)	18:30	
Reason:	Monthly Calibration				
Barometric Pressure	27.88 inHg	Station Temperature	20 Deg C	MFCF	0
Cal Gas Concentration	NOx 50.1 ppm	NO 50.1 ppm	Cal Gas Expiry date	December 29, 2013	
Cal Gas Cylinder #	LL42502				
DAS Output Voltage	0 - 10 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration					After Calibration			
Concentration Range			0 - 1000			ppb			
Sample Flow/Conv. Temp	468	ccm	315	Deg C		469	ccm	314	Deg C
Ozone Flow / Vacuum	78	ccm	4.9	"Hg-A		78	ccm	4.9	"Hg-A
HVPS / A ZERO	638	Volts	6.9	MV		638	Volts	6.9	MV
Rx/ Temp / PMT Temp	50.0	Deg C	6.7	Deg C		50.0	Deg C	6.7	Deg C
Box Temp / IZS Temp	25.8	Deg C	45.1	Deg C		30.4	Deg C	45.1	Deg C
Offset	4.1	NOx	0.6	NO		0.3	NOx	0.3	NO
Slope	1.049	NOx	1.042	NO		1.071	NOx	1.066	NO
NO_2 COEF / Conv Efficency	NA	NO2	0.996			NA	NO2	0.996	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-2	1	-2	NA	NA
4994	0.0	NA	0	0	NA	0	0	0	NA	NA
4920	74.6	NA	748	748	NA	729	730	-1	1.0237	1.0265
4919	74.6	NA	748	748	NA	747	748	-1	0.9993	1.0000
4956	39.8	NA	399	399	NA	397	397	0	1.0003	1.0079
4977	19.9	NA	200	200	NA	199	199	0	0.9926	1.0077
4994	0.0	NA	0	0	NA	-1	0	-1	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO_2 Correction Factor	NO2 Conv Efficency
			NOx	NO	NO2	NOx	NO	NO2		
4919	74.6	NA	748	748	NA	750	750	0	NA	NA
4919	74.6	600	748	NA	553	750	197	553	0.9964	100.00%
	No Adj.									
4919	74.6	250	748	NA	232	751	518	234	0.9831	100.86%
4919	74.6	140	748	NA	128	753	622	131	0.9624	102.34%

Linearity			Sum of Least Squares	NOx=	1.003	NO=	1.002	NO2=	0.998
OK?	Yes	No	Correction Factors:	NOx=	0.9993	NO=	1.0000	NO2=	0.9964
						Average Converter Efficiency=		101.07%	

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	-2.2	NOx	-1.7	NO2		-0.2	NOx	-0.1	NO2
Auto Span	543	NOx	537	NO2		562	NOx	554	NO2
					Sample Lines Connected	YES			
Percent Change from Previous Calibration				NOx	-2.3%	NO	-2.6%	NO2	0.6%

Notes

NA : Not Applicable

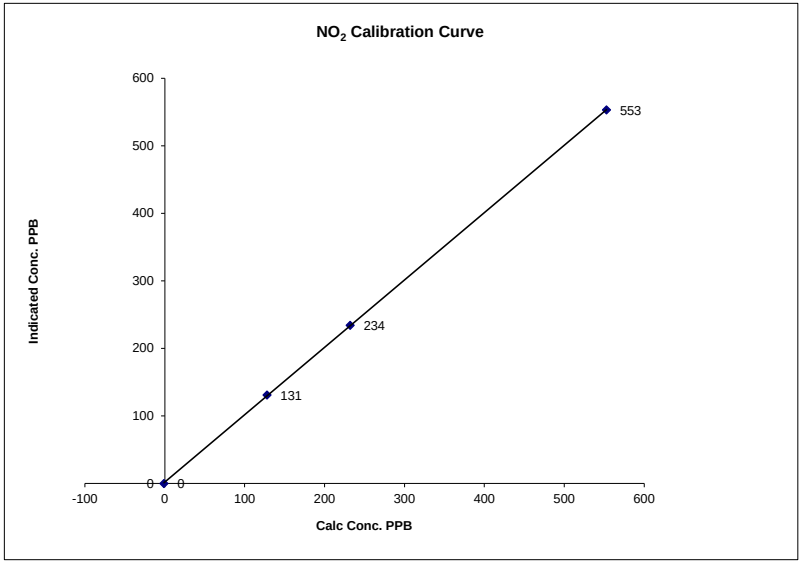
Additional point done for Ozone cal. Setpoint 420, Nox=751, NO=363, NO2=388

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	December 6, 2012		
Company	LICA		
Plant / Location	Elk Point		
Start Time (MST)	11:35	End Time (MST)	18:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999980
			Slope (0.85 to 1.15)	0.996900
-1	0	N/A	Intercept (± 3% F.S.)	2.20673
128	131	0.9771		
232	234	0.9915		
553	553	1.0000		

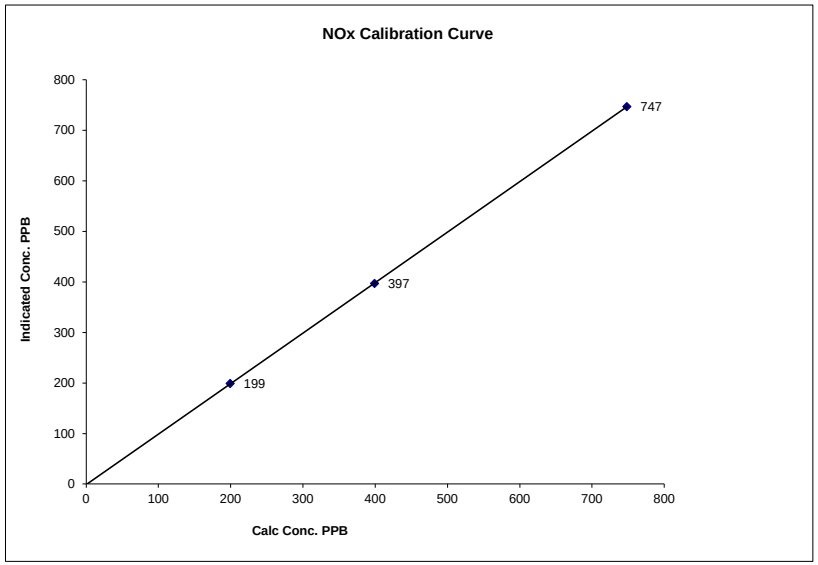


Notes:

NOx Calibration Curve

Calibration Date	December 6, 2012				
Company	LICA				
Plant / Location	Elk Point				
Start Time (MST)	11:35	End Time (MST)	18:30		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999996
			Slope (0.85 to 1.15)	0.998948
0	-1	N/A	Intercept (± 3% F.S.)	-0.92153
200	199	1.0026		
399	397	1.0054		
748	747	1.0019		

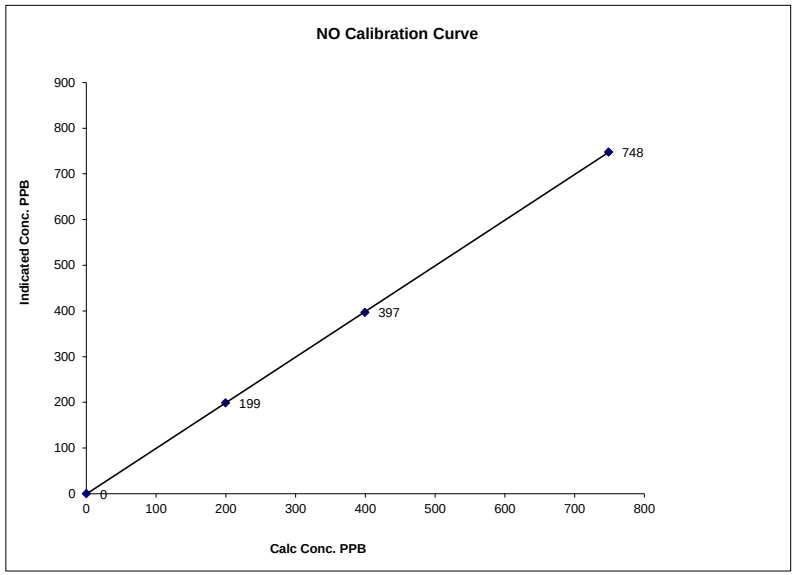


Notes:

NO Calibration Curve

Calibration Date	December 6, 2012				
Company	LICA				
Plant / Location	Elk Point				
Start Time (MST)	11:35	End Time (MST)	18:30		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999992
			Slope (0.85 to 1.15)	1.000659
0	0	N/A	Intercept (± 3% F.S.)	-4.0523
200	199	1.0026		
399	397	1.0054		
748	748	1.0006		



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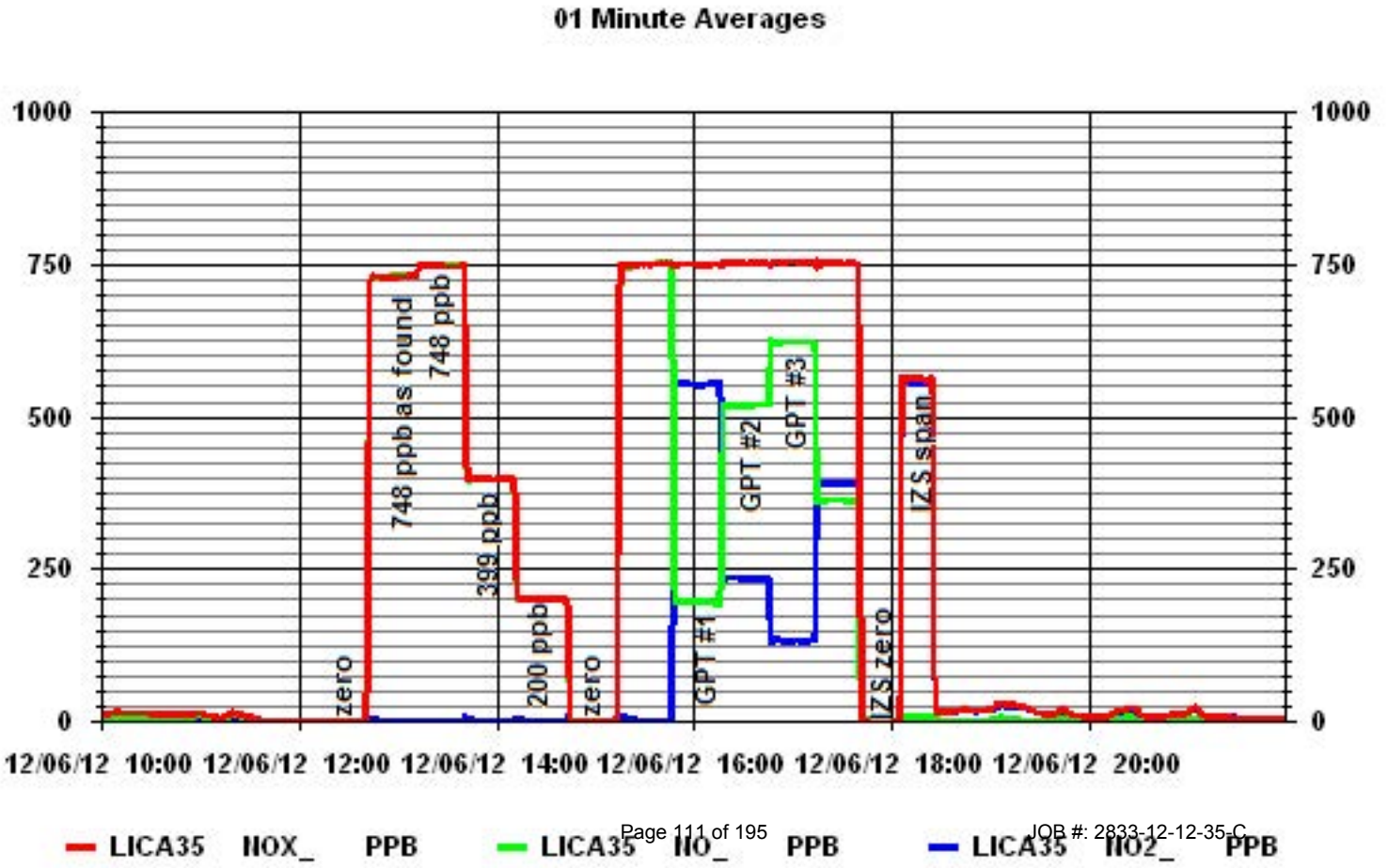

01 Minute Averages
1000
750
500
250
0
zero
748 ppb as found
748 ppb
399 ppb
200 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
12/06/12 10:00
12/06/12 12:00
12/06/12 14:00
12/06/12 16:00
12/06/12 18:00
12/06/12 20:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 24, 2012	Previous Calibration	December 6, 2012
Company	LICA	Plant/Location	Elk Point
Start Time (MST)	10:27	End Time (MST)	12:37
Reason:	As Found		
Barometric Pressure	27.88 inHg	Station Temperature 21 Deg C	MFCF 0
Cal Gas Concentration	NOx 50.1 ppm NO 50.1 ppm	Cal Gas Expiry date	December 29, 2013
Cal Gas Cylinder #	LL42502		
DAS Output Voltage	0 - 10 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

Concentration Range: 0 - 1000 ppb

	Before Calibration				After Calibration			
Sample Flow/Conv. Temp	477	ccm	315	Deg C	484	ccm	314	Deg C
Ozone Flow / Vacuum	79	ccm	4.9	"Hg-A	79	ccm	5	"Hg-A
HVPS / A ZERO	638	Volts	7.5	MV	638	Volts	7.5	MV
Rx/ Temp / PMT Temp	50.0	Deg C	6.7	Deg C	50.0	Deg C	6.7	Deg C
Box Temp / IZS Temp	30.6	Deg C	45.1	Deg C	31.6	Deg C	45.2	Deg C
Offset	0.3	NOx	0.3	NO	0.3	NOx	0.3	NO
Slope	1.071	NOx	1.066	NO	1.071	NOx	1.066	NO
NO_2 COEF / Conv Efficency	NA	NO2	0.996		NA	NO2	0.996	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration NOx	NO	NO2	Indicated Concentration NOx	NO	NO2	Correction Factor NOx	NO
4994	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj.									
4920	74.6	NA	748	748	NA	742	744	-2	1.0085	1.0058

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration NOx	NO	NO2	Indicated Concentration NOx	NO	NO2	NO_2 Correction Factor	NO2 Conv Efficency

Linearity OK?	Yes / No	Sum of Least Squares	NOx= #VALUE!	NO= #VALUE!	NO2= #VALUE!
		Correction Factors:	NOx= 1.0085	NO= 1.0058	NO2=
			Average Converter Efficiency= #DIV/0!		

IZS Calibration Data

	Before Calibration				After Calibration			
Auto Zero	1.0	NOx	1.3	NO2	0.8	NOx	0.8	NO2
Auto Span	484	NOx	474	NO2	472	NOx	463	NO2
Sample Lines Connected					YES			

Percent Change from Previous Calibration: NOx -0.9% NO -0.6% NO2 NA

Notes
NA : Not Applicable
Following the A/F points, the perm tube was replaced.

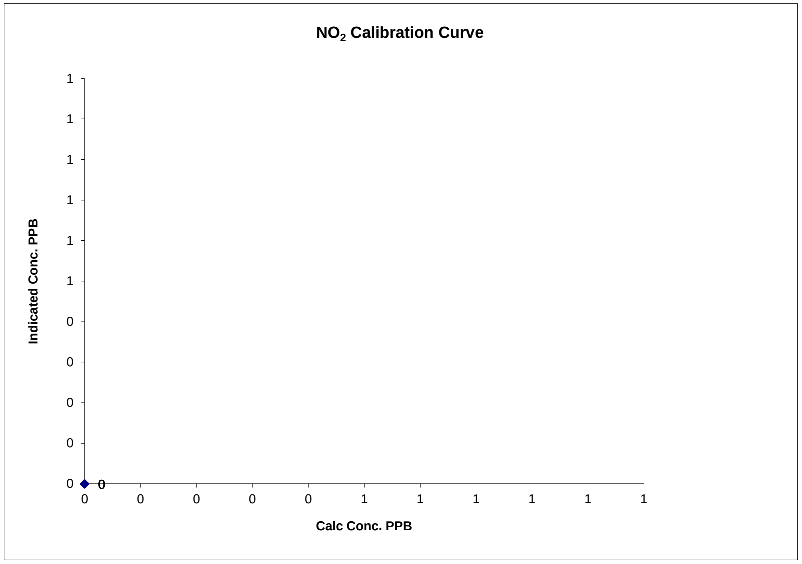
Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	December 24, 2012		
Company	**LICA**		
Plant / Location	**Elk Point**		
Start Time (MST)	10:27	End Time (MST)	12:37

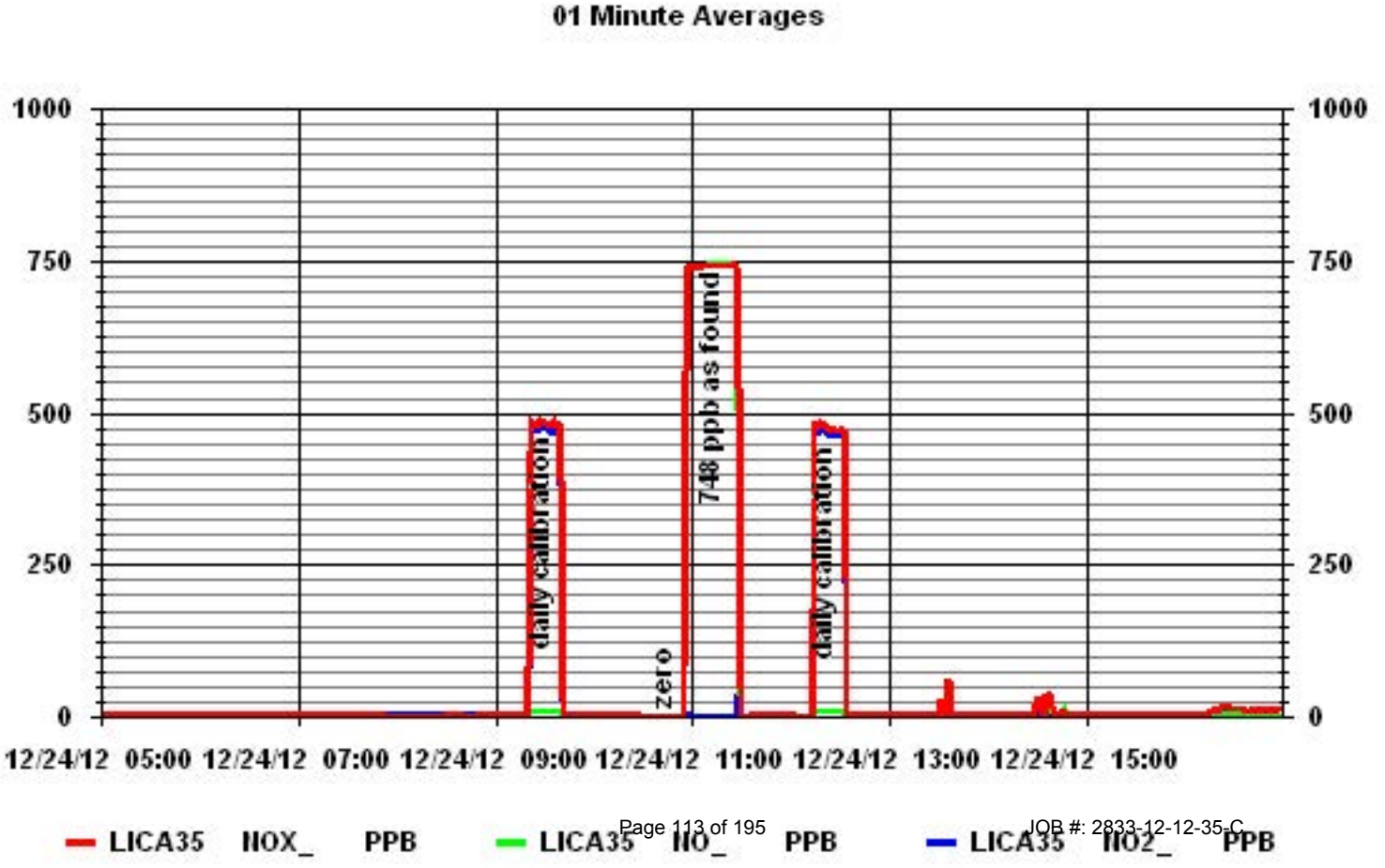
Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	N/A
0	0	#DIV/0!
0	0	#DIV/0!
0	0	#DIV/0!

Correlation Coefficient	(≥ 0.995)	#DIV/0!
Slope	(0.85 to 1.15)	#DIV/0!
Intercept	(± 3% F.S.)	#DIV/0!



Notes:

JOB #: 2833-12-12-35-C


01 Minute Averages
1000
750
500
250
0
daily calibration
zero
748 ppb as found
daily calibration
12/24/12 05:00
12/24/12 07:00
12/24/12 09:00
12/24/12 11:00
12/24/12 13:00
12/24/12 15:00
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	December 7, 2012	Previous Calibration	November 14, 2012
Company	**Lakeland Industry & Community Association**		
Plant / Location	**Portable / Elk Point Airport**		
Start Time (MST)	12:31	End Time (MST)	15:51
Reason:		Monthly Calibration	
Barometric Pressure	27.82 inHg	Station Temperature	19 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Environics 6100		4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 500	ppb				
Cell A Flow / Cell B Flow	740	ccm	746	ccm	755	ccm	762	ccm
Pressure	671	mmHg			693	mmHg		
Bench Lamp	54	Deg C			68.1	DegC		
O3 Lamp / Box Temp	68.2	Deg C	28.4	Deg C	54	Deg C	26.3	Deg C
Offset / Slope	-0.2		1.013		-0.2		1.013	

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj.			
4994	420	387	388	0.9974
	No Span Adj.			
4994	250	232	230	1.0087
4994	140	128	129	0.9922
4994	0	0	0	NA
			Sum of Least Squares	0.9998
			New Correction Factor	0.9974

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	375.0	375.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		0.9974
Percent Change:		0.3%

Note: **NA : Not Applicable**

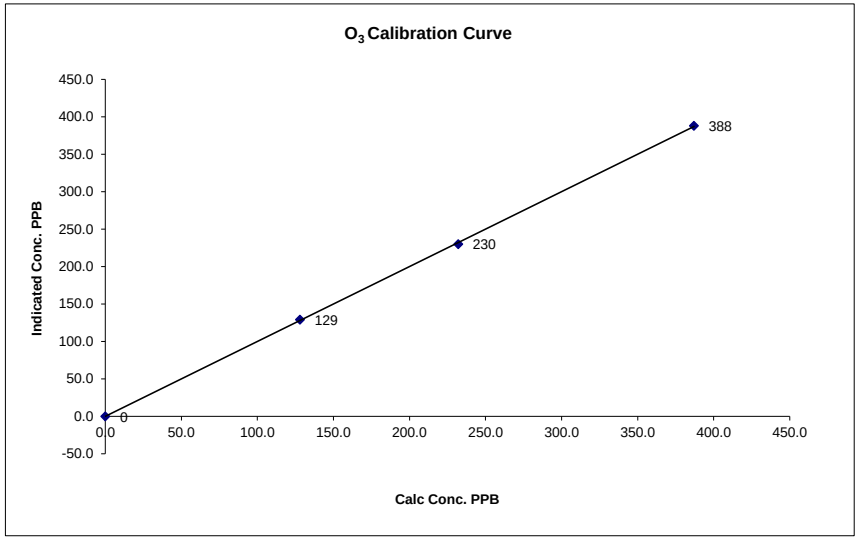
Calibration Performed by: Ting Xu

O_3 Calibration Curve

Calibration Date	December 7, 2012		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**Portable / Elk Point Airport**		
Start Time (MST)	12:31	End Time (MST)	15:51

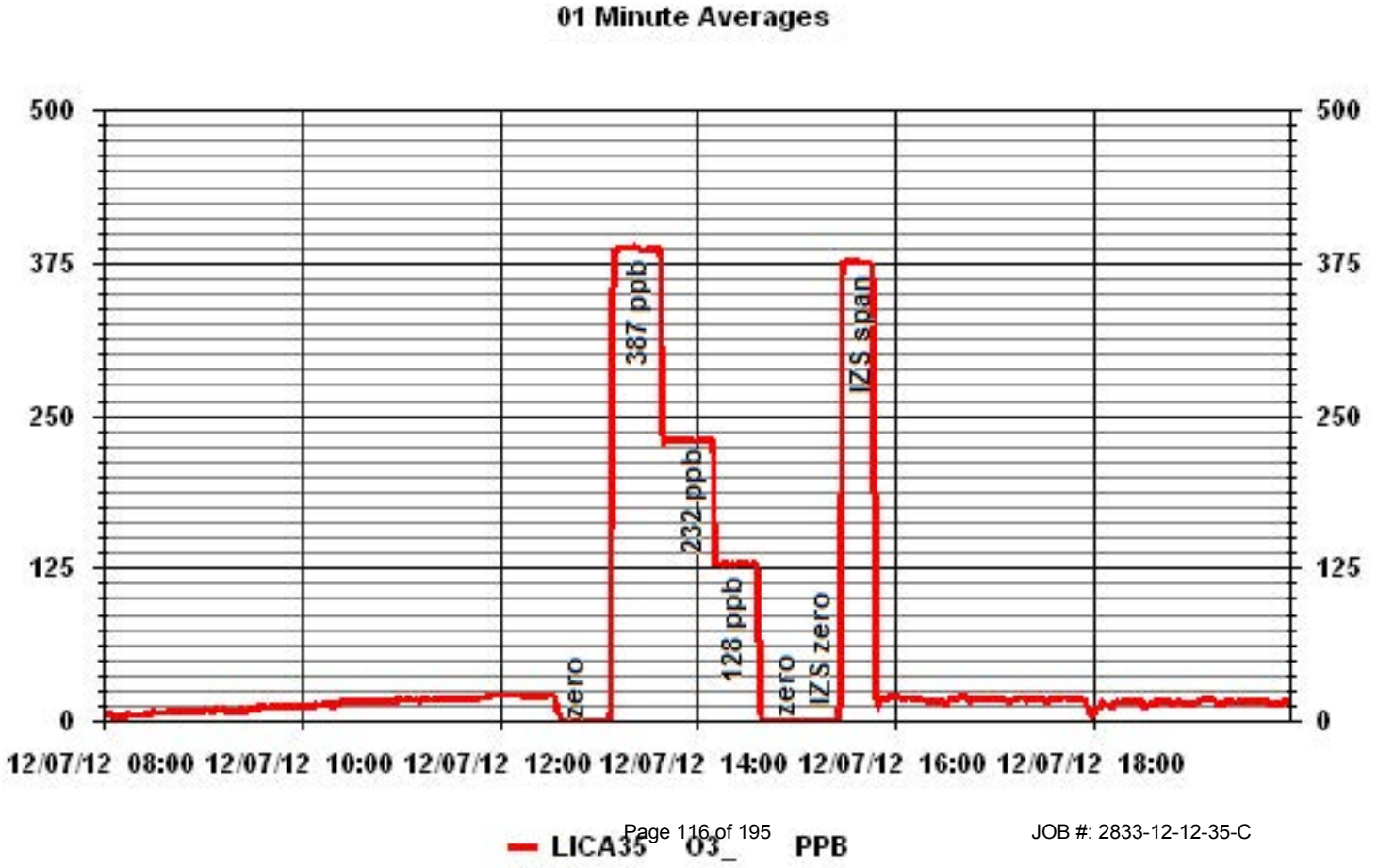
Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
128	129	0.9922
232	230	1.0087
387	388	0.9974

Correlation Coefficient	(≥ 0.995)	0.999926
Slope	(0.85 to 1.15)	1.000634
Intercept	(± 3% F.S.)	-0.118351



Notes:

JOB #: 2833-12-12-35-C



JOB #: 2833-12-12-35-C

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA VOC/PORT/ Dec 05, 12

Sampler s/n: 6200
Canister ID: 7822
Canister Installation Date/Time: Dec 03, 12 @ 14:35 mst
Canister Removal Date/Time: Dec 06, 12 @ 14:36 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Dec-12	12/05/2012 0:00	12/06/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	22

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: System leak check prior to sampling. COC# 12973

Technician Signature: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 12973

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J6888
Received: 2012/12/13, 10:58

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/27	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/27	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

RESULTS OF ANALYSES OF AIR

Maxxam ID		PY9113	PY9114	
Sampling Date		2012/12/05	2012/12/05	
COC Number		12973	12973	
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**LICA VOC/PORT/DEC 05,12 - 7822**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	21	3081761

QC Batch = Quality Control Batch

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Maxxam Job #: B2J6888
Report Date: 2013/01/02

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	3.23	0.989	0.63	0.20	3.10	0.989	3081742
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3081742
Chloromethane	ppbv	0.51	1.05	0.620	0.44	0.30	0.901	0.620	3081742
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3081742
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3081742
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3081742
Trichlorofluoromethane (FREON 11)	ppbv	0.35	1.96	1.12	0.34	0.20	1.89	1.12	3081742
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3081742
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3081742
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3081742
2-Propanone	ppbv	0.98	2.32	1.90	1.43	0.80	3.40	1.90	3081742
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3081742
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3081742
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3081742
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3081742
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3081742
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3081742
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3081742
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3081742
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3081742
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3081742
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3081742
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3081742
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3081742
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3081742
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3081742
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3081742
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3081742
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3081742
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3081742
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3081742

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B2J6888
Report Date: 2013/01/02

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3081742
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3081742
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3081742
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3081742
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3081742
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3081742
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	3081742
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3081742
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3081742
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3081742
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3081742
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3081742
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3081742
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3081742
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3081742
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3081742
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3081742
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3081742
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3081742
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	3081742
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3081742
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3081742
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3081742
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3081742
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3081742
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3081742
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3081742
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3081742
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3081742
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3081742

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	90		N/A	N/A	3081742
D5-Chlorobenzene	%	89	N/A	N/A	91		N/A	N/A	3081742
Difluorobenzene	%	90	N/A	N/A	90		N/A	N/A	3081742

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Job #: B2J6888
Report Date: 2013/01/02

Test Summary

Maxxam ID PY9113 **Collected** 2012/12/05
Sample ID LICA VOC/CLS/DEC 05,12 - 7808 **Shipped**
Matrix AIR **Received** 2012/12/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3081761	N/A	2012/12/27	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3081742	N/A	2012/12/27	Spomenka Smiljanic

Maxxam ID PY9114 **Collected** 2012/12/05
Sample ID LICA VOC/PORT/DEC 05,12 - 7822 **Shipped**
Matrix AIR **Received** 2012/12/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3081761	N/A	2012/12/27	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3081742	N/A	2012/12/27	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Spiked Blank	Bromochloromethane	2012/12/27		103	%	60 - 140
			D5-Chlorobenzene	2012/12/27		108	%	60 - 140
			Difluorobenzene	2012/12/27		106	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/27		109	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/27		122	%	70 - 130
			Chloromethane	2012/12/27		114	%	70 - 130
			Vinyl Chloride	2012/12/27		103	%	70 - 130
			Chloroethane	2012/12/27		102	%	70 - 130
			1,3-Butadiene	2012/12/27		106	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/27		124	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/27		101	%	70 - 130
			Trichlorotrifluoroethane	2012/12/27		102	%	70 - 130
			2-propanol	2012/12/27		107	%	70 - 130
			2-Propanone	2012/12/27		104	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/27		117	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/27		117	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/27		120	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/27		116	%	70 - 130
			Ethyl Acetate	2012/12/27		115	%	70 - 130
			1,1-Dichloroethylene	2012/12/27		113	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/27		119	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/27		109	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/27		102	%	70 - 130
			Chloroform	2012/12/27		110	%	70 - 130
			Carbon Tetrachloride	2012/12/27		121	%	70 - 130
			1,1-Dichloroethane	2012/12/27		104	%	70 - 130
			1,2-Dichloroethane	2012/12/27		121	%	70 - 130
			Ethylene Dibromide	2012/12/27		108	%	70 - 130
			1,1,1-Trichloroethane	2012/12/27		119	%	70 - 130
			1,1,2-Trichloroethane	2012/12/27		104	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/27		88	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/27		117	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/27		131 (1)	%	70 - 130
			1,2-Dichloropropane	2012/12/27		103	%	70 - 130
			Bromomethane	2012/12/27		104	%	70 - 130
			Bromoform	2012/12/27		104	%	70 - 130
			Bromodichloromethane	2012/12/27		108	%	70 - 130
			Dibromochloromethane	2012/12/27		109	%	70 - 130
			Trichloroethylene	2012/12/27		107	%	70 - 130
			Tetrachloroethylene	2012/12/27		109	%	70 - 130
			Benzene	2012/12/27		110	%	70 - 130
			Toluene	2012/12/27		117	%	70 - 130
			Ethylbenzene	2012/12/27		121	%	70 - 130
			p+m-Xylene	2012/12/27		118	%	70 - 130
			o-Xylene	2012/12/27		112	%	70 - 130
			Styrene	2012/12/27		113	%	70 - 130
			4-ethyltoluene	2012/12/27		112	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/27		111	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/27		113	%	70 - 130
			Chlorobenzene	2012/12/27		103	%	70 - 130
			Benzyl chloride	2012/12/27		98	%	70 - 130
			1,3-Dichlorobenzene	2012/12/27		100	%	70 - 130
			1,4-Dichlorobenzene	2012/12/27		94	%	70 - 130
			1,2-Dichlorobenzene	2012/12/27		93	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/27		98	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Spiked Blank	Hexachlorobutadiene	2012/12/27		94	%	70 - 130
			Hexane	2012/12/27		106	%	70 - 130
			Heptane	2012/12/27		112	%	70 - 130
			Cyclohexane	2012/12/27		108	%	70 - 130
			Tetrahydrofuran	2012/12/27		112	%	70 - 130
			1,4-Dioxane	2012/12/27		107	%	70 - 130
			Xylene (Total)	2012/12/27		116	%	70 - 130
			Vinyl Bromide	2012/12/27		98	%	70 - 130
			Propene	2012/12/27		94	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/27		102	%	70 - 130
			Carbon Disulfide	2012/12/27		97	%	70 - 130
			Vinyl Acetate	2012/12/27		122	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/27		89	%	60 - 140
			D5-Chlorobenzene	2012/12/27		87	%	60 - 140
			Difluorobenzene	2012/12/27		95	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/27	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/27	<0.17		ppbv	
			Chloromethane	2012/12/27	<0.30		ppbv	
			Vinyl Chloride	2012/12/27	<0.18		ppbv	
			Chloroethane	2012/12/27	<0.30		ppbv	
			1,3-Butadiene	2012/12/27	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/27	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/27	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/27	<0.15		ppbv	
			2-propanol	2012/12/27	<3.0		ppbv	
			2-Propanone	2012/12/27	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/27	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/27	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/27	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/27	<0.20		ppbv	
			Ethyl Acetate	2012/12/27	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/27	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/27	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/27	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/27	<0.80		ppbv	
			Chloroform	2012/12/27	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/27	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/27	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/27	<0.20		ppbv	
			Ethylene Dibromide	2012/12/27	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/27	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/27	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/27	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/27	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/27	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/27	<0.40		ppbv	
			Bromomethane	2012/12/27	<0.18		ppbv	
			Bromoform	2012/12/27	<0.20		ppbv	
			Bromodichloromethane	2012/12/27	<0.20		ppbv	
			Dibromochloromethane	2012/12/27	<0.20		ppbv	
			Trichloroethylene	2012/12/27	<0.30		ppbv	
			Tetrachloroethylene	2012/12/27	<0.20		ppbv	
			Benzene	2012/12/27	<0.18		ppbv	
			Toluene	2012/12/27	<0.20		ppbv	
			Ethylbenzene	2012/12/27	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Method Blank	p+m-Xylene	2012/12/27	<0.37		ppbv	
			o-Xylene	2012/12/27	<0.20		ppbv	
			Styrene	2012/12/27	<0.20		ppbv	
			4-ethyltoluene	2012/12/27	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/27	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/27	<0.50		ppbv	
			Chlorobenzene	2012/12/27	<0.20		ppbv	
			Benzyl chloride	2012/12/27	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/27	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/27	<3.0		ppbv	
			Hexane	2012/12/27	<0.30		ppbv	
			Heptane	2012/12/27	<0.30		ppbv	
			Cyclohexane	2012/12/27	<0.20		ppbv	
			Tetrahydrofuran	2012/12/27	<0.40		ppbv	
			1,4-Dioxane	2012/12/27	<2.0		ppbv	
			Xylene (Total)	2012/12/27	<0.60		ppbv	
			Vinyl Bromide	2012/12/27	<0.20		ppbv	
			Propene	2012/12/27	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/27	<0.20		ppbv	
			Carbon Disulfide	2012/12/27	<0.50		ppbv	
			Vinyl Acetate	2012/12/27	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA VOC/PORT/ Dec 11, 12

Sampler s/n: 6200
Canister ID: 298
Canister Installation Date/Time: Dec 06, 12 @ 14:55 mst
Canister Removal Date/Time: Dec 14, 12 @ 10:45 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Dec-12	12/11/2012 0:00	12/12/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	22

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: System leak check prior to sampling. COC# 13016

Technician Signature: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 13016

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K0080
Received: 2012/12/19, 12:10

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

RESULTS OF ANALYSES OF AIR

Maxxam ID		QA7417	QA7418	
Sampling Date		2012/12/11	2012/12/11	
COC Number		13016	13016	
	Units	**LICA VOC/CLS/DEC 11,12**	**LICA VOC/PORT/DEC 11,12**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3083850

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.59	2.91	0.989	0.64	0.20	3.17	0.989	3083845
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3083845
Chloromethane	ppbv	0.47	0.980	0.620	0.48	0.30	1.00	0.620	3083845
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3083845
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3083845
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3083845
Trichlorofluoromethane (FREON 11)	ppbv	0.33	1.83	1.12	0.34	0.20	1.90	1.12	3083845
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3083845
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3083845
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3083845
2-Propanone	ppbv	1.05	2.50	1.90	0.84	0.80	2.00	1.90	3083845
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3083845
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3083845
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3083845
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3083845
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3083845
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3083845
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3083845
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3083845
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3083845
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3083845
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3083845
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3083845
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3083845
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3083845
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3083845
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3083845
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3083845
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3083845

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3083845
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3083845
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3083845
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3083845
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3083845
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3083845
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	3083845
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3083845
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3083845
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3083845
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3083845
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3083845
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3083845
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3083845
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3083845
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	3083845
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3083845
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3083845
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3083845
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3083845
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3083845
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3083845
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3083845
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3083845
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3083845
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3083845

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	76	N/A	N/A	77		N/A	N/A	3083845
D5-Chlorobenzene	%	80	N/A	N/A	80		N/A	N/A	3083845
Difluorobenzene	%	79	N/A	N/A	79		N/A	N/A	3083845

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

Test Summary

Maxxam ID QA7417 **Collected** 2012/12/11
Sample ID LICA VOC/CLS/DEC 11,12 **Shipped**
Matrix AIR **Received** 2012/12/19

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

Maxxam ID QA7418 **Collected** 2012/12/11
Sample ID LICA VOC/PORT/DEC 11,12 **Shipped**
Matrix AIR **Received** 2012/12/19

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K0080

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Spiked Blank	Bromochloromethane	2012/12/28		103	%	60 - 140
			D5-Chlorobenzene	2012/12/28		107	%	60 - 140
			Difluorobenzene	2012/12/28		107	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/28		97	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/28		107	%	70 - 130
			Chloromethane	2012/12/28		99	%	70 - 130
			Vinyl Chloride	2012/12/28		89	%	70 - 130
			Chloroethane	2012/12/28		86	%	70 - 130
			1,3-Butadiene	2012/12/28		90	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/28		104	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/28		83	%	70 - 130
			Trichlorotrifluoroethane	2012/12/28		86	%	70 - 130
			2-propanol	2012/12/28		87	%	70 - 130
			2-Propanone	2012/12/28		88	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/28		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/28		98	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/28		101	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/28		95	%	70 - 130
			Ethyl Acetate	2012/12/28		95	%	70 - 130
			1,1-Dichloroethylene	2012/12/28		93	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/28		98	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/28		90	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/28		85	%	70 - 130
			Chloroform	2012/12/28		91	%	70 - 130
			Carbon Tetrachloride	2012/12/28		102	%	70 - 130
			1,1-Dichloroethane	2012/12/28		87	%	70 - 130
			1,2-Dichloroethane	2012/12/28		100	%	70 - 130
			Ethylene Dibromide	2012/12/28		89	%	70 - 130
			1,1,1-Trichloroethane	2012/12/28		100	%	70 - 130
			1,1,2-Trichloroethane	2012/12/28		86	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/28		76	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/28		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/28		107	%	70 - 130
			1,2-Dichloropropane	2012/12/28		85	%	70 - 130
			Bromomethane	2012/12/28		88	%	70 - 130
			Bromoform	2012/12/28		90	%	70 - 130
			Bromodichloromethane	2012/12/28		90	%	70 - 130
			Dibromochloromethane	2012/12/28		91	%	70 - 130
			Trichloroethylene	2012/12/28		90	%	70 - 130
			Tetrachloroethylene	2012/12/28		91	%	70 - 130
			Benzene	2012/12/28		92	%	70 - 130
			Toluene	2012/12/28		97	%	70 - 130
			Ethylbenzene	2012/12/28		104	%	70 - 130
			p+m-Xylene	2012/12/28		101	%	70 - 130
			o-Xylene	2012/12/28		97	%	70 - 130
			Styrene	2012/12/28		97	%	70 - 130
			4-ethyltoluene	2012/12/28		96	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/28		96	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/28		98	%	70 - 130
			Chlorobenzene	2012/12/28		89	%	70 - 130
			Benzyl chloride	2012/12/28		85	%	70 - 130
			1,3-Dichlorobenzene	2012/12/28		86	%	70 - 130
			1,4-Dichlorobenzene	2012/12/28		83	%	70 - 130
			1,2-Dichlorobenzene	2012/12/28		81	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/28		90	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0080

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Spiked Blank	Hexachlorobutadiene	2012/12/28		88	%	70 - 130
			Hexane	2012/12/28		88	%	70 - 130
			Heptane	2012/12/28		93	%	70 - 130
			Cyclohexane	2012/12/28		91	%	70 - 130
			Tetrahydrofuran	2012/12/28		94	%	70 - 130
			1,4-Dioxane	2012/12/28		89	%	70 - 130
			Xylene (Total)	2012/12/28		100	%	70 - 130
			Vinyl Bromide	2012/12/28		81	%	70 - 130
			Propene	2012/12/28		83	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/28		86	%	70 - 130
			Carbon Disulfide	2012/12/28		81	%	70 - 130
			Vinyl Acetate	2012/12/28		101	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/28		70	%	60 - 140
			D5-Chlorobenzene	2012/12/28		69	%	60 - 140
			Difluorobenzene	2012/12/28		76	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/28	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/28	<0.17		ppbv	
			Chloromethane	2012/12/28	<0.30		ppbv	
			Vinyl Chloride	2012/12/28	<0.18		ppbv	
			Chloroethane	2012/12/28	<0.30		ppbv	
			1,3-Butadiene	2012/12/28	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/28	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/28	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/28	<0.15		ppbv	
			2-propanol	2012/12/28	<3.0		ppbv	
			2-Propanone	2012/12/28	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/28	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/28	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/28	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/28	<0.20		ppbv	
			Ethyl Acetate	2012/12/28	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/28	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/28	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/28	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/28	<0.80		ppbv	
			Chloroform	2012/12/28	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/28	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/28	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/28	<0.20		ppbv	
			Ethylene Dibromide	2012/12/28	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/28	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/28	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/28	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/28	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/28	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/28	<0.40		ppbv	
			Bromomethane	2012/12/28	<0.18		ppbv	
			Bromoform	2012/12/28	<0.20		ppbv	
			Bromodichloromethane	2012/12/28	<0.20		ppbv	
			Dibromochloromethane	2012/12/28	<0.20		ppbv	
			Trichloroethylene	2012/12/28	<0.30		ppbv	
			Tetrachloroethylene	2012/12/28	<0.20		ppbv	
			Benzene	2012/12/28	<0.18		ppbv	
			Toluene	2012/12/28	<0.20		ppbv	
			Ethylbenzene	2012/12/28	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0080

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Method Blank	p+m-Xylene	2012/12/28	<0.37		ppbv	
			o-Xylene	2012/12/28	<0.20		ppbv	
			Styrene	2012/12/28	<0.20		ppbv	
			4-ethyltoluene	2012/12/28	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			Chlorobenzene	2012/12/28	<0.20		ppbv	
			Benzyl chloride	2012/12/28	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/28	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/28	<3.0		ppbv	
			Hexane	2012/12/28	<0.30		ppbv	
			Heptane	2012/12/28	<0.30		ppbv	
			Cyclohexane	2012/12/28	<0.20		ppbv	
			Tetrahydrofuran	2012/12/28	<0.40		ppbv	
			1,4-Dioxane	2012/12/28	<2.0		ppbv	
			Xylene (Total)	2012/12/28	<0.60		ppbv	
			Vinyl Bromide	2012/12/28	<0.20		ppbv	
			Propene	2012/12/28	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/28	<0.20		ppbv	
			Carbon Disulfide	2012/12/28	<0.50		ppbv	
			Vinyl Acetate	2012/12/28	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA VOC/PORT/ Dec 17, 12

Sampler s/n: 6200
Canister ID: 307
Canister Installation Date/Time: Dec 14, 12 @ 10:54 mst
Canister Removal Date/Time: Dec 20, 12 @ 09:51 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Dec-12	12/17/2012 0:00	12/18/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	22

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: System leak check prior to sampling. COC# 13081

Technician Signature: Ting Xu

Success Through Science®

Your C.O.C. #: 13081

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K2426
Received: 2012/12/22, 11:58

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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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Total cover pages: 1

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

RESULTS OF ANALYSES OF AIR

Maxxam ID		QB8386	QB8387	
Sampling Date		2012/12/17	2012/12/17	
COC Number		13081	13081	
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**LICA VOC/PORT/DEC 17,12 - 307**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3083850

QC Batch = Quality Control Batch

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Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.63	3.14	0.989	0.65	0.20	3.23	0.989	3083845
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3083845
Chloromethane	ppbv	0.52	1.06	0.620	0.52	0.30	1.07	0.620	3083845
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3083845
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3083845
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3083845
Trichlorofluoromethane (FREON 11)	ppbv	0.34	1.93	1.12	0.34	0.20	1.91	1.12	3083845
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3083845
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3083845
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3083845
2-Propanone	ppbv	1.07	2.54	1.90	0.98	0.80	2.33	1.90	3083845
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3083845
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3083845
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3083845
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3083845
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3083845
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3083845
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3083845
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3083845
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3083845
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3083845
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3083845
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3083845
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3083845
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3083845
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3083845
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3083845
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3083845
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3083845

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3083845
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3083845
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3083845
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3083845
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3083845
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3083845
Benzene	ppbv	<0.18	<0.575	0.575	0.21	0.18	0.669	0.575	3083845
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3083845
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3083845
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3083845
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3083845
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3083845
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3083845
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3083845
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3083845
Hexane	ppbv	<0.30	<1.06	1.06	0.56	0.30	1.97	1.06	3083845
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3083845
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.28	0.20	0.953	0.688	3083845
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3083845
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3083845
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3083845
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3083845
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3083845
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3083845
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3083845
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3083845

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	77	N/A	N/A	79		N/A	N/A	3083845
D5-Chlorobenzene	%	81	N/A	N/A	84		N/A	N/A	3083845
Difluorobenzene	%	79	N/A	N/A	82		N/A	N/A	3083845

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

Test Summary

Maxxam ID QB8386 **Collected** 2012/12/17
Sample ID LICA VOC/CLS/DEC 17,12 - 125 **Shipped**
Matrix AIR **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

Maxxam ID QB8387 **Collected** 2012/12/17
Sample ID LICA VOC/PORT/DEC 17,12 - 307 **Shipped**
Matrix AIR **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K2426

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Spiked Blank	Bromochloromethane	2012/12/28		103	%	60 - 140
			D5-Chlorobenzene	2012/12/28		107	%	60 - 140
			Difluorobenzene	2012/12/28		107	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/28		97	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/28		107	%	70 - 130
			Chloromethane	2012/12/28		99	%	70 - 130
			Vinyl Chloride	2012/12/28		89	%	70 - 130
			Chloroethane	2012/12/28		86	%	70 - 130
			1,3-Butadiene	2012/12/28		90	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/28		104	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/28		83	%	70 - 130
			Trichlorotrifluoroethane	2012/12/28		86	%	70 - 130
			2-propanol	2012/12/28		87	%	70 - 130
			2-Propanone	2012/12/28		88	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/28		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/28		98	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/28		101	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/28		95	%	70 - 130
			Ethyl Acetate	2012/12/28		95	%	70 - 130
			1,1-Dichloroethylene	2012/12/28		93	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/28		98	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/28		90	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/28		85	%	70 - 130
			Chloroform	2012/12/28		91	%	70 - 130
			Carbon Tetrachloride	2012/12/28		102	%	70 - 130
			1,1-Dichloroethane	2012/12/28		87	%	70 - 130
			1,2-Dichloroethane	2012/12/28		100	%	70 - 130
			Ethylene Dibromide	2012/12/28		89	%	70 - 130
			1,1,1-Trichloroethane	2012/12/28		100	%	70 - 130
			1,1,2-Trichloroethane	2012/12/28		86	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/28		76	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/28		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/28		107	%	70 - 130
			1,2-Dichloropropane	2012/12/28		85	%	70 - 130
			Bromomethane	2012/12/28		88	%	70 - 130
			Bromoform	2012/12/28		90	%	70 - 130
			Bromodichloromethane	2012/12/28		90	%	70 - 130
			Dibromochloromethane	2012/12/28		91	%	70 - 130
			Trichloroethylene	2012/12/28		90	%	70 - 130
			Tetrachloroethylene	2012/12/28		91	%	70 - 130
			Benzene	2012/12/28		92	%	70 - 130
			Toluene	2012/12/28		97	%	70 - 130
			Ethylbenzene	2012/12/28		104	%	70 - 130
			p+m-Xylene	2012/12/28		101	%	70 - 130
			o-Xylene	2012/12/28		97	%	70 - 130
			Styrene	2012/12/28		97	%	70 - 130
			4-ethyltoluene	2012/12/28		96	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/28		96	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/28		98	%	70 - 130
			Chlorobenzene	2012/12/28		89	%	70 - 130
			Benzyl chloride	2012/12/28		85	%	70 - 130
			1,3-Dichlorobenzene	2012/12/28		86	%	70 - 130
			1,4-Dichlorobenzene	2012/12/28		83	%	70 - 130
			1,2-Dichlorobenzene	2012/12/28		81	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/28		90	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2426

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845 S_S	Spiked Blank	Hexachlorobutadiene	2012/12/28		88	%	70 - 130
		Hexane	2012/12/28		88	%	70 - 130
		Heptane	2012/12/28		93	%	70 - 130
		Cyclohexane	2012/12/28		91	%	70 - 130
		Tetrahydrofuran	2012/12/28		94	%	70 - 130
		1,4-Dioxane	2012/12/28		89	%	70 - 130
		Xylene (Total)	2012/12/28		100	%	70 - 130
		Vinyl Bromide	2012/12/28		81	%	70 - 130
		Propene	2012/12/28		83	%	70 - 130
		2,2,4-Trimethylpentane	2012/12/28		86	%	70 - 130
		Carbon Disulfide	2012/12/28		81	%	70 - 130
		Vinyl Acetate	2012/12/28		101	%	70 - 130
	Method Blank	Bromochloromethane	2012/12/28		70	%	60 - 140
		D5-Chlorobenzene	2012/12/28		69	%	60 - 140
		Difluorobenzene	2012/12/28		76	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/12/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/12/28	<0.17		ppbv	
		Chloromethane	2012/12/28	<0.30		ppbv	
		Vinyl Chloride	2012/12/28	<0.18		ppbv	
		Chloroethane	2012/12/28	<0.30		ppbv	
		1,3-Butadiene	2012/12/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/12/28	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/12/28	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/12/28	<0.15		ppbv	
		2-propanol	2012/12/28	<3.0		ppbv	
		2-Propanone	2012/12/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/12/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/12/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/12/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/12/28	<0.20		ppbv	
		Ethyl Acetate	2012/12/28	<2.2		ppbv	
		1,1-Dichloroethylene	2012/12/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/12/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/12/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/12/28	<0.80		ppbv	
		Chloroform	2012/12/28	<0.15		ppbv	
		Carbon Tetrachloride	2012/12/28	<0.30		ppbv	
		1,1-Dichloroethane	2012/12/28	<0.20		ppbv	
		1,2-Dichloroethane	2012/12/28	<0.20		ppbv	
		Ethylene Dibromide	2012/12/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/12/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/12/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/12/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/12/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/12/28	<0.17		ppbv	
		1,2-Dichloropropane	2012/12/28	<0.40		ppbv	
		Bromomethane	2012/12/28	<0.18		ppbv	
		Bromoform	2012/12/28	<0.20		ppbv	
		Bromodichloromethane	2012/12/28	<0.20		ppbv	
		Dibromochloromethane	2012/12/28	<0.20		ppbv	
		Trichloroethylene	2012/12/28	<0.30		ppbv	
		Tetrachloroethylene	2012/12/28	<0.20		ppbv	
		Benzene	2012/12/28	<0.18		ppbv	
		Toluene	2012/12/28	<0.20		ppbv	
		Ethylbenzene	2012/12/28	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2426

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Method Blank	p+m-Xylene	2012/12/28	<0.37		ppbv	
			o-Xylene	2012/12/28	<0.20		ppbv	
			Styrene	2012/12/28	<0.20		ppbv	
			4-ethyltoluene	2012/12/28	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			Chlorobenzene	2012/12/28	<0.20		ppbv	
			Benzyl chloride	2012/12/28	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/28	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/28	<3.0		ppbv	
			Hexane	2012/12/28	<0.30		ppbv	
			Heptane	2012/12/28	<0.30		ppbv	
			Cyclohexane	2012/12/28	<0.20		ppbv	
			Tetrahydrofuran	2012/12/28	<0.40		ppbv	
			1,4-Dioxane	2012/12/28	<2.0		ppbv	
			Xylene (Total)	2012/12/28	<0.60		ppbv	
			Vinyl Bromide	2012/12/28	<0.20		ppbv	
			Propene	2012/12/28	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/28	<0.20		ppbv	
			Carbon Disulfide	2012/12/28	<0.50		ppbv	
			Vinyl Acetate	2012/12/28	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA VOC/PORT/ Dec 29, 12

Sampler s/n: 6200
Canister ID: 7868
Canister Installation Date/Time: Dec 28, 12 @ 12:50 mst
Canister Removal Date/Time: Jan 02, 13 @ 15:13 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Dec-12	12/29/2012 0:00	12/30/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	22

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: System leak check prior to sampling. COC# 13149

Technician Signature: Ting Xu

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

Success Through Science®

Your C.O.C. #: 13149

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/08

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301766
Received: 2013/01/05, 10:50

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2013/01/07	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2013/01/07	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

RESULTS OF ANALYSES OF AIR

Maxxam ID		QD4942	QD4943	
Sampling Date		2012/12/29	2012/12/29	
COC Number		13149	13149	
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**LICA VOC/PORT/DEC 29,12 - 7868**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	21	21	3087845

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.64	3.18	0.989	0.69	0.20	3.39	0.989	3087840
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3087840
Chloromethane	ppbv	<0.30	<0.620	0.620	0.52	0.30	1.07	0.620	3087840
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3087840
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3087840
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3087840
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.05	1.12	0.37	0.20	2.09	1.12	3087840
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3087840
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3087840
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3087840
2-Propanone	ppbv	1.14	2.72	1.90	1.18	0.80	2.80	1.90	3087840
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3087840
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3087840
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3087840
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3087840
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3087840
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3087840
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3087840
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3087840
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3087840
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3087840
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3087840
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3087840
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3087840
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3087840
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3087840
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3087840
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3087840
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3087840
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3087840
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3087840

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B301766
Report Date: 2013/01/08

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3087840
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3087840
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3087840
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3087840
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3087840
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3087840
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.590	0.575	3087840
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3087840
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3087840
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3087840
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3087840
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3087840
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3087840
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3087840
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3087840
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3087840
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3087840
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3087840
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3087840
Hexane	ppbv	<0.30	<1.06	1.06	0.39	0.30	1.39	1.06	3087840
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3087840
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3087840
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3087840
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3087840
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3087840
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3087840
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3087840
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3087840
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3087840
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3087840

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	81	N/A	N/A	76		N/A	N/A	3087840
D5-Chlorobenzene	%	89	N/A	N/A	86		N/A	N/A	3087840
Difluorobenzene	%	85	N/A	N/A	80		N/A	N/A	3087840

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

Test Summary

Maxxam ID QD4942 **Collected** 2012/12/29
Sample ID LICA VOC/CLS/DEC 29,12 - 7820 **Shipped**
Matrix AIR **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3087845	N/A	2013/01/07	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3087840	N/A	2013/01/07	Spomenka Smiljanic

Maxxam ID QD4943 **Collected** 2012/12/29
Sample ID LICA VOC/PORT/DEC 29,12 - 7868 **Shipped**
Matrix AIR **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3087845	N/A	2013/01/07	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3087840	N/A	2013/01/07	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Spiked Blank	Bromochloromethane	2013/01/07		87	%	60 - 140
			D5-Chlorobenzene	2013/01/07		107	%	60 - 140
			Difluorobenzene	2013/01/07		92	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2013/01/07		120	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2013/01/07		127	%	70 - 130
			Chloromethane	2013/01/07		122	%	70 - 130
			Vinyl Chloride	2013/01/07		106	%	70 - 130
			Chloroethane	2013/01/07		98	%	70 - 130
			1,3-Butadiene	2013/01/07		107	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2013/01/07		130	%	70 - 130
			Ethanol (ethyl alcohol)	2013/01/07		108	%	70 - 130
			Trichlorotrifluoroethane	2013/01/07		101	%	70 - 130
			2-propanol	2013/01/07		104	%	70 - 130
			2-Propanone	2013/01/07		106	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07		114	%	70 - 130
			Methyl Isobutyl Ketone	2013/01/07		115	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07		119	%	70 - 130
			Methyl t-butyl ether (MTBE)	2013/01/07		113	%	70 - 130
			Ethyl Acetate	2013/01/07		114	%	70 - 130
			1,1-Dichloroethylene	2013/01/07		114	%	70 - 130
			cis-1,2-Dichloroethylene	2013/01/07		118	%	70 - 130
			trans-1,2-Dichloroethylene	2013/01/07		108	%	70 - 130
			Methylene Chloride(Dichloromethane)	2013/01/07		102	%	70 - 130
			Chloroform	2013/01/07		110	%	70 - 130
			Carbon Tetrachloride	2013/01/07		128	%	70 - 130
			1,1-Dichloroethane	2013/01/07		101	%	70 - 130
			1,2-Dichloroethane	2013/01/07		126	%	70 - 130
			Ethylene Dibromide	2013/01/07		103	%	70 - 130
			1,1,1-Trichloroethane	2013/01/07		123	%	70 - 130
			1,1,2-Trichloroethane	2013/01/07		97	%	70 - 130
			1,1,2,2-Tetrachloroethane	2013/01/07		82	%	70 - 130
			cis-1,3-Dichloropropene	2013/01/07		113	%	70 - 130
			trans-1,3-Dichloropropene	2013/01/07		125	%	70 - 130
			1,2-Dichloropropane	2013/01/07		96	%	70 - 130
			Bromomethane	2013/01/07		99	%	70 - 130
			Bromoform	2013/01/07		105	%	70 - 130
			Bromodichloromethane	2013/01/07		109	%	70 - 130
			Dibromochloromethane	2013/01/07		110	%	70 - 130
			Trichloroethylene	2013/01/07		103	%	70 - 130
			Tetrachloroethylene	2013/01/07		107	%	70 - 130
			Benzene	2013/01/07		100	%	70 - 130
			Toluene	2013/01/07		109	%	70 - 130
			Ethylbenzene	2013/01/07		104	%	70 - 130
			p+m-Xylene	2013/01/07		101	%	70 - 130
			o-Xylene	2013/01/07		92	%	70 - 130
			Styrene	2013/01/07		95	%	70 - 130
			4-ethyltoluene	2013/01/07		105	%	70 - 130
			1,3,5-Trimethylbenzene	2013/01/07		105	%	70 - 130
			1,2,4-Trimethylbenzene	2013/01/07		105	%	70 - 130
			Chlorobenzene	2013/01/07		94	%	70 - 130
			Benzyl chloride	2013/01/07		88	%	70 - 130
			1,3-Dichlorobenzene	2013/01/07		92	%	70 - 130
			1,4-Dichlorobenzene	2013/01/07		90	%	70 - 130
			1,2-Dichlorobenzene	2013/01/07		87	%	70 - 130
			1,2,4-Trichlorobenzene	2013/01/07		93	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Spiked Blank	Hexachlorobutadiene	2013/01/07		100	%	70 - 130
			Hexane	2013/01/07		102	%	70 - 130
			Heptane	2013/01/07		110	%	70 - 130
			Cyclohexane	2013/01/07		104	%	70 - 130
			Tetrahydrofuran	2013/01/07		110	%	70 - 130
			1,4-Dioxane	2013/01/07		100	%	70 - 130
			Xylene (Total)	2013/01/07		98	%	70 - 130
			Vinyl Bromide	2013/01/07		90	%	70 - 130
			Propene	2013/01/07		96	%	70 - 130
			2,2,4-Trimethylpentane	2013/01/07		97	%	70 - 130
			Carbon Disulfide	2013/01/07		90	%	70 - 130
			Vinyl Acetate	2013/01/07		121	%	70 - 130
		Method Blank	Bromochloromethane	2013/01/07		76	%	60 - 140
			D5-Chlorobenzene	2013/01/07		71	%	60 - 140
			Difluorobenzene	2013/01/07		79	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2013/01/07	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2013/01/07	<0.17		ppbv	
			Chloromethane	2013/01/07	<0.30		ppbv	
			Vinyl Chloride	2013/01/07	<0.18		ppbv	
			Chloroethane	2013/01/07	<0.30		ppbv	
			1,3-Butadiene	2013/01/07	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2013/01/07	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2013/01/07	<2.3		ppbv	
			Trichlorotrifluoroethane	2013/01/07	<0.15		ppbv	
			2-propanol	2013/01/07	<3.0		ppbv	
			2-Propanone	2013/01/07	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07	<3.0		ppbv	
			Methyl Isobutyl Ketone	2013/01/07	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2013/01/07	<0.20		ppbv	
			Ethyl Acetate	2013/01/07	<2.2		ppbv	
			1,1-Dichloroethylene	2013/01/07	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2013/01/07	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2013/01/07	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2013/01/07	<0.80		ppbv	
			Chloroform	2013/01/07	<0.15		ppbv	
			Carbon Tetrachloride	2013/01/07	<0.30		ppbv	
			1,1-Dichloroethane	2013/01/07	<0.20		ppbv	
			1,2-Dichloroethane	2013/01/07	<0.20		ppbv	
			Ethylene Dibromide	2013/01/07	<0.17		ppbv	
			1,1,1-Trichloroethane	2013/01/07	<0.30		ppbv	
			1,1,2-Trichloroethane	2013/01/07	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2013/01/07	<0.20		ppbv	
			cis-1,3-Dichloropropene	2013/01/07	<0.18		ppbv	
			trans-1,3-Dichloropropene	2013/01/07	<0.17		ppbv	
			1,2-Dichloropropane	2013/01/07	<0.40		ppbv	
			Bromomethane	2013/01/07	<0.18		ppbv	
			Bromoform	2013/01/07	<0.20		ppbv	
			Bromodichloromethane	2013/01/07	<0.20		ppbv	
			Dibromochloromethane	2013/01/07	<0.20		ppbv	
			Trichloroethylene	2013/01/07	<0.30		ppbv	
			Tetrachloroethylene	2013/01/07	<0.20		ppbv	
			Benzene	2013/01/07	<0.18		ppbv	
			Toluene	2013/01/07	<0.20		ppbv	
			Ethylbenzene	2013/01/07	<0.20		ppbv	

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Attention: Michael Bisaga
Client Project #:
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Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Method Blank	p+m-Xylene	2013/01/07	<0.37		ppbv	
			o-Xylene	2013/01/07	<0.20		ppbv	
			Styrene	2013/01/07	<0.20		ppbv	
			4-ethyltoluene	2013/01/07	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2013/01/07	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2013/01/07	<0.50		ppbv	
			Chlorobenzene	2013/01/07	<0.20		ppbv	
			Benzyl chloride	2013/01/07	<1.0		ppbv	
			1,3-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,4-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,2-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2013/01/07	<2.0		ppbv	
			Hexachlorobutadiene	2013/01/07	<3.0		ppbv	
			Hexane	2013/01/07	<0.30		ppbv	
			Heptane	2013/01/07	<0.30		ppbv	
			Cyclohexane	2013/01/07	<0.20		ppbv	
			Tetrahydrofuran	2013/01/07	<0.40		ppbv	
			1,4-Dioxane	2013/01/07	<2.0		ppbv	
			Xylene (Total)	2013/01/07	<0.60		ppbv	
			Vinyl Bromide	2013/01/07	<0.20		ppbv	
			Propene	2013/01/07	<0.30		ppbv	
			2,2,4-Trimethylpentane	2013/01/07	<0.20		ppbv	
			Carbon Disulfide	2013/01/07	<0.50		ppbv	
			Vinyl Acetate	2013/01/07	<0.20		ppbv	
		RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2013/01/07	NC		%	25
			1,2-Dichlorotetrafluoroethane	2013/01/07	NC		%	25
			Chloromethane	2013/01/07	NC		%	25
			Vinyl Chloride	2013/01/07	NC		%	25
			Chloroethane	2013/01/07	NC		%	25
			1,3-Butadiene	2013/01/07	NC		%	25
			Trichlorofluoromethane (FREON 11)	2013/01/07	NC		%	25
			Ethanol (ethyl alcohol)	2013/01/07	3.1		%	25
			Trichlorotrifluoroethane	2013/01/07	NC		%	25
			2-propanol	2013/01/07	NC		%	25
			2-Propanone	2013/01/07	NC		%	25
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07	NC		%	25
			Methyl Isobutyl Ketone	2013/01/07	NC		%	25
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07	NC		%	25
			Methyl t-butyl ether (MTBE)	2013/01/07	NC		%	25
			Ethyl Acetate	2013/01/07	NC		%	25
			1,1-Dichloroethylene	2013/01/07	NC		%	25
			cis-1,2-Dichloroethylene	2013/01/07	NC		%	25
			trans-1,2-Dichloroethylene	2013/01/07	NC		%	25
			Methylene Chloride(Dichloromethane)	2013/01/07	NC		%	25
			Chloroform	2013/01/07	NC		%	25
			Carbon Tetrachloride	2013/01/07	NC		%	25
			1,1-Dichloroethane	2013/01/07	NC		%	25
			1,2-Dichloroethane	2013/01/07	NC		%	25
			Ethylene Dibromide	2013/01/07	NC		%	25
			1,1,1-Trichloroethane	2013/01/07	NC		%	25
			1,1,2-Trichloroethane	2013/01/07	NC		%	25
			1,1,2,2-Tetrachloroethane	2013/01/07	NC		%	25
			cis-1,3-Dichloropropene	2013/01/07	NC		%	25

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Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2013/01/07	NC		%	25
			1,2-Dichloropropane	2013/01/07	NC		%	25
			Bromomethane	2013/01/07	NC		%	25
			Bromoform	2013/01/07	NC		%	25
			Bromodichloromethane	2013/01/07	NC		%	25
			Dibromochloromethane	2013/01/07	NC		%	25
			Trichloroethylene	2013/01/07	NC		%	25
			Tetrachloroethylene	2013/01/07	NC		%	25
			Benzene	2013/01/07	NC		%	25
			Toluene	2013/01/07	NC		%	25
			Ethylbenzene	2013/01/07	NC		%	25
			p+m-Xylene	2013/01/07	NC		%	25
			o-Xylene	2013/01/07	NC		%	25
			Styrene	2013/01/07	NC		%	25
			4-ethyltoluene	2013/01/07	NC		%	25
			1,3,5-Trimethylbenzene	2013/01/07	NC		%	25
			1,2,4-Trimethylbenzene	2013/01/07	NC		%	25
			Chlorobenzene	2013/01/07	NC		%	25
			Benzyl chloride	2013/01/07	NC		%	25
			1,3-Dichlorobenzene	2013/01/07	NC		%	25
			1,4-Dichlorobenzene	2013/01/07	NC		%	25
			1,2-Dichlorobenzene	2013/01/07	NC		%	25
			1,2,4-Trichlorobenzene	2013/01/07	NC		%	25
			Hexachlorobutadiene	2013/01/07	NC		%	25
			Hexane	2013/01/07	NC		%	25
			Heptane	2013/01/07	NC		%	25
			Cyclohexane	2013/01/07	NC		%	25
			Tetrahydrofuran	2013/01/07	NC		%	25
			1,4-Dioxane	2013/01/07	NC		%	25
			Xylene (Total)	2013/01/07	NC		%	25
			Vinyl Bromide	2013/01/07	NC		%	25
			Propene	2013/01/07	NC		%	25
			2,2,4-Trimethylpentane	2013/01/07	NC		%	25
			Carbon Disulfide	2013/01/07	NC		%	25
			Vinyl Acetate	2013/01/07	NC		%	25

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 05, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 03, 2012 @ 14:52 mst
Removal Date/Time: Dec 06, 2012 @ 15:57 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Dec-12	12/05/2012 0:00	12/06/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
30-Nov-12	06-Dec-12	12-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
702	229	-12.4	330.37

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

Comments: COC#12974
GB2G3702 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 05, 12

Technician Signiture: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 12974

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J5786
Received: 2012/12/12, 09:40

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2012/12/12	2012/12/14	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in Air (CARB429mod)	1	2012/12/12	2012/12/15	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		PY3868	PY3869		
Sampling Date		2012/12/05	2012/12/05		
COC Number		12974	12974		
	Units	**LICA PUFF+QFF/CLS/DEC 05,12**	**LICA PUFF+QFF/PORT/DEC 05,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.32	0.26	0.10	3067777
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3067777
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3067777
2-Methylanthracene	ug	<0.10	<0.10	0.10	3067777
2-Methylnaphthalene	ug	0.52	0.42	0.10	3067777
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3067777
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3067777
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3067777
Acenaphthene	ug	<0.050	<0.050	0.050	3067777
Acenaphthylene	ug	0.100	<0.050	0.050	3067777
Anthracene	ug	0.400	<0.050	0.050	3067777
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3067777
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3067777
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3067777
Benzo(b)fluoranthene	ug	0.060	<0.050	0.050	3067777
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3067777
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3067777
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3067777
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3067777
Biphenyl	ug	0.44	0.40	0.10	3067777
Chrysene	ug	<0.050	<0.050	0.050	3067777
Coronene	ug	<0.10	<0.10	0.10	3067777
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3067777
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3067777
Fluoranthene	ug	0.120	0.080	0.050	3067777
Fluorene	ug	0.180	0.160	0.050	3067777
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3067777
m-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Naphthalene	ug	0.480	0.600	0.072	3067777
o-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Perylene	ug	<0.10	<0.10	0.10	3067777

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		PY3868	PY3869		
Sampling Date		2012/12/05	2012/12/05		
COC Number		12974	12974		
	Units	**LICA PUFF+QFF/CLS/DEC 05,12**	**LICA PUFF+QFF/PORT/DEC 05,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.380	0.320	0.050	3067777
p-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Pyrene	ug	0.080	<0.050	0.050	3067777
Quinoline	ug	<0.40	<0.40	0.40	3067777
Tetralin	ug	<0.10	<0.10	0.10	3067777
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	54	56		3067777
D10-Fluoranthene	%	88	90		3067777
D10-Fluorene (FS)	%	60	62		3067777
D10-Phenanthrene	%	74	74		3067777
D12-Benzo(a)anthracene	%	86	88		3067777
D12-Benzo(a)pyrene	%	88	88		3067777
D12-Benzo(b)fluoranthene	%	86	86		3067777
D12-Benzo(ghi)perylene	%	84	86		3067777
D12-Benzo(k)fluoranthene	%	86	90		3067777
D12-Chrysene	%	90	90		3067777
D12-Indeno(1,2,3-cd)pyrene	%	90	90		3067777
D12-Perylene	%	84	88		3067777
D14-Dibenzo(a,h)anthracene	%	90	86		3067777
D14-Terphenyl (FS)	%	90	90		3067777
D8-Acenaphthylene	%	58	60		3067777
D8-Naphthalene	%	52	54		3067777

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

Test Summary

Maxxam ID PY3868 **Collected** 2012/12/05
Sample ID LICA PUFF+QFF/CLS/DEC 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3067777	2012/12/12	2012/12/14	Lidija Tomic

Maxxam ID PY3869 **Collected** 2012/12/05
Sample ID LICA PUFF+QFF/PORT/DEC 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3067777	2012/12/12	2012/12/15	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

GENERAL COMMENTS

Low recovery for Napthalene, Acenaphthelene and Acenaphthene in Spike

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2J5786

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3067777	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/14		50	%	50 - 150
			D10-Fluoranthene	2012/12/14		86	%	50 - 150
			D10-Phenanthrene	2012/12/14		68	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		88	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		88	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		86	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		88	%	50 - 150
			D12-Chrysene	2012/12/14		92	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/14		86	%	50 - 150
			D12-Perylene	2012/12/14		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		86	%	50 - 150
			D8-Acenaphthylene	2012/12/14		56	%	50 - 150
			D8-Naphthalene	2012/12/14		50	%	50 - 150
			Acenaphthene	2012/12/14		58 (1)	%	60 - 130
		RPD	Acenaphthene	2012/12/14	23.1		%	50
		Spiked Blank	Acenaphthylene	2012/12/14		58 (1)	%	60 - 130
		RPD	Acenaphthylene	2012/12/14	26.4		%	50
		Spiked Blank	Anthracene	2012/12/14		75	%	60 - 130
		RPD	Anthracene	2012/12/14	6.5		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/14		93	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/14	0		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/14		80	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/14	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/14		90	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/14	0		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/14		88	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/14	0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/14		93	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/14	2.7		%	50
		Spiked Blank	Chrysene	2012/12/14		90	%	60 - 130
		RPD	Chrysene	2012/12/14	0		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/14		90	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/14	5.4		%	50
		Spiked Blank	Fluoranthene	2012/12/14		88	%	60 - 130
		RPD	Fluoranthene	2012/12/14	5.6		%	50
		Spiked Blank	Fluorene	2012/12/14		63	%	60 - 130
		RPD	Fluorene	2012/12/14	18.2		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/14		88	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/14	2.8		%	50
		Spiked Blank	Naphthalene	2012/12/14		53 (1)	%	60 - 130
		RPD	Naphthalene	2012/12/14	32.0		%	50
		Spiked Blank	Phenanthrene	2012/12/14		68	%	60 - 130
		RPD	Phenanthrene	2012/12/14	13.8		%	50
		Spiked Blank	Pyrene	2012/12/14		85	%	60 - 130
		RPD	Pyrene	2012/12/14	2.9		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/14		70	%	50 - 150
			D10-Fluoranthene	2012/12/14		84	%	50 - 150
			D10-Phenanthrene	2012/12/14		74	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		82	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		82	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		84	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		86	%	50 - 150
			D12-Chrysene	2012/12/14		90	%	50 - 150

Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J5786

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3067777	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/14		88	%	50 - 150
			D12-Perylene	2012/12/14		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		84	%	50 - 150
			D8-Acenaphthylene	2012/12/14		72	%	50 - 150
			D8-Naphthalene	2012/12/14		70	%	50 - 150
			1-Methylnaphthalene	2012/12/14	<0.10		ug	
			1-Methylphenanthrene	2012/12/14	<0.10		ug	
			2-Chloronaphthalene	2012/12/14	<0.10		ug	
			2-Methylanthracene	2012/12/14	<0.10		ug	
			2-Methylnaphthalene	2012/12/14	<0.10		ug	
			3-Methylcholanthrene	2012/12/14	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/12/14	<0.10		ug	
			9,10-Dimethylanthracene	2012/12/14	<0.40		ug	
			Acenaphthene	2012/12/14	<0.050		ug	
			Acenaphthylene	2012/12/14	<0.050		ug	
			Anthracene	2012/12/14	<0.050		ug	
			Benzo(a)anthracene	2012/12/14	<0.050		ug	
			Benzo(a)fluorene	2012/12/14	<0.10		ug	
			Benzo(a)pyrene	2012/12/14	<0.050		ug	
			Benzo(b)fluoranthene	2012/12/14	<0.050		ug	
			Benzo(b)fluorene	2012/12/14	<0.10		ug	
			Benzo(e)pyrene	2012/12/14	<0.10		ug	
			Benzo(g,h,i)perylene	2012/12/14	<0.050		ug	
			Benzo(k)fluoranthene	2012/12/14	<0.050		ug	
			Biphenyl	2012/12/14	<0.10		ug	
			Chrysene	2012/12/14	<0.050		ug	
			Coronene	2012/12/14	<0.10		ug	
			Dibenz(a,h)anthracene	2012/12/14	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/12/14	<0.20		ug	
			Fluoranthene	2012/12/14	<0.050		ug	
			Fluorene	2012/12/14	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/12/14	<0.050		ug	
			m-Terphenyl	2012/12/14	<0.10		ug	
			Naphthalene	2012/12/14	<0.072		ug	
			o-Terphenyl	2012/12/14	<0.10		ug	
			Perylene	2012/12/14	<0.10		ug	
			Phenanthrene	2012/12/14	<0.050		ug	
			p-Terphenyl	2012/12/14	<0.10		ug	
			Pyrene	2012/12/14	<0.050		ug	
			Quinoline	2012/12/14	<0.40		ug	
			Tetralin	2012/12/14	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 11, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 06, 2012 @ 16:15 mst
Removal Date/Time: Dec 14, 2012 @ 11:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Dec-12	12/11/2012 0:00	12/12/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
05-Dec-12	14-Dec-12	17-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
699	229	-16.9	330.36

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

Comments: COC#13017
GB2G3708 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 11, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13017

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K0896
Received: 2012/12/20, 09:36

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/22	2013/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB1290	QB1291		
Sampling Date		2012/12/11	2012/12/11		
COC Number		13017	13017		
	Units	**LICA PUFF+QFF/CLS/DEC 11,12**	**LICA PUFF+QFF/PORT/DEC 11,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.84	0.46	0.10	3079217
1-Methylphenanthrene	ug	0.12	<0.10	0.10	3079217
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3079217
2-Methylanthracene	ug	<0.10	<0.10	0.10	3079217
2-Methylnaphthalene	ug	1.32	0.70	0.10	3079217
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3079217
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3079217
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3079217
Acenaphthene	ug	0.180	<0.050	0.050	3079217
Acenaphthylene	ug	0.480	<0.050	0.050	3079217
Anthracene	ug	0.120	<0.050	0.050	3079217
Benzo(a)anthracene	ug	0.060	<0.050	0.050	3079217
Benzo(a)fluorene	ug	0.12	<0.10	0.10	3079217
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3079217
Benzo(b)fluoranthene	ug	0.160	<0.050	0.050	3079217
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3079217
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3079217
Benzo(g,h,i)perylene	ug	0.060	<0.050	0.050	3079217
Benzo(k)fluoranthene	ug	0.060	<0.050	0.050	3079217
Biphenyl	ug	0.90	0.66	0.10	3079217
Chrysene	ug	0.160	<0.050	0.050	3079217
Coronene	ug	<0.10	<0.10	0.10	3079217
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3079217
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3079217
Fluoranthene	ug	0.580	0.100	0.050	3079217
Fluorene	ug	0.540	0.300	0.050	3079217
Indeno(1,2,3-cd)pyrene	ug	0.060	<0.050	0.050	3079217
m-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Naphthalene	ug	2.14	1.04	0.072	3079217
o-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Perylene	ug	<0.10	<0.10	0.10	3079217

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB1290	QB1291		
Sampling Date		2012/12/11	2012/12/11		
COC Number		13017	13017		
	Units	**LICA PUFF+QFF/CLS/DEC 11,12**	**LICA PUFF+QFF/PORT/DEC 11,12**	**RDL**	**QC Batch**
Phenanthrene	ug	1.46	0.420	0.050	3079217
p-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Pyrene	ug	0.400	0.060	0.050	3079217
Quinoline	ug	<0.40	<0.40	0.40	3079217
Tetralin	ug	<0.10	<0.10	0.10	3079217
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	76	80		3079217
D10-Fluoranthene	%	102	104		3079217
D10-Fluorene (FS)	%	84	88		3079217
D10-Phenanthrene	%	92	94		3079217
D12-Benzo(a)anthracene	%	110	110		3079217
D12-Benzo(a)pyrene	%	96	100		3079217
D12-Benzo(b)fluoranthene	%	102	104		3079217
D12-Benzo(ghi)perylene	%	88	90		3079217
D12-Benzo(k)fluoranthene	%	90	94		3079217
D12-Chrysene	%	94	96		3079217
D12-Indeno(1,2,3-cd)pyrene	%	94	96		3079217
D12-Perylene	%	100	102		3079217
D14-Dibenzo(a,h)anthracene	%	98	102		3079217
D14-Terphenyl (FS)	%	114	112		3079217
D8-Acenaphthylene	%	76	80		3079217
D8-Naphthalene	%	72	76		3079217

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

Test Summary

Maxxam ID QB1290 **Collected** 2012/12/11
Sample ID LICA PUFF+QFF/CLS/DEC 11,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3079217	2012/12/22	2013/01/11	Lidija Tomic

Maxxam ID QB1291 **Collected** 2012/12/11
Sample ID LICA PUFF+QFF/PORT/DEC 11,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3079217	2012/12/22	2013/01/11	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K0896

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3079217	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/11		74	%	50 - 150
			D10-Fluoranthene	2013/01/11		100	%	50 - 150
			D10-Phenanthrene	2013/01/11		88	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		100	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		102	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		102	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		94	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		90	%	50 - 150
			D12-Chrysene	2013/01/11		94	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/11		100	%	50 - 150
			D12-Perylene	2013/01/11		108	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		106	%	50 - 150
			D8-Acenaphthylene	2013/01/11		76	%	50 - 150
			D8-Naphthalene	2013/01/11		72	%	50 - 150
			Acenaphthene	2013/01/11		83	%	60 - 130
		RPD	Acenaphthene	2013/01/11	5.9		%	50
		Spiked Blank	Acenaphthylene	2013/01/11		73	%	60 - 130
		RPD	Acenaphthylene	2013/01/11	6.7		%	50
		Spiked Blank	Anthracene	2013/01/11		83	%	60 - 130
		RPD	Anthracene	2013/01/11	0		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/11		100	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/11	0		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/11		85	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/11	3.0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/11		90	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/11	5.4		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/11		88	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/11	0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/11		100	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/11	7.8		%	50
		Spiked Blank	Chrysene	2013/01/11		85	%	60 - 130
		RPD	Chrysene	2013/01/11	2.9		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/11		103	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/11	2.5		%	50
		Spiked Blank	Fluoranthene	2013/01/11		98	%	60 - 130
		RPD	Fluoranthene	2013/01/11	2.6		%	50
		Spiked Blank	Fluorene	2013/01/11		88	%	60 - 130
		RPD	Fluorene	2013/01/11	5.6		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/11		93	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/11	2.7		%	50
		Spiked Blank	Naphthalene	2013/01/11		93	%	60 - 130
		RPD	Naphthalene	2013/01/11	12.7		%	50
		Spiked Blank	Phenanthrene	2013/01/11		85	%	60 - 130
		RPD	Phenanthrene	2013/01/11	0		%	50
		Spiked Blank	Pyrene	2013/01/11		90	%	60 - 130
		RPD	Pyrene	2013/01/11	2.8		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/11		78	%	50 - 150
			D10-Fluoranthene	2013/01/11		96	%	50 - 150
			D10-Phenanthrene	2013/01/11		84	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		100	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		100	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		104	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		96	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		88	%	50 - 150
			D12-Chrysene	2013/01/11		96	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0896

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3079217	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/11		102	%	50 - 150
			D12-Perylene	2013/01/11		108	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		106	%	50 - 150
			D8-Acenaphthylene	2013/01/11		78	%	50 - 150
			D8-Naphthalene	2013/01/11		76	%	50 - 150
			1-Methylnaphthalene	2013/01/11	<0.10		ug	
			1-Methylphenanthrene	2013/01/11	<0.10		ug	
			2-Chloronaphthalene	2013/01/11	<0.10		ug	
			2-Methylanthracene	2013/01/11	<0.10		ug	
			2-Methylnaphthalene	2013/01/11	<0.10		ug	
			3-Methylcholanthrene	2013/01/11	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/11	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/11	<0.40		ug	
			Acenaphthene	2013/01/11	<0.050		ug	
			Acenaphthylene	2013/01/11	<0.050		ug	
			Anthracene	2013/01/11	<0.050		ug	
			Benzo(a)anthracene	2013/01/11	<0.050		ug	
			Benzo(a)fluorene	2013/01/11	<0.10		ug	
			Benzo(a)pyrene	2013/01/11	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/11	<0.050		ug	
			Benzo(b)fluorene	2013/01/11	<0.10		ug	
			Benzo(e)pyrene	2013/01/11	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/11	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/11	<0.050		ug	
			Biphenyl	2013/01/11	<0.10		ug	
			Chrysene	2013/01/11	<0.050		ug	
			Coronene	2013/01/11	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/11	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/11	<0.20		ug	
			Fluoranthene	2013/01/11	<0.050		ug	
			Fluorene	2013/01/11	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/11	<0.050		ug	
			m-Terphenyl	2013/01/11	<0.10		ug	
			Naphthalene	2013/01/11	<0.072		ug	
			o-Terphenyl	2013/01/11	<0.10		ug	
			Perylene	2013/01/11	<0.10		ug	
			Phenanthrene	2013/01/11	<0.050		ug	
			p-Terphenyl	2013/01/11	<0.10		ug	
			Pyrene	2013/01/11	<0.050		ug	
			Quinoline	2013/01/11	<0.40		ug	
			Tetralin	2013/01/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 17, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 14, 2012 @ 11:14 mst
Removal Date/Time: Dec 20, 2012 @ 10:14 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Dec-12	12/17/2012 0:00	12/18/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
12-Dec-12	20-Dec-12	24-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
697	229	-15.7	330.36

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

Comments: COC#13082
GB2I4659 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 17, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13082

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K2430
Received: 2012/12/22, 11:55

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/27	2013/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB8394	QB8395		
Sampling Date		2012/12/17 00:00	2012/12/17 00:00		
COC Number		13082	13082		
	Units	**LICA PUFF+QFF/CLS/DEC 17,12**	**LICA PUFF+QFF/PORT/DEC 17,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.40	0.68	0.10	3080445
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3080445
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3080445
2-Methylanthracene	ug	<0.10	<0.10	0.10	3080445
2-Methylnaphthalene	ug	0.76	1.12	0.10	3080445
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3080445
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3080445
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3080445
Acenaphthene	ug	0.100	0.160	0.050	3080445
Acenaphthylene	ug	0.120	0.120	0.050	3080445
Anthracene	ug	<0.050	<0.050	0.050	3080445
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3080445
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3080445
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3080445
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3080445
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3080445
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3080445
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3080445
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3080445
Biphenyl	ug	0.44	0.56	0.10	3080445
Chrysene	ug	<0.050	<0.050	0.050	3080445
Coronene	ug	<0.10	<0.10	0.10	3080445
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3080445
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3080445
Fluoranthene	ug	0.140	0.100	0.050	3080445
Fluorene	ug	0.220	0.300	0.050	3080445
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3080445
m-Terphenyl	ug	<0.10	<0.10	0.10	3080445
Naphthalene	ug	0.680	0.720	0.072	3080445
o-Terphenyl	ug	<0.10	<0.10	0.10	3080445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB8394	QB8395		
Sampling Date		2012/12/17 00:00	2012/12/17 00:00		
COC Number		13082	13082		
	Units	**LICA PUFF+QFF/CLS/DEC 17,12**	**LICA PUFF+QFF/PORT/DEC 17,12**	**RDL**	**QC Batch**
Perylene	ug	<0.10	<0.10	0.10	3080445
Phenanthrene	ug	0.480	0.360	0.050	3080445
p-Terphenyl	ug	<0.10	<0.10	0.10	3080445
Pyrene	ug	0.100	0.060	0.050	3080445
Quinoline	ug	<0.40	<0.40	0.40	3080445
Tetralin	ug	<0.10	<0.10	0.10	3080445
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	76		3080445
D10-Fluoranthene	%	100	102		3080445
D10-Fluorene (FS)	%	68	76		3080445
D10-Phenanthrene	%	88	90		3080445
D12-Benzo(a)anthracene	%	98	98		3080445
D12-Benzo(a)pyrene	%	102	102		3080445
D12-Benzo(b)fluoranthene	%	100	98		3080445
D12-Benzo(ghi)perylene	%	98	98		3080445
D12-Benzo(k)fluoranthene	%	98	98		3080445
D12-Chrysene	%	106	106		3080445
D12-Indeno(1,2,3-cd)pyrene	%	100	98		3080445
D12-Perylene	%	116	116		3080445
D14-Dibenzo(a,h)anthracene	%	102	100		3080445
D14-Terphenyl (FS)	%	102	102		3080445
D8-Acenaphthylene	%	72	76		3080445
D8-Naphthalene	%	70	72		3080445

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

Test Summary

Maxxam ID QB8394 **Collected** 2012/12/17
Sample ID LICA PUFF+QFF/CLS/DEC 17,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3080445	2012/12/27	2013/01/11	Lidija Tomic

Maxxam ID QB8395 **Collected** 2012/12/17
Sample ID LICA PUFF+QFF/PORT/DEC 17,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3080445	2012/12/27	2013/01/11	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K2430

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3080445	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/11		82	%	50 - 150
			D10-Fluoranthene	2013/01/11		96	%	50 - 150
			D10-Phenanthrene	2013/01/11		86	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		100	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		100	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		100	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		98	%	50 - 150
			D12-Chrysene	2013/01/11		106	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/11		98	%	50 - 150
			D12-Perylene	2013/01/11		112	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		102	%	50 - 150
			D8-Acenaphthylene	2013/01/11		74	%	50 - 150
			D8-Naphthalene	2013/01/11		78	%	50 - 150
			Acenaphthene	2013/01/11		80	%	60 - 130
		RPD	Acenaphthene	2013/01/11	11.8		%	50
		Spiked Blank	Acenaphthylene	2013/01/11		75	%	60 - 130
		RPD	Acenaphthylene	2013/01/11	15.4		%	50
		Spiked Blank	Anthracene	2013/01/11		80	%	60 - 130
		RPD	Anthracene	2013/01/11	9.0		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/11		95	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/11	5.1		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/11		85	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/11	2.9		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/11		93	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/11	5.3		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/11		98	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/11	2.5		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/11		110	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/11	2.2		%	50
		Spiked Blank	Chrysene	2013/01/11		95	%	60 - 130
		RPD	Chrysene	2013/01/11	5.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/11		98	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/11	2.5		%	50
		Spiked Blank	Fluoranthene	2013/01/11		95	%	60 - 130
		RPD	Fluoranthene	2013/01/11	2.6		%	50
		Spiked Blank	Fluorene	2013/01/11		80	%	60 - 130
		RPD	Fluorene	2013/01/11	11.8		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/11		95	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/11	2.6		%	50
		Spiked Blank	Naphthalene	2013/01/11		85	%	60 - 130
		RPD	Naphthalene	2013/01/11	13.7		%	50
		Spiked Blank	Phenanthrene	2013/01/11		85	%	60 - 130
		RPD	Phenanthrene	2013/01/11	8.5		%	50
		Spiked Blank	Pyrene	2013/01/11		88	%	60 - 130
		RPD	Pyrene	2013/01/11	5.6		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/11		92	%	50 - 150
			D10-Fluoranthene	2013/01/11		98	%	50 - 150
			D10-Phenanthrene	2013/01/11		92	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		104	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		100	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		100	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		98	%	50 - 150
			D12-Chrysene	2013/01/11		108	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2430

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3080445	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/11		100	%	50 - 150
			D12-Perylene	2013/01/11		114	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		100	%	50 - 150
			D8-Acenaphthylene	2013/01/11		86	%	50 - 150
			D8-Naphthalene	2013/01/11		88	%	50 - 150
			1-Methylnaphthalene	2013/01/11	<0.10		ug	
			1-Methylphenanthrene	2013/01/11	<0.10		ug	
			2-Chloronaphthalene	2013/01/11	<0.10		ug	
			2-Methylanthracene	2013/01/11	<0.10		ug	
			2-Methylnaphthalene	2013/01/11	<0.10		ug	
			3-Methylcholanthrene	2013/01/11	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/11	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/11	<0.40		ug	
			Acenaphthene	2013/01/11	<0.050		ug	
			Acenaphthylene	2013/01/11	<0.050		ug	
			Anthracene	2013/01/11	<0.050		ug	
			Benzo(a)anthracene	2013/01/11	<0.050		ug	
			Benzo(a)fluorene	2013/01/11	<0.10		ug	
			Benzo(a)pyrene	2013/01/11	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/11	<0.050		ug	
			Benzo(b)fluorene	2013/01/11	<0.10		ug	
			Benzo(e)pyrene	2013/01/11	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/11	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/11	<0.050		ug	
			Biphenyl	2013/01/11	<0.10		ug	
			Chrysene	2013/01/11	<0.050		ug	
			Coronene	2013/01/11	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/11	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/11	<0.20		ug	
			Fluoranthene	2013/01/11	<0.050		ug	
			Fluorene	2013/01/11	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/11	<0.050		ug	
			m-Terphenyl	2013/01/11	<0.10		ug	
			Naphthalene	2013/01/11	0.080, RDL=0.072		ug	
			o-Terphenyl	2013/01/11	<0.10		ug	
			Perylene	2013/01/11	<0.10		ug	
			Phenanthrene	2013/01/11	<0.050		ug	
			p-Terphenyl	2013/01/11	<0.10		ug	
			Pyrene	2013/01/11	<0.050		ug	
			Quinoline	2013/01/11	<0.40		ug	
			Tetralin	2013/01/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 29, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 28, 2012 @ 13:10 mst
Removal Date/Time: Jan 02, 2013 @ 14:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Dec-12	12/29/2012 0:00	12/30/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Dec-12	03-Jan-13	04-Jan-13	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
707	229	-11.6	330.35

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

Comments: COC#13150
GB2K1599 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 29, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13150

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301749
Received: 2013/01/05, 10:05

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2013/01/08	2013/01/10	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QD4887	QD4888		
Sampling Date		2012/12/29	2012/12/29		
COC Number		13150	13150		
	Units	**LICA PUFF+QFF/CLS/DEC 29, 12**	**LICA PUFF+QFF/PORT/DEC 29, 12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.22	0.30	0.10	3087915
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3087915
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3087915
2-Methylanthracene	ug	<0.10	<0.10	0.10	3087915
2-Methylnaphthalene	ug	0.58	0.74	0.10	3087915
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3087915
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3087915
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3087915
Acenaphthene	ug	0.160	0.180	0.050	3087915
Acenaphthylene	ug	0.080	0.140	0.050	3087915
Anthracene	ug	<0.050	<0.050	0.050	3087915
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3087915
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3087915
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3087915
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3087915
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3087915
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3087915
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3087915
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3087915
Biphenyl	ug	0.56	0.72	0.10	3087915
Chrysene	ug	<0.050	<0.050	0.050	3087915
Coronene	ug	<0.10	<0.10	0.10	3087915
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3087915
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3087915
Fluoranthene	ug	0.180	0.240	0.050	3087915
Fluorene	ug	0.340	0.680	0.050	3087915
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3087915
m-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Naphthalene	ug	0.620	0.580	0.072	3087915
o-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Perylene	ug	<0.10	<0.10	0.10	3087915

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QD4887	QD4888		
Sampling Date		2012/12/29	2012/12/29		
COC Number		13150	13150		
	Units	**LICA PUFF+QFF/CLS/DEC 29, 12**	**LICA PUFF+QFF/PORT/DEC 29, 12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.620	0.940	0.050	3087915
p-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Pyrene	ug	0.100	0.160	0.050	3087915
Quinoline	ug	<0.40	<0.40	0.40	3087915
Tetralin	ug	<0.10	<0.10	0.10	3087915
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	80		3087915
D10-Fluoranthene	%	106	106		3087915
D10-Fluorene (FS)	%	66	74		3087915
D10-Phenanthrene	%	100	102		3087915
D12-Benzo(a)anthracene	%	104	112		3087915
D12-Benzo(a)pyrene	%	88	88		3087915
D12-Benzo(b)fluoranthene	%	96	100		3087915
D12-Benzo(ghi)perylene	%	82	82		3087915
D12-Benzo(k)fluoranthene	%	86	88		3087915
D12-Chrysene	%	82	84		3087915
D12-Indeno(1,2,3-cd)pyrene	%	82	82		3087915
D12-Perylene	%	84	86		3087915
D14-Dibenzo(a,h)anthracene	%	84	82		3087915
D14-Terphenyl (FS)	%	118	122		3087915
D8-Acenaphthylene	%	82	84		3087915
D8-Naphthalene	%	76	78		3087915

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

Test Summary

Maxxam ID QD4887 **Collected** 2012/12/29
Sample ID LICA PUFF+QFF/CLS/DEC 29, 12 **Shipped**
Matrix PUF AND FILTER **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3087915	2013/01/08	2013/01/10	Lidija Tomic

Maxxam ID QD4888 **Collected** 2012/12/29
Sample ID LICA PUFF+QFF/PORT/DEC 29, 12 **Shipped**
Matrix PUF AND FILTER **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3087915	2013/01/08	2013/01/10	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

GENERAL COMMENTS

Quinoline,9.10-Dimethylanthracene,7,12-dimethylbenzo(a)anthracene and 3-Methylcholanthrene are above 25% RSD in initial calibration. No positives found for these compounds.

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB301749

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087915	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/10		84	%	50 - 150
			D10-Fluoranthene	2013/01/10		98	%	50 - 150
			D10-Phenanthrene	2013/01/10		88	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/10		90	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/10		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/10		94	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/10		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/10		90	%	50 - 150
			D12-Chrysene	2013/01/10		82	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/10		86	%	50 - 150
			D12-Perylene	2013/01/10		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/10		86	%	50 - 150
			D8-Acenaphthylene	2013/01/10		82	%	50 - 150
			D8-Naphthalene	2013/01/10		86	%	50 - 150
			Acenaphthene	2013/01/10		88	%	60 - 130
		RPD	Acenaphthene	2013/01/10	2.8		%	50
		Spiked Blank	Acenaphthylene	2013/01/10		80	%	60 - 130
		RPD	Acenaphthylene	2013/01/10	3.1		%	50
		Spiked Blank	Anthracene	2013/01/10		78	%	60 - 130
		RPD	Anthracene	2013/01/10	6.3		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/10		85	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/10	5.7		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/10		78	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/10	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/10		83	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/10	8.7		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/10		85	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/10	6.1		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/10		95	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/10	5.4		%	50
		Spiked Blank	Chrysene	2013/01/10		83	%	60 - 130
		RPD	Chrysene	2013/01/10	3.0		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/10		83	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/10	0		%	50
		Spiked Blank	Fluoranthene	2013/01/10		98	%	60 - 130
		RPD	Fluoranthene	2013/01/10	0		%	50
		Spiked Blank	Fluorene	2013/01/10		88	%	60 - 130
		RPD	Fluorene	2013/01/10	2.8		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/10		83	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/10	3.1		%	50
		Spiked Blank	Naphthalene	2013/01/10		100	%	60 - 130
		RPD	Naphthalene	2013/01/10	5.1		%	50
		Spiked Blank	Phenanthrene	2013/01/10		85	%	60 - 130
		RPD	Phenanthrene	2013/01/10	2.9		%	50
		Spiked Blank	Pyrene	2013/01/10		90	%	60 - 130
		RPD	Pyrene	2013/01/10	0		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/10		84	%	50 - 150
			D10-Fluoranthene	2013/01/10		102	%	50 - 150
			D10-Phenanthrene	2013/01/10		94	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/10		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/10		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/10		94	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/10		82	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/10		86	%	50 - 150
			D12-Chrysene	2013/01/10		84	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301749

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087915	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/10		80	%	50 - 150
			D12-Perylene	2013/01/10		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/10		82	%	50 - 150
			D8-Acenaphthylene	2013/01/10		84	%	50 - 150
			D8-Naphthalene	2013/01/10		82	%	50 - 150
			1-Methylnaphthalene	2013/01/10	<0.10		ug	
			1-Methylphenanthrene	2013/01/10	<0.10		ug	
			2-Chloronaphthalene	2013/01/10	<0.10		ug	
			2-Methylanthracene	2013/01/10	<0.10		ug	
			2-Methylnaphthalene	2013/01/10	<0.10		ug	
			3-Methylcholanthrene	2013/01/10	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/10	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/10	<0.40		ug	
			Acenaphthene	2013/01/10	<0.050		ug	
			Acenaphthylene	2013/01/10	<0.050		ug	
			Anthracene	2013/01/10	<0.050		ug	
			Benzo(a)anthracene	2013/01/10	<0.050		ug	
			Benzo(a)fluorene	2013/01/10	<0.10		ug	
			Benzo(a)pyrene	2013/01/10	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/10	<0.050		ug	
			Benzo(b)fluorene	2013/01/10	<0.10		ug	
			Benzo(e)pyrene	2013/01/10	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/10	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/10	<0.050		ug	
			Biphenyl	2013/01/10	<0.10		ug	
			Chrysene	2013/01/10	<0.050		ug	
			Coronene	2013/01/10	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/10	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/10	<0.20		ug	
			Fluoranthene	2013/01/10	<0.050		ug	
			Fluorene	2013/01/10	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/10	<0.050		ug	
			m-Terphenyl	2013/01/10	<0.10		ug	
			Naphthalene	2013/01/10	0.080, RDL=0.072		ug	
			o-Terphenyl	2013/01/10	<0.10		ug	
			Perylene	2013/01/10	<0.10		ug	
			Phenanthrene	2013/01/10	<0.050		ug	
			p-Terphenyl	2013/01/10	<0.10		ug	
			Pyrene	2013/01/10	<0.050		ug	
			Quinoline	2013/01/10	<0.40		ug	
			Tetralin	2013/01/10	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
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Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2012

Prepared By:

January 23, 2013

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 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – ST. LINA

Continuous Ambient Monitoring – December 2012

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	0.73	4	8, 9	VAR	VAR	VAR	2.0	9	100.0
H2S (PPB)	10	3	0	0	0.82	3	VAR	VAR	VAR	VAR	2.0	13	99.9
THC (PPM)	-	-	-	-	2.37	3.7	8, 27	1, 0	5.8, 6.5	8(N), 168(SSE)	3.2	27	99.9
OZONE (PPB)	82	-	0	-	22.9	37	VAR	VAR	VAR	VAR	31.6	22	100.0
NOx (PPB)	-	-	-	-	5.03	26.1	28	19	12.2	247(WSW)	15.7	28	99.9
NO (PPB)	-	-	-	-	0.57	9.2	28	14	8.9	219(SW)	2.2	28	99.9
NO_2 (PPB)	159	-	0	-	4.46	24.7	28	19	12.2	247(WSW)	13.4	28	99.9
PM2.5 (ug/m3)	-	30	-	0	7.19	36	17	3	8.8	115(ESE)	18.4	28	98.4
TEMPERATURE (DEGREE C)	-	-	-	-	-15.75	-0.8	31	23	18.1	277(W)	-6.2	14	100.0
BP (MILLIBAR)	-	-	-	-	920	939	24, 25	VAR	VAR	VAR	937.4	24	100.0
RH (%)	-	-	-	-	73.34	83	29	7, 8	14.1, 14	278(W), 292(WNW)	78.0	30	100.0
PRECIPITATION (MM)	-	-	-	-	0.01	0.3	20, 23	VAR	VAR	VAR	2.2	23	99.7
VECTOR WS (KPH)	-	-	-	-	9.93	29.6	4	15	-	123(ESE)	17.0	20	99.7
VECTOR WD (DEGREES)	-	-	-	-	114(ESE)	-	-	-	-	-	-	-	99.7

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 inlet filter was changed before the monthly calibration was started on December 12th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)
Analyzer make / model - API 101E, S/N: 510
The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 11th. Data was corrected using daily zero information.

Ozone (PPB)
Analyzer make / model Thermo 49C, S/N: 49C-54926-302
The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 12th. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)
Analyzer make / model – Thermo 51C-LT, S/N: 77021-384 replaced to Thermo 51C-LT, S/N: 04366-09739
The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 11th. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Nitrogen Dioxide (PPB)
Analyzer make / model - API 200E, S/N: 592
The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 11th. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)
Analyzer make / model –Thermo Scientific Series 1405F, S/N: 1405A207691003
The PM2.5 channel was put into the Maintenance mode on December 11th at hour 11 to hour 15 for the flow check as the flow was higher than expected. After consulting with the manufacturer, a routine Teom audit with a leak check was performed on December 17th. A 3-point flow rate calibration was performed, and both Teom filter and FDMS filter were replaced. Another Teom audit was performed on December 20th, and the audit result was good. 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. Nine hourly data were invalidated as the data were below –3 ug/m3.

Temperature (Degree C)
Analyzer make / model – Met One 060
No issue was recorded this month.

Barometric Pressure (Millibar)
Analyzer make / model - Met One 092
No issue was recorded this month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Relative Humidity (%)
Analyzer make / model - Met One 083
No issue was recorded this month.

Precipitation (MM)
Analyzer make / model - Met One 387
No issue was recorded this month. The heater for the rain gauge was checked and tested on December 20th.

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)
System make / model –MetOne 50.5H Sonic, S/N: H12635
One hourly data for wind speed recorded on December 19th at hour 13 was invalidated as the reading went above the full scale. Data for both wind direction and standard deviation wind direction were invalidated at the same time period in order to meet the CASA data submission requirement of. Three hourly maximum data for wind speed were also invalidated as the readings went above the full scale this month.

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 manifold was cleaned on December 12th.

General Monthly Summary

AQM STATION – LICA – St. Lina

Air Quality Index (AQI)
No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

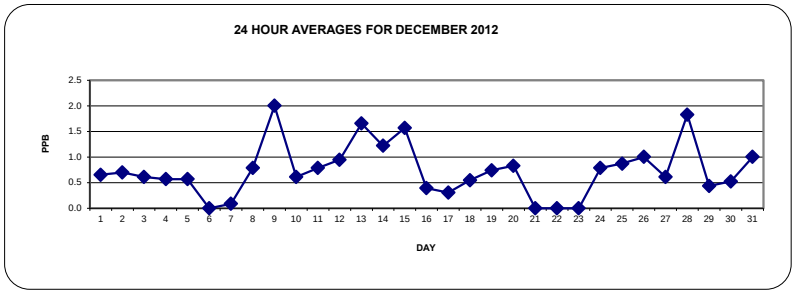
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	**IZS**	0	1	1	1	1	1	1	0.7	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	1	0.7	24
3	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0	**IZS**	1	1	1	1	1	1	1	0	1	0.6	24
4	1	0	0	0	0	0	0	0	0	0	0	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	0.6	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	1	0.6	24
6	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	1	1	0	1	0.1	24
8	0	0	0	0	0	0	0	0	0	0	**IZS**	4	3	2	2	1	1	1	1	1	1	1	0	0	**4**	0.8	24
9	1	1	1	1	1	2	2	4	4	**IZS**	2	2	2	2	2	2	2	2	2	2	3	2	2	2	**4**	**2.0**	24
10	2	2	2	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	0.6	24
11	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0.8	24
12	0	0	0	0	0	0	**IZS**	1	1	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	2	3	2	2	1	3	0.9	24
13	1	1	2	2	2	**IZS**	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	1.7	24
14	1	1	1	1	**IZS**	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.2	24
15	1	0	1	**IZS**	0	1	1	2	2	2	2	2	1	1	3	1	2	2	2	2	2	2	2	2	3	1.6	24
16	2	2	**IZS**	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0.4	24
17	1	**IZS**	2	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
18	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0.5	24
19	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	1	1	1	1	1	1	1	**IZS**	1	2	0.7	24
20	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	**IZS**	0	0	2	0.8	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	1	1	1	2	2	1	1	1	1	1	0	0	**IZS**	1	1	1	1	1	1	2	0.8	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	**1**	**IZS**	0	0	0	1	1	1	0	2	0.9	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	1	0.6	24
28	0	0	1	1	1	1	1	2	2	2	3	3	3	**IZS**	3	3	3	3	3	2	2	1	1	1	3	1.8	24
29	1	1	1	1	1	1	1	1	1	0	1	0	**IZS**	**0**	0	0	0	0	0	0	0	0	0	0	1	0.4	24
30	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
31	1	1	1	1	1	1	1	2	1	2	**IZS**	1	1	1	1	1	1	1	1	1	1	1	0	0	2	1.0	24
HOURLY MAX	2	2	2	2	2	2	2	4	4	2	3	4	3	2	3	3	3	3	3	2	3	2	2	2			
HOURLY AVG	0.7	0.6	0.7	0.7	0.6	0.7	0.7	0.9	0.9	0.8	0.8	1.0	0.9	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.6	0.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

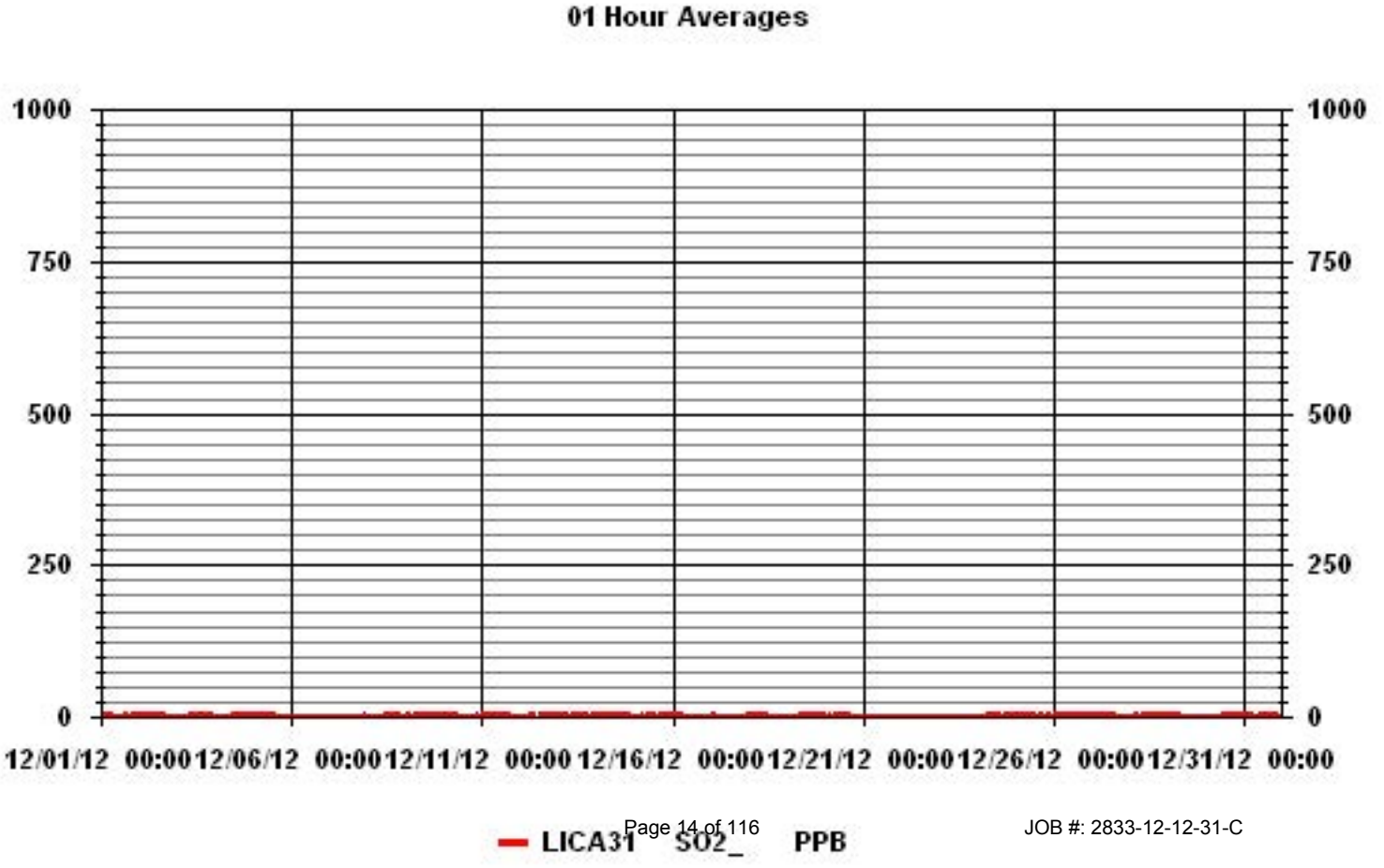


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	406					
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	8, 9
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.75		MONTHLY AVERAGE:		0.73	PPB

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

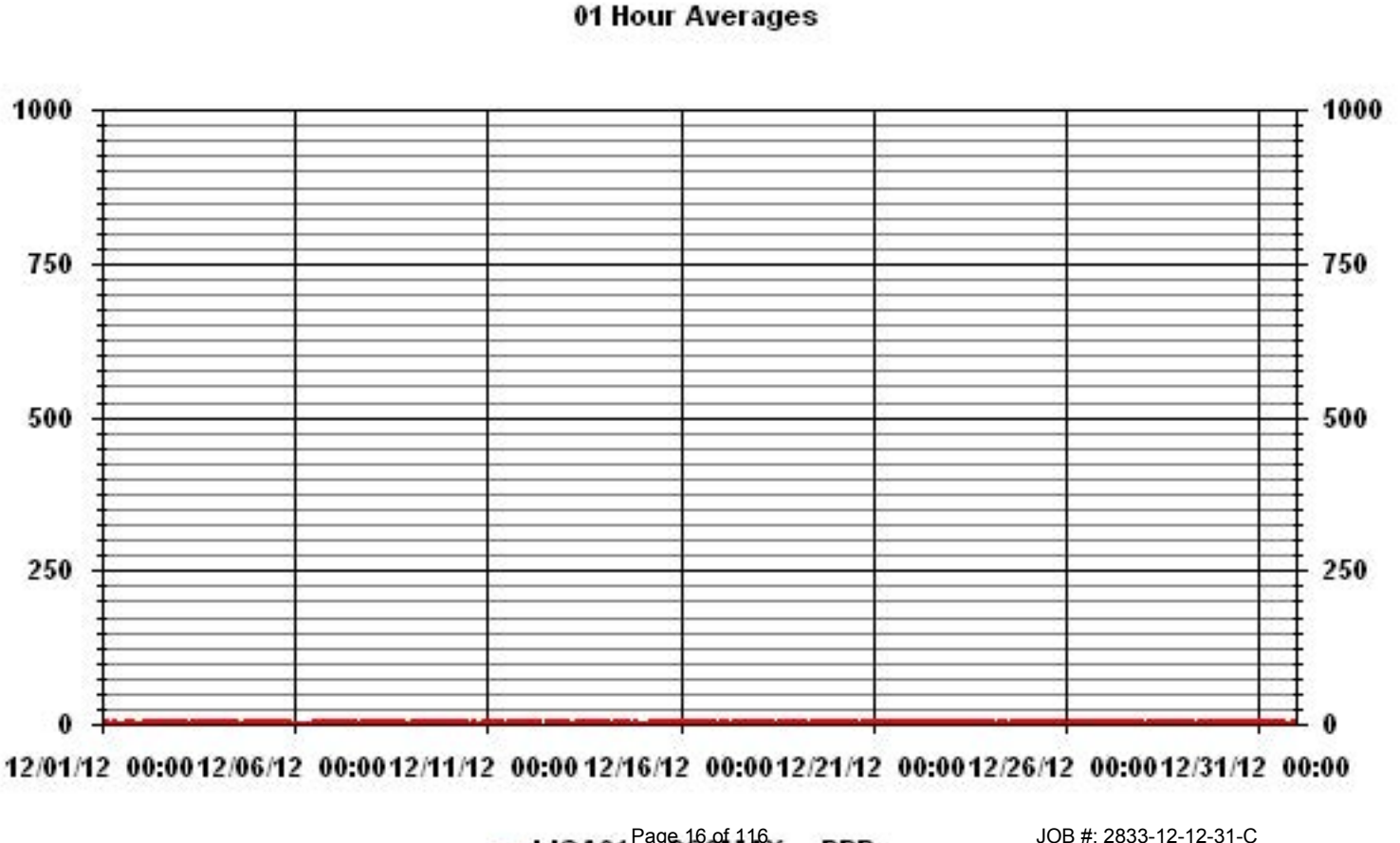
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	2	2	1	1	1	2	1	1	2	2	2	**IZS**	1	1	1	1	2	1	2	1.3	24
2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	1	1	2	1.7	24
3	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	**IZS**	2	2	2	2	2	2	1	1	2	1.6	24
4	1	1	1	1	1	1	1	1	1	1	1	2	2	1	**IZS**	1	2	2	2	2	2	2	2	2	2	1.4	24
5	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	1	1	1	0	0	2	1.5	24
6	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
7	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	2	1	1	1	2	2	2	1	2	1.2	24
8	1	1	1	1	1	1	1	1	1	2	**IZS**	5	5	4	3	2	2	2	2	2	2	2	1	1	**5**	1.9	24
9	2	2	2	2	2	3	4	5	5	**IZS**	3	3	3	3	3	3	3	2	3	4	4	3	3	3	**5**	3.0	24
10	3	3	2	2	2	2	2	2	**IZS**	1	1	1	1	0	1	1	1	0	0	1	2	2	2	2	3	1.5	24
11	2	2	2	2	2	2	2	**IZS**	2	2	2	2	4	2	2	2	2	2	2	1	1	1	1	1	4	1.9	24
12	1	1	1	1	1	1	**IZS**	2	2	**C**	**C**	**C**	**C**	**C**	2	2	2	2	2	3	4	3	3	3	4	2.0	24
13	2	2	4	4	3	**IZS**	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	4	2.7	24
14	2	2	2	3	**IZS**	2	3	3	3	3	4	3	2	2	2	2	2	1	2	1	1	2	2	1	4	2.2	24
15	3	1	2	**IZS**	1	2	2	2	3	3	3	3	2	2	4	3	3	3	2	3	3	3	3	3	4	2.6	24
16	3	3	**IZS**	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24
17	2	**IZS**	4	3	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4	24
18	**IZS**	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	1.5	24
19	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	2	2	2	2	2	2	2	**IZS**	2	3	1.7	24
20	2	3	3	2	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	**IZS**	1	1	3	1.9	24
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	**IZS**	1	1	1	1	1.0	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1.0	24
24	1	1	1	1	1	2	2	2	3	2	2	2	1	2	2	1	1	**IZS**	2	2	2	2	2	2	3	1.7	24
25	2	2	2	2	2	2	2	2	2	2	3	3	2	3	2	2	**IZS**	1	1	1	1	2	2	1	3	1.9	24
26	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2	2.0	24
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	1	1	1	1	2	1.6	24
28	1	1	2	2	2	2	2	3	3	3	4	4	4	**IZS**	4	4	3	3	3	4	3	2	2	2	4	2.7	24
29	2	2	2	2	2	2	2	2	2	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	2	1.4	24
30	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5	24
31	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	1	2	1	1	1	1	2	1.8	24
HOURLY MAX	3	3	4	4	3	3	4	5	5	3	4	5	5	4	4	4	3	3	3	4	4	3	3	3			
HOURLY AVG	1.6	1.5	1.7	1.7	1.6	1.6	1.7	1.8	1.8	1.7	1.8	2.0	2.0	1.8	1.9	1.7	1.7	1.5	1.5	1.6	1.7	1.6	1.5	1.4			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	8, 9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.83					



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

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	3.39	3.68	5.09	12.46	12.60	4.95	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.50	4.95	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	3.39	3.68	5.09	12.46	12.60	4.95	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.50	4.95	

Calm : .00 %

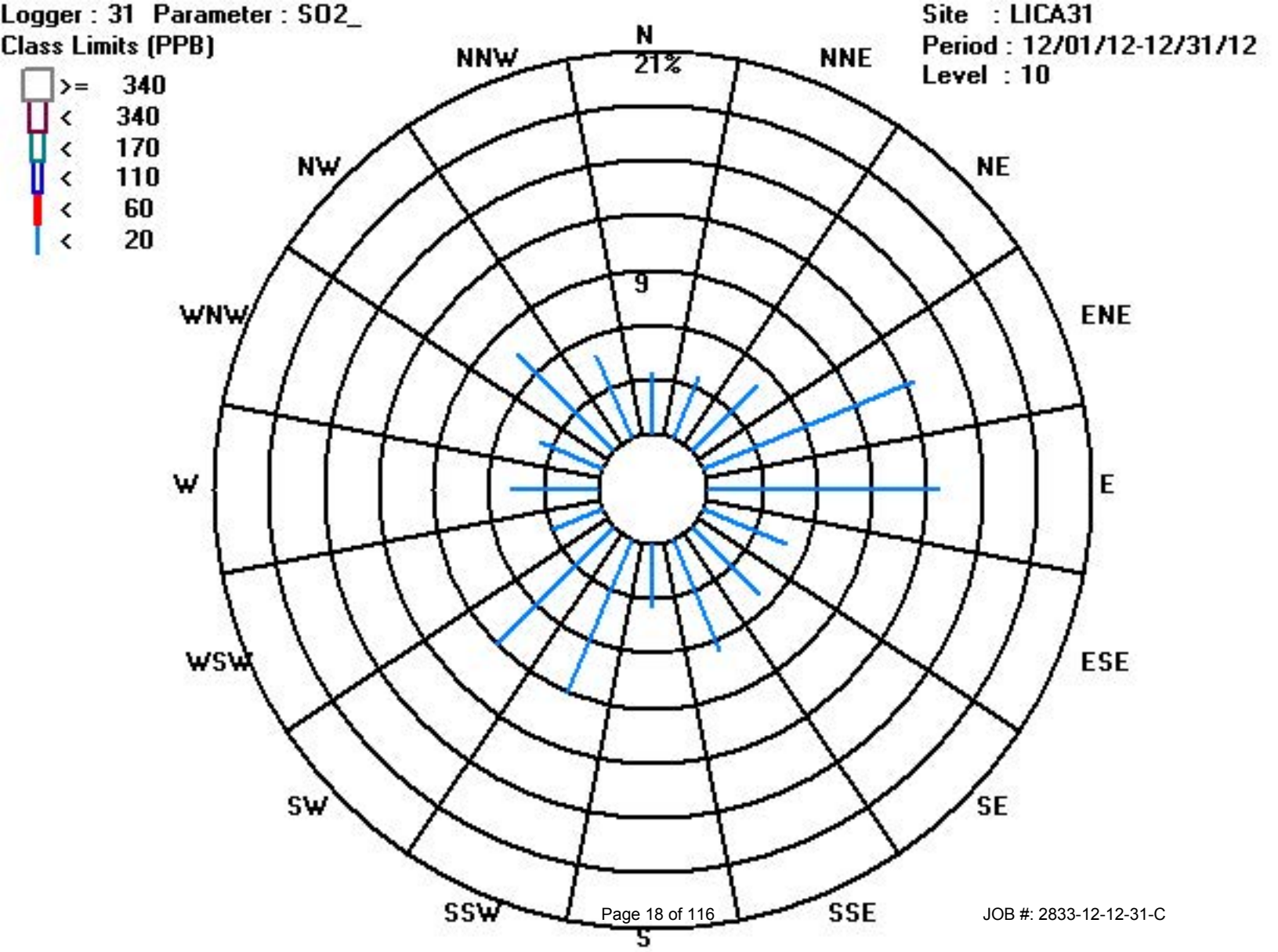
Total # Operational Hours : 706

Distribution By Samples

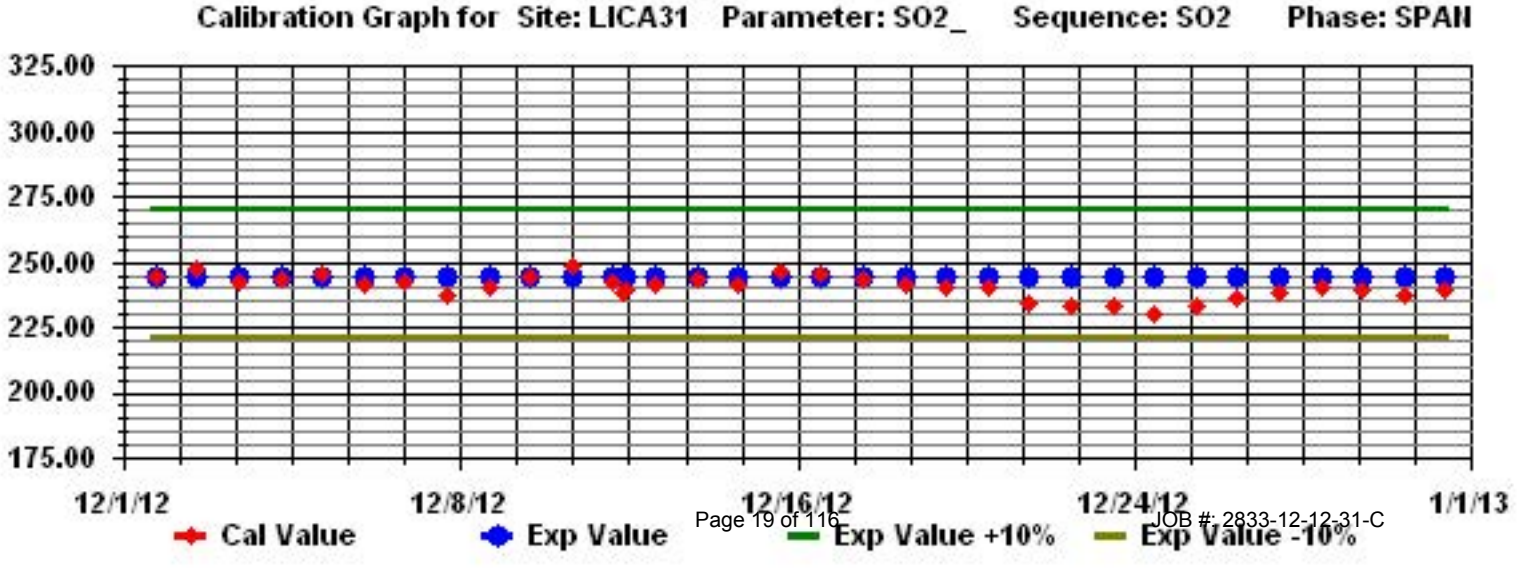
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	24	26	36	88	89	35	37	47	25	65	65	21	34	26	53	35	706
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	24	26	36	88	89	35	37	47	25	65	65	21	34	26	53	35	

Calm : .00 %

Total # Operational Hours : 706



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


Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN
325.00
300.00
275.00
250.00
225.00
200.00
175.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

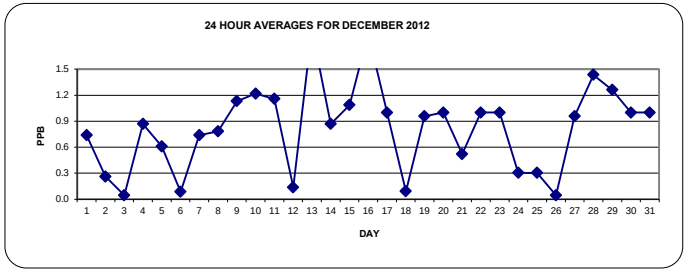
HYDROGEN SULPHIDE (H_2S) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	2	**IZS**	0	0	0	1	0	0	2	0.7	24
2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	**IZS**	1	0	1	0	0	0	0	1	0.3	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0	0	0	0	0	0	0	1	0.0	24
4	1	0	0	0	0	0	0	0	1	1	1	1	1	1	**IZS**	1	1	2	1	1	2	2	1	2	2	0.9	24
5	1	1	1	1	1	1	1	1	1	1	2	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	2	0.6	24
6	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	1	1	0	0	0	0	0	1	0.1	24
7	0	0	0	1	0	0	0	0	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	2	1	2	0.7	24
8	0	1	1	1	1	1	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
9	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.1	24
10	2	2	2	2	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1.2	24
11	2	2	2	2	2	2	3	**IZS**	2	2	**C**	**C**	**C**	**C**	1	1	1	0	0	0	0	0	0	0	3	1.2	24
12	0	0	0	0	0	0	**IZS**	0	0	0	0	0	**M**	0	0	0	0	0	0	0	1	1	1	0	1	0.1	23
13	0	1	1	1	1	**IZS**	2	2	2	1	2	2	2	2	2	2	2	3	3	3	3	2	3	3	3	**2.0**	24
14	3	2	2	3	**IZS**	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	3	0.9	24
15	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	1.1	24
16	2	1	**IZS**	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	24
17	2	**IZS**	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	2	1.0	24
18	**IZS**	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0.1	24
19	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1.0	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1.0	24
21	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	0.5	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1.0	24
24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	1	0.3	24
25	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	1	0.3	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	1	0	0	0	1	0.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	0	1	1	1	1	1	1	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	2	2	2	2	2	2	2	1.4	24
29	2	2	1	2	2	2	2	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24
30	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
HOURLY MAX	3	2	2	3	2	2	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	3	3			
HOURLY AVG	0.9	0.8	0.8	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.9	0.8	0.9	0.8	0.8	0.9	0.9	0.8	0.7	0.8	0.9	0.8	0.9	0.9			

STATUS FLAG CODES

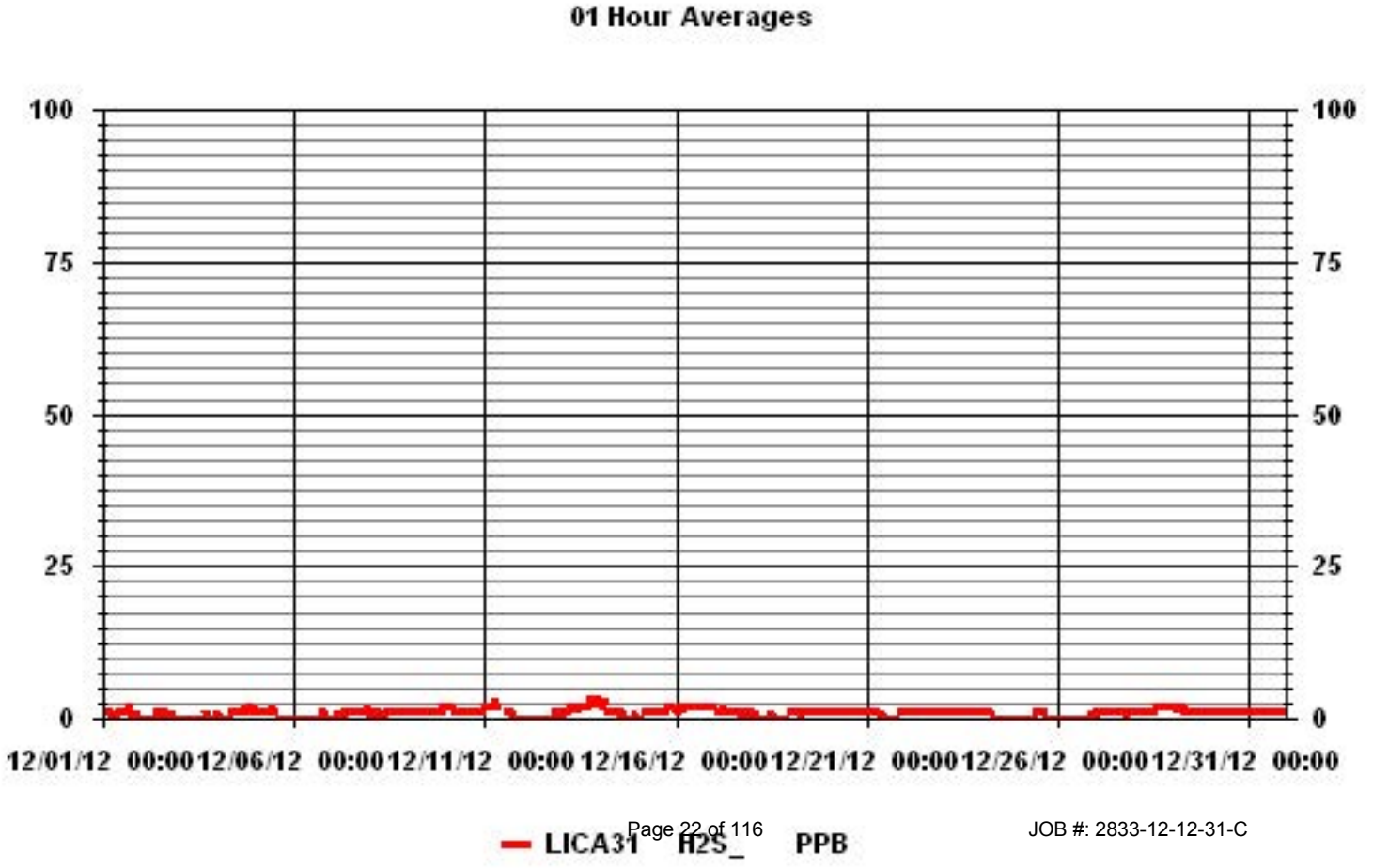
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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:	483					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	13
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.67		MONTHLY AVERAGE:		0.82	PPB



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST.LINA*

DECEMBER 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

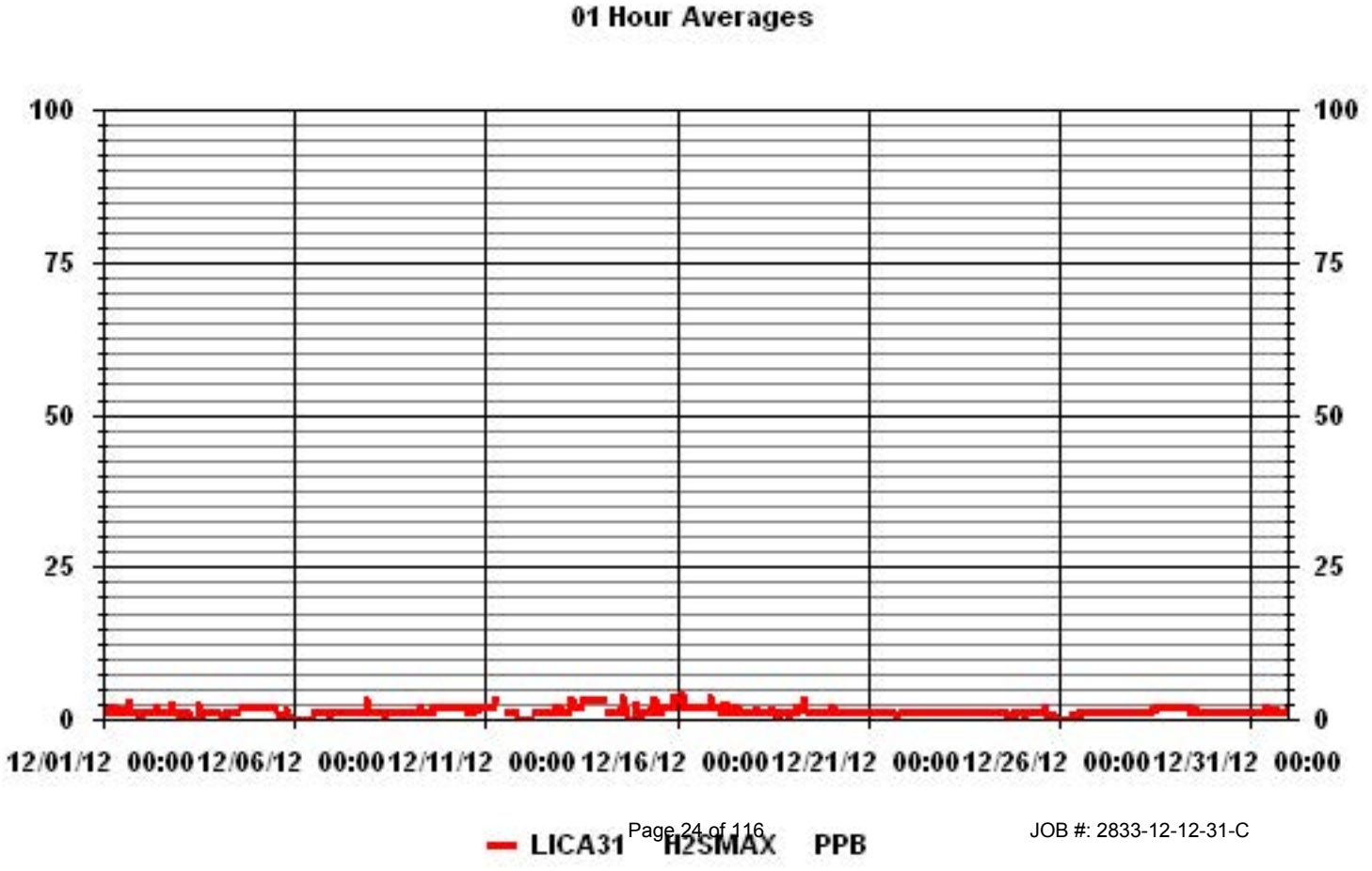
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	2	2	1	1	2	2	1	2	1	1	1	1	2	3	**IZS**	1	1	1	1	1	0	3	1.3	24
2	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	**IZS**	1	1	3	1	1	1	0	3	1.1	24
3	0	1	1	0	0	1	1	0	0	0	0	0	3	0	0	**IZS**	1	1	1	1	1	1	1	1	3	0.7	24
4	1	1	0	0	1	0	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	2	2	2	2	2	2	1.3	24
5	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	0	0	0	0	2	1	0	0	0	2	1.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	0	1	1	0.4	24
7	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	3	3	2	3	1.2	24
8	1	1	1	1	1	1	1	1	0	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
9	1	1	1	1	1	1	1	2	2	**IZS**	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1.5	24
10	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	1	1	1	2	2	1	2	2	2	2	2	2	1.8	24
11	2	2	2	2	2	3	3	**IZS**	2	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	1	0	0	0	0	3	1.3	24
12	0	0	0	0	0	0	**IZS**	1	1	1	1	1	**M**	1	1	1	1	1	1	1	2	2	2	1	2	0.9	23
13	1	1	1	1	2	**IZS**	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2.4	24
14	3	3	3	3	**IZS**	1	1	1	1	1	1	1	1	2	4	1	2	0	0	0	0	0	3	2	4	1.5	24
15	0	0	0	**IZS**	1	1	1	2	1	3	3	1	1	1	2	2	2	2	2	2	2	2	4	3	4	1.7	24
16	3	3	**IZS**	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2	2	4	2.3	24
17	2	**IZS**	2	1	1	1	3	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	3	1.4	24
18	**IZS**	1	2	1	1	1	1	1	1	1	1	1	2	1	0	0	1	1	1	1	1	1	1	0	**IZS**	2	1.0	24
19	1	1	1	2	2	2	1	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	3	1.3	24
20	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	2	1.1	24
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	**IZS**	1	1	1	1	0.9	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1.0	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	**IZS**	0	0	1	1	1	1	0.9	24
25	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2	**IZS**	0	0	0	1	0	0	0	2	0.7	24
26	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	**IZS**	1	1	1	1	1	1	1	1	1	0.5	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1.0	24
28	1	1	1	1	1	1	1	1	1	1	2	1	2	**IZS**	2	2	2	2	2	2	2	2	2	2	2	1.5	24
29	2	2	2	2	2	2	2	2	2	1	1	2	**IZS**	1	2	1	1	1	1	1	1	1	1	1	2	1.5	24
30	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31	1	1	1	1	1	1	1	1	1	2	**IZS**	1	1	1	2	1	2	1	1	1	1	1	1	2	2	1.2	24
HOURLY MAX	3	3	3	4	2	3	3	3	3	3	3	2	3	3	4	3	3	3	3	3	3	4	4	3			
HOURLY AVG	1.2	1.2	1.1	1.2	1.1	1.1	1.3	1.3	1.2	1.2	1.2	1.1	1.3	1.1	1.3	1.2	1.4	1.1	1.1	1.2	1.2	1.3	1.3	1.2			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	624					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.73					



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

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	3.68	3.68	5.09	12.46	12.60	4.24	5.24	6.65	3.54	8.21	9.06	2.97	4.81	3.68	7.64	5.09	98.72
<	10	.00	.00	.00	.00	.00	.14	.00	.00	.00	.99	.14	.00	.00	.00	.00	.00	1.27
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.68	3.68	5.09	12.46	12.60	4.39	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.64	5.09	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	26	26	36	88	89	30	37	47	25	58	64	21	34	26	54	36	697
<	10						1				7	1						9
<	50																	
>=	50																	
	Totals	26	26	36	88	89	31	37	47	25	65	65	21	34	26	54	36	

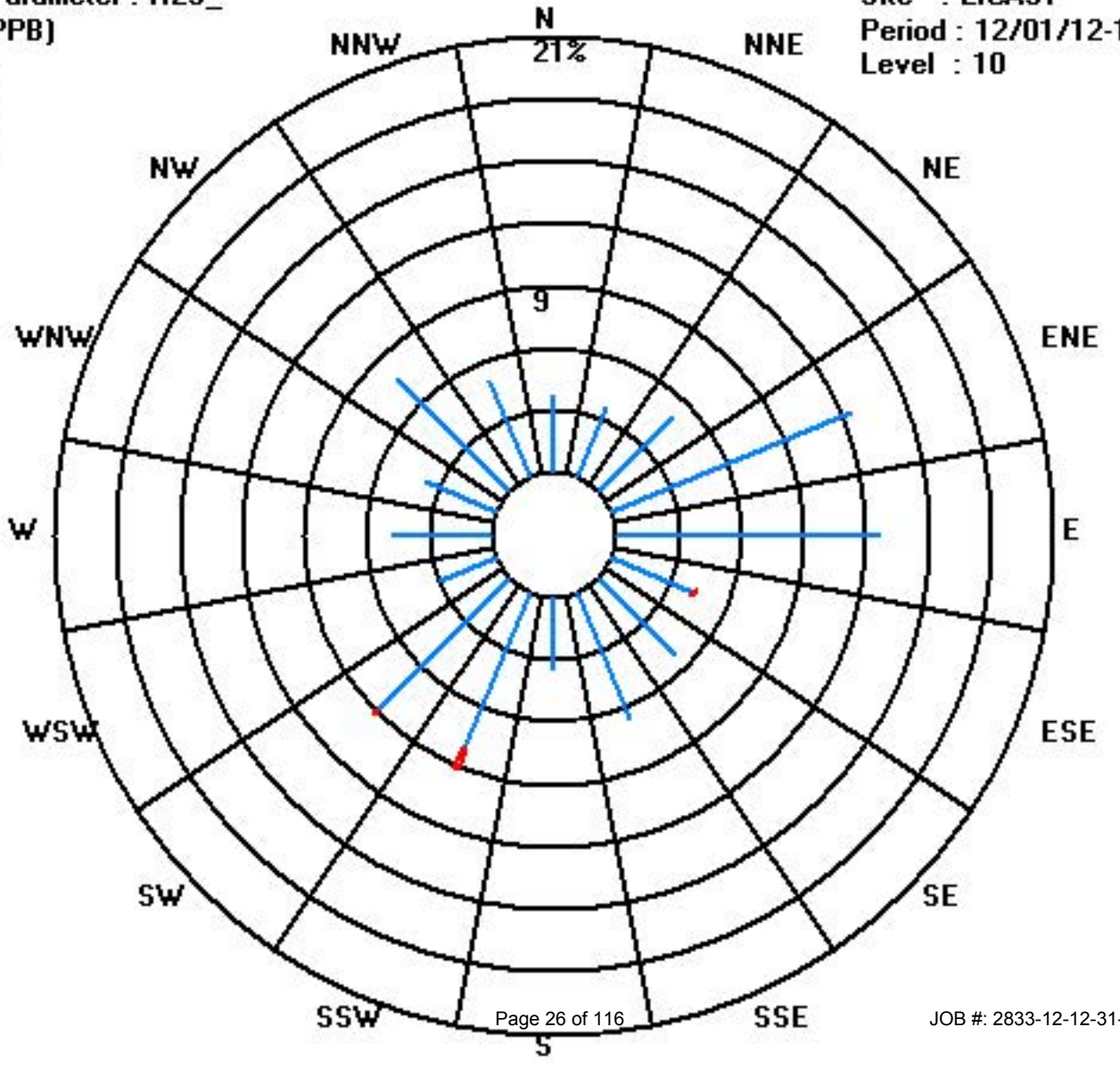
Calm : .00 %

Total # Operational Hours : 706

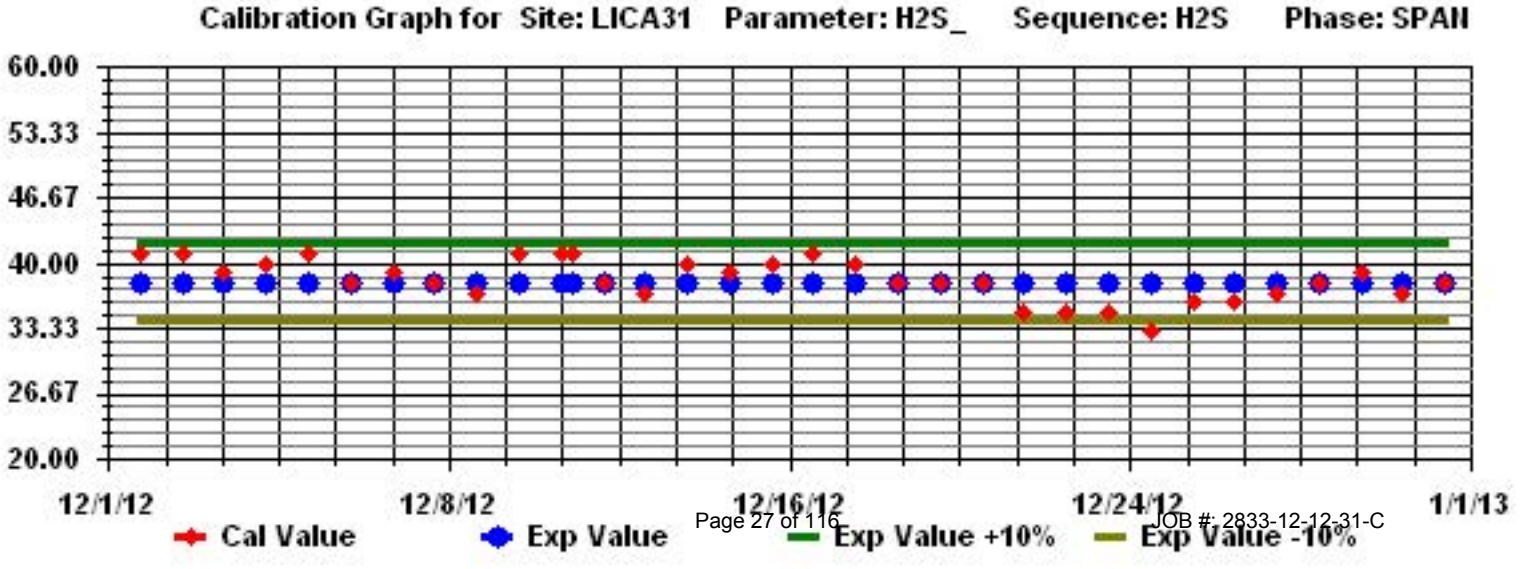
Logger : 31 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

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



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


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN
60.00
53.33
46.67
40.00
33.33
26.67
20.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

DECEMBER 2012

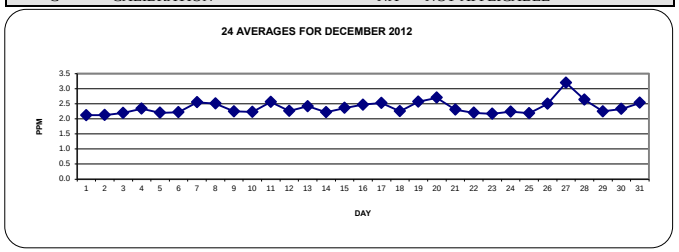
TOTAL HYDROCARBONS hourly averages in ppm

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.2	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	**IZS**	2.1	2	2.1	2	2.1	2.1	2.4	2.1	24
2	2.1	2	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.3	2.4	2.3	2.2	2.2	2.2	2	**IZS**	2	2	2	2.1	2	2.1	2.1	2.4	2.1	24
3	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	**IZS**	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.2	24
4	2.3	2.5	2.7	2.6	2.7	2.7	2.5	2.6	2.7	2.5	2.3	2.2	2.2	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.7	2.3	24
5	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2	**IZS**	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
6	2.3	2.2	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.2	2.2	2.2	**IZS**	2.1	2.1	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	24
7	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8	2.9	**IZS**	2.6	2.5	2.4	2.5	2.8	2.8	3	2.8	2.9	2.8	2.8	3.2	3.2	2.6	24
8	3.5	**3.7**	3.3	3.1	3.2	3	3	2.8	2.4	2.2	**IZS**	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	**3.7**	2.5	24
9	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	**IZS**	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
10	2.3	2.3	2.3	2.2	2.1	2.1	2	2.1	**IZS**	2.1	2.2	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.5	2.2	24
11	2.7	2.7	2.7	2.9	3	3	3	**IZS**	2.7	2.6	2.5	2.4	2.4	**C**	**C**	**C**	**C**	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.6	24
12	2.3	2.4	2.4	2.4	2.4	2.4	**IZS**	2.4	2.2	2.2	2.2	2.2	**M**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.4	2.3	23
13	2.3	2.3	2.3	2.3	2.2	**IZS**	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	24
14	2.5	2.5	2.5	2.5	**IZS**	2.4	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.2	24
15	2.2	2.1	2.2	**IZS**	2.1	2.2	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.2	2.5	3	2.8	2.6	2.7	2.6	2.4	2.4	2.3	3.0	2.4	24
16	2.4	2.5	**IZS**	2.5	2.4	2.4	2.4	2.4	2.5	2.7	2.7	2.7	2.6	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.7	2.5	24
17	2.5	**IZS**	2.6	2.6	2.5	2.4	2.5	2.7	2.9	3	2.9	2.9	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.3	3.0	2.5	24
18	**IZS**	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	**IZS**	2.4	2.3	24
19	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.4	2.6	2.9	3.2	3.3	3.1	**IZS**	3.4	3.4	2.6	24
20	3.5	3.6	3.4	3.3	3.1	3	3	2.9	2.8	2.8	2.6	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	**IZS**	2.2	3.6	2.7	24
21	2.2	2.2	2.2	2.2	2.3	2.5	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.4	**IZS**	2.3	2.2	2.2	2.5	2.3	24
22	2.2	2.2	2.2	2.3	2.4	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	**IZS**	2.1	2.1	2.2	2.2	2.5	2.2	24
23	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.1	2.2	2.2	2.2	2.2	2.2	2.2	24
24	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.5	2.4	2.3	2.2	2.2	2.2	**IZS**	2.1	2.1	2.1	2.2	2.1	2.2	2.5	2.2	24
25	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	**IZS**	2.3	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.2	24
26	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.3	**IZS**	2.7	2.7	2.9	3.3	3.5	3.2	3	3.3	3.5	2.5	24
27	**3.7**	3.6	3.6	3.6	3.5	3.2	3.1	3.1	3.3	3.4	3.3	3.2	3.1	3.1	**IZS**	3.4	3.5	3.1	3.3	3	2.8	2.7	2.5	2.5	**3.7**	**3.2**	24
28	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.7	**IZS**	2.8	2.8	2.9	2.9	2.9	2.9	2.8	2.6	2.5	2.5	2.9	2.6	24
29	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.1	**IZS**	2.1	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.5	2.2	24
30	2.1	2.1	2.1	2.1	2.2	2.4	2.3	2.3	2.2	2.2	2.2	**IZS**	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.7	2.7	2.7	2.3	24
31	2.8	2.8	2.8	2.8	2.9	2.9	3.1	2.9	2.8	2.7	**IZS**	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2	2	3.1	2.5	24
HOURLY MAX	3.7	3.7	3.6	3.6	3.5	3.2	3.1	3.1	3.3	3.4	3.3	3.2	3.1	3.1	2.8	3.4	3.5	3.1	3.3	3.3	3.5	3.2	3.0	3.4			
HOURLY AVG	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4			

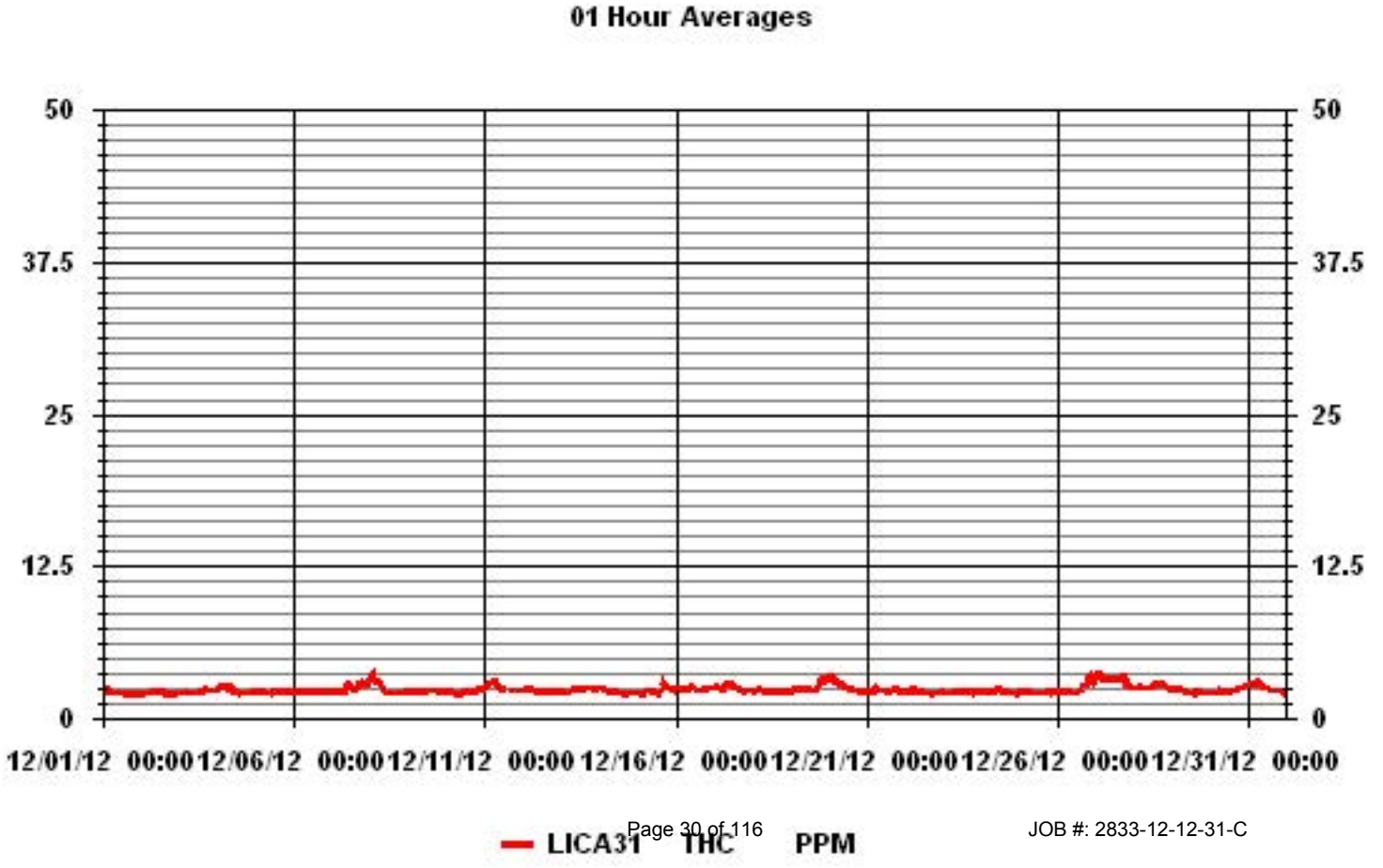
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	3.7	PPM	@ HOUR(S)	1, 0	ON DAY(S)	8, 27
MAXIMUM 24-HR AVERAGE:	3.2	PPM			ON DAY(S)	27
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:		2.37	PPM



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

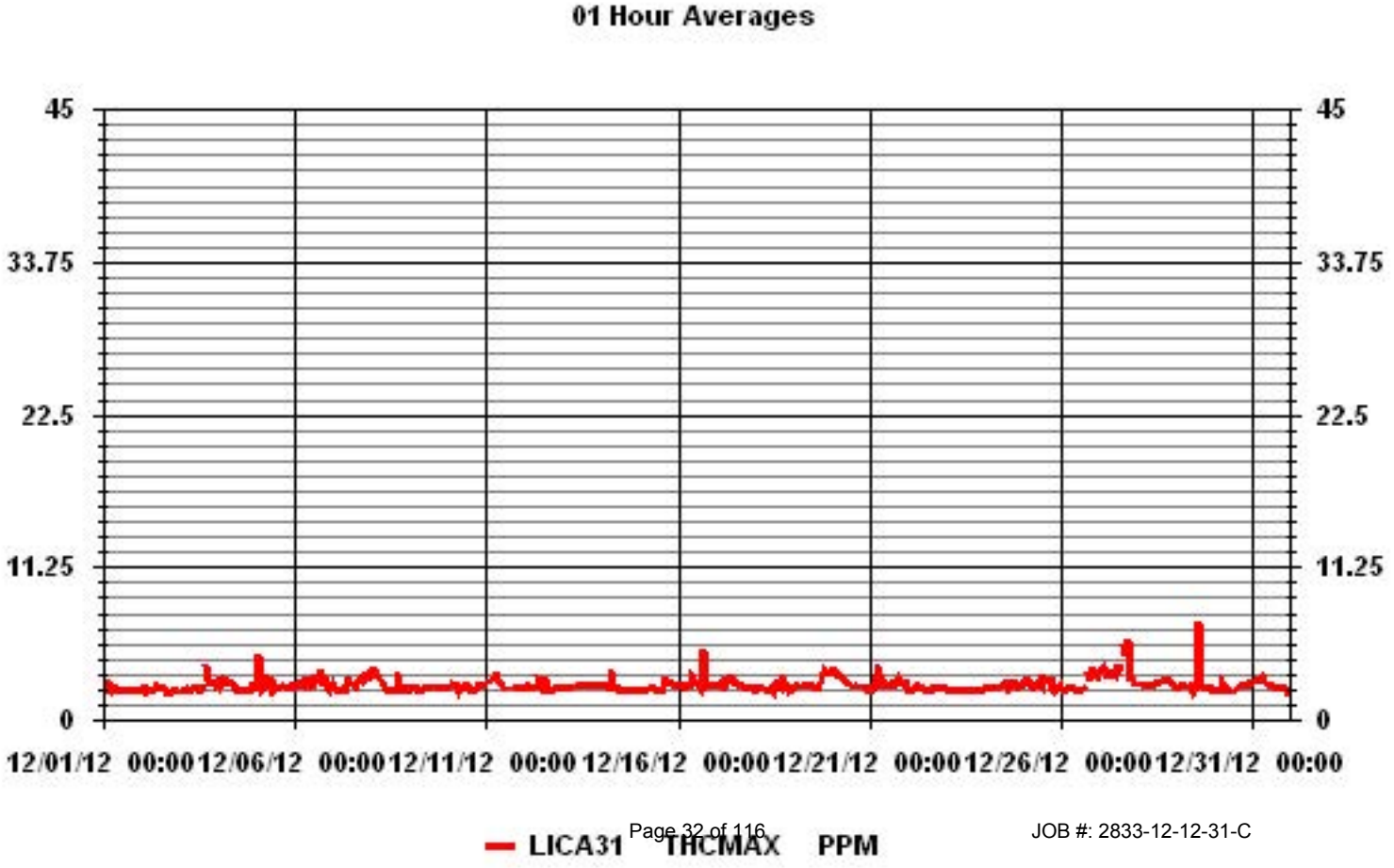
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.3	2.7	2.7	2.5	2.2	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	**IZS**	2.2	2.3	2.2	2.1	2.1	2.1	2.7	2.3	24
2	2.1	2.2	2.5	2.1	2.2	2.3	2.1	2.1	2.2	2.6	2.5	2.3	2.3	2.3	2.3	2.1	**IZS**	2	2	2.1	2.1	2.1	2.1	2.1	2.6	2.2	24
3	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.1	2.1	2.3	2.3	**IZS**	3.8	3	2.4	2.8	2.4	3	2.6	2.8	3.8	2.4	24
4	2.9	2.6	2.9	2.7	2.8	2.9	2.6	2.6	2.8	2.7	2.4	2.3	2.3	2.2	**IZS**	2.1	2.1	2.1	2.2	2.2	2.2	2.6	2.5	2.4	2.9	2.5	24
5	2.8	4.8	3.2	3.5	2.2	2.3	3.3	2.2	2.7	3.1	2.2	2.3	2.4	**IZS**	2.4	2.5	2.6	2.4	2.4	2.5	2.4	2.5	2.5	2.4	4.8	2.7	24
6	2.6	2.6	2.7	2.7	2.6	2.8	2.6	2.8	3.1	2.7	2.9	2.5	**IZS**	2.9	3.2	3.3	3.7	2.5	3.3	2.7	2.2	2.6	2.3	2.6	3.7	2.8	24
7	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.5	3	3	**IZS**	2.7	2.6	2.5	2.8	3	3	3.2	2.9	3.1	3.3	2.9	3.4	3.4	2.7	24
8	3.7	3.7	3.7	3.3	3.2	3.1	3	2.9	2.6	2.2	**IZS**	2.1	2.1	2.1	2.1	2.1	3.6	2.2	2.1	2.1	2.1	2.6	2.3	2.4	3.7	2.7	24
9	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	**IZS**	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	24
10	2.4	2.4	2.6	2.4	2.4	2.5	2.1	2.3	**IZS**	2.3	2.3	2.5	2.5	2.3	2.3	2.2	2.2	2.2	2.3	2.6	2.6	2.4	2.4	2.7	2.7	2.4	24
11	2.8	2.8	2.8	3	3	3.2	3.2	**IZS**	2.9	2.8	2.6	2.5	2.4	**C**	**C**	**C**	**C**	**C**	2.4	2.3	2.3	2.3	2.4	2.4	3.2	2.7	24
12	2.3	2.4	2.5	2.5	2.4	2.5	**IZS**	3.1	2.5	2.4	2.3	2.8	**M**	2.9	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	3.1	2.4	23
13	2.3	2.3	2.3	2.3	2.3	**IZS**	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	24
14	2.5	2.5	2.5	2.5	**IZS**	2.4	3.7	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.7	2.3	24
15	2.2	2.2	2.2	**IZS**	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	3	3.1	3	2.7	2.7	2.7	2.5	2.4	2.4	3.1	2.4	24
16	2.5	2.5	**IZS**	2.5	2.5	2.4	2.5	2.5	3.2	3	2.8	2.7	2.7	2.6	2.4	2.9	5.1	2.5	2.6	2.5	2.5	2.5	2.5	2.6	5.1	2.7	24
17	2.6	**IZS**	2.6	2.8	2.6	2.5	2.7	3	3.1	3.2	3	3	2.8	2.7	2.6	2.5	2.5	2.3	2.3	2.3	2.3	2.3	2.4	2.5	3.2	2.6	24
18	**IZS**	2.2	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.4	2.2	2.7	2.8	2.8	2.4	2.2	3.3	2.3	2.4	2.7	2.2	2.3	**IZS**	3.3	2.4	24
19	2.3	2.4	2.6	2.6	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.3	2.5	2.7	3.4	3.8	3.7	3.5	**IZS**	3.5	3.8	2.7	24
20	3.7	3.7	3.7	3.5	3.3	3.2	3.2	3	2.9	2.8	2.8	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	**IZS**	2.3	2.2	3.7	2.8	24
21	2.3	2.3	2.2	2.3	3.4	4	2.3	3.3	3	2.6	2.5	2.6	2.5	2.5	2.7	2.7	2.6	2.7	3	2.7	**IZS**	2.7	2.2	3	4	2.7	24
22	2.2	2.2	2.2	2.3	2.5	2.6	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	**IZS**	2.3	2.3	2.3	2.3	2.6	2.3	24
23	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.3	2.2	2.2	2.3	2.2	24
24	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.5	2.6	2.9	2.3	2.4	**IZS**	2.8	2.6	2.5	2.8	2.4	2.7	2.9	2.5	24
25	2.6	2.8	3	2.9	2.9	2.6	2.5	2.8	2.4	2.4	2.9	2.7	2.5	3.1	3.1	3	**IZS**	3	2.4	2.2	2.4	2.5	2.4	2.6	3.1	2.7	24
26	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.4	**IZS**	3.3	2.8	3.3	3.6	3.6	3.3	3.2	3.6	3.6	2.6	24
27	3.7	3.6	3.6	3.9	3.7	3.4	3.3	3.4	3.4	3.6	3.4	3.8	3.8	3.8	**IZS**	5.3	4.7	5.3	5.9	3.1	3.1	2.8	2.7	2.6	5.9	3.7	24
28	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.7	**IZS**	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.6	2.6	2.6	2.9	2.7	24
29	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.1	2.3	**IZS**	2.4	**7.3**	2.8	2.5	2.4	2.5	2.4	2.3	2.4	2.2	2.1	**7.3**	2.6	24
30	2.2	2.1	2.2	2.2	3	2.9	2.7	2.3	2.2	2.3	2.2	**IZS**	2.2	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.7	2.8	2.7	3	2.4	24
31	2.8	2.9	2.9	2.9	2.9	3	3.2	3	2.9	2.7	**IZS**	2.6	2.5	2.5	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.1	2	3.2	2.6	24
HOURLY MAX	3.7	4.8	3.7	3.9	3.7	4.0	3.7	3.4	3.4	3.6	3.4	3.8	3.8	3.8	7.3	5.3	5.1	5.3	5.9	3.8	3.7	3.5	3.2	3.6			
HOURLY AVG	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.8	2.6	2.6	2.5	2.5	2.5	2.4	2.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706						
MAXIMUM INSTANTANEOUS VALUE:	7.3	PPM	@ HOUR(S)	14	ON DAY(S)	29	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743	HRS
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.48						



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

LICA31
THC / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	3.11	3.54	4.95	12.18	11.04	3.82	4.10	5.94	3.25	9.20	8.92	2.97	4.53	3.54	7.08	4.67	92.91
< 10.0	.56	.14	.14	.14	1.55	.70	1.13	.70	.28	.00	.28	.00	.28	.14	.56	.42	7.08
< 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	3.68	3.68	5.09	12.32	12.60	4.53	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.64	5.09	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	22	25	35	86	78	27	29	42	23	65	63	21	32	25	50	33	656
< 10.0	4	1	1	1	11	5	8	5	2		2		2	1	4	3	50
< 50.0																	
>= 50.0																	
Totals	26	26	36	87	89	32	37	47	25	65	65	21	34	26	54	36	

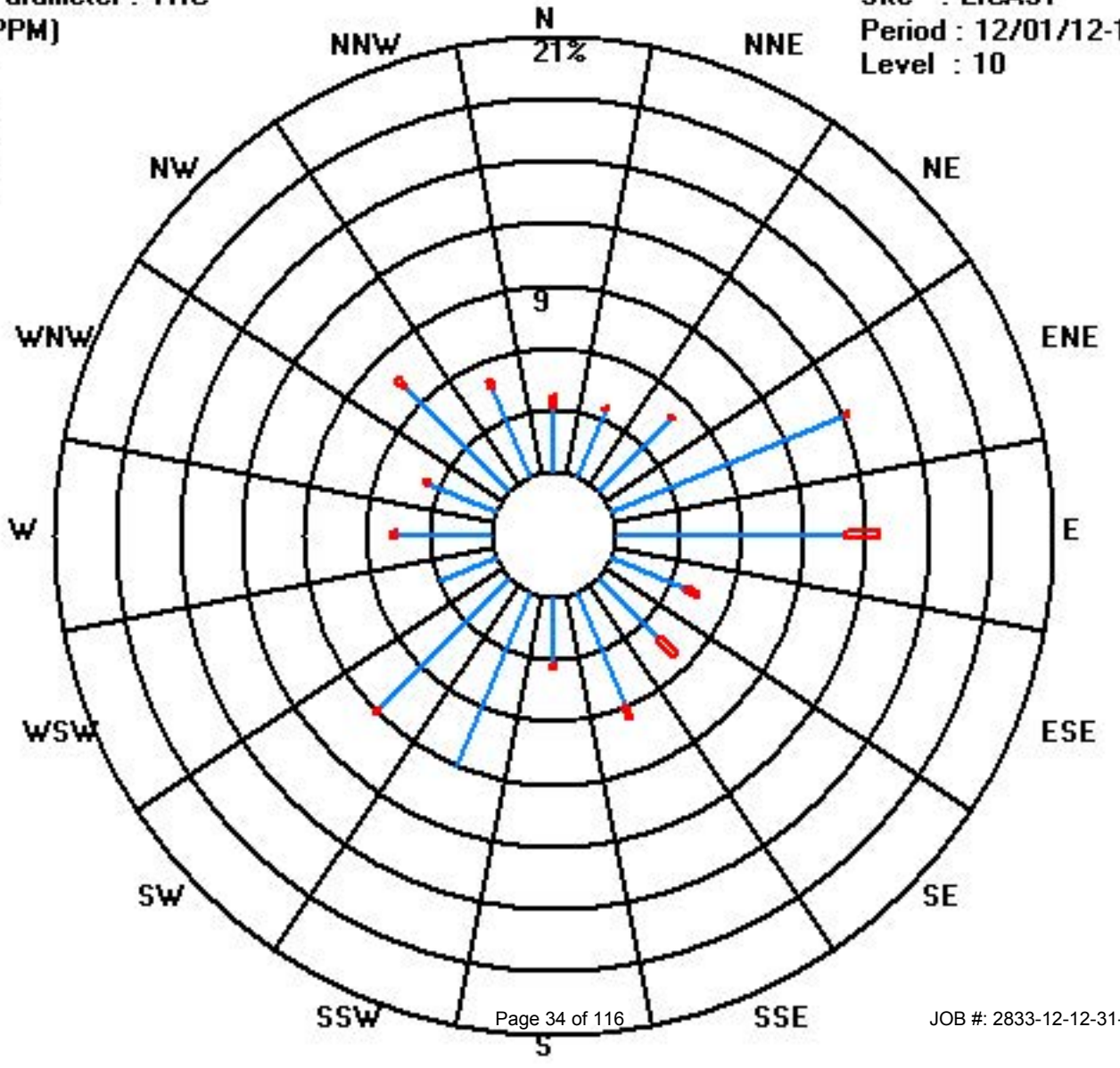
Calm : .00 %

Total # Operational Hours : 706

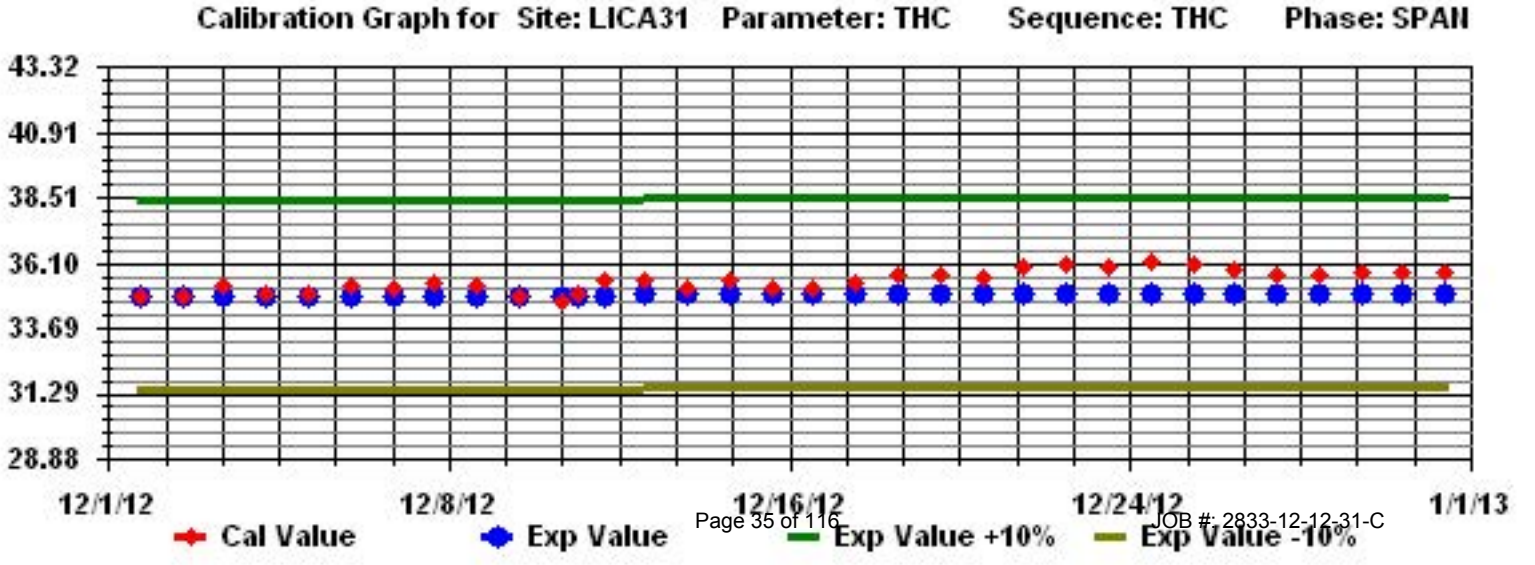
Logger : 31 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

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



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


Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAN
43.32
40.91
38.51
36.10
33.69
31.29
28.88
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

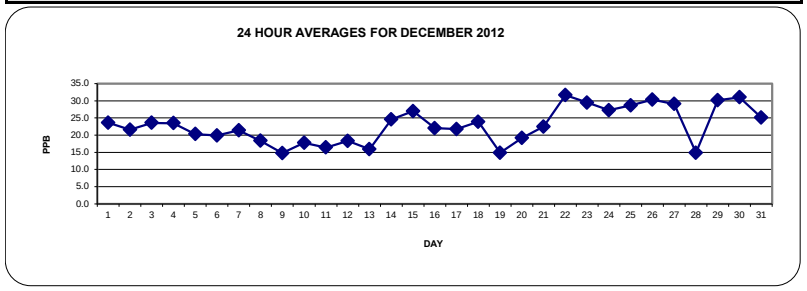
OZONE (O_3) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	24	23	21	20	22	22	22	22	24	25	25	25	25	25	26	25	25	**IZS**	25	24	24	23	23	23	26	23.6	24
2	23	23	22	22	21	20	21	21	18	19	20	20	20	20	20	23	**IZS**	22	22	22	23	25	25	24	25	21.6	24
3	24	24	23	23	23	23	24	24	26	27	26	26	26	26	26	**IZS**	23	23	22	21	21	20	20	21	27	23.6	24
4	20	19	19	21	21	21	23	24	23	24	26	25	27	27	**IZS**	26	25	25	24	24	24	24	24	24	27	23.5	24
5	23	23	23	22	22	21	21	21	22	22	21	20	19	**IZS**	19	19	20	20	19	18	18	18	18	18	23	20.3	24
6	18	18	19	18	17	17	17	17	18	18	20	21	**IZS**	24	24	24	23	21	20	22	21	20	21	20	24	19.9	24
7	21	21	22	21	20	21	22	22	22	20	20	**IZS**	23	25	26	25	24	23	21	21	20	20	19	13	26	21.4	24
8	8	5	7	12	12	13	12	13	16	16	**IZS**	20	20	24	23	24	24	24	25	26	26	25	24	23	26	18.3	24
9	22	19	17	16	16	15	15	14	13	**IZS**	17	16	16	15	14	12	10	11	13	14	14	14	14	13	22	14.8	24
10	11	10	15	21	23	24	24	23	**IZS**	22	19	17	22	24	25	22	19	18	18	14	8	9	10	10	25	17.7	24
11	10	11	10	6	7	8	10	**IZS**	15	16	16	18	20	21	21	20	19	20	21	22	22	22	21	21	22	16.4	24
12	21	21	20	20	20	19	**IZS**	18	18	**C**	**C**	**C**	**C**	**C**	20	19	19	18	17	16	15	15	16	17	21	18.3	24
13	17	18	19	20	23	**IZS**	20	18	16	17	17	17	17	17	17	15	14	13	13	12	12	12	11	11	23	15.9	24
14	11	11	11	11	**IZS**	13	17	23	22	23	24	26	28	29	30	31	33	33	32	32	32	31	31	31	33	24.6	24
15	30	29	29	**IZS**	27	24	17	13	18	23	26	28	30	32	32	30	25	27	30	29	29	30	31	31	32	27.0	24
16	30	30	**IZS**	28	27	26	27	26	26	25	24	24	25	24	23	21	21	20	18	12	13	12	13	12	30	22.0	24
17	10	**IZS**	6	8	13	22	20	19	19	20	23	25	29	27	28	27	27	27	27	27	25	24	23	24	29	21.7	24
18	**IZS**	23	21	20	21	22	22	22	23	24	24	24	26	26	26	26	26	26	25	25	26	25	22	**IZS**	26	23.9	24
19	20	17	16	15	15	13	11	8	5	10	13	15	18	21	23	23	20	23	17	12	8	11	**IZS**	7	23	14.8	24
20	6	7	8	10	12	14	13	16	16	17	20	23	24	24	25	25	26	27	26	26	25	**IZS**	25	25	27	19.1	24
21	25	25	25	26	26	25	25	25	24	23	21	20	23	24	23	20	18	18	18	20	**IZS**	21	21	21	26	22.5	24
22	22	23	24	27	28	28	31	32	33	33	33	34	34	35	35	35	35	34	34	**IZS**	34	34	35	34	35	**31.6**	24
23	33	33	32	32	31	30	29	27	27	26	27	27	28	29	29	29	29	30	**IZS**	30	29	29	30	32	33	29.5	24
24	31	30	30	30	29	29	28	27	24	24	24	25	27	26	26	27	29	**IZS**	28	28	26	27	26	25	31	27.2	24
25	26	27	27	29	29	29	28	27	28	28	28	28	30	32	32	31	**IZS**	29	29	29	29	29	28	27	32	28.7	24
26	28	29	29	30	30	31	32	32	35	36	37	37	37	35	34	**IZS**	26	25	24	22	23	29	29	28	37	30.3	24
27	24	25	26	27	28	30	30	30	29	29	29	30	31	31	**IZS**	30	31	30	30	30	29	31	29	29	31	29.0	24
28	27	23	21	19	17	20	21	20	19	18	18	17	16	**IZS**	13	10	6	2	3	3	5	12	15	17	27	14.9	24
29	21	22	21	18	19	22	25	29	31	32	33	34	**IZS**	36	36	36	35	35	34	34	36	36	35	34	36	30.2	24
30	36	37	35	34	33	26	27	28	31	32	32	**IZS**	32	31	31	31	31	31	30	30	30	29	28	28	37	31.0	24
31	28	27	27	27	26	26	24	24	22	20	**IZS**	20	21	23	25	25	24	23	23	23	23	26	34	37	37	25.1	24
HOURLY MAX	36	37	35	34	33	31	32	32	35	36	37	37	37	36	36	36	35	35	34	34	36	36	35	37			
HOURLY AVG	21.7	21.8	20.8	21.1	21.9	21.8	21.9	22.2	22.1	23.1	23.7	23.6	24.8	26.2	25.2	24.5	23.7	23.4	22.9	22.3	22.3	22.8	23.4	22.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



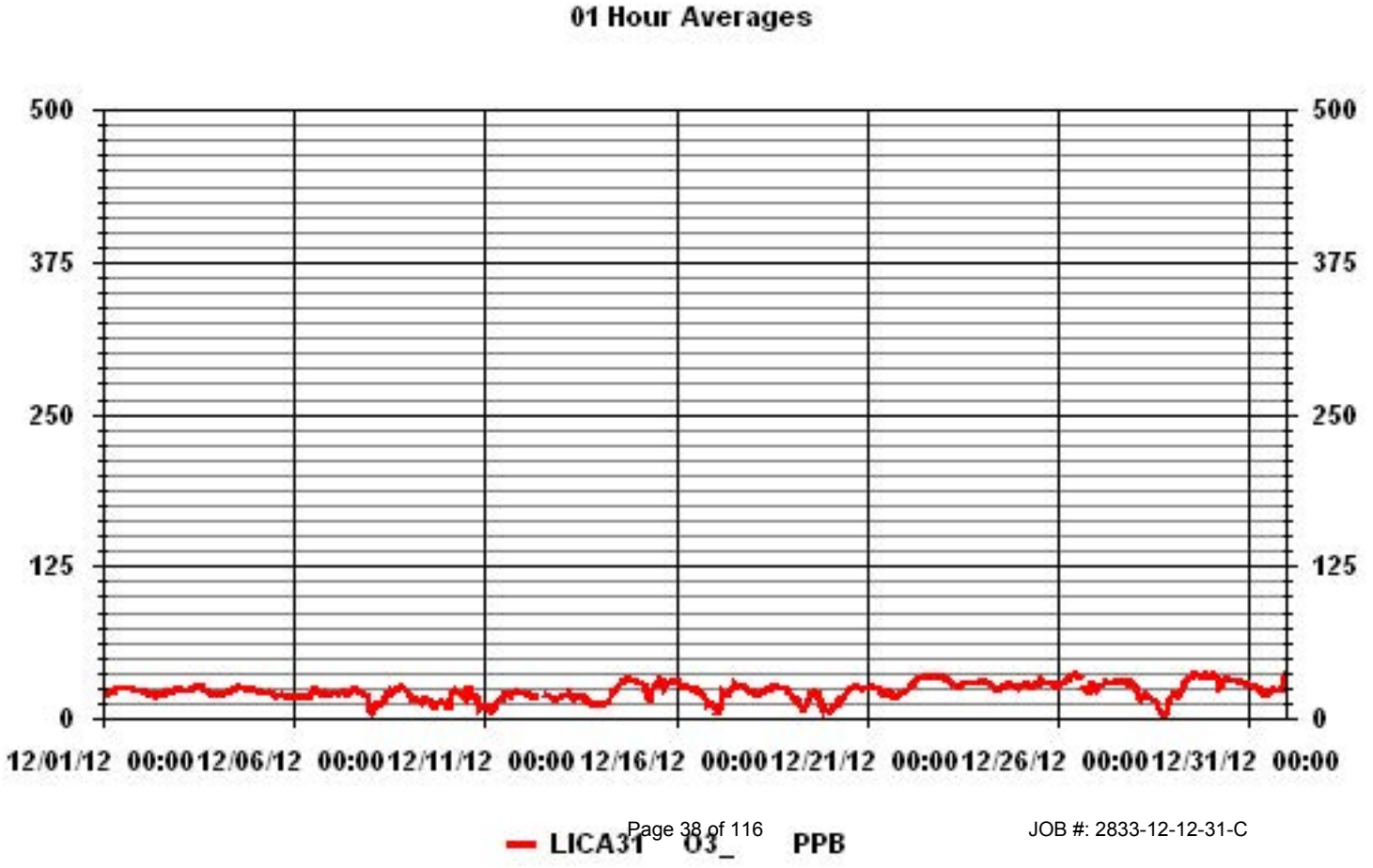
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	31.6	PPB			ON DAY(S)	22
					VAR-VARIOUS	

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	6.64		MONTHLY AVERAGE:	22.9	PPB

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

OZONE MAX instantaneous maximum in ppb

MST

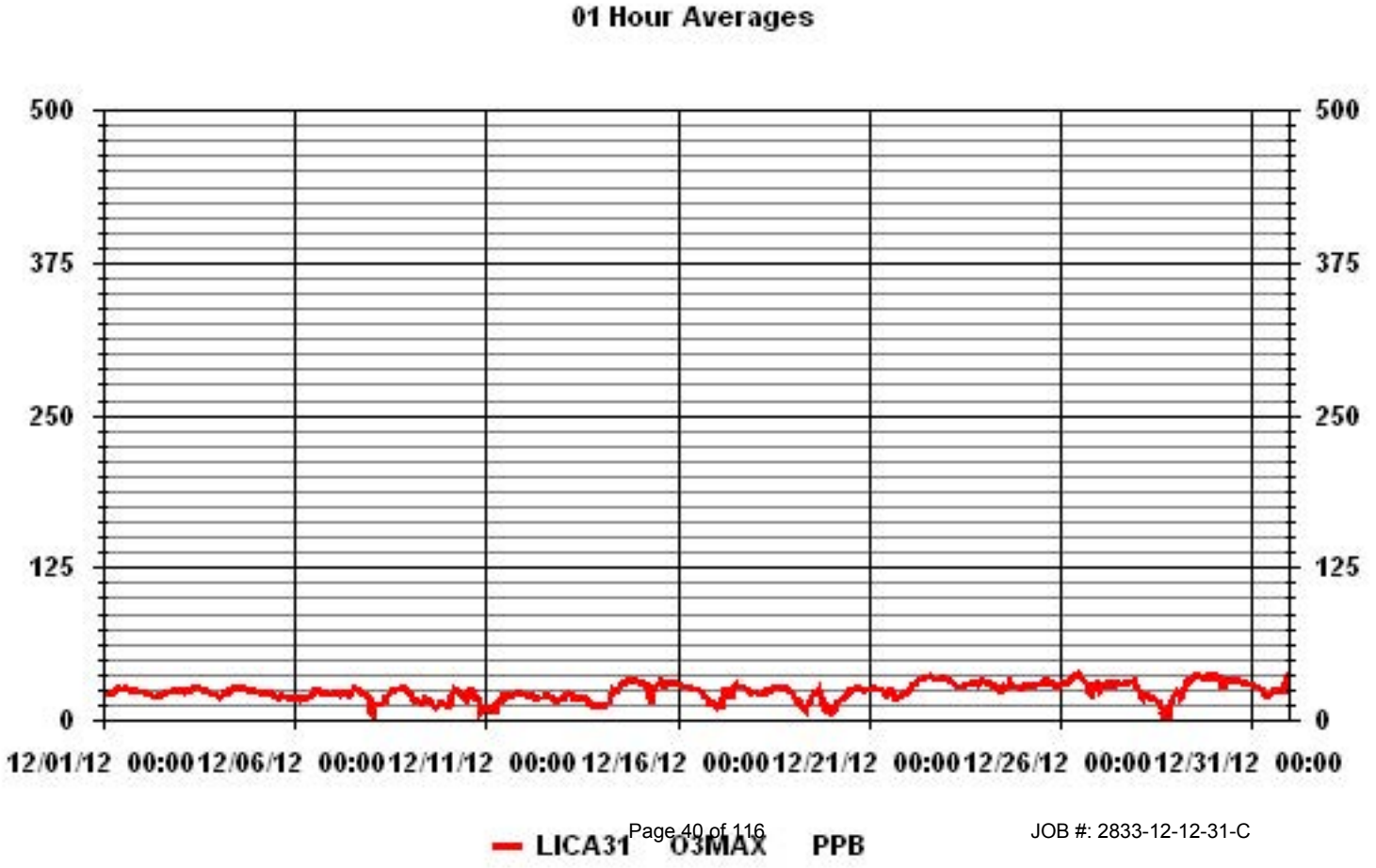
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	25	24	21	21	23	23	22	23	25	26	26	25	25	26	26	26	25	**IZS**	25	24	24	24	23	23	26	24.1	24
2	23	23	23	22	22	21	21	21	19	19	20	20	21	21	21	23	**IZS**	23	23	23	24	25	25	25	25	22.1	24
3	24	25	24	23	24	24	24	25	27	27	27	27	27	27	26	**IZS**	24	24	23	22	21	21	21	21	27	24.3	24
4	21	19	20	22	22	22	24	24	24	25	27	26	27	27	**IZS**	27	25	25	25	25	24	24	24	24	27	24.0	24
5	23	23	23	23	22	22	22	22	22	22	22	21	20	**IZS**	20	19	20	20	19	19	19	18	18	19	23	20.8	24
6	18	19	19	19	17	18	18	17	18	19	20	22	**IZS**	25	25	24	24	23	22	23	22	21	21	21	25	20.7	24
7	22	22	22	22	21	22	22	22	22	22	21	**IZS**	24	26	26	26	25	24	22	22	21	21	19	19	26	22.4	24
8	8	6	11	12	13	14	13	14	18	17	**IZS**	21	22	25	24	25	25	25	25	26	26	26	26	24	26	19.4	24
9	23	21	18	16	17	16	16	15	14	**IZS**	17	17	16	16	14	13	11	12	14	14	14	14	14	13	23	15.4	24
10	12	13	19	22	26	25	24	23	**IZS**	22	21	19	24	25	25	25	20	19	18	18	8	10	10	10	26	19.0	24
11	11	12	11	8	8	8	12	**IZS**	16	17	16	20	20	21	21	20	20	21	21	22	23	22	22	22	23	17.1	24
12	21	21	21	20	20	20	**IZS**	18	19	**C**	**C**	**C**	**C**	**C**	20	20	20	19	18	17	16	16	17	18	21	18.9	24
13	18	18	20	21	23	**IZS**	21	19	17	17	17	17	18	18	17	17	14	13	13	12	12	12	12	12	23	16.4	24
14	11	11	11	11	**IZS**	15	20	25	23	23	25	26	29	30	30	32	33	33	33	32	32	32	32	31	33	25.2	24
15	31	30	30	**IZS**	28	28	20	14	21	24	28	29	30	33	33	32	26	29	30	30	30	31	31	31	33	28.2	24
16	31	30	**IZS**	28	27	27	27	27	26	25	25	25	25	25	24	23	22	21	19	13	13	13	13	13	31	22.7	24
17	11	**IZS**	13	9	18	24	24	21	20	20	25	28	30	28	28	27	27	27	27	27	26	24	23	24	30	23.1	24
18	**IZS**	23	22	21	21	22	24	23	24	24	24	25	26	27	27	27	27	27	26	26	26	26	24	**IZS**	27	24.6	24
19	22	19	17	16	16	14	12	10	8	12	15	16	20	23	23	23	22	25	21	14	10	12	**IZS**	7	25	16.4	24
20	6	9	9	12	14	15	16	17	17	19	21	24	24	25	25	25	27	27	26	26	25	**IZS**	25	25	27	20.0	24
21	25	25	26	26	26	25	25	25	25	25	22	21	23	25	24	23	19	18	19	20	**IZS**	21	22	22	26	23.1	24
22	23	24	25	29	29	29	32	33	33	33	33	35	35	35	36	36	35	35	34	**IZS**	34	35	36	34	36	32.3	24
23	34	33	33	32	31	31	30	28	27	27	27	28	29	29	29	29	29	31	**IZS**	31	29	30	32	33	34	30.1	24
24	32	30	30	31	30	29	28	28	26	24	24	25	28	26	27	27	33	**IZS**	28	28	27	27	27	26	33	27.9	24
25	27	27	28	29	30	29	28	28	29	30	29	29	31	32	32	32	**IZS**	30	30	30	30	29	30	28	32	29.4	24
26	29	30	30	30	30	31	32	34	36	37	37	38	38	36	34	**IZS**	30	26	25	23	27	30	31	31	38	31.5	24
27	25	27	27	28	28	31	31	30	30	29	30	31	32	31	**IZS**	30	31	31	30	31	31	31	32	29	32	29.8	24
28	28	25	22	20	18	21	22	21	19	18	18	18	17	**IZS**	14	12	8	3	3	3	11	14	16	20	28	16.1	24
29	22	24	23	19	21	23	27	31	32	32	34	35	**IZS**	36	36	36	36	35	34	36	37	36	36	35	37	31.1	24
30	37	38	36	34	34	28	28	30	32	32	32	**IZS**	32	32	32	32	32	31	31	30	30	30	29	29	38	31.8	24
31	29	28	27	27	27	26	25	24	23	21	**IZS**	21	22	24	25	25	25	24	24	24	24	30	36	38	38	26.0	24
HOURLY MAX	37	38	36	34	34	31	32	34	36	37	37	38	38	36	36	36	36	35	34	36	37	36	36	38			
HOURLY AVG	22.4	22.6	22.0	21.8	22.9	22.8	23.0	23.1	23.1	23.7	24.4	24.6	25.5	26.9	25.7	25.4	24.7	24.2	23.6	23.0	23.2	23.5	24.2	23.6			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	38	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	6.51					



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

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.39	3.68	5.09	12.46	12.60	4.95	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.50	4.95	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	3.39	3.68	5.09	12.46	12.60	4.95	5.24	6.65	3.54	9.20	9.20	2.97	4.81	3.68	7.50	4.95	

Calm : .00 %

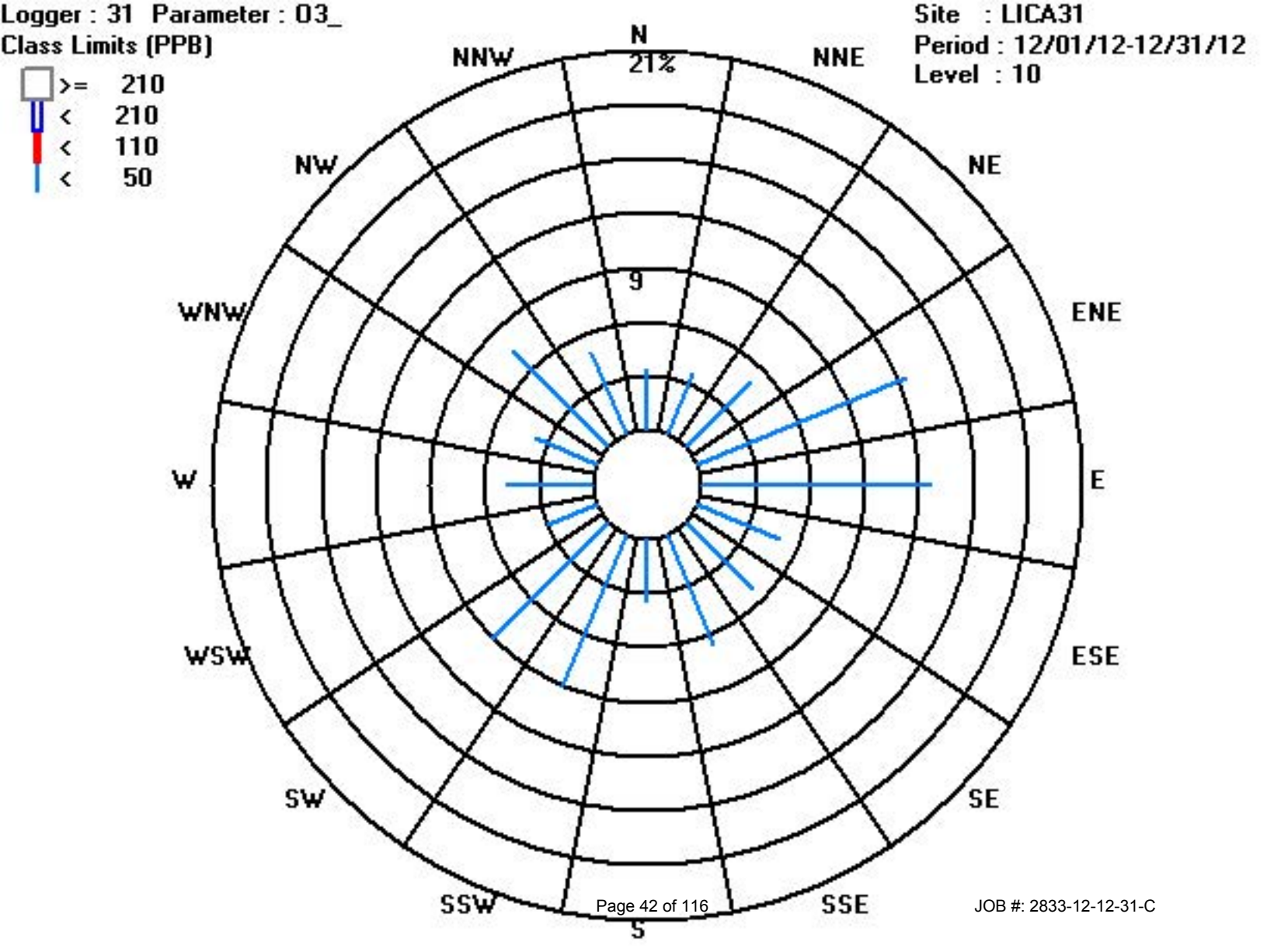
Total # Operational Hours : 706

Distribution By Samples

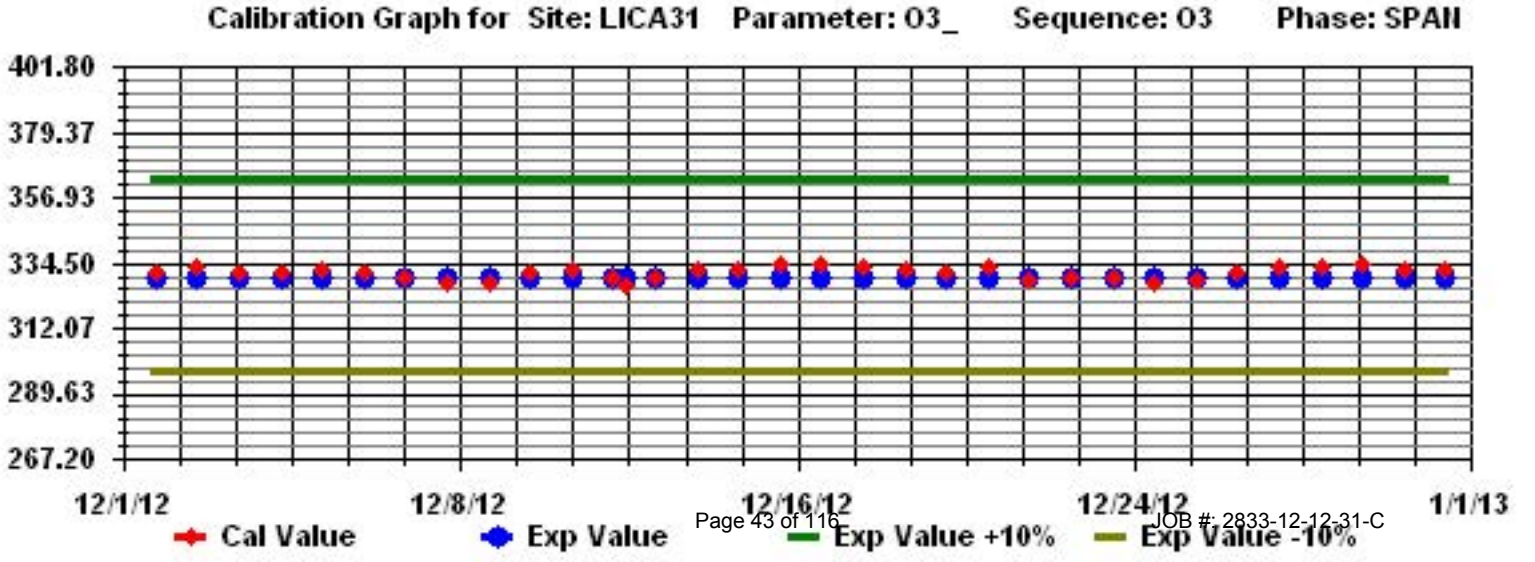
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	24	26	36	88	89	35	37	47	25	65	65	21	34	26	53	35	706
<	110																	
<	210																	
>=	210																	
	Totals	24	26	36	88	89	35	37	47	25	65	65	21	34	26	53	35	

Calm : .00 %

Total # Operational Hours : 706



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


Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: O3 Phase: SPAN
401.80
379.37
356.93
334.50
312.07
289.63
267.20
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

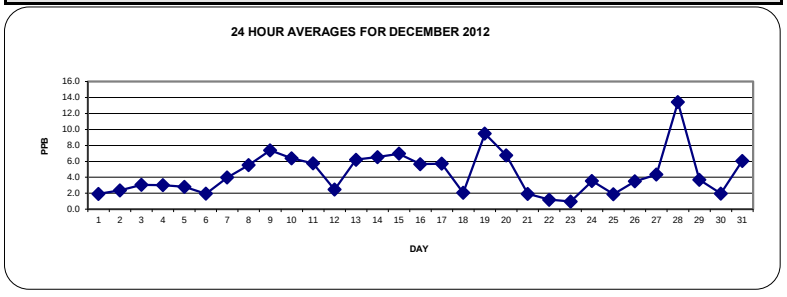
NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	2.5	4.6	5.3	3.2	2.8	2.9	2.6	1.8	1.3	0.9	1	1	0.8	0.9	1.3	1.3	**IZS**	0.9	1.1	1.6	1.5	1.6	1.4	5.3	1.9	24
2	1.4	1.4	1.4	1.5	1.7	3.4	2.4	2.1	4.3	3.4	3	3.1	3.2	3.3	3.7	1.6	**IZS**	1.8	2.2	2.3	2.4	1.7	1.6	1.5	4.3	2.4	24
3	2.2	1.6	2.3	2.3	2.8	2.9	2.2	2.3	1.8	1.4	1.5	1.6	1.5	1.8	2.1	**IZS**	4.8	5.3	5	5	5.2	5.5	5.1	4.3	5.5	3.1	24
4	4.9	5.3	5.2	3.3	3.7	3.6	2.5	2.3	2.8	2.7	2.5	3.1	2	1.7	**IZS**	2.2	2.6	2.8	2.9	2.7	2.4	2.6	2.6	3.2	5.3	3.0	24
5	3.4	2.8	3	3.1	2.6	2.7	3.2	2.9	2.6	2.8	2.8	3.3	3.7	**IZS**	3	3.1	3	2.8	2.9	2.5	2.5	2.1	2	1.7	3.7	2.8	24
6	1.8	1.7	1.6	1.5	2.2	2.3	2.4	2.4	2.2	1.9	1.3	1.1	**IZS**	0.7	1.2	1.1	1.9	3.5	4.7	1.9	1.5	2.2	1.5	2.1	4.7	1.9	24
7	2.2	1.9	2.1	2.3	3.6	3	2.2	2.1	2.3	4	4.6	**IZS**	3	2.8	2.6	3.5	4.6	5.4	6.4	5.9	5.9	5.6	5.8	9.6	9.6	4.0	24
8	13.9	16.3	13.9	9.1	8.7	7.4	7.3	6.5	3.5	3.3	**IZS**	2.4	2.8	2.1	2.4	2.1	2.6	3.4	3.6	2.8	3.2	3	3.1	3.7	16.3	5.5	24
9	3.7	4.7	5.8	7.3	6.8	7	7	7	7.5	**IZS**	4.5	5	5.7	6.5	7.7	9.2	10.7	10.4	8.7	8.4	8.8	8.9	9	9.4	10.7	7.4	24
10	12.9	15.2	11.4	7.5	5.7	4.7	4.6	4.1	**IZS**	3.4	4.3	4.8	3.2	2.4	2.4	3.5	4.5	4.3	3.9	5.9	10.2	9.5	8.7	9.4	15.2	6.4	24
11	9.6	8.4	8.9	11.2	10.8	9.2	7.9	**IZS**	6.1	4.4	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2.8	2.8	2.5	1.9	2	1.9	1.7	11.2	5.8	24
12	1.8	1.9	2.5	3	2.9	3.1	**IZS**	2.6	1.3	1	1.2	1	**M**	1.5	1.1	1.6	2.1	2.9	3	3.9	4.9	4.5	3.6	3	4.9	2.5	23
13	3.5	3.3	2.9	2.7	2.1	**IZS**	3.4	4.1	5.2	4.2	4	4.5	4.7	5.4	6.3	7.5	8.8	9	9.2	9.7	9.5	10.1	10.8	11.8	11.8	6.2	24
14	12	12.6	12.7	13	**IZS**	12.6	11.7	8.8	8.8	8.3	8.2	7.5	5.9	4.6	4	3.3	1.9	2	1.9	2.1	2	2.1	2	2	13	6.5	24
15	2.8	2.8	2.8	**IZS**	4.1	6.1	13.6	19.1	13.3	8	6.1	4.7	4.7	4.8	5.2	6.8	11.5	9.4	7.2	7.3	6.5	5.3	4.3	3.7	19.1	7.0	24
16	3.8	4.2	**IZS**	3.5	3.4	3.4	3.4	3.2	3.4	3.9	4.2	4.2	3.9	3.4	4	4.7	5	5.1	6.4	11.5	10.9	11.3	11	12.2	12.2	5.7	24
17	14.5	**IZS**	21.7	20.5	15.2	8.3	7	6.7	6.7	6.2	5	4.5	1.9	2.4	1.7	1.7	1.9	1.8	1	0.1	0.4	0.8	1	0.5	21.7	5.7	24
18	**IZS**	2.2	3	4.3	4.5	3.8	3.4	2.8	1.8	1.6	1.3	1.3	1	1	1	1.6	1.3	1.3	1	1.7	1.5	1.5	2.5	**IZS**	4.5	2.1	24
19	2.9	4	5.5	6.1	5.1	5.8	7.8	11.4	15.3	11.2	9	8.7	8	6.9	6.7	7.6	8.9	8.2	12.5	16.1	17.3	14.9	**IZS**	18	18	9.5	24
20	18.8	18	16.9	14.4	12.2	9.9	9.6	7.8	7.6	6.5	5.1	4	3.5	3	3.3	3.1	2.8	1.7	1.5	1.2	0.9	**IZS**	1.3	1.8	18.8	6.7	24
21	1.6	1.9	1.5	1.2	1.5	1.4	1.9	1.2	1.5	1.8	1.5	1.5	0.9	1.1	1.3	2.6	3.8	4	3.6	2.3	**IZS**	2.1	2.1	1.8	4	1.9	24
22	2.2	1.8	2	2.2	2.6	4.3	2	1.1	0.6	0.4	1	0.5	0.5	0.5	0.4	0.3	0.3	0.5	0.6	**IZS**	0.6	1.3	1	0.8	4.3	1.2	24
23	0.7	0.3	0.4	0.6	0.6	0.5	0.5	0.4	0.6	0.6	0.5	0.6	0.6	0.7	0.9	1	0.8	1	**IZS**	1.8	2	2.4	3	1.9	3	1.0	24
24	2.4	2.5	2.6	2.5	3.2	3.6	3.6	4	6.1	5.9	5.6	5.1	3.9	3.8	3.7	3.9	4.2	**IZS**	2.3	1.9	2.8	2.3	2.4	2.8	6.1	3.5	24
25	2.8	2.1	1.7	1.4	1.4	1.5	1.6	1.8	2	2.3	2.1	2.1	1.7	1.5	1.7	2	**IZS**	1.8	2.2	1.9	1.9	2	2	2	2.8	1.9	24
26	2	1.9	2.1	2.1	2.4	1.8	1.5	1.6	1.2	1	0.8	1.1	1.1	1.9	3	**IZS**	5.7	6.1	6.9	8.8	9	6	6.2	6.1	9	3.5	24
27	8.3	7.8	6.5	6.3	5.5	4.3	4	3.8	3.9	4.2	3.7	3.2	2.9	2.8	**IZS**	3.1	2.9	3	3.2	3.3	4.2	3.4	5	4.7	8.3	4.3	24
28	5.2	6.4	7.6	10.2	11.8	9.8	8.7	9	9.6	9.2	8.9	8.7	9.9	**IZS**	11.5	14.7	19.4	23.7	23.8	**24.7**	24.6	20.3	17	13.7	**24.7**	**13.4**	24
29	10.8	9.6	9.9	11.6	10.3	8.7	6.9	4.3	2.4	1.6	0.8	0.5	**IZS**	1	0.8	0.7	0.9	0.8	0.8	0.8	0.5	0.2	0.2	0.6	11.6	3.7	24
30	0.2	0	0	0.3	0.4	2.1	1.8	1.4	0.9	0.6	0.7	**IZS**	1.9	2.3	2.4	2.7	3.1	3.3	3.3	3.3	3.3	3.4	3.9	3.7	3.9	2.0	24
31	3.8	4	4.2	4.1	4	4.3	5.1	5.2	6	7.6	**IZS**	6.9	6.9	6.9	7.1	7.8	8.9	9.1	8.4	8.6	9.2	7.7	2.3	1	9.2	6.0	24
HOURLY MAX	19	18	22	21	15	13	14	19	15	11	9	9	10	7	12	15	19	24	24	25	25	20	17	18			
HOURLY AVG	5.3	5.0	5.6	5.5	4.8	4.8	4.7	4.5	4.4	3.8	3.4	3.4	3.3	2.8	3.3	3.7	4.7	4.7	4.8	5.1	5.3	4.9	4.2	4.7			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

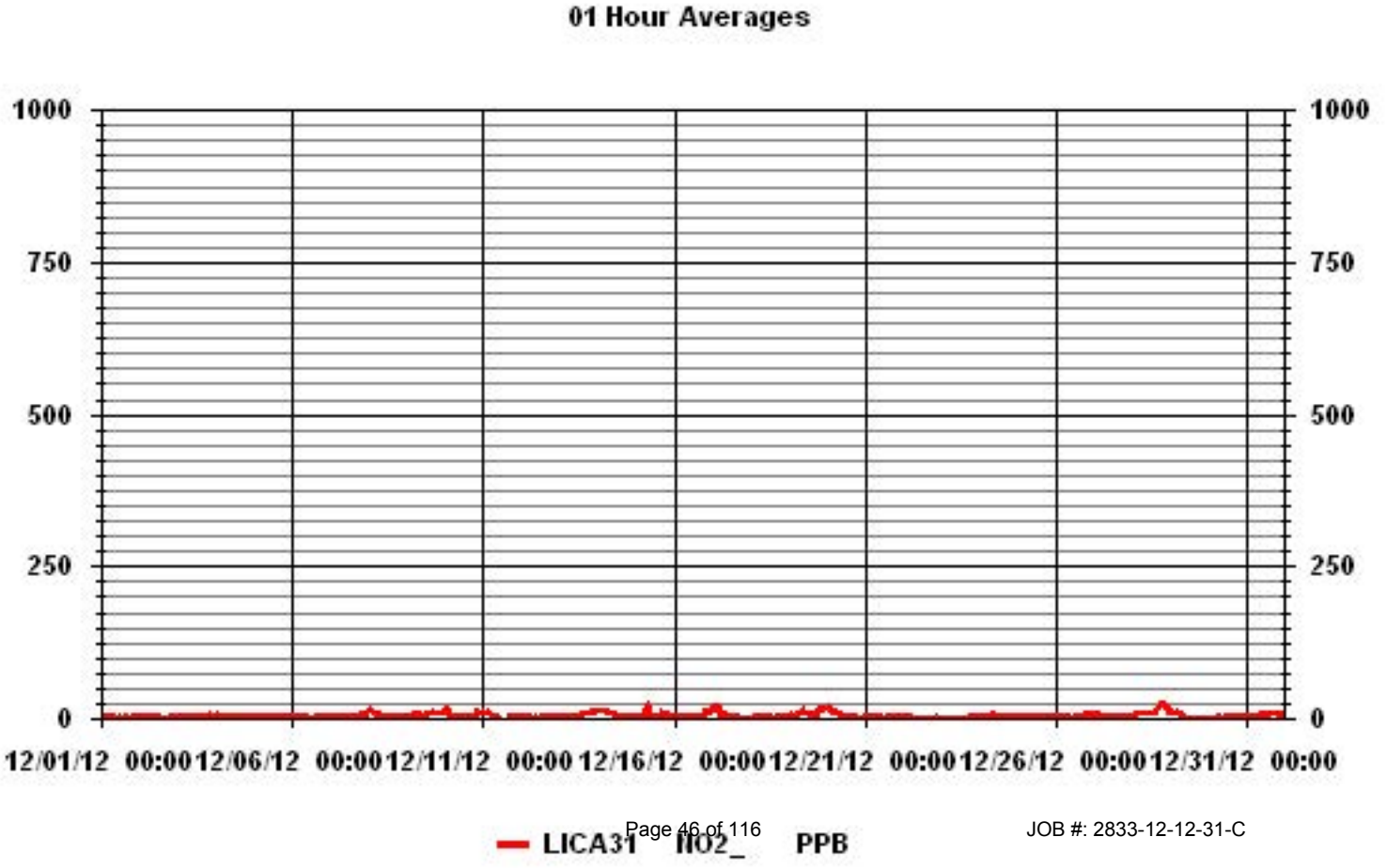


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM 1-HR AVERAGE:	24.7	PPB	@ HOUR(S)	19	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	13.4	PPB			ON DAY(S)	28

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	4.00		MONTHLY AVERAGE:	4.46	PPB



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

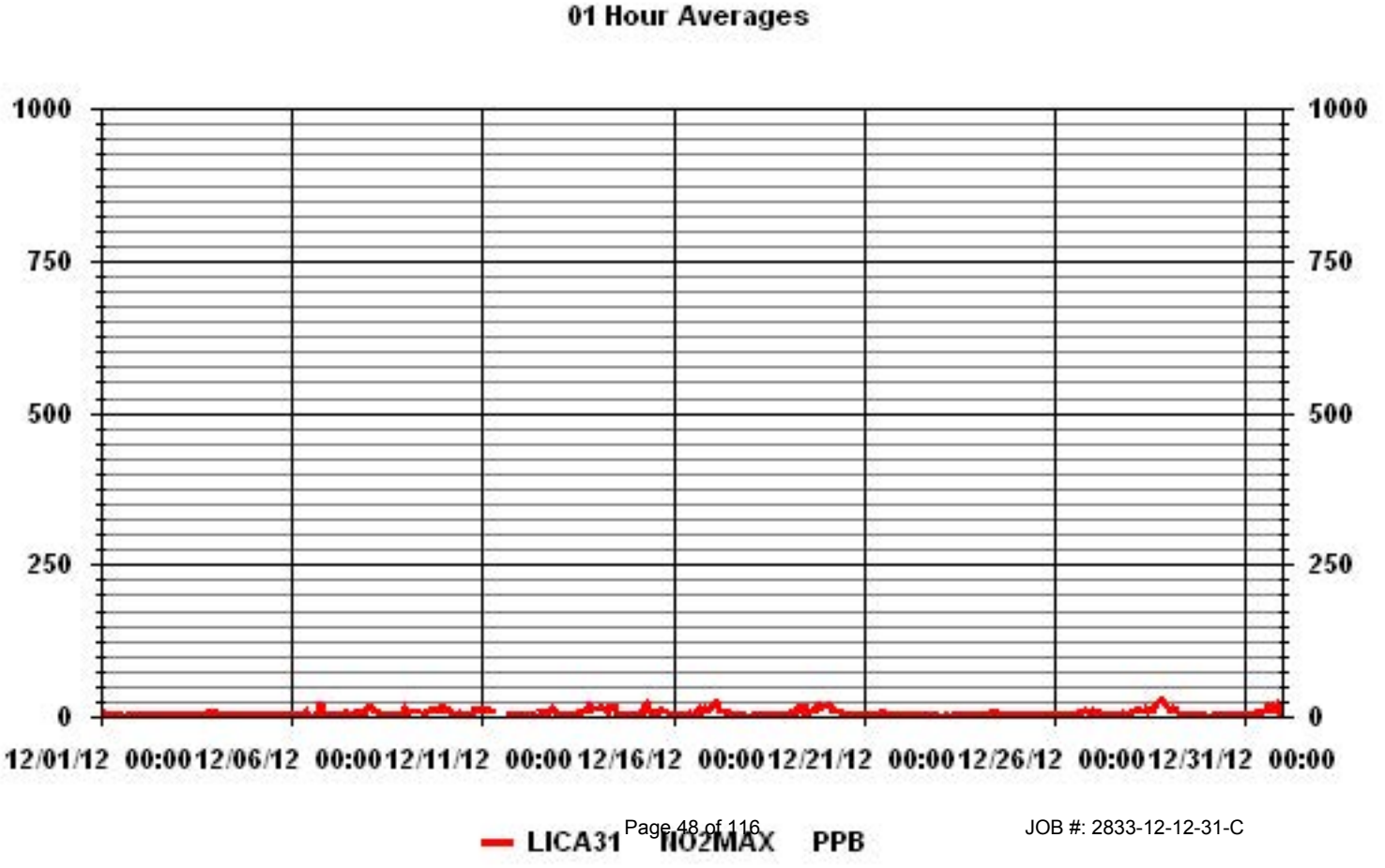
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.7	3.9	5.6	6.1	4.5	3.6	3.7	3.3	2.9	2.3	1.5	1.5	1.4	1.4	1.6	2.5	2	**IZS**	1.6	1.8	2.6	2.1	2.6	2.1	6.1	2.8	24
2	2.3	2.1	2.2	2.1	2.9	4.6	3.8	3.9	6.5	4.5	4.3	4.2	4.4	4.7	4.6	3.3	**IZS**	2.5	3.1	3.4	3.4	2.4	2.3	2.3	6.5	3.5	24
3	3.2	2.6	2.9	3	3.9	4.2	2.7	3	2.8	1.7	2.8	2.2	2	2.3	3	**IZS**	5.3	7.2	5.6	5.4	7	6.4	5.8	4.9	7.2	3.9	24
4	5.8	6	5.9	4.9	4.9	4.9	3.3	3.3	3.6	3.3	3.1	3.8	3.2	2.2	**IZS**	2.9	3.3	3.4	3.5	3.2	3.1	3.1	3.3	3.6	6	3.8	24
5	3.6	3.1	3.5	3.6	3.1	3.9	4.1	4.2	3.2	3.4	2.9	3.7	3.8	**IZS**	3.9	3.6	3.6	3.5	3.5	3.1	3.3	2.8	2.4	2.7	4.2	3.4	24
6	2.5	2.4	2.4	2.6	3.1	3	3.4	3.3	2.8	7.8	2.2	1.8	**IZS**	1.1	2.3	2.6	3.3	8.4	24	2.8	7.3	5.6	2.2	3	24	4.3	24
7	2.8	2.3	2.6	2.8	4.4	3.9	2.7	2.6	3.1	5.4	5.3	**IZS**	4	3.7	3.4	4.6	6.6	7.1	7.4	6.8	6.7	6.5	6.7	13.7	13.7	5.0	24
8	15.6	17.7	17.3	10.8	10	8.7	8.6	8	5.7	4.5	**IZS**	3.3	3.6	3	3.6	3.5	4.4	4.4	4.5	3.7	4.6	4.3	5	11.7	17.7	7.2	24
9	4.6	6.2	7.2	8.1	8.3	8	8	8.2	8.5	**IZS**	5.1	6.4	6.8	7.5	8.8	10.6	11.6	11.7	10.1	9.4	9.6	13.6	10	11.2	13.6	8.7	24
10	16.2	16.7	14.3	9.2	7.1	5.8	5.8	4.9	**IZS**	4.2	6.4	6.5	5.2	3.6	4.1	4.6	5.8	4.9	4.6	11.3	11.2	11.2	9.6	10.7	16.7	8.0	24
11	10.9	10.2	10.4	13	12.7	10.1	9.5	**IZS**	7.4	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	4	4.3	4.2	3.2	3.4	3.4	3	13	7.3	24
12	3.1	3.3	4	4.1	4	4.6	**IZS**	4.9	2.2	2.2	2.2	1.8	**M**	9.5	2	6	3.3	5.2	8.9	13.5	5.9	17.2	4.4	3.9	17.2	5.3	23
13	4.2	4.1	3.8	3.6	3.1	**IZS**	5	5.5	7.2	5	5	5.7	5.5	6.9	7.1	8.9	9.7	9.7	10	24.7	10.6	11.1	12.2	12.8	24.7	7.9	24
14	13	13.5	13.9	13.8	**IZS**	14.3	13.1	10.4	19.8	9.7	16.4	16.8	7.9	5.8	5.1	4.5	3	3.2	2.9	2.9	3	2.8	2.8	2.8	19.8	8.8	24
15	3.8	3.7	4.3	**IZS**	5.6	10.9	18.3	21.8	17.9	10.9	9.1	5.9	6.1	5.9	6.2	10.7	12.7	11.7	8.1	8.3	7.7	6.6	5.2	4.5	21.8	9.0	24
16	4.8	4.9	**IZS**	4.2	4.2	4.3	4.2	3.8	4.2	4.7	5.2	5.3	5	4.4	5.9	6.4	12.5	6.7	10.7	14.6	12	12.6	12.1	13.6	14.6	7.2	24
17	18.2	**IZS**	24.8	23.3	20.6	11.3	8.5	8.8	8.4	7.6	6.4	5.8	3.4	3.9	2.5	2.8	2.9	2.7	2.3	1.1	1.6	1.9	1.9	1.6	24.8	7.5	24
18	**IZS**	2.9	4.3	5.1	5.4	4.6	4.3	3.7	2.9	3.4	2.8	2.6	1.9	2.1	2.5	3.7	2.3	2.5	2.1	2.5	2.3	2.3	3.7	**IZS**	5.4	3.2	24
19	3.8	5.3	7.6	7.3	5.6	8.5	13.7	16.1	17	13.1	9.9	20.6	9	7.7	8.3	8.6	10.2	10.4	16.2	19.6	20	16.5	**IZS**	19.3	20.6	11.9	24
20	20.2	19.5	19.1	16.4	13.6	11.4	11.1	9.1	9	8.4	6.3	5.5	4.6	4.5	4.7	4.5	4.3	2.6	2.4	1.8	1.7	**IZS**	2.2	3	20.2	8.1	24
21	2.8	2.8	2.6	2	2.1	2.4	2.8	2.2	2.4	2.5	2.4	2.5	12.6	2.4	2.4	4.1	4.8	5.3	4.9	3.8	**IZS**	2.6	3.1	2.3	12.6	3.4	24
22	2.9	2.8	2.7	2.8	4.1	5.2	3.9	2.1	1.5	1.4	1.5	1	1.2	1.4	1.3	1.1	1.1	1.5	1.5	**IZS**	1.3	1.8	1.7	1.2	5.2	2.0	24
23	1.4	0.8	0.9	1.2	1.5	1.2	0.9	1.1	1.3	1.2	1.2	1.3	1.2	1.2	1.5	1.6	1.3	1.7	**IZS**	2.5	2.5	3.8	3.7	2.5	3.8	1.6	24
24	3	3.2	3.2	3.3	3.8	4.1	4.3	4.9	7.6	6.8	6.8	5.7	5.4	5.6	4.1	4.3	5.5	**IZS**	3.4	2.4	3.7	3.4	3.3	3.6	7.6	4.4	24
25	3.6	2.7	2.5	2.2	2	2.4	2.1	2.5	2.4	3	2.7	2.5	2.3	2.1	2.4	2.8	**IZS**	2.7	3.6	2.6	2.5	2.5	2.6	2.7	3.6	2.6	24
26	2.8	2.8	2.7	2.6	2.8	2.4	2	2.1	1.6	1.5	1.4	1.7	1.7	2.8	3.8	**IZS**	6.8	6.7	8	10.3	10.7	7.1	7.2	7.9	10.7	4.3	24
27	9.3	9.4	7.3	7.3	6.1	5.5	6.1	4.6	4.7	4.9	4.5	4.2	4.5	4.2	**IZS**	4.3	4	4.8	3.8	6.3	6.7	4.5	6.8	5.5	9.4	5.6	24
28	6.2	7.7	9.4	11.8	13.1	11.6	9.6	10.2	10.6	14.7	9.8	11.7	11.4	**IZS**	13.1	17.1	22.8	25.2	25.1	**26.5**	26.3	22.3	19.2	17.3	**26.5**	15.3	24
29	12.3	10.9	13.6	13.5	11.9	10.2	8.6	6.2	3.7	2.5	1.8	1.3	**IZS**	1.8	1.8	1.6	1.7	1.5	1.6	1.6	1.5	1	1.1	1.3	13.6	4.9	24
30	0.9	0.6	0.6	1	2.1	2.8	2.5	2.2	1.8	1.4	1.5	**IZS**	2.6	2.8	3	3.6	3.8	3.9	3.9	4.1	3.8	3.9	4.4	4.4	4.4	2.7	24
31	4.1	4.7	4.8	4.7	4.5	5.1	6.8	6	7.2	9.2	**IZS**	8.3	10.4	15.4	8.5	8.5	12.6	16.1	9.8	9.5	16.5	9.6	4.8	1.6	16.5	8.2	24
HOURLY MAX	20	20	25	23	21	14	18	22	20	15	16	21	13	15	13	17	23	25	25	27	26	22	19	19			
HOURLY AVG	6.4	6.0	6.9	6.5	6.0	6.1	6.1	5.8	6.0	5.2	4.7	5.1	4.9	4.3	4.3	5.1	6.1	6.2	6.7	7.1	6.7	6.5	5.2	6.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	26.5	PPB	@ HOUR(S)	19	ON DAY(S)	28
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	4.71					



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

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	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	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	

Calm : .00 %

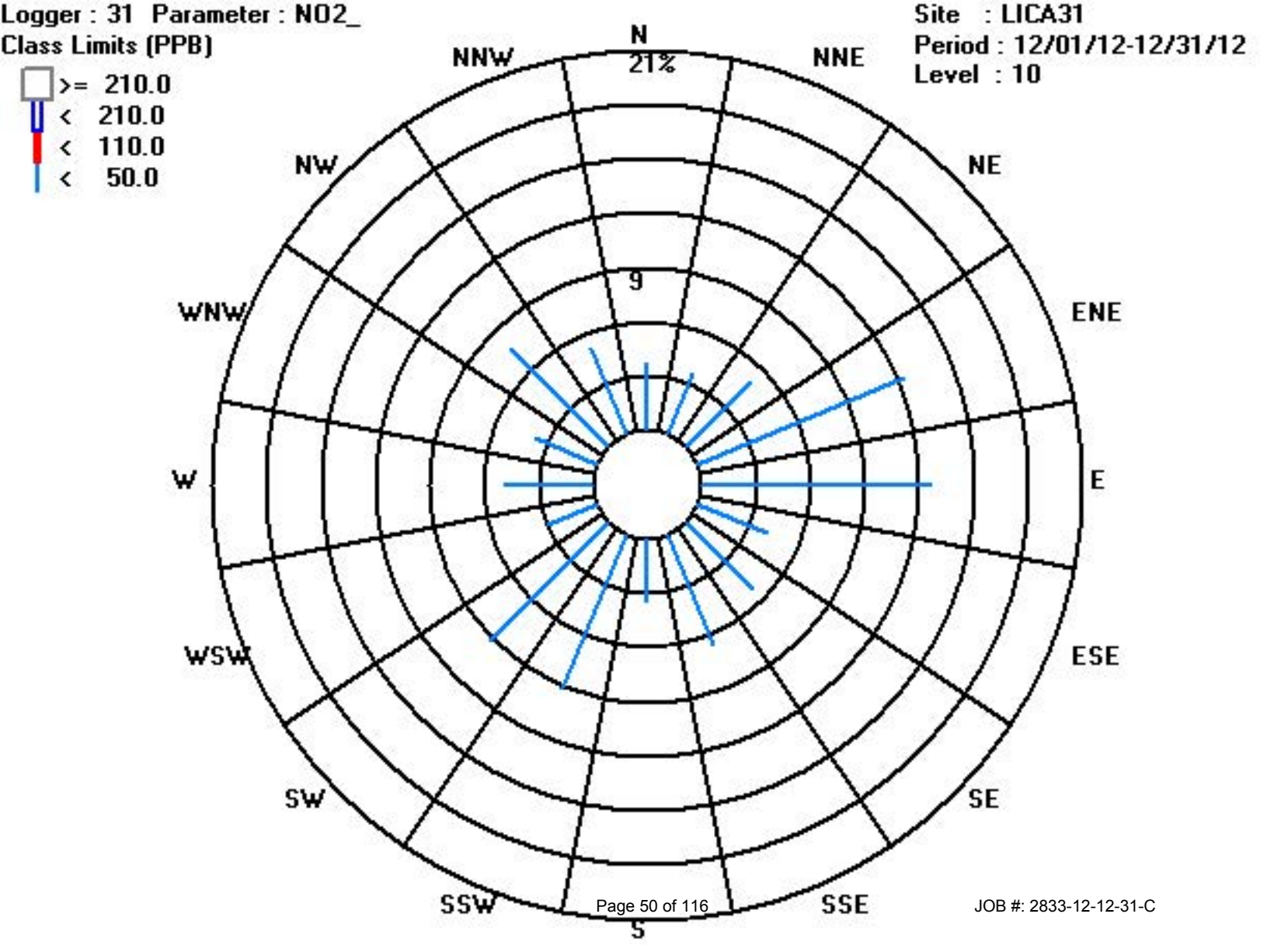
Total # Operational Hours : 703

Distribution By Samples

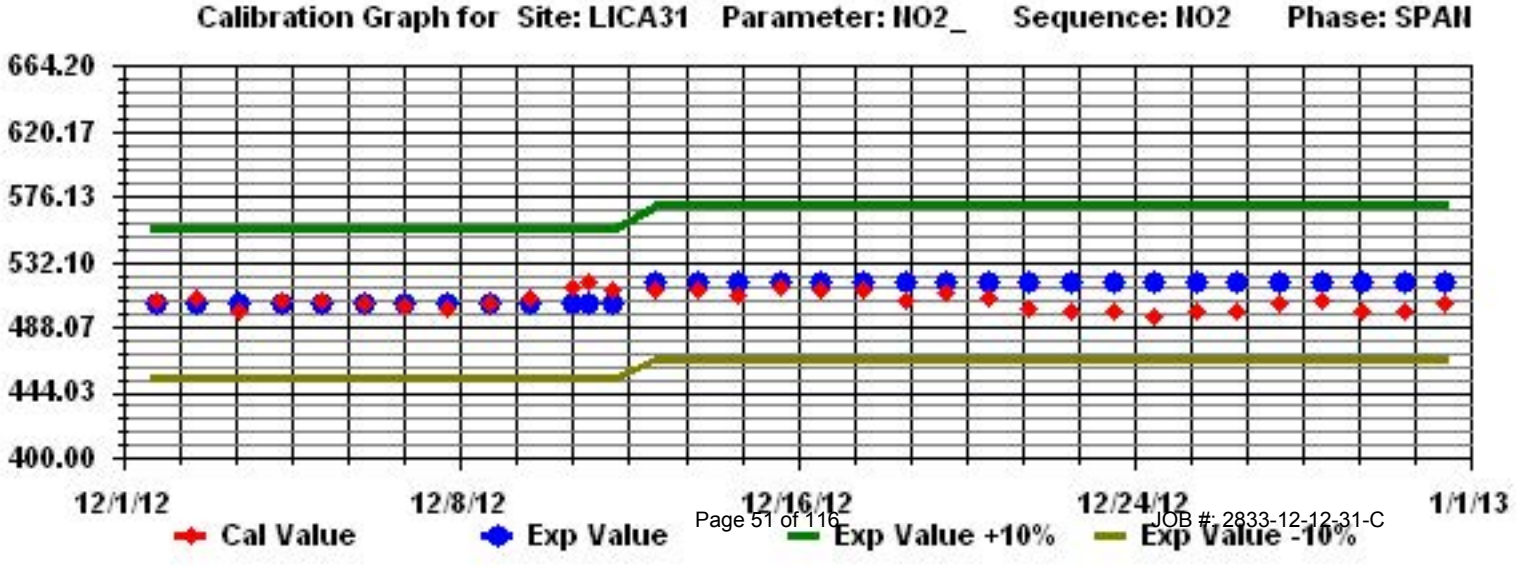
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	703
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	

Calm : .00 %

Total # Operational Hours : 703



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


Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN
664.20
620.17
576.13
532.10
488.07
444.03
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSCOICATION - ST. LINA

DECEMBER 2012

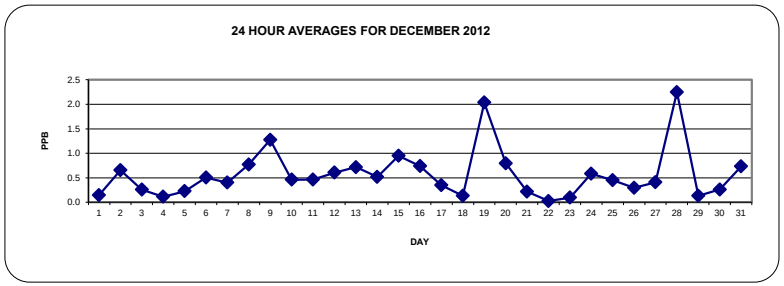
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.1	0	0	0.1	0.2	0.3	0.2	0.1	0	0	0.2	0.2	0	0	0	0	0	**IZS**	0.8	0.5	0.1	0.2	0.1	0.2	0.8	0.1	24
2	0.2	0.3	0.1	0	0.1	0.2	0.1	0.2	0.4	1.3	1.9	2.2	2.2	1.7	1.3	0.3	**IZS**	0.6	0.5	0.3	0.5	0.2	0.2	0.3	2.2	0.7	24
3	0.3	0.2	0.2	0.2	0.1	0	0	0.3	0.2	0.3	0.6	0.6	0.7	0.8	0.6	**IZS**	0.5	0.2	0	0	0	0.1	0	0	0.8	0.3	24
4	0	0	0	0	0	0	0	0	0	0.1	0	0.5	0.2	0.1	**IZS**	0.8	0.3	0.3	0.2	0.1	0	0	0	0	0.8	0.1	24
5	0	0	0	0	0	0	0.1	0	0	0	0.1	0.6	1.5	**IZS**	1.6	0.5	0.3	0.3	0	0	0.1	0	0	0.1	1.6	0.2	24
6	0.2	0	0	0	0	0.2	0.4	0	0.2	0.8	0.5	0.8	**IZS**	1.3	0.8	0.5	0.6	0.7	2.4	0.3	0.8	0.7	0.1	0.3	2.4	0.5	24
7	0.2	0.3	0.1	0	0.2	0.3	0.1	0.2	0.3	0.6	1.1	**IZS**	1.8	1.3	0.7	0.3	0.2	0.2	0.1	0.3	0.2	0.1	0.3	0.3	1.8	0.4	24
8	0.5	0.7	0.7	0.6	0.6	0.4	0.6	0.4	0.2	0.8	**IZS**	2.6	2.4	1.6	1.2	0.7	0.4	0.6	0.5	0.4	0.4	0.4	0.4	0.6	2.6	0.8	24
9	0.6	0.6	0.4	0.6	0.4	0.5	0.7	0.6	0.8	**IZS**	3.5	4.1	4.2	4.2	3.4	2.3	0.7	0.7	0.3	0.3	0	0.3	0.1	0	4.2	1.3	24
10	0.2	0.4	0.3	0	0.1	0	0.1	0	**IZS**	1.1	1.5	2.1	1.2	0.9	0.7	0.3	0	0.2	0.1	0	0.3	0.3	0.4	0.4	2.1	0.5	24
11	0.5	0.4	0.2	0.6	0.6	0.6	0.4	**IZS**	1.2	1.6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.2	0.2	0.2	0.3	0.2	0.2	0	1.6	0.5	24
12	0.1	0.2	0.2	0.1	0.1	0.3	**IZS**	1.2	0.7	0.6	1	1.1	**M**	1.7	0.9	0.9	0.4	0.6	0.7	0.6	0.4	0.6	0.5	0.4	1.7	0.6	23
13	0.5	0.5	0.5	0.6	0.6	**IZS**	0.7	0.2	0.3	0.8	1.3	2	2.6	2.5	1.7	0.9	0	0	0.1	0.6	0	0	0.1	0	2.6	0.7	24
14	0.1	0	0	0.1	**IZS**	0.8	0.4	0.3	0.7	1.3	2.1	2	1.9	1.2	0.7	0.1	0	0	0	0.1	0	0.1	0	0	2.1	0.5	24
15	0	0	0	**IZS**	1	1	1	1.1	1.3	1.8	2.1	1.9	2.2	1.8	1.4	0.7	0.7	0.5	0.5	0.5	0.5	0.6	0.6	0.6	2.2	0.9	24
16	0.5	0.5	**IZS**	0.9	0.5	0.3	0.4	0.2	0.3	0.5	1	1.4	1.4	1.2	1.3	0.9	0.8	0.6	0.5	1.3	0.7	0.7	0.5	0.6	1.4	0.7	24
17	0.7	**IZS**	1.1	0.6	0.1	0.1	0.2	0.1	0.2	0.8	1.1	1.3	0.6	0.9	0.2	0	0	0	0	0	0	0	0	0	1.3	0.3	24
18	**IZS**	0.4	0.3	0.3	0.1	0	0	0.2	0	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	**IZS**	0.4	0.1	24
19	1.2	0.8	0.6	0.6	0.6	0.9	1.7	1	1.4	4.4	6.5	7.8	6.5	3.8	2.5	1.3	0.6	0.7	0.4	0.7	0.9	0.7	**IZS**	1.2	7.8	2.0	24
20	1.1	0.9	1	0.6	0.6	0.6	0.5	0.4	0.6	1.5	2.3	1.9	2	1.7	0.9	0.5	0	0	0	0	0	**IZS**	0.9	0.3	2.3	0.8	24
21	0	0	0	0.1	0	0.1	0	0	0	0.1	0.3	0.8	0.4	0.2	0.3	0.5	0.5	0.4	0.5	0.2	**IZS**	0.6	0	0	0.8	0.2	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0.4	0.2	0	0	0.4	0.0	24
23	0	0.3	0.1	0	0	0.1	0	0.3	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	**IZS**	0.4	0.2	0	0.2	0	0.4	0.1	24
24	0	0	0	0	0.1	0.1	0	0.1	0.2	0.8	1.9	2.4	1.4	1.2	0.8	0.2	0.3	**IZS**	1	0.5	0.7	0.7	0.5	0.5	2.4	0.6	24
25	0.4	0.6	0.4	0.4	0.3	0.3	0.1	0.1	0.2	0.4	0.9	1.2	0.8	0.8	0.6	0.4	**IZS**	0.8	0.4	0.4	0.2	0.2	0.2	0.3	1.2	0.5	24
26	0	0	0.1	0.1	0	0.1	0	0	0.1	0.1	0.3	0.4	0.4	0.5	0.7	**IZS**	0.9	0.6	0.6	0.4	0.5	0.4	0.4	0.2	0.9	0.3	24
27	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.4	0.3	0.6	0.8	1	1.1	0.8	**IZS**	0.7	0.4	0.1	0	0.2	0.2	0.1	0.2	0.1	1.1	0.4	24
28	0.1	0.2	0.4	0.3	0.7	0.5	0.5	0.5	0.7	2.3	4.4	6.6	8.3	**IZS**	**9.2**	6.4	2.7	1.9	1.6	1.4	1	0.9	0.6	0.5	**9.2**	**2.2**	24
29	0.3	0	0.1	0.3	0.1	0	0	0	0	0.1	0	0.1	**IZS**	0.8	0.3	0.1	0.2	0.1	0.1	0.2	0.3	0	0	0	0.8	0.1	24
30	0	0.1	0	0	0.2	0.1	0.1	0.3	0.3	0.3	0.2	**IZS**	0.9	0.8	0.5	0.2	0.2	0.2	0	0.4	0.3	0.2	0.3	0.4	0.9	0.3	24
31	0.2	0.3	0.2	0.4	0.3	0.2	0.3	0.3	0.3	1	**IZS**	3	3.1	2.5	2.6	1.1	0.4	0.2	0.1	0.3	0	0	0	0	3.1	0.7	24
HOURLY MAX	1	1	1	1	1	1	2	1	1	4	7	8	8	4	9	6	3	2	2	1	1	1	1	1			
HOURLY AVG	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.8	1.3	1.7	1.8	1.2	1.3	0.7	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2			

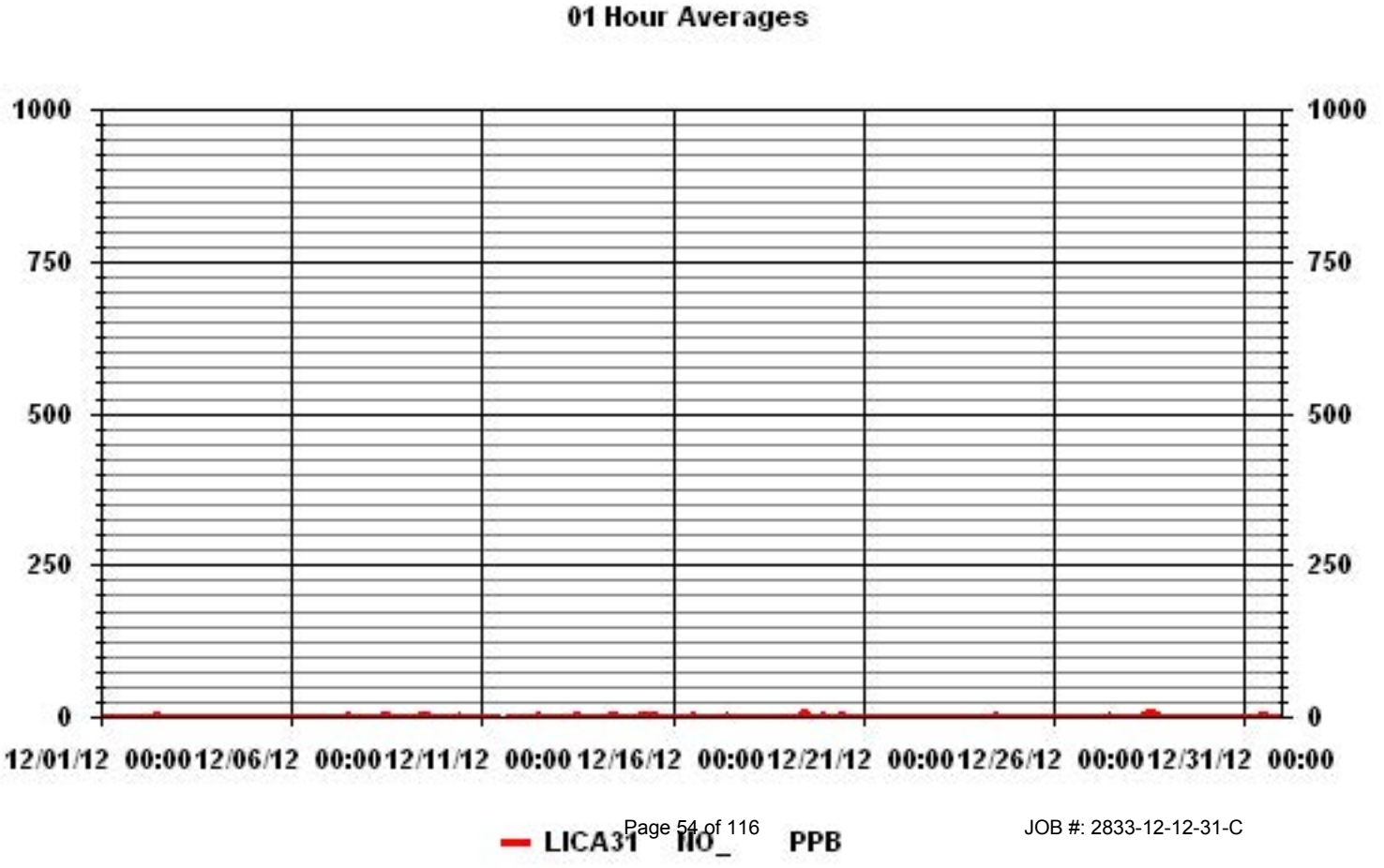
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	542					
MAXIMUM 1-HR AVERAGE:	9.2	PPB	@ HOUR(S)	14	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	2.2	PPB			ON DAY(S)	28
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.95		MONTHLY AVERAGE:		0.57	PPB



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

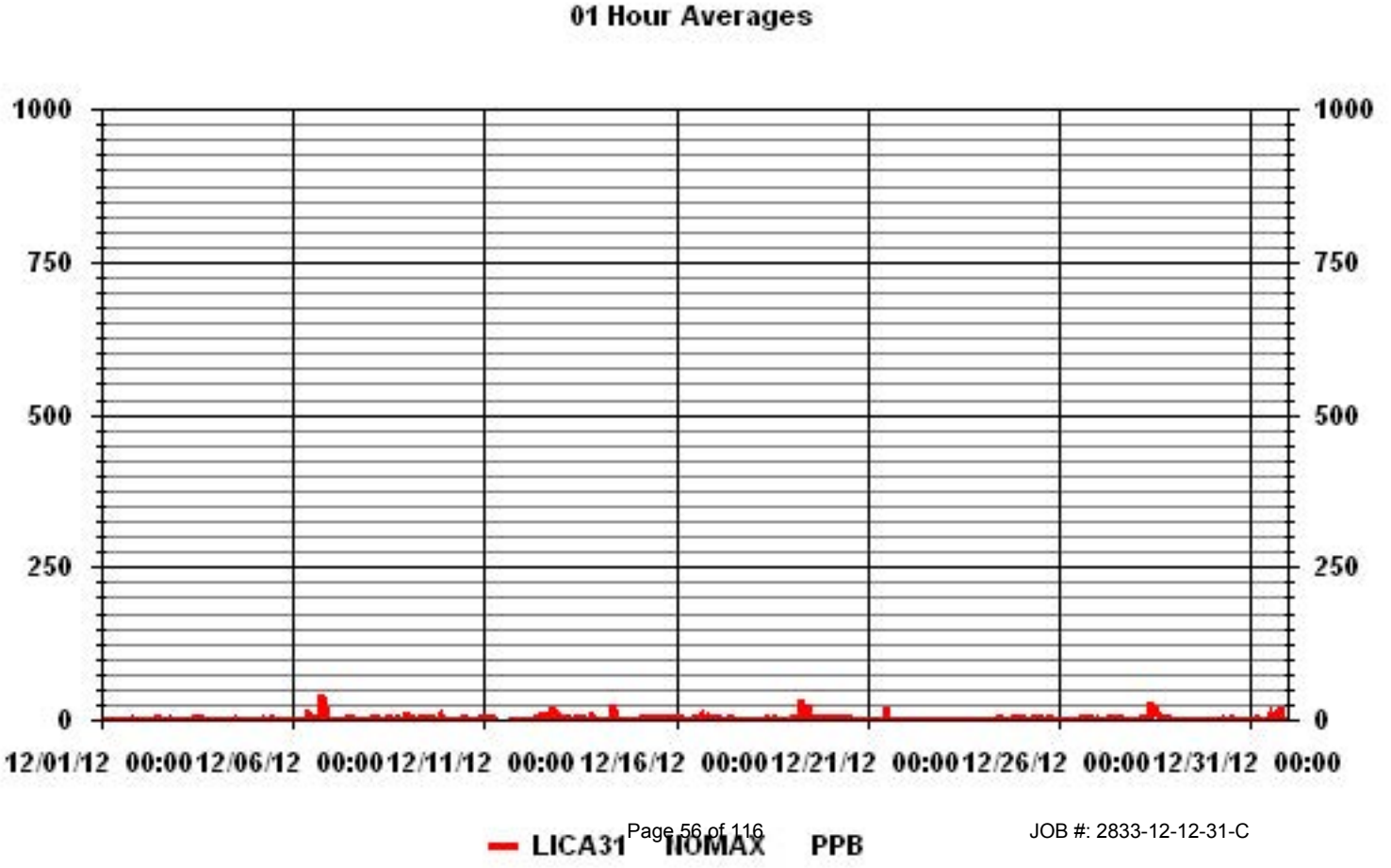
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.7	0.7	0.8	0.8	0.9	0.9	0.7	0.7	0.5	0.6	0.8	0.8	0.6	0.5	0.3	0.6	1	**IZS**	1.5	1	1.1	1	0.7	1.1	1.5	0.8	24
2	0.9	0.7	0.6	0.6	1	0.9	1	0.7	1.2	2.6	2.6	2.9	2.9	2.3	2.4	1	**IZS**	1.9	1.1	1	1.1	0.8	0.8	0.8	2.9	1.4	24
3	0.8	0.8	0.8	0.8	0.7	0.4	0.5	0.8	0.8	1.1	1.3	1.3	1.3	1.4	1.3	**IZS**	1.3	0.6	0.5	0.6	1.8	0.8	0.7	0.4	1.8	0.9	24
4	0.7	0.6	0.7	0.7	0.5	0.7	0.3	0.1	0.5	0.7	0.7	1.5	1.2	0.7	**IZS**	1.5	1	0.8	0.9	0.8	0.6	0.6	0.4	0.7	1.5	0.7	24
5	0.6	0.2	0.4	0.1	0.3	1.4	2.1	0.9	0.2	1	1.2	1.5	2.4	**IZS**	3	1.4	0.8	1.1	0.6	0.5	0.7	0.6	0.6	0.8	3	1.0	24
6	1	0.6	0.7	0.7	0.6	0.8	1.5	0.8	1	15.1	1.4	1.9	**IZS**	2.7	2	1.9	2.6	2.7	**41.5**	2.4	25.6	6.5	0.8	0.7	**41.5**	5.0	24
7	0.7	1	0.7	0.7	0.9	0.9	1	0.7	1	1.4	1.7	**IZS**	3.3	2	1.3	0.9	0.8	0.7	0.7	0.7	0.8	0.7	1.1	0.8	3.3	1.1	24
8	1.1	1.2	1.1	1.1	1.1	1.1	1.4	0.9	0.7	1.8	**IZS**	3.5	3	2.9	2.1	1.8	1.1	2.1	1.3	1	0.9	1	1.2	9.6	9.6	1.9	24
9	1.2	1.3	1	1.2	1.1	1.1	2.3	1.2	1.8	**IZS**	4.1	6.1	4.8	4.8	4.5	3.6	1.8	2	0.9	1.2	0.9	7.1	0.8	0.6	7.1	2.4	24
10	0.9	0.9	0.8	0.6	0.7	0.7	1.7	0.4	**IZS**	1.8	2.7	3.3	3.4	2	2.3	0.9	0.7	0.8	0.6	0.8	1.1	1	1.1	1.2	3.4	1.3	24
11	1	1	1	1.2	1.2	1.2	1.5	**IZS**	2.1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.9	0.8	0.8	0.9	0.9	0.8	0.7	2.1	1.1	24
12	0.8	0.8	0.9	0.8	0.8	0.9	**IZS**	3.3	1.5	1.2	2	1.7	M	10.3	1.5	2.6	2.1	2.8	16.8	16.8	1.1	15.3	1.1	1.1	16.8	3.9	23
13	1.1	1.2	1.1	1.2	1.3	**IZS**	2.1	1	2.9	1.5	2	3.7	3.6	4	3.1	1.8	0.8	0.6	0.8	10.2	0.7	0.6	0.8	0.5	10.2	2.0	24
14	0.8	0.8	0.6	0.7	**IZS**	2	1	0.9	24.7	2.9	17.1	4.4	4.3	1.9	1.5	0.7	0.8	0.8	0.7	0.9	0.5	0.7	0.7	0.7	24.7	3.0	24
15	0.6	0.7	0.6	**IZS**	1.9	2.2	2.7	2.3	2.3	3.9	3.9	2.5	2.8	2.5	2.1	1.4	1.4	1.2	1.1	1.1	1.1	1.1	1.2	1.1	3.9	1.8	24
16	1.2	1.2	**IZS**	1.7	1.2	1	1.1	0.9	0.8	1.1	1.9	2.3	2.5	2	3.6	2	8.4	2.6	2	5.6	1.5	1.3	1.5	1.3	8.4	2.1	24
17	1.4	**IZS**	1.8	1.2	1.2	0.6	0.7	0.6	0.8	1.5	1.7	2.1	1.4	1.6	0.9	0.8	0.2	0.4	0.1	0.1	0.3	0.2	0.4	0.4	2.1	0.9	24
18	**IZS**	1.2	0.9	1	0.7	0.7	0.5	0.8	1	1.2	1.4	0.9	0.9	1.6	1.3	1.6	0.6	1.1	0.4	0.6	0.6	0.8	1.2	**IZS**	1.6	1.0	24
19	2.2	1.3	1.3	1.2	1.2	4.1	32.8	2.2	3.1	6.1	7.8	24.5	7.3	5.6	3.2	2.4	1.3	1.7	1.1	1.3	1.5	1.6	**IZS**	2.2	32.8	5.1	24
20	1.8	1.4	1.5	1.2	1.3	1.2	1.2	1	1.3	2.2	3.4	2.8	2.7	2.4	2	1.2	0.6	0.5	0.6	0.6	0.7	**IZS**	2	1	3.4	1.5	24
21	0.6	0.6	0.6	0.7	0.5	0.7	0.7	0.4	0.9	0.7	1	3	18.4	2.8	2.6	1.2	2.3	1.2	2.1	0.8	**IZS**	1.4	0.8	0.7	18.4	1.9	24
22	0.4	0.3	0.3	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.4	0.7	0.4	0.2	0.4	0.3	0.1	0.1	**IZS**	1.4	0.7	0.7	0.7	1.4	0.4	24
23	0.6	1	0.8	0.7	0.7	0.7	0.5	1	0.5	0.6	0.5	0.7	0.5	0.8	0.7	0.7	0.5	0.5	**IZS**	1.3	0.9	0.5	0.8	0.5	1.3	0.7	24
24	0.4	0.7	0.7	0.6	0.7	0.8	0.7	0.7	0.9	1.8	2.6	3.1	2.5	2.8	1.4	1	0.9	**IZS**	2.1	1.2	1.8	1.5	1.4	1	3.1	1.4	24
25	1	1	1	1.2	0.8	1.4	0.8	1	1	1.2	1.8	1.8	1.4	1.4	1.2	1	**IZS**	2	1.6	1	1.2	0.8	0.8	0.8	2	1.2	24
26	0.7	0.5	0.8	0.7	0.7	0.8	0.8	0.6	0.7	0.7	1	0.8	1.1	1.1	1.4	**IZS**	2.2	1.4	1.2	1.1	1.1	1.1	1	0.8	2.2	1.0	24
27	1	1.1	0.9	1.1	0.9	0.8	1.4	1.2	1.2	1.2	1.4	1.9	2.3	1.9	**IZS**	1.8	1.3	1	0.7	2.5	0.9	1	0.9	1	2.5	1.3	24
28	0.8	0.8	1	1.1	1.4	1.1	1.2	1.1	1.6	28.4	6.1	22.9	11.3	**IZS**	10.7	8.1	6.2	4.1	3.5	3.7	2.1	1.5	1.2	1.1	28.4	5.3	24
29	0.9	0.6	0.8	0.9	0.9	1.9	0.6	0.6	0.7	0.8	0.9	0.8	**IZS**	1.6	1	0.7	0.9	0.7	0.9	0.7	1	0.6	0.5	0.7	1.9	0.9	24
30	0.7	0.8	0.6	0.7	0.9	0.8	0.7	1	1	0.9	0.7	**IZS**	1.8	1.4	1.3	0.7	0.8	0.9	0.6	1.2	0.9	0.8	0.9	1	1.8	0.9	24
31	0.8	1	0.9	1	1	1	2.1	1	0.9	2.2	**IZS**	4.1	10.2	5.1	4.1	2.7	7.8	11.4	0.9	20.2	6.2	0.6	0.6	0.5	20.2	3.8	24
HOURLY MAX	2	1	2	2	2	4	33	3	25	28	17	25	18	10	11	8	8	11	42	20	26	15	2	10			
HOURLY AVG	0.9	0.9	0.9	0.9	0.9	1.1	2.2	1.0	1.9	3.0	2.6	3.8	3.7	2.5	2.3	1.7	1.8	1.7	2.9	2.7	2.0	1.8	0.9	1.2			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	41.5	PPB	@ HOUR(S)	18	ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			743 HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	3.48					



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

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	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	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	

Calm : .00 %

Total # Operational Hours : 703

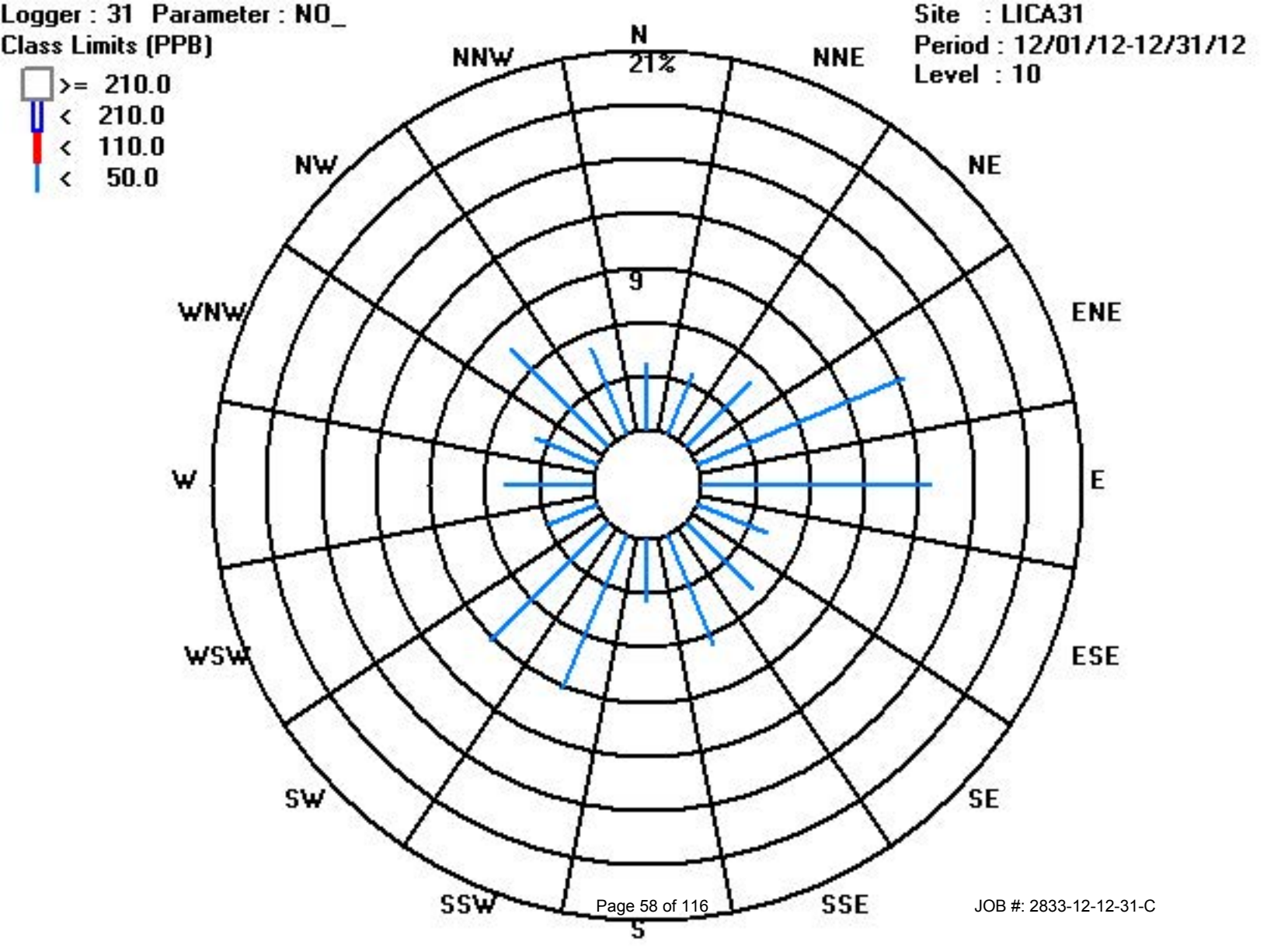
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	703
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	

Calm : .00 %

Total # Operational Hours : 703



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

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

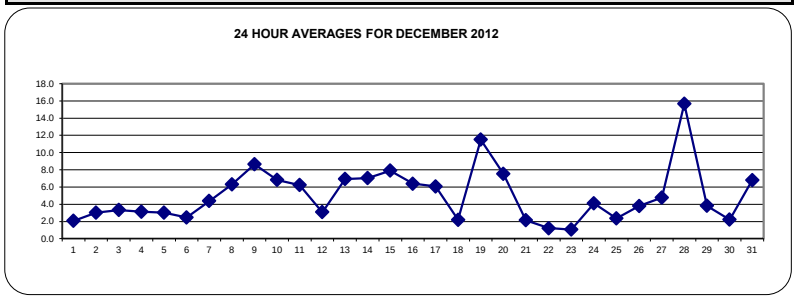
DECEMBER 2012

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.5	4.6	5.4	3.4	3.1	3.1	2.7	1.8	1.3	1.1	1.2	1	0.8	0.9	1.3	1.3	**IZS**	1.7	1.6	1.7	1.7	1.7	1.6	5.4	2.1	24
2	1.6	1.7	1.5	1.5	1.8	3.6	2.5	2.3	4.7	4.7	4.9	5.3	5.4	5	5	1.9	**IZS**	2.4	2.7	2.6	2.9	1.9	1.8	1.8	5.4	3.0	24
3	2.5	1.8	2.5	2.5	2.9	2.9	2.2	2.6	2	1.7	2.1	2.2	2.2	2.6	2.7	**IZS**	5.3	5.5	5	5	5.2	5.6	5.1	4.3	5.6	3.3	24
4	4.9	5.3	5.2	3.3	3.7	3.6	2.5	2.3	2.8	2.8	2.5	3.6	2.2	1.8	**IZS**	3	2.9	3.1	3.1	2.8	2.4	2.6	2.6	3.2	5.3	3.1	24
5	3.4	2.8	3	3.1	2.6	2.7	3.3	2.9	2.6	2.8	2.9	3.9	5.2	**IZS**	4.6	3.6	3.3	3.1	2.9	2.5	2.6	2.1	2	1.8	5.2	3.0	24
6	2	1.7	1.6	1.5	2.2	2.5	2.8	2.4	2.4	2.7	1.8	1.9	**IZS**	2	2	1.6	2.5	4.2	7.1	2.2	2.3	2.9	1.6	2.4	7.1	2.4	24
7	2.4	2.2	2.2	2.3	3.8	3.3	2.3	2.3	2.6	4.6	5.7	**IZS**	4.8	4.1	3.3	3.8	4.8	5.6	6.5	6.2	6.1	5.7	6.1	9.9	9.9	4.4	24
8	14.4	17	14.6	9.7	9.3	7.8	7.9	6.9	3.7	4.1	**IZS**	5	5.2	3.7	3.6	2.8	3	4	4.1	3.2	3.6	3.4	3.5	4.3	17	6.3	24
9	4.3	5.3	6.2	7.9	7.2	7.5	7.7	7.6	8.3	**IZS**	8	9.1	9.9	10.7	11.1	11.5	11.4	11.1	9	8.7	8.8	9.2	9.1	9.4	11.5	8.7	24
10	13.1	15.6	11.7	7.5	5.8	4.7	4.7	4.1	**IZS**	4.5	5.8	6.9	4.4	3.3	3.1	3.8	4.5	4.5	4	5.9	10.5	9.8	9.1	9.8	15.6	6.8	24
11	10.1	8.8	9.1	11.8	11.4	9.8	8.3	**IZS**	7.3	6	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	3	2.7	2.2	2.2	2.1	1.7	11.8	6.2	24
12	1.9	2.1	2.7	3.1	3	3.4	**IZS**	3.8	2	1.6	2.2	2.1	**M**	3.2	2	2.5	2.5	3.5	3.7	4.5	5.3	5.1	4.1	3.4	5.3	3.1	23
13	4	3.8	3.4	3.3	2.7	**IZS**	4.1	4.3	5.5	5	5.3	6.5	7.3	7.9	8	8.4	8.8	9	9.3	10.3	9.5	10.1	10.9	11.8	11.8	6.9	24
14	12.1	12.6	12.7	13.1	**IZS**	13.4	12.1	9.1	9.5	9.6	10.3	9.5	7.8	5.8	4.7	3.4	1.9	2	1.9	2.2	2	2.2	2	2	13.4	7.0	24
15	2.8	2.8	2.8	**IZS**	5.1	7.1	14.6	20.2	14.6	9.8	8.2	6.6	6.9	6.6	6.6	7.5	12.2	9.9	7.7	7.8	7	5.9	4.9	4.3	20.2	7.9	24
16	4.3	4.7	**IZS**	4.4	3.9	3.7	3.8	3.4	3.7	4.4	5.2	5.6	5.3	4.6	5.3	5.6	5.8	5.7	6.9	12.8	11.6	12	11.5	12.8	12.8	6.4	24
17	15.2	**IZS**	22.8	21.1	15.3	8.4	7.2	6.8	6.9	7	6.1	5.8	2.5	3.3	1.9	1.7	1.9	1.8	1	0.1	0.4	0.8	1	0.5	22.8	6.1	24
18	**IZS**	2.6	3.3	4.6	4.6	3.8	3.4	3	1.8	1.9	1.5	1.5	1.1	1.2	1.1	1.7	1.3	1.3	1	1.8	1.6	1.6	2.6	**IZS**	4.6	2.2	24
19	4.1	4.8	6.1	6.7	5.7	6.7	9.5	12.4	16.7	15.6	15.5	16.5	14.5	10.7	9.2	8.9	9.5	8.9	12.9	16.8	18.2	15.6	**IZS**	19.2	19.2	11.5	24
20	19.9	18.9	17.9	15	12.8	10.5	10.1	8.2	8.2	8	7.4	5.9	5.5	4.7	4.2	3.6	2.8	1.7	1.5	1.2	0.9	**IZS**	2.2	2.1	19.9	7.5	24
21	1.6	1.9	1.5	1.3	1.5	1.5	1.9	1.2	1.5	1.9	1.8	2.3	1.3	1.3	1.6	3.1	4.3	4.4	4.1	2.5	**IZS**	2.7	2.1	1.8	4.4	2.1	24
22	2.2	1.8	2	2.2	2.6	4.3	2	1.1	0.6	0.4	1	0.5	0.5	0.5	0.4	0.3	0.3	0.5	0.6	**IZS**	1	1.5	1	0.8	4.3	1.2	24
23	0.7	0.6	0.5	0.6	0.6	0.6	0.5	0.7	0.6	0.7	0.6	0.7	0.7	0.8	1	1	0.8	1	**IZS**	2.2	2.2	2.4	3.2	1.9	3.2	1.1	24
24	2.4	2.5	2.6	2.5	3.3	3.7	3.6	4.1	6.3	6.7	7.5	7.5	5.3	5	4.5	4.1	4.5	**IZS**	3.3	2.4	3.5	3	2.9	3.3	7.5	4.1	24
25	3.2	2.7	2.1	1.8	1.7	1.8	1.7	1.9	2.2	2.7	3	3.3	2.5	2.3	2.3	2.4	**IZS**	2.6	2.6	2.3	2.1	2.2	2.2	2.3	3.3	2.3	24
26	2	1.9	2.2	2.2	2.4	1.9	1.5	1.6	1.3	1.1	1.1	1.5	1.5	2.4	3.7	**IZS**	6.6	6.7	7.5	9.2	9.5	6.4	6.6	6.3	9.5	3.8	24
27	8.7	8.2	6.9	6.6	5.8	4.5	4.4	4.2	4.2	4.8	4.5	4.2	4	3.6	**IZS**	3.8	3.3	3.1	3.2	3.5	4.4	3.5	5.2	4.8	8.7	4.8	24
28	5.3	6.6	8	10.5	12.5	10.3	9.2	9.5	10.3	11.5	13.3	15.3	18.2	**IZS**	20.7	21.1	22.1	25.6	25.4	**26.1**	25.6	21.2	17.6	14.2	**26.1**	**15.7**	24
29	11.1	9.6	10	11.9	10.4	8.7	6.9	4.3	2.4	1.7	0.8	0.6	**IZS**	1.8	1.1	0.8	1.1	0.9	0.9	1	0.8	0.2	0.2	0.6	11.9	3.8	24
30	0.2	0.1	0	0.3	0.6	2.2	1.9	1.7	1.2	0.9	0.9	**IZS**	2.8	3.1	2.9	2.9	3.3	3.5	3.3	3.7	3.6	3.6	4.2	4.1	4.2	2.2	24
31	4	4.3	4.4	4.5	4.3	4.5	5.4	5.5	6.3	8.6	**IZS**	9.9	10	9.4	9.7	8.9	9.3	9.3	8.5	8.9	9.2	7.7	2.3	1	10	6.8	24
HOURLY MAX	20	19	23	21	15	13	15	20	17	16	16	17	18	11	21	21	22	26	25	26	26	21	18	19			
HOURLY AVG	5.6	5.2	5.8	5.7	5.1	5.1	5.0	4.8	4.8	4.6	4.7	5.2	5.1	4.0	4.5	4.5	5.0	5.1	5.1	5.4	5.6	5.2	4.4	4.9			

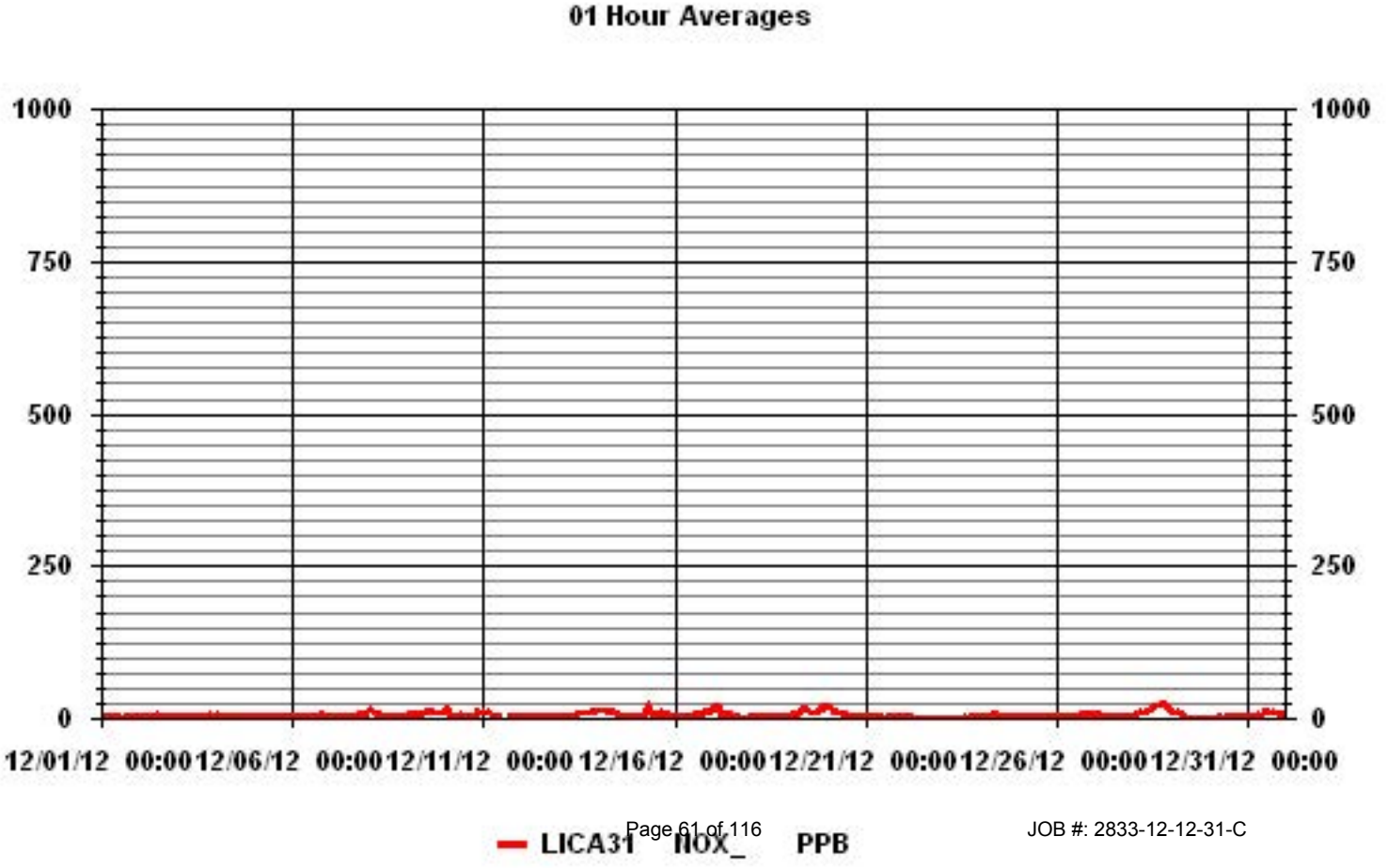
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703						
MAXIMUM 1-HR AVERAGE:	26.1	PPB	@ HOUR(S)	19	ON DAY(S)	28	
MAXIMUM 24-HR AVERAGE:	15.7	PPB			ON DAY(S)	28	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	4.38		MONTHLY AVERAGE:		5.03	PPB	



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

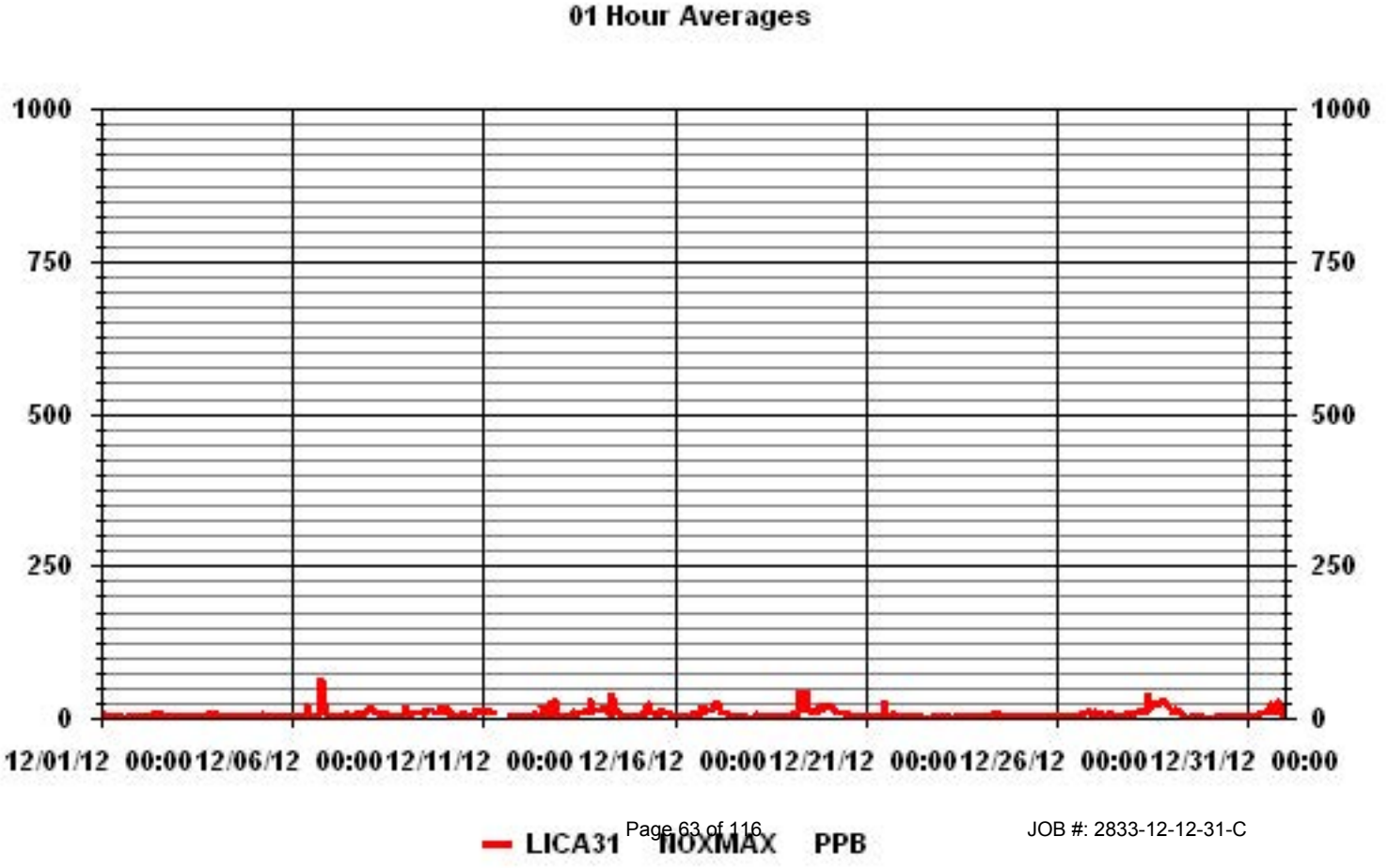
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.7	4.4	5.5	6.2	4.6	3.9	3.6	3.4	2.7	2.4	1.7	1.8	1.6	1.5	1.7	2.7	2	**IZS**	2.3	2.1	2.6	2.3	2.4	2.4	6.2	2.9	24
2	2.6	2.3	2.1	2.1	3.4	4.8	4.2	4.2	6.7	6.4	6.3	6.7	6.9	6.4	6.2	3.6	**IZS**	3.3	3.4	3.9	3.8	2.7	2.5	2.6	6.9	4.2	24
3	3.3	2.7	3.3	3.2	4.1	4.1	2.8	3.1	3	2.2	4	3.1	2.7	3.2	3.8	**IZS**	6.1	7.5	5.6	5.6	8.6	7.4	5.9	5	8.6	4.4	24
4	6	6	5.7	4.8	4.8	5.1	3.3	3	3.7	3.7	3.3	4.4	4.1	2.3	**IZS**	3.9	3.6	3.7	3.8	3.5	3.3	3.2	3.2	4.2	6	4.0	24
5	4.1	3.3	3.8	3.7	3.5	5.7	6.2	5.2	3.3	4.6	4	5.2	6.2	**IZS**	5.9	4.2	4.2	4.5	3.7	3.2	3.7	2.7	2.6	2.7	6.2	4.2	24
6	2.9	2.4	2.4	2.7	3.1	3.5	4.7	3.9	3.2	22.5	3.2	3.1	**IZS**	3.1	4.2	4.4	5.6	10.7	**64.4**	4.5	27.9	11.9	2.5	3.1	**64.4**	8.7	24
7	3.1	2.8	2.9	3.3	4.8	4.2	3.3	2.9	3.7	6.4	6.5	**IZS**	6.1	5.2	4.1	4.6	6.9	7.2	7.6	7.1	6.7	6.7	7.2	14.2	14.2	5.5	24
8	16	18.4	17.9	11.1	10.6	9	9.5	8.2	5.6	5.6	**IZS**	6.1	5.7	5.3	4.9	4.9	4.7	5.8	5	4.1	4.8	4.6	5.6	19.9	19.9	8.4	24
9	4.9	6.4	7.1	8.8	8.5	8.4	9.4	8.6	9.6	**IZS**	8.9	12.2	10.8	11.6	12.2	12.3	12.4	12.8	10.3	10	9.5	18.3	9.9	10.7	18.3	10.2	24
10	16.5	17.2	14.6	9.4	7	5.9	6.8	4.7	**IZS**	5.2	8.7	9	8.2	4.9	6	5.2	5.8	5.2	4.7	11.5	11.9	11.5	9.9	11	17.2	8.7	24
11	11.1	10.5	10.6	13.5	13	10.7	9.8	**IZS**	8.7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3.9	4.1	3.6	2.9	3.1	2.7	2.5	13.5	7.4	24
12	2.5	3.1	3.5	3.8	3.8	4.3	**IZS**	7.8	3.1	2.6	3.5	2.9	M	17.3	2.6	7.6	4.2	7.1	25.6	25.5	6.2	31.9	4.8	4.1	31.9	8.1	23
13	4.5	4.5	4	4	3.4	**IZS**	6.7	5.5	9.6	5.6	6.6	9.2	8.5	10.2	9.2	9.3	9.5	9.7	10.1	32.8	10.2	11	12.1	12.6	32.8	9.1	24
14	13	13.2	13.7	13.7	**IZS**	15.6	13.5	10.6	41.8	11.6	33	19.3	10.6	6.9	5.9	4.6	3.2	2.9	2.7	3	2.8	2.9	2.7	2.6	41.8	10.9	24
15	4.1	3.7	4.1	**IZS**	7	12.5	18.7	23.5	18.8	12	12.1	7.8	7.9	7.7	7.6	11.2	13.2	12.1	8.3	8.5	7.9	7	5.7	4.9	23.5	9.8	24
16	5	5.4	**IZS**	5	4.6	4.4	4.5	4.3	4.3	5.1	6.6	7	6.9	5.6	9.1	7.3	18.9	8.5	10.7	19.3	12.6	13.2	12.5	13.8	19.3	8.5	24
17	18.7	**IZS**	25.9	24.1	21.2	10.9	8.3	8.6	8.3	7.9	7.2	7.2	4.4	5.1	2.8	2.6	2.7	2.3	2	0.9	1.4	1.5	1.7	1.1	25.9	7.7	24
18	**IZS**	3.4	4.7	5.3	5.4	4.4	4.2	4	3.1	4.2	3.9	3.1	2.2	3.2	3.5	4.7	2.6	3.1	1.7	2.5	2.1	2.5	4	**IZS**	5.4	3.5	24
19	4.7	5.9	8	7.8	6.2	12.4	43.8	16.8	17.7	17.2	16.8	43	15.9	13	10.2	9.9	10.7	10.6	16.7	20.4	20.7	17.2	**IZS**	20	43.8	15.9	24
20	21	20.2	19.9	16.9	14.3	11.8	11.4	9.1	9.4	9.2	8.9	7.9	6.4	6	6	4.7	4.4	2.5	2.1	1.8	1.5	**IZS**	3	3	21	8.8	24
21	2.7	2.5	2.4	1.9	1.9	2.3	2.9	1.8	2.7	2.7	2.7	4.6	29.1	4.3	4.6	4.5	5.9	6	6.2	4.1	**IZS**	3.7	3.8	2.7	29.1	4.6	24
22	3.1	2.5	2.7	2.8	3.9	5.2	3.5	1.8	1.3	1.1	1.9	1.2	1.1	1.2	0.9	0.9	0.9	1.3	1.4	**IZS**	1.6	2.2	1.9	1.4	5.2	2.0	24
23	1.4	1.2	1.1	1.4	1.6	1.6	1	1.5	1.2	1.2	1.2	1.4	1.3	1.5	1.8	1.5	1.4	1.7	**IZS**	3	2.8	3.7	4	2.9	4	1.8	24
24	3.1	3.2	3.5	3.5	4	4.5	4.2	4.9	8	8.1	8.8	8.2	7.7	8.2	5.3	4.7	6	**IZS**	5.1	3.1	5	4	4.3	4.1	8.8	5.3	24
25	3.7	3.4	3.1	2.6	2.4	3.3	2.2	3.3	3	3.6	3.9	3.9	3.3	3	2.9	3.2	**IZS**	3.6	4.9	3.2	3.2	2.8	3.2	2.9	4.9	3.2	24
26	2.8	3	3.2	2.8	3	3	2.5	2.2	2	1.8	1.7	2.3	2	3.5	4.4	**IZS**	7.5	7.2	8.4	11.1	11	7.5	7.6	8.3	11.1	4.7	24
27	9.5	9.5	7.6	7.4	6.4	5.9	7.1	5.1	5.3	5.5	5.2	5.7	6.4	5.6	**IZS**	5.4	5	5.5	4	8.5	7.1	4.4	7.3	5.9	9.5	6.3	24
28	6.3	8.1	9.6	11.9	13.8	11.9	9.7	10.6	11.3	40.5	15.2	29.8	22.1	**IZS**	22.1	23	24.4	27.4	27.1	27.4	27.3	22.8	19.5	17.5	40.5	19.1	24
29	12.5	10.8	13.6	13.6	12.1	10.9	8.8	6	3.8	2.5	2	1.5	**IZS**	2.7	2	1.6	2	1.5	1.7	1.8	1.6	0.8	0.9	1.4	13.6	5.0	24
30	0.8	0.5	0.6	0.9	2.2	2.9	2.6	2.3	1.8	1.5	1.5	**IZS**	3.4	3.7	3.5	3.7	4.4	4.5	4.1	4.5	4.3	4.5	5	4.8	5	3.0	24
31	4.5	5.1	5.2	5.1	4.9	5.3	8.4	6.6	7.5	11	**IZS**	12.3	14.5	20	11.9	11.1	18.9	22.8	10.5	28.2	22.3	9.7	4.9	1.9	28.2	11.0	24
HOURLY MAX	21	20	26	24	21	16	44	24	42	41	33	43	29	20	22	23	24	27	64	33	28	32	20	20			
HOURLY AVG	6.6	6.2	7.1	6.8	6.3	6.6	7.6	6.1	7.1	7.4	6.8	8.2	7.6	6.2	5.9	6.0	7.0	7.1	8.9	9.0	7.9	7.6	5.4	6.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	64.4	PPB	@ HOUR(S)	18	ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	6.58					



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

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	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	3.69	3.69	5.12	12.37	12.66	4.12	5.26	6.68	3.55	9.24	9.24	2.98	4.83	3.69	7.68	5.12	

Calm : .00 %

Total # Operational Hours : 703

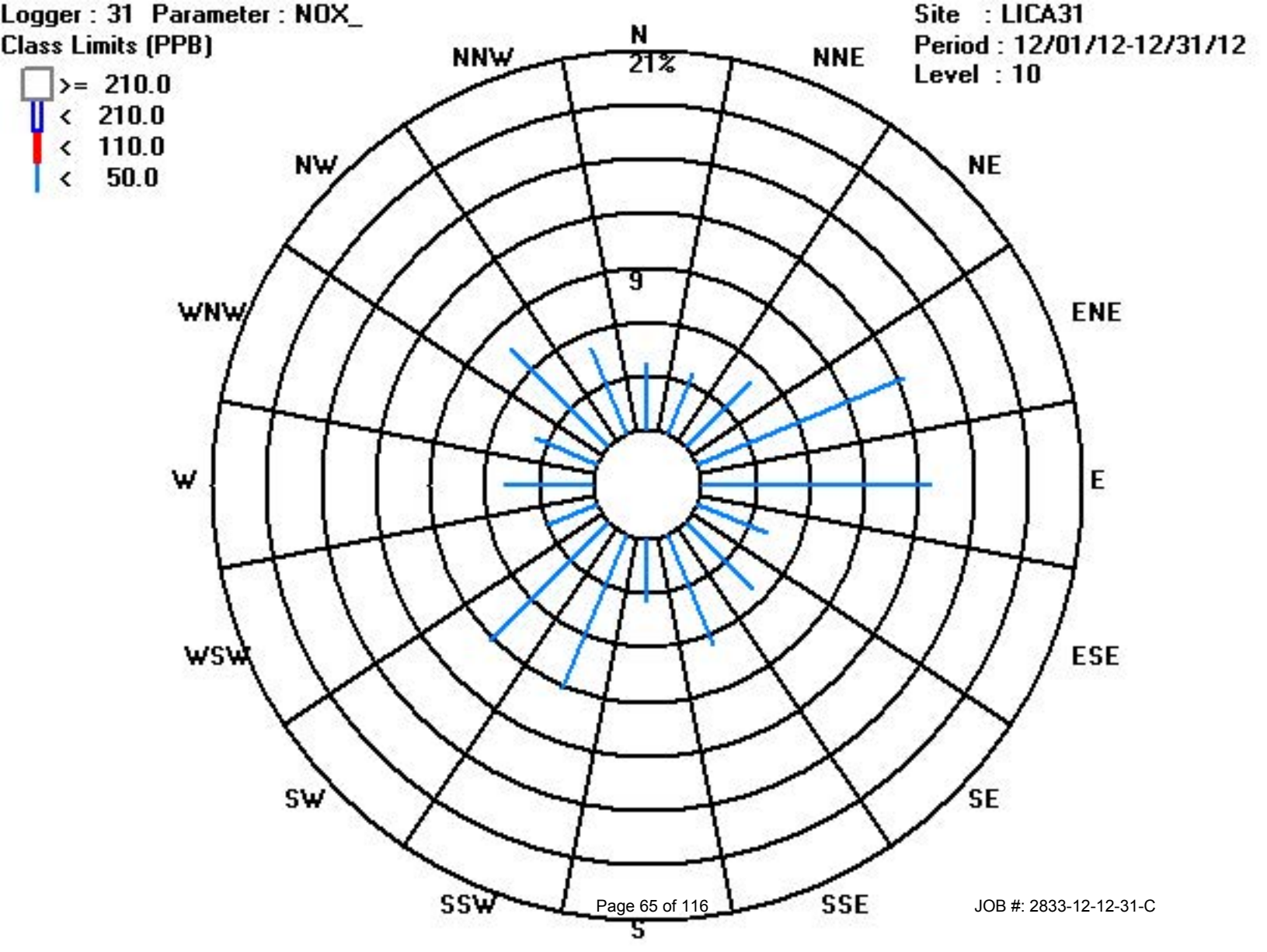
Distribution By Samples

Direction

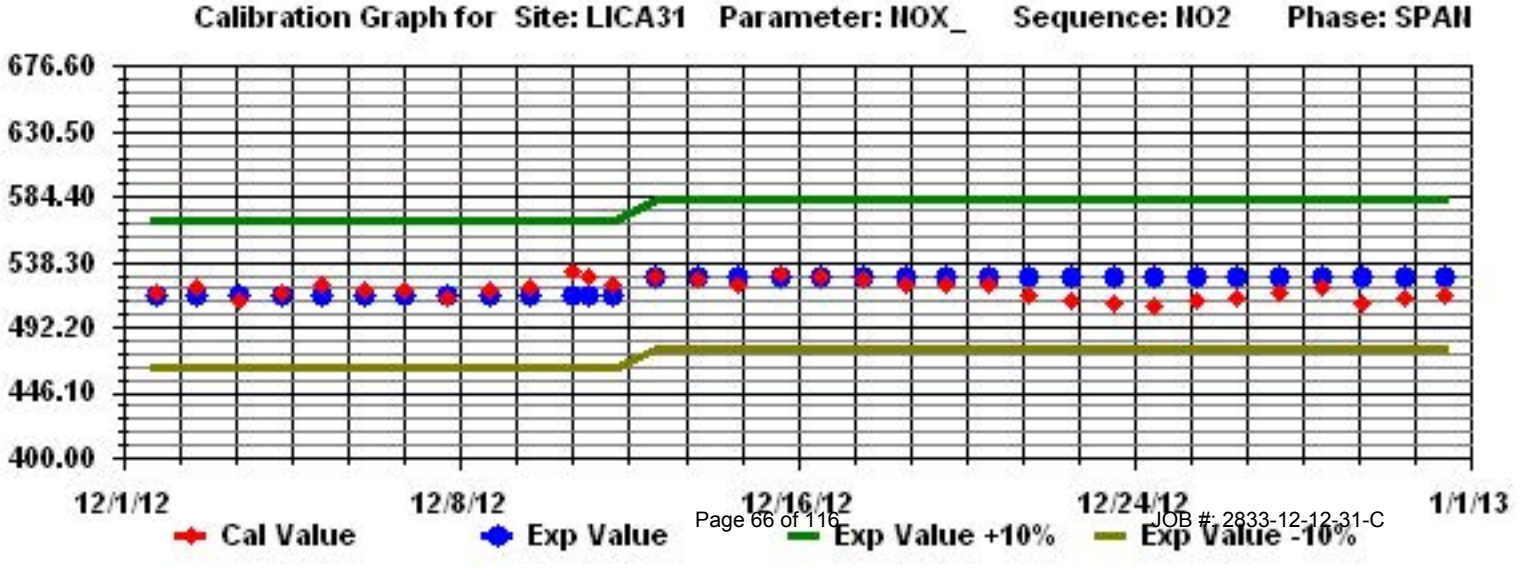
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	703
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	26	26	36	87	89	29	37	47	25	65	65	21	34	26	54	36	

Calm : .00 %

Total # Operational Hours : 703



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


Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN
676.60
630.50
584.40
538.30
492.20
446.10
400.00
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

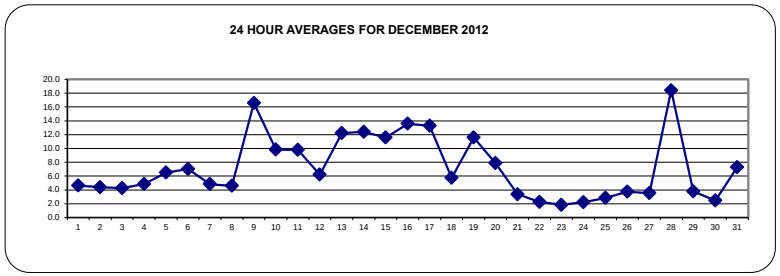
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3	1	9	5	1	5	4	0	9	0	3	10	4	1	**N**	3	4	0	9	10	4	7	7	8	10	4.7	23
2	9	5	6	8	1	7	11	1	8	1	5	6	3	0	9	0	0	0	4	5	1	**N**	4	7	11	4.4	23
3	8	3	2	6	3	7	4	4	4	1	3	0	2	0	**N**	6	3	2	3	4	7	11	4	11	11	4.3	23
4	10	14	12	6	0	0	4	2	**N**	4	6	0	7	6	0	0	2	8	1	4	9	9	7	1	14	4.9	23
5	7	1	0	7	**N**	2	4	5	6	**N**	6	9	10	15	4	1	11	10	6	3	10	2	13	11	15	6.5	22
6	1	10	10	14	10	14	5	8	6	9	6	2	7	11	2	4	5	6	9	2	8	7	8	5	14	7.0	24
7	9	2	2	4	8	6	4	5	4	1	11	2	5	0	6	8	3	4	6	5	2	9	0	10	11	4.8	24
8	10	14	7	10	9	6	4	3	4	2	5	5	3	2	2	1	3	3	0	2	2	9	2	2	14	4.6	24
9	7	12	14	9	15	20	18	18	14	12	16	13	15	17	18	18	22	25	25	16	17	22	14	21	25	16.6	24
10	17	22	23	3	14	4	4	1	7	5	11	13	11	6	5	10	5	9	4	9	17	12	14	10	23	9.8	24
11	15	10	14	15	11	14	14	12	13	11	13	9	19	**M**	**M**	**M**	1	5	6	1	7	4	6	6	19	9.8	21
12	2	9	11	6	12	3	8	12	7	0	**N**	0	**N**	0	1	4	8	8	1	7	4	15	8	11	15	6.2	22
13	15	10	7	7	11	5	2	5	12	12	20	17	17	7	20	8	15	13	7	17	17	21	11	17	21	12.2	24
14	20	18	21	20	19	20	17	16	21	9	10	23	22	3	10	**N**	0	7	6	4	7	2	3	7	23	12.4	23
15	12	7	2	13	15	11	21	23	21	17	11	15	11	0	11	14	14	3	15	14	6	5	9	8	23	11.6	24
16	3	9	11	15	15	8	12	9	17	3	6	11	11	13	5	22	14	10	18	18	24	20	23	29	29	13.6	24
17	25	33	29	**36**	30	16	21	19	14	**C**	**C**	**C**	1	3	5	7	6	3	4	8	3	6	5	5	**36**	13.3	24
18	3	4	4	8	7	4	6	4	4	6	7	10	5	6	12	0	6	9	7	3	6	7	4	6	12	5.8	24
19	5	9	10	9	9	11	22	17	15	17	11	13	12	8	14	11	7	9	4	10	14	14	15	12	22	11.6	24
20	15	16	15	11	14	12	9	4	13	9	4	9	7	4	9	**C**	0	1	3	3	10	0	6	7	16	7.9	24
21	2	2	5	8	1	10	3	3	6	7	1	5	5	2	3	0	3	3	1	0	4	3	2	2	10	3.4	24
22	2	6	2	2	0	1	3	3	0	0	0	3	2	4	2	2	3	2	5	0	2	4	2	4	6	2.3	24
23	1	2	5	1	1	4	0	4	1	0	5	0	0	1	1	2	1	2	2	3	2	1	4	1	5	1.8	24
24	0	1	3	1	4	3	3	5	2	3	4	1	0	2	2	0	5	4	2	1	4	3	0	0	5	2.2	24
25	5	4	0	8	0	2	0	1	3	2	3	1	1	6	4	2	3	1	4	5	2	4	3	4	8	2.8	24
26	5	4	1	2	3	2	4	4	2	4	4	0	0	1	0	5	6	6	7	11	9	3	4	3	11	3.8	24
27	4	3	2	3	4	0	3	5	4	3	3	6	5	3	3	1	0	4	6	4	4	1	5	9	9	3.5	24
28	10	13	11	23	29	28	23	18	18	16	16	16	19	25	19	21	21	21	20	23	15	16	12	9	29	**18.4**	24
29	9	11	6	9	9	8	7	9	5	2	5	0	0	1	0	2	0	5	0	1	0	0	2	0	11	3.8	24
30	1	0	3	2	2	7	2	1	0	4	0	2	6	0	3	3	0	1	1	4	4	3	6	4	7	2.5	24
31	9	0	7	2	5	3	5	5	8	9	10	15	14	13	12	9	5	9	5	9	10	10	0	1	15	7.3	24
HOURLY MAX	25.0	33.0	29.0	36.0	30.0	28.0	23.0	23.0	21.0	17.0	20.0	23.0	22.0	25.0	20.0	22.0	22.0	25.0	25.0	23.0	24.0	22.0	23.0	29.0			
HOURLY AVG	7.9	8.2	8.2	8.8	8.7	7.8	8.0	7.3	8.3	5.8	7.1	7.2	7.5	5.3	6.5	5.9	5.7	6.2	6.2	6.6	7.5	7.7	6.5	7.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

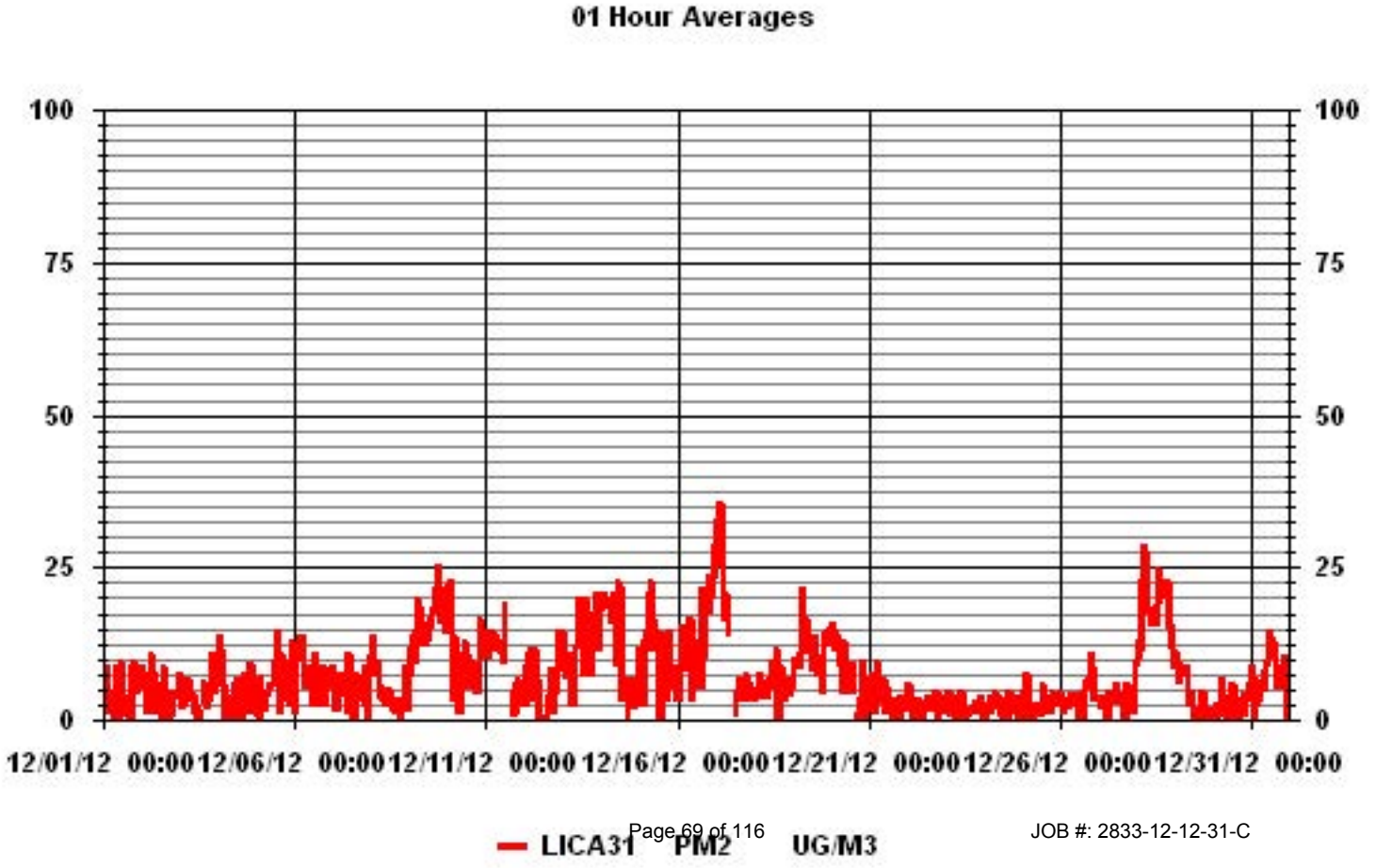
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR - ug/m3 | 24-HR 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	663					
MAXIMUM 1-HR AVERAGE:	36	UG/M^3	@ HOUR(S)	3	ON DAY(S)	17
MAXIMUM 24-HR AVERAGE:	18.4	UG/M^3			ON DAY(S)	28

IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	732	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	98.4	%
STANDARD DEVIATION:	6.27		MONTHLY AVERAGE:	7.19	UG/M^3



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

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	3.43	3.71	4.81	12.51	11.96	4.53	5.22	6.74	3.43	9.07	9.62	2.75	5.08	3.57	7.56	5.50	99.58
<	60	.00	.00	.00	.00	.13	.13	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.41
<	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.43	3.71	4.81	12.51	12.10	4.67	5.22	6.87	3.43	9.07	9.62	2.75	5.08	3.57	7.56	5.50	

Calm : .00 %

Total # Operational Hours : 727

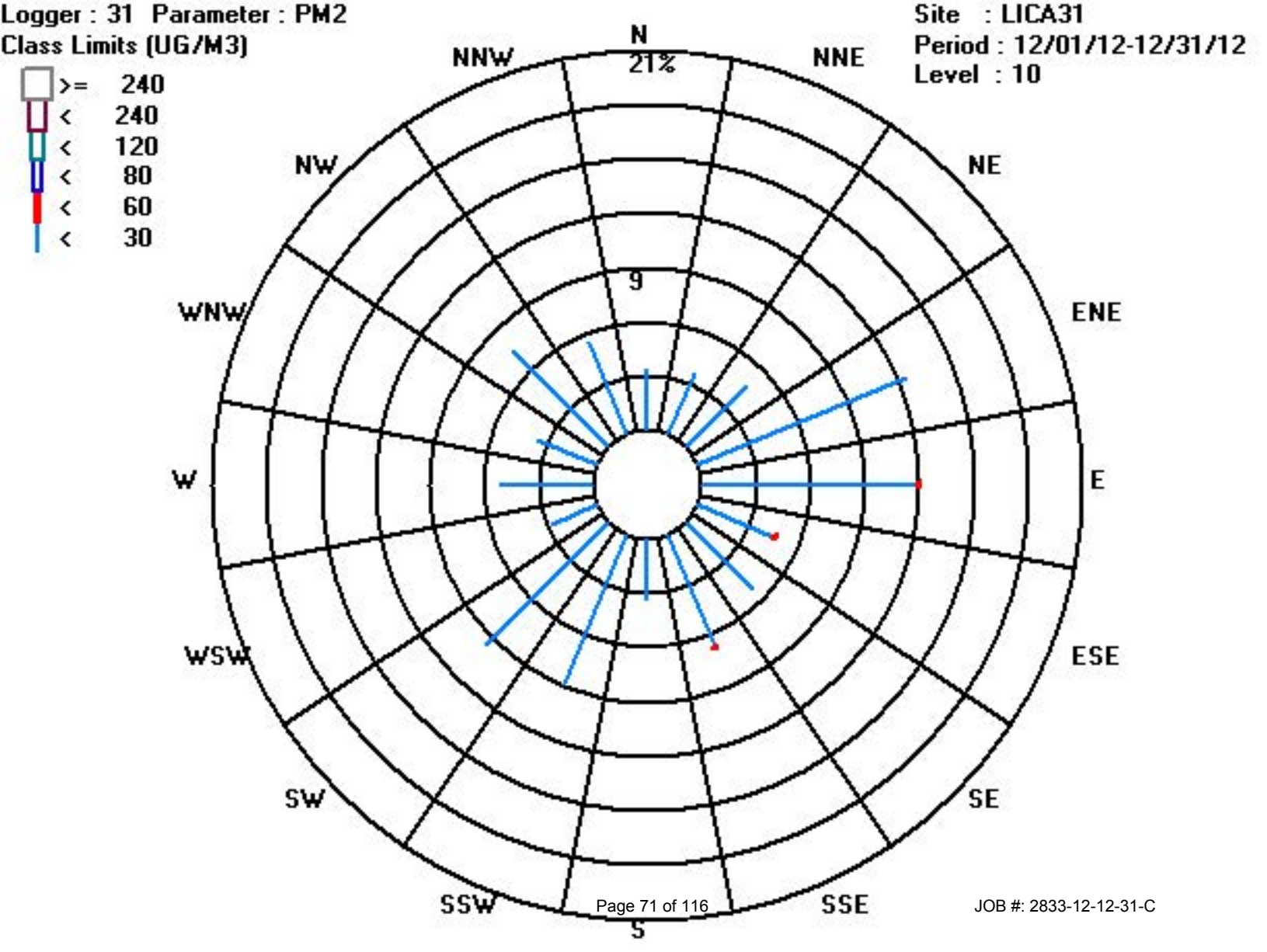
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	25	27	35	91	87	33	38	49	25	66	70	20	37	26	55	40	724
<	60					1	1		1									3
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	25	27	35	91	88	34	38	50	25	66	70	20	37	26	55	40	

Calm : .00 %

Total # Operational Hours : 727



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

Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

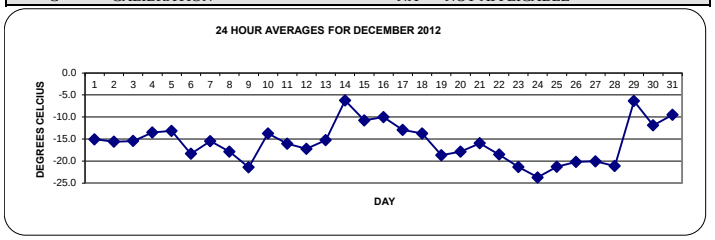
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	-14.8	-14.6	-14.5	-14.7	-14.8	-15	-15.1	-15.2	-15.3	-15.3	-15	-14.5	-14.4	-14.3	-14.6	-15.2	-15.4	-15.4	-15.5	-15.5	-15.5	-15.6	-15.5	-15.9	-14.3	-15.1	24
2	-15.5	-15.6	-16.1	-17	-17.5	-17.7	-17.8	-17.8	-18.3	-17.3	-14.8	-14.8	-14.7	-14.4	-14.1	-13.8	-13.9	-14.1	-14.3	-14.6	-14.7	-14.9	-15.1	-15.2	-13.8	-15.6	24
3	-15.2	-15.2	-15.1	-15.2	-15.4	-15.4	-15.7	-16.6	-16.9	-16.4	-15.3	-14.2	-13.6	-13.5	-14.2	-14.6	-16.5	-16.7	-16.7	-16.3	-16	-15.7	-15.3	-15	-13.5	-15.4	24
4	-14.8	-14.4	-14	-13.7	-13.7	-13.8	-13.5	-13.5	-13.6	-13.4	-13.1	-12.5	-12.5	-12.6	-12.8	-13.1	-13.4	-13.3	-13.3	-13.4	-13.9	-14.4	-14.3	-13.5	-12.5	-13.5	24
5	-13.3	-14.2	-14.5	-13.9	-14.2	-14.2	-14	-14	-14	-13.9	-12.6	-12.8	-11.2	-10.3	-11.9	-12.4	-12.3	-12.3	-12.2	-12.3	-12.6	-13.2	-14.2	-15.2	-10.3	-13.2	24
6	-16.4	-17.4	-18.5	-19.3	-20	-20.4	-21	-21.3	-21.4	-19.6	-18.5	-16.2	-14.6	-13.7	-16.1	-18.9	-19.3	-19.2	-18.6	-18.2	-18.2	-17.9	-17.9	-17.9	-13.7	-18.4	24
7	-17.6	-17.4	-17.2	-17	-16.9	-16.7	-16.5	-16.5	-16.3	-15.8	-15.1	-13.8	-13.6	-13.7	-14	-14.4	-14.6	-14.6	-14.7	-14.9	-14.8	-14.8	-15	-15.2	-13.6	-15.5	24
8	-15.4	-15.3	-15.1	-15	-14.9	-14.6	-14.5	-14.7	-15.1	-15.7	-15.8	-15.3	-16.1	-15.2	-15.9	-17.7	-20.2	-21.5	-22.4	-22.7	-23	-23.6	-24	-25.2	-14.5	-17.9	24
9	-25.4	-26.5	-27.5	**-27.6**	-27.2	-27	-26.5	-26.2	-25.7	-24.2	-22.8	-22	-20.8	-19.7	-18.6	-18.1	-18	-17.4	-16.7	-16.1	-15.6	-15.1	-14.6	-14.6	-14.6	-21.4	24
10	-14.2	-12.8	-12.4	-12.3	-12.7	-12.9	-13.3	-13.2	-13	-12.3	-11.7	-11.8	-11.5	-11.9	-12.7	-13.6	-14.4	-14.8	-15.3	-16.7	-17.1	-16.8	-16.2	-15.8	-11.5	-13.7	24
11	-15.5	-15.8	-15.8	-16.1	-15.9	-16	-15.9	-15.7	-15.7	-15.6	-15.1	-15	-15.1	-14.7	-14.7	-14.7	-15.5	-16.5	-16.7	-17.2	-17.7	-18.1	-18.3	-18.4	-14.7	-16.1	24
12	-18.4	-18.4	-18	-17.7	-17.6	-17.5	-17.5	-17.4	-17.7	-17.9	-17.1	-16.5	-16.3	-16.2	-16	-17.3	-17.6	-17.4	-17.1	-16.9	-16.9	-16.7	-16.6	-16.9	-16.0	-17.2	24
13	-17.3	-17.3	-15.7	-16	-16.4	-17.2	-17.8	-17.9	-18.1	-17	-16.7	-15.5	-14.4	-13.9	-13.7	-13.9	-13.4	-13.4	-13.8	-13.8	-13.6	-13.2	-13.4	-12.6	-12.6	-15.3	24
14	-12.2	-11.3	-10.8	-9.9	-9.1	-8.2	-5.6	-3.9	-4.2	-4.6	-4.3	-3.6	-2.4	-1.8	-2.1	-2.6	-3.3	-4.4	-5.6	-6.6	-7.2	-7.9	-8.6	-9.3	-1.8	**-6.2**	24
15	-10.5	-11	-11.4	-12.7	-12.8	-13.8	-14.5	-14.7	-14.8	-12.9	-11.1	-9.1	-7.4	-6	-6.4	-8.5	-10.6	-10.7	-10.1	-10	-10.5	-10.1	-9.6	-9	-6.0	-10.8	24
16	-9.2	-9.7	-9.6	-9.3	-9.2	-9.6	-10	-10.4	-11	-11.3	-10.1	-9.1	-8.3	-7.6	-8.4	-8.9	-9.4	-9.6	-9.8	-10.5	-11.5	-12	-12.4	-13	-7.6	-10.0	24
17	-13.1	-12.4	-12.2	-12.6	-15.4	-14.8	-13.3	-13	-13.1	-13.9	-13	-12.1	-11.4	-11	-11.7	-12.5	-12.4	-12.2	-12.2	-12.3	-13	-14.1	-14.2	-14.3	-11.0	-12.9	24
18	-14.3	-14	-13.7	-13.8	-14.1	-14.3	-14.1	-14.1	-14.4	-14.1	-13.5	-12.6	-11.9	-11.8	-12.3	-12.9	-13.3	-13.5	-13.7	-13.7	-13.7	-14	-14.9	-16.6	-11.8	-13.7	24
19	-17.7	-18.4	-19.7	-20.7	-22.8	-23.8	-23.9	-23.9	-23	-21.3	-18.8	-15.4	-14.8	-12.2	-12.4	-13.1	-15.3	-14.7	-16.3	-18.1	-20.7	-19.6	-20.8	-20.9	-12.2	-18.7	24
20	-21.1	-20.7	-20.4	-20.6	-20.4	-20.2	-21	-20.5	-21	-20.1	-18.5	-17.8	-16.4	-15.7	-15.4	-15.4	-15	-15	-15.6	-15.8	-16	-15.8	-15.5	-15.1	-15.0	-17.9	24
21	-14.8	-14.9	-14.9	-14.9	-15.5	-15.6	-14.9	-14.7	-14.7	-14	-13.9	-13.9	-14.1	-14.4	-14.4	-15.4	-17.4	-17.7	-18.8	-19.8	-19.5	-19.1	-18.2	-17.8	-13.9	-16.0	24
22	-18	-18.2	-18.3	-18.6	-19	-19.2	-19.1	-19.3	-19.1	-18.5	-18.1	-17.8	-17.7	-17.7	-18.1	-18.4	-18.5	-18.5	-18.6	-18.6	-18.6	-18.8	-18.7	-18.7	-17.7	-18.5	24
23	-18.9	-19.4	-19.8	-20.4	-21.1	-21.8	-22.2	-22.3	-22.3	-22.2	-21.9	-21.4	-20.9	-20.9	-21.2	-21.6	-21.7	-21.7	-21.6	-21.5	-21.6	-21.7	-22	-22.3	-18.9	-21.4	24
24	-22.3	-22.2	-22.5	-23.3	-24	-24.6	-25.1	-25.4	-26.4	-26.5	-24.4	-21.9	-21.6	-23.7	-24.8	-24.8	-24.4	-23.9	-23.7	-23.3	-23	-22.6	-22.3	-22.2	-21.6	**-23.7**	24
25	-21.9	-21.8	-22.2	-22.4	-22.8	-22.9	-23.2	-23.7	-23.6	-23.3	-21.4	-18.6	-17.4	-16.4	-17.8	-20.7	-21.7	-21.4	-21.2	-21.2	-21.1	-21.2	-21.2	-21.7	-16.4	-21.3	24
26	-21.8	-21.8	-22	-22.4	-22.8	-22.9	-22.7	-22.5	-21.6	-20.3	-17.3	-16.9	-16.7	-17.7	-17.8	-18.1	-19.3	-20.3	-20.5	-20.2	-19.9	-19.6	-19.7	-19.7	-16.7	-20.2	24
27	-19.8	-19.9	-19.8	-19.7	-19.8	-19.9	-19.7	-19.5	-19.7	-19.3	-18.5	-17.5	-16.9	-16.9	-17.3	-18.5	-20	-20.7	-21.1	-22.1	-22.6	-22.5	-23.5	-26.1	-16.9	-20.1	24
28	-26.8	-27.2	-26.8	-26.1	-27	-26	-26.1	-26.4	-26.2	-24.9	-23.1	-21.4	-19.8	-19.8	-19.9	-19.5	-18.8	-18.3	-17.8	-17.4	-15.2	-11.4	-10.9	-10.6	-10.6	-21.1	24
29	-9.2	-8.7	-9	-10.5	-10.4	-9.4	-8.7	-7.9	-7.2	-6.5	-4.9	-3.2	-1.7	-1	-2.1	-3.8	-4.4	-4.8	-5.1	-5.4	-6.2	-7.1	-7.2	-8.1	-1.0	-6.4	24
30	-9	-10.3	-11.1	-11.6	-12.1	-14.1	-15	-15	-14.3	-13.6	-12.7	-12.1	-11.5	-11	-10.7	-10.8	-11	-11.3	-11.5	-11.5	-11.4	-11.1	-11	-11.3	-9.0	-11.9	24
31	-11.5	-11.5	-11.7	-11.7	-12.5	-13.1	-14.4	-14.4	-14.1	-13	-12.1	-10.8	-9.4	-7.4	-6	-7.1	-7.4	-7.7	-8.1	-7.4	-6.9	-6	-2.8	**-0.8**	**-0.8**	-9.5	24
HOURLY MAX	-9.0	-8.7	-9.0	-9.3	-9.1	-8.2	-5.6	-3.9	-4.2	-4.6	-4.3	-3.2	-1.7	-1.0	-2.1	-2.6	-3.3	-4.4	-5.1	-5.4	-6.2	-6.0	-2.8	-0.8			
HOURLY AVG	-16.3	-16.4	-16.5	-16.7	-17.0	-17.2	-17.2	-17.1	-17.2	-16.6	-15.5	-14.5	-13.8	-13.5	-13.8	-14.5	-15.1	-15.3	-15.4	-15.6	-15.7	-15.6	-15.6	-15.8			

STATUS FLAG CODES

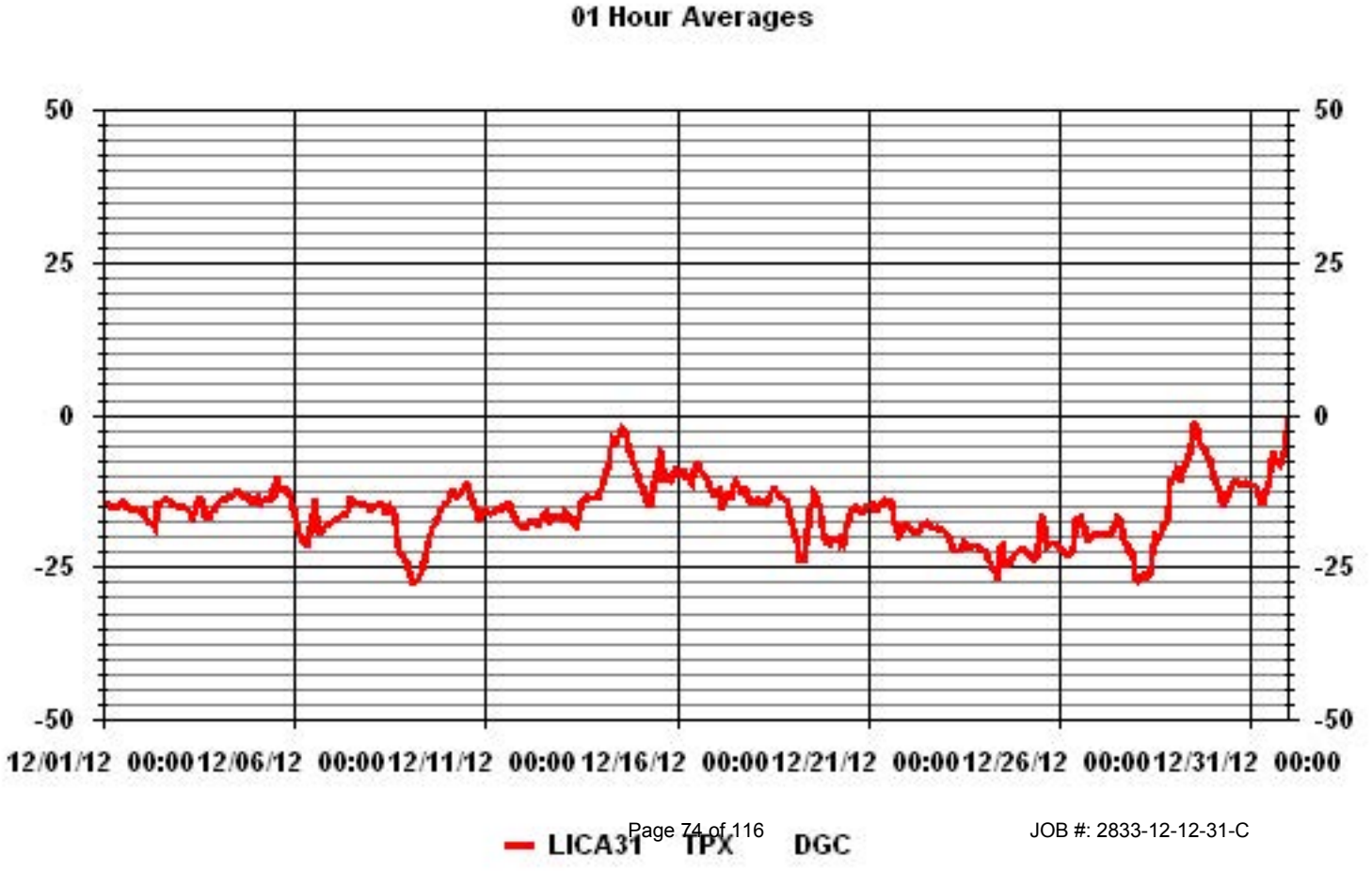
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-27.6	^{o}C	@ HOUR(S)	3	ON DAY(S)	9
MAXIMUM 1-HR AVERAGE:	-0.8	^{o}C	@ HOUR(S)	23	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	-6.2	^{o}C			ON DAY(S)	14

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	4.88		MONTHLY AVERAGE:	-15.75	^{o}C



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

Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

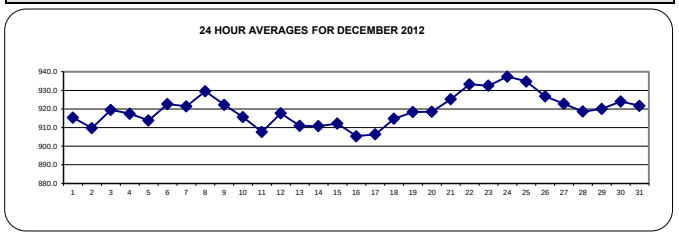
BAROMETRIC PRESSURE hourly averages (millibar)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	918	918	918	918	918	918	917	917	917	916	917	916	915	915	914	914	914	913	913	913	913	913	912	912	918	915.4	24
2	912	912	912	911	910	910	910	910	910	909	909	908	908	908	908	908	908	909	909	909	909	910	911	912	912	909.7	24
3	912	914	914	915	915	916	916	917	917	918	919	919	919	920	921	921	922	923	923	924	925	925	926	926	926	919.5	24
4	926	926	926	926	925	924	924	923	922	921	920	919	917	915	914	912	911	911	910	910	909	909	909	910	926	917.5	24
5	910	910	909	910	910	911	910	910	911	911	912	912	912	913	914	916	917	918	918	919	919	920	920	921	921	913.9	24
6	921	921	922	922	922	922	922	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	924	924	922.7	24
7	923	923	923	923	923	922	922	922	922	922	922	921	921	921	921	920	920	920	920	920	920	921	921	922	923	921.5	24
8	922	923	923	924	925	926	926	927	928	929	930	931	931	931	932	932	933	933	933	933	934	934	934	934	934	929.5	24
9	933	933	932	932	931	930	929	928	927	925	924	923	921	920	918	917	916	915	915	914	913	913	912	912	933	922.2	24
10	912	913	913	914	914	914	914	914	915	915	916	917	917	917	918	918	918	918	918	917	917	916	916	915	918	915.7	24
11	914	913	912	910	909	908	907	906	905	905	905	904	904	904	904	905	906	907	907	908	909	910	911	912	914	907.7	24
12	913	913	914	915	916	916	917	917	918	918	919	919	920	919	919	920	920	920	919	919	919	919	918	918	920	917.7	24
13	917	916	916	915	914	914	913	912	912	911	911	910	910	909	909	909	908	908	908	908	908	908	908	908	917	910.9	24
14	908	908	908	908	908	908	908	909	909	910	910	911	911	911	912	912	913	913	913	914	914	914	914	914	914	910.8	24
15	915	915	915	915	915	915	915	915	914	914	914	914	913	913	913	912	911	910	909	908	908	907	907	906	915	912.2	24
16	906	905	905	905	904	904	904	904	904	904	905	905	905	905	906	906	906	907	907	907	907	906	906	906	907	905.4	24
17	906	906	906	906	905	905	904	905	905	905	906	906	906	906	906	906	907	907	907	908	908	908	909	910	910	906.4	24
18	910	911	911	912	912	913	913	914	914	915	915	915	916	916	916	916	916	917	917	917	917	917	917	917	917	914.8	24
19	917	917	917	917	918	918	918	918	918	918	918	919	919	919	919	919	919	919	919	919	919	919	919	919	919	918.4	24
20	919	919	919	919	919	920	920	919	920	919	920	919	918	919	918	918	918	917	917	918	917	918	917	918	920	918.5	24
21	918	919	919	919	920	921	921	922	923	924	925	925	926	926	927	928	929	929	930	930	931	931	932	932	932	925.3	24
22	932	933	933	934	934	933	933	934	934	934	934	934	934	934	933	933	933	933	933	933	933	932	932	932	934	933.2	24
23	932	932	932	932	932	932	932	932	932	933	933	933	933	932	932	932	933	933	933	933	933	933	933	933	933	932.5	24
24	933	934	935	935	935	935	936	936	937	938	938	938	938	939	939	939	939	939	939	939	939	939	939	939	**939**	**937.4**	24
25	939	939	938	938	938	937	937	937	937	936	936	935	935	934	934	933	933	932	932	932	931	931	930	930	**939**	934.8	24
26	930	929	929	929	928	928	927	927	927	927	927	927	927	926	926	926	926	926	925	925	925	925	925	925	930	926.8	24
27	924	924	924	924	923	923	923	923	923	923	923	923	923	922	922	922	923	923	923	922	922	922	922	922	924	922.8	24
28	922	922	921	921	920	920	920	919	919	919	919	918	918	917	917	917	917	917	917	917	917	917	917	918	922	918.6	24
29	918	918	918	918	918	918	918	918	919	919	920	920	920	921	921	921	921	921	922	922	922	923	923	923	923	920.1	24
30	924	924	924	925	925	925	925	925	925	925	925	925	924	924	924	924	924	924	923	923	922	922	922	922	925	924.0	24
31	922	922	922	922	922	922	921	921	921	922	922	922	922	922	922	922	922	922	922	921	921	921	921	922	922	921.7	24
HOURLY MAX	939	939	938	938	938	937	937	937	937	938	938	938	938	939	939	939	939	939	939	939	939	939	939	939			
HOURLY AVG	920	920	920	920	920	920	919	919	920	920	920	920	920	919	919	919	920	920	919	920	919	920	920	920			

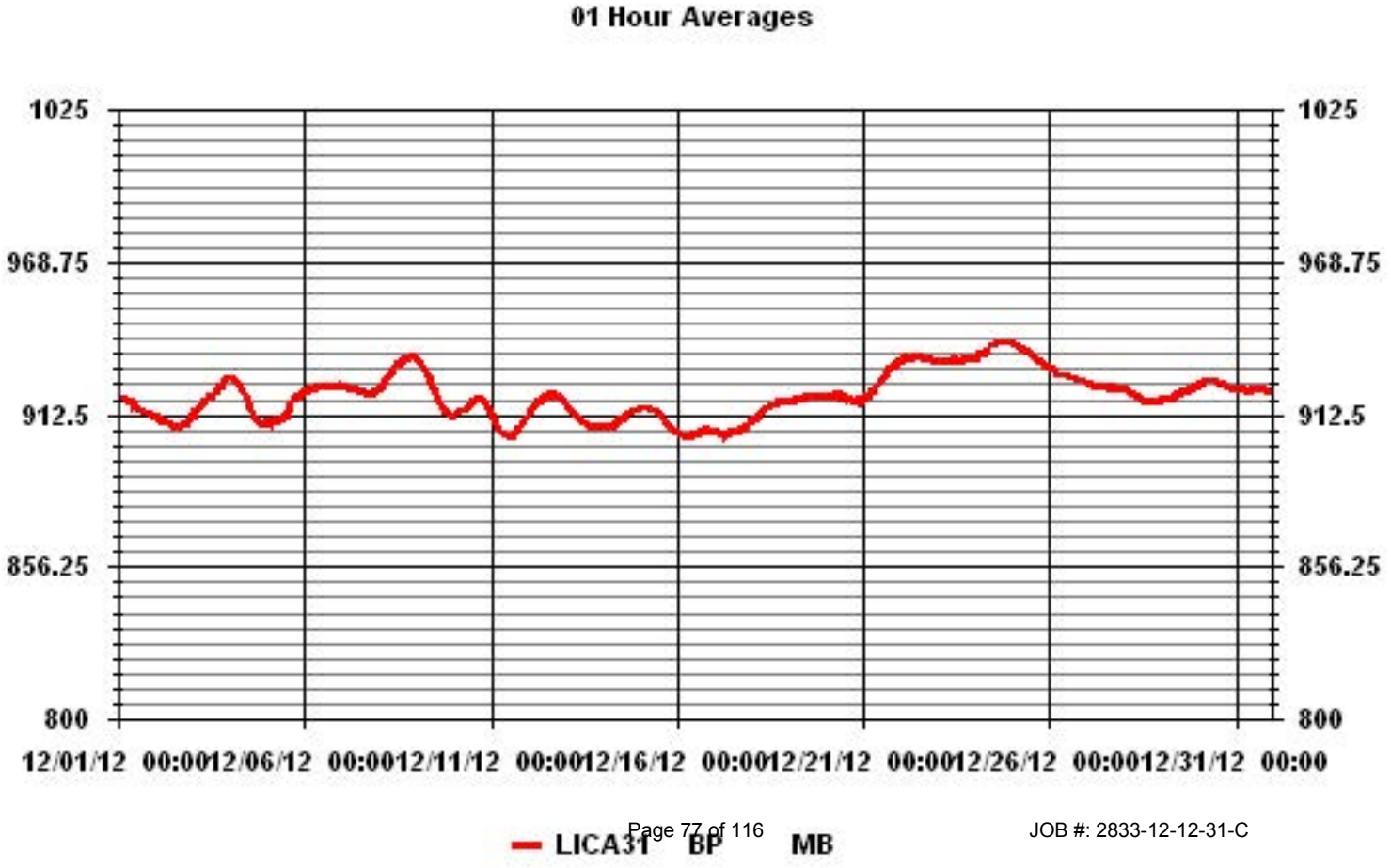
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	939	MB	@ HOUR(S)	VAR	ON DAY(S)	24, 25
MAXIMUM 24-HR AVERAGE:	937.4	MB			ON DAY(S)	24
				VAR-VARIOUS		
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		744	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	8.62		MONTHLY AVERAGE:		920	MB



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

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

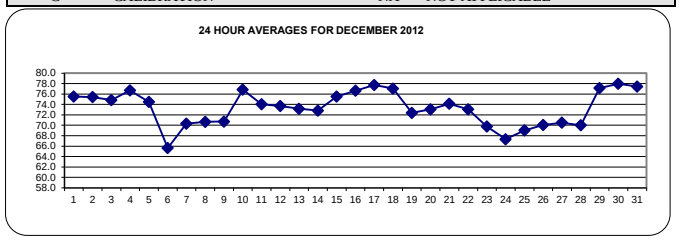
RELATIVE HUMIDITY hourly averages (%)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	77	76	76	76	76	76	76	76	75	75	74	74	74	74	75	75	76	76	76	76	76	76	76	75	77	75.5	24
2	76	76	75	75	75	74	74	74	74	74	74	74	74	75	76	77	77	77	77	77	77	76	76	76	77	75.4	24
3	76	76	76	76	76	76	75	75	74	74	74	74	73	73	73	73	75	75	75	75	75	75	76	76	76	74.8	24
4	76	77	77	78	78	77	78	78	77	77	77	76	76	75	74	75	75	76	77	77	78	77	77	77	78	76.7	24
5	77	77	78	77	77	77	77	77	77	77	76	76	70	67	72	74	75	74	74	74	72	71	71	71	78	74.5	24
6	73	72	72	74	74	73	73	73	72	65	60	54	50	48	54	63	64	65	64	64	66	67	68	68	74	65.7	24
7	67	68	68	69	69	69	70	70	70	70	68	66	65	62	65	70	74	75	76	75	75	75	75	76	76	70.3	24
8	75	75	76	76	76	76	76	76	75	73	69	64	62	56	57	62	69	71	71	71	72	73	73	72	76	70.7	24
9	71	69	67	67	67	67	67	67	67	67	67	68	70	71	72	73	73	74	74	75	75	76	76	77	77	70.7	24
10	77	78	79	79	78	78	78	78	78	78	78	78	77	76	76	76	76	76	76	76	74	74	75	75	79	76.8	24
11	75	75	75	74	75	75	75	75	75	75	74	73	73	73	73	73	74	74	74	74	74	73	73	73	75	74.0	24
12	73	73	73	73	73	74	74	74	73	73	74	74	74	74	74	73	73	74	74	74	74	74	75	75	75	73.7	24
13	75	75	76	75	75	74	74	74	73	73	74	75	74	73	72	72	72	72	72	72	72	71	71	70	76	73.2	24
14	70	69	70	70	70	72	71	71	75	80	81	75	68	65	67	68	70	72	74	75	76	78	80	81	81	72.8	24
15	82	81	81	80	80	79	78	78	77	76	75	75	73	67	68	70	73	74	73	73	74	75	75	75	82	75.5	24
16	75	76	77	76	76	77	77	78	79	79	76	73	70	67	70	73	78	80	81	81	81	80	80	79	81	76.6	24
17	78	77	78	77	77	77	78	78	78	77	77	78	78	78	78	78	78	78	79	79	78	78	77	77	79	77.7	24
18	77	77	77	77	77	77	77	77	77	77	77	78	78	78	77	78	77	77	77	77	77	77	76	75	78	77.0	24
19	74	74	73	71	70	69	69	69	69	70	72	73	73	74	75	76	76	76	74	73	72	73	71	71	76	72.4	24
20	71	72	71	71	71	71	71	71	71	71	72	72	73	73	74	75	76	76	75	75	75	75	75	76	76	73.0	24
21	76	76	76	76	76	76	76	76	76	76	76	75	73	72	70	70	72	73	73	73	73	73	73	73	76	74.1	24
22	74	75	75	74	73	73	73	72	73	73	73	72	72	72	72	73	73	73	73	73	73	73	73	73	75	73.0	24
23	72	72	72	71	70	70	69	69	69	69	69	69	69	68	69	69	70	70	70	70	70	70	69	69	72	69.8	24
24	69	69	69	69	68	68	67	67	66	66	65	64	64	64	66	67	68	68	68	68	69	69	69	69	69	67.3	24
25	70	70	70	70	70	70	70	69	69	68	68	67	66	65	66	69	70	70	70	70	70	70	70	70	70	69.0	24
26	70	71	70	70	70	69	70	70	71	71	67	67	68	69	69	71	71	71	71	71	71	71	71	71	71	70.0	24
27	71	71	71	71	71	71	71	71	71	71	70	70	68	67	68	70	72	73	73	72	71	71	70	67	73	70.5	24
28	68	67	68	69	68	68	67	66	67	66	65	65	65	66	68	70	72	72	73	74	77	79	80	80	80	70.0	24
29	81	82	81	81	81	82	82	**83**	**83**	81	77	73	69	67	67	71	73	74	75	75	77	79	78	79	**83**	77.1	24
30	78	78	78	79	78	79	79	78	78	78	77	77	77	76	76	77	77	78	78	78	79	79	79	80	80	**78.0**	24
31	80	80	81	80	81	80	79	78	78	77	77	77	77	76	70	73	76	78	81	80	80	79	73	67	81	77.4	24
HOURLY MAX	82	82	81	81	81	82	82	83	83	81	81	78	78	78	78	78	78	80	81	81	81	80	80	81			
HOURLY AVG	74.3	74.3	74.4	74.2	74.1	74.0	73.9	73.8	73.8	73.5	72.7	71.8	70.7	69.7	70.4	72.1	73.4	74.0	74.1	74.1	74.3	74.4	74.2	74.0			

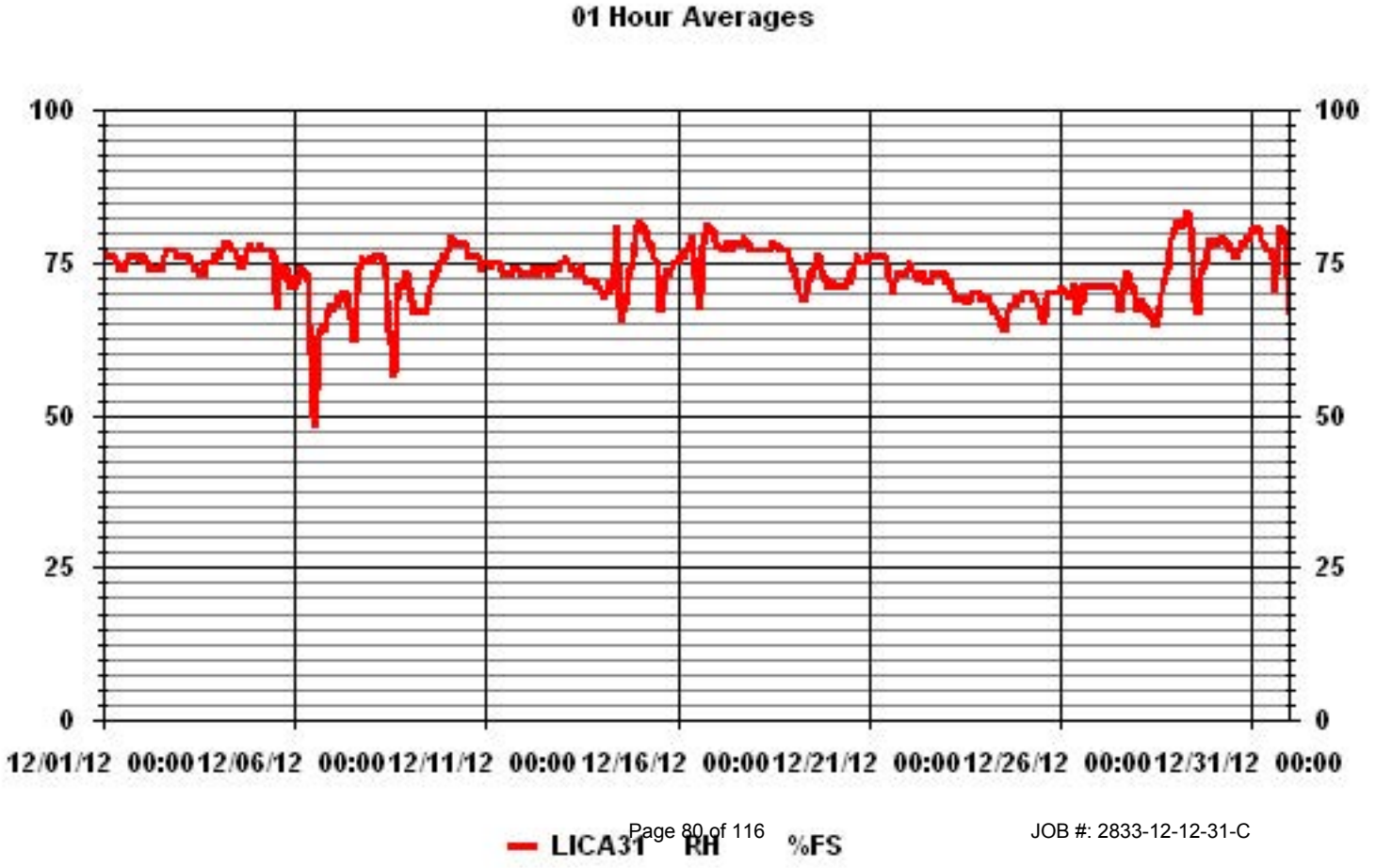
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		83	%	@ HOUR(S)	7, 8	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:		78.0	%			ON DAY(S)	30
						VAR-VARIOUS	
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:		744	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.36			MONTHLY AVERAGE:		73.34	%



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

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

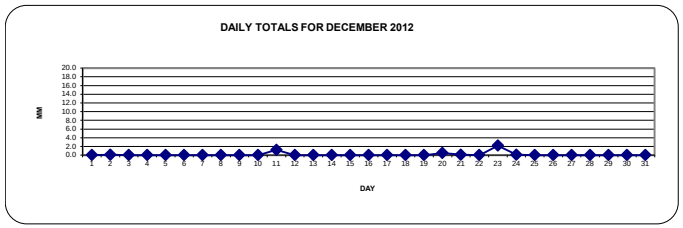
PRECIPITATION hourly averages (mm)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	TOTAL	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
11	0	0	0	0	0	0	0.2	0.2	0.2	0.3	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.3	1.2	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**M**	**M**	0	0	0	0	0.2	0.3	**0.3**	0.5	22
21	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23	0	0	0	0	0.1	0	0.1	0.1	0.1	0.3	0.1	0.2	0	0.3	0	0.1	0.2	0.1	0	0.1	0.1	0.2	0	0.1	**0.3**	**2.2**	24
24	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.3	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.3			

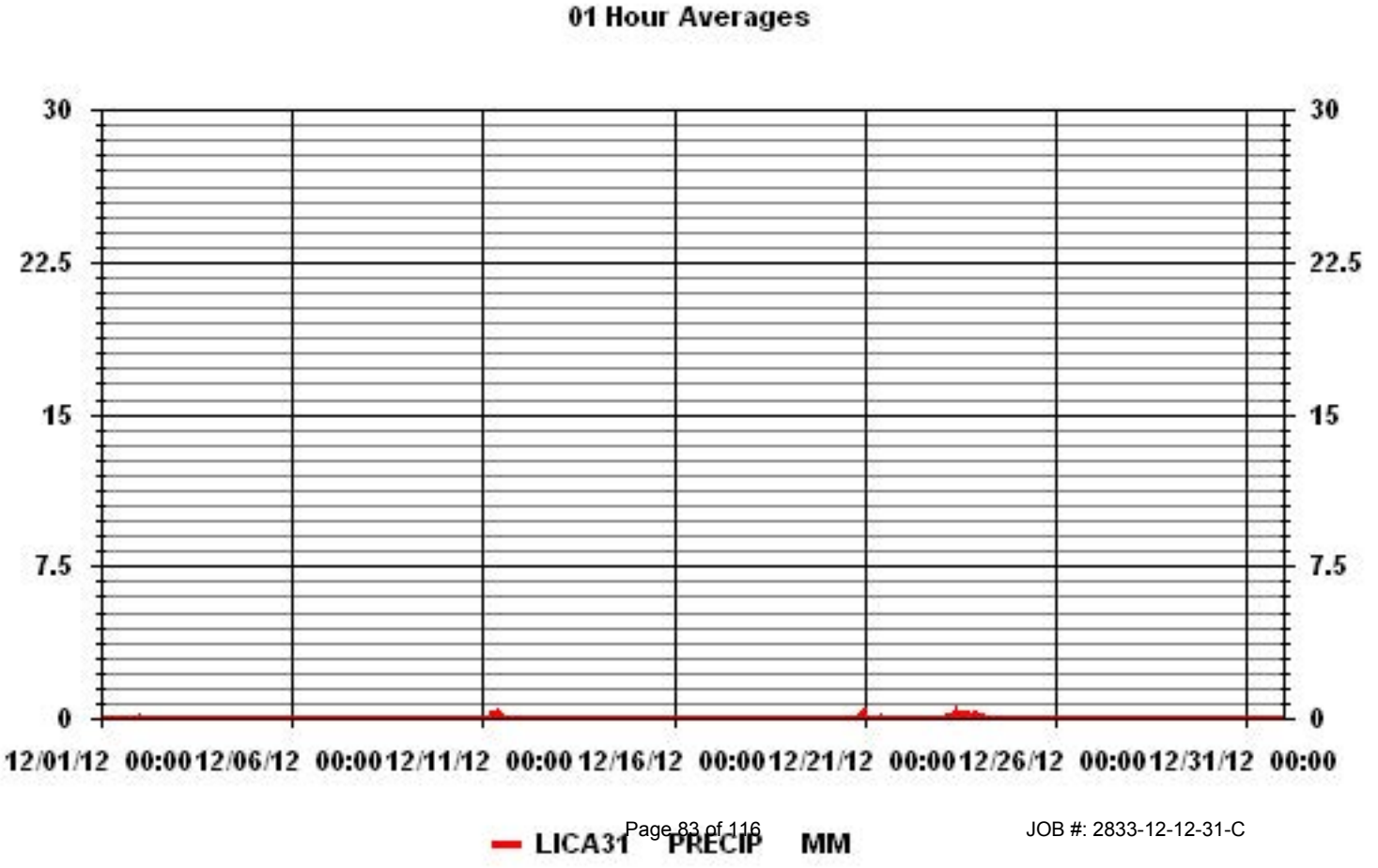
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	MD	-MISSING DATA



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		0.3	MM	HOUR(S)	VAR	ON DAY(S) 20, 23
MAXIMUM DAILY TOTAL		2.2	MM			ON DAY(S) 23
MONTHLY TOTAL		4.2	MM			
CALIBRATION TIME:	0 HRS			OPERATIONAL TIME:		742 HRS
				AMD OPERATION UPTIME:		99.7 %
STANDARD DEVIATION:	0.03			MONTHLY AVERAGE:		0.01 MM



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

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2012

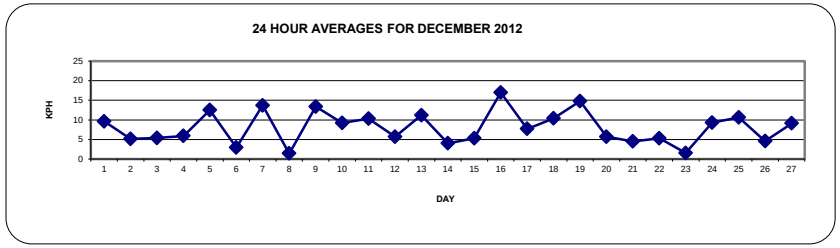
WIND SPEED hourly averages (km/hr)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	7.1	6.1	5.9	7.8	7	9	9.8	10.3	12.1	13.5	13.4	13.7	14.9	12.9	13.9	13.6	14.6	14.4	13.6	12	11	11.5	10.3	10.6	14.9	11	24
2	9.8	8.2	7.9	9.3	8.6	8.8	7.3	8.4	7.9	7.9	10.6	13.1	12.6	9.9	9.4	11.3	9.5	9.6	10.2	14.4	18.3	16	12.1	9.6	18.3	10.2	24
3	9	7.6	6.9	6.4	8.6	7.4	8.2	9.6	7.4	3.1	3.5	3.7	4.4	5	4.3	5.7	5.2	4.6	5.6	5.6	2.8	2.5	4.7	4.5	9.6	5.1	24
4	5.7	7.5	8.5	11.1	12.4	15.6	19.7	17.4	19.7	20.3	22.5	24.9	25.3	28.7	27.2	**29.6**	25.4	21.4	18.7	15.7	14.1	10.6	9.7	3.2	**29.6**	16.8	24
5	4	3.6	6.7	3.9	6.2	7.5	7.6	8.8	9	7.2	8.9	13.1	16.6	17.4	16.4	14	12.2	15.8	13.9	12.8	14.1	13.1	13.1	14.6	17.4	9.6	24
6	12.4	12.1	8.9	7.8	8.6	9.1	7.8	8	8.4	7.1	8.9	6.1	5.6	3	3.8	4.3	3.4	3.8	1.8	1.2	3.1	0.5	3.8	2.9	12.4	5.1	24
7	1.7	4.1	4.5	4.5	6.9	6	6.1	8	7.1	9.9	9.7	8.4	8.3	8.8	8.8	7.5	8.2	10.2	9.7	7.9	5.1	1.2	3.7	6.7	10.2	5.4	24
8	3.8	5.8	7.8	8.2	9	9.8	9.7	9	10.7	11	10.8	13.3	9.4	8.1	6.5	6.8	7.3	8.9	9.1	5.7	10.6	2.4	7.1	9.8	13.3	5.9	24
9	9.7	10	9.5	10.7	14.7	14.4	15	13.3	15.2	15.8	17.5	14.5	14.6	15.2	13.2	11.1	9	10.2	9.7	9.9	9.8	11.3	14.2	14.6	17.5	12.5	24
10	13.1	12.8	14.9	14.3	9.3	6.3	4.4	6.2	4.8	3.7	5.1	5.5	9.9	8.9	7.5	4.2	4.8	5.3	5.3	8.5	9.7	8.7	8.9	10	14.9	2.9	24
11	9.7	11.2	12.1	15	17.2	16.1	19.8	20.1	19.4	17.2	17.3	20.5	19.5	17.6	16.3	16.1	12	13	11.1	13.4	11.9	13	9.7	8.7	20.5	13.7	24
12	7.3	5.4	3.2	2.7	1.4	2.8	1.7	3.7	6.6	7.7	4.4	3.8	4.6	3.4	0.9	3.8	5.7	6.1	8	9.2	10.4	7.5	7.9	11.3	11.3	1.4	24
13	12.2	12	14.1	14.4	14	14	15.6	15	11.9	14.8	13.1	12.5	12.5	13.8	12.3	13.2	13.6	13.3	14.3	13.8	13.8	13.8	13	12	15.6	13.4	24
14	10.6	10.4	10.7	10.2	9	9.3	8.6	8.1	9.3	9.2	9.5	9.5	9.4	10	10	10	12.5	13.7	14.8	13.5	13.9	11.8	10.5	10.5	14.8	9.2	24
15	10.3	9.9	6.4	7.6	8.6	9.4	8.6	8.9	9.1	9.2	10.3	10.9	11.7	10	12	12.9	13.5	13.8	15.8	20.9	18.3	14.7	15.2	16.6	20.9	10.3	24
16	13.5	14	12.7	9.6	10.3	8.7	8.8	7	5.9	7.4	7.2	6.1	5.8	3.1	5	5	5.2	6.2	8.1	7.7	8.5	6.3	8.5	10.2	14	5.7	24
17	8.3	6.3	8.8	8.8	12	12.3	14.5	15.1	12.9	12.7	12.7	10.6	12.2	11.5	13.8	13.9	13.4	13.8	15.6	14.8	15.5	15.3	15.5	11.2	15.6	11.2	24
18	9.2	11	8.9	9.5	10.1	8.4	6.9	7	6.7	6.3	5	4.9	4.5	5.8	6.6	5.1	4.8	3.8	5.9	6.9	4.7	6.3	6.7	5.3	11	4	24
19	6.8	8.1	7.8	6.7	6.2	6.5	6.4	6.3	7.2	6.3	7.6	7.4	8.5	**N**	9.4	8.9	9.1	13.2	12.2	12.5	12.3	13.2	12.6	12.4	13.2	5.3	23
20	12.9	14.1	13.9	15.8	16.6	13.1	14.9	19	16.3	19.4	17.6	19.5	19.8	15.9	16.5	18.9	20.3	22.6	21.9	18.3	16.9	16.3	16.8	11.4	22.6	**17**	24
21	11.4	9.8	9.3	8.7	5.7	5.9	5.8	5.5	6.6	10	12.3	11.7	13.9	13.6	13.4	14.1	13.8	10.6	8.5	12.2	13.4	11.8	7.9	7.9	14.1	7.7	24
22	9	9.4	8.6	7.2	8.7	10.4	9.8	12.8	9.6	9.3	11.2	13.4	13.2	12.5	13.2	12.4	8.8	10.9	13.9	12.9	13.5	12.6	14.1	15.8	15.8	10.4	24
23	17.2	20.5	19.6	16.5	15.9	17.6	16	16.9	15	12.7	15.4	13.4	14.1	12.5	12.4	12.6	14.1	15.8	14.9	14.8	14.2	9.9	10.2	15	20.5	14.8	24
24	13.5	11.3	9	7.7	11.9	13.5	9.2	8.4	9.1	9.4	8.3	6.7	4.3	6.4	9	8.1	6.1	4.5	6.8	6.5	6	5.8	5.3	4.9	13.5	5.7	24
25	4.9	5.7	7.4	8.1	8.9	9.3	10.7	10.4	11.1	8	7	5.6	5.3	3.9	2.3	2.2	4.9	1.3	2.7	4.6	2	2.7	2.1	3.1	11.1	4.5	24
26	5.2	4.6	3.2	3.6	8.6	11.3	11.1	8.2	8.1	8.3	7	7	7.6	7.3	2.8	2	2.9	7	6.6	5.6	4.7	6.2	6.2	6.5	11.3	5.3	24
27	6.5	7.7	5.9	4.1	5.3	5.4	0.4	1.7	2.4	1.4	2.2	3.1	3.1	3.8	3.5	2.9	5	3.9	3.3	3.5	6	5.7	5	6.2	7.7	1.5	24
28	6.1	5.8	7.7	8.3	8.3	10.2	11.8	9.2	9.7	10.5	9.6	10.3	10.8	10.9	8.9	11.2	10.5	9.4	10.4	12.2	13.3	13.3	11.4	12.7	13.3	9.3	24
29	12.1	11.4	10.5	8.5	8.5	11.3	12.5	14.1	14	12.1	12.6	11.2	10.1	13.4	15.5	16.3	14.2	12.2	12.6	14.5	15	13.2	13.8	12.6	16.3	10.6	24
30	13.9	9	7	4.5	5.3	7.3	7.7	7.6	6.8	6.5	7.5	7.8	8.1	8.3	7.7	8.6	8	7.9	7.5	8.4	8.7	7.9	8.4	7.8	13.9	4.6	24
31	7.5	8.7	8.1	8.2	7.2	8.2	9.9	8.2	5.4	6.3	8.5	7.5	8.2	8.2	10.2	11.8	13.1	11.6	12.6	12.7	12.5	12.7	16.8	18.1	18.1	9.1	24
HOURLY MAX	17.2	20.5	19.6	16.5	17.2	17.6	19.8	20.1	19.7	20.3	22.5	24.9	25.3	28.7	27.2	29.6	25.4	22.6	21.9	20.9	18.3	16.3	16.8	18.1			
HOURLY AVG	9.2	9.2	8.9	8.7	9.4	9.8	9.9	10.1	9.9	9.8	10.2	10.3	10.6	10.3	10.1	10.3	10.0	10.3	10.5	10.7	10.8	9.6	9.8	9.9			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

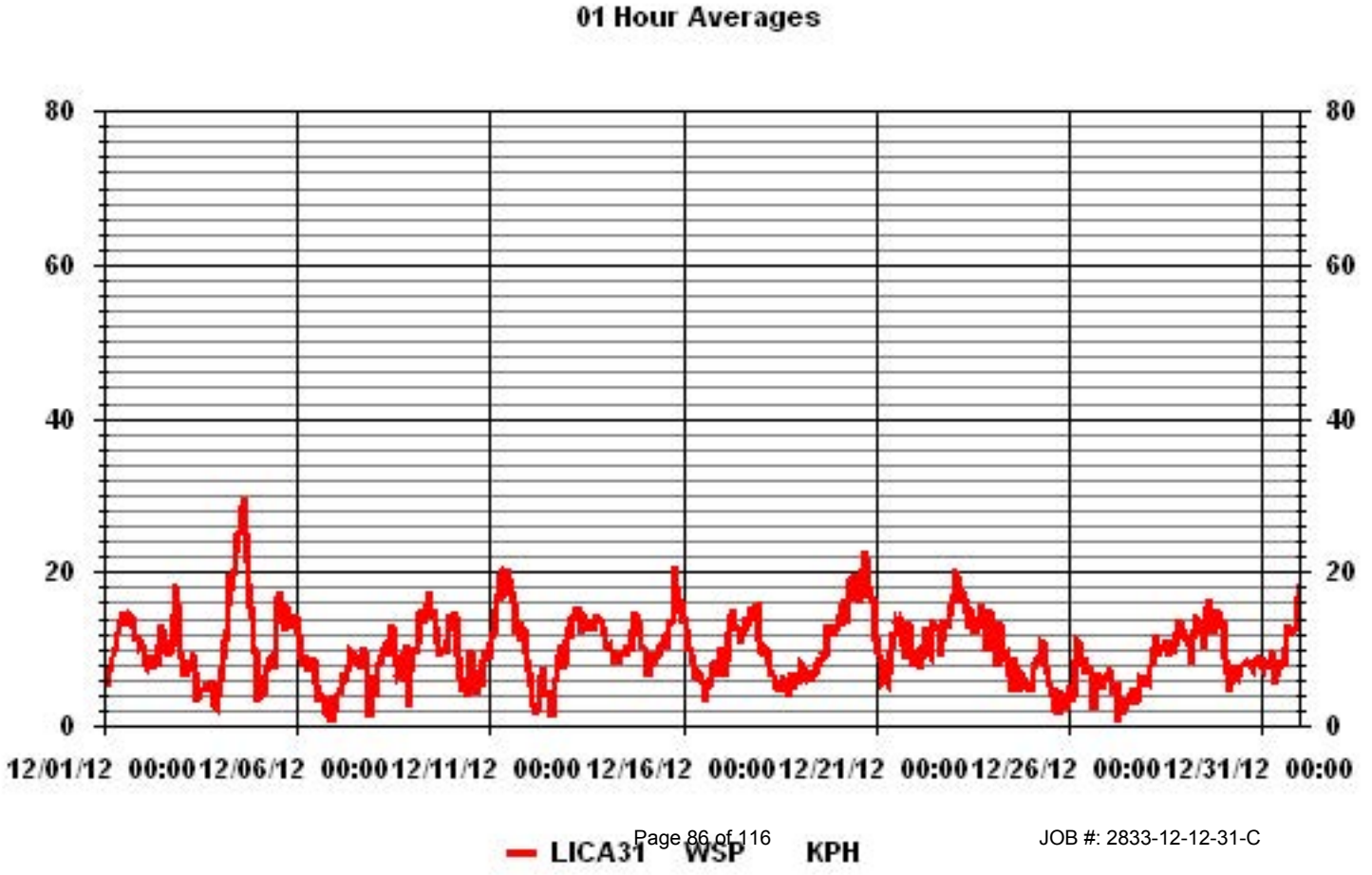


LAST CALIBRATION: June 12, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	29.6	KPH	@ HOUR(S)	15	ON DAY(S)	4	
MAXIMUM 24-HR AVERAGE:	17.0	KPH			ON DAY(S)	20	
CALMS (≤ 0 KPH)	0.27	%	OPERATIONAL TIME:		743	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	4.47		MONTHLY AVERAGE:		9.93	KPH	

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



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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

DECEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

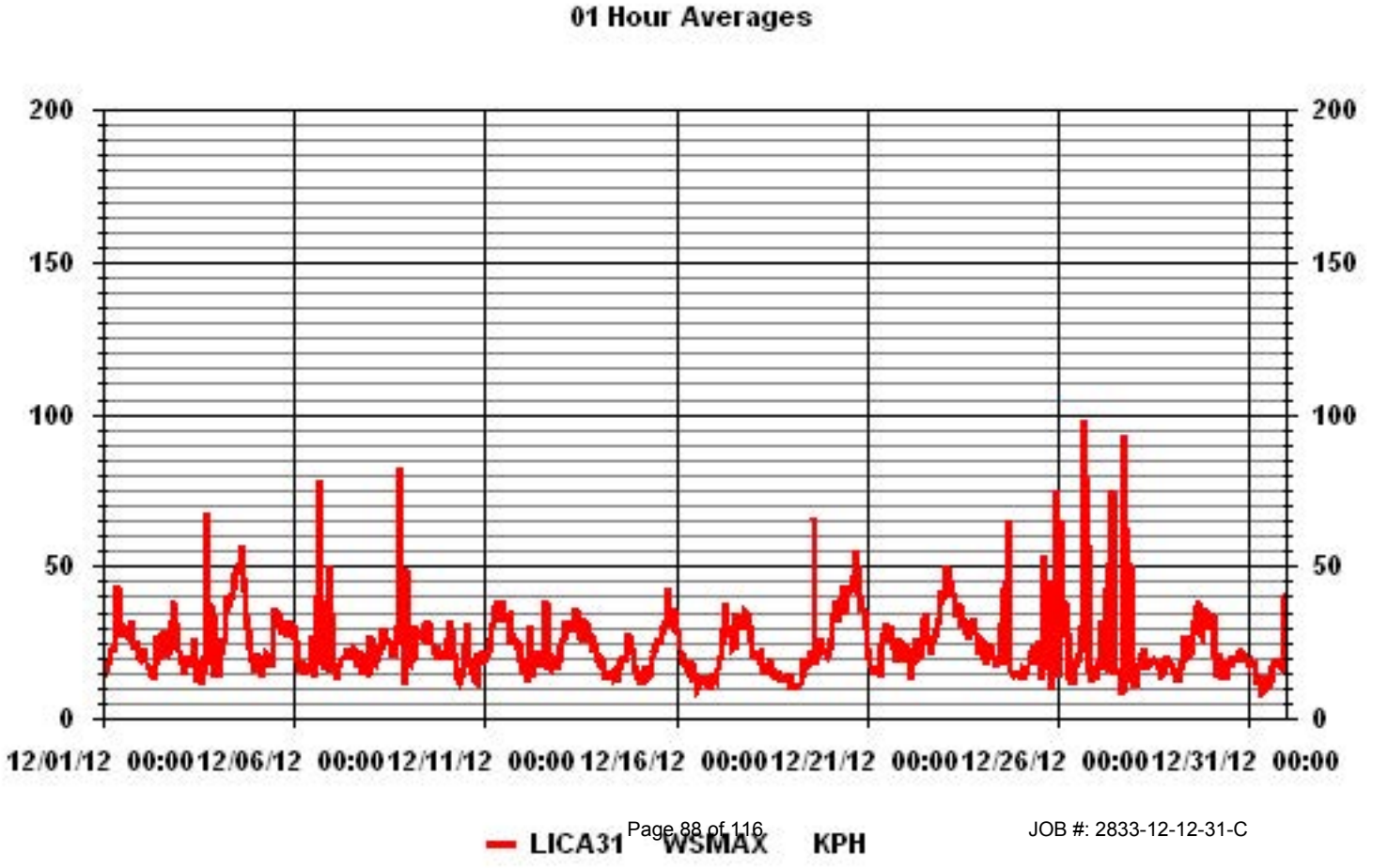
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	14.3	15.4	18.7	18.7	19.1	23	21.7	23.7	26.5	43.8	27.9	28.3	31.1	28.7	29.2	27.9	29.4	30.7	30.7	26.5	22.6	25.2	20	20	43.8
2	18.9	19.3	23	18.9	17.4	16.9	15.4	14.7	12.5	17.6	26.3	26.1	28.3	21.1	21.5	28.8	22.4	21.3	22.4	32.5	38.8	31.8	28.3	22.6	38.8
3	22.1	18.7	18.7	14.5	20.4	17.6	20.2	18.9	17.1	26.7	17.1	12.7	12.7	12.5	19.3	15.4	20.4	67.5	17.4	29	37.5	34.9	13.2	18	67.5
4	15.4	13.8	20.6	26.3	25.3	35.1	40.3	36.4	39.9	39.9	42.3	47.8	48.9	50.6	46.9	57.2	46.7	42.1	34.9	29.8	23.5	19.8	19.4	15.2	57.2
5	16.7	21.3	18.4	14.7	13.8	18.4	21.3	20.6	20.8	17.1	19.5	32.5	35.7	33.3	35.5	30.9	27.8	31.8	30.9	26.5	32	28.7	32.2	30.7	35.7
6	27	25.9	19.4	14.9	16.3	18.5	14.1	17.6	15.6	16	18.8	18	27.6	13.4	17.1	40.3	78.4	21.1	38.8	15.8	17.1	16.7	50.4	15.2	78.4
7	34.9	15.8	13.9	13.8	16.7	18	19.1	20.6	19.1	21.9	23	20.8	19.4	22.6	21.9	17.8	18	19.5	21.9	16.7	17.3	14.5	16.9	13.8	34.9
8	27	18.5	20	19.1	21.5	23.3	22.2	23	29.9	28.3	25.9	25.7	24.6	24.8	20.9	20.9	27	30.3	24.1	81.3	**N**	12.1	49.5	17.8	81.3
9	19.8	18.5	19.8	18.9	30.5	27.4	27.5	25.5	27.4	26.8	30.3	30.3	31.6	28.3	25	22.2	22.6	22.9	20.4	20.2	21.1	20	22.4	19.5	31.6
10	22.6	26.3	31.8	29.6	21.9	20	13.2	14.3	12.3	13.4	16.3	16.9	25	31.6	20.6	15.8	16.2	13.2	12.7	21.3	17.8	19.1	19.8	22.2	31.8
11	19.7	20.4	21.7	25.9	30.5	31.4	37.1	32.7	38.4	34	31.4	38.8	34.2	32.9	32.9	33.6	23.9	28.1	24.3	26.5	22.4	25.7	18.7	20.2	38.8
12	16	14.7	11.9	18	30.1	20.7	13.8	17.4	18.9	22.4	17.8	18	21.5	17.1	38.4	17	17.1	16.5	20.4	20.2	18.4	15.6	18.4	23.9	38.4
13	25	26.1	32.2	28.6	29.6	28.5	32	31.1	34.4	35.8	30.3	27.4	27.2	33.1	25	27.6	32.5	24.8	26.5	28.1	21.3	24.3	21.9	19.1	35.8
14	18	19.1	18.4	15.6	12.7	15.6	14.5	14.3	15.2	13	13.6	13.4	16.1	19.7	20.8	18.4	20	22.2	27.6	26.3	23.7	21.9	18.3	15.8	27.6
15	13.6	14.5	13.6	11.2	12.3	16.9	12.3	14.7	14.5	20.4	21.9	24.5	26.3	24.3	25.7	27.6	30.5	32	38.6	42.7	37.1	30.9	30	36.4	42.7
16	29	28.5	23	20.2	21.1	17.1	19.1	15.6	14.3	15.2	18.7	15.6	12.8	9.9	10.8	13.2	13.4	13.6	12.5	13.6	10.8	9.2	13.2	14.9	29
17	13.4	12.7	16.2	19.7	20.6	23.7	29.3	37.7	26.5	27.8	30.1	23.9	24.6	24.3	34.4	31.8	34	29.4	33.6	35.5	34.9	34.2	30.9	25.4	37.7
18	20.1	21.5	19.3	21.3	21.8	18.2	15.2	17	14.5	17.6	15.6	19.3	15.4	14.5	15.8	15.6	15.2	11.7	13.6	13.4	13	14.1	14.1	14.3	21.8
19	10.8	11	9.9	9.9	10.6	11	11.4	13.2	19.6	15.6	18	17.8	21.7	**N**	65.1	17.6	20	23.9	20.6	26.1	20.8	22.4	22	20.9	65.1
20	22.6	26.5	31.2	34.9	39	35.3	31.8	39.3	34.2	43.6	34.7	40.8	42.7	43	43.6	43.2	46.7	55	50.8	41	35.3	36.8	36.2	30.1	55
21	23.5	19.7	17.8	16.2	14.1	15.4	16.3	16.9	13.2	25	28.1	25	31.4	30.3	28.1	30.3	25.9	23	18.2	24.8	25.9	23	19.6	18.4	31.4
22	20.6	23.1	22.4	12.5	21.3	20.4	20.4	26.1	20	20.6	26.1	32.7	28.5	34.4	27.6	25.2	21.1	25	26.8	29.4	32.7	30.9	41.7	40.4	41.7
23	41.7	46.7	50	39.9	46.1	41.9	40.4	36.2	33.3	34.4	37.7	29.8	31.6	32.9	27.9	25.7	32.3	31.2	31.4	32.7	28.5	22	22.2	27	50
24	25.9	21.7	22.4	17.4	22.6	24.2	20.4	19.8	17.4	17.4	17.8	20.9	31.4	42.8	17.1	28.8	45.6	65.1	15.8	14.9	14.1	14.7	15	13.6	65.1
25	15.6	13	16	15.2	16.9	17.6	21.7	21.5	23.9	19.8	18.9	18	25.7	12.7	16.7	53.5	41.7	21.9	16.3	9.2	45.6	43	18.7	75.2	75.2
26	13.2	34.9	64.4	**N**	37.5	26.8	29	13.6	12.6	12.3	17.4	19.1	18.5	20.9	21.7	30.7	**98.4**	79.5	57.4	15.6	12.1	16.5	14.9	14.5	**98.4**
27	16.7	18.4	15.6	31.8	18	17.4	43.2	20.4	50.7	40.1	74.7	15.8	15.4	15.6	15.4	15.8	7.9	93.1	63.3	12.1	14.1	50.8	13.6	10.8	93.1
28	11.9	10.3	16.3	18	20.9	22.2	23.3	17.6	17.8	18.9	19.1	17.4	19.3	18.7	17.4	18	18.5	14.1	14.5	16.5	20.2	18.4	17.6	17.6	23.3
29	16.7	15.6	14.7	11.4	14.1	15.6	18.7	26.1	26.3	22.6	21	21.5	24.3	32.2	36.4	36.4	38.3	28.1	27.2	30.3	36	29.4	30.9	32.5	38.3
30	34	33.8	21.1	13.8	16.9	21.1	13	15.6	15.4	12.3	18	17.8	17.6	19.5	19.7	19.7	20.7	18.9	20.6	23	21.5	20.2	19.7	19.3	34
31	18	19.1	18	18	10.8	14.9	13.8	11.7	8.4	8.8	13.2	13.4	11.2	11.9	16.7	18.2	18.4	16.9	20	17.6	16.9	16.5	40.3	41	41
PEAK	41.7	46.7	64.4	39.9	46.1	41.9	43.2	39.3	50.7	43.8	74.7	47.8	48.9	50.6	65.1	57.2	98.4	93.1	63.3	81.3	45.6	50.8	50.4	75.2	

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	98.4	KPH	@ HOUR(S)	16
			ON DAY(S)	26



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

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

December 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.34	1.88	1.61	.94	1.21	.94	1.21	.80	.53	.80	.80	.26	1.48	1.48	1.34	1.88	18.57
<	12.0	2.01	1.61	2.55	6.86	3.09	1.07	1.88	4.44	2.28	5.24	6.72	1.88	1.61	1.48	2.69	2.42	47.91
<	20.0	.13	.13	.67	4.44	7.80	2.15	1.21	1.34	.53	2.82	1.88	.67	1.88	.80	3.36	1.21	31.09
<	29.0	.00	.00	.00	.00	.53	.67	.67	.13	.00	.00	.00	.00	.00	.00	.00	.00	2.01
<	39.0	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.49	3.63	4.84	12.24	12.65	4.97	4.97	6.72	3.36	8.88	9.42	2.82	4.97	3.76	7.40	5.51	

Calm : .26 %

Total # Operational Hours : 743

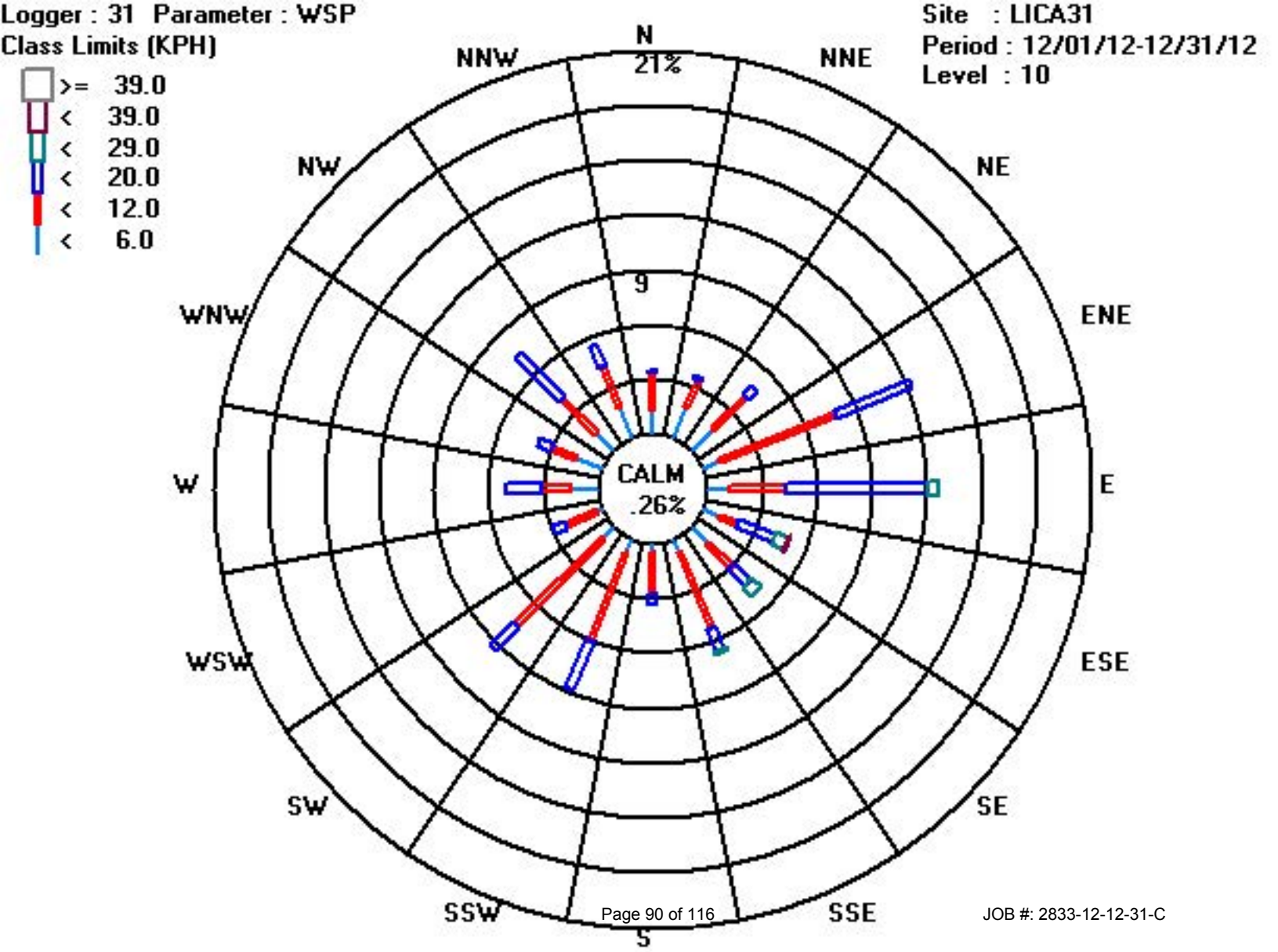
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	10	14	12	7	9	7	9	6	4	6	6	2	11	11	10	14	138
<	12.0	15	12	19	51	23	8	14	33	17	39	50	14	12	11	20	18	356
<	20.0	1	1	5	33	58	16	9	10	4	21	14	5	14	6	25	9	231
<	29.0					4	5	5	1									15
<	39.0						1											1
>=	39.0																	
	Totals	26	27	36	91	94	37	37	50	25	66	70	21	37	28	55	41	

Calm : .26 %

Total # Operational Hours : 743



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

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2012

WIND DIRECTION hourly averages in degrees

MST

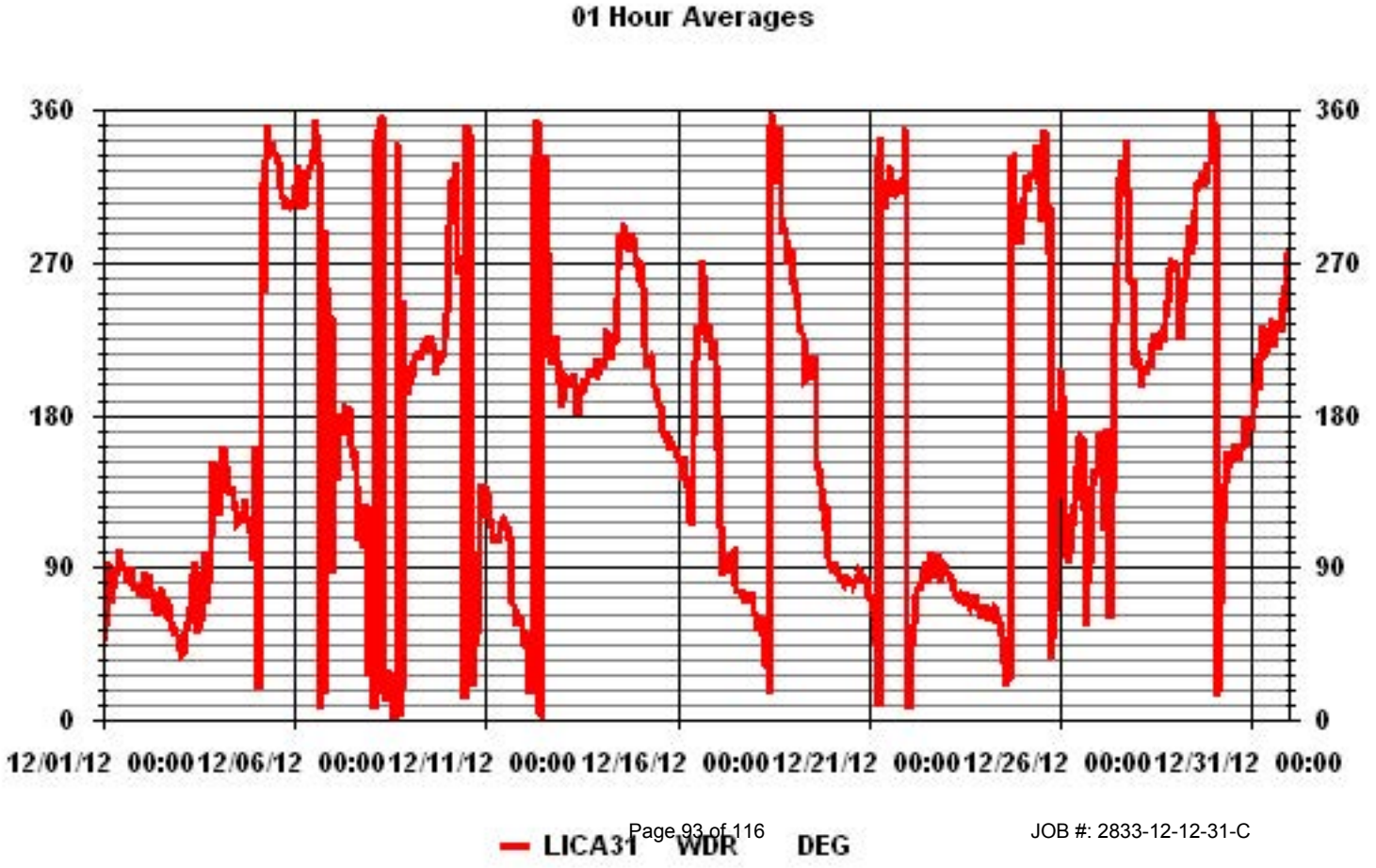
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	48	55	80	94	78	69	78	83	85	91	101	94	90	90	89	80	83	82	90	81	76	80	74	76	83	E	24
2	75	78	87	78	71	86	74	77	66	61	70	74	79	72	63	73	64	65	59	54	50	54	52	44	66	ENE	24
3	42	38	39	51	53	57	66	76	86	93	72	52	54	58	84	83	99	69	81	96	108	152	120	140	72	ENE	24
4	120	134	159	162	144	134	150	138	132	137	130	125	116	117	121	123	125	130	121	117	111	94	97	161	127	SE	24
5	56	18	62	318	257	252	330	351	342	332	341	335	334	329	329	314	307	310	302	306	301	307	304	305	320	NW	24
6	316	321	327	306	301	319	303	325	319	326	328	337	334	355	347	330	6	27	15	289	257	128	177	239	321	NW	24
7	86	147	146	157	181	168	181	186	178	173	186	163	155	160	148	140	106	108	101	121	110	127	26	38	145	SE	24
8	30	8	8	343	348	349	355	357	17	11	19	29	25	18	2	2	341	338	1	18	248	210	191	202	359	N	24
9	197	202	212	214	216	218	214	214	221	223	220	217	220	226	220	223	204	209	213	216	215	218	226	240	218	SW	24
10	262	292	318	314	320	329	263	272	272	15	12	352	343	349	347	19	28	43	50	99	119	137	137	140	337	NNW	24
11	126	135	120	115	111	105	107	107	105	111	117	119	117	115	108	108	70	69	66	55	60	61	59	44	100	E	24
12	53	43	38	15	29	18	330	330	355	5	4	325	301	333	277	215	209	215	219	224	226	214	201	184	257	WSW	24
13	189	196	203	202	199	196	202	205	198	180	195	197	192	194	201	197	203	207	205	206	205	213	203	209	200	SSW	24
14	212	208	213	231	218	222	213	222	228	223	249	266	285	287	294	284	279	276	279	287	278	285	274	269	257	WSW	24
15	258	271	256	221	213	208	212	214	211	198	192	193	184	187	171	169	167	168	166	160	163	161	159	159	185	S	24
16	156	153	141	156	153	141	142	144	117	115	167	212	232	227	229	272	263	255	236	223	232	216	212	224	183	S	24
17	211	159	178	115	85	89	87	95	97	89	98	99	80	77	76	74	75	70	70	73	69	73	73	76	86	E	24
18	62	64	53	57	58	50	36	34	31	15	351	358	334	316	325	342	350	298	286	290	285	269	276	278	5	N	24
19	258	260	254	244	234	231	229	225	201	202	211	215	202	**N**	213	154	149	140	137	125	112	127	97	92	174	S	23
20	91	87	91	91	87	82	85	83	81	83	84	82	83	82	79	81	85	90	89	87	80	83	83	72	84	E	24
21	74	72	66	62	45	332	7	344	305	301	309	312	319	328	320	308	316	318	311	312	310	320	350	345	333	NNW	24
22	18	7	12	43	56	74	79	76	82	88	84	93	88	80	100	97	90	83	95	98	88	81	93	92	80	E	24
23	90	86	86	82	84	78	75	73	72	75	74	70	68	75	69	67	70	71	70	74	70	65	60	64	75	ENE	24
24	66	66	66	58	62	65	68	67	58	60	59	50	35	20	36	23	25	331	332	306	291	296	281	295	40	NE	24
25	296	308	320	320	312	323	320	323	338	340	316	328	294	318	349	300	274	304	36	48	65	67	170	182	324	NW	24
26	207	192	132	123	96	92	98	115	127	130	150	167	161	168	167	125	55	80	92	101	138	147	148	145	128	SE	24
27	168	171	153	112	126	172	127	59	133	136	234	268	283	320	330	322	308	343	315	260	259	259	210	220	227	SW	24
28	208	213	204	196	205	207	204	212	208	223	218	226	226	226	219	227	226	232	237	247	267	273	269	269	229	SW	24
29	271	265	252	226	226	247	261	278	292	288	275	281	301	312	316	318	323	316	316	317	328	329	341	358	298	WNW	24
30	342	353	15	17	69	98	118	139	158	152	150	152	154	163	160	153	160	163	160	168	180	162	171	176	147	SE	24
31	175	184	199	213	216	195	220	233	216	217	224	229	237	228	219	231	235	231	231	246	245	257	275	277	232	SW	24
HOURLY AVG	342	353	327	343	348	349	355	357	355	340	351	358	343	355	349	342	350	343	332	317	328	329	350	358			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	743	HRS
STANDARD DEVIATION:	98.46		AMD OPERATION UPTIME:	99.9	%
			MONTHLY AVERAGE:	114	DEG



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

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	11	12	16	11	12	11	12	12	11	11	11	12	11	12	11	12	10	11	10	11	10	9	9	8
2	10	10	12	6	8	8	8	7	8	9	12	12	13	13	12	13	12	13	12	11	12	11	11	12
3	13	13	13	13	12	13	12	12	14	28	48	36	16	18	22	16	18	26	17	23	32	26	14	14
4	14	13	13	14	13	13	12	13	12	13	12	12	11	10	10	11	12	12	11	10	9	12	10	33
5	26	41	41	37	14	18	16	11	16	15	13	12	13	12	13	16	16	14	15	14	14	16	14	14
6	13	13	12	11	12	12	11	13	12	14	14	20	18	29	21	17	34	43	48	35	26	48	25	31
7	32	22	18	19	13	16	17	12	15	12	13	14	13	13	14	15	9	10	10	12	17	48	24	9
8	15	19	14	11	13	15	13	14	17	14	13	12	14	16	17	19	18	12	12	47	41	30	15	7
9	8	9	9	9	9	9	9	9	9	8	9	10	11	8	10	10	13	11	12	10	10	9	7	4
10	6	12	14	14	15	21	10	11	14	16	19	19	17	18	19	19	18	12	12	10	12	14	13	14
11	13	13	11	10	10	10	9	9	9	9	11	11	11	11	10	10	14	10	13	11	13	11	12	13
12	13	14	19	21	37	21	23	17	21	18	25	23	23	32	51	13	15	14	12	10	9	11	11	9
13	10	11	11	12	12	12	12	12	14	13	14	14	14	12	12	13	13	11	10	10	8	8	8	8
14	8	8	8	5	6	7	18	9	5	5	5	5	9	11	12	10	8	6	9	10	7	10	6	4
15	5	5	8	4	6	6	6	6	7	11	13	11	11	13	11	9	11	13	14	13	12	13	13	12
16	13	11	11	12	12	11	11	12	13	10	16	14	17	31	9	14	9	7	7	11	7	7	6	5
17	8	8	5	8	7	10	12	11	12	12	14	14	13	13	12	12	12	11	11	12	12	11	10	13
18	11	11	12	12	12	12	12	11	11	13	18	20	21	17	16	18	18	14	13	14	15	10	9	9
19	4	4	5	6	6	6	8	9	14	14	15	15	19	**N**	28	10	10	11	9	9	7	8	6	8
20	8	10	13	11	12	14	12	11	10	10	12	11	11	11	11	11	11	10	11	11	12	11	11	11
21	10	10	9	9	16	15	16	14	12	14	15	16	14	15	14	14	12	13	14	12	11	11	16	12
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23	13	12	12	13	14	12	12	11	11	13	11	12	11	14	11	11	10	9	9	9	9	11	10	9
24	9	8	11	10	8	8	11	10	8	8	10	13	18	20	9	13	20	23	13	14	18	21	20	27
25	21	16	12	10	12	12	12	12	12	18	18	22	25	22	31	32	19	39	33	8	50	19	22	27
26	12	23	19	35	25	9	6	4	6	6	13	15	15	14	29	31	47	14	18	16	14	14	14	13
27	15	13	13	23	17	18	67	26	20	33	24	24	24	25	22	14	7	39	22	17	6	12	10	7
28	7	7	8	9	11	11	10	10	11	10	11	8	9	8	11	8	7	5	5	5	4	5	4	4
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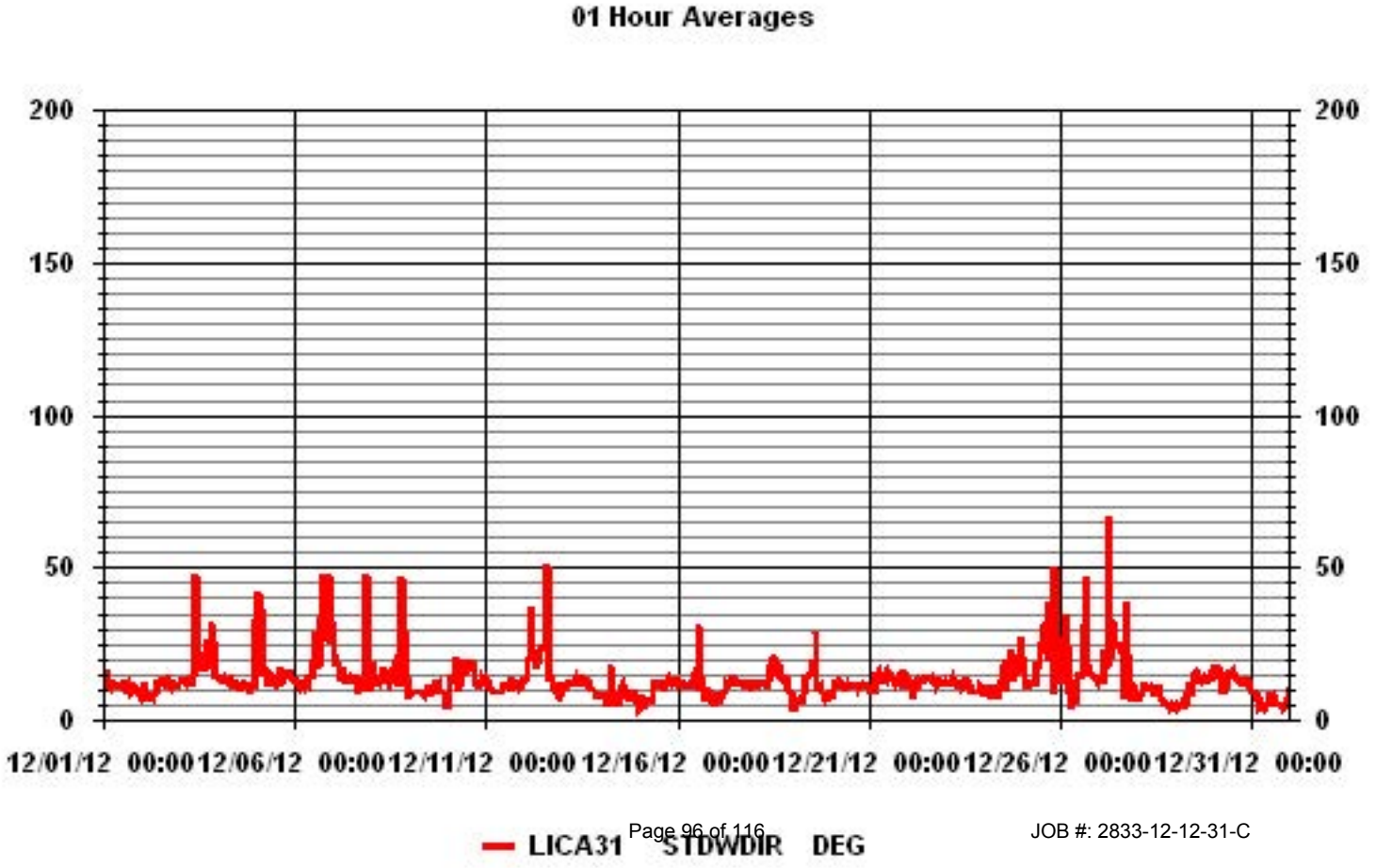
30	15	18	13	18	16	9	9	11	11	16	15	15	16	14	14	13	14	11	14	13	12	13	13	10
31	10	9	9	7	5	6	5	4	5	5	5	9	7	8	7	5	5	5	5	4	5	4	7	10

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: July 18, 2012

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 743 HRS



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

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 12, 2012	Previous Calibration	November 21, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	09:30	End Time (MST)	12:53
Reason:		Monthly Calibration	
Barometric Pressure	918 mBar	Station Temperature	18 Deg C
Cal Gas	49.6 ppm	Gas Cyl. # LL42502	Cal Gas Expiry date December 29, 2013
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 1000 ppb					
Sample Flow / Box Temp	567 ccm	27.7 Deg C			576 ccm	27.1 Deg C		
HVPS / Lamp Setting	540	2201			540	2198		
PMT / RxCell Temp	7.8 Deg C	50 Deg C			7.8 Deg C	50 Deg C		
Converter / IZS Temp	NA Deg C	40 Deg C			NA Deg C	40.0 Deg C		
Offset / Slope	98.2	1			98.2	1		

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj.			
4921	75.6	750	751	0.9993
	No Span Adj.			
4955	40.3	400	403	0.9929
4977	17.1	170	171	0.9932
4997	0	0	0	N/A
			Sum of Least Squares	0.9977
			New Correction Factor	0.9993

IZS alibration Data

	Before Calibration	After Calibration
Auto Zero	0.4	-0.6
Auto Span	243.0	238.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9966
Current Correction Factor Before Span Adjust:	0.9993
Percent Change:	-0.3%

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

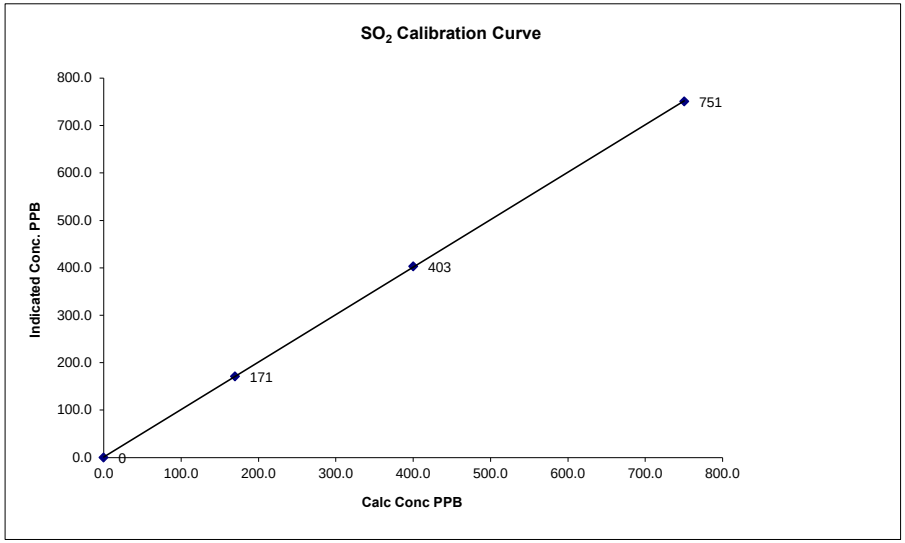
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

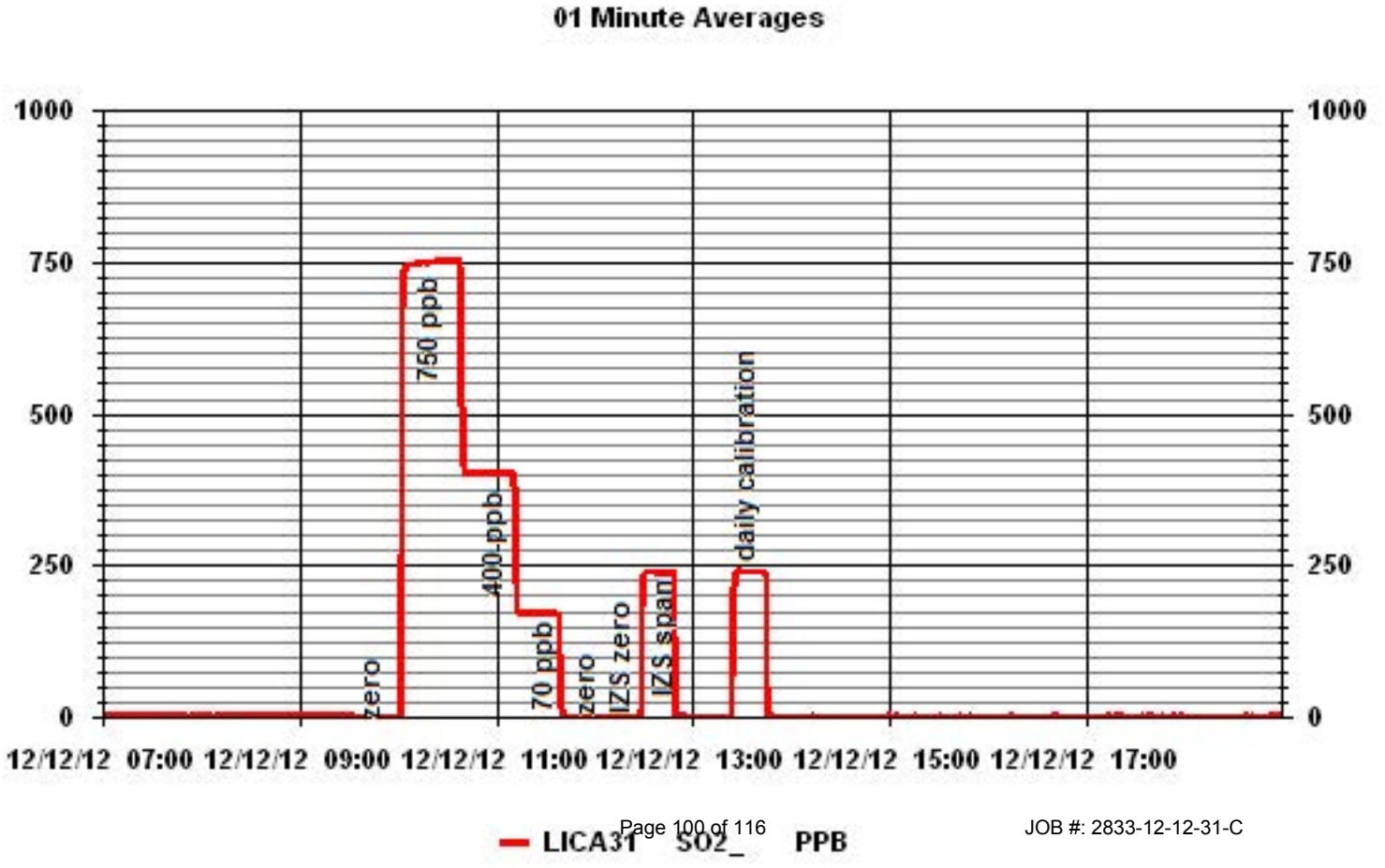
Calibration Date	December 12, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	09:30	End Time (MST)	12:53

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
170	171	0.9932
400	403	0.9929
750	751	0.9993

Correlation Coefficient	(≥ 0.995)	0.999986
Slope	(0.85 to 1.15)	1.000754
Intercept	(± 3% F.S.)	0.889509



Notes:



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

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 11, 2012		Previous Calibration	November 20, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST.LINA				
Start Time (MST)	09:50		End Time (MST)	13:45	
Reason:	Monthly Calibration				
Barometric Pressure	905	mBar	Station Temperature	19	Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648	Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 - 100 ppb							
Sample Flow / Box Temp	516	ccm	30.7	Deg C	519	ccm	30.9	Deg C
HVPS / Lamp Setting	518		2185		518		2181	
PMT / RxCell Temp	8.4	Deg C	50	Deg C	8.4	Deg C	50	Deg C
Converter / IZS Temp	316	Deg C	45	Deg C	315	Deg C	45.0	Deg C
Offset / Slope	100.8		1.029		103.5		1.015	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	2	NA
4997	0	0	0	1.0000
4959	40.0	80	82	0.9758
4959	40.0	80	80	1.0000
4979	20.0	40	41	0.9758
4986	11.5	23	24	0.9588
4996	0	0	0	NA
			Sum of Least Squares	0.9929
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.4	-0.3
Auto Span	40.8	40.9
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9758
Percent Change:	2.5%

Notes: **NA : Not Applicable**

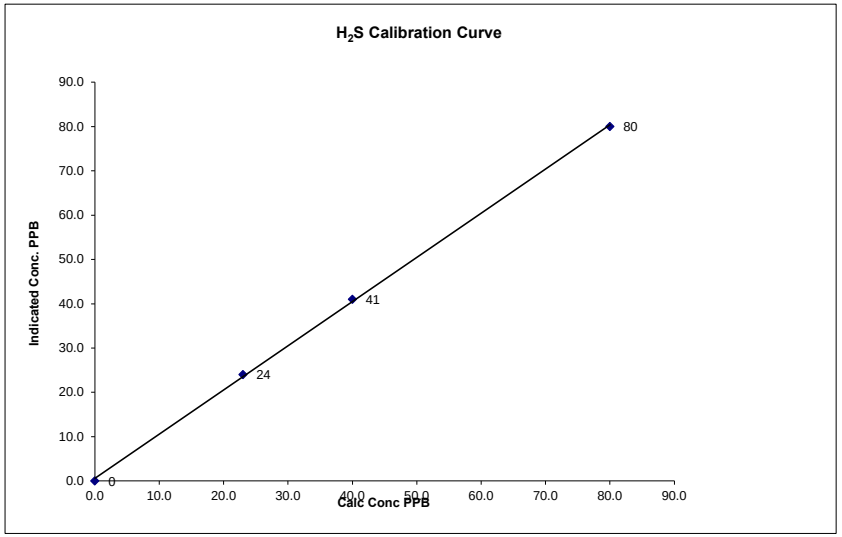
Calibration Performed by: Ting Xu

H_2S Calibration Curve

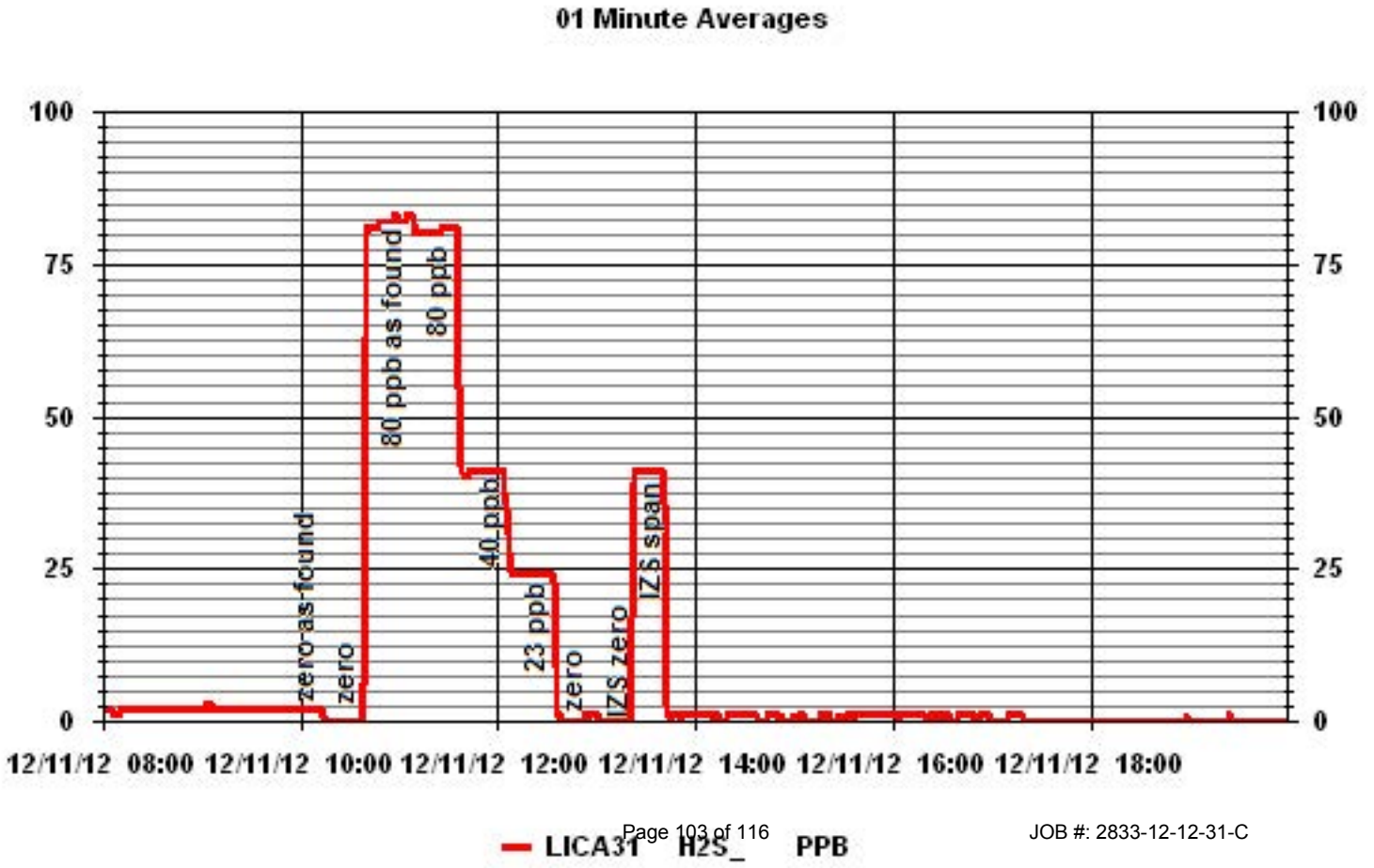
Calibration Date	December 11, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST.LINA				
Start Time (MST)	09:50		End Time (MST)	13:45	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	
23	24	0.9588
40	41	0.9758
80	80	1.0002

Correlation Coefficient	(≥ 0.995)	0.999714
Slope	(0.85 to 1.15)	0.997339
Intercept	(± 3% F.S.)	0.586263



Notes:



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

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 11, 2012		Previous Calibration	November 20, 2012	
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location:	ST. LINA				
Start Time (MST)	13:03		End Time (MST)	17:06	
Reason:	Monthly Calibration				
Barometric Pressure:	904	mBar	Station Temperature:	19	Deg C
Calibrator:	API 700		S/N:	831	
Cal Gas Concentration:	CH4 600 PPM		C3H8	204 PPM	
	TOTAL CH4 1161.0 PPM		Gas Cyl. #	LL155310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832		S/N :	AO 717	
Chart Recorder:	NA		S/N:	NA	
Output Voltage Range:	0 - 10	VDC	Chart Speed:	NA	mm/hr

Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.8	psi	6.8	psi
Hydrogen Pressure	9	psi	9	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	-0.1	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	41.2	1.0054
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	20.9	1.0090
2000	20.0	11.5	11.5	1.0000
2000	0.0	0.0	0.0	NA
			New Correction Factor:	0.9958

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	1.0054
Percent Change:	-1.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	34.7	35.0
Sample Lines Connected		YES

Cylinder Pressures

Span 1800 psi Hydrogen 1000 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

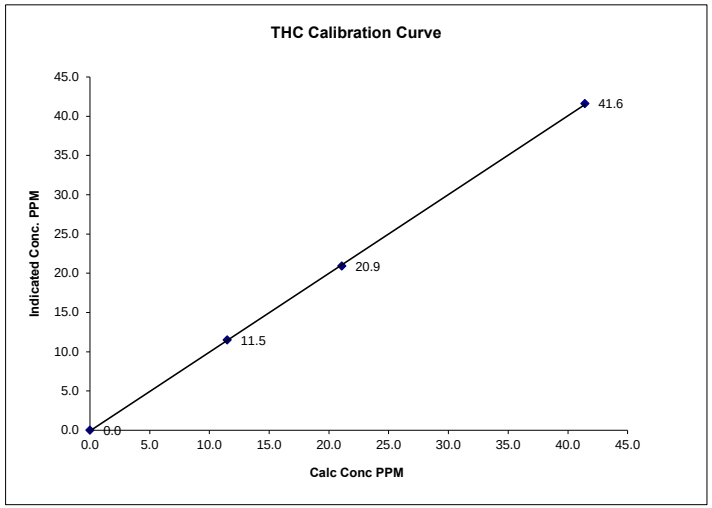
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	December 11, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	13:03	End Time (MST)	17:06

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	0.0	NA
11.5	11.5	0.9996
21.1	20.9	1.0090
41.4	41.6	0.9958

Correlation Coefficient	(≥ 0.995)	0.999943
Slope	(0.85 to 1.15)	1.003796
Intercept	(± 3% F.S.)	-0.07216



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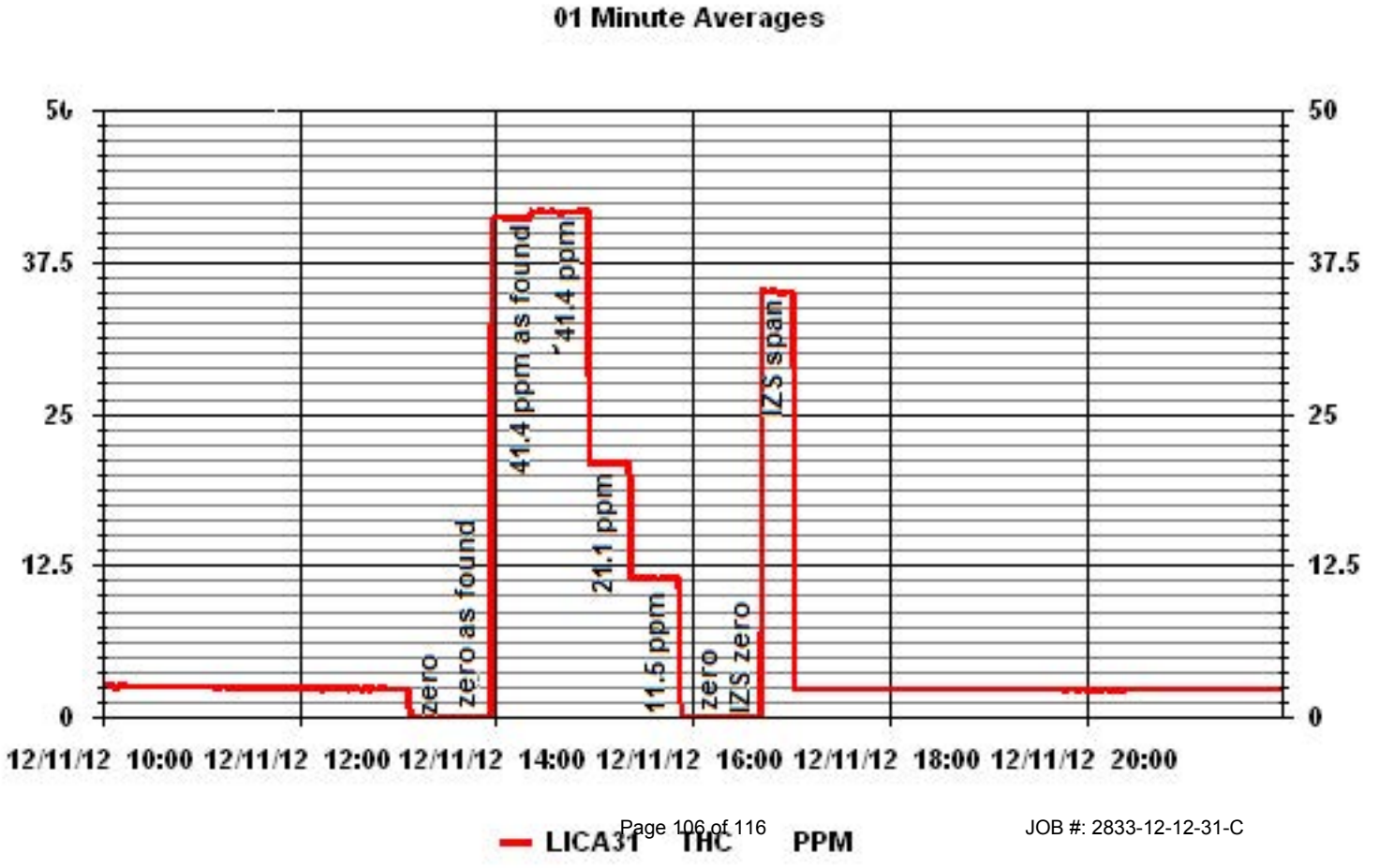


JOB #: 2833-12-12-31-C

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 11, 2012		Previous Calibration	November 20, 2012	
Company	LICA		Plant/Location	St. Lina	
Start Time (MST)	09:50		End Time (MST)	16:18	
Reason:	Monthly Calibration				
Barometric Pressure	906 mBar	Station Temperature	19 Deg C	MFCF	1
Cal Gas Concentration	NOx 50.1 ppm	NO 50.1 ppm	Cal Gas Expiry date	December 29, 2013	
Cal Gas Cylinder #	LL42502				
DAS Output Voltage	0 - 10 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration					After Calibration			
Concentration Range					0 - 1000 ppb				
Sample Flow/Conv. Temp	463	ccm	316	Deg C		459	ccm	314	Deg C
Ozone Flow / Vacuum	72	ccm	5.9	"Hg-A		72	ccm	5.9	"Hg-A
HVPS / A ZERO	638	Volts	18.6	MV		637	Volts	18.1	MV
Rx/ Temp / PMT Temp	50.0	Deg C	6.9	Deg C		50.0	Deg C	6.9	Deg C
Box Temp / IZS Temp	32.7	Deg C	45.3	Deg C		34.5	Deg C	45.2	Deg C
Offset	1.1	NOx	-0.1	NO		1.1	NOx	-0.1	NO
Slope	1.033	NOx	1.030	NO		1.050	NOx	1.043	NO
NO_2 COEF / Conv Efficency	NA	NO2	0.993			NA	NO2	0.993	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	1	1	1	NA	NA
	No Zero Adj									
4920	74.7	NA	749	749	NA	737	738	-1	1.0181	1.0167
4920	74.7	NA	749	749	NA	749	748	1	1.0000	1.0031
4961	34.9	NA	350	350	NA	349	348	2	1.0057	1.0086
4977	16.9	NA	170	170	NA	170	169	1	1.0000	1.0092
4994	0.0	NA	0	0	NA	0	1	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO_2 Correction Factor	NO2 Conv Efficency
			NOx	NO	NO2	NOx	NO	NO2		
4921	74.7	NA	749	749	NA	749	747	3	NA	NA
4921	74.7	600	749	NA	564	750	186	564	1.0018	100.00%
	No Adj.									
4921	74.7	300	749	NA	277	750	473	277	1.0036	100.00%
4921	74.7	120	749	NA	114	751	636	113	1.0179	99.10%

Linearity		Sum of Least Squares	NOx=	1.001	NO=	1.002	NO2=	1.000
OK? Yes	No	Correction Factors:	NOx=	1.0000	NO=	1.0031	NO2=	1.0018
				Average Converter Efficiency=		99.70%		

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	0.7	NOx	0.6	NO2		0.5	NOx	0.1	NO2
Auto Span	532	NOx	515	NO2		529	NOx	518	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	1.8%	NO	1.5%	NO2	6.4%

Notes

NA : Not Applicable

Additional GPT point done for Ozon calibration. O3 set point 450, Nox=749, NO=3363, NO2=416

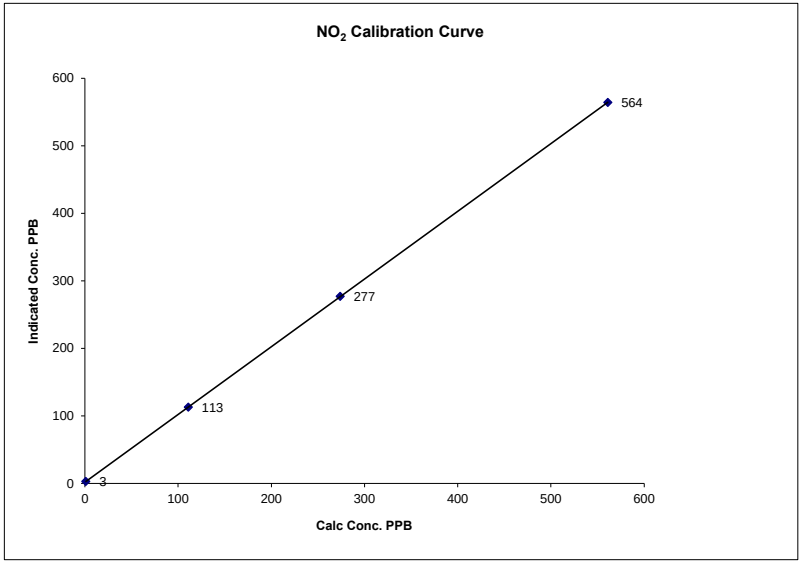
Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	December 11, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	09:50	End Time (MST)	16:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
1	3	N/A
111	113	0.9823
274	277	0.9892
561	564	0.9947

Correlation Coefficient	(≥ 0.995)	0.999999
Slope	(0.85 to 1.15)	1.002032
Intercept	(± 3% F.S.)	2.01896



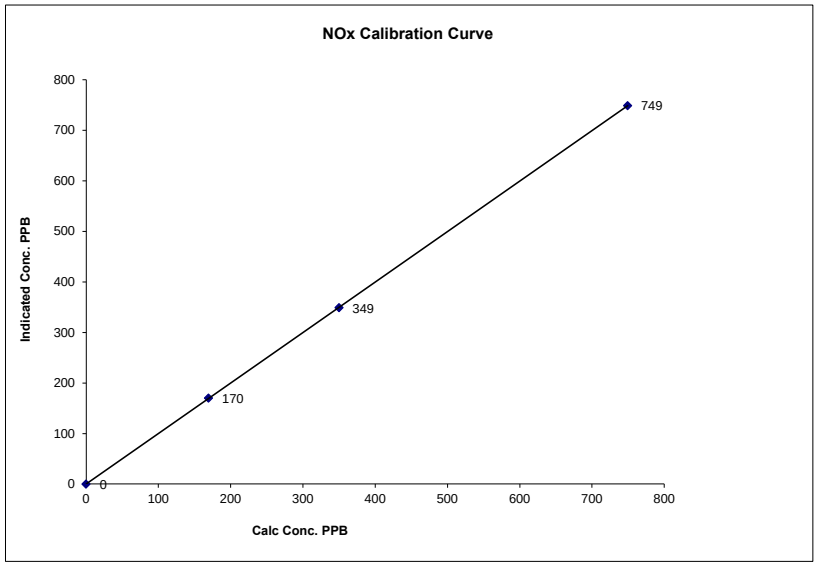
Notes:

NOx Calibration Curve

Calibration Date	December 11, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	09:50	End Time (MST)	16:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	N/A
170	170	0.9973
350	349	1.0028
749	749	1.0004

Correlation Coefficient	(≥ 0.995)	0.999997
Slope	(0.85 to 1.15)	0.999278
Intercept	(± 3% F.S.)	0.02459



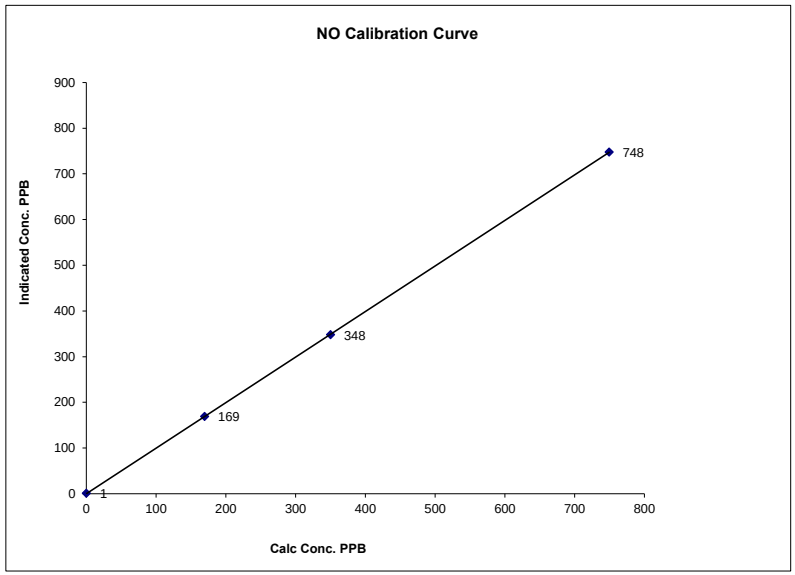
Notes:

NO Calibration Curve

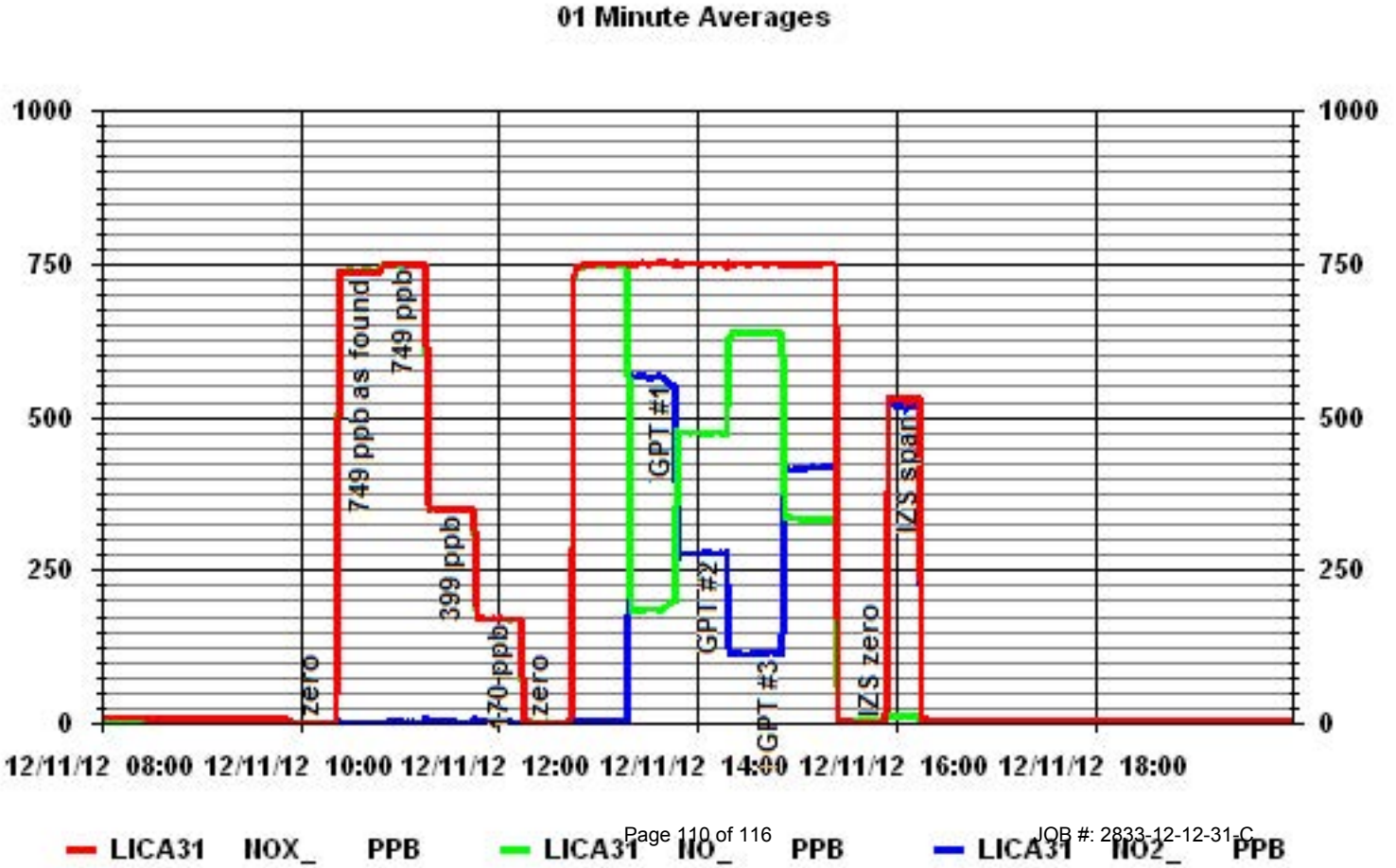
Calibration Date	December 11, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	09:50	End Time (MST)	16:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	N/A
170	169	1.0032
350	348	1.0057
749	748	1.0017

Correlation Coefficient	(≥ 0.995)	0.999992
Slope	(0.85 to 1.15)	0.999219
Intercept	(± 3% F.S.)	-2.5957



Notes:


01 Minute Averages
1000
750
500
250
0
749 ppb as found
749 ppb
399 ppb
170 ppb
zero
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
12/11/12 08:00
12/11/12 10:00
12/11/12 12:00
12/11/12 14:00
12/11/12 16:00
12/11/12 18:00
LICA31 NOX_ PPB
LICA31 NO_ PPB
LICA31 NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	December 12, 2012		Previous Calibration	November 21, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	St. Lina				
Start Time (MST)	09:30		End Time (MST)	13:49	
Reason:	Monthly Calibration				
Barometric Pressure	918	mBar	Station Temperature	18	Deg C
DAS Output Voltage	0-10	Volts			

Equipment Information

Analyzer Make / Model:	Thermo 49C	S/N :	49C-54926-302	Method:	Fluorescent
Calibrator Make / Model:	Environics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
CellA Flow / Cell B Flow	825 ccm	857 ccm	841 ccm	873 ccm
Pressure	683 mmHg		702 mmHg	
Bench Temp	56.6 Deg C		56.6 Deg C	
O3 Lamp / Box Temp	80 Deg C	28.3 Deg C	80 Deg C	27.3 Deg C
Offset / Slope	0.1	1.019	0.1	1.019

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
	No Zero Adj			
4994	450	414	413	1.0024
	No Span Adj.			
4994	300	274	275	0.9964
4994	120	110	110	1.0000
4994	0	0	0	N/A
			Sum of Least Squares	N/A
			New Correction Factor	0.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.7	0.4
Auto Span	330.0	327.0
Sample Lines Connected		YES
Percent Change from Previous Calibration		-1.9%

Note: **NA: Not Applicable**

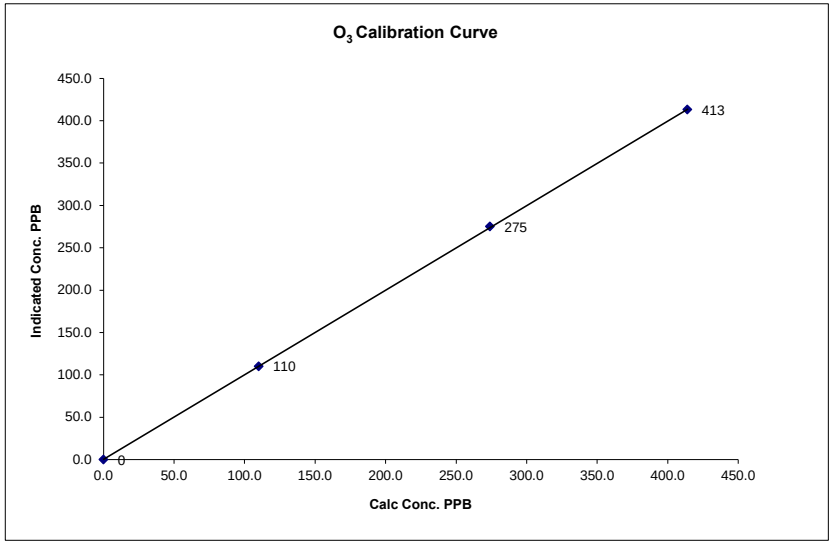
Calibration Performed by: Ting Xu

O_3 Calibration Curve

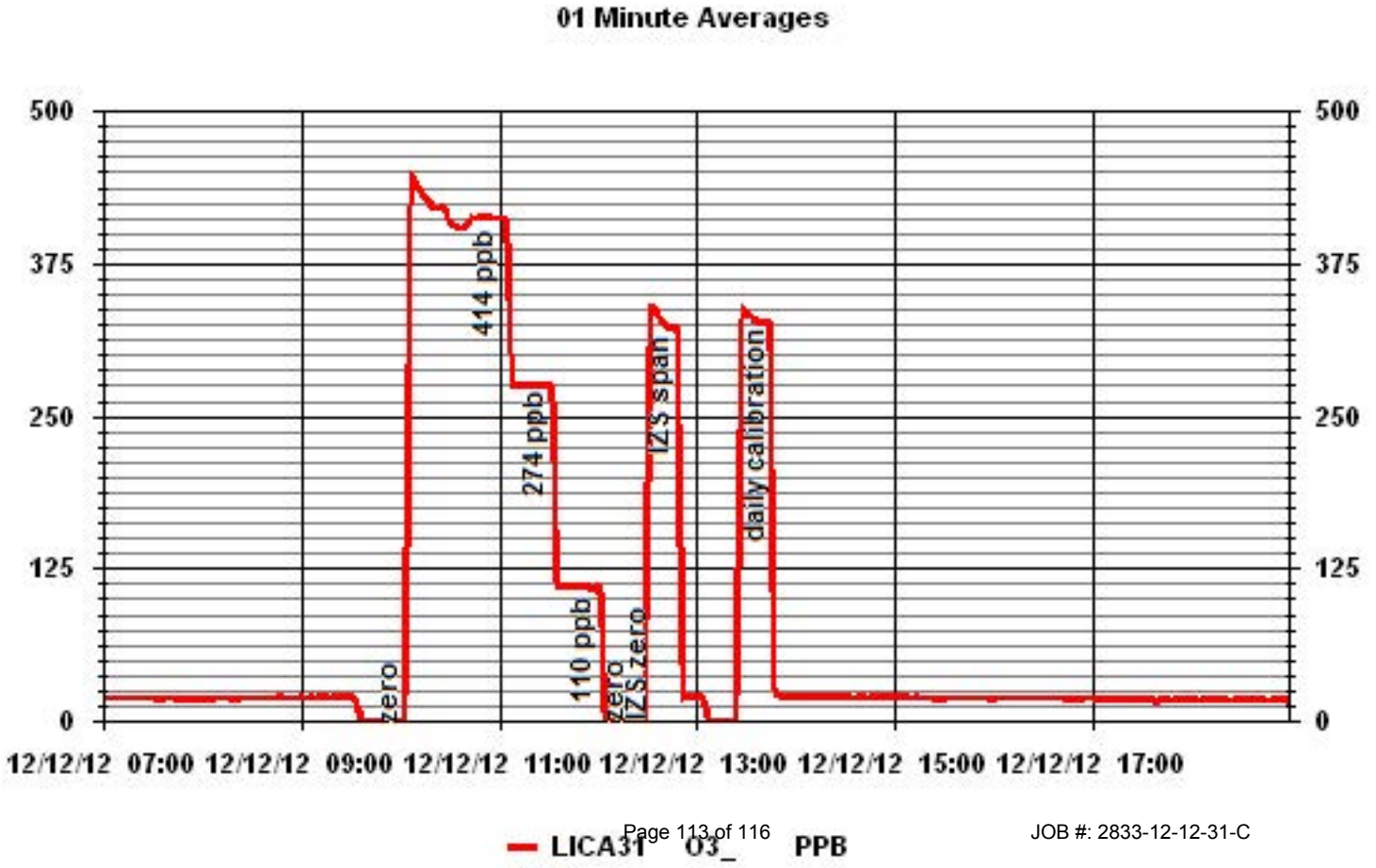
Calibration Date	December 12, 2012			
Company	Lakeland Industry & Community Association			
Plant / Location	St. Lina			
Start Time (MST)	09:30	End Time (MST)	13:49	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
110	110	1.0000
274	275	0.9964
414	413	1.0024

Correlation Coefficient	(≥ 0.995)	0.999982
Slope	(0.85 to 1.15)	0.998591
Intercept	(± 3% F.S.)	0.281068



Notes:



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

Particulate Matter 2.5

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	December 17, 2012	Make/Model:	Stremline FTS
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	Lo 091099, Hi 091001
Location:	St. Lina Station	Cell s/n:	NA
Operator:	LICA	Thermometer s/	Station Temp. Sensor

Sampler		Set-up and current Sampler readings	
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A207691003	Filter Load (%)	35.2%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-11.1
		Press (ATM)	0.905

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status

Noise **<0.10*u* g**	0.006	Warnings	None
Pump Vacuum **<0.4atm**	0.32	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 °C)**	-12.06	**D °C**	1.0
Measured Press **(± 0.01atm)**	0.904	**DATM**	0.001

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	0.02%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	0.42%
Measured Bypass Flow (l/min)	13.61	Flow Adjusted to Measured?	YES

Leak Check

Main **(< 0.15 l/min)**	Base=-0.01 Ref=-0.00
Aux **(< 0.6 l/min)**	Base=-0.01 Ref=-0.01

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

Measured	NA
K_o Difference **(± 2.5%)**	NA

Start Time: 11:35 **Finish Time:** 12:58

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

New Filter Loading %: 20.8%

Comments:

Auditor/s: Ting Xu

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

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	December 20, 2012	Make/Model:	Stremline FTS
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	Lo 091099, Hi 091001
Location:	St. Lina Station	Cell s/n:	NA
Operator:	LICA	Thermometer s/	Station Temp. Sensor

Sampler		Set-up and current Sampler readings	
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A207691003	Filter Load (%)	21.9%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-14.11
		Press (ATM)	0.916

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status

Noise **<0.10*u* g**	0.005	Warnings	None
Pump Vacuum **<0.4atm**	0.31	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 °C)**	-15.31	**D °C**	1.2
Measured Press **(± 0.01atm)**	0.915	**DATM**	0.001

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	0.89%
Measured Main Flow (l/min)	2.97	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	0.97%
Measured Bypass Flow (l/min)	13.56	Flow Adjusted to Measured?	YES

Leak Check

Main **(< 0.15 l/min)**	Base=-0.01 Ref=-0.00
Aux **(< 0.6 l/min)**	Base=-0.01 Ref=0.04

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

Measured	NA
K_o Difference **(± 2.5%)**	NA

Start Time: 15:55 **Finish Time:** 16:55

Sample Inlet Cleaned: NO **New Filters Installed:** NO

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu / Limin

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

Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2012

Prepared By:

January 24, 2013

JOB #: 2833-12-12-01

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 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

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

The 6-day analytical report for VOCs and PAHs:
Authorized by Petro Oh

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 ï December 2012

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	0.51	3	13	VAR	VAR	VAR	1.3	13	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.9
NO_2 (PPB)	159	-	0	-	7.16	24.9	15	16	0.8	64(ENE)	15.1	28	98.8
NO (PPB)	-	-	-	-	2.03	38.0	15	8	0.4	306(NW)	9.6	19	98.8
NOx (PPB)	-	-	-	-	9.19	62.1	15	11	2.9	80(E)	21.7	10	98.8
O_3 (PPB)	82	-	0	-	20.87	37	21, 29	VAR	VAR	VAR	33.5	30	100.0
THC (PPM)	-	-	-	-	2.41	4.8	29	10	1	344(NNW)	3.7	28	99.9
PM 2.5 (UG/M^3)	-	30	-	0	7.56	28	VAR	VAR	VAR	VAR	15.1	19	92.5
TEMPERATURE (DEG C)	-	-	-	-	-16.65	-4.4	29	14	4.2	277(W)	-8.9	14	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	76.29	89	17	7	5.5	95(E)	85.3	17	100.0
VECTOR WS (KPH)	-	-	-	-	4.12	13.3	4	15	-	129(SE)	8.0	11	100.0
VECTOR WD (DEGREES)	-	-	-	-	84(E)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

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

Passive Ambient Monitoring Network ï December 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO_2	#14	1.3	0.69
H_2S	#26	0.28	0.18
NO_2	#28	8.6	3.7
O_3	#8	27.5	21.9

Volatile Organics Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION ï COLD LAKE

Xontech Model 910A ï November 29th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A ï December 5th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A ï December 11th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A ï December 18th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Xontech Model 910A ï December 23rd, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: No sample was collected on December 23rd as the sample was not received when the scheduled time started.

Xontech Model 910A ï December 29th, 2012

Maximum reading (ug/m3)	Volatile Organic
<32.0	Hexachlorobutadiene

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION ï COLD LAKE

PUF cartridge ï December 05th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

PUF cartridge ï December 11th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
6.477	Naphthalene

PUF cartridge ï December 18th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

PUF cartridge ï December 23rd, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

Note: No sample was collected on December 23rd as the sample was not received when the scheduled time started.

PUF cartridge ï December 29th, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.054	3-Methylcholanthrene

General Monthly Summary - Cold Lake

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 ï LICA – COLD LAKE

Sulphur Dioxide (PPB)
- Analyzer make / model – Thermo 43i, S/N: 806528242

No operational issues were observed during the month. The inlet filter was changed on December 4th. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)
- Analyzer make / model –TEI 450i, S/N: 812728560
- Converter - CD NOVA CDN 101, S/N: 250

No operational issues were observed during the month. The inlet filter was changed on December4th. Data was corrected using daily zero information.

Ozone (PPB)
- Analyzer make / model –Thermo 49i, S/N: 700419951

No operational issues were observed during the month. The inlet filter was changed on December 4th. Data was corrected using daily zero information.

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

No operational issues were observed during the month. The inlet filter was changed on December 4th. The span gas was replaced before the calibration was started. Data was corrected using daily zero information.

General Monthly Summary - Cold Lake

AQM STATION ï LICA – COLD LAKE

Nitrogen Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed on November 4th. Hourly data for NO2 between December 4th at hour 15 and at hour 23 are missing. NOx and NO data were invalidated at the same time period in order to meet CASA data submission requirement. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

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

A Teom audit was performed and the inlet was cleaned on December 4th. Another Teom audit was performed on December 21st. The bracket for securing the switching valve was installed, a leak check was done, and the Teom filter was replaced on December 21st. 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. 56 hours of data were invalid as the data were below –3 ug/m3.

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

- System make / model –RM Young, S/N: 46553

The wind system is reported as vector wind speed and vector wind direction.
No operational issues were observed during the month. The installation calibration result performed on November 28th is included in this monthly report.

General Monthly Summary - Cold Lake

AQM STATION ï LICA – COLD LAKE

Relative Humidity (PERCENT)
- System make / model - Rotronic Hygroclip-S3

No operational issues were observed during the month.

Ambient Temperature (DEGC)
- System make / model - Rotronic Hygroclip-S3

No operational issues were observed during the month.

Trailer Temperature (DEGC)
- System make / model - R&R 61

No operational issues were observed during the month.

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 manifold was cleaned on December 4th.

General Monthly Summary - Cold Lake

AQM STATION ï LICA – COLD LAKE

Air Quality Index (AQI)
No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

Passive Network
No operational issues were observed during the month.

Volatile Organics (VOCs)
The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures.
The volatile organics schedule to be sampled on December 5th, 11th, 17th, 23rd and 29th. However, no sample was collected on December 23rd as the sample was not received when the scheduled time started.
The sample result for sampling data November 29th is included in this report.

Polycyclic Aromatic Hydrocarbons (PAHs)
he sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3.
The PAHs scheduled to be sampled on December 5th, 11th, 17th, 23rd and 29th. However, no sample was collected on December 23rd as the sample was not received when the scheduled time started. T

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

SULPHUR DIOXIDE (SO_2) hourly averages in ppb

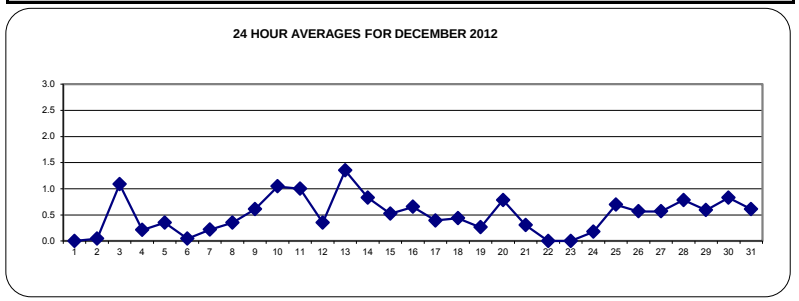
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
3	0	1	1	**IZS**	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
4	1	1	**IZS**	1	1	0	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	0	1	0.2	24
5	0	**IZS**	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0	0	1	1	0	0	0	0	2	0.3	24
6	**IZS**	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	**IZS**	0	1	0.2	24
8	0	0	0	0	0	0	1	1	1	2	1	1	1	0	0	0	0	0	0	0	0	**IZS**	0	0	2	0.3	24
9	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	1	1	1	**IZS**	1	1	1	2	0.6	24
10	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	2	1.0	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1.0	24
12	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	1	1	1	1	0.3	24
13	1	1	0	0	1	1	1	1	1	1	2	2	2	3	3	3	**IZS**	2	1	1	1	1	1	1	**3**	**1.3**	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	0	0	0	0	1	0.8	24
15	0	0	0	0	0	0	0	0	0	0	1	1	1	1	**IZS**	1	0	1	1	1	1	1	1	1	1	0.5	24
16	1	1	1	1	1	1	1	1	1	0	1	1	1	**IZS**	1	1	1	0	0	0	0	0	0	0	1	0.7	24
17	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	0	0	1	1	1	1	1	1	1	1	0.4	24
18	1	1	1	1	1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	1	1	1	1	0	0	1	0.4	24
19	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	1	1	1	1	0	1	0	0	0	1	0	1	0.3	24
20	0	0	0	0	0	1	1	1	1	**IZS**	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	0	**IZS**	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	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0.2	24
25	1	1	1	0	**IZS**	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
26	1	1	1	**IZS**	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0.6	24
27	1	1	**IZS**	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.6	24
28	0	**IZS**	0	0	0	0	0	0	1	0	0	1	1	1	2	1	1	2	2	2	1	1	1	1	2	0.8	24
29	**IZS**	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	0.6	24
30	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	**IZS**	1	2	0.8	24
31	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	1	0	0	**IZS**	0	1	1	0.6	24
HOURLY MAX	1	1	1	1	2	2	2	1	1	2	2	2	2	3	3	3	2	2	2	2	1	1	1	1			
HOURLY AVG	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.3	0.5	0.7	0.6	0.7	0.7	0.7	0.5	0.6	0.6	0.5	0.4	0.6	0.5	0.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

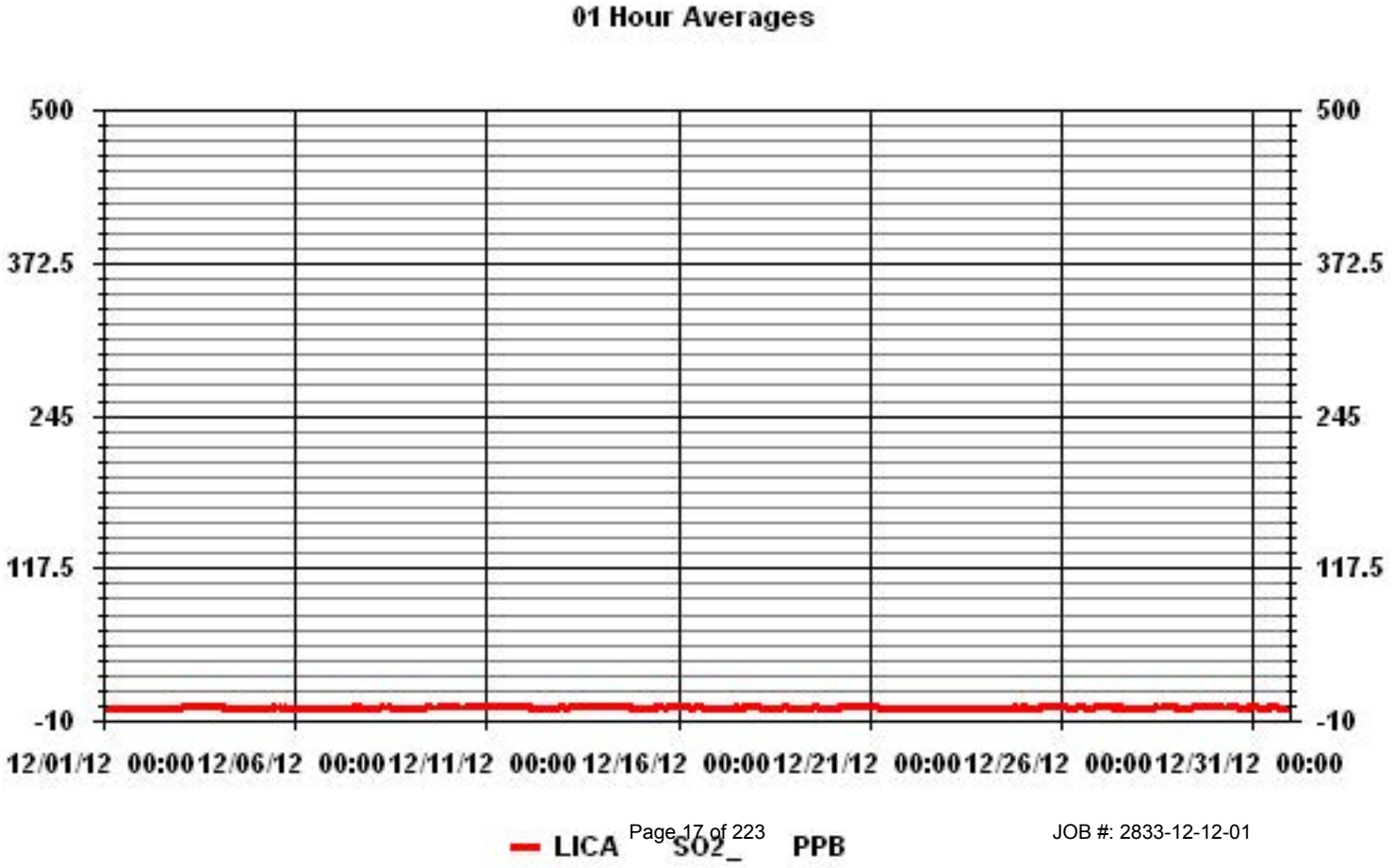
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	335					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	VAR	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	1.3	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.57		MONTHLY AVERAGE:		0.51	PPB

JOB #: 2833-12-12-01



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

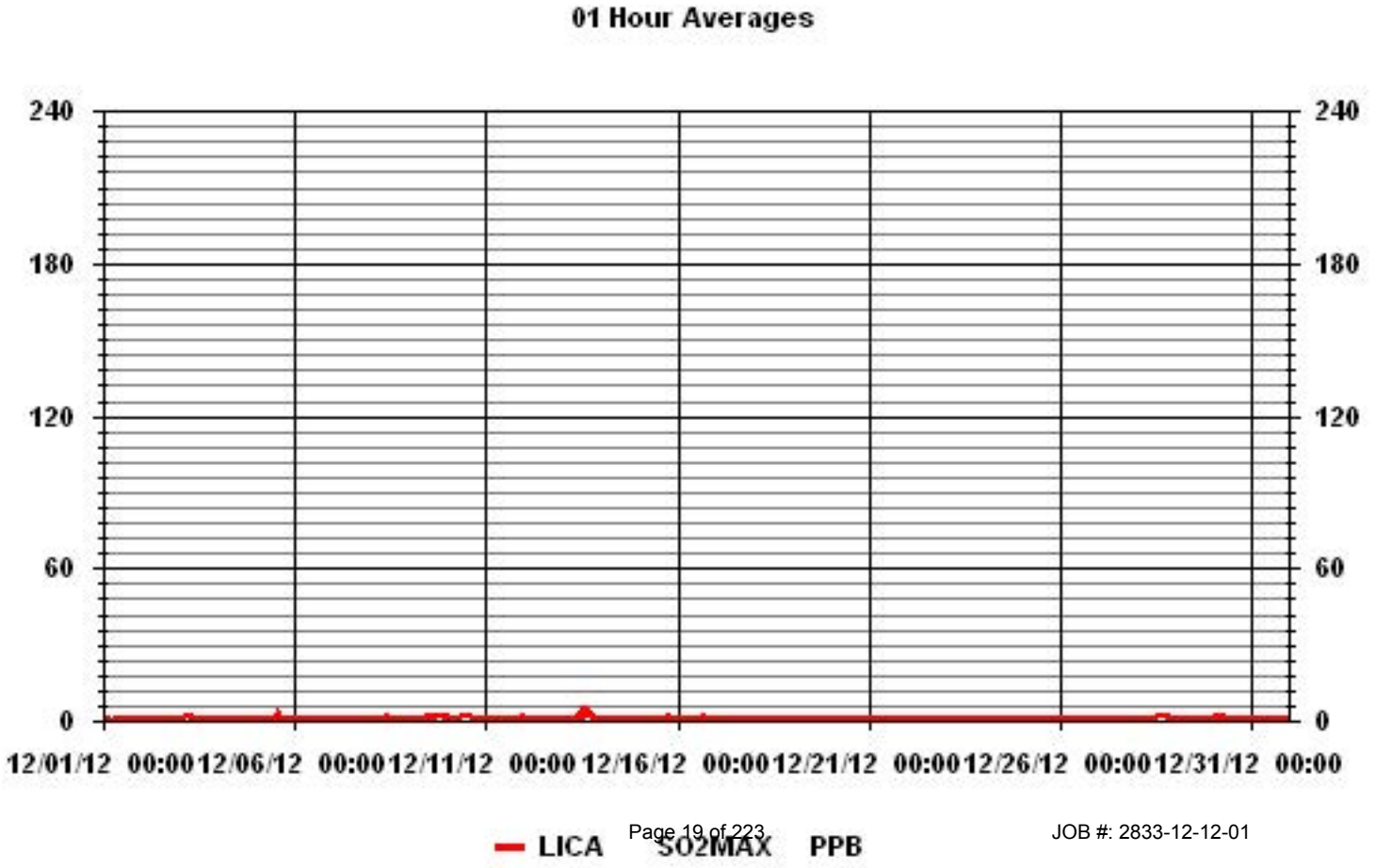
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	0	**IZS**	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
2	1	1	0	1	**IZS**	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0.9	24
3	1	1	1	**IZS**	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24
4	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	1	1	1	1	1	1	1.0	24
5	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	1	1	3	1.1	24
6	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1.0	24
7	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	2	1.1	24
9	0	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	2	2	2	**IZS**	2	2	1	2	1.4	24
10	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	**IZS**	1	1	1	1	2	1.4	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	2	2	2	1.1	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1.0	24
13	1	1	1	1	1	1	1	1	1	1	2	3	2	**5**	**5**	3	**IZS**	3	2	2	1	1	1	1	**5**	1.8	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	2	1	1	1	1	1	2	1.0	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	2	1	1	1	1	1	1	1	2	1.0	24
17	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
18	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
19	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
21	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
22	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	**IZS**	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
24	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
26	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
27	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
28	1	**IZS**	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	2	1.4	24
29	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1.0	24
30	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	2	1.3	24
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1.0	24
HOURLY MAX	2	1	1	2	2	2	2	2	2	2	2	3	2	5	5	3	2	3	2	2	2	2	2	2			
HOURLY AVG	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	13, 14	ON DAY(S)	13
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.38					



JOB #: 2833-12-12-01

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.53	6.08	8.34	5.65	12.72	7.92	14.14	3.67	1.27	1.27	3.25	8.91	11.17	5.37	3.81	2.82	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	3.53	6.08	8.34	5.65	12.72	7.92	14.14	3.67	1.27	1.27	3.25	8.91	11.17	5.37	3.81	2.82	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	25	43	59	40	90	56	100	26	9	9	23	63	79	38	27	20	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	25	43	59	40	90	56	100	26	9	9	23	63	79	38	27	20	

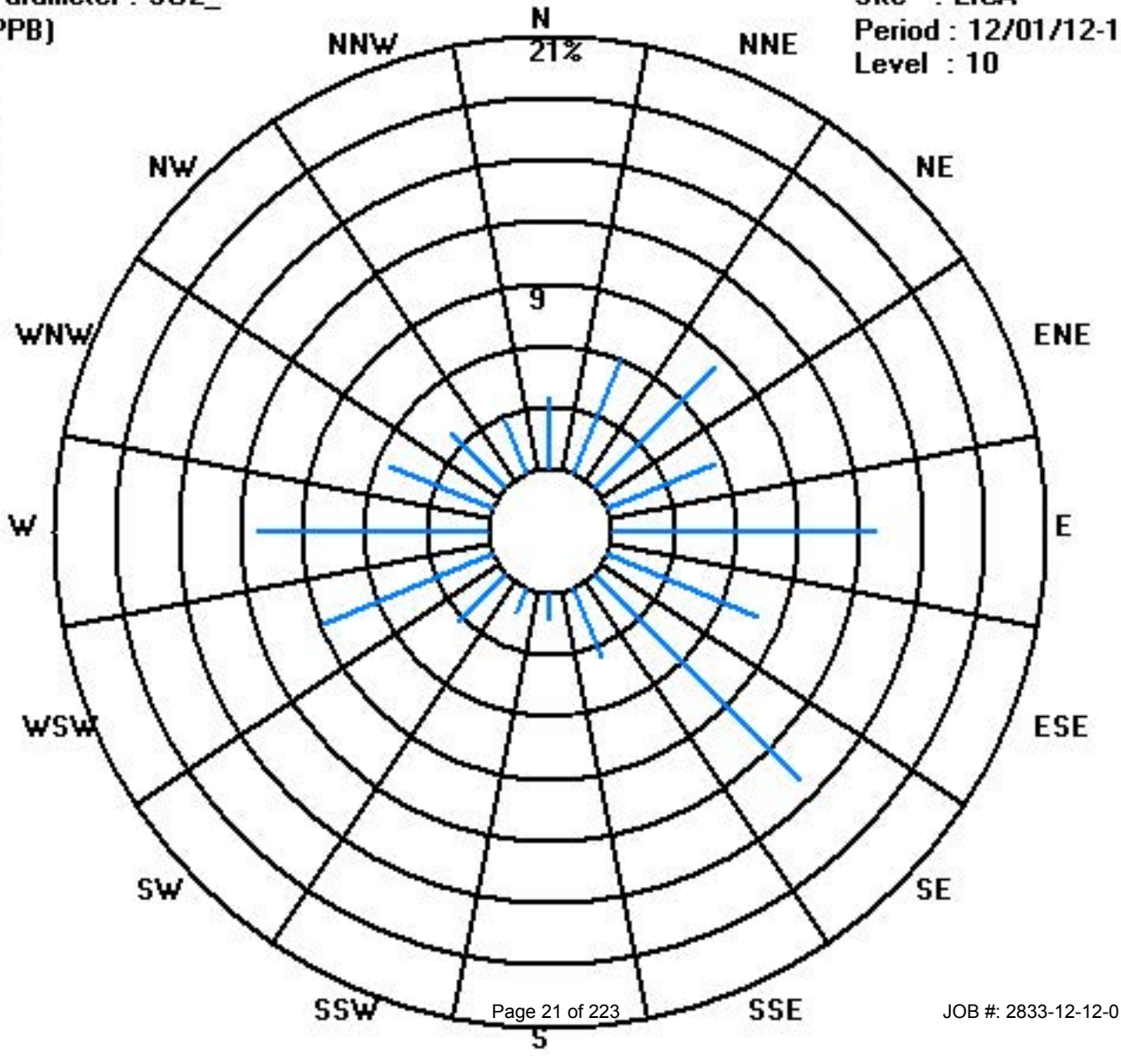
Calm : .00 %

Total # Operational Hours : 707

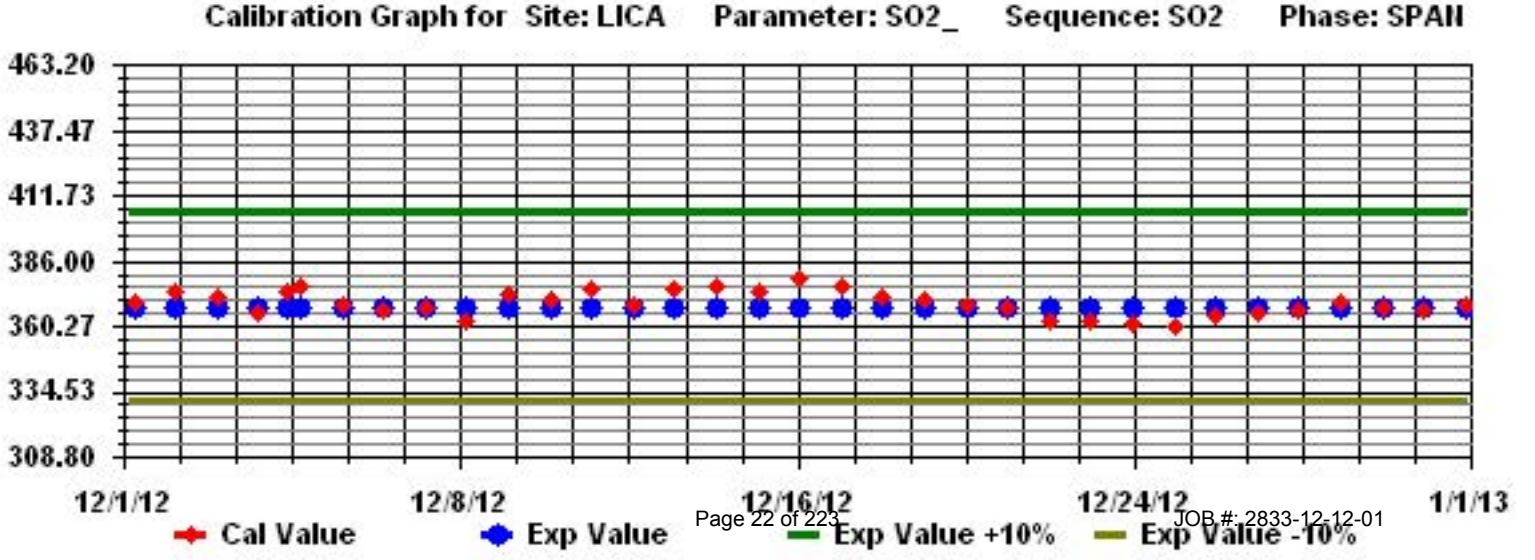
Logger : 01 Parameter : SO2_
Class Limits (PPB)

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

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



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN
463.20
437.47
411.73
386.00
360.27
334.53
308.80
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

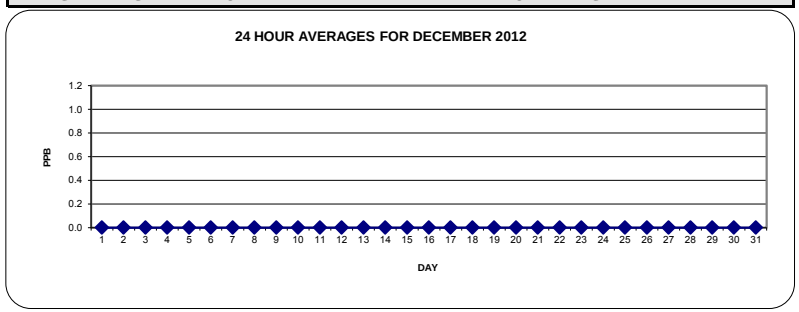
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	**M**	0	0	0	0	0	0	0.0	23
5	0	**IZS**	0	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	**IZS**	0	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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

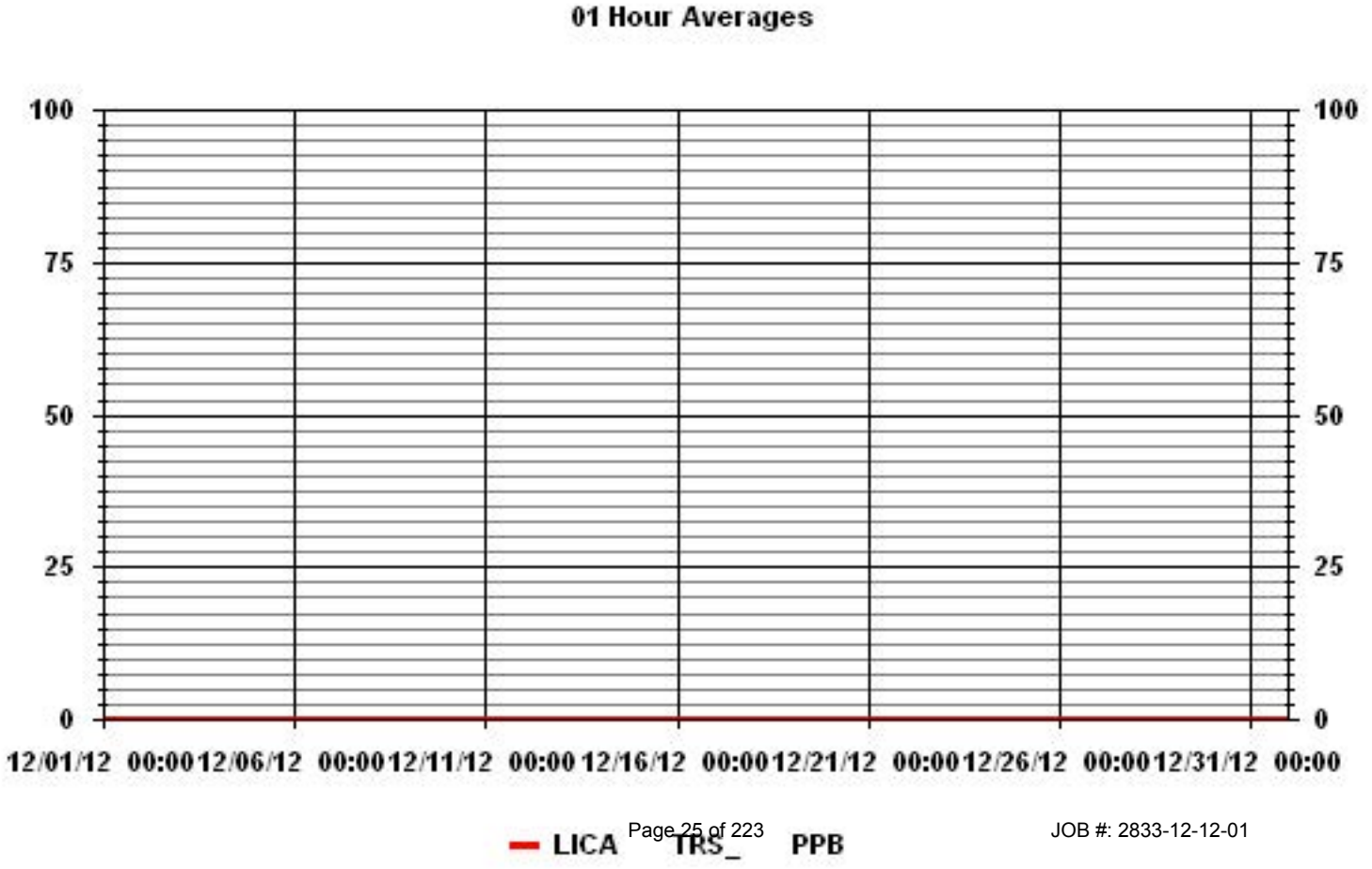
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

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

IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24
2	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	**M**	0	0	0	0	0	0	0.0	23
5	0	**IZS**	0	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0.0	24
7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24
20	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.0	24
22	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	**IZS**	0	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0.0	24
HOURLY MAX	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	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	0.1	0.0	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 4

MAXIMUM INSTANTANEOUS VALUE: 1 PPB @ HOUR(S) VAR ON DAY(S) VAR

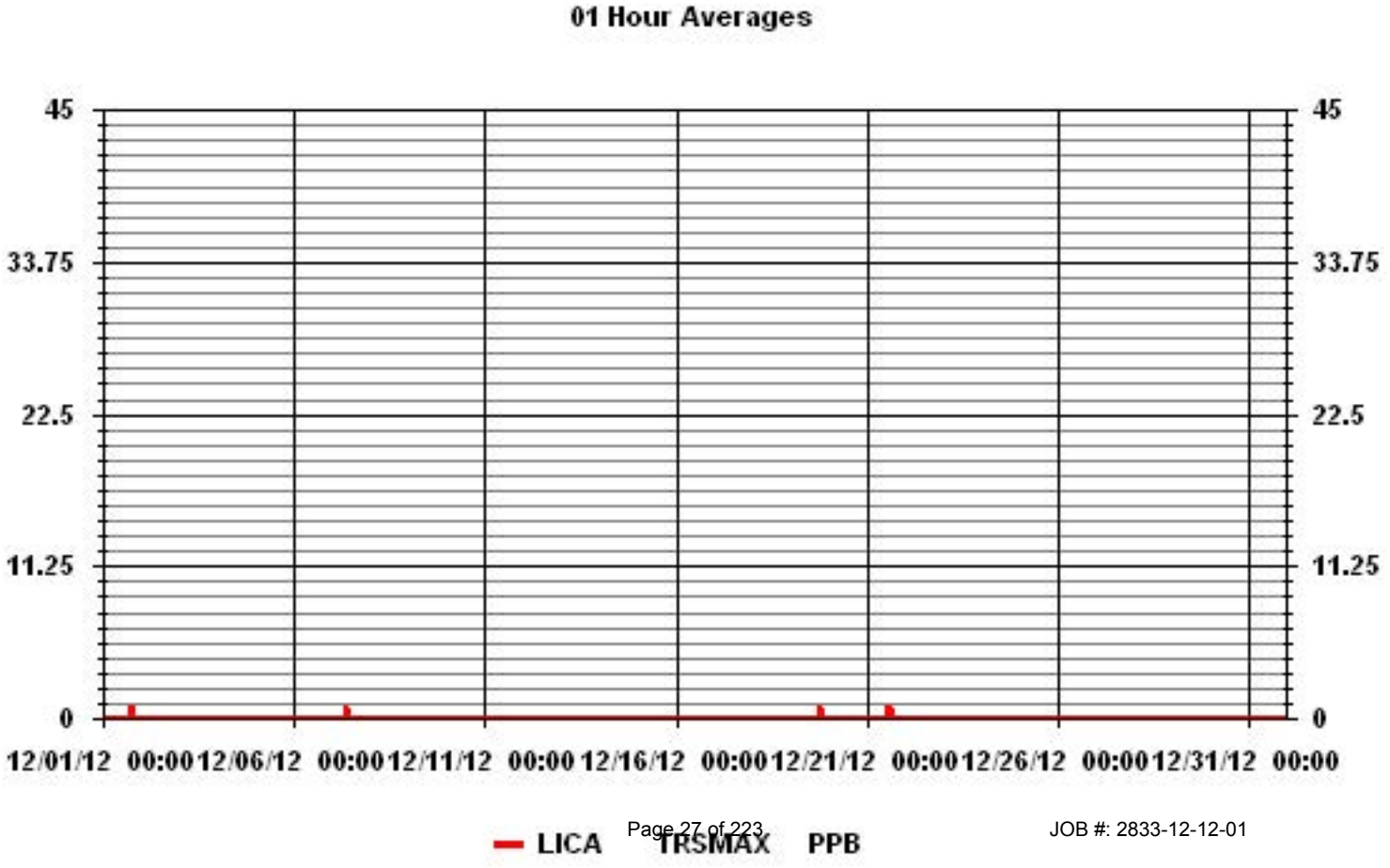
VAR - VARIOUS

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 743 HRS

MONTHLY CALIBRATION TIME: 4 HRS

STANDARD DEVIATION: 0.08

JOB #: 2833-12-12-01



JOB #: 2833-12-12-01

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

December 2012

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	3.54	6.09	8.35	5.66	12.74	8.07	13.88	3.68	1.27	1.27	3.25	8.92	11.18	5.38	3.82	2.83	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	3.54	6.09	8.35	5.66	12.74	8.07	13.88	3.68	1.27	1.27	3.25	8.92	11.18	5.38	3.82	2.83	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	25	43	59	40	90	57	98	26	9	9	23	63	79	38	27	20	706
<	10																	
<	50																	
>=	50																	
	Totals	25	43	59	40	90	57	98	26	9	9	23	63	79	38	27	20	

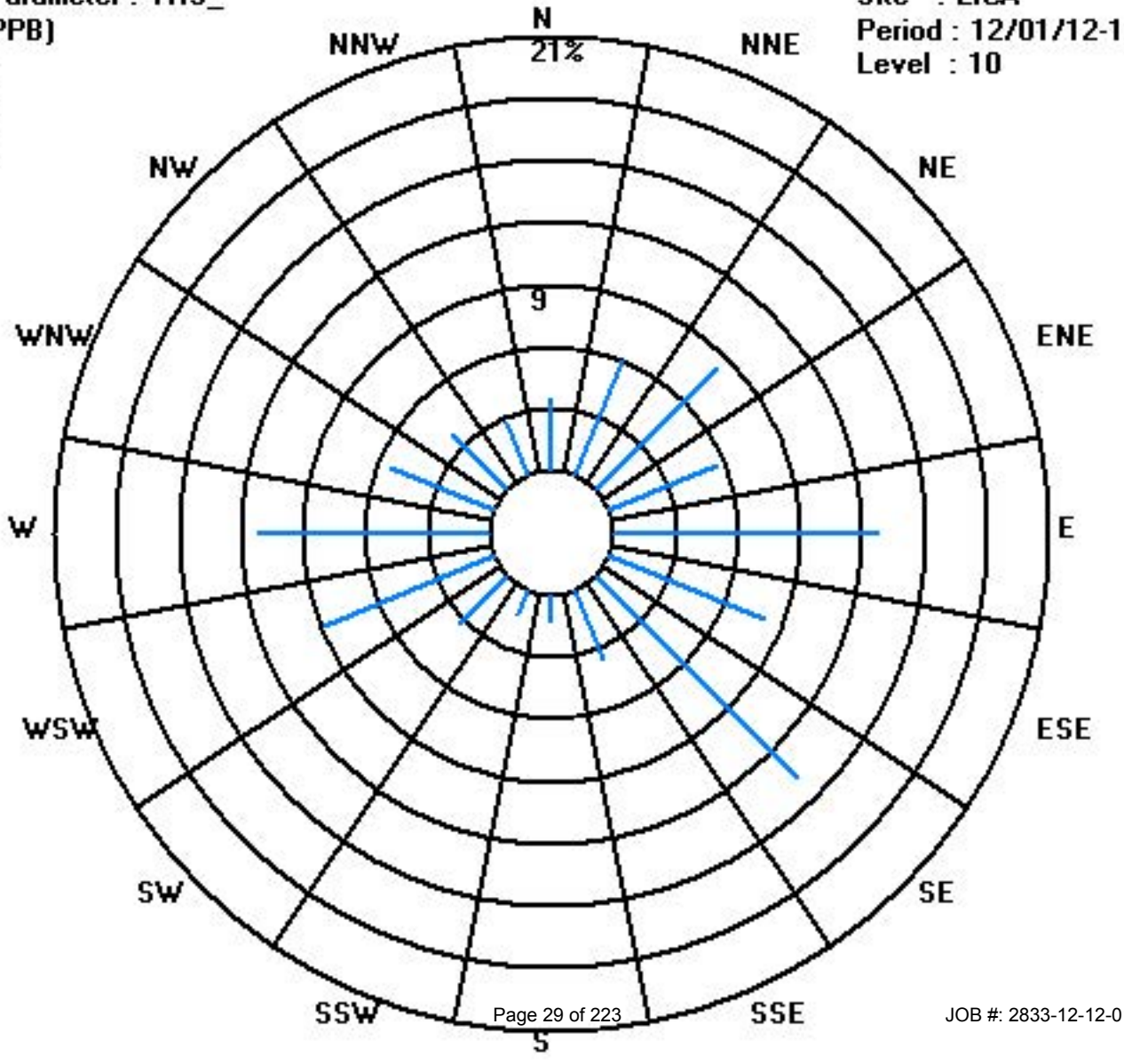
Calm : .00 %

Total # Operational Hours : 706

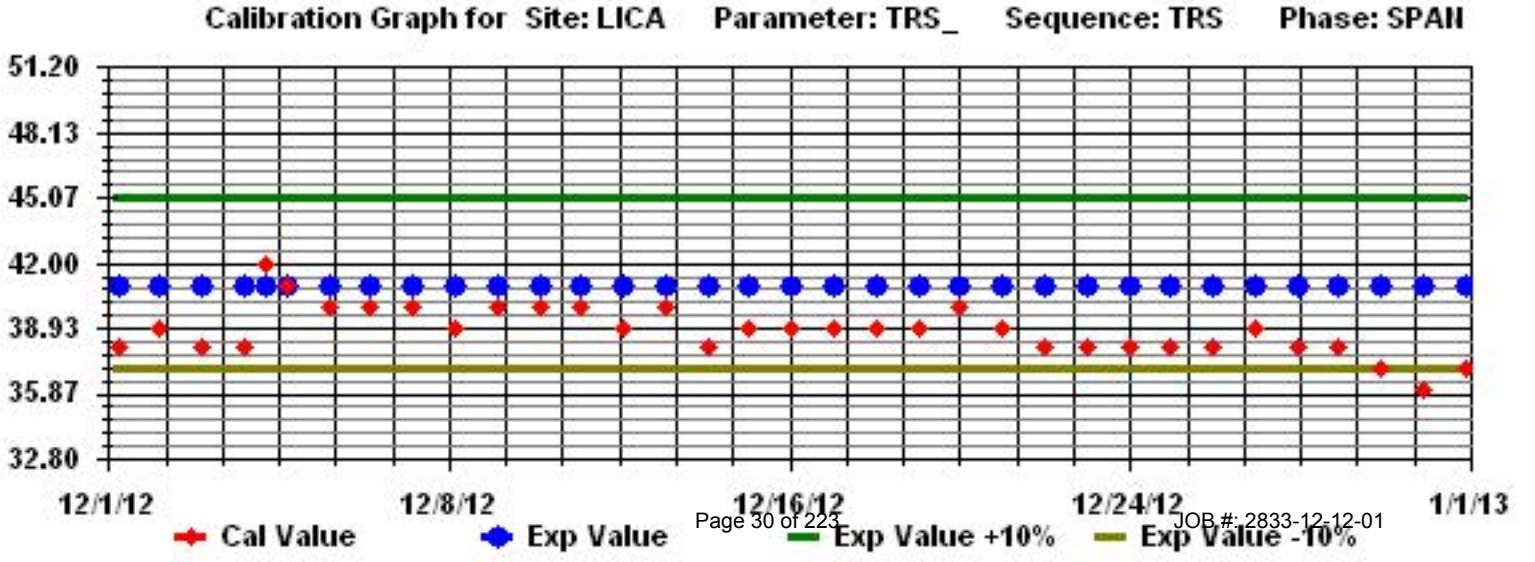
Logger : 01 Parameter : TRS_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

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



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN
51.20
48.13
45.07
42.00
38.93
35.87
32.80
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2012

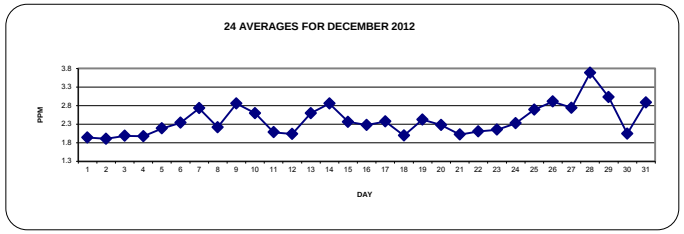
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	2	2	2	2	**IZS**	1.9	1.9	1.9	1.9	1.9	2.1	2	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	2.1	1.9	24
2	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24
3	1.9	1.9	1.9	**IZS**	1.9	1.9	1.9	1.9	2	1.9	1.9	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.0	24
4	2.1	2	**IZS**	2	2	2	2	2	2	2	2	2	2	**C**	**C**	**C**	**C**	1.9	**M**	1.9	1.9	1.9	1.9	1.9	2.1	2.0	23
5	1.9	**IZS**	1.9	2	2.1	2.1	2.1	2.2	2.4	2.5	2.4	2.2	2.1	2.2	2.1	2.4	2.5	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.5	2.2	24
6	**IZS**	2	2	2	2.1	2.1	2.2	2.2	2.3	2.3	2.1	2.1	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.8	**IZS**	2.8	2.3	24
7	3	3	3.1	3.2	3.3	3.3	3	2.7	2.4	2.6	2.6	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.4	2.4	2.4	2.5	**IZS**	2.4	3.3	2.7	24
8	2.4	2.5	2.5	2.6	2.7	2.4	2	2	2	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.3	2.5	2.7	2.2	24
9	2.5	2.7	2.8	2.9	3.3	3.5	3.2	3.1	3	2.9	3	2.7	2.8	2.8	2.7	2.6	2.6	2.8	2.7	2.7	**IZS**	2.7	2.7	2.9	3.5	2.9	24
10	2.7	2.8	2.8	2.9	3	3.3	3.1	3	2.6	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.4	2.4	**IZS**	2.5	2.6	2.3	2.2	3.3	2.6	24
11	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	**IZS**	2	2	2	2	2	2.2	2.1	24
12	2	2	2	2	2	1.9	1.9	2	2	2	2	2	2	2	2	2	2.1	**IZS**	2	2	2.1	2.2	2.3	2.3	2.3	2.0	24
13	2.4	2.5	2.7	2.7	2.6	2.6	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.4	2.4	2.4	**IZS**	2.4	2.4	2.5	2.5	2.6	2.8	2.7	2.9	2.6	24
14	2.9	2.8	2.8	2.8	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.9	3	3.1	3.4	**IZS**	3	3	3	3	2.7	2.5	2.7	2.4	3.4	2.9	24
15	2.3	2.5	2.3	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.8	2.7	2.4	2.3	**IZS**	2.5	2.5	2.5	2.3	2.4	2.6	2.4	2.3	2.1	2.8	2.4	24
16	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	**IZS**	2.1	2.4	2.5	2.5	2.4	2.6	2.7	2.9	3	3.1	3.1	2.3	24
17	3.1	3.2	3.2	3.4	3.3	2.5	2.4	2.4	2.3	2.3	2.2	2.1	**IZS**	2	1.9	2	2	2	2	2	2.1	2	2.2	2	3.4	2.4	24
18	2.1	2	2	2	2	2	2	2	2	2	2	**IZS**	1.9	1.9	1.9	1.9	2	2.1	2	2	2	2	2	2	2.1	2.0	24
19	2	2.2	2.4	2.1	2.2	2.2	2.3	2.2	2.3	2.3	**IZS**	2.3	2.3	2.3	2.4	2.7	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6	3.2	2.4	24
20	2.6	2.5	2.6	2.6	2.7	2.6	2.5	2.4	2.5	**IZS**	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2.7	2.3	24
21	2	2	2.1	2.1	2.1	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2.1	2	2	2	2	2	2	2.1	2.0	24
22	2	2	2	2	2	2	2	**IZS**	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	24
23	2.2	2.2	2.1	2.1	2.2	2.2	**IZS**	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	24
24	2.1	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.7	2.5	2.5	2.7	2.7	2.5	2.7	2.3	24
25	2.3	2.4	2.4	2.4	**IZS**	2.7	2.8	2.8	2.9	3	3.1	3	3	2.8	2.7	2.6	2.6	2.5	2.4	2.5	2.7	2.6	2.8	2.8	3.1	2.7	24
26	2.8	2.9	3.3	**IZS**	3.3	3.1	3.1	3.1	3.1	3.2	3.3	2.9	2.9	2.7	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.7	2.7	2.8	3.3	2.9	24
27	2.8	2.8	**IZS**	2.5	2.6	2.5	2.6	2.5	2.2	2.4	2.4	2.4	2.4	2.6	2.5	2.5	2.9	2.9	3	3.1	3.2	3.3	3.4	3.5	3.5	2.7	24
28	3.5	**IZS**	3.7	3.9	3.8	3.9	3.9	4	4.2	4.6	4.3	3.4	3.2	3.1	3.1	3.2	3.4	3.7	3.7	3.6	3.6	3.6	3.6	3.6	4.6	**3.7**	24
29	**IZS**	3.7	3.7	3.8	3.8	3.9	3.9	3.9	4	4.3	**4.8**	3.8	2.6	2.5	2.2	1.9	1.9	1.9	1.9	2	2	2	2	**IZS**	**4.8**	3.0	24
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.1	2.1	2.1	2.1	**IZS**	2.3	2.3	2.0	24
31	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.6	2.8	3.1	3.1	3.3	3.3	3.4	3.5	3.5	3.6	3.6	3.7	**IZS**	3.2	2.4	3.7	2.9	24
HOURLY MAX	3.5	3.7	3.7	3.9	3.8	3.9	3.9	4.0	4.2	4.6	4.8	3.8	3.2	3.3	3.4	3.4	3.5	3.7	3.7	3.6	3.7	3.6	3.6	3.6			
HOURLY AVG	2.3	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4			

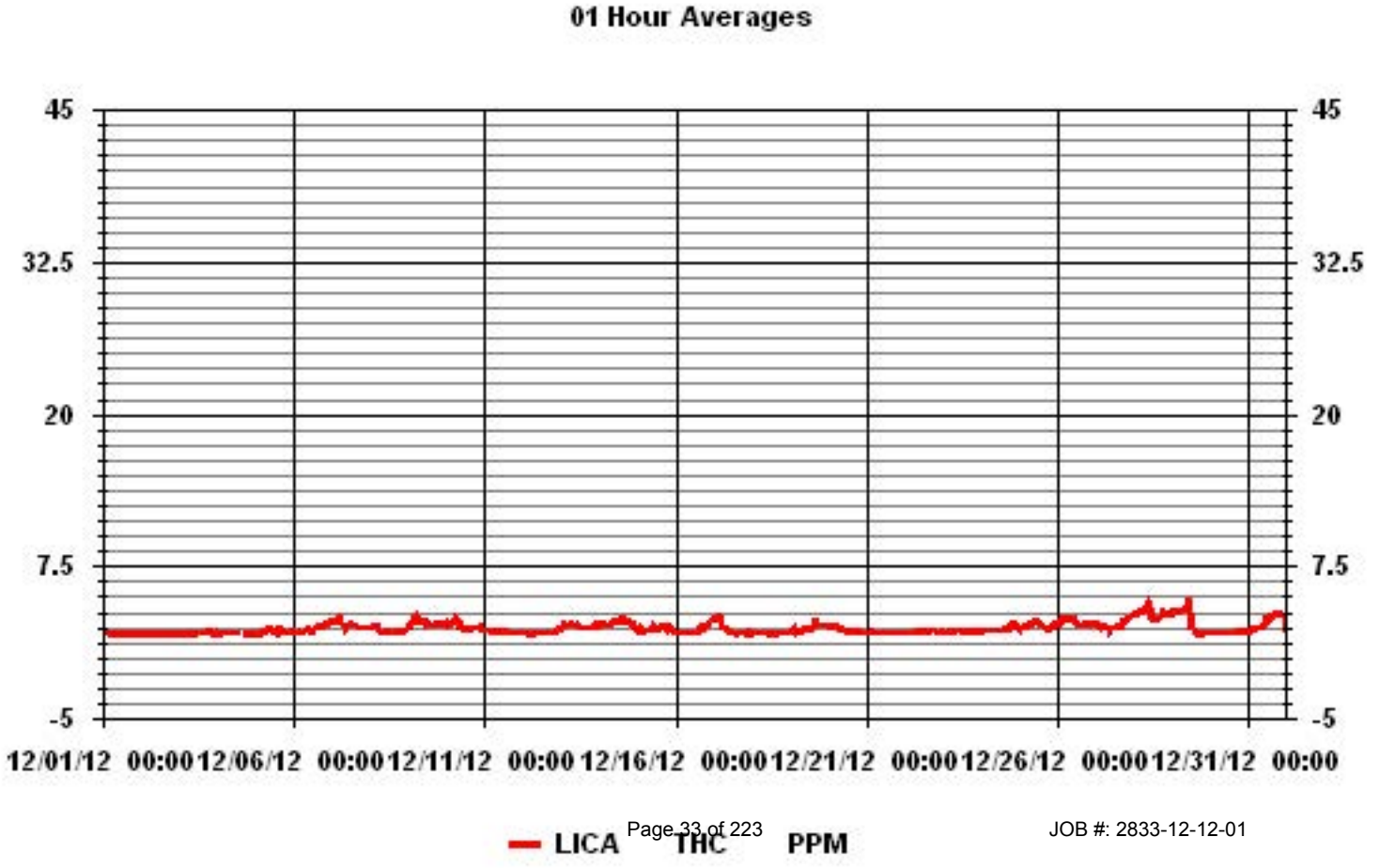
STATUS FLAG IZSODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
IZS	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		706					
MAXIMUM 1-HR AVERAGE:		4.8	PPM	@ HOUR(S)	10	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:		3.7	PPM			ON DAY(S)	28
IZS CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	33	HRS		AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.50			MONTHLY AVERAGE:		2.41	PPM



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

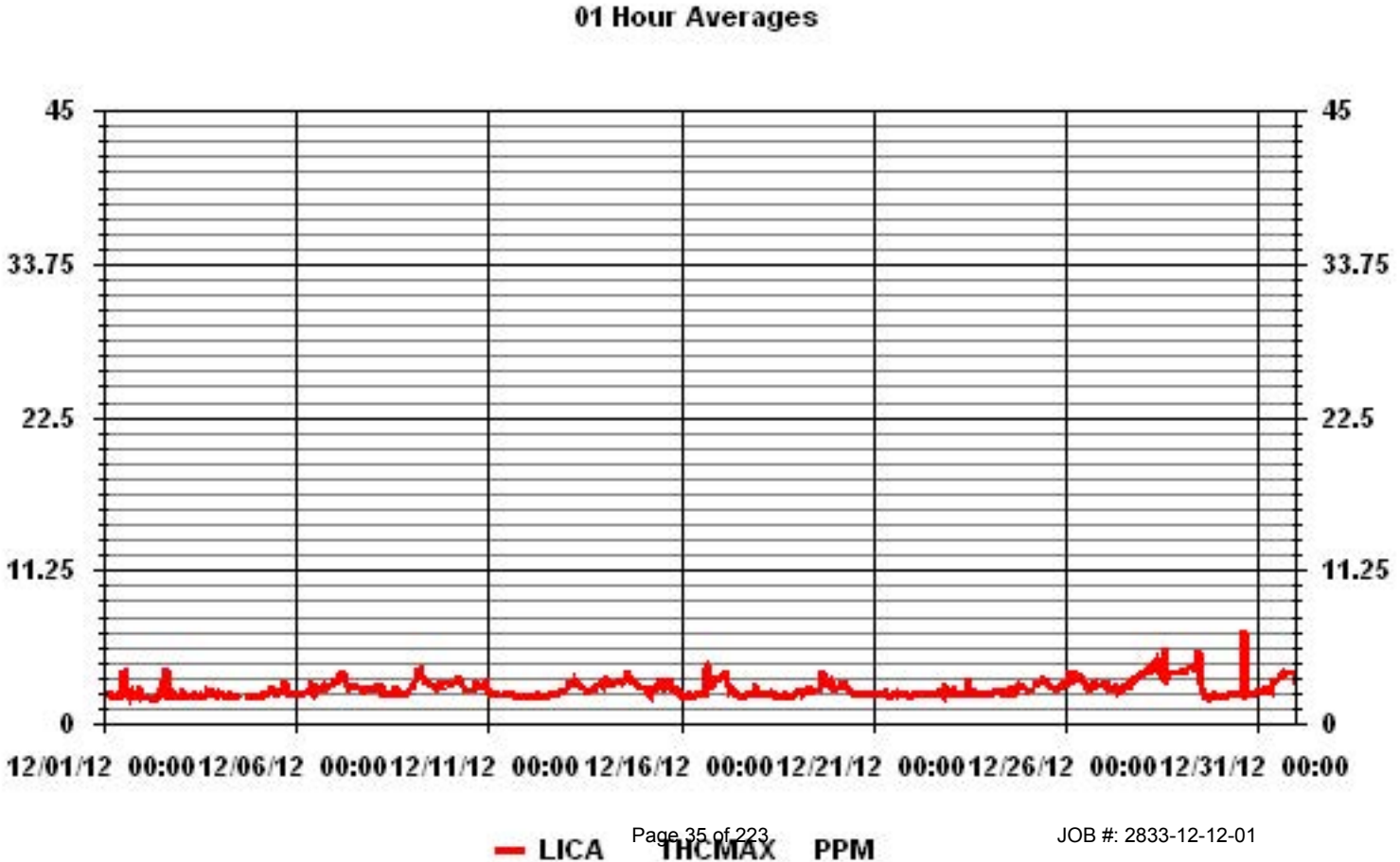
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.1	2.1	2.1	2.1	**IZS**	2	2	2.2	2	2	3.7	3.8	2	2.2	2.3	2	2.3	2	2	2	2.1	2.8	1.9	3.8	2.3	24
2	2	1.9	1.9	2	**IZS**	1.9	2	1.9	2	1.9	2.1	2.6	2	3	3.2	4.1	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.9	4.1	2.2	24
3	1.9	2.5	2	**IZS**	2	2	2	2.1	2.2	2.1	2	2	2.1	2.1	2	2.1	2.4	2.2	2.2	2.6	2.2	2.2	2.1	2.3	2.6	2.1	24
4	2.1	2.1	**IZS**	2	2.1	2	2	2.2	2.2	2.1	2	2.1	**C**	**C**	**C**	**C**	**C**	2.2	**M**	2	2	2	2	2	2.2	2.1	23
5	2	**IZS**	2	2.2	2.2	2.3	2.2	2.3	2.5	2.5	2.5	2.3	2.2	2.3	2.3	2.6	2.9	3.2	2.3	2.2	2.1	2.1	2.1	2.1	3.2	2.3	24
6	**IZS**	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	3.2	2.4	2.2	2.4	2.7	2.6	2.5	2.5	2.8	2.6	2.7	2.8	2.8	2.9	**IZS**	3.2	2.5	24
7	3.1	3.1	3.2	3.5	3.6	3.6	3.3	2.9	2.6	2.7	2.7	2.7	2.7	2.8	2.7	2.7	2.6	2.6	2.4	2.5	2.5	2.6	**IZS**	2.5	3.6	2.9	24
8	2.5	2.7	2.6	2.7	2.8	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7	2.2	2.2	2.1	2.1	2.2	2.2	**IZS**	2.4	2.5	2.8	2.3	24
9	2.7	2.8	3.1	3.5	3.9	4	3.6	3.4	3.1	3.1	3.1	2.9	2.9	2.8	2.8	2.7	2.9	3	2.9	2.7	**IZS**	3	3	3	4	3.1	24
10	2.9	3	3	3	3.3	3.4	3.3	3.1	2.9	2.5	2.4	2.4	2.4	2.4	2.4	2.6	3.2	2.6	2.6	**IZS**	2.8	2.9	3	2.3	3.4	2.8	24
11	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2	2	**IZS**	2	2	2	2	2	2.3	2.1	24
12	2.1	2	2	2	2	2	2	2.4	2.1	2	2.1	2	2	2	2.1	2.1	2.1	**IZS**	2.1	2.1	2.2	2.4	2.5	2.4	2.5	2.1	24
13	2.5	3	3	3	2.7	3.2	3	3	3	2.8	2.7	2.7	2.6	2.5	2.4	2.5	**IZS**	2.7	2.6	2.8	2.8	2.8	3	2.8	3.2	2.8	24
14	3	3.4	2.9	2.9	3	2.9	3	3	3.1	3.1	3.1	3	3.1	3.3	3.7	**IZS**	3.5	3.1	3.1	3.1	3	2.8	2.8	2.6	3.7	3.1	24
15	2.6	2.7	2.6	2.4	2.2	2.8	2.4	2.4	2.6	2.8	3.1	3.1	2.7	2.6	**IZS**	3.2	2.9	3	2.3	2.6	2.6	2.6	2.4	2.2	3.2	2.6	24
16	2.1	2.1	2	2	2.1	2.2	2	2.1	2	2.1	2.1	2.1	2.2	**IZS**	2.2	4	4.2	3.8	2.5	2.8	3	3.2	3.2	3.2	4.2	2.6	24
17	3.3	3.4	3.4	3.6	3.6	2.9	2.5	2.7	2.5	2.3	2.3	2.2	**IZS**	2	2.1	2	2.2	2.1	2.1	2.1	2.1	2.1	2.9	2.2	3.6	2.5	24
18	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.1	**IZS**	2	2	2	2	2.1	2.2	2.1	2	2.1	2	2.1	2.1	2.3	2.1	24
19	2.2	2.3	2.6	2.1	2.2	2.3	2.3	2.3	2.7	2.4	**IZS**	2.4	2.4	2.4	2.5	3.5	3.9	3	2.8	2.8	2.9	3.1	2.7	2.6	3.9	2.6	24
20	2.7	2.6	2.6	3	2.9	2.9	3	2.6	2.6	**IZS**	2.4	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	3	2.4	24
21	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.4	**IZS**	2.1	2	2	2.1	2.1	2.3	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2	2.4	2.1	24
22	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.2	2.2	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.4	2.4	2.2	2.9	2.2	2.3	2.2	2.9	2.2	24
23	2.4	2.5	2.2	2.2	2.2	2.3	**IZS**	2.2	2.2	2.2	2.3	3.3	2.2	2.2	2.6	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	3.3	2.3	24
24	2.2	2.2	2.2	2.3	2.3	**IZS**	2.3	2.3	2.3	2.3	2.2	2.4	2.3	2.7	2.4	2.4	2.3	2.6	2.8	2.6	2.6	2.8	2.8	2.7	2.8	2.4	24
25	2.4	2.5	2.4	2.4	**IZS**	2.9	2.9	3	3	3.2	3.2	3.2	3.1	2.9	2.8	2.6	2.6	2.6	2.5	2.6	2.7	2.7	2.9	2.9	3.2	2.8	24
26	2.9	3	3.7	**IZS**	3.7	3.2	3.3	3.4	3.3	3.5	3.4	3.1	3	2.8	2.7	2.6	2.9	2.8	3	2.8	2.9	2.8	2.8	3	3.7	3.1	24
27	2.9	3.1	**IZS**	2.6	2.7	2.6	2.7	2.7	2.4	2.6	2.5	2.7	2.6	2.7	2.7	3	3.2	3	3.2	3.2	3.3	3.4	3.5	3.6	3.6	2.9	24
28	3.6	**IZS**	3.9	4.1	4	4.2	4.1	4.4	4.4	4.8	4.6	3.8	3.4	3.3	5.6	3.3	3.7	3.8	3.7	3.7	3.7	3.7	3.7	3.7	5.6	4.0	24
29	**IZS**	3.8	3.8	3.9	4	4.1	4.2	4.1	4.3	4.5	5.1	5.1	3	2.6	2.4	2	2	1.9	2	2	2.1	2.1	2	**IZS**	5.1	3.2	24
30	2.1	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	5.1	**6.9**	2.2	2.3	2.2	2.1	2.2	2.2	**IZS**	2.4	**6.9**	2.5	24
31	2.3	2.4	2.5	2.4	2.6	2.5	2.4	2.7	2.5	3.1	3.1	3.2	3.3	3.5	3.5	3.8	3.6	3.7	3.7	3.7	3.8	**IZS**	3.7	3.1	3.8	3.1	24
HOURLY MAX	4	4	4	4	4	4	4	4	4	5	5	5	4	4	6	7	4	4	4	4	4	4	4	4			
HOURLY AVG	2.5	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.5	2.5	2.7	2.8	2.7	2.6	2.5	2.5	2.5	2.5	2.6	2.5			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705						
MAXIMUM INSTANTANEOUS VALUE:	6.9	PPM	@ HOUR(S)	15	ON DAY(S)	30	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			743	HRS
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.61						



JOB #: 2833-12-12-01

LICA
THC / WD Joint Frequency Distribution (Percent)

December 2012

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	3.25	5.24	7.79	5.66	12.74	7.22	13.03	2.97	1.13	.99	2.12	6.51	8.49	4.10	2.83	2.40	86.54
<	10.0	.28	.84	.56	.00	.00	.70	.99	.70	.14	.28	1.13	2.40	2.69	1.27	.99	.42	13.45
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.54	6.09	8.35	5.66	12.74	7.93	14.02	3.68	1.27	1.27	3.25	8.92	11.18	5.38	3.82	2.83	

Calm : .00 %

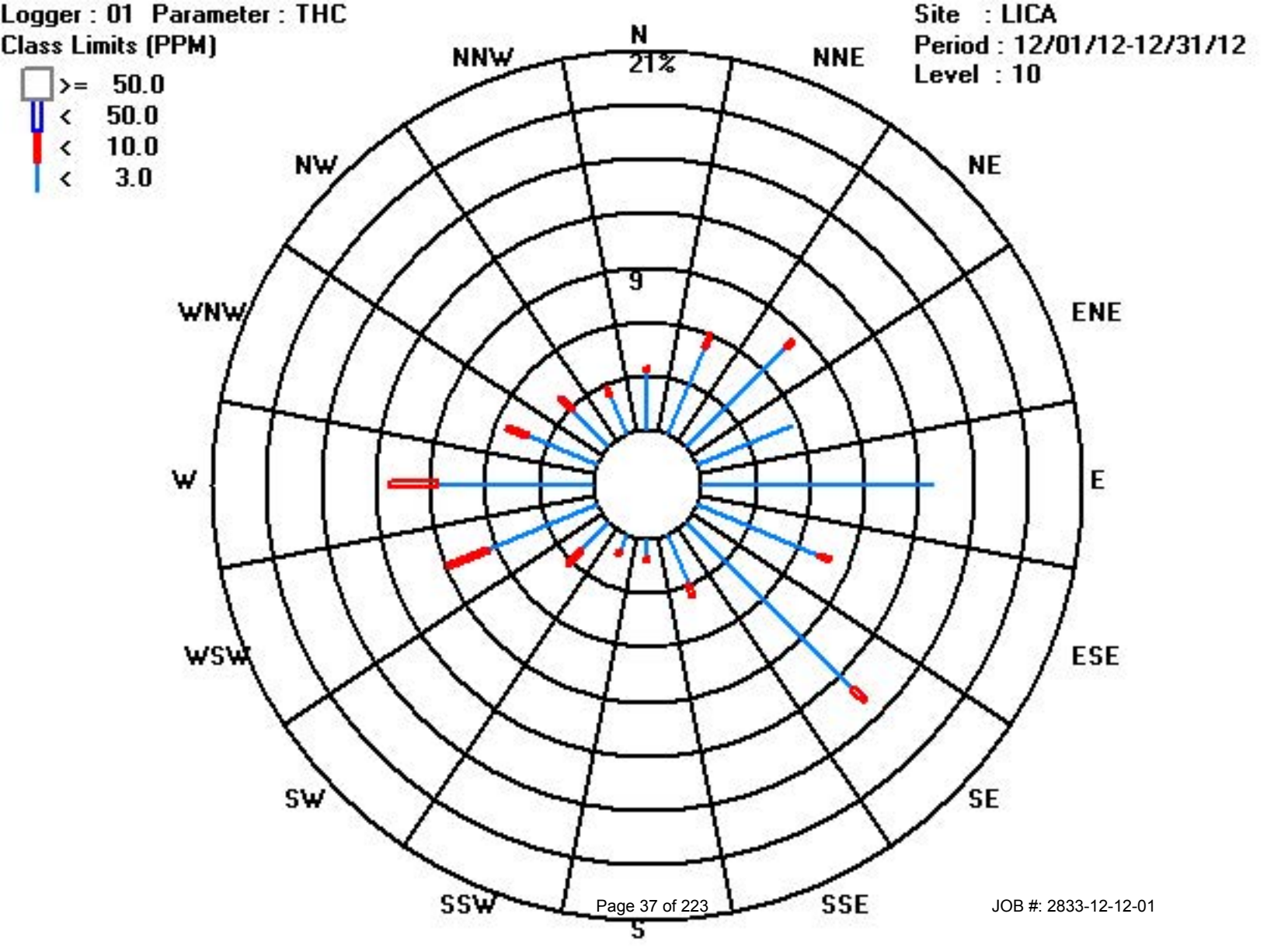
Total # Operational Hours : 706

Distribution By Samples

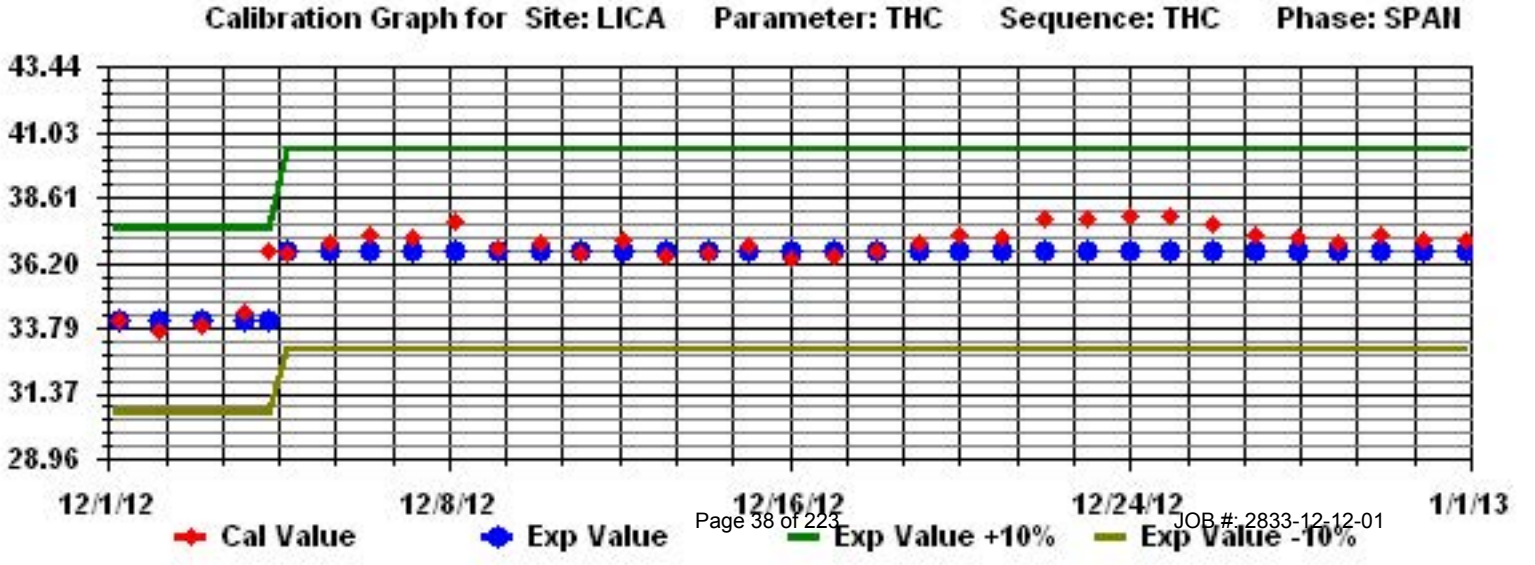
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	23	37	55	40	90	51	92	21	8	7	15	46	60	29	20	17	611
<	10.0	2	6	4			5	7	5	1	2	8	17	19	9	7	3	95
<	50.0																	
>=	50.0																	
	Totals	25	43	59	40	90	56	99	26	9	9	23	63	79	38	27	20	

Calm : .00 %

Total # Operational Hours : 706



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN
43.44
41.03
38.61
36.20
33.79
31.37
28.96
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

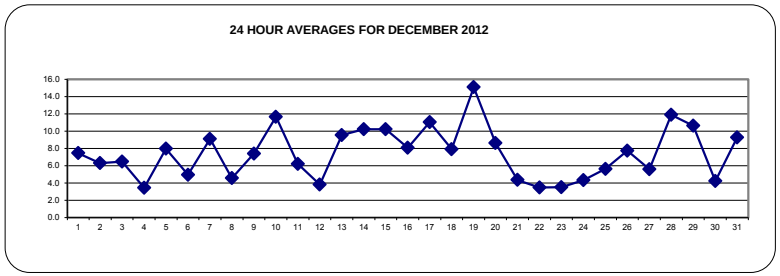
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3	0	10	**N**	**N**	**N**	8	6	15	9	0	0	3	26	11	5	2	18	6	2	**N**	**N**	**N**	10	26	7.4	18
2	16	11	7	**N**	**N**	0	0	8	10	**N**	4	5	7	8	4	**N**	**N**	2	6	**N**	**N**	**N**	8	5	16	6.3	16
3	6	**N**	**N**	11	0	**N**	0	11	0	**N**	8	16	19	**N**	3	1	11	1	**N**	5	9	7	2	**N**	19	6.5	17
4	0	10	**N**	8	2	11	4	**N**	**N**	3	**N**	4	**C**	**C**	0	4	4	2	0	**N**	0	0	3	**N**	11	3.4	18
5	7	5	0	3	7	3	0	0	15	6	6	13	19	20	8	12	16	9	9	7	7	6	9	4	20	8.0	24
6	4	0	**N**	**N**	3	5	4	1	3	16	3	11	10	13	4	0	3	5	0	6	4	9	3	2	16	5.0	22
7	8	1	12	5	**N**	**N**	9	18	8	0	**N**	5	17	12	0	**N**	13	13	**N**	12	5	10	3	22	22	9.1	19
8	9	**N**	0	0	3	15	3	11	0	0	**N**	10	0	1	6	11	**N**	0	2	7	10	3	**N**	0	15	4.6	20
9	1	14	0	0	9	10	6	5	4	6	**N**	6	15	6	3	15	14	10	3	10	8	12	7	6	15	7.4	23
10	9	2	18	6	10	8	11	26	7	18	6	14	9	6	10	18	14	14	18	12	11	12	10	11	26	11.7	24
11	1	7	8	8	2	2	5	11	6	10	7	7	12	9	11	11	7	4	5	4	6	0	0	6	12	6.2	24
12	6	2	5	12	**N**	0	3	0	0	4	0	5	0	8	0	12	6	12	0	**N**	1	0	**N**	**N**	12	3.8	20
13	7	10	7	5	12	3	5	8	12	8	5	12	10	8	7	13	11	26	17	6	14	9	6	8	26	9.5	24
14	17	28	11	3	0	7	19	14	1	11	26	9	9	8	15	17	11	8	1	2	0	5	**N**	13	28	10.2	23
15	2	0	15	11	15	14	0	1	8	0	**N**	11	5	12	3	13	3	16	17	**N**	24	17	10	28	28	10.2	22
16	19	3	0	6	3	0	14	4	10	16	5	4	9	**N**	0	14	8	18	8	8	13	11	0	13	19	8.1	23
17	15	0	0	16	6	11	0	22	21	22	20	19	6	14	11	8	6	13	19	**N**	7	10	0	8	22	11.0	23
18	9	6	16	10	18	8	9	0	7	15	16	8	1	6	11	3	5	4	11	4	12	1	9	1	18	7.9	24
19	7	**N**	0	13	0	18	17	9	9	13	24	13	14	18	15	22	22	19	19	21	16	17	21	20	24	**15.1**	23
20	13	10	4	6	4	20	0	15	28	11	14	5	12	0	14	3	7	0	3	4	0	11	6	17	28	8.6	24
21	0	19	6	4	5	0	**N**	5	**N**	**C**	**C**	10	3	8	0	3	1	3	0	5	4	0	5	6	19	4.4	22
22	8	1	8	0	3	0	2	0	3	**N**	5	4	4	5	0	5	0	1	5	**N**	6	**N**	9	4	9	3.5	21
23	4	0	3	4	2	0	0	**N**	1	4	9	7	12	7	0	1	3	2	0	8	7	0	6	1	12	3.5	23
24	3	4	4	12	5	4	3	1	9	6	4	7	2	0	4	4	6	2	0	7	5	7	2	3	12	4.3	24
25	3	7	5	0	2	2	4	0	0	1	12	2	11	6	6	10	12	7	7	6	4	9	6	13	13	5.6	24
26	7	13	3	5	7	7	7	6	4	10	8	7	11	8	8	13	6	5	8	11	6	6	12	8	13	7.8	24
27	10	10	5	0	11	6	9	4	8	5	1	4	7	7	8	2	6	6	6	5	7	2	3	2	11	5.6	24
28	9	2	7	6	6	7	8	11	10	10	9	9	10	15	15	16	14	16	20	23	18	15	13	16	23	11.9	24
29	17	16	14	12	15	14	14	13	10	15	23	13	11	13	10	4	12	4	6	6	8	5	0	0	23	10.6	24
30	3	9	7	4	5	3	6	5	6	0	1	**N**	3	10	8	0	0	9	5	0	3	0	7	3	10	4.2	23
31	4	12	7	10	6	5	7	6	5	7	6	12	16	6	13	8	14	9	15	11	6	10	16	11	16	9.3	24
HOURLY MAX	19	28	18	16	18	20	19	26	28	22	26	19	19	26	15	22	22	26	20	23	24	17	21	28			
HOURLY AVG	7.3	7.2	6.5	6.4	6.0	6.5	5.9	7.6	7.6	8.4	8.9	8.4	8.9	9.3	6.7	8.6	8.2	8.3	7.4	7.7	7.6	6.9	6.5	8.6			

STATUS FLAG CODES

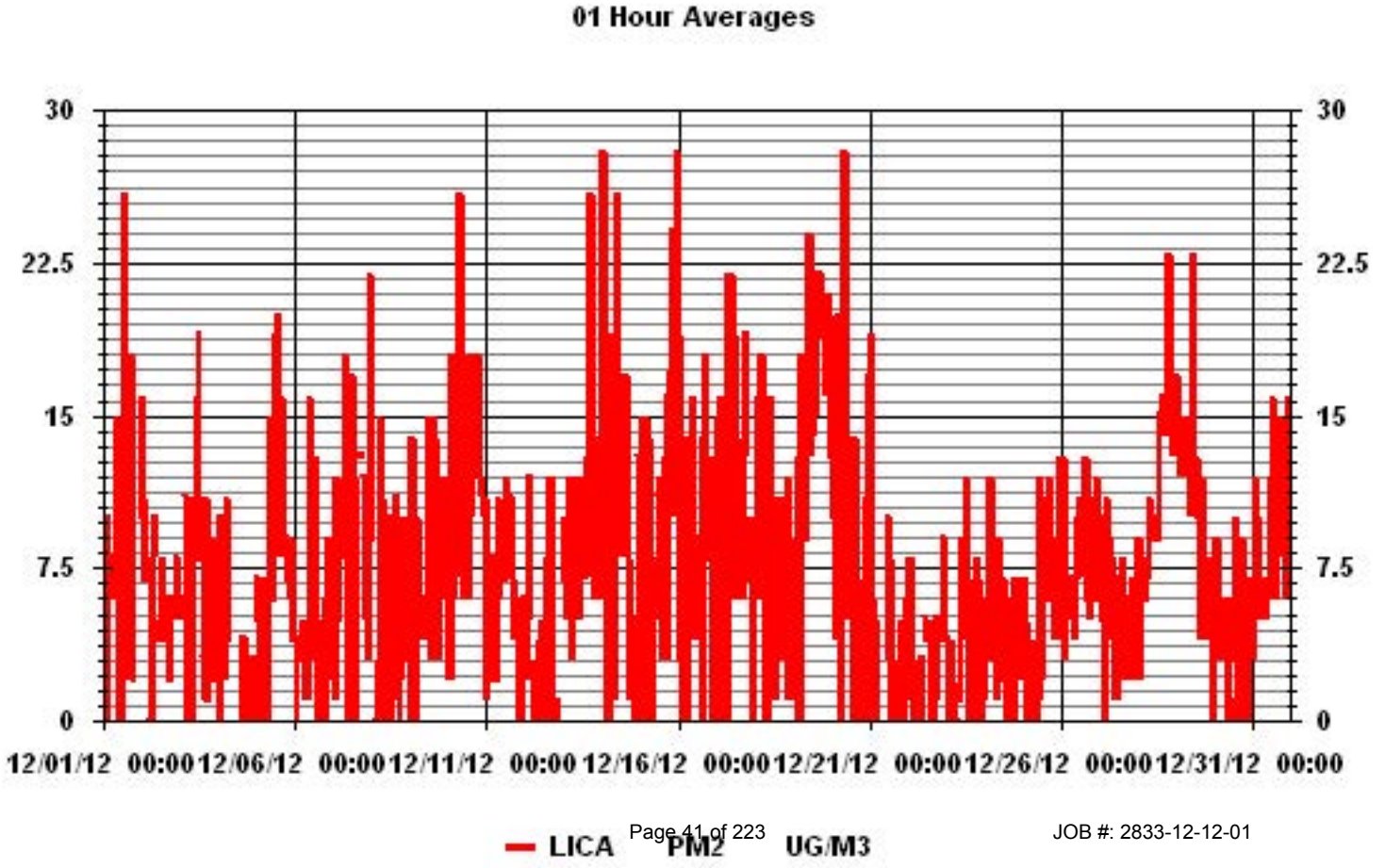
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR - ug/m3 | 24-HR 30 ug/m3



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	595						
MAXIMUM 1-HR AVERAGE:	28	UG/M^3	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	15.1	UG/M^3			ON DAY(S)	19	
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:			688	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			92.5	%
STANDARD DEVIATION:	5.80		MONTHLY AVERAGE:			7.56	UG/M^3



JOB #: 2833-12-12-01

LICA
PM2 / WD Joint Frequency Distribution (Percent)

December 2012

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	3.65	5.84	8.47	5.40	12.57	7.01	14.18	3.36	1.16	1.31	3.65	9.21	11.84	5.55	3.80	2.92	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.65	5.84	8.47	5.40	12.57	7.01	14.18	3.36	1.16	1.31	3.65	9.21	11.84	5.55	3.80	2.92	

Calm : .00 %

Total # Operational Hours : 684

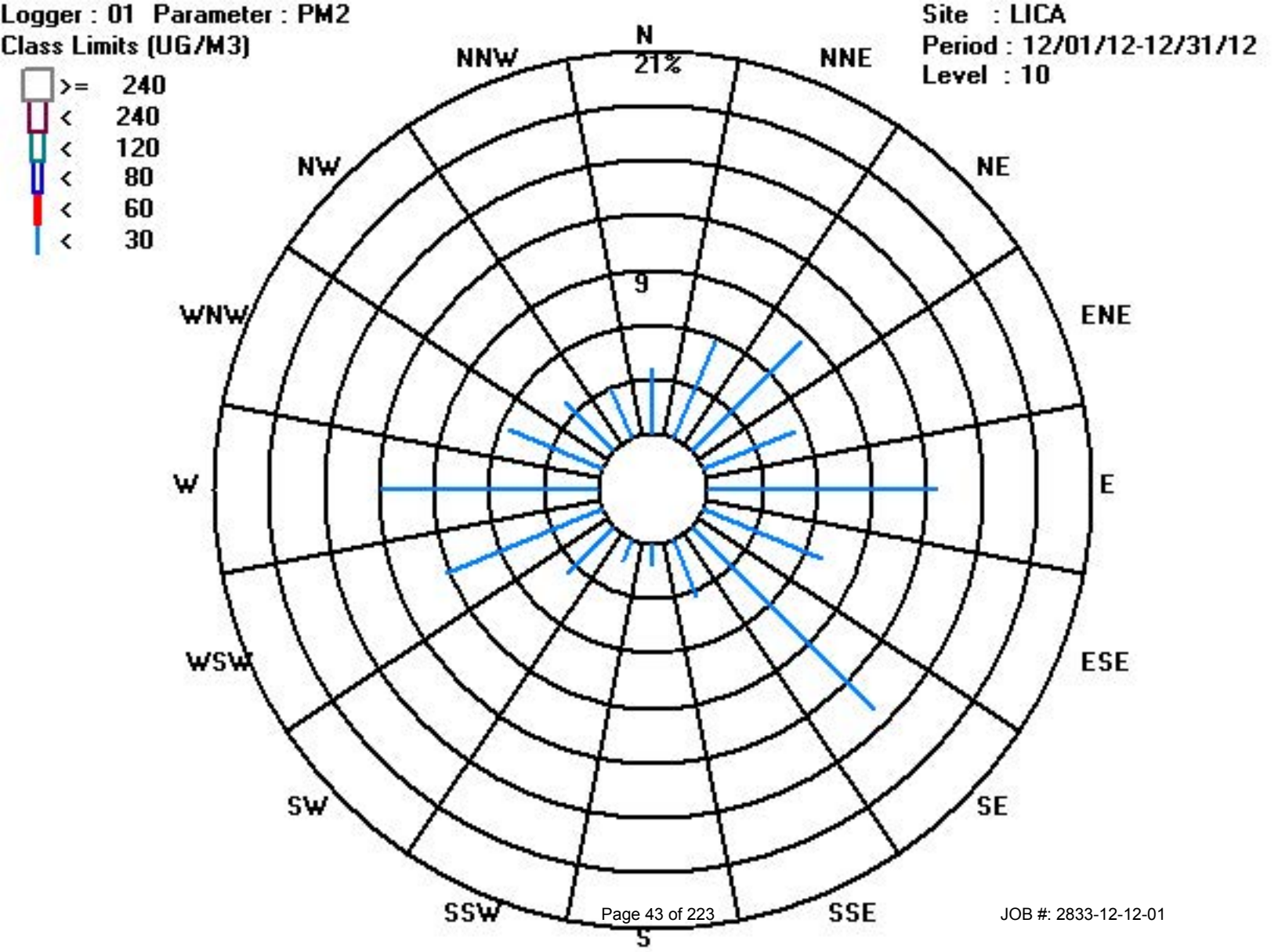
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	25	40	58	37	86	48	97	23	8	9	25	63	81	38	26	20	684
< 60																	
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	25	40	58	37	86	48	97	23	8	9	25	63	81	38	26	20	

Calm : .00 %

Total # Operational Hours : 684



JOB #: 2833-12-12-01

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

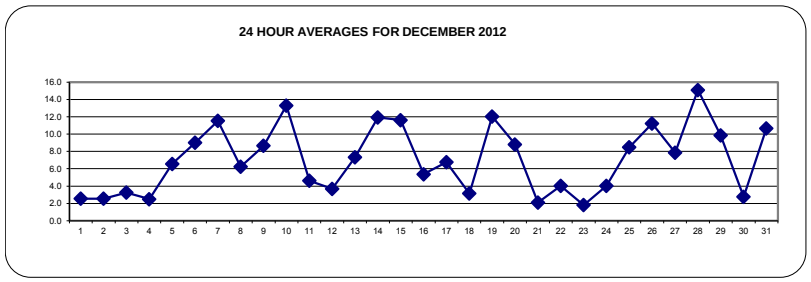
MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.7	1	1.4	2.3	2.1	**IZS**	2.2	2.4	2.7	2.9	3.2	2.7	2.8	2.3	2.2	3.9	4.1	3	2.6	2.9	2.7	3.4	2.2	2.7	4.1	2.5	24
2	3.3	2.7	1.9	1.5	**IZS**	3.7	3	3.9	2.8	2.8	2.4	2.3	2.6	2.1	3	3	3.9	2.8	2.1	2.4	2.1	1.3	1.5	1.2	3.9	2.5	24
3	0.9	0.8	0.7	**IZS**	1.3	4.8	3.4	6.1	7	2.6	0.9	1.6	4.1	3.9	4	4.7	7.6	5.3	4.5	2.8	1.5	1.4	1.5	3.2	7.6	3.2	24
4	2.8	3.3	**IZS**	1.5	2.4	3.5	2.8	1.7	2.3	2.1	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	3.5	2.5	15
5	2.6	**IZS**	7.9	5	3.2	5.8	5	7.3	14.2	12.7	10	4.8	3.8	10.9	7.6	11.2	14.3	6.6	5	4.4	2.4	2	2.2	1.9	14.3	6.6	24
6	**IZS**	1.5	1.2	1.4	2.1	2.6	4.9	7.6	11.6	6.6	4.4	3.5	4.6	5.2	7.4	9.8	18.3	21.8	20.3	16.8	16.5	14.6	15.5	**IZS**	21.8	9.0	24
7	14.4	16.4	16.9	18.8	17.6	15.4	11.4	11.2	7.1	6.3	10	8.2	7	7.8	6.3	9.3	11.6	13.5	13.4	13.7	10.7	9.5	**IZS**	8.9	18.8	11.5	24
8	10	9.4	7.2	8	9.1	5.8	2.7	1.8	1.5	2.7	2.6	2.1	2	1.3	1.2	3.1	5	11.5	8.7	13.8	12.6	**IZS**	10.4	10.9	13.8	6.2	24
9	11.3	13	12	11.1	10.1	10	11.3	8.1	8.7	7.1	4.7	3.9	4.4	4.8	6.3	7.7	9.3	11.4	9.8	9.8	**IZS**	8.4	8.3	7.4	13	8.6	24
10	7.8	7.5	9.8	13	16.3	18.2	19.1	18	14.7	11.5	9.1	8	6.1	6.2	8.9	16.6	22.2	19.3	17.8	**IZS**	17.5	18.2	12.3	7.6	22.2	13.3	24
11	5.6	4.7	5.1	4.5	4.4	4.5	4.9	4.1	5.9	4.5	3.9	4.4	4.3	6.1	8.4	4.5	4.2	4.1	**IZS**	3.7	3.2	3.5	4.1	3.6	8.4	4.6	24
12	3.9	2.6	2.3	1.5	0.8	0.9	1.7	4.3	4.3	2.1	4.5	2.4	5.1	4.7	10.4	6.7	5.9	**IZS**	3.1	3.1	3.4	3.7	3.6	3.6	10.4	3.7	24
13	4.1	5.4	8.1	7.3	4.5	4.5	5.8	7.1	8.9	5.4	4.1	5	4	5.1	6.3	7.8	**IZS**	8.5	10.6	10.2	12.7	13.5	8.9	11	13.5	7.3	24
14	8.9	9	6.8	7	6.9	7.9	7.5	8.6	15.5	10.5	12.6	12.8	15.5	12.3	16.9	**IZS**	18.9	16.8	16.4	18.4	13.4	12.5	10	9.5	18.9	11.9	24
15	8.5	7.7	6.3	7	6.3	15.2	14.1	13.9	14.5	13.5	23.7	24.1	8.5	8.3	**IZS**	16.6	**24.9**	19.8	7.2	6.7	6.2	5.3	5.2	3.9	**24.9**	11.6	24
16	3.4	3.4	3.2	3	3.1	3	3.6	4.1	3.2	2.8	2.8	2.6	2.7	**IZS**	3.7	5.2	8.4	10.9	9.5	9.4	9.1	8.1	9.1	9.3	10.9	5.4	24
17	7.1	8.8	11.6	8.9	7.7	6.5	6	9.5	11.4	8.1	5.9	4.7	**IZS**	5.1	3.8	6.8	6.9	7.5	5.9	5.8	6	4.2	4.1	3	11.6	6.8	24
18	2.7	2.8	2.2	2.6	3.4	3.2	2.7	3.5	3.7	3.3	3.1	**IZS**	1.9	1.7	1.3	1.5	2.8	4.9	4.3	3.8	3.7	3.8	5	4.1	5	3.1	24
19	5.1	6.2	7.1	3	4.9	5.4	6.9	7.7	9.8	9.6	**IZS**	8.6	7.3	7.4	7.9	21.1	22.1	20.6	20.6	20.3	20.1	20.1	18.6	16.8	22.1	12.1	24
20	15.8	15.3	15.6	16.9	14.7	13.6	13.5	13.6	17.6	**IZS**	8.5	5.9	6.2	6	5.6	5.5	5.1	5.2	4.1	3.5	2.8	2.5	2.7	2.5	17.6	8.8	24
21	2.4	3	2.9	3.7	4.5	4.4	4.6	2.5	**IZS**	1.1	1.7	0.9	0.9	1.1	0.9	0.7	1	1.3	1.7	2.1	2.5	1.9	1.1	1	4.6	2.1	24
22	1.4	1.3	1.2	1.3	1.4	2.5	2.1	**IZS**	3.2	2.2	2.8	3.3	2.9	2.7	3.4	3	12	13	10.4	6.4	5.4	3.5	3.9	3.3	13	4.0	24
23	3.7	2.4	1.8	1.8	1.6	1.3	**IZS**	1.2	1.5	2.2	1.8	1.5	1.6	1.6	1.4	1.4	1.9	1.9	1.9	1.9	1.8	2	1.4	1.9	3.7	1.8	24
24	1.4	1.4	1.7	1.8	1.9	**IZS**	2.2	2.2	2.2	2.8	0.9	1.4	2.6	2.9	3.4	3.1	4.3	4.8	8.7	7.2	7.7	9.9	10.3	7.5	10.3	4.0	24
25	5.5	5.5	4.7	4.4	**IZS**	11.4	9.7	9.7	8.7	8.7	10.5	9.3	8.2	7.6	7.5	8.1	9.8	9.8	9.7	8.9	8.9	9.5	10	9.2	11.4	8.5	24
26	7.4	7.9	9.2	**IZS**	9.1	7.6	10.4	11.3	11.9	9.3	13.7	7.6	7.3	5.9	5.3	7.3	14.9	17.5	22.4	24.2	19.1	12.2	9	7.9	24.2	11.2	24
27	7.5	6.5	**IZS**	4.7	5.3	4.2	6.4	7.2	4.1	3.6	3.7	3.9	5.4	5.6	5.3	5.9	10.9	13.7	13.2	12.1	12.1	12.3	13.1	13.9	13.9	7.9	24
28	14.9	**IZS**	14.8	15.4	16.9	15.9	16.9	19.6	23.5	19.8	16	6.2	6.2	6.8	8.6	11.7	15	16.8	17.2	16.6	16.6	17.9	17.5	16.6	23.5	**15.1**	24
29	**IZS**	14.5	15.6	16.3	14.7	13.3	14.8	16.2	16.5	14.6	17.9	13.7	9.3	8.6	6.4	3	2.7	2.4	2.4	2.7	4.1	5	2	**IZS**	17.9	9.9	24
30	3.1	2.1	2	2.7	2.9	3.4	3.9	3.1	2	1.6	1.1	1.1	1.4	1.4	2.3	2	2.2	4.2	2.6	2.2	4.3	6.5	**IZS**	5.1	6.5	2.7	24
31	7.9	5.6	4.7	9.3	9.1	8.9	7	11.5	13.3	17.7	11.7	5.9	6.2	7.6	9.8	10.9	15.2	17	16.1	15	14.3	**IZS**	12.7	7.9	17.7	10.7	24
HOURLY MAX	16	16	17	19	18	18	19	20	24	20	24	24	16	12	17	21	25	22	22	24	20	20	19	17			
HOURLY AVG	6.0	5.9	6.4	6.4	6.5	7.2	7.0	7.6	8.5	6.7	6.8	5.6	5.0	5.3	5.7	7.0	9.8	10.2	9.4	8.6	8.4	7.7	7.4	6.6			

STATUS FLAG CODES

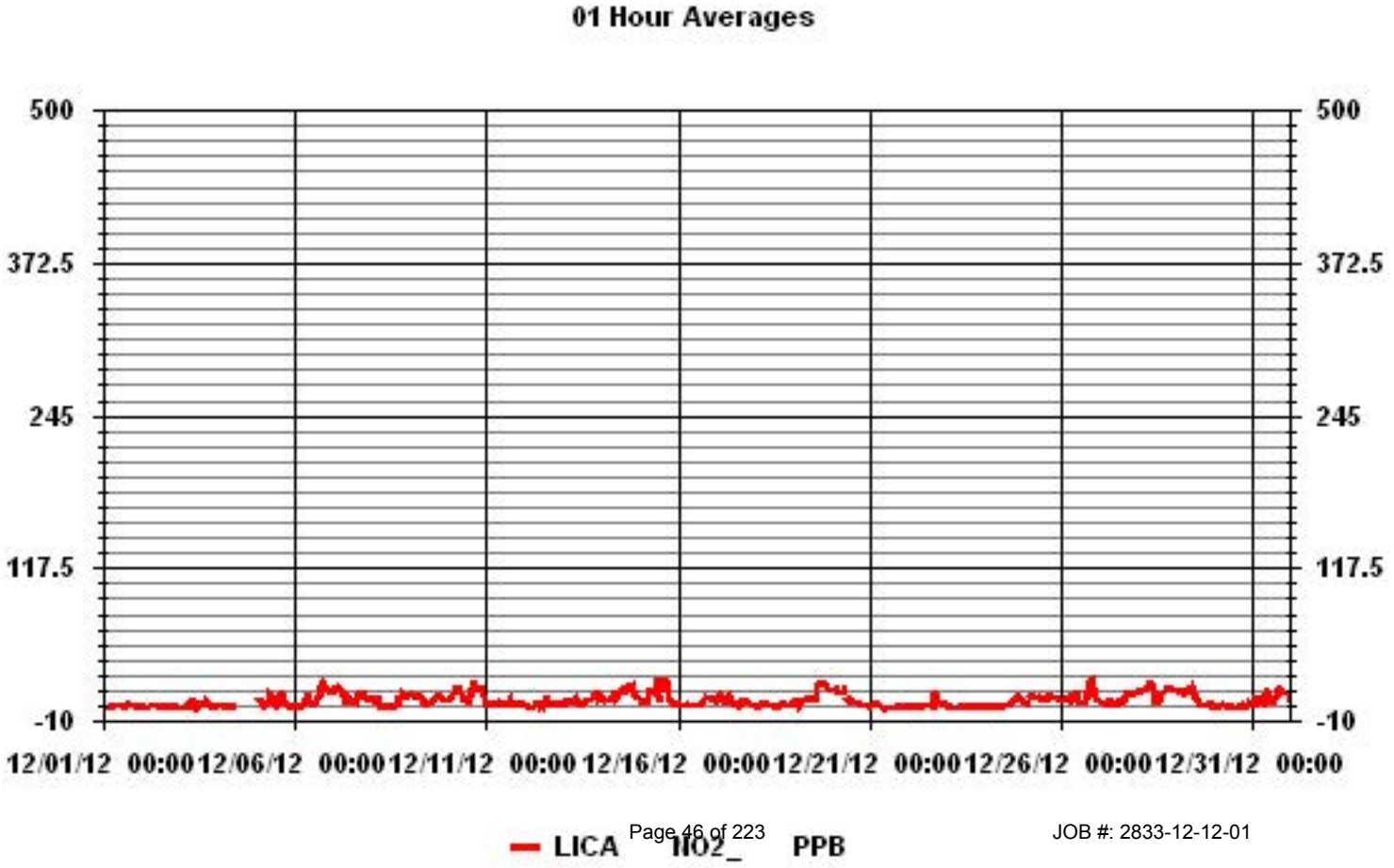
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM 1-HR AVERAGE:	24.9	PPB	@ HOUR(S)	16	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	15.1	PPB			ON DAY(S)	28
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		735	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		98.8	%
STANDARD DEVIATION:	5.27		MONTHLY AVERAGE:		7.16	PPB



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

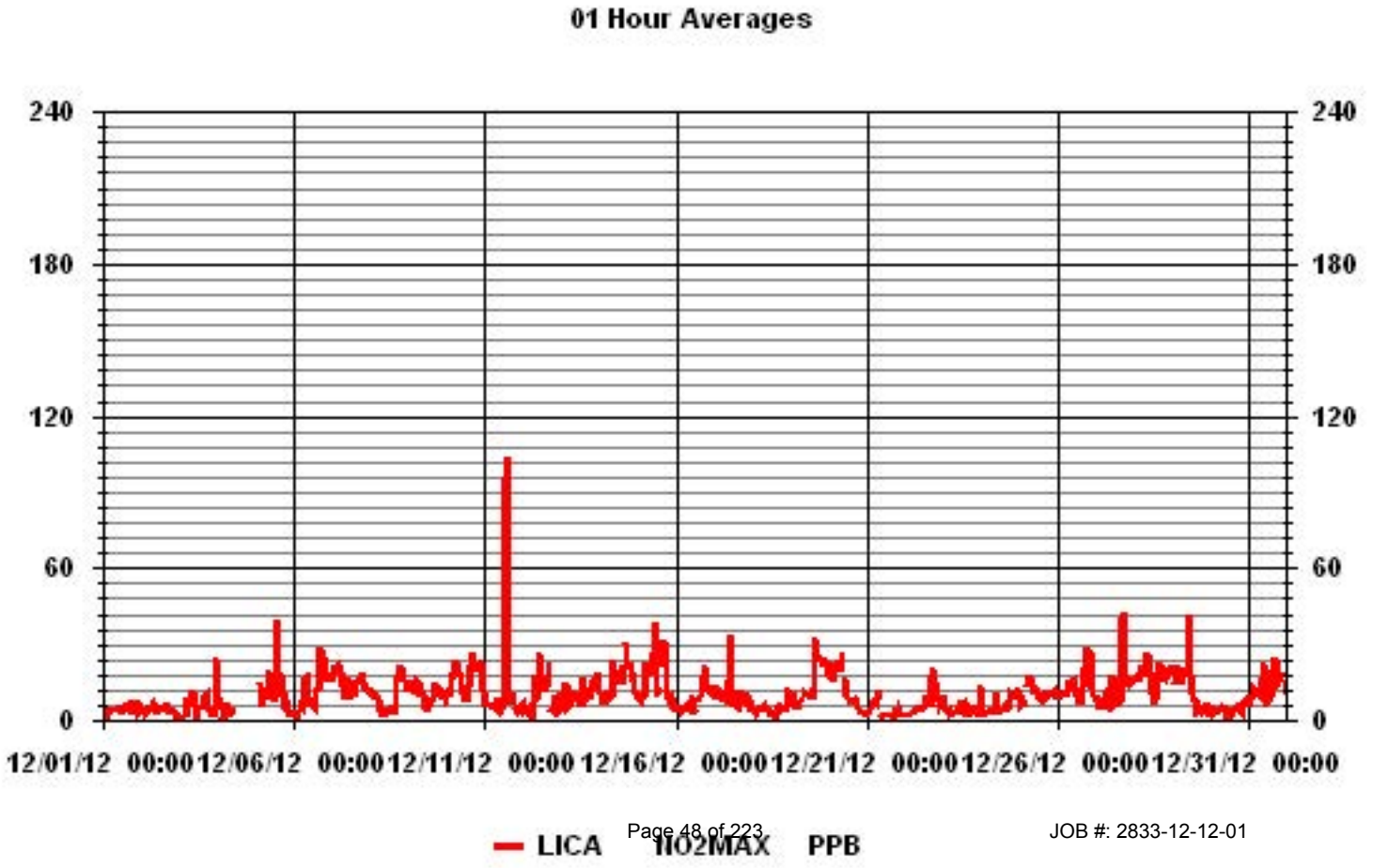
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1.5	1.5	3.5	4	3	**IZS**	4	4	4.5	4.5	5	4.5	4	6	3.5	6.5	7	4.5	5	4	3.5	7.5	3.5	4.5	7.5	4.3	24
2	5.5	4	3	4	**IZS**	5	5	6.5	4.5	4.5	4	6	4	4	5	4.5	7	5	4	4	4	2	3	2	7	4.4	24
3	1.5	1	1	**IZS**	2.5	7.5	7.5	10.5	11.5	6	2	3	5	5	5	7	9	10	5.5	4.5	2.5	2	2	24.5	24.5	5.9	24
4	4	7.5	**IZS**	2	5	6	6	3	3.5	3.5	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	7.5	4.5	15
5	3.6	**IZS**	14	7	5.5	9.5	8	13	18.5	18	13	7	10.5	39.5	9.5	17.5	18.5	12	6.1	6.5	4	2.5	2.5	3	39.5	10.8	24
6	**IZS**	2	1.5	4	6	5	7.5	16.5	17	9.5	6.5	6.5	5.5	9	11.5	12.5	27	27	25.5	20	19	15.5	17	**IZS**	27	12.3	24
7	16	20.5	20	21	22	20	13	15.5	9.5	8	16.5	10.5	10	10.5	9.5	15	15.5	16.5	17.5	19	12.5	14.5	**IZS**	11.5	22	15.0	24
8	12	10.5	8	10.5	10	8.5	4	2.5	2.5	4	3.5	3.5	5	4.5	2.5	5.5	15	17.5	15	21.5	16	**IZS**	15	11.5	21.5	9.1	24
9	13	15	14.7	12.5	13	16	15.5	11	11.5	10.5	6	5.5	5	5.5	8.5	9	11.5	14.5	13	11.5	**IZS**	10	10.5	8	16	10.9	24
10	9	11.5	11	16	19	22	22	19	18	15	10	13	7	9.5	13.5	22	26.5	23.5	20	**IZS**	20	22	23.5	12	26.5	16.7	24
11	6	6	6.5	6	5.5	6.5	6	5	8.5	6.5	5.5	7.5	6.5	95.4	**103.9**	8.5	6.5	9.5	**IZS**	5	4.1	5.5	6	4.5	**103.9**	14.4	24
12	6	4	4	3.5	3	2	6.5	7.5	17.5	8	27	14.5	17	11	15	14	21.5	**IZS**	4	3.5	9	9.5	5	4	27	9.4	24
13	4.5	8	15	14	5	5.5	7.5	9	11.5	7	8.5	7.5	5.5	17	8	9	**IZS**	10	12.5	13.5	15.5	16	11.5	19	19	10.5	24
14	11.1	10	7.5	7.5	8	11.5	8	9.5	23.5	17.5	15.5	16	19.5	14	20.5	**IZS**	29	20	23	21	19.5	16.5	11	11	29	15.2	24
15	10	9	8	11	9	23	19.5	19	19.5	26.5	28	39	11.5	12	**IZS**	22.5	31.5	29.5	9.5	9.5	7.5	9	7	5	39	16.3	24
16	5.5	4.5	6	3.5	4	5	5	6	5	3.5	9.5	4	3.5	**IZS**	8.5	9.5	16.5	16	22	15	12	11	13.5	12	22	8.7	24
17	8.5	12	14	10	10	9	8.5	12	16	10.5	34	6.5	**IZS**	6.5	6	12	11	11	8	7.5	10.5	5.5	9	4.5	34	10.5	24
18	4	4	3	4	5	4.5	4.5	5	6	4.5	4	**IZS**	2.5	2.5	2	4.5	4	5.5	5.5	4.5	4.5	5	12.5	6	12.5	4.7	24
19	7.5	8	9	4.5	6.5	6	7.5	9	11.5	11	**IZS**	10.6	11.6	8.6	12.1	32.6	25.1	25.1	24.1	22.6	23.1	23.6	22.1	18.1	32.6	14.8	24
20	17.6	16.6	16.6	23.1	19.1	21.1	24.1	18.6	25.1	**IZS**	15.5	10.5	9	7.5	7.5	7.5	8.5	7.5	5.5	4.5	4	3	3	3.5	25.1	12.1	24
21	3	3.5	4.5	6	7	8.5	7.5	10.5	**IZS**	2	2.5	2	2	2.5	2	2	1.5	2	5	3	5	3.5	2	2	10.5	3.9	24
22	2.5	2	2	2.5	3.5	4.5	4	**IZS**	5	4.5	4.5	5.5	6	10	7	5.5	18	20.5	15.5	9.5	8	5.5	6.5	5.5	20.5	6.9	24
23	9.5	5	4	3	4	2.5	**IZS**	3.2	3.1	4.6	2.6	6.1	5.6	6.6	2.6	2.6	5.1	4.1	4.1	3.6	3.1	6.1	4.1	14.1	14.1	4.8	24
24	3.1	2.6	2.6	3.1	3.1	**IZS**	3.6	3.6	3.6	11.1	2.6	3.6	4.1	4.6	5.6	5.1	7.1	6.6	10.6	9.6	9.6	11.6	12.1	10.6	12.1	6.1	24
25	7.1	8.1	6.6	6.6	**IZS**	14.6	17.6	15.6	14.1	10.6	12	11.1	9.6	8.6	8.1	9.1	11.1	10.6	10.1	10.6	10.6	10.1	11.6	10.6	17.6	10.6	24
26	8.1	9.6	10.6	**IZS**	11	9	15.5	14	15.5	16	16.5	10.5	8.5	7.5	6.5	13	20	21	28.5	26.5	26.5	13.5	10.5	8.5	28.5	14.2	24
27	10	7	**IZS**	5.5	6.5	5	11.5	12.5	5.5	4	18	6.5	12.5	10.5	7.5	8	40	43	15.5	15	17.5	14.5	15	15.5	43	13.3	24
28	17	**IZS**	17	18.5	21	18.5	18.5	22.5	26.5	24.5	19.5	11.5	6.5	8	11.5	15.5	23	17.5	18	17	18.5	20	20.5	19.5	26.5	17.8	24
29	**IZS**	15.5	17.5	22	16.5	14.5	18.5	18.5	19.5	17	41.5	19	11	9.5	8.5	3.5	4	4	3	3.5	5.5	7	2.5	**IZS**	41.5	12.8	24
30	5	2.5	3	4	3.5	4.5	5.5	4.5	5	3.5	2	1.5	4.5	3	4.5	5.5	4	6.5	4.5	3.5	7	8	**IZS**	7	8	4.5	24
31	10	8	13	12.5	12	11.5	10.5	15.5	17	22.5	20.5	7.5	8	9.5	13	13	23.5	23.5	18	16.5	18	**IZS**	15	12	23.5	14.4	24
HOURLY MAX	18	21	20	23	22	23	24	23	27	27	42	39	20	95	104	33	40	43	29	27	27	24	24	25			
HOURLY AVG	7.7	7.6	8.5	8.7	8.6	9.9	10.1	10.8	12.0	10.0	12.3	9.0	7.6	12.0	11.3	10.4	15.4	14.6	12.4	10.9	11.1	10.0	9.9	9.6			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM INSTANTANEOUS VALUE:	103.9	PPB	@ HOUR(S)	14	ON DAY(S)	11
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		735	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	8.43					



JOB #: 2833-12-12-01

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

December 2012

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	3.58	6.16	8.46	5.73	12.76	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	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	3.58	6.16	8.46	5.73	12.76	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	

Calm : .00 %

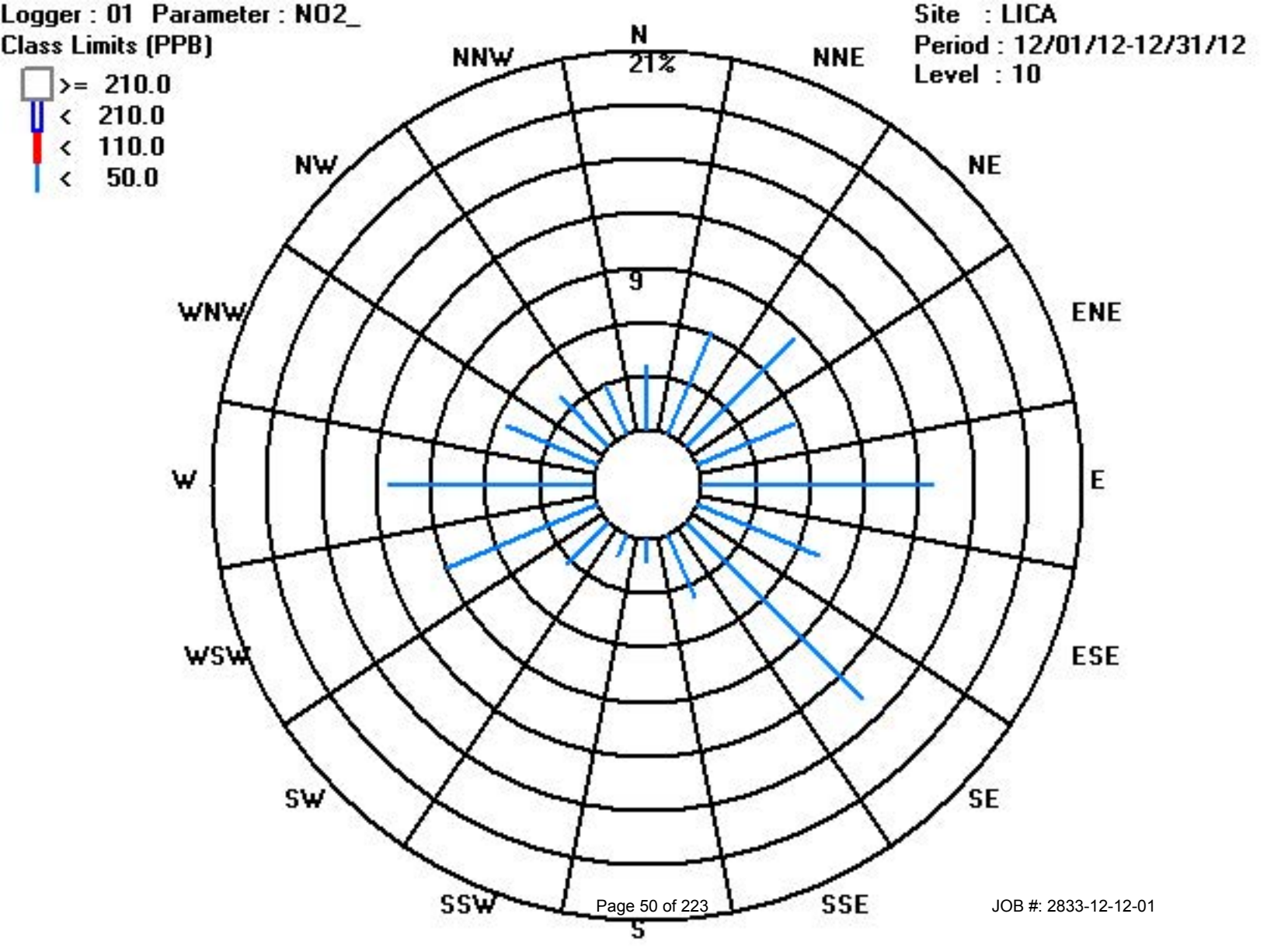
Total # Operational Hours : 697

Distribution By Samples

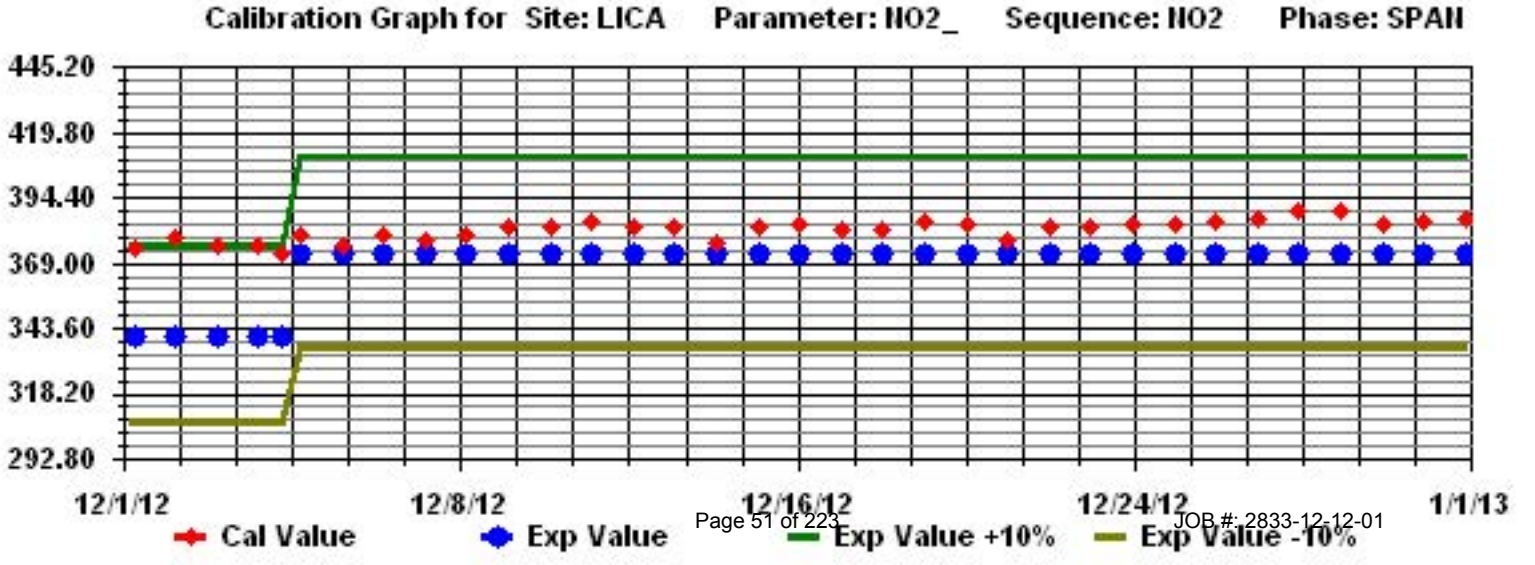
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	43	59	40	89	51	96	26	9	9	23	63	79	38	27	20	697
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	43	59	40	89	51	96	26	9	9	23	63	79	38	27	20	

Calm : .00 %

Total # Operational Hours : 697



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN
445.20
419.80
394.40
369.00
343.60
318.20
292.80
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

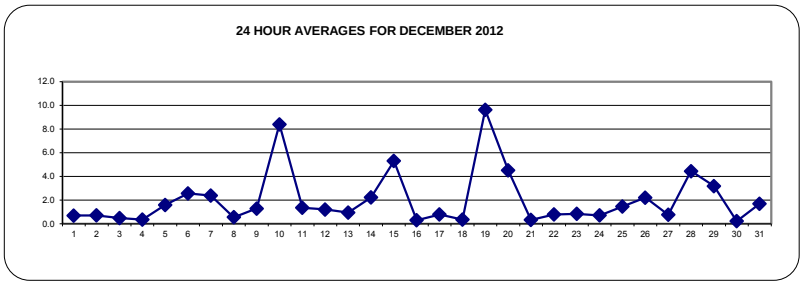
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.2	0.1	0.3	0.3	0.3	**IZS**	0.5	0.8	0.6	1	1.2	1.4	1.4	1.1	0.7	0.9	0.7	0.6	0.6	0.9	0.5	0.7	0.7	0.4	1.4	0.7	24
2	0.5	0.5	0.2	0.1	**IZS**	0.3	0.2	0.5	0.6	0.9	1.1	1.6	1.3	1.4	1.1	0.9	0.9	0.7	0.7	0.6	0.7	0.5	0.5	0.4	1.6	0.7	24
3	0.3	0.1	0.1	**IZS**	0.6	0.6	0.6	1	0.9	1	0.1	0.8	1.6	1.5	0.8	0.5	0.2	0.1	0	0	0	0	0	0.4	1.6	0.5	24
4	0.1	0.6	**IZS**	0	0.2	0.3	0.5	0.4	0.5	0.6	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	0.6	0.4	15
5	0.1	**IZS**	0.2	0.2	0.1	0.1	0.2	0.6	1.3	4.4	5.3	2.9	2.5	9.6	3.2	2.1	1.7	0.5	0.4	0.4	0.1	0.1	0.1	0.1	9.6	1.6	24
6	**IZS**	0	0	0.2	0.7	0.6	0.5	1	1.8	2.4	2.7	2.7	3.5	3.7	3.4	2.1	2.6	8.8	9.2	3.7	3.3	1.4	2.1	**IZS**	9.2	2.6	24
7	1.2	3.5	5.4	7.5	3.5	0.7	0.6	0.7	0.8	1.3	5.2	4.9	3.5	3.4	1.5	1.5	1.5	2.5	2.2	1.4	1	0.4	**IZS**	0.5	7.5	2.4	24
8	0.2	0	0	0.3	0.2	0.6	0.5	0.3	0.4	0.9	1	1	1.5	1	0.6	0.6	0.4	0.6	0.3	1.2	0.3	**IZS**	0.4	0.2	1.5	0.5	24
9	0.3	0.4	0.1	0.1	0.3	0.6	1.1	0.6	1.5	3.3	3.4	3.5	3.7	3.6	3	1.3	0.4	0.9	0.5	0.4	**IZS**	0.2	0.2	0.1	3.7	1.3	24
10	0.3	0.2	0.4	1.1	1.6	4.3	4.1	1.4	1.1	4.1	6	6.4	4.9	5.2	6	11.4	27.1	25	19.5	**IZS**	25.5	31	5.9	0.5	31	8.4	24
11	0	0.2	0.5	0.4	0.7	1.2	1	1	1.4	1.6	1.6	2.5	2.7	2.9	3.3	3.6	1.7	0.8	**IZS**	0.8	0.8	0.9	0.8	0.6	3.6	1.3	24
12	0.8	0.6	0.4	0.1	0.1	0.2	0.5	1.2	2.6	2.6	3.2	2.7	4.5	2.1	3.4	1.2	0.8	**IZS**	0	0	0.1	0.3	0.1	0.1	4.5	1.2	24
13	0	0.3	0.8	0.5	0	0.1	0.3	0.8	1.6	1.4	1.9	2.3	1.9	2.9	1.6	0.8	**IZS**	0.3	0.3	0.7	1.1	0.7	0.3	0.9	2.9	0.9	24
14	0.4	0.1	0.2	0	0.1	0.4	0.1	0.3	4.3	2.3	4.5	6.6	11.7	6.9	7.7	**IZS**	2.3	0.5	0.6	0.5	0.6	0.3	0.2	0.3	11.7	2.2	24
15	0.2	0.6	0.4	0.4	0.1	1.8	0.9	0.6	**3.8**	10.1	37.1	38	4.7	4	**IZS**	4.2	5.5	7.7	0.2	0.3	0.5	0.2	0.3	0.1	**38**	5.3	24
16	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.2	0.1	0.4	0.9	0.6	0.7	**IZS**	0.7	0.4	0	1	0.4	0.1	0.1	0.1	0.1	0	1	0.3	24
17	0.1	0.2	0.5	0	0.1	0.4	0.3	1.1	1.4	1.1	1.4	1.5	**IZS**	1.5	1	0.9	0.9	0.8	0.8	0.6	1	0.9	0.7	0.6	1.5	0.8	24
18	0.5	0.5	0.5	0.8	0.7	0.4	0.5	0.6	0.7	0.3	0.5	**IZS**	0.5	0.4	0.1	0.1	0	0	0	0	0	0.3	0.4	0	0.8	0.3	24
19	0.1	0	0.4	0.3	0.2	0	0.1	0.6	1	2.8	**IZS**	7.7	6.4	5.8	3.9	14.9	10.5	17.5	19.4	23.8	24.4	30.8	27.2	23.1	30.8	**9.6**	24
20	18.1	13.8	13.7	15.5	9.7	1.8	2.7	2.6	4.7	**IZS**	5.7	2.5	2.9	2.2	1.4	1.2	0.9	0.9	0.7	0.7	0.7	0.6	0.4	0.4	18.1	4.5	24
21	0.3	0.3	0.4	0.5	0.8	0.6	0.3	0.9	**IZS**	0.2	0.6	0.2	0.2	0.2	0.3	0.3	0	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.9	0.3	24
22	0.2	0.3	0.5	0.5	0.4	0.5	0.8	**IZS**	0.7	0.4	0.9	1.3	1.1	1.4	1.9	1	0.8	1.2	1.2	0.9	0.8	0.7	0.3	0.3	1.9	0.8	24
23	0.7	0.5	0.7	1	1	0.8	**IZS**	0.8	0.9	0.9	1	1	1.1	1	0.7	0.6	0.7	0.6	0.8	0.7	0.7	1.4	1	0.6	1.4	0.8	24
24	0.5	0.6	0.5	0.7	0.8	**IZS**	0.6	0.8	1.2	1.6	0.5	0.7	1.2	1.3	1.1	0.4	0.2	0.4	0.2	0.5	0.5	0.7	0.5	0.5	1.6	0.7	24
25	0.3	0.7	0.5	0.1	**IZS**	0	0.3	0.4	0.6	2.6	5.9	6.2	6	4.9	3	1.2	0.4	0.2	0	0.2	0	0.1	0.1	0	6.2	1.5	24
26	0.1	0.1	0.2	**IZS**	0	0	0.2	0.2	1	3.8	12.4	5.5	6	3.8	1.9	0.8	0.6	1.5	5.6	5	1.6	0.2	0	0	12.4	2.2	24
27	0.1	0	**IZS**	0.1	0	0	0.2	0.1	0	0.4	1.3	1.3	1.9	3.6	1.1	0.8	3.1	1.4	0.2	0.3	0.7	0.1	0.4	0.2	3.6	0.8	24
28	0.2	**IZS**	0.2	0.8	1.2	1	1.9	8.9	25	22.6	20.3	4.3	2.9	3.9	3.3	2.3	1.1	0.1	0.1	0.1	0.1	0.5	0.7	0.6	25	4.4	24
29	**IZS**	0.2	0.8	1.1	0.2	0.7	2.9	2.6	4.8	13.5	22.9	11.4	3.9	3.3	1.2	0	0.1	0	0	0	0	0.1	0	**IZS**	22.9	3.2	24
30	0.1	0	0	0.1	0.2	0.1	0.3	0.1	0.2	0.3	0.1	0.1	0.3	0.5	0.5	0.5	0.1	0.2	0.2	0.1	0.3	0.5	**IZS**	0.3	0.5	0.2	24
31	0.5	0.3	0.1	0.2	0.4	0	0.3	2	1.5	10.5	6.4	2.2	3.2	2.6	2.5	1.5	0.8	1.5	0.4	0.1	0.6	**IZS**	0.8	0.3	10.5	1.7	24
HOURLY MAX	18	14	14	16	10	4	4	9	25	23	37	38	12	10	8	15	27	25	20	24	26	31	27	23			
HOURLY AVG	0.9	0.9	1.0	1.1	0.8	0.6	0.8	1.1	2.2	3.3	5.3	4.3	3.0	3.0	2.1	2.0	2.3	2.6	2.2	1.5	2.3	2.6	1.6	1.1			

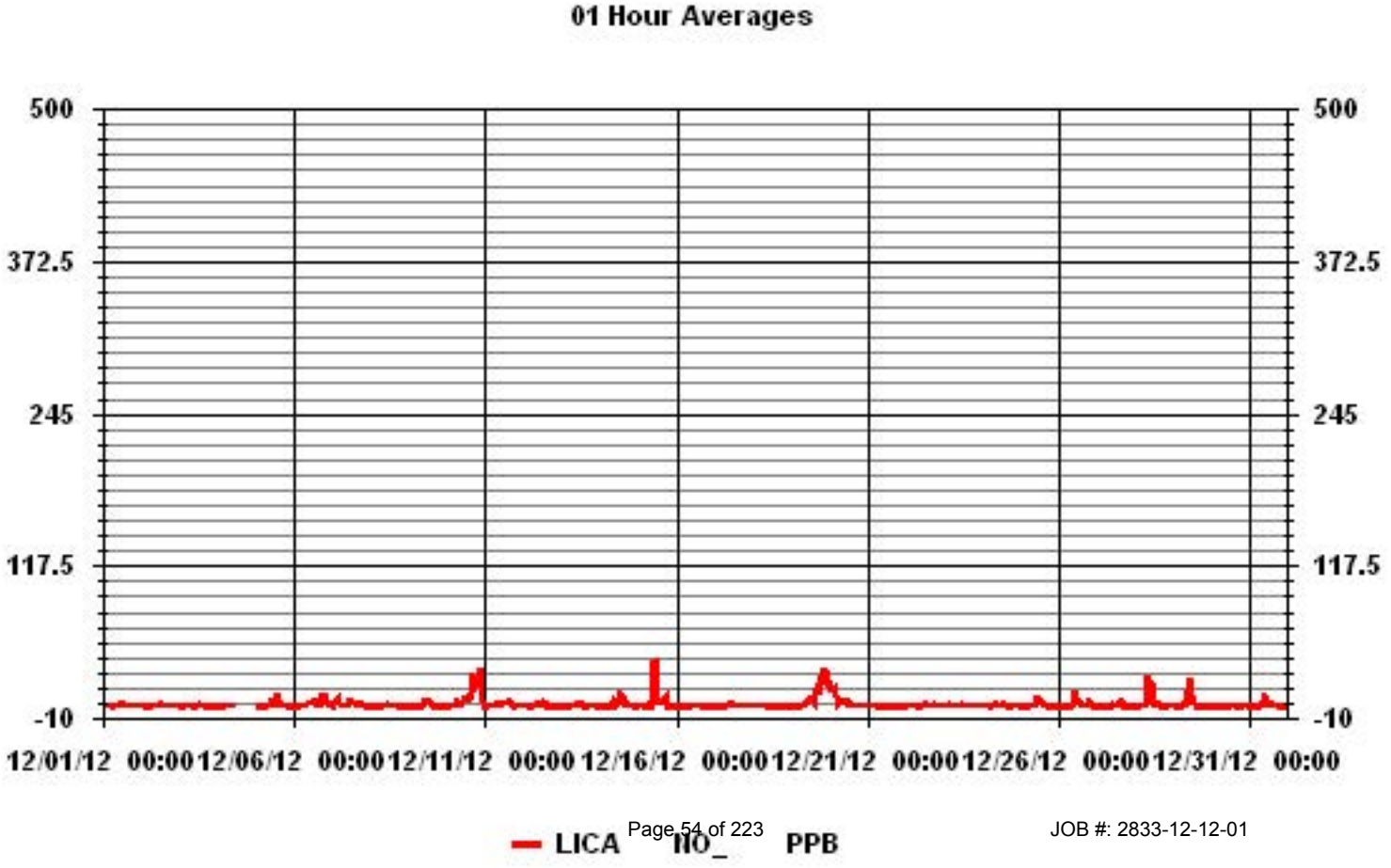
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		648					
MAXIMUM 1-HR AVERAGE:		38.0	PPB	@ HOUR(S)	8	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:		9.6	PPB			ON DAY(S)	19
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			735	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			98.8	%
STANDARD DEVIATION:	4.53		MONTHLY AVERAGE:			2.03	PPB



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.5	0.5	1.5	1.5	1.5	**IZS**	1	1.5	1.5	4.5	2.5	4	2.5	7	1.5	2.5	2	3	1.5	10	1.5	2.5	11	1.5	11	2.9	24
2	3	3	1.5	0.5	**IZS**	1	1	3.5	3	3.5	4.5	8	2.5	8.5	3.5	2	3.5	1.5	1.5	2	1.5	1	1.5	1.5	8.5	2.7	24
3	1	0.5	0.5	**IZS**	1.5	1.5	2.5	3	2	16.5	1	3	2.5	3	2	2	2	1.5	0	1	0.5	0.5	0	7	16.5	2.4	24
4	1.5	6	**IZS**	0.5	0.5	1	3	1	1.5	2.5	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	6	1.9	15
5	1.5	**IZS**	2	1	0.5	2	2	4	3.5	12	7.5	4.5	12	36	5.5	4	3.5	3	1.5	2	2	0.5	1	2	36	4.9	24
6	**IZS**	0.5	0.5	1.5	4	4.5	2	4	7.5	5.5	5.5	6	4.5	7.5	6.5	6.5	15	27	26	6.5	11.5	2	3.5	**IZS**	27	7.2	24
7	3	12.5	10	13.5	9.5	5	1.5	2.5	3.5	2	12	9	5	7.5	4.5	3.5	5.5	31.5	6.5	3.5	3	1.5	**IZS**	2	31.5	6.9	24
8	2.5	0.5	0.5	2.5	2.5	5	1	0.5	0.5	3	2	2	4.5	4	2	1.5	9.5	2	1.5	6.5	2	**IZS**	3	0.5	9.5	2.6	24
9	2.5	2	1	0.5	3	3.5	3.5	2.5	3	6	7.5	4.5	4.5	5	3.5	5.5	1	7	2.5	1.5	**IZS**	2	1.5	1	7.5	3.2	24
10	2.5	2	4	6.5	6	13	6.5	2.5	2.5	11	7	8	7	9	16	20	48	49.5	29	**IZS**	50	42	31.5	3	50	16.4	24
11	0.5	3.5	1.6	1.5	1	6	2	4.5	3	5.5	2	7	4.5	16	26	44	19	2.5	**IZS**	1.5	2	3	2	1.5	44	7.0	24
12	2	2	1.5	1	0.5	0.5	3.5	3.5	33	24	19.5	16.5	26	10	7	5.5	12	**IZS**	0.5	0.5	7.5	7.5	0.5	1.5	33	8.1	24
13	0.6	1.5	7.5	2.5	0.5	1	1	2	4.5	2.5	6	4	3.5	20	3.5	2	**IZS**	3	2	6.5	3	2.5	1.5	13.5	20	4.1	24
14	2	1	1	0.5	1	2.5	0.5	1.5	20.5	6.5	8	10	19.5	9	10.5	**IZS**	11	4	3.5	1.5	3.5	1.5	1	1.5	20.5	5.3	24
15	1.5	3	2.5	4.5	1	7	4.5	9	13.5	28	54	**87.5**	6	6.5	**IZS**	10	21	33.5	2	1.5	7.5	3.5	2.5	0.5	**87.5**	13.5	24
16	1	1	3	0.5	0.5	3.5	1.4	1	0.5	2	9	1.5	1.5	**IZS**	4.5	1.5	1	15	6	0.5	1.5	1	1	1	15	2.6	24
17	1.5	0.5	2	0.5	0.5	2.5	1	5	6	2	7	3	**IZS**	2.5	3	2	4	2	2	1	5	3	4	1.5	7	2.7	24
18	1.5	1.5	1.5	2.5	2	1	1	1.5	2	0.5	1.5	**IZS**	1	1	1	1	0.5	0.1	0.5	0.5	0.5	2.5	11	0	11	1.6	24
19	2	0.5	2	1	2	0.5	0.5	5	3.5	5.5	**IZS**	11	10.5	7	7.5	29.5	20	42	26.5	44.5	33.5	45.5	34	27.5	45.5	15.7	24
20	26.5	20	16.5	28	19.5	7	8	5	11.5	**IZS**	51.5	4.5	9	3.5	3.5	2.5	2.5	2	1.5	2.5	1.5	1.5	1	1	51.5	10.0	24
21	2	1	1	1.5	3	3	1.5	11.5	**IZS**	0.5	1	1.5	1	1	3.5	2	0.5	0.5	1.5	1	1.5	1	0.5	0.5	11.5	1.8	24
22	1	1	1.5	1	1.5	1.5	2	**IZS**	2	1	2.5	4	3	5.5	5	3	2.5	4.5	3	2	2	2	1	1.5	5.5	2.3	24
23	2.5	1.5	2.5	2.5	2	1.5	**IZS**	2	1.5	2	1.5	4	5.5	4.5	1.5	1.5	4.5	2	3.5	1.5	1.5	8	3.5	4	8	2.8	24
24	1	1.5	1	1.5	2	**IZS**	1.5	2	3	16.5	1	4	2	4.5	2	1.5	2	5.5	2.5	2.5	3	3.5	2	2.5	16.5	3.0	24
25	2.5	3	2	1.5	**IZS**	0.5	6.5	5.5	5	6	7	7.5	7.5	5.5	4	2	2.5	1.5	0.5	1.5	1.5	2	1	0	7.5	3.3	24
26	1	1	2	**IZS**	0.5	1	1.5	1	3	13	16.5	9	7.5	5.5	4	1.6	3	12	23	7.5	7.5	0.5	0.5	1	23	5.4	24
27	1.5	0.5	**IZS**	1	0.5	0	2.5	1	0.5	2.5	21	4.5	6	12.5	2.5	4.5	57	28	1.6	9	9	0.5	2	1.5	57	7.4	24
28	1.5	**IZS**	1.5	2.5	3.5	3	4	19.5	31.1	30	27	9	3.5	5	3.5	5	15	1.5	1	1.5	1.5	1.5	3	2	31.1	7.7	24
29	**IZS**	1	2	5	0.5	6	8	5	8.5	24	40.5	24.5	5.5	6	2.5	0.5	1.5	1	1	0	0	0.5	0.5	**IZS**	40.5	6.5	24
30	0.5	0.5	0.5	0.7	0.5	1	1	0.5	2	1	1	0.5	1	1	2	5	1	1	1.5	0.5	1.5	1.5	**IZS**	1.5	5	1.2	24
31	2	1.5	1.5	1.5	2	0.5	6.5	15.5	8	18.5	16.5	4	4	4	4.7	4	3	9	1.5	0.5	3.5	**IZS**	4	2	18.5	5.1	24
HOURLY MAX	27	20	17	28	20	13	8	20	33	30	54	88	26	36	26	44	57	50	29	45	50	46	34	28			
HOURLY AVG	2.5	2.6	2.6	3.1	2.5	3.0	2.7	4.2	6.4	8.6	11.8	9.2	6.0	7.5	5.1	6.1	9.4	10.2	5.3	4.2	5.9	5.2	4.6	3.0			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

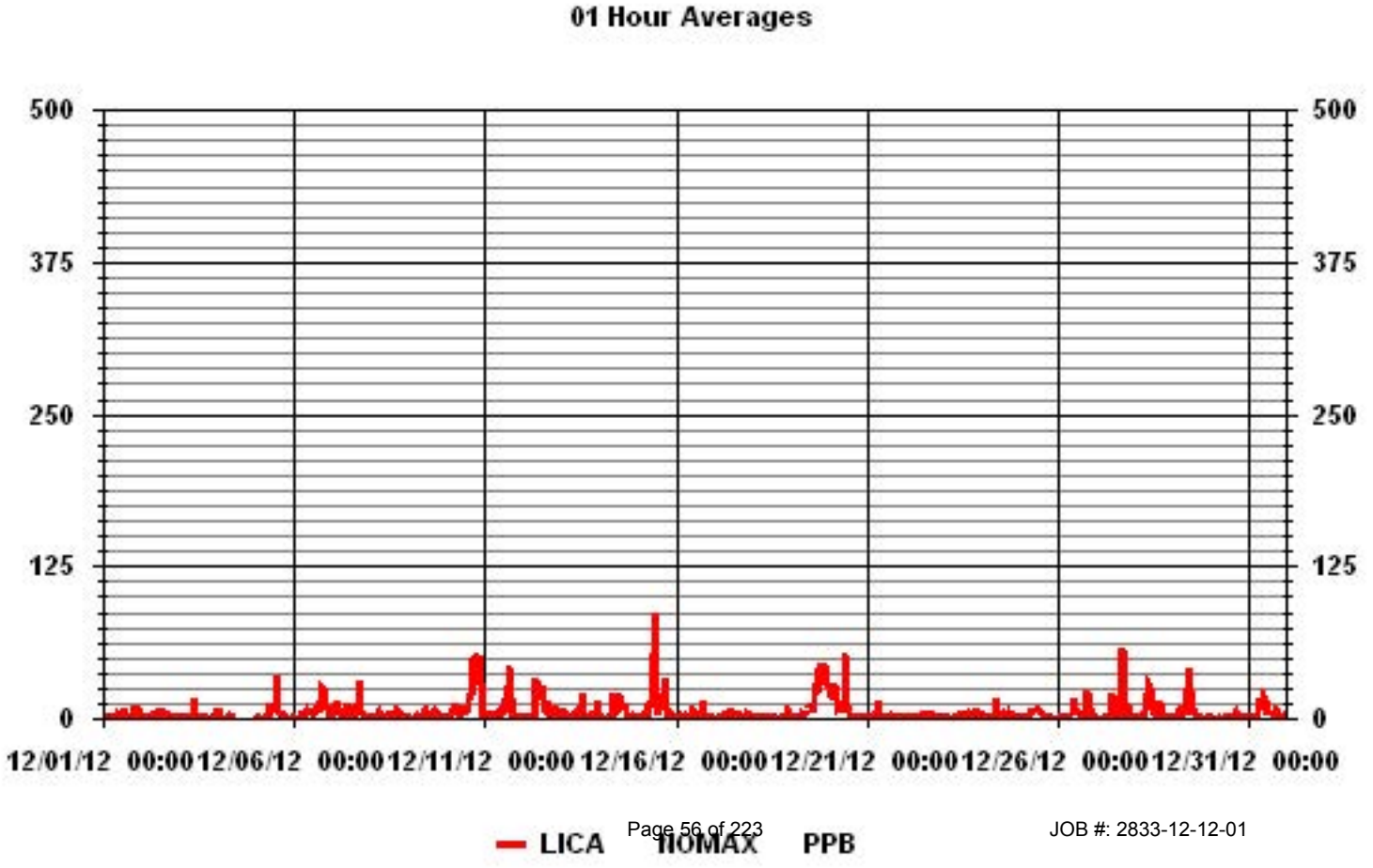
NUMBER OF NON-ZERO READINGS: 690

MAXIMUM INSTANTANEOUS VALUE: 87.5 PPB @ HOUR(S) 11 ON DAY(S) 15

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 735 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 8.86



JOB #: 2833-12-12-01

LICA
NO_ / WD Joint Frequency Distribution (Percent)

December 2012

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	3.58	6.16	8.46	5.73	12.76	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	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	3.58	6.16	8.46	5.73	12.76	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	

Calm : .00 %

Total # Operational Hours : 697

Distribution By Samples

Direction

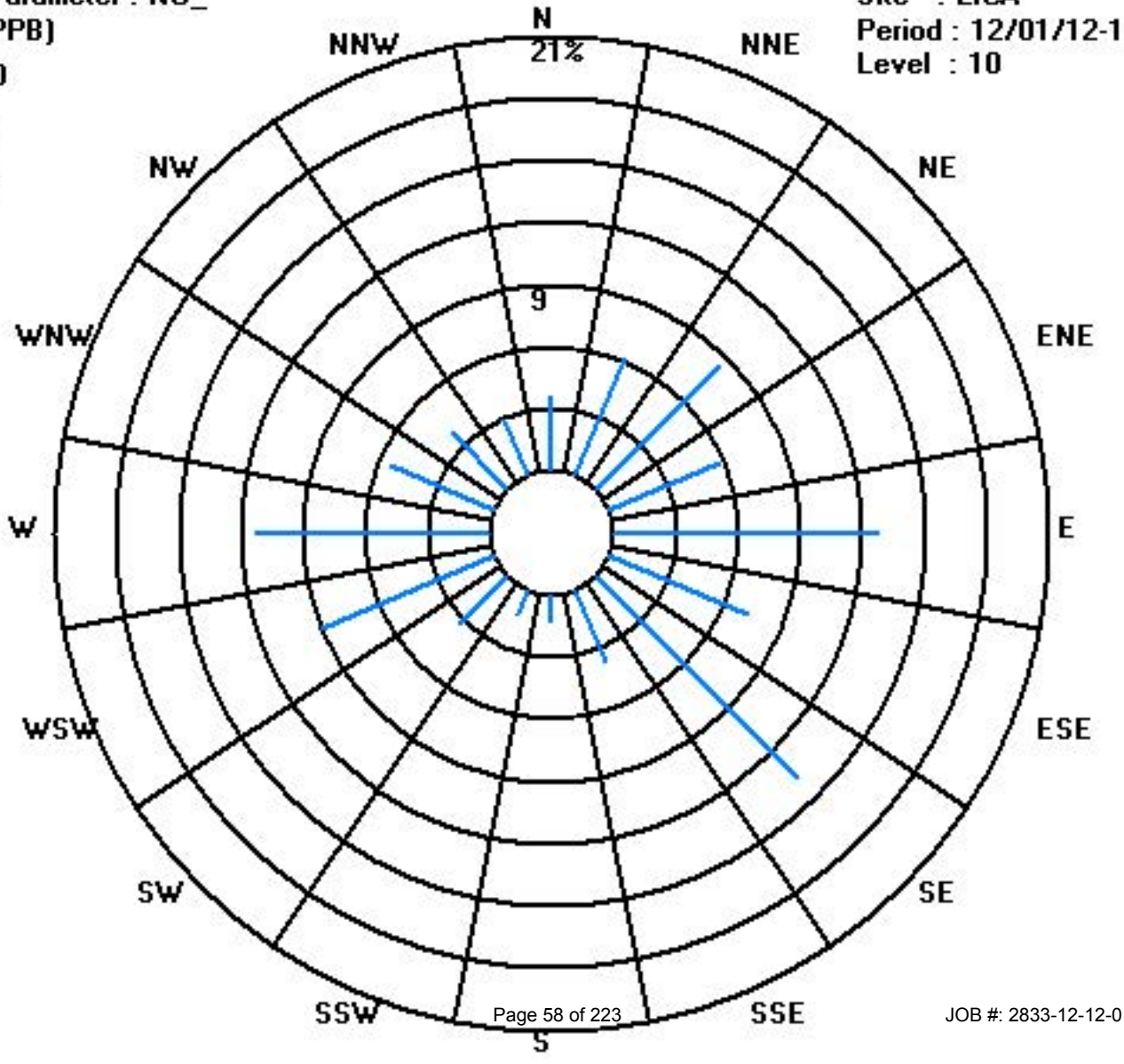
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	43	59	40	89	51	96	26	9	9	23	63	79	38	27	20	697
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	25	43	59	40	89	51	96	26	9	9	23	63	79	38	27	20	

Calm : .00 %

Total # Operational Hours : 697

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

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



JOB #: 2833-12-12-01

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

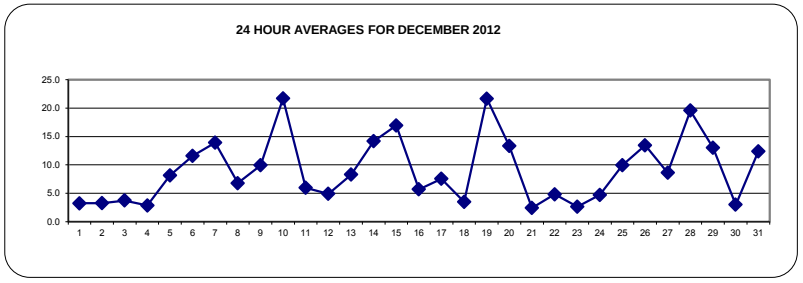
OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	0.9	1.1	1.7	2.6	2.4	**IZS**	2.7	3.2	3.3	3.9	4.4	4.1	4.2	3.4	2.9	4.8	4.8	3.6	3.2	3.8	3.2	4.1	2.9	3.1	4.8	3.2	24
2	3.8	3.2	2.1	1.6	**IZS**	4	3.2	4.4	3.4	3.7	3.5	3.9	3.9	3.5	4.1	3.9	4.8	3.5	2.8	3	2.8	1.8	2	1.6	4.8	3.2	24
3	1.2	0.9	0.8	**IZS**	1.9	5.4	4	7.1	7.9	3.6	1	2.4	5.7	5.4	4.8	5.2	7.8	5.4	4.5	2.8	1.5	1.4	1.5	3.6	7.9	3.7	24
4	2.9	3.9	**IZS**	1.5	2.6	3.8	3.3	2.1	2.8	2.7	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	3.9	2.8	15
5	2.7	**IZS**	8.1	5.2	3.3	5.9	5.2	7.9	15.5	17.1	15.3	7.7	6.3	20.5	10.8	13.3	16	7.1	5.4	4.8	2.5	2.1	2.3	2	20.5	8.1	24
6	**IZS**	1.5	1.2	1.6	2.8	3.2	5.4	8.6	13.4	9	7.1	6.2	8.1	8.9	10.8	11.9	20.9	30.6	29.5	20.5	19.8	16	17.6	**IZS**	30.6	11.6	24
7	15.6	19.9	22.3	26.3	21.1	16.1	12	11.9	7.9	7.6	15.2	13.1	10.5	11.2	7.8	10.8	13.1	16	15.6	15.1	11.7	9.9	**IZS**	9.4	26.3	13.9	24
8	10.2	9.4	7.2	8.3	9.3	6.4	3.2	2.1	1.9	3.6	3.6	3.1	3.5	2.3	1.8	3.7	5.4	12.1	9	15	12.9	**IZS**	10.8	11.1	15	6.8	24
9	11.6	13.4	12.1	11.2	10.4	10.6	12.4	8.7	10.2	10.4	8.1	7.4	8.1	8.4	9.3	9	9.7	12.3	10.3	10.2	**IZS**	8.6	8.5	7.5	13.4	9.9	24
10	8.1	7.7	10.2	14.1	17.9	22.5	23.2	19.4	15.8	15.6	15.1	14.4	11	11.4	14.9	28	49.3	44.3	37.3	**IZS**	43	49.2	18.2	8.1	49.3	**21.7**	24
11	5.6	4.9	5.6	4.9	5.1	5.7	5.9	5.1	7.3	6.1	5.5	6.9	7	9	11.7	8.1	5.9	4.9	**IZS**	4.5	4	4.4	4.9	4.2	11.7	6.0	24
12	4.7	3.2	2.7	1.6	0.9	1.1	2.2	5.5	6.9	4.7	7.7	5.1	9.6	6.8	13.8	7.9	6.7	**IZS**	3.1	3.1	3.5	4	3.7	3.7	13.8	4.9	24
13	4.1	5.7	8.9	7.8	4.5	4.6	6.1	7.9	10.5	6.8	6	7.3	5.9	8	7.9	8.6	**IZS**	8.8	10.9	10.9	13.8	14.2	9.2	11.9	14.2	8.3	24
14	9.3	9.1	7	7	7	8.3	7.6	8.9	19.8	12.8	17.1	19.4	27.2	19.2	24.6	**IZS**	21.2	17.3	17	18.9	14	12.8	10.2	9.8	27.2	14.2	24
15	8.7	8.3	6.7	7.4	6.4	17	15	14.5	18.3	23.6	60.8	**62.1**	13.2	12.3	**IZS**	20.8	30.4	27.5	7.4	7	6.7	5.5	5.5	4	**62.1**	16.9	24
16	3.5	3.5	3.4	3.1	3.2	3.3	3.7	4.3	3.3	3.2	3.7	3.2	3.4	**IZS**	4.4	5.6	8.4	11.9	9.9	9.5	9.2	8.2	9.2	9.3	11.9	5.7	24
17	7.2	9	12.1	8.9	7.8	6.9	6.3	10.6	12.8	9.2	7.3	6.2	**IZS**	6.6	4.8	7.7	7.8	8.3	6.7	6.4	7	5.1	4.8	3.6	12.8	7.5	24
18	3.2	3.3	2.7	3.4	4.1	3.6	3.2	4.1	4.4	3.6	3.6	**IZS**	2.4	2.1	1.4	1.6	2.8	4.9	4.3	3.8	3.7	4.1	5.4	4.1	5.4	3.5	24
19	5.2	6.2	7.5	3.3	5.1	5.4	7	8.3	10.8	12.4	**IZS**	16.3	13.7	13.2	11.8	36	32.6	38.1	40	44.1	44.5	50.9	45.8	39.9	50.9	21.7	24
20	33.9	29.1	29.3	32.4	24.4	15.4	16.2	16.2	22.3	**IZS**	14.2	8.4	9.1	8.2	7	6.7	6	6.1	4.8	4.2	3.5	3.1	3.1	2.9	33.9	13.3	24
21	2.7	3.3	3.3	4.2	5.3	5	4.9	3.4	**IZS**	1.3	2.3	1.1	1.1	1.3	1.2	1	1	1.4	1.9	2.4	2.7	2.1	1.2	1.1	5.3	2.4	24
22	1.6	1.6	1.7	1.8	1.8	3	2.9	**IZS**	3.9	2.6	3.7	4.6	4	4.1	5.3	4	12.8	14.2	11.6	7.3	6.2	4.2	4.2	3.6	14.2	4.8	24
23	4.4	2.9	2.5	2.8	2.6	2.1	**IZS**	2	2.4	3.1	2.8	2.5	2.7	2.6	2.1	2	2.6	2.5	2.7	2.6	2.5	3.4	2.4	2.5	4.4	2.6	24
24	1.9	2	2.2	2.5	2.7	**IZS**	2.8	3	3.4	4.4	1.4	2.1	3.8	4.2	4.5	3.5	4.5	5.2	8.9	7.7	8.2	10.6	10.8	8	10.8	4.7	24
25	5.8	6.2	5.2	4.5	**IZS**	11.4	10	10.1	9.3	11.3	16.4	15.5	14.2	12.5	10.5	9.3	10.2	10	9.7	9.1	8.9	9.6	10.1	9.2	16.4	10.0	24
26	7.5	8	9.4	**IZS**	9.1	7.6	10.6	11.5	12.9	13.1	26.1	13.1	13.3	9.7	7.2	8.1	15.5	19	28	29.2	20.7	12.4	9	7.9	29.2	13.4	24
27	7.6	6.5	**IZS**	4.8	5.3	4.2	6.6	7.3	4.1	4	5	5.2	7.3	9.2	6.4	6.7	14	15.1	13.4	12.4	12.8	12.4	13.5	14.1	15.1	8.6	24
28	15.1	**IZS**	15	16.2	18.1	16.9	18.8	28.5	48.5	42.4	36.3	10.5	9.1	10.7	11.9	14	16.1	16.9	17.3	16.7	16.7	18.4	18.2	17.2	48.5	19.5	24
29	**IZS**	14.7	16.4	17.4	14.9	14	17.7	18.8	21.3	28.1	40.8	25.1	13.2	11.9	7.6	3	2.8	2.4	2.4	2.7	4.1	5.1	2	**IZS**	40.8	13.0	24
30	3.2	2.1	2	2.8	3.1	3.5	4.2	3.2	2.2	1.9	1.2	1.2	1.7	1.9	2.8	2.5	2.3	4.4	2.8	2.3	4.6	7	**IZS**	5.4	7	3.0	24
31	8.4	5.9	4.8	9.5	9.5	8.9	7.3	13.5	14.8	28.2	18.1	8.1	9.4	10.2	12.3	12.4	16	18.5	16.5	15.1	14.9	**IZS**	13.5	8.2	28.2	12.3	24
HOURLY MAX	34	29	29	32	24	23	23	29	49	42	61	62	27	21	25	36	49	44	40	44	45	51	46	40			
HOURLY AVG	6.9	6.8	7.4	7.5	7.3	7.8	7.8	8.7	10.7	10.0	12.2	9.9	8.0	8.2	7.8	9.0	12.1	12.8	11.6	10.2	10.7	10.4	8.9	7.8			

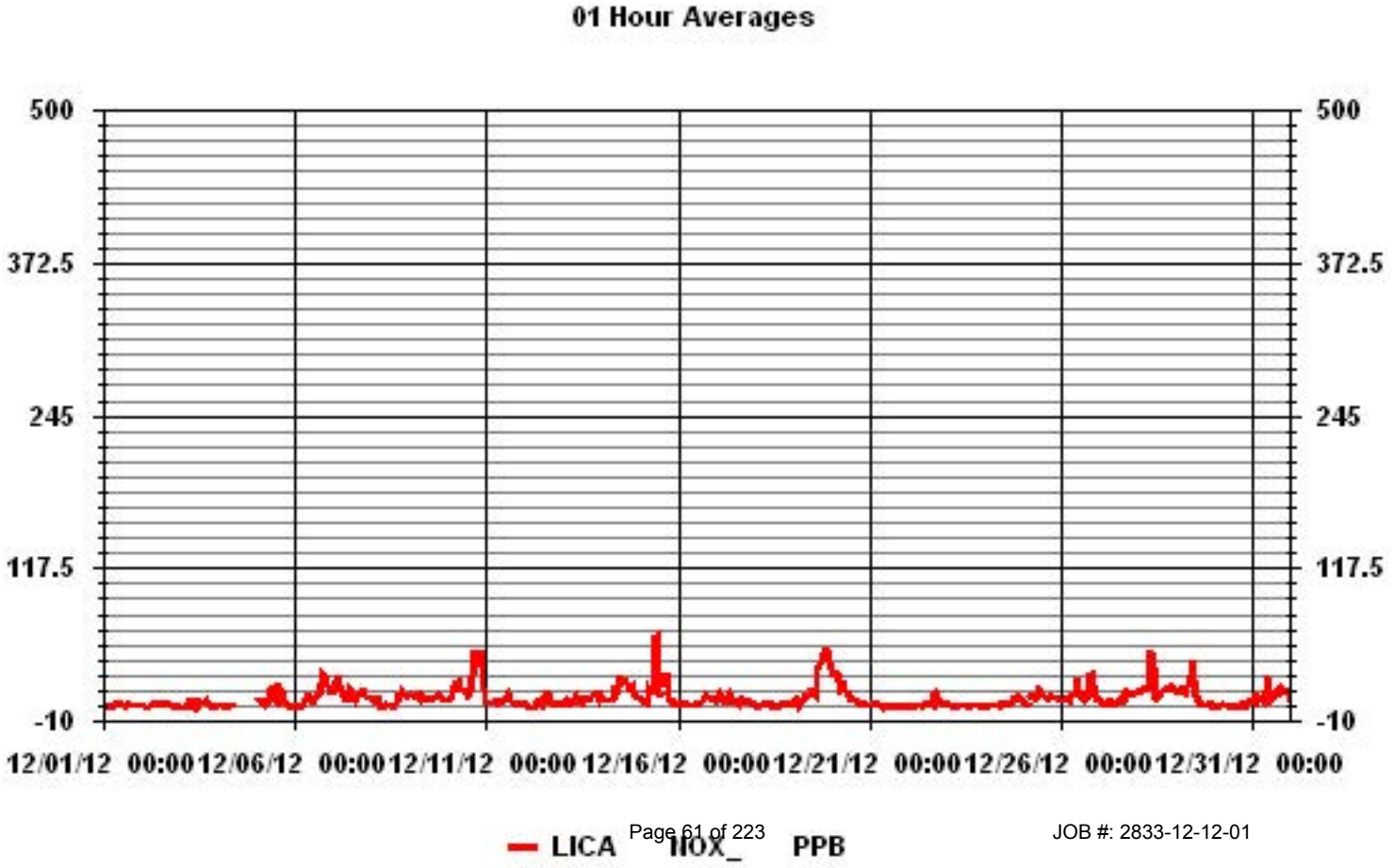
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		697					
MAXIMUM 1-HR AVERAGE:		62.1	PPB	@ HOUR(S)	11	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:		21.7	PPB			ON DAY(S)	10
IZS CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:		735	HRS
MONTHLY CALIBRATION TIME:	5	HRS		AMD OPERATION UPTIME:		98.8	%
STANDARD DEVIATION:	8.64			MONTHLY AVERAGE:		9.19	PPB



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

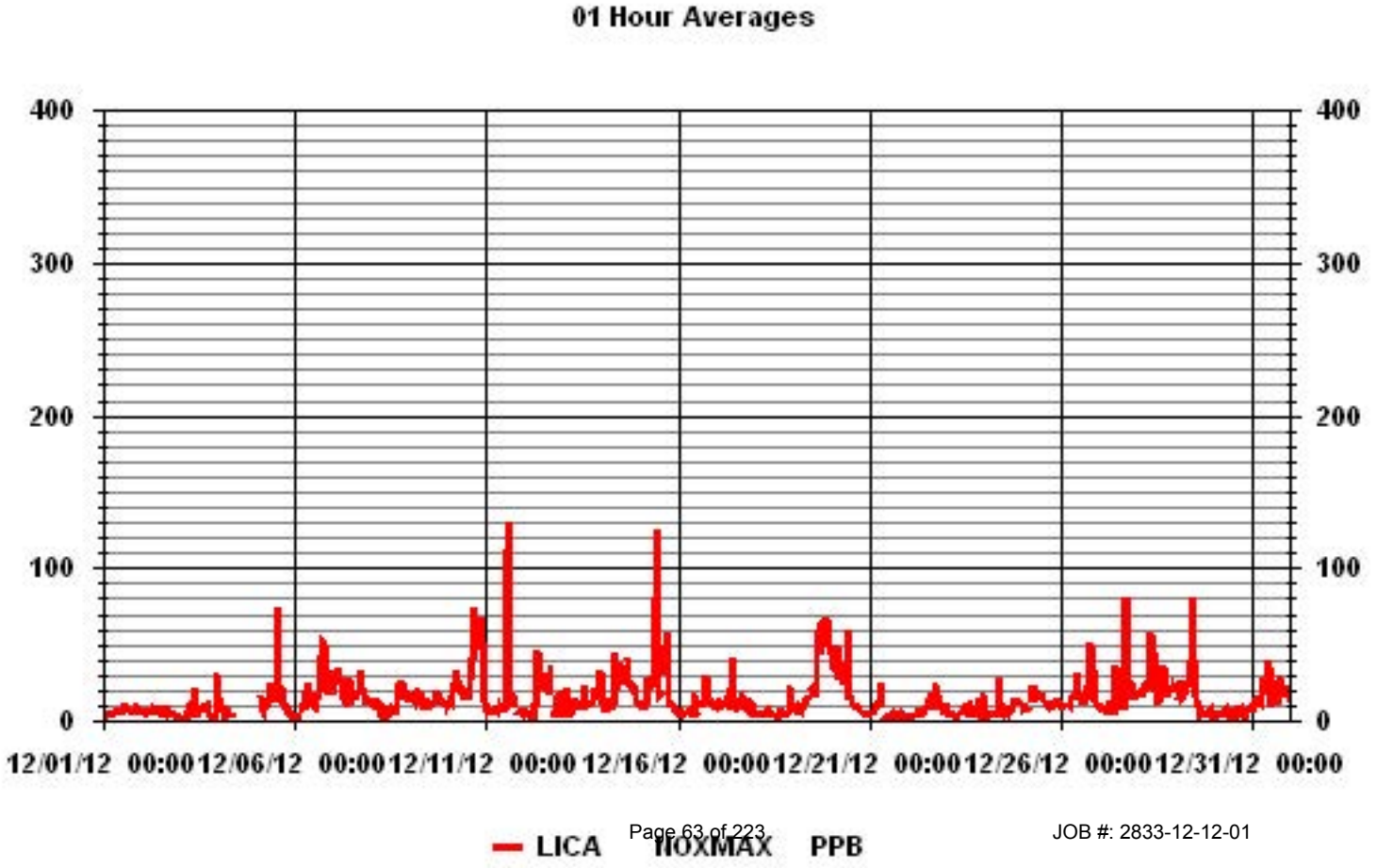
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.5	2	4.5	5.5	4	**IZS**	4.5	5.5	5.5	6.5	7.5	7	6.5	10.5	5	9	8.5	7	6	5.5	5.5	9.5	9	5	10.5	6.2	24
2	7.5	7	4.5	4.5	**IZS**	5.5	5.5	8.5	6.5	7.5	6	9.5	6.5	8.5	8	6	10	6.5	5	5.5	5	3.5	4	3	10	6.3	24
3	2	1.5	1.5	**IZS**	3.5	9	9	12.5	13.5	21	3	5	7.5	7.5	7	7	10	11	6	4.5	3	2	2	31.5	31.5	7.8	24
4	5.5	12.5	**IZS**	2	5.5	7	7	4.5	5	4.5	**C**	**C**	**C**	**C**	**C**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	12.5	5.9	15
5	4	**IZS**	15.5	8	6	10.5	8.5	14.5	21	25	20.5	11.5	21.5	75	14	21.5	21.5	12.5	7	8	5.5	2.5	3	4.5	75	14.8	24
6	**IZS**	2	2	5	9.5	8.5	8.5	19.5	24.5	13.5	11.5	11.5	10	16	16	18.5	42	52	50.5	26.5	28	17.5	20	**IZS**	52	18.8	24
7	18.5	32.5	29	33.5	28.5	25	14.5	17	12.5	9.5	28.5	17	15	18	13.5	18.5	18.5	33	21.5	20.5	14.5	15.5	**IZS**	13	33.5	20.3	24
8	13	10.5	8	13	12.5	12	4.5	3	3	6.5	5	5.5	9.5	8.5	4	6.5	24	18.5	16	27	16	**IZS**	18	12	27	11.2	24
9	15.5	17	15	12.5	15	19.5	18.5	12	13.5	14	10	10.5	9.5	10	11.5	14.5	12.5	20	15.5	13	**IZS**	12	11.5	8.5	20	13.5	24
10	10.5	13.5	12	18.5	24	32.5	27.5	21.4	19	22.5	17	21	13.5	18	26	40.5	73.5	67.5	48	**IZS**	66.5	58.5	52	13.5	73.5	31.2	24
11	6.5	8	8	6.5	6	8.5	8	6.5	10	8	7.5	12	11	111.5	**129.5**	14.5	17.5	10.5	**IZS**	6	5.5	7.5	7	5	**129.5**	18.3	24
12	8	5	4.5	4	3.5	2	10	10.5	46.5	20	32	28.5	32	21	21.5	17.5	33.5	**IZS**	4	4	16	17	5.5	5	46.5	15.3	24
13	4.5	9	22	16	5	5.5	8	10	14.5	9.5	13.5	10.5	8	22.5	11.5	10	**IZS**	11	13.5	19	18	18	13	32.5	32.5	13.3	24
14	12.5	10	8	7.5	8.5	14	8	10.5	44	23	22.5	26	37.5	23	29.5	**IZS**	39	21.5	25.5	22.5	22.5	18	12	12	44	19.9	24
15	11	10	9.5	13	10	27.5	23	23.5	29	53	80	125.5	17	18	**IZS**	32	49	57	11	11	12	10.5	7.5	5.5	125.5	28.1	24
16	6.5	5	8.5	4	4.5	6	5.5	7	5.5	5	18.5	5.5	4.5	**IZS**	12.5	10	17	27	27	15.5	13	11.5	13.5	12.5	27	10.7	24
17	10	12	15	10	10.5	11	10.2	16.5	21.5	12	40.5	9	**IZS**	8	9	13.5	15.5	12.5	9	8	15	7.5	13.5	5	40.5	12.8	24
18	5.5	5.5	4.5	5.5	6	5	5.5	6.5	7.5	5	5.5	**IZS**	3.5	3	2.5	5.5	4	5.5	5.5	4.5	5	7	23	6	23	6.0	24
19	8.5	8	9.5	4.5	8	6	8	11.5	13.5	15.5	**IZS**	21.6	22.6	15.1	17.6	59.6	43.1	64.6	48.1	65.1	56.1	67.1	55.6	45.6	67.1	29.3	24
20	44.1	35.6	32.1	50.1	38.6	26.1	32.1	23.6	36.1	**IZS**	58	15	17	10.5	9.5	10	10.5	9.5	7	6	4.5	4.5	4	4	58	21.2	24
21	4	4.5	5.5	7	10	11.5	9	22	**IZS**	2.5	3.5	3.5	2.5	3	5	3.5	2	2.5	6.5	3.5	6	4.5	2	2.5	22	5.5	24
22	3	3	3	3.5	4	5	4.5	**IZS**	7.5	5.5	7	8.5	9	13.5	11.5	7	18.5	24	18	11	9	7	7	6	24	8.5	24
23	12	5.5	5.5	4.5	5	4	**IZS**	4	5	6	3.5	8.5	9.5	10.5	3.5	3.5	9	6	7	5	4	14	6.5	17.5	17.5	6.9	24
24	4	4	3	5	5	**IZS**	4.5	5.5	5	27.5	3.5	8	5.5	9	7.5	5.5	9	8.5	12.5	11.5	11.5	13.5	13	12	27.5	8.4	24
25	8.5	10	8.5	7.5	**IZS**	14.5	23.5	20.5	19	16.5	18	18	17	14	11.5	10	12	11.5	10.5	12.5	10.5	11.2	12.5	10.5	23.5	13.4	24
26	9	9.5	10.5	**IZS**	11	10	17	14.5	18.5	29	31.5	19.5	16	13	10	14	22.5	27.5	51.5	33.5	33	14	10.5	9	51.5	18.9	24
27	11.5	7	**IZS**	6.5	7	5	12.5	13	5.5	5.5	37	8.5	16	20	10	9.5	81.5	71	16.5	24	26	14.5	17	17	81.5	19.2	24
28	18	**IZS**	18	21	23	21	22	41.5	57	52.5	46	20.5	10	13.5	15	18.5	36	18	18.5	18	19.5	21	24	21.5	57	25.0	24
29	**IZS**	16	19	27	16.5	18	26.5	22.5	28	40	81.5	42	16.5	13.5	10.5	4	5	5	3.5	3.5	5.5	7.5	2.5	**IZS**	81.5	18.8	24
30	5.5	2.5	3	4.5	4	5	6.5	5	7	4	2.5	2	5	3.5	6.5	9	4	7	5	3.5	8	9	**IZS**	8	9	5.2	24
31	11	9	14.5	14	13	11.5	17	28.5	23	40	36.5	11.5	12	12.5	17	15.5	26	30	19	16.5	21	**IZS**	17.5	14.5	40	18.7	24
HOURLY MAX	44	36	32	50	39	33	32	42	57	53	82	126	38	112	130	60	82	71	52	65	67	67	56	46			
HOURLY AVG	9.7	9.6	10.5	11.2	10.6	12.0	12.3	14.1	17.6	17.0	22.7	17.3	12.8	18.3	15.7	14.3	23.3	22.7	17.1	14.3	16.1	14.5	13.8	12.2			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM INSTANTANEOUS VALUE:	129.5	PPB	@ HOUR(S)	14	ON DAY(S)	11
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		735	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	14.76					



JOB #: 2833-12-12-01

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

December 2012

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	3.58	6.16	8.32	5.59	12.62	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	99.56
<	110.0	.00	.00	.14	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43
<	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	3.58	6.16	8.46	5.73	12.76	7.31	13.77	3.73	1.29	1.29	3.29	9.03	11.33	5.45	3.87	2.86	

Calm : .00 %

Total # Operational Hours : 697

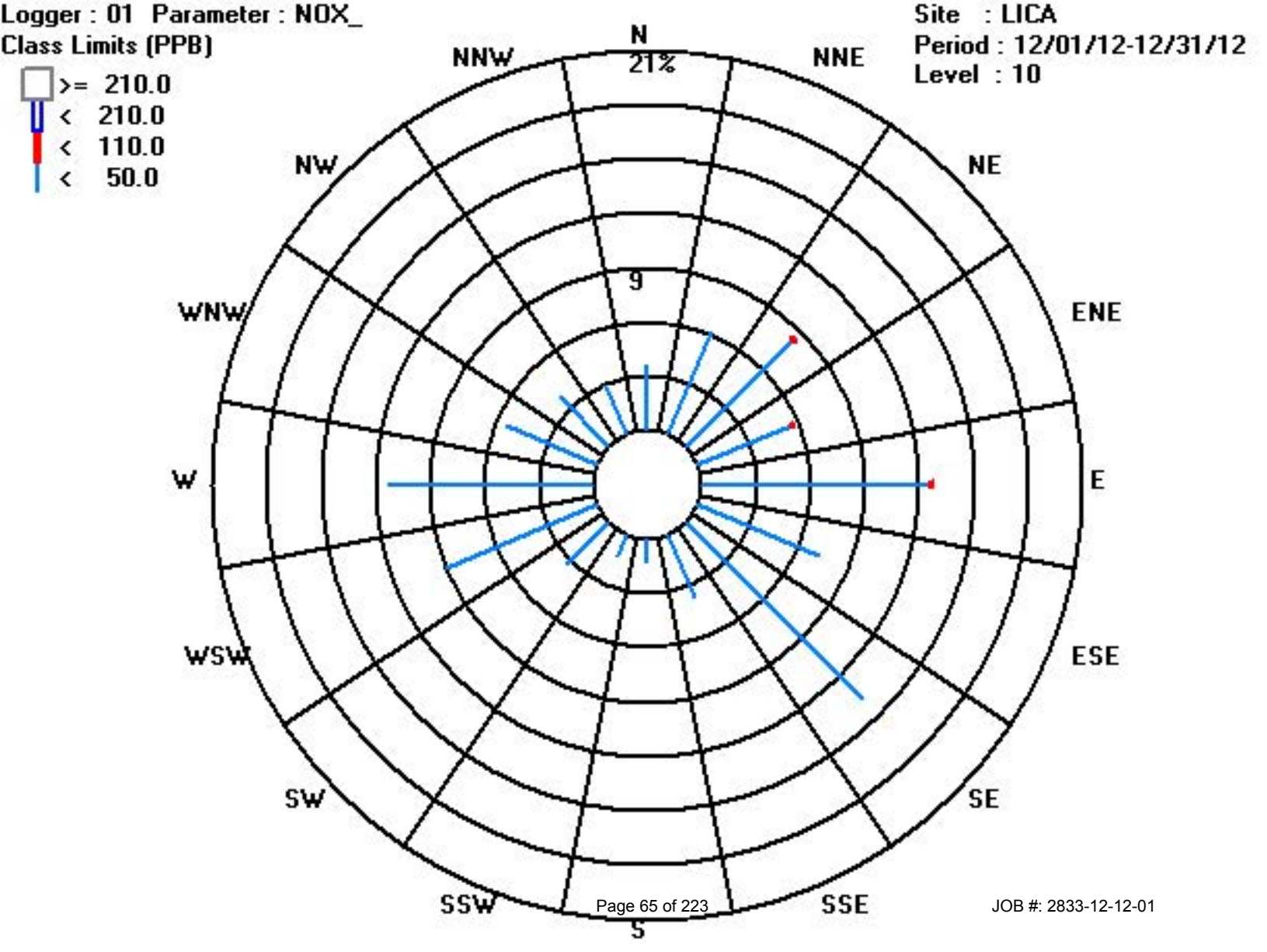
Distribution By Samples

Direction

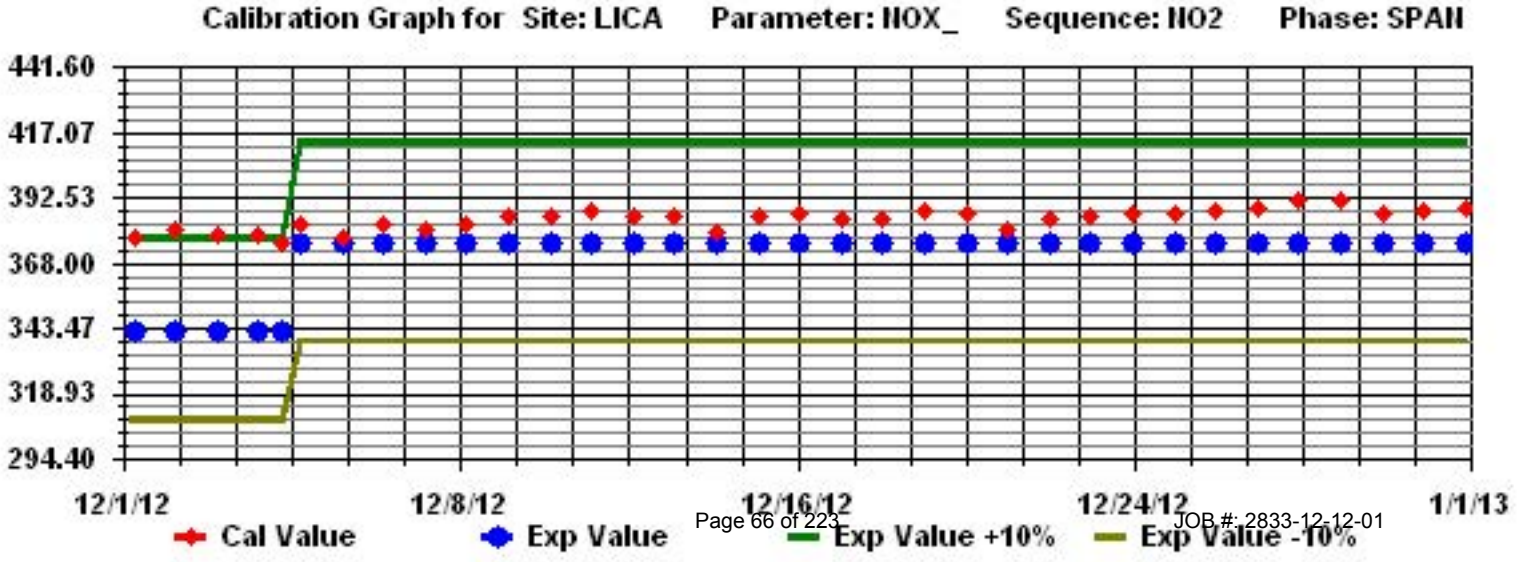
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	25	43	58	39	88	51	96	26	9	9	23	63	79	38	27	20	694
<	110.0			1	1	1												3
<	210.0																	
>=	210.0																	
	Totals	25	43	59	40	89	51	96	26	9	9	23	63	79	38	27	20	

Calm : .00 %

Total # Operational Hours : 697



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN
441.60
417.07
392.53
368.00
343.47
318.93
294.40
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

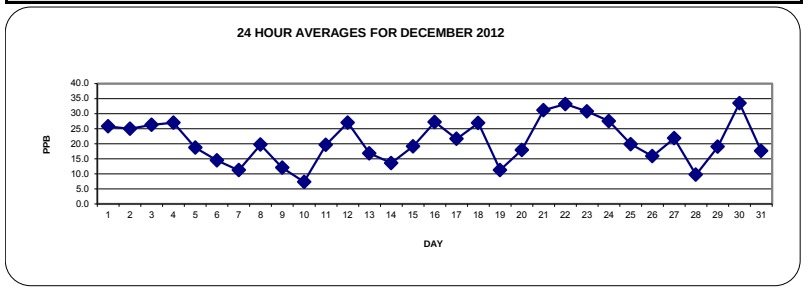
OZONE (O_3) hourly averages in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	27	27	27	27	27	**IZS**	26	26	26	26	26	27	27	27	27	25	24	25	25	24	24	24	24	24	27	25.7	24
2	23	24	25	24	**IZS**	23	23	23	24	24	25	27	26	26	25	24	23	25	26	26	27	27	27	27	27	25.0	24
3	28	29	29	**IZS**	29	26	28	25	24	27	29	28	26	26	26	25	22	24	24	25	27	26	26	25	29	26.3	24
4	24	24	**IZS**	25	25	25	26	28	28	28	28	29	29	28	28	**C**	**C**	**C**	**C**	27	28	28	27	28	29	27.0	24
5	28	**IZS**	19	22	25	22	23	20	13	14	16	20	20	15	16	13	10	17	18	19	21	20	19	20	28	18.7	24
6	**IZS**	22	23	23	23	21	18	16	12	18	21	22	21	20	19	16	7	2	3	3	3	3	2	**IZS**	23	14.5	24
7	3	1	1	1	3	6	10	12	16	16	13	15	17	17	19	17	14	11	11	10	14	16	**IZS**	14	19	11.2	24
8	15	16	17	16	14	16	21	22	25	24	27	27	29	30	30	29	24	15	16	10	10	**IZS**	10	9	30	19.7	24
9	8	7	8	7	9	7	5	12	12	13	17	17	17	17	15	15	14	11	11	12	**IZS**	14	14	14	17	12.0	24
10	14	14	11	7	3	1	2	3	6	9	11	12	15	15	13	6	1	1	1	**IZS**	1	1	8	12	15	7.3	24
11	14	15	16	17	18	19	20	20	19	19	19	20	20	20	20	20	22	22	**IZS**	21	22	22	22	24	24	19.6	24
12	24	26	28	30	30	31	30	28	28	29	29	29	27	27	22	25	25	**IZS**	27	27	26	25	24	23	31	27.0	24
13	22	21	16	16	21	21	20	18	16	19	20	20	21	19	18	17	**IZS**	16	13	13	9	7	13	9	22	16.7	24
14	13	12	15	15	15	14	14	12	7	11	10	10	9	12	10	**IZS**	14	15	16	11	17	17	21	22	22	13.6	24
15	21	23	26	25	21	10	9	6	5	6	7	14	23	24	**IZS**	15	5	11	29	30	30	32	32	35	35	19.1	24
16	36	36	36	36	35	34	32	31	31	31	31	31	31	**IZS**	30	29	23	18	15	14	14	18	19	15	36	27.2	24
17	14	13	16	17	18	20	20	18	17	20	24	26	**IZS**	29	30	26	24	22	23	23	23	24	24	25	30	21.6	24
18	25	25	25	25	25	25	27	27	27	26	27	**IZS**	30	30	31	32	30	27	28	28	28	27	23	21	32	26.9	24
19	19	16	21	27	23	20	16	14	12	13	**IZS**	14	16	16	16	6	2	1	1	1	1	1	1	1	27	11.2	24
20	1	1	1	1	5	11	14	15	9	**IZS**	19	24	25	27	28	26	24	22	24	25	26	28	28	28	28	17.9	24
21	28	28	27	27	26	26	25	26	**IZS**	29	28	29	30	31	34	35	35	34	35	36	36	37	37	37	**37**	31.1	24
22	36	35	35	34	34	33	34	**IZS**	34	35	34	34	35	35	35	35	26	23	27	33	35	35	33	33	36	33.2	24
23	31	32	32	30	28	27	**IZS**	28	28	28	29	30	30	31	32	31	31	31	32	33	34	33	33	32	34	30.7	24
24	32	31	30	29	28	**IZS**	27	27	28	27	29	30	29	30	29	29	28	28	23	25	26	23	21	24	32	27.5	24
25	27	27	28	26	**IZS**	15	14	13	12	14	18	19	20	21	21	21	19	20	20	21	21	20	19	20	28	19.8	24
26	22	22	20	**IZS**	20	19	15	11	9	12	12	20	20	22	25	24	12	7	3	2	8	16	20	24	25	15.9	24
27	27	27	**IZS**	29	28	29	26	24	24	25	26	26	26	26	28	28	22	17	13	12	11	11	9	7	29	21.8	24
28	6	**IZS**	7	6	4	4	2	1	2	5	9	22	22	22	20	17	12	11	11	11	10	7	6	5	22	9.7	24
29	**IZS**	5	4	3	4	4	2	1	1	4	8	17	26	28	31	37	37	36	36	35	33	31	34	**IZS**	**37**	19.0	24
30	30	34	36	35	34	33	32	32	33	33	35	35	36	36	35	36	36	33	34	34	31	28	**IZS**	29	36	**33.5**	24
31	24	28	29	21	20	18	17	10	8	7	14	25	24	24	23	22	15	10	10	10	7	**IZS**	11	26	29	17.5	24
HOURLY MAX	36	36	36	36	35	34	34	32	34	35	35	35	36	36	35	37	37	36	36	36	36	37	37	37			
HOURLY AVG	21.4	21.4	21.0	20.7	20.5	19.3	19.3	18.3	17.9	19.7	21.4	23.3	24.2	24.4	24.5	23.5	20.0	18.4	19.1	20.0	20.1	20.7	20.2	21.1			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



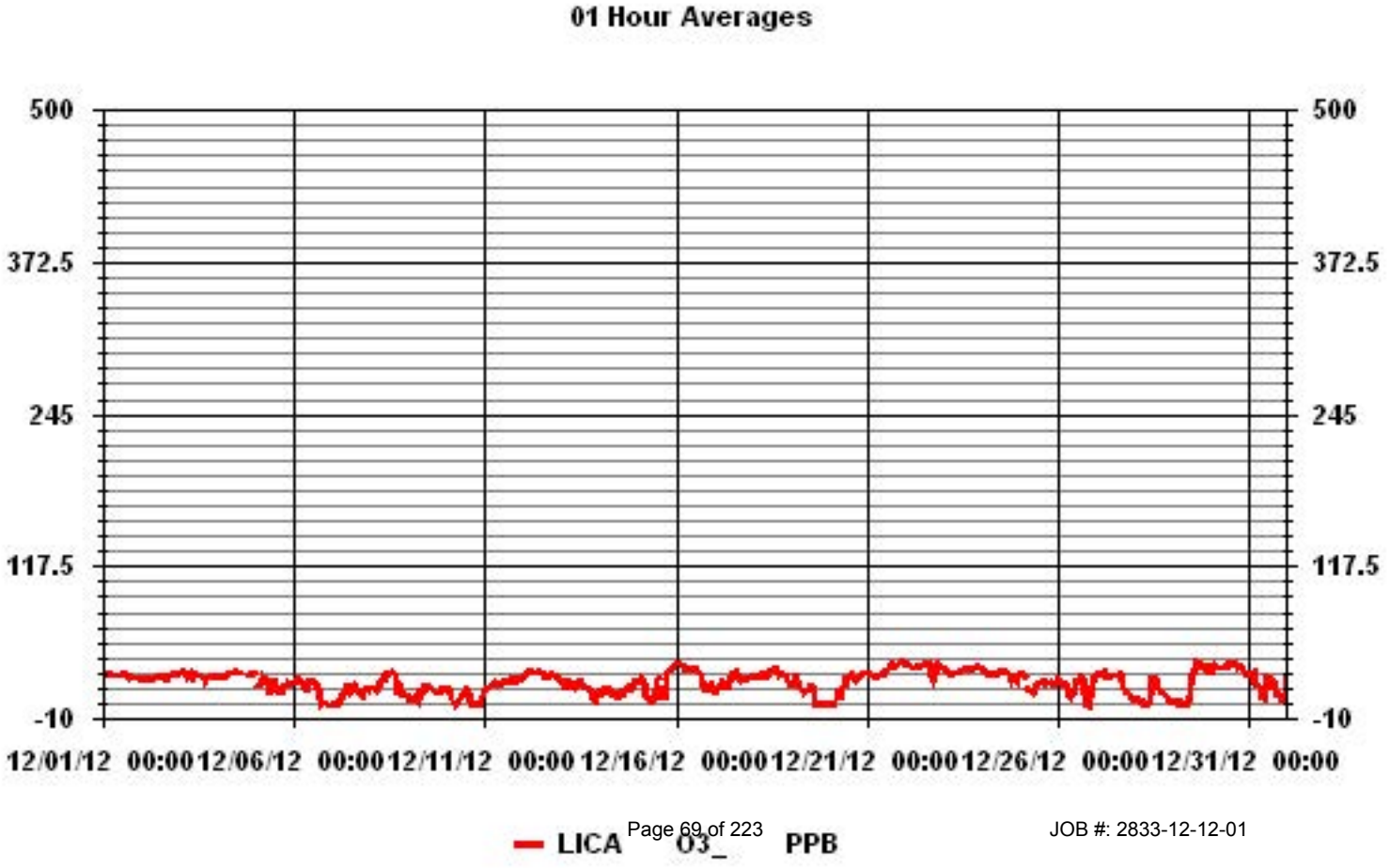
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	VAR	ON DAY(S)	21, 29
MAXIMUM 24-HR AVERAGE:	33.5	PPB			ON DAY(S)	30
					VAR-VARIOUS	

IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	9.17		MONTHLY AVERAGE:	20.87	PPB

JOB #: 2833-12-12-01



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	28	28	28	28	27	**IZS**	27	27	27	27	27	29	30	28	28	27	26	27	26	26	25	25	25	25	30	27.0	24
2	25	25	26	25	**IZS**	24	24	25	25	25	28	32	28	27	27	26	25	27	28	28	28	28	28	28	32	26.6	24
3	29	29	30	**IZS**	30	29	29	28	27	29	29	29	28	28	27	26	23	25	25	28	27	27	27	26	30	27.6	24
4	25	25	**IZS**	25	26	26	28	29	29	29	30	31	30	29	29	**C**	**C**	**C**	**C**	28	28	29	28	29	31	28.1	24
5	29	**IZS**	23	26	26	25	25	22	18	16	19	21	21	18	17	17	13	20	19	21	21	20	20	21	29	20.8	24
6	**IZS**	23	24	24	23	23	20	21	16	21	23	24	23	21	21	18	15	5	6	6	5	5	3	**IZS**	24	16.8	24
7	4	3	2	1	7	9	12	16	17	17	16	17	18	20	20	20	16	13	13	14	17	18	**IZS**	18	20	13.4	24
8	17	18	18	17	15	21	22	24	26	25	29	29	30	30	31	30	30	19	19	19	19	**IZS**	16	12	31	22.4	24
9	11	11	10	10	11	11	8	14	14	16	17	18	17	17	16	17	16	13	13	14	**IZS**	14	15	15	18	13.8	24
10	15	15	13	11	5	2	3	3	8	11	11	14	15	16	14	12	2	4	1	**IZS**	2	2	12	14	16	8.9	24
11	15	17	17	18	19	20	21	21	21	21	20	23	21	22	22	22	23	23	**IZS**	22	23	23	23	25	25	21.0	24
12	25	28	29	31	31	32	32	30	30	30	30	30	30	29	25	27	28	**IZS**	28	28	27	26	25	23	32	28.4	24
13	23	22	20	21	21	22	21	19	18	21	21	21	21	20	18	18	**IZS**	17	15	15	14	13	15	12	23	18.6	24
14	14	14	15	15	15	15	14	13	12	13	12	12	12	13	11	**IZS**	17	17	18	14	22	23	23	24	24	15.6	24
15	25	25	28	27	24	21	13	9	8	9	9	27	25	27	**IZS**	24	12	28	30	31	32	33	34	37	37	23.4	24
16	37	37	37	37	35	35	34	32	32	32	31	31	31	**IZS**	31	32	28	20	21	17	19	23	22	17	37	29.2	24
17	17	17	18	18	20	21	21	20	19	22	26	27	**IZS**	30	32	29	26	26	24	25	25	25	25	26	32	23.4	24
18	26	26	26	26	26	27	28	28	28	27	29	**IZS**	30	31	33	32	31	28	28	29	28	28	27	23	33	28.0	24
19	21	18	28	28	24	23	17	15	14	13	**IZS**	15	16	17	18	13	4	2	1	1	2	2	1	1	28	12.8	24
20	1	1	1	2	14	14	19	19	15	**IZS**	21	26	27	28	29	28	26	23	25	26	27	29	29	29	29	20.0	24
21	29	29	28	28	27	27	27	29	**IZS**	29	29	30	31	33	35	36	36	35	36	37	37	38	38	38	38	32.3	24
22	37	36	36	35	35	34	35	**IZS**	35	36	36	36	36	36	36	36	34	28	33	35	38	36	35	34	38	35.1	24
23	34	34	33	31	29	28	**IZS**	28	28	29	30	31	32	32	32	32	32	32	33	35	35	35	34	33	35	31.8	24
24	33	32	31	30	29	**IZS**	28	28	29	28	31	31	30	31	31	31	31	31	26	27	27	24	22	27	33	29.0	24
25	29	29	29	28	**IZS**	21	15	15	13	17	19	21	21	22	22	22	20	21	21	22	23	21	20	21	29	21.4	24
26	23	22	21	**IZS**	21	21	18	14	13	15	16	22	21	24	28	27	21	12	6	4	15	20	23	29	29	19.0	24
27	29	27	**IZS**	30	29	30	29	25	25	27	28	28	29	29	30	30	26	21	19	15	14	15	10	9	30	24.1	24
28	7	**IZS**	9	7	5	6	3	3	3	6	17	24	24	23	21	19	15	12	11	11	11	9	8	7	24	11.3	24
29	**IZS**	6	5	4	5	4	4	2	2	6	11	25	28	29	36	38	38	37	37	36	34	33	36	**IZS**	38	20.7	24
30	33	36	38	37	35	34	33	33	35	34	35	36	37	38	37	37	37	35	35	35	33	31	**IZS**	32	38	35.0	24
31	26	31	32	24	23	21	22	17	10	9	25	27	25	25	23	23	20	15	13	11	11	**IZS**	18	30	32	20.9	24
HOURLY MAX	37	37	38	37	35	35	35	33	35	36	36	36	37	38	37	38	38	37	37	37	38	38	38	38			
HOURLY AVG	23.0	22.9	22.6	22.2	22.0	21.6	21.1	20.3	19.9	21.3	23.5	25.6	25.6	25.8	26.0	25.8	23.1	21.2	21.0	22.0	22.3	22.6	22.1	22.9			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

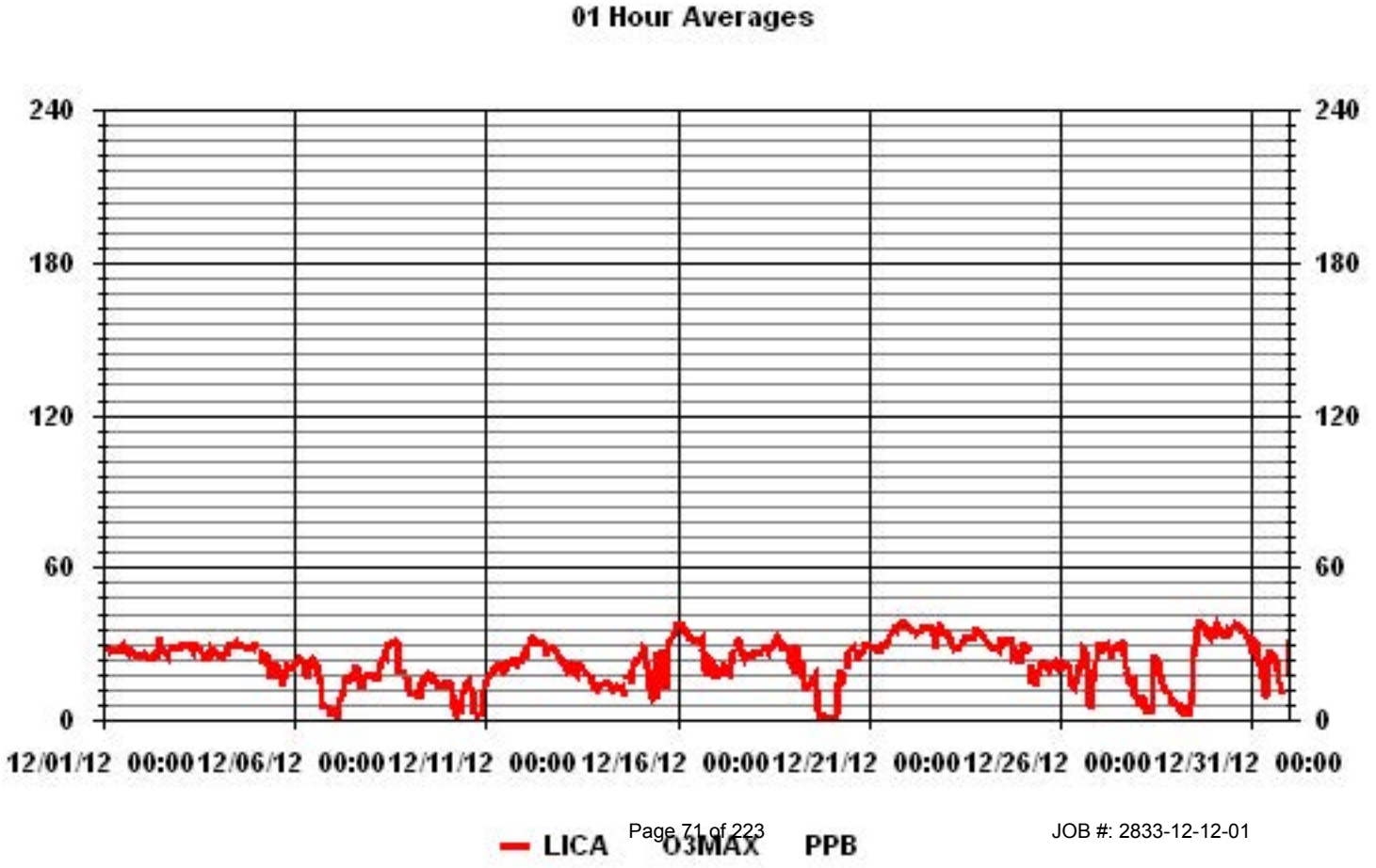
NUMBER OF NON-ZERO READINGS: 707

MAXIMUM INSTANTANEOUS VALUE: 38 PPB @ HOUR(S) VAR ON DAY(S) VAR

IZS CALIBRATION TIME: 33 HRS OPERATIONAL TIME: 744 HRS

MONTHLY CALIBRATION TIME: 4 HRS

STANDARD DEVIATION: 8.85



JOB #: 2833-12-12-01

LICA
O3_ / WD Joint Frequency Distribution (Percent)

December 2012

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	3.53	6.08	8.34	5.65	12.72	7.92	14.14	3.67	1.27	1.27	3.25	8.91	11.17	5.37	3.81	2.82	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	3.53	6.08	8.34	5.65	12.72	7.92	14.14	3.67	1.27	1.27	3.25	8.91	11.17	5.37	3.81	2.82	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	25	43	59	40	90	56	100	26	9	9	23	63	79	38	27	20	707
<	110																	
<	210																	
>=	210																	
	Totals	25	43	59	40	90	56	100	26	9	9	23	63	79	38	27	20	

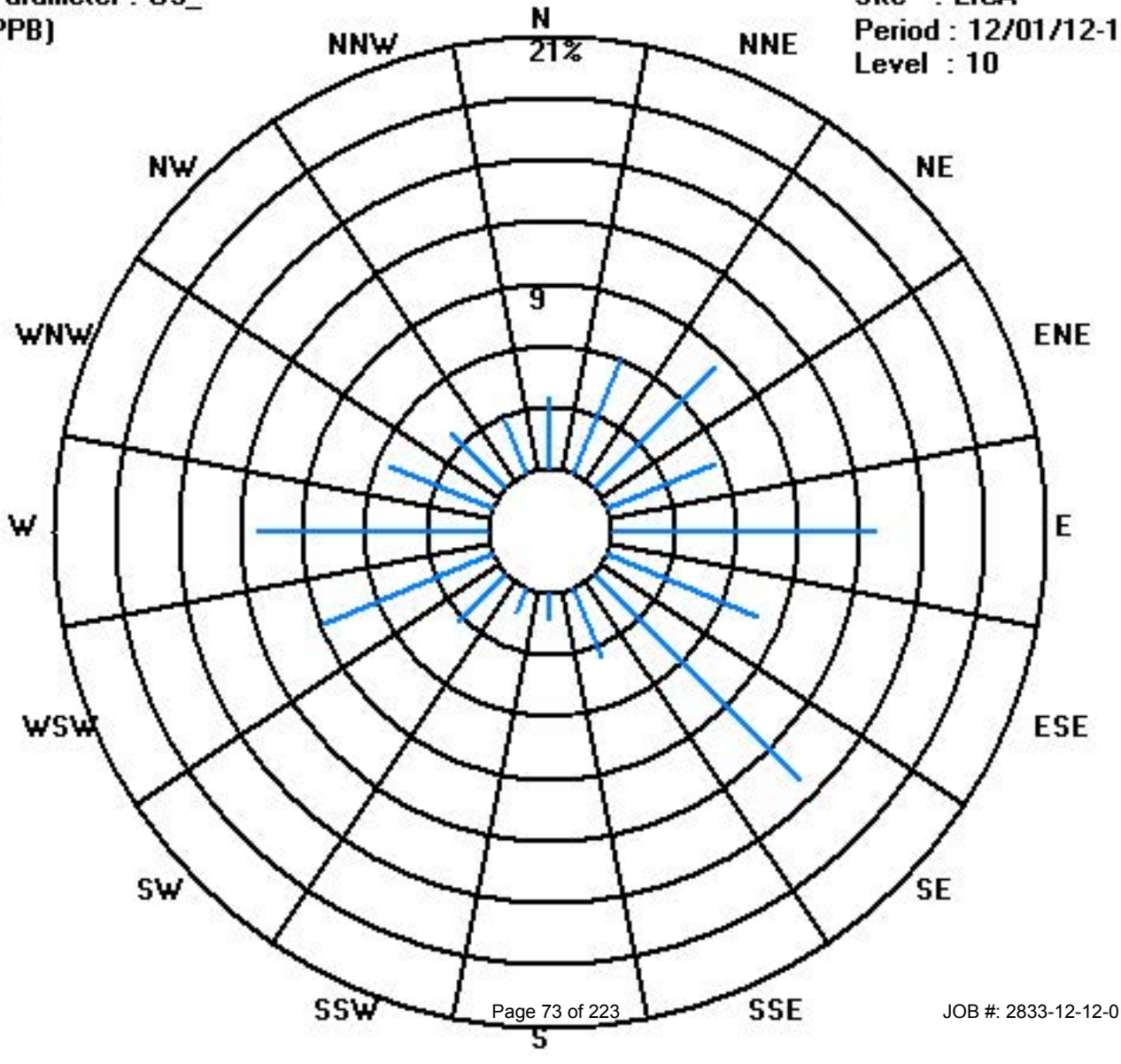
Calm : .00 %

Total # Operational Hours : 707

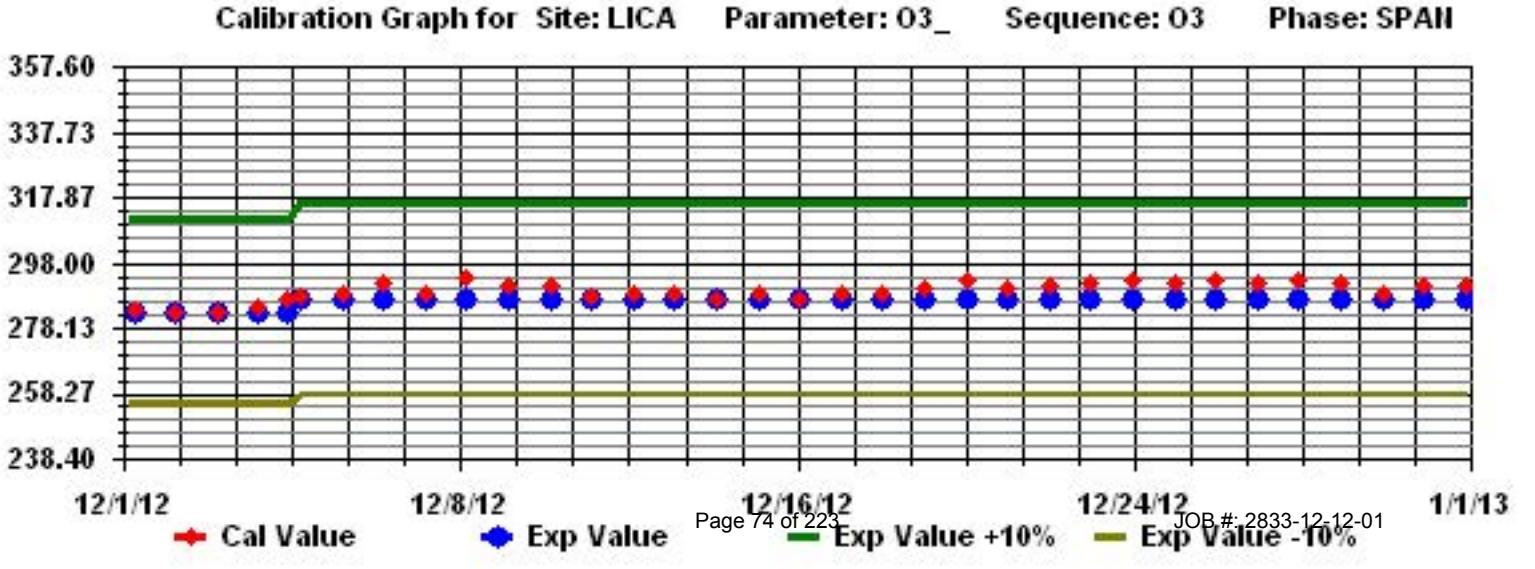
Logger : 01 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

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



JOB #: 2833-12-12-01


Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN
357.60
337.73
317.87
298.00
278.13
258.27
238.40
12/1/12
12/8/12
12/16/12
12/24/12
1/1/13
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

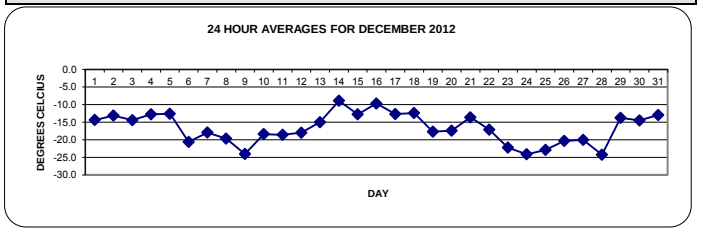
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	-13.8	-13.7	-13.6	-13.7	-14.3	-14.6	-14.7	-14.7	-14.7	-14.6	-14.5	-14.4	-14.4	-14.4	-14.5	-14.5	-14.6	-14.7	-14.7	-14.5	-14.4	-14.2	-14.2	-14.1	-13.6	-14.4	24
2	-13.9	-13.8	-13.7	-13.6	-13.6	-13.6	-13.6	-13.4	-13.4	-13.4	-13.1	-12.6	-12.4	-12.2	-12	-12.2	-12.4	-12.4	-12.9	-13.2	-13.5	-13.5	-13.1	-13.2	-12.0	-13.1	24
3	-13.5	-13.9	-14.6	-14.7	-15.4	-15.8	-15.3	-15.6	-16	-16.1	-15.5	-14.9	-14.5	-13.8	-13.4	-13.5	-13.5	-13.6	-13.6	-13.9	-13.9	-13.6	-13.6	-13.8	-13.4	-14.4	24
4	-13.8	-13.8	-13.8	-13.7	-13.6	-13.5	-13.5	-13.4	-13.1	-13	-12.6	-12.2	-12.3	-12.4	-12.3	-12.1	-11.7	-12.1	-12.3	-12.3	-12.1	-12	-12.1	-12.3	-11.7	-12.8	24
5	-12.2	-13.2	-14.7	-14.6	-13.8	-13.6	-13.6	-13.7	-13.8	-13.7	-13.2	-12	-11.5	-11	-10.7	-12.2	-12.1	-11.4	-11.1	-11.1	-11.4	-11.8	-12.1	-12.7	-10.7	-12.6	24
6	-14	-15.1	-16.4	-17.5	-18.4	-19.5	-20.3	-21	-21.7	-20.6	-20.2	-19.1	-18	-18	-17.6	-19	-21	-22.8	-24	-25.1	-25.4	-26.1	-26.6	-27	-14.0	-20.6	24
7	-27.4	-28	-26.4	-24.2	-22.5	-21.2	-19.9	-18.9	-18.4	-17.6	-16.6	-15.6	-15	-14.2	-13.7	-13.5	-13.6	-14	-14.4	-14.6	-14.7	-14.9	-15.7	-15.5	-13.5	-17.9	24
8	-14.7	-14.3	-14.2	-14.2	-14.7	-14.3	-14	-14.9	-15.5	-16.1	-17.2	-17.7	-18.3	-18.2	-18.8	-19.7	-21.8	-24	-25.8	-26.8	-27.8	-28.8	-29.5	-30.1	-14.0	-19.6	24
9	-30.8	-30.9	-31.4	**-32**	-31.8	-31.7	-31.7	-29.3	-27.6	-26.3	-24	-22.2	-21	-19.6	-19.2	-18	-17.9	-19.3	-19.7	-19.3	-18.6	-18.2	-17.9	-17.8	-17.8	-24.0	24
10	-17.2	-16.7	-16.6	-17.4	-19	-19.7	-17.7	-17	-16.1	-16	-15.6	-15.5	-15.5	-15.4	-16.1	-16.7	-18.7	-21.3	-22	-22.7	-24.2	-23.5	-20	-19.8	-15.4	-18.4	24
11	-20.1	-20.1	-19.8	-19.6	-19.7	-19.5	-19.4	-19.1	-18.8	-18.5	-18.4	-18.3	-17.7	-17.4	-17.1	-17.4	-17.8	-18	-18.2	-18.3	-18.2	-18.1	-18	-17.9	-17.1	-18.6	24
12	-17.8	-17.7	-17.6	-17.6	-17.6	-18.1	-18.6	-19.4	-19.8	-19.7	-19.6	-18.7	-18.2	-18.1	-17.6	-17.5	-17.5	-17.6	-17.9	-18.1	-17.6	-16.9	-16.2	-15.9	-15.9	-18.0	24
13	-15.9	-17.2	-19.1	-19.7	-16.7	-16.5	-17	-17.7	-17.8	-17.3	-16	-14.5	-13.2	-12	-11.4	-11.1	-11.4	-11.8	-12.6	-13	-14.3	-14.5	-13.9	-14.7	-11.1	-15.0	24
14	-13.5	-12.8	-11.9	-11.3	-11.2	-10.8	-10.3	-9.7	-9.1	-8.8	-7.7	-7	-6.5	-5.8	-5.8	-5.7	-4.7	-4.7	-5.7	-8.4	-9.6	-11.2	-10.5	-11	-4.7	**-8.9**	24
15	-12.1	-11.9	-10.6	-11.3	-14.2	-16.1	-17.7	-19	-19.7	-18.4	-15.3	-12.2	-9.5	-8.6	-8.1	-10.4	-13.7	-13.7	-9.8	-10.4	-10.9	-11.1	-11.2	-9.5	-8.1	-12.7	24
16	-8.7	-8.9	-8.6	-8.4	-8.8	-9.1	-9.4	-9.4	-9.6	-9.7	-9.5	-9.4	-8.8	-8.4	-8	-8.2	-9.1	-10.2	-10.7	-11.2	-11.2	-11.1	-11.8	-14	-8.0	-9.7	24
17	-15.9	-14.8	-12.9	-12.5	-12.5	-12.3	-12.3	-12.1	-12.5	-12.6	-12.5	-12.2	-11.9	-11.5	-11.3	-11.3	-12.1	-13	-13.3	-13	-12.9	-12.9	-12.8	-12.9	-11.3	-12.7	24
18	-13.1	-13.3	-13.4	-13.2	-12.8	-12.6	-12.6	-12.5	-12.2	-12.2	-11.8	-11.5	-11.1	-10.9	-10.8	-11.1	-11.4	-11.7	-12	-12.2	-12.2	-12.6	-14	-15.3	-10.8	-12.4	24
19	-14.3	-13.4	-12.6	-12.6	-13.1	-14.8	-16.9	-18.6	-19.3	-19.1	-18.7	-17.4	-15.9	-13.7	-13.3	-15.1	-17.6	-20	-21.3	-22.3	-22.9	-23.3	-24	-24.7	-12.6	-17.7	24
20	-25.1	-25.8	-25.9	-25	-23.3	-19.4	-18.3	-17.6	-19	-19.1	-17	-15.4	-14.2	-13.2	-13.2	-13.8	-14.8	-15.2	-15	-14.4	-13.8	-13.3	-13.2	-13.3	-13.2	-17.4	24
21	-13.3	-13.2	-13.2	-13.3	-13	-12.8	-12.8	-13.6	-14.5	-14.6	-14.6	-13.8	-13.4	-13.1	-13.5	-13.4	-13.4	-13.5	-13.4	-13.8	-14.2	-13.8	-13.9	-14.2	-12.8	-13.6	24
22	-14.6	-15.7	-16	-16.5	-16.8	-16.7	-16.8	-16.7	-16.8	-17	-16.9	-16.8	-16.8	-16.7	-16.6	-16.9	-17.9	-19.4	-19.2	-18	-17.3	-17.2	-18	-19	-14.6	-17.1	24
23	-20	-20.7	-21.5	-22.2	-22.4	-22.4	-22.9	-23.1	-23	-22.8	-22.4	-22.2	-22	-21.6	-21.6	-21.9	-22.1	-22.5	-22.6	-22.2	-22.2	-22.3	-22.7	-23.4	-20.0	-22.2	24
24	-24.2	-24.7	-25.2	-26	-26.9	-27.6	-27.5	-27.2	-27.3	-27.1	-26.2	-24.7	-24.4	-23.5	-22.6	-22.9	-22.5	-22.3	-22	-20.8	-20.2	-20.3	-21.2	-20.9	-20.2	-24.1	24
25	-20.7	-20.3	-20.4	-22.3	-24.8	-26	-27.3	-28.2	-29.1	-27.4	-24.1	-22.9	-21.7	-20.7	-20.9	-21.9	-22.3	-21.9	-21.7	-21.5	-21.2	-20.9	-20.6	-20.5	-20.3	-22.9	24
26	-20.1	-19.9	-19.8	-19.6	-19.7	-20.4	-21.9	-24	-25.3	-24.8	-21	-18.6	-19	-17.2	-16.6	-18	-21.2	-22.6	-21.4	-20.4	-19.5	-18.9	-18.5	-18.4	-16.6	-20.3	24
27	-18	-18.1	-18	-17.8	-17.8	-17.8	-17.8	-17.7	-17.8	-17.8	-17.4	-17.2	-16.6	-16.4	-16.4	-17	-19	-21.9	-24	-25.4	-26.4	-27.2	-28	-28.6	-16.4	-20.0	24
28	-29.2	-30	-30.5	-30.5	-31.4	-31.6	-31.8	-31.5	-28.3	-27	-23.7	-22.6	-21.1	-19.7	-19.1	-19.2	-19.9	-19.1	-18.8	-18.5	-18.5	-19.3	-19.8	-20.2	-18.5	-24.2	24
29	-20.3	-20.9	-21.7	-22.2	-22.7	-22.9	-22.7	-23	-23.4	-21.9	-16.1	-10	-7.2	-5.8	**-4.4**	-5	-5.5	-5.9	-6.4	-6.7	-7.1	-7.7	-8.5	-11.4	**-4.4**	-13.7	24
30	-12.4	-13.1	-13.5	-13.8	-14.4	-14.7	-15.1	-15.5	-16	-16.2	-16.1	-15.8	-15.4	-14.9	-15	-14.4	-14	-13.9	-14	-14	-13.9	-13.8	-13.7	-13.4	-12.4	-14.5	24
31	-13.8	-13.4	-13.5	-14.2	-14.4	-16.2	-17.9	-19	-19.8	-17.6	-14.3	-12.6	-11	-10.6	-9.3	-8.9	-10.4	-11.2	-10.6	-10.8	-12.2	-12.2	-10.8	-6.2	-6.2	-13.0	24
HOURLY MAX	-8.7	-8.9	-8.6	-8.4	-8.8	-9.1	-9.4	-9.4	-9.1	-8.8	-7.7	-7.0	-6.5	-5.8	-4.4	-5.0	-4.7	-4.7	-5.7	-6.7	-7.1	-7.7	-8.5	-6.2			
HOURLY AVG	-17.2	-17.4	-17.5	-17.6	-17.8	-17.9	-18.1	-18.3	-18.4	-18.0	-16.8	-15.8	-15.1	-14.5	-14.2	-14.6	-15.3	-16.0	-16.2	-16.4	-16.5	-16.6	-16.6	-16.8			

STATUS FLAG CODES

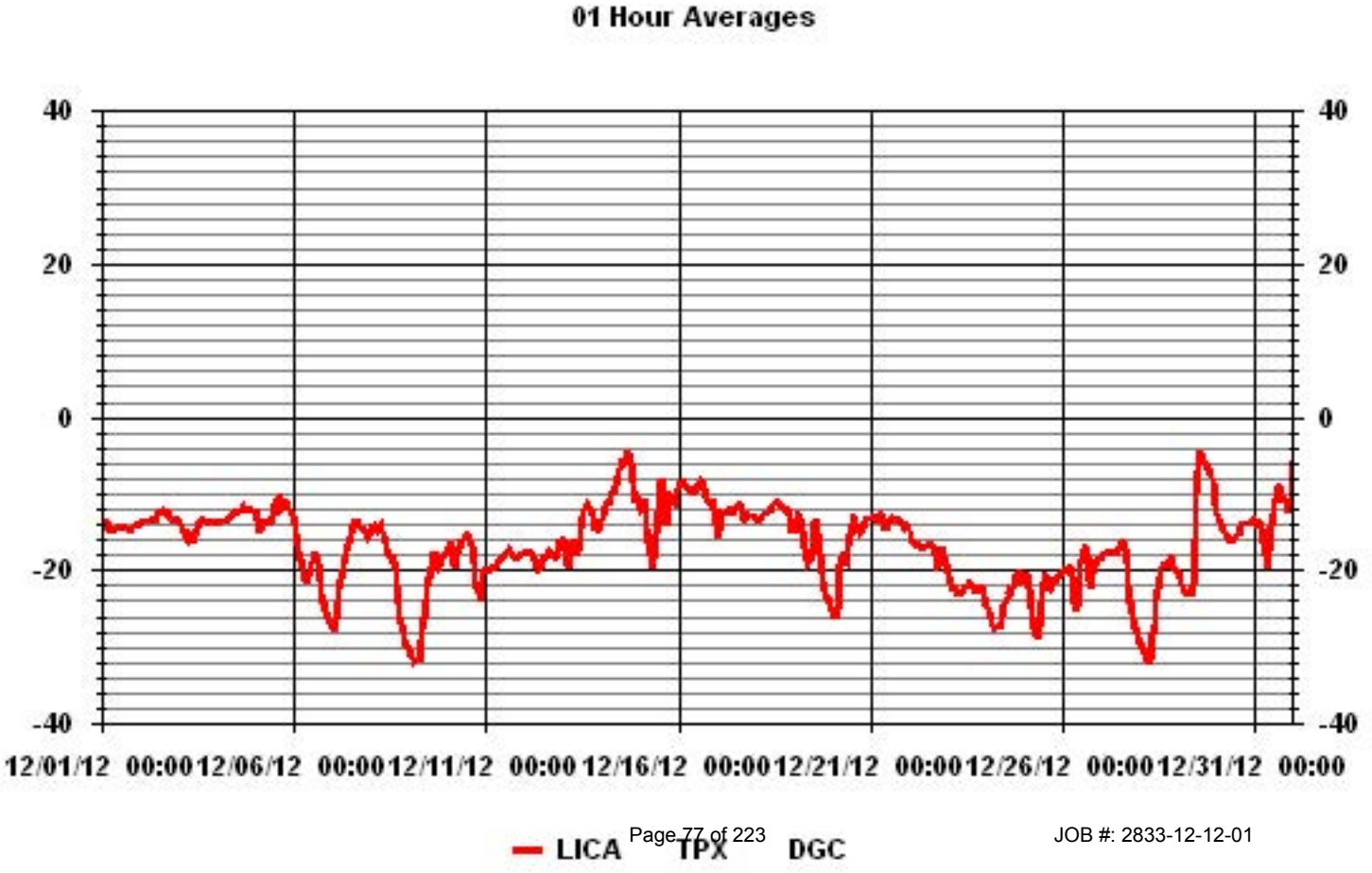
S	- OUT OF SERVICE	OD	- OUTSIDE DECTECTION LIMITS
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-32	^{O}C	@ HOUR(S)	3	ON DAY(S)	9	
MAXIMUM 1-HR AVERAGE:	-4.4	^{O}C	@ HOUR(S)	14	ON DAY(S)	29	
MAXIMUM 24-HR AVERAGE:	-8.9	^{O}C			ON DAY(S)	14	
					VAR-VARIOUS		
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		744	HRS	
			AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	5.24		MONTHLY AVERAGE:		-16.65	^{O}C	

*** Outside detection limits of sensor.**



JOB #: 2833-12-12-01

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

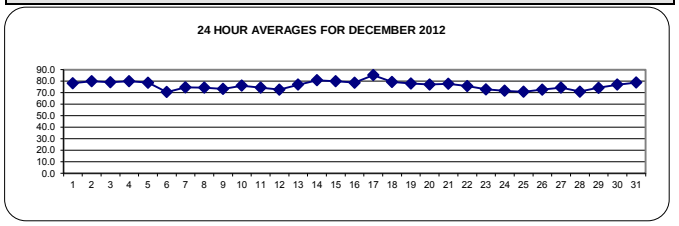
RELATIVE HUMIDITY hourly averages (%)

MST

HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	81	80	79	77	74	73	75	75	74	76	76	74	76	74	75	77	79	82	84	84	83	82	82	83	84	78.1	24
2	83	83	81	81	81	81	81	82	82	81	80	78	76	76	76	79	79	80	78	77	77	79	83	84	84	79.9	24
3	84	84	83	83	81	81	82	81	81	79	78	76	75	74	74	76	77	79	79	80	79	77	78	79	84	79.2	24
4	80	83	82	81	81	82	82	82	83	83	81	78	74	73	75	76	77	79	80	81	81	81	81	82	83	79.9	24
5	81	84	83	84	82	83	82	82	82	81	80	78	74	71	73	76	79	79	78	79	79	74	73	72	84	78.7	24
6	71	70	71	73	74	76	77	76	76	70	68	64	60	59	58	63	71	75	75	74	75	73	73	72	77	70.6	24
7	72	72	73	74	75	75	76	76	76	76	73	72	71	68	67	69	72	76	78	79	80	81	81	81	81	74.7	24
8	81	81	81	81	80	81	79	77	76	74	73	73	70	67	66	67	74	75	74	73	72	72	71	70	81	74.5	24
9	70	70	70	69	70	70	69	73	73	73	73	71	71	71	73	75	75	77	77	77	78	77	78	78	78	73.3	24
10	78	78	78	79	78	77	78	78	79	78	76	75	72	70	70	73	78	77	75	75	75	76	77	77	79	76.1	24
11	77	76	76	75	75	75	75	74	75	76	75	76	75	73	74	74	74	73	73	73	72	73	73	73	77	74.4	24
12	72	72	71	71	73	75	74	74	74	73	71	67	65	67	68	69	71	73	76	77	78	78	77	77	78	72.6	24
13	77	78	79	79	78	78	78	79	79	77	76	75	74	72	72	72	72	74	77	78	81	81	80	82	82	77.0	24
14	80	81	79	77	77	77	77	77	80	83	81	80	78	77	81	82	78	79	81	86	87	87	88	87	88	80.8	24
15	86	87	87	86	83	82	79	77	77	74	77	79	77	77	76	79	83	83	80	80	78	78	78	74	87	79.9	24
16	72	76	78	79	79	79	80	80	80	80	78	77	74	72	71	72	78	82	83	84	84	83	84	84	84	78.7	24
17	81	82	84	83	83	84	87	**89**	88	87	86	86	87	87	87	87	86	85	85	85	85	85	84	84	**89**	**85.3**	24
18	84	84	83	83	83	83	82	81	81	82	81	80	77	74	71	71	74	76	76	78	78	79	81	81	84	79.3	24
19	81	81	83	82	82	82	81	80	80	81	80	79	76	69	68	75	79	78	77	76	76	75	75	74	83	77.9	24
20	73	72	73	74	76	78	80	81	79	79	79	79	78	77	77	78	78	78	78	78	77	76	76	76	81	77.1	24
21	78	79	79	80	80	81	83	83	80	77	75	72	73	74	75	73	75	79	79	79	79	78	77	77	83	77.7	24
22	76	77	77	77	77	77	76	76	76	74	73	73	72	72	72	73	76	78	79	77	77	76	78	77	79	75.7	24
23	77	76	76	76	75	74	74	74	74	73	72	70	69	69	70	71	72	72	72	72	73	73	72	73	77	72.9	24
24	73	72	72	72	72	72	71	71	71	71	69	67	69	71	69	70	71	72	73	74	74	74	76	75	76	71.7	24
25	75	75	75	75	75	73	72	72	72	70	68	68	66	60	60	66	71	73	73	73	72	72	72	73	75	70.9	24
26	73	74	75	75	76	76	76	75	73	73	67	66	68	63	62	68	76	76	76	75	75	76	75	75	76	72.7	24
27	75	76	77	77	77	77	77	77	77	76	74	73	71	71	72	74	77	75	74	73	73	72	71	71	77	74.5	24
28	70	70	70	70	69	70	69	70	73	70	66	68	70	67	68	71	74	72	72	72	73	76	76	76	76	70.9	24
29	75	75	76	75	74	74	74	74	74	70	67	73	75	71	68	71	74	76	77	77	79	82	75	77	82	74.3	24
30	75	75	74	75	76	77	78	79	81	81	80	79	78	75	76	75	75	75	76	77	77	78	78	78	81	77.0	24
31	79	79	80	81	81	83	79	78	76	74	77	78	70	73	73	74	78	81	81	82	84	82	84	84	84	78.8	24
HOURLY MAX	86	87	87	86	83	84	87	89	88	87	86	86	87	87	87	87	86	85	85	86	87	87	88	87			
HOURLY AVG	77.1	77.5	77.6	77.5	77.3	77.6	77.5	77.5	77.5	76.5	75.2	74.3	72.9	71.4	71.5	73.4	75.9	77.1	77.3	77.6	77.8	77.6	77.6	77.6			

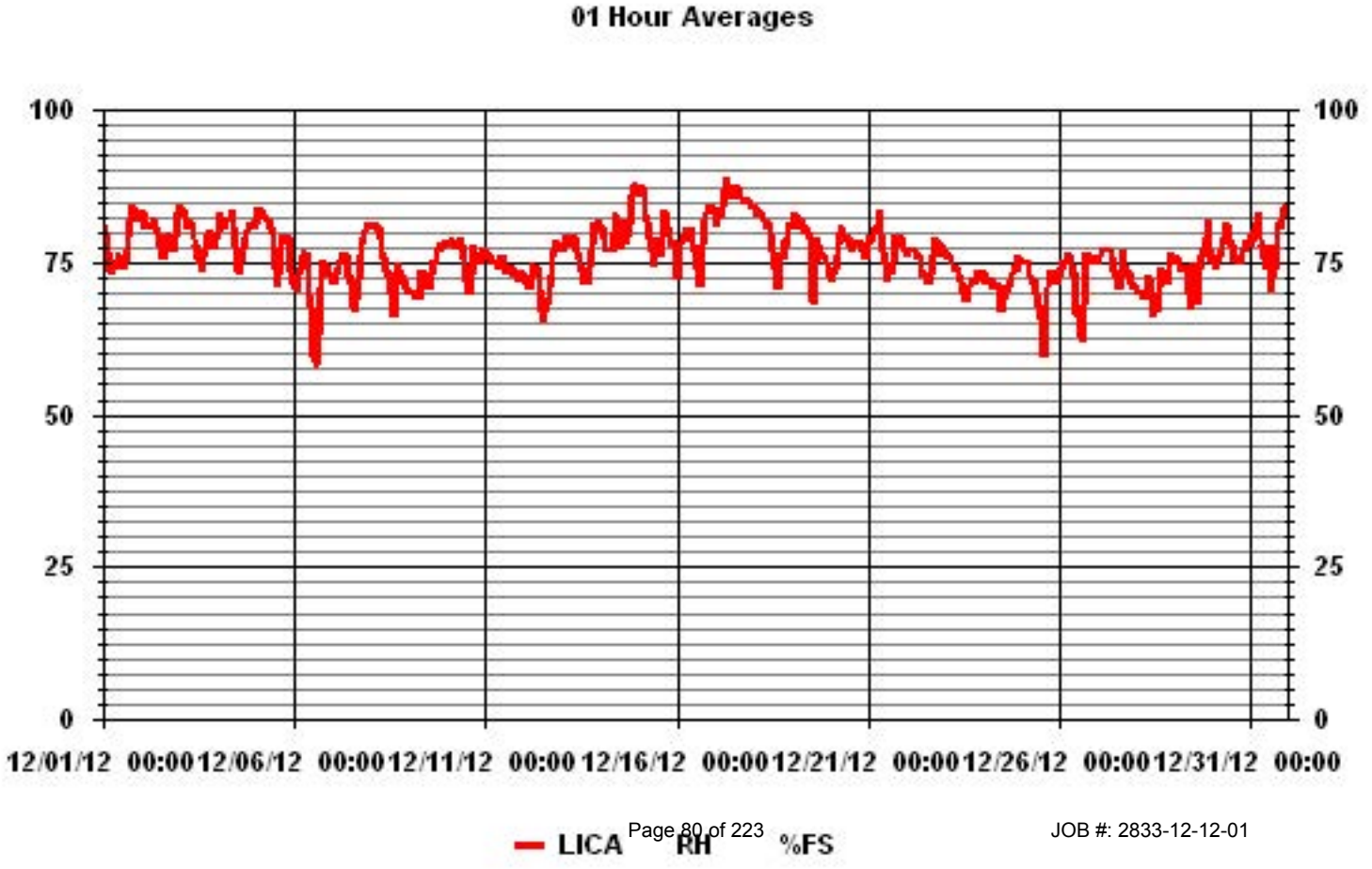
STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	7	ON DAY(S)	17	
MAXIMUM 24-HR AVERAGE:	85.3	%			ON DAY(S)	17	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		744	HRS	
			AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	4.76		MONTHLY AVERAGE:		76.29	%	



JOB #: 2833-12-12-01

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

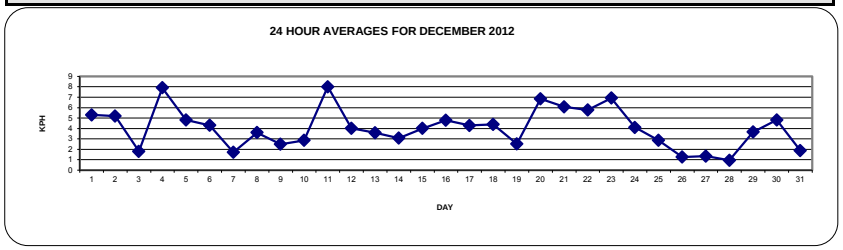
VECTOR WIND SPEED (WS) hourly averages (km/hr)

MST

HOUR START / HOUR END	00:00 01:00	01:00 02:00	02:00 03:00	03:00 04:00	04:00 05:00	05:00 06:00	06:00 07:00	07:00 08:00	08:00 09:00	09:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 00:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	5.5	3.7	4.2	4.6	5.2	5.4	5.5	5.5	5.4	5.5	7	6.7	6.9	7.5	6.2	7.1	7.6	7.2	6.6	6.4	6.2	4.4	4.3	4.8	7.6	5.3	24
2	2.9	4.3	2.8	1.2	2.8	2.8	1.2	3	2.8	3.9	4.1	6.1	8.6	7.6	6	5.7	4.9	6.4	8.1	7	8	9.3	10.3	11.2	11.2	5.2	24
3	7.4	7.8	8.1	6	7.3	4	4.8	4.6	4	3.8	1.7	2.9	2.4	1.5	0.4	2.4	1.7	1.3	0.5	3	1.2	0.8	0.8	3.2	8.1	1.8	24
4	2.1	4.5	6.9	6.2	5.1	5.2	5.8	8.8	8.8	10.2	10.3	11	12.8	11.9	11.8	**13.3**	13.1	10.7	8.1	6.5	6.4	4.6	4.4	3.2	**13.3**	7.9	24
5	0.2	1.8	1.3	3	2.3	2.9	2.8	2.2	2	2.8	3.1	5.9	6.6	2.7	3.7	4.9	5.6	7	8.9	7.3	8.8	9.5	9.5	10.9	10.9	4.8	24
6	13	13.1	8.8	5.5	5.7	4.5	4.3	3.7	3.4	3.1	6.4	5.4	5	5.8	4.6	3.2	1.6	0.6	0.6	1.4	1.2	0.7	0.8	0.7	13.1	4.3	24
7	0.4	0.2	0.8	0.7	0.3	0.8	0.5	1.6	2.2	0.5	1.6	2.9	2.9	2.4	2.8	3.2	2.9	2.8	3.1	2.6	2.2	1.3	1.2	1.6	3.2	1.7	24
8	0.4	0.9	1.9	2.2	1.6	4.2	6.5	8.9	8.5	7.4	7.8	8.1	6	7.1	6.4	2.6	1.2	0.8	0.8	0.1	1	0.3	0.7	1	8.9	3.6	24
9	0.3	0.4	0.5	0.8	0.2	0.3	0.6	1.3	1.6	2.4	6.5	4.4	4.6	5.1	2.8	3.1	2.9	2	3.3	3.7	4.3	2.4	4.1	1.9	6.5	2.5	24
10	1.9	2	1.2	4.3	3.7	4.5	3.6	1.7	3.1	5	5.3	5.5	5.5	4.8	1.9	2.1	1	0.8	0.2	0.3	0.5	0.7	3.3	5.6	5.6	2.9	24
11	6.9	8.8	6.9	7.6	7.1	6.5	6.7	7.4	7.5	8.7	8.2	9.3	9.9	9.3	9.3	8.8	9.8	11	9.7	9.1	7.7	5.6	5.3	4.9	11.0	**8.0**	24
12	4.3	5.6	3.7	2	1.2	6.4	6	4.2	4.7	5	4.1	3.2	2.8	1.7	1.3	1.9	2.6	4.9	6.8	6.9	6.2	4.1	3.3	3.3	6.9	4.0	24
13	2.9	2.8	2.2	3.2	5.2	5.5	6.2	6.1	5.3	6.7	7.8	5.5	4.4	4.2	4.2	2.8	3.1	1.4	0.7	0.8	1.5	0.9	1.9	1	7.8	3.6	24
14	1	0.9	2.1	1.2	2.3	3.2	1.8	0.9	1.4	2.6	1.2	0.5	2.2	3.1	5.7	5.1	6.7	5.8	4.7	4	3.9	3.3	5.5	4.6	6.7	3.1	24
15	3	5.5	5.6	2.3	1	0.5	0.4	0.6	0.4	0.8	2	2.9	1.8	3.2	3.4	1.9	0.8	3.9	10.3	9.9	9.7	9.8	7	9.3	10.3	4.0	24
16	10.1	8.5	7.7	6.1	7.2	5.7	6.4	5.3	5.9	6.9	8.1	8.6	8.5	6	3.9	2.7	1	0.8	0.9	1	0.8	1.9	0.7	0.4	10.1	4.8	24
17	0.8	0.5	1.8	1.4	3.7	4.3	4.9	5.5	5.5	4.3	4.8	4	5.1	5	5.4	4.3	4.6	5.9	6.6	4.7	4.6	5.1	5.5	4.7	6.6	4.3	24
18	4.2	4.2	5.5	5.1	3.8	4.4	5.6	4.3	4.2	3.4	4.6	5.2	5.3	5.2	6.5	5.1	3.8	6	4.7	5.2	4	2.9	0.9	1.2	6.5	4.4	24
19	1.5	1.1	4.9	6.2	5.2	5.5	4.8	4.6	4	3.6	2.4	3.5	3.4	1.1	0.5	2.1	0.6	0.6	1.1	0.7	1.1	1	0.8	0.4	6.2	2.5	24
20	0.4	0.9	0.8	1.6	2.8	2.8	6.7	5	3.2	5.3	5.5	7.6	7	7.3	7.1	9.4	9.3	10.8	10.6	12.5	11.6	12.7	10.6	12.6	12.7	6.8	24
21	10.8	6.9	6.1	6.4	4.2	4.1	1.8	3.1	7.5	6.2	4.3	7.5	7.1	6.3	8.2	9.1	7.1	5.4	5.6	5.5	3.6	4.3	7.1	7.5	10.8	6.1	24
22	7	7.5	8.2	7.5	7.2	5.6	7.1	6.2	5.8	6	5.8	5.6	6.9	6.9	7	7	2.8	2.4	2.6	4	4.6	5.4	4.6	4.6	8.2	5.8	24
23	4.8	6.6	7.7	8	7	6.5	8	9	7.7	7.1	7	7.4	6.2	5.9	6.9	6.7	6.5	6.6	6.4	6.1	7.4	7.4	7.4	5.8	9.0	6.9	24
24	6.1	5.5	4.8	4.9	4.3	3.7	4.6	4.5	5.1	3.3	4.3	1.7	3.3	3	2.9	3.1	1.6	3.5	3.9	4.7	6.5	4.8	4.7	3.6	6.5	4.1	24
25	4.2	5.3	3.3	2.3	2.7	2.8	2	1.7	0.7	2.9	3.1	3.4	4.8	3.3	3.1	4.2	3.8	3.4	2.8	2.7	1.7	1.5	1.5	1.6	5.3	2.9	24
26	2	2.4	2.8	2	0.8	0.4	0.8	0.3	1.4	0.5	0.5	1.5	3.4	2.3	2.2	0.9	0.8	0.7	0.8	0.8	1.2	0.1	0.2	1.2	3.4	1.3	24
27	0.5	2.5	2	2	0.5	0	1.9	0.2	1.1	2	1.6	2.8	2.1	2.6	2.7	2.3	1.3	1.1	0.5	0.7	0.5	0.5	0.5	0.3	2.8	1.3	24
28	0.9	0.7	0.4	0.2	1	0.2	0.7	0.3	0.5	0.9	0.9	1.5	1.9	1.8	1	0.9	1.8	2	1.4	1.4	0.8	0.7	0.5	0.5	2.0	1.0	24
29	1	0.8	0.5	0.4	1.2	1.1	0.7	1.1	0.5	0.3	1	4.1	6.6	5.7	4.2	8.3	5.9	5.5	4.6	6.3	4.9	4.8	9.9	8.3	9.9	3.7	24
30	10	10.3	7.6	5.1	5.2	3.6	2.6	2.1	3.2	4.5	3.5	3.4	3.6	6	3.8	4.7	4.6	4.5	6.4	5.1	4.2	3.9	4.8	3.1	10.3	4.8	24
31	2.6	2.9	2.8	0.9	1.1	0.6	1.1	0.4	0.7	0.1	0.3	1.2	1.9	4.2	3.9	3.3	2.4	0.7	0.8	0.9	0.9	1	4.2	6	6.0	1.9	24
HOURLY MAX	13.0	13.1	8.8	8.0	7.3	6.5	8.0	9.0	8.8	10.2	10.3	11.0	12.8	11.9	11.8	13.3	13.1	11.0	10.6	12.5	11.6	12.7	10.6	12.6			
HOURLY AVG	3.8	4.2	4.0	3.6	3.5	3.5	3.8	3.7	3.8	4.1	4.3	4.8	5.1	4.9	4.5	4.6	4.0	4.1	4.3	4.2	4.1	3.7	4.1	4.2			

STATUS FLAG CODES

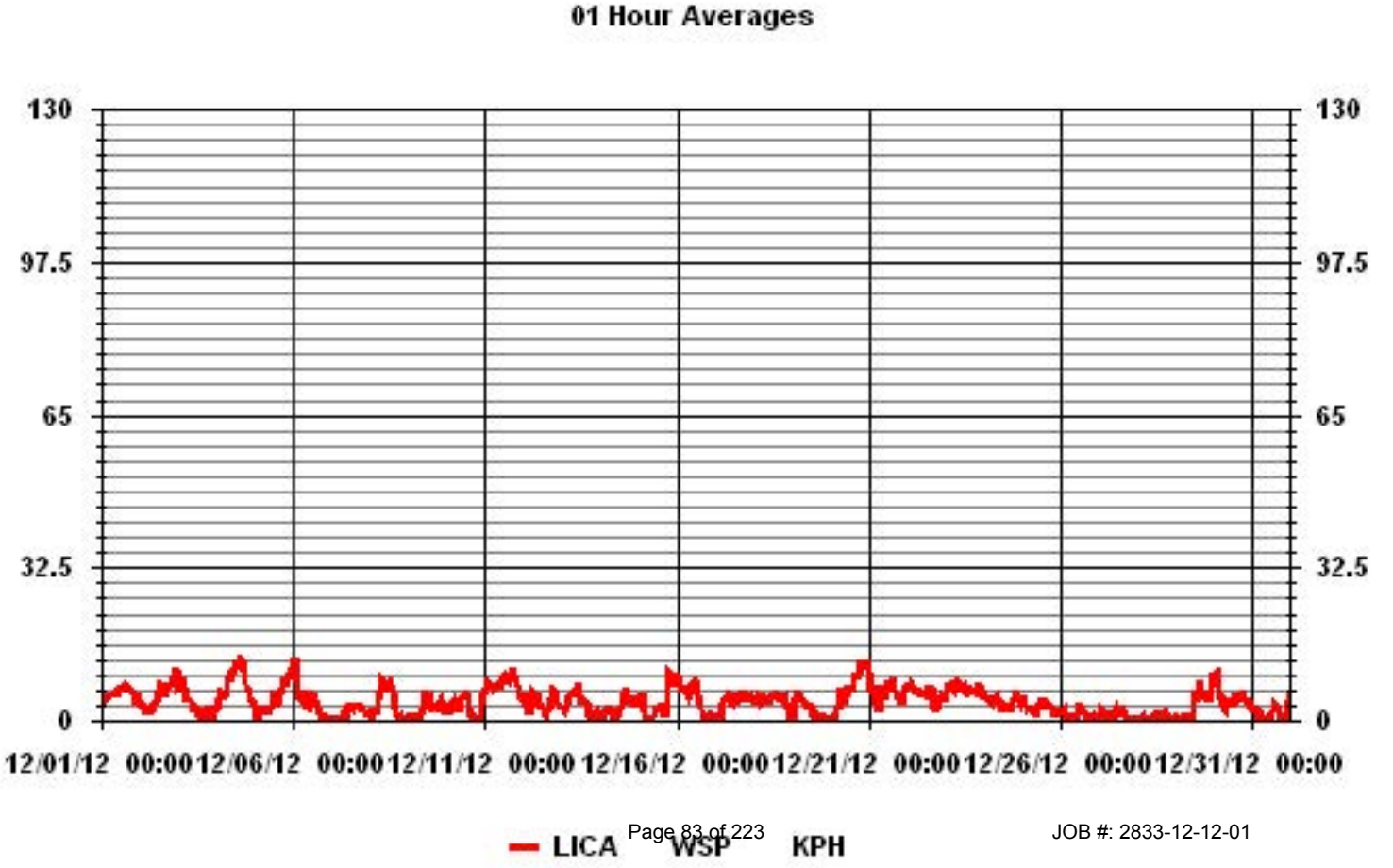
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



LAST CALIBRATION: November 28, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:			13.3	KPH	@ HOUR(S)	15	ON DAY(S) 4
MAXIMUM 24-HR AVERAGE:			8.0	KPH			ON DAY(S) 11
CALMS (≤ 0 KPH)	2.96	%	OPERATIONAL TIME:			744	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	2.85		MONTHLY AVERAGE:			4.12	KPH



JOB #: 2833-12-12-01

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

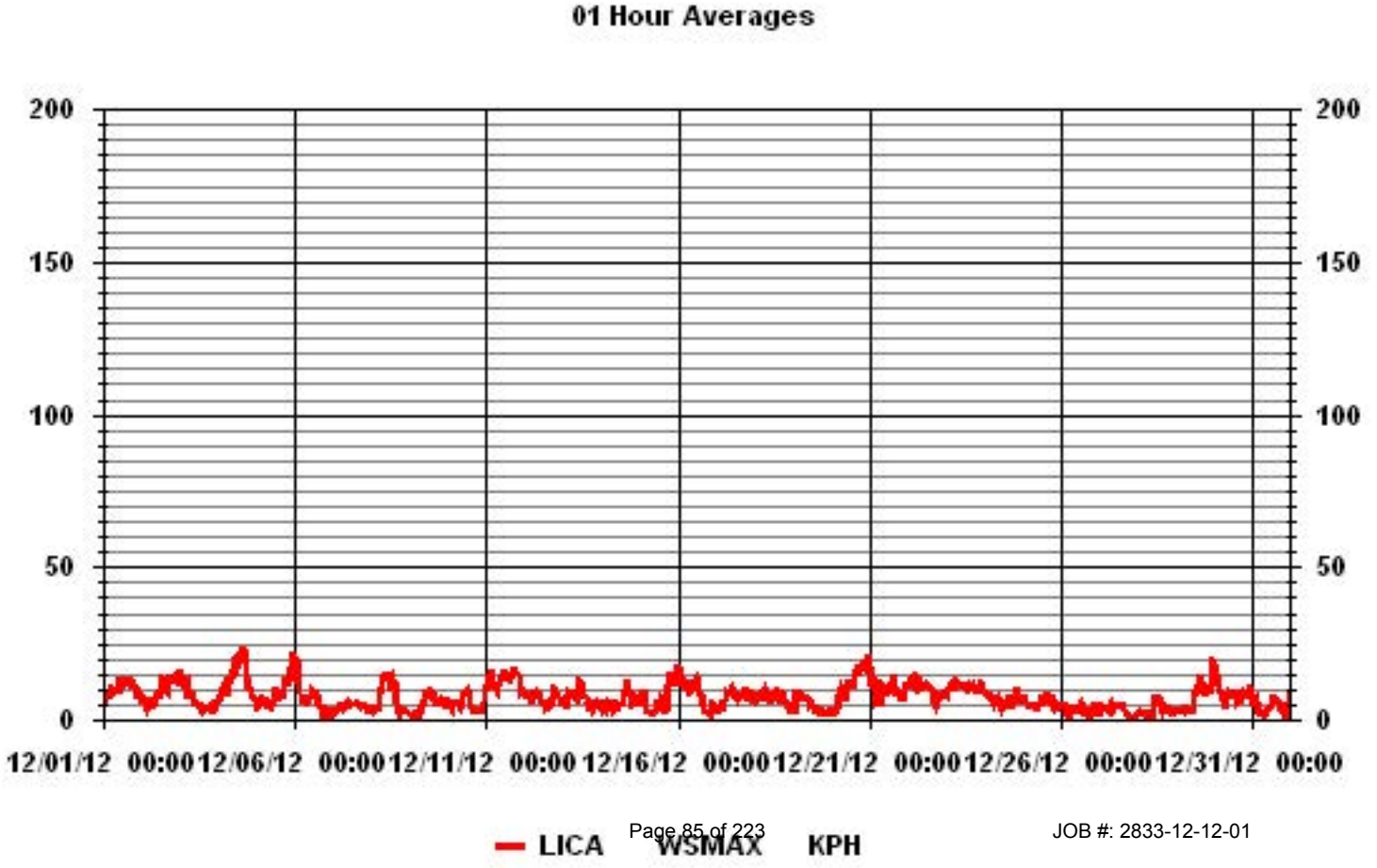
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	8.3	6.7	7.5	8.7	9	11	8.7	9	9	9	13.8	11.8	11.4	12.5	11.3	13.3	13.3	13.1	11.3	10.9	10.8	8.4	8.6	8.4	13.8
2	5.2	7.1	6.3	3.8	4.8	7	3.8	6.2	6	8.7	7.1	9.5	15	12.3	11.1	9.6	9.1	13.1	14.9	11.5	14.1	15.3	15.6	15.7	15.7
3	11.9	11.6	15.1	12	12.7	7.9	8	9.3	7.4	5.9	5.5	5.2	5.4	4.4	3.2	4.1	3.4	3.8	4.3	5	3.5	3.2	4	5.2	15.1
4	6.2	8.3	9.9	8.8	8.4	8.5	13.7	12.6	13.9	17.4	16.7	20.2	21.2	19.5	20.5	**23.8**	21.6	22	14.4	10.8	9.9	8.2	7.3	6.6	**23.8**
5	4.4	4.8	6.6	8.3	6	6.5	5.2	4.7	5.1	4.5	6.1	9.5	10.9	6.3	7.7	7.9	7.8	13.6	13.4	11.1	12.8	17.2	13.5	22.6	22.6
6	20.8	20.4	12.8	9	7.6	6.4	6.1	7.9	5.3	6.8	9.7	9.1	9.1	9.5	8.7	5.6	4.1	0.9	0.9	3.9	3.4	0.9	0.9	3.9	20.8
7	1	2.3	3	3.2	4.7	4.7	3.8	4.9	5.6	4	5.9	5.9	5.3	5	5.1	5.8	5.4	4.4	5	4.9	4.8	3	3.1	4.3	5.9
8	4.4	2.9	3.6	4.4	3.1	8.6	10.8	14.2	14.8	15	13.2	14	9.4	12.7	12.6	5.8	3.6	2.3	3.9	3.8	3.2	3.3	3.4	3	15
9	2.1	0.9	2	2.5	1.6	1.1	1.9	4.1	4.6	6.7	9.4	9.7	7.5	10	6	9	5.7	5.3	5.3	6.8	6	6.4	6.6	3.9	10
10	5	4.6	3.9	6.6	5.2	5.4	5.5	4.2	5.4	8.6	9.3	9.4	10.1	8.5	4.2	4	3	2.8	2.9	3.1	3	3.9	5.9	10.4	10.4
11	10.4	14.8	12.9	16.7	11.6	11.1	10.1	12.3	11	14.5	13.2	16.3	14.9	13.6	13.3	15	14.7	16.9	15.2	15.4	15.1	9	9.5	9.7	16.9
12	8.2	8	8	6.4	6.3	9.5	9.7	6.7	8.9	8.1	6.6	5.7	5.9	3.9	4.5	4.1	4.6	7.6	11.4	9.5	8.5	7.9	6	5.7	11.4
13	6.4	4.8	4.8	9.3	8.7	8.7	9.2	8.4	7.6	9.9	13	12.5	9.1	8.1	7.4	5.5	6.3	5.1	3.6	4.3	4.7	5.8	4.7	5.7	13
14	6.8	4.2	5.2	3.8	5.3	5.8	5.1	3.4	4.2	6.9	3	5.7	4.3	5.9	8.8	8.8	12.8	8.4	9.6	5.4	5.9	6.3	8.1	6.1	12.8
15	5.9	8.6	8.1	8.5	3.4	3	2.7	2.9	2.4	2.8	3.3	6.4	4.8	6.6	5.5	3.5	2.2	11.7	13.5	15.5	13.9	13.8	11	16.4	16.4
16	17.8	15.3	12.3	11.5	13	12.6	12.3	9.3	9.6	11.6	12.8	13.8	12.3	9	8.5	5.2	3.3	3.1	2.7	2.6	2.1	6.4	3.8	3.2	17.8
17	3.7	3.3	4.4	4.1	5.9	6.5	9.1	8.3	8.8	10.3	8.9	7	8.8	7.5	9	6.5	9.1	9.9	10.2	9.3	7.6	7.2	9.8	7.2	10.3
18	6	6.3	7.5	8.4	5.8	8.6	10	8.8	8.9	5.2	8.2	8.7	7.1	7.8	10.2	8.8	5.5	10.1	7.2	7	5.7	4.5	2.2	3.9	10.2
19	2.8	2.7	9.1	9.5	8.5	8.6	7.5	7	7.6	6.9	5.3	6.2	5.4	2.9	3	5.1	2.4	2.7	3.1	2.2	2.5	2.5	3	1.1	9.5
20	3.4	3.1	2.5	3.7	8.3	9.4	10.9	9.9	5.7	9.1	10.2	13.4	11.1	11	12	15.5	15.5	17.8	16.6	17.7	17.1	19.2	16.5	21.6	21.6
21	18	12.1	10.3	13.6	6.6	7.3	4	8.9	11.2	10.5	7.4	11	11.8	11	12.3	14.9	11.6	8	9.4	9.1	6.4	9.4	11.3	11.6	18
22	11.3	13.7	14.5	13.2	11.1	10.6	13.7	12.9	9.5	11.4	11.7	10.1	12.1	11.6	10.5	10.2	6	4.6	5.8	8	8.6	8.9	7.4	9.9	14.5
23	8.8	10.2	10.3	11.6	12.2	9.6	11.4	12.8	11	11	11.5	10.7	11	10.4	11.6	10.4	10.4	11.3	10	8.4	10.8	12.3	12	10.1	12.8
24	9.6	8.7	7.6	8.2	7.2	5.8	7.3	6.7	7.5	5.7	6.9	4.4	5.4	5.5	6.3	7.8	3.9	7.2	6.8	7.9	10.2	7.8	6.5	5	10.2
25	7.2	7.5	6.5	5	4.6	4.3	4.4	4.6	2.4	4.8	5.8	5.6	8.3	6.7	6.5	8.6	7.3	7.5	5	5.8	4.2	5.1	4.2	4.4	8.6
26	5	4.8	5.4	5.1	2.2	0.9	2.5	2.7	4.1	4.2	2.2	4.6	5.7	4.4	4.1	2.5	1.9	0.9	2.5	2.9	3.2	5.4	3	3.4	5.7
27	2.9	4.5	4.6	4.4	3.4	4	4.9	2.5	2.9	4.1	4.5	4.8	4.7	5	5.1	3.7	2.9	2.4	0.9	0.9	0.9	1.4	0.9	2.3	5.1
28	3	2.3	2.6	2.4	2.5	1.8	2.4	1.5	0.9	2.4	5.8	7.8	5.5	8.3	5.6	3.4	4.4	4.9	4.4	4.2	2.6	2.7	2.2	2.9	8.3
29	3	3.1	3.4	3.4	3.9	3	4.1	3.8	3.1	2.6	2.7	8.1	9.8	8.4	11.8	14.8	13.2	10.2	7.6	10.4	8.3	11.8	20.7	14	20.7
30	18.4	15.4	11.9	8.6	10.1	7	5	4.9	6.9	9.5	8.9	8.7	8.4	10.1	6.6	7.4	8.6	7.7	9.8	9.4	8.5	7.2	11.8	8.2	18.4
31	5.8	6.2	7	3.3	2.6	2.1	2.6	2	2.6	3.4	3.9	5	7.7	7.4	7.3	6.4	6.1	2.8	3.9	2.5	0.9	2.2	5.9	8.3	8.3
PEAK	20.8	20.4	15.1	16.7	13.0	12.6	13.7	14.2	14.8	17.4	16.7	20.2	21.2	19.5	20.5	23.8	21.6	22.0	16.6	17.7	17.1	19.2	20.7	22.6	

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	23.8	KPH	@ HOUR(S)	15
			ON DAY(S)	4



JOB #: 2833-12-12-01

LICA
WSP / WD Joint Frequency Distribution (Percent)

December 2012

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	3.89	4.56	3.89	6.45	4.70	9.40	3.49	1.20	1.07	3.36	7.93	10.34	4.43	2.28	2.15	71.37
<	12.0	1.61	1.61	3.62	1.88	5.51	2.68	4.83	.00	.00	.00	.00	.40	.53	.67	.67	.53	24.59
<	20.0	.00	.00	.00	.00	.40	.00	.40	.00	.00	.00	.00	.00	.00	.00	.26	.00	1.07
<	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	3.76	5.51	8.19	5.77	12.36	7.39	14.65	3.49	1.20	1.07	3.36	8.33	10.88	5.10	3.22	2.68	

Calm : 2.95 %

Total # Operational Hours : 744

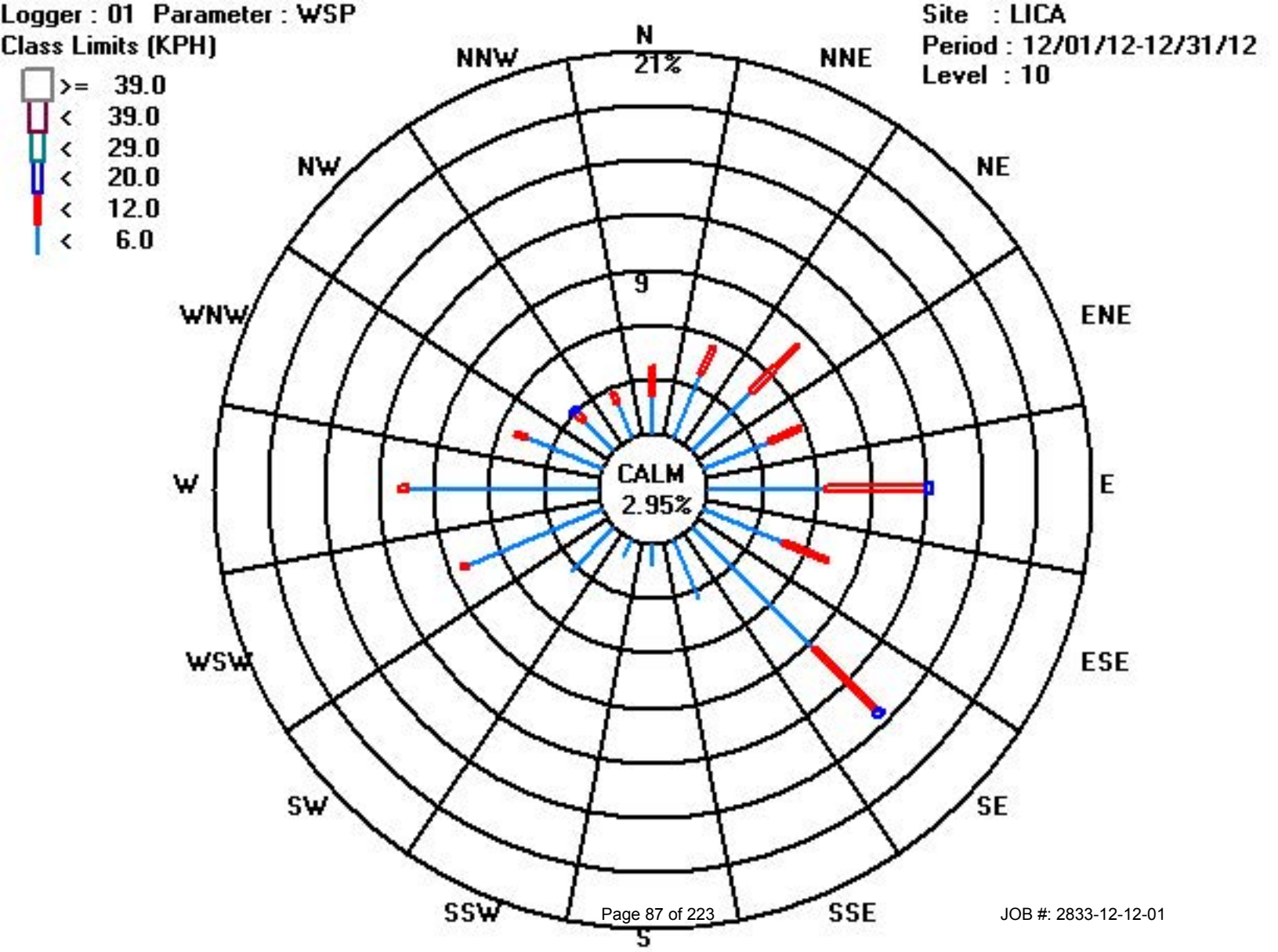
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	16	29	34	29	48	35	70	26	9	8	25	59	77	33	17	16	531
<	12.0	12	12	27	14	41	20	36					3	4	5	5	4	183
<	20.0					3		3								2		8
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	28	41	61	43	92	55	109	26	9	8	25	62	81	38	24	20	

Calm : 2.95 %

Total # Operational Hours : 744



JOB #: 2833-12-12-01

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

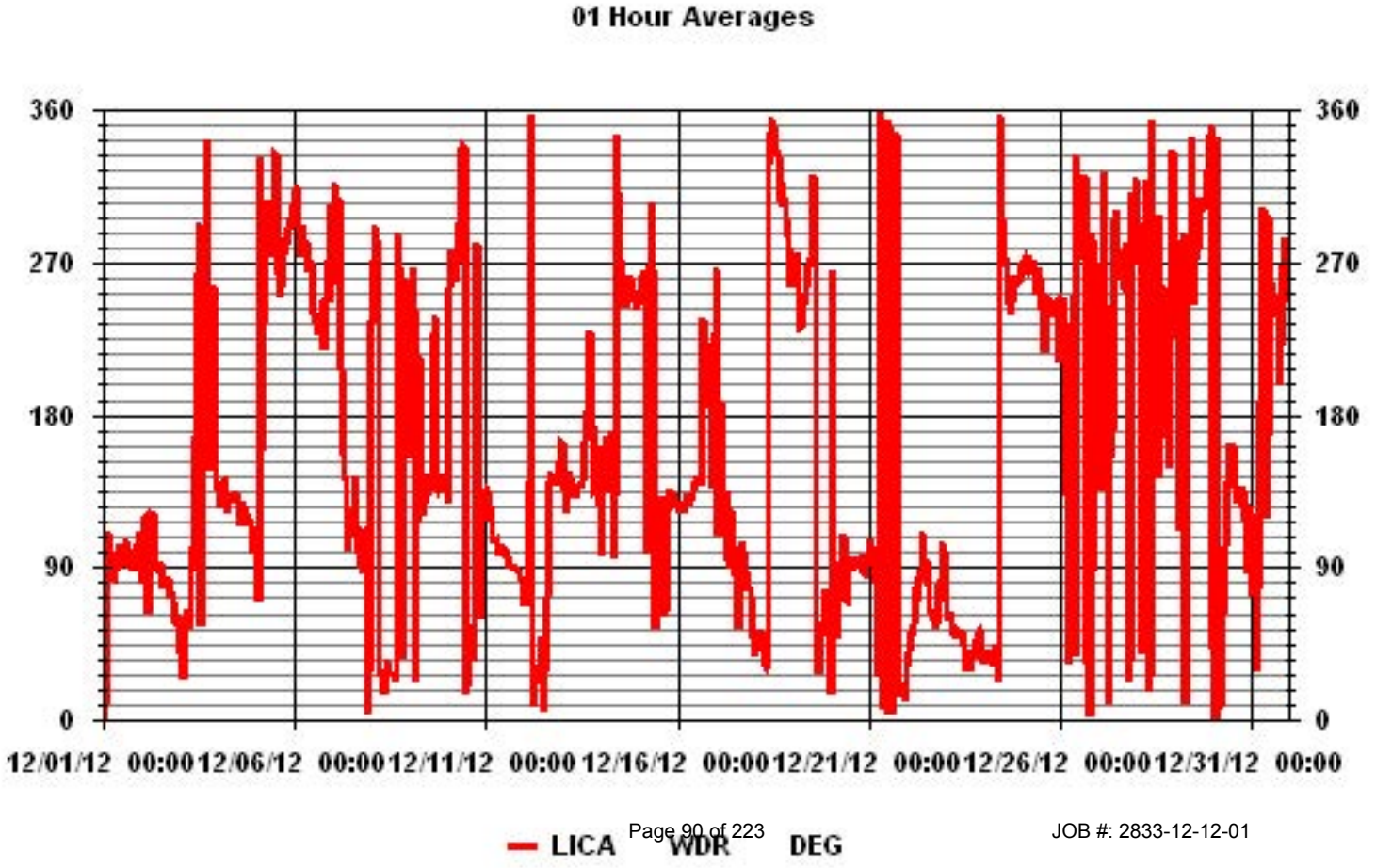
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	1	9	25	111	108	101	85	84	88	95	104	100	93	94	106	94	92	94	101	97	87	103	111	97	91	E	24
2	81	92	120	121	63	98	121	121	107	95	89	86	93	79	79	83	83	83	71	75	71	59	58	62	80	E	24
3	40	36	24	52	58	65	54	88	103	140	168	264	294	55	157	256	279	342	178	147	205	257	164	135	61	ENE	24
4	138	125	140	141	127	126	122	134	132	131	133	133	131	124	115	129	127	120	115	118	116	115	98	110	126	SE	24
5	82	70	332	158	277	234	290	307	278	273	298	335	334	268	269	250	255	274	282	282	290	297	291	304	288	WNW	24
6	312	316	307	292	273	292	281	283	264	267	271	259	241	234	235	227	239	248	218	249	271	246	304	260	279	W	24
7	300	318	257	282	308	208	158	141	144	100	109	118	110	124	144	116	100	91	87	111	112	108	3	28	113	ESE	24
8	235	271	292	285	279	26	29	17	17	25	35	28	28	27	25	25	287	185	269	36	261	215	221	257	17	NNE	24
9	260	154	267	243	23	116	215	143	121	128	142	145	138	136	138	229	239	139	136	138	140	145	134	141	147	SE	24
10	128	255	277	266	263	259	270	294	337	340	339	15	20	31	41	56	35	270	282	202	74	60	126	131	342	NNW	24
11	136	135	117	126	106	106	107	104	97	102	103	102	101	97	90	92	90	90	90	88	88	84	83	83	101	E	24
12	67	84	89	141	358	8	17	28	21	33	49	41	4	28	73	141	147	139	141	138	143	143	153	165	86	E	24
13	164	136	122	132	146	143	140	133	131	138	138	138	141	149	164	182	215	230	219	175	136	137	132	128	146	SE	24
14	97	161	151	168	143	134	170	168	95	132	346	313	267	268	247	244	257	255	262	256	250	251	243	245	238	SW	24
15	248	263	255	266	205	98	268	269	306	267	54	80	101	119	132	62	64	119	137	134	133	135	128	129	139	SE	24
16	127	123	125	122	129	133	129	126	129	133	135	140	144	138	141	139	237	195	184	215	209	137	222	229	135	SE	24
17	267	109	131	189	141	130	131	95	90	125	117	104	86	80	53	82	106	97	97	89	78	78	74	49	96	E	24
18	38	41	45	51	54	44	34	32	34	328	347	356	347	350	337	333	305	319	303	308	296	287	280	255	355	N	24
19	261	261	271	276	254	233	234	245	250	255	268	272	286	322	306	60	27	42	52	50	64	77	67	66	262	W	24
20	15	266	66	48	89	93	87	94	109	72	71	89	93	92	96	89	96	94	95	91	89	88	95	94	90	E	24
21	99	106	104	92	82	80	25	359	8	8	13	4	355	351	8	3	345	347	15	24	13	22	11	21	26	NNE	24
22	32	40	52	49	56	76	75	84	89	111	83	85	95	81	66	63	65	54	57	77	76	83	105	100	72	ENE	24
23	72	60	60	63	57	51	48	54	53	51	51	45	42	28	42	36	34	37	37	47	52	54	52	34	49	NE	24
24	37	33	36	42	36	35	32	37	44	23	358	297	277	274	269	252	247	239	247	263	260	258	259	269	330	NNW	24
25	262	271	274	272	272	265	266	271	251	262	266	262	244	228	217	239	249	248	238	242	237	247	248	211	252	WSW	24
26	245	247	247	236	134	33	43	102	250	334	37	272	312	304	306	322	35	25	1	287	284	87	271	135	282	W	24
27	192	135	140	323	165	198	9	245	155	170	295	301	278	273	261	256	255	259	281	23	34	310	310	320	273	W	24
28	268	287	281	39	294	317	317	16	25	355	274	161	261	142	298	166	257	236	225	221	149	226	336	299	243	WSW	24
29	271	283	137	112	253	288	9	277	267	250	344	247	247	271	277	308	302	302	303	325	320	345	352	43	310	NW	24
30	7	0	344	8	8	10	62	103	139	139	163	158	163	138	128	134	132	125	138	136	118	86	127	94	93	E	24
31	73	112	121	29	77	188	262	302	275	119	298	168	260	252	237	251	244	197	221	269	283	283	252	248	236	SW	24
HOURLY AVG	312	318	344	323	358	317	317	359	337	355	358	356	355	351	337	333	345	347	303	325	320	345	352	320			

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	97.61		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	84	DEG



JOB #: 2833-12-12-01

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

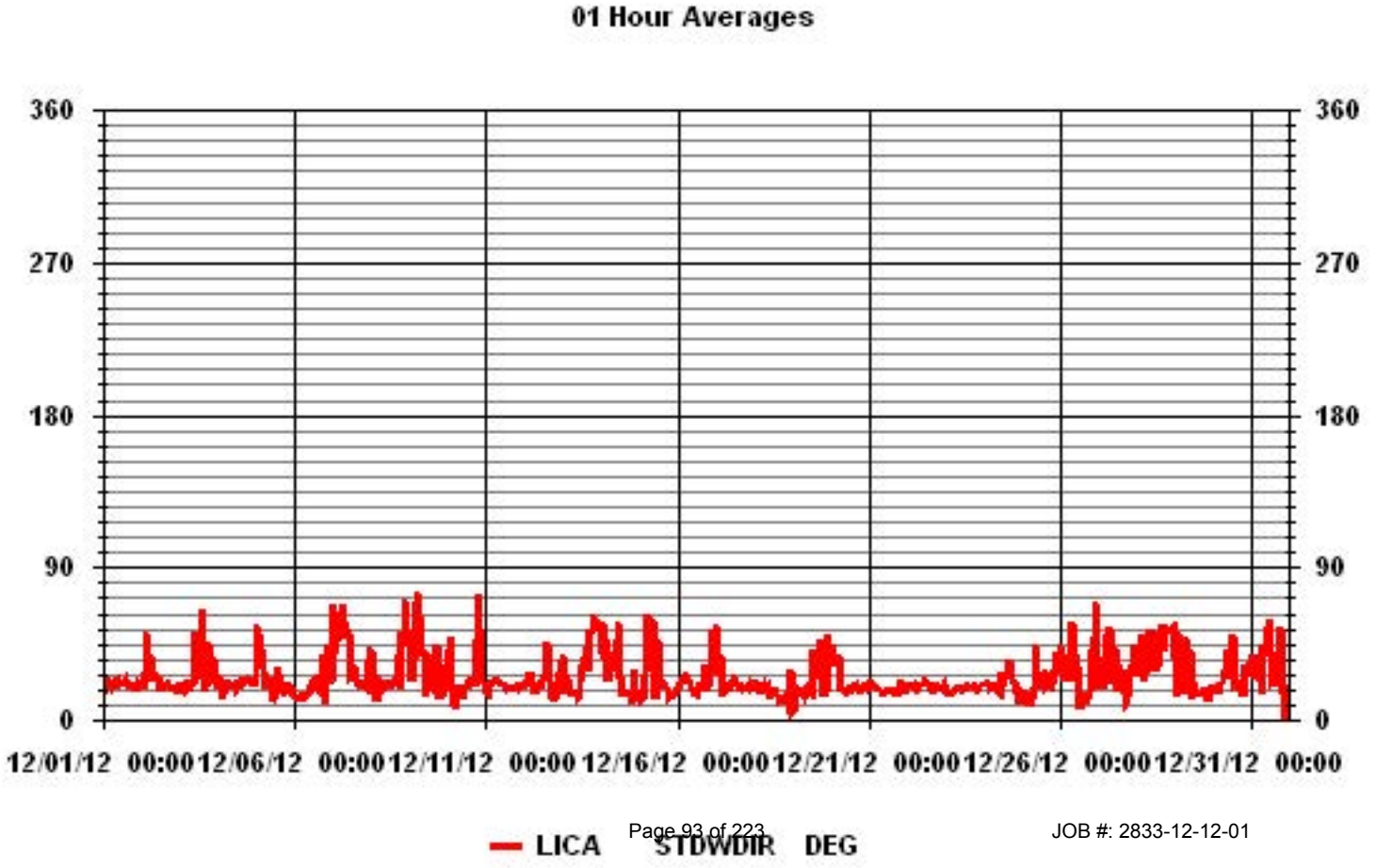
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	17	19	21	24	23	20	22	20	20	21	23	21	21	22	24	21	18	21	21	19	19	23	22	21
2	20	20	28	52	24	30	39	23	28	24	26	19	19	21	20	21	22	20	19	20	19	18	19	16
3	21	21	21	22	18	19	19	20	24	22	52	24	27	52	66	17	20	28	46	21	35	35	31	18
4	26	20	13	15	22	22	24	18	21	21	22	19	21	23	24	22	23	24	25	24	23	25	19	25
5	56	30	51	38	39	30	19	21	22	15	16	14	17	31	28	18	18	17	19	20	20	18	20	16
6	14	13	13	15	14	15	14	15	15	20	16	23	24	20	19	18	17	35	39	9	29	45	24	22
7	68	39	46	58	64	47	68	59	49	52	51	25	26	32	24	22	21	22	18	21	21	20	35	41
8	41	40	25	11	13	23	22	18	19	22	21	22	22	21	23	22	20	38	18	51	52	71	45	45
9	32	22	54	36	69	76	50	61	39	39	13	32	21	20	39	33	31	45	12	17	13	33	16	29
10	42	21	49	14	9	7	16	21	14	14	15	21	23	19	25	22	25	20	48	74	54	49	23	19
11	17	16	22	22	24	23	23	24	22	22	22	21	19	20	19	20	19	19	20	21	21	19	20	20
12	22	20	26	26	28	16	21	20	19	21	18	23	26	41	46	39	24	15	14	13	14	19	28	35
13	38	16	21	23	21	19	14	16	16	13	14	22	32	37	31	43	29	54	52	62	60	55	55	54
14	39	58	36	49	23	40	36	32	33	48	28	58	26	16	15	15	16	16	17	9	27	29	12	12
15	18	12	13	27	37	62	40	28	39	59	12	18	47	21	18	22	21	20	13	14	14	15	17	17
16	19	22	24	25	22	28	23	23	20	19	16	16	15	17	21	22	26	32	17	20	27	53	47	53
17	56	29	26	38	14	17	17	18	18	21	23	26	22	21	17	20	20	18	19	19	19	21	18	19
18	20	24	19	19	16	19	22	20	21	14	14	18	17	18	16	12	13	12	13	12	14	11	4	30
19	5	6	17	19	18	17	18	15	17	19	20	18	17	41	31	27	24	47	13	22	14	17	51	37
20	35	45	37	32	36	39	18	18	18	18	17	19	20	19	21	20	21	18	19	18	20	20	21	19
21	20	24	22	20	20	19	19	18	16	16	18	17	17	18	17	17	15	15	18	19	23	20	17	17
22	20	20	21	20	19	21	19	20	21	21	21	24	21	21	21	18	15	20	19	19	21	20	19	21
23	18	16	15	15	17	18	19	18	18	19	18	19	21	20	21	21	20	19	21	20	18	19	20	21
24	21	21	22	19	20	18	18	18	20	18	17	28	20	26	26	31	36	25	21	23	16	20	11	11
25	13	16	16	11	10	8	12	19	45	19	21	20	20	27	29	20	21	21	20	22	30	40	37	31
26	45	29	22	34	31	39	23	58	37	36	36	32	7	9	14	14	9	12	16	41	48	49	69	18
27	37	18	34	18	50	43	21	55	29	39	43	17	30	31	28	17	9	10	30	14	30	30	44	35
28	25	32	51	44	22	41	27	48	53	35	53	29	47	48	31	57	41	54	56	51	53	54	55	37
29	14	28	52	34	30	15	49	38	40	40	12	23	20	16	18	14	16	17	19	13	13	18	18	21
30	18	17	17	17	21	22	25	29	42	24	39	43	50	21	22	18	18	21	14	22	32	26	32	31
31	39	37	24	31	23	38	15	45	38	55	38	60	42	23	24	19	24	25	55	16	0	5	13	19

STATUS FLAG CODES

S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 28, 2012

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS



JOB #: 2833-12-12-01

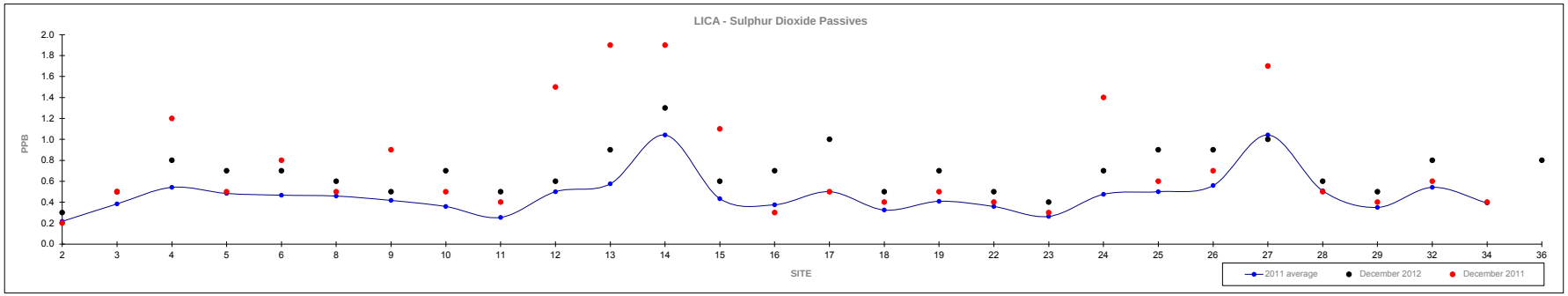
Non-Continuous Monitoring

Passive Summary Results for December 2012

Lakeland Industry & Community Association

Sulphur Dioxide
ppb

	2011																									December 2012	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	36	Reading	Site
Mean	0.2	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.6	1.0	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.5	0.5	0.6	1.0	0.5	0.4	0.5	0.4	0.69	-
Minimum	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.1	0.3	#2
Maximum	0.6	1.3	1.3	1.1	1.0	1.0	1.0	1.0	0.6	1.5	1.9	2.2	1.1	0.9	1.3	0.8	1.0	1.3	0.5	1.4	1.4	1.1	1.7	1.1	0.9	1.4	0.9	1.3	#14



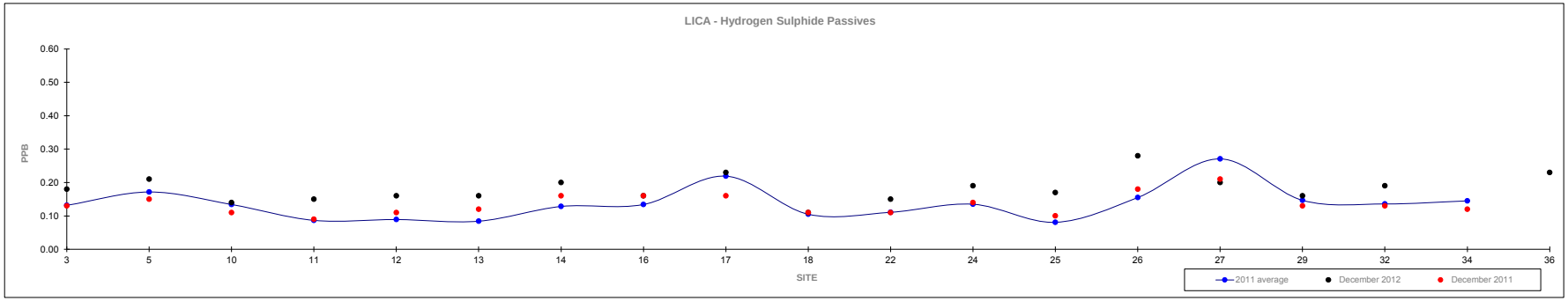
JOB #: 2833-12-12-01

Passive Summary Results for December 2012

Lakeland Industry & Community Association

Hydrogen Sulphide
ppb

	2011																		December 2012	
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	36	Reading	Site
Mean	0.15	0.20	0.14	0.09	0.11	0.15	0.17	0.15	0.29	0.12	0.14	0.16	0.09	0.17	0.48	0.15	0.15	0.18	0.18	-
Minimum	0.03	0.10	0.10	0.04	0.06	0.04	0.12	0.06	0.08	0.05	0.08	0.09	0.04	0.12	0.13	0.09	0.09	0.09	0.11	#18
Maximum	0.29	0.38	0.21	0.13	0.17	0.80	0.21	0.21	0.67	0.18	0.23	0.21	0.18	0.25	1.12	0.25	0.22	0.29	0.28	#26



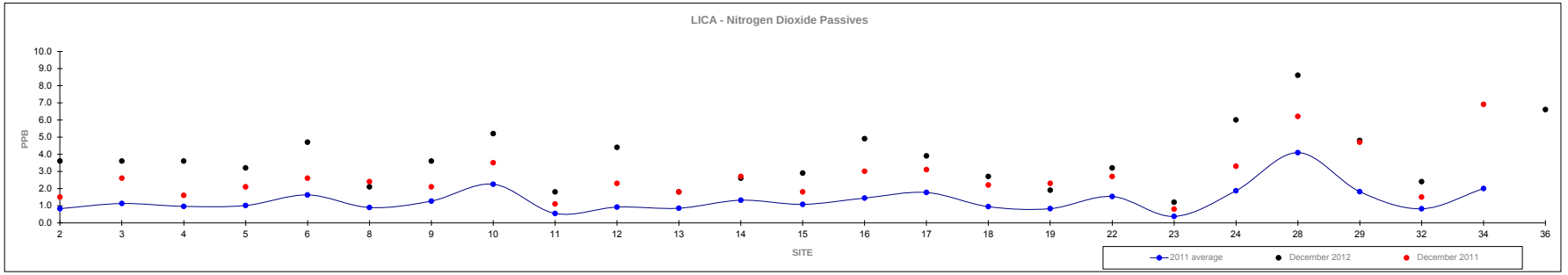
JOB #: 2833-12-12-01

Passive Summary Results for December 2012

Lakeland Industry & Community Association

Nitrogen Dioxide
ppb

	2011																							December 2012	
	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	0.8	1.1	1.0	1.0	1.6	0.9	1.3	2.3	0.5	0.9	0.9	1.3	1.1	1.4	1.8	0.9	0.8	1.5	0.4	1.9	4.1	1.8	0.8	2.0	3.7	-
Minimum	0.1	0.4	0.1	0.2	0.6	0.2	0.4	0.7	0.1	0.2	0.1	0.1	0.2	0.4	0.9	0.2	0.2	0.3	0.1	0.8	1.6	0.3	0.2	0.5	1.2	#23
Maximum	2.5	2.6	2.2	2.2	3.5	2.4	3.0	5.6	1.2	2.3	2.1	3.0	2.4	3.0	3.5	2.2	2.3	3.7	1.0	3.7	11.3	4.7	2.3	6.9	8.6	#28

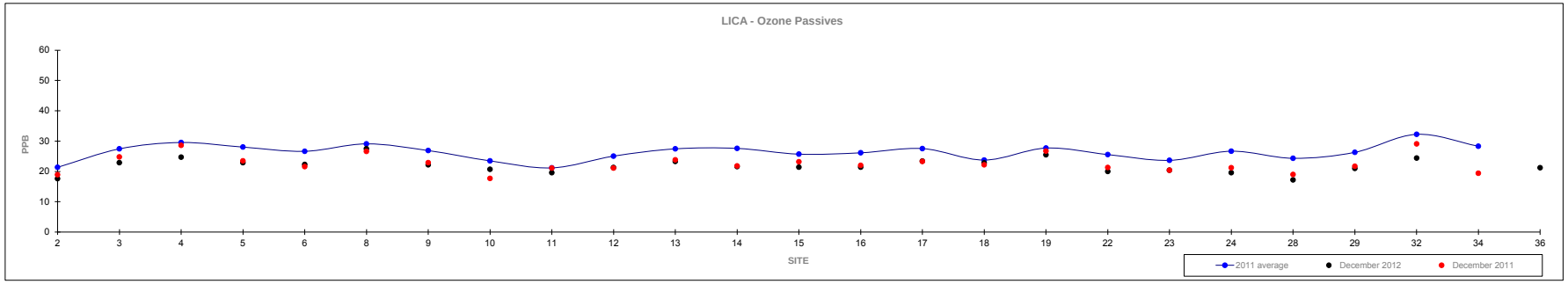


Passive Summary Results for December 2012

Lakeland Industry & Community Association

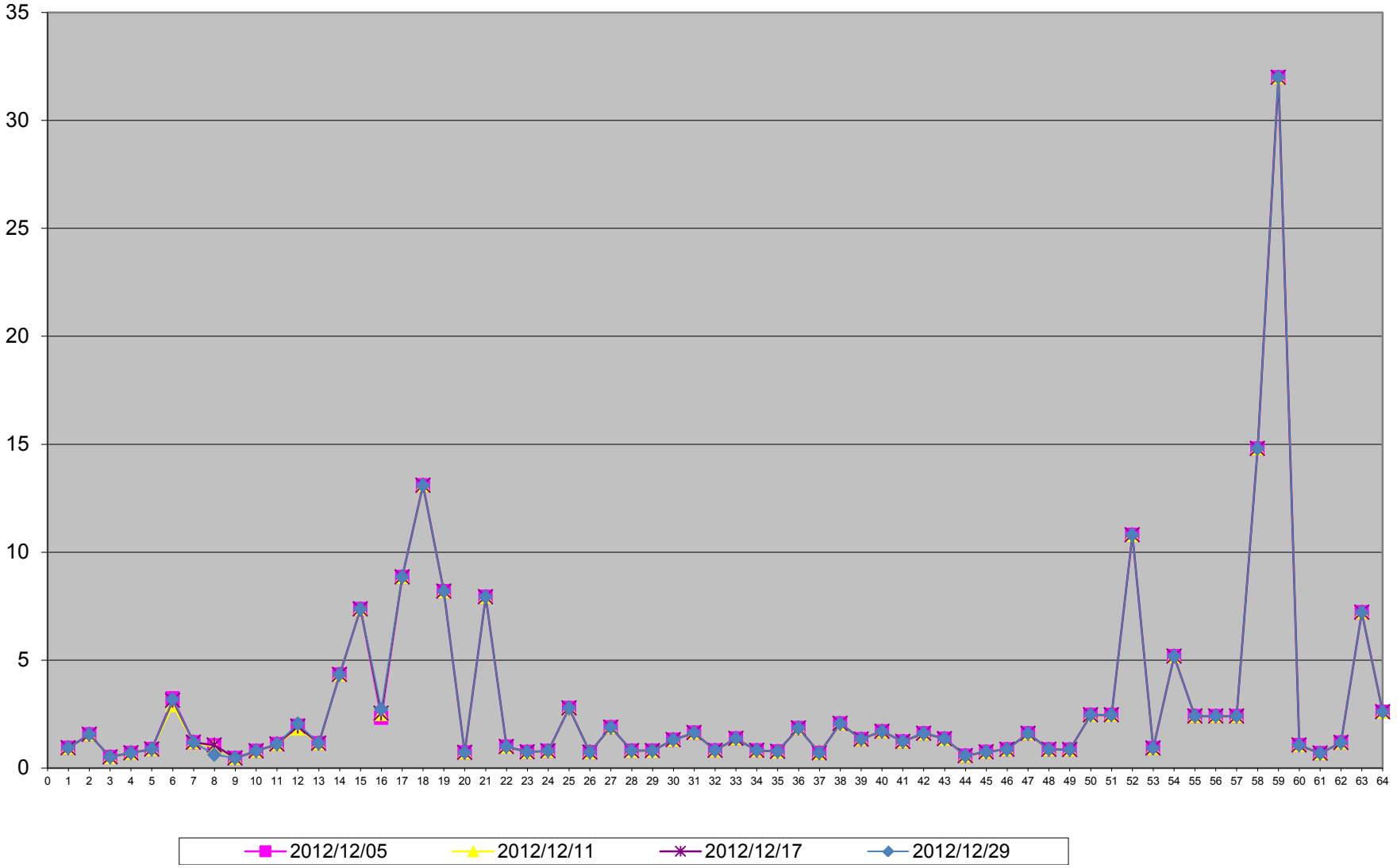
Ozone
ppb

	2011																							December 2012	
	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	21.4	27.5	29.6	28.0	26.6	29.1	26.9	23.5	21.2	25.1	27.5	27.6	25.7	26.1	27.5	23.8	27.7	25.6	23.7	26.7	24.3	26.3	32.2	28.3	21.9	-
Minimum	11.9	17.6	20.0	18.5	16.8	19.1	18.0	13.9	11.5	14.0	18.4	19.1	16.1	16.6	17.8	13.3	18.6	15.1	12.8	17.1	15.8	17.3	25.0	17.6	17.2	#28
Maximum	33.2	39.2	39.6	44.1	40.8	42.4	38.2	33.9	30.9	34.9	38.1	39.1	40.3	37.0	40.3	35.4	40.1	37.0	32.5	35.9	34.8	36.4	42.0	42.5	27.5	#8



Volatile Organics

Volatile Organics in ug/m3 Site: LICA - Cold Lake South



1	2,2,4-Trimethylpentane	33	1,1,2,2-Tetrachloroethane
2	Carbon Disulfide	34	cis-1,3-Dichloropropene
3	Propene	35	trans-1,3-Dichloropropene
4	Vinyl Acetate	36	1,2-Dichloropropane
5	Vinyl Bromide	37	Bromomethane
6	Dichlorodifluoromethane (FREON 12)	38	Bromoform
7	1,2-Dichlorotetrafluoroethane	39	Bromodichloromethane
8	Chloromethane	40	Dibromochloromethane
9	Vinyl Chloride	41	Heptane
10	Chloroethane	42	Trichloroethylene
11	1,3-Butadiene	43	Tetrachloroethylene
12	Trichlorofluoromethane (FREON 11)	44	Benzene
13	Trichlorotrifluoroethane	45	Toluene
14	Ethanol	46	Ethylbenzeze
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Wethyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2012

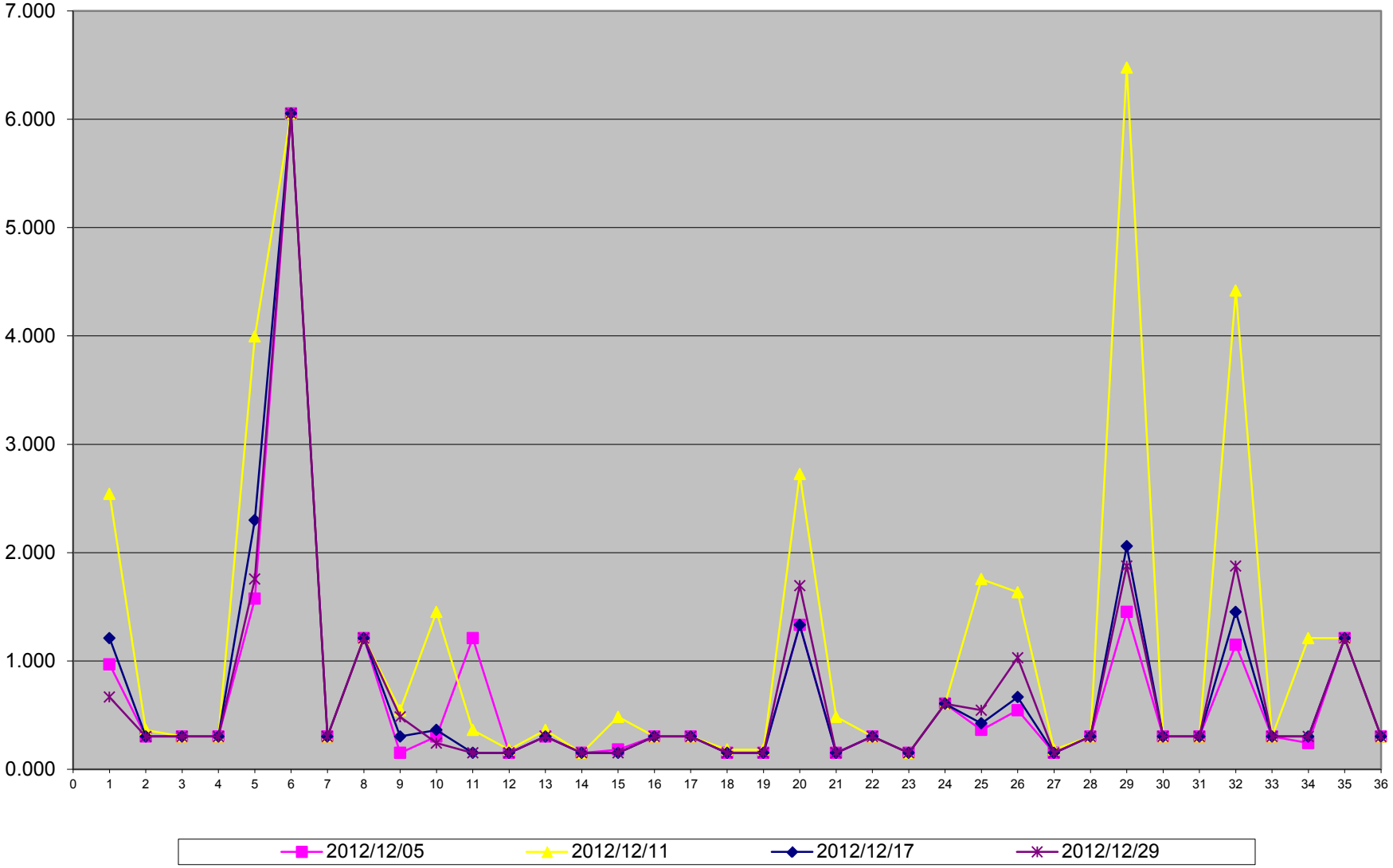
LICA- Cold Lake South Site

Unit: ng/m3

	PAHs	2012/12/05	2012/12/11	2012/12/17	2012/12/23	2012/12/29
	Sample Volume (unit: m3)	330.36	330.38	330.38	NA	330.38
1	1-Methylnaphthalene	0.969	2.543	1.211	NA	0.666
2	1-Methylphenanthrene	0.303	0.363	0.303	NA	0.303
3	2-Chloronaphthalene	0.303	0.303	0.303	NA	0.303
4	2-Methlyanthracene	0.303	0.303	0.303	NA	0.303
5	2-Methylnaphthalene	1.574	3.995	2.300	NA	1.756
6	3-Methylcholanthrene	6.054	6.054	6.054	NA	6.054
7	7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	NA	0.303
8	9,10-Dimethylanthracene	1.211	1.211	1.211	NA	1.211
9	Acenaphthene	0.151	0.545	0.303	NA	0.484
10	Acenaphthylene	0.303	1.453	0.363	NA	0.242
11	Anthracene	1.211	0.363	0.151	NA	0.151
12	Benzo(a)anthracene	0.151	0.182	0.151	NA	0.151
13	Benzo(a)fluorene	0.303	0.363	0.303	NA	0.303
14	Benzo(a)pyrene	0.151	0.151	0.151	NA	0.151
15	Benzo(b)fluoranthene	0.182	0.484	0.151	NA	0.151
16	Benzo(b)fluorene	0.303	0.303	0.303	NA	0.303
17	Benzo(e)pyrene	0.303	0.303	0.303	NA	0.303
18	Benzo(g,h,I)perylene	0.151	0.182	0.151	NA	0.151
19	Benzo(k)fluoranthene	0.151	0.182	0.151	NA	0.151
20	Biphenyl	1.332	2.724	1.332	NA	1.695
21	Chrysene	0.151	0.484	0.151	NA	0.151
22	Coronene	0.303	0.303	0.303	NA	0.303
23	Dibenz(a,h)anthracene	0.151	0.151	0.151	NA	0.151
24	Dibenzo(a,e)pyrene	0.605	0.605	0.605	NA	0.605
25	Fluoranthene	0.363	1.756	0.424	NA	0.545
26	Fluorene	0.545	1.634	0.666	NA	1.029
27	Indeno(1,2,3-cd)pyrene	0.151	0.182	0.151	NA	0.151
28	m-Terphenyl	0.303	0.303	0.303	NA	0.303
29	Naphthalene	1.453	6.477	2.058	NA	1.877
30	o-Terphenyl	0.303	0.303	0.303	NA	0.303
31	Perylene	0.303	0.303	0.303	NA	0.303
32	Phenanthrene	1.150	4.419	1.453	NA	1.877
33	p-Terphenyl	0.303	0.303	0.303	NA	0.303
34	Pyrene	0.242	1.211	0.303	NA	0.303
35	Quinoline	1.211	1.211	1.211	NA	1.211
36	Tetralin	0.303	0.303	0.303	NA	0.303

Note: - Values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
- Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.
- No sample was collected on December 23rd as the sample was not received when the scheduled time started.

PAHs in ng/m3 Site: LICA - Cold Lake South



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methlyanthracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylanthracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,I)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	December 4, 2012		Previous Calibration	November 6, 2012	
Company	Lakeland Community and Industry Association				
Plant / Location	LICA 1 - Cold Lake South				
Start Time (MST)	15:41		End Time (MST)	18:53	
Reason:			Monthly Calibration		
Barometric Pressure	0.93	atm	Station Temperature	23.5	Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42502	Cal Gas Expiry date	December 29, 2013
DAS Output Voltage	0 - 10	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	Thermo 43i	S/N :	806528242	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 500	ppb				
Sample Flow / Box Temp	446	ccm	31.4	Deg C	449	ccm	32.4	Deg C
HVPS / Lamp Setting	-632		735		-632		739	
PMT / RxCell Temp	OK	Deg C	45.2	Deg C	OK	Deg C	45.2	Deg C
Converter / IZS Temp	NA	Deg C	45	Deg C	NA	Deg C	45.0	Deg C
Offset / Slope	6		1.031		6		1.031	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	N/A
	No Zero Adj			
4953	40.3	400	400	1.0000
	No Span Adj.			
4976	22.7	225	226	0.9966
4982	12.6	125	127	0.9853
4994	0	0	0	N/A
			Sum of Least Squares	0.9988
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.3	0.3
Auto Span	366.0	374.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	-0.4%

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

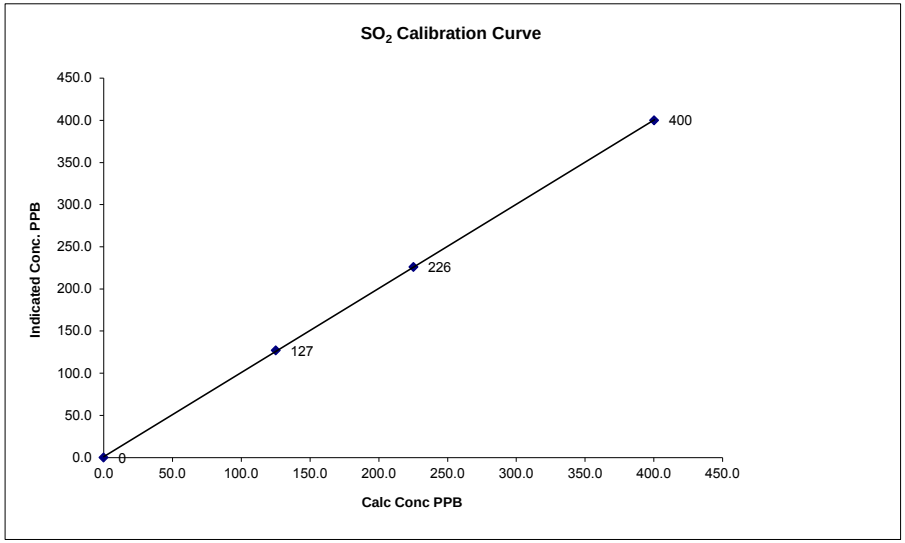
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	December 4, 2012		
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	15:41	End Time (MST)	18:53

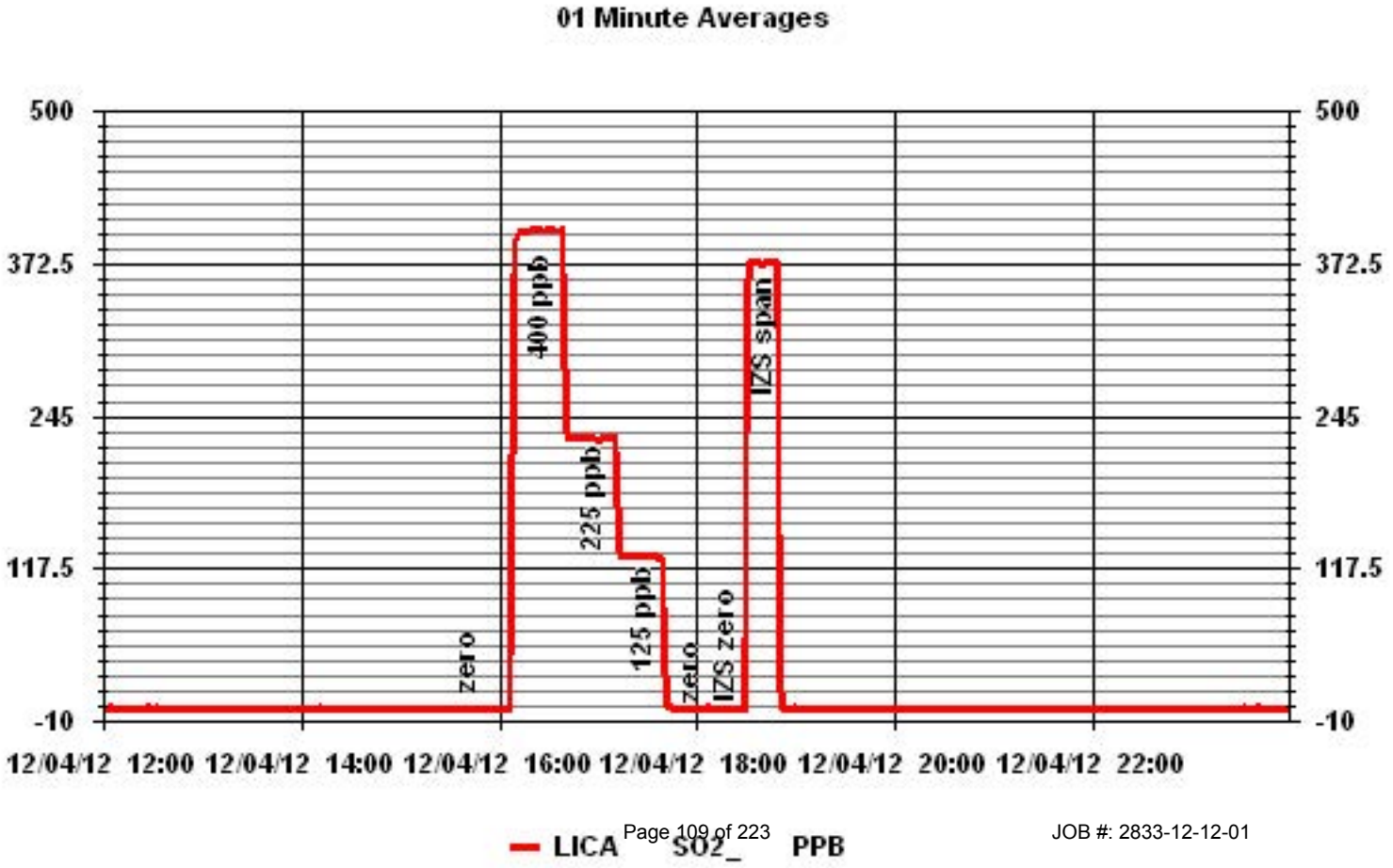
Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
125	127	0.9853
225	226	0.9966
400	400	1.0008

Correlation Coefficient	(≥ 0.995)	0.999970
Slope	(0.85 to 1.15)	0.998191
Intercept	(± 3% F.S.)	0.918900



Notes:

JOB #: 2833-12-12-01



JOB #: 2833-12-12-01

Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	December 4, 2012		Previous Calibration	November 6, 2012	
Company	**Lakeland Industry & Community Association**				
Plant / Location	**LICA 1 - Cold Lake South**				
Start Time (MST)	10:05		End Time (MST)	13:41	
Reason:	Monthly Calibration				
Barometric Pressure	0.94	atm	Station Temperature	22	Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648	Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 10	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	Thermo 450i	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CDN 101	S/N :	501		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 100	ppb				
Sample Flow / Box Temp	467	ccm	33.5	Deg C	467	ccm	33.8	Deg C
HVPS / Lamp Setting	-640.1		750		-640.1		750	
PMT / RxCell Temp	OK	Deg C	45.3	Deg C	0.1	Deg C	45.1	Deg C
Converter / IZS Temp	810	Deg C	45	Deg C	810	Deg C	45.0	Deg C
Offset / Slope	13.1		1.03		13.4		1.052	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj			
4960	40.0	80	77	1.0390
4960	40.0	80	79	1.0127
4976	20.0	40	40	1.0000
4986	11.5	23	23	1.0000
4996	0.0	0	0	N/A
			Sum of Least Squares	1.0096
			New Correction Factor	1.0127

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.3	0.0
Auto Span	38.2	41.8
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0390
Percent Change:	-3.7%

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

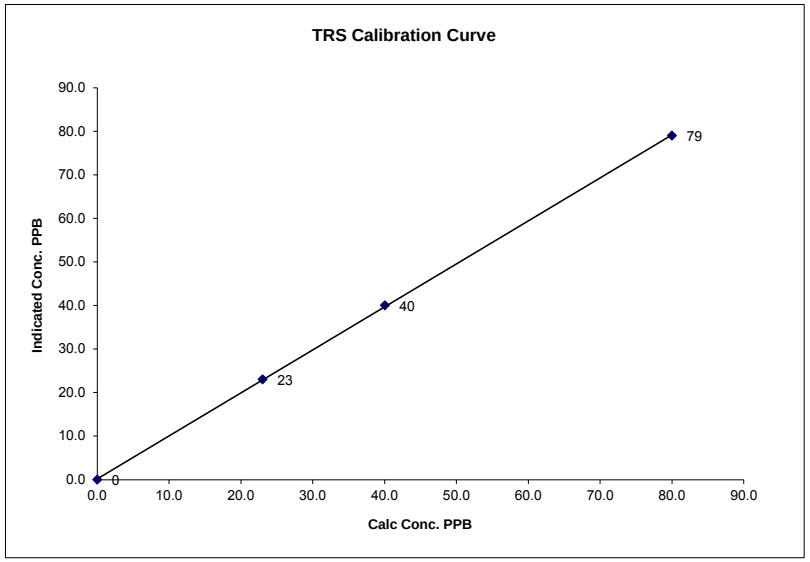
Calibration Performed by: Ting Xu

TRS Calibration Curve

Calibration Date	December 4, 2012		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	10:05	End Time (MST)	13:41

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
23	23	0.0000
40	40	0.5753
80	79	0.5067

Correlation Coefficient	(≥ 0.995)	0.999953
Slope	(0.85 to 1.15)	0.987055
Intercept	(± 3% F.S.)	0.202038



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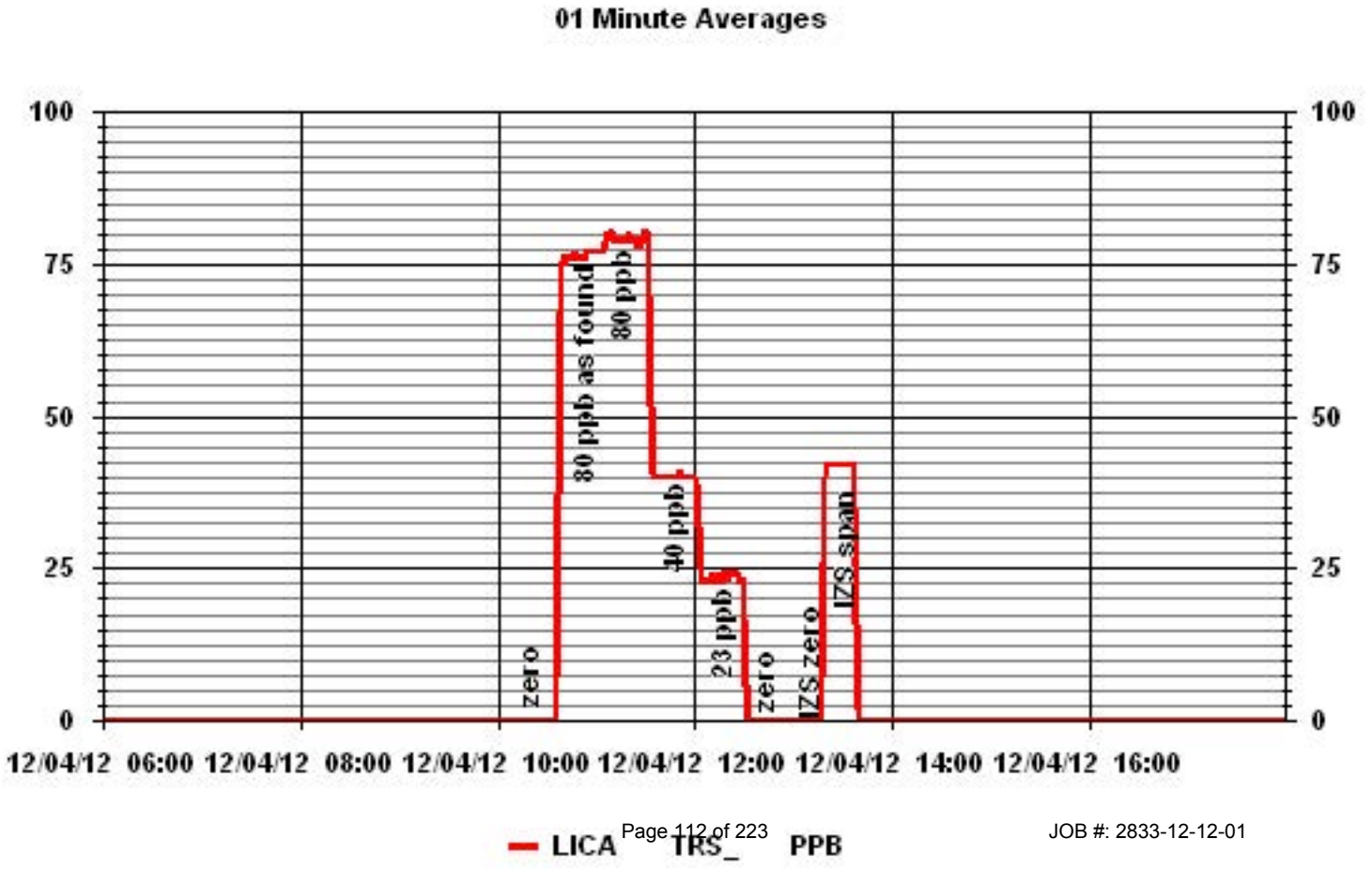


JOB #: 2833-12-12-01

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 4, 2012		Previous Calibration	November 6, 2012	
Company:	**Lakeland Industry and Community Association**				
Plant / Location:	**LICA1/Cold Lake**				
Start Time (MST)	12:56		End Time (MST)	16:26	
Reason:	Monthly Calibration				
Barometric Pressure:	0.93	atm	Station Temperature:	23	Deg C
Calibrator:	API 700		S/N:	831	
Cal Gas Concentration:	CH4 600 PPM		C3H8	204 PPM	
	TOTAL CH4 1161.0 PPM		Gas Cyl. #	LL55310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832		S/N :	3485	
Chart Recorder:	NA		S/N:	NA	
Output Voltage Range:	0 - 10	VDC	Chart Speed:	NA	mm/hr

Analyzer Information

Make / Model	TEI 51C-LT	S/N :	427408718	Method	Flame Ionization

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.5	psi	6.5	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	20	psi	20	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	-0.1	NA
	No Zero Adj.			
2000	74.0	41.4	41.0	1.0103
2000	74.0	41.4	41.5	0.9982
2000	37.0	21.1	20.9	1.0090
2000	20.0	11.5	11.3	1.0173
2000	0.0	0.0	-0.1	NA
			New Correction Factor:	0.9982

Percent Change

Previous Calibration Correction Factor:	0.9982
Current Correction Factor Before Span Adjust:	1.0103
Percent Change:	-1.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	-0.1
Auto Span	34.3	36.7
Sample Lines Connected		**YES**

Cylinder Pressures

Span 2000 psi Hydrogen 500 psi Zero Air 32 psi

Notes: **NA : Not Applicable**

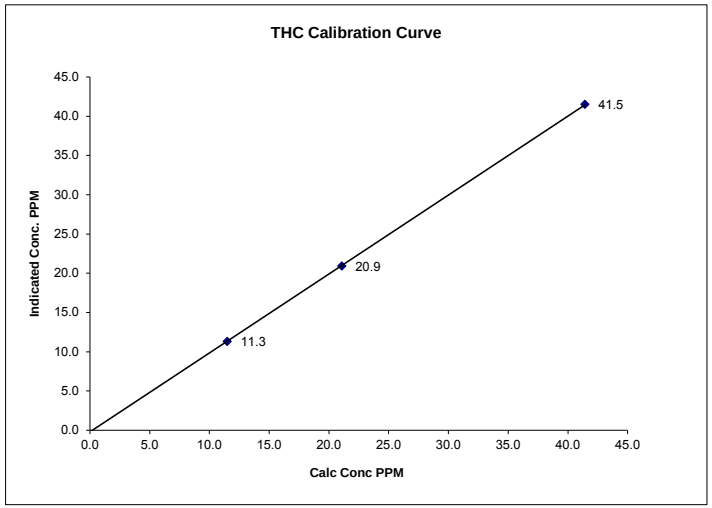
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	December 4, 2012				
Company	**Lakeland Industry and Community Association**				
Plant / Location	**LICA1/Cold Lake**				
Start Time (MST)	12:56	End Time	(MST)	16:26	

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	-0.1	NA
11.5	11.3	1.0173
21.1	20.9	1.0090
41.4	41.5	0.9982

Correlation Coefficient	(≥ 0.995)	0.999972
Slope	(0.85 to 1.15)	1.004835
Intercept	(± 3% F.S.)	-0.19138



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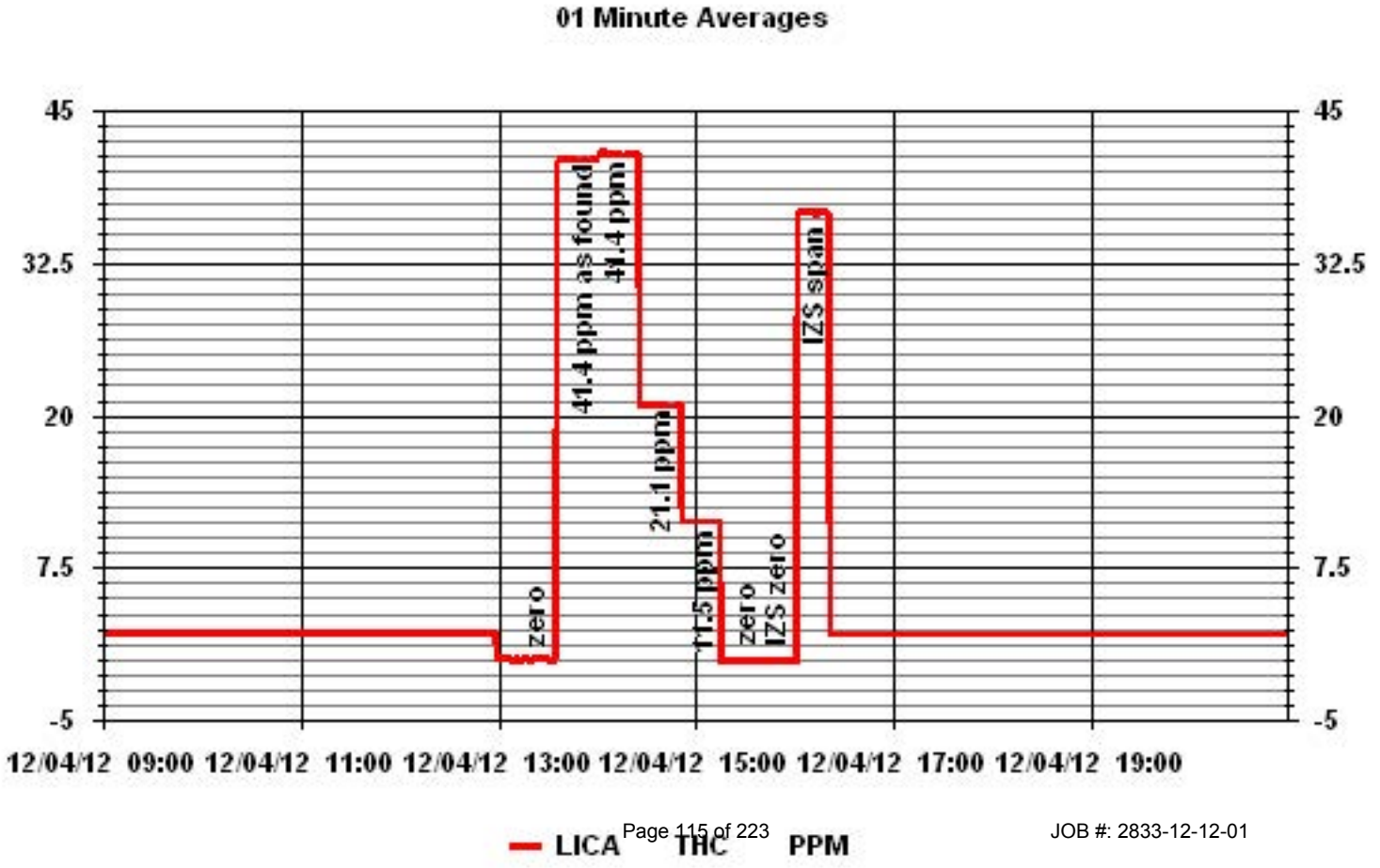


JOB #: 2833-12-12-01

Particulate Matter 2.5

TEOM 1405F Audit

Station		Audit Transfer Standard	
Date:	December 4, 2012	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001, Lo 091099
Location:	Cold Lake South	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	Station Temp Sensor

Sampler		Set-up and current Sampler readings	
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1775	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A201620804	Filter Load (%)	20.3%
Firmware Ver.	1.52	K_o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-12.3
		Press (ATM)	0.934

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status

Noise **<0.10*u* g**	0.019	Warnings	None
Pump Vacuum **< 0.40 atm**	0.36	Pump Guage (in Hg)	NA

Temperature/Pressure

Measured Temp **(Ñ2 ^oC)**	-12.36	**æ^oC**	0.06
Measured Press **(Ñ0.01atm)**	0.934	**DATM**	0.000

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(Ñ10.0%)**	1.05%
Measured Main Flow (l/min)	3.01	Flow Adjusted to Measured?	No
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(Ñ10.0%)**	0.36%
Measured Bypass Flow (l/min)	13.94	Flow Adjusted to Measured?	No

Leak Check

Main **(< 0.15 l/min)**	NA
Aux **(< 0.6 l/min)**	NA

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

Measured	NA
K_o Difference **(Ñ2.5%)**	NA

Start Time: 12:18 **Finish Time:** 14:47

Sample Inlet Cleaned: YES **New Filters Installed:** NO

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu

JOB #: 2833-12-12-01

TEOM 1405F Audit

Station		Audit Transfer Standard	
Date:	December 21, 2012	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001, Lo 091099
Location:	Cold Lake South	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	Station Temp Sensor

Sampler		Set-up and current Sampler readings	
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1775	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A201620804	Filter Load (%)	29.2%
Firmware Ver.	1.52	K_o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-15.2
		Press (ATM)	0.938

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status

Noise **<0.10*u* g**	0.013	Warnings	None
Pump Vacuum **< 0.40 atm**	0.36	Pump Guage (in Hg)	NA

Temperature/Pressure

Measured Temp **(Ñ2 °C)**	-14.88	**æ°C**	-0.32
Measured Press **(Ñ0.01atm)**	0.940	**DATM**	-0.002

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(Ñ10.0%)**	3.14%
Measured Main Flow (l/min)	3.04	Flow Adjusted to Measured?	No
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(Ñ10.0%)**	3.23%
Measured Bypass Flow (l/min)	13.99	Flow Adjusted to Measured?	No

Leak Check		**Instrument Setup**
Main **(< 0.15 l/min)**	Base=0.02 Ref=0.02	Flow Control = Active
Aux **(< 0.6 l/min)**	Base=0.00 Ref=0.00	Report Conditions = Actual

K_o Factor

Measured	NA
K_o Difference **(Ñ2.5%)**	NA

Start Time: 09:18 **Finish Time:** 11:37

Sample Inlet Cleaned: No **New Filters Installed:** Yes

New Filter Loading %: 21.0%

Comments:

Auditor/s: Ting Xu

JOB #: 2833-12-12-01

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 4, 2013		Previous Calibration	November 6, 2012	
Company	LICA		Plant/Location	Cold Lake South	
Start Time (MST)	10:05		End Time (MST)	15:40	
Reason:	Monthly Calibration				
Barometric Pressure	0.938 atm	Station Temperature	22 Deg C	MFCF	0
Cal Gas Concentration	NOx 50.1 ppm	NO 50.1 ppm	Cal Gas Expiry date	December 29, 2013	
Cal Gas Cylinder #	LL42502				
DAS Output Voltage	0 - 10 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	Thermo 42C	S/N :	427408716	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration					After Calibration			
Concentration Range					0 - 500 ppb				
Sample Flow/Conv. Temp	735	ccm	316	Deg C		737	ccm	317	Deg C
Ozone Flow / Vacuum	OK	ccm	176.0	"Hg-A		OK	ccm	175	"Hg-A
HVPS / A ZERO	-821	Volts	NA	MV		-821	Volts	NA	MV
Rx/ Temp / PMT Temp	49.6	Deg C	-2.5	Deg C		49.6	Deg C	-2.5	Deg C
Box Temp / IZS Temp	29.8	Deg C	OK	Deg C		30.8	Deg C	OK	Deg C
Offset	3.8	NOx	3.5	NO		3.8	NOx	3.5	NO
Slope	1.002	NOx	0.909	NO		1.002	NOx	0.909	NO
NO_2 COEF / Conv Efficency	0.998	NO2	NA			0.998	NO2	NA	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj									
4955	39.8	NA	399	399	NA	400	399	1	0.9980	1.0000
	No Span Adj.									
4976	19.9	NA	200	200	NA	201	201	0	0.9928	0.9928
4984	9.9	NA	99	99	NA	102	101	1	0.9737	0.9834
4994	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO_2 Correction Factor	NO2 Conv Efficency
			NOx	NO	NO2	NOx	NO	NO2		
4954	39.8	NA	399	399	NA	399	398	1	NA	NA
4954	39.8	350	399	NA	333	399	66	333	1.0000	100.00%
	No Adj.									
4954	39.8	150	399	NA	144	399	255	143	1.0070	99.30%
4954	39.8	75	399	NA	72	398	327	72	1.0000	100.00%

Linearity			Sum of Least Squares	NOx=	0.996	NO=	0.998	NO2= 1.001
OK?	Yes	No	Correction Factors:	NOx=	0.9980	NO=	1.0000	NO2= 1.0000
						Average Converter Efficiency=		99.77%

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	0.1	NOx	0.2	NO2		0.1	NOx	0.1	NO2
Auto Span	379	NOx	376	NO2		376	NOx	373	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-0.5%	NO	-0.5%	NO2	0.3%

Notes

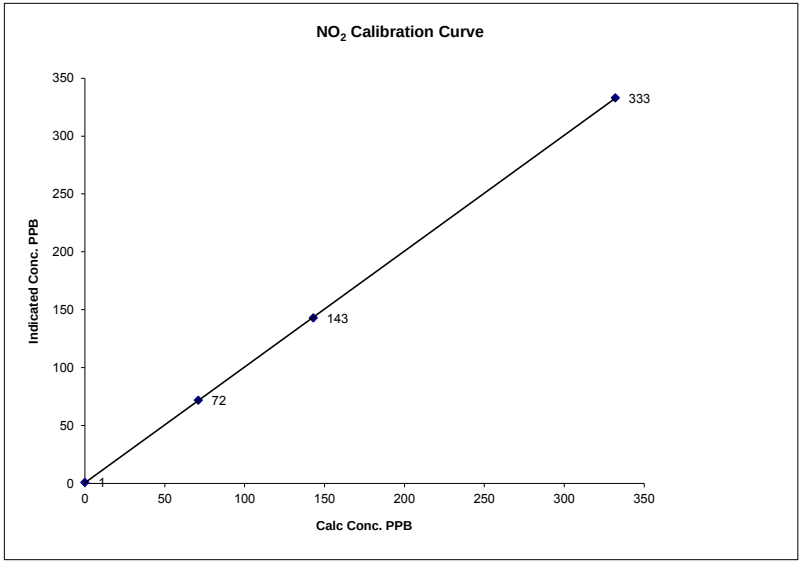
NA : Not Applicable

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	December 4, 2013				
Company	LICA				
Plant / Location	Cold Lake South				
Start Time (MST)	10:05	End Time (MST)	15:40		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999988
			Slope (0.85 to 1.15)	0.999894
0	1	N/A	Intercept (± 3% F.S.)	0.76450
71	72	0.9861		
143	143	1.0000		
332	333	0.9970		

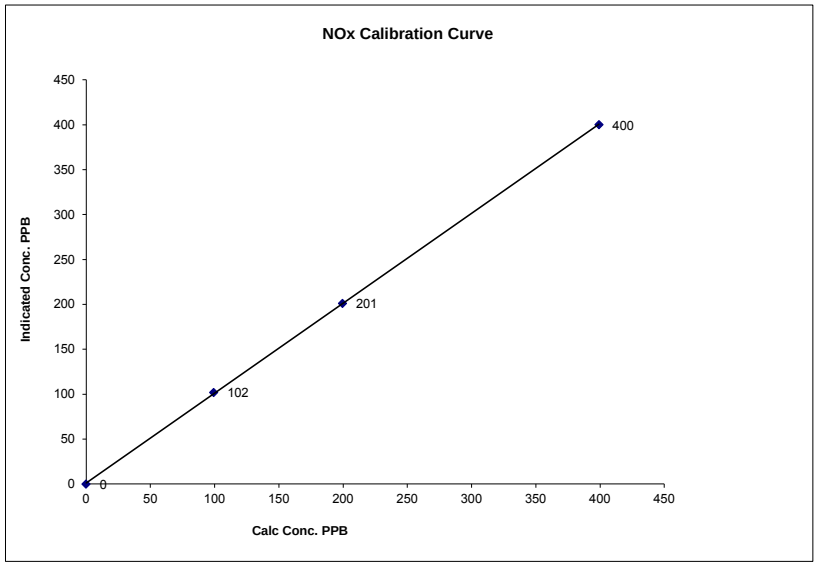


Notes:

NOx Calibration Curve

Calibration Date	December 4, 2013				
Company	LICA				
Plant / Location	Cold Lake South				
Start Time (MST)	10:05	End Time (MST)	15:40		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999956
			Slope	(0.85 to 1.15)	1.000133
0	0	N/A	Intercept	(± 3% F.S.)	1.20370
99	102	0.9737			
200	201	0.9928			
399	400	0.9980			

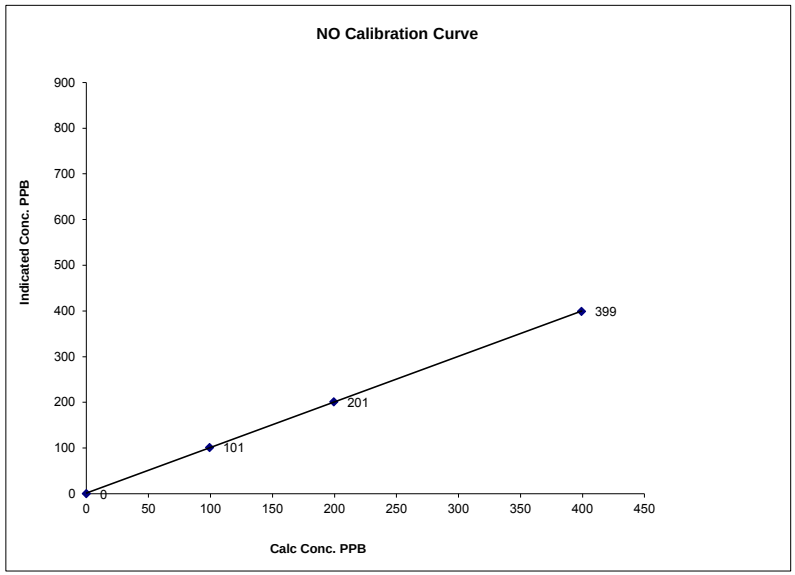


Notes:

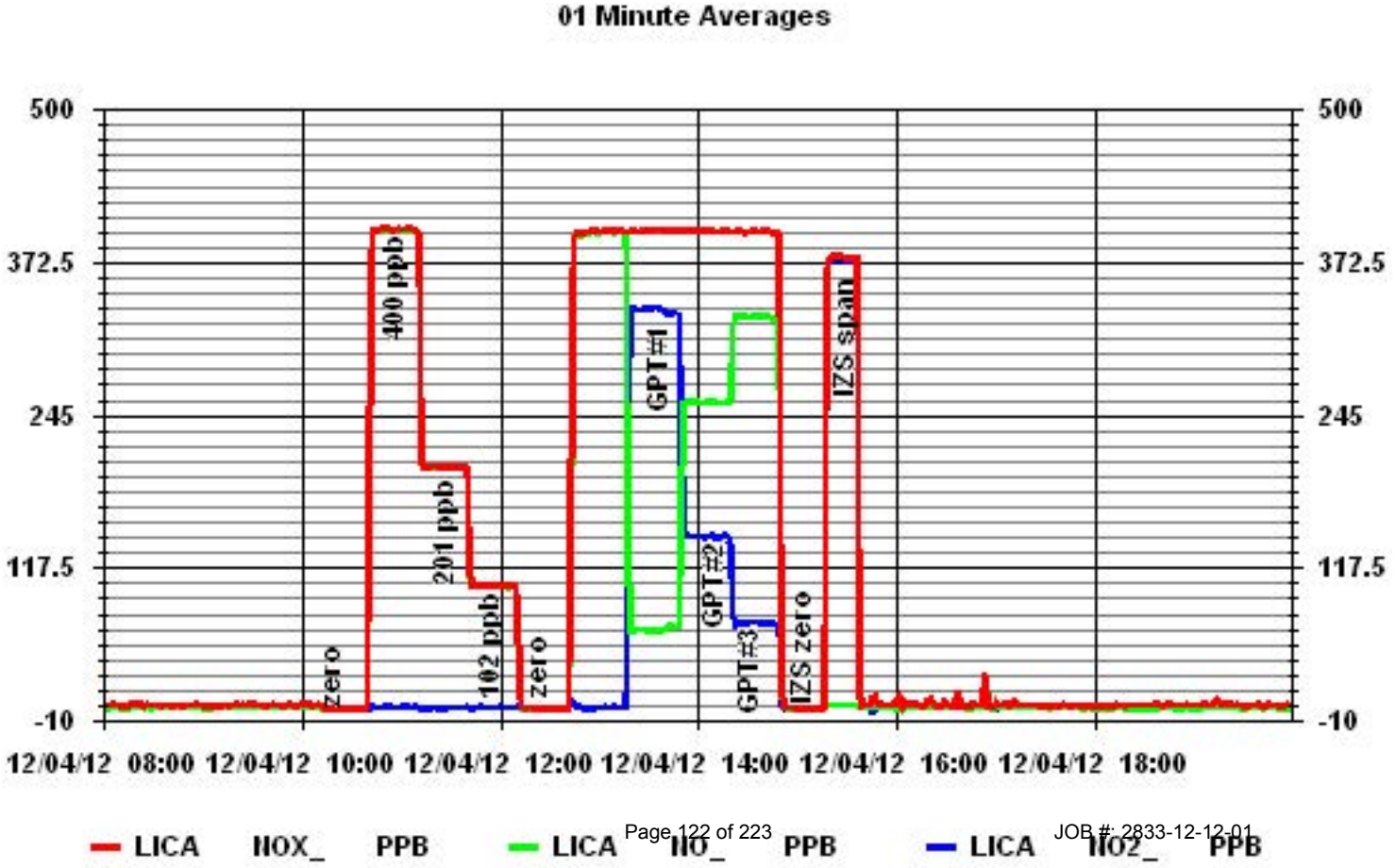
NO Calibration Curve

Calibration Date	December 4, 2013				
Company	LICA				
Plant / Location	Cold Lake South				
Start Time (MST)	10:05	End Time (MST)	15:40		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999970
			Slope	(0.85 to 1.15)	0.993414
0	0	N/A	Intercept	(± 3% F.S.)	3.0872
99	101	0.9834			
200	201	0.9928			
399	399	1.0005			



Notes:


01 Minute Averages
500
372.5
245
117.5
-10
zero
400 ppb
201 ppb
102 ppb
zero
GPT#1
GPT#2
GPT#3
IZS zero
IZS span
12/04/12 08:00
12/04/12 10:00
12/04/12 12:00
12/04/12 14:00
12/04/12 16:00
12/04/12 18:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	December 4, 2012	Previous Calibration	November 6, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	15:01	End Time (MST)	18:43
Reason:		Monthly Calibration	
Barometric Pressure	0.932 atm	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	700419951	Method:	Photometric
Calibrator Make / Model:	Environics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 -500 ppb			
Cell A Flow / Cell B Flow	701 LPM	740 LPM	705 LPM	745 LPM
O_3 Set Level	688 mmHg		694 mmHg	
Bench Lamp	29.2 Deg C		30.1 Deg C	
O3 Lamp / Box Temp	53.6 Deg	67.5 Deg C	53.5 Deg C	67.6 Deg C
Offset / Slope	-0.1	1.024	-0.2	1.041

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj			
4994	350	332	325	1.0215
4994	350	332	333	0.9970
4994	150	143	144	0.9931
4994	75	71	70	1.0143
4994	0	0	0	NA
			Sum of Least Squares	0.9970
			New Correction Factor	0.9970

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.3	0.3
Auto Span	285	287
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		1.0215
Percent Change:		-2.1%

Note: **NA : Not Applicable**

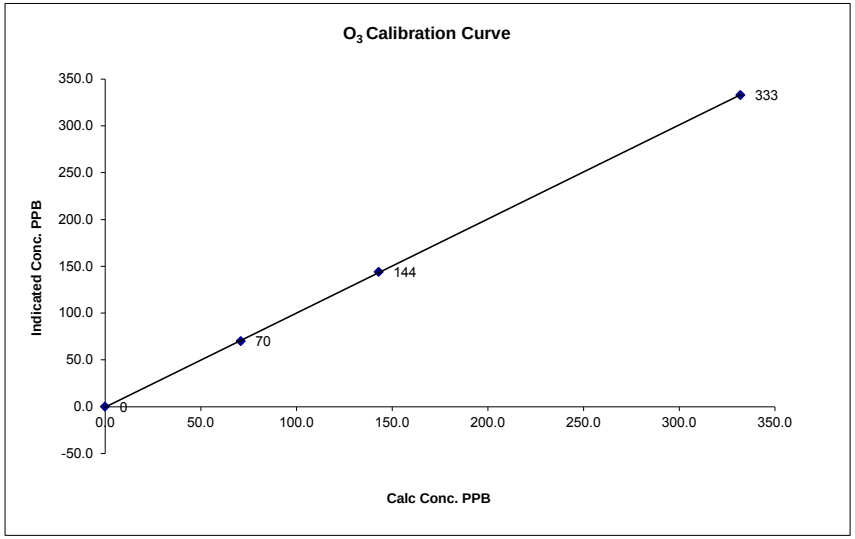
Calibration Performed by: Ting Xu

O_3 Calibration Curve

Calibration Date	December 4, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	15:01	End Time (MST)	18:43

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
71	70	1.0143
143	144	0.9931
332	333	0.9970

Correlation Coefficient	(≥ 0.995)	0.999974
Slope	(0.85 to 1.15)	1.004372
Intercept	(± 3% F.S.)	-0.346776



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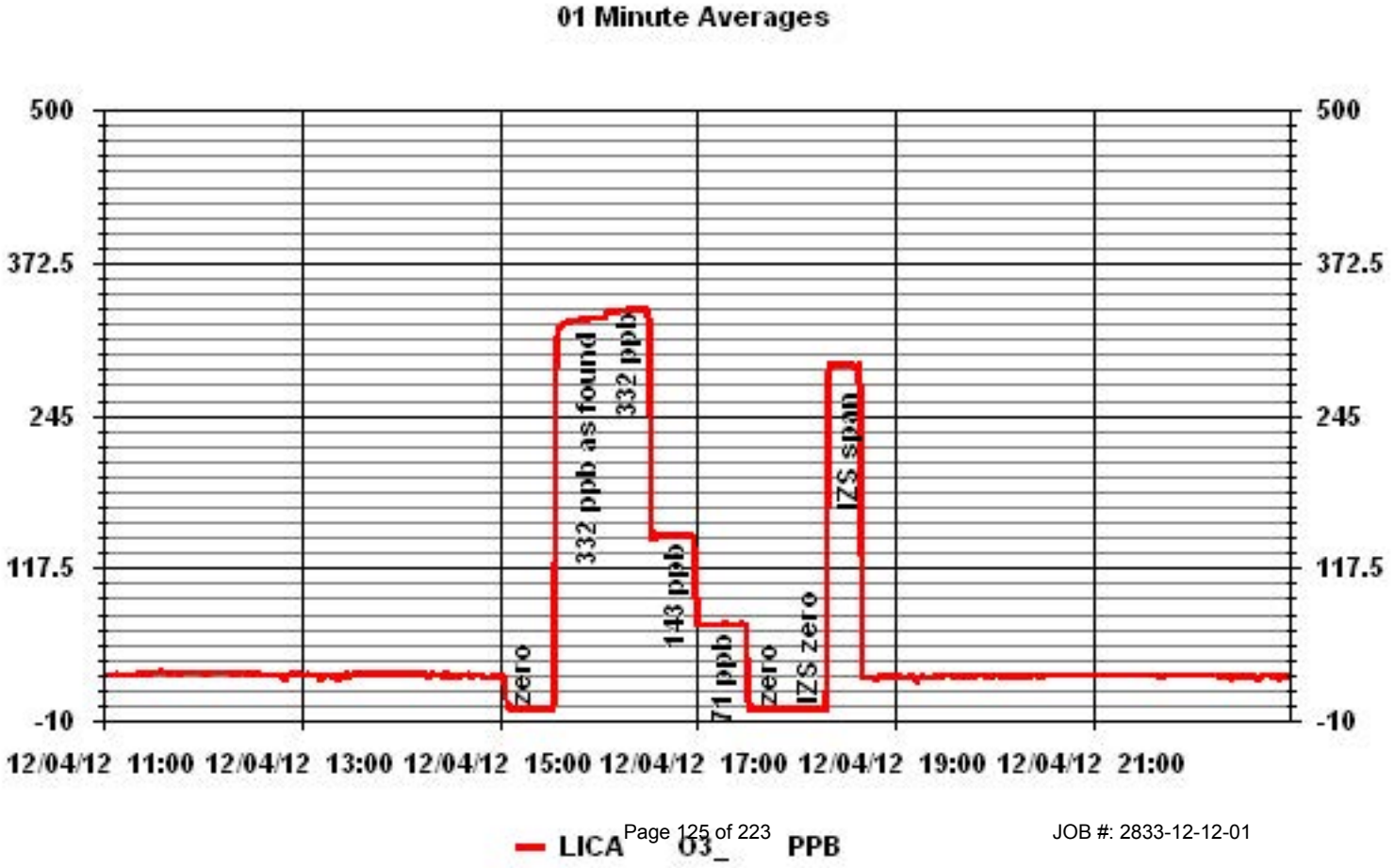


JOB #: 2833-12-12-01

Wind System

Meteorological Sensor Audit Report
Station Information

Audit Date	November 28, 2012	Previous Audit	-
Company	**LICA**		
Plant / Location	**Cold Lake South**		
Start Time (MST)	17:00	End Time (MST)	17:48
Reason:		Installation Calibration	
Translator make/model:	RM Young	S/N:	43708
DAS make/model:	ESC 8832	S/N:	3485

Wind Speed

Sensor make/model:	RM Young 5103VK	S/N:	43708
Calibrator:	RM Young 18802	Variable speed motor	CA3309
Output voltage range:	0-1 vdc	Output signal range:	0-200 kph
Sensor height:	>10M		

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.1	0.15	-
1000	17.6	17.82	17.77	0.99
2000	35.3	35.42	35.42	1.00
3000	52.9	53.06	53.07	1.00
4000	70.6	70.71	70.7	1.00
5000	88.2	88.34	88.34	1.00
6000	105.8	106	106	1.00
7000	123.5	123.6	123.6	1.00
8000	141.1	141.2	141.2	1.00
9000	158.8	158.9	158.9	1.00
10000	176.4	176.4	176.4	1.00
			Average Correction Factor	1.00

Wind Direction

Sensor make/model:	RM Young 5103VK	S/N:	43708
Calibrator:	RM Young 18802	Direction wheel	N/A
Output voltage range:	0-1vdc	Output signal range:	0 - 360
Sensor height:	>10M		

Wind Direction Audit Data

Wind Direction	Indicated		Correction Factor
0	-0.1		NA
45	44.2		1.02
90	89.3		1.01
135	134.6		1.00
180	180.7		1.00
225	226.1		1.00
270	270.1		1.00
315	314.5		1.00
360	355.0		NA
		Average Correction Factor	1.00

Remarks:

Audit Performed by: Theo McLaren / Ting Xu

CLS

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

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

Sonic Wind Sensor Certificate of Calibration

Sensor Model No: 50.5H Sonic **Sensor Serial No:** F1644
Customer: MAXXAM **P.O. No:** **Sales Order:** RA 34825
Final Calibration By: Kevin Ricks **Calibration Date:** 12-18-12
Quality Control Inspected By: **Inspection Date:**

New Unit [ ] **Repair/Adjust** [X] **Re-Calibration** [X] **As Found** [ ]

Unit Within Tolerance as Found [ ] **Unit Within Tolerance as Left** [X]

Calibration Equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Due
Digital Multimeter 1	HP	34401A	US36094551	7/25/2013
Digital Multimeter 2	HP	34401A	US36094688	6/13/2013
Frequency Counter	Agilent	53131A	MY40009285	5/04/2013
Standard Sensor	MOI	010C-1	K10002	7/18/2013
Temperature Probe	MOI	920005/PC8340	E3402	8/27/2013

Test 1: Average Wind Tunnel Speed: 3.09 **Meters per Second** **FirmwareVersion:** 3194-01 R2.62

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .20 m/s)
30	.086	30.9	.9	3.08	.059	2.94	-.14
60	.165	59.3	-.7	3.09	.058	2.92	-.16
120	.336	121.1	1.1	3.1	.06	2.99	-.11
150	.415	149.5	-.5	3.07	.06	2.99	-.08
210	.585	210.6	.6	3.08	.06	2.99	-.09
240	.666	239.6	-.4	3.11	.06	2.98	-.13
300	.834	300.2	.2	3.09	.06	2.99	-.09
330	.914	329.2	-.8	3.09	.06	2.98	-.11

Output Type:

0 to 1 volt	X
0 to 2.5 volt	
0 to 5 volt	
RS-232	X
SDI-12	
RS-422	
RS-485	

Test 2: Average Wind Tunnel Speed: 11.75 **Meters per Second** **Output Range:** 0-50 m/s

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .24 m/s)
30	.084	30.1	.1	11.72	.234	11.69	-.03
60	.165	59.3	-.7	11.77	.236	11.78	.01
120	.334	120.4	.4	11.75	.236	11.78	.03
150	.414	149.2	-.8	11.75	.235	11.76	.01
210	.584	210.3	.3	11.74	.236	11.82	.08
240	.666	239.8	-.2	11.75	.234	11.68	-.07
300	.834	300.1	.1	11.8	.235	11.77	-.03
330	.914	329.1	-.9	11.75	.238	11.88	.14

Test Items:

Array Alignment	✓
Jumper Config	✓
Firmware Config	✓
Zero Calibration	✓
Low Speed Test OK	✓
High Speed Test OK	✓
Sensor Function	✓
Physical Inspection	✓

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

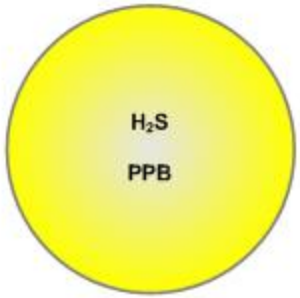
Passive Bubble Maps

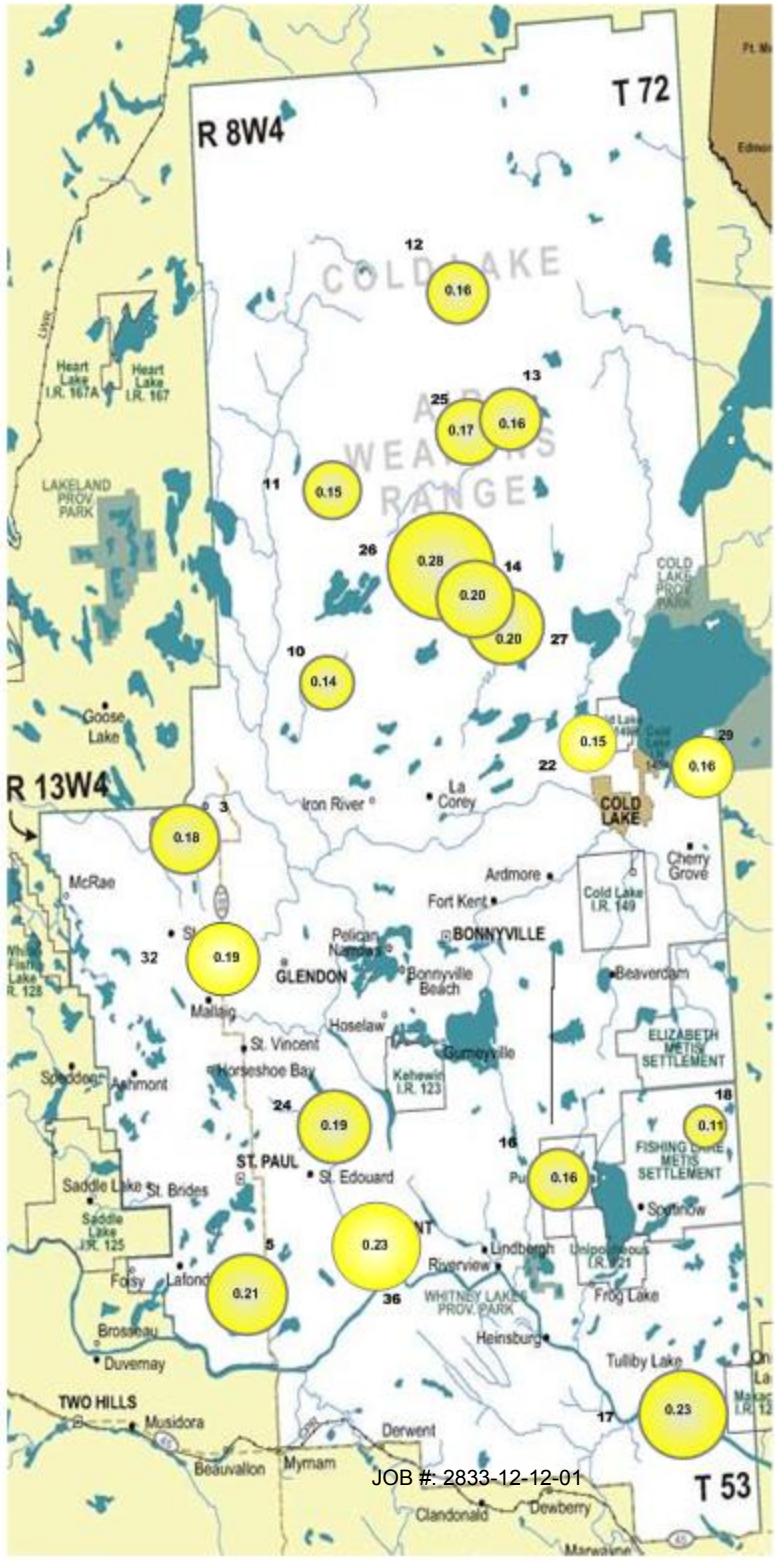
Lakeland Industry & Community Association
H_2S Passive Bubble Map

DECEMBER 2012

PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.18 PPB	NA
5 – Lake Eliza	0.21 PPB	NA
10 – La Corey	0.14 PPB	NA
11 – Wolf Lake	0.15 PPB	NA
12 – Foster Creek	0.16 PPB	NA
13 – Primrose	0.16 PPB	NA
14 – Maskwa	0.20 PPB	NA
16 – Frog Lake	0.17 PPB	NA
17 – Clear Range	0.23 PPB	NA
18 – Fishing Lake	0.11 PPB	0.14 PPB
22 – Cold Lake South	0.15 PPB	NA
24 – Fort George	0.17 PPB	0.21 PPB
25 – Burnt Lake	0.17 PPB	NA
26 – Mahihkan	0.28 PPB	NA
27 – Mahkeses	0.20 PPB	NA
29 – Cold Lake South 2	0.16 PPB	NA
32 – St. Lina	0.19 PPB	NA
36 – Elk Point	0.23 PPB	NA





Summary

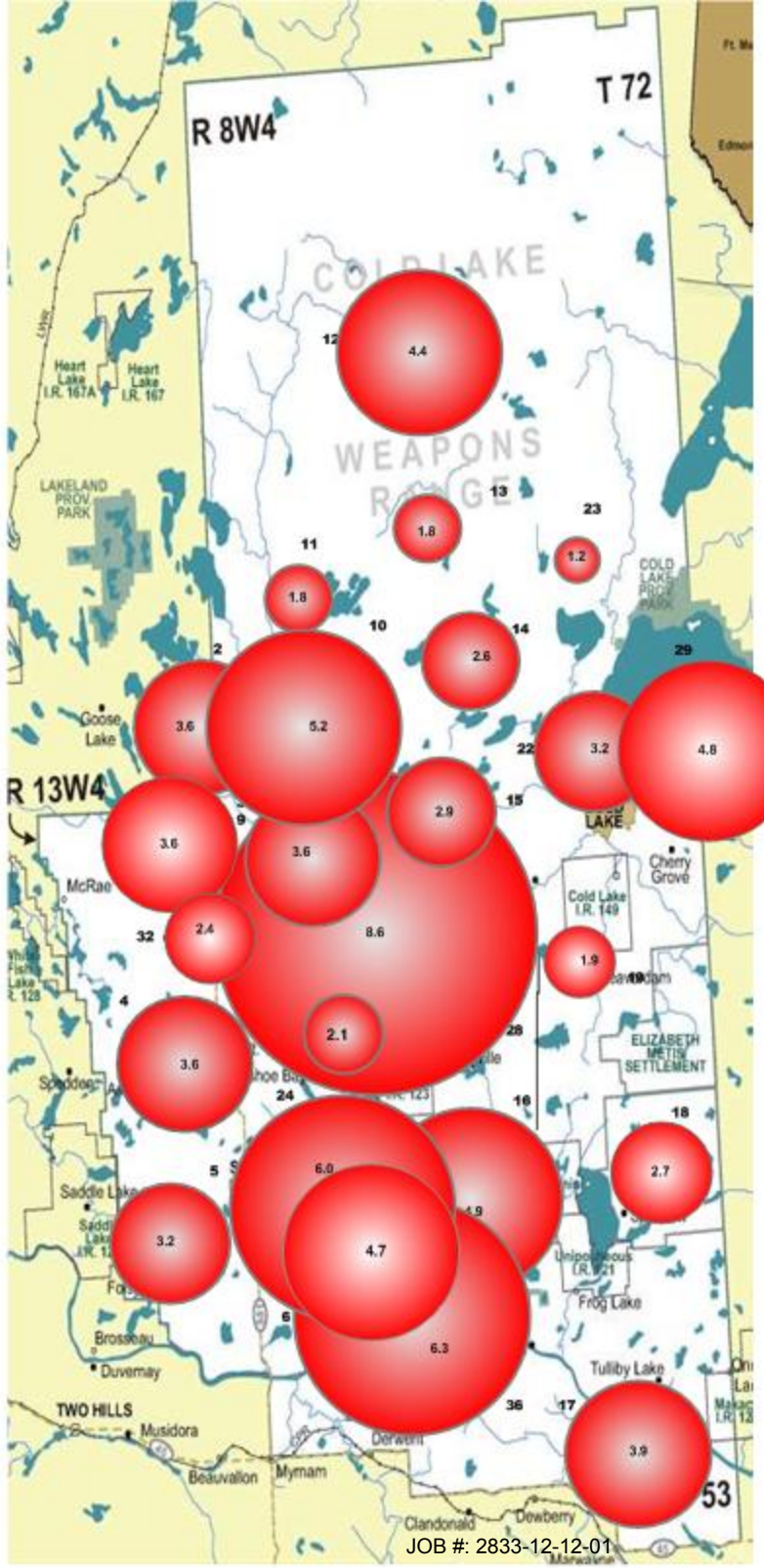
Minimum : 0.11 PPB – Fishing Lake
Maximum: 0.28 PPB –Mahihkan
Average: 0.18 PPB *Includes Duplicates

JOB #: 2833-12-12-01

Lakeland Industry & Community Association
NO_2 Passive Bubble Map

DECEMBER 2012

PASSIVE STATIONS		DUPLICATE
2 – Sand River	3.6 PPB	NA
3 – Therien	3.6 PPB	NA
4 – Flat Lake	3.7 PPB	3.5 PPB
5 – Lake Eliza	3.2 PPB	3.2 PPB
6 – Telegraph Creek	4.7 PPB	NA
8 – Muriel-Kehewin	2.1 PPB	NA
9 – Dupre	3.6 PPB	NA
10 – La Corey	5.2 PPB	NA
11 – Wolf Lake	1.8 PPB	NA
12 – Foster Creek	4.4 PPB	NA
13 – Primrose	1.8 PPB	NA
14 – Maskwa	2.6 PPB	NA
15 – Ardmore	2.9 PPB	NA
16 – Frog Lake	4.9 PPB	NA
17 – Clear Range	3.9 PPB	NA
18 – Fishing Lake	2.7 PPB	NA
19 – Beaverdam	1.9 PPB	NA
22 – Cold Lake South	3.2 PPB	NA
23 – Medley-Martineau	1.2 PPB	NA
24 – Fort George	6.0 PPB	NA
28 – Town of Bonnyville	8.6 PPB	NA
29 – Cold Lake South 2	4.8 PPB	NA
32 – St. Lina	2.4 PPB	NA
36 – Elk Point	6.3 PPB	NA



Summary

Minimum : 1.2 PPB – Medley-Martineau
Maximum: 8.6 PPB – Town of Bonnyville
Average: 3.7 PPB *Includes Duplicates

JOB #: 2833-12-12-01

Lakeland Industry & Community Association
O_3 Passive Bubble Map

DECEMBER 2012

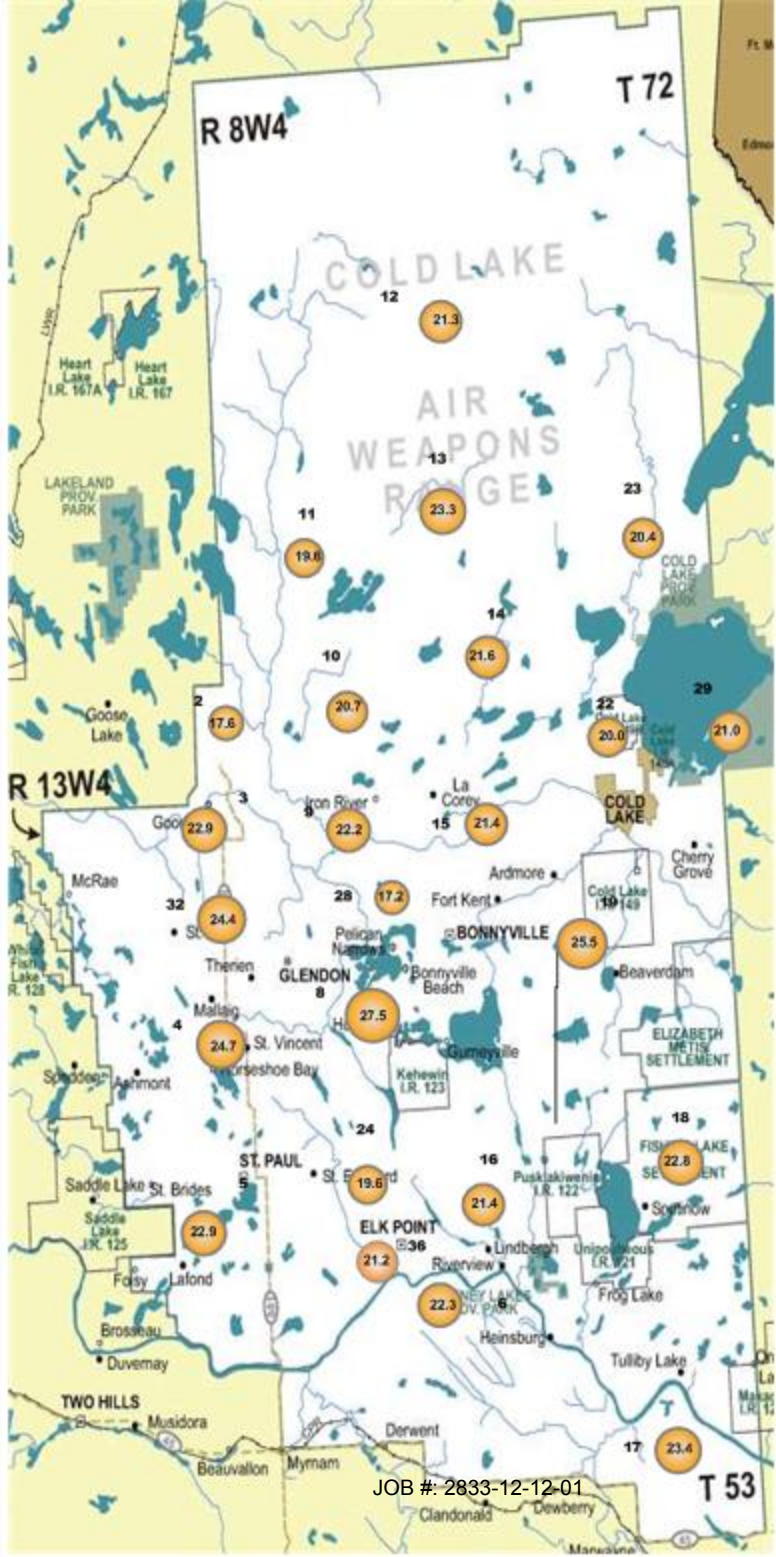
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	17.6 PPB	NA
3 – Therien	22.9 PPB	NA
4 – Flat Lake	23.9 PPB	25.4 PPB
5 – Lake Eliza	22.9 PPB	22.9 PPB
6 – Telegraph Creek	22.3 PPB	NA
8 – Muriel-Kehewin	27.5 PPB	NA
9 – Dupre	22.2 PPB	NA
10 – La Corey	20.7 PPB	NA
11 – Wolf Lake	19.6 PPB	NA
12 – Foster Creek	21.3 PPB	NA
13 – Primrose	23.3 PPB	NA
14 – Maskwa	21.6 PPB	NA
15 – Ardmore	21.4 PPB	NA
16 – Frog Lake	21.4 PPB	NA
17 – Clear Range	23.4 PPB	NA
18 – Fishing Lake	22.8 PPB	NA
19 – Beaverdam	25.5 PPB	NA
22 – Cold Lake South	20.0 PPB	NA
23 – Medley-Martineau	20.4 PPB	NA
24 – Fort George	19.6 PPB	NA
28 – Town of Bonnyville	17.2 PPB	NA
29 – Cold Lake South 2	21.0 PPB	NA
32 – St. Lina	24.4 PPB	NA
36 – Elk Point	21.2 PPB	NA

O_3
PPB

Summary

Minimum : 17.2 PPB – Town of Bonnyville
Maximum: 27.5 PPB – Muriel-Kehewin
Average: 21.9 PPB *Includes Duplicates



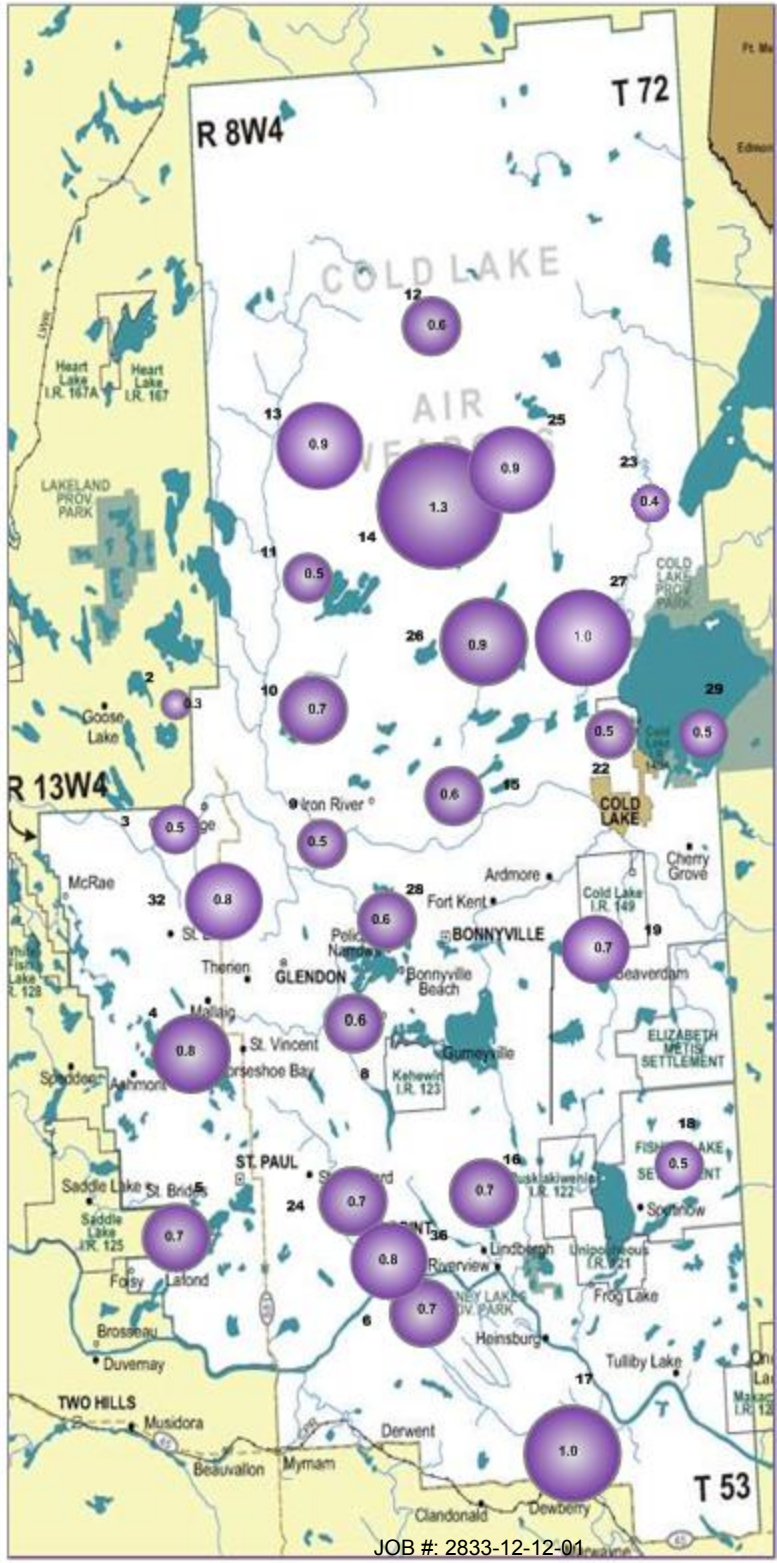
Lakeland Industry & Community Association
SO_2 Passive Bubble Map

DECEMBER 2012

PASSIVE STATIONS		DUPLICATE
2 – Sand River	0.3 PPB	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.8 PPB	NA
5 – Lake Eliza	0.7 PPB	NA
6 – Telegraph Creek	0.7 PPB	NA
8 – Muriel-Kehewin	0.6 PPB	NA
9 – Dupre	0.5 PPB	NA
10 – La Corey	0.7 PPB	NA
11 – Wolf Lake	0.5 PPB	NA
12 – Foster Creek	0.6 PPB	NA
13 – Primrose	0.8 PPB	0.9 PPB
14 – Maskwa	1.3 PPB	1.2 PPB
15 – Ardmore	0.6 PPB	0.6 PPB
16 – Frog Lake	0.7 PPB	NA
17 – Clear Range	1.0 PPB	NA
18 – Fishing Lake	0.5 PPB	NA
19 – Beaverdam	0.7 PPB	NA
22 – Cold Lake South	0.5 PPB	NA
23 – Medley-Martineau	0.4 PPB	NA
24 – Fort George	0.7 PPB	NA
25 – Burnt Lake	0.9 PPB	NA
26 – Mahikan	0.9 PPB	NA
27 – Mahkeses	1.0 PPB	NA
28 – Town of Bonnyville	0.6 PPB	NA
29 – Cold Lake South 2	0.5 PPB	NA
32 – St. Lina	0.8 PPB	NA
36 – Elk Point	0.8 PPB	NA

Summary

Minimum : 0.3 PPB –Sand River
Maximum: 1.3 PPB –Maskwa
Average: 0.69 PPB *Includes Duplicates



JOB #: 2833-12-12-01

Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	$SO_2/NO_2/O_3$	11/30/2012	16:15	12/31/2012	16:45	
3	$H_2S/SO_2/NO_2/O_3$	11/30/2012	17:15	12/31/2012	17:35	
4	$SO_2/NO_2/O_3$	12/03/2012	17:15	01/02/2013	17:20	
5	$H_2S/SO_2/NO_2/O_3$	12/03/2012	16:25	01/02/2013	16:10	
6	$SO_2/NO_2/O_3$	12/03/2012	13:35	01/02/2013	13:50	
8	$SO_2/NO_2/O_3$	12/03/2012	18:15	01/02/2013	18:20	
9	$SO_2/NO_2/O_3$	11/29/2012	12:30	12/31/2012	19:40	
10	$H_2S/SO_2/NO_2/O_3$	11/30/2012	11:00	12/31/2012	12:15	
11	$H_2S/SO_2/NO_2/O_3$	11/30/2012	11:50	12/31/2012	13:10	
12	$H_2S/SO_2/NO_2/O_3$	11/30/2012	13:20	12/31/2012	15:05	
13	$H_2S/SO_2/NO_2/O_3$	11/30/2012	09:30	12/31/2012	10:40	
14	$H_2S/SO_2/NO_2/O_3$	11/30/2012	08:15	12/31/2012	09:25	
15	$SO_2/NO_2/O_3$	11/29/2012	11:45	12/31/2012	11:45	
16	$H_2S/SO_2/NO_2/O_3$	12/03/2012	11:35	01/02/2013	12:10	
17	$H_2S/SO_2/NO_2/O_3$	12/03/2012	12:45	01/02/2013	13:13	
18	$H_2S/SO_2/NO_2/O_3$	12/03/2012	10:45	01/02/2013	11:30	
19	$SO_2/NO_2/O_3$	12/03/2012	09:20	01/02/2013	10:30	
22	$H_2S/SO_2/NO_2/O_3$	11/29/2012	10:55	01/02/2013	09:20	
23	$SO_2/NO_2/O_3$	11/30/2012	18:45	12/31/2012	07:50	
24	$H_2S/SO_2/NO_2/O_3$	11/30/2012	14:15	01/02/2013	14:30	
25	H_2S/SO_2	11/30/2012	14:30	12/31/2012	13:55	
26	H_2S/SO_2	11/30/2012	08:40	12/31/2012	09:50	
27	H_2S/SO_2	11/30/2012	07:50	12/31/2012	09:00	
28	$SO_2/NO_2/O_3$	11/29/2012	12:40	12/31/2012	19:15	
29	$H_2S/SO_2/NO_2/O_3$	11/29/2012	10:35	01/02/2013	09:00	
32	$H_2S/SO_2/NO_2/O_3$	11/29/2012	14:00	12/31/2012	18:20	
36	$H_2S/SO_2/NO_2/O_3$	12/03/2012	15:05	01/02/2013	14:45	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 15	SO_2	11/29/2012	11:45	12/31/2012	11:45	
Duplicate # 14	SO_2	11/30/2012	08:15	12/31/2012	09:25	
Duplicate # 13	SO_2	11/302012	09:30	12/31/2012	10:40	
Duplicate # 18	H_2S	12/03/2012	12:45	01/02/2013	11:30	
Duplicate # 24	H_2S	12/03/2012	14:15	01/02/2013	14:30	
Duplicate # 04	NO_2	12/03/2012	17:15	01/02/2013	17:20	
Duplicate # 05	NO_2	12/03/2012	16:15	01/02/2013	16:10	
Duplicate # 04	O_3	12/03/2012	17:15	01/02/2013	17:20	
Duplicate # 05	O_3	12/03/2012	16:15	01/02/2013	16:10	

Passive Network Laboratory Analysis

Your Project #: 2012/11/30 - 2012/12/31
Site Location: LICA

Attention: MICHAEL BISAGA

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

Report Date: 2013/01/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301488
Received: 2013/01/08, 13:23

Sample Matrix: Air
Samples Received: 34

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	20	2013/01/14	2013/01/14	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	26	2013/01/12	2013/01/14	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	26	2013/01/13	2013/01/14	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	30	2013/01/12	2013/01/14	EINDSOP-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.

Total cover pages: 1

Maxxam

Maxxam Job #: B301488
Report Date: 2013/01/14

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/11/30 - 2012/12/31
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FI5108	FI5109	FI5110	FI5111	FI5112		
Sampling Date		2012/11/30 16:15	2012/11/30 17:15	2012/12/03 17:15	2012/12/03 16:15	2012/12/03 13:35		
	UNITS	**2**	**3**	**4**	**5**	**6**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb		0.18		0.21		0.02	6484461
Calculated NO2	ppb	3.6	3.6	3.7	3.2	4.7	0.1	6484077
Calculated O3	ppb	17.6	22.9	23.9	22.9	22.3	0.1	6484327
Calculated SO2	ppb	0.3	0.5	0.8	0.7	0.7	0.1	6484081

RDL = Reportable Detection Limit

Maxxam ID		FI5113	FI5114	FI5115	FI5116	FI5117		
Sampling Date		2012/12/03 18:35	2012/11/29 12:30	2012/11/30 11:00	2012/11/30 11:50	2012/11/30 13:20		
	UNITS	**8**	**9**	**10**	**11**	**12**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb			0.14	0.15	0.16	0.02	6484461
Calculated NO2	ppb	2.1	3.6	5.2	1.8	4.4	0.1	6484077
Calculated O3	ppb	27.5	22.2	20.7	19.6	21.3	0.1	6484327
Calculated SO2	ppb	0.6	0.5	0.7	0.5	0.6	0.1	6484081

RDL = Reportable Detection Limit

Maxxam ID		FI5118	FI5119	FI5120	FI5121	FI5122		
Sampling Date		2012/11/30 09:30	2012/11/30 08:15	2012/11/29 11:45	2012/12/03 11:35	2012/12/03 12:45		
	UNITS	**13**	**14**	**15**	**16**	**17**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.16	0.20		0.17	0.23	0.02	6484461
Calculated NO2	ppb	1.8	2.6	2.9	4.9	3.9	0.1	6484077
Calculated O3	ppb	23.3	21.6	21.4	21.4	23.4	0.1	6484327
Calculated SO2	ppb	0.8	1.3	0.6	0.7	1.0	0.1	6484081

RDL = Reportable Detection Limit

Maxxam Job #: B301488
Report Date: 2013/01/14

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/11/30 - 2012/12/31
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FI5123		FI5124	FI5125	FI5126		
Sampling Date		2012/12/03 10:45		2012/12/03 09:20	2012/11/29 10:55	2012/11/30 18:45		
	UNITS	**18**	**QC Batch**	**19**	**22**	**23**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.11	6484461		0.15		0.02	6484461
Calculated NO2	ppb	2.7	6484078	1.9	3.2	1.2	0.1	6484078
Calculated O3	ppb	22.8	6484327	25.5	20.0	20.4	0.1	6484330
Calculated SO2	ppb	0.5	6484082	0.7	0.5	0.4	0.1	6484082

RDL = Reportable Detection Limit

Maxxam ID		FI5127	FI5128	FI5129	FI5130	FI5131		
Sampling Date		2012/12/03 14:15	2012/11/30 14:30	2012/11/30 08:40	2012/11/30 07:50	2012/11/29 12:40		
	UNITS	**24**	**25**	**26**	**27**	**28**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.17	0.17	0.28	0.20		0.02	6484461
Calculated NO2	ppb	6.0				8.6	0.1	6484078
Calculated O3	ppb	19.6				17.2	0.1	6484330
Calculated SO2	ppb	0.7	0.9	0.9	1.0	0.6	0.1	6484082

RDL = Reportable Detection Limit

Maxxam ID		FI5132	FI5133	FI5134		FI5137		
Sampling Date		2012/11/29 10:35	2012/11/29 14:00	2012/12/03 15:05		2012/12/03 17:15		
	UNITS	**29**	**32**	**36**	**QC Batch**	**4 DUP**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.16	0.19	0.23	6484461		0.02	
Calculated NO2	ppb	4.8	2.4	6.3	6484078	3.5	0.1	6484077
Calculated O3	ppb	21.0	24.4	21.2	6484330	25.4	0.1	6484330
Calculated SO2	ppb	0.5	0.8	0.8	6484082		0.1	

RDL = Reportable Detection Limit

Maxxam Job #: B301488
Report Date: 2013/01/14

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/11/30 - 2012/12/31
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FI5138	FI5139	FI5140	FI5141	FI5142		
Sampling Date		2012/12/03 16:15	2012/11/30 09:30	2012/11/30 08:15	2012/11/29 11:45	2012/12/03 12:45		
	UNITS	**5 DUP**	**13A DUP**	**14A DUP**	**15A DUP**	**18 DUP**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb					0.14	0.02	6484461
Calculated NO2	ppb	3.2					0.1	6484077
Calculated O3	ppb	22.9					0.1	6484330
Calculated SO2	ppb		0.9	1.2	0.6		0.1	6484081

RDL = Reportable Detection Limit

Maxxam ID		FI5143		
Sampling Date		2012/12/03 14:15		
	UNITS	**24 DUP**	**RDL**	**QC Batch**
Passive Monitoring				
Calculated H2S	ppb	0.21	0.02	6484461

RDL = Reportable Detection Limit

General Comments

Results relate only to the items tested.

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Attention: MICHAEL BISAGA
Client Project #: 2012/11/30 - 2012/12/31
P.O. #:
Site Location: LICA

Quality Assurance Report

Maxxam Job Number: PB301488

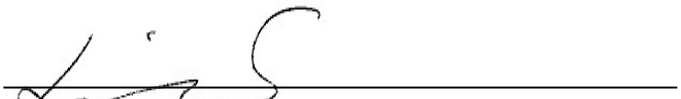
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6484077	DF4	Calibration Check	Calculated NO2	2013/01/12		99	%	76 - 118
		Spiked Blank	Calculated NO2	2013/01/12		99	%	N/A
		Method Blank	Calculated NO2	2013/01/12	<0.1		ppb	
6484078	DF4	Calibration Check	Calculated NO2	2013/01/12		99	%	76 - 118
		Spiked Blank	Calculated NO2	2013/01/12		99	%	N/A
		Method Blank	Calculated NO2	2013/01/12	<0.1		ppb	
6484081	DF4	Calibration Check	Calculated SO2	2013/01/12		102	%	95 - 105
		Spiked Blank	Calculated SO2	2013/01/12		102	%	N/A
		Method Blank	Calculated SO2	2013/01/12	<0.1		ppb	
6484082	DF4	Calibration Check	Calculated SO2	2013/01/12		101	%	95 - 105
		Spiked Blank	Calculated SO2	2013/01/12		105	%	N/A
		Method Blank	Calculated SO2	2013/01/12	<0.1		ppb	
6484327	OZ	Calibration Check	Calculated O3	2013/01/13		99	%	91 - 107
		Spiked Blank	Calculated O3	2013/01/13		98	%	N/A
		Method Blank	Calculated O3	2013/01/13	<0.1		ppb	
6484330	OZ	Calibration Check	Calculated O3	2013/01/13		98	%	91 - 107
		Spiked Blank	Calculated O3	2013/01/13		100	%	N/A
		Method Blank	Calculated O3	2013/01/13	<0.1		ppb	
6484461	WC6	Calibration Check	Calculated H2S	2013/01/14		104	%	80 - 120
		Spiked Blank	Calculated H2S	2013/01/14		99	%	N/A

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B301488

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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Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Dec 05, 2012

Sampler s/n: 6167
Canister ID: 7808
Canister Installation Date/Time: Dec 03, 2012 @ 7:59 mst
Canister Removal Date/Time: Dec 06, 2012 @ 8:24 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Dec-12	12/05/2012 0:00	12/06/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	643	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	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: System leak check prior to sampling. COC#12973

Technician Signiture: Ting Xu

JOB #: 2833-12-12-01

Maxxam

Success Through Science®

Your C.O.C. #: 12973

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J6888
Received: 2012/12/13, 10:58

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/27	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/27	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

RESULTS OF ANALYSES OF AIR

Maxxam ID		PY9113	PY9114	
Sampling Date		2012/12/05	2012/12/05	
COC Number		12973	12973	
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**LICA VOC/PORT/DEC 05,12 - 7822**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	21	3081761

QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	3.23	0.989	0.63	0.20	3.10	0.989	3081742
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3081742
Chloromethane	ppbv	0.51	1.05	0.620	0.44	0.30	0.901	0.620	3081742
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3081742
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3081742
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3081742
Trichlorofluoromethane (FREON 11)	ppbv	0.35	1.96	1.12	0.34	0.20	1.89	1.12	3081742
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3081742
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3081742
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3081742
2-Propanone	ppbv	0.98	2.32	1.90	1.43	0.80	3.40	1.90	3081742
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3081742
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3081742
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3081742
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3081742
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3081742
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3081742
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3081742
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3081742
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3081742
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3081742
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3081742
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3081742
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3081742
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3081742
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3081742
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3081742
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3081742
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3081742
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3081742
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3081742

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3081742
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3081742
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3081742
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3081742
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3081742
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3081742
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	3081742
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3081742
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3081742
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3081742
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3081742
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3081742
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3081742
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3081742
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3081742
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3081742
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3081742
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3081742
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3081742
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3081742
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	3081742
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3081742
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3081742
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3081742
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3081742
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3081742
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3081742
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3081742
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3081742
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3081742
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3081742

QC Batch = Quality Control Batch

Maxxam Analytics

Maxxam Job #: B2J6888
Report Date: 2013/01/02

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PY9113			PY9114				
Sampling Date		2012/12/05			2012/12/05				
COC Number		12973			12973				
	Units	**LICA VOC/CLS/DEC 05,12 - 7808**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 05,12 - 7822**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	90		N/A	N/A	3081742
D5-Chlorobenzene	%	89	N/A	N/A	91		N/A	N/A	3081742
Difluorobenzene	%	90	N/A	N/A	90		N/A	N/A	3081742

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Job #: B2J6888
Report Date: 2013/01/02

Test Summary

Maxxam ID PY9113 **Collected** 2012/12/05
Sample ID LICA VOC/CLS/DEC 05,12 - 7808 **Shipped**
Matrix AIR **Received** 2012/12/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3081761	N/A	2012/12/27	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3081742	N/A	2012/12/27	Spomenka Smiljanic

Maxxam ID PY9114 **Collected** 2012/12/05
Sample ID LICA VOC/PORT/DEC 05,12 - 7822 **Shipped**
Matrix AIR **Received** 2012/12/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3081761	N/A	2012/12/27	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3081742	N/A	2012/12/27	Spomenka Smiljanic

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Maxxam Analytics

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GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Spiked Blank	Bromochloromethane	2012/12/27		103	%	60 - 140
			D5-Chlorobenzene	2012/12/27		108	%	60 - 140
			Difluorobenzene	2012/12/27		106	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/27		109	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/27		122	%	70 - 130
			Chloromethane	2012/12/27		114	%	70 - 130
			Vinyl Chloride	2012/12/27		103	%	70 - 130
			Chloroethane	2012/12/27		102	%	70 - 130
			1,3-Butadiene	2012/12/27		106	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/27		124	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/27		101	%	70 - 130
			Trichlorotrifluoroethane	2012/12/27		102	%	70 - 130
			2-propanol	2012/12/27		107	%	70 - 130
			2-Propanone	2012/12/27		104	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/27		117	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/27		117	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/27		120	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/27		116	%	70 - 130
			Ethyl Acetate	2012/12/27		115	%	70 - 130
			1,1-Dichloroethylene	2012/12/27		113	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/27		119	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/27		109	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/27		102	%	70 - 130
			Chloroform	2012/12/27		110	%	70 - 130
			Carbon Tetrachloride	2012/12/27		121	%	70 - 130
			1,1-Dichloroethane	2012/12/27		104	%	70 - 130
			1,2-Dichloroethane	2012/12/27		121	%	70 - 130
			Ethylene Dibromide	2012/12/27		108	%	70 - 130
			1,1,1-Trichloroethane	2012/12/27		119	%	70 - 130
			1,1,2-Trichloroethane	2012/12/27		104	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/27		88	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/27		117	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/27		131 (1)	%	70 - 130
			1,2-Dichloropropane	2012/12/27		103	%	70 - 130
			Bromomethane	2012/12/27		104	%	70 - 130
			Bromoform	2012/12/27		104	%	70 - 130
			Bromodichloromethane	2012/12/27		108	%	70 - 130
			Dibromochloromethane	2012/12/27		109	%	70 - 130
			Trichloroethylene	2012/12/27		107	%	70 - 130
			Tetrachloroethylene	2012/12/27		109	%	70 - 130
			Benzene	2012/12/27		110	%	70 - 130
			Toluene	2012/12/27		117	%	70 - 130
			Ethylbenzene	2012/12/27		121	%	70 - 130
			p+m-Xylene	2012/12/27		118	%	70 - 130
			o-Xylene	2012/12/27		112	%	70 - 130
			Styrene	2012/12/27		113	%	70 - 130
			4-ethyltoluene	2012/12/27		112	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/27		111	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/27		113	%	70 - 130
			Chlorobenzene	2012/12/27		103	%	70 - 130
			Benzyl chloride	2012/12/27		98	%	70 - 130
			1,3-Dichlorobenzene	2012/12/27		100	%	70 - 130
			1,4-Dichlorobenzene	2012/12/27		94	%	70 - 130
			1,2-Dichlorobenzene	2012/12/27		93	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/27		98	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Spiked Blank	Hexachlorobutadiene	2012/12/27		94	%	70 - 130
			Hexane	2012/12/27		106	%	70 - 130
			Heptane	2012/12/27		112	%	70 - 130
			Cyclohexane	2012/12/27		108	%	70 - 130
			Tetrahydrofuran	2012/12/27		112	%	70 - 130
			1,4-Dioxane	2012/12/27		107	%	70 - 130
			Xylene (Total)	2012/12/27		116	%	70 - 130
			Vinyl Bromide	2012/12/27		98	%	70 - 130
			Propene	2012/12/27		94	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/27		102	%	70 - 130
			Carbon Disulfide	2012/12/27		97	%	70 - 130
			Vinyl Acetate	2012/12/27		122	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/27		89	%	60 - 140
			D5-Chlorobenzene	2012/12/27		87	%	60 - 140
			Difluorobenzene	2012/12/27		95	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/27	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/27	<0.17		ppbv	
			Chloromethane	2012/12/27	<0.30		ppbv	
			Vinyl Chloride	2012/12/27	<0.18		ppbv	
			Chloroethane	2012/12/27	<0.30		ppbv	
			1,3-Butadiene	2012/12/27	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/27	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/27	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/27	<0.15		ppbv	
			2-propanol	2012/12/27	<3.0		ppbv	
			2-Propanone	2012/12/27	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/27	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/27	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/27	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/27	<0.20		ppbv	
			Ethyl Acetate	2012/12/27	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/27	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/27	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/27	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/27	<0.80		ppbv	
			Chloroform	2012/12/27	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/27	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/27	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/27	<0.20		ppbv	
			Ethylene Dibromide	2012/12/27	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/27	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/27	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/27	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/27	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/27	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/27	<0.40		ppbv	
			Bromomethane	2012/12/27	<0.18		ppbv	
			Bromoform	2012/12/27	<0.20		ppbv	
			Bromodichloromethane	2012/12/27	<0.20		ppbv	
			Dibromochloromethane	2012/12/27	<0.20		ppbv	
			Trichloroethylene	2012/12/27	<0.30		ppbv	
			Tetrachloroethylene	2012/12/27	<0.20		ppbv	
			Benzene	2012/12/27	<0.18		ppbv	
			Toluene	2012/12/27	<0.20		ppbv	
			Ethylbenzene	2012/12/27	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J6888

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3081742	S_S	Method Blank	p+m-Xylene	2012/12/27	<0.37		ppbv	
			o-Xylene	2012/12/27	<0.20		ppbv	
			Styrene	2012/12/27	<0.20		ppbv	
			4-ethyltoluene	2012/12/27	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/27	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/27	<0.50		ppbv	
			Chlorobenzene	2012/12/27	<0.20		ppbv	
			Benzyl chloride	2012/12/27	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/27	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/27	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/27	<3.0		ppbv	
			Hexane	2012/12/27	<0.30		ppbv	
			Heptane	2012/12/27	<0.30		ppbv	
			Cyclohexane	2012/12/27	<0.20		ppbv	
			Tetrahydrofuran	2012/12/27	<0.40		ppbv	
			1,4-Dioxane	2012/12/27	<2.0		ppbv	
			Xylene (Total)	2012/12/27	<0.60		ppbv	
			Vinyl Bromide	2012/12/27	<0.20		ppbv	
			Propene	2012/12/27	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/27	<0.20		ppbv	
			Carbon Disulfide	2012/12/27	<0.50		ppbv	
			Vinyl Acetate	2012/12/27	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Dec 11, 2012

Sampler s/n: 6167
Canister ID: 256
Canister Installation Date/Time: Dec 06, 2012 @ 8:45 mst
Canister Removal Date/Time: Dec 14, 2012 @ 8:36 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Dec-12	12/11/2012 0:00	12/12/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	643	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	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: System leak check prior to sampling. COC#13016

Technician Signiture: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 13016

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K0080
Received: 2012/12/19, 12:10

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

RESULTS OF ANALYSES OF AIR

Maxxam ID		QA7417	QA7418	
Sampling Date		2012/12/11	2012/12/11	
COC Number		13016	13016	
	Units	**LICA VOC/CLS/DEC 11,12**	**LICA VOC/PORT/DEC 11,12**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3083850

QC Batch = Quality Control Batch

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Maxxam Job #: B2K0080
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.59	2.91	0.989	0.64	0.20	3.17	0.989	3083845
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3083845
Chloromethane	ppbv	0.47	0.980	0.620	0.48	0.30	1.00	0.620	3083845
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3083845
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3083845
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3083845
Trichlorofluoromethane (FREON 11)	ppbv	0.33	1.83	1.12	0.34	0.20	1.90	1.12	3083845
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3083845
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3083845
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3083845
2-Propanone	ppbv	1.05	2.50	1.90	0.84	0.80	2.00	1.90	3083845
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3083845
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3083845
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3083845
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3083845
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3083845
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3083845
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3083845
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3083845
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3083845
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3083845
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3083845
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3083845
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3083845
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3083845
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3083845
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3083845
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3083845
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3083845

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3083845
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3083845
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3083845
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3083845
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3083845
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3083845
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	3083845
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3083845
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3083845
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3083845
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3083845
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3083845
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3083845
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3083845
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3083845
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	3083845
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3083845
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3083845
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3083845
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3083845
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3083845
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3083845
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3083845
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3083845
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3083845
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3083845

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QA7417			QA7418				
Sampling Date		2012/12/11			2012/12/11				
COC Number		13016			13016				
	Units	**LICA VOC/CLS/DEC 11,12**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 11,12**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	76	N/A	N/A	77		N/A	N/A	3083845
D5-Chlorobenzene	%	80	N/A	N/A	80		N/A	N/A	3083845
Difluorobenzene	%	79	N/A	N/A	79		N/A	N/A	3083845

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

Test Summary

Maxxam ID QA7417 **Collected** 2012/12/11
Sample ID LICA VOC/CLS/DEC 11,12 **Shipped**
Matrix AIR **Received** 2012/12/19

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

Maxxam ID QA7418 **Collected** 2012/12/11
Sample ID LICA VOC/PORT/DEC 11,12 **Shipped**
Matrix AIR **Received** 2012/12/19

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2K0080
Report Date: 2013/01/03

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K0080

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Spiked Blank	Bromochloromethane	2012/12/28		103	%	60 - 140
			D5-Chlorobenzene	2012/12/28		107	%	60 - 140
			Difluorobenzene	2012/12/28		107	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/28		97	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/28		107	%	70 - 130
			Chloromethane	2012/12/28		99	%	70 - 130
			Vinyl Chloride	2012/12/28		89	%	70 - 130
			Chloroethane	2012/12/28		86	%	70 - 130
			1,3-Butadiene	2012/12/28		90	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/28		104	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/28		83	%	70 - 130
			Trichlorotrifluoroethane	2012/12/28		86	%	70 - 130
			2-propanol	2012/12/28		87	%	70 - 130
			2-Propanone	2012/12/28		88	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/28		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/28		98	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/28		101	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/28		95	%	70 - 130
			Ethyl Acetate	2012/12/28		95	%	70 - 130
			1,1-Dichloroethylene	2012/12/28		93	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/28		98	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/28		90	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/28		85	%	70 - 130
			Chloroform	2012/12/28		91	%	70 - 130
			Carbon Tetrachloride	2012/12/28		102	%	70 - 130
			1,1-Dichloroethane	2012/12/28		87	%	70 - 130
			1,2-Dichloroethane	2012/12/28		100	%	70 - 130
			Ethylene Dibromide	2012/12/28		89	%	70 - 130
			1,1,1-Trichloroethane	2012/12/28		100	%	70 - 130
			1,1,2-Trichloroethane	2012/12/28		86	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/28		76	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/28		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/28		107	%	70 - 130
			1,2-Dichloropropane	2012/12/28		85	%	70 - 130
			Bromomethane	2012/12/28		88	%	70 - 130
			Bromoform	2012/12/28		90	%	70 - 130
			Bromodichloromethane	2012/12/28		90	%	70 - 130
			Dibromochloromethane	2012/12/28		91	%	70 - 130
			Trichloroethylene	2012/12/28		90	%	70 - 130
			Tetrachloroethylene	2012/12/28		91	%	70 - 130
			Benzene	2012/12/28		92	%	70 - 130
			Toluene	2012/12/28		97	%	70 - 130
			Ethylbenzene	2012/12/28		104	%	70 - 130
			p+m-Xylene	2012/12/28		101	%	70 - 130
			o-Xylene	2012/12/28		97	%	70 - 130
			Styrene	2012/12/28		97	%	70 - 130
			4-ethyltoluene	2012/12/28		96	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/28		96	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/28		98	%	70 - 130
			Chlorobenzene	2012/12/28		89	%	70 - 130
			Benzyl chloride	2012/12/28		85	%	70 - 130
			1,3-Dichlorobenzene	2012/12/28		86	%	70 - 130
			1,4-Dichlorobenzene	2012/12/28		83	%	70 - 130
			1,2-Dichlorobenzene	2012/12/28		81	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/28		90	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0080

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845 S_S	Spiked Blank	Hexachlorobutadiene	2012/12/28		88	%	70 - 130
		Hexane	2012/12/28		88	%	70 - 130
		Heptane	2012/12/28		93	%	70 - 130
		Cyclohexane	2012/12/28		91	%	70 - 130
		Tetrahydrofuran	2012/12/28		94	%	70 - 130
		1,4-Dioxane	2012/12/28		89	%	70 - 130
		Xylene (Total)	2012/12/28		100	%	70 - 130
		Vinyl Bromide	2012/12/28		81	%	70 - 130
		Propene	2012/12/28		83	%	70 - 130
		2,2,4-Trimethylpentane	2012/12/28		86	%	70 - 130
		Carbon Disulfide	2012/12/28		81	%	70 - 130
		Vinyl Acetate	2012/12/28		101	%	70 - 130
	Method Blank	Bromochloromethane	2012/12/28		70	%	60 - 140
		D5-Chlorobenzene	2012/12/28		69	%	60 - 140
		Difluorobenzene	2012/12/28		76	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/12/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/12/28	<0.17		ppbv	
		Chloromethane	2012/12/28	<0.30		ppbv	
		Vinyl Chloride	2012/12/28	<0.18		ppbv	
		Chloroethane	2012/12/28	<0.30		ppbv	
		1,3-Butadiene	2012/12/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/12/28	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/12/28	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/12/28	<0.15		ppbv	
		2-propanol	2012/12/28	<3.0		ppbv	
		2-Propanone	2012/12/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/12/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/12/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/12/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/12/28	<0.20		ppbv	
		Ethyl Acetate	2012/12/28	<2.2		ppbv	
		1,1-Dichloroethylene	2012/12/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/12/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/12/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/12/28	<0.80		ppbv	
		Chloroform	2012/12/28	<0.15		ppbv	
		Carbon Tetrachloride	2012/12/28	<0.30		ppbv	
		1,1-Dichloroethane	2012/12/28	<0.20		ppbv	
		1,2-Dichloroethane	2012/12/28	<0.20		ppbv	
		Ethylene Dibromide	2012/12/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/12/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/12/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/12/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/12/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/12/28	<0.17		ppbv	
		1,2-Dichloropropane	2012/12/28	<0.40		ppbv	
		Bromomethane	2012/12/28	<0.18		ppbv	
		Bromoform	2012/12/28	<0.20		ppbv	
		Bromodichloromethane	2012/12/28	<0.20		ppbv	
		Dibromochloromethane	2012/12/28	<0.20		ppbv	
		Trichloroethylene	2012/12/28	<0.30		ppbv	
		Tetrachloroethylene	2012/12/28	<0.20		ppbv	
		Benzene	2012/12/28	<0.18		ppbv	
		Toluene	2012/12/28	<0.20		ppbv	
		Ethylbenzene	2012/12/28	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0080

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Method Blank	p+m-Xylene	2012/12/28	<0.37		ppbv	
			o-Xylene	2012/12/28	<0.20		ppbv	
			Styrene	2012/12/28	<0.20		ppbv	
			4-ethyltoluene	2012/12/28	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			Chlorobenzene	2012/12/28	<0.20		ppbv	
			Benzyl chloride	2012/12/28	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/28	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/28	<3.0		ppbv	
			Hexane	2012/12/28	<0.30		ppbv	
			Heptane	2012/12/28	<0.30		ppbv	
			Cyclohexane	2012/12/28	<0.20		ppbv	
			Tetrahydrofuran	2012/12/28	<0.40		ppbv	
			1,4-Dioxane	2012/12/28	<2.0		ppbv	
			Xylene (Total)	2012/12/28	<0.60		ppbv	
			Vinyl Bromide	2012/12/28	<0.20		ppbv	
			Propene	2012/12/28	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/28	<0.20		ppbv	
			Carbon Disulfide	2012/12/28	<0.50		ppbv	
			Vinyl Acetate	2012/12/28	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Dec 17, 2012

Sampler s/n: 6167
Canister ID: 125
Canister Installation Date/Time: Dec 14, 2012 @ 8:44 mst
Canister Removal Date/Time: Dec 20, 2012 @ 8:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Dec-12	12/17/2012 0:00	12/18/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	643	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	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: System leak check prior to sampling. COC#13081

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13081

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K2426
Received: 2012/12/22, 11:58

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/28	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

RESULTS OF ANALYSES OF AIR

Maxxam ID		QB8386	QB8387	
Sampling Date		2012/12/17	2012/12/17	
COC Number		13081	13081	
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**LICA VOC/PORT/DEC 17,12 - 307**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3083850

QC Batch = Quality Control Batch

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Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.63	3.14	0.989	0.65	0.20	3.23	0.989	3083845
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3083845
Chloromethane	ppbv	0.52	1.06	0.620	0.52	0.30	1.07	0.620	3083845
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3083845
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3083845
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3083845
Trichlorofluoromethane (FREON 11)	ppbv	0.34	1.93	1.12	0.34	0.20	1.91	1.12	3083845
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3083845
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3083845
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3083845
2-Propanone	ppbv	1.07	2.54	1.90	0.98	0.80	2.33	1.90	3083845
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3083845
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3083845
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3083845
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3083845
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3083845
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3083845
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3083845
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3083845
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3083845
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3083845
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3083845
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3083845
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3083845
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3083845
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3083845
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3083845
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3083845
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3083845
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3083845

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3083845
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3083845
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3083845
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3083845
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3083845
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3083845
Benzene	ppbv	<0.18	<0.575	0.575	0.21	0.18	0.669	0.575	3083845
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3083845
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3083845
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3083845
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3083845
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3083845
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3083845
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3083845
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3083845
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3083845
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3083845
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3083845
Hexane	ppbv	<0.30	<1.06	1.06	0.56	0.30	1.97	1.06	3083845
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3083845
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.28	0.20	0.953	0.688	3083845
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3083845
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3083845
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3083845
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3083845
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3083845
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3083845
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3083845
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3083845

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QB8386			QB8387				
Sampling Date		2012/12/17			2012/12/17				
COC Number		13081			13081				
	Units	**LICA VOC/CLS/DEC 17,12 - 125**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 17,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	77	N/A	N/A	79		N/A	N/A	3083845
D5-Chlorobenzene	%	81	N/A	N/A	84		N/A	N/A	3083845
Difluorobenzene	%	79	N/A	N/A	82		N/A	N/A	3083845

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

Test Summary

Maxxam ID QB8386 **Collected** 2012/12/17
Sample ID LICA VOC/CLS/DEC 17,12 - 125 **Shipped**
Matrix AIR **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

Maxxam ID QB8387 **Collected** 2012/12/17
Sample ID LICA VOC/PORT/DEC 17,12 - 307 **Shipped**
Matrix AIR **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3083850	N/A	2012/12/28	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3083845	N/A	2012/12/28	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2K2426
Report Date: 2013/01/03

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K2426

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Spiked Blank	Bromochloromethane	2012/12/28		103	%	60 - 140
			D5-Chlorobenzene	2012/12/28		107	%	60 - 140
			Difluorobenzene	2012/12/28		107	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/28		97	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/28		107	%	70 - 130
			Chloromethane	2012/12/28		99	%	70 - 130
			Vinyl Chloride	2012/12/28		89	%	70 - 130
			Chloroethane	2012/12/28		86	%	70 - 130
			1,3-Butadiene	2012/12/28		90	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/28		104	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/28		83	%	70 - 130
			Trichlorotrifluoroethane	2012/12/28		86	%	70 - 130
			2-propanol	2012/12/28		87	%	70 - 130
			2-Propanone	2012/12/28		88	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/28		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/28		98	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/28		101	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/28		95	%	70 - 130
			Ethyl Acetate	2012/12/28		95	%	70 - 130
			1,1-Dichloroethylene	2012/12/28		93	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/28		98	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/28		90	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/28		85	%	70 - 130
			Chloroform	2012/12/28		91	%	70 - 130
			Carbon Tetrachloride	2012/12/28		102	%	70 - 130
			1,1-Dichloroethane	2012/12/28		87	%	70 - 130
			1,2-Dichloroethane	2012/12/28		100	%	70 - 130
			Ethylene Dibromide	2012/12/28		89	%	70 - 130
			1,1,1-Trichloroethane	2012/12/28		100	%	70 - 130
			1,1,2-Trichloroethane	2012/12/28		86	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/28		76	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/28		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/28		107	%	70 - 130
			1,2-Dichloropropane	2012/12/28		85	%	70 - 130
			Bromomethane	2012/12/28		88	%	70 - 130
			Bromoform	2012/12/28		90	%	70 - 130
			Bromodichloromethane	2012/12/28		90	%	70 - 130
			Dibromochloromethane	2012/12/28		91	%	70 - 130
			Trichloroethylene	2012/12/28		90	%	70 - 130
			Tetrachloroethylene	2012/12/28		91	%	70 - 130
			Benzene	2012/12/28		92	%	70 - 130
			Toluene	2012/12/28		97	%	70 - 130
			Ethylbenzene	2012/12/28		104	%	70 - 130
			p+m-Xylene	2012/12/28		101	%	70 - 130
			o-Xylene	2012/12/28		97	%	70 - 130
			Styrene	2012/12/28		97	%	70 - 130
			4-ethyltoluene	2012/12/28		96	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/28		96	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/28		98	%	70 - 130
			Chlorobenzene	2012/12/28		89	%	70 - 130
			Benzyl chloride	2012/12/28		85	%	70 - 130
			1,3-Dichlorobenzene	2012/12/28		86	%	70 - 130
			1,4-Dichlorobenzene	2012/12/28		83	%	70 - 130
			1,2-Dichlorobenzene	2012/12/28		81	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/28		90	%	70 - 130

Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2426

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845 S_S	Spiked Blank	Hexachlorobutadiene	2012/12/28		88	%	70 - 130
		Hexane	2012/12/28		88	%	70 - 130
		Heptane	2012/12/28		93	%	70 - 130
		Cyclohexane	2012/12/28		91	%	70 - 130
		Tetrahydrofuran	2012/12/28		94	%	70 - 130
		1,4-Dioxane	2012/12/28		89	%	70 - 130
		Xylene (Total)	2012/12/28		100	%	70 - 130
		Vinyl Bromide	2012/12/28		81	%	70 - 130
		Propene	2012/12/28		83	%	70 - 130
		2,2,4-Trimethylpentane	2012/12/28		86	%	70 - 130
		Carbon Disulfide	2012/12/28		81	%	70 - 130
		Vinyl Acetate	2012/12/28		101	%	70 - 130
	Method Blank	Bromochloromethane	2012/12/28		70	%	60 - 140
		D5-Chlorobenzene	2012/12/28		69	%	60 - 140
		Difluorobenzene	2012/12/28		76	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/12/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/12/28	<0.17		ppbv	
		Chloromethane	2012/12/28	<0.30		ppbv	
		Vinyl Chloride	2012/12/28	<0.18		ppbv	
		Chloroethane	2012/12/28	<0.30		ppbv	
		1,3-Butadiene	2012/12/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/12/28	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/12/28	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/12/28	<0.15		ppbv	
		2-propanol	2012/12/28	<3.0		ppbv	
		2-Propanone	2012/12/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/12/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/12/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/12/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/12/28	<0.20		ppbv	
		Ethyl Acetate	2012/12/28	<2.2		ppbv	
		1,1-Dichloroethylene	2012/12/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/12/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/12/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/12/28	<0.80		ppbv	
		Chloroform	2012/12/28	<0.15		ppbv	
		Carbon Tetrachloride	2012/12/28	<0.30		ppbv	
		1,1-Dichloroethane	2012/12/28	<0.20		ppbv	
		1,2-Dichloroethane	2012/12/28	<0.20		ppbv	
		Ethylene Dibromide	2012/12/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/12/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/12/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/12/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/12/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/12/28	<0.17		ppbv	
		1,2-Dichloropropane	2012/12/28	<0.40		ppbv	
		Bromomethane	2012/12/28	<0.18		ppbv	
		Bromoform	2012/12/28	<0.20		ppbv	
		Bromodichloromethane	2012/12/28	<0.20		ppbv	
		Dibromochloromethane	2012/12/28	<0.20		ppbv	
		Trichloroethylene	2012/12/28	<0.30		ppbv	
		Tetrachloroethylene	2012/12/28	<0.20		ppbv	
		Benzene	2012/12/28	<0.18		ppbv	
		Toluene	2012/12/28	<0.20		ppbv	
		Ethylbenzene	2012/12/28	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2426

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3083845	S_S	Method Blank	p+m-Xylene	2012/12/28	<0.37		ppbv	
			o-Xylene	2012/12/28	<0.20		ppbv	
			Styrene	2012/12/28	<0.20		ppbv	
			4-ethyltoluene	2012/12/28	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/28	<0.50		ppbv	
			Chlorobenzene	2012/12/28	<0.20		ppbv	
			Benzyl chloride	2012/12/28	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/28	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/28	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/28	<3.0		ppbv	
			Hexane	2012/12/28	<0.30		ppbv	
			Heptane	2012/12/28	<0.30		ppbv	
			Cyclohexane	2012/12/28	<0.20		ppbv	
			Tetrahydrofuran	2012/12/28	<0.40		ppbv	
			1,4-Dioxane	2012/12/28	<2.0		ppbv	
			Xylene (Total)	2012/12/28	<0.60		ppbv	
			Vinyl Bromide	2012/12/28	<0.20		ppbv	
			Propene	2012/12/28	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/28	<0.20		ppbv	
			Carbon Disulfide	2012/12/28	<0.50		ppbv	
			Vinyl Acetate	2012/12/28	<0.20		ppbv	

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Dec 29, 2012

Sampler s/n: 6167
Canister ID: 7820
Canister Installation Date/Time: Dec 28, 2012 @ 15:15 mst
Canister Removal Date/Time: Jan 02, 2013 @ 8:12 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Dec-12	12/29/2012 0:00	12/30/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	643	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	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: System leak check prior to sampling. COC#13149

Technician Signiture: Ting Xu

JOB #: 2833-12-12-01

Success Through Science®

Your C.O.C. #: 13149

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/08

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301766
Received: 2013/01/05, 10:50

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2013/01/07	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2013/01/07	BRL SOP-00304	EPA TO-15

(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO14A. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO14A on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Maxxam for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

RESULTS OF ANALYSES OF AIR

Maxxam ID		QD4942	QD4943	
Sampling Date		2012/12/29	2012/12/29	
COC Number		13149	13149	
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**LICA VOC/PORT/DEC 29,12 - 7868**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	21	21	3087845

QC Batch = Quality Control Batch

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Maxxam Job #: B301766
Report Date: 2013/01/08

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.64	3.18	0.989	0.69	0.20	3.39	0.989	3087840
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3087840
Chloromethane	ppbv	<0.30	<0.620	0.620	0.52	0.30	1.07	0.620	3087840
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3087840
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3087840
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3087840
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.05	1.12	0.37	0.20	2.09	1.12	3087840
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3087840
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3087840
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3087840
2-Propanone	ppbv	1.14	2.72	1.90	1.18	0.80	2.80	1.90	3087840
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3087840
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3087840
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3087840
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3087840
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3087840
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3087840
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3087840
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3087840
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3087840
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3087840
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3087840
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3087840
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3087840
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3087840
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3087840
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3087840
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3087840
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3087840
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3087840
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3087840

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3087840
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3087840
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3087840
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3087840
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3087840
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3087840
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.590	0.575	3087840
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3087840
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3087840
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3087840
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3087840
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3087840
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3087840
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3087840
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3087840
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3087840
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3087840
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3087840
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3087840
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3087840
Hexane	ppbv	<0.30	<1.06	1.06	0.39	0.30	1.39	1.06	3087840
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3087840
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3087840
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3087840
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3087840
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3087840
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3087840
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3087840
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3087840
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3087840
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3087840

QC Batch = Quality Control Batch

Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		QD4942			QD4943				
Sampling Date		2012/12/29			2012/12/29				
COC Number		13149			13149				
	Units	**LICA VOC/CLS/DEC 29,12 - 7820**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/DEC 29,12 - 7868**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	81	N/A	N/A	76		N/A	N/A	3087840
D5-Chlorobenzene	%	89	N/A	N/A	86		N/A	N/A	3087840
Difluorobenzene	%	85	N/A	N/A	80		N/A	N/A	3087840

N/A = Not Applicable
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

Test Summary

Maxxam ID QD4942 **Collected** 2012/12/29
Sample ID LICA VOC/CLS/DEC 29,12 - 7820 **Shipped**
Matrix AIR **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3087845	N/A	2013/01/07	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3087840	N/A	2013/01/07	Spomenka Smiljanic

Maxxam ID QD4943 **Collected** 2012/12/29
Sample ID LICA VOC/PORT/DEC 29,12 - 7868 **Shipped**
Matrix AIR **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3087845	N/A	2013/01/07	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3087840	N/A	2013/01/07	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B301766
Report Date: 2013/01/08

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Spiked Blank	Bromochloromethane	2013/01/07		87	%	60 - 140
			D5-Chlorobenzene	2013/01/07		107	%	60 - 140
			Difluorobenzene	2013/01/07		92	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2013/01/07		120	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2013/01/07		127	%	70 - 130
			Chloromethane	2013/01/07		122	%	70 - 130
			Vinyl Chloride	2013/01/07		106	%	70 - 130
			Chloroethane	2013/01/07		98	%	70 - 130
			1,3-Butadiene	2013/01/07		107	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2013/01/07		130	%	70 - 130
			Ethanol (ethyl alcohol)	2013/01/07		108	%	70 - 130
			Trichlorotrifluoroethane	2013/01/07		101	%	70 - 130
			2-propanol	2013/01/07		104	%	70 - 130
			2-Propanone	2013/01/07		106	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07		114	%	70 - 130
			Methyl Isobutyl Ketone	2013/01/07		115	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07		119	%	70 - 130
			Methyl t-butyl ether (MTBE)	2013/01/07		113	%	70 - 130
			Ethyl Acetate	2013/01/07		114	%	70 - 130
			1,1-Dichloroethylene	2013/01/07		114	%	70 - 130
			cis-1,2-Dichloroethylene	2013/01/07		118	%	70 - 130
			trans-1,2-Dichloroethylene	2013/01/07		108	%	70 - 130
			Methylene Chloride(Dichloromethane)	2013/01/07		102	%	70 - 130
			Chloroform	2013/01/07		110	%	70 - 130
			Carbon Tetrachloride	2013/01/07		128	%	70 - 130
			1,1-Dichloroethane	2013/01/07		101	%	70 - 130
			1,2-Dichloroethane	2013/01/07		126	%	70 - 130
			Ethylene Dibromide	2013/01/07		103	%	70 - 130
			1,1,1-Trichloroethane	2013/01/07		123	%	70 - 130
			1,1,2-Trichloroethane	2013/01/07		97	%	70 - 130
			1,1,2,2-Tetrachloroethane	2013/01/07		82	%	70 - 130
			cis-1,3-Dichloropropene	2013/01/07		113	%	70 - 130
			trans-1,3-Dichloropropene	2013/01/07		125	%	70 - 130
			1,2-Dichloropropane	2013/01/07		96	%	70 - 130
			Bromomethane	2013/01/07		99	%	70 - 130
			Bromoform	2013/01/07		105	%	70 - 130
			Bromodichloromethane	2013/01/07		109	%	70 - 130
			Dibromochloromethane	2013/01/07		110	%	70 - 130
			Trichloroethylene	2013/01/07		103	%	70 - 130
			Tetrachloroethylene	2013/01/07		107	%	70 - 130
			Benzene	2013/01/07		100	%	70 - 130
			Toluene	2013/01/07		109	%	70 - 130
			Ethylbenzene	2013/01/07		104	%	70 - 130
			p+m-Xylene	2013/01/07		101	%	70 - 130
			o-Xylene	2013/01/07		92	%	70 - 130
			Styrene	2013/01/07		95	%	70 - 130
			4-ethyltoluene	2013/01/07		105	%	70 - 130
			1,3,5-Trimethylbenzene	2013/01/07		105	%	70 - 130
			1,2,4-Trimethylbenzene	2013/01/07		105	%	70 - 130
			Chlorobenzene	2013/01/07		94	%	70 - 130
			Benzyl chloride	2013/01/07		88	%	70 - 130
			1,3-Dichlorobenzene	2013/01/07		92	%	70 - 130
			1,4-Dichlorobenzene	2013/01/07		90	%	70 - 130
			1,2-Dichlorobenzene	2013/01/07		87	%	70 - 130
			1,2,4-Trichlorobenzene	2013/01/07		93	%	70 - 130

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Spiked Blank	Hexachlorobutadiene	2013/01/07		100	%	70 - 130
			Hexane	2013/01/07		102	%	70 - 130
			Heptane	2013/01/07		110	%	70 - 130
			Cyclohexane	2013/01/07		104	%	70 - 130
			Tetrahydrofuran	2013/01/07		110	%	70 - 130
			1,4-Dioxane	2013/01/07		100	%	70 - 130
			Xylene (Total)	2013/01/07		98	%	70 - 130
			Vinyl Bromide	2013/01/07		90	%	70 - 130
			Propene	2013/01/07		96	%	70 - 130
			2,2,4-Trimethylpentane	2013/01/07		97	%	70 - 130
			Carbon Disulfide	2013/01/07		90	%	70 - 130
			Vinyl Acetate	2013/01/07		121	%	70 - 130
		Method Blank	Bromochloromethane	2013/01/07		76	%	60 - 140
			D5-Chlorobenzene	2013/01/07		71	%	60 - 140
			Difluorobenzene	2013/01/07		79	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2013/01/07	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2013/01/07	<0.17		ppbv	
			Chloromethane	2013/01/07	<0.30		ppbv	
			Vinyl Chloride	2013/01/07	<0.18		ppbv	
			Chloroethane	2013/01/07	<0.30		ppbv	
			1,3-Butadiene	2013/01/07	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2013/01/07	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2013/01/07	<2.3		ppbv	
			Trichlorotrifluoroethane	2013/01/07	<0.15		ppbv	
			2-propanol	2013/01/07	<3.0		ppbv	
			2-Propanone	2013/01/07	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07	<3.0		ppbv	
			Methyl Isobutyl Ketone	2013/01/07	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2013/01/07	<0.20		ppbv	
			Ethyl Acetate	2013/01/07	<2.2		ppbv	
			1,1-Dichloroethylene	2013/01/07	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2013/01/07	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2013/01/07	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2013/01/07	<0.80		ppbv	
			Chloroform	2013/01/07	<0.15		ppbv	
			Carbon Tetrachloride	2013/01/07	<0.30		ppbv	
			1,1-Dichloroethane	2013/01/07	<0.20		ppbv	
			1,2-Dichloroethane	2013/01/07	<0.20		ppbv	
			Ethylene Dibromide	2013/01/07	<0.17		ppbv	
			1,1,1-Trichloroethane	2013/01/07	<0.30		ppbv	
			1,1,2-Trichloroethane	2013/01/07	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2013/01/07	<0.20		ppbv	
			cis-1,3-Dichloropropene	2013/01/07	<0.18		ppbv	
			trans-1,3-Dichloropropene	2013/01/07	<0.17		ppbv	
			1,2-Dichloropropane	2013/01/07	<0.40		ppbv	
			Bromomethane	2013/01/07	<0.18		ppbv	
			Bromoform	2013/01/07	<0.20		ppbv	
			Bromodichloromethane	2013/01/07	<0.20		ppbv	
			Dibromochloromethane	2013/01/07	<0.20		ppbv	
			Trichloroethylene	2013/01/07	<0.30		ppbv	
			Tetrachloroethylene	2013/01/07	<0.20		ppbv	
			Benzene	2013/01/07	<0.18		ppbv	
			Toluene	2013/01/07	<0.20		ppbv	
			Ethylbenzene	2013/01/07	<0.20		ppbv	

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	Method Blank	p+m-Xylene	2013/01/07	<0.37		ppbv	
			o-Xylene	2013/01/07	<0.20		ppbv	
			Styrene	2013/01/07	<0.20		ppbv	
			4-ethyltoluene	2013/01/07	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2013/01/07	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2013/01/07	<0.50		ppbv	
			Chlorobenzene	2013/01/07	<0.20		ppbv	
			Benzyl chloride	2013/01/07	<1.0		ppbv	
			1,3-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,4-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,2-Dichlorobenzene	2013/01/07	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2013/01/07	<2.0		ppbv	
			Hexachlorobutadiene	2013/01/07	<3.0		ppbv	
			Hexane	2013/01/07	<0.30		ppbv	
			Heptane	2013/01/07	<0.30		ppbv	
			Cyclohexane	2013/01/07	<0.20		ppbv	
			Tetrahydrofuran	2013/01/07	<0.40		ppbv	
			1,4-Dioxane	2013/01/07	<2.0		ppbv	
			Xylene (Total)	2013/01/07	<0.60		ppbv	
			Vinyl Bromide	2013/01/07	<0.20		ppbv	
			Propene	2013/01/07	<0.30		ppbv	
			2,2,4-Trimethylpentane	2013/01/07	<0.20		ppbv	
			Carbon Disulfide	2013/01/07	<0.50		ppbv	
			Vinyl Acetate	2013/01/07	<0.20		ppbv	
		RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2013/01/07	NC		%	25
			1,2-Dichlorotetrafluoroethane	2013/01/07	NC		%	25
			Chloromethane	2013/01/07	NC		%	25
			Vinyl Chloride	2013/01/07	NC		%	25
			Chloroethane	2013/01/07	NC		%	25
			1,3-Butadiene	2013/01/07	NC		%	25
			Trichlorofluoromethane (FREON 11)	2013/01/07	NC		%	25
			Ethanol (ethyl alcohol)	2013/01/07	3.1		%	25
			Trichlorotrifluoroethane	2013/01/07	NC		%	25
			2-propanol	2013/01/07	NC		%	25
			2-Propanone	2013/01/07	NC		%	25
			Methyl Ethyl Ketone (2-Butanone)	2013/01/07	NC		%	25
			Methyl Isobutyl Ketone	2013/01/07	NC		%	25
			Methyl Butyl Ketone (2-Hexanone)	2013/01/07	NC		%	25
			Methyl t-butyl ether (MTBE)	2013/01/07	NC		%	25
			Ethyl Acetate	2013/01/07	NC		%	25
			1,1-Dichloroethylene	2013/01/07	NC		%	25
			cis-1,2-Dichloroethylene	2013/01/07	NC		%	25
			trans-1,2-Dichloroethylene	2013/01/07	NC		%	25
			Methylene Chloride(Dichloromethane)	2013/01/07	NC		%	25
			Chloroform	2013/01/07	NC		%	25
			Carbon Tetrachloride	2013/01/07	NC		%	25
			1,1-Dichloroethane	2013/01/07	NC		%	25
			1,2-Dichloroethane	2013/01/07	NC		%	25
			Ethylene Dibromide	2013/01/07	NC		%	25
			1,1,1-Trichloroethane	2013/01/07	NC		%	25
			1,1,2-Trichloroethane	2013/01/07	NC		%	25
			1,1,2,2-Tetrachloroethane	2013/01/07	NC		%	25
			cis-1,3-Dichloropropene	2013/01/07	NC		%	25

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Maxxam Analytics
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Quality Assurance Report (Continued)

Maxxam Job Number: GB301766

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087840	S_S	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2013/01/07	NC		%	25
			1,2-Dichloropropane	2013/01/07	NC		%	25
			Bromomethane	2013/01/07	NC		%	25
			Bromoform	2013/01/07	NC		%	25
			Bromodichloromethane	2013/01/07	NC		%	25
			Dibromochloromethane	2013/01/07	NC		%	25
			Trichloroethylene	2013/01/07	NC		%	25
			Tetrachloroethylene	2013/01/07	NC		%	25
			Benzene	2013/01/07	NC		%	25
			Toluene	2013/01/07	NC		%	25
			Ethylbenzene	2013/01/07	NC		%	25
			p+m-Xylene	2013/01/07	NC		%	25
			o-Xylene	2013/01/07	NC		%	25
			Styrene	2013/01/07	NC		%	25
			4-ethyltoluene	2013/01/07	NC		%	25
			1,3,5-Trimethylbenzene	2013/01/07	NC		%	25
			1,2,4-Trimethylbenzene	2013/01/07	NC		%	25
			Chlorobenzene	2013/01/07	NC		%	25
			Benzyl chloride	2013/01/07	NC		%	25
			1,3-Dichlorobenzene	2013/01/07	NC		%	25
			1,4-Dichlorobenzene	2013/01/07	NC		%	25
			1,2-Dichlorobenzene	2013/01/07	NC		%	25
			1,2,4-Trichlorobenzene	2013/01/07	NC		%	25
			Hexachlorobutadiene	2013/01/07	NC		%	25
			Hexane	2013/01/07	NC		%	25
			Heptane	2013/01/07	NC		%	25
			Cyclohexane	2013/01/07	NC		%	25
			Tetrahydrofuran	2013/01/07	NC		%	25
			1,4-Dioxane	2013/01/07	NC		%	25
			Xylene (Total)	2013/01/07	NC		%	25
			Vinyl Bromide	2013/01/07	NC		%	25
			Propene	2013/01/07	NC		%	25
			2,2,4-Trimethylpentane	2013/01/07	NC		%	25
			Carbon Disulfide	2013/01/07	NC		%	25
			Vinyl Acetate	2013/01/07	NC		%	25

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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 05 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 03, 2012 @ 08:20 mst
Removal Date/Time: Dec 06, 2012 @ 08:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
05-Dec-12	12/05/2012 0:00	12/06/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
30-Nov-12	06-Dec-12	12-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
707	229	-11.0	330.36

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

Comments: COC#12974
GB2G3702 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 05, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12974

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J5786
Received: 2012/12/12, 09:40

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2012/12/12	2012/12/14	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in Air (CARB429mod)	1	2012/12/12	2012/12/15	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		PY3868	PY3869		
Sampling Date		2012/12/05	2012/12/05		
COC Number		12974	12974		
	Units	**LICA PUFF+QFF/CLS/DEC 05,12**	**LICA PUFF+QFF/PORT/DEC 05,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.32	0.26	0.10	3067777
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3067777
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3067777
2-Methylanthracene	ug	<0.10	<0.10	0.10	3067777
2-Methylnaphthalene	ug	0.52	0.42	0.10	3067777
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3067777
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3067777
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3067777
Acenaphthene	ug	<0.050	<0.050	0.050	3067777
Acenaphthylene	ug	0.100	<0.050	0.050	3067777
Anthracene	ug	0.400	<0.050	0.050	3067777
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3067777
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3067777
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3067777
Benzo(b)fluoranthene	ug	0.060	<0.050	0.050	3067777
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3067777
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3067777
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3067777
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3067777
Biphenyl	ug	0.44	0.40	0.10	3067777
Chrysene	ug	<0.050	<0.050	0.050	3067777
Coronene	ug	<0.10	<0.10	0.10	3067777
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3067777
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3067777
Fluoranthene	ug	0.120	0.080	0.050	3067777
Fluorene	ug	0.180	0.160	0.050	3067777
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3067777
m-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Naphthalene	ug	0.480	0.600	0.072	3067777
o-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Perylene	ug	<0.10	<0.10	0.10	3067777

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		PY3868	PY3869		
Sampling Date		2012/12/05	2012/12/05		
COC Number		12974	12974		
	Units	**LICA PUFF+QFF/CLS/DEC 05,12**	**LICA PUFF+QFF/PORT/DEC 05,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.380	0.320	0.050	3067777
p-Terphenyl	ug	<0.10	<0.10	0.10	3067777
Pyrene	ug	0.080	<0.050	0.050	3067777
Quinoline	ug	<0.40	<0.40	0.40	3067777
Tetralin	ug	<0.10	<0.10	0.10	3067777
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	54	56		3067777
D10-Fluoranthene	%	88	90		3067777
D10-Fluorene (FS)	%	60	62		3067777
D10-Phenanthrene	%	74	74		3067777
D12-Benzo(a)anthracene	%	86	88		3067777
D12-Benzo(a)pyrene	%	88	88		3067777
D12-Benzo(b)fluoranthene	%	86	86		3067777
D12-Benzo(ghi)perylene	%	84	86		3067777
D12-Benzo(k)fluoranthene	%	86	90		3067777
D12-Chrysene	%	90	90		3067777
D12-Indeno(1,2,3-cd)pyrene	%	90	90		3067777
D12-Perylene	%	84	88		3067777
D14-Dibenzo(a,h)anthracene	%	90	86		3067777
D14-Terphenyl (FS)	%	90	90		3067777
D8-Acenaphthylene	%	58	60		3067777
D8-Naphthalene	%	52	54		3067777

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

Test Summary

Maxxam ID PY3868 **Collected** 2012/12/05
Sample ID LICA PUFF+QFF/CLS/DEC 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3067777	2012/12/12	2012/12/14	Lidija Tomic

Maxxam ID PY3869 **Collected** 2012/12/05
Sample ID LICA PUFF+QFF/PORT/DEC 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3067777	2012/12/12	2012/12/15	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2J5786
Report Date: 2012/12/18

GENERAL COMMENTS

Low recovery for Napthalene, Acenaphthelene and Acenaphthene in Spike

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2J5786

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3067777	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/14		50	%	50 - 150
			D10-Fluoranthene	2012/12/14		86	%	50 - 150
			D10-Phenanthrene	2012/12/14		68	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		88	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		88	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		86	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		88	%	50 - 150
			D12-Chrysene	2012/12/14		92	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/14		86	%	50 - 150
			D12-Perylene	2012/12/14		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		86	%	50 - 150
			D8-Acenaphthylene	2012/12/14		56	%	50 - 150
			D8-Naphthalene	2012/12/14		50	%	50 - 150
			Acenaphthene	2012/12/14		58 (1)	%	60 - 130
		RPD	Acenaphthene	2012/12/14	23.1		%	50
		Spiked Blank	Acenaphthylene	2012/12/14		58 (1)	%	60 - 130
		RPD	Acenaphthylene	2012/12/14	26.4		%	50
		Spiked Blank	Anthracene	2012/12/14		75	%	60 - 130
		RPD	Anthracene	2012/12/14	6.5		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/14		93	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/14	0		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/14		80	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/14	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/14		90	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/14	0		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/14		88	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/14	0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/14		93	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/14	2.7		%	50
		Spiked Blank	Chrysene	2012/12/14		90	%	60 - 130
		RPD	Chrysene	2012/12/14	0		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/14		90	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/14	5.4		%	50
		Spiked Blank	Fluoranthene	2012/12/14		88	%	60 - 130
		RPD	Fluoranthene	2012/12/14	5.6		%	50
		Spiked Blank	Fluorene	2012/12/14		63	%	60 - 130
		RPD	Fluorene	2012/12/14	18.2		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/14		88	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/14	2.8		%	50
		Spiked Blank	Naphthalene	2012/12/14		53 (1)	%	60 - 130
		RPD	Naphthalene	2012/12/14	32.0		%	50
		Spiked Blank	Phenanthrene	2012/12/14		68	%	60 - 130
		RPD	Phenanthrene	2012/12/14	13.8		%	50
		Spiked Blank	Pyrene	2012/12/14		85	%	60 - 130
		RPD	Pyrene	2012/12/14	2.9		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/14		70	%	50 - 150
			D10-Fluoranthene	2012/12/14		84	%	50 - 150
			D10-Phenanthrene	2012/12/14		74	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		82	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		82	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		84	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		86	%	50 - 150
			D12-Chrysene	2012/12/14		90	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J5786

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3067777	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/14		88	%	50 - 150
			D12-Perylene	2012/12/14		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		84	%	50 - 150
			D8-Acenaphthylene	2012/12/14		72	%	50 - 150
			D8-Naphthalene	2012/12/14		70	%	50 - 150
			1-Methylnaphthalene	2012/12/14	<0.10		ug	
			1-Methylphenanthrene	2012/12/14	<0.10		ug	
			2-Chloronaphthalene	2012/12/14	<0.10		ug	
			2-Methylanthracene	2012/12/14	<0.10		ug	
			2-Methylnaphthalene	2012/12/14	<0.10		ug	
			3-Methylcholanthrene	2012/12/14	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/12/14	<0.10		ug	
			9,10-Dimethylanthracene	2012/12/14	<0.40		ug	
			Acenaphthene	2012/12/14	<0.050		ug	
			Acenaphthylene	2012/12/14	<0.050		ug	
			Anthracene	2012/12/14	<0.050		ug	
			Benzo(a)anthracene	2012/12/14	<0.050		ug	
			Benzo(a)fluorene	2012/12/14	<0.10		ug	
			Benzo(a)pyrene	2012/12/14	<0.050		ug	
			Benzo(b)fluoranthene	2012/12/14	<0.050		ug	
			Benzo(b)fluorene	2012/12/14	<0.10		ug	
			Benzo(e)pyrene	2012/12/14	<0.10		ug	
			Benzo(g,h,i)perylene	2012/12/14	<0.050		ug	
			Benzo(k)fluoranthene	2012/12/14	<0.050		ug	
			Biphenyl	2012/12/14	<0.10		ug	
			Chrysene	2012/12/14	<0.050		ug	
			Coronene	2012/12/14	<0.10		ug	
			Dibenz(a,h)anthracene	2012/12/14	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/12/14	<0.20		ug	
			Fluoranthene	2012/12/14	<0.050		ug	
			Fluorene	2012/12/14	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/12/14	<0.050		ug	
			m-Terphenyl	2012/12/14	<0.10		ug	
			Naphthalene	2012/12/14	<0.072		ug	
			o-Terphenyl	2012/12/14	<0.10		ug	
			Perylene	2012/12/14	<0.10		ug	
			Phenanthrene	2012/12/14	<0.050		ug	
			p-Terphenyl	2012/12/14	<0.10		ug	
			Pyrene	2012/12/14	<0.050		ug	
			Quinoline	2012/12/14	<0.40		ug	
			Tetralin	2012/12/14	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 11 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 06, 2012 @ 09:06 mst
Removal Date/Time: Dec 14, 2012 @ 08:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
11-Dec-12	12/11/2012 0:00	12/12/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
05-Dec-12	14-Dec-12	17-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
706	229	-18.1	330.38

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

Comments: COC#13017
GB2G3708 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 11, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13017

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K0896
Received: 2012/12/20, 09:36

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/22	2013/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB1290	QB1291		
Sampling Date		2012/12/11	2012/12/11		
COC Number		13017	13017		
	Units	**LICA PUFF+QFF/CLS/DEC 11,12**	**LICA PUFF+QFF/PORT/DEC 11,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.84	0.46	0.10	3079217
1-Methylphenanthrene	ug	0.12	<0.10	0.10	3079217
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3079217
2-Methylanthracene	ug	<0.10	<0.10	0.10	3079217
2-Methylnaphthalene	ug	1.32	0.70	0.10	3079217
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3079217
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3079217
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3079217
Acenaphthene	ug	0.180	<0.050	0.050	3079217
Acenaphthylene	ug	0.480	<0.050	0.050	3079217
Anthracene	ug	0.120	<0.050	0.050	3079217
Benzo(a)anthracene	ug	0.060	<0.050	0.050	3079217
Benzo(a)fluorene	ug	0.12	<0.10	0.10	3079217
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3079217
Benzo(b)fluoranthene	ug	0.160	<0.050	0.050	3079217
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3079217
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3079217
Benzo(g,h,i)perylene	ug	0.060	<0.050	0.050	3079217
Benzo(k)fluoranthene	ug	0.060	<0.050	0.050	3079217
Biphenyl	ug	0.90	0.66	0.10	3079217
Chrysene	ug	0.160	<0.050	0.050	3079217
Coronene	ug	<0.10	<0.10	0.10	3079217
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3079217
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3079217
Fluoranthene	ug	0.580	0.100	0.050	3079217
Fluorene	ug	0.540	0.300	0.050	3079217
Indeno(1,2,3-cd)pyrene	ug	0.060	<0.050	0.050	3079217
m-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Naphthalene	ug	2.14	1.04	0.072	3079217
o-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Perylene	ug	<0.10	<0.10	0.10	3079217

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB1290	QB1291		
Sampling Date		2012/12/11	2012/12/11		
COC Number		13017	13017		
	Units	**LICA PUFF+QFF/CLS/DEC 11,12**	**LICA PUFF+QFF/PORT/DEC 11,12**	**RDL**	**QC Batch**
Phenanthrene	ug	1.46	0.420	0.050	3079217
p-Terphenyl	ug	<0.10	<0.10	0.10	3079217
Pyrene	ug	0.400	0.060	0.050	3079217
Quinoline	ug	<0.40	<0.40	0.40	3079217
Tetralin	ug	<0.10	<0.10	0.10	3079217
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	76	80		3079217
D10-Fluoranthene	%	102	104		3079217
D10-Fluorene (FS)	%	84	88		3079217
D10-Phenanthrene	%	92	94		3079217
D12-Benzo(a)anthracene	%	110	110		3079217
D12-Benzo(a)pyrene	%	96	100		3079217
D12-Benzo(b)fluoranthene	%	102	104		3079217
D12-Benzo(ghi)perylene	%	88	90		3079217
D12-Benzo(k)fluoranthene	%	90	94		3079217
D12-Chrysene	%	94	96		3079217
D12-Indeno(1,2,3-cd)pyrene	%	94	96		3079217
D12-Perylene	%	100	102		3079217
D14-Dibenzo(a,h)anthracene	%	98	102		3079217
D14-Terphenyl (FS)	%	114	112		3079217
D8-Acenaphthylene	%	76	80		3079217
D8-Naphthalene	%	72	76		3079217

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

Test Summary

Maxxam ID QB1290 **Collected** 2012/12/11
Sample ID LICA PUFF+QFF/CLS/DEC 11,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3079217	2012/12/22	2013/01/11	Lidija Tomic

Maxxam ID QB1291 **Collected** 2012/12/11
Sample ID LICA PUFF+QFF/PORT/DEC 11,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3079217	2012/12/22	2013/01/11	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2K0896
Report Date: 2013/01/11

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K0896

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3079217	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/11		74	%	50 - 150
			D10-Fluoranthene	2013/01/11		100	%	50 - 150
			D10-Phenanthrene	2013/01/11		88	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		100	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		102	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		102	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		94	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		90	%	50 - 150
			D12-Chrysene	2013/01/11		94	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/11		100	%	50 - 150
			D12-Perylene	2013/01/11		108	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		106	%	50 - 150
			D8-Acenaphthylene	2013/01/11		76	%	50 - 150
			D8-Naphthalene	2013/01/11		72	%	50 - 150
			Acenaphthene	2013/01/11		83	%	60 - 130
		RPD	Acenaphthene	2013/01/11	5.9		%	50
		Spiked Blank	Acenaphthylene	2013/01/11		73	%	60 - 130
		RPD	Acenaphthylene	2013/01/11	6.7		%	50
		Spiked Blank	Anthracene	2013/01/11		83	%	60 - 130
		RPD	Anthracene	2013/01/11	0		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/11		100	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/11	0		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/11		85	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/11	3.0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/11		90	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/11	5.4		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/11		88	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/11	0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/11		100	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/11	7.8		%	50
		Spiked Blank	Chrysene	2013/01/11		85	%	60 - 130
		RPD	Chrysene	2013/01/11	2.9		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/11		103	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/11	2.5		%	50
		Spiked Blank	Fluoranthene	2013/01/11		98	%	60 - 130
		RPD	Fluoranthene	2013/01/11	2.6		%	50
		Spiked Blank	Fluorene	2013/01/11		88	%	60 - 130
		RPD	Fluorene	2013/01/11	5.6		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/11		93	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/11	2.7		%	50
		Spiked Blank	Naphthalene	2013/01/11		93	%	60 - 130
		RPD	Naphthalene	2013/01/11	12.7		%	50
		Spiked Blank	Phenanthrene	2013/01/11		85	%	60 - 130
		RPD	Phenanthrene	2013/01/11	0		%	50
		Spiked Blank	Pyrene	2013/01/11		90	%	60 - 130
		RPD	Pyrene	2013/01/11	2.8		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/11		78	%	50 - 150
			D10-Fluoranthene	2013/01/11		96	%	50 - 150
			D10-Phenanthrene	2013/01/11		84	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		100	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		100	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		104	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		96	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		88	%	50 - 150
			D12-Chrysene	2013/01/11		96	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K0896

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3079217	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/11		102	%	50 - 150
			D12-Perylene	2013/01/11		108	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		106	%	50 - 150
			D8-Acenaphthylene	2013/01/11		78	%	50 - 150
			D8-Naphthalene	2013/01/11		76	%	50 - 150
			1-Methylnaphthalene	2013/01/11	<0.10		ug	
			1-Methylphenanthrene	2013/01/11	<0.10		ug	
			2-Chloronaphthalene	2013/01/11	<0.10		ug	
			2-Methylanthracene	2013/01/11	<0.10		ug	
			2-Methylnaphthalene	2013/01/11	<0.10		ug	
			3-Methylcholanthrene	2013/01/11	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/11	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/11	<0.40		ug	
			Acenaphthene	2013/01/11	<0.050		ug	
			Acenaphthylene	2013/01/11	<0.050		ug	
			Anthracene	2013/01/11	<0.050		ug	
			Benzo(a)anthracene	2013/01/11	<0.050		ug	
			Benzo(a)fluorene	2013/01/11	<0.10		ug	
			Benzo(a)pyrene	2013/01/11	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/11	<0.050		ug	
			Benzo(b)fluorene	2013/01/11	<0.10		ug	
			Benzo(e)pyrene	2013/01/11	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/11	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/11	<0.050		ug	
			Biphenyl	2013/01/11	<0.10		ug	
			Chrysene	2013/01/11	<0.050		ug	
			Coronene	2013/01/11	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/11	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/11	<0.20		ug	
			Fluoranthene	2013/01/11	<0.050		ug	
			Fluorene	2013/01/11	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/11	<0.050		ug	
			m-Terphenyl	2013/01/11	<0.10		ug	
			Naphthalene	2013/01/11	<0.072		ug	
			o-Terphenyl	2013/01/11	<0.10		ug	
			Perylene	2013/01/11	<0.10		ug	
			Phenanthrene	2013/01/11	<0.050		ug	
			p-Terphenyl	2013/01/11	<0.10		ug	
			Pyrene	2013/01/11	<0.050		ug	
			Quinoline	2013/01/11	<0.40		ug	
			Tetralin	2013/01/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 17 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 14, 2012 @ 09:10 mst
Removal Date/Time: Dec 20, 2012 @ 08:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
17-Dec-12	12/17/2012 0:00	12/18/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
12-Dec-12	20-Dec-12	24-Dec-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
703	229	-11.7	330.38

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

Comments: COC#13082
GB2I4659 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 17, 2012

Technician Signiture: Ting Xu

JOB #: 2833-12-12-01

Success Through Science®

Your C.O.C. #: 13082

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2K2430
Received: 2012/12/22, 11:55

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/27	2013/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB8394	QB8395		
Sampling Date		2012/12/17 00:00	2012/12/17 00:00		
COC Number		13082	13082		
	Units	**LICA PUFF+QFF/CLS/DEC 17,12**	**LICA PUFF+QFF/PORT/DEC 17,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.40	0.68	0.10	3080445
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3080445
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3080445
2-Methylanthracene	ug	<0.10	<0.10	0.10	3080445
2-Methylnaphthalene	ug	0.76	1.12	0.10	3080445
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3080445
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3080445
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3080445
Acenaphthene	ug	0.100	0.160	0.050	3080445
Acenaphthylene	ug	0.120	0.120	0.050	3080445
Anthracene	ug	<0.050	<0.050	0.050	3080445
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3080445
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3080445
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3080445
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3080445
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3080445
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3080445
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3080445
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3080445
Biphenyl	ug	0.44	0.56	0.10	3080445
Chrysene	ug	<0.050	<0.050	0.050	3080445
Coronene	ug	<0.10	<0.10	0.10	3080445
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3080445
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3080445
Fluoranthene	ug	0.140	0.100	0.050	3080445
Fluorene	ug	0.220	0.300	0.050	3080445
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3080445
m-Terphenyl	ug	<0.10	<0.10	0.10	3080445
Naphthalene	ug	0.680	0.720	0.072	3080445
o-Terphenyl	ug	<0.10	<0.10	0.10	3080445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QB8394	QB8395		
Sampling Date		2012/12/17 00:00	2012/12/17 00:00		
COC Number		13082	13082		
	Units	**LICA PUFF+QFF/CLS/DEC 17,12**	**LICA PUFF+QFF/PORT/DEC 17,12**	**RDL**	**QC Batch**
Perylene	ug	<0.10	<0.10	0.10	3080445
Phenanthrene	ug	0.480	0.360	0.050	3080445
p-Terphenyl	ug	<0.10	<0.10	0.10	3080445
Pyrene	ug	0.100	0.060	0.050	3080445
Quinoline	ug	<0.40	<0.40	0.40	3080445
Tetralin	ug	<0.10	<0.10	0.10	3080445
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	76		3080445
D10-Fluoranthene	%	100	102		3080445
D10-Fluorene (FS)	%	68	76		3080445
D10-Phenanthrene	%	88	90		3080445
D12-Benzo(a)anthracene	%	98	98		3080445
D12-Benzo(a)pyrene	%	102	102		3080445
D12-Benzo(b)fluoranthene	%	100	98		3080445
D12-Benzo(ghi)perylene	%	98	98		3080445
D12-Benzo(k)fluoranthene	%	98	98		3080445
D12-Chrysene	%	106	106		3080445
D12-Indeno(1,2,3-cd)pyrene	%	100	98		3080445
D12-Perylene	%	116	116		3080445
D14-Dibenzo(a,h)anthracene	%	102	100		3080445
D14-Terphenyl (FS)	%	102	102		3080445
D8-Acenaphthylene	%	72	76		3080445
D8-Naphthalene	%	70	72		3080445

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

Test Summary

Maxxam ID QB8394 **Collected** 2012/12/17
Sample ID LICA PUFF+QFF/CLS/DEC 17,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3080445	2012/12/27	2013/01/11	Lidija Tomic

Maxxam ID QB8395 **Collected** 2012/12/17
Sample ID LICA PUFF+QFF/PORT/DEC 17,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3080445	2012/12/27	2013/01/11	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2K2430
Report Date: 2013/01/15

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB2K2430

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3080445	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/11		82	%	50 - 150
			D10-Fluoranthene	2013/01/11		96	%	50 - 150
			D10-Phenanthrene	2013/01/11		86	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		100	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		100	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		100	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		98	%	50 - 150
			D12-Chrysene	2013/01/11		106	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/11		98	%	50 - 150
			D12-Perylene	2013/01/11		112	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		102	%	50 - 150
			D8-Acenaphthylene	2013/01/11		74	%	50 - 150
			D8-Naphthalene	2013/01/11		78	%	50 - 150
			Acenaphthene	2013/01/11		80	%	60 - 130
		RPD	Acenaphthene	2013/01/11	11.8		%	50
		Spiked Blank	Acenaphthylene	2013/01/11		75	%	60 - 130
		RPD	Acenaphthylene	2013/01/11	15.4		%	50
		Spiked Blank	Anthracene	2013/01/11		80	%	60 - 130
		RPD	Anthracene	2013/01/11	9.0		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/11		95	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/11	5.1		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/11		85	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/11	2.9		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/11		93	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/11	5.3		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/11		98	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/11	2.5		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/11		110	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/11	2.2		%	50
		Spiked Blank	Chrysene	2013/01/11		95	%	60 - 130
		RPD	Chrysene	2013/01/11	5.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/11		98	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/11	2.5		%	50
		Spiked Blank	Fluoranthene	2013/01/11		95	%	60 - 130
		RPD	Fluoranthene	2013/01/11	2.6		%	50
		Spiked Blank	Fluorene	2013/01/11		80	%	60 - 130
		RPD	Fluorene	2013/01/11	11.8		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/11		95	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/11	2.6		%	50
		Spiked Blank	Naphthalene	2013/01/11		85	%	60 - 130
		RPD	Naphthalene	2013/01/11	13.7		%	50
		Spiked Blank	Phenanthrene	2013/01/11		85	%	60 - 130
		RPD	Phenanthrene	2013/01/11	8.5		%	50
		Spiked Blank	Pyrene	2013/01/11		88	%	60 - 130
		RPD	Pyrene	2013/01/11	5.6		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/11		92	%	50 - 150
			D10-Fluoranthene	2013/01/11		98	%	50 - 150
			D10-Phenanthrene	2013/01/11		92	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/11		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/11		104	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/11		100	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/11		100	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/11		98	%	50 - 150
			D12-Chrysene	2013/01/11		108	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB2K2430

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3080445	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/11		100	%	50 - 150
			D12-Perylene	2013/01/11		114	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/11		100	%	50 - 150
			D8-Acenaphthylene	2013/01/11		86	%	50 - 150
			D8-Naphthalene	2013/01/11		88	%	50 - 150
			1-Methylnaphthalene	2013/01/11	<0.10		ug	
			1-Methylphenanthrene	2013/01/11	<0.10		ug	
			2-Chloronaphthalene	2013/01/11	<0.10		ug	
			2-Methylanthracene	2013/01/11	<0.10		ug	
			2-Methylnaphthalene	2013/01/11	<0.10		ug	
			3-Methylcholanthrene	2013/01/11	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/11	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/11	<0.40		ug	
			Acenaphthene	2013/01/11	<0.050		ug	
			Acenaphthylene	2013/01/11	<0.050		ug	
			Anthracene	2013/01/11	<0.050		ug	
			Benzo(a)anthracene	2013/01/11	<0.050		ug	
			Benzo(a)fluorene	2013/01/11	<0.10		ug	
			Benzo(a)pyrene	2013/01/11	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/11	<0.050		ug	
			Benzo(b)fluorene	2013/01/11	<0.10		ug	
			Benzo(e)pyrene	2013/01/11	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/11	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/11	<0.050		ug	
			Biphenyl	2013/01/11	<0.10		ug	
			Chrysene	2013/01/11	<0.050		ug	
			Coronene	2013/01/11	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/11	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/11	<0.20		ug	
			Fluoranthene	2013/01/11	<0.050		ug	
			Fluorene	2013/01/11	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/11	<0.050		ug	
			m-Terphenyl	2013/01/11	<0.10		ug	
			Naphthalene	2013/01/11	0.080, RDL=0.072		ug	
			o-Terphenyl	2013/01/11	<0.10		ug	
			Perylene	2013/01/11	<0.10		ug	
			Phenanthrene	2013/01/11	<0.050		ug	
			p-Terphenyl	2013/01/11	<0.10		ug	
			Pyrene	2013/01/11	<0.050		ug	
			Quinoline	2013/01/11	<0.40		ug	
			Tetralin	2013/01/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
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.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 29 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 28, 2012 @ 15:25 mst
Removal Date/Time: Jan 02, 2013 @ 8:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
29-Dec-12	12/29/2012 0:00	12/30/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Dec-12	03-Jan-13	04-Jan-13	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Tempurature (C)	Volume (Vstd m^3)
711	229	-11.7	330.38

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

Comments: COC#13150
GB2K1599 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 29, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 13150

Attention: Michael Bisaga
Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2013/01/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301749
Received: 2013/01/05, 10:05

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2013/01/08	2013/01/10	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

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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.

Total cover pages: 1

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QD4887	QD4888		
Sampling Date		2012/12/29	2012/12/29		
COC Number		13150	13150		
	Units	**LICA PUFF+QFF/CLS/DEC 29, 12**	**LICA PUFF+QFF/PORT/DEC 29, 12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.22	0.30	0.10	3087915
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3087915
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3087915
2-Methylanthracene	ug	<0.10	<0.10	0.10	3087915
2-Methylnaphthalene	ug	0.58	0.74	0.10	3087915
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3087915
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3087915
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3087915
Acenaphthene	ug	0.160	0.180	0.050	3087915
Acenaphthylene	ug	0.080	0.140	0.050	3087915
Anthracene	ug	<0.050	<0.050	0.050	3087915
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3087915
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3087915
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3087915
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3087915
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3087915
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3087915
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3087915
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3087915
Biphenyl	ug	0.56	0.72	0.10	3087915
Chrysene	ug	<0.050	<0.050	0.050	3087915
Coronene	ug	<0.10	<0.10	0.10	3087915
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3087915
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3087915
Fluoranthene	ug	0.180	0.240	0.050	3087915
Fluorene	ug	0.340	0.680	0.050	3087915
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3087915
m-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Naphthalene	ug	0.620	0.580	0.072	3087915
o-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Perylene	ug	<0.10	<0.10	0.10	3087915

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

SEMI-VOLATILE ORGANICS BY GC-MS (PUF AND FILTER)

Maxxam ID		QD4887	QD4888		
Sampling Date		2012/12/29	2012/12/29		
COC Number		13150	13150		
	Units	**LICA PUFF+QFF/CLS/DEC 29, 12**	**LICA PUFF+QFF/PORT/DEC 29, 12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.620	0.940	0.050	3087915
p-Terphenyl	ug	<0.10	<0.10	0.10	3087915
Pyrene	ug	0.100	0.160	0.050	3087915
Quinoline	ug	<0.40	<0.40	0.40	3087915
Tetralin	ug	<0.10	<0.10	0.10	3087915
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	80		3087915
D10-Fluoranthene	%	106	106		3087915
D10-Fluorene (FS)	%	66	74		3087915
D10-Phenanthrene	%	100	102		3087915
D12-Benzo(a)anthracene	%	104	112		3087915
D12-Benzo(a)pyrene	%	88	88		3087915
D12-Benzo(b)fluoranthene	%	96	100		3087915
D12-Benzo(ghi)perylene	%	82	82		3087915
D12-Benzo(k)fluoranthene	%	86	88		3087915
D12-Chrysene	%	82	84		3087915
D12-Indeno(1,2,3-cd)pyrene	%	82	82		3087915
D12-Perylene	%	84	86		3087915
D14-Dibenzo(a,h)anthracene	%	84	82		3087915
D14-Terphenyl (FS)	%	118	122		3087915
D8-Acenaphthylene	%	82	84		3087915
D8-Naphthalene	%	76	78		3087915

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

Test Summary

Maxxam ID QD4887 **Collected** 2012/12/29
Sample ID LICA PUFF+QFF/CLS/DEC 29, 12 **Shipped**
Matrix PUF AND FILTER **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3087915	2013/01/08	2013/01/10	Lidija Tomic

Maxxam ID QD4888 **Collected** 2012/12/29
Sample ID LICA PUFF+QFF/PORT/DEC 29, 12 **Shipped**
Matrix PUF AND FILTER **Received** 2013/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3087915	2013/01/08	2013/01/10	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B301749
Report Date: 2013/01/10

GENERAL COMMENTS

Quinoline,9.10-Dimethylanthracene,7,12-dimethylbenzo(a)anthracene and 3-Methylcholanthrene are above 25% RSD in initial calibration. No positives found for these compounds.

Results relate only to the items tested.

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB301749

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087915	LTO	Spiked Blank	D10-2-Methylnaphthalene	2013/01/10		84	%	50 - 150
			D10-Fluoranthene	2013/01/10		98	%	50 - 150
			D10-Phenanthrene	2013/01/10		88	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/10		90	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/10		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/10		94	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/10		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/10		90	%	50 - 150
			D12-Chrysene	2013/01/10		82	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2013/01/10		86	%	50 - 150
			D12-Perylene	2013/01/10		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/10		86	%	50 - 150
			D8-Acenaphthylene	2013/01/10		82	%	50 - 150
			D8-Naphthalene	2013/01/10		86	%	50 - 150
			Acenaphthene	2013/01/10		88	%	60 - 130
		RPD	Acenaphthene	2013/01/10	2.8		%	50
		Spiked Blank	Acenaphthylene	2013/01/10		80	%	60 - 130
		RPD	Acenaphthylene	2013/01/10	3.1		%	50
		Spiked Blank	Anthracene	2013/01/10		78	%	60 - 130
		RPD	Anthracene	2013/01/10	6.3		%	50
		Spiked Blank	Benzo(a)anthracene	2013/01/10		85	%	60 - 130
		RPD	Benzo(a)anthracene	2013/01/10	5.7		%	50
		Spiked Blank	Benzo(a)pyrene	2013/01/10		78	%	60 - 130
		RPD	Benzo(a)pyrene	2013/01/10	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2013/01/10		83	%	60 - 130
		RPD	Benzo(b)fluoranthene	2013/01/10	8.7		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2013/01/10		85	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2013/01/10	6.1		%	50
		Spiked Blank	Benzo(k)fluoranthene	2013/01/10		95	%	60 - 130
		RPD	Benzo(k)fluoranthene	2013/01/10	5.4		%	50
		Spiked Blank	Chrysene	2013/01/10		83	%	60 - 130
		RPD	Chrysene	2013/01/10	3.0		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2013/01/10		83	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2013/01/10	0		%	50
		Spiked Blank	Fluoranthene	2013/01/10		98	%	60 - 130
		RPD	Fluoranthene	2013/01/10	0		%	50
		Spiked Blank	Fluorene	2013/01/10		88	%	60 - 130
		RPD	Fluorene	2013/01/10	2.8		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2013/01/10		83	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2013/01/10	3.1		%	50
		Spiked Blank	Naphthalene	2013/01/10		100	%	60 - 130
		RPD	Naphthalene	2013/01/10	5.1		%	50
		Spiked Blank	Phenanthrene	2013/01/10		85	%	60 - 130
		RPD	Phenanthrene	2013/01/10	2.9		%	50
		Spiked Blank	Pyrene	2013/01/10		90	%	60 - 130
		RPD	Pyrene	2013/01/10	0		%	50
		Method Blank	D10-2-Methylnaphthalene	2013/01/10		84	%	50 - 150
			D10-Fluoranthene	2013/01/10		102	%	50 - 150
			D10-Phenanthrene	2013/01/10		94	%	50 - 150
			D12-Benzo(a)anthracene	2013/01/10		96	%	50 - 150
			D12-Benzo(a)pyrene	2013/01/10		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2013/01/10		94	%	50 - 150
			D12-Benzo(ghi)perylene	2013/01/10		82	%	50 - 150
			D12-Benzo(k)fluoranthene	2013/01/10		86	%	50 - 150
			D12-Chrysene	2013/01/10		84	%	50 - 150

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Maxxam Analytics
Attention: Michael Bisaga
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB301749

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3087915	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2013/01/10		80	%	50 - 150
			D12-Perylene	2013/01/10		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2013/01/10		82	%	50 - 150
			D8-Acenaphthylene	2013/01/10		84	%	50 - 150
			D8-Naphthalene	2013/01/10		82	%	50 - 150
			1-Methylnaphthalene	2013/01/10	<0.10		ug	
			1-Methylphenanthrene	2013/01/10	<0.10		ug	
			2-Chloronaphthalene	2013/01/10	<0.10		ug	
			2-Methylanthracene	2013/01/10	<0.10		ug	
			2-Methylnaphthalene	2013/01/10	<0.10		ug	
			3-Methylcholanthrene	2013/01/10	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2013/01/10	<0.10		ug	
			9,10-Dimethylanthracene	2013/01/10	<0.40		ug	
			Acenaphthene	2013/01/10	<0.050		ug	
			Acenaphthylene	2013/01/10	<0.050		ug	
			Anthracene	2013/01/10	<0.050		ug	
			Benzo(a)anthracene	2013/01/10	<0.050		ug	
			Benzo(a)fluorene	2013/01/10	<0.10		ug	
			Benzo(a)pyrene	2013/01/10	<0.050		ug	
			Benzo(b)fluoranthene	2013/01/10	<0.050		ug	
			Benzo(b)fluorene	2013/01/10	<0.10		ug	
			Benzo(e)pyrene	2013/01/10	<0.10		ug	
			Benzo(g,h,i)perylene	2013/01/10	<0.050		ug	
			Benzo(k)fluoranthene	2013/01/10	<0.050		ug	
			Biphenyl	2013/01/10	<0.10		ug	
			Chrysene	2013/01/10	<0.050		ug	
			Coronene	2013/01/10	<0.10		ug	
			Dibenz(a,h)anthracene	2013/01/10	<0.050		ug	
			Dibenzo(a,e)pyrene	2013/01/10	<0.20		ug	
			Fluoranthene	2013/01/10	<0.050		ug	
			Fluorene	2013/01/10	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2013/01/10	<0.050		ug	
			m-Terphenyl	2013/01/10	<0.10		ug	
			Naphthalene	2013/01/10	0.080, RDL=0.072		ug	
			o-Terphenyl	2013/01/10	<0.10		ug	
			Perylene	2013/01/10	<0.10		ug	
			Phenanthrene	2013/01/10	<0.050		ug	
			p-Terphenyl	2013/01/10	<0.10		ug	
			Pyrene	2013/01/10	<0.050		ug	
			Quinoline	2013/01/10	<0.40		ug	
			Tetralin	2013/01/10	<0.10		ug	

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