Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
November 2012

Prepared By:

December 20, 2012

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
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Box 8237
5107W – 50 Street
Bonnyville, Alberta
T9N 2J5

Monitoring Location: Maskwa
Data Period: November 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 - 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 – November 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	0.53	10	1	7, 8	8.7, 9.1	106(ESE), 106(ESE)	3.4	1	99.0
H2S (PPB)	10	3	0	0	0.21	2	18	3, 4	7, 6.3	114(ESE), 111(ESE)	0.7	24	99.3
THC (PPM)	-	-	-	-	2.30	4.0	13	20	2.5	200(SSW)	2.9	13	100.0
NOx (PPB)	-	-	-	-	4.48	25	13	17	1.9	217(SW)	12.8	14	99.9
NO (PPB)	-	-	-	-	0.40	9	14	10	11.4	308(NW)	1.7	24	99.9
NO_2 (PPB)	159	-	0	-	4.07	23	13	7	2	119(ESE)	11.2	14	99.9
VECTOR WS (KPH)	-	-	-	-	5.55	17.9	5	12	-	289(WNW)	10.9	7	100.0
VECTOR WD (DEGREES)	-	-	-	-	58(ENE)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	74.82	90	4	VAR	VAR	VAR	88.2	4	100.0
TEMPERATURE (DEG C)	-	-	-	-	-9.26	8.4	5	11	16.6	285(WNW)	3.9	5	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	941	956	22, 23	VAR	VAR	VAR	953.3	9	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	1.3	1	6	7.5	103(ESE)	7.2	1	100.0

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 as found points check was performed on November 8th. Following the as found points check, the UV lamp was peaked, and both the HVPS voltage and the slope were adjusted. The analyzer was allowed time to stabilize. A 3-points calibration was performed on November 9th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the as found points check was performed on November 8th. Following the as found points check, the SO2 scrubber material was replaced, the exhaust pump was rebuilt, the UV lamp was peaked, and both the HVPS voltage and the slope were adjusted. The analyzer was allowed time to stabilize. A 3-points calibration was performed on November 9th. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on November 8th. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the as found points check was performed on November 8th. Following the as found points check, the exhaust scrubber material was replaced, and the exhaust pump was rebuilt. The analyzer was allowed time to stabilize. A post repair calibration was then performed. 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. The wind speed maximum reading recorded on November 30th at hour 18 was invalidated, as the value went above the full scale.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

- System make / model - Met One 387

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issues were observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issues were observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Datalogger

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

No operational issues were observed during the month.

Trailer

The manifold was cleaned on November 9th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

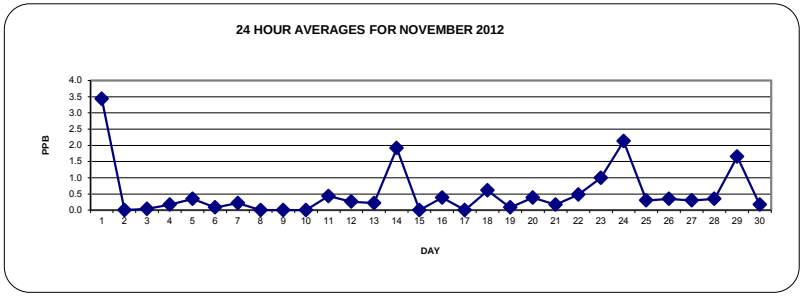
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

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	1	6	5	8	7	5	8	**10**	**10**	7	6	4	1	1	0	0	0	0	0	0	0	0	**IZS**	0	**10**	**3.4**	24
2	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
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**IZS**	0	0	0	1	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	**IZS**	0	0	1	1	1	0.2	24
5	1	1	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	0.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**IZS**	0	0	1	0	0	0	1	0.1	24
7	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0.2	24
8	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	0	0	0	0	0	0	0.0	17
9	0	0	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	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	**IZS**	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	**IZS**	2	2	1	3	2	0	0	0	0	0	0	3	0.4	24
12	0	0	0	0	0	0	0	0	0	1	0	**IZS**	2	0	0	1	0	0	0	0	0	0	1	1	2	0.3	24
13	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	1	0	0	0	0	0	0	0	1	1	1	1	0.2	24
14	1	1	1	1	1	1	1	1	1	**IZS**	8	4	3	3	4	5	4	2	2	0	0	0	0	0	8	1.9	24
15	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
16	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	2	4	3	0	4	0.4	24
17	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
18	0	0	2	3	3	**IZS**	3	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0.6	24
19	0	0	0	0	**IZS**	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
20	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1	0	0	1	1	0.4	24
21	1	0	**IZS**	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
22	0	**IZS**	0	0	0	1	1	1	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.5	24
23	**IZS**	0	0	0	1	2	1	1	1	0	0	0	0	0	4	4	2	1	1	1	1	1	1	**IZS**	4	1.0	24
24	0	0	0	0	4	6	3	3	3	0	0	6	3	2	1	4	5	5	0	0	0	0	**IZS**	4	6	2.1	24
25	3	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	**IZS**	0	0	3	0.3	24
26	0	0	0	0	2	0	0	0	0	3	1	0	0	0	0	0	0	0	1	1	**IZS**	0	0	0	3	0.3	24
27	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**IZS**	2	1	1	2	2	0.3	24
28	6	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	6	0.3	24
29	0	0	0	0	4	0	3	4	0	4	2	3	4	2	0	1	3	**IZS**	3	0	2	2	1	0	4	1.7	24
30	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	2	0.2	24
HOURLY MAX	6	6	5	8	7	6	8	10	10	7	8	6	4	3	4	5	5	5	3	1	2	4	3	4			
HOURLY AVG	0.5	0.3	0.3	0.5	0.9	0.7	0.8	0.8	0.7	0.6	0.7	0.8	0.7	0.5	0.5	0.7	0.6	0.4	0.3	0.1	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



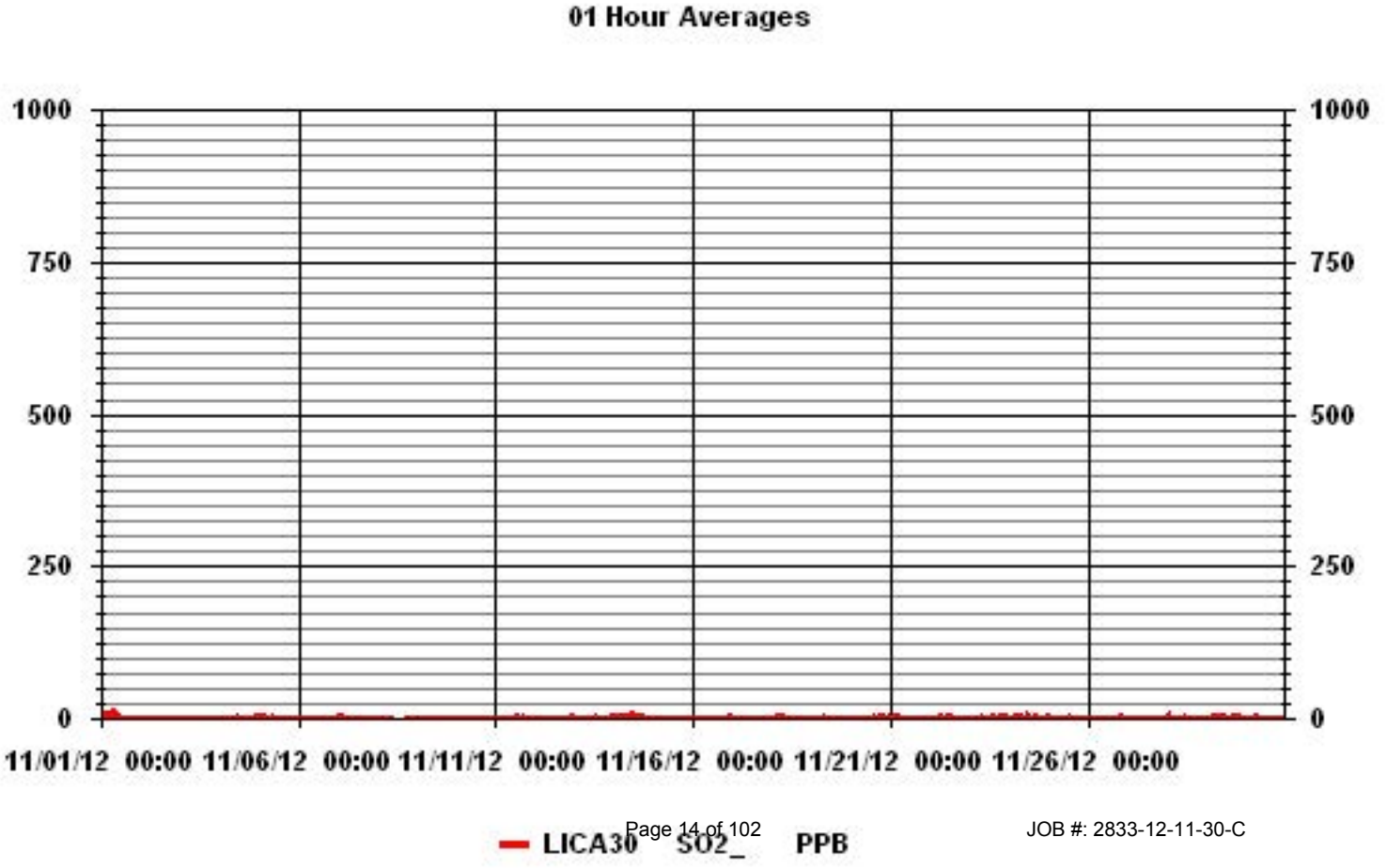
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	162					
MAXIMUM 1-HR AVERAGE:	10	PPB	@ HOUR(S)	7, 8	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	3.4	PPB			ON DAY(S)	1

IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	713	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	1.31		MONTHLY AVERAGE:	0.53	PPB

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

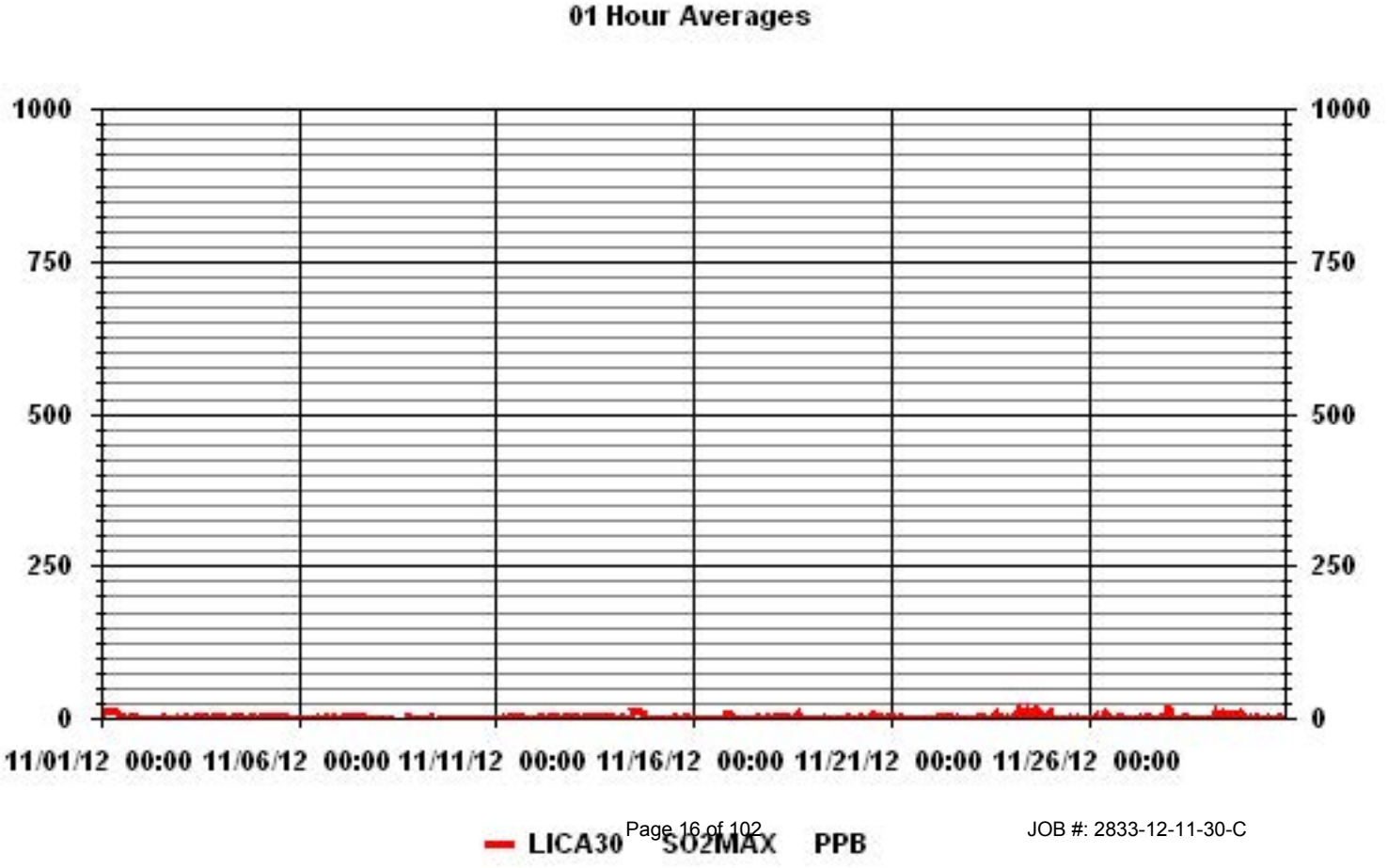
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3	11	9	12	11	10	12	13	14	11	10	9	5	3	1	1	1	0	1	1	1	1	**IZS**	0	14	6.1	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	**IZS**	0	1	1	0.2	24
3	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	**IZS**	1	1	1	1	0.8	24
4	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	**IZS**	1	1	1	1	1	0.8	24
5	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	2	0.9	24
6	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	**IZS**	1	1	2	1	1	1	2	0.4	24
7	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	2	0.8	24
8	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	1	1	1	0	0	1	0.2	17
9	1	0	1	0	0	1	0	0	1	1	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0	0	1	0.3	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	1	0	0	0	1	0.0	24
11	0	0	0	0	1	1	0	1	1	1	1	1	**IZS**	3	3	3	4	4	0	0	0	0	0	0	4	1.0	24
12	0	0	1	1	1	1	0	0	2	5	0	**IZS**	6	1	1	2	1	1	1	1	1	1	3	2	6	1.4	24
13	1	1	1	1	2	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
14	1	1	2	1	1	1	1	1	2	**IZS**	14	9	13	12	11	14	12	7	8	1	1	0	0	0	14	4.9	24
15	0	0	0	0	0	0	0	0	**IZS**	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	0.3	24
16	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	8	9	8	0	9	1.1	24
17	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	4	0	0	2	1	1	1	4	2	4	0.7	24
18	0	0	6	5	7	**IZS**	7	6	1	1	1	1	3	1	1	7	1	0	0	0	0	0	1	0	7	2.1	24
19	0	0	0	0	**IZS**	0	0	3	3	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	3	0.5	24
20	0	0	0	**IZS**	0	2	2	1	0	2	0	6	4	7	1	2	1	1	1	1	2	1	1	1	7	1.6	24
21	1	1	**IZS**	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
22	0	**IZS**	0	0	1	1	2	3	3	2	2	2	4	2	3	1	1	0	0	0	0	0	0	0	4	1.2	24
23	**IZS**	0	0	1	2	2	2	2	1	1	1	2	1	1	7	11	7	1	1	2	2	1	1	**IZS**	11	2.2	24
24	0	0	0	7	10	15	8	12	12	4	1	15	11	7	9	13	17	15	3	3	1	0	**IZS**	9	17	7.5	24
25	12	5	4	0	0	0	0	0	0	0	1	1	2	3	0	2	1	1	1	0	0	**IZS**	0	0	12	1.4	24
26	0	0	0	1	6	2	0	0	3	9	4	2	0	1	1	0	0	1	3	3	**IZS**	1	0	0	9	1.6	24
27	0	0	0	0	0	0	0	1	1	2	1	1	1	1	0	0	0	0	0	**IZS**	3	2	4	13	13	1.3	24
28	**18**	0	0	1	1	0	0	0	0	1	1	1	1	1	0	0	0	0	**IZS**	0	0	0	0	0	**18**	1.1	24
29	0	0	2	1	9	2	9	7	4	11	7	7	7	7	1	3	8	**IZS**	9	2	9	4	3	0	11	4.9	24
30	0	2	1	1	2	5	5	0	0	0	0	2	1	1	0	0	**IZS**	0	1	1	1	0	0	0	5	1.0	24
HOURLY MAX	18	11	9	12	11	15	12	13	14	11	14	15	13	12	11	14	17	15	9	3	9	9	8	13			
HOURLY AVG	1.5	0.9	1.1	1.3	2.1	1.7	1.9	1.9	1.8	2.0	1.8	2.4	2.5	2.1	1.7	2.4	2.1	1.3	1.3	0.8	1.3	1.0	1.1	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:	376					
MAXIMUM INSTANTANEOUS VALUE:	18	PPB	@ HOUR(S)	0	ON DAY(S)	28
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:		713	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	2.97					



JOB #: 2833-12-11-30-C

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

November 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	6.05	12.11	8.12	5.02	3.10	10.48	9.89	4.13	3.84	9.15	5.90	4.57	4.28	5.31	3.84	4.13	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.05	12.11	8.12	5.02	3.10	10.48	9.89	4.13	3.84	9.15	5.90	4.57	4.28	5.31	3.84	4.13	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	41	82	55	34	21	71	67	28	26	62	40	31	29	36	26	28	677
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	41	82	55	34	21	71	67	28	26	62	40	31	29	36	26	28	

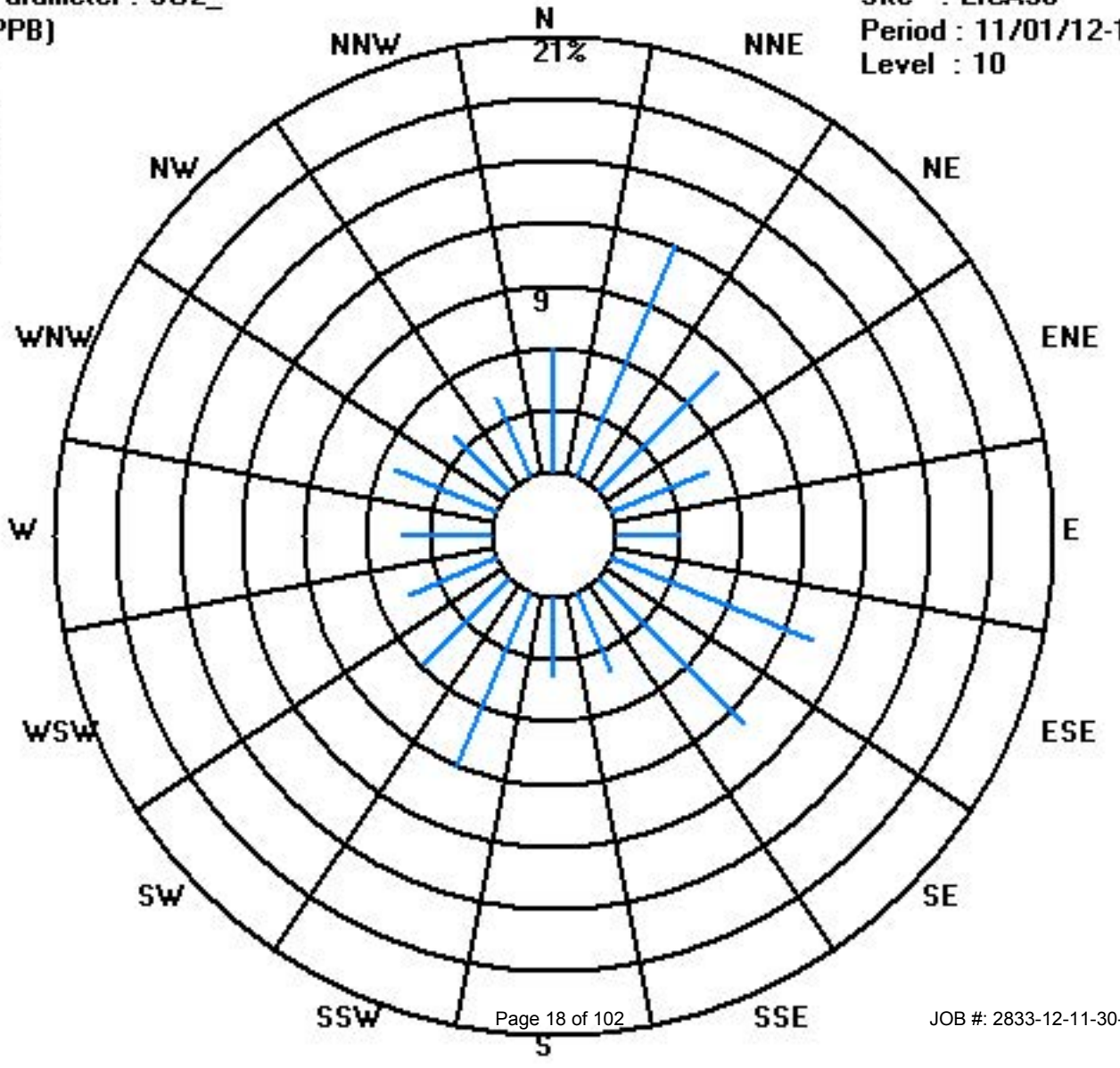
Calm : .00 %

Total # Operational Hours : 677

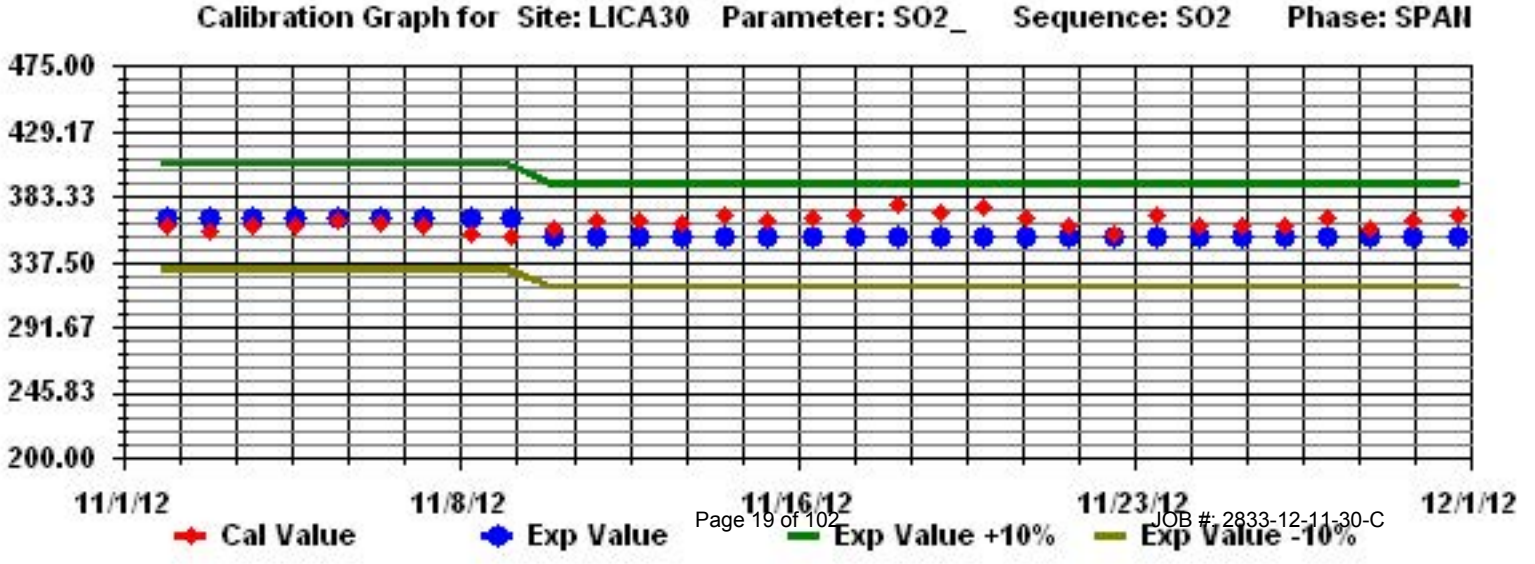
Logger : 30 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA30
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-30-C


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN
475.00
429.17
383.33
337.50
291.67
245.83
200.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

HYDROGEN SULPHIDE (H_2S) hourly averages in ppb

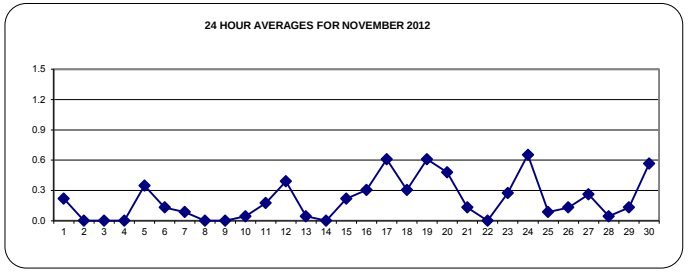
MST

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

STATUS FLAG CODES

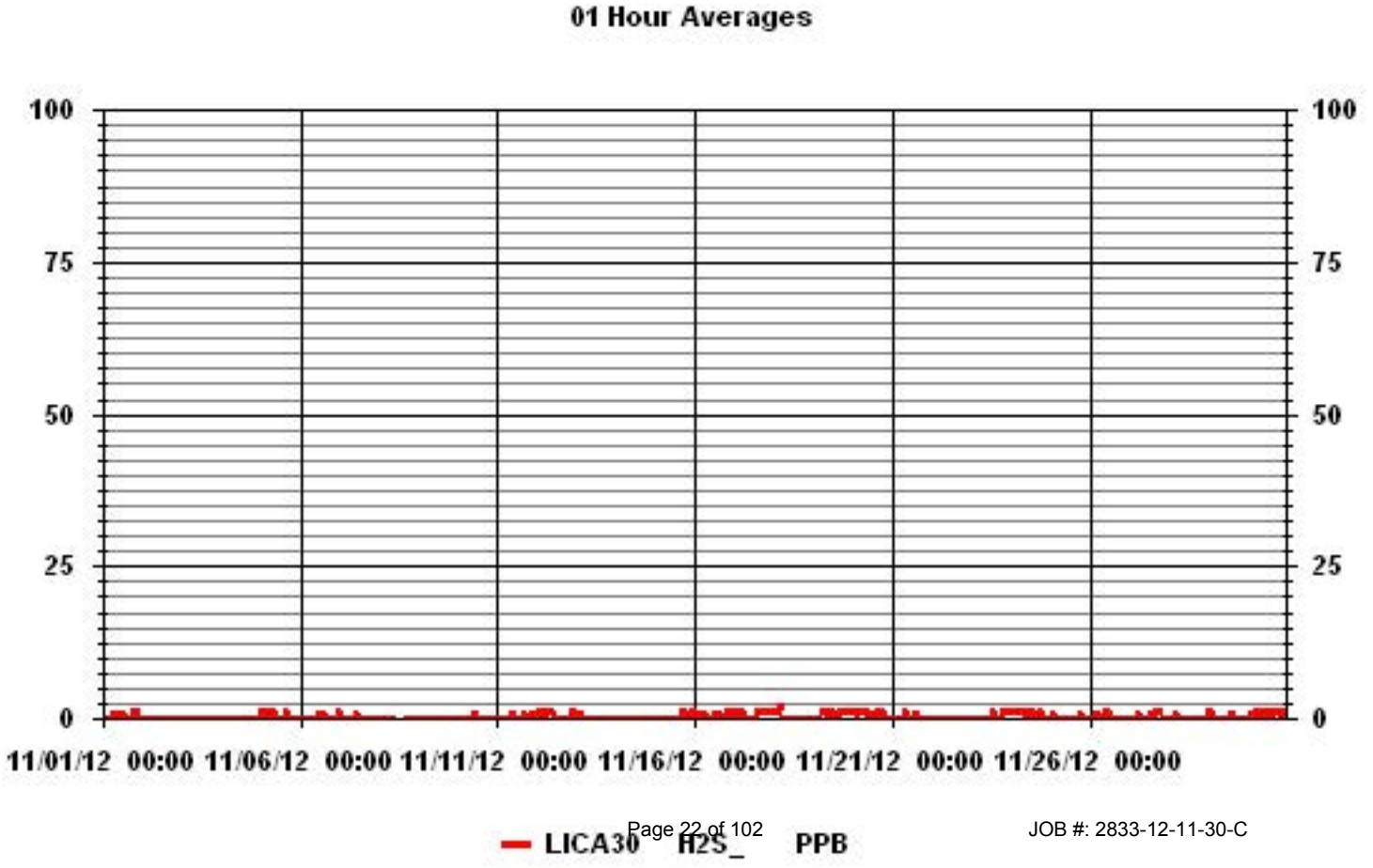
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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:	141					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	3, 4	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S)	24
					VAR-VARIOUS	
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:		715	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.3	%
STANDARD DEVIATION:	0.41		MONTHLY AVERAGE:		0.21	PPB



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

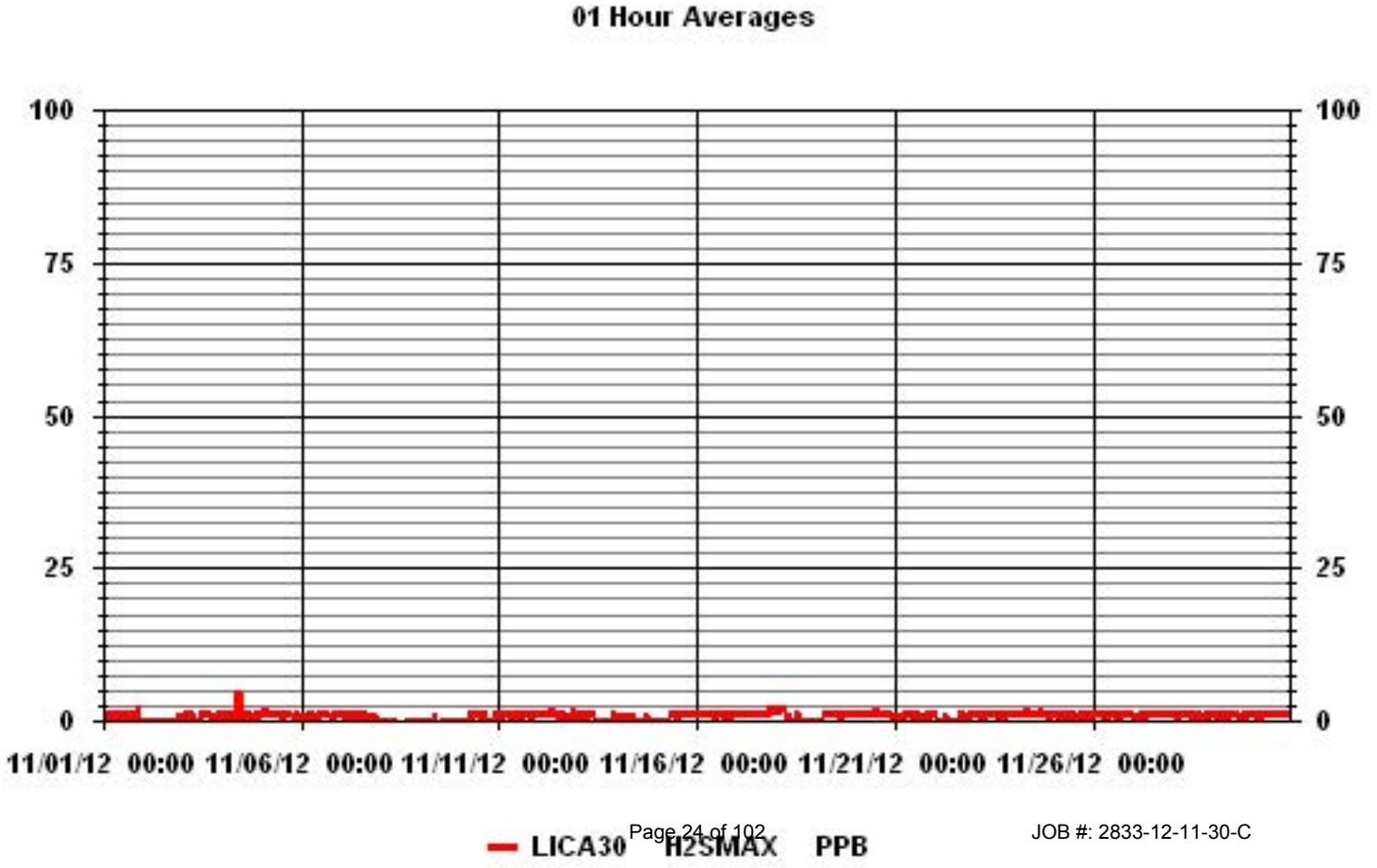
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00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

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:	426					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	10	ON DAY(S)	4
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:		715	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.54					



JOB #: 2833-12-11-30-C

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

November 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	6.03	12.22	8.24	5.00	3.09	10.45	9.86	4.12	3.82	9.13	5.89	4.56	4.27	5.30	3.82	4.12	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.03	12.22	8.24	5.00	3.09	10.45	9.86	4.12	3.82	9.13	5.89	4.56	4.27	5.30	3.82	4.12	

Calm : .00 %

Total # Operational Hours : 679

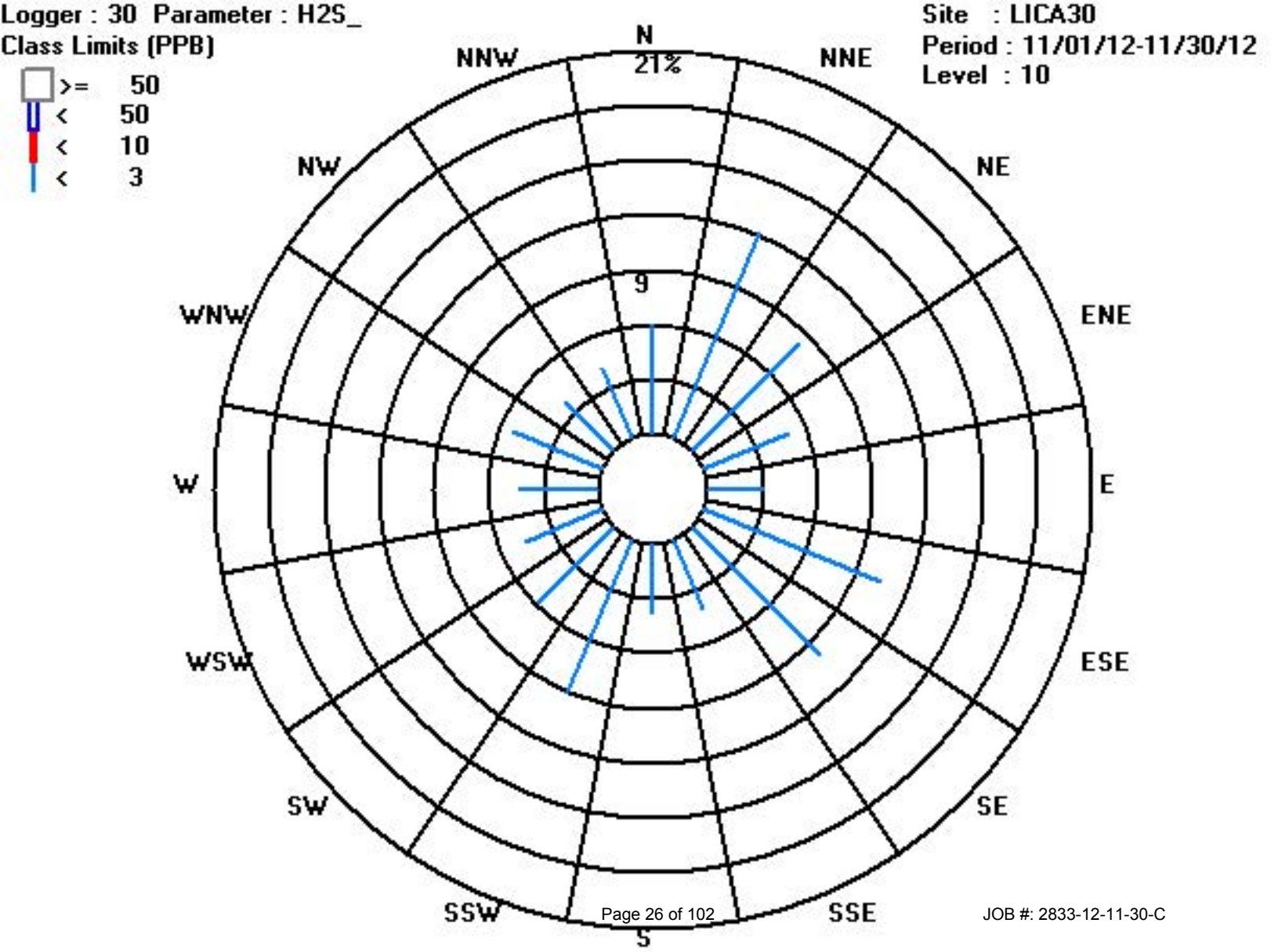
Distribution By Samples

Direction

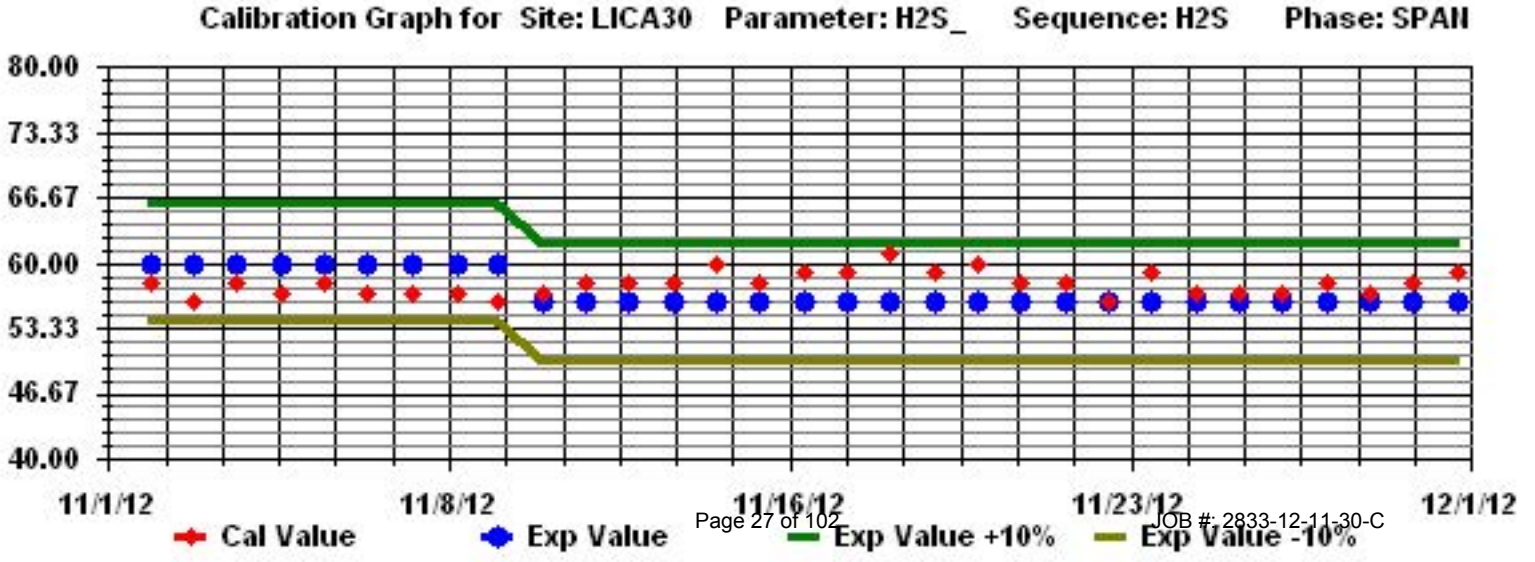
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	41	83	56	34	21	71	67	28	26	62	40	31	29	36	26	28	679
< 10																	
< 50																	
>= 50																	
Totals	41	83	56	34	21	71	67	28	26	62	40	31	29	36	26	28	

Calm : .00 %

Total # Operational Hours : 679



JOB #: 2833-12-11-30-C


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAN
80.00
73.33
66.67
60.00
53.33
46.67
40.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

NOVEMBER 2012

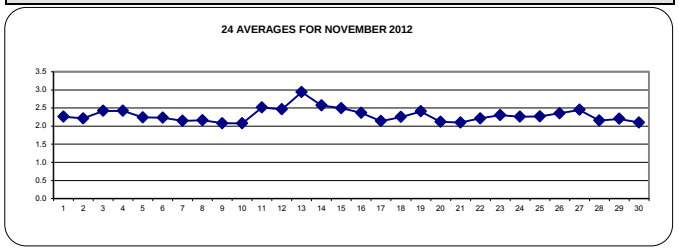
TOTAL HYDROCARBONS hourly averages in ppm

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	2.2	2.4	2.4	2.5	2.4	2.4	2.5	2.6	2.6	2.4	2.3	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	2.6	2.3	24
2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	**IZS**	2.2	2.2	2.3	2.2	24
3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.3	2.5	2.7	2.6	2.5	2.5	2.5	2.6	2.5	2.5	2.5	**IZS**	2.4	2.4	2.4	2.7	2.4	24
4	2.4	2.3	2.4	2.4	2.5	2.5	2.6	2.5	2.4	2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.3	2.4	**IZS**	2.4	2.5	2.4	2.5	2.6	2.4	24
5	2.5	2.5	2.4	2.4	2.7	2.6	2.4	2.2	2.6	2.6	2.1	2	2.1	2.1	2	2.1	2	2	**IZS**	2	2	2	2.1	2.1	2.7	2.2	24
6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.4	2.3	2.3	2.3	**IZS**	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.2	24
7	2.5	2.3	2.2	2.2	2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.1	24
8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**C**	**C**	**C**	**C**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	24
9	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**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2.1	2.1	24
10	2	2.1	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.1	24
11	2.3	2.3	2.3	2.3	2.4	2.6	2.8	2.6	2.5	2.4	2.4	2.5	**IZS**	2.3	2.3	2.3	2.5	2.7	2.8	2.8	2.7	2.7	2.6	2.7	2.8	2.5	24
12	2.9	2.8	2.8	2.9	2.9	2.8	2.7	2.5	2.6	2.5	2.2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.3	2.2	2.9	2.5	24
13	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.6	**IZS**	2.9	2.8	3	3.1	3.3	3.4	3.5	3.6	3.7	**4**	3.9	3.8	3.7	**4.0**	**2.9**	24
14	3.5	3.3	3.3	3.3	3.2	2.9	2.8	2.8	2.7	**IZS**	2.1	2.1	2.2	2.2	2.2	2.1	2.3	2.4	2.4	2.2	2.4	2.2	2.2	2.3	3.5	2.6	24
15	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.2	**IZS**	2.4	2.6	2.6	2.6	2.7	2.7	2.8	2.9	2.9	2.7	2.6	2.6	2.6	2.7	2.7	2.9	2.5	24
16	2.7	2.8	2.7	2.7	2.7	2.6	2.4	**IZS**	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.4	2.5	2.4	2.2	2.8	2.4	24
17	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	24
18	2.1	2	2.1	2.1	2.2	**IZS**	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.3	24
19	2.6	2.7	2.7	2.7	**IZS**	2.6	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.7	2.4	24
20	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	24
21	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
22	2.1	**IZS**	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.2	24
23	**IZS**	2.6	2.7	2.5	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.3	**IZS**	2.7	2.3	24
24	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	**IZS**	2.3	2.4	2.3	24
25	2.3	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.3	2.3	**IZS**	2.3	2.5	2.5	2.3	24
26	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.4	**IZS**	2.5	2.3	2.2	2.6	2.4	24
27	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.5	2.6	3	3.1	2.7	2.6	2.6	2.5	2.4	2.3	2.4	2.4	**IZS**	2.4	2.5	2.4	2.3	3.1	2.4	24
28	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	**IZS**	2.1	2.1	2.1	2.2	2.1	2.2	2.2	24
29	2.1	2.1	2.2	2.2	2.3	2.1	2.3	2.3	2.2	2.4	2.2	2.3	2.3	2.2	2.1	2.2	2.3	**IZS**	2.2	2.1	2.2	2.1	2.1	2.1	2.4	2.2	24
30	2.1	2.1	2.1	2.1	2.1	2.1	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	24
HOURLY MAX	3.5	3.3	3.3	3.3	3.2	2.9	2.8	2.8	2.7	3.0	3.1	2.9	2.8	3.0	3.1	3.3	3.4	3.5	3.6	3.7	4.0	3.9	3.8	3.7			
HOURLY AVG	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3			

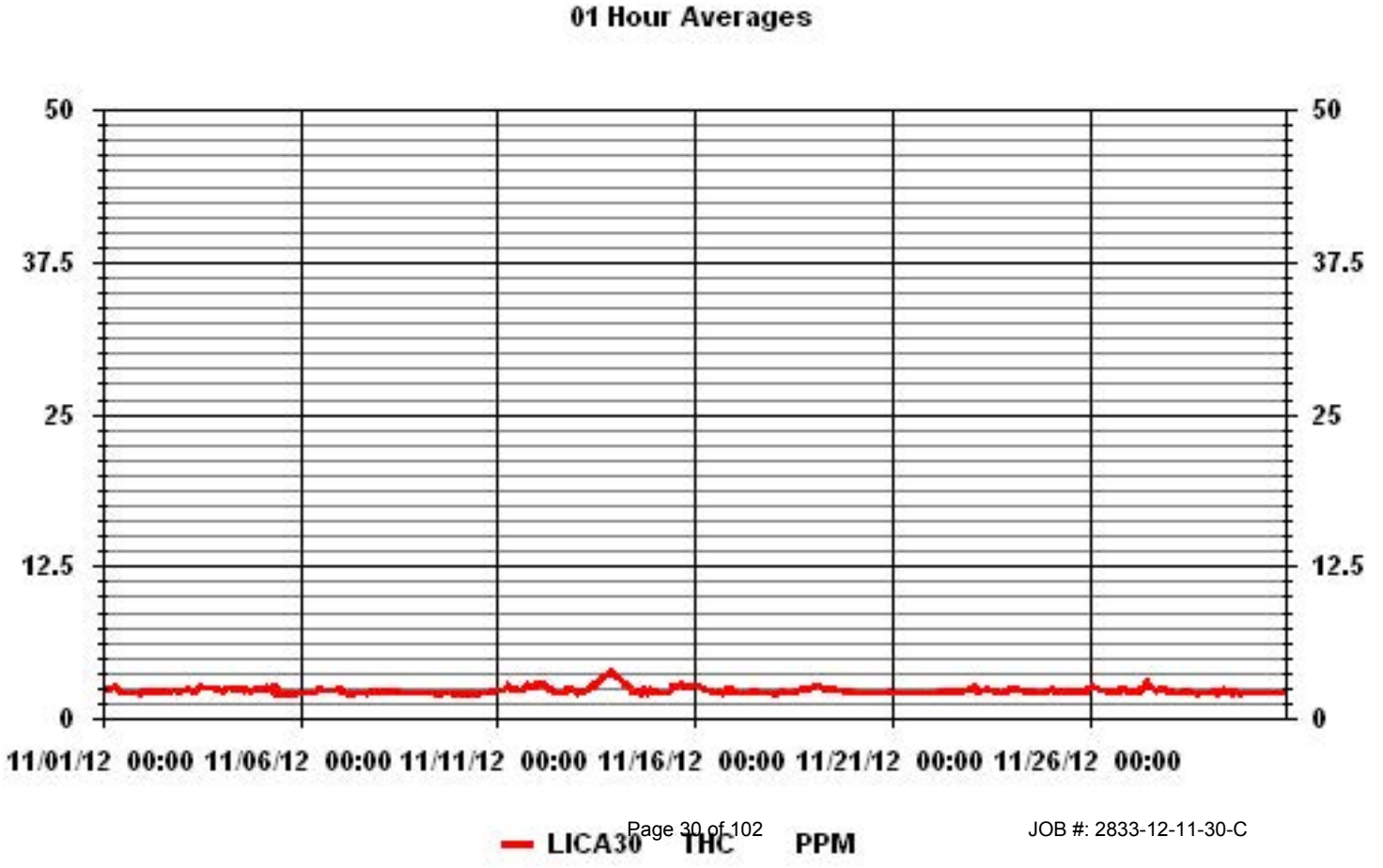
STATUS FLAG CODES

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:	686						
MAXIMUM 1-HR AVERAGE:	4.0	PPM	@ HOUR(S)	20	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	2.9	PPM			ON DAY(S)	13	
					VAR- VARIOUS		
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	0.27		MONTHLY AVERAGE:		2.30	PPM	



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

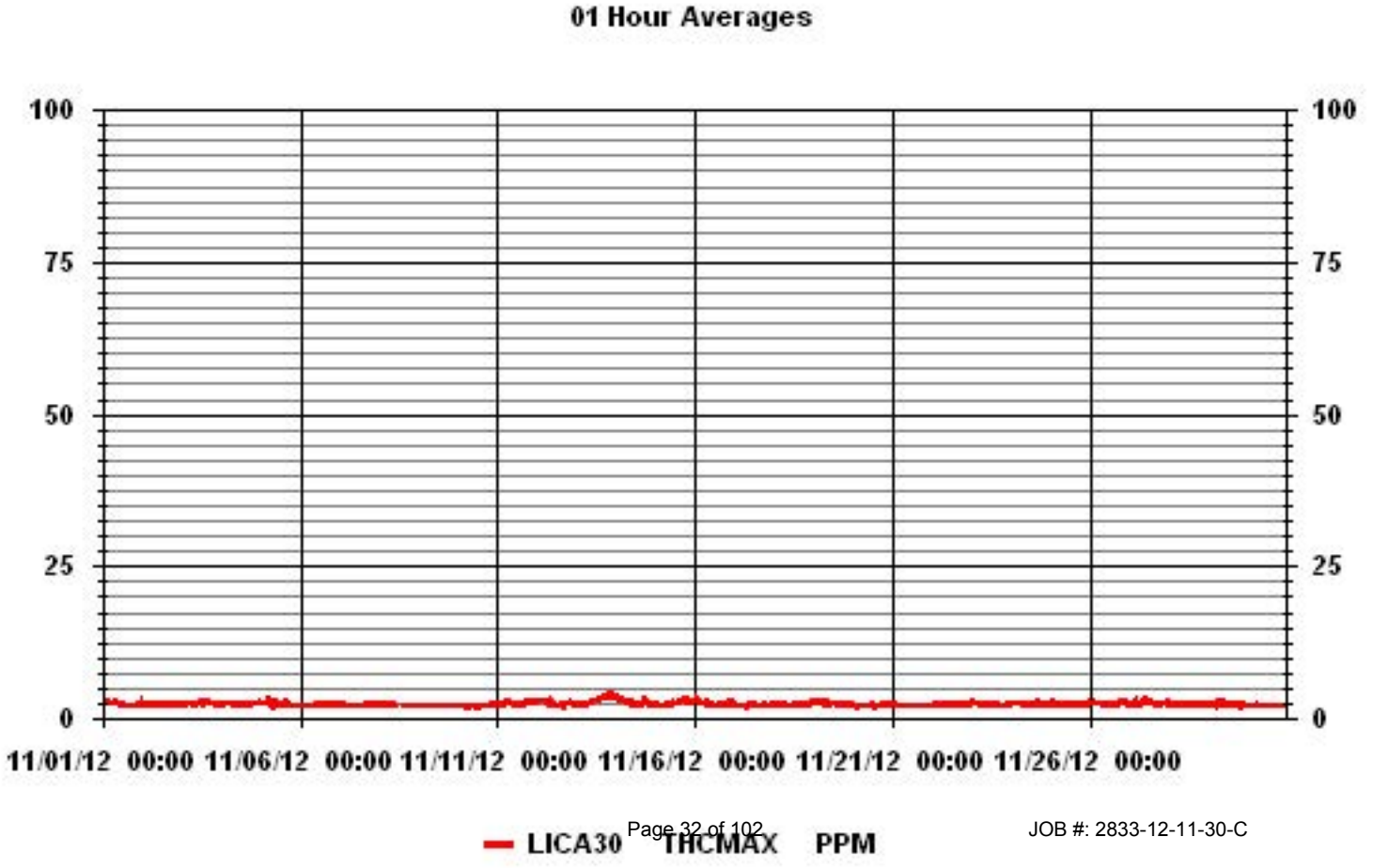
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.3	2.6	2.6	2.8	2.8	2.6	2.7	3	2.9	2.9	2.5	2.6	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	**IZS**	2.2	3	2.4	24
2	2.9	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.5	**IZS**	2.2	2.3	2.9	2.3	24
3	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.4	2.5	2.9	2.8	2.5	2.6	2.6	2.6	2.6	2.5	2.5	**IZS**	2.4	2.4	2.4	2.9	2.5	24
4	2.6	2.4	2.4	2.5	2.5	2.6	2.7	2.6	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	**IZS**	2.5	2.5	2.5	2.6	2.7	2.5	24
5	2.6	2.5	2.5	2.5	3.2	3.1	2.6	2.3	2.8	2.8	2.3	2.1	2.2	2.6	2.5	2.7	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	3.2	2.4	24
6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.5	2.6	2.5	2.3	2.3	2.3	**IZS**	2.3	2.3	2.3	2.5	2.4	2.7	2.7	2.3	24
7	2.6	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	2.2	24
8	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.5	2.3	2.2	**C**	**C**	**C**	**C**	**C**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.2	24
9	2.1	2.1	2.1	2.1	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	2.1	2.1	24
10	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2	2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.3	2.3	2.4	2.1	24
11	2.3	2.4	2.4	2.4	2.8	2.7	2.9	2.8	2.6	2.5	2.4	2.6	**IZS**	2.4	2.4	2.4	2.5	2.8	2.8	2.8	2.8	2.8	2.7	2.8	2.9	2.6	24
12	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.6	3.2	2.9	2.2	**IZS**	2.3	2.1	2.1	2.5	2.1	2.4	2.5	2.5	2.6	2.6	2.5	2.2	3.2	2.6	24
13	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.8	**IZS**	2.9	2.9	3	3.3	3.4	3.5	3.6	3.6	4	4	4	3.9	3.8	**4**	3.0	24
14	3.6	3.5	3.3	3.4	3.3	3.1	2.8	2.9	2.8	**IZS**	2.4	2.3	2.4	2.4	2.4	2.4	2.7	3.2	3.2	2.5	2.7	2.3	2.3	2.3	3.6	2.8	24
15	2.5	2.5	2.2	2.1	2.1	2.1	2.2	2.2	**IZS**	2.5	2.6	2.6	2.6	2.7	2.7	2.8	3	3	3.2	2.7	2.6	2.6	3	3.1	3.2	2.6	24
16	3.5	3.1	2.8	2.7	2.7	2.6	2.6	**IZS**	2.4	2.3	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.9	2.7	2.7	2.2	3.5	2.5	24
17	2.2	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.1	2.1	2.4	2.1	2.4	2.2	24
18	2.1	2.1	2.5	2.4	2.5	**IZS**	2.5	2.5	2.1	2.1	2.1	2.2	2.5	2.4	2.4	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.6	3	3	2.4	24
19	2.8	3	2.8	3	**IZS**	2.7	2.5	2.7	2.9	2.5	2.4	2.5	2.7	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	3	2.5	24
20	2.2	2.2	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.5	2.2	24
21	2.2	2.2	**IZS**	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
22	2.1	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.6	2.6	2.3	24
23	**IZS**	2.8	2.8	2.6	2.4	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.6	2.5	2.4	2.1	2.1	2.2	2.4	2.2	2.3	**IZS**	2.8	2.4	24
24	2.5	2.5	2.5	2.5	2.6	2.8	2.6	2.4	2.5	2.5	2.4	2.4	2.5	2.4	2.3	2.7	2.7	2.2	2.1	2.2	2.2	2.2	**IZS**	2.6	2.8	2.4	24
25	2.4	2.7	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	**IZS**	2.4	2.6	2.8	2.3	24
26	2.6	2.7	2.6	2.6	2.7	2.5	2.4	2.3	2.4	2.5	2.4	2.4	2.2	2.2	2.4	2.3	2.3	2.4	2.9	2.9	**IZS**	2.8	2.5	2.3	2.9	2.5	24
27	2.3	2.2	2.7	3	2.2	2.2	2.4	2.5	2.9	3.1	3.2	2.9	2.6	2.6	2.6	2.5	2.4	2.4	2.5	**IZS**	2.5	2.5	2.6	2.6	3.2	2.6	24
28	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	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
29	2.2	2.2	2.4	2.3	2.7	2.3	2.6	2.6	2.4	2.8	2.5	2.6	2.8	2.6	2.3	2.5	2.6	**IZS**	2.5	2.2	2.6	2.4	2.3	2.1	2.8	2.5	24
30	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	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
HOURLY MAX	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4			
HOURLY AVG	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	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	- 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:	685						
MAXIMUM INSTANTANEOUS VALUE:	4.0	PPM	@ HOUR(S)	VAR	ON DAY(S)	13	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	5	HRS					
STANDARD DEVIATION:	0.32						



JOB #: 2833-12-11-30-C

LICA30
THC / WDR Joint Frequency Distribution (Percent)

November 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	5.97	12.68	8.45	5.10	3.06	10.34	9.76	4.08	3.20	7.43	5.39	4.51	4.22	5.24	3.79	4.08	97.37
<	10.0	.00	.00	.00	.00	.00	.00	.00	.00	.58	1.60	.43	.00	.00	.00	.00	.00	2.62
<	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	5.97	12.68	8.45	5.10	3.06	10.34	9.76	4.08	3.79	9.03	5.83	4.51	4.22	5.24	3.79	4.08	

Calm : .00 %

Total # Operational Hours : 686

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	41	87	58	35	21	71	67	28	22	51	37	31	29	36	26	28	668
<	10.0									4	11	3						18
<	50.0																	
>=	50.0																	
	Totals	41	87	58	35	21	71	67	28	26	62	40	31	29	36	26	28	

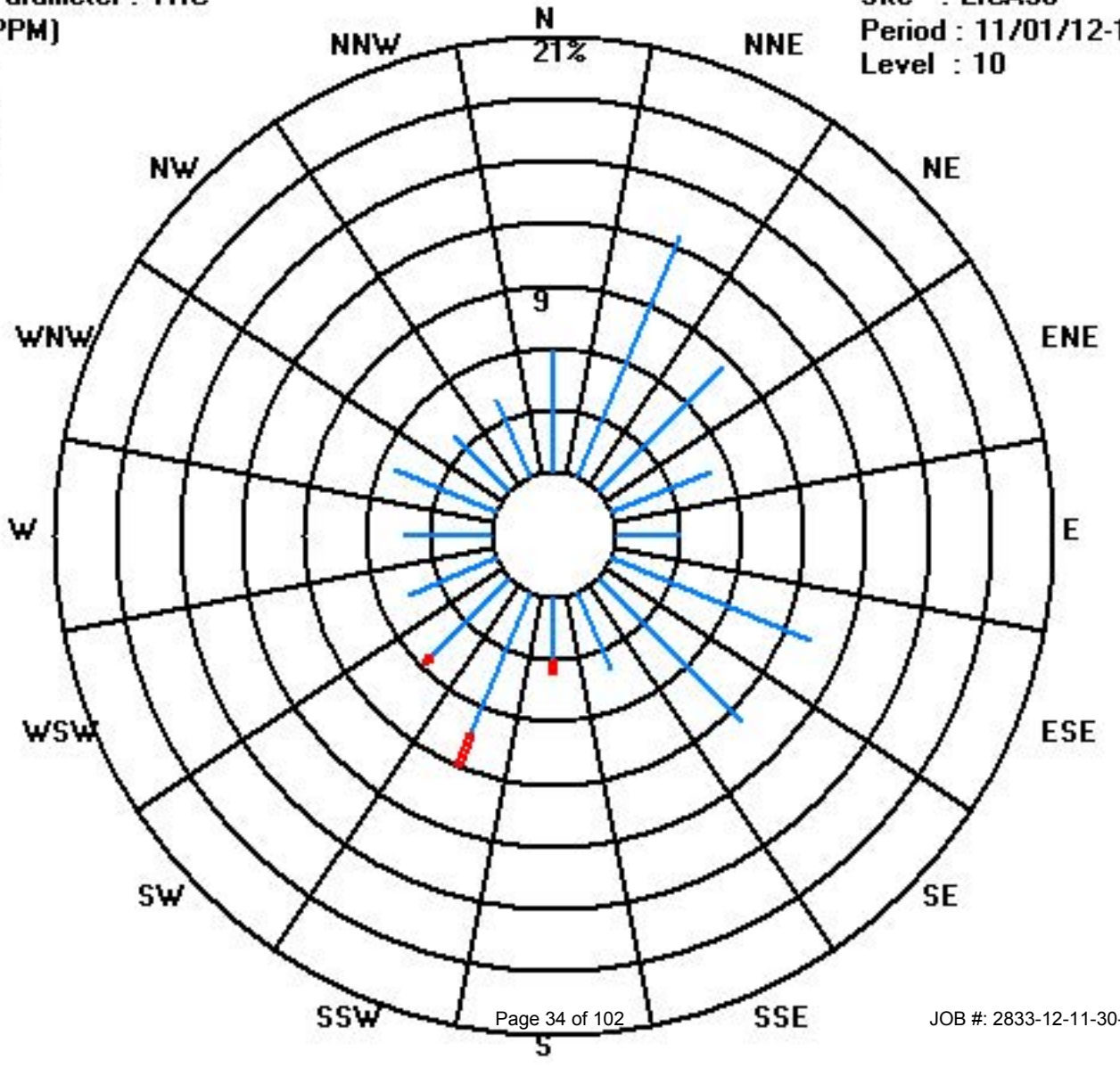
Calm : .00 %

Total # Operational Hours : 686

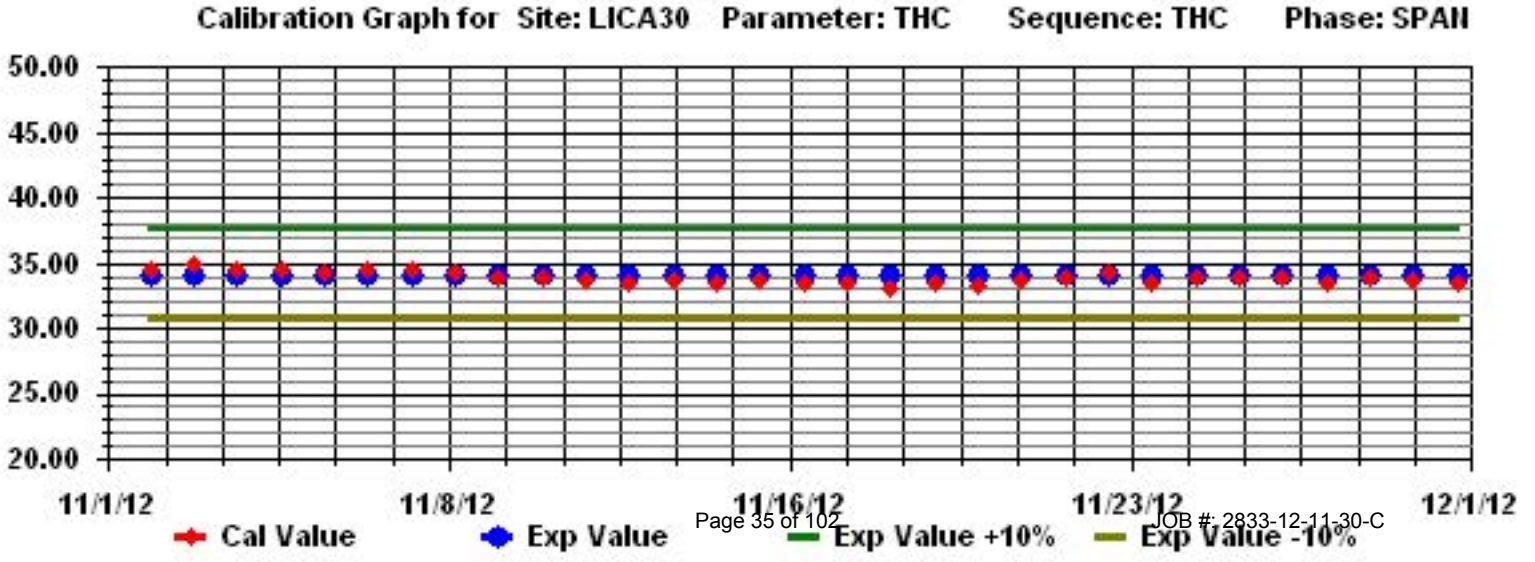
Logger : 30 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA30
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-30-C


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

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

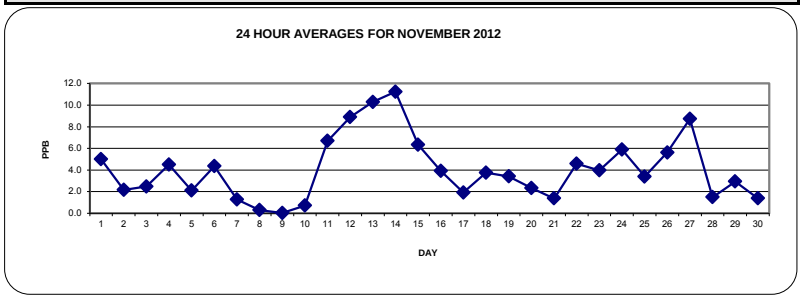
MST

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	9	7	10	9	6	9	10	11	8	8	6	5	3	2	2	2	1	1	1	2	2	**IZS**	1	11	5.0	24
2	1	1	0	1	1	2	2	3	3	3	2	2	2	3	4	4	4	3	3	3	2	**IZS**	2	2	4	2.1	24
3	2	1	2	4	4	3	2	1	1	1	2	3	3	2	3	3	3	4	3	4	**IZS**	2	2	3	4	2.5	24
4	4	2	3	2	4	4	6	5	4	5	5	5	5	5	5	5	5	6	6	**IZS**	5	5	4	4	6	4.5	24
5	5	4	3	2	3	4	4	7	7	6	2	0	1	0	0	1	1	0	**IZS**	0	0	0	0	0	7	2.1	24
6	0	0	0	0	0	0	2	6	9	5	7	7	8	4	3	3	7	**IZS**	7	7	7	6	6	6	9	4.3	24
7	7	4	5	5	2	1	1	0	0	1	0	0	0	0	0	1	**IZS**	0	0	1	1	0	1	0	7	1.3	24
8	0	0	0	0	1	1	1	1	1	**C**	**C**	**M**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	1	0.3	23
9	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
10	0	0	0	0	0	0	0	0	1	0	1	1	0	**IZS**	0	0	1	1	1	1	2	2	2	3	3	0.7	24
11	3	4	5	6	7	9	11	10	6	5	3	4	**IZS**	4	4	4	8	9	7	7	8	9	9	10	11	6.7	24
12	12	13	16	18	18	18	16	16	13	12	4	**IZS**	4	1	1	3	1	2	7	8	7	7	7	2	18	8.9	24
13	1	2	2	1	1	1	1	2	4	6	**IZS**	6	8	11	12	15	20	**23**	22	19	19	20	20	19	**23**	10.3	24
14	18	18	18	18	18	16	16	18	17	**IZS**	12	7	5	6	7	10	13	7	9	5	8	4	5	5	18	**11.2**	24
15	4	2	1	0	0	0	0	0	**IZS**	4	4	5	5	6	7	10	13	16	14	12	12	11	10	9	16	6.3	24
16	9	10	10	10	8	7	4	**IZS**	2	1	1	1	1	1	1	1	1	0	0	0	5	8	7	1	10	3.9	24
17	1	1	1	1	1	1	**IZS**	1	1	1	2	3	2	2	2	3	2	2	3	3	3	3	4	4	4	1.9	24
18	2	2	8	8	9	**IZS**	6	4	2	2	2	2	4	3	3	5	3	2	2	3	3	3	5	5	9	3.7	24
19	5	5	6	5	**IZS**	7	6	6	6	4	3	3	3	3	3	3	3	2	2	2	2	1	1	1	7	3.4	24
20	1	1	0	**IZS**	1	1	1	1	1	1	0	4	3	4	2	3	4	4	5	4	4	3	3	3	5	2.3	24
21	3	3	**IZS**	4	3	3	3	3	2	1	1	1	0	1	1	0	1	1	0	0	0	0	0	1	4	1.4	24
22	0	**IZS**	0	0	1	2	3	5	6	5	4	4	3	5	5	4	8	10	5	8	7	9	7	6	10	4.6	24
23	**IZS**	7	7	5	4	3	3	4	4	4	3	3	3	3	8	8	5	2	2	2	3	3	3	**IZS**	8	4.0	24
24	6	6	6	7	12	12	8	10	9	4	5	8	7	6	3	5	7	5	1	1	0	0	**IZS**	7	12	5.9	24
25	7	8	5	1	1	2	3	2	3	1	3	3	4	4	3	4	5	4	2	3	3	**IZS**	2	3	8	3.4	24
26	4	4	4	7	7	6	3	12	9	6	6	4	1	4	4	2	7	8	11	6	**IZS**	7	5	4	12	5.6	24
27	3	2	1	2	1	1	4	14	15	15	10	6	6	6	6	7	9	11	12	**IZS**	17	20	20	12	20	8.7	24
28	10	2	2	1	1	0	0	2	6	3	1	2	1	1	0	0	0	0	**IZS**	0	1	1	1	0	10	1.5	24
29	0	0	1	1	5	2	5	6	2	6	4	4	5	3	1	2	4	**IZS**	4	1	5	4	3	0	6	2.9	24
30	1	3	1	1	2	4	2	0	0	0	1	1	2	2	1	2	**IZS**	2	2	2	1	1	1	0	4	1.4	24
HOURLY MAX	NA	18	18	18	18	18	16	18	17	15	12	8	8	11	12	15	20	23	22	19	19	20	20	19			
HOURLY AVG	NA	3.9	3.8	4.2	4.3	4.1	4.3	5.1	4.9	3.9	3.5	3.4	3.2	3.3	3.2	3.8	5.0	4.6	4.7	3.7	4.5	4.6	4.5	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

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

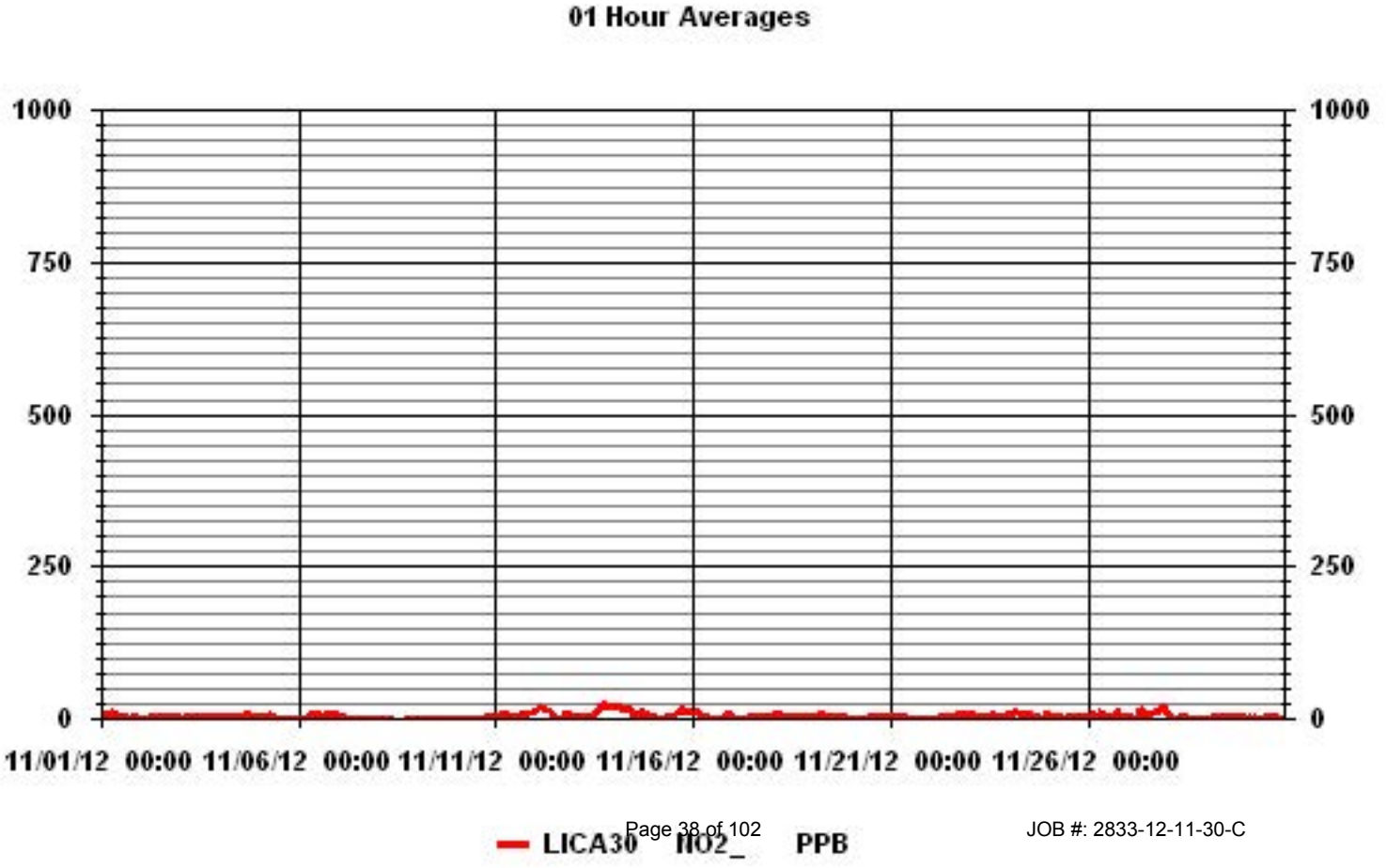


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	633					
MAXIMUM 1-HR AVERAGE:	23	PPB	@ HOUR(S)	7	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	11.2	PPB			ON DAY(S)	14

IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	4.26		MONTHLY AVERAGE:	4.07	PPB

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 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	5	12	9	11	12	9	12	12	13	10	9	8	7	6	3	3	2	2	1	2	2	2	**IZS**	1	13	6.7	24
2	1	1	1	1	2	4	3	4	4	3	3	3	3	4	5	7	6	4	4	3	3	**IZS**	2	3	7	3.2	24
3	4	2	3	6	6	5	3	2	2	2	2	3	3	3	3	3	4	4	4	5	**IZS**	3	4	4	6	3.5	24
4	6	3	3	4	6	5	7	7	5	6	6	6	6	6	5	8	7	7	7	**IZS**	6	5	5	5	8	5.7	24
5	6	6	4	3	4	5	5	13	8	8	4	1	1	1	1	2	2	2	**IZS**	1	1	1	1	1	13	3.5	24
6	1	2	1	1	1	1	6	21	12	8	10	9	9	7	5	5	17	**IZS**	12	9	9	7	8	7	21	7.3	24
7	8	5	7	8	3	2	1	1	1	1	1	1	1	1	1	1	**IZS**	1	2	1	1	1	1	1	8	2.2	24
8	1	1	1	1	1	1	2	2	2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	1	1	1	1	1	2	1.1	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	0	0	0	1	1	1	0.9	24
10	1	1	0	0	0	1	1	1	2	1	2	2	1	**IZS**	0	1	6	1	2	2	3	3	3	4	6	1.7	24
11	4	5	7	7	11	11	14	12	8	8	5	5	**IZS**	5	5	6	10	12	8	8	9	10	10	11	14	8.3	24
12	12	14	20	19	19	20	19	19	15	16	5	**IZS**	8	2	3	9	1	5	8	9	8	10	12	3	20	11.1	24
13	2	3	3	2	2	2	2	4	5	6	**IZS**	6	9	12	13	18	22	26	23	21	20	20	20	19	26	11.3	24
14	19	20	18	19	19	18	17	20	18	**IZS**	18	12	16	14	19	20	**36**	14	18	8	10	8	5	7	**36**	16.2	24
15	5	4	2	1	0	0	0	1	**IZS**	5	5	11	6	7	8	12	15	19	16	13	13	12	11	10	19	7.7	24
16	10	12	12	11	10	9	6	**IZS**	3	2	2	1	1	1	2	1	1	1	1	1	13	13	13	2	13	5.6	24
17	2	2	1	1	1	1	**IZS**	1	2	2	3	3	3	3	4	8	2	4	6	5	5	5	10	8	10	3.6	24
18	4	3	14	12	14	**IZS**	12	8	3	2	2	3	7	5	6	14	6	3	3	5	5	4	6	5	14	6.3	24
19	6	6	7	6	**IZS**	7	7	9	8	4	4	3	4	3	4	4	3	3	2	2	2	2	2	2	9	4.3	24
20	1	1	1	**IZS**	2	4	4	7	3	4	1	11	9	14	4	4	6	5	7	5	6	4	4	4	14	4.8	24
21	4	4	**IZS**	4	4	4	4	3	2	2	3	1	1	2	2	1	2	1	1	1	1	1	1	2	4	2.2	24
22	1	**IZS**	1	1	2	3	5	7	8	6	5	5	5	7	15	7	25	24	9	11	8	10	8	6	25	7.8	24
23	**IZS**	9	8	6	5	4	4	5	5	4	3	4	3	3	12	13	10	2	2	3	4	4	4	**IZS**	13	5.3	24
24	7	7	6	22	19	19	13	17	15	9	7	15	11	10	10	15	18	14	5	3	2	1	**IZS**	12	22	11.2	24
25	16	12	12	2	2	3	7	5	3	2	5	4	6	7	3	6	7	5	4	4	3	**IZS**	3	4	16	5.4	24
26	5	5	5	10	11	13	5	18	11	13	7	13	2	4	5	6	19	22	16	9	**IZS**	8	6	5	22	9.5	24
27	4	3	2	5	2	3	9	17	17	21	13	8	7	7	7	14	13	23	13	**IZS**	20	21	25	25	25	12.1	24
28	22	3	3	2	1	1	1	3	28	24	2	2	2	2	1	1	1	1	**IZS**	1	1	1	1	1	28	4.6	24
29	1	1	3	3	10	4	10	8	6	12	9	7	8	6	2	4	9	**IZS**	8	3	11	6	5	2	12	6.0	24
30	3	4	2	3	3	6	4	1	1	1	2	3	3	3	2	3	**IZS**	2	2	2	2	2	1	1	6	2.4	24
HOURLY MAX	22	20	20	22	19	20	19	21	28	24	18	15	16	14	19	20	36	26	23	21	20	21	25	25			
HOURLY AVG	5.6	5.2	5.4	5.9	6.0	5.7	6.3	7.9	7.3	6.5	5.0	5.4	5.1	5.2	5.4	6.8	9.3	7.7	6.6	4.9	6.0	5.9	6.2	5.4			

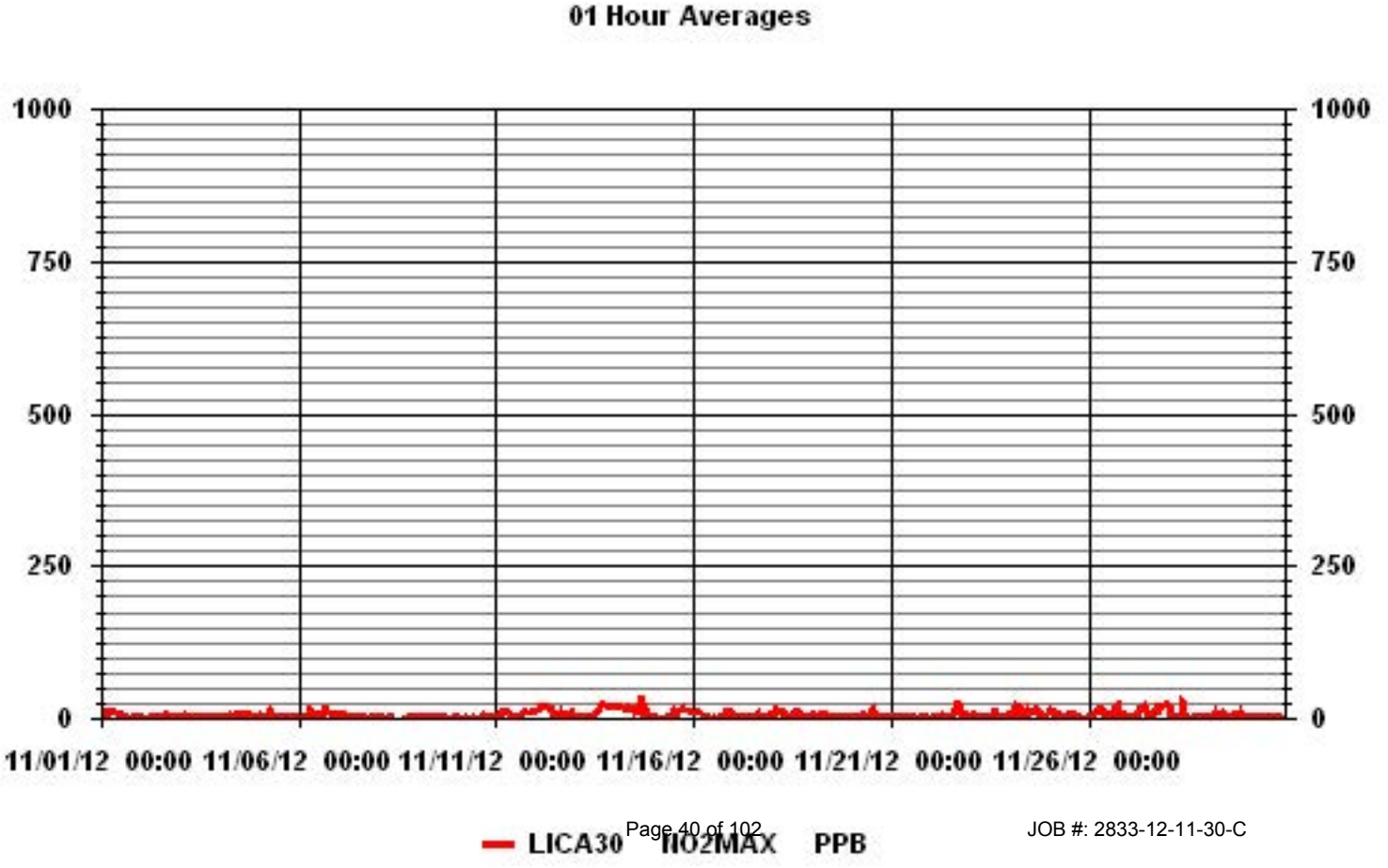
STATUS FLAG CODES

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:	670					
MAXIMUM INSTANTANEOUS VALUE:	36	PPB	@ HOUR(S)	16	ON DAY(S)	14
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	5.65					

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

November 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	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	681
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	

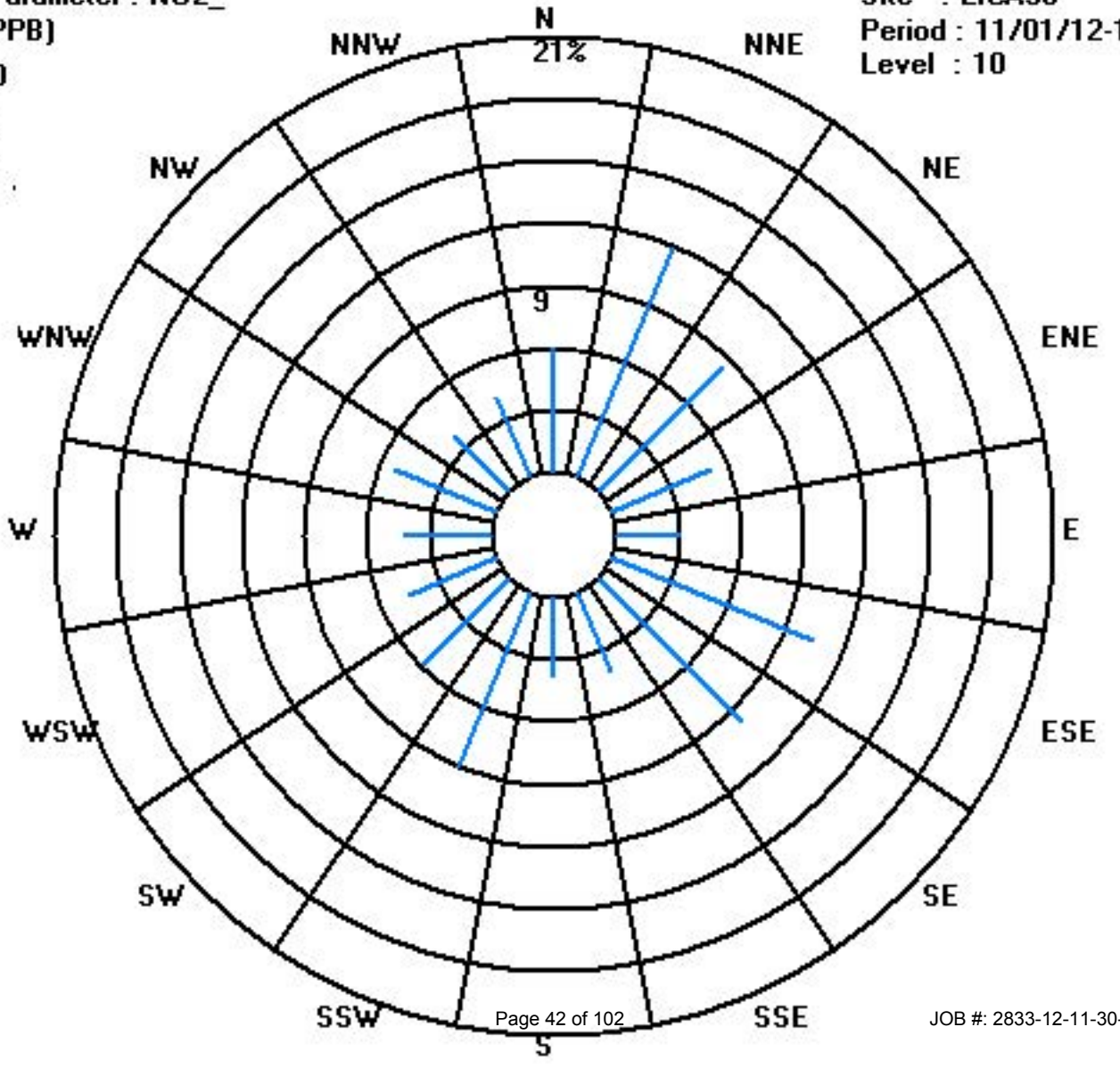
Calm : .00 %

Total # Operational Hours : 681

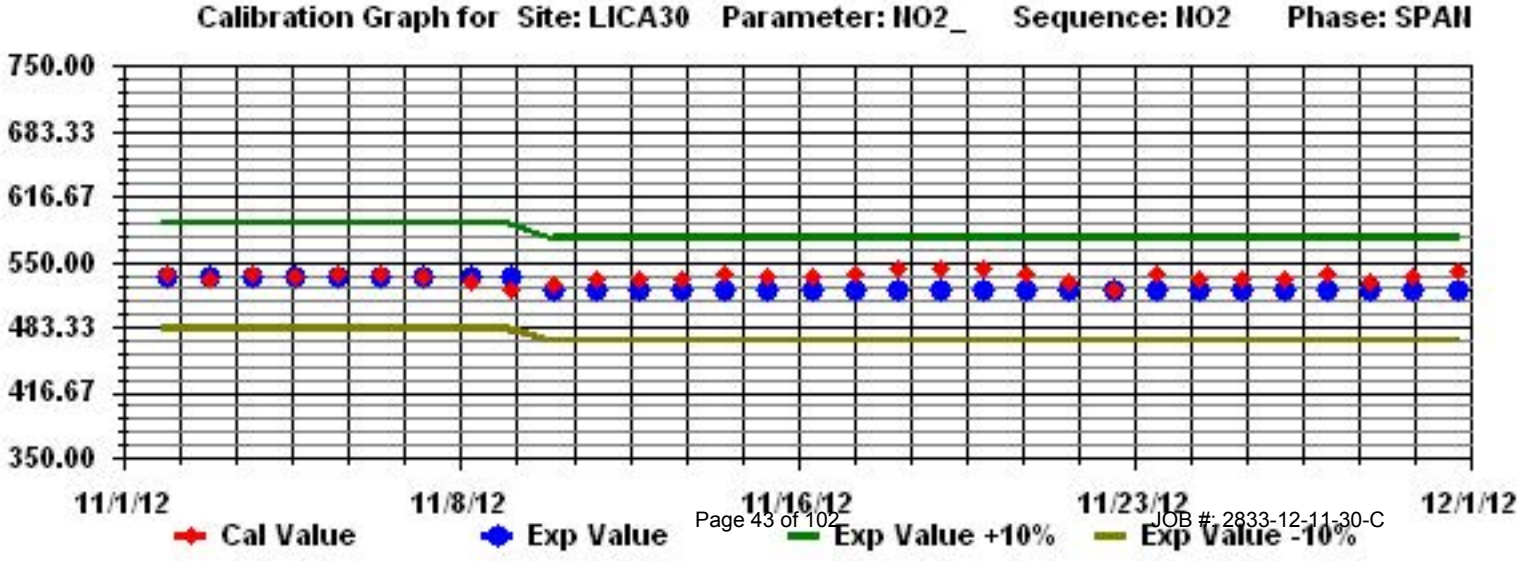
Logger : 30 Parameter : NO2_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-30-C


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN
750.00
683.33
616.67
550.00
483.33
416.67
350.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSCOICATION - MASKWA

NOVEMBER 2012

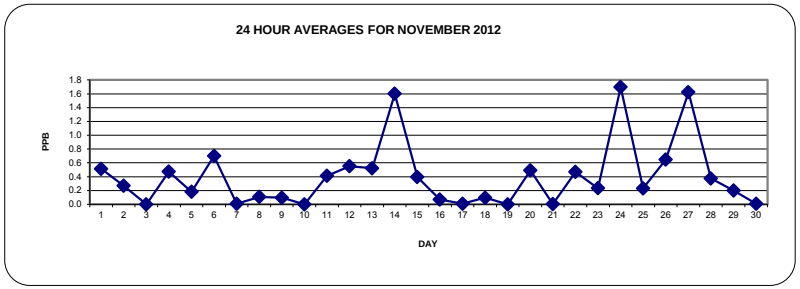
NITRIC OXIDE hourly averages in ppb

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	1	1	1	0	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	**IZS**	0	2	0.5	24
2	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	**IZS**	0	0	1	0.3	24
3	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
4	0	0	0	0	0	0	0	0	0	1	2	2	2	2	1	1	0	0	0	**IZS**	0	0	0	0	2	0.5	24
5	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	3	0.2	24
6	0	0	0	0	0	0	0	1	2	1	2	4	3	1	0	0	1	**IZS**	0	0	0	0	0	0	4	0.7	24
7	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
8	0	0	0	0	0	0	0	0	0	**C**	**C**	**M**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	0.1	23
9	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
10	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
11	0	0	0	0	0	0	0	0	1	2	1	2	**IZS**	2	1	0	0	0	0	0	0	0	0	0	2	0.4	24
12	0	0	0	0	0	1	0	1	4	5	1	**IZS**	1	0	0	0	0	0	0	0	0	0	0	0	5	0.6	24
13	0	0	0	0	0	0	0	0	0	0	**IZS**	2	2	2	2	1	1	1	0	0	0	0	0	0	2	0.5	24
14	0	0	0	0	0	0	0	1	2	**IZS**	**9**	5	3	4	5	4	3	0	0	0	0	0	0	0	**9**	1.6	24
15	0	0	0	0	0	0	0	0	**IZS**	0	1	2	1	2	2	1	0	0	0	0	0	0	0	0	2	0.4	24
16	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.1	24
17	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
18	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0.1	24
19	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
20	0	0	0	**IZS**	0	0	0	0	0	1	0	3	2	3	1	0	0	0	0	0	0	0	0	0	3	0.5	24
21	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
22	0	**IZS**	0	0	0	0	0	0	0	1	1	1	1	2	2	1	3	1	0	0	0	0	0	0	3	0.5	24
23	**IZS**	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0	**IZS**	1	0.2	24
24	0	0	0	0	3	5	2	3	2	0	0	6	4	3	1	3	4	2	0	0	0	0	**IZS**	1	6	**1.7**	24
25	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	**IZS**	0	0	1	0.2	24
26	0	0	0	0	1	0	0	2	1	2	2	2	0	1	1	0	0	1	1	0	**IZS**	0	0	0	2	0.6	24
27	0	0	0	0	0	0	0	2	2	7	6	4	3	3	2	2	1	3	0	**IZS**	1	0	2	2	7	1.6	24
28	2	0	0	0	0	0	0	0	3	2	0	1	0	0	0	0	0	0	**IZS**	0	0	0	0	0	3	0.4	24
29	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	**IZS**	0	0	0	0	0	0	1	0.2	24
30	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
HOURLY MAX	2	1	1	1	3	5	2	3	4	7	9	6	4	4	5	4	4	3	1	0	1	1	2	2			
HOURLY AVG	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.4	0.7	1.0	1.1	1.3	1.0	1.0	0.7	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.1	0.1			

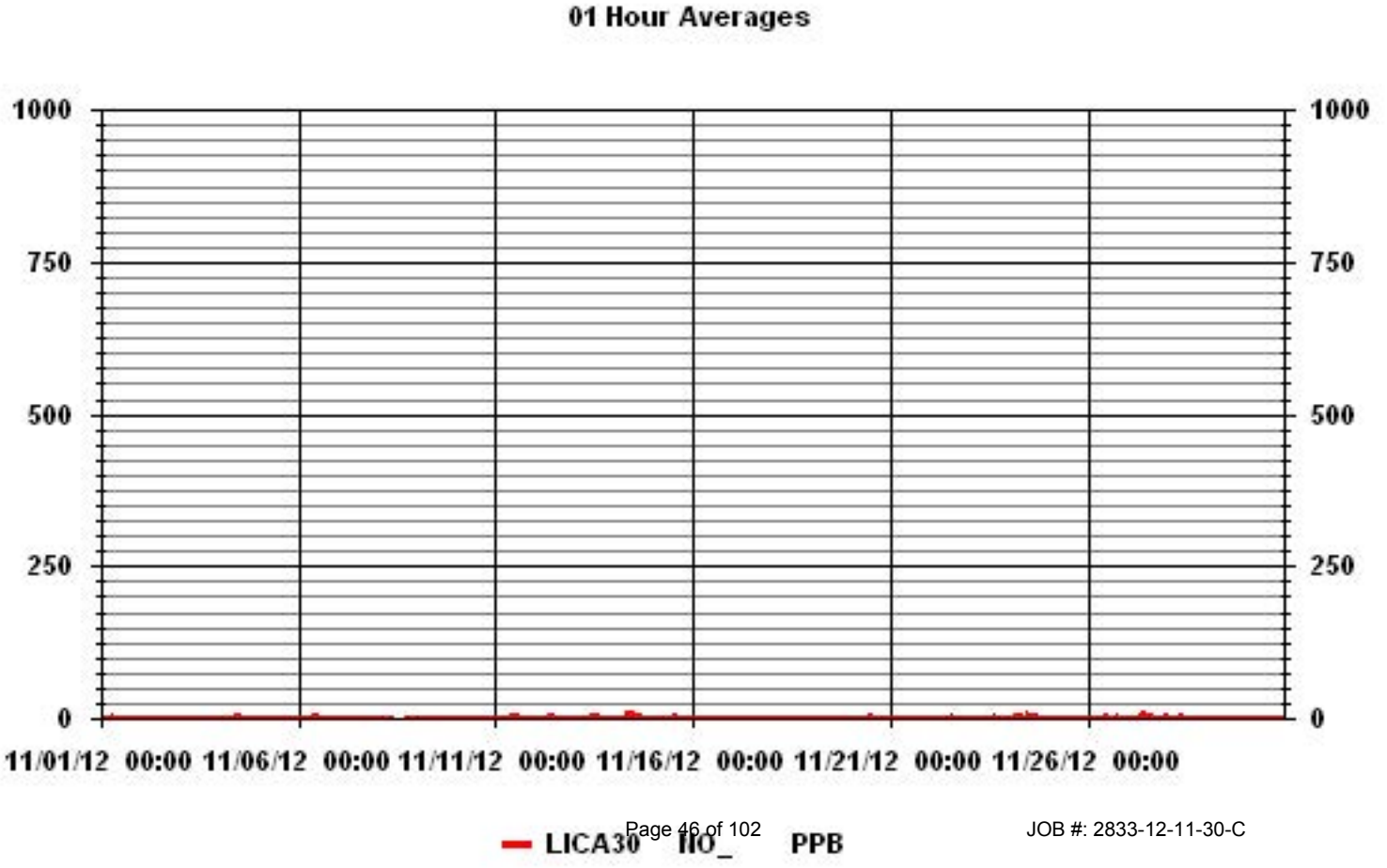
STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		250					
MAXIMUM 1-HR AVERAGE:		9	PPB	@ HOUR(S)	10	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:		1.7	PPB			ON DAY(S)	24
IZS CALIBRATION TIME:	30	HRS		OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	8	HRS		AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.96			MONTHLY AVERAGE:		0.40	PPB



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 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	2	2	3	2	1	3	3	4	3	2	2	2	1	0	0	0	0	0	0	0	0	**IZS**	1	4	1.3	24
2	0	0	0	1	0	1	1	2	1	1	1	1	2	2	3	27	1	0	1	0	1	**IZS**	0	0	27	2.0	24
3	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	**IZS**	0	0	0	1	0.3	24
4	4	0	0	0	1	0	0	0	2	2	4	3	4	3	2	5	0	0	0	**IZS**	0	0	0	0	5	1.3	24
5	0	0	0	0	0	0	0	1	4	5	2	1	1	0	0	1	2	0	**IZS**	1	0	1	1	1	5	0.9	24
6	0	0	0	1	1	1	2	17	5	3	3	7	5	3	1	1	3	**IZS**	3	1	1	1	1	1	17	2.7	24
7	1	0	0	1	1	1	1	0	0	0	0	0	0	1	1	0	**IZS**	1	1	1	1	1	0	1	1	0.6	24
8	1	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	1	1	1.0	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	0	**IZS**	0	0	0	0	0	0	0	0	0	1	0.6	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	2	0	0	0	0	0	0	0	2	0.1	24
11	0	0	1	1	0	1	3	1	2	2	2	3	**IZS**	2	2	1	0	1	0	0	0	1	0	0	3	1.0	24
12	0	0	1	1	1	2	1	3	8	9	1	**IZS**	4	1	0	1	0	0	0	0	0	0	0	0	9	1.4	24
13	0	0	0	0	0	0	0	0	1	1	**IZS**	3	3	3	3	3	2	10	1	1	0	0	0	0	10	1.3	24
14	0	0	0	0	0	1	1	3	3	**IZS**	16	11	13	15	23	11	19	1	1	0	0	0	0	0	23	5.1	24
15	0	0	0	0	0	0	0	0	**IZS**	1	2	26	2	3	3	2	1	3	0	0	0	0	0	0	26	1.9	24
16	0	0	0	0	0	1	0	**IZS**	1	1	1	1	1	1	1	1	1	0	0	0	1	2	2	0	2	0.7	24
17	0	1	1	1	1	0	**IZS**	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	0.3	24
18	0	0	1	1	1	**IZS**	1	1	0	0	1	1	2	1	1	8	0	0	0	0	0	0	0	0	8	0.8	24
19	1	1	1	1	**IZS**	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.4	24
20	0	0	0	**IZS**	1	1	2	13	1	2	1	12	14	12	1	1	2	1	1	0	0	1	1	1	14	3.0	24
21	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
22	0	**IZS**	0	0	0	0	0	1	1	1	2	2	2	4	11	3	20	14	0	0	0	1	1	1	20	2.8	24
23	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	0	0	0	0	**IZS**	3	1.0	24
24	0	0	1	16	12	15	7	10	11	3	1	17	10	9	7	12	15	10	1	1	1	0	**IZS**	3	17	7.0	24
25	4	1	1	1	0	2	1	1	1	1	1	2	2	2	1	1	1	1	0	0	0	**IZS**	0	0	4	1.0	24
26	0	0	1	1	3	1	1	10	4	7	3	11	1	1	1	1	2	24	9	0	**IZS**	1	1	1	24	3.7	24
27	1	0	0	0	0	1	1	5	5	25	10	6	6	4	3	31	3	**32**	1	**IZS**	1	1	5	12	**32**	6.7	24
28	10	1	0	1	0	0	1	1	26	31	1	1	1	1	1	0	0	0	**IZS**	0	1	1	1	0	31	3.4	24
29	0	1	0	0	1	1	1	1	1	2	1	2	2	2	1	0	1	**IZS**	1	0	1	1	0	0	2	0.9	24
30	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	**IZS**	0	0	0	0	0	0	0	1	0.1	24
HOURLY MAX	10	2	2	16	12	15	7	17	26	31	16	26	14	15	23	31	20	32	9	1	1	2	5	12			
HOURLY AVG	0.8	0.3	0.4	1.1	1.0	1.1	1.0	2.7	2.9	3.7	2.1	4.2	2.9	2.7	2.5	4.0	2.8	3.7	0.8	0.2	0.3	0.5	0.5	0.8			

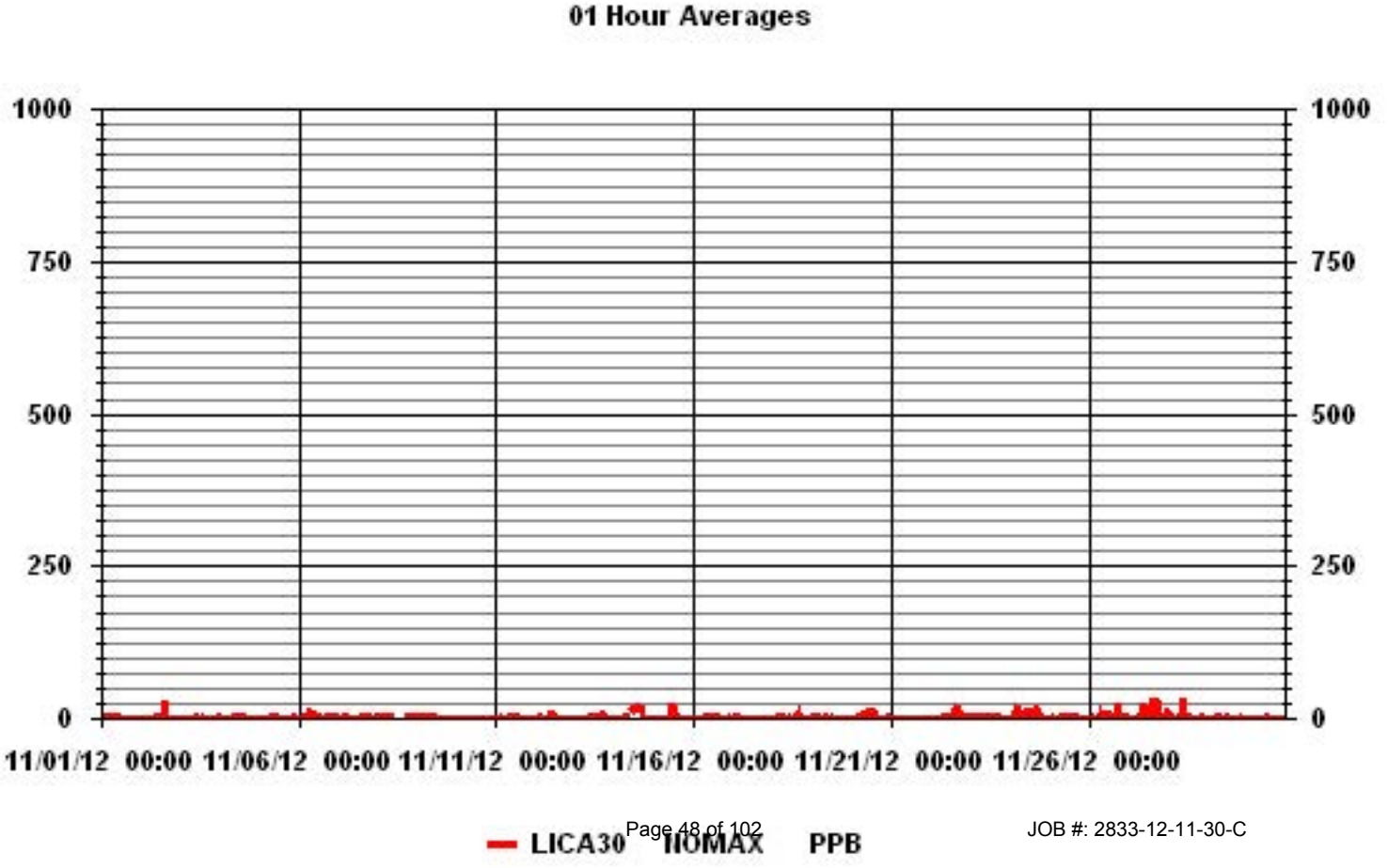
STATUS FLAG CODES

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:	380					
MAXIMUM INSTANTANEOUS VALUE:	32	PPB	@ HOUR(S)	17	ON DAY(S)	27
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	4.12					

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

November 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	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	

Calm : .00 %

Total # Operational Hours : 681

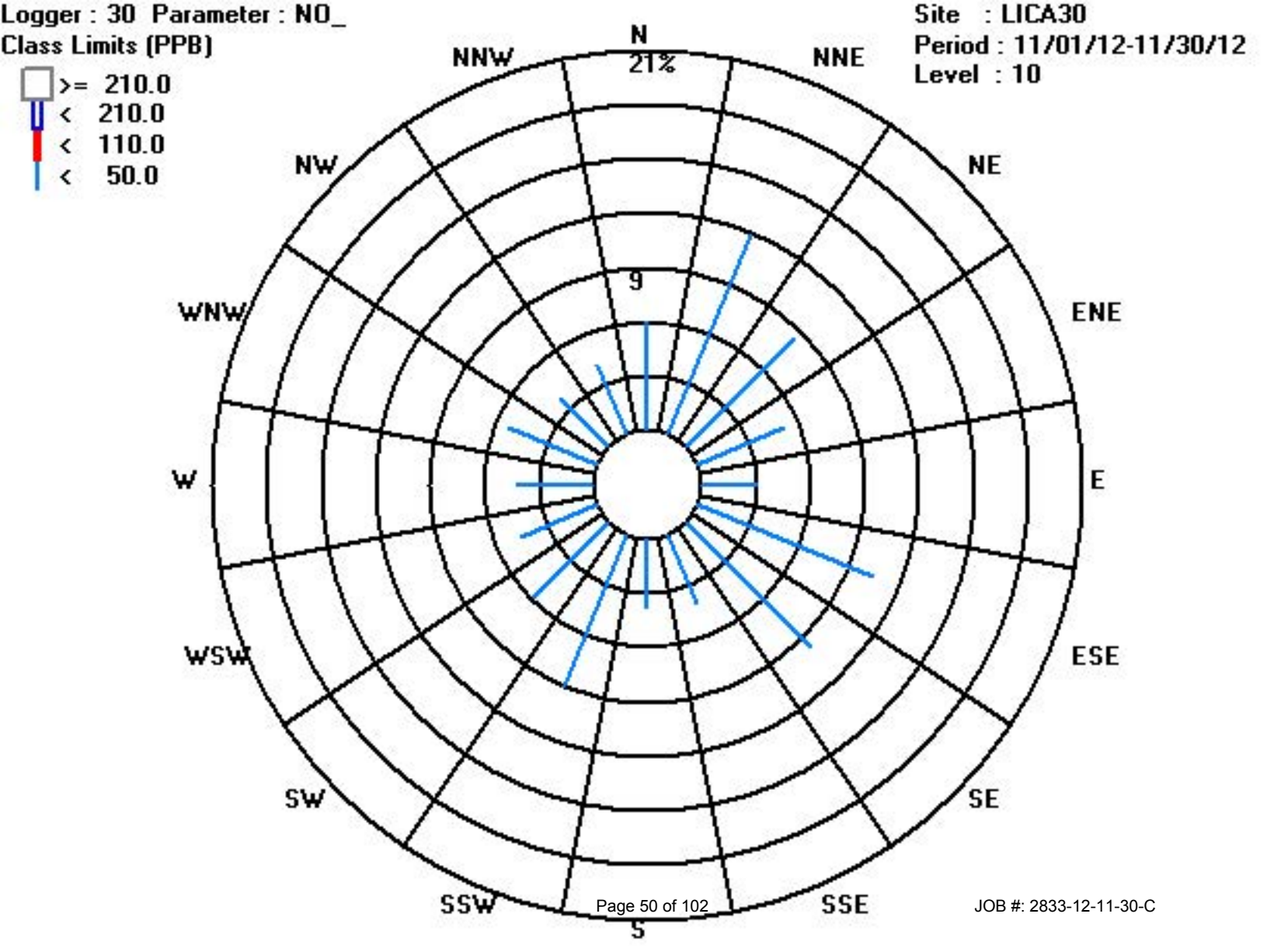
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	681
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	

Calm : .00 %

Total # Operational Hours : 681



JOB #: 2833-12-11-30-C

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

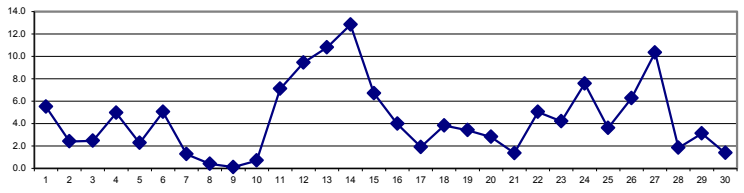
OXIDES OF NITROGEN hourly averages in ppb

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	3	10	7	11	10	7	10	12	13	9	9	7	5	3	2	2	2	1	1	1	2	2	**IZS**	1	13	5.5	24
2	1	1	0	1	1	2	2	3	3	3	3	3	3	3	5	5	4	3	3	3	2	**IZS**	2	2	5	2.4	24
3	2	1	2	4	4	3	2	1	1	1	2	3	3	2	3	3	3	4	3	4	**IZS**	2	2	3	4	2.5	24
4	4	2	3	2	4	4	6	5	5	6	7	7	7	6	6	6	5	6	6	**IZS**	5	5	4	4	7	5.0	24
5	5	4	3	2	3	4	4	7	8	9	2	0	1	0	0	1	1	0	**IZS**	0	0	0	0	0	9	2.3	24
6	0	0	0	0	0	0	2	7	11	6	9	11	11	6	4	4	7	**IZS**	7	7	7	6	6	6	11	5.0	24
7	7	4	5	5	2	1	1	0	0	1	0	0	0	0	0	1	**IZS**	0	0	1	1	0	1	0	7	1.3	24
8	0	0	0	0	1	1	1	1	1	**C**	**C**	**M**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	0	1	0.4	23
9	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
10	0	0	0	0	0	0	0	0	1	0	1	1	0	**IZS**	0	0	1	1	1	1	2	2	2	3	3	0.7	24
11	3	4	5	6	7	10	11	10	7	7	5	6	**IZS**	6	5	4	8	9	7	7	8	9	9	10	11	7.1	24
12	12	13	16	18	18	18	16	17	17	17	4	**IZS**	5	1	1	3	1	2	7	8	7	7	7	2	18	9.5	24
13	1	2	2	1	1	1	1	2	4	6	**IZS**	8	10	13	14	17	21	**25**	23	19	19	20	20	19	**25**	10.8	24
14	18	18	18	18	18	16	16	19	19	**IZS**	21	11	8	10	12	14	16	7	9	5	8	4	5	5	21	**12.8**	24
15	4	2	1	0	0	0	0	0	**IZS**	4	5	7	6	8	9	11	13	16	14	12	12	11	10	9	16	6.7	24
16	9	10	10	10	8	7	4	**IZS**	2	2	1	1	1	1	1	1	1	0	0	0	5	9	7	1	10	4.0	24
17	1	1	1	1	1	1	**IZS**	1	1	1	2	3	2	2	2	3	2	2	3	3	3	3	4	4	4	1.9	24
18	2	2	8	8	9	**IZS**	6	4	2	2	2	2	4	3	3	7	3	2	2	3	3	3	5	5	9	3.8	24
19	5	5	6	5	**IZS**	7	6	6	6	4	3	3	3	3	3	3	3	2	2	2	2	1	1	1	7	3.4	24
20	1	1	0	**IZS**	1	1	2	1	1	1	0	7	5	7	3	3	4	5	5	4	4	3	3	3	7	2.8	24
21	3	3	**IZS**	4	3	3	3	3	2	1	1	1	0	1	1	0	1	1	0	0	0	0	0	1	4	1.4	24
22	0	**IZS**	0	0	1	2	3	5	6	5	5	5	4	7	7	5	10	11	5	8	7	9	7	6	11	5.0	24
23	**IZS**	7	7	5	5	3	3	4	5	4	3	4	3	3	9	9	5	2	2	2	3	3	3	**IZS**	9	4.2	24
24	6	6	6	8	14	17	10	12	11	4	6	15	11	10	4	8	11	8	1	1	0	0	**IZS**	8	17	7.6	24
25	8	8	5	1	1	2	3	2	3	2	4	3	5	5	3	4	5	4	2	3	3	**IZS**	2	3	8	3.6	24
26	4	4	4	7	8	6	3	14	10	8	8	5	2	4	5	3	7	9	12	6	**IZS**	7	5	4	14	6.3	24
27	3	2	1	2	1	1	4	16	17	22	16	11	9	9	7	9	9	14	12	**IZS**	18	20	22	14	22	10.3	24
28	12	2	2	1	1	0	0	2	8	6	2	2	2	1	0	0	0	0	**IZS**	0	1	1	1	0	12	1.9	24
29	0	0	1	1	5	2	5	6	2	6	4	5	6	3	1	2	4	**IZS**	4	1	5	4	3	0	6	3.1	24
30	1	3	1	1	2	4	2	0	0	0	1	1	2	2	1	2	**IZS**	2	2	2	1	1	1	0	4	1.4	24
HOURLY MAX	18	18	18	18	18	18	16	19	19	22	21	15	11	13	14	17	21	25	23	19	19	20	22	19			
HOURLY AVG	4.0	4.0	3.9	4.2	4.5	4.3	4.4	5.5	5.6	4.9	4.5	4.7	4.2	4.2	3.9	4.4	5.4	4.9	4.7	3.7	4.5	4.6	4.6	3.9			

STATUS FLAG CODES

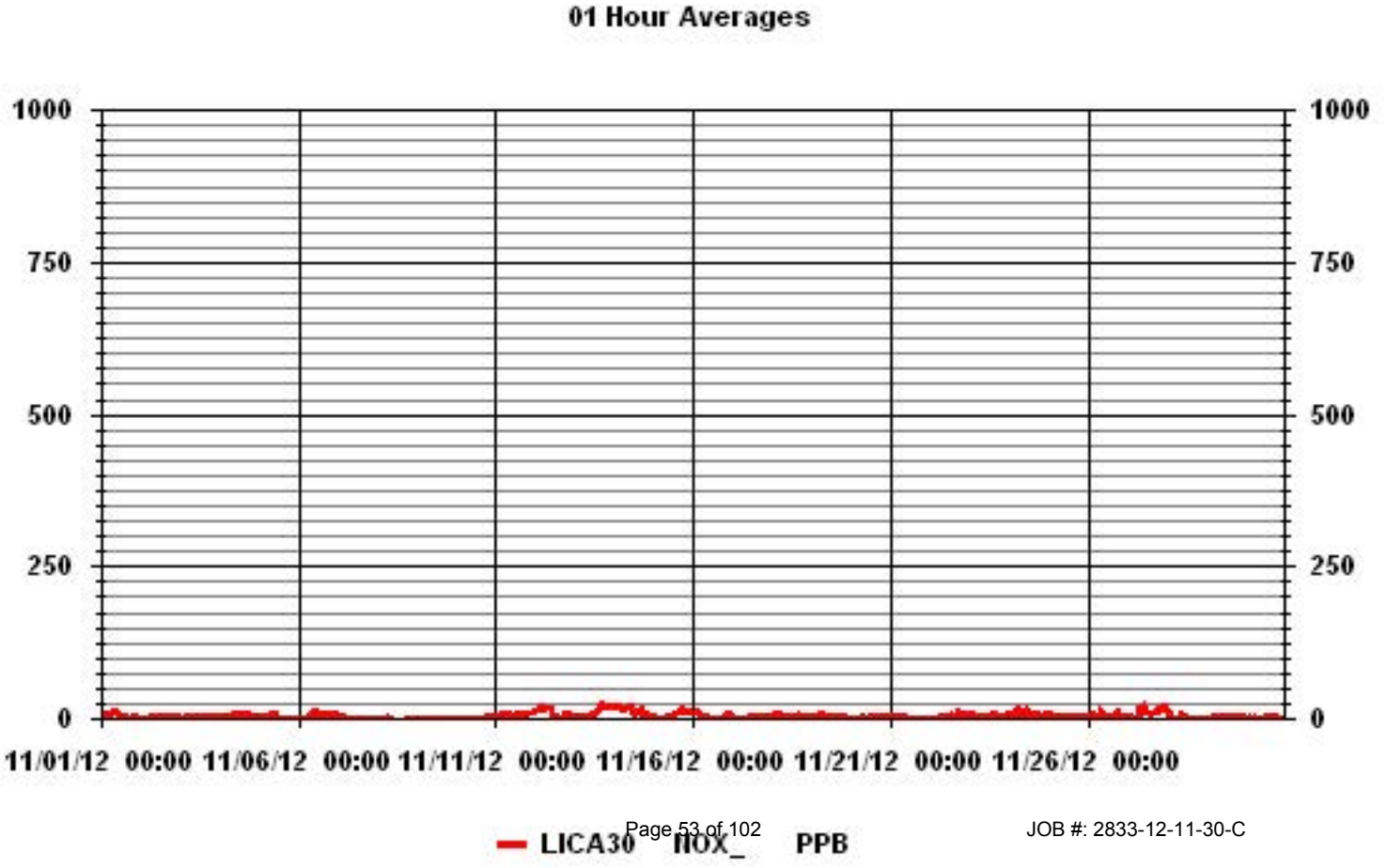
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

24 HOUR AVERAGES FOR NOVEMBER 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	646						
MAXIMUM 1-HR AVERAGE:	25	PPB	@ HOUR(S)	17	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	12.8	PPB			ON DAY(S)	14	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		719	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	4.69		MONTHLY AVERAGE:		4.48	PPB	



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 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	6	15	11	15	14	11	15	16	18	13	12	11	9	7	3	3	2	2	2	2	2	2	**IZS**	1	18	8.3	24
2	1	1	1	1	2	4	4	6	4	4	4	4	4	5	8	33	7	4	5	3	3	**IZS**	2	3	33	4.9	24
3	3	2	3	6	6	5	3	2	2	2	3	4	3	3	4	4	4	5	3	5	**IZS**	2	3	4	6	3.5	24
4	9	3	3	3	6	5	7	7	7	8	9	9	10	9	7	12	7	6	7	**IZS**	6	6	5	5	12	6.8	24
5	5	5	4	3	4	5	6	13	11	13	5	1	2	0	1	2	4	2	**IZS**	1	1	1	1	1	13	4.0	24
6	0	2	1	1	1	1	8	34	16	10	13	15	13	10	6	6	20	**IZS**	15	10	9	7	8	7	34	9.3	24
7	8	6	8	8	3	2	1	1	1	1	1	1	1	1	1	1	**IZS**	1	2	1	1	1	2	1	8	2.3	24
8	1	1	1	1	1	1	2	2	2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	1	1	1	1	2	1.2	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	0	0	0	0	0	0	0	0	1	0.7	24
10	0	0	0	0	0	0	1	1	2	1	2	2	1	**IZS**	0	1	8	1	2	2	2	3	3	3	8	1.5	24
11	4	5	7	7	11	13	16	12	10	10	7	8	**IZS**	6	7	6	10	13	8	8	9	10	10	11	16	9.0	24
12	13	14	20	20	20	22	21	21	22	26	6	**IZS**	12	2	3	10	1	5	8	9	8	10	12	3	26	12.5	24
13	2	3	2	2	2	2	2	4	6	7	**IZS**	9	12	14	16	20	22	36	24	21	20	20	20	19	36	12.4	24
14	19	20	19	19	19	18	18	23	21	**IZS**	34	23	29	28	39	30	**53**	16	19	8	9	8	5	7	**53**	21.0	24
15	5	4	2	1	0	0	0	1	**IZS**	5	6	35	8	9	11	12	15	22	16	13	13	12	11	10	35	9.2	24
16	10	11	12	11	10	9	6	**IZS**	3	2	2	1	1	1	2	1	1	1	1	1	14	15	15	2	15	5.7	24
17	2	2	1	1	1	1	**IZS**	1	1	2	3	3	3	3	4	9	2	4	6	5	5	4	10	8	10	3.5	24
18	4	3	15	12	15	**IZS**	12	9	3	2	2	3	9	5	7	21	6	3	3	5	5	4	6	6	21	7.0	24
19	6	6	8	6	**IZS**	7	7	9	9	4	4	4	5	4	4	4	3	3	2	2	2	2	2	1	9	4.5	24
20	1	1	1	**IZS**	2	6	5	16	3	5	2	21	17	25	5	5	6	5	7	5	5	4	4	4	25	6.7	24
21	4	4	**IZS**	4	4	4	4	3	2	2	3	1	1	2	2	1	2	1	1	1	1	1	0	2	4	2.2	24
22	0	**IZS**	1	1	2	3	5	8	9	7	6	7	8	10	26	10	45	38	10	11	8	10	8	7	45	10.4	24
23	**IZS**	9	8	6	5	5	4	5	6	5	4	5	3	4	14	16	11	2	2	3	4	4	4	**IZS**	16	5.9	24
24	8	7	7	39	31	34	19	26	26	12	9	32	21	18	17	27	33	24	6	4	2	1	**IZS**	15	39	18.2	24
25	20	13	13	2	2	5	7	5	3	3	6	5	7	8	4	7	7	5	4	4	4	**IZS**	3	4	20	6.1	24
26	5	5	5	11	14	14	5	28	13	21	11	19	3	6	6	7	22	43	24	10	**IZS**	8	7	5	43	12.7	24
27	4	3	2	5	2	3	9	21	22	43	20	14	13	11	9	39	16	51	13	**IZS**	21	21	30	36	51	17.7	24
28	31	4	3	2	2	1	1	3	53	52	2	3	2	2	1	1	1	1	**IZS**	1	1	1	1	1	53	7.4	24
29	1	1	4	3	11	4	11	9	6	14	10	9	10	7	3	5	10	**IZS**	9	4	12	7	5	2	14	6.8	24
30	3	4	2	3	3	6	4	1	1	1	2	4	4	4	2	3	**IZS**	2	3	2	2	2	1	1	6	2.6	24
HOURLY MAX	31	20	20	39	31	34	21	34	53	52	34	35	29	28	39	39	53	51	24	21	21	21	30	36			
HOURLY AVG	6.1	5.3	5.7	6.7	6.7	6.6	7.0	9.9	9.8	9.9	6.8	9.1	7.6	7.3	7.6	10.2	11.8	11.0	7.3	5.1	6.1	6.0	6.4	5.9			

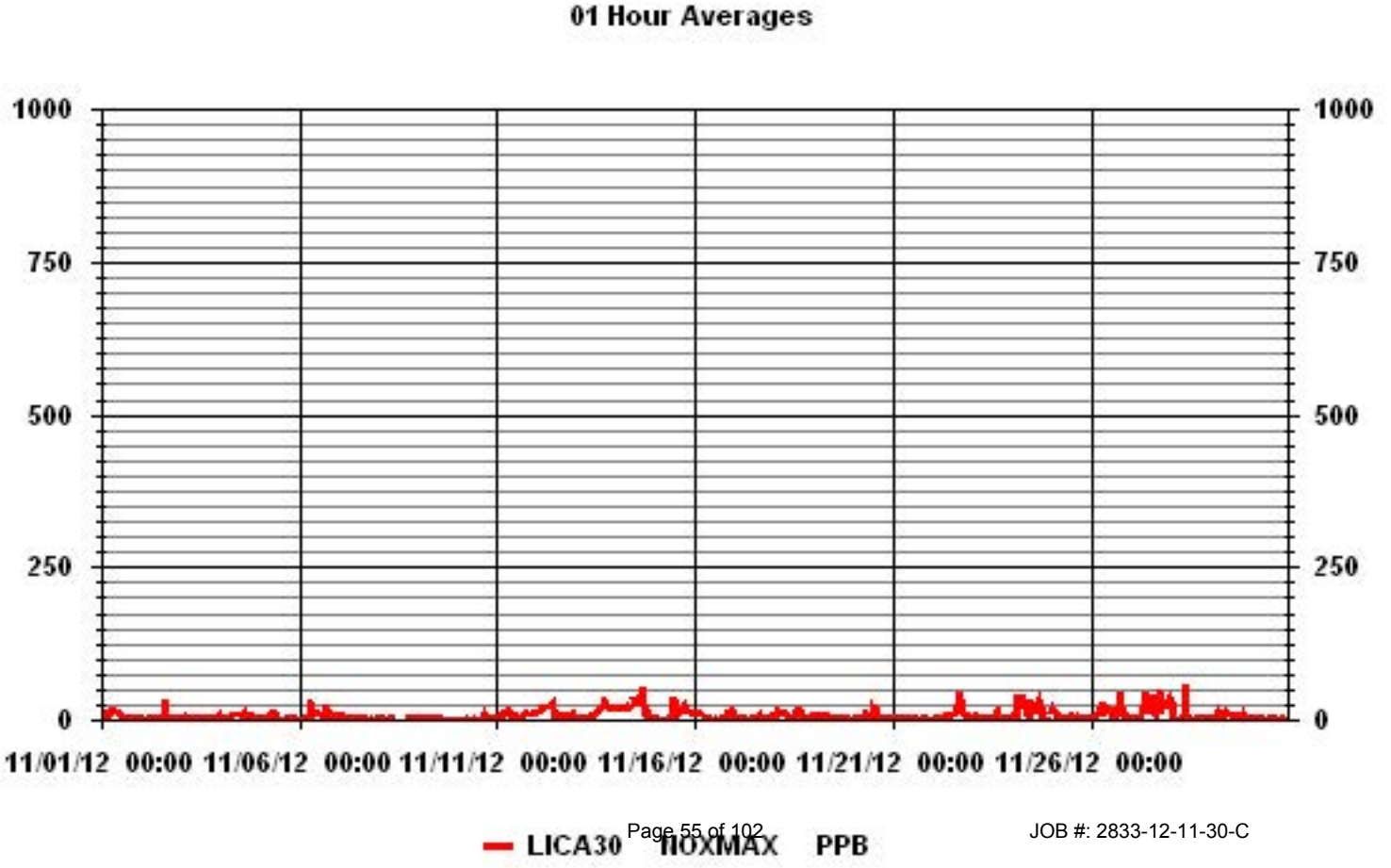
STATUS FLAG CODES

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:	659					
MAXIMUM INSTANTANEOUS VALUE:	53	PPB	@ HOUR(S)	16	ON DAY(S)	14
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	8.51					

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

November 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	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.02	12.04	8.51	5.13	3.08	10.42	9.83	4.11	3.81	9.10	5.87	4.55	4.25	5.28	3.81	4.11	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	681
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	41	82	58	35	21	71	67	28	26	62	40	31	29	36	26	28	

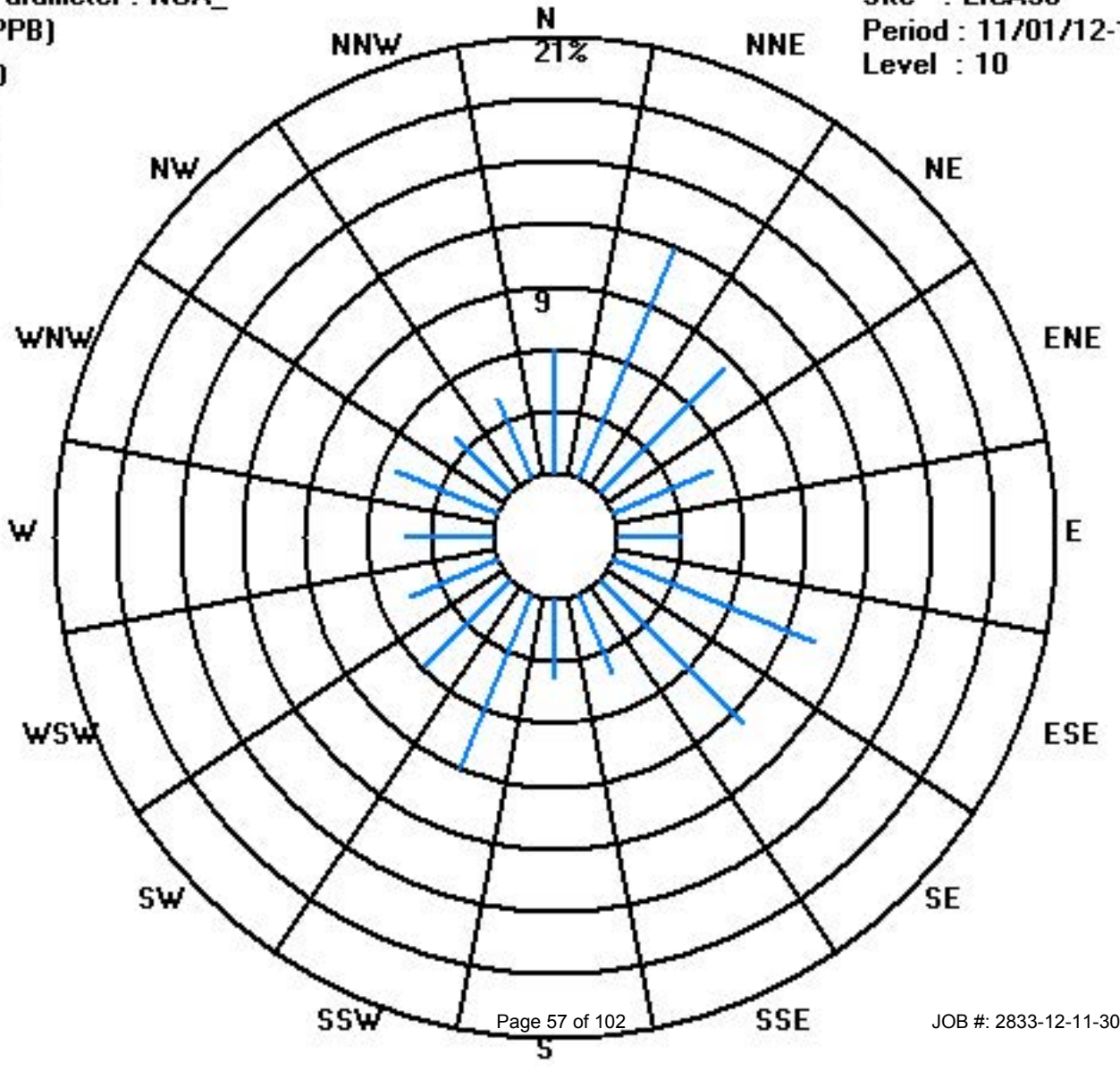
Calm : .00 %

Total # Operational Hours : 681

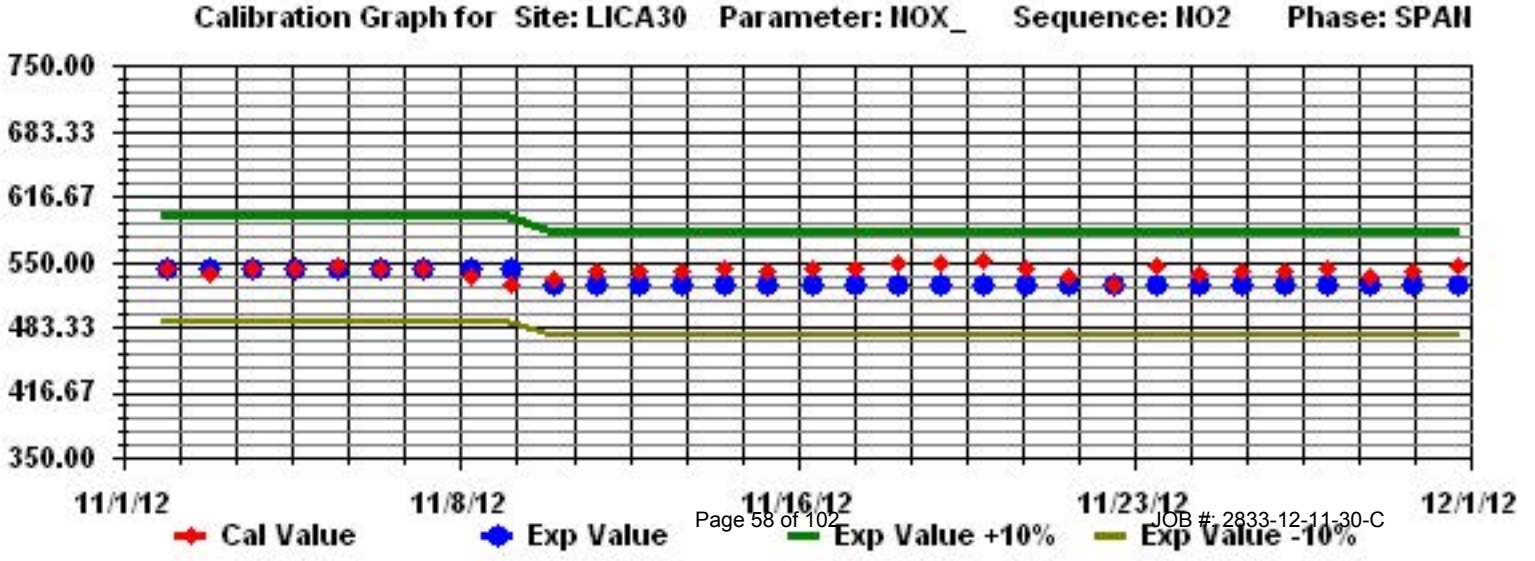
Logger : 30 Parameter : NOX_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-30-C


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN
750.00
683.33
616.67
550.00
483.33
416.67
350.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

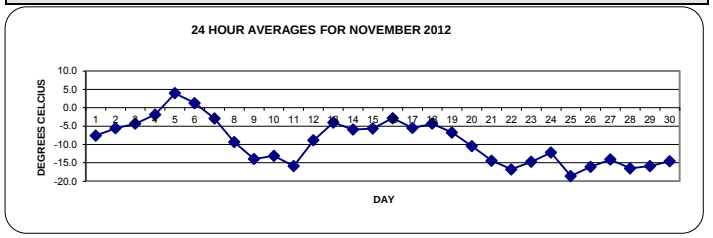
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	-9.6	-9.2	-9	-8.8	-8.7	-8.6	-8.5	-8.1	-7.6	-7.3	-7.1	-6.8	-6.9	-6.5	-6.5	-6.6	-7	-7.3	-7.4	-7.2	-7	-6.7	-6.6	-6.8	-6.5	-7.6	24
2	-6.9	-6.9	-7.2	-7.7	-8	-7.2	-6.9	-6.6	-6.2	-5.4	-4.5	-3.9	-2.9	-2.9	-3.7	-4.2	-4.8	-5.2	-5.4	-5.8	-5.8	-5.7	-5.5	-5.4	-2.9	-5.6	24
3	-5.5	-5.5	-5.6	-5.6	-5.5	-5.4	-5.2	-5.2	-5	-4.6	-4.2	-3.8	-4.4	-5	-4.5	-4.3	-3.9	-3.7	-3.4	-3.2	-2.9	-2.8	-2.7	-2.6	-2.6	-4.4	24
4	-2.8	-2.8	-2.8	-2.8	-3	-3.3	-3.4	-3.2	-2.7	-1.9	-1.5	-1.2	-0.7	-0.8	-0.5	-1.2	-1.6	-1.7	-1.7	-1.5	-1.4	-1.3	-0.7	-0.5	-0.5	-1.9	24
5	0.1	0.1	-0.6	-0.1	-0.2	-0.7	1.3	2.6	2	4.5	8	**8.4**	8.3	8.1	8.4	7	5.6	4.7	4.5	4.6	4.7	4.6	4.8	3.9	**8.4**	**3.9**	24
6	2.5	1.8	1.2	1.3	0.3	-0.5	-1	-1.2	0	3.3	3.2	4.3	5.1	4.6	3.6	2.7	1.2	0.5	0.2	-0.1	-0.2	-0.8	-0.6	-0.8	5.1	1.3	24
7	-0.9	-0.2	0.2	-0.1	0.2	0	-0.5	-0.5	-0.2	-1.1	-1.5	-1.5	-1.8	-1.9	-2.6	-3	-4	-5.4	-6.2	-6.7	-7.2	-7.7	-8.4	-9.3	0.2	-2.9	24
8	-9.6	-9	-8.7	-8.6	-8.7	-8.6	-8.6	-8.6	-8.7	-8.8	-8.4	-7.8	-7.5	-7.8	-8.2	-9.4	-10.4	-10.6	-10.8	-11.2	-11.2	-11.2	-11.3	-11.4	-7.5	-9.4	24
9	-12.1	-13	-13.9	-14.8	-15.5	-15.6	-15.7	-16.2	-15.9	-15.1	-14.1	-13.2	-13.1	-12.8	-12.8	-13.1	-13.3	-13.4	-13.5	-13.6	-13.7	-13.6	-13.7	-13.3	-12.1	-14.0	24
10	-13.3	-13.7	-13.8	-13.8	-14	-14	-13.6	-13.9	-13.4	-12.4	-11.1	-10.2	-9.2	-8.3	-7.8	-9.4	-10.3	-11.5	-12.8	-14.9	-16.1	-18	-19	-19.9	-7.8	-13.1	24
11	-20.5	-21.2	-21.6	-22.1	-22.2	-22.6	-22.1	-20.3	-18.4	-16	-13.8	-10.9	-10.6	-9.7	-9.6	-11	-11.7	-12.5	-13.1	-13.3	-13.7	-14.1	-14.4	-15.4	-9.6	-15.9	24
12	-16	-14.9	-14.1	-15	-15.4	-15.7	-15.4	-14.7	-14	-9.8	-7.2	-4.5	-2.9	-3.2	-4.2	-4.7	-5	-5.2	-5.3	-5.4	-5.2	-5.2	-5.1	-4.9	-2.9	-8.9	24
13	-5	-5.1	-5	-5.2	-5.3	-5.6	-6.2	-6	-5.4	-4.9	-4.3	-3.5	-2.9	-3	-2.8	-2.8	-3.1	-3	-3	-2.8	-2.9	-3	-3.3	-3.5	-2.8	-4.1	24
14	-4.4	-4	-4	-4.1	-4.2	-3.8	-3.7	-3.6	-2.7	-0.3	0.7	-0.3	-1.3	-2.4	-2.8	-5.2	-7.1	-8.9	-11	-13.3	-13.9	-13.9	-13.6	-14.1	0.7	-5.9	24
15	-12.3	-10.4	-9.2	-9.1	-9.4	-10	-9.6	-10.5	-9.1	-7.2	-5.6	-2.6	-1.4	0.1	0.1	-1.5	-2.5	-3.4	-4.5	-2.9	-3	-3.1	-3.7	-5	0.1	-5.7	24
16	-4.8	-4.7	-4.4	-4.2	-3.7	-3.1	-2.4	-2.8	-2.8	-1.8	-0.7	0.8	1.3	2.2	1	-1.2	-2.8	-3.7	-4.1	-5	-5.2	-4.8	-5.2	-5.9	2.2	-2.8	24
17	-6.5	-6	-5.4	-5.2	-5.2	-5.3	-5.3	-5.2	-5.4	-5.4	-5.5	-5.7	-5.5	-5.2	-5.2	-5.3	-5.7	-5.6	-5.8	-5.7	-5.5	-5.6	-5.6	-5.2	-5.2	-5.5	24
18	-5.2	-5.5	-5.3	-4.9	-4.3	-3.6	-3.2	-3.7	-3.1	-2.9	-1.9	-1.7	-2	-2.6	-2.9	-2.9	-3.6	-4.3	-4.4	-5.1	-6.2	-7.6	-8.3	-9.4	-1.7	-4.4	24
19	-11.3	-12.5	-13.1	-12.2	-10.5	-9.3	-8.4	-7.1	-6.4	-5.5	-4.7	-4.6	-4.3	-4	-3.8	-3.8	-4.4	-4.6	-4.9	-5.2	-5.4	-5.6	-5.5	-5.5	-3.8	-6.8	24
20	-5.5	-5.8	-6.1	-6.3	-6.5	-6.6	-7.2	-8.8	-10.2	-10.2	-10.2	-10.3	-10.7	-11.7	-11.9	-12.2	-12.3	-12.6	-12.5	-12.7	-13.6	-15.6	-16.3	-15.6	-5.5	-10.5	24
21	-15.1	-15	-14.8	-14.6	-14.7	-14.7	-14.8	-14.7	-14.7	-14.5	-14.3	-13.8	-13.2	-12.8	-13	-13.6	-14	-14.2	-14.6	-14.8	-14.9	-14.9	-15	-15.1	-12.8	-14.4	24
22	-15.1	-15.2	-15.6	-17	-15.9	-15.3	-15.4	-15.6	-15.8	-15.5	-14.8	-13.2	-12.6	-11.8	-12.5	-13.5	-15.7	-18.2	-19.6	-21.3	-22.3	-23.1	-23.8	**-24.1**	-11.8	-16.8	24
23	-24	-23.9	-23.7	-21.5	-17.5	-16.2	-16.2	-16.3	-15.8	-15	-14.4	-13.4	-13	-12.4	-11.6	-10.4	-10.1	-10.3	-10.3	-10.5	-13	-12.7	-10.8	-10.5	-10.1	-14.7	24
24	-10.4	-10.1	-9.9	-9.5	-8.9	-8.6	-8.4	-8.4	-8.4	-8.4	-8.4	-8.2	-8.5	-9	-10.6	-12.6	-14.2	-15.9	-17.3	-18.2	-18.8	-19.5	-20.2	-20.4	-8.2	-12.2	24
25	-21	-22.1	-21.9	-22.6	-23.5	-22.9	-23	-23.4	-21.8	-19.5	-18.2	-17.4	-16.8	-16.1	-15.6	-15.8	-15.8	-15.8	-15.7	-15.7	-15.5	-15.4	-15.5	-15.2	-15.2	-18.6	24
26	-15.1	-14.7	-15.2	-15.1	-14.9	-15.6	-16.2	-17	-16.6	-16	-14.9	-13.8	-13.4	-12.9	-12.8	-14.5	-16.6	-17.2	-17.7	-18	-19.1	-19.4	-18.8	-20.6	-12.8	-16.1	24
27	-21.3	-20.7	-19	-17.8	-16.7	-17.3	-16.4	-15.9	-15.2	-14.7	-13.4	-11	-9.3	-9.1	-9.7	-11.8	-11.7	-12.7	-12.8	-13.2	-12.4	-12.9	-12.3	-11.3	-9.1	-14.1	24
28	-12	-12.8	-13.6	-14.3	-15.2	-15.9	-16.4	-18.2	-20.3	-18.2	-16.6	-15.8	-15.8	-16	-16.4	-17	-17.4	-17.5	-17.6	-17.6	-17.9	-17.9	-17.8	-17.7	-12.0	-16.5	24
29	-17.8	-17.6	-17.2	-16.7	-16.7	-16.9	-17	-17	-17.1	-16.7	-15.9	-15.4	-14.9	-14.3	-14.3	-14.8	-14.9	-15.1	-15.2	-15.2	-15.6	-15	-14.8	-15	-14.3	-15.9	24
30	-15.2	-14.9	-15	-15	-14.9	-14.9	-15	-15.9	-15.8	-15.6	-15	-13.9	-13.9	-14	-13.9	-13.8	-13.9	-13.9	-14	-14.1	-14.2	-14.2	-14.4	-14.5	-13.8	-14.6	24
HOURLY MAX	2.5	1.8	1.2	1.3	0.3	0.0	1.3	2.6	2.0	4.5	8.0	8.4	8.3	8.1	8.4	7.0	5.6	4.7	4.5	4.6	4.7	4.6	4.8	3.9			
HOURLY AVG	-10.6	-10.5	-10.5	-10.4	-10.3	-10.3	-10.1	-10.2	-9.9	-8.9	-8.0	-7.2	-6.8	-6.7	-6.9	-7.7	-8.4	-8.9	-9.3	-9.7	-10.0	-10.2	-10.3	-10.5			

STATUS FLAG CODES

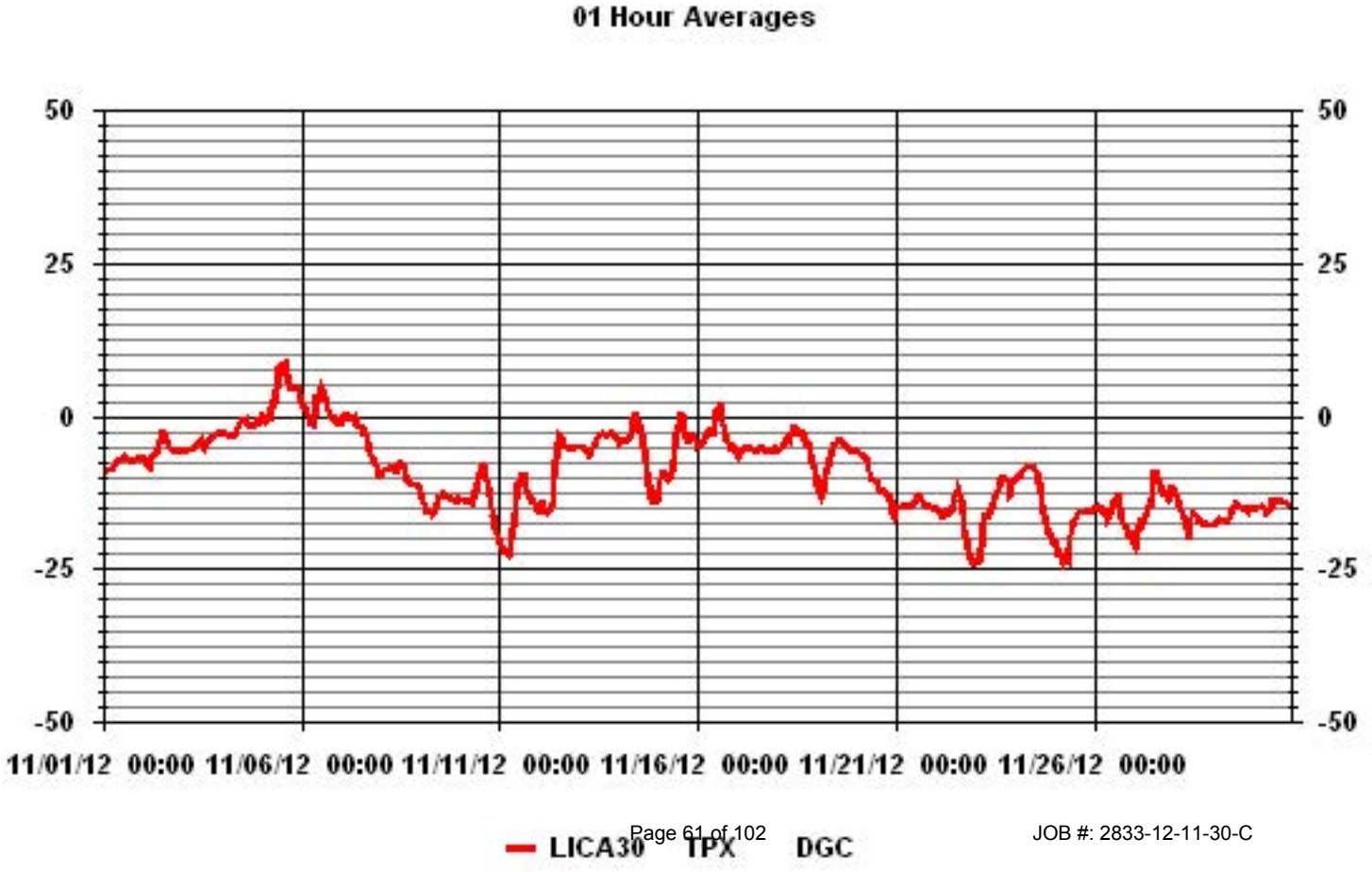
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-24.1	^{O}C	@ HOUR(S)	23	ON DAY(S)	22
MAXIMUM 1-HR AVERAGE:	8.4	^{O}C	@ HOUR(S)	11	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	3.9	^{O}C			ON DAY(S)	5

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	6.52		MONTHLY AVERAGE:	-9.26	^{O}C



JOB #: 2833-12-11-30-C

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

PRECIPITATION hourly averages (mm)

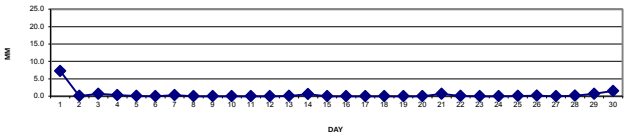
MST

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	0.2	0.6	0.5	**1.3**	0.4	0.6	0.4	0.4	0.7	0.3	0.2	0	0.2	0.2	0.2	0.2	0	0.2	0.2	0.3	0.1	**1.3**	**7.2**	24
2	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1	0.4	0.4	0.7	24
4	0.1	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1	0.3	24
5	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	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	0.1	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	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	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
14	0	0.1	0	0	0.1	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.6	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	0.1	0.4	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0.4	0.7	24
22	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
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1	0.1	24
26	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	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	0.1	0	0	0.1	0.1	0.2	24
29	0	0.1	0	0	0	0.1	0	0.1	0	0.1	0.1	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.7	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0	0.2	1.5	24
HOURLY MAX	0.2	0.1	0.1	0.2	0.6	0.5	1.3	0.4	0.6	0.4	0.4	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	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	MD	-MISSING DATA

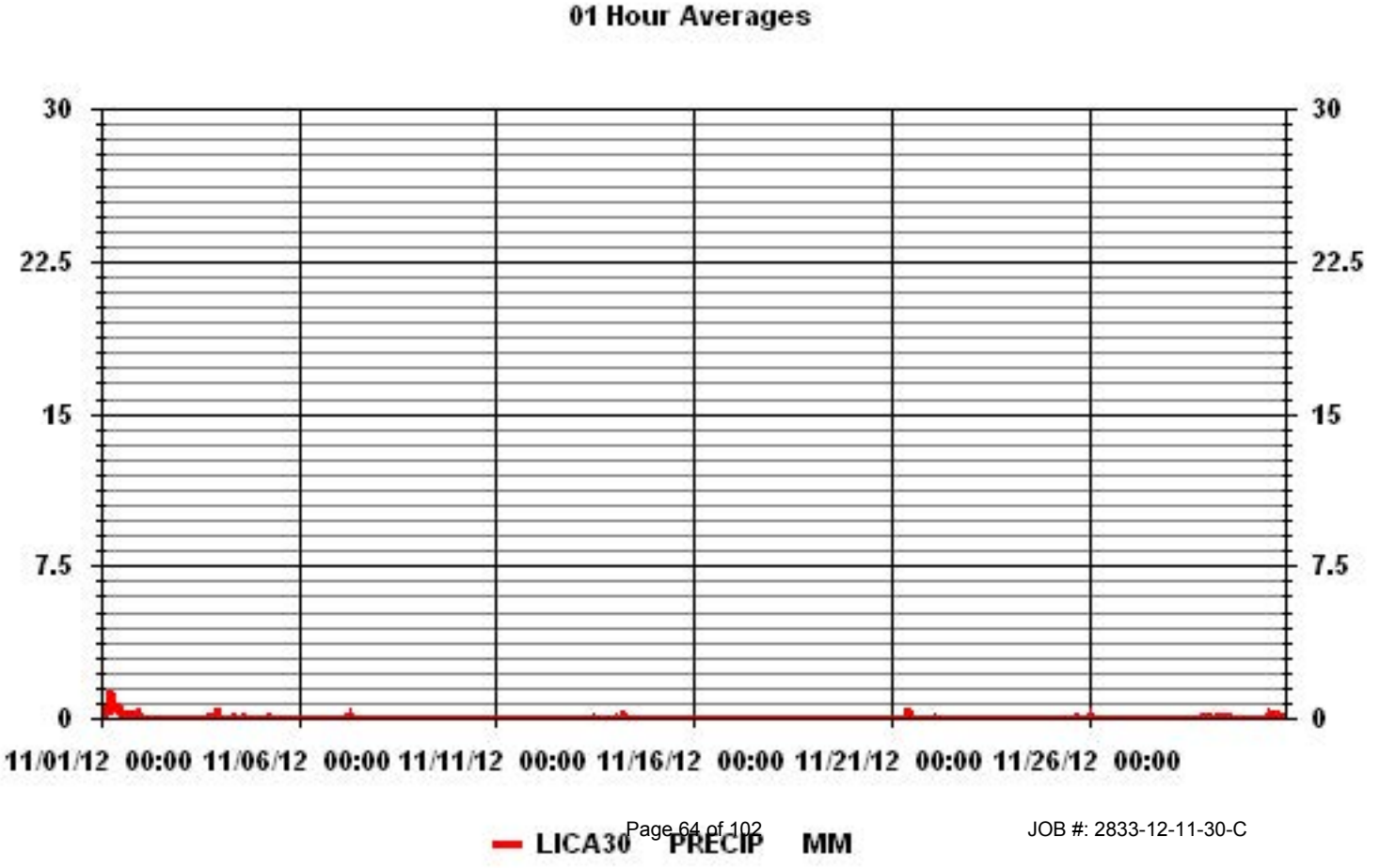
DAILY TOTALS FOR NOVEMBER 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.3	MM	HOUR(S)	6	ON DAY(S)	1
MAXIMUM DAILY TOTAL	7.2	MM			ON DAY(S)	1
MONTHLY TOTAL	12.9	MM				

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.08		MONTHLY AVERAGE:	0.02	MM



JOB #: 2833-12-11-30-C

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

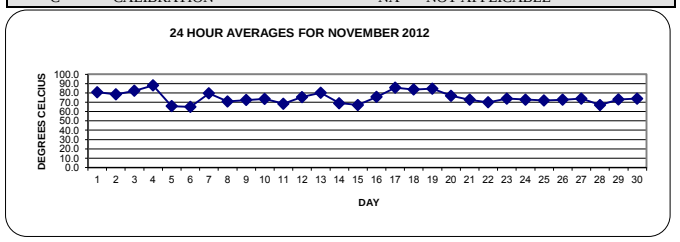
RELATIVE HUMIDITY hourly averages (%)

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	79	80	80	80	80	80	81	81	81	80	81	81	80	79	78	79	80	82	82	82	82	83	83	83	83	80.7	24
2	83	83	84	84	84	83	82	81	80	77	74	72	69	68	71	72	75	78	78	81	82	80	81	79	84	78.4	24
3	78	79	80	80	79	80	80	80	80	80	80	79	78	80	80	81	84	86	88	88	88	89	88	88	89	82.2	24
4	88	88	88	87	87	88	88	89	88	88	88	87	86	87	86	88	89	90	90	90	90	90	89	87	**90**	**88.2**	24
5	85	86	88	87	88	89	86	83	83	73	58	49	47	46	45	48	52	54	55	55	56	56	54	57	89	65.8	24
6	62	64	66	65	69	71	73	73	69	58	60	56	53	54	56	59	63	67	68	68	69	73	72	74	74	65.1	24
7	74	70	68	71	74	82	87	88	87	84	84	84	85	83	81	79	78	79	81	77	78	77	78	80	88	79.5	24
8	79	80	79	76	76	77	78	77	75	73	70	67	66	63	61	63	66	67	67	68	68	67	67	67	80	70.7	24
9	70	70	73	74	77	77	77	76	75	74	71	68	66	61	68	70	72	73	73	74	74	73	74	76	77	72.3	24
10	77	76	75	75	75	76	76	76	75	73	70	68	66	64	62	68	72	76	79	80	78	76	76	75	80	73.5	24
11	74	73	73	72	72	72	72	74	75	73	71	64	60	57	55	59	63	65	65	67	68	70	71	74	75	68.3	24
12	75	75	74	75	76	78	79	79	78	80	79	71	67	68	71	73	75	76	76	76	77	77	78	79	80	75.5	24
13	79	79	79	78	79	79	82	83	81	79	77	77	77	79	79	80	83	83	84	83	82	81	81	80	84	80.2	24
14	82	82	82	81	81	84	81	80	80	79	69	63	58	48	47	50	48	52	59	67	70	70	70	73	84	69.0	24
15	72	70	71	75	77	78	76	79	75	68	65	58	55	51	51	57	61	64	69	65	65	66	68	74	79	67.1	24
16	74	73	73	73	75	76	75	77	77	76	73	68	66	62	65	70	76	80	82	84	86	85	85	86	86	75.7	24
17	85	86	86	86	87	86	86	86	86	86	85	85	85	84	84	84	85	86	86	86	86	86	86	86	87	85.6	24
18	86	86	86	87	87	86	86	87	86	84	81	80	81	83	83	81	80	80	80	82	83	84	84	84	87	83.6	24
19	83	82	81	80	81	84	84	85	85	86	86	86	85	84	85	85	86	87	86	86	86	86	85	87	87	84.6	24
20	86	85	85	84	84	84	84	81	78	76	74	73	71	71	71	71	71	72	71	71	73	76	77	76	86	76.9	24
21	76	75	74	73	72	73	73	73	74	73	74	74	72	71	70	70	71	72	72	72	72	72	73	74	76	72.7	24
22	74	73	73	75	74	73	72	72	71	69	66	60	59	58	61	66	72	76	75	73	72	71	71	70	76	69.8	24
23	70	70	70	73	76	76	76	75	75	75	73	72	72	72	73	72	73	71	72	74	79	79	78	78	79	73.9	24
24	77	77	79	81	82	81	81	81	80	79	77	69	65	64	65	64	65	66	65	66	68	70	72	73	82	72.8	24
25	73	73	73	71	71	71	71	71	71	72	72	72	70	68	68	71	72	72	72	73	73	74	75	75	75	71.8	24
26	75	74	75	74	73	74	75	76	75	72	69	66	65	65	65	70	76	77	76	76	75	74	74	74	77	72.7	24
27	73	74	74	75	76	76	76	76	76	76	74	70	63	61	62	71	70	72	75	80	81	81	82	80	82	73.9	24
28	79	78	76	74	71	69	68	71	74	70	64	58	55	55	55	58	60	62	62	63	70	71	71	72	79	66.9	24
29	72	73	73	73	73	73	73	73	72	72	71	70	70	70	71	74	75	75	75	75	74	76	76	75	76	73.1	24
30	74	75	75	76	76	75	75	75	74	74	73	69	70	71	72	73	74	74	74	74	76	75	75	75	76	73.9	24
HOURLY MAX	88	88	88	87	88	89	88	89	88	88	88	87	86	87	86	88	89	90	90	90	90	90	89	88			
HOURLY AVG	77.1	77.0	77.1	77.2	77.7	78.4	78.4	78.6	77.9	76.0	73.6	70.5	68.7	67.6	68.0	70.2	72.2	73.8	74.6	75.2	76.0	76.3	76.5	77.0			

STATUS FLAG CODES

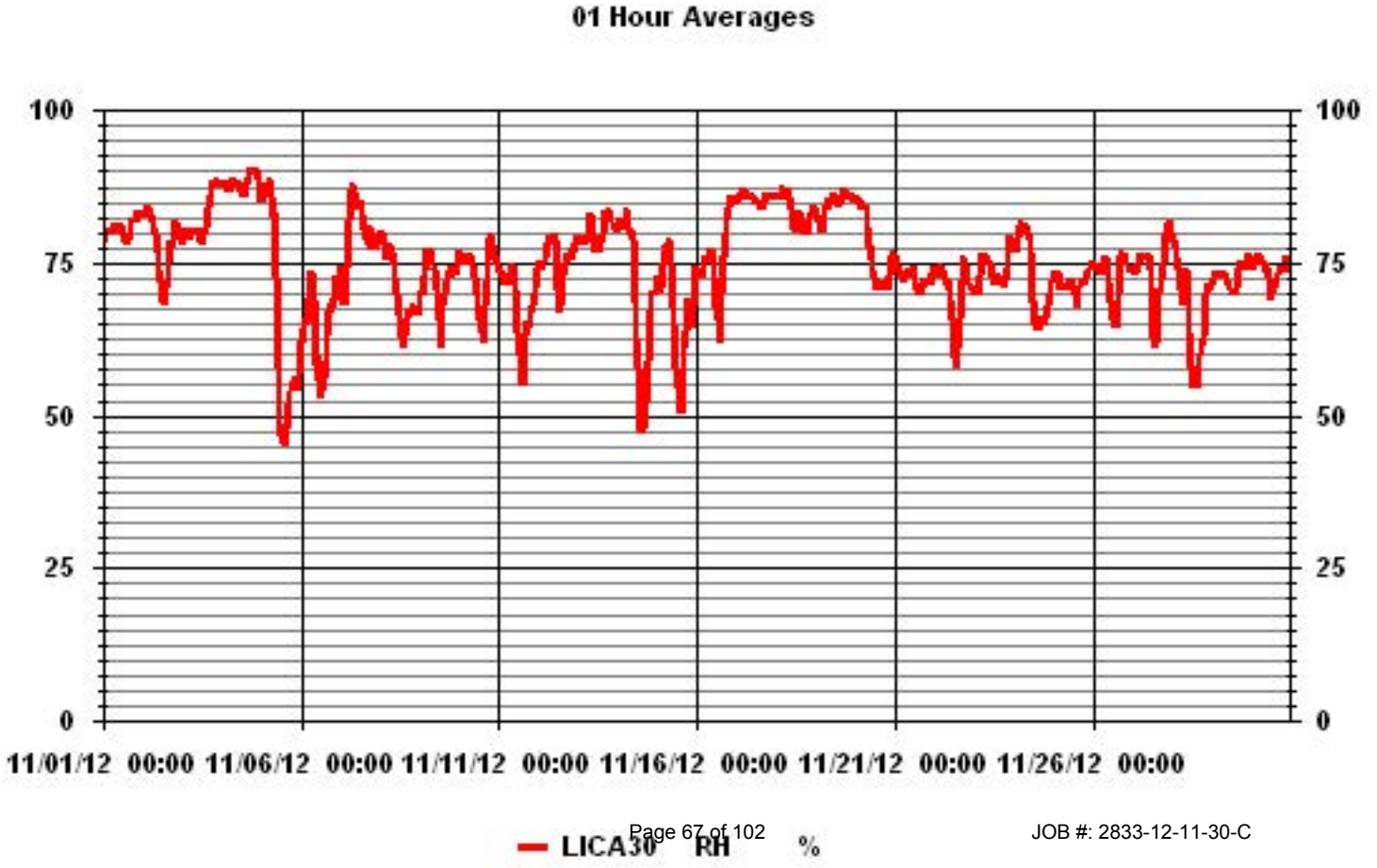
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR(S)	VAR	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	88.2	%			ON DAY(S)	4
				VAR-VARIOUS		

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	8.32		MONTHLY AVERAGE:	74.82	%



JOB #: 2833-12-11-30-C

Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

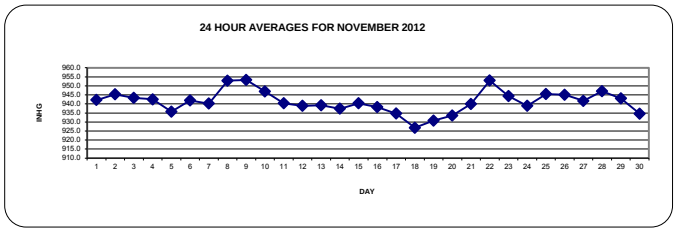
BAROMETRIC PRESSURE hourly averages (millibar)

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	946	945	944	944	944	943	943	942	942	942	942	941	941	941	941	941	941	941	941	941	941	941	942	942	946	942.2	24
2	942	942	942	942	943	943	944	944	945	945	946	946	946	947	947	947	947	947	948	947	947	947	947	947	948	945.3	24
3	947	947	947	946	946	946	946	945	945	945	944	944	943	943	942	942	941	941	941	940	940	940	940	940	947	943.4	24
4	941	941	941	942	942	943	943	944	944	944	945	945	945	945	945	945	945	944	943	942	940	939	937	936	945	942.5	24
5	935	934	932	932	932	933	933	933	933	934	934	934	935	935	936	936	937	938	939	939	940	940	941	941	941	935.7	24
6	942	942	943	943	943	943	943	943	944	944	944	944	944	943	943	942	941	941	940	940	939	939	939	938	944	942.0	24
7	938	938	937	937	937	937	937	937	937	937	937	938	938	938	939	941	942	943	944	945	946	947	947	948	948	940.2	24
8	949	950	950	951	951	951	952	952	953	953	954	954	953	953	953	954	954	954	955	955	955	955	955	954	955	952.9	24
9	955	955	955	955	955	954	954	955	954	954	954	954	953	953	953	952	952	952	952	952	952	951	951	951	955	**953.3**	24
10	950	950	950	949	948	948	948	948	948	948	948	947	947	946	946	946	946	946	945	945	944	944	944	944	950	946.9	24
11	943	943	943	943	942	942	942	942	942	941	941	941	940	940	940	939	939	939	938	938	938	938	937	937	943	940.3	24
12	937	937	937	937	937	937	938	938	938	939	939	940	940	940	940	940	940	940	940	940	940	940	940	940	940	938.9	24
13	940	940	941	941	941	941	941	941	940	940	941	940	940	940	939	939	939	938	938	937	937	936	936	935	941	939.2	24
14	935	934	934	933	933	932	932	932	933	934	935	936	937	938	940	940	941	942	942	942	943	943	943	943	943	937.4	24
15	943	943	943	942	942	942	941	941	941	941	941	940	940	940	940	939	939	939	938	939	939	939	939	938	943	940.4	24
16	938	938	938	938	937	937	938	938	938	938	939	939	939	939	939	938	938	938	938	938	938	939	939	939	939	938.3	24
17	938	938	938	938	938	937	937	937	937	937	936	936	935	935	934	934	933	933	932	931	931	930	929	928	938	934.7	24
18	928	927	926	925	924	924	923	923	922	922	923	924	924	925	926	927	928	930	931	931	932	932	933	933	933	926.8	24
19	933	932	933	933	933	932	932	933	933	932	932	932	932	931	931	931	930	930	929	928	928	927	925	925	933	930.7	24
20	926	925	925	926	927	928	929	930	931	933	934	935	935	936	937	937	938	939	939	940	939	939	939	939	940	933.6	24
21	939	939	939	939	939	939	939	938	938	939	939	939	939	939	939	939	940	941	941	942	942	943	944	945	945	940.0	24
22	945	946	947	948	949	950	951	952	952	953	954	954	955	955	956	956	956	956	956	956	956	956	956	956	**956**	953.0	24
23	956	955	955	954	952	952	951	950	949	948	947	946	944	943	941	940	938	937	936	935	935	934	934	934	**956**	944.4	24
24	934	934	934	935	935	936	936	937	937	937	938	938	938	938	939	940	941	942	943	944	944	944	945	945	945	938.9	24
25	945	946	946	946	946	946	946	946	946	946	946	946	946	946	945	945	945	945	945	945	945	945	945	945	946	945.5	24
26	945	945	945	945	945	945	945	946	946	946	946	946	946	945	945	945	945	945	945	945	944	944	944	944	946	945.1	24
27	945	944	944	944	944	943	943	943	943	943	943	943	942	942	941	941	940	939	939	938	939	939	939	940	945	941.7	24
28	941	942	944	945	946	946	947	948	949	949	949	949	949	949	948	948	948	947	948	948	948	947	947	947	949	947.0	24
29	947	947	946	946	945	945	945	945	945	945	944	944	944	943	942	941	941	941	940	941	940	939	939	938	947	943.0	24
30	937	937	936	936	935	935	935	934	935	934	934	934	934	933	933	933	934	934	934	934	935	935	935	935	937	934.6	24
HOURLY MAX	956	955	955	955	955	954	954	955	954	954	954	954	955	955	956	956	956	956	956	956	956	956	956	956			
HOURLY AVG	941	941	941	941	941	941	941	941	941	941	942	942	941	941	941	941	941	941	941	941	941	941	941	941			

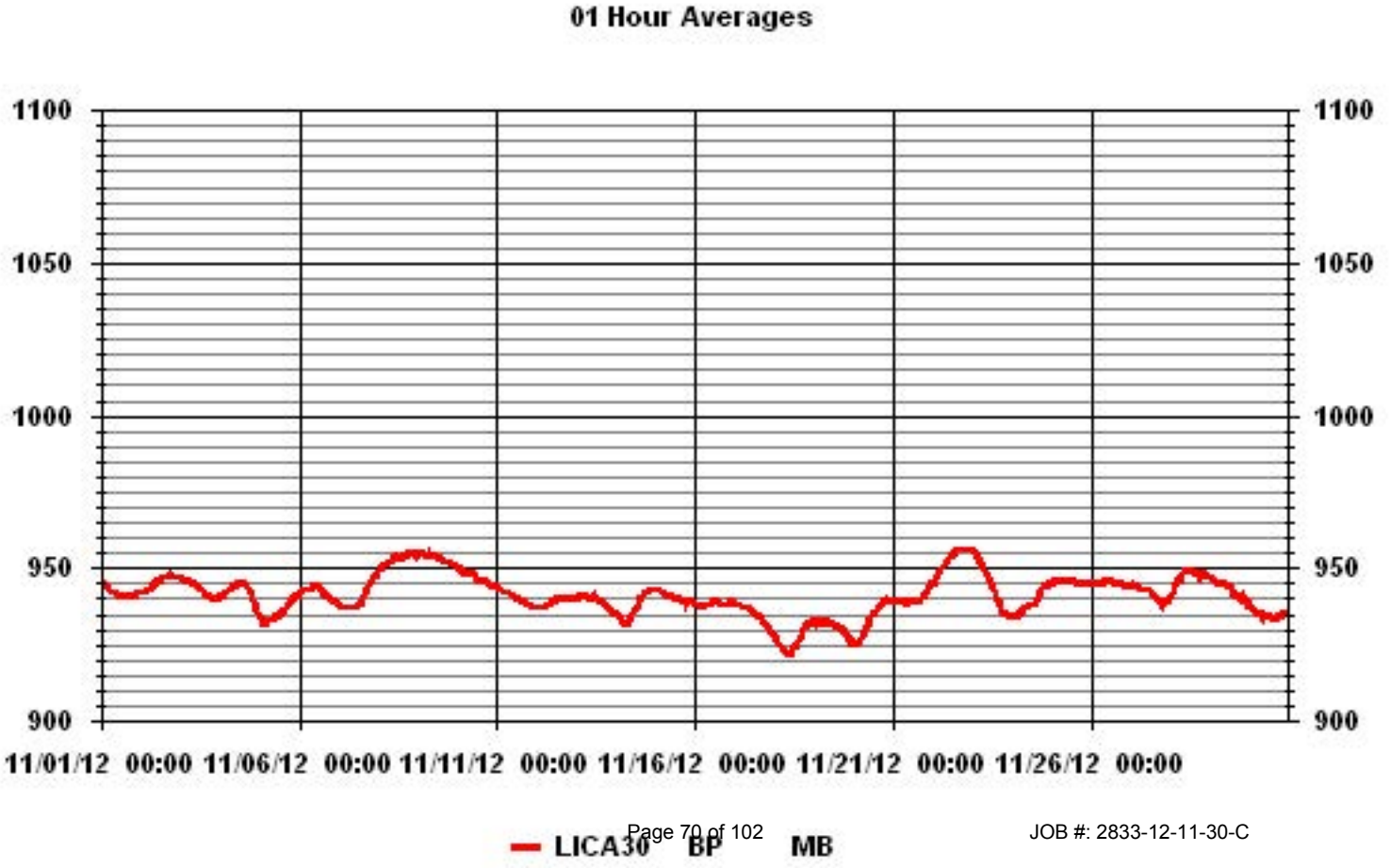
STATUS FLAG CODES

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:		956	MB	@ HOUR(S)	VAR	ON DAY(S) 22, 23
MAXIMUM 24-HR AVERAGE:		953.3	MB			ON DAY(S) 9
						VAR-VARIOUS
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:		720 HRS
				AMD OPERATION UPTIME:		100.0 %
STANDARD DEVIATION:	6.67			MONTHLY AVERAGE:		941 MB



JOB #: 2833-12-11-30-C

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

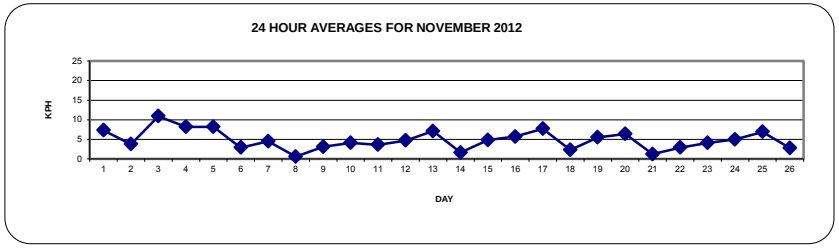
WIND SPEED hourly averages (km/hr)

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	7.4	9.8	9.4	8.8	8.2	8.1	7.5	8.7	9.1	10.2	11.7	10.4	8.1	7.8	7.7	6.8	5.1	4.2	3.8	4	2.8	3.2	1.7	1.2	11.7	6.8	24
2	0.8	1.3	0.4	1.3	1	1.6	2.4	2.1	2.7	2.7	2.8	3.5	3.4	3.6	3.1	2	2.6	2.5	1	0.5	1.6	2.8	1.8	2.6	3.6	1.6	24
3	4.2	2.9	3.7	3.6	4.5	5.1	5.5	6.4	7.3	8	7.6	8.9	9.4	9.8	6.5	5.8	8	5.6	5.9	4.3	4	2.5	2	0.5	9.8	5.4	24
4	1.2	1.7	1.8	3	3	3.3	4.3	4	3.5	3.4	5	5	5.2	5.7	3.9	4.9	3.9	3	3	3.5	5	4.9	8.9	8.3	8.9	2.9	24
5	6.6	3.3	4.6	0.3	0.7	1	3.5	5	8	6.4	7.9	16.6	**17.9**	16.9	12.5	15	10.3	9.7	10.6	11.7	11.8	10.1	11.4	9.4	**17.9**	7.3	24
6	6.1	7.1	6.1	7.4	5.4	4.6	4.2	3.7	3.3	3	5.4	5.8	6	7.3	6.3	6.1	4.9	5	4.6	3.6	2.7	2.3	3	2.7	7.4	3.8	24
7	2.6	4.2	5	5.3	4.5	8.5	7.3	6.9	10.7	14.3	16.6	17.3	16.3	16	16.5	15.4	13	13.4	13	14.2	16	14.2	8.2	6	17.3	**10.9**	24
8	5.7	6.2	5.5	8.4	10	7.4	8.5	7.8	10.7	8.9	10.8	9.3	8.3	9.8	9.8	7.4	8.3	10.5	8.8	7.8	6.9	8.2	7.6	9.1	10.8	8.2	24
9	8.6	9.6	9.3	11.2	10.8	7.7	7.7	8.2	7	7	8	7.9	7.5	7.3	9.1	9.9	8.6	7.5	7.4	8.3	9.2	8.7	6.5	6.2	11.2	8.2	24
10	7	6.9	6.6	6.6	6.6	4.7	1.9	3.2	4.2	5.5	4.1	5.1	5.4	4.9	4.6	3	0.8	1.5	2.9	1.2	2.7	2.4	1.7	1.3	7	2.9	24
11	0.9	0.7	0.9	1.5	2.1	1.9	2.4	3.6	4.7	5.6	5.5	5.5	8	7.4	8.1	7.6	4.3	5.7	7.2	6.9	6.6	5.6	4.7	3.2	8.1	4.5	24
12	2.9	3.8	3.2	3.6	4.5	2.5	2.6	2.8	2.6	2.6	5	4	4.2	5.1	3.2	3.9	1.9	1	1.5	1.5	1.1	3.1	2.5	4.2	5.1	0.6	24
13	5.1	4.8	3.8	3.9	2.7	1.5	1.2	2	4.2	4.2	4.4	5.8	5.1	5.3	3.3	2.8	4	1.9	0.8	1.4	2.5	4.8	6.3	7.1	7.1	3.1	24
14	6.5	4.4	6.1	6.6	4.4	6.8	8.1	5.5	4.2	10.3	11.4	11.9	11.4	12.2	10.3	8	5.7	4.9	1.8	1.6	1.5	1.8	1.8	1.4	12.2	4.1	24
15	0.7	3.3	6.4	5.3	4.7	3.7	4.8	3.5	3.3	4	4.1	4.9	6.4	5.6	6	6.9	5.4	3.6	3.4	7.9	5.8	4.6	0.4	2.2	7.9	3.6	24
16	2	1.7	1.8	4.7	5.5	4	5.1	7.8	5.6	4.8	4.8	5.7	6.7	8	8.1	7.2	5.5	5.4	4.6	3.7	5	6.8	5.4	5.6	8.1	4.7	24
17	6.5	6.7	7.6	8.8	7.4	5	5.6	6.5	7.2	7.4	7.4	5.9	7	6.7	5.9	6.4	7.7	7.9	6.8	8.5	8.5	9.6	8.2	8.2	9.6	7.1	24
18	8.3	6.8	7.5	7	6.3	6.2	4.6	4.2	5.9	5.5	3.2	4.1	4.9	7.1	8.1	7.2	7.1	5.4	4.7	4.5	5.1	3.5	6.7	2	8.3	1.6	24
19	3.1	1.9	1.7	1	3	2.3	2.5	3.3	4.5	6.6	6.7	6.5	6.9	7.7	6.1	4.5	4.6	5.7	7.5	7.1	7.6	7.3	10.2	7.8	10.2	4.8	24
20	8.7	12.6	11.4	9.2	6	4.4	7.3	8.8	6.8	7.2	5.9	6.5	7.3	7.6	6.2	7.4	4.2	4.3	3.5	4.3	4.3	2	2.6	5	12.6	5.7	24
21	4.8	3.9	7.6	5.3	6.1	6	8.8	10.3	9.8	7.4	8.6	6.7	6.1	7.2	8.8	9.7	7.6	9.6	12.5	9.1	8.5	8.7	7.1	6.5	12.5	7.7	24
22	6.1	5.2	4	2.4	2.4	4	4.5	5.1	4.5	4.7	3.9	3.9	3.6	3.5	2	1.5	1	1.2	1	1	0.1	1.1	0.3	0.8	6.1	2.3	24
23	2.7	1.1	1.4	3.6	4.5	7.4	8.8	7.5	7.9	8.9	8.9	8.7	8.2	8.2	9.4	10.2	10.2	8.1	4.9	2.9	0.6	1.8	3.1	3.5	10.2	5.5	24
24	3.6	3.5	3.9	5.5	6.9	6.1	6.4	7	7.7	6.5	9.7	9.2	10.4	11	10.7	9.8	9.9	9.3	7.9	5.8	4.9	3.9	2.9	3.2	11	6.4	24
25	3.1	2.3	2.8	2.3	0.6	0.5	1	2	2.1	2	5.3	5.6	3.3	1.5	2.6	3.4	3.4	3.7	4	2.8	1.7	2.7	2.1	2.7	5.6	1.2	24
26	2.5	2.9	4.8	5.1	5.3	3.5	3.2	2.8	4.2	5.2	5.9	5.3	4.8	3.6	3.4	1.7	1	1.4	2.2	1.5	0.5	0.4	1.9	1.3	5.9	2.9	24
27	2	1.5	1.1	2.1	4.2	2	4	4	4.5	5.6	5.8	5.4	5	6.9	6.1	7.1	8.6	5.4	6.1	5.9	5.6	3.7	4.7	5.4	8.6	4.1	24
28	5.4	3.7	6.4	7.6	10.1	6.9	8.4	4	1.1	3.3	6.5	6.1	6.2	6	5.7	5.4	6.5	4.9	5.3	4.1	4.2	5.3	5	4.4	10.1	5	24
29	5.4	4	3.6	5.6	7	6.8	7.2	6.7	6.7	7.5	7.1	7.6	7.5	6.8	7.9	7.5	8	8.4	7	8.1	7.5	8.7	8.3	8.9	8.9	6.9	24
30	9.1	7.6	8.1	7.4	4.9	3.9	4.5	4.9	2.9	4	4.1	1.1	3.5	4.3	3.5	3.5	3.1	3.9	2	4.7	4.2	2.4	3.4	3.7	9.1	2.8	24
HOURLY MAX	9.1	12.6	11.4	11.2	10.8	8.5	8.8	10.3	10.7	14.3	16.6	17.3	17.9	16.9	16.5	15.4	13.0	13.4	13.0	14.2	16.0	14.2	11.4	9.4			
HOURLY AVG	4.7	4.5	4.9	5.1	5.1	4.6	5.1	5.3	5.6	6.1	6.8	7.0	7.1	7.4	6.8	6.6	5.8	5.5	5.2	5.1	5.0	4.9	4.7	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

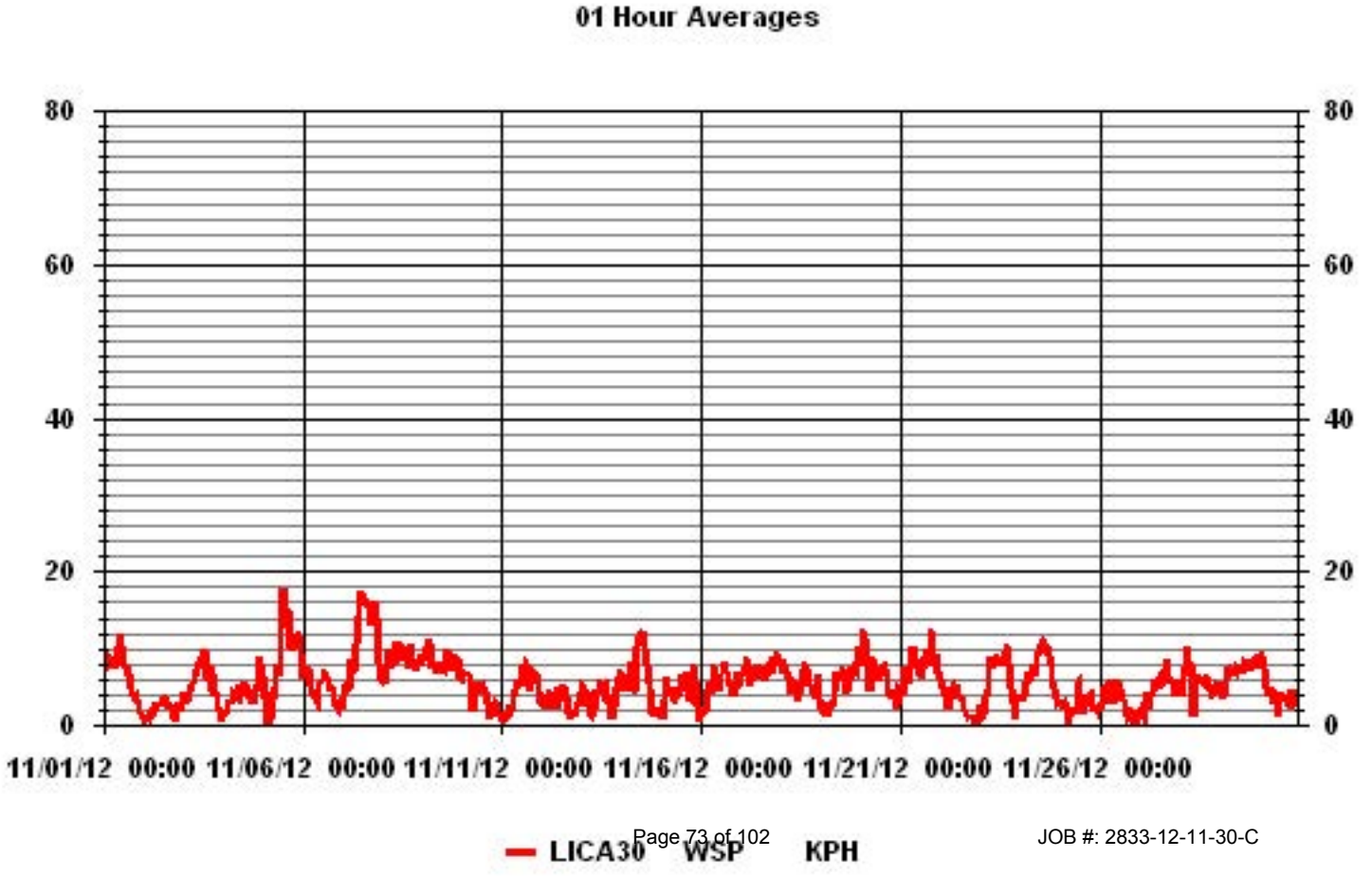


LAST CALIBRATION: December 20, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:			17.9	KPH	@ HOUR(S)	12	ON DAY(S) 5
MAXIMUM 24-HR AVERAGE:			10.9	KPH			ON DAY(S) 7
CALMS (≤ 1 KPH)	2.55	%	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.07		MONTHLY AVERAGE:			5.55	KPH

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

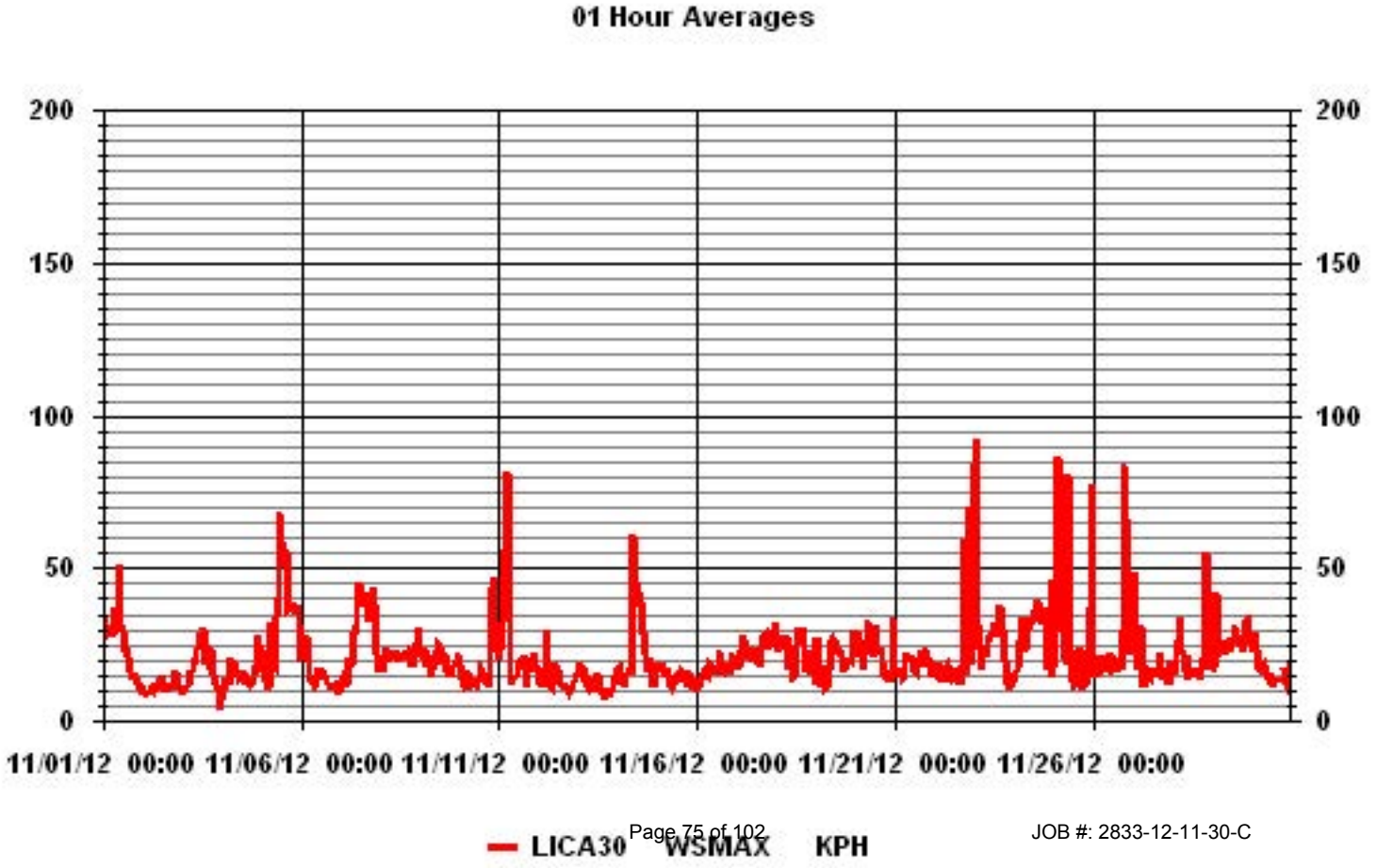
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	27.8	33.6	29.8	31.5	27.3	29.3	28	36.8	31.3	34.4	51	31.7	29.8	23.6	23.6	21.4	16.8	15.9	13.9	15.7	12.6	12.6	10	11.9	51
2	8.7	9.8	8.9	9.1	9.1	10.7	11.4	10.2	11.8	10.7	11.3	10.9	14.8	12.2	10.5	12.2	10.7	10.9	11.3	10	16.6	12.2	11.6	11	16.6
3	10.2	9.8	10.7	11.1	14.8	14.2	16.2	18.4	20.8	23.4	25.8	28	28.4	30.4	18.6	23.9	24.7	16.8	23.8	15.7	12.6	11.3	11.1	3.9	30.4
4	6.6	9.9	13.7	12.4	12.4	20.5	17	19.4	14.2	15.9	13.6	14.2	14.4	16.6	11.8	13.3	13.3	12	12.4	14.2	17.8	15.4	28	25.6	28
5	23.4	16.6	15.3	13.3	11.1	11.3	31.9	18.6	18	33.5	40.2	68	57.7	57.5	50.1	56.4	36.5	37	37.4	38.9	36.5	35.2	37.6	31.9	68
6	21	21.5	20.5	27.7	19.9	15.7	13.9	13.1	11.8	12.6	13.5	17.5	14.2	17.3	15.6	14.4	13.1	11.8	11.3	11.1	11.5	12	8.5	9.6	27.7
7	13.2	14.9	14	12	12.2	19.7	19.7	18.1	28.6	31.5	39.2	45.1	38.6	40.9	37.6	41.6	33.5	33.3	40.1	32.4	43.6	38.6	22.3	16.4	45.1
8	17.9	18.6	15.7	22.8	24.1	19	21.6	22.3	21.6	21	22.8	19.5	21.4	21.6	19.9	22.7	20.6	23	22.3	17.3	22.5	24.1	25.6	30.5	30.5
9	24.5	21.9	21.2	24.1	19	18.4	14.6	17.3	17.5	20.9	22.5	25.4	24.5	18.6	19.5	21.9	16.8	15.7	14.4	16.6	17.9	18.6	18.6	22.3	25.4
10	18.6	14.6	12.4	13.5	13.3	16.6	11.6	11.8	14.2	13.1	12.2	13.7	18.2	17.7	16.2	13.5	12.4	15.5	10.9	43.4	28.2	47.3	29.3	23	47.3
11	20.1	23	32.4	55.5	55.9	81.6	40.5	12.1	13.1	13.7	14.6	17.9	17.3	17.8	20.1	21	10.7	16.4	20.3	18.6	19.5	22.1	15.7	18.2	81.6
12	12.7	10.9	13.7	12.4	23.9	29.3	12.4	11.6	17	16.4	18.7	15.5	15.7	13.1	12	11.6	11.3	11.3	9.3	10.3	10.9	13.1	14.8	14.8	29.3
13	16.8	19	15.9	18.4	13.3	12	11.1	13.1	12.4	11.3	9.6	14.5	14.5	12.4	9.1	6.7	8.9	9.8	9.8	7.4	9.1	13.9	13.7	17	19
14	17.5	11.8	13.5	15.5	11.1	15.7	16.7	17.5	14.8	61.1	43.3	46	37.6	42	39.2	29.3	22.8	17.5	16.6	20.8	17.7	10.5	19.2	16.6	61.1
15	18.1	16.2	17.9	19.2	15.6	15.9	16.2	12.9	13.5	11.1	11.8	13.5	15.3	14.6	16.2	15.3	13.3	12.4	11.5	16.6	13.1	11.2	10.2	13.5	19.2
16	10.7	11.1	13.7	15	13.5	16.2	15.3	18.6	17.7	16.8	16.6	15	18.3	22.9	18.6	17.2	16.2	17.2	18.6	15.3	18.8	22.1	20.1	19	22.9
17	20.3	17.1	22.9	28.2	26.7	19.7	22.1	19.9	22.7	19.3	23.4	19.2	23.4	19	17.3	24.3	28	28.7	22.9	28.9	28.9	28.2	24.5	32	32
18	27.3	22.6	26.1	28.2	23.4	26.5	27.8	16.6	24	21.8	14.5	14.9	24.9	30	28	27.3	30.8	20.5	15.7	21.4	22.8	16.6	16.8	12	30.8
19	27.6	26.7	11.2	17.9	17.5	10.7	11.1	16.6	17.3	26.1	27.1	25.6	25.8	22.1	24	21.4	15.9	17.1	20.1	19.9	20.1	19.4	29.5	21.2	29.5
20	24.1	29.6	27.2	21.6	16.8	21.8	25.6	33.3	24.5	30	20.3	30.6	30.6	22.7	22.5	23.7	16.6	17.3	14.6	14.8	14.1	13.1	33.7	21.2	33.7
21	15.9	14.2	17.3	15.3	14	14.6	19.1	21.9	20.6	19	21.2	17.3	16.4	19.2	19.7	23.4	17.8	21	24.1	20.1	18.1	20.4	14.4	18.6	24.1
22	15.9	15.1	18.7	16.5	14.8	12.7	17.5	18.4	15.5	14.4	15.7	12.7	16	15.9	17.3	12	17.9	18.2	59	15.1	70.2	18.9	19.7	23.2	70.2
23	84	**91.9**	32.4	24.7	16.6	21.3	24.3	20.6	26	27.4	28.9	31.7	28.9	28	32.6	37.7	32	30	20.3	11.8	16.8	10.2	11.3	12.4	**91.9**
24	14.2	16.4	17.5	26.5	33.8	32.8	24.1	22.9	29.5	33.5	32.3	33.8	35.9	37	39.2	34.8	35.5	31.8	37.2	23.6	18.2	17.8	14.4	46.5	46.5
25	17.7	61.1	86.9	37.3	29.1	69.1	20.8	18.8	80.5	35.1	14.4	14.8	10.4	23.2	12	15.3	23.8	10.5	11.9	12.4	19.9	16.8	37.5	77.4	86.9
26	14.4	15.1	18.4	21.4	17.3	18.1	21.2	16.6	18.2	17.5	22.5	18.8	18.4	18.7	15.7	19.5	19	30	84.2	33.3	66.2	21.9	30.5	29.8	84.2
27	46.5	48.9	17.7	17.9	17	31.1	11.1	12.9	14	15.7	14.6	16.6	14.3	17.5	16.2	16.8	22.5	13.5	16.8	14.4	17.5	11.8	19.9	19	48.9
28	15.5	16.6	23.6	26.5	34	21.7	23	18.8	19.5	13.3	14.6	14.8	14.8	17.5	16.4	16.4	13.5	16.6	20.6	29.3	55.2	18.6	18.2	17.8	55.2
29	21.2	17.3	41.8	20.9	27.4	24.9	26.5	22.1	23.4	23.6	23.4	27.1	25.8	31.5	26.5	26.5	25.8	28	22.5	30.9	32.4	32.9	26.9	27.3	41.8
30	26.3	22.3	29.1	23.8	17.7	16.8	17.9	18.6	16.2	14.5	13.7	15.7	12.7	12.4	13.3	13.1	13.1	13.1	N	16.7	12.7	11.6	13.5	19	29.1
PEAK	84.0	91.9	86.9	55.5	55.9	81.6	40.5	36.8	80.5	61.1	51.0	68.0	57.7	57.5	50.1	56.4	36.5	37.0	84.2	43.4	70.2	47.3	37.6	77.4	

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

MAXIMUM INSTANTANEOUS READING	91.9	KPH	@ HOUR(S)	1
			ON DAY(S)	23



JOB #: 2833-12-11-30-C

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

November 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	4.58	2.91	4.16	3.88	1.80	4.02	5.27	2.63	3.61	5.55	5.55	4.30	2.77	1.94	1.66	3.61	58.33
<	12.0	1.38	8.05	4.44	1.25	1.11	6.25	4.58	1.25	.13	3.47	.41	.13	1.25	2.50	2.08	.41	38.75
<	20.0	.00	1.94	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.83	.00	.00	2.91
<	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	5.97	12.91	8.75	5.13	2.91	10.27	9.86	3.88	3.75	9.02	5.97	4.44	4.02	5.27	3.75	4.02	

Calm : .00 %

Total # Operational Hours : 720

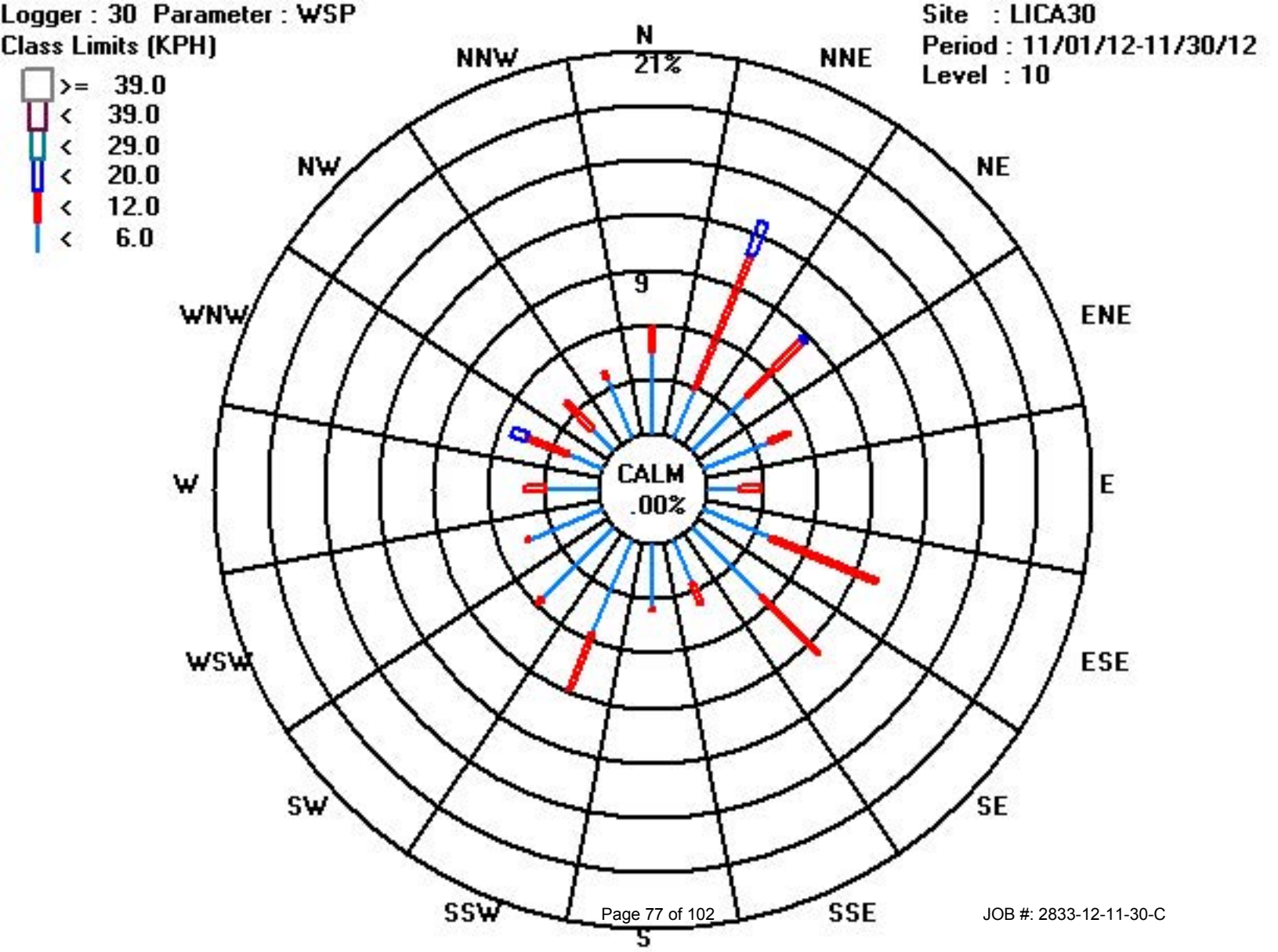
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	33	21	30	28	13	29	38	19	26	40	40	31	20	14	12	26	420
<	12.0	10	58	32	9	8	45	33	9	1	25	3	1	9	18	15	3	279
<	20.0		14	1											6			21
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	43	93	63	37	21	74	71	28	27	65	43	32	29	38	27	29	

Calm : .00 %

Total # Operational Hours : 720



JOB #: 2833-12-11-30-C

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2012

WIND DIRECTION hourly averages in degrees

MST

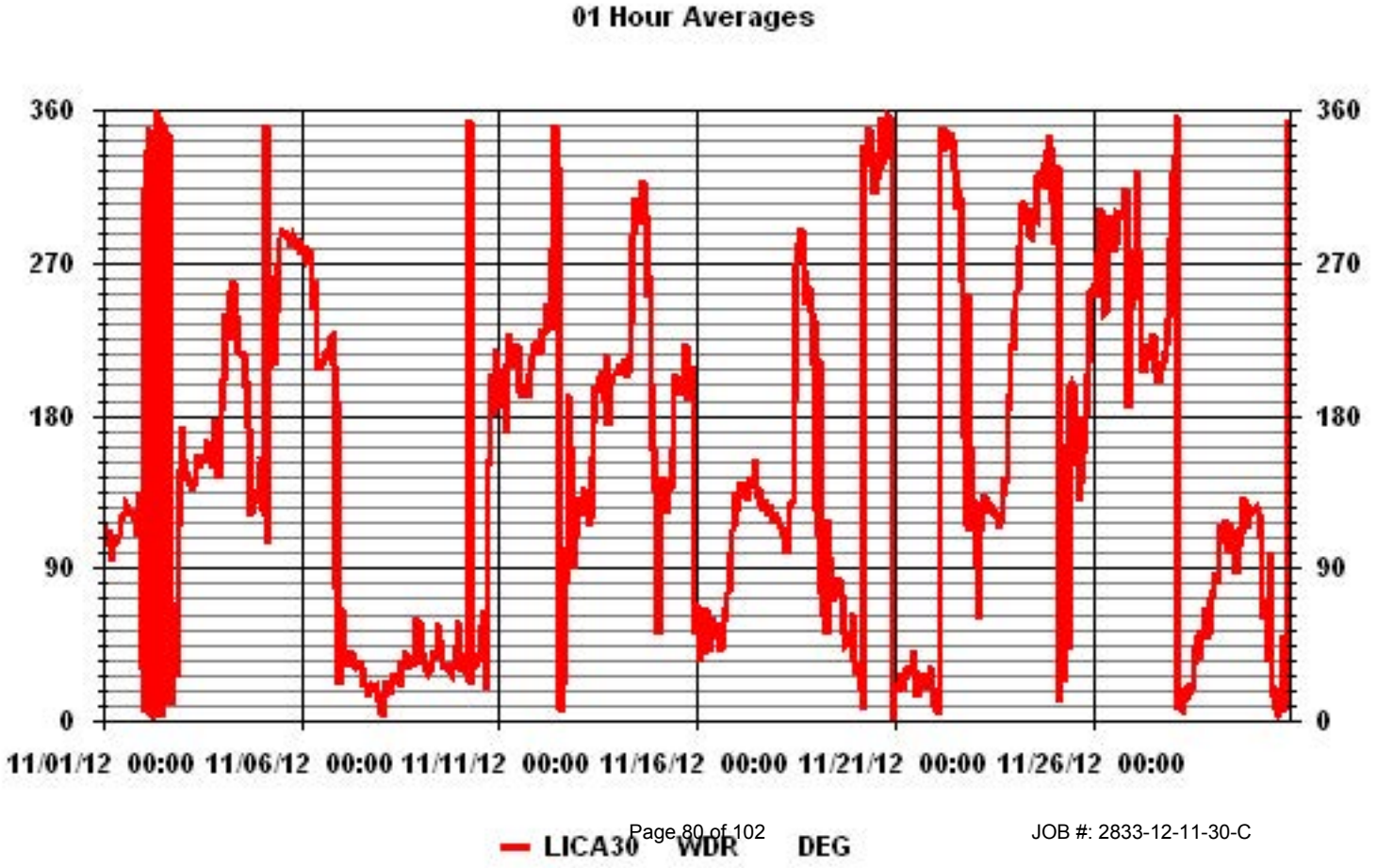
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	116	105	105	108	113	94	103	106	106	109	110	117	121	123	127	125	123	124	123	119	109	122	128	135	113	ESE	24
2	31	5	315	336	350	5	4	345	339	358	357	1	339	352	339	337	347	9	13	70	25	65	115	148	3	N	24
3	174	156	144	145	143	140	136	140	140	149	157	149	157	153	153	166	154	153	153	149	178	164	142	169	152	SSE	24
4	182	201	240	238	224	254	239	260	238	240	219	217	214	218	196	202	174	120	127	122	128	136	137	153	191	S	24
5	156	125	120	351	104	207	263	239	209	240	270	285	289	289	286	289	285	279	283	287	285	281	282	284	276	W	24
6	275	279	270	280	271	272	277	242	248	259	206	212	207	210	213	217	213	219	226	227	211	77	190	N	239	WSW	24
7	57	67	43	37	39	31	40	40	35	32	33	33	34	32	22	21	14	22	17	21	20	21	18	13	28	NNE	24
8	9	5	2	14	23	18	16	21	26	26	24	22	22	35	32	42	33	30	35	31	39	51	60	55	29	NNE	24
9	60	34	36	32	30	34	30	31	36	42	36	58	46	46	30	32	31	32	30	28	31	34	44	59	37	NE	24
10	41	31	30	30	28	23	355	21	35	30	32	35	40	56	45	65	18	152	152	205	183	180	219	208	39	NE	24
11	205	196	186	185	169	211	229	217	212	208	218	223	195	191	197	195	199	190	204	206	215	222	218	223	205	SSW	24
12	219	216	229	228	229	246	233	230	278	304	351	324	327	8	5	21	80	103	193	163	96	89	122	109	276	W	24
13	132	122	130	138	120	136	115	119	156	175	195	195	201	200	206	191	191	217	173	189	200	203	204	205	177	S	24
14	208	210	204	208	213	203	205	217	234	286	308	304	293	302	306	318	311	299	249	262	200	161	139	140	266	W	24
15	51	121	144	131	132	122	141	140	136	160	194	204	196	191	199	200	209	222	188	198	207	207	50	70	177	S	24
16	61	34	61	58	39	67	47	40	53	60	47	57	50	47	43	41	58	66	75	76	100	112	114	135	62	ENE	24
17	124	131	141	133	140	135	129	136	144	140	141	154	131	137	128	123	128	130	121	126	128	122	116	123	131	SE	24
18	121	119	114	114	111	110	98	101	125	129	131	188	270	281	286	291	275	267	246	246	257	242	209	237	186	S	24
19	125	109	214	76	63	53	53	119	98	75	74	80	78	77	84	79	76	52	44	45	48	52	64	36	68	ENE	24
20	29	29	32	19	6	339	330	342	350	326	336	310	321	319	325	356	328	331	333	357	356	352	0	7	352	N	24
21	19	17	22	28	24	22	25	30	32	27	30	42	20	13	28	27	18	25	28	19	26	32	20	9	25	NNE	24
22	7	9	3	350	348	335	350	337	342	341	347	343	326	301	313	310	259	167	172	114	252	112	161	112	345	NNW	24
23	131	92	59	120	112	125	134	123	123	128	127	121	124	120	113	116	120	132	143	141	183	193	220	220	128	SE	24
24	241	253	254	280	304	306	301	293	303	287	286	303	297	296	321	322	318	317	329	336	333	346	340	307	305	WNW	24
25	280	287	328	10	164	134	22	44	66	42	197	200	198	175	151	129	139	180	157	180	204	211	253	255	188	S	24
26	252	249	276	274	302	271	240	241	285	294	298	288	276	280	299	298	295	301	295	314	251	184	228	243	278	W	24
27	255	277	324	247	277	218	205	215	222	216	215	216	229	205	214	200	202	206	211	218	222	237	284	323	224	SW	24
28	318	334	358	7	9	8	15	19	20	15	16	20	20	33	45	51	36	54	50	66	49	51	52	72	25	NNE	24
29	77	87	81	86	108	115	104	111	119	100	117	98	112	90	86	91	102	114	111	132	116	113	121	125	107	ESE	24
30	124	124	124	126	123	108	73	60	64	51	35	100	14	21	8	4	6	8	51	19	15	355	9	10	64	ENE	24
HOURLY AVG	318	334	358	351	350	339	355	345	350	358	357	343	339	352	339	356	347	331	333	357	356	355	340	323			

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:	720	HRS
STANDARD DEVIATION:	102.35		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	58	DEG



JOB #: 2833-12-11-30-C

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *MASKWA*

NOVEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

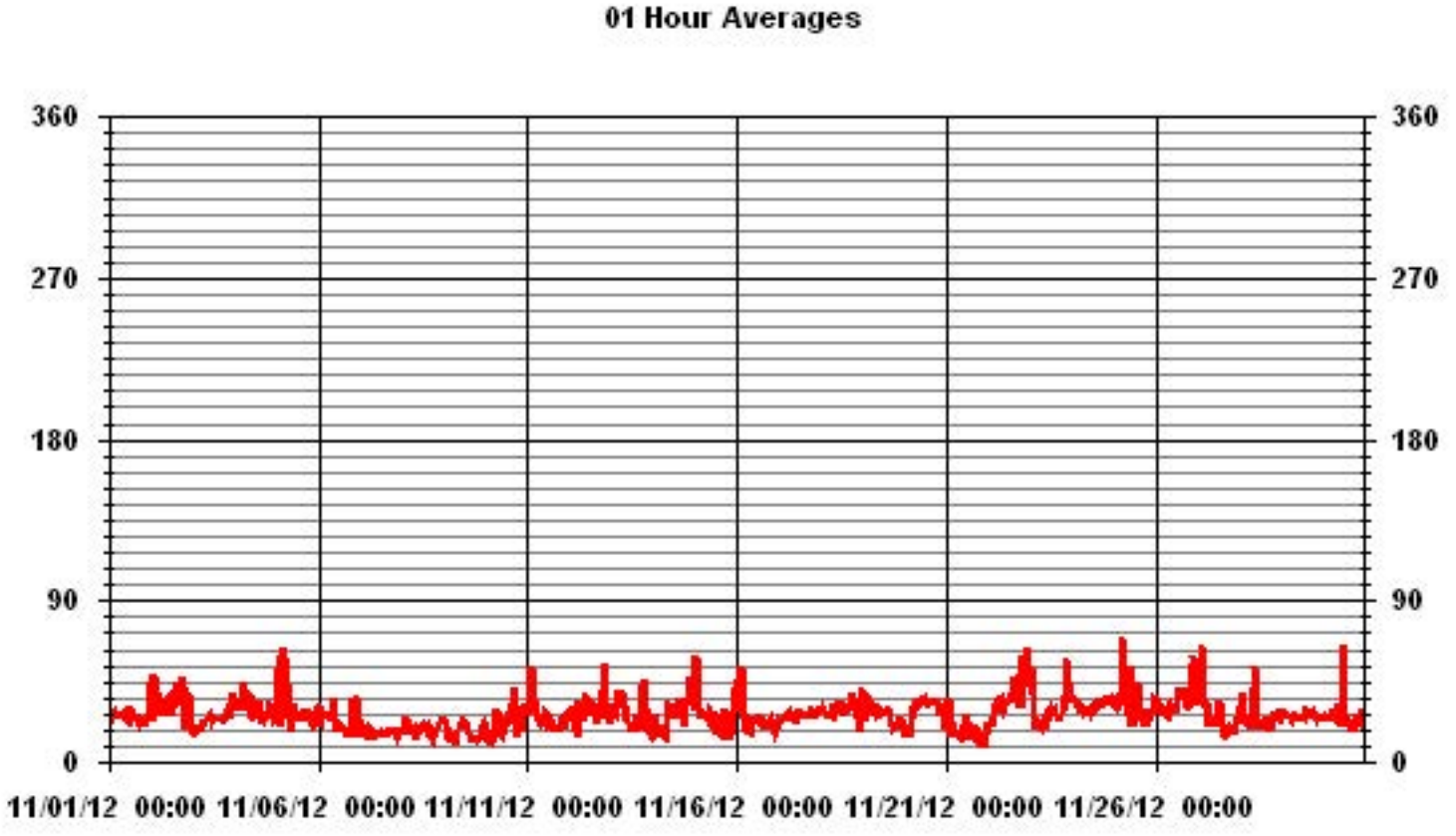
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	25	24	26	28	26	26	26	26	27	28	25	24	31	28	26	25	24	22	25	24	22	20	26	42
2	44	23	49	25	38	37	25	33	33	32	37	26	35	34	40	44	32	36	47	43	20	20	38	21
3	18	17	18	19	21	20	22	22	23	24	26	23	25	24	24	24	24	25	22	27	26	24	33	39
4	28	35	32	33	29	44	35	39	36	38	26	25	26	30	34	25	26	24	27	24	34	30	24	25
5	27	52	19	59	63	59	44	26	16	25	32	26	25	26	27	23	26	27	24	24	22	26	28	24
6	26	24	28	26	27	26	27	23	29	35	17	24	20	19	19	19	15	15	15	17	35	30	37	14
7	23	20	18	15	20	13	19	18	17	15	16	16	18	17	15	15	19	16	19	15	19	15	17	17
8	19	23	23	23	15	20	18	17	13	19	18	19	21	19	18	20	16	14	18	17	19	22	24	23
9	23	16	17	13	11	16	12	10	18	21	19	25	23	22	17	13	13	13	13	12	13	14	20	22
10	19	13	12	14	12	14	29	18	16	15	21	21	24	27	30	29	42	23	13	31	17	20	32	25
11	31	33	53	42	35	28	24	22	23	22	29	28	21	22	19	19	19	18	18	19	25	26	24	28
12	29	25	30	18	14	34	28	23	34	39	34	33	33	26	29	22	25	32	36	40	55	29	30	21
13	25	28	27	32	40	34	40	32	24	23	19	19	20	17	26	24	19	43	35	46	31	18	16	19
14	18	26	16	17	21	16	15	21	34	29	29	30	25	28	31	36	33	20	32	35	48	39	47	29
15	59	41	25	29	26	26	26	24	28	26	26	26	19	20	16	15	18	29	25	13	16	20	42	28
16	43	42	54	25	16	26	18	17	21	22	24	25	25	25	22	20	20	22	22	24	21	17	19	21
17	24	23	24	26	27	26	28	26	25	22	25	30	26	26	26	27	26	26	29	28	28	27	28	31
18	28	31	29	27	26	27	26	32	27	31	30	29	34	30	28	29	30	38	31	35	33	26	16	42
19	25	23	39	32	25	34	30	27	29	25	30	29	27	27	31	27	22	19	20	20	20	23	23	19
20	21	15	15	18	24	31	33	31	32	35	34	36	34	31	35	31	36	34	36	29	26	32	25	18
21	27	36	14	23	18	17	16	15	14	18	17	26	20	20	18	13	21	13	12	16	13	12	16	21
22	21	21	25	27	32	34	32	34	30	32	34	34	37	38	47	33	36	49	30	59	49	45	64	42
23	53	39	27	19	23	22	20	23	26	24	28	31	29	30	27	24	24	27	34	33	58	40	41	33
24	36	35	34	32	28	31	31	28	29	30	28	31	30	28	33	36	31	33	33	35	37	32	35	33
25	35	36	32	34	70	46	41	32	26	53	20	25	27	44	38	30	25	22	22	29	25	27	36	35
26	35	33	27	32	26	28	27	31	33	31	28	31	35	41	36	40	42	32	31	32	54	59	31	40
27	40	50	65	33	32	34	20	22	25	21	21	23	34	23	21	16	15	16	19	17	17	21	25	31
28	28	38	25	23	22	26	18	42	53	26	22	22	19	22	24	23	17	23	22	28	23	26	25	30
29	24	28	28	27	26	24	26	27	25	25	25	26	25	31	27	28	26	26	28	25	27	26	24	24
30	26	25	25	26	28	28	26	28	33															

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: 720 HRS



JOB #: 2833-12-11-30-C

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	November 8, 2012		Previous Calibration	October 12, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	09:26		End Time (MST)	18:20	
Reason:			As Found		
Barometric Pressure	953	mmHg	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	605	ccm	28.6	Deg C	606	ccm	31.1	Deg C
HVPS / Lamp Setting	494		2291		514		2312	
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	52.3		1.225		62.6		1.009	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	1	N/A
	No Zero Adj.			
4920	74.6	741	738	1.0038
			Sum of Least Squares	
			New Correction Factor	1.0038

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	1.6	1.2
Auto Span	364.0	356.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9944
Current Correction Factor Before Span Adjust:	1.0038
Percent Change:	-0.9%

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

Following the A/F points, peaked the UV lamp, adjusted HVPS voltage, adjusted slope. Let the analyzer stablize overnight. Will perform a full calibration tomorrow.

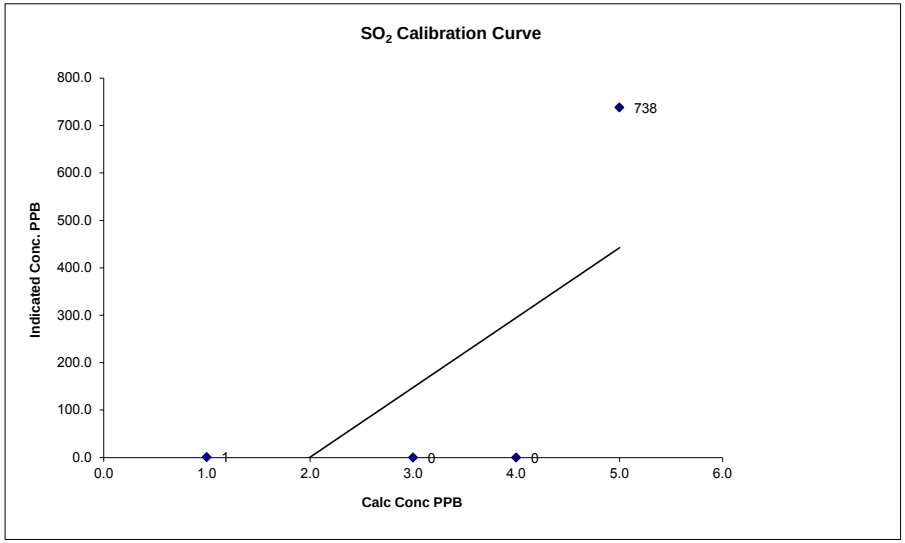
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	November 8, 2012			
Company	Lakeland Industry & Community Association			
Plant / Location	Cold Lake - Maskwa			
Start Time (MST)	09:26	End Time (MST)	18:20	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	n/a
	0	#VALUE!
	0	#VALUE!
741	738	1.0038

Correlation Coefficient	(≥ 0.995)	1.000000
Slope	(0.85 to 1.15)	0.994827
Intercept	(± 3% F.S.)	1.000000



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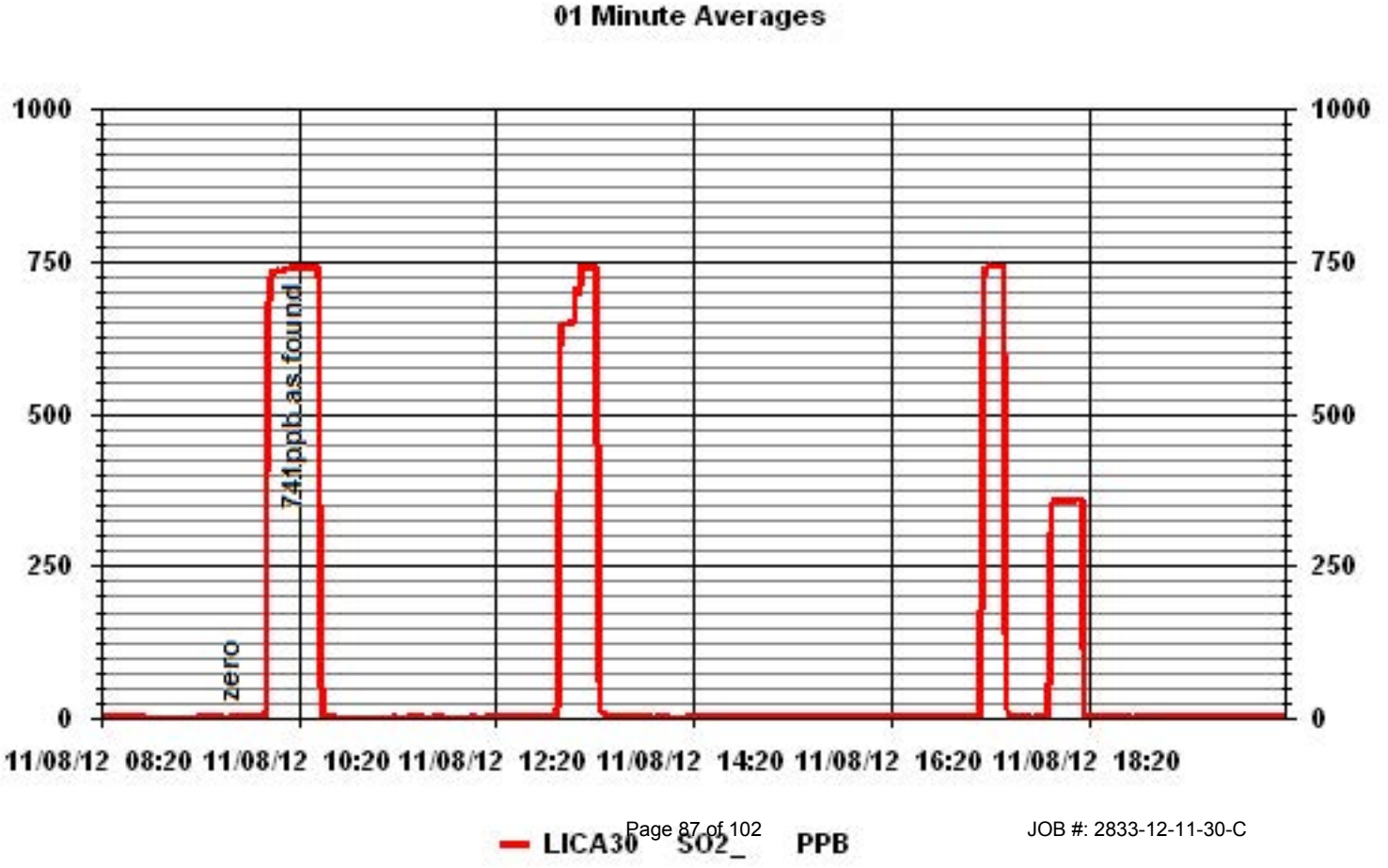


JOB #: 2833-12-11-30-C

SO2 Calibration Report

Station Information

Calibration Date	November 9, 2012		Previous Calibration	November 8, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	10:54		End Time (MST)	14:30	
Reason:			Post Repair Calibration		
Barometric Pressure	954	mmHg	Station Temperature	23	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	606	ccm	31	Deg C	606	ccm	29.8	Deg C
HVPS / Lamp Setting	514		2318		514		2316	
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	62.6		1.009		64		1.013	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	1	N/A
	No Zero Adj.			
4921	75.4	749	750	0.9980
	No Span Adj.			
4954	40.2	399	396	1.0082
4975	20.1	200	198	1.0080
4994	0	0	0	N/A
			Sum of Least Squares	1.0007
			New Correction Factor	0.9980

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	1.6	0.6
Auto Span	364.0	356.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9944
Current Correction Factor Before Span Adjust:	0.9980
Percent Change:	-0.4%

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

During the first zero point, when tried to check the reading, accidentally pushed wronf button causing the reading to go high for two minutes. Restarted the point.

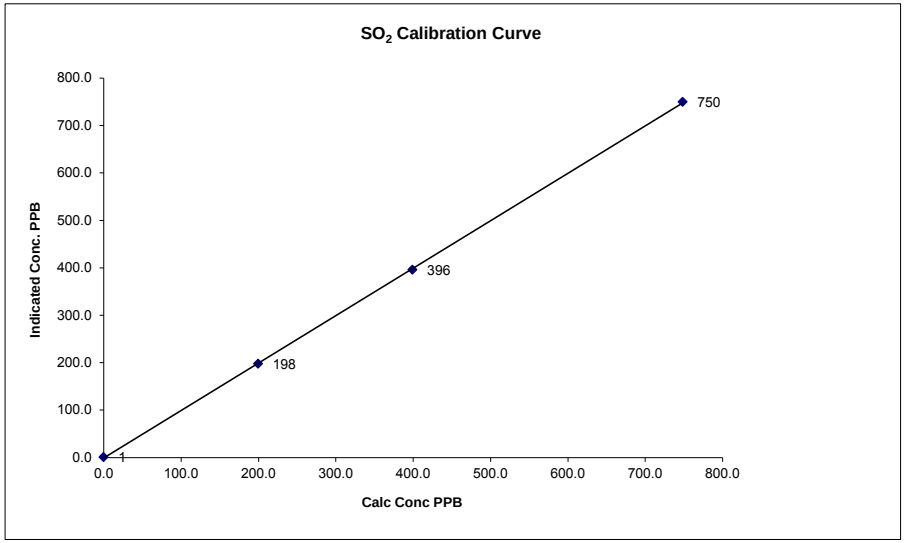
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	November 9, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	10:54	End Time (MST)	14:30

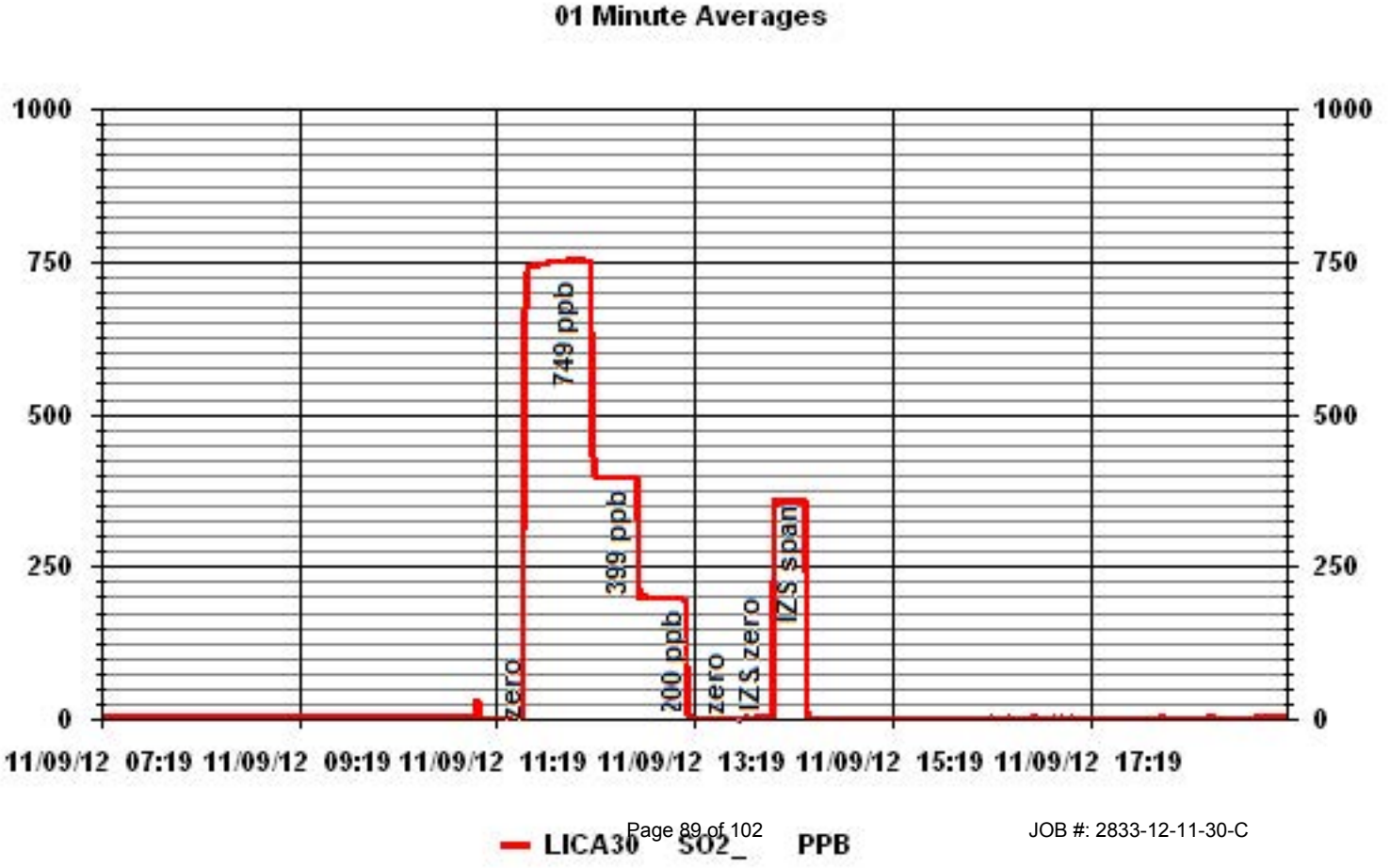
Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	n/a
200	198	1.0080
399	396	1.0082
749	750	0.9980

Correlation Coefficient	(≥ 0.995)	0.999952
Slope	(0.85 to 1.15)	1.000959
Intercept	(± 3% F.S.)	-0.908354



Notes:

JOB #: 2833-12-11-30-C



JOB #: 2833-12-11-30-C

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 8, 2012		Previous Calibration	October 12, 2012	
Company	**Lakelnad Industry & Community Association**				
Plant / Location	**Cold Lake - Maskwa**				
Start Time (MST)	09:26		End Time (MST)	10:37	
Reason:			As Found		
Barometric Pressure	953	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	480	ccm	31.7	Deg C	485	ccm	33.8	Deg C
HVPS / Lamp Setting	552		2265		548		2273	
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	36.8		0.85		28.3		0.997	

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	78	1.0261
			Sum of Least Squares	
			New Correction Factor	

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.6
Auto Span	57.5	57.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9880
Current Correction Factor Before Span Adjust:	1.0261
Percent Change:	-3.7%

Notes: **NA : Not Applicable**

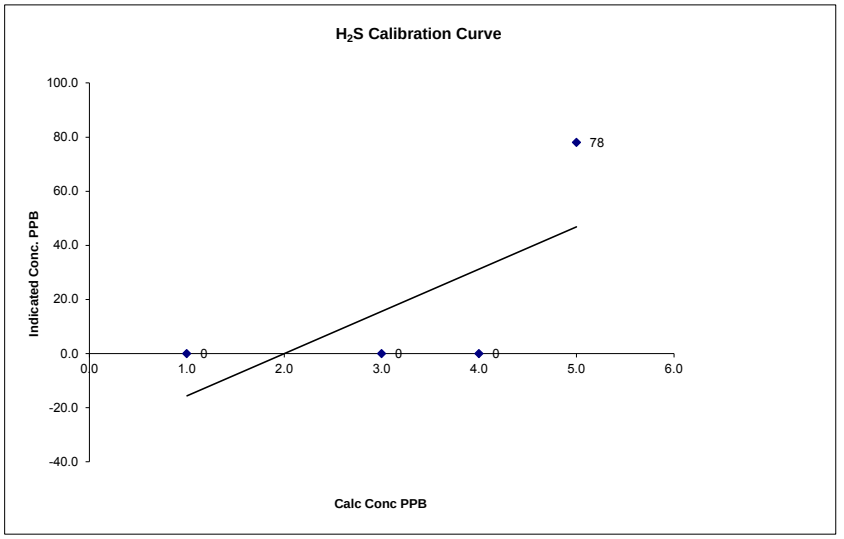
Following the A/F points, replaced the SO2 scrubber material, peaked the UV lamp, rebuilt the exhausting pump, adjusted the HVPS voltage, adjusted the slop. Will perform a full calibration tomorrow.

Calibration Performed by: Ting Xu

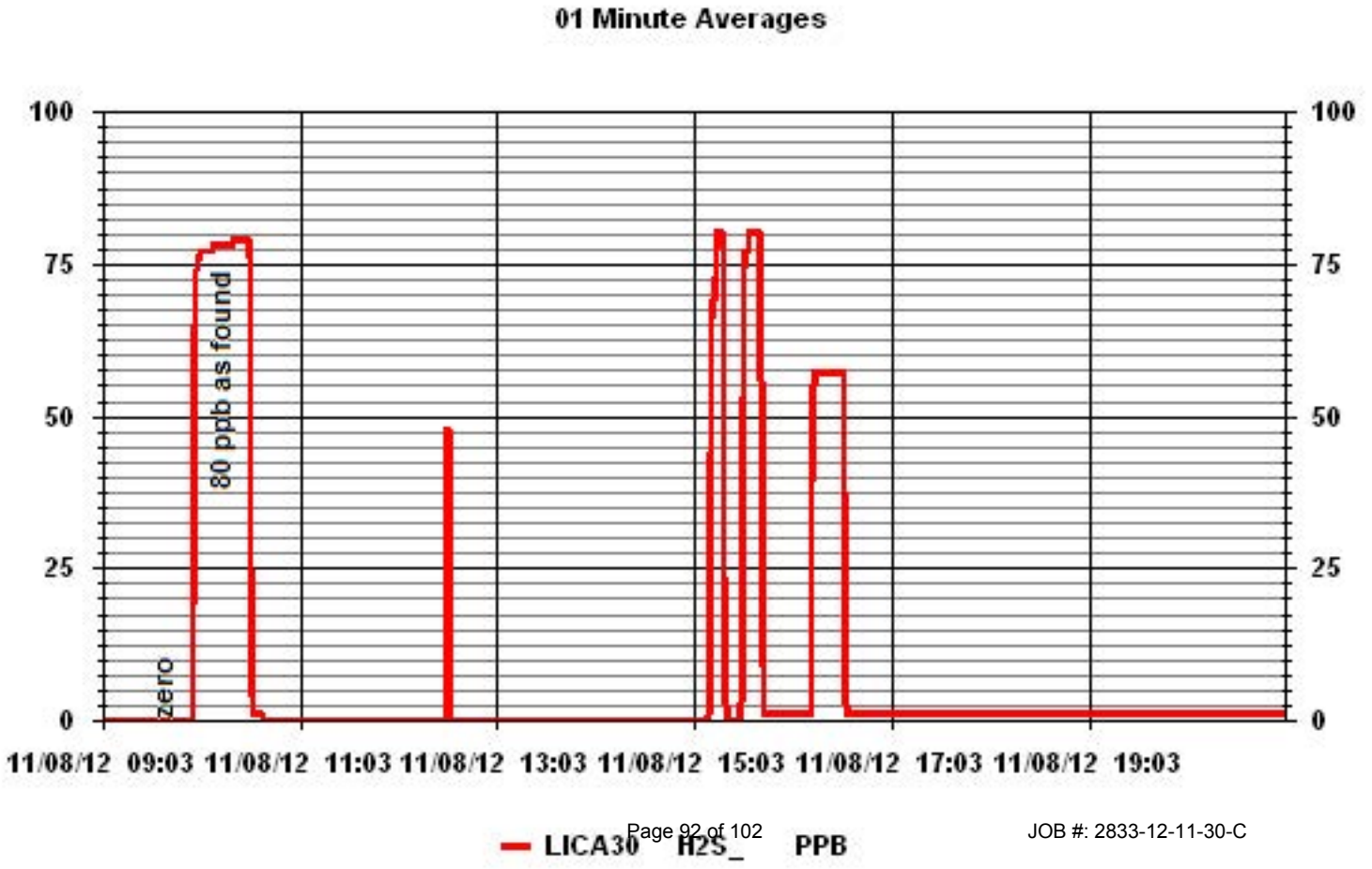
H_2S Calibration Curve

Calibration Date	November 8, 2012				
Company	**Lakelnad Industry & Community Association**				
Plant / Location	**Cold Lake - Maskwa**				
Start Time (MST)	09:26		End Time (MST)	10:37	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor			
	0		Correlation Coefficient	(≥ 0.995)	#DIV/0!
	0	#VALUE!	Slope	(0.85 to 1.15)	#DIV/0!
	0	#VALUE!	Intercept	(± 3% F.S.)	#DIV/0!
80	78	1.0261			



Notes:



JOB #: 2833-12-11-30-C

H2S Calibration Report

Station Information

Calibration Date	November 9, 2012		Previous Calibration	November 8, 2012	
Company	**Lakelnad Industry & Community Association**				
Plant / Location	**Cold Lake - Maskwa**				
Start Time (MST)	10:54		End Time (MST)	14:30	
Reason:			Post Repair Calibration		
Barometric Pressure	954	mBar	Station Temperature	23	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	486	ccm	32.5	Deg C	485	ccm	32.6	Deg C
HVPS / Lamp Setting	548		2276		548		2275	
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	314	Deg C	45.0	Deg C
Offset / Slope	28.3		0.997		30.2		1	

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	80	1.0000
	No Span Adj.			
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	

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.6	-0.4
Auto Span	57.0	56.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9880
Current Correction Factor Before Span Adjust:	1.0261
Percent Change:	-3.7%

Notes: **NA : Not Applicable**

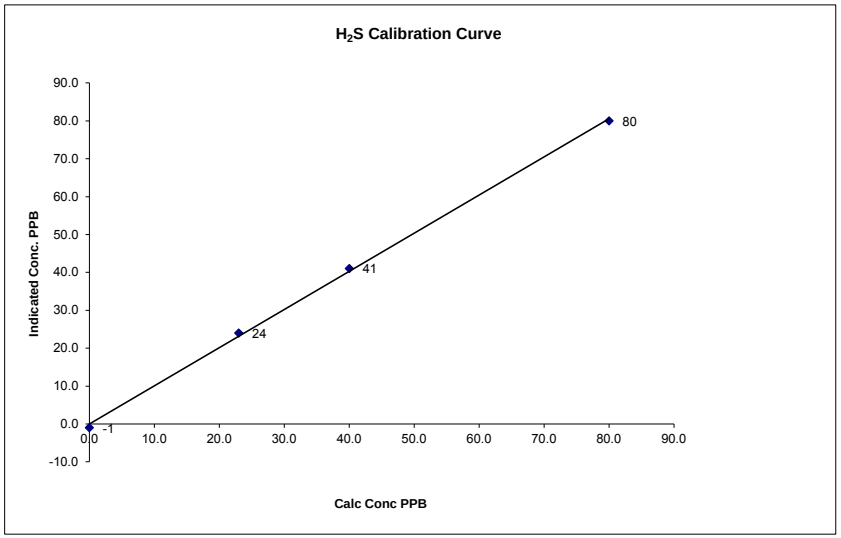
Calibration Performed by: Ting Xu

H_2S Calibration Curve

Calibration Date	November 9, 2012				
Company	**Lakelnad Industry & Community Association**				
Plant / Location	**Cold Lake - Maskwa**				
Start Time (MST)	10:54		End Time (MST)	14:30	

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)	0.999275
Slope	(0.85 to 1.15)	1.007573
Intercept	(± 3% F.S.)	-0.037749



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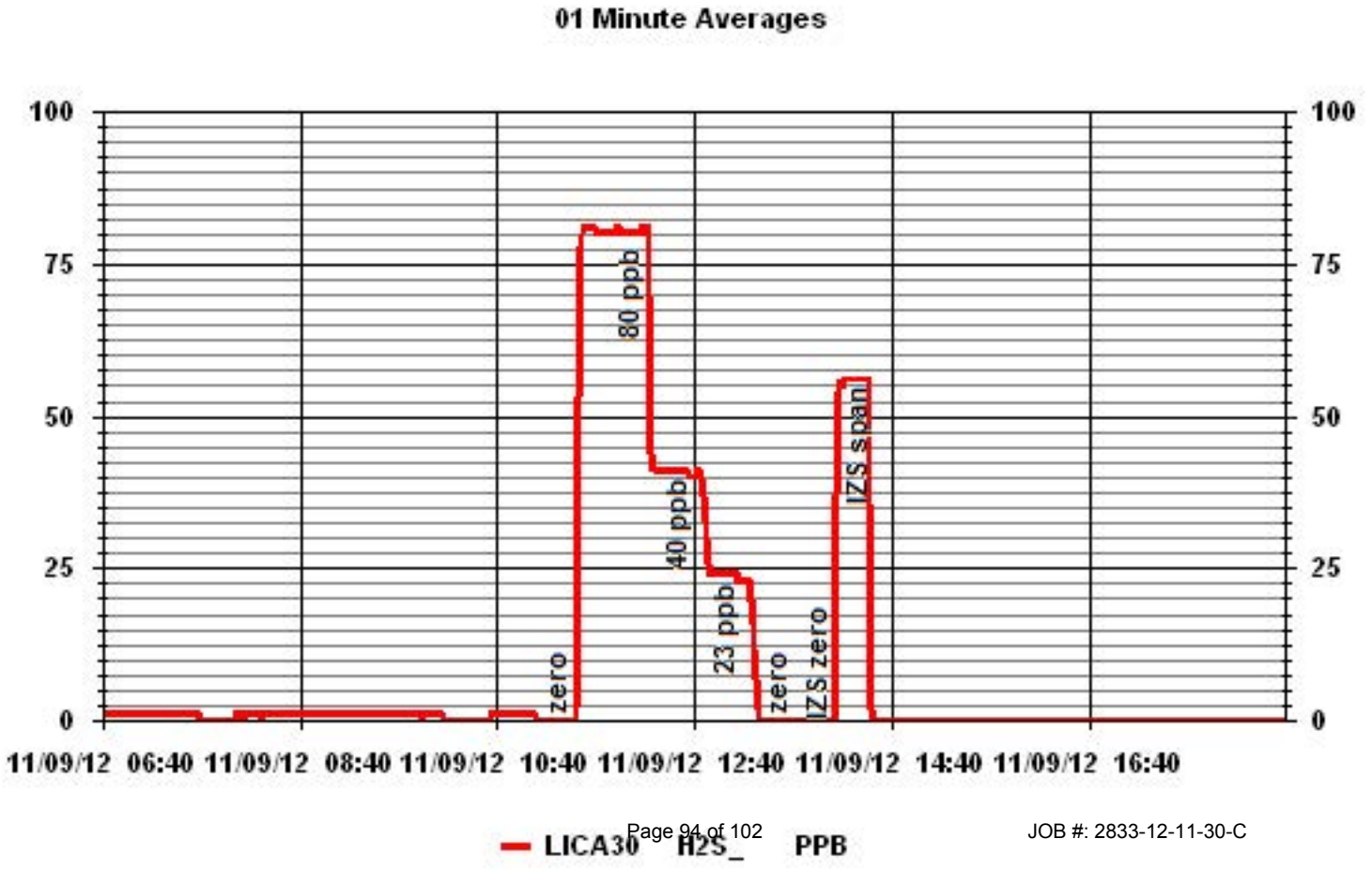


JOB #: 2833-12-11-30-C

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	November 8, 2012		Previous Calibration	October 12, 2012	
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location:	Maskwa				
Start Time (MST)	11:50		End Time (MST)	15:48	
Reason:	Monthly Calibration				
Barometric Pressure:	953	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	0.1	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	42.7	0.9701
2000	74.0	41.4	41.7	0.9934
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:	0.9934

Percent Change

Previous Calibration Correction Factor:	0.9934
Current Correction Factor Before Span Adjust:	0.9701
Percent Change:	2.4%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	34.6	34.3
Sample Lines Connected		**YES**

Cylinder Pressures

Span 1000 psi Hydrogen 1000 psi Zero Air 32 psi

Notes: **NA : Not Applicable**

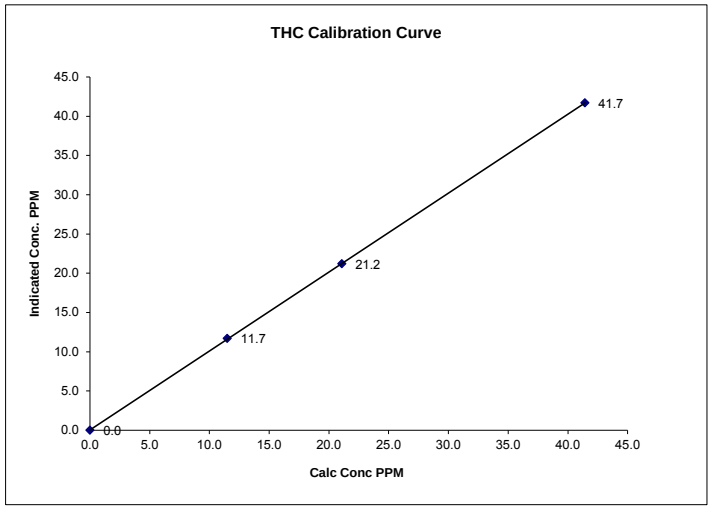
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	November 8, 2012			
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION			
Plant / Location	Maskwa			
Start Time (MST)	11:50	End Time (MST)	15:48	

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	41.7	0.9934

Correlation Coefficient	(≥ 0.995)	0.999985
Slope	(0.85 to 1.15)	1.005601
Intercept	(± 3% F.S.)	0.04445



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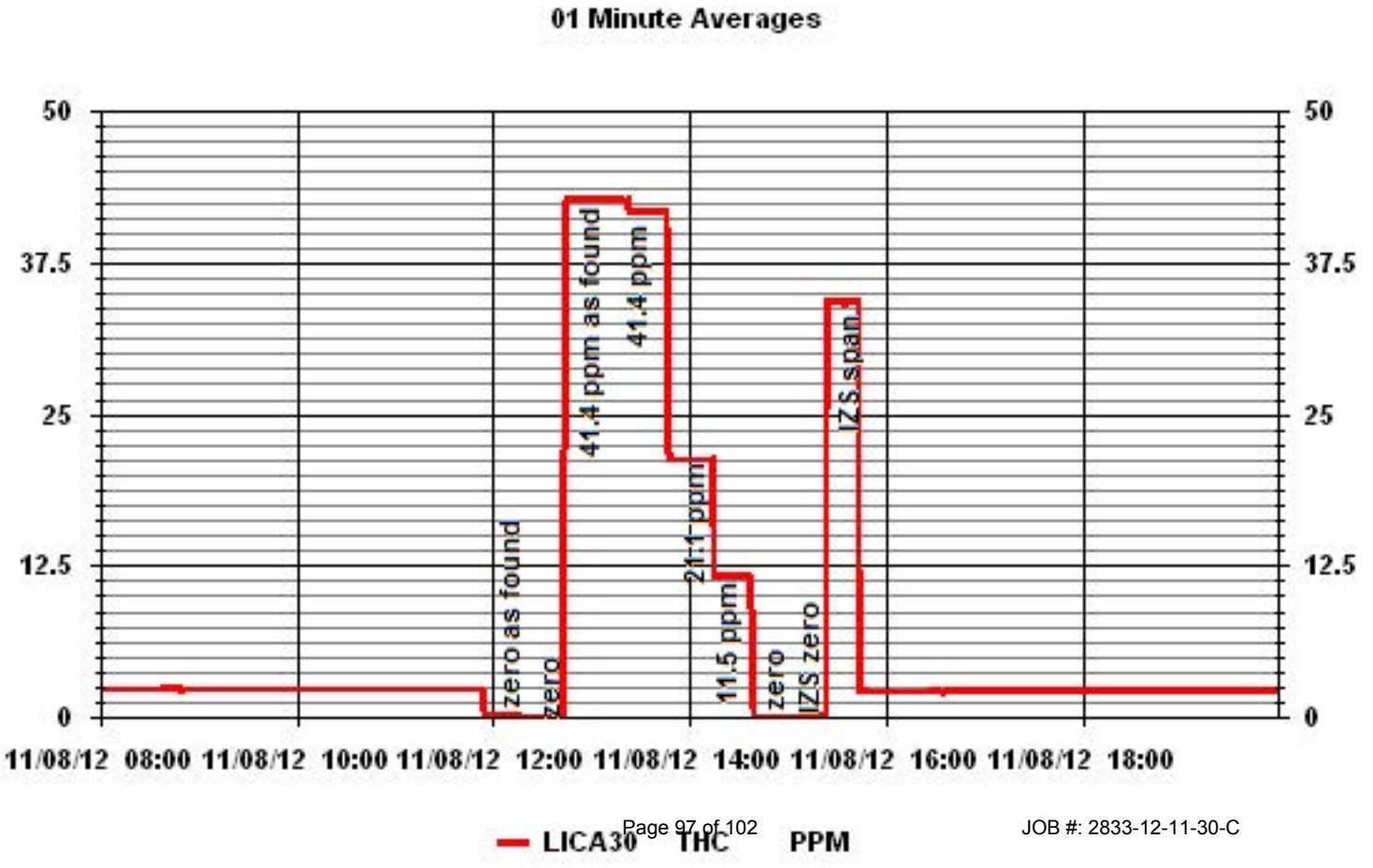


JOB #: 2833-12-11-30-C

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 8, 2012		Previous Calibration	October 12, 2012	
Company	LICA		Plant/Location	Maskwa	
Start Time (MST)	09:26		End Time (MST)	10:37	
Reason:	As Found				
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 - 1 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 :	AO 791		
Chart Recorder Make / Model:	N/A	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	461	ccm	317	Deg C		463	ccm	314	Deg C
Ozone Flow / Vacuum	80	ccm	5.9	"Hg-A		80	ccm	4.7	"Hg-A
HVPS / A ZERO	751	Volts	15.3	MV		751	Volts	15.5	MV
Rx/ Temp / PMT Temp	50.1	Deg C	6.6	Deg C		50.0	Deg C	6.6	Deg C
Box Temp / IZS Temp	27.5	Deg C	42.1	Deg C		31.8	Deg C	42.1	Deg C
Offset	0.1	NOx	-0.1	NO		0.1	NOx	-0.1	NO
Slope	0.990	NOx	0.983	NO		0.990	NOx	0.983	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	747	745	3	1.0033	1.0060

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		

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx=		NO=		NO2=
				NOx=	1.0033	NO=	1.0060	NO2=
				Average Converter Efficiency=				

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	1.1	NOx	1.0	NO2		NA	NOx	NA	NO2
Auto Span	543	NOx	536	NO2		NA	NOx	NA	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-0.5%	NO	-0.6%	NO2	NA

Notes

NA : Not Applicable

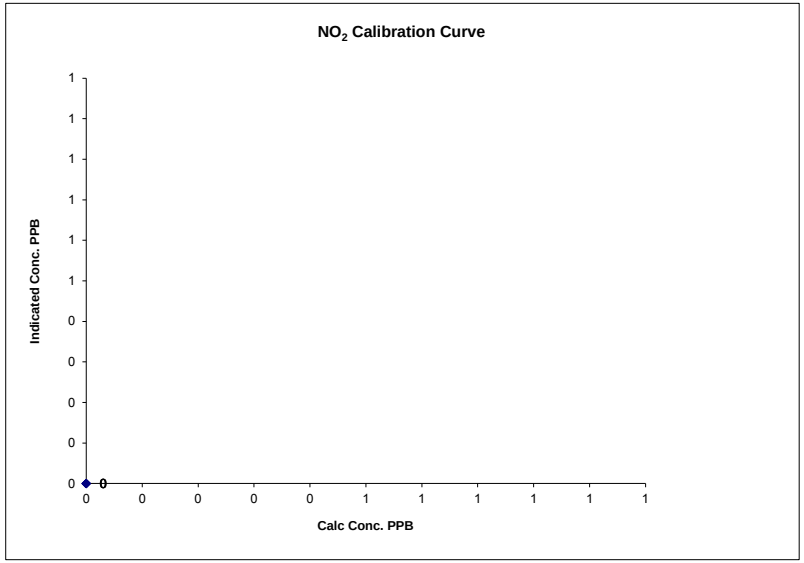
Following the A/F points, replaced the exhausting scrubber and resbuilt the exhaust pump.

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	November 8, 2012			
Company	LICA			
Plant / Location	Maskwa			
Start Time (MST)	09:26	End Time (MST)	10:37	

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



Notes:

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 8, 2012		Previous Calibration	October 12, 2012	
Company	LICA		Plant/Location	Maskwa	
Start Time (MST)	12:25		End Time (MST)	17:55	
Reason:	Post Repair Calibration				
Barometric Pressure	953 mBar	Station Temperature	24 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 - 1 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 :	AO 791		
Chart Recorder Make / Model:	N/A	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	317	Deg C		459	ccm	315	Deg C
Ozone Flow / Vacuum	80	ccm	4.7	"Hg-A		80	ccm	4.5	"Hg-A
HVPS / A ZERO	751	Volts	15.7	MV		751	Volts	15.7	MV
Rx/ Temp / PMT Temp	50.0	Deg C	6.6	Deg C		50.0	Deg C	6.6	Deg C
Box Temp / IZS Temp	32.8	Deg C	42.1	Deg C		33.3	Deg C	42.1	Deg C
Offset	0.1	NOx	-0.1	NO		0.4	NOx	0.3	NO
Slope	0.990	NOx	0.983	NO		1.058	NOx	1.057	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	0	0	0	NA	NA
	No Zero Adj.									
4919	74.6	NA	748	748	NA	747	747	1	1.0019	1.0019
	No Span Adj.									
4957	39.8	NA	399	399	NA	396	395	1	1.0077	1.0103
4974	19.9	NA	200	200	NA	199	198	1	1.0032	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	749	747	2	NA	NA
4920	74.6	600	748	NA	548	748	201	548	1.0000	100.00%
	No Adj.									
4920	74.6	250	748	NA	229	751	520	231	0.9913	100.88%
4920	74.6	140	748	NA	128	750	621	129	0.9922	100.79%

Linearity OK?	Yes	No	Sum of Least Squares	NOx= 1.003	NO= 1.004	NO2= 0.998		
			Correction Factors:	NOx= 1.0019	NO= 1.0019	NO2= 1.0000		
				Average Converter Efficiency=				

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	NA	NOx	NA	NO2		0.5	NOx	0.6	NO2
Auto Span	NA	NOx	NA	NO2		535	NOx	529	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-0.4%	NO	-0.2%	NO2 NA

Notes

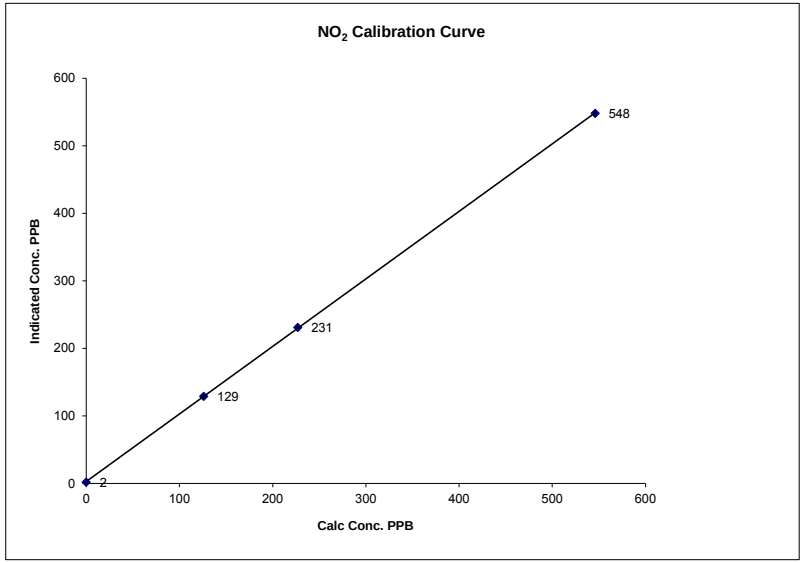
NA : Not Applicable

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	November 8, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	12:25	End Time (MST)	17:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999983
			Slope (0.85 to 1.15)	0.999423
0	2	N/A	Intercept (± 3% F.S.)	2.87958
126	129	0.9767		
227	231	0.9827		
546	548	0.9964		

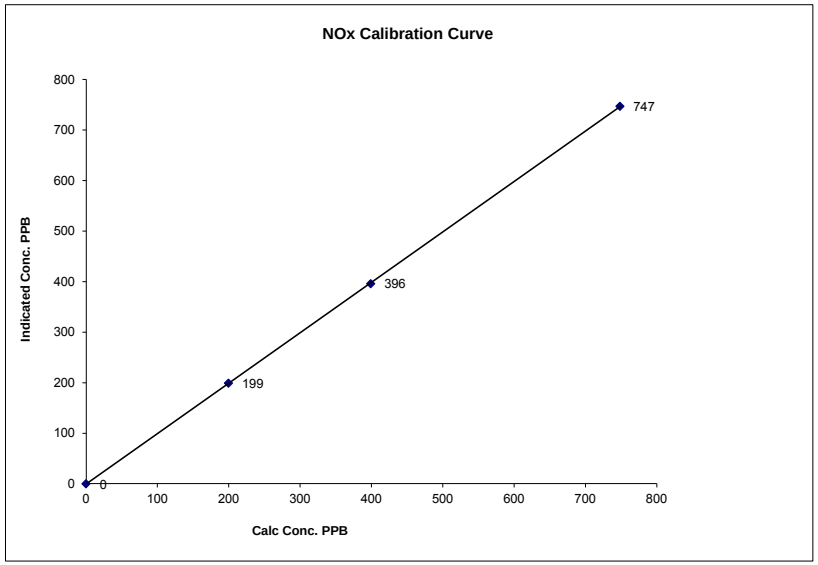


Notes:

NOx Calibration Curve

Calibration Date	November 8, 2012				
Company	LICA				
Plant / Location	Maskwa				
Start Time (MST)	12:25	End Time (MST)	17:55		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999988
			Slope (0.85 to 1.15)	0.997713
0	0	N/A	Intercept (± 3% F.S.)	-0.51543
200	199	1.0032		
399	396	1.0077		
748	747	1.0019		

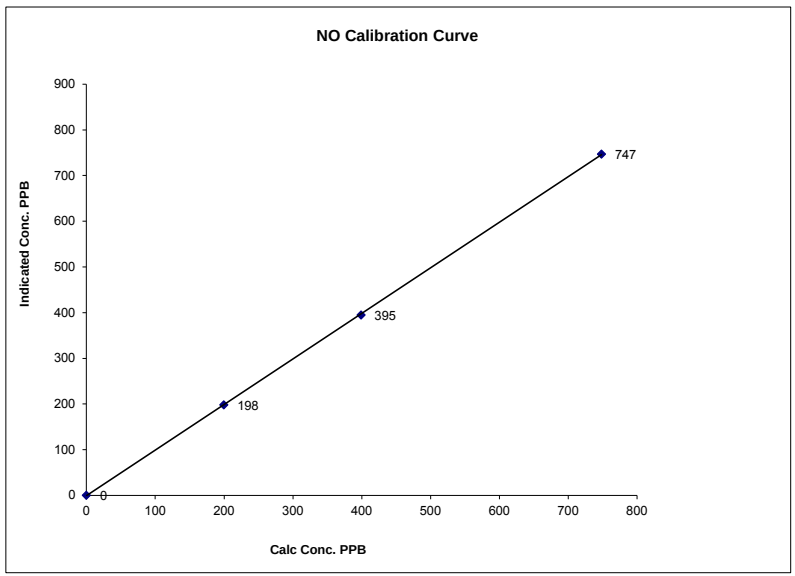


Notes:

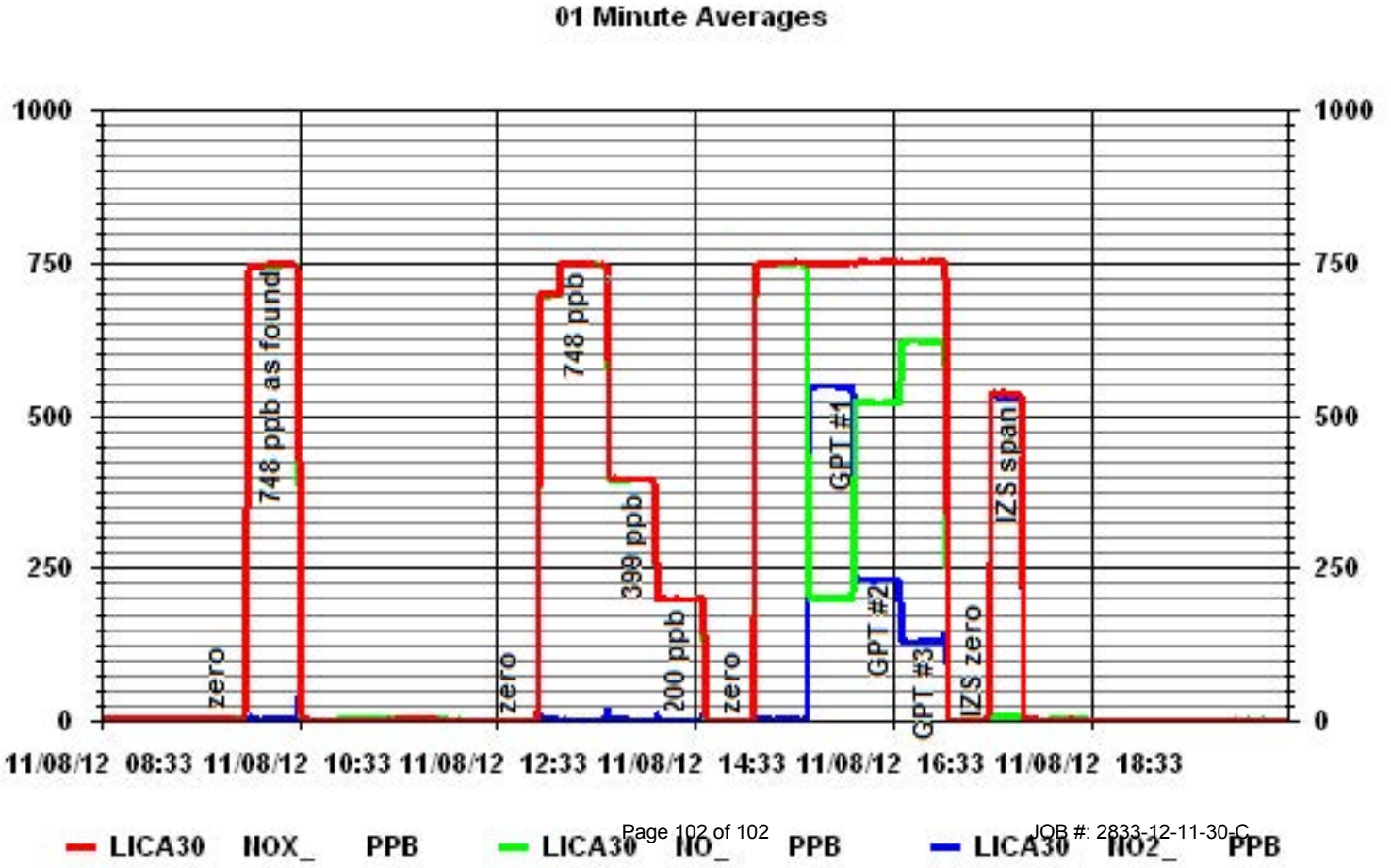
NO Calibration Curve

Calibration Date	November 8, 2012				
Company	LICA				
Plant / Location	Maskwa				
Start Time (MST)	12:25	End Time (MST)	17:55		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999976
			Slope (0.85 to 1.15)	1.001152
0	0	N/A	Intercept (± 3% F.S.)	-7.0224
200	198	1.0083		
399	395	1.0103		
748	747	1.0019		



Notes:


01 Minute Averages
1000
750
500
250
0
zero
748 ppb as found
zero
748 ppb
399 ppb
200 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/08/12 08:33
11/08/12 10:33
11/08/12 12:33
11/08/12 14:33
11/08/12 16:33
11/08/12 18:33
LICA30 NOX_ PPB
LICA30 NO_ PPB
LICA30 NO2_ PPB

Lakeland Industry & Community Association

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

Prepared By:

December 21, 2012

JOB #: 2833-12-11-35-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: November 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 – November 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	0.12	2	VAR	VAR	VAR	VAR	0.8	23	100.0
H_2S (PPB)	10	3	0	0	0.09	1	VAR	VAR	VAR	VAR	0.5	5	99.9
THC (PPM)	-	-	-	-	3.58	12.0	13	22	0.4	71(ENE)	7.2	13	98.8
NO_2 (PPB)	159	-	0	-	7.80	34	15	17	3.9	131(SE)	22.6	13	99.9
NO (PPB)	-	-	-	-	2.38	33	11	9	1.4	108(ESE)	11.6	27	99.9
NOx (PPB)	-	-	-	-	10.18	62	15	17	3.9	131(SE)	31.6	13	99.9
O_3 (PPB)	82	-	0	-	20.62	41	5	14	32.6	279(W)	35.0	9	99.9
PM 2.5 (UG/M^3)	-	30	-	0	6.18	16	18	20	6.6	222(SW)	11.1	13	100.0
VECTOR WS (KPH)	-	-	-	-	10.90	38.7	5	13	-	281(W)	19.3	29	100.0
VECTOR WD (DEGREES)	-	-	-	-	60(ENE)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

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

Xontech Model 910A – November 05, 2012

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

Xontech Model 910A – November 11, 2012

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

Xontech Model 910A – November 18, 2012

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

Xontech Model 910A – November 23, 2012

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

Xontech Model 910A – November 29, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result for November 29 is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

- PORTABLE – Elk Point Airport Site

PUF cartridge – November 05, 2012

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

PUF cartridge – November 11, 2012

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

PUF cartridge – November 18, 2012

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

PUF cartridge – November 23, 2012

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

PUF cartridge – November 29, 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 November 14th. 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 November 14th. 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 span gas was replaced on November 14th as it was running low. The analyzer did not span on November 13th. Performed the as found points check on November 13th, the zero was high, but still within acceptable range. A full calibration was then performed. The analyzer did not span again on November 14th. It was found that the connector of the zero/span system was not connected to the datalogger properly. Reconnected the wire and performed a post-repair calibration on November 14th. The connector was replaced on November 15th. The issue did not affect data quality. 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 November 13th. The inlet filter was replaced before the monthly calibration was started. 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 November 14th. 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

Two routine Teom audits were performed on November 13th and November 26th. A leak check was performed and the teom filter was replaced. 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. No data was invalidated this month as all data was above -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 November 14th.

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 were sampled from November 1st to November 30th. 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 from November 1st to November 30th. 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*

NOVEMBER 2012

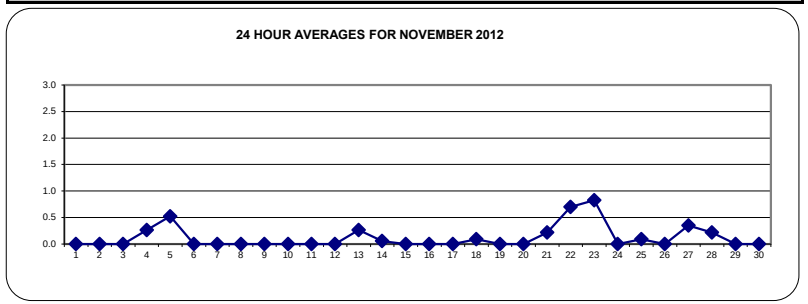
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

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	0	**IZS**	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	1	1	1	1	1	1	1	0.3	24
5	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
6	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
7	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
8	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
9	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
10	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
11	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
12	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
13	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	1	1	0.3	24
14	0	0	0	**IZS**	0	0	0	0	1	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	0	0	0	1	0.1	24
15	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
16	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
17	**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
18	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0.1	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0.0	24
21	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	2	0.2	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	**IZS**	2	2	1	1	1	2	0.7	24
23	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	2	**0.8**	24
24	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
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	1	1	0	1	0.1	24
26	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
27	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	0	1	0	1	1	1	0.3	24
28	1	0	0	0	0	0	0	0	0	0	0	1	**IZS**	0	1	1	1	0	0	0	0	0	0	0	1	0.2	24
29	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
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
HOURLY MAX	1	1	2	1	1	1	1	2	2	1	1	1	1	1	2	2	2	2	1	2	2	1	1	1			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	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

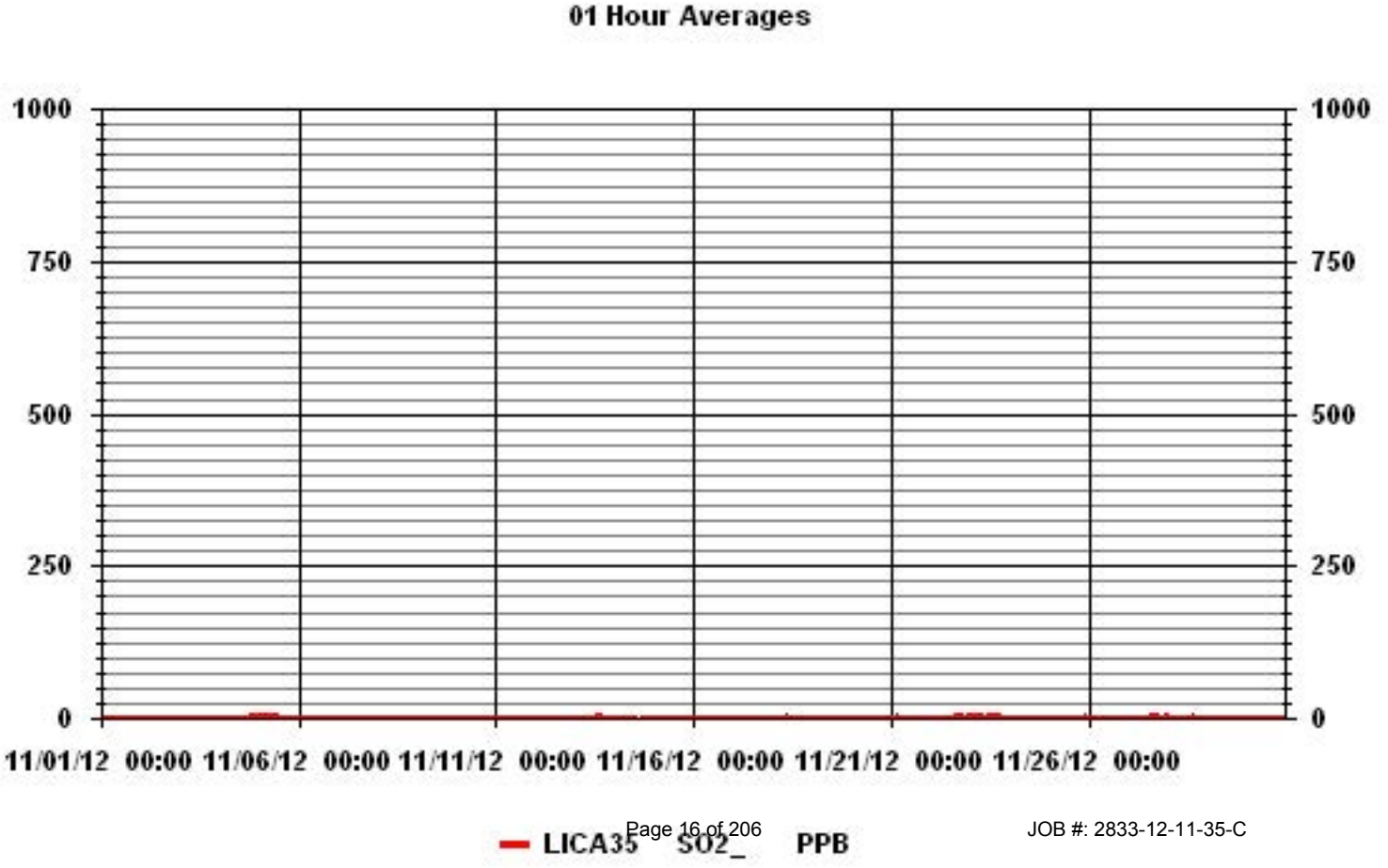


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	73					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.8	PPB			ON DAY(S)	23
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.36		MONTHLY AVERAGE:		0.12	PPB

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

NOVEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

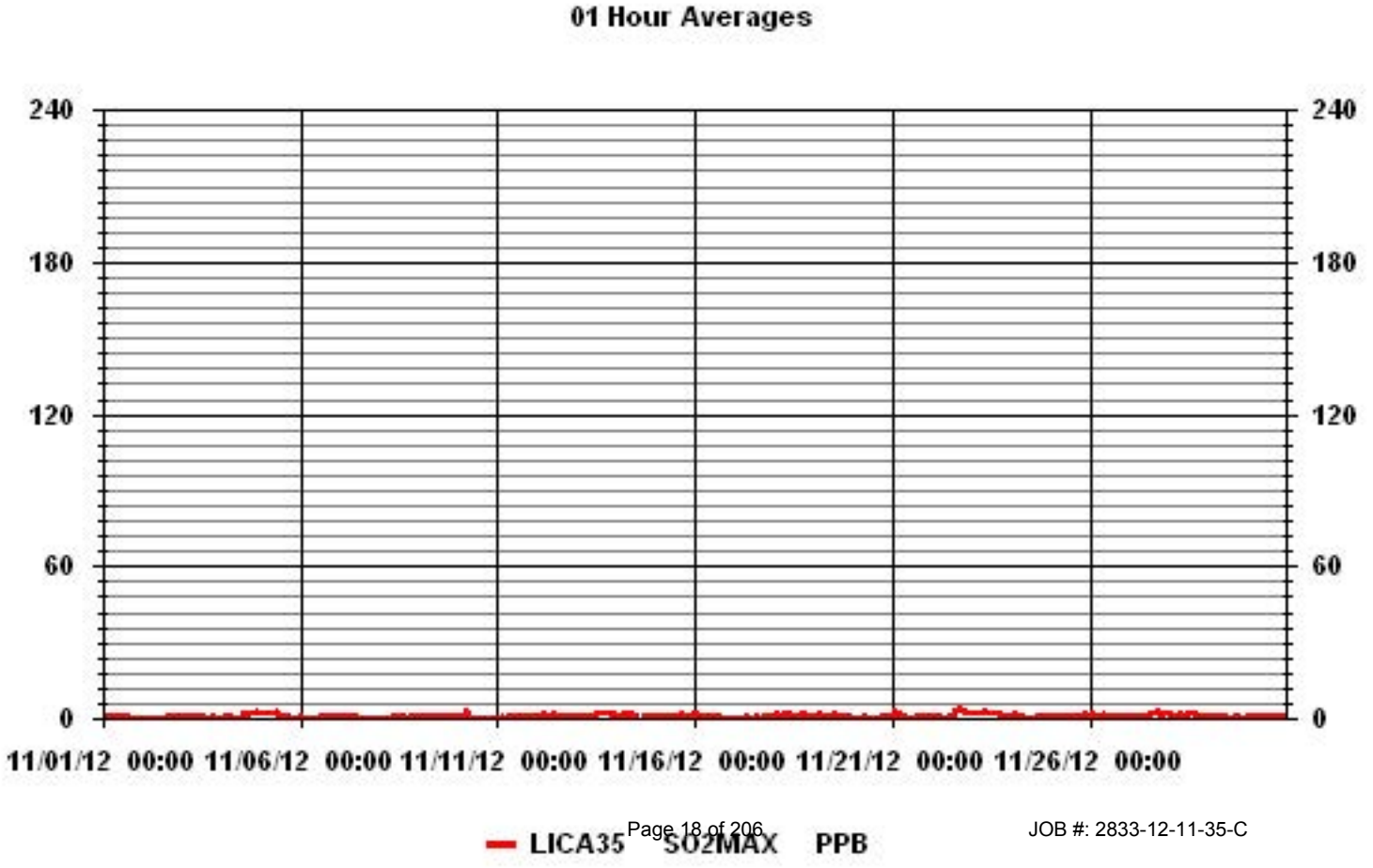
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	1	0.7	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	1	1	0.3	24
3	1	1	1	1	0	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	1	0	0	0	0	1	0.6	24
4	0	0	1	0	2	0	1	1	0	0	0	0	0	**IZS**	2	2	1	2	2	2	2	2	3	2	3	1.1	24
5	2	2	2	2	2	2	2	2	2	2	3	2	**IZS**	1	1	1	1	1	1	0	0	0	0	0	3	1.3	24
6	1	0	0	0	0	0	0	0	0	0	0	**IZS**	0	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
8	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	0	0	1	1	0	1	1	1	0.5	24
9	1	1	1	1	0	1	1	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
10	1	1	1	1	1	**4**	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0.4	24
11	0	0	0	1	0	0	**IZS**	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
12	1	1	1	1	2	**IZS**	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
13	1	1	1	1	**IZS**	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	1.5	24
14	1	1	1	**IZS**	2	1	2	1	2	2	2	1	1	**C**	**C**	**C**	**C**	1	1	1	1	1	0	1	2	1.2	24
15	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	1.1	24
16	2	**IZS**	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	2	0.6	24
17	**IZS**	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	**IZS**	1	0.4	24
18	1	1	3	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	3	1	1	1	**IZS**	1	3	1.4	24
19	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	**IZS**	1	0	2	1.0	24
20	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	**IZS**	1	1	1	1	0.3	24
21	1	3	3	2	2	1	1	1	1	0	0	0	0	0	0	1	0	1	1	**IZS**	1	1	1	1	3	1.0	24
22	1	1	1	1	1	1	0	0	0	0	0	1	1	3	3	3	3	**4**	**IZS**	3	3	2	2	2	**4**	1.6	24
23	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	1	3	1.8	24
24	1	1	2	1	0	1	1	1	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	1	2	0.7	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	2	2	1	2	1.1	24
26	1	2	1	1	1	1	1	1	2	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	2	1.1	24
27	1	1	1	1	1	1	1	1	1	1	1	1	2	**IZS**	2	2	2	3	2	1	2	2	2	2	3	1.5	24
28	2	2	1	1	1	1	2	1	1	1	1	2	**IZS**	2	2	2	2	1	1	1	1	1	1	1	2	1.3	24
29	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	1	1	1	0	0	0	0	0	1	0.6	24
30	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	2	3	3	2	2	4	2	3	3	2	3	2	2	3	3	3	3	4	3	3	3	2	3	2			
HOURLY AVG	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0	0.9	0.8	0.9	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	508					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	5, 17	ON DAY(S)	10, 22
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.71					



JOB #: 2833-12-11-35-C

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

November 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	4.67	2.77	5.69	5.98	11.53	18.97	9.34	2.04	.58	1.02	1.75	4.52	9.48	8.02	9.19	4.37	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.67	2.77	5.69	5.98	11.53	18.97	9.34	2.04	.58	1.02	1.75	4.52	9.48	8.02	9.19	4.37	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	32	19	39	41	79	130	64	14	4	7	12	31	65	55	63	30	685
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	32	19	39	41	79	130	64	14	4	7	12	31	65	55	63	30	

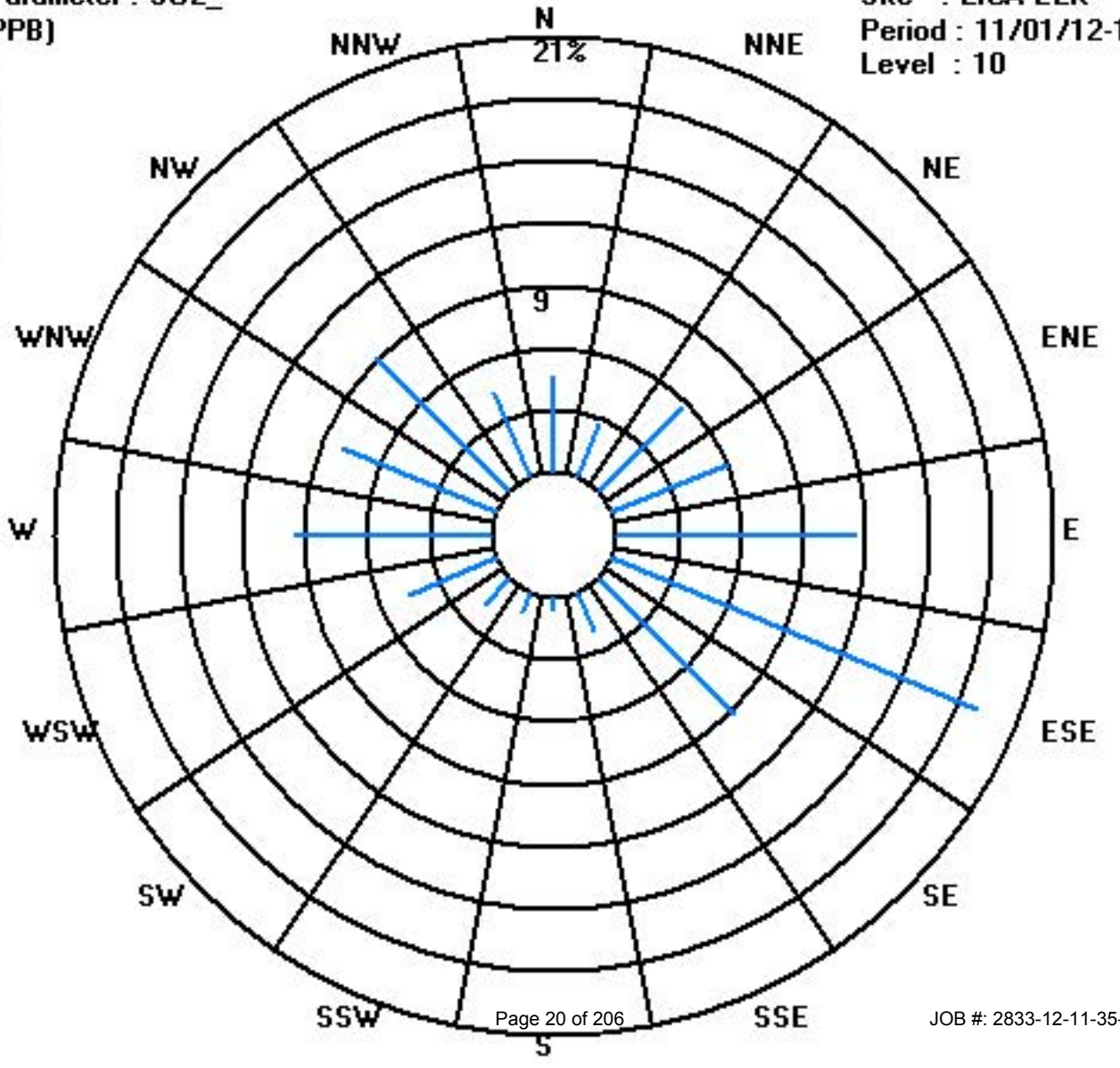
Calm : .00 %

Total # Operational Hours : 685

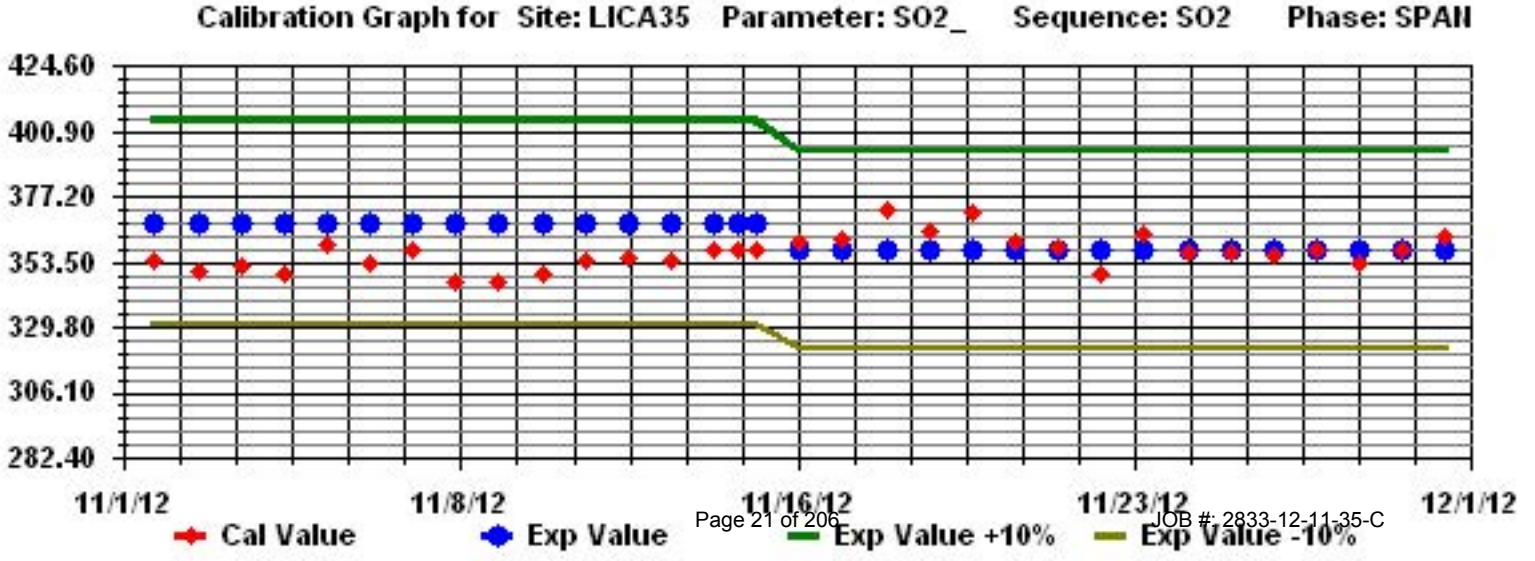
Logger : 35 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

NOVEMBER 2012

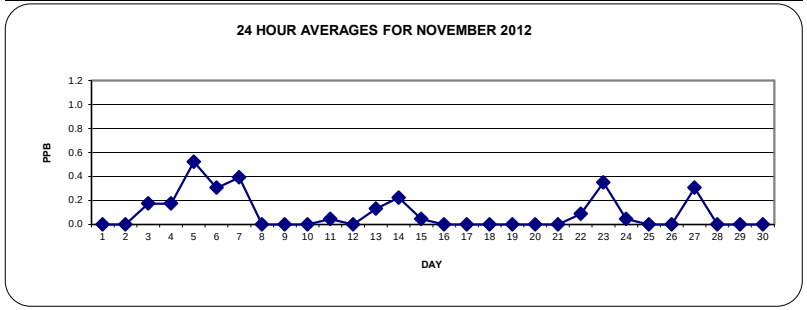
HYDROGEN SULPHIDE (H2S) hourly averages in ppb

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	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	0	0	1	1	1	1	0	0	0	1	0.2	24
4	0	0	1	0	0	0	1	0	0	0	0	0	0	**IZS**	0	0	0	1	0	0	0	1	0	0	1	0.2	24
5	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	1	**0.5**	24
6	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0	0	0	1	0	1	1	1	1	1	1	0.3	24
7	0	1	1	1	1	1	1	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
8	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
9	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
10	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
11	0	0	0	1	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
12	0	0	0	0	0	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0.1	24
14	1	0	0	**IZS**	0	1	1	1	0	0	**C**	**C**	**C**	**C**	0	0	**M**	0	0	0	0	0	0	0	1	0.2	23
15	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0	24
16	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
17	**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
18	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
19	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
20	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
21	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
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	1	0	0	1	0.1	24
23	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	**IZS**	0	0	0	0	0	0	1	0.3	24
24	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	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	**IZS**	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	**IZS**	0	0	1	1	1	1	1	1	0	1	1	0.3	24
28	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
29	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
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
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	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



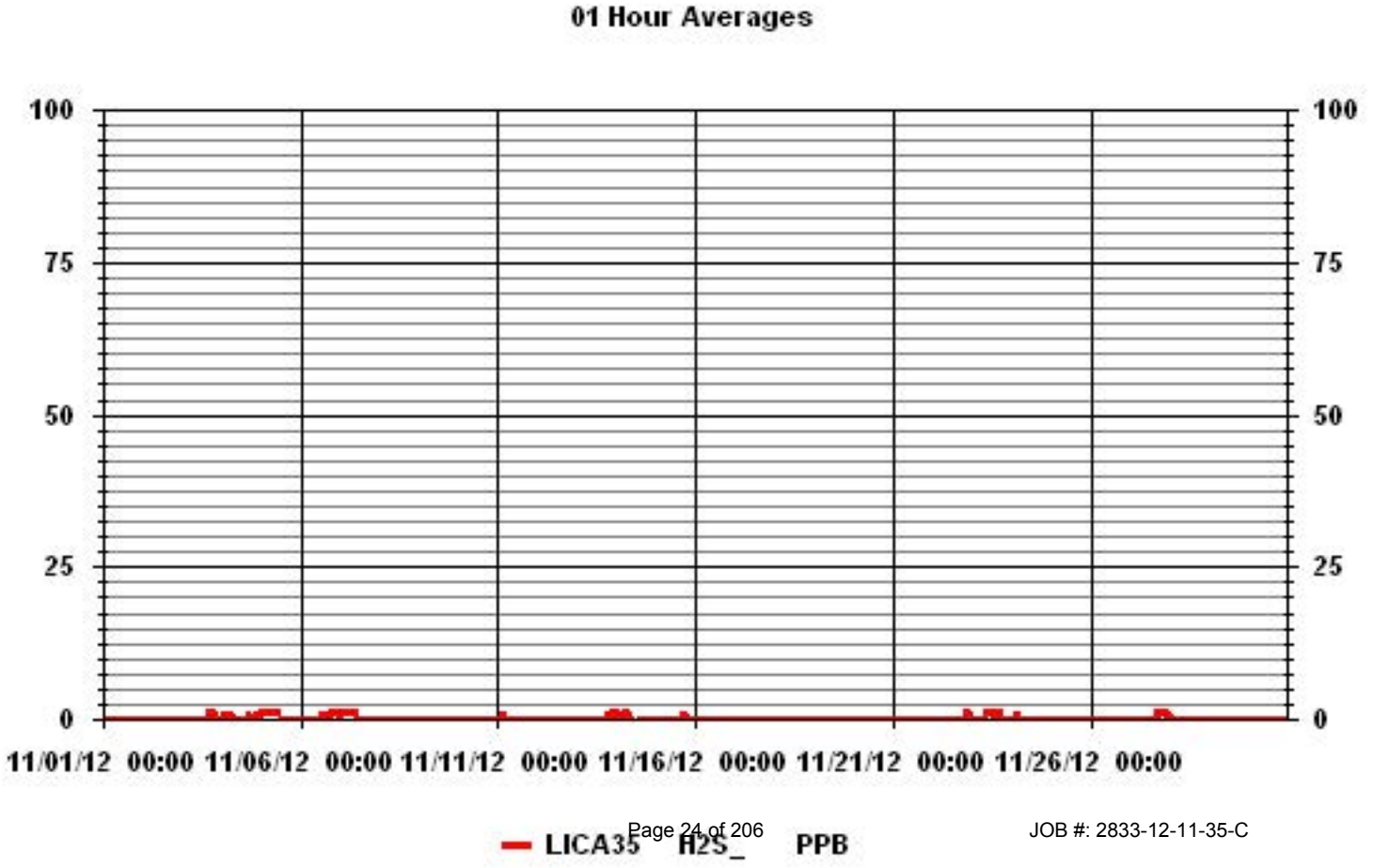
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 57 PPB

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)	5
					VAR-VARIOUS	

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.29		MONTHLY AVERAGE:	0.09	PPB

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

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

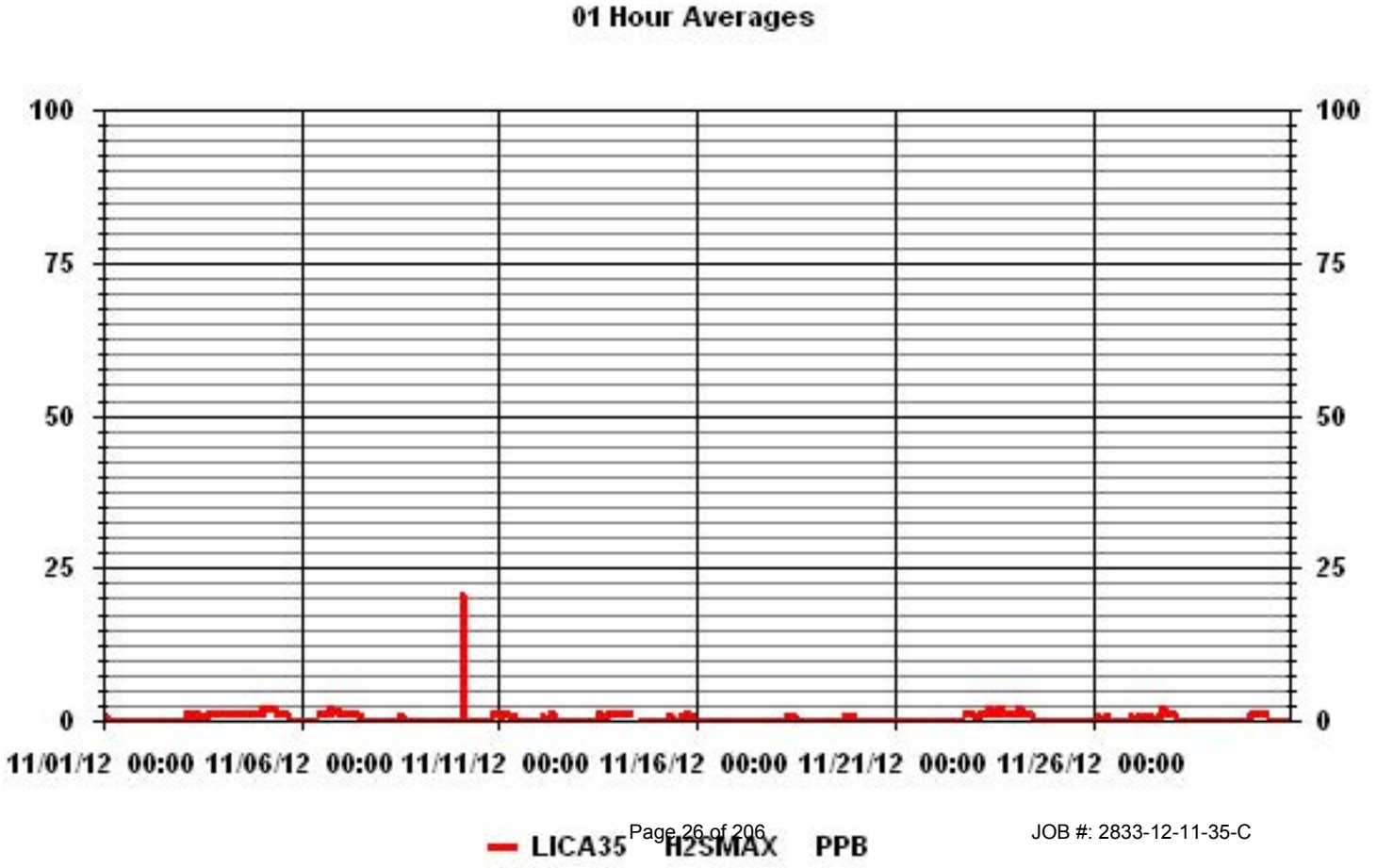
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	185					
MAXIMUM INSTANTANEOUS VALUE:	21	PPB	@ HOUR(S)	2	ON DAY(S)	10
				VAR - VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.95					

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

November 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	4.67	2.77	5.70	5.99	11.54	19.00	9.35	2.04	.58	1.02	1.75	4.53	9.50	7.89	9.21	4.38	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	4.67	2.77	5.70	5.99	11.54	19.00	9.35	2.04	.58	1.02	1.75	4.53	9.50	7.89	9.21	4.38	

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
< 3	32	19	39	41	79	130	64	14	4	7	12	31	65	54	63	30	684
< 10																	
< 50																	
>= 50																	
Totals	32	19	39	41	79	130	64	14	4	7	12	31	65	54	63	30	

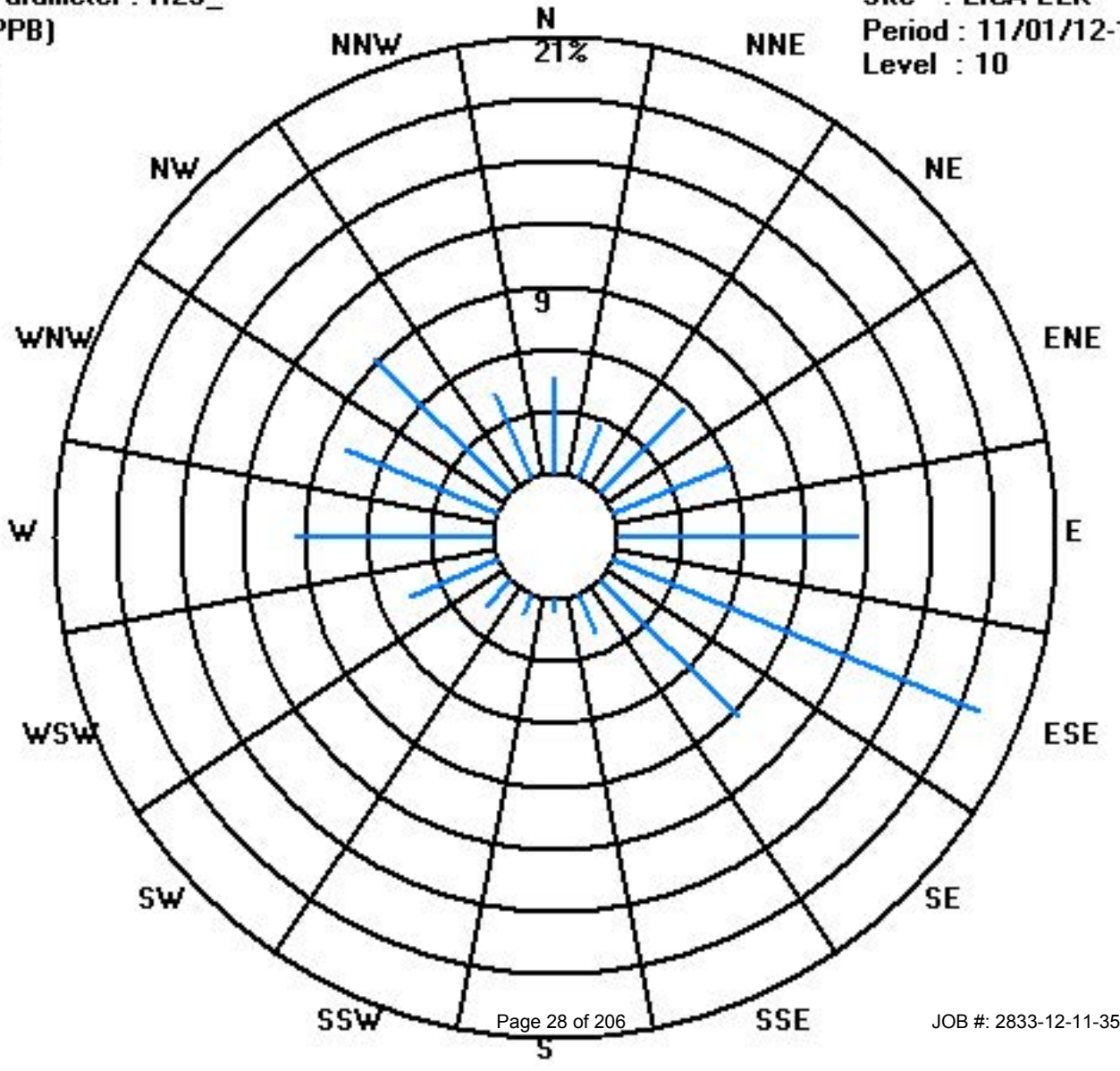
Calm : .00 %

Total # Operational Hours : 684

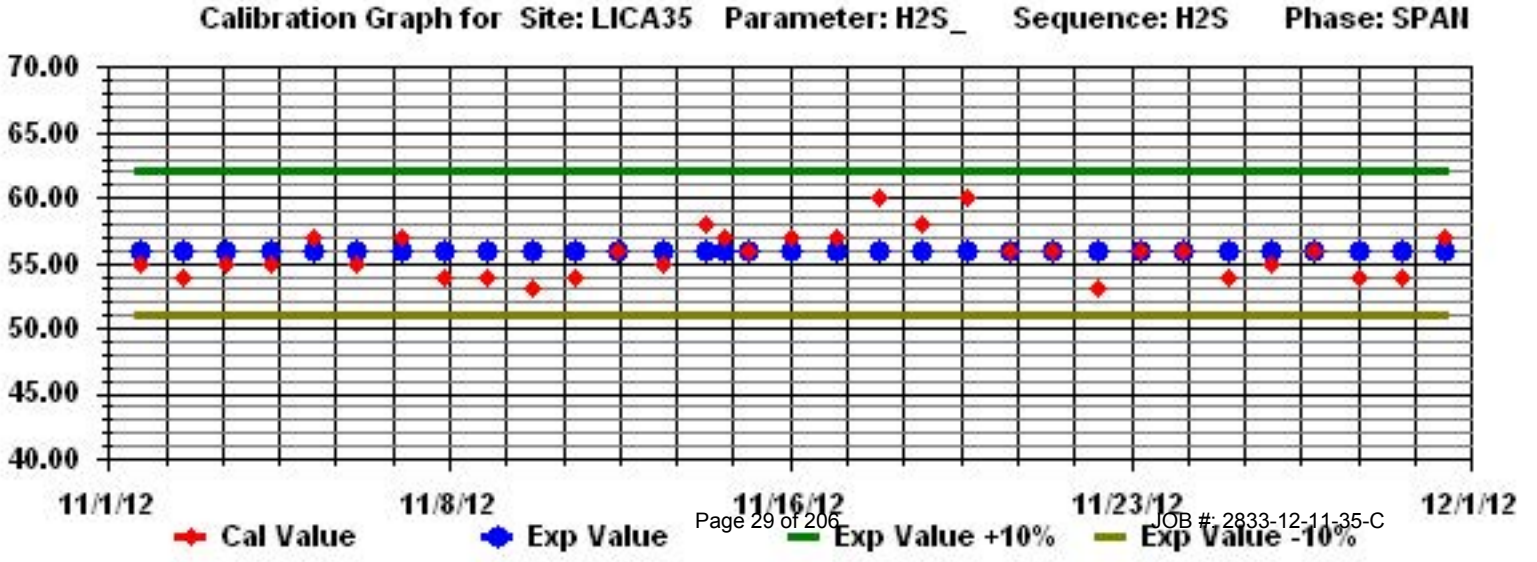
Logger : 35 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

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

NOVEMBER 2012

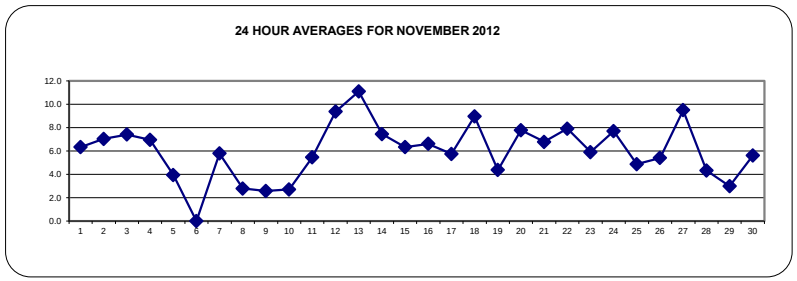
PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

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	5	5	6	5	5	5	6	5	5	5	4	5	6	6	7	7	8	7	7	8	9	10	10	10	6.3	24
2	9	12	9	7	7	8	7	7	7	7	6	6	5	5	6	6	6	7	6	6	7	8	8	7	12	7.0	24
3	6	6	7	6	8	8	7	7	7	8	6	6	8	9	9	6	6	6	7	8	9	9	9	10	10	7.4	24
4	11	10	8	9	10	9	10	11	11	10	7	8	10	7	5	6	4	2	3	2	3	3	4	4	11	7.0	24
5	3	1	1	2	5	5	7	4	5	5	1	2	3	4	5	5	6	4	5	5	4	4	5	4	7	4.0	24
6	6	5	4	4	4	4	5	6	5	5	5	5	5	6	7	7	9	7	10	8	8	8	6	7	10	0.0	24
7	6	7	8	7	6	6	5	5	8	6	7	7	6	5	6	7	6	6	5	5	4	4	4	3	8	5.8	24
8	3	3	3	2	3	4	4	3	3	3	2	2	3	2	2	3	3	3	2	2	3	3	2	4	4	2.8	24
9	2	3	2	3	2	3	4	2	3	3	3	2	2	3	2	2	2	3	3	3	3	3	2	2	4	2.6	24
10	2	3	3	2	3	3	2	3	2	3	2	2	3	2	2	4	3	4	3	3	2	3	3	3	4	2.7	24
11	3	3	3	4	4	5	5	5	7	7	5	5	4	3	5	6	5	7	8	8	8	7	7	7	8	5.5	24
12	8	8	8	9	8	8	8	8	10	9	9	10	10	11	10	10	10	10	10	11	10	10	10	10	11	9.4	24
13	10	12	10	9	12	11	10	11	13	12	13	11	12	**C**	**C**	**C**	11	10	11	12	11	11	10	11	13	**11.1**	24
14	9	8	8	6	7	8	9	7	7	7	4	2	5	5	6	5	8	8	10	10	10	11	10	9	11	7.5	24
15	7	7	6	6	6	7	6	7	8	7	6	5	6	6	6	9	7	8	7	5	5	5	5	5	9	6.3	24
16	5	6	5	5	4	5	6	6	6	6	7	6	7	6	8	8	11	8	7	7	7	7	9	7	11	6.6	24
17	7	6	5	6	6	6	7	8	7	6	5	6	7	7	6	6	6	4	5	5	4	4	4	5	8	5.8	24
18	4	5	5	5	5	5	6	5	5	5	8	7	11	11	9	11	13	12	12	13	**16**	15	15	12	**16**	9.0	24
19	9	9	6	2	4	4	5	6	5	5	6	4	3	3	4	3	3	2	2	3	6	4	1	6	9	4.4	24
20	7	9	10	11	11	11	10	10	8	8	7	6	7	7	6	8	7	8	7	5	6	5	6	7	11	7.8	24
21	5	8	12	8	9	8	8	4	7	4	5	4	5	5	6	7	8	8	7	7	7	7	7	7	12	6.8	24
22	8	7	7	7	6	6	6	7	7	8	7	6	6	7	7	10	10	9	10	10	9	10	10	10	10	7.9	24
23	9	9	9	7	8	8	7	6	8	7	5	4	3	3	1	5	4	4	4	5	8	5	6	7	9	5.9	24
24	7	10	12	12	9	8	8	9	10	9	10	9	5	7	9	9	6	5	5	6	5	5	6	4	12	7.7	24
25	5	5	5	4	4	4	5	6	7	5	6	4	4	3	5	4	4	4	6	5	6	5	5	6	7	4.9	24
26	5	6	6	8	6	7	8	7	7	7	6	5	**C**	**C**	3	3	4	4	4	5	4	5	5	4	8	5.4	24
27	5	6	5	5	5	7	7	9	8	9	9	9	12	11	11	12	11	12	13	12	12	12	13	13	13	9.5	24
28	11	10	9	8	7	5	4	3	3	4	4	2	2	2	3	3	3	4	3	3	2	3	3	3	11	4.3	24
29	2	2	2	3	3	3	3	4	4	4	3	4	2	3	3	3	3	2	5	2	2	4	4	2	5	3.0	24
30	3	4	4	5	4	6	6	6	6	6	7	5	6	5	6	7	6	6	7	6	7	6	6	5	7	5.6	24
HOURLY MAX	11	12	12	12	12	11	10	11	13	12	13	11	12	11	11	12	13	12	13	13	16	15	15	13			
HOURLY AVG	6.1	6.5	6.2	5.9	6.0	6.2	6.3	6.3	6.6	6.3	5.9	5.3	5.8	5.5	5.7	6.3	6.4	6.2	6.5	6.3	6.5	6.5	6.5	6.5			

STATUS FLAG CODES

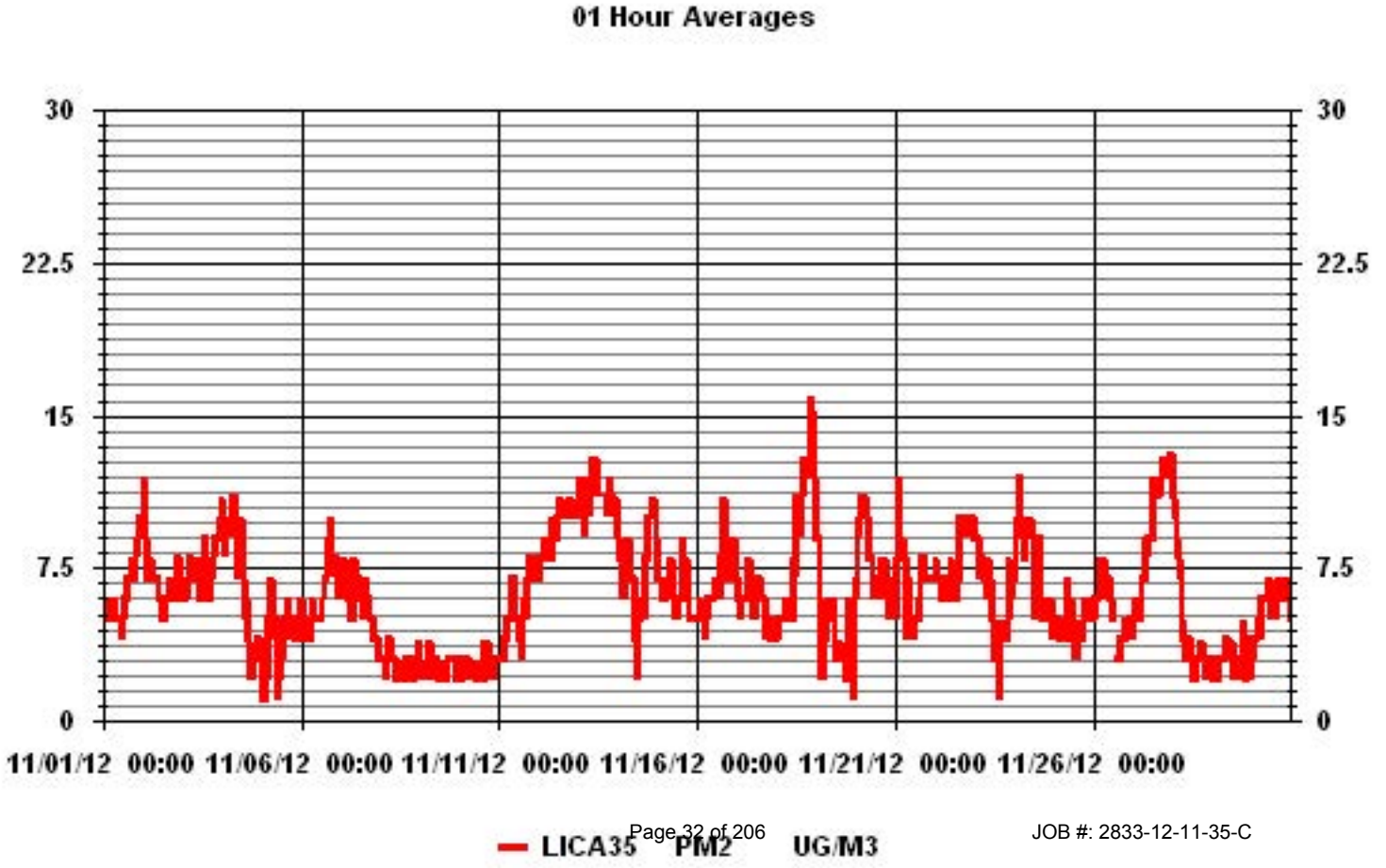
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	-MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	715						
MAXIMUM 1-HR AVERAGE:	16	UG/M^3	@ HOUR(S)	20	ON DAY(S)	18	
MAXIMUM 24-HR AVERAGE:	11.1	UG/M^3			ON DAY(S)	13	
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	2.71		MONTHLY AVERAGE:		6.18	UG/M^3	



JOB #: 2833-12-11-35-C

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

November 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	4.61	2.93	5.87	6.15	11.18	18.74	9.09	2.09	.55	1.11	1.81	4.75	9.37	8.25	9.09	4.33	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	4.61	2.93	5.87	6.15	11.18	18.74	9.09	2.09	.55	1.11	1.81	4.75	9.37	8.25	9.09	4.33	

Calm : .00 %

Total # Operational Hours : 715

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	33	21	42	44	80	134	65	15	4	8	13	34	67	59	65	31	715
<	60																	
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	33	21	42	44	80	134	65	15	4	8	13	34	67	59	65	31	

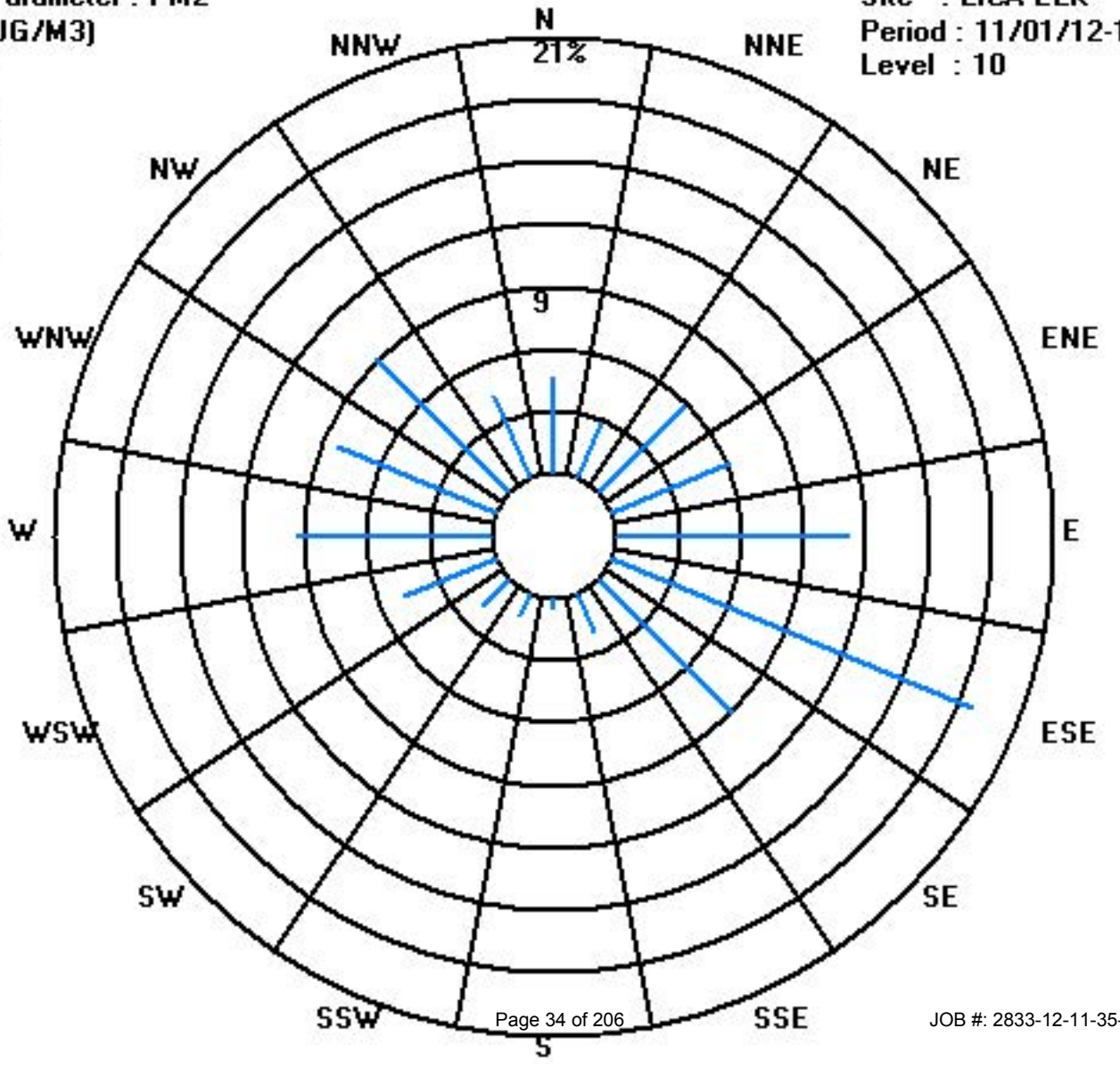
Calm : .00 %

Total # Operational Hours : 715

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

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

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-C

Nitrogen Dioxide

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

NOVEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

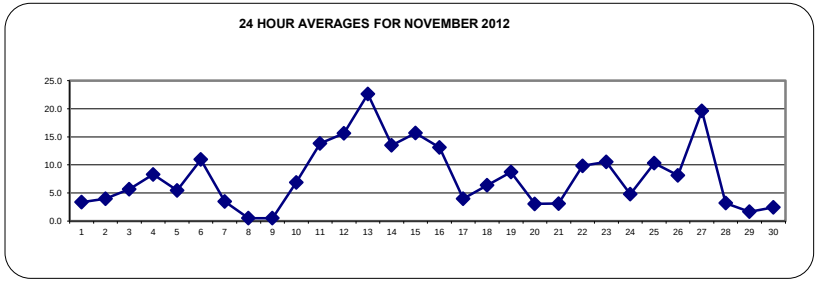
MST

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	3	4	3	3	4	4	4	3	3	2	2	2	2	2	3	**IZS**	5	3	3	5	5	4	5	5	3.4	24
2	4	4	3	2	2	7	2	3	3	3	3	3	3	2	3	**IZS**	5	5	4	5	6	8	7	7	8	4.0	24
3	7	9	11	13	13	9	5	4	3	4	4	5	2	3	**IZS**	3	3	4	5	5	7	4	4	5	13	5.7	24
4	11	16	7	6	5	7	7	8	7	6	6	5	6	**IZS**	7	9	10	11	11	11	11	10	8	9	16	8.3	24
5	7	7	7	7	5	6	10	11	15	6	3	4	**IZS**	3	1	2	3	5	4	5	6	5	2	2	15	5.4	24
6	4	3	7	3	2	6	8	14	8	5	5	**IZS**	3	4	7	9	15	16	33	29	20	21	17	14	33	11.0	24
7	17	12	10	11	10	5	2	2	2	2	**IZS**	2	1	1	1	1	1	1	1	0	0	0	0	0	17	3.5	24
8	0	0	1	1	1	1	1	1	1	**IZS**	0	1	0	0	0	0	0	1	1	1	0	0	1	0	1	0.5	24
9	0	0	1	0	0	1	1	1	**IZS**	0	0	1	0	0	0	1	1	1	1	1	1	0	1	0	1	0.5	24
10	1	1	2	1	2	1	1	**IZS**	2	1	1	1	1	3	3	5	12	13	13	10	17	24	25	19	25	6.9	24
11	13	16	21	22	17	17	**IZS**	23	19	15	10	8	7	6	7	9	10	12	15	14	12	14	16	18	23	13.8	24
12	22	25	24	25	22	**IZS**	20	19	19	11	8	7	8	9	6	10	18	14	16	15	19	16	13	13	25	15.6	24
13	15	16	16	18	**IZS**	22	19	19	20	16	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	28	31	29	31	30	30	31	**22.6**	24
14	29	28	27	**IZS**	22	22	23	23	16	8	4	2	1	1	1	0	**M**	2	3	11	20	20	22	14	29	13.5	23
15	6	4	**IZS**	5	9	10	11	15	18	14	8	7	8	9	11	20	25	**34**	30	22	26	25	22	20	**34**	15.7	24
16	21	**IZS**	25	23	19	18	19	23	21	15	9	6	4	2	4	9	18	17	10	8	10	8	7	3	25	13.1	24
17	**IZS**	3	3	3	3	3	3	3	4	3	3	3	3	4	4	6	6	6	6	5	5	5	5	**IZS**	6	4.0	24
18	4	4	4	5	6	6	6	7	6	6	7	12	5	5	5	4	5	5	4	7	13	11	**IZS**	11	13	6.4	24
19	9	9	7	5	5	6	6	6	8	6	7	7	5	8	10	9	10	9	18	15	11	**IZS**	11	14	18	8.7	24
20	6	3	3	3	3	3	1	2	2	3	2	3	2	1	1	2	5	4	5	2	**IZS**	7	3	6	7	3.0	24
21	5	5	7	6	6	6	5	4	2	1	2	1	1	2	2	3	4	4	2	**IZS**	2	2	2	1	7	3.1	24
22	3	2	2	2	2	1	1	2	3	3	3	3	4	4	6	8	19	26	**IZS**	28	29	27	26	23	29	9.9	24
23	22	20	21	22	20	15	15	15	12	9	5	5	4	5	5	4	4	**IZS**	5	8	7	7	8	6	22	10.5	24
24	17	14	10	9	5	4	6	4	5	4	5	4	2	1	2	2	**IZS**	1	0	1	1	6	1	6	17	4.8	24
25	9	15	10	7	7	16	22	24	22	18	13	8	6	3	4	**IZS**	5	5	5	6	7	8	8	11	24	10.3	24
26	7	13	18	10	6	8	8	7	15	9	3	2	3	2	**IZS**	2	1	1	4	4	4	19	17	27	27	8.2	24
27	20	19	18	24	22	10	15	22	12	18	12	14	12	**IZS**	12	14	24	29	28	26	27	26	25	25	29	19.6	24
28	22	9	5	4	3	2	2	1	1	1	1	1	**IZS**	2	2	2	3	2	2	2	2	2	2	1	22	3.2	24
29	1	1	1	1	1	1	1	1	2	2	1	**IZS**	2	2	2	2	2	3	3	3	2	2	2	2	3	1.7	24
30	2	2	2	3	3	3	2	2	2	3	**IZS**	1	1	2	2	1	2	3	3	4	4	4	3	4	4	2.5	24
HOURLY MAX	29	28	27	25	22	22	23	24	22	18	13	14	12	9	12	20	25	34	33	31	29	31	30	30			
HOURLY AVG	9.8	9.0	9.5	8.3	7.7	7.5	7.7	9.3	8.6	6.7	4.8	4.2	3.6	3.1	4.0	5.1	8.1	8.5	9.1	9.7	10.4	10.9	10.0	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

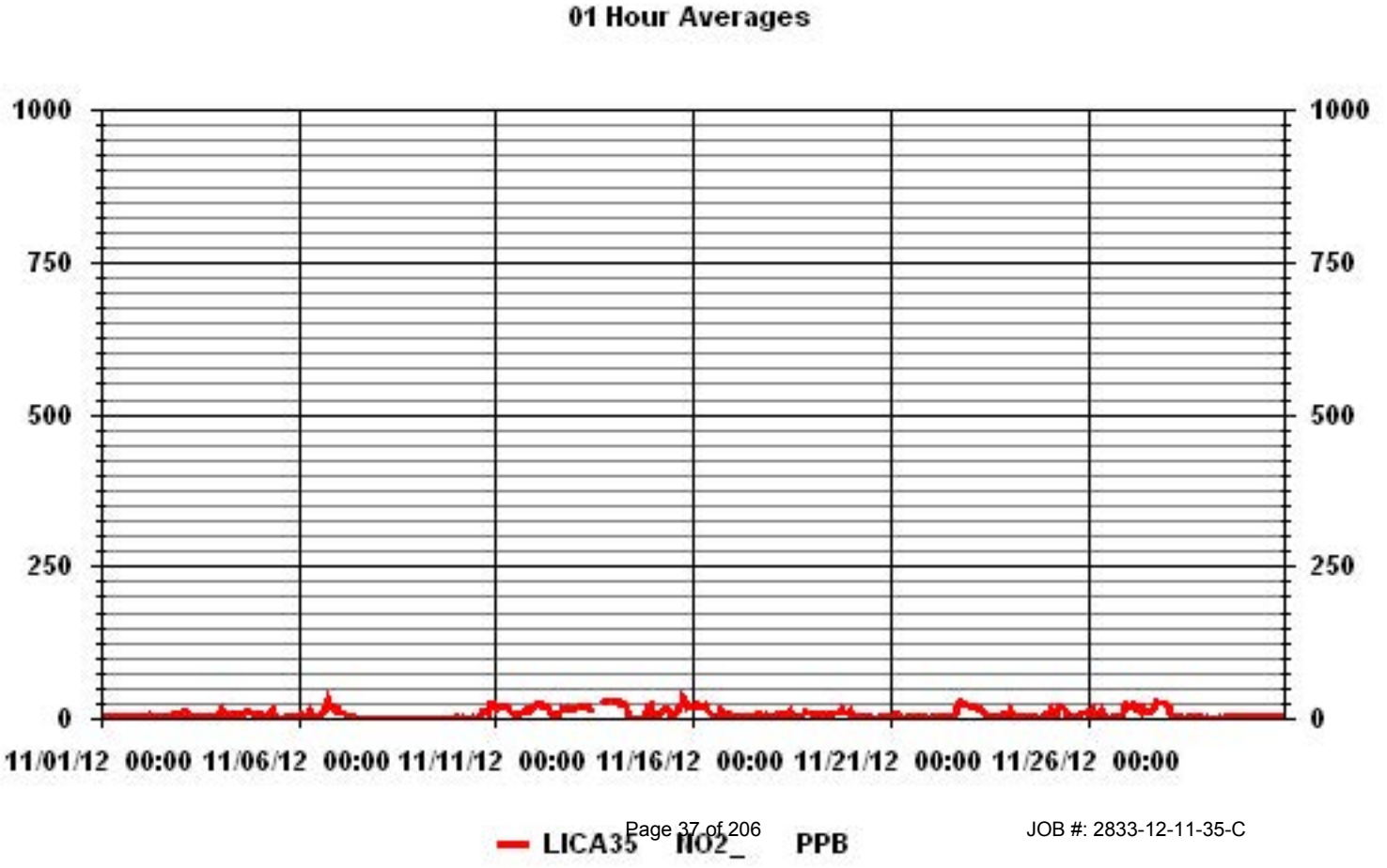
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	679					
MAXIMUM 1-HR AVERAGE:	34	PPB	@ HOUR(S)	17	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	22.6	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	7.53		MONTHLY AVERAGE:		7.80	PPB

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

NOVEMBER 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	4	4	4	3	5	5	4	3	3	3	5	2	3	2	4	**IZS**	7	6	4	7	9	6	6	9	4.5	24
2	5	5	4	3	3	11	5	3	3	3	5	4	5	4	4	**IZS**	16	14	8	8	8	11	11	13	16	6.8	24
3	14	11	13	15	15	11	8	13	10	16	7	7	10	4	**IZS**	4	4	5	15	9	10	6	5	8	16	9.6	24
4	16	19	14	14	8	10	9	10	9	7	7	6	7	**IZS**	8	11	11	14	14	14	13	12	10	12	19	11.1	24
5	8	8	8	11	8	10	15	15	24	10	5	5	**IZS**	4	2	2	12	10	6	9	15	14	3	16	24	9.6	24
6	20	10	14	7	7	12	10	17	18	8	6	**IZS**	5	5	10	26	26	29	37	35	28	26	22	21	37	17.3	24
7	20	15	12	13	13	9	3	3	4	3	**IZS**	2	2	1	1	1	1	1	1	1	1	1	1	1	20	4.8	24
8	1	1	1	1	2	2	1	1	1	**IZS**	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1.2	24
9	1	1	2	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	1.1	24
10	2	2	3	2	2	3	1	**IZS**	3	2	2	2	1	17	24	9	15	16	17	16	25	28	28	26	28	10.7	24
11	15	21	24	26	19	20	**IZS**	37	25	19	11	9	8	8	8	11	12	15	18	20	13	18	26	22	37	17.6	24
12	25	26	26	28	25	**IZS**	21	21	27	17	9	9	39	12	8	14	22	16	18	19	21	19	18	15	39	19.8	24
13	30	25	21	20	**IZS**	25	22	21	22	17	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	35	41	34	31	31	31	41	27.1	24
14	30	29	28	**IZS**	24	25	25	26	25	14	7	4	3	3	5	0	**M**	6	11	16	27	26	28	16	30	17.2	23
15	11	6	**IZS**	8	13	16	17	32	**48**	25	10	8	9	12	12	38	31	40	36	31	36	31	24	23	**48**	22.5	24
16	23	**IZS**	27	26	21	21	23	29	27	20	15	13	7	3	11	30	33	31	26	13	21	11	11	5	33	19.4	24
17	**IZS**	4	3	4	3	3	4	4	5	4	4	4	4	5	6	7	8	8	7	5	6	6	6	**IZS**	8	5.0	24
18	5	5	6	7	7	7	8	11	8	10	15	17	8	10	9	7	8	8	7	13	18	19	**IZS**	15	19	9.9	24
19	15	10	9	7	6	7	9	10	11	8	9	10	7	10	14	11	16	16	28	26	17	**IZS**	16	18	28	12.6	24
20	15	4	4	6	4	4	2	3	3	6	4	5	5	2	2	5	7	10	10	2	**IZS**	12	5	13	15	5.8	24
21	9	7	9	8	7	7	6	5	3	2	2	2	3	2	3	5	4	5	3	**IZS**	2	2	2	2	9	4.3	24
22	3	3	3	3	2	2	2	2	3	3	3	5	20	9	13	18	29	32	**IZS**	30	33	33	31	25	33	13.3	24
23	24	21	22	23	24	17	16	18	16	12	7	7	5	6	6	5	5	**IZS**	6	16	14	11	12	9	24	13.1	24
24	25	20	18	14	9	7	11	6	21	7	10	7	4	2	6	7	**IZS**	2	1	1	5	14	2	13	25	9.2	24
25	18	21	15	12	11	23	25	28	24	20	17	9	9	5	6	**IZS**	6	5	5	7	8	10	9	13	28	13.3	24
26	11	23	24	28	10	23	11	11	27	18	6	4	5	4	**IZS**	5	5	2	8	8	9	33	24	29	33	14.3	24
27	26	25	24	25	24	19	25	25	24	20	15	17	14	**IZS**	17	26	32	39	32	29	30	30	27	27	39	24.9	24
28	27	14	7	5	4	3	3	2	2	2	2	2	**IZS**	2	2	3	4	4	3	4	4	3	4	2	27	4.7	24
29	2	2	2	2	2	2	2	2	3	2	2	**IZS**	4	3	3	3	4	5	4	10	4	3	3	3	10	3.1	24
30	4	3	4	4	4	4	3	3	3	3	**IZS**	2	2	2	6	1	4	3	4	4	8	8	4	5	8	3.8	24
HOURLY MAX	30	29	28	28	25	25	25	37	48	25	17	17	39	17	24	38	33	40	37	41	36	33	31	31			
HOURLY AVG	14.1	11.9	12.1	11.3	9.7	10.7	10.1	12.5	13.9	9.7	6.9	6.2	7.0	5.2	7.0	9.4	12.2	12.4	12.8	13.6	14.4	14.8	12.8	13.5			

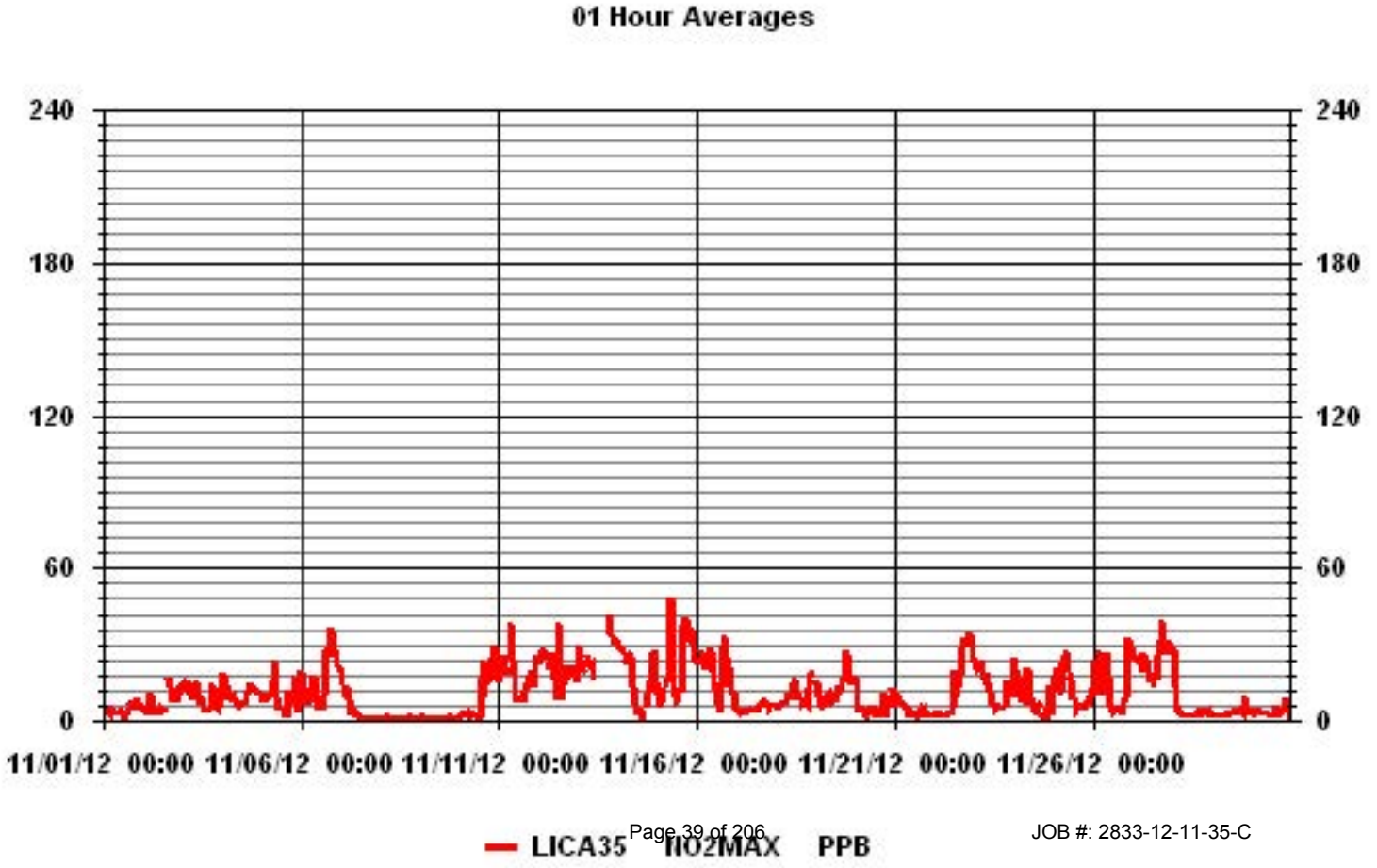
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	679					
MAXIMUM INSTANTANEOUS VALUE:	48	PPB	@ HOUR(S)	8	ON DAY(S)	15
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	9.41					

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

November 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	4.70	2.79	5.58	6.02	11.32	18.67	9.11	2.05	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.70	2.79	5.58	6.02	11.32	18.67	9.11	2.05	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	32	19	38	41	77	127	62	14	4	7	12	31	65	57	64	30	680
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	32	19	38	41	77	127	62	14	4	7	12	31	65	57	64	30	

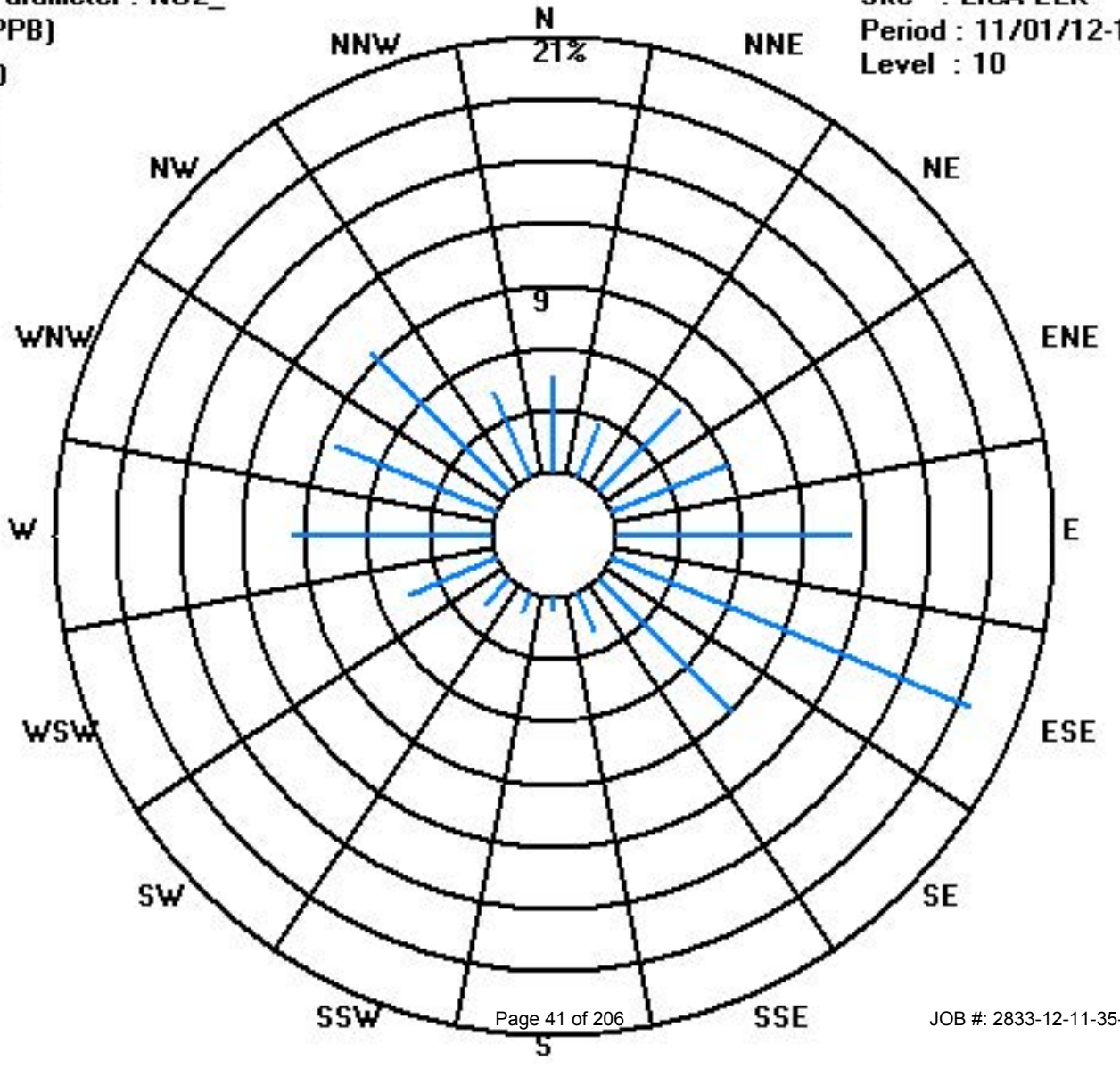
Calm : .00 %

Total # Operational Hours : 680

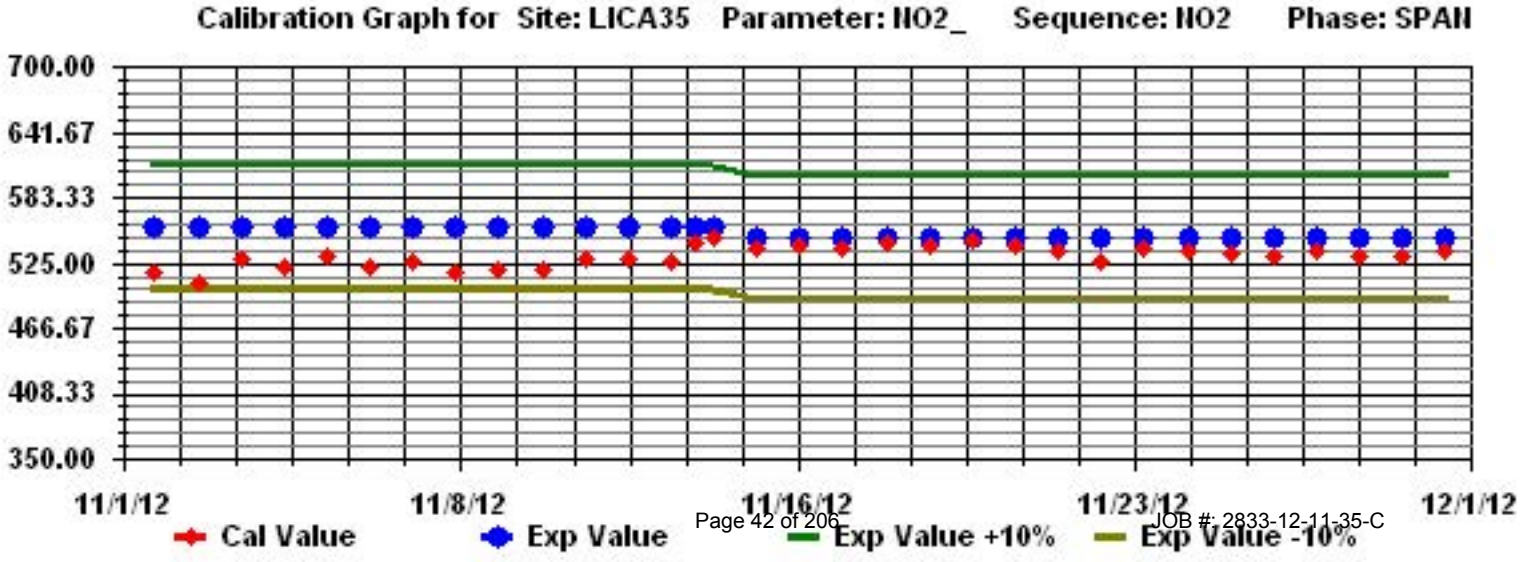
Logger : 35 Parameter : NO2_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-C


Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAN
700.00
641.67
583.33
525.00
466.67
408.33
350.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

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

NOVEMBER 2012

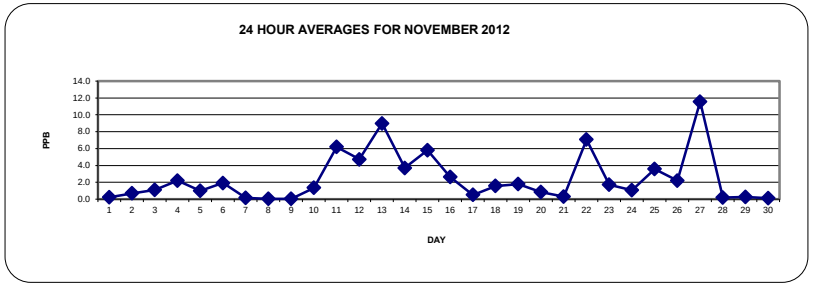
NITRIC OXIDE hourly averages in ppb

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	1	1	1	1	1	**IZS**	1	0	0	0	0	0	0	1	0.2	24
2	0	0	0	0	0	3	0	0	0	1	2	2	2	1	1	**IZS**	1	1	1	0	0	1	1	1	3	0.7	24
3	0	1	1	1	2	1	1	1	1	3	3	4	1	1	**IZS**	1	0	1	1	1	0	0	0	0	4	1.1	24
4	0	2	1	1	0	1	0	1	3	4	5	5	5	**IZS**	4	3	2	2	2	3	3	1	1	2	5	2.2	24
5	0	0	0	0	0	0	1	1	9	3	2	2	**IZS**	1	1	0	0	0	0	0	1	0	0	0	9	1.0	24
6	0	0	1	1	0	0	1	3	2	2	3	**IZS**	2	2	2	2	3	2	11	5	1	1	1	1	11	1.9	24
7	1	0	0	0	0	0	0	0	0	0	**IZS**	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
8	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
9	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
10	0	0	0	0	0	0	0	**IZS**	1	1	1	1	0	2	2	2	1	1	1	1	2	4	9	4	9	1.3	24
11	1	1	2	6	1	3	**IZS**	17	25	**33**	18	10	7	4	4	3	1	1	1	1	0	0	2	1	**33**	6.2	24
12	1	3	5	8	7	**IZS**	5	7	23	10	8	8	6	5	2	2	2	1	0	1	1	0	0	0	23	4.7	24
13	1	2	1	1	**IZS**	9	3	4	17	15	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	9	25	11	13	12	12	25	9.0	24
14	7	6	8	**IZS**	2	5	15	14	5	3	1	1	1	1	1	0	**M**	0	0	0	4	3	4	0	15	3.7	23
15	0	0	**IZS**	0	1	1	1	5	14	11	7	7	6	6	5	12	5	28	8	3	7	5	1	1	28	5.8	24
16	1	**IZS**	3	1	1	1	2	7	8	5	4	3	2	1	2	4	5	4	2	2	2	1	0	0	8	2.6	24
17	**IZS**	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	**IZS**	1	0.5	24
18	0	0	1	1	1	1	1	1	1	2	4	6	2	2	3	1	1	1	1	1	3	2	**IZS**	1	6	1.6	24
19	0	0	0	0	0	0	1	0	1	3	5	5	4	5	5	2	0	0	5	2	1	**IZS**	1	1	5	1.8	24
20	1	0	0	0	0	1	0	1	1	2	2	2	2	1	0	1	1	1	2	0	**IZS**	1	0	0	2	0.9	24
21	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	**IZS**	0	0	0	0	1	0.3	24
22	0	0	0	0	0	0	0	0	0	1	1	2	3	3	4	3	10	21	**IZS**	23	32	28	17	15	32	7.1	24
23	5	3	2	2	2	1	2	3	3	4	2	2	2	1	1	1	1	**IZS**	1	1	1	1	0	0	5	1.7	24
24	2	1	1	1	1	1	3	1	2	2	4	2	1	0	1	1	**IZS**	0	0	0	0	2	0	1	4	1.1	24
25	0	2	0	0	0	2	6	12	15	21	11	6	4	1	1	**IZS**	0	0	0	0	0	0	0	0	21	3.6	24
26	0	1	1	5	1	3	0	0	16	3	1	1	1	0	**IZS**	1	0	0	0	0	0	4	1	12	16	2.2	24
27	3	3	3	3	4	1	6	11	4	27	18	24	16	**IZS**	8	7	18	27	25	12	18	15	9	7	27	**11.6**	24
28	4	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	0	0	0	0	0	0	0	0	0	0	4	0.2	24
29	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	0	1	1	1	1	0	0	0	0	1	0.3	24
30	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.1	24
HOURLY MAX	7	6	8	8	7	9	15	17	25	33	18	24	16	6	8	12	18	28	25	25	32	28	17	15			
HOURLY AVG	1.0	0.9	1.0	1.1	0.8	1.1	1.6	3.0	5.2	5.4	3.9	3.5	2.7	1.6	1.9	1.8	2.1	3.3	2.4	2.8	3.0	2.8	2.0	2.0			

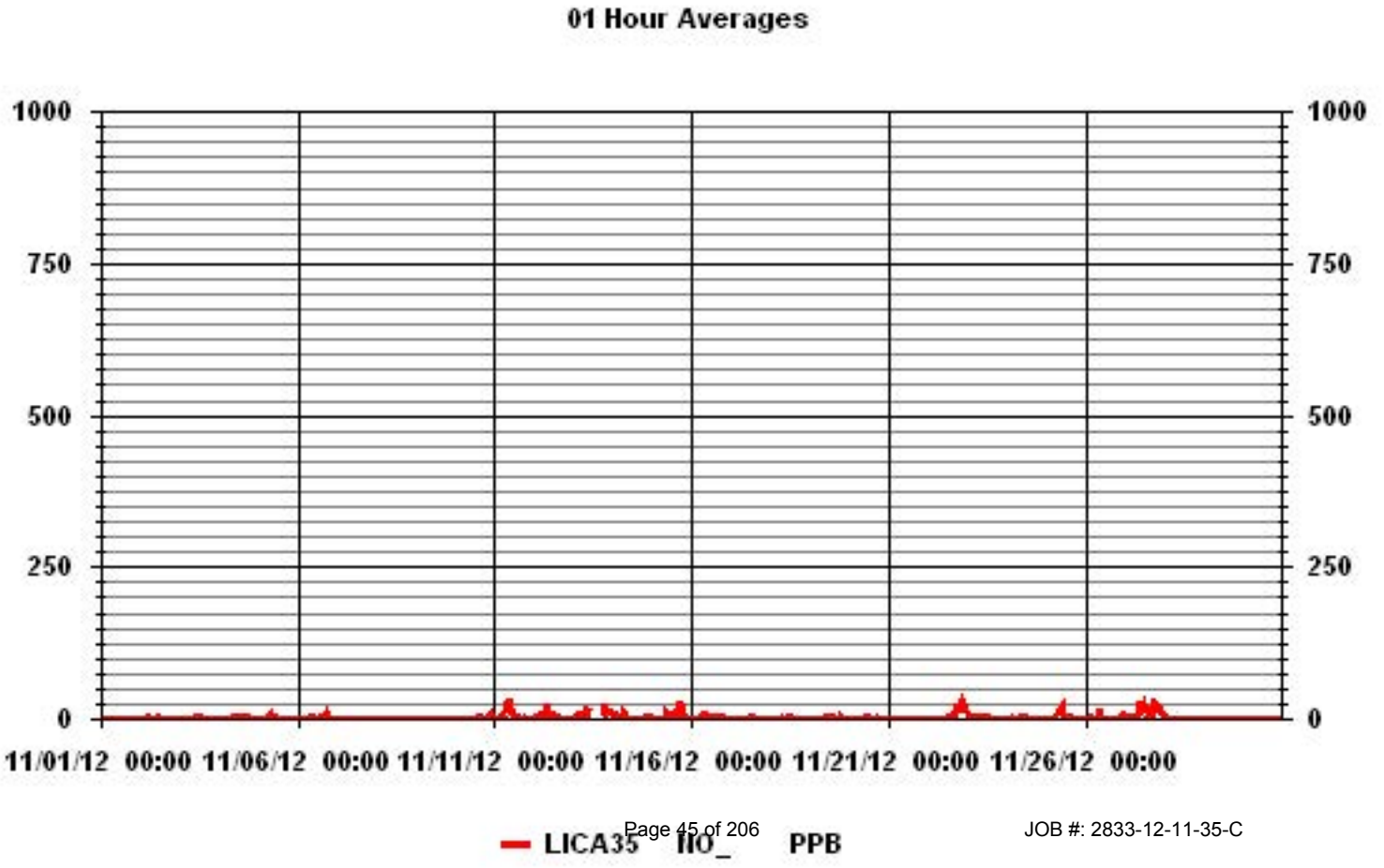
STATUS FLAG CODES

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:	534						
MAXIMUM 1-HR AVERAGE:	33	PPB	@ HOUR(S)	9	ON DAY(S)	11	
MAXIMUM 24-HR AVERAGE:	11.6	PPB			ON DAY(S)	27	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	4.69		MONTHLY AVERAGE:		2.38	PPB	



JOB #: 2833-12-11-35-C

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

NOVEMBER 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	1	0	2	0	1	3	1	1	1	2	5	2	2	2	3	**IZS**	2	1	1	0	3	0	0	5	1.4	24
2	0	0	0	0	0	8	1	0	1	1	4	2	3	4	3	**IZS**	12	2	2	1	1	2	2	3	12	2.3	24
3	3	3	2	3	4	2	2	10	20	21	5	8	14	2	**IZS**	2	1	2	13	3	2	0	0	1	21	5.3	24
4	2	8	2	2	1	2	1	2	5	5	8	6	7	**IZS**	6	5	4	6	6	7	6	5	4	5	8	4.6	24
5	1	2	1	1	1	1	4	3	38	6	3	3	**IZS**	2	1	1	8	1	1	1	2	2	1	2	38	3.7	24
6	2	1	2	1	1	1	1	5	6	3	3	**IZS**	3	31	3	15	6	5	22	12	5	3	3	3	31	6.0	24
7	1	1	1	1	1	1	1	0	1	1	**IZS**	2	1	1	1	1	1	0	0	0	0	0	0	0	2	0.7	24
8	0	1	1	1	0	0	0	0	0	**IZS**	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
9	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24
10	1	0	0	0	0	0	0	**IZS**	1	1	1	1	1	21	31	4	4	3	2	2	8	13	20	13	31	5.5	24
11	2	4	6	14	3	5	**IZS**	64	39	50	21	14	8	7	5	7	3	3	3	5	1	1	10	2	64	12.0	24
12	4	7	17	13	14	**IZS**	10	12	59	28	10	10	10	7	4	4	3	4	1	3	4	2	1	1	59	9.9	24
13	39	20	9	3	**IZS**	22	8	17	23	17	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	38	80	43	20	18	17	80	24.9	24
14	12	10	10	**IZS**	4	11	30	26	17	6	3	3	3	3	5	0	**M**	1	1	1	15	8	10	2	30	8.2	23
15	0	0	**IZS**	1	2	4	4	27	87	26	9	7	8	9	7	79	11	78	17	12	44	17	5	1	87	19.8	24
16	1	**IZS**	5	4	1	4	5	15	25	13	9	9	5	2	6	33	40	21	10	5	8	3	1	1	40	9.8	24
17	**IZS**	1	1	1	1	1	2	1	1	2	2	2	2	3	10	3	3	2	1	1	1	1	1	**IZS**	10	2.0	24
18	1	1	1	1	1	1	1	4	2	5	10	12	5	8	8	3	3	1	2	4	9	5	**IZS**	3	12	4.0	24
19	1	1	1	0	1	1	1	2	3	4	7	10	6	7	10	3	1	1	39	11	3	**IZS**	3	6	39	5.3	24
20	3	1	1	4	0	3	1	3	3	6	5	5	6	2	1	3	3	7	6	1	**IZS**	4	1	1	7	3.0	24
21	1	1	1	1	1	1	1	1	1	1	1	1	14	1	1	1	1	1	1	**IZS**	1	1	1	0	14	1.5	24
22	1	1	1	1	1	1	0	0	1	1	1	4	14	10	10	13	41	54	**IZS**	53	54	84	41	26	84	18.0	24
23	13	7	4	4	5	2	4	8	6	6	3	4	2	2	2	2	1	**IZS**	2	3	2	2	1	1	13	3.7	24
24	5	2	4	5	2	3	9	2	25	4	8	6	3	1	4	4	**IZS**	0	0	0	1	6	0	3	25	4.2	24
25	4	5	1	1	0	10	11	24	27	24	23	8	7	2	3	**IZS**	1	1	1	1	0	0	0	0	27	6.7	24
26	0	4	4	53	5	19	2	1	74	10	3	4	4	4	**IZS**	2	1	1	1	1	1	32	8	37	74	11.8	24
27	10	7	7	6	11	4	21	17	12	48	23	30	21	**IZS**	12	26	59	**98**	43	25	28	36	14	11	**98**	24.7	24
28	12	1	1	0	0	0	0	0	0	0	1	1	**IZS**	1	1	0	0	0	0	0	0	0	0	0	12	0.8	24
29	0	0	0	0	0	0	0	1	0	1	1	**IZS**	3	2	2	1	1	2	2	7	1	1	1	1	7	1.2	24
30	1	0	1	1	1	1	0	0	0	1	**IZS**	1	1	1	3	1	0	0	0	1	1	1	0	0	3	0.7	24
HOURLY MAX	39	20	17	53	14	22	30	64	87	50	23	30	21	31	31	79	59	98	43	80	54	84	41	37			
HOURLY AVG	4.1	3.1	2.9	4.3	2.1	3.8	4.2	8.5	16.5	10.1	6.2	5.9	5.7	5.0	5.2	8.0	8.0	10.6	7.4	8.3	8.3	8.7	5.0	4.8			

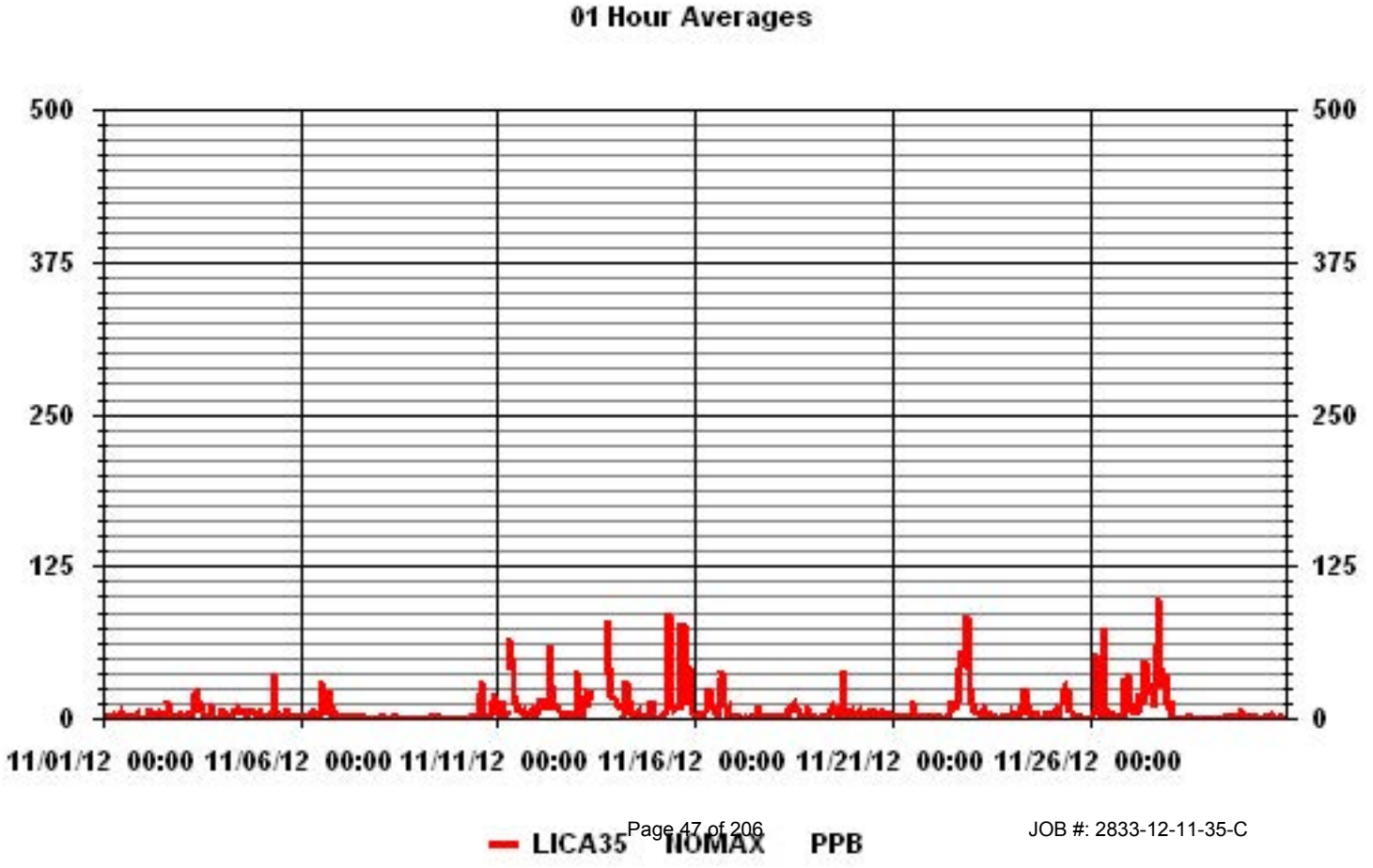
STATUS FLAG CODES

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:	566					
MAXIMUM INSTANTANEOUS VALUE:	98	PPB	@ HOUR(S)	17	ON DAY(S)	27
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	12.40					

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

November 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	4.70	2.79	5.58	6.02	11.32	18.67	9.11	2.05	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	100.00
<	110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.70	2.79	5.58	6.02	11.32	18.67	9.11	2.05	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	

Calm : .00 %

Total # Operational Hours : 680

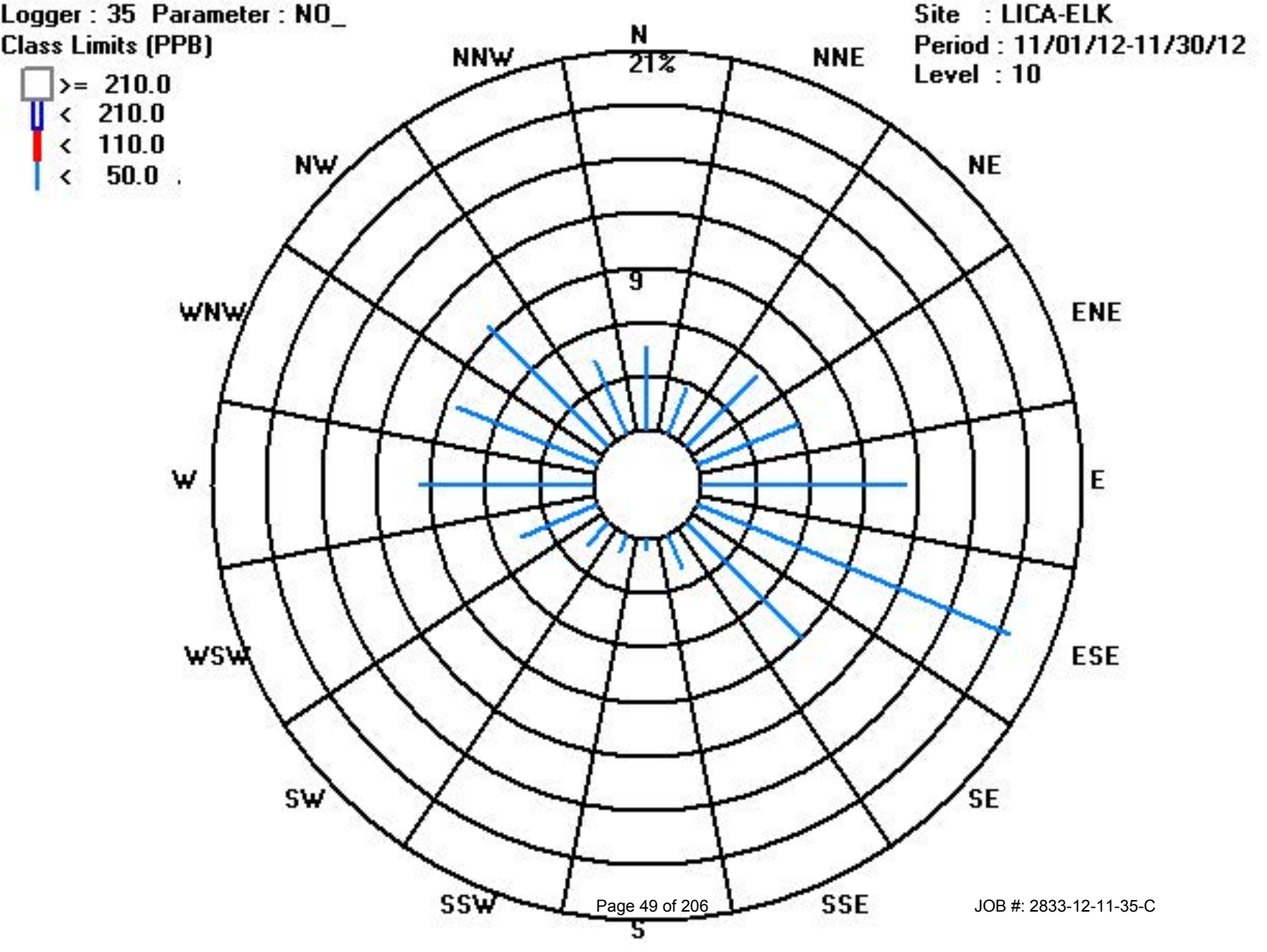
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	32	19	38	41	77	127	62	14	4	7	12	31	65	57	64	30	680
<	110.0																	
<	210.0																	
<	210.0																	
<	210.0																	
<	210.0																	
<	210.0																	
>=	210.0																	
	Totals	32	19	38	41	77	127	62	14	4	7	12	31	65	57	64	30	

Calm : .00 %

Total # Operational Hours : 680



JOB #: 2833-12-11-35-C

Oxides of Nitrogen

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

NOVEMBER 2012

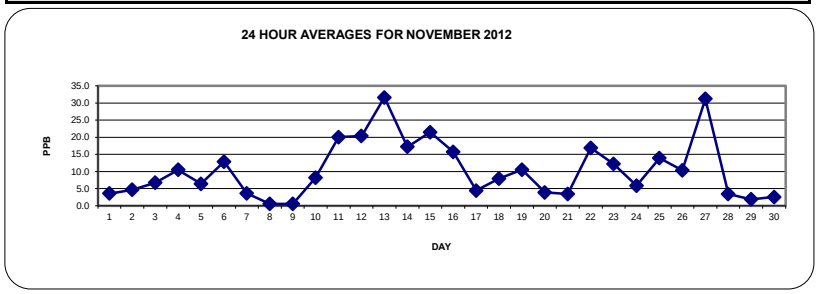
OXIDES OF NITROGEN hourly averages in ppb

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	3	4	3	3	4	4	4	3	3	3	3	3	3	3	3	**IZS**	6	3	3	5	5	4	5	6	3.6	24
2	4	4	3	2	2	10	2	3	3	3	5	4	5	4	3	**IZS**	6	6	4	5	7	8	8	8	10	4.7	24
3	7	10	11	14	14	10	6	5	4	7	7	9	4	4	**IZS**	4	3	4	5	6	7	5	4	6	14	6.8	24
4	11	18	8	6	6	7	7	9	9	9	11	10	11	**IZS**	11	12	12	13	14	13	13	11	9	11	18	10.5	24
5	7	8	7	7	5	6	11	12	23	9	5	5	**IZS**	4	2	2	4	5	4	5	7	5	2	2	23	6.4	24
6	5	4	8	4	2	7	8	17	10	7	7	**IZS**	4	6	8	11	18	18	44	33	21	23	18	15	44	12.9	24
7	17	12	10	11	10	5	2	2	2	2	**IZS**	2	1	1	1	1	1	1	1	0	0	0	0	0	17	3.6	24
8	0	0	1	1	1	1	1	1	1	**IZS**	1	1	1	0	0	0	0	1	1	1	0	0	1	0	1	0.5	24
9	0	0	1	0	0	1	1	1	**IZS**	1	1	1	1	0	0	1	1	1	1	1	1	0	1	0	1	0.5	24
10	1	1	2	1	2	1	1	**IZS**	3	1	2	2	1	5	6	7	13	15	14	11	19	28	34	23	34	8.2	24
11	14	17	23	28	18	20	**IZS**	40	44	48	28	18	14	10	10	12	11	13	16	15	12	14	17	18	48	20.0	24
12	24	28	30	33	29	**IZS**	25	26	42	21	17	15	14	14	9	12	21	16	17	16	20	16	14	13	42	20.4	24
13	17	18	18	18	**IZS**	31	22	22	37	31	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	37	56	40	43	42	42	56	**31.6**	24
14	36	34	35	**IZS**	24	27	38	37	21	11	5	2	2	2	2	0	**M**	2	3	11	24	23	26	14	38	17.2	23
15	6	4	**IZS**	5	9	11	13	20	31	25	15	14	14	16	16	32	31	**62**	38	24	33	31	23	21	**62**	21.5	24
16	22	**IZS**	28	24	20	19	20	31	30	20	14	9	5	3	6	12	23	22	12	10	12	9	8	4	31	15.7	24
17	**IZS**	3	3	3	3	3	4	4	4	4	4	4	5	5	5	7	7	7	6	5	5	5	5	**IZS**	7	4.5	24
18	4	5	5	6	6	6	7	9	7	8	12	18	7	7	8	5	6	6	5	8	16	13	**IZS**	11	18	8.0	24
19	10	9	7	5	6	6	7	7	9	9	12	12	9	12	15	11	11	9	24	17	11	**IZS**	11	15	24	10.5	24
20	7	3	3	3	3	3	1	2	3	6	4	5	5	2	2	3	6	5	6	2	**IZS**	8	3	6	8	3.9	24
21	5	5	8	6	6	6	5	4	2	2	2	2	3	2	2	3	4	4	2	**IZS**	2	2	2	1	8	3.4	24
22	3	3	3	2	2	2	1	2	3	3	4	4	8	7	10	11	29	47	**IZS**	51	61	55	43	38	61	16.9	24
23	27	22	23	24	22	16	16	17	15	12	8	7	6	6	6	5	5	**IZS**	6	9	8	7	9	6	27	12.3	24
24	19	14	11	10	6	5	9	4	7	6	9	6	4	2	4	3	**IZS**	1	0	1	1	8	1	6	19	5.9	24
25	9	17	10	7	7	18	27	36	38	39	24	14	10	4	5	**IZS**	6	5	5	7	7	8	8	11	39	13.9	24
26	7	14	18	14	7	11	8	7	31	12	4	2	4	2	**IZS**	3	2	1	4	4	4	22	17	39	39	10.4	24
27	23	21	21	27	26	11	21	33	16	44	30	38	27	**IZS**	20	21	42	56	53	38	45	41	34	32	56	31.2	24
28	25	10	5	4	3	2	2	1	1	1	1	1	**IZS**	2	2	2	3	2	2	2	2	2	2	1	25	3.4	24
29	1	1	1	1	1	1	1	1	2	2	2	**IZS**	4	3	3	2	3	3	4	3	2	2	2	2	4	1.9	24
30	2	2	3	3	3	3	2	2	2	3	**IZS**	2	2	2	2	1	2	3	3	4	4	4	3	4	4	2.6	24
HOURLY MAX	36	34	35	33	29	31	38	40	44	48	30	38	27	16	20	32	42	62	53	56	61	55	43	42			
HOURLY AVG	10.8	9.9	10.5	9.4	8.5	8.7	9.4	12.3	13.8	12.0	8.6	7.8	6.3	4.7	5.9	6.9	10.2	11.9	11.5	12.4	13.4	13.7	12.0	12.2			

STATUS FLAG CODES

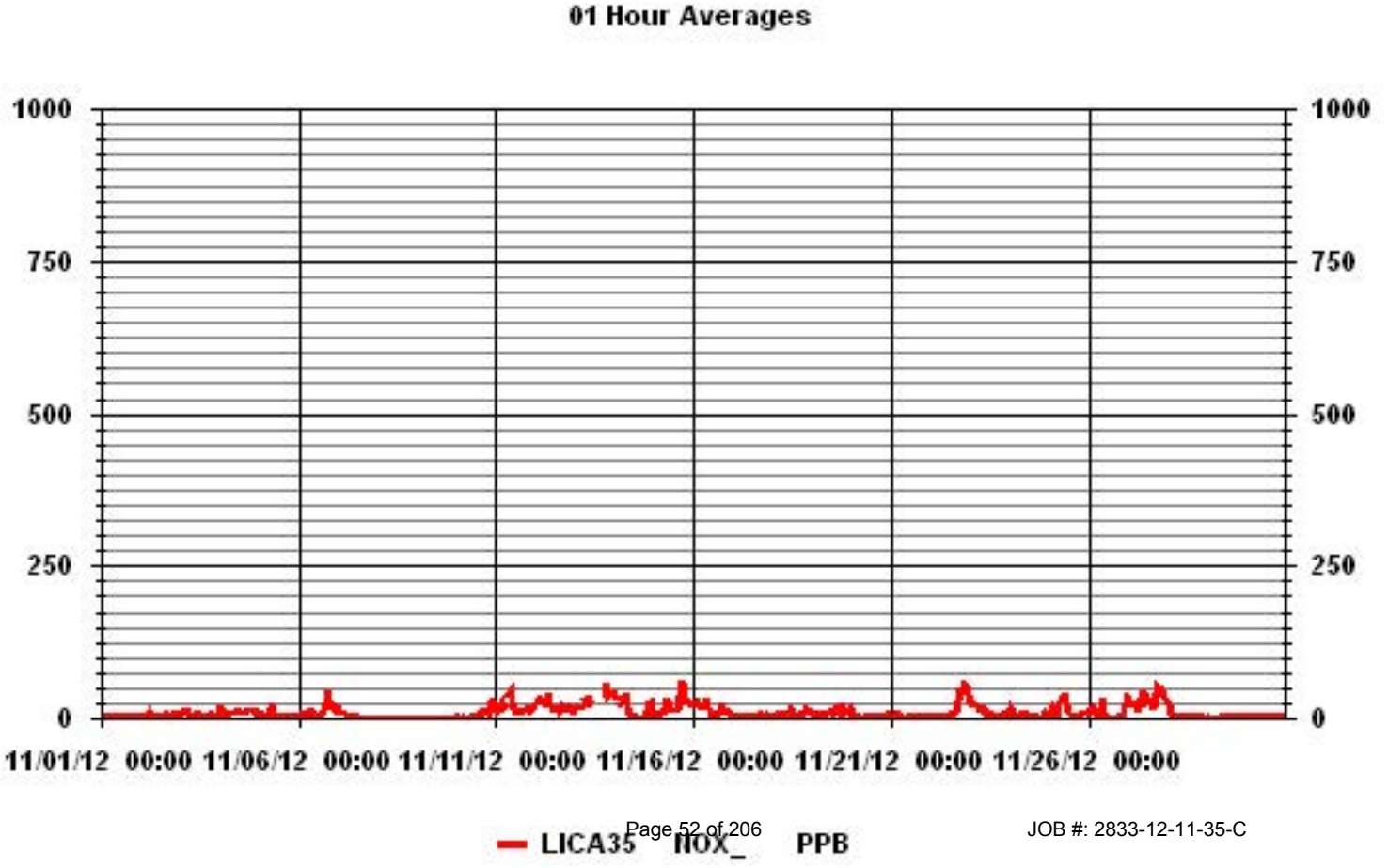
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	679						
MAXIMUM 1-HR AVERAGE:	62	PPB	@ HOUR(S)	17	ON DAY(S)	15	
MAXIMUM 24-HR AVERAGE:	31.6	PPB			ON DAY(S)	13	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:		99.9	%	
STANDARD DEVIATION:	11.14		MONTHLY AVERAGE:		10.18	PPB	

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

NOVEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

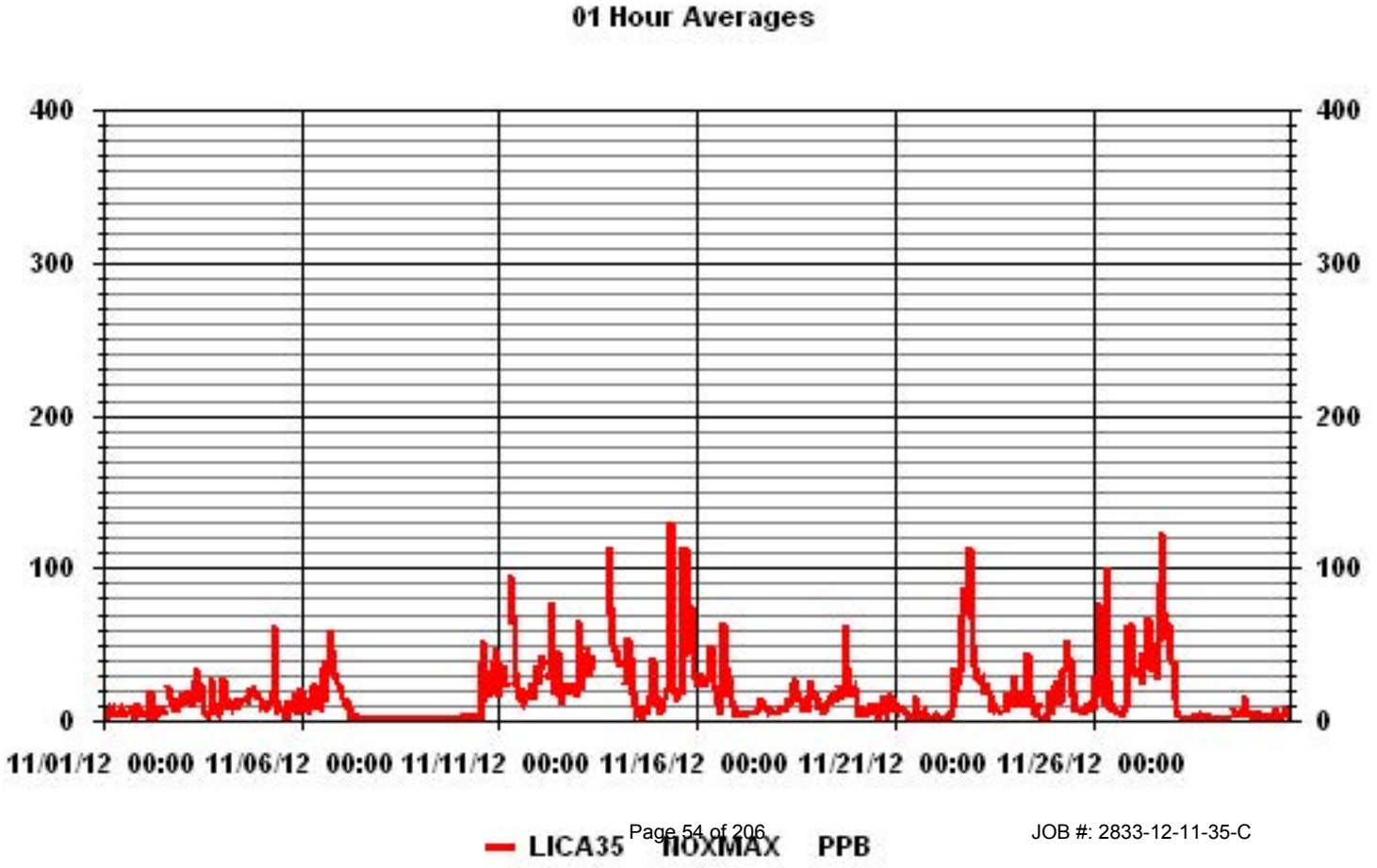
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	4	6	4	7	4	6	8	6	4	4	6	8	5	6	5	6	**IZS**	9	6	4	7	12	5	6	12	6.0	24
2	4	4	4	2	3	19	6	3	4	4	9	6	7	8	6	**IZS**	21	15	10	8	8	13	12	16	21	8.3	24
3	16	13	14	17	17	12	10	22	26	34	12	15	24	5	**IZS**	5	4	7	28	12	11	7	5	8	34	14.1	24
4	17	28	17	16	8	12	9	11	12	11	15	12	13	**IZS**	14	15	14	20	20	21	19	18	14	17	28	15.3	24
5	9	10	9	12	8	11	18	18	62	15	8	9	**IZS**	6	3	2	13	11	6	10	16	16	3	18	62	12.7	24
6	22	10	16	8	7	13	11	22	24	10	9	**IZS**	7	35	12	40	31	34	59	47	33	29	25	23	59	22.9	24
7	21	15	12	13	13	9	3	2	3	3	**IZS**	3	2	1	1	1	1	1	1	1	1	1	1	1	21	4.8	24
8	1	1	1	1	2	1	1	1	1	**IZS**	1	2	1	1	1	1	1	1	2	1	1	1	1	1	2	1.1	24
9	1	1	1	1	1	1	1	1	**IZS**	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
10	2	2	3	2	2	3	1	**IZS**	4	3	3	3	2	38	52	13	16	18	18	16	33	40	47	39	52	15.7	24
11	16	25	30	37	22	24	**IZS**	93	63	69	32	23	15	15	13	17	15	17	20	24	13	19	37	24	93	28.8	24
12	29	33	43	38	39	**IZS**	30	31	77	45	19	18	46	19	11	17	25	20	19	20	24	21	19	15	77	28.6	24
13	66	46	30	23	**IZS**	46	29	38	43	35	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	71	113	76	51	48	47	113	50.8	24
14	41	38	37	**IZS**	26	35	54	50	42	19	10	5	6	5	9	0	**M**	7	10	16	42	31	38	18	54	24.5	23
15	10	6	**IZS**	8	14	20	20	58	**131**	50	19	15	16	19	19	113	41	113	53	43	76	48	29	24	**131**	41.1	24
16	24	**IZS**	30	28	22	25	28	41	49	33	24	21	12	4	16	62	62	49	36	15	28	14	11	5	62	27.8	24
17	**IZS**	4	4	4	4	4	5	5	6	5	5	6	6	7	15	10	11	9	8	6	7	7	6	**IZS**	15	6.5	24
18	5	5	7	7	7	7	9	14	10	15	24	28	12	18	16	9	10	8	8	17	27	22	**IZS**	18	28	13.2	24
19	16	10	9	7	6	7	10	12	14	11	15	20	13	17	23	14	17	17	63	36	20	**IZS**	18	21	63	17.2	24
20	18	4	4	10	4	7	2	6	6	12	9	9	11	3	2	8	10	17	15	2	**IZS**	16	5	14	18	8.4	24
21	10	7	9	8	7	7	6	5	3	2	3	3	16	3	4	5	4	6	3	**IZS**	3	3	2	2	16	5.3	24
22	4	3	3	3	2	2	2	3	3	4	4	8	35	18	23	31	70	86	**IZS**	83	86	113	67	51	113	30.6	24
23	36	28	26	27	28	19	19	25	20	18	9	10	7	8	8	7	6	**IZS**	7	18	16	12	12	9	36	16.3	24
24	29	20	20	19	11	9	20	8	44	11	18	12	6	2	9	11	**IZS**	2	1	1	5	20	3	13	44	12.8	24
25	22	26	16	13	11	33	35	51	51	42	40	17	17	6	8	**IZS**	7	6	6	9	9	10	9	13	51	19.9	24
26	12	27	27	78	15	42	12	11	101	28	9	8	9	7	**IZS**	6	5	2	8	8	9	63	31	65	101	25.3	24
27	36	32	30	30	35	23	45	41	34	68	35	47	34	**IZS**	28	51	90	123	72	54	56	64	41	38	123	48.1	24
28	38	15	7	5	4	2	2	2	2	2	2	2	**IZS**	3	2	3	4	4	3	4	3	3	3	1	38	5.0	24
29	2	2	2	1	1	1	2	2	2	2	2	**IZS**	7	4	4	4	5	7	6	16	4	4	4	4	16	3.8	24
30	4	3	5	5	4	4	3	3	3	4	**IZS**	3	3	3	8	2	4	3	4	5	8	8	4	5	8	4.3	24
HOURLY MAX	66	46	43	78	39	46	54	93	131	69	40	47	46	38	52	113	90	123	72	113	86	113	67	65			
HOURLY AVG	17.8	14.6	14.5	14.8	11.3	13.9	13.8	20.2	29.1	19.3	12.7	11.6	12.3	9.7	11.6	16.8	18.8	21.9	19.4	21.1	22.1	23.0	17.3	17.8			

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:	679					
MAXIMUM INSTANTANEOUS VALUE:	131	PPB	@ HOUR(S)	8	ON DAY(S)	15
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	19.49					



JOB #: 2833-12-11-35-C

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

November 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	4.70	2.79	5.58	5.88	11.17	18.23	8.97	1.91	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	98.97
<	110.0	.00	.00	.00	.14	.14	.44	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	1.02
<	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.70	2.79	5.58	6.02	11.32	18.67	9.11	2.05	.58	1.02	1.76	4.55	9.55	8.38	9.41	4.41	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	32	19	38	40	76	124	61	13	4	7	12	31	65	57	64	30	673
<	110.0				1	1	3	1	1									7
<	210.0																	
>=	210.0																	
	Totals	32	19	38	41	77	127	62	14	4	7	12	31	65	57	64	30	

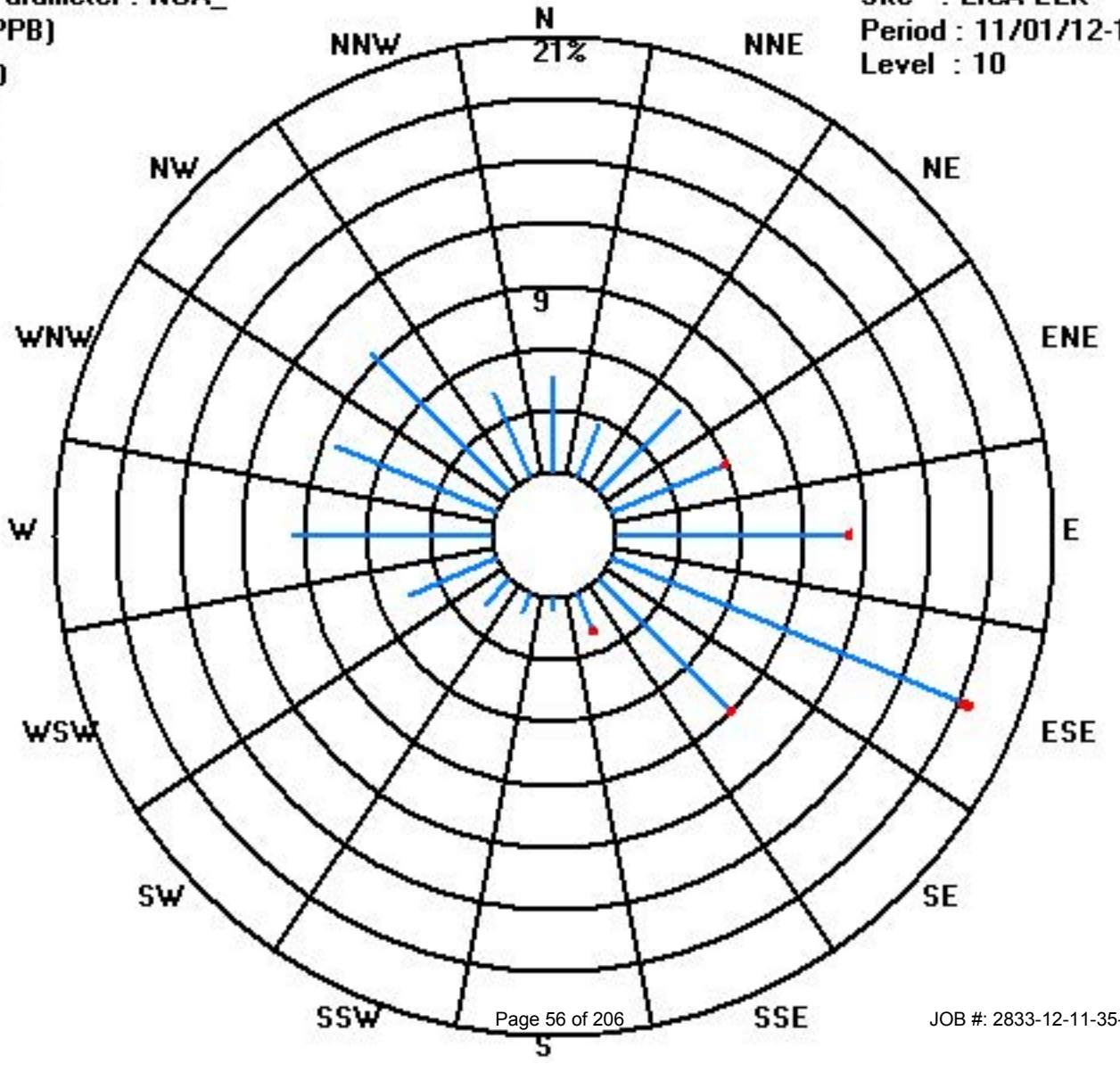
Calm : .00 %

Total # Operational Hours : 680

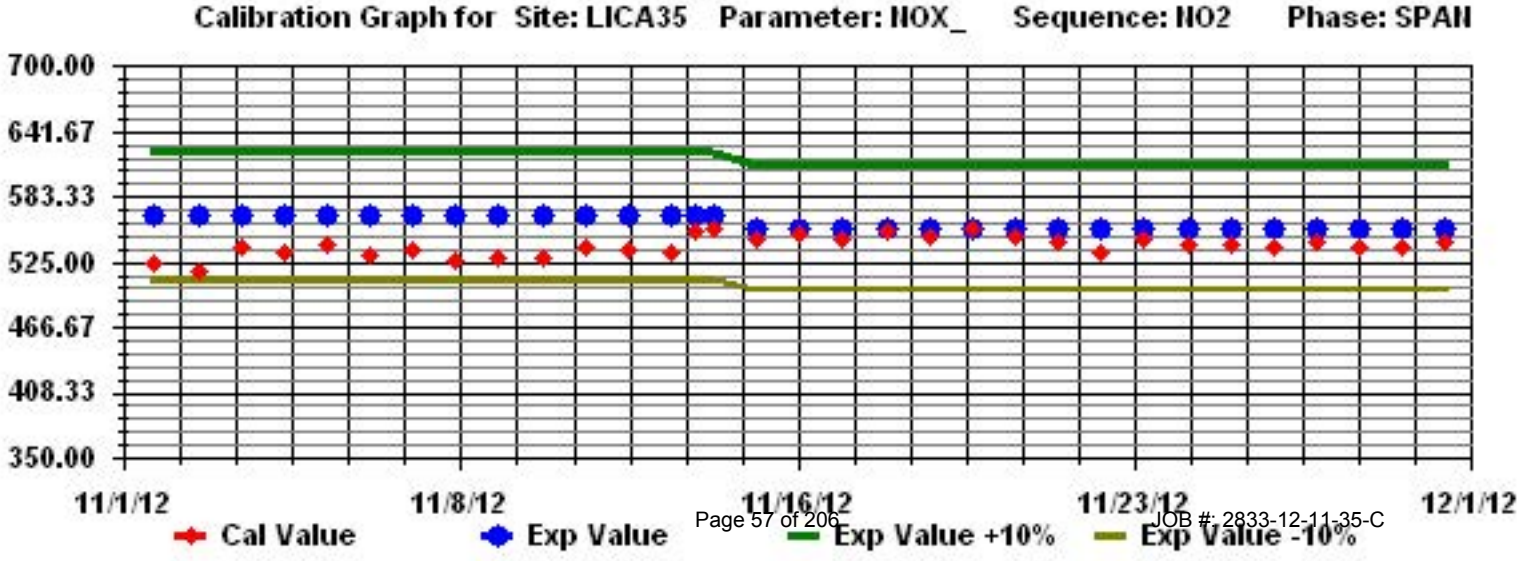
Logger : 35 Parameter : NOX_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-C


Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN
700.00
641.67
583.33
525.00
466.67
408.33
350.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

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

NOVEMBER 2012

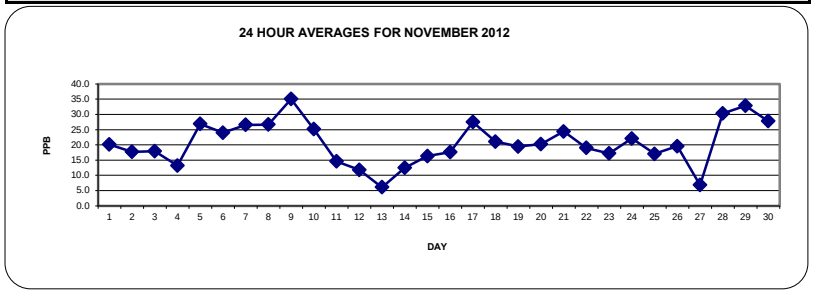
OZONE (O_3) hourly averages in ppb

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	22	21	21	21	21	20	19	20	22	24	24	23	22	21	21	20	**IZS**	17	19	19	16	17	17	16	24	20.1	24
2	16	15	17	20	19	15	19	19	19	19	19	20	21	22	22	**IZS**	20	18	18	16	15	12	13	14	22	17.7	24
3	15	12	9	7	7	10	15	17	19	21	24	24	24	20	**IZS**	26	27	25	23	22	17	18	17	14	27	18.0	24
4	9	4	14	16	15	12	11	9	11	13	14	16	17	**IZS**	18	16	15	12	12	12	13	14	15	15	18	13.2	24
5	17	17	18	16	17	14	9	10	10	22	34	39	**IZS**	40	**41**	40	37	36	35	33	31	33	35	34	**41**	26.9	24
6	33	33	28	32	33	29	27	21	27	29	30	**IZS**	35	35	33	31	23	19	3	6	11	9	12	13	35	24.0	24
7	12	18	20	19	21	31	36	36	34	33	**IZS**	32	26	24	28	27	28	28	30	31	28	24	23	22	36	26.6	24
8	21	21	21	21	22	23	24	24	25	**IZS**	26	26	28	29	29	29	29	29	29	31	31	31	31	33	33	26.7	24
9	33	33	33	34	34	34	34	35	**IZS**	34	35	35	36	38	37	37	38	37	36	36	35	35	33	33	38	**35.0**	24
10	32	32	32	33	32	32	31	**IZS**	29	32	31	32	32	30	30	28	21	19	19	21	12	5	3	10	33	25.1	24
11	14	10	4	4	7	5	**IZS**	2	6	9	14	22	25	30	27	24	22	20	17	17	19	16	12	9	30	14.6	24
12	5	2	3	1	3	**IZS**	4	5	5	15	19	21	23	22	24	20	12	15	12	14	9	11	13	13	24	11.8	24
13	11	10	8	6	**IZS**	1	3	2	5	9	9	12	11	12	12	9	7	5	3	1	1	1	1	1	12	6.1	24
14	1	1	1	**IZS**	1	1	1	1	15	21	**C**	**C**	**C**	**C**	33	36	**M**	30	27	18	9	10	5	13	36	12.4	23
15	24	26	**IZS**	27	23	22	21	17	15	18	23	23	24	22	21	15	9	1	4	11	6	6	8	9	27	16.3	24
16	8	**IZS**	2	4	8	9	7	5	9	15	22	28	32	34	32	28	17	16	22	20	18	19	21	29	34	17.6	24
17	**IZS**	32	31	32	31	30	29	28	28	27	27	27	28	28	27	25	24	24	25	25	25	25	26	**IZS**	32	27.5	24
18	27	27	26	25	24	25	24	23	24	24	22	19	25	22	21	21	20	18	18	14	9	13	**IZS**	13	27	21.0	24
19	15	17	24	26	26	25	25	23	21	22	22	22	23	22	19	20	18	18	8	11	13	**IZS**	15	12	26	19.4	24
20	17	18	17	17	16	17	18	18	18	17	19	20	22	25	25	24	22	23	23	25	**IZS**	19	24	21	25	20.2	24
21	21	22	19	20	19	19	21	22	25	26	26	26	26	26	26	25	25	25	27	**IZS**	30	29	28	28	30	24.4	24
22	26	27	27	28	29	30	29	28	26	25	25	25	25	25	23	20	10	4	**IZS**	1	1	1	1	1	30	19.0	24
23	1	4	3	2	5	10	11	11	15	20	24	25	26	27	27	29	28	**IZS**	25	21	21	20	19	21	29	17.2	24
24	10	13	16	18	22	22	20	22	21	22	21	23	25	25	22	23	**IZS**	29	28	28	27	23	27	21	29	22.1	24
25	19	14	18	21	20	11	4	3	4	7	13	18	23	26	25	**IZS**	24	25	24	22	20	18	18	15	26	17.0	24
26	18	12	8	17	21	17	17	19	11	18	25	26	26	28	**IZS**	29	30	29	26	26	25	10	10	2	30	19.6	24
27	8	9	8	2	3	14	9	3	12	6	10	12	16	**IZS**	17	14	4	1	1	1	1	1	1	4	17	6.8	24
28	8	21	24	26	29	31	32	34	34	34	33	33	**IZS**	33	33	32	30	32	33	33	32	33	33	33	34	30.3	24
29	33	33	34	34	35	34	34	33	33	32	33	**IZS**	33	34	34	34	33	32	31	31	31	32	31	31	35	32.8	24
30	30	30	30	30	30	29	30	29	29	29	**IZS**	29	29	28	28	29	28	27	26	24	24	24	24	23	30	27.8	24
HOURLY MAX	33	33	34	34	35	34	36	36	34	34	35	39	36	40	41	40	38	37	36	36	35	35	35	34			
HOURLY AVG	17.4	18.4	17.8	19.3	19.8	19.7	19.4	17.9	19.0	21.5	23.1	24.4	25.3	27.0	26.3	25.4	22.3	21.2	20.8	19.7	18.3	17.6	17.8	17.3			

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

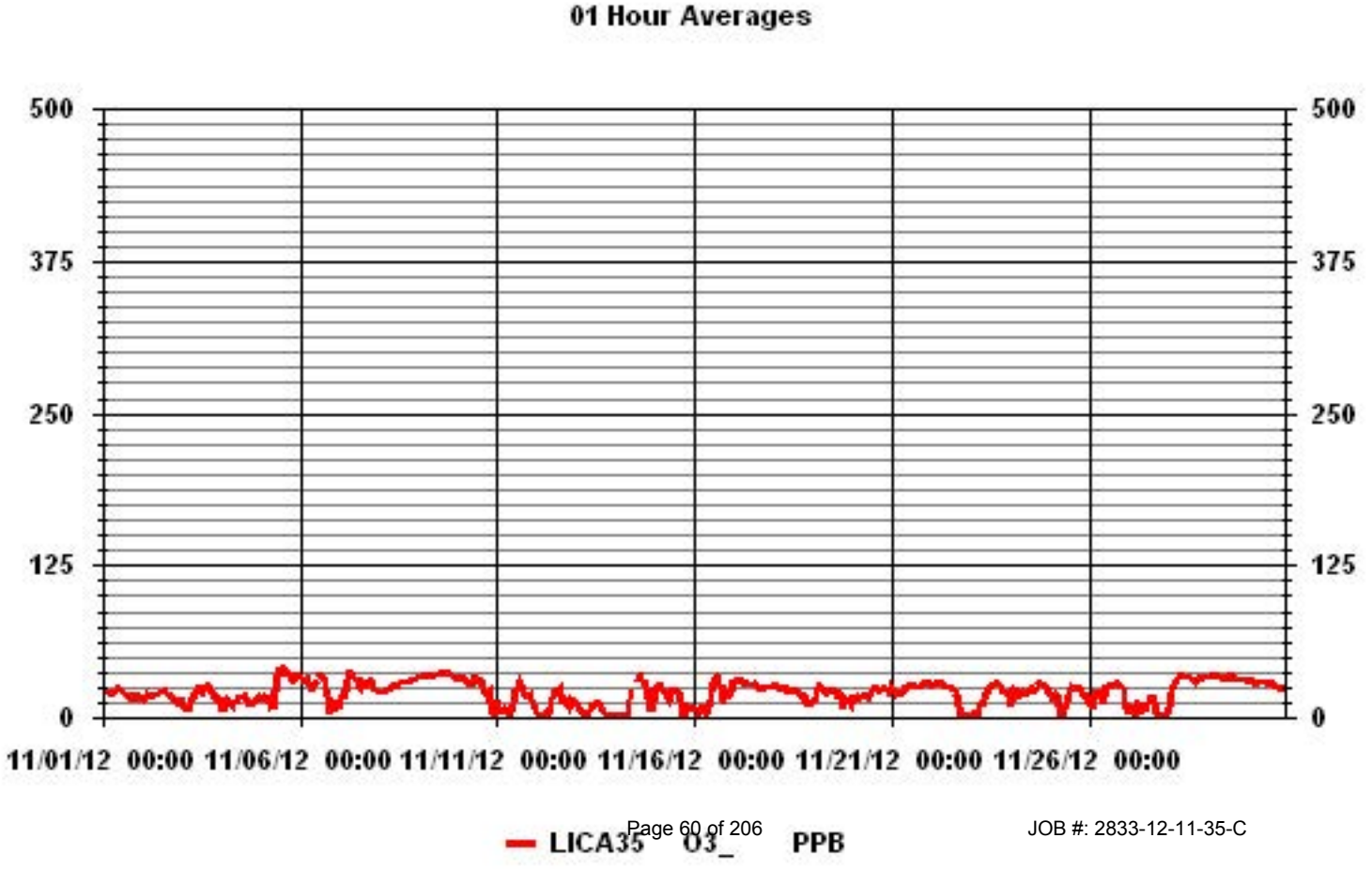


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	41	PPB	@ HOUR(S)	14	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	35.0	PPB			ON DAY(S)	9
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	9.51		MONTHLY AVERAGE:		20.62	PPB

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

NOVEMBER 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	22	22	21	22	22	22	21	21	23	25	25	25	23	22	22	21	**IZS**	20	20	20	18	19	19	17	25	21.4	24
2	17	16	20	20	20	19	20	20	20	20	20	21	22	23	23	**IZS**	22	21	20	19	17	16	16	18	23	19.6	24
3	19	15	11	9	11	14	18	19	20	23	27	29	30	22	**IZS**	30	29	26	26	24	21	19	18	17	30	20.7	24
4	14	9	19	18	17	15	13	10	12	15	15	17	19	**IZS**	20	18	18	14	15	15	15	15	17	18	20	15.6	24
5	18	19	19	19	18	17	16	13	20	28	39	42	**IZS**	42	42	41	40	38	37	38	36	36	36	36	**42**	30.0	24
6	35	35	35	34	34	33	31	27	31	32	33	**IZS**	36	37	37	36	33	31	13	12	17	14	17	16	37	28.7	24
7	17	20	22	22	25	36	37	37	35	34	**IZS**	34	30	25	30	30	28	28	32	32	30	26	23	22	37	28.5	24
8	21	21	21	21	23	24	25	25	26	**IZS**	27	27	29	29	29	30	30	30	31	31	31	32	32	34	34	27.3	24
9	33	34	34	34	35	35	35	35	**IZS**	35	35	36	37	38	38	38	39	38	37	36	36	35	34	33	39	35.7	24
10	33	32	33	34	33	32	32	**IZS**	31	33	32	33	33	33	32	32	29	23	23	25	19	10	8	18	34	28.0	24
11	18	13	9	9	10	10	**IZS**	4	9	13	18	24	29	31	30	26	24	23	20	21	20	19	16	12	31	17.7	24
12	7	5	6	3	8	**IZS**	5	6	8	18	20	23	25	25	26	23	18	20	15	18	13	14	15	15	26	14.6	24
13	13	12	10	9	**IZS**	3	5	3	9	10	12	14	12	14	14	12	9	7	5	1	3	1	1	1	14	7.8	24
14	1	1	1	**IZS**	3	2	2	3	21	**C**	**C**	**C**	**C**	**C**	35	37	**M**	34	30	26	18	20	18	22	37	16.1	23
15	28	28	**IZS**	28	27	29	26	24	23	23	24	24	24	26	23	21	18	4	11	15	13	10	11	11	29	20.5	24
16	11	**IZS**	4	8	11	13	10	11	15	22	25	31	35	35	34	34	29	30	28	24	23	22	30	30	35	22.4	24
17	**IZS**	33	32	33	32	31	31	30	29	29	28	28	28	29	28	27	25	25	26	27	26	26	28	**IZS**	33	28.7	24
18	28	28	27	26	25	26	26	26	26	26	25	25	27	25	24	22	21	21	19	18	16	17	**IZS**	17	28	23.5	24
19	18	19	29	28	27	27	26	26	24	23	23	24	24	24	23	21	21	20	19	16	17	**IZS**	19	18	29	22.4	24
20	20	19	17	18	17	18	19	19	18	20	21	22	24	25	26	25	25	25	25	25	**IZS**	22	25	25	26	21.7	24
21	23	24	21	21	20	20	23	25	26	26	26	27	27	26	26	26	26	28	28	**IZS**	31	29	29	29	31	25.5	24
22	27	27	28	29	29	30	30	29	26	26	26	26	27	28	26	26	21	10	**IZS**	2	1	2	1	1	30	20.8	24
23	3	7	5	4	8	13	12	13	18	22	25	26	27	28	29	30	29	**IZS**	26	25	23	23	21	23	30	19.1	24
24	21	17	21	21	24	23	23	23	24	24	23	27	27	27	24	27	**IZS**	29	29	28	28	28	27	27	29	24.9	24
25	25	21	22	24	24	18	14	11	6	9	17	21	26	27	27	**IZS**	25	25	25	23	22	20	19	18	27	20.4	24
26	19	19	13	22	23	23	22	21	20	22	26	27	28	29	**IZS**	31	31	30	30	27	27	20	15	4	31	23.0	24
27	15	20	16	5	8	19	18	11	17	9	12	15	20	**IZS**	22	19	10	3	5	4	2	4	4	5	22	11.4	24
28	17	23	25	28	30	33	33	35	35	35	34	34	**IZS**	33	33	33	31	34	34	34	33	34	34	34	35	31.7	24
29	34	34	34	35	35	35	35	34	34	33	33	**IZS**	34	35	35	35	34	34	32	32	32	32	32	32	35	33.7	24
30	31	31	31	30	30	30	31	30	30	30	**IZS**	29	29	29	30	30	29	28	27	25	25	25	24	23	31	28.6	24
HOURLY MAX	35	35	35	35	35	36	37	37	35	35	39	42	37	42	42	41	40	38	37	38	36	36	36	36			
HOURLY AVG	20.3	20.8	20.2	21.2	21.7	22.4	22.0	20.4	21.9	23.8	24.9	26.3	27.1	28.4	28.1	27.9	25.7	24.1	23.7	22.2	21.1	20.3	20.3	19.9			

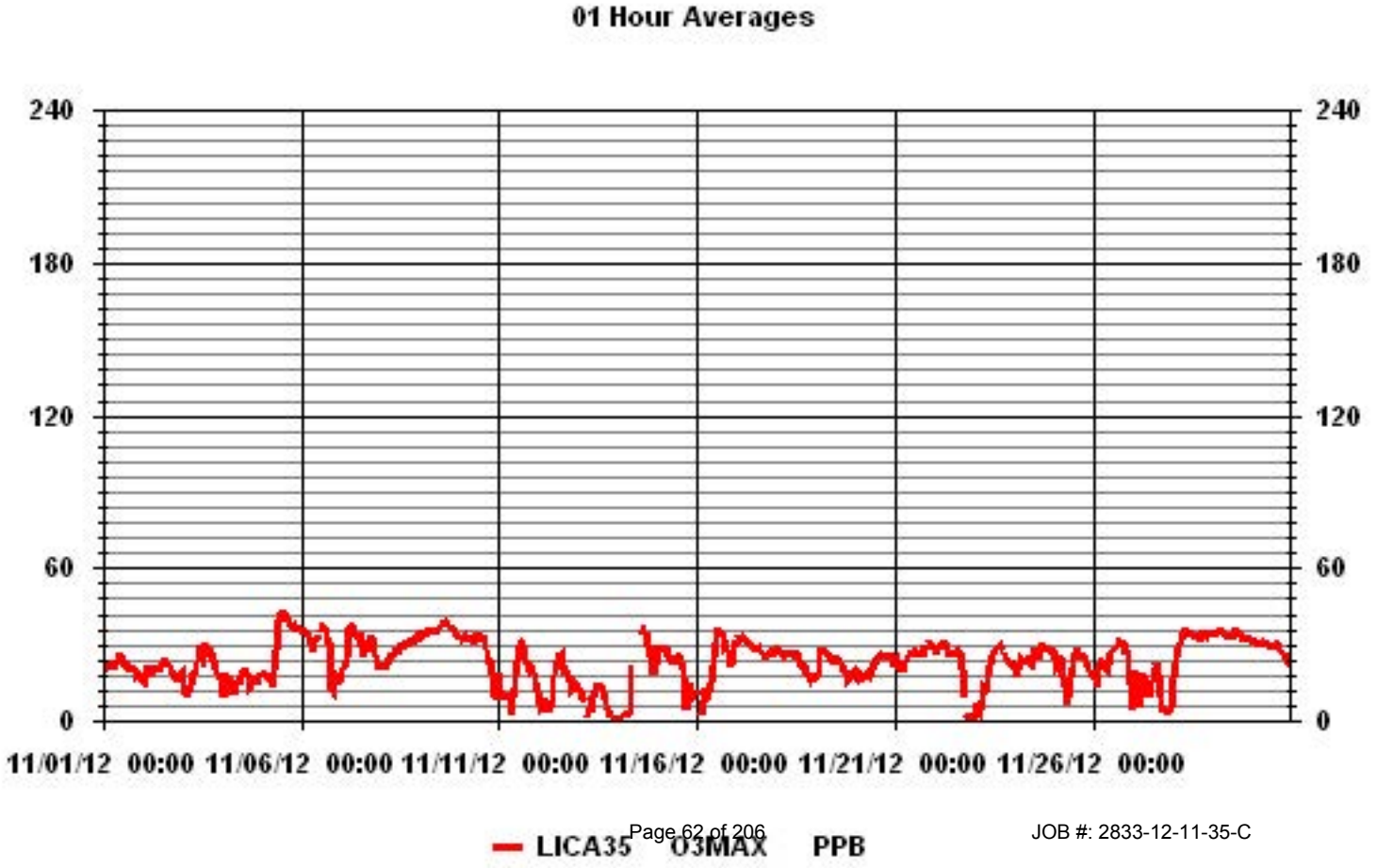
STATUS FLAG CODES

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:	683					
MAXIMUM INSTANTANEOUS VALUE:	42	PPB	@ HOUR(S)	VAR	ON DAY(S)	5
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	8.84					

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

November 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	4.67	2.77	5.70	5.99	11.54	19.00	9.35	2.04	.58	1.02	1.75	4.53	9.50	7.89	9.21	4.38	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.67	2.77	5.70	5.99	11.54	19.00	9.35	2.04	.58	1.02	1.75	4.53	9.50	7.89	9.21	4.38	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	32	19	39	41	79	130	64	14	4	7	12	31	65	54	63	30	684
<	110																	
<	210																	
>=	210																	
	Totals	32	19	39	41	79	130	64	14	4	7	12	31	65	54	63	30	

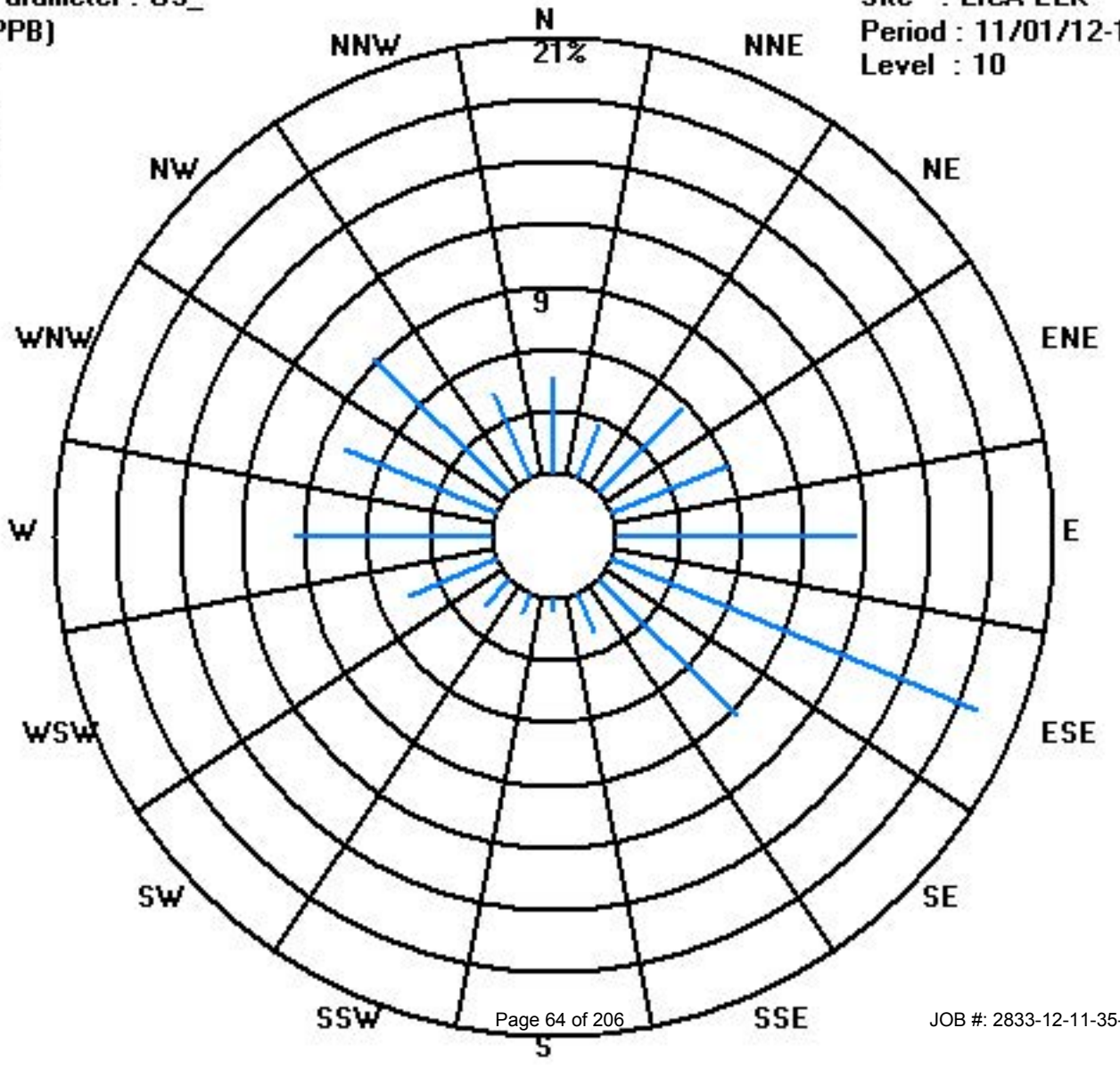
Calm : .00 %

Total # Operational Hours : 684

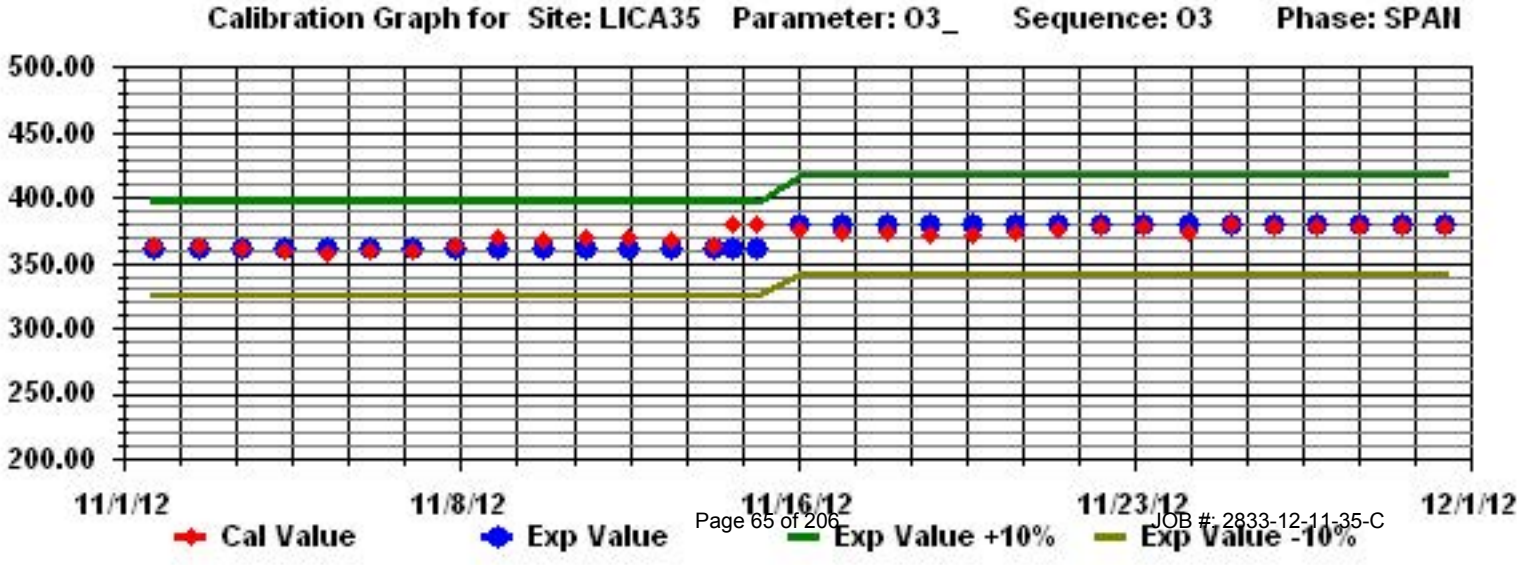
Logger : 35 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-C


Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN
500.00
450.00
400.00
350.00
300.00
250.00
200.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

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

NOVEMBER 2012

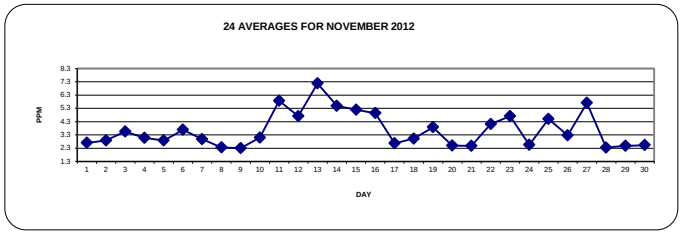
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.7	2.9	2.9	2.7	2.6	2.6	2.6	2.7	2.6	2.5	2.4	2.4	2.5	2.4	2.4	2.4	**IZS**	2.6	2.7	2.7	3.2	3	3.1	3.4	3.4	2.7	24
2	3.1	3.1	3	2.6	2.8	3.2	2.5	2.5	2.7	2.7	2.8	2.7	2.6	2.5	2.4	**IZS**	2.8	3.6	2.5	2.9	3	3.2	3.6	3.4	3.6	2.9	24
3	3.4	4.3	5.4	6.6	6.9	5.7	3.7	3.2	2.8	2.7	2.7	2.5	2.7	3.1	**IZS**	2.6	2.5	2.6	2.7	2.7	3.5	3.2	3.1	3.1	6.9	3.6	24
4	4.4	6.1	3.4	2.6	2.4	2.7	2.4	2.4	2.3	2.3	2.3	2.3	2.6	**IZS**	2.7	3.3	3.5	3.2	3.1	3.2	3.3	3.3	3.4	3.3	6.1	3.1	24
5	3.3	3.4	3.3	3.5	3.3	3.2	4.3	3.7	4	2.8	2.1	2	**IZS**	2.3	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.5	2.4	2.6	4.3	2.9	24
6	2.5	2.6	2.9	2.7	2.6	2.8	3	3.8	2.8	2.7	2.9	**IZS**	2.2	2.5	2.7	2.8	3	3.4	6.8	6.7	5.4	5.6	6.1	6	6.8	3.7	24
7	7	5.4	4.9	5.3	4.9	3	2.2	2.2	2.2	2.2	2.3	**IZS**	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	7.0	3.0	24
8	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	**IZS**	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.3	2.5	2.3	24
9	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.3	**IZS**	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	24
10	2.3	2.5	2.5	2.4	2.5	2.5	2.6	**IZS**	2.7	2.2	2.3	2.3	2.1	2.1	2.1	2.5	2.7	3.5	3.4	3.1	3.8	5	7.4	6.5	7.4	3.1	24
11	4.8	5.1	6.3	7.9	8.3	8.4	**IZS**	9.7	11.6	10.4	9.1	6.1	4.1	3.1	2.7	3.2	3.3	3.7	4.4	4.1	4	4.1	4.4	6.2	11.6	5.9	24
12	6.8	7.1	7.8	8.5	5.5	**IZS**	3.7	3.4	4.6	2.9	2.2	2.1	**M**	**C**	2.5	2.9	4	3.8	5.4	5.4	6.3	5.8	4.3	3.8	8.5	4.7	23
13	5.1	5.8	6.1	6.7	**IZS**	7.7	6.3	6.7	8.8	10.6	**M**	**M**	**C**	**C**	**C**	**C**	2.9	4.8	4.2	7	7.5	10.3	**12**	9.5	**12.0**	**7.2**	22
14	9.3	9	7.7	**IZS**	4.4	4.2	4	4.9	**M**	**M**	**M**	**M**	**M**	**C**	**C**	**C**	**C**	2.5	3	3.8	5	6.4	7.5	5	9.3	5.5	20
15	4.3	3.8	**IZS**	2.9	4.4	5.2	4.2	4.4	5	**M**	**M**	**C**	**C**	5.5	5.4	5.1	5.2	6.5	7.1	5.4	5.3	5.4	6.6	7	7.1	5.2	22
16	7.4	**IZS**	8.8	8.4	7.1	6.5	6.9	7.2	7.7	6.9	4.5	3.3	2.6	2.4	2.5	2.5	3	3.2	3	4.3	4	4.2	4.2	2.9	8.8	4.9	24
17	**IZS**	2.8	2.8	2.4	2.7	2.6	2.5	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.9	3	2.9	2.8	2.5	2.5	2.6	2.6	**IZS**	3.0	2.7	24
18	2.6	2.7	2.8	2.9	2.9	2.9	2.9	3.2	3	3	3.2	3.8	3	2.7	2.8	2.8	2.9	2.8	2.6	2.9	3.9	3.5	**IZS**	3.5	3.9	3.0	24
19	3.5	3.8	3.7	3.4	3.3	3.4	3.2	3.1	3.4	3.9	4.5	4.3	3.8	3.9	4.2	4.1	3.9	3.9	4.3	4.8	3.8	**IZS**	4.2	4.8	4.8	3.9	24
20	3.6	2.8	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	**IZS**	2.6	2.5	2.6	3.6	2.5	24
21	2.6	2.6	2.6	2.6	2.8	2.8	2.7	2.6	2.4	2.4	2.6	2.4	2.3	2.4	2.3	2.3	2.4	2.4	2.3	**IZS**	2.3	2.4	2.4	2.4	2.8	2.5	24
22	2.5	2.5	2.4	2.5	2.5	2.4	2.5	2.5	2.6	2.6	2.5	2.5	2.6	2.7	3	3.5	3.7	4.8	**IZS**	8.8	9.5	8.4	8.9	8.6	9.5	4.1	24
23	8.6	7.1	8.5	8	7.1	5.7	6.2	6.1	5.5	4.8	3.7	3.2	3	3	2.9	2.7	2.8	**IZS**	2.9	3	3.2	3.1	3.9	3.4	8.6	4.7	24
24	4.7	4.1	2.8	2.8	2.4	2.2	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	**IZS**	2.3	2.3	2.3	2.4	2.5	2.5	3	4.7	2.6	24
25	3.5	3.7	3.5	3.2	3	4.8	6.3	6.6	8	8.9	6.9	5.6	5	3.4	3.5	**IZS**	3.1	2.7	2.8	3.5	3.6	3.6	3.7	4.5	8.9	4.5	24
26	3.9	4.3	5.2	3.1	2.2	3.2	2.6	2.5	5.5	2.9	2.2	2	2	2	**IZS**	2.4	2.4	2.4	2.6	2.8	2.7	3.7	4.8	7.7	7.7	3.3	24
27	5.2	4.4	4.7	6.9	7.2	4.2	3.5	5.5	5	10	8.5	7.8	5.7	**IZS**	3.6	4	5.7	6.4	6.5	6.3	6	5.4	4.7	4	10.0	5.7	24
28	3.8	2.5	2	2.1	2	2	1.9	1.9	2	1.9	1.9	2	**IZS**	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.7	2.8	2.5	3.8	2.3	24
29	2.6	2.5	2.5	2.5	2.5	2.6	2.5	2.7	2.7	2.7	2.6	**IZS**	2.4	2.3	2.4	2.3	2.3	2.4	2.5	2.5	2.4	2.3	2.4	2.3	2.7	2.5	24
30	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.6	2.5	2.5	**IZS**	2.7	2.7	2.8	2.4	2.3	2.3	2.3	2.5	2.5	2.5	2.5	2.5	2.6	2.8	2.5	24
HOURLY MAX	9.3	9.0	8.8	8.5	8.3	8.4	6.9	9.7	11.6	10.6	9.1	7.8	5.7	5.5	5.4	5.1	5.7	6.5	7.1	8.8	9.5	10.3	12.0	9.5			
HOURLY AVG	4.2	3.9	4.1	4.0	3.7	3.7	3.3	3.7	4.0	3.9	3.3	3.0	2.8	2.7	2.7	2.8	3.0	3.2	3.3	3.7	3.8	3.9	4.2	4.2			

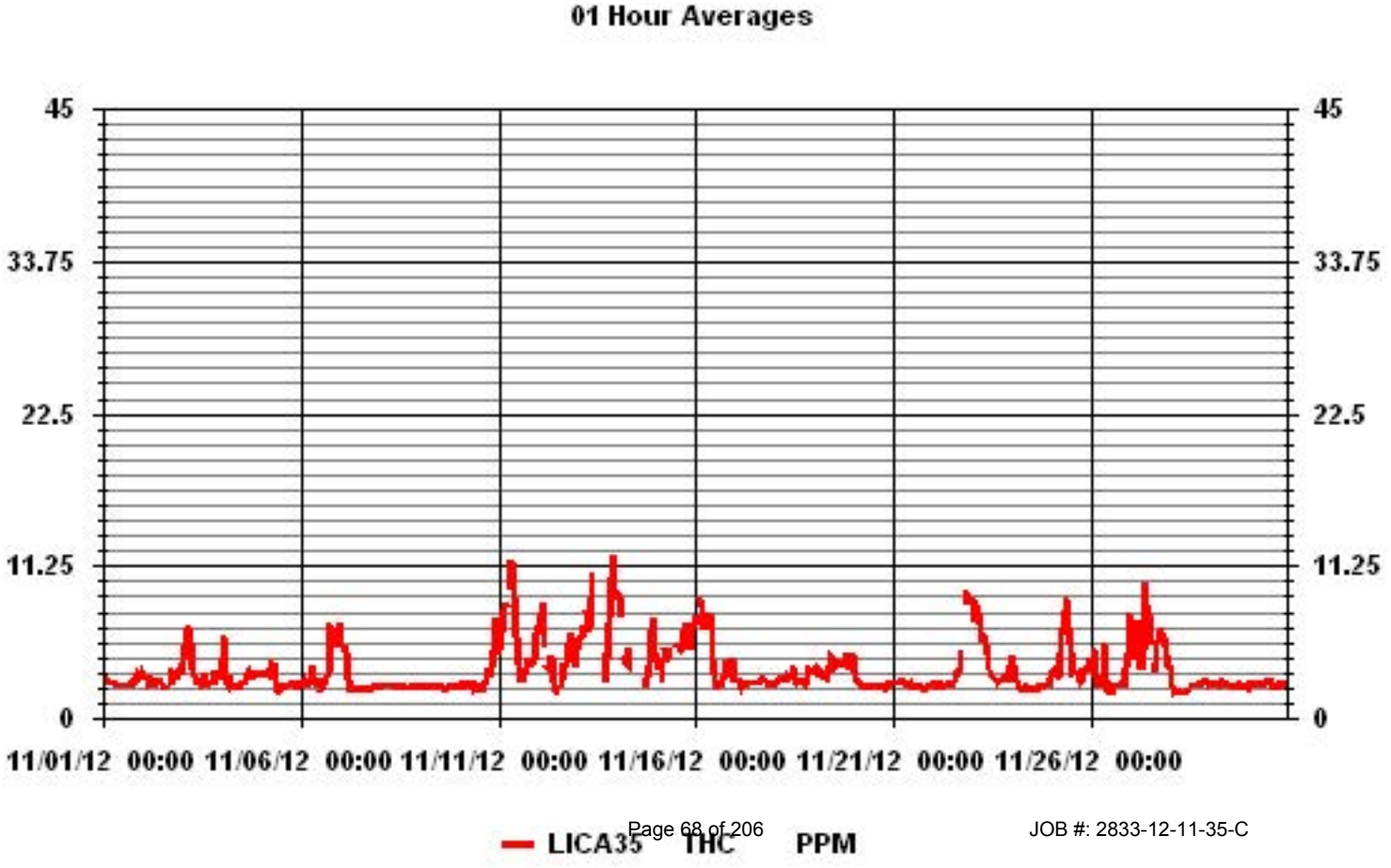
STATUS FLAG CODES

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
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	668					
MAXIMUM 1-HR AVERAGE:	12.0	PPM	@ HOUR(S)	22	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	7.2	PPM			ON DAY(S)	13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		711	HRS
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:		98.8	%
STANDARD DEVIATION:	1.79		MONTHLY AVERAGE:		3.58	PPM



JOB #: 2833-12-11-35-C

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

NOVEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

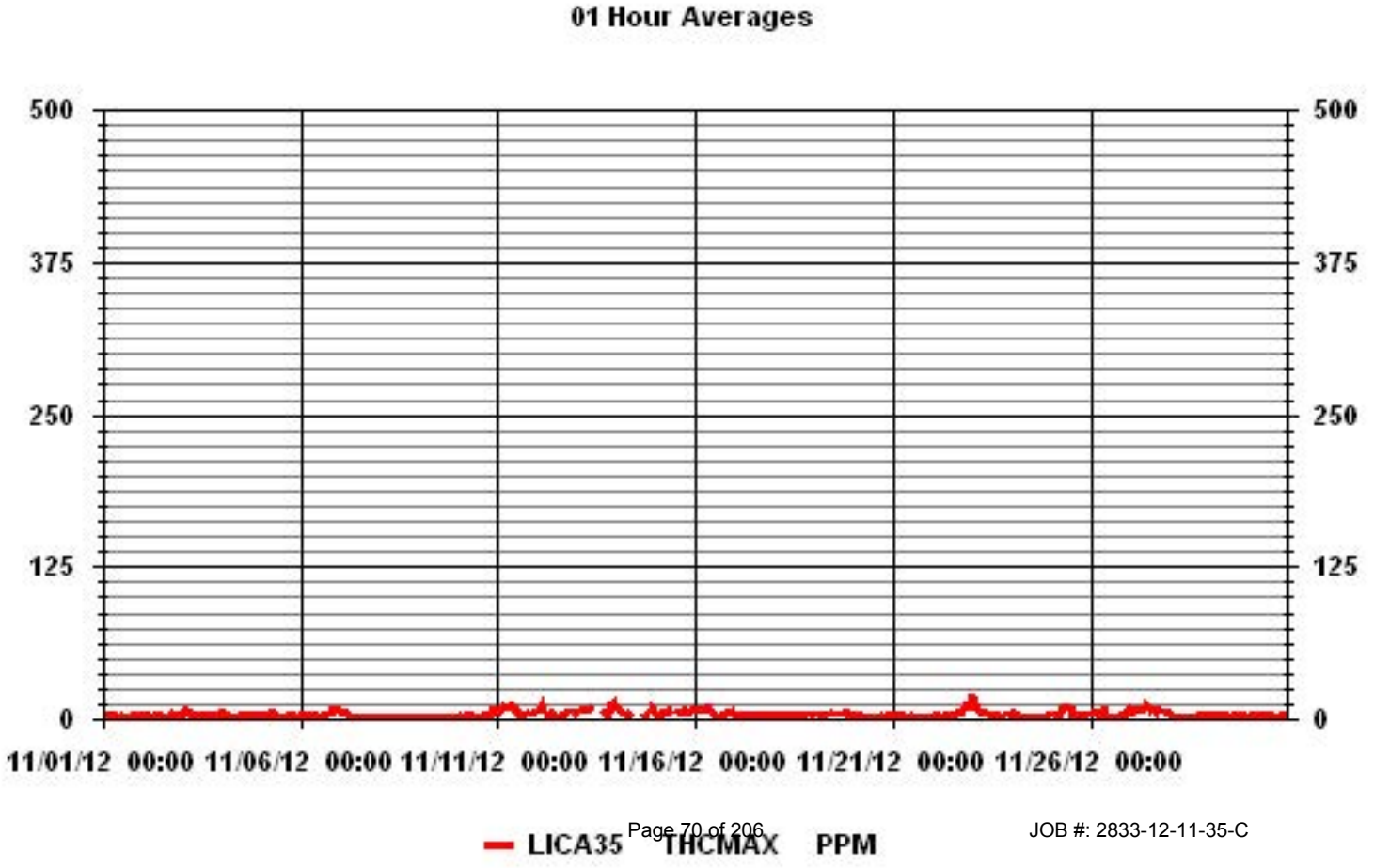
HOUR START / HOUR END	00:00 01:00	01:00 02:00	02:00 03:00	03:00 04:00	04:00 05:00	05:00 06:00	06:00 07:00	07:00 08:00	08:00 09:00	09:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 00:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	3.1	3.1	3.1	2.9	2.8	2.7	3	2.9	2.8	2.9	2.5	2.7	2.8	2.6	2.5	2.6	**IZS**	2.9	3.2	3.4	4	3.4	3.6	3.9	4	3.0	24
2	3.3	3.4	3.4	2.8	3.1	3.6	2.8	2.6	2.8	2.8	3.1	2.9	2.9	2.8	2.6	**IZS**	3.5	5.6	2.6	3.2	3.1	3.8	4.3	3.7	5.6	3.2	24
3	3.7	5.5	6.1	7.6	8	6.4	4.3	3.5	3.1	3	2.9	2.7	2.9	3.4	**IZS**	3	2.7	2.8	3	3.2	4.2	3.8	3.4	3.4	8	4.0	24
4	6.6	7.2	5.2	3.5	3	3.5	2.5	2.5	2.6	2.4	2.5	2.5	5	**IZS**	3.1	3.6	3.7	3.5	3.5	3.5	3.6	3.4	3.9	3.6	7.2	3.7	24
5	3.7	3.6	3.4	3.8	3.6	3.4	5.6	5.1	5.1	3.5	2.3	2.2	**IZS**	2.5	2.4	2.4	2.9	2.7	2.7	2.8	2.8	3	2.6	3.1	5.6	3.3	24
6	2.9	2.9	4.1	2.9	2.9	3.1	3.3	4.4	3.8	3	3.2	**IZS**	2.5	3.3	2.9	3.1	3.9	5	8.1	7.6	6.1	6.4	8.3	7.6	8.3	4.4	24
7	7.8	6.2	5.3	5.7	5.7	4	2.3	2.3	2.3	2.5	**IZS**	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	7.8	3.2	24
8	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	**IZS**	2.4	2.5	2.4	2.4	2.4	2.3	2.4	2.5	2.6	2.4	2.4	2.4	2.5	2.4	2.6	2.5	24
9	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	**IZS**	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.5	2.4	24
10	2.4	2.6	2.6	2.5	2.7	2.7	2.8	**IZS**	2.8	2.6	2.5	2.5	2.3	2.2	2.3	2.9	3.1	4	3.6	3.5	4.4	7.6	8.4	9.1	9.1	3.6	24
11	5.3	5.7	7.4	10.5	8.9	9.3	**IZS**	10.8	12.9	12.1	9.6	8.2	4.9	3.9	3.3	3.7	3.7	4.5	5.2	5.1	4.6	4.3	5.6	6.7	12.9	6.8	24
12	7.5	7.6	10.2	13.2	8.2	**IZS**	4	3.9	5.2	5	2.6	2.3	**M**	**C**	3.1	3.5	5	4.6	5.9	6.9	7.6	6.6	6.2	4.3	13.2	5.9	23
13	6.5	6.6	6.8	7.2	**IZS**	8.8	7.1	7.9	10	**M**	**M**	**M**	**C**	**C**	**C**	**C**	**C**	6.1	4.6	10.6	9	14	15.6	10.7	15.6	8.8	21
14	11.6	10.6	8.7	**IZS**	4.7	4.5	4.2	6.5	**M**	**M**	**M**	**M**	**M**	**C**	**C**	**C**	**C**	3	3.4	5.3	7.1	12.1	10.8	6.5	12.1	7.1	19
15	4.9	4.4	**IZS**	3.2	6.1	6.9	4.6	4.7	9.2	**M**	**M**	**C**	**C**	7	5.7	5.2	5.5	7.9	7.9	6.4	5.5	6	7.5	7.7	9.2	6.1	22
16	7.8	**IZS**	9.3	8.8	7.6	6.9	7.8	9.5	10.2	7.7	5.9	4.1	3.1	2.5	2.5	2.8	3.6	3.7	3.9	5.9	6	5	6.8	3.2	10.2	5.9	24
17	**IZS**	3.6	3.7	3.2	3.5	3.4	3.1	3	3.1	3	3.1	3.1	3	3.2	2.9	3.1	3.3	3.1	3.2	2.9	2.8	2.9	2.9	**IZS**	3.7	3.1	24
18	2.7	2.8	2.9	3.2	3.3	3.5	3.6	4.1	3.3	3.2	3.5	4.7	3.7	2.9	2.9	3.2	3.1	3	2.8	3.7	4.5	4.3	**IZS**	3.8	4.7	3.4	24
19	3.9	4.5	4.4	4	3.7	3.9	3.6	3.4	3.8	4.2	4.8	4.7	4.1	4.2	4.4	4.4	4.1	4.4	5.6	6.6	4.2	**IZS**	5	5.8	6.6	4.4	24
20	4.6	2.9	3.1	3	2.7	2.7	2.5	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.3	2.5	2.5	2.6	2.7	2.4	**IZS**	2.8	2.7	2.8	4.6	2.7	24
21	2.7	2.8	2.7	2.8	2.9	2.9	2.9	2.8	2.5	2.5	2.7	2.7	2.4	2.5	2.4	2.4	2.4	2.4	2.5	**IZS**	2.4	2.4	2.5	2.4	2.9	2.6	24
22	2.9	2.9	2.8	2.7	2.9	2.5	2.5	2.6	2.7	2.8	2.6	2.7	2.7	3.3	5.2	6.9	5.4	6	**IZS**	11.4	11	10.4	11.2	10.7	11.4	5.1	24
23	**20.8**	11.3	10.6	10.1	8.2	6	6.7	7.2	5.9	5.3	4.3	3.4	3.1	3.3	3.1	3.1	3.3	**IZS**	3.3	4.1	4.2	4.5	4.7	4	**20.8**	6.1	24
24	5.9	5.4	3.5	3.3	3.1	2.4	2.5	2.4	2.6	2.4	2.5	2.4	2.3	2.3	2.4	2.5	**IZS**	2.4	2.4	2.4	2.5	2.9	2.8	3.8	5.9	2.9	24
25	3.9	4.1	3.8	3.5	3.6	8.7	8.1	9.1	9.1	10.3	10.1	5.9	7.1	4	4.1	**IZS**	3.7	3.2	3.1	3.9	4.3	3.9	4.1	4.7	10.3	5.5	24
26	4.4	5.6	6.1	4.9	2.6	7.4	2.9	3.2	10.7	5.1	3.3	2.2	2.3	2.2	**IZS**	2.5	2.5	2.5	2.8	3.3	3.3	4.6	7.1	9.3	10.7	4.4	24
27	7.4	5.3	6	7.9	7.7	7	7.5	7.1	8.1	12	10.1	9.5	6.9	**IZS**	7.9	5.6	7.5	7.1	7.7	6.8	6.7	5.9	5.2	5.1	12	7.3	24
28	5.4	3.2	2.2	2.2	2.1	2	2	2	2.1	2	2	2	**IZS**	2.6	2.5	2.8	2.5	2.8	3.1	3.3	3.3	3.1	3.4	3.1	5.4	2.7	24
29	3.2	2.9	2.9	2.9	2.9	3	2.8	3	3.1	3.1	3.1	**IZS**	2.8	2.5	2.8	2.7	2.8	2.6	2.9	2.9	2.8	2.7	2.8	2.5	3.2	2.9	24
30	2.6	2.7	2.6	2.6	2.8	3.4	3.1	3	2.7	2.8	**IZS**	3	3.1	3.1	2.7	2.3	2.4	2.4	2.7	2.6	2.7	2.6	2.6	2.7	3.4	2.7	24
HOURLY MAX	20.8	11.3	10.6	13.2	8.9	9.3	8.1	10.8	12.9	12.1	10.1	9.5	7.1	7.0	7.9	6.9	7.5	7.9	8.1	11.4	11.0	14.0	15.6	10.7			
HOURLY AVG	5.3	4.6	4.8	4.7	4.3	4.5	3.9	4.4	4.9	4.3	3.9	3.5	3.3	3.0	3.2	3.2	3.5	3.7	3.8	4.5	4.5	4.8	5.2	4.9			

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
BB	- BELOW BACKGROUND OF 1.5 PPM		

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	666						
MAXIMUM INSTANTANEOUS VALUE:	20.8	PPM	@ HOUR(S)	0	ON DAY(S)	23	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			709	HRS
MONTHLY CALIBRATION TIME:	12	HRS					
STANDARD DEVIATION:	2.39						



JOB #: 2833-12-11-35-C

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

November 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	4.04	2.39	5.23	3.44	4.49	7.78	4.49	.29	.14	.00	.29	2.09	5.23	4.49	7.93	3.89	56.28
<	10.0	.74	.44	.44	2.54	6.58	10.62	4.94	1.79	.44	1.04	1.49	2.24	4.19	3.44	1.19	.59	42.81
<	50.0	.00	.00	.00	.14	.00	.59	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.89
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.79	2.84	5.68	6.13	11.07	19.01	9.43	2.09	.59	1.04	1.79	4.34	9.43	7.93	9.28	4.49	

Calm : .00 %

Total # Operational Hours : 668

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	27	16	35	23	30	52	30	2	1		2	14	35	30	53	26	376
<	10.0	5	3	3	17	44	71	33	12	3	7	10	15	28	23	8	4	286
<	50.0				1		4									1		6
>=	50.0																	
	Totals	32	19	38	41	74	127	63	14	4	7	12	29	63	53	62	30	

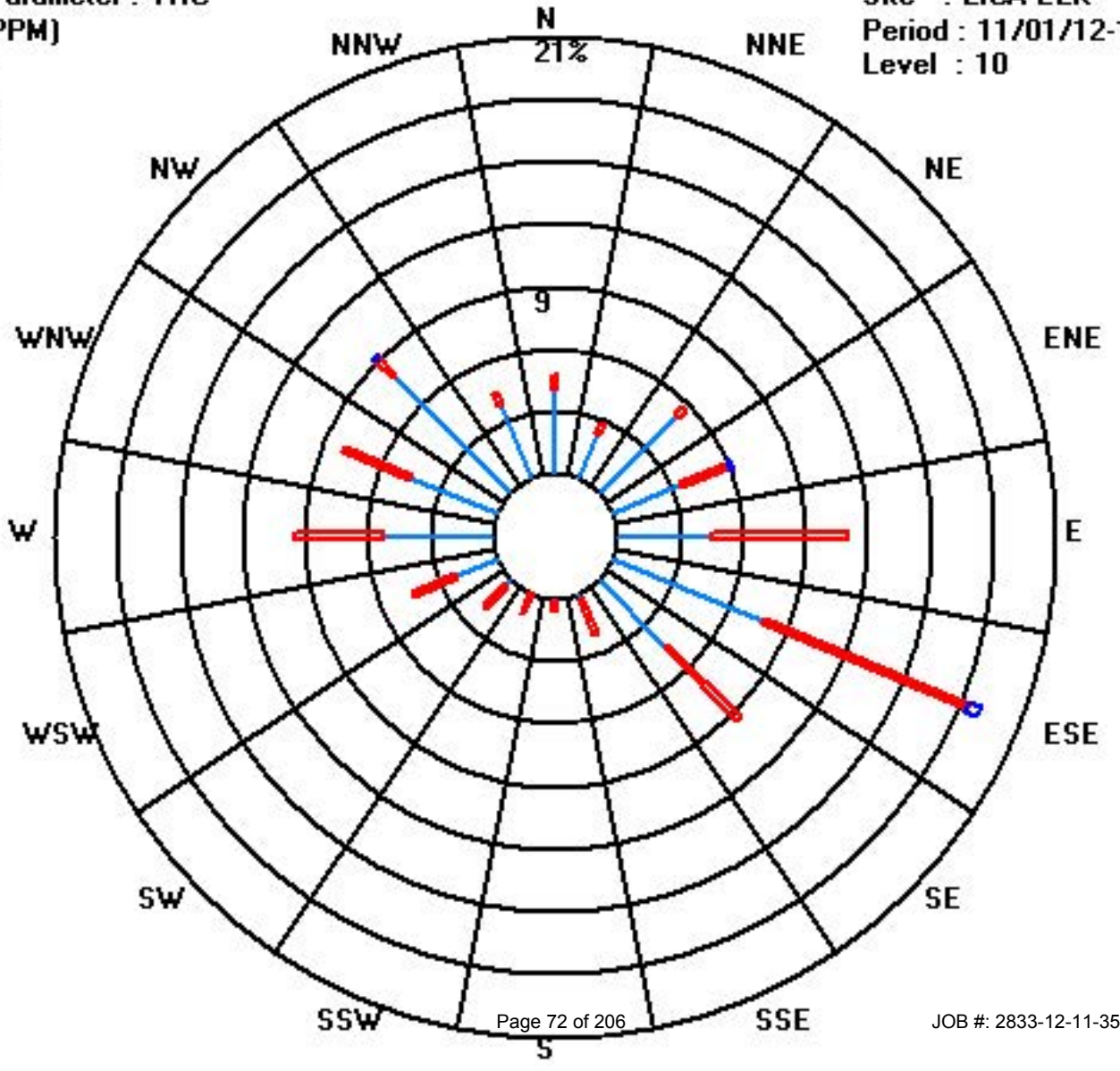
Calm : .00 %

Total # Operational Hours : 668

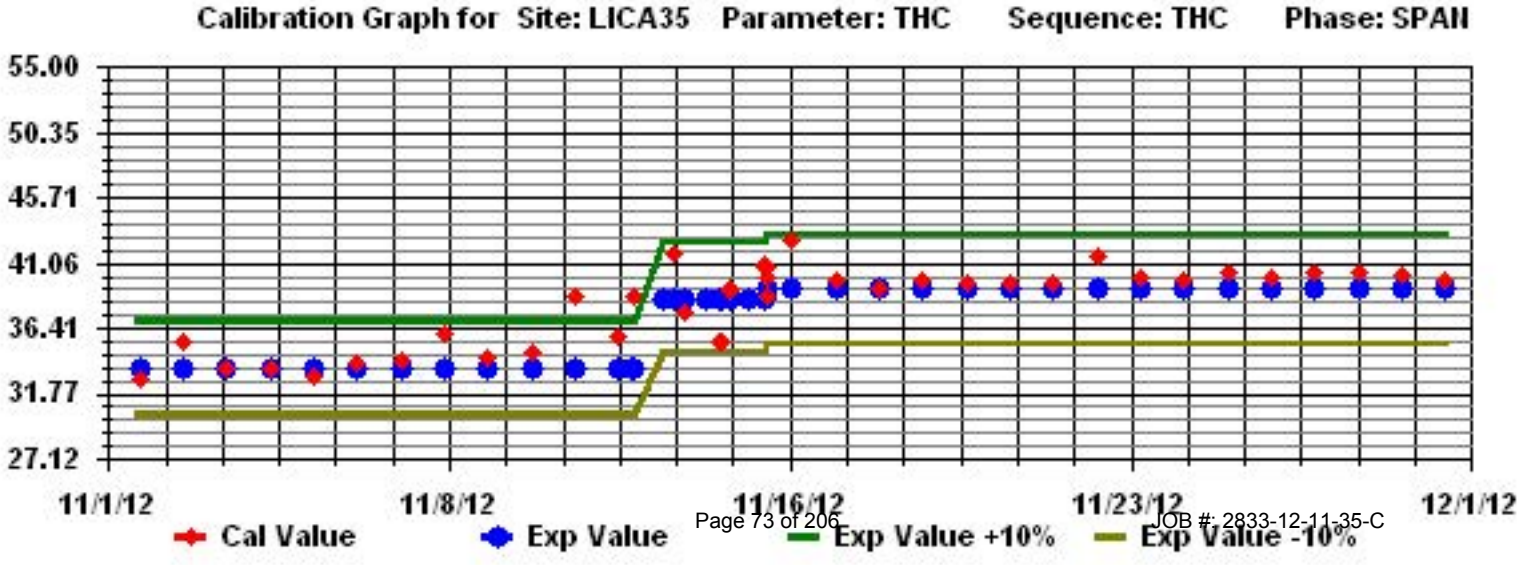
Logger : 35 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA-ELK
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-35-C


Calibration Graph for Site: LICA35 Parameter: THC Sequence: THC Phase: SPAN
55.00
50.35
45.71
41.06
36.41
31.77
27.12
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Vector Wind Speed

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

NOVEMBER 2012

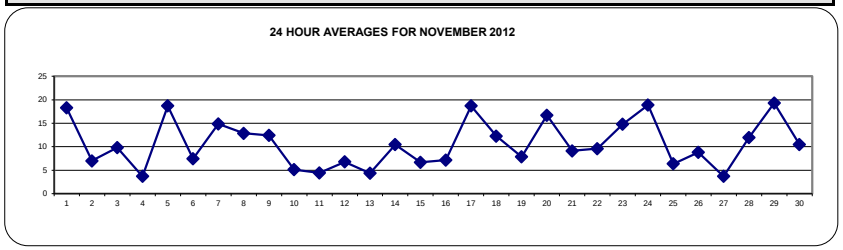
VECTOR WIND SPEED (WS) hourly averages (km/hr)

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	21.3	22.7	21.2	22.7	18.8	21.8	24.2	25.3	26.2	24.1	23.5	24.6	23.7	21.4	20.8	22.3	16.6	12.9	9.4	10.3	8.7	8.9	6.5	3.7	26.2	18.3	24
2	1.6	2.4	4.9	9	7.8	9.9	12.5	11.4	11.6	10.7	10.1	8.7	8.1	12.2	10.9	10.4	8.8	9.6	6	3.8	3.1	1.5	3.7	5.4	12.5	7	24
3	4.9	2.4	2.5	2.8	6.9	6.5	10	15	15.7	14	19.1	21.6	18.9	19.4	17.4	16.2	14.1	13.8	12.5	9.3	2.8	2.5	1.1	0.2	21.6	9.8	24
4	4.3	5.6	9.1	9.5	6.4	8.7	10.8	9.3	8.5	9.6	9.7	10.8	9.2	5.8	5.3	6.4	10.9	14.5	15.1	16.7	20.9	17.4	14.2	13.7	20.9	3.7	24
5	11.1	14.8	12.9	9.3	3.6	4.1	7	9	8.7	16.9	25.3	30.6	35.8	**38.7**	32.6	26.3	20.2	21.9	18.8	16.4	25.5	22.6	18	18.6	**38.7**	18.7	24
6	19.4	17.9	8.3	8.2	9.7	13.3	12	10.3	7.8	6	6.1	8.2	5.9	3.6	2.9	4.9	5.4	3.6	2.1	3.5	3.6	3.5	6.3	6.5	19.4	7.5	24
7	6.1	9.4	3.2	2	7.6	12.1	13.9	12.1	10	12	16	17.9	17.4	18.7	17.1	21.8	18.9	22.2	26	21.5	20.5	19.3	16.6	15	26.0	14.9	24
8	14.7	11.9	14.9	16.8	13.6	11.8	10.7	10.1	13.1	11.6	11	11.9	13.6	12.3	11.6	11.9	11.1	10.5	11.3	14.6	15	14.5	14.3	16	16.8	12.9	24
9	10.7	13.2	13.5	11.2	13.7	14.3	13.6	14.8	10.4	15.2	15.1	15.2	12.3	10.7	11.5	12.7	13.3	11.2	10.6	10.5	8.8	9.9	12.1	13.9	15.2	12.4	24
10	9.7	7.4	6.4	5	4.7	3.2	3.1	3.3	5.1	6.4	6.8	5.5	3.7	5.1	5.7	2.3	5.8	7.7	6.8	6.7	2.8	1.3	4.2	4.4	9.7	5.1	24
11	3.6	3.3	1.2	1	2.7	1.2	2	1.2	2.3	1.4	3.4	4.9	6.9	7.4	9.8	10.2	9.9	6.6	7	6.9	4.7	2	4.2	2.3	10.2	4.4	24
12	0.9	0.3	0.9	4.5	15.4	17.1	17.8	9.1	3.2	5.1	8.6	8.5	4.7	7.8	7.2	5.3	3.7	2.9	4.2	4.7	8.4	7.2	8.1	7.1	17.8	6.8	24
13	8.8	5.8	4.8	4.4	1.5	1.6	2.7	2.3	3.8	1.3	0.9	0.6	2.2	7.2	9.3	7.5	7.9	6.9	4.9	5.8	7.7	5.2	0.4	1.9	9.3	4.4	24
14	4.4	2.4	4.4	5.6	2.3	0.2	1	2.5	8.2	11.2	30.3	28.8	30	26.9	20.7	17.5	15.1	8	9.6	3.4	3.5	2.1	3.1	9.9	30.3	10.5	24
15	14.7	15	11.4	11	10.4	9.2	7	4.6	6.1	6.3	6.1	5.1	4.5	2.5	3.4	3.8	3.9	3.9	3.7	4.3	5	6.8	7.3	4.8	15.0	6.7	24
16	2.3	4	4.6	4.5	2.9	4.6	1.6	3.3	4.8	4	4.7	5.9	8.5	14	10.2	7.8	8.8	6.9	9.2	9	10.3	8.5	12.2	18.6	18.6	7.1	24
17	19.9	20.1	22.7	21.6	19.5	17.5	18.9	17.4	16.9	17.4	19.4	16.4	18.2	16.2	19.3	19.4	20.2	19.7	19.4	18.2	17.3	16.8	18.7	17.7	22.7	18.7	24
18	15.7	14	12.2	14.4	12.2	11.8	9.7	11.4	10.9	10.1	0.1	9.4	27.4	24.1	16.6	22.9	15.7	13.2	10.8	12.3	6.6	4.5	2.2	6.5	27.4	12.3	24
19	7.7	10.1	8.8	11.5	10.8	10.2	8.8	7.9	7.4	7	7.5	10	11.8	13.4	10.7	7.9	5.7	4.8	5.7	4.5	2.8	3.7	8.7	0.9	13.4	7.8	24
20	10.5	10.9	8.6	12.7	17.3	21.5	25.5	29.5	24.4	24.3	27.4	26.9	24.7	24.4	20.3	15	13.9	14	13.4	11.1	7.8	8.8	6.7	1.9	29.5	16.7	24
21	3	8.3	5.1	6.9	5.3	5.8	9.6	10.4	3.4	7.2	7.9	8.4	8.7	9.9	11.8	12.9	10.5	11.4	12.5	13.1	13.2	11.6	9.9	12.3	13.2	9.1	24
22	14.9	14.2	15.3	17	11.8	12.5	9	9.1	13.9	12.2	12.7	9.9	11.9	10.4	11.6	11.3	5.4	5	1.4	1.5	2.4	4.9	5	6.8	17.0	9.6	24
23	8.1	7.7	4.8	8.6	9.8	10.6	13.5	11.9	15.7	18.8	23.4	26.3	26.7	25.7	28.5	26.1	27.5	23.6	19	9.8	3	1.8	2.5	1.4	28.5	14.8	24
24	5.9	10.9	15	16.6	21	21.1	26.7	18.5	20	20.9	19.5	21.2	24.2	19.5	22.4	27.7	27.2	25.9	24.6	16.9	13.2	13.7	11.9	8.8	27.7	18.9	24
25	6.7	4.8	9.8	11.5	7.6	4.4	0.3	1.1	1.3	4.4	4.9	6.6	6.7	9.4	10.7	11.7	11.2	10.6	8.1	9.1	4.9	4.3	2.2	0.7	11.7	6.4	24
26	2.9	4.9	7.5	14.8	14.4	12.7	12.5	12.8	7.4	9.8	15	12.4	10.7	10.4	10	8.8	8.6	7.8	6.3	5.1	5.5	2.9	3.1	5	15.0	8.8	24
27	5.6	5.7	3.7	2.1	0.7	1.6	1.5	3.5	3.8	1.4	1.7	4.4	4.2	2.5	5.9	6.3	4.1	4.4	5.5	2.9	1.6	0.7	4.8	10.4	10.4	3.7	24
28	15.1	21.6	16.8	12.2	16.2	13.1	12.9	11.5	11.7	11.6	10.5	10	6.1	9.5	9.2	9.6	10	12.5	10.9	9.7	10.2	11.6	12	12.6	21.6	12.0	24
29	14.2	14.8	18.3	19.1	17.4	19.1	18.7	17	15.4	15.4	16.4	16.1	19.6	20.9	21.7	23	21.4	20.1	19.2	20	23.8	24.8	22.7	24.5	24.8	**19.3**	24
30	21.7	21.7	22.7	20.7	19	13.2	11.5	8.6	6.5	7.5	6.9	8.6	7	5.1	7.7	10.4	11.9	9.1	1.8	5	6.5	6.3	5.4	6.5	22.7	10.5	24
HOURLY MAX	21.7	22.7	22.7	22.7	21.0	21.8	26.7	29.5	26.2	24.3	30.3	30.6	35.8	38.7	32.6	27.7	27.5	25.9	26.0	21.5	25.5	24.8	22.7	24.5			
HOURLY AVG	9.7	10.3	9.9	10.6	10.4	10.5	11.0	10.5	10.1	10.8	12.3	13.2	13.8	13.8	13.4	13.3	12.3	11.5	10.5	9.6	9.0	8.3	8.3	8.6			

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

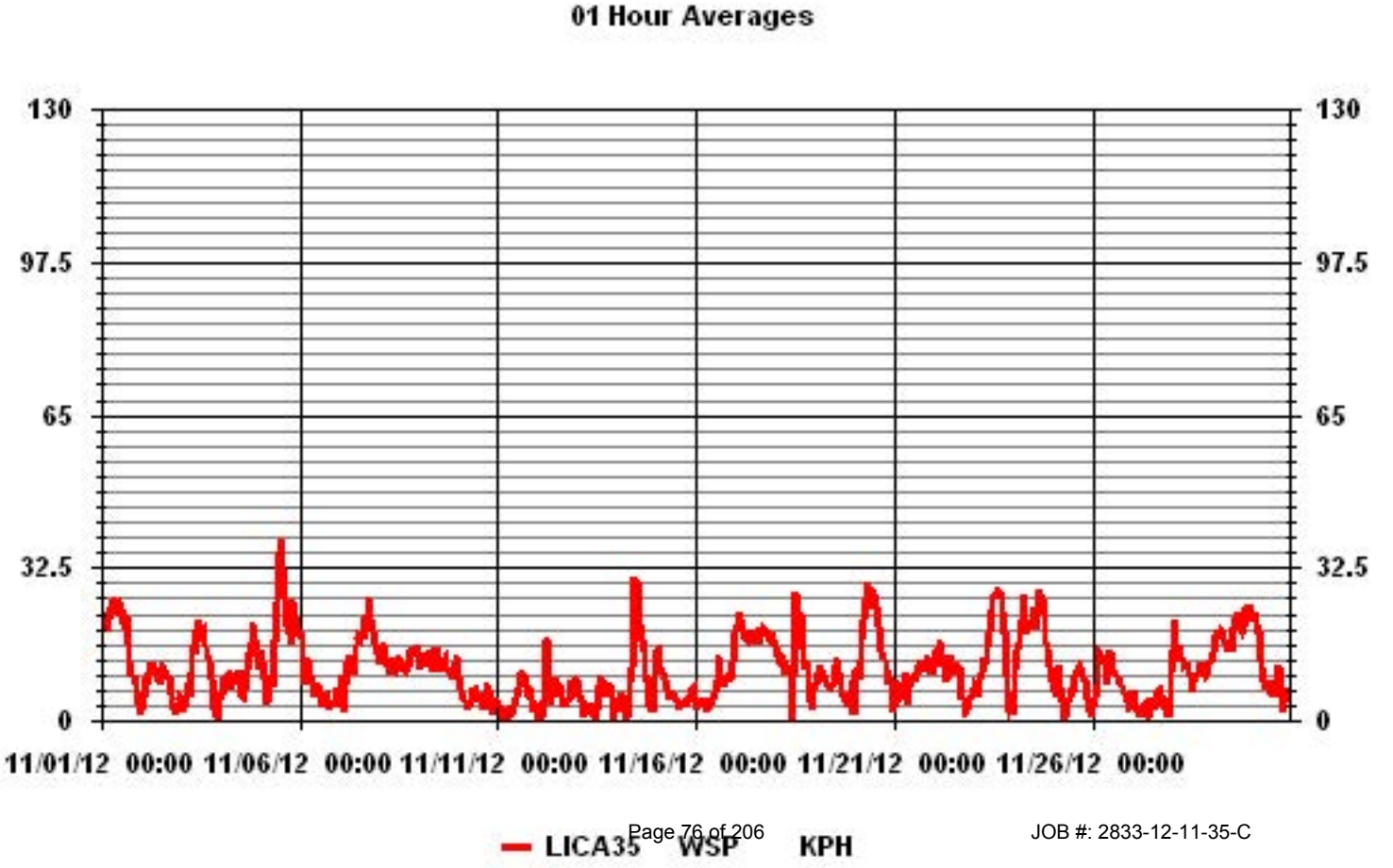


LAST CALIBRATION: November 24, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	38.7	KPH	@ HOUR(S)	13	ON DAY(S)	5	
MAXIMUM 24-HR AVERAGE:	19.3	KPH			ON DAY(S)	29	
CALMS (≤ 1 KPH)	0.67	%	OPERATIONAL TIME:		720	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:		100.0	%	
STANDARD DEVIATION:	6.94		MONTHLY AVERAGE:		10.90	KPH	

JOB #: 2833-12-11-35-C



JOB #: 2833-12-11-35-C

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

NOVEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

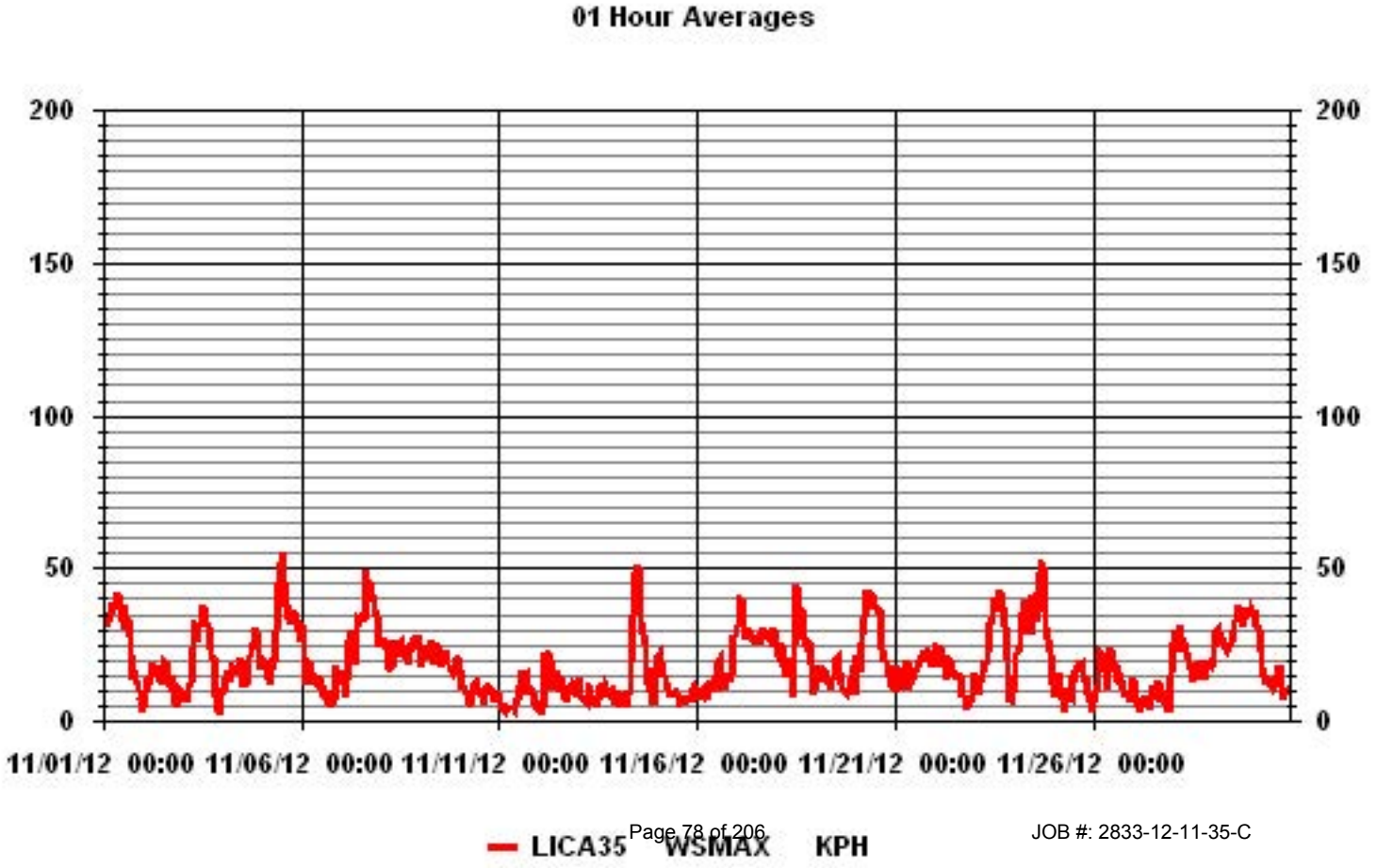
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	34.5	35.6	30.3	33.7	32.4	34.6	37.8	38.1	37.8	41.8	39.7	35.3	36	31.4	31.7	33.7	28.1	22.6	14	14.8	12	13.4	10.1	7.9	41.8
2	3.3	4.3	9.4	13.5	12.2	14.7	18.8	16	16.9	17.2	13.7	13.9	12.1	19.7	19.1	15.5	13.2	13.7	9.9	6.6	6.3	4.2	9.9	9.1	19.7
3	9.8	8.9	6	7.8	11.1	12.4	23.9	32.7	30.6	25.5	32.2	31.3	37.3	37.2	35.6	33.1	31.2	23.9	20	21.2	8.3	5.6	3.9	2.5	37.3
4	10.3	8.9	14	16	12.3	16.1	18.6	15.9	16	18	16.6	20.6	15.7	11.3	12.6	11.3	19.7	21.3	24.3	24.3	30.6	29.3	26.6	21.7	30.6
5	16.6	20.9	20.4	18.6	14	12	17.1	20.3	18.7	29.5	45.2	43.7	52.1	**55.5**	45.8	38.3	34.1	33.4	31.5	33.4	36.3	33.9	30.2	26.1	**55.5**
6	32.4	28.6	21.1	12	16.1	19.8	17.4	16.2	13.1	12.6	11.1	14.3	11.1	8.2	9.3	7.4	8.3	9.4	5.7	5.8	6.8	18.2	16.7	13.7	32.4
7	13.4	16.3	13	7.4	13.5	26	29.4	27.4	18.1	28.6	33.4	32.8	34.1	34.7	32.7	49.2	47.2	39.8	45.7	41.9	40.1	37.3	34.6	25.8	49.2
8	26.1	25	25.7	27.1	25.1	18.2	17.6	18.1	26.3	21.5	22.7	24.9	25.7	22.2	21.9	22.8	21.1	18.2	22.4	25.4	26.5	25.1	25.7	27.8	27.8
9	17.7	21.4	23.3	19.7	24.2	24.4	23.8	26	18.6	25.1	23.9	25.8	20.6	17.8	20.1	21.6	22.8	19	17.1	17.1	15.7	16.6	19.9	21	26
10	17.4	11	11	9.6	9.2	6.3	5.6	6.2	10.1	11.6	12.2	10	10.2	8.3	9	5.4	10.9	11.6	11.1	10.6	9	6.4	7.7	9	17.4
11	9	6.7	4.3	3.5	4.7	4.2	4.6	4.3	4.4	3.6	5.8	7.2	11.5	12.6	16.6	14.4	15.2	10.2	10.5	10.3	9.7	6.5	6.6	4.8	16.6
12	3.8	2.4	4.1	9.3	22.2	20.2	22.7	20.4	10	12.9	14.7	16.6	9.3	13.9	14	11.9	7.5	6.4	9.2	9.8	11.7	10.7	12.5	12.9	22.7
13	13.1	8.7	7.5	7.3	6.5	5.9	11.9	7.4	7.3	5.4	7.7	4.6	7.1	11.1	11.8	11.1	12.6	11.5	8	9.6	10.3	7.9	6.3	6	13.1
14	9.9	7.7	7.4	9.3	5.5	4.2	9.2	9.5	19.2	34.5	48.7	46.3	50.7	46.1	32.7	29.1	25.7	14.7	15.3	10.5	7.4	5.2	12.1	16.4	50.7
15	21.2	22.2	19.8	15.3	15	12.7	11.2	7.6	8.7	9.4	9.9	7.6	9.2	5.8	6.1	6.1	7.3	7.5	6.7	7.6	7.3	10.5	11.5	9.8	22.2
16	7.1	9.8	9.2	8.4	10.7	11.4	7.4	9	13	9.5	13	12.3	19.8	20.6	15.9	11.6	13.8	10.4	15.6	12.3	14.4	15.1	27.6	28.2	28.2
17	31.1	32.3	39.9	39.6	31.3	28.3	28.1	29.1	28.1	26.3	28.3	24.6	27.1	25.2	28.3	30.6	29.3	29.7	29.1	28	26.6	23.8	30.6	25.9	39.9
18	23.5	21.4	19	25.2	18.5	18	14.4	20.4	18	17.1	7.5	25.2	44.4	38.7	26.2	37	29.9	24.2	25.1	22.5	26.7	18.7	8.4	10.6	44.4
19	12.7	13.8	16.1	18.2	16.7	14.4	15	12.5	11.7	11.5	13.3	14.7	20.3	21.1	16.7	12.7	10	9.6	9	10.4	8.4	13.8	18.3	8.1	21.1
20	21.2	17.5	15.7	25.5	28.3	34.1	42.2	42.4	39	41.3	41.3	37.6	37.5	35.7	36.8	24.2	23.2	20.7	20	18.8	15.4	12.3	11.3	11.1	42.4
21	9.5	18.3	16	13.8	11.3	11.1	18.5	19.8	10.3	12.5	13.5	16.2	16.7	18.7	18.5	21.6	19.1	23.3	19.5	23.2	22.9	21.6	17.8	22.6	23.3
22	25	23.7	21.3	24.6	17.7	19.2	13.5	15.1	21.1	18.4	19.4	14.3	16.7	13.4	14.4	16	8.7	8.4	4.3	4.3	5	7.2	7.2	8.4	25
23	15.7	11.7	8.1	12.4	14.7	16.2	19.6	18.4	22.5	31.8	33.8	38.5	40.1	35.4	41.3	42.9	41.3	37.4	31.4	20.4	8.7	7.6	7.2	9.7	42.9
24	14.5	22	22.7	24.6	32.8	35.4	39.9	30.1	30.5	32	28.5	40.5	41	32.6	35.3	48.2	52.9	46.5	49.9	31	27.1	23.6	22.2	12.5	52.9
25	9.4	9.2	14.2	15.6	11.8	7.2	2.7	7.5	6.4	9.1	8.3	14.6	12.7	16.2	17.7	16.4	19	19.4	13.7	13.6	9	6.9	4.4	4.2	19.4
26	6	9.1	11.7	23.2	22.6	16	21	20.8	10	18.2	23.8	18.6	16	18.6	13.7	13.1	13.8	11.2	9.1	8.5	8.2	6.1	8.9	9.2	23.8
27	13.7	9.9	8.1	4.9	2.8	5.3	5.7	7.3	7.3	4.3	4.4	11.3	8.3	8.9	9.4	13.4	7.4	7.3	8	6.2	4.5	4.3	14.5	15.7	15.7
28	25.3	29.6	28.2	22.2	31.6	27.2	26.3	25.7	20.6	21.7	18.5	17.7	12.7	18.5	14.9	15.2	16.8	19.5	17.6	13.5	17.8	18.9	19.3	18.4	31.6
29	20.2	24.6	29.3	30.1	26.8	27.5	26.1	25.2	24.3	23.1	24.4	25.7	29.5	32.7	33.1	38.2	34.7	34.2	30.4	34.4	37	35.4	36.1	37.8	38.2
30	37	33.8	34.6	31.5	30.3	23.4	17.9	15.1	11.8	13.4	13.6	12.2	13	11.5	12.6	16.4	17.4	18.2	6.5	10	9.8	9.5	11	10.7	37
PEAK	37.0	35.6	39.9	39.6	32.8	35.4	42.2	42.4	39.0	41.8	48.7	46.3	52.1	55.5	45.8	49.2	52.9	46.5	49.9	41.9	40.1	37.3	36.1	37.8	

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

MAXIMUM INSTANTANEOUS READING	55.5	KPH	@ HOUR(S)	13
			ON DAY(S)	5



JOB #: 2833-12-11-35-C

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

November 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	1.38	.69	1.25	2.36	4.44	2.91	2.22	.97	.41	1.11	1.66	2.22	2.50	1.80	1.25	1.25	28.47
<	12.0	1.38	1.38	3.19	1.66	4.02	6.38	2.77	.69	.13	.00	.13	1.80	3.75	3.19	2.77	1.52	34.86
<	20.0	1.25	.69	1.38	2.08	2.63	4.86	2.91	.41	.00	.00	.00	.69	1.80	1.11	2.91	1.52	24.30
<	29.0	.55	.13	.00	.00	.00	4.72	1.25	.00	.00	.00	.00	.00	.83	1.94	1.94	.00	11.38
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.41	.27	.27	.00	.97
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	4.58	2.91	5.83	6.11	11.11	18.88	9.16	2.08	.55	1.11	1.80	4.72	9.30	8.33	9.16	4.30	

Calm : .00 %

Total # Operational Hours : 720

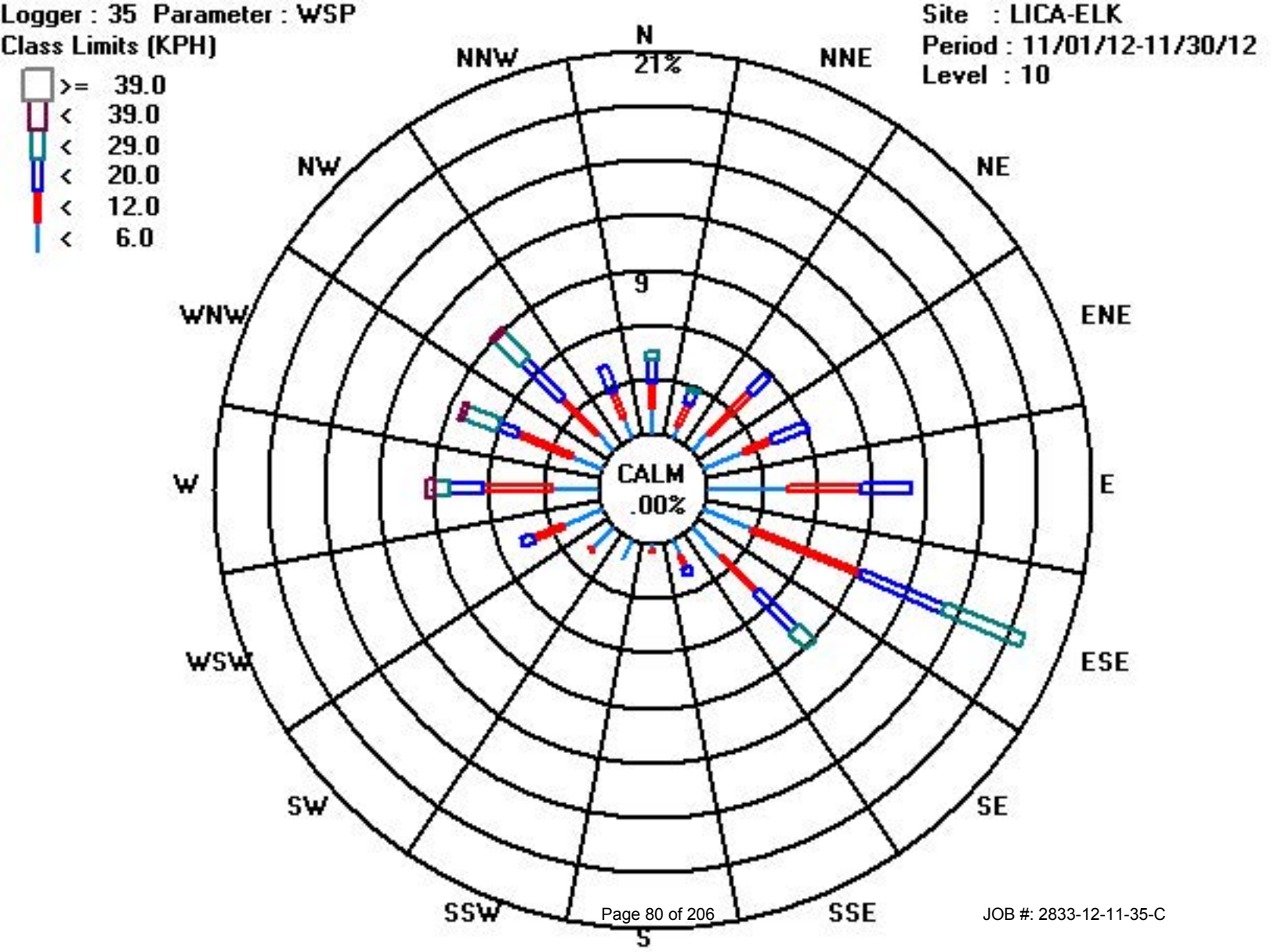
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	10	5	9	17	32	21	16	7	3	8	12	16	18	13	9	9	205
<	12.0	10	10	23	12	29	46	20	5	1		1	13	27	23	20	11	251
<	20.0	9	5	10	15	19	35	21	3				5	13	8	21	11	175
<	29.0	4	1				34	9						6	14	14		82
<	39.0													3	2	2		7
>=	39.0																	
	Totals	33	21	42	44	80	136	66	15	4	8	13	34	67	60	66	31	

Calm : .00 %

Total # Operational Hours : 720



JOB #: 2833-12-11-35-C

Vector Wind Direction

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

NOVEMBER 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

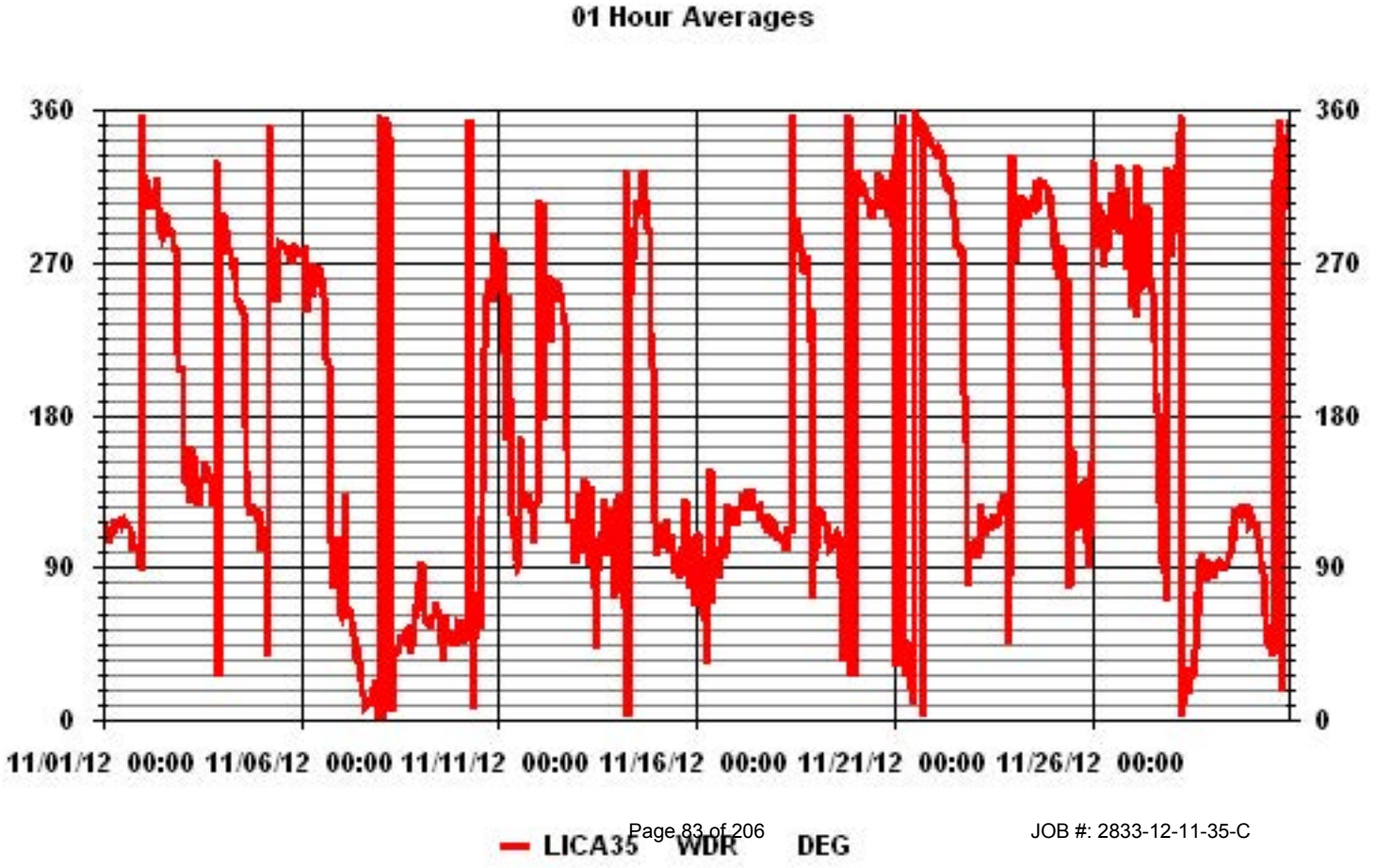
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	110	112	115	111	104	109	110	116	116	117	118	115	117	119	117	117	115	112	100	102	102	102	93	88	112	ESE	24
2	357	322	320	314	308	301	310	310	313	320	304	289	285	287	299	291	286	289	287	277	280	216	206	206	297	WNW	24
3	209	148	142	140	127	159	159	144	156	139	127	129	141	141	152	150	146	141	137	126	134	331	26	228	142	SE	24
4	275	299	283	291	279	276	269	270	261	247	249	242	245	241	173	148	128	123	121	127	125	122	117	124	184	S	24
5	100	109	114	112	37	352	260	269	262	246	278	282	281	281	279	277	278	276	272	270	282	277	276	279	276	W	24
6	273	276	277	240	261	268	258	249	270	265	266	266	255	262	250	215	214	211	106	83	78	86	97	109	257	WSW	24
7	63	61	65	133	63	66	62	59	50	40	41	35	24	17	15	8	9	11	11	9	19	24	9	1	26	NNE	24
8	358	11	1	356	354	331	346	5	25	38	40	43	50	46	46	53	54	45	39	44	51	59	68	81	32	NNE	24
9	85	94	66	59	58	59	59	54	61	61	69	66	61	46	34	45	62	46	53	46	46	44	52	58	58	ENE	24
10	57	59	45	52	46	355	347	355	6	48	60	76	54	120	135	219	251	256	258	259	246	287	283	269	24	NNE	24
11	252	267	279	222	223	165	251	191	121	108	95	91	93	167	136	127	126	126	134	122	128	104	128	129	134	SE	24
12	307	303	176	305	246	247	250	263	223	250	254	250	259	246	252	242	234	160	120	116	119	113	92	100	234	SW	24
13	118	131	131	98	142	103	90	99	138	103	79	41	88	107	111	125	131	118	97	118	125	114	71	84	116	ESE	24
14	130	134	106	76	65	324	2	262	251	272	291	302	306	299	300	323	325	309	291	287	230	209	117	96	301	WNW	24
15	109	116	111	101	112	115	119	99	104	110	100	86	92	92	84	103	97	131	93	77	90	98	108	67	104	ESE	24
16	109	111	96	64	59	96	33	147	147	69	86	92	85	85	102	97	108	96	98	128	115	121	121	119	104	ESE	24
17	115	126	123	134	130	126	123	136	132	133	124	127	125	126	119	119	119	115	117	121	112	111	113	118	123	ESE	24
18	113	107	107	110	105	107	100	112	112	110	357	288	294	297	287	278	266	265	263	274	222	243	71	93	243	WSW	24
19	102	107	126	119	123	118	116	106	101	102	108	107	109	111	109	85	73	34	94	78	358	25	95	26	103	ESE	24
20	321	322	319	311	318	309	313	305	308	298	295	301	307	311	323	310	301	305	307	318	296	313	325	291	309	NW	24
21	334	31	351	341	343	358	26	47	36	22	20	9	360	357	344	348	354	2	344	347	345	344	340	338	357	N	24
22	335	334	338	337	334	323	322	317	315	317	314	308	298	281	278	281	273	279	193	165	78	102	95	105	318	NW	24
23	98	106	95	98	127	122	111	111	112	113	117	118	121	116	114	121	129	131	133	124	44	109	84	333	118	ESE	24
24	277	270	292	293	307	310	303	308	296	303	304	303	309	319	303	304	320	314	319	316	315	305	311	298	306	NW	24
25	283	284	267	260	275	280	220	196	261	98	78	133	160	126	112	114	132	138	139	117	106	89	109	153	144	SE	24
26	331	281	282	306	302	281	267	276	286	277	298	312	295	311	292	291	328	318	290	315	307	265	295	244	294	WNW	24
27	268	256	237	327	293	302	257	258	285	304	300	262	254	224	194	183	129	113	94	87	70	326	284	273	249	WSW	24
28	288	312	314	328	347	357	2	9	16	21	20	31	27	25	41	75	63	94	97	96	82	91	95	91	25	NNE	24
29	94	83	90	92	89	94	89	91	90	91	96	99	111	110	122	122	124	122	124	127	123	122	127	115	108	ESE	24
30	116	118	114	115	108	100	94	87	62	58	47	44	45	38	319	328	338	354	17	334	301	330	345	353	73	ENE	24
HOURLY AVG	358	334	351	356	354	358	347	355	315	320	357	312	360	357	344	348	354	354	344	347	358	344	345	353			

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:	720	HRS
STANDARD DEVIATION:	103.56		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	60	DEG



JOB #: 2833-12-11-35-C

Standard Deviation Wind Direction

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

NOVEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

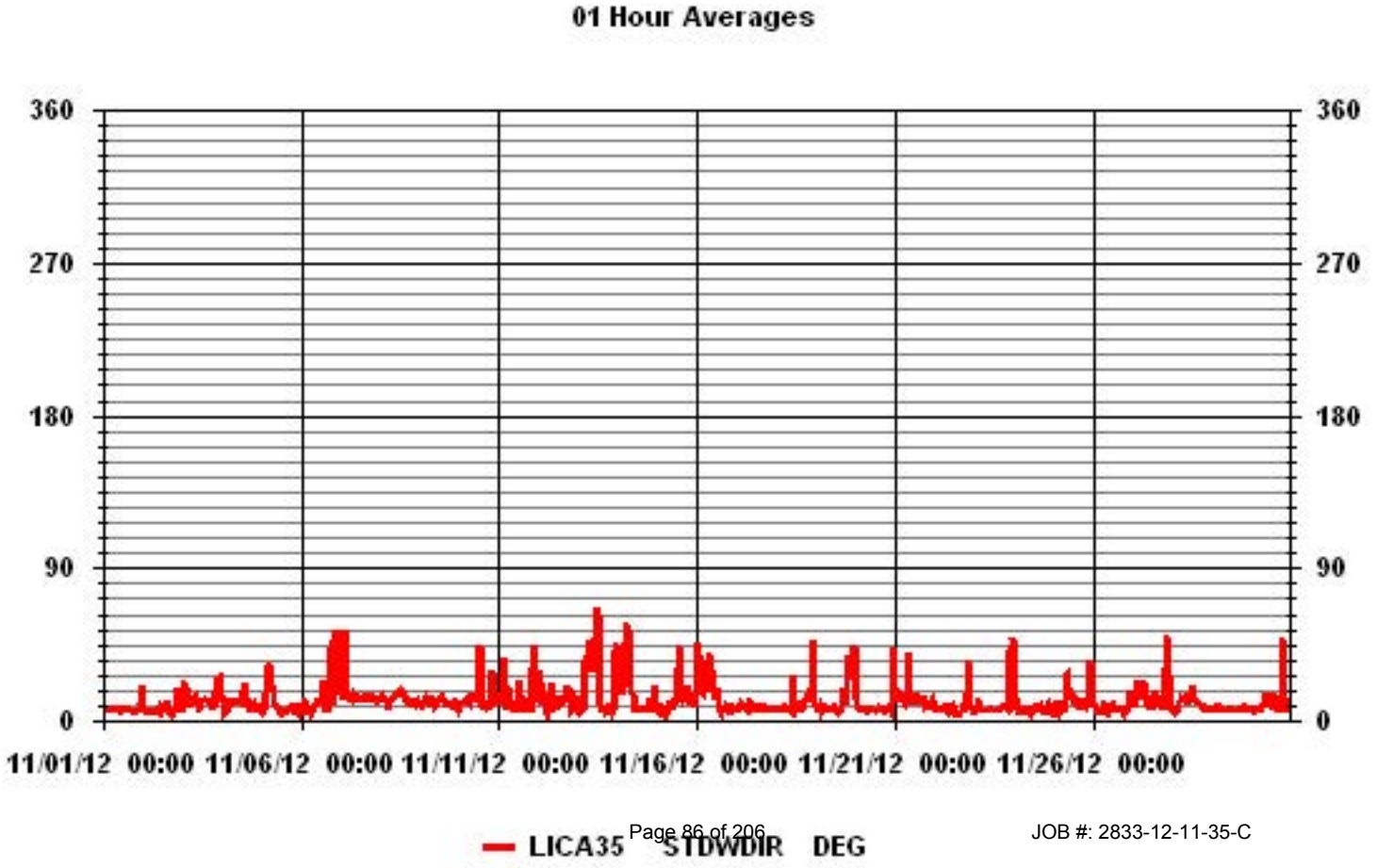
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	7	6	6	6	7	7	7	7	7	7	7	6	7	7	7	7	7	7	6	5	5	6	7	10
2	20	7	6	6	5	5	5	5	6	7	6	9	8	9	8	11	6	4	6	6	8	19	11	8
3	6	23	20	18	8	13	13	12	14	11	8	9	12	12	13	12	12	10	10	7	18	24	25	18
4	11	14	5	6	11	9	11	11	11	12	12	12	11	17	22	14	10	7	7	9	6	6	8	7
5	10	6	7	16	32	34	21	19	10	8	8	6	5	6	5	5	6	6	8	10	5	5	7	5
6	8	7	13	9	9	6	8	6	8	11	11	11	12	15	24	7	5	15	43	9	48	54	26	15
7	18	12	52	52	12	15	11	15	13	14	12	12	13	13	13	15	15	13	13	14	14	12	13	12
8	13	15	13	12	12	7	11	13	14	15	15	17	14	17	17	15	13	11	12	11	12	10	12	10
9	10	9	11	14	12	11	11	9	14	10	12	12	14	15	13	12	11	10	10	9	11	12	10	7
10	9	10	11	12	12	14	12	16	11	13	14	14	44	10	7	10	10	8	9	7	29	27	14	9
11	16	14	10	37	6	21	10	13	10	6	6	10	24	13	15	6	6	6	7	5	31	44	15	14
12	30	18	22	14	7	3	5	16	22	15	9	10	14	10	11	12	14	20	13	19	6	7	14	7
13	5	6	12	11	35	39	34	47	28	40	49	67	63	10	5	9	6	7	9	8	5	7	41	46
14	33	39	16	19	46	58	32	53	17	16	6	8	7	6	6	7	7	8	5	13	11	10	21	9
15	7	6	10	6	5	4	6	11	6	11	12	10	31	44	17	13	15	16	21	17	10	12	8	15
16	46	40	18	17	36	20	32	40	17	30	12	16	19	7	5	8	5	9	8	8	4	8	7	7
17	7	8	8	11	10	8	7	11	11	10	9	8	7	8	8	8	8	8	7	8	7	7	7	7
18	7	7	8	7	8	8	7	8	7	6	26	13	8	5	8	6	11	12	14	11	19	16	48	9
19	7	7	9	6	8	8	8	7	7	7	8	6	6	5	6	8	19	12	10	36	39	33	24	44
20	13	8	7	7	8	7	7	6	7	7	7	7	6	7	9	8	6	7	6	7	8	6	10	43
21	21	16	16	11	16	13	11	13	40	11	11	14	13	14	11	11	12	14	9	10	9	10	12	8
22	7	8	7	7	7	7	8	8	6	8	7	9	7	3	3	5	7	5	14	13	36	10	8	4
23	7	7	13	7	6	6	6	6	6	7	6	6	6	6	6	7	8	8	9	8	33	41	44	49
24	10	11	5	5	7	7	5	5	7	7	5	8	9	**9**	**7**	7	9	7	8	7	9	6	5	9
25	9	10	7	5	7	12	5	28	29	12	15	13	16	13	12	7	9	11	12	10	13	12	36	21
26	11	9	5	5	6	4	11	7	6	10	7	9	10	7	7	7	8	7	5	7	7	15	17	8
27	10	8	14	24	12	20	24	16	8	15	8	8	13	18	8	12	10	10	6	31	51	28	10	9
28	7	5	6	8	11	14	13	14	11	11	15	16	21	12	12	12	11	8	7	7	9	8	7	7
29	7	9	8	8	8	7	7	6	6	7	7	7	7	6	6	6	7	7	9	8	8	7	7	7
30	7	6	7	7	7	7	8	10	16	12	11	10	14	16	8	8	6	12	49	12	5	7	11	11

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

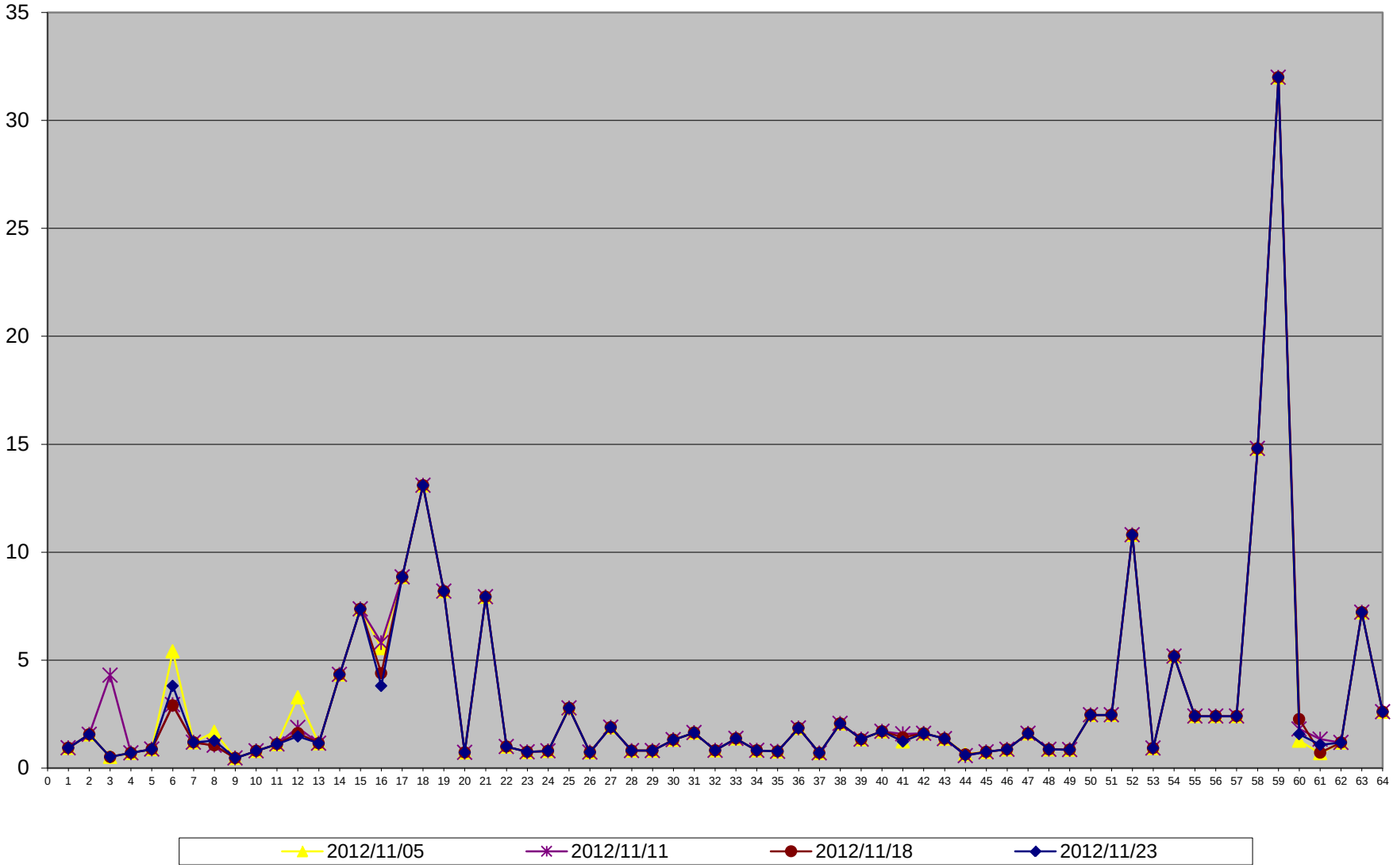
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS



JOB #: 2833-12-11-35-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 November 2012

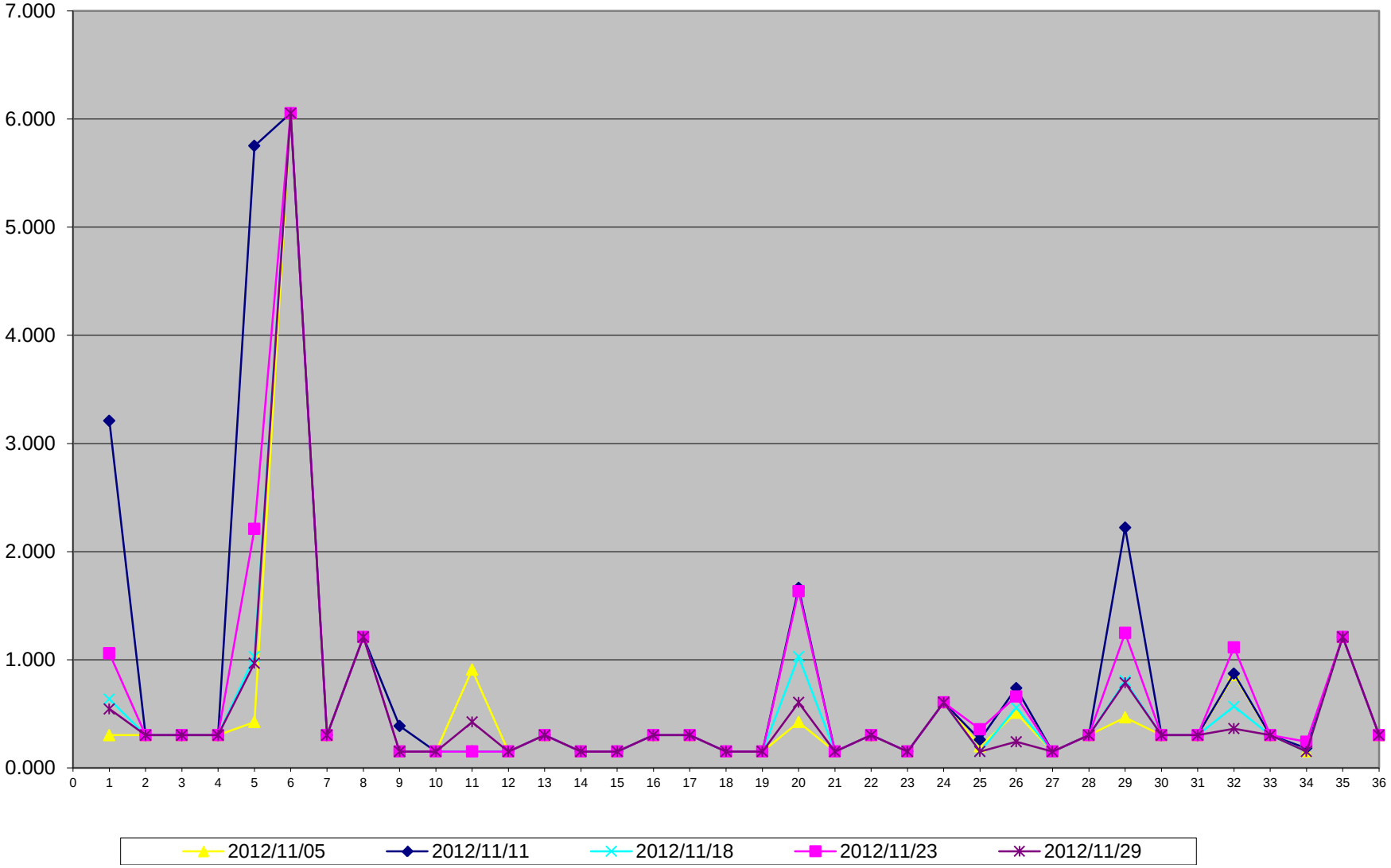
LICA - Portable Site - Elk Point Airport

Unit: ng/m3

	PAHs	2012/11/05	2012/11/11	2012/11/18	2012/11/23	2012/11/29
	Sample Volume (unit: m3)	330.34	330.35	330.37	330.36	330.33
1	1-Methylnaphthalene	0.303	3.209	0.636	1.059	0.545
2	1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3	2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4	2-Methlyanthracene	0.303	0.303	0.303	0.303	0.303
5	2-Methylnaphthalene	0.424	5.751	1.029	2.210	0.969
6	3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7	7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8	9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211
9	Acenaphthene	0.151	0.387	0.151	0.151	0.151
10	Acenaphthylene	0.151	0.151	0.151	0.151	0.151
11	Anthracene	0.908	0.151	0.151	0.151	0.424
12	Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13	Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14	Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15	Benzo(b)fluoranthene	0.151	0.151	0.151	0.151	0.151
16	Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17	Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18	Benzo(g,h,I)perylene	0.151	0.151	0.151	0.151	0.151
19	Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20	Biphenyl	0.424	1.665	1.029	1.635	0.605
21	Chrysene	0.151	0.151	0.151	0.151	0.151
22	Coronene	0.303	0.303	0.303	0.303	0.303
23	Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24	Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25	Fluoranthene	0.200	0.260	0.151	0.357	0.151
26	Fluorene	0.509	0.739	0.557	0.660	0.242
27	Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28	m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29	Naphthalene	0.466	2.222	0.805	1.247	0.787
30	o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31	Perylene	0.303	0.303	0.303	0.303	0.303
32	Phenanthrene	0.860	0.872	0.569	1.114	0.363
33	p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34	Pyrene	0.151	0.182	0.151	0.242	0.151
35	Quinoline	1.211	1.211	1.211	1.211	1.211
36	Tetralin	0.303	0.303	0.303	0.303	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.

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	November 14, 2012		Previous Calibration	October 16, 2012	
Company	Lakeland Community and Industry Association				
Plant / Location	Portable / Elk Poin Airport				
Start Time (MST)	13:11		End Time (MST)	16:46	
Reason:			Monthly Calibration		
Barometric Pressure	27.8	inHg	Station Temperature	23	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:	Environics 6100	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 - 1000 ppb							
Sample Flow / Box Temp	580	ccm	32.3	Deg C	584	ccm	30.8	Deg C
HVPS / Lamp Setting	612		1663		612		1681	
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	NA	Deg C	45.0	Deg C
Offset / Slope	97.9		1.176		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.			
4921	75.4	749	737	1.0156
4921	75.4	749	749	1.0000
4954	40.2	399	396	1.0082
4978	17.1	170	168	1.0107
4995	0	0	-1	N/A
			Sum of Least Squares	1.0016
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.3	0.1
Auto Span	358.0	358.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0156
Percent Change:	-1.5%

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

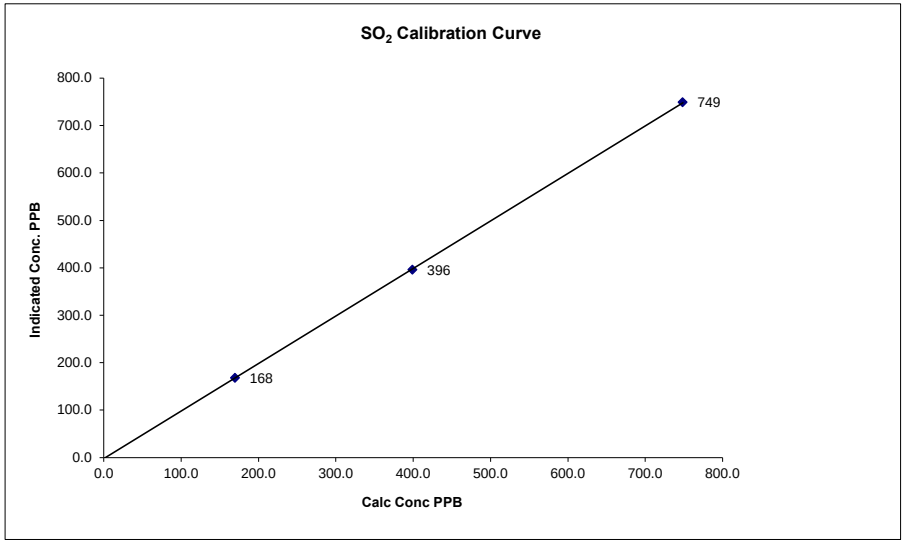
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	November 14, 2012		
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Elk Poin Airport		
Start Time (MST)	13:11	End Time (MST)	16:46

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	-1	n/a
170	168	1.0107
399	396	1.0082
749	749	0.9993

Correlation Coefficient	(≥ 0.995)	0.999980
Slope	(0.85 to 1.15)	1.001896
Intercept	(± 3% F.S.)	-2.012536



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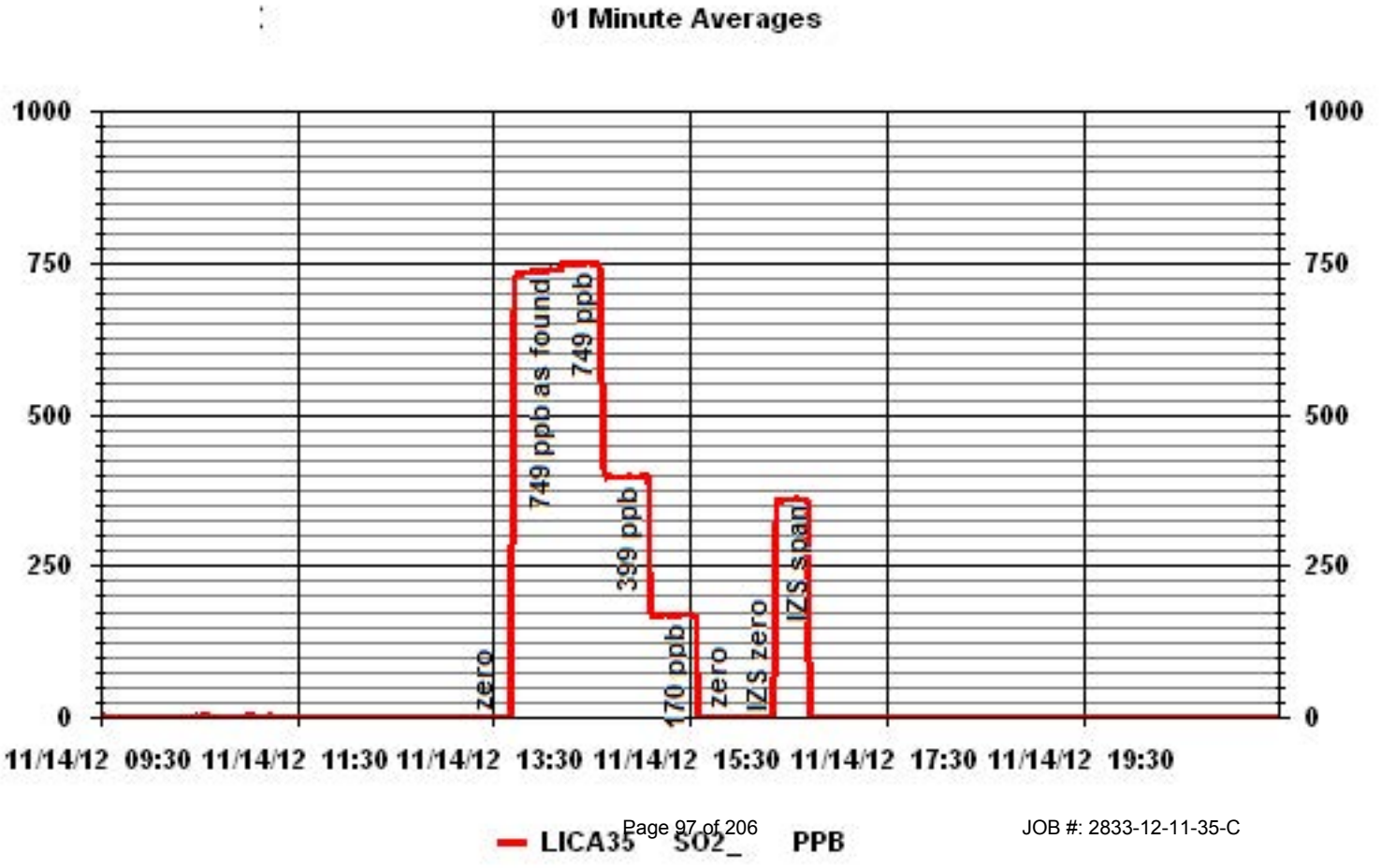


JOB #: 2833-12-11-35-C

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 14, 2012		Previous Calibration	October 29, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Portable/ Elk Point Airport				
Start Time (MST)	09:46		End Time (MST)	13:43	
Reason:	Monthly Calibration				
Barometric Pressure	27.7	inHg	Station Temperature	21	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	512	ccm	29.6	Deg C	513	ccm	31.8	Deg C
HVPS / Lamp Setting	540		1923		540		1919	
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		1.016		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	79	1.0127
4960	40.0	80	80	1.0000
4977	20.0	40	40	1.0000
4987	11.5	23	23	1.0000
4996	0	0	0	NA
			Sum of Least Squares	1.0001
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.4	0.4
Auto Span	57.5	57.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0127
Percent Change:	-1.3%

Notes: **NA : Not Applicable**

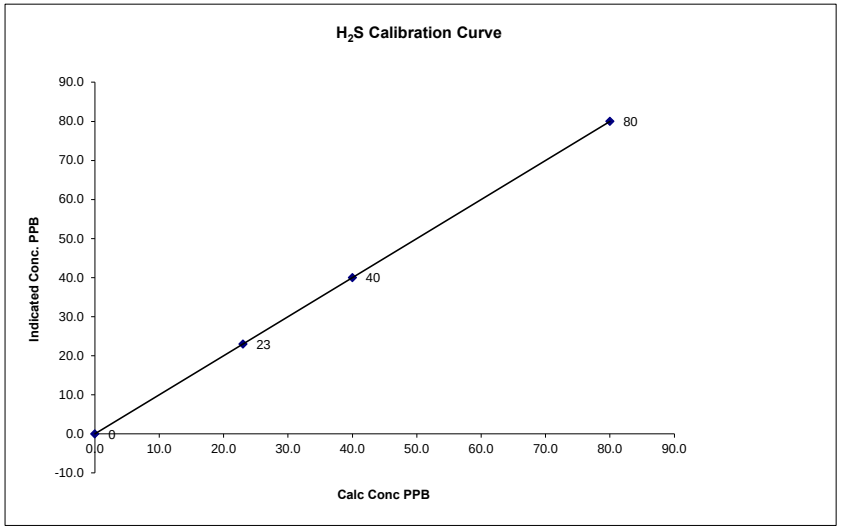
Calibration Performed by: Ting Xu

H_2S Calibration Curve

Calibration Date	November 14, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Portable/ Elk Point Airport				
Start Time (MST)	09:46		End Time (MST)	13:43	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	
23	23	1.0003
40	40	1.0006
80	80	1.0000

Correlation Coefficient	(≥ 0.995)	1.000000
Slope	(0.85 to 1.15)	0.999996
Intercept	(± 3% F.S.)	-0.007578



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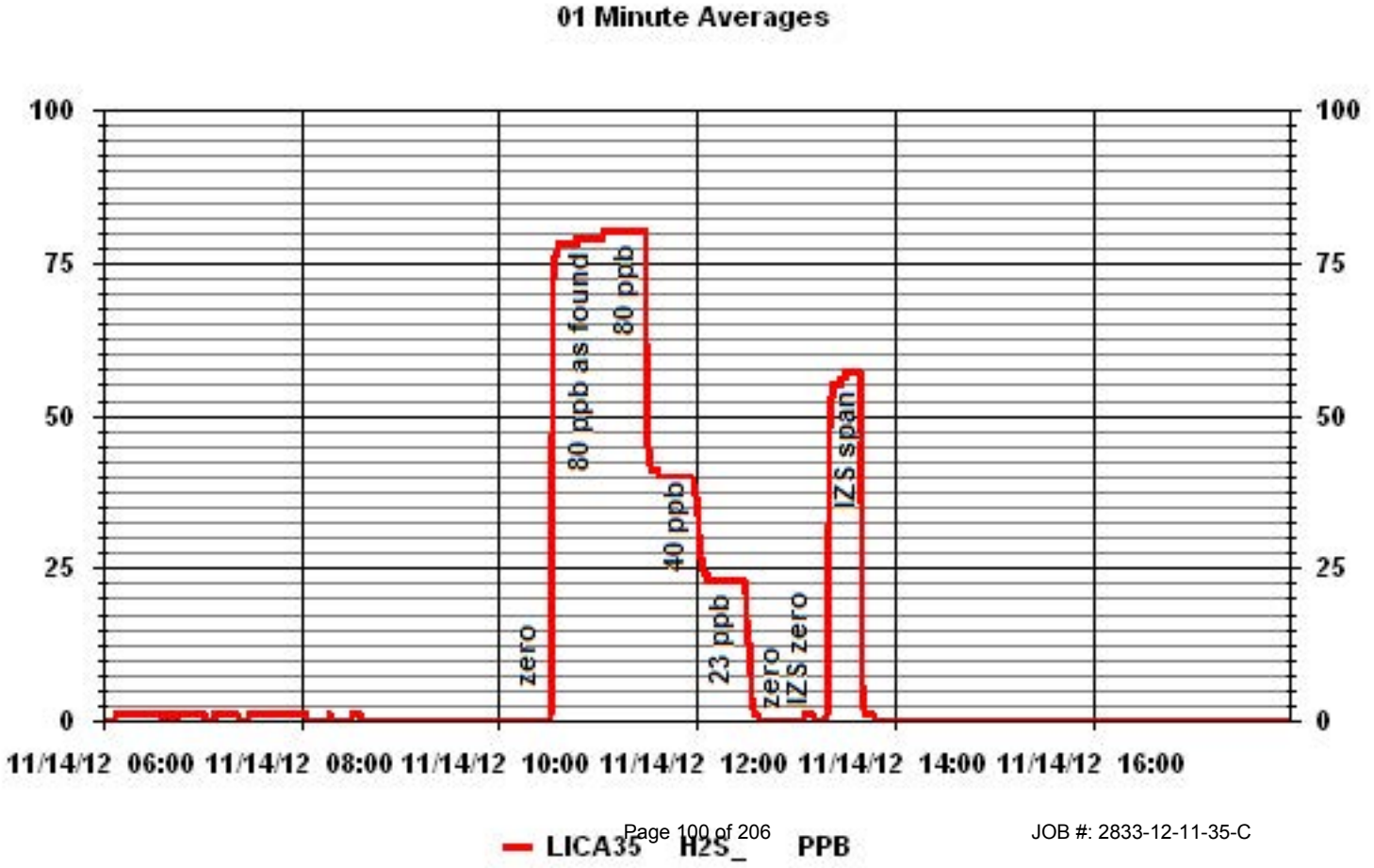


JOB #: 2833-12-11-35-C

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	November 13, 2012		Previous Calibration	October 29, 2012	
Company:	Lakeland Industry and Community Association				
Plant / Location:	ELICA Portable Station / Elk Point Airport				
Start Time (MST)	10:33		End Time (MST)	11:38	
Reason:	As Found				
Barometric Pressure:	27.87	inHg	Station Temperature:	20	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	3.5	NA
	No Zero Adj.			
2000	74.0	41.4	44.1	0.9393
			New Correction Factor:	0.9393

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9393
Percent Change:	6.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	NA	NA
Auto Span	41.7	NA
Sample Lines Connected		YES

Cylinder Pressures

Span 2000 psi Hydrogen 1000 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

Following the A/F points, checked thermal reading of zero air supply, good. Checked calibrator and oxidizer , result was good.

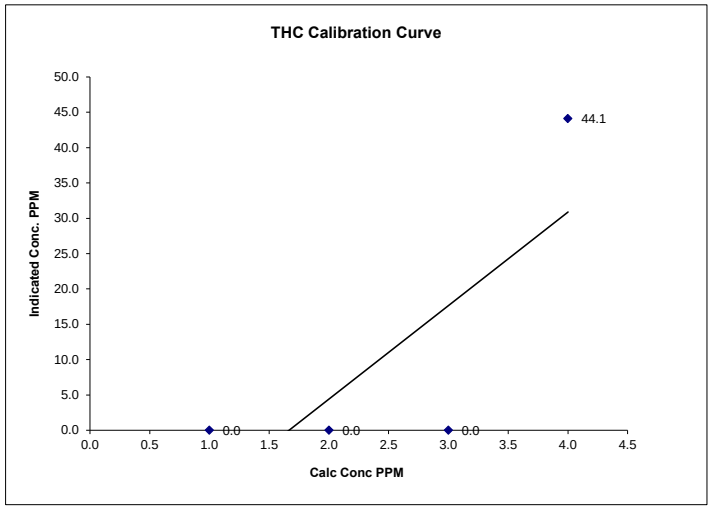
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	November 13, 2012		
Company	Lakeland Industry and Community Association		
Plant / Location	ELICA Portable Station / Elk Point Airport		
Start Time (MST)	10:33	End Time (MST)	11:38

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
	0.0	NA
	0.0	#VALUE!
	0.0	#VALUE!
41.4	44.1	0.9393

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



Notes:

THC Calibration Report

Station Information

Calibration Date:	November 13, 2012		Previous Calibration	October 29, 2012	
Company:	**Lakeland Industry and Community Association**				
Plant / Location:	**ELICA Portable Station / Elk Point Airport**				
Start Time (MST)	12:31		End Time (MST)	16:09	
Reason:	Post Repair Calibration				
Barometric Pressure:	27.85	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	0.1	NA
	No Zero Adj.			
2000	74.0	41.4	41.4	1.0000
	No Span Adj.			
2000	37.0	21.1	21.5	0.9809
2000	20.0	11.5	11.3	1.0173
2000	0.0	0.0	-0.9	NA
			New Correction Factor:	1.0000

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	-0.4%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	NA	-1.4
Auto Span	NA	37.6
Sample Lines Connected		**YES**

Cylinder Pressures

Span 2000 psi Hydrogen 1000 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

The last zero drifted, will re-do calibration tomorrow.

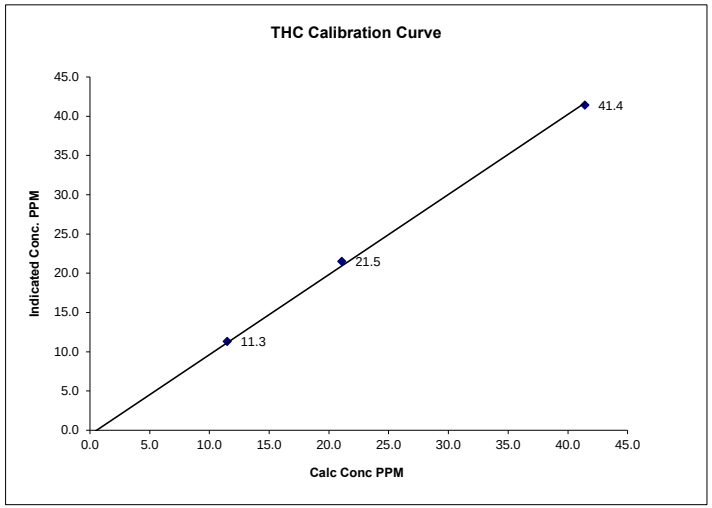
Calibration Performed by: Ting Xu

THC Calibration Curve

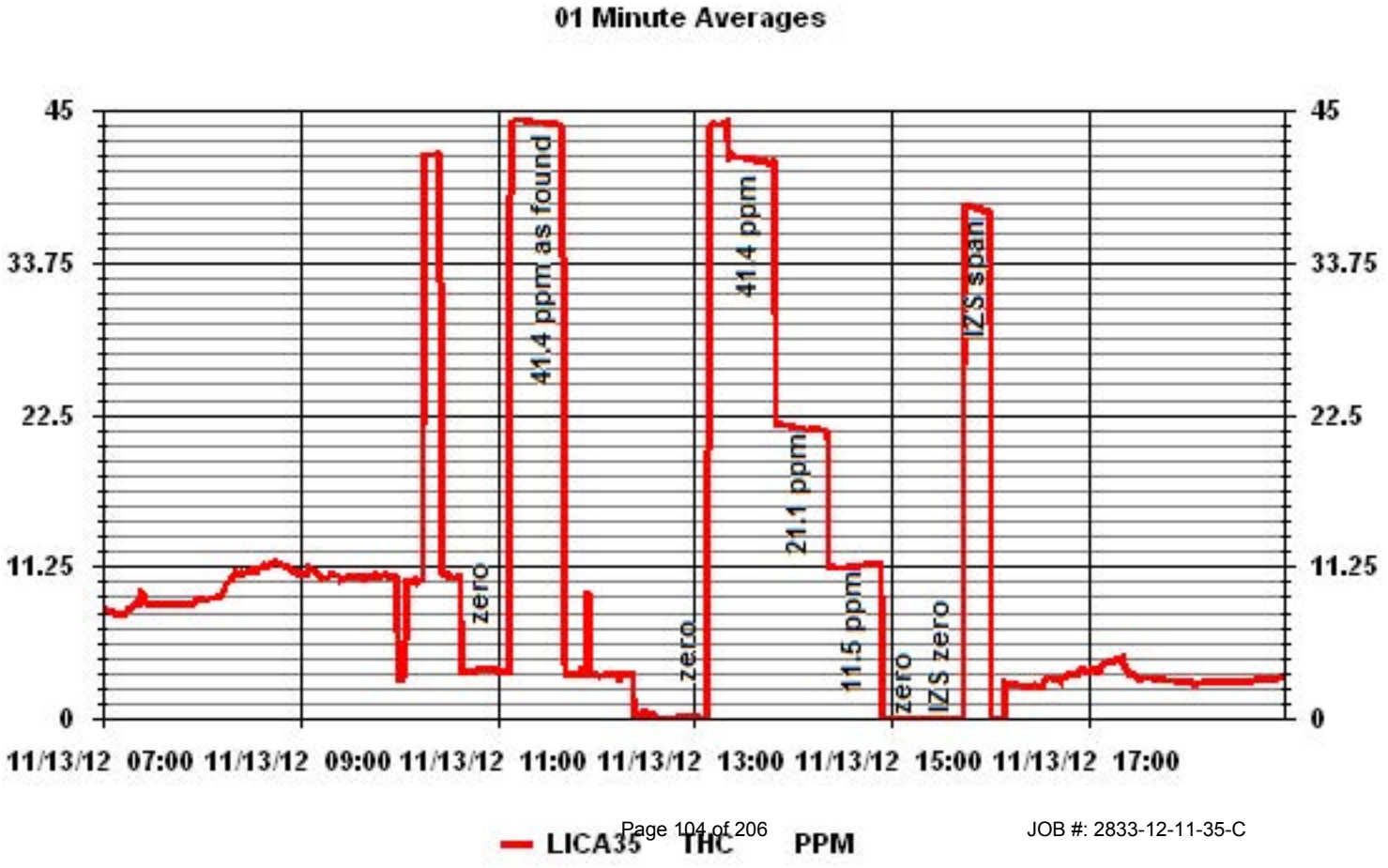
Calibration Date	November 13, 2012			
Company	**Lakeland Industry and Community Association**			
Plant / Location	**ELICA Portable Station / Elk Point Airport**			
Start Time (MST)	12:31	End Time (MST)	16:09	

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	-0.9	NA
11.5	11.3	1.0173
21.1	21.5	0.9809
41.4	41.4	1.0006

Correlation Coefficient	(≥ 0.995)	0.999458
Slope	(0.85 to 1.15)	1.020060
Intercept	(± 3% F.S.)	-0.54807



Notes:



JOB #: 2833-12-11-35-C

THC Calibration Report

Station Information

Calibration Date:	November 14, 2012		Previous Calibration	November 13, 2012	
Company:	Lakeland Industry and Community Association				
Plant / Location:	ELICA Portable Station / Elk Point Airport				
Start Time (MST)	13:11		End Time (MST)	16:24	
Reason:			Repeat Calibration		
Barometric Pressure:	27.8	inHg	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. #	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	41.5	0.9982
	No Span Adj.			
2000	37.0	21.1	22.1	0.9542
2000	20.0	11.5	12.1	0.9500
2000	0.0	0.0	0.0	NA
			New Correction Factor:	0.9982

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9982
Percent Change:	-0.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-3.4	0.0
Auto Span	35.5	39.2
Sample Lines Connected		**YES**

Cylinder Pressures

Span 2000 psi Hydrogen 1000 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

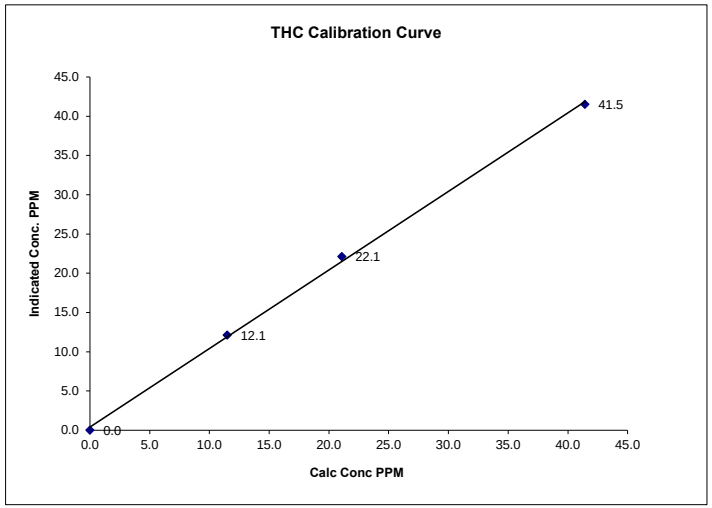
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	November 14, 2012				
Company	Lakeland Industry and Community Association				
Plant / Location	ELICA Portable Station / Elk Point Airport				
Start Time (MST)	13:11	End Time	(MST)	16:24	

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	0.0	NA
11.5	12.1	0.9500
21.1	22.1	0.9542
41.4	41.5	0.9982

Correlation Coefficient	(≥ 0.995)	0.999265
Slope	(0.85 to 1.15)	1.000122
Intercept	(± 3% F.S.)	0.42081



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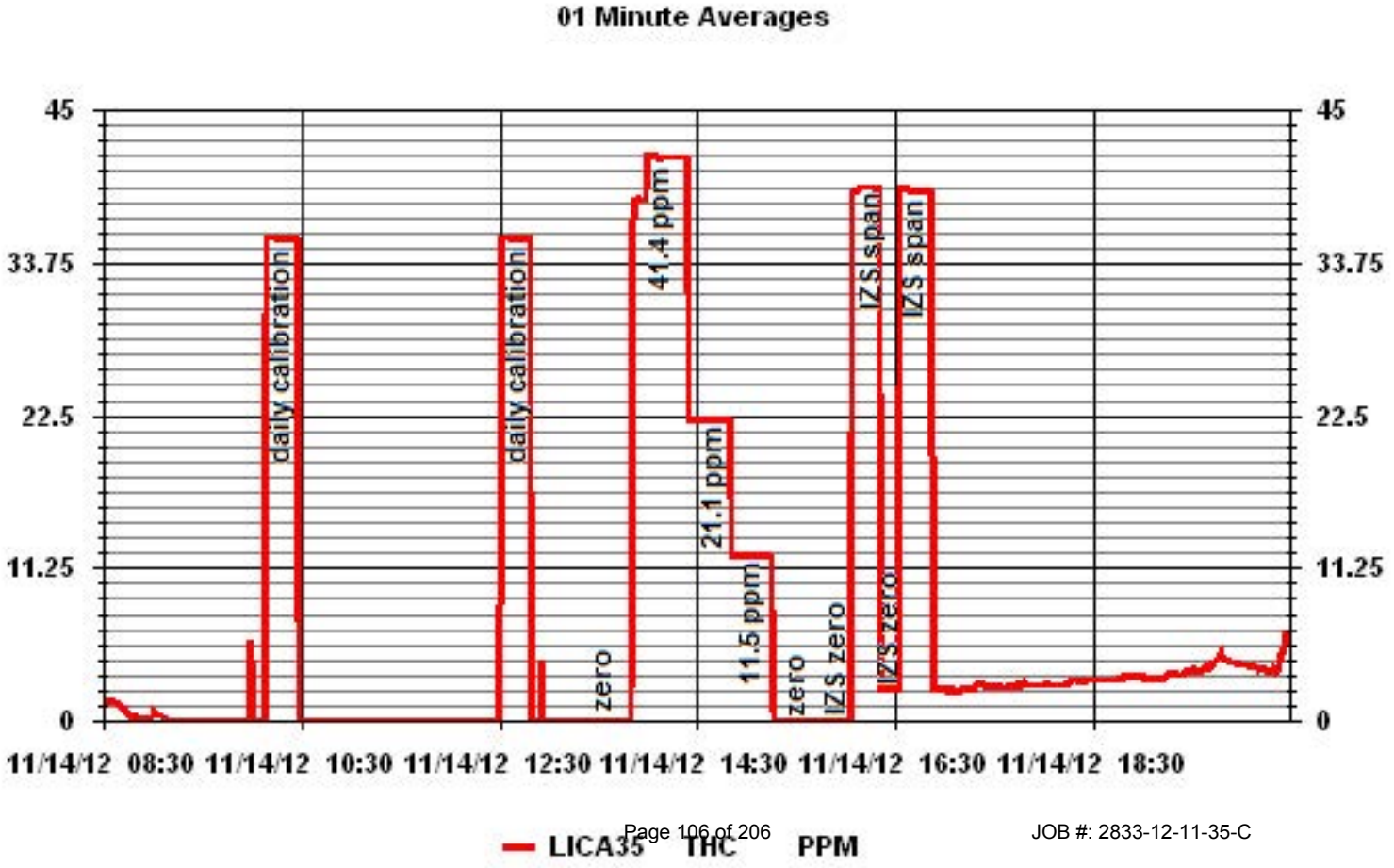


JOB #: 2833-12-11-35-C

Particulate Matter 2.5

TEOM Calibration

Station		Transfer Standard	
Date:	November 13, 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 (%)	22%
Transducer s/n	1200C140189708	K_o Factor	14568
Parameter	PM 2.5	Temp (^oC)	-2.2
		Press (ATM)	0.924

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow

	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.06		**(45-60 Sec)**	48
F-Aux (l/min)	0.15		**(45-60 Sec)**	54

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	-2	**D ^oC**	0.2
Measured Press **(± 1.5% ATM)**	0.930	**D % ATM**	0.6%

Flow Audit

			D % from Set-pt	
Indicated Main/Aux Flow (l/min)	2.98 /	13.62	**(± 2%)**	0.7% / 0.4%
Total Flow = Main + Aux (l/min)	16.60		**(± 2%)**	0.4%
Measured Total Flow (l/min)	16.73		**(± 1.0 l/min. (5.65%))**	-0.8%
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)**	0.04	-0.02
Aux **(< 0.15 l/min)**	0.17	0.02

K_o Factor

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

Start Time: 13:30 **Finish Time:** 15:19

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

Comments: N/A

Calibrator/s: Ting Xu

TEOM Calibration

Station		Transfer Standard	
Date:	November 26, 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 (%)	31%
Transducer s/n	1200C140189708	K_o Factor	14568
Parameter	PM 2.5	Temp (^oC)	-12.6
		Press (ATM)	0.933

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)**	52

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	-12.9	**D ^oC**	-0.3
Measured Press **(± 1.5% ATM)**	0.937	**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)	16.83		**(± 1.0 l/min. (5.65%))**	-1.1%
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: 12:18 **Finish Time:** 13:38

Sample Inlet Cleaned: No **Sample Inlet Connected:** YES

Comments: N/A

Calibrator/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 13, 2012		Previous Calibration	October 16, 2012	
Company	LICA		Plant/Location	**Portable/Elk Point Airport**	
Start Time (MST)	10:33		End Time (MST)	17:25	
Reason:	Monthly Calibration				
Barometric Pressure	27.87 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 - 1 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 :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Environics 6100	S/N :	4760		

Analyzer Settings

	Before Calibration					After Calibration			
Concentration Range			0 - 1000			ppb			
Sample Flow/Conv. Temp	468	ccm	314	Deg C		466	ccm	316	Deg C
Ozone Flow / Vacuum	78	ccm	5.0	"Hg-A		77	ccm	4.9	"Hg-A
HVPS / A ZERO	638	Volts	6.7	MV		638	Volts	6.9	MV
Rx/ Temp / PMT Temp	49.9	Deg C	6.8	Deg C		50.0	Deg C	6.7	Deg C
Box Temp / IZS Temp	29.7	Deg C	45.0	Deg C		33.2	Deg C	45.1	Deg C
Offset	-0.1	NOx	-0.9	NO		4.1	NOx	0.6	NO
Slope	1.022	NOx	1.013	NO		1.049	NOx	1.042	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	1	NA	NA
4994	0.0	NA	0	0	NA	0	0	0	NA	NA
4919	74.6	NA	748	748	NA	729	729	1	1.0295	1.0281
4919	74.6	NA	748	748	NA	748	749	0	1.0000	1.0006
4956	39.8	NA	399	399	NA	397	397	0	1.0105	1.0079
4977	19.9	NA	200	200	NA	199	199	0	1.0128	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	751	751	1	NA	NA
4919	74.6	600	748	NA	545	749	207	542	1.0074	99.45%
No Adj. Needed										
4919	74.6	250	748	NA	231	751	521	230	1.0087	99.57%
4919	74.6	140	748	NA	128	753	624	129	1.0000	100.79%

Linearity		Sum of Least Squares	NOx=	1.002	NO=	1.001	NO2=	1.005
OK?	**Yes** No	Correction Factors:	NOx=	1.0000	NO=	1.0006	NO2=	1.0295
				Average Converter Efficiency=		99.93%		

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	1.4	NOx	1.1	NO2		-1.3	NOx	-1.3	NO2
Auto Span	535	NOx	526	NO2		552	NOx	544	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-2.9%	NO	-2.7%	NO2	-0.5%

Notes

NA : Not Applicable

Additional point done for Ozone cal O3 St. Pt. 420 NOX=750, NO=367, NO2=384

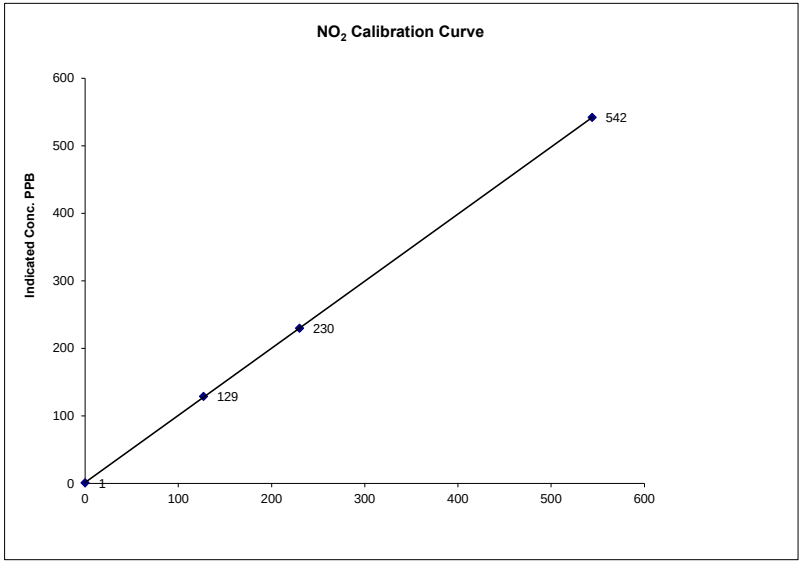
Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	November 13, 2012		
Company	**LICA**		
Plant / Location	**Portable/Elk Point Airport**		
Start Time (MST)	10:33	End Time (MST)	17:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	N/A
127	129	0.9845
230	230	1.0000
544	542	1.0037

Correlation Coefficient	(≥ 0.995)	0.999989
Slope	(0.85 to 1.15)	0.993462
Intercept	(± 3% F.S.)	1.72268

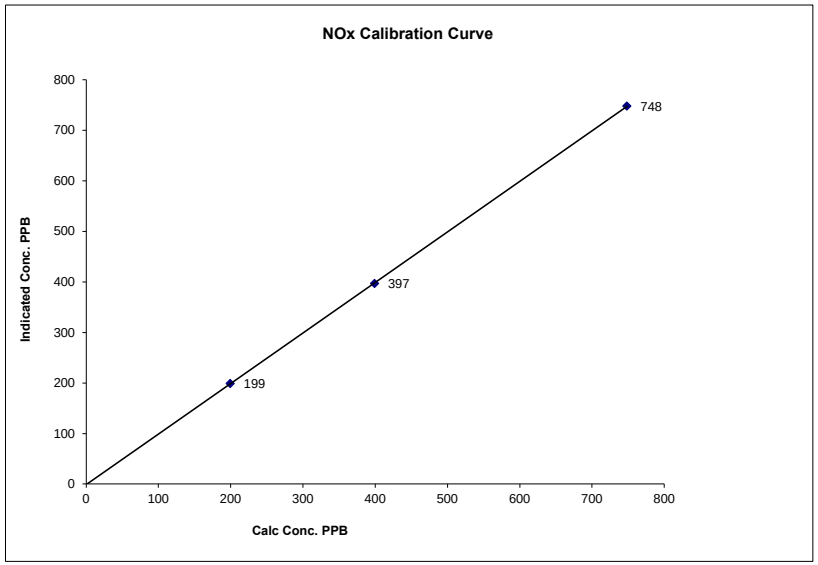


Notes:

NOx Calibration Curve

Calibration Date	November 13, 2012		
Company	LICA		
Plant / Location	Portable/Elk Point Airport		
Start Time (MST)	10:33	End Time (MST)	17:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
			Slope (0.85 to 1.15)	1.000295
0	-1	N/A	Intercept (± 3% F.S.)	-1.12517
200	199	1.0026		
399	397	1.0054		
748	748	1.0006		

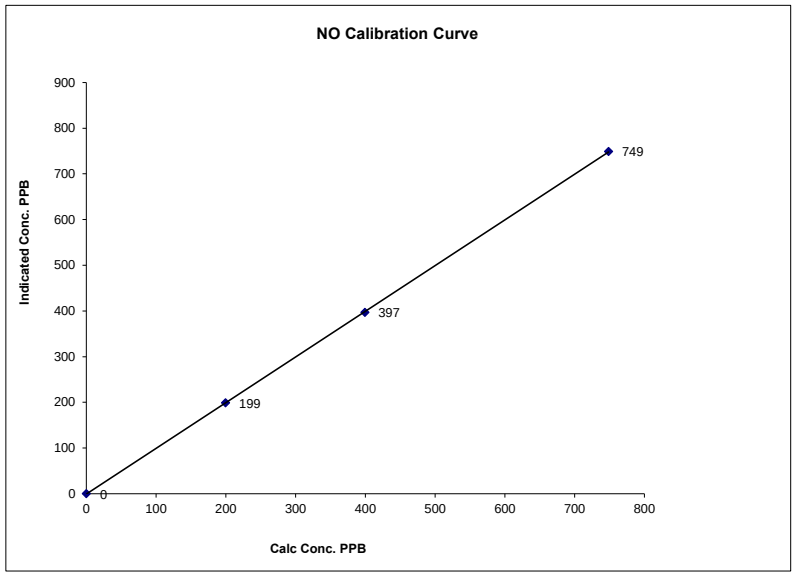


Notes:

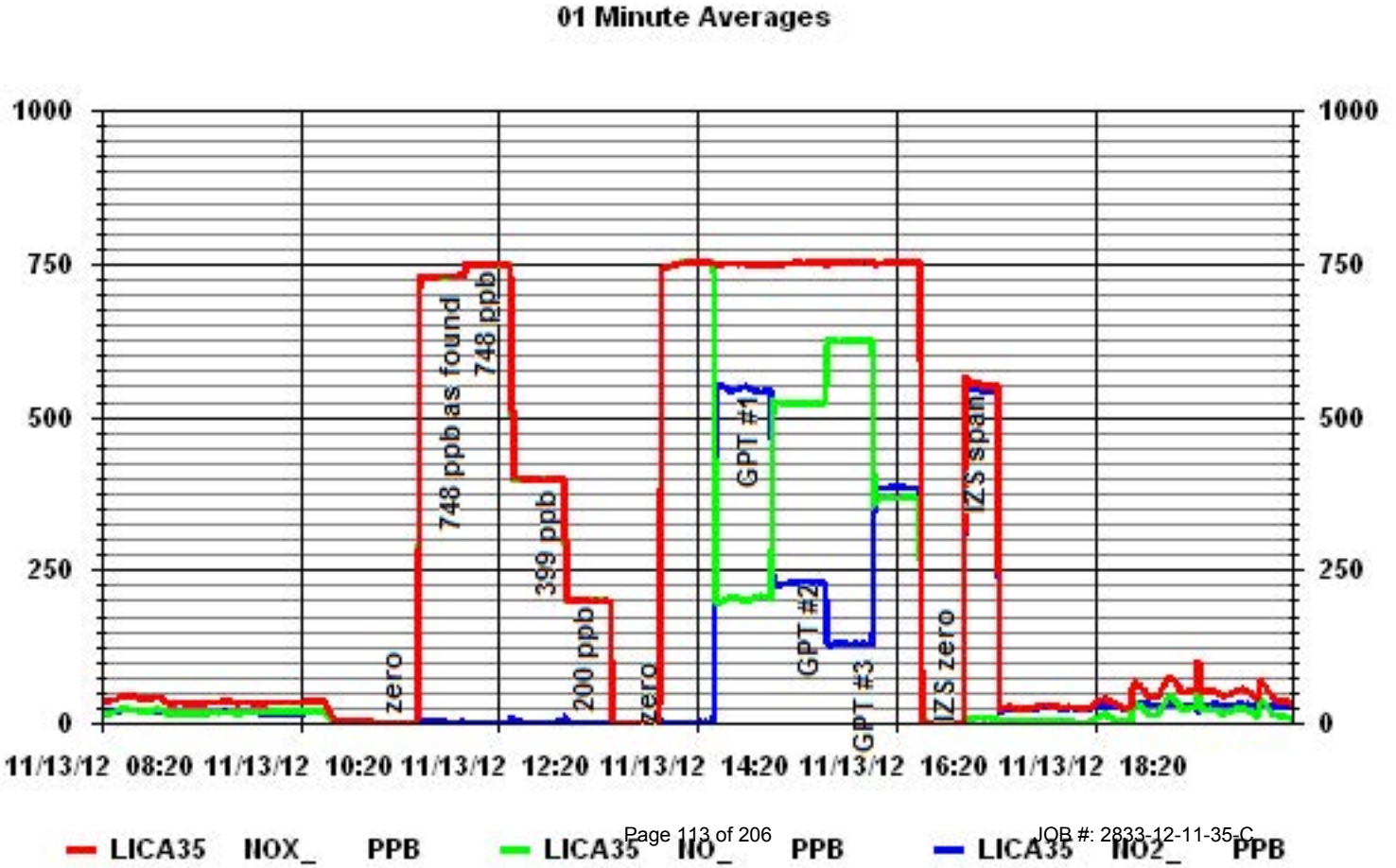
NO Calibration Curve

Calibration Date	November 13, 2012		
Company	LICA		
Plant / Location	Portable/Elk Point Airport		
Start Time (MST)	10:33	End Time (MST)	17:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999987
			Slope (0.85 to 1.15)	1.002599
0	0	N/A	Intercept (± 3% F.S.)	-5.1949
200	199	1.0026		
399	397	1.0054		
748	749	0.9993		



Notes:


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
11/13/12 08:20
11/13/12 10:20
11/13/12 12:20
11/13/12 14:20
11/13/12 16:20
11/13/12 18:20
LICA35 NOX_ PPB
LICA35 NO_ PPB
LICA35 NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	November 14, 2012	Previous Calibration	October 17, 2012
Company	**Lakeland Industry & Community Association**		
Plant / Location	**Portable / Elk Point Airport**		
Start Time (MST)	09:46	End Time (MST)	13:43
Reason:		Monthly Calibration	
Barometric Pressure	27.7 inHg	Station Temperature	21 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	739	ccm	746	ccm	754	ccm	762	ccm
Pressure	672	mmHg			695	mmHg		
Bench Lamp	54	Deg C			68.2	DegC		
O3 Lamp / Box Temp	68.2	Deg C	28.7	Deg C	54.1	Deg C	30.8	Deg C
Offset / Slope	-0.2		1.027		-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	384	388	0.9897
4994	420	384	384	1.0000
4994	250	230	229	1.0044
4994	140	127	128	0.9922
4994	0	0	0	NA
			Sum of Least Squares	1.0005
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	363.0	379.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0027
Current Correctio Factor Before Span Adjust:		0.9897
Percent Change:		1.3%

Note: **NA : Not Applicable**

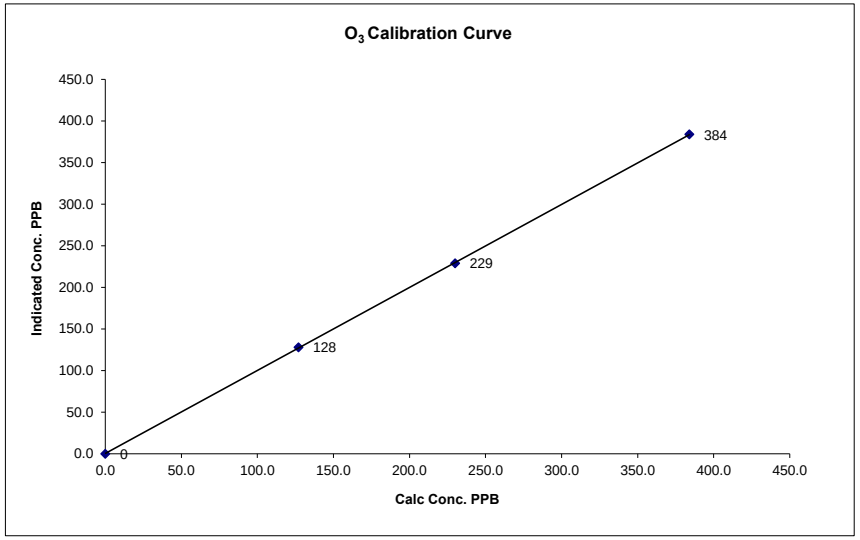
Calibration Performed by: Ting Xu

O_3 Calibration Curve

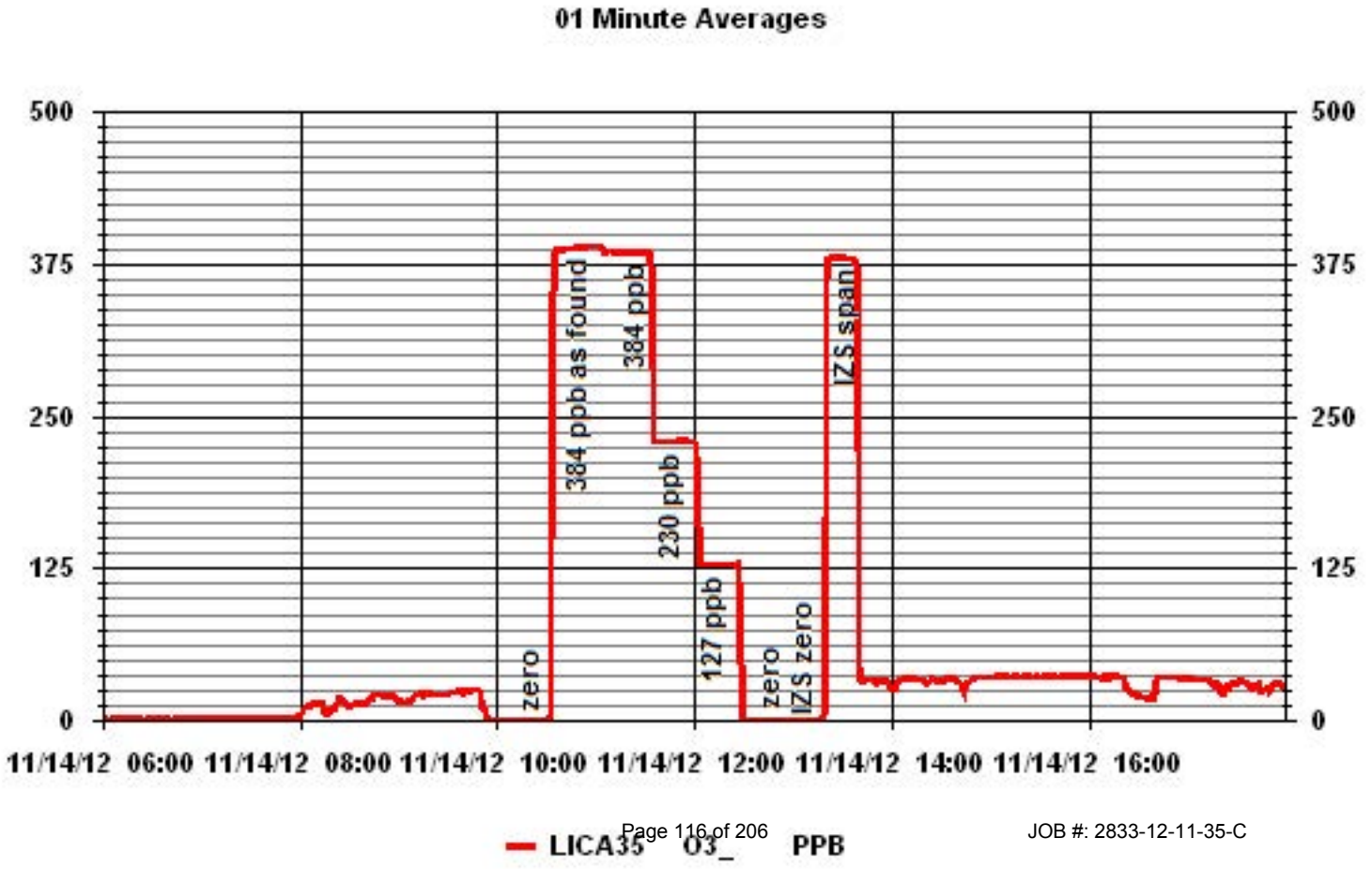
Calibration Date	November 14, 2012		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**Portable / Elk Point Airport**		
Start Time (MST)	09:46	End Time (MST)	13:43

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
127	128	0.9922
230	229	1.0044
384	384	1.0000

Correlation Coefficient	(≥ 0.995)	0.999976
Slope	(0.85 to 1.15)	0.998700
Intercept	(± 3% F.S.)	0.240874



Notes:



JOB #: 2833-12-11-35-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/ Nov 05, 12

Sampler s/n: 6200
Canister ID: 138
Canister Installation Date/Time: Nov 02, 12 @ 10:15 mst
Canister Removal Date/Time: Nov 07, 12 @ 10:29 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-12	11/05/2012 0:00	11/06/2012 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# 12702

Technician Signature: Ting Xu

Success Through Science®

Your C.O.C. #: 12702

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

Report Date: 2012/11/21

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H6388
Received: 2012/11/09, 11:00

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/11/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/11/14	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 #: B2H6388
Report Date: 2012/11/21

RESULTS OF ANALYSES OF AIR

Maxxam ID		PO0285	PO0286	
Sampling Date		2012/11/05	2012/11/05	
COC Number		12702	12702	
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**LICA VOC/PORT/NOV 05,12 / 138**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	23	22	3041295

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 #: B2H6388
Report Date: 2012/11/21

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	1.07	5.30	0.989	1.09	0.20	5.40	0.989	3041333
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3041333
Chloromethane	ppbv	0.84	1.73	0.620	0.81	0.30	1.68	0.620	3041333
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3041333
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3041333
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3041333
Trichlorofluoromethane (FREON 11)	ppbv	0.59	3.30	1.12	0.58	0.20	3.28	1.12	3041333
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3041333
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3041333
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3041333
2-Propanone	ppbv	2.36	5.61	1.90	2.34	0.80	5.56	1.90	3041333
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3041333
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3041333
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3041333
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3041333
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3041333
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3041333
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3041333
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3041333
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3041333
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3041333
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3041333
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3041333
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3041333
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3041333
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3041333
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3041333
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3041333
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3041333
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3041333
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3041333

RDL = Reportable Detection Limit
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 Job #: B2H6388
Report Date: 2012/11/21

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3041333
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3041333
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3041333
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3041333
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3041333
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3041333
Benzene	ppbv	<0.18	<0.575	0.575	0.20	0.18	0.644	0.575	3041333
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3041333
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3041333
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3041333
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3041333
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3041333
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3041333
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3041333
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3041333
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3041333
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3041333
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3041333
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3041333
Hexane	ppbv	<0.30	<1.06	1.06	0.36	0.30	1.27	1.06	3041333
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3041333
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3041333
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3041333
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3041333
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3041333
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3041333
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3041333
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3041333
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3041333
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3041333

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	83		N/A	N/A	3041333
D5-Chlorobenzene	%	81	N/A	N/A	79		N/A	N/A	3041333
Difluorobenzene	%	86	N/A	N/A	83		N/A	N/A	3041333

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

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

Test Summary

Maxxam ID PO0285 **Collected** 2012/11/05
Sample ID LICA VOC/CLS/NOV 05,12 / 265 **Shipped**
Matrix AIR **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3041295	N/A	2012/11/14	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	3041333	N/A	2012/11/14	Branko Vrzic

Maxxam ID PO0286 **Collected** 2012/11/05
Sample ID LICA VOC/PORT/NOV 05,12 / 138 **Shipped**
Matrix AIR **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3041295	N/A	2012/11/14	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	3041333	N/A	2012/11/14	Branko Vrzic

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

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: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Spiked Blank	Bromochloromethane	2012/11/14		107	%	60 - 140
			D5-Chlorobenzene	2012/11/14		105	%	60 - 140
			Difluorobenzene	2012/11/14		109	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/14		102	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/11/14		118	%	70 - 130
			Chloromethane	2012/11/14		105	%	70 - 130
			Vinyl Chloride	2012/11/14		104	%	70 - 130
			Chloroethane	2012/11/14		103	%	70 - 130
			1,3-Butadiene	2012/11/14		108	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/11/14		117	%	70 - 130
			Ethanol (ethyl alcohol)	2012/11/14		110	%	70 - 130
			Trichlorotrifluoroethane	2012/11/14		85	%	70 - 130
			2-propanol	2012/11/14		119	%	70 - 130
			2-Propanone	2012/11/14		100	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/11/14		91	%	70 - 130
			Methyl Isobutyl Ketone	2012/11/14		100	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/11/14		103	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/11/14		106	%	70 - 130
			Ethyl Acetate	2012/11/14		102	%	70 - 130
			1,1-Dichloroethylene	2012/11/14		77	%	70 - 130
			cis-1,2-Dichloroethylene	2012/11/14		102	%	70 - 130
			trans-1,2-Dichloroethylene	2012/11/14		94	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/11/14		84	%	70 - 130
			Chloroform	2012/11/14		105	%	70 - 130
			Carbon Tetrachloride	2012/11/14		115	%	70 - 130
			1,1-Dichloroethane	2012/11/14		100	%	70 - 130
			1,2-Dichloroethane	2012/11/14		111	%	70 - 130
			Ethylene Dibromide	2012/11/14		98	%	70 - 130
			1,1,1-Trichloroethane	2012/11/14		108	%	70 - 130
			1,1,2-Trichloroethane	2012/11/14		95	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/11/14		98	%	70 - 130
			cis-1,3-Dichloropropene	2012/11/14		103	%	70 - 130
			trans-1,3-Dichloropropene	2012/11/14		111	%	70 - 130
			1,2-Dichloropropane	2012/11/14		93	%	70 - 130
			Bromomethane	2012/11/14		105	%	70 - 130
			Bromoform	2012/11/14		115	%	70 - 130
			Bromodichloromethane	2012/11/14		107	%	70 - 130
			Dibromochloromethane	2012/11/14		107	%	70 - 130
			Trichloroethylene	2012/11/14		90	%	70 - 130
			Tetrachloroethylene	2012/11/14		95	%	70 - 130
			Benzene	2012/11/14		91	%	70 - 130
			Toluene	2012/11/14		94	%	70 - 130
			Ethylbenzene	2012/11/14		100	%	70 - 130
			p+m-Xylene	2012/11/14		102	%	70 - 130
			o-Xylene	2012/11/14		104	%	70 - 130
			Styrene	2012/11/14		111	%	70 - 130
			4-ethyltoluene	2012/11/14		107	%	70 - 130
			1,3,5-Trimethylbenzene	2012/11/14		111	%	70 - 130
			1,2,4-Trimethylbenzene	2012/11/14		115	%	70 - 130
			Chlorobenzene	2012/11/14		94	%	70 - 130
			Benzyl chloride	2012/11/14		115	%	70 - 130
			1,3-Dichlorobenzene	2012/11/14		107	%	70 - 130
			1,4-Dichlorobenzene	2012/11/14		104	%	70 - 130
			1,2-Dichlorobenzene	2012/11/14		102	%	70 - 130
			1,2,4-Trichlorobenzene	2012/11/14		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Spiked Blank	Hexachlorobutadiene	2012/11/14		121	%	70 - 130
			Hexane	2012/11/14		90	%	70 - 130
			Heptane	2012/11/14		88	%	70 - 130
			Cyclohexane	2012/11/14		91	%	70 - 130
			Tetrahydrofuran	2012/11/14		98	%	70 - 130
			1,4-Dioxane	2012/11/14		110	%	70 - 130
			Xylene (Total)	2012/11/14		103	%	70 - 130
			Vinyl Bromide	2012/11/14		107	%	70 - 130
			Propene	2012/11/14		84	%	70 - 130
			2,2,4-Trimethylpentane	2012/11/14		91	%	70 - 130
			Carbon Disulfide	2012/11/14		98	%	70 - 130
			Vinyl Acetate	2012/11/14		104	%	70 - 130
		Method Blank	Bromochloromethane	2012/11/14		109	%	60 - 140
			D5-Chlorobenzene	2012/11/14		101	%	60 - 140
			Difluorobenzene	2012/11/14		110	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/14	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/11/14	<0.17		ppbv	
			Chloromethane	2012/11/14	<0.30		ppbv	
			Vinyl Chloride	2012/11/14	<0.18		ppbv	
			Chloroethane	2012/11/14	<0.30		ppbv	
			1,3-Butadiene	2012/11/14	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/11/14	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/11/14	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/11/14	<0.15		ppbv	
			2-propanol	2012/11/14	<3.0		ppbv	
			2-Propanone	2012/11/14	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/11/14	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/11/14	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/11/14	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/11/14	<0.20		ppbv	
			Ethyl Acetate	2012/11/14	<2.2		ppbv	
			1,1-Dichloroethylene	2012/11/14	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/11/14	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/11/14	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/11/14	<0.80		ppbv	
			Chloroform	2012/11/14	<0.15		ppbv	
			Carbon Tetrachloride	2012/11/14	<0.30		ppbv	
			1,1-Dichloroethane	2012/11/14	<0.20		ppbv	
			1,2-Dichloroethane	2012/11/14	<0.20		ppbv	
			Ethylene Dibromide	2012/11/14	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/11/14	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/11/14	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/11/14	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/11/14	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/11/14	<0.17		ppbv	
			1,2-Dichloropropane	2012/11/14	<0.40		ppbv	
			Bromomethane	2012/11/14	<0.18		ppbv	
			Bromoform	2012/11/14	<0.20		ppbv	
			Bromodichloromethane	2012/11/14	<0.20		ppbv	
			Dibromochloromethane	2012/11/14	<0.20		ppbv	
			Trichloroethylene	2012/11/14	<0.30		ppbv	
			Tetrachloroethylene	2012/11/14	<0.20		ppbv	
			Benzene	2012/11/14	<0.18		ppbv	
			Toluene	2012/11/14	<0.20		ppbv	
			Ethylbenzene	2012/11/14	<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: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Method Blank	p+m-Xylene	2012/11/14	<0.37		ppbv	
			o-Xylene	2012/11/14	<0.20		ppbv	
			Styrene	2012/11/14	<0.20		ppbv	
			4-ethyltoluene	2012/11/14	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/11/14	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/11/14	<0.50		ppbv	
			Chlorobenzene	2012/11/14	<0.20		ppbv	
			Benzyl chloride	2012/11/14	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/11/14	<2.0		ppbv	
			Hexachlorobutadiene	2012/11/14	<3.0		ppbv	
			Hexane	2012/11/14	<0.30		ppbv	
			Heptane	2012/11/14	<0.30		ppbv	
			Cyclohexane	2012/11/14	<0.20		ppbv	
			Tetrahydrofuran	2012/11/14	<0.40		ppbv	
			1,4-Dioxane	2012/11/14	<2.0		ppbv	
			Xylene (Total)	2012/11/14	<0.60		ppbv	
			Vinyl Bromide	2012/11/14	<0.20		ppbv	
			Propene	2012/11/14	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/11/14	<0.20		ppbv	
			Carbon Disulfide	2012/11/14	<0.50		ppbv	
			Vinyl Acetate	2012/11/14	<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/ Nov 11, 12

Sampler s/n: 6200
Canister ID: 307
Canister Installation Date/Time: Nov 07, 12 @ 10:40 mst
Canister Removal Date/Time: Nov 12, 12 @ 12:03 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Nov-12	11/11/2012 0:00	11/12/2012 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# 12768

Technician Signature: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 12768

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

Report Date: 2012/11/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H9429
Received: 2012/11/15, 10:00

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/11/12	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/11/15	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 #: B2H9429
Report Date: 2012/11/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		PP6219	PP6220	
Sampling Date		2012/11/11 00:00	2012/11/11 00:00	
COC Number		12768	12768	
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**LICA VOC/PORT/NOV 11,12 - 307**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3038947

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.61	0.20	3.03	0.989	3038952
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	3038952
Chloromethane	ppbv	0.51	0.30	1.05	0.620	3038952
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	3038952
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	3038952
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	3038952
Trichlorofluoromethane (FREON 11)	ppbv	0.35	0.20	1.95	1.12	3038952
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	3038952
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	3038952
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	3038952
2-Propanone	ppbv	1.71	0.80	4.06	1.90	3038952
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	3038952
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	3038952
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	3038952
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	3038952
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	3038952
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	3038952
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	3038952
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	3038952
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	3038952
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	3038952
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	3038952
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	3038952
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	3038952
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	3038952
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	3038952
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	3038952
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	3038952

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	3038952
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	3038952
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	3038952
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	3038952
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	3038952
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	3038952
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	3038952
Benzene	ppbv	<0.18	0.18	<0.575	0.575	3038952
Toluene	ppbv	<0.20	0.20	<0.753	0.753	3038952
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	3038952
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	3038952
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	3038952
Styrene	ppbv	<0.20	0.20	<0.852	0.852	3038952
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	3038952
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	3038952
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	3038952
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	3038952
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	3038952
Hexane	ppbv	<0.30	0.30	<1.06	1.06	3038952
Heptane	ppbv	<0.30	0.30	<1.23	1.23	3038952
Cyclohexane	ppbv	0.24	0.20	0.841	0.688	3038952
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	3038952
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	3038952
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	3038952
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	3038952
Propene	ppbv	<2.0	2.0	<3.44	3.44	3038952
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	3038952

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	3038952
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	3038952
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	3038952
D5-Chlorobenzene	%	80		N/A	N/A	3038952
Difluorobenzene	%	84		N/A	N/A	3038952

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

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.59	0.20	2.93	0.989	3038952
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	3038952
Chloromethane	ppbv	0.51	0.30	1.05	0.620	3038952
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	3038952
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	3038952
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	3038952
Trichlorofluoromethane (FREON 11)	ppbv	0.33	0.20	1.88	1.12	3038952
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	3038952
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	3038952
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	3038952
2-Propanone	ppbv	2.45	0.80	5.81	1.90	3038952
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	3038952
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	3038952
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	3038952
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	3038952
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	3038952
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	3038952
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	3038952
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	3038952
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	3038952
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	3038952
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	3038952
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	3038952
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	3038952
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	3038952
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	3038952
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	3038952
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	3038952

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	3038952
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	3038952
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	3038952
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	3038952
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	3038952
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	3038952
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	3038952
Benzene	ppbv	<0.18	0.18	<0.575	0.575	3038952
Toluene	ppbv	<0.20	0.20	<0.753	0.753	3038952
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	3038952
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	3038952
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	3038952
Styrene	ppbv	<0.20	0.20	<0.852	0.852	3038952
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	3038952
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	3038952
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	3038952
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	3038952
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	3038952
Hexane	ppbv	0.51	0.30	1.81	1.06	3038952
Heptane	ppbv	0.39	0.30	1.58	1.23	3038952
Cyclohexane	ppbv	0.39	0.20	1.34	0.688	3038952
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	3038952
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	3038952
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	3038952
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	3038952
Propene	ppbv	<2.5	2.5	<4.30	4.30	3038952
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	3038952

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	3038952
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	3038952
Surrogate Recovery (%)						
Bromochloromethane	%	81		N/A	N/A	3038952
D5-Chlorobenzene	%	80		N/A	N/A	3038952
Difluorobenzene	%	85		N/A	N/A	3038952

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

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

Test Summary

Maxxam ID PP6219 **Collected** 2012/11/11
Sample ID LICA VOC/CLS/NOV 11,12 - 125 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3038947	N/A	2012/11/12	Jie Wu
Volatile Organics in Air (TO-15)	GC/MS	3038952	N/A	2012/11/15	Jie Wu

Maxxam ID PP6220 **Collected** 2012/11/11
Sample ID LICA VOC/PORT/NOV 11,12 - 307 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3038947	N/A	2012/11/12	Jie Wu
Volatile Organics in Air (TO-15)	GC/MS	3038952	N/A	2012/11/15	Jie Wu

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GENERAL COMMENTS

Hexachlorobutadiene exceed 130% recovery criteria in Reference Standard. It meets %RSD criteria in the Continuing Calibration Standard. No positive found for this compound.
It is not believed that this failure will have an effect on the integrity of the results therefore data was accepted.

Sample PP6219-01: The amount reported for 2-propanone represents the mixture of pentane and 2-propanone.

Increased DL further for propene due to possible background.

Sample PP6220-01: The amount reported for 2-propanone represents the mixture of pentane and 2-propanone.

Increased DL further for propene due to possible background.

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: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Spiked Blank	Bromochloromethane	2012/11/15		100	%	60 - 140
			D5-Chlorobenzene	2012/11/15		101	%	60 - 140
			Difluorobenzene	2012/11/15		100	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/15		107	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/11/15		106	%	70 - 130
			Chloromethane	2012/11/15		113	%	70 - 130
			Vinyl Chloride	2012/11/15		95	%	70 - 130
			Chloroethane	2012/11/15		77	%	70 - 130
			1,3-Butadiene	2012/11/15		102	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/11/15		119	%	70 - 130
			Ethanol (ethyl alcohol)	2012/11/15		112	%	70 - 130
			Trichlorotrifluoroethane	2012/11/15		94	%	70 - 130
			2-propanol	2012/11/15		126	%	70 - 130
			2-Propanone	2012/11/15		121	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/11/15		99	%	70 - 130
			Methyl Isobutyl Ketone	2012/11/15		127	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/11/15		132 (1)	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/11/15		101	%	70 - 130
			Ethyl Acetate	2012/11/15		124	%	70 - 130
			1,1-Dichloroethylene	2012/11/15		97	%	70 - 130
			cis-1,2-Dichloroethylene	2012/11/15		100	%	70 - 130
			trans-1,2-Dichloroethylene	2012/11/15		99	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/11/15		107	%	70 - 130
			Chloroform	2012/11/15		103	%	70 - 130
			Carbon Tetrachloride	2012/11/15		129	%	70 - 130
			1,1-Dichloroethane	2012/11/15		96	%	70 - 130
			1,2-Dichloroethane	2012/11/15		111	%	70 - 130
			Ethylene Dibromide	2012/11/15		107	%	70 - 130
			1,1,1-Trichloroethane	2012/11/15		118	%	70 - 130
			1,1,2-Trichloroethane	2012/11/15		109	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/11/15		104	%	70 - 130
			cis-1,3-Dichloropropene	2012/11/15		105	%	70 - 130
			trans-1,3-Dichloropropene	2012/11/15		109	%	70 - 130
			1,2-Dichloropropane	2012/11/15		99	%	70 - 130
			Bromomethane	2012/11/15		82	%	70 - 130
			Bromoform	2012/11/15		126	%	70 - 130
			Bromodichloromethane	2012/11/15		112	%	70 - 130
			Dibromochloromethane	2012/11/15		120	%	70 - 130
			Trichloroethylene	2012/11/15		109	%	70 - 130
			Tetrachloroethylene	2012/11/15		114	%	70 - 130
			Benzene	2012/11/15		97	%	70 - 130
			Toluene	2012/11/15		103	%	70 - 130
			Ethylbenzene	2012/11/15		104	%	70 - 130
			p+m-Xylene	2012/11/15		103	%	70 - 130
			o-Xylene	2012/11/15		104	%	70 - 130
			Styrene	2012/11/15		107	%	70 - 130
			4-ethyltoluene	2012/11/15		107	%	70 - 130
			1,3,5-Trimethylbenzene	2012/11/15		99	%	70 - 130
			1,2,4-Trimethylbenzene	2012/11/15		98	%	70 - 130
			Chlorobenzene	2012/11/15		108	%	70 - 130
			Benzyl chloride	2012/11/15		96	%	70 - 130
			1,3-Dichlorobenzene	2012/11/15		110	%	70 - 130
			1,4-Dichlorobenzene	2012/11/15		103	%	70 - 130
			1,2-Dichlorobenzene	2012/11/15		100	%	70 - 130
			1,2,4-Trichlorobenzene	2012/11/15		121	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Spiked Blank	Hexachlorobutadiene	2012/11/15		142 (1)	%	70 - 130
			Hexane	2012/11/15		102	%	70 - 130
			Heptane	2012/11/15		124	%	70 - 130
			Cyclohexane	2012/11/15		110	%	70 - 130
			Tetrahydrofuran	2012/11/15		128	%	70 - 130
			1,4-Dioxane	2012/11/15		106	%	70 - 130
			Xylene (Total)	2012/11/15		104	%	70 - 130
			Vinyl Bromide	2012/11/15		84	%	70 - 130
			Propene	2012/11/15		113	%	70 - 130
			2,2,4-Trimethylpentane	2012/11/15		108	%	70 - 130
			Carbon Disulfide	2012/11/15		95	%	70 - 130
			Vinyl Acetate	2012/11/15		124	%	70 - 130
		Method Blank	Bromochloromethane	2012/11/15		87	%	60 - 140
			D5-Chlorobenzene	2012/11/15		82	%	60 - 140
			Difluorobenzene	2012/11/15		91	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/15	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/11/15	<0.17		ppbv	
			Chloromethane	2012/11/15	<0.30		ppbv	
			Vinyl Chloride	2012/11/15	<0.18		ppbv	
			Chloroethane	2012/11/15	<0.30		ppbv	
			1,3-Butadiene	2012/11/15	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/11/15	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/11/15	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/11/15	<0.15		ppbv	
			2-propanol	2012/11/15	<3.0		ppbv	
			2-Propanone	2012/11/15	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/11/15	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/11/15	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/11/15	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/11/15	<0.20		ppbv	
			Ethyl Acetate	2012/11/15	<2.2		ppbv	
			1,1-Dichloroethylene	2012/11/15	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/11/15	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/11/15	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/11/15	<0.80		ppbv	
			Chloroform	2012/11/15	<0.15		ppbv	
			Carbon Tetrachloride	2012/11/15	<0.30		ppbv	
			1,1-Dichloroethane	2012/11/15	<0.20		ppbv	
			1,2-Dichloroethane	2012/11/15	<0.20		ppbv	
			Ethylene Dibromide	2012/11/15	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/11/15	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/11/15	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/11/15	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/11/15	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/11/15	<0.17		ppbv	
			1,2-Dichloropropane	2012/11/15	<0.40		ppbv	
			Bromomethane	2012/11/15	<0.18		ppbv	
			Bromoform	2012/11/15	<0.20		ppbv	
			Bromodichloromethane	2012/11/15	<0.20		ppbv	
			Dibromochloromethane	2012/11/15	<0.20		ppbv	
			Trichloroethylene	2012/11/15	<0.30		ppbv	
			Tetrachloroethylene	2012/11/15	<0.20		ppbv	
			Benzene	2012/11/15	<0.18		ppbv	
			Toluene	2012/11/15	<0.20		ppbv	
			Ethylbenzene	2012/11/15	<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: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Method Blank	p+m-Xylene	2012/11/15	<0.37		ppbv	
			o-Xylene	2012/11/15	<0.20		ppbv	
			Styrene	2012/11/15	<0.20		ppbv	
			4-ethyltoluene	2012/11/15	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/11/15	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/11/15	<0.50		ppbv	
			Chlorobenzene	2012/11/15	<0.20		ppbv	
			Benzyl chloride	2012/11/15	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/11/15	<2.0		ppbv	
			Hexachlorobutadiene	2012/11/15	<3.0		ppbv	
			Hexane	2012/11/15	<0.30		ppbv	
			Heptane	2012/11/15	<0.30		ppbv	
			Cyclohexane	2012/11/15	<0.20		ppbv	
			Tetrahydrofuran	2012/11/15	<0.40		ppbv	
			1,4-Dioxane	2012/11/15	<2.0		ppbv	
			Xylene (Total)	2012/11/15	<0.60		ppbv	
			Vinyl Bromide	2012/11/15	<0.20		ppbv	
			Propene	2012/11/15	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/11/15	<0.20		ppbv	
			Carbon Disulfide	2012/11/15	<0.50		ppbv	
			Vinyl Acetate	2012/11/15	<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/ Nov 17, 12

Sampler s/n: 6200
Canister ID: 7859
Canister Installation Date/Time: Nov 15, 12 @ 10:32 mst
Canister Removal Date/Time: Nov 19, 12 @ 11:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-12	11/17/2012 0:00	11/18/2012 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# 12461

Technician Signature: Ting Xu

Maxxam

Success Through Science®

Your C.O.C. #: 12461

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

Report Date: 2012/12/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I2883
Received: 2012/11/21, 10:29

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/14	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 #: B2I2883
Report Date: 2012/12/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		PR5556	PR5557	
Sampling Date		2012/11/18	2012/11/18	
COC Number		12461	12461	
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**LICA VOC\PORT\NOV 18,12 - 7859**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	21	3070701

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.58	2.86	0.989	0.59	0.20	2.90	0.989	3070697
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3070697
Chloromethane	ppbv	0.47	0.979	0.620	0.51	0.30	1.05	0.620	3070697
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3070697
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3070697
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3070697
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.64	1.12	0.29	0.20	1.62	1.12	3070697
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3070697
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3070697
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3070697
2-Propanone	ppbv	1.54	3.65	1.90	1.85	0.80	4.39	1.90	3070697
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3070697
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3070697
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3070697
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3070697
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3070697
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3070697
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3070697
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3070697
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3070697
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3070697
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3070697
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3070697
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3070697
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3070697
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3070697
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3070697
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3070697
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3070697
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3070697
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3070697

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3070697
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3070697
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3070697
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3070697
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3070697
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3070697
Benzene	ppbv	<0.18	<0.575	0.575	0.20	0.18	0.624	0.575	3070697
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3070697
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3070697
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3070697
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3070697
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3070697
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3070697
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3070697
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3070697
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3070697
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3070697
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3070697
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3070697
Hexane	ppbv	<0.30	<1.06	1.06	0.64	0.30	2.27	1.06	3070697
Heptane	ppbv	<0.30	<1.23	1.23	0.35	0.30	1.42	1.23	3070697
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.21	0.20	0.716	0.688	3070697
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3070697
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3070697
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3070697
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3070697
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3070697
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3070697
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3070697
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3070697

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	94	N/A	N/A	99		N/A	N/A	3070697
D5-Chlorobenzene	%	94	N/A	N/A	98		N/A	N/A	3070697
Difluorobenzene	%	97	N/A	N/A	102		N/A	N/A	3070697

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

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

Test Summary

Maxxam ID PR5556 **Collected** 2012/11/18
Sample ID LICA VOC\CLS\NOV 18,12 - 146 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3070701	N/A	2012/12/14	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

Maxxam ID PR5557 **Collected** 2012/11/18
Sample ID LICA VOC\PORT\NOV 18,12 - 7859 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3070701	N/A	2012/12/14	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

Maxxam ID PR5557 Dup **Collected** 2012/11/18
Sample ID LICA VOC\PORT\NOV 18,12 - 7859 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

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: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Spiked Blank	Bromochloromethane	2012/12/14		121	%	60 - 140
			D5-Chlorobenzene	2012/12/14		123	%	60 - 140
			Difluorobenzene	2012/12/14		124	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/14		86	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/14		94	%	70 - 130
			Chloromethane	2012/12/14		87	%	70 - 130
			Vinyl Chloride	2012/12/14		83	%	70 - 130
			Chloroethane	2012/12/14		83	%	70 - 130
			1,3-Butadiene	2012/12/14		84	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/14		89	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/14		75	%	70 - 130
			Trichlorotrifluoroethane	2012/12/14		84	%	70 - 130
			2-propanol	2012/12/14		85	%	70 - 130
			2-Propanone	2012/12/14		79	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14		95	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/14		94	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14		96	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/14		90	%	70 - 130
			Ethyl Acetate	2012/12/14		93	%	70 - 130
			1,1-Dichloroethylene	2012/12/14		90	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/14		97	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/14		87	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/14		81	%	70 - 130
			Chloroform	2012/12/14		87	%	70 - 130
			Carbon Tetrachloride	2012/12/14		88	%	70 - 130
			1,1-Dichloroethane	2012/12/14		87	%	70 - 130
			1,2-Dichloroethane	2012/12/14		91	%	70 - 130
			Ethylene Dibromide	2012/12/14		91	%	70 - 130
			1,1,1-Trichloroethane	2012/12/14		89	%	70 - 130
			1,1,2-Trichloroethane	2012/12/14		87	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/14		80	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/14		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/14		105	%	70 - 130
			1,2-Dichloropropane	2012/12/14		87	%	70 - 130
			Bromomethane	2012/12/14		84	%	70 - 130
			Bromoform	2012/12/14		83	%	70 - 130
			Bromodichloromethane	2012/12/14		84	%	70 - 130
			Dibromochloromethane	2012/12/14		86	%	70 - 130
			Trichloroethylene	2012/12/14		88	%	70 - 130
			Tetrachloroethylene	2012/12/14		90	%	70 - 130
			Benzene	2012/12/14		91	%	70 - 130
			Toluene	2012/12/14		99	%	70 - 130
			Ethylbenzene	2012/12/14		102	%	70 - 130
			p+m-Xylene	2012/12/14		98	%	70 - 130
			o-Xylene	2012/12/14		95	%	70 - 130
			Styrene	2012/12/14		102	%	70 - 130
			4-ethyltoluene	2012/12/14		95	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/14		95	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/14		99	%	70 - 130
			Chlorobenzene	2012/12/14		88	%	70 - 130
			Benzyl chloride	2012/12/14		88	%	70 - 130
			1,3-Dichlorobenzene	2012/12/14		89	%	70 - 130
			1,4-Dichlorobenzene	2012/12/14		86	%	70 - 130
			1,2-Dichlorobenzene	2012/12/14		85	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/14		86	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Spiked Blank	Hexachlorobutadiene	2012/12/14		74	%	70 - 130
			Hexane	2012/12/14		90	%	70 - 130
			Heptane	2012/12/14		91	%	70 - 130
			Cyclohexane	2012/12/14		91	%	70 - 130
			Tetrahydrofuran	2012/12/14		94	%	70 - 130
			1,4-Dioxane	2012/12/14		91	%	70 - 130
			Xylene (Total)	2012/12/14		97	%	70 - 130
			Vinyl Bromide	2012/12/14		77	%	70 - 130
			Propene	2012/12/14		80	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/14		86	%	70 - 130
			Carbon Disulfide	2012/12/14		83	%	70 - 130
			Vinyl Acetate	2012/12/14		98	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/14		90	%	60 - 140
			D5-Chlorobenzene	2012/12/14		84	%	60 - 140
			Difluorobenzene	2012/12/14		95	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/14	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/14	<0.17		ppbv	
			Chloromethane	2012/12/14	<0.30		ppbv	
			Vinyl Chloride	2012/12/14	<0.18		ppbv	
			Chloroethane	2012/12/14	<0.30		ppbv	
			1,3-Butadiene	2012/12/14	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/14	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/14	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/14	<0.15		ppbv	
			2-propanol	2012/12/14	<3.0		ppbv	
			2-Propanone	2012/12/14	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/14	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/14	<0.20		ppbv	
			Ethyl Acetate	2012/12/14	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/14	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/14	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/14	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/14	<0.80		ppbv	
			Chloroform	2012/12/14	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/14	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/14	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/14	<0.20		ppbv	
			Ethylene Dibromide	2012/12/14	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/14	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/14	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/14	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/14	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/14	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/14	<0.40		ppbv	
			Bromomethane	2012/12/14	<0.18		ppbv	
			Bromoform	2012/12/14	<0.20		ppbv	
			Bromodichloromethane	2012/12/14	<0.20		ppbv	
			Dibromochloromethane	2012/12/14	<0.20		ppbv	
			Trichloroethylene	2012/12/14	<0.30		ppbv	
			Tetrachloroethylene	2012/12/14	<0.20		ppbv	
			Benzene	2012/12/14	<0.18		ppbv	
			Toluene	2012/12/14	<0.20		ppbv	
			Ethylbenzene	2012/12/14	<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: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Method Blank	p+m-Xylene	2012/12/14	<0.37		ppbv	
			o-Xylene	2012/12/14	<0.20		ppbv	
			Styrene	2012/12/14	<0.20		ppbv	
			4-ethyltoluene	2012/12/14	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/14	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/14	<0.50		ppbv	
			Chlorobenzene	2012/12/14	<0.20		ppbv	
			Benzyl chloride	2012/12/14	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/14	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/14	<3.0		ppbv	
			Hexane	2012/12/14	<0.30		ppbv	
			Heptane	2012/12/14	<0.30		ppbv	
			Cyclohexane	2012/12/14	<0.20		ppbv	
			Tetrahydrofuran	2012/12/14	<0.40		ppbv	
			1,4-Dioxane	2012/12/14	<2.0		ppbv	
			Xylene (Total)	2012/12/14	<0.60		ppbv	
			Vinyl Bromide	2012/12/14	<0.20		ppbv	
			Propene	2012/12/14	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/14	<0.20		ppbv	
			Carbon Disulfide	2012/12/14	<0.50		ppbv	
			Vinyl Acetate	2012/12/14	<0.20		ppbv	
		RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2012/12/14	NC		%	25
			1,2-Dichlorotetrafluoroethane	2012/12/14	NC		%	25
			Chloromethane	2012/12/14	NC		%	25
			Vinyl Chloride	2012/12/14	NC		%	25
			Chloroethane	2012/12/14	NC		%	25
			1,3-Butadiene	2012/12/14	NC		%	25
			Trichlorofluoromethane (FREON 11)	2012/12/14	NC		%	25
			Ethanol (ethyl alcohol)	2012/12/14	NC		%	25
			Trichlorotrifluoroethane	2012/12/14	NC		%	25
			2-propanol	2012/12/14	NC		%	25
			2-Propanone	2012/12/14	NC		%	25
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14	NC		%	25
			Methyl Isobutyl Ketone	2012/12/14	NC		%	25
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14	NC		%	25
			Methyl t-butyl ether (MTBE)	2012/12/14	NC		%	25
			Ethyl Acetate	2012/12/14	NC		%	25
			1,1-Dichloroethylene	2012/12/14	NC		%	25
			cis-1,2-Dichloroethylene	2012/12/14	NC		%	25
			trans-1,2-Dichloroethylene	2012/12/14	NC		%	25
			Methylene Chloride(Dichloromethane)	2012/12/14	NC		%	25
			Chloroform	2012/12/14	NC		%	25
			Carbon Tetrachloride	2012/12/14	NC		%	25
			1,1-Dichloroethane	2012/12/14	NC		%	25
			1,2-Dichloroethane	2012/12/14	NC		%	25
			Ethylene Dibromide	2012/12/14	NC		%	25
			1,1,1-Trichloroethane	2012/12/14	NC		%	25
			1,1,2-Trichloroethane	2012/12/14	NC		%	25
			1,1,2,2-Tetrachloroethane	2012/12/14	NC		%	25
			cis-1,3-Dichloropropene	2012/12/14	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2012/12/14	NC		%	25
			1,2-Dichloropropane	2012/12/14	NC		%	25
			Bromomethane	2012/12/14	NC		%	25
			Bromoform	2012/12/14	NC		%	25
			Bromodichloromethane	2012/12/14	NC		%	25
			Dibromochloromethane	2012/12/14	NC		%	25
			Trichloroethylene	2012/12/14	NC		%	25
			Tetrachloroethylene	2012/12/14	NC		%	25
			Benzene	2012/12/14	NC		%	25
			Toluene	2012/12/14	NC		%	25
			Ethylbenzene	2012/12/14	NC		%	25
			p+m-Xylene	2012/12/14	NC		%	25
			o-Xylene	2012/12/14	NC		%	25
			Styrene	2012/12/14	NC		%	25
			4-ethyltoluene	2012/12/14	NC		%	25
			1,3,5-Trimethylbenzene	2012/12/14	NC		%	25
			1,2,4-Trimethylbenzene	2012/12/14	NC		%	25
			Chlorobenzene	2012/12/14	NC		%	25
			Benzyl chloride	2012/12/14	NC		%	25
			1,3-Dichlorobenzene	2012/12/14	NC		%	25
			1,4-Dichlorobenzene	2012/12/14	NC		%	25
			1,2-Dichlorobenzene	2012/12/14	NC		%	25
			1,2,4-Trichlorobenzene	2012/12/14	NC		%	25
			Hexachlorobutadiene	2012/12/14	NC		%	25
			Hexane	2012/12/14	NC		%	25
			Heptane	2012/12/14	NC		%	25
			Cyclohexane	2012/12/14	NC		%	25
			Tetrahydrofuran	2012/12/14	NC		%	25
			1,4-Dioxane	2012/12/14	NC		%	25
			Xylene (Total)	2012/12/14	NC		%	25
			Vinyl Bromide	2012/12/14	NC		%	25
			Propene	2012/12/14	NC		%	25
			2,2,4-Trimethylpentane	2012/12/14	NC		%	25
			Carbon Disulfide	2012/12/14	NC		%	25
			Vinyl Acetate	2012/12/14	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

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/ Nov 23, 12

Sampler s/n: 6200
Canister ID: 7860
Canister Installation Date/Time: Nov 22, 12 @ 15:40 mst
Canister Removal Date/Time: Nov 26, 12 @ 12:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Nov-12	11/23/2012 0:00	11/24/2012 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# 12906

Technician Signature: Ting Xu

Success Through Science®

Your C.O.C. #: 12906

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

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I7151
Received: 2012/11/28, 11:08

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/15	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/15	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 #: B2I7151
Report Date: 2012/12/18

RESULTS OF ANALYSES OF AIR

Maxxam ID		PT7030	PT7031	
Sampling Date		2012/11/23	2012/11/23	
COC Number		12906	12906	
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**LICA VOC/PORT/NOV 23,12 - 7860**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	23	21	3071798

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.80	3.96	0.989	0.77	0.20	3.81	0.989	3072213
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3072213
Chloromethane	ppbv	0.59	1.21	0.620	0.62	0.30	1.27	0.620	3072213
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3072213
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3072213
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3072213
Trichlorofluoromethane (FREON 11)	ppbv	0.27	1.50	1.12	0.26	0.20	1.47	1.12	3072213
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3072213
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3072213
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3072213
2-Propanone	ppbv	0.97	2.32	1.90	1.60	0.80	3.81	1.90	3072213
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3072213
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3072213
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3072213
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3072213
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3072213
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3072213
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3072213
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3072213
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3072213
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3072213
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3072213
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3072213
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3072213
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3072213
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3072213
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3072213
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3072213
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3072213
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3072213
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3072213

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3072213
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3072213
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3072213
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3072213
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3072213
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3072213
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.589	0.575	3072213
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3072213
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3072213
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3072213
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3072213
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3072213
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3072213
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3072213
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3072213
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3072213
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3072213
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3072213
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3072213
Hexane	ppbv	<0.30	<1.06	1.06	0.45	0.30	1.57	1.06	3072213
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3072213
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.31	0.20	1.08	0.688	3072213
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3072213
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3072213
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3072213
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3072213
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3072213
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3072213
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3072213
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3072213

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	86	N/A	N/A	83		N/A	N/A	3072213
D5-Chlorobenzene	%	87	N/A	N/A	83		N/A	N/A	3072213
Difluorobenzene	%	89	N/A	N/A	86		N/A	N/A	3072213

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

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

Test Summary

Maxxam ID PT7030 **Collected** 2012/11/23
Sample ID LICA VOC/CLS/NOV 23,12 - 266 **Shipped**
Matrix AIR **Received** 2012/11/28

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3071798	N/A	2012/12/15	
Volatile Organics in Air (TO-15)	GC/MS	3072213	N/A	2012/12/15	Angel Guerrero

Maxxam ID PT7031 **Collected** 2012/11/23
Sample ID LICA VOC/PORT/NOV 23,12 - 7860 **Shipped**
Matrix AIR **Received** 2012/11/28

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3071798	N/A	2012/12/15	
Volatile Organics in Air (TO-15)	GC/MS	3072213	N/A	2012/12/15	Angel Guerrero

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

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: GB2I7151

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213	AGU	Spiked Blank	Bromochloromethane	2012/12/15		117	%	60 - 140
			D5-Chlorobenzene	2012/12/15		121	%	60 - 140
			Difluorobenzene	2012/12/15		119	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/15		122	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/15		126	%	70 - 130
			Chloromethane	2012/12/15		112	%	70 - 130
			Vinyl Chloride	2012/12/15		102	%	70 - 130
			Chloroethane	2012/12/15		93	%	70 - 130
			1,3-Butadiene	2012/12/15		103	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/15		97	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/15		86	%	70 - 130
			Trichlorotrifluoroethane	2012/12/15		93	%	70 - 130
			2-propanol	2012/12/15		85	%	70 - 130
			2-Propanone	2012/12/15		95	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/15		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/15		99	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/15		98	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/15		90	%	70 - 130
			Ethyl Acetate	2012/12/15		106	%	70 - 130
			1,1-Dichloroethylene	2012/12/15		96	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/15		101	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/15		98	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/15		100	%	70 - 130
			Chloroform	2012/12/15		95	%	70 - 130
			Carbon Tetrachloride	2012/12/15		94	%	70 - 130
			1,1-Dichloroethane	2012/12/15		97	%	70 - 130
			1,2-Dichloroethane	2012/12/15		98	%	70 - 130
			Ethylene Dibromide	2012/12/15		99	%	70 - 130
			1,1,1-Trichloroethane	2012/12/15		94	%	70 - 130
			1,1,2-Trichloroethane	2012/12/15		96	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/15		91	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/15		97	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/15		105	%	70 - 130
			1,2-Dichloropropane	2012/12/15		99	%	70 - 130
			Bromomethane	2012/12/15		92	%	70 - 130
			Bromoform	2012/12/15		95	%	70 - 130
			Bromodichloromethane	2012/12/15		91	%	70 - 130
			Dibromochloromethane	2012/12/15		92	%	70 - 130
			Trichloroethylene	2012/12/15		93	%	70 - 130
			Tetrachloroethylene	2012/12/15		100	%	70 - 130
			Benzene	2012/12/15		94	%	70 - 130
			Toluene	2012/12/15		94	%	70 - 130
			Ethylbenzene	2012/12/15		93	%	70 - 130
			p+m-Xylene	2012/12/15		91	%	70 - 130
			o-Xylene	2012/12/15		92	%	70 - 130
			Styrene	2012/12/15		99	%	70 - 130
			4-ethyltoluene	2012/12/15		86	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/15		90	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/15		91	%	70 - 130
			Chlorobenzene	2012/12/15		95	%	70 - 130
			Benzyl chloride	2012/12/15		91	%	70 - 130
			1,3-Dichlorobenzene	2012/12/15		105	%	70 - 130
			1,4-Dichlorobenzene	2012/12/15		104	%	70 - 130
			1,2-Dichlorobenzene	2012/12/15		96	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/15		124	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I7151

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213 AGU	Spiked Blank	Hexachlorobutadiene	2012/12/15		102	%	70 - 130
		Hexane	2012/12/15		99	%	70 - 130
		Heptane	2012/12/15		104	%	70 - 130
		Cyclohexane	2012/12/15		100	%	70 - 130
		Tetrahydrofuran	2012/12/15		107	%	70 - 130
		1,4-Dioxane	2012/12/15		91	%	70 - 130
		Xylene (Total)	2012/12/15		91	%	70 - 130
		Vinyl Bromide	2012/12/15		82	%	70 - 130
		Propene	2012/12/15		111	%	70 - 130
		2,2,4-Trimethylpentane	2012/12/15		96	%	70 - 130
		Carbon Disulfide	2012/12/15		96	%	70 - 130
		Vinyl Acetate	2012/12/15		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/12/15		86	%	60 - 140
		D5-Chlorobenzene	2012/12/15		77	%	60 - 140
		Difluorobenzene	2012/12/15		87	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/12/15	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/12/15	<0.17		ppbv	
		Chloromethane	2012/12/15	<0.30		ppbv	
		Vinyl Chloride	2012/12/15	<0.18		ppbv	
		Chloroethane	2012/12/15	<0.30		ppbv	
		1,3-Butadiene	2012/12/15	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/12/15	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/12/15	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/12/15	<0.15		ppbv	
		2-propanol	2012/12/15	<3.0		ppbv	
		2-Propanone	2012/12/15	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/12/15	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/12/15	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/12/15	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/12/15	<0.20		ppbv	
		Ethyl Acetate	2012/12/15	<2.2		ppbv	
		1,1-Dichloroethylene	2012/12/15	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/12/15	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/12/15	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/12/15	<0.80		ppbv	
		Chloroform	2012/12/15	<0.15		ppbv	
		Carbon Tetrachloride	2012/12/15	<0.30		ppbv	
		1,1-Dichloroethane	2012/12/15	<0.20		ppbv	
		1,2-Dichloroethane	2012/12/15	<0.20		ppbv	
		Ethylene Dibromide	2012/12/15	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/12/15	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/12/15	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/12/15	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/12/15	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/12/15	<0.17		ppbv	
		1,2-Dichloropropane	2012/12/15	<0.40		ppbv	
		Bromomethane	2012/12/15	<0.18		ppbv	
		Bromoform	2012/12/15	<0.20		ppbv	
		Bromodichloromethane	2012/12/15	<0.20		ppbv	
		Dibromochloromethane	2012/12/15	<0.20		ppbv	
		Trichloroethylene	2012/12/15	<0.30		ppbv	
		Tetrachloroethylene	2012/12/15	<0.20		ppbv	
		Benzene	2012/12/15	<0.18		ppbv	
		Toluene	2012/12/15	<0.20		ppbv	
		Ethylbenzene	2012/12/15	<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: GB2I7151

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213	AGU	Method Blank	p+m-Xylene	2012/12/15	<0.37		ppbv	
			o-Xylene	2012/12/15	<0.20		ppbv	
			Styrene	2012/12/15	<0.20		ppbv	
			4-ethyltoluene	2012/12/15	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/15	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/15	<0.50		ppbv	
			Chlorobenzene	2012/12/15	<0.20		ppbv	
			Benzyl chloride	2012/12/15	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/15	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/15	<3.0		ppbv	
			Hexane	2012/12/15	<0.30		ppbv	
			Heptane	2012/12/15	<0.30		ppbv	
			Cyclohexane	2012/12/15	<0.20		ppbv	
			Tetrahydrofuran	2012/12/15	<0.40		ppbv	
			1,4-Dioxane	2012/12/15	<2.0		ppbv	
			Xylene (Total)	2012/12/15	<0.60		ppbv	
			Vinyl Bromide	2012/12/15	<0.20		ppbv	
			Propene	2012/12/15	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/15	<0.20		ppbv	
			Carbon Disulfide	2012/12/15	<0.50		ppbv	
			Vinyl Acetate	2012/12/15	<0.20		ppbv	
		RPD - Sample/Sample Dup	Benzene	2012/12/15	0.8		%	25
			Toluene	2012/12/15	0.7		%	25
			p+m-Xylene	2012/12/15	1.2		%	25
			o-Xylene	2012/12/15	0.7		%	25
			Styrene	2012/12/15	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: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Nov 05, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 02, 2012 @ 10:25 mst
Removal Date/Time: Nov 07, 2012 @ 10:42 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-12	11/05/2012 0:00	11/06/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Oct-12	07-Nov-12	12-Nov-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)
704	229	3.1	330.34

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 #12703
GB2F1373 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 05, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12703

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

Report Date: 2012/11/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H6335
Received: 2012/11/09, 09:10

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/10	2012/11/20	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 #: B2H6335
Report Date: 2012/11/22

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

Maxxam ID		PO0012	PO0013		
Sampling Date		2012/11/05	2012/11/05		
COC Number		12703	12703		
	Units	**LICA PUFF+QFF/CLS/NOV 05,12**	**LICA PUFF+QFF/PORT/NOV 05,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	3032640
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3032640
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3032640
2-Methylanthracene	ug	<0.10	<0.10	0.10	3032640
2-Methylnaphthalene	ug	<0.10	0.14	0.10	3032640
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3032640
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3032640
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3032640
Acenaphthene	ug	<0.050	<0.050	0.050	3032640
Acenaphthylene	ug	<0.050	<0.050	0.050	3032640
Anthracene	ug	<0.050	0.300	0.050	3032640
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3032640
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3032640
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3032640
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3032640
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3032640
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3032640
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3032640
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3032640
Biphenyl	ug	<0.10	0.14	0.10	3032640
Chrysene	ug	<0.050	<0.050	0.050	3032640
Coronene	ug	<0.10	<0.10	0.10	3032640
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3032640
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3032640
Fluoranthene	ug	0.060	0.066	0.050	3032640
Fluorene	ug	0.172	0.168	0.050	3032640
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3032640
m-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Naphthalene	ug	0.088	0.154	0.072	3032640
o-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Perylene	ug	<0.10	<0.10	0.10	3032640

RDL = Reportable Detection Limit
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 #: B2H6335
Report Date: 2012/11/22

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

Maxxam ID		PO0012	PO0013		
Sampling Date		2012/11/05	2012/11/05		
COC Number		12703	12703		
	Units	**LICA PUFF+QFF/CLS/NOV 05,12**	**LICA PUFF+QFF/PORT/NOV 05,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.296	0.284	0.050	3032640
p-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Pyrene	ug	<0.050	<0.050	0.050	3032640
Quinoline	ug	<0.40	<0.40	0.40	3032640
Tetralin	ug	<0.10	<0.10	0.10	3032640
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	72	68		3032640
D10-Fluoranthene	%	96	96		3032640
D10-Fluorene (FS)	%	13 (1)	13 (1)		3032640
D10-Phenanthrene	%	88	86		3032640
D12-Benzo(a)anthracene	%	100	98		3032640
D12-Benzo(a)pyrene	%	90	90		3032640
D12-Benzo(b)fluoranthene	%	98	96		3032640
D12-Benzo(ghi)perylene	%	94	94		3032640
D12-Benzo(k)fluoranthene	%	94	94		3032640
D12-Chrysene	%	98	96		3032640
D12-Indeno(1,2,3-cd)pyrene	%	88	88		3032640
D12-Perylene	%	90	90		3032640
D14-Dibenzo(a,h)anthracene	%	88	88		3032640
D14-Terphenyl (FS)	%	99	99		3032640
D8-Acenaphthylene	%	74	70		3032640
D8-Naphthalene	%	66	62		3032640

QC Batch = Quality Control Batch
(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 Analytics

Maxxam Job #: B2H6335
Report Date: 2012/11/22

Test Summary

Maxxam ID PO0012 **Collected** 2012/11/05
Sample ID LICA PUFF+QFF/CLS/NOV 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3032640	2012/11/10	2012/11/20	Lidija Tomic

Maxxam ID PO0013 **Collected** 2012/11/05
Sample ID LICA PUFF+QFF/PORT/NOV 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3032640	2012/11/10	2012/11/20	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2H6335
Report Date: 2012/11/22

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 compounds.

Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field 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: GB2H6335

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3032640	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/19		74	%	50 - 150
			D10-Fluoranthene	2012/11/19		96	%	50 - 150
			D10-Phenanthrene	2012/11/19		84	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/19		98	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/19		90	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/19		96	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/19		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/19		92	%	50 - 150
			D12-Chrysene	2012/11/19		96	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/19		88	%	50 - 150
			D12-Perylene	2012/11/19		94	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/19		88	%	50 - 150
			D8-Acenaphthylene	2012/11/19		74	%	50 - 150
			D8-Naphthalene	2012/11/19		70	%	50 - 150
			Acenaphthene	2012/11/19		76	%	60 - 130
		RPD	Acenaphthene	2012/11/20	8.2		%	50
		Spiked Blank	Acenaphthylene	2012/11/19		77	%	60 - 130
		RPD	Acenaphthylene	2012/11/20	8.4		%	50
		Spiked Blank	Anthracene	2012/11/19		91	%	60 - 130
		RPD	Anthracene	2012/11/20	5.1		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/19		101	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/20	2.4		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/19		85	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/20	4.0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/19		95	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/20	5.6		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/19		91	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/20	5.9		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/19		99	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/20	5.2		%	50
		Spiked Blank	Chrysene	2012/11/19		94	%	60 - 130
		RPD	Chrysene	2012/11/20	2.9		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/19		94	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/20	5.9		%	50
		Spiked Blank	Fluoranthene	2012/11/19		99	%	60 - 130
		RPD	Fluoranthene	2012/11/20	4.9		%	50
		Spiked Blank	Fluorene	2012/11/19		81	%	60 - 130
		RPD	Fluorene	2012/11/20	6.0		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/19		90	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/20	7.0		%	50
		Spiked Blank	Naphthalene	2012/11/19		73	%	60 - 130
		RPD	Naphthalene	2012/11/20	9.4		%	50
		Spiked Blank	Phenanthrene	2012/11/19		87	%	60 - 130
		RPD	Phenanthrene	2012/11/20	3.9		%	50
		Spiked Blank	Pyrene	2012/11/19		95	%	60 - 130
		RPD	Pyrene	2012/11/20	4.9		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/20		72	%	50 - 150
			D10-Fluoranthene	2012/11/20		94	%	50 - 150
			D10-Phenanthrene	2012/11/20		84	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		94	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		88	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		94	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		90	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Chrysene	2012/11/20		92	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H6335

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3032640	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/20		88	%	50 - 150
			D12-Perylene	2012/11/20		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		88	%	50 - 150
			D8-Acenaphthylene	2012/11/20		74	%	50 - 150
			D8-Naphthalene	2012/11/20		68	%	50 - 150
			1-Methylnaphthalene	2012/11/20	<0.10		ug	
			1-Methylphenanthrene	2012/11/20	<0.10		ug	
			2-Chloronaphthalene	2012/11/20	<0.10		ug	
			2-Methylanthracene	2012/11/20	<0.10		ug	
			2-Methylnaphthalene	2012/11/20	<0.10		ug	
			3-Methylcholanthrene	2012/11/20	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/20	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/20	<0.40		ug	
			Acenaphthene	2012/11/20	<0.050		ug	
			Acenaphthylene	2012/11/20	<0.050		ug	
			Anthracene	2012/11/20	<0.050		ug	
			Benzo(a)anthracene	2012/11/20	<0.050		ug	
			Benzo(a)fluorene	2012/11/20	<0.10		ug	
			Benzo(a)pyrene	2012/11/20	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/20	<0.050		ug	
			Benzo(b)fluorene	2012/11/20	<0.10		ug	
			Benzo(e)pyrene	2012/11/20	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/20	<0.050		ug	
			Benzo(k)fluoranthene	2012/11/20	<0.050		ug	
			Biphenyl	2012/11/20	<0.10		ug	
			Chrysene	2012/11/20	<0.050		ug	
			Coronene	2012/11/20	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/20	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/20	<0.20		ug	
			Fluoranthene	2012/11/20	<0.050		ug	
			Fluorene	2012/11/20	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/20	<0.050		ug	
			m-Terphenyl	2012/11/20	<0.10		ug	
			Naphthalene	2012/11/20	<0.072		ug	
			o-Terphenyl	2012/11/20	<0.10		ug	
			Perylene	2012/11/20	<0.10		ug	
			Phenanthrene	2012/11/20	<0.050		ug	
			p-Terphenyl	2012/11/20	<0.10		ug	
			Pyrene	2012/11/20	<0.050		ug	
			Quinoline	2012/11/20	<0.40		ug	
			Tetralin	2012/11/20	<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/Nov 11, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 07, 2012 @ 10:55 mst
Removal Date/Time: Nov 12, 2012 @ 12:10 mst

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

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
06-Nov-12	12-Nov-12	19-Nov-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)
710	229	-18.2	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 #12769
GB2F1374 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 05, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12769

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

Report Date: 2012/11/21

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H9458
Received: 2012/11/15, 09:10

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/16	2012/11/20	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 Job #: B2H9458
Report Date: 2012/11/21

SEMI-VOLATILE ORGANICS BY GC-MS (AIR)

Maxxam ID		PP6410	PP6411		
Sampling Date					
COC Number		12769	12769		
	Units	**LICA PUFF/QFF/CLS/NOV11,12**	**LICA PUFF/QFF/PORT/NOV11,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.35	1.06	0.10	3039127
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3039127
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3039127
2-Methylanthracene	ug	<0.10	<0.10	0.10	3039127
2-Methylnaphthalene	ug	0.65	1.90	0.10	3039127
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3039127
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3039127
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3039127
Acenaphthene	ug	<0.050	0.128	0.050	3039127
Acenaphthylene	ug	<0.050	<0.050	0.050	3039127
Anthracene	ug	0.210	<0.050	0.050	3039127
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3039127
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3039127
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3039127
Benzo(b)fluoranthene	ug	0.076	<0.050	0.050	3039127
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3039127
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3039127
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3039127
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3039127
Biphenyl	ug	0.38	0.55	0.10	3039127
Chrysene	ug	0.084	<0.050	0.050	3039127
Coronene	ug	<0.10	<0.10	0.10	3039127
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3039127
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3039127
Fluoranthene	ug	0.104	0.086	0.050	3039127
Fluorene	ug	0.128	0.244	0.050	3039127
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3039127
m-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Naphthalene	ug	0.586	0.734	0.072	3039127
o-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Perylene	ug	<0.10	<0.10	0.10	3039127
Phenanthrene	ug	0.198	0.288	0.050	3039127

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9458
Report Date: 2012/11/21

SEMI-VOLATILE ORGANICS BY GC-MS (AIR)

Maxxam ID		PP6410	PP6411		
Sampling Date					
COC Number		12769	12769		
	Units	**LICA PUFF/QFF/CLS/NOV11,12**	**LICA PUFF/QFF/PORT/NOV11,12**	**RDL**	**QC Batch**
p-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Pyrene	ug	0.072	0.060	0.050	3039127
Quinoline	ug	<0.40	<0.40	0.40	3039127
Tetralin	ug	<0.10	<0.10	0.10	3039127
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	68		3039127
D10-Fluoranthene	%	92	92		3039127
D10-Fluorene (FS)	%	66	69		3039127
D10-Phenanthrene	%	82	82		3039127
D12-Benzo(a)anthracene	%	94	96		3039127
D12-Benzo(a)pyrene	%	88	86		3039127
D12-Benzo(b)fluoranthene	%	92	92		3039127
D12-Benzo(ghi)perylene	%	90	88		3039127
D12-Benzo(k)fluoranthene	%	90	88		3039127
D12-Chrysene	%	92	94		3039127
D12-Indeno(1,2,3-cd)pyrene	%	86	84		3039127
D12-Perylene	%	88	86		3039127
D14-Dibenzo(a,h)anthracene	%	86	82		3039127
D14-Terphenyl (FS)	%	95	94		3039127
D8-Acenaphthylene	%	72	70		3039127
D8-Naphthalene	%	62	60		3039127

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9458
Report Date: 2012/11/21

Test Summary

Maxxam ID PP6410 **Collected**
Sample ID LICA PUFF/QFF/CLS/NOV11,12 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3039127	2012/11/16	2012/11/20	Lidija Tomic

Maxxam ID PP6411 **Collected**
Sample ID LICA PUFF/QFF/PORT/NOV11,12 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3039127	2012/11/16	2012/11/20	Lidija Tomic

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

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.
9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 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: GB2H9458

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3039127	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/20		76	%	50 - 150
			D10-Fluoranthene	2012/11/20		90	%	50 - 150
			D10-Phenanthrene	2012/11/20		80	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		90	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		90	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Chrysene	2012/11/20		92	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/20		88	%	50 - 150
			D12-Perylene	2012/11/20		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		86	%	50 - 150
			D8-Acenaphthylene	2012/11/20		74	%	50 - 150
			D8-Naphthalene	2012/11/20		72	%	50 - 150
			Acenaphthene	2012/11/20		78	%	60 - 130
		RPD	Acenaphthene	2012/11/20	1.6		%	50
		Spiked Blank	Acenaphthylene	2012/11/20		79	%	60 - 130
		RPD	Acenaphthylene	2012/11/20	2.9		%	50
		Spiked Blank	Anthracene	2012/11/20		85	%	60 - 130
		RPD	Anthracene	2012/11/20	0.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/20		98	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/20	1.8		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/20		81	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/20	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/20		96	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/20	2.1		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/20		90	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/20	0.6		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/20		98	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/20	1.5		%	50
		Spiked Blank	Chrysene	2012/11/20		94	%	60 - 130
		RPD	Chrysene	2012/11/20	1.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/20		93	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/20	3.3		%	50
		Spiked Blank	Fluoranthene	2012/11/20		96	%	60 - 130
		RPD	Fluoranthene	2012/11/20	1.0		%	50
		Spiked Blank	Fluorene	2012/11/20		81	%	60 - 130
		RPD	Fluorene	2012/11/20	1.9		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/20		89	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/20	0.6		%	50
		Spiked Blank	Naphthalene	2012/11/20		77	%	60 - 130
		RPD	Naphthalene	2012/11/20	1		%	50
		Spiked Blank	Phenanthrene	2012/11/20		82	%	60 - 130
		RPD	Phenanthrene	2012/11/20	0.6		%	50
		Spiked Blank	Pyrene	2012/11/20		91	%	60 - 130
		RPD	Pyrene	2012/11/20	1.1		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/20		68	%	50 - 150
			D10-Fluoranthene	2012/11/20		86	%	50 - 150
			D10-Phenanthrene	2012/11/20		72	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		90	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		88	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		88	%	50 - 150
			D12-Chrysene	2012/11/20		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: GB2H9458

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3039127	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/20		86	%	50 - 150
			D12-Perylene	2012/11/20		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		82	%	50 - 150
			D8-Acenaphthylene	2012/11/20		68	%	50 - 150
			D8-Naphthalene	2012/11/20		64	%	50 - 150
			1-Methylnaphthalene	2012/11/20	<0.10		ug	
			1-Methylphenanthrene	2012/11/20	<0.10		ug	
			2-Chloronaphthalene	2012/11/20	<0.10		ug	
			2-Methylanthracene	2012/11/20	<0.10		ug	
			2-Methylnaphthalene	2012/11/20	<0.10		ug	
			3-Methylcholanthrene	2012/11/20	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/20	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/20	<0.40		ug	
			Acenaphthene	2012/11/20	<0.050		ug	
			Acenaphthylene	2012/11/20	<0.050		ug	
			Anthracene	2012/11/20	<0.050		ug	
			Benzo(a)anthracene	2012/11/20	<0.050		ug	
			Benzo(a)fluorene	2012/11/20	<0.10		ug	
			Benzo(a)pyrene	2012/11/20	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/20	<0.050		ug	
			Benzo(b)fluorene	2012/11/20	<0.10		ug	
			Benzo(e)pyrene	2012/11/20	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/20	<0.050		ug	
			Benzo(k)fluoranthene	2012/11/20	<0.050		ug	
			Biphenyl	2012/11/20	<0.10		ug	
			Chrysene	2012/11/20	<0.050		ug	
			Coronene	2012/11/20	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/20	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/20	<0.20		ug	
			Fluoranthene	2012/11/20	<0.050		ug	
			Fluorene	2012/11/20	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/20	<0.050		ug	
			m-Terphenyl	2012/11/20	<0.10		ug	
			Naphthalene	2012/11/20	<0.072		ug	
			o-Terphenyl	2012/11/20	<0.10		ug	
			Perylene	2012/11/20	<0.10		ug	
			Phenanthrene	2012/11/20	<0.050		ug	
			p-Terphenyl	2012/11/20	<0.10		ug	
			Pyrene	2012/11/20	<0.050		ug	
			Quinoline	2012/11/20	<0.40		ug	
			Tetralin	2012/11/20	<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/Nov 17, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 15, 2012 @ 11:40 mst
Removal Date/Time: Nov 19, 2012 @ 11:15 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-12	11/17/2012 0:00	11/18/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
13-Nov-12	19-Nov-12	26-Nov-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)
704	229	-7.1	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 #12462
GB2G3675 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 17, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12462

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

Report Date: 2012/11/27

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I2998
Received: 2012/11/21, 09:00

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/23	2012/11/27	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 #: B2I2998
Report Date: 2012/11/27

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

Maxxam ID		PR6083	PR6084		
Sampling Date		2012/11/18	2012/11/18		
COC Number		12462	12462		
	Units	**LICA PUFF+QFF/CLS/NOV 18,12**	**LICA PUFF+QFF/PORT/NOV 18,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	0.21	0.10	3046459
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3046459
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3046459
2-Methylanthracene	ug	<0.10	<0.10	0.10	3046459
2-Methylnaphthalene	ug	0.19	0.34	0.10	3046459
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3046459
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3046459
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3046459
Acenaphthene	ug	<0.050	<0.050	0.050	3046459
Acenaphthylene	ug	0.210	<0.050	0.050	3046459
Anthracene	ug	<0.050	<0.050	0.050	3046459
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3046459
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3046459
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3046459
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3046459
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3046459
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3046459
Benzo(g,h,i)perylene	ug	0.056	<0.050	0.050	3046459
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3046459
Biphenyl	ug	0.25	0.34	0.10	3046459
Chrysene	ug	<0.050	<0.050	0.050	3046459
Coronene	ug	<0.10	<0.10	0.10	3046459
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3046459
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3046459
Fluoranthene	ug	0.166	<0.050	0.050	3046459
Fluorene	ug	0.220	0.184	0.050	3046459
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3046459
m-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Naphthalene	ug	0.188	0.266	0.072	3046459
o-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Perylene	ug	<0.10	<0.10	0.10	3046459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

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

Maxxam ID		PR6083	PR6084		
Sampling Date		2012/11/18	2012/11/18		
COC Number		12462	12462		
	Units	**LICA PUFF+QFF/CLS/NOV 18,12**	**LICA PUFF+QFF/PORT/NOV 18,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.386	0.188	0.050	3046459
p-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Pyrene	ug	0.190	<0.050	0.050	3046459
Quinoline	ug	<0.40	<0.40	0.40	3046459
Tetralin	ug	<0.10	<0.10	0.10	3046459
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	58	72		3046459
D10-Fluoranthene	%	88	94		3046459
D10-Fluorene (FS)	%	40 (1)	55		3046459
D10-Phenanthrene	%	78	84		3046459
D12-Benzo(a)anthracene	%	90	88		3046459
D12-Benzo(a)pyrene	%	88	88		3046459
D12-Benzo(b)fluoranthene	%	90	88		3046459
D12-Benzo(ghi)perylene	%	90	94		3046459
D12-Benzo(k)fluoranthene	%	86	88		3046459
D12-Chrysene	%	88	84		3046459
D12-Indeno(1,2,3-cd)pyrene	%	90	96		3046459
D12-Perylene	%	86	88		3046459
D14-Dibenzo(a,h)anthracene	%	90	98		3046459
D14-Terphenyl (FS)	%	90	95		3046459
D8-Acenaphthylene	%	62	74		3046459
D8-Naphthalene	%	54	66		3046459

QC Batch = Quality Control Batch
(1) Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

Test Summary

Maxxam ID PR6083 **Collected** 2012/11/18
Sample ID LICA PUFF+QFF/CLS/NOV 18,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3046459	2012/11/23	2012/11/27	Lidija Tomic

Maxxam ID PR6084 **Collected** 2012/11/18
Sample ID LICA PUFF+QFF/PORT/NOV 18,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3046459	2012/11/23	2012/11/27	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 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: GB2I2998

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3046459	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/26		74	%	50 - 150
			D10-Fluoranthene	2012/11/26		90	%	50 - 150
			D10-Phenanthrene	2012/11/26		80	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/26		90	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/26		88	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/26		88	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/26		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/26		90	%	50 - 150
			D12-Chrysene	2012/11/26		88	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/26		92	%	50 - 150
			D12-Perylene	2012/11/26		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/26		92	%	50 - 150
			D8-Acenaphthylene	2012/11/26		76	%	50 - 150
			D8-Naphthalene	2012/11/26		74	%	50 - 150
			Acenaphthene	2012/11/26		77	%	60 - 130
		RPD	Acenaphthene	2012/11/26	2.0		%	50
		Spiked Blank	Acenaphthylene	2012/11/26		78	%	60 - 130
		RPD	Acenaphthylene	2012/11/26	2.9		%	50
		Spiked Blank	Anthracene	2012/11/26		84	%	60 - 130
		RPD	Anthracene	2012/11/26	7.1		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/26		93	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/26	2.5		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/26		78	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/26	4.3		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/26		92	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/26	1.6		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/26		90	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/26	4.8		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/26		89	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/26	2.3		%	50
		Spiked Blank	Chrysene	2012/11/26		86	%	60 - 130
		RPD	Chrysene	2012/11/26	0.3		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/26		98	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/26	8.8		%	50
		Spiked Blank	Fluoranthene	2012/11/26		91	%	60 - 130
		RPD	Fluoranthene	2012/11/26	4.8		%	50
		Spiked Blank	Fluorene	2012/11/26		80	%	60 - 130
		RPD	Fluorene	2012/11/26	4.2		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/26		90	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/26	4.0		%	50
		Spiked Blank	Naphthalene	2012/11/26		78	%	60 - 130
		RPD	Naphthalene	2012/11/26	1.3		%	50
		Spiked Blank	Phenanthrene	2012/11/26		82	%	60 - 130
		RPD	Phenanthrene	2012/11/26	6.0		%	50
		Spiked Blank	Pyrene	2012/11/26		87	%	60 - 130
		RPD	Pyrene	2012/11/26	5.0		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/26		68	%	50 - 150
			D10-Fluoranthene	2012/11/26		86	%	50 - 150
			D10-Phenanthrene	2012/11/26		78	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/26		84	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/26		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/26		84	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/26		88	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/26		86	%	50 - 150
			D12-Chrysene	2012/11/26		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: GB2I2998

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3046459	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/26		90	%	50 - 150
			D12-Perylene	2012/11/26		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/26		90	%	50 - 150
			D8-Acenaphthylene	2012/11/26		72	%	50 - 150
			D8-Naphthalene	2012/11/26		70	%	50 - 150
			1-Methylnaphthalene	2012/11/26	<0.10		ug	
			1-Methylphenanthrene	2012/11/26	<0.10		ug	
			2-Chloronaphthalene	2012/11/26	<0.10		ug	
			2-Methylanthracene	2012/11/26	<0.10		ug	
			2-Methylnaphthalene	2012/11/26	<0.10		ug	
			3-Methylcholanthrene	2012/11/26	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/26	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/26	<0.40		ug	
			Acenaphthene	2012/11/26	<0.050		ug	
			Acenaphthylene	2012/11/26	<0.050		ug	
			Anthracene	2012/11/26	<0.050		ug	
			Benzo(a)anthracene	2012/11/26	<0.050		ug	
			Benzo(a)fluorene	2012/11/26	<0.10		ug	
			Benzo(a)pyrene	2012/11/26	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/26	<0.050		ug	
			Benzo(b)fluorene	2012/11/26	<0.10		ug	
			Benzo(e)pyrene	2012/11/26	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/26	0.050, RDL=0.050		ug	
			Benzo(k)fluoranthene	2012/11/26	<0.050		ug	
			Biphenyl	2012/11/26	<0.10		ug	
			Chrysene	2012/11/26	<0.050		ug	
			Coronene	2012/11/26	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/26	0.050, RDL=0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/26	<0.20		ug	
			Fluoranthene	2012/11/26	<0.050		ug	
			Fluorene	2012/11/26	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/26	<0.050		ug	
			m-Terphenyl	2012/11/26	<0.10		ug	
			Naphthalene	2012/11/26	<0.072		ug	
			o-Terphenyl	2012/11/26	<0.10		ug	
			Perylene	2012/11/26	<0.10		ug	
			Phenanthrene	2012/11/26	<0.050		ug	
			p-Terphenyl	2012/11/26	<0.10		ug	
			Pyrene	2012/11/26	<0.050		ug	
			Quinoline	2012/11/26	<0.40		ug	
			Tetralin	2012/11/26	<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/Nov 23, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 22, 2012 @ 15:50 mst
Removal Date/Time: Nov 26, 2012 @ 13:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Nov-12	11/23/2012 0:00	11/24/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
20-Nov-12	26-Nov-12	03-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)
712	229	-15.2	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 #12907
GB2G3677 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 23, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12907

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

Report Date: 2012/12/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I8136
Received: 2012/11/29, 10:50

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/30	2012/12/04	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

Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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

Maxxam ID		PU1888	PU1889		
Sampling Date		2012/11/23	2012/11/23		
COC Number		12907	12907		
	Units	**LICA PUFF+QFF/CLS/NOV 23,12**	**LICA PUFF+QFF/PORT/NOV 23,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.27	0.35	0.10	3053933
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3053933
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3053933
2-Methylanthracene	ug	<0.10	<0.10	0.10	3053933
2-Methylnaphthalene	ug	0.58	0.73	0.10	3053933
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3053933
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3053933
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3053933
Acenaphthene	ug	0.084	<0.050	0.050	3053933
Acenaphthylene	ug	0.078	<0.050	0.050	3053933
Anthracene	ug	<0.050	<0.050	0.050	3053933
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3053933
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3053933
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3053933
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3053933
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3053933
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3053933
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3053933
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3053933
Biphenyl	ug	0.45	0.54	0.10	3053933
Chrysene	ug	<0.050	<0.050	0.050	3053933
Coronene	ug	<0.10	<0.10	0.10	3053933
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3053933
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3053933
Fluoranthene	ug	0.180	0.118	0.050	3053933
Fluorene	ug	0.172	0.218	0.050	3053933
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3053933
m-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Naphthalene	ug	0.590	0.412	0.072	3053933
o-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Perylene	ug	<0.10	<0.10	0.10	3053933

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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

Maxxam ID		PU1888	PU1889		
Sampling Date		2012/11/23	2012/11/23		
COC Number		12907	12907		
	Units	**LICA PUFF+QFF/CLS/NOV 23,12**	**LICA PUFF+QFF/PORT/NOV 23,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.496	0.368	0.050	3053933
p-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Pyrene	ug	0.112	0.080	0.050	3053933
Quinoline	ug	<0.40	<0.40	0.40	3053933
Tetralin	ug	<0.10	<0.10	0.10	3053933
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	60	68		3053933
D10-Fluoranthene	%	90	88		3053933
D10-Fluorene (FS)	%	57	61		3053933
D10-Phenanthrene	%	78	80		3053933
D12-Benzo(a)anthracene	%	88	92		3053933
D12-Benzo(a)pyrene	%	86	90		3053933
D12-Benzo(b)fluoranthene	%	90	92		3053933
D12-Benzo(ghi)perylene	%	88	88		3053933
D12-Benzo(k)fluoranthene	%	86	88		3053933
D12-Chrysene	%	86	90		3053933
D12-Indeno(1,2,3-cd)pyrene	%	92	90		3053933
D12-Perylene	%	86	90		3053933
D14-Dibenzo(a,h)anthracene	%	90	90		3053933
D14-Terphenyl (FS)	%	92	89		3053933
D8-Acenaphthylene	%	62	70		3053933
D8-Naphthalene	%	58	64		3053933

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

Test Summary

Maxxam ID PU1888 **Collected** 2012/11/23
Sample ID LICA PUFF+QFF/CLS/NOV 23,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3053933	2012/11/30	2012/12/04	Lidija Tomic

Maxxam ID PU1889 **Collected** 2012/11/23
Sample ID LICA PUFF+QFF/PORT/NOV 23,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3053933	2012/11/30	2012/12/04	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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: GB2I8136

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3053933	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/04		76	%	50 - 150
			D10-Fluoranthene	2012/12/04		92	%	50 - 150
			D10-Phenanthrene	2012/12/04		82	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/04		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/04		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/04		94	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/04		90	%	50 - 150
			D12-Chrysene	2012/12/04		90	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/04		98	%	50 - 150
			D12-Perylene	2012/12/04		92	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/04		96	%	50 - 150
			D8-Acenaphthylene	2012/12/04		76	%	50 - 150
			D8-Naphthalene	2012/12/04		74	%	50 - 150
			Acenaphthene	2012/12/04		79	%	60 - 130
		RPD	Acenaphthene	2012/12/04	3.7		%	50
		Spiked Blank	Acenaphthylene	2012/12/04		79	%	60 - 130
		RPD	Acenaphthylene	2012/12/04	3.8		%	50
		Spiked Blank	Anthracene	2012/12/04		87	%	60 - 130
		RPD	Anthracene	2012/12/04	0.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/04		95	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/04	1.1		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/04		80	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/04	0.3		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/04	1.1		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/04		93	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/04	0.8		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/04	0.8		%	50
		Spiked Blank	Chrysene	2012/12/04		90	%	60 - 130
		RPD	Chrysene	2012/12/04	1.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/04		104	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/04	2.0		%	50
		Spiked Blank	Fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Fluoranthene	2012/12/04	2.7		%	50
		Spiked Blank	Fluorene	2012/12/04		81	%	60 - 130
		RPD	Fluorene	2012/12/04	3.1		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/04		97	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/04	1.6		%	50
		Spiked Blank	Naphthalene	2012/12/04		81	%	60 - 130
		RPD	Naphthalene	2012/12/04	7.5		%	50
		Spiked Blank	Phenanthrene	2012/12/04		83	%	60 - 130
		RPD	Phenanthrene	2012/12/04	0.6		%	50
		Spiked Blank	Pyrene	2012/12/04		89	%	60 - 130
		RPD	Pyrene	2012/12/04	2.0		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/04		74	%	50 - 150
			D10-Fluoranthene	2012/12/04		88	%	50 - 150
			D10-Phenanthrene	2012/12/04		78	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/04		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/04		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/04		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Chrysene	2012/12/04		92	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I8136

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3053933	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/04		94	%	50 - 150
			D12-Perylene	2012/12/04		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/04		92	%	50 - 150
			D8-Acenaphthylene	2012/12/04		74	%	50 - 150
			D8-Naphthalene	2012/12/04		72	%	50 - 150
			1-Methylnaphthalene	2012/12/04	<0.10		ug	
			1-Methylphenanthrene	2012/12/04	<0.10		ug	
			2-Chloronaphthalene	2012/12/04	<0.10		ug	
			2-Methylanthracene	2012/12/04	<0.10		ug	
			2-Methylnaphthalene	2012/12/04	<0.10		ug	
			3-Methylcholanthrene	2012/12/04	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/12/04	<0.10		ug	
			9,10-Dimethylanthracene	2012/12/04	<0.40		ug	
			Acenaphthene	2012/12/04	<0.050		ug	
			Acenaphthylene	2012/12/04	<0.050		ug	
			Anthracene	2012/12/04	<0.050		ug	
			Benzo(a)anthracene	2012/12/04	<0.050		ug	
			Benzo(a)fluorene	2012/12/04	<0.10		ug	
			Benzo(a)pyrene	2012/12/04	<0.050		ug	
			Benzo(b)fluoranthene	2012/12/04	<0.050		ug	
			Benzo(b)fluorene	2012/12/04	<0.10		ug	
			Benzo(e)pyrene	2012/12/04	<0.10		ug	
			Benzo(g,h,i)perylene	2012/12/04	<0.050		ug	
			Benzo(k)fluoranthene	2012/12/04	<0.050		ug	
			Biphenyl	2012/12/04	<0.10		ug	
			Chrysene	2012/12/04	<0.050		ug	
			Coronene	2012/12/04	<0.10		ug	
			Dibenz(a,h)anthracene	2012/12/04	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/12/04	<0.20		ug	
			Fluoranthene	2012/12/04	<0.050		ug	
			Fluorene	2012/12/04	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/12/04	<0.050		ug	
			m-Terphenyl	2012/12/04	<0.10		ug	
			Naphthalene	2012/12/04	<0.072		ug	
			o-Terphenyl	2012/12/04	<0.10		ug	
			Perylene	2012/12/04	<0.10		ug	
			Phenanthrene	2012/12/04	<0.050		ug	
			p-Terphenyl	2012/12/04	<0.10		ug	
			Pyrene	2012/12/04	<0.050		ug	
			Quinoline	2012/12/04	<0.40		ug	
			Tetralin	2012/12/04	<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/Nov 29, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 26, 2012 @ 13:15 mst
Removal Date/Time: Dec 03, 2012 @ 14:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Nov-12	11/29/2012 0:00	11/30/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
23-Nov-12	03-Dec-12	06-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)
711	229	-15.9	330.33

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# 12945
GB2G3679 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 29, 12

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12945

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

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J2316
Received: 2012/12/06, 09:10

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/07	2012/12/14	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

Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

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

Maxxam ID		PW4883	PW4884		
Sampling Date		2012/11/29	2012/11/29		
COC Number		12945	12945		
	Units	**LICA PUFF+QFF/CLS/NOV 29,12**	**LICA PUFF+QFF/PORT/NOV 29,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.40	0.18	0.10	3062151
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3062151
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3062151
2-Methylanthracene	ug	<0.10	<0.10	0.10	3062151
2-Methylnaphthalene	ug	0.72	0.32	0.10	3062151
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3062151
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3062151
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3062151
Acenaphthene	ug	0.080	<0.050	0.050	3062151
Acenaphthylene	ug	0.100	<0.050	0.050	3062151
Anthracene	ug	<0.050	0.140	0.050	3062151
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3062151
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3062151
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3062151
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3062151
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3062151
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3062151
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3062151
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3062151
Biphenyl	ug	0.28	0.20	0.10	3062151
Chrysene	ug	<0.050	<0.050	0.050	3062151
Coronene	ug	<0.10	<0.10	0.10	3062151
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3062151
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3062151
Fluoranthene	ug	0.100	<0.050	0.050	3062151
Fluorene	ug	0.140	0.080	0.050	3062151
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3062151
m-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Naphthalene	ug	0.860	0.260	0.072	3062151
o-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Perylene	ug	<0.10	<0.10	0.10	3062151

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

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

Maxxam ID		PW4883	PW4884		
Sampling Date		2012/11/29	2012/11/29		
COC Number		12945	12945		
	Units	**LICA PUFF+QFF/CLS/NOV 29,12**	**LICA PUFF+QFF/PORT/NOV 29,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.300	0.120	0.050	3062151
p-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Pyrene	ug	0.060	<0.050	0.050	3062151
Quinoline	ug	<0.40	<0.40	0.40	3062151
Tetralin	ug	<0.10	<0.10	0.10	3062151
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	64		3062151
D10-Fluoranthene	%	84	80		3062151
D10-Fluorene (FS)	%	64	62		3062151
D10-Phenanthrene	%	74	72		3062151
D12-Benzo(a)anthracene	%	86	82		3062151
D12-Benzo(a)pyrene	%	88	84		3062151
D12-Benzo(b)fluoranthene	%	84	82		3062151
D12-Benzo(ghi)perylene	%	86	80		3062151
D12-Benzo(k)fluoranthene	%	86	82		3062151
D12-Chrysene	%	86	82		3062151
D12-Indeno(1,2,3-cd)pyrene	%	86	84		3062151
D12-Perylene	%	86	82		3062151
D14-Dibenzo(a,h)anthracene	%	86	82		3062151
D14-Terphenyl (FS)	%	84	82		3062151
D8-Acenaphthylene	%	68	66		3062151
D8-Naphthalene	%	66	64		3062151

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

Test Summary

Maxxam ID PW4883 **Collected** 2012/11/29
Sample ID LICA PUFF+QFF/CLS/NOV 29,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3062151	2012/12/07	2012/12/14	Lidija Tomic

Maxxam ID PW4884 **Collected** 2012/11/29
Sample ID LICA PUFF+QFF/PORT/NOV 29,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3062151	2012/12/07	2012/12/14	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

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: GB2J2316

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3062151	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/14		60	%	50 - 150
			D10-Fluoranthene	2012/12/14		74	%	50 - 150
			D10-Phenanthrene	2012/12/14		64	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		74	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		78	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		74	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		76	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		78	%	50 - 150
			D12-Chrysene	2012/12/14		72	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/14		78	%	50 - 150
			D12-Perylene	2012/12/14		76	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		78	%	50 - 150
			D8-Acenaphthylene	2012/12/14		62	%	50 - 150
			D8-Naphthalene	2012/12/14		60	%	50 - 150
			Acenaphthene	2012/12/14		65	%	60 - 130
		RPD	Acenaphthene	2012/12/14	8.0		%	50
		Spiked Blank	Acenaphthylene	2012/12/14		65	%	60 - 130
		RPD	Acenaphthylene	2012/12/14	8.0		%	50
		Spiked Blank	Anthracene	2012/12/14		70	%	60 - 130
		RPD	Anthracene	2012/12/14	6.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/14		80	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/14	9.0		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/14		73	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/14	6.7		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/14		78	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/14	9.2		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/14		80	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/14	9.0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/14		85	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/14	8.5		%	50
		Spiked Blank	Chrysene	2012/12/14		75	%	60 - 130
		RPD	Chrysene	2012/12/14	12.5		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/14		88	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/14	5.6		%	50
		Spiked Blank	Fluoranthene	2012/12/14		78	%	60 - 130
		RPD	Fluoranthene	2012/12/14	6.3		%	50
		Spiked Blank	Fluorene	2012/12/14		65	%	60 - 130
		RPD	Fluorene	2012/12/14	3.9		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/14		83	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/14	5.9		%	50
		Spiked Blank	Naphthalene	2012/12/14		65	%	60 - 130
		RPD	Naphthalene	2012/12/14	8.0		%	50
		Spiked Blank	Phenanthrene	2012/12/14		68	%	60 - 130
		RPD	Phenanthrene	2012/12/14	3.6		%	50
		Spiked Blank	Pyrene	2012/12/14		75	%	60 - 130
		RPD	Pyrene	2012/12/14	6.5		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/14		52	%	50 - 150
			D10-Fluoranthene	2012/12/14		80	%	50 - 150
			D10-Phenanthrene	2012/12/14		68	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		76	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		80	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		76	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		80	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		78	%	50 - 150
			D12-Chrysene	2012/12/14		74	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2J2316

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3062151	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/14		82	%	50 - 150
			D12-Perylene	2012/12/14		78	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		82	%	50 - 150
			D8-Acenaphthylene	2012/12/14		56	%	50 - 150
			D8-Naphthalene	2012/12/14		50	%	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.

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Lakeland Industry & Community Association

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

Prepared By:

December 20, 2012

Lakeland Industry & Community Association
St. Lina
Ambient Air Monitoring

Table of Contents

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: St. Lina
Data Period: November 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 – November 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	0.74	8	22	14, 15	5.1 6.3	274(W), 241(WSW)	3.7	22	99.9
H2S (PPB)	10	3	0	0	0.78	2	VAR	VAR	VAR	VAR	1.7	30	99.7
THC (PPM)	-	-	-	-	2.20	3.8	16	6	15.7	57(ENE)	2.5	16, 19	99.6
OZONE (PPB)	82	-	0	-	24.5	41	5	11, 12	25.4, 23	291(WNW), 298(WNW)	33.0	6	99.9
NOx (PPB)	-	-	-	-	3.96	22	13	11	8.3	223(SW)	12.3	13	99.6
NO (PPB)	-	-	-	-	0.48	8	13	10	7.5	224(SW)	1.7	13	99.6
NO_2 (PPB)	159	-	0	-	3.48	19	12	3, 4	12.2, 11.4	264(W), 265(W)	10.6	13	99.6
PM2.5 (ug/m3)	-	30	-	0	10.46	57	20	21	6	341(NNW)	25.3	26	88.3
TEMPERATURE (DEGREE C)	-	-	-	-	-8.99	10.1	5	12	23	298(WNW)	5.3	5	99.9
BP (MILLIBAR)	-	-	-	-	925	939	22	VAR	VAR	VAR	935.7	22	99.9
RH (%)	-	-	-	-	74.82	89	4	15, 16	9.5, 12.7	198(SSW), 179(S)	86.3	4	99.9
PRECIPITATION (MM)	-	-	-	-	0.01	0.7	1	9	17.7	95(E)	5.5	1	100.0
VECTOR WS (KPH)	-	-	-	-	10.96	33.1	20	2	-	344(NNW)	16.0	7	99.3
VECTOR WD (DEGREES)	-	-	-	-	111(ESE)	-	-	-	-	-	-	-	99.3

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 November 21st. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. 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 November 20th. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. 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 November 21st. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

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 November 20th. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. The span gas was changed on November 28th as it was running low. A zero/span check was performed following the gas replacement. Data was corrected using daily zero information.

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 November 20th. Hourly data collected on November 23rd at hour 9 was invalidated as uncorrected hourly reading for NO2 was input when performing the NOx-NO=NO_2 data correction. The data could not be edited once the new value was input. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)
Analyzer make / model –Thermo Scientific Series 1405F, S/N: 1405A207691003
A routine Teom audit was performed on November 16th. Following the audit, the O-ring for the switch valve was replaced. A post-repair audit was then performed. It was noticed that the hourly data was higher than normal on November 21st. A leak check and a 3-point flow calibration were performed, both the Teom and FDMS filters were replaced, and the inlet was cleaned on November 21st. A post-repair Teom audit was performed on November 22nd. As the Teom unit showed its instability on data, the PM2.5 channel was put into the “Maintenance” mode for a major repair/check on November 26th and 27th, including the cooler cleaning, the switching valve re-installation,and the pump rebuilt. The unit was allowed time to stabilize. A post-repair audit was performed on November 29th. A total of 74 hours of data were invalidated for this repair. 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. Five hourly data were invalidated as the data were below –3 ug/m3. One hourly data collected on November 27th at hour 15 was invalidated due to a power failure. The operational time for the month was 636 hours (88.3%).

General Monthly Summary

AQM STATION – LICA – St. Lina

Temperature (Degree C)
Analyzer make / model – Met One 060
One hourly data collected on November 27th at hour 15 was invalidated due to a power failure.

Barometric Pressure (Millibar)
Analyzer make / model - Met One 092
One hourly data collected on November 27th at hour 15 was invalidated due to a power failure.

Relative Humidity (%)
Analyzer make / model - Met One 083
One hourly data collected on November 27th at hour 15 was invalidated due to a power failure.

Precipitation (MM)
Analyzer make / model - Met One 387
No issue was recorded this month.

Vector Wind Speed (KPH) & Vector Wind Direction (DEG)
System make / model –MetOne 50.5H Sonic, S/N: H12635
Four hourly data and seven hourly maximum data for wind speed on November 19th and 20th were invalidated as the readings went above the full scale. One hourly data for both wind speed and wind direction collected on November 27th at hour 15 was invalidated due to a power failure.

General Monthly Summary

AQM STATION – LICA – St. Lina

Datalogger
System make / model - ESC 8832, S/N: AO717
Software make/version - ESC v 5.51a
The station is connected to a modem to allow for daily polling of the station.

Trailer
The manifold was cleaned on November 21st.

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

NOVEMBER 2012

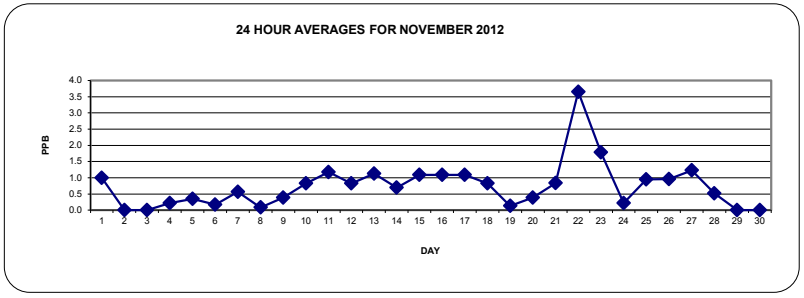
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

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	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
2	**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
3	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
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	**IZS**	1	1	1	0.2	24
5	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	1	0.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	0.2	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	**IZS**	0	0	0	0	0	1	0.6	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	1	0	1	0	1	0.1	24
9	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	**IZS**	0	1	1	1	1	1	0	1	0.4	24
10	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	0.8	24
11	1	1	1	1	1	1	1	1	1	1	1	2	2	2	**IZS**	2	1	1	1	1	1	1	1	1	2	1.2	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	1	0	1	1	1	1	1	0	0	1	0.8	24
13	0	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	1	1	1	1	1	1	1	2	1.1	24
14	1	1	1	1	1	1	2	2	1	1	1	**IZS**	1	1	1	0	0	0	0	0	0	0	0	0	2	0.7	24
15	0	0	0	0	0	0	1	0	1	1	**IZS**	1	1	2	2	3	2	2	1	1	1	1	2	3	3	1.1	24
16	1	2	2	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
17	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1.1	24
18	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24
19	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.1	24
20	1	1	1	0	0	**IZS**	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.4	24
21	0	0	0	0	**IZS**	2	3	3	3	2	**C**	**C**	**C**	**C**	**C**	1	1	0	0	0	0	0	0	0	3	0.8	24
22	0	0	0	**IZS**	1	1	1	3	5	5	5	5	5	6	**8**	**8**	7	7	6	5	3	1	1	1	**8**	**3.7**	24
23	2	2	**IZS**	2	3	3	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	3	1.8	24
24	2	**IZS**	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
25	**IZS**	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1.0	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	1	1.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**P**	2	2	2	2	2	**IZS**	1	1	2	1.2	23
28	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	1	1	1	0	0	**IZS**	0	0	0	2	0.5	24
29	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
30	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
HOURLY MAX	2	2	2	2	3	3	3	3	5	5	5	5	5	6	8	8	7	7	6	5	3	2	2	3			
HOURLY AVG	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.6			

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



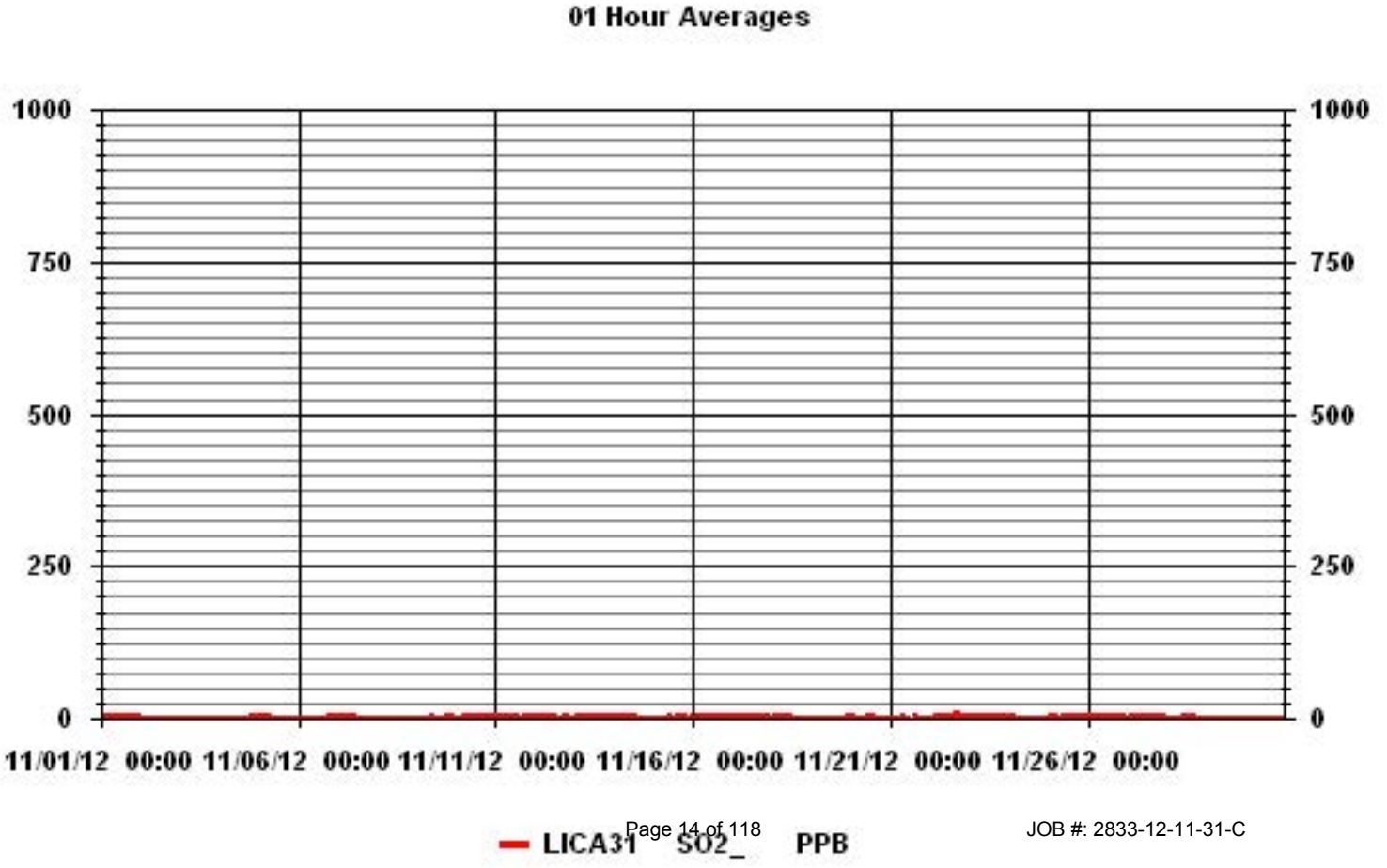
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	375					
MAXIMUM 1-HR AVERAGE:	8	PPB	@ HOUR(S)	14, 15	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	3.7	PPB			ON DAY(S)	22

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.99		MONTHLY AVERAGE:	0.74	PPB

JOB #: 2833-12-11-31-C



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

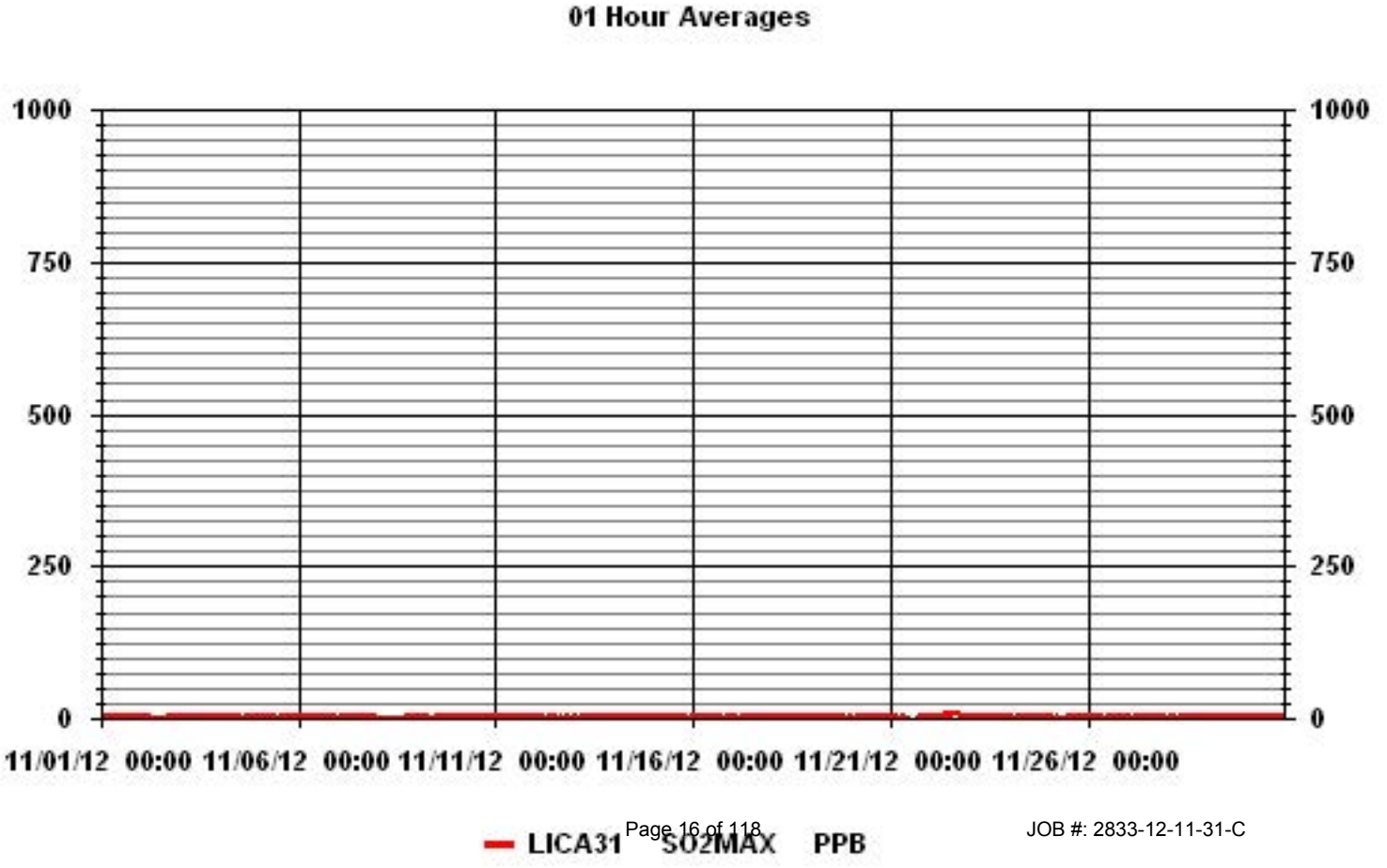
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	**IZS**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	24
2	**IZS**	1	1	1	1	1	1	1	0	0	1	0	1	0	0	0	0	1	1	0	1	1	1	**IZS**	1	0.6	24
3	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	1.0	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	3	**IZS**	2	2	3	1.3	24
5	2	2	2	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	**IZS**	1	1	1	2	1.4	24
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	1	1	2	1.1	24
7	1	2	2	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	**IZS**	1	1	1	1	1	3	1.5	24
8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**IZS**	1	1	1	1	1	1	1	0.3	24
9	1	1	1	1	1	2	2	2	2	1	2	1	1	1	1	1	**IZS**	1	2	2	2	2	2	1	2	1.4	24
10	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2	1.7	24
11	2	2	2	2	2	2	2	2	2	2	2	3	3	3	**IZS**	2	2	2	2	2	2	2	2	2	3	2.1	24
12	2	2	2	2	2	2	2	1	2	2	2	2	2	**IZS**	2	1	1	1	2	2	2	2	1	1	2	1.7	24
13	1	1	1	2	2	2	2	2	2	2	2	2	**IZS**	3	3	3	3	2	2	2	2	2	2	2	3	2.0	24
14	2	2	2	2	2	2	3	3	2	2	2	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	3	1.6	24
15	1	1	1	1	1	1	1	1	1	2	**IZS**	2	2	3	4	4	3	3	2	2	2	2	4	4	4	2.1	24
16	3	3	3	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2	1	1	1	1	1	3	1.9	24
17	1	2	2	2	1	2	2	2	**IZS**	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	2.0	24
18	3	3	3	3	3	3	3	**IZS**	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.7	24
19	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1.1	24
20	2	2	1	1	1	**IZS**	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1.4	24
21	1	1	1	1	**IZS**	3	4	4	4	3	**C**	**C**	**C**	**C**	**C**	**C**	2	1	1	1	1	1	1	1	4	1.8	24
22	1	1	1	**IZS**	2	2	3	5	6	6	6	6	6	8	**9**	**9**	8	8	8	6	5	2	2	2	**9**	4.9	24
23	3	3	**IZS**	3	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	3	4	2.6	24
24	3	**IZS**	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1	24
25	**IZS**	2	2	1	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	1.9	24
26	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2	1.9	24
27	2	2	2	1	2	2	2	2	2	2	2	2	2	2	**P**	**P**	4	2	3	3	3	**IZS**	2	2	4	2.2	22
28	1	1	1	1	1	1	0	1	1	2	2	3	3	3	3	2	2	2	1	1	**IZS**	1	1	1	3	1.5	24
29	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
30	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
HOURLY MAX	3	3	3	3	4	4	4	5	6	6	6	6	6	8	9	9	8	8	8	6	5	2	4	4			
HOURLY AVG	1.6	1.5	1.4	1.5	1.6	1.7	1.7	1.7	1.8	1.7	1.8	1.8	1.7	1.8	1.9	1.7	1.8	1.7	1.8	1.6	1.7	1.5	1.6	1.5			

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:	656					
MAXIMUM INSTANTANEOUS VALUE:	9	PPB	@ HOUR(S)	14, 15	ON DAY(S)	22
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		718	HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	1.07					



JOB #: 2833-12-11-31-C

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

November 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	3.37	4.10	6.45	9.97	8.50	9.23	5.86	4.69	5.42	4.98	9.82	6.89	3.81	4.10	7.77	4.98	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	3.37	4.10	6.45	9.97	8.50	9.23	5.86	4.69	5.42	4.98	9.82	6.89	3.81	4.10	7.77	4.98	

Calm : .00 %

Total # Operational Hours : 682

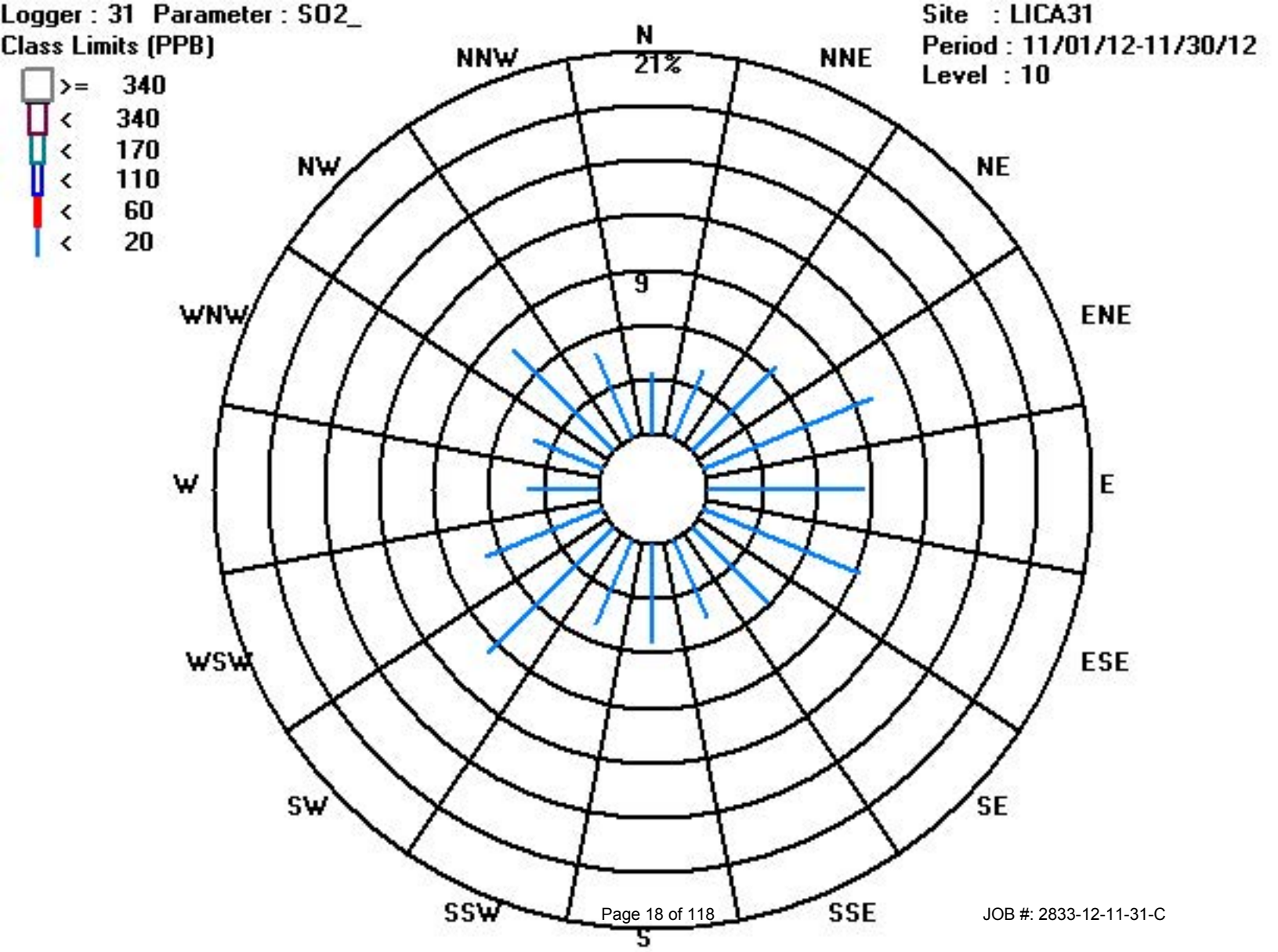
Distribution By Samples

Direction

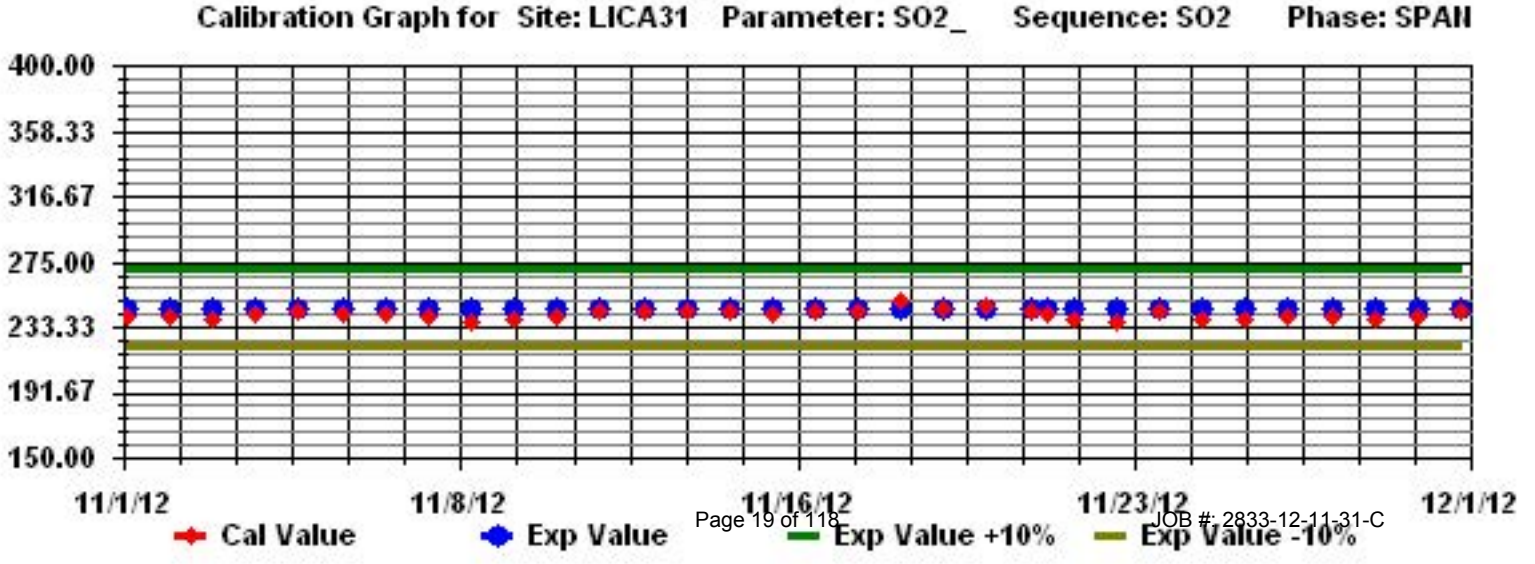
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	23	28	44	68	58	63	40	32	37	34	67	47	26	28	53	34	682
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	23	28	44	68	58	63	40	32	37	34	67	47	26	28	53	34	

Calm : .00 %

Total # Operational Hours : 682



JOB #: 2833-12-11-31-C


Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN
400.00
358.33
316.67
275.00
233.33
191.67
150.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

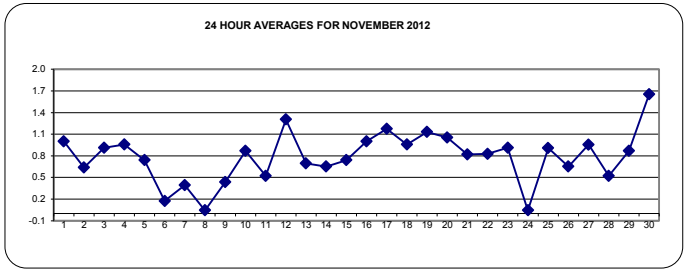
HYDROGEN SULPHIDE (H_2S) hourly averages in ppb

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	**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
2	**IZS**	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	0	0	0	1	1	0	1	**IZS**	1	0.6	24
3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	0.9	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	0	1	1	1.0	24
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	**IZS**	0	0	0	1	0.7	24
6	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	**IZS**	0	0	0	0	1	0.2	24
7	1	1	0	1	0	1	1	1	1	0	1	0	0	0	0	0	1	0	**IZS**	0	0	0	0	0	1	0.4	24
8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	1	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	2	2	1	1	2	2	0.4	24
10	1	1	1	1	2	1	1	1	2	2	1	1	1	2	2	**IZS**	0	0	0	0	0	0	0	0	2	0.9	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	2	2	2	2	0.5	24
12	2	2	2	2	2	2	2	1	2	1	2	2	2	**IZS**	0	1	1	0	1	0	0	1	1	1	2	1.3	24
13	0	0	0	0	0	1	0	0	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
14	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	0	0	0	0	0	0	0	0	1	0.7	24
15	0	0	1	0	0	0	0	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
16	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
17	1	1	1	1	1	1	1	1	**IZS**	1	1	2	1	2	0	0	1	2	1	1	1	2	2	2	2	1.2	24
18	2	2	2	1	2	2	2	**IZS**	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	2	1.0	24
19	0	0	0	0	0	0	**IZS**	1	1	1	1	1	2	1	2	2	1	1	2	2	2	2	2	2	2	1.1	24
20	2	2	2	2	2	**IZS**	0	0	0	0	**C**	**C**	**C**	**C**	1	1	1	1	1	1	1	1	1	2	2	1.1	24
21	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	**M**	1	1	0	1	1	0	0	0	1	1	0.8	23
22	0	0	0	**IZS**	1	2	0	2	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	2	0.8	24
23	1	2	**IZS**	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	0.9	24
24	1	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
25	**IZS**	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	**IZS**	1	0.9	24
26	0	1	0	0	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	0	0	**IZS**	1	1	0.7	24
27	1	1	1	1	1	1	1	1	1	1	1	2	0	1	1	**P**	0	1	1	1	1	**IZS**	1	1	2	1.0	23
28	1	1	1	1	0	1	0	0	0	0	0	1	1	0	0	0	1	1	2	0	**IZS**	1	0	0	2	0.5	24
29	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	1	1	1	1	**IZS**	2	0	1	2	2	0.9	24
30	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	0	1	1	1	2	**1.7**	24
HOURLY MAX	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
HOURLY AVG	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.9			

STATUS FLAG CODES

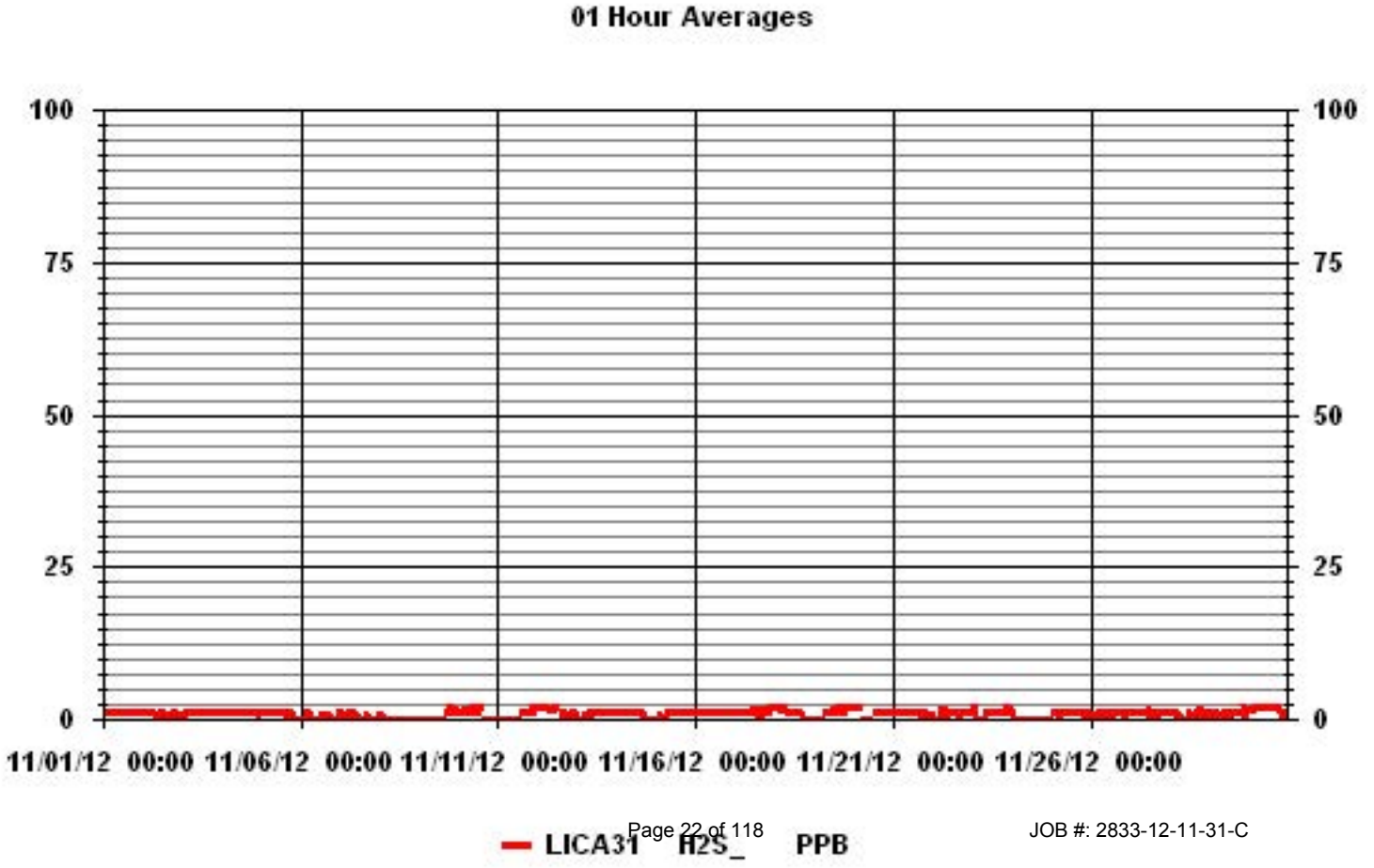
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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:	461					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	1.7	PPB			ON DAY(S)	30
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		718	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.7	%
STANDARD DEVIATION:	0.62		MONTHLY AVERAGE:		0.78	PPB



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

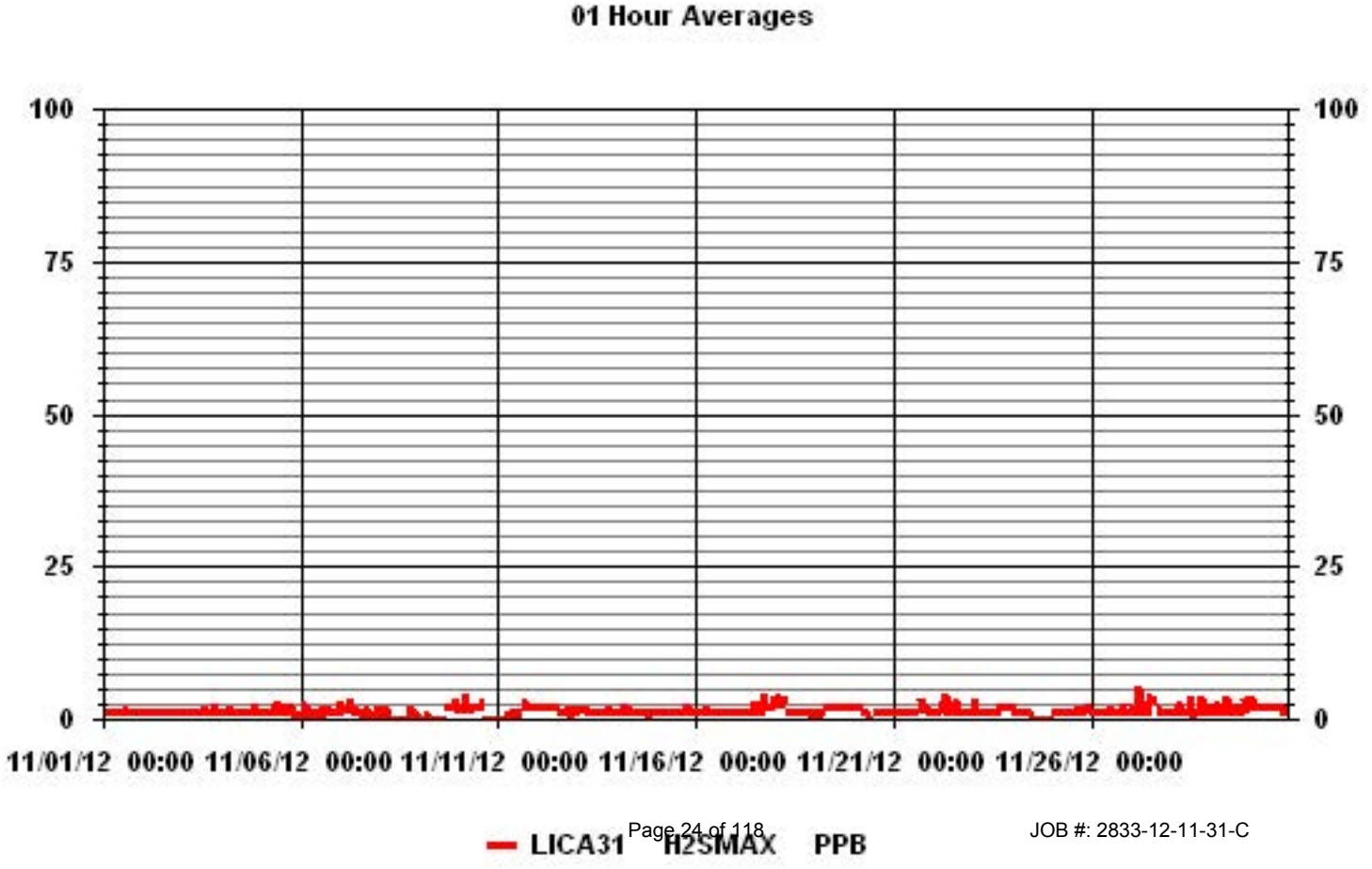
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1.0	24
2	**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
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	**IZS**	1	2	1.1	24
4	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	**IZS**	1	1	2	1.1	24
5	1	1	1	1	1	1	1	1	2	2	3	1	1	2	2	1	1	2	2	1	**IZS**	0	0	0	3	1.2	24
6	1	0	3	0	2	1	1	1	1	0	0	1	1	0	2	1	1	2	1	**IZS**	1	1	1	1	3	1.0	24
7	3	2	1	2	1	2	3	2	1	1	2	1	1	1	0	1	2	0	**IZS**	0	1	0	1	2	3	1.3	24
8	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	2	0	0	1	0	2	0.3	24
9	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**IZS**	2	2	2	2	2	3	2	3	0.7	24
10	1	2	2	2	4	2	1	2	2	2	2	2	2	2	3	**IZS**	0	0	0	0	0	0	0	0	4	1.3	24
11	0	0	0	0	0	0	1	0	1	1	1	0	1	1	**IZS**	2	3	2	2	2	2	2	2	2	3	1.1	24
12	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	1	1	1	1	1	2	0	1	1	2	2	1.6	24
13	1	2	1	2	1	2	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	2	1	1	1	1	2	1.2	24
14	1	1	1	1	2	2	1	1	2	1	1	**IZS**	1	1	1	1	1	1	1	1	0	1	1	1	2	1.1	24
15	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	2	2	1	1	1	1	2	1.1	24
16	1	1	1	1	1	1	2	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
17	1	1	1	1	1	1	1	1	**IZS**	1	1	3	2	3	1	1	2	4	2	2	2	2	2	3	4	1.7	24
18	3	2	4	2	3	3	3	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	4	1.5	24
19	1	1	0	1	1	1	**IZS**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	24
20	2	2	2	2	2	**IZS**	1	1	0	0	**C**	**C**	**C**	**C**	1	1	1	1	1	1	1	1	1	1	2	1.2	24
21	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	**M**	**M**	3	1	2	2	2	1	1	1	3	1.2	22
22	1	1	1	**IZS**	2	3	1	4	1	1	1	1	3	2	3	2	1	1	1	1	1	1	1	1	4	1.5	24
23	1	3	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	1.5	24
24	2	**IZS**	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5	24
25	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	2	**IZS**	2	1.2	24
26	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	**IZS**	2	2	1.2	24
27	1	1	1	1	**5**	**5**	1	1	1	1	3	4	3	3	**P**	**P**	2	1	1	1	1	**IZS**	1	1	**5**	1.9	22
28	1	1	1	2	2	3	1	1	1	1	1	3	3	0	1	1	1	3	3	1	**IZS**	1	1	1	3	1.5	24
29	2	2	2	2	3	1	1	1	1	3	3	2	1	1	2	2	2	2	1	**IZS**	3	1	3	3	3	1.9	24
30	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	1	1	1	1	3	1.9	24
HOURLY MAX	3	3	4	2	5	5	3	4	2	3	3	4	3	3	3	2	3	4	3	2	3	2	3	3			
HOURLY AVG	1.3	1.3	1.2	1.2	1.6	1.5	1.2	1.2	1.1	1.1	1.3	1.3	1.3	1.1	1.3	1.1	1.3	1.3	1.3	1.3	1.2	1.1	1.2	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:	597						
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	4, 5	ON DAY(S)	27	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			716	HRS
MONTHLY CALIBRATION TIME:	4	HRS					
STANDARD DEVIATION:	0.78						



JOB #: 2833-12-11-31-C

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

November 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	3.51	4.25	6.74	9.97	8.50	9.23	5.86	4.69	5.42	4.98	9.82	6.89	3.81	4.10	7.18	4.98	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	3.51	4.25	6.74	9.97	8.50	9.23	5.86	4.69	5.42	4.98	9.82	6.89	3.81	4.10	7.18	4.98	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	24	29	46	68	58	63	40	32	37	34	67	47	26	28	49	34	682
< 10																	
< 50																	
>= 50																	
Totals	24	29	46	68	58	63	40	32	37	34	67	47	26	28	49	34	

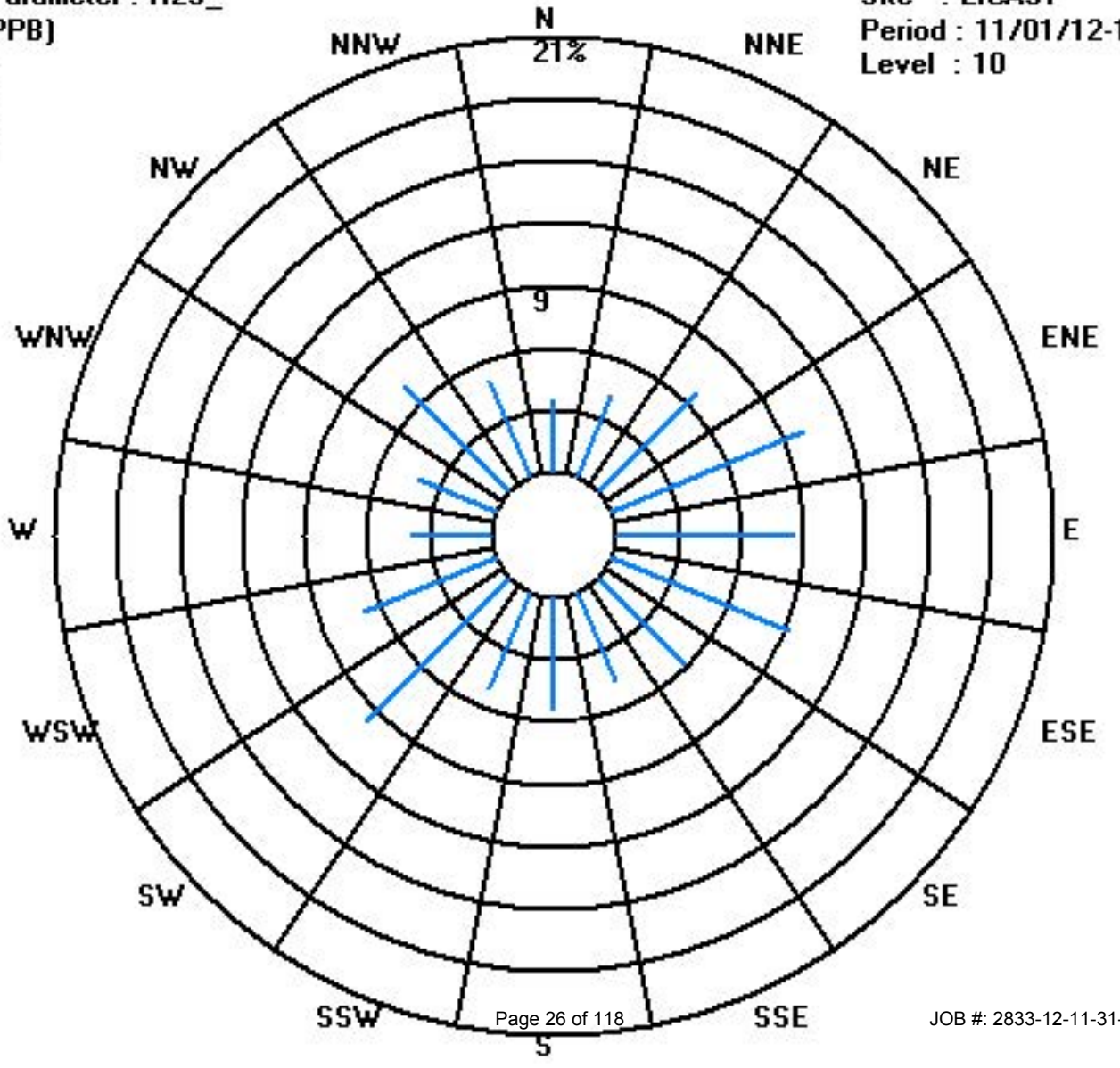
Calm : .00 %

Total # Operational Hours : 682

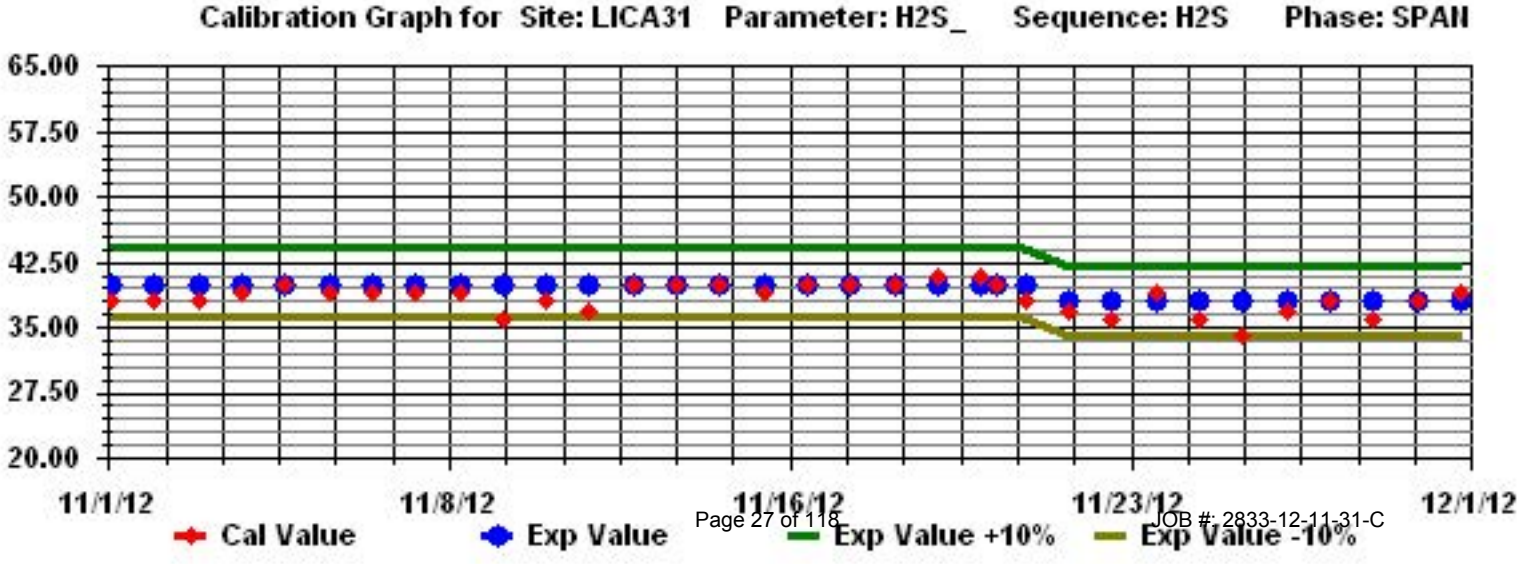
Logger : 31 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA31
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-31-C


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAN
65.00
57.50
50.00
42.50
35.00
27.50
20.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

TOTAL HYDROCARBONS hourly averages in ppm

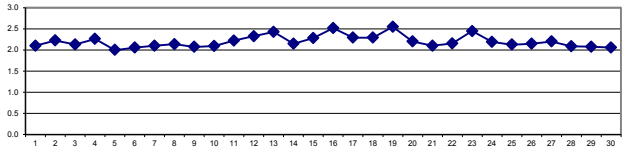
MST

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	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
2	**IZS**	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.4	2.2	24
3	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2	2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	**IZS**	2.3	2.3	2.1	24
4	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.4	2.4	**IZS**	2.2	2.2	2.4	2.3	24
5	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	**IZS**	2	2	2	2.1	2.0	24
6	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2	2.1	2	2	2.1	2.1	24
7	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2.1	2.1	2.1	2.1	2.4	2.1	24
8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.1	2	2.1	2.1	2.1	2.1	2.2	2.1	24
9	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2	**IZS**	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
10	2	2	2	2.1	2.1	2.1	2.1	2	2.2	2.4	2.4	2.1	2.1	2.1	2.1	**IZS**	2	2	2	2	2.1	2.1	2.1	2.1	2.4	2.1	24
11	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	**IZS**	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.2	24
12	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.3	2.4	2.3	2.4	2.4	2.2	**IZS**	2.2	2.1	2.2	2.3	2.2	2.1	2.2	2.3	2.4	2.3	2.5	2.3	24
13	2.3	2.2	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.5	**IZS**	2.5	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.6	2.4	24
14	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.2	2.1	2	2	**IZS**	2	2	2	2	2	2	2	2	2	2.1	2.1	2	2.5	2.1	24
15	2	2.1	2.5	2.7	2.4	2.5	2.6	2.6	2.5	2.4	**IZS**	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.3	24
16	2.2	2.3	2.2	2.4	2.6	3.3	**3.8**	3.2	2.8	**IZS**	2.4	2.3	2.3	2.3	2.2	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.5	2.3	**3.8**	**2.5**	24
17	2.2	2.3	2.4	2.3	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	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.3	24
18	2.3	2.2	2.2	2.2	2.2	2.3	2.2	**IZS**	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.4	2.3	24
19	2.3	2.2	2.3	2.7	2.7	2.6	**IZS**	2.6	2.7	2.7	2.8	2.9	2.8	2.7	2.6	2.6	2.6	2.5	2.4	2.4	2.5	2.4	2.3	2.3	2.9	**2.5**	24
20	2.3	2.2	2.2	2.2	2.2	**IZS**	2.1	2.2	2.2	2.2	2.2	2.2	2.1	**C**	**C**	**C**	**C**	2.2	2.2	2.2	2.2	2.4	2.2	2.1	2.4	2.2	24
21	2.1	2.2	2.3	2.3	**IZS**	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2	2	**M**	2	2	2	2	2	2	2	2	2	2.3	2.1	23
22	2	2	2.1	**IZS**	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
23	2.2	2.2	**IZS**	2.7	2.5	2.6	2.9	3	3	3.1	2.8	2.6	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.1	3.1	2.4	24
24	2.1	**IZS**	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.4	2.2	24
25	**IZS**	2.1	2.1	2.2	2.1	2	2.2	2.1	2.1	2.1	2.1	2	2	2	2	2.1	2.2	2.1	2.2	2.2	2.3	2.3	2.3	**IZS**	2.3	2.1	24
26	2.2	2.2	2.3	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	**IZS**	2.1	2.3	2.1	24
27	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	**P**	2.3	2.3	2.2	2.2	2.2	**IZS**	2.3	2.2	2.3	2.2	23
28	2.1	2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	**M**	**C**	2.2	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.1	2.2	2.1	23
29	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2	2.1	2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	24
30	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2.1	2.1	2	2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
HOURLY MAX	2.5	2.5	2.5	2.7	2.7	3.3	3.8	3.2	3.0	3.1	2.8	2.9	2.8	2.7	2.6	2.6	2.6	2.5	2.5	2.4	2.5	2.4	2.5	2.5			
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2			

STATUS FLAG CODES

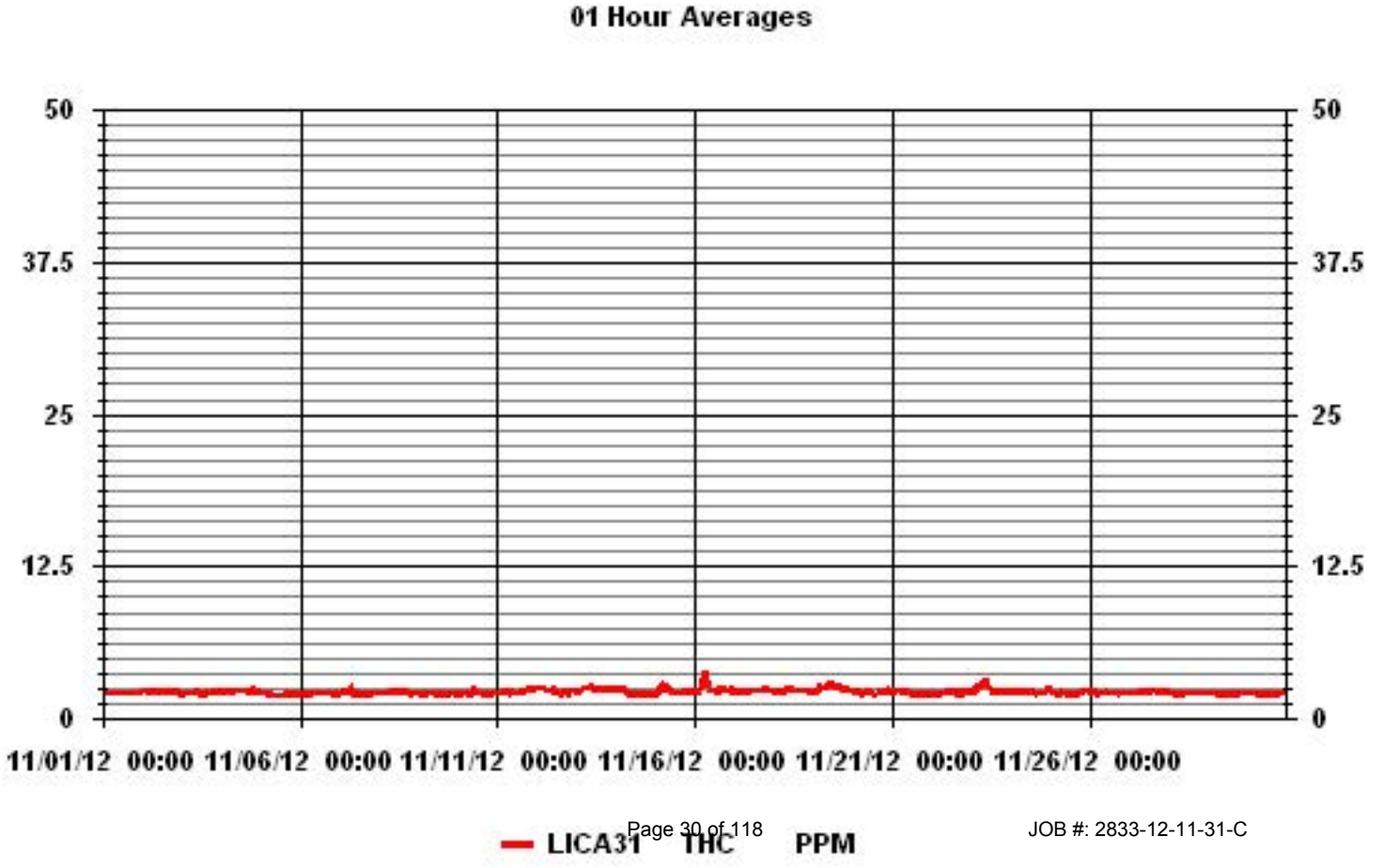
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

24 AVERAGES FOR NOVEMBER 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680						
MAXIMUM 1-HR AVERAGE:	3.8	PPM	@ HOUR(S)	6	ON DAY(S)	16	
MAXIMUM 24-HR AVERAGE:	2.5	PPM			ON DAY(S)	16, 19	
					VAR- VARIOUS		
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			717	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:			99.6	%
STANDARD DEVIATION:	0.19		MONTHLY AVERAGE:			2.20	PPM



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

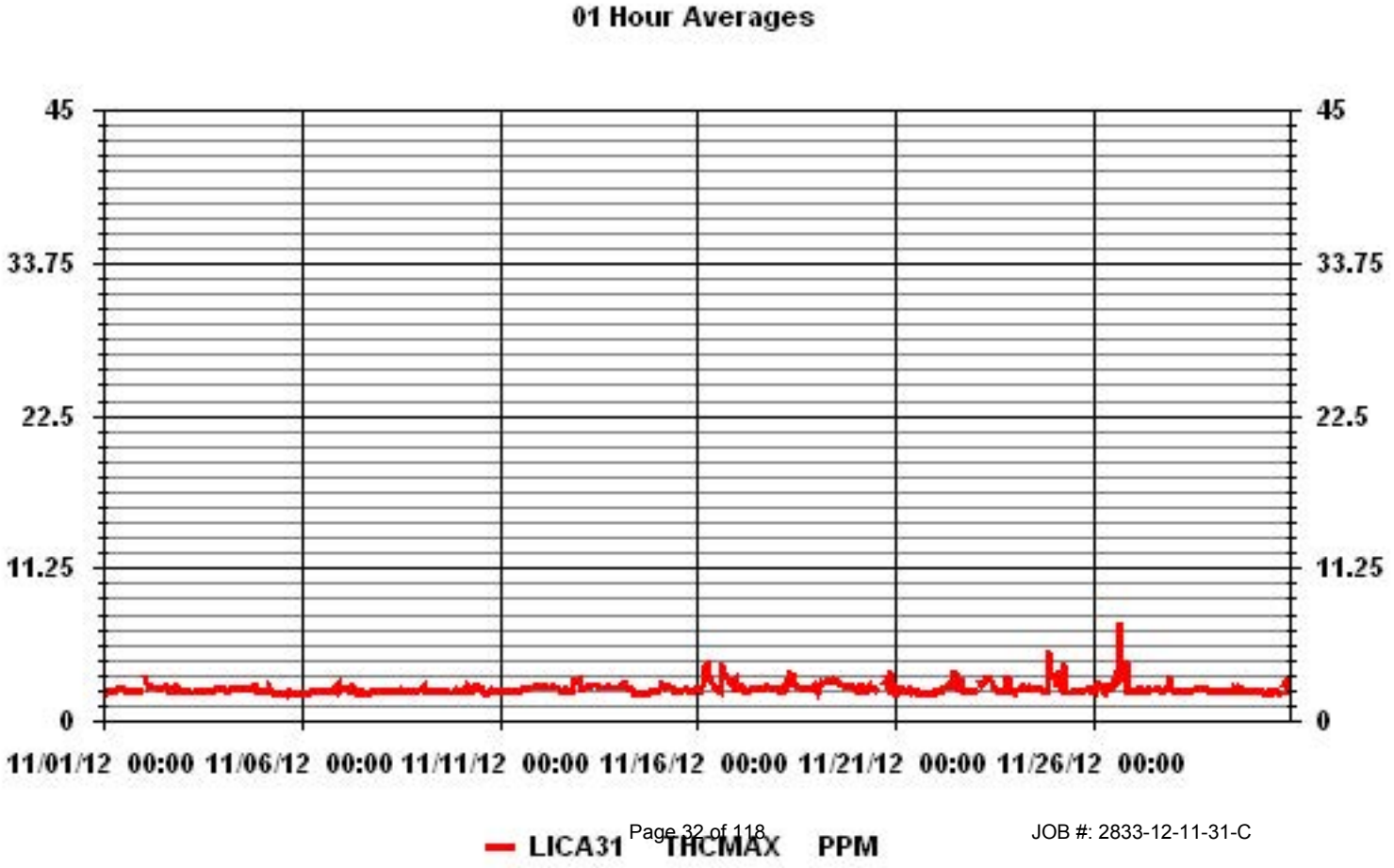
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.3	**IZS**	2.1	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.3	2.2	24
2	**IZS**	3.2	2.8	2.5	2.6	2.4	2.4	2.5	2.4	2.4	2.4	2.3	2.4	2.4	2.5	2.5	2.2	2.2	2.6	2.2	2.8	2.2	2.2	**IZS**	3.2	2.5	24
3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.3	2.3	**IZS**	2.4	2.4	2.2	24
4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.5	**IZS**	2.2	2.2	2.5	2.3	24
5	2.1	2.1	2.1	2.3	2.6	2.4	2.2	2	2	2	2	2	2	2	2	2.2	2	2.2	2.2	2.1	**IZS**	2	2	2	2.6	2.1	24
6	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.5	2.7	2.1	2.7	2.1	24
7	2.2	2.3	2.4	2.4	2.4	2.3	2.5	2.5	2.1	2.1	2.1	2	2.1	2.1	2	2	2	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.5	2.2	24
8	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.2	2.3	2.2	**IZS**	2.2	2.2	2.1	2.1	2.1	2.2	2.4	2.2	24
9	2.3	2.4	2.6	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	**IZS**	2.1	2.1	2.1	2.2	2.2	2.4	2.3	2.6	2.2	24
10	2.1	2.1	2.1	2.1	2.7	2.6	2.1	2.1	2.3	2.5	2.8	2.3	2.3	2.3	2.3	**IZS**	2	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.8	2.2	24
11	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.3	24
12	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.4	2.4	**IZS**	2.2	2.2	2.3	2.3	2.2	2.2	2.2	3.2	3	2.9	3.2	2.5	24
13	3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.6	**IZS**	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	3	2.5	24
14	2.4	2.5	2.5	2.5	3	2.4	2.4	2.3	2.3	2.1	2	**IZS**	2	2	2	2	2	2.1	2	2.1	2.1	2.1	2.1	2.1	3	2.2	24
15	2.1	2.3	2.7	2.7	2.5	2.6	2.6	2.6	2.6	2.5	**IZS**	2.2	2.2	2.2	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.7	2.4	24
16	2.3	2.4	2.3	2.5	2.8	4	4.1	3.4	3	**IZS**	2.5	2.5	2.3	2.3	2.2	4.3	3.1	3.4	3.2	3	2.8	2.9	3.1	2.3	4.3	2.9	24
17	2.3	2.3	2.5	2.5	2.2	2.2	2.2	2.2	**IZS**	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.5	2.4	2.4	2.3	2.3	2.5	2.3	24
18	2.3	2.3	2.3	2.2	2.2	2.6	2.3	**IZS**	3.5	2.4	3.6	2.7	2.7	2.5	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.4	2.7	3.6	2.5	24
19	2.5	2.2	2.5	2.9	2.8	2.8	**IZS**	2.9	2.9	2.9	2.9	3.1	3	2.9	2.8	2.6	2.6	2.6	2.5	2.5	2.5	2.6	2.4	2.4	3.1	2.7	24
20	2.4	2.3	2.2	2.5	2.5	**IZS**	2.2	2.4	2.6	2.4	2.3	2.4	2.3	**C**	**C**	**C**	**C**	**C**	2.9	3.3	2.3	3.7	2.2	2.1	3.7	2.5	24
21	2.4	2.2	2.4	2.5	**IZS**	2.3	2.3	2.2	2.4	2.2	2.4	2.3	2.1	2.2	**M**	**M**	2	2	2	2	2	2	2	2	2.5	2.2	22
22	2.1	2.1	2.1	**IZS**	2.1	2.4	2.4	2.4	2.7	2.8	2.7	3	3.6	3	2.5	2.2	3.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	3.6	2.5	24
23	2.2	2.3	**IZS**	2.9	2.6	2.7	2.9	3.1	3.1	3.2	3	2.7	2.5	2.4	2.2	2.2	2.3	2.2	2.2	2.3	3.4	2.2	2.2	2.2	3.4	2.6	24
24	2.1	**IZS**	2.3	2.4	2.4	2.5	2.5	2.4	2.5	2.6	2.5	2.4	2.5	2.4	2.4	2.3	2.4	2.3	2.2	2.2	2.2	5.1	3.7	3.3	5.1	2.6	24
25	**IZS**	2.7	3.4	2.9	3.7	2.1	4.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	2.3	**IZS**	4.2	2.5	24
26	2.5	2.3	2.6	2.7	2.5	2.5	2.2	2.1	2.6	2.5	2.5	2.4	2.5	2.9	2.9	3.7	**7.2**	2.9	4.1	3.8	4.5	2.1	**IZS**	2.1	**7.2**	3.0	24
27	2.1	2.2	2.2	2.2	2.6	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.3	2.4	**P**	**P**	2.4	2.3	2.2	2.3	2.3	**IZS**	3.1	2.3	3.1	2.3	22
28	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**M**	**C**	**C**	2.3	2.3	2.3	2.3	2.3	**IZS**	2.3	2.3	2.2	2.3	2.2	23
29	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.5	2.3	2.4	2.2	**IZS**	2.1	2.1	2.1	2.1	2.5	2.2	24
30	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.1	2	2.1	2.1	2	2.1	2.1	2.1	2.1	2	**IZS**	2.7	2.9	3	2.1	2.1	3	2.2	24
HOURLY MAX	3.0	3.2	3.4	2.9	3.7	4.0	4.2	3.4	3.5	3.2	3.6	3.1	3.6	3.0	2.9	4.3	7.2	3.4	4.1	3.8	4.5	5.1	3.7	3.3			
HOURLY AVG	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.5	2.3	2.4	2.4	2.4	2.5	2.4	2.3			

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:	676						
MAXIMUM INSTANTANEOUS VALUE:	7.2	PPM	@ HOUR(S)	16	ON DAY(S)	26	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			715	HRS
MONTHLY CALIBRATION TIME:	7	HRS					
STANDARD DEVIATION:	0.41						



JOB #: 2833-12-11-31-C

LICA31
THC / WDR Joint Frequency Distribution (Percent)

November 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	3.52	4.26	6.47	9.55	8.52	8.82	5.88	4.70	5.44	5.00	9.85	6.91	3.82	4.11	7.50	4.70	99.11
< 10.0	.00	.00	.14	.29	.00	.44	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.88
< 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	3.52	4.26	6.61	9.85	8.52	9.26	5.88	4.70	5.44	5.00	9.85	6.91	3.82	4.11	7.50	4.70	

Calm : .00 %

Total # Operational Hours : 680

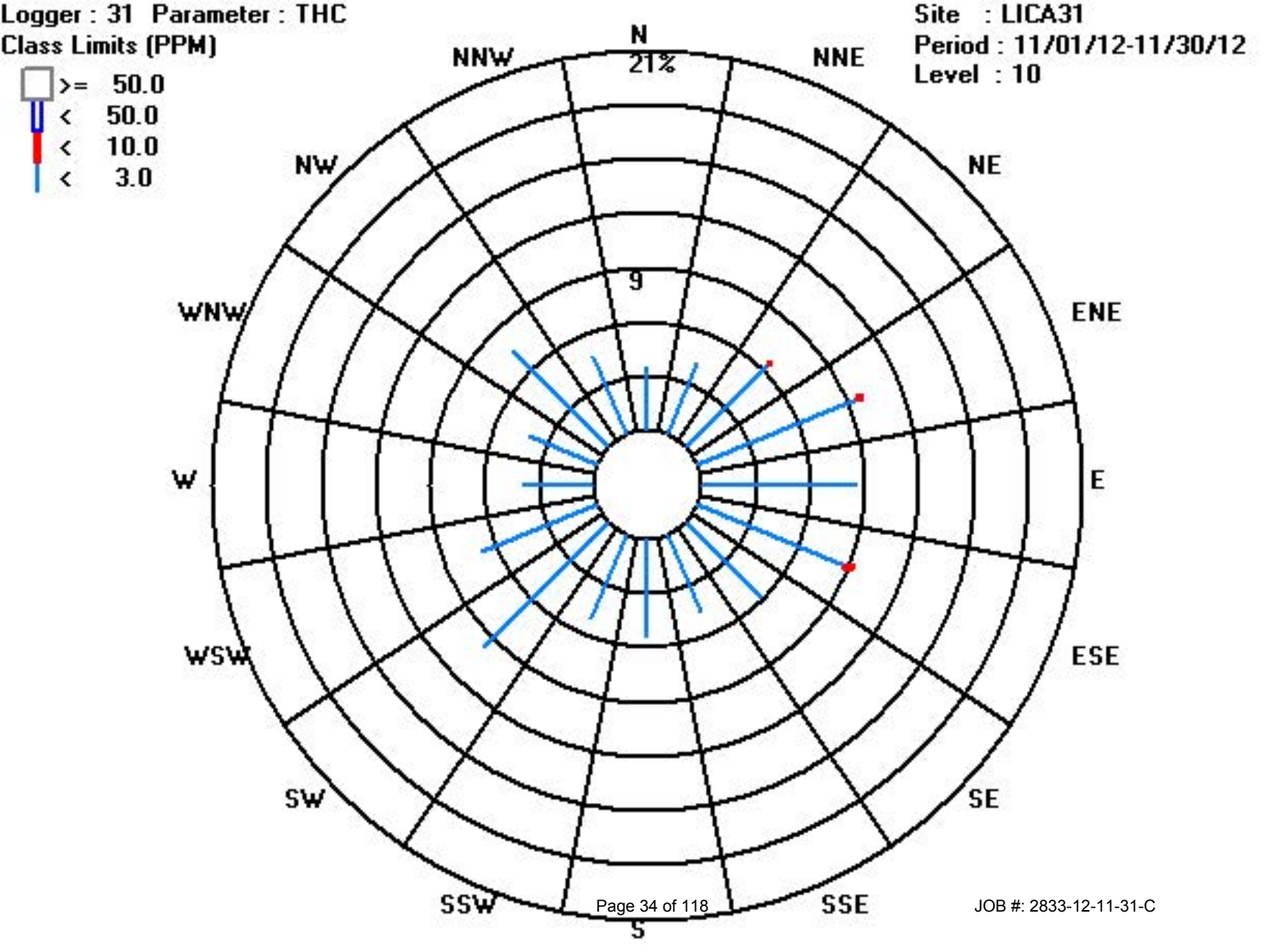
Distribution By Samples

Direction

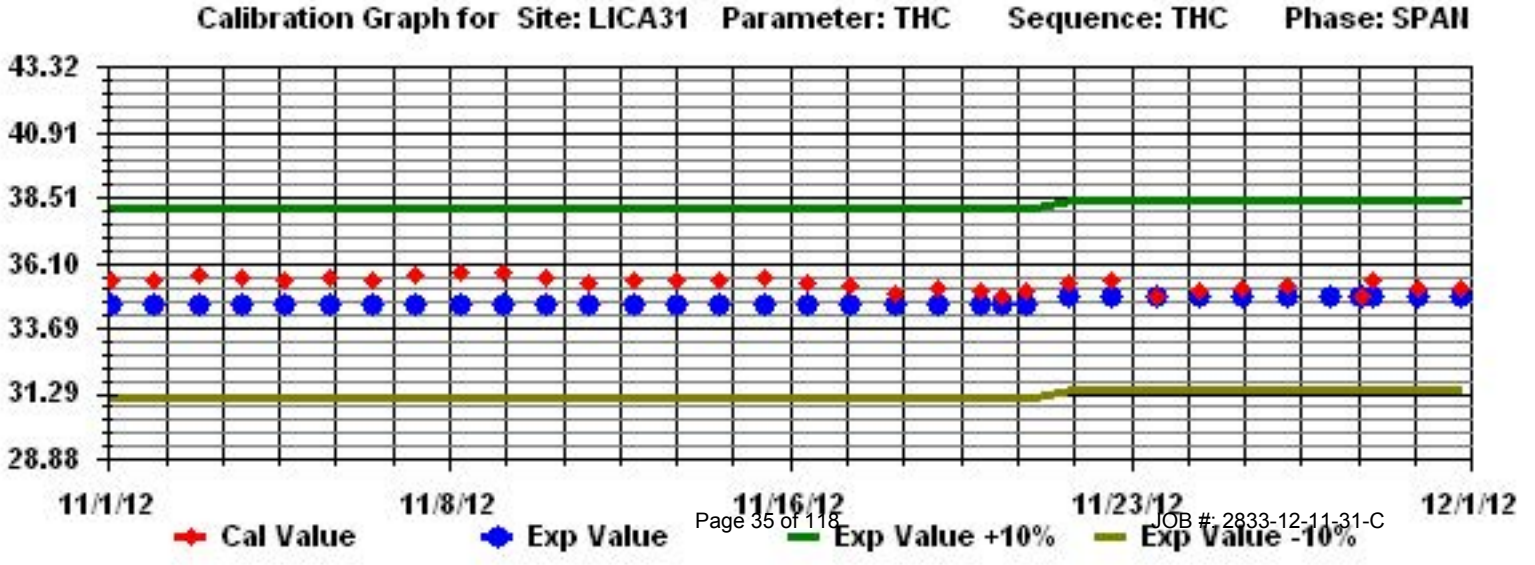
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	24	29	44	65	58	60	40	32	37	34	67	47	26	28	51	32	674
< 10.0			1	2		3											6
< 50.0																	
>= 50.0																	
Totals	24	29	45	67	58	63	40	32	37	34	67	47	26	28	51	32	

Calm : .00 %

Total # Operational Hours : 680



JOB #: 2833-12-11-31-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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

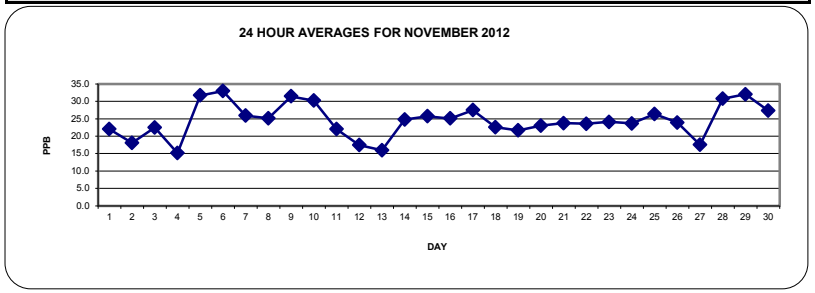
OZONE (O_3) hourly averages in ppb

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	22	**IZS**	23	23	22	22	23	23	22	22	22	23	24	24	22	21	21	23	22	20	20	21	21	21	24	22.0	24
2	**IZS**	18	17	18	18	18	18	18	17	18	18	19	18	18	18	18	18	19	18	19	18	18	18	**IZS**	19	18.0	24
3	20	20	20	20	20	20	20	21	20	21	22	23	26	27	28	24	26	28	26	24	22	20	**IZS**	18	28	22.4	24
4	17	16	15	15	13	11	12	12	12	12	13	13	15	17	14	14	15	17	19	17	18	**IZS**	20	21	21	15.1	24
5	21	21	20	18	17	18	23	27	30	34	40	**41**	**41**	40	40	39	39	38	38	37	**IZS**	37	36	34	**41**	31.7	24
6	34	34	35	35	35	34	33	32	31	29	30	35	35	36	35	34	33	32	31	**IZS**	29	30	35	31	36	**33.0**	24
7	27	25	29	26	28	27	26	28	34	33	28	23	22	24	24	27	28	27	**IZS**	26	23	20	20	20	34	25.9	24
8	20	20	21	21	22	24	25	24	23	24	25	26	25	25	25	26	26	**IZS**	29	30	29	29	29	30	30	25.1	24
9	31	31	31	32	33	32	30	31	30	31	31	31	31	32	33	33	**IZS**	32	32	31	30	31	31	33	33	31.4	24
10	32	32	32	30	31	31	29	31	24	22	28	34	33	33	33	**IZS**	34	34	31	30	29	28	27	27	34	30.2	24
11	26	26	27	24	22	23	25	26	24	25	28	29	27	26	**IZS**	24	22	20	18	15	14	13	12	11	29	22.0	24
12	9	7	6	5	6	11	16	20	16	19	17	18	22	**IZS**	25	25	22	20	25	25	23	23	21	19	25	17.4	24
13	19	21	21	19	15	13	11	10	10	10	13	13	**IZS**	16	17	18	18	17	19	20	18	18	16	15	21	16.0	24
14	14	12	12	11	13	14	14	17	23	25	26	**IZS**	33	33	35	34	33	32	32	33	32	30	30	32	35	24.8	24
15	32	31	27	26	27	26	24	23	21	22	**IZS**	27	29	31	32	31	27	26	22	22	22	21	20	22	32	25.7	24
16	23	25	24	19	20	14	9	14	19	**IZS**	27	29	31	33	34	34	32	31	28	26	26	27	26	26	34	25.1	24
17	30	31	30	32	32	31	31	31	**IZS**	28	28	28	27	26	26	25	25	25	24	24	24	24	25	25	32	27.5	24
18	25	25	26	26	26	26	26	**IZS**	25	24	24	23	22	21	20	20	19	18	16	17	18	23	23	25	26	22.5	24
19	24	26	27	25	24	24	**IZS**	24	24	22	22	22	23	23	22	21	20	19	19	18	17	17	17	18	27	21.7	24
20	17	17	18	18	16	**IZS**	18	18	19	20	22	23	24	26	27	27	27	26	26	27	29	29	28	27	29	23.0	24
21	27	27	26	25	**IZS**	20	19	17	18	20	**C**	**C**	**C**	**C**	21	22	22	24	27	28	27	27	27	27	28	23.7	24
22	26	25	23	**IZS**	23	23	22	22	21	22	23	23	24	25	26	26	25	26	24	23	22	22	23	23	26	23.6	24
23	22	21	**IZS**	18	21	19	18	19	21	22	25	28	29	28	29	29	28	27	26	26	25	25	24	24	29	24.1	24
24	24	**IZS**	21	20	20	19	20	20	21	22	22	23	22	21	23	27	27	27	27	27	28	28	28	27	28	23.7	24
25	**IZS**	27	27	27	28	28	27	26	26	25	26	28	29	29	28	27	26	26	25	25	24	23	23	**IZS**	29	26.4	24
26	22	22	22	21	20	20	21	22	23	25	26	26	26	27	27	26	26	26	25	26	25	23	**IZS**	23	27	23.9	24
27	22	21	20	21	23	19	17	18	19	19	20	19	19	21	18	**P**	11	12	14	14	13	**IZS**	9	17	23	17.5	23
28	25	29	29	29	30	32	33	32	32	32	32	32	32	31	30	30	30	29	31	32	**IZS**	32	32	32	33	30.8	24
29	31	31	32	32	32	34	34	34	34	34	33	33	32	32	32	32	32	31	31	**IZS**	30	30	30	30	34	32.0	24
30	30	29	29	29	29	29	28	28	27	28	27	27	27	27	27	26	27	27	**IZS**	26	26	25	25	25	30	27.3	24
HOURLY MAX	34	34	35	35	35	34	34	34	34	34	40	41	41	40	40	39	39	38	38	37	32	37	36	34			
HOURLY AVG	24.0	23.9	23.8	22.9	23.0	22.8	22.5	23.0	23.0	23.8	24.9	25.7	26.7	26.9	26.6	26.4	25.5	25.5	25.2	24.6	23.6	24.8	24.1	24.4			

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

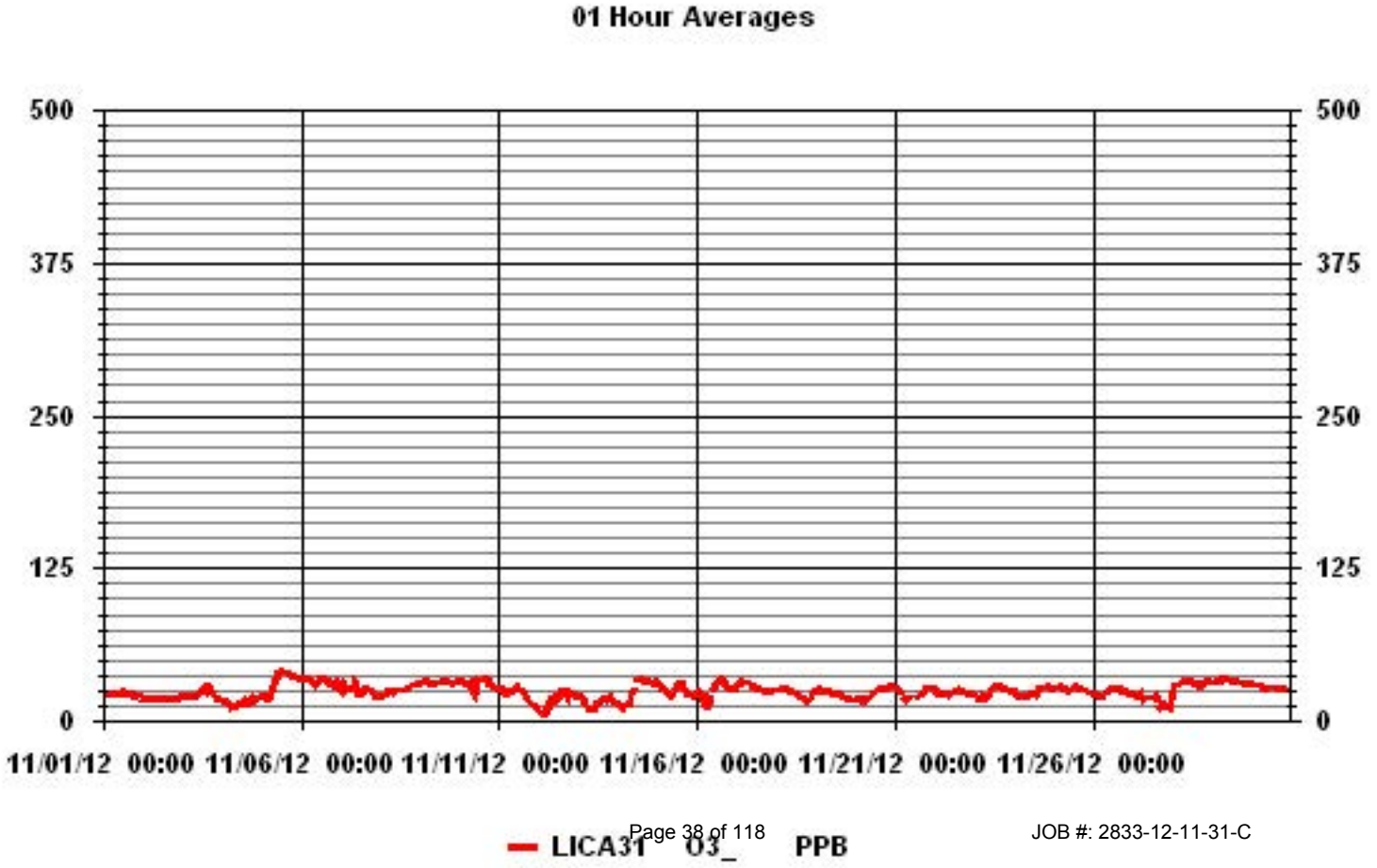


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM 1-HR AVERAGE:	41	PPB	@ HOUR(S)	11, 12	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	33.0	PPB			ON DAY(S) VAR-VARIOUS	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	6.12		MONTHLY AVERAGE:		24.5	PPB

JOB #: 2833-12-11-31-C



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

OZONE MAX instantaneous maximum in ppb

MST

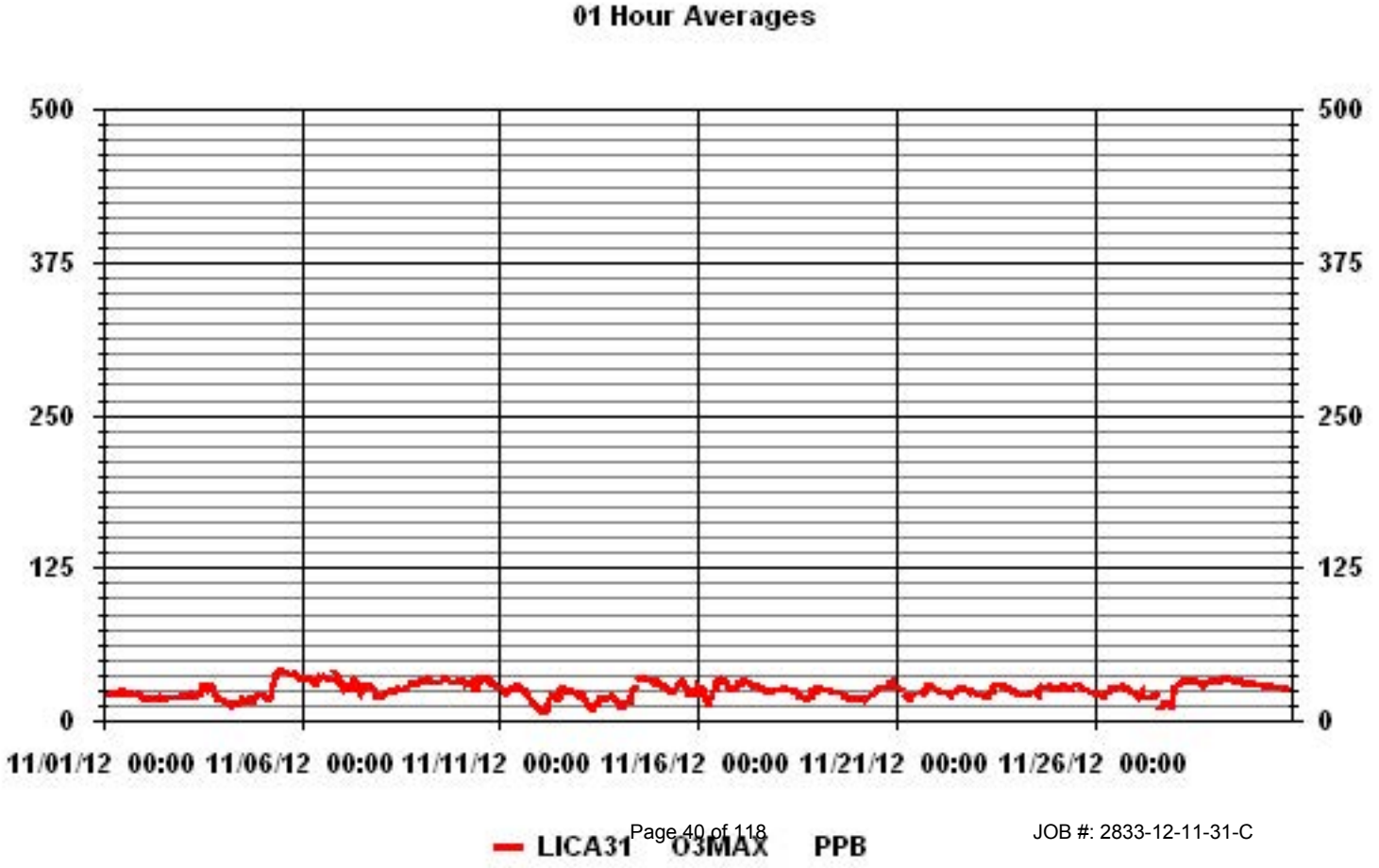
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	22	**IZS**	23	23	22	23	23	23	22	22	22	24	25	25	23	22	23	23	23	21	21	22	22	21	25	22.6	24
2	**IZS**	18	18	18	19	19	19	19	18	18	18	20	19	18	18	19	19	19	19	19	19	19	19	**IZS**	20	18.7	24
3	20	20	20	21	21	20	22	22	21	22	22	24	28	28	29	26	28	28	28	25	23	21	**IZS**	18	29	23.3	24
4	17	16	15	15	14	12	13	13	13	13	13	14	17	17	15	15	16	19	19	17	19	**IZS**	21	21	21	15.8	24
5	21	21	20	18	17	18	29	29	33	38	41	41	41	41	41	40	39	39	38	38	**IZS**	38	37	35	**41**	32.7	24
6	36	34	35	35	36	35	34	33	32	31	33	36	36	37	35	35	35	33	33	**IZS**	40	37	37	33	40	34.8	24
7	30	27	29	27	28	28	27	33	35	34	32	25	23	26	26	28	28	28	**IZS**	27	26	21	20	20	35	27.3	24
8	20	21	21	22	23	25	25	25	24	25	26	26	25	25	26	26	27	**IZS**	30	30	30	29	29	31	31	25.7	24
9	32	32	32	33	34	34	31	31	31	31	31	31	32	34	34	34	**IZS**	33	33	31	31	31	32	33	34	32.2	24
10	33	33	33	30	31	31	30	32	32	24	34	35	33	34	34	**IZS**	35	35	32	31	30	29	28	28	35	31.6	24
11	27	27	27	25	23	25	26	26	26	26	29	30	28	27	**IZS**	25	23	22	19	16	15	14	12	11	30	23.0	24
12	10	8	6	6	8	14	18	22	21	21	18	19	24	**IZS**	26	26	23	23	25	26	24	23	22	20	26	18.8	24
13	20	22	22	20	17	14	12	11	10	12	14	14	**IZS**	17	17	18	18	19	19	20	20	18	17	16	22	16.8	24
14	15	13	12	12	14	15	15	20	25	26	27	**IZS**	35	34	35	35	34	33	33	34	33	32	31	33	35	25.9	24
15	32	31	29	28	28	27	25	24	23	23	**IZS**	28	30	31	32	32	29	28	23	22	22	22	24	28	32	27.0	24
16	25	27	27	21	21	17	12	17	21	**IZS**	27	31	32	33	35	34	32	32	29	26	27	27	26	28	35	26.4	24
17	31	32	31	33	33	32	31	31	**IZS**	28	29	29	28	27	27	26	26	25	24	24	24	24	25	25	33	28.0	24
18	25	25	26	26	27	27	26	**IZS**	25	25	24	24	23	21	20	20	19	18	17	18	19	25	27	27	27	23.2	24
19	25	27	27	26	25	25	**IZS**	25	24	23	23	23	23	23	23	22	21	20	20	19	17	17	17	18	27	22.3	24
20	18	18	18	18	17	**IZS**	19	19	20	21	22	24	25	26	27	28	27	27	27	27	32	33	29	27	33	23.9	24
21	27	27	27	26	**IZS**	21	20	18	18	21	**C**	**C**	**C**	**C**	**C**	24	23	25	28	28	28	28	28	27	28	24.7	24
22	27	26	24	**IZS**	23	23	23	22	21	23	23	23	25	26	26	26	26	27	25	24	23	24	24	23	27	24.2	24
23	23	22	**IZS**	21	21	20	19	19	22	23	27	28	29	29	29	30	29	28	27	27	26	25	24	25	30	24.9	24
24	24	**IZS**	21	21	21	21	21	21	22	23	23	24	23	22	26	28	28	27	27	28	28	28	28	27	28	24.4	24
25	**IZS**	28	27	28	28	28	28	27	26	26	28	29	29	30	29	28	27	26	25	25	24	23	23	**IZS**	30	26.9	24
26	22	22	22	22	21	20	22	23	23	27	27	26	26	27	27	27	27	29	27	28	26	25	**IZS**	24	29	24.8	24
27	22	22	20	22	24	20	19	19	20	19	20	20	21	23	**P**	**P**	12	14	14	14	14	**IZS**	12	22	24	18.7	22
28	28	29	29	30	31	32	33	33	32	32	32	32	32	32	31	31	31	29	31	32	**IZS**	32	33	32	33	31.3	24
29	32	32	32	32	33	34	34	34	34	34	34	33	33	32	32	32	32	32	31	**IZS**	30	30	30	30	34	32.3	24
30	30	30	29	29	29	29	29	28	28	28	28	28	28	27	27	27	27	27	**IZS**	26	26	25	25	25	30	27.6	24
HOURLY MAX	36	34	35	35	36	35	34	34	35	38	41	41	41	41	41	40	39	39	38	38	40	38	37	35			
HOURLY AVG	24.8	24.6	24.2	23.7	23.8	23.8	23.6	24.1	24.2	24.8	26.0	26.5	27.6	27.6	27.8	27.3	26.3	26.5	25.9	25.1	24.9	25.8	25.1	25.3			

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:	681					
MAXIMUM INSTANTANEOUS VALUE:	41	PPB	@ HOUR(S)	VAR	ON DAY(S)	5
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		718	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	6.13					



JOB #: 2833-12-11-31-C

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

November 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	3.36	4.24	6.44	9.95	8.49	9.22	5.85	4.68	5.41	4.97	9.80	6.88	3.80	4.09	7.75	4.97	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.36	4.24	6.44	9.95	8.49	9.22	5.85	4.68	5.41	4.97	9.80	6.88	3.80	4.09	7.75	4.97	

Calm : .00 %

Total # Operational Hours : 683

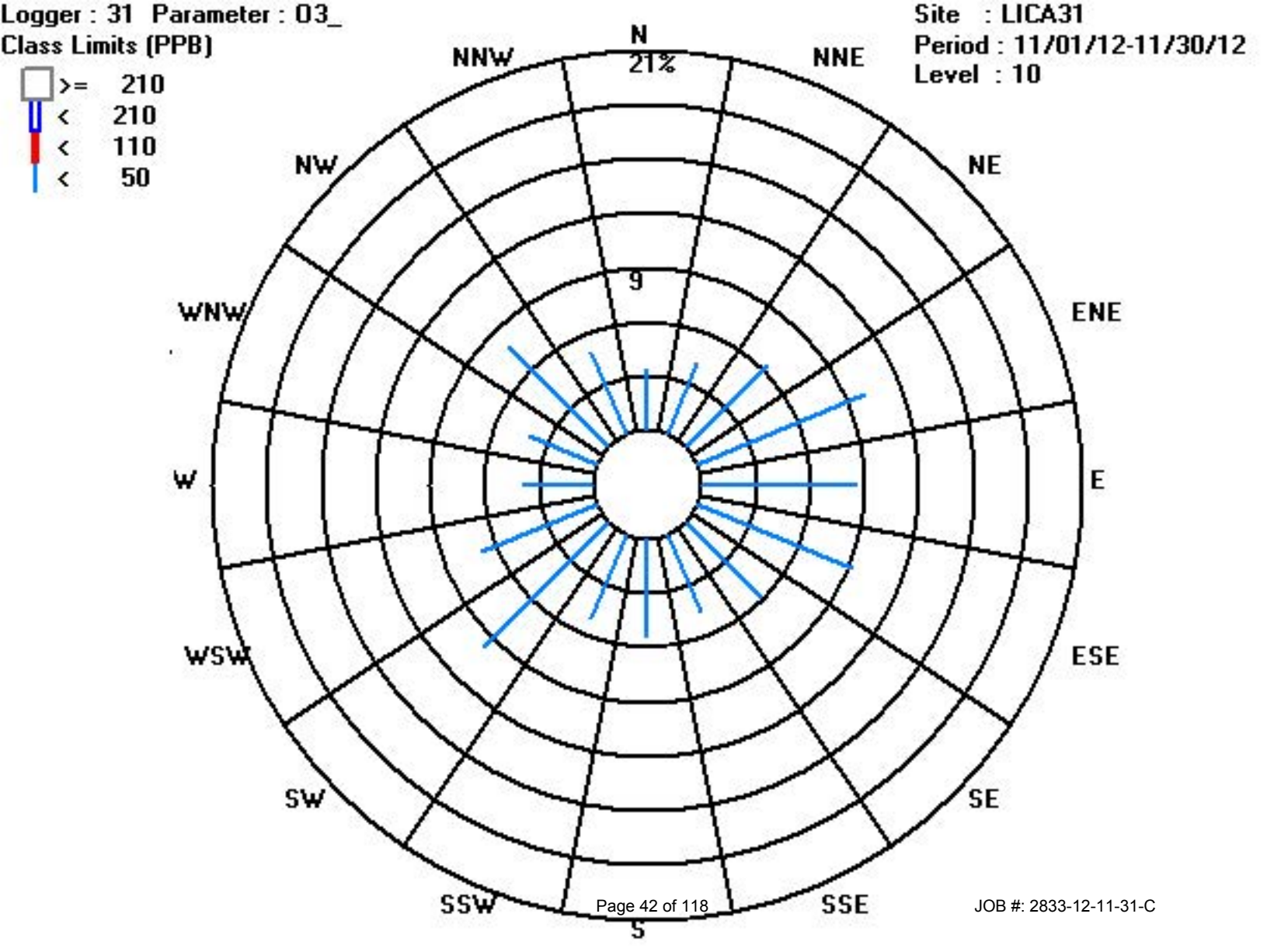
Distribution By Samples

Direction

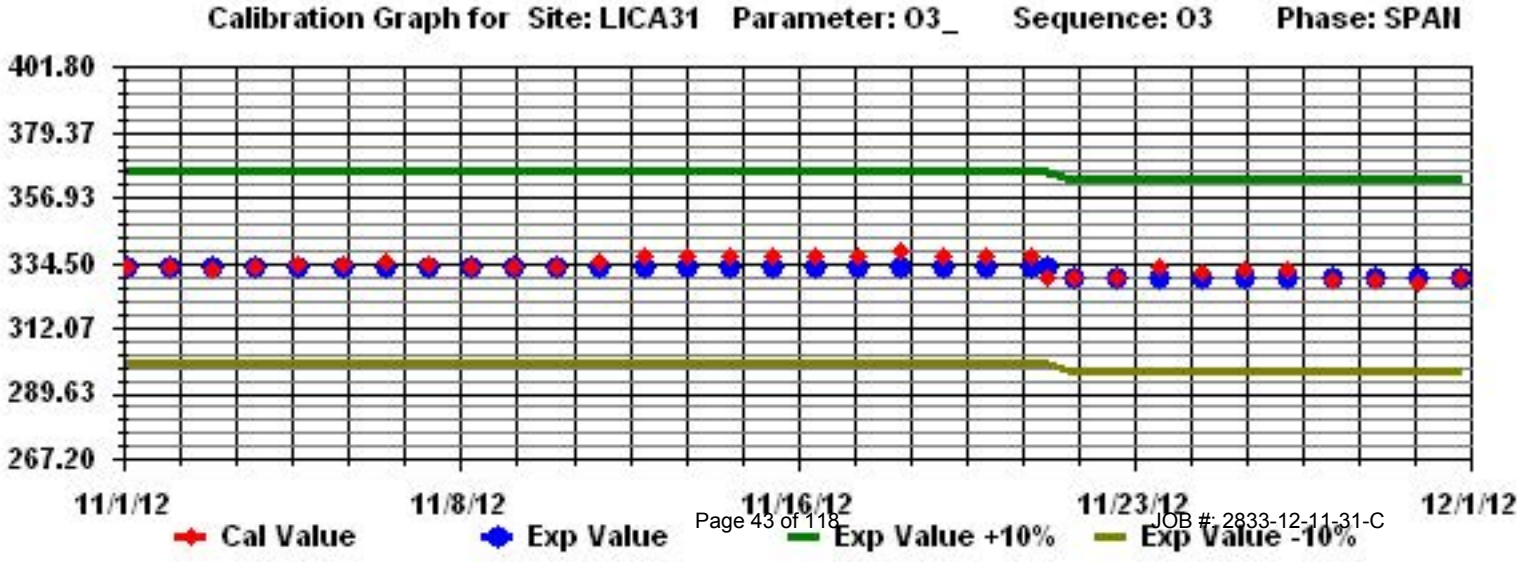
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	23	29	44	68	58	63	40	32	37	34	67	47	26	28	53	34	683
< 110																	
< 210																	
>= 210																	
Totals	23	29	44	68	58	63	40	32	37	34	67	47	26	28	53	34	

Calm : .00 %

Total # Operational Hours : 683



JOB #: 2833-12-11-31-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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION. - *ST. LINA*

NOVEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

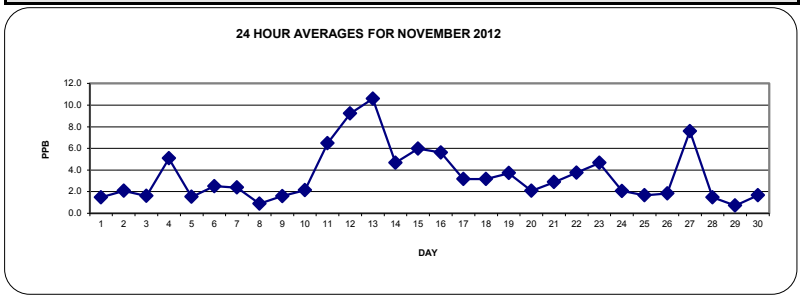
MST

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	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	2	2	2	3	1.5	24
2	**IZS**	3	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	4	2	1	1	2	**IZS**	4	2.1	24
3	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	**IZS**	2	2	1.6	24
4	3	3	3	3	4	5	5	5	4	5	4	4	5	6	7	7	7	7	6	8	7	**IZS**	5	4	8	5.1	24
5	4	3	3	4	4	3	3	2	2	1	1	1	0	1	0	0	0	0	0	0	**IZS**	0	1	1	4	1.5	24
6	1	1	1	1	1	1	1	1	2	2	3	2	2	2	3	3	4	5	6	**IZS**	6	5	2	3	6	2.5	24
7	5	7	5	5	4	4	5	5	3	3	2	1	1	1	1	0	0	1	**IZS**	0	1	0	0	0	7	2.4	24
8	0	0	0	0	1	0	0	0	1	1	1	1	2	2	1	1	2	**IZS**	1	1	1	1	1	2	2	0.9	24
9	0	0	1	0	1	1	2	2	2	2	2	2	2	1	1	1	**IZS**	2	2	3	3	3	2	2	3	1.6	24
10	1	1	1	2	1	1	2	1	4	5	4	1	2	2	3	**IZS**	1	2	3	3	3	3	3	3	5	2.1	24
11	3	3	3	4	5	5	4	5	5	5	4	4	5	5	**IZS**	5	6	7	9	11	12	13	13	13	13	6.5	24
12	14	16	18	**19**	**19**	14	10	7	9	7	7	7	5	**IZS**	5	5	7	10	7	5	6	5	5	5	**19**	9.2	24
13	5	5	5	7	9	10	11	13	12	13	13	15	**IZS**	11	11	10	12	13	12	11	11	12	12	12	15	**10.6**	24
14	12	13	14	14	12	11	11	10	5	2	1	**IZS**	1	1	0	0	0	1	0	0	0	0	0	0	14	4.7	24
15	0	0	3	3	2	2	4	3	5	5	**IZS**	5	4	5	5	7	8	9	11	11	11	11	14	14	14	6.0	24
16	8	7	7	8	8	13	19	12	9	**IZS**	4	3	3	3	3	3	3	4	3	3	2	2	2	2	19	5.6	24
17	2	2	2	2	1	1	2	2	**IZS**	3	3	3	3	4	4	4	4	4	5	4	5	5	4	4	5	3.2	24
18	4	4	4	4	4	4	4	**IZS**	4	4	4	3	3	3	3	3	3	3	3	3	3	2	2	2	4	3.2	24
19	3	3	2	4	4	3	**IZS**	3	4	4	4	4	4	4	4	4	4	5	4	4	5	4	3	3	5	3.7	24
20	3	3	2	2	1	**IZS**	2	2	2	2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2	1	1	4	4	2	1	4	2.1	24
21	0	1	2	2	**IZS**	5	5	7	7	6	5	4	3	3	**M**	3	3	3	1	1	1	1	1	1	7	2.9	23
22	1	2	3	**IZS**	3	4	4	5	5	4	4	4	3	4	3	3	4	3	5	5	5	6	4	4	6	3.8	24
23	5	6	**IZS**	8	6	7	8	8	7	**N**	5	4	4	3	3	3	3	3	4	3	3	3	3	3	8	4.7	23
24	4	**IZS**	4	4	4	5	4	4	3	3	3	2	2	1	1	1	1	1	0	0	0	0	0	1	5	2.1	24
25	**IZS**	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	4	3	IZS	4	1.7	24
26	3	2	3	3	3	3	2	2	2	1	1	1	1	1	1	2	1	2	2	1	1	2	**IZS**	3	3	1.8	24
27	4	4	4	3	2	3	5	4	4	4	4	5	6	5	8	**P**	15	15	14	15	15	**IZS**	19	12	19	7.6	23
28	5	2	2	1	1	0	0	0	1	1	0	0	1	1	2	3	3	3	2	2	**IZS**	2	2	1	5	1.5	24
29	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	**IZS**	2	2	1	1	2	0.7	24
30	1	1	1	1	1	1	1	1	2	1	1	1	2	2	2	3	2	2	**IZS**	2	2	2	2	2	3	1.7	24
HOURLY MAX	14	16	18	19	19	14	19	13	12	13	13	15	6	11	11	10	15	15	14	15	15	13	19	14			
HOURLY AVG	3.3	3.3	3.4	3.8	3.7	3.8	4.1	3.8	3.7	3.2	3.0	2.9	2.4	2.7	2.9	3.0	3.7	3.9	4.0	3.8	4.2	3.4	3.9	3.6			

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

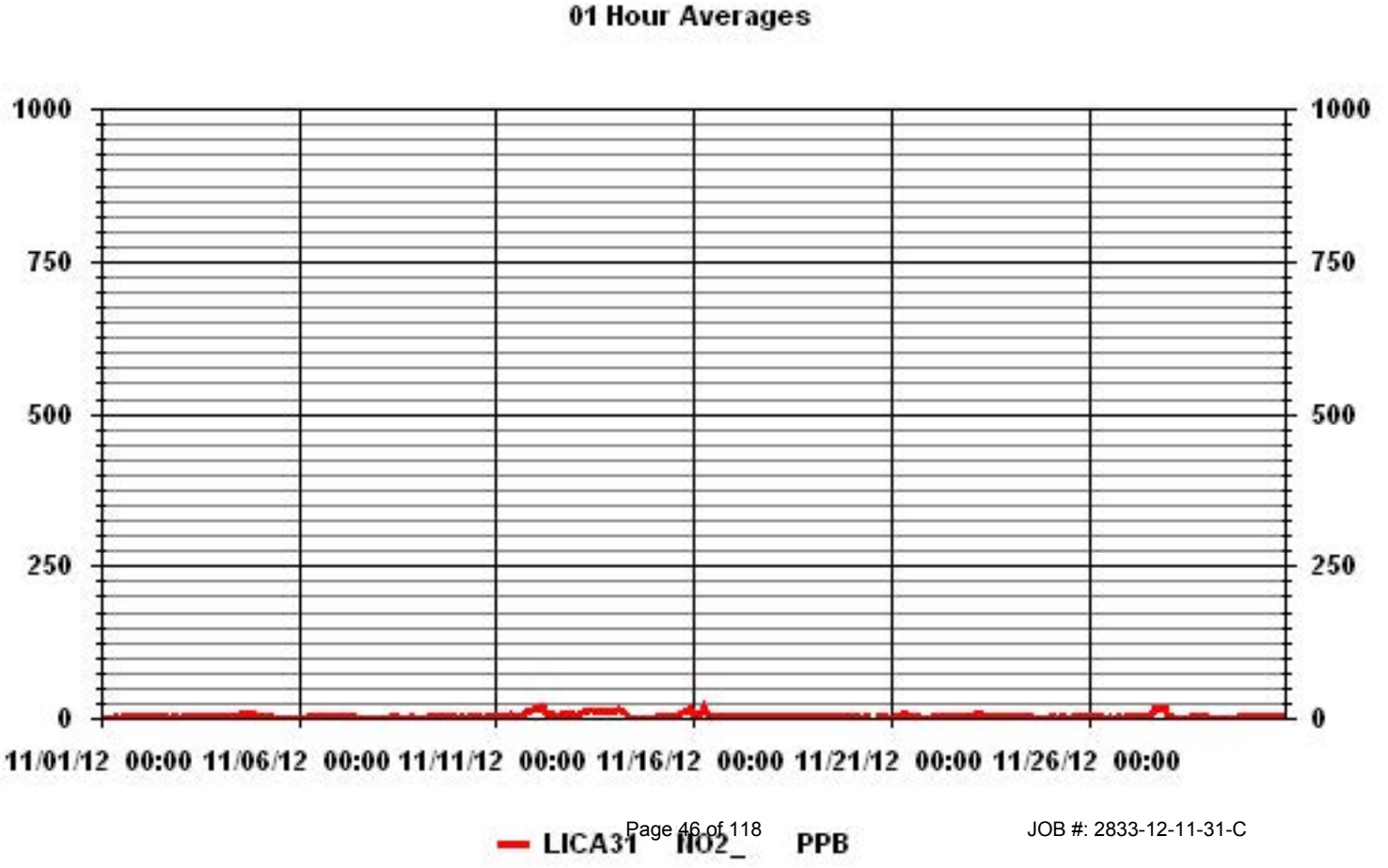
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	672					
MAXIMUM 1-HR AVERAGE:	19	PPB	@ HOUR(S)	3, 4	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	10.6	PPB			ON DAY(S)	13

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	717	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	3.40		MONTHLY AVERAGE:	3.48	PPB



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

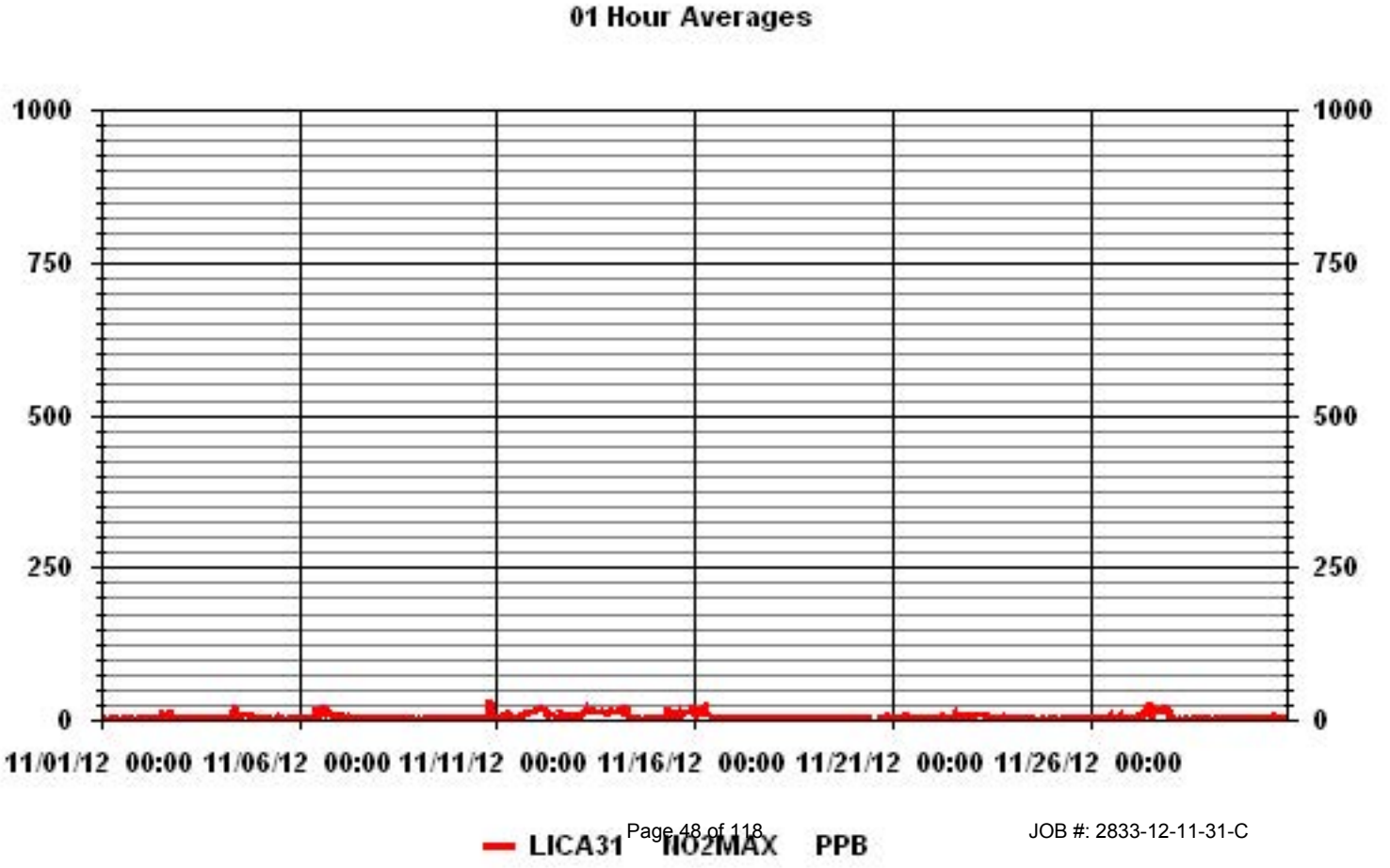
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	**IZS**	1	1	2	1	1	2	2	2	2	2	1	2	2	2	3	4	4	4	4	2	2	3	4	2.2	24
2	**IZS**	3	2	2	2	4	2	2	2	2	2	2	2	15	2	2	2	3	16	2	1	1	1	**IZS**	16	3.3	24
3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	**IZS**	3	3	2.7	24
4	3	3	3	4	5	5	5	5	14	24	4	4	6	7	8	8	8	8	7	8	8	**IZS**	6	5	24	6.9	24
5	4	4	4	4	5	4	4	4	4	2	2	6	1	2	1	1	2	1	1	1	**IZS**	1	1	1	6	2.6	24
6	1	1	1	1	1	1	2	2	7	17	16	2	10	18	14	13	22	13	16	**IZS**	8	9	3	4	22	7.9	24
7	7	8	6	7	5	5	6	7	4	5	3	2	2	2	2	1	1	2	**IZS**	1	1	1	1	1	8	3.5	24
8	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	**IZS**	3	2	2	2	2	2	3	1.7	24
9	1	1	2	1	2	3	3	3	3	3	3	3	2	2	2	2	**IZS**	3	3	3	3	3	3	2	3	2.4	24
10	2	2	2	2	2	2	2	2	5	5	5	2	2	3	3	**IZS**	2	4	4	5	**33**	4	4	4	**33**	4.4	24
11	4	4	4	6	7	7	5	15	8	7	5	5	5	7	**IZS**	7	7	8	11	12	14	13	14	14	15	8.2	24
12	16	17	19	20	20	18	12	9	12	10	9	8	7	**IZS**	15	7	9	11	9	6	7	7	6	6	20	11.3	24
13	6	6	7	9	11	12	20	14	13	14	14	15	**IZS**	14	12	12	14	15	13	12	13	17	13	13	20	12.6	24
14	13	14	15	15	14	12	24	12	9	4	2	**IZS**	1	1	1	1	1	3	2	1	1	1	1	1	24	6.5	24
15	1	1	4	4	2	3	5	4	19	5	**IZS**	6	12	11	6	15	11	11	12	12	12	12	22	21	22	9.2	24
16	10	8	9	10	10	19	22	16	10	**IZS**	5	5	4	3	4	4	4	5	4	4	4	3	2	2	22	7.3	24
17	3	3	3	3	2	2	2	2	**IZS**	3	3	4	4	5	5	5	5	5	5	5	5	5	5	5	5	3.9	24
18	5	5	5	5	5	5	5	**IZS**	5	5	4	4	3	3	3	3	4	3	4	4	3	3	3	3	5	4.0	24
19	4	3	3	5	5	4	**IZS**	4	4	4	5	5	4	5	5	5	5	5	5	5	6	5	4	4	6	4.5	24
20	5	5	3	2	2	**IZS**	3	3	2	2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	3	2	9	8	3	2	9	3.6	24
21	2	2	3	4	**IZS**	6	7	8	8	8	6	5	4	4	**M**	**M**	4	3	2	2	2	1	1	2	8	4.0	22
22	2	2	3	**IZS**	4	4	6	6	7	5	5	5	5	6	11	5	6	5	8	6	5	9	5	5	11	5.4	24
23	6	6	**IZS**	9	8	8	9	9	9	7	6	5	5	4	4	4	4	4	5	6	6	5	4	4	9	6.0	24
24	5	**IZS**	5	5	5	5	5	4	4	4	3	3	3	2	2	1	2	1	1	1	1	1	2	2	5	2.9	24
25	**IZS**	2	2	2	2	1	3	2	2	2	2	1	1	1	2	2	3	3	4	4	4	4	4	**IZS**	4	2.4	24
26	3	3	3	3	3	4	3	2	2	3	2	2	8	2	2	4	2	3	8	2	3	4	**IZS**	4	8	3.3	24
27	4	4	4	4	3	6	7	5	15	5	19	20	29	7	**P**	**P**	19	17	16	20	16	**IZS**	21	18	29	12.3	22
28	8	3	2	2	2	1	1	1	2	1	1	1	1	2	3	3	4	4	3	2	**IZS**	3	3	2	8	2.4	24
29	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	**IZS**	2	2	2	2	2	1.4	24
30	2	2	2	2	2	2	2	2	3	2	2	2	5	5	4	7	4	3	**IZS**	3	3	4	2	3	7	3.0	24
HOURLY MAX	16	17	19	20	20	19	24	16	19	24	19	20	29	18	15	15	22	17	16	20	33	17	22	21			
HOURLY AVG	4.4	4.2	4.2	4.7	4.7	5.1	5.9	5.2	6.2	5.4	4.9	4.5	4.8	5.0	4.6	4.7	5.6	5.3	6.2	4.9	6.4	4.8	5.0	4.9			

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:	677					
MAXIMUM INSTANTANEOUS VALUE:	33	PPB	@ HOUR(S)	20	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		716	HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	4.67					



JOB #: 2833-12-11-31-C

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

November 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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	678
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	

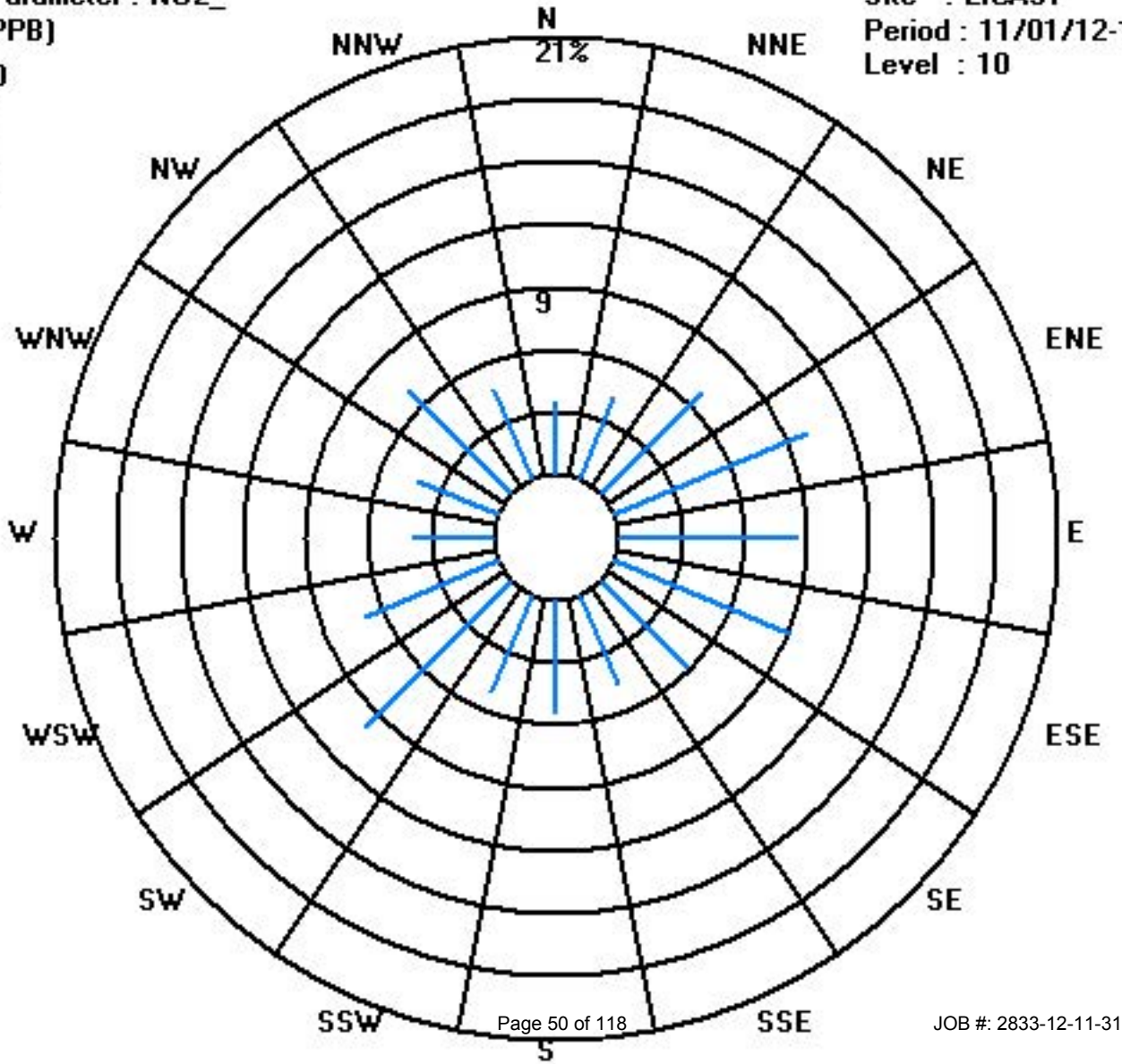
Calm : .00 %

Total # Operational Hours : 678

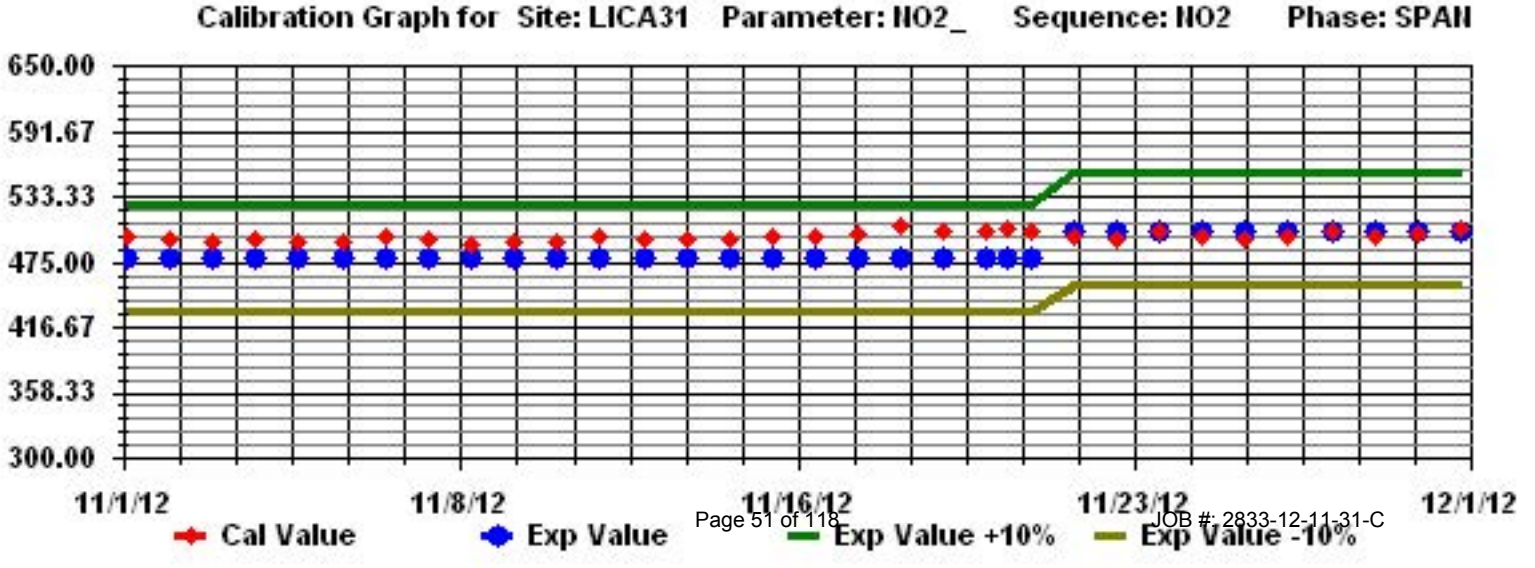
Logger : 31 Parameter : NO2_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA31
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-31-C


Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN
650.00
591.67
533.33
475.00
416.67
358.33
300.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

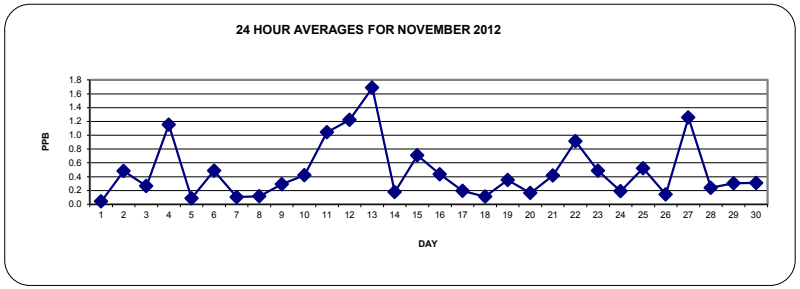
NITRIC OXIDE hourly averages in ppb

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	**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
2	**IZS**	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	0	0	1	0	0	0	0	**IZS**	1	0.5	24
3	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	**IZS**	0	1	0.3	24
4	0	0	0	0	0	0	0	0	1	3	3	4	4	5	5	2	0	0	0	0	0	**IZS**	0	0	5	1.2	24
5	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	0.1	24
6	0	0	0	0	0	0	0	0	0	1	2	0	1	1	1	1	3	0	1	**IZS**	1	0	0	0	3	0.5	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0.1	24
8	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	0.1	24
9	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	**IZS**	1	0	0	0	0	0	0	1	0.3	24
10	0	0	0	0	0	0	0	0	1	2	2	0	1	1	1	**IZS**	1	0	0	0	1	0	0	0	2	0.4	24
11	0	0	0	0	0	1	0	1	1	2	2	2	3	3	**IZS**	2	1	1	1	1	1	1	1	1	3	1.0	24
12	1	1	1	1	1	1	1	1	2	4	6	5	2	**IZS**	3	1	0	0	0	0	0	0	0	0	6	1.2	24
13	0	0	0	0	0	0	1	1	2	6	**8**	7	**IZS**	6	4	2	1	0	0	0	0	0	0	0	**8**	**1.7**	24
14	0	0	0	0	0	0	1	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
15	0	0	0	0	0	0	0	0	1	1	**IZS**	3	3	2	2	1	1	1	1	0	0	1	0	1	3	0.7	24
16	1	0	1	0	1	0	1	1	1	**IZS**	2	2	1	1	1	0	0	0	0	0	0	0	0	0	2	0.4	24
17	0	0	0	0	0	0	0	0	**IZS**	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
18	0	0	0	0	0	0	0	**IZS**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
19	0	0	0	0	0	0	**IZS**	0	0	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	2	0.4	24
20	0	0	0	0	0	**IZS**	1	0	0	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	0	0	0	0	0	0	1	0.2	24
21	0	0	0	0	**IZS**	1	1	1	1	1	1	1	2	1	**M**	0	0	0	0	0	0	0	0	0	2	0.4	23
22	0	0	0	**IZS**	1	1	1	1	1	1	2	2	2	2	2	1	1	0	1	1	0	1	0	0	2	0.9	24
23	0	1	**IZS**	1	0	0	0	1	1	**N**	2	1	1	0	1	0	0	0	0	1	0	1	0	0	2	0.5	23
24	0	**IZS**	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0.2	24
25	**IZS**	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	0	0	0	1	**IZS**	1	0.5	24
26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	1	1	0.1	24
27	0	0	0	0	0	0	1	0	1	1	3	5	6	3	5	**P**	0	1	1	1	1	**IZS**	1	0	6	1.3	23
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**IZS**	1	0	0	1	0.2	24
29	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**IZS**	1	0	0	0	1	0.3	24
30	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	**IZS**	1	0	0	0	0	1	0.3	24
HOURLY MAX	1	1	1	1	1	1	1	1	2	6	8	7	6	6	5	2	3	1	1	1	1	1	1	1			
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.5	1.0	1.4	1.4	1.1	1.1	1.0	0.6	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2			

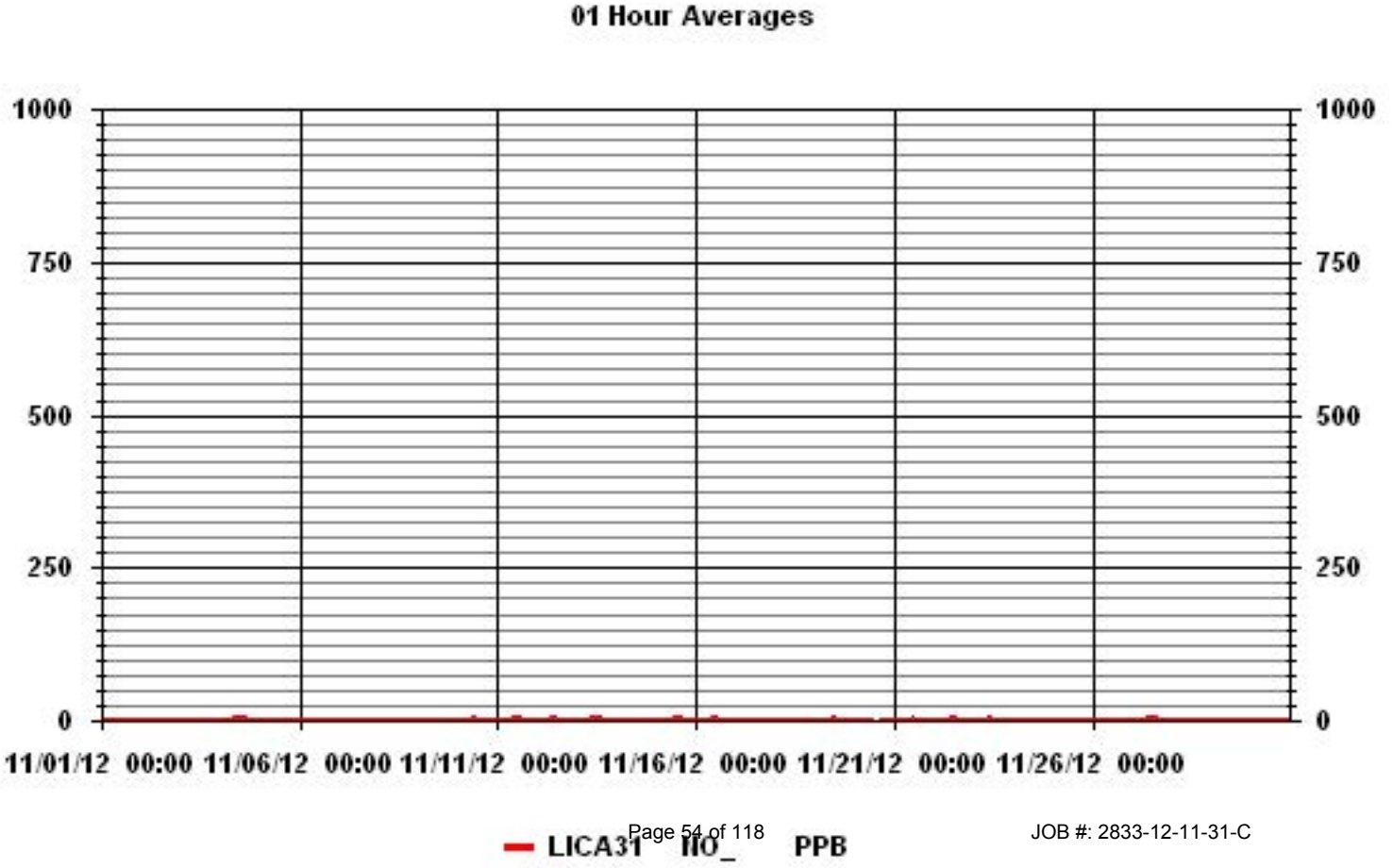
STATUS FLAG CODES

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:	475						
MAXIMUM 1-HR AVERAGE:	8	PPB	@ HOUR(S)	10	ON DAY(S)	13	
MAXIMUM 24-HR AVERAGE:	1.7	PPB			ON DAY(S)	13	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		717	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.6	%	
STANDARD DEVIATION:	0.89		MONTHLY AVERAGE:		0.48	PPB	



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

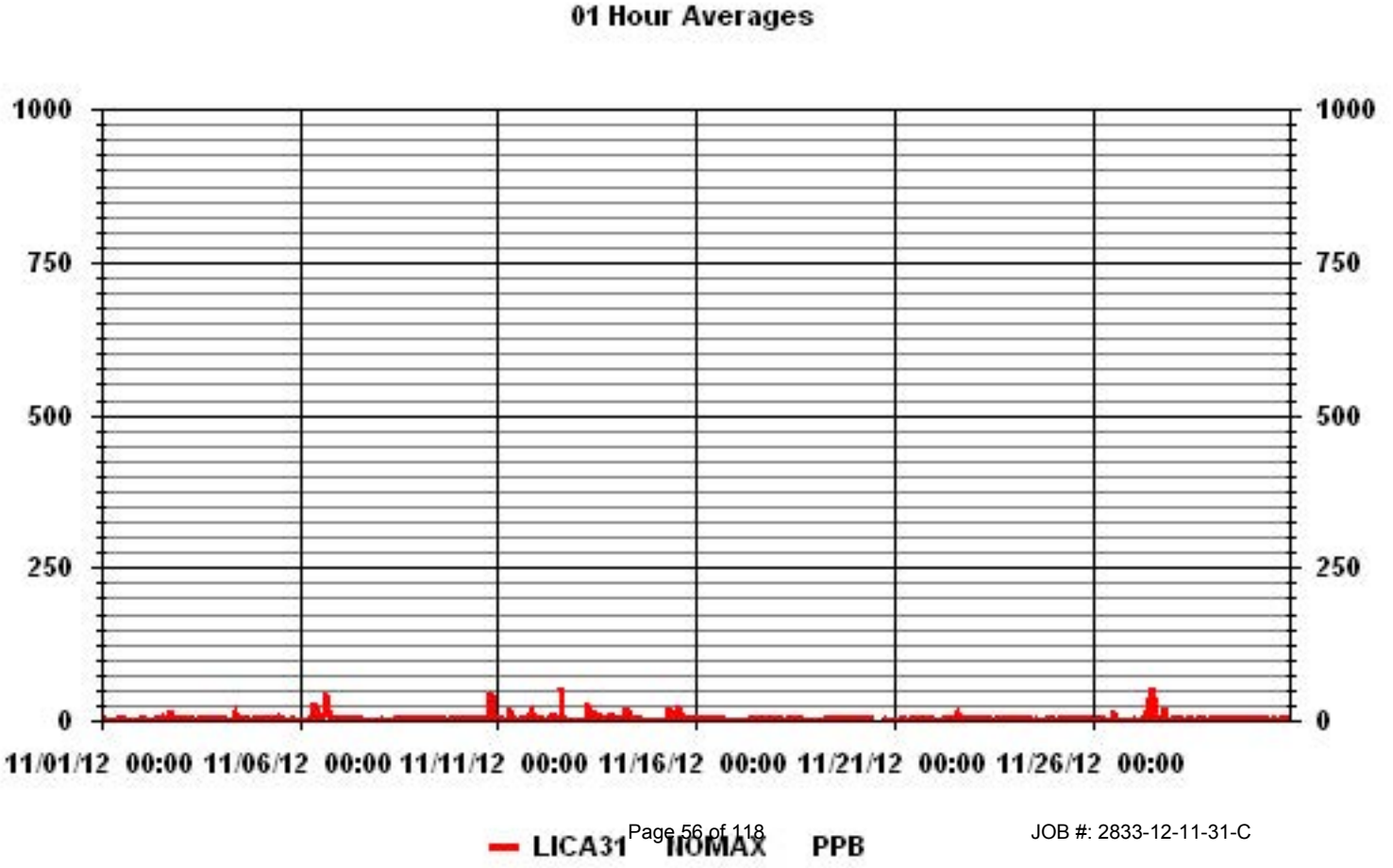
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	**IZS**	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	1	0	1	0.5	24
2	**IZS**	1	1	1	1	3	1	2	1	1	1	3	2	6	2	1	1	1	15	1	1	1	1	**IZS**	15	2.2	24
3	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	2	1.0	24
4	1	1	1	1	1	1	2	1	3	11	4	5	5	7	5	4	2	1	1	0	1	**IZS**	1	1	11	2.6	24
5	1	1	1	1	1	1	1	1	1	1	0	5	0	2	1	1	1	2	1	1	**IZS**	1	1	0	5	1.1	24
6	0	1	0	1	0	1	1	0	8	23	23	1	9	9	7	11	44	19	14	**IZS**	1	1	1	1	44	7.7	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	**IZS**	1	0	0	1	0	1	0.8	24
8	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	0.7	24
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	1	1	1	1	1	1	2	1.0	24
10	1	1	1	1	1	1	1	1	2	3	3	1	1	1	1	**IZS**	1	1	2	1	44	1	1	1	44	3.1	24
11	1	1	1	1	1	2	1	18	4	5	3	3	4	3	**IZS**	5	2	2	2	8	13	2	1	1	18	3.7	24
12	1	1	1	1	1	1	2	1	5	10	9	7	4	**IZS**	50	2	1	1	1	0	1	0	0	0	50	4.3	24
13	0	0	0	0	1	0	27	3	4	8	12	10	**IZS**	11	5	4	5	1	1	1	1	12	1	1	27	4.7	24
14	1	1	1	1	1	1	19	1	1	1	1	**IZS**	1	1	1	1	1	2	1	1	0	0	1	0	19	1.7	24
15	0	0	0	0	0	1	1	0	19	3	**IZS**	5	11	23	2	12	2	2	1	1	1	1	1	1	23	3.8	24
16	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	1	1	1	1	0	0	0	0	0	1	2	1.0	24
17	0	0	0	0	1	0	1	0	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
18	1	1	1	1	1	0	0	**IZS**	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	0.7	24
19	0	0	0	1	0	0	**IZS**	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1.0	24
20	1	1	1	1	1	**IZS**	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2	1	1	2	0	0	0	2	0.9	24
21	0	0	0	0	**IZS**	1	1	1	1	2	2	2	2	2	**M**	**M**	1	1	0	1	1	1	1	1	2	1.0	22
22	1	0	0	**IZS**	2	1	4	2	4	3	5	4	4	5	11	3	5	1	3	1	1	1	1	1	11	2.7	24
23	1	1	**IZS**	2	1	1	1	1	1	2	3	2	1	1	1	1	1	1	1	3	2	2	1	1	3	1.4	24
24	1	**IZS**	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	0	0	1	1	1	1	2	1.0	24
25	**IZS**	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	1.0	24
26	2	1	1	1	1	1	1	1	1	2	1	1	15	2	1	1	0	1	3	1	2	1	**IZS**	2	15	1.9	24
27	1	1	1	0	1	2	2	1	17	2	37	**55**	40	4	**P**	**P**	2	2	3	22	2	**IZS**	2	1	**55**	9.4	22
28	1	1	1	1	1	1	1	0	1	1	1	1	1	1	2	1	1	1	1	1	**IZS**	2	1	1	2	1.0	24
29	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
30	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	2	1	1	**IZS**	1	1	1	1	1	3	1.2	24
HOURLY MAX	2	2	1	2	2	3	27	18	19	23	37	55	40	23	50	12	44	19	15	22	44	12	2	2			
HOURLY AVG	0.8	0.8	0.8	0.8	0.9	0.9	2.6	1.5	2.9	3.1	4.3	4.3	4.2	3.4	4.0	2.3	2.9	1.8	2.1	1.9	2.9	1.3	0.9	0.8			

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:	589					
MAXIMUM INSTANTANEOUS VALUE:	55	PPB	@ HOUR(S)	11	ON DAY(S)	27
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		716	HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	5.12					



JOB #: 2833-12-11-31-C

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

November 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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	

Calm : .00 %

Total # Operational Hours : 678

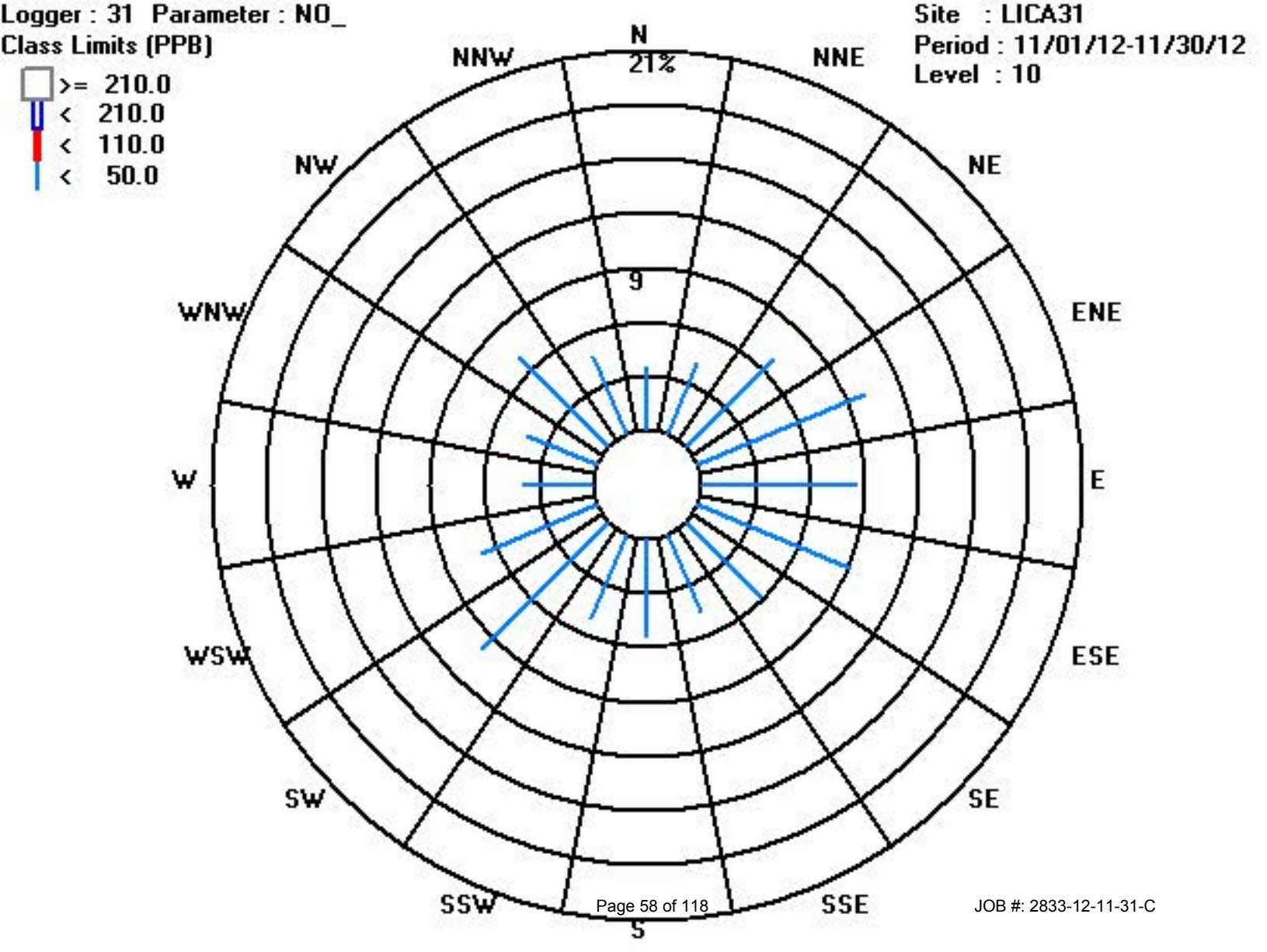
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	678
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	

Calm : .00 %

Total # Operational Hours : 678



JOB #: 2833-12-11-31-C

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

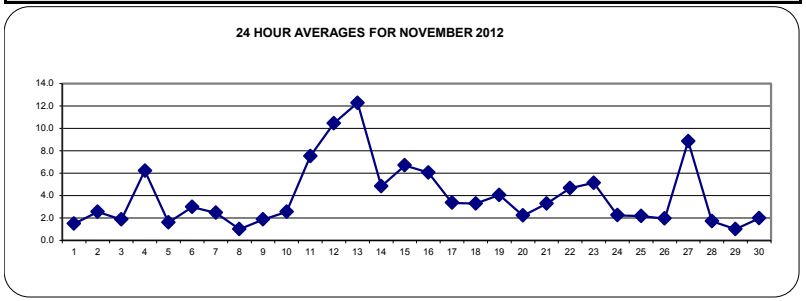
NOVEMBER 2012

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	**IZS**	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	3	3	3	3	2	2	2	3	1.5	24
2	**IZS**	3	3	3	2	3	3	3	2	2	2	3	3	3	3	3	3	3	5	2	1	1	2	**IZS**	5	2.6	24
3	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	3	3	1.9	24
4	3	3	3	3	4	5	5	5	5	7	7	7	8	11	12	10	8	7	6	8	7	**IZS**	5	5	12	6.2	24
5	4	4	3	4	4	3	3	3	2	2	1	1	0	1	0	0	0	0	0	1	**IZS**	1	1	1	4	1.6	24
6	1	1	1	1	1	1	1	1	2	3	4	2	3	3	4	4	7	6	6	**IZS**	7	6	2	3	7	3.0	24
7	5	7	5	6	4	4	5	5	3	3	2	1	1	1	1	0	0	1	**IZS**	1	1	0	0	0	7	2.5	24
8	0	0	0	0	1	0	0	0	1	1	1	2	2	2	1	1	2	**IZS**	2	1	1	2	1	1	2	1.0	24
9	1	1	1	1	1	1	3	2	2	2	2	2	2	2	2	2	**IZS**	3	2	3	3	3	2	2	3	1.9	24
10	1	1	1	2	1	1	2	1	4	6	5	1	2	2	4	**IZS**	2	2	3	4	5	3	3	3	6	2.6	24
11	3	3	3	5	6	6	4	5	6	8	6	6	7	8	**IZS**	8	7	8	10	11	12	13	14	14	14	7.5	24
12	15	17	19	20	19	15	11	8	11	10	14	12	8	**IZS**	8	6	8	10	7	5	6	5	5	5	20	10.4	24
13	5	5	5	7	9	10	12	13	14	19	21	**22**	**IZS**	17	15	13	13	14	12	11	12	12	12	12	**22**	**12.3**	24
14	12	13	14	14	12	11	12	10	6	3	1	**IZS**	1	1	0	0	0	1	0	0	0	0	0	0	14	4.8	24
15	0	0	3	3	2	2	4	3	6	6	**IZS**	8	7	7	6	8	9	10	11	11	11	11	14	14	14	6.7	24
16	9	7	7	8	8	13	19	13	9	**IZS**	6	5	4	4	3	3	3	4	3	3	2	2	2	2	19	6.1	24
17	2	2	2	2	1	1	2	2	**IZS**	3	3	4	4	5	5	5	5	4	5	4	5	5	4	4	5	3.4	24
18	4	4	4	4	4	4	4	**IZS**	4	5	4	3	3	3	3	3	3	3	3	3	3	2	2	2	5	3.3	24
19	3	3	2	4	4	3	**IZS**	4	4	5	5	5	5	5	5	5	4	5	4	4	5	4	3	3	5	4.1	24
20	3	3	2	2	1	**IZS**	2	3	2	3	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2	1	1	4	4	2	1	4	2.2	24
21	0	1	2	2	**IZS**	5	6	8	8	7	6	6	5	4	**M**	4	3	3	1	1	1	1	1	1	8	3.3	23
22	1	2	3	**IZS**	5	4	5	5	6	6	6	6	6	6	5	4	5	3	5	5	5	6	4	5	6	4.7	24
23	5	6	**IZS**	9	7	7	9	9	8	**N**	6	5	4	4	3	3	3	3	4	4	4	4	4	3	9	5.1	23
24	4	**IZS**	5	5	4	5	4	4	4	3	3	2	2	2	2	1	1	1	0	0	0	0	1	1	5	2.3	24
25	**IZS**	3	2	2	2	1	2	2	2	2	2	1	1	1	1	2	2	3	3	3	4	4	4	**IZS**	4	2.2	24
26	3	3	3	3	3	3	2	2	2	2	1	1	1	1	1	2	1	2	3	1	1	2	**IZS**	4	4	2.0	24
27	4	4	4	3	2	4	6	4	5	5	6	10	11	8	12	**P**	15	16	15	15	16	**IZS**	20	12	20	8.9	23
28	5	2	2	1	1	0	0	0	1	1	1	1	1	2	3	3	3	3	2	2	**IZS**	3	2	2	5	1.7	24
29	2	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	2	2	2	2	2	1.0	24
30	2	1	2	2	2	1	2	2	2	1	2	2	2	3	3	4	2	2	**IZS**	3	2	2	2	2	4	2.0	24
HOURLY MAX	15	17	19	20	19	15	19	13	14	19	21	22	11	17	15	13	15	16	15	15	16	13	20	14			
HOURLY AVG	3.5	3.5	3.5	4.0	3.9	4.1	4.4	4.0	4.2	4.2	4.3	4.3	3.5	3.8	3.9	3.5	4.0	4.2	4.2	4.0	4.4	3.6	4.1	3.8			

STATUS FLAG CODES

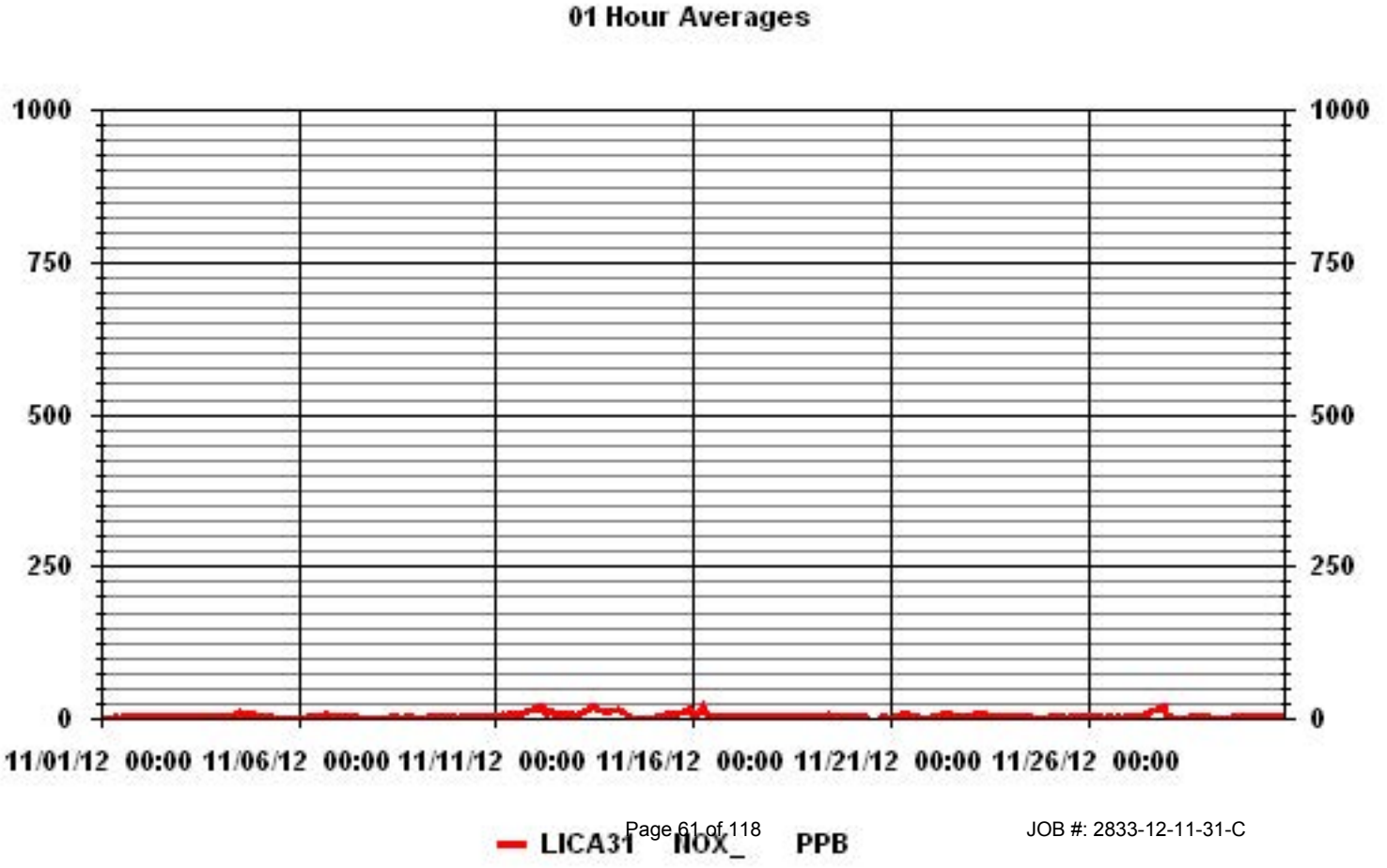
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		672					
MAXIMUM 1-HR AVERAGE:		22	PPB	@ HOUR(S)	11	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:		12.3	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:		717	HRS
MONTHLY CALIBRATION TIME:	7	HRS		AMD OPERATION UPTIME:		99.6	%
STANDARD DEVIATION:	3.79			MONTHLY AVERAGE:		3.96	PPB

JOB #: 2833-12-11-31-C



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

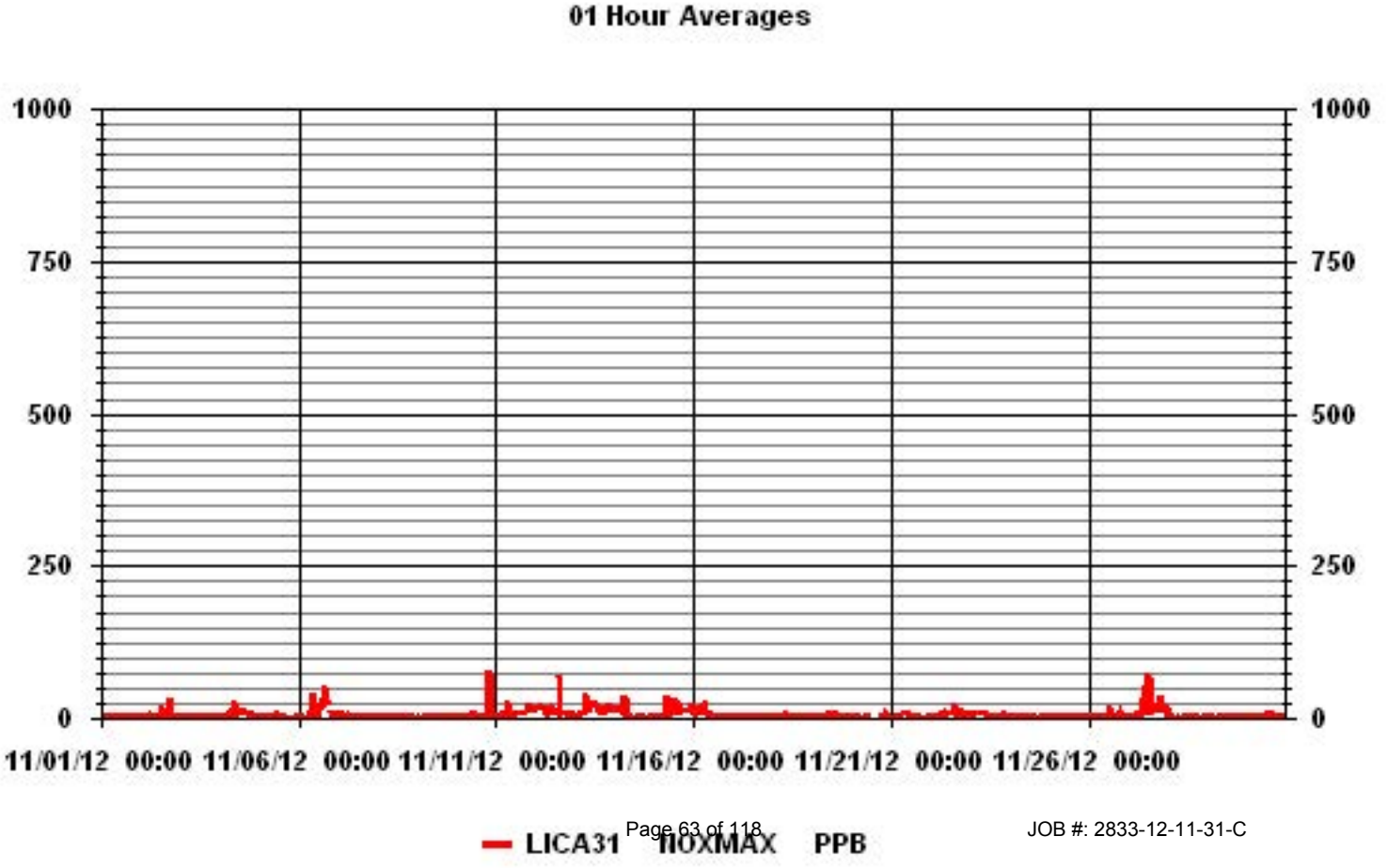
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	**IZS**	2	2	2	1	1	2	2	2	2	2	2	2	2	3	3	3	4	4	4	3	2	3	4	2.4	24
2	**IZS**	4	4	3	3	8	4	4	3	4	3	5	5	22	5	4	4	5	31	3	2	2	2	**IZS**	31	5.9	24
3	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	3	3	3	3	3	3	**IZS**	3	3	2.5	24
4	3	4	3	4	5	6	7	5	16	30	8	9	11	14	13	11	10	8	7	8	8	**IZS**	6	5	30	8.7	24
5	4	4	4	4	4	4	4	4	4	3	2	11	1	3	1	1	2	2	1	2	**IZS**	2	1	1	11	3.0	24
6	1	1	1	1	1	2	2	2	11	40	29	3	17	24	19	22	55	32	28	**IZS**	8	9	3	4	55	13.7	24
7	7	8	6	7	5	5	6	7	4	6	3	2	2	2	2	1	1	1	**IZS**	1	1	1	1	1	8	3.5	24
8	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	2	2	**IZS**	3	2	2	2	2	2	3	1.7	24
9	1	1	2	1	2	3	3	3	3	3	3	3	3	3	2	2	**IZS**	3	3	3	4	3	3	2	4	2.6	24
10	2	2	2	2	2	2	2	2	6	7	8	2	3	4	4	**IZS**	3	5	6	5	**77**	4	4	4	**77**	6.9	24
11	4	4	4	6	7	8	5	28	12	11	8	7	9	9	**IZS**	10	9	10	12	18	25	15	15	15	28	10.9	24
12	16	18	20	21	21	19	13	10	16	19	19	15	11	**IZS**	63	8	9	11	10	6	7	6	6	6	63	15.2	24
13	6	5	6	8	10	12	40	16	16	21	25	24	**IZS**	24	17	14	17	16	14	12	14	25	13	13	40	16.0	24
14	13	14	15	15	14	12	38	11	9	4	2	**IZS**	2	1	1	2	2	4	2	1	0	1	1	1	38	7.2	24
15	1	1	4	5	2	3	6	4	37	7	**IZS**	10	21	34	8	26	12	13	13	13	12	12	22	21	37	12.5	24
16	10	8	9	10	10	19	22	16	10	**IZS**	7	6	5	5	4	4	4	5	4	4	3	2	3	3	22	7.5	24
17	3	2	3	3	2	2	2	2	**IZS**	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.0	24
18	5	5	4	4	5	5	5	**IZS**	6	6	5	4	4	3	3	4	5	3	5	3	3	3	3	3	6	4.2	24
19	4	3	3	5	5	4	**IZS**	4	5	6	6	6	6	6	6	6	5	5	5	5	5	5	4	4	6	4.9	24
20	5	5	3	2	2	**IZS**	3	4	3	4	**C**	**C**	**C**	**C**	**C**	**C**	**C**	4	3	2	10	8	3	1	10	3.9	24
21	1	2	2	3	**IZS**	6	7	8	9	8	7	6	6	5	**M**	**M**	4	3	2	1	2	1	2	2	9	4.1	22
22	2	2	3	**IZS**	5	5	9	7	11	7	10	8	8	11	22	7	10	6	10	6	6	9	5	5	22	7.6	24
23	6	7	**IZS**	10	8	8	9	9	9	8	8	6	5	5	4	4	4	4	5	8	7	6	4	4	10	6.4	24
24	5	**IZS**	5	5	5	5	5	4	5	4	4	3	4	2	3	2	3	1	1	1	1	1	2	3	5	3.2	24
25	**IZS**	3	3	3	2	2	3	2	2	3	3	2	2	2	2	3	3	4	4	4	5	5	5	**IZS**	5	3.0	24
26	4	3	3	3	4	4	3	3	3	4	3	2	21	3	2	5	2	3	10	2	4	4	**IZS**	5	21	4.3	24
27	4	4	4	3	3	7	8	5	31	7	53	74	68	10	**P**	**P**	20	18	17	36	17	**IZS**	21	19	74	20.4	22
28	8	3	2	2	2	1	1	1	2	1	1	1	2	3	3	4	4	4	3	2	**IZS**	4	3	2	8	2.6	24
29	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	**IZS**	3	2	2	2	3	1.5	24
30	2	2	2	2	2	2	2	2	3	2	2	2	7	7	5	8	4	3	**IZS**	4	3	5	3	3	8	3.3	24
HOURLY MAX	16	18	20	21	21	19	40	28	37	40	53	74	68	34	63	26	55	32	31	36	77	25	22	21			
HOURLY AVG	4.4	4.3	4.3	4.8	4.8	5.5	7.4	5.8	8.4	7.8	8.3	8.0	8.5	7.6	7.7	6.2	7.4	6.4	7.6	5.9	8.6	5.3	5.2	5.1			

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:	676					
MAXIMUM INSTANTANEOUS VALUE:	77	PPB	@ HOUR(S)	20	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:			716 HRS
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	8.35					



JOB #: 2833-12-11-31-C

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

November 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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	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	3.53	4.27	6.78	10.02	8.55	9.14	5.89	4.71	5.45	5.01	9.88	6.93	3.83	4.12	7.07	4.71	

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

Direction

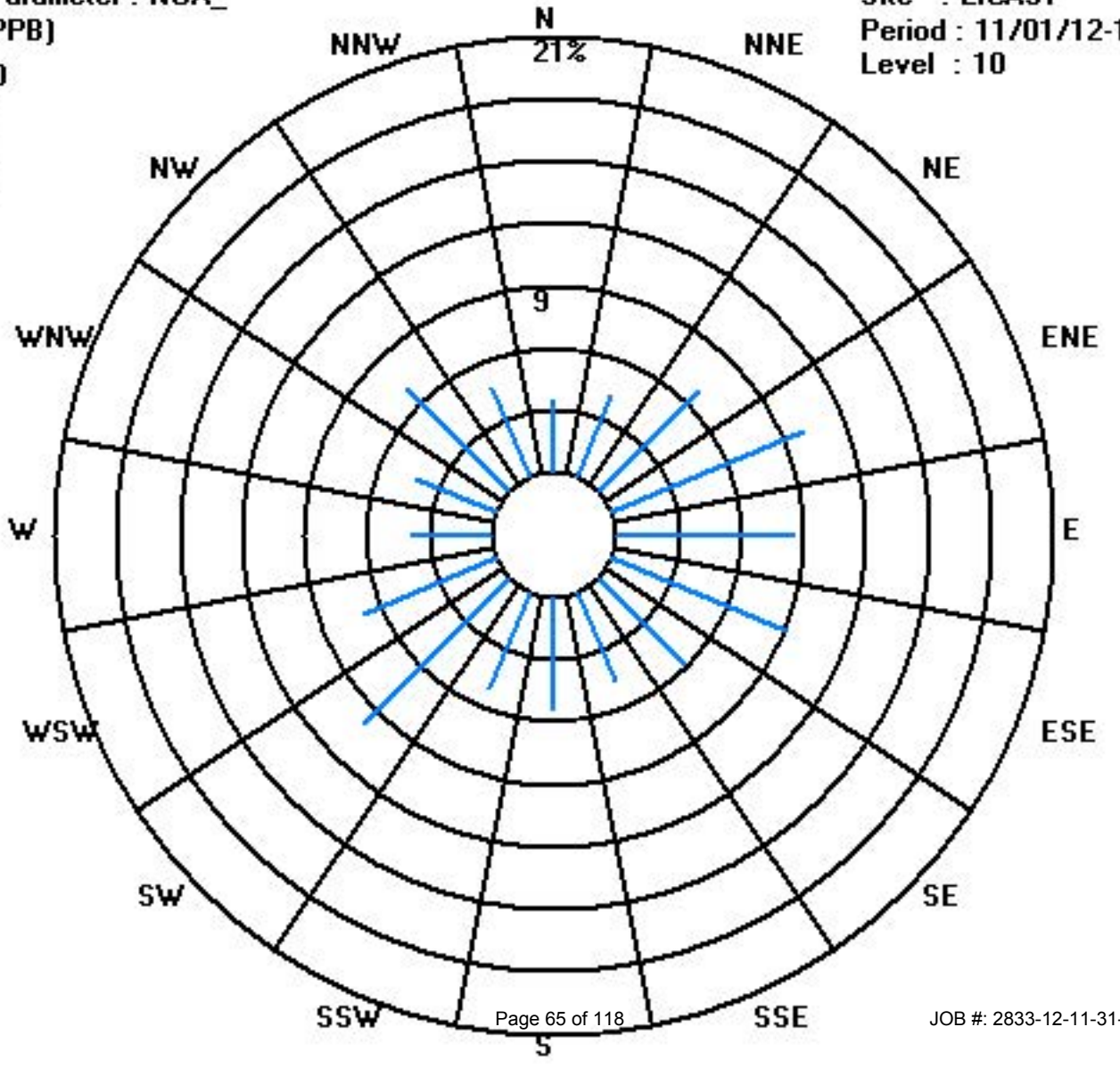
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	678
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	24	29	46	68	58	62	40	32	37	34	67	47	26	28	48	32	

Calm : .00 %

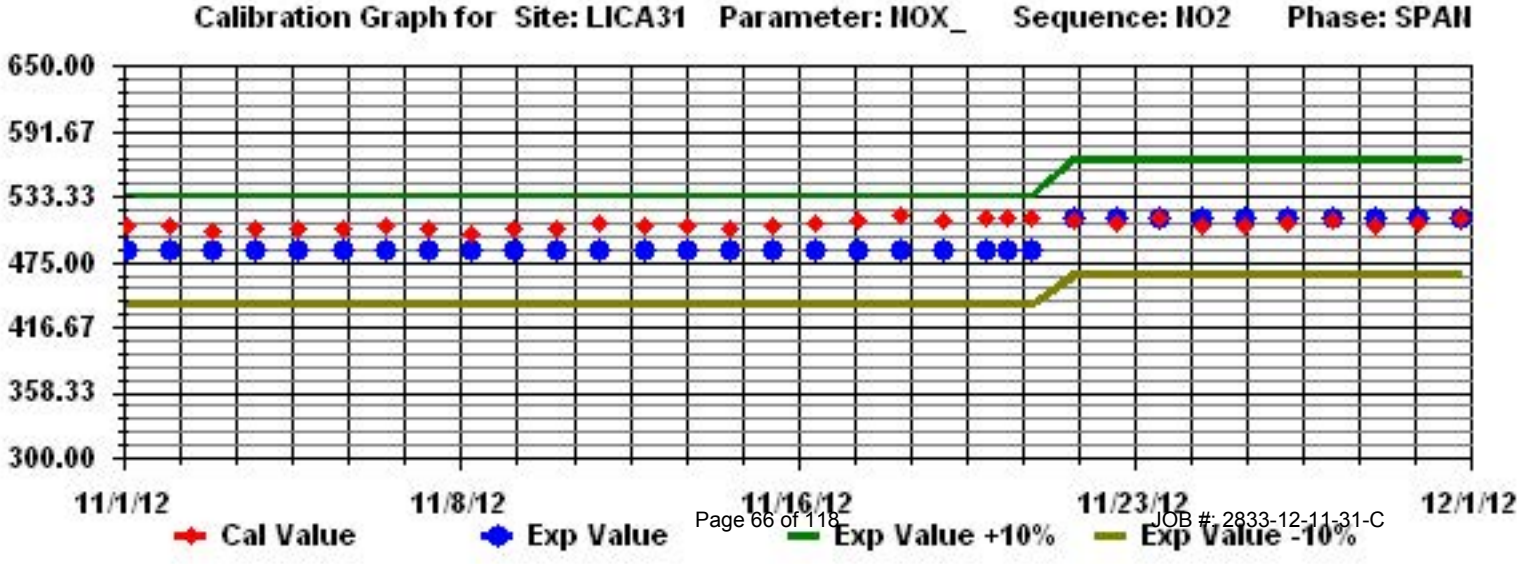
Total # Operational Hours : 678

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

Site : LICA31
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-31-C


Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN
650.00
591.67
533.33
475.00
416.67
358.33
300.00
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

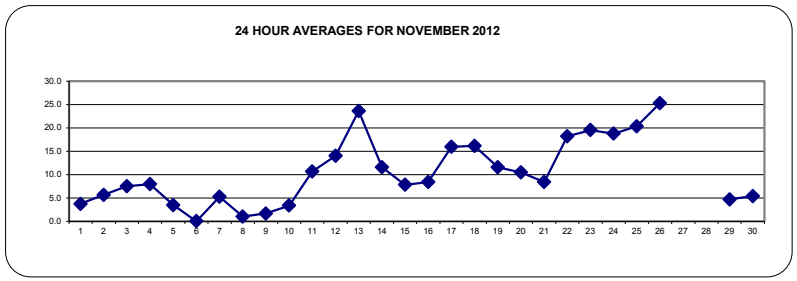
PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

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	3	5	4	3	6	5	4	4	3	3	3	4	4	3	9	1	1	3	2	2	2	2	9	3.7	24
2	5	1	3	5	4	7	7	9	5	5	10	7	6	5	4	0	9	4	7	7	9	6	3	7	10	5.6	24
3	6	10	4	5	6	5	5	7	7	11	8	6	2	8	3	11	12	6	6	7	14	11	10	10	14	7.5	24
4	10	14	8	10	2	10	9	7	7	6	5	4	10	10	11	5	7	6	8	2	11	15	5	8	15	7.9	24
5	4	3	5	11	5	9	19	3	6	2	0	0	1	2	0	**N**	0	0	2	1	3	0	3	0	19	3.4	23
6	1	2	2	2	5	0	1	5	0	0	1	4	11	7	3	2	1	3	5	6	6	5	4	9	11	0.0	24
7	13	14	11	4	6	14	10	10	7	0	**N**	7	2	2	3	0	7	4	0	0	3	2	0	2	14	5.3	23
8	0	0	2	1	2	0	0	0	0	0	0	1	0	4	0	0	0	2	1	0	0	2	4	5	5	1.0	24
9	2	0	2	3	1	1	1	0	3	3	0	5	5	0	0	0	**N**	0	3	1	2	0	2	4	5	1.7	23
10	3	2	1	0	3	2	1	2	3	5	2	3	0	6	5	4	5	7	2	5	5	6	4	4	7	3.3	24
11	6	5	11	6	11	10	9	4	6	10	7	5	9	9	10	10	14	10	14	18	17	19	16	20	20	10.7	24
12	22	21	19	19	17	15	13	12	14	14	15	11	12	12	10	11	14	14	10	12	11	12	14	12	22	14.0	24
13	17	16	16	16	23	20	24	23	21	24	22	23	25	25	21	29	27	30	32	29	28	25	24	26	32	23.6	24
14	28	23	22	25	26	20	20	12	11	6	9	8	3	1	0	12	1	8	4	6	5	8	9	10	28	11.5	24
15	9	6	8	4	6	7	9	8	14	12	6	6	9	3	5	3	7	0	14	9	14	8	12	8	14	7.8	24
16	9	6	7	13	7	13	11	13	10	10	10	**C**	**M**	**C**	**C**	**C**	0	4	7	2	7	10	7	13	13	8.4	23
17	11	14	11	20	10	8	13	12	12	13	21	17	13	18	19	20	15	20	22	18	17	21	15	22	22	15.9	24
18	18	20	14	15	14	18	24	11	16	18	0	14	15	14	24	25	17	17	22	12	15	15	11	18	25	16.1	24
19	9	6	3	3	14	15	8	19	17	7	4	4	11	9	15	18	13	17	12	10	1	12	34	16	34	11.5	24
20	14	9	5	5	13	4	8	1	5	7	7	0	8	9	7	4	0	8	6	1	41	**57**	25	7	**57**	10.5	24
21	4	9	12	12	9	8	3	13	7	12	20	**M**	**M**	**M**	**M**	13	6	13	6	0	7	2	9	3	20	8.4	20
22	8	5	4	6	3	7	8	15	12	8	9	**C**	3	7	19	25	39	39	26	43	31	38	32	31	43	18.2	24
23	36	42	33	23	22	20	17	25	21	27	36	33	8	8	3	1	9	12	17	13	14	17	8	23	42	19.5	24
24	22	26	27	27	25	24	20	15	15	12	20	12	12	9	1	36	10	7	24	23	19	21	16	27	36	18.8	24
25	15	23	18	25	33	24	17	22	14	22	15	17	14	18	16	16	28	22	23	24	18	23	23	17	33	20.3	24
26	20	25	23	22	23	25	32	32	31	23	20	19	38	**N**	21	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	38	**25.3**	14
27	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**			0
28	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**			0
29	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**C**	0	0	0	5	12	11	12	4.7	6
30	5	0	4	6	8	7	5	5	2	4	0	0	3	0	6	2	13	8	17	8	2	8	10	6	17	5.4	24
HOURLY MAX	36.0	42.0	33.0	27.0	33.0	25.0	32.0	32.0	31.0	27.0	36.0	33.0	38.0	25.0	24.0	36.0	39.0	39.0	32.0	43.0	41.0	57.0	34.0	31.0			
HOURLY AVG	11.2	11.4	10.3	10.9	11.2	11.0	11.1	10.7	10.0	9.8	9.6	8.7	8.9	7.9	8.4	10.4	10.5	10.1	10.8	9.6	11.2	13.0	11.6	11.9			

STATUS FLAG CODES

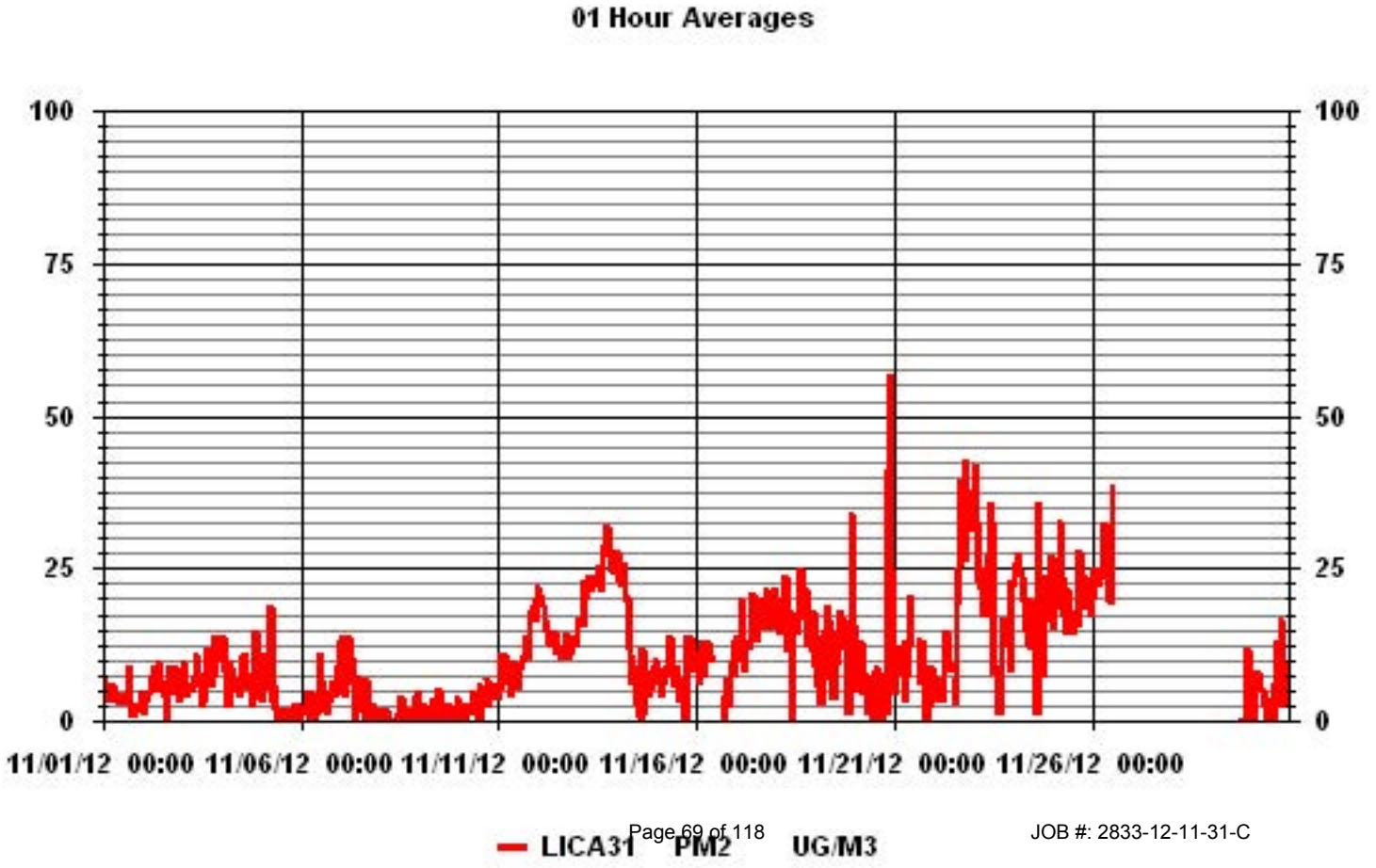
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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:	577						
MAXIMUM 1-HR AVERAGE:	57	UG/M^3	@ HOUR(S)	21	ON DAY(S)	20	
MAXIMUM 24-HR AVERAGE:	25.3	UG/M^3			ON DAY(S)	26	
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		636	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:		88.3	%	
STANDARD DEVIATION:	8.87		MONTHLY AVERAGE:		10.46	UG/M^3	



JOB #: 2833-12-11-31-C

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

November 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	2.69	3.96	6.33	10.14	5.38	9.98	6.18	4.75	5.86	5.22	9.50	5.70	3.80	4.12	8.55	4.12	96.35
<	60	.31	.00	.00	.00	.00	.00	.47	.79	.47	.15	.31	.15	.31	.15	.00	.47	3.64
<	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	3.01	3.96	6.33	10.14	5.38	9.98	6.65	5.54	6.33	5.38	9.82	5.86	4.12	4.27	8.55	4.59	

Calm : .00 %

Total # Operational Hours : 631

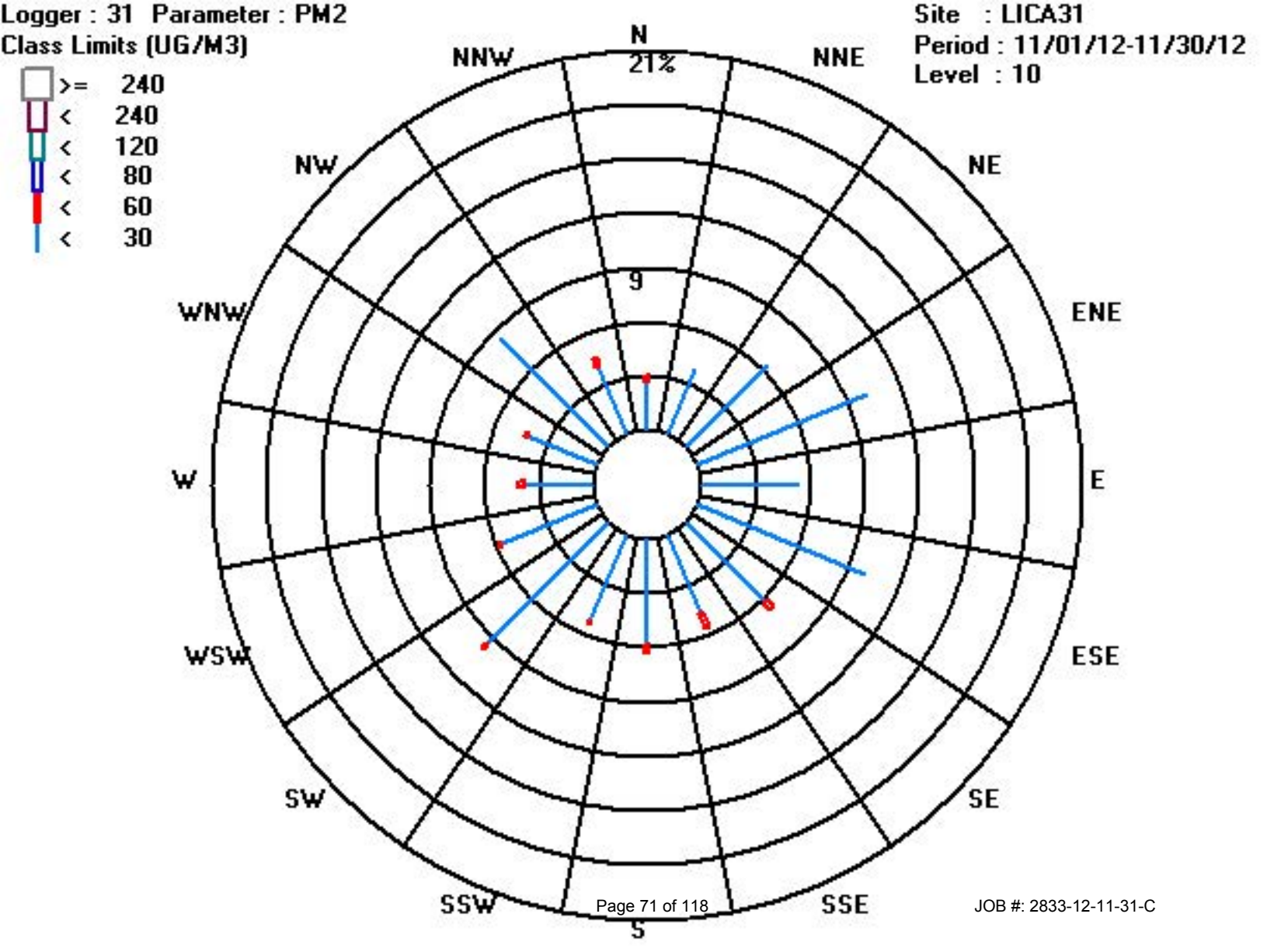
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	17	25	40	64	34	63	39	30	37	33	60	36	24	26	54	26	608
<	60	2						3	5	3	1	2	1	2	1		3	23
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	19	25	40	64	34	63	42	35	40	34	62	37	26	27	54	29	

Calm : .00 %

Total # Operational Hours : 631



JOB #: 2833-12-11-31-C

Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

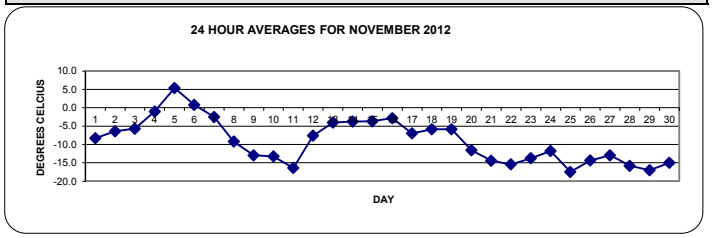
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	-10.5	-10.3	-9.8	-9.6	-9.4	-9.7	-9.7	-9.6	-9.3	-8.8	-7.8	-7.2	-6.6	-6.2	-6.1	-6.1	-6.2	-7.3	-8	-7.9	-7.9	-8.3	-8.6	-8.6	-6.1	-8.3	24
2	-8.9	-8.5	-8.1	-7.9	-7.9	-7.7	-7.6	-7.5	-7	-6.2	-4.8	-3.6	-4	-4.8	-5.2	-5.3	-5.7	-5.8	-5.9	-6	-6.2	-6.3	-6.4	-6.6	-3.6	-6.4	24
3	-6.7	-6.9	-7.1	-7.2	-7.2	-7	-7.1	-7.2	-7	-6.6	-6.1	-5.8	-5.3	-5.5	-5.3	-5.3	-5.2	-4.9	-4.6	-4.3	-4	-3.8	-3.6	-3.6	-3.6	-5.7	24
4	-3.4	-3.3	-3.3	-3.3	-3.3	-3	-2.9	-3.2	-3.2	-2.8	-1.8	-0.8	0.2	1.6	0.5	0	0	0.6	0.9	0.6	1.1	1.3	1.5	1.6	1.6	-1.0	24
5	2	1.9	1.9	1.7	1.5	2.1	3.7	4.5	5.9	8	9.7	9.8	**10.1**	9.6	9	8.2	7	6.1	5.7	5.6	5.1	4.6	3.2	1.3	**10.1**	**5.3**	24
6	0.5	0.1	0.3	0.2	0	-1	-1.9	-2.4	-2	-1.7	1.8	2.7	3	3.5	4.1	2.9	1.6	0.9	0.6	0.3	1	1.3	1.6	0.8	4.1	0.8	24
7	0.2	0	0.1	-0.2	-0.2	-0.4	-0.6	-0.8	-0.4	-0.1	-0.8	-1.4	-1.4	-0.9	-1.5	-2.7	-3.3	-4.2	-5.1	-6.2	-6.9	-7.3	-7.8	-7.9	0.2	-2.5	24
8	-8	-8.2	-8.3	-8.3	-8.4	-9.6	-9.5	-9.4	-8.9	-8.5	-8.5	-8.2	-8	-8	-8.2	-8.4	-9	-9.6	-10.1	-10.7	-11.1	-11.4	-11.6	-11.6	-8.0	-9.2	24
9	-11.7	-11.7	-11.7	-11.9	-12.3	-12.7	-13.6	-13.8	-14	-13.8	-13.4	-12.9	-12.5	-12.4	-12.5	-12.8	-13.2	-13.3	-13.4	-13.5	-13.5	-13.5	-13.5	-13.5	-11.7	-13.0	24
10	-13.6	-13.6	-13.6	-13.6	-13.7	-13.5	-13.5	-13.7	-13.6	-12.2	-10.4	-10.2	-9.7	-8.9	-9.2	-10.4	-12.5	-13.5	-14.1	-15.1	-15.9	-16.8	-17.8	-18.4	-8.9	-13.2	24
11	-19	-18.9	-18.8	-19.8	-20.8	-21.3	-21.3	-21.5	-20.7	-18.4	-14.9	-13.2	-11.4	-11.6	-12.5	-11.8	-12.5	-13.2	-14.1	-14.9	-15.2	-15.3	-15.6	-16.1	-11.4	-16.4	24
12	-16	-14.9	-13.5	-13	-12.1	-11.3	-10.7	-9.4	-9.6	-5.5	-6.6	-5.6	-4.3	-4.5	-4.3	-4.6	-4.7	-4.7	-4.6	-4.5	-4.3	-4.2	-4.4	-4.7	-4.2	-7.6	24
13	-5	-5.5	-6	-6.4	-6.8	-6.8	-6.4	-6.4	-6.4	-5.2	-2.8	-1.8	-1.4	-0.4	-0.4	-0.4	-1.6	-2.7	-2.9	-3.3	-3.6	-4.3	-5	-5.2	-0.4	-4.0	24
14	-5.2	-5	-4.5	-4.6	-4.5	-4.5	-3.9	-1.8	-0.1	0.5	1.1	0.6	0.2	0.4	-0.5	-1.9	-4.9	-6.3	-7.2	-7.5	-7.9	-7.5	-7.2	-7.5	1.1	-3.7	24
15	-7.5	-8.1	-8.5	-8.3	-7.8	-8.4	-8.7	-8.5	-7.3	-4.8	-1.3	0.5	1.5	1.2	2.7	1.1	-1	-1.4	-3.2	-3.5	-3.2	-3.4	-1.9	0.6	2.7	-3.7	24
16	-2.2	-1.6	-1.7	-3.2	-3.3	-3.9	-4.1	-3.5	-3	-2.5	-1.7	0.2	1.8	1.7	1	-0.6	-2.7	-3.5	-4.5	-5.4	-5.7	-6.3	-7.1	-6.3	1.8	-2.8	24
17	-5.8	-5.8	-5.7	-5.9	-6	-6.2	-6.6	-6.8	-6.9	-6.9	-7	-6.8	-6.6	-6.6	-6.9	-7.2	-7.5	-7.8	-8	-8.3	-8.2	-8	-7.8	-7.5	-5.7	-7.0	24
18	-7.4	-7.5	-6.9	-6	-5.3	-5.2	-5.5	-5.9	-6.3	-5.7	-5.3	-4.9	-4.9	-4.6	-4.7	-4.7	-5.2	-6.6	-8	-7.2	-6.5	-5.6	-5.2	-4.9	-4.6	-5.8	24
19	-5.5	-6	-6	-5.7	-5.8	-5.8	-5.8	-5.9	-5.8	-5.8	-5.7	-5.2	-4.6	-4.6	-5.2	-5.5	-6.1	-6.3	-6.2	-6.2	-6.7	-6.7	-6.7	-6.1	-4.6	-5.8	24
20	-5.4	-5.4	-5.5	-5.8	-6.7	-8.4	-9.4	-10.7	-11.3	-12.1	-12.6	-12.5	-12.6	-12.6	-12.4	-13.4	-14	-14.2	-14.7	-15.6	-16	-16.1	-15.7	-15.2	-5.4	-11.6	24
21	-15.1	-14.9	-15	-14.9	-14.9	-14.9	-14.9	-15	-14.8	-14.5	-13.8	-13.2	-12.5	-12.9	-12.9	-13.4	-13.7	-13.9	-14.4	-14.8	-15	-15.3	-15.5	-15.5	-12.5	-14.4	24
22	-15.5	-15.5	-15.6	-15.6	-15.7	-15.7	-15.8	-15.9	-15.7	-15	-14.1	-13.5	-10.9	-12.4	-13.1	-14.1	-15.6	-16.3	-16.6	-17.4	-17.9	-17.7	-17.4	-17.4	-10.9	-15.4	24
23	-16.8	-16.6	-16.6	-17.1	-16	-16.3	-16.7	-16.7	-16.1	-15.4	-14	-13	-12.6	-12.3	-11.1	-10.4	-11.4	-11.6	-11.9	-12.2	-12	-11.6	-11.2	-10.9	-10.4	-13.8	24
24	-10.4	-9.7	-8.3	-7.6	-7.7	-7.8	-8.1	-8.1	-8.1	-7.8	-8.1	-8.2	-9.1	-9.6	-9.7	-12.8	-14.5	-15.9	-17.1	-17.8	-18.4	-19.2	-19.4	-19.5	-7.6	-11.8	24
25	-19.8	-20.4	-21	-20.8	-20.8	-20.7	-20.5	**-21.8**	-20.3	-19.1	-17.9	-16.7	-15.5	-15	-14.9	-15.1	-15.3	-15.1	-15.1	-14.9	-14.7	-14.6	-14.6	-14.7	-14.6	-17.5	24
26	-14.7	-14.6	-15	-15	-15.9	-16.1	-16.5	-16.3	-15.1	-14.2	-13.1	-12.2	-11.6	-11.9	-11.8	-13	-14.1	-14.2	-14.2	-14.5	-14.7	-15.2	-15	-16	-11.6	-14.4	24
27	-15.7	-16	-16.1	-15.2	-14.2	-16.3	-17.7	-17.5	-17.1	-14.5	-11.9	-8.1	-6.9	-8.3	-9.7	**P**	-12.2	-12.1	-11.6	-11.4	-11.7	-11.9	-11.3	-10.4	-6.9	-12.9	23
28	-11.4	-11.9	-12.7	-13.8	-14.6	-15.4	-16	-16.6	-16.9	-16.8	-16.5	-16.2	-15.5	-15.6	-16.3	-16.9	-17.3	-17.1	-17	-16.9	-17	-17.2	-17.2	-17.3	-11.4	-15.8	24
29	-17.5	-17.6	-17.9	-18	-18.1	-18.1	-18.2	-18.3	-18.4	-18.2	-17.8	-17.6	-17.1	-16.8	-16.7	-16.6	-16.7	-16.6	-16.4	-15.4	-15.2	-15.2	-15.2	-15.3	-15.2	-17.0	24
30	-15.4	-15.4	-15.4	-15.3	-15.3	-15.2	-15.6	-16	-16.1	-16	-15.6	-15	-14.5	-13.5	-14.1	-14.4	-14.6	-14.8	-14.7	-14.6	-14.6	-14.5	-14.5	-14.6	-13.5	-15.0	24
HOURLY MAX	2.0	1.9	1.9	1.7	1.5	2.1	3.7	4.5	5.9	8.0	9.7	9.8	10.1	9.6	9.0	8.2	7.0	6.1	5.7	5.6	5.1	4.6	3.2	1.6			
HOURLY AVG	-9.7	-9.7	-9.7	-9.7	-9.8	-10.0	-10.2	-10.2	-9.9	-9.0	-8.1	-7.3	-6.8	-6.7	-6.9	-7.4	-8.4	-8.8	-9.2	-9.5	-9.6	-9.7	-9.7	-9.7			

STATUS FLAG CODES

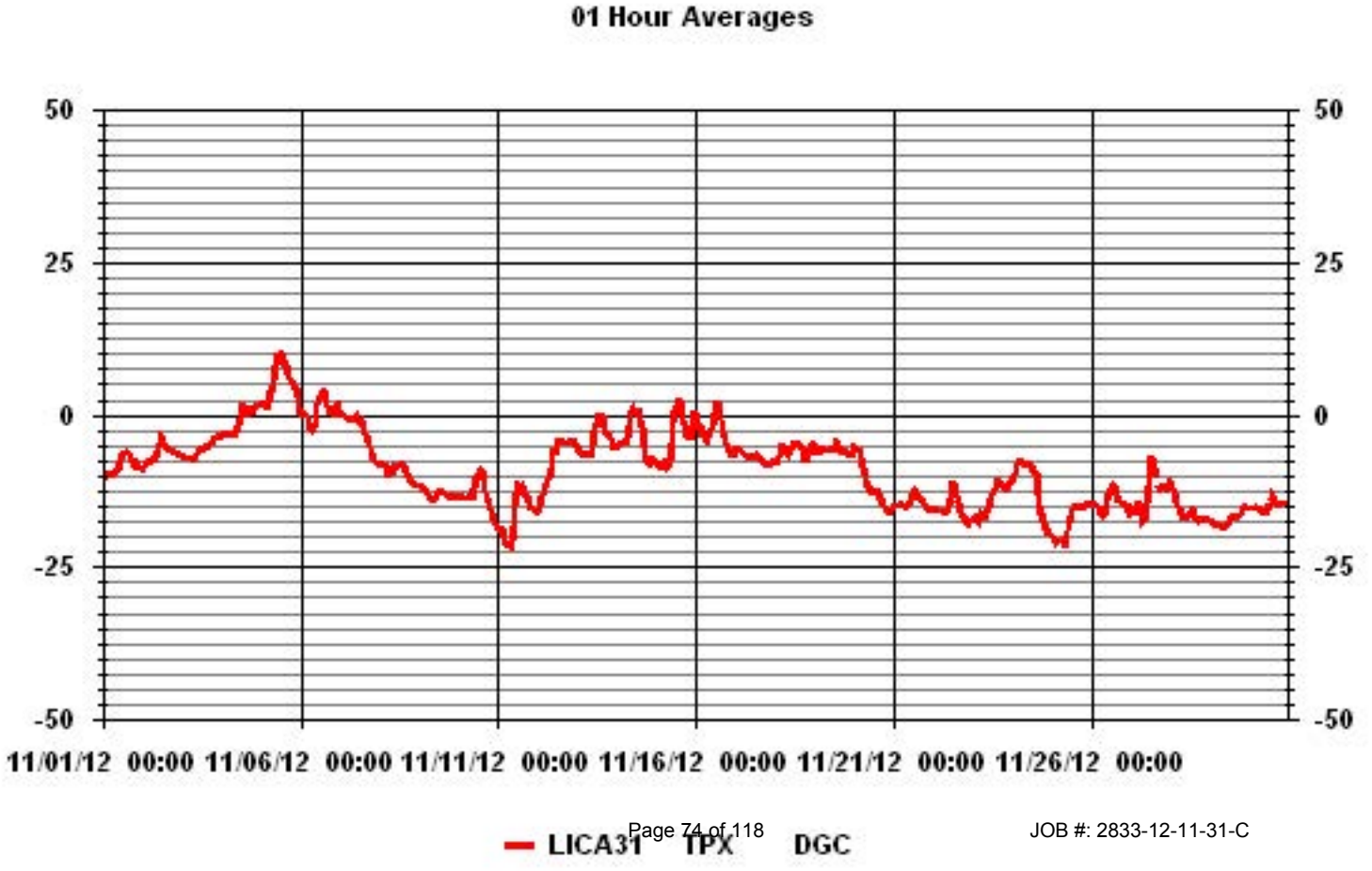
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-21.8	^{O}C	@ HOUR(S)	7	ON DAY(S)	25
MAXIMUM 1-HR AVERAGE:	10.1	^{O}C	@ HOUR(S)	12	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	5.3	^{O}C			ON DAY(S)	5

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	719	HRS
			AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	6.31		MONTHLY AVERAGE:	-8.99	^{O}C



JOB #: 2833-12-11-31-C

Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

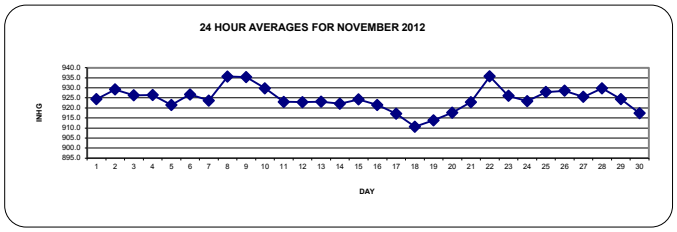
BAROMETRIC PRESSURE hourly averages (millibar)

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	927	927	926	925	925	924	924	924	924	924	924	924	923	923	923	924	924	924	924	924	924	925	925	925	927	924.4	24
2	925	926	926	926	927	927	928	928	929	929	930	930	930	930	931	931	931	931	931	931	931	931	931	931	931	929.2	24
3	930	930	930	929	929	929	928	928	928	927	926	926	925	925	925	924	924	924	924	924	924	924	924	924	930	926.3	24
4	925	925	926	926	927	927	928	928	928	929	929	929	930	930	929	929	928	927	926	925	923	922	920	919	930	926.5	24
5	918	917	916	917	917	918	919	919	919	920	920	921	921	922	922	923	924	925	925	926	926	927	927	927	927	921.5	24
6	927	928	928	928	929	929	928	928	928	928	929	929	928	928	927	927	926	925	925	924	924	923	923	922	929	926.7	24
7	922	921	921	921	920	920	920	920	920	920	920	921	921	922	923	924	926	927	928	929	929	930	931	932	932	923.7	24
8	932	933	934	934	934	934	935	935	936	936	937	936	936	936	936	936	937	937	937	937	937	937	937	937	937	935.7	24
9	937	937	937	937	936	936	936	936	936	936	936	936	936	936	935	935	934	935	934	934	934	933	933	933	937	935.3	24
10	933	932	932	932	931	931	931	931	931	931	931	930	930	929	929	929	929	929	928	928	927	927	927	926	933	929.8	24
11	926	925	925	925	925	924	924	924	924	923	924	923	923	923	922	922	922	922	922	921	921	921	921	921	926	923.0	24
12	921	920	921	921	921	922	922	922	923	923	923	924	924	924	924	924	924	924	924	923	923	924	924	924	924	922.9	24
13	924	924	924	924	924	924	924	924	924	924	925	925	924	924	924	923	923	922	922	921	921	920	920	920	925	923.1	24
14	919	919	918	918	917	917	917	918	919	920	921	922	923	924	924	925	925	926	926	926	927	927	927	926	927	922.1	24
15	926	925	925	925	925	924	924	924	924	924	925	925	925	925	925	925	924	924	924	923	923	923	922	922	926	924.2	24
16	922	922	922	921	921	921	921	921	921	921	922	922	922	922	922	922	922	922	921	921	921	922	921	921	922	921.5	24
17	921	921	920	921	920	920	920	920	920	920	919	919	918	917	917	916	915	915	914	913	912	912	911	910	921	917.1	24
18	909	909	908	907	906	906	906	906	905	906	908	909	909	910	911	913	914	915	915	916	916	917	917	917	917	910.6	24
19	916	916	917	916	916	916	916	916	915	915	915	915	914	914	914	914	913	913	911	912	911	909	908	909	917	913.8	24
20	909	909	910	911	912	913	914	915	916	918	919	919	919	920	920	921	922	922	923	923	922	922	922	922	923	917.6	24
21	922	922	922	922	922	921	921	921	922	921	922	922	922	922	922	922	923	924	924	925	925	926	927	928	928	922.9	24
22	929	929	930	931	932	933	934	935	936	936	937	938	938	938	939	939	939	939	938	938	938	937	937	937	**939**	**935.7**	24
23	936	936	936	934	933	933	932	930	930	929	928	927	925	924	922	921	921	919	919	918	918	918	917	918	936	926.0	24
24	918	919	919	920	920	921	921	921	922	922	923	923	923	923	924	925	926	926	927	927	927	927	928	928	928	923.3	24
25	928	928	929	929	928	928	928	928	928	928	928	928	928	928	927	927	927	928	927	928	928	928	928	928	929	927.9	24
26	928	928	929	929	929	929	929	929	929	930	930	930	929	929	928	928	928	928	928	928	928	927	928	928	930	928.6	24
27	927	927	927	927	927	927	926	926	927	927	927	927	926	926	925	**P**	924	923	923	923	923	923	924	924	927	925.5	23
28	926	926	927	928	929	929	930	930	931	932	932	932	932	931	931	931	930	930	930	930	929	929	929	929	932	929.7	24
29	928	928	927	927	927	927	926	926	926	926	926	925	925	924	923	923	923	922	922	922	921	921	920	920	928	924.4	24
30	919	918	918	918	917	917	917	917	917	917	917	917	917	917	917	917	917	917	917	918	918	918	918	918	919	917.4	24
HOURLY MAX	937	937	937	937	936	936	936	936	936	936	937	938	938	938	939	939	939	939	938	938	938	937	937	937			
HOURLY AVG	924	924	924	924	924	924	924	924	925	925	925	925	925	925	925	925	925	925	925	925	924	924	924	924			

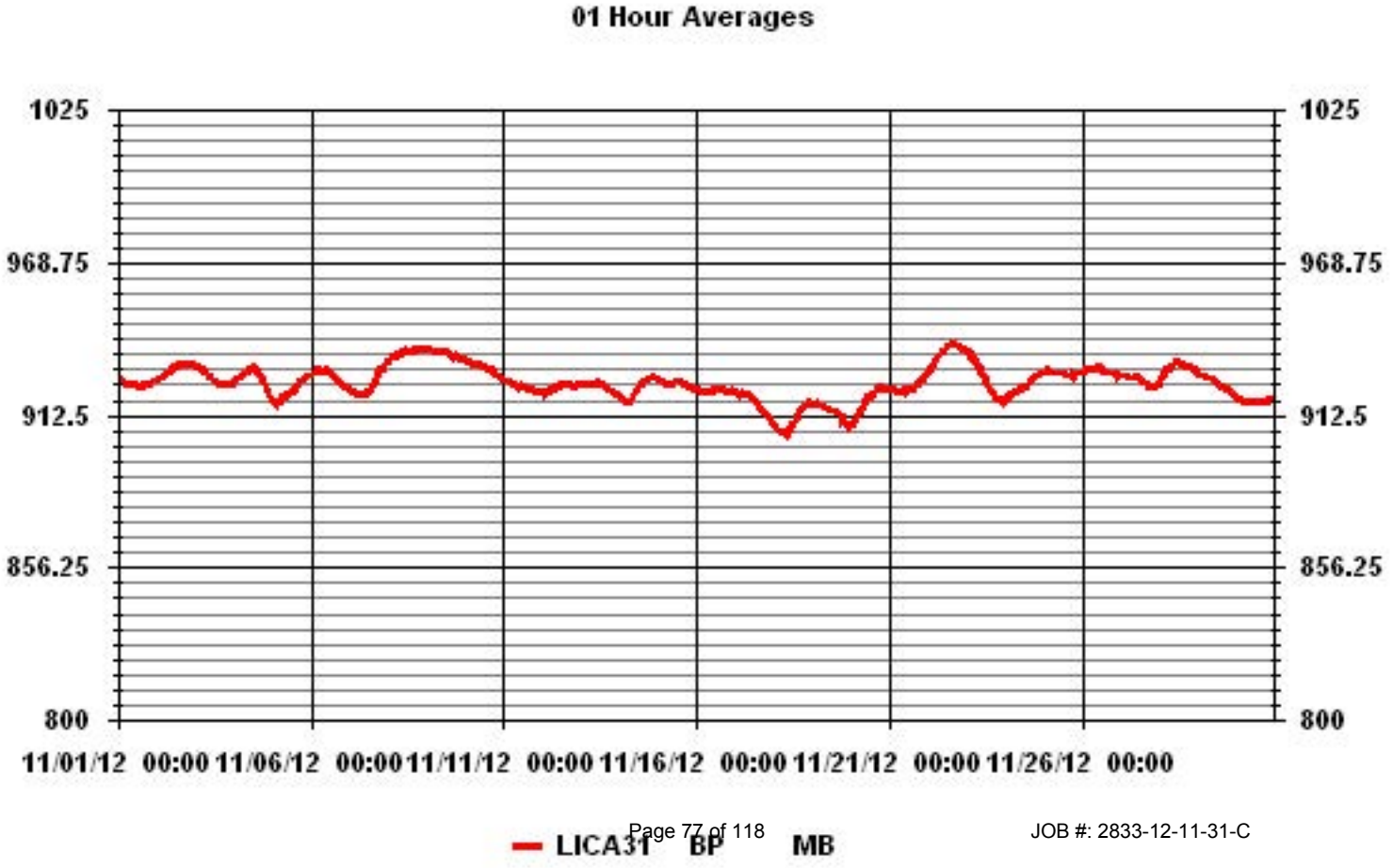
STATUS FLAG CODES

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)	22
MAXIMUM 24-HR AVERAGE:	935.7	MB			ON DAY(S)	22
				VAR-VARIOUS		
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		719	HRS
			AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	6.33		MONTHLY AVERAGE:		925	MB



JOB #: 2833-12-11-31-C

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

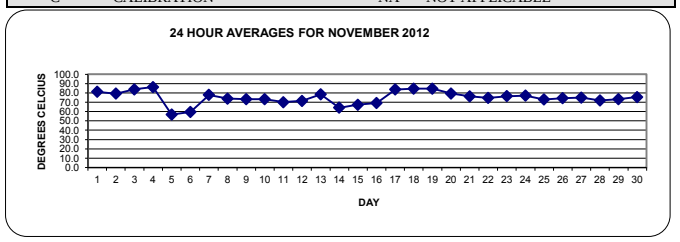
RELATIVE HUMIDITY hourly averages (%)

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	79	80	80	80	80	81	81	81	81	81	80	80	80	80	81	82	83	83	83	83	83	83	83	83	83	81.3	24
2	83	83	83	83	83	83	83	83	83	83	81	77	74	75	74	75	75	76	77	77	77	77	77	78	83	79.2	24
3	78	79	80	81	81	81	82	85	84	84	84	83	83	84	84	84	86	86	86	87	87	87	87	87	87	83.8	24
4	87	87	87	87	87	87	87	87	87	87	87	88	88	87	88	**89**	**89**	87	85	84	81	82	82	83	**89**	**86.3**	24
5	84	83	83	83	85	83	77	72	63	50	36	34	34	34	35	37	41	45	46	47	49	49	54	60	85	56.8	24
6	62	63	62	62	62	65	67	69	67	66	55	53	52	52	51	54	57	59	59	62	60	57	55	61	69	59.7	24
7	65	66	63	66	68	71	73	81	85	87	87	86	86	86	85	82	79	80	80	80	80	79	77	77	87	77.9	24
8	76	77	77	78	78	78	79	78	77	76	73	70	69	69	69	70	75	74	73	69	71	72	73	72	79	73.9	24
9	69	69	70	71	72	74	77	77	77	76	76	75	75	73	72	71	71	73	73	73	74	73	73	74	77	73.3	24
10	76	76	76	77	77	77	77	77	76	72	66	64	63	61	62	65	73	77	78	79	79	78	77	76	79	73.3	24
11	75	76	76	74	73	72	72	71	70	69	68	66	62	60	63	63	66	70	71	71	72	72	74	75	76	70.0	24
12	75	75	75	78	77	78	78	78	73	61	62	62	62	64	65	68	70	71	71	72	72	73	76	78	78	71.4	24
13	79	80	81	81	82	83	82	82	82	80	75	74	74	71	72	73	76	79	77	78	78	79	81	81	83	78.3	24
14	79	77	75	76	76	75	76	76	74	74	67	60	55	52	47	46	52	53	54	50	52	57	61	74	79	64.1	24
15	82	82	83	83	83	82	82	82	79	71	58	52	49	51	48	52	58	59	65	68	67	66	61	52	83	67.3	24
16	61	59	60	69	67	70	72	75	74	69	68	62	57	57	58	63	69	72	75	78	78	80	83	84	84	69.2	24
17	86	86	85	85	85	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	86	83.7	24
18	83	83	84	85	85	85	85	85	84	84	85	85	85	85	85	85	85	84	83	84	84	85	85	85	85	84.5	24
19	85	85	85	85	85	85	85	85	85	84	84	84	84	84	85	85	84	84	84	84	84	84	84	85	85	84.5	24
20	85	85	85	85	84	82	81	80	80	79	78	78	78	78	77	77	77	77	77	76	76	76	76	76	85	79.3	24
21	76	76	76	76	76	76	76	76	76	76	77	77	77	77	77	77	77	77	76	76	76	76	76	76	77	76.3	24
22	76	76	75	75	75	75	75	75	75	75	74	74	72	72	73	74	74	75	75	75	75	75	75	75	76	74.6	24
23	75	75	75	74	76	75	75	75	75	75	76	76	77	77	76	75	77	78	78	79	79	79	79	79	79	76.5	24
24	79	82	83	83	83	83	83	83	83	83	82	82	81	79	73	67	68	69	68	69	69	71	72	73	83	77.0	24
25	73	73	73	73	73	73	73	72	73	72	73	72	70	71	73	72	73	73	73	73	74	74	75	76	76	72.9	24
26	77	77	77	76	77	77	76	76	76	73	72	68	66	67	66	71	76	76	75	76	77	77	78	78	78	74.4	24
27	78	77	77	77	77	76	76	76	76	73	68	61	55	61	67	**P**	79	81	81	81	81	81	81	81	81	74.8	23
28	79	78	77	75	75	74	74	73	72	70	69	67	65	66	67	69	71	70	68	71	73	74	74	73	79	71.8	24
29	73	73	73	73	73	72	72	72	72	72	71	71	72	72	73	74	74	75	75	75	75	75	76	76	76	73.3	24
30	76	76	76	76	76	76	76	75	75	75	75	75	75	75	75	75	75	76	76	76	76	76	76	76	76	75.6	24
HOURLY MAX	87	87	87	87	87	87	87	87	87	87	87	88	88	87	88	89	89	87	86	87	87	87	87	87			
HOURLY AVG	77.0	77.1	77.1	77.6	77.7	77.8	77.9	78.0	77.3	75.3	73.0	71.3	70.1	70.1	70.1	71.0	73.1	74.1	74.2	74.5	74.7	75.0	75.5	76.2			

STATUS FLAG CODES

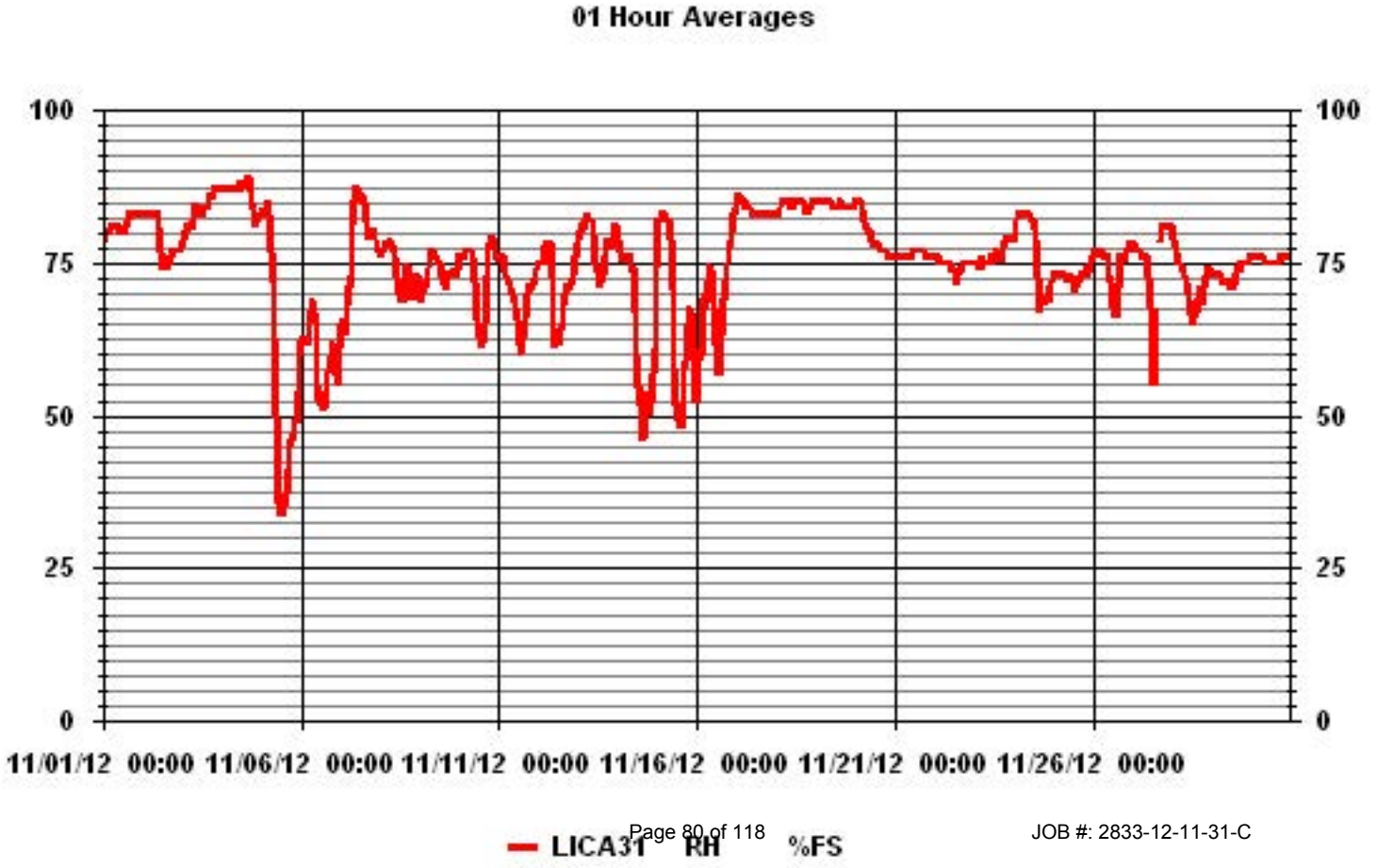
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	15, 16	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	86.3	%			ON DAY(S)	4
					VAR-VARIOUS	

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	719	HRS
			AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	9.10		MONTHLY AVERAGE:	74.82	%



JOB #: 2833-12-11-31-C

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

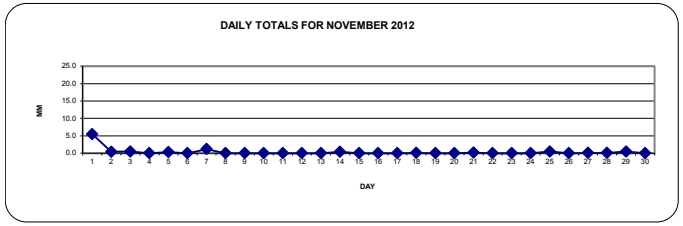
PRECIPITATION hourly averages (mm)

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	0.2	0.2	0.4	0.3	0.1	0.2	0.2	0.3	0.6	**0.7**	0.2	0.5	0.1	0.2	0.4	0.4	0.2	0.1	0	0	0.1	0	0	0.1	**0.7**	**5.5**	24
2	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0.2	0.4	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.2	0	0.3	0.5	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	0.2	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7	0	0	0	0	0	0	0	0	0	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0	0.1	0	0	0	0	0	0	0.3	1.2	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	0.4	0.4	0.4	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	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.1	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	0.1	0	0	0	0	0	0	0	0	0.2	0.5	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	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1	0.1	24
29	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX	0.2	0.2	0.4	0.3	0.1	0.2	0.2	0.3	0.6	0.7	0.2	0.5	0.2	0.2	0.4	0.4	0.2	0.1	0.0	0.0	0.1	0.3	0.2	0.4			

STATUS FLAG CODES

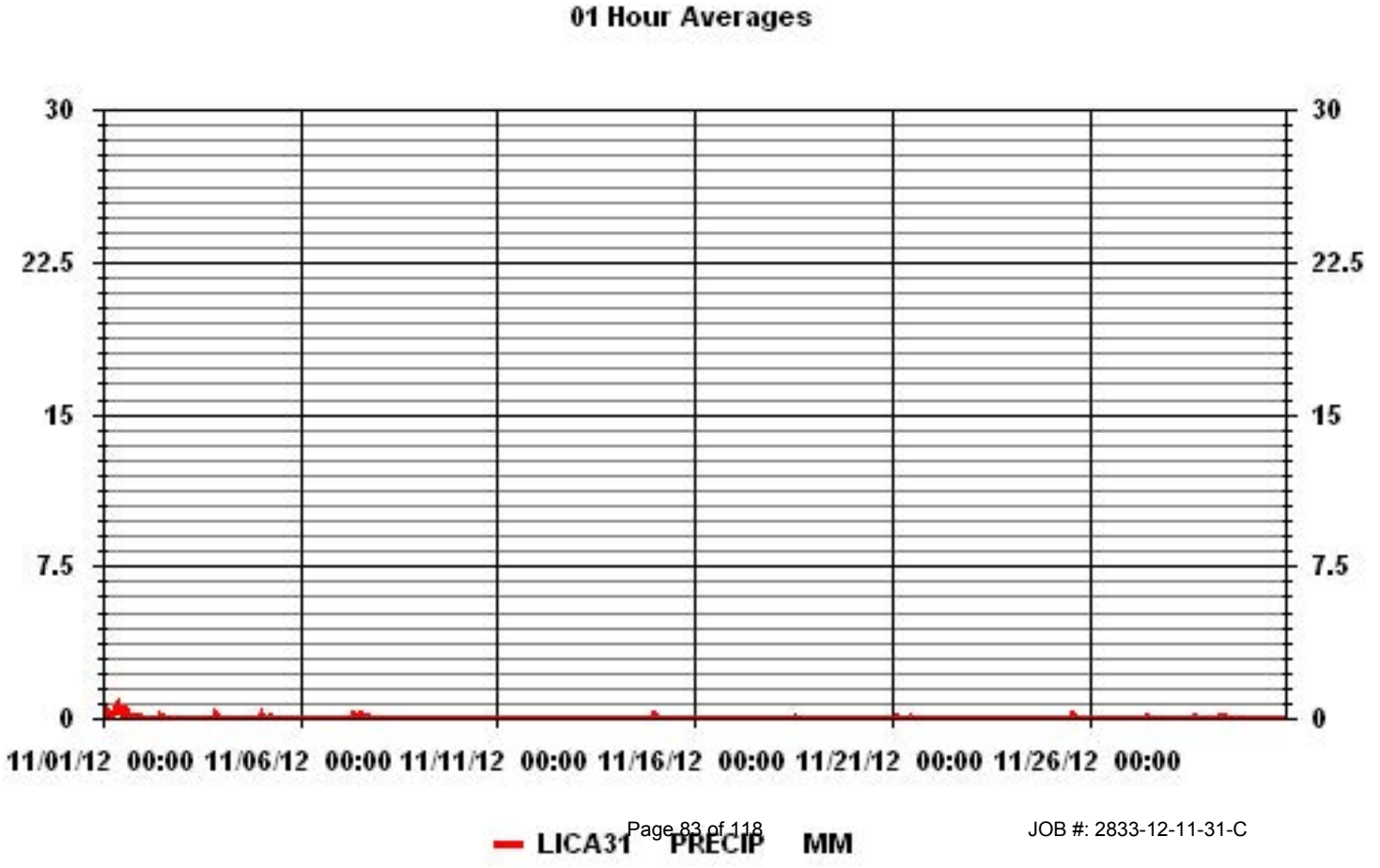
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	MD	-MISSING DATA



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.7	MM	HOUR(S)	9	ON DAY(S)	1
MAXIMUM DAILY TOTAL	5.5	MM			ON DAY(S)	1
MONTHLY TOTAL	9.8	MM				

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	0.01	MM



JOB #: 2833-12-11-31-C

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2012

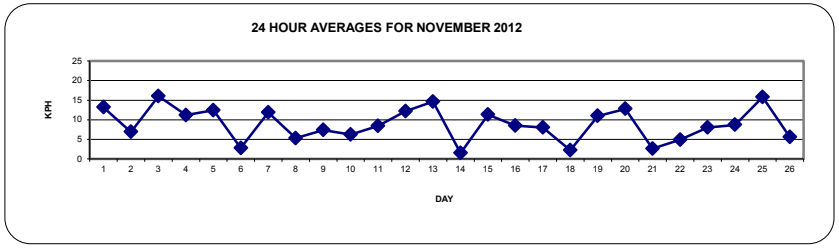
WIND SPEED hourly averages (km/hr)

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	16.3	17	19.3	22.9	23.9	18.1	15.8	16.3	15.9	17.7	18.1	16.5	14.9	13.5	13.3	11.9	8.2	6.7	7.2	5.8	6.1	6.6	6.8	6.5	23.9	13	24
2	6.4	3.1	2.7	6.1	9.7	7.8	6.1	6.1	7.3	7.5	8.4	7.4	7.3	7.2	6.7	3.9	3.3	4.3	1.5	2.9	3.5	4.5	5.9	7.2	9.7	3.5	24
3	8.8	10	9.2	10.9	10.2	9.1	11.1	10	11.7	12.8	17.7	18.6	17.7	17.9	14.7	18.1	14.3	12	11.5	9	4.8	5.7	3.9	5	18.6	10.6	24
4	9.2	7.3	8.4	10.2	11	11	11.6	13.2	13.1	14	13.3	12.3	11.8	10.5	9	9.5	12.7	14.7	14.7	14.7	16.7	17.7	19.4	20.5	20.5	10.7	24
5	22.6	19.9	13.2	8.9	7.9	9.4	11.4	7.2	12	19.2	24.7	25.4	23	23.9	26	26.2	19.5	14.6	15.6	17.6	15.8	13.4	11.7	10	26.2	13.2	24
6	10.5	14.1	12.3	13	14.1	11.5	10.3	10.1	11	8.8	8.2	12.2	9.6	8.2	8.7	8.6	9.2	8.2	6.3	5.2	1.5	3	8.3	11.1	14.1	6.9	24
7	11.1	13.9	15.7	15.7	14	15.9	16.7	17.6	16.7	17.3	21.1	20.7	19.5	17.2	19.6	21.5	20.2	17.2	16.3	19.2	16.3	15.9	14	11.8	21.5	**16**	24
8	8.6	8.4	8.2	10	12.4	14.4	12.8	11.2	11.2	12.4	12.3	13.4	11.9	10.8	9.1	10.1	10.2	11.9	12.8	13.9	12.5	12.4	12.1	13.6	14.4	11.2	24
9	13.7	10.5	11	12.4	15.2	13.8	13.8	16.2	16.8	15.3	15	11.9	10.3	11.1	12.2	11.3	10.9	9.6	11.6	11.9	12.4	12.2	13.2	10	16.8	12.4	24
10	9.1	10.5	9.1	6	5.8	4.1	5.7	6.5	6.5	6.9	7.6	6.3	6.3	5.9	6.1	4.3	2.4	5.6	5.8	6.3	5.7	6	7.4	7.8	10.5	2.8	24
11	9	6.8	7.7	7.8	8.2	10.8	9.8	8.7	9.4	10.1	9.6	11.3	10.8	12.7	13.1	15.1	16.4	18.7	19.7	18.1	15.7	14.8	13.9	12.2	19.7	11.9	24
12	11.2	10.1	11.7	12.2	11.4	11.5	9.8	9.1	7.5	4.4	6.4	5.1	4.2	4.2	5.7	5.1	6.1	8.3	8.6	7.9	5.4	3.9	4.6	4.8	12.2	5.3	24
13	4.3	6.6	7.2	7.4	7.6	3.8	5.3	6.8	8.5	7.4	7.5	8.3	7.8	6.3	6.5	6.5	7.5	9.2	9.4	8.7	10.2	10.4	11.1	9.6	11.1	7.4	24
14	8	8.7	8.6	10	9.7	8.4	10.8	13.6	14.3	16.9	18.3	19.2	17.6	15.9	15.7	11.8	9.5	7.4	8.2	5	5.3	6.5	7.9	10.8	19.2	6.2	24
15	8	8.8	9.9	9.5	10.1	9.8	11.1	10.5	11.7	10.8	9.9	10.5	13.2	12.5	9.5	9.1	7.3	8.4	10.7	10.1	9.4	8.1	6.1	4.7	13.2	8.4	24
16	7.8	5.3	9.8	11.6	11.7	13.8	15.7	16.1	19.1	16.9	12.3	10.6	14.6	16	15.8	11.4	13.3	14	12.1	14.7	16.4	15.3	14.3	15.6	19.1	12.2	24
17	16	14.1	15.8	15	13.2	13.1	13	12.5	12.1	10.7	12.1	12.6	12.3	12.2	14	15.2	17.3	16.4	17.4	16	19.6	18.5	19.1	18.9	19.6	14.6	24
18	19.3	17	16	16.6	16.4	14.4	11.1	12.8	6.2	4.8	6.5	14.4	17.8	11.1	10.8	16.3	15.7	13.3	12.8	13.5	8.5	10.4	3.2	5.6	19.3	1.5	24
19	8.7	7.4	8	10.7	12.2	12.2	10.5	11.7	13.3	14.1	13.3	12.6	12.3	11	9.9	10.8	10.8	15.5	**N**	**N**	**N**	20.5	26.3	23.3	26.3	11.3	21
20	26.3	**N**	**33.1**	9	12.7	14.4	13.3	14.4	10	12.9	13.2	12.1	10.8	9.1	8.9	8.6	6.8	6	4.9	6.5	6.4	6	8.4	9.4	**33.1**	8.5	23
21	7.4	8.4	7.4	6.7	6.9	8.5	9.6	10.1	5.5	7.2	6.1	5.1	8.1	8.2	6.4	8.4	9	9.6	11.6	10.8	9.7	8.7	10.6	9.2	11.6	8	24
22	8.1	8.5	9.4	8.2	8.5	6.9	6.3	6.4	6.6	5.8	6.1	5.2	3.6	4.6	5.1	6.3	4.9	4.4	5.9	5.9	6.7	8.1	9	10.6	10.6	2.2	24
23	9.6	11	10.2	11.5	14.9	13.5	13.6	14.6	16.5	17.9	18.3	17.1	17	16	16.6	15.9	14.6	15	7.3	5.9	5	7.8	8.6	11.4	18.3	11	24
24	12.6	12.2	12.4	17.8	15.6	11.8	11.1	9.8	11.7	11.3	14.8	11.8	13.8	17.4	18.1	19.2	16.4	18.5	16.8	14.3	11.8	7.2	7.3	7.6	19.2	12.8	24
25	9.1	8.1	7.1	7.8	6	6.9	3.4	7.2	7.2	6.5	9.9	10.7	10.2	6.5	6.8	8.4	5.6	5.1	5.6	3.5	1.6	1.6	5.3	6.2	10.7	2.6	24
26	5.4	7.8	9.6	9.6	7.7	8.4	8	7.3	6.3	8.9	8.6	7.8	5.5	6.5	2.1	2.7	3.2	3	2.2	5.2	1.1	5.2	5.6	6.8	9.6	4.9	24
27	5.6	6.1	7.5	8.4	7.6	6.9	8.3	10.9	10.5	9.4	7.3	6.4	6	11.8	9.4	**P**	12.3	11.6	10.1	10.5	11.2	11.4	9.6	12.8	12.8	8	23
28	12.6	14.8	16	15.3	15.1	13.4	14	10.6	10.4	9.6	9.5	7.7	7.1	8.9	10	11.1	10.5	11.7	9.3	10.2	10.9	10.9	10.8	13.1	16	8.7	24
29	14.5	15.4	18.4	18.6	16.9	17	19.1	16.8	17.2	15.4	17.3	17.1	18	16.6	17	14.5	14.8	11.8	11	15.9	16.8	16.5	15.6	17.9	19.1	15.8	24
30	18.5	19	14.3	13.9	10.8	8.8	8.5	10.2	7.8	8.7	7.4	4.6	5.9	3.6	5.7	6.6	6.9	7.4	6.5	4.9	4.8	2.7	4.5	6.3	19	5.6	24
HOURLY MAX	26.3	19.9	33.1	22.9	23.9	18.1	19.1	17.6	19.1	19.2	24.7	25.4	23.0	23.9	26.0	26.2	20.2	18.7	19.7	19.2	19.6	20.5	26.3	23.3			
HOURLY AVG	11.3	10.7	11.6	11.5	11.6	11.0	10.9	11.2	11.1	11.4	12.0	11.8	11.6	11.2	11.1	11.3	10.7	10.7	10.1	10.1	9.4	9.7	10.2	10.7			

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

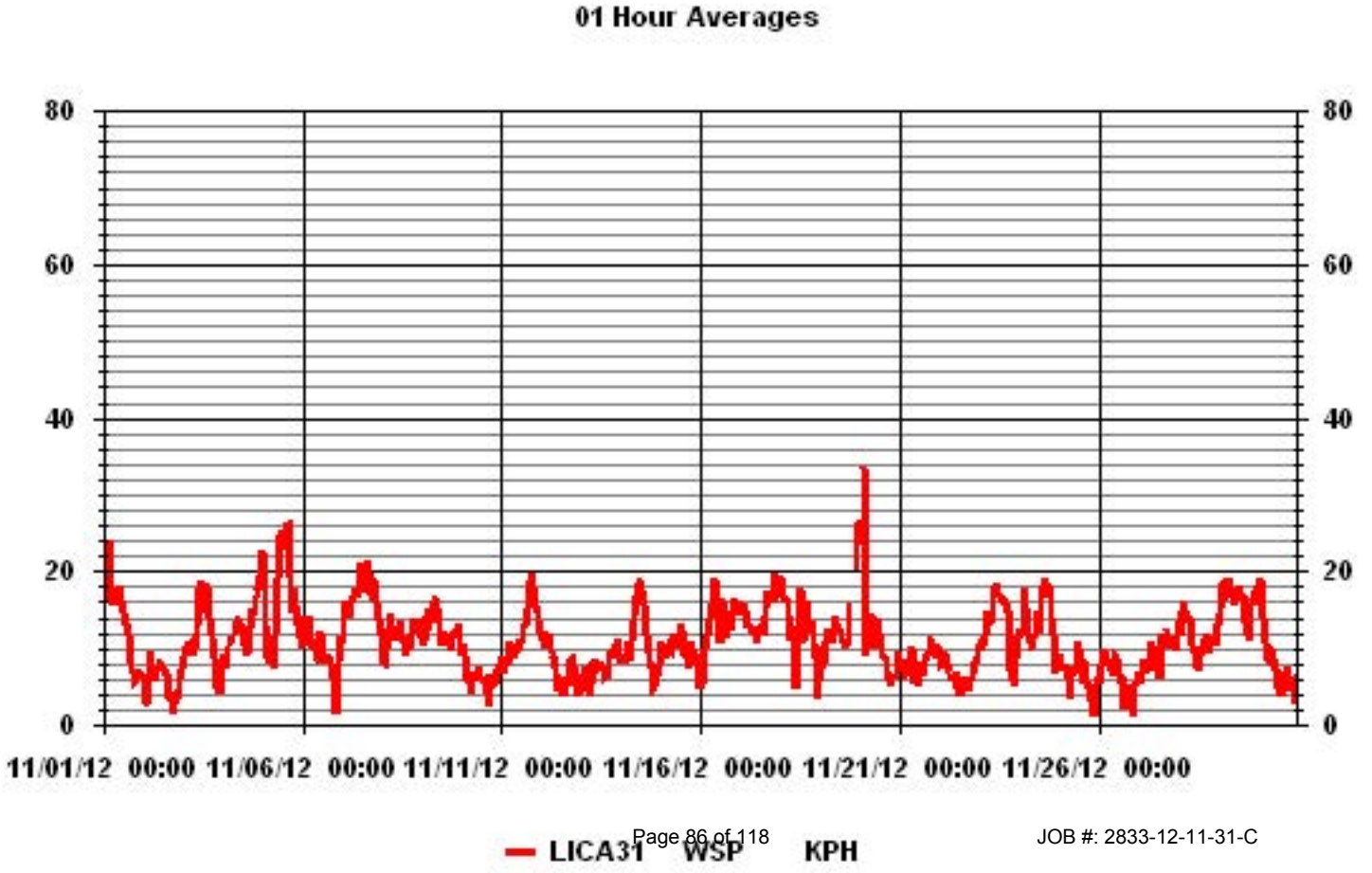


LAST CALIBRATION: June 12, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		33.1	KPH	@ HOUR(S)	2	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:		16.0	KPH			ON DAY(S)	7
CALMS (≤ 0 KPH)	0.00	%		OPERATIONAL TIME:		715	HRS
MONTHLY CALIBRATION TIME:	0	HRS		AMD OPERATION UPTIME:		99.3	%
STANDARD DEVIATION:	4.65			MONTHLY AVERAGE:		10.96	KPH

JOB #: 2833-12-11-31-C



JOB #: 2833-12-11-31-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

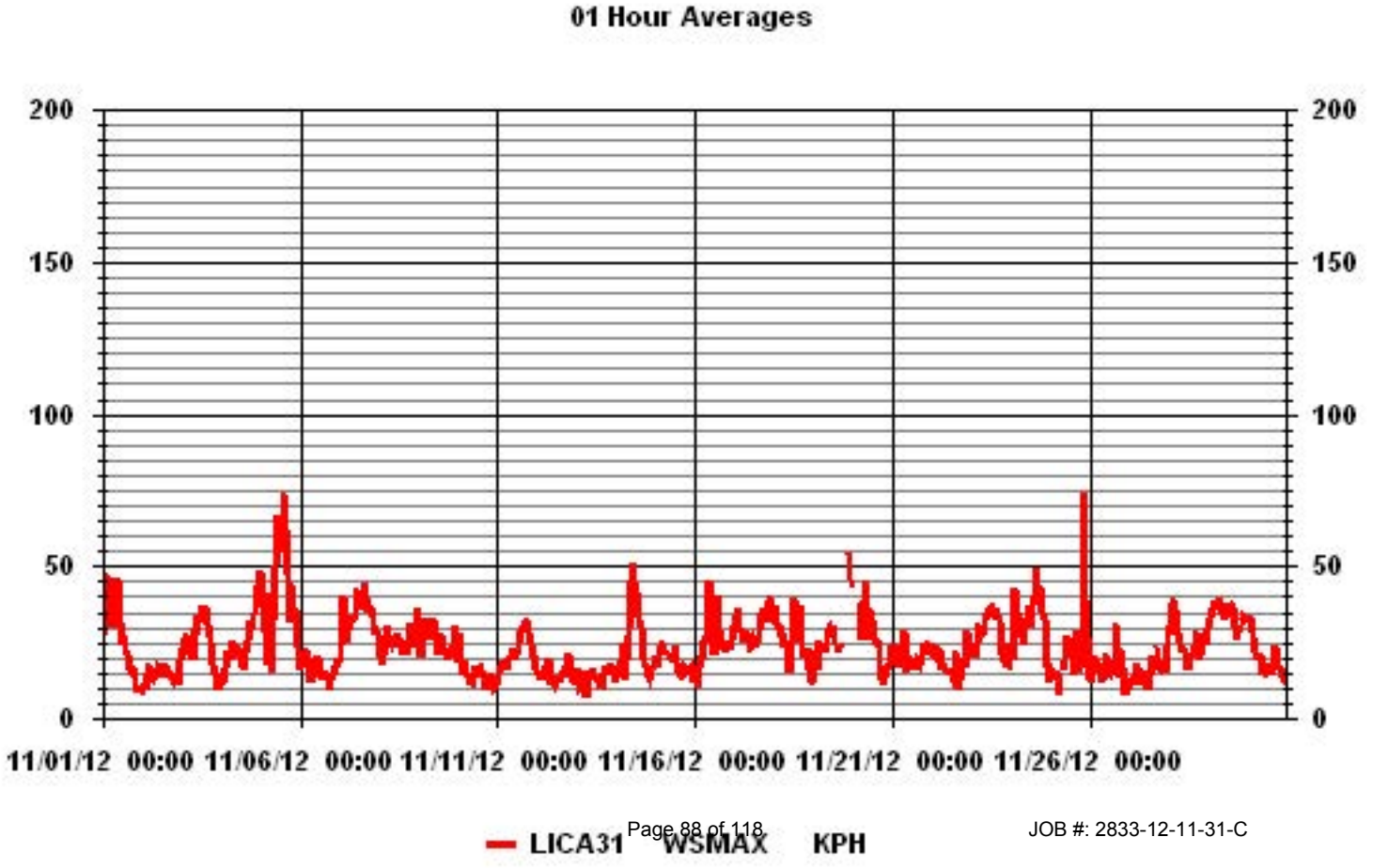
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	28.5	31.1	36	45.6	44.9	38.4	31.1	29.8	32	45.8	38.4	31.8	26.1	26.5	23.2	21.3	17.1	14.7	16.9	14.5	9.2	9.3	9.7	9.7	45.8
2	9.2	10.5	10.3	14.7	17.8	16.7	14.3	13.2	14.5	14.5	17.3	16.7	18.4	13.6	16.9	16.9	14	15.8	13.6	12.5	11.6	12.1	12.1	18.9	18.9
3	22.6	26.7	20.4	27	26.7	22.8	20.2	20.2	29.2	29	33.5	32.1	36.6	35.3	32.7	36.6	31.6	27.8	25.4	18.4	14.7	11.2	9.2	11.4	36.6
4	14.7	11.3	16	17.1	21.3	21.5	19.3	25.6	22.4	23.2	23.1	21	19.5	17.6	15.6	21.5	25.7	31.8	29.2	32.2	34.4	36.2	43.8	39.4	43.8
5	48.2	39.7	28.5	30.1	17.3	28.5	41.2	14.9	32.5	50.6	66.8	56.7	54.5	62	**74.2**	62.8	48.2	31.8	44.2	41	36.6	35.7	24.1	17.6	**74.2**
6	16.4	22.6	20.8	21.3	22.8	20.8	13.4	13	14.7	15.1	14.9	20.8	15.1	13.8	13.6	13.8	15.8	13.4	9.2	12.8	16.2	15.8	16.7	19.1	22.8
7	19.8	23.7	40.1	26.1	25.9	30.3	30.2	31.8	32.9	33.5	41.4	41	39.7	35.3	39.9	44	40.4	35.7	35.3	37.3	34.4	31.4	27.6	28.9	44
8	20	21.3	17.6	20.6	27.2	30.7	27.4	26.1	24.5	25.7	25.2	27.8	26.3	25.7	21	22.4	20.8	25.7	29.4	31.6	24.8	23.2	25.2	36.4	36.4
9	29.2	20	21.7	31.6	33.3	27.6	26.1	29.2	32.7	32.5	29.6	25.7	21	26.3	27.9	23.1	21.9	18.9	22.6	20	23	22.6	30.1	22.6	33.3
10	18.4	28.1	19.3	14.3	19.1	15.2	14.5	12.5	12.1	13.8	17.6	16	16.9	17.3	14.7	14.5	9.2	13.8	13.4	9.2	13.6	13.2	10.2	11	28.1
11	12.3	15.6	17.3	18.5	18.9	17.4	17.6	20	21.5	20.4	20.2	23.2	20.6	24.8	28.3	29.8	28.5	32.2	32	29	25	21.3	20.8	16.9	32.2
12	15.4	12.5	14.7	15.2	14.5	17.1	15.4	19.7	12.8	13.2	13	11.2	12.1	13.4	12.1	14.7	15	17.1	13.8	21.7	15.1	12.7	12.5	12.3	21.7
13	12.5	16.2	10.8	11.6	12.5	7.5	7.5	15.4	13.6	12.5	16.1	14.5	12.7	11.6	12.5	11.7	14.7	16	16	14	16.7	16.7	15.4	12.3	16.7
14	14	15.4	14.5	18.9	24.5	12.3	19.1	26.7	29.8	45.6	50.6	44.9	42.3	34	32.4	30.3	19.8	16.5	18.4	14	13	14.9	15.8	20.4	50.6
15	17.6	17.6	21.3	23.7	25.4	21.7	21.7	21.5	20.2	20.2	19.7	19.5	24.1	19.1	15.8	14.7	13	18.2	17.8	16.5	15.8	16.7	13	11.7	25.4
16	13.6	9.7	17.1	20.4	18.9	25.2	27.2	28.3	44.9	34.6	24.5	20.8	32.2	28.5	40.5	29.4	23	23.9	21.9	23.9	24.5	22.8	25.6	30.3	44.9
17	33.8	32	36.6	29.8	29.2	26.3	26.5	28.5	26.5	23.5	23.9	26.1	25	24.8	26.5	29.2	34.4	35.7	33.3	31.6	38.6	40.4	35.9	36.2	40.4
18	36.4	31.8	28.9	31.3	27.6	25.4	26.1	23.7	18.7	14.9	17.8	36.4	39.5	25	26.5	36.4	37.3	21.1	21.3	22.8	15.8	23.2	12.5	11.5	39.5
19	18.2	17.1	16	25.6	23.7	24.8	21.3	24.6	29.4	30.3	29	29.8	30.7	24.6	23.2	23	24.1	**N**	**N**	**N**	**N**	53	46.1	43.8	53
20	**N**	**N**	**N**	27	34	37.3	39	45.1	26.1	30.1	36.4	32.9	29	25.5	25.7	24.3	18.4	13.2	10.8	16.9	16	18.2	23	22.6	45.1
21	23.5	23.5	18.4	17.3	17.3	17.6	25.9	29.2	14.7	17.8	18.7	15.8	18.7	20	15.8	18.9	18	20.7	25	23.7	24.3	21.5	22.6	24.6	29.2
22	20.8	20.2	23.5	19.4	22.8	16.5	16.5	18	16	15.6	16	14.7	11.6	13.4	22.6	11	9	12.3	19.7	18.5	18.2	29	20	25	29
23	20	22.6	20.2	24.8	30.9	30	27.8	28.3	32.2	34.7	36	36.6	34.2	33.8	36.4	34.9	34.4	32	21.3	19.1	16.5	18.2	17.8	24.8	36.6
24	22.1	21.5	42.5	39.8	34.9	33.6	27.4	24.1	30.3	30.9	36.8	30	32.7	40.1	37.5	49.1	37.7	43.4	36	35.3	33.1	17.6	11.7	13.4	49.1
25	16	15	12.5	15.2	16	8.6	N	16.7	18.9	21.1	26.8	23.2	24.2	21.1	14.3	18.2	28.8	14.9	17.1	17.6	73.8	39.5	27.2	13.4	73.8
26	11.7	20.8	19.3	20.2	15.4	18.4	13.4	13.2	14.1	21.5	17.8	15.8	15	16.5	15.2	30.9	15	13.4	22.8	14.7	16.7	7.7	12.8	11	30.9
27	10.8	11.4	12.1	14.1	17.8	12.1	12.1	14.7	13.8	15.4	10.3	10.3	14.3	19.3	**P**	**P**	22.8	19.1	17.3	16.2	16.7	15.2	24.1	30.5	30.5
28	27.4	37.5	39.5	35.5	34.6	28.3	26.1	23	22.8	19.8	20.2	15.8	17.1	19.7	22.8	22.8	28.6	27.2	19.3	21.1	23.9	28.3	24.1	29.6	39.5
29	32.3	33.6	36.4	38.2	36.8	35.8	39	36.4	34.9	32.7	38.2	33.1	36.4	37.3	36.6	29.8	31.6	25.7	27.9	30.5	33.6	32.7	33.1	33.1	39
30	32.5	34	29	26.8	22.4	19.3	20.8	21.8	13.8	17.8	15	15.4	17.8	14.3	16.5	19.3	23.5	20.2	17.6	17.1	14.5	13.2	14.3	14.9	34
PEAK	48.2	39.7	42.5	45.6	44.9	38.4	41.2	45.1	44.9	50.6	66.8	56.7	54.5	62.0	74.2	62.8	48.2	43.4	44.2	41.0	73.8	53.0	46.1	43.8	

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

MAXIMUM INSTANTANEOUS READING	74.2	KPH	@ HOUR(S)	14
			ON DAY(S)	5



JOB #: 2833-12-11-31-C

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

November 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	.83	1.25	.69	.69	.41	.83	.41	1.11	1.53	.55	.69	1.39	.41	.27	.41	.83	12.44
<	12.0	1.81	1.81	3.91	5.31	2.93	1.81	1.39	2.23	2.51	3.91	7.41	4.19	2.23	1.81	4.47	2.51	50.34
<	20.0	.55	.69	1.95	3.77	5.03	6.29	3.91	1.11	1.25	.55	1.53	1.11	1.39	1.53	2.51	1.25	34.54
<	29.0	.00	.27	.27	.00	.00	.27	.13	.41	.27	.00	.00	.00	.00	.41	.41	.00	2.51
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.13
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.21	4.05	6.85	9.79	8.39	9.23	5.87	4.89	5.59	5.03	9.65	6.71	4.05	4.05	7.83	4.75	

Calm : .00 %

Total # Operational Hours : 715

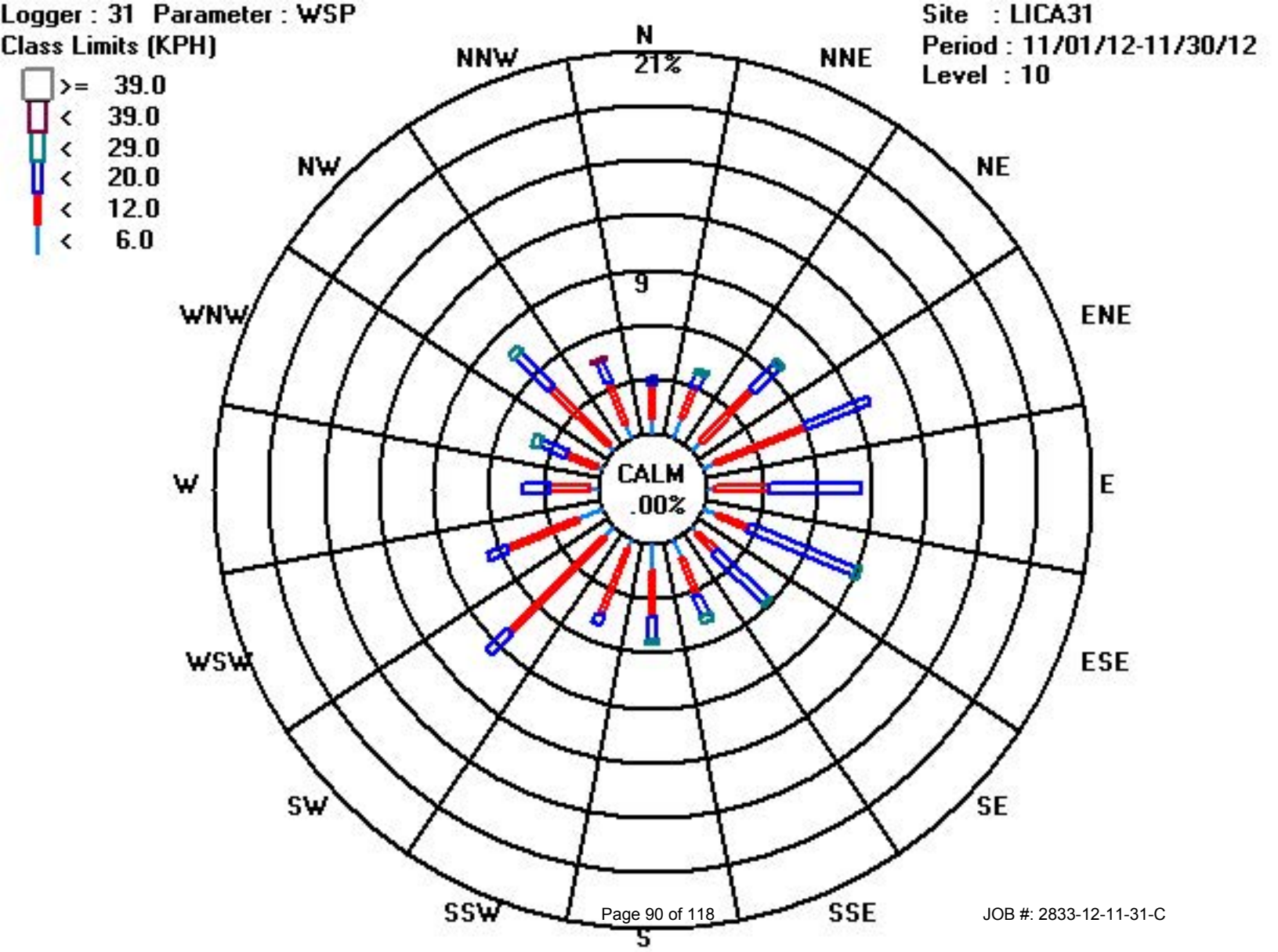
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	6	9	5	5	3	6	3	8	11	4	5	10	3	2	3	6	89
<	12.0	13	13	28	38	21	13	10	16	18	28	53	30	16	13	32	18	360
<	20.0	4	5	14	27	36	45	28	8	9	4	11	8	10	11	18	9	247
<	29.0		2	2			2	1	3	2					3	3		18
<	39.0																1	1
>=	39.0																	
	Totals	23	29	49	70	60	66	42	35	40	36	69	48	29	29	56	34	

Calm : .00 %

Total # Operational Hours : 715



JOB #: 2833-12-11-31-C

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATE - *ST.LINA*

NOVEMBER 2012

WIND DIRECTION hourly averages in degrees

MST

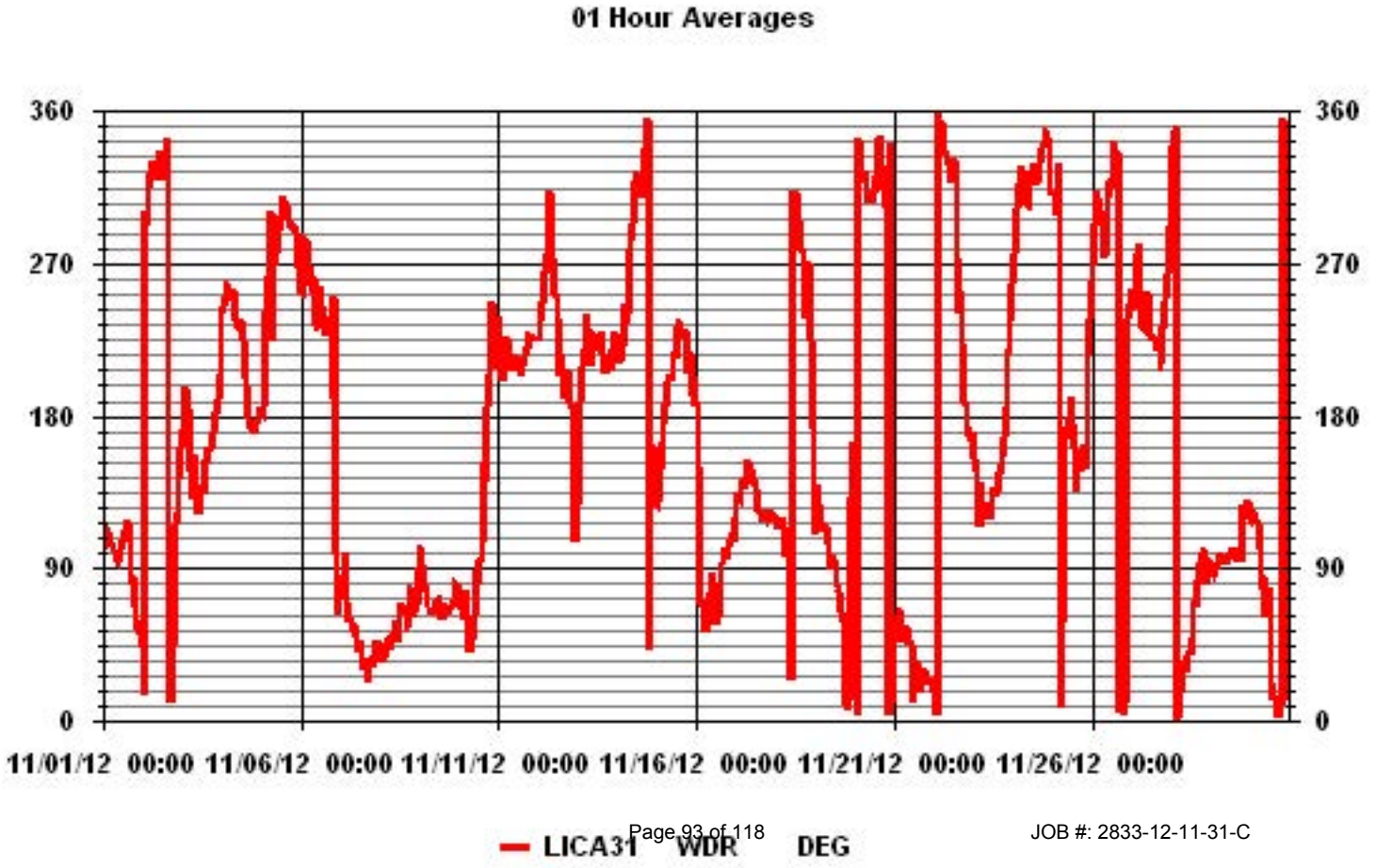
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	104	108	115	112	105	105	101	101	97	95	99	102	106	113	117	117	113	81	86	68	60	56	52	45	101	E	24
2	44	15	301	292	314	323	331	320	323	322	325	337	331	323	320	344	14	11	24	45	116	123	142	162	336	NNW	24
3	172	180	197	177	185	149	130	142	157	141	122	124	136	134	154	151	162	160	161	170	181	182	190	204	154	SSE	24
4	241	245	251	259	255	248	251	255	238	237	234	231	237	225	204	198	179	174	173	173	170	175	178	184	212	SSW	24
5	184	182	186	241	262	299	299	224	269	276	291	291	298	309	307	305	297	296	293	291	291	289	268	255	280	W	24
6	254	271	284	283	279	270	259	253	263	235	231	255	255	246	229	229	232	239	230	190	251	100	63	72	255	WSW	24
7	79	79	86	100	71	60	60	53	57	51	41	45	47	39	31	31	31	22	37	31	37	38	48	42	49	NE	24
8	44	34	41	45	43	46	42	50	51	59	47	54	68	68	63	67	57	58	80	74	61	65	68	90	58	ENE	24
9	104	93	83	78	78	68	63	65	65	70	71	72	66	62	62	69	64	66	65	66	68	71	82	81	72	ENE	24
10	70	71	67	60	77	64	41	49	49	62	86	85	94	96	105	153	141	186	204	246	248	208	226	233	94	E	24
11	238	210	201	207	215	226	221	209	209	207	216	212	215	203	209	213	216	220	228	228	227	227	227	226	218	SW	24
12	226	236	247	264	265	276	284	313	278	274	253	251	239	203	216	207	190	200	207	188	185	114	106	114	238	SW	24
13	127	188	209	217	219	240	225	209	230	229	224	223	221	220	229	217	206	206	215	216	206	220	228	228	217	SW	24
14	211	214	214	221	246	235	240	279	283	293	318	325	318	318	309	316	338	331	356	42	154	163	139	129	287	WNW	24
15	128	135	148	165	175	186	200	202	202	204	216	216	232	237	233	226	229	231	205	211	218	192	205	186	202	SSW	24
16	189	152	70	69	71	53	57	62	75	88	67	56	66	65	81	93	98	102	95	102	108	107	107	120	85	E	24
17	135	131	130	142	143	138	140	154	152	149	143	140	138	125	124	121	122	122	119	121	123	123	118	120	131	SE	24
18	122	115	115	117	118	111	97	106	114	24	313	304	313	293	297	279	278	257	238	257	272	226	174	111	195	SSW	24
19	114	140	129	116	111	117	115	106	92	89	98	96	92	81	77	66	64	59	**N**	**N**	**N**	132	154	165	109	ESE	21
20	162	**N**	344	340	321	318	324	313	306	312	305	312	319	318	343	345	319	314	303	327	3	341	11	35	327	NW	23
21	62	57	52	67	46	56	53	56	45	49	46	11	22	36	30	16	28	26	31	26	23	23	25	18	37	NE	24
22	9	3	359	353	353	336	336	335	330	328	317	325	332	320	274	241	254	224	189	187	175	170	166	167	309	NW	24
23	156	148	140	115	141	130	128	120	122	119	129	136	138	132	135	146	151	156	167	185	217	220	236	258	144	SE	24
24	275	277	303	317	328	326	317	314	307	306	318	325	329	316	318	329	330	338	341	349	345	339	313	310	321	NW	24
25	313	306	299	329	8	58	96	173	167	179	189	191	177	162	135	151	147	153	163	148	153	215	237	260	184	S	24
26	269	294	313	310	297	298	277	274	294	308	318	320	342	327	314	337	4	51	4	11	66	237	246	242	303	WNW	24
27	255	244	260	276	282	233	232	243	242	253	242	230	224	227	220	**P**	208	211	232	247	249	264	292	338	247	WSW	23
28	340	348	351	2	3	17	27	35	29	38	41	39	49	69	69	83	93	98	98	102	81	84	96	94	46	NE	24
29	91	87	89	90	92	98	98	95	96	95	98	98	102	98	97	98	102	94	107	128	120	128	131	121	102	E	24
30	119	122	122	119	117	102	78	86	61	70	66	78	24	15	14	4	2	9	10	356	337	12	20	28	74	ENE	24
HOURLY AVG	340	348	359	353	353	336	336	335	330	328	325	337	342	327	343	345	338	338	356	356	345	341	313	338			

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:	715	HRS
STANDARD DEVIATION:	97.94		AMD OPERATION UPTIME:	99.3	%
			MONTHLY AVERAGE:	111	DEG



JOB #: 2833-12-11-31-C

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *ST. LINA*

NOVEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

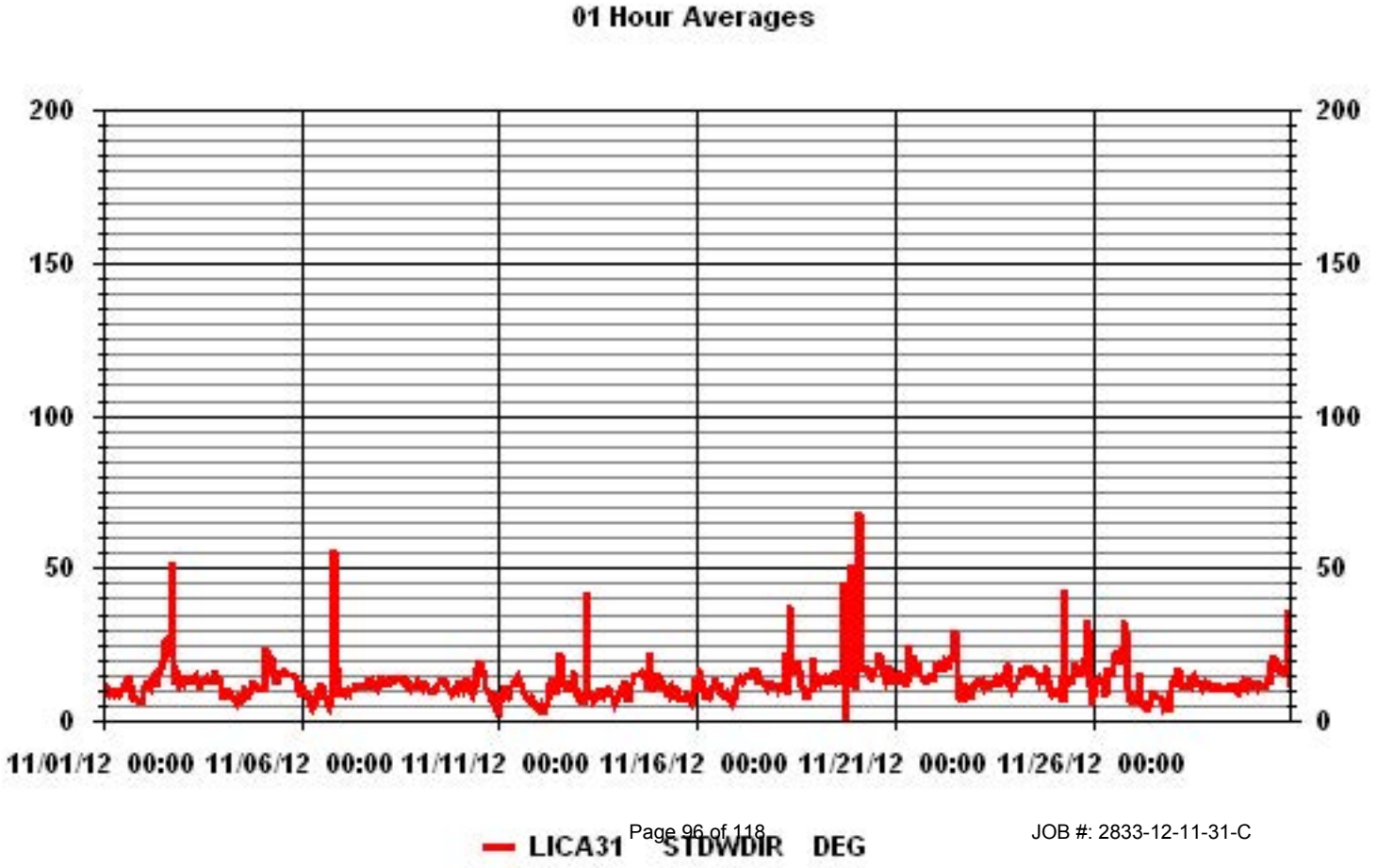
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	10	10	11	10	9	10	10	9	10	10	9	10	10	12	11	11	15	12	8	7	7	6	6	6
2	6	11	12	12	11	13	14	12	12	13	15	17	20	19	26	27	27	21	52	19	12	13	12	14
3	13	15	13	14	14	15	12	14	15	14	11	11	13	13	13	14	13	13	13	13	16	12	15	13
4	7	8	9	10	10	8	8	8	7	6	8	8	7	8	11	10	7	9	10	12	12	11	11	10
5	10	11	11	24	15	16	21	16	15	12	16	15	15	16	16	15	15	15	15	15	15	14	10	8
6	12	8	10	9	8	8	5	4	5	8	10	9	10	12	8	8	6	5	7	9	56	17	17	8
7	9	10	10	9	10	9	10	10	10	11	11	11	11	11	12	11	11	13	13	12	13	12	11	12
8	14	14	13	12	12	12	14	14	12	14	14	14	14	13	14	14	12	11	13	11	11	11	12	13
9	12	12	11	12	12	11	10	9	9	10	11	12	13	13	13	13	12	11	10	9	10	11	10	12
10	12	12	10	11	13	13	10	10	9	11	16	16	20	19	17	15	11	9	9	6	10	6	4	5
11	4	6	9	11	9	8	9	11	12	12	13	14	12	12	10	10	9	8	7	8	7	5	5	4
12	4	5	3	3	5	5	7	12	14	12	9	10	13	22	13	12	12	10	10	12	12	16	11	9
13	10	7	6	6	9	42	7	9	9	7	8	8	8	11	7	11	9	10	11	8	9	6	5	6
14	8	10	8	11	13	7	7	11	12	15	15	15	15	15	16	15	14	11	11	22	10	10	12	11
15	16	10	12	12	10	8	10	11	9	10	9	11	9	7	7	7	8	9	9	7	6	7	9	14
16	10	17	14	10	7	8	9	8	9	11	12	14	11	10	12	10	8	8	9	8	7	6	7	11
17	13	13	14	13	14	14	15	15	14	17	16	16	16	13	13	13	12	12	11	12	12	12	11	11
18	11	10	11	11	10	10	22	8	38	19	16	17	15	20	17	12	11	7	9	7	11	9	21	16
19	14	13	15	12	13	14	13	13	13	14	15	14	16	14	13	13	12	45	0	11	38	51	23	12
20	10	41	68	23	19	16	18	16	15	16	15	16	17	18	22	19	15	15	13	14	17	17	16	13
21	13	13	14	16	13	12	12	13	25	16	15	21	16	15	19	15	14	15	12	14	15	15	13	15
22	19	18	17	20	17	17	19	18	17	20	22	21	30	20	16	8	7	7	12	11	8	8	9	10
23	12	13	13	12	13	11	12	12	11	11	12	12	13	14	13	14	13	14	16	15	19	12	10	11
24	11	12	14	14	14	17	16	17	17	16	14	16	15	15	15	13	14	13	13	18	14	10	9	10
25	10	10	9	10	15	6	43	11	13	15	12	13	14	19	15	15	18	17	15	21	33	30	12	5
26	8	13	13	14	13	13	8	9	16	16	14	16	22	18	23	20	19	24	33	18	29	11	6	10
27	5	8	5	9	16	7	5	4	4	5	6	8	10	8	8	**P**	8	7	5	6	4	4	10	12
28	12	14	14	17	14	13	11	11	11	13	12	14	14	15	14	12	12	11	12	10	12	12	12	10
29	10	10	11	11	11	10	10	10	10	11	10	10	11	11	10	11	10	11	13	12	11	13	13	11
30	11	11	13	11	12	12	11	11	12	13	12	19	17	21	17	17	19	16	16	18	14	36	17	12

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: 719 HRS



JOB #: 2833-12-11-31-C

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	November 21, 2012		Previous Calibration	October 3, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST. LINA				
Start Time (MST)	10:19		End Time (MST)	14:08	
Reason:			Monthly Calibration		
Barometric Pressure	921.5	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	570	ccm	27.4	Deg C	573	ccm	26.9	Deg C
HVPS / Lamp Setting	540		2202		540		2203	
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	93		0.997		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	753	0.9966
	No Span Adj.			
4955	40.3	400	405	0.9880
4977	17.1	170	171	0.9932
4997	0	0	1	N/A
		Sum of Least Squares		0.9947
		New Correction Factor		0.9966

IZS alibration Data

	Before Calibration	After Calibration
Auto Zero	2.3	-0.5
Auto Span	244.0	242.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9954
Current Correction Factor Before Span Adjust:	0.9966
Percent Change:	-0.1%

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

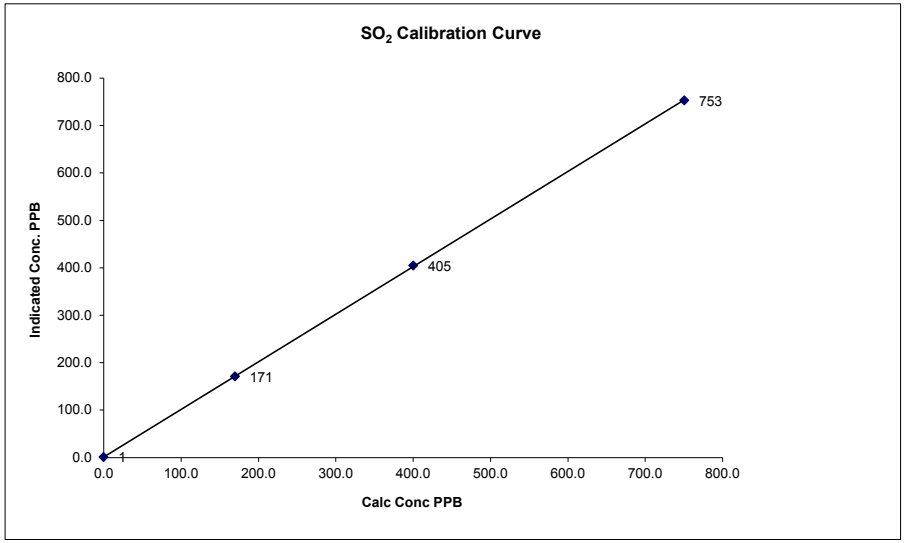
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	November 21, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	10:19	End Time (MST)	14:08

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	n/a
170	171	0.9932
400	405	0.9880
750	753	0.9966

Correlation Coefficient	(≥ 0.995)	0.999978
Slope	(0.85 to 1.15)	1.002811
Intercept	(± 3% F.S.)	1.460348



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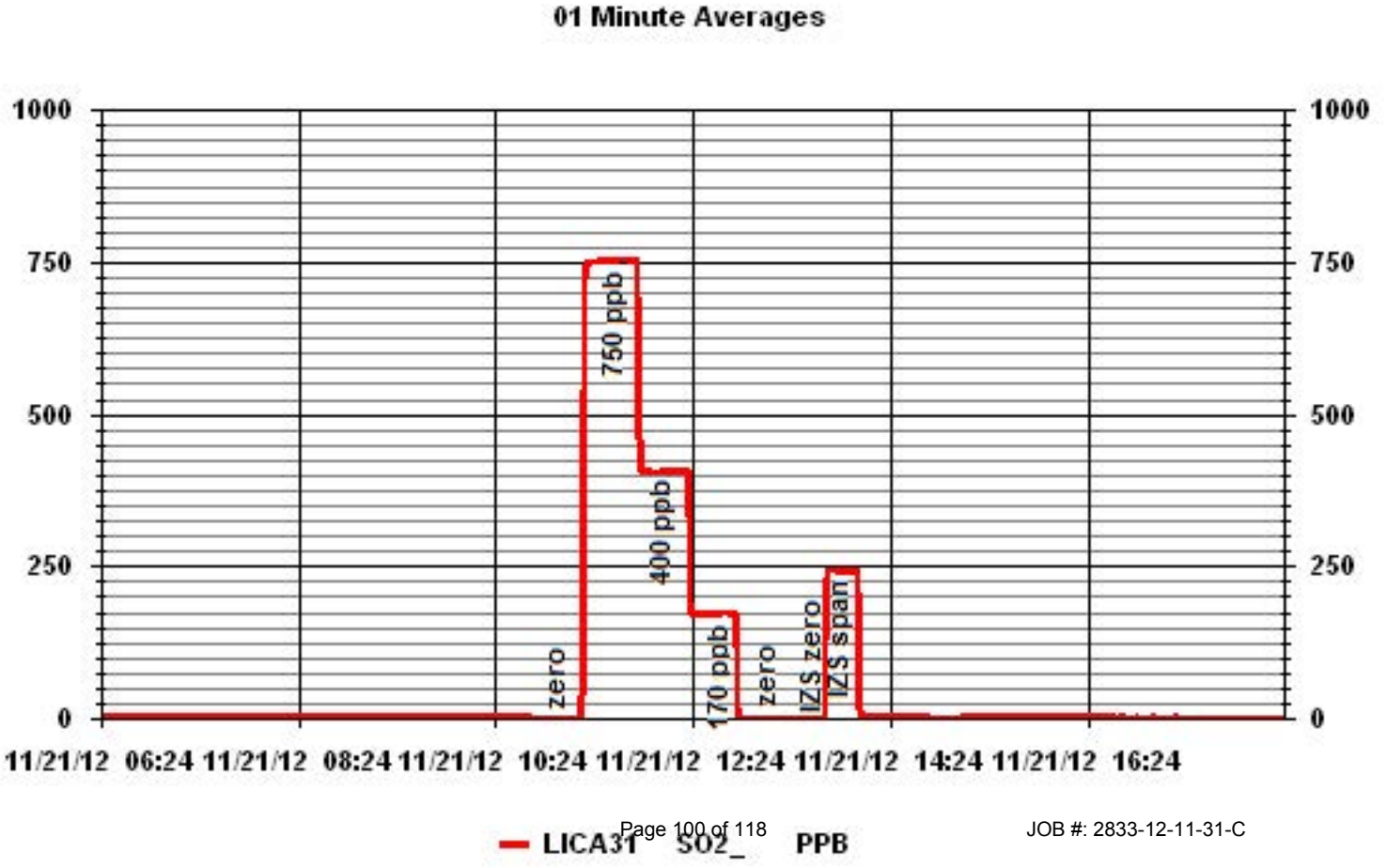


JOB #: 2833-12-11-31-C

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 20, 2012		Previous Calibration	October 2, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST.LINA				
Start Time (MST)	10:05		End Time (MST)	13:43	
Reason:	Monthly Calibration				
Barometric Pressure	919	mBar	Station Temperature	17	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	523	ccm	31	Deg C	525	ccm	30.9	Deg C
HVPS / Lamp Setting	518		2187		518		2187	
PMT / RxCell Temp	8.4	Deg C	50	Deg C	8.4	Deg C	50	Deg C
Converter / IZS Temp	315	Deg C	45	Deg C	315	Deg C	45.0	Deg C
Offset / Slope	97.4		1.007		100.8		1.029	

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	80	1.0000
	No Span Adj.			
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	

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	1.6	-0.5
Auto Span	41.4	39.8
Sample Lines Connected		YES

Percent Change

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

Notes: **NA : Not Applicable**

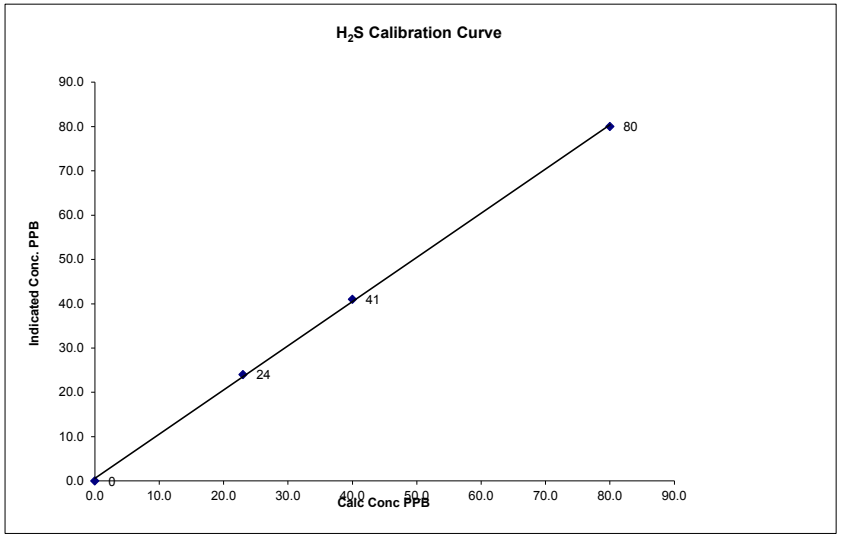
Calibration Performed by: Ting Xu

H_2S Calibration Curve

Calibration Date	November 20, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST.LINA				
Start Time (MST)	10:05		End Time (MST)	13:43	

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



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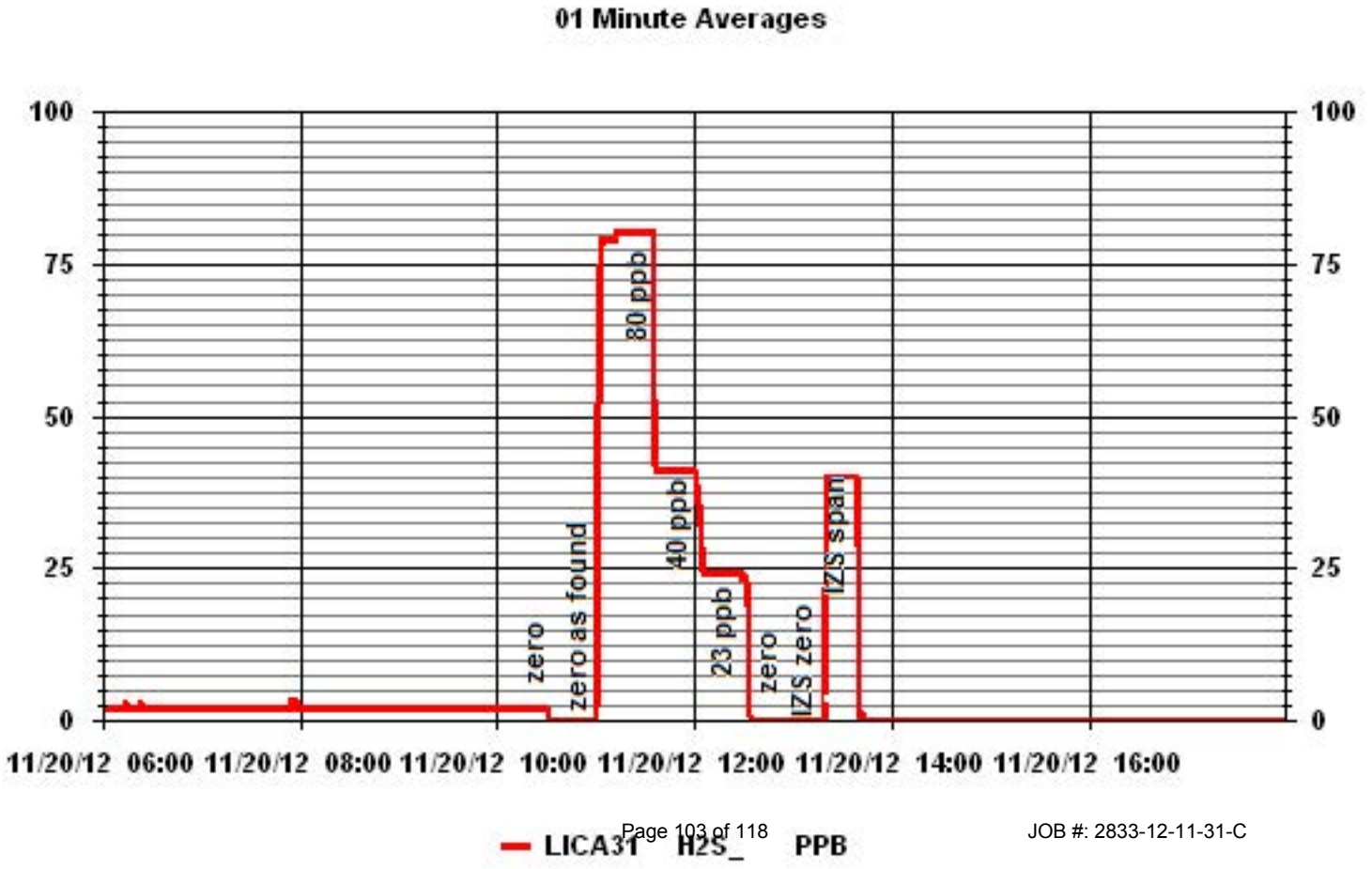


JOB #: 2833-12-11-31-C

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	November 20, 2012		Previous Calibration	October 18, 2012	
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location:	ST. LINA				
Start Time (MST)	13:07		End Time (MST)	17:03	
Reason:	Monthly Calibration				
Barometric Pressure:	920	mBar	Station Temperature:	20	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	0.5	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	42.2	0.9816
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	20.9	1.0090
2000	20.0	11.5	11.4	1.0083
2000	0.0	0.0	0.0	NA
			New Correction Factor:	0.9958

Percent Change

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

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.5	0.0
Auto Span	35.1	34.9
Sample Lines Connected		YES

Cylinder Pressures

Span 500 psi Hydrogen 1500 psi Zero Air 34 psi

Notes: **NA : Not Applicable**

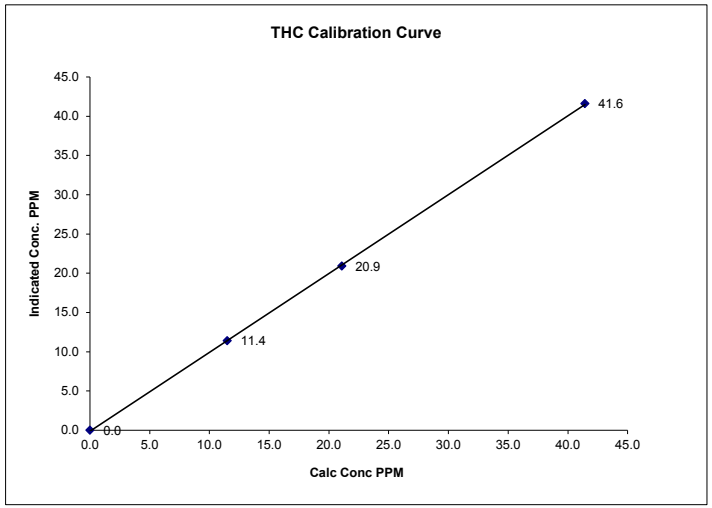
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	November 20, 2012				
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	ST. LINA				
Start Time (MST)	13:07	End Time	(MST)	17:03	

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	0.0	NA
11.5	11.4	1.0083
21.1	20.9	1.0090
41.4	41.6	0.9958

Correlation Coefficient	(≥ 0.995)	0.999943
Slope	(0.85 to 1.15)	1.004554
Intercept	(± 3% F.S.)	-0.11120



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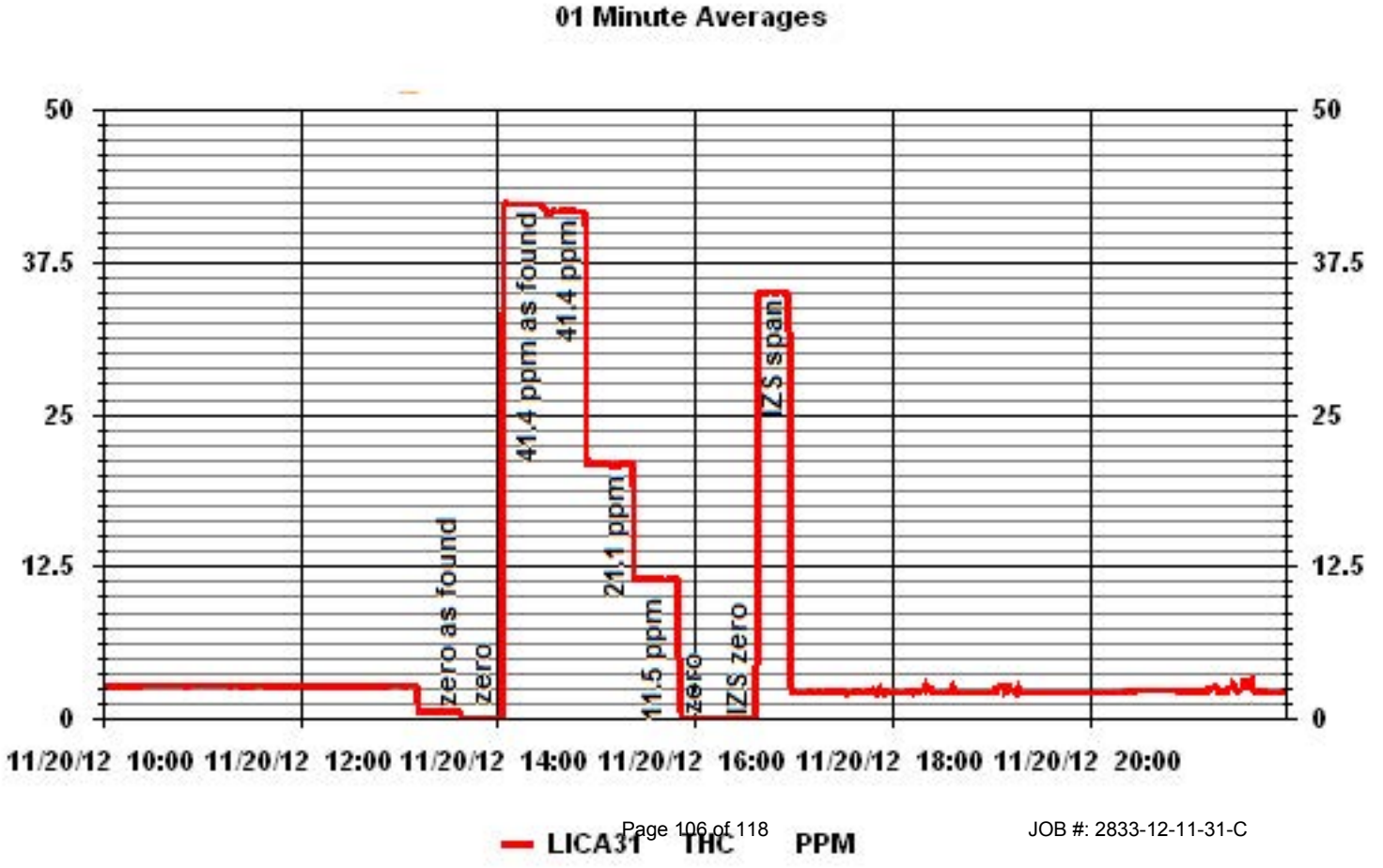


JOB #: 2833-12-11-31-C

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 20, 2012		Previous Calibration	October 2, 2012	
Company	LICA		Plant/Location	St. Lina	
Start Time (MST)	10:05		End Time (MST)	16:46	
Reason:	Monthly Calibration				
Barometric Pressure	919 mBar	Station Temperature	17 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 - 1 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	592	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	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	470	ccm	314	Deg C		468	ccm	316	Deg C
Ozone Flow / Vacuum	73	ccm	6.1	"Hg-A		73	ccm	6.1	"Hg-A
HVPS / A ZERO	638	Volts	16.0	MV		637	Volts	16.6	MV
Rx/ Temp / PMT Temp	49.8	Deg C	6.8	Deg C		50.0	Deg C	6.8	Deg C
Box Temp / IZS Temp	23.9	Deg C	45.3	Deg C		17.3	Deg C	45.1	Deg C
Offset	-1.1	NOx	-1.3	NO		1.1	NOx	-0.1	NO
Slope	1.024	NOx	1.021	NO		1.033	NOx	1.030	NO
NO_2 COEF / Conv Efficency	N/A	NO2	0.993	N/A		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	2	2	1	NA	NA
4994	0.0	NA	0	0	NA	1	1	1	NA	NA
4920	74.7	NA	749	749	NA	743	743	0	1.0112	1.0112
4920	74.7	NA	749	749	NA	749	750	-1	1.0000	1.0017
4961	34.9	NA	350	350	NA	351	351	0	1.0028	1.0028
4977	16.9	NA	170	170	NA	173	173	1	0.9915	0.9915
4994	0.0	NA	0	0	NA	1	1	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		
4921	74.7	NA	749	749	NA	750	751	-1	NA	NA
4921	74.7	600	749	NA	527	751	190	561	0.9411	100.18%
	No Adj.									
4921	74.7	300	749	NA	267	751	469	283	0.9468	100.71%
4921	74.7	120	749	NA	112	751	638	114	0.9912	101.77%

Linearity			Sum of Least Squares	NOx=	0.999	NO=	0.998	NO2= 0.942
OK?	Yes	No	Correction Factors:	NOx=	1.0000	NO=	1.0017	NO2= 0.9411
						Average Converter Efficiency=		100.89%

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	2.5	NOx	1.9	NO2		1.2	NOx	0.5	NO2
Auto Span	515	NOx	504	NO2		516	NOx	506	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	-1.2%	NO	-1.2%	NO2	6.1%

Notes

NA : Not Applicable

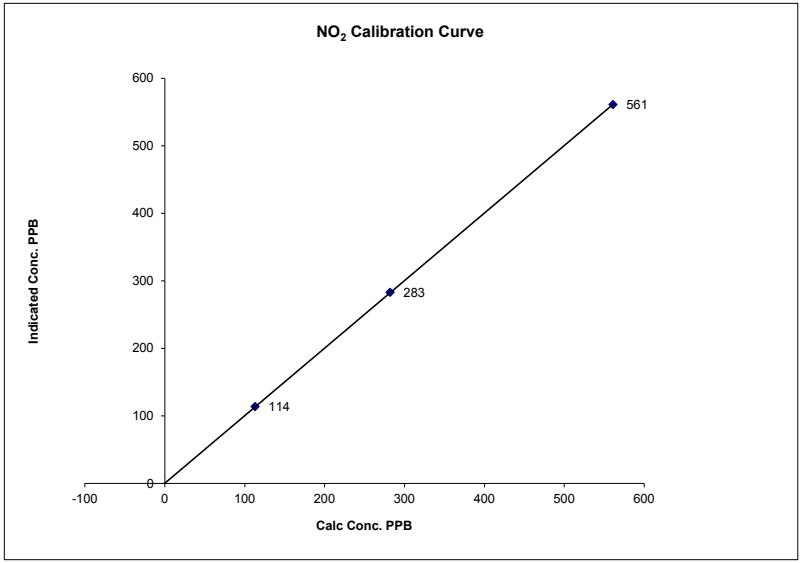
Additional GPT point done for O3 calibration. O3 set point 450, Nox=751, NO=331, NO2=420.

Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	November 20, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	10:05	End Time (MST)	16:46

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999995
			Slope (0.85 to 1.15)	0.999539
-1	-1	N/A	Intercept (± 3% F.S.)	0.61003
113	114	0.9912		
282	283	0.9965		
561	561	1.0000		

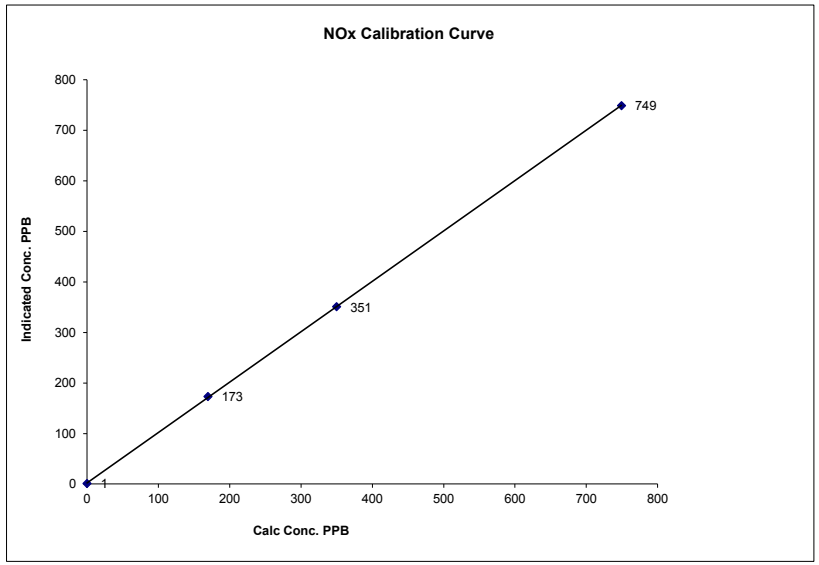


Notes:

NOx Calibration Curve

Calibration Date	November 20, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	10:05	End Time (MST)	16:46

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999985
			Slope (0.85 to 1.15)	0.997038
0	1	N/A	Intercept (± 3% F.S.)	2.23491
170	173	0.9800		
350	351	0.9971		
749	749	1.0004		

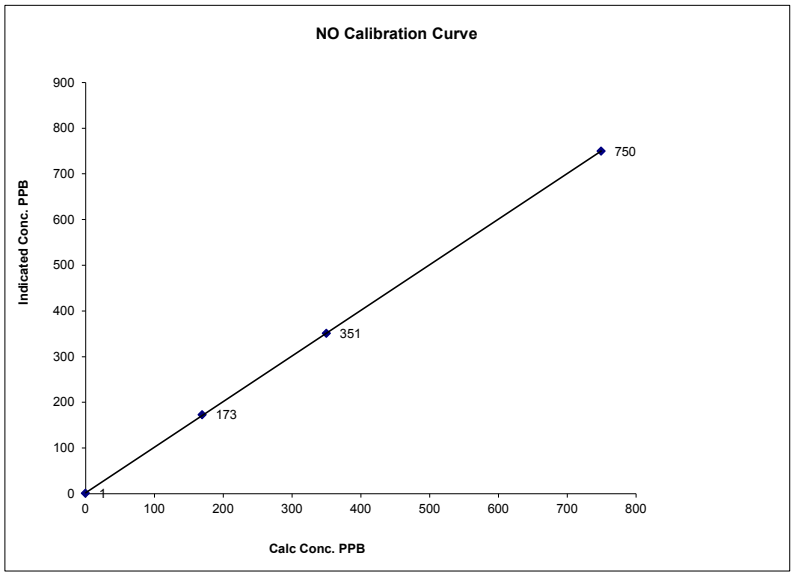


Notes:

NO Calibration Curve

Calibration Date	November 20, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	10:05	End Time (MST)	16:46

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999987
			Slope (0.85 to 1.15)	0.995925
0	1	N/A	Intercept (± 3% F.S.)	1.2808
170	173	0.9800		
350	351	0.9971		
749	750	0.9991		



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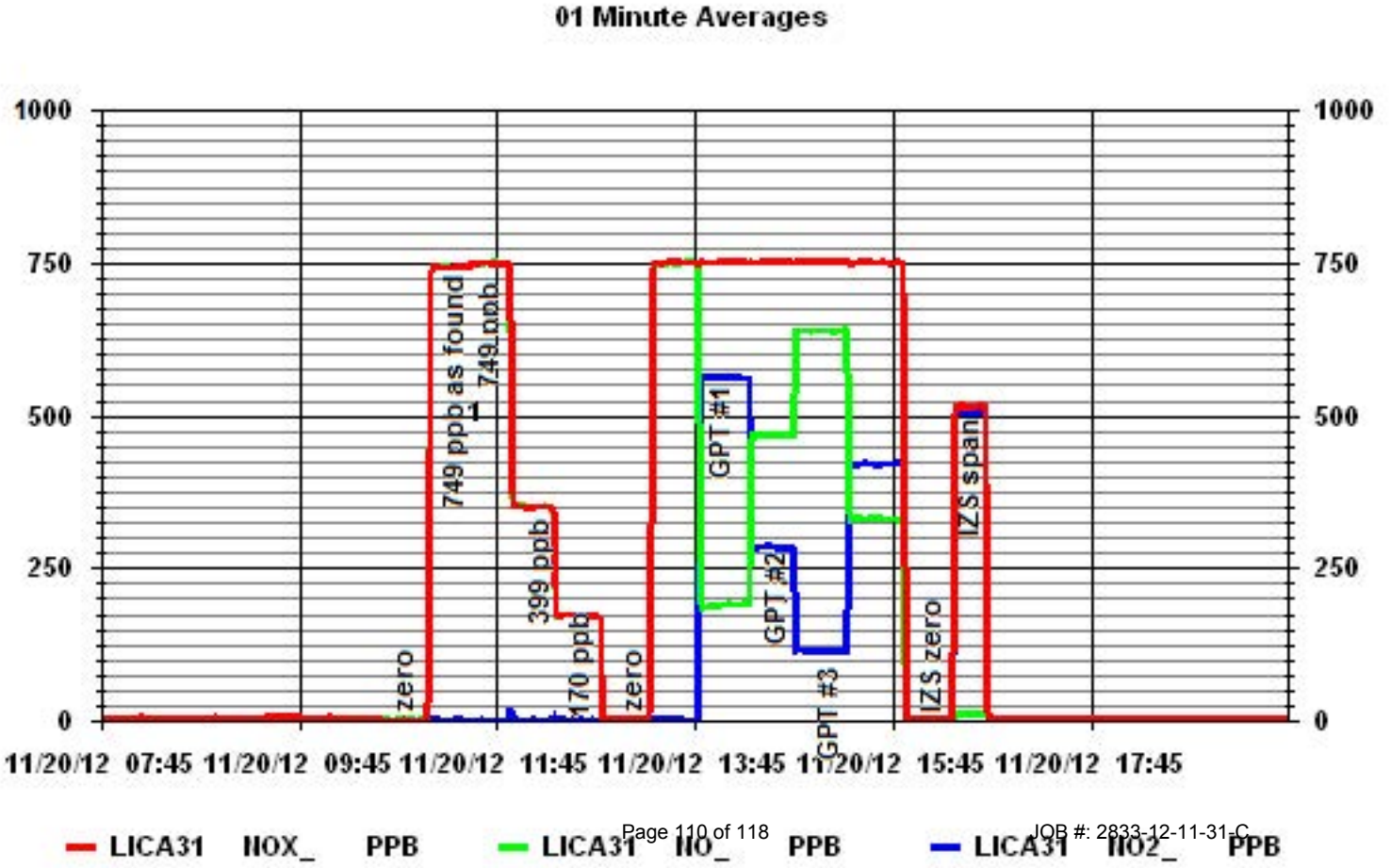

01 Minute Averages
1000
750
500
250
0
zero
749 ppb as found
1 749 ppb
399 ppb
170 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/20/12 07:45
11/20/12 09:45
11/20/12 11:45
11/20/12 13:45
11/20/12 15:45
11/20/12 17:45
LICA31 NOX_ PPB
LICA31 NO_ PPB
LICA31 NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	November 21, 2012		Previous Calibration	October 5, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	St. Lina				
Start Time (MST)	10:19		End Time (MST)	14:08	
Reason:	Monthly Calibration				
Barometric Pressure	921.5	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	823 ccm	854 ccm	841 ccm	872 ccm
Pressure	677 mmHg		700 mmHg	
Bench Temp	56.7 Deg C		56.7 Deg C	
O3 Lamp / Box Temp	80 Deg C	29.1 Deg C	80 Deg C	26.5 Deg C
Offset / Slope	0.1	1.034	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	420	427	0.9836
4994	450	420	421	
4994	300	282	283	0.9965
4994	120	113	113	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	0.8	0.6
Auto Span	337.0	330.0
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.7%

Note: **NA: Not Applicable**

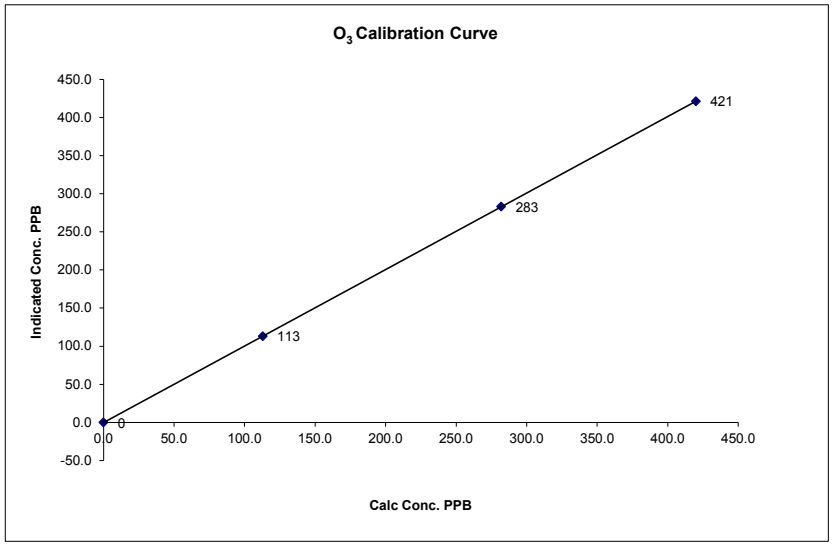
Calibration Performed by: Ting Xu

O_3 Calibration Curve

Calibration Date	November 21, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	10:19	End Time (MST)	14:08

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
113	113	1.0000
282	283	0.9965
420	421	0.9976

Correlation Coefficient	(≥ 0.995)	0.999998
Slope	(0.85 to 1.15)	1.002869
Intercept	(± 3% F.S.)	-0.084629



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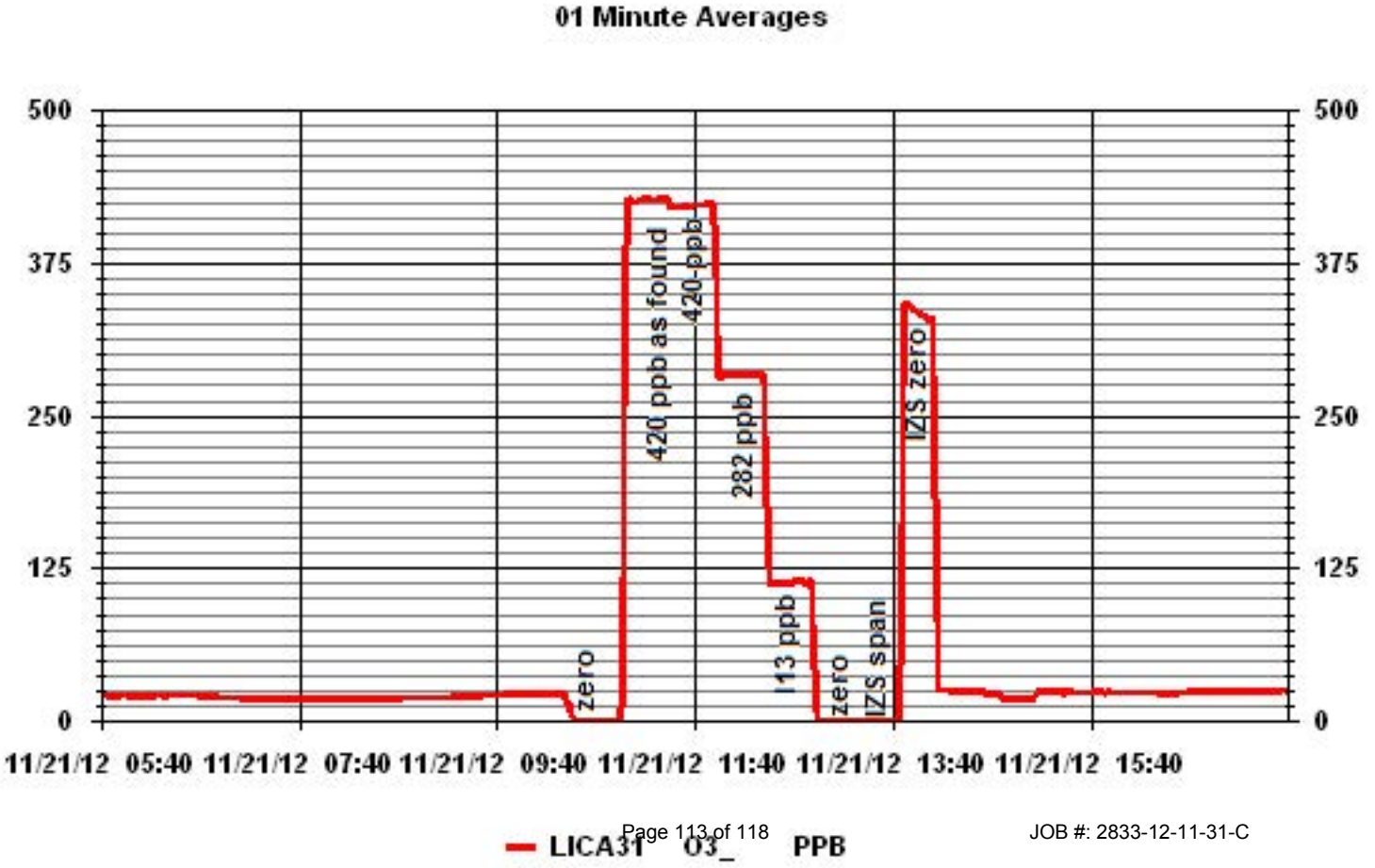


JOB #: 2833-12-11-31-C

Particulate Matter 2.5

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	November 16, 2012	Make/Model:	Streamline 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 (%)	29.6%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-0.48
		Press (ATM)	0.917

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**	0.004	Warnings	None
Pump Vacuum **<0.4atm**	0.32	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	-1.10	**D ^oC**	0.6
Measured Press **(± 0.01atm)**	0.918	**DATM**	-0.001

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	4.71%
Measured Main Flow (l/min)	2.84	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	1.89%
Measured Bypass Flow (l/min)	13.64	Flow Adjusted to Measured?	YES

Leak Check

		Instrument Setup
Main **(< 0.15 l/min)**	Base=-0.01 Ref=-0.00	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 **(± 2.5%)**	NA

Start Time: 11:12 **Finish Time:** 11:40

Sample Inlet Cleaned: NO **New Filters Installed:** NO

New Filter Loading %: NA

Comments: Following the audit, the O-ring inside the switching valve was replaced.

Auditor/s: Ting Xu

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	November 16, 2012	Make/Model:	Streamline 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 (%)	30.1%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	1.7
		Press (ATM)	0.918

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 **<0.4atm**	0.32	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	1.48	**D ^oC**	0.2
Measured Press **(± 0.01atm)**	0.917	**DATM**	0.001

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	6.64%
Measured Main Flow (l/min)	2.84	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	2.52%
Measured Bypass Flow (l/min)	13.78	Flow Adjusted to Measured?	YES

Leak Check

Main **(< 0.15 l/min)**	Base=-0.01 Ref=-0.00
Aux **(< 0.6 l/min)**	Base=0.00 Ref=0.00

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

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

Start Time: 13:30 **Finish Time:** 15:40

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

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	November 22, 2012	Make/Model:	Streamline 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 (%)	26.8%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-12.13
		Press (ATM)	0.935

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**	0.35	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	-12.01	**D ^oC**	-0.1
Measured Press **(± 0.01atm)**	0.935	**DATM**	0.000

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	7.14%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	0.78%
Measured Bypass Flow (l/min)	13.52	Flow Adjusted to Measured?	YES

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 **(± 2.5%)**	NA

Start Time: 12:00 **Finish Time:** 13:55

Sample Inlet Cleaned: NO **New Filters Installed:** NO

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu

TEOMÒ 1405F Audit

Station		Audit Transfer Standard	
Date:	November 29, 2012	Make/Model:	Bios - DC-2
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	738
Location:	St. Lina Station	Cell s/n:	1625
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 (%)	36.3%
Firmware Ver.	1.55	K_o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-15.53
		Press (ATM)	0.921

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**	0.012	Warnings	None
Pump Vacuum **<0.4atm**	0.38	Pump Gauge (inHg)	-19

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	-16.70	**D ^oC**	1.2
Measured Press **(± 0.01atm)**	0.921	**DATM**	0.000

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	0.00%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	0.00%
Measured Bypass Flow (l/min)	13.67	Flow Adjusted to Measured?	YES

Leak Check

Main **(< 0.15 l/min)**	Base=-0.01 Ref=-0.00
Aux **(< 0.6 l/min)**	Base=0.00 Ref=0.00

Instrument Setup

Flow Control = Active

Report Conditions = Actual

K_o Factor

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

Start Time: 16:00 **Finish Time:** 17:30

Sample Inlet Cleaned: NO **New Filters Installed:** NO

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu

JOB #: 2833-12-11-31-C

Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
November2012

Prepared By:

December 21, 2012

JOB #: 2833-12-11-01-C

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

Table of Contents

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Cold Lake
Data Period: November 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 – November2012

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	0.25	7	11	14	7.1	138(SE)	1.1	11	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.9
NO_2 (PPB)	159	-	0	-	5.29	28.1	15	17	1	141(SE)	12.1	27	99.6
NO (PPB)	-	-	-	-	0.83	20.4	15	17	1	141(SE)	2.7	12	99.6
NOx (PPB)	-	-	-	-	6.12	48.5	15	17	1	141(SE)	13.6	27	99.6
O_3 (PPB)	82	-	0	-	22.63	39	5	VAR	VAR	VAR	33.3	9	100.0
THC (PPM)	-	-	-	-	2.33	4.0	13	14	3.2	131(SE)	3.1	13	99.9
PM 2.5 (UG/M^3)	-	30	-	0	7.24	54	26	16	2.9	255(WSW)	14.8	13	91.4
TEMPERATURE (DEG C)	-	-	-	-	-8.86	8.6	5	12	17.2	289(WNW)	4.1	5	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	77.56	97	4	19, 20	7.7, 9.4	129(SE), 128(SE)	94.4	4	100.0
VECTOR WS (KPH)	-	-	-	-	5.88	18.0	5	13	-	284(WNW)	9.9	7	99.6
VECTOR WD (DEGREES)	-	-	-	-	89(E)	-	-	-	-	-	-	-	99.6

VAR-VARIOUS NA: NOT AVAILABLE

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

Passive Ambient Monitoring Network – November2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO_2	#14	1.0	0.51
H_2S	#26	0.22	0.14
NO_2	#28	6.9	2.7
O_3	#8	28	23.8

Volatile Organics Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – November 05, 2012

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

Xontech Model 910A – November 11, 2012

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

Xontech Model 910A – November 18, 2012

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

Xontech Model 910A – November 23, 2012

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

Xontech Model 910A – November 29, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result for November 29 is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

PUF cartridge – November 05, 2012

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

PUF cartridge – November 11, 2012

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

PUF cartridge – November 18, 2012

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

PUF cartridge – November 23, 2012

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

PUF cartridge – November 29, 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 – 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 November 6th. 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 November 6th. 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 November 6th. 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 November 6th. Data was corrected using daily zero information.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Nitrogen Dioxide (PPB)

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

The analyzer spanned high on November 4th. An as found points check was performed on November 5th, and the result was good. Following the as found points, the pump for the zero/span system was rebuilt, the flow rate was adjusted, and the exhausting pump was rebuilt. A post-repair calibration was performed on November 6th. No data was invalid due to this issue. 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 November 6th. Another Teom audit was performed on November 26th. A leak check was done, and both Teom filter and FDMS filter were replaced on November 26th. 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. Fifty-nine 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 Met One wind system was removed and sent to the manufacturer for a 2-Year calibration/maintenance on November 29th, and a temporary RM Young wind system was installed. A wind system calibration on the RM Young was performed on November 28th. The calibration result will be included in the monthly report next month.

General Monthly Summary - Cold Lake

AQM STATION – 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 November 6th.

General Monthly Summary - Cold Lake

AQM STATION – 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 volatile organics were sampled from November1st to November 30th. 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 November1st to November 30th. 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 - *COLD LAKE*

NOVEMBER 2012

SULPHUR DIOXIDE (SO_2) hourly averages in ppb

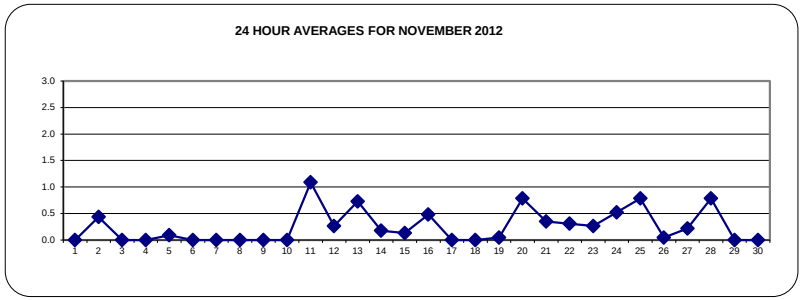
MST

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

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

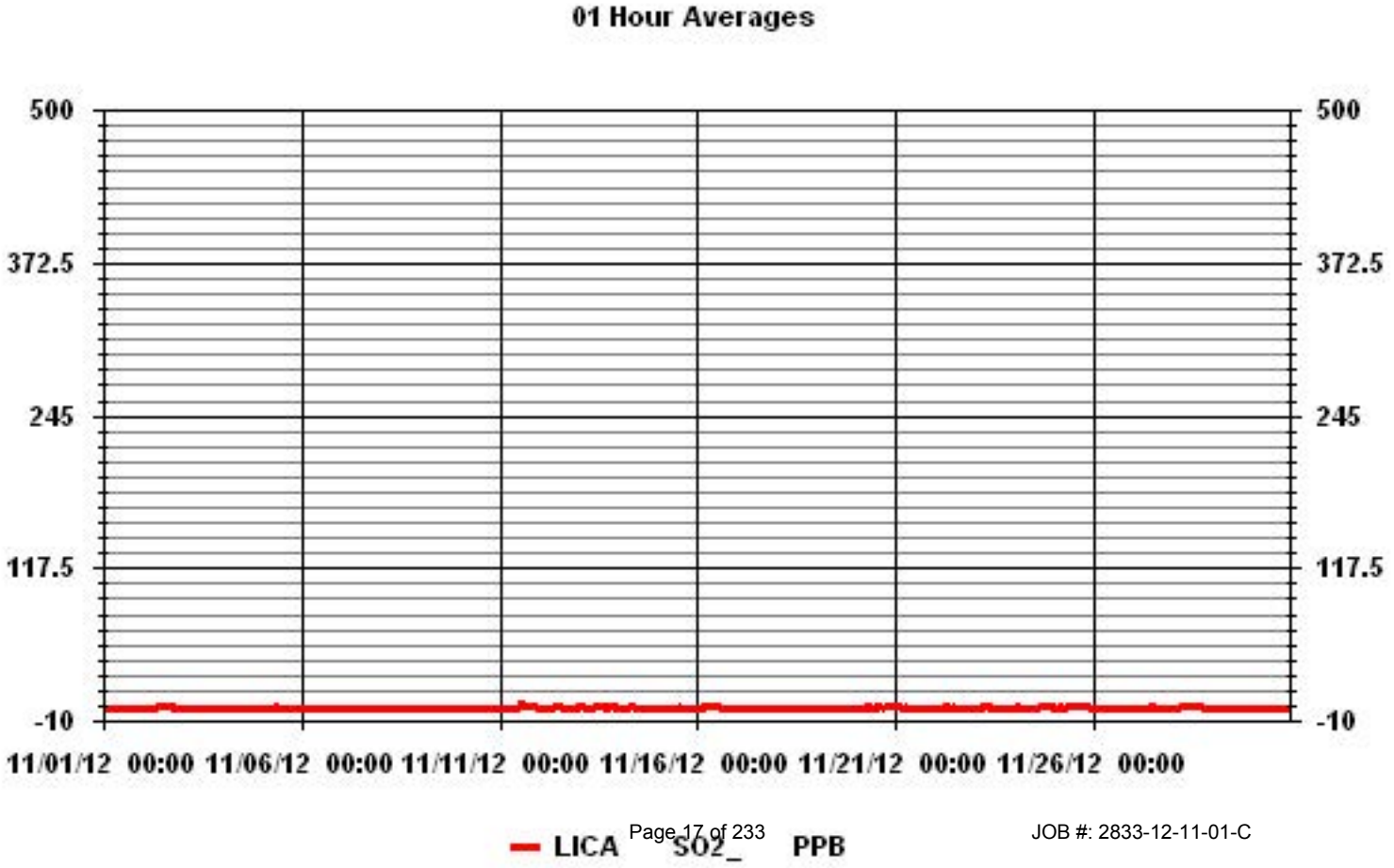


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	148					
MAXIMUM 1-HR AVERAGE:	7	PPB	@ HOUR(S)	14	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	1.1	PPB			ON DAY(S)	11

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.55		MONTHLY AVERAGE:	0.25	PPB

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

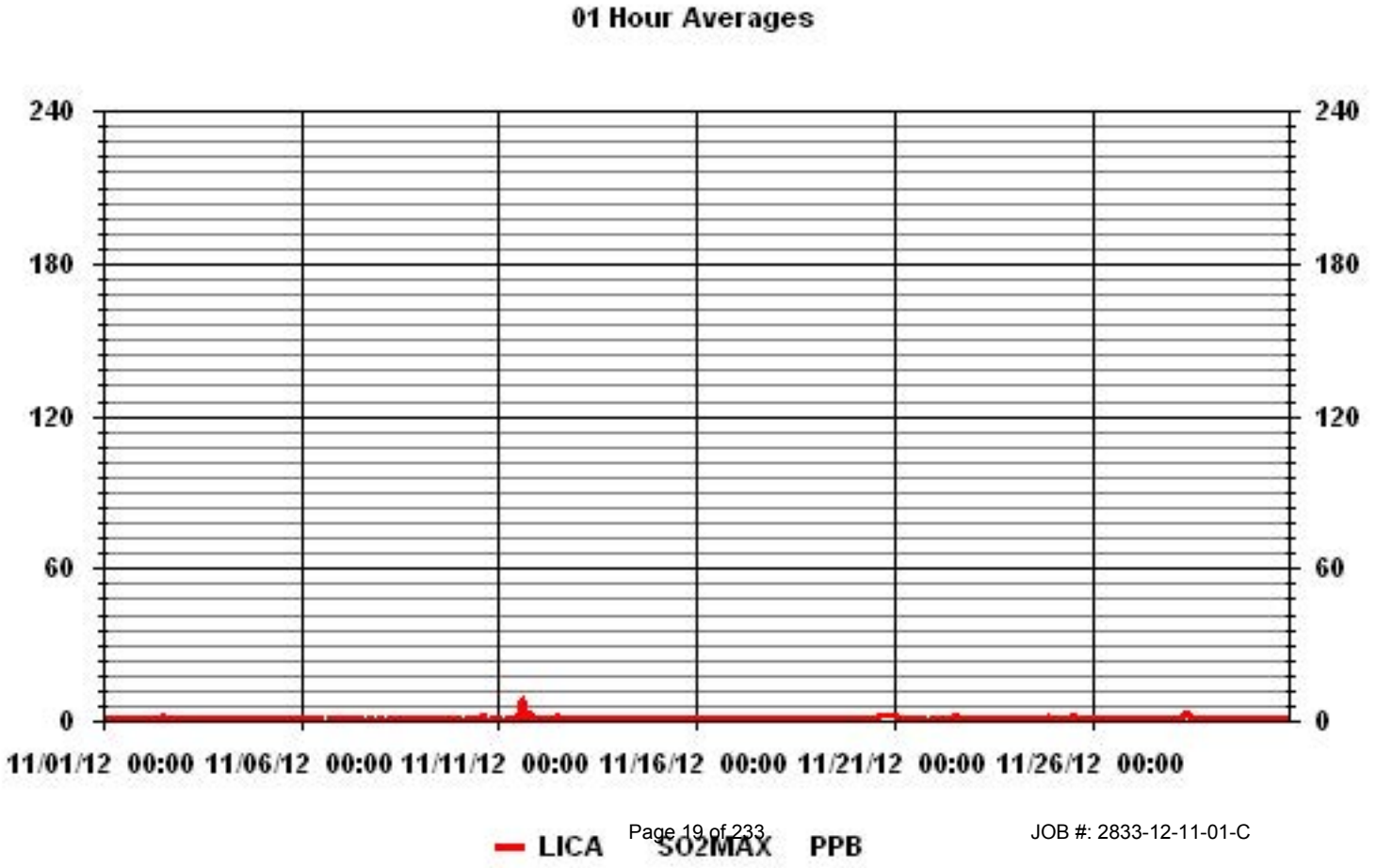
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00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

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:	633					
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	14	ON DAY(S)	11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.55					



JOB #: 2833-12-11-01-C

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

November 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	2.64	3.08	2.64	5.72	12.92	12.33	15.27	3.08	1.76	3.37	7.63	8.66	8.22	4.11	5.43	3.08	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	2.64	3.08	2.64	5.72	12.92	12.33	15.27	3.08	1.76	3.37	7.63	8.66	8.22	4.11	5.43	3.08	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	18	21	18	39	88	84	104	21	12	23	52	59	56	28	37	21	681
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	18	21	18	39	88	84	104	21	12	23	52	59	56	28	37	21	

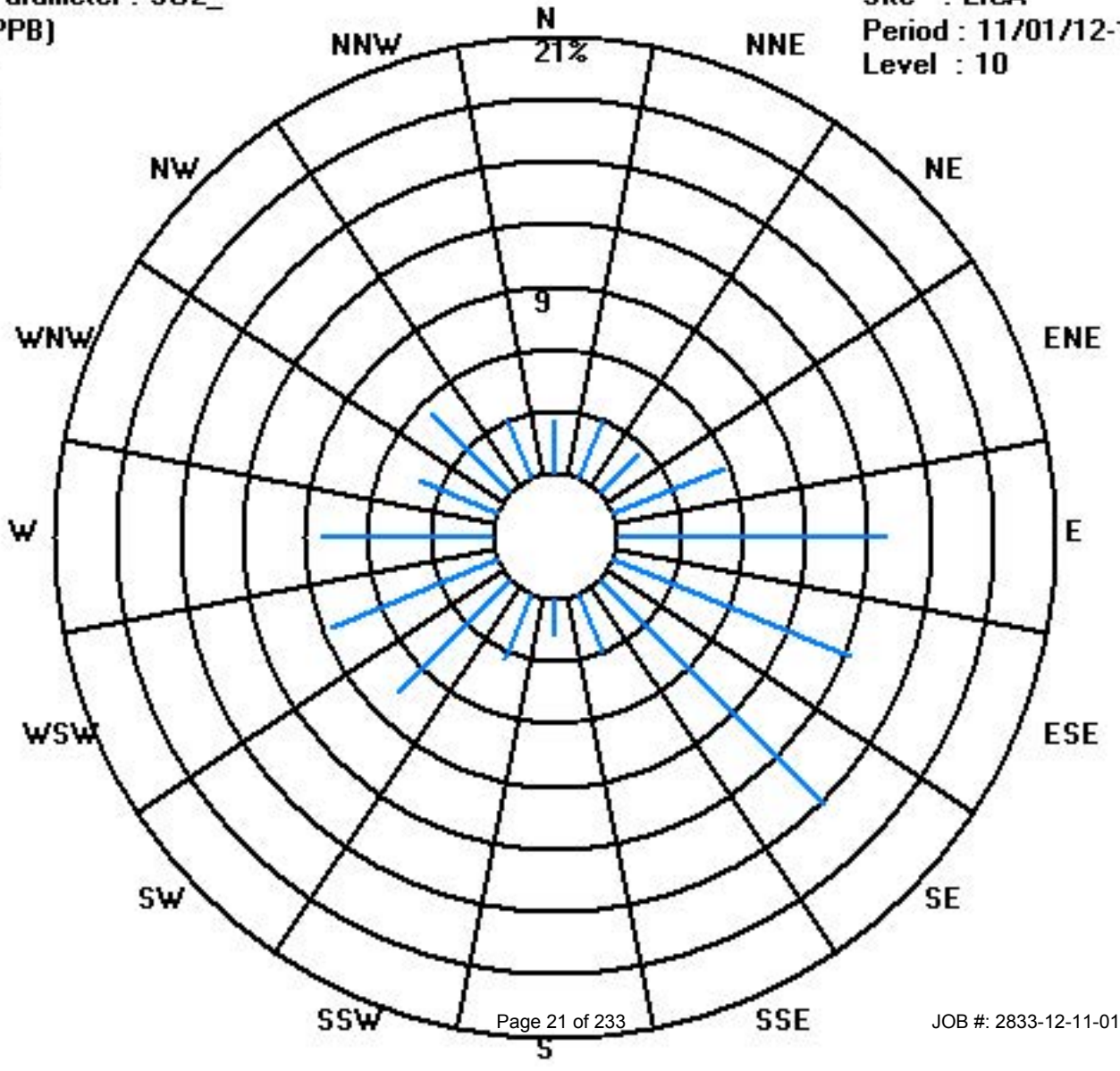
Calm : .00 %

Total # Operational Hours : 681

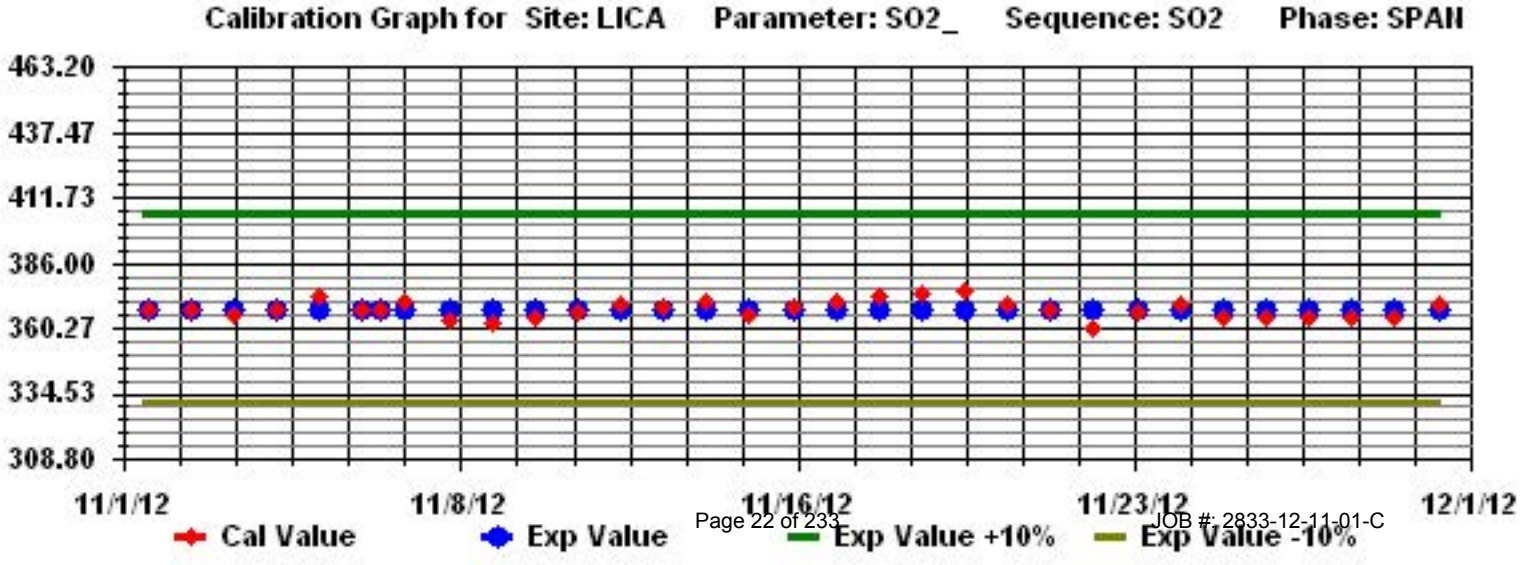
Logger : 01 Parameter : SO2_
Class Limits (PPB)

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

Site : LICA
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-01-C


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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

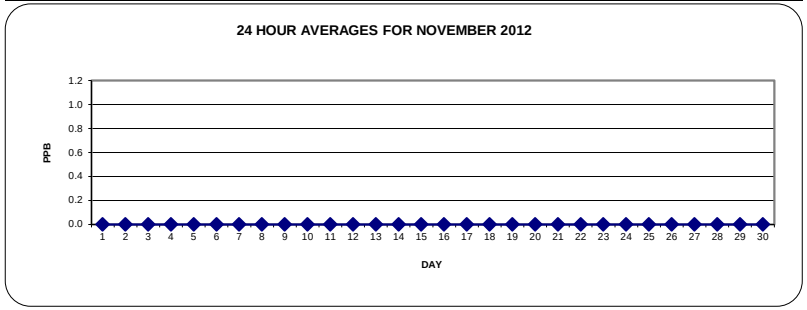
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	IZS	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	IZS	C	C	C	C	0	0	0	0	0	M	0	0	0	0	0	0	0	0.0	23
7	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
8	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
9	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
10	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
11	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
12	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
13	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
14	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
15	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
16	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
17	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
18	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
19	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
20	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
21	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
22	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
23	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
24	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
25	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
26	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
27	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
28	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
29	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
30	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
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

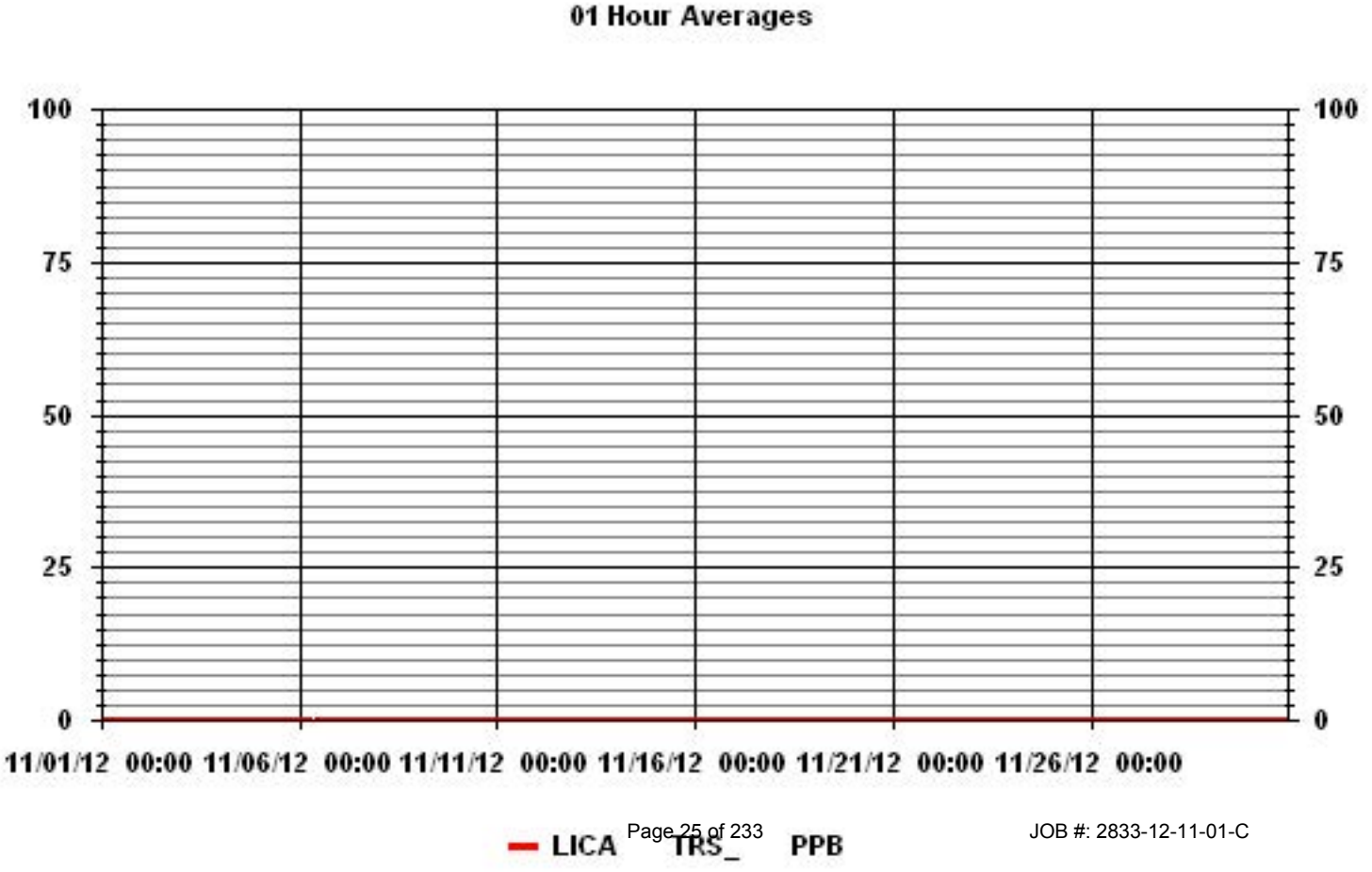
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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:	31	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

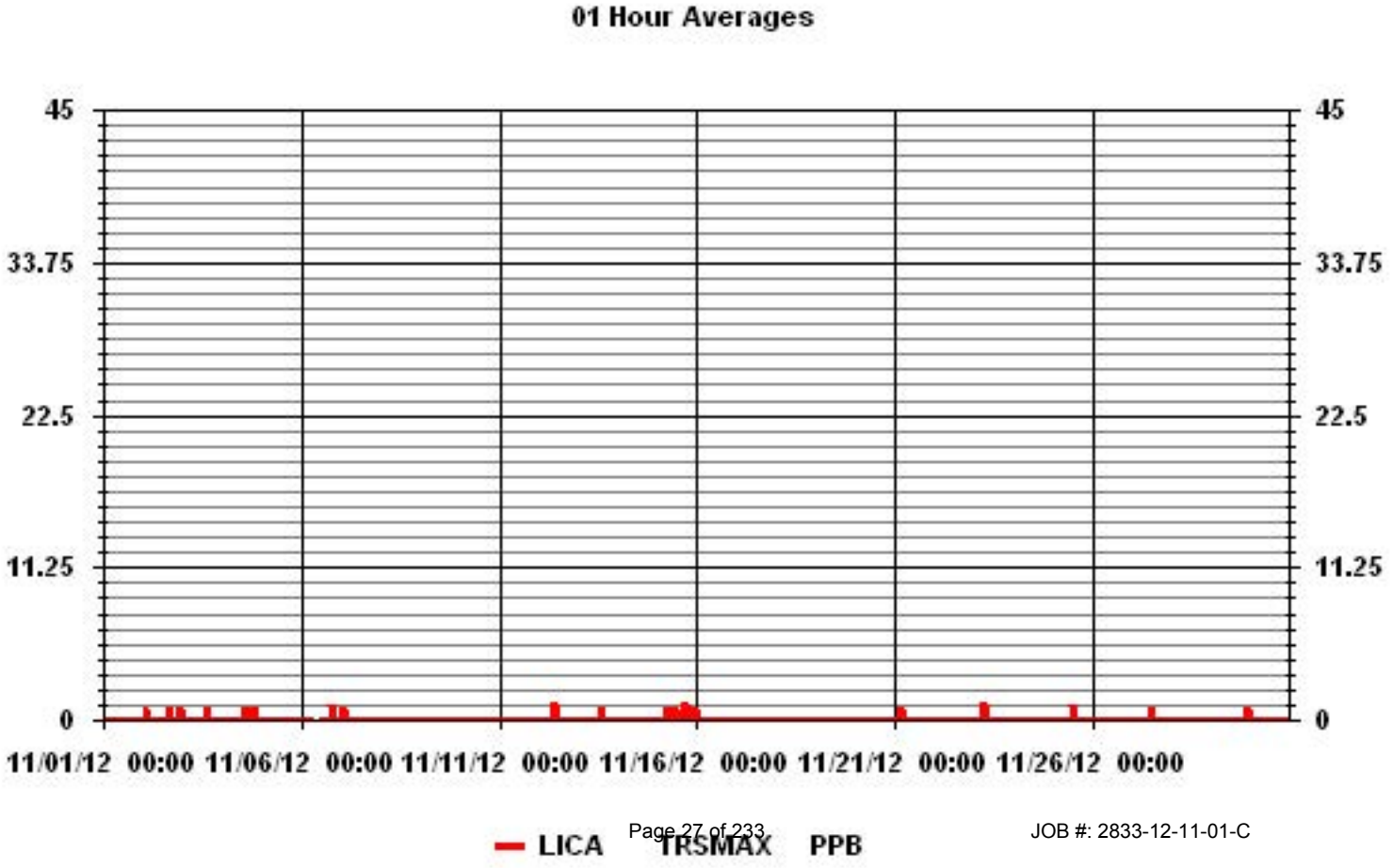
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00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

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:	23					
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
				VAR - VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.18					



JOB #: 2833-12-11-01-C

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

November 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	2.64	3.08	2.64	5.73	12.94	12.35	15.29	3.08	1.76	3.38	7.50	8.67	8.23	4.11	5.44	3.08	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	2.64	3.08	2.64	5.73	12.94	12.35	15.29	3.08	1.76	3.38	7.50	8.67	8.23	4.11	5.44	3.08	

Calm : .00 %

Total # Operational Hours : 680

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	18	21	18	39	88	84	104	21	12	23	51	59	56	28	37	21	680
< 10																	
< 50																	
>= 50																	
Totals	18	21	18	39	88	84	104	21	12	23	51	59	56	28	37	21	

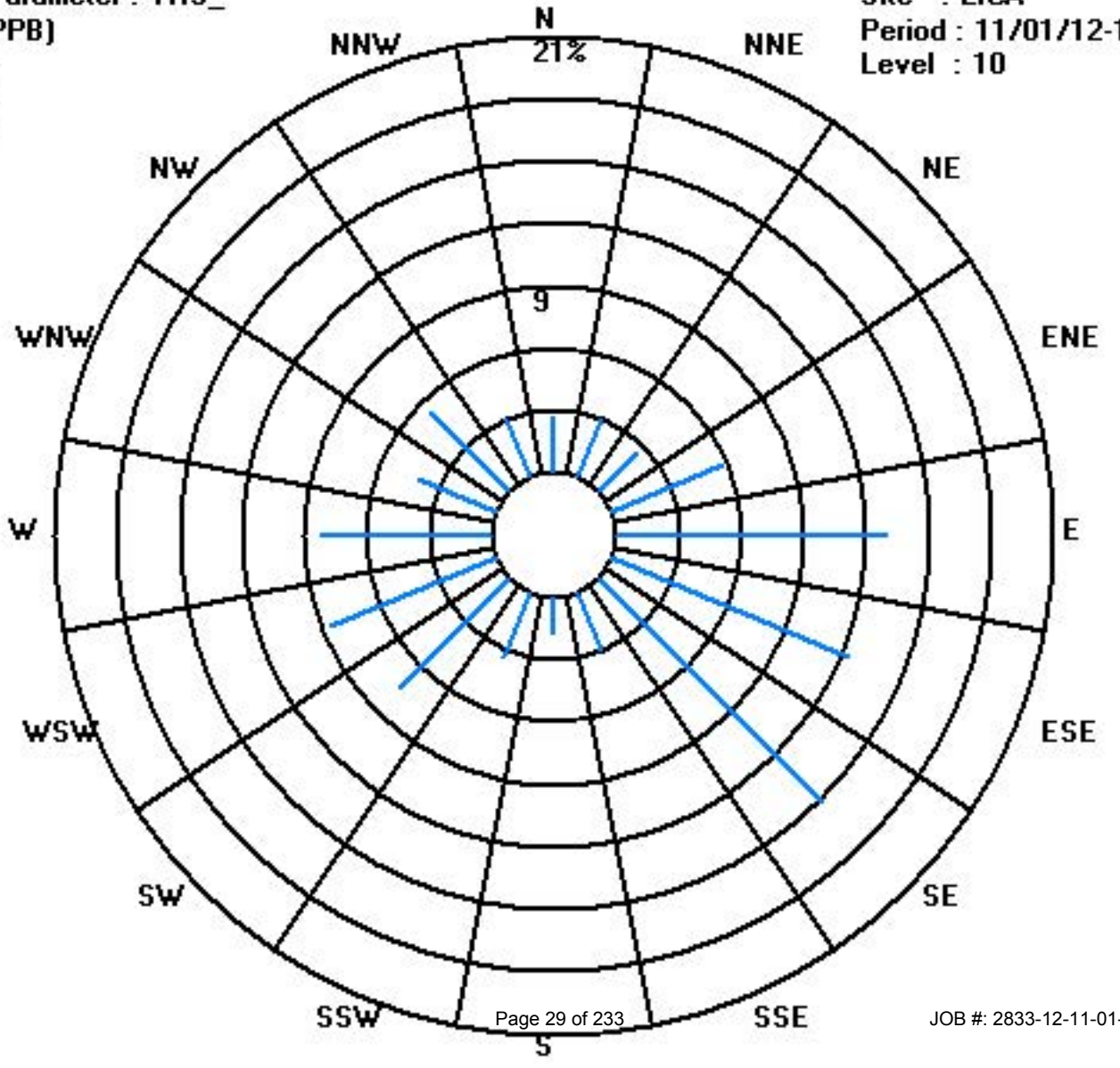
Calm : .00 %

Total # Operational Hours : 680

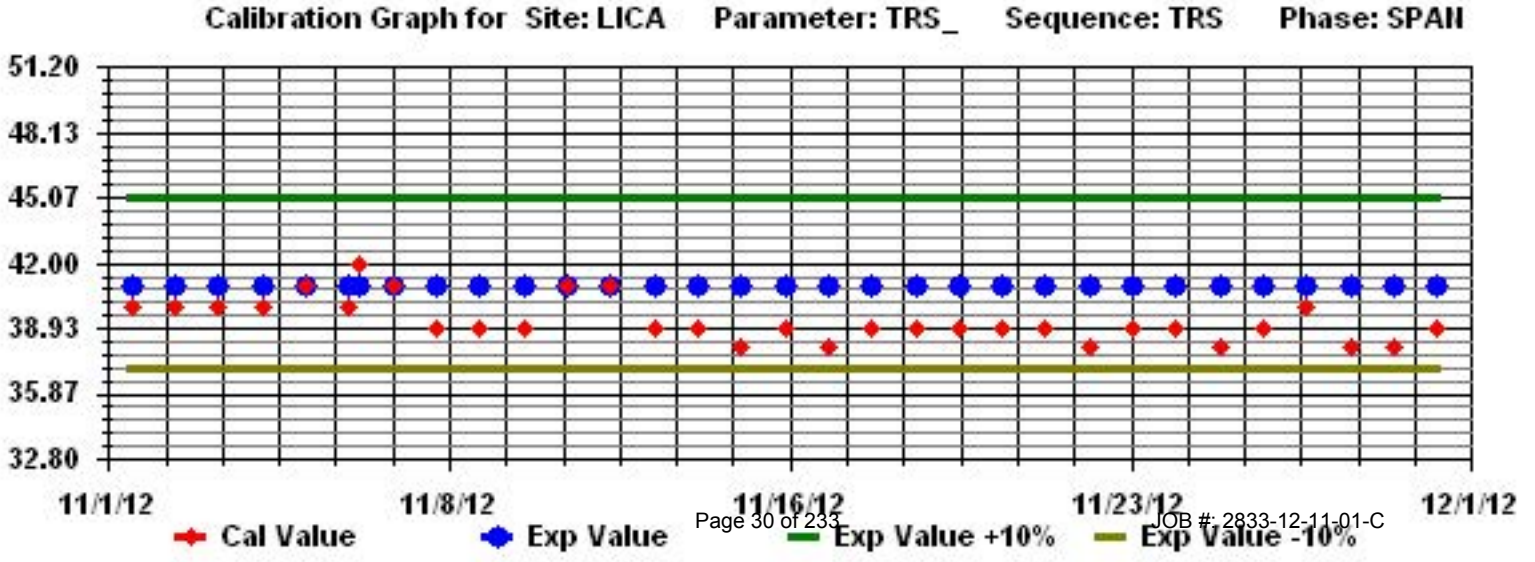
Logger : 01 Parameter : TRS_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-01-C


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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

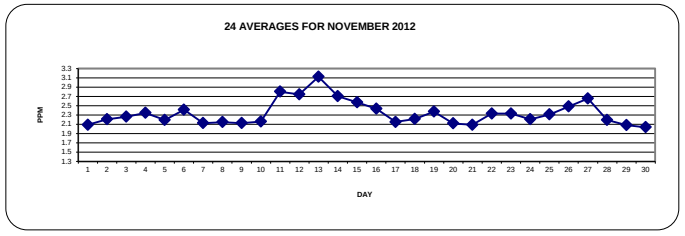
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	2.1	2	2	2	2.1	2.1	2.1	2.1	2	2	2	2	**IZS**	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.1	24
2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	**IZS**	2.1	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.3	2.2	24
3	2.2	2.2	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.2	**IZS**	2.6	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.6	2.3	24
4	2.2	2.3	2.3	2.3	2.5	2.6	2.3	2.3	2.2	**IZS**	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.5	2.5	2.5	2.5	2.3	2.3	2.5	2.6	2.3	24
5	2.3	2.3	2.3	2.2	2.3	2.4	2.5	2.6	**IZS**	2.6	2.3	2.1	2	2	2	2	2	2.1	2.1	2	2	2.1	2.1	2.1	2.6	2.2	24
6	2.1	2.2	2.2	2.3	2.2	2.3	2.3	**IZS**	2.1	2.2	2.1	**C**	**C**	**C**	**C**	2.2	2.3	**M**	2.3	2.4	2.7	2.9	3.2	3.4	3.4	2.4	23
7	2.9	2.5	2.3	2.1	2.1	2.1	**IZS**	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	2.9	2.1	24
8	2.1	2.1	2.2	2.2	2.2	**IZS**	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	24
9	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.2	2.2	2.2	2.2	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	2.2	2.1	24
10	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	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.2	2.3	2.3	2.2	24
11	2.4	2.6	**IZS**	3.2	3.2	3.1	3.1	2.9	2.9	2.8	2.6	2.7	2.6	2.8	2.6	2.4	2.5	2.6	2.8	2.9	3	2.9	2.9	2.9	3.2	2.8	24
12	2.8	**IZS**	2.8	3	3.1	3.2	3.3	3.3	3.4	3.5	3.3	2.7	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.6	2.4	2.3	2.2	3.5	2.7	24
13	**IZS**	2.2	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.7	3	3.2	3.2	3.5	**4**	3.8	3.6	3.8	3.9	3.9	3.9	3.9	4	**IZS**	**4.0**	**3.1**	24
14	3.9	3.9	3.8	3.7	3.6	3.6	3.4	3.2	2.7	2.4	2.3	2	2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	**IZS**	2.4	3.9	2.7	24
15	2.7	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.9	3.1	3.3	3.3	**IZS**	3.2	3.3	3.3	2.6	24
16	3.2	3.2	3	2.8	2.9	2.8	2.6	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	**IZS**	2.2	2.2	2.2	3.2	2.4	24
17	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	**IZS**	2.1	2.2	2.2	2.1	2.3	2.1	24
18	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.3	2.3	2.4	2.5	**IZS**	2.3	2.3	2.3	2.3	2.4	2.5	2.2	24
19	2.3	2.3	2.3	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	**IZS**	2.3	2.3	2.2	2.2	2.1	2.1	2.5	2.4	24
20	2.1	2.1	2.1	2.1	2.1	2.1	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	2.2	2.2	2.2	2.2	2.2	2.1	24
21	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	**IZS**	2.1	2	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	24
22	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	2.4	2.5	2.6	2.6	2.7	2.7	3	3.0	2.3	24
23	3.1	2.9	2.8	2.4	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	**IZS**	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	3.1	2.3	24
24	2.5	2.4	2.4	2.5	2.4	2.3	2.2	2.2	2.2	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	2.2	2.5	2.2	24
25	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.4	2.5	**IZS**	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.6	2.8	2.8	2.3	24
26	3	3	2.9	3	3	2.7	2.7	2.6	2.5	2.3	**IZS**	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.5	2.5	3.0	2.5	24
27	2.6	2.6	2.6	2.7	3	3.1	3.2	3	2.8	**IZS**	2.4	2.2	2.2	2.2	2.3	2.3	2.3	2.6	2.7	2.8	2.9	2.9	2.9	2.7	3.2	2.7	24
28	2.7	2.8	2.8	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.2	24
29	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	2.1	2	2.1	2	2.1	2	2	2.1	2.1	24
30	2	2	2	2	2	2	**IZS**	2	2	2	2	2.1	2	2.1	2.1	2.1	2	2.1	2	2.1	2.1	2.1	2	2	2.1	2.0	24
HOURLY MAX	3.9	3.9	3.8	3.7	3.6	3.6	3.4	3.3	3.4	3.5	3.3	3.2	3.2	3.5	4.0	3.8	3.6	3.8	3.9	3.9	3.9	3.9	4.0	3.4			
HOURLY AVG	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4			

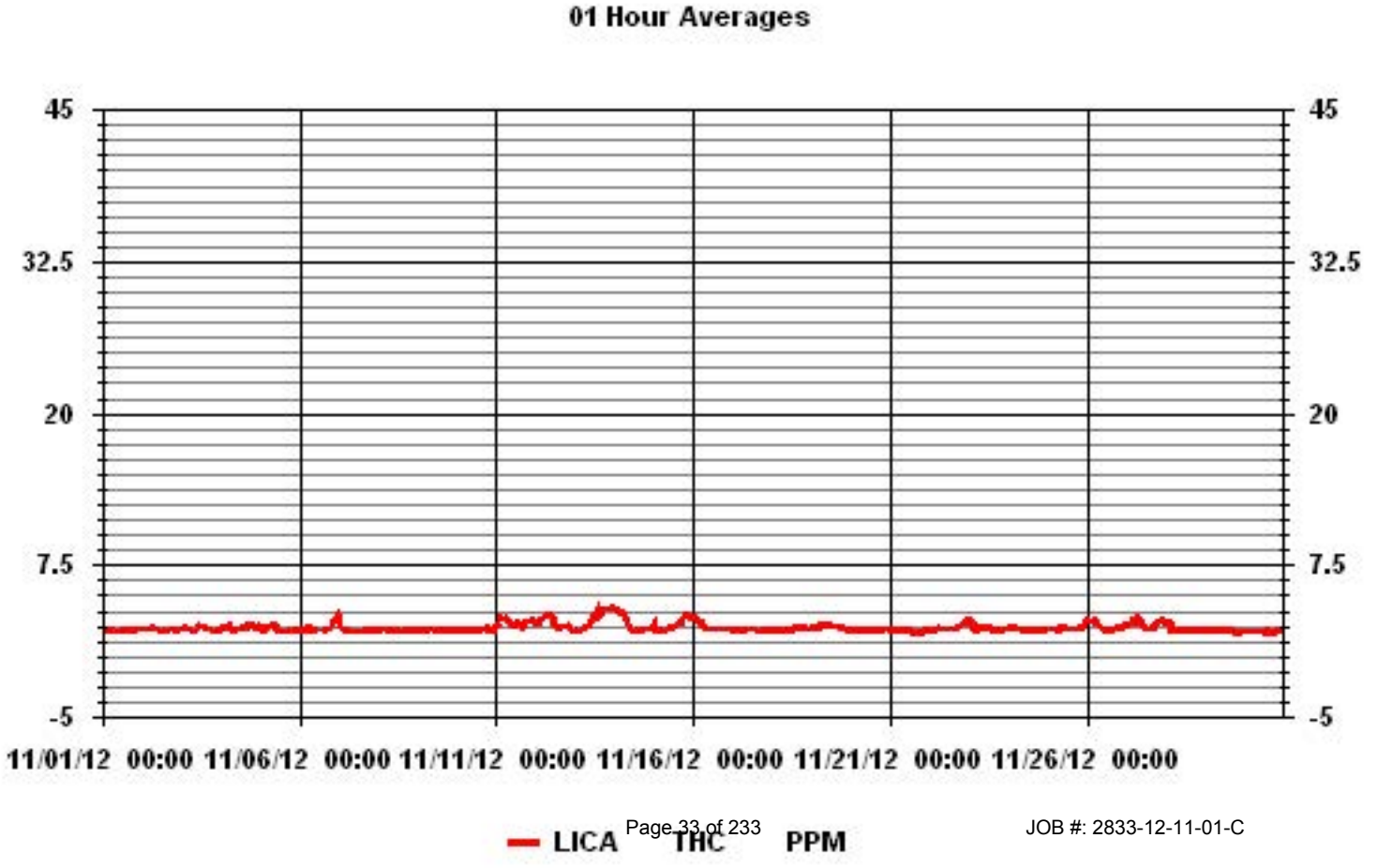
STATUS FLAG CODES

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
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	4.0	PPM	@ HOUR(S)	14	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	3.1	PPM			ON DAY(S)	13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.37		MONTHLY AVERAGE:		2.33	PPM



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

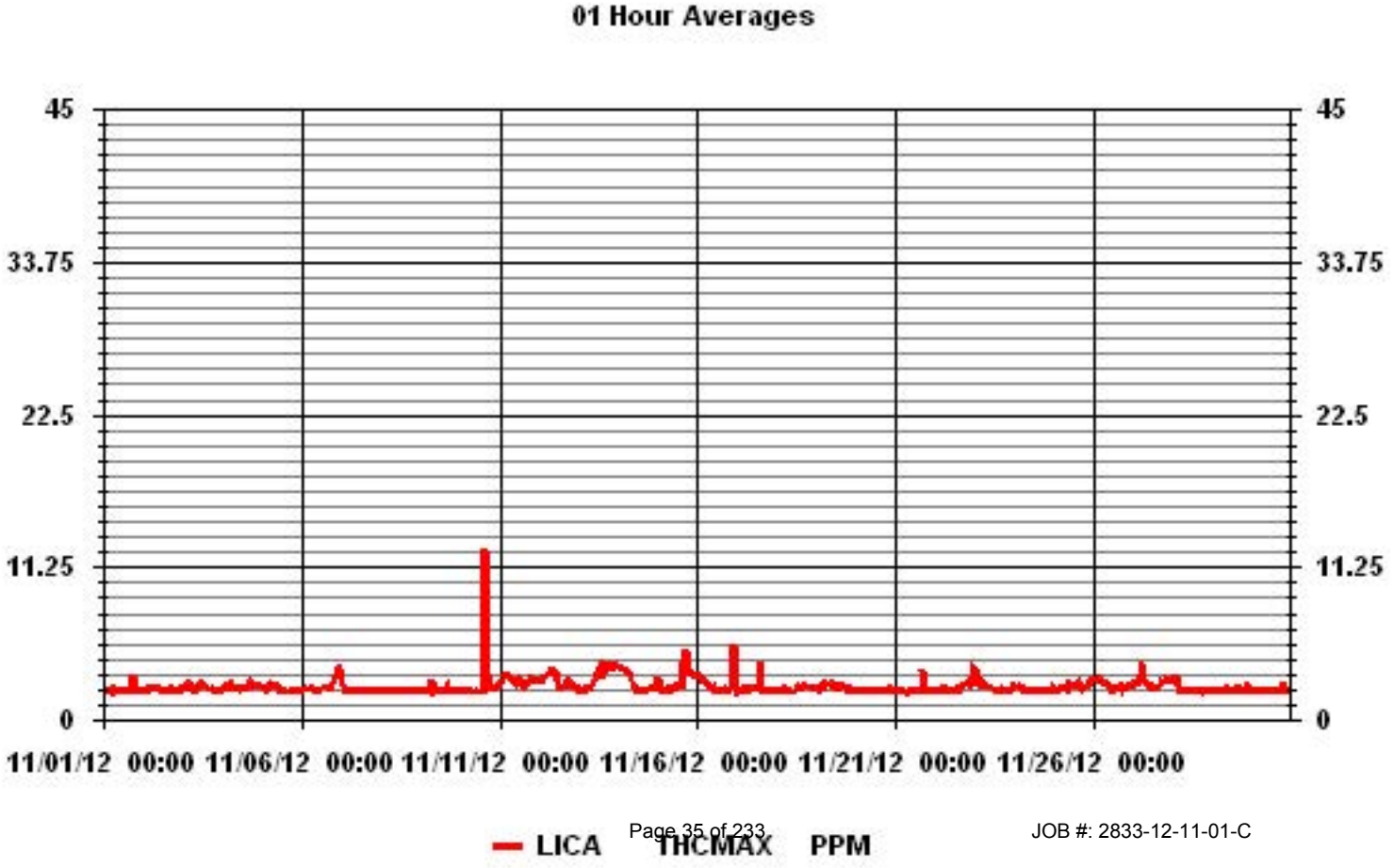
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2.1	2.1	2.1	2.1	2.2	2.1	2.5	2.1	2.1	2.1	2.1	2.1	**IZS**	2.2	2.2	2.2	2.2	2.3	3.4	2.2	2.2	2.2	2.2	2.2	3.4	2.2	24
2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	**IZS**	2.2	2.2	2.3	2.2	2.2	2.4	2.4	2.3	2.2	2.2	2.2	2.3	2.4	2.3	24
3	2.3	2.3	2.5	2.5	3	2.3	2.2	2.2	2.3	2.3	**IZS**	2.8	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.2	2.2	3	2.4	24
4	2.3	2.3	2.6	2.5	2.6	2.7	2.4	2.3	2.3	**IZS**	2.3	2.4	2.3	2.3	2.3	2.4	2.5	2.9	2.8	2.5	2.6	2.5	2.5	2.6	2.9	2.5	24
5	2.5	2.4	2.4	2.3	2.5	2.7	2.7	2.6	**IZS**	2.7	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.7	2.3	24
6	2.1	2.2	2.3	2.3	2.3	2.4	2.4	**IZS**	2.2	2.2	2.2	**C**	**C**	**C**	**C**	2.4	2.4	**M**	2.4	2.7	3	3.3	3.7	3.8	3.8	2.6	23
7	3.5	2.7	2.4	2.2	2.1	2.1	**IZS**	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	3.5	2.2	24
8	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24
9	2.2	2.2	2.2	2.2	**IZS**	2.2	2.2	3	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.3	2.2	2.2	2.2	3	2.3	24
10	2.2	2.2	2.2	**IZS**	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	**12.6**	2.3	3.5	2.3	2.3	2.3	2.3	2.4	2.5	**12.6**	2.7	24
11	2.5	2.8	**IZS**	3.3	3.2	3.2	3.2	3	3.1	3	2.8	3	2.8	2.9	2.8	2.5	2.6	2.7	2.9	3.1	3.1	3	2.9	2.9	3.3	2.9	24
12	2.9	**IZS**	2.9	3.1	3.2	3.3	3.4	3.4	3.9	3.6	3.5	3.1	2.5	2.5	2.4	2.5	2.8	2.9	2.4	2.4	2.7	2.5	2.3	2.3	3.9	2.9	24
13	**IZS**	2.2	2.2	2.2	2.3	2.4	2.5	2.4	2.6	2.9	3.3	3.3	3.3	3.8	4.2	4.1	3.7	4	4	4	3.9	4	4	**IZS**	4.2	3.2	24
14	4	3.9	3.9	3.8	3.7	3.7	3.5	3.4	3	2.5	2.5	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.3	2.3	**IZS**	2.7	4	2.8	24
15	3.1	2.3	2.2	2.1	2.2	2.4	2.2	2.2	2.4	2.5	2.4	2.5	2.5	2.8	2.7	4.2	3.1	5.1	3.6	3.5	3.5	**IZS**	3.3	3.3	5.1	2.9	24
16	3.4	3.3	3.2	2.9	2.9	2.9	2.7	2.6	2.5	2.3	2.5	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.2	2.2	**IZS**	2.5	5.6	4.7	5.6	2.8	24
17	2.1	2.2	2.1	2.1	2.1	2.6	2.2	2.2	2.3	2.3	2.4	2.5	2.6	2.2	4.2	2.2	2.2	2.3	2.2	**IZS**	2.2	2.2	2.2	2.2	4.2	2.3	24
18	2.2	2.2	2.2	2.1	2.1	2.5	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.5	2.4	2.5	2.5	**IZS**	2.4	2.4	2.5	2.4	2.5	2.5	2.3	24
19	2.4	2.3	2.5	2.6	2.5	2.7	2.7	2.6	2.6	2.7	2.5	2.6	2.5	2.5	2.4	2.5	2.5	**IZS**	2.3	2.4	2.3	2.3	2.2	2.2	2.7	2.5	24
20	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	**IZS**	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.2	24
21	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	**IZS**	3.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.5	2.2	24
22	2.1	2.1	2.1	2.1	2.4	2.4	2.5	2.3	2.2	2.2	2.2	2.2	2.3	2.4	**IZS**	2.2	2.4	2.6	2.6	2.8	2.7	3	2.9	3.9	3.9	2.5	24
23	3.8	3.4	3.1	2.7	2.3	2.8	2.6	2.4	2.4	2.5	2.4	2.4	2.3	**IZS**	2.3	2.2	2.4	2.2	2.2	2.2	2.2	2.3	2.2	2.3	3.8	2.5	24
24	2.6	2.6	2.5	2.5	2.5	2.4	2.2	2.2	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	2.2	2.2	2.5	2.6	2.3	24
25	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.8	2.7	**IZS**	2.4	2.4	2.6	2.8	2.5	2.3	2.4	2.4	2.4	2.7	2.7	3	3	2.5	24
26	3	3.1	3	3.1	3.1	2.8	2.8	2.7	2.7	2.5	**IZS**	2.2	2.2	2.3	2.3	2.3	2.4	2.8	2.3	2.5	2.4	2.5	2.5	2.7	3.1	2.6	24
27	2.6	2.7	2.7	2.8	3.3	4.3	3.3	3.1	2.9	**IZS**	2.6	2.4	2.3	2.3	2.3	2.4	2.5	2.9	2.8	2.8	3.1	3	3	2.9	4.3	2.8	24
28	2.9	3.1	3.1	2.6	2.2	2.1	2.1	2.2	**IZS**	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.1	2.2	2.1	2.1	2.1	3.1	2.3	24
29	2.1	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.3	2.3	2.3	2.1	2.1	2.1	2.8	2.1	2.1	2.8	2.2	24
30	2.1	2.1	2.1	2.1	2.1	2.1	**IZS**	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.7	2.3	2.2	2.1	2.1	2.7	2.2	24
HOURLY MAX	4	4	4	4	4	4	4	3	4	4	4	3	3	4	4	13	4	5	4	4	4	4	6	5			
HOURLY AVG	2.6	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.8	2.5	2.6	2.5	2.5	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:	684					
MAXIMUM INSTANTANEOUS VALUE:	12.6	PPM	@ HOUR(S)	15	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		719	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.61					



JOB #: 2833-12-11-01-C

LICA
O3_ / WD Joint Frequency Distribution (Percent)

November 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	2.64	3.08	2.64	5.72	12.92	12.33	15.27	3.08	1.76	3.37	7.63	8.66	8.22	4.11	5.43	3.08	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	2.64	3.08	2.64	5.72	12.92	12.33	15.27	3.08	1.76	3.37	7.63	8.66	8.22	4.11	5.43	3.08	

Calm : .00 %

Total # Operational Hours : 681

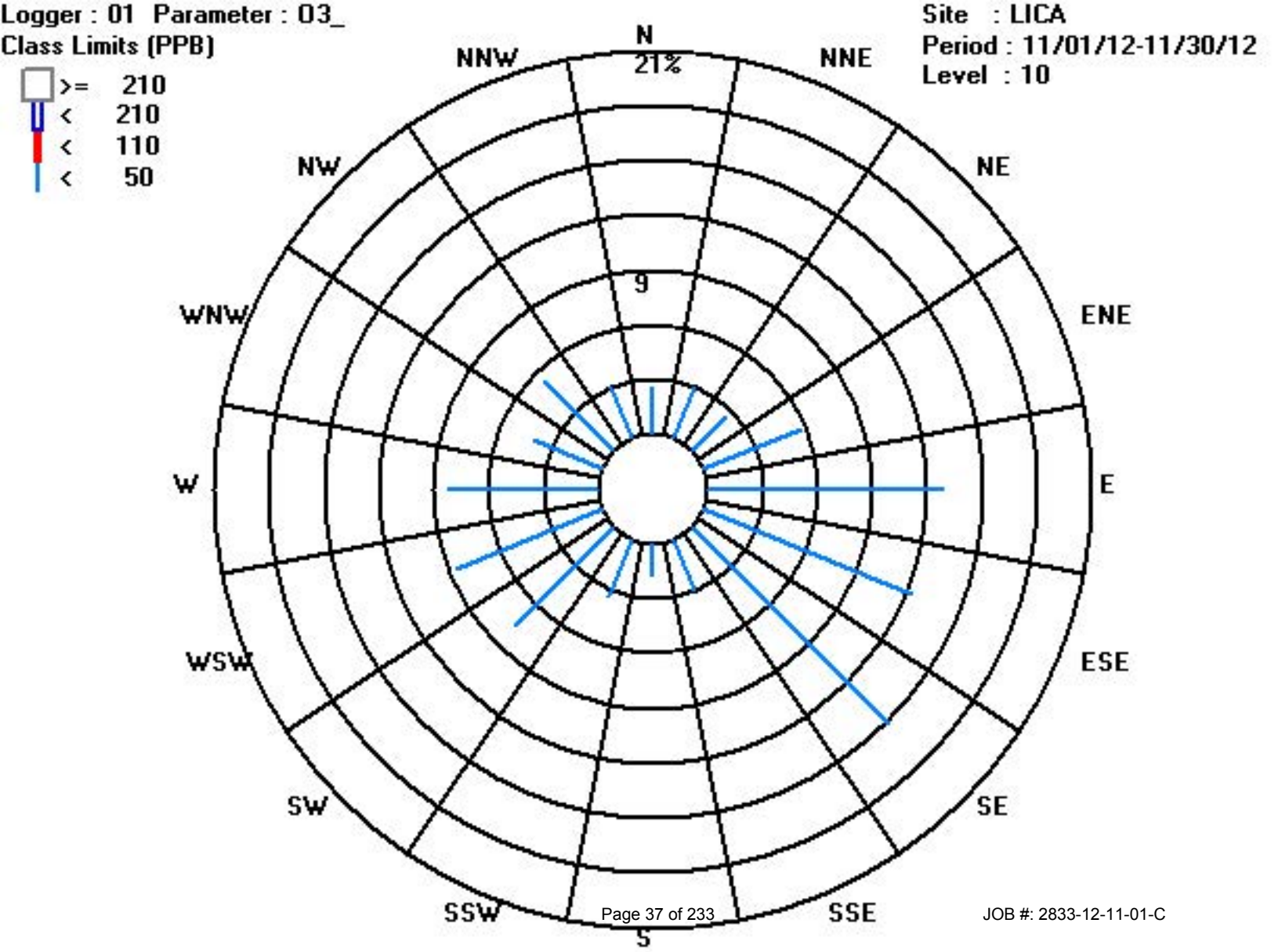
Distribution By Samples

Direction

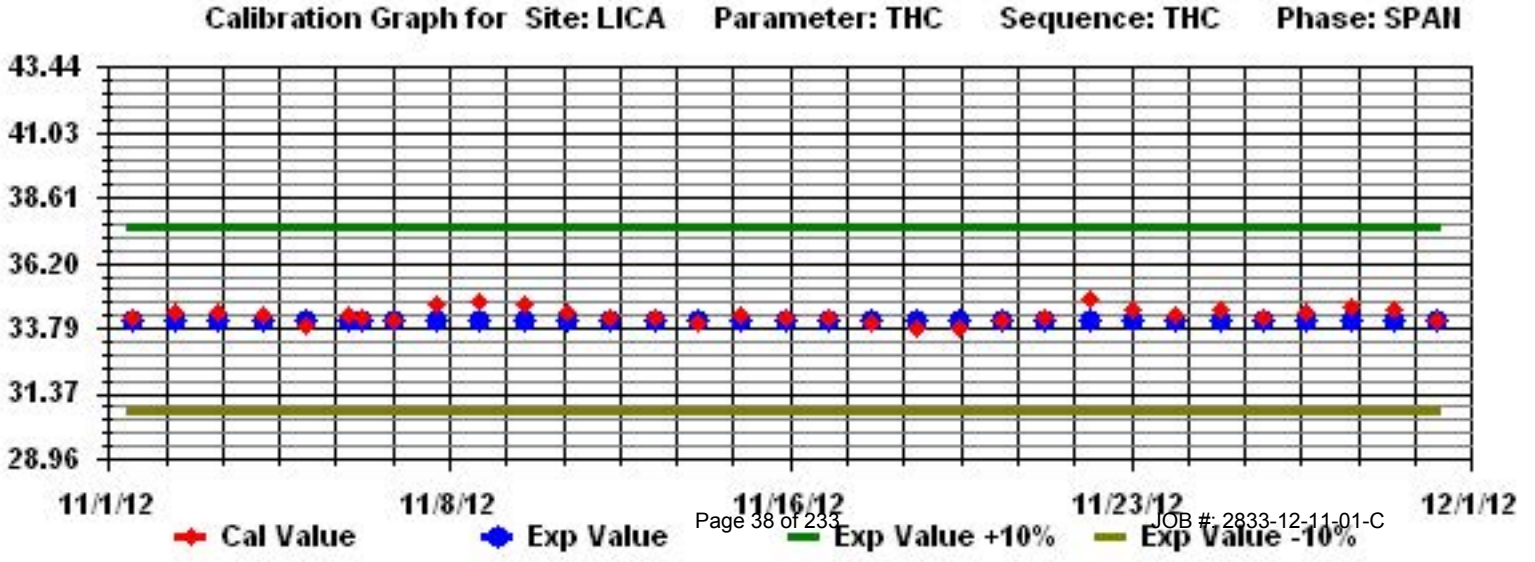
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	18	21	18	39	88	84	104	21	12	23	52	59	56	28	37	21	681
<	110																	
<	210																	
>=	210																	
	Totals	18	21	18	39	88	84	104	21	12	23	52	59	56	28	37	21	

Calm : .00 %

Total # Operational Hours : 681



JOB #: 2833-12-11-01-C


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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

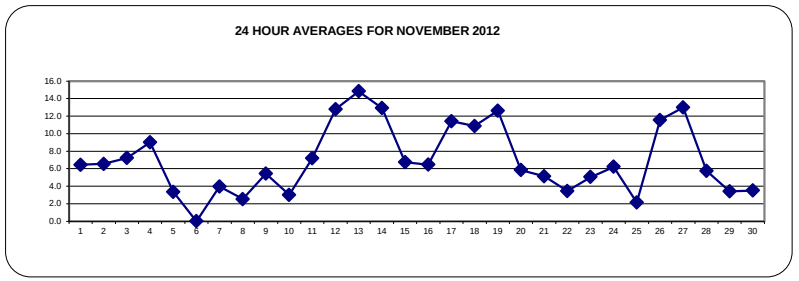
PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

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	8	8	12	7	**N**	**N**	**N**	8	2	11	5	4	1	3	**N**	8	**N**	7	4	9	4	**N**	2	13	13	6.4	18
2	3	5	7	8	11	10	11	0	7	3	11	0	14	1	5	12	6	6	16	2	0	11	8	0	16	6.5	24
3	4	5	**N**	7	8	8	8	8	9	7	10	6	14	5	10	7	22	0	2	11	3	7	1	4	22	7.2	23
4	7	5	12	0	2	16	16	8	7	16	15	11	13	13	8	10	13	12	5	3	11	4	3	6	16	9.0	24
5	6	0	4	10	1	1	0	0	**N**	7	3	2	10	0	**N**	0	11	6	0	4	0	0	**N**	5	11	3.3	21
6	0	3	3	0	0	6	0	1	8	**N**	**C**	4	14	5	2	5	12	6	9	9	5	8	4	4	14	0.0	23
7	6	7	7	5	6	6	8	3	6	6	7	4	3	4	0	4	0	0	0	2	0	5	**N**	2	8	4.0	23
8	2	2	**N**	4	**N**	6	**N**	0	1	3	**N**	5	0	1	0	1	4	5	5	3	**N**	2	2	2	6	2.5	19
9	9	6	3	1	6	5	2	2	3	**N**	**N**	**N**	9	**N**	10	4	8	0	13	0	7	8	7	**N**	13	5.4	19
10	7	**N**	0	1	0	0	**N**	2	6	2	2	**N**	**N**	8	8	3	0	**N**	5	**N**	0	0	2	8	8	3.0	18
11	11	6	2	1	5	5	3	**N**	15	16	0	2	**N**	0	8	5	6	5	8	9	15	9	10	17	17	7.2	22
12	12	16	12	18	13	12	17	15	10	18	19	18	14	13	8	9	16	10	10	10	10	14	8	5	19	12.8	24
13	9	10	4	6	2	4	12	11	9	10	13	14	15	8	16	21	17	23	21	29	27	22	28	25	29	**14.8**	24
14	23	20	23	23	28	19	21	15	19	9	9	5	8	4	5	8	11	8	9	14	7	7	15	0	28	12.9	24
15	0	3	9	0	10	**N**	10	2	8	0	9	9	6	15	1	16	0	8	6	7	11	11	6	8	16	6.7	23
16	7	7	11	11	6	4	5	8	7	4	3	7	7	5	1	6	10	8	8	7	8	6	5	4	11	6.5	24
17	0	2	7	8	10	13	8	6	9	17	11	8	11	19	9	20	17	15	17	14	15	11	13	14	20	11.4	24
18	9	9	8	10	4	5	11	12	7	7	3	9	15	13	9	13	12	11	20	17	15	15	13	14	20	10.9	24
19	9	9	11	18	11	16	14	9	12	7	12	6	17	16	15	15	13	13	15	15	11	19	9	11	19	12.6	24
20	6	9	7	4	5	8	5	5	3	8	10	6	1	2	3	1	3	4	4	9	11	12	9	5	12	5.8	24
21	10	1	4	3	8	6	13	3	3	8	6	8	0	4	4	4	4	5	3	7	3	6	4	6	13	5.1	24
22	2	2	3	3	2	0	6	1	1	0	3	7	5	5	9	5	2	4	3	1	4	6	6	3	9	3.5	24
23	10	7	3	2	3	0	3	3	5	5	10	3	10	5	7	1	8	1	4	5	11	4	4	7	11	5.0	24
24	8	10	4	14	12	8	0	4	8	4	7	6	4	11	7	5	6	9	5	4	2	5	4	2	14	6.2	24
25	**N**	2	11	2	0	0	0	1	3	6	**N**	0	1	11	1	0	0	0	0	0	**N**	0	**N**	5	11	2.2	20
26	9	14	3	9	5	4	3	9	10	**C**	9	**N**	**N**	0	0	**N**	**54**	16	**N**	**N**	**N**	31	9	**N**	**54**	11.6	17
27	0	13	21	**N**	**N**	4	0	11	**M**	12	**N**	16	16	12	12	6	30	12	18	10	24	18	13	12	30	13.0	20
28	8	1	4	5	14	**N**	0	12	3	8	13	10	**N**	0	**N**	0	**N**	**N**	9	9	0	0	6	7	14	5.7	19
29	1	**N**	3	11	5	0	0	**N**	**N**	**M**	**M**	0	2	**N**	7	6	0	**N**	2	4	10	7	0	0	11	3.4	17
30	4	**N**	0	**N**	0	4	4	**N**	3	2	7	2	1	7	12	5	0	0	4	8	1	0	**N**	6	12	3.5	20
HOURLY MAX	23	20	23	23	28	19	21	15	19	18	19	18	17	19	16	21	54	23	21	29	27	31	28	25			
HOURLY AVG	6.6	6.7	7.1	6.8	6.6	6.3	6.7	5.9	6.8	7.5	8.2	6.4	8.1	6.8	6.6	6.9	10.2	7.2	7.8	7.9	8.0	8.6	7.3	7.0			

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

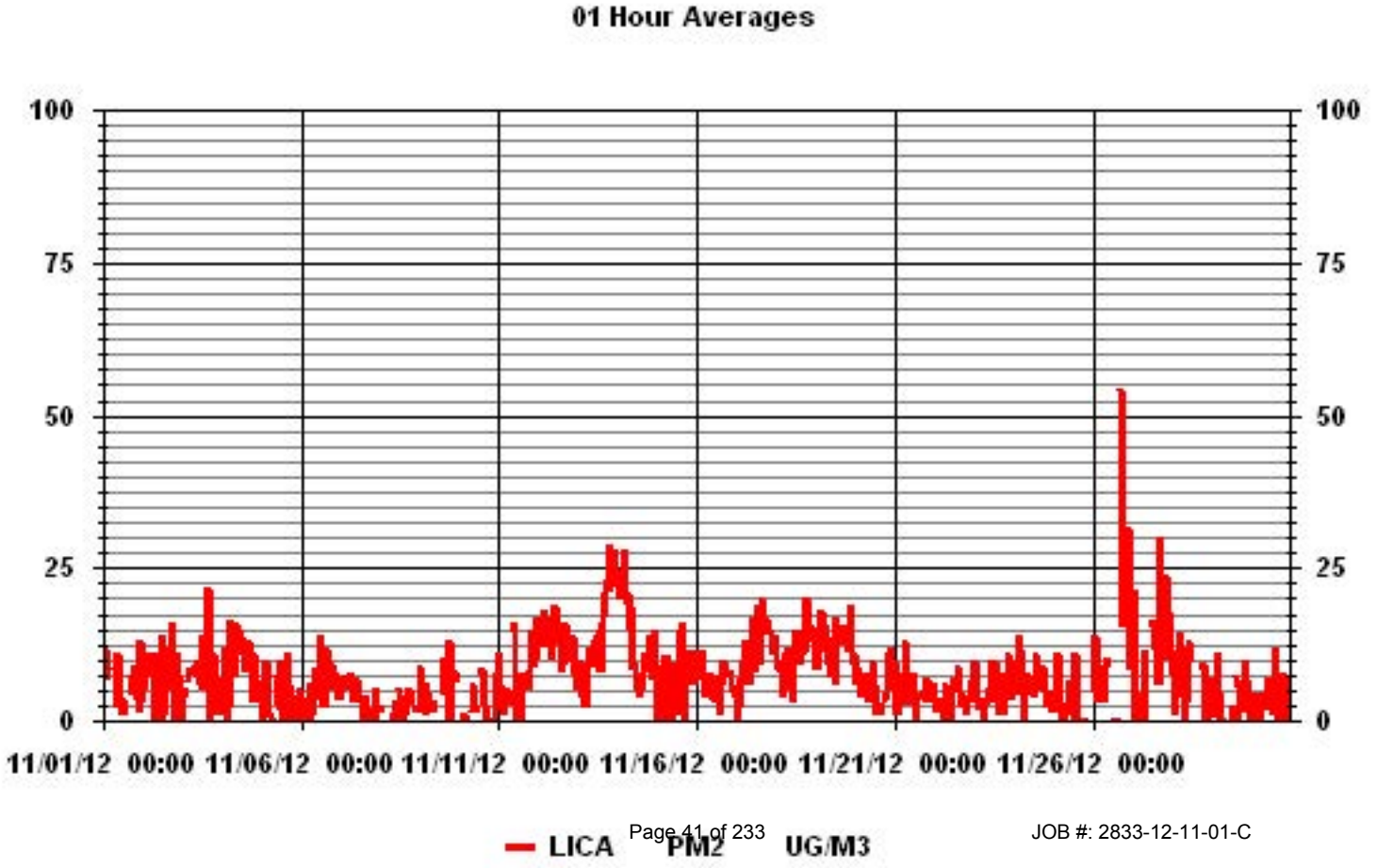


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR - ug/m3 | 24-HR 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-						
NUMBER OF 24-HR EXCEEDENCES:	0						
NUMBER OF NON-ZERO READINGS:	579						
MAXIMUM 1-HR AVERAGE:	54	UG/M^3	@ HOUR(S)	16	ON DAY(S)	26	
MAXIMUM 24-HR AVERAGE:	14.8	UG/M^3			ON DAY(S)	13	
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		658	HRS	
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:		91.4	%	
STANDARD DEVIATION:	5.92		MONTHLY AVERAGE:		7.24	UG/M^3	

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LICA
PM2 / WD Joint Frequency Distribution (Percent)

November 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	2.74	3.04	2.43	5.64	12.50	12.19	15.85	3.35	1.98	3.35	7.77	8.23	7.46	4.57	5.79	2.59	99.54
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.15	.15	.00	.00	.00	.00	.45
<	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	2.74	3.04	2.43	5.64	12.50	12.19	15.85	3.35	1.98	3.50	7.92	8.38	7.46	4.57	5.79	2.59	

Calm : .00 %

Total # Operational Hours : 656

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	18	20	16	37	82	80	104	22	13	22	51	54	49	30	38	17	653
<	60										1	1	1					3
<	80																	
<	120																	
<	240																	
>=	240																	
	Totals	18	20	16	37	82	80	104	22	13	23	52	55	49	30	38	17	

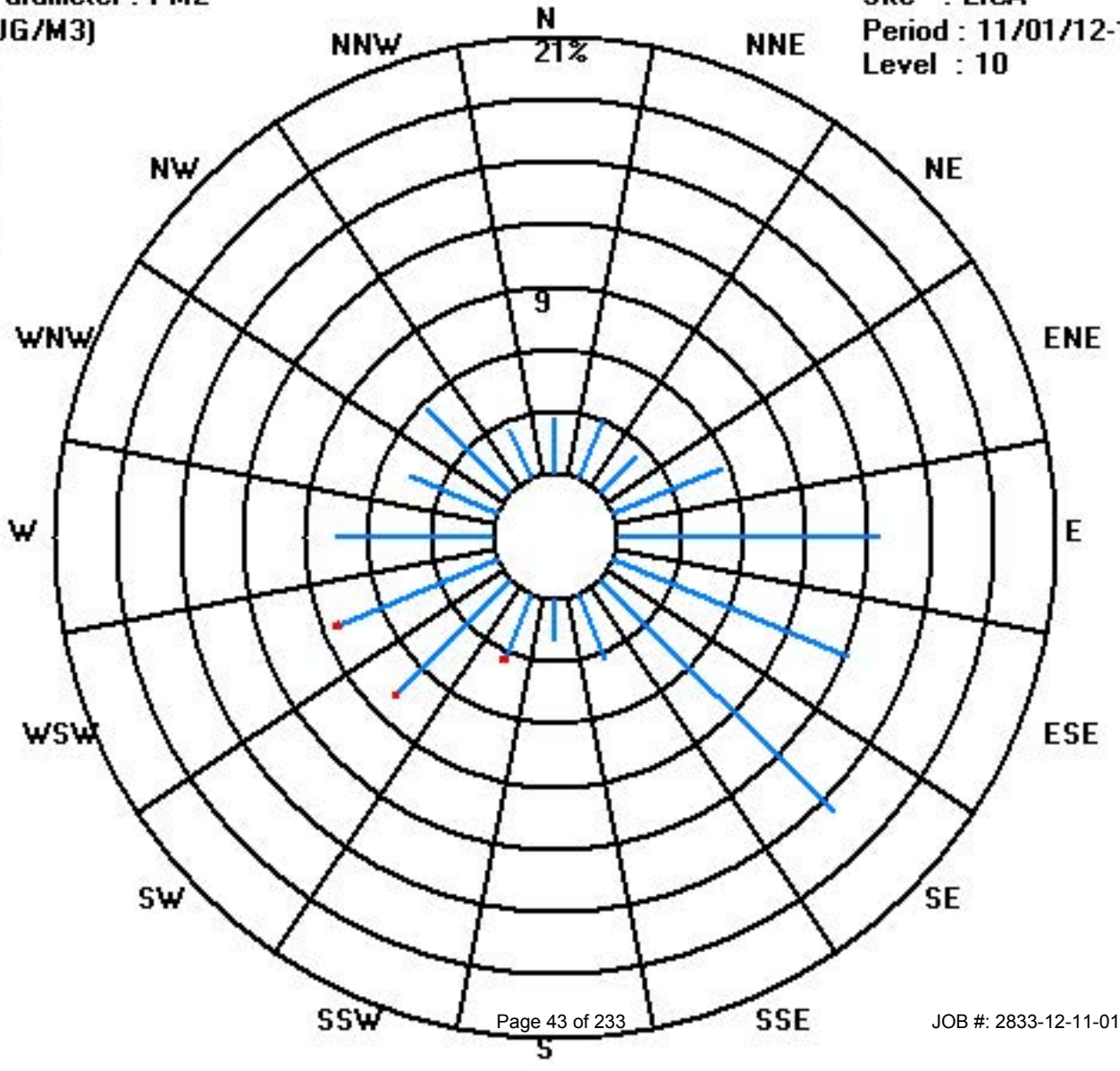
Calm : .00 %

Total # Operational Hours : 656

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

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

Site : LICA
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-01-C

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

NITROGEN DIOXIDE hourly averages in ppb

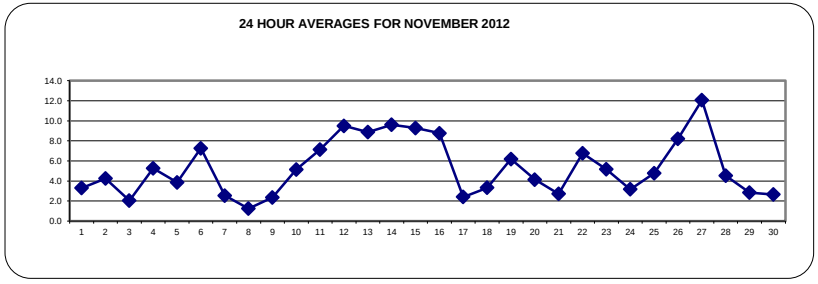
MST

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	1	0.9	0.9	1.1	2.6	2.6	4.3	4.5	4	4.3	3.4	3.4	**IZS**	2.8	2.2	2.5	3.5	3.9	4.1	4.1	4.4	4.4	5.2	5.5	5.5	3.3	24
2	5.2	5.9	2.9	1	1.1	2	5	10.7	7.3	5.5	4.1	**IZS**	3.2	4.1	3.1	2.5	4.5	7.2	7.1	5.2	3.9	3.6	1.8	1	10.7	4.3	24
3	1.1	1.8	2	2.6	2.8	2.9	2.1	1.9	1.5	1.3	**IZS**	2.2	2.1	2	2.1	2.4	2.6	2.1	1.6	1.5	1.5	2.3	2.5	1.8	2.9	2.0	24
4	1.6	1.4	1.5	4	4.7	5.3	4.3	4.1	4.5	**IZS**	3.8	3.8	3.6	4.3	5	5.7	8.3	18.1	11.3	5.4	6	4.9	4.7	4.8	18.1	5.3	24
5	3.6	3	2.9	3.7	3.8	7.8	8.7	**IZS**	4.9	7.7	7.9	5.6	0.7	0.7	**C**	**C**	**M**	**M**	**C**	1.7	1.5	2.3	1.6	1.4	8.7	3.9	22
6	2	3.1	3.4	3.1	3.2	3.6	4.4	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	4.5	6.6	**M**	11.8	13	16.6	11.6	11.7	10.4	16.6	7.3	23
7	13.7	8.4	4.7	3.7	2.8	5.2	**IZS**	7.6	2.5	1.4	0.8	0.7	0.6	0.9	0.7	0.7	1	0.7	0.5	0.5	0.5	0.4	0.2	0.1	13.7	2.5	24
8	0.1	0.1	0.1	0.1	0.3	**IZS**	0.8	1.1	1	0.9	2.5	1.4	1	0.7	1	1.6	1.7	2.8	2.1	2.6	1.9	1.6	1.5	1.4	2.8	1.2	24
9	1.3	1.5	1.9	1.9	**IZS**	2.2	3.1	3.7	2.7	2.1	1.8	1.8	1.9	2.1	2.2	3.2	3.5	3.5	3.2	2.3	2.1	2.6	2.1	1.6	3.7	2.4	24
10	1.3	1.5	1.5	**IZS**	1.9	2	2.1	2.3	3.6	2	3.6	1.9	0.9	0.8	0.8	1.6	5.5	11.8	13.2	11.8	12.9	12.5	10.5	12.2	13.2	5.1	24
11	10.2	7.5	**IZS**	6.4	7.8	8.9	10.4	11.4	8.8	7.3	4.3	3.2	3.7	4.8	6.4	4.3	4.7	5.8	7.7	8.3	9.3	8	7.7	7.2	11.4	7.1	24
12	7.1	**IZS**	7.8	9.9	9.9	9.6	12.2	15.7	15.2	15.5	13.6	9.2	7.1	6.1	6.7	6.2	7.1	6.6	7.4	7.2	13.1	13.2	7.4	4.8	15.7	9.5	24
13	**IZS**	2.9	2.3	2.1	2.4	2.9	3.6	5.3	4.9	4.5	5.4	5.8	6.5	9.7	11.8	13.3	12.4	13.2	16.2	17.9	17.7	17.4	17.1	**IZS**	17.9	8.9	24
14	16.6	15.5	15.6	15	14.6	14.2	16.3	15.7	15.7	13	7.2	1.8	1.6	1.5	1.3	1.3	1.2	2.2	9.6	10.9	10.6	13.6	**IZS**	6.1	16.6	9.6	24
15	7.5	5.8	2.3	1.5	2.7	3.1	2.1	2.8	2.8	2.6	2.6	3.1	3.5	4	5.4	16	25.7	**28.1**	18.1	18.3	18.3	**IZS**	19.7	17.4	**28.1**	9.3	24
16	18.8	19.5	14	9.8	11.2	13.9	14.7	13.3	18.9	4.9	4.4	4.3	3.9	3.3	4.6	5.8	7.2	7.7	4.1	5.6	**IZS**	4.4	4	3.2	19.5	8.8	24
17	2.3	2.3	2.3	1.7	1.6	2.6	2.9	2.7	1.8	2	2.4	2.3	2.3	2	2.5	3.1	2.8	2.6	3.4	**IZS**	2.3	2.6	2.3	2.3	3.4	2.4	24
18	2.2	2	2.1	1.9	1.9	3.1	3.5	3.1	2.1	2.1	2.5	2.1	3.2	5.3	4.3	3.6	4.7	4.5	**IZS**	3.9	4.7	4.5	4.2	5.1	5.3	3.3	24
19	6.6	6.3	5.2	4.5	5	5.1	5.2	6	7	5.7	5.8	4.6	4.9	5	5.9	9.3	12.1	**IZS**	7	9.7	6.2	6.4	4.9	3.6	12.1	6.2	24
20	5.7	3.1	2.1	1.8	1.6	1.6	3.2	4.8	3.3	3.3	3.1	1.6	2.3	3.3	3.3	4.4	**IZS**	5.7	6.6	6.4	7.2	7.7	7.4	5.5	7.7	4.1	24
21	4.8	4.9	3.6	3.1	2.8	3.5	4.5	5.8	5.3	3.8	3.1	2.6	1.8	1.6	1.3	**IZS**	1.6	1.6	1.7	1.2	1	0.9	1	0.8	5.8	2.7	24
22	0.5	0.5	0.5	0.4	1.6	3.9	4.6	4.3	2.9	2	1.8	1.7	5.1	4.7	**IZS**	5.5	8.1	15.7	13.3	19.5	15.7	12.3	16.7	14.4	19.5	6.8	24
23	12.9	13.9	10.8	5.5	5.4	6.7	3.7	5.8	6.3	3.8	3.2	2.7	3.3	**IZS**	3.9	3.7	2.9	2.3	2.5	2.6	3.4	5.9	3.8	4	13.9	5.2	24
24	4.6	5.3	5.2	5.9	5.2	4.6	3.8	3.6	3.5	2.6	2.2	1.8	**IZS**	1.4	1.6	2.5	1.9	1.5	1.8	2.4	3	2.7	2.2	3.6	5.9	3.2	24
25	7.7	6.9	4.9	4.9	6.2	5	3.1	7.2	9.3	6.6	4.8	**IZS**	3.6	3.4	4	3.5	3.9	3.1	3	2.9	2.9	3.8	4.3	5	9.3	4.8	24
26	7.4	9.6	9.2	8.2	9.7	7.9	7.4	7.3	8.1	3.9	**IZS**	1.6	1.3	1.2	2.3	2.7	9.1	14.2	13.4	14.5	15.3	12.9	12.3	9	15.3	8.2	24
27	9	8.1	8.4	10.3	14.8	17.3	16.7	12.9	9.7	**IZS**	5.4	3.7	4.4	4.8	4.8	8.2	16.4	18.3	18.2	20.2	16	15.1	17.2	17.3	20.2	**12.1**	24
28	17.4	15.9	14.5	4.6	2	1.9	2.1	3.4	**IZS**	3.1	2.4	2	1.6	1.3	1.6	3.8	4.3	3.4	3.5	2.7	4.2	4.2	2.2	2.3	17.4	4.5	24
29	2.7	2.7	1.9	2.7	2	3	3.7	**IZS**	2.8	3.5	4	4.2	2.8	3.5	3.7	4.8	3.4	2.5	2.5	2	2	1.9	1.7	1.6	4.8	2.9	24
30	1.6	1.6	1.6	1.4	1.9	3.2	**IZS**	4	5	4.1	2.6	2.8	3.3	4.8	3.8	3.2	1.7	1.7	2	2.4	3.7	2.6	1.1	0.8	5	2.6	24
HOURLY MAX	19	20	16	15	15	17	17	16	19	16	14	9	7	10	12	16	26	28	18	20	18	17	20	17			
HOURLY AVG	6.1	5.6	4.7	4.2	4.6	5.4	5.7	6.3	5.9	4.4	4.0	3.0	3.0	3.2	3.6	4.6	6.0	7.1	7.0	7.1	7.2	6.4	6.2	5.3			

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

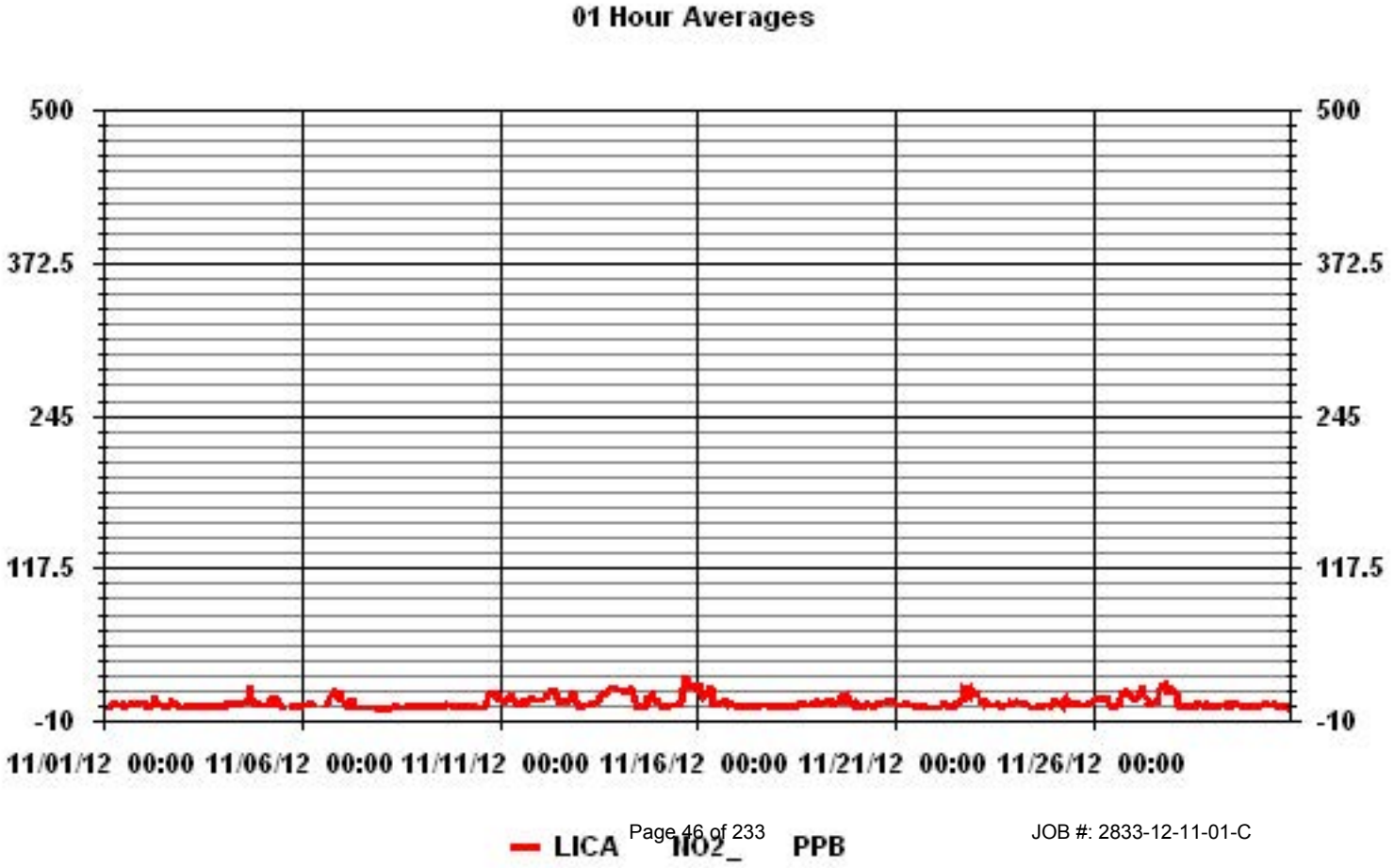


MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	676					
MAXIMUM 1-HR AVERAGE:	28.1	PPB	@ HOUR(S)	17	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	12.1	PPB			ON DAY(S)	27

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	4.58		MONTHLY AVERAGE:	5.29	PPB

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

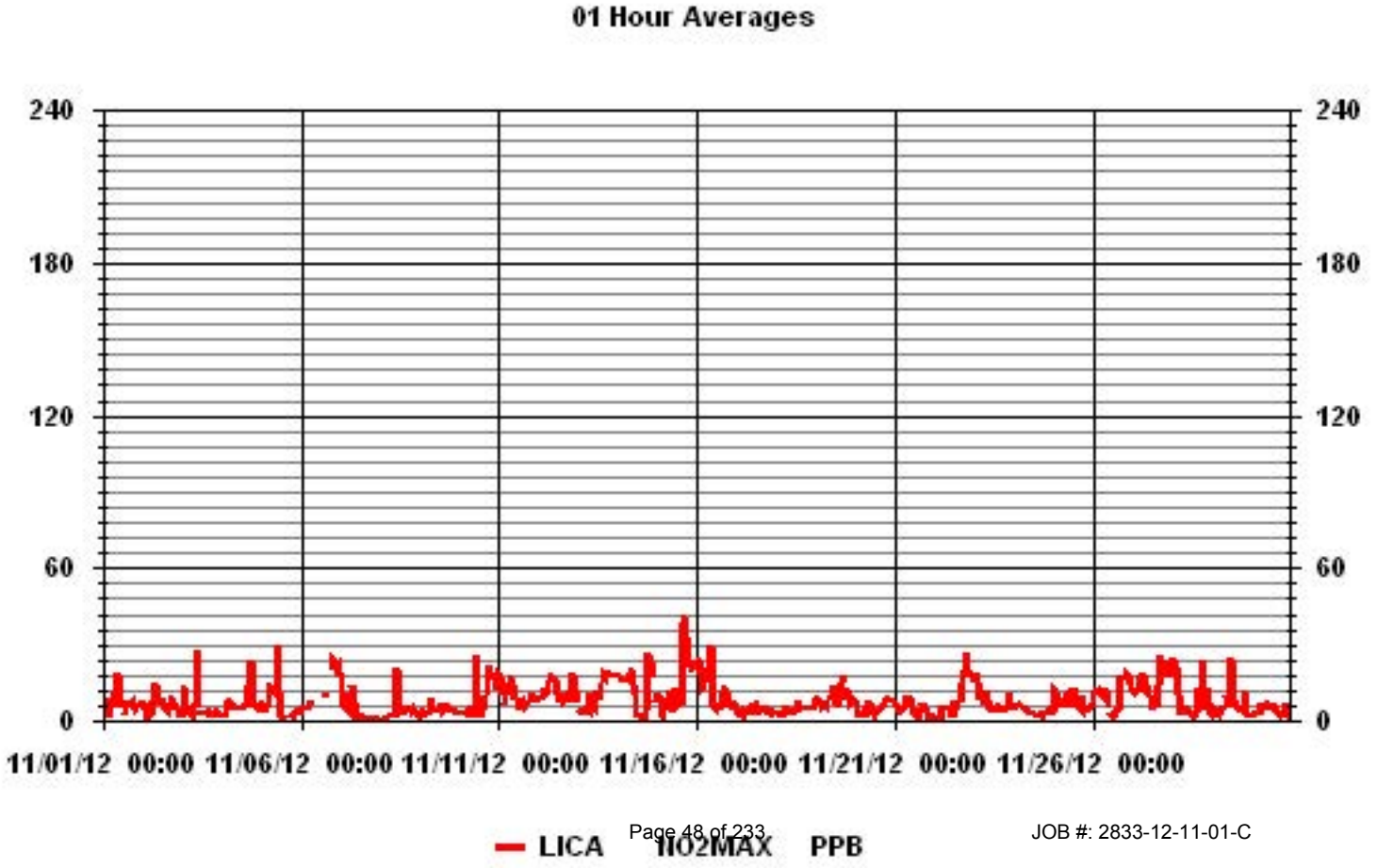
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	2	2	2	2	9	5	9	8	6	19	5	7	**IZS**	4	7	5	7	7	8	5	6	6	6	7	19	6.3	24
2	7	7	5	1	2	3	8	15	14	7	7	**IZS**	8	6	5	4	7	9	9	7	6	5	3	2	15	6.4	24
3	2	14	4	4	5	4	3	6	6	26	**IZS**	3	3	3	3	3	4	3	2	2	2	4	4	3	26	4.9	24
4	2	2	3	7	8	7	5	5	6	**IZS**	5	5	5	5	6	7	14	24	23	6	7	6	5	6	24	7.3	24
5	4	4	4	7	5	15	12	**IZS**	**IZS**	10	30	12	2	1	**C**	**C**	**M**	**M**	**C**	2	3	4	3	3	30	7.1	22
6	3	5	5	5	5	7	7	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	10	10	**M**	21	24	23	21	22	18	24	12.4	23
7	18	12	6	6	5	10	**IZS**	13	8	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	18	4.2	24
8	0	0	0	1	1	**IZS**	2	2	2	2	21	6	6	3	3	4	4	6	4	5	3	3	3	3	21	3.7	24
9	2	3	4	3	**IZS**	4	8	8	5	4	4	4	5	7	4	5	5	7	5	4	4	4	4	3	8	4.6	24
10	3	3	3	**IZS**	3	4	5	4	6	5	26	11	2	2	4	8	10	17	22	16	18	17	12	18	26	9.5	24
11	17	11	**IZS**	8	11	12	2	17	15	9	9	5	5	7	8	6	7	7	8	10	10	10	8	8	17	9.1	24
12	9	**IZS**	9	13	11	12	16	18	18	17	16	11	9	7	11	8	9	8	8	12	19	18	13	8	19	12.2	24
13	**IZS**	4	3	3	3	6	5	11	6	5	8	12	8	11	15	18	17	19	19	18	18	18	18	**IZS**	19	11.1	24
14	18	17	17	16	16	16	18	18	21	15	11	2	2	2	2	2	1	4	27	20	17	22	**IZS**	9	27	12.7	24
15	11	8	3	2	7	6	4	12	5	5	4	13	5	8	6	38	**41**	31	33	22	21	**IZS**	22	22	**41**	14.3	24
16	23	23	19	14	15	21	19	20	30	6	6	5	7	4	6	12	14	11	5	10	**IZS**	6	7	7	30	12.6	24
17	4	3	4	2	3	4	4	5	3	3	5	6	3	3	4	6	4	4	5	**IZS**	3	4	3	3	6	3.8	24
18	3	3	3	2	2	5	5	4	3	3	3	4	4	8	6	5	5	5	**IZS**	5	5	5	6	8	8	4.4	24
19	9	9	8	6	7	7	6	8	10	8	14	7	6	6	8	15	17	**IZS**	10	13	8	9	9	6	17	9.0	24
20	8	5	3	2	2	2	5	6	8	4	4	2	3	4	4	5	**IZS**	7	8	9	8	8	8	6	9	5.3	24
21	6	6	5	4	5	6	6	10	8	10	6	4	3	5	2	**IZS**	6	3	6	2	2	1	2	2	10	4.8	24
22	1	1	1	1	5	5	5	5	5	3	2	2	8	6	**IZS**	8	15	19	19	27	21	17	19	16	27	9.2	24
23	16	19	16	9	10	8	6	12	9	5	4	4	4	**IZS**	6	5	4	4	6	4	7	11	5	5	19	7.8	24
24	6	6	6	7	6	6	5	5	4	4	3	3	**IZS**	2	2	3	3	2	3	3	4	3	3	6	7	4.1	24
25	12	11	7	8	8	8	5	10	11	9	7	**IZS**	12	6	10	6	5	10	4	4	4	5	6	7	12	7.6	24
26	11	12	12	10	12	11	10	12	12	6	**IZS**	3	2	3	5	4	17	17	17	19	18	18	15	12	19	11.2	24
27	11	12	12	12	17	18	18	15	12	**IZS**	9	5	5	6	6	14	26	23	21	23	21	17	24	19	26	15.0	24
28	25	20	20	11	3	3	3	5	**IZS**	4	3	3	3	2	3	13	8	6	24	5	6	13	4	3	25	8.3	24
29	5	4	3	4	3	5	5	**IZS**	9	7	5	25	8	5	7	6	5	4	4	12	3	3	2	2	25	5.9	24
30	2	3	3	3	3	6	**IZS**	6	7	7	5	5	5	7	5	4	3	2	3	3	7	4	3	2	7	4.3	24
HOURLY MAX	25	23	20	16	17	21	19	20	30	26	30	25	12	11	15	38	41	31	33	27	23	22	24	22			
HOURLY AVG	8.3	7.9	6.6	6.0	6.6	7.8	7.4	9.6	9.2	7.6	8.3	6.3	5.0	4.8	5.6	8.0	9.6	9.6	11.6	10.1	9.5	9.1	8.3	7.4			

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:	672					
MAXIMUM INSTANTANEOUS VALUE:	41	PPB	@ HOUR(S)	16	ON DAY(S)	15
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		717	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	6.24					



JOB #: 2833-12-11-01-C

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

November 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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	

Calm : .00 %

Total # Operational Hours : 672

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	672
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	

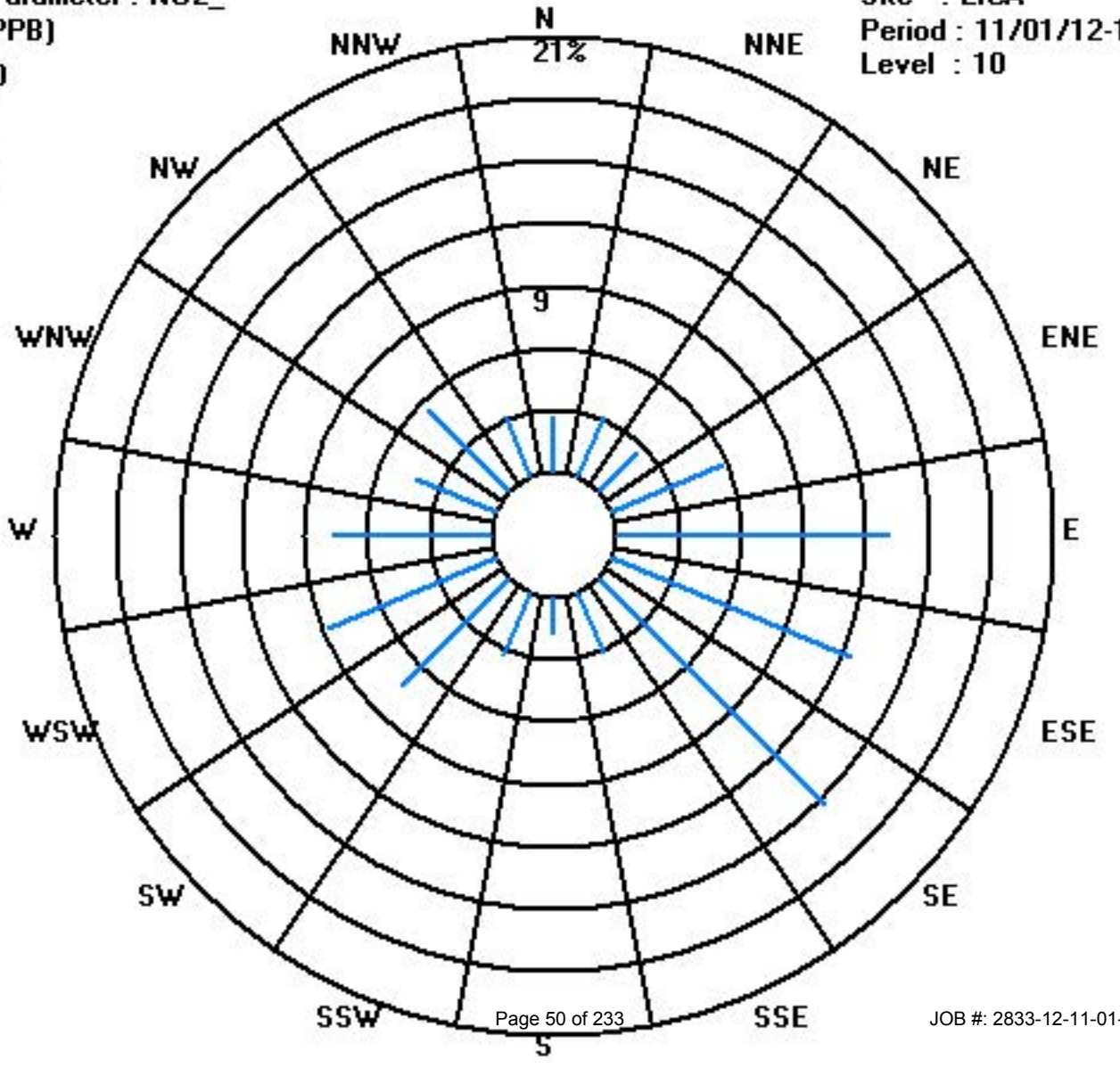
Calm : .00 %

Total # Operational Hours : 672

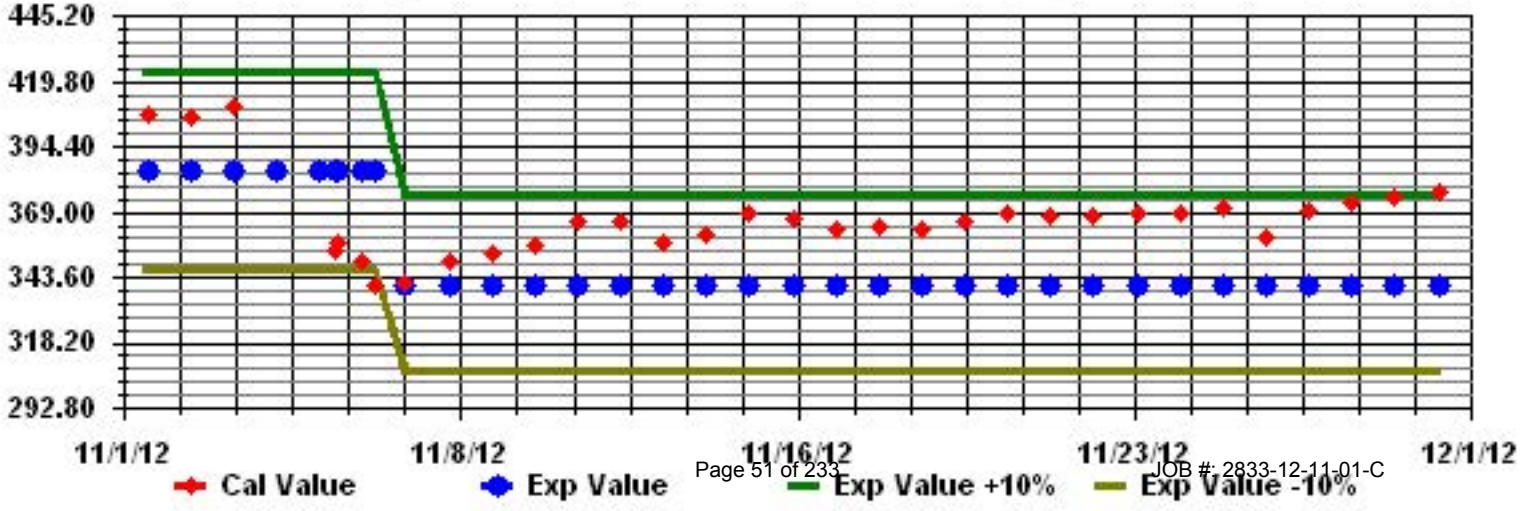
Logger : 01 Parameter : NO2_
Class Limits (PPB)

>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-01-C


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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

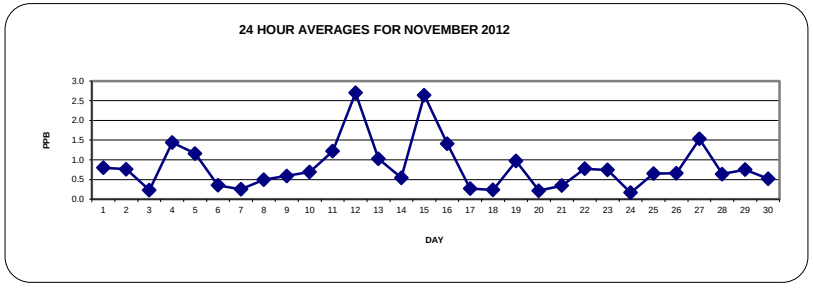
NITRIC OXIDE hourly averages in ppb

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	0.4	0.2	0.3	0.9	0.6	0.8	0.9	0.9	1.2	1	1.7	**IZS**	1	1.6	1	1.1	0.6	1.6	0.7	0.6	0.3	0.3	0.5	1.7	0.8	24
2	0.5	0.3	0	0	0.1	0.1	0.1	1.8	1.9	2.2	2.6	**IZS**	2.1	2.8	1.8	0.7	0.2	0	0.1	0.1	0.1	0	0	0	2.8	0.8	24
3	0	0.6	0.1	0	0.1	0	0.1	0.2	0.3	0.4	**IZS**	1	0.6	0.6	0.5	0.2	0.2	0	0	0	0	0.1	0.2	0	1	0.2	24
4	0	0	0.1	0.3	0.2	0.2	0.3	0.4	0.9	**IZS**	1.8	1.9	1.8	1.8	1.8	1.1	1.5	11.8	6.9	0	0.2	0.1	0	0	11.8	1.4	24
5	0	0	0	0.1	0.1	0.5	0.4	**IZS**	1.4	5.1	9.4	3.1	0.1	0	**C**	**C**	**M**	**M**	**C**	0	0.2	0.2	0.1	0.2	9.4	1.2	22
6	0.2	0.2	0.3	0.3	0.3	0.2	0.2	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0.5	0.2	M	0.5	1.6	0.4	0.1	0.1	0.2	1.6	0.4	23
7	0.7	0.1	0.2	0.2	0	0.4	**IZS**	0.8	0.9	0.2	0.5	0.3	0.3	0.2	0.1	0.2	0.1	0.1	0	0.2	0.1	0.1	0.1	0.1	0.9	0.3	24
8	0	0	0	0	0	**IZS**	0	0.1	0.3	0.4	3.8	0.9	0.6	0.4	0.4	0.5	0.8	0.6	0.3	0.5	0.5	0.4	0.4	0.5	3.8	0.5	24
9	0.3	0.3	0.4	0.5	**IZS**	0.5	0.6	0.8	0.7	1	0.9	0.7	0.8	0.9	0.7	0.7	0.8	1	0.4	0.2	0.4	0.4	0.3	0.3	1	0.6	24
10	0.4	0.4	0.4	**IZS**	0.5	0.3	0.2	0.2	0.8	0.6	5.5	2.2	0.4	0.3	0.4	0.2	0.3	0.3	0.8	0.1	0.5	0.2	0.2	0.7	5.5	0.7	24
11	0.2	0.2	**IZS**	0	0.1	0.1	0.7	1.5	4.9	6.4	2.9	2.4	2.4	2.7	2.5	0.7	0.2	0	0	0	0	0.2	0	0	6.4	1.2	24
12	0.1	**IZS**	0.1	0.1	0	0.2	0.5	3.8	12.9	16.3	11.3	5.7	3.4	2.7	1.5	0.6	0.3	0.1	0	0.2	1.2	0.6	0.4	0.1	16.3	**2.7**	24
13	**IZS**	0.1	0	0	0.1	0.1	0	0.4	0.7	1.3	2	3.5	2.7	3	3.4	2.7	0.9	1	0.1	0.2	0.1	0.1	0.1	**IZS**	3.5	1.0	24
14	0.1	0.2	0.1	0.1	0.2	0.3	1	0.6	2.5	3.4	1.5	0.1	0	0	0	0	0	0	0.7	0.5	0.3	0.9	**IZS**	0	3.4	0.5	24
15	0.3	0.2	0	0	0.3	0.2	0.1	0.2	0.2	0.6	1	1.5	1.6	1.6	1.4	5.3	8.4	**20.4**	3.6	1.3	1.1	**IZS**	5.5	5.9	**20.4**	2.6	24
16	8.2	5.2	1.2	0.2	0.5	0.8	1.3	1.5	3.5	0.7	1.1	1.1	1.2	1	1.1	0.9	0.5	0.5	0.5	0.3	**IZS**	0.2	0.5	0.3	8.2	1.4	24
17	0.2	0.2	0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.4	0.1	0.4	0.5	0.5	0.4	0.6	0.4	0.7	0.3	**IZS**	0.1	0.1	0.1	0	0.7	0.3	24
18	0	0	0	0	0	0.2	0.2	0.3	0	0.2	0.5	0.4	0.5	0.7	0.4	0.5	0.2	0.2	**IZS**	0.4	0.1	0.1	0.4	0.2	0.7	0.2	24
19	0.5	0.1	0	0	0.3	0.3	0.2	0.4	0.9	1.2	1.9	1.5	1.9	1.9	1.8	2.7	2.1	**IZS**	1.1	0.9	1	0.7	0.6	0.3	2.7	1.0	24
20	0.4	0.2	0.2	0.1	0	0	0	0.1	0.6	0.5	0.5	0.3	0.5	0.6	0.5	0.4	**IZS**	0	0.1	0	0	0	0	0	0.6	0.2	24
21	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.3	0.8	0.7	0.9	0.8	0.5	0.2	0.2	**IZS**	0.3	0.4	0.9	0.3	0.2	0.1	0.2	0.1	0.9	0.3	24
22	0	0	0	0	0	0	0	0	0.1	0.4	0.5	0.5	2.3	1.9	**IZS**	1.1	0.4	1.2	0.7	3.9	1.3	0.5	2.2	0.8	3.9	0.8	24
23	0.6	3.1	0.8	0.3	0.7	0.9	0.4	1.1	1.2	1.1	1.4	1.1	1.2	**IZS**	0.8	0.7	0.3	0.2	0.3	0.1	0.2	0.3	0.1	0.2	3.1	0.7	24
24	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.3	0.2	0.4	**IZS**	0.3	0.1	0	0	0	0	0	0	0	0.1	0	0.4	0.2	24
25	0.3	0.8	0.4	1.1	0.6	0.2	0.2	0.8	1.1	1.3	1.6	**IZS**	1.4	1.2	1.1	1.3	0.5	0.2	0.1	0	0.1	0.3	0	0.3	1.6	0.6	24
26	0.5	0.6	0.5	0.5	0.6	0.9	0.7	1.1	0.9	1	**IZS**	0.8	0.6	0.4	0.8	0.4	0.6	0.4	0.5	1.3	0.8	0.7	0.6	0	1.3	0.7	24
27	0.1	0.2	0.4	0.4	0.8	1.8	1.5	0.4	0.7	**IZS**	2.6	2.3	2.6	2.3	1.4	1.1	3.9	2.4	2.6	2.7	1.5	0.6	1.5	1.4	3.9	1.5	24
28	0.9	1.3	2.8	0.2	0	0.1	0.2	0	**IZS**	0.5	0.5	0.5	0.7	0.6	0.4	1.4	0.6	0.7	1.3	0.3	0.4	0.6	0.3	0.4	2.8	0.6	24
29	0.3	0.4	0.4	0.4	0.3	0.4	0.5	**IZS**	2.7	1.2	1.1	1.5	1.4	1.2	1.3	1	0.6	0.4	0.7	0.3	0.4	0.3	0.3	0.2	2.7	0.8	24
30	0.3	0.3	0.3	0.3	0.4	0.5	**IZS**	0.7	1.1	1.3	0.9	0.8	1.2	1.6	0.8	0.2	0	0	0.2	0.3	0.5	0	0.1	0.1	1.6	0.5	24
HOURLY MAX	8	5	3	1	1	2	2	4	13	16	11	6	3	3	3	5	8	20	7	4	2	1	6	6			
HOURLY AVG	0.5	0.5	0.3	0.2	0.3	0.4	0.4	0.7	1.5	1.8	2.1	1.4	1.2	1.2	1.0	1.0	0.9	1.6	0.9	0.6	0.4	0.3	0.5	0.4			

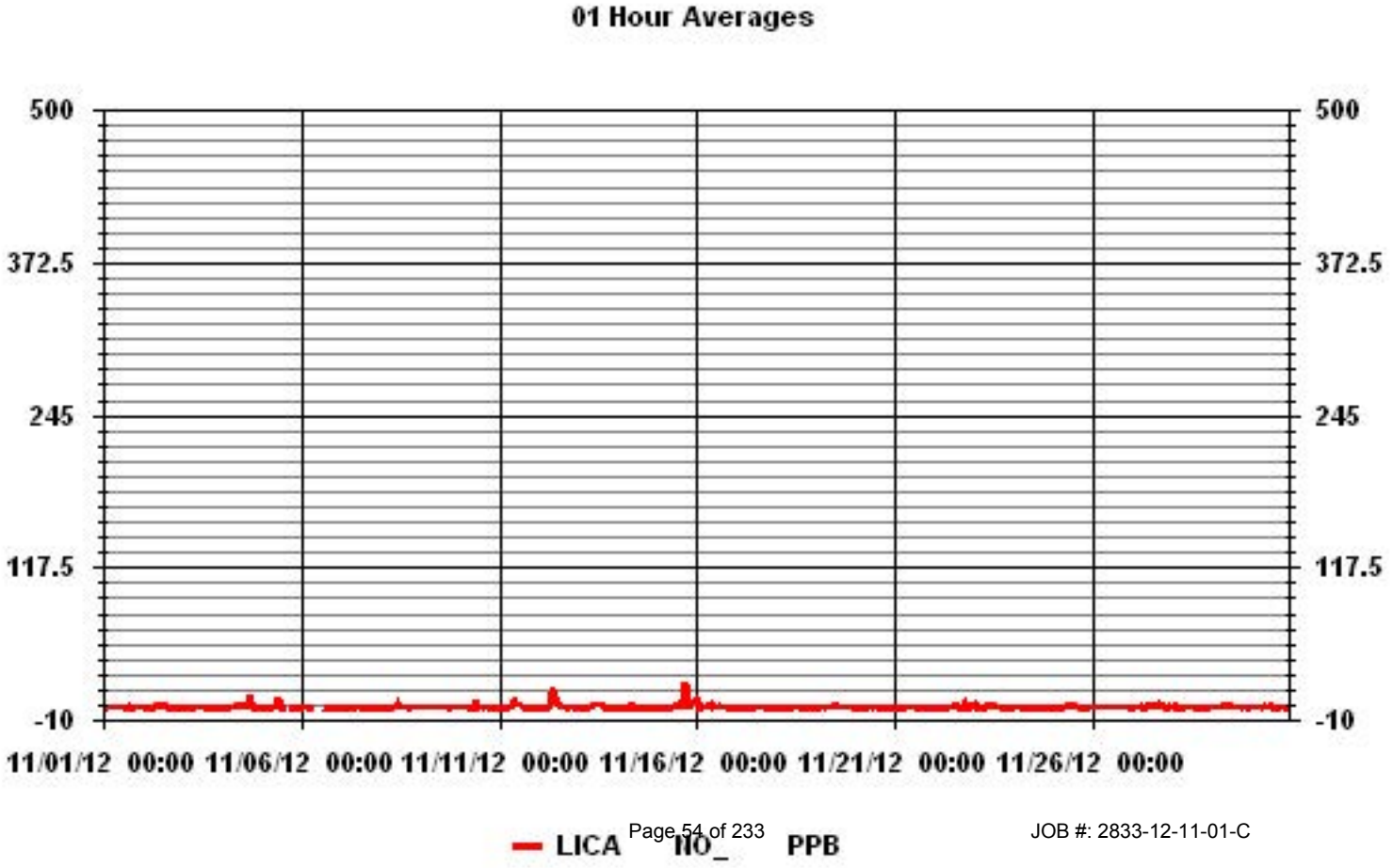
STATUS FLAG CODES

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:	581						
MAXIMUM 1-HR AVERAGE:	20.4	PPB	@ HOUR(S)	17	ON DAY(S)		15
MAXIMUM 24-HR AVERAGE:	2.7	PPB			ON DAY(S)		12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:			717	HRS
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:			99.6	%
STANDARD DEVIATION:	1.63		MONTHLY AVERAGE:			0.83	PPB



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

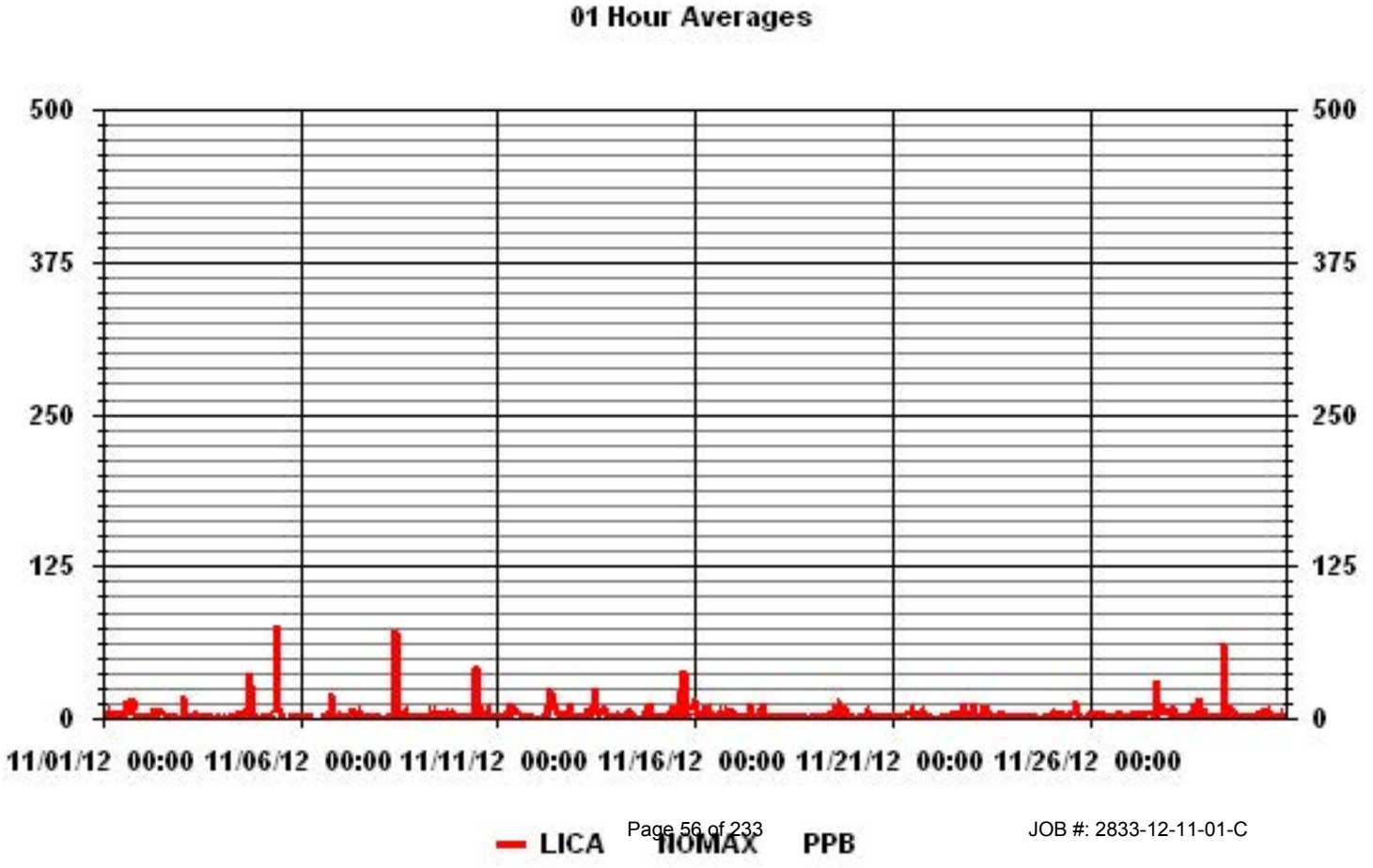
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	1	1	1	1	5	2	5	4	3	4	2	5	**IZS**	2	15	4	7	2	17	6	2	2	2	3	17	4.2	24
2	2	2	0	0	2	2	2	5	5	4	7	**IZS**	4	4	4	2	1	1	1	1	1	1	1	0	7	2.3	24
3	0	18	3	1	2	1	1	3	2	4	**IZS**	3	1	2	1	2	2	1	1	1	0	1	2	0	18	2.3	24
4	1	0	2	2	1	2	2	2	2	**IZS**	3	4	3	3	3	2	8	37	29	1	1	2	2	1	37	4.9	24
5	0	1	1	1	1	3	2	**IZS**	**IZS**	8	**76**	9	1	1	**C**	**C**	**M**	**M**	**C**	1	1	2	1	2	**76**	6.5	22
6	2	2	2	3	2	1	2	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	1	**M**	8	20	2	1	2	1	20	3.3	23
7	3	1	2	1	1	2	**IZS**	5	5	1	2	2	5	1	1	1	1	2	1	1	1	1	1	1	5	1.8	24
8	1	0	0	0	1	**IZS**	1	1	2	1	73	4	3	1	3	4	6	3	1	1	2	2	2	2	73	5.0	24
9	1	1	1	2	**IZS**	1	2	5	2	6	3	2	3	4	2	2	3	5	2	1	4	2	2	1	6	2.5	24
10	1	3	2	**IZS**	2	1	1	1	2	2	40	43	2	1	5	2	3	4	7	2	2	1	2	3	43	5.7	24
11	1	1	**IZS**	1	1	1	6	5	12	8	8	6	4	4	4	2	3	1	1	1	1	1	0	0	12	3.1	24
12	1	**IZS**	1	2	0	2	2	11	22	21	14	9	5	4	4	2	4	2	1	3	13	3	3	1	22	5.7	24
13	**IZS**	1	1	1	1	1	1	8	2	6	4	24	5	4	6	7	6	10	1	2	1	1	2	**IZS**	24	4.3	24
14	1	3	1	1	2	3	4	2	6	6	4	1	1	0	0	1	0	1	5	11	3	10	**IZS**	1	11	2.9	24
15	2	1	1	0	2	1	1	3	1	2	2	11	3	3	2	23	28	38	33	4	3	**IZS**	9	13	38	8.1	24
16	13	8	3	1	2	4	10	6	8	2	4	2	3	2	2	5	2	2	5	1	**IZS**	1	7	2	13	4.1	24
17	2	1	1	1	1	1	1	2	1	12	2	3	1	3	2	3	7	12	3	**IZS**	1	1	1	1	12	2.7	24
18	1	1	1	0	1	1	1	1	1	1	1	1	2	2	1	2	1	1	**IZS**	2	2	1	3	2	3	1.3	24
19	3	1	1	1	1	2	1	1	3	4	5	3	7	4	3	11	9	**IZS**	4	7	5	3	2	1	11	3.6	24
20	2	2	1	1	0	1	1	2	5	1	1	1	1	1	1	1	**IZS**	0	1	1	1	1	0	0	5	1.1	24
21	3	1	2	1	1	1	1	3	4	4	4	7	2	1	1	**IZS**	3	3	6	2	1	1	1	1	7	2.3	24
22	0	0	0	0	0	0	1	1	1	1	1	1	4	3	**IZS**	5	2	4	4	12	4	3	5	2	12	2.3	24
23	2	12	3	3	2	3	3	9	3	3	6	2	2	**IZS**	2	2	1	1	5	1	2	2	1	2	12	3.1	24
24	3	2	2	2	1	2	2	1	1	1	1	1	**IZS**	1	1	1	0	1	0	0	1	1	1	1	3	1.2	24
25	1	4	2	4	4	2	2	3	3	2	3	**IZS**	4	4	6	15	2	3	1	0	1	2	1	2	15	3.1	24
26	4	3	3	3	3	4	3	3	3	2	**IZS**	3	2	2	2	1	4	3	5	4	3	2	2	1	5	2.8	24
27	1	3	3	4	3	4	4	1	2	**IZS**	4	4	4	4	3	3	30	9	5	11	8	3	7	6	30	5.5	24
28	5	4	11	1	1	1	1	1	**IZS**	1	1	1	3	3	1	13	2	4	17	2	1	7	1	1	17	3.6	24
29	2	1	1	1	1	1	2	**IZS**	59	6	2	6	11	2	8	2	2	1	3	2	1	1	1	1	59	5.1	24
30	1	1	1	1	1	2	**IZS**	3	3	8	4	3	6	3	2	1	1	1	1	2	4	1	1	1	8	2.3	24
HOURLY MAX	13	18	11	4	5	4	10	11	59	21	76	43	11	4	15	23	30	38	33	20	13	10	9	13			
HOURLY AVG	2.1	2.7	1.8	1.4	1.6	1.8	2.3	3.4	6.0	4.5	10.3	6.0	3.4	2.5	3.1	4.3	5.0	5.6	6.0	3.6	2.5	2.1	2.2	1.8			

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:	642					
MAXIMUM INSTANTANEOUS VALUE:	76	PPB	@ HOUR(S)	10	ON DAY(S)	5
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		717	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	6.45					



JOB #: 2833-12-11-01-C

LICA
NO_ / WD Joint Frequency Distribution (Percent)

November 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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	

Calm : .00 %

Total # Operational Hours : 672

Distribution By Samples

Direction

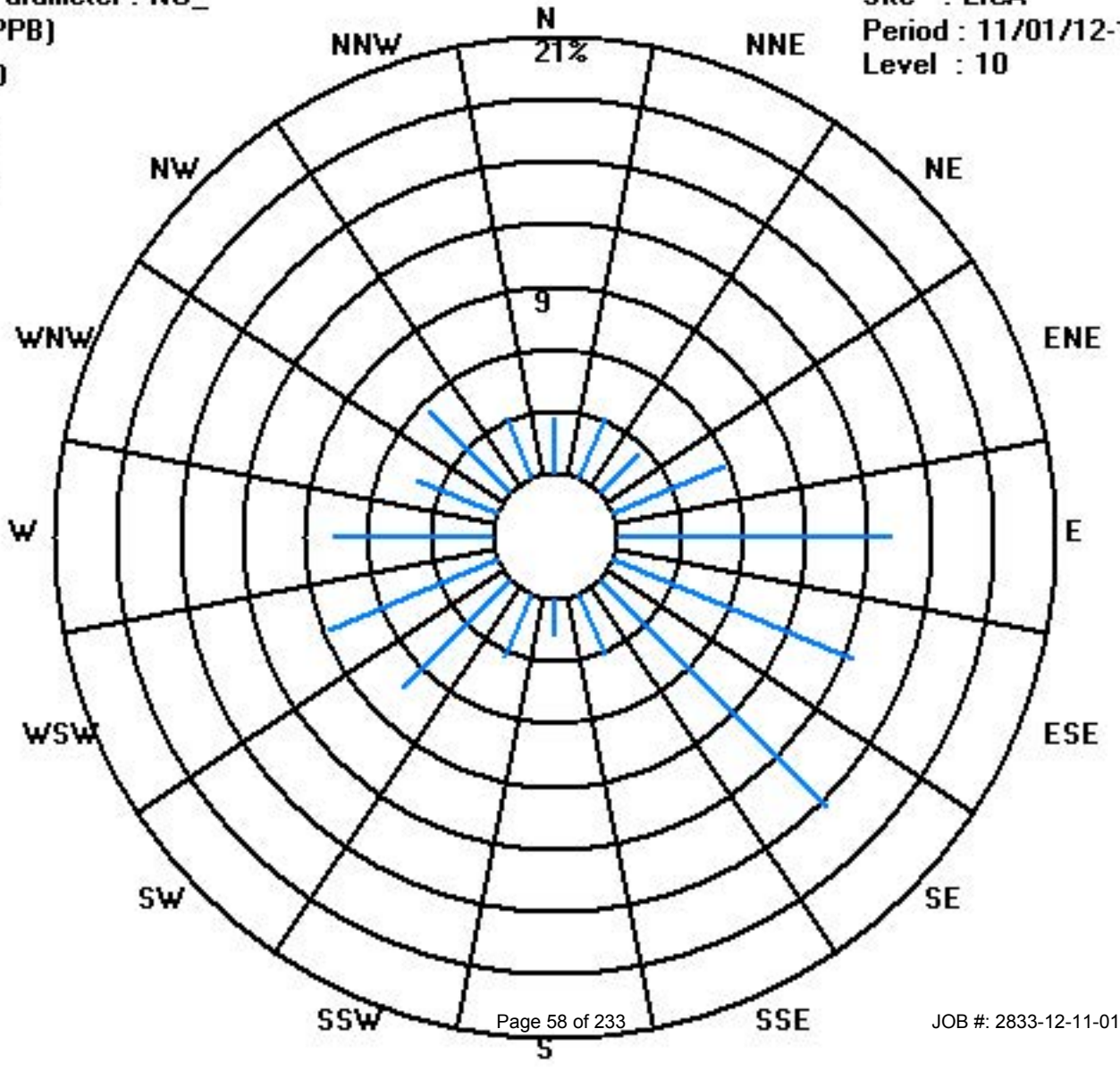
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	672
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	

Calm : .00 %

Total # Operational Hours : 672

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

Site : LICA
Period : 11/01/12-11/30/12
Level : 10



JOB #: 2833-12-11-01-C

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

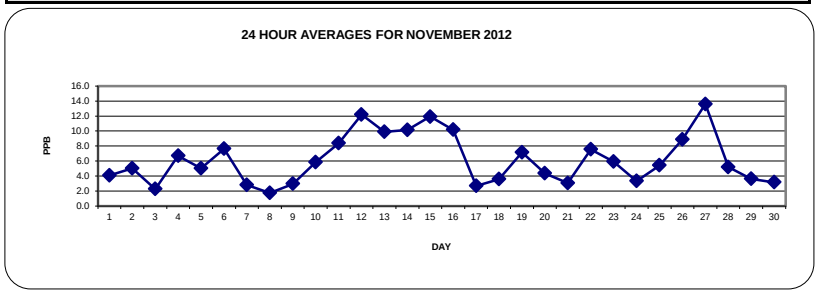
OXIDES OF NITROGEN hourly averages in ppb

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	1.2	1.3	1.1	1.4	3.5	3.2	5.1	5.4	4.9	5.5	4.4	5.1	**IZS**	3.8	3.8	3.5	4.6	4.5	5.7	4.8	5	4.7	5.5	6	6	4.1	24
2	5.7	6.2	2.9	1	1.2	2.1	5.1	12.5	9.2	7.7	6.7	**IZS**	5.3	6.9	4.9	3.2	4.7	7.2	7.2	5.3	4	3.6	1.8	1	12.5	5.0	24
3	1.1	2.4	2.1	2.6	2.9	2.9	2.2	2.1	1.8	1.7	**IZS**	3.2	2.7	2.6	2.6	2.6	2.8	2.1	1.6	1.5	1.5	2.4	2.7	1.8	3.2	2.3	24
4	1.6	1.4	1.6	4.3	4.9	5.5	4.6	4.5	5.4	**IZS**	5.6	5.7	5.4	6.1	6.8	6.8	9.8	29.9	18.2	5.4	6.2	5	4.7	4.8	29.9	6.7	24
5	3.6	3	2.9	3.8	3.9	8.3	9.1	**IZS**	6.3	12.8	17.3	8.7	0.8	0.7	**C**	**C**	**M**	**M**	**C**	1.7	1.7	2.5	1.7	1.6	17.3	5.0	22
6	2.2	3.3	3.7	3.4	3.5	3.8	4.6	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	5	6.8	M	12.3	14.6	17	11.7	11.8	10.6	17	7.6	23
7	14.4	8.5	4.9	3.9	2.8	5.6	**IZS**	8.4	3.4	1.6	1.3	1	0.9	1.1	0.8	0.9	1.1	0.8	0.5	0.7	0.6	0.5	0.3	0.2	14.4	2.8	24
8	0.1	0.1	0.1	0.1	0.3	**IZS**	0.8	1.2	1.3	1.3	6.3	2.3	1.6	1.1	1.4	2.1	2.5	3.4	2.4	3.1	2.4	2	1.9	1.9	6.3	1.7	24
9	1.6	1.8	2.3	2.4	**IZS**	2.7	3.7	4.5	3.4	3.1	2.7	2.5	2.7	3	2.9	3.9	4.3	4.5	3.6	2.5	2.5	3	2.4	1.9	4.5	3.0	24
10	1.7	1.9	1.9	**IZS**	2.4	2.3	2.3	2.5	4.4	2.6	9.1	4.1	1.3	1.1	1.2	1.8	5.8	12.1	14	11.9	13.4	12.7	10.7	12.9	14	5.8	24
11	10.4	7.7	**IZS**	6.4	7.9	9	11.1	12.9	13.7	13.7	7.2	5.6	6.1	7.5	8.9	5	4.9	5.8	7.7	8.3	9.3	8.2	7.7	7.2	13.7	8.4	24
12	7.2	**IZS**	7.9	10	9.9	9.8	12.7	19.5	28.1	31.8	24.9	14.9	10.5	8.8	8.2	6.8	7.4	6.7	7.4	7.4	14.3	13.8	7.8	4.9	31.8	12.2	24
13	**IZS**	3	2.3	2.1	2.5	3	3.6	5.7	5.6	5.8	7.4	9.3	9.2	12.7	15.2	16	13.3	14.2	16.3	18.1	17.8	17.5	17.2	**IZS**	18.1	9.9	24
14	16.7	15.7	15.7	15.1	14.8	14.5	17.3	16.3	18.2	16.4	8.7	1.9	1.6	1.5	1.3	1.3	1.2	2.2	10.3	11.4	10.9	14.5	**IZS**	6.1	18.2	10.2	24
15	7.8	6	2.3	1.5	3	3.3	2.2	3	3	3.2	3.6	4.6	5.1	5.6	6.8	21.3	34.1	**48.5**	21.7	19.6	19.4	**IZS**	25.2	23.3	**48.5**	11.9	24
16	27	24.7	15.2	10	11.7	14.7	16	14.8	22.4	5.6	5.5	5.4	5.1	4.3	5.7	6.7	7.7	8.2	4.6	5.9	**IZS**	4.6	4.5	3.5	27	10.2	24
17	2.5	2.5	2.4	1.8	1.7	2.9	3.3	2.8	1.9	2.4	2.5	2.7	2.8	2.5	2.9	3.7	3.2	3.3	3.7	**IZS**	2.4	2.7	2.4	2.3	3.7	2.7	24
18	2.2	2	2.1	1.9	1.9	3.3	3.7	3.4	2.1	2.3	3	2.5	3.7	6	4.7	4.1	4.9	4.7	**IZS**	4.3	4.8	4.6	4.6	5.3	6	3.6	24
19	7.1	6.4	5.2	4.5	5.3	5.4	5.4	6.4	7.9	6.9	7.7	6.1	6.8	6.9	7.7	12	14.2	**IZS**	8.1	10.6	7.2	7.1	5.5	3.9	14.2	7.1	24
20	6.1	3.3	2.3	1.9	1.6	1.6	3.2	4.9	3.9	3.8	3.6	1.9	2.8	3.9	3.8	4.8	**IZS**	5.7	6.7	6.4	7.2	7.7	7.4	5.5	7.7	4.3	24
21	5	5	3.9	3.2	2.9	3.6	4.6	6.1	6.1	4.5	4	3.4	2.3	1.8	1.5	**IZS**	1.9	2	2.6	1.5	1.2	1	1.2	0.9	6.1	3.1	24
22	0.5	0.5	0.5	0.4	1.6	3.9	4.6	4.3	3	2.4	2.3	2.2	7.4	6.6	**IZS**	6.6	8.5	16.9	14	23.4	17	12.8	18.9	15.2	23.4	7.5	24
23	13.5	17	11.6	5.8	6.1	7.6	4.1	6.9	7.5	4.9	4.6	3.8	4.5	**IZS**	4.7	4.4	3.2	2.5	2.8	2.7	3.6	6.2	3.9	4.2	17	5.9	24
24	5	5.7	5.5	6.2	5.5	4.7	4	3.8	3.7	2.9	2.4	2.2	**IZS**	1.7	1.7	2.5	1.9	1.5	1.8	2.4	3	2.7	2.3	3.6	6.2	3.3	24
25	8	7.7	5.3	6	6.8	5.2	3.3	8	10.4	7.9	6.4	**IZS**	5	4.6	5.1	4.8	4.4	3.3	3.1	2.9	3	4.1	4.3	5.3	10.4	5.4	24
26	7.9	10.2	9.7	8.7	10.3	8.8	8.1	8.4	9	4.9	**IZS**	2.4	1.9	1.6	3.1	3.1	9.7	14.6	13.9	15.8	16.1	13.6	12.9	9	16.1	8.9	24
27	9.1	8.3	8.8	10.7	15.6	19.1	18.2	13.3	10.4	**IZS**	8	6	7	7.1	6.2	9.3	20.3	20.7	20.8	22.9	17.5	15.7	18.7	18.7	22.9	**13.6**	24
28	18.3	17.2	17.3	4.8	2	2	2.3	3.4	**IZS**	3.6	2.9	2.5	2.3	1.9	2	5.2	4.9	4.1	4.8	3	4.6	4.8	2.5	2.7	18.3	5.2	24
29	3	3.1	2.3	3.1	2.3	3.4	4.2	**IZS**	5.5	4.7	5.1	5.7	4.2	4.7	5	5.8	4	2.9	3.2	2.3	2.4	2.2	2	1.8	5.8	3.6	24
30	1.9	1.9	1.9	1.7	2.3	3.7	**IZS**	4.7	6.1	5.4	3.5	3.6	4.5	6.4	4.6	3.4	1.7	1.7	2.2	2.7	4.2	2.6	1.2	0.9	6.4	3.2	24
HOURLY MAX	27	25	17	15	16	19	18	20	28	32	25	15	11	13	15	21	34	49	22	23	19	18	25	23			
HOURLY AVG	6.6	6.1	5.0	4.4	4.9	5.7	6.1	7.0	7.5	6.3	6.2	4.4	4.2	4.4	4.6	5.6	6.9	8.7	7.9	7.7	7.6	6.7	6.7	5.8			

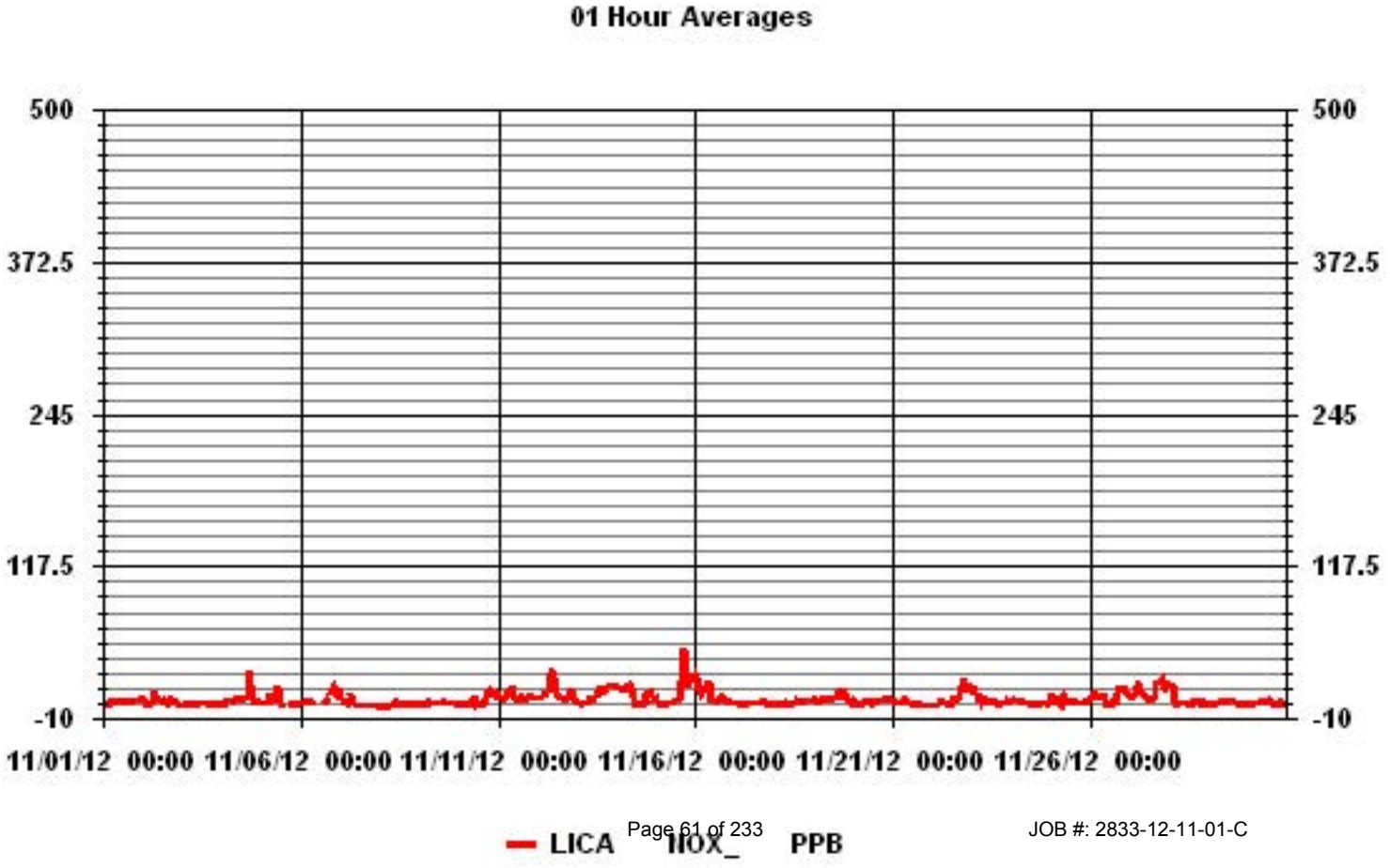
STATUS FLAG CODES

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:	676						
MAXIMUM 1-HR AVERAGE:	48.5	PPB	@ HOUR(S)	17	ON DAY(S)	15	
MAXIMUM 24-HR AVERAGE:	13.6	PPB			ON DAY(S)	27	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		717	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:		99.6	%	
STANDARD DEVIATION:	5.53		MONTHLY AVERAGE:		6.12	PPB	



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

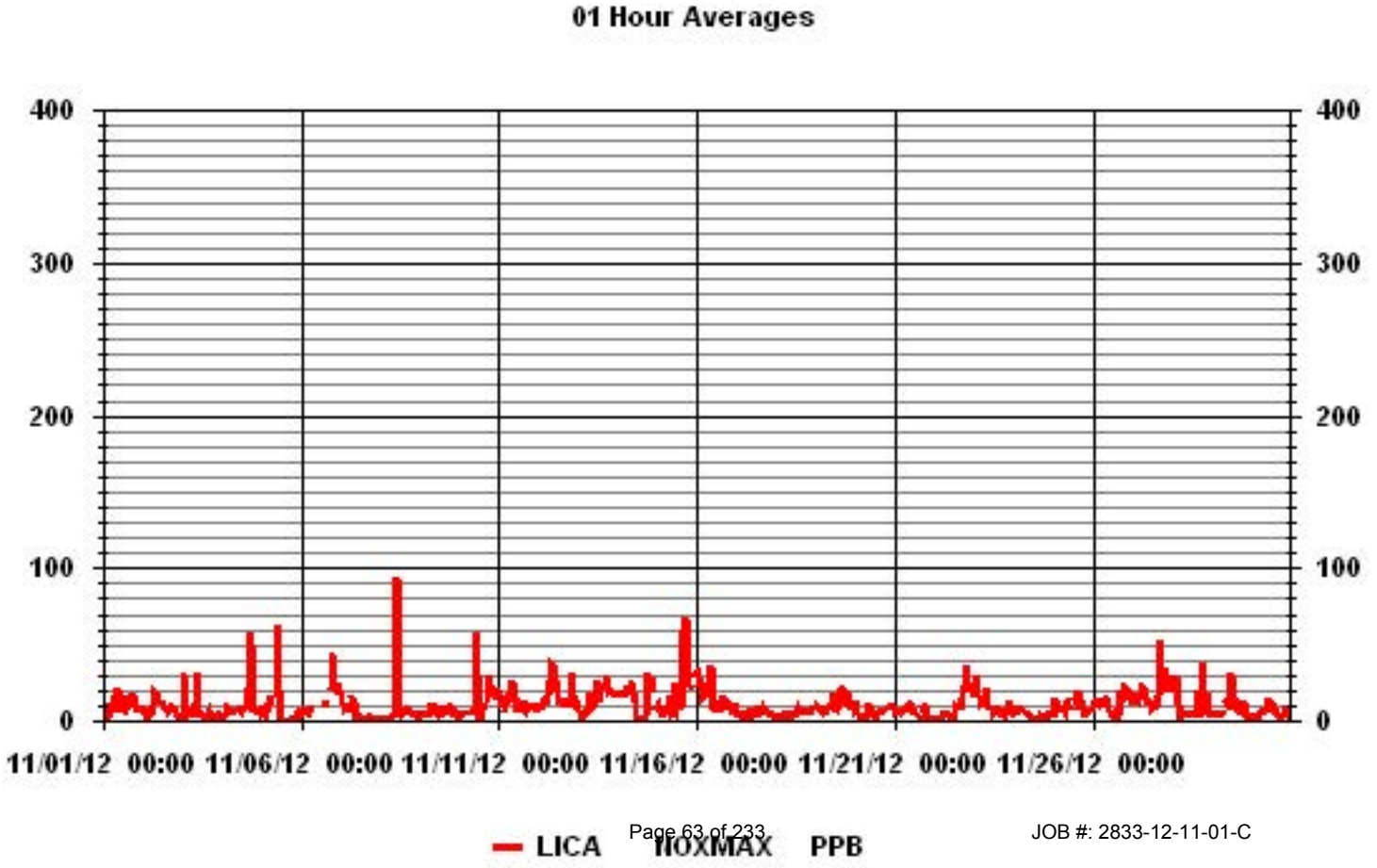
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.	AVG.	RDGS.
DAY																											
1	3	2	2	3	12	6	13	12	9	22	6	10	**IZS**	6	16	8	11	9	18	10	8	8	8	8	22	9.1	24
2	9	8	6	1	4	5	10	20	19	11	13	**IZS**	12	9	8	6	7	9	9	8	6	5	3	2	20	8.3	24
3	2	32	6	4	6	4	4	9	8	30	**IZS**	4	4	4	3	3	6	3	2	2	2	4	5	3	32	6.5	24
4	3	2	5	9	9	8	6	6	7	**IZS**	9	8	6	7	8	9	21	57	51	7	7	7	6	7	57	11.5	24
5	4	5	4	8	6	17	12	**IZS**	**IZS**	17	63	21	2	1	**C**	**C**	**M**	**M**	**C**	2	3	5	3	3	63	10.4	22
6	4	7	6	7	6	8	8	**IZS**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	11	11	**M**	23	44	24	21	22	19	44	14.7	23
7	19	12	7	8	5	10	**IZS**	15	13	3	3	3	3	2	2	2	2	3	1	1	1	1	1	1	19	5.1	24
8	1	1	1	1	1	**IZS**	2	3	4	2	**94**	9	8	4	5	6	8	8	5	5	5	4	5	3	**94**	8.0	24
9	3	4	4	5	**IZS**	5	9	12	6	8	6	4	6	10	6	7	8	9	6	5	7	5	5	3	12	6.2	24
10	4	4	5	**IZS**	5	5	5	5	8	6	57	31	3	2	7	10	12	20	29	16	20	18	13	21	57	13.3	24
11	17	11	**IZS**	8	11	13	17	22	27	17	16	8	8	10	11	8	10	7	9	10	10	10	8	8	27	12.0	24
12	11	**IZS**	10	15	11	15	17	27	38	37	28	20	14	10	14	9	12	11	9	15	31	18	15	9	38	17.2	24
13	**IZS**	5	3	3	4	7	5	18	8	9	12	27	12	15	20	23	23	29	19	20	19	19	18	**IZS**	29	14.5	24
14	18	18	17	17	17	18	23	18	26	20	14	3	2	2	2	2	2	4	31	24	18	27	**IZS**	9	31	14.4	24
15	11	8	4	2	9	7	4	16	5	6	5	24	7	10	8	59	57	68	59	24	23	**IZS**	31	32	68	20.8	24
16	33	29	23	15	16	23	23	23	36	7	9	8	10	6	9	17	15	11	7	11	**IZS**	6	12	9	36	15.6	24
17	4	4	5	3	3	5	5	6	3	6	6	7	4	4	5	9	7	8	7	**IZS**	4	4	4	3	9	5.0	24
18	3	3	3	2	3	5	5	5	3	4	4	4	5	9	7	6	6	6	**IZS**	7	6	6	8	9	9	5.2	24
19	11	10	8	6	8	8	7	9	11	10	18	10	12	9	11	20	21	**IZS**	14	20	11	10	11	7	21	11.4	24
20	9	6	4	3	2	2	5	8	12	5	5	3	3	5	5	7	**IZS**	7	8	10	9	9	9	6	12	6.2	24
21	7	6	6	5	6	7	7	10	9	13	10	6	5	5	3	**IZS**	9	6	12	3	2	2	2	2	13	6.2	24
22	1	1	1	1	5	5	5	6	5	3	3	3	11	10	**IZS**	10	15	23	21	36	24	18	24	17	36	10.8	24
23	17	29	18	11	12	10	10	21	11	7	10	5	6	**IZS**	7	7	5	4	8	4	8	13	6	5	29	10.2	24
24	8	8	7	8	7	7	6	5	5	5	4	3	**IZS**	2	2	4	3	2	3	3	4	4	4	6	8	4.8	24
25	12	12	8	10	10	9	7	12	13	11	9	**IZS**	14	10	17	17	7	13	5	4	5	6	7	8	17	9.8	24
26	12	13	13	11	13	13	12	15	15	7	**IZS**	5	3	3	7	4	20	18	22	22	21	20	16	12	22	12.9	24
27	12	16	16	14	18	23	22	16	13	**IZS**	13	8	9	11	8	17	52	31	26	34	28	18	30	23	52	19.9	24
28	30	23	30	12	3	3	4	5	**IZS**	4	4	4	5	4	4	19	10	9	38	6	7	18	4	4	38	10.9	24
29	5	5	4	5	4	5	6	**IZS**	13	11	7	31	18	7	14	8	6	6	6	13	4	3	3	3	31	8.1	24
30	3	3	3	3	4	7	**IZS**	7	8	15	10	6	11	9	6	5	3	3	4	5	10	4	4	3	15	5.9	24
HOURLY MAX	33	32	30	17	18	23	23	27	38	37	94	31	18	15	20	59	57	68	59	44	31	27	31	32			
HOURLY AVG	9.5	9.9	7.9	6.9	7.6	9.0	9.3	12.3	12.4	11.0	16.2	10.2	7.5	6.6	8.0	11.2	13.2	14.2	16.1	12.8	11.3	10.1	9.9	8.4			

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:	675					
MAXIMUM INSTANTANEOUS VALUE:	94	PPB	@ HOUR(S)	10	ON DAY(S)	8
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		717	HRS
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	9.75					



JOB #: 2833-12-11-01-C

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

November 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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	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	2.67	3.12	2.67	5.80	13.09	12.50	15.47	3.12	1.78	3.27	7.29	8.77	7.58	4.16	5.50	3.12	

Calm : .00 %

Total # Operational Hours : 672

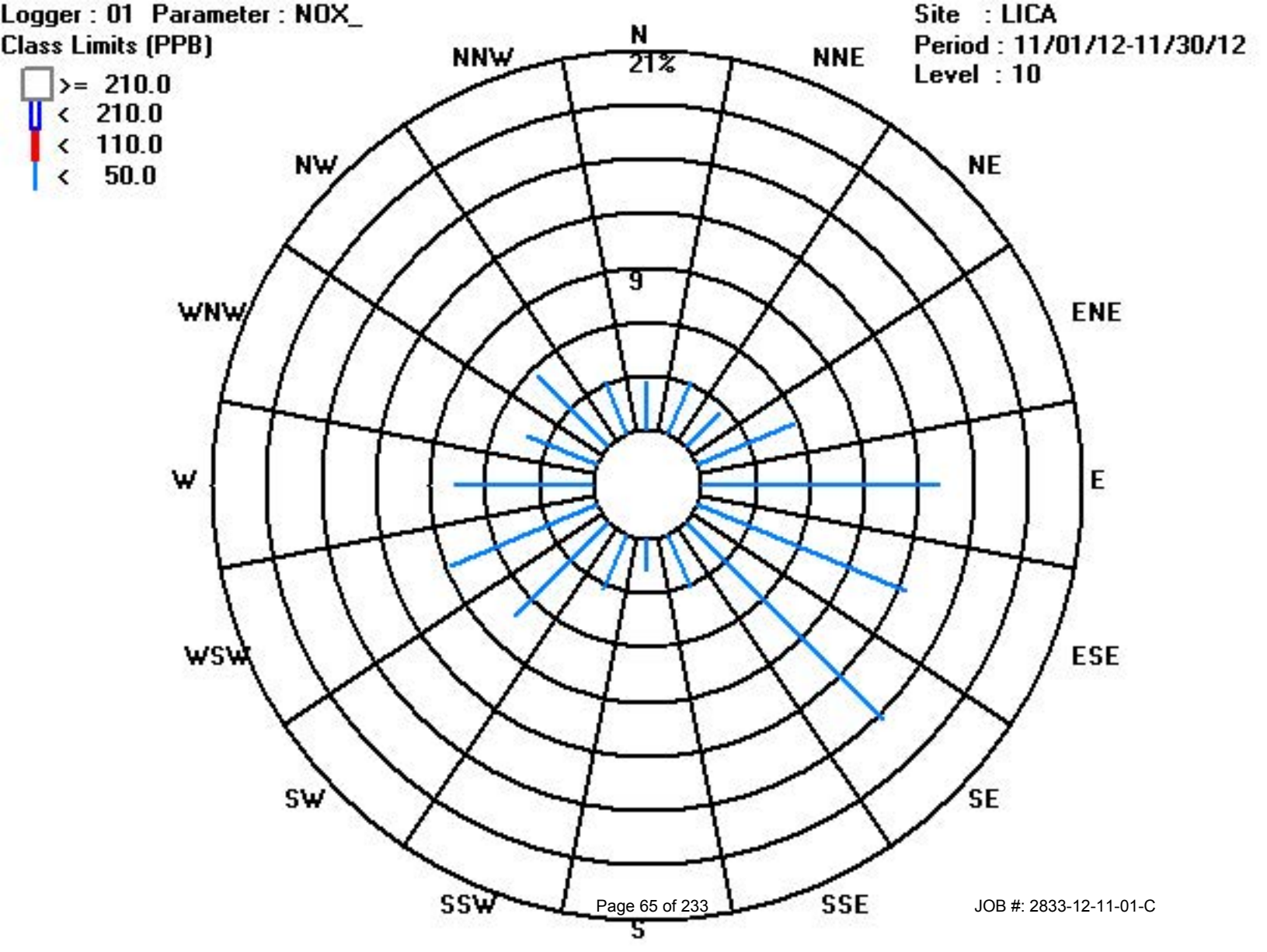
Distribution By Samples

Direction

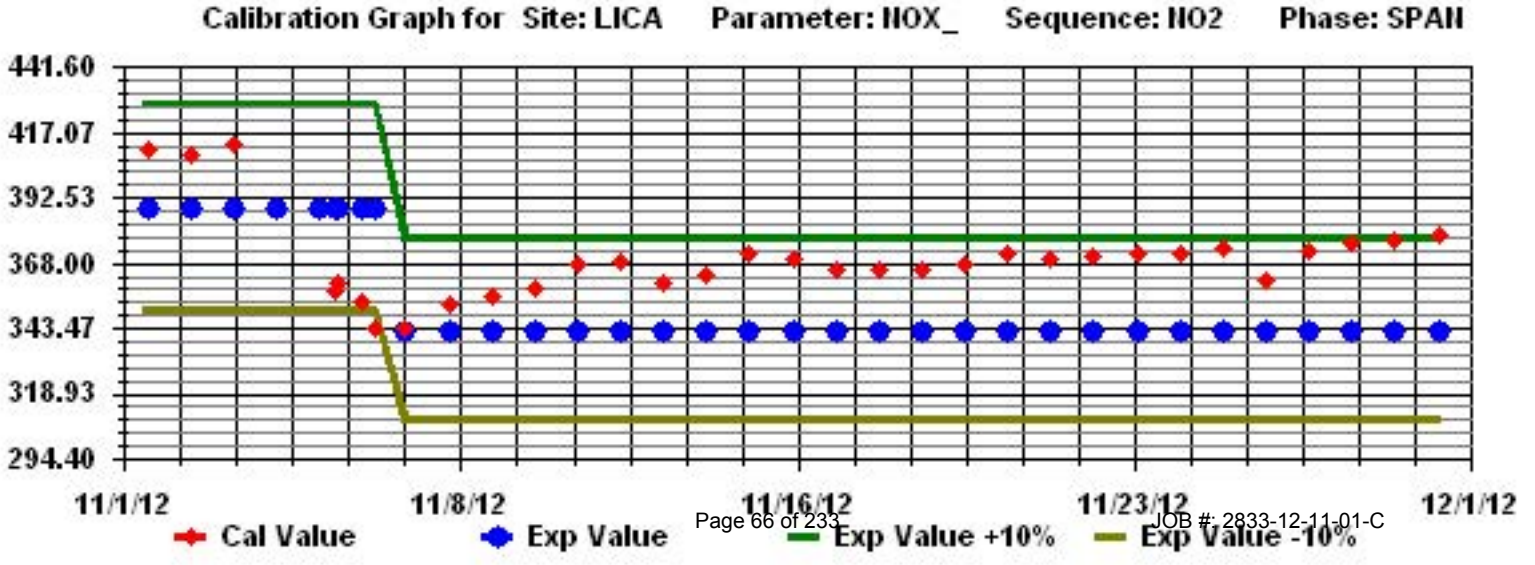
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	672
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	18	21	18	39	88	84	104	21	12	22	49	59	51	28	37	21	

Calm : .00 %

Total # Operational Hours : 672



JOB #: 2833-12-11-01-C


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

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

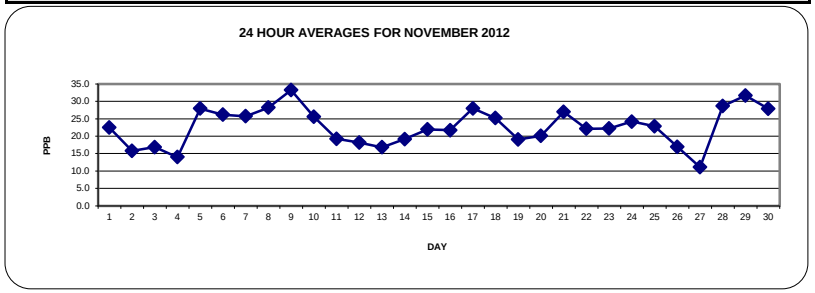
OZONE (O_3) hourly averages in ppb

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	26	27	26	25	23	22	21	21	22	23	24	24	**IZS**	23	24	24	23	22	22	21	20	19	18	17	27	22.5	24
2	17	16	18	19	19	17	13	9	11	13	15	**IZS**	17	16	18	19	17	14	13	14	15	14	20	19	20	15.8	24
3	18	17	17	15	15	15	16	16	17	18	**IZS**	17	18	18	18	17	17	17	17	17	18	16	16	17	18	16.8	24
4	16	12	9	11	12	14	14	13	13	**IZS**	15	16	17	17	17	18	12	2	9	16	16	17	17	18	18	14.0	24
5	20	22	23	20	16	9	8	12	**IZS**	14	20	30	38	39	39	39	38	37	37	37	37	35	36	36	**39**	27.9	24
6	34	33	32	32	31	30	29	**IZS**	28	29	31	34	33	34	**C**	**C**	**C**	**C**	19	15	10	15	13	15	34	26.2	24
7	14	21	27	32	30	29	**IZS**	29	35	27	20	22	28	28	26	27	28	31	28	24	22	21	21	21	35	25.7	24
8	21	22	24	26	25	**IZS**	25	24	26	28	27	28	29	31	31	31	30	30	30	30	31	32	33	34	34	28.2	24
9	34	35	34	34	**IZS**	33	32	31	31	32	33	33	34	35	36	35	35	34	34	34	33	31	31	31	36	**33.3**	24
10	31	31	30	**IZS**	30	30	30	29	29	31	32	33	33	36	37	37	29	18	13	12	10	9	10	8	37	25.6	24
11	9	9	**IZS**	9	9	10	6	5	9	14	25	27	30	30	28	32	32	27	24	24	22	22	21	18	32	19.2	24
12	16	**IZS**	15	14	11	9	6	2	4	9	12	21	27	28	28	28	27	26	24	23	18	19	24	26	28	18.1	24
13	**IZS**	27	27	26	25	23	21	18	18	17	17	17	18	15	14	13	12	10	9	10	11	11	10	**IZS**	27	16.8	24
14	10	9	8	8	8	6	6	10	12	15	21	33	35	34	34	33	34	35	24	20	17	12	**IZS**	16	35	19.1	24
15	22	28	32	35	34	34	34	33	32	31	30	30	29	28	27	16	6	2	8	5	5	**IZS**	2	1	35	21.9	24
16	1	1	10	17	18	15	17	21	17	29	30	30	31	32	32	30	26	24	26	23	**IZS**	23	23	23	32	21.7	24
17	24	26	27	28	28	27	26	26	27	29	28	28	28	29	29	28	29	29	28	**IZS**	30	29	30	30	30	28.0	24
18	29	30	30	30	31	31	30	30	30	29	28	28	27	25	25	23	20	20	**IZS**	17	17	16	17	16	31	25.2	24
19	18	20	18	17	18	19	23	22	20	21	21	22	22	20	19	16	14	**IZS**	17	14	18	18	20	21	23	19.0	24
20	18	19	18	19	19	18	16	15	20	22	23	24	22	21	22	22	**IZS**	21	20	21	20	20	20	22	24	20.1	24
21	22	22	25	26	26	25	22	21	23	24	25	26	27	28	30	**IZS**	32	31	31	31	31	31	31	31	32	27.0	24
22	30	30	31	31	29	26	26	26	29	30	31	32	29	29	**IZS**	27	22	12	12	6	6	7	3	4	32	22.1	24
23	4	6	8	18	23	22	24	22	21	23	24	25	25	**IZS**	27	27	29	30	30	29	26	21	23	24	30	22.2	24
24	23	22	22	21	22	22	22	23	23	24	25	25	**IZS**	25	25	24	26	27	26	26	26	26	27	24	27	24.2	24
25	19	19	21	21	20	23	26	20	18	21	23	**IZS**	25	26	25	26	25	25	25	25	24	23	23	22	26	22.8	24
26	19	16	17	17	16	17	17	17	17	22	**IZS**	26	28	28	27	27	19	13	10	7	6	7	6	10	28	16.9	24
27	8	9	8	7	3	2	4	10	14	**IZS**	20	22	22	22	23	21	12	8	5	4	9	10	7	5	23	11.1	24
28	4	2	4	26	32	33	34	32	**IZS**	32	32	33	34	35	35	33	33	33	32	32	31	31	33	32	35	28.6	24
29	32	32	33	32	34	33	32	**IZS**	31	31	31	31	31	30	30	29	31	32	32	33	32	32	32	32	34	31.7	24
30	32	31	31	30	29	28	**IZS**	27	26	27	28	28	27	26	27	27	28	28	27	28	26	26	27	27	32	27.9	24
HOURLY MAX	34	35	34	35	34	34	34	33	35	32	33	34	38	39	39	39	38	37	37	37	37	35	36	36			
HOURLY AVG	19.7	20.5	21.6	22.3	21.9	21.4	20.7	20.1	21.5	23.8	24.7	26.6	27.3	27.2	26.9	26.0	24.5	22.8	21.8	20.6	20.2	20.4	20.5	20.7			

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:

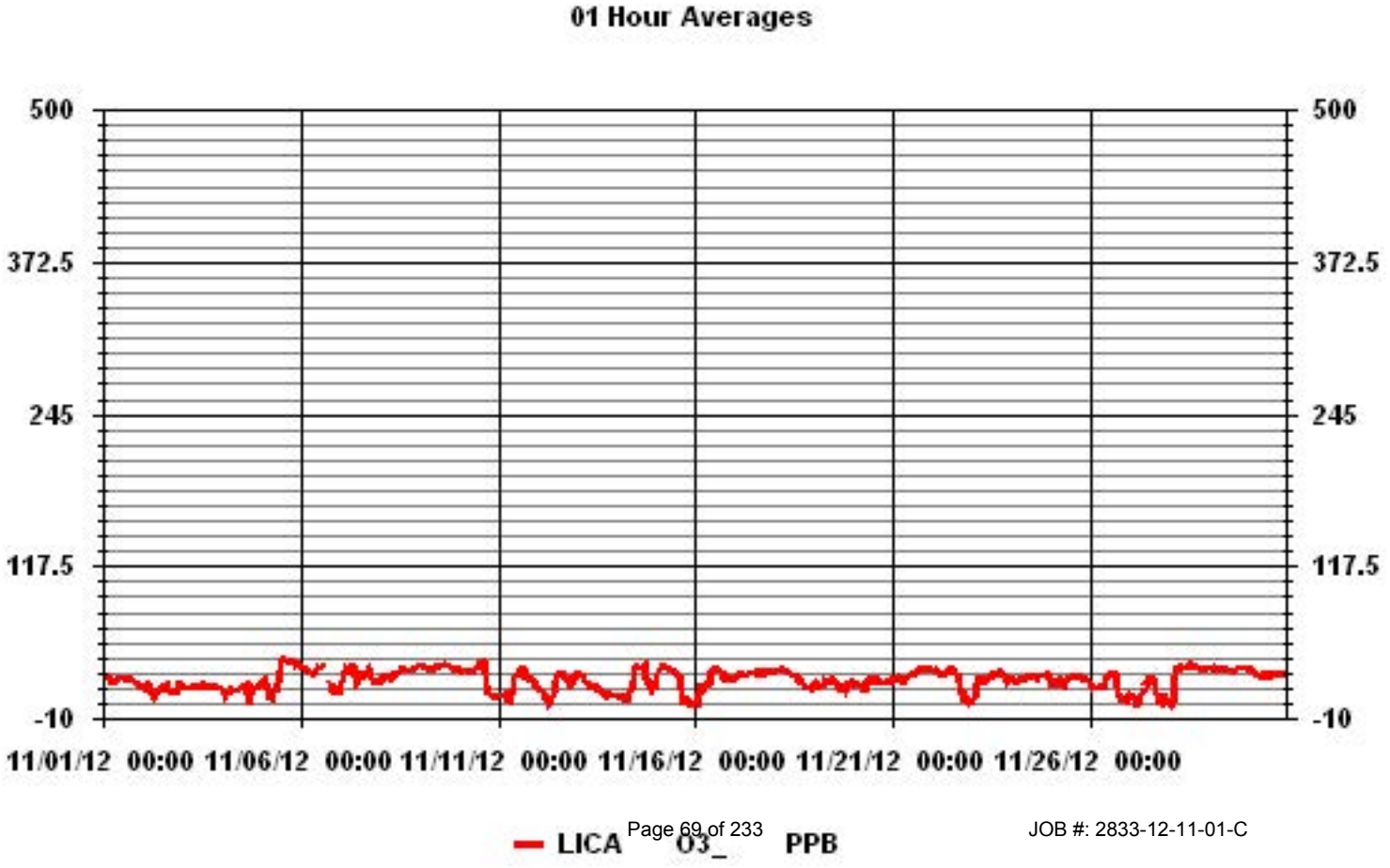
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	39	PPB	@ HOUR(S)	VAR	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	33.3	PPB			ON DAY(S) VAR-VARIOUS	9

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	8.40		MONTHLY AVERAGE:	22.63	PPB

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 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	26	27	27	26	25	23	22	22	23	25	25	26	**IZS**	25	25	25	24	24	23	22	21	20	19	19	27	23.7	24
2	19	17	20	20	19	18	15	13	13	14	17	**IZS**	18	18	19	20	19	15	13	16	16	19	21	20	21	17.3	24
3	19	18	18	16	16	16	17	18	18	18	**IZS**	18	19	19	18	18	17	17	18	18	18	17	17	17	19	17.6	24
4	17	15	13	12	14	15	15	14	14	**IZS**	16	17	18	18	18	18	17	7	15	17	17	17	18	19	19	15.7	24
5	21	23	23	22	20	13	12	15	**IZS**	19	24	37	40	40	40	40	39	38	37	37	37	36	37	37	40	29.9	24
6	35	34	33	33	33	31	31	**IZS**	30	31	34	35	34	**C**	**C**	**C**	**C**	**C**	27	27	17	25	19	19	35	29.3	24
7	19	27	29	34	34	32	**IZS**	34	38	35	21	25	30	30	28	28	30	31	31	26	23	22	21	22	38	28.3	24
8	22	23	25	27	27	**IZS**	26	25	28	29	28	29	30	31	32	32	32	31	31	31	32	33	34	34	34	29.2	24
9	35	36	36	35	**IZS**	34	33	33	33	34	34	34	35	37	37	37	37	37	36	36	34	33	32	32	37	34.8	24
10	32	32	31	**IZS**	31	32	31	30	31	32	34	34	35	38	38	**42**	36	29	19	16	15	12	12	13	**42**	28.5	24
11	13	11	**IZS**	10	11	14	9	9	12	18	28	30	31	31	30	35	34	31	25	25	22	22	22	20	35	21.4	24
12	18	**IZS**	16	16	13	10	8	3	6	12	17	24	29	30	29	29	27	28	25	26	22	22	27	28	30	20.2	24
13	**IZS**	27	27	27	26	24	23	20	19	18	18	18	18	17	15	14	13	12	10	11	11	11	10	**IZS**	27	17.7	24
14	11	11	10	9	9	7	9	12	16	18	29	35	37	36	35	34	35	35	35	30	22	18	**IZS**	22	37	22.4	24
15	27	33	33	36	36	36	35	33	33	32	31	30	30	29	28	26	19	5	13	11	8	**IZS**	3	3	36	24.8	24
16	3	4	19	19	19	18	22	29	31	31	31	31	32	33	33	32	31	26	27	25	**IZS**	24	26	24	33	24.8	24
17	25	30	30	29	29	28	27	27	30	30	29	29	29	30	32	29	30	30	30	**IZS**	31	30	30	31	32	29.3	24
18	30	30	30	31	32	32	31	30	30	29	29	29	28	27	25	25	21	20	**IZS**	18	17	17	18	17	32	25.9	24
19	22	22	19	19	21	24	23	24	23	22	22	24	23	21	20	18	17	**IZS**	19	18	21	19	22	21	24	21.0	24
20	20	20	19	19	20	19	18	16	21	23	24	25	24	22	23	24	**IZS**	23	21	21	21	21	22	23	25	21.3	24
21	23	26	26	27	27	27	23	23	24	25	26	27	28	29	32	**IZS**	34	32	32	31	31	32	31	32	34	28.2	24
22	30	31	31	32	31	28	27	30	30	31	32	33	32	31	**IZS**	31	27	16	15	12	11	9	5	8	33	24.5	24
23	7	17	12	23	25	24	25	24	23	24	25	26	27	**IZS**	29	28	30	31	31	30	28	27	26	25	31	24.7	24
24	25	23	23	22	22	22	22	23	24	26	26	26	**IZS**	26	25	25	27	27	27	27	27	27	27	27	27	25.0	24
25	20	21	23	23	22	27	27	24	21	23	25	**IZS**	27	27	27	27	26	26	25	25	25	24	23	23	27	24.4	24
26	20	19	18	18	17	18	18	18	20	24	**IZS**	27	28	29	28	27	25	16	15	11	8	12	9	14	29	19.1	24
27	11	10	9	8	5	4	8	14	15	**IZS**	22	22	22	23	25	25	19	16	9	8	11	13	10	9	25	13.8	24
28	6	4	17	31	34	35	35	33	**IZS**	33	33	34	35	36	36	35	34	34	34	33	32	33	33	33	36	30.6	24
29	34	33	34	35	35	34	33	**IZS**	33	33	33	32	33	32	31	31	31	33	33	34	33	32	32	32	35	32.9	24
30	33	32	31	31	30	30	**IZS**	29	28	28	29	29	29	27	28	28	29	28	28	29	28	27	28	28	33	29.0	24
HOURLY MAX	35	36	36	36	36	36	35	34	38	35	34	37	40	40	40	42	39	38	37	37	37	36	37	37			
HOURLY AVG	21.5	22.6	23.5	23.8	23.6	23.3	22.3	22.3	23.8	25.6	26.5	28.1	28.6	28.3	28.1	28.0	27.1	24.9	24.3	23.1	22.0	22.6	21.9	22.5			

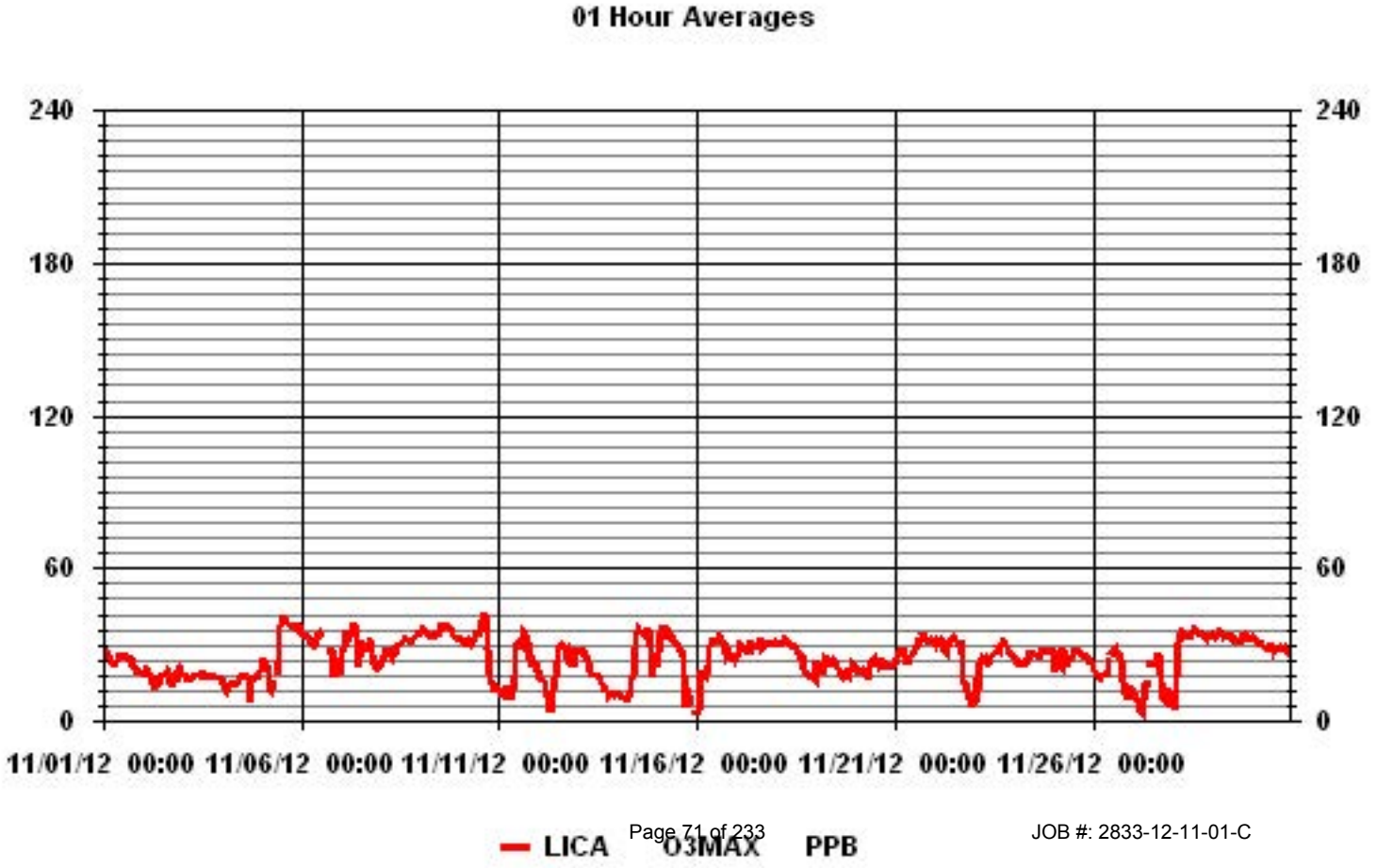
STATUS FLAG CODES

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:	684					
MAXIMUM INSTANTANEOUS VALUE:	42	PPB	@ HOUR(S)	15	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	7.94					

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LICA
O3_ / WD Joint Frequency Distribution (Percent)

November 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	2.62	3.05	2.62	5.67	12.80	12.22	15.13	3.05	1.74	3.34	7.71	8.58	8.15	4.07	5.38	3.05	99.27
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00	.00	.29
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00	.00	.00	.00	.43
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.62	3.05	2.62	5.67	12.80	12.22	15.13	3.05	1.74	3.34	8.44	8.58	8.15	4.07	5.38	3.05	

Calm : .00 %

Total # Operational Hours : 687

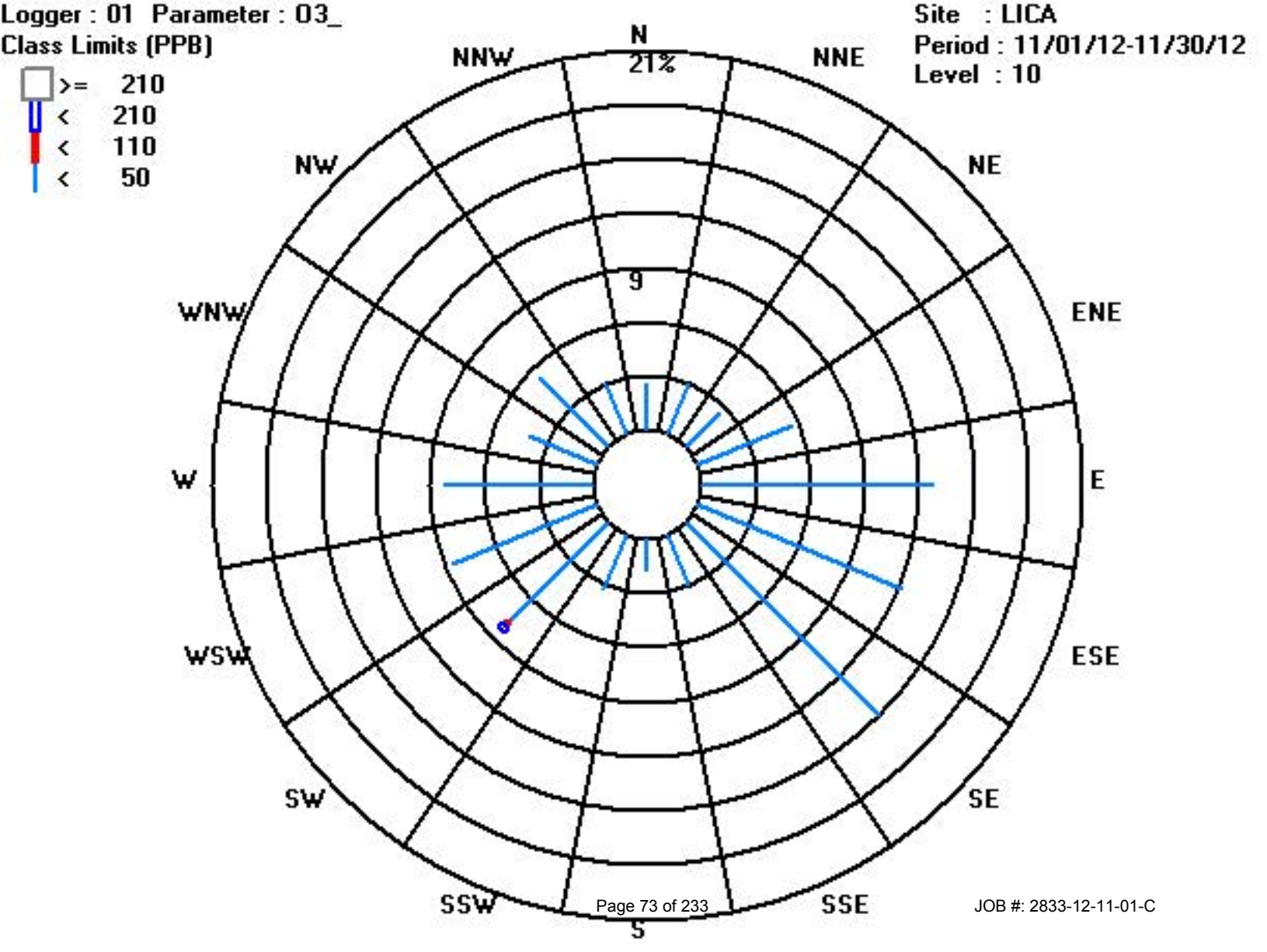
Distribution By Samples

Direction

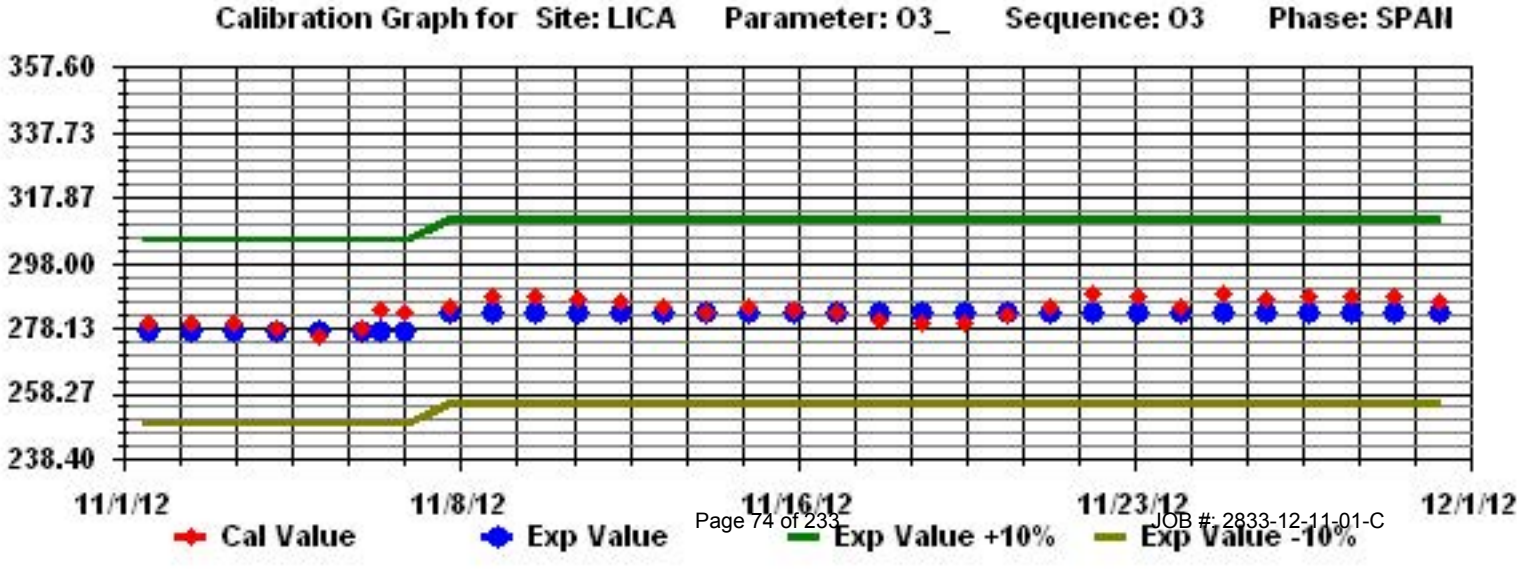
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	18	21	18	39	88	84	104	21	12	23	53	59	56	28	37	21	682
<	110											2						2
<	210											3						3
>=	210																	
	Totals	18	21	18	39	88	84	104	21	12	23	58	59	56	28	37	21	

Calm : .00 %

Total # Operational Hours : 687



JOB #: 2833-12-11-01-C


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
11/1/12
11/8/12
11/16/12
11/23/12
12/1/12
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

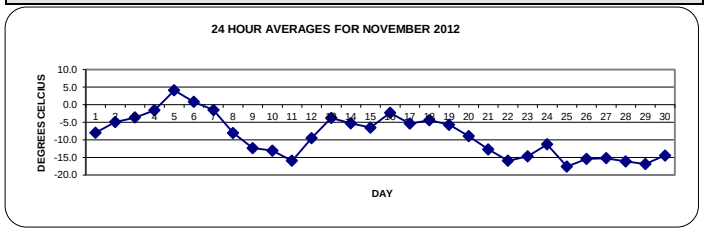
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	-9.7	-9.6	-9.4	-9.3	-9.2	-9.2	-9.1	-8.8	-8.5	-8.1	-8	-7.9	-7.7	-7.5	-7.4	-7.2	-7.1	-7	-6.9	-7	-7	-6.7	-6.6	-6.5	-6.5	-8.0	24
2	-6.5	-6.5	-6.5	-6.4	-6.1	-6.2	-6.3	-6.2	-6	-5.6	-4.6	-3.8	-3.4	-3.1	-3.2	-3.2	-3.5	-3.9	-4.3	-4.4	-4.4	-4.5	-4.5	-4.6	-3.1	-4.9	24
3	-4.7	-4.8	-4.9	-4.9	-4.7	-4.7	-4.7	-4.6	-4.5	-4.2	-3.9	-4.1	-4.6	-4.1	-3.3	-2.9	-2.8	-2.5	-2.2	-2.2	-2.1	-1.9	-2	-2	-1.9	-3.6	24
4	-1.8	-1.7	-2	-2	-2.2	-2.8	-2.7	-3	-2.6	-2.2	-2	-1.4	-1.1	-0.7	-0.4	-0.2	-1	-2.3	-2.1	-1.5	-1.1	-0.7	-0.5	-0.2	-0.2	-1.6	24
5	0.4	0.8	1.2	1	0.3	-0.5	-0.1	0.7	1.2	2.9	6.1	7.9	**8.6**	8.4	8.1	7.8	6.8	5.7	5.3	5.3	5.4	5.1	5.3	4.9	**8.6**	**4.1**	24
6	3.7	2.6	1.7	1.1	0.4	-0.1	-1.1	-1.7	-1.1	0.3	1.5	3	3	2.8	2.9	2.7	1.8	1.1	-0.4	-0.9	-0.9	-0.7	-0.7	-0.7	3.7	0.8	24
7	-0.6	0	0.6	1.9	1.1	1.4	1.6	1.3	1.4	0.3	-0.1	-0.2	-0.6	-0.9	-1.7	-2	-2.4	-3.5	-4.7	-5.3	-5.6	-5.8	-6.1	-6.5	1.9	-1.5	24
8	-6.9	-7.7	-7.7	-7.1	-7.1	-7.3	-7.2	-7.4	-7.3	-7.4	-7.1	-6.9	-6.7	-7.2	-7.7	-8.1	-8.4	-8.8	-9.3	-9.6	-9.8	-10.2	-10.2	-10.2	-6.7	-8.1	24
9	-10.6	-11.5	-12.1	-12.3	-12.3	-12.9	-13.3	-13.4	-13.5	-13.6	-13.5	-13.1	-12.8	-12.2	-11.5	-11.4	-11.6	-11.6	-11.6	-11.9	-12.2	-12.1	-12.1	-12.5	-10.6	-12.3	24
10	-12.6	-12.5	-12.6	-12.8	-12.7	-12.6	-12.6	-12.7	-12.3	-11.8	-11.3	-10.6	-9.8	-9.1	-9	-9.4	-10.9	-13.1	-14.9	-16.3	-17.4	-18.1	-19.1	-19.7	-9.0	-13.1	24
11	-20.1	-20.8	-21.2	-21.3	-21.7	-21.9	**-22.6**	**-22.6**	-21	-17.6	-14.7	-12.4	-10.7	-9.5	-9.4	-9.3	-10.9	-12.3	-13.4	-13.7	-13.7	-13.4	-13.6	-14.5	-9.3	-15.9	24
12	-15.7	-16.1	-15.4	-14	-15.2	-16.3	-16.6	-16.8	-14.7	-10.5	-8.6	-6.5	-5.1	-3.7	-4.8	-5.2	-5.6	-5.7	-5.5	-5.5	-5.3	-5.1	-4.9	-4.9	-3.7	-9.5	24
13	-5	-5.1	-5.1	-5.2	-5.3	-5.3	-5.4	-5.5	-5.5	-5.3	-4.7	-4	-3.2	-2.6	-2	-1.7	-1.8	-1.9	-1.7	-1.9	-2.2	-2.5	-3.2	-4.2	-1.7	-3.8	24
14	-4.4	-4.5	-4.1	-4.1	-4.4	-4.7	-4	-3.4	-2.3	-1	0.7	1	-0.4	-1.7	-2.3	-3.3	-5.2	-6.7	-9	-11.5	-12.5	-13	-12.4	-12.9	1.0	-5.3	24
15	-10.8	-9.3	-9.4	-9.3	-9.9	-9.4	-9.3	-10	-10	-8.9	-7.1	-5.1	-3.2	-0.6	1.5	-0.2	-2.9	-4.3	-5.3	-5.8	-6.4	-6.9	-6.6	-6.6	1.5	-6.5	24
16	-5.9	-4.8	-3.9	-3	-2.4	-2.3	-1.9	-1	-0.7	-0.4	-0.4	-0.2	0.3	1.3	1.9	0.5	-1.1	-2.2	-2.8	-3.7	-4.6	-5.5	-6.1	-6.4	1.9	-2.3	24
17	-6.4	-5.7	-5.2	-5.2	-5.1	-5.1	-5.1	-5.1	-5.1	-5.3	-5.5	-5.7	-5.5	-5.2	-5.1	-5.1	-5.3	-5.3	-5.3	-5.5	-5.3	-5.4	-5.4	-5.4	-5.1	-5.3	24
18	-5.7	-5.8	-5.6	-5.6	-4.8	-4.1	-3.9	-3.9	-4.1	-4.1	-3	-2	-2.2	-2.7	-2.7	-2.5	-3	-3.3	-3.7	-4.4	-6	-7.2	-7.4	-7.8	-2.0	-4.4	24
19	-7.4	-7.2	-6.9	-6.5	-6.2	-6.6	-7	-6.7	-6.7	-6.7	-6.6	-6.3	-5.7	-5.4	-5.2	-5	-4.9	-4.8	-4.9	-4.8	-4.2	-3.8	-3.7	-3.8	-3.7	-5.7	24
20	-3.9	-3.6	-3.8	-4.3	-5.1	-5.8	-6	-6.6	-8.1	-9	-9.2	-9.3	-9.5	-10.3	-10.9	-11.3	-11.4	-11.6	-11.6	-11.8	-12.1	-12.6	-12.9	-13.3	-3.6	-8.9	24
21	-13.2	-13.1	-13.1	-12.8	-13	-13	-13.2	-12.9	-12.9	-12.7	-12.5	-12.4	-11.7	-11.9	-12.1	-12.2	-12.4	-12.3	-12.2	-12.5	-12.8	-13	-13.1	-13.5	-11.7	-12.7	24
22	-14.1	-14.2	-14.3	-14.4	-14.9	-15.2	-14.9	-14.7	-14.6	-14.6	-14.3	-13.8	-13.3	-12.9	-12.4	-12.9	-14.6	-16.7	-18.5	-19.6	-21	-21.6	-22.1	-22.5	-12.4	-15.9	24
23	-22.5	-21.8	-20.9	-19.8	-18.1	-17.5	-17.6	-17.7	-17.7	-16.7	-16.1	-15.1	-14	-12.5	-11.9	-11.9	-11.2	-10.5	-9.4	-8.5	-9.7	-11.4	-10	-9.5	-8.5	-14.7	24
24	-9.6	-9.4	-9.2	-9.1	-8.9	-8.6	-8.2	-8	-7.9	-7.8	-7.8	-7.6	-7.7	-8	-8.7	-10.4	-12.6	-14.3	-15.7	-16.8	-17.5	-18.2	-18.9	-19.5	-7.6	-11.3	24
25	-20.6	-21.1	-21.2	-21.2	-20.9	-20.4	-20.1	-21.1	-21.1	-20	-18.9	-17.5	-16.3	-15.5	-15.4	-15.1	-15.2	-15.1	-14.8	-14.6	-14.4	-14.1	-14.2	-14.1	-14.1	-17.6	24
26	-14.2	-14.2	-14.1	-14.3	-14.2	-14.4	-14.7	-15.6	-15.3	-14.9	-14.7	-14.4	-14.3	-13.9	-13.9	-13.8	-14.4	-15	-16.9	-18	-18.2	-18.6	-18.1	-18.8	-13.8	-15.4	24
27	-19.7	-21	-21.4	-20	-18.7	-18.1	-17.2	-15.8	-15.2	-14.1	-12.7	-11.8	-10.9	-10.3	-9.4	-10.2	-11	-12.5	-15.2	-16.5	-15.6	-15.1	-16.5	-16.4	-9.4	-15.2	24
28	-17.5	-19	-19.3	-14.7	-14.1	-14.5	-15.3	-16.1	-16.2	-16.2	-15.8	-15.2	-14.9	-14.9	-15.1	-15.3	-15.9	-16.2	-16.4	-16.4	-16.7	-16.8	-16.9	-17	-14.1	-16.1	24
29	-17.2	-17.3	-17.6	-17.8	-18	-18.1	-18.1	-18.2	-18.2	-18	-17.7	-17.3	-16.9	-16.5	-16.4	-16.5	-16.4	-16.1	-15.7	-15.6	-15.6	-15.4	-15.2	-15.1	-15.1	-16.9	24
30	-15.2	-15.3	-15.4	-15.5	-15.6	-15.6	-15.7	-15.7	-15.7	-15.6	-15.2	-14.8	-14.2	-13.7	-13.5	-13.6	-13.6	-13.4	-13.1	-12.7	-12.9	-13.3	-13.5	-13.7	-12.7	-14.4	24
HOURLY MAX	3.7	2.6	1.7	1.9	1.1	1.4	1.6	1.3	1.4	2.9	6.1	7.9	8.6	8.4	8.1	7.8	6.8	5.7	5.3	5.3	5.4	5.1	5.3	4.9			
HOURLY AVG	-9.9	-10.0	-10.0	-9.6	-9.6	-9.7	-9.7	-9.8	-9.5	-9.0	-8.3	-7.6	-7.2	-6.8	-6.7	-7.0	-7.6	-8.2	-8.7	-9.1	-9.4	-9.6	-9.7	-9.9			

STATUS FLAG CODES

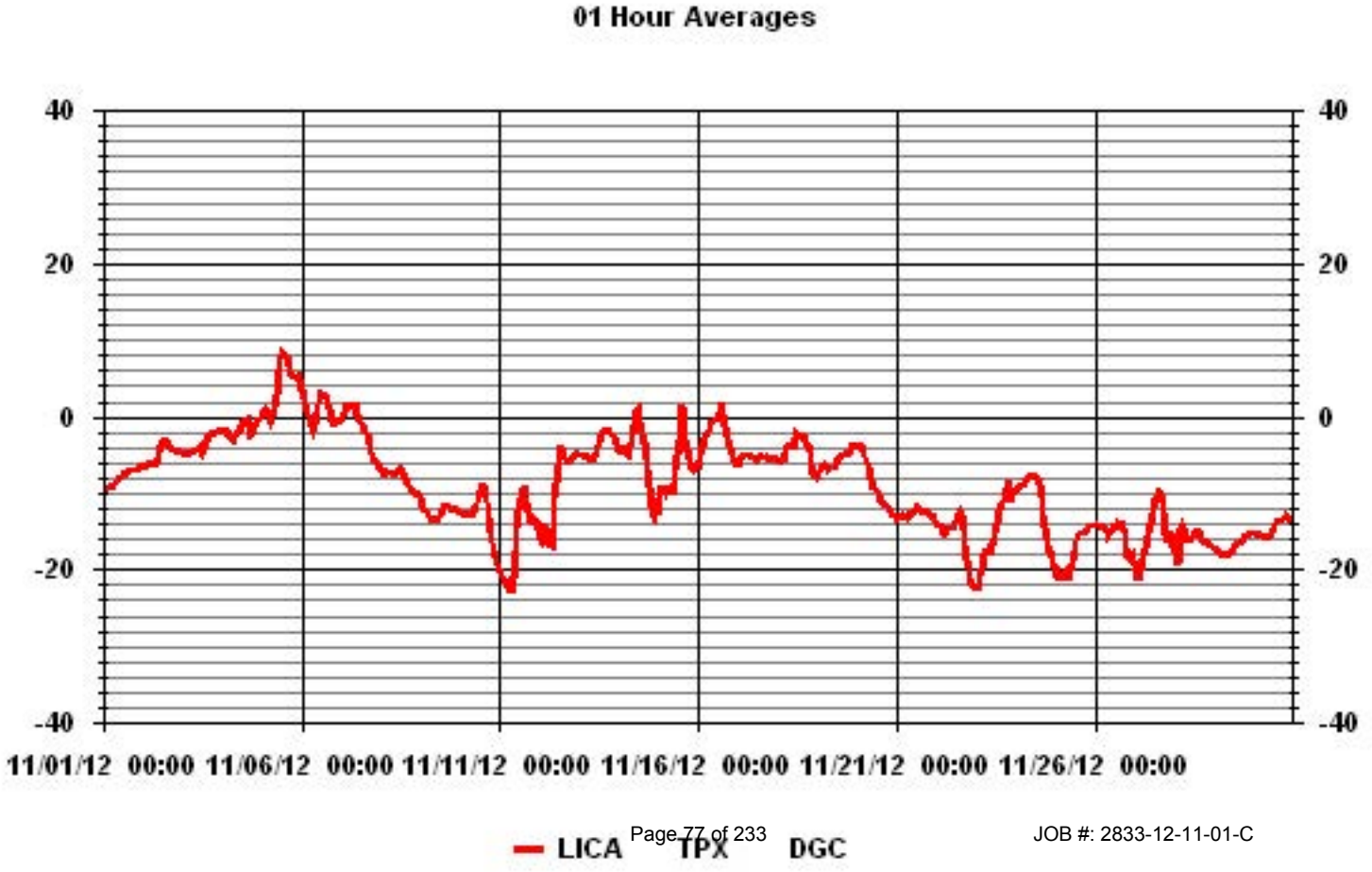
S	- OUT OF SERVICE	OD	- OUTSIDE DECTECTION LIMITS
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-22.6	^{o}C	@ HOUR(S)	6, 7	ON DAY(S)	11
MAXIMUM 1-HR AVERAGE:	8.6	^{o}C	@ HOUR(S)	12	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	4.1	^{o}C			ON DAY(S)	5
					VAR-VARIOUS	

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	6.42		MONTHLY AVERAGE:	-8.86	^{o}C



JOB #: 2833-12-11-01-C

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

RELATIVE HUMIDITY hourly averages (%)

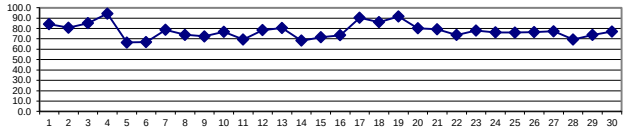
MST

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	82	82	84	84	85	85	84	84	82	81	84	82	81	84	85	86	87	86	86	86	85	87	88	88	84.2	24
2	88	88	88	88	87	88	89	88	87	85	80	76	74	72	70	69	72	76	79	79	80	81	77	79	89	80.8	24
3	80	81	82	82	81	81	81	82	82	83	83	81	82	82	83	85	88	89	90	91	92	94	95	95	95	85.2	24
4	94	94	94	94	93	93	93	95	96	96	96	96	96	94	92	91	93	95	96	**97**	**97**	96	93	91	**97**	**94.4**	24
5	88	86	83	87	91	94	94	93	90	81	65	53	44	43	43	43	47	50	52	52	53	55	54	54	94	66.5	24
6	58	62	65	66	68	69	73	74	70	65	61	56	58	58	58	59	62	65	72	76	78	76	77	77	78	66.8	24
7	77	74	74	65	70	68	68	74	79	84	82	80	83	86	86	84	83	81	84	83	82	82	81	80	86	78.8	24
8	80	83	84	83	82	79	80	80	79	75	75	71	69	70	70	71	70	68	67	68	69	67	66	68	84	73.9	24
9	70	70	74	76	76	80	82	82	81	79	78	75	71	65	63	63	64	64	63	66	68	70	79	77	82	72.3	24
10	77	77	79	80	79	78	78	81	81	78	75	73	71	70	69	66	74	81	82	81	80	79	78	77	82	76.8	24
11	77	75	76	76	76	75	75	75	73	73	72	68	62	58	56	53	59	63	66	68	69	70	72	76	77	69.3	24
12	80	81	80	78	81	82	81	81	78	73	73	73	73	67	73	75	77	79	81	82	83	83	84	84	84	78.4	24
13	85	84	83	83	83	83	85	85	83	82	78	78	80	80	78	77	79	79	77	76	76	77	80	83	85	80.6	24
14	83	83	83	83	84	85	81	75	76	75	73	63	52	47	41	45	46	47	57	67	72	73	73	75	85	68.3	24
15	68	68	79	81	83	81	80	81	81	75	70	64	58	50	46	53	63	69	72	75	78	80	80	82	83	71.5	24
16	81	81	78	75	72	71	70	70	71	68	68	66	64	60	57	63	70	74	77	80	84	87	88	90	90	73.5	24
17	91	90	89	92	93	93	92	92	91	90	90	89	88	86	85	86	87	88	89	93	93	93	93	93	93	90.3	24
18	93	91	89	89	88	87	87	88	88	88	84	80	82	84	86	84	84	81	82	82	85	87	88	90	93	86.1	24
19	92	91	91	92	93	92	92	92	92	92	92	92	92	92	92	92	93	92	91	92	90	91	89	87	93	91.5	24
20	88	89	89	89	87	87	90	89	85	80	78	77	77	74	74	73	72	73	73	75	76	77	77	77	90	80.3	24
21	78	79	77	78	78	79	82	82	82	81	80	80	79	79	79	78	77	78	78	80	80	79	79	80	82	79.3	24
22	81	78	76	74	76	76	76	76	75	73	70	67	66	65	63	66	72	78	79	78	76	75	77	76	81	73.7	24
23	75	77	77	78	79	80	80	79	79	79	78	78	79	78	78	77	76	75	75	74	78	83	82	81	83	78.1	24
24	82	81	82	85	87	87	85	85	85	84	83	80	75	70	68	69	65	64	66	66	67	69	71	74	87	76.3	24
25	76	76	77	77	76	78	79	78	77	77	79	79	76	73	74	73	76	75	75	75	76	74	74	75	79	76.0	24
26	79	80	79	80	78	77	78	80	79	76	73	70	70	69	71	72	75	78	81	79	78	78	78	78	81	76.5	24
27	77	76	76	77	78	79	80	81	82	82	79	77	72	68	65	67	72	76	80	81	83	84	81	82	84	77.3	24
28	79	77	78	80	76	73	70	72	70	69	67	64	61	60	62	65	66	62	62	65	72	71	70	75	80	69.4	24
29	74	73	73	72	70	71	72	73	75	73	74	73	72	74	74	74	75	75	75	76	76	76	76	76	76	73.8	24
30	76	76	76	77	77	78	77	76	77	79	79	77	74	72	74	77	78	77	77	75	77	80	80	81	81	77.0	24
HOURLY MAX	94	94	94	94	93	94	94	95	96	96	96	96	96	94	92	92	93	95	96	97	97	96	95	95			
HOURLY AVG	80.3	80.1	80.4	80.7	80.9	81.0	81.2	81.4	80.9	79.2	77.2	74.7	72.7	70.9	70.5	71.2	73.4	74.6	76.1	77.3	78.5	79.1	79.3	80.0			

STATUS FLAG CODES

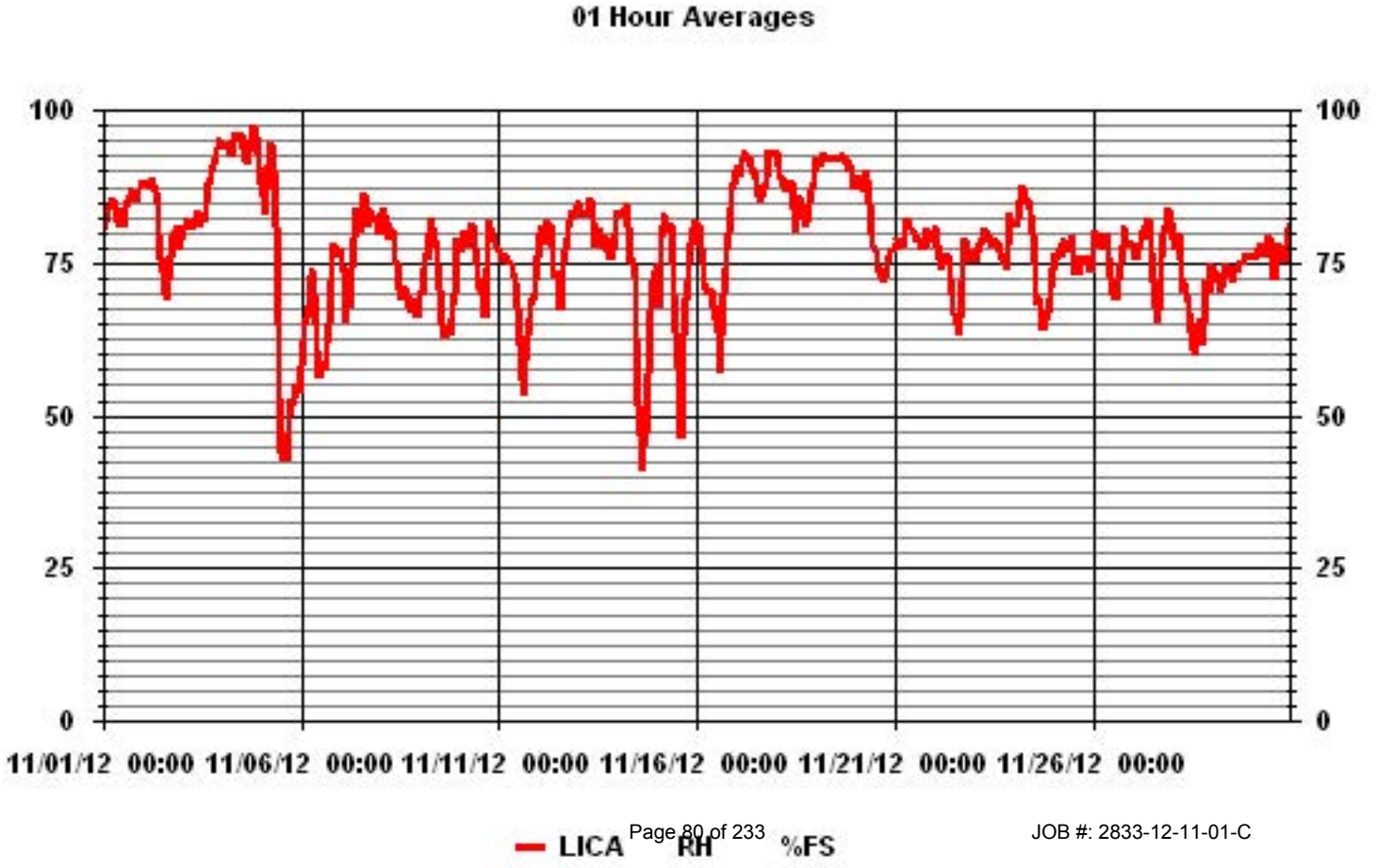
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

24 HOUR AVERAGES FOR NOVEMBER 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:		97	%	@ HOUR(S)	19, 20	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:		94.4	%			ON DAY(S)	4
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:		720	HRS
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.63			MONTHLY AVERAGE:		77.56	%



JOB #: 2833-12-11-01-C

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

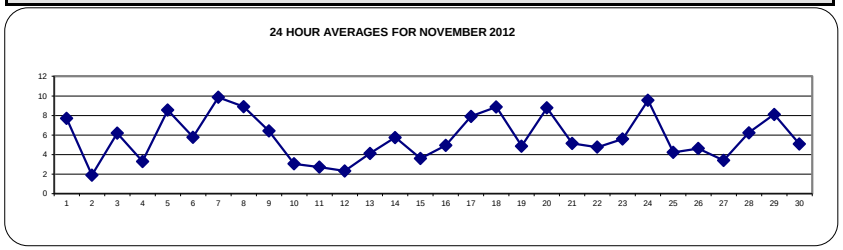
VECTOR WIND SPEED (WS) hourly averages (km/hr)

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	8.4	9.8	9.2	8.6	7.3	10	9.5	10.1	11.1	11.1	11.7	10.8	9.6	8.5	8	7.3	6.2	4.8	4.6	5	4.5	4.4	2.8	2.6	11.7	7.7	24
2	2.8	3	3.5	1.9	1.4	1.6	2.1	4	4.5	4.9	4.5	5.3	4.3	4.7	5.2	4.6	5	4.9	4.8	2.8	0.4	1.7	4	2.8	5.3	1.9	24
3	2.7	2.6	3.4	2.8	3.9	6.2	6.2	6.5	7.8	8.2	8.9	11.5	9.2	8.5	10	6.8	8	7.1	7.4	7.9	3.8	1.6	3.8	4.2	11.5	6.2	24
4	2	0.4	1.2	4.2	4.1	4.5	8.4	8.1	6.5	5.7	6.9	7.3	7	7.6	4.7	3.2	1	1.2	4.8	7.7	9.4	11.4	12.5	12.9	12.9	3.3	24
5	8.4	7.7	3.8	1	0.8	1.7	2.5	4	2.3	3.6	6.4	11.4	17.2	**18**	17.3	14.1	11.4	9.7	11.5	11.3	10.5	9.9	11.9	9	**18.0**	8.6	24
6	8.8	9.6	9.9	8.9	9	6.3	5.6	6.3	5.9	7.6	9.7	8.7	7.3	8.7	6.6	6.1	4.7	3.6	1.5	1	0.8	0.6	1	0.6	9.9	5.8	24
7	2.7	2.6	5.4	6	0.4	5	5.7	6.7	9.9	11.6	13.7	14.4	16	13	13.5	14	11.2	12.9	13.1	12.3	12.8	11.4	11.4	10.9	16.0	**9.9**	24
8	9	10.5	10.7	9	9.3	8.9	8.3	7.5	8.7	8.6	7.8	8.8	9.3	9.8	9.3	8.2	7.9	8.2	8.9	8.2	8.1	9.8	9.7	8.9	10.7	8.9	24
9	8.8	7.2	6.3	6.7	7.9	6.8	6	5.1	6.3	7.3	6.6	8.1	6.2	5.9	5.8	6.2	6.9	6.5	5	5.3	5.7	5.2	4.6	7.6	8.8	6.4	24
10	5.6	6.6	5.3	5.8	4.9	4.4	3.4	2.7	2.6	2.5	3	3	3.5	2	4.3	6	1.9	1	0.7	0.9	0.9	0.3	0.8	1.2	6.6	3.1	24
11	0.7	0.8	0.6	0.5	0.6	0.8	1.8	1.1	0.6	1.6	3.4	2.7	4.1	4.7	7.1	4.2	3.4	4.5	3.3	4.8	4.7	5.1	3.1	0.9	7.1	2.7	24
12	1.1	1	1	2	1.3	1.5	2.5	1.4	2.4	1.5	1.7	2.8	4.5	2.9	2.6	4.4	4.3	2.5	0.8	1.2	1.9	3.3	2.8	4.2	4.5	2.3	24
13	6.6	7.8	7.9	7.3	4.5	4.8	4.6	5.5	6.2	5	3.4	3.5	3.3	3.6	3.2	3.6	2	2.9	2.2	2.9	2.7	1.6	1.6	2.2	7.9	4.1	24
14	2.7	1.9	0.7	1.2	0.7	1.7	2.9	4.6	5.9	7.1	12.2	15	16.5	16.1	16.3	12.2	8.5	5.3	2	1.8	0.2	0.8	1	0.8	16.5	5.8	24
15	2.7	2.5	7.6	9	4.4	5.5	8	7.5	5.8	6.8	6.2	4.7	4.3	2.5	1.5	1.3	0.9	1	1.2	1	0.3	0.3	0.9	0.8	9.0	3.6	24
16	1.2	0.6	1.1	0.9	4.2	3	4.3	4.6	4.9	7.7	5.4	6.7	8.1	6.8	6	6.8	6.4	7.5	6.9	6.4	5.9	5	3.9	4.2	8.1	4.9	24
17	5.4	5.3	5.5	7.9	7	5.2	4.7	5.8	7	9.1	8.4	7.6	8.8	8.4	7.8	7.4	8.2	10.6	8	11.1	10.5	9.5	10.2	10.5	11.1	7.9	24
18	10.4	13.2	11.6	13.2	12.5	8.5	7.1	6.6	10.3	10.4	3.9	2	7.2	11	11.4	9.3	12.1	12.6	10	7.9	8.3	6	5.9	1.3	13.2	8.9	24
19	1.3	1	1.4	3.2	4	5.3	6.3	4.9	5.9	6.7	6.6	5.9	5.9	7.1	5.2	4.2	4.3	5.4	5.9	3.1	5.2	3.8	8.3	5.9	8.3	4.9	24
20	3.5	5	7.8	9.5	9.7	8.2	8.7	13.2	12.7	12.3	10.8	9.2	10.1	11.6	11.1	9	8.2	7.5	6.6	7.5	5.9	5.4	8	9.1	13.2	8.8	24
21	3.5	1.3	4.1	2.5	1.9	1.1	2.6	1.1	5.4	3.1	2.9	4.1	1.3	6.2	8.3	6.9	9	7.8	8.2	9	9.1	9.4	7.6	7.2	9.4	5.2	24
22	6.8	7.2	8.2	10	9	7.8	6.3	6.1	7.2	6.7	7.3	6	5.9	4.9	4.3	3.2	2.5	1.3	0.6	0.7	0.4	0.9	0.4	0.5	10.0	4.8	24
23	0.7	1.2	1.4	4	4.4	4	8.6	7	5.6	8.4	8.7	10.4	8.2	7.8	8.9	10.3	9.2	8	5.9	4.6	1.9	0.9	1.9	2.5	10.4	5.6	24
24	4.3	7.3	8.5	8.6	7.2	6.7	6.3	7.7	7.9	8.9	9.7	13	13	12.6	13.1	16.6	15.8	15.6	11.9	11	8.2	6.3	5.6	3.8	16.6	9.6	24
25	4.1	5.1	5.5	5.6	5.1	5.2	4.4	4.2	4.1	3.5	3.7	2.1	3	2.2	3.7	4.7	5.2	6.7	6.7	4.1	2.4	2.7	3.4	3.9	6.7	4.2	24
26	4.4	5.1	5.9	5.5	6.8	5.7	7.1	6.2	6.7	6.2	8.4	7.8	7.1	6.5	5	4.1	2.9	1.4	1.1	1.1	1	1.2	1.9	1.8	8.4	4.6	24
27	1.3	0.8	0.3	0.8	2.3	1.6	1.4	1.8	3.6	4.1	5.4	8.5	7.8	7.3	5	2.9	3	1.3	1.8	3.1	5.2	4.6	4.4	3.3	8.5	3.4	24
28	3.1	0.7	1.2	7.9	10.4	9.8	8	8.1	7.6	6.6	7.3	7.7	6.8	6.9	6.3	6.2	5.4	**C**	4.5	4.6	4.4	6.7	6.9	6.4	10.4	6.2	24
29	7.3	7.8	8.3	9.6	8.1	8.2	8.6	7.4	**M**	**M**	**M**	7.1	8.3	7.4	9.7	8.8	7.9	8.1	7.7	8.6	7.3	8.7	8.4	7.2	9.7	8.1	21
30	8.8	7.8	7.4	7.7	6.6	6.6	6.2	7.2	6.6	5.8	5.3	4.4	2.4	0.7	4.2	4.3	6	6	4.2	4.7	0.7	1.7	3.1	3.4	8.8	5.1	24
HOURLY MAX	10.4	13.2	11.6	13.2	12.5	10.0	9.5	13.2	12.7	12.3	13.7	15.0	17.2	18.0	17.3	16.6	15.8	15.6	13.1	12.3	12.8	11.4	12.5	12.9			
HOURLY AVG	4.6	4.8	5.2	5.7	5.3	5.2	5.6	5.8	6.3	6.6	6.9	7.4	7.5	7.5	7.5	6.9	6.3	6.1	5.4	5.4	4.8	4.7	5.1	4.7			

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

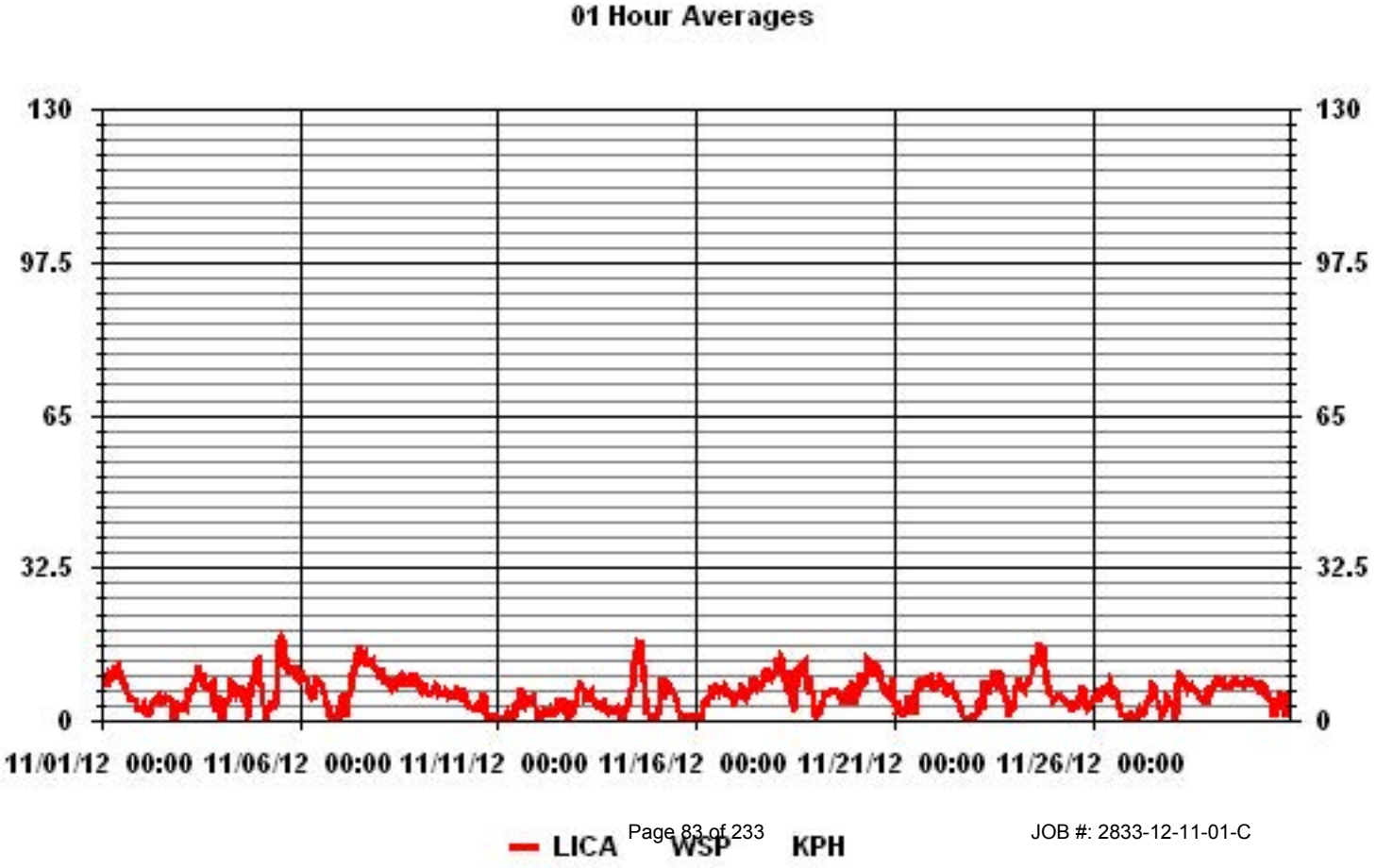


LAST CALIBRATION: November 28, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	18.0	KPH	@ HOUR(S)	13	ON DAY(S)	5	
MAXIMUM 24-HR AVERAGE:	9.9	KPH			ON DAY(S)	7	
CALMS (≤ 0 KPH)	0.67	%	OPERATIONAL TIME:		717	HRS	
MONTHLY CALIBRATION TIME:	1	HRS	AMD OPERATION UPTIME:		99.6	%	
STANDARD DEVIATION:	3.49		MONTHLY AVERAGE:		5.88	KPH	

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

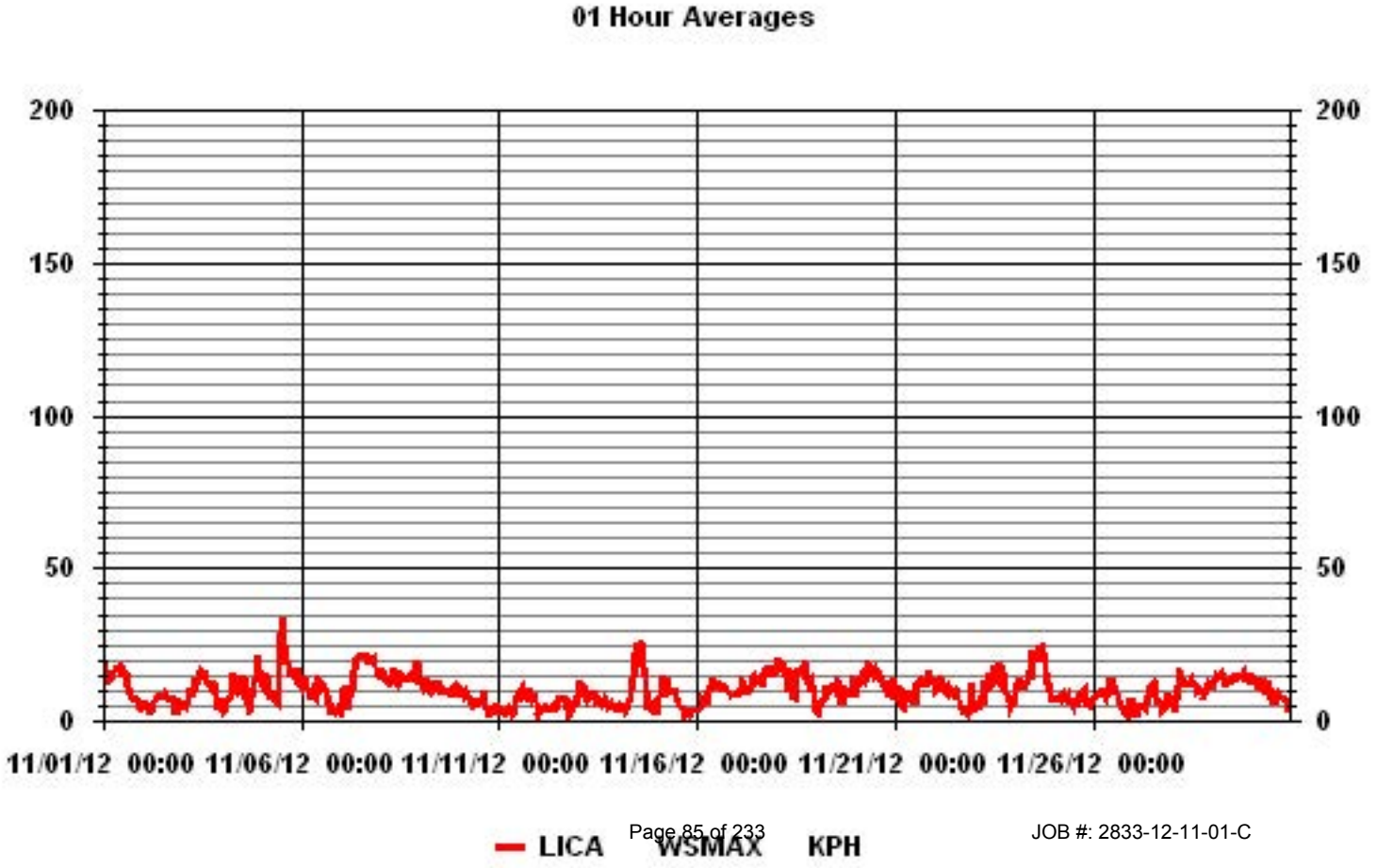
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	MAX.
DAY																									
1	13.5	18.8	16.7	13.1	13.4	15.5	15	15.9	17	16.9	16.9	18.5	14.9	14.9	16.3	11.7	9.4	8.4	7.7	7.3	7.6	7.1	4.8	4.3	18.8
2	5.5	5.7	4.7	5	2.9	3.1	4.7	6.4	7	7.2	8.5	8.6	8.4	8	9.5	8.7	7.7	7.2	7.4	4.6	2	6.6	7.7	4.4	9.5
3	4.3	5.3	4.5	5.4	8.3	10.8	8.3	9.6	13.8	11.6	15.7	16.8	16	14.7	16.5	13.6	12.6	11.2	11.9	11.9	9.3	3.9	6	6.4	16.8
4	4.1	2.9	3.5	6.8	7.2	8.4	13.7	15.6	10.8	9.7	10.7	11.1	11.8	15.1	7.9	5.9	3.4	3.6	7.5	10.2	14.1	15.8	21.5	17.6	21.5
5	13.7	11.9	9.3	15.2	9.2	8.2	8.4	9.6	6.9	6.1	10.1	25.8	28.8	**33.9**	25.7	19.4	19	14	16.8	16.9	14.6	13.8	17.3	13.1	**33.9**
6	11.8	13.4	13.4	12.5	11.2	9.1	7.1	8.8	8	12.2	14.8	13	11.5	13	10.2	10.3	8.6	6.3	3.1	3.4	3.7	2.6	3.3	2.8	14.8
7	5.8	4.3	10.1	11.2	3.8	8.8	8.6	10.3	16.3	20.4	20.9	21.3	21	21.3	21.5	22.4	18.3	20.8	20.2	19.4	20.3	18.3	16	15.2	22.4
8	13.8	16.9	14.2	14.6	14.4	12.9	12.4	13.1	17.2	13.2	12.2	13.1	16.2	13.8	14.7	13.8	13.8	14.3	12.8	15.3	15.2	14.3	19.4	13.6	19.4
9	14	12.7	11	11.7	12.8	12.8	9.7	8.9	9.5	10.6	12.5	12.6	10.1	10.6	9.9	9.8	10.1	10	9.3	10.3	11.3	8.8	7.8	11.4	14
10	8	11	10.5	8.6	9.7	8.6	7.7	6.1	5	5.4	6.3	6	6.7	7.4	7.3	9.6	4.5	2.3	2.3	4.7	3.4	3.3	4.9	5.9	11
11	2.4	2.4	2.6	3.3	2.6	3.1	4.9	4.5	2.9	3.8	7.6	7.3	9.5	10.3	11.1	8.4	8.9	9.3	6.3	9.5	7	7.8	6.5	1.8	11.1
12	2.6	3.2	3.3	4.2	2.5	4.6	4.3	4.2	5	3.7	4	5.7	7.3	7.1	7.6	7.3	7.4	4.7	2	2.8	4.3	5.4	5.6	7.8	7.8
13	10.8	12.7	11.3	11.4	8.5	7	8.2	8.4	9.5	9.4	6.9	7.9	6.7	6.7	5.6	6.7	4.8	6.1	4.5	4.9	5.8	4.4	3.7	4.1	12.7
14	5.2	4.3	3.6	3.9	2.9	3.9	5.9	7.6	9.8	14.1	22	25.7	23.3	25.2	26.2	18.3	15.1	10.3	4.5	4	5.3	5.8	2.6	2.7	26.2
15	6.4	7.9	11.9	14.4	8.1	10.5	14	9.6	9.5	9.7	10.1	8	7.2	5.6	4.6	4.3	2.2	3	3	3.4	2	2.8	3.5	3.8	14.4
16	3.5	3.8	7.3	6.6	7.8	6.4	6.3	9.4	11.7	13.5	9.8	12.4	12.7	11.9	11.1	11.7	11.6	10.3	10.1	9.4	8.2	8.3	8.4	8.7	13.5
17	8.9	9.1	10.3	12.8	12.1	10	9.5	9.8	11.3	14.4	15	12.8	13.4	12.9	13	11.3	15.3	17.3	15.6	17.9	15.6	16	17.5	15.6	17.9
18	16	20.5	18.7	18.5	17.8	15.3	10.5	10.5	17	15.8	8.1	7.7	15.9	16.8	16.5	15.2	17.8	19.3	14.6	13	13.8	9.1	11.2	5.1	20.5
19	3.8	3	4.4	6	7.5	10	11.6	9.6	10.4	11.9	11.7	10.6	9.8	12.9	12.3	6.7	6.5	11.2	9.9	8.2	10.5	7.8	14.8	11.9	14.8
20	7.9	11.3	12.4	14.4	15.3	13.8	15.3	19.3	18.3	17.7	15.8	16.9	15.2	15.7	16	13.9	13.2	12	10.3	11.2	9	8.5	11.5	14.1	19.3
21	9.6	7.1	7.3	11.8	5.7	4.9	7.3	8.4	9.8	7.4	6.9	6.6	5.5	11.7	12.4	11	13.3	12.5	12.4	13.8	16.5	14	11.5	13.7	16.5
22	10.4	11.3	12.6	14.6	12.9	10.5	10.1	9.3	11.1	10.1	10.4	9.1	10.1	9.2	7.4	5.7	4.3	3.1	3.1	3.8	2.7	4	12.6	2.6	14.6
23	4.5	5.3	3.8	7.4	7.1	6.8	13.2	11.2	9.9	14.5	14.7	18.3	12.8	13.3	12.8	18.5	15.5	15.6	10.5	9.5	6.8	4.1	5.1	5.4	18.5
24	8.2	11.8	12.4	13.5	10.4	11.5	10	12.2	14.7	14.1	14.2	23.4	19.7	21	19.1	24.3	24.8	22.9	21.3	16.4	12.8	10.2	8.5	7.2	24.8
25	6.7	6.9	7.1	8.1	7.2	8.6	7.2	6.9	8.2	6.5	6.4	5.3	7.5	4.4	7.1	8.4	9.3	9.7	10.5	6.8	4.3	5.9	5.3	6.9	10.5
26	7.5	8.3	8.5	9.7	9.1	10.1	9.5	8.2	9.9	10.3	14.3	12.2	11.8	9.7	9.4	6.4	5.9	4.2	3.9	3.3	2.6	7.5	6.6	6.7	14.3
27	3.8	2.5	2.3	3.5	5.3	5.2	4.7	3.9	5.6	7.8	11.1	11.8	12.7	11.9	8.1	5.5	6.6	3.4	4.2	5.9	7.9	8	6	7.4	12.7
28	5.3	2.4	6.7	11.1	17	14.8	12.7	14.2	11.4	12.5	12.6	13.5	11	12.6	10.1	10.7	9.9	C	7.8	9.1	10	12.3	11.5	10	17
29	12.3	13.5	14.9	14.1	14.7	15.6	14.4	12.4	M	M	M	12.6	14.3	12.4	15.7	14.3	14.2	15.1	14.8	15.7	12.8	15.4	13.4	12.3	15.7
30	15.1	13	13	13.3	10.5	11.6	10.8	13.9	10.5	10.8	11.5	8.5	8.8	5.4	9.2	8	9.2	8.6	7.6	7.7	6.9	4.7	5.2	6.7	15.1
PEAK	16.0	20.5	18.7	18.5	17.8	15.6	15.3	19.3	18.3	20.4	22.0	25.8	28.8	33.9	26.2	24.3	24.8	22.9	21.3	19.4	20.3	18.3	21.5	17.6	

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	33.9	KPH	@ HOUR(S)	13
			ON DAY(S)	5



JOB #: 2833-12-11-01-C

LICA
WSP / WD Joint Frequency Distribution (Percent)

November 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	.55	.13	.97	3.21	5.58	6.00	7.54	2.93	1.67	3.49	5.86	5.72	4.05	1.81	1.11	.55	51.25
<	12.0	2.09	1.95	1.25	2.51	7.26	6.28	6.56	.13	.00	.00	2.23	2.79	3.21	.97	3.21	2.37	42.87
<	20.0	.27	.83	.27	.00	.00	.00	.69	.00	.00	.00	.00	.00	.55	1.53	.97	.00	5.16
<	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	2.93	2.93	2.51	5.72	12.84	12.29	14.80	3.07	1.67	3.49	8.10	8.51	7.82	4.32	5.30	2.93	

Calm : .69 %

Total # Operational Hours : 716

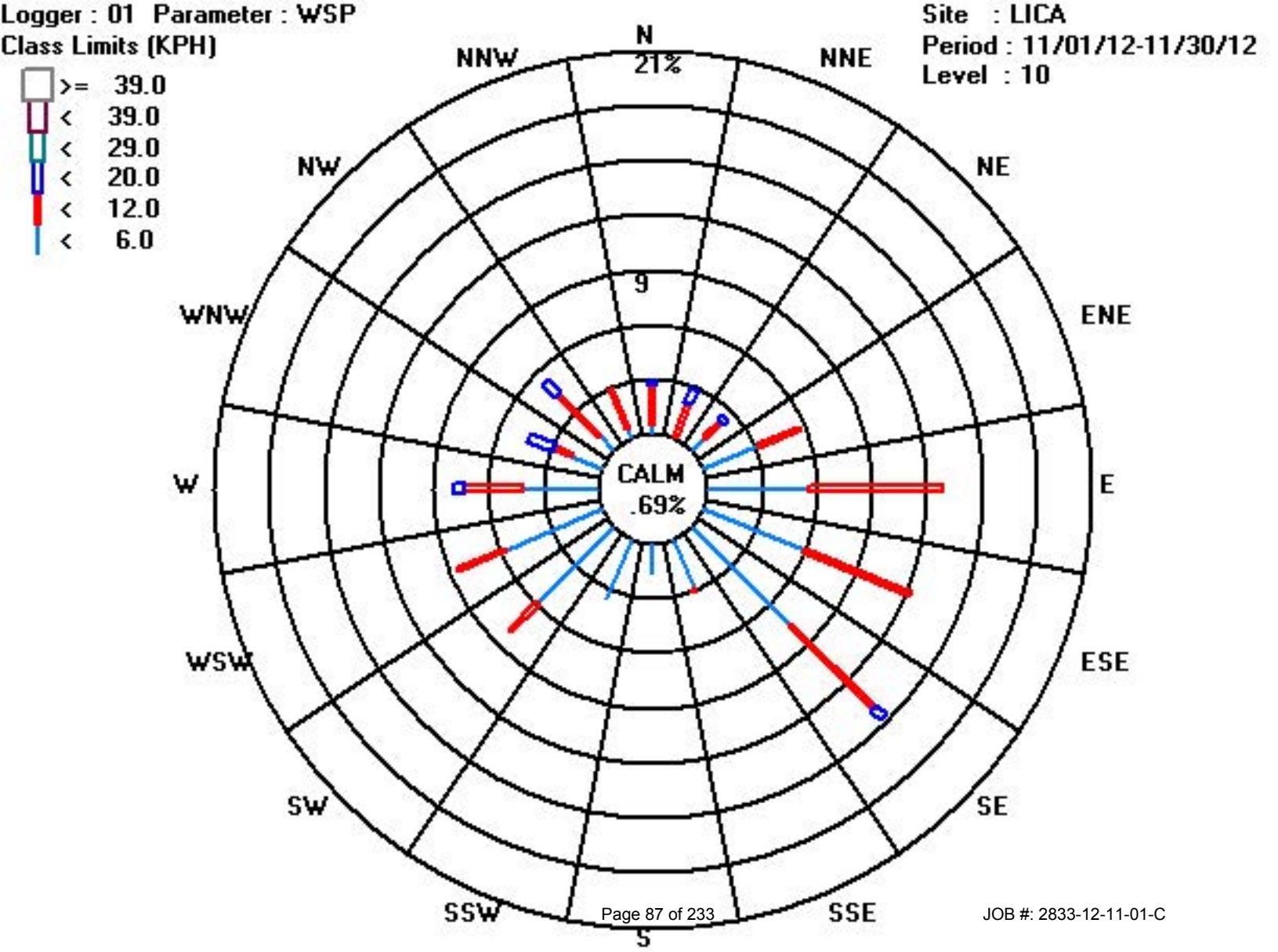
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	4	1	7	23	40	43	54	21	12	25	42	41	29	13	8	4	367
<	12.0	15	14	9	18	52	45	47	1			16	20	23	7	23	17	307
<	20.0	2	6	2				5						4	11	7		37
<	29.0																	
<	39.0																	
>=	39.0																	
	Totals	21	21	18	41	92	88	106	22	12	25	58	61	56	31	38	21	

Calm : .69 %

Total # Operational Hours : 716



JOB #: 2833-12-11-01-C

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

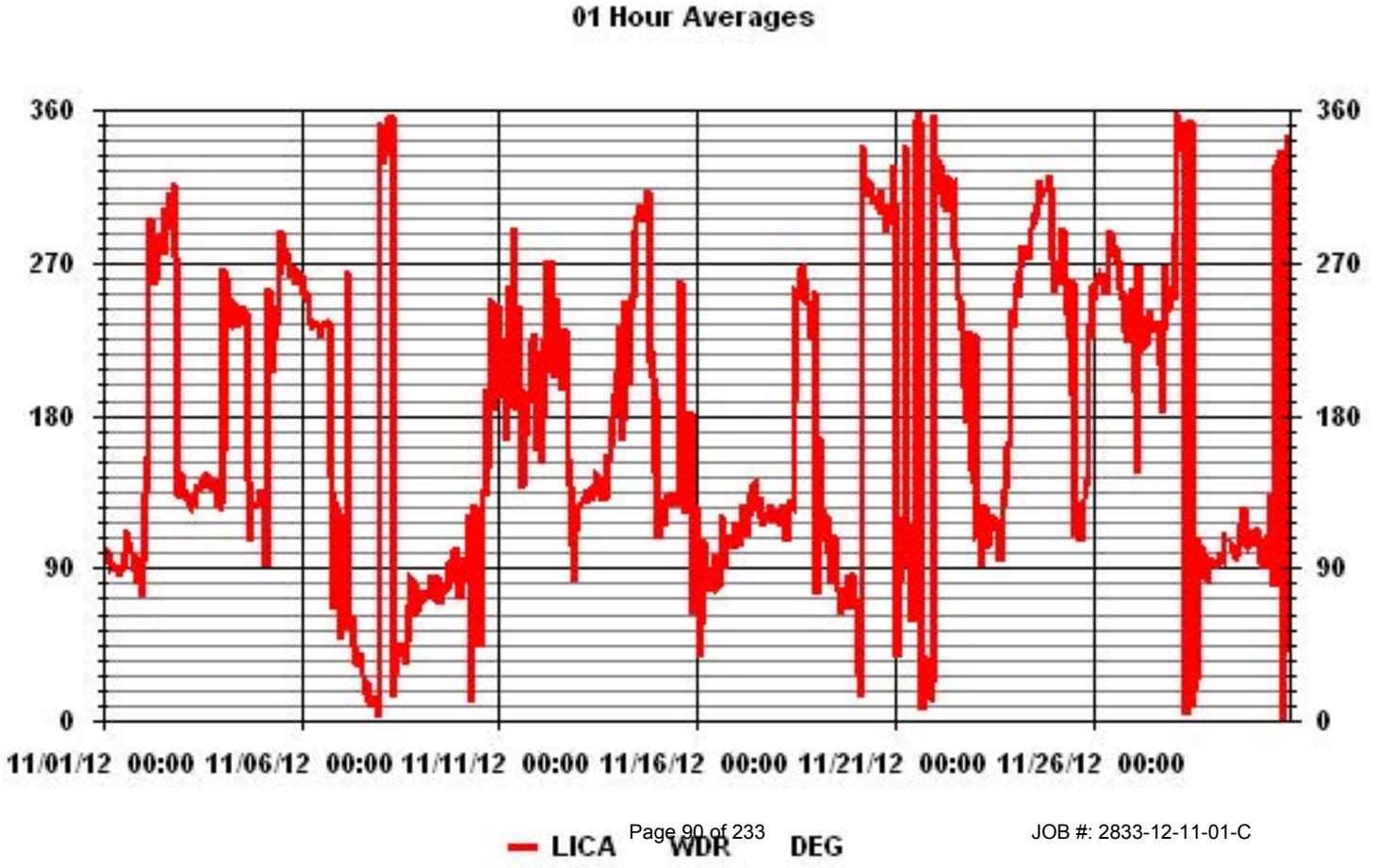
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	102	93	96	99	98	91	92	90	90	90	85	88	90	100	113	106	102	100	99	89	80	93	96	87	94	E	24
2	73	94	133	156	259	296	280	257	265	264	286	287	286	275	303	296	289	310	311	317	275	134	131	145	282	W	24
3	144	134	134	131	129	127	131	130	129	137	137	137	141	139	139	147	139	138	140	137	142	128	127	133	136	SE	24
4	132	267	158	262	236	235	249	246	245	232	236	233	245	242	239	242	143	106	126	129	128	127	128	132	194	SSW	24
5	136	133	126	90	253	253	210	205	224	244	233	263	289	284	280	272	273	262	268	266	266	257	266	265	262	W	24
6	263	252	250	251	251	239	235	231	236	234	234	233	225	232	234	234	236	235	145	136	65	129	124	123	238	SW	24
7	48	109	73	60	265	54	63	62	45	35	32	36	37	28	19	20	24	12	9	9	13	13	5	3	28	NNE	24
8	353	330	328	334	348	354	354	358	13	27	40	46	43	37	45	33	46	68	85	84	70	82	65	66	30	NNE	24
9	75	77	72	73	76	72	80	86	81	75	70	86	69	72	75	80	80	77	93	94	101	82	102	86	80	E	24
10	71	85	97	83	83	91	122	11	59	127	122	77	43	83	136	132	161	196	149	249	182	217	217	246	96	E	24
11	197	227	190	211	165	184	256	207	235	291	233	183	244	140	138	182	168	193	192	220	223	228	219	159	199	SSW	24
12	181	151	178	226	205	271	252	261	272	240	201	249	233	216	194	229	231	213	155	140	104	82	111	123	207	SSW	24
13	126	126	128	130	130	135	136	131	131	134	139	145	144	134	131	131	136	135	157	154	162	179	193	203	137	SE	24
14	206	233	165	177	248	227	198	234	243	250	289	296	297	303	300	294	297	304	313	211	220	203	146	192	282	W	24
15	107	115	128	130	114	126	131	131	130	134	130	130	126	152	260	168	122	141	159	145	182	63	69	128	130	SE	24
16	67	37	57	61	107	77	80	84	76	90	97	93	79	80	98	121	96	90	104	105	110	107	101	117	94	E	24
17	104	106	103	117	128	114	108	120	133	134	139	140	128	129	120	115	118	123	118	123	128	120	121	120	122	ESE	24
18	119	125	123	126	126	119	106	115	130	127	126	188	253	252	266	267	259	259	248	246	227	226	228	254	183	S	24
19	74	113	168	126	105	113	121	99	93	80	88	109	96	77	79	62	68	79	68	86	66	79	87	71	88	E	24
20	70	32	28	13	340	322	309	314	318	312	304	310	306	304	308	312	305	300	288	304	302	293	314	328	318	NW	24
21	307	37	91	82	98	120	339	110	90	102	58	116	354	333	359	354	6	27	38	23	16	15	23	358	23	NNE	24
22	326	327	330	329	311	305	300	305	321	318	316	317	280	273	251	249	231	196	203	175	205	230	149	140	306	NW	24
23	228	110	111	124	90	113	127	104	102	121	117	121	115	116	96	94	114	126	136	161	164	162	242	231	118	ESE	24
24	243	255	254	265	268	280	276	274	274	280	290	292	300	297	304	318	311	312	313	313	313	322	316	273	295	WNW	24
25	252	257	262	261	273	291	284	262	240	226	236	192	259	109	120	112	106	129	131	140	140	235	226	256	220	SW	24
26	248	258	260	263	261	264	254	251	264	279	289	286	273	280	270	273	255	248	251	230	223	233	250	255	266	W	24
27	245	195	146	269	262	237	237	221	222	228	241	234	229	231	231	235	210	181	230	268	241	243	246	254	235	SW	24
28	253	288	359	335	340	342	353	335	3	349	334	354	8	18	24	71	107	**C**	102	99	86	85	97	94	17	NNE	24
29	93	93	92	94	97	96	95	109	**M**	**M**	**M**	105	102	97	96	97	103	115	106	126	107	103	105	112	102	E	21
30	103	109	108	114	108	94	89	93	94	93	109	134	120	79	328	317	331	336	0	40	51	241	344	344	81	E	24
HOURLY AVG	353	330	359	335	348	354	354	358	321	349	334	354	354	333	359	354	331	336	313	317	313	322	344	358			

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:	1	HRS	OPERATIONAL TIME:	717	HRS
STANDARD DEVIATION:	90.40		AMD OPERATION UPTIME:	99.6	%
			MONTHLY AVERAGE:	89	DEG



JOB #: 2833-12-11-01-C

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

NOVEMBER 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

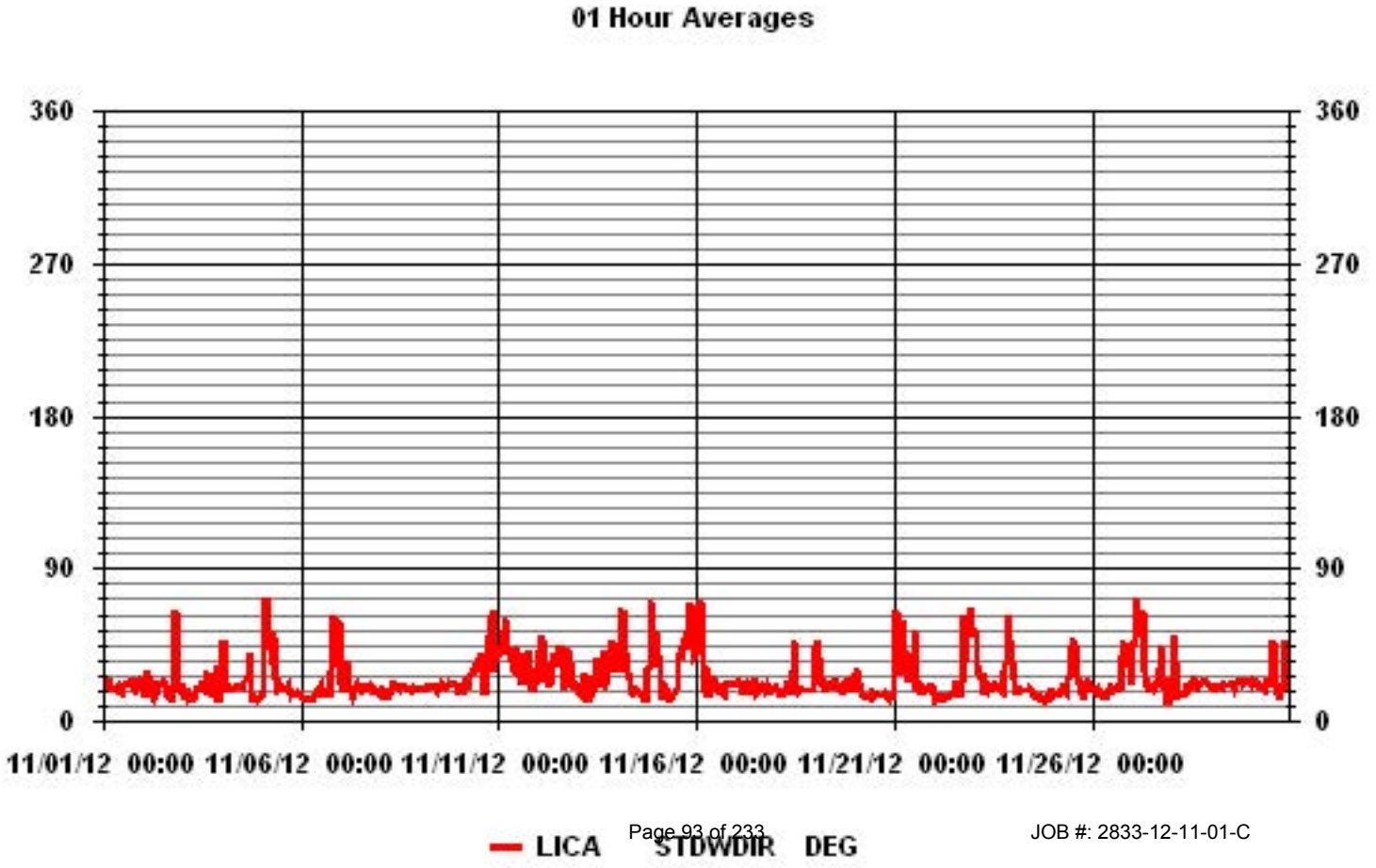
HOUR START	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
DAY																								
1	22	19	23	22	23	18	18	19	20	21	18	17	21	22	22	22	22	24	24	19	18	21	24	23
2	20	22	13	29	27	25	16	14	17	17	22	22	23	23	18	19	17	14	12	21	65	33	20	18
3	21	18	13	19	13	14	14	13	14	19	19	20	23	20	18	30	18	17	20	15	28	32	12	14
4	23	48	46	17	20	18	18	19	21	20	20	21	21	20	23	24	26	40	18	12	14	13	12	13
5	16	16	42	73	71	51	53	33	50	26	19	20	21	19	19	19	21	17	19	18	18	17	18	18
6	17	14	14	13	13	14	13	13	15	17	17	19	21	17	18	18	17	14	29	31	62	51	52	59
7	21	25	17	23	36	19	18	15	17	20	22	20	19	21	20	20	21	19	18	21	20	19	18	17
8	18	14	14	15	17	17	16	18	22	22	22	21	19	21	21	21	19	19	19	18	20	19	20	19
9	19	19	19	19	19	21	21	21	20	20	20	18	21	23	22	20	19	20	23	22	22	22	22	19
10	20	19	22	20	23	22	26	27	30	28	29	34	33	40	27	15	26	32	51	63	28	65	46	43
11	40	42	51	51	61	41	40	34	43	31	30	41	40	39	21	40	37	37	42	20	19	19	22	31
12	41	51	49	23	35	33	19	26	25	33	40	36	31	45	41	22	19	30	43	35	21	18	23	20
13	17	16	16	15	28	15	14	13	14	17	26	37	33	23	24	23	41	21	34	28	39	47	44	33
14	29	36	66	60	65	42	30	26	18	17	18	19	17	16	16	16	13	13	31	33	71	42	31	54
15	33	38	18	13	23	21	14	13	14	14	16	19	20	40	36	43	44	49	54	42	69	67	38	39
16	49	51	71	62	16	33	16	16	18	20	26	21	18	19	20	17	17	16	24	22	22	22	21	21
17	22	23	21	21	16	21	23	22	17	17	20	25	17	18	20	22	21	19	22	20	16	21	19	19
18	20	17	17	16	16	19	22	22	17	17	29	48	22	17	18	18	19	18	18	18	18	18	18	44
19	38	48	38	23	21	17	23	22	22	19	23	24	24	20	20	18	15	19	17	25	20	25	17	26
20	28	31	23	19	16	15	14	14	15	14	17	16	15	16	15	15	15	15	17	15	13	15	14	14
21	39	65	27	36	36	59	27	41	22	28	34	27	53	20	17	22	15	21	20	19	19	21	21	17
22	13	14	14	15	13	13	14	14	14	15	16	16	21	20	24	19	14	22	63	35	58	59	66	49
23	54	51	34	29	25	26	15	19	23	19	21	20	22	22	20	20	19	18	30	34	37	63	49	36
24	25	17	17	19	19	18	18	18	18	20	19	18	15	16	15	14	15	13	13	12	14	14	12	19
25	15	15	15	15	17	19	22	18	17	27	25	44	48	45	27	23	23	17	13	17	21	24	21	21
26	19	18	17	19	17	17	16	13	16	19	16	21	21	20	20	20	18	39	48	31	46	43	34	21
27	43	47	72	52	49	52	66	30	20	22	19	19	21	19	20	22	31	45	26	20	10	15	10	25
28	20	50	36	12	15	16	16	14	21	21	19	20	24	27	21	20	23	**C**	24	23	24	22	22	21
29	20	20	19	20	21	21	20	22	**M**	**M**	**M**	23	22	22	19	21	23	23	24	22	23	23	23	24
30	21	23	24	24	22	21	20	20	19	23	25	20	34	47	23	17	14	14	17	22	47	25	20	20

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: 1 HRS OPERATIONAL TIME: 716 HRS



JOB #: 2833-12-11-01-C

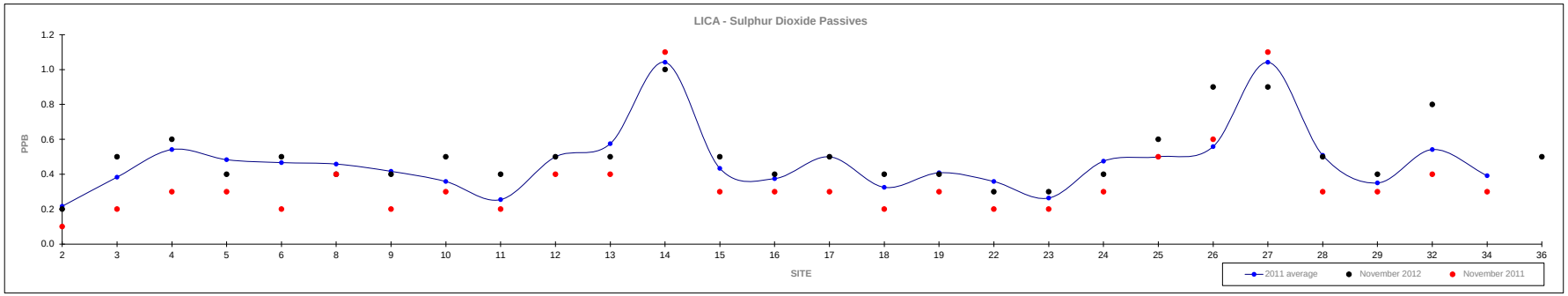
Non-Continuous Monitoring

Passive Summary Results for November 2012

Lakeland Industry & Community Association

Sulphur Dioxide
ppb

	2011																									November 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	0.51	-
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	0.2	#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	1.0	#14

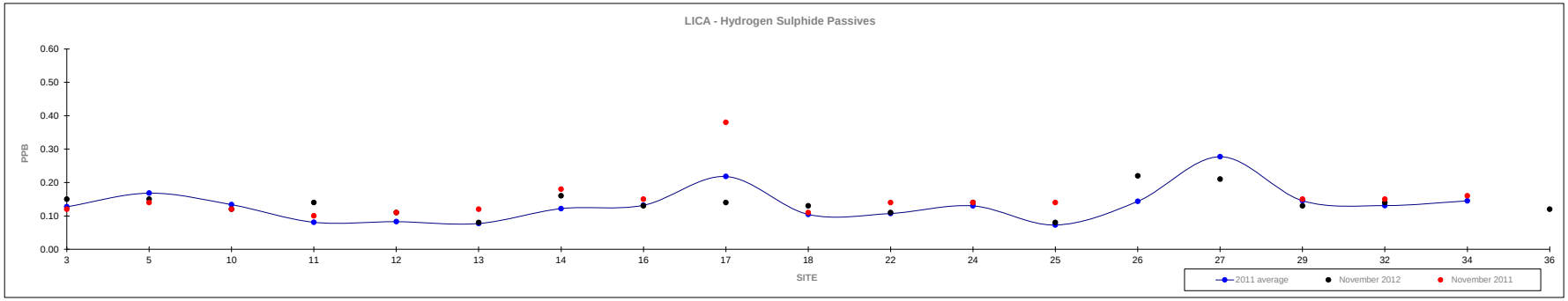


Passive Summary Results for November 2012

Lakeland Industry & Community Association

Hydrogen Sulphide
ppb

	2011																		November 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	0.14	-
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	0.08	#13, #25
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	0.22	#26

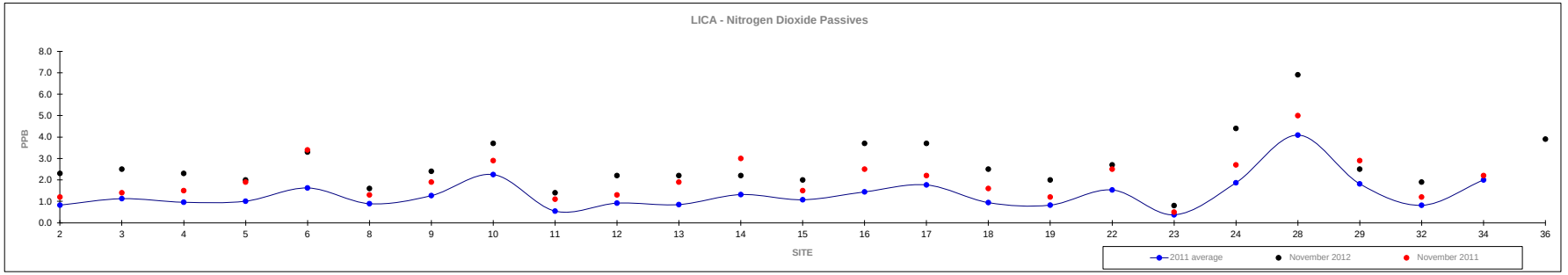


Passive Summary Results for November 2012

Lakeland Industry & Community Association

Nitrogen Dioxide
ppb

	2011																							November 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	2.7	-
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	0.8	#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	6.9	#28



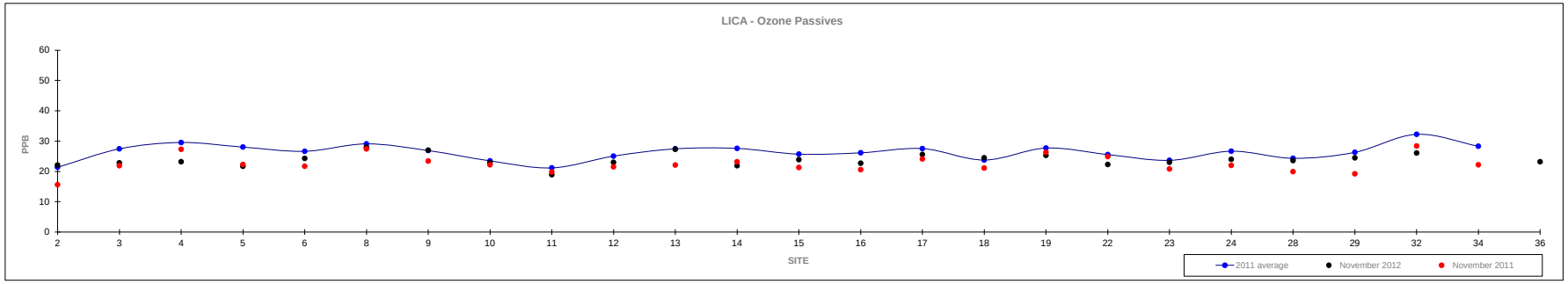
JOB #: 2833-12-11-01-C

Passive Summary Results for November 2012

Lakeland Industry & Community Association

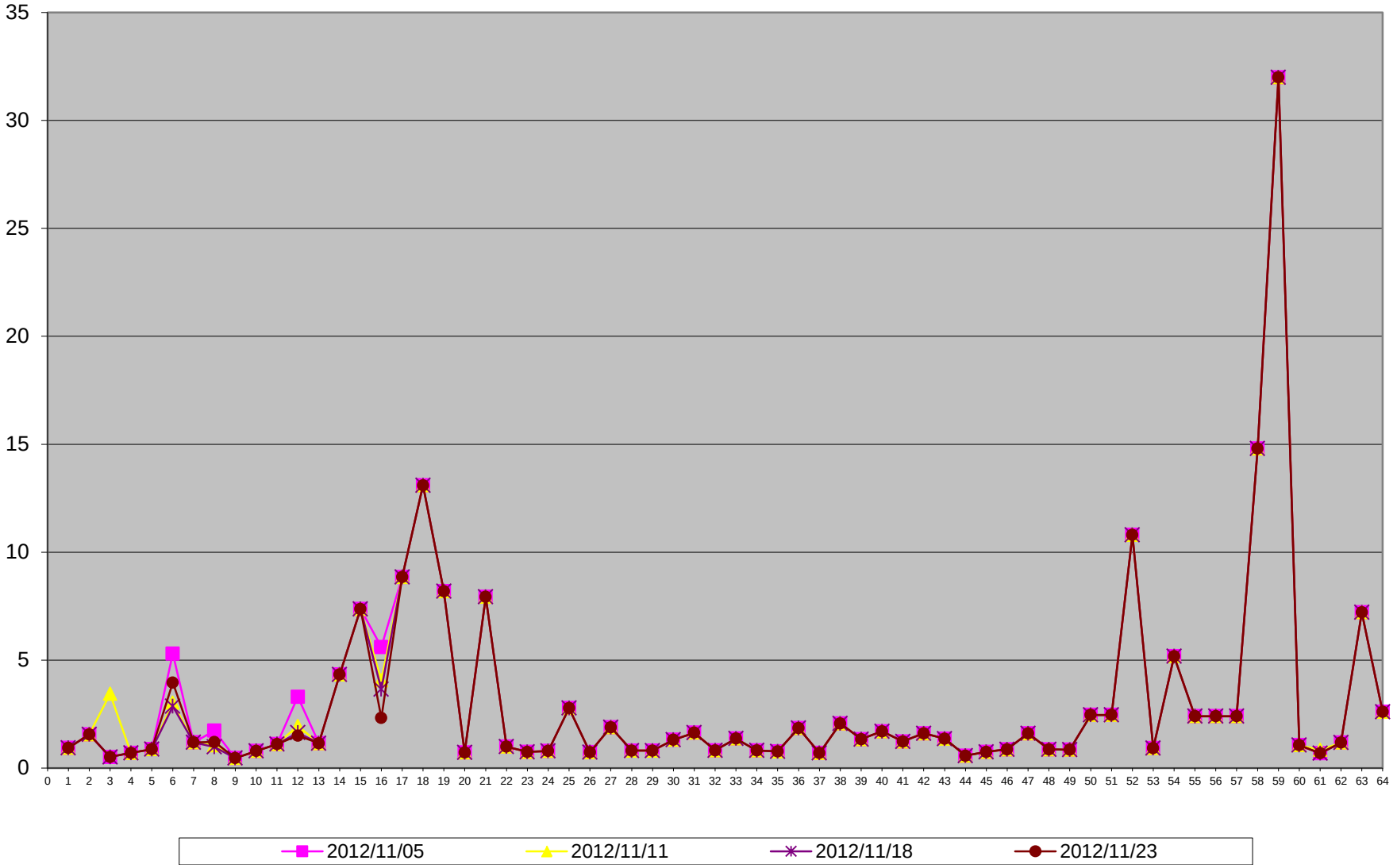
Ozone
ppb

	2011																							November 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	23.8	-
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	18.9	#11
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	28.0	#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 November 2012

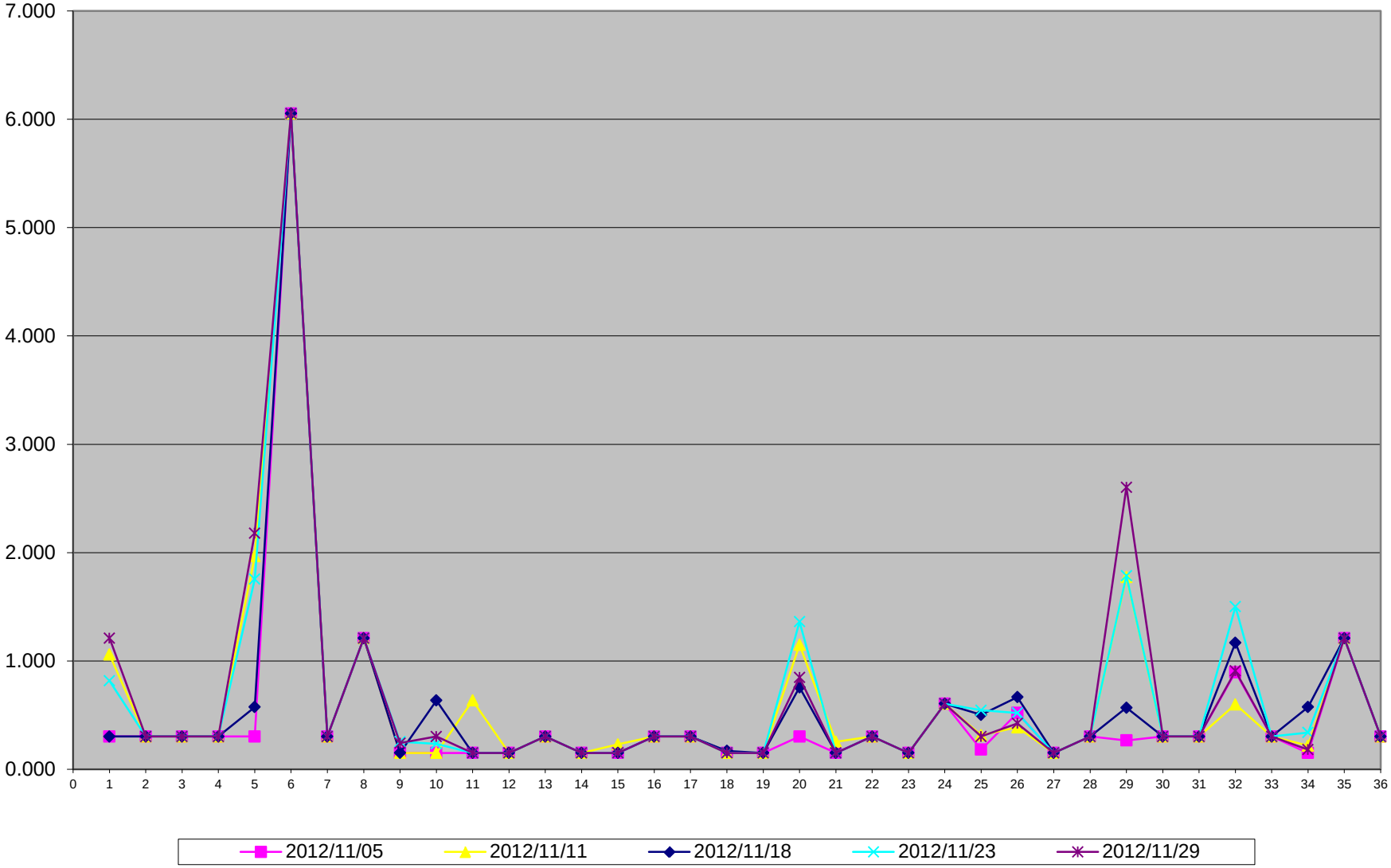
LICA- Cold Lake South Site

Unit: ng/m3

	PAHs	2012/11/05	2012/11/11	2012/11/18	2012/11/23	2012/11/29
	Sample Volume (unit: m3)	330.35	330.34	330.38	330.38	330.36
1	1-Methylnaphthalene	0.303	1.059	0.303	0.817	1.211
2	1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3	2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4	2-Methlyanthracene	0.303	0.303	0.303	0.303	0.303
5	2-Methylnaphthalene	0.303	1.967	0.575	1.756	2.179
6	3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7	7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8	9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211
9	Acenaphthene	0.151	0.151	0.151	0.254	0.242
10	Acenaphthylene	0.151	0.151	0.636	0.236	0.303
11	Anthracene	0.151	0.636	0.151	0.151	0.151
12	Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13	Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14	Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15	Benzo(b)fluoranthene	0.151	0.230	0.151	0.151	0.151
16	Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17	Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18	Benzo(g,h,I)perylene	0.151	0.151	0.170	0.151	0.151
19	Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20	Biphenyl	0.303	1.150	0.757	1.362	0.848
21	Chrysene	0.151	0.254	0.151	0.151	0.151
22	Coronene	0.303	0.303	0.303	0.303	0.303
23	Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24	Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25	Fluoranthene	0.182	0.315	0.502	0.545	0.303
26	Fluorene	0.521	0.387	0.666	0.521	0.424
27	Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28	m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29	Naphthalene	0.266	1.774	0.569	1.786	2.603
30	o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31	Perylene	0.303	0.303	0.303	0.303	0.303
32	Phenanthrene	0.896	0.599	1.168	1.501	0.908
33	p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34	Pyrene	0.151	0.218	0.575	0.339	0.182
35	Quinoline	1.211	1.211	1.211	1.211	1.211
36	Tetralin	0.303	0.303	0.303	0.303	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.

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	November 6, 2012		Previous Calibration	October 24, 2012	
Company	Lakeland Community and Industry Association				
Plant / Location	LICA 1 - Cold Lake South				
Start Time (MST)	14:07		End Time (MST)	17:33	
Reason:			Monthly Calibration		
Barometric Pressure	0.94	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	450	ccm	31.4	Deg C	449	ccm	31.5	Deg C
HVPS / Lamp Setting	-632		736		-632		735	
PMT / RxCell Temp	OK	Deg C	45.1	Deg C	OK	Deg C	44.9	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	402	0.9958
	No Span Adj.			
4976	22.7	225	228	0.9879
4982	12.6	125	128	0.9776
4994	0	0	0	N/A
			Sum of Least Squares	0.9927
			New Correction Factor	0.9958

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.3	0.1
Auto Span	379.0	368.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9952
Current Correction Factor Before Span Adjust:	0.9958
Percent Change:	-0.1%

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

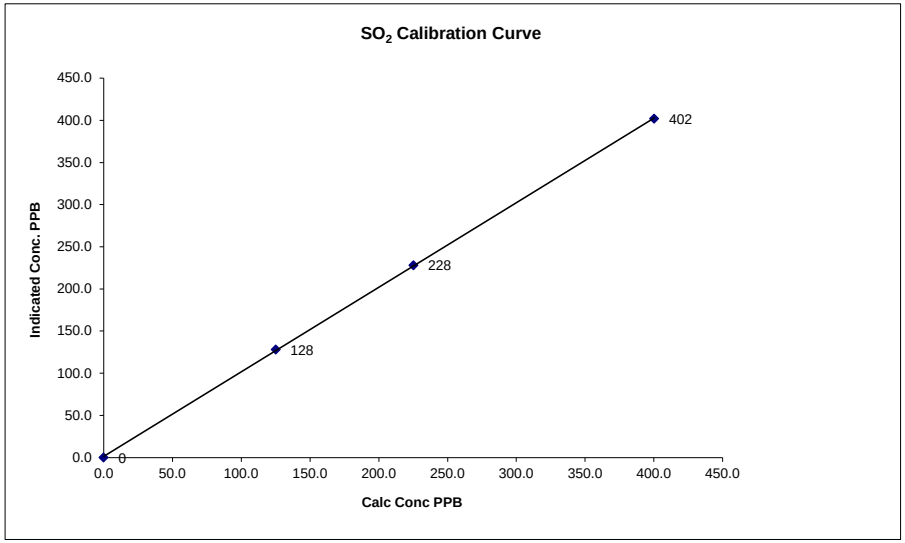
Calibration Performed by: Ting Xu

SO_2 Calibration Curve

Calibration Date	November 6, 2012			
Company	Lakeland Community and Industry Association			
Plant / Location	LICA 1 - Cold Lake South			
Start Time (MST)	14:07	End Time (MST)	17:33	

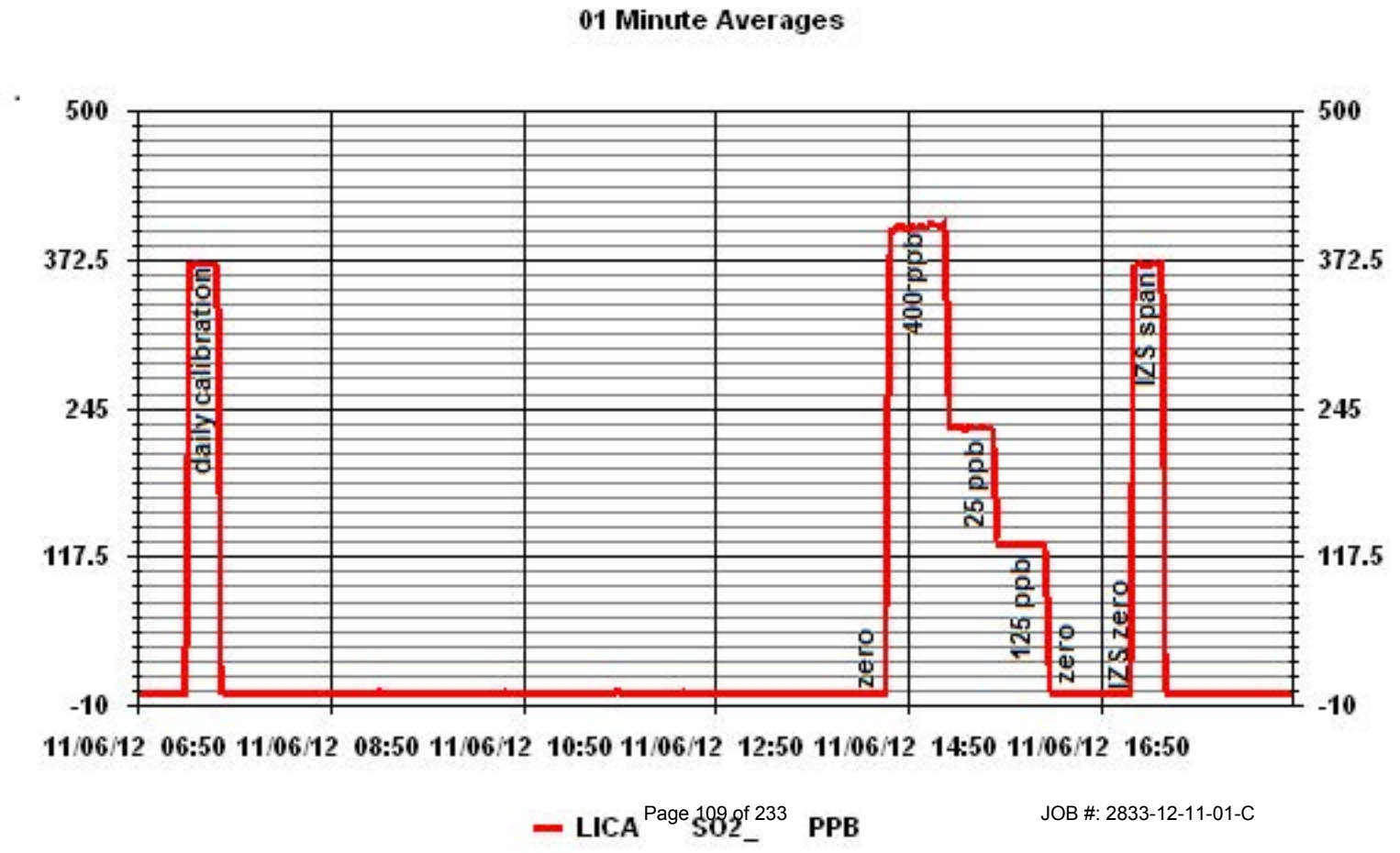
Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
125	128	0.9776
225	228	0.9879
400	402	0.9958

Correlation Coefficient	(≥ 0.995)	0.999949
Slope	(0.85 to 1.15)	1.003297
Intercept	(± 3% F.S.)	1.210670



Notes:

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	November 6, 2012		Previous Calibration	October 23, 2012	
Company	**Lakeland Industry & Community Association**				
Plant / Location	**LICA 1 - Cold Lake South**				
Start Time (MST)	08:40		End Time (MST)	12:09	
Reason:	Monthly Calibration				
Barometric Pressure	0.94	atm	Station Temperature	23	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	470	ccm	33.8	Deg C	469	ccm	34.1	Deg C
HVPS / Lamp Setting	-640.1		748		-640.5		745	
PMT / RxCell Temp	OK	Deg C	45	Deg C	0.1	Deg C	45.2	Deg C
Converter / IZS Temp	810	Deg C	45	Deg C	810	Deg C	45.0	Deg C
Offset / Slope	13		1.03		13		1.03	

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	80	1.0000
	No Span Adj.			
4976	20.0	40	41	0.9764
4986	11.5	23	24	0.9588
4996	0.0	0	0	N/A
			Sum of Least Squares	0.9928
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.2	-0.1
Auto Span	39.7	42.1
Sample Lines Connected		YES

Percent Change

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

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

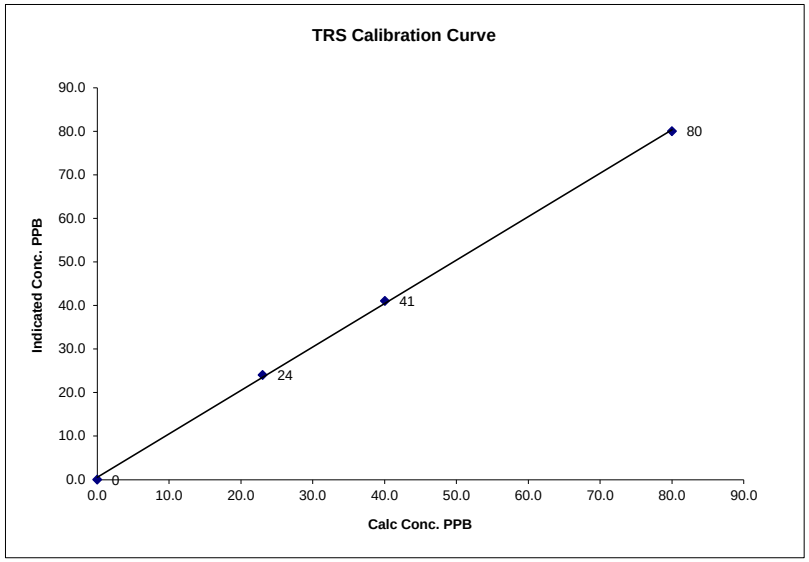
Calibration Performed by: Ting Xu

TRS Calibration Curve

Calibration Date	November 6, 2012		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	08:40	End Time (MST)	12:09

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
23	24	0.0000
40	41	0.5613
80	80	0.5004

Correlation Coefficient	(≥ 0.995)	0.999725
Slope	(0.85 to 1.15)	0.997522
Intercept	(± 3% F.S.)	0.577750



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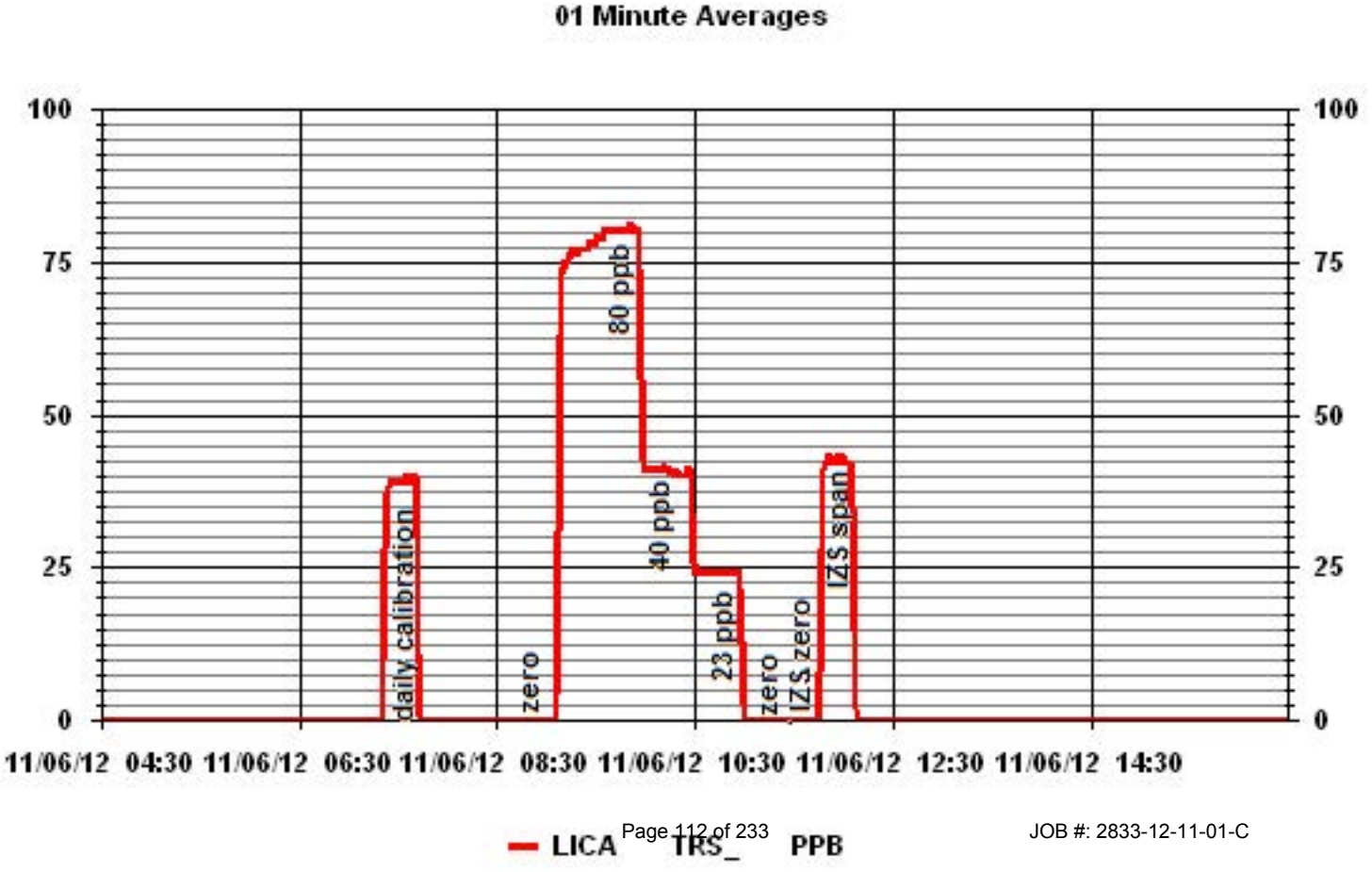


JOB #: 2833-12-11-01-C

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	November 6, 2012		Previous Calibration	October 23, 2012	
Company:	**Lakeland Industry and Community Association**				
Plant / Location:	**LICA1/Cold Lake**				
Start Time (MST)	11:27		End Time (MST)	14:48	
Reason:	Monthly Calibration				
Barometric Pressure:	0.94	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
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	41.5	0.9982
	No Span Adj.		41.5	
2000	37.0	21.1	20.9	1.0090
2000	20.0	11.5	11.4	1.0083
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:	0.9982
Percent Change:	0.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	34.3	34.2
Sample Lines Connected		**YES**

Cylinder Pressures

Span 350 psi Hydrogen 800 psi Zero Air 32 psi

Notes: **NA : Not Applicable**

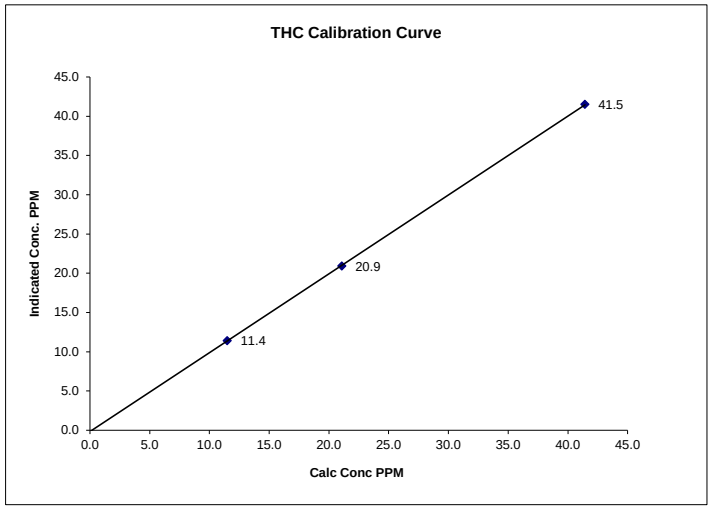
Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date	November 6, 2012		
Company	**Lakeland Industry and Community Association**		
Plant / Location	**LICA1/Cold Lake**		
Start Time (MST)	11:27	End Time (MST)	14:48

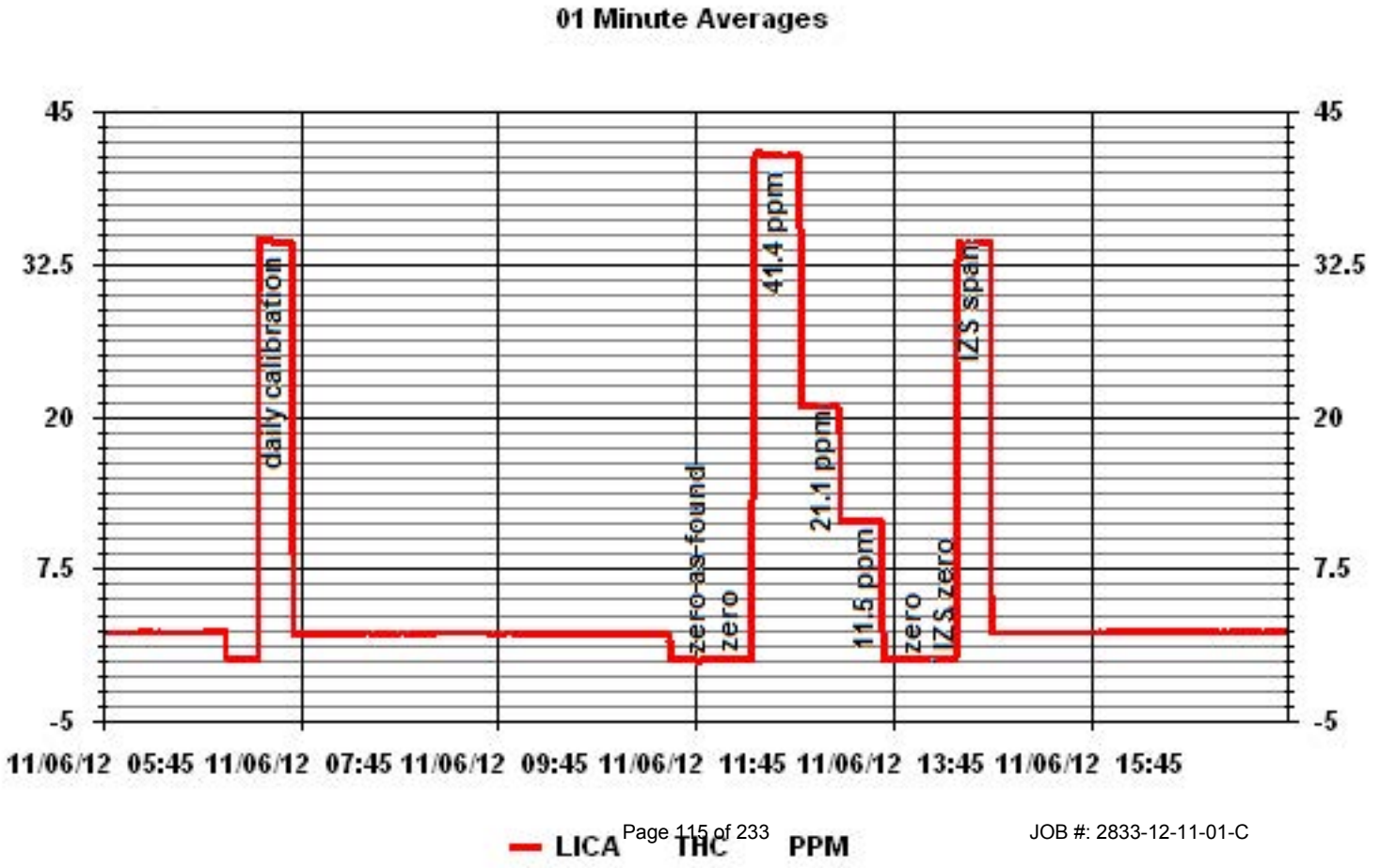
Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	-0.1	NA
11.5	11.4	1.0083
21.1	20.9	1.0090
41.4	41.5	0.9982

Correlation Coefficient	(≥ 0.995)	0.999977
Slope	(0.85 to 1.15)	1.004076
Intercept	(± 3% F.S.)	-0.15234



Notes:

JOB #: 2833-12-11-01-C



JOB #: 2833-12-11-01-C

Particulate Matter 2.5

TEOM 1405F Audit

Station		Audit Transfer Standard	
Date:	November 6, 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 (%)	26.8%
Firmware Ver.	1.52	K_o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	1.2
		Press (ATM)	0.940

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**	0.35	Pump Guage (in Hg)	NA

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	1.04	**Δ ^oC**	0.16
Measured Press **(± 0.01atm)**	0.941	**DATM**	-0.001

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	1.97%
Measured Main Flow (l/min)	3.01	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	1.38%
Measured Bypass Flow (l/min)	13.69	Flow Adjusted to Measured?	Yes

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 **(± 2.5%)**	NA

Start Time: 10:06 **Finish Time:** 11:30

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

New Filter Loading %: NA

Comments:

Auditor/s: Ting Xu

JOB #: 2833-12-11-01-C

TEOM 1405F Audit

Station		Audit Transfer Standard	
Date:	November 26, 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 (%)	35.3%
Firmware Ver.	1.52	K_o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (^oC)	-15.3
		Press (ATM)	0.943

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 **< 0.40 atm**	0.37	Pump Guage (in Hg)	NA

Temperature/Pressure

Measured Temp **(± 2 ^oC)**	-15.25	**$\Delta\ ^oC$**	-0.05
Measured Press **(± 0.01atm)**	0.945	**DATM**	-0.002

Flow Audit

Indicated Main Flow (l/min)	3.00	Main Flow Drift **(±10.0%)**	1.19%
Measured Main Flow (l/min)	2.97	Flow Adjusted to Measured?	No
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift **(±10.0%)**	1.26%
Measured Bypass Flow (l/min)	13.64	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 **(± 2.5%)**	NA

Start Time: 08:45 **Finish Time:** 10:24

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

New Filter Loading %: 19.8%

Comments:

Auditor/s: Ting Xu

JOB #: 2833-12-11-01-C

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 5, 2012		Previous Calibration	October 23, 2012	
Company	LICA		Plant/Location	Cold Lake South	
Start Time (MST)	14:22		End Time (MST)	15:52	
Reason:	As Found				
Barometric Pressure	0.931 atm	Station Temperature	23 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	725	ccm	316	Deg C		743	ccm	317	Deg C
Ozone Flow / Vacuum	OK	ccm	179.0	"Hg-A		OK	ccm	175	"Hg-A
HVPS / A ZERO	-821	Volts	NA	MV		-821	Volts	NA	MV
Rx/ Temp / PMT Temp	49.9	Deg C	-2.5	Deg C		49.8	Deg C	-2.5	Deg C
Box Temp / IZS Temp	29.6	Deg C	OK	Deg C		30.9	Deg C	OK	Deg C
Offset	3.9	NOx	3.7	NO		3.9	NOx	3.7	NO
Slope	1.002	NOx	0.940	NO		1.002	NOx	0.940	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	399	399	0	1.0000	1.0000

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	398	399	0	NA	NA
4954	39.8	350	399	NA	327	399	72	327	1.0000	100.00%

Linearity			Sum of Least Squares	NOx=	#VALUE!	NO=	#VALUE!	NO2= #VALUE!
OK?	Yes	No	Correction Factors:	NOx=	1.0000	NO=	1.0000	NO2= 1.0000
						Average Converter Efficiency=		100.00%

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	0.1	NOx	0.2	NO2		0.1	NOx	0.2	NO2
Auto Span	470	NOx	466	NO2		360	NOx	357	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	0.0%	NO	0.0%	NO2	0.3%

Notes

NA : Not Applicable

Following the A/F points, rebuilt the pump for the daily cal system, adjusted daily cal flow rate, then rebuilt the exhausting pump, let the analyzer stabilize, will perform a full cal tomorrow.

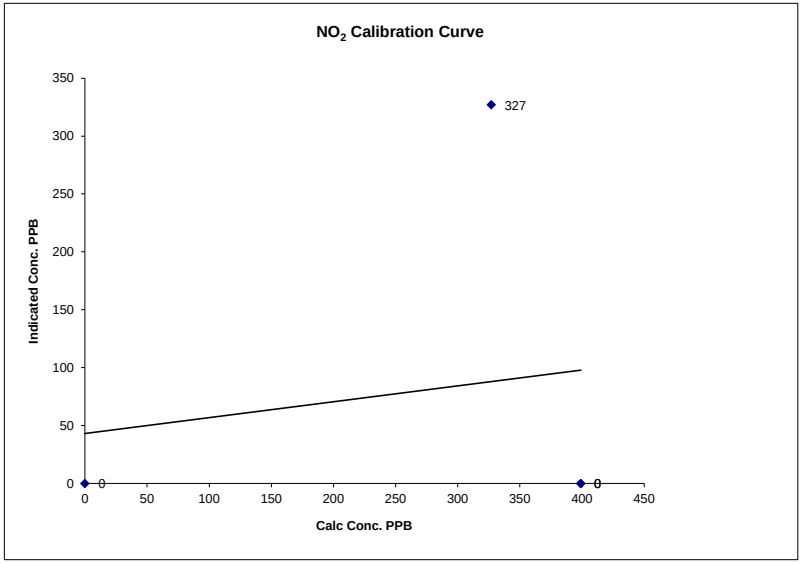
Calibration Performed by: Ting Xu

NO_2 Calibration Curve

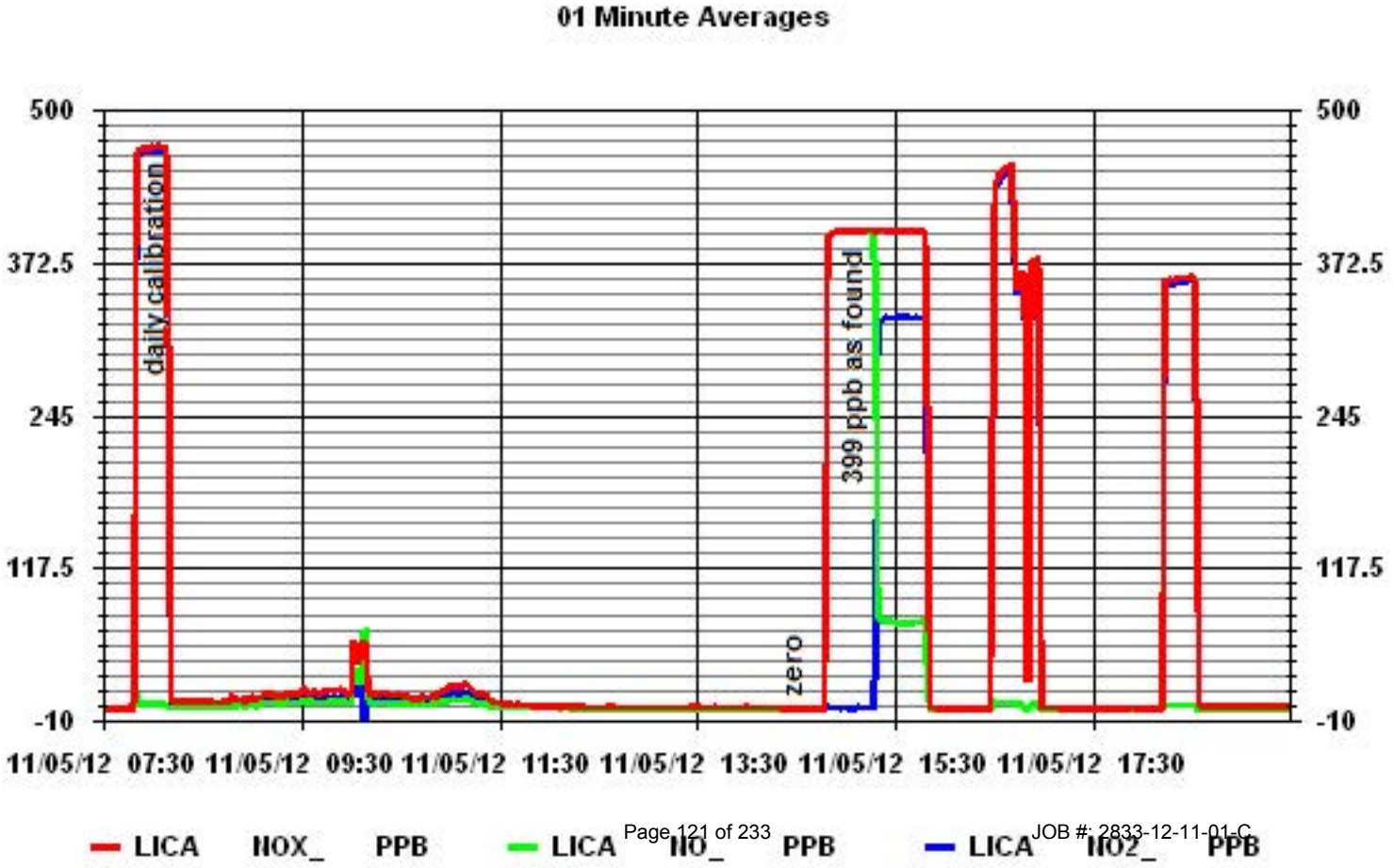
Calibration Date	November 5, 2012		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	14:22	End Time (MST)	15:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	N/A
399	0	#DIV/0!
399	0	#DIV/0!
327	327	1.0000

Correlation Coefficient	(≥ 0.995)	0.025621
Slope	(0.85 to 1.15)	0.137345
Intercept	(± 3% F.S.)	43.12177



Notes:


01 Minute Averages
500
372.5
245
117.5
-10
daily calibration
zero
399 ppb as found
11/05/12 07:30
11/05/12 09:30
11/05/12 11:30
11/05/12 13:30
11/05/12 15:30
11/05/12 17:30
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	November 6, 2012		Previous Calibration	November 5, 2012	
Company	LICA		Plant/Location	Cold Lake South	
Start Time (MST)	08:40		End Time (MST)	14:29	
Reason:	Post Repair Calibration				
Barometric Pressure	0.94 atm	Station Temperature	23 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	744	ccm	317	Deg C		741	ccm	317	Deg C
Ozone Flow / Vacuum	OK	ccm	176.0	"Hg-A		OK	ccm	176	"Hg-A
HVPS / A ZERO	-821	Volts	NA	MV		-821	Volts	NA	MV
Rx/ Temp / PMT Temp	49.9	Deg C	-2.5	Deg C		49.8	Deg C	-2.5	Deg C
Box Temp / IZS Temp	30.2	Deg C	OK	Deg C		30.8	Deg C	OK	Deg C
Offset	3.9	NOx	3.7	NO		3.8	NOx	3.5	NO
Slope	1.002	NOx	0.940	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									
4994	39.8	NA	396	396	NA	399	398	1	0.9928	0.9953
	No Span Adj.									
4976	19.9	NA	200	200	NA	200	200	1	1.0000	1.0000
4984	9.9	NA	99	99	NA	101	101	1	0.9834	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	398	397	1	NA	NA
4954	39.8	350	399	NA	309	398	89	308	1.0032	99.68%
	No Adj.									
4954	39.8	150	399	NA	136	397	262	135	1.0074	99.26%
4954	39.8	75	399	NA	67	397	331	66	1.0152	98.48%

Linearity			Sum of Least Squares	NOx=	0.993	NO=	0.995	NO2= 1.004
OK?	Yes	No	Correction Factors:	NOx=	0.9928	NO=	0.9953	NO2= 1.0032
						Average Converter Efficiency=		99.14%

IZS Calibration Data

	Before Calibration					After Calibration			
Auto Zero	0.1	NOx	0.2	NO2		0.1	NOx	0.2	NO2
Auto Span	353	NOx	350	NO2		343	NOx	341	NO2
					Sample Lines Connected	YES			

Percent Change from Previous Calibration	NOx	0.7%	NO	0.5%	NO2	0.0%

Notes

NA : Not Applicable

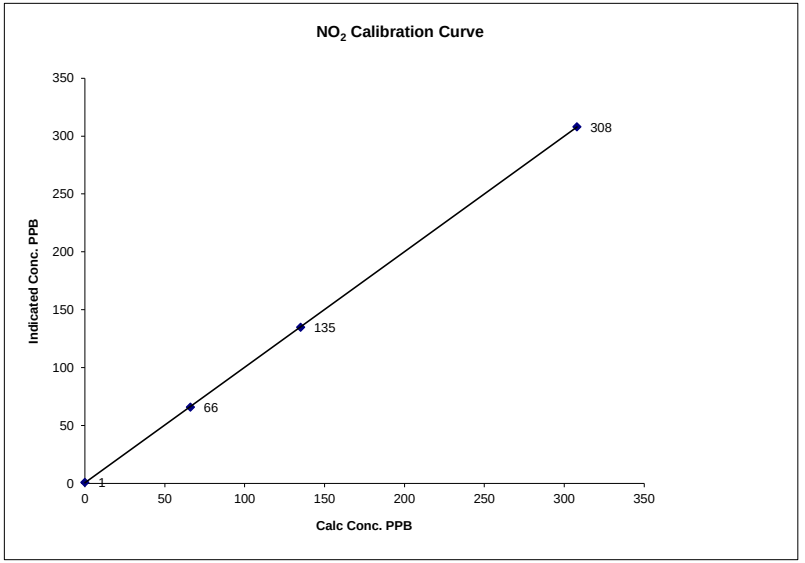
Calibration Performed by: Ting Xu

NO_2 Calibration Curve

Calibration Date	November 6, 2012			
Company	LICA			
Plant / Location	Cold Lake South			
Start Time (MST)	08:40	End Time (MST)	14:29	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	N/A
66	66	1.0000
135	135	1.0000
308	308	1.0000

Correlation Coefficient	(≥ 0.995)	0.999992
Slope	(0.85 to 1.15)	0.997584
Intercept	(± 3% F.S.)	0.55741

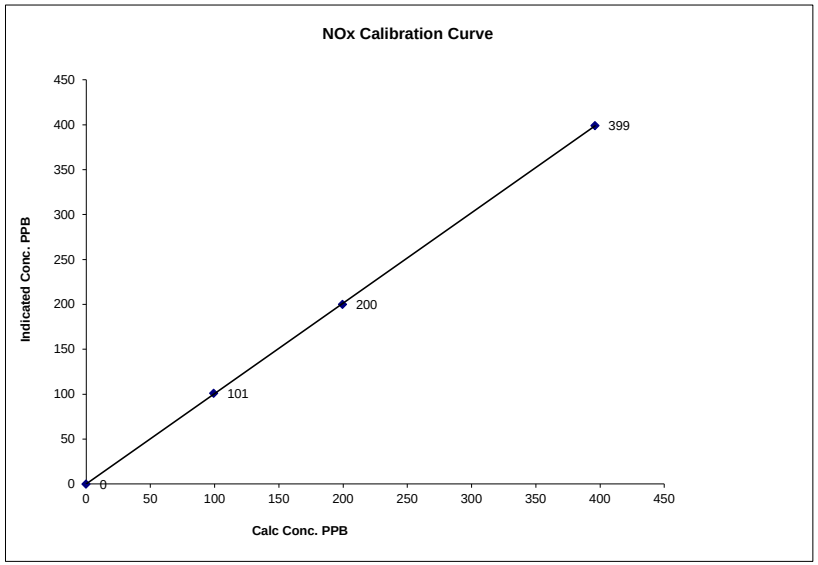


Notes:

NOx Calibration Curve

Calibration Date	November 6, 2012				
Company	LICA				
Plant / Location	Cold Lake South				
Start Time (MST)	08:40	End Time (MST)	14:29		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999979
			Slope	(0.85 to 1.15)	1.006139
0	0	N/A	Intercept	(± 3% F.S.)	0.18352
99	101	0.9834			
200	200	0.9978			
396	399	0.9928			

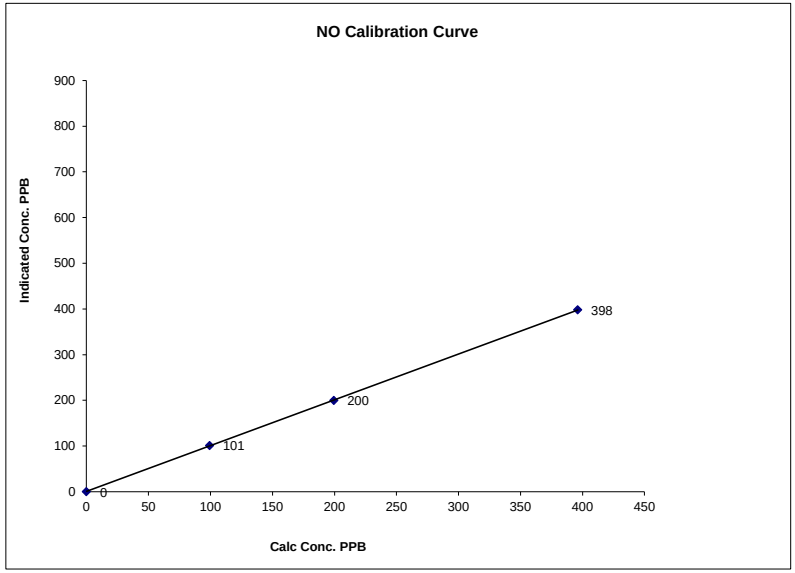


Notes:

NO Calibration Curve

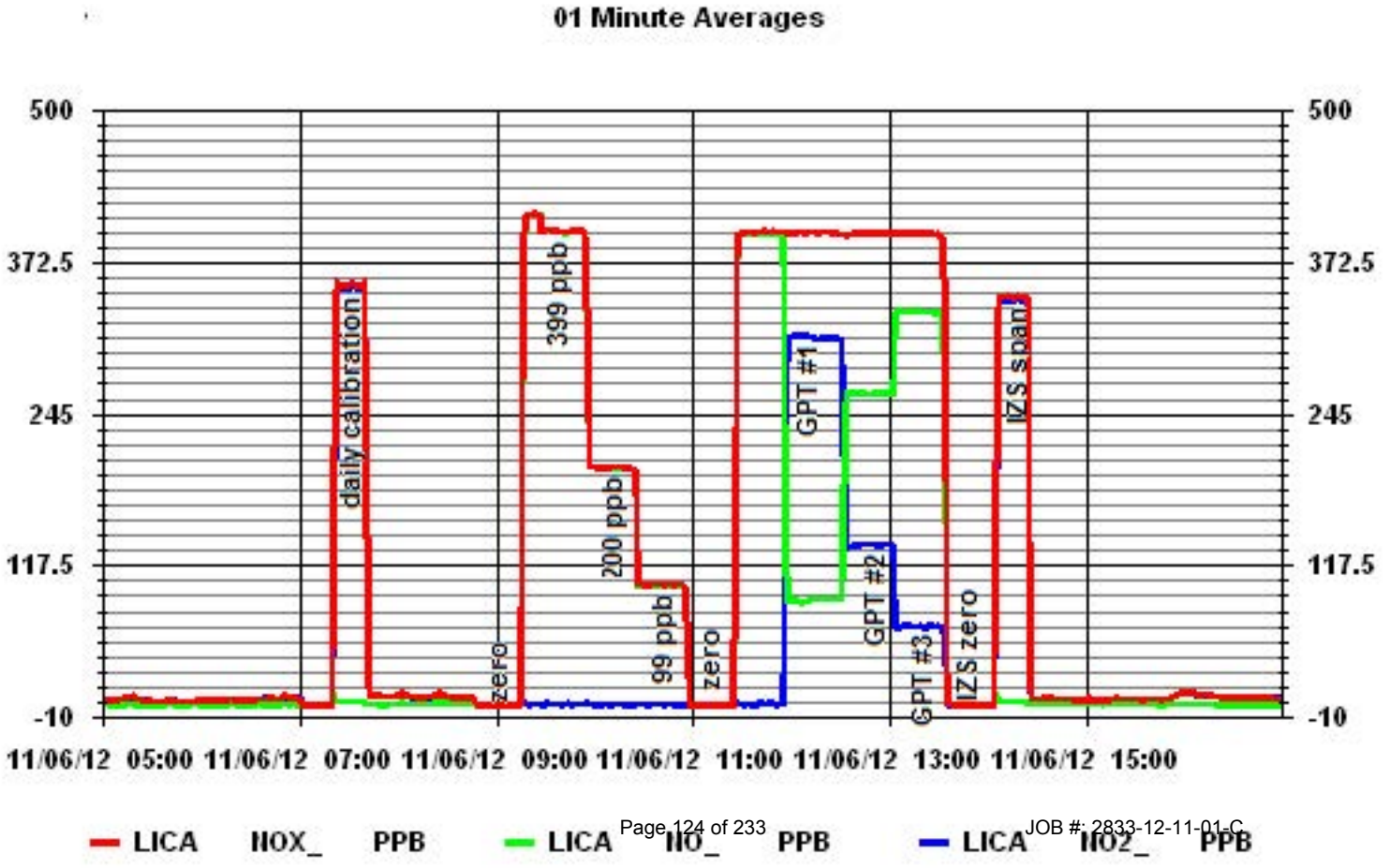
Calibration Date	November 6, 2012				
Company	LICA				
Plant / Location	Cold Lake South				
Start Time (MST)	08:40	End Time (MST)	14:29		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999983
			Slope	(0.85 to 1.15)	1.001600
0	0	N/A	Intercept	(± 3% F.S.)	-1.0271
99	101	0.9834			
200	200	0.9978			
396	398	0.9953			



Notes:

JOB #: 2833-12-11-01-C


01 Minute Averages
500
372.5
245
117.5
-10
daily calibration
zero
399 ppb
200 ppb
99 ppb
zero
GPT #1
GPT #2
GPT #3
IZS zero
IZS span
11/06/12 05:00
11/06/12 07:00
11/06/12 09:00
11/06/12 11:00
11/06/12 13:00
11/06/12 15:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	November 6, 2012	Previous Calibration	October 24, 2012
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	13:48	End Time (MST)	17:33
Reason:		Monthly Calibration	
Barometric Pressure	0.938 atm	Station Temperature	23.5 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	705 LPM	746 LPM	710 LPM	751 LPM
O_3 Set Level	695 mmHg		703 mmHg	
Bench Lamp	29.8 Deg C		28.9 Deg C	
O3 Lamp / Box Temp	53.5 Deg	67.5 Deg C	53.5 Deg C	67.5 Deg C
Offset / Slope	-0.1	1.007	-0.1	1.024

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	308	302	1.0199
4994	350	308	308	1.0000
4994	150	135	133	1.0150
4994	75	66	65	1.0154
4994	0	0	0	NA
			Sum of Least Squares	1.0029
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.2	0.1
Auto Span	278	284
Sample Lines Connected		YES
Previous Calibration Correction Factor:		0.9968
Current Correctio Factor Before Span Adjust:		1.0199
Percent Change:		-2.3%

Note: **NA : Not Applicable**

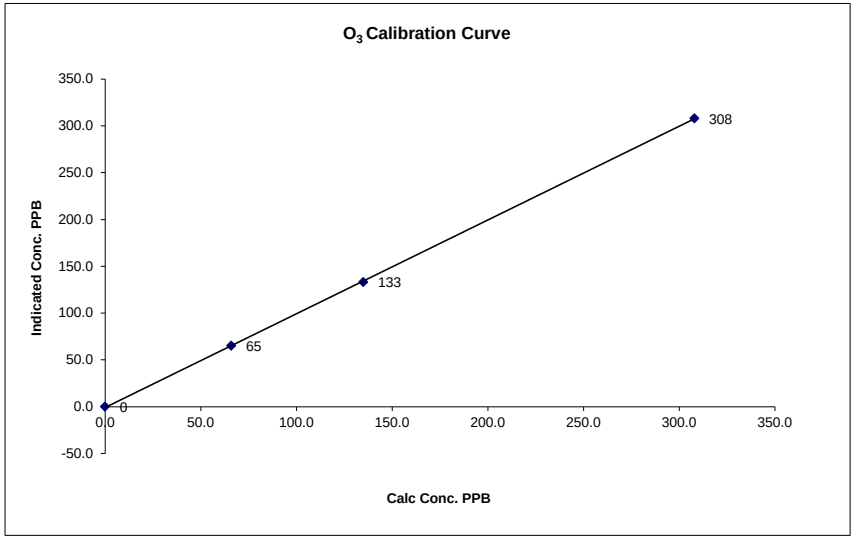
Calibration Performed by: Ting Xu

O_3 Calibration Curve

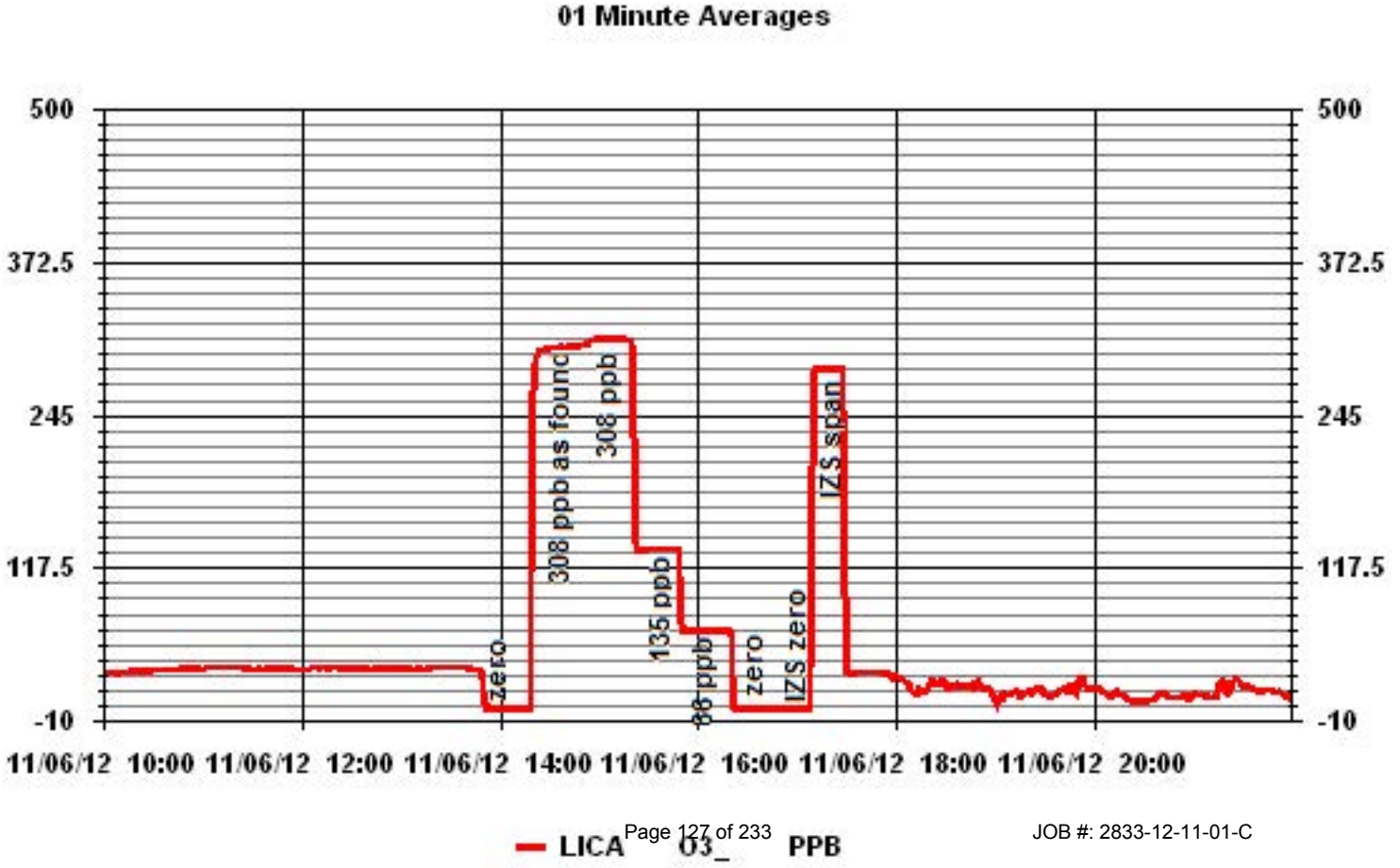
Calibration Date	November 6, 2012
Company	**Lakeland Industry & Community Association**
Plant / Location	**LICA 1 - Cold Lake South**
Start Time (MST)	13:48
End Time (MST)	17:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
66	65	1.0154
135	133	1.0150
308	308	1.0000

Correlation Coefficient	(≥ 0.995)	0.999949
Slope	(0.85 to 1.15)	1.000869
Intercept	(± 3% F.S.)	-0.860521



Notes:



JOB #: 2833-12-11-01-C

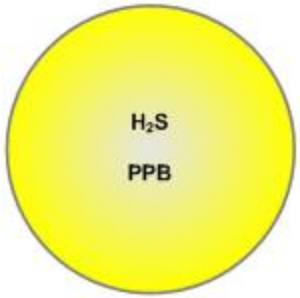
Passive Bubble Maps

Lakeland Industry & Community Association
H_2S Passive Bubble Map

NOVEMBER 2012

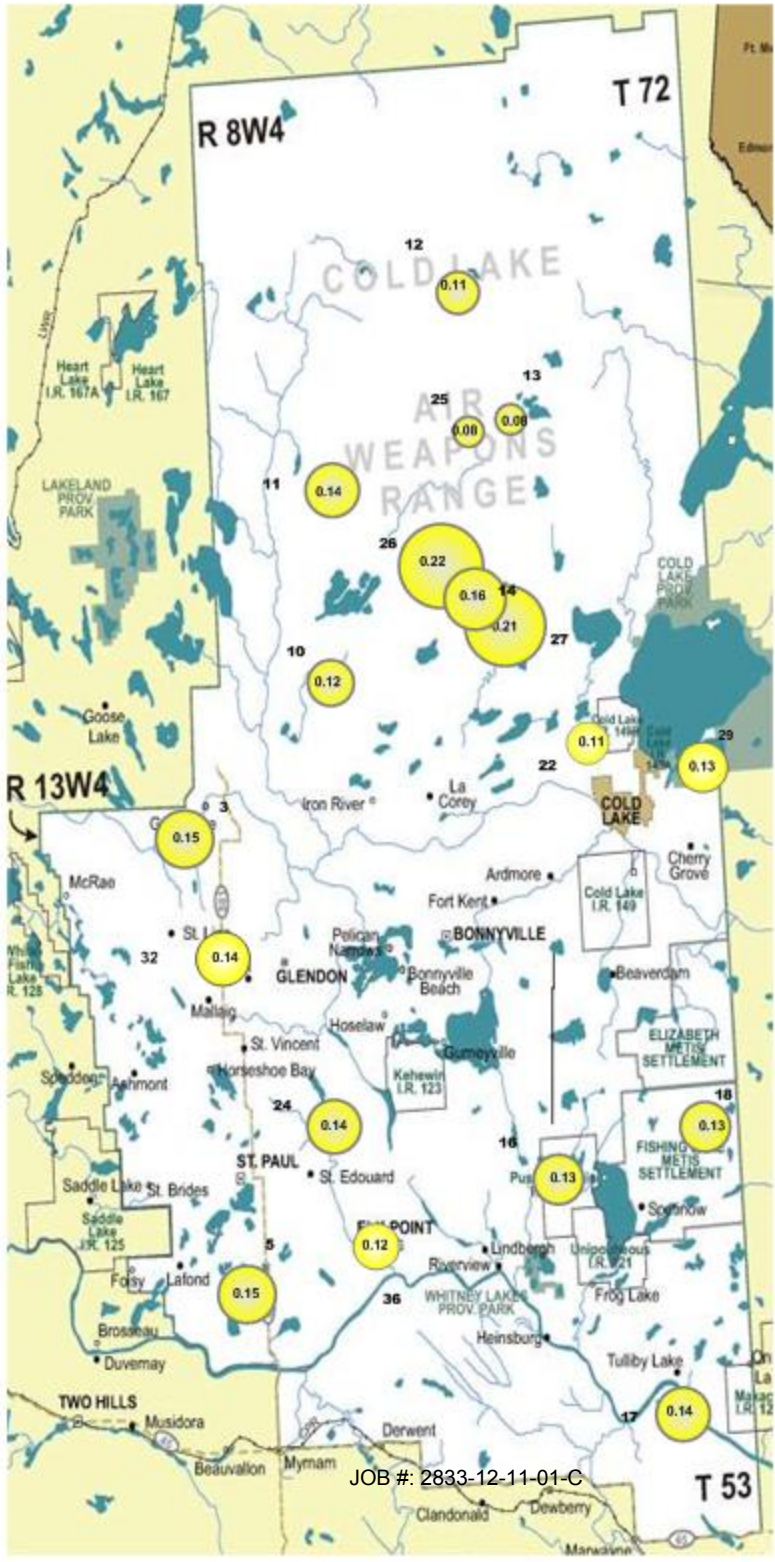
PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.15 PPB	NA
5 – Lake Eliza	0.15 PPB	NA
10 – La Corey	0.12 PPB	NA
11 – Wolf Lake	0.14 PPB	NA
12 – Foster Creek	0.11 PPB	NA
13 – Primrose	0.08 PPB	NA
14 – Maskwa	0.16 PPB	NA
16 – Frog Lake	0.13 PPB	0.12 PPB
17 – Clear Range	0.12 PPB	0.16 PPB
18 – Fishing Lake	0.13 PPB	NA
22 – Cold Lake South	0.11 PPB	NA
24 – Fort George	0.14 PPB	NA
25 – Burnt Lake	0.08 PPB	NA
26 – Mahihkan	0.22 PPB	NA
27 – Mahkeses	0.21 PPB	NA
29 – Cold Lake South 2	0.13 PPB	NA
32 – St. Lina	0.14 PPB	NA
36 – Elk Point	0.12 PPB	NA



Summary

Minimum : 0.08 PPB – Primrose and Burnt Lake
Maximum: 0.22 PPB –Mahihkan
Average: 0.14 PPB *Includes Duplicates



JOB #: 2833-12-11-01-C

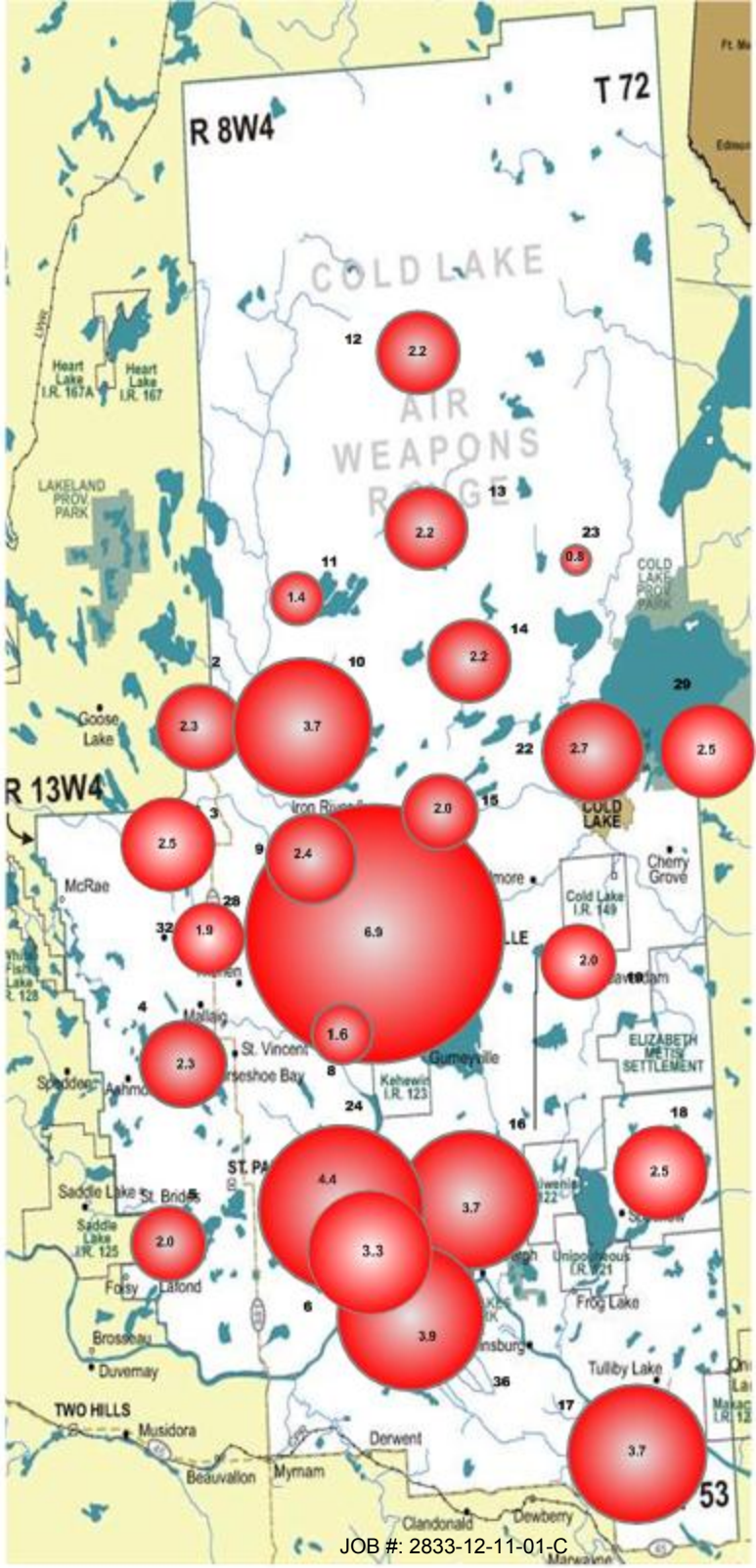
Lakeland Industry & Community Association
NO_2 Passive Bubble Map

NOVEMBER 2012

PASSIVE STATIONS		DUPLICATE
2 – Sand River	2.5 PPB	2.1 PPB
3 – Therien	2.7 PPB	2.3 PPB
4 – Flat Lake	2.3 PPB	NA
5 – Lake Eliza	2.0 PPB	NA
6 – Telegraph Creek	3.3 PPB	NA
8 – Muriel-Kehewin	1.6 PPB	NA
9 – Dupre	2.4 PPB	NA
10 – La Corey	3.7 PPB	NA
11 – Wolf Lake	1.4 PPB	NA
12 – Foster Creek	2.2 PPB	NA
13 – Primrose	2.2 PPB	NA
14 – Maskwa	2.2 PPB	NA
15 – Ardmore	2.0 PPB	NA
16 – Frog Lake	3.7 PPB	NA
17 – Clear Range	3.7 PPB	NA
18 – Fishing Lake	2.5 PPB	NA
19 – Beaverdam	2.0 PPB	NA
22 – Cold Lake South	2.7 PPB	NA
23 – Medley-Martineau	0.8 PPB	NA
24 – Fort George	4.4 PPB	NA
28 – Town of Bonnyville	6.9 PPB	NA
29 – Cold Lake South 2	2.5 PPB	NA
32 – St. Lina	1.9 PPB	NA
36 – Elk Point	3.6 PPB	NA

Summary

Minimum : 0.8 PPB – Medley-Martineau
Maximum: 6.9 PPB – Town of Bonnyville
Average: 2.7 PPB *Includes Duplicates



JOB #: 2833-12-11-01-C

Lakeland Industry & Community Association
O_3 Passive Bubble Map

NOVEMBER 2012

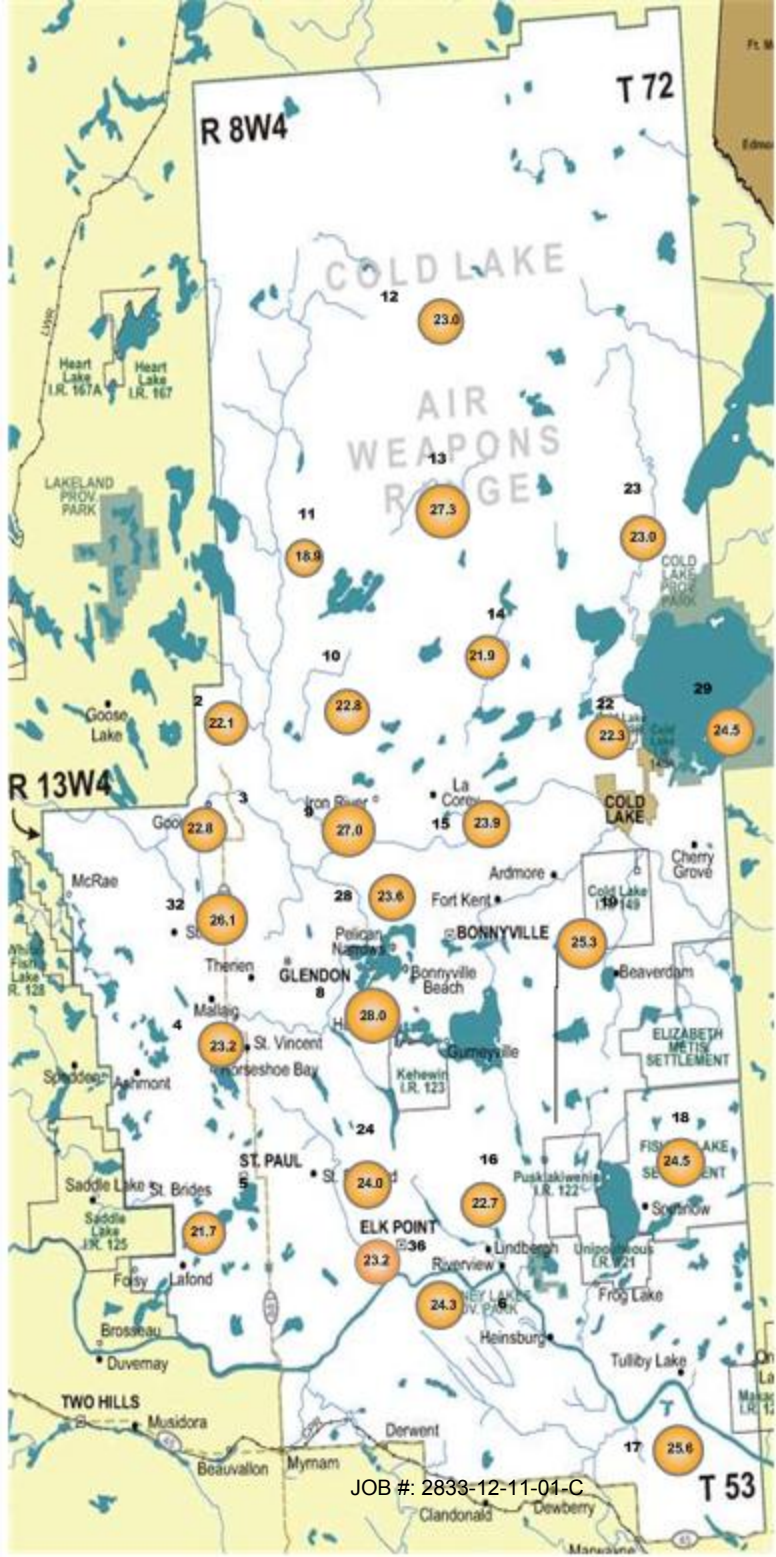
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	22.8 PPB	21.3 PPB
3 – Therien	21.7 PPB	23.8 PPB
4 – Flat Lake	23.2 PPB	NA
5 – Lake Eliza	21.7 PPB	NA
6 – Telegraph Creek	24.3 PPB	NA
8 – Muriel-Kehewin	28.0 PPB	NA
9 – Dupre	27.0 PPB	NA
10 – La Corey	22.8 PPB	NA
11 – Wolf Lake	18.9 PPB	NA
12 – Foster Creek	23.0 PPB	NA
13 – Primrose	27.3 PPB	NA
14 – Maskwa	21.9 PPB	NA
15 – Ardmore	23.9 PPB	NA
16 – Frog Lake	22.7 PPB	NA
17 – Clear Range	25.6 PPB	NA
18 – Fishing Lake	24.5 PPB	NA
19 – Beaverdam	25.3 PPB	NA
22 – Cold Lake South	22.3 PPB	NA
23 – Medley-Martineau	23.0 PPB	NA
24 – Fort George	24.0 PPB	NA
28 – Town of Bonnyville	23.6 PPB	NA
29 – Cold Lake South 2	24.5 PPB	NA
32 – St. Lina	26.1 PPB	NA
36 – Elk Point	23.2 PPB	NA

O_3 PPB

Summary

Minimum : 18.9 PPB – Wolf Lake
Maximum: 28.0 PPB – Muriel-Kehewin
Average: 23.8 PPB *Includes Duplicates



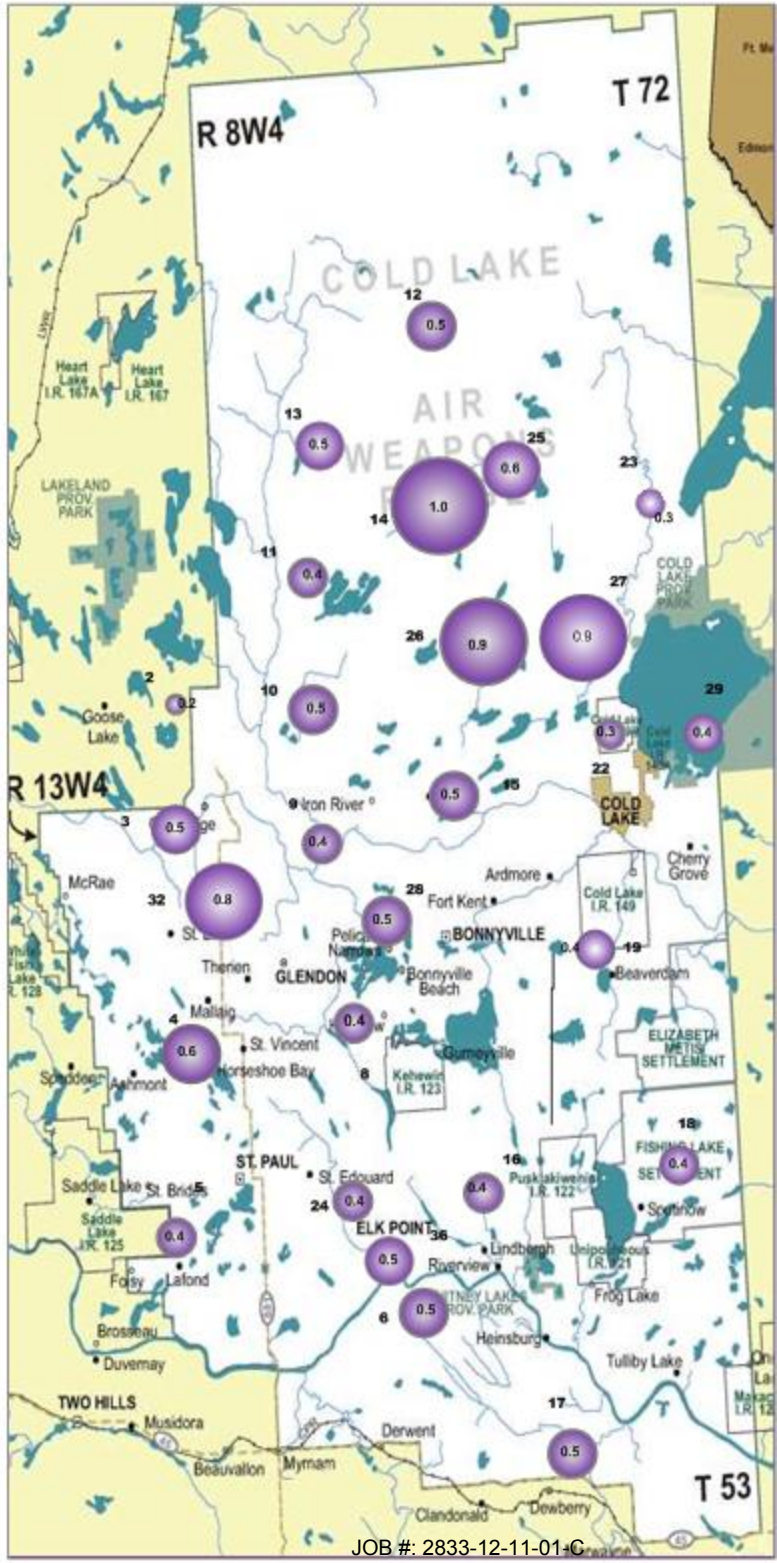
Lakeland Industry & Community Association
SO_2 Passive Bubble Map

NOVEMBER 2012

PASSIVE STATIONS		DUPLICATE
2 – Sand River	0.2 PPB	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.6 PPB	NA
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	0.5 PPB	NA
8 – Muriel-Kehewin	0.4 PPB	NA
9 – Dupre	0.4 PPB	NA
10 – La Corey	0.6 PPB	0.4 PPB
11 – Wolf Lake	0.4 PPB	0.4 PPB
12 – Foster Creek	0.5 PPB	0.5 PPB
13 – Primrose	0.5 PPB	NA
14 – Maskwa	1.0 PPB	NA
15 – Ardmore	0.5 PPB	NA
16 – Frog Lake	0.4 PPB	NA
17 – Clear Range	0.5 PPB	NA
18 – Fishing Lake	0.4 PPB	NA
19 – Beaverdam	0.4 PPB	NA
22 – Cold Lake South	0.3 PPB	NA
23 – Medley-Martineau	0.3 PPB	NA
24 – Fort George	0.4 PPB	NA
25 – Burnt Lake	0.6 PPB	NA
26 – Mahikan	0.9 PPB	NA
27 – Mahkeses	0.9 PPB	NA
28 – Town of Bonnyville	0.5 PPB	NA
29 – Cold Lake South 2	0.4 PPB	NA
32 – St. Lina	0.8 PPB	NA
36 – Elk Point	0.5 PPB	NA

Summary

Minimum : 0.2 PPB –Sand River
Maximum: 1.0 PPB –Maskwa
Average: 0.51 PPB *Includes Duplicates



JOB #: 2833-12-11-01-C

Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	$SO_2/NO_2/O_3$	10/30/2012	16:00	11/30/2012	16:15	
3	$H_2S/SO_2/NO_2/O_3$	10/30/2012	16:50	11/30/2012	17:15	
4	$SO_2/NO_2/O_3$	10/31/2012	15:20	12/03/2012	17:15	
5	$H_2S/SO_2/NO_2/O_3$	10/29/2012	16:00	12/03/2012	16:25	
6	$SO_2/NO_2/O_3$	10/31/2012	13:40	12/03/2012	13:35	
8	$SO_2/NO_2/O_3$	10/29/2012	17:15	12/03/2012	18:15	
9	$SO_2/NO_2/O_3$	10/30/2012	19:15	11/29/2012	12:30	
10	$H_2S/SO_2/NO_2/O_3$	10/30/2012	11:12	11/30/2012	11:00	
11	$H_2S/SO_2/NO_2/O_3$	10/30/1012	11:50	11/30/2012	11:50	
12	$H_2S/SO_2/NO_2/O_3$	10/30/2012	13:14	11/30/2012	13:20	
13	$H_2S/SO_2/NO_2/O_3$	10/30/2012	09:15	11/30/2012	09:30	
14	$H_2S/SO_2/NO_2/O_3$	10/30/2012	08:10	11/30/2012	08:15	
15	$SO_2/NO_2/O_3$	10/30/2012	10:20	11/29/2012	11:45	
16	$H_2S/SO_2/NO_2/O_3$	10/31/2012	12:05	12/03/2012	11:35	
17	$H_2S/SO_2/NO_2/O_3$	10/31/2012	13:00	12/03/2012	12:45	
18	$H_2S/SO_2/NO_2/O_3$	10/31/2012	11:25	12/03/2012	10:45	
19	$SO_2/NO_2/O_3$	10/31/2012	10:15	12/03/2012	09:20	
22	$H_2S/SO_2/NO_2/O_3$	10/31/2012	08:45	11/29/2012	10:55	
23	$SO_2/NO_2/O_3$	10/31/2012	17:15	11/30/2012	18:45	
24	$H_2S/SO_2/NO_2/O_3$	10/31/2012	14:15	11/30/2012	14:15	
25	H_2S/SO_2	10/30/2012	14:25	11/30/2012	14:30	
26	H_2S/SO_2	10/30/2012	08:30	11/30/2012	08:40	
27	H_2S/SO_2	10/30/2012	07:50	11/30/2012	07:50	
28	$SO_2/NO_2/O_3$	10/29/2012	17:50	11/29/2012	12:40	
29	$H_2S/SO_2/NO_2/O_3$	10/31/2012	08:30	11/29/2012	10:35	
32	$H_2S/SO_2/NO_2/O_3$	10/30/2012	17;40	11/29/2012	14:00	
36	$H_2S/SO_2/NO_2/O_3$	10/29/2012	11:30	12/03/2012	15:05	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 10	SO_2	10/30/2012	11:12	11/30/2012	11:00	
Duplicate # 11	SO_2	10/30/2012	11:50	11/30/2012	11:50	
Duplicate # 12	SO_2	10/30/2012	13:14	11/30/2012	13:20	
Duplicate # 16	H_2S	10/31/2012	12:05	12/03/2012	11:35	
Duplicate # 13	H_2S	10/31/2012	13:00	12/03/2012	12:45	
Duplicate # 02	NO_2	10/30/2012	16:00	11/30/2012	16:15	
Duplicate # 03	NO_2	10/30/2012	16:50	11/30/2012	17:15	
Duplicate # 02	O_3	10/30/2012	16:00	11/30/2012	16:15	
Duplicate # 03	O_3	10/30/2012	16:50	11/30/2012	17:15	

Passive Network Laboratory Analysis

Your Project #: 2012/10/31 - 2012/11/30
Site Location: LICA

Attention: MICHAEL BISAGA

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

Report Date: 2012/12/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2B1597
Received: 2012/12/10, 09:57

Sample Matrix: Air
Samples Received: 34

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	20	2012/12/14	2012/12/14	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	26	2012/12/12	2012/12/14	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	26	2012/12/13	2012/12/14	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	30	2012/12/13	2012/12/14	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

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FE8847	FE8848	FE8849	FE8850	FE8851		
Sampling Date		2012/10/30 16:00	2012/10/30 16:50	2012/10/29 15:20	2012/10/29 16:00	2012/10/31 13:40		
	UNITS	**2**	**3**	**4**	**5**	**6**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb		0.15		0.15		0.02	6425785
Calculated NO2	ppb	2.5	2.7	2.3	2.0	3.3	0.1	6418386
Calculated O3	ppb	22.8	21.7	23.2	21.7	24.3	0.1	6423432
Calculated SO2	ppb	0.2	0.5	0.6	0.4	0.5	0.1	6422372

RDL = Reportable Detection Limit

Maxxam ID		FE8852	FE8853	FE8854	FE8855	FE8856		
Sampling Date		2012/10/29 17:15	2012/10/30 19:15	2012/10/30 11:12	2012/10/30 11:50	2012/10/30 13:14		
	UNITS	**8**	**9**	**10**	**11**	**12**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb			0.12	0.14	0.11	0.02	6425785
Calculated NO2	ppb	1.6	2.4	3.7	1.4	2.2	0.1	6418400
Calculated O3	ppb	28.0	27.0	22.8	18.9	23.0	0.1	6423432
Calculated SO2	ppb	0.4	0.4	0.6	0.4	0.5	0.1	6422372

RDL = Reportable Detection Limit

Maxxam ID		FE8857	FE8858	FE8859	FE8860	FE8862		
Sampling Date		2012/10/30 19:15	2012/10/30 08:10	2012/10/30 10:20	2012/10/31 12:05	2012/10/31 13:00		
	UNITS	**13**	**14**	**15**	**16**	**17**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.08	0.16		0.13	0.12	0.02	6425785
Calculated NO2	ppb	2.2	2.2	2.0	3.7	3.7	0.1	6418400
Calculated O3	ppb	27.3	21.9	23.9	22.7	25.6	0.1	6423432
Calculated SO2	ppb	0.5	1.0	0.5	0.4	0.5	0.1	6422372

RDL = Reportable Detection Limit

Maxxam Job #: B2B1597
Report Date: 2012/12/14

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/10/31 - 2012/11/30
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FE8863	FE8864		FE8865	FE8866		
Sampling Date		2012/10/31 11:25	2012/10/31 10:15		2012/10/31 08:45	2012/10/31 17:15		
	UNITS	**18**	**19**	**QC Batch**	**22**	**23**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.13		6425785	0.11		0.02	6425785
Calculated NO2	ppb	2.5	2.0	6418400	2.7	0.8	0.1	6418400
Calculated O3	ppb	24.5	25.3	6423432	22.3	23.0	0.1	6423446
Calculated SO2	ppb	0.4	0.4	6422379	0.3	0.3	0.1	6422379

RDL = Reportable Detection Limit

Maxxam ID		FE8867	FE8868	FE8869	FE8870	FE8871		
Sampling Date		2012/10/31 14:15	2012/10/30 14:25	2012/10/30 08:30	2012/10/30 07:50	2012/10/29 17:50		
	UNITS	**24**	**25**	**26**	**27**	**28**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.14	0.08	0.22	0.21		0.02	6425785
Calculated NO2	ppb	4.4				6.9	0.1	6418400
Calculated O3	ppb	24.0				23.6	0.1	6423446
Calculated SO2	ppb	0.4	0.6	0.9	0.9	0.5	0.1	6422379

RDL = Reportable Detection Limit

Maxxam ID		FE8872	FE8873	FE8874		FE8877		
Sampling Date		2012/10/31 08:30	2012/10/30 17:40	2012/10/29 11:30		2012/10/30 16:00		
	UNITS	**29**	**32**	**36**	**QC Batch**	**2 DUP**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb	0.13	0.14	0.12	6425785		0.02	
Calculated NO2	ppb	2.5	1.9	3.9	6418400	2.1	0.1	6418386
Calculated O3	ppb	24.5	26.1	23.2	6423446	21.3	0.1	6423446
Calculated SO2	ppb	0.4	0.8	0.5	6422379		0.1	

RDL = Reportable Detection Limit

Maxxam Job #: B2B1597
Report Date: 2012/12/14

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/10/31 - 2012/11/30
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		FE8878	FE8879	FE8880	FE8881	FE8882		
Sampling Date		2012/10/30 16:50	2012/10/30 11:12	2012/10/30 11:50	2012/10/30 13:14	2012/10/31 12:05		
	UNITS	**3 DUP**	**10 DUP**	**11 DUP**	**12 DUP**	**16 DUP**	**RDL**	**QC Batch**
Passive Monitoring								
Calculated H2S	ppb					0.12	0.02	6425785
Calculated NO2	ppb	2.3					0.1	6418386
Calculated O3	ppb	23.8					0.1	6423446
Calculated SO2	ppb		0.4	0.4	0.5		0.1	6422372

RDL = Reportable Detection Limit

Maxxam ID		FE8883		
Sampling Date		2012/10/31 13:00		
	UNITS	**17 DUP**	**RDL**	**QC Batch**
Passive Monitoring				
Calculated H2S	ppb	0.16	0.02	6425785

RDL = Reportable Detection Limit

General Comments

Results relate only to the items tested.

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Attention: MICHAEL BISAGA
Client Project #: 2012/10/31 - 2012/11/30
P.O. #:
Site Location: LICA

Quality Assurance Report

Maxxam Job Number: PB2B1597

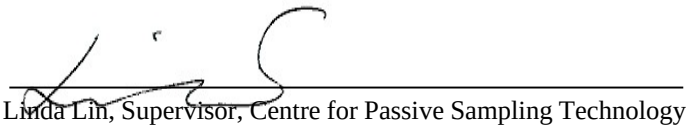
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6418386	DF4	Calibration Check	Calculated NO2	2012/12/12		99	%	76 - 118
		Spiked Blank	Calculated NO2	2012/12/12		99	%	N/A
		Method Blank	Calculated NO2	2012/12/12	<0.1		ppb	
6418400	DF4	Calibration Check	Calculated NO2	2012/12/12		99	%	76 - 118
		Spiked Blank	Calculated NO2	2012/12/12		98	%	N/A
		Method Blank	Calculated NO2	2012/12/12	<0.1		ppb	
6422372	DF4	Calibration Check	Calculated SO2	2012/12/13		99	%	95 - 105
		Spiked Blank	Calculated SO2	2012/12/13		102	%	N/A
		Method Blank	Calculated SO2	2012/12/13	<0.1		ppb	
6422379	DF4	Calibration Check	Calculated SO2	2012/12/13		101	%	95 - 105
		Spiked Blank	Calculated SO2	2012/12/13		104	%	N/A
		Method Blank	Calculated SO2	2012/12/13	<0.1		ppb	
6423432	OZ	Calibration Check	Calculated O3	2012/12/13		100	%	91 - 107
		Spiked Blank	Calculated O3	2012/12/13		98	%	N/A
		Method Blank	Calculated O3	2012/12/13	<0.1		ppb	
6423446	OZ	Calibration Check	Calculated O3	2012/12/13		100	%	91 - 107
		Spiked Blank	Calculated O3	2012/12/13		98	%	N/A
		Method Blank	Calculated O3	2012/12/13	<0.1		ppb	
6425785	WC6	Calibration Check	Calculated H2S	2012/12/14		103	%	80 - 120
		Spiked Blank	Calculated H2S	2012/12/14		100	%	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 #: B2B1597

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 /Nov 05, 2012

Sampler s/n: 6167
Canister ID: 265
Canister Installation Date/Time: Nov 02, 2012 @ 7:43 mst
Canister Removal Date/Time: Nov 06, 2012 @ 10:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-12	11/05/2012 0:00	11/06/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	24

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

Comments: System leak check prior to sampling. COC# 12702

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12702

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

Report Date: 2012/11/21

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H6388
Received: 2012/11/09, 11:00

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/11/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/11/14	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 #: B2H6388
Report Date: 2012/11/21

RESULTS OF ANALYSES OF AIR

Maxxam ID		PO0285	PO0286	
Sampling Date		2012/11/05	2012/11/05	
COC Number		12702	12702	
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**LICA VOC/PORT/NOV 05,12 / 138**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	23	22	3041295

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	1.07	5.30	0.989	1.09	0.20	5.40	0.989	3041333
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3041333
Chloromethane	ppbv	0.84	1.73	0.620	0.81	0.30	1.68	0.620	3041333
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3041333
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3041333
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3041333
Trichlorofluoromethane (FREON 11)	ppbv	0.59	3.30	1.12	0.58	0.20	3.28	1.12	3041333
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3041333
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3041333
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3041333
2-Propanone	ppbv	2.36	5.61	1.90	2.34	0.80	5.56	1.90	3041333
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3041333
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3041333
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3041333
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3041333
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3041333
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3041333
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3041333
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3041333
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3041333
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3041333
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3041333
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3041333
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3041333
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3041333
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3041333
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3041333
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3041333
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3041333
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3041333
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3041333

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3041333
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3041333
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3041333
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3041333
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3041333
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3041333
Benzene	ppbv	<0.18	<0.575	0.575	0.20	0.18	0.644	0.575	3041333
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3041333
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3041333
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3041333
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3041333
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3041333
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3041333
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3041333
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3041333
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3041333
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3041333
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3041333
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3041333
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3041333
Hexane	ppbv	<0.30	<1.06	1.06	0.36	0.30	1.27	1.06	3041333
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3041333
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	3041333
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3041333
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3041333
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3041333
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3041333
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3041333
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3041333
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3041333
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3041333

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PO0285			PO0286				
Sampling Date		2012/11/05			2012/11/05				
COC Number		12702			12702				
	Units	**LICA VOC/CLS/NOV 05,12 / 265**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 05,12 / 138**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	83		N/A	N/A	3041333
D5-Chlorobenzene	%	81	N/A	N/A	79		N/A	N/A	3041333
Difluorobenzene	%	86	N/A	N/A	83		N/A	N/A	3041333

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

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

Test Summary

Maxxam ID PO0285 **Collected** 2012/11/05
Sample ID LICA VOC/CLS/NOV 05,12 / 265 **Shipped**
Matrix AIR **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3041295	N/A	2012/11/14	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	3041333	N/A	2012/11/14	Branko Vrzic

Maxxam ID PO0286 **Collected** 2012/11/05
Sample ID LICA VOC/PORT/NOV 05,12 / 138 **Shipped**
Matrix AIR **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3041295	N/A	2012/11/14	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	3041333	N/A	2012/11/14	Branko Vrzic

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Maxxam Analytics

Maxxam Job #: B2H6388
Report Date: 2012/11/21

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: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Spiked Blank	Bromochloromethane	2012/11/14		107	%	60 - 140
			D5-Chlorobenzene	2012/11/14		105	%	60 - 140
			Difluorobenzene	2012/11/14		109	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/14		102	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/11/14		118	%	70 - 130
			Chloromethane	2012/11/14		105	%	70 - 130
			Vinyl Chloride	2012/11/14		104	%	70 - 130
			Chloroethane	2012/11/14		103	%	70 - 130
			1,3-Butadiene	2012/11/14		108	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/11/14		117	%	70 - 130
			Ethanol (ethyl alcohol)	2012/11/14		110	%	70 - 130
			Trichlorotrifluoroethane	2012/11/14		85	%	70 - 130
			2-propanol	2012/11/14		119	%	70 - 130
			2-Propanone	2012/11/14		100	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/11/14		91	%	70 - 130
			Methyl Isobutyl Ketone	2012/11/14		100	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/11/14		103	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/11/14		106	%	70 - 130
			Ethyl Acetate	2012/11/14		102	%	70 - 130
			1,1-Dichloroethylene	2012/11/14		77	%	70 - 130
			cis-1,2-Dichloroethylene	2012/11/14		102	%	70 - 130
			trans-1,2-Dichloroethylene	2012/11/14		94	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/11/14		84	%	70 - 130
			Chloroform	2012/11/14		105	%	70 - 130
			Carbon Tetrachloride	2012/11/14		115	%	70 - 130
			1,1-Dichloroethane	2012/11/14		100	%	70 - 130
			1,2-Dichloroethane	2012/11/14		111	%	70 - 130
			Ethylene Dibromide	2012/11/14		98	%	70 - 130
			1,1,1-Trichloroethane	2012/11/14		108	%	70 - 130
			1,1,2-Trichloroethane	2012/11/14		95	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/11/14		98	%	70 - 130
			cis-1,3-Dichloropropene	2012/11/14		103	%	70 - 130
			trans-1,3-Dichloropropene	2012/11/14		111	%	70 - 130
			1,2-Dichloropropane	2012/11/14		93	%	70 - 130
			Bromomethane	2012/11/14		105	%	70 - 130
			Bromoform	2012/11/14		115	%	70 - 130
			Bromodichloromethane	2012/11/14		107	%	70 - 130
			Dibromochloromethane	2012/11/14		107	%	70 - 130
			Trichloroethylene	2012/11/14		90	%	70 - 130
			Tetrachloroethylene	2012/11/14		95	%	70 - 130
			Benzene	2012/11/14		91	%	70 - 130
			Toluene	2012/11/14		94	%	70 - 130
			Ethylbenzene	2012/11/14		100	%	70 - 130
			p+m-Xylene	2012/11/14		102	%	70 - 130
			o-Xylene	2012/11/14		104	%	70 - 130
			Styrene	2012/11/14		111	%	70 - 130
			4-ethyltoluene	2012/11/14		107	%	70 - 130
			1,3,5-Trimethylbenzene	2012/11/14		111	%	70 - 130
			1,2,4-Trimethylbenzene	2012/11/14		115	%	70 - 130
			Chlorobenzene	2012/11/14		94	%	70 - 130
			Benzyl chloride	2012/11/14		115	%	70 - 130
			1,3-Dichlorobenzene	2012/11/14		107	%	70 - 130
			1,4-Dichlorobenzene	2012/11/14		104	%	70 - 130
			1,2-Dichlorobenzene	2012/11/14		102	%	70 - 130
			1,2,4-Trichlorobenzene	2012/11/14		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Spiked Blank	Hexachlorobutadiene	2012/11/14		121	%	70 - 130
			Hexane	2012/11/14		90	%	70 - 130
			Heptane	2012/11/14		88	%	70 - 130
			Cyclohexane	2012/11/14		91	%	70 - 130
			Tetrahydrofuran	2012/11/14		98	%	70 - 130
			1,4-Dioxane	2012/11/14		110	%	70 - 130
			Xylene (Total)	2012/11/14		103	%	70 - 130
			Vinyl Bromide	2012/11/14		107	%	70 - 130
			Propene	2012/11/14		84	%	70 - 130
			2,2,4-Trimethylpentane	2012/11/14		91	%	70 - 130
			Carbon Disulfide	2012/11/14		98	%	70 - 130
			Vinyl Acetate	2012/11/14		104	%	70 - 130
		Method Blank	Bromochloromethane	2012/11/14		109	%	60 - 140
			D5-Chlorobenzene	2012/11/14		101	%	60 - 140
			Difluorobenzene	2012/11/14		110	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/14	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/11/14	<0.17		ppbv	
			Chloromethane	2012/11/14	<0.30		ppbv	
			Vinyl Chloride	2012/11/14	<0.18		ppbv	
			Chloroethane	2012/11/14	<0.30		ppbv	
			1,3-Butadiene	2012/11/14	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/11/14	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/11/14	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/11/14	<0.15		ppbv	
			2-propanol	2012/11/14	<3.0		ppbv	
			2-Propanone	2012/11/14	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/11/14	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/11/14	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/11/14	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/11/14	<0.20		ppbv	
			Ethyl Acetate	2012/11/14	<2.2		ppbv	
			1,1-Dichloroethylene	2012/11/14	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/11/14	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/11/14	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/11/14	<0.80		ppbv	
			Chloroform	2012/11/14	<0.15		ppbv	
			Carbon Tetrachloride	2012/11/14	<0.30		ppbv	
			1,1-Dichloroethane	2012/11/14	<0.20		ppbv	
			1,2-Dichloroethane	2012/11/14	<0.20		ppbv	
			Ethylene Dibromide	2012/11/14	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/11/14	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/11/14	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/11/14	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/11/14	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/11/14	<0.17		ppbv	
			1,2-Dichloropropane	2012/11/14	<0.40		ppbv	
			Bromomethane	2012/11/14	<0.18		ppbv	
			Bromoform	2012/11/14	<0.20		ppbv	
			Bromodichloromethane	2012/11/14	<0.20		ppbv	
			Dibromochloromethane	2012/11/14	<0.20		ppbv	
			Trichloroethylene	2012/11/14	<0.30		ppbv	
			Tetrachloroethylene	2012/11/14	<0.20		ppbv	
			Benzene	2012/11/14	<0.18		ppbv	
			Toluene	2012/11/14	<0.20		ppbv	
			Ethylbenzene	2012/11/14	<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: GB2H6388

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3041333	BY	Method Blank	p+m-Xylene	2012/11/14	<0.37		ppbv	
			o-Xylene	2012/11/14	<0.20		ppbv	
			Styrene	2012/11/14	<0.20		ppbv	
			4-ethyltoluene	2012/11/14	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/11/14	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/11/14	<0.50		ppbv	
			Chlorobenzene	2012/11/14	<0.20		ppbv	
			Benzyl chloride	2012/11/14	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/11/14	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/11/14	<2.0		ppbv	
			Hexachlorobutadiene	2012/11/14	<3.0		ppbv	
			Hexane	2012/11/14	<0.30		ppbv	
			Heptane	2012/11/14	<0.30		ppbv	
			Cyclohexane	2012/11/14	<0.20		ppbv	
			Tetrahydrofuran	2012/11/14	<0.40		ppbv	
			1,4-Dioxane	2012/11/14	<2.0		ppbv	
			Xylene (Total)	2012/11/14	<0.60		ppbv	
			Vinyl Bromide	2012/11/14	<0.20		ppbv	
			Propene	2012/11/14	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/11/14	<0.20		ppbv	
			Carbon Disulfide	2012/11/14	<0.50		ppbv	
			Vinyl Acetate	2012/11/14	<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 /Nov 11, 2012

Sampler s/n: 6167
Canister ID: 125
Canister Installation Date/Time: Nov 09, 2012 @ 8:29 mst
Canister Removal Date/Time: Nov 12, 2012 @ 10:19 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Nov-12	11/11/2012 0:00	11/12/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	24

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

Comments: System leak check prior to sampling. COC# 12768

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12768

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

Report Date: 2012/11/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H9429
Received: 2012/11/15, 10:00

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/11/12	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/11/15	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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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 #: B2H9429
Report Date: 2012/11/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		PP6219	PP6220	
Sampling Date		2012/11/11 00:00	2012/11/11 00:00	
COC Number		12768	12768	
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**LICA VOC/PORT/NOV 11,12 - 307**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	22	3038947

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.61	0.20	3.03	0.989	3038952
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	3038952
Chloromethane	ppbv	0.51	0.30	1.05	0.620	3038952
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	3038952
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	3038952
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	3038952
Trichlorofluoromethane (FREON 11)	ppbv	0.35	0.20	1.95	1.12	3038952
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	3038952
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	3038952
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	3038952
2-Propanone	ppbv	1.71	0.80	4.06	1.90	3038952
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	3038952
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	3038952
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	3038952
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	3038952
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	3038952
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	3038952
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	3038952
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	3038952
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	3038952
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	3038952
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	3038952
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	3038952
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	3038952
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	3038952
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	3038952
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	3038952
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	3038952

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	3038952
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	3038952
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	3038952
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	3038952
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	3038952
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	3038952
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	3038952
Benzene	ppbv	<0.18	0.18	<0.575	0.575	3038952
Toluene	ppbv	<0.20	0.20	<0.753	0.753	3038952
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	3038952
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	3038952
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	3038952
Styrene	ppbv	<0.20	0.20	<0.852	0.852	3038952
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	3038952
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	3038952
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	3038952
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	3038952
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	3038952
Hexane	ppbv	<0.30	0.30	<1.06	1.06	3038952
Heptane	ppbv	<0.30	0.30	<1.23	1.23	3038952
Cyclohexane	ppbv	0.24	0.20	0.841	0.688	3038952
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	3038952
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	3038952
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	3038952
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	3038952
Propene	ppbv	<2.0	2.0	<3.44	3.44	3038952
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	3038952

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6219				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/CLS/NOV 11,12 - 125**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	3038952
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	3038952
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	3038952
D5-Chlorobenzene	%	80		N/A	N/A	3038952
Difluorobenzene	%	84		N/A	N/A	3038952

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

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.59	0.20	2.93	0.989	3038952
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	3038952
Chloromethane	ppbv	0.51	0.30	1.05	0.620	3038952
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	3038952
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	3038952
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	3038952
Trichlorofluoromethane (FREON 11)	ppbv	0.33	0.20	1.88	1.12	3038952
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	3038952
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	3038952
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	3038952
2-Propanone	ppbv	2.45	0.80	5.81	1.90	3038952
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	3038952
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	3038952
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	3038952
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	3038952
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	3038952
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	3038952
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	3038952
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	3038952
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	3038952
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	3038952
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	3038952
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	3038952
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	3038952
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	3038952
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	3038952
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	3038952
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	3038952
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	3038952

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	3038952
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	3038952
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	3038952
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	3038952
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	3038952
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	3038952
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	3038952
Benzene	ppbv	<0.18	0.18	<0.575	0.575	3038952
Toluene	ppbv	<0.20	0.20	<0.753	0.753	3038952
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	3038952
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	3038952
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	3038952
Styrene	ppbv	<0.20	0.20	<0.852	0.852	3038952
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	3038952
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	3038952
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	3038952
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	3038952
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	3038952
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	3038952
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	3038952
Hexane	ppbv	0.51	0.30	1.81	1.06	3038952
Heptane	ppbv	0.39	0.30	1.58	1.23	3038952
Cyclohexane	ppbv	0.39	0.20	1.34	0.688	3038952
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	3038952
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	3038952
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	3038952
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	3038952
Propene	ppbv	<2.5	2.5	<4.30	4.30	3038952
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	3038952

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PP6220				
Sampling Date		2012/11/11 00:00				
COC Number		12768				
	Units	**LICA VOC/PORT/NOV 11,12 - 307**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	3038952
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	3038952
Surrogate Recovery (%)						
Bromochloromethane	%	81		N/A	N/A	3038952
D5-Chlorobenzene	%	80		N/A	N/A	3038952
Difluorobenzene	%	85		N/A	N/A	3038952

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

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

Test Summary

Maxxam ID PP6219 **Collected** 2012/11/11
Sample ID LICA VOC/CLS/NOV 11,12 - 125 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3038947	N/A	2012/11/12	Jie Wu
Volatile Organics in Air (TO-15)	GC/MS	3038952	N/A	2012/11/15	Jie Wu

Maxxam ID PP6220 **Collected** 2012/11/11
Sample ID LICA VOC/PORT/NOV 11,12 - 307 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3038947	N/A	2012/11/12	Jie Wu
Volatile Organics in Air (TO-15)	GC/MS	3038952	N/A	2012/11/15	Jie Wu

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Maxxam Analytics

Maxxam Job #: B2H9429
Report Date: 2012/11/22

GENERAL COMMENTS

Hexachlorobutadiene exceed 130% recovery criteria in Reference Standard. It meets %RSD criteria in the Continuing Calibration Standard. No positive found for this compound.
It is not believed that this failure will have an effect on the integrity of the results therefore data was accepted.

Sample PP6219-01: The amount reported for 2-propanone represents the mixture of pentane and 2-propanone.

Increased DL further for propene due to possible background.

Sample PP6220-01: The amount reported for 2-propanone represents the mixture of pentane and 2-propanone.

Increased DL further for propene due to possible background.

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: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Spiked Blank	Bromochloromethane	2012/11/15		100	%	60 - 140
			D5-Chlorobenzene	2012/11/15		101	%	60 - 140
			Difluorobenzene	2012/11/15		100	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/15		107	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/11/15		106	%	70 - 130
			Chloromethane	2012/11/15		113	%	70 - 130
			Vinyl Chloride	2012/11/15		95	%	70 - 130
			Chloroethane	2012/11/15		77	%	70 - 130
			1,3-Butadiene	2012/11/15		102	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/11/15		119	%	70 - 130
			Ethanol (ethyl alcohol)	2012/11/15		112	%	70 - 130
			Trichlorotrifluoroethane	2012/11/15		94	%	70 - 130
			2-propanol	2012/11/15		126	%	70 - 130
			2-Propanone	2012/11/15		121	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/11/15		99	%	70 - 130
			Methyl Isobutyl Ketone	2012/11/15		127	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/11/15		132 (1)	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/11/15		101	%	70 - 130
			Ethyl Acetate	2012/11/15		124	%	70 - 130
			1,1-Dichloroethylene	2012/11/15		97	%	70 - 130
			cis-1,2-Dichloroethylene	2012/11/15		100	%	70 - 130
			trans-1,2-Dichloroethylene	2012/11/15		99	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/11/15		107	%	70 - 130
			Chloroform	2012/11/15		103	%	70 - 130
			Carbon Tetrachloride	2012/11/15		129	%	70 - 130
			1,1-Dichloroethane	2012/11/15		96	%	70 - 130
			1,2-Dichloroethane	2012/11/15		111	%	70 - 130
			Ethylene Dibromide	2012/11/15		107	%	70 - 130
			1,1,1-Trichloroethane	2012/11/15		118	%	70 - 130
			1,1,2-Trichloroethane	2012/11/15		109	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/11/15		104	%	70 - 130
			cis-1,3-Dichloropropene	2012/11/15		105	%	70 - 130
			trans-1,3-Dichloropropene	2012/11/15		109	%	70 - 130
			1,2-Dichloropropane	2012/11/15		99	%	70 - 130
			Bromomethane	2012/11/15		82	%	70 - 130
			Bromoform	2012/11/15		126	%	70 - 130
			Bromodichloromethane	2012/11/15		112	%	70 - 130
			Dibromochloromethane	2012/11/15		120	%	70 - 130
			Trichloroethylene	2012/11/15		109	%	70 - 130
			Tetrachloroethylene	2012/11/15		114	%	70 - 130
			Benzene	2012/11/15		97	%	70 - 130
			Toluene	2012/11/15		103	%	70 - 130
			Ethylbenzene	2012/11/15		104	%	70 - 130
			p+m-Xylene	2012/11/15		103	%	70 - 130
			o-Xylene	2012/11/15		104	%	70 - 130
			Styrene	2012/11/15		107	%	70 - 130
			4-ethyltoluene	2012/11/15		107	%	70 - 130
			1,3,5-Trimethylbenzene	2012/11/15		99	%	70 - 130
			1,2,4-Trimethylbenzene	2012/11/15		98	%	70 - 130
			Chlorobenzene	2012/11/15		108	%	70 - 130
			Benzyl chloride	2012/11/15		96	%	70 - 130
			1,3-Dichlorobenzene	2012/11/15		110	%	70 - 130
			1,4-Dichlorobenzene	2012/11/15		103	%	70 - 130
			1,2-Dichlorobenzene	2012/11/15		100	%	70 - 130
			1,2,4-Trichlorobenzene	2012/11/15		121	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Spiked Blank	Hexachlorobutadiene	2012/11/15		142 (1)	%	70 - 130
			Hexane	2012/11/15		102	%	70 - 130
			Heptane	2012/11/15		124	%	70 - 130
			Cyclohexane	2012/11/15		110	%	70 - 130
			Tetrahydrofuran	2012/11/15		128	%	70 - 130
			1,4-Dioxane	2012/11/15		106	%	70 - 130
			Xylene (Total)	2012/11/15		104	%	70 - 130
			Vinyl Bromide	2012/11/15		84	%	70 - 130
			Propene	2012/11/15		113	%	70 - 130
			2,2,4-Trimethylpentane	2012/11/15		108	%	70 - 130
			Carbon Disulfide	2012/11/15		95	%	70 - 130
			Vinyl Acetate	2012/11/15		124	%	70 - 130
		Method Blank	Bromochloromethane	2012/11/15		87	%	60 - 140
			D5-Chlorobenzene	2012/11/15		82	%	60 - 140
			Difluorobenzene	2012/11/15		91	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/11/15	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/11/15	<0.17		ppbv	
			Chloromethane	2012/11/15	<0.30		ppbv	
			Vinyl Chloride	2012/11/15	<0.18		ppbv	
			Chloroethane	2012/11/15	<0.30		ppbv	
			1,3-Butadiene	2012/11/15	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/11/15	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/11/15	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/11/15	<0.15		ppbv	
			2-propanol	2012/11/15	<3.0		ppbv	
			2-Propanone	2012/11/15	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/11/15	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/11/15	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/11/15	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/11/15	<0.20		ppbv	
			Ethyl Acetate	2012/11/15	<2.2		ppbv	
			1,1-Dichloroethylene	2012/11/15	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/11/15	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/11/15	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/11/15	<0.80		ppbv	
			Chloroform	2012/11/15	<0.15		ppbv	
			Carbon Tetrachloride	2012/11/15	<0.30		ppbv	
			1,1-Dichloroethane	2012/11/15	<0.20		ppbv	
			1,2-Dichloroethane	2012/11/15	<0.20		ppbv	
			Ethylene Dibromide	2012/11/15	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/11/15	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/11/15	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/11/15	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/11/15	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/11/15	<0.17		ppbv	
			1,2-Dichloropropane	2012/11/15	<0.40		ppbv	
			Bromomethane	2012/11/15	<0.18		ppbv	
			Bromoform	2012/11/15	<0.20		ppbv	
			Bromodichloromethane	2012/11/15	<0.20		ppbv	
			Dibromochloromethane	2012/11/15	<0.20		ppbv	
			Trichloroethylene	2012/11/15	<0.30		ppbv	
			Tetrachloroethylene	2012/11/15	<0.20		ppbv	
			Benzene	2012/11/15	<0.18		ppbv	
			Toluene	2012/11/15	<0.20		ppbv	
			Ethylbenzene	2012/11/15	<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: GB2H9429

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3038952	JIW	Method Blank	p+m-Xylene	2012/11/15	<0.37		ppbv	
			o-Xylene	2012/11/15	<0.20		ppbv	
			Styrene	2012/11/15	<0.20		ppbv	
			4-ethyltoluene	2012/11/15	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/11/15	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/11/15	<0.50		ppbv	
			Chlorobenzene	2012/11/15	<0.20		ppbv	
			Benzyl chloride	2012/11/15	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/11/15	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/11/15	<2.0		ppbv	
			Hexachlorobutadiene	2012/11/15	<3.0		ppbv	
			Hexane	2012/11/15	<0.30		ppbv	
			Heptane	2012/11/15	<0.30		ppbv	
			Cyclohexane	2012/11/15	<0.20		ppbv	
			Tetrahydrofuran	2012/11/15	<0.40		ppbv	
			1,4-Dioxane	2012/11/15	<2.0		ppbv	
			Xylene (Total)	2012/11/15	<0.60		ppbv	
			Vinyl Bromide	2012/11/15	<0.20		ppbv	
			Propene	2012/11/15	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/11/15	<0.20		ppbv	
			Carbon Disulfide	2012/11/15	<0.50		ppbv	
			Vinyl Acetate	2012/11/15	<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 /Nov 17, 2012

Sampler s/n: 6167
Canister ID: 146
Canister Installation Date/Time: Nov 15, 2012 @15:42 mst
Canister Removal Date/Time: Nov 19, 2012 @09:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-12	11/17/2012 0:00	11/18/2012 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#12461

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12461

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

Report Date: 2012/12/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I2883
Received: 2012/11/21, 10:29

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/14	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 #: B2I2883
Report Date: 2012/12/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		PR5556	PR5557	
Sampling Date		2012/11/18	2012/11/18	
COC Number		12461	12461	
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**LICA VOC\PORT\NOV 18,12 - 7859**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	22	21	3070701

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.58	2.86	0.989	0.59	0.20	2.90	0.989	3070697
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3070697
Chloromethane	ppbv	0.47	0.979	0.620	0.51	0.30	1.05	0.620	3070697
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3070697
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3070697
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3070697
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.64	1.12	0.29	0.20	1.62	1.12	3070697
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3070697
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3070697
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3070697
2-Propanone	ppbv	1.54	3.65	1.90	1.85	0.80	4.39	1.90	3070697
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3070697
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3070697
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3070697
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3070697
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3070697
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3070697
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3070697
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3070697
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3070697
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3070697
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3070697
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3070697
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3070697
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3070697
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3070697
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3070697
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3070697
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3070697
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3070697
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3070697

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3070697
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3070697
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3070697
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3070697
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3070697
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3070697
Benzene	ppbv	<0.18	<0.575	0.575	0.20	0.18	0.624	0.575	3070697
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3070697
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3070697
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3070697
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3070697
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3070697
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3070697
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3070697
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3070697
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3070697
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3070697
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3070697
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3070697
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3070697
Hexane	ppbv	<0.30	<1.06	1.06	0.64	0.30	2.27	1.06	3070697
Heptane	ppbv	<0.30	<1.23	1.23	0.35	0.30	1.42	1.23	3070697
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.21	0.20	0.716	0.688	3070697
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3070697
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3070697
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3070697
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3070697
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3070697
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3070697
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3070697
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3070697

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PR5556			PR5557				
Sampling Date		2012/11/18			2012/11/18				
COC Number		12461			12461				
	Units	**LICA VOC\CLS\NOV 18,12 - 146**	**ug/m3**	**DL (ug/m3)**	**LICA VOC\PORT\NOV 18,12 - 7859**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	94	N/A	N/A	99		N/A	N/A	3070697
D5-Chlorobenzene	%	94	N/A	N/A	98		N/A	N/A	3070697
Difluorobenzene	%	97	N/A	N/A	102		N/A	N/A	3070697

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

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

Test Summary

Maxxam ID PR5556 **Collected** 2012/11/18
Sample ID LICA VOC\CLS\NOV 18,12 - 146 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3070701	N/A	2012/12/14	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

Maxxam ID PR5557 **Collected** 2012/11/18
Sample ID LICA VOC\PORT\NOV 18,12 - 7859 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3070701	N/A	2012/12/14	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

Maxxam ID PR5557 Dup **Collected** 2012/11/18
Sample ID LICA VOC\PORT\NOV 18,12 - 7859 **Shipped**
Matrix AIR **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organics in Air (TO-15)	GC/MS	3070697	N/A	2012/12/14	Spomenka Smiljanic

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Maxxam Analytics

Maxxam Job #: B2I2883
Report Date: 2012/12/14

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: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Spiked Blank	Bromochloromethane	2012/12/14		121	%	60 - 140
			D5-Chlorobenzene	2012/12/14		123	%	60 - 140
			Difluorobenzene	2012/12/14		124	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/14		86	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/14		94	%	70 - 130
			Chloromethane	2012/12/14		87	%	70 - 130
			Vinyl Chloride	2012/12/14		83	%	70 - 130
			Chloroethane	2012/12/14		83	%	70 - 130
			1,3-Butadiene	2012/12/14		84	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/14		89	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/14		75	%	70 - 130
			Trichlorotrifluoroethane	2012/12/14		84	%	70 - 130
			2-propanol	2012/12/14		85	%	70 - 130
			2-Propanone	2012/12/14		79	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14		95	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/14		94	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14		96	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/14		90	%	70 - 130
			Ethyl Acetate	2012/12/14		93	%	70 - 130
			1,1-Dichloroethylene	2012/12/14		90	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/14		97	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/14		87	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/14		81	%	70 - 130
			Chloroform	2012/12/14		87	%	70 - 130
			Carbon Tetrachloride	2012/12/14		88	%	70 - 130
			1,1-Dichloroethane	2012/12/14		87	%	70 - 130
			1,2-Dichloroethane	2012/12/14		91	%	70 - 130
			Ethylene Dibromide	2012/12/14		91	%	70 - 130
			1,1,1-Trichloroethane	2012/12/14		89	%	70 - 130
			1,1,2-Trichloroethane	2012/12/14		87	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/14		80	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/14		98	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/14		105	%	70 - 130
			1,2-Dichloropropane	2012/12/14		87	%	70 - 130
			Bromomethane	2012/12/14		84	%	70 - 130
			Bromoform	2012/12/14		83	%	70 - 130
			Bromodichloromethane	2012/12/14		84	%	70 - 130
			Dibromochloromethane	2012/12/14		86	%	70 - 130
			Trichloroethylene	2012/12/14		88	%	70 - 130
			Tetrachloroethylene	2012/12/14		90	%	70 - 130
			Benzene	2012/12/14		91	%	70 - 130
			Toluene	2012/12/14		99	%	70 - 130
			Ethylbenzene	2012/12/14		102	%	70 - 130
			p+m-Xylene	2012/12/14		98	%	70 - 130
			o-Xylene	2012/12/14		95	%	70 - 130
			Styrene	2012/12/14		102	%	70 - 130
			4-ethyltoluene	2012/12/14		95	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/14		95	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/14		99	%	70 - 130
			Chlorobenzene	2012/12/14		88	%	70 - 130
			Benzyl chloride	2012/12/14		88	%	70 - 130
			1,3-Dichlorobenzene	2012/12/14		89	%	70 - 130
			1,4-Dichlorobenzene	2012/12/14		86	%	70 - 130
			1,2-Dichlorobenzene	2012/12/14		85	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/14		86	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Spiked Blank	Hexachlorobutadiene	2012/12/14		74	%	70 - 130
			Hexane	2012/12/14		90	%	70 - 130
			Heptane	2012/12/14		91	%	70 - 130
			Cyclohexane	2012/12/14		91	%	70 - 130
			Tetrahydrofuran	2012/12/14		94	%	70 - 130
			1,4-Dioxane	2012/12/14		91	%	70 - 130
			Xylene (Total)	2012/12/14		97	%	70 - 130
			Vinyl Bromide	2012/12/14		77	%	70 - 130
			Propene	2012/12/14		80	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/14		86	%	70 - 130
			Carbon Disulfide	2012/12/14		83	%	70 - 130
			Vinyl Acetate	2012/12/14		98	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/14		90	%	60 - 140
			D5-Chlorobenzene	2012/12/14		84	%	60 - 140
			Difluorobenzene	2012/12/14		95	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/14	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/14	<0.17		ppbv	
			Chloromethane	2012/12/14	<0.30		ppbv	
			Vinyl Chloride	2012/12/14	<0.18		ppbv	
			Chloroethane	2012/12/14	<0.30		ppbv	
			1,3-Butadiene	2012/12/14	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/14	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/14	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/14	<0.15		ppbv	
			2-propanol	2012/12/14	<3.0		ppbv	
			2-Propanone	2012/12/14	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/14	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/14	<0.20		ppbv	
			Ethyl Acetate	2012/12/14	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/14	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/14	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/14	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/14	<0.80		ppbv	
			Chloroform	2012/12/14	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/14	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/14	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/14	<0.20		ppbv	
			Ethylene Dibromide	2012/12/14	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/14	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/14	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/14	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/14	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/14	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/14	<0.40		ppbv	
			Bromomethane	2012/12/14	<0.18		ppbv	
			Bromoform	2012/12/14	<0.20		ppbv	
			Bromodichloromethane	2012/12/14	<0.20		ppbv	
			Dibromochloromethane	2012/12/14	<0.20		ppbv	
			Trichloroethylene	2012/12/14	<0.30		ppbv	
			Tetrachloroethylene	2012/12/14	<0.20		ppbv	
			Benzene	2012/12/14	<0.18		ppbv	
			Toluene	2012/12/14	<0.20		ppbv	
			Ethylbenzene	2012/12/14	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	Method Blank	p+m-Xylene	2012/12/14	<0.37		ppbv	
			o-Xylene	2012/12/14	<0.20		ppbv	
			Styrene	2012/12/14	<0.20		ppbv	
			4-ethyltoluene	2012/12/14	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/14	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/14	<0.50		ppbv	
			Chlorobenzene	2012/12/14	<0.20		ppbv	
			Benzyl chloride	2012/12/14	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/14	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/14	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/14	<3.0		ppbv	
			Hexane	2012/12/14	<0.30		ppbv	
			Heptane	2012/12/14	<0.30		ppbv	
			Cyclohexane	2012/12/14	<0.20		ppbv	
			Tetrahydrofuran	2012/12/14	<0.40		ppbv	
			1,4-Dioxane	2012/12/14	<2.0		ppbv	
			Xylene (Total)	2012/12/14	<0.60		ppbv	
			Vinyl Bromide	2012/12/14	<0.20		ppbv	
			Propene	2012/12/14	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/14	<0.20		ppbv	
			Carbon Disulfide	2012/12/14	<0.50		ppbv	
			Vinyl Acetate	2012/12/14	<0.20		ppbv	
		RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2012/12/14	NC		%	25
			1,2-Dichlorotetrafluoroethane	2012/12/14	NC		%	25
			Chloromethane	2012/12/14	NC		%	25
			Vinyl Chloride	2012/12/14	NC		%	25
			Chloroethane	2012/12/14	NC		%	25
			1,3-Butadiene	2012/12/14	NC		%	25
			Trichlorofluoromethane (FREON 11)	2012/12/14	NC		%	25
			Ethanol (ethyl alcohol)	2012/12/14	NC		%	25
			Trichlorotrifluoroethane	2012/12/14	NC		%	25
			2-propanol	2012/12/14	NC		%	25
			2-Propanone	2012/12/14	NC		%	25
			Methyl Ethyl Ketone (2-Butanone)	2012/12/14	NC		%	25
			Methyl Isobutyl Ketone	2012/12/14	NC		%	25
			Methyl Butyl Ketone (2-Hexanone)	2012/12/14	NC		%	25
			Methyl t-butyl ether (MTBE)	2012/12/14	NC		%	25
			Ethyl Acetate	2012/12/14	NC		%	25
			1,1-Dichloroethylene	2012/12/14	NC		%	25
			cis-1,2-Dichloroethylene	2012/12/14	NC		%	25
			trans-1,2-Dichloroethylene	2012/12/14	NC		%	25
			Methylene Chloride(Dichloromethane)	2012/12/14	NC		%	25
			Chloroform	2012/12/14	NC		%	25
			Carbon Tetrachloride	2012/12/14	NC		%	25
			1,1-Dichloroethane	2012/12/14	NC		%	25
			1,2-Dichloroethane	2012/12/14	NC		%	25
			Ethylene Dibromide	2012/12/14	NC		%	25
			1,1,1-Trichloroethane	2012/12/14	NC		%	25
			1,1,2-Trichloroethane	2012/12/14	NC		%	25
			1,1,2,2-Tetrachloroethane	2012/12/14	NC		%	25
			cis-1,3-Dichloropropene	2012/12/14	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I2883

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3070697	S_S	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2012/12/14	NC		%	25
			1,2-Dichloropropane	2012/12/14	NC		%	25
			Bromomethane	2012/12/14	NC		%	25
			Bromoform	2012/12/14	NC		%	25
			Bromodichloromethane	2012/12/14	NC		%	25
			Dibromochloromethane	2012/12/14	NC		%	25
			Trichloroethylene	2012/12/14	NC		%	25
			Tetrachloroethylene	2012/12/14	NC		%	25
			Benzene	2012/12/14	NC		%	25
			Toluene	2012/12/14	NC		%	25
			Ethylbenzene	2012/12/14	NC		%	25
			p+m-Xylene	2012/12/14	NC		%	25
			o-Xylene	2012/12/14	NC		%	25
			Styrene	2012/12/14	NC		%	25
			4-ethyltoluene	2012/12/14	NC		%	25
			1,3,5-Trimethylbenzene	2012/12/14	NC		%	25
			1,2,4-Trimethylbenzene	2012/12/14	NC		%	25
			Chlorobenzene	2012/12/14	NC		%	25
			Benzyl chloride	2012/12/14	NC		%	25
			1,3-Dichlorobenzene	2012/12/14	NC		%	25
			1,4-Dichlorobenzene	2012/12/14	NC		%	25
			1,2-Dichlorobenzene	2012/12/14	NC		%	25
			1,2,4-Trichlorobenzene	2012/12/14	NC		%	25
			Hexachlorobutadiene	2012/12/14	NC		%	25
			Hexane	2012/12/14	NC		%	25
			Heptane	2012/12/14	NC		%	25
			Cyclohexane	2012/12/14	NC		%	25
			Tetrahydrofuran	2012/12/14	NC		%	25
			1,4-Dioxane	2012/12/14	NC		%	25
			Xylene (Total)	2012/12/14	NC		%	25
			Vinyl Bromide	2012/12/14	NC		%	25
			Propene	2012/12/14	NC		%	25
			2,2,4-Trimethylpentane	2012/12/14	NC		%	25
			Carbon Disulfide	2012/12/14	NC		%	25
			Vinyl Acetate	2012/12/14	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

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA
Location: Cold Lake South
Station ID: Lica 1
Field Sample ID: LICA VOC/ CLS /Nov 23, 2012

Sampler s/n: 6167
Canister ID: 266
Canister Installation Date/Time: Nov 22, 2012 @17:17 mst
Canister Removal Date/Time: Nov 26, 2012 @08:43 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Nov-12	11/23/2012 0:00	11/24/2012 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	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#12906

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12906

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

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I7151
Received: 2012/11/28, 11:08

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/12/15	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/12/15	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 #: B2I7151
Report Date: 2012/12/18

RESULTS OF ANALYSES OF AIR

Maxxam ID		PT7030	PT7031	
Sampling Date		2012/11/23	2012/11/23	
COC Number		12906	12906	
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**LICA VOC/PORT/NOV 23,12 - 7860**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	23	21	3071798

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Volatile Organics									
Dichlorodifluoromethane (FREON 12)	ppbv	0.80	3.96	0.989	0.77	0.20	3.81	0.989	3072213
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	3072213
Chloromethane	ppbv	0.59	1.21	0.620	0.62	0.30	1.27	0.620	3072213
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	3072213
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	3072213
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	3072213
Trichlorofluoromethane (FREON 11)	ppbv	0.27	1.50	1.12	0.26	0.20	1.47	1.12	3072213
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	3072213
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	3072213
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	3072213
2-Propanone	ppbv	0.97	2.32	1.90	1.60	0.80	3.81	1.90	3072213
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	3072213
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	3072213
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	3072213
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	3072213
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	3072213
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	3072213
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	3072213
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	3072213
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	3072213
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	3072213
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	3072213
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3072213
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	3072213
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	3072213
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	3072213
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	3072213
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	3072213
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	3072213
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	3072213
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	3072213

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	3072213
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	3072213
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	3072213
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	3072213
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	3072213
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	3072213
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.589	0.575	3072213
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	3072213
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3072213
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	3072213
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	3072213
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	3072213
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	3072213
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3072213
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	3072213
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	3072213
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	3072213
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	3072213
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	3072213
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	3072213
Hexane	ppbv	<0.30	<1.06	1.06	0.45	0.30	1.57	1.06	3072213
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	3072213
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.31	0.20	1.08	0.688	3072213
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	3072213
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	3072213
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	3072213
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	3072213
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	3072213
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	3072213
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	3072213
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	3072213

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		PT7030			PT7031				
Sampling Date		2012/11/23			2012/11/23				
COC Number		12906			12906				
	Units	**LICA VOC/CLS/NOV 23,12 - 266**	**ug/m3**	**DL (ug/m3)**	**LICA VOC/PORT/NOV 23,12 - 7860**	**RDL**	**ug/m3**	**DL (ug/m3)**	**QC Batch**
Surrogate Recovery (%)									
Bromochloromethane	%	86	N/A	N/A	83		N/A	N/A	3072213
D5-Chlorobenzene	%	87	N/A	N/A	83		N/A	N/A	3072213
Difluorobenzene	%	89	N/A	N/A	86		N/A	N/A	3072213

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

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

Test Summary

Maxxam ID PT7030 **Collected** 2012/11/23
Sample ID LICA VOC/CLS/NOV 23,12 - 266 **Shipped**
Matrix AIR **Received** 2012/11/28

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3071798	N/A	2012/12/15	
Volatile Organics in Air (TO-15)	GC/MS	3072213	N/A	2012/12/15	Angel Guerrero

Maxxam ID PT7031 **Collected** 2012/11/23
Sample ID LICA VOC/PORT/NOV 23,12 - 7860 **Shipped**
Matrix AIR **Received** 2012/11/28

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	3071798	N/A	2012/12/15	
Volatile Organics in Air (TO-15)	GC/MS	3072213	N/A	2012/12/15	Angel Guerrero

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Maxxam Analytics

Maxxam Job #: B2I7151
Report Date: 2012/12/18

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: GB2I7151

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213	AGU	Spiked Blank	Bromochloromethane	2012/12/15		117	%	60 - 140
			D5-Chlorobenzene	2012/12/15		121	%	60 - 140
			Difluorobenzene	2012/12/15		119	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/15		122	%	70 - 130
			1,2-Dichlorotetrafluoroethane	2012/12/15		126	%	70 - 130
			Chloromethane	2012/12/15		112	%	70 - 130
			Vinyl Chloride	2012/12/15		102	%	70 - 130
			Chloroethane	2012/12/15		93	%	70 - 130
			1,3-Butadiene	2012/12/15		103	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2012/12/15		97	%	70 - 130
			Ethanol (ethyl alcohol)	2012/12/15		86	%	70 - 130
			Trichlorotrifluoroethane	2012/12/15		93	%	70 - 130
			2-propanol	2012/12/15		85	%	70 - 130
			2-Propanone	2012/12/15		95	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2012/12/15		96	%	70 - 130
			Methyl Isobutyl Ketone	2012/12/15		99	%	70 - 130
			Methyl Butyl Ketone (2-Hexanone)	2012/12/15		98	%	70 - 130
			Methyl t-butyl ether (MTBE)	2012/12/15		90	%	70 - 130
			Ethyl Acetate	2012/12/15		106	%	70 - 130
			1,1-Dichloroethylene	2012/12/15		96	%	70 - 130
			cis-1,2-Dichloroethylene	2012/12/15		101	%	70 - 130
			trans-1,2-Dichloroethylene	2012/12/15		98	%	70 - 130
			Methylene Chloride(Dichloromethane)	2012/12/15		100	%	70 - 130
			Chloroform	2012/12/15		95	%	70 - 130
			Carbon Tetrachloride	2012/12/15		94	%	70 - 130
			1,1-Dichloroethane	2012/12/15		97	%	70 - 130
			1,2-Dichloroethane	2012/12/15		98	%	70 - 130
			Ethylene Dibromide	2012/12/15		99	%	70 - 130
			1,1,1-Trichloroethane	2012/12/15		94	%	70 - 130
			1,1,2-Trichloroethane	2012/12/15		96	%	70 - 130
			1,1,2,2-Tetrachloroethane	2012/12/15		91	%	70 - 130
			cis-1,3-Dichloropropene	2012/12/15		97	%	70 - 130
			trans-1,3-Dichloropropene	2012/12/15		105	%	70 - 130
			1,2-Dichloropropane	2012/12/15		99	%	70 - 130
			Bromomethane	2012/12/15		92	%	70 - 130
			Bromoform	2012/12/15		95	%	70 - 130
			Bromodichloromethane	2012/12/15		91	%	70 - 130
			Dibromochloromethane	2012/12/15		92	%	70 - 130
			Trichloroethylene	2012/12/15		93	%	70 - 130
			Tetrachloroethylene	2012/12/15		100	%	70 - 130
			Benzene	2012/12/15		94	%	70 - 130
			Toluene	2012/12/15		94	%	70 - 130
			Ethylbenzene	2012/12/15		93	%	70 - 130
			p+m-Xylene	2012/12/15		91	%	70 - 130
			o-Xylene	2012/12/15		92	%	70 - 130
			Styrene	2012/12/15		99	%	70 - 130
			4-ethyltoluene	2012/12/15		86	%	70 - 130
			1,3,5-Trimethylbenzene	2012/12/15		90	%	70 - 130
			1,2,4-Trimethylbenzene	2012/12/15		91	%	70 - 130
			Chlorobenzene	2012/12/15		95	%	70 - 130
			Benzyl chloride	2012/12/15		91	%	70 - 130
			1,3-Dichlorobenzene	2012/12/15		105	%	70 - 130
			1,4-Dichlorobenzene	2012/12/15		104	%	70 - 130
			1,2-Dichlorobenzene	2012/12/15		96	%	70 - 130
			1,2,4-Trichlorobenzene	2012/12/15		124	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I7151

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213	AGU	Spiked Blank	Hexachlorobutadiene	2012/12/15		102	%	70 - 130
			Hexane	2012/12/15		99	%	70 - 130
			Heptane	2012/12/15		104	%	70 - 130
			Cyclohexane	2012/12/15		100	%	70 - 130
			Tetrahydrofuran	2012/12/15		107	%	70 - 130
			1,4-Dioxane	2012/12/15		91	%	70 - 130
			Xylene (Total)	2012/12/15		91	%	70 - 130
			Vinyl Bromide	2012/12/15		82	%	70 - 130
			Propene	2012/12/15		111	%	70 - 130
			2,2,4-Trimethylpentane	2012/12/15		96	%	70 - 130
			Carbon Disulfide	2012/12/15		96	%	70 - 130
			Vinyl Acetate	2012/12/15		104	%	70 - 130
		Method Blank	Bromochloromethane	2012/12/15		86	%	60 - 140
			D5-Chlorobenzene	2012/12/15		77	%	60 - 140
			Difluorobenzene	2012/12/15		87	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2012/12/15	<0.20		ppbv	
			1,2-Dichlorotetrafluoroethane	2012/12/15	<0.17		ppbv	
			Chloromethane	2012/12/15	<0.30		ppbv	
			Vinyl Chloride	2012/12/15	<0.18		ppbv	
			Chloroethane	2012/12/15	<0.30		ppbv	
			1,3-Butadiene	2012/12/15	<0.50		ppbv	
			Trichlorofluoromethane (FREON 11)	2012/12/15	<0.20		ppbv	
			Ethanol (ethyl alcohol)	2012/12/15	<2.3		ppbv	
			Trichlorotrifluoroethane	2012/12/15	<0.15		ppbv	
			2-propanol	2012/12/15	<3.0		ppbv	
			2-Propanone	2012/12/15	<0.80		ppbv	
			Methyl Ethyl Ketone (2-Butanone)	2012/12/15	<3.0		ppbv	
			Methyl Isobutyl Ketone	2012/12/15	<3.2		ppbv	
			Methyl Butyl Ketone (2-Hexanone)	2012/12/15	<2.0		ppbv	
			Methyl t-butyl ether (MTBE)	2012/12/15	<0.20		ppbv	
			Ethyl Acetate	2012/12/15	<2.2		ppbv	
			1,1-Dichloroethylene	2012/12/15	<0.25		ppbv	
			cis-1,2-Dichloroethylene	2012/12/15	<0.19		ppbv	
			trans-1,2-Dichloroethylene	2012/12/15	<0.20		ppbv	
			Methylene Chloride(Dichloromethane)	2012/12/15	<0.80		ppbv	
			Chloroform	2012/12/15	<0.15		ppbv	
			Carbon Tetrachloride	2012/12/15	<0.30		ppbv	
			1,1-Dichloroethane	2012/12/15	<0.20		ppbv	
			1,2-Dichloroethane	2012/12/15	<0.20		ppbv	
			Ethylene Dibromide	2012/12/15	<0.17		ppbv	
			1,1,1-Trichloroethane	2012/12/15	<0.30		ppbv	
			1,1,2-Trichloroethane	2012/12/15	<0.15		ppbv	
			1,1,2,2-Tetrachloroethane	2012/12/15	<0.20		ppbv	
			cis-1,3-Dichloropropene	2012/12/15	<0.18		ppbv	
			trans-1,3-Dichloropropene	2012/12/15	<0.17		ppbv	
			1,2-Dichloropropane	2012/12/15	<0.40		ppbv	
			Bromomethane	2012/12/15	<0.18		ppbv	
			Bromoform	2012/12/15	<0.20		ppbv	
			Bromodichloromethane	2012/12/15	<0.20		ppbv	
			Dibromochloromethane	2012/12/15	<0.20		ppbv	
			Trichloroethylene	2012/12/15	<0.30		ppbv	
			Tetrachloroethylene	2012/12/15	<0.20		ppbv	
			Benzene	2012/12/15	<0.18		ppbv	
			Toluene	2012/12/15	<0.20		ppbv	
			Ethylbenzene	2012/12/15	<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: GB2I7151

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3072213	AGU	Method Blank	p+m-Xylene	2012/12/15	<0.37		ppbv	
			o-Xylene	2012/12/15	<0.20		ppbv	
			Styrene	2012/12/15	<0.20		ppbv	
			4-ethyltoluene	2012/12/15	<2.2		ppbv	
			1,3,5-Trimethylbenzene	2012/12/15	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2012/12/15	<0.50		ppbv	
			Chlorobenzene	2012/12/15	<0.20		ppbv	
			Benzyl chloride	2012/12/15	<1.0		ppbv	
			1,3-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,4-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,2-Dichlorobenzene	2012/12/15	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2012/12/15	<2.0		ppbv	
			Hexachlorobutadiene	2012/12/15	<3.0		ppbv	
			Hexane	2012/12/15	<0.30		ppbv	
			Heptane	2012/12/15	<0.30		ppbv	
			Cyclohexane	2012/12/15	<0.20		ppbv	
			Tetrahydrofuran	2012/12/15	<0.40		ppbv	
			1,4-Dioxane	2012/12/15	<2.0		ppbv	
			Xylene (Total)	2012/12/15	<0.60		ppbv	
			Vinyl Bromide	2012/12/15	<0.20		ppbv	
			Propene	2012/12/15	<0.30		ppbv	
			2,2,4-Trimethylpentane	2012/12/15	<0.20		ppbv	
			Carbon Disulfide	2012/12/15	<0.50		ppbv	
			Vinyl Acetate	2012/12/15	<0.20		ppbv	
		RPD - Sample/Sample Dup	Benzene	2012/12/15	0.8		%	25
			Toluene	2012/12/15	0.7		%	25
			p+m-Xylene	2012/12/15	1.2		%	25
			o-Xylene	2012/12/15	0.7		%	25
			Styrene	2012/12/15	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/Nov 05, 2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 02, 2012 @ 08:00 mst
Removal Date/Time: Nov 06, 2012 @ 10:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
05-Nov-12	11/05/2012 0:00	11/06/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Oct-12	07-Nov-12	12-Nov-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)
708	229	5.3	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# 12703
GB2F1373 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 05, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12703

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

Report Date: 2012/11/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H6335
Received: 2012/11/09, 09:10

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/10	2012/11/20	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		PO0012	PO0013		
Sampling Date		2012/11/05	2012/11/05		
COC Number		12703	12703		
	Units	**LICA PUFF+QFF/CLS/NOV 05,12**	**LICA PUFF+QFF/PORT/NOV 05,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	3032640
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3032640
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3032640
2-Methylanthracene	ug	<0.10	<0.10	0.10	3032640
2-Methylnaphthalene	ug	<0.10	0.14	0.10	3032640
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3032640
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3032640
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3032640
Acenaphthene	ug	<0.050	<0.050	0.050	3032640
Acenaphthylene	ug	<0.050	<0.050	0.050	3032640
Anthracene	ug	<0.050	0.300	0.050	3032640
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3032640
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3032640
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3032640
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3032640
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3032640
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3032640
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3032640
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3032640
Biphenyl	ug	<0.10	0.14	0.10	3032640
Chrysene	ug	<0.050	<0.050	0.050	3032640
Coronene	ug	<0.10	<0.10	0.10	3032640
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3032640
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3032640
Fluoranthene	ug	0.060	0.066	0.050	3032640
Fluorene	ug	0.172	0.168	0.050	3032640
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3032640
m-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Naphthalene	ug	0.088	0.154	0.072	3032640
o-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Perylene	ug	<0.10	<0.10	0.10	3032640

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H6335
Report Date: 2012/11/22

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

Maxxam ID		PO0012	PO0013		
Sampling Date		2012/11/05	2012/11/05		
COC Number		12703	12703		
	Units	**LICA PUFF+QFF/CLS/NOV 05,12**	**LICA PUFF+QFF/PORT/NOV 05,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.296	0.284	0.050	3032640
p-Terphenyl	ug	<0.10	<0.10	0.10	3032640
Pyrene	ug	<0.050	<0.050	0.050	3032640
Quinoline	ug	<0.40	<0.40	0.40	3032640
Tetralin	ug	<0.10	<0.10	0.10	3032640
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	72	68		3032640
D10-Fluoranthene	%	96	96		3032640
D10-Fluorene (FS)	%	13 (1)	13 (1)		3032640
D10-Phenanthrene	%	88	86		3032640
D12-Benzo(a)anthracene	%	100	98		3032640
D12-Benzo(a)pyrene	%	90	90		3032640
D12-Benzo(b)fluoranthene	%	98	96		3032640
D12-Benzo(ghi)perylene	%	94	94		3032640
D12-Benzo(k)fluoranthene	%	94	94		3032640
D12-Chrysene	%	98	96		3032640
D12-Indeno(1,2,3-cd)pyrene	%	88	88		3032640
D12-Perylene	%	90	90		3032640
D14-Dibenzo(a,h)anthracene	%	88	88		3032640
D14-Terphenyl (FS)	%	99	99		3032640
D8-Acenaphthylene	%	74	70		3032640
D8-Naphthalene	%	66	62		3032640

QC Batch = Quality Control Batch
(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 Analytics

Maxxam Job #: B2H6335
Report Date: 2012/11/22

Test Summary

Maxxam ID PO0012 **Collected** 2012/11/05
Sample ID LICA PUFF+QFF/CLS/NOV 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3032640	2012/11/10	2012/11/20	Lidija Tomic

Maxxam ID PO0013 **Collected** 2012/11/05
Sample ID LICA PUFF+QFF/PORT/NOV 05,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3032640	2012/11/10	2012/11/20	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2H6335
Report Date: 2012/11/22

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 compounds.

Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field 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: GB2H6335

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3032640	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/19		74	%	50 - 150
			D10-Fluoranthene	2012/11/19		96	%	50 - 150
			D10-Phenanthrene	2012/11/19		84	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/19		98	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/19		90	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/19		96	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/19		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/19		92	%	50 - 150
			D12-Chrysene	2012/11/19		96	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/19		88	%	50 - 150
			D12-Perylene	2012/11/19		94	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/19		88	%	50 - 150
			D8-Acenaphthylene	2012/11/19		74	%	50 - 150
			D8-Naphthalene	2012/11/19		70	%	50 - 150
			Acenaphthene	2012/11/19		76	%	60 - 130
		RPD	Acenaphthene	2012/11/20	8.2		%	50
		Spiked Blank	Acenaphthylene	2012/11/19		77	%	60 - 130
		RPD	Acenaphthylene	2012/11/20	8.4		%	50
		Spiked Blank	Anthracene	2012/11/19		91	%	60 - 130
		RPD	Anthracene	2012/11/20	5.1		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/19		101	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/20	2.4		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/19		85	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/20	4.0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/19		95	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/20	5.6		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/19		91	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/20	5.9		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/19		99	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/20	5.2		%	50
		Spiked Blank	Chrysene	2012/11/19		94	%	60 - 130
		RPD	Chrysene	2012/11/20	2.9		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/19		94	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/20	5.9		%	50
		Spiked Blank	Fluoranthene	2012/11/19		99	%	60 - 130
		RPD	Fluoranthene	2012/11/20	4.9		%	50
		Spiked Blank	Fluorene	2012/11/19		81	%	60 - 130
		RPD	Fluorene	2012/11/20	6.0		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/19		90	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/20	7.0		%	50
		Spiked Blank	Naphthalene	2012/11/19		73	%	60 - 130
		RPD	Naphthalene	2012/11/20	9.4		%	50
		Spiked Blank	Phenanthrene	2012/11/19		87	%	60 - 130
		RPD	Phenanthrene	2012/11/20	3.9		%	50
		Spiked Blank	Pyrene	2012/11/19		95	%	60 - 130
		RPD	Pyrene	2012/11/20	4.9		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/20		72	%	50 - 150
			D10-Fluoranthene	2012/11/20		94	%	50 - 150
			D10-Phenanthrene	2012/11/20		84	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		94	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		88	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		94	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		90	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Chrysene	2012/11/20		92	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2H6335

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3032640	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/20		88	%	50 - 150
			D12-Perylene	2012/11/20		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		88	%	50 - 150
			D8-Acenaphthylene	2012/11/20		74	%	50 - 150
			D8-Naphthalene	2012/11/20		68	%	50 - 150
			1-Methylnaphthalene	2012/11/20	<0.10		ug	
			1-Methylphenanthrene	2012/11/20	<0.10		ug	
			2-Chloronaphthalene	2012/11/20	<0.10		ug	
			2-Methylanthracene	2012/11/20	<0.10		ug	
			2-Methylnaphthalene	2012/11/20	<0.10		ug	
			3-Methylcholanthrene	2012/11/20	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/20	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/20	<0.40		ug	
			Acenaphthene	2012/11/20	<0.050		ug	
			Acenaphthylene	2012/11/20	<0.050		ug	
			Anthracene	2012/11/20	<0.050		ug	
			Benzo(a)anthracene	2012/11/20	<0.050		ug	
			Benzo(a)fluorene	2012/11/20	<0.10		ug	
			Benzo(a)pyrene	2012/11/20	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/20	<0.050		ug	
			Benzo(b)fluorene	2012/11/20	<0.10		ug	
			Benzo(e)pyrene	2012/11/20	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/20	<0.050		ug	
			Benzo(k)fluoranthene	2012/11/20	<0.050		ug	
			Biphenyl	2012/11/20	<0.10		ug	
			Chrysene	2012/11/20	<0.050		ug	
			Coronene	2012/11/20	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/20	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/20	<0.20		ug	
			Fluoranthene	2012/11/20	<0.050		ug	
			Fluorene	2012/11/20	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/20	<0.050		ug	
			m-Terphenyl	2012/11/20	<0.10		ug	
			Naphthalene	2012/11/20	<0.072		ug	
			o-Terphenyl	2012/11/20	<0.10		ug	
			Perylene	2012/11/20	<0.10		ug	
			Phenanthrene	2012/11/20	<0.050		ug	
			p-Terphenyl	2012/11/20	<0.10		ug	
			Pyrene	2012/11/20	<0.050		ug	
			Quinoline	2012/11/20	<0.40		ug	
			Tetralin	2012/11/20	<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/Nov 11 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 09, 2012 @ 08:40 mst
Removal Date/Time: Nov 12, 2012 @ 10:28 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
11-Nov-12	11/11/2012 0:00	11/12/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
06-Nov-12	12-Nov-12	19-Nov-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)
715	229	-14.5	330.34

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# 12769
GB2F1374 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 11, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12769

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

Report Date: 2012/11/21

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2H9458
Received: 2012/11/15, 09:10

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/16	2012/11/20	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 (AIR)

Maxxam ID		PP6410	PP6411		
Sampling Date					
COC Number		12769	12769		
	Units	**LICA PUFF/QFF/CLS/NOV11,12**	**LICA PUFF/QFF/PORT/NOV11,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.35	1.06	0.10	3039127
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3039127
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3039127
2-Methylanthracene	ug	<0.10	<0.10	0.10	3039127
2-Methylnaphthalene	ug	0.65	1.90	0.10	3039127
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3039127
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3039127
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3039127
Acenaphthene	ug	<0.050	0.128	0.050	3039127
Acenaphthylene	ug	<0.050	<0.050	0.050	3039127
Anthracene	ug	0.210	<0.050	0.050	3039127
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3039127
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3039127
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3039127
Benzo(b)fluoranthene	ug	0.076	<0.050	0.050	3039127
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3039127
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3039127
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3039127
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3039127
Biphenyl	ug	0.38	0.55	0.10	3039127
Chrysene	ug	0.084	<0.050	0.050	3039127
Coronene	ug	<0.10	<0.10	0.10	3039127
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3039127
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3039127
Fluoranthene	ug	0.104	0.086	0.050	3039127
Fluorene	ug	0.128	0.244	0.050	3039127
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3039127
m-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Naphthalene	ug	0.586	0.734	0.072	3039127
o-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Perylene	ug	<0.10	<0.10	0.10	3039127
Phenanthrene	ug	0.198	0.288	0.050	3039127

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9458
Report Date: 2012/11/21

SEMI-VOLATILE ORGANICS BY GC-MS (AIR)

Maxxam ID		PP6410	PP6411		
Sampling Date					
COC Number		12769	12769		
	Units	**LICA PUFF/QFF/CLS/NOV11,12**	**LICA PUFF/QFF/PORT/NOV11,12**	**RDL**	**QC Batch**
p-Terphenyl	ug	<0.10	<0.10	0.10	3039127
Pyrene	ug	0.072	0.060	0.050	3039127
Quinoline	ug	<0.40	<0.40	0.40	3039127
Tetralin	ug	<0.10	<0.10	0.10	3039127
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	68		3039127
D10-Fluoranthene	%	92	92		3039127
D10-Fluorene (FS)	%	66	69		3039127
D10-Phenanthrene	%	82	82		3039127
D12-Benzo(a)anthracene	%	94	96		3039127
D12-Benzo(a)pyrene	%	88	86		3039127
D12-Benzo(b)fluoranthene	%	92	92		3039127
D12-Benzo(ghi)perylene	%	90	88		3039127
D12-Benzo(k)fluoranthene	%	90	88		3039127
D12-Chrysene	%	92	94		3039127
D12-Indeno(1,2,3-cd)pyrene	%	86	84		3039127
D12-Perylene	%	88	86		3039127
D14-Dibenzo(a,h)anthracene	%	86	82		3039127
D14-Terphenyl (FS)	%	95	94		3039127
D8-Acenaphthylene	%	72	70		3039127
D8-Naphthalene	%	62	60		3039127

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2H9458
Report Date: 2012/11/21

Test Summary

Maxxam ID PP6410 **Collected**
Sample ID LICA PUFF/QFF/CLS/NOV11,12 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3039127	2012/11/16	2012/11/20	Lidija Tomic

Maxxam ID PP6411 **Collected**
Sample ID LICA PUFF/QFF/PORT/NOV11,12 **Shipped**
Matrix AIR **Received** 2012/11/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3039127	2012/11/16	2012/11/20	Lidija Tomic

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Maxxam Job #: B2H9458
Report Date: 2012/11/21

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.
9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 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: GB2H9458

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3039127	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/20		76	%	50 - 150
			D10-Fluoranthene	2012/11/20		90	%	50 - 150
			D10-Phenanthrene	2012/11/20		80	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		90	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		90	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Chrysene	2012/11/20		92	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/20		88	%	50 - 150
			D12-Perylene	2012/11/20		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		86	%	50 - 150
			D8-Acenaphthylene	2012/11/20		74	%	50 - 150
			D8-Naphthalene	2012/11/20		72	%	50 - 150
			Acenaphthene	2012/11/20		78	%	60 - 130
		RPD	Acenaphthene	2012/11/20	1.6		%	50
		Spiked Blank	Acenaphthylene	2012/11/20		79	%	60 - 130
		RPD	Acenaphthylene	2012/11/20	2.9		%	50
		Spiked Blank	Anthracene	2012/11/20		85	%	60 - 130
		RPD	Anthracene	2012/11/20	0.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/20		98	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/20	1.8		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/20		81	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/20	0		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/20		96	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/20	2.1		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/20		90	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/20	0.6		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/20		98	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/20	1.5		%	50
		Spiked Blank	Chrysene	2012/11/20		94	%	60 - 130
		RPD	Chrysene	2012/11/20	1.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/20		93	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/20	3.3		%	50
		Spiked Blank	Fluoranthene	2012/11/20		96	%	60 - 130
		RPD	Fluoranthene	2012/11/20	1.0		%	50
		Spiked Blank	Fluorene	2012/11/20		81	%	60 - 130
		RPD	Fluorene	2012/11/20	1.9		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/20		89	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/20	0.6		%	50
		Spiked Blank	Naphthalene	2012/11/20		77	%	60 - 130
		RPD	Naphthalene	2012/11/20	1		%	50
		Spiked Blank	Phenanthrene	2012/11/20		82	%	60 - 130
		RPD	Phenanthrene	2012/11/20	0.6		%	50
		Spiked Blank	Pyrene	2012/11/20		91	%	60 - 130
		RPD	Pyrene	2012/11/20	1.1		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/20		68	%	50 - 150
			D10-Fluoranthene	2012/11/20		86	%	50 - 150
			D10-Phenanthrene	2012/11/20		72	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/20		90	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/20		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/20		90	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/20		88	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/20		88	%	50 - 150
			D12-Chrysene	2012/11/20		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: GB2H9458

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3039127	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/20		86	%	50 - 150
			D12-Perylene	2012/11/20		88	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/20		82	%	50 - 150
			D8-Acenaphthylene	2012/11/20		68	%	50 - 150
			D8-Naphthalene	2012/11/20		64	%	50 - 150
			1-Methylnaphthalene	2012/11/20	<0.10		ug	
			1-Methylphenanthrene	2012/11/20	<0.10		ug	
			2-Chloronaphthalene	2012/11/20	<0.10		ug	
			2-Methylanthracene	2012/11/20	<0.10		ug	
			2-Methylnaphthalene	2012/11/20	<0.10		ug	
			3-Methylcholanthrene	2012/11/20	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/20	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/20	<0.40		ug	
			Acenaphthene	2012/11/20	<0.050		ug	
			Acenaphthylene	2012/11/20	<0.050		ug	
			Anthracene	2012/11/20	<0.050		ug	
			Benzo(a)anthracene	2012/11/20	<0.050		ug	
			Benzo(a)fluorene	2012/11/20	<0.10		ug	
			Benzo(a)pyrene	2012/11/20	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/20	<0.050		ug	
			Benzo(b)fluorene	2012/11/20	<0.10		ug	
			Benzo(e)pyrene	2012/11/20	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/20	<0.050		ug	
			Benzo(k)fluoranthene	2012/11/20	<0.050		ug	
			Biphenyl	2012/11/20	<0.10		ug	
			Chrysene	2012/11/20	<0.050		ug	
			Coronene	2012/11/20	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/20	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/20	<0.20		ug	
			Fluoranthene	2012/11/20	<0.050		ug	
			Fluorene	2012/11/20	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/20	<0.050		ug	
			m-Terphenyl	2012/11/20	<0.10		ug	
			Naphthalene	2012/11/20	<0.072		ug	
			o-Terphenyl	2012/11/20	<0.10		ug	
			Perylene	2012/11/20	<0.10		ug	
			Phenanthrene	2012/11/20	<0.050		ug	
			p-Terphenyl	2012/11/20	<0.10		ug	
			Pyrene	2012/11/20	<0.050		ug	
			Quinoline	2012/11/20	<0.40		ug	
			Tetralin	2012/11/20	<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/Nov 17 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 15, 2012 @ 15:55 mst
Removal Date/Time: Nov 19, 2012 @ 09:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
17-Nov-12	11/17/2012 0:00	11/18/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
13-Nov-12	19-Nov-12	26-Nov-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)
709	229	-5.0	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#12462
GB2G3675 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 17, 2012

Technician Signiture: Ting Xu

JOB #: 2833-12-11-01-C

Success Through Science®

Your C.O.C. #: 12462

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

Report Date: 2012/11/27

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I2998
Received: 2012/11/21, 09:00

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/23	2012/11/27	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

Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

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

Maxxam ID		PR6083	PR6084		
Sampling Date		2012/11/18	2012/11/18		
COC Number		12462	12462		
	Units	**LICA PUFF+QFF/CLS/NOV 18,12**	**LICA PUFF+QFF/PORT/NOV 18,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	0.21	0.10	3046459
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3046459
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3046459
2-Methylanthracene	ug	<0.10	<0.10	0.10	3046459
2-Methylnaphthalene	ug	0.19	0.34	0.10	3046459
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3046459
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3046459
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3046459
Acenaphthene	ug	<0.050	<0.050	0.050	3046459
Acenaphthylene	ug	0.210	<0.050	0.050	3046459
Anthracene	ug	<0.050	<0.050	0.050	3046459
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3046459
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3046459
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3046459
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3046459
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3046459
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3046459
Benzo(g,h,i)perylene	ug	0.056	<0.050	0.050	3046459
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3046459
Biphenyl	ug	0.25	0.34	0.10	3046459
Chrysene	ug	<0.050	<0.050	0.050	3046459
Coronene	ug	<0.10	<0.10	0.10	3046459
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3046459
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3046459
Fluoranthene	ug	0.166	<0.050	0.050	3046459
Fluorene	ug	0.220	0.184	0.050	3046459
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3046459
m-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Naphthalene	ug	0.188	0.266	0.072	3046459
o-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Perylene	ug	<0.10	<0.10	0.10	3046459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

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

Maxxam ID		PR6083	PR6084		
Sampling Date		2012/11/18	2012/11/18		
COC Number		12462	12462		
	Units	**LICA PUFF+QFF/CLS/NOV 18,12**	**LICA PUFF+QFF/PORT/NOV 18,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.386	0.188	0.050	3046459
p-Terphenyl	ug	<0.10	<0.10	0.10	3046459
Pyrene	ug	0.190	<0.050	0.050	3046459
Quinoline	ug	<0.40	<0.40	0.40	3046459
Tetralin	ug	<0.10	<0.10	0.10	3046459
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	58	72		3046459
D10-Fluoranthene	%	88	94		3046459
D10-Fluorene (FS)	%	40 (1)	55		3046459
D10-Phenanthrene	%	78	84		3046459
D12-Benzo(a)anthracene	%	90	88		3046459
D12-Benzo(a)pyrene	%	88	88		3046459
D12-Benzo(b)fluoranthene	%	90	88		3046459
D12-Benzo(ghi)perylene	%	90	94		3046459
D12-Benzo(k)fluoranthene	%	86	88		3046459
D12-Chrysene	%	88	84		3046459
D12-Indeno(1,2,3-cd)pyrene	%	90	96		3046459
D12-Perylene	%	86	88		3046459
D14-Dibenzo(a,h)anthracene	%	90	98		3046459
D14-Terphenyl (FS)	%	90	95		3046459
D8-Acenaphthylene	%	62	74		3046459
D8-Naphthalene	%	54	66		3046459

QC Batch = Quality Control Batch
(1) Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

Test Summary

Maxxam ID PR6083 **Collected** 2012/11/18
Sample ID LICA PUFF+QFF/CLS/NOV 18,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3046459	2012/11/23	2012/11/27	Lidija Tomic

Maxxam ID PR6084 **Collected** 2012/11/18
Sample ID LICA PUFF+QFF/PORT/NOV 18,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3046459	2012/11/23	2012/11/27	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2I2998
Report Date: 2012/11/27

GENERAL COMMENTS

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.

9.10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration. No positives found for these 2 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: GB2I2998

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3046459	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/11/26		74	%	50 - 150
			D10-Fluoranthene	2012/11/26		90	%	50 - 150
			D10-Phenanthrene	2012/11/26		80	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/26		90	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/26		88	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/26		88	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/26		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/26		90	%	50 - 150
			D12-Chrysene	2012/11/26		88	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/11/26		92	%	50 - 150
			D12-Perylene	2012/11/26		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/26		92	%	50 - 150
			D8-Acenaphthylene	2012/11/26		76	%	50 - 150
			D8-Naphthalene	2012/11/26		74	%	50 - 150
			Acenaphthene	2012/11/26		77	%	60 - 130
		RPD	Acenaphthene	2012/11/26	2.0		%	50
		Spiked Blank	Acenaphthylene	2012/11/26		78	%	60 - 130
		RPD	Acenaphthylene	2012/11/26	2.9		%	50
		Spiked Blank	Anthracene	2012/11/26		84	%	60 - 130
		RPD	Anthracene	2012/11/26	7.1		%	50
		Spiked Blank	Benzo(a)anthracene	2012/11/26		93	%	60 - 130
		RPD	Benzo(a)anthracene	2012/11/26	2.5		%	50
		Spiked Blank	Benzo(a)pyrene	2012/11/26		78	%	60 - 130
		RPD	Benzo(a)pyrene	2012/11/26	4.3		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/11/26		92	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/11/26	1.6		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/11/26		90	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/11/26	4.8		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/11/26		89	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/11/26	2.3		%	50
		Spiked Blank	Chrysene	2012/11/26		86	%	60 - 130
		RPD	Chrysene	2012/11/26	0.3		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/11/26		98	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/11/26	8.8		%	50
		Spiked Blank	Fluoranthene	2012/11/26		91	%	60 - 130
		RPD	Fluoranthene	2012/11/26	4.8		%	50
		Spiked Blank	Fluorene	2012/11/26		80	%	60 - 130
		RPD	Fluorene	2012/11/26	4.2		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/11/26		90	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/11/26	4.0		%	50
		Spiked Blank	Naphthalene	2012/11/26		78	%	60 - 130
		RPD	Naphthalene	2012/11/26	1.3		%	50
		Spiked Blank	Phenanthrene	2012/11/26		82	%	60 - 130
		RPD	Phenanthrene	2012/11/26	6.0		%	50
		Spiked Blank	Pyrene	2012/11/26		87	%	60 - 130
		RPD	Pyrene	2012/11/26	5.0		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/11/26		68	%	50 - 150
			D10-Fluoranthene	2012/11/26		86	%	50 - 150
			D10-Phenanthrene	2012/11/26		78	%	50 - 150
			D12-Benzo(a)anthracene	2012/11/26		84	%	50 - 150
			D12-Benzo(a)pyrene	2012/11/26		86	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/11/26		84	%	50 - 150
			D12-Benzo(ghi)perylene	2012/11/26		88	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/11/26		86	%	50 - 150
			D12-Chrysene	2012/11/26		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: GB2I2998

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3046459	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/11/26		90	%	50 - 150
			D12-Perylene	2012/11/26		86	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/11/26		90	%	50 - 150
			D8-Acenaphthylene	2012/11/26		72	%	50 - 150
			D8-Naphthalene	2012/11/26		70	%	50 - 150
			1-Methylnaphthalene	2012/11/26	<0.10		ug	
			1-Methylphenanthrene	2012/11/26	<0.10		ug	
			2-Chloronaphthalene	2012/11/26	<0.10		ug	
			2-Methylanthracene	2012/11/26	<0.10		ug	
			2-Methylnaphthalene	2012/11/26	<0.10		ug	
			3-Methylcholanthrene	2012/11/26	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/11/26	<0.10		ug	
			9,10-Dimethylanthracene	2012/11/26	<0.40		ug	
			Acenaphthene	2012/11/26	<0.050		ug	
			Acenaphthylene	2012/11/26	<0.050		ug	
			Anthracene	2012/11/26	<0.050		ug	
			Benzo(a)anthracene	2012/11/26	<0.050		ug	
			Benzo(a)fluorene	2012/11/26	<0.10		ug	
			Benzo(a)pyrene	2012/11/26	<0.050		ug	
			Benzo(b)fluoranthene	2012/11/26	<0.050		ug	
			Benzo(b)fluorene	2012/11/26	<0.10		ug	
			Benzo(e)pyrene	2012/11/26	<0.10		ug	
			Benzo(g,h,i)perylene	2012/11/26	0.050, RDL=0.050		ug	
			Benzo(k)fluoranthene	2012/11/26	<0.050		ug	
			Biphenyl	2012/11/26	<0.10		ug	
			Chrysene	2012/11/26	<0.050		ug	
			Coronene	2012/11/26	<0.10		ug	
			Dibenz(a,h)anthracene	2012/11/26	0.050, RDL=0.050		ug	
			Dibenzo(a,e)pyrene	2012/11/26	<0.20		ug	
			Fluoranthene	2012/11/26	<0.050		ug	
			Fluorene	2012/11/26	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/11/26	<0.050		ug	
			m-Terphenyl	2012/11/26	<0.10		ug	
			Naphthalene	2012/11/26	<0.072		ug	
			o-Terphenyl	2012/11/26	<0.10		ug	
			Perylene	2012/11/26	<0.10		ug	
			Phenanthrene	2012/11/26	<0.050		ug	
			p-Terphenyl	2012/11/26	<0.10		ug	
			Pyrene	2012/11/26	<0.050		ug	
			Quinoline	2012/11/26	<0.40		ug	
			Tetralin	2012/11/26	<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/Nov 23 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 22, 2012 @ 15:30 mst
Removal Date/Time: Nov 26, 2012 @ 9:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
23-Nov-12	11/23/2012 0:00	11/24/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
20-Nov-12	26-Nov-12	03-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)
718	229	-13.8	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#12907
GB2G3677 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 23, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12907

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

Report Date: 2012/12/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2I8136
Received: 2012/11/29, 10:50

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/11/30	2012/12/04	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

Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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

Maxxam ID		PU1888	PU1889		
Sampling Date		2012/11/23	2012/11/23		
COC Number		12907	12907		
	Units	**LICA PUFF+QFF/CLS/NOV 23,12**	**LICA PUFF+QFF/PORT/NOV 23,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.27	0.35	0.10	3053933
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3053933
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3053933
2-Methylanthracene	ug	<0.10	<0.10	0.10	3053933
2-Methylnaphthalene	ug	0.58	0.73	0.10	3053933
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3053933
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3053933
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3053933
Acenaphthene	ug	0.084	<0.050	0.050	3053933
Acenaphthylene	ug	0.078	<0.050	0.050	3053933
Anthracene	ug	<0.050	<0.050	0.050	3053933
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3053933
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3053933
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3053933
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3053933
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3053933
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3053933
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3053933
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3053933
Biphenyl	ug	0.45	0.54	0.10	3053933
Chrysene	ug	<0.050	<0.050	0.050	3053933
Coronene	ug	<0.10	<0.10	0.10	3053933
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3053933
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3053933
Fluoranthene	ug	0.180	0.118	0.050	3053933
Fluorene	ug	0.172	0.218	0.050	3053933
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3053933
m-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Naphthalene	ug	0.590	0.412	0.072	3053933
o-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Perylene	ug	<0.10	<0.10	0.10	3053933

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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

Maxxam ID		PU1888	PU1889		
Sampling Date		2012/11/23	2012/11/23		
COC Number		12907	12907		
	Units	**LICA PUFF+QFF/CLS/NOV 23,12**	**LICA PUFF+QFF/PORT/NOV 23,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.496	0.368	0.050	3053933
p-Terphenyl	ug	<0.10	<0.10	0.10	3053933
Pyrene	ug	0.112	0.080	0.050	3053933
Quinoline	ug	<0.40	<0.40	0.40	3053933
Tetralin	ug	<0.10	<0.10	0.10	3053933
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	60	68		3053933
D10-Fluoranthene	%	90	88		3053933
D10-Fluorene (FS)	%	57	61		3053933
D10-Phenanthrene	%	78	80		3053933
D12-Benzo(a)anthracene	%	88	92		3053933
D12-Benzo(a)pyrene	%	86	90		3053933
D12-Benzo(b)fluoranthene	%	90	92		3053933
D12-Benzo(ghi)perylene	%	88	88		3053933
D12-Benzo(k)fluoranthene	%	86	88		3053933
D12-Chrysene	%	86	90		3053933
D12-Indeno(1,2,3-cd)pyrene	%	92	90		3053933
D12-Perylene	%	86	90		3053933
D14-Dibenzo(a,h)anthracene	%	90	90		3053933
D14-Terphenyl (FS)	%	92	89		3053933
D8-Acenaphthylene	%	62	70		3053933
D8-Naphthalene	%	58	64		3053933

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

Test Summary

Maxxam ID PU1888 **Collected** 2012/11/23
Sample ID LICA PUFF+QFF/CLS/NOV 23,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3053933	2012/11/30	2012/12/04	Lidija Tomic

Maxxam ID PU1889 **Collected** 2012/11/23
Sample ID LICA PUFF+QFF/PORT/NOV 23,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/11/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3053933	2012/11/30	2012/12/04	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2I8136
Report Date: 2012/12/12

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: GB2I8136

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3053933	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/04		76	%	50 - 150
			D10-Fluoranthene	2012/12/04		92	%	50 - 150
			D10-Phenanthrene	2012/12/04		82	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/04		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/04		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/04		94	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/04		90	%	50 - 150
			D12-Chrysene	2012/12/04		90	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/04		98	%	50 - 150
			D12-Perylene	2012/12/04		92	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/04		96	%	50 - 150
			D8-Acenaphthylene	2012/12/04		76	%	50 - 150
			D8-Naphthalene	2012/12/04		74	%	50 - 150
			Acenaphthene	2012/12/04		79	%	60 - 130
		RPD	Acenaphthene	2012/12/04	3.7		%	50
		Spiked Blank	Acenaphthylene	2012/12/04		79	%	60 - 130
		RPD	Acenaphthylene	2012/12/04	3.8		%	50
		Spiked Blank	Anthracene	2012/12/04		87	%	60 - 130
		RPD	Anthracene	2012/12/04	0.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/04		95	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/04	1.1		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/04		80	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/04	0.3		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/04	1.1		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/04		93	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/04	0.8		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/04	0.8		%	50
		Spiked Blank	Chrysene	2012/12/04		90	%	60 - 130
		RPD	Chrysene	2012/12/04	1.1		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/04		104	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/04	2.0		%	50
		Spiked Blank	Fluoranthene	2012/12/04		94	%	60 - 130
		RPD	Fluoranthene	2012/12/04	2.7		%	50
		Spiked Blank	Fluorene	2012/12/04		81	%	60 - 130
		RPD	Fluorene	2012/12/04	3.1		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/04		97	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/04	1.6		%	50
		Spiked Blank	Naphthalene	2012/12/04		81	%	60 - 130
		RPD	Naphthalene	2012/12/04	7.5		%	50
		Spiked Blank	Phenanthrene	2012/12/04		83	%	60 - 130
		RPD	Phenanthrene	2012/12/04	0.6		%	50
		Spiked Blank	Pyrene	2012/12/04		89	%	60 - 130
		RPD	Pyrene	2012/12/04	2.0		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/04		74	%	50 - 150
			D10-Fluoranthene	2012/12/04		88	%	50 - 150
			D10-Phenanthrene	2012/12/04		78	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/04		92	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/04		92	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/04		92	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/04		92	%	50 - 150
			D12-Chrysene	2012/12/04		92	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2I8136

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3053933	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/04		94	%	50 - 150
			D12-Perylene	2012/12/04		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/04		92	%	50 - 150
			D8-Acenaphthylene	2012/12/04		74	%	50 - 150
			D8-Naphthalene	2012/12/04		72	%	50 - 150
			1-Methylnaphthalene	2012/12/04	<0.10		ug	
			1-Methylphenanthrene	2012/12/04	<0.10		ug	
			2-Chloronaphthalene	2012/12/04	<0.10		ug	
			2-Methylanthracene	2012/12/04	<0.10		ug	
			2-Methylnaphthalene	2012/12/04	<0.10		ug	
			3-Methylcholanthrene	2012/12/04	<2.0		ug	
			7,12-Dimethylbenzo(a)anthracene	2012/12/04	<0.10		ug	
			9,10-Dimethylanthracene	2012/12/04	<0.40		ug	
			Acenaphthene	2012/12/04	<0.050		ug	
			Acenaphthylene	2012/12/04	<0.050		ug	
			Anthracene	2012/12/04	<0.050		ug	
			Benzo(a)anthracene	2012/12/04	<0.050		ug	
			Benzo(a)fluorene	2012/12/04	<0.10		ug	
			Benzo(a)pyrene	2012/12/04	<0.050		ug	
			Benzo(b)fluoranthene	2012/12/04	<0.050		ug	
			Benzo(b)fluorene	2012/12/04	<0.10		ug	
			Benzo(e)pyrene	2012/12/04	<0.10		ug	
			Benzo(g,h,i)perylene	2012/12/04	<0.050		ug	
			Benzo(k)fluoranthene	2012/12/04	<0.050		ug	
			Biphenyl	2012/12/04	<0.10		ug	
			Chrysene	2012/12/04	<0.050		ug	
			Coronene	2012/12/04	<0.10		ug	
			Dibenz(a,h)anthracene	2012/12/04	<0.050		ug	
			Dibenzo(a,e)pyrene	2012/12/04	<0.20		ug	
			Fluoranthene	2012/12/04	<0.050		ug	
			Fluorene	2012/12/04	<0.050		ug	
			Indeno(1,2,3-cd)pyrene	2012/12/04	<0.050		ug	
			m-Terphenyl	2012/12/04	<0.10		ug	
			Naphthalene	2012/12/04	<0.072		ug	
			o-Terphenyl	2012/12/04	<0.10		ug	
			Perylene	2012/12/04	<0.10		ug	
			Phenanthrene	2012/12/04	<0.050		ug	
			p-Terphenyl	2012/12/04	<0.10		ug	
			Pyrene	2012/12/04	<0.050		ug	
			Quinoline	2012/12/04	<0.40		ug	
			Tetralin	2012/12/04	<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/Nov 29 ,2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 26, 2012 @ 10:20 mst
Removal Date/Time: Dec 03, 2012 @ 8:05 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
29-Nov-12	11/29/2012 0:00	11/30/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
23-Nov-12	03-Dec-12	06-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)
718	229	-16.4	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#12945
GB2G3679 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 29, 2012

Technician Signiture: Ting Xu

Success Through Science®

Your C.O.C. #: 12945

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

Report Date: 2012/12/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J2316
Received: 2012/12/06, 09:10

Sample Matrix: PUF AND FILTER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/12/07	2012/12/14	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 #: B2J2316
Report Date: 2012/12/18

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

Maxxam ID		PW4883	PW4884		
Sampling Date		2012/11/29	2012/11/29		
COC Number		12945	12945		
	Units	**LICA PUFF+QFF/CLS/NOV 29,12**	**LICA PUFF+QFF/PORT/NOV 29,12**	**RDL**	**QC Batch**
Semivolatile Organics					
1-Methylnaphthalene	ug	0.40	0.18	0.10	3062151
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	3062151
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	3062151
2-Methylanthracene	ug	<0.10	<0.10	0.10	3062151
2-Methylnaphthalene	ug	0.72	0.32	0.10	3062151
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	3062151
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	3062151
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	3062151
Acenaphthene	ug	0.080	<0.050	0.050	3062151
Acenaphthylene	ug	0.100	<0.050	0.050	3062151
Anthracene	ug	<0.050	0.140	0.050	3062151
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	3062151
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	3062151
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	3062151
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	3062151
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	3062151
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	3062151
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	3062151
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	3062151
Biphenyl	ug	0.28	0.20	0.10	3062151
Chrysene	ug	<0.050	<0.050	0.050	3062151
Coronene	ug	<0.10	<0.10	0.10	3062151
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	3062151
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	3062151
Fluoranthene	ug	0.100	<0.050	0.050	3062151
Fluorene	ug	0.140	0.080	0.050	3062151
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	3062151
m-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Naphthalene	ug	0.860	0.260	0.072	3062151
o-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Perylene	ug	<0.10	<0.10	0.10	3062151

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

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

Maxxam ID		PW4883	PW4884		
Sampling Date		2012/11/29	2012/11/29		
COC Number		12945	12945		
	Units	**LICA PUFF+QFF/CLS/NOV 29,12**	**LICA PUFF+QFF/PORT/NOV 29,12**	**RDL**	**QC Batch**
Phenanthrene	ug	0.300	0.120	0.050	3062151
p-Terphenyl	ug	<0.10	<0.10	0.10	3062151
Pyrene	ug	0.060	<0.050	0.050	3062151
Quinoline	ug	<0.40	<0.40	0.40	3062151
Tetralin	ug	<0.10	<0.10	0.10	3062151
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	64		3062151
D10-Fluoranthene	%	84	80		3062151
D10-Fluorene (FS)	%	64	62		3062151
D10-Phenanthrene	%	74	72		3062151
D12-Benzo(a)anthracene	%	86	82		3062151
D12-Benzo(a)pyrene	%	88	84		3062151
D12-Benzo(b)fluoranthene	%	84	82		3062151
D12-Benzo(ghi)perylene	%	86	80		3062151
D12-Benzo(k)fluoranthene	%	86	82		3062151
D12-Chrysene	%	86	82		3062151
D12-Indeno(1,2,3-cd)pyrene	%	86	84		3062151
D12-Perylene	%	86	82		3062151
D14-Dibenzo(a,h)anthracene	%	86	82		3062151
D14-Terphenyl (FS)	%	84	82		3062151
D8-Acenaphthylene	%	68	66		3062151
D8-Naphthalene	%	66	64		3062151

QC Batch = Quality Control Batch

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

Test Summary

Maxxam ID PW4883 **Collected** 2012/11/29
Sample ID LICA PUFF+QFF/CLS/NOV 29,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3062151	2012/12/07	2012/12/14	Lidija Tomic

Maxxam ID PW4884 **Collected** 2012/11/29
Sample ID LICA PUFF+QFF/PORT/NOV 29,12 **Shipped**
Matrix PUF AND FILTER **Received** 2012/12/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	3062151	2012/12/07	2012/12/14	Lidija Tomic

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Maxxam Analytics

Maxxam Job #: B2J2316
Report Date: 2012/12/18

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: GB2J2316

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3062151	LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/12/14		60	%	50 - 150
			D10-Fluoranthene	2012/12/14		74	%	50 - 150
			D10-Phenanthrene	2012/12/14		64	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		74	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		78	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		74	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		76	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		78	%	50 - 150
			D12-Chrysene	2012/12/14		72	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2012/12/14		78	%	50 - 150
			D12-Perylene	2012/12/14		76	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		78	%	50 - 150
			D8-Acenaphthylene	2012/12/14		62	%	50 - 150
			D8-Naphthalene	2012/12/14		60	%	50 - 150
			Acenaphthene	2012/12/14		65	%	60 - 130
		RPD	Acenaphthene	2012/12/14	8.0		%	50
		Spiked Blank	Acenaphthylene	2012/12/14		65	%	60 - 130
		RPD	Acenaphthylene	2012/12/14	8.0		%	50
		Spiked Blank	Anthracene	2012/12/14		70	%	60 - 130
		RPD	Anthracene	2012/12/14	6.9		%	50
		Spiked Blank	Benzo(a)anthracene	2012/12/14		80	%	60 - 130
		RPD	Benzo(a)anthracene	2012/12/14	9.0		%	50
		Spiked Blank	Benzo(a)pyrene	2012/12/14		73	%	60 - 130
		RPD	Benzo(a)pyrene	2012/12/14	6.7		%	50
		Spiked Blank	Benzo(b)fluoranthene	2012/12/14		78	%	60 - 130
		RPD	Benzo(b)fluoranthene	2012/12/14	9.2		%	50
		Spiked Blank	Benzo(g,h,i)perylene	2012/12/14		80	%	60 - 130
		RPD	Benzo(g,h,i)perylene	2012/12/14	9.0		%	50
		Spiked Blank	Benzo(k)fluoranthene	2012/12/14		85	%	60 - 130
		RPD	Benzo(k)fluoranthene	2012/12/14	8.5		%	50
		Spiked Blank	Chrysene	2012/12/14		75	%	60 - 130
		RPD	Chrysene	2012/12/14	12.5		%	50
		Spiked Blank	Dibenz(a,h)anthracene	2012/12/14		88	%	60 - 130
		RPD	Dibenz(a,h)anthracene	2012/12/14	5.6		%	50
		Spiked Blank	Fluoranthene	2012/12/14		78	%	60 - 130
		RPD	Fluoranthene	2012/12/14	6.3		%	50
		Spiked Blank	Fluorene	2012/12/14		65	%	60 - 130
		RPD	Fluorene	2012/12/14	3.9		%	50
		Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/12/14		83	%	60 - 130
		RPD	Indeno(1,2,3-cd)pyrene	2012/12/14	5.9		%	50
		Spiked Blank	Naphthalene	2012/12/14		65	%	60 - 130
		RPD	Naphthalene	2012/12/14	8.0		%	50
		Spiked Blank	Phenanthrene	2012/12/14		68	%	60 - 130
		RPD	Phenanthrene	2012/12/14	3.6		%	50
		Spiked Blank	Pyrene	2012/12/14		75	%	60 - 130
		RPD	Pyrene	2012/12/14	6.5		%	50
		Method Blank	D10-2-Methylnaphthalene	2012/12/14		52	%	50 - 150
			D10-Fluoranthene	2012/12/14		80	%	50 - 150
			D10-Phenanthrene	2012/12/14		68	%	50 - 150
			D12-Benzo(a)anthracene	2012/12/14		76	%	50 - 150
			D12-Benzo(a)pyrene	2012/12/14		80	%	50 - 150
			D12-Benzo(b)fluoranthene	2012/12/14		76	%	50 - 150
			D12-Benzo(ghi)perylene	2012/12/14		80	%	50 - 150
			D12-Benzo(k)fluoranthene	2012/12/14		78	%	50 - 150
			D12-Chrysene	2012/12/14		74	%	50 - 150

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 (Continued)

Maxxam Job Number: GB2J2316

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3062151	LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/12/14		82	%	50 - 150
			D12-Perylene	2012/12/14		78	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2012/12/14		82	%	50 - 150
			D8-Acenaphthylene	2012/12/14		56	%	50 - 150
			D8-Naphthalene	2012/12/14		50	%	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.

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