

Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2011

Prepared By:



January 12, 2012

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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Monitoring Location: Cold Lake
Data Period: December 2011

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 – December 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING		DAY
	1-HR	24-HR	1-HR	24-HR									
SO ₂ (PPB)	172	48	0	0	0.19	3	VAR	VAR	VAR	VAR	0.8	4	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	100.0
NO ₂ (PPB)	159	-	0	-	5.08	22	8, 10	16, 7	1.1, 0.8	267(W), 104(ESE)	11.3	10	100.0
NO (PPB)	-	-	-	-	0.86	32	30	8	1.1	63(ENE)	5.0	10	100.0
NO _x (PPB)	-	-	-	-	5.96	53	30	8	1.1	63(ENE)	16.4	10	100.0
O ₃ (PPB)	82	-	0	-	23.62	39	1	23	10.1	264(W)	34.4	7	99.7
THC (PPM)	-	-	-	-	2.22	4.0	15	23	0.7	123(ESE)	2.6	25	100.0
PM 2.5 (UG/M ³)	-	30	-	0	4.88	20.0	14	1	2.9	198(SSW)	11.1	13	99.2
TEMPERATURE (DEG C)	-	-	-	-	73.78	94	29	VAR	VAR	VAR	90.3	29	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	-5.65	5.5	24	13	12.2	281(W)	1.2	24	100.0
VECTOR WS (KPH)	-	-	-	-	6.33	24.8	2	10	-	318(NW)	12.4	6	100.0
VECTOR WD (DEGREES)	-	-	-	-	263(W)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – December 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#13, #14	1.9	0.76
H ₂ S	#27	0.21	0.13
NO ₂	#34	6.9	2.7
O ₃	#32	29.1	22.6

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – December 5, 2011

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

Xontech Model 910A – December 11, 2011

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

Xontech Model 910A – December 17, 2011

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

Xontech Model 910A – December 23, 2011

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

Xontech Model 910A – December 29, 2011

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

PUF cartridge – December 5, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.055	3-Methylcholanthrene

PUF cartridge – December 11, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.055	3-Methylcholanthrene

PUF cartridge – December 17, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.055	3-Methylcholanthrene

PUF cartridge – December 23, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.055	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 observed during the month. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)

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

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

Ozone (PPB)

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

No operational issue observed during the month. Both the exhausting pump and the zero air pump were replaced following the as found points check on December 8th. The analyzer was allowed time to stabilize before a multi-point calibration was performed. The analyzer had a flow alarm after the calibration. It was noticed that the tubing connected with the pump was broken. Fixed the issue and performed an as found points check; the result was good. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Total Hydrocarbon (PPM)

- Analyzer make / model -TECO 51C-LT, S/N: 427408718

No operational issue observed during the month. The water knock-out on the zero air supply and both H2 and CH4 gas cylinders were replaced before the monthly calibration was started on December 8th. The inlet filter was changed before the monthly calibration was started on December 3rd. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue observed during the month. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

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

No operational issue was observed this month. A routine Teom audit and a leak check were performed on December 7th. Both the Teom filter and the FDMS filter were changed on December 7th. 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. Six hours of data were invalidated as the data were below –3 ug/m3.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

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 issue was observed during the month.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issue was observed during the month.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month.

Trailer Temperature (DEGC)

- System make / model - R&R 61

No operational issues 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

No issue was observed during this month.

The manifold was cleaned on December 8th.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values were within the Good range. The highest hourly concentration of ozone was 39 ppb and an AQI value of 20 on December 1st, hour of 23. The highest hourly concentration of PM2.5 was 20.0 ug/m3 and an AQI value of 17 on December 14th, hour of 1.

Passive Network

The 10% duplicate sampling program was run this month.
The O3 sample at station #34 was found on the ground.

Volatile Organics (VOCs)

The volatile organics were sampled from December 5th to December 29th. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled on December 5th to December 29th. 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. Sample result for December 29th is not included in this monthly report because it is not available when the monthly report was preparing. The result for December 29th will be included in the following monthly report.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

AIR QUALITY INDEX (AQI)

MST																										DAILY	
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	
1	5	4	5	-	5	9	10	9	12	9	11	12	13	13	14	14	13	13	17	17	18	19	20	19	20	20	
2	19	19	-	18	18	17	17	17	17	16	14	14	14	16	17	18	17	17	16	16	14	8	9	7	19	19	
3	6	-	4	4	8	12	11	9	9	10	10	10	12	14	16	17	16	16	16	16	17	16	15	16	17	17	
4	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
5	14	14	13	14	14	14	14	13	12	13	13	13	12	16	12	10	10	7	8	11	11	12	-	14	16	16	
6	15	15	16	16	16	16	17	18	19	17	17	16	17	18	17	17	17	17	16	18	18	-	19	18	19	19	
7	17	16	15	14	14	16	16	17	17	18	18	-	-	-	-	-	-	-	19	19	-	19	19	18	19	19	
8	18	17	-	17	15	14	13	13	-	-	-	-	-	-	-	-	-	-	-	-	10	8	6	7	18	18	
9	7	7	7	12	12	12	11	13	15	15	14	16	13	13	12	9	11	-	10	6	6	6	6	8	16	16	
10	PM2	PM2	03	03	03	03	03	PM2	PM2	PM2	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	PM2
11	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	03	03	03	PM2	PM2	PM2	PM2	PM2	PM2	PM2	03	03	03	03	03	03
12	15	10	12	13	13	14	16	16	16	16	17	18	18	19	19	18	-	18	17	16	-	17	17	17	19	19	
13	17	16	14	14	14	15	14	15	15	15	15	16	16	14	-	12	12	13	13	13	13	13	12	12	17	17	
14	12	11	11	10	10	9	7	5	8	10	9	12	11	10	-	12	10	10	13	12	12	10	11	11	13	13	
15	12	17	12	10	12	14	14	15	16	15	15	15	15	-	15	15	15	13	13	9	10	12	13	14	17	17	
16	PM2	PM2	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	PM2
17	13	13	11	11	13	13	13	13	12	12	11	-	11	12	10	3	6	2	8	8	3	4	4	4	13	13	
18	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
19	4	6	8	8	6	8	10	11	11	10	13	-	13	14	15	14	13	12	11	11	11	11	11	10	15	15	
20	03	03	PM2	PM2	03	PM2	PM2	PM2	PM2	PM2	PM2	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
21	9	6	4	4	3	4	6	9	10	-	10	12	11	10	9	8	8	8	9	9	9	9	8	9	12	12	
22	03	03	03	PM2	PM2	PM2	PM2	PM2	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
23	9	8	8	9	10	12	12	10	6	-	11	15	16	16	16	16	-	13	11	10	9	11	10	11	16	16	
24	11	8	7	7	7	12	8	12	-	14	14	15	15	14	14	14	13	12	11	12	13	14	16	16	16	16	
25	14	12	11	12	13	14	14	-	19	19	18	16	14	14	15	16	16	15	15	15	15	16	15	15	19	19	
26	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
27	14	14	11	11	14	13	-	11	12	12	12	13	15	16	16	16	15	15	14	14	11	11	12	12	16	16	
28	12	13	13	12	13	-	12	11	11	12	13	14	15	16	16	16	16	15	14	14	13	10	11	11	16	16	
29	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
30	7	6	10	5	-	5	7	8	10	9	9	9	11	13	15	17	17	17	17	16	16	16	16	-	17	17	
31	03	03	PM2	PM2	NA	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
PEAK	19	19	16	18	18	17	17	18	19	19	18	18	19	19	18	17	18	17	18	19	19	18	19	19	20	20	

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM2.5)					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	592	79.6%	20	23	1	96	12.9%	17	1	14	0	0.0%	-	-	-	0	0.0%	-	-	-	688	92.5%
OVERALL	519	79.6%	-	-	-	167	12.9%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	688	92.5%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	7.5%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

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

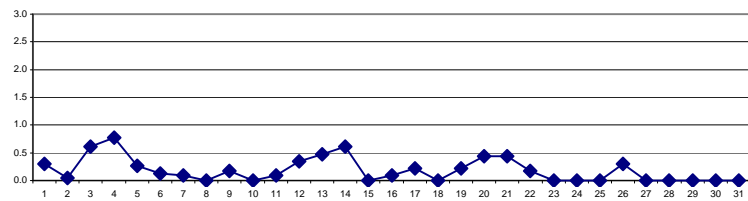
OBJECTIVE LIMIT:

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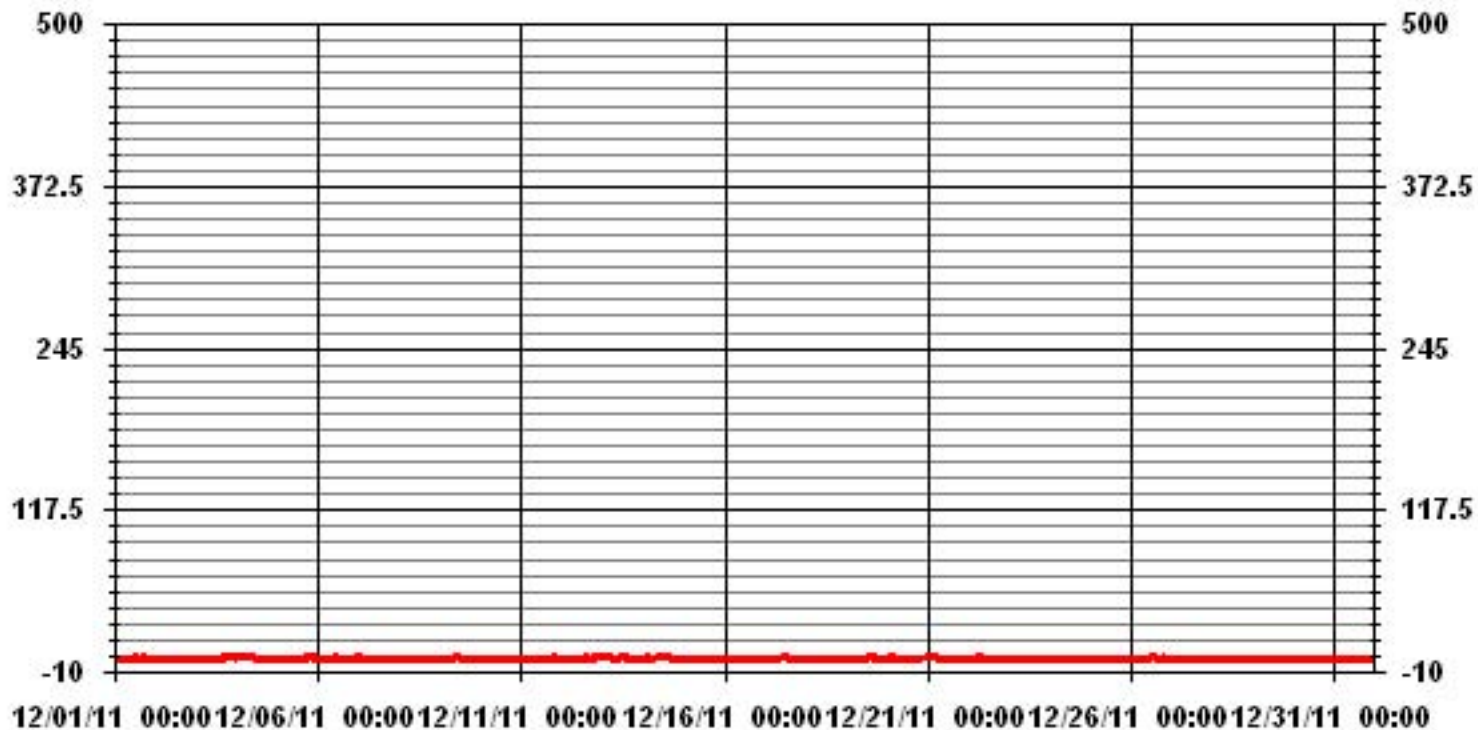
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	113					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.8	PPB			ON DAY(S)	4
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.46		MONTHLY AVERAGE:	0.19	PPB	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		0	0	0	IZS	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0.6	24	
2		0	0	IZS	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0.4	24	
3		0	IZS	0	0	0	0	0	0	0	0	0	0	1	1	1	1	4	3	3	1	2	3	2	4	1.0	24		
4		IZS	1	2	2	3	3	4	4	2	1	1	1	1	0	0	1	0	0	0	0	0	0	0	IZS	4	1.2	24	
5		0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	0.8	24	
6		1	1	1	1	1	0	0	0	0	1	2	2	1	1	1	0	0	0	0	0	1	IZS	0	1	2	0.7	24	
7		2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	1	1	0	2	0.4	24	
8		0	0	0	0	0	0	0	0	C	C	C	C	C	1	M	M	1	0	IZS	1	0	0	0	0	1	0.2	22	
9		0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	1	0.4	24	
10		1	0	0	1	0	0	0	1	1	1	1	2	1	1	0	0	IZS	0	1	0	0	0	0	0	2	0.5	24	
11		1	1	1	0	1	1	0	0	0	0	0	0	0	0	1	IZS	1	1	1	1	1	1	1	0	1	0.5	24	
12		0	0	0	0	0	0	0	1	0	0	0	0	1	2	2	IZS	1	0	1	1	2	1	1	1	1	2	0.6	24
13		1	1	1	1	2	1	1	1	0	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	2	1.0	24
14		1	1	1	1	1	1	1	3	2	1	1	2	2	IZS	1	1	2	2	1	1	1	1	1	1	1	3	1.3	24
15		1	1	1	0	1	1	0	0	1	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
16		0	0	0	0	0	1	1	1	1	1	1	IZS	1	1	1	1	1	1	0	0	1	1	0	0	1	0.6	24	
17		0	0	0	0	0	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0.7	24	
18		0	1	0	0	0	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
19		0	0	0	0	1	1	1	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
20		1	1	1	1	1	1	1	IZS	1	0	1	0	1	1	1	1	1	1	0	0	2	2	2	2	2	2	1.0	24
21		2	2	3	3	2	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.6	24	
22		0	0	1	1	1	IZS	1	1	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0.5	24	
23		0	0	0	0	IZS	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0.3	24	
24		1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
25		0	0	IZS	1	0	1	1	0	0	1	0	1	1	0	0	1	1	0	1	0	0	0	0	0	0	1	0.4	24
26		0	IZS	0	0	1	0	0	0	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	0.8	24
27		IZS	1	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	1	0.4	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
30		0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.2	24
31		1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	IZS	1	1	0	0	1	0.3	24
HOURLY MAX		2	2	3	3	3	4	4	4	2	1	2	2	2	2	2	2	2	4	3	3	2	2	3	2				
HOURLY AVG		0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.4	0.4				

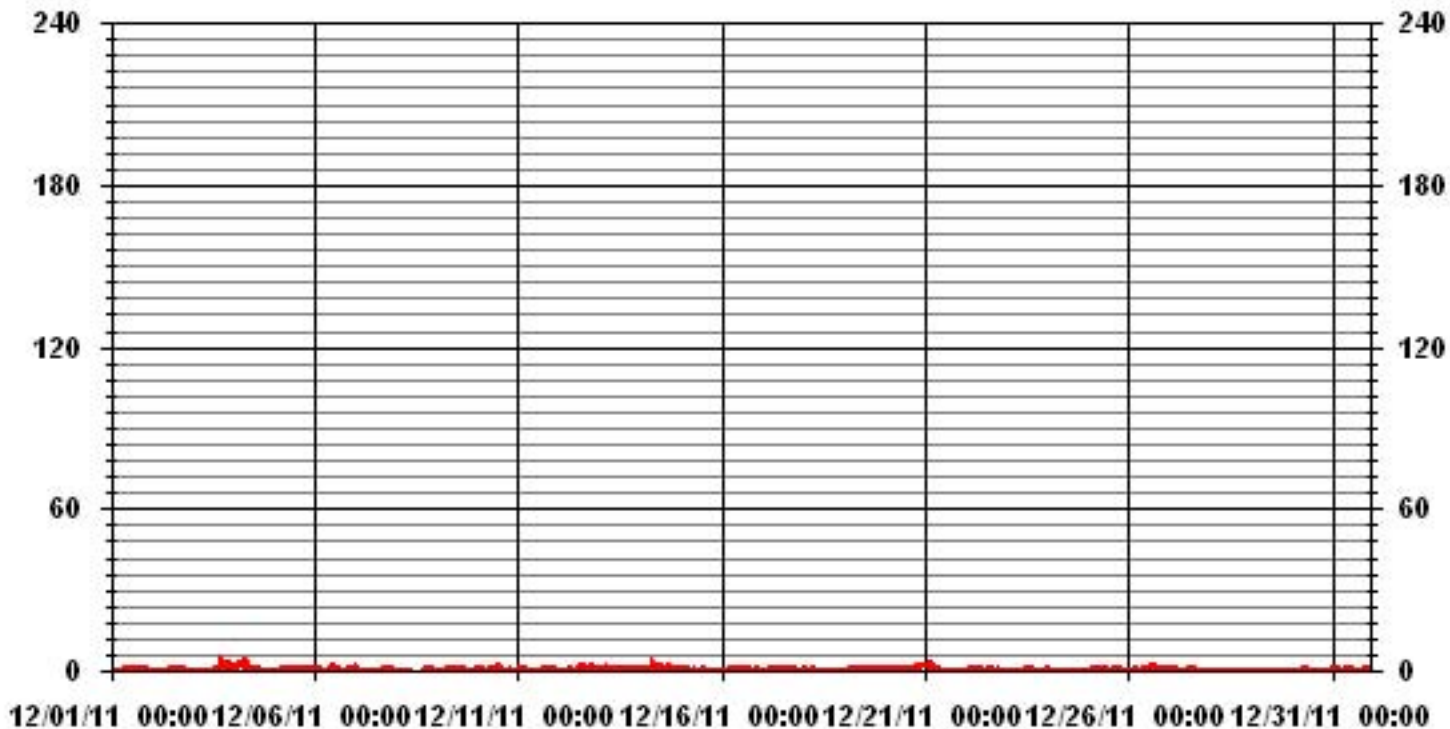
STATUS FLAG CODES

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:	325					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	3, 4
IZS CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.67					

01 Hour Averages



LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	1.41	.28	.28	1.27	2.12	3.81	9.05	4.24	4.52	6.50	17.96	17.53	12.02	6.78	7.77	4.38	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	1.41	.28	.28	1.27	2.12	3.81	9.05	4.24	4.52	6.50	17.96	17.53	12.02	6.78	7.77	4.38	

Calm : .00 %

Total # Operational Hours : 707

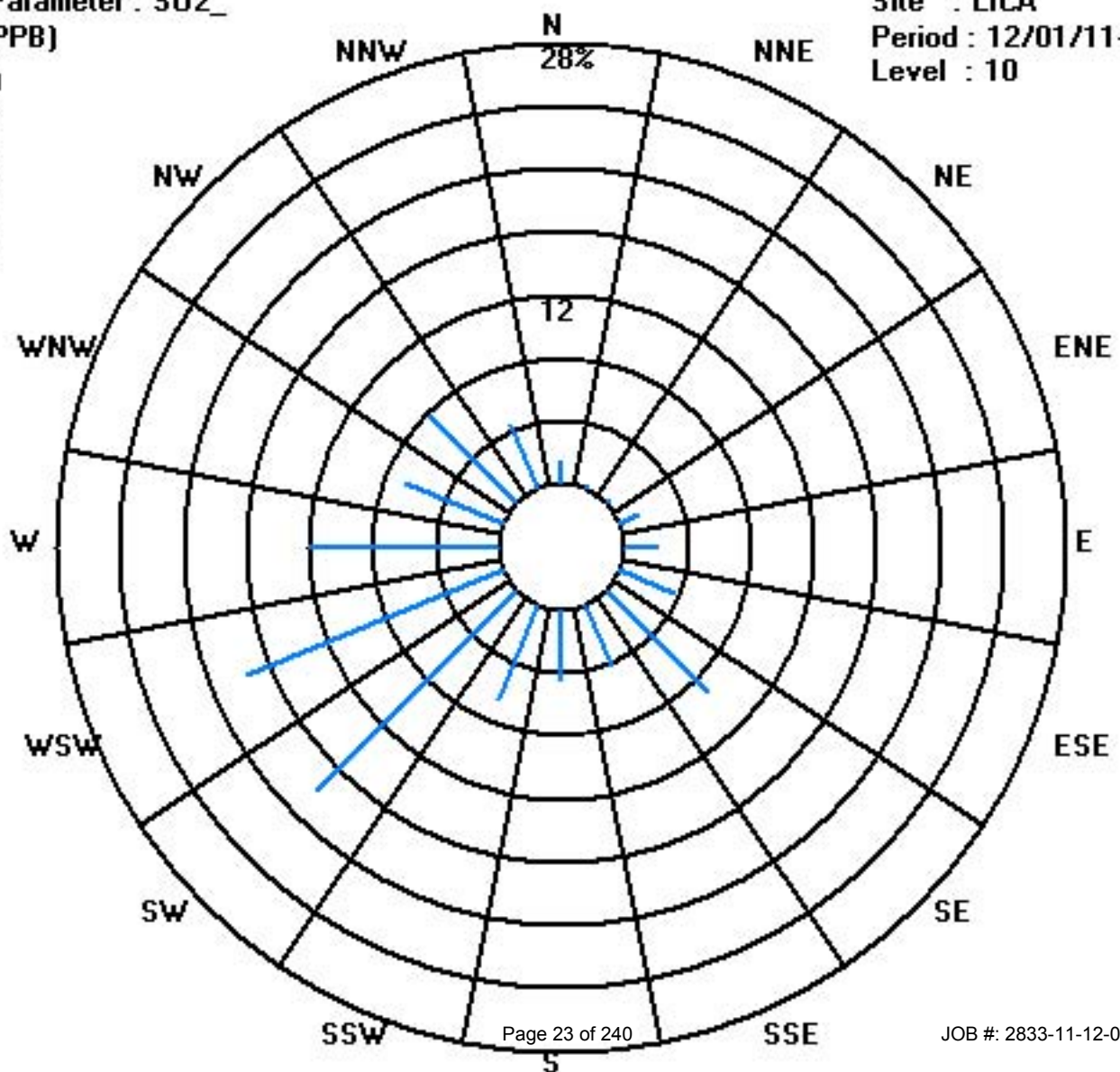
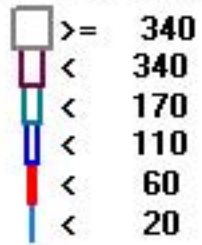
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	10	2	2	9	15	27	64	30	32	46	127	124	85	48	55	31	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	85	48	55	31	

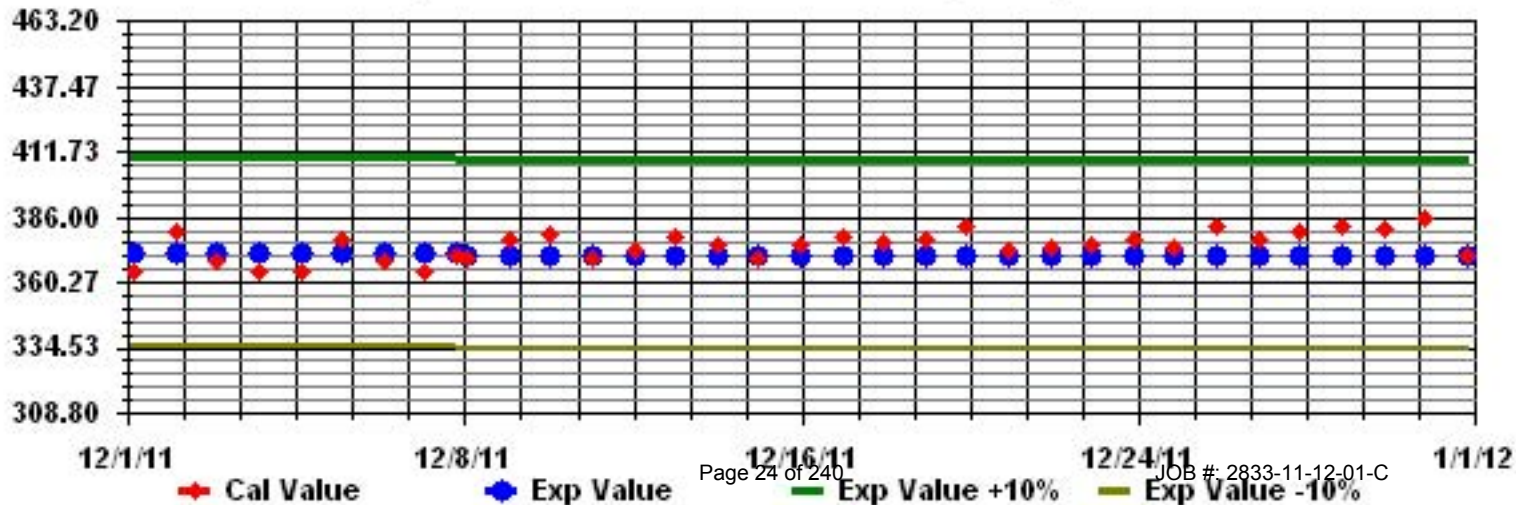
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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

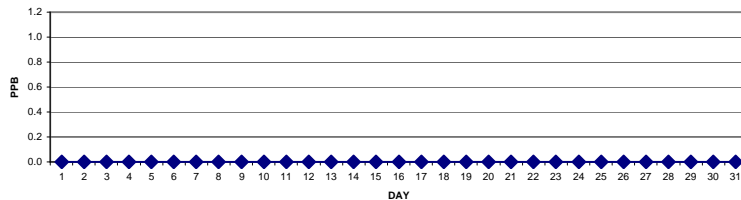
STATUS FLAG CODES

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

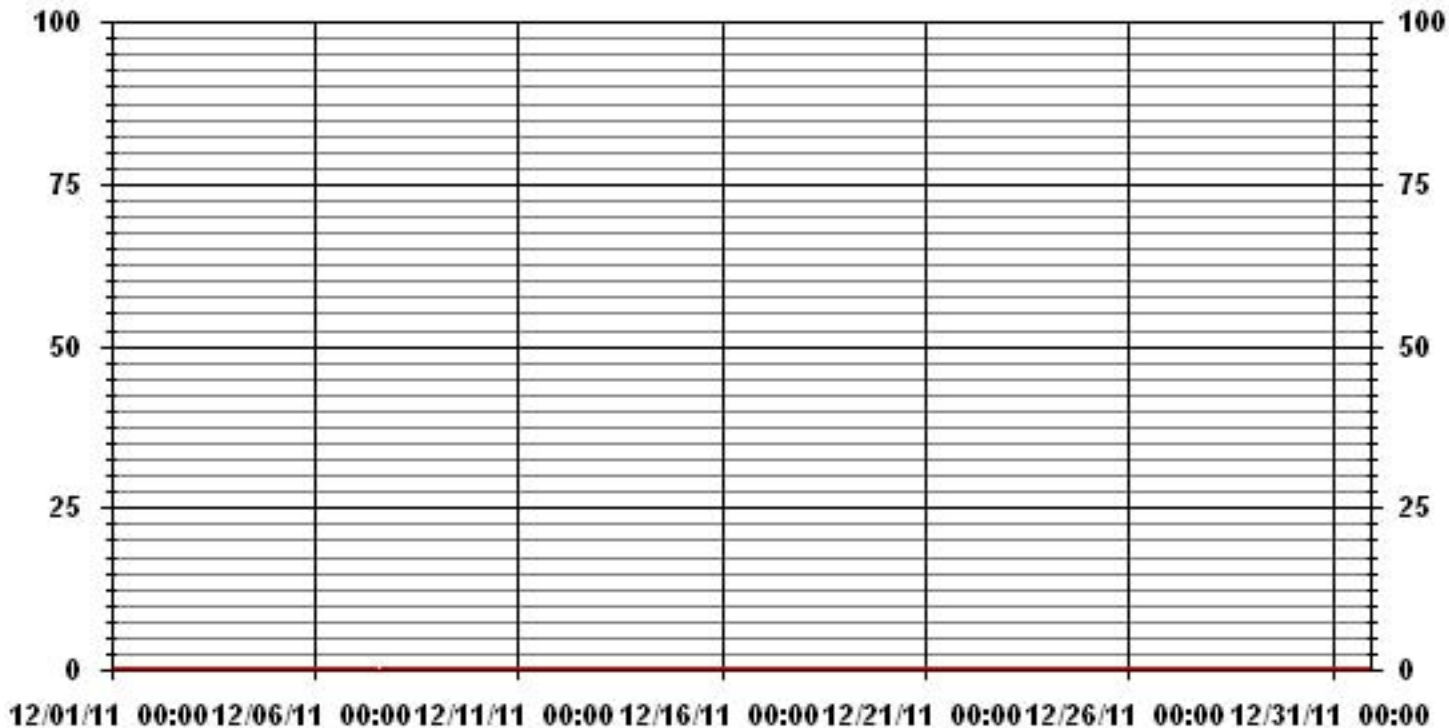
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	0					
MAXIMUM 1-HR AVERAGE:	0	PPB	@ HOUR(S)	ALL	ON DAY(S)	ALL
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S)	ALL
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

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

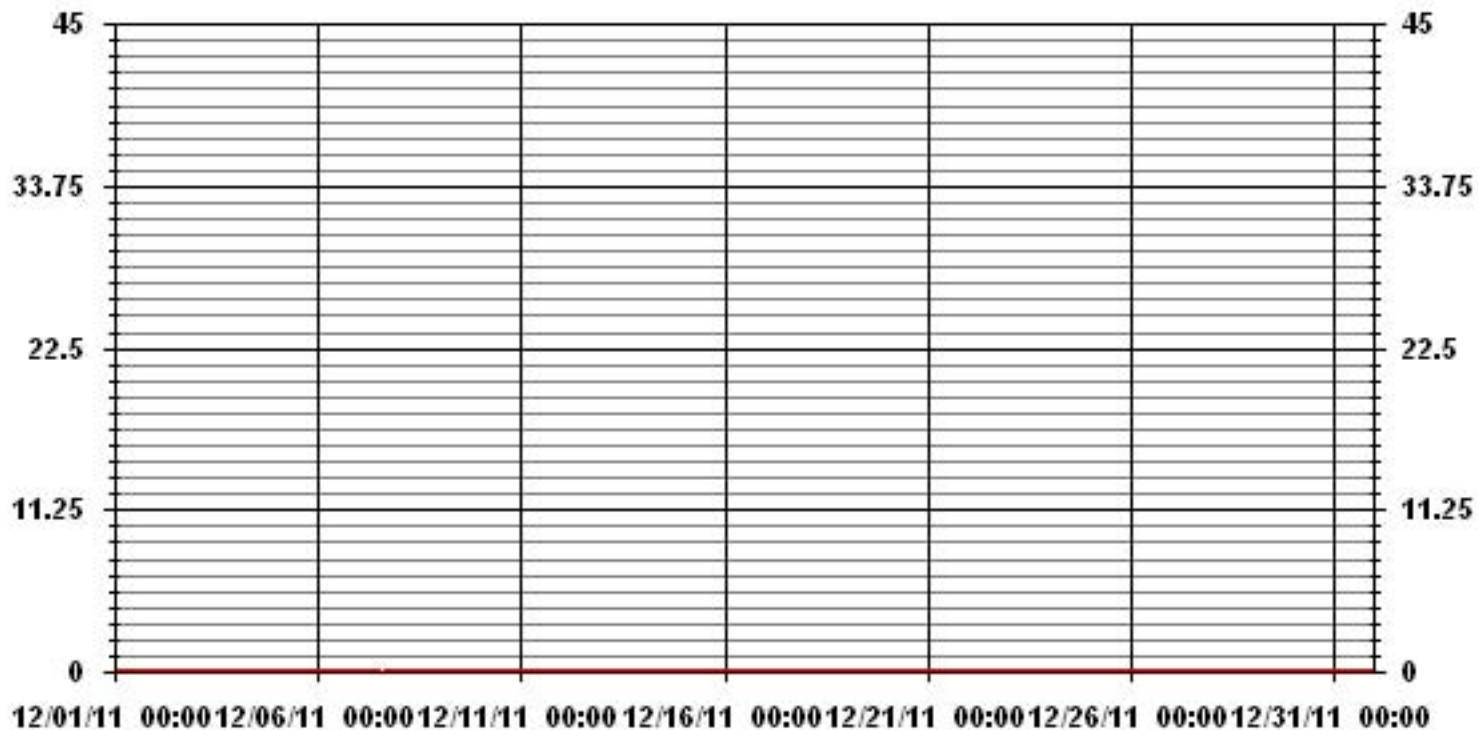
STATUS FLAG CODES

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:	0					
MAXIMUM INSTANTANEOUS VALUE:	0	PPB	@ HOUR(S)	ALL	ON DAY(S)	ALL
VAR - VARIOUS						
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.00					

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	1.41	.28	.28	1.27	2.12	3.82	9.06	4.24	4.53	6.51	17.98	17.56	12.46	6.51	7.50	4.39	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.41	.28	.28	1.27	2.12	3.82	9.06	4.24	4.53	6.51	17.98	17.56	12.46	6.51	7.50	4.39	

Calm : .00 %

Total # Operational Hours : 706

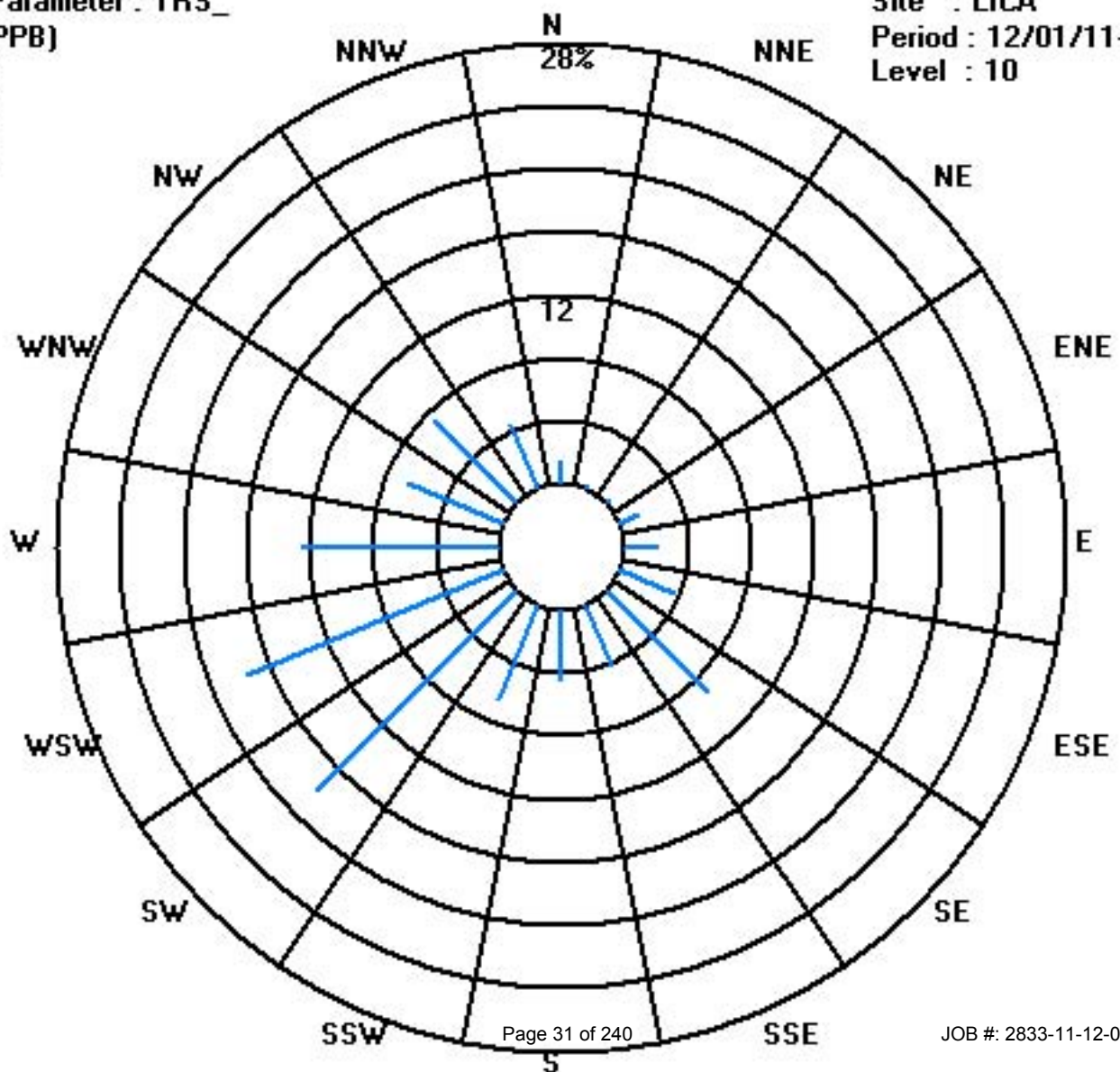
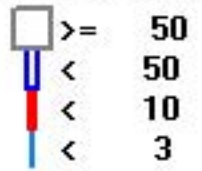
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	10	2	2	9	15	27	64	30	32	46	127	124	88	46	53	31	706
< 10																	
< 50																	
>= 50																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	88	46	53	31	

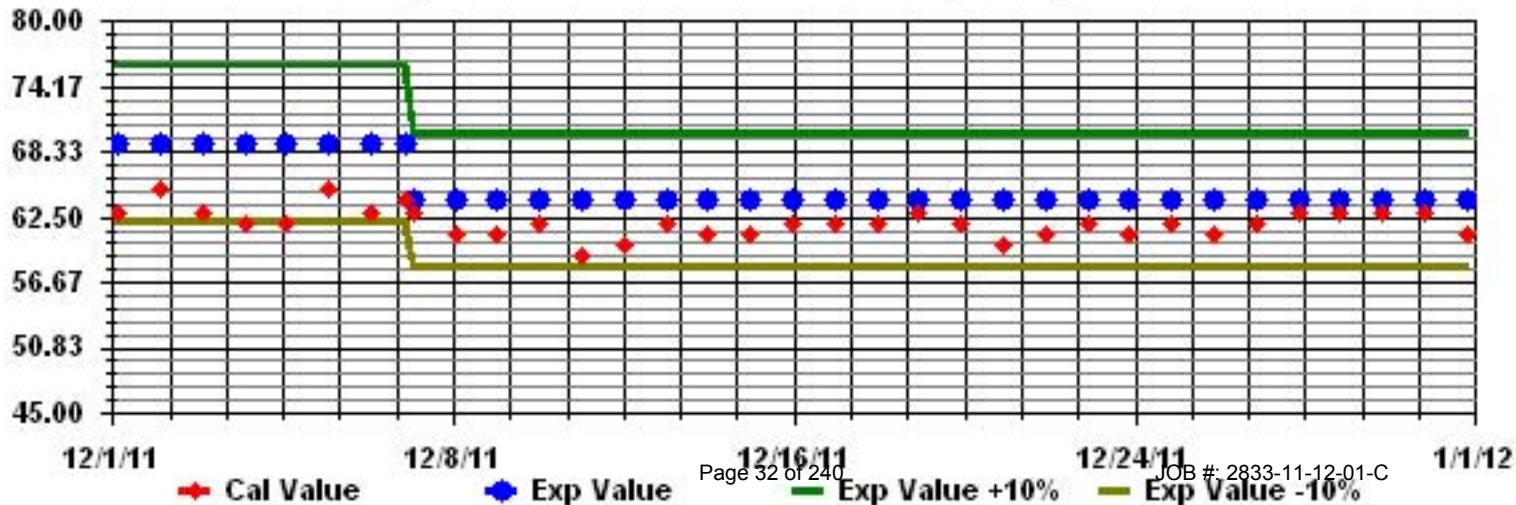
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

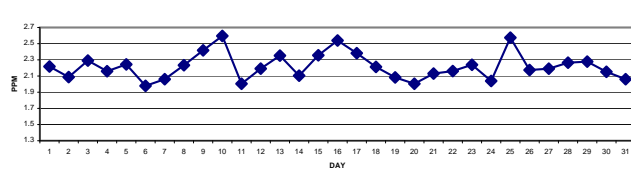
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	2.4	2.3	2.3	IZS	2.6	2.4	2.3	2.4	2.2	2.3	2.3	2.3	2.3	2.1	2.2	2.2	2.1	2.2	2	2	2	1.9	1.9	2.6	2.2	24		
2	2	1.9	1.9	IZS	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.1	24		
3	3	2.8	IZS	3	2.8	2.7	2.5	2.5	2.3	2.4	2.2	2.2	2.4	2.4	2.2	2	2	2	2	2	2	2	2.1	2.1	2.1	3.0	2.3	24	
4	4	IZS	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	IZS	2.3	2.2	24	
5	5	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.1	IZS	2	2.3	2.2	24		
6	6	2.1	2	2	1.9	1.9	2	1.9	2	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2.1	2	2	IZS	2	2	2.0	24	
7	7	2	2.1	2.1	2.3	2.2	2.3	2.2	2	2	2	2	2	2	2.1	2.1	2	2	2	2	2	2	IZS	2	2	2	2.3	2.1	24
8	8	2	2	2.1	2.1	2.3	2.3	2.4	2.4	2.4	C	C	C	C	2	2	2	2.1	2.3	IZS	2.3	2.3	2.4	2.8	2.8	2.2	24		
9	9	2.9	2.9	2.8	2.5	2.5	2.4	2.3	2.4	2.7	2.8	2.7	2.5	2.2	2.2	2.1	2.1	2.1	IZS	2.2	2.3	2.3	2.2	2.3	2.9	2.9	2.4	24	
10	10	2.5	2.5	2.4	2.6	2.7	2.8	2.9	3	2.9	3	2.7	2.4	2.5	2.4	2.4	2.5	2.6	IZS	3	2.6	2.5	2.4	2.3	2.1	3.0	2.6	24	
11	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2.1	2.1	2.0	24
12	12	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.2	2.2	2.3	2.4	2.4	2.3	2.1	2.2	IZS	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.2	24	
13	13	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.3	IZS	2.5	2.5	2.6	2.7	2.7	2.5	2.4	2.4	2.7	2.4	2.4	24	
14	14	2.4	2.6	2.8	2.6	2.1	2	1.9	2	2	1.9	1.9	2	2	IZS	1.9	2	2	2	2	2	2	2.1	2.2	2	2.8	2.1	24	
15	15	2	2.1	2.2	2.2	2	2	2	2	2	2	2.1	2.2	IZS	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.6	3.4	3.5	4	4.0	2.4	24	
16	16	3.7	3.3	3.2	3.1	3.2	3	3	2.8	2.7	2.7	2.6	IZS	2.1	2.1	2	2.1	2	2	2.1	2.1	2.1	2.2	2.2	2.1	3.7	2.5	24	
17	17	2.1	2.2	2.2	2.2	2.3	2.4	2.8	2.6	2.4	2.4	IZS	2.5	2.4	2.7	2.7	2.6	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.2	2.8	2.4	24	
18	18	2.3	2.3	2.4	2.3	2.3	2.1	2.1	2.6	2.5	IZS	2.2	2	2	2	2	2	2	2.3	2.2	2.3	2.4	2.3	2.2	2.1	2.6	2.2	24	
19	19	2.1	2.2	2.2	2.3	2.3	2.3	2.2	IZS	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	1.9	1.9	2.3	2.1	24	
20	20	2	2.1	2	2	2	2.1	2.1	IZS	2	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
21	21	2.1	2.1	2.1	2.3	2.1	2.2	IZS	2.3	2.5	2.2	2.2	2.2	2.1	2	2	2	2	2	2	2	2.1	2.2	2.1	2.1	2.5	2.1	24	
22	22	2.3	2.1	2	2.1	2.1	IZS	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	24	
23	23	2.3	2.3	2.4	2.6	IZS	2.7	2.4	2.4	2.4	2.5	2.6	2.7	2.3	2.1	2.1	2.1	1.9	2	2	1.9	1.9	1.9	1.9	1.9	2.7	2.2	24	
24	24	1.9	2	2	IZS	1.9	1.9	1.9	2	2	2	2	1.9	1.9	1.9	2	2.1	2.1	2.4	2.1	2.1	2.2	2.3	2.4	2.4	2.0	24		
25	25	2.4	2.4	IZS	2.4	2.5	2.4	2.4	2.5	2.6	2.6	2.5	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.9	2.9	2.7	2.7	3.3	3.3	2.6	24		
26	26	3.6	IZS	3	2.7	2.2	2.1	2.2	2.1	1.9	1.9	2	2	2	2	2	2	2	2.1	2.1	2	2	2	2	2	3.6	2.2	24	
27	27	IZS	2.1	2.3	2.3	2.2	2.1	2	2.1	2.1	2	2	2.1	2.2	2.4	2.4	2.4	2.5	2.6	2.5	2	2	2	1.9	IZS	2.6	2.2	24	
28	28	2.1	2.1	2	2.1	2.1	2.2	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.2	2.1	2.1	2.1	2.2	2.5	2.5	2.5	2.5	IZS	2.3	2.5	2.3	24	
29	29	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2	2	2.2	2.6	2.6	2.8	2.6	2.5	2.4	2.3	2.2	IZS	2	2	2.8	2.3	24	
30	30	2	2	2.3	2.4	2.4	2.4	2.4	2.5	2.6	2.4	2.2	2.2	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.6	2.2	24
31	31	2	2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2	2	2.1	2.1	2.1	2.1	IZS	2	2	2	2	2.2	2.1	24	
HOURLY MAX		3.7	3.3	3.2	3.1	3.2	3.0	3.0	3.0	2.9	3.0	2.7	2.7	2.5	2.7	2.7	2.8	2.6	2.6	3.0	2.9	2.9	3.4	3.5	4.0				
HOURLY AVG		2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2			

STATUS FLAG IZSODES

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

24 AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706		
MAXIMUM 1-HR AVERAGE:	4.0 PPM	@ HOUR(S)	23 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.6 PPM		25 ON DAY(S)
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	33 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.27	MONTHLY AVERAGE:	2.22 PPM

01 Hour Averages



— LICA — THC — PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST																										DAILY	24-HOUR	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	2.4	2.5	2.4	IZS	3	2.6	2.3	2.5	2.3	2.4	2.5	2.4	2.4	2.7	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2	2	3	2.3	24	
2	2	2	IZS	2	2	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	3.1	3.1	2.2	24	
3	3.1	IZS	3.2	3	3	3.2	2.7	2.5	2.5	2.5	2.3	2.5	2.6	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	2.5	24
4	IZS	2.1	2.1	2.1	2.2	2.1	2.3	2.3	2.4	2.4	2.4	2.2	2.3	2.3	2.6	2.3	2.4	2.3	2.3	2.2	2.2	2.3	IZS	IZS	2.6	2.3	24	
5	2.3	2.3	2.4	2.3	2.2	2.2	2.3	2.2	2.3	2.3	2.4	2.3	2.4	2.3	2.5	2.3	2.4	2.4	2.4	2.4	2.2	IZS	IZS	2.1	2.5	2.3	24	
6	2.2	2.1	2	2	1.9	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.3	2.1	2.1	2	IZS	2	2.1	2.3	2.0	24	
7	2.1	2.1	2.2	2.4	2.3	2.4	2.3	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.1	IZS	2.1	2.1	2.1	2.4	2.2	24	
8	2.1	2.1	2.3	2.4	2.3	2.4	2.6	2.6	C	C	C	C	C	C	2	M	M	2.3	6.8	IZS	2.4	2.4	2.7	3.1	6.8	2.7	22	
9	3.1	2.9	3.1	2.6	2.5	5.6	2.4	2.5	3.1	3	2.8	2.6	2.3	2.2	2.3	2.3	2.4	2.1	IZS	2.4	2.4	2.3	2.3	2.5	5.6	2.7	24	
10	2.7	2.6	2.5	2.7	2.9	2.9	3.2	3.2	3.3	3.3	3.2	2.5	4.5	3.2	2.5	2.6	3.5	IZS	3.3	2.8	2.8	2.6	2.5	2.2	4.5	2.9	24	
11	2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2.1	2.1	2.1	2.1	2.1	2.0	24	
12	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.5	2.5	2.4	2.2	2.3	IZS	2.3	2.9	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9	2.3	24
13	2.1	2.1	2.5	2.3	2.3	2.3	2.3	3.1	3.2	2.5	2.5	2.6	2.5	2.6	IZS	2.7	3	2.9	3	3.1	3	2.8	2.5	2.6	3.2	2.6	24	
14	2.7	3.1	3	2.9	2.3	2	2	2	2	2	2	2	2	IZS	2	2.1	2	2.2	2.1	2.2	2.1	2.2	2.4	2.1	3.1	2.2	24	
15	2.1	2.2	2.3	2.3	2.2	2.6	2.1	2.1	2.3	2.2	2.3	2.6	IZS	2.3	2.3	2.3	2.8	2.7	2.4	2.7	2.9	4.9	4.6	4.5	4.9	2.7	24	
16	4.2	3.6	3.3	3.3	3.5	3.2	3.1	2.9	2.8	2.8	2.7	IZS	2.2	2.2	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	4.2	2.7	24	
17	2.2	2.4	2.4	2.3	2.3	2.8	3	2.7	2.5	2.5	IZS	2.9	2.6	2.8	2.8	3	3	2.4	2.2	2.3	2.3	2.4	2.4	3	2.5	24		
18	2.3	2.5	2.6	2.4	2.4	2.3	2.4	3	2.6	IZS	2.8	2.1	2	2.5	2.1	2.1	2.3	2.4	2.4	2.4	2.5	2.5	2.3	2.3	3	2.4	24	
19	2.3	2.3	2.3	2.4	2.4	2.9	2.5	2.3	IZS	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.2	2	2	2.9	2.2	24
20	2.1	2.2	2.2	2.1	2.1	2.2	2.2	IZS	2.1	2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.3	2.1	2.2	2.2	2.2	2.3	2.1	24	
21	2.6	2.4	2.3	2.5	2.4	2.3	IZS	2.7	3.1	2.4	2.4	2.5	2.3	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	3.1	2.3	24	
22	2.5	2.3	2.1	2.2	2.2	IZS	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.4	2.2	2.3	2.3	2.4	2.6	2.5	2.3	2.6	2.4	2.4	2.6	2.3	24	
23	2.4	2.5	2.6	2.8	IZS	3	2.7	3.2	2.6	2.8	2.8	2.8	2.7	2.3	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3	3.2	2.5	24	
24	2	2	2	IZS	2.1	2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2	2.1	2.2	2.4	2.5	2.5	2.4	2.3	2.4	2.5	2.9	2.9	2.2	24	
25	2.6	2.6	IZS	2.6	2.7	2.7	2.6	2.9	3.1	2.7	3.1	3.3	2.5	2.6	2.8	2.9	2.7	2.9	2.9	3.1	3.2	2.9	3.1	3.6	3.6	2.9	24	
26	3.9	IZS	3.3	3	2.5	2.4	2.3	2.3	2.1	2.3	2.1	2.3	2.2	2	2.3	2.2	2.3	2.5	2.3	2.2	2.1	2.1	2.2	2.4	3.9	2.4	24	
27	IZS	2.3	2.8	2.6	2.4	2.3	2.1	2.2	2.2	2.1	2.1	2.1	2.3	2.5	2.5	2.6	2.7	2.8	2.6	2.3	2	2	1.9	IZS	2.8	2.3	24	
28	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.9	2.5	2.5	2.7	2.6	2.3	2.2	2.2	2.2	2.4	2.6	2.6	2.6	IZS	2.5	2.9	2.4	24	
29	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.6	2.7	2.7	3	2.8	2.7	2.5	2.4	2.2	IZS	2.1	2.1	3	2.4	24	
30	2	2.3	2.6	2.6	2.8	3	2.5	3.7	2.7	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2	2	2	IZS	2.2	2.1	2.1	3.7	2.4	24	
31	2.1	2.1	2.1	2.1	2	2.3	2.1	2.1	2.1	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2.2	2.5	2.1	24
HOURLY MAX	4	4	3	3	4	6	3	4	3	3	3	3	5	3	3	3	4	3	7	3	3	5	5	5				
HOURLY AVG	2.4	2.4	2.5	2.4	2.4	2.6	2.4	2.5	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.3	2.3	2.4	2.3	2.4				

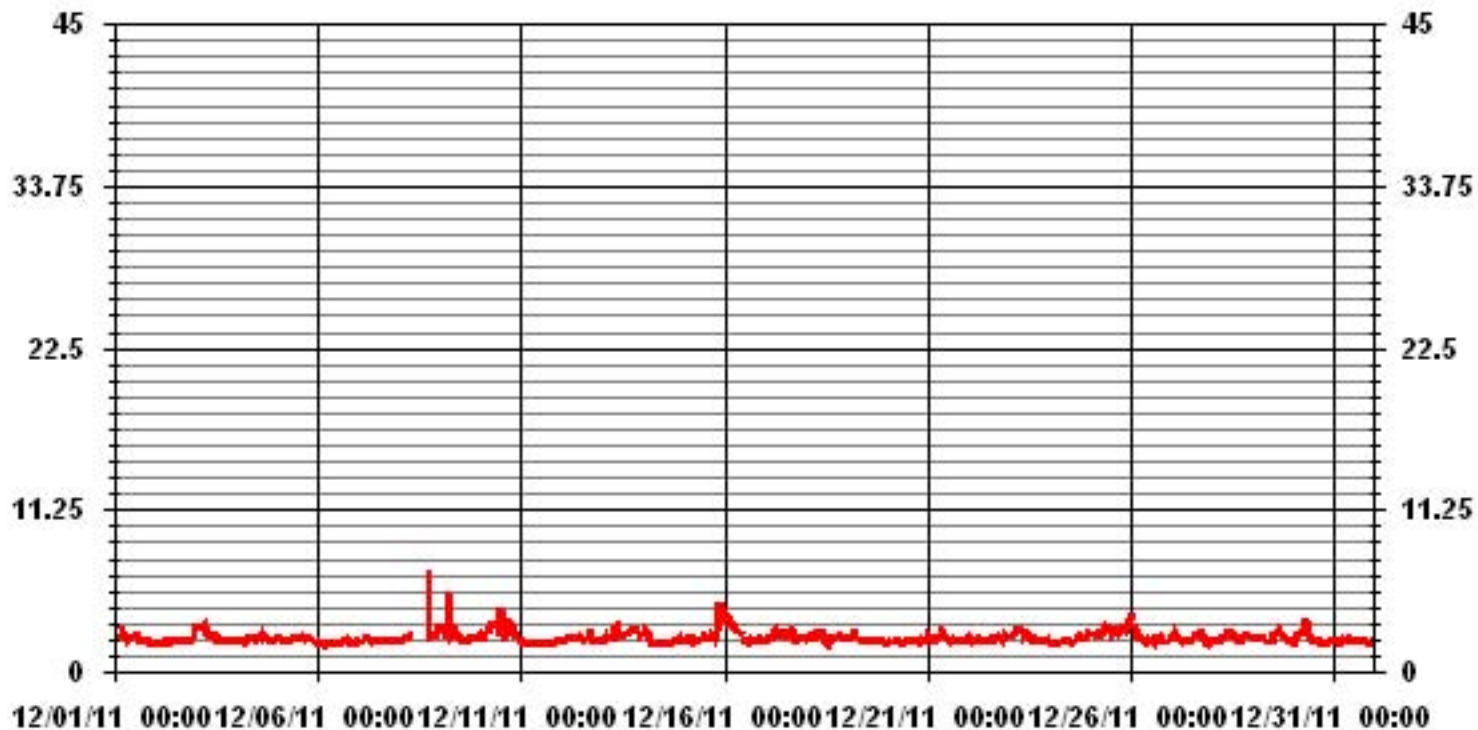
STATUS FLAG CODES

S - OUT OF SERVICE	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:	703					
MAXIMUM INSTANTANEOUS VALUE:	6.8	PPM	@ HOUR(S)	18	ON DAY(S)	8
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.43					

01 Hour Averages



LICA
 THC / WD Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	1.41	.28	.28	1.27	1.98	3.39	8.49	3.96	4.24	6.51	17.84	16.99	11.89	6.79	7.79	4.39	97.59
< 10.0	.00	.00	.00	.00	.14	.42	.56	.28	.28	.00	.14	.56	.00	.00	.00	.00	2.40
< 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	1.41	.28	.28	1.27	2.12	3.82	9.06	4.24	4.53	6.51	17.98	17.56	11.89	6.79	7.79	4.39	

Calm : .00 %

Total # Operational Hours : 706

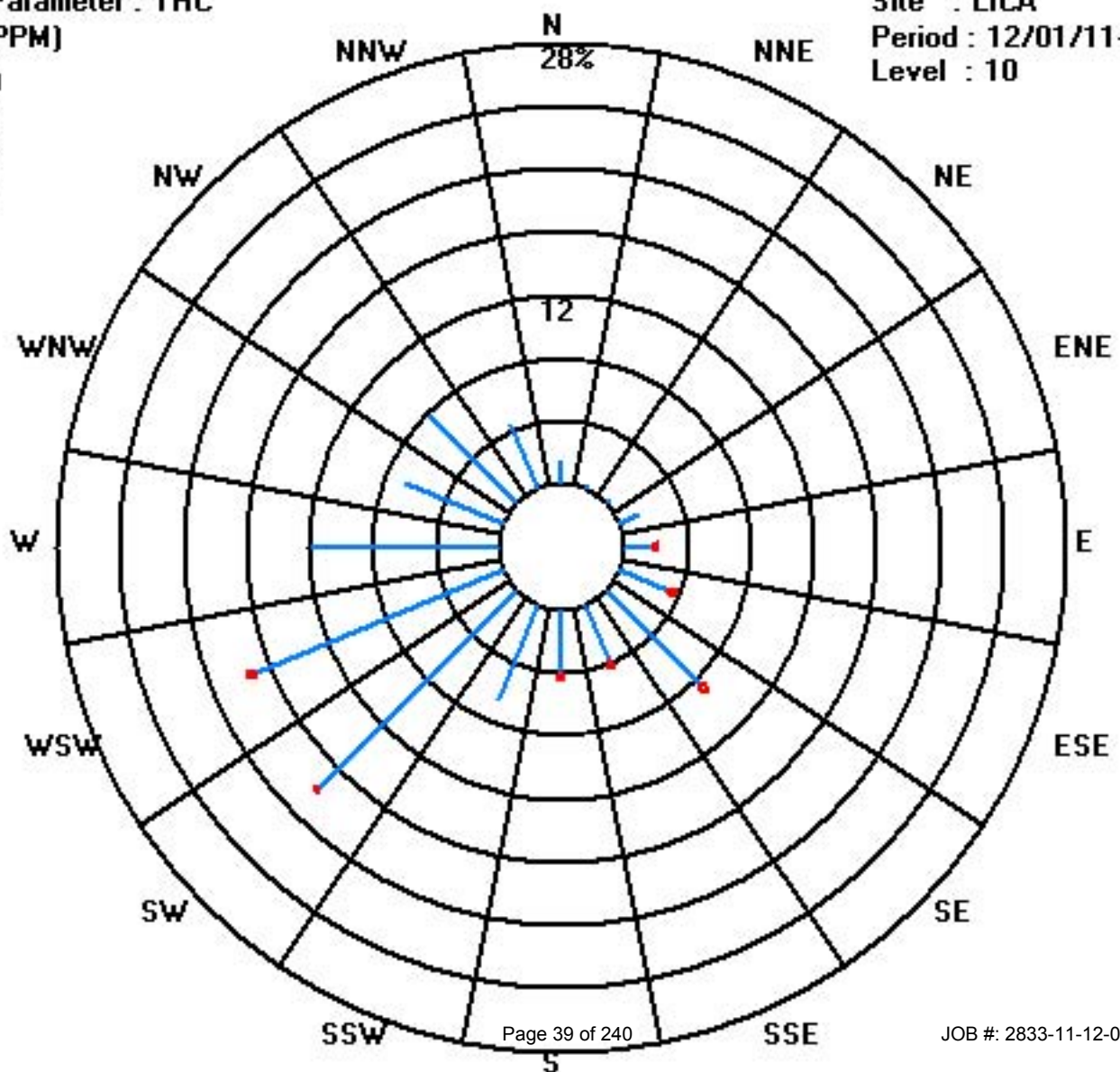
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	10	2	2	9	14	24	60	28	30	46	126	120	84	48	55	31	689
< 10.0					1	3	4	2	2		1	4					17
< 50.0																	
>= 50.0																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	84	48	55	31	

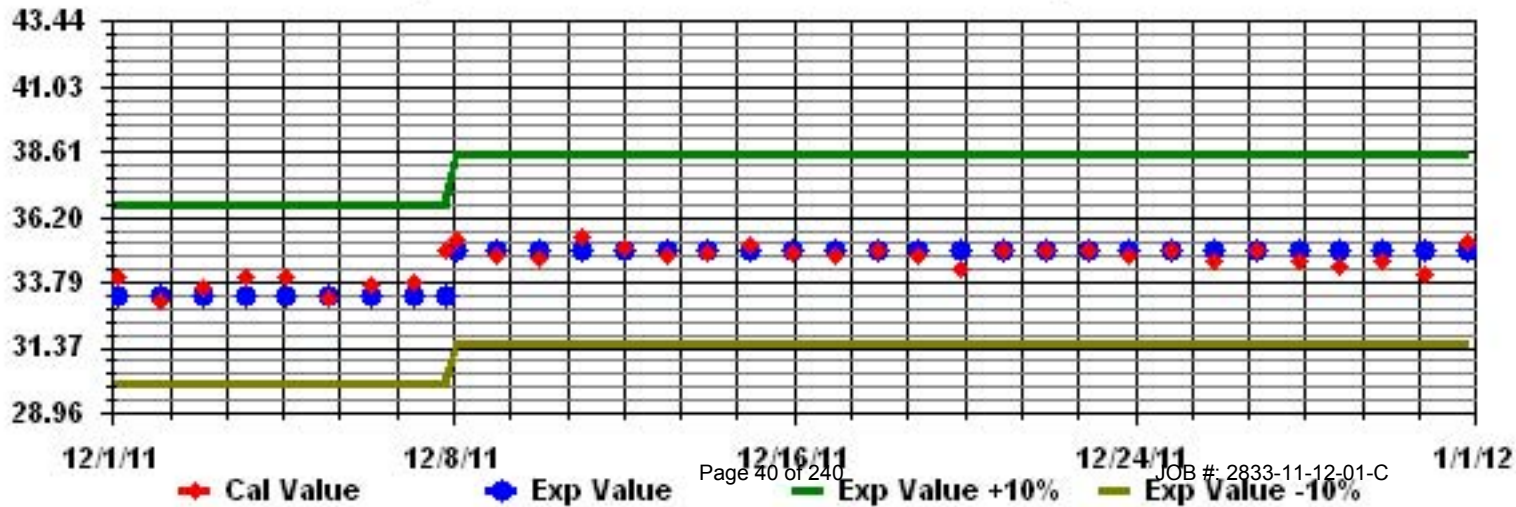
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPM)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

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

MST																									DAILY	24-HOUR		
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	MAX.	AVG.	RDGS.
1	5	4	5	0.5	6.5	10.5	7	6	13.9	7.9	13.5	13	4.4	7.5	7.5	2.5	5	7	1.9	0	7	1	0	0.5	13.9	5.7	24	
2	1	1.4	N	2.9	1.9	0.5	2.5	1.4	4	1	0	4	1	7.5	0	4.4	1	0	3.4	1.4	0	1.9	1.9	4	7.5	2.0	23	
3	3.4	0.4	2.5	2.5	7.5	1	4.4	2.5	0.5	6	12.5	6.5	7.9	8.4	6	2.5	6.5	1	6	4	1	4.4	9	5	12.5	4.6	24	
4	0	0	0	2.9	1.9	4	4	2.5	1.4	6	3.4	2.5	1	1.4	5	5.5	0	1.9	3.4	2.9	7	0.5	1.9	1.9	7.0	2.5	24	
5	4	4.4	5.5	9	1.4	0	4	7.9	6	8.4	9.9	0	19.5	8.4	7.5	7.5	7.9	9	4	7.9	6.9	5	9	19.5	6.5	24		
6	7.9	14.4	13.5	1.4	3.4	3.4	6.5	1.4	0	3.4	0	1.4	3.4	0	3.4	4	1.9	1.4	0	1.9	3.4	1.4	5	0	14.4	3.4	24	
7	1.9	1.4	10.5	4.4	6.5	2.5	0.5	1.9	5.4	6	2.9	4.4	2.5	0	C	C	2.9	2.9	5	1.4	6	4	4	1.9	10.5	3.6	24	
8	0.5	6	N	0	1.9	4	7.9	9.9	10.5	9.9	13.9	7	13	10.9	7.9	11.4	13	7.5	13.5	12	11.5	9	7.5	8.4	13.9	8.6	23	
9	7.9	7.9	5	9	6.9	12	10.5	13.5	16	17.4	17.5	17	19.5	13	12	9	7.9	10.5	10.5	6.5	7.5	4.4	5.5	7.5	19.5	10.6	24	
10	9.9	7.5	8.4	10.5	12.4	10.5	9.9	9.9	9.9	10.9	6	14.5	7.9	10.9	12.4	11.5	10.5	10.5	14.4	8.4	8.4	6	4	14.5	9.8	24		
11	5	10.9	6	4.4	6.9	6.9	6.5	10.5	6.5	0	1	0	0	0	5.5	3.4	1.9	0	6	2.5	N	2.9	0.4	2.9	10.9	3.9	23	
12	9	2.9	1.9	9	3.4	4.4	9.4	6	5	5	5	7.9	0.5	2.9	2.9	7.9	10.9	10.9	13.4	6	2.9	6.9	9.4	10.9	13.4	6.4	24	
13	10.5	6.9	9	4.4	9.9	9	6.5	6.5	9.4	11.5	10.9	13.9	13	7.9	15.5	13.9	12.5	12	16	13.9	14.4	12.5	13.5	13	16.0	11.1	24	
14	14.4	20	14.5	12.5	10.9	7	4.4	3.4	2.5	3.4	5.5	1.9	7	4	5	3.4	1	1.9	3.4	2.9	4	2.9	2.9	5.5	20.0	6.0	24	
15	0.5	3.4	1	6.5	0	2.5	2.9	1.4	5.5	4.4	4.4	4	6	6	1.4	2.5	1	7	1	9.4	9	4	4.4	4.4	9.4	3.9	24	
16	3.4	5	9	9	5.5	9.9	12.4	13	13	11.5	15.5	16	10.9	5	4.4	6	6.5	3.4	2.5	4	5	9.9	11	10.9	16.0	8.4	24	
17	9	6.9	4	5	4	5	7.5	10.9	7.5	9.4	6.9	5.5	6.5	5.5	8.4	8.4	9	7.9	9.4	6	1.9	4	4.4	4.4	10.9	6.6	24	
18	2.9	0.5	4	7.5	1	0.5	1.9	6.5	1.9	7	7	0.5	2.5	0	1	1.9	N	1	13	1.4	2.5	1.4	2.5	1.9	13.0	3.1	23	
19	6	3.4	1	3.4	6.5	14.9	7.9	1.9	8.4	4	0	1.9	1	4.4	0	1.4	2.5	4	6.9	1.4	0	2.5	0.5	1.4	14.9	3.6	24	
20	1.9	0	1.9	5.5	1.4	1	2.5	6.5	1	4	0	2.9	4	1.9	0	0	1.4	4	0.5	4	6	3.4	6	3.4	6.5	2.6	24	
21	1	5.5	7.9	1.9	2.9	1	6.5	2.9	1.4	1.4	6	5.5	4	0.5	2.5	4.4	1.4	5.5	1	2.5	6	2.9	1.4	0	7.9	3.2	24	
22	2.9	4	2.5	10.5	9.4	4	2.5	4.4	6	4.4	1	0.4	2.9	4	6.9	0.5	0	2.5	5	1.4	2.5	2.9	4.4	2.5	10.5	3.6	24	
23	0	1.9	11.5	6.5	5	6.5	8.4	4	0	7.9	0	8.4	6.9	3.4	6.9	4.4	0	1.9	1.9	1.4	0.5	0	N	6.5	11.5	4.1	23	
24	0	5	5.5	0	N	3.4	1	2.5	2.9	1	0.5	1.4	0	0	1.4	5	2.5	1	1.4	2.9	1.9	1.9	6	0	6.0	2.1	23	
25	0	0	4.4	2.5	0.5	1.4	4.4	4	0	5	6.9	2.9	4	2.9	9.4	13	2.9	6	12	11.5	11.5	5.5	0.5	4	13.0	4.8	24	
26	5	0	4	3.4	2.5	1.9	3.4	2.5	2.9	4	1.9	2.5	3.4	4.4	4	5	6	6	6	2.9	4	5	1	1.4	6.0	3.5	24	
27	7.5	9	4	5	1.9	2.9	4.4	2.9	4	6	2.5	3.4	1.5	0	9	4.4	4	3.4	0	2.4	0	2.5	0	2.5	0	9.0	3.4	24
28	0	0.3	0.8	4	0	1.4	0	0	0	3.2	0	6.5	2.5	0.5	6	3.2	3.3	4.1	5	3.3	6	7.1	5.7	8.7	8.7	3.0	24	
29	5.5	5.3	6.3	7.9	7.3	7.3	6.1	8.8	7.1	4.9	8.4	5.4	5.5	7.8	10.3	12.4	11.8	10.6	5.3	4.1	4	0.8	1	3.7	12.4	6.6	24	
30	0.3	0	0	1.1	1.1	5.7	2	0.2	0	3.7	0	0.8	1.7	4.2	5.3	4.2	2.7	2.7	1.7	1.9	0	1.9	4.4	0	5.7	1.9	24	
31	0	2.2	0	4.4	0	3.1	1.7	2.6	1	1	5.8	3.6	0.8	2.5	1.8	4.2	0.3	0	2.8	1.4	0.6	0.4	0.3	1.3	5.8	1.7	24	
HOURLY MAX	14	20	15	13	12	15	12	14	16	17	18	17	20	20	16	14	13	12	16	14	14	13	14	13				
HOURLY AVG	4.1	4.5	5.2	5.1	4.3	4.8	5.1	5.0	5.0	5.7	5.6	5.4	4.9	4.6	5.6	5.6	4.6	4.7	5.7	4.4	4.7	3.9	4.3	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

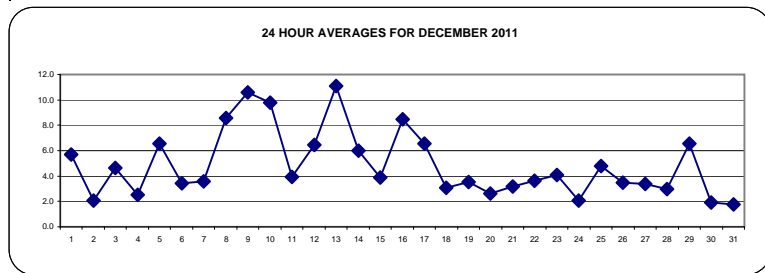
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:

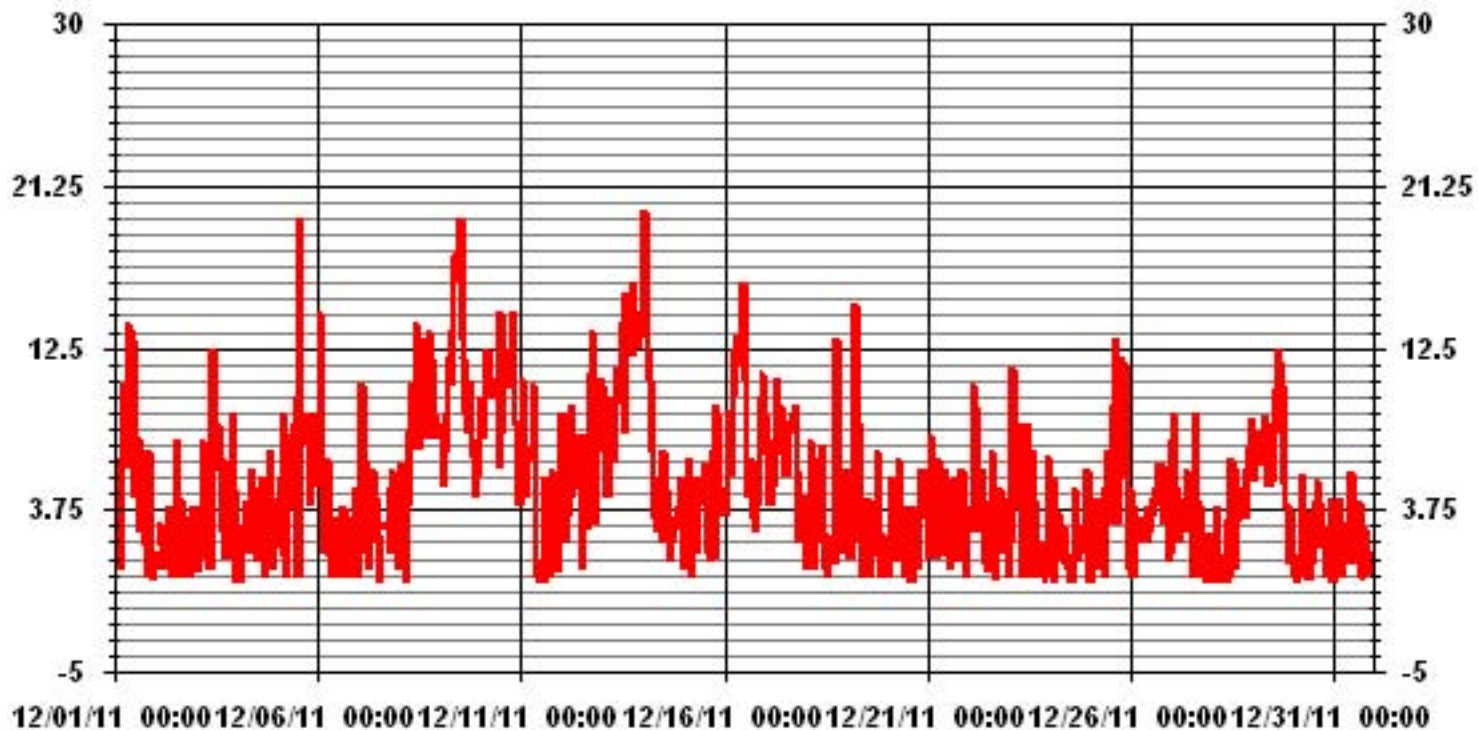
1-HR	-	ug/m ³	24-HR	30	ug/m ³
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE
NUMBER OF NON-ZERO READINGS:	666
MAXIMUM 1-HR AVERAGE:	20.0 UG/M ³ @ HOUR(S) 1 ON DAY(S) 14
MAXIMUM 24-HR AVERAGE:	11.1 UG/M ³ ON DAY(S) 13
IZS CALIBRATION TIME:	0 HRS OPERATIONAL TIME: 738 HRS
MONTHLY CALIBRATION TIME:	2 HRS AMD OPERATION UPTIME: 99.2 %
STANDARD DEVIATION:	3.97 MONTHLY AVERAGE: 4.88 UG/M ³



01 Hour Averages



— LICA PM2 UG/M3

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	1.35	.27	.27	1.22	2.03	3.94	8.96	4.61	4.21	6.65	17.93	17.52	12.09	6.79	7.74	4.34	100.00
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.35	.27	.27	1.22	2.03	3.94	8.96	4.61	4.21	6.65	17.93	17.52	12.09	6.79	7.74	4.34	

Calm : .00 %

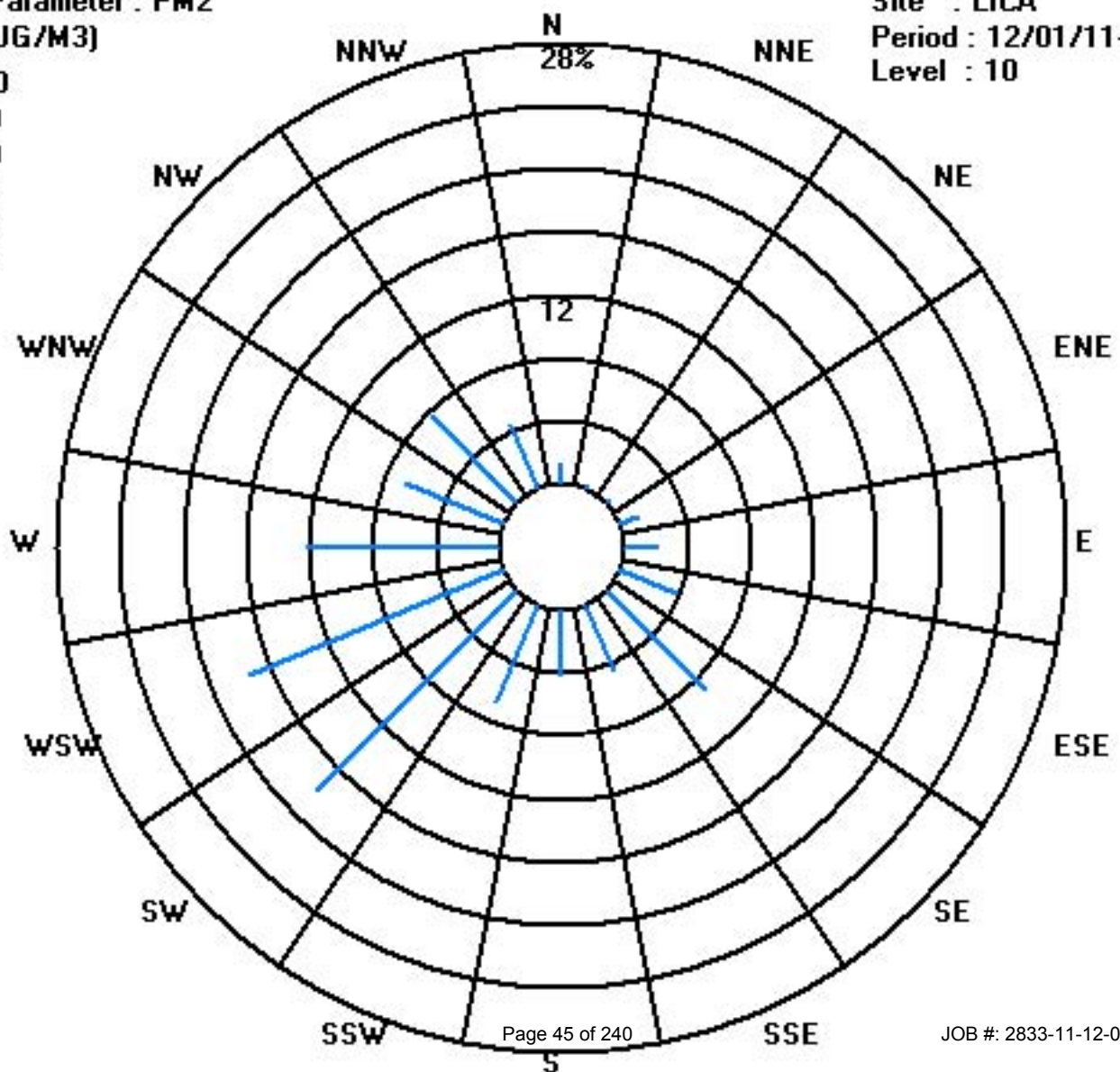
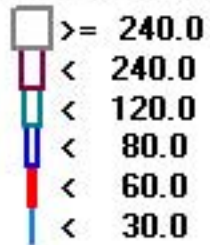
Total # Operational Hours : 736

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	10	2	2	9	15	29	66	34	31	49	132	129	89	50	57	32	736
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	10	2	2	9	15	29	66	34	31	49	132	129	89	50	57	32	

Calm : .00 %

Total # Operational Hours : 736



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.
1	5	4	3	IZS	4	4	4	6	8	10	7	6	6	6	7	7	8	8	7	4	4	3	2	2	10	5.4	24
2	1	1	IZS	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	3	3	5	8	7	6	8	2.3	24
3	8	IZS	10	12	9	5	4	5	5	5	6	6	7	5	3	2	1	2	3	2	2	3	3	3	12	4.8	24
4	IZS	3	2	3	3	2	4	5	5	4	4	3	2	3	2	3	4	3	3	2	2	2	3	IZS	5	3.0	24
5	3	3	4	3	3	3	3	4	4	3	4	5	5	5	6	9	10	13	13	9	8	7	IZS	5	13	5.7	24
6	4	4	3	2	2	3	3	2	1	2	2	2	1	1	2	2	2	3	3	1	1	IZS	1	2	4	2.1	24
7	3	4	4	6	6	3	3	4	2	1	1	1	C	C	C	C	C	C	1	1	IZS	1	1	1	6	2.5	24
8	1	1	2	2	5	6	8	6	9	9	6	3	2	2	2	3	22	21	17	IZS	10	10	13	12	22	7.5	24
9	11	9	8	5	4	4	4	5	7	7	7	6	5	5	8	10	12	9	IZS	9	13	10	9	8	13	7.6	24
10	9	7	8	8	7	11	19	22	20	19	13	8	10	11	11	14	13	IZS	14	12	10	7	5	3	22	11.3	24
11	2	3	1	1	1	1	1	1	1	1	2	1	1	1	1	1	IZS	2	3	3	3	2	2	2	3	1.6	24
12	1	1	2	2	2	2	3	2	2	2	2	2	2	2	3	IZS	3	3	2	2	2	2	2	3	2.1	24	
13	2	2	3	3	4	5	8	13	14	10	6	5	5	5	IZS	9	11	11	10	10	11	12	8	6	14	7.5	24
14	5	6	8	9	5	3	2	3	2	2	2	3	3	IZS	3	3	4	6	4	10	6	4	4	2	10	4.3	24
15	2	3	5	3	2	5	3	3	4	4	3	4	IZS	5	4	8	19	18	13	15	14	11	12	12	19	7.5	24
16	8	6	6	6	6	12	10	12	11	12	10	IZS	5	4	4	5	4	4	6	7	6	5	5	6	12	7.0	24
17	7	9	8	7	8	14	15	9	6	5	IZS	6	5	7	7	8	9	11	10	8	8	8	7	7	15	8.2	24
18	5	7	6	5	4	3	5	6	6	IZS	4	2	1	1	1	1	3	5	5	5	7	6	7	6	7	4.4	24
19	5	3	3	3	3	7	10	4	IZS	4	3	3	4	5	5	6	7	7	8	8	6	5	3	2	10	5.0	24
20	3	5	7	6	5	4	5	IZS	1	1	1	1	2	4	3	3	2	3	2	2	2	3	2	2	7	3.0	24
21	3	4	7	8	3	3	IZS	7	6	5	5	5	3	2	2	3	2	3	3	3	5	5	4	4	8	4.1	24
22	3	3	3	5	4	IZS	5	6	6	5	4	4	3	3	3	3	3	5	5	6	6	5	5	6	4.3	24	
23	5	6	11	13	IZS	15	11	7	6	7	5	6	6	6	5	4	3	3	3	3	3	2	2	2	15	5.8	24
24	2	3	2	IZS	2	2	2	3	2	2	2	1	1	1	1	1	3	3	3	2	3	3	4	4	4	2.3	24
25	5	4	IZS	7	4	3	4	5	4	9	6	5	5	11	11	12	14	15	16	17	13	11	11	16	17	9.0	24
26	15	IZS	10	12	5	4	4	3	1	1	2	2	2	3	3	5	8	11	14	3	2	2	2	3	15	5.1	24
27	IZS	2	2	2	2	2	2	1	2	2	2	2	2	3	4	5	7	8	8	3	2	2	1	IZS	8	3.0	24
28	2	3	2	3	2	7	6	11	19	21	13	6	5	7	8	5	5	4	4	3	3	3	IZS	2	21	6.3	24
29	4	3	2	2	3	3	3	3	2	2	2	1	2	4	5	6	8	8	8	8	7	IZS	6	4	8	4.2	24
30	4	4	3	4	12	10	8	19	21	21	12	7	7	5	5	6	4	2	3	IZS	5	3	4	21	7.6	24	
31	4	4	3	4	2	2	2	2	3	4	3	2	1	1	1	1	1	1	1	IZS	1	1	1	1	4	2.0	24
HOURLY MAX	15	9	11	13	12	15	19	22	21	21	13	8	10	11	11	14	22	21	17	17	14	12	13	16			
HOURLY AVG	4.6	4.0	4.8	5.1	4.1	5.0	5.4	6.0	6.1	6.0	4.7	3.6	3.6	4.1	4.2	5.0	6.7	6.7	6.5	5.6	5.7	5.1	4.7	4.6			

STATUS FLAG CODES

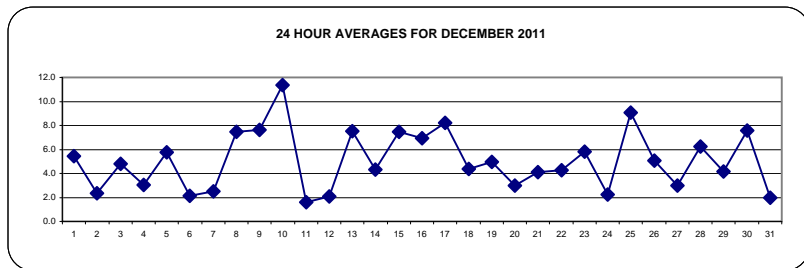
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

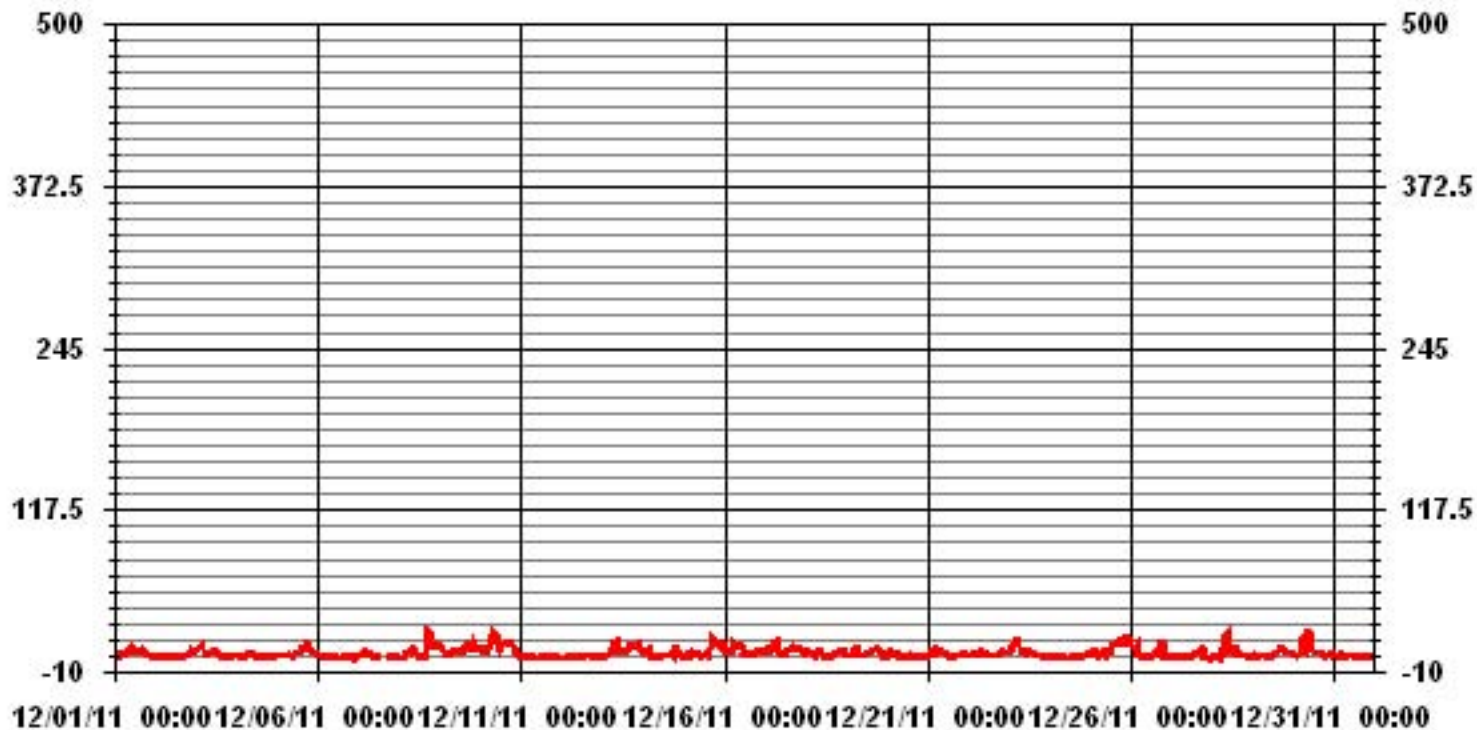
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM 1-HR AVERAGE:	22	PPB	@ HOUR(S)	16, 7	ON DAY(S)	8, 10
MAXIMUM 24-HR AVERAGE:	11.3	PPB			ON DAY(S)	10
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.90		MONTHLY AVERAGE:	5.08	PPB	



01 Hour Averages



— LICA NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	7	9	5	IZS	5	4	7	8	10	13	10	8	7	13	10	10	11	9	8	5	5	4	3	4	13	7.6	24	
2	2	2	IZS	2	2	2	3	3	4	2	2	2	2	1	1	2	2	2	5	3	12	16	15	16	16	4.5	24	
3	12	IZS	13	18	18	7	6	8	7	6	8	7	8	7	4	4	3	3	3	3	3	3	5	4	18	7.0	24	
4	IZS	3	3	5	5	3	7	6	5	6	23	4	4	11	5	6	5	7	3	3	3	3	4	IZS	23	5.6	24	
5	4	4	5	3	3	4	5	8	6	4	4	8	6	6	9	15	12	23	19	11	9	8	IZS	6	23	7.9	24	
6	5	5	5	4	3	4	4	3	2	6	4	3	2	2	2	3	4	6	5	2	2	IZS	1	2	6	3.4	24	
7	4	8	7	8	10	6	5	7	6	3	2	1	C	C	C	C	C	C	1	IZS	1	1	2	10	4.5	24		
8	2	2	3	4	7	8	10	8	11	11	8	4	3	4	9	M	M	38	27	IZS	14	14	19	15	38	10.5	22	
9	13	11	13	5	5	11	8	7	14	8	7	9	6	7	49	54	26	11	IZS	17	19	14	16	11	54	14.8	24	
10	16	11	10	10	9	22	26	26	29	27	26	10	12	15	14	20	16	IZS	18	14	14	8	7	5	29	15.9	24	
11	4	4	2	2	2	1	1	2	2	2	8	2	2	8	2	1	IZS	4	5	5	4	3	3	2	8	3.1	24	
12	2	2	3	3	3	11	8	4	5	3	3	4	2	4	10	IZS	6	9	5	3	3	2	2	3	11	4.3	24	
13	3	3	3	4	4	15	15	43	19	16	8	6	6	7	IZS	18	13	13	11	11	13	17	11	9	43	11.7	24	
14	7	8	10	11	9	3	3	3	3	3	3	3	3	IZS	3	4	4	11	7	18	8	5	4	3	18	5.9	24	
15	4	5	6	4	3	47	17	5	20	12	5	9	IZS	11	7	16	33	37	18	21	17	13	14	15	47	14.7	24	
16	11	7	8	8	7	116	32	13	14	23	15	IZS	6	5	8	13	6	5	7	8	7	6	8	6	116	14.7	24	
17	9	12	13	9	12	26	19	15	8	6	IZS	13	8	12	8	9	10	13	12	10	10	9	9	11	26	11.4	24	
18	7	10	8	8	7	5	8	8	13	IZS	8	3	2	3	2	2	5	7	6	8	10	9	10	10	13	6.9	24	
19	7	5	4	5	6	40	58	5	IZS	4	4	4	4	7	6	12	7	8	9	9	8	8	4	3	58	9.9	24	
20	5	7	8	8	6	7	16	IZS	3	1	2	2	3	6	4	4	3	7	3	3	3	3	3	3	16	4.8	24	
21	4	5	9	11	4	5	IZS	10	9	6	6	6	5	2	3	5	5	4	4	4	7	7	6	6	11	5.8	24	
22	5	6	4	6	6	IZS	6	7	8	7	6	4	3	4	4	5	5	5	7	8	11	10	11	10	11	6.4	24	
23	10	14	14	18	IZS	19	18	17	13	13	10	7	10	19	24	8	5	4	3	4	4	3	3	2	24	10.5	24	
24	3	3	4	IZS	4	2	4	4	3	3	3	2	1	1	2	3	5	5	4	3	5	5	6	9	9	3.7	24	
25	15	5	IZS	17	7	5	7	13	6	76	17	11	7	20	19	19	32	20	31	25	15	14	15	18	76	18.0	24	
26	18	IZS	13	15	6	6	6	6	1	2	3	3	3	3	4	8	14	25	22	5	3	3	4	3	25	7.7	24	
27	IZS	3	3	3	2	2	3	2	2	3	4	2	3	4	5	7	27	12	10	6	3	3	2	IZS	27	5.0	24	
28	4	4	4	5	3	13	13	17	26	25	20	10	6	10	11	14	11	6	11	4	3	4	IZS	3	26	9.9	24	
29	6	5	3	4	5	5	4	4	4	3	4	2	5	5	6	8	9	9	10	10	11	IZS	8	7	11	6.0	24	
30	5	6	5	18	25	25	12	34	27	27	22	11	12	7	7	7	15	8	5	5	IZS	8	5	6	34	13.1	24	
31	6	6	4	4	3	3	3	3	4	6	6	2	2	2	1	2	1	1	1	1	IZS	2	2	2	2	6	3.0	24
HOURLY MAX	18	14	14	18	25	116	58	43	29	76	26	13	12	20	49	54	33	38	31	25	19	17	19	18				
HOURLY AVG	6.9	6.0	6.6	7.7	6.4	14.2	11.1	10.0	9.5	10.9	8.4	5.4	4.9	7.1	8.2	10.0	10.5	10.8	9.6	7.9	7.9	7.1	6.9	6.8				

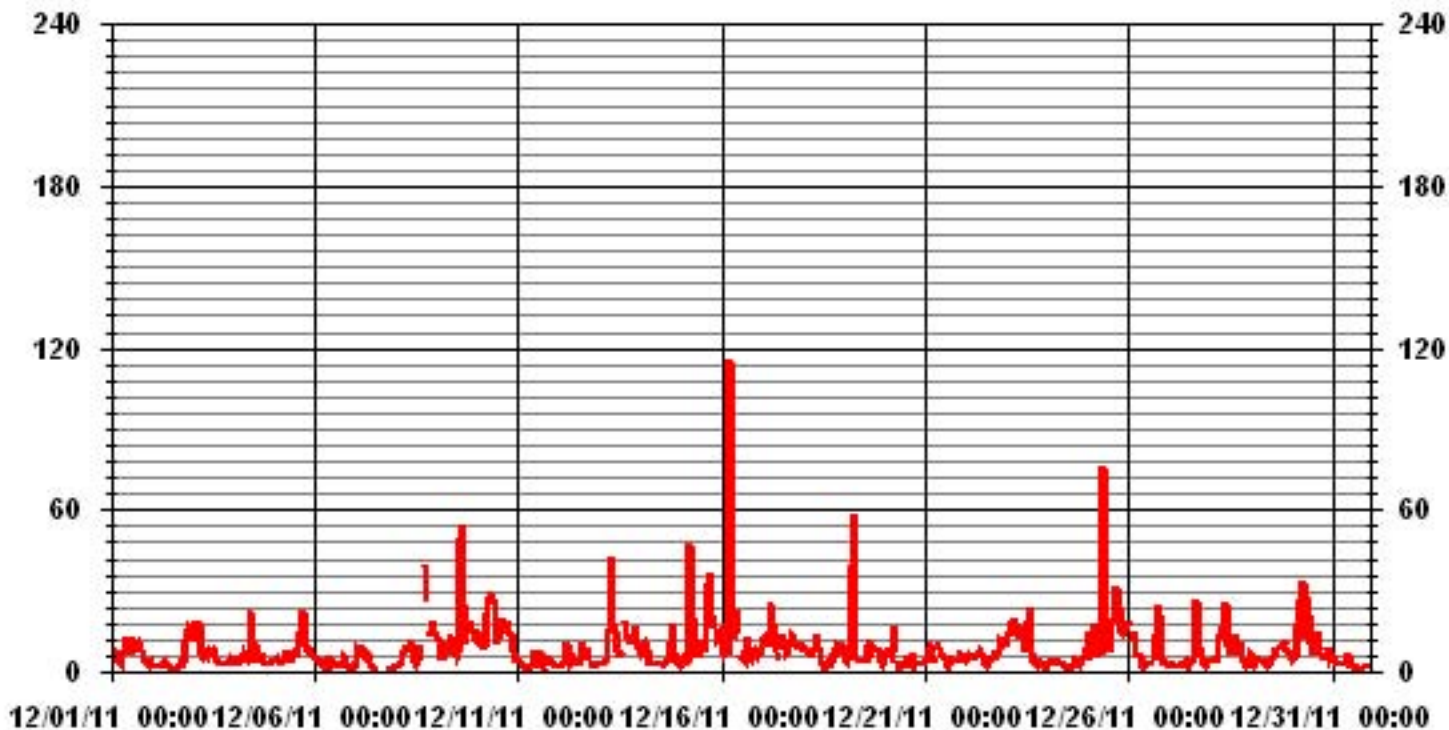
STATUS FLAG CODES

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:	702					
MAXIMUM INSTANTANEOUS VALUE:	116	PPB	@ HOUR(S)	5	ON DAY(S)	16
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	8.65					

01 Hour Averages



LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

December 2011

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	1.41	.28	.28	1.27	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.41	.28	.28	1.27	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	10	2	2	9	15	27	64	30	32	46	127	124	88	45	53	31	705
< 110																	
< 210																	
>= 210																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	88	45	53	31	

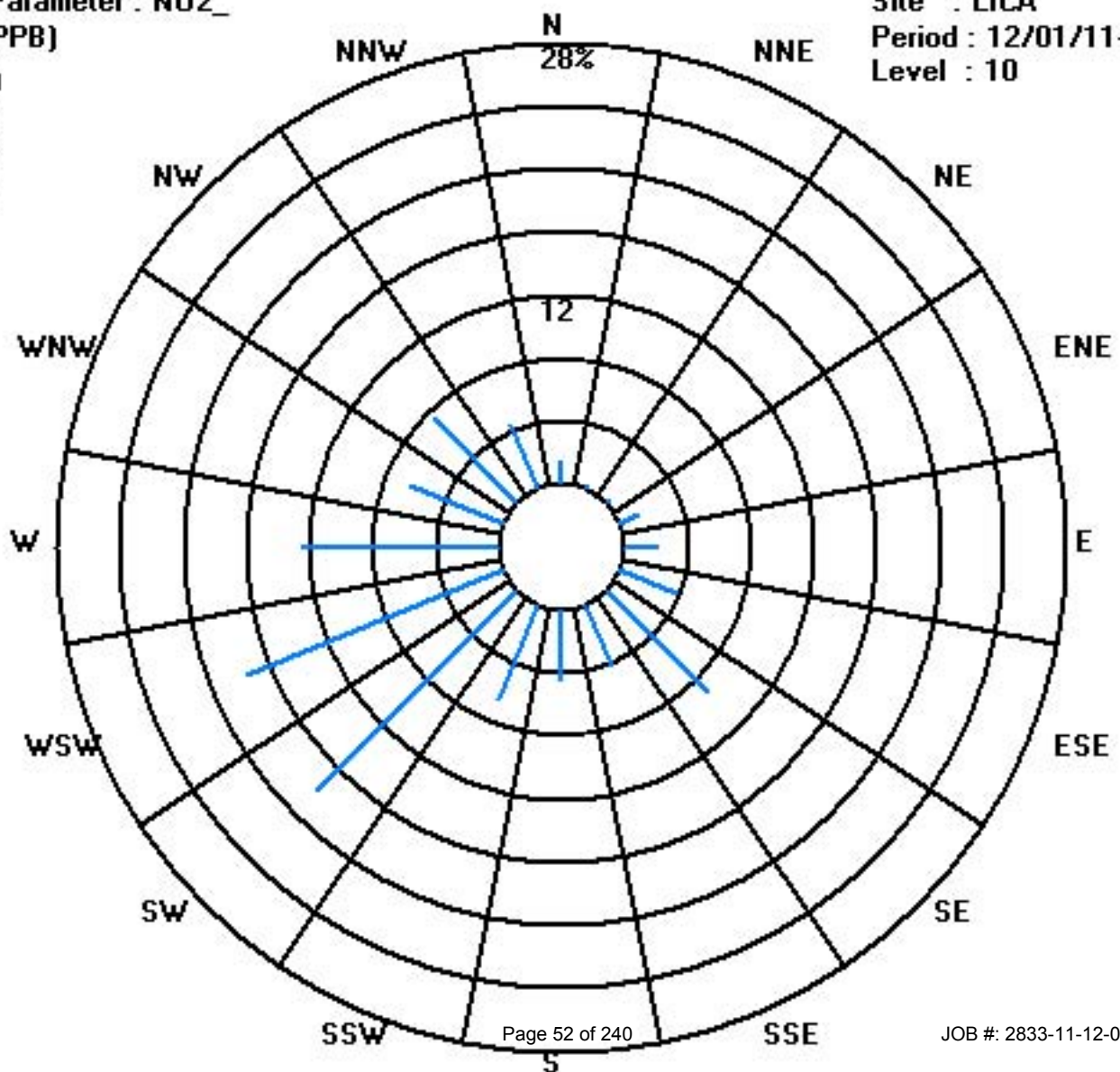
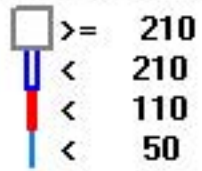
Calm : .00 %

Total # Operational Hours : 705

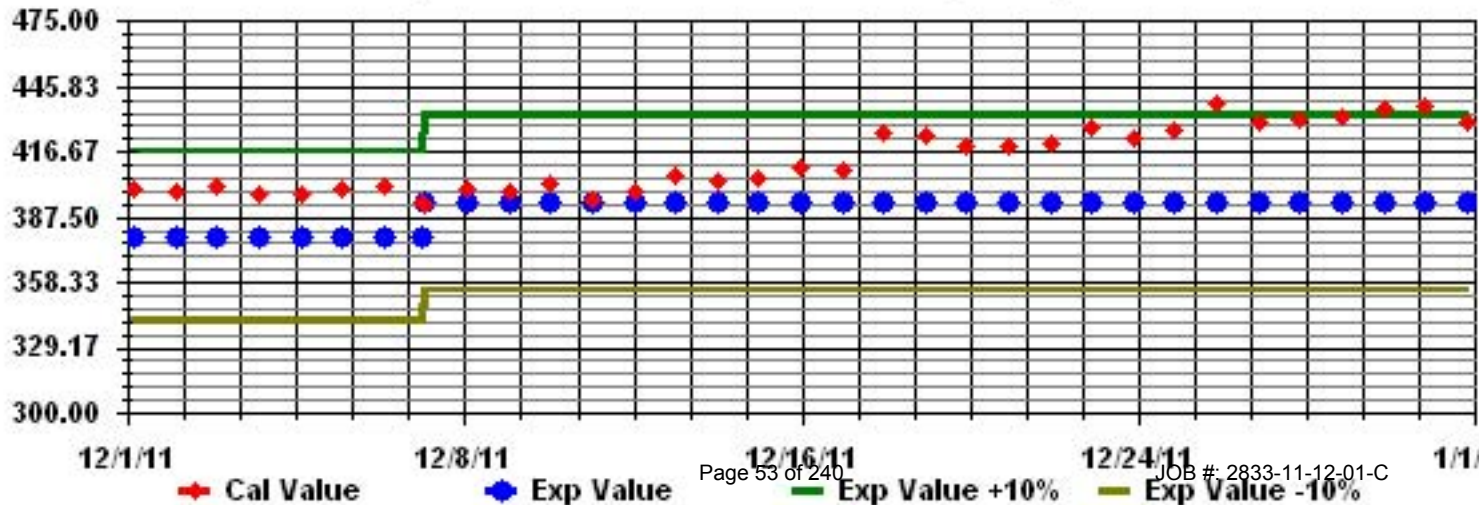
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Calibration Graph for Site: LICA Parameter: H02_ Sequence: H02 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	0	0	0	IZS	0	0	0	0	1	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	2	0.4	24	
2	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.1	24	
3	1	IZS	1	1	0	0	0	0	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
4	IZS	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	IZS	1	0.2	24
5	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	0	IZS	0	2	0.4	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24	
7	0	0	0	1	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	IZS	0	0	0	1	0.1	24	
8	0	0	0	0	1	0	1	1	1	2	2	1	1	1	0	0	6	10	2	IZS	0	1	2	1	10	1.4	24	
9	0	0	1	0	0	1	0	0	3	1	2	2	2	2	6	5	1	0	IZS	1	0	0	0	0	6	1.2	24	
10	2	0	0	0	0	2	11	18	26	30	14	2	3	3	2	2	0	IZS	0	0	0	0	0	0	30	5.0	24	
11	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	
12	0	0	0	0	0	1	1	0	0	0	1	0	1	1	1	IZS	0	0	0	0	0	0	0	0	1	0.2	24	
13	0	0	0	0	0	0	0	3	5	7	3	3	3	2	IZS	1	1	0	0	0	1	1	0	0	7	1.3	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	2	0	0	0	2	0.1	24	
15	0	0	0	0	0	3	0	0	2	1	1	2	IZS	2	1	2	10	6	2	5	4	2	3	3	10	2.1	24	
16	1	0	0	0	0	10	3	1	1	5	5	IZS	1	1	1	1	0	0	0	0	0	0	0	0	10	1.3	24	
17	0	0	0	0	0	5	6	1	0	1	IZS	2	1	1	1	1	0	0	0	0	0	0	0	0	6	0.8	24	
18	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
19	0	0	0	0	0	3	6	0	IZS	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	6	0.5	24	
20	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
21	0	0	0	0	0	0	IZS	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0.2	24	
22	0	0	0	0	0	IZS	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
23	0	1	1	3	IZS	2	1	1	2	1	1	2	2	2	1	0	0	0	0	0	0	0	0	0	3	0.9	24	
24	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	
25	0	0	IZS	0	0	0	0	0	0	17	2	3	1	5	5	9	6	4	7	19	13	6	2	3	19	4.4	24	
26	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2	0.2	24	
27	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	IZS	1	0.1	24
28	0	0	0	0	0	0	0	1	4	9	3	1	1	2	2	1	0	0	0	0	0	0	0	IZS	0	9	1.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	IZS	0	1	0.1	24	
30	0	0	0	0	2	1	0	17	32	21	4	2	2	1	1	1	0	0	0	0	0	0	0	32	3.7	24		
31	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	
HOURLY MAX	2	1	1	3	2	10	11	18	32	30	14	3	3	5	6	9	10	10	7	19	13	6	3	3				
HOURLY AVG	0.2	0.0	0.1	0.2	0.1	0.9	1.0	1.4	2.6	3.3	1.5	0.9	0.8	1.0	0.9	0.9	0.9	0.8	0.4	0.9	0.6	0.4	0.3	0.3				

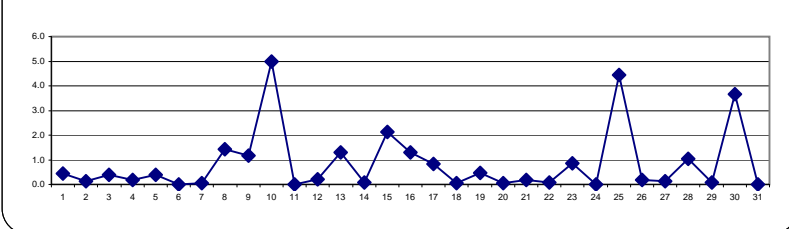
STATUS FLAG CODES

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

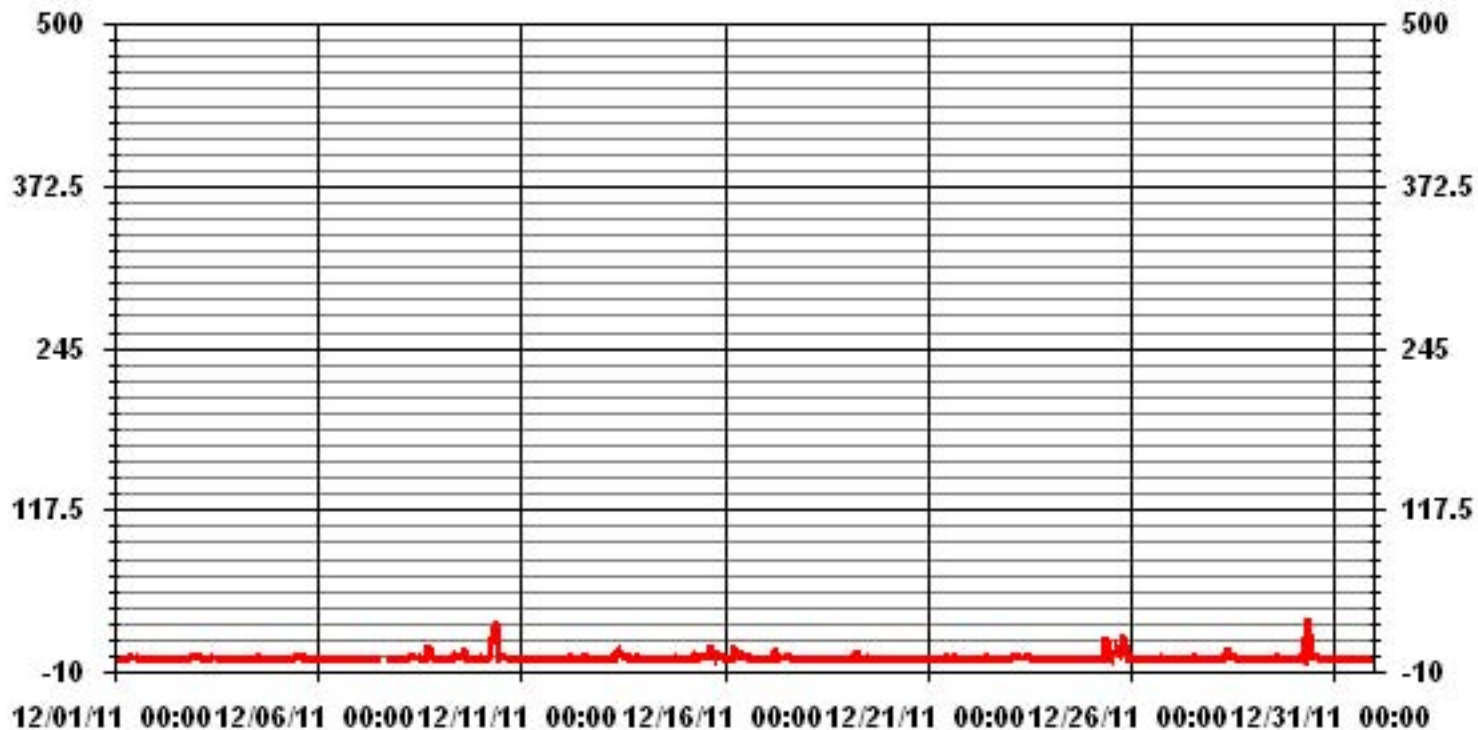
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	191
MAXIMUM 1-HR AVERAGE:	32 PPB @ HOUR(S) 8 ON DAY(S) 30
MAXIMUM 24-HR AVERAGE:	5.0 PPB ON DAY(S) 10
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	744 HRS
AMT OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	2.86
MONTHLY AVERAGE:	0.86 PPB

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	1	3	0	IZS	1	2	2	2	3	4	4	3	2	9	4	2	1	1	0	1	1	1	1	1	1	9	2.1	24
2	1	1	IZS	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	12	4	9	12	1.3	24	
3	8	IZS	3	3	4	1	1	2	1	1	3	2	3	2	1	0	1	0	1	1	1	0	1	0	8	1.7	24	
4	IZS	0	0	0	0	0	0	0	1	1	12	1	2	5	2	1	0	14	0	0	0	0	1	IZS	14	1.8	24	
5	1	0	1	0	0	0	1	1	1	1	1	2	1	3	6	7	1	27	7	1	1	1	IZS	1	27	2.8	24	
6	1	1	0	1	1	1	1	0	0	5	1	1	1	0	1	0	0	1	1	1	0	IZS	0	0	5	0.8	24	
7	0	3	3	2	2	1	1	1	1	0	1	0	C	C	C	C	C	C	C	C	0	IZS	0	0	0	3	0.9	24
8	0	1	1	1	2	1	2	2	3	3	3	2	1	1	11	M	M	122	12	IZS	6	7	18	4	122	9.7	22	
9	1	1	4	1	1	16	3	5	46	1	2	4	3	2	41	55	10	1	IZS	5	1	4	3	1	55	9.2	24	
10	16	4	1	3	3	29	23	28	48	52	43	4	6	11	3	10	2	IZS	1	2	1	2	1	1	52	12.8	24	
11	1	0	1	1	1	1	0	0	0	5	1	0	6	1	0	IZS	1	1	0	0	1	1	0	1	0	6	1.0	24
12	1	1	1	1	1	14	7	0	3	0	0	2	1	3	5	IZS	5	3	1	1	1	0	0	0	14	2.2	24	
13	0	0	1	0	0	1	3	14	18	15	6	4	6	4	IZS	6	4	1	0	2	2	5	1	3	18	4.2	24	
14	1	0	1	1	1	1	0	0	1	1	1	0	1	IZS	0	0	0	1	3	37	2	0	1	0	37	2.3	24	
15	0	1	1	0	1	28	1	0	28	6	6	7	IZS	6	4	28	49	42	8	12	14	4	5	7	49	11.2	24	
16	4	1	2	1	1	131	31	2	10	20	15	IZS	3	6	7	11	1	1	1	1	1	1	1	1	131	11.0	24	
17	3	1	6	2	1	24	24	3	2	1	IZS	6	4	5	1	3	3	3	3	1	1	2	5	1	24	4.6	24	
18	1	2	3	3	2	2	2	3	3	IZS	5	1	1	0	1	1	1	0	0	1	2	1	1	1	5	1.6	24	
19	2	0	1	2	1	38	67	2	IZS	1	1	2	2	5	1	1	1	2	0	0	1	2	1	1	67	5.8	24	
20	1	1	1	2	1	2	2	IZS	0	0	0	0	1	1	0	0	1	1	0	1	1	0	1	0	2	0.7	24	
21	0	0	2	3	1	1	IZS	3	1	1	1	2	3	1	1	2	7	1	1	1	2	0	1	1	7	1.6	24	
22	1	2	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	1.2	24	
23	1	4	2	11	IZS	8	4	9	25	3	5	3	6	17	18	1	4	1	1	1	1	1	1	1	25	5.6	24	
24	1	1	1	IZS	1	1	1	1	1	1	1	1	0	0	0	0	1	2	1	1	1	2	1	2	2	1.0	24	
25	6	1	IZS	6	1	2	1	3	1	209	5	16	3	12	11	74	25	12	40	53	34	13	8	6	209	23.6	24	
26	3	IZS	3	1	1	1	1	1	0	1	1	1	1	1	1	1	0	11	3	1	1	1	6	1	11	1.8	24	
27	IZS	1	1	1	1	1	1	1	0	5	1	4	1	1	2	4	23	3	1	1	1	1	1	IZS	23	2.5	24	
28	1	1	1	2	2	2	1	4	19	20	6	3	2	4	14	18	3	4	0	0	1	IZS	1	20	4.9	24		
29	1	1	1	1	1	1	3	3	3	1	1	0	8	1	1	3	2	1	2	1	1	IZS	2	2	8	1.8	24	
30	3	2	3	7	16	14	3	44	55	27	28	3	12	3	3	4	6	1	0	2	IZS	2	1	2	55	10.5	24	
31	1	1	1	1	1	1	1	1	1	1	2	1	1	0	0	0	0	0	0	0	IZS	0	0	1	1	2	0.7	24
HOURLY MAX	16	4	6	11	16	131	67	44	55	209	43	16	12	17	41	74	49	122	40	53	34	13	18	9				
HOURLY AVG	2.1	1.2	1.6	2.0	1.7	10.9	6.3	4.6	9.2	12.7	5.4	2.6	2.6	3.8	4.9	8.3	5.4	8.9	3.2	4.4	2.7	2.2	2.4	1.8				

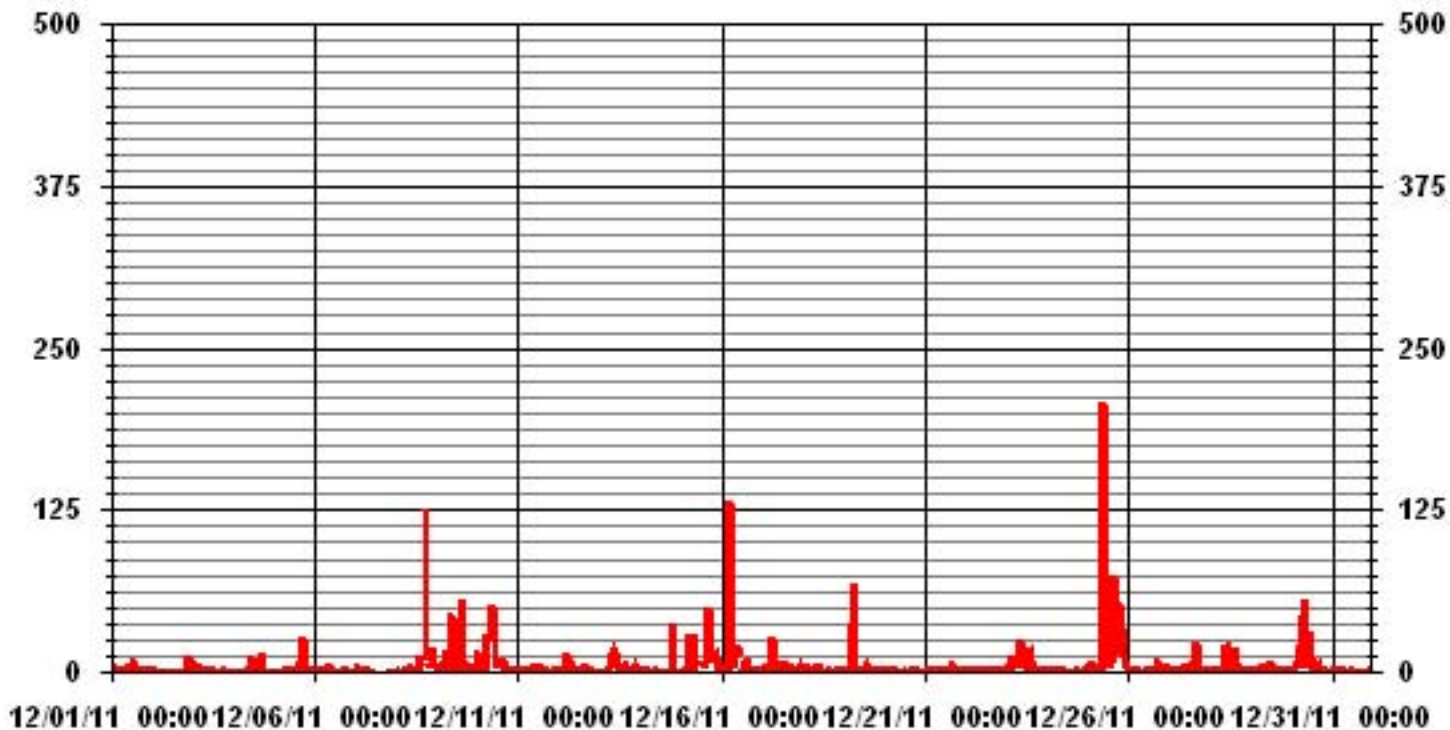
STATUS FLAG CODES

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:	578					
MAXIMUM INSTANTANEOUS VALUE:	209	PPB	@ HOUR(S)	9	ON DAY(S)	25
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	13.27					

01 Hour Averages



— LICA — NOMAX — PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)

December 2011

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	1.41	.28	.28	1.27	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.41	.28	.28	1.27	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	

Calm : .00 %

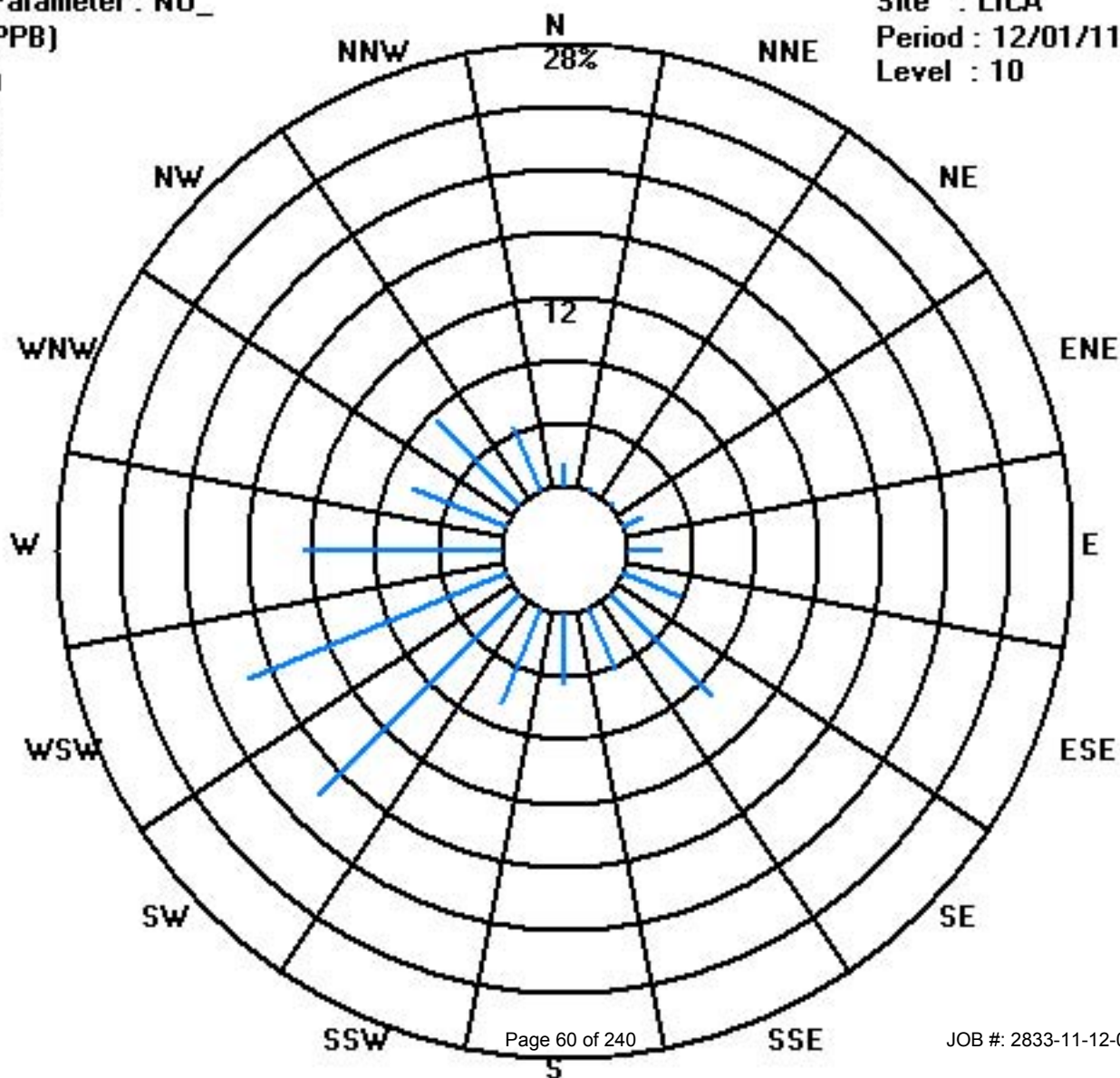
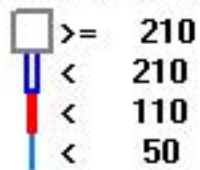
Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	10	2	2	9	15	27	64	30	32	46	127	124	88	45	53	31	705
< 110																	
< 210																	
>= 210																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	88	45	53	31	

Calm : .00 %

Total # Operational Hours : 705



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

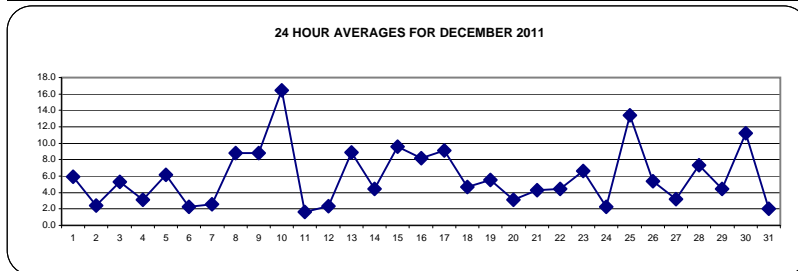
OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY 1	5	5	3	IZS	4	4	4	7	9	12	9	8	7	7	8	7	8	8	7	4	4	3	2	1	12	5.9	24	
2	1	1	IZS	1	1	2	2	2	2	1	1	1	1	1	1	1	2	3	2	5	9	7	7	9	2.4	24		
3	9	IZS	11	13	9	5	4	5	5	6	7	7	9	7	4	2	1	2	3	2	2	3	3	3	13	5.3	24	
4	IZS	2	2	3	3	2	4	5	5	4	5	3	3	3	3	4	3	2	2	2	2	3	3	IZS	5	3.1	24	
5	3	3	4	3	3	3	3	4	5	4	4	5	6	6	7	10	10	15	14	10	8	7	IZS	5	15	6.2	24	
6	4	4	3	3	2	3	3	2	1	2	2	2	1	2	2	2	2	3	4	1	1	IZS	1	2	4	2.3	24	
7	3	4	4	6	6	3	3	4	2	2	1	1	C	C	C	C	C	C	1	1	IZS	1	1	1	6	2.6	24	
8	1	1	2	3	5	6	8	7	10	10	7	4	3	3	2	3	28	31	19	IZS	11	11	15	13	31	8.8	24	
9	12	9	8	5	4	5	4	5	10	8	8	8	7	7	14	14	13	9	IZS	10	14	11	9	8	14	8.8	24	
10	11	7	8	8	7	13	30	40	46	49	28	10	13	14	13	15	14	IZS	15	12	10	7	5	3	49	16.4	24	
11	2	3	1	1	1	1	1	1	1	1	2	1	1	1	1	1	IZS	2	3	3	3	2	2	2	3	1.6	24	
12	1	1	2	2	2	3	4	3	2	2	2	2	2	3	4	IZS	4	3	2	2	2	2	2	2	4	2.3	24	
13	2	2	3	3	4	5	8	16	19	17	9	8	8	7	IZS	10	12	12	10	10	12	13	8	6	19	8.9	24	
14	6	6	9	10	5	2	2	2	2	3	2	3	3	IZS	3	3	4	6	4	11	6	4	4	2	11	4.4	24	
15	2	3	5	3	2	7	3	3	6	4	4	7	IZS	7	5	10	29	24	15	20	18	13	15	15	29	9.6	24	
16	9	6	6	6	6	22	13	12	12	16	15	IZS	6	5	5	6	4	4	6	7	6	5	5	6	22	8.2	24	
17	7	9	8	7	8	19	21	10	6	6	IZS	7	6	8	8	9	10	11	10	8	8	8	8	7	21	9.1	24	
18	5	8	7	5	5	4	5	6	7	IZS	5	2	2	1	1	1	3	5	5	5	7	6	7	6	8	4.7	24	
19	5	3	3	3	3	10	16	4	IZS	4	4	4	4	6	5	6	7	7	8	8	6	5	3	3	16	5.5	24	
20	3	6	7	6	5	4	5	IZS	1	1	1	2	2	4	3	3	2	3	2	2	2	3	2	2	7	3.1	24	
21	3	4	7	8	3	3	IZS	8	7	5	5	5	3	2	2	3	3	3	3	3	3	5	4	4	8	4.3	24	
22	3	3	3	5	5	IZS	5	6	6	5	5	4	3	3	4	4	3	3	5	6	6	6	5	5	6	4.5	24	
23	5	6	12	16	IZS	17	12	7	8	8	6	7	9	8	6	4	3	3	3	3	3	2	2	2	17	6.6	24	
24	2	3	2	IZS	2	2	2	3	2	2	2	1	1	1	1	1	3	3	3	2	3	3	4	4	4	2.3	24	
25	6	4	IZS	7	4	3	4	5	4	25	8	8	6	15	15	21	20	19	23	36	26	17	13	19	36	13.4	24	
26	16	IZS	11	12	5	4	4	3	1	1	2	2	3	3	3	5	8	13	15	4	2	2	2	3	16	5.4	24	
27	IZS	2	2	2	2	2	2	1	2	2	3	2	3	3	5	5	8	8	8	3	2	2	1	IZS	8	3.2	24	
28	2	3	2	3	2	7	6	12	23	30	16	7	6	9	9	6	6	4	4	3	3	3	3	IZS	2	30	7.3	24
29	4	3	2	3	3	3	3	2	2	2	1	3	4	6	6	8	9	9	9	9	7	IZS	6	4	9	4.4	24	
30	4	4	3	4	13	12	9	36	53	42	16	8	9	6	5	6	6	4	2	3	IZS	6	3	4	53	11.2	24	
31	4	4	3	4	2	2	2	2	3	4	3	2	2	1	1	1	1	1	1	IZS	1	1	1	1	4	2.0	24	
HOURLY MAX	16	9	12	16	13	22	30	40	53	49	28	10	13	15	15	21	29	31	23	36	26	17	15	19				
HOURLY AVG	4.8	4.1	4.9	5.3	4.2	5.9	6.4	7.5	8.7	9.3	6.1	4.4	4.6	5.1	5.0	5.8	7.8	7.6	7.0	6.6	6.4	5.6	4.9	4.9				

STATUS FLAG CODES

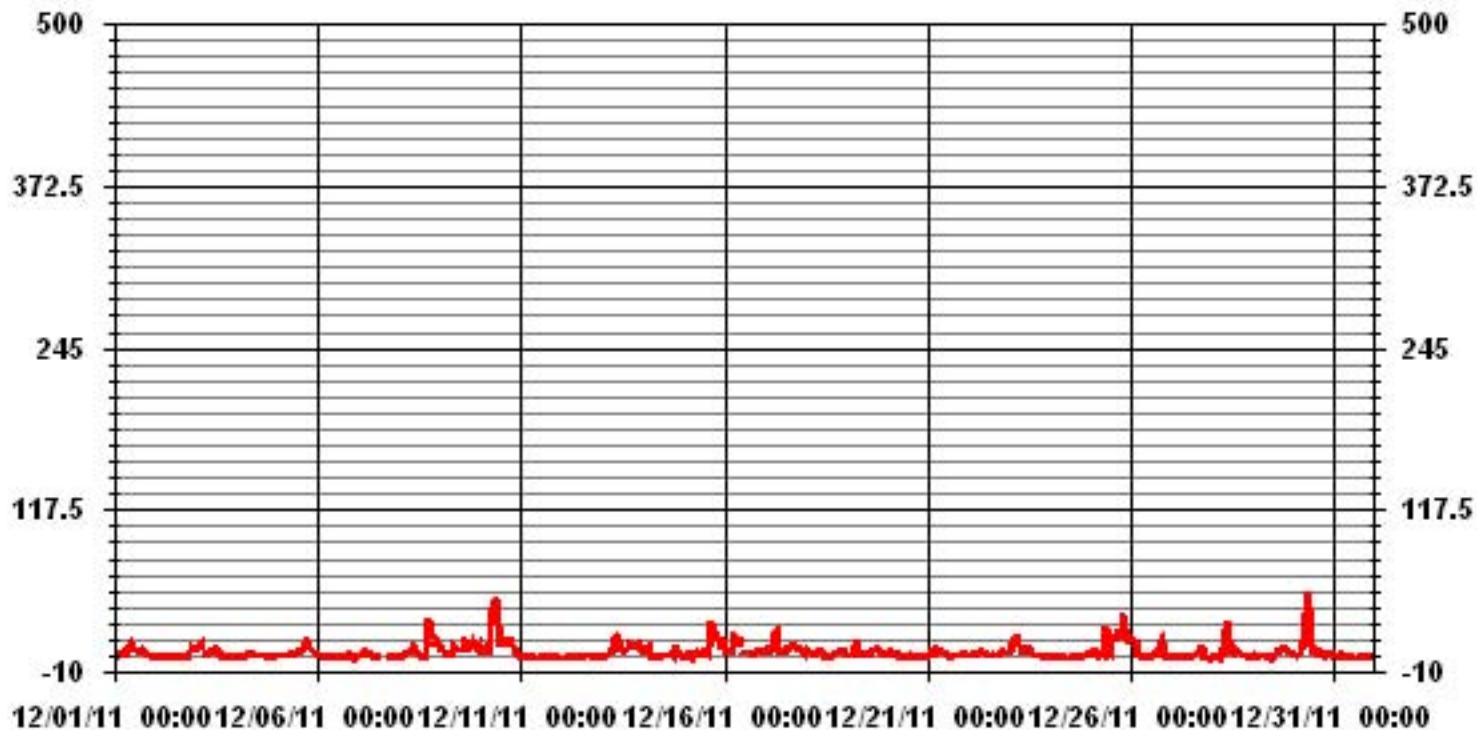
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM 1-HR AVERAGE:	53	PPB	@ HOUR(S)	8	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	16.4	PPB			ON DAY(S)	10
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	6.10		MONTHLY AVERAGE:	5.96	PPB	

01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	8	11	5	IZS	6	5	8	10	12	16	13	10	9	19	13	12	11	10	8	5	6	4	3	5	19	9.1	24
2	3	2	IZS	2	2	2	3	3	4	2	2	3	2	1	2	2	2	2	5	3	13	27	18	21	27	5.5	24
3	19	IZS	14	20	18	8	7	8	8	7	11	9	10	9	5	4	5	4	4	3	4	4	5	4	20	8.3	24
4	IZS	3	3	5	5	3	7	6	6	7	33	4	6	15	7	7	5	18	3	3	3	3	4	IZS	33	7.1	24
5	4	4	6	3	3	5	6	8	6	5	5	10	7	8	14	21	13	48	26	11	10	9	IZS	6	48	10.3	24
6	5	5	5	4	4	4	5	3	2	10	5	3	3	2	2	3	4	7	6	2	2	IZS	2	2	10	3.9	24
7	4	10	7	10	11	7	5	8	7	3	2	1	C	C	C	C	C	C	C	1	IZS	1	1	2	11	5.0	24
8	2	3	4	4	8	8	12	9	13	13	10	5	4	5	16	M	M	113	35	IZS	14	20	33	16	113	16.5	22
9	14	13	17	6	6	23	10	9	33	9	9	12	9	9	65	109	33	12	IZS	21	20	16	19	11	109	21.1	24
10	31	11	11	11	9	51	46	51	72	76	66	13	17	24	16	29	17	IZS	20	14	15	8	8	5	76	27.0	24
11	4	4	2	3	3	2	2	3	2	2	13	3	2	14	3	1	IZS	5	6	5	4	4	3	2	14	4.0	24
12	3	3	3	3	3	18	13	4	7	3	4	5	3	6	15	IZS	9	10	6	3	5	2	2	3	18	5.8	24
13	3	3	3	4	4	16	17	46	34	28	14	9	10	9	IZS	24	17	13	11	12	14	21	12	11	46	14.6	24
14	8	8	11	12	9	3	3	3	5	4	3	3	4	IZS	4	4	4	11	8	51	9	5	5	4	51	7.9	24
15	4	6	6	4	4	74	18	5	28	14	9	13	IZS	16	10	42	67	72	24	31	29	16	18	21	74	23.1	24
16	14	8	8	9	9	243	59	14	22	38	30	IZS	8	8	14	21	7	6	8	9	8	6	9	6	243	24.5	24
17	11	12	19	10	12	49	41	18	11	7	IZS	19	11	16	9	11	12	14	13	11	10	10	12	12	49	15.2	24
18	7	10	9	9	7	7	8	10	15	IZS	11	4	3	3	2	3	5	7	6	8	11	10	10	10	15	7.6	24
19	7	5	5	7	7	71	122	6	IZS	4	5	6	5	10	7	13	7	10	9	9	9	8	5	4	122	14.8	24
20	6	8	9	8	7	8	18	IZS	3	1	2	2	4	8	4	4	4	7	3	4	3	3	3	3	18	5.3	24
21	4	6	10	12	5	6	IZS	11	10	8	6	7	7	3	4	6	7	5	5	5	10	7	6	6	12	6.8	24
22	6	8	4	7	7	IZS	7	8	8	8	7	5	4	5	5	5	5	6	7	9	12	10	12	11	12	7.2	24
23	11	17	16	29	IZS	25	22	25	27	16	12	10	14	28	30	9	9	5	3	5	4	3	3	3	30	14.2	24
24	3	4	4	IZS	4	3	4	4	4	4	3	2	1	1	3	3	6	6	5	4	5	7	6	10	10	4.2	24
25	21	6	IZS	23	8	5	7	16	6	182	22	20	10	32	28	84	57	31	71	75	46	26	21	22	182	35.6	24
26	20	IZS	15	15	7	6	6	7	1	2	3	4	3	4	4	10	15	31	25	6	3	3	10	3	31	8.8	24
27	IZS	3	3	3	3	3	4	2	3	4	5	4	4	4	7	10	44	14	11	7	3	3	2	IZS	44	6.6	24
28	4	5	5	6	4	15	14	21	45	45	26	13	8	14	20	19	13	9	14	4	4	4	IZS	4	45	13.7	24
29	7	6	4	4	5	5	6	5	5	4	4	2	13	5	7	10	10	10	11	10	11	IZS	9	8	13	7.0	24
30	6	7	6	25	40	39	15	67	81	53	41	13	20	8	9	9	21	9	5	7	IZS	9	6	8	81	21.9	24
31	6	6	4	5	3	4	3	3	4	7	6	3	3	2	2	3	1	1	1	IZS	2	2	3	3	7	3.3	24
HOURLY MAX	31	17	19	29	40	243	122	67	81	182	66	20	20	32	65	109	67	113	71	75	46	27	33	22			
HOURLY AVG	8.4	6.8	7.5	9.1	7.4	23.9	16.6	13.1	16.1	19.4	12.7	7.2	7.0	9.9	11.3	17.1	14.6	17.1	12.4	11.7	10.0	8.7	8.6	7.8			

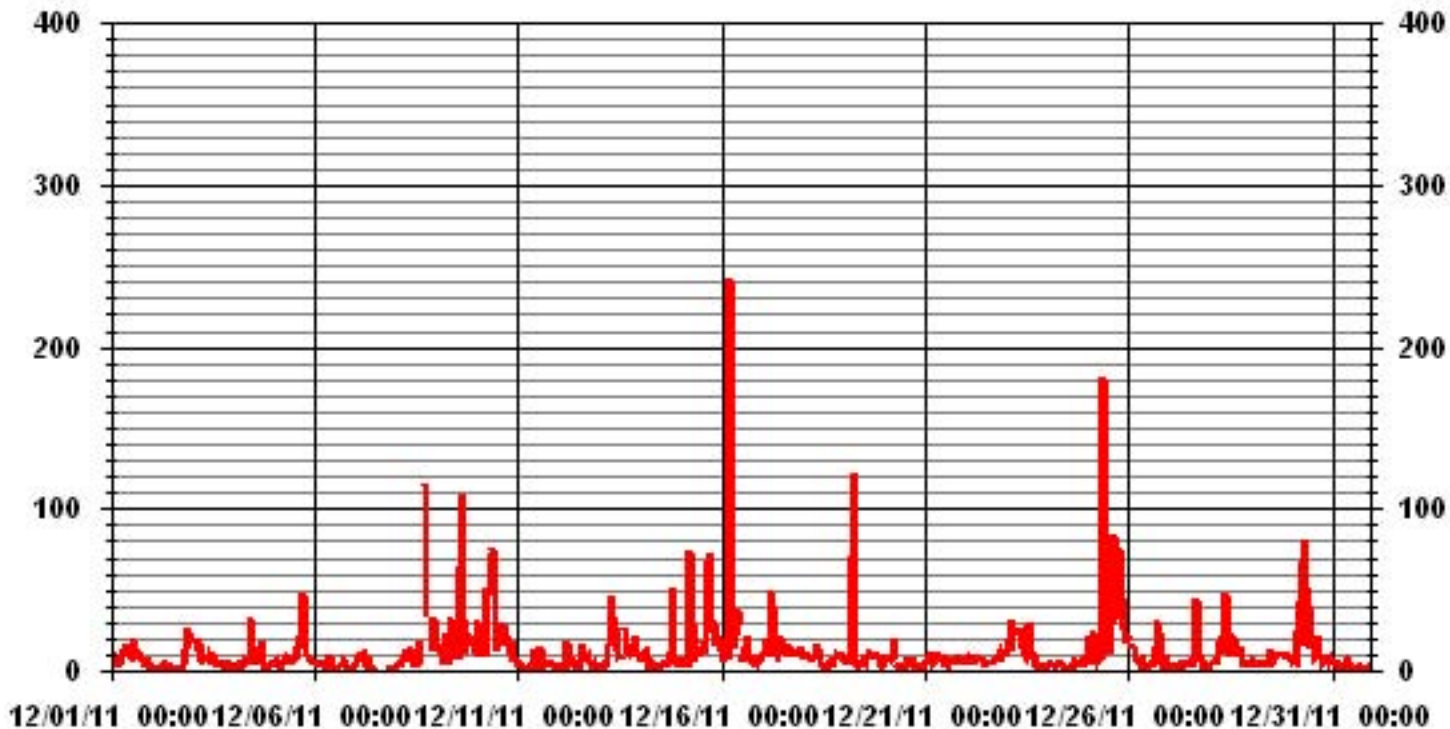
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702					
MAXIMUM INSTANTANEOUS VALUE:	243	PPB	@ HOUR(S)	5	ON DAY(S)	16
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	17.84					

01 Hour Averages



— LICA NOXMAX PPB

LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

December 2011

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	1.41	.28	.28	1.13	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	99.85
< 110	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.41	.28	.28	1.27	2.12	3.82	9.07	4.25	4.53	6.52	18.01	17.58	12.48	6.38	7.51	4.39	

Calm : .00 %

Total # Operational Hours : 705

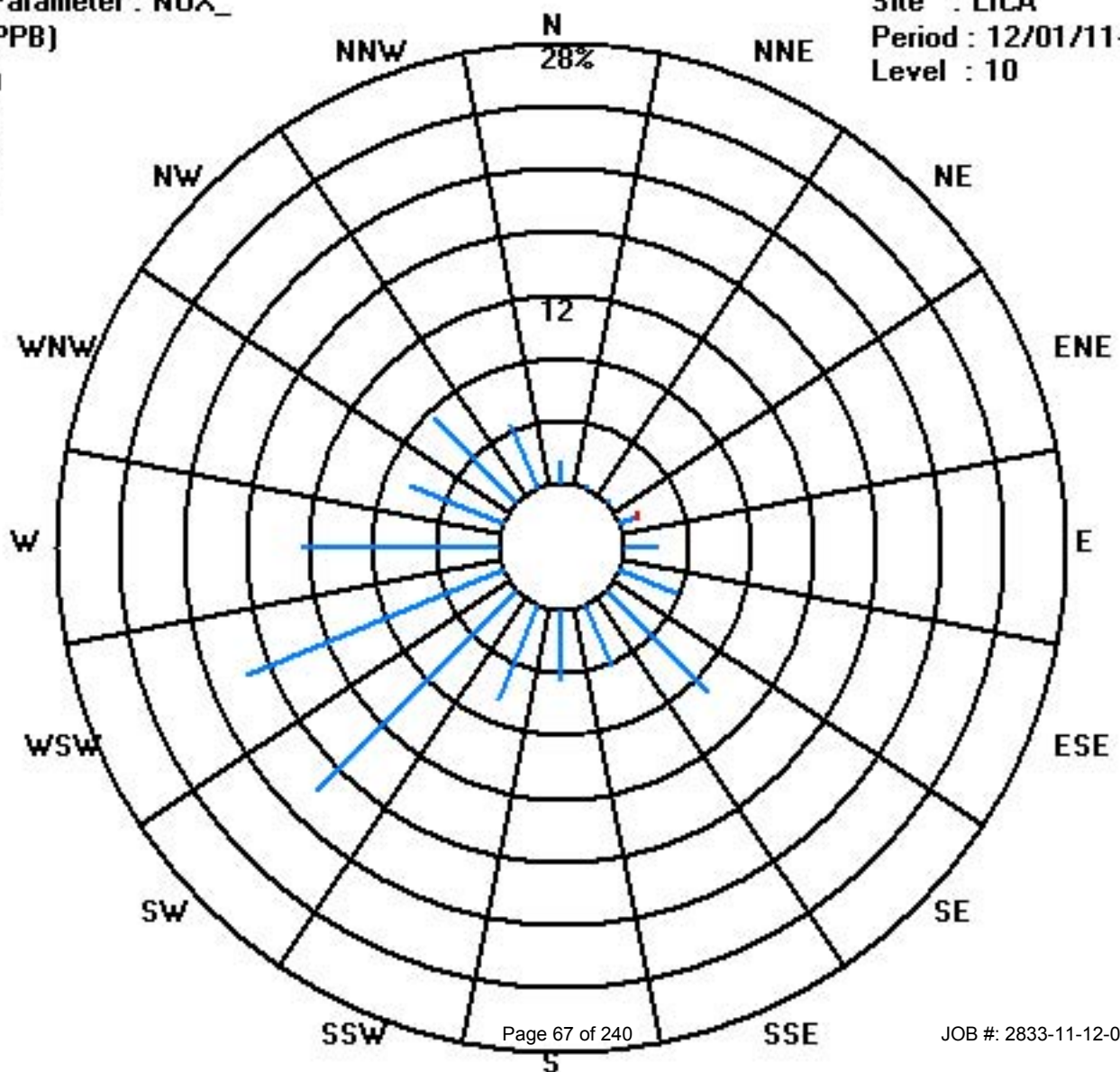
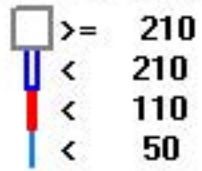
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	10	2	2	8	15	27	64	30	32	46	127	124	88	45	53	31	704
< 110				1													1
< 210																	
>= 210																	
Totals	10	2	2	9	15	27	64	30	32	46	127	124	88	45	53	31	

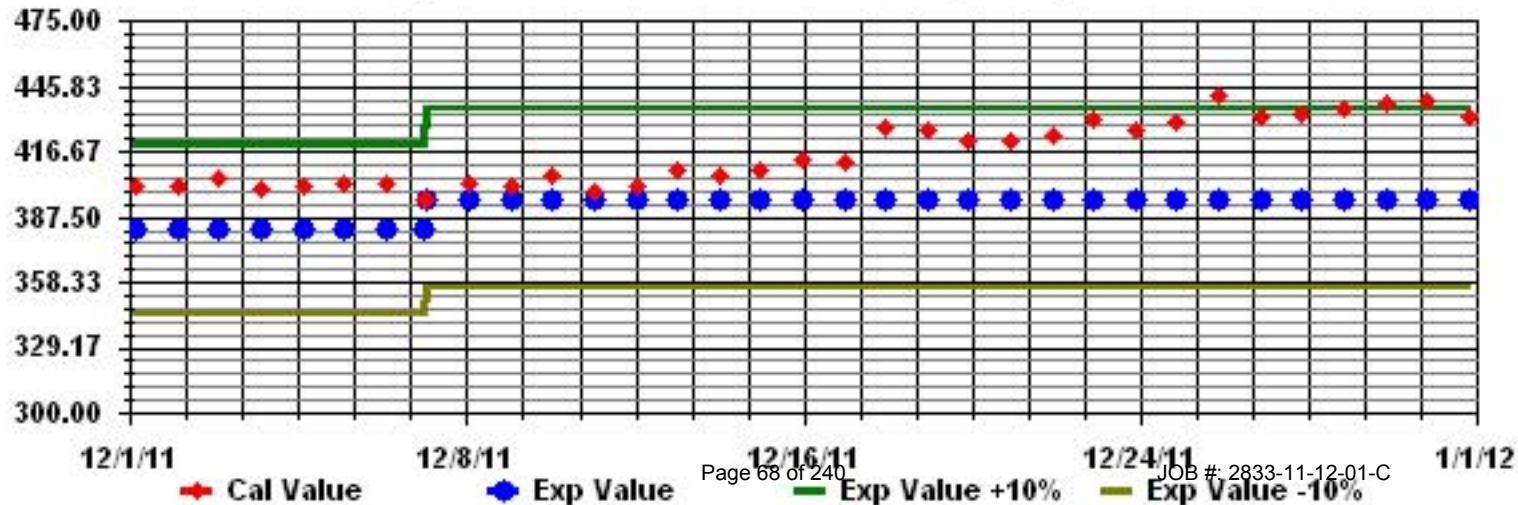
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

OZONE (O₃) hourly averages in ppb

MST	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																													
1		9	8	9	IZS	6	9	19	18	17	17	20	23	25	26	27	27	25	25	26	33	34	35	38	39	39	22.4	24	
2		38	38	IZS	35	35	33	33	34	34	32	27	27	28	31	33	35	34	33	31	31	27	16	17	14	38	30.3	24	
3		11	IZS	7	7	15	23	22	17	17	20	19	20	20	24	27	31	33	32	31	32	33	32	30	31	33	23.2	24	
4		IZS	33	32	31	31	32	29	25	25	27	29	30	30	29	29	28	26	26	29	31	30	29	IZS	33	33	29.1	24	
5		28	27	26	27	28	27	27	25	24	25	26	25	24	24	23	20	19	14	15	21	22	24	IZS	28	28	23.9	24	
6		29	30	32	31	32	31	33	36	37	34	33	32	34	35	34	34	33	33	31	35	35	IZS	37	35	37	33.3	24	
7		34	31	30	27	27	31	31	32	33	34	35	36	36	37	37	38	38	38	38	38	38	IZS	37	37	36	38	34.4	24
8		35	34	33	33	29	28	25	25	C	M	M	C	C	C	C	C	C	C	C	IZS	12	10	5	6	35	22.9	22	
9		6	7	13	23	24	23	23	21	18	17	18	20	24	25	25	24	18	21	IZS	19	11	12	12	16	25	18.3	24	
10		15	12	12	15	15	9	2	1	1	2	12	20	18	18	18	14	13	IZS	10	14	19	25	28	30	30	14.0	24	
11		29	19	23	25	26	28	32	32	32	32	34	36	36	37	37	36	IZS	35	33	32	32	33	33	34	37	31.6	24	
12		34	32	28	27	27	29	28	29	30	30	30	30	32	31	28	IZS	24	23	25	26	26	25	24	23	34	27.9	24	
13		23	22	21	20	19	17	13	7	3	6	13	16	17	20	IZS	13	10	9	10	10	9	11	16	16	23	14.0	24	
14		17	14	10	13	23	27	28	29	31	30	30	30	30	IZS	30	30	29	25	25	18	20	23	25	27	31	24.5	24	
15		26	25	21	22	26	26	26	25	24	24	23	22	IZS	21	23	19	6	3	4	1	2	2	1	2	26	16.3	24	
16		8	12	13	11	11	11	9	7	10	9	12	IZS	25	28	29	28	28	26	23	21	22	22	22	20	29	17.7	24	
17		18	12	8	7	5	1	5	12	18	19	IZS	20	23	21	20	18	16	15	15	18	17	17	16	17	23	14.7	24	
18		18	16	16	18	19	24	23	20	11	IZS	22	29	31	31	32	31	30	26	22	20	18	21	19	21	32	22.5	24	
19		21	16	13	13	13	14	16	24	IZS	28	28	29	29	28	28	26	24	22	23	25	28	31	31	31	31	23.4	24	
20		28	23	22	23	25	28	27	IZS	37	37	35	31	28	27	30	32	31	29	29	30	31	30	30	29	37	29.2	24	
21		28	27	22	21	27	26	IZS	21	23	23	23	23	26	30	32	31	30	29	28	27	22	21	23	23	32	25.5	24	
22		24	25	26	24	25	IZS	23	22	22	24	26	28	30	31	31	31	31	30	28	27	25	20	21	21	31	25.9	24	
23		14	11	5	3	IZS	9	12	16	20	17	18	18	21	25	30	33	34	34	33	32	32	32	33	34	34	22.3	24	
24		33	32	32	IZS	34	34	33	33	33	34	35	36	37	36	36	35	33	31	30	30	29	27	22	19	37	31.9	24	
25		16	25	IZS	20	22	23	20	17	14	12	14	15	18	11	9	6	7	4	3	3	1	1	2	2	25	11.5	24	
26		4	IZS	10	15	26	28	29	30	26	26	27	27	29	31	30	28	22	15	15	28	29	29	28	26	31	24.3	24	
27		IZS	27	26	26	27	27	26	25	24	23	22	22	21	21	19	19	15	13	17	33	35	34	35	IZS	35	24.4	24	
28		28	28	28	26	23	15	14	8	3	4	14	20	21	20	21	24	24	25	24	26	27	26	IZS	26	28	20.7	24	
29		24	24	25	24	23	23	23	23	23	23	24	23	21	19	16	15	13	13	14	15	18	IZS	23	28	28	20.7	24	
30		30	30	30	27	13	10	10	2	0	2	20	27	28	29	30	31	30	31	30	27	IZS	25	28	27	31	22.5	24	
31		26	24	25	24	26	23	23	23	22	25	29	31	33	34	34	33	33	34	34	IZS	32	32	33	33	34	29.0	24	
HOURLY MAX		38	38	33	35	35	34	33	36	37	37	35	36	37	37	37	38	38	38	38	38	38	35	37	38	39			
HOURLY AVG		22.6	22.9	20.6	21.3	22.7	22.3	22.1	21.3	21.1	21.9	24.1	25.7	26.7	26.9	27.5	26.6	24.5	24.0	23.3	24.1	23.3	23.4	24.0	23.9				

STATUS FLAG CODES

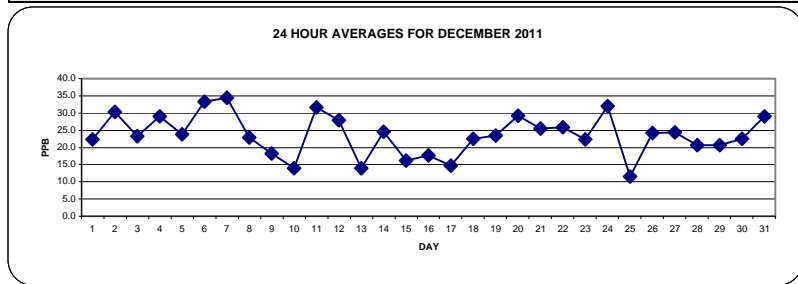
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

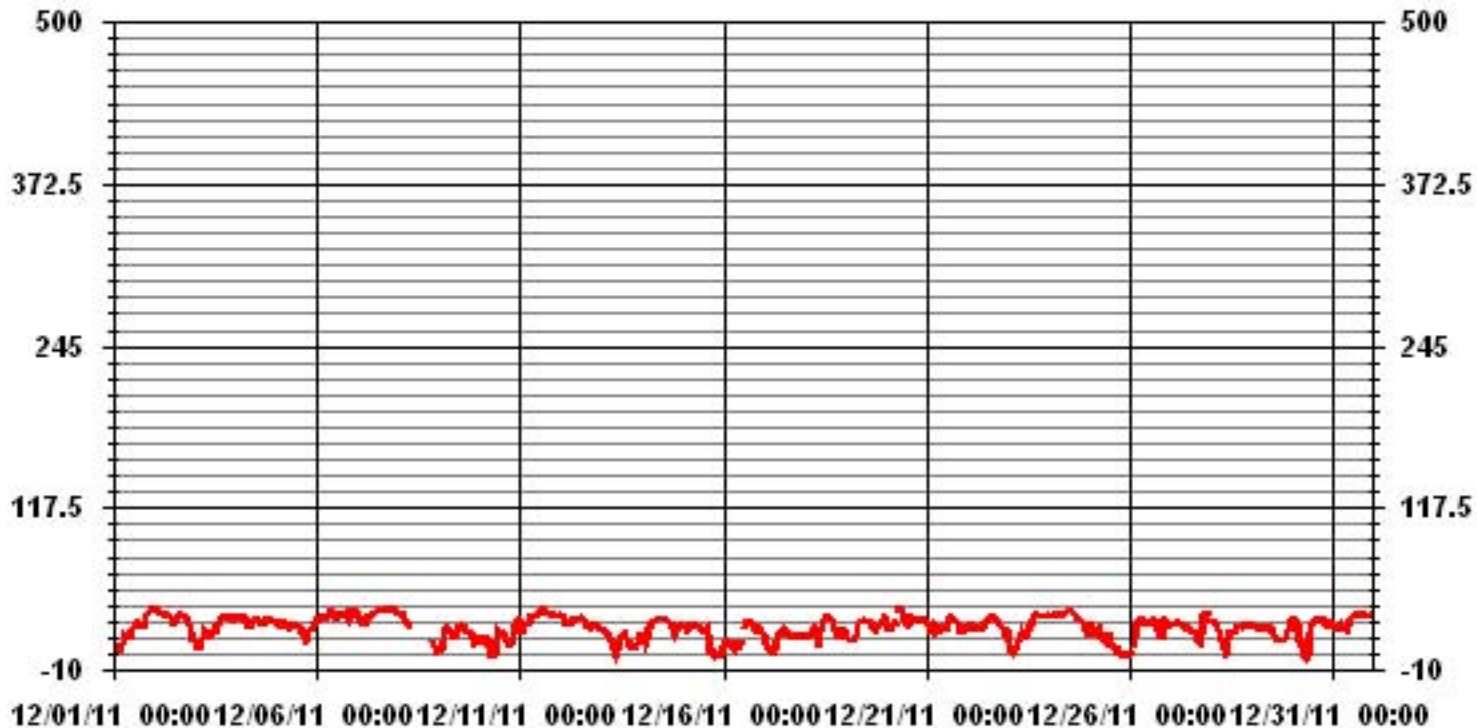
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM 1-HR AVERAGE:	39	PPB	@ HOUR(S)	23	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	34.4	PPB			ON DAY(S)	7
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME	99.7	%	
STANDARD DEVIATION	8.69		MONTHLY AVERAGE	23.62	PPB	



01 Hour Averages



— LICA 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	12	12	12	IZS	8	17	20	20	18	19	22	25	27	28	28	28	27	26	30	35	35	36	40	40	40	24.6	24	
2	39	38	IZS	36	35	34	34	34	35	35	28	28	29	33	34	35	35	34	33	32	31	22	23	18	39	32.0	24	
3	15	IZS	15	12	23	24	25	21	22	21	20	21	21	27	30	32	34	34	32	34	34	33	31	32	34	25.8	24	
4	IZS	34	33	32	33	33	31	26	26	29	31	31	30	30	30	29	27	27	31	31	32	32	30	IZS	34	30.4	24	
5	29	28	27	28	29	28	27	26	25	26	26	25	25	25	24	22	21	18	21	22	24	25	IZS	29	29	25.2	24	
6	30	31	33	32	33	32	36	37	38	37	33	34	35	36	35	35	35	35	34	37	36	IZS	38	36	38	34.7	24	
7	35	33	31	30	30	31	33	34	35	35	36	37	37	37	38	39	39	38	38	38	IZS	38	37	37	39	35.5	24	
8	36	35	34	33	31	29	27	26	C	M	M	C	C	C	C	C	C	C	C	IZS	15	13	7	9	36	24.6	22	
9	7	9	22	24	25	27	24	22	20	18	19	21	26	26	27	26	24	22	IZS	23	18	16	17	21	27	21.0	24	
10	21	16	15	17	19	17	5	2	2	3	20	23	22	20	20	18	15	IZS	13	17	24	26	29	31	31	17.2	24	
11	31	22	25	25	27	32	33	32	33	33	36	37	38	38	38	37	IZS	36	36	33	33	34	35	38	38	32.9	24	
12	35	35	29	28	29	30	30	30	31	31	30	32	32	32	29	IZS	25	24	26	27	27	26	25	24	35	29.0	24	
13	23	23	22	21	20	19	16	12	7	12	15	17	18	22	IZS	18	12	11	11	10	11	14	18	18	23	16.1	24	
14	17	17	12	16	26	28	29	30	31	31	31	30	31	IZS	31	31	30	28	26	25	23	25	27	28	31	26.2	24	
15	27	27	22	26	27	28	27	26	26	24	24	23	IZS	24	24	23	16	8	3	4	4	2	5	28	18.6	24		
16	12	13	14	12	12	12	11	9	11	11	16	IZS	27	29	29	29	29	29	25	22	23	23	23	22	29	19.3	24	
17	19	16	12	9	8	4	12	16	20	20	IZS	21	24	22	21	19	17	16	17	20	17	19	18	20	24	16.8	24	
18	19	18	18	21	22	26	26	22	18	IZS	27	32	32	32	32	32	32	28	25	22	21	22	22	24	32	24.9	24	
19	22	21	16	17	16	18	22	25	IZS	28	30	30	29	29	29	27	25	24	25	26	30	32	32	32	32	25.3	24	
20	31	25	23	23	27	29	36	IZS	37	38	37	33	30	30	32	33	32	30	30	31	31	31	31	30	38	30.9	24	
21	29	28	25	25	28	28	IZS	24	25	25	24	25	28	32	33	32	31	30	29	28	27	23	24	24	33	27.3	24	
22	25	27	27	25	26	IZS	24	23	23	26	29	29	31	31	31	32	31	31	30	28	28	26	25	25	32	27.5	24	
23	18	16	8	7	IZS	16	18	21	22	21	20	24	28	33	35	35	34	34	34	32	32	33	33	35	35	24.9	24	
24	33	33	34	IZS	36	35	34	33	34	35	35	37	37	37	36	36	34	33	31	31	30	28	28	24	37	33.2	24	
25	22	28	IZS	25	25	25	24	21	19	18	18	21	22	17	14	9	18	13	9	6	2	2	3	2	28	15.8	24	
26	6	IZS	12	25	28	30	31	31	29	28	28	28	32	32	31	30	27	19	26	30	30	30	29	27	32	26.9	24	
27	IZS	27	27	27	27	27	27	26	25	24	23	23	22	22	19	21	18	17	27	35	35	35	36	IZS	36	25.9	24	
28	29	29	29	27	27	22	21	11	5	10	18	21	22	22	24	26	26	26	26	28	27	27	IZS	27	29	23.0	24	
29	26	26	25	25	24	24	24	25	24	24	25	24	23	20	18	16	14	14	16	17	21	IZS	27	30	30	22.3	24	
30	31	31	32	31	21	16	14	8	1	6	25	30	31	31	31	32	32	32	32	32	30	IZS	27	30	29	32	25.3	24
31	27	26	26	25	27	25	23	23	22	28	30	32	34	34	34	34	34	34	34	IZS	32	33	33	33	34	29.7	24	
HOURLY MAX	39	38	34	36	36	35	36	37	38	38	37	37	38	38	38	39	39	38	38	38	38	36	38	40	40			
HOURLY AVG	24.3	25.0	22.8	23.6	25.0	24.9	24.8	23.2	22.9	24.0	26.1	27.2	28.2	28.5	28.8	28.2	26.8	25.9	26.0	25.9	25.1	25.2	25.9	25.7				

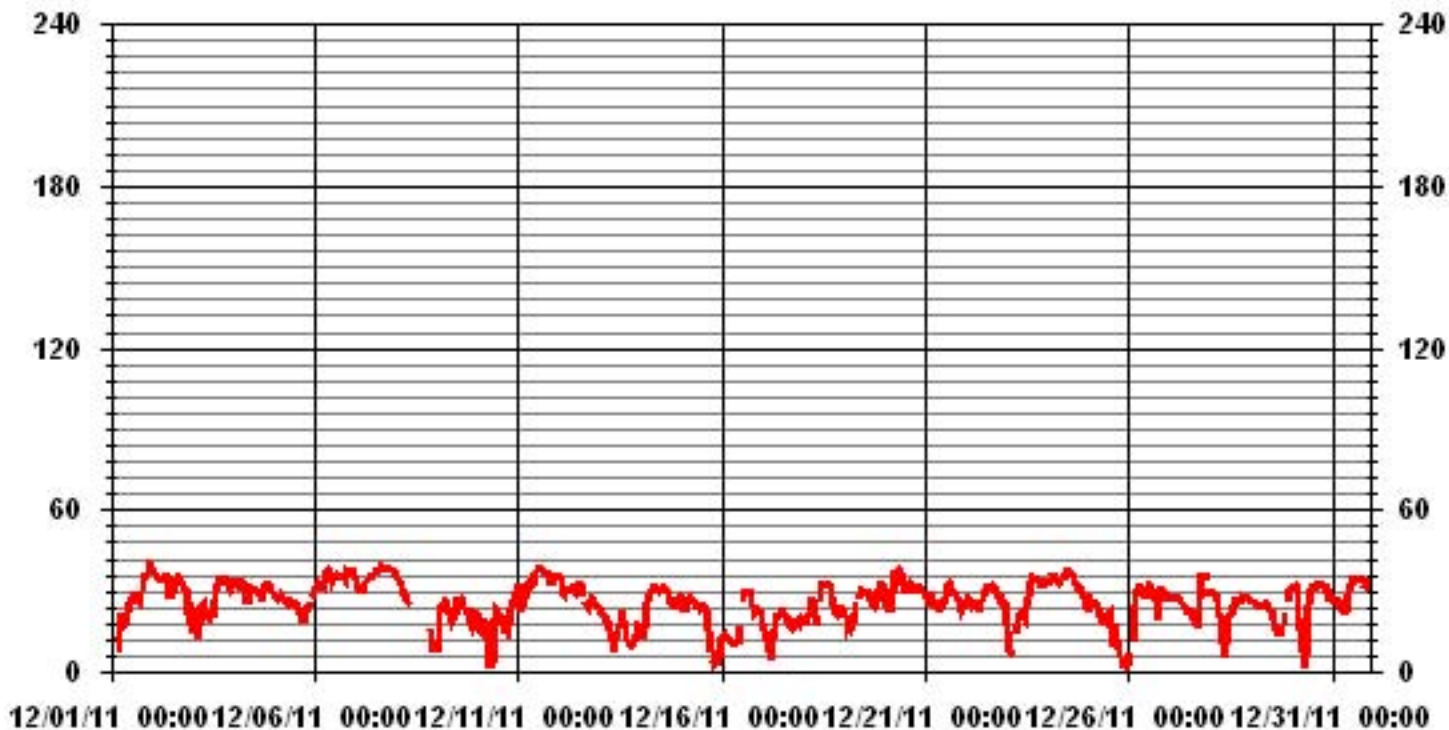
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	700					
MAXIMUM INSTANTANEOUS VALUE:	40	PPB	@ HOUR(S)	22, 23	ON DAY(S)	1
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION	7.91					

01 Hour Averages



— LICA O3MAX PPB

LICA
 O3_ / WD Joint Frequency Distribution (Percent)

December 2011

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	1.42	.28	.28	1.28	2.14	3.85	9.14	4.28	4.57	6.42	18.14	17.57	11.71	6.71	7.71	4.42	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.42	.28	.28	1.28	2.14	3.85	9.14	4.28	4.57	6.42	18.14	17.57	11.71	6.71	7.71	4.42	

Calm : .00 %

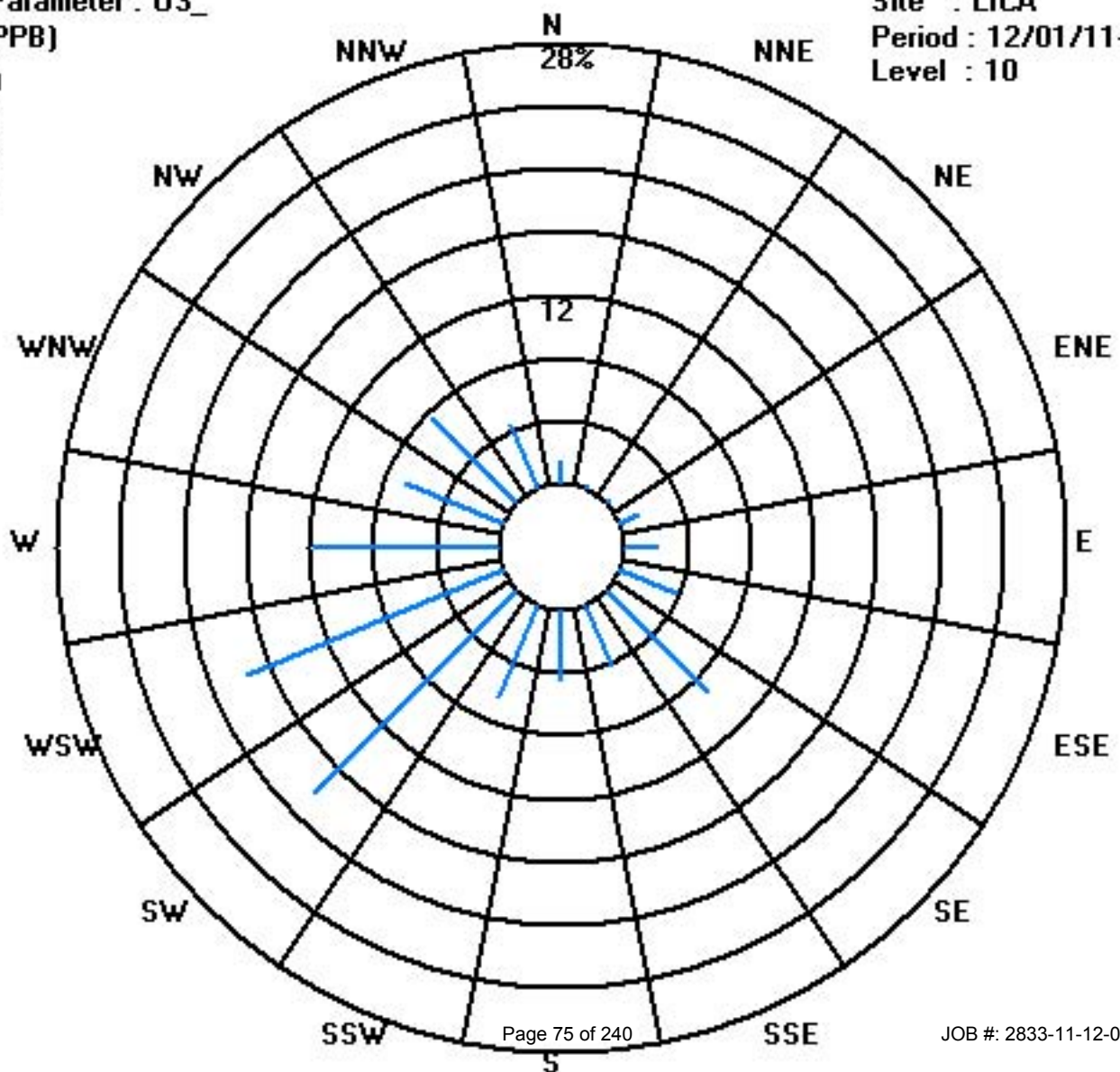
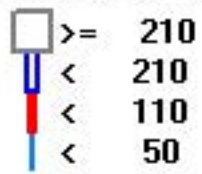
Total # Operational Hours : 700

Distribution By Samples

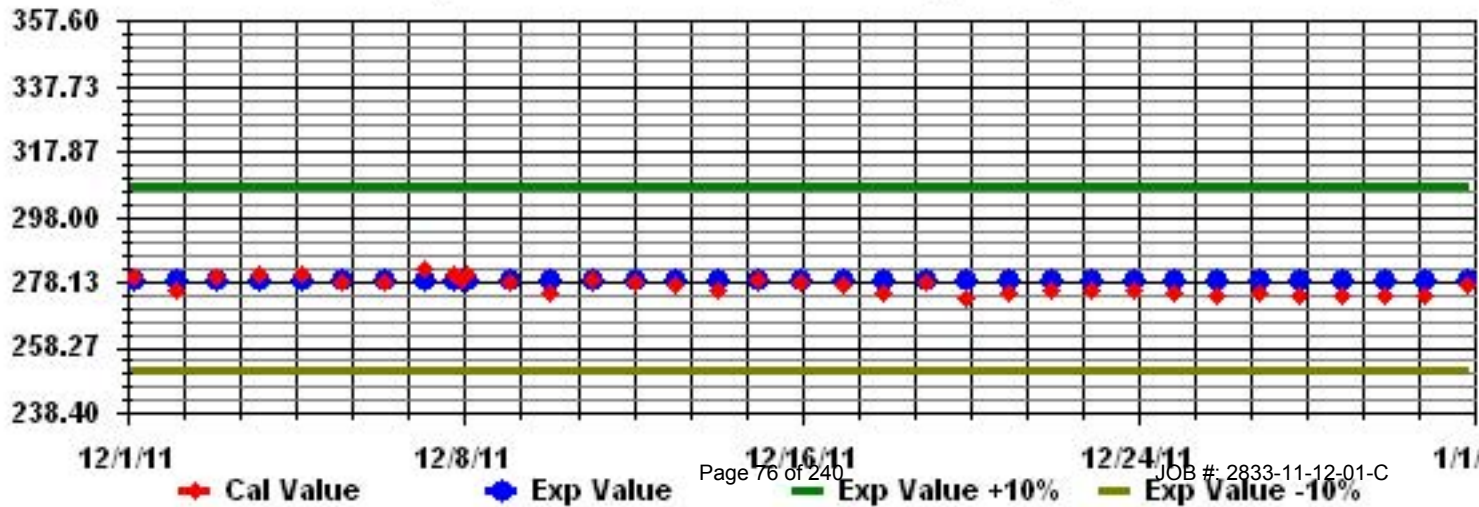
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	10	2	2	9	15	27	64	30	32	45	127	123	82	47	54	31	700
< 110																	
< 210																	
>= 210																	
Totals	10	2	2	9	15	27	64	30	32	45	127	123	82	47	54	31	

Calm : .00 %

Total # Operational Hours : 700



Calibration Graph for Site: LICA Parameter: 03_ Sequence: 03 Phase: SPAll



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

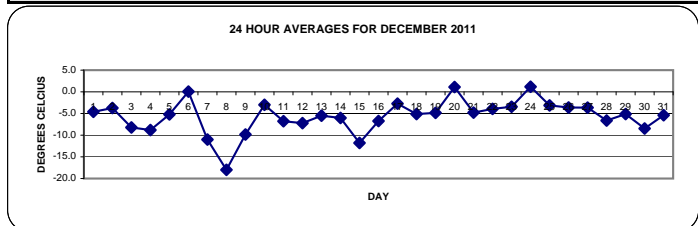
DECEMBER 2011

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
1	-13.8	-14.1	-14.5	-14.9	-15.2	-14.2	-9.6	-9	-8.4	-7.4	-5.8	-3.7	-2.2	-1.1	-0.4	0	-0.1	0.2	0.9	3.6	4.6	4.8	5.3	4.4	5.3	-4.6	24		
2	3.7	3.3	2.3	1.5	1.3	0.8	0.8	0.9	1.1	-0.4	-3.3	-4.3	-4.9	-5	-5	-5.1	-5.6	-6.5	-7.1	-7.8	-9.5	-12.3	-13.8	-14.7	3.7	-3.7	24		
3	-15.5	-15.9	-15.6	-13.8	-12.3	-10.3	-9.3	-9.4	-8.7	-6.6	-5.5	-4.8	-4.3	-3.7	-3.3	-3.3	-4.1	-4.7	-5.7	-6.2	-7.4	-8.4	-9	-9.5	-3.3	-8.2	24		
4	-10	-9.7	-9.7	-9.7	-9.6	-9.6	-9.6	-9.6	-9.2	-8.7	-8.3	-8	-7.8	-7.5	-7.2	-7.3	-7.6	-7.7	-8.3	-9.1	-9.2	-9.4	-9.5	-9.2	-7.2	-8.8	24		
5	-8.8	-8.5	-8.3	-7.7	-7.2	-7.5	-8.4	-9.2	-9.6	-8.3	-6.9	-6.1	-5.2	-4.3	-3.7	-3.7	-4	-3.3	-1.2	-0.7	-0.1	0.3	1.2	1.2	-5.2	24			
6	2.5	3.1	4	3.4	3.7	3.1	4.3	5.1	5.4	3	0.3	-0.2	-0.2	-0.4	-0.5	-1.4	-2.1	-2.7	-3.2	-2.8	-3.3	-5	-6.8	-8.1	5.4	0.0	24		
7	-8.8	-9.5	-10.6	-10.6	-9.8	-9.3	-9.9	-10.4	-10.7	-10.2	-9.9	-9.5	-9.2	-9	-9.4	-10.2	-11.3	-12	-12.5	-13	-13.6	-14.2	-14.9	-15.7	-8.8	-11.0	24		
8	-16.4	-17.2	-17.6	-17.7	-18.2	-18.4	-19.2	-19.3	-19.7	-19	-17.3	-14.6	-13.2	-12.1	-12.1	-13	-15.5	-18.1	-19.7	-21.2	-22.5	-23.1	-23.5	-23.4	-12.1	-18.0	24		
9	-23.2	-22.6	-20.8	-18.3	-17.2	-16.4	-15.3	-14.1	-12	-10.6	-9.2	-6.1	-2.9	-1.8	-1.2	-1.7	-2.9	-3.7	-4.3	-5.2	-7	-7.6	-7.2	-5.1	-1.2	-9.9	24		
10	-4.4	-5.1	-4.3	-3.4	-3.6	-4.9	-5.7	-5.8	-5.9	-5.7	-3.3	-1	-0.8	0.1	0	-0.6	-2.1	-2.8	-3.5	-3.7	-2.2	-1.5	-1	-0.6	0.1	-3.0	24		
11	-0.4	-2.5	-5.1	-6	-6	-6.1	-6.8	-7.5	-8	-8.2	-8	-7.4	-6.9	-6.7	-6.9	-7.2	-7.5	-7.7	-7.8	-7.6	-7.9	-8	-8.1	-8.3	-0.4	-6.8	24		
12	-8.3	-8.3	-8.7	-9	-9.1	-9	-8.7	-8.4	-8	-7.6	-7.4	-6.9	-5.9	-5.2	-5	-5.5	-6.3	-6.6	-6.4	-6.3	-6.3	-6.7	-6.8	-7	-5.0	-7.2	24		
13	-7	-7.1	-6.9	-6.8	-7	-7.7	-8.5	-9.2	-10.5	-10.4	-7.3	-4.8	-2.6	-1.2	-1.1	-2.6	-3.6	-3.8	-3.9	-4.1	-4.6	-4.2	-3.7	-3.7	-1.1	-5.5	24		
14	-3.7	-3.8	-4.7	-5.2	-3.5	-2.3	-2.4	-3	-3.2	-3.3	-3.4	-3.2	-3.7	-4.5	-5	-6	-7.2	-8.5	-10	-11.2	-12.5	-11.8	-11.3	-11.3	-2.3	-6.0	24		
15	-11	-10.9	-11.4	-11.3	-11.1	-11.2	-11.4	-11.7	-11.7	-11.3	-10.7	-9.9	-9.1	-8.1	-7.8	-8.3	-10.3	-12.4	-14	-15	-15.6	-16.3	-16.6	-16.1	-7.8	-11.8	24		
16	-14.5	-12.9	-12.3	-12.8	-11.9	-11	-10.4	-9.3	-8	-8.1	-6.3	-3.5	-1.3	-0.6	-0.6	-1.5	-2.4	-3	-4.2	-5.4	-5.6	-5.3	-5.1	-5.6	-0.6	-6.7	24		
17	-5.7	-6.9	-7.8	-8.1	-8.1	-7.2	-5.2	-4.3	-3.3	-2.7	-2.1	-1.2	0.6	0.8	1.1	0.1	-0.3	-0.4	-0.8	-0.5	-0.4	-0.6	-1.3	-1.3	1.1	-2.7	24		
18	-1.5	-1.5	-1.8	-2.2	-2.6	-2.8	-4	-5.2	-8.2	-8.3	-4.4	-2.6	-1.7	-1.5	-1.8	-2.9	-4.4	-6.1	-8.1	-9.5	-10.6	-10.3	-10.7	-10.4	-1.5	-5.1	24		
19	-11.6	-13.9	-15.3	-16.1	-14.7	-12.5	-10.8	-8.1	-6.1	-3.6	-2.7	-1.5	-0.9	-0.2	0.2	0.5	0.2	-0.7	-1.2	-1	-0.5	-0.1	1.9	2.2	2.2	-4.9	24		
20	2.3	2.3	2.6	1.8	2.5	2.9	2.9	4.2	4.5	4.7	4.2	3.4	2.5	2.4	2.4	1.4	0.6	-0.5	-1.5	-2.1	-3.2	-4.1	-4.6	-5.2	4.7	1.1	24		
21	-5.5	-5.7	-5.8	-5.9	-5.4	-5.1	-5.2	-5.2	-5.1	-4.8	-3.9	-3.3	-2.2	-1.7	-1.6	-2.3	-3	-4.1	-4.6	-5.4	-6.8	-7.9	-7.6	-7.1	-1.6	-4.8	24		
22	-7.2	-6.3	-4.8	-5	-5	-5.3	-4.9	-5.1	-5	-4.4	-3.2	-2	-1.4	-1	-0.5	-0.2	-0.8	-1.9	-2.9	-3.6	-4.4	-6	-6.6	-7	-0.2	-3.9	24		
23	-8.9	-10.3	-10.7	-11.3	-11.4	-9.4	-8.6	-7	-5.5	-5.2	-4.6	-3.3	-0.3	2	3.3	3.2	2.4	1.3	1	0.2	-0.2	0	0.1	0.5	3.3	-3.4	24		
24	0.8	0.8	0.4	1.4	1.4	1.6	1.3	0.7	0.5	2	3.2	4.6	5.4	5.5	5.1	4	2.4	0.9	-0.4	-1	-1.6	-2.2	-3.5	-5.2	5.5	1.2	24		
25	-6	-3.1	-2.1	-3.2	-3	-1.4	-2.4	-3.7	-4.1	-4	-2.7	-0.2	0.5	-0.3	-0.7	-1.7	-2.1	-3.6	-4.7	-5.4	-6.1	-5.8	-5.4	-4.1	0.5	-3.1	24		
26	-3.2	-3.9	-3.7	-1.8	0.3	0.4	0.7	0.7	0.4	-1.7	-2.5	-3	-3.9	-4.3	-4.2	-4	-5.9	-7.8	-6.6	-5.9	-6.1	-6.6	-6.7	-6.6	0.7	-3.6	24		
27	-6.4	-6.4	-6	-5.4	-4.9	-4.3	-4	-4.1	-4.1	-3.8	-3.3	-2.8	-2	-1.3	-1.4	-1.7	-2.9	-4.1	-4	-3.1	-2.6	-2.8	-2.4	-3.7	-1.3	-3.6	24		
28	-6.3	-7.1	-7.9	-9	-10.3	-11.4	-11.1	-10.6	-9.5	-8.7	-7.2	-5.8	-5.5	-5	-4.7	-4.4	-4.6	-4.6	-4.3	-3.9	-4.1	-4.3	-4.3	-4.5	-3.9	-6.6	24		
29	-5.2	-5.6	-5.3	-5.3	-5.4	-5.6	-5.7	-5.8	-5.8	-5.7	-5.5	-5.1	-4.6	-4.3	-4.3	-4	-4.2	-3.9	-4.3	-5	-4.6	-5.1	-5.8	-7	-3.9	-5.1	24		
30	-7.8	-7.9	-9	-10.9	-13.2	-14.7	-15.7	-15.5	-15.7	-13.5	-9	-6.7	-5.1	-5.9	-5.7	-4.9	-4.8	-4.9	-5	-5.4	-5.6	-5.2	-5.3	-5.8	-4.8	-8.5	24		
31	-6.1	-5.9	-5.5	-5.1	-5	-5.2	-5.5	-5.2	-5.1	-4.8	-4.2	-3.7	-3.5	-3.4	-3.4	-4	-4.7	-5.3	-5.8	-6.7	-7.1	-7.5	-8	-8.9	-3.4	-5.4	24		
HOURLY MAX	3.7	3.3	4.0	3.4	3.7	3.1	4.3	5.1	5.4	4.7	4.2	4.6	5.4	5.5	5.1	4.0	2.4	1.3	1.0	3.6	4.6	4.8	5.3	4.4					
HOURLY AVG	-7.0	-7.2	-7.3	-7.4	-7.1	-6.9	-6.7	-6.6	-6.5	-6.0	-5.2	-4.1	-3.3	-2.9	-2.8	-3.2	-4.0	-4.8	-5.4	-5.6	-6.0	-6.4	-6.5	-6.7					

STATUS FLAG CODES

S	- OUT OF SERVICE	OD	- OUTSIDE DETECTION LIMITS
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

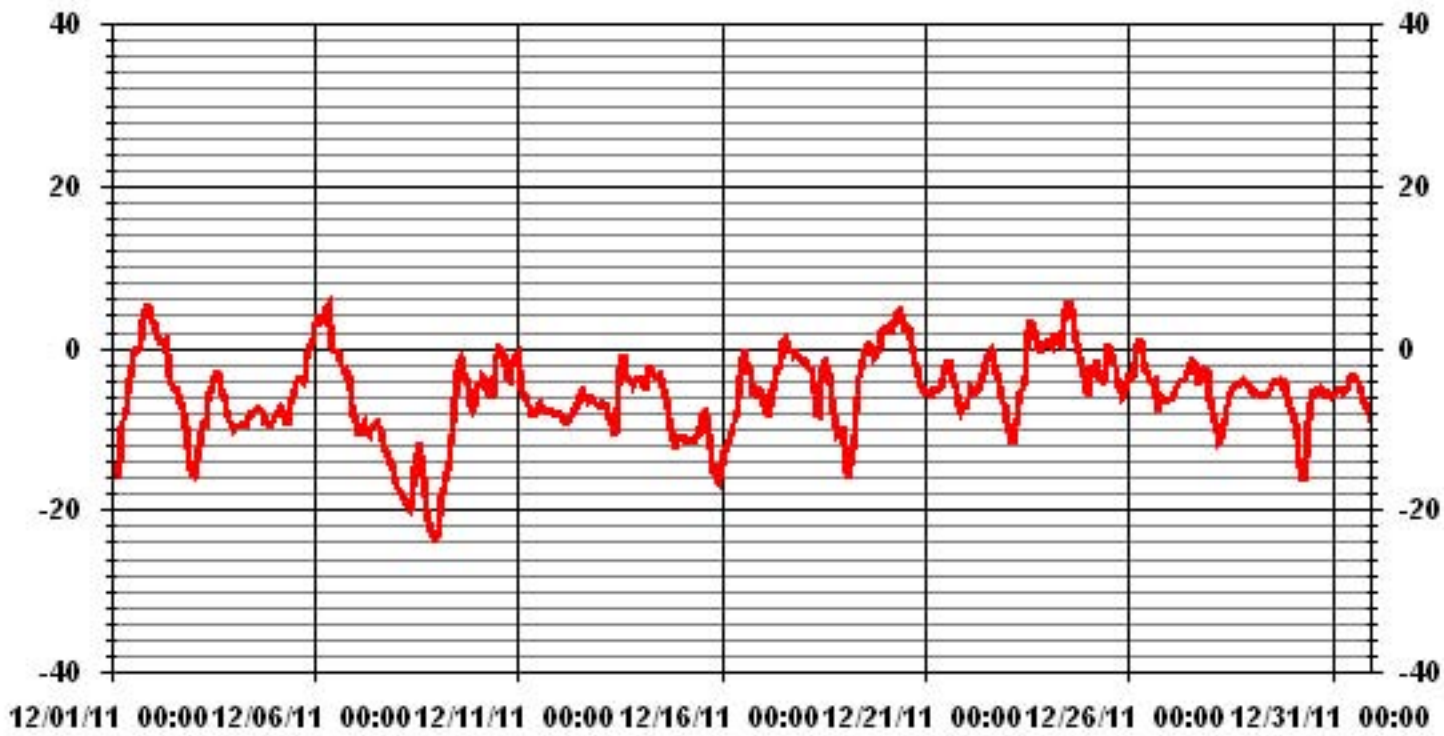


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-23.5 °C	@ HOUR(S)	22	ON DAY(S)	8
MAXIMUM 1-HR AVERAGE:	5.5 °C	@ HOUR(S)	13	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	1.2 °C			ON DAY(S)	24
VAR-VARIOUS					
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	5.11		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	-5.65	°C

* Outside detection limits of sensor.

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

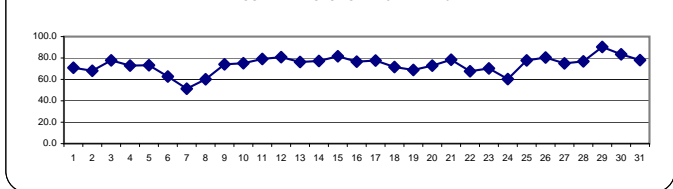
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		83	84	82	81	81	84	85	84	82	80	78	73	69	67	65	66	68	68	66	57	54	54	44	47	85	70.9	24	
2		48	50	67	76	70	71	70	71	69	78	63	64	70	58	59	61	64	65	67	70	75	82	84	82	84	68.1	24	
3		82	81	81	83	84	83	85	86	85	82	79	75	75	75	74	73	73	74	75	73	74	75	72	68	86	77.8	24	
4		66	59	63	65	65	67	71	76	77	76	74	72	73	73	73	75	78	81	77	78	76	77	78	80	81	72.9	24	
5		80	78	77	75	71	71	74	77	78	72	68	68	67	66	66	69	71	74	77	76	76	76	76	74	80	80	73.2	24
6		70	69	66	69	68	70	63	61	60	75	73	68	57	53	56	58	58	59	65	61	56	51	58	61	75	62.7	24	
7		57	58	63	65	64	68	70	70	74	67	60	52	46	42	39	35	37	39	38	36	37	36	38	40	74	51.3	24	
8		41	43	44	48	54	61	67	71	75	73	68	57	51	46	41	43	55	65	69	73	74	74	75	75	75	60.1	24	
9		75	75	76	74	73	74	75	76	75	73	74	71	66	63	63	66	71	73	76	78	83	84	84	80	84	74.1	24	
10		79	82	80	76	77	82	84	85	85	85	75	67	67	65	67	70	75	76	76	74	69	67	68	72	85	75.1	24	
11		73	75	75	75	76	78	78	77	79	79	81	82	80	80	80	79	80	80	80	80	81	82	83	85	85	79.1	24	
12		86	87	88	89	90	89	88	86	84	82	81	78	72	69	69	72	77	80	80	79	77	78	78	80	90	80.8	24	
13		80	80	79	79	79	82	85	87	87	86	75	67	60	57	56	61	65	66	67	75	87	90	91	90	91	76.3	24	
14		89	81	77	80	83	78	75	78	76	75	74	71	67	66	65	68	72	77	82	84	85	84	83	83	89	77.2	24	
15		83	83	84	83	82	82	83	84	84	83	81	80	78	76	76	79	84	85	84	82	82	80	80	81	85	81.6	24	
16		83	85	85	85	86	86	86	86	85	85	81	74	65	61	59	62	64	68	72	75	76	76	75	78	86	76.6	24	
17		80	82	85	86	86	85	82	80	76	74	73	70	61	62	62	68	70	73	77	82	84	86	90	89	90	77.6	24	
18		89	87	87	83	79	69	71	76	85	81	66	58	52	52	55	59	64	70	74	77	76	78	78	89	71.6	24		
19		82	83	82	81	83	86	84	75	67	57	55	52	51	52	54	57	60	63	67	69	70	74	74	74	86	68.8	24	
20		73	72	69	70	68	70	68	65	61	62	70	77	81	79	75	71	74	79	82	78	76	77	76	76	82	72.9	24	
21		76	76	77	79	78	78	79	80	83	86	85	84	79	72	65	66	69	74	77	79	83	86	86	84	86	78.4	24	
22		82	79	72	71	67	68	66	65	65	63	59	57	55	55	56	56	58	62	66	72	77	82	84	86	86	67.6	24	
23		87	88	87	86	86	88	87	86	83	84	81	77	63	51	45	45	48	54	55	59	62	62	63	59	88	70.3	24	
24		57	57	58	58	62	59	60	63	63	57	55	51	48	47	48	51	55	58	63	69	72	75	79	83	60.3	24		
25		84	74	69	74	73	69	73	78	79	80	76	68	68	73	75	78	79	83	85	85	86	86	85	86	86	77.8	24	
26		85	87	85	75	69	69	69	77	83	79	77	77	77	78	77	77	84	89	87	85	84	86	87	88	89	80.5	24	
27		87	87	86	86	85	84	83	84	85	84	81	79	74	69	71	75	79	83	79	49	44	48	57	60	87	75.0	24	
28		64	66	67	69	73	78	78	80	79	76	68	65	71	79	80	81	81	82	82	82	85	86	86	87	87	76.9	24	
29		90	92	94	94	94	94	94	94	94	94	93	93	92	90	90	92	92	92	91	89	89	86	82	80	76	94	90.3	24
30		73	71	74	79	84	83	81	82	82	83	79	72	69	80	89	91	92	92	92	92	92	92	91	90	92	83.5	24	
31		90	89	88	88	90	89	85	83	86	87	85	80	74	71	68	69	66	67	67	69	69	70	72	71	90	78.0	24	
HOURLY MAX		90	92	94	94	94	94	94	94	94	93	93	92	90	90	92	92	92	92	92	92	92	92	91	91	90			
HOURLY AVG		76.6	76.1	76.4	76.8	76.8	77.3	77.4	78.2	78.3	77.3	73.8	70.3	67.0	65.4	65.1	66.7	69.6	72.4	73.8	73.7	74.5	75.3	75.9	76.2				

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

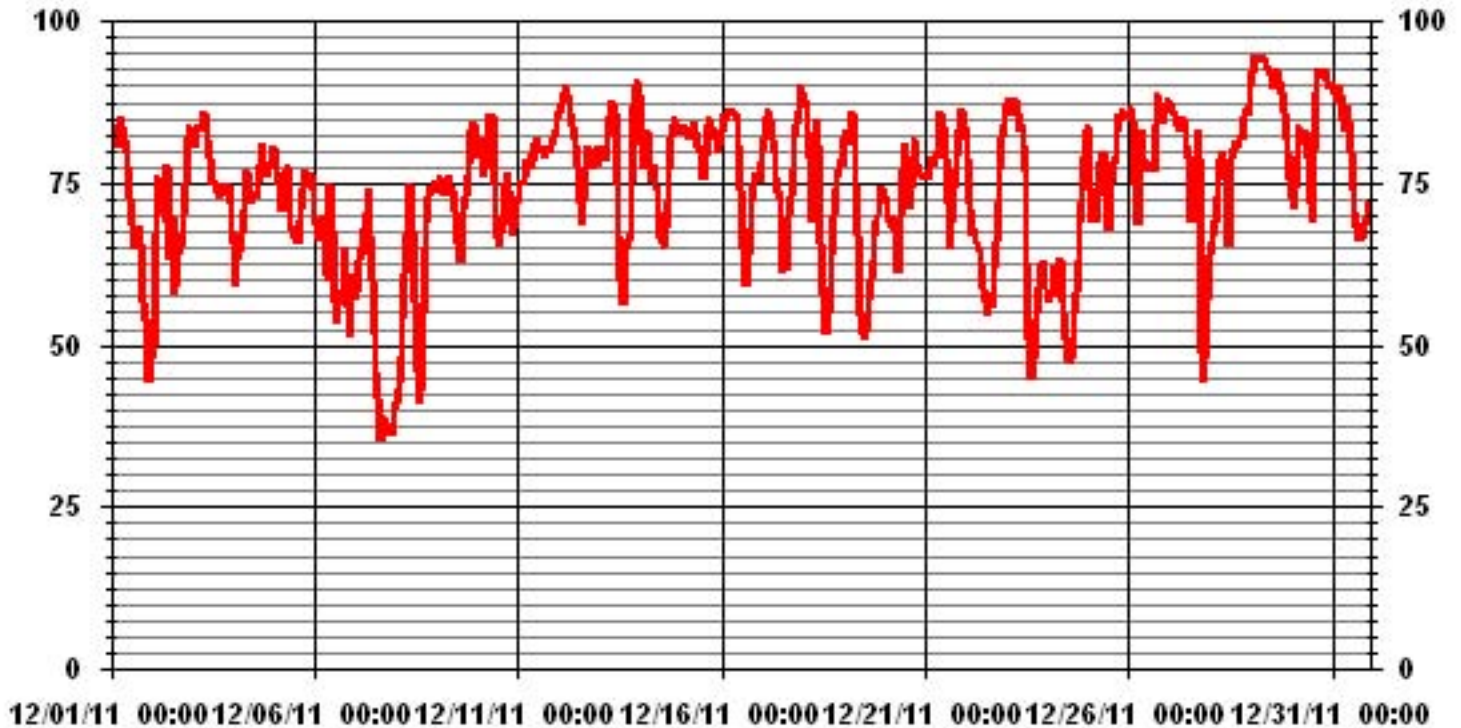
24 HOUR AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	94	%	@ HOUR(S)	VAR	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	90.3	%			ON DAY(S)	29
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	11.55		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	73.78	%	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		0.8	0.7	0.4	1.2	1.5	3.5	5	4.9	6.6	5.8	5.5	5.2	6	5.2	5.9	3.8	3.7	2.6	6	7.4	6.1	8.6	13	10.1	13	4.7	24
2		12.6	14.2	17.9	15	15.6	14.8	14.9	12.1	10.6	20.4	24.8	22.6	17.8	21.8	20.5	17.4	13.4	10.1	10.9	7.1	3.4	2.2	2	2	24.8	12.2	24
3		1	0.5	0.7	0.3	1.9	1.8	1.5	1.1	4	5.9	5.1	6.7	6.9	6.9	7.2	8.2	11.6	9.7	7	13.1	6.3	7.1	6.2	7.9	13.1	3.9	24
4		8.2	9	8.7	8.4	9	9.2	5.2	5.2	2.7	2.6	4.2	5.2	6.1	5.4	5.2	3.4	3.5	4.6	5	4.7	7.6	3.4	3.3	2	9.2	3.6	24
5		3	3.7	3.2	4.9	7.6	5.7	3.5	2.2	2.6	3	4.9	4.7	5.7	4.3	4.3	2.5	2.1	1.8	4.7	6.4	7.8	8	9.3	9.9	9.9	4.8	24
6		11.2	11.5	10.3	9.4	9.6	10.3	10.9	12.1	18.8	19.6	16.8	12.7	13.1	12.4	9.8	7.9	7.4	7.1	10.4	17.1	19	17.9	12.1	10	19.6	12.4	24
7		7.9	4.1	5.2	5.2	4.4	7.2	8	6.9	9.9	10.4	13.1	15.4	17.9	19.4	23.1	21	17	14	14.7	14.6	12.7	12.4	11.5	10.8	23.1	12.0	24
8		9.3	6.7	7.5	8.3	7.9	9.5	7.6	8.4	8.4	8.6	10.6	8.1	5.3	4.1	7.8	4.8	1.1	1.6	1.5	1	1.6	0.9	0.8	0.6	10.6	5.5	24
9		0.3	0.6	2.1	3	3.7	5.4	5.9	3.7	3.3	4.1	6.9	8.7	9.7	11.3	10	7.2	4.1	7	5.3	2.4	1.8	3.5	4.4	4.7	11.3	5.0	24
10		1.6	2.9	3.6	4.1	3	0.1	1.1	0.8	0.5	1.4	2.3	1	1.7	1	2.5	2.7	3.2	5	6.8	6.5	6.7	6.4	7.9	7.1	7.9	3.3	24
11		10.1	14.4	12.3	9.6	8	7.7	9.2	6.4	7	8.2	7.2	6	4.3	3.6	5.5	5.5	4.6	2.6	2.4	1.5	1.2	1.9	2.9	4.8	14.4	6.1	24
12		6	6.5	7.2	7.9	7.5	4.9	3.8	4.6	5.4	4.3	5.7	8.1	5.5	6	5.8	4.1	6.2	4.5	6.5	7.1	6.9	7.5	7.3	6.8	8.1	6.1	24
13		5.9	8.9	8	6	5.9	4	2.5	2.3	1.5	1.4	2.2	4.7	4.5	4.7	4.5	3.1	2.9	1.7	4.2	3.5	3.2	4.5	2	2.9	8.9	4.0	24
14		3.2	2.9	6.2	8.4	9.2	14.7	14.8	13.1	13.2	10.3	12	12.9	13.9	13.9	15.4	10.8	7	5	3	2.8	4.9	5.7	4.9	4.9	15.4	8.9	24
15		0.6	2.6	2.2	2.4	4.9	6.7	6.5	4.8	5.7	4.4	3.8	4	2.3	2.9	3.7	2.7	1.2	1.2	1	0.7	1.1	0.9	0.8	0.7	6.7	2.8	24
16		0.8	1.1	1.1	0.7	1.6	2.4	3.2	2.6	3.2	2.2	5	6.7	12.5	13.2	11.3	9.6	8.7	8.5	7.5	7.6	9	7.4	6	5.1	13.2	5.7	24
17		3.8	0.8	1.2	0.8	0.9	0.7	2	2.9	4.2	4.4	3.2	4.3	3.8	4.5	5.9	6.7	7.6	6.5	5	6.1	5.8	2.9	4.2	4.3	7.6	3.9	24
18		4.1	4.7	4.2	3.9	4.1	3.7	5	4.7	2.7	3	3.8	5.7	6.6	7.7	7.7	6.9	4.8	5.3	3.9	4.9	4.8	5.2	5.7	5.9	7.7	5.0	24
19		2.3	1.7	0.6	1	1.8	1.5	2	5.9	4.8	8.9	8.4	8.5	9.3	6.9	9.5	11.5	9.8	6.7	5.2	5.6	5.5	6.8	7.9	7	11.5	5.8	24
20		7.4	6.5	7.4	8.8	8.6	6	9.6	10.7	12.5	13.8	15.3	11.1	7.2	4.1	6.7	5	5.9	4.6	5	8.2	8.8	7.4	5.8	7.7	15.3	8.1	24
21		5.6	4.4	3.7	5.1	6.6	4.8	3.7	6.1	4.7	4.5	5.4	4.9	8.3	13.3	11.5	8.7	8.1	10.2	8.1	5.6	3.6	4.2	4.7	4.5	13.3	6.3	24
22		4.7	4.9	7.2	5.9	7.1	7.6	7.4	9.3	8.5	7.3	8.7	10	9.6	10.3	9.7	7.9	5.8	4.2	5	7.7	2.9	3.4	4.1	2.9	10.3	6.8	24
23		0.8	0.5	1.1	0.7	1.9	2	0.7	1	3.4	0.5	2.4	5.2	5.5	7.1	8.1	8.9	8.9	8	8.4	8	9.1	10.3	10.3	10.4	10.4	5.1	24
24		12.5	9.4	7.3	7.8	9	10.1	10.3	9.7	10.8	13.2	13.4	16.1	16.5	12.2	11.7	9	7.9	6	5.1	8.2	6.2	4	1.7	0.9	16.5	9.1	24
25		0.1	2.6	1.9	1.9	1	2.9	1.4	0.6	1.6	1.2	0.8	1.8	1.1	0.6	1	0.7	1.3	0.8	0.3	1.1	0.9	0.8	1.6	2.6	2.9	1.3	24
26		2.2	1.6	5.3	6	8.4	9.3	6.3	9	13.6	10.7	13.2	10.9	11.1	7.9	5.6	1.8	1.3	1.9	3	5.8	8.3	7.8	7.3	8.6	13.6	7.0	24
27		9.4	9	9.1	9.6	10	11.4	12.2	9.7	8.1	7.3	4.9	4.9	4.1	6.2	5.5	4.6	3.3	2.2	6.5	10.4	12.6	11	11.3	7.1	12.6	7.9	24
28		4.7	7.1	6.4	6	3.7	0.8	1.1	0.3	0.7	1.6	1.3	1.5	2.2	2	3.2	4.3	5.2	4.9	2.1	5.1	5	3.6	3.7	4.1	7.1	3.4	24
29		3.2	5.3	8.5	6.4	5.7	5.5	6.3	6	5.4	3.5	2.9	3.7	5.6	6.9	6.3	5.5	6	6.9	5.3	5.6	7.6	6.5	6	5.8	8.5	5.7	24
30		6.5	5.8	5.2	3	1	0.5	0.1	1.4	1.1	1.9	4.3	5.1	6.1	8.5	8.3	6.9	5	3.7	0.9	1.2	1.7	4.1	5.4	5.1	8.5	3.9	24
31		4.8	6.1	6.2	6.2	7.5	9	10.5	9.5	7.7	9.1	12.5	15	15.1	14.9	15.6	18.3	17.2	17	16.5	12.4	12.8	13.7	9.2	7.1	18.3	11.4	24
HOURLY MAX		12.6	14.4	17.9	15.0	15.6	14.8	14.9	13.1	18.8	20.4	24.8	22.6	17.9	21.8	23.1	21.0	17.2	17.0	16.5	17.1	19.0	17.9	13.0	10.8			
HOURLY AVG		5.0	5.2	5.5	5.4	5.8	5.9	5.9	5.7	6.2	6.6	7.4	7.8	7.9	8.0	8.3	7.1	6.3	5.7	5.7	6.4	6.3	6.1	5.9	5.6			

STATUS FLAG CODES

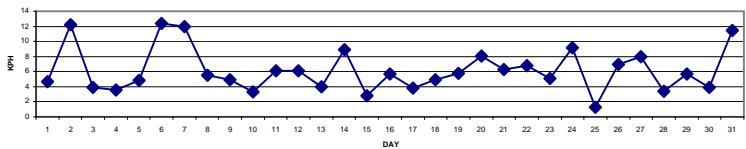
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 23, 2010

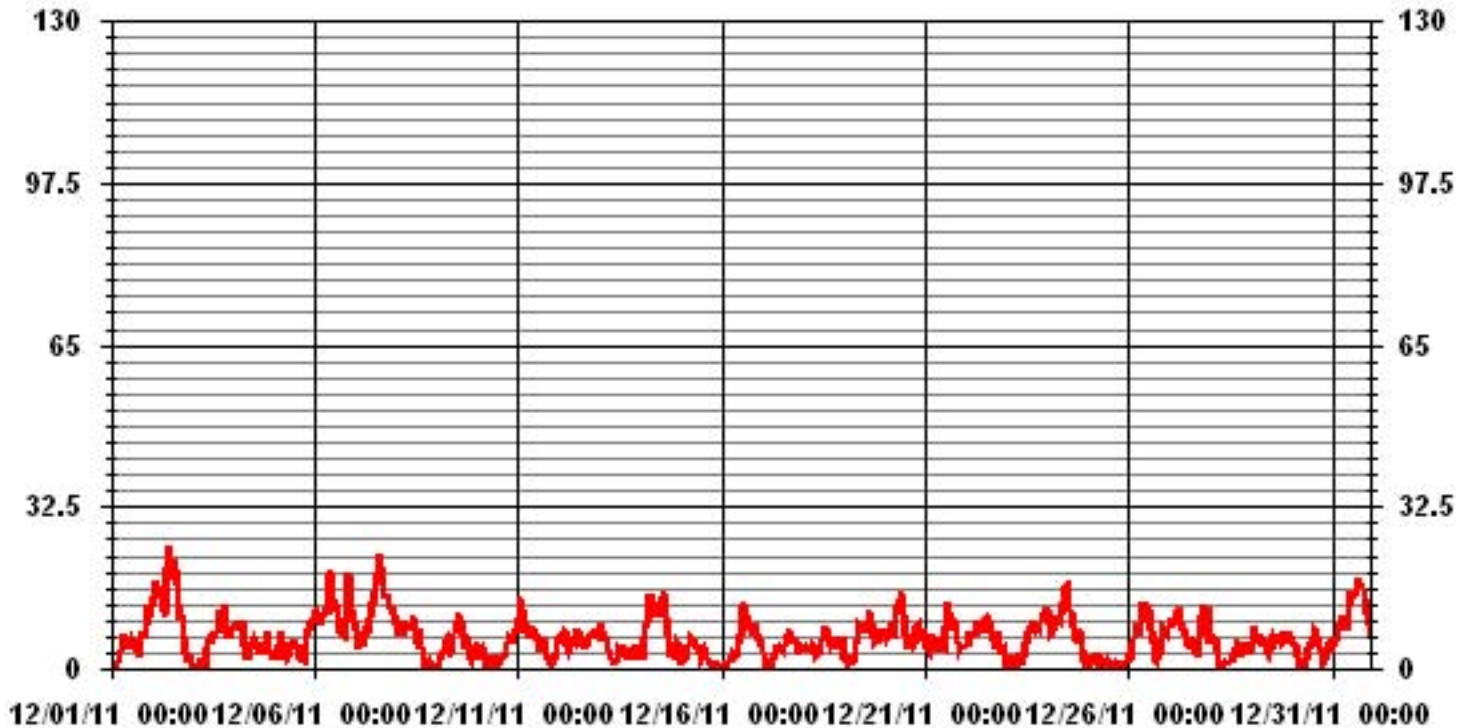
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	24.8	KPH	@ HOUR(S)	10	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	12.4	KPH			ON DAY(S)	6
CALMS (≤ 0 KPH)	0.94	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION:	4.25		MONTHLY AVERAGE	6.33	KPH	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		3.1	2	2.4	3	4.3	8.4	7.9	7.4	9	7.7	8.2	8.3	10.2	9.7	8.3	7.5	6.8	4.9	11.8	14.6	13.1	12.9	23.3	22.8	23.3	
2		20.4	25.8	27.3	23.8	24.5	21.6	21.6	20.3	20.5	38.8	41.2	30.2	26.3	33.4	29	24.8	23.6	18.1	15	12.1	6.9	4.8	4.5	4.3	41.2	
3		3.3	2.4	3.5	3.2	3.7	3.9	4.2	4.3	6.5	9.7	8.8	10.7	10.6	12.6	13.4	11.7	16.5	16.5	13.5	23.5	12.1	10.8	13.3	12	23.5	
4		12.8	15.8	14.3	13.2	14.7	13.9	8.4	7.2	5.4	4.8	6.9	10.3	9.9	8.2	9.1	5.9	5.8	7.8	8.2	8.3	12	8.7	5.1	4.5	15.8	
5		6.3	7.6	7.5	12.5	12.1	9.7	7.5	4.3	6.4	7	10.6	8.2	9.1	10.8	10.3	4.9	5.1	4.1	9.4	9	12.2	11.4	14.1	14.3	14.3	
6		21	15.4	15.9	16.6	12.9	14.5	15.2	27.6	32.5	30.5	27.6	20.6	21.8	19.6	17.1	13.7	13.1	10.2	19.9	27.8	30.4	28.6	22.3	17.1	32.5	
7		11.5	6.3	7.7	7.7	6.4	10.8	13.5	10.6	14.9	18.3	19.7	25.5	31.4	32.1	34.6	32.8	26.7	25.4	26.5	21.9	20.4	18	19.4	16.3	34.6	
8		14.3	12.1	10.5	12	10.4	12.5	11	11.5	12	14.9	13.4	12.9	8.7	11.3	9.1	4.2	4.3	4.3	3.6	4.7	2.7	2.8	1.5	14.9	14.9	
9		1.3	2.7	5	8	7	8.4	9.8	6.2	6.8	7.8	11.5	14.1	15.7	17.9	15.5	10.4	9.6	10.9	8.3	5.6	5.5	5.6	6.6	6.6	17.9	
10		5.2	6.5	5.4	6.6	5	6.3	6.4	3.7	2.5	3.8	5	3.6	4.6	3.1	13.9	6.7	7.7	7	9.4	9.1	10	9.2	12	9.7	13.9	
11		21	22	19.6	16.2	12.4	11.5	13.2	9.5	12.7	11.3	11.3	11.3	8.1	7.8	9.6	9.1	7.4	8.6	7.5	5.7	4.6	5	6.6	8.2	22	
12		11.4	12	11.6	13.8	13.3	10.6	7	8.3	10.4	8.9	9.2	13.6	11	12.3	12.4	6.5	9.5	9.1	11.4	12.1	12.2	13.7	13.3	12.7	13.8	
13		12.8	15	12.7	9.9	10.2	6.5	4.7	4.3	4	3.9	5.5	8.7	9	8.9	7.9	6.6	7.4	4.6	6.3	6.6	5.5	7.9	11.7	9.6	15	
14		5.9	5.7	12.7	12.3	12.3	25.5	25.9	21.8	19.2	15.7	18.6	19.6	22.4	20.4	22.1	16.9	9.7	7.6	4.8	7.8	7.9	8.6	7.8	9.6	25.9	
15		3	6.3	5.1	5.2	8.7	10.6	9.5	7.9	8.8	9	5.5	5.8	4.8	5.1	6	5.4	2.8	3.2	2.8	2.8	2.5	3.6	3	2.3	10.6	
16		2.7	3.6	3.5	3.9	5.2	4.8	7.7	5.2	7.3	4.3	10.4	13.4	17.5	21.4	16.7	14.3	13.7	11.1	9.9	10.5	11.5	11.1	10.5	8.5	21.4	
17		6.4	2.5	3.8	2.4	3	2.4	3.8	4.7	8.2	8.5	6.9	8.7	9.5	8.6	11	9.5	10.5	9	7.1	8.4	9.3	4.8	5.5	6.9	11	
18		6.5	6.9	5.7	5	5.5	5.8	6.8	7	4.1	5.7	6	13.8	10.3	11.5	14.3	12.3	10	6.9	6.6	6.2	6.2	7.3	7.9	9.7	14.3	
19		4.1	4.6	2.9	3.3	3.6	5.2	5.5	9.5	10	14.8	12.8	13.4	14.4	11	16.3	16.6	14.2	12.8	8.2	8.9	9.2	10.2	11.4	10	16.6	
20		10.7	10.8	11.1	12.8	13.5	12.2	28.4	18.7	19.7	21.5	21.7	19	15.1	7.5	11.7	8.7	9	8	7.2	13.4	15.5	10.3	9.6	10.5	28.4	
21		8.4	8.4	5.8	8.1	10.1	9.4	6	8.7	6.9	8.3	10.5	9	15.7	21.1	15.8	15.2	12.3	13.9	11.5	9	5.6	6.9	6.6	9.5	21.1	
22		8.8	8.9	12.5	9.1	10.8	13.9	10.6	13	12.4	10	12.2	14.9	16.4	15.3	13.5	11	9.1	6.6	7.7	9.6	8	6.1	6.3	6.3	16.4	
23		3.5	3.5	2.8	2.9	4.5	4.3	3.7	7.5	10.4	5.9	7.1	7.4	10.4	11.2	12	13.9	15.5	11.4	12	11	12.2	14.7	16.3	15	16.3	
24		16.4	15.1	11.7	12.3	13.6	13.4	14.3	12.8	13.8	17.9	19.8	23	29.9	20.5	19	13.4	10.5	8.1	8.2	11.7	10	5.7	3.6	2.9	29.9	
25		2.5	5.1	4.7	3.7	4.1	6.5	4.2	3.5	3.5	3	2.5	3.9	3.7	2.8	4.5	3.8	3.1	4.2	4	3.8	5.3	4.8	4.5	9.1	9.1	
26		8	5.4	8.1	9.4	11.3	13.1	10	18.1	22.4	23.7	22.7	18	17.7	11.1	9.2	4.9	2.9	4.2	7.6	9.6	10.5	11.5	9.3	12.2	23.7	
27		13.3	13.6	13.5	13.6	17.2	17.8	20.6	17.4	12.2	11.4	10	10.1	8.4	11.6	9	7.7	5.6	6.4	9.6	15.7	17	17.3	17.7	11.1	20.6	
28		9.7	10.2	10.6	8	5.7	2	3.4	2.8	3.1	4.8	4.2	4.3	6.1	4.4	5.7	6.2	7.7	8.8	4.7	13.9	12.9	10.8	7.5	7.9	13.9	
29		4.6	12.5	15.7	11.1	8.9	12.5	10.2	11	11.7	10	10.4	7.5	9.2	12.3	10.3	9.3	8.8	9.4	6.9	8.6	11.6	10.2	9	8.3	15.7	
30		8.3	8.1	6.2	6.9	3.8	3.2	2	2.9	2.5	3.4	5.8	8.7	10.3	13.9	12.7	12.5	9	7.7	2.6	2.9	5.4	6.5	10.5	7.6	13.9	
31		6.8	10.4	9.1	9.6	13.4	13.7	15.3	16.3	11.5	14.9	17.2	21.1	25.4	25.8	24.6	29.9	29.6	26.8	24.2	19.3	19.2	21.6	15.6	10.5	29.9	
PEAK		21.0	25.8	27.3	23.8	24.5	25.5	28.4	27.6	32.5	38.8	41.2	30.2	31.4	33.4	34.6	32.8	29.6	26.8	26.5	27.8	30.4	28.6	23.3	22.8		

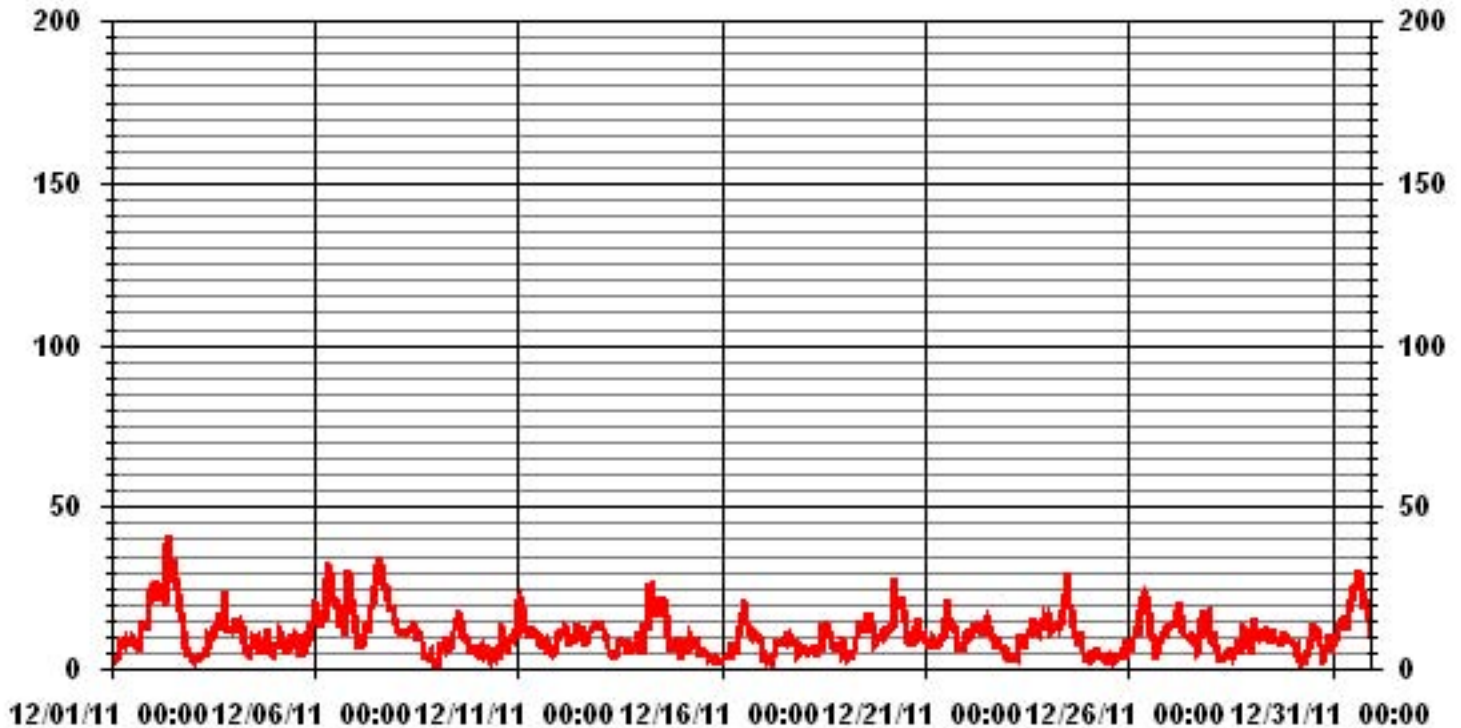
STATUS FLAG CODES

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	41.2	KPH	@ HOUR(S)	10
			ON DAY(S)	2

01 Hour Averages



LICA
WSP / WD Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	.40	.26	.13	1.07	1.34	3.22	6.58	4.43	3.89	5.64	10.48	7.66	2.68	1.88	1.74	.67	52.15
< 12.0	.94	.00	.00	.13	.53	.40	2.15	.13	.26	.80	7.39	9.40	6.72	2.15	2.68	2.41	36.15
< 20.0	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.40	2.82	2.68	2.55	1.20	9.81
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.94	.00	.94
< 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	1.34	.26	.13	1.20	1.88	3.62	8.87	4.56	4.16	6.45	17.87	17.47	12.23	6.72	7.93	4.30	

Calm : .94 %

Total # Operational Hours : 744

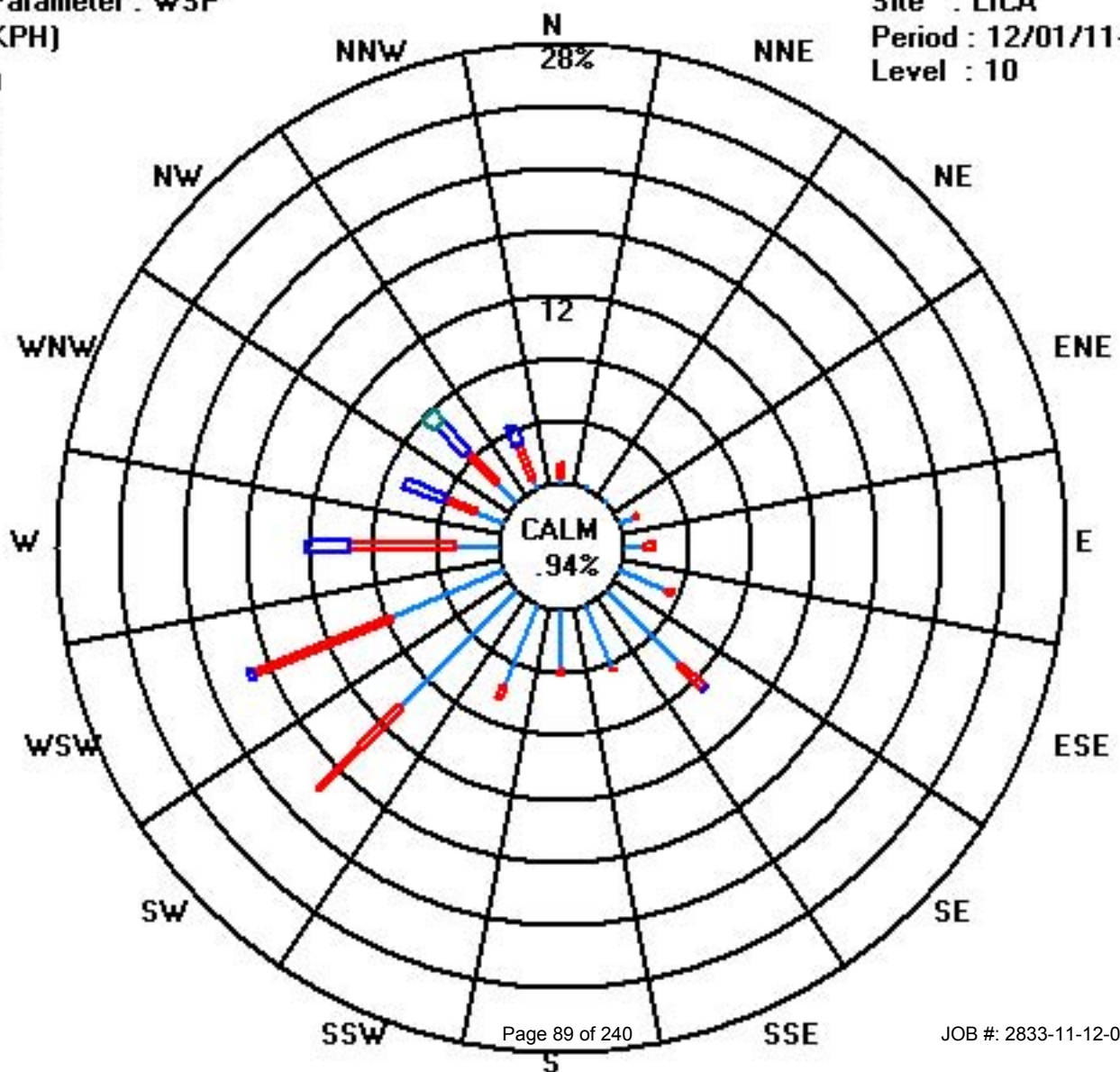
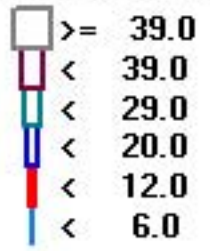
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	3	2	1	8	10	24	49	33	29	42	78	57	20	14	13	5	388
< 12.0	7			1	4	3	16	1	2	6	55	70	50	16	20	18	269
< 20.0							1					3	21	20	19	9	73
< 29.0															7		7
< 39.0																	
>= 39.0																	
Totals	10	2	1	9	14	27	66	34	31	48	133	130	91	50	59	32	

Calm : .94 %

Total # Operational Hours : 744

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	24-HOUR QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	260	114	173	228	231	243	230	239	237	237	236	232	229	222	220	201	206	191	221	223	250	240	269	264	236	SW	24	
2	275	277	280	277	273	262	267	272	281	304	318	317	308	317	320	323	316	311	306	310	280	192	149	170	297	WNW	24	
3	167	196	129	97	133	130	258	235	244	235	256	273	288	312	328	340	354	347	343	343	342	329	339	333	322	NW	24	
4	323	339	324	314	318	323	311	307	300	268	282	301	257	253	257	230	211	211	219	216	218	200	147	159	282	W	24	
5	164	176	177	205	212	210	184	179	177	184	206	198	211	172	215	187	183	160	213	231	233	230	236	235	209	SSW	24	
6	231	238	240	247	246	247	258	293	307	319	344	340	322	313	304	292	279	268	265	302	313	330	330	318	297	WNW	24	
7	309	249	242	245	272	275	282	271	285	280	281	286	291	301	305	306	307	301	301	297	300	301	297	294	293	WNW	24	
8	288	274	269	266	257	258	258	265	264	270	267	279	311	276	304	292	267	244	208	192	231	238	202	159	270	W	24	
9	206	182	138	143	138	126	137	141	163	216	219	234	258	262	257	248	229	243	240	234	230	228	220	219	223	SW	24	
10	241	239	231	230	230	120	59	104	184	84	123	98	23	57	274	140	230	235	239	255	265	262	272	272	247	WSW	24	
11	312	343	340	343	346	349	357	339	341	333	340	7	354	9	325	326	317	292	282	294	173	209	219	223	334	NNW	24	
12	228	236	228	229	219	205	144	142	148	164	155	144	164	172	197	156	147	167	190	204	199	195	206	204	189	S	24	
13	202	216	219	218	218	212	208	206	210	200	214	223	229	239	232	147	146	195	222	230	120	84	148	190	207	SSW	24	
14	150	198	235	253	275	305	308	305	311	321	321	313	327	322	323	315	320	339	307	357	284	302	314	328	309	NW	24	
15	228	251	217	137	132	136	130	134	127	128	132	130	112	125	137	132	155	162	224	175	132	181	227	123	141	SE	24	
16	132	158	150	121	173	138	144	177	211	199	216	249	260	266	259	253	253	249	235	235	237	231	235	225	239	WSW	24	
17	236	145	179	134	249	102	115	118	140	136	151	142	201	225	224	235	243	245	242	237	239	260	253	240	217	SW	24	
18	253	246	241	244	243	256	248	243	204	214	243	274	274	271	272	275	253	239	227	226	229	233	230	226	248	WSW	24	
19	167	234	204	171	190	139	162	215	202	218	219	229	232	228	232	235	235	236	220	224	233	240	243	240	226	SW	24	
20	235	235	238	237	261	279	266	277	276	288	305	310	324	274	301	326	318	336	329	357	7	357	343	334	296	WNW	24	
21	313	312	257	253	267	271	252	256	262	274	272	253	242	261	259	243	234	242	257	252	233	228	230	224	255	WSW	24	
22	223	230	221	230	229	229	242	245	244	249	261	263	271	268	261	265	265	254	251	246	220	193	223	229	247	WSW	24	
23	235	106	93	118	129	82	117	189	130	284	206	241	231	237	227	226	228	234	223	230	241	230	235	247	228	SW	24	
24	252	236	238	243	240	237	238	243	245	252	260	275	293	281	267	262	249	238	234	239	241	237	176	139	253	WSW	24	
25	169	148	103	137	153	203	194	125	150	160	189	193	230	67	129	187	139	112	102	65	165	250	252	254	171	S	24	
26	257	237	242	258	257	253	264	292	337	345	321	335	296	304	321	23	154	123	116	133	131	131	133	130	295	WNW	24	
27	128	126	126	125	126	125	124	136	134	129	126	141	220	233	245	235	212	260	256	253	256	271	287	244	176	S	24	
28	216	236	238	246	235	97	214	41	106	91	250	282	274	103	105	131	127	138	173	206	205	186	160	129	189	S	24	
29	108	115	123	112	98	99	111	100	135	128	168	220	226	234	233	230	238	239	243	241	238	237	237	241	191	S	24	
30	236	241	243	252	111	155	250	66	63	52	69	69	75	83	83	86	93	114	203	284	259	260	287	293	95	E	24	
31	279	283	292	288	275	271	274	284	278	264	265	265	275	275	275	289	297	293	294	302	301	300	297	288	269	285	WNW	24
HOURLY AVG	323	343	340	343	346	349	357	339	341	345	344	340	354	322	328	340	354	347	343	357	342	357	343	334				

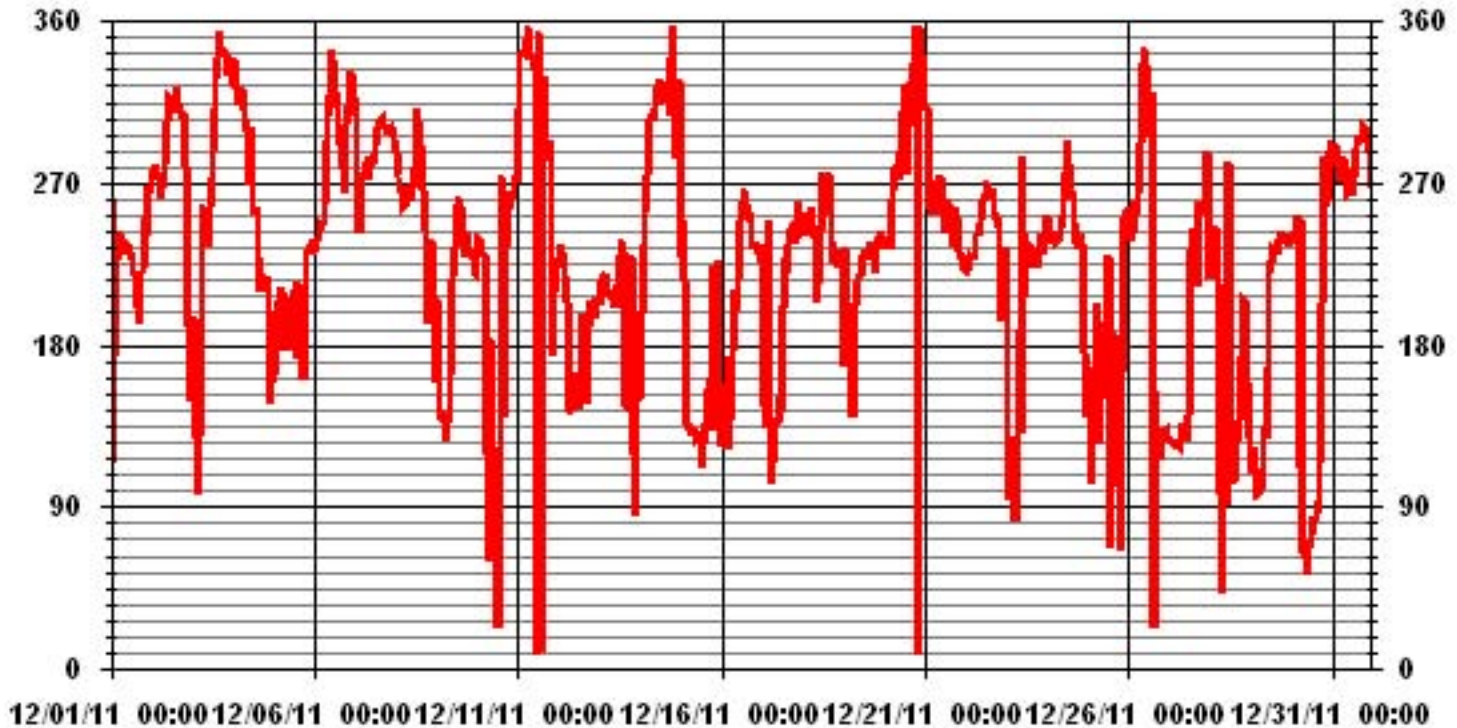
STATUS FLAG CODES

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 23, 2010
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION	67.96	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	263 DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2011

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	60	44	65	38	48	22	16	15	17	17	18	19	21	17	16	32	28	38	21	21	28	18	19	18
2	20	20	20	20	19	18	18	20	20	17	16	16	17	16	16	16	17	20	13	12	20	15	23	33
3	31	49	58	38	25	29	31	69	19	17	20	18	18	16	17	18	23	17	18	17	19	12	16	15
4	13	17	16	14	15	15	14	14	17	22	21	23	19	20	21	21	21	18	17	16	16	28	29	44
5	38	38	42	33	27	25	39	42	44	44	37	39	26	39	33	34	40	41	23	16	16	19	17	18
6	19	18	19	21	17	16	16	17	14	15	17	17	17	15	15	16	18	18	17	15	14	13	16	13
7	12	13	12	15	22	19	17	17	16	18	19	20	18	18	15	15	15	15	15	16	16	15	14	14
8	16	19	18	17	14	14	12	15	15	16	15	21	41	32	17	16	40	43	25	35	43	59	45	34
9	73	54	30	38	26	15	18	25	39	27	21	21	19	18	16	16	19	15	12	29	62	11	14	13
10	51	18	12	14	20	69	53	63	74	46	45	52	34	33	40	40	21	14	13	15	18	17	18	19
11	16	18	17	17	19	18	16	14	15	14	16	29	25	41	26	13	21	43	44	35	45	34	32	22
12	20	21	20	21	20	33	28	22	29	37	32	24	35	38	38	33	28	43	39	32	36	35	30	32
13	33	24	20	18	20	22	25	26	43	47	41	22	22	24	26	27	50	55	18	23	20	18	27	36
14	31	35	20	15	20	15	15	15	14	15	16	14	15	15	15	13	12	17	27	31	19	13	18	36
15	46	38	29	26	19	16	16	13	14	15	11	15	30	26	18	26	37	33	47	30	29	56	50	52
16	74	65	63	62	57	40	35	34	29	26	21	21	18	19	18	17	16	15	16	15	17	19	20	14
17	15	50	54	46	47	48	21	16	29	20	40	31	39	21	21	19	16	15	14	14	15	17	10	15
18	11	10	11	10	14	17	11	11	12	18	15	22	21	20	20	20	18	12	14	12	11	11	10	14
19	32	29	48	56	39	45	46	23	29	19	20	21	20	19	19	19	20	19	15	17	15	16	17	18
20	17	18	17	18	18	17	19	18	19	18	14	16	21	21	14	12	12	15	15	17	21	15	15	12
21	14	14	15	16	23	20	22	14	17	18	20	24	20	20	18	19	18	19	15	16	15	14	16	15
22	18	26	17	15	17	18	19	16	17	17	19	18	19	18	18	18	18	16	13	11	35	22	20	25
23	51	46	52	50	46	26	47	53	50	55	37	19	21	20	18	18	18	20	17	17	19	18	19	20
24	17	17	19	18	20	18	18	17	16	16	18	19	17	20	18	17	13	15	19	17	17	14	20	53
25	67	44	27	40	52	34	43	63	41	43	56	39	45	57	67	56	50	61	48	49	53	63	45	60
26	49	65	10	17	16	15	18	19	15	25	15	19	16	19	19	25	26	24	28	22	12	12	11	12
27	13	15	15	15	15	17	19	17	13	13	27	30	31	23	24	19	27	47	17	16	17	17	18	17
28	16	16	18	14	14	36	38	42	55	39	34	33	35	30	21	14	18	20	37	31	38	38	38	17
29	20	17	19	23	22	23	22	22	44	43	39	25	19	19	20	17	16	16	11	19	15	18	16	15
30	14	14	12	29	54	70	70	24	26	28	17	19	23	17	18	19	22	22	42	18	27	17	15	13
31	16	16	15	15	18	18	19	20	20	18	18	19	19	20	20	16	17	17	14	14	14	15	18	19

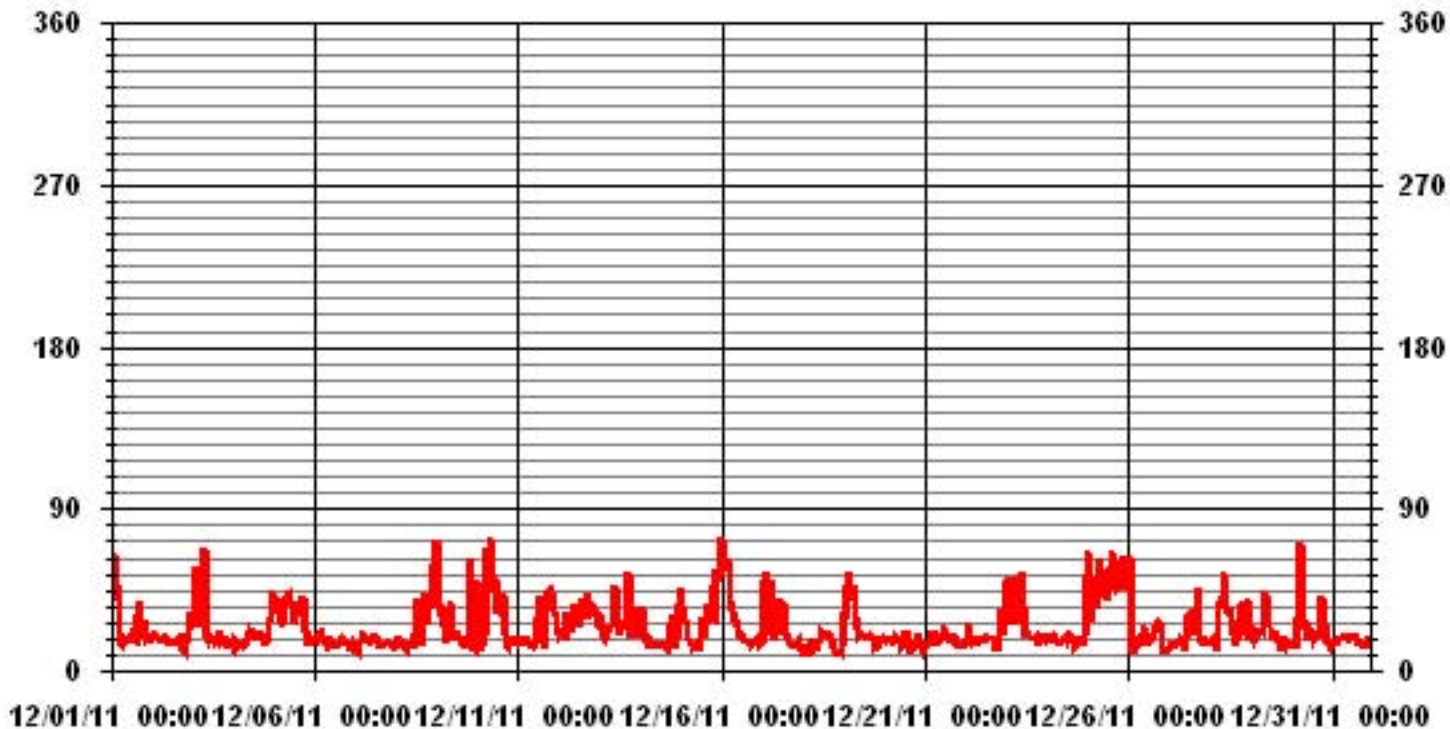
STATUS FLAG CODES

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

LAST CALIBRATION: November 8, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



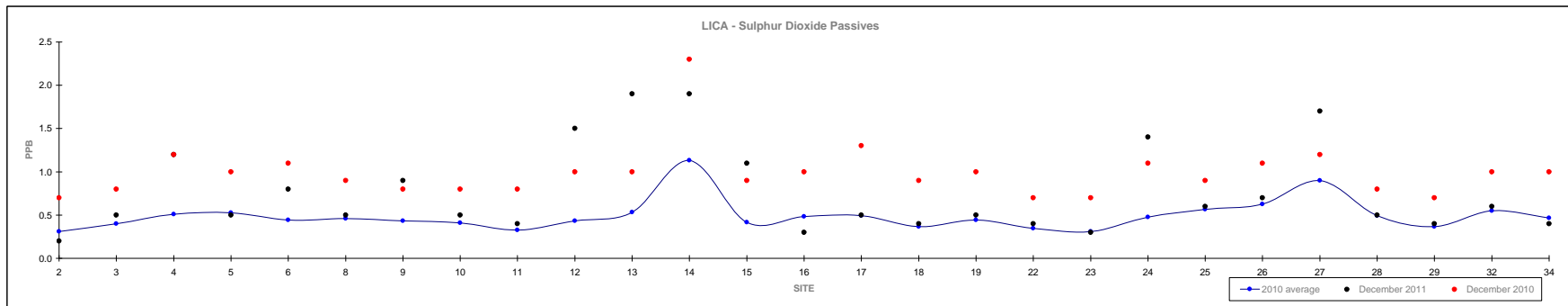
— LICA STDWDIR DEG

Non-Continuous Monitoring

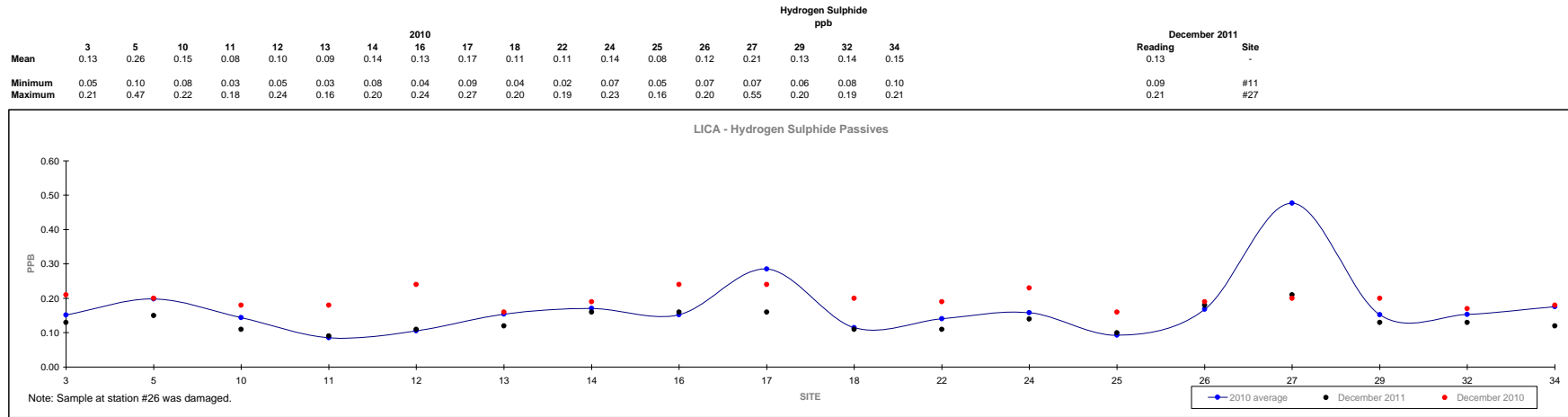
Passive Summary Results for December 2011

Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												December 2011	
	2010																												Reading	Site
	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	34			
Mean	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.5	1.1	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.5	0.6	0.6	0.9	0.5	0.4	0.6	0.5	0.8	-	
Minimum	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.2	0.1	0.1	0.2	#2		
Maximum	0.7	0.8	1.2	1.1	1.1	0.9	0.8	0.8	0.8	1.0	1.0	2.3	0.9	1.0	1.3	0.9	1.0	0.7	0.7	1.1	1.1	1.3	1.5	0.8	0.7	1.2	1.0	1.9	#13, #14	

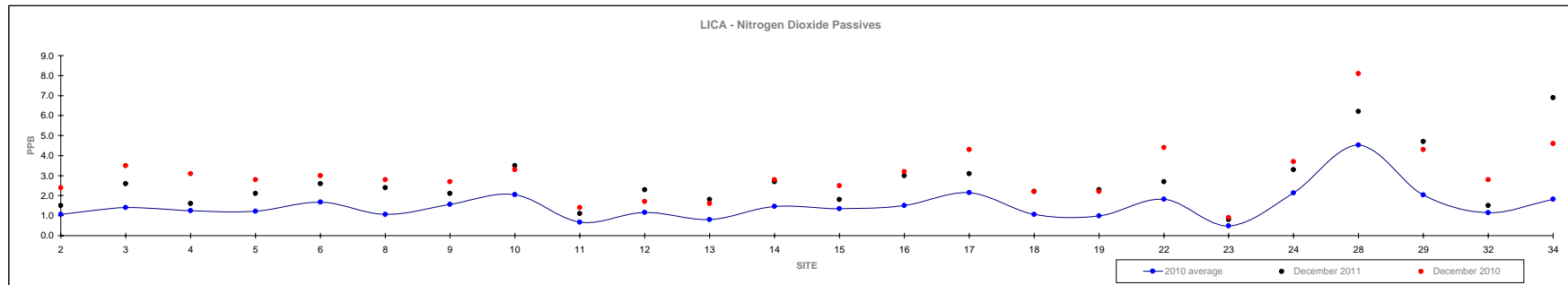


Passive Summary Results for December 2011 Lakeland Industry & Community Association



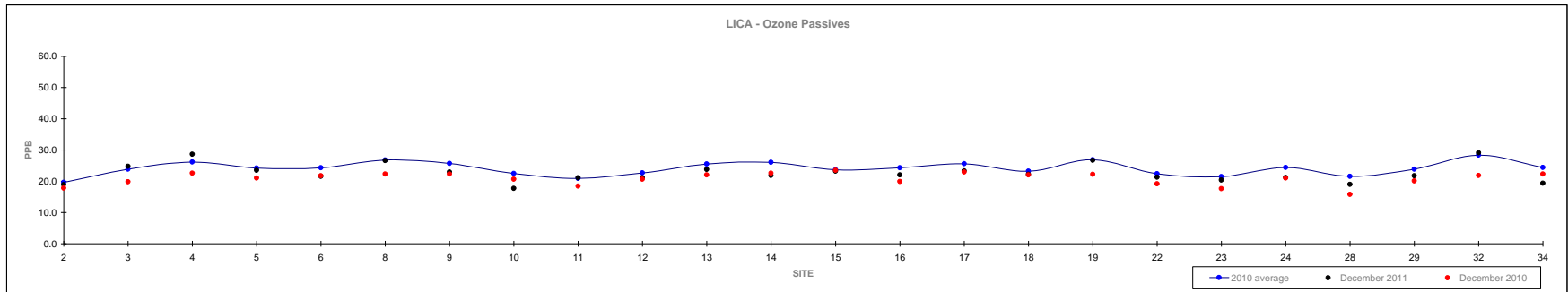
Passive Summary Results for December 2011 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																								December 2011	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site
Mean	1.1	1.4	1.3	1.2	1.7	1.1	1.6	2.1	0.7	1.2	0.8	1.5	1.3	1.5	2.2	1.1	1.0	1.8	0.5	2.1	4.5	2.0	1.2	1.8	2.7	-
Minimum	0.3	0.5	0.4	0.3	0.7	0.3	0.6	0.7	0.2	0.4	0.2	0.4	0.4	0.4	0.9	0.3	0.3	0.5	0.1	0.6	1.6	0.5	0.3	0.6	0.8	#23
Maximum	2.8	3.5	3.1	2.8	3.4	2.8	3.7	3.9	1.5	2.8	1.7	3.4	2.6	3.2	4.5	2.3	2.3	4.4	1.1	4.5	9.6	6.0	3.0	4.6	6.9	#34



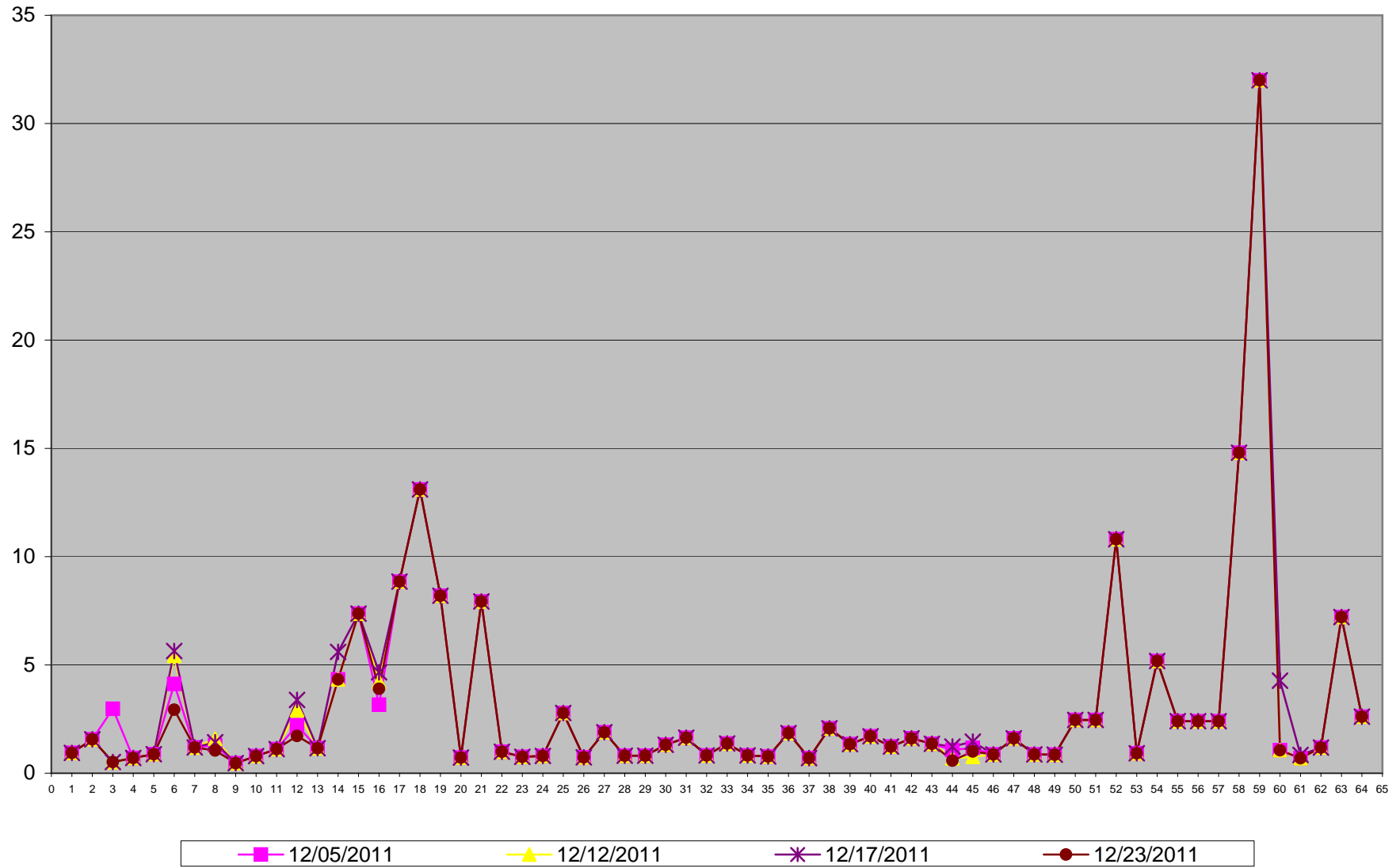
Passive Summary Results for December 2011 Lakeland Industry & Community Association

	Ozone ppb																												December 2011	
	2	3	4	5	6	8	9	10	11	12	2010	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site			
Mean	19.7	23.8	26.2	24.3	24.3	26.8	25.7	22.4	20.9	22.7	25.5	26.0	23.7	24.3	25.6	23.2	26.8	22.3	21.5	24.4	21.5	23.9	28.4	24.4	22.6	-				
Minimum	12.1	15.3	17.1	15.6	15.2	16.5	15.6	13.6	12.6	13.7	16.4	18.1	14.7	17.4	16.5	14.5	18.1	15.3	12.8	16.2	14.9	16.9	20.5	17.3	17.7	#10				
Maximum	31.3	35.5	41.0	36.8	38.2	40.4	39.3	34.7	33.3	34.6	39.4	35.6	35.2	37.3	39.7	34.8	37.5	33.7	35.1	39.3	31.1	36.6	39.2	34.7	29.1	#32				



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	Ethylbenzene
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Methyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

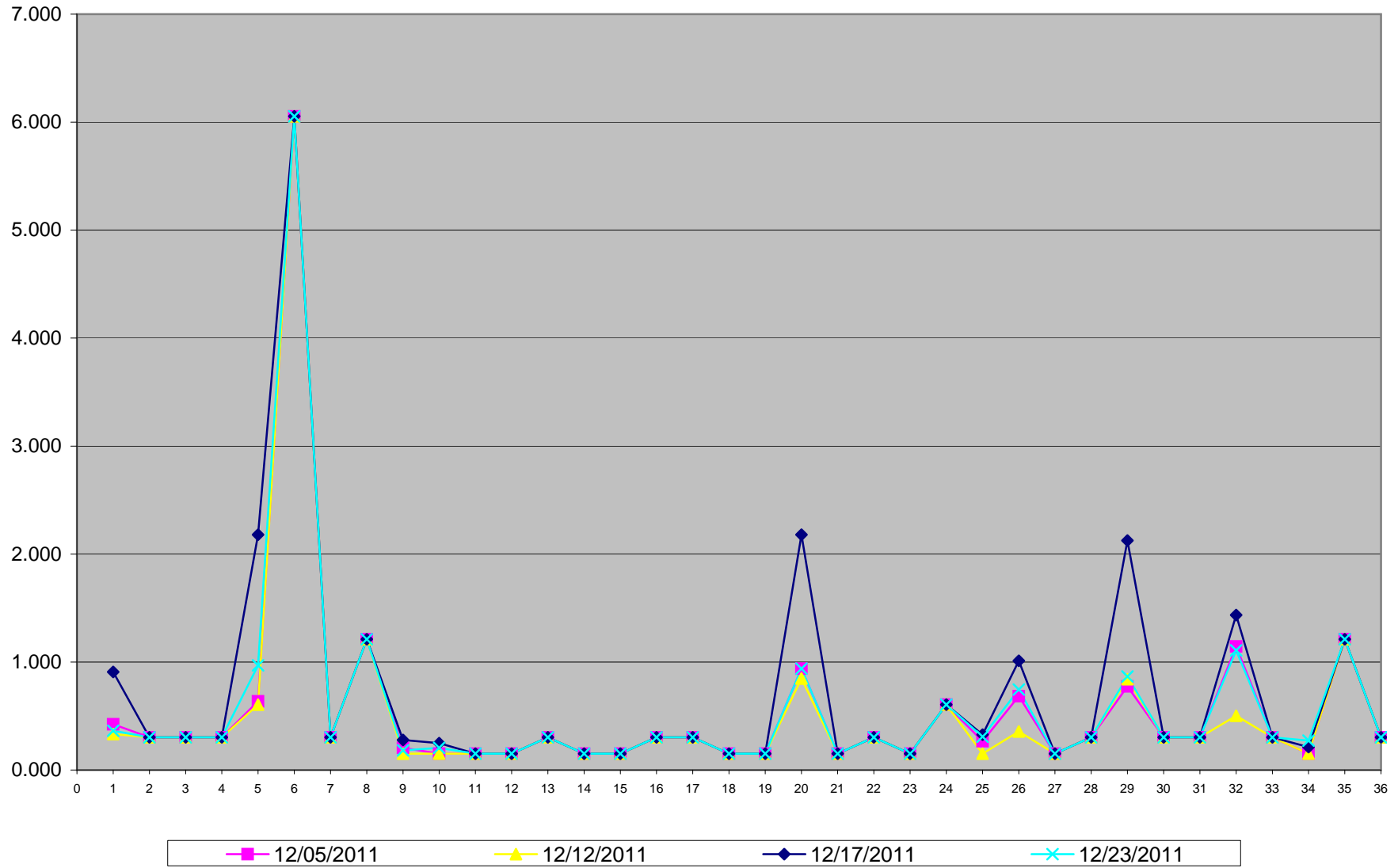
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2011
LICA- Cold Lake South Site
Unit: ng/m3

PAHs	12/05/2011	12/12/2011	12/17/2011	12/23/2011	12/29/2011
Sample Volume (unit: m3)	330.37	330.34	330.32	330.36	NA
1 1-Methylnaphthalene	0.424	0.333	0.908	0.363	NA
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	NA
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	NA
4 2-Methylantracene	0.303	0.303	0.303	0.303	NA
5 2-Methylnaphthalene	0.636	0.605	2.180	0.969	NA
6 3-Methylcholanthrene	6.055	6.055	6.055	6.055	NA
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	NA
8 9,10-Dimethylantracene	1.211	1.211	1.211	1.211	NA
9 Acenaphthene	0.206	0.151	0.279	0.182	NA
10 Acenaphthylene	0.151	0.151	0.248	0.206	NA
11 Anthracene	0.151	0.151	0.151	0.151	NA
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	NA
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	NA
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	NA
15 Benzo(b)fluoranthene	0.151	0.151	0.151	0.151	NA
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	NA
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	NA
18 Benzo(g,h,i)perylene	0.151	0.151	0.151	0.151	NA
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	NA
20 Biphenyl	0.938	0.848	2.180	0.938	NA
21 Chrysene	0.151	0.151	0.151	0.151	NA
22 Coronene	0.303	0.303	0.303	0.303	NA
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	NA
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	NA
25 Fluoranthene	0.266	0.151	0.327	0.309	NA
26 Fluorene	0.684	0.357	1.011	0.745	NA
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	NA
28 m-Terphenyl	0.303	0.303	0.303	0.303	NA
29 Naphthalene	0.775	0.842	2.125	0.866	NA
30 o-Terphenyl	0.303	0.303	0.303	0.303	NA
31 Perylene	0.303	0.303	0.303	0.303	NA
32 Phenanthrene	1.144	0.503	1.435	1.108	NA
33 p-Terphenyl	0.303	0.303	0.303	0.303	NA
34 Pyrene	0.151	0.151	0.212	0.272	NA
35 Quinoline	1.211	1.211	1.211	1.211	NA
36 Tetralin	0.303	0.303	0.303	0.303	NA

Note: - values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
- Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.
- No sample result for Dec 23 is included in this report because it is not available when the monthly report was preparing.

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,l)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 4, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:52	End Time (MST)	13:38
Reason:	Monthly Calibration		
Barometric Pressure	0.94 atm	Station Temperature	23 Deg C
Cal Gas	48.3 ppm	Gas Cyl. #	LL103831
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	February 28, 2013
		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 - 1000	ppb	
Sample Flow / Box Temp	452 ccm 30.1 Deg C	451 ccm 30.1 Deg C	
HVPS / Lamp Setting	-632 745	-632 746	
PMT / RxCell Temp	OK Deg C 45 Deg C	OK Deg C 45.1 Deg C	
Converter / IZS Temp	NA Deg C 45 Deg C	NA Deg C 45.0 Deg C	
Offset / Slope	5.9 1.011	6 1.023	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	0	N/A
	No Zero Adj			
4953	41.3	399	394	1.0137
4953	41.3	399	400	0.9985
4972	23.2	224	227	0.9882
4981	12.9	125	127	0.9824
4995	0	0	0	N/A
		Sum of Least Squares		0.9951
		New Correction Factor		0.9985

	Before Calibration	After Calibration
Auto Zero	0.0	-0.1
Auto Span	371.0	372.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9982
Current Correction Factor Before Span Adjust:	0.9985
Percent Change:	0.0%

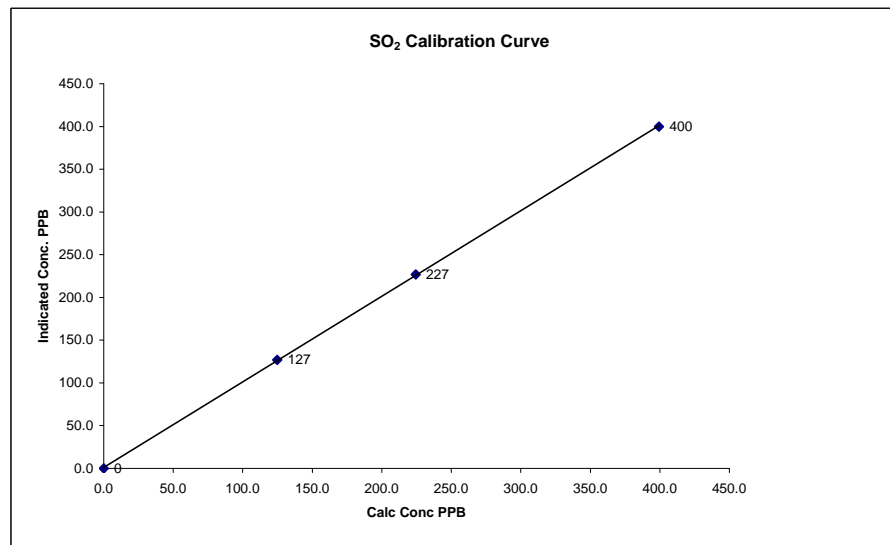
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

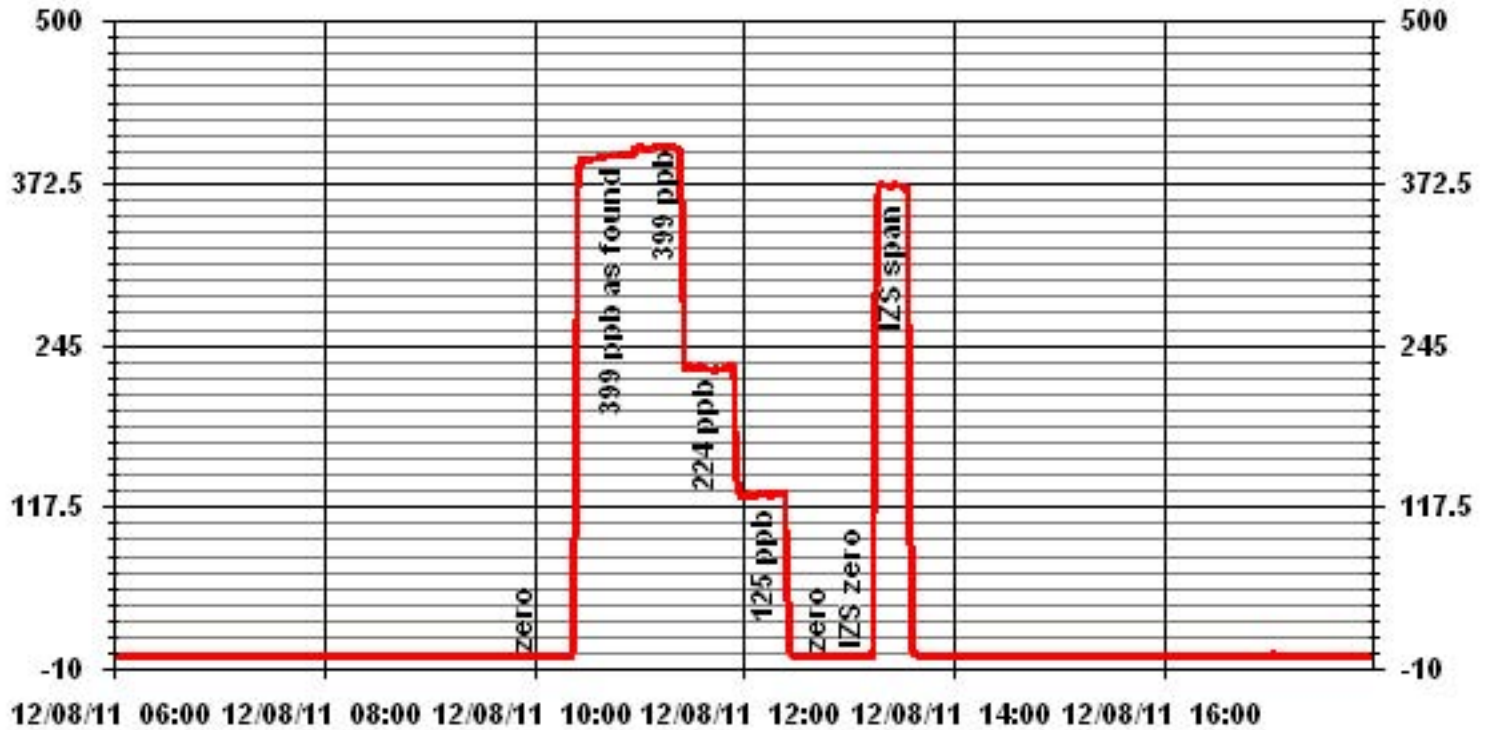
Calibration Date	December 8, 2011
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	9:52
End Time (MST)	13:38

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995)
0	0	n/a	0.999943	1.000992
125	127	0.9824		
224	227	0.9882		
399	400	0.9985		



Notes:

01 Minute Averages



Total Reduced Sulphur

TRS Calibration Report
Station Information

Calibration Date	December 7, 2011	Previous Calibration	November 3, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:25	End Time (MST)	16:15
Reason:	Monthly Calibration		
Barometric Pressure	0.94 atm	Station Temperature	22 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	BLM000804
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	February 2, 2012
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	Thermo 450i	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CDN 101	S/N :	250		
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		
Sample Flow / Box Temp	355 ccm, 32 Deg C	348 ccm, 32.7 Deg C	
HVPS / Lamp Setting	-623.1, 751	-623.1, 751	
PMT / RxCell Temp	OK Deg C, 45.1 Deg C	OK Deg C, 45.2 Deg C	
Converter / IZS Temp	810 Deg C, 45 Deg C	810 Deg C, 45.0 Deg C	
Offset / Slope	13.2, 1.283	12.9, 1.261	

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			
4959	39.2	80	81	0.9876
4959	39.2	80	80	1.0000
4980	19.6	40	41	0.9753
4986	11.2	23	23	1.0000
4996	0.0	0	0	N/A
Sum of Least Squares				0.9949
New Correction Factor				1.0000

Before Calibration

Auto Zero	-0.4	After Calibration	-0.3
Auto Span	62.7		64.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9876
Percent Change:	1.3%

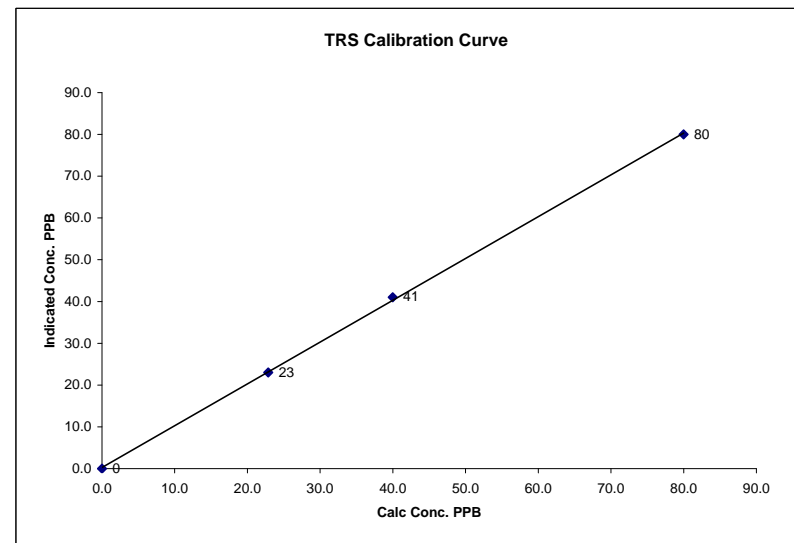
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

TRS Calibration Curve

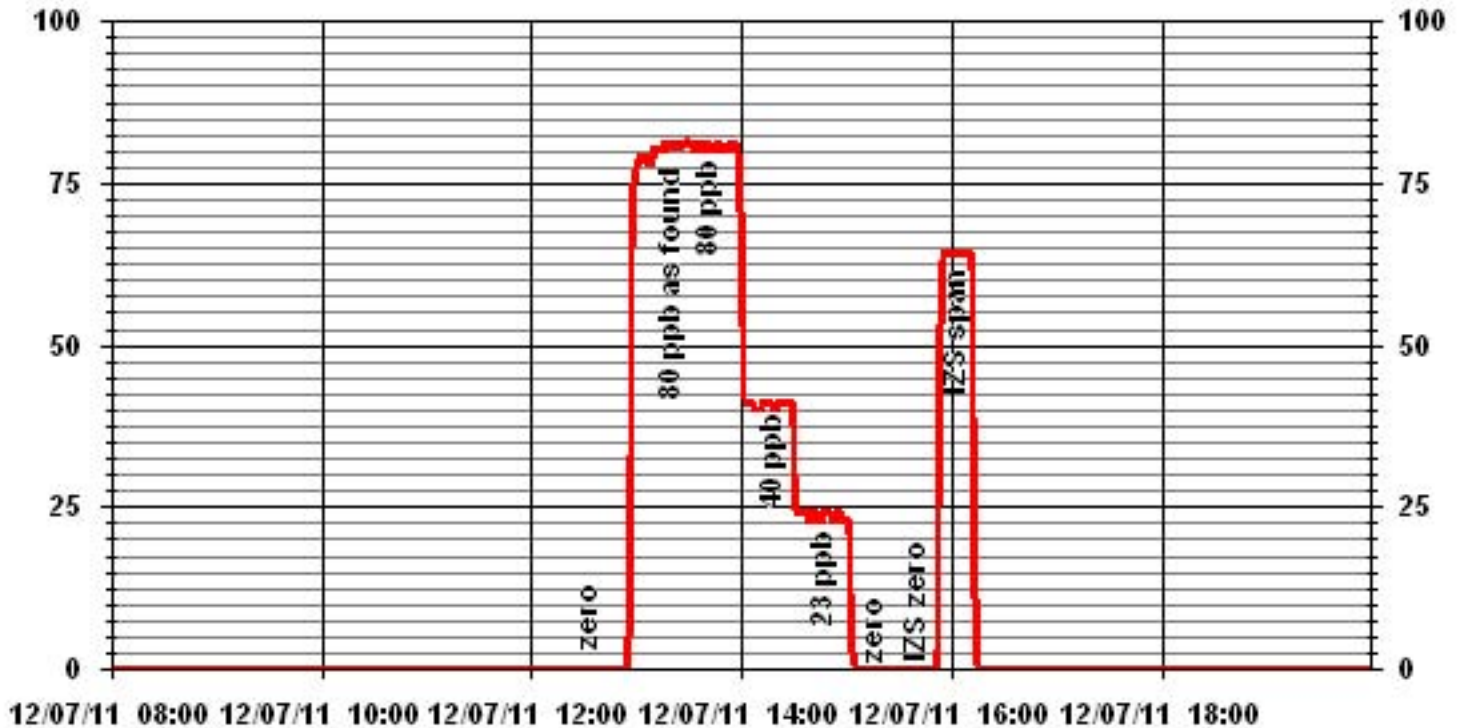
Calibration Date	December 7, 2011
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:25
End Time (MST)	16:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	(0.85 to 1.15)
0	0	n/a	Intercept	≥ 0.995	0.999793
23	23	0.0000		($\pm 3\%$ F.S.)	1.000785
40	41	0.5576			0.260776
80	80	0.4998			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	12/08/201	Previous Calibration	November 3, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	8:49	End Time (MST)	13:49
Reason:	Monthly Calibration		
Barometric Pressure:	0.945 atm	Station Temperature:	21 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 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
3000	0.0	0.0	-0.1	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	43.8	0.9454
3000	70.0	41.4	41.7	0.9930
3000	35.0	20.9	20.7	1.0117
3000	20.0	12.0	11.8	1.0192
3000	0.0	0.0	0.0	NA
New Correction Factor:				0.9930

Percent Change	
Previous Calibration Correction Factor:	0.9930
Current Correction Factor Before Span Adjust:	0.9454
Percent Change:	5.0%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	33.8	35.0
Sample Lines Connected	YES	

Cylinder Pressures			
Span	2000 psi	Hydrogen	2000 psi
		Zero Air	32 psi

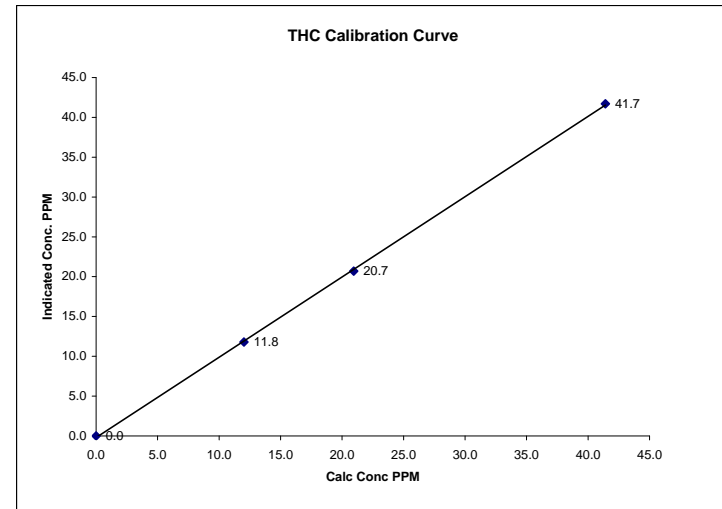
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

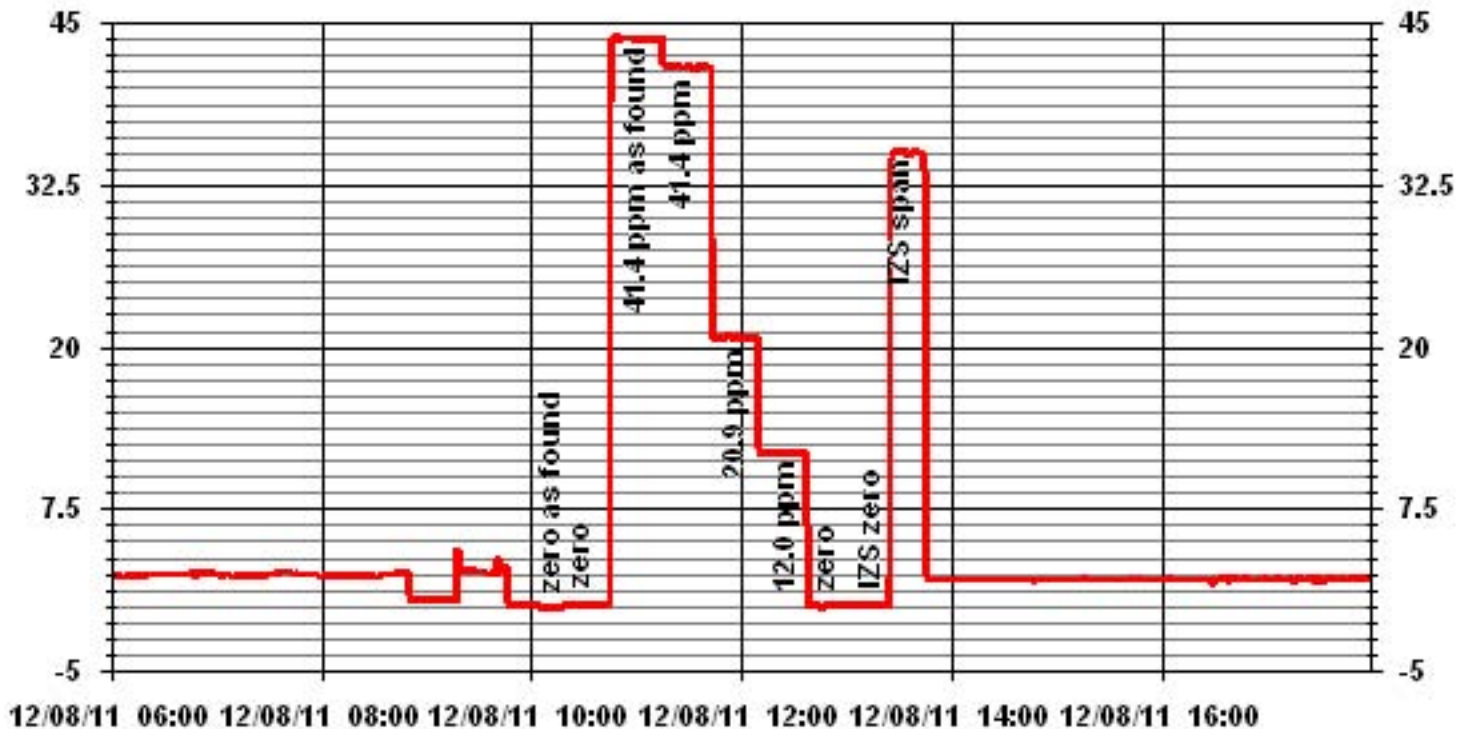
Calibration Date	12/08/201		
Company	Lakeland Industry and Community Association		
Plant / Location	LICA1/Cold Lake		
Start Time (MST)	8:49	End Time (MST)	13:49

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.999866	1.008306
12.0	11.8	1.0192		-0.19845
20.9	20.7	1.0117		
41.4	41.7	0.9930		



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	December 7, 2011	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001
Location:	Cold Lake South	Cell s/n:	Lo 091099
Operator:	LICA	Thermometer s/n:	Station Temp Sensor

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
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 (%)	36.4%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-9.3
		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 <0.10ug	0.005	Warnings	None
0.36	0.35		
Temperature/Pressure			
Measured Temp (± 2 °C)	-9.5	Δ °C	0.2
Measured Press (± 0.01atm)	0.942	DATM	-0.002
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.81%
Measured Main Flow (l/min)	3.01	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	1.80%
Measured Bypass Flow (l/min)	13.82	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	Base=0.07 Ref=0.07	Flow Control = Active	
Aux (< 0.6 l/min)	Base=0.27 Ref=0.26	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 14:26 **Finish Time:** 16:08

Sample Inlet Cleaned: Yes **New Filters Installed:** YES
New Filter Loading %: 25.7%

Comments:

Auditor/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	12/007/2011	Previous Calibration	November 3, 2011
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	12:25	End Time (MST)	18:06
Reason:	Monthly Calibration		
Barometric Pressure	0.94 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.7 ppm	NO	49.4 ppm
Cal Gas Cylinder #	LL103831	Cal Gas Expiry date	February 28, 2013
DAS Output Voltage	0 - 10 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	Thermo 42C	S/N :	427408716	Method:	Chemiluminescent
Calibrator Make / Model:	Envionics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Envionics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	738 ccm	316 Deg C		731 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	176.9 Hg-A		OK ccm	175.1 Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.7 Deg C	-2.4 Deg C		49.6 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	28.6 Deg C	OK Deg C		28.4 Deg C	OK Deg C		
Offset	3.8 NOx	3.5 NO		3.7 NOx	3.4 NO		
Slope	1.008 NOx	0.893 NO		1.007 NOx	0.878 NO		
NO2 COEF / Conv Efficiency	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
4995	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj									
4954	40.4	NA	402	400	NA	409	406	3	0.9829	0.9842
4954	40.4	NA	402	400	NA	401	399	2	1.0026	1.0015
4974	20.2	NA	201	200	NA	201	200	1	1.0000	1.0000
4985	10.1	NA	100	100	NA	102	102	1	0.9852	0.9793
4996	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4954	40.4	NA	402	400	NA	402	399	3	NA	NA
	No Adj. Required									
4954	40.4	350	402	NA	327	402	75	328	0.9970	100.31%
4954	40.4	150	402	NA	144	402	258	144	1.0000	100.00%
4954	40.4	75	402	NA	73	402	329	73	1.0000	100.00%

Linearity	Sum of Least Squares	NOx= 1.001	NO= 1.000	NO2= 0.998	
OK?	Yes	Correction Factors:	NOx= 1.0026	NO= 1.0015	NO2= 0.9970
			Average Converter Efficiency= 100.10%		

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2		
Auto Span	403 NOx	401 NO2		396 NOx	394 NO2		
	Sample Lines Connected YES						
Percent Change from Previous Calibration	NOx	1.2%	NO	1.2%	NO2	0.3%	

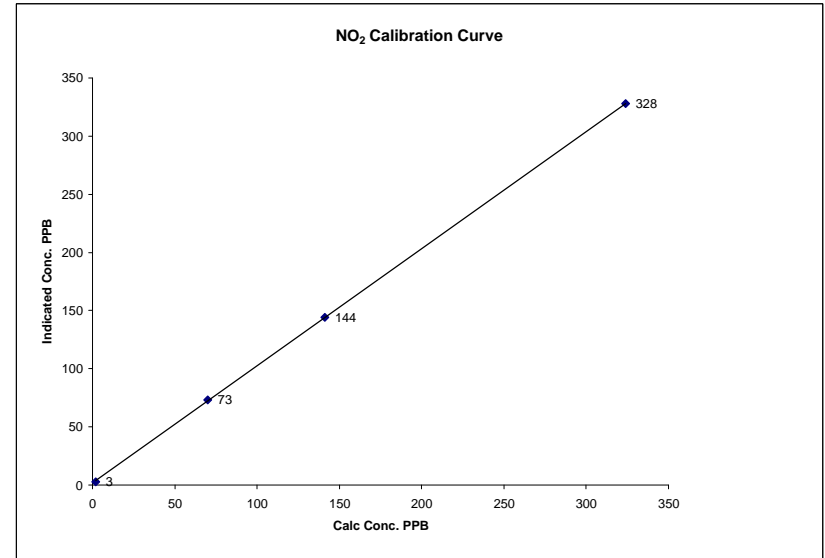
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	12/007/2011	Company	LICA
Plant / Location	Cold Lake South	Start Time (MST)	12:25
End Time (MST)	18:06		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999980
2	3	N/A	Intercept	(± 3% F.S.)	1.007877
70	73	0.9589			1.69253
141	144	0.9792			
324	328	0.9878			

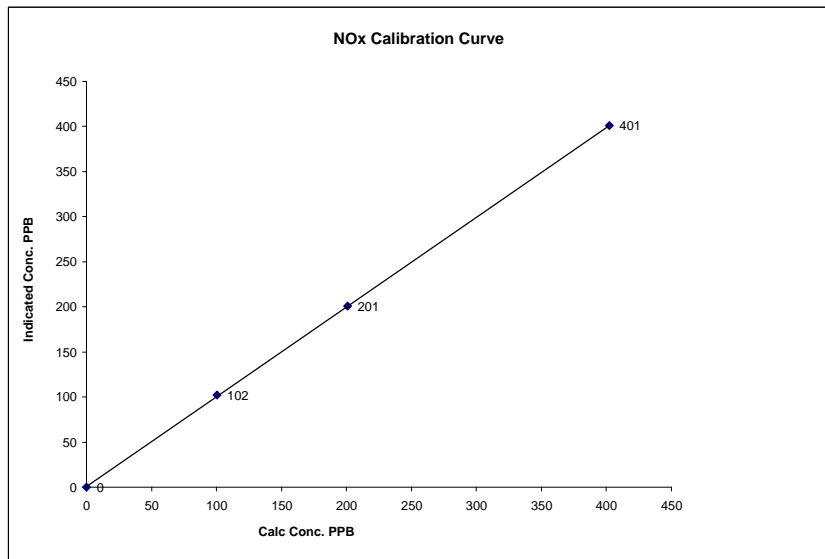


Notes:

NOx Calibration Curve

Calibration Date 12/007/2011
 Company LICA
 Plant / Location Cold Lake South
 Start Time (MST) 12:25 End Time (MST) 18:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999978
0	0	N/A	Intercept	(± 3% F.S.)	0.80404
100	102	0.9852			
201	201	1.0001			
402	401	1.0026			

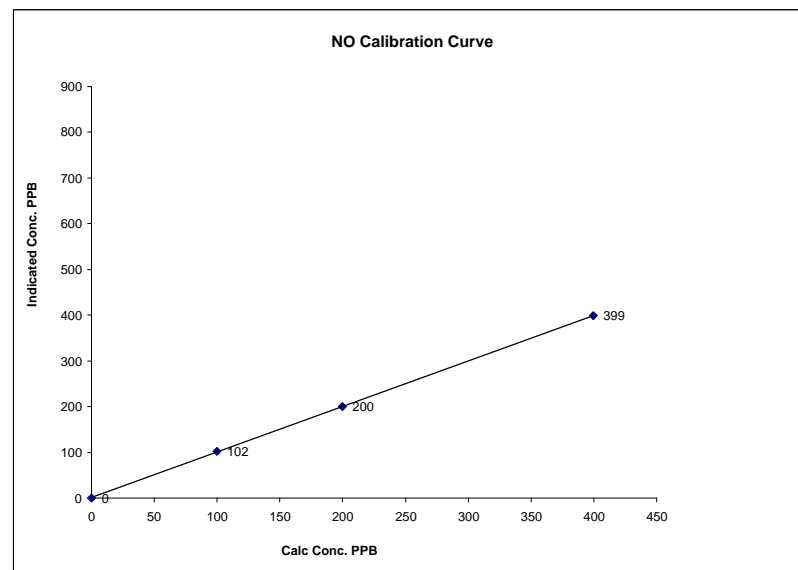


Notes:

NO Calibration Curve

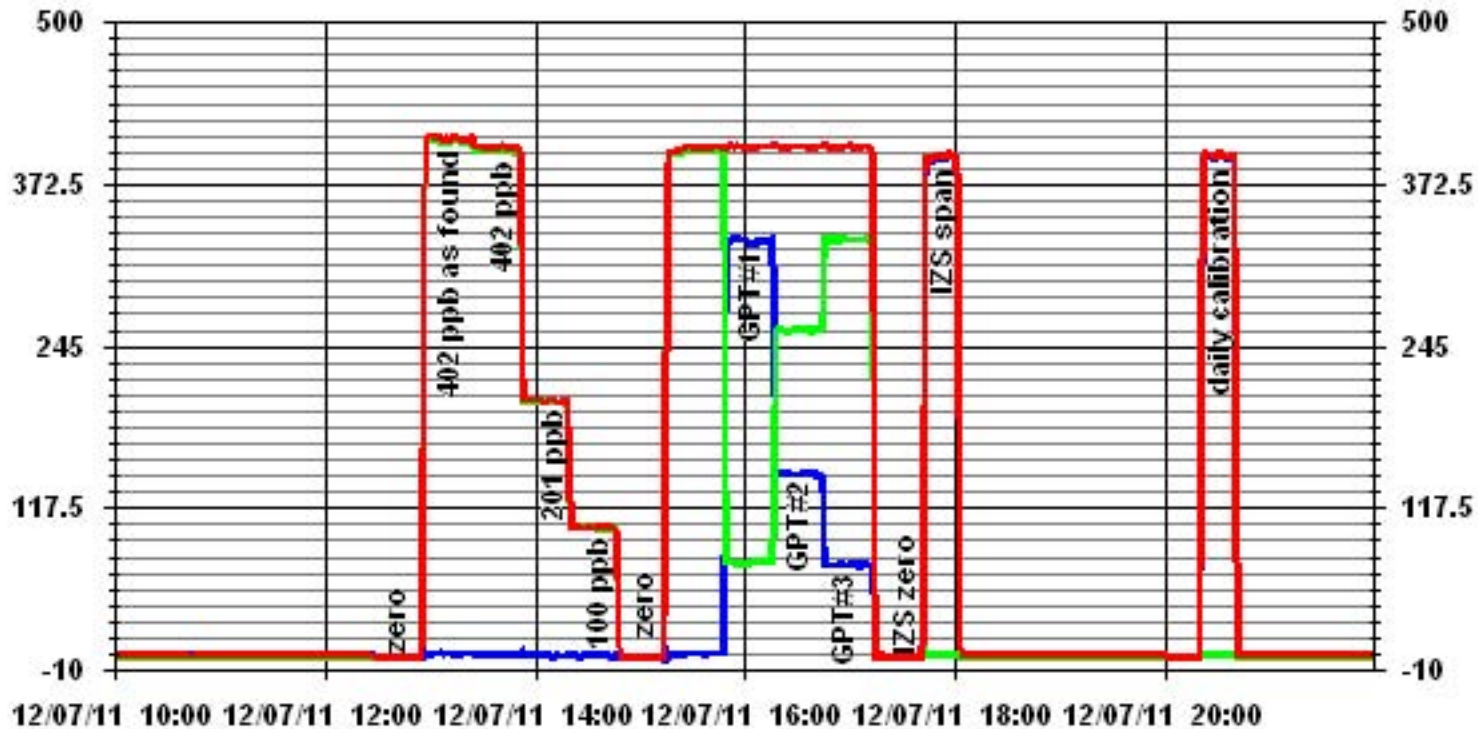
Calibration Date 12/007/2011
 Company LICA
 Plant / Location Cold Lake South
 Start Time (MST) 12:25 End Time (MST) 18:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999963
0	0	N/A	Intercept	(± 3% F.S.)	0.9841
100	102	0.9793			
200	200	0.9990			
400	399	1.0015			



Notes:

01 Minute Averages



— LICA

NOX_

PPB

— LICA

NO_

PPB

— LICA

NO2_

PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 4, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:42	End Time (MST)	9:52
Reason:	As Found		
Barometric Pressure	0.945 atm	Station Temperature	21 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	703 LPM	743 LPM		703 LPM	743 LPM		
O ₃ Set Level	691 mmHg			691 mmHg			
Bench Lamp	53.5 Deg C			53.5 Deg C			
O ₃ Lamp / Box Temp	67.6 Deg C			28.3 Deg C			
Offset / Slope	0.1	1.005		0.1	1.005		

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4495	0	0	0	NA
	No Zero Adj Required			
4994	350	324	325	0.9969
Sum of Least Squares				
New Correction Factor				0.9969

Before Calibration

After Calibration

Auto Zero	-0.1	-
Auto Span	282.0	-
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		0.9969
Percent Change:		0.3%

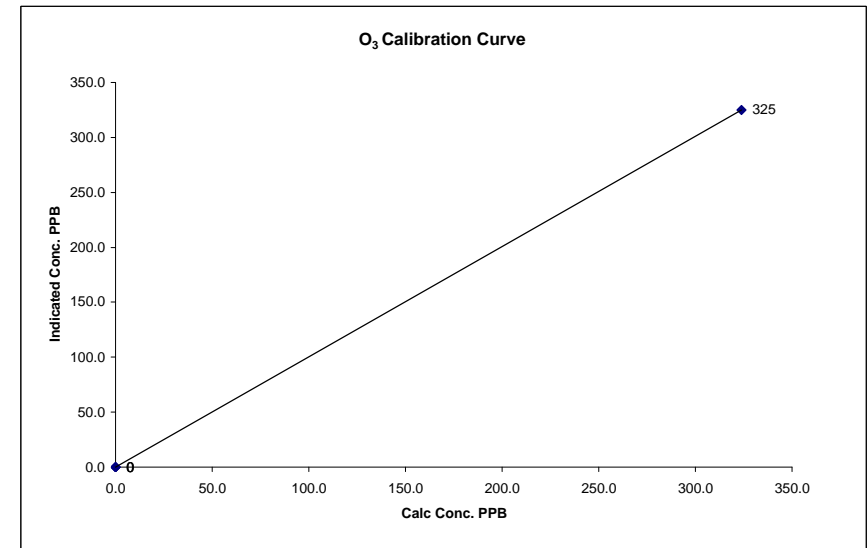
Note: **NA : Not Applicable**
 Following the as found points check, the exhausting pump and zero air pump were rebuilt.

Calibration Performed by: Ting Xu

O₃ Calibration Curve

Calibration Date	December 8, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:42	End Time (MST)	9:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	1.000000
0	0	n/a	Intercept	(± 3% F.S.)	0.000000
0	0	#DIV/0!			1.003086
0	0	#DIV/0!			
324	325	0.9969			



Notes:

O₃ Calibration Report

Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 4, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:53	End Time (MST)	16:19
Reason:	Monthly Calibration		
Barometric Pressure	0.946 atm	Station Temperature	22 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	703 LPM	743 LPM	703 LPM	756 LPM	703 LPM	691 mmHg	756 LPM	691 mmHg
O ₃ Set Level	691 mmHg		691 mmHg		691 mmHg		691 mmHg	
Bench Lamp	53.5 Deg C		53.5 Deg C		53.5 Deg C		53.5 Deg C	
O ₃ Lamp / Box Temp	67.6 Deg	28.3 Deg C	67.5 Deg C	28.1 Deg C	67.5 Deg C	28.1 Deg C	67.5 Deg C	28.1 Deg C
Offset / Slope	0.1		1.005		-0.5		0.994	

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4495	0	0	0	NA
	No Zero Adj.			
4994	350	324	325	0.9969
	No Span Adj.			
4994	150	141	141	1.0000
4994	75	70	71	0.9859
4994	0	0	0	NA
Sum of Least Squares				0.9970
New Correction Factor				0.9969

	Before Calibration	After Calibration
Auto Zero	-0.3	0.5
Auto Span	281.0	279.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		-
Current Correctio Factor Before Span Adjust:		0.9969
Percent Change:		#VALUE!

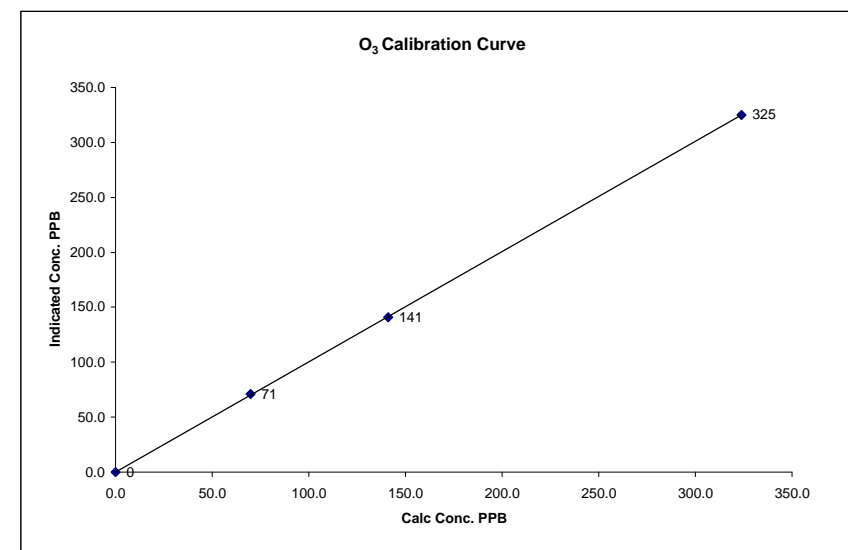
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

Calibration Date	December 8, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:53	End Time (MST)	16:19

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999988
70	71	0.9859		1.002174
141	141	1.0000		0.209293
324	325	0.9969		



Notes:

O₃ Calibration Report

Station Information

Calibration Date	December 8, 2011	Previous Calibration	December 8, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	17:30	End Time (MST)	19:31
Reason:	As Found		
Barometric Pressure	0.941 atm	Station Temperature	22 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	703 LPM	743 LPM	713 LPM	754 LPM				
O ₃ Set Level	691 mmHg		711 mmHg					
Bench Lamp	53.5 Deg C		53.5 Deg C					
O ₃ Lamp / Box Temp	67.6 Deg	28.3 Deg C	57.5 Deg C	28.3 Deg C				
Offset / Slope	0.1	1.005	-0.5	0.994				

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4495	0	0	0	NA
	No Zero Adj			
4994	350	324	329	0.9848
Sum of Least Squares				
New Correction Factor				0.9848

Before Calibration

After Calibration

Auto Zero	0.5	0.4
Auto Span	279.0	281.0
Sample Lines Connected	YES	
Previous Calibration Correction Factor:	0.9969	
Current Correcto Factor Before Span Adjust:	0.9848	
Percent Change:	1.2%	

Note: NA : Not Applicable

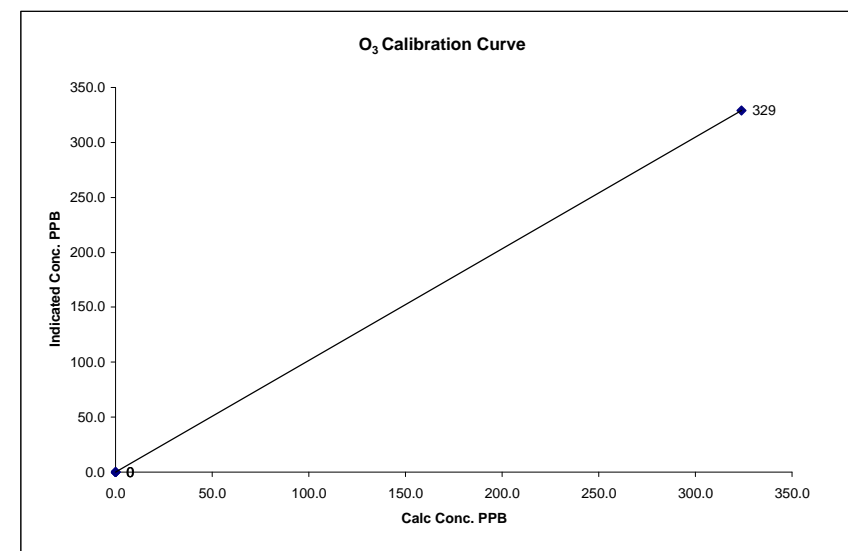
After multi-point calibration, there was a flow alarm. Checked and found that the tubing which connected with the exhausting pump was broken. Fixed it and performed the as found point check; result good.

Calibration Performed by: Ting Xu

O₃ Calibration Curve

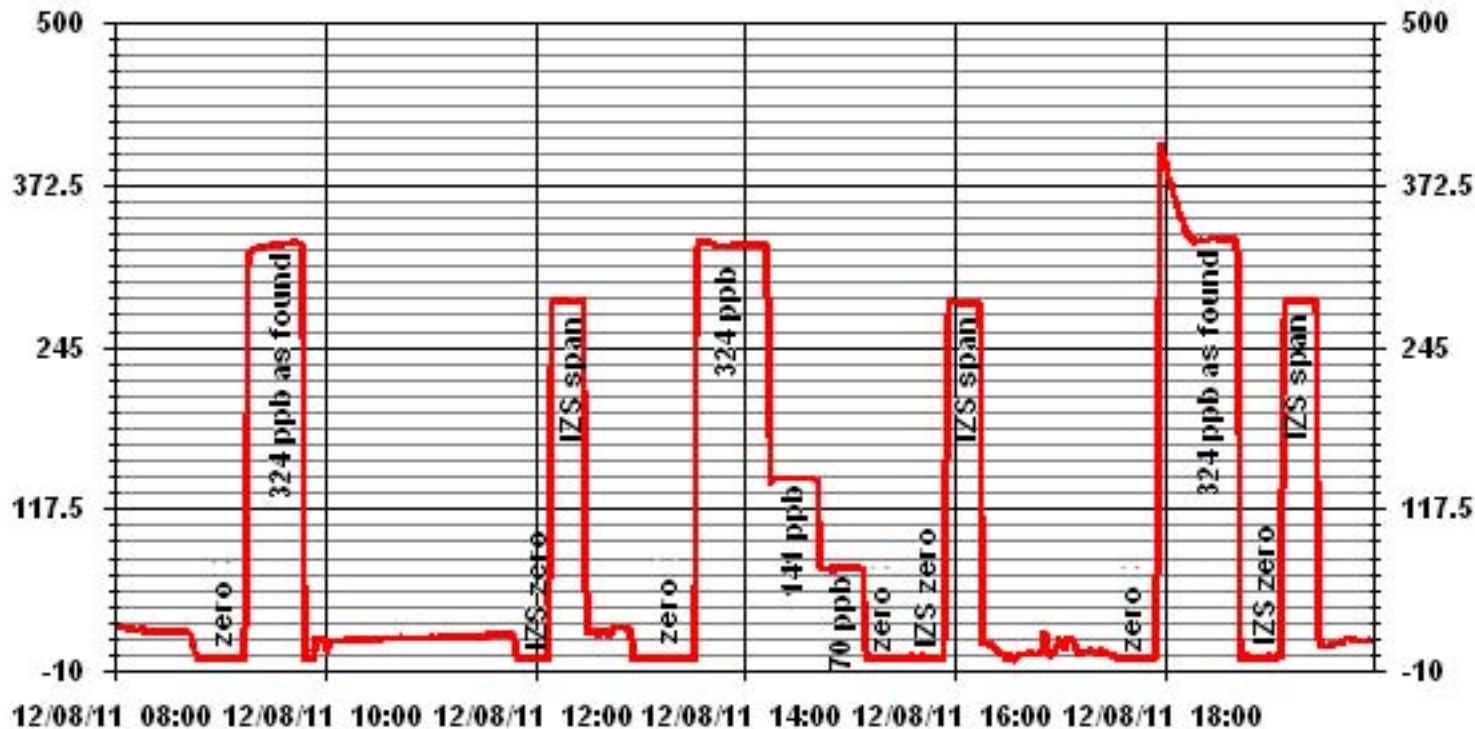
Calibration Date	December 8, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	17:30	End Time (MST)	19:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	($\pm 3\% \text{ F.S.}$)
0	0	n/a	Intercept	1.00000	0.00000
0	0	#DIV/0!		1.015432	
0	0	#DIV/0!			
324	329	0.9848			



Notes:

01 Minute Averages



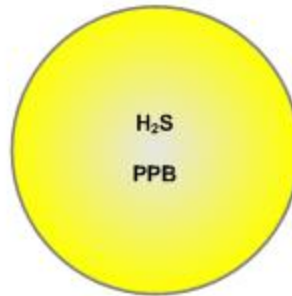
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

DECEMBER 2011

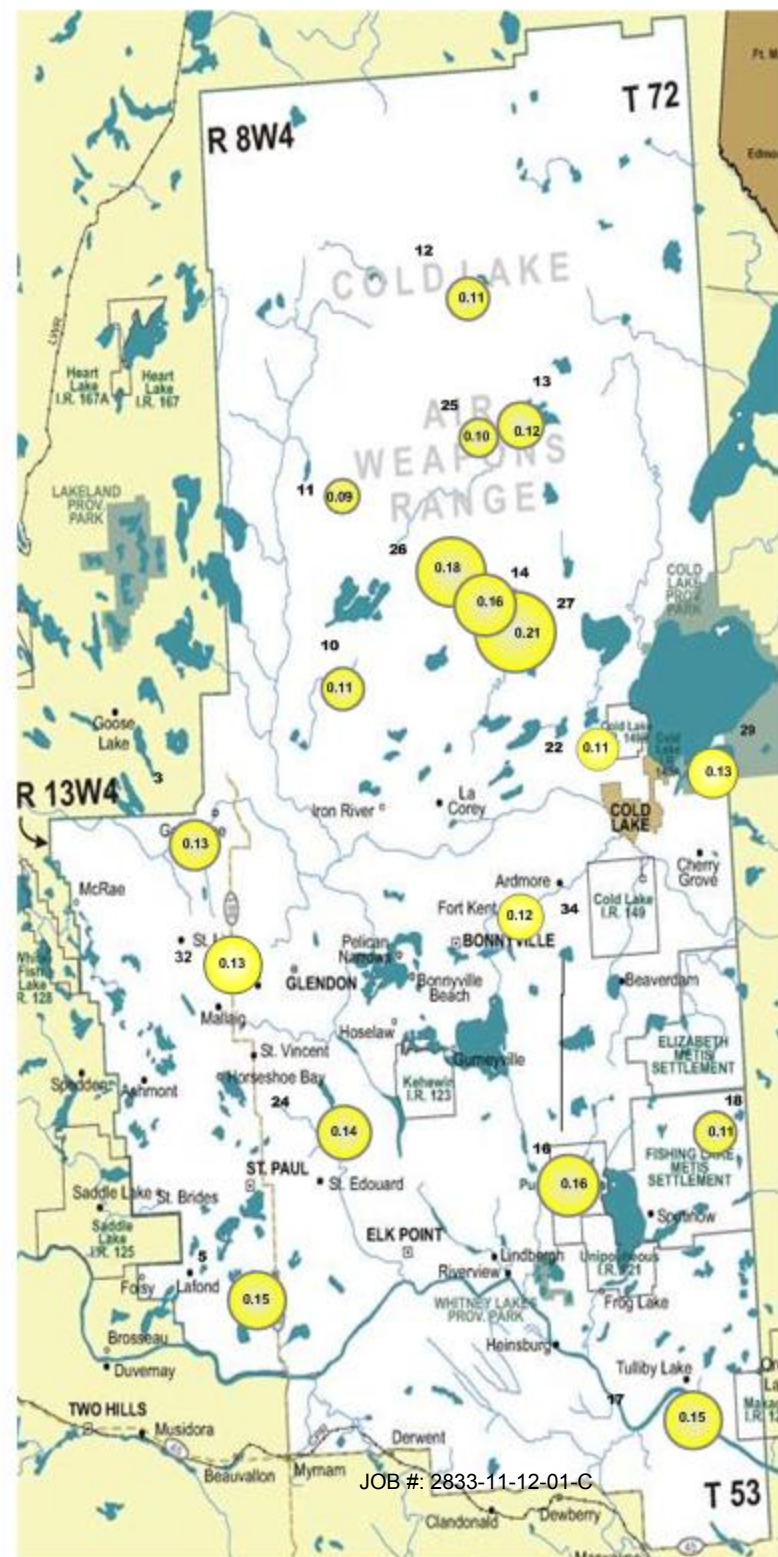
PASSIVE STATIONS

Station Number	Location	Concentration (PPB)	Duplicate
3	Therien	0.13	NA
5	Lake Eliza	0.15	NA
10	La Corey	0.11	NA
11	Wolf Lake	0.09	NA
12	Foster Creek	0.11	0.10
13	Primrose	0.13	0.11
14	Maskwa	0.16	NA
16	Frog Lake	0.16	NA
17	Clear Range	0.15	NA
18	Fishing Lake	0.11	NA
22	Cold Lake South	0.11	NA
24	Fort George	0.14	NA
25	Burnt Lake	0.10	NA
26	Mahihkan	0.18	NA
27	Mahkeses	0.21	NA
29	Cold Lake South 2	0.13	NA
32	St. Lina	0.13	NA
34	Portable	0.12	NA



Summary

Minimum : 0.09 PPB – Wolf Lake
 Maximum: 0.21 PPB – Mahkeses
 Average: 0.13 PPB *Includes Duplicates

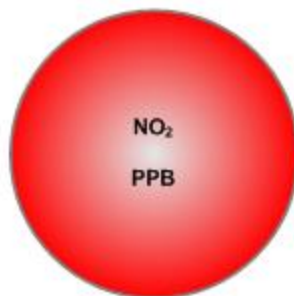


Lakeland Industry & Community Association NO₂ Passive Bubble Map

DECEMBER 2011

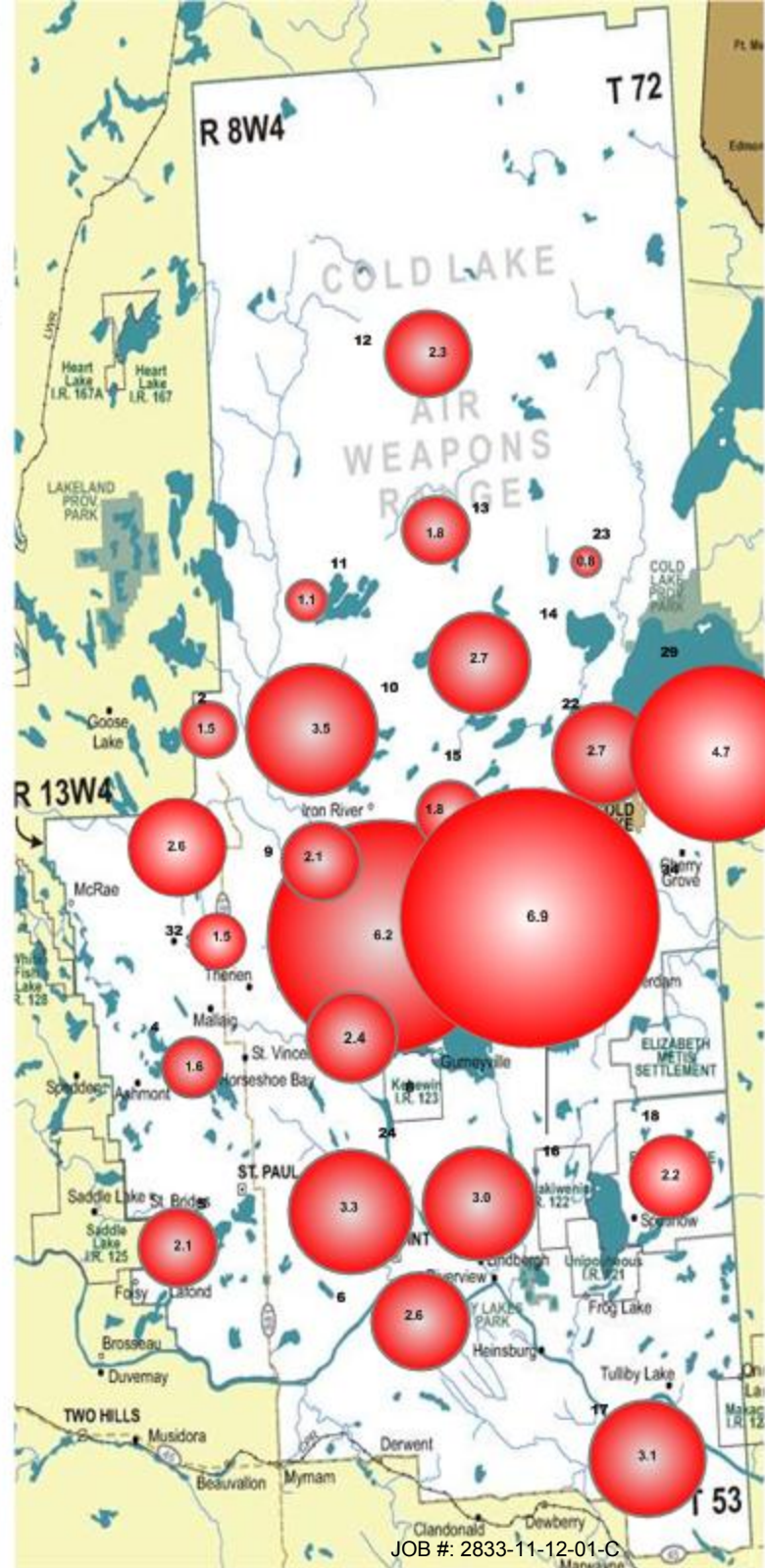
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	1.5 PPB	NA
3 – Therien	2.6 PPB	NA
4 – Flat Lake	1.6 PPB	NA
5 – Lake Eliza	2.1 PPB	NA
6 – Telegraph Creek	2.5 PPB	2.6 PPB
8 – Muriel-Kehewin	1.6 PPB	3.1 PPB
9 – Dupre	2.1 PPB	NA
10 – La Corey	3.5 PPB	NA
11 – Wolf Lake	1.1 PPB	NA
12 – Foster Creek	2.3 PPB	NA
13 – Primrose	1.8 PPB	NA
14 – Maskwa	2.7 PPB	NA
15 – Ardmore	1.8 PPB	NA
16 – Frog Lake	3.0 PPB	NA
17 – Clear Range	3.1 PPB	NA
18 – Fishing Lake	2.2 PPB	NA
19 – Beaverdam	2.3 PPB	NA
22 – Cold Lake South	2.7 PPB	NA
23 – Medley-Martineau	0.8 PPB	NA
24 – Fort George	3.3 PPB	NA
28 – Town of Bonnyville	6.2 PPB	NA
29 – Cold Lake South 2	4.7 PPB	NA
32 – St. Lina	1.5 PPB	NA
34 – Portable	6.9 PPB	NA



Summary

Minimum : 0.8 PPB – Medley-Martineau
Maximum: 6.9 PPB – Town of Bonnyville
Average: 2.7 PPB *Includes Duplicates

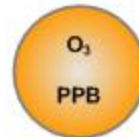


Lakeland Industry & Community Association O₃ Passive Bubble Map

DECEMBER 2011

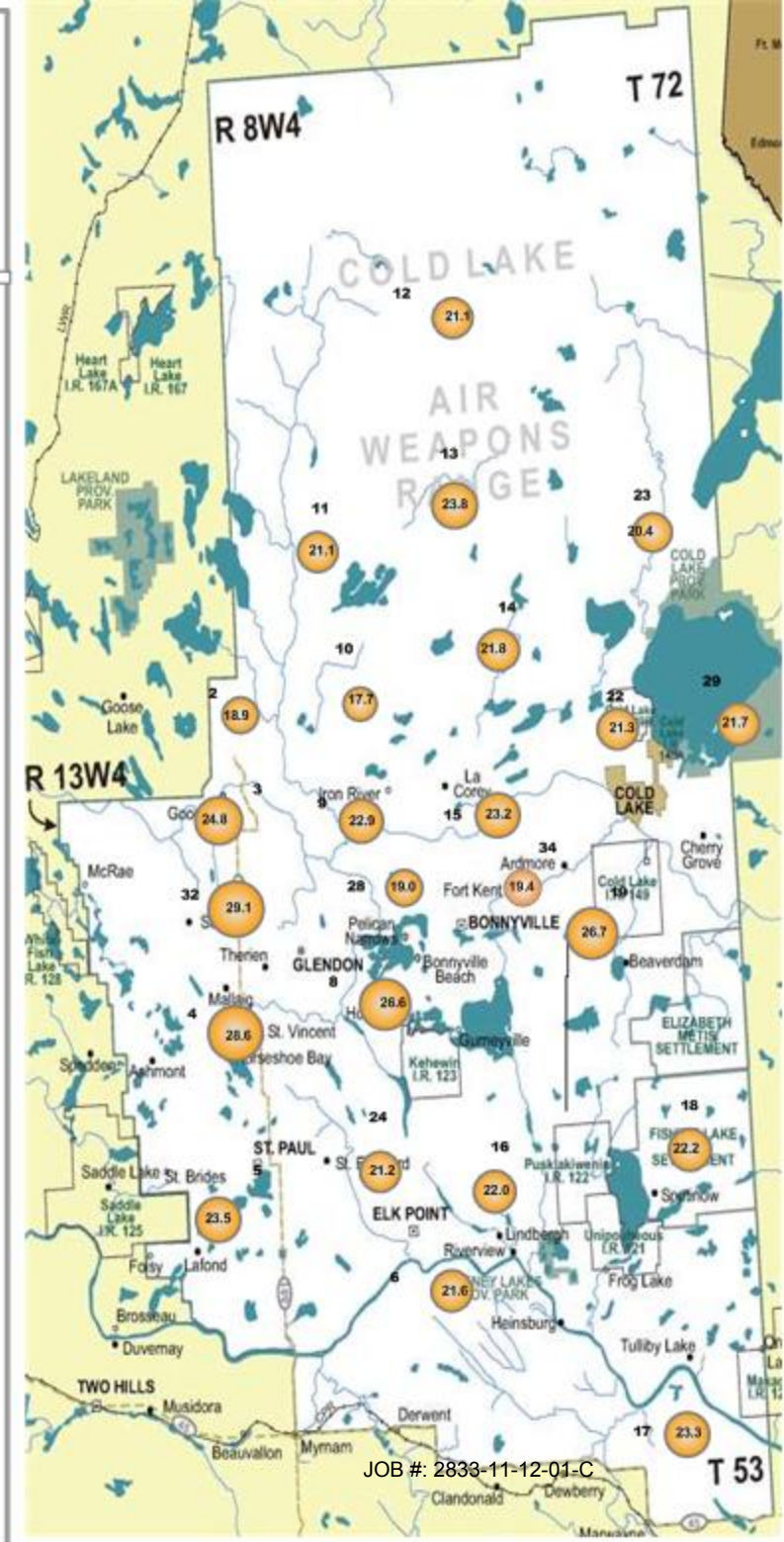
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	18.9 PPB	NA
3 – Therien	24.8 PPB	NA
4 – Flat Lake	28.6 PPB	NA
5 – Lake Eliza	23.5 PPB	NA
6 – Telegraph Creek	21.6 PPB	21.7 PPB
8 – Muriel-Kehewin	27.0 PPB	26.2 PPB
9 – Dupre	22.9 PPB	NA
10 – La Corey	17.7 PPB	NA
11 – Wolf Lake	21.1 PPB	NA
12 – Foster Creek	21.1 PPB	NA
13 – Primrose	23.8 PPB	NA
14 – Maskwa	21.8 PPB	NA
15 – Ardmore	23.2 PPB	NA
16 – Frog Lake	22.0 PPB	NA
17 – Clear Range	23.3 PPB	NA
18 – Fishing Lake	22.2 PPB	NA
19 – Beaverdam	26.7 PPB	NA
22 – Cold Lake South	21.3 PPB	NA
23 – Medley-Martineau	20.4 PPB	NA
24 – Fort George	21.2 PPB	NA
28 – Town of Bonnyville	19.0 PPB	NA
29 – Cold Lake South 2	21.7 PPB	NA
32 – St. Lina	29.1 PPB	NA
34 – Portable	19.4 PPB	NA



Summary

Minimum : 17.7 PPB – La Corey
 Maximum: 29.1 PPB –St. Lina
 Average: 22.6 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

DECEMBER 2011

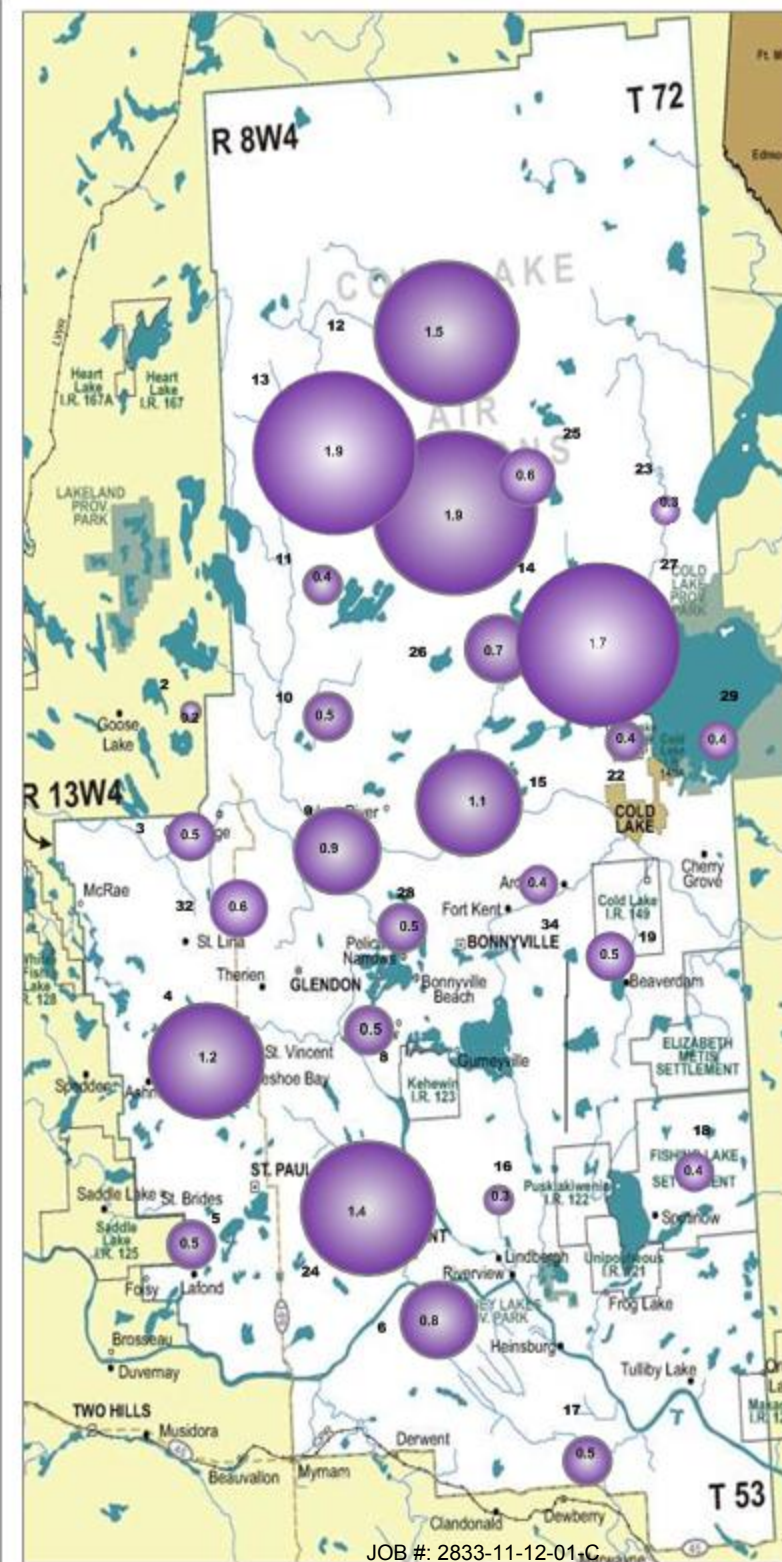
PASSIVE STATIONS

Station Number	SO ₂ Concentration (PPB)	Duplicate
2 – Sand River	0.2 PPB	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	1.2 PPB	NA
5 – Lake Eliza	0.5 PPB	NA
6 – Telegraph Creek	0.8 PPB	NA
8 – Muriel-Kehewin	0.5 PPB	NA
9 – Dupre	0.4 PPB	1.4 PPB
10 – La Corey	0.6 PPB	0.3 PPB
11 – Wolf Lake	0.4 PPB	0.3 PPB
12 – Foster Creek	1.5 PPB	NA
13 – Primrose	1.9 PPB	NA
14 – Maskwa	1.9 PPB	NA
15 – Ardmore	1.1 PPB	NA
16 – Frog Lake	0.3 PPB	NA
17 – Clear Range	0.5 PPB	NA
18 – Fishing Lake	0.4 PPB	NA
19 – Beaverdam	0.5 PPB	NA
22 – Cold Lake South	0.4 PPB	NA
23 – Medley-Martineau	0.3 PPB	NA
24 – Fort George	1.4 PPB	NA
25 – Burnt Lake	0.6 PPB	NA
26 – Mahikan	0.7 PPB	NA
27 – Mahkeses	1.7 PPB	NA
28 – Town of Bonnyville	0.5 PPB	NA
29 – Cold Lake South 2	0.4 PPB	NA
32 – St. Lina	0.6 PPB	NA
34 – Portable	0.4 PPB	NA



Summary

Minimum : 0.2 PPB –Sand River
 Maximum: 1.9 PPB –Primrose and Maskwa
 Average: 0.76 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	11/29/2011	12:05	12/29/2011	16:43	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	11:30	12/29/2011	16:05	
4	SO ₂ /NO ₂ /O ₃	11/30/2011	13:06	12/28/2011	16:00	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	12:31	12/28/2011	15:20	
6	SO ₂ /NO ₂ /O ₃	11/30/2011	11:13	12/28/2011	13:55	
8	SO ₂ /NO ₂ /O ₃	11/30/2011	13:58	12/28/2011	17:01	
9	SO ₂ /NO ₂ /O ₃	11/29/2011	09:40	12/28/2011	17:52	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	13:46	12/29/2011	09:45	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	14:19	12/29/2011	10:21	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	15:30	12/29/2011	12:14	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	15:29	12/29/2011	08:35	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	16:05	12/29/2011	07:48	
15	SO ₂ /NO ₂ /O ₃	11/29/2011	08:53	12/28/2011	18:44	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	09:49	12/28/2011	12:22	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	10:32	12/28/2011	13:05	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	09:00	12/28/2011	11:32	
19	SO ₂ /NO ₂ /O ₃	11/30/2011	08:09	12/28/2011	10:28	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	07:45	12/28/2011	09:05	
23	SO ₂ /NO ₂ /O ₃	11/29/2011	18:18	12/29/2011	18:10	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/2011	11:48	12/28/2011	14:31	
25	H ₂ S/SO ₂	11/29/2011	16:30	12/29/2011	11:07	
26	H ₂ S/SO ₂	11/30/2011	15:55	12/29/2011	08:07	
27	H ₂ S/SO ₂	11/30/2011	16:22	12/29/2011	07:22	
28	SO ₂ /NO ₂ /O ₃	11/29/2011	10:03	12/28/2011	17:33	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	07:30	12/28/2011	09:20	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	10:55	12/29/2011	15:02	
34	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/2011	09:20	12/28/2011	18:15	O3 sample was found on the ground.

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 9	SO ₂	11/30/2011	12:31	12/28/2011	17:12	
Duplicate # 10	SO ₂	11/30/2011	11:13	12/29/2011	09:45	
Duplicate # 11	SO ₂	11/30/2011	13:58	12/29/2011	10:21	
Duplicate # 12	H ₂ S	11/29/2011	13:46	12/29/2011	12:14	
Duplicate # 13	H ₂ S	11/29/2011	14:19	12/29/2011	08:35	
Duplicate # 6	NO ₂	11/30/2011	13:06	12/28/2011	13:55	
Duplicate # 8	NO ₂	11/30/2011	12:31	12/28/2011	17:01	
Duplicate # 6	O ₃	11/30/2011	13:06	12/28/2011	13:55	
Duplicate # 8	O ₃	11/30/2011	12:31	12/28/2011	17:01	

Passive Network Laboratory Analysis



Your Project #: 2011/11/29 - 2011/12/29
Site Location: LICA

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

Report Date: 2012/01/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B200129
Received: 2012/01/03, 10:15

Sample Matrix: Air
Samples Received: 34

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (0)	18	2012/01/06	2012/01/09	EINDSOP-00150	Tang.Passive H2S in
H2S Passive Analysis (0)	2	2012/01/06	2012/01/11	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (0)	26	2012/01/06	2012/01/09	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (0)	26	2012/01/05	2012/01/09	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (0)	30	2012/01/06	2012/01/09	EINDSOP-00149	Tang Passive SO2 in

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

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

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B200129
Report Date: 2012/01/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/11/29 - 2011/12/29
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CL4262	CL4263	CL4264	CL4265	CL4266		
Sampling Date		2011/11/29 12:05	2011/11/29 11:30	2011/11/30 13:06	2011/11/30 12:31	2011/11/30 11:13		
	Units	2	3	4	5	6	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.13		0.15		0.02	5496986
Calculated NO2	ppb	1.5	2.6	1.6	2.1	2.5	0.1	5496924
Calculated O3	ppb	18.9	24.8	28.6	23.5	21.5	0.1	5494044
Calculated SO2	ppb	0.2	0.5	1.2	0.5	0.8	0.1	5497296
RDL = Reportable Detection Limit								

Maxxam ID		CL4267	CL4268	CL4271	CL4272	CL4273		
Sampling Date		2011/11/30 13:58	2011/11/29 09:40	2011/11/29 13:46	2011/11/29 14:19	2011/11/29 15:30		
	Units	8	9	10	11	12	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.11	0.09	0.11	0.02	5496986
Calculated NO2	ppb	1.6	2.1	3.5	1.1	2.3	0.1	5496926
Calculated O3	ppb	27.0	22.9	17.7	21.1	21.1	0.1	5494044
Calculated SO2	ppb	0.5	0.4	0.6	0.4	1.5	0.1	5497296
RDL = Reportable Detection Limit								

Maxxam ID		CL4274		CL4275	CL4276	CL4277		
Sampling Date		2011/11/30 15:29		2011/11/30 16:05	2011/11/29 08:53	2011/11/30 09:49		
	Units	13	QC Batch	14	15	16	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.13	5496986	0.16		0.16	0.02	5496986
Calculated NO2	ppb	1.8	5496926	2.7	1.8	3.0	0.1	5496926
Calculated O3	ppb	23.8	5494044	21.8	23.2	22.0	0.1	5494082
Calculated SO2	ppb	1.9	5497296	1.9	1.1	0.3	0.1	5497296
RDL = Reportable Detection Limit								



Maxxam Job #: B200129
Report Date: 2012/01/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/11/29 - 2011/12/29
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CL4278	CL4279	CL4280	CL4281	CL4282		
Sampling Date		2011/11/30 10:32	2011/11/30 09:00	2011/11/30 08:09	2011/11/29 07:45	2011/11/29 18:18		
	Units	17	18	19	22	23	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.15	0.11		0.11		0.02	5496986
Calculated NO2	ppb	3.1	2.2	2.3	2.7	0.8	0.1	5496926
Calculated O3	ppb	23.3	22.2	26.7	21.3	20.4	0.1	5494082
Calculated SO2	ppb	0.5	0.4	0.5	0.4	0.3	0.1	5497300
RDL = Reportable Detection Limit								

Maxxam ID		CL4283	CL4284	CL4285	CL4286	CL4287		
Sampling Date		2011/11/30 11:48	2011/11/29 16:30	2011/11/30 15:55	2011/11/30 16:22	2011/11/29 10:03		
	Units	24	25	26	27	28	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.14	0.10	0.18	0.21		0.02	5496986
Calculated NO2	ppb	3.3				6.2	0.1	5496926
Calculated O3	ppb	21.2				19.0	0.1	5494082
Calculated SO2	ppb	1.4	0.6	0.7	1.7	0.5	0.1	5497300
RDL = Reportable Detection Limit								

Maxxam ID		CL4288	CL4289	CL4290	CL4293	CL4294		
Sampling Date		2011/11/29 07:30	2011/11/29 10:55	2011/11/29 09:20	2011/11/30 11:13	2011/11/30 13:58		
	Units	29	32	34	6 DUP	8 DUP	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.13	0.13	0.12			0.02	5496986
Calculated NO2	ppb	4.7	1.5	6.9	2.6	3.1	0.1	5496926
Calculated O3	ppb	21.7	29.1	19.4	21.7	26.2	0.1	5494082
Calculated SO2	ppb	0.4	0.6	0.4			0.1	5497300
RDL = Reportable Detection Limit								



Maxxam Job #: B200129
 Report Date: 2012/01/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/11/29 - 2011/12/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CL4295	CL4296	CL4297	CL4298	CL4325		
Sampling Date		2011/11/29 09:40	2011/11/29 13:46	2011/11/29 14:19	2011/11/29 15:30	2011/11/30 15:29		
	Units	9 DUP	10 DUP	11 DUP	12 DUP	13 DUP	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb				0.10	0.11	0.02	5496986
Calculated SO2	ppb	1.4	0.3	0.3			0.1	5497300

RDL = Reportable Detection Limit



Maxxam Job #: B200129
Report Date: 2012/01/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/11/29 - 2011/12/29
Site Location: LICA
Sampler Initials: SB

General Comments

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2011/11/29 - 2011/12/29
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB200129

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5494044 OZ	Calibration Check	Calculated O3	2012/01/05		98	%	91 - 107
	Spiked Blank	Calculated O3	2012/01/05		100	%	N/A
	Method Blank	Calculated O3	2012/01/05	<0.1		ppb	
5494082 OZ	Calibration Check	Calculated O3	2012/01/05		99	%	91 - 107
	Spiked Blank	Calculated O3	2012/01/05		100	%	N/A
	Method Blank	Calculated O3	2012/01/05	<0.1		ppb	
5496924 DF4	Calibration Check	Calculated NO2	2012/01/06		98	%	76 - 118
	Spiked Blank	Calculated NO2	2012/01/06		102	%	N/A
	Method Blank	Calculated NO2	2012/01/06	<0.1		ppb	
5496926 DF4	Calibration Check	Calculated NO2	2012/01/06		98	%	76 - 118
	Spiked Blank	Calculated NO2	2012/01/06		102	%	N/A
	Method Blank	Calculated NO2	2012/01/06	<0.1		ppb	
5496986 SS6	Calibration Check	Calculated H2S	2012/01/06		100	%	80 - 120
	Spiked Blank	Calculated H2S	2012/01/06		98	%	N/A
5497296 DF4	Calibration Check	Calculated SO2	2012/01/06		102	%	95 - 105
	Spiked Blank	Calculated SO2	2012/01/06		96	%	N/A
	Method Blank	Calculated SO2	2012/01/06	<0.1		ppb	
5497300 DF4	Calibration Check	Calculated SO2	2012/01/06		101	%	95 - 105
	Spiked Blank	Calculated SO2	2012/01/06		97	%	N/A
	Method Blank	Calculated SO2	2012/01/06	<0.1		ppb	

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B200129

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

A handwritten signature in black ink, appearing to read "Linda Lin". The signature is written over a horizontal line.

Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7799
Station ID: Lica 1 Canister Installation Date/Time: Dec 01, 2011 @ 14:30 mst
Field Sample ID: LICA VOC/ CLS /Dec 05,11 Canister Removal Date/Time: Dec 07, 2011 @ 08:43 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Dec-11	12/05/2011 0:00	12/06/2011 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 # 08991

Technician Signiture: Ting Xu



Your C.O.C. #: 08991

Attention: Michael Bisaga

Maxxam Analytics
 2608 6A Ave.
 Cold Lake, AB
 CANADA T9M 2C7

Report Date: 2011/12/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1J4227

Received: 2011/12/09, 09:52

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/12/09	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/12/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/13	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 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 Job #: B1J4227
 Report Date: 2011/12/16

RESULTS OF ANALYSES OF AIR

Maxxam ID		LX6705		LX6706	
Sampling Date		2011/12/05		2011/12/05	
COC Number		08991		08991	
	Units	LICA VOC\CLS\DEC 05,11 - 7799	QC Batch	LICA VOC\PORT\DEC 05,11 - 7927	QC Batch

Volatile Organics					
Pressure on Receipt	psig	22	2712645	22	2711200

QC Batch = Quality Control Batch

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC/CLSIDEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2712644
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2712644
Propene	ppbv	1.73	0.30	2.97	0.516	2712644
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2712644
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2712644
Dichlorodifluoromethane (FREON 12)	ppbv	0.83	0.20	4.12	0.989	2712644
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2712644
Chloromethane	ppbv	0.63	0.30	1.30	0.620	2712644
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2712644
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2712644
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2712644
Trichlorofluoromethane (FREON 11)	ppbv	0.39	0.20	2.21	1.12	2712644
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2712644
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2712644
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2712644
2-Propanone	ppbv	1.33	0.80	3.16	1.90	2712644
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2712644
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2712644
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2712644
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2712644
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2712644
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2712644
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2712644
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2712644
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2712644
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2712644
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2712644
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2712644
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2712644
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2712644
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2712644

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC/CLSIDEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2712644
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2712644
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2712644
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2712644
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2712644
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2712644
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2712644
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2712644
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2712644
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2712644
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2712644
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2712644
Benzene	ppbv	0.33	0.18	1.07	0.575	2712644
Toluene	ppbv	0.31	0.20	1.17	0.753	2712644
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2712644
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2712644
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2712644
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2712644
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2712644
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2712644
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2712644
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2712644
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2712644
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2712644
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2712644
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2712644
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2712644
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2712644
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2712644
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2712644
QC Batch = Quality Control Batch						

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\CLS\DEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	100		N/A	N/A	2712644
D5-Chlorobenzene	%	99		N/A	N/A	2712644
Difluorobenzene	%	102		N/A	N/A	2712644

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

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\PORT\DEC 05,11 - 7927	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2711197
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2711197
Propene	ppbv	<0.30	0.30	<0.516	0.516	2711197
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2711197
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2711197
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.32	0.989	2711197
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2711197
Chloromethane	ppbv	0.57	0.30	1.18	0.620	2711197
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2711197
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2711197
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2711197
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.81	1.12	2711197
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2711197
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2711197
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2711197
2-Propanone	ppbv	1.17	0.80	2.78	1.90	2711197
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2711197
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2711197
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2711197
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2711197
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2711197
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2711197
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2711197
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2711197
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2711197
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2711197
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2711197
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2711197
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2711197
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2711197
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2711197

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\PORT\DEC 05,11 - 7927	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2711197
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2711197
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2711197
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2711197
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2711197
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2711197
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2711197
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2711197
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2711197
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2711197
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2711197
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2711197
Benzene	ppbv	0.37	0.18	1.19	0.575	2711197
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2711197
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2711197
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2711197
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2711197
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2711197
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2711197
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2711197
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2711197
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2711197
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2711197
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2711197
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2711197
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2711197
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2711197
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2711197
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2711197
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2711197
QC Batch = Quality Control Batch						

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\DEC				
		05,11 - 7927				

Surrogate Recovery (%)						
Bromochloromethane	%	116		N/A	N/A	2711197
D5-Chlorobenzene	%	121		N/A	N/A	2711197
Difluorobenzene	%	114		N/A	N/A	2711197

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

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

Test Summary

Maxxam ID LX6705
Sample ID LICA VOC\CLS\DEC 05,11 - 7799
Matrix AIR

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2712645	N/A	2011/12/13	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2712644	N/A	2011/12/13	MELANIE MABINI

Maxxam ID LX6706
Sample ID LICA VOC\PORT\DEC 05,11 - 7927
Matrix AIR

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2711200	N/A	2011/12/09	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2711197	N/A	2011/12/09	MELANIE MABINI

Maxxam Job #: B1J4227
Report Date: 2011/12/16

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2711197 MM2	Spiked Blank	Bromochloromethane	2011/12/09		122	%	60 - 140
		D5-Chlorobenzene	2011/12/09		118	%	60 - 140
		Difluorobenzene	2011/12/09		122	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/09		97	%	70 - 130
		Carbon Disulfide	2011/12/09		98	%	70 - 130
		Propene	2011/12/09		94	%	70 - 130
		Vinyl Acetate	2011/12/09		106	%	70 - 130
		Vinyl Bromide	2011/12/09		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/09		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/09		116	%	70 - 130
		Chloromethane	2011/12/09		108	%	70 - 130
		Vinyl Chloride	2011/12/09		113	%	70 - 130
		Chloroethane	2011/12/09		110	%	70 - 130
		1,3-Butadiene	2011/12/09		112	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/09		91	%	70 - 130
		Trichlorotrifluoroethane	2011/12/09		98	%	70 - 130
		Ethanol	2011/12/09		93	%	70 - 130
		2-propanol	2011/12/09		120	%	70 - 130
		2-Propanone	2011/12/09		93	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/09		99	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/09		100	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/09		103	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/09		98	%	70 - 130
		Ethyl Acetate	2011/12/09		104	%	70 - 130
		1,1-Dichloroethylene	2011/12/09		107	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/09		104	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/09		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/09		88	%	70 - 130
		Chloroform	2011/12/09		97	%	70 - 130
		Carbon Tetrachloride	2011/12/09		92	%	70 - 130
		1,1-Dichloroethane	2011/12/09		100	%	70 - 130
		1,2-Dichloroethane	2011/12/09		98	%	70 - 130
		Ethylene Dibromide	2011/12/09		107	%	70 - 130
		1,1,1-Trichloroethane	2011/12/09		94	%	70 - 130
		1,1,2-Trichloroethane	2011/12/09		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/09		115	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/09		106	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/09		106	%	70 - 130
		1,2-Dichloropropane	2011/12/09		105	%	70 - 130
		Bromomethane	2011/12/09		107	%	70 - 130
		Bromoform	2011/12/09		114	%	70 - 130
		Bromodichloromethane	2011/12/09		94	%	70 - 130
		Dibromochloromethane	2011/12/09		99	%	70 - 130
		Heptane	2011/12/09		96	%	70 - 130
		Trichloroethylene	2011/12/09		99	%	70 - 130
		Tetrachloroethylene	2011/12/09		101	%	70 - 130
		Benzene	2011/12/09		105	%	70 - 130
		Toluene	2011/12/09		105	%	70 - 130
		Ethylbenzene	2011/12/09		115	%	70 - 130
		p+m-Xylene	2011/12/09		112	%	70 - 130
		o-Xylene	2011/12/09		115	%	70 - 130
		Styrene	2011/12/09		116	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/09		117	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/09		117	%	70 - 130
		4-ethyltoluene	2011/12/09		113	%	70 - 130

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2711197 MM2	Spiked Blank	Chlorobenzene	2011/12/09		114	%	70 - 130
		Benzyl chloride	2011/12/09		125	%	70 - 130
		1,3-Dichlorobenzene	2011/12/09		123	%	70 - 130
		1,4-Dichlorobenzene	2011/12/09		123	%	70 - 130
		1,2-Dichlorobenzene	2011/12/09		120	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/09		119	%	70 - 130
		Hexachlorobutadiene	2011/12/09		114	%	70 - 130
		Hexane	2011/12/09		95	%	70 - 130
		Cyclohexane	2011/12/09		100	%	70 - 130
		Tetrahydrofuran	2011/12/09		107	%	70 - 130
		1,4-Dioxane	2011/12/09		108	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/09		95	%	60 - 140
		D5-Chlorobenzene	2011/12/09		100	%	60 - 140
		Difluorobenzene	2011/12/09		96	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/09	<0.20		ppbv	
		Carbon Disulfide	2011/12/09	<0.50		ppbv	
		Propene	2011/12/09	<0.30		ppbv	
		Vinyl Acetate	2011/12/09	<0.20		ppbv	
		Vinyl Bromide	2011/12/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/09	<0.17		ppbv	
		Chloromethane	2011/12/09	<0.30		ppbv	
		Vinyl Chloride	2011/12/09	<0.18		ppbv	
		Chloroethane	2011/12/09	<0.30		ppbv	
		1,3-Butadiene	2011/12/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/09	<0.15		ppbv	
		Ethanol	2011/12/09	<2.3		ppbv	
		2-propanol	2011/12/09	<3.0		ppbv	
		2-Propanone	2011/12/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/09	<0.20		ppbv	
		Ethyl Acetate	2011/12/09	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/09	<0.80		ppbv	
		Chloroform	2011/12/09	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/09	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/09	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/09	<0.20		ppbv	
		Ethylene Dibromide	2011/12/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/09	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/09	<0.40		ppbv	
		Bromomethane	2011/12/09	<0.18		ppbv	
		Bromoform	2011/12/09	<0.20		ppbv	
		Bromodichloromethane	2011/12/09	<0.20		ppbv	
		Dibromochloromethane	2011/12/09	<0.20		ppbv	
		Heptane	2011/12/09	<0.30		ppbv	

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2711197 MM2	Method Blank	Trichloroethylene	2011/12/09	<0.30		ppbv	
		Tetrachloroethylene	2011/12/09	<0.20		ppbv	
		Benzene	2011/12/09	<0.18		ppbv	
		Toluene	2011/12/09	<0.20		ppbv	
		Ethylbenzene	2011/12/09	<0.20		ppbv	
		p+m-Xylene	2011/12/09	<0.37		ppbv	
		o-Xylene	2011/12/09	<0.20		ppbv	
		Styrene	2011/12/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/09	<0.50		ppbv	
		4-ethyltoluene	2011/12/09	<2.2		ppbv	
		Chlorobenzene	2011/12/09	<0.20		ppbv	
		Benzyl chloride	2011/12/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/09	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/09	<3.0		ppbv	
		Hexane	2011/12/09	<0.30		ppbv	
		Cyclohexane	2011/12/09	<0.20		ppbv	
Tetrahydrofuran	2011/12/09	<0.40		ppbv			
1,4-Dioxane	2011/12/09	<2.0		ppbv			
Xylene (Total)	2011/12/09	<0.60		ppbv			
2712644 MM2	Spiked Blank	Bromochloromethane	2011/12/13		107	%	60 - 140
		D5-Chlorobenzene	2011/12/13		113	%	60 - 140
		Difluorobenzene	2011/12/13		111	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/13		90	%	70 - 130
		Carbon Disulfide	2011/12/13		89	%	70 - 130
		Propene	2011/12/13		92	%	70 - 130
		Vinyl Acetate	2011/12/13		96	%	70 - 130
		Vinyl Bromide	2011/12/13		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/13		103	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/13		120	%	70 - 130
		Chloromethane	2011/12/13		108	%	70 - 130
		Vinyl Chloride	2011/12/13		109	%	70 - 130
		Chloroethane	2011/12/13		106	%	70 - 130
		1,3-Butadiene	2011/12/13		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/13		103	%	70 - 130
		Trichlorotrifluoroethane	2011/12/13		101	%	70 - 130
		Ethanol	2011/12/13		88	%	70 - 130
		2-propanol	2011/12/13		94	%	70 - 130
		2-Propanone	2011/12/13		94	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13		93	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/13		91	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/13		99	%	70 - 130
		Ethyl Acetate	2011/12/13		95	%	70 - 130
		1,1-Dichloroethylene	2011/12/13		98	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/13		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/13		95	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/13		81	%	70 - 130
		Chloroform	2011/12/13		99	%	70 - 130
		Carbon Tetrachloride	2011/12/13		99	%	70 - 130
1,1-Dichloroethane	2011/12/13		94	%	70 - 130		
1,2-Dichloroethane	2011/12/13		104	%	70 - 130		

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2712644 MM2	Spiked Blank	Ethylene Dibromide	2011/12/13		103	%	70 - 130
		1,1,1-Trichloroethane	2011/12/13		101	%	70 - 130
		1,1,2-Trichloroethane	2011/12/13		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/13		94	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/13		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/13		106	%	70 - 130
		1,2-Dichloropropane	2011/12/13		93	%	70 - 130
		Bromomethane	2011/12/13		105	%	70 - 130
		Bromoform	2011/12/13		101	%	70 - 130
		Bromodichloromethane	2011/12/13		97	%	70 - 130
		Dibromochloromethane	2011/12/13		101	%	70 - 130
		Heptane	2011/12/13		88	%	70 - 130
		Trichloroethylene	2011/12/13		93	%	70 - 130
		Tetrachloroethylene	2011/12/13		101	%	70 - 130
		Benzene	2011/12/13		94	%	70 - 130
		Toluene	2011/12/13		98	%	70 - 130
		Ethylbenzene	2011/12/13		95	%	70 - 130
		p+m-Xylene	2011/12/13		94	%	70 - 130
		o-Xylene	2011/12/13		97	%	70 - 130
		Styrene	2011/12/13		94	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/13		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/13		99	%	70 - 130
		4-ethyltoluene	2011/12/13		94	%	70 - 130
		Chlorobenzene	2011/12/13		94	%	70 - 130
		Benzyl chloride	2011/12/13		99	%	70 - 130
		1,3-Dichlorobenzene	2011/12/13		99	%	70 - 130
		1,4-Dichlorobenzene	2011/12/13		97	%	70 - 130
		1,2-Dichlorobenzene	2011/12/13		94	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/13		80	%	70 - 130
		Hexachlorobutadiene	2011/12/13		102	%	70 - 130
		Hexane	2011/12/13		88	%	70 - 130
		Cyclohexane	2011/12/13		89	%	70 - 130
		Tetrahydrofuran	2011/12/13		94	%	70 - 130
		1,4-Dioxane	2011/12/13		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/13		99	%	60 - 140
		D5-Chlorobenzene	2011/12/13		88	%	60 - 140
		Difluorobenzene	2011/12/13		102	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/13	<0.20		ppbv	
		Carbon Disulfide	2011/12/13	<0.50		ppbv	
		Propene	2011/12/13	<0.30		ppbv	
		Vinyl Acetate	2011/12/13	<0.20		ppbv	
		Vinyl Bromide	2011/12/13	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/13	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/13	<0.17		ppbv	
		Chloromethane	2011/12/13	<0.30		ppbv	
		Vinyl Chloride	2011/12/13	<0.18		ppbv	
		Chloroethane	2011/12/13	<0.30		ppbv	
		1,3-Butadiene	2011/12/13	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/13	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/13	<0.15		ppbv	
		Ethanol	2011/12/13	<2.3		ppbv	
		2-propanol	2011/12/13	<3.0		ppbv	
		2-Propanone	2011/12/13	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/13	<3.2		ppbv	

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2712644	MM2	Method Blank					
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/13	<0.20		ppbv	
		Ethyl Acetate	2011/12/13	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/13	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/13	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/13	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/13	<0.80		ppbv	
		Chloroform	2011/12/13	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/13	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/13	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/13	<0.20		ppbv	
		Ethylene Dibromide	2011/12/13	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/13	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/13	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/13	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/13	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/13	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/13	<0.40		ppbv	
		Bromomethane	2011/12/13	<0.18		ppbv	
		Bromoform	2011/12/13	<0.20		ppbv	
		Bromodichloromethane	2011/12/13	<0.20		ppbv	
		Dibromochloromethane	2011/12/13	<0.20		ppbv	
		Heptane	2011/12/13	<0.30		ppbv	
		Trichloroethylene	2011/12/13	<0.30		ppbv	
		Tetrachloroethylene	2011/12/13	<0.20		ppbv	
		Benzene	2011/12/13	<0.18		ppbv	
		Toluene	2011/12/13	<0.20		ppbv	
		Ethylbenzene	2011/12/13	<0.20		ppbv	
		p+m-Xylene	2011/12/13	<0.37		ppbv	
		o-Xylene	2011/12/13	<0.20		ppbv	
		Styrene	2011/12/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/13	<0.50		ppbv	
		4-ethyltoluene	2011/12/13	<2.2		ppbv	
		Chlorobenzene	2011/12/13	<0.20		ppbv	
		Benzyl chloride	2011/12/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/13	<3.0		ppbv	
		Hexane	2011/12/13	<0.30		ppbv	
		Cyclohexane	2011/12/13	<0.20		ppbv	
		Tetrahydrofuran	2011/12/13	<0.40		ppbv	
		1,4-Dioxane	2011/12/13	<2.0		ppbv	
		Xylene (Total)	2011/12/13	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/12/13	NC		%	25
		Carbon Disulfide	2011/12/13	NC		%	25
		Propene	2011/12/13	NC		%	25
		Vinyl Acetate	2011/12/13	NC		%	25
		Vinyl Bromide	2011/12/13	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/12/13	5.2		%	25
		1,2-Dichlorotetrafluoroethane	2011/12/13	NC		%	25

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2712644 MM2	RPD - Sample/Sample Dup	Chloromethane	2011/12/13	NC		%	25
		Vinyl Chloride	2011/12/13	NC		%	25
		Chloroethane	2011/12/13	NC		%	25
		1,3-Butadiene	2011/12/13	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/12/13	NC		%	25
		Trichlorotrifluoroethane	2011/12/13	NC		%	25
		Ethanol	2011/12/13	NC		%	25
		2-propanol	2011/12/13	3.2		%	25
		2-Propanone	2011/12/13	3.7		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13	5.4		%	25
		Methyl Isobutyl Ketone	2011/12/13	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/12/13	NC		%	25
		Ethyl Acetate	2011/12/13	NC		%	25
		1,1-Dichloroethylene	2011/12/13	8.8		%	25
		cis-1,2-Dichloroethylene	2011/12/13	NC		%	25
		trans-1,2-Dichloroethylene	2011/12/13	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/12/13	NC		%	25
		Chloroform	2011/12/13	5.0		%	25
		Carbon Tetrachloride	2011/12/13	NC		%	25
		1,1-Dichloroethane	2011/12/13	3.2		%	25
		1,2-Dichloroethane	2011/12/13	NC		%	25
		Ethylene Dibromide	2011/12/13	NC		%	25
		1,1,1-Trichloroethane	2011/12/13	3.7		%	25
		1,1,2-Trichloroethane	2011/12/13	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/12/13	NC		%	25
		cis-1,3-Dichloropropene	2011/12/13	NC		%	25
		trans-1,3-Dichloropropene	2011/12/13	NC		%	25
		1,2-Dichloropropane	2011/12/13	NC		%	25
		Bromomethane	2011/12/13	NC		%	25
		Bromoform	2011/12/13	NC		%	25
		Bromodichloromethane	2011/12/13	NC		%	25
		Dibromochloromethane	2011/12/13	NC		%	25
		Heptane	2011/12/13	NC		%	25
		Trichloroethylene	2011/12/13	0.5		%	25
		Tetrachloroethylene	2011/12/13	NC		%	25
		Benzene	2011/12/13	NC		%	25
		Toluene	2011/12/13	1.2		%	25
		Ethylbenzene	2011/12/13	NC		%	25
		p+m-Xylene	2011/12/13	NC		%	25
		o-Xylene	2011/12/13	NC		%	25
		Styrene	2011/12/13	NC		%	25
		1,3,5-Trimethylbenzene	2011/12/13	NC		%	25
		1,2,4-Trimethylbenzene	2011/12/13	NC		%	25
		4-ethyltoluene	2011/12/13	NC		%	25
		Chlorobenzene	2011/12/13	NC		%	25
		Benzyl chloride	2011/12/13	NC		%	25
		1,3-Dichlorobenzene	2011/12/13	NC		%	25
		1,4-Dichlorobenzene	2011/12/13	NC		%	25
		1,2-Dichlorobenzene	2011/12/13	NC		%	25
		1,2,4-Trichlorobenzene	2011/12/13	NC		%	25
		Hexachlorobutadiene	2011/12/13	NC		%	25
		Hexane	2011/12/13	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2712644 MM2	RPD - Sample/Sample Dup	Cyclohexane	2011/12/13	NC		%	25
		Tetrahydrofuran	2011/12/13	NC		%	25
		1,4-Dioxane	2011/12/13	NC		%	25
		Xylene (Total)	2011/12/13	NC		%	25

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 316
Station ID: Lica 1 Canister Installation Date/Time: Dec 09, 2011 @ 09:00 mst
Field Sample ID: LICA VOC/ CLS /Dec 11,11 Canister Removal Date/Time: Dec 12, 2011 @ 08:28 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Dec-11	12/11/2011 0:00	12/12/2011 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 # 09083

Technician Signiture: Ting Xu

Your C.O.C. #: 09083

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

Report Date: 2011/12/22

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J7472****Received: 2011/12/14, 10:05**Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/12/21	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/20	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 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

Page 1 of 10

Maxxam Job #: B1J7472
Report Date: 2011/12/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		LZ3161	
Sampling Date		2011/12/11	
COC Number		09083	
	Units	LICA VOC/CLS/DEC 11,11	QC Batch

Volatile Organics			
Pressure on Receipt	psig	23	2720251

QC Batch = Quality Control Batch

Maxxam Job #: B1J7472
 Report Date: 2011/12/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LZ3161				
Sampling Date		2011/12/11				
COC Number		09083				
	Units	LICA VOC/CLS/DEC 11,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatiles Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2720250
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2720250
Propene	ppbv	<0.30	0.30	<0.516	0.516	2720250
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2720250
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2720250
Dichlorodifluoromethane (FREON 12)	ppbv	1.10	0.20	5.42	0.989	2720250
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2720250
Chloromethane	ppbv	0.76	0.30	1.58	0.620	2720250
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2720250
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2720250
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2720250
Trichlorofluoromethane (FREON 11)	ppbv	0.52	0.20	2.91	1.12	2720250
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2720250
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2720250
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2720250
2-Propanone	ppbv	1.78	0.80	4.22	1.90	2720250
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2720250
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2720250
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2720250
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2720250
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2720250
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2720250
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2720250
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2720250
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2720250
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2720250
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2720250
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2720250
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2720250
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2720250
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2720250
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B1J7472
 Report Date: 2011/12/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LZ3161				
Sampling Date		2011/12/11				
COC Number		09083				
	Units	LICA VOC/CLS/DEC 11,11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2720250
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2720250
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2720250
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2720250
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2720250
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2720250
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2720250
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2720250
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2720250
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2720250
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2720250
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2720250
Benzene	ppbv	0.21	0.18	0.686	0.575	2720250
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2720250
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2720250
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2720250
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2720250
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2720250
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2720250
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2720250
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2720250
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2720250
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2720250
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2720250
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2720250
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2720250
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2720250
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2720250
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2720250
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2720250
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2720250
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2720250
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2720250
QC Batch = Quality Control Batch						

Maxxam Job #: B1J7472
 Report Date: 2011/12/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LZ3161				
Sampling Date		2011/12/11				
COC Number		09083				
	Units	LICA VOC/CLS/DEC 11,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	88		N/A	N/A	2720250
D5-Chlorobenzene	%	84		N/A	N/A	2720250
Difluorobenzene	%	91		N/A	N/A	2720250

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

Maxxam Job #: B1J7472
Report Date: 2011/12/22

Test Summary

Maxxam ID LZ3161
Sample ID LICA VOC/CLS/DEC 11,11
Matrix AIR

Collected 2011/12/11
Shipped
Received 2011/12/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2720251	N/A	2011/12/21	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2720250	N/A	2011/12/20	MELANIE MABINI

Maxxam Job #: B1J7472
Report Date: 2011/12/22

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1J7472

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2720250 MM2	Spiked Blank	Bromochloromethane	2011/12/20		109	%	60 - 140
		D5-Chlorobenzene	2011/12/20		113	%	60 - 140
		Difluorobenzene	2011/12/20		114	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/20		92	%	70 - 130
		Carbon Disulfide	2011/12/20		93	%	70 - 130
		Propene	2011/12/20		91	%	70 - 130
		Vinyl Acetate	2011/12/20		101	%	70 - 130
		Vinyl Bromide	2011/12/20		113	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/20		117	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/20		135 (1)	%	70 - 130
		Chloromethane	2011/12/20		119	%	70 - 130
		Vinyl Chloride	2011/12/20		119	%	70 - 130
		Chloroethane	2011/12/20		116	%	70 - 130
		1,3-Butadiene	2011/12/20		116	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/20		118	%	70 - 130
		Trichlorotrifluoroethane	2011/12/20		107	%	70 - 130
		Ethanol	2011/12/20		93	%	70 - 130
		2-propanol	2011/12/20		111	%	70 - 130
		2-Propanone	2011/12/20		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/20		95	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/20		94	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/20		97	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/20		107	%	70 - 130
		Ethyl Acetate	2011/12/20		99	%	70 - 130
		1,1-Dichloroethylene	2011/12/20		104	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/20		109	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/20		99	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/20		85	%	70 - 130
		Chloroform	2011/12/20		109	%	70 - 130
		Carbon Tetrachloride	2011/12/20		113	%	70 - 130
		1,1-Dichloroethane	2011/12/20		102	%	70 - 130
		1,2-Dichloroethane	2011/12/20		118	%	70 - 130
		Ethylene Dibromide	2011/12/20		111	%	70 - 130
		1,1,1-Trichloroethane	2011/12/20		112	%	70 - 130
		1,1,2-Trichloroethane	2011/12/20		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/20		101	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/20		106	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/20		113	%	70 - 130
		1,2-Dichloropropane	2011/12/20		98	%	70 - 130
		Bromomethane	2011/12/20		117	%	70 - 130
		Bromoform	2011/12/20		114	%	70 - 130
		Bromodichloromethane	2011/12/20		107	%	70 - 130
		Dibromochloromethane	2011/12/20		112	%	70 - 130
		Heptane	2011/12/20		93	%	70 - 130
		Trichloroethylene	2011/12/20		99	%	70 - 130
		Tetrachloroethylene	2011/12/20		109	%	70 - 130
		Benzene	2011/12/20		97	%	70 - 130
		Toluene	2011/12/20		103	%	70 - 130
		Ethylbenzene	2011/12/20		102	%	70 - 130
		p+m-Xylene	2011/12/20		102	%	70 - 130
		o-Xylene	2011/12/20		105	%	70 - 130
		Styrene	2011/12/20		96	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/20		110	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/20		111	%	70 - 130
		4-ethyltoluene	2011/12/20		106	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J7472

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2720250 MM2	Spiked Blank	Chlorobenzene	2011/12/20		99	%	70 - 130
		Benzyl chloride	2011/12/20		121	%	70 - 130
		1,3-Dichlorobenzene	2011/12/20		112	%	70 - 130
		1,4-Dichlorobenzene	2011/12/20		111	%	70 - 130
		1,2-Dichlorobenzene	2011/12/20		114	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/20		113	%	70 - 130
		Hexachlorobutadiene	2011/12/20		118	%	70 - 130
		Hexane	2011/12/20		89	%	70 - 130
		Cyclohexane	2011/12/20		96	%	70 - 130
		Tetrahydrofuran	2011/12/20		98	%	70 - 130
		1,4-Dioxane	2011/12/20		97	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/20		107	%	60 - 140
		D5-Chlorobenzene	2011/12/20		102	%	60 - 140
		Difluorobenzene	2011/12/20		110	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/20	<0.20		ppbv	
		Carbon Disulfide	2011/12/20	<0.50		ppbv	
		Propene	2011/12/20	<0.30		ppbv	
		Vinyl Acetate	2011/12/20	<0.20		ppbv	
		Vinyl Bromide	2011/12/20	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/20	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/20	<0.17		ppbv	
		Chloromethane	2011/12/20	<0.30		ppbv	
		Vinyl Chloride	2011/12/20	<0.18		ppbv	
		Chloroethane	2011/12/20	<0.30		ppbv	
		1,3-Butadiene	2011/12/20	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/20	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/20	<0.15		ppbv	
		Ethanol	2011/12/20	<2.3		ppbv	
		2-propanol	2011/12/20	<3.0		ppbv	
		2-Propanone	2011/12/20	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/20	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/20	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/20	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/20	<0.20		ppbv	
		Ethyl Acetate	2011/12/20	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/20	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/20	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/20	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/20	<0.80		ppbv	
		Chloroform	2011/12/20	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/20	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/20	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/20	<0.20		ppbv	
		Ethylene Dibromide	2011/12/20	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/20	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/20	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/20	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/20	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/20	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/20	<0.40		ppbv	
		Bromomethane	2011/12/20	<0.18		ppbv	
		Bromoform	2011/12/20	<0.20		ppbv	
		Bromodichloromethane	2011/12/20	<0.20		ppbv	
		Dibromochloromethane	2011/12/20	<0.20		ppbv	
		Heptane	2011/12/20	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J7472

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2720250 MM2	Method Blank	Trichloroethylene	2011/12/20	<0.30		ppbv	
		Tetrachloroethylene	2011/12/20	<0.20		ppbv	
		Benzene	2011/12/20	<0.18		ppbv	
		Toluene	2011/12/20	<0.20		ppbv	
		Ethylbenzene	2011/12/20	<0.20		ppbv	
		p+m-Xylene	2011/12/20	<0.37		ppbv	
		o-Xylene	2011/12/20	<0.20		ppbv	
		Styrene	2011/12/20	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/20	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/20	<0.50		ppbv	
		4-ethyltoluene	2011/12/20	<2.2		ppbv	
		Chlorobenzene	2011/12/20	<0.20		ppbv	
		Benzyl chloride	2011/12/20	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/20	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/20	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/20	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/20	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/20	<3.0		ppbv	
		Hexane	2011/12/20	<0.30		ppbv	
		Cyclohexane	2011/12/20	<0.20		ppbv	
		Tetrahydrofuran	2011/12/20	<0.40		ppbv	
		1,4-Dioxane	2011/12/20	<2.0		ppbv	
		Xylene (Total)	2011/12/20	<0.60		ppbv	
	RPD - Sample/Sample Dup	2-propanol	2011/12/20	NC		%	25

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7785
Station ID: Lica 1 Canister Installation Date/Time: Dec 16, 2011 @ 09:40 mst
Field Sample ID: LICA VOC/ CLS /Dec 17,11 Canister Removal Date/Time: Dec 19, 2011 @ 08:28 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Dec-11	12/17/2011 0:00	12/18/2011 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 # 09175

Technician Signiture: Ting Xu

Your C.O.C. #: 09175

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2012/01/04****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1K1166****Received: 2011/12/21, 10:17**Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/12/22	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/22	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 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

Page 1 of 10

Maxxam Job #: B1K1166
Report Date: 2012/01/04

RESULTS OF ANALYSES OF AIR

Maxxam ID		MB1218	
Sampling Date		2011/12/17	
COC Number		09175	
	Units	LICA VOC/CLS/DEC 17, 11	QC Batch

Volatile Organics			
Pressure on Receipt	psig	22	2722543

QC Batch = Quality Control Batch

Maxxam Job #: B1K1166
 Report Date: 2012/01/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MB1218				
Sampling Date		2011/12/17				
COC Number		09175				
	Units	LICA VOC/CLS/DEC 17, 11	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2722542
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2722542
Propene	ppbv	<0.30	0.30	<0.516	0.516	2722542
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2722542
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2722542
Dichlorodifluoromethane (FREON 12)	ppbv	1.14	0.20	5.64	0.989	2722542
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2722542
Chloromethane	ppbv	0.69	0.30	1.43	0.620	2722542
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2722542
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2722542
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2722542
Trichlorofluoromethane (FREON 11)	ppbv	0.60	0.20	3.38	1.12	2722542
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2722542
Ethanol	ppbv	3.0	2.3	5.60	4.33	2722542
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2722542
2-Propanone	ppbv	1.96	0.80	4.66	1.90	2722542
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2722542
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2722542
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2722542
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2722542
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2722542
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2722542
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2722542
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2722542
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2722542
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2722542
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2722542
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2722542
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2722542
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2722542
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2722542
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MB1218				
Sampling Date		2011/12/17				
COC Number		09175				
	Units	LICA VOC/CLS/DEC 17, 11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2722542
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2722542
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2722542
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2722542
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2722542
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2722542
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2722542
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2722542
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2722542
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2722542
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2722542
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2722542
Benzene	ppbv	0.38	0.18	1.23	0.575	2722542
Toluene	ppbv	0.39	0.20	1.46	0.753	2722542
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2722542
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2722542
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2722542
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2722542
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2722542
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2722542
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2722542
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2722542
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2722542
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2722542
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2722542
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2722542
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2722542
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2722542
Hexane	ppbv	1.21	0.30	4.27	1.06	2722542
Cyclohexane	ppbv	0.24	0.20	0.841	0.688	2722542
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2722542
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2722542
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2722542
QC Batch = Quality Control Batch						

Maxxam Job #: B1K1166
 Report Date: 2012/01/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MB1218				
Sampling Date		2011/12/17				
COC Number		09175				
	Units	LICA VOC/CLS/DEC 17, 11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2722542
D5-Chlorobenzene	%	80		N/A	N/A	2722542
Difluorobenzene	%	87		N/A	N/A	2722542

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

Maxxam Job #: B1K1166
Report Date: 2012/01/04

Test Summary

Maxxam ID MB1218
Sample ID LICA VOC/CLS/DEC 17, 11
Matrix AIR

Collected 2011/12/17
Shipped
Received 2011/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2722543	N/A	2011/12/22	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2722542	N/A	2011/12/22	MELANIE MABINI

Maxxam Job #: B1K1166
Report Date: 2012/01/04

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1K1166

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2722542 MM2	Spiked Blank	Bromochloromethane	2011/12/22		113	%	60 - 140
		D5-Chlorobenzene	2011/12/22		111	%	60 - 140
		Difluorobenzene	2011/12/22		112	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/22		88	%	70 - 130
		Carbon Disulfide	2011/12/22		88	%	70 - 130
		Propene	2011/12/22		87	%	70 - 130
		Vinyl Acetate	2011/12/22		101	%	70 - 130
		Vinyl Bromide	2011/12/22		107	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/22		118	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/22		133 (1)	%	70 - 130
		Chloromethane	2011/12/22		118	%	70 - 130
		Vinyl Chloride	2011/12/22		116	%	70 - 130
		Chloroethane	2011/12/22		110	%	70 - 130
		1,3-Butadiene	2011/12/22		114	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/22		121	%	70 - 130
		Trichlorotrifluoroethane	2011/12/22		103	%	70 - 130
		Ethanol	2011/12/22		92	%	70 - 130
		2-propanol	2011/12/22		101	%	70 - 130
		2-Propanone	2011/12/22		108	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/22		92	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/22		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/22		99	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/22		105	%	70 - 130
		Ethyl Acetate	2011/12/22		98	%	70 - 130
		1,1-Dichloroethylene	2011/12/22		99	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/22		105	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/22		95	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/22		81	%	70 - 130
		Chloroform	2011/12/22		106	%	70 - 130
		Carbon Tetrachloride	2011/12/22		116	%	70 - 130
		1,1-Dichloroethane	2011/12/22		100	%	70 - 130
		1,2-Dichloroethane	2011/12/22		118	%	70 - 130
		Ethylene Dibromide	2011/12/22		106	%	70 - 130
		1,1,1-Trichloroethane	2011/12/22		115	%	70 - 130
		1,1,2-Trichloroethane	2011/12/22		100	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/22		95	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/22		106	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/22		114	%	70 - 130
		1,2-Dichloropropane	2011/12/22		94	%	70 - 130
		Bromomethane	2011/12/22		113	%	70 - 130
		Bromoform	2011/12/22		112	%	70 - 130
		Bromodichloromethane	2011/12/22		110	%	70 - 130
		Dibromochloromethane	2011/12/22		112	%	70 - 130
		Heptane	2011/12/22		93	%	70 - 130
		Trichloroethylene	2011/12/22		92	%	70 - 130
		Tetrachloroethylene	2011/12/22		102	%	70 - 130
		Benzene	2011/12/22		92	%	70 - 130
		Toluene	2011/12/22		99	%	70 - 130
		Ethylbenzene	2011/12/22		99	%	70 - 130
		p+m-Xylene	2011/12/22		99	%	70 - 130
		o-Xylene	2011/12/22		101	%	70 - 130
		Styrene	2011/12/22		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/22		103	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/22		103	%	70 - 130
		4-ethyltoluene	2011/12/22		102	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1K1166

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2722542 MM2	Spiked Blank	Chlorobenzene	2011/12/22		91	%	70 - 130
		Benzyl chloride	2011/12/22		112	%	70 - 130
		1,3-Dichlorobenzene	2011/12/22		100	%	70 - 130
		1,4-Dichlorobenzene	2011/12/22		99	%	70 - 130
		1,2-Dichlorobenzene	2011/12/22		99	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/22		96	%	70 - 130
		Hexachlorobutadiene	2011/12/22		112	%	70 - 130
		Hexane	2011/12/22		87	%	70 - 130
		Cyclohexane	2011/12/22		92	%	70 - 130
		Tetrahydrofuran	2011/12/22		91	%	70 - 130
		1,4-Dioxane	2011/12/22		97	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/22		86	%	60 - 140
		D5-Chlorobenzene	2011/12/22		80	%	60 - 140
		Difluorobenzene	2011/12/22		87	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/22	<0.20		ppbv	
		Carbon Disulfide	2011/12/22	<0.50		ppbv	
		Propene	2011/12/22	<0.30		ppbv	
		Vinyl Acetate	2011/12/22	<0.20		ppbv	
		Vinyl Bromide	2011/12/22	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/22	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/22	<0.17		ppbv	
		Chloromethane	2011/12/22	<0.30		ppbv	
		Vinyl Chloride	2011/12/22	<0.18		ppbv	
		Chloroethane	2011/12/22	<0.30		ppbv	
		1,3-Butadiene	2011/12/22	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/22	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/22	<0.15		ppbv	
		Ethanol	2011/12/22	<2.3		ppbv	
		2-propanol	2011/12/22	<3.0		ppbv	
		2-Propanone	2011/12/22	0.85, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/22	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/22	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/22	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/22	<0.20		ppbv	
		Ethyl Acetate	2011/12/22	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/22	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/22	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/22	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/22	<0.80		ppbv	
		Chloroform	2011/12/22	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/22	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/22	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/22	<0.20		ppbv	
		Ethylene Dibromide	2011/12/22	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/22	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/22	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/22	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/22	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/22	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/22	<0.40		ppbv	
		Bromomethane	2011/12/22	<0.18		ppbv	
		Bromoform	2011/12/22	<0.20		ppbv	
		Bromodichloromethane	2011/12/22	<0.20		ppbv	
		Dibromochloromethane	2011/12/22	<0.20		ppbv	
		Heptane	2011/12/22	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1K1166

QA/QC Batch				Date Analyzed				
Num Init	QC Type	Parameter		yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2722542	MM2	Method Blank	Trichloroethylene	2011/12/22	<0.30		ppbv	
			Tetrachloroethylene	2011/12/22	<0.20		ppbv	
			Benzene	2011/12/22	<0.18		ppbv	
			Toluene	2011/12/22	<0.20		ppbv	
			Ethylbenzene	2011/12/22	<0.20		ppbv	
			p+m-Xylene	2011/12/22	<0.37		ppbv	
			o-Xylene	2011/12/22	<0.20		ppbv	
			Styrene	2011/12/22	<0.20		ppbv	
			1,3,5-Trimethylbenzene	2011/12/22	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2011/12/22	<0.50		ppbv	
			4-ethyltoluene	2011/12/22	<2.2		ppbv	
			Chlorobenzene	2011/12/22	<0.20		ppbv	
			Benzyl chloride	2011/12/22	<1.0		ppbv	
			1,3-Dichlorobenzene	2011/12/22	<0.40		ppbv	
			1,4-Dichlorobenzene	2011/12/22	<0.40		ppbv	
			1,2-Dichlorobenzene	2011/12/22	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2011/12/22	<2.0		ppbv	
			Hexachlorobutadiene	2011/12/22	<3.0		ppbv	
			Hexane	2011/12/22	<0.30		ppbv	
			Cyclohexane	2011/12/22	<0.20		ppbv	
			Tetrahydrofuran	2011/12/22	<0.40		ppbv	
			1,4-Dioxane	2011/12/22	<2.0		ppbv	
			Xylene (Total)	2011/12/22	<0.60		ppbv	

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 250
Station ID: Lica 1 Canister Installation Date/Time: Dec 22, 2011 @ 11:12 mst
Field Sample ID: LICA VOC/ CLS /Dec 23,11 Canister Removal Date/Time: Dec 28, 2011 @ 08:08 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Dec-11	12/23/2011 0:00	12/24/2011 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 # 08540

Technician Signiture: Ting Xu



Your C.O.C. #: 08540

Attention: Michael Bisaga

Maxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7

Report Date: 2012/01/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1K4121

Received: 2011/12/30, 09:14

Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2012/01/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2012/01/05	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 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 Job #: B1K4121
 Report Date: 2012/01/12

RESULTS OF ANALYSES OF AIR

Maxxam ID		MC7957	
Sampling Date		2011/12/23	
COC Number		08540	
	Units	LICA VOC/CLS /DEC23,11 / 250	QC Batch

Volatile Organics			
Pressure on Receipt	psig	23	2733765

QC Batch = Quality Control Batch

Maxxam Job #: B1K4121
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MC7957				
Sampling Date		2011/12/23				
COC Number		08540				
	Units	LICA VOC/CLS /DEC23,11 / 250	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2730059
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2730059
Propene	ppbv	<0.30	0.30	<0.516	0.516	2730059
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2730059
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2730059
Dichlorodifluoromethane (FREON 12)	ppbv	0.59	0.20	2.93	0.989	2730059
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2730059
Chloromethane	ppbv	0.51	0.30	1.05	0.620	2730059
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2730059
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2730059
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2730059
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.72	1.12	2730059
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2730059
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2730059
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2730059
2-Propanone	ppbv	1.64	0.80	3.90	1.90	2730059
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2730059
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2730059
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2730059
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2730059
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2730059
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2730059
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2730059
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2730059
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2730059
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2730059
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2730059
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2730059
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2730059
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2730059

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1K4121
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MC7957				
Sampling Date		2011/12/23				
COC Number		08540				
	Units	LICA VOC/CLS /DEC23,11 / 250	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2730059
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2730059
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2730059
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2730059
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2730059
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2730059
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2730059
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2730059
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2730059
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2730059
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2730059
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2730059
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2730059
Benzene	ppbv	0.18	0.18	0.577	0.575	2730059
Toluene	ppbv	0.27	0.20	1.00	0.753	2730059
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2730059
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2730059
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2730059
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2730059
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2730059
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2730059
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2730059
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2730059
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2730059
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2730059
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2730059
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2730059
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2730059
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2730059
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2730059
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2730059
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2730059

QC Batch = Quality Control Batch

Maxxam Job #: B1K4121
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MC7957				
Sampling Date		2011/12/23				
COC Number		08540				
	Units	LICA VOC/CLS /DEC23,11 / 250	RDL	ug/m3	DL (ug/m3)	QC Batch

1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2730059
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2730059
Surrogate Recovery (%)						
Bromochloromethane	%	93		N/A	N/A	2730059
D5-Chlorobenzene	%	84		N/A	N/A	2730059
Difluorobenzene	%	94		N/A	N/A	2730059

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

Maxxam Job #: B1K4121
Report Date: 2012/01/12

Test Summary

Maxxam ID MC7957
Sample ID LICA VOC/CLS /DEC23,11 / 250
Matrix AIR

Collected 2011/12/23
Shipped
Received 2011/12/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2733765	N/A	2012/01/05	DAVE JOHNSTON
Volatile Organics in Air (TO-15)	GC/MS	2730059	N/A	2012/01/05	DAVE JOHNSTON

Maxxam Job #: B1K4121
Report Date: 2012/01/12

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1K4121

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2730059 DBJ	Spiked Blank	Bromochloromethane	2012/01/05		113	%	60 - 140
		D5-Chlorobenzene	2012/01/05		111	%	60 - 140
		Difluorobenzene	2012/01/05		115	%	60 - 140
		2,2,4-Trimethylpentane	2012/01/05		100	%	70 - 130
		Carbon Disulfide	2012/01/05		103	%	70 - 130
		Propene	2012/01/05		111	%	70 - 130
		Vinyl Acetate	2012/01/05		110	%	70 - 130
		Vinyl Bromide	2012/01/05		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/01/05		107	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/01/05		130	%	70 - 130
		Chloromethane	2012/01/05		123	%	70 - 130
		Vinyl Chloride	2012/01/05		121	%	70 - 130
		Chloroethane	2012/01/05		119	%	70 - 130
		1,3-Butadiene	2012/01/05		120	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/01/05		105	%	70 - 130
		Trichlorotrifluoroethane	2012/01/05		103	%	70 - 130
		Ethanol	2012/01/05		116	%	70 - 130
		2-propanol	2012/01/05		114	%	70 - 130
		2-Propanone	2012/01/05		105	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/01/05		102	%	70 - 130
		Methyl Isobutyl Ketone	2012/01/05		105	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/01/05		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/01/05		105	%	70 - 130
		Ethyl Acetate	2012/01/05		108	%	70 - 130
		1,1-Dichloroethylene	2012/01/05		115	%	70 - 130
		cis-1,2-Dichloroethylene	2012/01/05		108	%	70 - 130
		trans-1,2-Dichloroethylene	2012/01/05		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/01/05		103	%	70 - 130
		Chloroform	2012/01/05		102	%	70 - 130
		Carbon Tetrachloride	2012/01/05		100	%	70 - 130
		1,1-Dichloroethane	2012/01/05		108	%	70 - 130
		1,2-Dichloroethane	2012/01/05		105	%	70 - 130
		Ethylene Dibromide	2012/01/05		101	%	70 - 130
		1,1,1-Trichloroethane	2012/01/05		103	%	70 - 130
		1,1,2-Trichloroethane	2012/01/05		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/01/05		103	%	70 - 130
		cis-1,3-Dichloropropene	2012/01/05		108	%	70 - 130
		trans-1,3-Dichloropropene	2012/01/05		108	%	70 - 130
		1,2-Dichloropropane	2012/01/05		106	%	70 - 130
		Bromomethane	2012/01/05		114	%	70 - 130
		Bromoform	2012/01/05		110	%	70 - 130
		Bromodichloromethane	2012/01/05		105	%	70 - 130
		Dibromochloromethane	2012/01/05		107	%	70 - 130
		Heptane	2012/01/05		112	%	70 - 130
		Trichloroethylene	2012/01/05		100	%	70 - 130
		Tetrachloroethylene	2012/01/05		104	%	70 - 130
		Benzene	2012/01/05		105	%	70 - 130
		Toluene	2012/01/05		105	%	70 - 130
		Ethylbenzene	2012/01/05		105	%	70 - 130
		p+m-Xylene	2012/01/05		104	%	70 - 130
		o-Xylene	2012/01/05		104	%	70 - 130
		Styrene	2012/01/05		100	%	70 - 130
		1,3,5-Trimethylbenzene	2012/01/05		101	%	70 - 130
		1,2,4-Trimethylbenzene	2012/01/05		100	%	70 - 130
		4-ethyltoluene	2012/01/05		101	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1K4121

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2730059 DBJ	Spiked Blank	Chlorobenzene	2012/01/05		98	%	70 - 130
		Benzyl chloride	2012/01/05		105	%	70 - 130
		1,3-Dichlorobenzene	2012/01/05		94	%	70 - 130
		1,4-Dichlorobenzene	2012/01/05		92	%	70 - 130
		1,2-Dichlorobenzene	2012/01/05		95	%	70 - 130
		1,2,4-Trichlorobenzene	2012/01/05		93	%	70 - 130
		Hexachlorobutadiene	2012/01/05		104	%	70 - 130
		Hexane	2012/01/05		112	%	70 - 130
		Cyclohexane	2012/01/05		106	%	70 - 130
		Tetrahydrofuran	2012/01/05		112	%	70 - 130
		1,4-Dioxane	2012/01/05		100	%	70 - 130
		Xylene (Total)	2012/01/05		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/01/05		98	%	60 - 140
		D5-Chlorobenzene	2012/01/05		88	%	60 - 140
		Difluorobenzene	2012/01/05		101	%	60 - 140
		2,2,4-Trimethylpentane	2012/01/05	<0.20		ppbv	
		Carbon Disulfide	2012/01/05	<0.50		ppbv	
		Propene	2012/01/05	<0.30		ppbv	
		Vinyl Acetate	2012/01/05	<0.20		ppbv	
		Vinyl Bromide	2012/01/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/01/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/01/05	<0.17		ppbv	
		Chloromethane	2012/01/05	<0.30		ppbv	
		Vinyl Chloride	2012/01/05	<0.18		ppbv	
		Chloroethane	2012/01/05	<0.30		ppbv	
		1,3-Butadiene	2012/01/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/01/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/01/05	<0.15		ppbv	
		Ethanol	2012/01/05	<2.3		ppbv	
		2-propanol	2012/01/05	<3.0		ppbv	
		2-Propanone	2012/01/05	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/01/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/01/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/01/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/01/05	<0.20		ppbv	
		Ethyl Acetate	2012/01/05	<2.2		ppbv	
		1,1-Dichloroethylene	2012/01/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/01/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/01/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/01/05	<0.80		ppbv	
		Chloroform	2012/01/05	<0.15		ppbv	
		Carbon Tetrachloride	2012/01/05	<0.30		ppbv	
		1,1-Dichloroethane	2012/01/05	<0.20		ppbv	
		1,2-Dichloroethane	2012/01/05	<0.20		ppbv	
		Ethylene Dibromide	2012/01/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/01/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/01/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/01/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/01/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/01/05	<0.17		ppbv	
		1,2-Dichloropropane	2012/01/05	<0.40		ppbv	
		Bromomethane	2012/01/05	<0.18		ppbv	
		Bromoform	2012/01/05	<0.20		ppbv	
		Bromodichloromethane	2012/01/05	<0.20		ppbv	
		Dibromochloromethane	2012/01/05	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1K4121

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2730059 DBJ	Method Blank	Heptane	2012/01/05	<0.30		ppbv	
		Trichloroethylene	2012/01/05	<0.30		ppbv	
		Tetrachloroethylene	2012/01/05	<0.20		ppbv	
		Benzene	2012/01/05	<0.18		ppbv	
		Toluene	2012/01/05	<0.20		ppbv	
		Ethylbenzene	2012/01/05	<0.20		ppbv	
		p+m-Xylene	2012/01/05	<0.37		ppbv	
		o-Xylene	2012/01/05	<0.20		ppbv	
		Styrene	2012/01/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/01/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/01/05	<0.50		ppbv	
		4-ethyltoluene	2012/01/05	<2.2		ppbv	
		Chlorobenzene	2012/01/05	<0.20		ppbv	
		Benzyl chloride	2012/01/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/01/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/01/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/01/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/01/05	<2.0		ppbv	
		Hexachlorobutadiene	2012/01/05	<3.0		ppbv	
		Hexane	2012/01/05	<0.30		ppbv	
		Cyclohexane	2012/01/05	<0.20		ppbv	
		Tetrahydrofuran	2012/01/05	<0.40		ppbv	
		1,4-Dioxane	2012/01/05	<2.0		ppbv	
		Xylene (Total)	2012/01/05	<0.60		ppbv	

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 283
Station ID: Lica 1 Canister Installation Date/Time: Dec 28, 2011 @ 08:46 mst
Field Sample ID: LICA VOC/ CLS /Dec 29,11 Canister Removal Date/Time: Dec 30, 2011 @ 08:42 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Dec-11	12/29/2011 0:00	12/30/2011 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 # 09167

Technician Signiture: Ting Xu

Your C.O.C. #: 09167

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

Report Date: 2012/01/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B201048****Received: 2012/01/05, 09:20**Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2012/01/06	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2012/01/06	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 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

Page 1 of 10

Maxxam Job #: B201048
Report Date: 2012/01/12

RESULTS OF ANALYSES OF AIR

Maxxam ID		MD4483	
Sampling Date		2011/12/29	
COC Number		09167	
	Units	LICAVOC/CLS/DEC29,11/	QC Batch
		283	

Volatile Organics			
Pressure on Receipt	psig	23	2731510

QC Batch = Quality Control Batch

Maxxam Job #: B201048
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MD4483				
Sampling Date		2011/12/29				
COC Number		09167				
	Units	LICAVOC/CLS/DEC29,11/283	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2731547
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2731547
Propene	ppbv	<1.4	1.4	<2.41	2.41	2731547
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2731547
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2731547
Dichlorodifluoromethane (FREON 12)	ppbv	0.58	0.20	2.87	0.989	2731547
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2731547
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2731547
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2731547
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2731547
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2731547
Trichlorofluoromethane (FREON 11)	ppbv	0.26	0.20	1.48	1.12	2731547
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2731547
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2731547
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2731547
2-Propanone	ppbv	0.84	0.80	1.99	1.90	2731547
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2731547
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2731547
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2731547
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2731547
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2731547
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2731547
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2731547
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2731547
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2731547
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2731547
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2731547
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2731547
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2731547
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2731547
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2731547
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2731547

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B201048
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MD4483				
Sampling Date		2011/12/29				
COC Number		09167				
	Units	LICAVOC/CLS/DEC29,11/283	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2731547
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2731547
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2731547
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2731547
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2731547
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2731547
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2731547
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2731547
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2731547
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2731547
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2731547
Benzene	ppbv	0.19	0.18	0.604	0.575	2731547
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2731547
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2731547
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2731547
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2731547
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2731547
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2731547
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2731547
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2731547
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2731547
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2731547
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2731547
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2731547
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2731547
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2731547
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2731547
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2731547
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2731547
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2731547
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2731547
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2731547
Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2731547
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B201048
 Report Date: 2012/01/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		MD4483				
Sampling Date		2011/12/29				
COC Number		09167				
	Units	LICAVOC/CLS/DEC29,11/ 283	RDL	ug/m3	DL (ug/m3)	QC Batch

D5-Chlorobenzene	%	89		N/A	N/A	2731547
Difluorobenzene	%	86		N/A	N/A	2731547

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

Maxxam Job #: B201048
Report Date: 2012/01/12

Test Summary

Maxxam ID MD4483
Sample ID LICAVOC/CLS/DEC29,11/ 283
Matrix AIR

Collected 2011/12/29
Shipped
Received 2012/01/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2731510	N/A	2012/01/06	DIANE TEMNIUK
Volatile Organics in Air (TO-15)	GC/MS	2731547	N/A	2012/01/06	DIANE TEMNIUK

Maxxam Job #: B201048
Report Date: 2012/01/12

GENERAL COMMENTS

WS#2731547

Benzyl Chloride exceeds 40%RSD in Continuing Calibration. No positives were found, therefore data was accepted.

Sample MD4483-01: DL raised for Propene due to matrix interference.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB201048

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2731547 DVO	Spiked Blank	Bromochloromethane	2012/01/06		98	%	60 - 140
		D5-Chlorobenzene	2012/01/06		101	%	60 - 140
		Difluorobenzene	2012/01/06		99	%	60 - 140
		2,2,4-Trimethylpentane	2012/01/06		89	%	70 - 130
		Carbon Disulfide	2012/01/06		94	%	70 - 130
		Propene	2012/01/06		75	%	70 - 130
		Vinyl Acetate	2012/01/06		94	%	70 - 130
		Vinyl Bromide	2012/01/06		100	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/01/06		90	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/01/06		104	%	70 - 130
		Chloromethane	2012/01/06		82	%	70 - 130
		Vinyl Chloride	2012/01/06		92	%	70 - 130
		Chloroethane	2012/01/06		92	%	70 - 130
		1,3-Butadiene	2012/01/06		88	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/01/06		95	%	70 - 130
		Trichlorotrifluoroethane	2012/01/06		95	%	70 - 130
		Ethanol	2012/01/06		80	%	70 - 130
		2-propanol	2012/01/06		100	%	70 - 130
		2-Propanone	2012/01/06		90	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/01/06		93	%	70 - 130
		Methyl Isobutyl Ketone	2012/01/06		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/01/06		85	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/01/06		101	%	70 - 130
		Ethyl Acetate	2012/01/06		86	%	70 - 130
		1,1-Dichloroethylene	2012/01/06		99	%	70 - 130
		cis-1,2-Dichloroethylene	2012/01/06		97	%	70 - 130
		trans-1,2-Dichloroethylene	2012/01/06		93	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/01/06		77	%	70 - 130
		Chloroform	2012/01/06		93	%	70 - 130
		Carbon Tetrachloride	2012/01/06		95	%	70 - 130
		1,1-Dichloroethane	2012/01/06		90	%	70 - 130
		1,2-Dichloroethane	2012/01/06		97	%	70 - 130
		Ethylene Dibromide	2012/01/06		99	%	70 - 130
		1,1,1-Trichloroethane	2012/01/06		95	%	70 - 130
		1,1,2-Trichloroethane	2012/01/06		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/01/06		90	%	70 - 130
		cis-1,3-Dichloropropene	2012/01/06		105	%	70 - 130
		trans-1,3-Dichloropropene	2012/01/06		121	%	70 - 130
		1,2-Dichloropropane	2012/01/06		89	%	70 - 130
		Bromomethane	2012/01/06		95	%	70 - 130
		Bromoform	2012/01/06		103	%	70 - 130
		Bromodichloromethane	2012/01/06		94	%	70 - 130
		Dibromochloromethane	2012/01/06		100	%	70 - 130
		Heptane	2012/01/06		77	%	70 - 130
		Trichloroethylene	2012/01/06		96	%	70 - 130
		Tetrachloroethylene	2012/01/06		95	%	70 - 130
		Benzene	2012/01/06		92	%	70 - 130
		Toluene	2012/01/06		96	%	70 - 130
		Ethylbenzene	2012/01/06		98	%	70 - 130
		p+m-Xylene	2012/01/06		95	%	70 - 130
		o-Xylene	2012/01/06		94	%	70 - 130
		Styrene	2012/01/06		91	%	70 - 130
		1,3,5-Trimethylbenzene	2012/01/06		97	%	70 - 130
		1,2,4-Trimethylbenzene	2012/01/06		99	%	70 - 130
		4-ethyltoluene	2012/01/06		94	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB201048

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2731547	DVO	Spiked Blank	2012/01/06		99	%	70 - 130
		Chlorobenzene	2012/01/06		131 (1)	%	70 - 130
		Benzyl chloride	2012/01/06		103	%	70 - 130
		1,3-Dichlorobenzene	2012/01/06		107	%	70 - 130
		1,4-Dichlorobenzene	2012/01/06		103	%	70 - 130
		1,2-Dichlorobenzene	2012/01/06		123	%	70 - 130
		1,2,4-Trichlorobenzene	2012/01/06		99	%	70 - 130
		Hexachlorobutadiene	2012/01/06		87	%	70 - 130
		Hexane	2012/01/06		88	%	70 - 130
		Cyclohexane	2012/01/06		84	%	70 - 130
		Tetrahydrofuran	2012/01/06		85	%	70 - 130
		1,4-Dioxane	2012/01/06		93	%	70 - 130
	Method Blank	Xylene (Total)	2012/01/06		89	%	60 - 140
		Bromochloromethane	2012/01/06		89	%	60 - 140
		D5-Chlorobenzene	2012/01/06		89	%	60 - 140
		Difluorobenzene	2012/01/06				
		2,2,4-Trimethylpentane	2012/01/06	<0.20		ppbv	
		Carbon Disulfide	2012/01/06	<0.50		ppbv	
		Propene	2012/01/06	<0.30		ppbv	
		Vinyl Acetate	2012/01/06	<0.20		ppbv	
		Vinyl Bromide	2012/01/06	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/01/06	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/01/06	<0.17		ppbv	
		Chloromethane	2012/01/06	<0.30		ppbv	
		Vinyl Chloride	2012/01/06	<0.18		ppbv	
		Chloroethane	2012/01/06	<0.30		ppbv	
		1,3-Butadiene	2012/01/06	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/01/06	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/01/06	<0.15		ppbv	
		Ethanol	2012/01/06	<2.3		ppbv	
		2-propanol	2012/01/06	<3.0		ppbv	
		2-Propanone	2012/01/06	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/01/06	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/01/06	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/01/06	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/01/06	<0.20		ppbv	
		Ethyl Acetate	2012/01/06	<2.2		ppbv	
		1,1-Dichloroethylene	2012/01/06	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/01/06	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/01/06	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/01/06	<0.80		ppbv	
		Chloroform	2012/01/06	<0.15		ppbv	
		Carbon Tetrachloride	2012/01/06	<0.30		ppbv	
		1,1-Dichloroethane	2012/01/06	<0.20		ppbv	
		1,2-Dichloroethane	2012/01/06	<0.20		ppbv	
		Ethylene Dibromide	2012/01/06	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/01/06	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/01/06	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/01/06	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/01/06	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/01/06	<0.17		ppbv	
		1,2-Dichloropropane	2012/01/06	<0.40		ppbv	
		Bromomethane	2012/01/06	<0.18		ppbv	
		Bromoform	2012/01/06	<0.20		ppbv	
		Bromodichloromethane	2012/01/06	<0.20		ppbv	
		Dibromochloromethane	2012/01/06	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB201048

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2731547	DVO	Method Blank					
		Heptane	2012/01/06	<0.30		ppbv	
		Trichloroethylene	2012/01/06	<0.30		ppbv	
		Tetrachloroethylene	2012/01/06	<0.20		ppbv	
		Benzene	2012/01/06	<0.18		ppbv	
		Toluene	2012/01/06	<0.20		ppbv	
		Ethylbenzene	2012/01/06	<0.20		ppbv	
		p+m-Xylene	2012/01/06	<0.37		ppbv	
		o-Xylene	2012/01/06	<0.20		ppbv	
		Styrene	2012/01/06	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/01/06	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/01/06	<0.50		ppbv	
		4-ethyltoluene	2012/01/06	<2.2		ppbv	
		Chlorobenzene	2012/01/06	<0.20		ppbv	
		Benzyl chloride	2012/01/06	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/01/06	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/01/06	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/01/06	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/01/06	<2.0		ppbv	
		Hexachlorobutadiene	2012/01/06	<3.0		ppbv	
		Hexane	2012/01/06	<0.30		ppbv	
		Cyclohexane	2012/01/06	<0.20		ppbv	
		Tetrahydrofuran	2012/01/06	<0.40		ppbv	
		1,4-Dioxane	2012/01/06	<2.0		ppbv	
		Xylene (Total)	2012/01/06	<0.60		ppbv	
	RPD - Sample/Sample Dup						
		Benzene	2012/01/06	NC		%	25
		Toluene	2012/01/06	NC		%	25
		Ethylbenzene	2012/01/06	NC		%	25
		p+m-Xylene	2012/01/06	NC		%	25
		o-Xylene	2012/01/06	NC		%	25

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 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.
 (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 05,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 01, 2011 @ 14:45 mst
Removal Date/Time: Dec 07, 2011 @ 08:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
05-Dec-11	12/05/2011 0:00	12/06/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
30-Nov-11	07-Dec-11	12-Dec-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	-4.3	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# 08992

GB1F5100 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 05, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08992

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

Report Date: 2011/12/15

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J4761****Received: 2011/12/09, 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	2011/12/10	2011/12/13	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

Page 1 of 7

Maxxam Job #: B1J4761
 Report Date: 2011/12/15

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

Maxxam ID		LX9071	LX9072		
Sampling Date		2011/12/05	2011/12/05		
COC Number		08992	08992		
	Units	LICA PUFF+QFF/CLS/DEC 05,11	LICA PUFF+QFF/PORT/DEC 05,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.14	0.17	0.10	2709304
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2709304
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2709304
2-Methylantracene	ug	<0.10	<0.10	0.10	2709304
2-Methylnaphthalene	ug	0.21	0.26	0.10	2709304
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2709304
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2709304
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2709304
Acenaphthene	ug	0.068	0.070	0.050	2709304
Acenaphthylene	ug	<0.050	0.062	0.050	2709304
Anthracene	ug	<0.050	<0.050	0.050	2709304
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2709304
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2709304
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2709304
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2709304
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2709304
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2709304
Benzo(g,h,i)perylene	ug	<0.050	0.052	0.050	2709304
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2709304
Biphenyl	ug	0.31	0.38	0.10	2709304
Chrysene	ug	<0.050	<0.050	0.050	2709304
Coronene	ug	<0.10	<0.10	0.10	2709304
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2709304
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2709304
Fluoranthene	ug	0.088	0.112	0.050	2709304
Fluorene	ug	0.226	0.248	0.050	2709304
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2709304
m-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Naphthalene	ug	0.256	0.390	0.072	2709304
o-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Perylene	ug	<0.10	<0.10	0.10	2709304

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J4761
 Report Date: 2011/12/15

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

Maxxam ID		LX9071	LX9072		
Sampling Date		2011/12/05	2011/12/05		
COC Number		08992	08992		
	Units	LICA PUFF+QFF/CLS/DEC 05,11	LICA PUFF+QFF/PORT/DEC 05,11	RDL	QC Batch

Phenanthrene	ug	0.378	0.436	0.050	2709304
p-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Pyrene	ug	<0.050	0.066	0.050	2709304
Quinoline	ug	<0.40	<0.40	0.40	2709304
Tetralin	ug	<0.10	<0.10	0.10	2709304
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	76	86		2709304
D10-Fluoranthene	%	100	90		2709304
D10-Fluorene (FS)	%	25 (1)	47 (1)		2709304
D10-Phenanthrene	%	94	94		2709304
D12-Benzo(a)anthracene	%	104	100		2709304
D12-Benzo(a)pyrene	%	102	100		2709304
D12-Benzo(b)fluoranthene	%	96	98		2709304
D12-Benzo(ghi)perylene	%	94	94		2709304
D12-Benzo(k)fluoranthene	%	90	90		2709304
D12-Chrysene	%	84	88		2709304
D12-Indeno(1,2,3-cd)pyrene	%	96	94		2709304
D12-Perylene	%	90	90		2709304
D14-Dibenzo(a,h)anthracene	%	96	92		2709304
D14-Terphenyl (FS)	%	98	86		2709304
D8-Acenaphthylene	%	86	88		2709304
D8-Naphthalene	%	74	86		2709304

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.

Maxxam Job #: B1J4761
Report Date: 2011/12/15

Test Summary

Maxxam ID LX9071
Sample ID LICA PUFF+QFF/CLS/DEC 05,11
Matrix PUF AND FILTER

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2709304	2011/12/10	2011/12/13	JIE WU

Maxxam ID LX9072
Sample ID LICA PUFF+QFF/PORT/DEC 05,11
Matrix PUF AND FILTER

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2709304	2011/12/10	2011/12/13	JIE WU

Maxxam Job #: B1J4761
Report Date: 2011/12/15

GENERAL COMMENTS

PAHMS-F

9,10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial and continuing calibrations. No positives found for these 2 compounds.

Chrysene is statistically out of control at 84% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl.

Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Sample LX9071-01: Internal Std area response criteria was high. The vial was rerun with similar result. Original run reported.

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

Sample LX9072-01: 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.

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

Quality Assurance Report
 Maxxam Job Number: GB1J4761

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2709304 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/13		92	%	50 - 150
		D10-Fluoranthene	2011/12/13		86	%	50 - 150
		D10-Phenanthrene	2011/12/13		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		96	%	50 - 150
		D12-Chrysene	2011/12/13		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/12/13		92	%	50 - 150
		D12-Perylene	2011/12/13		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		92	%	50 - 150
		D8-Acenaphthylene	2011/12/13		86	%	50 - 150
		D8-Naphthalene	2011/12/13		96	%	50 - 150
		Acenaphthene	2011/12/13		82	%	60 - 130
	RPD	Acenaphthene	2011/12/13	2.8		%	50
	Spiked Blank	Acenaphthylene	2011/12/13		79	%	60 - 130
	RPD	Acenaphthylene	2011/12/13	0.3		%	50
	Spiked Blank	Anthracene	2011/12/13		73	%	60 - 130
	RPD	Anthracene	2011/12/13	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/13		80	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/13	0.6		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/13		78	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/13	3.6		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/13		82	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/13	4.8		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/13		83	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/13	0.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/13		94	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/13	10.4		%	50
	Spiked Blank	Chrysene	2011/12/13		85	%	60 - 130
	RPD	Chrysene	2011/12/13	0.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/13		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/13	0.6		%	50
	Spiked Blank	Fluoranthene	2011/12/13		80	%	60 - 130
	RPD	Fluoranthene	2011/12/13	4.6		%	50
	Spiked Blank	Fluorene	2011/12/13		80	%	60 - 130
	RPD	Fluorene	2011/12/13	0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/13		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/13	0.9		%	50
	Spiked Blank	Naphthalene	2011/12/13		86	%	60 - 130
	RPD	Naphthalene	2011/12/13	19.1		%	50
	Spiked Blank	Phenanthrene	2011/12/13		79	%	60 - 130
	RPD	Phenanthrene	2011/12/13	2.5		%	50
	Spiked Blank	Pyrene	2011/12/13		79	%	60 - 130
	RPD	Pyrene	2011/12/13	6.7		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/13		90	%	50 - 150
		D10-Fluoranthene	2011/12/13		94	%	50 - 150
		D10-Phenanthrene	2011/12/13		96	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		94	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		106	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		88	%	50 - 150
		D12-Chrysene	2011/12/13		90	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4761

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2709304 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/13		94	%	50 - 150
		D12-Perylene	2011/12/13		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		94	%	50 - 150
		D8-Acenaphthylene	2011/12/13		88	%	50 - 150
		D8-Naphthalene	2011/12/13		90	%	50 - 150
		1-Methylnaphthalene	2011/12/13	<0.10		ug	
		1-Methylphenanthrene	2011/12/13	<0.10		ug	
		2-Chloronaphthalene	2011/12/13	<0.10		ug	
		2-Methylanthracene	2011/12/13	<0.10		ug	
		2-Methylnaphthalene	2011/12/13	<0.10		ug	
		3-Methylcholanthrene	2011/12/13	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/12/13	<0.10		ug	
		9,10-Dimethylanthracene	2011/12/13	<0.40		ug	
		Acenaphthene	2011/12/13	<0.050		ug	
		Acenaphthylene	2011/12/13	<0.050		ug	
		Anthracene	2011/12/13	<0.050		ug	
		Benzo(a)anthracene	2011/12/13	<0.050		ug	
		Benzo(a)fluorene	2011/12/13	<0.10		ug	
		Benzo(a)pyrene	2011/12/13	<0.050		ug	
		Benzo(b)fluoranthene	2011/12/13	<0.050		ug	
		Benzo(b)fluorene	2011/12/13	<0.10		ug	
		Benzo(e)pyrene	2011/12/13	<0.10		ug	
		Benzo(g,h,i)perylene	2011/12/13	<0.050		ug	
		Benzo(k)fluoranthene	2011/12/13	<0.050		ug	
		Biphenyl	2011/12/13	<0.10		ug	
		Chrysene	2011/12/13	<0.050		ug	
		Coronene	2011/12/13	<0.10		ug	
		Dibenz(a,h)anthracene	2011/12/13	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/12/13	<0.20		ug	
		Fluoranthene	2011/12/13	<0.050		ug	
		Fluorene	2011/12/13	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/12/13	<0.050		ug	
		m-Terphenyl	2011/12/13	<0.10		ug	
		Naphthalene	2011/12/13	<0.072		ug	
		o-Terphenyl	2011/12/13	<0.10		ug	
		Perylene	2011/12/13	<0.10		ug	
		Phenanthrene	2011/12/13	<0.050		ug	
		p-Terphenyl	2011/12/13	<0.10		ug	
		Pyrene	2011/12/13	<0.050		ug	
		Quinoline	2011/12/13	<0.40		ug	
		Tetralin	2011/12/13	<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 to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Dec 11,11

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Dec 09, 2011 @ 09:09 mst
 Removal Date/Time: Dec 12, 2011 @ 08:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
11-Dec-11	12/11/2011 0:00	12/12/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
07-Dec-11	12-Dec-11	19-Dec-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
716	229	-5.4	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# 09084
GB1F5101 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 11, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 09084

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

Report Date: 2011/12/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J7238****Received: 2011/12/14, 09:27**

Sample Matrix: PUF AND FILTER

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2011/12/15	2011/12/19	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

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Maxxam Job #: B1J7238
 Report Date: 2011/12/21

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

Maxxam ID		LZ2171		
Sampling Date				
COC Number		09084		
	Units	LICAPUFF&QFF/CLS/DEC11,11	RDL	QC Batch

Semivolatile Organics				
1-Methylnaphthalene	ug	0.11	0.10	2713930
1-Methylphenanthrene	ug	<0.10	0.10	2713930
2-Chloronaphthalene	ug	<0.10	0.10	2713930
2-Methylantracene	ug	<0.10	0.10	2713930
2-Methylnaphthalene	ug	0.20	0.10	2713930
3-Methylcholanthrene	ug	<2.0	2.0	2713930
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	2713930
9,10-Dimethylantracene	ug	<0.40	0.40	2713930
Acenaphthene	ug	<0.050	0.050	2713930
Acenaphthylene	ug	<0.050	0.050	2713930
Anthracene	ug	<0.050	0.050	2713930
Benzo(a)anthracene	ug	<0.050	0.050	2713930
Benzo(a)fluorene	ug	<0.10	0.10	2713930
Benzo(a)pyrene	ug	<0.050	0.050	2713930
Benzo(b)fluoranthene	ug	<0.050	0.050	2713930
Benzo(b)fluorene	ug	<0.10	0.10	2713930
Benzo(e)pyrene	ug	<0.10	0.10	2713930
Benzo(g,h,i)perylene	ug	<0.050	0.050	2713930
Benzo(k)fluoranthene	ug	<0.050	0.050	2713930
Biphenyl	ug	0.28	0.10	2713930
Chrysene	ug	<0.050	0.050	2713930
Coronene	ug	<0.10	0.10	2713930
Dibenz(a,h)anthracene	ug	<0.050	0.050	2713930
Dibenzo(a,e)pyrene	ug	<0.20	0.20	2713930
Fluoranthene	ug	<0.050	0.050	2713930
Fluorene	ug	0.118	0.050	2713930
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	2713930
m-Terphenyl	ug	<0.10	0.10	2713930
Naphthalene	ug	0.278	0.072	2713930
o-Terphenyl	ug	<0.10	0.10	2713930
Perylene	ug	<0.10	0.10	2713930
Phenanthrene	ug	0.166	0.050	2713930

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J7238
 Report Date: 2011/12/21

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

Maxxam ID		LZ2171		
Sampling Date				
COC Number		09084		
	Units	LICAPUFF&QFF/CLS/DEC11,11	RDL	QC Batch
p-Terphenyl	ug	<0.10	0.10	2713930
Pyrene	ug	<0.050	0.050	2713930
Quinoline	ug	<0.40	0.40	2713930
Tetralin	ug	<0.10	0.10	2713930
Surrogate Recovery (%)				
D10-2-Methylnaphthalene	%	84		2713930
D10-Fluoranthene	%	100		2713930
D10-Fluorene (FS)	%	51		2713930
D10-Phenanthrene	%	94		2713930
D12-Benzo(a)anthracene	%	92		2713930
D12-Benzo(a)pyrene	%	98		2713930
D12-Benzo(b)fluoranthene	%	98		2713930
D12-Benzo(ghi)perylene	%	92		2713930
D12-Benzo(k)fluoranthene	%	88		2713930
D12-Chrysene	%	84		2713930
D12-Indeno(1,2,3-cd)pyrene	%	92		2713930
D12-Perylene	%	90		2713930
D14-Dibenzo(a,h)anthracene	%	92		2713930
D14-Terphenyl (FS)	%	99		2713930
D8-Acenaphthylene	%	88		2713930
D8-Naphthalene	%	82		2713930
QC Batch = Quality Control Batch				

Maxxam Job #: B1J7238
Report Date: 2011/12/21

Test Summary

Maxxam ID LZ2171
Sample ID LICAPUFF&QFF/CLS/DEC11,11
Matrix PUF AND FILTER

Collected
Shipped
Received 2011/12/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2713930	2011/12/15	2011/12/19	WENDY ZHAO

Maxxam Job #: B1J7238
Report Date: 2011/12/21

GENERAL COMMENTS

PAHMS-F

9,10-Dimethylanthracene and 7,12-Dimethylbenzo(a)anthracene are above 25% RSD in initial calibration. No positives found for these 2 compounds.

Not calibrated for Benzo(b)Anthracene, Picene, Dibenzo(a,c) anthracene or Triphenylene. An estimated mdl for each of these compounds is 0.1ug. Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

Benzo(b)Anthracene elutes after Benzo(a)Anthracene and Chrysene. Picene elutes after Dibenzo(a,h) anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1J7238

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2713930 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/12/19		84	%	50 - 150
		D10-Fluoranthene	2011/12/19		100	%	50 - 150
		D10-Phenanthrene	2011/12/19		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/19		88	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/19		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/19		96	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/19		84	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/19		88	%	50 - 150
		D12-Chrysene	2011/12/19		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/12/19		86	%	50 - 150
		D12-Perylene	2011/12/19		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/19		86	%	50 - 150
		D8-Acenaphthylene	2011/12/19		84	%	50 - 150
		D8-Naphthalene	2011/12/19		80	%	50 - 150
		RPD	Acenaphthene	2011/12/19	1.6		%
	RPD	Acenaphthene	2011/12/19			%	50
	Spiked Blank	Acenaphthylene	2011/12/19		76	%	60 - 130
	RPD	Acenaphthylene	2011/12/19	1.3		%	50
	Spiked Blank	Anthracene	2011/12/19		75	%	60 - 130
	RPD	Anthracene	2011/12/19	1.0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/19		71	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/19	2.1		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/19		72	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/19	1.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/19		77	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/19	0.7		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/19		70	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/19	4.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/19		82	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/19	0.3		%	50
	Spiked Blank	Chrysene	2011/12/19		75	%	60 - 130
	RPD	Chrysene	2011/12/19	3.7		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/19		72	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/19	3.8		%	50
	Spiked Blank	Fluoranthene	2011/12/19		90	%	60 - 130
	RPD	Fluoranthene	2011/12/19	2.0		%	50
	Spiked Blank	Fluorene	2011/12/19		79	%	60 - 130
	RPD	Fluorene	2011/12/19	1.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/19		72	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/19	3.1		%	50
Spiked Blank	Naphthalene	2011/12/19		76	%	60 - 130	
RPD	Naphthalene	2011/12/19	3.4		%	50	
Spiked Blank	Phenanthrene	2011/12/19		78	%	60 - 130	
RPD	Phenanthrene	2011/12/19	1.9		%	50	
Spiked Blank	Pyrene	2011/12/19		91	%	60 - 130	
RPD	Pyrene	2011/12/19	1.9		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/12/19		82	%	50 - 150	
	D10-Fluoranthene	2011/12/19		98	%	50 - 150	
	D10-Phenanthrene	2011/12/19		88	%	50 - 150	
	D12-Benzo(a)anthracene	2011/12/19		86	%	50 - 150	
	D12-Benzo(a)pyrene	2011/12/19		98	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/12/19		90	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/12/19		90	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/12/19		88	%	50 - 150	
	D12-Chrysene	2011/12/19		82	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J7238

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2713930 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/19		92	%	50 - 150
		D12-Perylene	2011/12/19		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/19		90	%	50 - 150
		D8-Acenaphthylene	2011/12/19		84	%	50 - 150
		D8-Naphthalene	2011/12/19		80	%	50 - 150
		1-Methylnaphthalene	2011/12/19	<0.10		ug	
		1-Methylphenanthrene	2011/12/19	<0.10		ug	
		2-Chloronaphthalene	2011/12/19	<0.10		ug	
		2-Methylanthracene	2011/12/19	<0.10		ug	
		2-Methylnaphthalene	2011/12/19	<0.10		ug	
		3-Methylcholanthrene	2011/12/19	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/12/19	<0.10		ug	
		9,10-Dimethylanthracene	2011/12/19	<0.40		ug	
		Acenaphthene	2011/12/19	<0.050		ug	
		Acenaphthylene	2011/12/19	<0.050		ug	
		Anthracene	2011/12/19	<0.050		ug	
		Benzo(a)anthracene	2011/12/19	<0.050		ug	
		Benzo(a)fluorene	2011/12/19	<0.10		ug	
		Benzo(a)pyrene	2011/12/19	<0.050		ug	
		Benzo(b)fluoranthene	2011/12/19	<0.050		ug	
		Benzo(b)fluorene	2011/12/19	<0.10		ug	
		Benzo(e)pyrene	2011/12/19	<0.10		ug	
		Benzo(g,h,i)perylene	2011/12/19	<0.050		ug	
		Benzo(k)fluoranthene	2011/12/19	<0.050		ug	
		Biphenyl	2011/12/19	<0.10		ug	
		Chrysene	2011/12/19	<0.050		ug	
		Coronene	2011/12/19	<0.10		ug	
		Dibenz(a,h)anthracene	2011/12/19	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/12/19	<0.20		ug	
		Fluoranthene	2011/12/19	<0.050		ug	
		Fluorene	2011/12/19	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/12/19	<0.050		ug	
		m-Terphenyl	2011/12/19	<0.10		ug	
		Naphthalene	2011/12/19	<0.072		ug	
		o-Terphenyl	2011/12/19	<0.10		ug	
		Perylene	2011/12/19	<0.10		ug	
		Phenanthrene	2011/12/19	<0.050		ug	
		p-Terphenyl	2011/12/19	<0.10		ug	
		Pyrene	2011/12/19	<0.050		ug	
		Quinoline	2011/12/19	<0.40		ug	
		Tetralin	2011/12/19	<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 to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 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.

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 17,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 16, 2011 @ 09:56 mst
Removal Date/Time: Dec 19, 2011 @ 08:36 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
17-Dec-11	12/17/2011 0:00	12/18/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Dec-11	19-Dec-11	26-Dec-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
708	229	-0.9	330.32

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# 08015

GB1F5103 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 17, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08015

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

Report Date: 2012/01/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1K1000****Received: 2011/12/21, 10:35**

Sample Matrix: PUF AND FILTER

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2011/12/22	2012/01/04	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

=====

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

Page 1 of 7

Maxxam Job #: B1K1000
 Report Date: 2012/01/05

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

Maxxam ID		MB0545		
Sampling Date		2011/12/17		
COC Number		08015		
	Units	LICAPUFF/QFF/CLS/DEC17,11	RDL	QC Batch

Semivolatile Organics				
1-Methylnaphthalene	ug	0.30	0.10	2721449
1-Methylphenanthrene	ug	<0.10	0.10	2721449
2-Chloronaphthalene	ug	<0.10	0.10	2721449
2-Methylantracene	ug	<0.10	0.10	2721449
2-Methylnaphthalene	ug	0.72	0.10	2721449
3-Methylcholanthrene	ug	<2.0	2.0	2721449
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	2721449
9,10-Dimethylantracene	ug	<0.40	0.40	2721449
Acenaphthene	ug	0.092	0.050	2721449
Acenaphthylene	ug	0.082	0.050	2721449
Anthracene	ug	<0.050	0.050	2721449
Benzo(a)anthracene	ug	<0.050	0.050	2721449
Benzo(a)fluorene	ug	<0.10	0.10	2721449
Benzo(a)pyrene	ug	<0.050	0.050	2721449
Benzo(b)fluoranthene	ug	<0.050	0.050	2721449
Benzo(b)fluorene	ug	<0.10	0.10	2721449
Benzo(e)pyrene	ug	<0.10	0.10	2721449
Benzo(g,h,i)perylene	ug	<0.050	0.050	2721449
Benzo(k)fluoranthene	ug	<0.050	0.050	2721449
Biphenyl	ug	0.72	0.10	2721449
Chrysene	ug	<0.050	0.050	2721449
Coronene	ug	<0.10	0.10	2721449
Dibenz(a,h)anthracene	ug	<0.050	0.050	2721449
Dibenzo(a,e)pyrene	ug	<0.20	0.20	2721449
Fluoranthene	ug	0.108	0.050	2721449
Fluorene	ug	0.334	0.050	2721449
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	2721449
m-Terphenyl	ug	<0.10	0.10	2721449
Naphthalene	ug	0.702	0.072	2721449
o-Terphenyl	ug	<0.10	0.10	2721449
Perylene	ug	<0.10	0.10	2721449
Phenanthrene	ug	0.474	0.050	2721449

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1K1000
 Report Date: 2012/01/05

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

Maxxam ID		MB0545		
Sampling Date		2011/12/17		
COC Number		08015		
	Units	LICAPUFF/QFF/CLS/DEC17,11	RDL	QC Batch

p-Terphenyl	ug	<0.10	0.10	2721449
Pyrene	ug	0.070	0.050	2721449
Quinoline	ug	<0.40	0.40	2721449
Tetralin	ug	<0.10	0.10	2721449
Surrogate Recovery (%)				
D10-2-Methylnaphthalene	%	76		2721449
D10-Fluoranthene	%	94		2721449
D10-Fluorene (FS)	%	56		2721449
D10-Phenanthrene	%	88		2721449
D12-Benzo(a)anthracene	%	98		2721449
D12-Benzo(a)pyrene	%	94		2721449
D12-Benzo(b)fluoranthene	%	92		2721449
D12-Benzo(ghi)perylene	%	94		2721449
D12-Benzo(k)fluoranthene	%	92		2721449
D12-Chrysene	%	84		2721449
D12-Indeno(1,2,3-cd)pyrene	%	94		2721449
D12-Perylene	%	90		2721449
D14-Dibenzo(a,h)anthracene	%	92		2721449
D14-Terphenyl (FS)	%	88		2721449
D8-Acenaphthylene	%	86		2721449
D8-Naphthalene	%	74		2721449

QC Batch = Quality Control Batch

Maxxam Job #: B1K1000
Report Date: 2012/01/05

Test Summary

Maxxam ID MB0545
Sample ID LICAPUFF/QFF/CLS/DEC17,11
Matrix PUF AND FILTER

Collected 2011/12/17
Shipped
Received 2011/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2721449	2011/12/22	2012/01/04	JIE WU

Maxxam Job #: B1K1000
Report Date: 2012/01/05

GENERAL COMMENTS

PAHMS-F

9,10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial and continuing calibrations. No positives found for these 2 compounds.

Pyrene is statistically out of control at 89% recovery in spike. Spike:dup recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl.

Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1K1000

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2721449 JIW	Spiked Blank	D10-2-Methylnaphthalene	2012/01/04		78	%	50 - 150
		D10-Fluoranthene	2012/01/04		100	%	50 - 150
		D10-Phenanthrene	2012/01/04		86	%	50 - 150
		D12-Benzo(a)anthracene	2012/01/04		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/01/04		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/01/04		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/01/04		92	%	50 - 150
		D12-Chrysene	2012/01/04		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/01/04		94	%	50 - 150
		D12-Perylene	2012/01/04		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/01/04		92	%	50 - 150
		D8-Acenaphthylene	2012/01/04		84	%	50 - 150
		D8-Naphthalene	2012/01/04		78	%	50 - 150
		Acenaphthene	2012/01/04		74	%	60 - 130
	RPD	Acenaphthene	2012/01/04	6.6		%	50
	Spiked Blank	Acenaphthylene	2012/01/04		80	%	60 - 130
	RPD	Acenaphthylene	2012/01/04	4.6		%	50
	Spiked Blank	Anthracene	2012/01/04		77	%	60 - 130
	RPD	Anthracene	2012/01/04	0.3		%	50
	Spiked Blank	Benzo(a)anthracene	2012/01/04		74	%	60 - 130
	RPD	Benzo(a)anthracene	2012/01/04	3.6		%	50
	Spiked Blank	Benzo(a)pyrene	2012/01/04		75	%	60 - 130
	RPD	Benzo(a)pyrene	2012/01/04	1.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/01/04		73	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/01/04	1.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/01/04		79	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/01/04	1.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/01/04		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/01/04	4.5		%	50
	Spiked Blank	Chrysene	2012/01/04		75	%	60 - 130
	RPD	Chrysene	2012/01/04	4.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/01/04		79	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/01/04	2.5		%	50
	Spiked Blank	Fluoranthene	2012/01/04		89	%	60 - 130
	RPD	Fluoranthene	2012/01/04	4.0		%	50
	Spiked Blank	Fluorene	2012/01/04		75	%	60 - 130
	RPD	Fluorene	2012/01/04	2.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/01/04		80	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/01/04	0.6		%	50
	Spiked Blank	Naphthalene	2012/01/04		73	%	60 - 130
	RPD	Naphthalene	2012/01/04	7.6		%	50
	Spiked Blank	Phenanthrene	2012/01/04		74	%	60 - 130
	RPD	Phenanthrene	2012/01/04	0		%	50
	Spiked Blank	Pyrene	2012/01/04		89	%	60 - 130
	RPD	Pyrene	2012/01/04	4.0		%	50
	Method Blank	D10-2-Methylnaphthalene	2012/01/04		86	%	50 - 150
		D10-Fluoranthene	2012/01/04		96	%	50 - 150
		D10-Phenanthrene	2012/01/04		86	%	50 - 150
		D12-Benzo(a)anthracene	2012/01/04		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/01/04		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/01/04		100	%	50 - 150
		D12-Benzo(ghi)perylene	2012/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/01/04		88	%	50 - 150
		D12-Chrysene	2012/01/04		88	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1K1000

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2721449 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/01/04		94	%	50 - 150
		D12-Perylene	2012/01/04		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/01/04		90	%	50 - 150
		D8-Acenaphthylene	2012/01/04		94	%	50 - 150
		D8-Naphthalene	2012/01/04		86	%	50 - 150
		1-Methylnaphthalene	2012/01/04	<0.10		ug	
		1-Methylphenanthrene	2012/01/04	<0.10		ug	
		2-Chloronaphthalene	2012/01/04	<0.10		ug	
		2-Methylantracene	2012/01/04	<0.10		ug	
		2-Methylnaphthalene	2012/01/04	<0.10		ug	
		3-Methylcholanthrene	2012/01/04	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/01/04	<0.10		ug	
		9,10-Dimethylantracene	2012/01/04	<0.40		ug	
		Acenaphthene	2012/01/04	<0.050		ug	
		Acenaphthylene	2012/01/04	<0.050		ug	
		Anthracene	2012/01/04	<0.050		ug	
		Benzo(a)anthracene	2012/01/04	<0.050		ug	
		Benzo(a)fluorene	2012/01/04	<0.10		ug	
		Benzo(a)pyrene	2012/01/04	<0.050		ug	
		Benzo(b)fluoranthene	2012/01/04	<0.050		ug	
		Benzo(b)fluorene	2012/01/04	<0.10		ug	
		Benzo(e)pyrene	2012/01/04	<0.10		ug	
		Benzo(g,h,i)perylene	2012/01/04	<0.050		ug	
		Benzo(k)fluoranthene	2012/01/04	<0.050		ug	
		Biphenyl	2012/01/04	<0.10		ug	
		Chrysene	2012/01/04	<0.050		ug	
		Coronene	2012/01/04	<0.10		ug	
		Dibenz(a,h)anthracene	2012/01/04	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/01/04	<0.20		ug	
		Fluoranthene	2012/01/04	<0.050		ug	
		Fluorene	2012/01/04	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/01/04	<0.050		ug	
		m-Terphenyl	2012/01/04	<0.10		ug	
		Naphthalene	2012/01/04	<0.072		ug	
		o-Terphenyl	2012/01/04	<0.10		ug	
		Perylene	2012/01/04	<0.10		ug	
		Phenanthrene	2012/01/04	<0.050		ug	
		p-Terphenyl	2012/01/04	<0.10		ug	
		Pyrene	2012/01/04	<0.050		ug	
		Quinoline	2012/01/04	<0.40		ug	
		Tetralin	2012/01/04	<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 to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 23,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 22, 2011 @ 11:28 mst
Removal Date/Time: Dec 28, 2011 @ 08:16 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
23-Dec-11	12/23/2011 0:00	12/24/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Dec-11	27-Dec-11	30-Dec-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
708	229	-2.4	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# 08541

GB1J2649 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 23, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08541

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

Report Date: 2012/01/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B200296****Received: 2012/01/03, 08:49**

Sample Matrix: POLYURETHANE FOAM

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2012/01/04	2012/01/10	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

THERESA STEPHENSON, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B200296
 Report Date: 2012/01/12

SEMI-VOLATILE ORGANICS BY GC-MS (POLYURETHANE FOAM)

Maxxam ID		MD1235		
Sampling Date		2011/12/23		
COC Number		08541		
	Units	LICAPUFF+QFF/CLS/DEC	RDL	QC Batch
		23.11		

Semivolatile Organics				
1-Methylnaphthalene	ug	0.12	0.10	2728023
1-Methylphenanthrene	ug	<0.10	0.10	2728023
2-Chloronaphthalene	ug	<0.10	0.10	2728023
2-Methylanthracene	ug	<0.10	0.10	2728023
2-Methylnaphthalene	ug	0.32	0.10	2728023
3-Methylcholanthrene	ug	<2.0	2.0	2728023
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	2728023
9,10-Dimethylanthracene	ug	<0.40	0.40	2728023
Acenaphthene	ug	0.060	0.050	2728023
Acenaphthylene	ug	0.068	0.050	2728023
Anthracene	ug	<0.050	0.050	2728023
Benzo(a)anthracene	ug	<0.050	0.050	2728023
Benzo(a)fluorene	ug	<0.10	0.10	2728023
Benzo(a)pyrene	ug	<0.050	0.050	2728023
Benzo(b)fluoranthene	ug	<0.050	0.050	2728023
Benzo(b)fluorene	ug	<0.10	0.10	2728023
Benzo(e)pyrene	ug	<0.10	0.10	2728023
Benzo(g,h,i)perylene	ug	<0.050	0.050	2728023
Benzo(k)fluoranthene	ug	<0.050	0.050	2728023
Biphenyl	ug	0.31	0.10	2728023
Chrysene	ug	<0.050	0.050	2728023
Coronene	ug	<0.10	0.10	2728023
Dibenz(a,h)anthracene	ug	<0.050	0.050	2728023
Dibenzo(a,e)pyrene	ug	<0.20	0.20	2728023
Fluoranthene	ug	0.102	0.050	2728023
Fluorene	ug	0.246	0.050	2728023
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	2728023
m-Terphenyl	ug	<0.10	0.10	2728023
Naphthalene	ug	0.286	0.072	2728023
o-Terphenyl	ug	<0.10	0.10	2728023
Perylene	ug	<0.10	0.10	2728023
Phenanthrene	ug	0.366	0.050	2728023

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B200296
 Report Date: 2012/01/12

SEMI-VOLATILE ORGANICS BY GC-MS (POLYURETHANE FOAM)

Maxxam ID		MD1235		
Sampling Date		2011/12/23		
COC Number		08541		
	Units	LICAPUFF+QFF/CLS/DEC	RDL	QC Batch
		23.11		

p-Terphenyl	ug	<0.10	0.10	2728023
Pyrene	ug	0.090	0.050	2728023
Quinoline	ug	<0.40	0.40	2728023
Tetralin	ug	<0.10	0.10	2728023
Surrogate Recovery (%)				
D10-2-Methylnaphthalene	%	82		2728023
D10-Fluoranthene	%	100		2728023
D10-Fluorene (FS)	%	44 (1)		2728023
D10-Phenanthrene	%	94		2728023
D12-Benzo(a)anthracene	%	100		2728023
D12-Benzo(a)pyrene	%	98		2728023
D12-Benzo(b)fluoranthene	%	96		2728023
D12-Benzo(ghi)perylene	%	90		2728023
D12-Benzo(k)fluoranthene	%	92		2728023
D12-Chrysene	%	86		2728023
D12-Indeno(1,2,3-cd)pyrene	%	92		2728023
D12-Perylene	%	90		2728023
D14-Dibenzo(a,h)anthracene	%	90		2728023
D14-Terphenyl (FS)	%	98		2728023
D8-Acenaphthylene	%	84		2728023
D8-Naphthalene	%	82		2728023

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.

Maxxam Job #: B200296
Report Date: 2012/01/12

Test Summary

Maxxam ID MD1235
Sample ID LICAPUFF+QFF/CLS/DEC 23.11
Matrix POLYURETHANE FOAM

Collected 2011/12/23
Shipped
Received 2012/01/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2728023	2012/01/04	2012/01/10	JIE WU

Maxxam Job #: B200296
Report Date: 2012/01/12

GENERAL COMMENTS

PAHMS-F

9,10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial and continuing calibrations. No positives found for these 2 compounds.

Sample received past hold time.

Internal Std area response criteria was high in spike:dup. The vial was rerun with similar result. Original run reported.

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl.

Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Sample MD1235-01: 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.

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

Quality Assurance Report

Maxxam Job Number: GB200296

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2728023 JIW	Spiked Blank	D10-2-Methylnaphthalene	2012/01/10		78	%	50 - 150
		D10-Fluoranthene	2012/01/10		90	%	50 - 150
		D10-Phenanthrene	2012/01/10		84	%	50 - 150
		D12-Benzo(a)anthracene	2012/01/10		84	%	50 - 150
		D12-Benzo(a)pyrene	2012/01/10		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/01/10		94	%	50 - 150
		D12-Benzo(ghi)perylene	2012/01/10		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/01/10		94	%	50 - 150
		D12-Chrysene	2012/01/10		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/01/10		84	%	50 - 150
		D12-Perylene	2012/01/10		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/01/10		84	%	50 - 150
		D8-Acenaphthylene	2012/01/10		76	%	50 - 150
		D8-Naphthalene	2012/01/10		78	%	50 - 150
		Acenaphthene	2012/01/10		72	%	60 - 130
	RPD	Acenaphthene	2012/01/10	6.4		%	50
	Spiked Blank	Acenaphthylene	2012/01/10		72	%	60 - 130
	RPD	Acenaphthylene	2012/01/10	10.6		%	50
	Spiked Blank	Anthracene	2012/01/10		70	%	60 - 130
	RPD	Anthracene	2012/01/10	13.4		%	50
	Spiked Blank	Benzo(a)anthracene	2012/01/10		74	%	60 - 130
	RPD	Benzo(a)anthracene	2012/01/10	3.3		%	50
	Spiked Blank	Benzo(a)pyrene	2012/01/10		72	%	60 - 130
	RPD	Benzo(a)pyrene	2012/01/10	6.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/01/10		78	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/01/10	0.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/01/10		74	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/01/10	3.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/01/10		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/01/10	2.3		%	50
	Spiked Blank	Chrysene	2012/01/10		79	%	60 - 130
	RPD	Chrysene	2012/01/10	4.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/01/10		74	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/01/10	7.2		%	50
	Spiked Blank	Fluoranthene	2012/01/10		83	%	60 - 130
	RPD	Fluoranthene	2012/01/10	11.3		%	50
	Spiked Blank	Fluorene	2012/01/10		71	%	60 - 130
	RPD	Fluorene	2012/01/10	7.8		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/01/10		75	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/01/10	6.1		%	50
	Spiked Blank	Naphthalene	2012/01/10		71	%	60 - 130
	RPD	Naphthalene	2012/01/10	7.5		%	50
	Spiked Blank	Phenanthrene	2012/01/10		73	%	60 - 130
	RPD	Phenanthrene	2012/01/10	9.4		%	50
	Spiked Blank	Pyrene	2012/01/10		83	%	60 - 130
	RPD	Pyrene	2012/01/10	13.0		%	50
	Method Blank	D10-2-Methylnaphthalene	2012/01/10		70	%	50 - 150
		D10-Fluoranthene	2012/01/10		78	%	50 - 150
		D10-Phenanthrene	2012/01/10		72	%	50 - 150
		D12-Benzo(a)anthracene	2012/01/10		80	%	50 - 150
		D12-Benzo(a)pyrene	2012/01/10		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/01/10		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/01/10		82	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/01/10		90	%	50 - 150
		D12-Chrysene	2012/01/10		82	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB200296

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2728023 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/01/10		80	%	50 - 150
		D12-Perylene	2012/01/10		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/01/10		80	%	50 - 150
		D8-Acenaphthylene	2012/01/10		66	%	50 - 150
		D8-Naphthalene	2012/01/10		70	%	50 - 150
		1-Methylnaphthalene	2012/01/10	<0.10		ug	
		1-Methylphenanthrene	2012/01/10	<0.10		ug	
		2-Chloronaphthalene	2012/01/10	<0.10		ug	
		2-Methylanthracene	2012/01/10	<0.10		ug	
		2-Methylnaphthalene	2012/01/10	<0.10		ug	
		3-Methylcholanthrene	2012/01/10	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/01/10	<0.10		ug	
		9,10-Dimethylanthracene	2012/01/10	<0.40		ug	
		Acenaphthene	2012/01/10	<0.050		ug	
		Acenaphthylene	2012/01/10	<0.050		ug	
		Anthracene	2012/01/10	<0.050		ug	
		Benzo(a)anthracene	2012/01/10	<0.050		ug	
		Benzo(a)fluorene	2012/01/10	<0.10		ug	
		Benzo(a)pyrene	2012/01/10	<0.050		ug	
		Benzo(b)fluoranthene	2012/01/10	<0.050		ug	
		Benzo(b)fluorene	2012/01/10	<0.10		ug	
		Benzo(e)pyrene	2012/01/10	<0.10		ug	
		Benzo(g,h,i)perylene	2012/01/10	<0.050		ug	
		Benzo(k)fluoranthene	2012/01/10	<0.050		ug	
		Biphenyl	2012/01/10	<0.10		ug	
		Chrysene	2012/01/10	<0.050		ug	
		Coronene	2012/01/10	<0.10		ug	
		Dibenz(a,h)anthracene	2012/01/10	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/01/10	<0.20		ug	
		Fluoranthene	2012/01/10	<0.050		ug	
		Fluorene	2012/01/10	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/01/10	<0.050		ug	
		m-Terphenyl	2012/01/10	<0.10		ug	
		Naphthalene	2012/01/10	<0.072		ug	
		o-Terphenyl	2012/01/10	<0.10		ug	
		Perylene	2012/01/10	<0.10		ug	
		Phenanthrene	2012/01/10	<0.050		ug	
		p-Terphenyl	2012/01/10	<0.10		ug	
		Pyrene	2012/01/10	<0.050		ug	
		Quinoline	2012/01/10	<0.40		ug	
		Tetralin	2012/01/10	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2011

Prepared By:



January 11, 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
Lakeland Industry & Community Association
Box 8237
5107W – 50 Street
Bonnyville, Alberta
T9N 2J5

Monitoring Location: Maskwa
Data Period: December 2011

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 – December 2011

LICA MASKWA SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE		1-HOUR
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING			DAY
SO2 (PPB)	172	48	0	0	1.48	26	18	4	7.1	310(NW)	10.3	18	100.0
H2S (PPB)	10	3	0	0	0.25	2	16, 23	3, 5	5.3, 1.3	200(SSW), 25(NNE)	1.0	16	99.9
THC (PPM)	-	-	-	-	2.19	3.3	16	4	6.6	205(SSW)	2.5	16	100.0
NOx (PPB)	-	-	-	-	5.58	30	18	9	7.5	306(NW)	13.3	18	99.9
NO (PPB)	-	-	-	-	0.72	12	18	VAR	VAR	VAR	4.7	18	99.9
NO2 (PPB)	159	-	0	-	4.77	20	7	19	12.5	302(WNW)	9.3	7	99.9
VECTOR WS (KPH)	-	-	-	-	5.72	17.2	7	13	-	304(WNW)	9.5	2	100.0
VECTOR WD (DEGREES)	-	-	-	-	263(W)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	71.92	87	29	1	4	108(ESE)	81.8	29	100.0
TEMPERATURE (DEG C)	-	-	-	-	-6.05	5.9	6	6	10.4	284(WNW)	0.7	24	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	937	958	VAR	VAR	VAR	VAR	955.2	4	100.0
PRECIPITATION (MM)	-	-	-	-	0.00	0.2	20	4, 5	12.1, 12.4	283(W), 286(WNW)	0.5	20	100.0

NA-NOT APPLICABLE VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – Maskwa

Sulphur Dioxide (PPB)

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

No operational issue was observed during the month. Following the as found points check performed on December 12th, the UV lamp was peaked. The analyzer was allowed time to stabilize. A multi-point calibration was then performed. The inlet filter was changed before the multi-points calibration was started. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue was observed during the month. Following the as found points check performed on December 9th, the SO₂ scrubber material was replaced, the UV lamp was peaked and a new exhausting pump was installed. The analyzer was allowed time to stabilize. Then a multi-point calibration was performed. The inlet filter was changed before the multi-points calibration was started. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. The H₂ gas cylinder was replaced on December 12th. 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 issue was observed during the month. The inlet filter was changed before the monthly calibration was started. The analyzer spanned low, starting December 29th due to permeation tube depleting. The perm tube was replaced on January 1st, 2011. Data was corrected using daily zero information.

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

- System make / model - RM Young 5103 VK, S/N: 56589

The wind system is reported as vector wind speed and vector wind direction. No operational issue was observed this month.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues observed during the month.

Precipitation (MM)

- System make / model - Met One 387

No operational issues observed during this month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issue was observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issue was observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issue was observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issue was 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 issue was observed during the month.

Trailer

The manifold was cleaned on December 12th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2011
SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	0	0	1	1	1	0	0	IZS	0	1	1	1	1	1	1	1	1	1	1	1	0.5	24
2	1	1	1	0	0	0	0	0	7	2	0	1	IZS	1	0	0	0	0	2	5	1	3	0	0	7	1.1	24	
3	0	1	1	0	0	0	0	0	1	1	0	IZS	7	2	0	0	0	0	0	0	0	1	1	0	7	0.7	24	
4	0	1	0	1	1	1	9	0	3	3	IZS	2	0	0	0	0	0	0	0	0	0	0	0	0	9	0.9	24	
5	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.7	24	
6	1	2	3	2	1	1	1	9	IZS	0	0	0	0	0	4	19	0	0	0	1	0	0	0	1	19	2.0	24	
7	4	0	0	0	0	2	14	IZS	4	1	0	0	7	13	11	7	18	19	17	22	19	20	21	6	22	8.9	24	
8	4	2	0	0	0	0	IZS	0	0	4	8	6	4	1	0	4	0	0	0	0	0	0	0	0	8	1.4	24	
9	0	0	0	0	0	IZS	1	1	1	1	1	2	1	1	0	0	1	1	1	0	0	1	0	1	2	0.6	24	
10	1	1	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	4	0.4	24	
11	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	1	0.1	24	
12	0	0	IZS	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	1	1	2	1	1	2	2	0.5	24	
13	2	IZS	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	2	0.4	24	
14	IZS	0	0	1	7	1	8	11	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	IZS	11	1.4	24	
15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.0	24
16	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0.1	24
17	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	0	1	8	IZS	12	6	9	12	1.8	24	
18	4	11	6	10	26	10	13	13	21	25	22	16	11	10	23	11	2	1	0	IZS	0	0	0	1	26	10.3	24	
19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	1	IZS	1	3	2	1	1	3	0.7	24	
20	2	1	2	2	0	1	0	0	0	8	9	2	2	3	0	0	0	IZS	0	0	2	2	1	2	9	1.7	24	
21	4	15	24	6	1	6	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	24	2.5	24	
22	0	0	0	0	0	0	2	2	3	2	0	0	1	1	0	IZS	0	0	0	0	0	0	0	0	3	0.5	24	
23	0	0	0	0	0	0	0	0	2	0	0	2	1	2	IZS	0	1	1	0	0	0	0	0	1	2	0.4	24	
24	2	2	1	0	0	0	0	0	0	0	0	0	8	IZS	0	0	0	0	0	1	0	2	2	0	8	0.8	24	
25	0	0	0	1	2	1	1	0	0	0	0	1	IZS	2	3	1	1	0	0	1	1	0	0	1	3	0.7	24	
26	5	4	1	0	0	0	0	1	0	0	1	IZS	1	2	1	1	0	0	0	0	0	0	0	0	5	0.7	24	
27	0	0	0	2	2	2	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0.5	24
28	0	0	1	1	1	0	1	0	0	IZS	1	1	0	0	0	0	1	1	0	0	0	0	0	1	1	0.4	24	
29	0	0	1	1	2	1	2	1	IZS	1	1	0	0	0	0	1	1	1	0	0	0	0	0	1	2	0.6	24	
30	2	2	1	2	2	1	0	IZS	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0.6	24	
31	6	8	7	8	3	1	IZS	2	1	0	0	0	0	0	3	13	1	5	10	8	5	2	1	1	13	3.7	24	
HOURLY MAX	6	15	24	10	26	10	14	13	21	25	22	16	11	13	23	19	18	19	17	22	19	20	21	9				
HOURLY AVG	1.3	1.7	1.7	1.3	1.6	0.9	1.8	1.4	1.6	1.8	1.6	1.3	1.7	1.4	1.6	2.2	1.1	1.1	1.2	1.7	1.3	1.7	1.4	1.2				

STATUS FLAG CODES

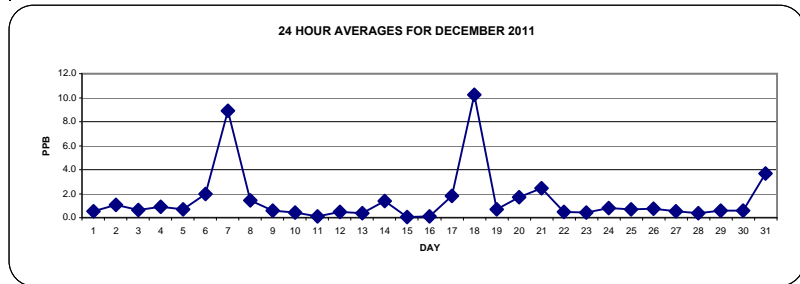
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

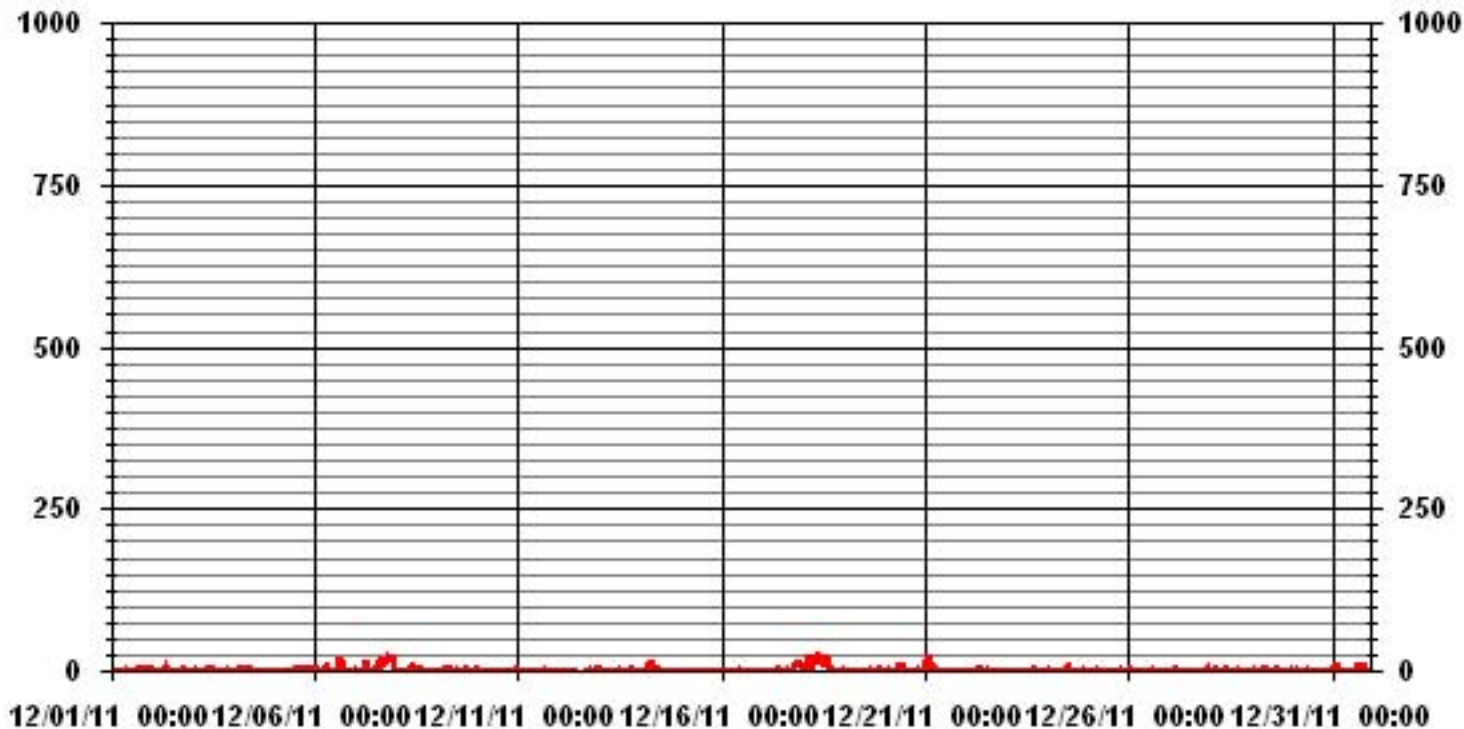
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	291					
MAXIMUM 1-HR AVERAGE:	26	PPB	@ HOUR(S)	4	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	10.3	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.66		MONTHLY AVERAGE:	1.48	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

DECEMBER 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	0	0	1	1	1	0	1	2	1	3	1	1	IZS	1	1	1	1	3	3	2	2	1	1	3	1.3	24		
2	1	2	1	1	1	1	1	1	18	16	1	3	IZS	7	1	0	1	2	8	17	3	6	2	1	18	4.1	24		
3	1	3	3	2	0	1	1	1	2	1	1	IZS	18	13	0	0	0	1	1	0	2	2	2	1	18	2.4	24		
4	1	1	1	1	1	2	19	4	7	8	IZS	6	1	0	0	0	0	0	0	0	0	0	0	0	19	2.3	24		
5	0	0	0	0	1	0	1	1	1	IZS	1	1	1	1	1	1	2	2	2	3	3	3	4	4	1.3	24			
6	2	3	4	3	2	1	1	23	IZS	0	1	1	0	3	34	36	1	0	0	10	6	0	0	6	36	6.0	24		
7	16	0	0	0	0	7	26	IZS	12	3	2	1	19	19	19	21	29	29	29	35	31	27	34	12	35	16.1	24		
8	12	8	1	0	0	0	IZS	0	0	8	21	22	11	5	2	17	0	0	0	0	0	0	0	0	22	4.7	24		
9	1	1	1	1	1	IZS	1	1	1	1	1	3	2	1	1	1	2	2	1	1	1	1	1	3	3	1.3	24		
10	2	2	3	2	IZS	2	1	1	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	16	16	1.7	24		
11	0	0	0	IZS	1	1	1	1	1	1	0	0	0	3	4	4	7	2	1	1	2	2	1	0	7	1.4	24		
12	0	1	IZS	0	1	1	1	1	1	0	1	C	C	C	C	C	1	2	2	2	2	2	2	2	2	1.2	24		
13	2	IZS	1	1	1	1	1	0	1	1	1	2	2	1	1	1	1	1	2	1	2	1	1	0	2	1.1	24		
14	IZS	0	1	2	20	3	16	18	4	0	0	2	3	5	1	1	0	0	0	0	1	1	1	IZS	20	3.6	24		
15	1	1	1	1	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	2	0.4	24	
16	0	0	0	0	0	0	1	1	1	1	2	2	1	0	0	0	0	0	0	0	1	IZS	0	2	2	0.5	24		
17	2	1	0	0	0	0	1	1	1	2	2	1	1	1	2	2	2	3	20	IZS	24	22	31	31	5.2	24			
18	26	42	23	29	32	19	29	43	45	37	34	27	24	27	46	33	4	4	0	IZS	0	0	1	2	46	22.9	24		
19	2	0	0	0	1	1	1	1	0	1	1	1	1	1	4	4	3	1	IZS	4	7	4	2	3	7	1.9	24		
20	5	1	3	4	1	4	2	2	1	24	23	6	10	11	5	1	1	IZS	0	0	3	3	1	2	24	4.9	24		
21	14	25	31	24	13	16	3	1	0	0	0	0	0	0	0	1	IZS	0	0	0	0	1	0	0	31	5.6	24		
22	0	0	0	1	1	1	4	3	6	3	2	1	2	2	0	IZS	0	0	0	0	0	0	0	2	6	1.2	24		
23	0	0	0	0	1	1	1	6	12	1	1	3	2	3	IZS	1	3	2	1	1	0	0	1	2	12	1.8	24		
24	3	2	2	1	0	0	0	0	0	0	0	5	17	IZS	0	0	0	0	1	3	1	3	4	0	17	1.8	24		
25	0	0	1	3	2	2	1	1	1	1	1	1	IZS	3	5	4	2	1	1	1	1	1	1	1	5	1.5	24		
26	14	14	4	1	1	1	1	6	1	1	9	IZS	2	7	1	1	1	1	2	1	1	1	1	1	14	3.2	24		
27	0	0	1	3	5	5	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	0	1	22	3	22	2.3	24		
28	1	1	2	2	2	1	1	1	1	IZS	2	2	1	1	1	2	2	2	1	1	1	1	1	2	2	1.4	24		
29	1	2	2	3	4	4	4	3	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.7	24		
30	5	3	3	6	3	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	6	1.9	24		
31	23	18	17	20	7	3	IZS	3	2	1	0	0	0	10	20	8	20	19	12	14	6	5	3	23	9.2	24			
HOURLY MAX	26	42	31	29	32	19	29	43	45	37	34	27	24	27	46	36	29	29	29	35	31	27	34	31					
HOURLY AVG	4.5	4.4	3.5	3.7	3.4	2.7	4.2	4.4	4.3	4.0	3.9	3.4	4.4	4.3	4.9	5.4	2.5	2.6	2.7	4.0	2.8	3.1	3.8	3.5					

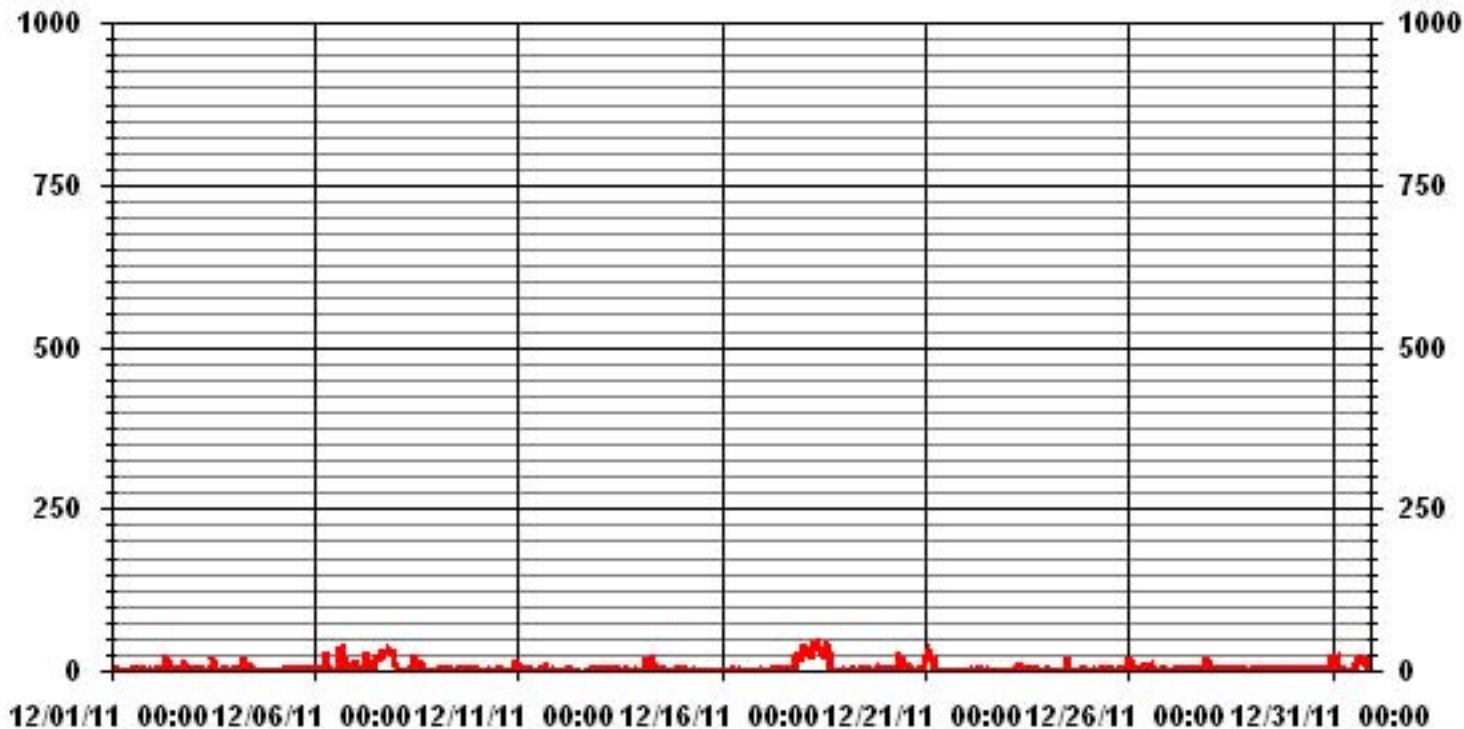
STATUS FLAG CODES

S - OUT OF SERVICE	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:	539					
MAXIMUM INSTANTANEOUS VALUE:	46	PPB	@ HOUR(S)	14	ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	7.36					

01 Hour Averages



LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	5.09	2.12	.99	.84	1.84	1.13	2.12	.56	2.69	13.59	22.37	7.64	9.20	12.60	9.06	6.79	98.72
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.99	.00	1.27
< 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	5.09	2.12	.99	.84	1.84	1.13	2.12	.56	2.69	13.59	22.37	7.64	9.20	12.88	10.05	6.79	

Calm : .00 %

Total # Operational Hours : 706

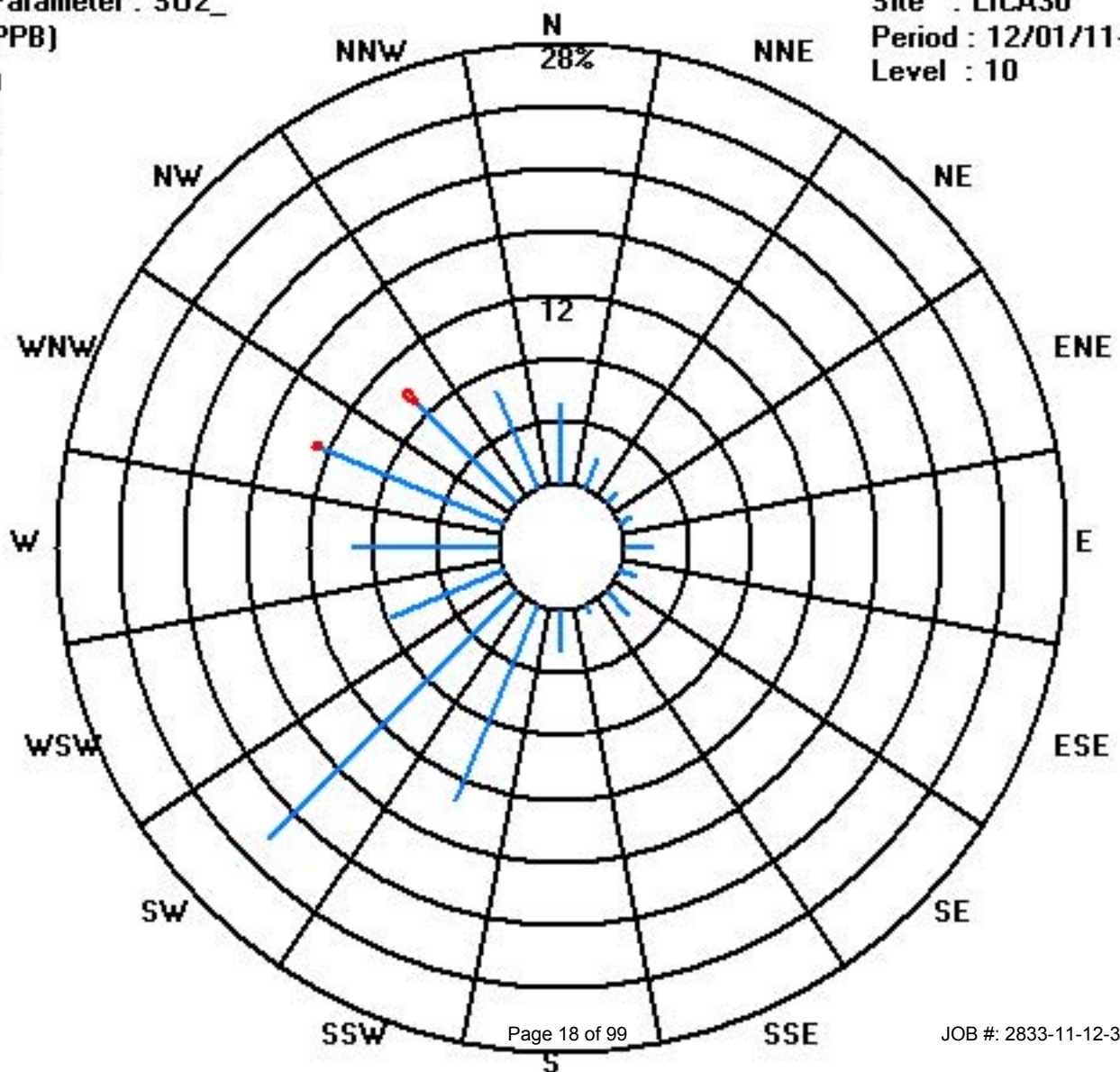
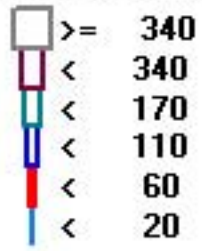
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	36	15	7	6	13	8	15	4	19	96	158	54	65	89	64	48	697
< 60														2	7		9
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	36	15	7	6	13	8	15	4	19	96	158	54	65	91	71	48	

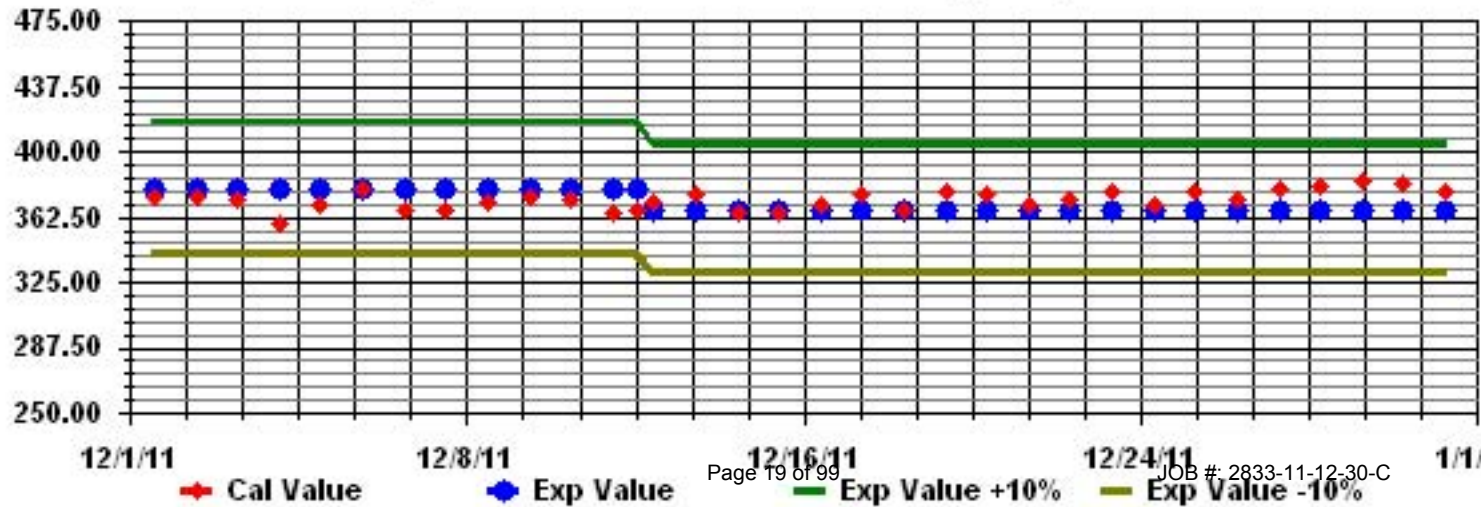
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



Calibration Graph for Site: LICA30 Parameter: S02_ Sequence: S02 Phase: SPAll



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR				
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1		0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0	0	1	0.0	24		
2		0	1	0	0	1	0	1	0	0	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24		
3		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		
4		0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0	1	1	1	0	0	1	1	1	0.3	24		
5		0	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
6		0	0	0	0	0	1	0	0	IZS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
7		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		
8		0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
9		0	0	0	0	0	IZS	0	0	0	0	1	C	C	C	C	C	C	C	0	0	0	0	0	0	1	0.1	24		
10		0	0	0	0	IZS	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0.6	24		
11		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		
12		0	0	IZS	1	1	1	0	1	1	1	1	1	1	1	1	M	1	1	1	1	1	1	1	1	1	1	0.9	23	
13		1	IZS	0	0	0	0	0	0	1	1	1	0	0	1	1	0	1	0	0	0	0	1	1	1	1	1	0.4	24	
14		IZS	0	1	1	1	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	1	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	1	0.0	24		
16		1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	2	1.0	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
19		0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	1	1	1	1	IZS	0	0	0	0	0	1	0.3	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	1	1	0.1	24	
21		0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.1	24	
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
23		0	0	0	1	1	2	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0.3	24	
24		0	0	0	1	0	0	0	0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
25		0	0	0	0	1	1	0	0	0	0	0	0	0	IZS	1	1	0	1	1	1	1	1	0	1	1	1	0.5	24	
26		1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
27		0	0	1	1	1	1	0	1	1	0	0	IZS	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0.5	24	
28		0	0	1	0	0	1	0	0	0	IZS	1	1	0	0	0	1	0	0	0	0	1	1	1	0	1	0.3	24		
29		0	0	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
30		0	0	0	0	0	0	0	IZS	1	0	1	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0.3	24		
31		1	0	1	0	0	0	IZS	0	1	1	0	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0.3	24		
HOURLY MAX		1	1	1	2	1	2	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	0.2	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3				

STATUS FLAG CODES

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

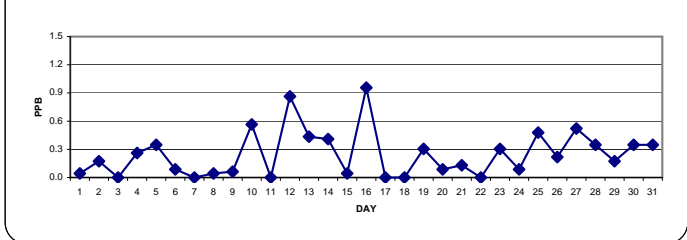
OBJECTIVE LIMIT:

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

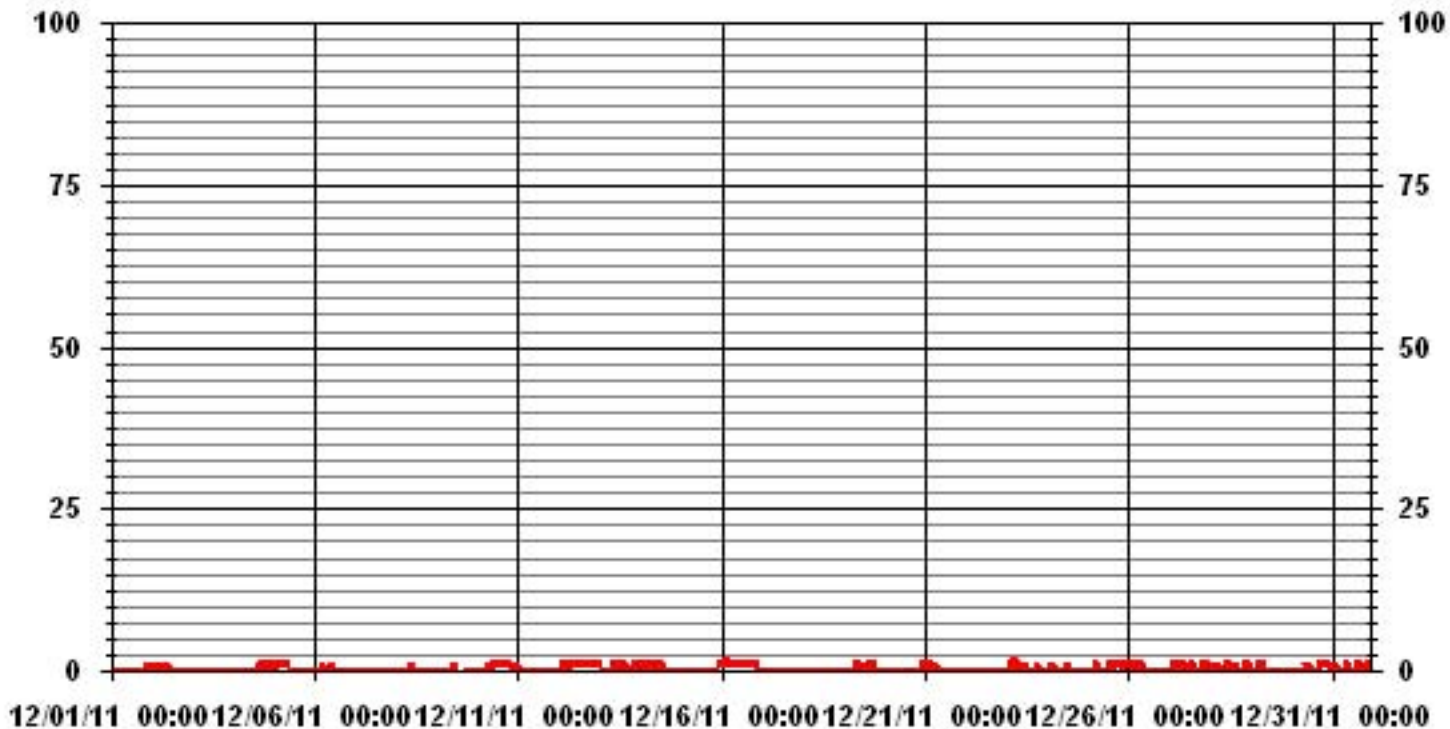
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	172
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 3, 5 ON DAY(S) 16, 23
MAXIMUM 24-HR AVERAGE:	1.0 PPB ON DAY(S) 16 VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.44
MONTHLY AVERAGE:	0.25 PPB

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

DECEMBER 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	0	1	0	0	0	0	1	0	0	1	1	1	1	0	IZS	0	1	1	1	1	0	1	1	1	0	1	0.5	24	
2	1	1	1	1	1	1	1	0	1	1	1	1	IZS	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0.6	24
3	0	1	1	0	0	1	1	0	0	0	0	0	IZS	0	0	0	0	1	0	0	0	0	0	0	2	2	0.3	24	
4	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24	
5	1	2	1	1	1	1	1	1	1	4	IZS	1	1	0	0	0	0	0	0	1	1	1	1	1	1	4	0.9	24	
6	1	1	0	0	1	1	1	1	IZS	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.4	24	
7	0	0	0	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0.1	24	
8	0	0	0	0	0	0	IZS	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2	24	
9	0	0	0	1	1	IZS	1	1	1	1	C	C	C	C	C	C	C	C	1	1	0	0	0	0	1	1	0.6	24	
10	1	0	1	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
11	1	0	1	IZS	0	1	0	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0.3	24	
12	0	0	IZS	1	2	1	1	1	2	1	1	1	1	1	2	2	M	2	1	2	1	2	2	1	2	1	2	1.3	23
13	1	IZS	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	0.9	24	
14	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	IZS	1	1	0.8	24	
15	1	1	0	0	1	0	1	1	1	0	0	1	0	0	1	1	0	0	1	0	1	1	0	IZS	1	1	0.6	24	
16	1	1	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	IZS	0	0	2	1.5	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.0	24	
19	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	1	0.7	24	
20	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	1	0.3	24	
21	1	1	1	1	0	1	1	1	0	0	0	0	1	0	0	0	0	IZS	0	0	0	0	0	0	1	1	0.4	24	
22	0	0	1	1	1	0	0	0	1	1	1	1	1	0	0	IZS	1	1	1	0	1	1	1	0	0	1	0.6	24	
23	0	0	1	2	2	5	1	1	1	0	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	5	1.1	24	
24	1	1	1	1	0	0	0	0	0	0	1	1	1	IZS	1	1	0	0	0	1	1	1	1	1	1	1	0.6	24	
25	0	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	2	1	1	2	3	3	1.1	24	
26	2	2	1	1	1	1	1	2	1	0	1	IZS	1	1	1	1	0	1	1	1	1	0	1	0	2	1.0	24		
27	0	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	1	1	1	1	1	1	1	2	3	1	3	1.1	24	
28	1	1	1	1	1	1	1	1	1	1	IZS	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
29	2	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
30	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
31	1	1	1	1	1	1	IZS	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.8	24	
HOURLY MAX	2	2	2	2	2	5	1	2	4	2	2	2	2	1	2	2	2	2	2	2	2	2	3	3					
HOURLY AVG	0.5	0.6	0.6	0.7	0.7	0.8	0.7	0.6	0.8	0.6	0.7	0.8	0.6	0.5	0.6	0.8	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.7			

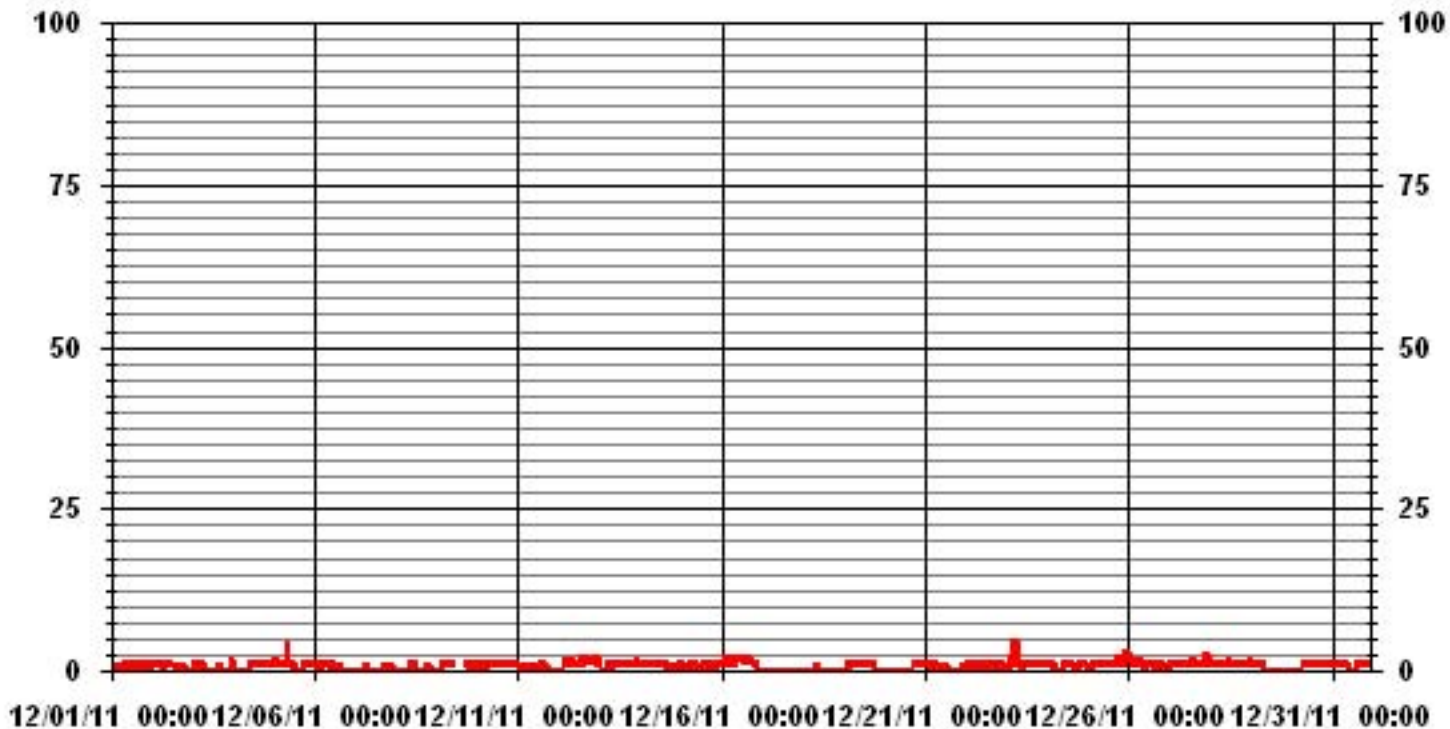
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	410					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	5	ON DAY(S)	23
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.63					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	5.11	2.13	.99	.85	1.84	1.13	2.13	.56	2.98	14.06	22.15	7.38	8.80	12.92	10.08	6.81	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	5.11	2.13	.99	.85	1.84	1.13	2.13	.56	2.98	14.06	22.15	7.38	8.80	12.92	10.08	6.81	

Calm : .00 %

Total # Operational Hours : 704

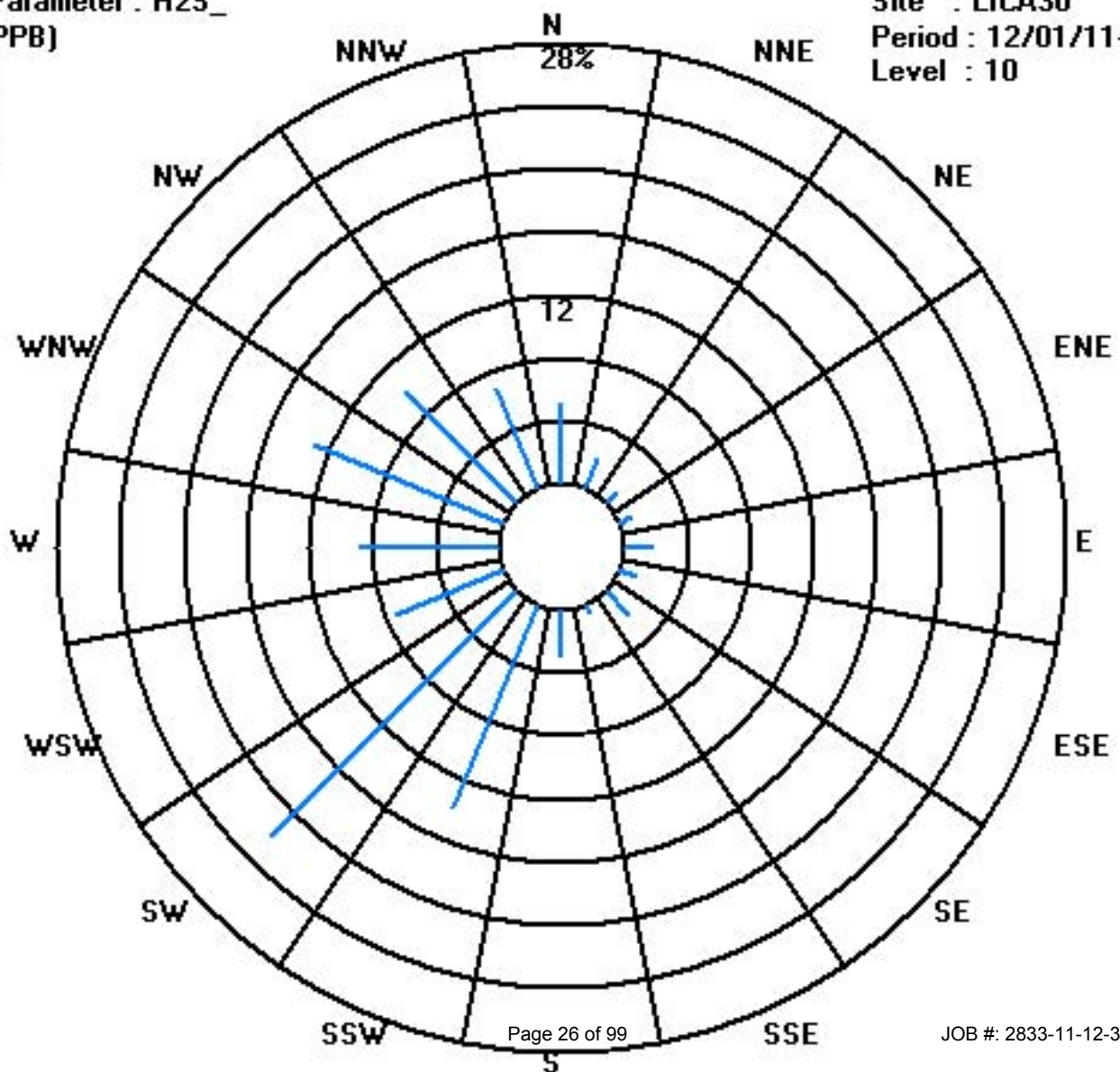
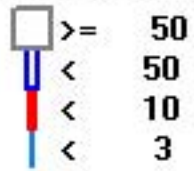
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	36	15	7	6	13	8	15	4	21	99	156	52	62	91	71	48	704
< 10																	
< 50																	
>= 50																	
Totals	36	15	7	6	13	8	15	4	21	99	156	52	62	91	71	48	

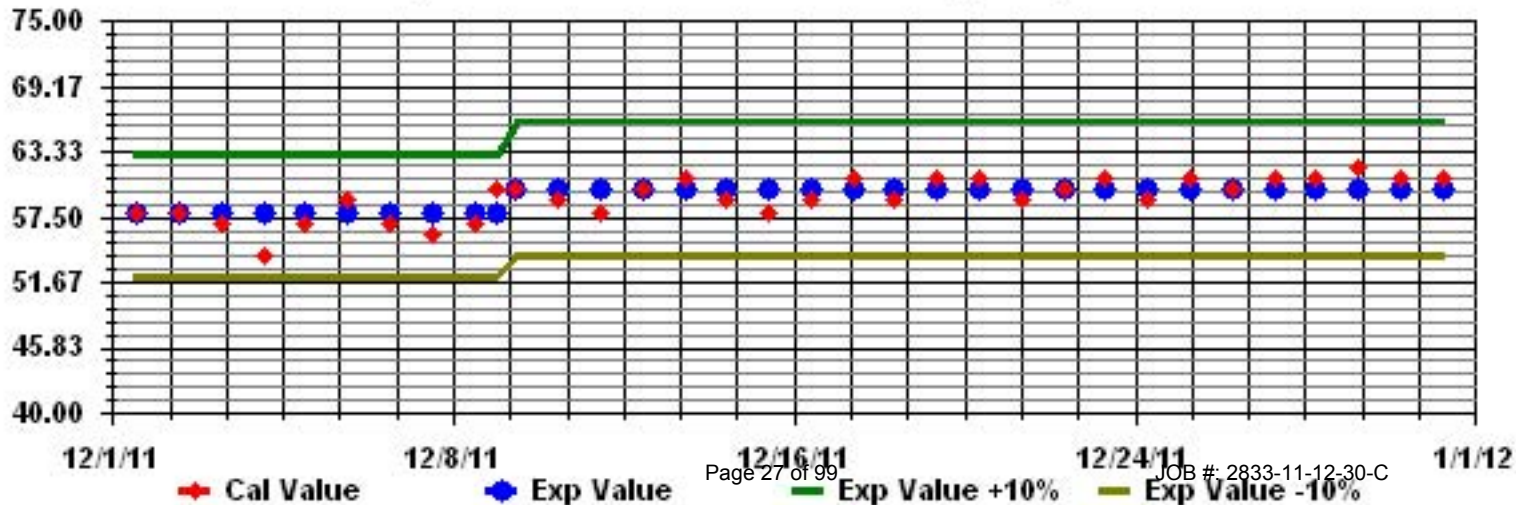
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

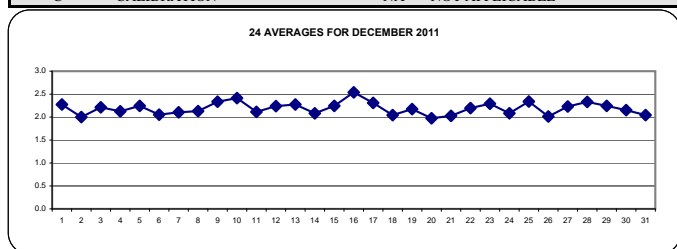
DECEMBER 2011

TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

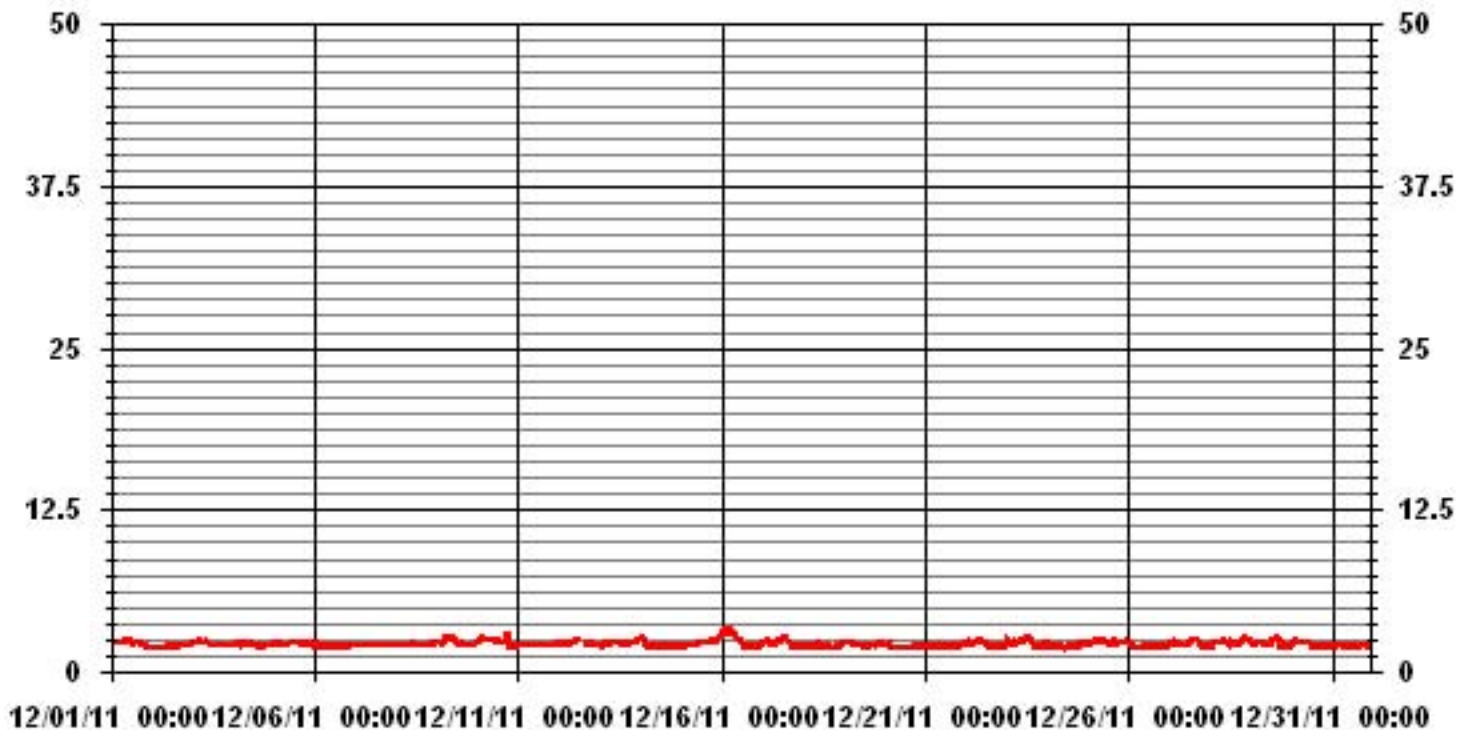
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM 1-HR AVERAGE:	3.3	PPM	@ HOUR(S)	4	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	2.5	PPM			ON DAY(S)	16
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.21		MONTHLY AVERAGE:	2.19	PPM	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

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

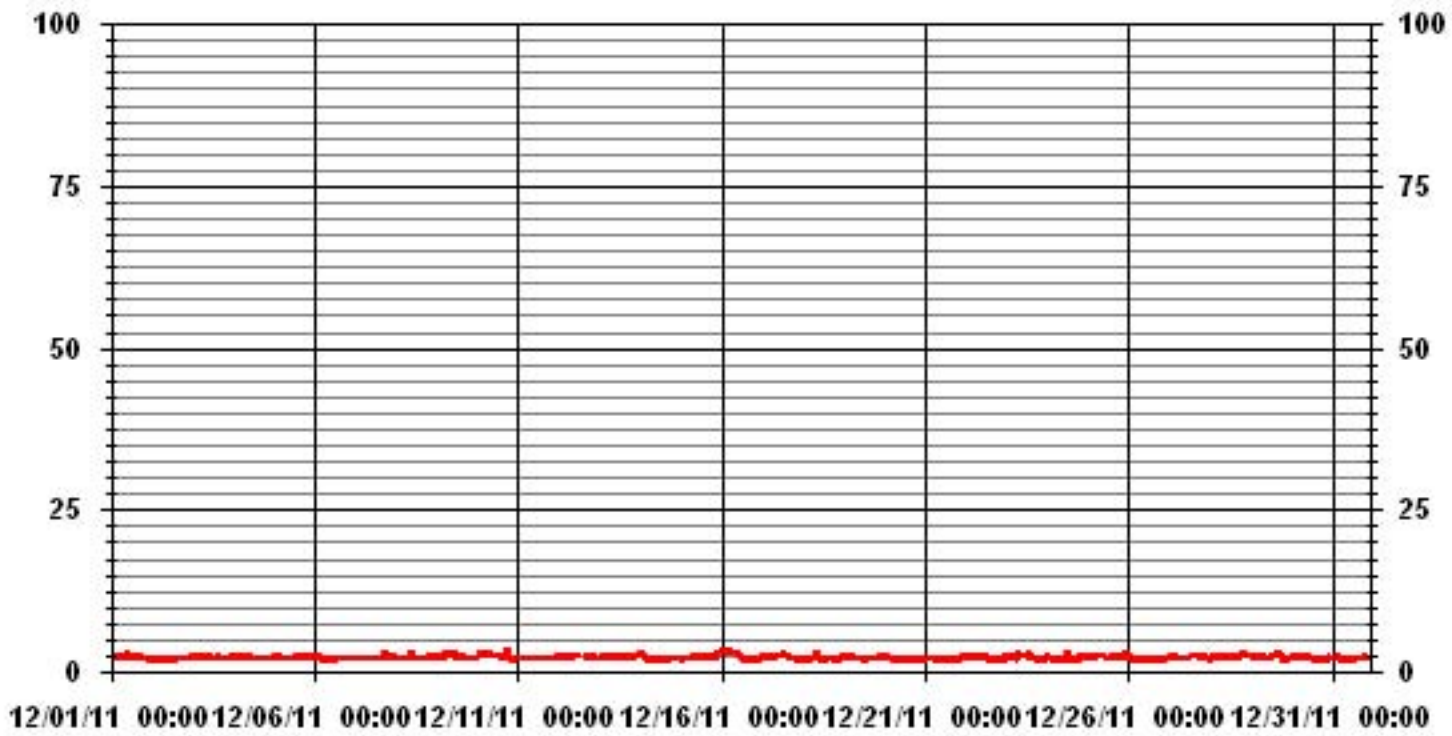
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	3.3	PPM	@ HOUR(S)	18	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.24					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

December 2011

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	5.09	2.12	.99	.84	1.83	1.13	2.12	.56	2.82	12.58	22.20	7.63	9.19	12.87	10.04	6.78	98.86
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.99	.14	.00	.00	.00	.00	.00	1.13
< 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	5.09	2.12	.99	.84	1.83	1.13	2.12	.56	2.82	13.57	22.34	7.63	9.19	12.87	10.04	6.78	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	36	15	7	6	13	8	15	4	20	89	157	54	65	91	71	48	699
< 10.0										7	1						8
< 50.0																	
>= 50.0																	
Totals	36	15	7	6	13	8	15	4	20	96	158	54	65	91	71	48	

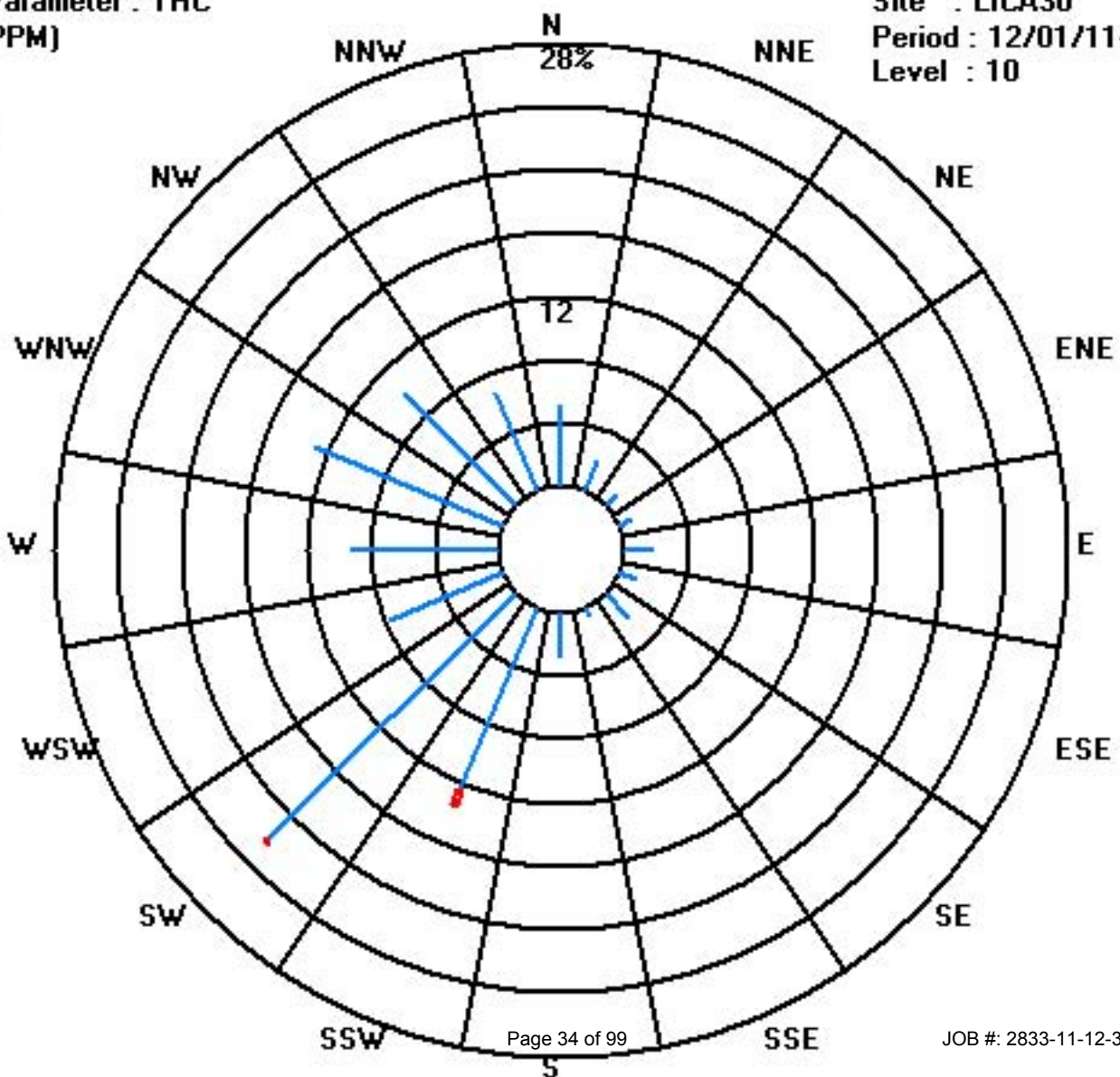
Calm : .00 %

Total # Operational Hours : 707

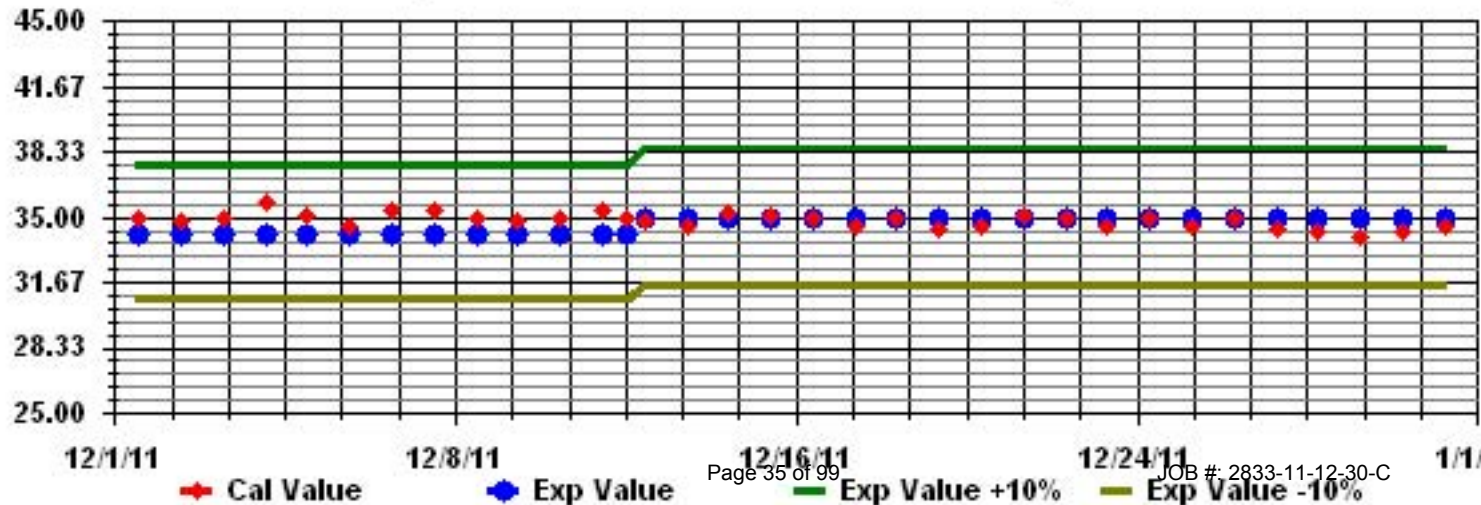
Class Limits (PPM)

Period : 12/01/11-12/31/11

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
DAY																											
1	5	5	6	8	8	7	7	10	12	13	12	7	7	IZS	8	8	9	8	7	4	3	3	0	0	13	6.8	24
2	1	1	0	0	0	0	0	1	8	1	0	0	IZS	1	0	0	1	1	2	7	4	8	8	2	8	2.0	24
3	5	7	8	5	4	4	4	6	9	8	8	IZS	6	3	1	0	0	1	2	1	2	2	3	2	9	4.0	24
4	3	4	2	3	2	2	10	1	4	3	IZS	2	1	0	0	0	0	0	0	0	0	0	1	1	10	1.7	24
5	1	2	3	3	3	2	3	3	4	IZS	4	5	5	5	5	7	9	9	10	10	10	10	9	8	10	5.7	24
6	3	5	6	6	4	0	0	9	IZS	1	2	1	1	1	5	17	4	1	0	2	2	1	0	1	17	3.1	24
7	7	2	1	1	1	7	15	IZS	10	5	3	1	6	11	10	7	16	18	17	20	15	17	18	7	20	9.3	24
8	9	8	0	0	1	1	IZS	7	6	18	17	7	5	2	1	4	2	2	3	2	2	2	4	3	18	4.6	24
9	3	3	3	3	4	IZS	5	5	6	9	9	C	C	C	C	C	C	8	5	3	2	2	2	6	9	4.6	24
10	7	10	13	10	IZS	9	9	16	15	10	7	7	7	8	10	9	11	17	15	2	1	2	1	7	17	8.8	24
11	4	2	1	IZS	1	1	1	1	2	1	1	1	1	1	1	2	4	6	4	2	3	2	2	3	6	2.0	24
12	2	2	IZS	2	2	2	2	2	2	3	3	2	2	2	3	4	M	3	3	3	3	3	3	3	4	2.5	23
13	3	IZS	2	2	3	3	4	7	10	7	6	7	6	7	7	10	11	10	10	8	7	7	6	6	11	6.5	24
14	IZS	6	9	15	11	1	7	10	1	0	0	1	2	1	1	1	1	1	2	2	3	3	3	IZS	15	3.7	24
15	2	3	4	3	2	2	5	7	5	6	5	4	3	4	3	9	9	9	6	8	6	5	IZS	7	9	5.1	24
16	8	8	7	7	7	8	9	13	13	11	9	9	6	2	2	3	2	2	1	1	2	IZS	1	4	13	5.9	24
17	8	5	5	3	6	6	8	7	6	6	6	6	6	7	7	10	10	8	5	11	IZS	10	6	7	11	6.9	24
18	3	8	4	7	19	7	12	12	15	19	16	11	7	7	16	11	8	12	3	IZS	1	1	2	7	19	9.0	24
19	7	3	4	5	6	6	6	6	5	5	4	5	5	5	6	11	10	9	IZS	7	12	9	8	7	12	6.6	24
20	9	3	6	7	1	5	2	2	2	11	10	3	3	3	1	2	2	IZS	1	1	3	3	2	5	11	3.8	24
21	6	13	18	12	6	7	8	2	3	2	2	2	2	1	1	2	IZS	2	1	1	2	4	4	3	18	4.5	24
22	4	4	5	5	5	9	13	15	16	12	8	8	8	6	3	IZS	2	1	2	2	1	1	1	5	16	5.9	24
23	6	5	4	3	3	3	3	5	9	6	6	7	7	9	IZS	4	4	4	1	0	0	0	0	5	9	4.1	24
24	5	5	4	0	0	1	0	1	2	0	0	2	8	IZS	1	0	0	1	1	7	5	9	8	3	9	2.7	24
25	4	3	3	4	4	4	4	4	4	5	5	5	IZS	6	9	8	7	5	5	6	6	6	6	6	9	5.2	24
26	10	13	9	2	2	3	1	3	1	2	3	IZS	0	1	0	1	0	1	2	2	1	1	2	1	13	2.7	24
27	1	1	1	4	3	3	0	0	0	1	IZS	3	3	3	4	5	6	6	3	1	1	5	9	7	9	3.0	24
28	0	1	5	6	4	4	7	8	7	IZS	6	5	6	5	4	4	7	4	4	3	3	3	3	3	8	4.4	24
29	3	2	2	4	5	4	5	3	IZS	1	2	1	1	3	4	5	7	6	1	1	0	0	0	2	7	2.7	24
30	6	7	7	7	7	6	5	IZS	6	5	4	4	2	2	1	1	1	1	1	1	1	1	1	2	7	3.4	24
31	7	9	8	8	5	4	IZS	9	5	2	1	1	1	1	4	15	6	9	15	11	9	6	4	7	15	6.4	24
HOURLY MAX	10	13	18	15	19	9	15	16	16	19	17	11	8	11	16	17	16	18	17	20	15	17	18	8			
HOURLY AVG	4.7	5.0	5.0	4.8	4.3	4.0	5.3	6.0	6.5	6.0	5.5	4.2	4.2	3.8	4.1	5.5	5.3	5.5	4.4	4.3	3.7	4.2	3.9	4.3			

STATUS FLAG CODES

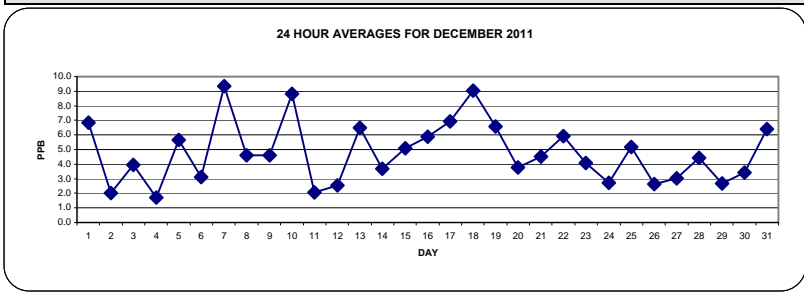
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

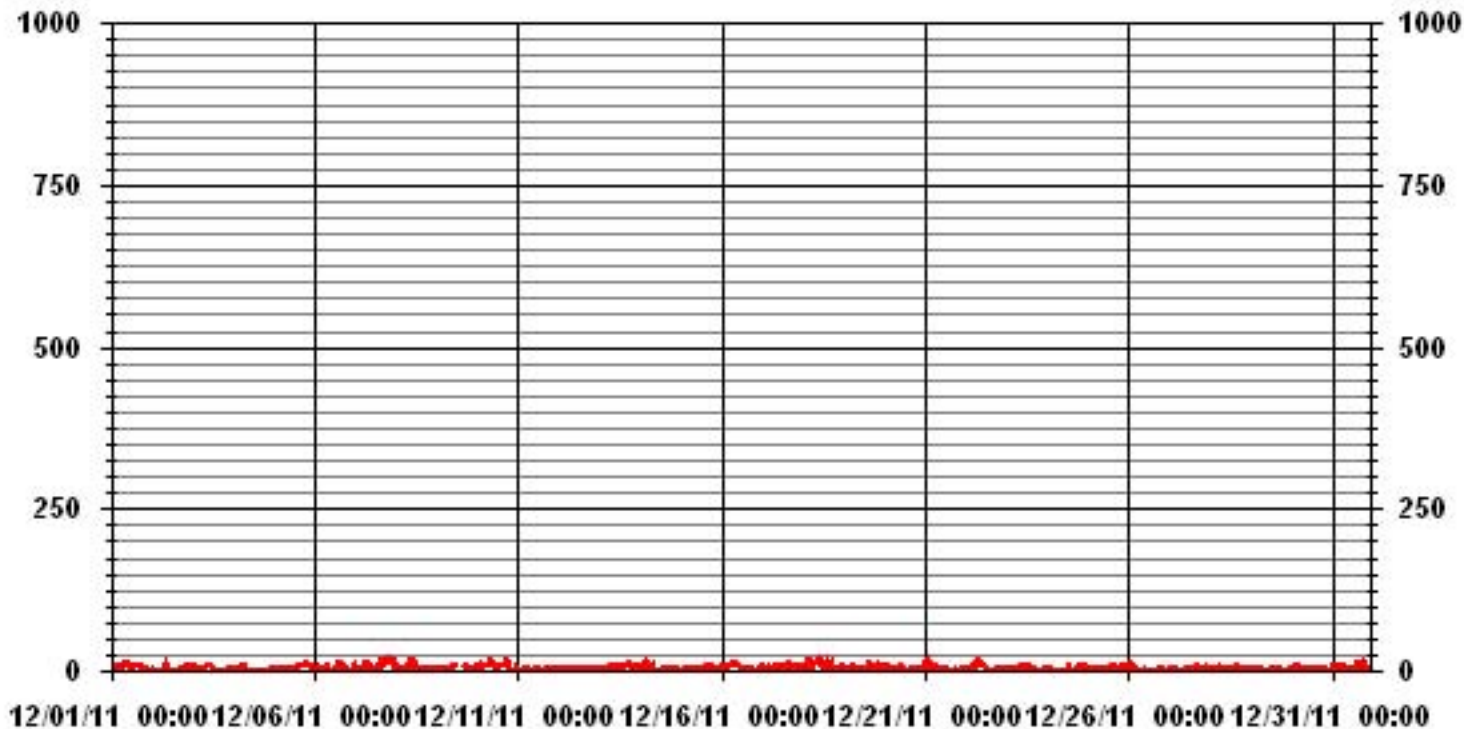
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	654				
MAXIMUM 1-HR AVERAGE:	20	PPB	@ HOUR(S)	19	ON DAY(S) 7
MAXIMUM 24-HR AVERAGE:	9.3	PPB			ON DAY(S) 7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	3.88		MONTHLY AVERAGE:	4.77	PPB



01 Hour Averages



— LICA30 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	7	6	8	9	9	9	9	12	15	16	17	9	9	IZS	9	9	18	10	8	7	5	5	2	1	18	9.1	24	
2	5	6	4	0	0	0	0	6	13	11	0	2	IZS	4	1	1	2	3	5	16	6	11	13	5	16	5.0	24	
3	8	12	13	10	5	6	5	8	11	9	11	IZS	13	11	2	1	1	1	3	2	4	3	3	3	13	6.3	24	
4	5	5	3	3	3	3	18	4	8	7	IZS	6	4	2	1	1	1	2	1	1	1	1	2	1	18	3.6	24	
5	2	3	3	4	3	5	12	5	5	IZS	5	6	6	5	7	9	14	10	10	11	12	11	11	12	14	7.4	24	
6	6	7	9	7	5	1	2	19	IZS	2	2	9	1	3	17	26	9	5	1	8	4	2	1	5	26	6.6	24	
7	17	4	6	1	2	14	23	IZS	22	10	5	3	14	16	17	18	29	23	24	27	23	22	25	12	29	15.5	24	
8	15	12	2	1	3	1	IZS	15	11	25	19	19	9	12	2	11	3	3	7	3	4	4	8	5	25	8.4	24	
9	4	4	4	4	5	IZS	7	6	8	11	C	C	C	C	C	C	C	C	8	4	3	3	4	8	11	5.5	24	
10	9	15	17	12	IZS	11	11	19	26	12	9	9	9	11	13	13	13	22	23	5	2	4	3	18	26	12.4	24	
11	6	4	2	IZS	2	1	1	3	3	2	2	1	2	3	4	6	13	10	5	4	4	4	3	3	13	3.8	24	
12	2	4	IZS	2	3	3	3	3	3	6	4	3	3	3	5	5	M	5	4	3	4	3	3	3	6	3.5	23	
13	4	IZS	3	3	4	6	7	9	12	9	8	9	7	8	8	13	15	13	14	9	8	8	7	7	15	8.3	24	
14	IZS	7	14	18	17	4	13	16	4	2	1	2	3	4	1	2	2	2	2	3	4	4	4	IZS	18	5.9	24	
15	3	4	4	4	4	4	9	13	7	8	6	5	4	5	4	16	30	14	10	11	7	6	IZS	8	30	8.1	24	
16	9	10	8	8	8	9	11	14	14	13	11	11	8	4	5	8	4	3	2	1	4	IZS	2	9	14	7.7	24	
17	9	6	6	5	8	7	9	9	7	7	7	7	7	8	9	11	13	13	13	18	IZS	20	18	20	20	10.3	24	
18	18	21	16	19	23	14	25	26	28	23	23	17	12	16	23	23	15	17	6	IZS	2	2	4	10	28	16.7	24	
19	9	4	5	7	7	7	7	7	8	7	6	5	6	5	10	14	14	11	IZS	11	18	11	9	11	18	8.7	24	
20	12	5	7	10	4	11	8	9	11	22	19	6	8	11	6	4	4	IZS	2	2	4	4	3	6	22	7.7	24	
21	14	20	21	21	15	14	14	5	6	14	3	4	3	2	2	3	IZS	3	2	2	4	5	6	4	21	8.1	24	
22	5	4	6	6	7	10	16	18	22	14	12	10	10	8	7	IZS	3	3	3	4	2	2	2	9	22	8.0	24	
23	8	5	5	4	4	4	10	16	11	8	9	8	11	IZS	5	6	5	3	2	1	1	2	7	16	6.0	24		
24	7	6	6	3	1	2	2	2	5	1	0	8	14	IZS	1	1	1	1	3	12	6	10	11	4	14	4.7	24	
25	5	4	4	5	5	4	4	4	4	6	5	6	IZS	8	11	11	7	6	6	7	7	7	7	8	11	6.1	24	
26	21	25	25	3	5	8	3	13	2	3	12	IZS	2	7	1	2	2	2	3	3	1	1	3	3	25	6.5	24	
27	2	2	2	7	9	10	1	1	1	1	IZS	5	4	5	5	7	7	8	5	1	1	11	26	18	26	6.0	24	
28	1	2	6	7	7	7	20	11	11	IZS	8	9	8	7	5	8	9	6	5	4	4	3	5	20	6.8	24		
29	5	4	4	8	9	8	8	5	IZS	2	3	3	2	4	5	7	10	10	2	1	1	1	2	3	10	4.7	24	
30	12	9	10	13	8	8	6	IZS	6	6	5	5	3	3	2	2	1	2	1	1	1	2	3	5	13	5.0	24	
31	20	18	18	19	10	13	IZS	14	12	3	2	2	1	2	11	21	11	25	23	18	19	9	11	15	25	12.9	24	
HOURLY MAX	21	25	25	21	23	14	25	26	28	25	23	19	14	16	23	26	30	25	24	27	23	22	26	20				
HOURLY AVG	8.3	7.9	8.0	7.4	6.5	6.8	8.9	9.9	10.4	9.1	7.6	6.8	6.4	6.7	6.7	8.9	9.2	8.2	6.8	6.7	5.5	6.0	6.7	7.6				

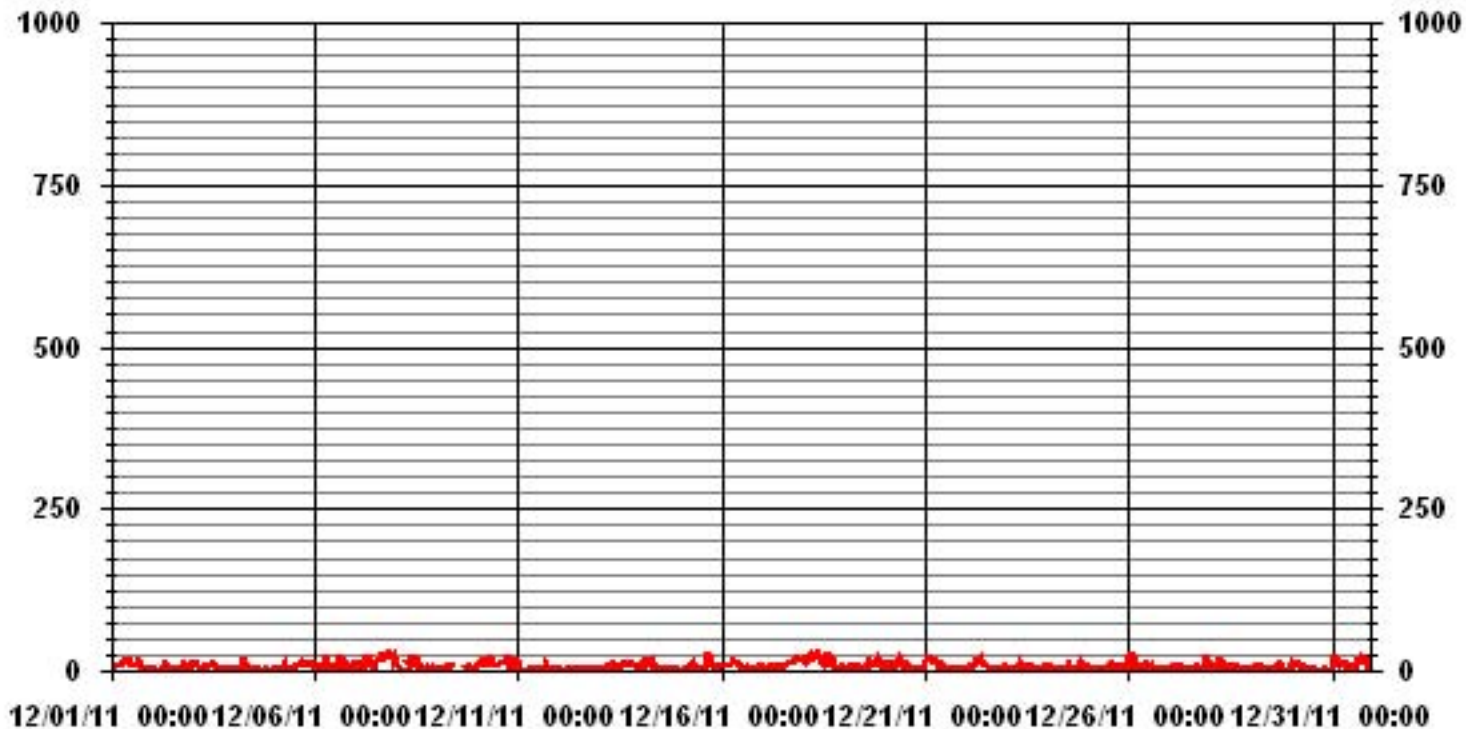
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	697					
MAXIMUM INSTANTANEOUS VALUE:	30	PPB	@ HOUR(S)	16	ON DAY(S)	15
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	5.92					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	705
< 110																	
< 210																	
>= 210																	
Totals	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	

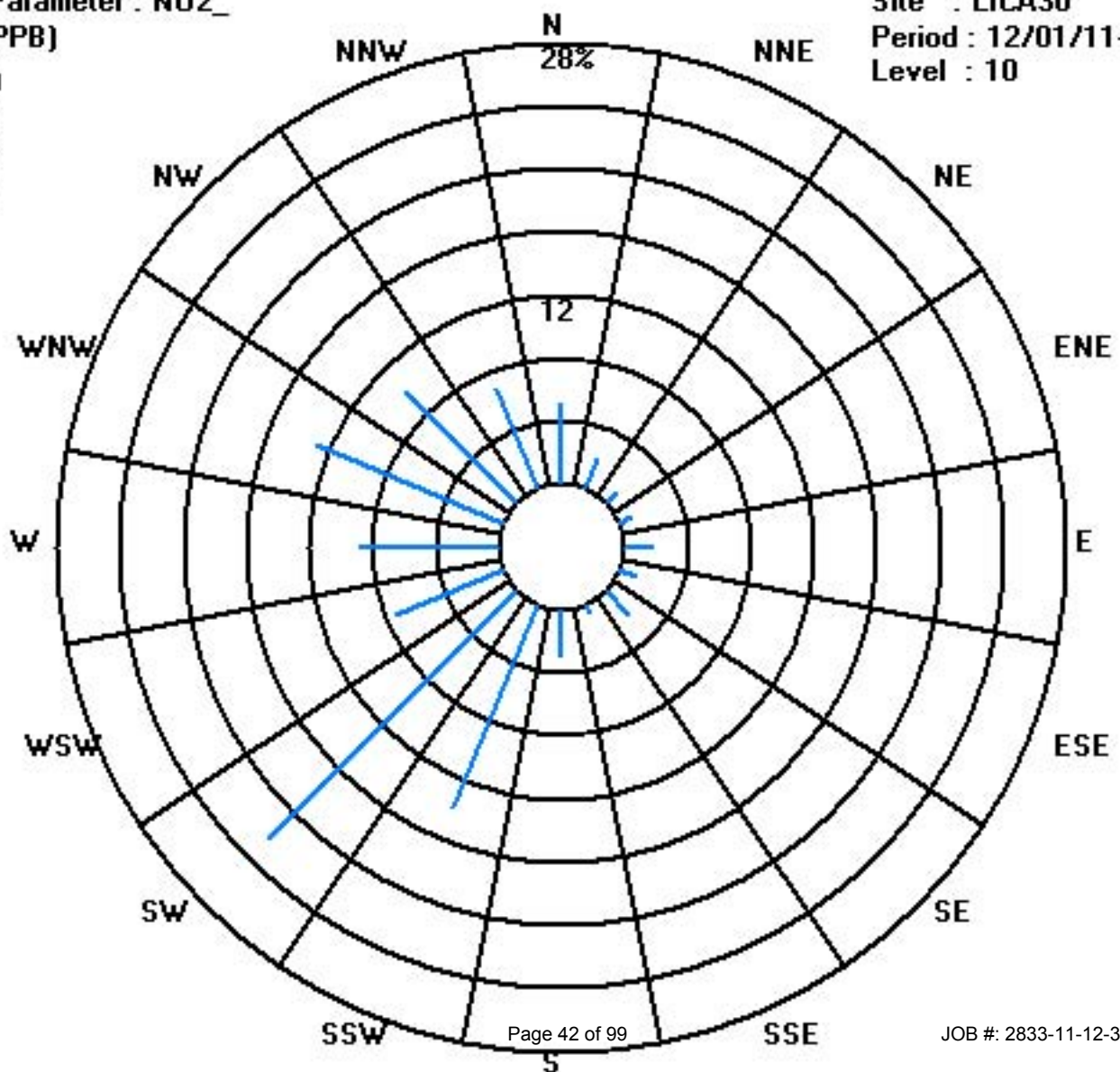
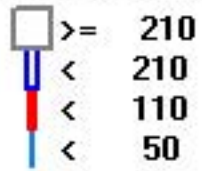
Calm : .00 %

Total # Operational Hours : 705

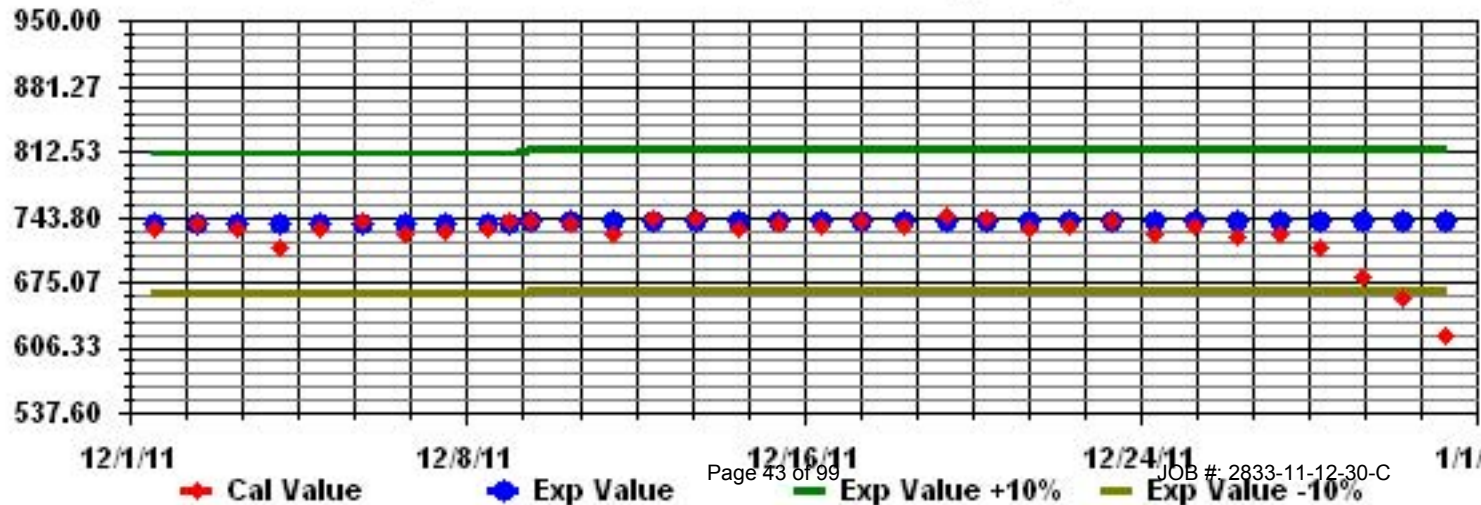
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

DECEMBER 2011

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	0	0	1	4	4	2	2	IZS	1	0	0	0	0	0	0	0	0	0	0	4	0.6	24
2	0	0	0	0	0	0	0	0	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
3	0	0	0	0	0	0	0	0	0	0	2	IZS	3	1	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
4	0	0	0	0	0	0	3	0	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
5	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
6	0	0	0	0	0	0	0	2	IZS	1	0	1	0	1	2	8	1	0	1	1	1	1	0	1	1	8	0.9	24
7	1	1	1	0	0	1	6	IZS	1	0	0	0	3	7	5	2	6	7	6	9	5	5	6	1	9	3.2	24	
8	0	0	0	0	0	0	IZS	0	1	5	7	3	2	1	0	1	0	0	0	0	0	0	0	0	0	7	0.9	24
9	0	0	0	0	0	IZS	0	0	0	1	4	C	C	C	C	C	C	2	0	0	0	0	0	0	4	0.4	24	
10	0	0	0	0	IZS	0	0	1	3	1	2	3	2	2	0	0	0	0	0	0	0	0	0	0	3	0.6	24	
11	0	0	0	IZS	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24
12	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	1	0.1	23
13	0	IZS	0	0	0	0	0	0	1	1	2	4	4	2	0	0	0	0	0	0	0	0	0	0	0	4	0.6	24
14	IZS	0	0	0	3	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	3	0.4	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	IZS	1	3	0.2	24
16	1	1	1	0	0	1	1	1	1	4	4	5	3	1	1	1	0	0	0	0	0	0	0	IZS	0	5	1.1	24
17	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	2	IZS	4	2	4	4	0.7	24	
18	1	4	2	4	11	3	5	6	12	12	12	9	5	5	11	5	0	1	0	IZS	0	0	0	1	12	4.7	24	
19	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	1	0.5	24
20	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	3	0.2	24
21	0	4	7	0	0	1	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	7	0.6	24
22	0	0	0	0	0	0	1	1	1	2	2	2	2	1	1	IZS	0	0	0	0	0	0	0	0	0	2	0.6	24
23	0	0	0	0	0	0	0	1	1	1	1	3	3	4	IZS	1	0	1	0	0	0	0	0	0	0	4	0.7	24
24	0	0	0	0	0	0	0	0	0	0	0	1	4	IZS	0	0	0	0	0	0	0	0	0	0	0	4	0.2	24
25	0	0	0	0	0	0	0	0	0	1	1	1	IZS	2	2	1	0	0	0	0	0	0	0	0	0	2	0.3	24
26	2	2	0	0	0	0	0	1	0	0	1	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
27	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0	0	0	0	0	0	0	3	0	3	0.3	24
28	0	0	0	0	0	0	2	0	1	IZS	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.3	24
29	0	0	0	0	0	0	0	1	IZS	0	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0.3	24
30	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
31	2	3	3	4	2	1	IZS	0	0	0	0	0	0	0	1	9	0	2	5	2	2	0	0	0	9	1.6	24	
HOURLY MAX	2	4	7	4	11	3	6	6	12	12	12	9	5	7	11	9	6	7	6	9	5	5	6	4				
HOURLY AVG	0.3	0.5	0.5	0.3	0.6	0.3	0.8	0.7	1.0	1.3	1.8	1.5	1.4	1.3	1.0	1.2	0.5	0.5	0.4	0.5	0.3	0.3	0.4	0.3				

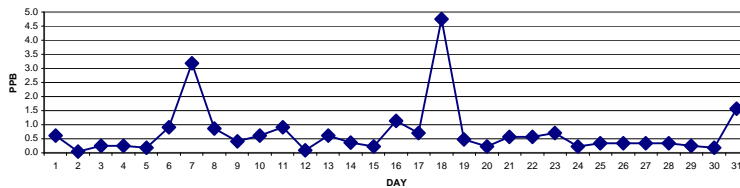
STATUS FLAG CODES

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

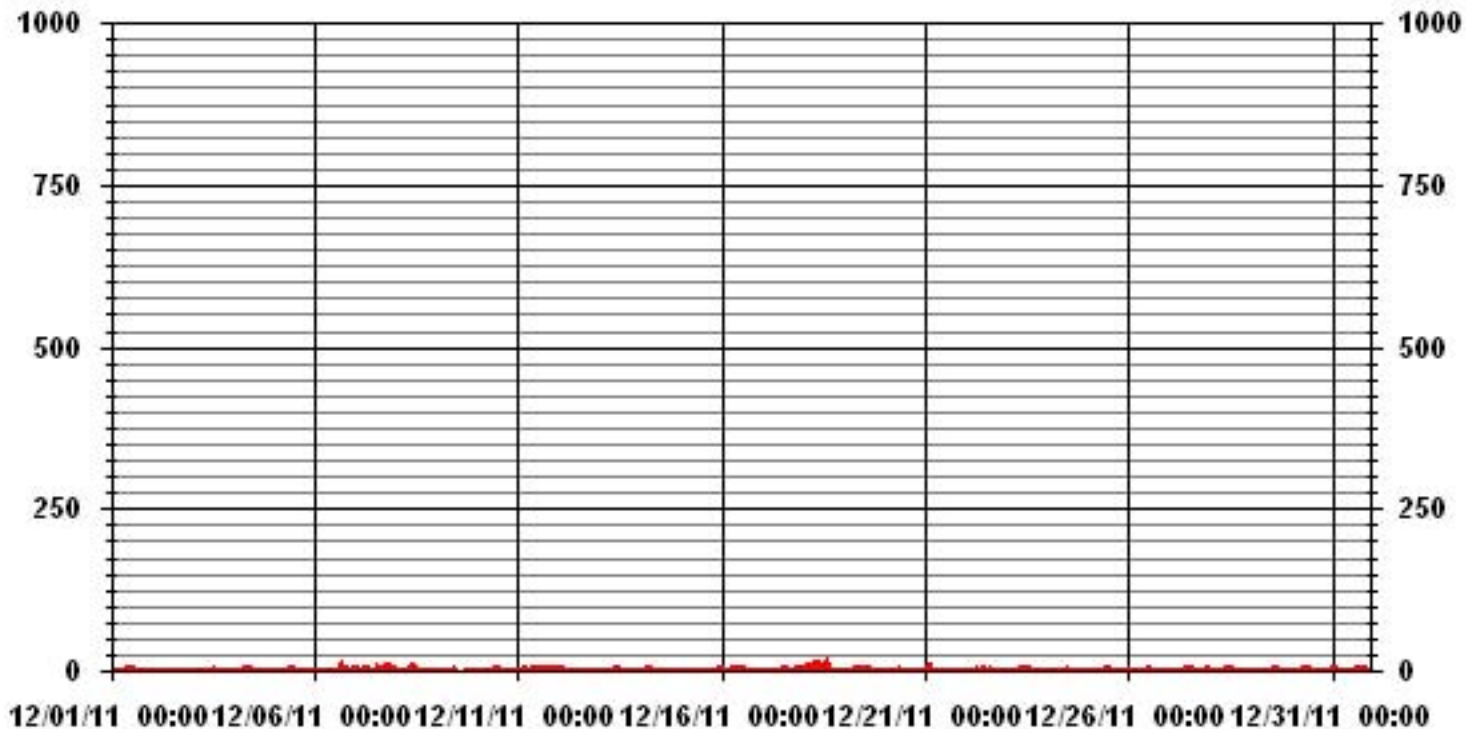
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	223
MAXIMUM 1-HR AVERAGE:	12 PPB @ HOUR(S) VAR ON DAY(S) 18
MAXIMUM 24-HR AVERAGE:	4.7 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	1.64
MONTHLY AVERAGE:	0.72 PPB

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	2	2	2	9	9	5	3	IZS	2	1	21	2	0	0	0	0	0	0	21	2.5	24	
2	0	0	0	0	0	1	0	12	6	5	0	0	IZS	3	0	0	0	1	2	2	0	1	2	0	12	1.5	24	
3	0	0	0	0	0	1	1	0	5	1	4	IZS	9	7	0	0	0	0	0	0	0	0	0	0	9	1.2	24	
4	0	0	0	1	0	0	6	0	2	2	IZS	3	1	1	0	0	1	1	0	0	0	0	1	0	6	0.8	24	
5	0	0	0	0	0	2	10	0	0	IZS	1	2	2	2	1	1	11	0	0	0	0	0	1	0	11	1.4	24	
6	0	0	0	0	0	0	0	7	IZS	1	1	9	1	2	8	18	4	1	1	3	2	1	1	2	18	2.7	24	
7	3	1	4	1	1	3	12	IZS	15	1	2	1	9	12	10	10	19	11	11	16	11	9	12	2	19	7.7	24	
8	2	2	0	0	0	0	IZS	7	3	10	11	12	3	12	1	4	0	0	0	0	0	0	3	0	12	3.0	24	
9	0	0	0	0	0	IZS	1	1	0	2	C	C	C	C	C	C	C	C	0	0	0	0	0	0	2	0.3	3	
10	0	0	0	0	IZS	0	0	8	13	3	6	7	5	3	6	0	2	3	1	0	0	0	0	6	13	2.7	24	
11	0	0	0	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	3	1.8	24	
12	2	2	IZS	0	0	0	0	0	0	2	1	0	0	0	0	0	M	0	0	0	0	0	0	0	2	0.3	23	
13	0	IZS	0	0	0	2	2	3	6	3	4	6	6	4	2	2	3	0	0	0	0	0	0	0	6	1.9	24	
14	IZS	0	1	2	12	1	6	7	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	IZS	12	1.5	24
15	0	0	0	0	0	0	0	2	0	1	1	1	1	1	0	5	28	3	1	0	0	0	0	IZS	2	28	2.0	24
16	1	1	1	1	1	1	3	3	2	6	6	9	5	2	2	3	2	1	1	1	1	1	IZS	0	9	2.3	24	
17	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	1	2	5	0	9	IZS	10	6	15	15	2.5	24	
18	10	18	10	12	16	8	13	26	29	19	22	15	10	14	17	15	1	1	2	IZS	1	1	1	1	29	11.4	24	
19	1	1	1	1	1	1	1	2	2	2	1	3	1	3	4	4	1	IZS	0	0	0	0	0	0	4	1.4	24	
20	0	0	0	0	0	2	0	0	16	9	10	1	3	2	0	0	0	IZS	0	0	0	0	0	0	16	1.9	24	
21	2	8	11	6	4	3	0	0	2	8	4	1	0	0	0	0	IZS	1	1	1	1	1	1	1	11	2.4	24	
22	1	1	1	1	1	1	3	1	3	3	3	4	3	2	4	IZS	1	1	1	1	1	1	1	1	4	1.7	24	
23	1	1	1	1	1	1	1	6	10	2	2	4	4	6	IZS	2	1	1	1	2	1	1	1	1	10	2.3	24	
24	1	1	1	1	1	1	1	1	3	1	1	4	9	IZS	1	1	1	1	1	1	1	1	1	1	9	1.6	24	
25	1	1	1	1	1	1	1	1	1	1	2	2	IZS	2	3	2	1	1	1	1	1	1	1	1	3	1.3	24	
26	9	6	3	1	1	1	1	4	1	1	8	IZS	1	3	1	1	1	1	1	1	1	1	1	1	9	2.2	24	
27	1	1	1	1	1	1	1	1	1	1	IZS	2	3	2	1	1	1	1	1	1	1	1	13	1	13	1.7	24	
28	1	1	1	1	1	2	7	6	4	IZS	2	2	2	3	1	1	1	1	1	1	1	1	1	1	7	1.9	24	
29	1	1	1	1	1	1	1	1	IZS	2	2	2	1	1	1	4	5	1	1	1	1	1	1	1	5	1.4	24	
30	1	1	1	1	1	1	1	IZS	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
31	10	9	7	12	5	2	IZS	2	0	1	0	1	0	0	5	15	5	14	12	5	7	2	2	1	15	5.1	24	
HOURLY MAX	10	18	11	12	16	8	13	26	29	19	22	15	10	14	17	18	28	14	12	16	11	10	13	15				
HOURLY AVG	1.6	1.9	1.5	1.5	1.7	1.3	2.6	3.6	4.5	3.4	3.9	3.6	3.2	3.3	2.6	3.2	4.2	2.0	1.4	1.6	1.1	1.2	1.8	1.4				

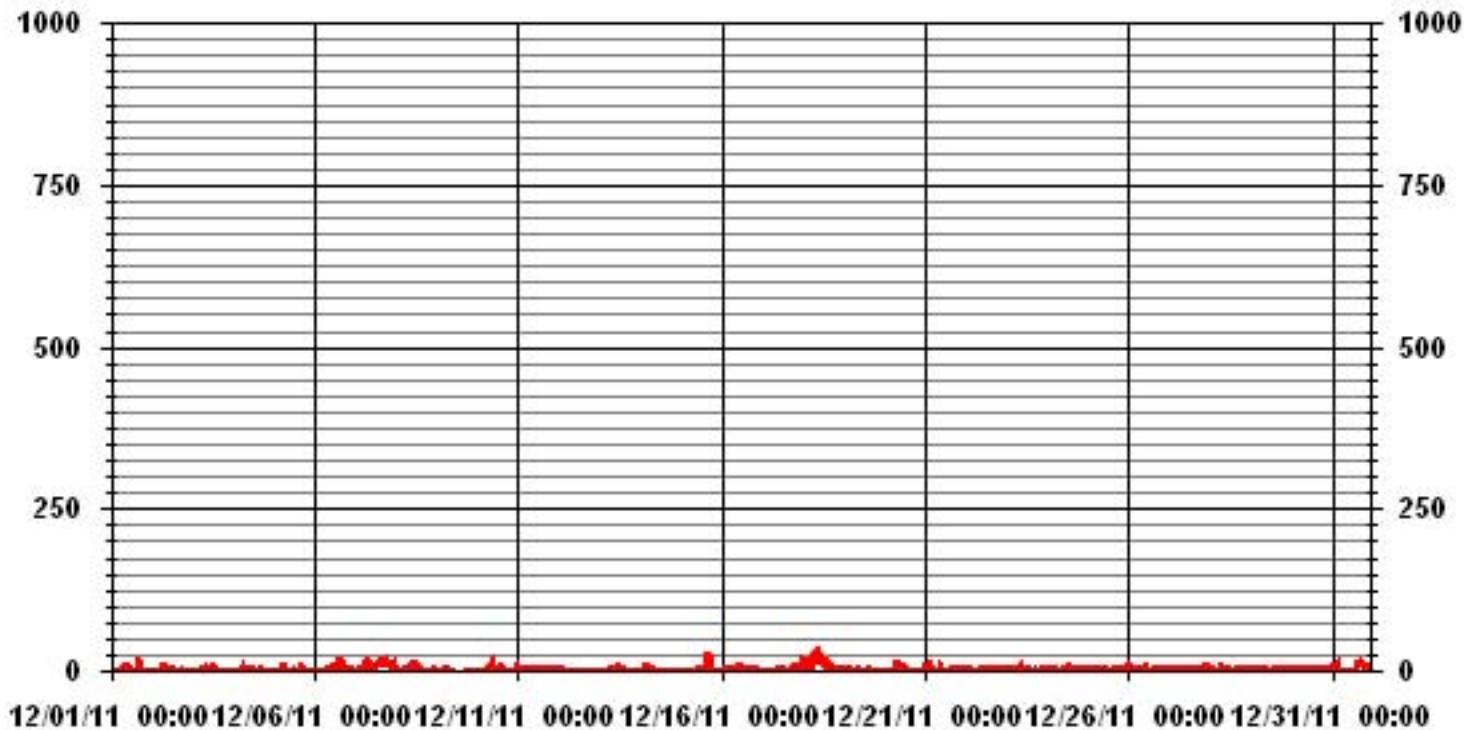
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	495					
MAXIMUM INSTANTANEOUS VALUE:	29	PPB	@ HOUR(S)	8	ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	722	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	3.92					

01 Hour Averages



— LICA30 — NOMAX — PPB

LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	705
< 110																	
< 210																	
>= 210																	
Totals	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	

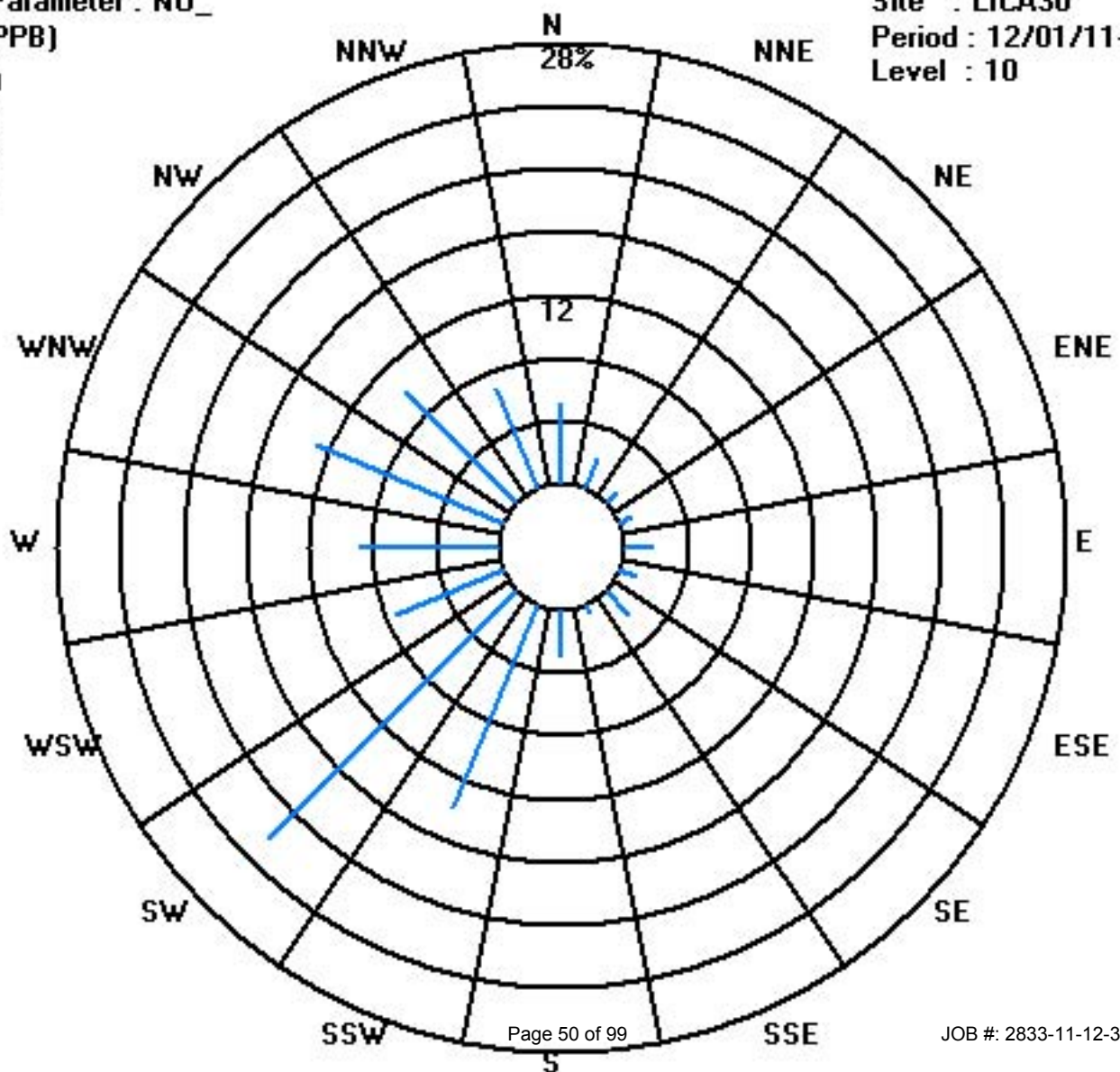
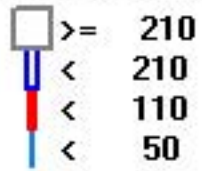
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2011
OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	6	5	6	9	8	8	8	10	13	18	18	10	9	IZS	9	9	10	9	7	5	3	3	0	0	18	8.0	24	
2	1	1	0	0	0	0	0	1	10	1	0	0	IZS	1	1	0	1	1	2	8	4	8	8	2	10	2.2	24	
3	5	7	8	5	4	5	4	6	10	9	10	IZS	10	5	1	1	0	1	2	1	2	3	3	2	10	4.5	24	
4	3	4	2	3	2	2	13	1	5	4	IZS	4	2	0	0	0	0	0	0	0	0	0	1	1	13	2.0	24	
5	1	2	3	3	3	3	4	3	4	IZS	5	6	6	6	6	8	9	10	10	10	10	10	9	8	10	6.0	24	
6	3	5	6	6	4	0	0	12	IZS	1	2	2	1	2	6	25	5	1	1	3	2	1	0	2	25	3.9	24	
7	7	2	1	1	1	8	21	IZS	12	5	4	2	10	18	15	10	23	25	23	29	21	22	24	8	29	12.7	24	
8	10	9	0	1	1	1	IZS	8	7	24	24	10	7	3	1	5	2	2	3	2	2	2	4	3	24	5.7	24	
9	3	3	3	3	4	IZS	6	6	7	10	11	C	C	C	C	C	C	9	6	3	2	2	2	6	11	5.1	24	
10	7	11	14	10	IZS	10	9	18	18	12	9	10	10	11	11	10	11	18	16	2	1	2	1	8	18	10.0	24	
11	3	1	1	IZS	1	1	1	1	2	1	1	1	1	1	1	4	6	4	2	3	2	2	3	6	6	1.9	24	
12	2	2	IZS	2	2	2	2	2	2	3	3	3	3	2	3	4	M	3	3	3	3	2	3	3	4	2.6	23	
13	3	IZS	2	2	3	4	4	8	12	9	9	12	11	10	9	11	12	10	10	8	8	7	6	6	12	7.7	24	
14	IZS	6	9	16	15	2	9	13	1	0	0	1	2	1	1	1	1	1	1	2	3	3	3	IZS	16	4.1	24	
15	2	3	3	3	2	2	5	8	5	6	5	4	4	4	10	13	10	6	8	6	5	IZS	8	13	5.5	24		
16	9	10	8	8	8	9	11	14	14	16	14	14	9	4	3	5	3	3	2	2	3	IZS	1	4	16	7.6	24	
17	8	5	5	3	6	6	8	7	6	7	6	7	8	9	9	11	10	9	5	13	IZS	14	7	10	14	7.8	24	
18	4	12	5	10	29	10	16	18	27	30	27	19	12	11	27	16	8	12	3	IZS	1	1	2	7	30	13.3	24	
19	7	3	4	5	6	6	6	6	5	5	5	5	5	5	7	12	11	10	IZS	7	13	9	8	7	13	6.8	24	
20	9	3	5	7	1	5	2	2	3	14	14	3	4	3	1	2	2	IZS	1	1	2	3	2	4	14	4.0	24	
21	6	17	26	13	6	9	8	2	4	2	2	2	2	1	1	1	IZS	2	1	1	1	4	4	3	26	5.1	24	
22	4	3	5	5	5	9	13	15	17	13	10	10	9	8	3	IZS	2	1	1	1	1	1	1	5	17	6.2	24	
23	6	5	4	3	3	3	3	5	10	7	7	10	10	13	IZS	6	5	5	2	1	1	1	1	6	13	5.1	24	
24	6	6	5	1	1	2	1	1	3	1	0	3	13	IZS	0	0	0	0	1	7	5	9	8	2	13	3.3	24	
25	4	3	3	4	4	4	4	4	3	5	5	5	IZS	8	10	8	6	5	5	6	6	6	6	6	10	5.2	24	
26	12	14	9	1	2	2	1	3	1	2	3	IZS	2	3	1	2	1	2	2	3	2	2	2	2	14	3.2	24	
27	2	2	2	5	4	4	1	1	1	1	IZS	3	3	4	4	5	6	6	2	0	0	5	11	7	11	3.4	24	
28	0	0	4	6	4	4	9	8	8	IZS	7	6	8	7	4	4	7	4	3	3	3	3	2	3	9	4.7	24	
29	3	2	2	4	5	4	5	3	IZS	2	3	2	2	4	6	7	9	7	2	1	1	1	1	2	9	3.4	24	
30	7	8	8	8	8	7	6	IZS	6	5	5	4	2	1	1	1	1	1	0	1	0	0	1	2	8	3.6	24	
31	8	12	10	12	6	4	IZS	9	5	2	1	1	1	1	6	25	7	12	20	14	12	7	4	7	25	8.1	24	
HOURLY MAX	12	17	26	16	29	10	21	18	27	30	27	19	13	18	27	25	23	25	23	29	21	22	24	10				
HOURLY AVG	5.0	5.5	5.4	5.3	4.9	4.5	6.2	6.7	7.6	7.4	7.2	5.7	5.9	5.2	5.2	6.9	6.0	6.2	4.8	4.9	4.0	4.6	4.2	4.6				

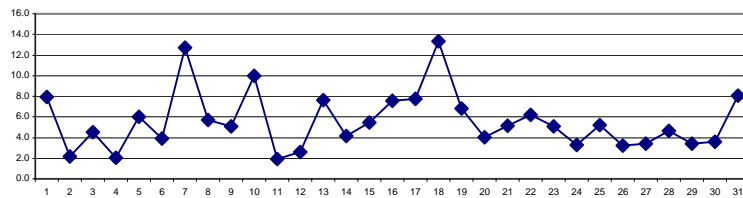
STATUS FLAG CODES

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

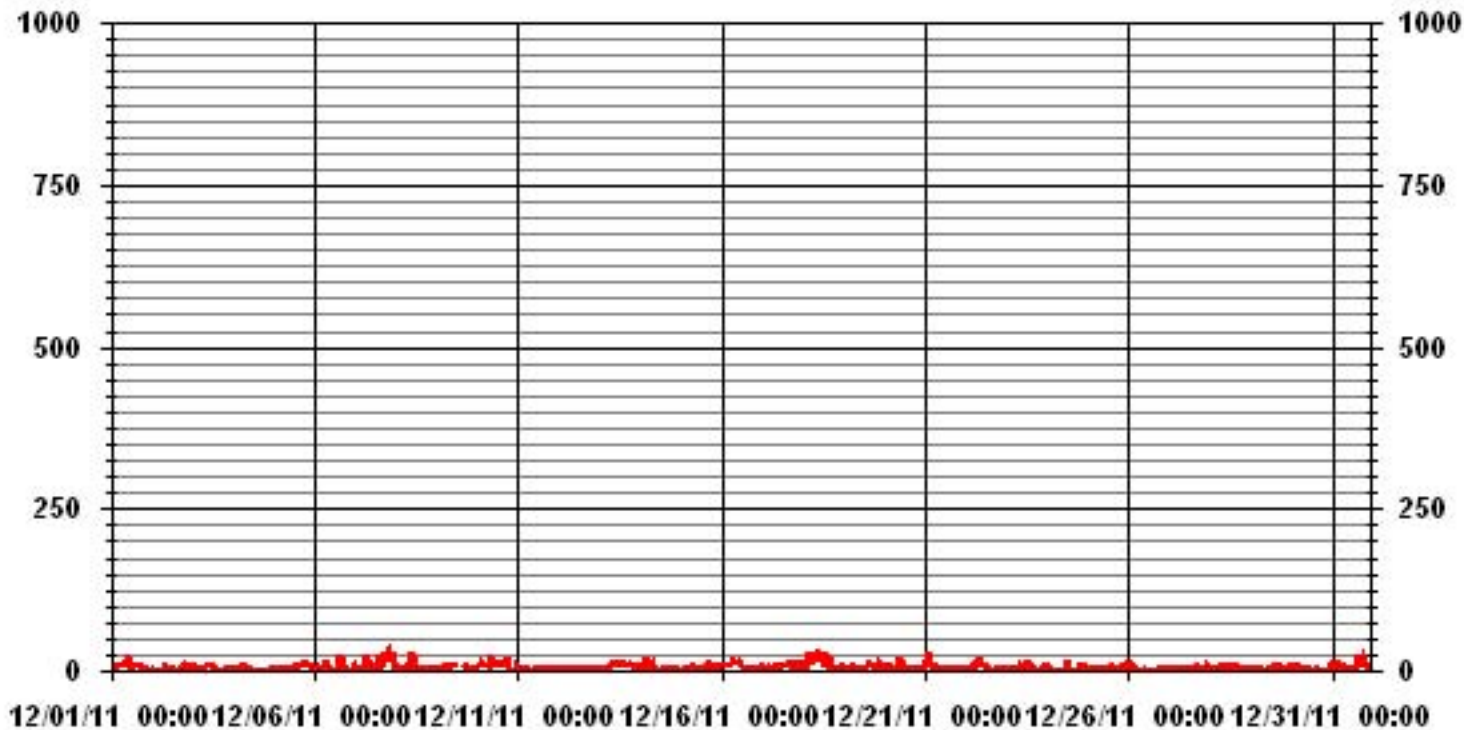
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	667					
MAXIMUM 1-HR AVERAGE:	30	PPB	@ HOUR(S)	9	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	13.3	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	5.13		MONTHLY AVERAGE:	5.58	PPB	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA30 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	7	6	8	10	9	10	11	14	16	26	26	13	11	IZS	11	10	36	12	9	7	5	6	2	0	36	11.5	24	
2	5	6	4	0	0	1	0	18	19	16	1	3	IZS	8	1	2	2	4	7	19	6	12	15	5	19	6.7	24	
3	8	12	14	10	5	7	6	8	17	10	15	IZS	22	18	2	1	1	2	4	2	4	3	3	3	22	7.7	24	
4	5	5	3	3	4	3	24	5	10	9	IZS	9	5	3	1	1	2	2	1	1	1	1	2	2	24	4.4	24	
5	2	3	3	4	3	7	22	5	5	IZS	6	8	8	7	7	10	24	10	11	11	12	11	11	12	24	8.8	24	
6	6	8	9	7	5	2	2	26	IZS	2	3	11	1	4	24	44	12	5	1	10	6	1	1	6	44	8.5	24	
7	19	4	9	1	2	16	34	IZS	36	11	7	4	23	27	27	28	45	34	35	44	34	31	38	14	45	22.7	24	
8	15	14	2	1	3	2	IZS	22	15	35	30	30	13	22	3	15	3	3	7	3	4	4	11	5	35	11.4	24	
9	4	4	4	5	5	IZS	8	7	8	12	C	C	C	C	C	C	C	C	C	8	4	3	3	4	8	12	5.8	24
10	9	15	17	12	IZS	11	11	26	38	16	16	15	15	15	19	14	15	23	24	5	2	4	3	25	38	15.2	24	
11	5	4	2	IZS	2	1	1	3	3	2	2	2	2	3	4	7	14	12	5	3	4	3	2	3	14	3.9	24	
12	2	3	IZS	2	3	3	3	3	3	8	5	4	3	3	4	5	M	5	4	3	3	3	3	3	8	3.5	23	
13	3	IZS	3	3	4	9	8	13	18	13	13	16	13	12	11	15	18	13	15	9	8	8	7	7	18	10.4	24	
14	IZS	7	15	19	29	5	19	23	6	2	1	4	4	6	2	3	1	2	2	3	4	4	3	IZS	29	7.5	24	
15	3	4	4	4	3	4	9	15	7	8	7	6	5	6	5	20	56	17	11	11	7	7	IZS	10	56	10.0	24	
16	10	11	9	9	9	10	14	16	16	18	17	20	13	6	7	12	5	3	3	2	5	IZS	2	9	20	9.8	24	
17	10	6	6	5	8	7	9	10	7	8	7	8	10	10	12	13	15	16	14	27	IZS	29	24	34	34	12.8	24	
18	27	38	26	31	39	20	36	51	56	41	44	31	21	29	39	37	15	18	7	IZS	2	2	4	10	56	27.1	24	
19	9	4	5	8	7	7	8	7	8	8	6	6	7	6	12	17	17	11	IZS	12	18	11	9	10	18	9.3	24	
20	12	5	7	10	4	12	9	10	27	32	30	7	11	13	7	4	4	IZS	2	2	3	4	3	6	32	9.7	24	
21	16	28	32	25	19	18	15	5	8	21	7	6	3	2	2	4	IZS	3	2	2	4	5	6	4	32	10.3	24	
22	5	4	6	6	7	11	17	18	23	15	14	12	12	10	10	IZS	4	3	2	4	2	2	2	9	23	8.6	24	
23	8	5	5	3	4	4	4	15	25	12	9	11	11	16	IZS	7	7	6	5	5	2	2	3	8	25	7.7	24	
24	8	7	7	4	1	3	3	4	8	2	2	12	24	IZS	1	1	1	1	3	11	6	10	11	4	24	5.8	24	
25	5	4	3	5	5	4	4	4	4	6	6	7	IZS	10	13	13	7	6	6	7	7	7	7	8	13	6.4	24	
26	29	28	28	3	5	8	3	16	2	3	19	IZS	3	10	2	3	3	2	4	4	2	2	4	4	29	8.1	24	
27	3	3	2	8	10	11	2	2	2	2	IZS	5	6	6	5	7	7	8	5	1	1	11	38	18	38	7.1	24	
28	1	2	6	7	7	8	26	16	14	IZS	10	10	9	8	6	8	8	6	5	4	4	4	3	5	26	7.7	24	
29	5	4	4	8	9	8	8	6	IZS	4	5	5	3	6	7	12	15	11	3	2	2	2	3	3	15	5.9	24	
30	13	10	11	13	9	9	7	IZS	6	6	5	5	3	3	2	1	1	2	1	1	1	1	2	5	13	5.1	24	
31	29	27	24	31	14	13	IZS	14	13	5	2	3	1	2	16	36	16	39	35	22	26	12	11	15	39	17.7	24	
HOURLY MAX	29	38	32	31	39	20	36	51	56	41	44	31	24	29	39	44	56	39	35	44	34	31	38	34				
HOURLY AVG	9.4	9.4	9.3	8.6	7.8	7.8	11.1	13.2	14.5	12.2	11.3	9.8	9.4	9.7	9.0	12.1	12.6	9.6	8.0	8.0	6.3	6.8	7.9	8.5				

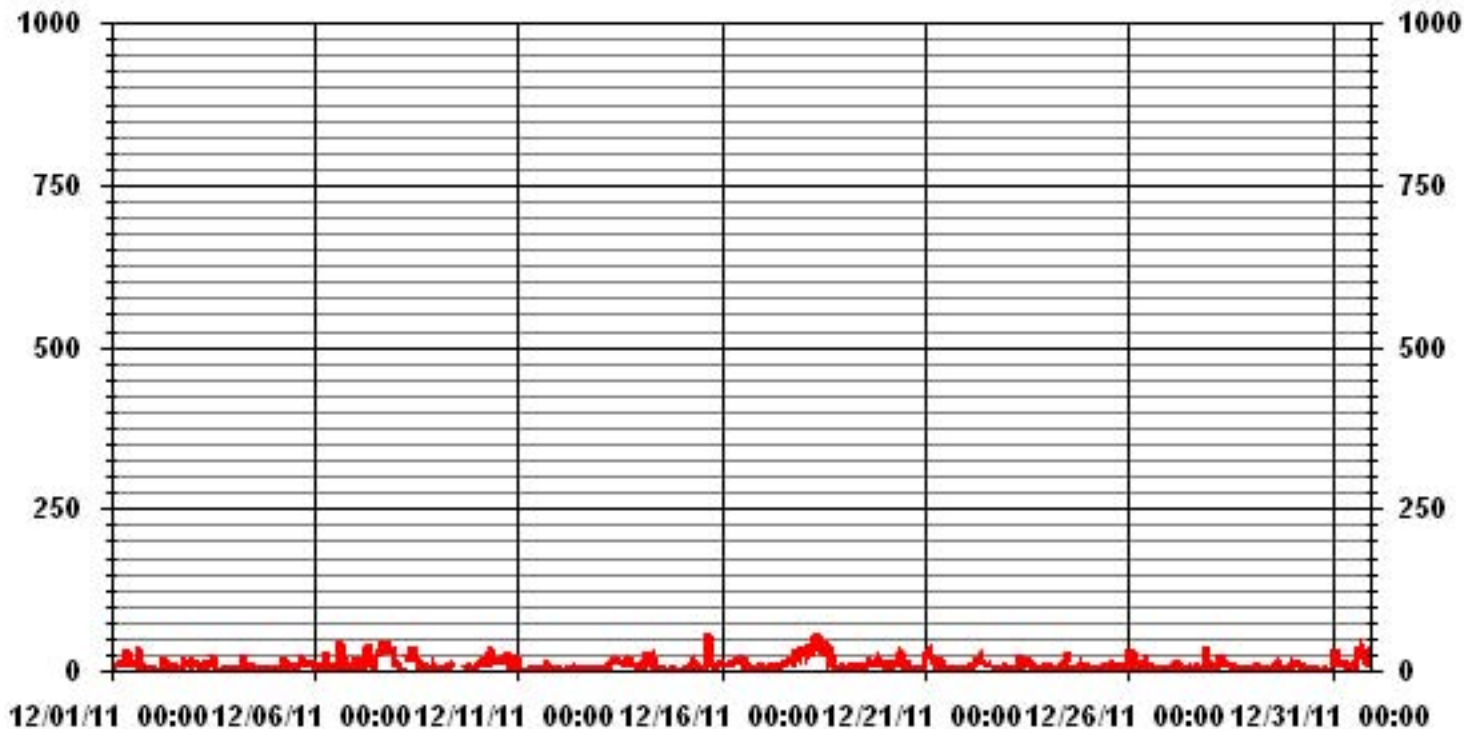
STATUS FLAG CODES

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:	699					
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	16, 8	ON DAY(S)	15, 18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	9.14					

01 Hour Averages



— LICA30 NOXMAX PPB

LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	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	5.10	2.12	.99	.85	1.84	1.13	2.12	.56	2.97	14.04	22.26	7.37	8.79	12.90	10.07	6.80	

Calm : .00 %

Total # Operational Hours : 705

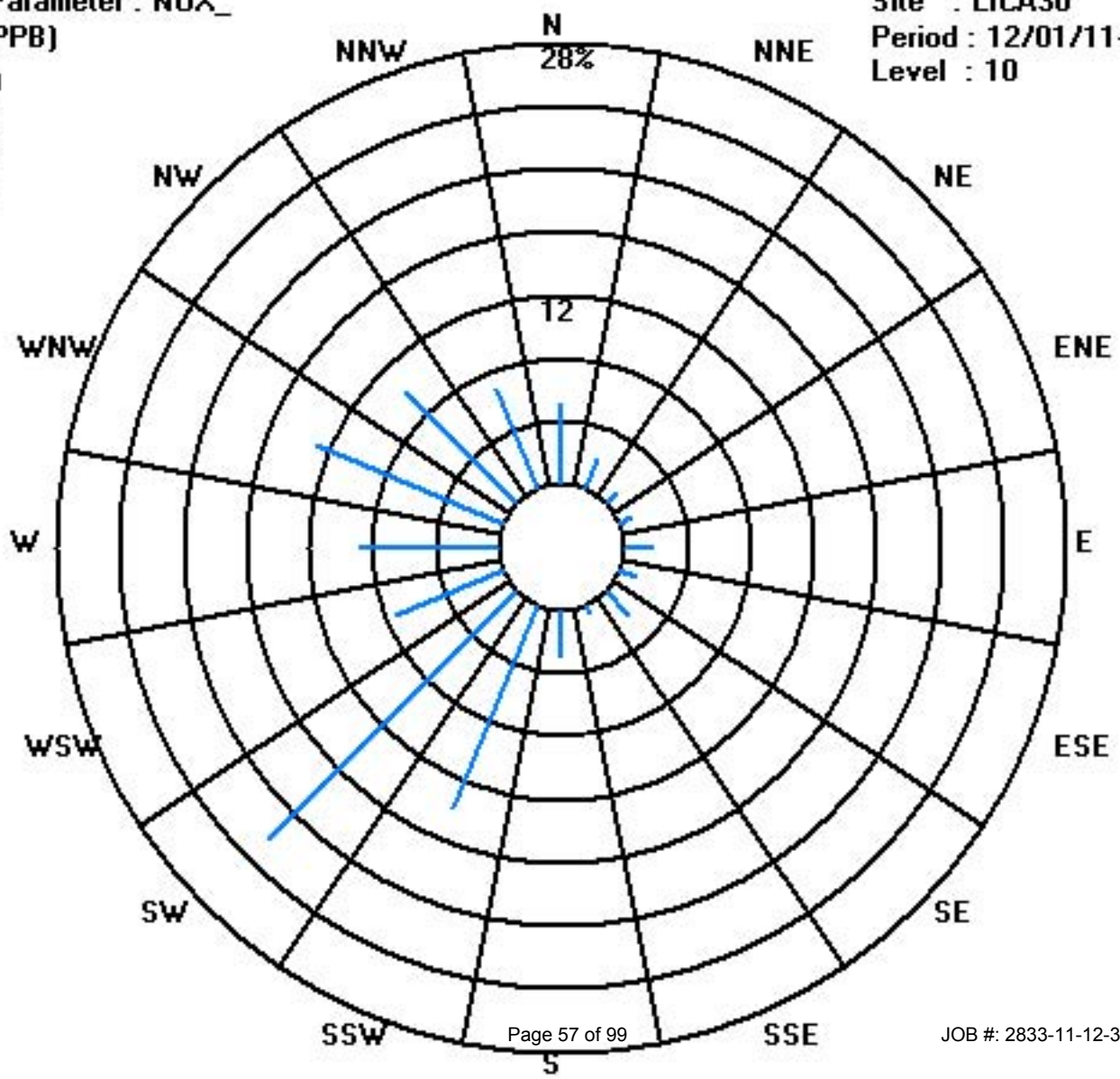
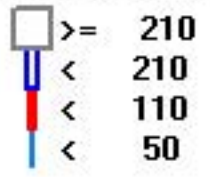
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	705
< 110																	
< 210																	
>= 210																	
Totals	36	15	7	6	13	8	15	4	21	99	157	52	62	91	71	48	

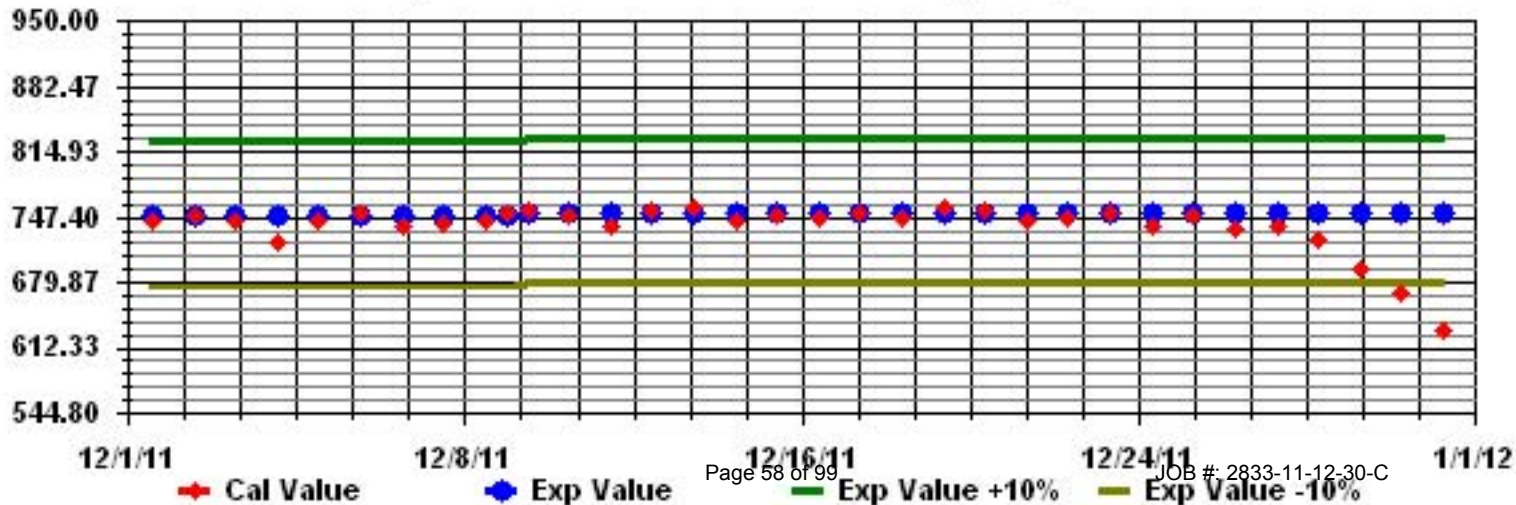
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



Temperature

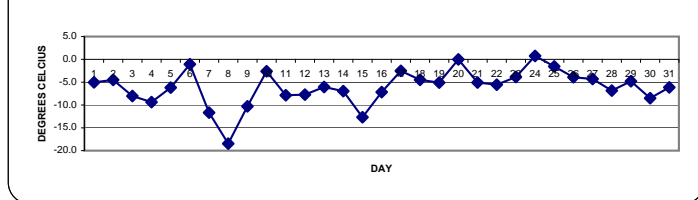
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2011
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	
DAY	HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	-10.9	-11	-10.4	-10.1	-10.1	-10.1	-10.2	-10.4	-10.3	-9.5	-7.9	-6.5	-5.2	-4.3	-3.4	-2.8	-2.4	-1.6	-0.3	1.6	2.4	3.9	4.7	3.9	4.7	3.9	4.7	-5.0	24
2	3.2	2.4	1	0.8	0.4	0.4	0.4	0.2	0.4	-2.1	-4.4	-5.3	-5.4	-5.5	-5.7	-6.8	-7.7	-8.4	-9.7	-11.3	-11.9	-13.9	-13.5	-13.5	-13.5	3.2	-4.5	24	
3	-12.2	-12.8	-11.4	-10.8	-10.6	-10.3	-9.8	-9.5	-8.9	-7.6	-6	-4.2	-3.9	-3.7	-3.6	-4.1	-5	-6	-6.7	-7.3	-8.6	-9.2	-10	-10.5	-10.5	-3.6	-8.0	24	
4	-10.8	-10.8	-10.8	-10.4	-10.3	-10.3	-10	-9.8	-9.5	-9.2	-8.6	-8.1	-7.7	-7.4	-7.5	-7.9	-8.1	-8.6	-9.1	-10.4	-9.9	-9.8	-9.9	-9.9	-9.9	-7.4	-9.4	24	
5	-9.4	-9.3	-9	-8.8	-8.8	-9.1	-9.1	-9.5	-9.7	-8.9	-7.9	-7.2	-5.7	-4.7	-4.4	-4.4	-4.2	-4.1	-3.9	-3.2	-2.5	-1.9	-1.5	-1.5	-1.3	-1.3	-6.2	24	
6	-0.3	-0.5	0.3	0.9	1.3	5.2	5.9	5.6	4.1	1.4	-0.4	-0.7	-0.8	-1	-1.2	-2	-3.4	-3.7	-3.6	-3.7	-4.8	-6.5	-8.4	-9.4	5.9	-1.1	24		
7	-11.1	-11.8	-11.8	-11.1	-10.2	-9.7	-10.1	-10.7	-10.9	-10.8	-9.8	-9.2	-8.9	-9.1	-9.7	-11.4	-12.3	-12.8	-13.3	-13.7	-14.3	-15	-15.8	-16.5	-16.5	-8.9	-11.7	24	
8	-17.1	-17.8	-19.2	-19.4	-19.1	-19.7	-20.1	-20.8	-20.4	-17.8	-15.2	-13.1	-11.8	-11.3	-12.3	-14.1	-16.8	-19.2	-20.9	-22.2	-23.2	-23.7	-23.8	-24.1	-11.3	-18.5	24		
9	-23.3	-23.1	-21.4	-17.4	-16.4	-15.5	-14.7	-14.3	-13.3	-12.2	-10.9	-7.9	-3.4	-2.1	-2.7	-3.8	-4.7	-4.9	-5.4	-6.4	-6.3	-5.9	-5.9	-5	-5	-2.1	-10.3	24	
10	-4.6	-4.2	-3.9	-4.1	-3.7	-4.7	-5.4	-5.5	-5.8	-5.6	-3.7	-2.3	-0.4	1.8	0.6	-0.1	-2.2	-3.1	-3	-1.7	0	-0.2	-0.2	-0.4	1.8	-2.6	24		
11	-2	-5	-6.6	-6.8	-7	-7.6	-8.5	-9.1	-9	-9	-8.9	-8.1	-7.6	-7.5	-7.7	-8	-8.1	-8.4	-8.5	-8.7	-9	-9.1	-9.3	-9.2	-2.0	-7.9	24		
12	-9.2	-9.6	-9.8	-9.6	-9.5	-9.3	-9.1	-9	-8.8	-8.4	-7.9	-6.4	-6.1	-5.3	-5.5	-6.2	-6.8	-7.2	-7.1	-6.8	-6.9	-6.9	-6.8	-7.2	-5.3	-7.7	24		
13	-7.8	-7.7	-7.7	-7.9	-8.2	-8.5	-8.6	-9.3	-9.7	-9.6	-8.1	-7.3	-4.6	-2.7	-3.2	-3.6	-3.8	-3.6	-3.6	-4	-4.2	-3.9	-3.9	-3.7	-2.7	-6.1	24		
14	-3.9	-4.9	-5.3	-4.4	-2.9	-2.9	-3.6	-4.2	-4.4	-4.3	-4.1	-4.2	-4.9	-5.2	-5.7	-7.3	-8.8	-10.1	-12.5	-14	-13	-12.2	-12	-12.1	-2.9	-7.0	24		
15	-12.6	-13.2	-12.5	-12.2	-11.9	-11.6	-11.6	-11.8	-11.5	-10.7	-9.7	-9.3	-8.4	-7.9	-8.2	-10.2	-12.6	-14.5	-15.6	-17.3	-18	-18.7	-18.4	-15.9	-7.9	-12.7	24		
16	-12.5	-12	-11.1	-11.3	-11.2	-10.6	-10.3	-9.9	-9.8	-9.6	-7.3	-4.5	-2.1	-0.5	-1.1	-3.2	-4.4	-5.1	-5.2	-5.3	-6.3	-6.8	-5.9	-6.1	-0.5	-7.2	24		
17	-6.5	-7.6	-8.5	-8.1	-6.3	-5	-4.4	-4.2	-4.1	-2.5	-1.9	-1.3	-0.9	0.4	0.9	-0.9	-1.4	-0.4	0.6	1.5	0.6	0.4	-0.4	-0.6	1.5	-2.5	24		
18	-0.9	-1	-1.2	-1.7	-2.1	-2.9	-3.7	-4.6	-4.9	-4.5	-2.9	-2.4	-1.7	-1.4	-2.1	-3.8	-5.1	-6.3	-7.3	-8.2	-8.8	-10.1	-9.7	-10.4	-0.9	-4.5	24		
19	-10.4	-10.9	-11.4	-11.7	-11	-10.5	-9.9	-9.1	-7.9	-5.5	-4.3	-3.7	-2.9	-2.1	-1.8	-1.2	-1.7	-2	-1.6	-1.1	-1.4	-0.8	-0.1	0.6	0.6	-5.1	24		
20	0.7	1	0.6	1.1	3.9	3.4	3.1	3.2	3	3.2	2.4	1.8	2.5	2.6	1.1	-0.1	-2	-2.5	-3	-3.8	-4.6	-5.6	-6.4	3.9	0.0	24			
21	-6.6	-6.4	-6	-5.7	-5.3	-5.1	-5.6	-5.5	-5.3	-4.3	-3.8	-3.4	-2.5	-1.8	-2.1	-2.9	-3.6	-4.6	-5.2	-6.1	-7	-7.6	-7.5	-8	-1.8	-5.1	24		
22	-7.9	-7.2	-7.3	-7.9	-8	-7.6	-7.2	-7.5	-7.3	-6.6	-5.2	-3.9	-3	-2.6	-1.9	-1.3	-2.3	-3.5	-4.8	-5.2	-6.2	-6.2	-6.3	-6.4	-1.3	-5.6	24		
23	-6.7	-6.8	-8.3	-8.8	-8.1	-11.4	-9.8	-8.4	-6.5	-6.7	-5.1	-3.5	-1.5	0	1.2	0.2	0	-0.1	-0.3	0.3	-0.8	-0.8	0	-1	1.2	-3.9	24		
24	-1.2	-1.1	-0.9	0.4	1.3	1.1	0.5	0.5	-0.7	0.4	3.8	5.2	5.6	5.8	5.1	2.7	0.8	-0.3	-0.7	-1.2	-1.4	-2.4	-2.7	-2.7	5.8	0.7	24		
25	-2.9	-2.3	-0.8	-0.2	-0.7	-1.7	-2.3	-2.5	-3.1	-2.1	-1.5	1	0.9	0.6	0.5	1.1	0.4	-0.8	-3.5	-3.9	-3.5	-3.8	-3.6	-2.4	1.1	-1.5	24		
26	-1.3	-1.6	-1.9	0.3	1.7	1.8	0.9	-0.1	-2.2	-3.3	-3.8	-4.6	-5	-5	-4.7	-5.5	-8.3	-8.4	-7.3	-7.1	-7.4	-7.2	-7.4	-6.6	1.8	-3.9	24		
27	-6.7	-6.8	-6.9	-6.7	-5.6	-4.6	-4.3	-4.2	-4.4	-4.3	-3.7	-3.1	-2.9	-2.4	-2.4	-2.7	-4.2	-4.9	-4.9	-4.2	-2.8	-2.6	-3.2	-4.7	-2.4	-4.3	24		
28	-5.9	-6.5	-7.5	-9	-9.8	-10.6	-11	-9.5	-9.5	-9.2	-8	-6.5	-5.9	-4.9	-4.4	-4.6	-5	-5	-5	-4.9	-5	-5.3	-5.4	-5.8	-4.4	-6.8	24		
29	-5.8	-5.9	-5.9	-6.2	-5.5	-5.3	-5.4	-5.4	-5.4	-5.7	-5.7	-5.4	-5	-4.8	-4.6	-4.5	-4.9	-4.8	-2.6	-2	-2.4	-2.8	-3.8	-5.3	-2.0	-4.8	24		
30	-6.1	-7.8	-8.3	-9.3	-10.4	-13	-14.3	-14.9	-14.8	-13.2	-11.2	-8.7	-7.3	-6.3	-6	-5.9	-5.7	-5.4	-5.3	-5.6	-5.9	-6	-6.1	-6.5	-5.3	-8.5	24		
31	-6.2	-5.7	-5.5	-5.5	-5.6	-5.8	-6.3	-5.9	-5.8	-5.6	-4.6	-3.9	-3.4	-4.3	-4.6	-5.5	-5.9	-6.4	-7	-7.3	-8.2	-8.4	-9.4	-10.5	-3.4	-6.1	24		
HOURLY MAX	3.2	2.4	1.0	1.1	3.9	5.2	5.9	5.6	4.1	3.2	3.8	5.2	5.6	5.8	5.1	2.7	0.8	-0.1	0.6	1.6	2.4	3.9	4.7	3.9					
HOURLY AVG	-7.1	-7.4	-7.4	-7.1	-6.8	-6.8	-6.9	-7.0	-7.0	-6.6	-5.7	-4.7	-3.9	-3.3	-3.4	-4.2	-5.1	-5.7	-6.0	-6.2	-6.5	-6.7	-6.9	-7.0					

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

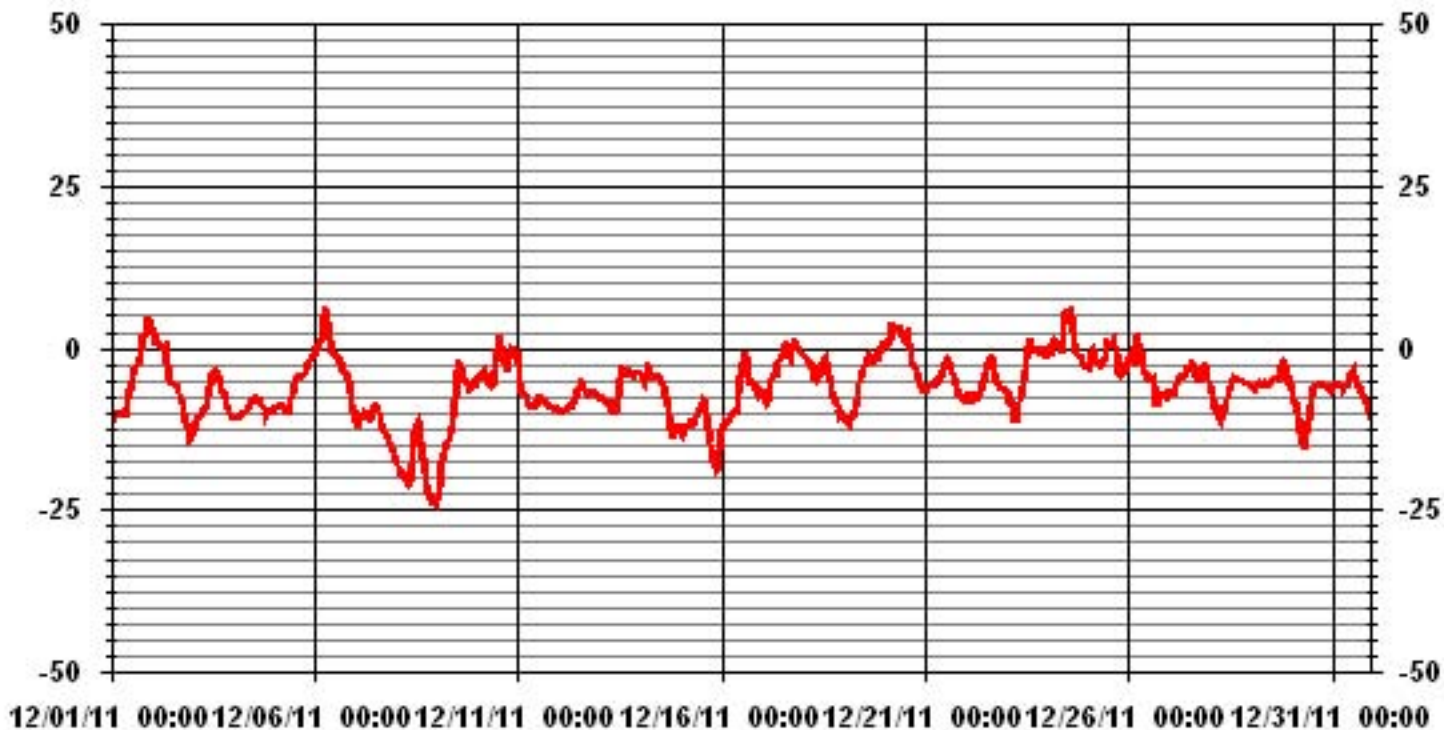
24 HOUR AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-24.1 °C	@ HOUR(S)	23	ON DAY(S)	8
MAXIMUM 1-HR AVERAGE:	5.9 °C	@ HOUR(S)	6	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	0.7 °C			ON DAY(S)	24
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS		
STANDARD DEVIATION:	4.96	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-6.05 °C		

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2011
PRECIPITATION hourly averages (mm)

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

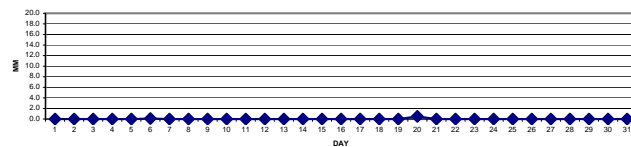
STATUS FLAG CODES

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

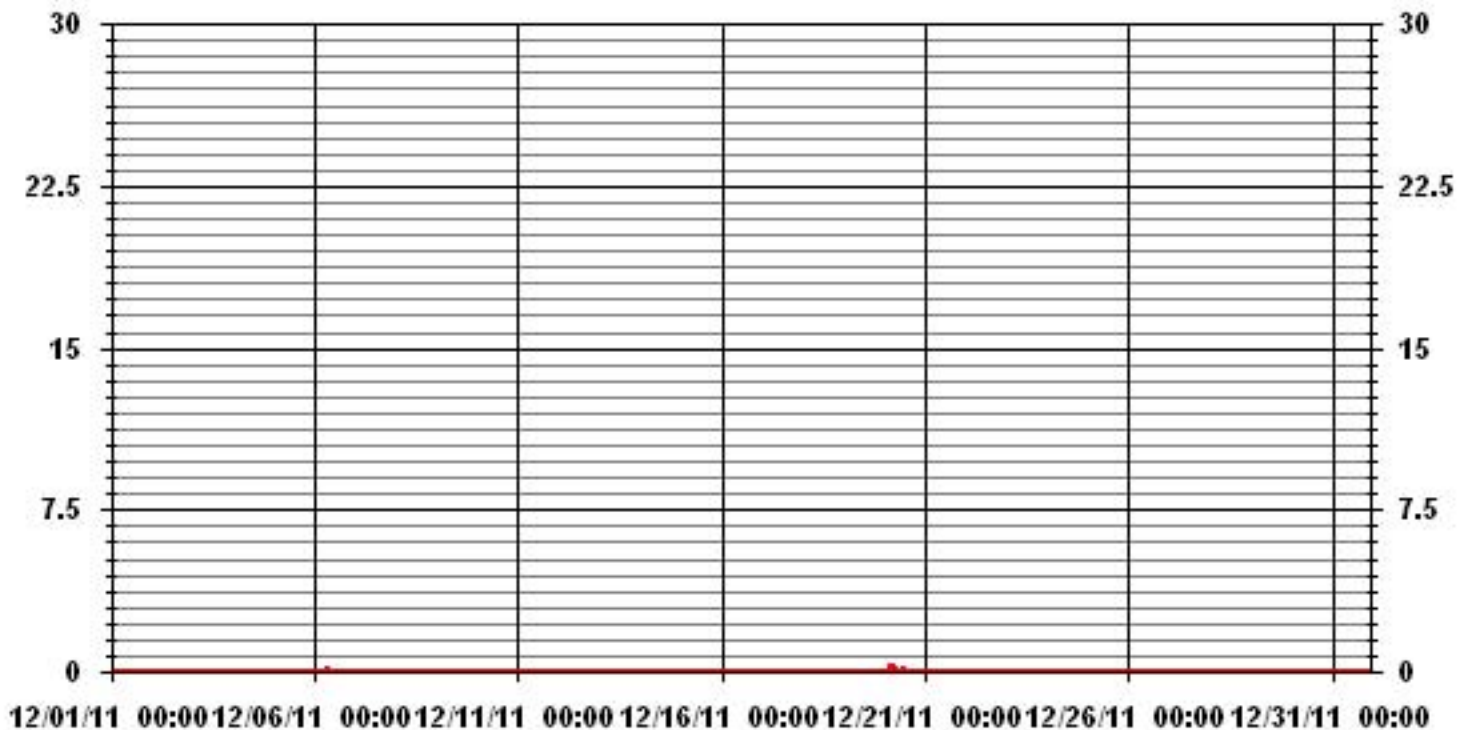
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.2	MM	HOUR(S)	4, 5	ON DAY(S)	20
MAXIMUM DAILY TOTAL	0.5	MM			ON DAY(S)	20
MONTHLY TOTAL	0.6	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.01		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.00	MM	

DAILY TOTALS FOR DECEMBER 2011



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

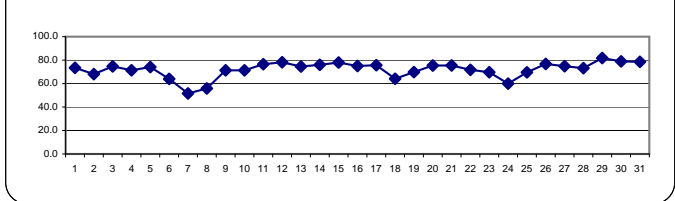
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	82	82	83	83	83	82	82	82	81	81	79	77	76	77	76	76	76	75	71	62	58	48	44	47	83	73.5	24	
2	50	57	75	74	70	68	69	72	69	64	65	70	63	60	61	63	64	67	68	72	76	77	80	80	80	80	68.1	24
3	78	78	78	77	78	78	78	78	79	77	76	75	73	73	70	71	72	73	75	71	74	73	71	66	79	74.7	24	
4	64	68	69	66	67	70	74	75	74	73	72	70	69	69	70	72	71	71	73	75	74	75	76	76	76	76	71.4	24
5	77	77	76	75	74	74	74	75	75	72	70	71	69	68	69	71	72	74	76	77	78	78	78	78	78	78	74.1	24
6	76	77	75	74	72	60	58	60	68	75	71	63	56	57	59	59	60	62	64	60	57	54	60	59	77	64.0	24	
7	61	65	63	65	70	66	66	68	69	64	56	49	41	40	37	38	41	41	40	39	39	39	41	40	70	51.6	24	
8	41	42	45	49	52	56	61	66	70	68	59	49	42	38	38	43	51	59	64	68	70	70	70	69	70	55.8	24	
9	69	69	71	70	68	70	69	71	73	72	72	69	61	61	63	68	71	74	76	80	81	79	79	76	81	71.3	24	
10	75	73	73	74	73	76	79	79	80	80	75	73	69	61	64	63	69	72	71	67	63	65	67	71	80	71.3	24	
11	73	72	73	74	75	76	77	78	77	78	78	77	74	74	74	75	76	77	78	78	79	80	81	82	82	82	76.5	24
12	83	83	83	83	83	83	83	83	83	83	82	77	72	68	69	72	74	77	77	77	76	75	75	76	83	78.2	24	
13	78	77	77	77	78	79	79	80	81	80	74	71	63	59	62	64	66	65	66	76	83	85	85	84	85	74.5	24	
14	79	80	79	83	80	76	78	78	76	76	74	71	67	64	64	69	74	77	81	82	80	79	79	79	83	76.0	24	
15	79	79	79	79	79	79	80	80	80	80	79	76	77	76	75	75	79	81	80	78	76	76	75	76	78	81	78.0	24
16	81	81	81	81	81	81	81	81	82	82	80	75	70	60	59	64	68	70	71	71	74	76	75	75	82	75.0	24	
17	77	81	83	83	79	77	76	76	78	71	68	67	67	65	63	70	75	81	82	79	81	79	80	79	83	75.7	24	
18	77	73	67	64	63	63	66	68	67	63	57	54	51	50	53	57	60	63	64	67	69	75	73	75	77	64.1	24	
19	75	75	79	83	82	80	77	75	72	67	63	60	58	57	59	60	63	65	67	67	70	72	74	75	83	69.8	24	
20	76	75	75	73	69	77	75	73	71	74	80	82	74	67	71	76	81	82	80	79	75	76	74	75	82	75.4	24	
21	75	77	76	75	75	77	79	81	80	79	77	75	66	63	65	67	71	74	77	80	82	82	83	83	83	75.5	24	
22	82	79	78	79	78	76	74	73	71	69	64	61	61	61	60	58	61	65	70	72	78	81	85	85	85	71.7	24	
23	84	84	84	83	82	80	81	81	81	81	76	71	63	58	53	55	55	55	58	59	62	63	60	63	84	69.7	24	
24	64	63	62	60	60	61	62	63	66	62	54	50	47	45	47	54	58	60	61	63	64	69	72	73	73	60.0	24	
25	73	70	62	57	60	66	69	71	73	71	70	63	65	65	65	63	67	71	78	79	78	79	79	76	79	69.6	24	
26	71	70	70	66	64	66	79	80	78	76	76	75	76	76	75	76	83	84	83	83	84	83	84	84	84	76.8	24	
27	84	84	84	84	84	81	80	79	80	80	77	75	73	71	75	78	81	83	74	53	48	61	63	64	84	74.8	24	
28	65	65	68	70	69	70	73	68	68	70	67	59	68	73	75	78	79	79	79	80	81	83	84	85	85	73.2	24	
29	86	87	86	86	86	86	86	86	86	86	85	86	86	86	86	86	86	86	85	78	72	69	66	64	87	81.8	24	
30	68	72	71	71	75	79	80	78	79	77	77	76	73	75	83	84	85	85	85	85	84	84	84	84	85	85	78.9	24
31	84	83	82	82	83	83	82	81	82	83	81	78	73	73	77	79	76	73	76	77	74	74	75	74	84	78.5	24	
HOURLY MAX	86	87	86	86	86	86	86	86	86	86	86	85	86	86	86	86	86	86	85	85	84	84	85	85	85	85		
HOURLY AVG	73.8	74.1	74.4	74.2	73.9	74.0	75.0	75.4	75.8	74.6	72.0	69.3	66.2	64.3	65.0	67.3	69.8	71.5	72.2	71.7	72.1	72.7	73.2	73.5				

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

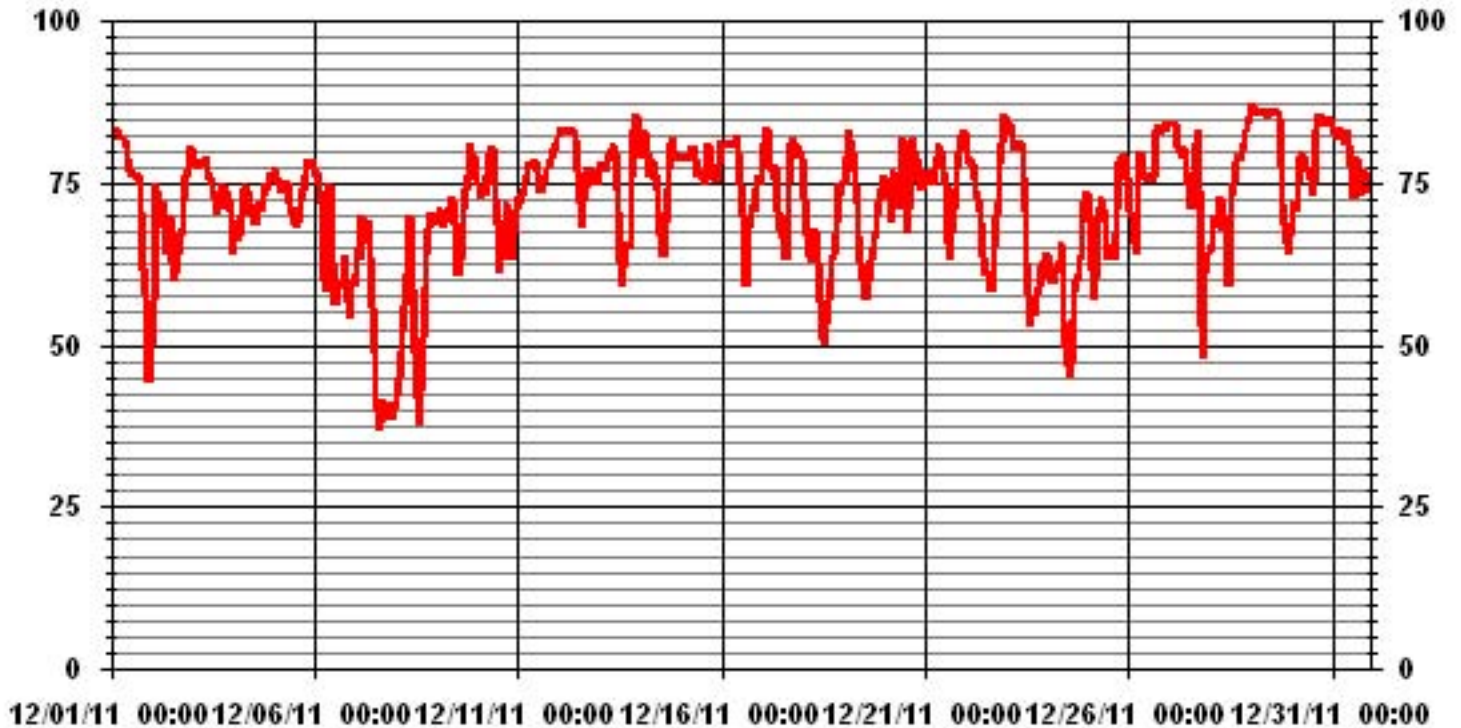
24 HOUR AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	87	%	@ HOUR(S)	1	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	81.8	%			ON DAY(S)	29
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	9.74		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	71.92	%	

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

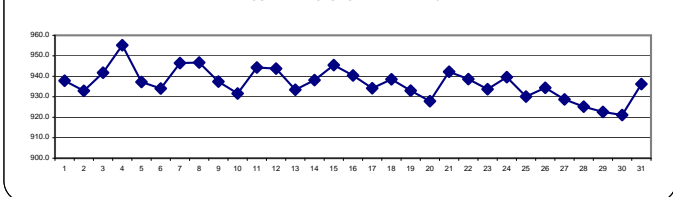
BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	952	952	950	949	948	947	946	945	944	943	942	941	939	937	935	933	931	929	928	925	924	923	923	922	952	937.8	24	
2	2	922	923	923	924	924	924	924	925	926	928	931	933	934	936	938	939	940	941	942	943	943	943	942	942	943	943	932.9	24
3	3	941	941	941	940	939	938	938	937	937	937	937	938	938	939	940	942	943	945	946	947	948	949	950	951	951	941.8	24	
4	4	952	953	954	956	956	957	957	958	958	958	958	958	958	957	957	956	956	955	954	953	952	951	951	949	958	955.2	24	
5	5	948	947	946	945	944	943	942	942	941	940	939	938	937	936	935	934	933	932	931	930	929	928	927	926	948	937.2	24	
6	6	925	924	924	924	924	924	925	927	929	932	934	936	937	938	938	939	939	940	940	941	943	944	945	945	945	945	934.0	24
7	7	945	945	945	945	945	945	945	946	946	947	947	947	946	946	946	947	947	947	947	948	948	948	948	948	948	948	946.5	24
8	8	948	947	947	947	947	946	946	946	946	947	947	947	946	946	946	946	947	947	947	947	948	947	947	946	948	946.7	24	
9	9	945	945	944	943	942	940	939	938	937	936	935	935	935	935	935	934	935	935	935	935	935	935	935	935	935	935	937.4	24
10	10	935	934	934	933	933	933	932	932	931	930	930	930	930	930	930	930	930	930	931	931	931	932	932	934	935	931.6	24	
11	11	935	936	938	939	940	941	942	943	943	944	945	946	946	946	946	947	948	948	948	948	948	948	948	949	949	949	944.3	24
12	12	949	949	949	949	948	948	947	947	947	946	945	945	943	942	941	940	940	939	939	938	937	937	936	949	943.8	24		
13	13	936	935	935	935	935	935	935	935	934	934	935	934	934	934	934	933	933	932	932	932	931	930	929	930	936	933.4	24	
14	14	929	929	929	930	931	932	933	935	936	937	938	939	939	940	941	942	943	943	944	944	945	945	945	946	946	938.1	24	
15	15	946	946	945	945	945	944	944	944	944	945	945	946	946	946	945	945	946	946	946	946	946	946	946	946	946	946	945.5	24
16	16	945	944	944	943	942	941	940	939	939	939	939	939	939	939	939	939	939	940	940	940	940	940	940	941	945	940.4	24	
17	17	941	941	940	940	939	939	938	937	936	935	934	933	932	932	931	930	930	930	930	930	930	930	931	941	934.2	24		
18	18	931	931	932	932	933	934	934	935	936	937	938	939	940	940	941	942	943	943	944	944	944	944	944	944	944	944	938.5	24
19	19	943	942	942	941	940	939	937	936	935	934	933	932	931	930	929	929	928	929	929	928	927	926	926	926	943	933.0	24	
20	20	925	924	924	924	924	924	924	924	924	926	926	927	927	928	928	929	929	930	931	932	933	934	935	936	936	927.8	24	
21	21	938	938	939	940	941	942	942	943	943	944	944	944	944	944	943	943	942	942	943	943	943	943	943	942	944	942.2	24	
22	22	942	941	940	940	939	938	938	938	938	938	938	938	938	938	938	938	938	939	939	939	938	938	938	938	942	938.6	24	
23	23	938	937	937	936	935	934	933	933	933	932	932	932	932	932	932	932	933	933	933	934	934	934	935	938	933.7	24		
24	24	935	935	935	936	936	936	936	936	936	937	938	940	941	942	943	943	943	944	944	944	943	943	942	944	939.6	24		
25	25	941	940	939	937	936	935	934	933	932	932	931	931	930	929	927	926	926	925	923	923	923	922	923	924	941	930.1	24	
26	26	924	924	925	926	927	928	928	930	933	935	937	938	939	939	940	941	941	940	940	939	939	938	937	937	941	934.4	24	
27	27	936	935	934	933	932	930	929	928	928	927	927	926	926	926	926	927	927	927	927	927	927	927	928	928	936	928.7	24	
28	28	928	927	927	926	926	925	925	925	925	924	925	925	925	925	926	926	926	926	925	925	924	923	923	922	928	925.2	24	
29	29	921	920	920	919	919	919	919	919	919	920	921	922	922	923	923	924	925	926	926	927	927	927	927	927	927	927	922.6	24
30	30	927	927	927	927	925	925	924	923	923	922	922	921	919	918	917	917	917	917	917	917	917	918	919	920	927	921.1	24	
31	31	921	922	924	925	927	929	930	932	933	934	935	935	936	937	938	940	942	944	945	946	947	948	949	950	950	936.2	24	
HOURLY MAX		952	953	954	956	956	957	957	958	958	958	958	958	958	957	957	956	956	955	954	953	952	951	951	951				
HOURLY AVG		937	937	937	936	936	936	936	936	936	936	936	937	936	936	936	937	937	937	937	937	937	937	937	937				

STATUS FLAG CODES

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

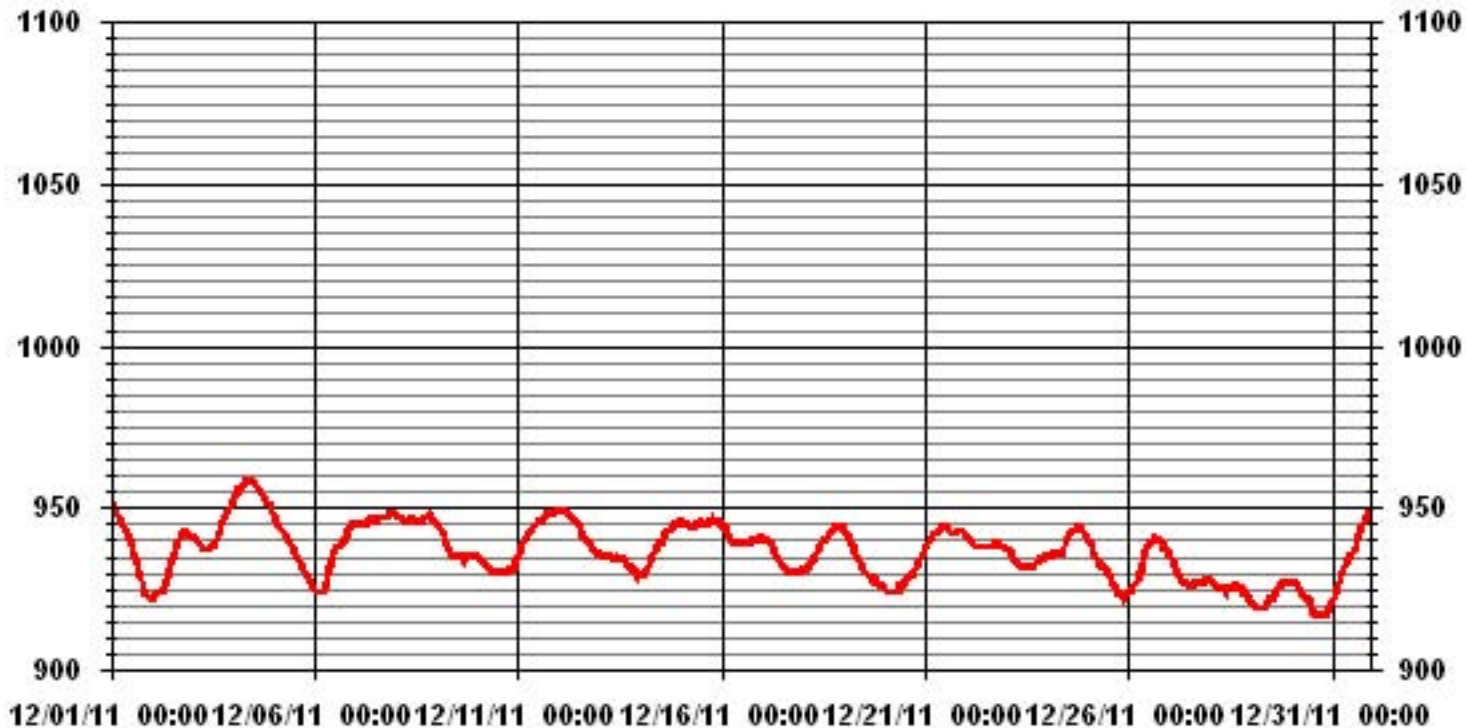
24 HOUR AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	958	MB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	955.2	MB			ON DAY(S)	4
VAR-VARIOUS						
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	8.67		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	937	MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		5.2	4.3	6.8	6.5	4.8	5.5	4.2	4.3	5.5	5.3	5.4	5.3	6	5.4	7.3	7.4	6.7	8.3	7.9	5.9	6.3	8.6	15.9	14.9	15.9	6	24	
2		16.3	16.9	12.7	13	14.2	13.8	12.3	11.6	11.4	15.3	13.5	12.5	13.5	13.8	12.3	11.4	9.3	6.3	5.5	2.7	3.7	1.4	0.5	3.6	16.9	9.5	24	
3		4.4	3.5	4.9	5.7	4.7	6.1	5.9	5	3.4	3.1	2.9	6.6	6.9	6.1	8.5	8.2	8.4	8.1	7.7	9.7	7	7.1	6.7	6.5	9.7	3.3	24	
4		6.6	5.1	5.4	5.7	5.5	4.5	5.1	3.8	5	5.1	4.7	3.4	3.7	3	2.5	2.1	2	3.2	4.9	4.3	7.2	5.6	8.3	7.1	8.3	2.8	24	
5		6.5	6.1	7.9	7	7.9	7.4	9.6	6.2	7.1	8	9.1	6	8.3	8.8	5.3	8.5	9.1	6.6	5	6.1	6.4	6.5	6.3	5.9	9.6	7	24	
6		6.5	7.3	7.9	7.9	6.5	8.3	10.4	12.5	11.6	12.3	9.5	9.6	10.2	8	7.4	6.8	5.3	5.5	7.6	11.8	11.8	10.2	7.3	6.2	12.5	6.8	24	
7		1.7	2.7	2.5	3.1	4.6	8.7	8.8	9	10.2	9.5	11.6	13.3	16.6	17.2	15.5	11.2	9.4	10.8	11.1	12.5	11.1	9.1	7.8	7.9	17.2	9.3	24	
8		7.9	6.2	2.7	3.6	3.4	3	2	1.6	4.2	4.5	5.3	6.6	4.9	4.5	5.8	3.5	2.7	0.5	0	0	0.5	0.3	0.1	0	7.9	2.8	24	
9		0.1	0.2	0.3	4.8	6.5	5.6	6.5	3.9	2.9	4.7	6.6	6.1	5.9	4.9	4.3	3.1	3.9	4.9	3.2	1.4	2	2.1	3.1	5.1	6.6	3.4	24	
10		2.9	6.9	4	2.7	5	0.4	1.1	0.1	0	0.4	0.9	1.3	0.2	1.7	1.1	4.7	5.2	5.2	4.7	5.2	7.3	7.3	7.6	9.1	9.1	2.6	24	
11		9.7	9	8.9	6.7	7.4	7.6	6.2	3.8	4.7	6.6	6.4	7	4.2	3.3	2.2	1.3	2.4	1.7	2.2	3.5	2.8	1.9	3	4.4	9.7	3.5	24	
12		5	5.1	4.4	7.2	6.4	4.6	4.9	5	5.9	6	7	7.3	10.9	12.6	11.2	10.5	9.9	10	13.4	15	13.6	12.3	12	15.5	15.5	8.8	24	
13		15.4	14.6	11.4	8.3	6.7	6	6.3	5.8	4.3	3.3	6.2	3.3	4.2	4.4	3	2.4	1.6	4.2	4.2	4	1.4	2.7	1.2	5.1	15.4	5	24	
14		6.8	4	3.7	8.9	11	10.5	9.5	9.1	7.3	6	6.2	7.1	9	8.3	8.2	5.8	3.5	2.8	1.5	1.1	3.4	2.2	2.4	1.6	11	4.9	24	
15		1.8	0.4	0.1	0.3	0.3	0.4	1.1	0.9	0.5	0.2	0	0.4	1.5	4	3.1	1.2	0.3	0.1	0.1	0.2	0.1	0.1	1.8	2.6	4	0.6	24	
16		3.7	5.4	7.8	5.3	6.6	8	7.9	6.4	3.1	5.3	5.6	5.4	6.3	9.5	7.7	4.4	4	3	4.7	3.6	4.3	3.5	3.9	5	9.5	4.7	24	
17		3.9	2.2	0.2	3.6	4.8	4.9	1.6	0.2	0.3	2.6	4.4	5.1	6.7	5.9	5.3	4.9	3.3	5.2	3.8	7.2	5.4	5.1	5.4	5.9	7.2	2.8	24	
18		6.1	6.3	7.2	7.4	7.1	7.4	5.9	6.4	6.6	7.5	8.1	10.3	9.3	8.2	8.4	7.2	6.7	4.9	4.3	2.6	1.7	4.6	6.5	10.3	6.1	24		
19		6.4	6.4	8	7.5	7.2	8.6	12	10.6	8.6	8.4	8.8	9.9	8.4	6.7	6.4	6.2	4.6	5.2	3.8	5.6	4.1	5.1	4	4.3	12	6.8	24	
20		6.4	6.3	4.5	5.9	12.1	12.4	8.1	10.5	9.7	11.5	7.3	4.7	5.1	5.8	5	3.2	1.9	4.2	5.7	7.6	10.2	5.8	3.9	4.5	12.4	4.9	24	
21		3.4	5.1	6	5.5	7.6	5.6	2.4	3	3.8	4.9	4.8	3.2	5.4	9	6.4	4.8	5	4.6	4.8	2.8	3.9	5.8	6.1	5.3	9	4.3	24	
22		6.4	9	7.1	7.7	7.5	6.4	5.1	6	5.6	4.9	4.9	5.1	4.2	4.4	5.1	6.5	4.7	3.5	1.7	3.5	1.8	2.4	2.9	5.7	9	4.6	24	
23		6.1	5.4	3.1	2.9	4.3	1.3	0.2	0.2	1.2	0.4	3.9	4.8	6.2	5.2	5.7	5.9	6.7	6.2	4.5	4.2	3.8	4.6	5.8	7.3	7.3	3.7	24	
24		7	6.7	6.3	4.9	4.5	5.3	4.5	5	4	4.5	11.2	15.7	13.6	11.1	8.2	5.3	3.4	2.8	3.3	5.2	4.2	4.6	5.4	8.4	15.7	5.7	24	
25		7.2	5	7.5	7	9.5	6.9	5.4	6.1	3.3	9.1	5.6	5.8	4.4	5.9	5	7.3	5.8	2.4	0.2	2.6	1.1	0.2	0.5	2.1	9.5	4.5	24	
26		2.3	3.9	4.5	9	10.1	9.9	10.6	10.1	10.7	10.5	6.7	7.9	6.2	5.7	3.9	1.7	1.3	1.7	1.8	0.9	1.9	4.7	2.4	4.1	10.7	3.5	24	
27		5	4.3	3.7	4.5	5.1	8	8.3	7.5	5.9	6.1	4.6	4	4.2	3.5	1.9	3.9	4.1	3.8	4.5	6.1	11.1	14	10.3	4.8	14	1.7	24	
28		4.5	3.9	5.3	5	4.6	1.7	0.8	2.2	0.2	1	2	3.5	3.2	0.6	1.4	4	3.6	3.9	4.4	4.8	6.6	5.3	4	2.9	6.6	2.7	24	
29		3.5	4	3.9	3.5	3.1	4.4	4.4	4.6	2.4	2.6	3.2	3.8	3.2	3.5	3.5	4.2	6	5.5	9.3	10	8.4	8.4	5.2	5.6	10	1.9	24	
30		6.8	5.3	7.3	6.3	3.5	0.2	0.9	0.3	1.6	0.9	3.3	5.9	6.9	6.4	6.8	6.3	5.1	1.1	3.6	5.8	4.5	1.6	1.3	2.6	7.3	1.1	24	
31		3.9	5.7	6	5.5	6.7	6.9	8.3	9.3	6.1	5.8	9.1	12	14	14.2	13.2	9.3	11.5	12.1	8.5	7.3	9.3	10.1	8.7	7.5	14.2	8.7	24	
HOURLY MAX		16.3	16.9	12.7	13.0	14.2	13.8	12.3	12.5	11.6	15.3	13.5	15.7	16.6	17.2	15.5	11.4	11.5	12.1	13.4	15.0	13.6	14.0	15.9	15.5				
HOURLY AVG		5.8	5.7	5.5	5.9	6.4	6.1	5.8	5.5	5.1	5.7	6.1	6.5	6.9	6.8	6.2	5.6	5.1	4.8	4.8	5.3	5.4	5.2	5.1	5.7				

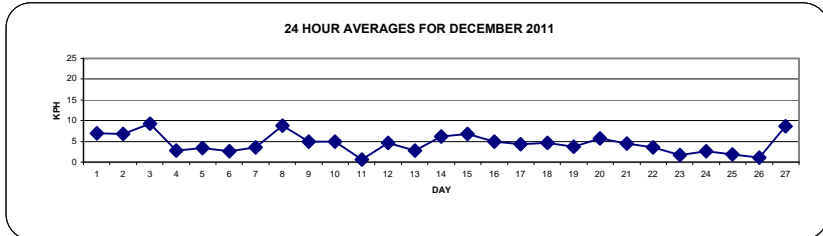
STATUS FLAG CODES

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

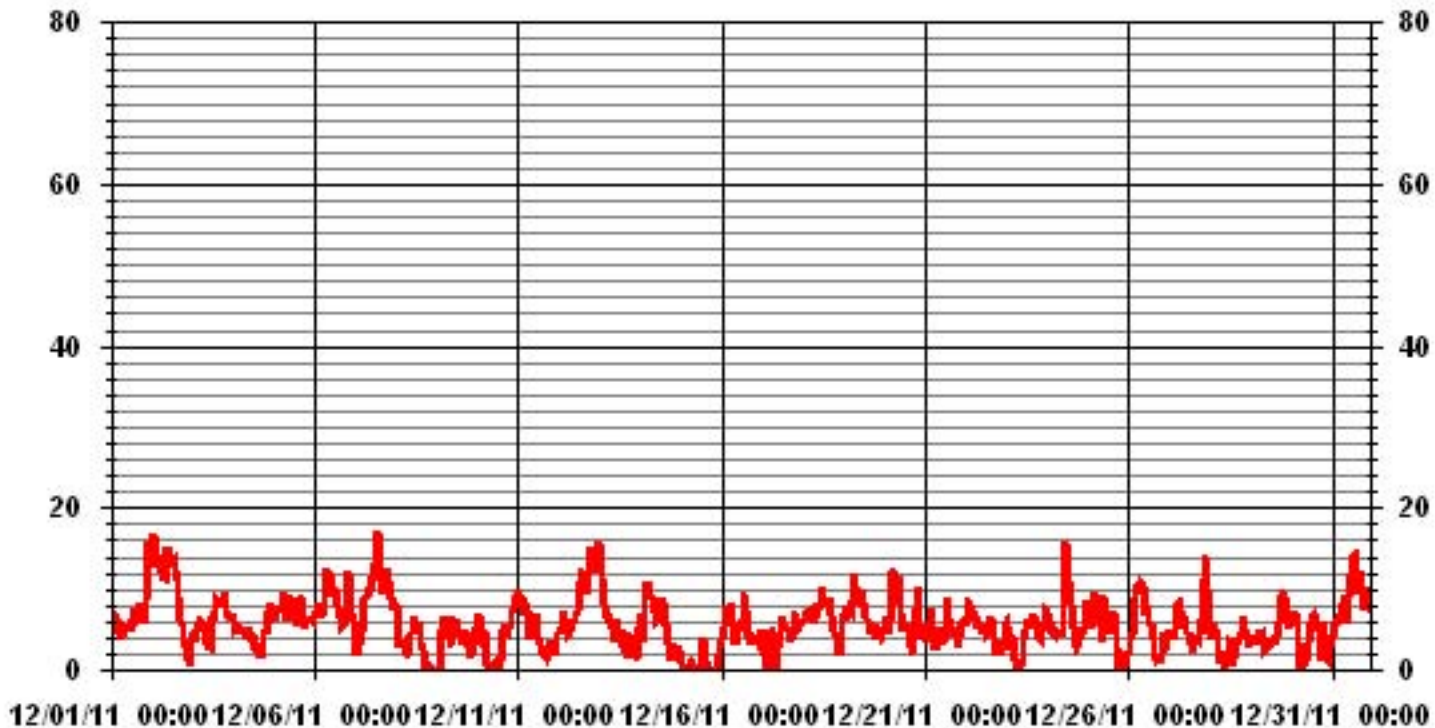
LAST CALIBRATION: November 7, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	17.2	KPH	@ HOUR(S)	13	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	9.5	KPH			ON DAY(S)	2
CALMS (≤ 1 KPH)	6.05	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	3.31		MONTHLY AVERAGE	5.72	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																										
1	14.1	12	16.6	18.3	12.2	11.9	11.3	11.6	13.7	13.5	15	16.7	15.4	13.7	16.3	16.9	14.1	19.4	29.4	26.9	15.3	39.4	48.8	44	48.8	
2	58	57	44.9	45.6	50.9	41.6	38.6	34.3	39.7	55.9	57.1	54.2	50.2	52.6	47.7	43.8	37.8	25.3	25.4	10.4	10.9	9.7	5.9	8.3	58	
3	10.3	10.4	12.1	12.3	11.9	16	19	13.9	11.5	8.9	11.2	23.3	25.6	21.4	25.9	26.1	24.7	29.5	33.9	35.4	23	24.4	21.4	21.8	35.4	
4	24.4	19.5	20.9	19.5	18.4	15.9	17.1	12.6	15.5	16.7	15.6	9.5	13	10.2	9.6	9.8	10.9	9.9	15	16.7	21.8	15.1	18.1	16.7	24.4	
5	15.8	19.7	18.9	16.8	20.1	22.8	23	17.5	17.1	18	19.3	21.9	27.2	22.8	15.6	22.3	23.5	20.4	15.4	15.7	16.9	18.4	16.6	16.8	27.2	
6	22.2	18	17.6	18.1	18.5	29.7	30.6	49.4	47.4	43.5	35.5	36.5	51.3	29.4	30.1	28	17.8	25.6	35.2	53.7	57.3	42.9	32.2	21.1	57.3	
7	13	9.3	10.6	16.5	29.3	26.5	26.8	30.1	30.7	27.4	32.3	38.2	51	61.1	46.6	34.7	32.2	34.5	31.4	36.8	45	33.5	26.1	24.7	61.1	
8	24.5	31.2	12.7	16.8	15.8	13.4	9.3	7.3	18.1	14.7	15.6	20.2	18	19.3	19.7	16.6	7.8	4.3	1.3	0.9	3.7	4.1	3.3	3.5	31.2	
9	3.1	4.2	5	19	16.5	14.4	18.6	11.2	11.1	18.2	19.3	19	21.1	20.3	16.8	10	9.3	11.8	11.9	6.1	6.9	7	10	10.5	21.1	
10	9.6	15.2	10.7	10.4	13.9	3.9	5.1	4.9	3.7	4.1	4	4.4	5.6	7.6	11.3	13.5	15.1	12.4	17.9	19.3	26	23	23.9	26.7	26.7	
11	35.1	28	28	19	19.7	19.1	15.3	13.2	14.9	16.4	18.6	16.8	12.5	11.8	9.4	10.1	8.4	7.5	8.1	9.8	9.9	11.5	13.6	13.4	35.1	
12	16	17	17.5	22.6	20.2	19.8	13.9	14	17.6	15.1	20.7	19.8	31.1	27.7	26.1	23.1	28	26.2	44.1	35.4	33	26.5	34.3	38.2	44.1	
13	37.4	34.4	30.5	20.1	16.6	14.1	15.4	14.7	11	13	16	11.8	13.4	11.9	10	10.1	10.5	12.2	10.2	9.1	6.6	8	6.9	26.1	37.4	
14	18.7	16.3	15.7	31.4	36.9	34.4	31.6	33.8	34	23.7	20.4	32.8	33.5	31.8	29	22	12.4	11.1	5.7	4.9	11.5	8.7	10.5	7.6	36.9	
15	9	3.2	2.2	4.8	3.6	4.8	6.6	5	6	4.8	2.3	3.3	7.8	9.2	9.8	6.6	4.2	3.1	2.7	3	1.5	2.8	7	9	9.8	
16	11.4	13.3	18.5	13.4	16.3	16.4	16.7	18.1	9.6	13.2	17	14.8	27.5	28.3	29.4	16.7	16.9	13.9	16.7	12.7	12.3	13.2	15.2	12.1	29.4	
17	11.2	5.1	4.5	10.2	13.7	12.2	6.5	4.5	9.1	11.3	14.2	14.4	16.3	17.5	17.3	16.2	12.3	21.6	18.5	28.2	23.6	19.7	15.3	17.9	28.2	
18	20	24.2	22.5	22.1	22.5	25.4	23.8	17.5	21.4	22.4	27.8	31.3	32.7	25.2	28.4	29	24.8	18.7	15.9	13.6	11.8	11.7	12.5	17.3	32.7	
19	15.1	15.9	19.5	15.6	18.1	23.3	27.6	26.5	20.6	34.1	23.1	27.3	22.7	20.3	22.1	20.8	17.9	16.8	16.9	15.2	15.7	14.1	12.8	12.6	34.1	
20	19.4	18.5	13.3	21.8	43.1	41.2	35.6	34	32.7	40.9	25.8	19.6	23.2	23.2	18	12.6	10.9	11.4	15.7	22.6	21.6	21.5	11.6	15.7	43.1	
21	14	17.2	22	17.3	21.4	16.7	17.1	14	13.4	18.4	17.1	11.8	25.3	28.8	23.7	16.4	20.4	17.2	19.5	11.9	9.9	11	12.1	11.4	28.8	
22	15	22.3	18.6	16.6	17.1	16.5	13.6	16.8	15.8	12.6	14.6	12.5	10.6	14.7	21.1	19.9	17.7	12.5	6.8	8.6	7.3	8.7	10.6	13.7	22.3	
23	13.3	16.1	8.3	9.8	12.4	6	2.9	42.3	11.8	7.5	13.8	14	17	15.1	17.2	15.7	16.5	15.6	19.9	19.2	12.4	18	21.7	19.3	42.3	
24	17.5	16.8	15.7	20.1	20.9	18.9	18.6	21.5	16.3	20.1	39.2	44.5	43.4	35.2	28.3	18.4	13.7	11.5	12.5	17.2	16.7	13.2	11.3	19	44.5	
25	16.7	18.2	18.5	21.5	20.4	16.7	16.3	17.8	13.3	19.2	15.5	14.9	12.4	14.6	14.9	15.7	15	10.7	4.3	7.8	5.7	3.7	5.5	10.6	21.5	
26	11.8	14.7	14.5	29.6	38.7	33.5	30.6	34.7	36.7	36.6	23.2	26.1	22.4	19	12.8	7.8	5.1	7	8	9.8	11.7	14.8	13.2	16.2	38.7	
27	14.9	13.9	12.8	14.6	16	29	23.7	26.5	19	16.9	15.1	15.2	13.4	10.4	8.6	10.5	8.7	12.4	18.4	27.4	46.3	42.3	32.2	19.2	46.3	
28	16.4	13.6	14.4	11.1	11.8	10.4	5.8	8.2	3.9	5	9.7	10.6	14.1	4.6	7	12	12	13.2	14.2	14.2	19	15.4	13	11.9	19	
29	11.6	10.4	17	12	13.2	16.4	16.7	14.8	11.4	9	9	10.1	11.4	13.4	10.7	14.2	12	28.2	29.9	28.6	26.1	22.6	21.5	15	29.9	
30	17.9	11.6	17.3	16.5	10.3	6	5.5	3.7	6.2	4.7	9.7	15.3	18.3	18.2	21.1	19.7	14.2	6.2	11.1	12.2	12.7	6.6	6.6	10.2	21.1	
31	15	20.9	18.2	18.8	19.5	25	25.3	26.2	19.3	21.4	34.2	38.2	45.1	40.7	47.9	30.8	38.2	45.3	28.5	24	27.1	29	25.1	22	47.9	
PEAK	58.0	57.0	44.9	45.6	50.9	41.6	38.6	49.4	47.4	55.9	57.1	54.2	51.3	61.1	47.9	43.8	38.2	45.3	44.1	53.7	57.3	42.9	48.8	44.0		

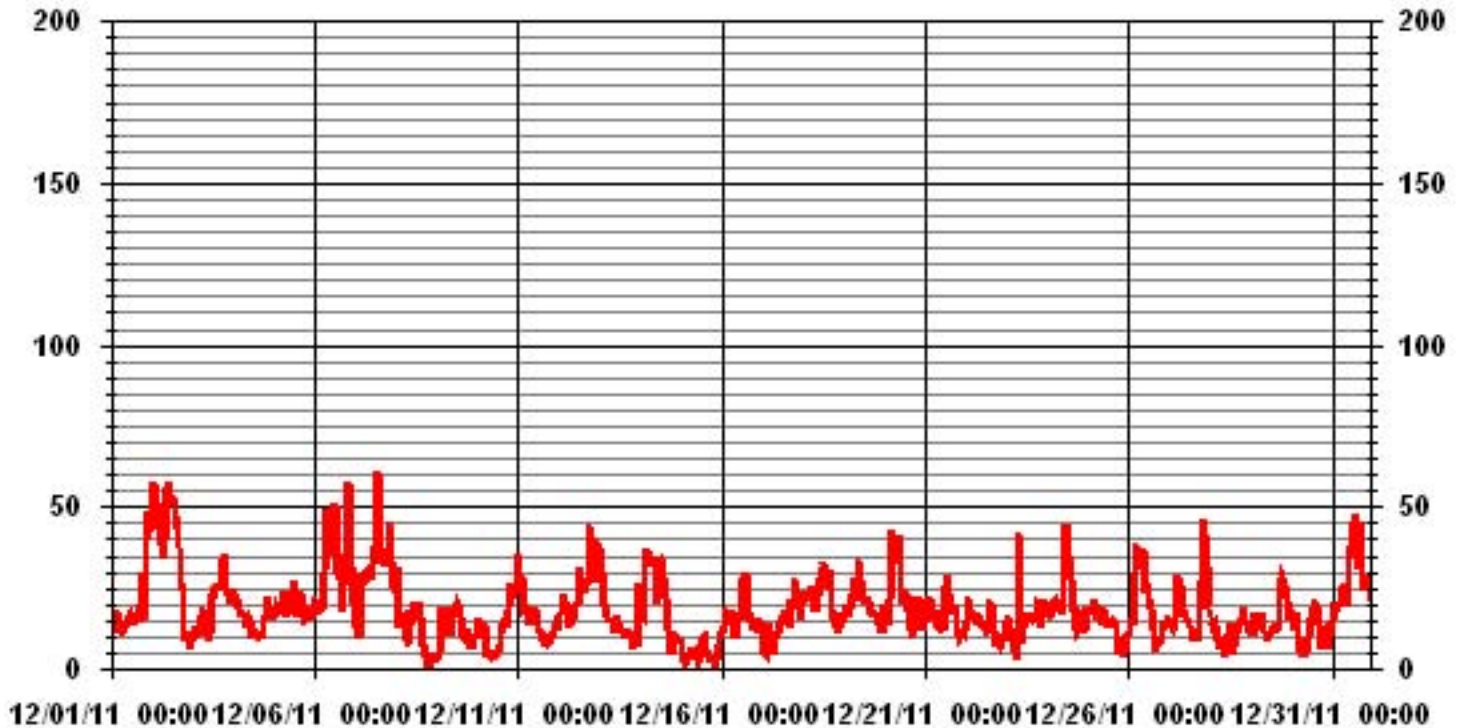
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	61.1	KPH	@ HOUR(S)	13
			ON DAY(S)	7

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	2.41	1.88	.94	.40	1.74	.94	1.74	.67	2.15	4.43	15.72	7.25	7.39	2.55	4.03	3.22	57.52
< 12.0	2.55	.40	.13	.40	.00	.13	.40	.00	.94	7.93	6.31	.26	1.88	7.12	5.24	2.41	36.15
< 20.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.34	.00	.00	.00	2.95	.80	.53	5.64
< 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	4.97	2.28	1.07	.80	1.74	1.07	2.15	.67	3.09	13.70	22.04	7.52	9.27	12.63	10.08	6.18	

Calm : .67 %

Total # Operational Hours : 744

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	18	14	7	3	13	7	13	5	16	33	117	54	55	19	30	24	428
< 12.0	19	3	1	3		1	3		7	59	47	2	14	53	39	18	269
< 20.0										10				22	6	4	42
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	37	17	8	6	13	8	16	5	23	102	164	56	69	94	75	46	

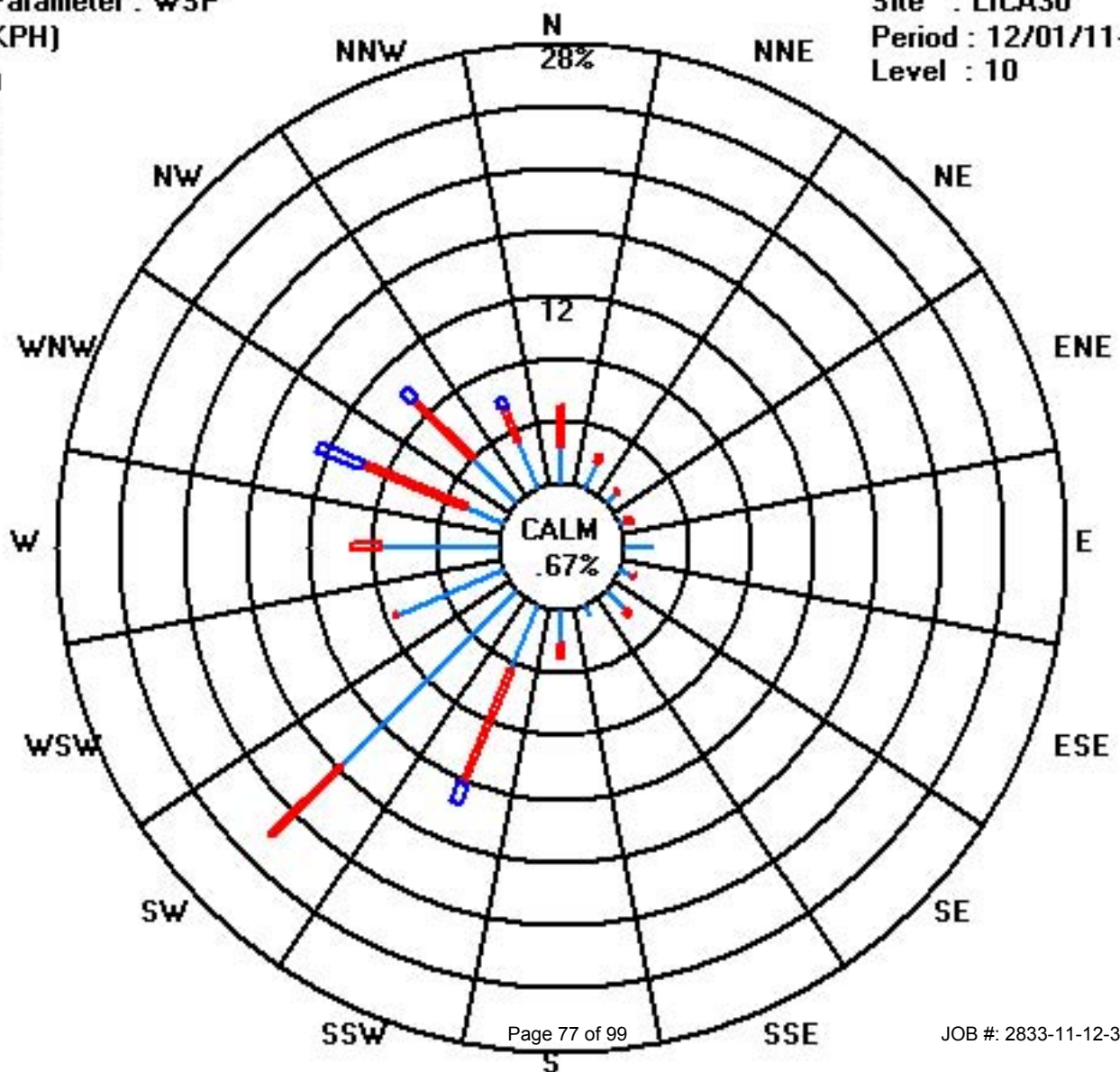
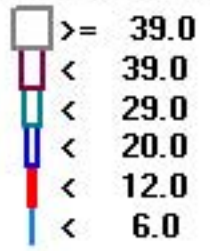
Calm : .67 %

Total # Operational Hours : 744

Class Limits (KPH)

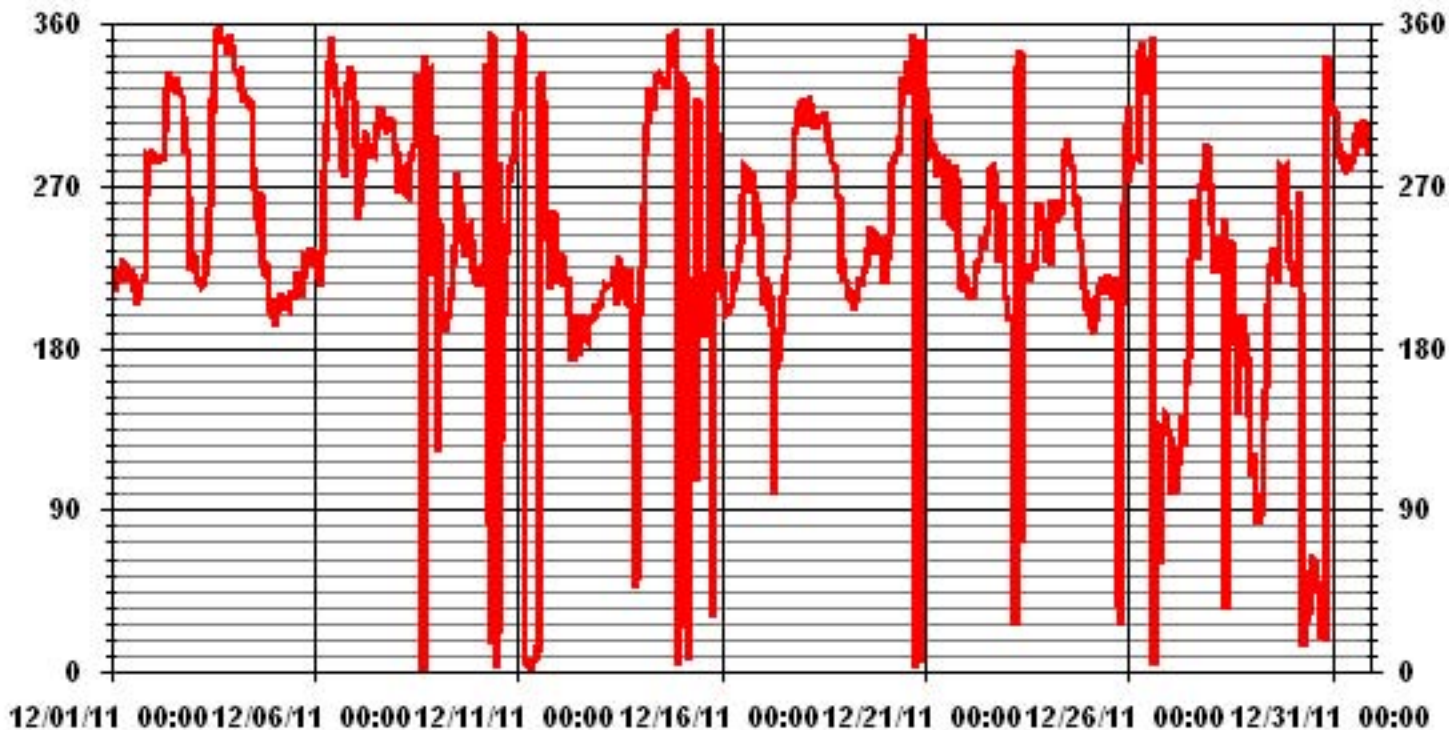
Period : 12/01/11-12/31/11

Level : 10



Vector Wind Direction

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2011

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	19	20	16	19	21	17	22	20	17	21	21	24	24	22	18	17	19	17	30	40	23	27	24	27
2	24	24	24	25	26	25	27	23	26	34	33	33	33	33	34	33	32	28	27	20	15	16	23	19
3	16	17	24	17	23	22	26	23	26	24	24	27	28	25	24	23	23	22	24	24	26	25	22	22
4	26	27	26	27	26	24	26	23	23	21	28	23	26	31	30	30	27	26	25	25	24	23	17	20
5	21	23	18	18	20	20	18	25	19	19	18	36	30	25	27	18	17	26	24	21	21	22	21	20
6	26	18	18	15	22	29	23	27	32	32	28	29	32	31	29	26	22	28	29	33	33	29	29	28
7	25	21	26	25	25	23	25	21	23	23	24	23	26	28	27	32	28	26	25	24	27	28	24	22
8	22	22	23	24	25	20	21	22	20	20	19	21	25	27	27	28	14	9	24	19	26	33	10	8
9	24	39	27	34	20	24	21	28	35	27	26	26	24	25	24	25	15	15	20	23	18	20	21	15
10	29	16	21	25	23	38	27	48	36	25	11	14	51	24	48	33	22	19	27	29	24	23	22	27
11	30	27	24	25	20	20	17	16	17	20	22	20	20	24	25	33	17	29	34	24	28	33	35	33
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13	19	18	20	21	20	20	20	21	22	29	23	26	29	30	28	30	58	24	23	20	49	27	43	35
14	26	30	27	22	29	32	30	30	29	30	30	30	29	34	32	29	23	17	10	10	15	19	24	34
15	27	17	9	26	12	69	60	46	74	50	24	31	28	27	37	29	33	7	10	21	12	12	35	27
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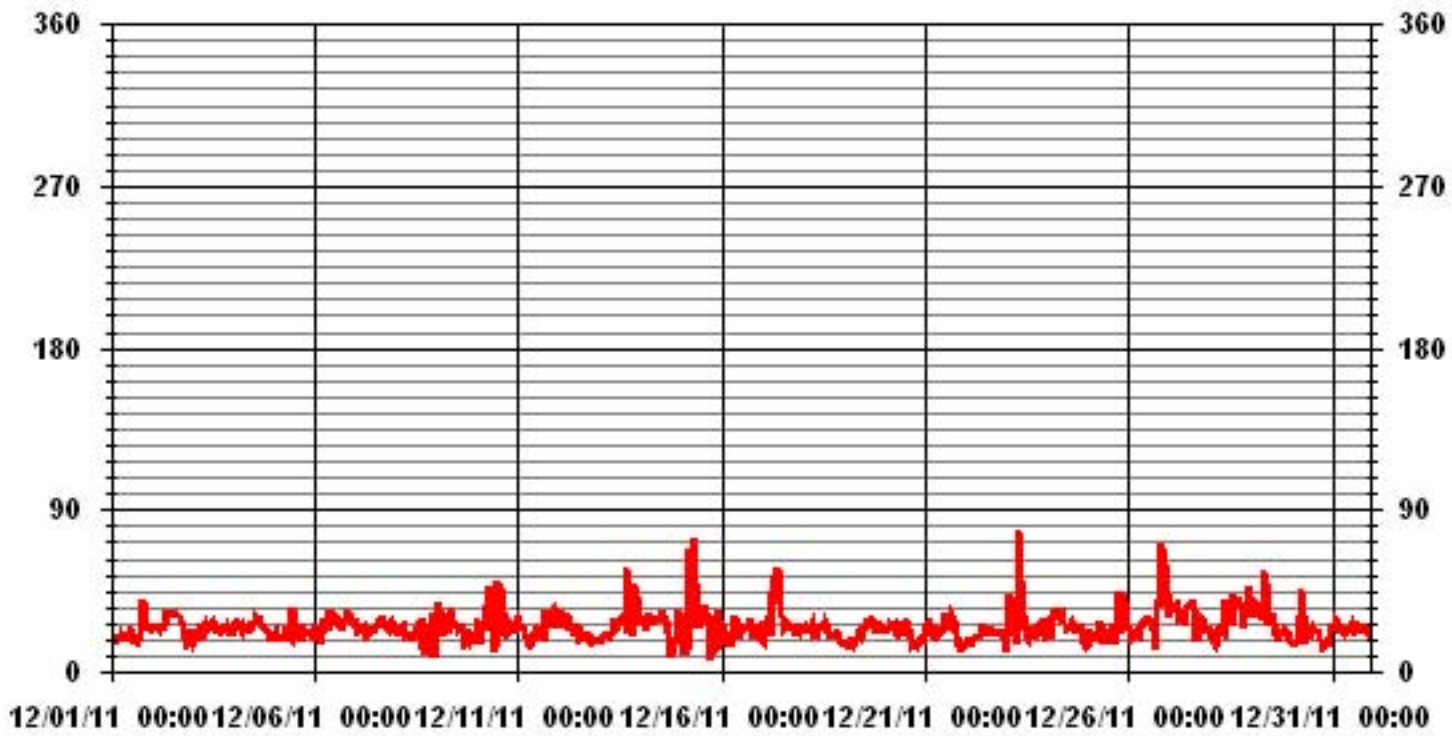
STATUS FLAG CODES

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 7, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	December 12, 2011	Previous Calibration	November 1, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:15	End Time (MST)	16:55
Reason:	Monthly Calibration		
Barometric Pressure	945 mmHg	Station Temperature	21 Deg C
Cal Gas	48.3 ppm	Gas Cyl. #	LL103831
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 28, 2013
		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		
Sample Flow / Box Temp	598 ccm, 28.7 Deg C	597 ccm, 28.3 Deg C	
HVPS / Lamp Setting	494, 2689	494, 2718	
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	42.2, 1.113	38.6, 1.239	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
4917	No Zero Adj. 77.4	749	750	0.9980
4954	No Span Adj. 41.3	399	396	1.0084
4978	17.5	169	168	1.0072
4997	0	0	0	N/A
Sum of Least Squares				1.0006
New Correction Factor				0.9980

	Before Calibration	After Calibration
Auto Zero	1.2	0.3
Auto Span	365.0	367.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	0.9980
Percent Change:	#VALUE!

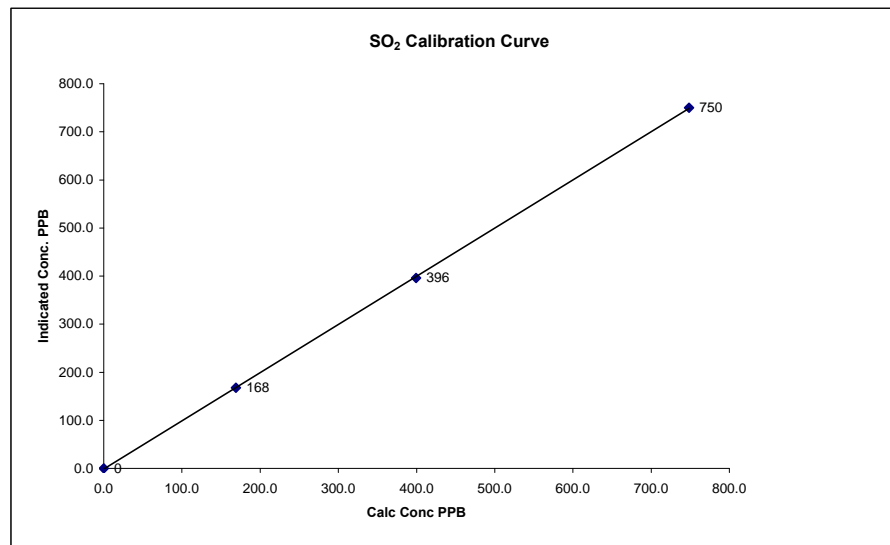
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

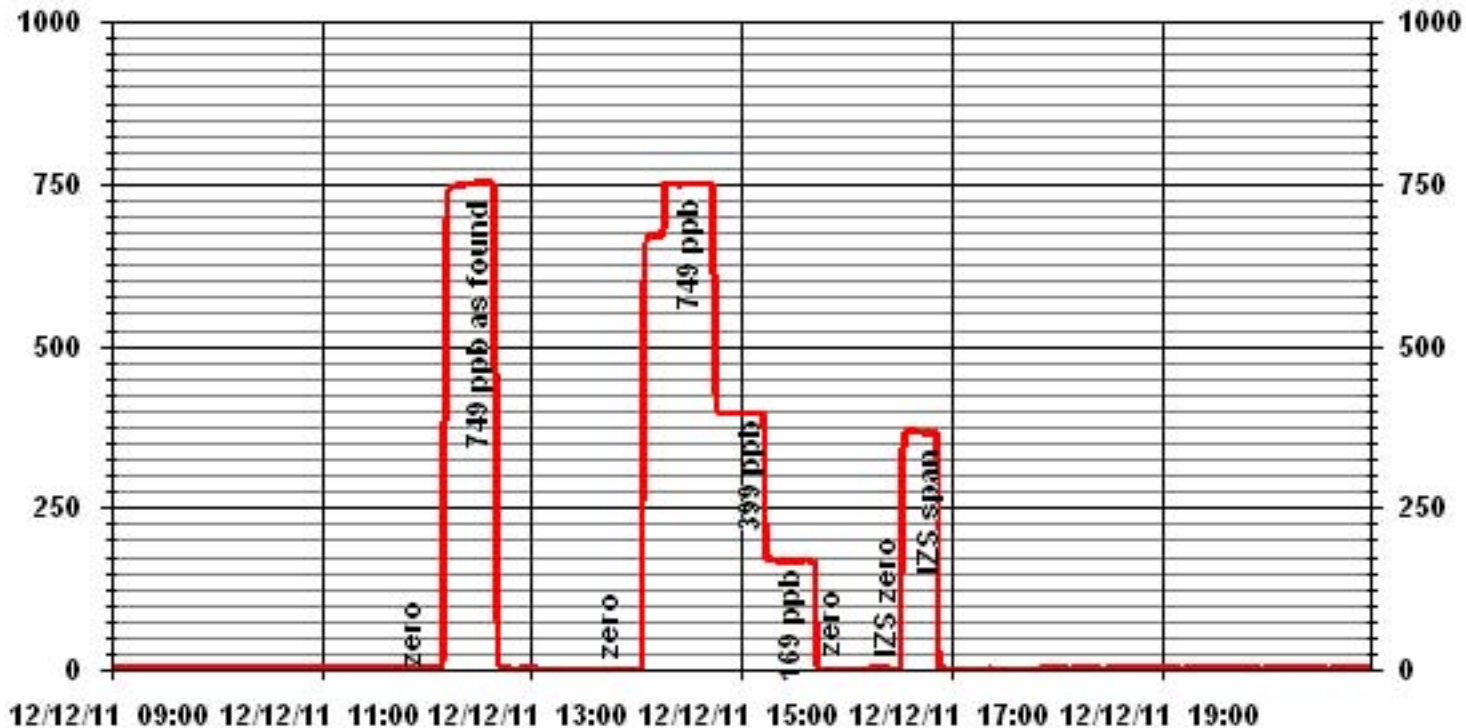
Calibration Date	December 12, 2011
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	13:15
End Time (MST)	16:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999964
169	168	1.0072		1.001838
399	396	1.0084		-1.369619
749	750	0.9980		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 9, 2012	Previous Calibration	November 2, 2012
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	14:38	End Time (MST)	17:54
Reason:	Monthly Calibration		
Barometric Pressure	935 mBar	Station Temperature	22 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	BLM00080
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 22, 2012
		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	494 ccm 29.4 Deg C	478 ccm	29.9 Deg C
HVPS / Lamp Setting	552 2011	552	2599
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C	50 Deg C
Converter / IZS Temp	314.6 Deg C 45 Deg C	314.6 Deg C	45.0 Deg C
Offset / Slope	31.2 1.023	36.4	0.822

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	0	NA
	No Zero Adj.			
4960	39.2	80	80	1.0000
	No Span Adj.			
4976	19.6	40	41	0.9761
4986	11.2	23	24	0.9525
4996	0	0	0	NA
Sum of Least Squares				0.9922
New Correction Factor				

Before Calibration

After Calibration

Auto Zero	0.4	0.4
Auto Span	57.0	60.0
Sample Lines Connected		YES

Percent Change

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

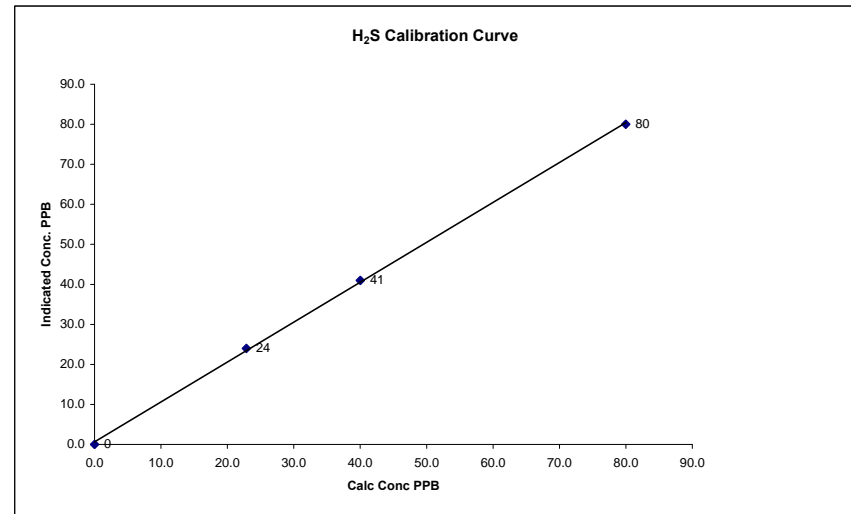
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

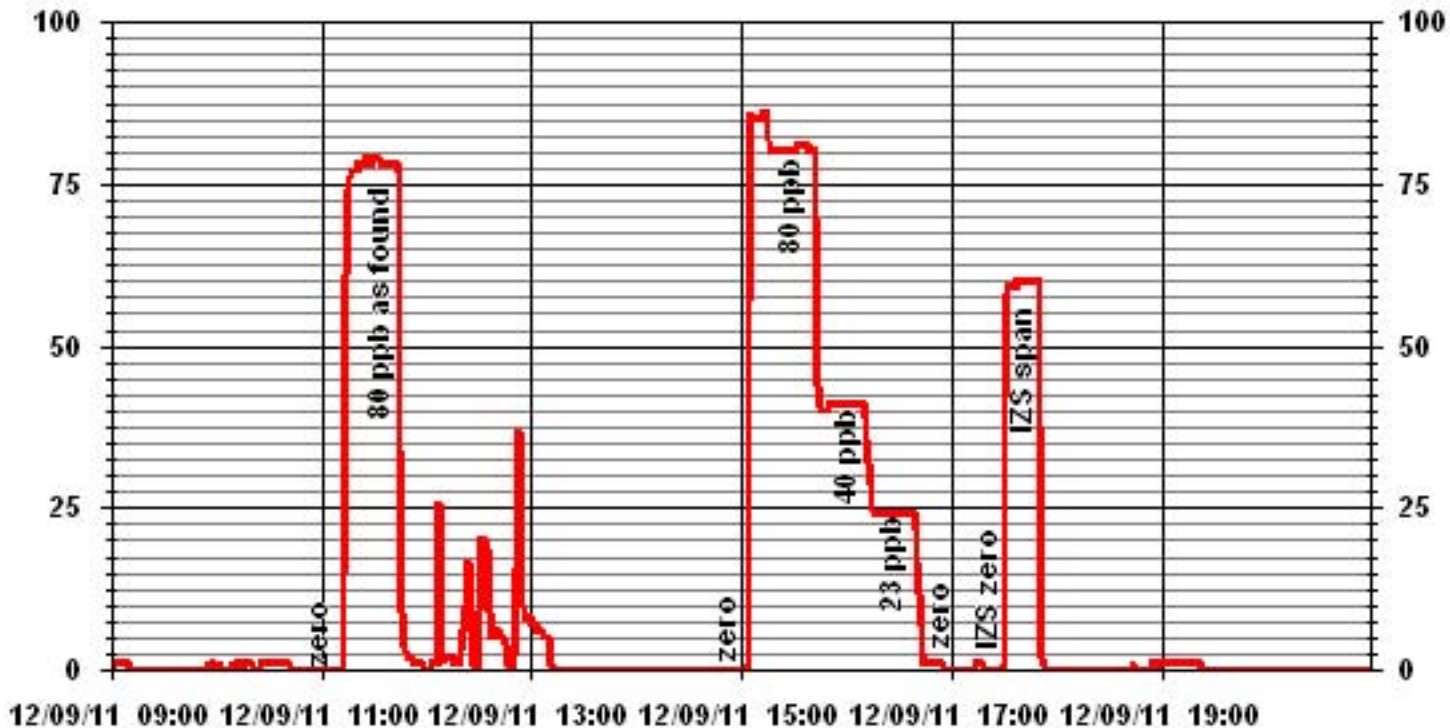
Calibration Date	December 9, 2012
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	14:38
End Time (MST)	17:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999680
0	0		Intercept	(± 3% F.S.)	0.634796
23	24	0.9525			
40	41	0.9761			
80	80	0.9998			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	December 12, 2011	Previous Calibration	November 2, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	12:12	End Time (MST)	16:07
Reason:	Monthly Calibration		
Barometric Pressure:	945 mmHg	Station Temperature:	21 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 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
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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
3000	0.0	0.0	-0.3	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	41.3	1.0026
3000	70.0	41.4	41.6	0.9954
3000	35.0	20.9	20.9	1.0000
3000	20.0	12.0	12.0	1.0000
3000	0.0	0.0	0.0	NA
New Correction Factor:				0.9954

Percent Change

Previous Calibration Correction Factor:	0.9954
Current Correction Factor Before Span Adjust:	1.0026
Percent Change:	-0.7%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	35.4	35.0
Sample Lines Connected		YES

Cylinder Pressures			
Span	800 psi	Hydrogen	1000 psi
		Zero Air	32 psi

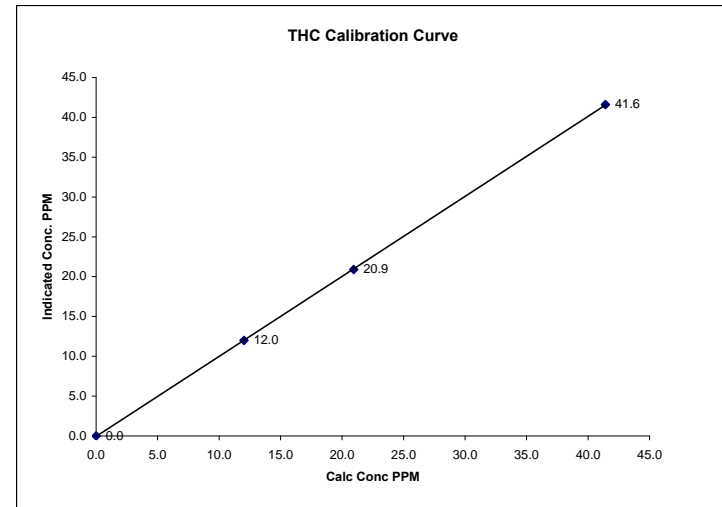
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

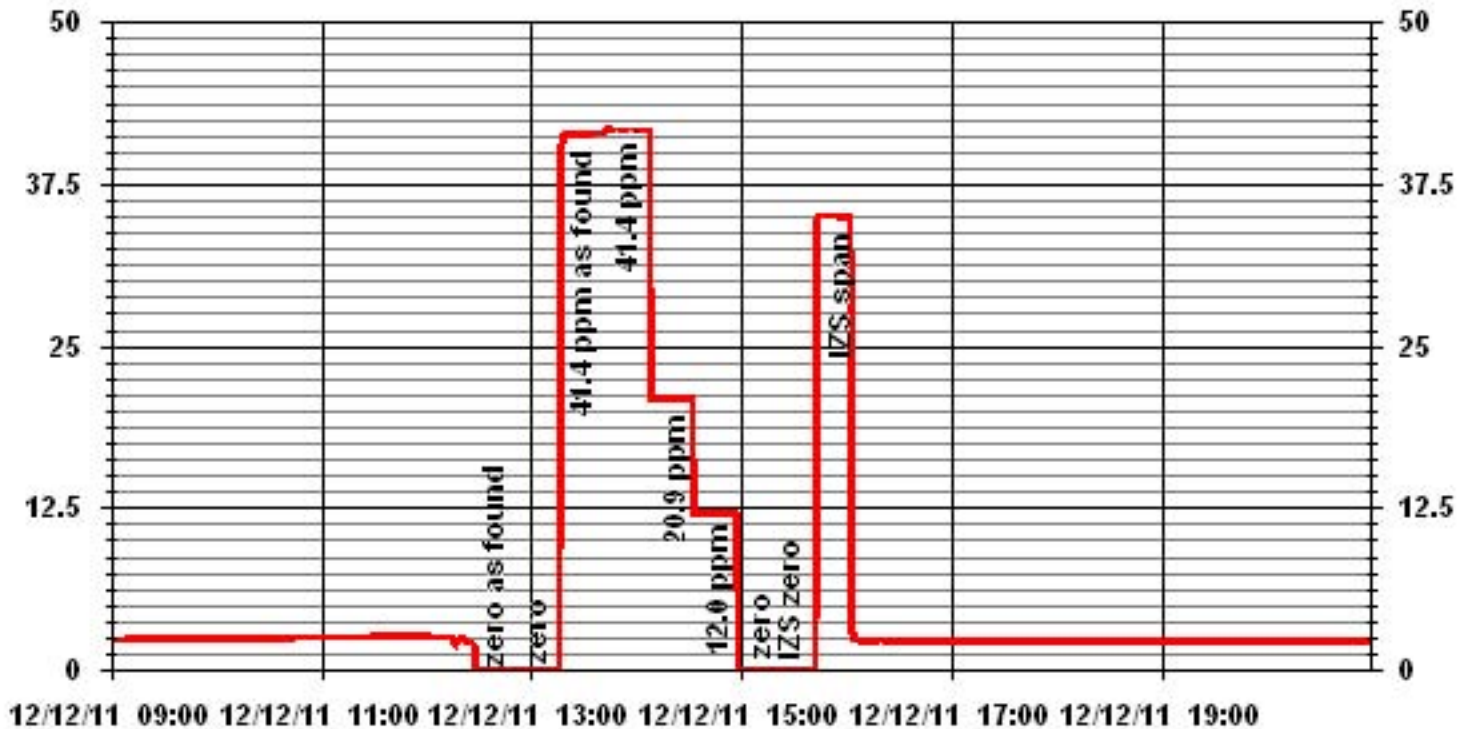
Calibration Date	December 12, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	12:12	End Time (MST)	16:07

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.999985	1.004890
12.0	12.0	1.0022		-0.05993
20.9	20.9	1.0020		
41.4	41.6	0.9954		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 2, 2011
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	10:47	End Time (MST)	17:05
Reason:	Monthly Calibration		
Barometric Pressure	935 mBar	Station Temperature	21 Deg C
Cal Gas Concentration	NOx 49.7 ppm	NO	49.4 ppm
Cal Gas Cylinder #	LL103831	Cal Gas Expiry date	February 28, 2013
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	Not in use	S/N:	NA		
Flow Meter:	ESC 8832	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	458 ccm	316 Deg C		458 ccm	314 Deg C		
Ozone Flow / Vacuum	78 ccm	5.3 °Hg-A		79 ccm	5.3 °Hg-A		
HVPS / A ZERO	767 Volts	16.5 MV		767 Volts	16.7 MV		
Rx/ Temp / PMT Temp	49.8 Deg C	6.5 Deg C		50.0 Deg C	6.5 Deg C		
Box Temp / IZS Temp	27.3 Deg C	45.1 Deg C		30.3 Deg C	45.1 Deg C		
Offset	0.6 NOx	0.3 NO		0.9 NOx	0.8 NO		
Slope	1.186 NOx	1.177 NO		1.196 NOx	1.182 NO		
NO ₂ COEF / Conv Efficiency	NA NO ₂	0.994		NA NO ₂	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	2	2	1	NA	NA
4994	0.0	NA	0	0	NA	1	1	1	NA	NA
4921	75.7	NA	753	748	NA	748	745	4	1.0093	1.0073
4921	75.7	NA	753	748	NA	755	748	7	0.9999	1.0000
4961	35.3	NA	351	349	NA	351	348	4	1.0000	1.0087
4975	20.2	NA	201	200	NA	202	200	3	1.0049	1.0000
4995	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	NO ₂ Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	75.7	NA	753	748	NA	756	749	8	NA	NA
No Adj needed										
4921	75.7	600	753	NA	554	756	203	554	1.0018	100.00%
4921	75.7	250	753	NA	239	756	518	240	1.0000	100.43%
4921	75.7	140	753	NA	137	757	620	138	1.0000	100.78%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.005	NO= 1.004	NO2= 0.999
				NOx= 0.9999	NO= 1.0000	NO2= 1.0018
Average Converter Efficiency= 100.40%						

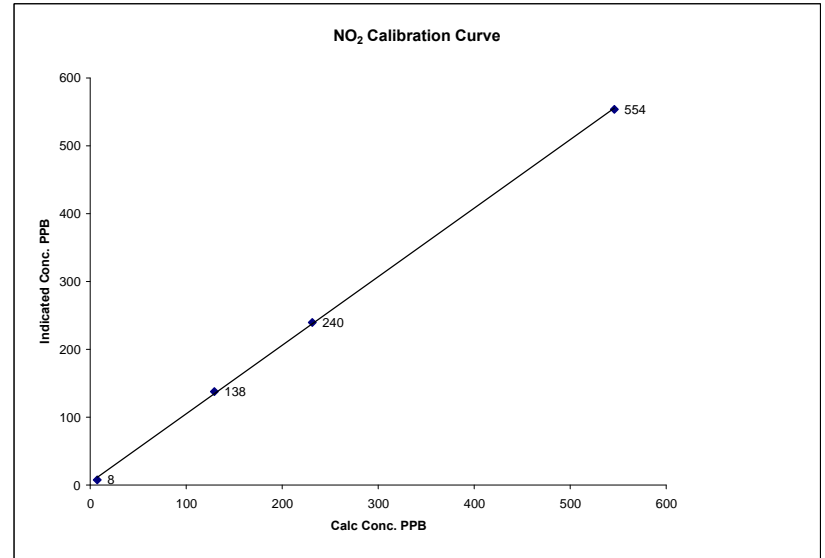
Before Calibration **After Calibration**

Auto Zero	1.4 NOx	1.1 NO2		0.9 NOx	1.0 NO2	
Auto Span	745 NOx	732 NO2		753 NOx	740 NO2	
Sample Lines Connected: YES						
Percent Change from Previous Calibration	NOx	-0.7%	NO	-0.4%	NO2	-0.2%
Notes	NA : Not Applicable					
Calibration Performed by: Ting Xu.						

NO₂ Calibration Curve

Calibration Date	December 9, 2011	Company	LICA
Plant / Location	Maskwa	Start Time (MST)	10:47
End Time (MST)	17:05		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999806
7	8	N/A	Intercept	(± 3% F.S.)	4.67535
129	138	0.9348			
231	240	0.9625			
546	554	0.9856			

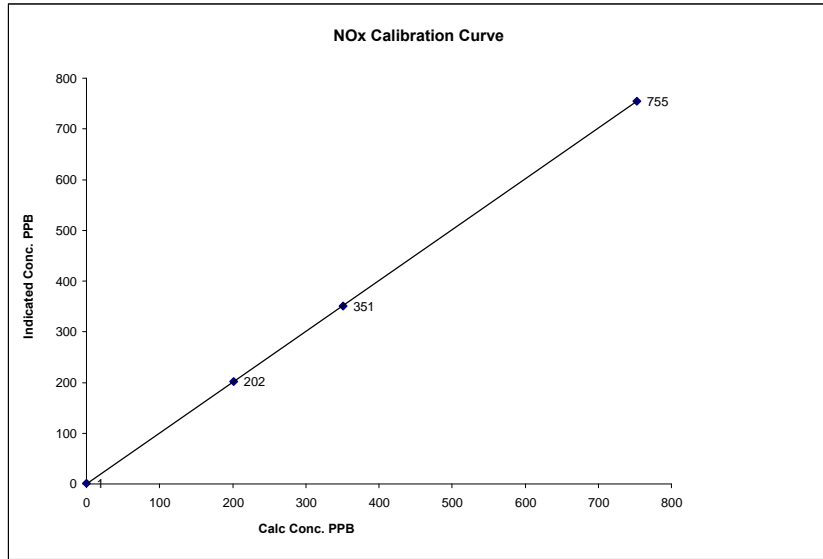


Notes:

NOx Calibration Curve

Calibration Date	December 9, 2011	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	10:47	End Time (MST) 17:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
0	1	N/A	Slope (0.85 to 1.15)	1.001362
201	202	0.9950	Intercept (± 3% F.S.)	0.53625
351	351	1.0004		
753	755	0.9973		

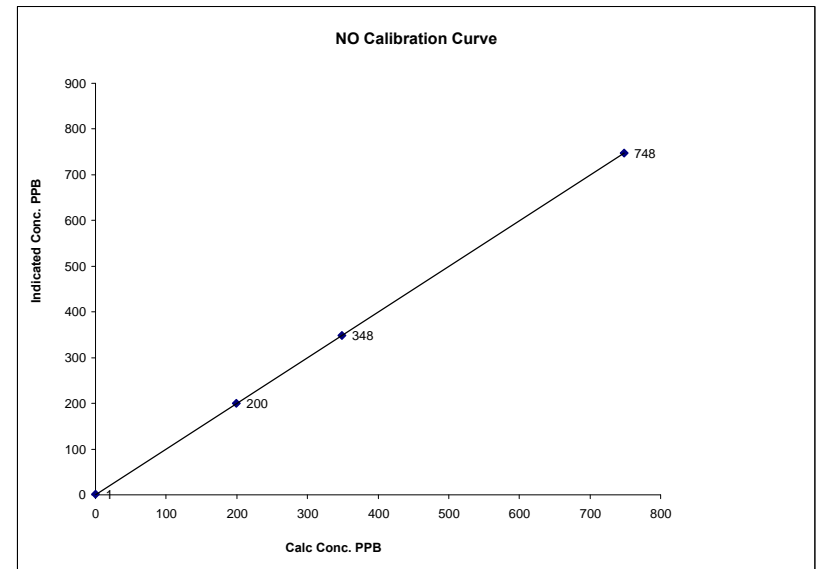


Notes:

NO Calibration Curve

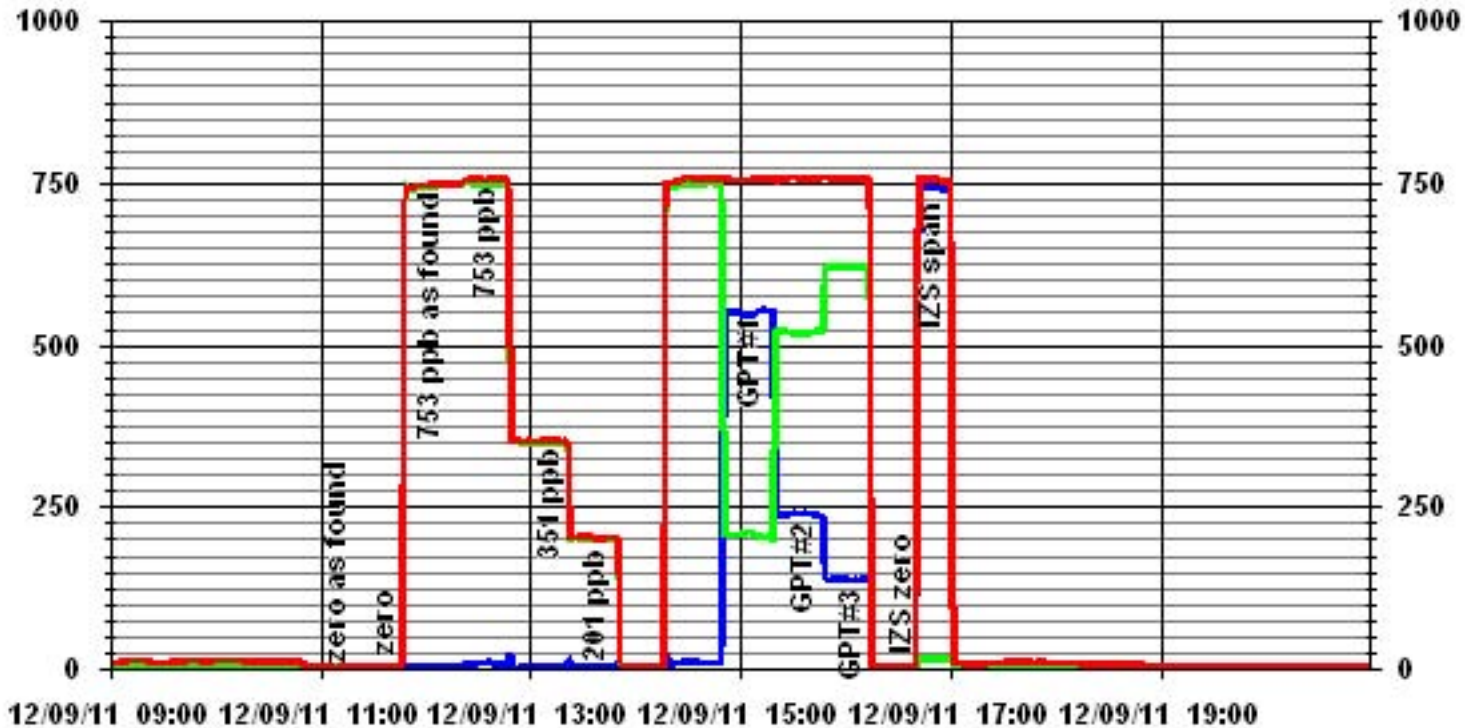
Calibration Date	December 9, 2011	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	10:47	End Time (MST) 17:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999996
0	1	N/A	Slope (0.85 to 1.15) <td>0.999389</td>	0.999389
200	200	0.9988	Intercept (± 3% F.S.)	-1.5574
349	348	1.0029		
748	748	1.0005		



Notes:

01 Minute Averages



Lakeland Industry & Community Association

Portable / Devon Wellsite 13-16-62-5 W4M Monitoring Site

Ambient Air Monitoring Data Report

For

December 2011

Prepared By:



January 11, 2012

Lakeland Industry & Community Association Portable / Devon Wellsite 13-16-62-5 W4M Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Portable / Devon Wellsite 13-16-62-5 W4M
Data Period: December 2011

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

Continuous Ambient Monitoring – December 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / DEVON WELLSITE 13-16-62-5 W4M 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	0.21	1	VAR	VAR	VAR	VAR	0.5	5	23.3
H ₂ S (PPB)	10	3	0	0	0.17	1	VAR	VAR	VAR	VAR	0.5	5	23.3
THC (PPM)	-	-	-	-	2.13	3.1	8	2	12	256(WSW)	2.6	8	23.3
NO ₂ (PPB)	159	-	0	-	3.21	17	8	3	13.3	260(WSW)	7.8	8	23.3
NO (PPB)	-	-	-	-	0.70	20	3	9	9.8	257(WSW)	4.2	8	23.3
NO _x (PPB)	-	-	-	-	3.80	36	3	9	9.8	257(WSW)	11.8	8	23.3
O ₃ (PPB)	82	-	0	-	28.30	38	1	22, 23	23, 28.2	281(W), 282(W)	34.0	7	23.3
PM 2.5 (UG/M ³)	-	30	-	0	4.71	20.8	1	2	11.2	228(SW)	6.4	8	20.0
VECTOR WS (KPH)	-	-	-	-	15.38	34.6	2	1	-	285(WNW)	22.1	2	23.3
VECTOR WD (DEGREES)	-	-	-	-	277(W)	-	-	-	-	-	-	-	23.3

VAR-VARIOUS

Volatile Organics Data Summary LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

Xontech Model 910A – December 5, 2011

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

Note: Due to no power supply, the sampling program was cancelled after December 5th, 2011.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

PUF cartridge – December 5, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.055	3-Methylcholanthrene

Note: Due to no power supply, the sampling program was cancelled after December 5th, 2011.

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 electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No multi-point calibration was performed this month. The daily calibration results showed that the analyzer was working well the time when the power for the station was off. Data was corrected using daily zero information. The analyzer operational time was 173 hours.

Hydrogen Sulphide (PPB)

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

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No multi-point calibration was performed this month. The daily calibration results showed that the analyzer was working well the time when the power for the station was off. Data was corrected using daily zero information. The analyzer operational time was 173 hours.

Nitrogen Dioxide (PPB)

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

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No multi-point calibration was performed this month. The daily calibration results showed that the analyzer was working well the time when the power for the station was off. Data was corrected using daily zero information. The analyzer operational time was 173 hours.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

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

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No multi-point calibration was performed this month. The daily calibration results showed that the analyzer was working well the time when the power for the station was off. Data was corrected using daily zero information. The analyzer operational time was 173 hours.

THC (PPM)

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

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No multi-point calibration was performed this month. The daily calibration results showed that the analyzer was working well the time when the power for the station was off. Data was corrected using daily zero information. The analyzer operational time was 173 hours.

Particulate Matter 2.5 (ug/m³)

- Analyzer make / model –TEOM 1405F, S/N: 1405A207691003

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. No Teom audit was performed this month. 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. 24 hours of data were invalidated as they were below –3.0 ug/m³. The Teom unit operational time was 149 hours.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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

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

The wind system is reported as vector wind speed and vector wind direction.

The electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. The wind system operational time was 173 hours.

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 electrical power for the monitoring station was cut on December 8th. The station will be relocated to a new location in early year of 2012. The AE reference number is 254904. It was reported to AE on January 9th, 2012.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values were within the Good range. The highest hourly concentration of ozone was 38 ppb and an AQI value of 19 on December 27th, in various hour of 18. The highest hourly concentration of PM2.5 was 28.8 ug/m3 and an AQI value of 24 on December 20th, hour of 22.

Volatile Organics (VOCs)

The volatile organics were sampled from December 5th to December 29th. 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 December 5th to December 29th. 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

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLESITE

DECEMBER 2011

AIR QUALITY INDEX (AQI)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX
DAY	PEAK	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
1		-	9	17	12	11	10	-	10	10	11	11	12	13	13	13	13	14	13	15	17	17	18	19	19	19
1	NA	O3_	PM2	PM2	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_
2		19	18	-	17	17	-	17	17	17	15	14	14	15	16	-	18	17	16	15	15	-	-	11	12	19
2	O3_	O3_	NA	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	NA	NA	O3_	O3_	O3_
3		13	14	-	-	-	13	12	11	9	6	10	11	12	13	14	14	14	13	15	15	-	15	13	14	15
3	O3_	O3_	NA	NA	NA	O3_	O3_	O3_	O3_	PM2	PM2	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_
4		14	13	13	-	12	13	14	-	14	14	-	-	14	14	14	13	15	-	15	13	15	15	15	14	15
4	O3_	O3_	O3_	NA	O3_	O3_	O3_	NA	O3_	O3_	NA	NA	O3_	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_
5		14	13	-	13	14	13	12	-	11	11	12	12	12	11	10	10	9	10	11	11	11	12	14	14	14
5	O3_	O3_	NA	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_
6		14	-	16	15	12	16	19	18	19	-	17	18	18	17	17	16	-	13	15	18	18	-	18	-	19
6	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	NA	O3_	NA	O3_
7		-	14	14	-	15	16	-	17	17	17	18	-	18	18	18	19	19	18	18	18	-	18	18	-	19
7	NA	O3_	O3_	NA	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	NA	O3_	O3_	NA	O3_
8		-	16	11	9	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
8	NA	O3_	O3_	O3_	O3_	O3_	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O3_
9		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PEAK		19	18	17	17	17	16	19	18	19	17	18	18	18	18	19	19	18	18	18	18	18	18	18	19	19
PEAK		O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	139	18.7%	19	var	1,7	4	0.5%	17	2	1	0	0.0%	-	-	-	0	0.0%	-	-	-	143	19.2%
OVERALL	139	18.7%	-	-	-	4	0.5%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	143	19.2%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	4.0%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

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

STATUS FLAG CODES

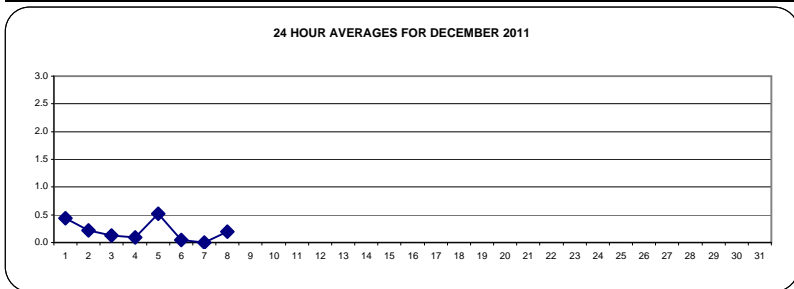
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

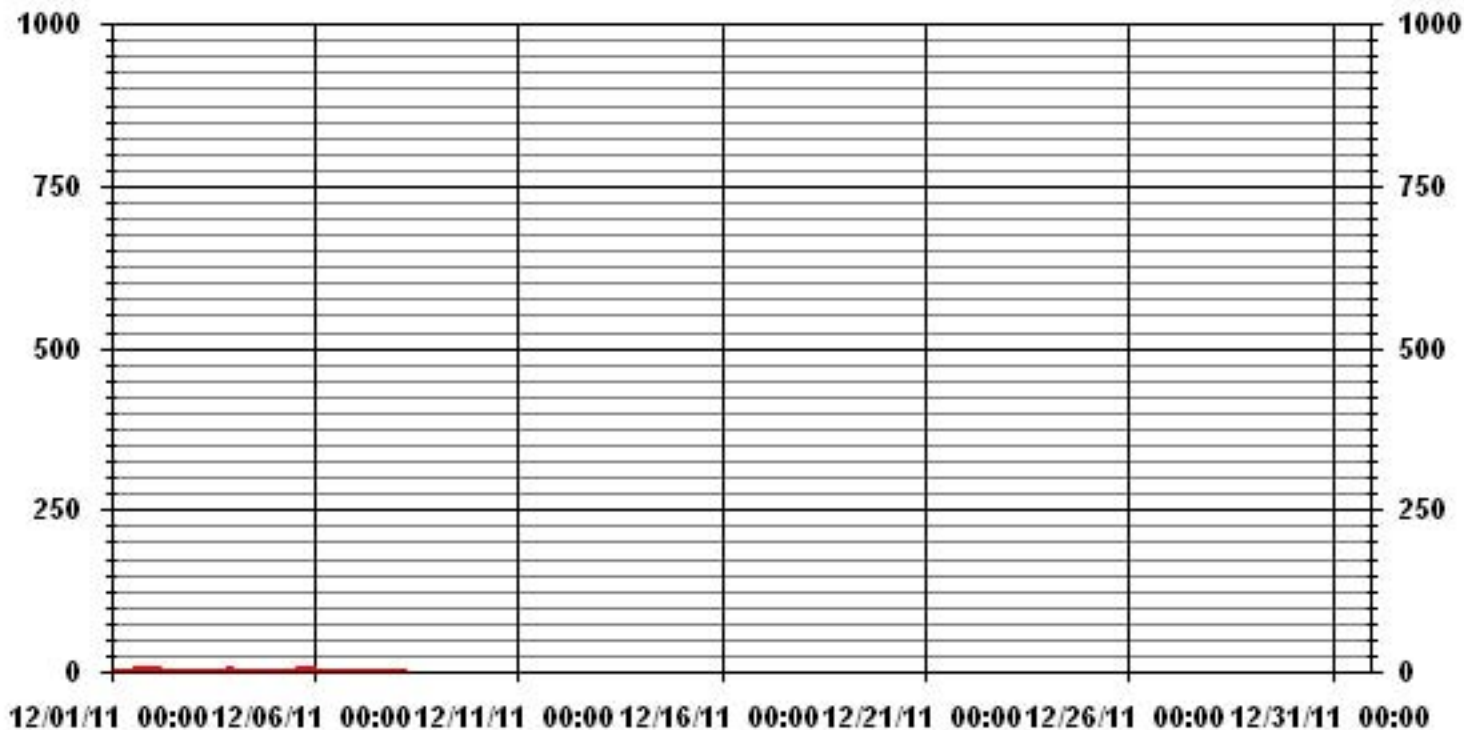
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	34					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.5	PPB			ON DAY(S)	5
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	23.3	%	
STANDARD DEVIATION:	0.40		MONTHLY AVERAGE:	0.21	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

DECEMBER 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	RDGS.
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
1		0	0	0	0	0	0	IZS	0	1	1	1	1	1	2	2	3	2	3	3	2	2	2	2	2	3	1.3	24	
2		2	2	2	2	2	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.6	24	
3		0	0	0	0	IZS	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1.1	24	
4		2	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
5		1	2	IZS	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	2	2	2	2	2	2	3	1.7	24	
6		2	IZS	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
7		IZS	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	0	1	0	0	IZS	1	0.7	24	
8		1	2	2	2	2																				2	1.8	5	
9																													0
10																													0
11																													0
12																													0
13																													0
14																													0
15																													0
16																													0
17																													0
18																													0
19																													0
20																													0
21																													0
22																													0
23																													0
24																													0
25																													0
26																													0
27																													0
28																													0
29																													0
30																													0
31																													0
HOURLY MAX		2	2	2	2	2	1	1	1	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2	2				
HOURLY AVG		1.1	1.3	1.0	1.0	1.1	0.8	1.0	0.9	1.1	1.0	0.9	0.7	0.7	1.0	1.0	1.1	1.0	1.3	1.3	0.9	1.1	1.0	1.0	1.2				

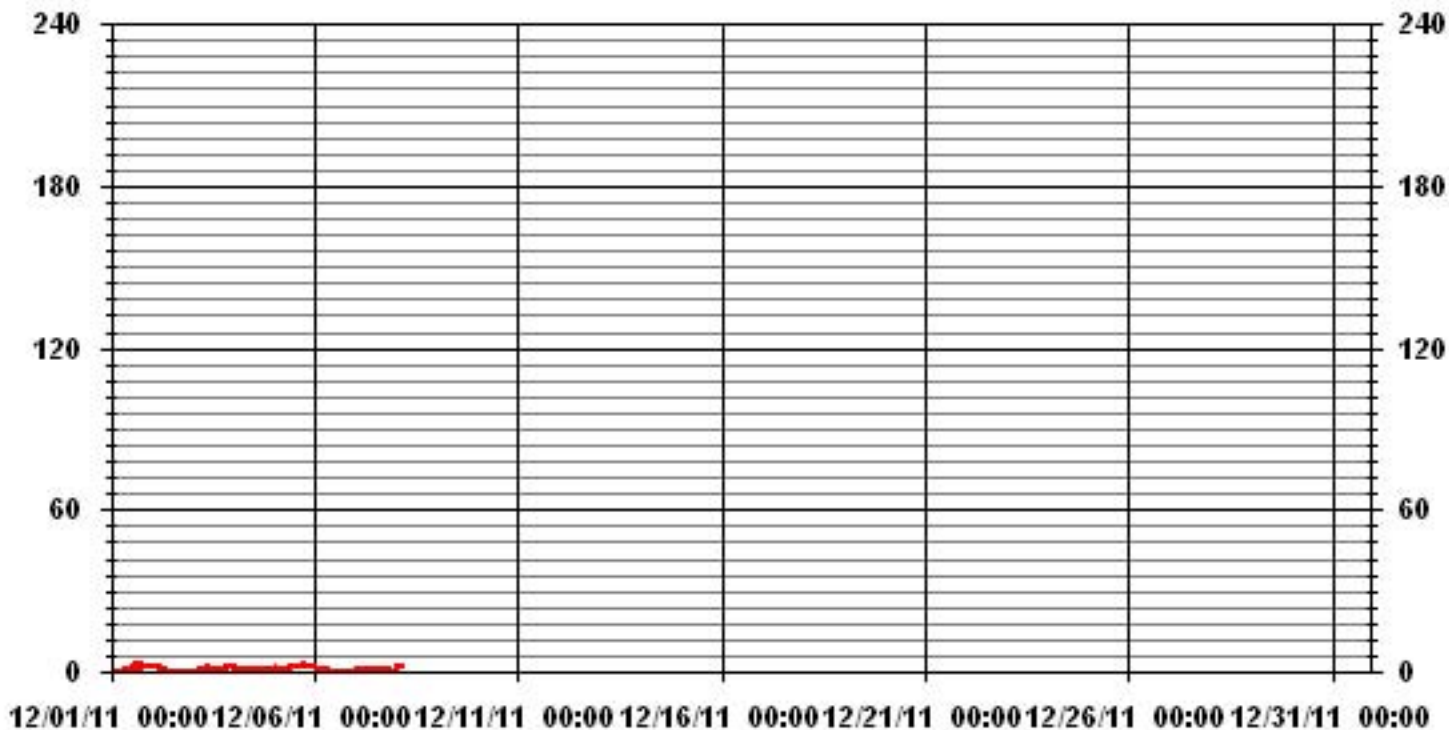
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	120					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	VAR	ON DAY(S)	1, 5
IZS CALIBRATION TIME:	8	HRS		OPERATIONAL TIME:	173	HRS
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION:	0.79					

01 Hour Averages



LICA33
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 20	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	100.00
< 60	.00	.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	.00
< 170	.00	.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	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

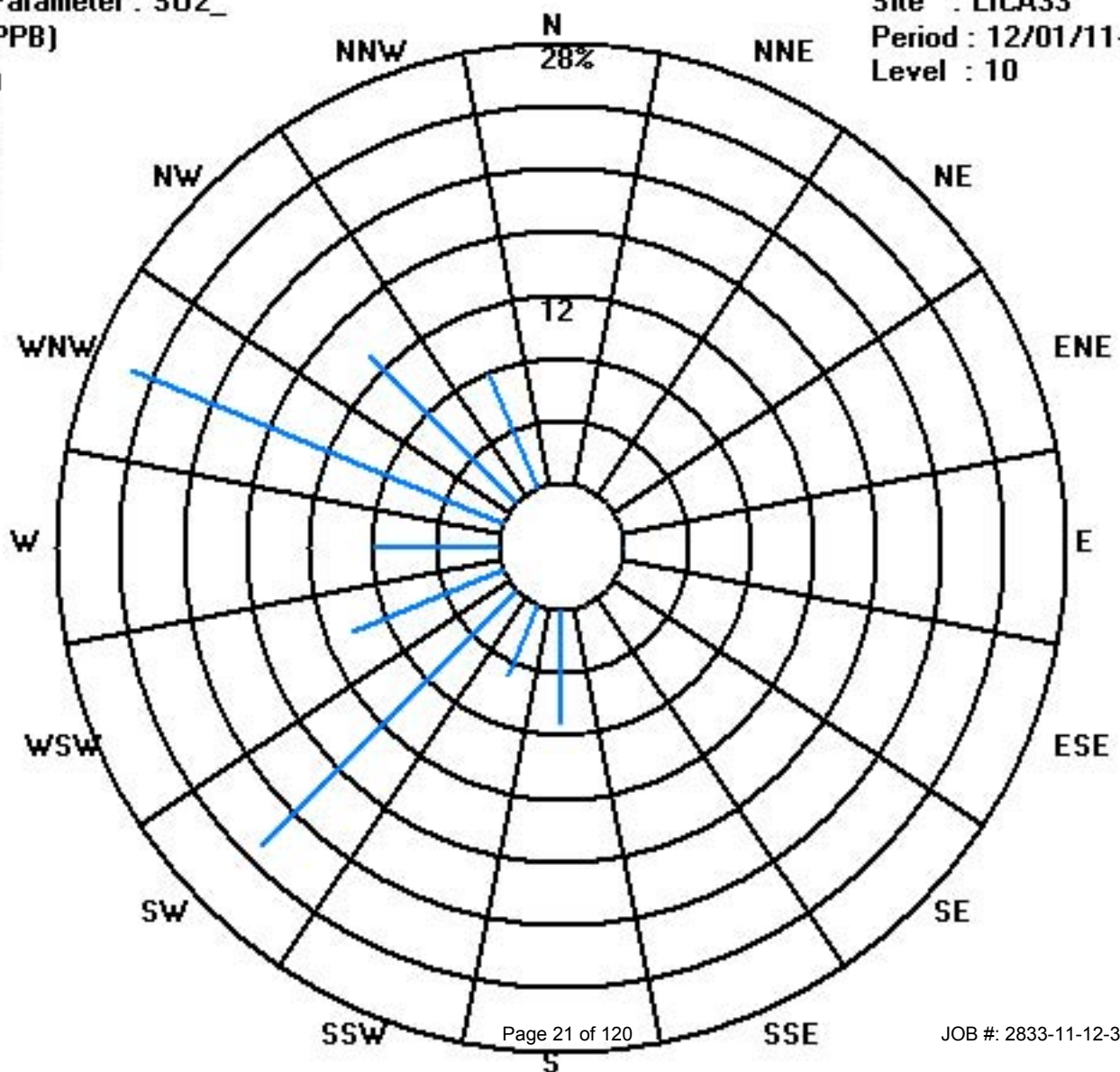
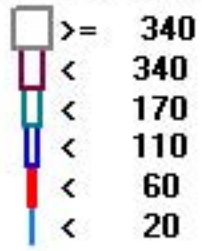
Distribution By Samples

Limit	Direction																Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 20										12	8	38	17	13	42	22	13	165
< 60																		
< 110																		
< 170																		
< 340																		
>= 340																		
Totals										12	8	38	17	13	42	22	13	

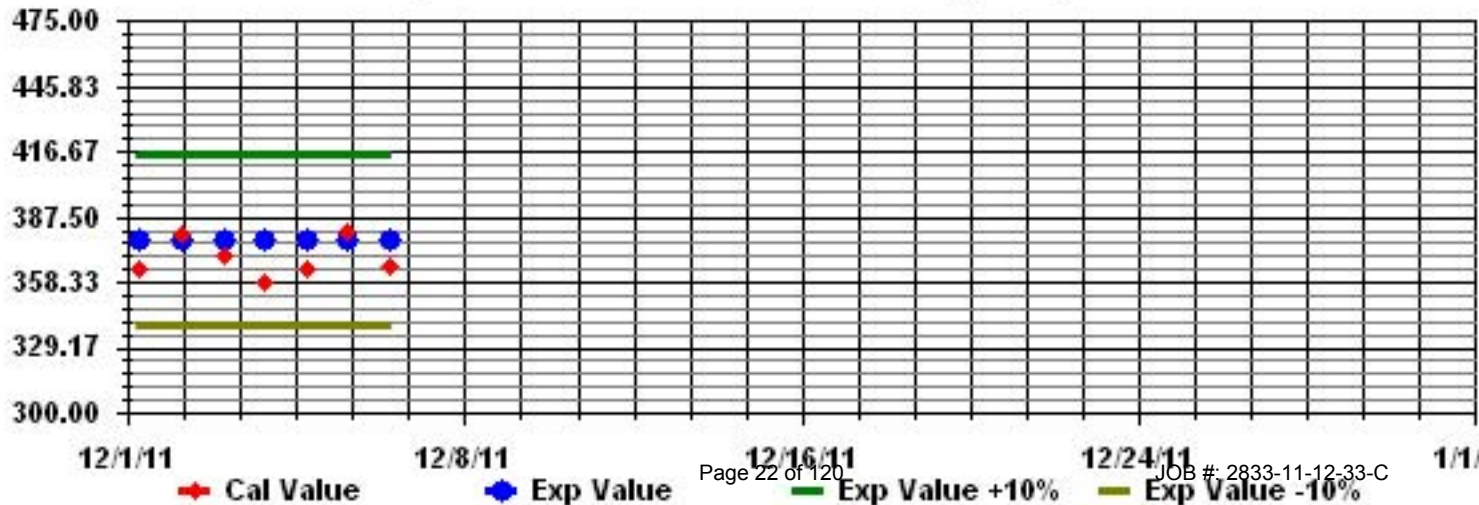
Calm : .00 %

Total # Operational Hours : 165

Class Limits (PPB)



Calibration Graph for Site: LICA33 Parameter: S02_ Sequence: S02 Phase: SPAll



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

STATUS FLAG CODES

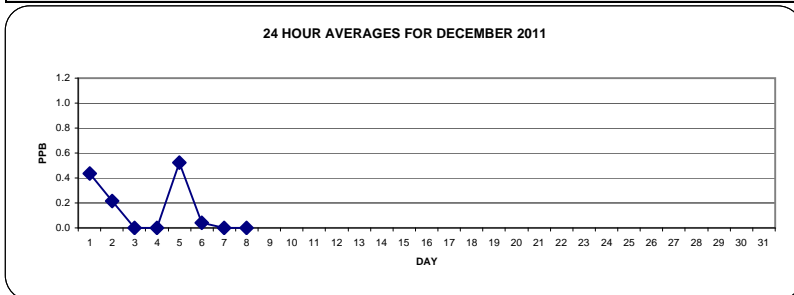
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

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

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	28					
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:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	23.3	%	
STANDARD DEVIATION:	0.38		MONTHLY AVERAGE:	0.17	PPB	



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

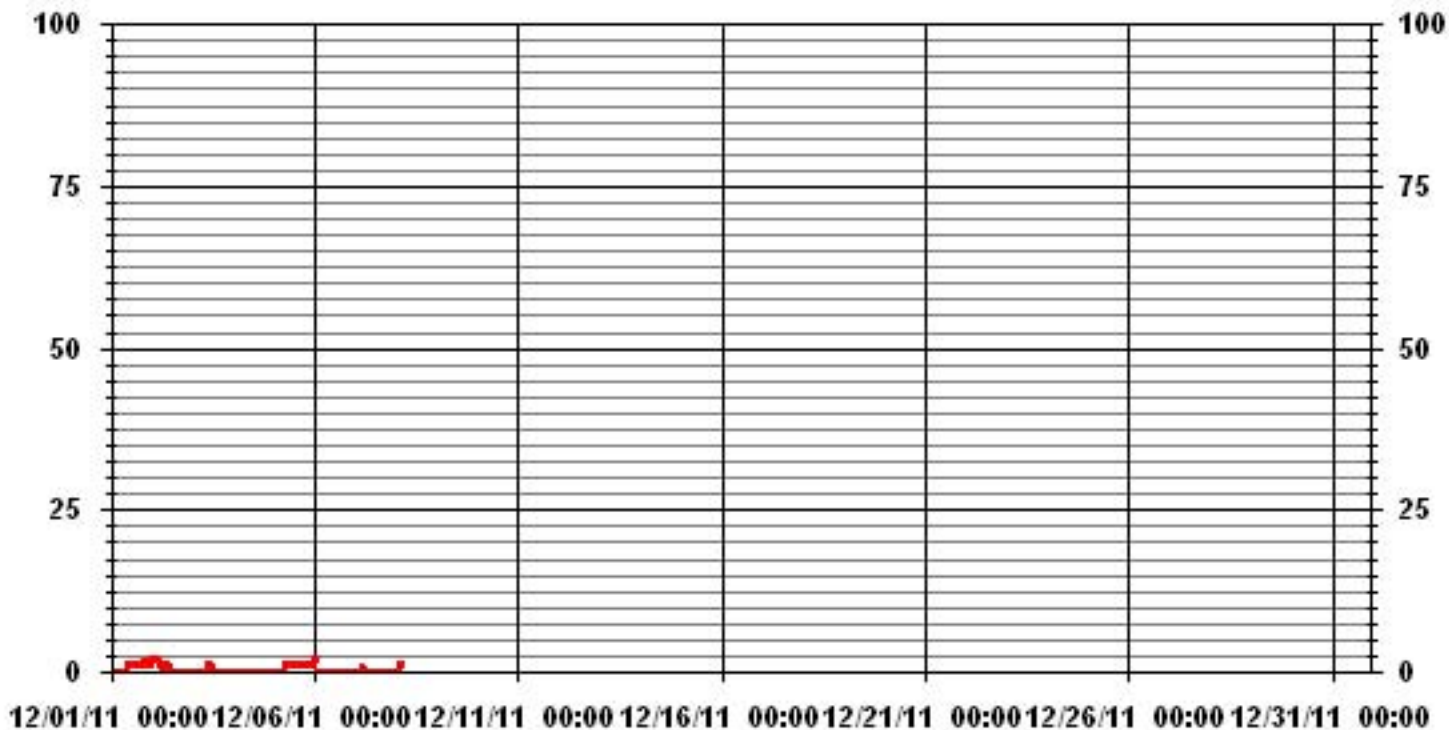
STATUS FLAG CODES

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:	47					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
				VAR - VARIOUS		
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173 HRS		
MONTHLY CALIBRATION TIME:	0 HRS					
STANDARD DEVIATION:	0.54					

01 Hour Averages



LICA33
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3									12	8	38	17	13	42	22	13	165
< 10																	
< 50																	
>= 50																	
Totals									12	8	38	17	13	42	22	13	

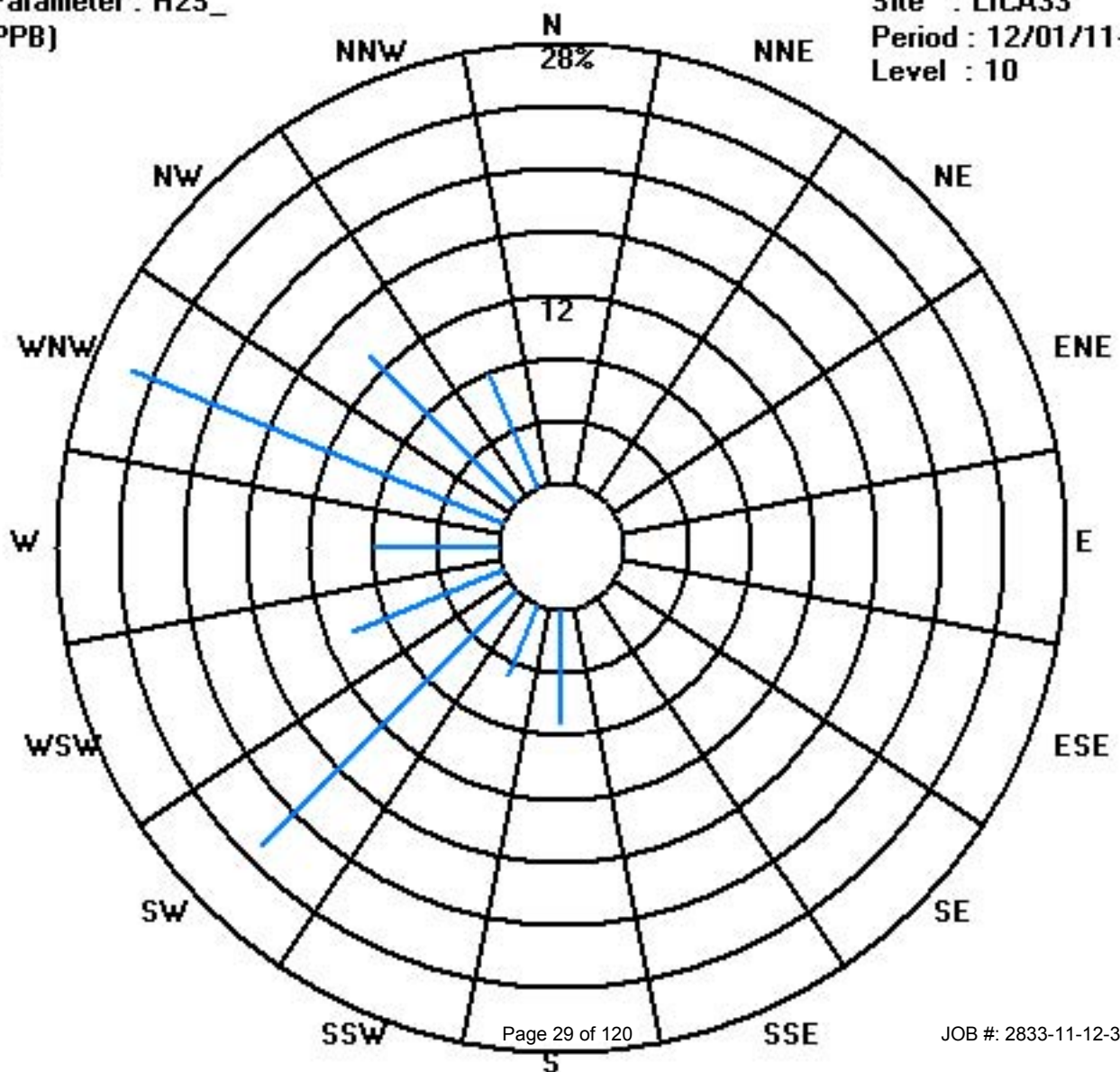
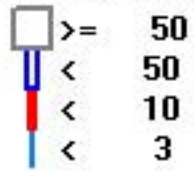
Calm : .00 %

Total # Operational Hours : 165

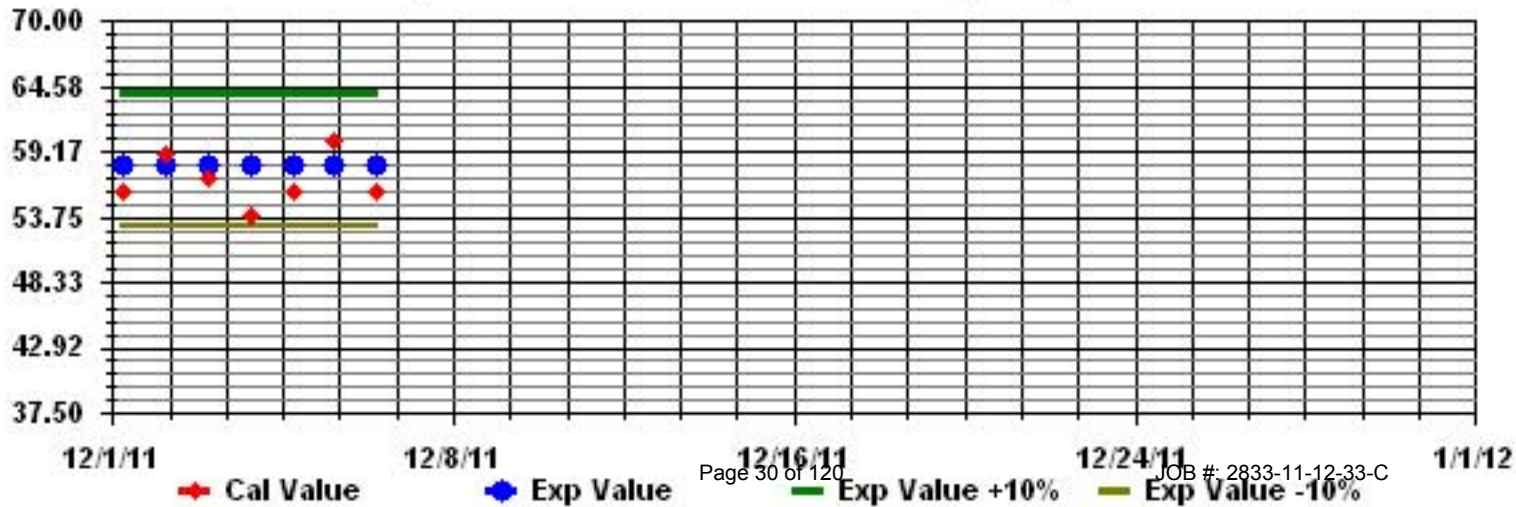
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: H2S_ Sequence: H2S Phase: SPAll



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

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

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	0:00	DAILY 24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	N	3.8	20.8	14.3	0.8	9.8	7.3	5.3	11.8	10.3	10.3	7.8	2.3	3.8	2.3	4.8	0.8	7.3	3.3	0.8	5.3	4.3	0	4.4	20.8	6.2	23		
2	7.8	2.8	N	0.9	2.8	2.4	1.8	0	2.4	4.4	1.3	1.3	1.9	1.3	N	1.9	4.3	1.8	2.8	3.3	N	N	5.8	0	7.8	2.6	20		
3	2.3	4.3	N	N	N	9.3	5.8	11.8	5.3	6.8	11.8	10.8	1.3	0	0.8	0.8	0	0	0	7.3	N	6.8	0.8	0.8	11.8	4.3	20		
4	0.3	4.3	5.8	0	1.8	6.8	0	N	2.8	6.8	N	N	7.8	0	2.8	3.3	7.8	N	3.3	8.3	6.3	6.8	0.3	2.8	8.3	3.9	20		
5	13.3	5.3	0	1.3	6.8	4.3	0.3	N	5.3	8.8	2.3	10.8	6.8	2.3	10.8	7.8	5.3	9.3	4.3	4.3	8.8	9.3	4.8	7.3	13.3	6.1	23		
6	9.8	16.9	12.8	1.8	3.8	0.3	0	0.8	3.8	N	3.3	4.3	0	0.8	1.8	0.3	N	0	0	0	2.8	N	0.3	N	16.9	3.2	20		
7	2.3	N	3.3	N	1.3	9.3	N	2.3	18.3	18.3	0.3	N	1.3	5.8	2.4	10.8	9.8	0	6.8	5.3	N	5.3	8.8	3.3	18.3	6.1	19		
8	N	0	4.8	6.8	13.8																					13.8	6.4	4	
9																													
10																													
11																													
12																													
13																													
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25																													
26																													
27																													
28																													
29																													
30																													
31																													
HOURLY MAX	13	17	21	14	14	10	7	12	18	18	12	11	8	6	11	11	10	9	7	8	9	9	9	9	7				
HOURLY AVG	6.0	5.3	7.9	4.2	4.4	6.0	2.5	4.0	7.1	9.2	4.9	7.0	3.1	2.0	3.5	4.2	4.7	3.1	2.9	4.2	5.8	6.5	3.0	3.1					

STATUS FLAG CODES

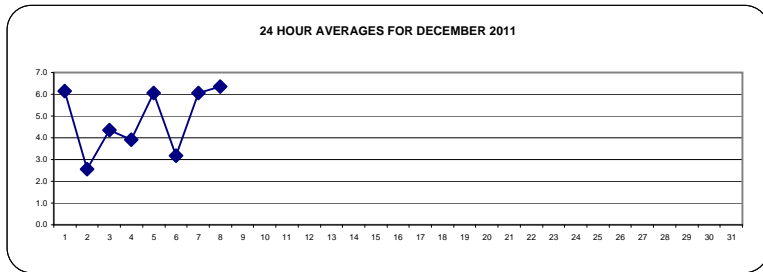
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

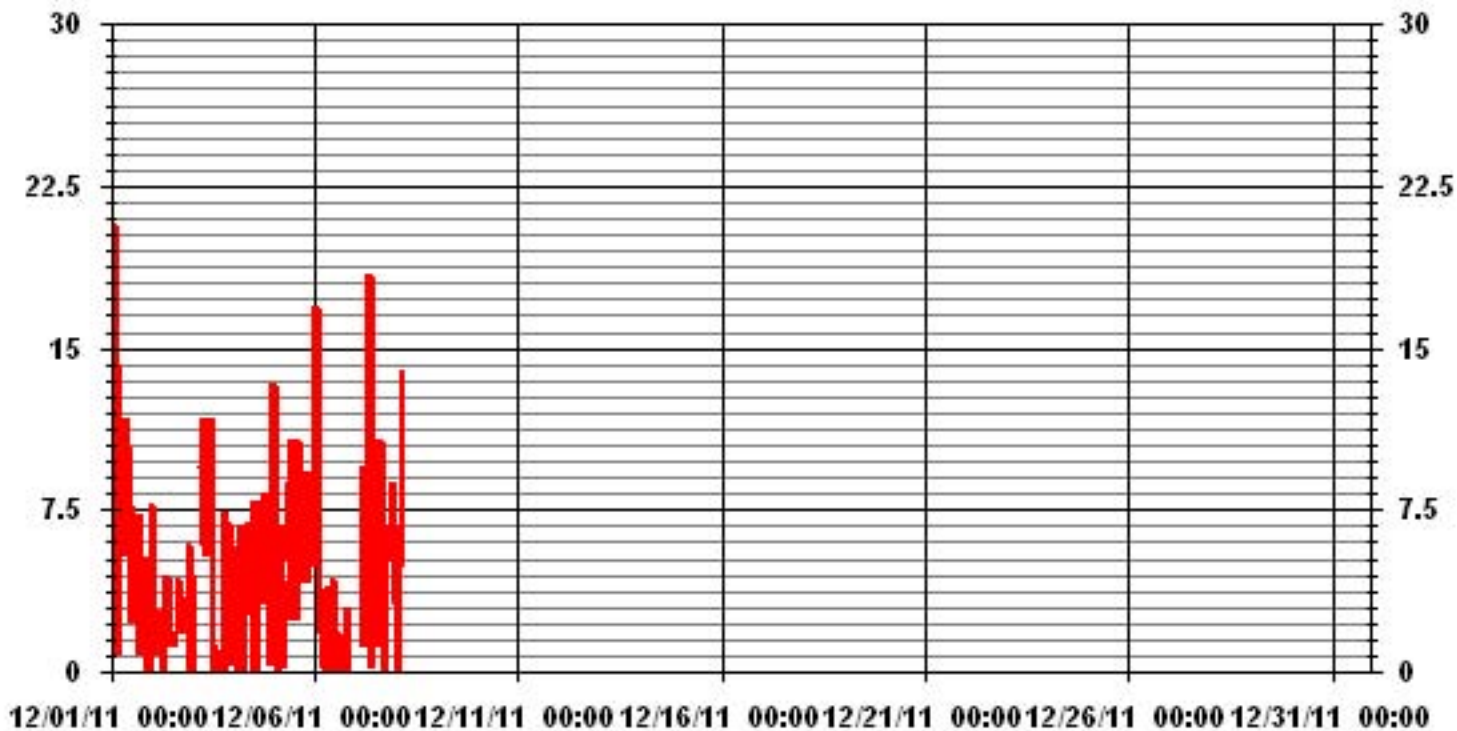
ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-			
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE		
NUMBER OF NON-ZERO READINGS:	131			
MAXIMUM 1-HR AVERAGE:	20.8	UG/M ³	@ HOUR(S)	2 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	6.4	UG/M ³		8 ON DAY(S)
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	149 HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	20.0 %
STANDARD DEVIATION:	4.28		MONTHLY AVERAGE:	4.71 UG/M ³



01 Hour Averages



LICA33
 PM2 / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : PM2
 Units : UG/M3

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq		
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW			
< 30.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.05	4.69	23.48	10.73	9.39	22.81	14.09	6.71	100.00	
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.05	4.69	23.48	10.73	9.39	22.81	14.09	6.71		

Calm : .00 %

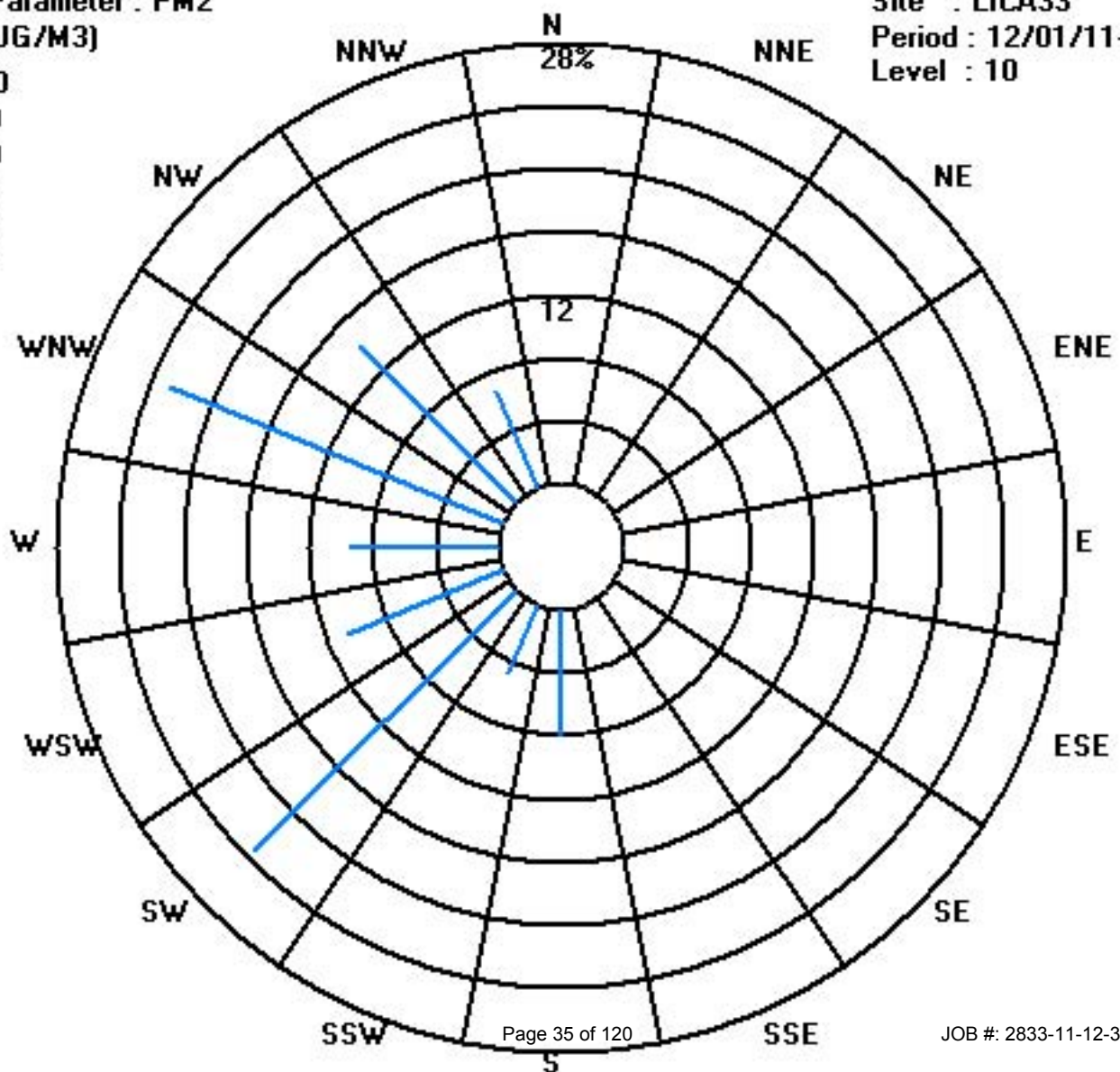
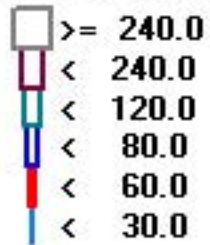
Total # Operational Hours : 149

Distribution By Samples

Limit	Direction																Freq		
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW			
< 30.0										12	7	35	16	14	34	21	10	149	
< 60.0																			
< 80.0																			
< 120.0																			
< 240.0																			
>= 240.0																			
Totals										12	7	35	16	14	34	21	10		

Calm : .00 %

Total # Operational Hours : 149



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

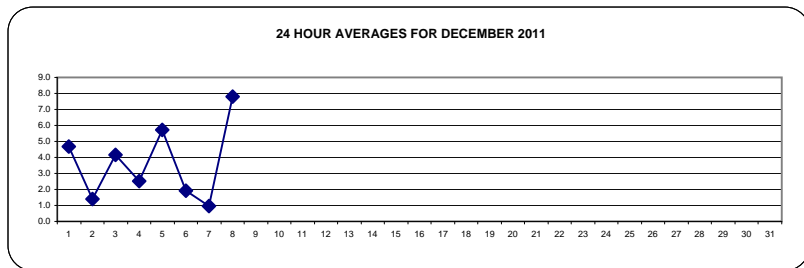
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		4	6	6	3	3	4	IZS	5	6	6	5	5	5	6	7	7	6	7	5	3	3	4	1	1	7	4.7	24	
2		0	0	0	0	0	IZS	1	1	1	0	1	1	1	1	0	1	1	2	2	1	2	5	7	4	7	1.4	24	
3		2	1	1	2	IZS	2	3	5	7	15	10	6	5	2	3	3	4	5	4	3	3	3	4	3	15	4.2	24	
4		4	3	4	IZS	4	3	2	2	2	2	3	2	2	2	2	5	4	2	1	2	1	2	2	2	5	2.5	24	
5		3	3	IZS	3	3	3	4	5	6	6	5	6	5	6	7	8	11	10	9	8	8	6	4	3	11	5.7	24	
6		4	IZS	1	1	6	4	1	1	1	1	1	1	1	1	1	1	2	7	5	1	1	0	1	1	7	1.9	24	
7		IZS	2	1	1	3	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	IZS	3	1.0	24
8		1	3	12	17	6																				17	7.8	5	
9																												0	
10																												0	
11																												0	
12																												0	
13																												0	
14																												0	
15																												0	
16																												0	
17																												0	
18																												0	
19																												0	
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21																												0	
22																												0	
23																												0	
24																												0	
25																												0	
26																												0	
27																												0	
28																												0	
29																												0	
30																												0	
31																												0	
HOURLY MAX		4	6	12	17	6	4	4	5	7	15	10	6	5	6	7	8	11	10	9	8	8	6	7	4				
HOURLY AVG		2.6	2.6	3.6	3.9	3.6	2.8	2.0	2.9	3.4	4.4	3.7	3.1	2.7	2.6	2.9	3.6	4.1	4.9	3.9	2.7	2.7	3.0	2.9	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

OBJECTIVE LIMIT:

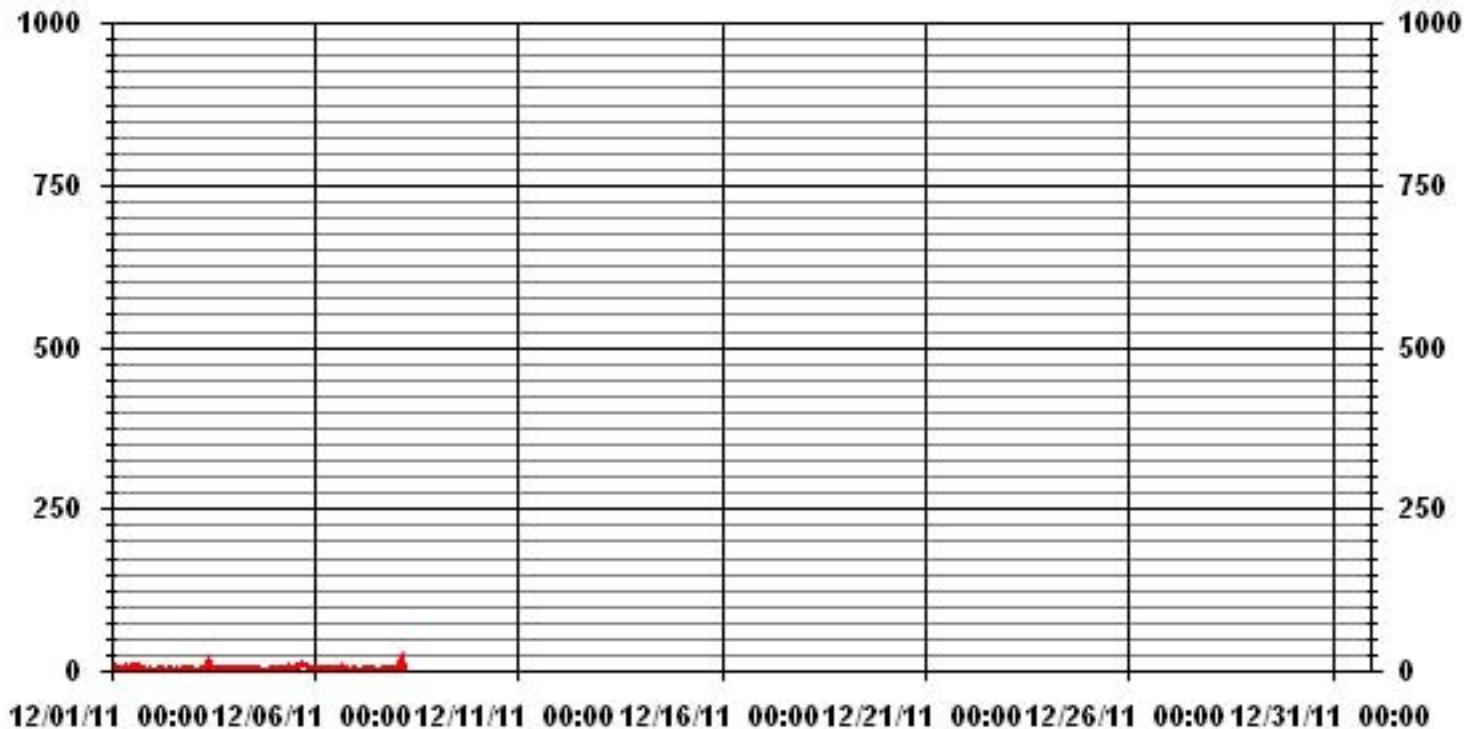
ALBERTA ENVIRONMENT: 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	153					
MAXIMUM 1-HR AVERAGE:	17	PPB	@ HOUR(S)	3	ON DAY(S)	8
MAXIMUM 24-HR AVERAGE:	7.8	PPB			ON DAY(S)	8
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	23.3	%	
STANDARD DEVIATION:	2.83		MONTHLY AVERAGE:	3.21	PPB	

01 Hour Averages



— LICA33 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	6	7	7	5	4	4	IZS	7	7	7	6	6	6	7	8	7	8	8	9	5	4	7	2	2	9	6.0	24	
2	1	1	1	1	1	IZS	1	1	1	3	1	1	1	1	1	1	3	3	3	2	7	9	17	9	17	3.0	24	
3	5	2	2	3	IZS	3	6	8	24	29	24	6	7	3	4	8	10	9	8	4	5	5	8	4	29	8.1	24	
4	4	4	5	IZS	4	4	4	2	3	3	3	3	3	3	4	15	12	3	2	5	2	2	3	3	15	4.2	24	
5	4	4	IZS	4	3	5	5	7	7	7	6	7	6	7	16	10	12	12	11	9	11	8	5	4	16	7.4	24	
6	6	IZS	2	2	10	11	1	2	2	2	2	1	1	2	1	9	3	20	19	2	1	1	1	1	20	4.4	24	
7	IZS	4	2	6	6	2	2	2	2	3	2	1	1	1	1	1	1	2	1	1	1	1	1	1	IZS	6	2.0	24
8	2	10	22	21	15																				22	14.0	5	
9																												0
10																												0
11																												0
12																												0
13																												0
14																												0
15																												0
16																												0
17																												0
18																												0
19																												0
20																												0
21																												0
22																												0
23																												0
24																												0
25																												0
26																												0
27																												0
28																												0
29																												0
30																												0
31																												0
HOURLY MAX	6	10	22	21	15	11	6	8	24	29	24	7	7	7	16	15	12	20	19	9	11	9	17	9				
HOURLY AVG	4.0	4.6	5.9	6.0	6.1	4.8	3.2	4.1	6.6	7.7	6.3	3.6	3.6	3.4	5.0	7.3	7.0	8.1	7.6	4.0	4.4	4.7	5.3	3.8				

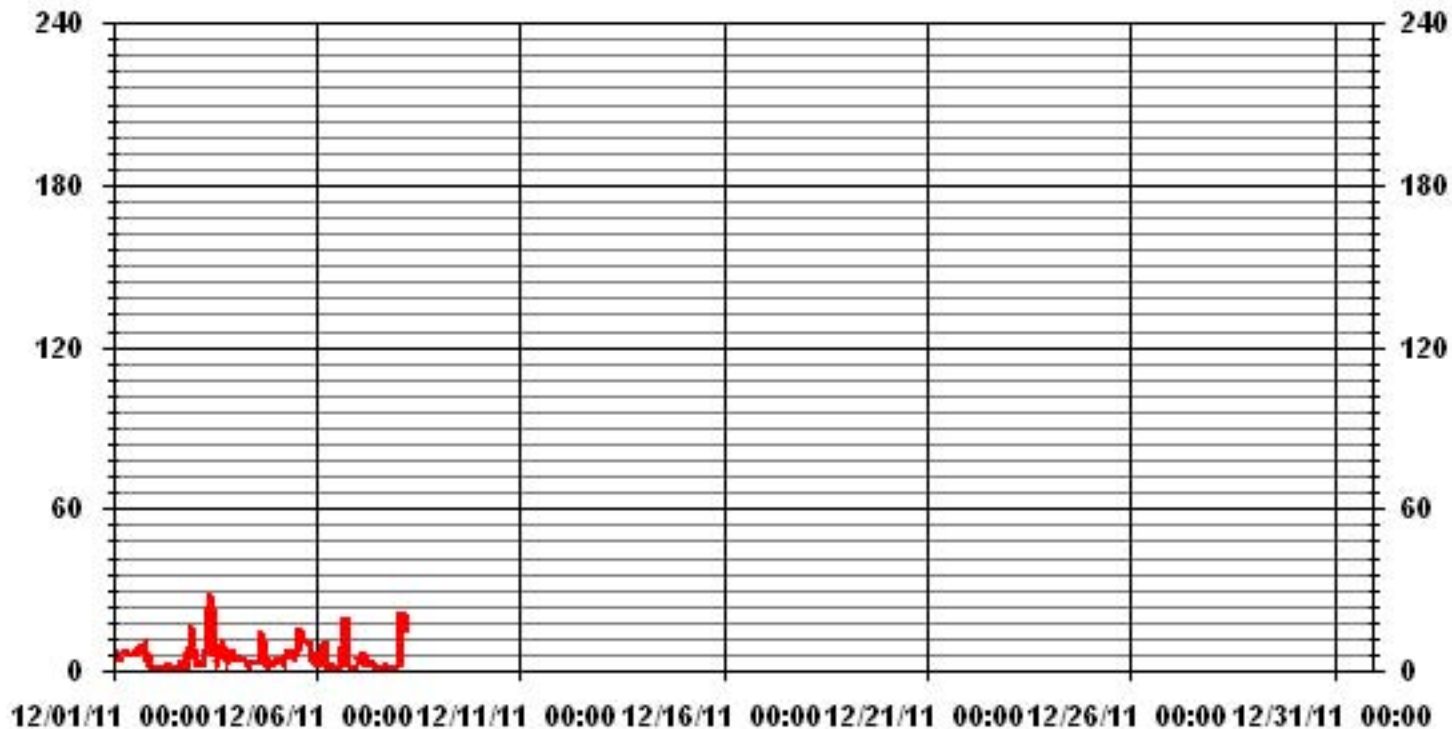
STATUS FLAG CODES

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:	165					
MAXIMUM INSTANTANEOUS VALUE:	29	PPB	@ HOUR(S)	9	ON DAY(S)	3
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION	5.02					

01 Hour Averages



LICA33
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50									12	8	38	17	13	42	22	13	165
< 110																	
< 210																	
>= 210																	
Totals									12	8	38	17	13	42	22	13	

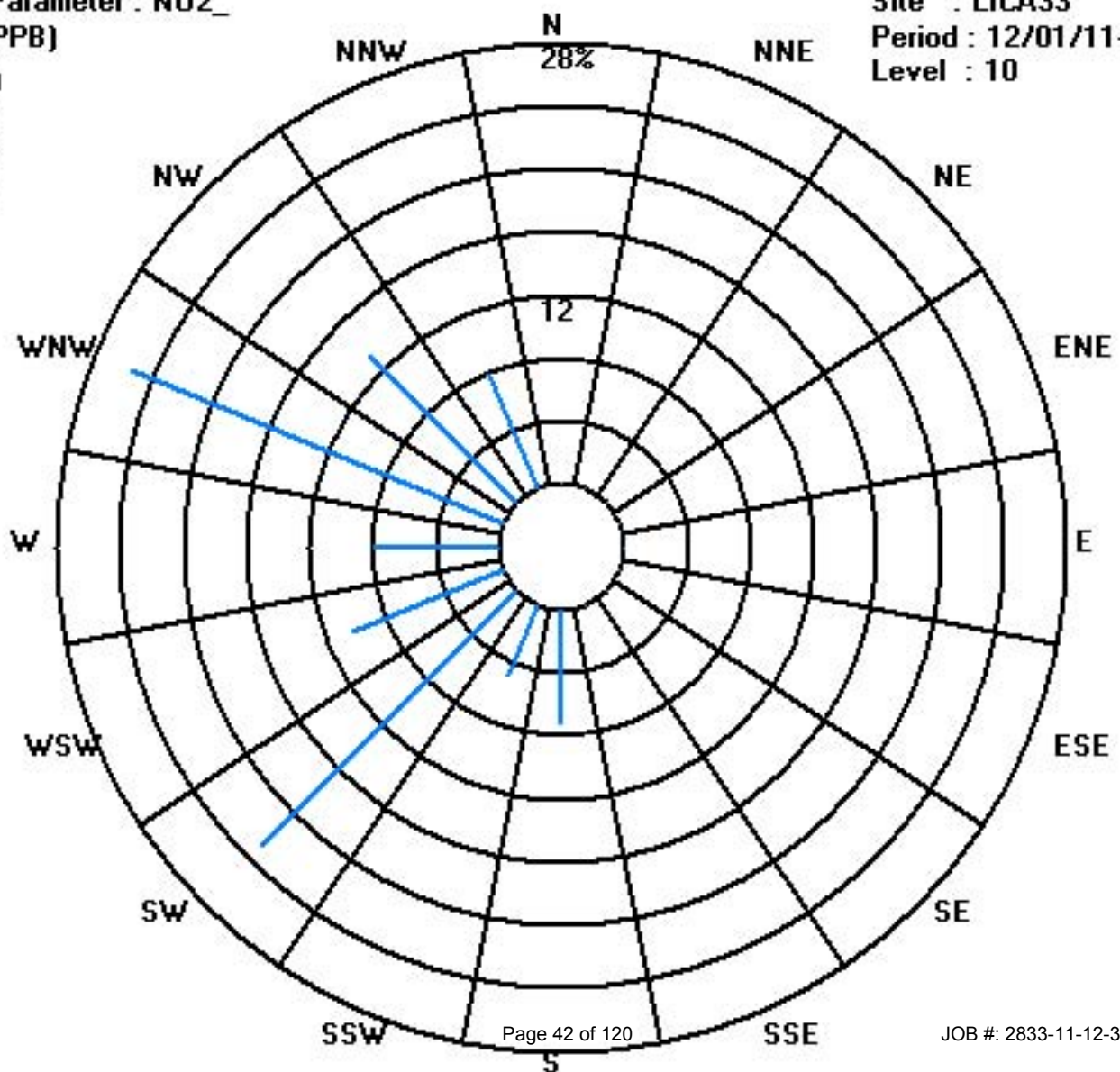
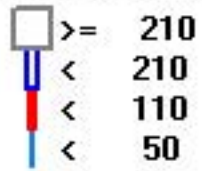
Calm : .00 %

Total # Operational Hours : 165

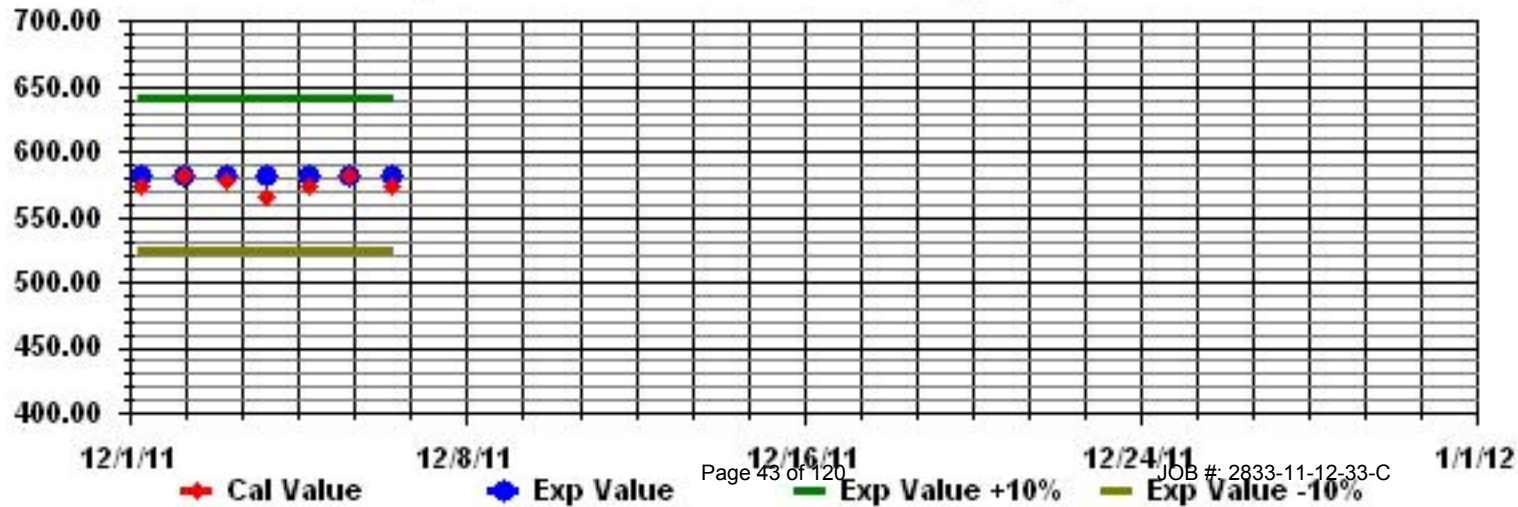
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

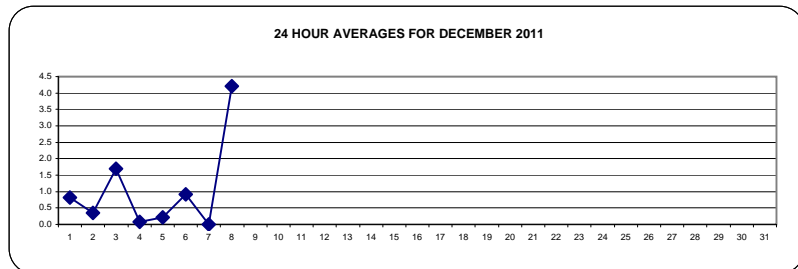
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	IZS	1	1	2	2	2	2	1	1	1	1	1	1	1	0	1	1	0	2	0.8	24
2	0	0	0	0	0	IZS	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	0.3	24
3	0	0	0	1	IZS	0	0	0	7	20	9	1	1	0	0	0	0	0	0	0	0	0	0	0	20	1.7	24
4	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24
5	0	0	IZS	0	0	0	0	0	0	0	1	1	1	1	2	0	0	0	0	0	0	0	0	0	2	0.2	24
6	0	IZS	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	3	3	1	0	0	0	1	3	0.9	24
7	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
8	0	0	7	12	2																				12	4.2	5
9																											0
10																											0
11																											0
12																											0
13																											0
14																											0
15																											0
16																											0
17																											0
18																											0
19																											0
20																											0
21																											0
22																											0
23																											0
24																											0
25																											0
26																											0
27																											0
28																											0
29																											0
30																											0
31																											0
HOURLY MAX	0	0	7	12	2	1	1	1	7	20	9	2	2	1	2	1	1	3	3	1	0	1	1	1			
HOURLY AVG	0.0	0.0	1.1	2.0	0.4	0.2	0.3	0.4	1.4	3.3	1.6	0.7	0.6	0.4	0.6	0.4	0.4	0.7	0.7	0.3	0.0	0.3	0.3	0.3			

STATUS FLAG CODES

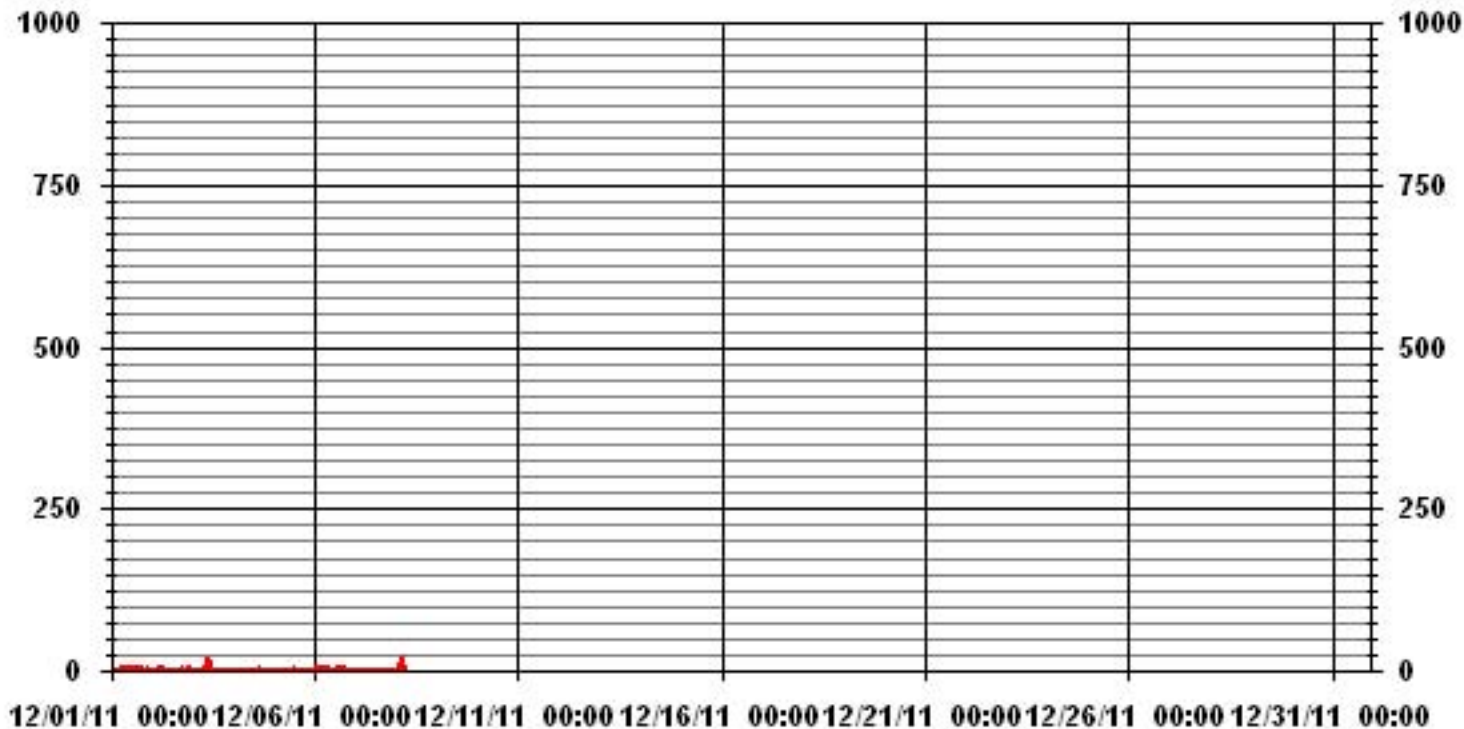
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	55
MAXIMUM 1-HR AVERAGE:	20 PPB @ HOUR(S) 9 ON DAY(S) 3
MAXIMUM 24-HR AVERAGE:	4.2 PPB ON DAY(S) 8
IZS CALIBRATION TIME:	8 HRS
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	2.10
OPERATIONAL TIME:	173 HRS
AMD OPERATION UPTIME:	23.3 %
MONTHLY AVERAGE:	0.70 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	IZS	3	2	2	3	3	3	2	2	2	4	1	2	1	1	2	1	1	4	1.5	24	
2	1	1	1	1	1	IZS	1	1	2	5	1	1	1	1	1	1	1	1	1	1	2	3	2	1	5	1.4	24	
3	1	1	1	1	IZS	1	0	1	47	48	42	1	2	1	0	1	0	0	0	0	0	0	0	0	48	6.4	24	
4	0	0	0	IZS	1	0	0	0	1	0	1	1	1	1	1	6	3	0	0	1	0	0	0	0	6	0.7	24	
5	0	0	IZS	1	0	0	0	1	0	1	1	2	1	1	11	2	0	0	0	0	0	0	0	0	11	0.9	24	
6	0	IZS	2	1	1	6	1	1	1	1	1	1	1	1	1	12	1	12	15	1	1	1	1	1	15	2.8	24	
7	IZS	1	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.3	24
8	0	3	15	17	10																				17	9.0	5	
9																												
10																												
11																												
12																												
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28																												
29																												
30																												
31																												
HOURLY MAX	1	3	15	17	10	6	1	3	47	48	42	3	3	2	11	12	4	12	15	1	2	3	2	1				
HOURLY AVG	0.3	0.9	2.7	3.0	2.1	1.2	0.3	1.0	7.6	8.4	7.1	1.3	1.3	1.0	2.3	3.4	1.3	2.0	2.6	0.6	0.6	0.9	0.6	0.5				

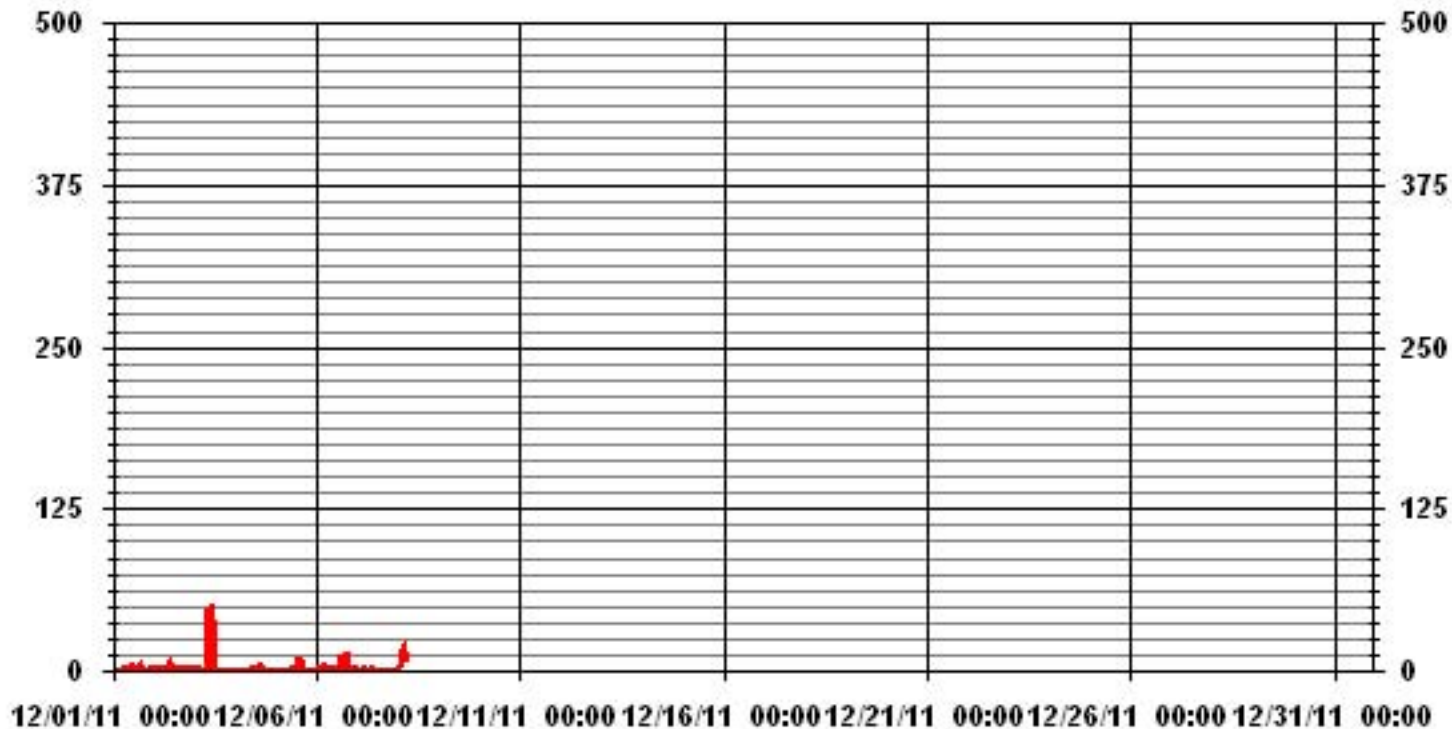
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	102					
MAXIMUM INSTANTANEOUS VALUE:	48	PPB	@ HOUR(S)	9	ON DAY(S)	3
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION	6.52					

01 Hour Averages



LICA33
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50									12	8	38	17	13	42	22	13	165
< 110																	
< 210																	
>= 210																	
Totals									12	8	38	17	13	42	22	13	

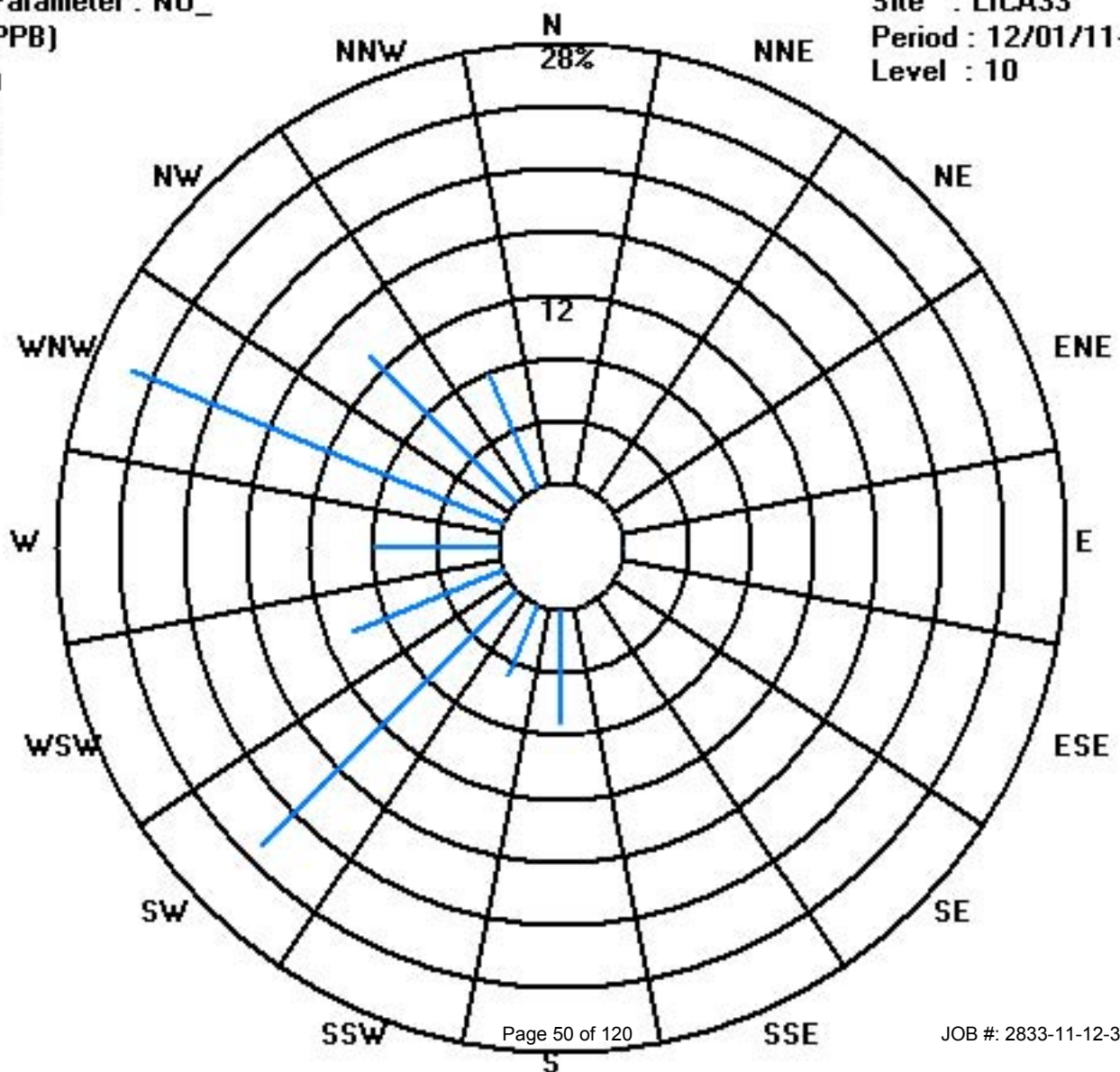
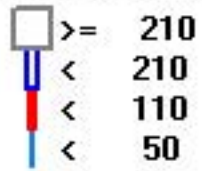
Calm : .00 %

Total # Operational Hours : 165

Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

OXIDES OF NITROGEN hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	4	6	5	3	3	3	IZS	6	6	6	6	6	6	7	6	6	6	5	3	2	3	1	0	7	4.6	24	
2	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	2	2	3	2	3	5	7	4	7	1.7	24	
3	2	2	1	3	IZS	3	4	6	15	36	21	7	7	3	3	4	4	6	4	3	3	3	5	3	36	6.4	24
4	4	4	5	IZS	5	4	3	2	3	3	4	3	3	2	3	7	5	2	2	3	2	2	2	3	7	3.3	24
5	4	4	IZS	3	2	3	4	5	6	6	5	6	6	6	9	8	10	10	9	8	7	5	3	3	10	5.7	24
6	4	IZS	1	1	6	4	0	0	0	1	0	0	0	0	1	1	9	6	0	0	0	0	0	0	9	1.5	24
7	IZS	3	2	2	4	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	4	1.6	24
8	1	3	18	29	8																				29	11.8	5
9																											0
10																											0
11																											0
12																											0
13																											0
14																											0
15																											0
16																											0
17																											0
18																											0
19																											0
20																											0
21																											0
22																											0
23																											0
24																											0
25																											0
26																											0
27																											0
28																											0
29																											0
30																											0
31																											0
HOURLY MAX	4	6	18	29	8	4	4	6	15	36	21	7	7	6	9	8	10	10	9	8	7	5	7	4			
HOURLY AVG	2.7	3.1	4.6	5.9	4.0	3.2	2.3	3.1	4.7	7.9	5.6	3.4	3.4	2.7	3.4	4.0	4.1	5.1	4.3	2.9	2.6	2.7	2.7	2.2			

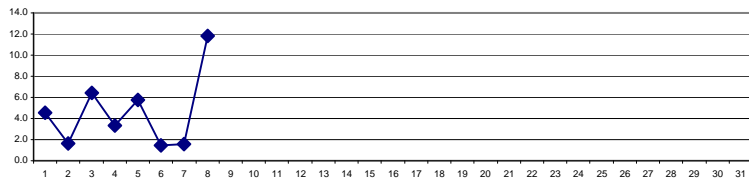
STATUS FLAG CODES

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

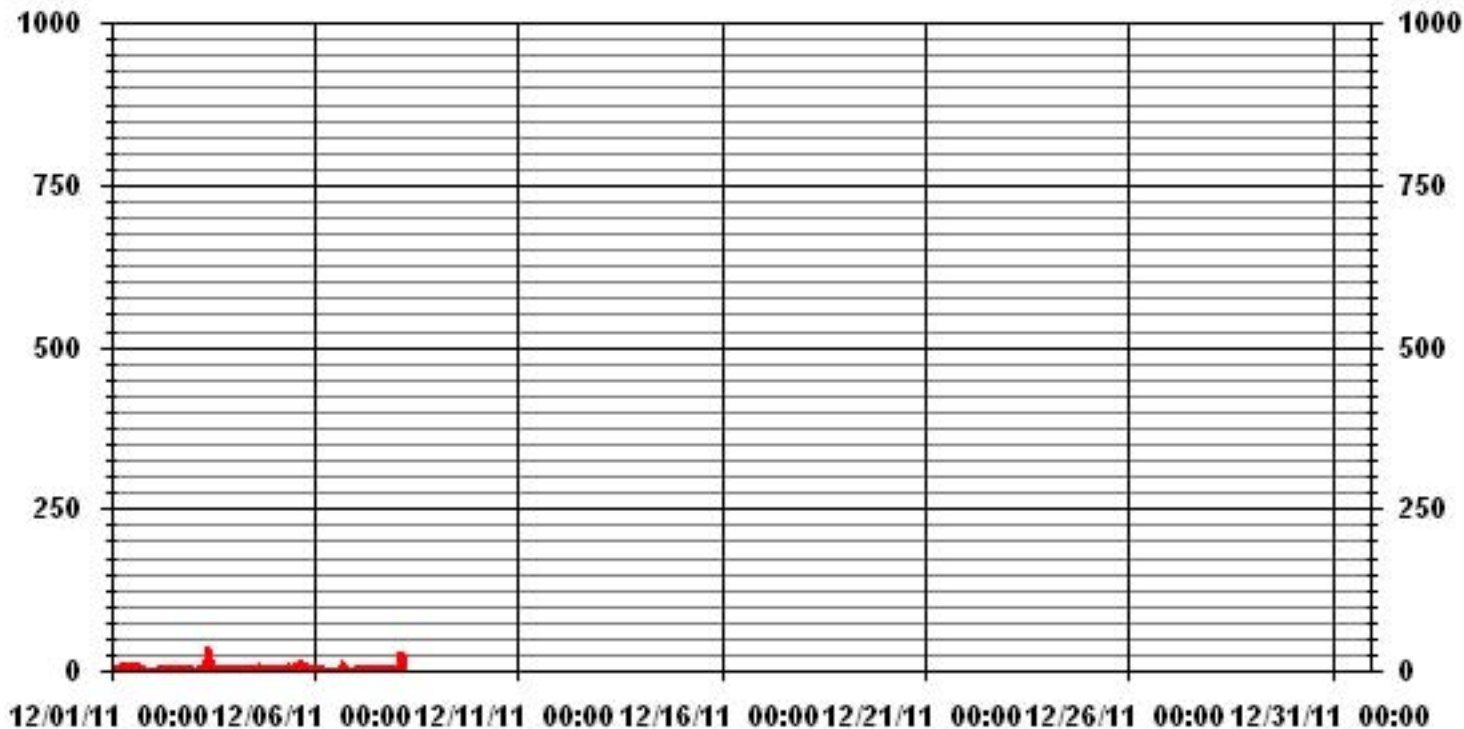
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	146					
MAXIMUM 1-HR AVERAGE:	36	PPB	@ HOUR(S)	9	ON DAY(S)	3
MAXIMUM 24-HR AVERAGE:	11.8	PPB			ON DAY(S)	8
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	23.3	%	
STANDARD DEVIATION:	4.46		MONTHLY AVERAGE:	3.80	PPB	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA33 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	5	6	6	4	3	4	IZS	8	7	8	7	7	7	8	8	7	11	7	9	4	3	8	1	1	11	6.0	24	
2	0	0	0	0	0	IZS	2	2	3	7	2	2	2	2	2	2	3	4	4	2	8	11	18	9	18	3.7	24	
3	5	2	2	4	IZS	4	7	9	70	75	64	8	10	4	5	9	11	9	9	5	5	6	8	4	75	14.6	24	
4	5	4	6	IZS	5	5	4	3	5	4	5	4	5	4	6	22	15	4	3	6	3	3	3	3	22	5.5	24	
5	4	4	IZS	4	3	4	4	7	7	7	6	8	7	7	27	11	12	11	11	9	10	7	4	3	27	7.7	24	
6	5	IZS	2	2	10	16	1	1	2	2	1	1	0	1	1	20	3	31	33	1	0	0	1	1	33	5.9	24	
7	IZS	5	3	6	9	2	2	2	2	4	3	2	1	1	2	2	2	2	2	2	2	2	2	IZS	9	2.7	24	
8	1	13	37	37	24																				37	22.4	5	
9																												0
10																												0
11																												0
12																												0
13																												0
14																												0
15																												0
16																												0
17																												0
18																												0
19																												0
20																												0
21																												0
22																												0
23																												0
24																												0
25																												0
26																												0
27																												0
28																												0
29																												0
30																												0
31																												0
HOURLY MAX	5	13	37	37	24	16	7	9	70	75	64	8	10	8	27	22	15	31	33	9	10	11	18	9				
HOURLY AVG	3.6	4.9	8.0	8.1	7.7	5.8	3.3	4.6	13.7	15.3	12.6	4.6	4.6	3.9	7.3	10.4	8.1	9.7	10.1	4.1	4.4	5.3	5.3	3.5				

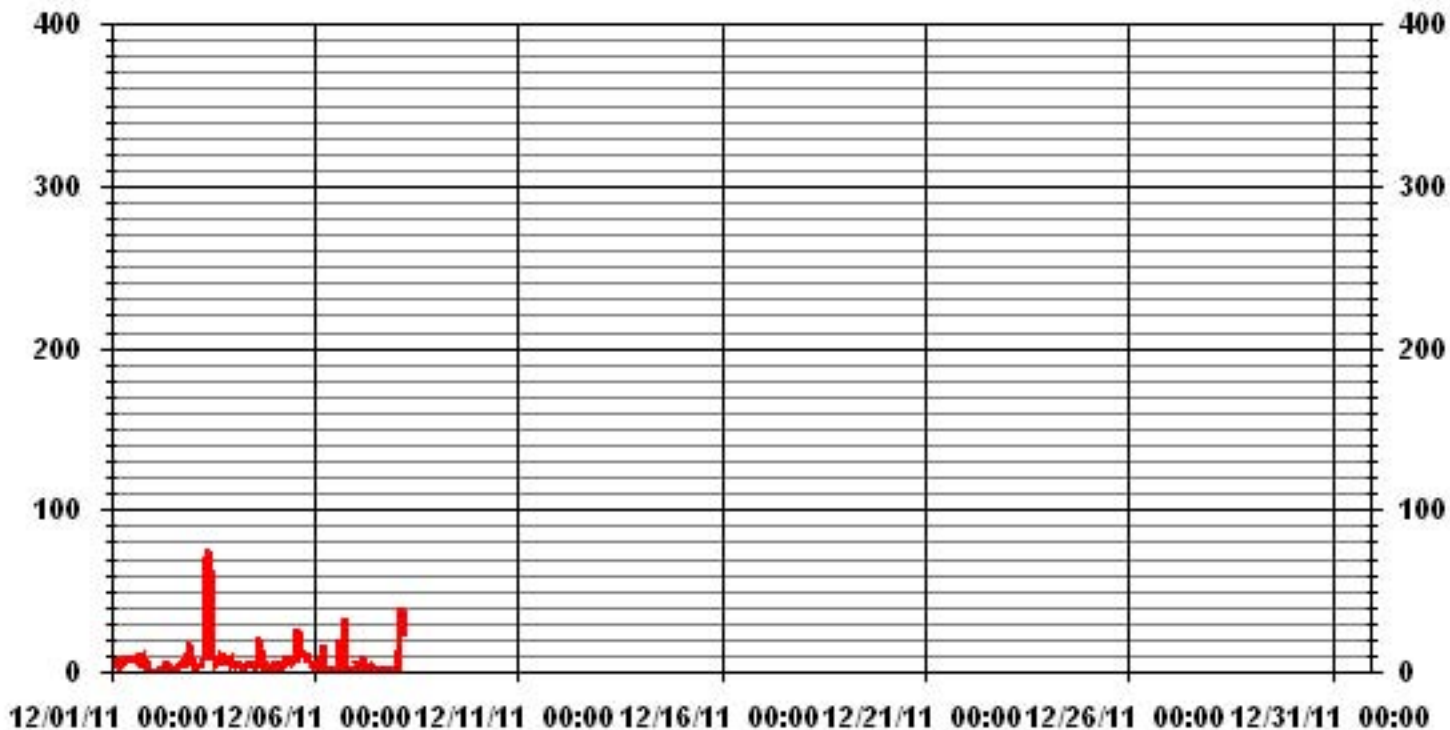
STATUS FLAG CODES

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:	157
MAXIMUM INSTANTANEOUS VALUE:	75 PPB @ HOUR(S) 9 ON DAY(S) 3
IZS CALIBRATION TIME:	8 HRS
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION	10.61
OPERATIONAL TIME:	173 HRS

01 Hour Averages



LICA33
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : NOX_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50									12	8	38	17	13	42	22	13	165
< 110																	
< 210																	
>= 210																	
Totals									12	8	38	17	13	42	22	13	

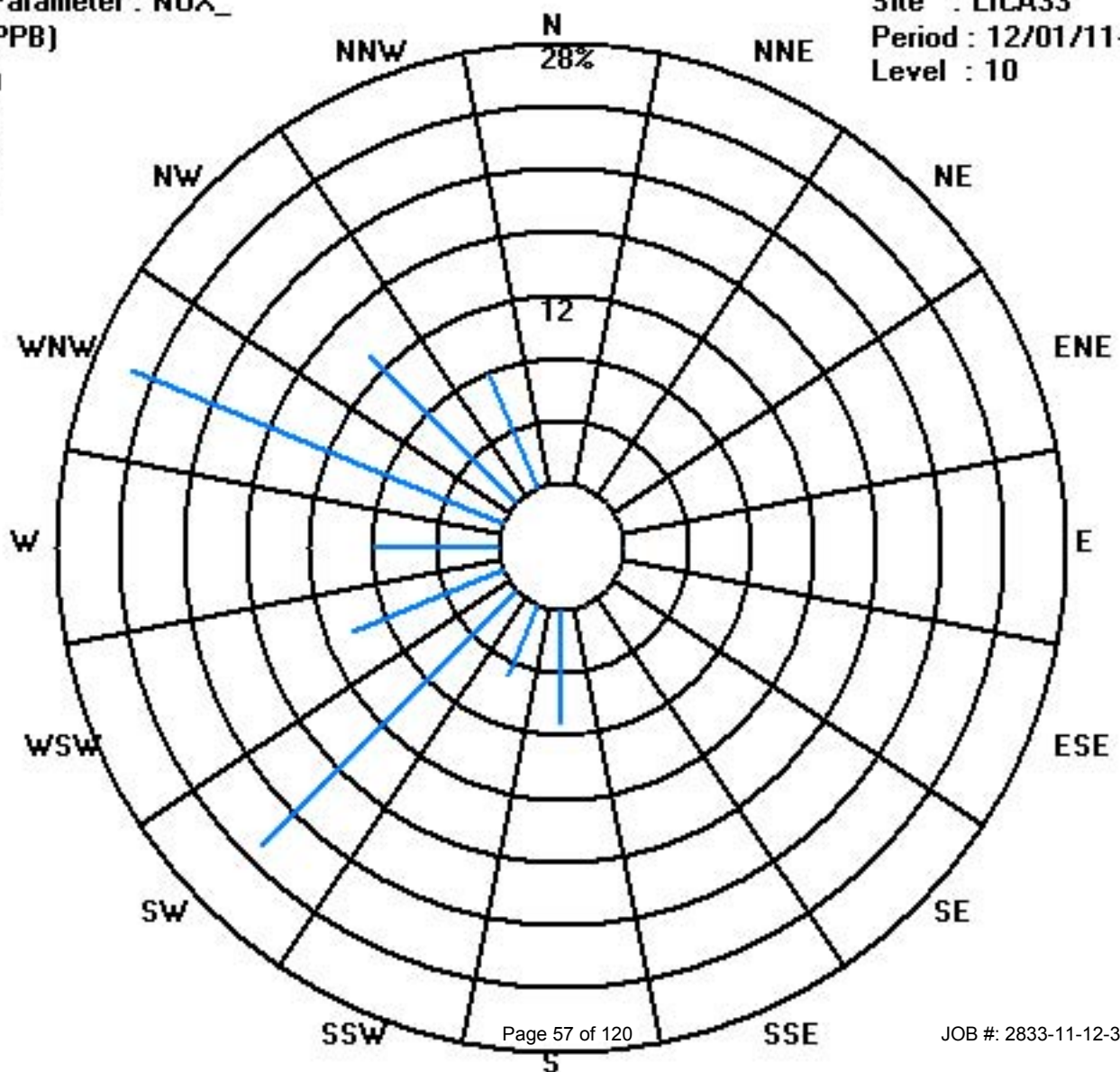
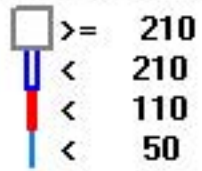
Calm : .00 %

Total # Operational Hours : 165

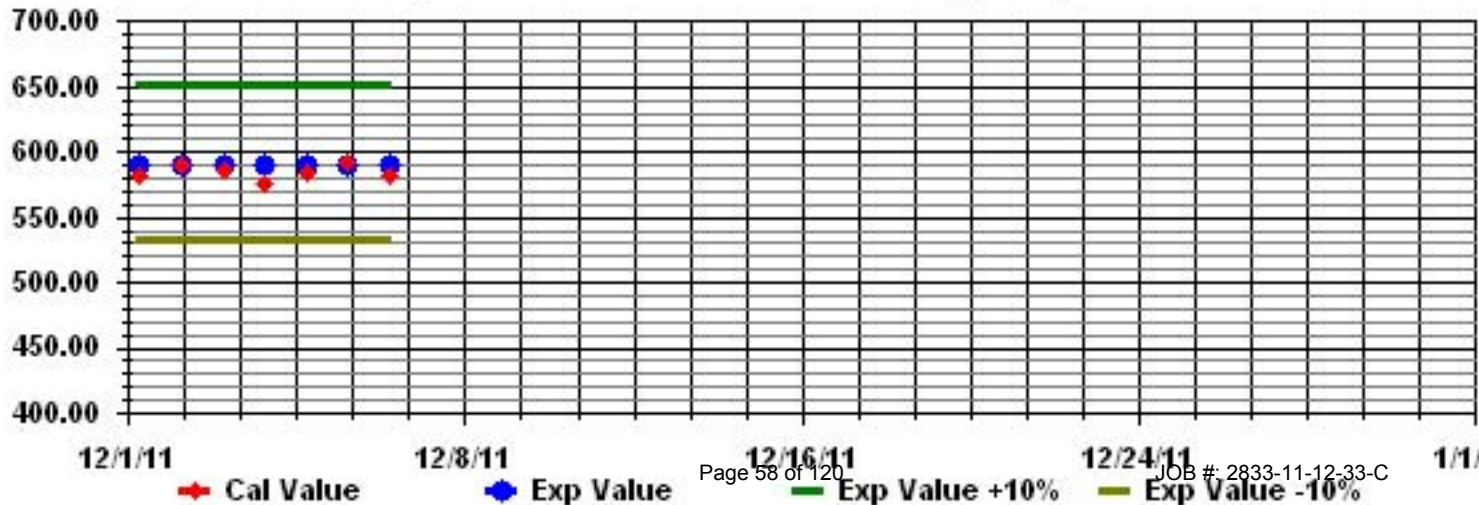
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	20	17	17	23	22	20	IZS	19	20	21	22	24	25	26	26	26	27	25	30	33	35	35	38	38	38	25.6	24
2	37	36	35	34	33	IZS	33	33	34	30	27	28	29	31	34	35	33	31	30	30	28	25	22	24	37	31.0	24
3	25	27	28	26	IZS	26	24	22	18	10	15	21	23	26	28	27	27	26	29	30	30	29	26	27	30	24.8	24
4	27	26	25	IZS	24	25	28	28	27	28	27	27	27	28	28	26	29	30	30	26	29	30	30	28	30	27.5	24
5	27	26	IZS	26	27	26	24	23	22	22	24	23	23	22	20	19	17	20	21	22	22	24	27	28	28	23.3	24
6	28	IZS	31	30	24	31	37	36	37	33	34	35	35	34	34	32	31	25	29	36	35	37	36	35	37	32.8	24
7	IZS	28	28	29	30	32	33	33	34	34	35	35	36	36	35	37	37	36	36	36	36	36	35	IZS	37	34.0	24
8	33	31	22	17	26																				33	25.8	5
9																											0
10																											0
11																											0
12																											0
13																											0
14																											0
15																											0
16																											0
17																											0
18																											0
19																											0
20																											0
21																											0
22																											0
23																											0
24																											0
25																											0
26																											0
27																											0
28																											0
29																											0
30																											0
31																											0
HOURLY MAX	37	36	35	34	33	32	37	36	37	34	35	35	36	36	35	37	37	36	36	36	36	37	38	38			
HOURLY AVG	28.1	27.3	26.6	26.4	26.6	26.7	29.8	27.7	27.4	25.4	26.3	27.6	28.3	29.0	29.3	28.9	28.7	27.6	29.3	30.4	30.7	30.9	30.6	30.0			

STATUS FLAG CODES

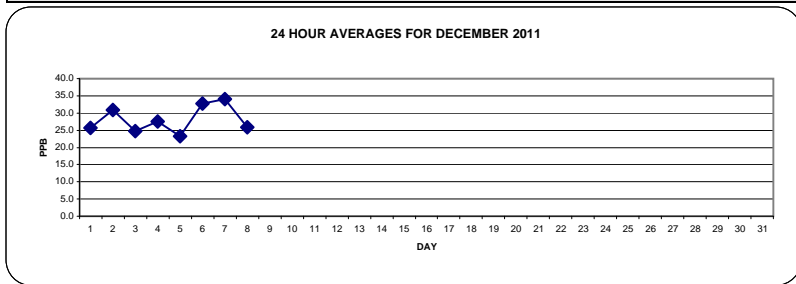
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

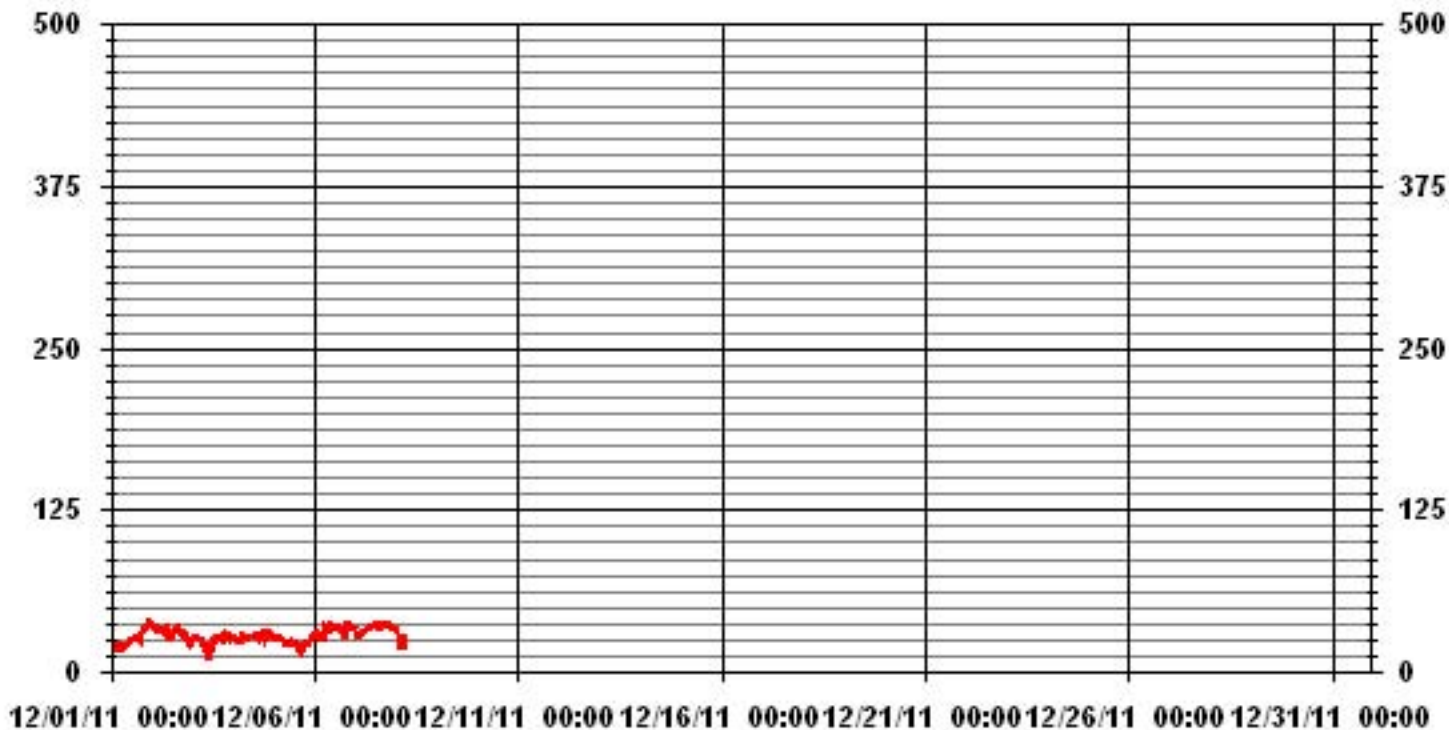
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	165				
MAXIMUM 1-HR AVERAGE:	38	PPB	@ HOUR(S)	22, 23	ON DAY(S) 1
MAXIMUM 24-HR AVERAGE:	34.0	PPB			ON DAY(S) 7
					VAR-VARIOUS
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	23.3	%
STANDARD DEVIATION	5.54		MONTHLY AVERAGE	28.30	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	22	18	20	24	23	21	IZS	20	21	23	24	25	26	26	27	27	28	27	33	35	36	38	39	39	39	27.0	24	
2	38	37	36	35	34	IZS	34	34	35	34	28	28	30	33	35	36	35	33	31	31	30	29	27	26	38	32.6	24	
3	27	28	28	28	IZS	28	26	23	22	20	21	23	26	26	30	30	30	29	32	32	31	31	28	28	32	27.3	24	
4	28	27	26	IZS	25	26	29	29	28	29	28	28	29	29	29	32	33	31	31	29	31	30	31	30	33	29.0	24	
5	28	27	IZS	27	27	27	25	24	23	24	24	24	23	23	23	23	21	21	23	22	24	26	28	29	29	24.6	24	
6	31	IZS	33	31	28	37	38	38	38	36	35	36	35	34	35	34	33	31	33	37	36	37	37	36	38	34.7	24	
7	IZS	33	30	31	32	32	34	34	35	35	36	36	36	36	36	37	38	37	37	37	37	37	36	IZS	38	35.1	24	
8	34	33	31	26	29																				34	30.6	5	
9																												0
10																												0
11																												0
12																												0
13																												0
14																												0
15																												0
16																												0
17																												0
18																												0
19																												0
20																												0
21																												0
22																												0
23																												0
24																												0
25																												0
26																												0
27																												0
28																												0
29																												0
30																												0
31																												0
HOURLY MAX	38	37	36	35	34	37	38	38	38	36	36	36	36	36	36	37	38	37	37	37	37	38	39	39				
HOURLY AVG	29.7	29.0	29.1	28.9	28.3	28.5	31.0	28.9	28.9	28.7	28.0	28.6	29.3	29.6	30.7	31.3	31.1	29.9	31.4	31.9	32.1	32.6	32.3	31.3				

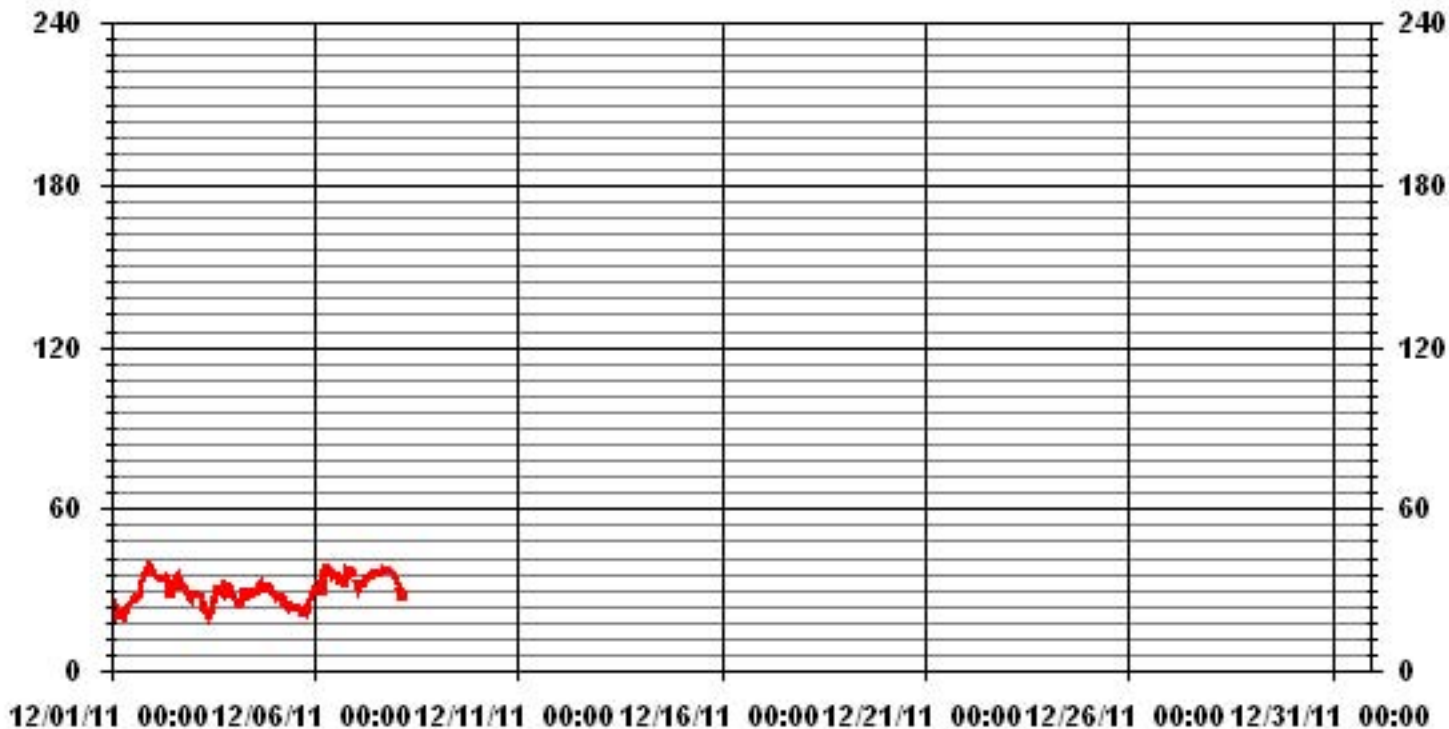
STATUS FLAG CODES

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:	165				
MAXIMUM INSTANTANEOUS VALUE:	39	PPB	@ HOUR(S)	22, 23	ON DAY(S) 1
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS
MONTHLY CALIBRATION TIME:	0	HRS			
STANDARD DEVIATION	5.07				

01 Hour Averages



LICA33
 O3_ / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	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	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

Total # Operational Hours : 165

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50									12	8	38	17	13	42	22	13	165
< 110																	
< 210																	
>= 210																	
Totals									12	8	38	17	13	42	22	13	

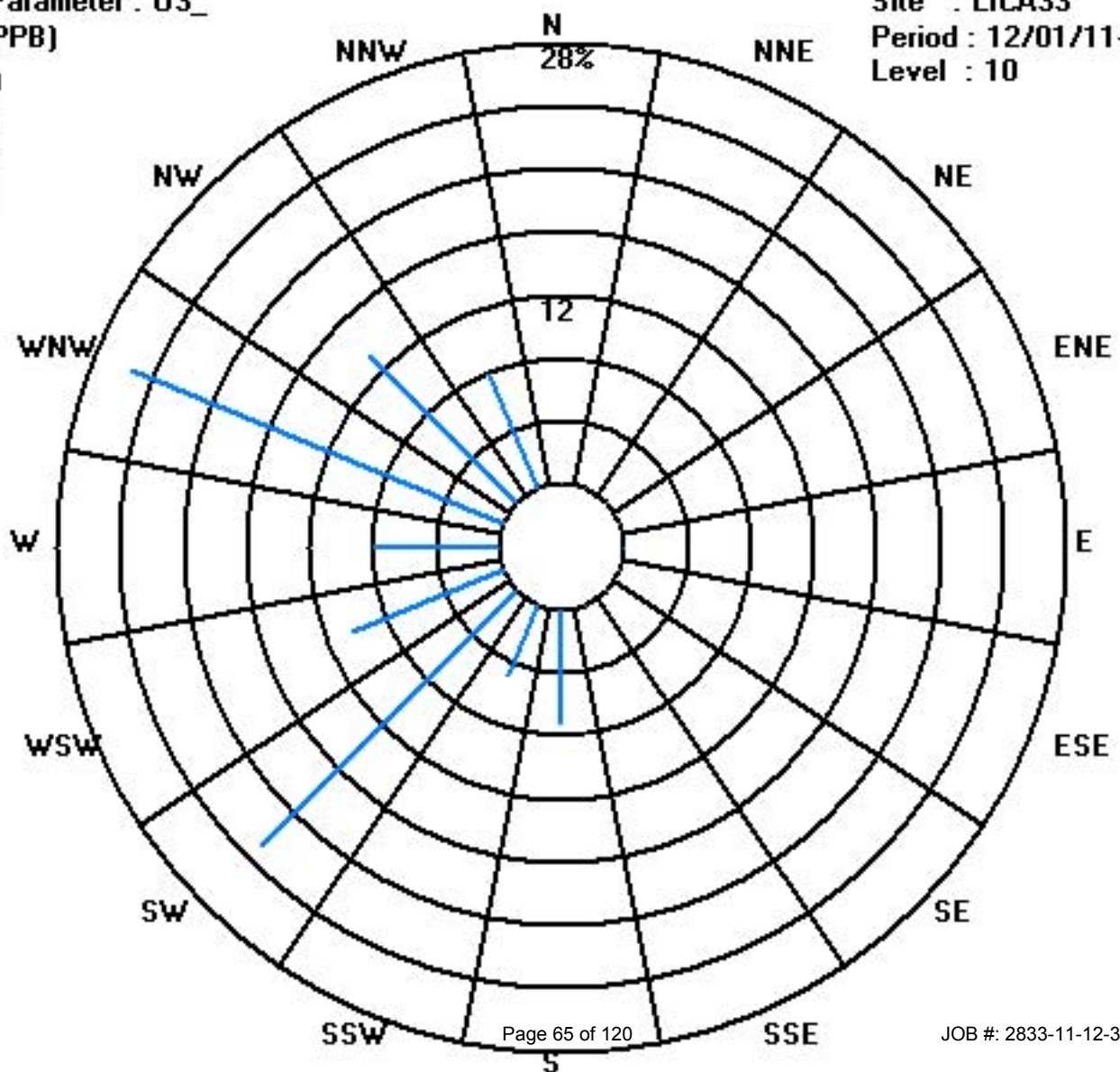
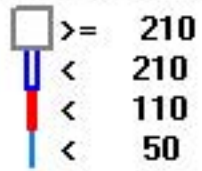
Calm : .00 %

Total # Operational Hours : 165

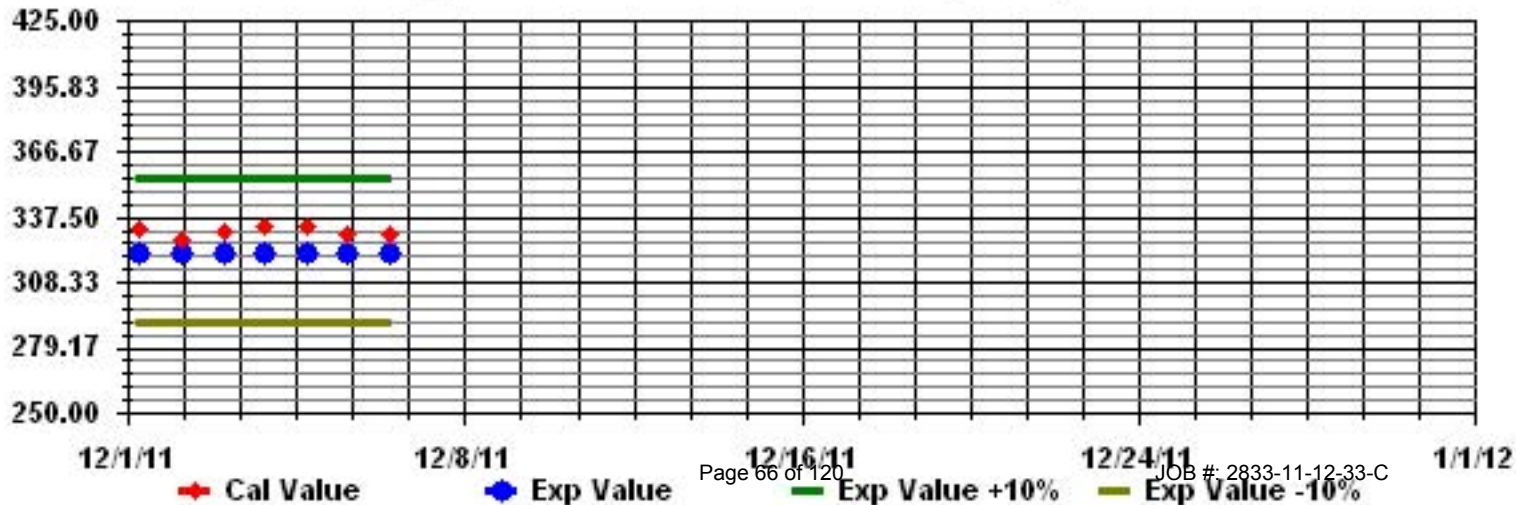
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: 03_ Sequence: 03 Phase: SPAN



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

TOTAL HYDROCARBONS (THC) hourly averages in ppm

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

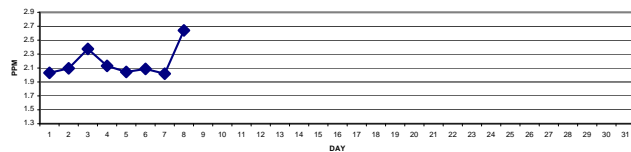
STATUS FLAG CODES

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
BB	- BELOW BACKGROUND OF 1.5 PPM		

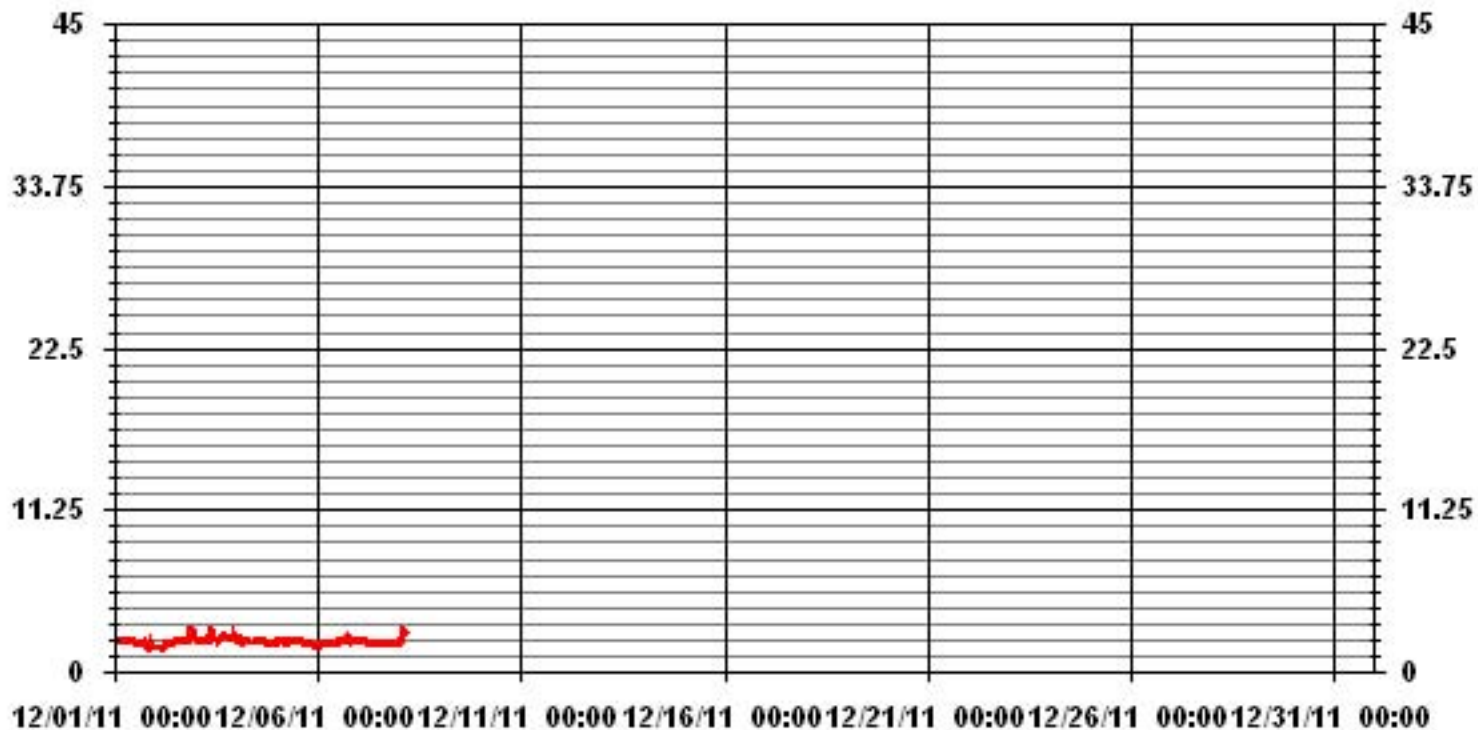
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	165
MAXIMUM 1-HR AVERAGE:	3.1 PPM @ HOUR(S) 2 ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	2.6 PPM ON DAY(S) 8
IZS CALIBRATION TIME:	8 HRS
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	0.23
OPERATIONAL TIME:	173 HRS
AMD OPERATION UPTIME:	23.3 %
MONTHLY AVERAGE:	2.13 PPM

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2	2	2	2	4.2	1.9	1.8	4.1	1.9	1.8	4.2	2.3	24	
2		1.8	1.8	1.8	1.8	1.8	IZS	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.2	5.5	5.9	2.6	2.4	5.9	2.4	24		
3		2.4	2.3	2.2	2.4	IZS	2.1	3.9	2.2	4.9	5.5	5.2	2.7	2.5	2.2	2.5	3	3.3	3.2	3	2.8	2.8	2.8	3.8	2.4	5.5	3.0	24	
4		2.7	2.4	2.5	IZS	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.4	2.5	2.5	3.1	3.4	2	2.3	2.5	2	2	2	2.1	3.4	2.3	24	
5		2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	4.2	2.1	2.3	2	2	2	2	2	1.9	1.9	4.2	2.2	24	
6		1.9	IZS	2	2	2.1	3.7	2	2	2	2.3	2.2	2.1	2.1	2.2	2.1	2.2	2.3	4.2	3.8	2.2	2.2	2.2	2.5	2.3	4.2	2.4	24	
7		IZS	2.2	2.1	2.7	3.6	2.2	2.1	2.1	2	2.1	2.1	2	2	1.9	2	2	2	2	2.1	2	2	2	2.1	IZS	3.6	2.2	24	
8		2.4	3.4	5	4.1	4.4																				5	3.9	5	
9																													0
10																													0
11																													0
12																													0
13																													0
14																													0
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25																													0
26																													0
27																													0
28																													0
29																													0
30																													0
31																													0
HOURLY MAX		3	3	5	4	4	4	4	2	5	6	5	3	3	3	4	3	3	4	4	3	6	6	4	2				
HOURLY AVG		2.2	2.3	2.5	2.5	2.6	2.4	2.4	2.1	2.5	2.7	2.6	2.2	2.2	2.2	2.5	2.4	2.5	2.5	2.8	2.2	2.6	3.0	2.4	2.2				

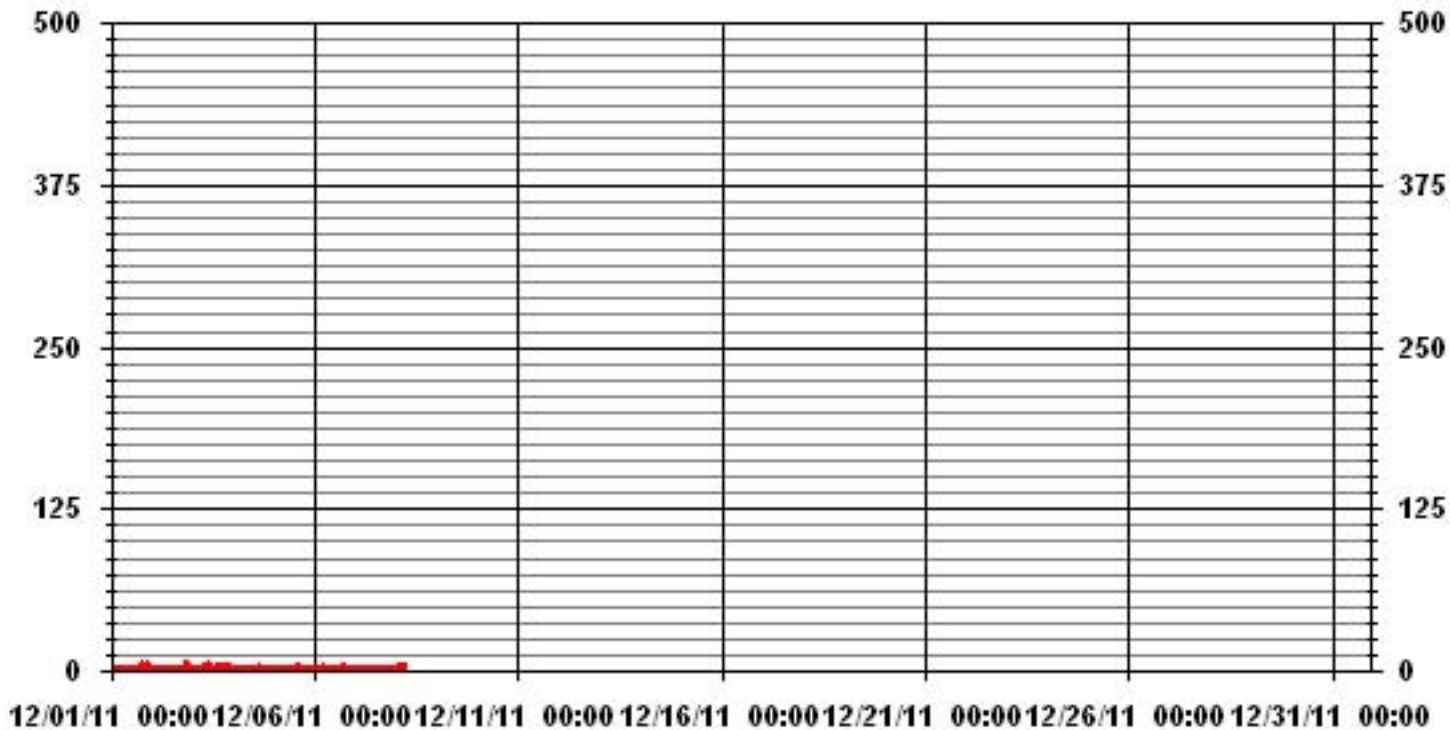
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	165				
MAXIMUM INSTANTANEOUS VALUE:	5.9	PPB	@ HOUR(S)	21	ON DAY(S) 2
IZS CALIBRATION TIME:	8	HRS	OPERATIONAL TIME:	173	HRS
MONTHLY CALIBRATION TIME:	0	HRS			
STANDARD DEVIATION	0.78				

01 Hour Averages



LICA33
 THC / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 3.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	8.48	7.87	25.45	13.33	7.87	98.18
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.81	.00	.00	.00	.00	1.81
< 50.0	.00	.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	.00
Totals	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.27	4.84	23.03	10.30	7.87	25.45	13.33	7.87	

Calm : .00 %

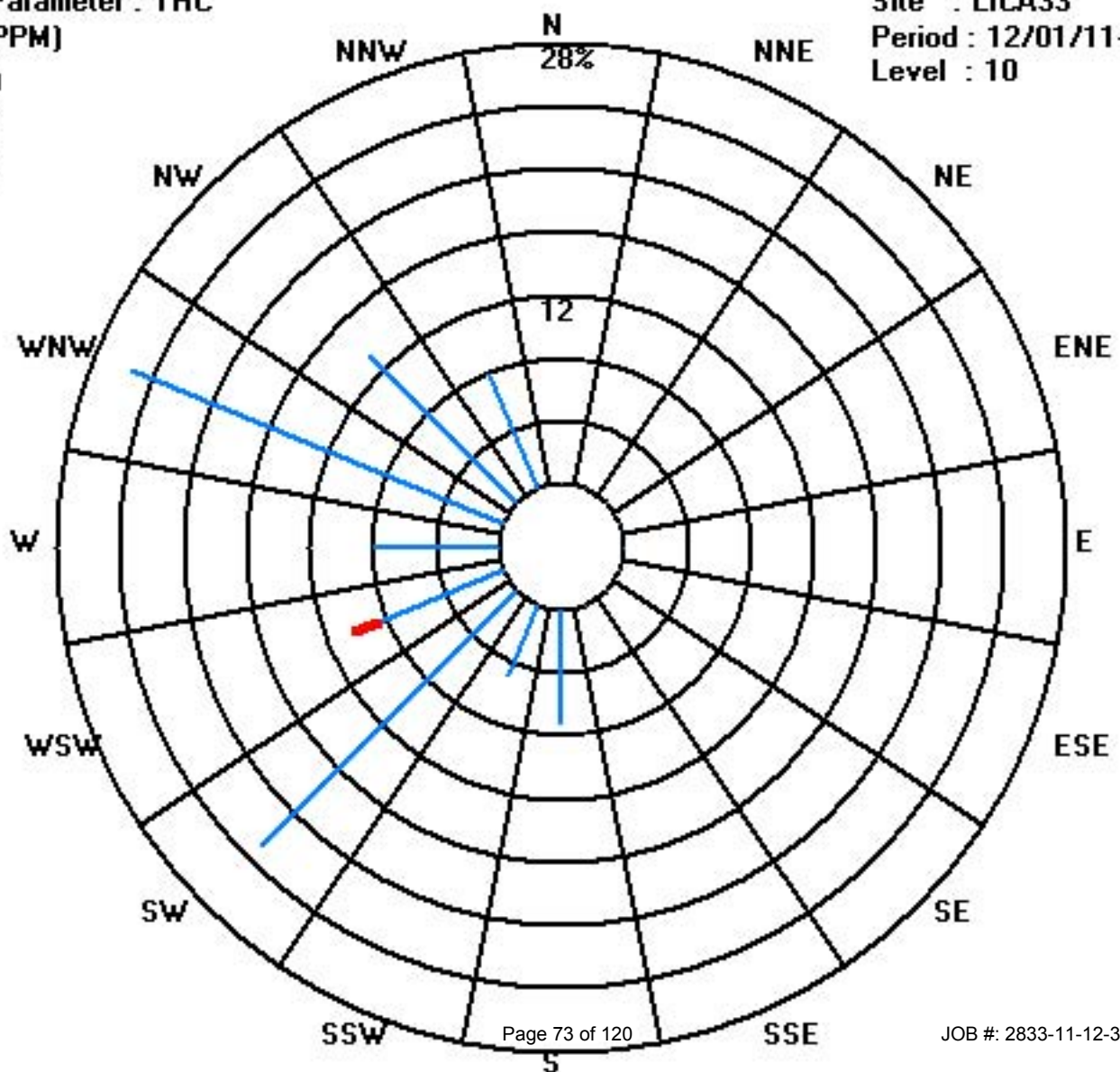
Total # Operational Hours : 165

Distribution By Samples

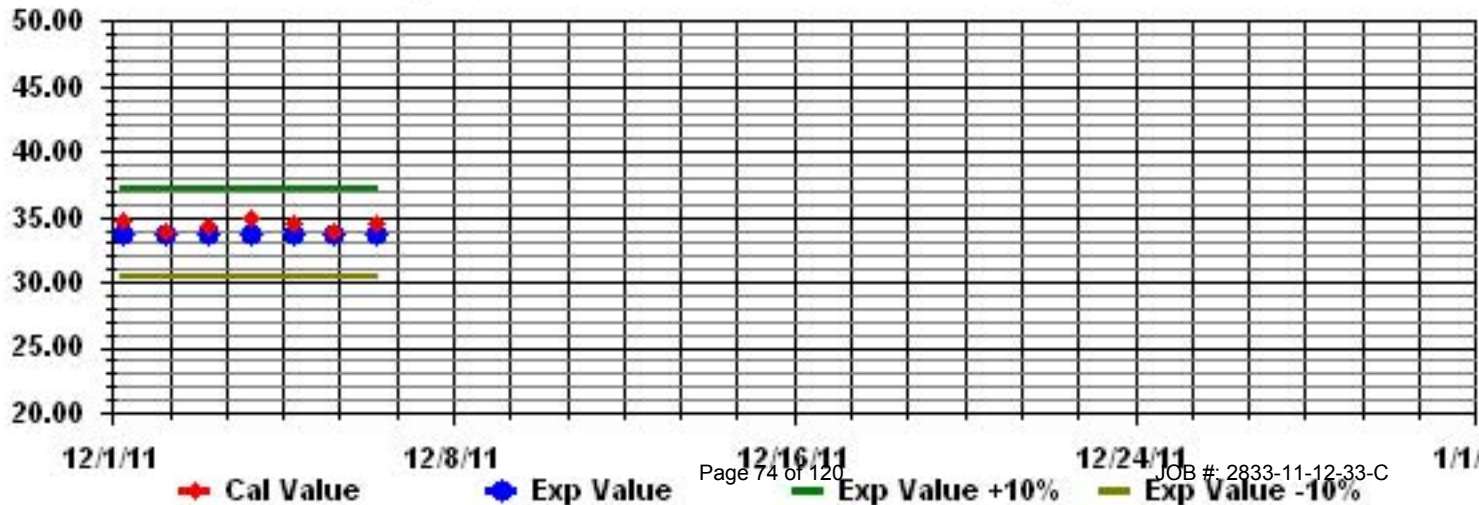
Limit	Direction																Freq	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 3.0										12	8	38	14	13	42	22	13	162
< 10.0													3					3
< 50.0																		
>= 50.0																		
Totals										12	8	38	17	13	42	22	13	

Calm : .00 %

Total # Operational Hours : 165



Calibration Graph for Site: LICA33 Parameter: THC Sequence: THC Phase: SPAll



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY START	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		12.6	11.2	8.7	13.6	13	8.9	10.1	14	11.7	11.1	12.1	16.6	13.9	12.8	14.5	12.8	13.8	11.3	17.5	19.1	15.9	20.1	23	28.2	28.2	13.7	24	
2		34.5	34.6	33.6	30.1	30.5	28.4	27.8	26.5	28.5	33.5	28.6	29	31.9	27.3	27.9	25.4	14.3	10.6	13.7	13.3	9.5	8	8.1	9.3	34.6	22.1	24	
3		7.7	9.7	10.6	6.5	7.3	10	9	13.9	13.1	9.8	11.3	16.1	19.9	13.9	12.2	8.8	9.8	9.2	12.9	14.7	8.8	8.8	7	8.1	19.9	7.4	24	
4		8.7	9.2	9.6	13.8	12.3	13.1	11.3	7.6	8.3	8.9	10.2	10.5	9.2	6.7	5.8	8.2	9	8.2	5.3	8.7	5.6	6.4	8.5	8.3	13.8	6.7	24	
5		7.1	8.2	7.5	6.2	8.9	5.8	8.6	6.7	7.4	6.8	7.3	10.1	10.6	8.4	6.9	5.5	8.1	15.9	19.2	17.6	18.2	19.4	21.9	20.2	21.9	10.9	24	
6		24.6	22.7	19.6	15.2	9.8	19.2	26.2	25.2	24.9	20.5	24.2	22.5	18.5	16.2	19.8	14	11.4	11.5	19.1	24.6	20	18.9	15.9	11.9	26.2	19.0	24	
7		5.8	9	7.6	10.9	16	18.1	17.7	20.9	20.9	21.9	24.4	26.8	31.4	33.2	26.2	27.6	26.5	24.1	24.3	24.9	21.4	21.1	16.9	14.5	33.2	20.5	24	
8		16.2	12.6	12	13.3	11.5																				16.2	13.1	5	
9																													0
10																													0
11																													0
12																													0
13																													0
14																													0
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26																													0
27																													0
28																													0
29																													0
30																													0
31																													0
HOURLY MAX		34.5	34.6	33.6	30.1	30.5	28.4	27.8	26.5	28.5	33.5	28.6	29.0	31.9	33.2	27.9	27.6	26.5	24.1	24.3	24.9	21.4	21.1	23.0	28.2				
HOURLY AVG		14.7	14.7	13.7	13.7	13.7	14.8	15.8	16.4	16.4	16.1	16.9	18.8	19.3	16.9	16.2	14.6	13.3	13.0	16.0	17.6	14.2	14.7	14.5	14.4				

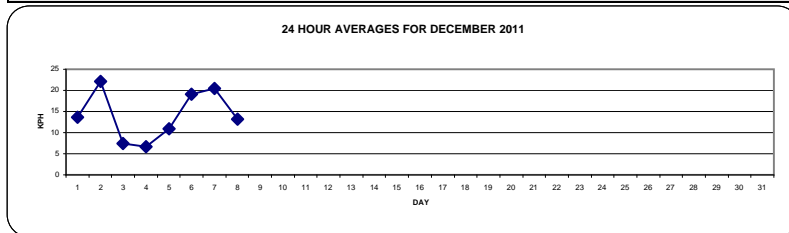
STATUS FLAG CODES

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

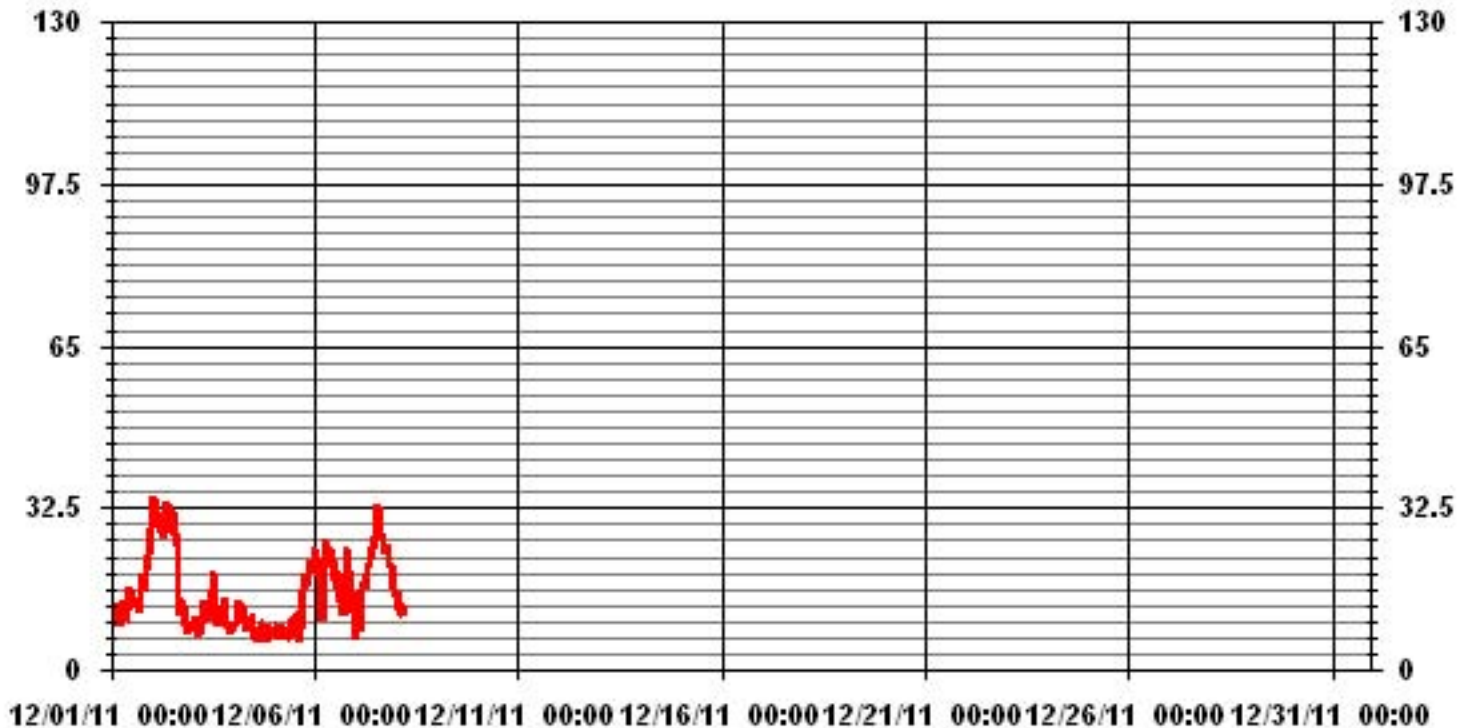
LAST CALIBRATION: November 24, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	34.6	KPH	@ HOUR(S)	1	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	22.1	KPH			ON DAY(S)	2
CALMS (≤ 1 KPH)	0.00	%	OPERATIONAL TIME:	173	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	23.3	%	
STANDARD DEVIATION:	7.58		MONTHLY AVERAGE	15.38	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		19.1	15.8	16.1	23.5	25	17	20.6	22.2	18.3	19.1	23.7	25.5	24.9	21.4	24.7	22	23	21.4	37.3	42.1	29.6	41.9	42.8	53.3	53.3	
2		61.5	63.4	58.1	56.5	58.1	53.9	48.6	46	72.8	66.2	57.7	68.8	61.6	57	57.9	52.4	32.3	17.7	23	19.5	16.6	11.8	11.9	13.8	72.8	
3		13	14.5	17.4	17.4	18.9	18.1	14.8	23.5	25.4	16.8	24.8	26.9	35.6	23.7	25.4	22.1	22.6	17	29.5	34.6	20	19.4	16.2	15.6	35.6	
4		17.4	19.7	17.1	21.5	17.8	19.2	19.7	14.1	15	15.8	18.2	17.7	16.4	14.6	11.4	14.4	17.1	14.1	11.9	13.3	13.1	15	17.1	16.9	21.5	
5		17.3	18.4	17.7	18.7	24.9	15	18.8	16.5	16.5	18.3	19.5	24.6	28	25.1	16.4	13.5	18.2	28	28.2	28.2	29.7	29	31	38.4	38.4	
6		38	40.9	33.1	22.2	19.1	36.8	39.9	60.2	52.2	50.5	52.4	42.9	44.6	38.4	37.2	28.1	24.5	20.4	34.1	44.2	45.1	43.5	29.9	27.1	60.2	
7		22.1	12.3	10.7	16.6	35	29.9	30.1	33.9	35.2	37	40.9	45.8	56.5	55.8	52.7	55.1	51.8	43.1	43.2	45.6	37.1	45.4	31.6	25.9	56.5	
8		30.1	22.5	19.6	23	21.1																				30.1	
9																											
10																											
11																											
12																											
13																											
14																											
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30																											
31																											
PEAK		61.5	63.4	58.1	56.5	58.1	53.9	48.6	60.2	72.8	66.2	57.7	68.8	61.6	57.0	57.9	55.1	51.8	43.1	43.2	45.6	45.1	45.4	42.8	53.3		

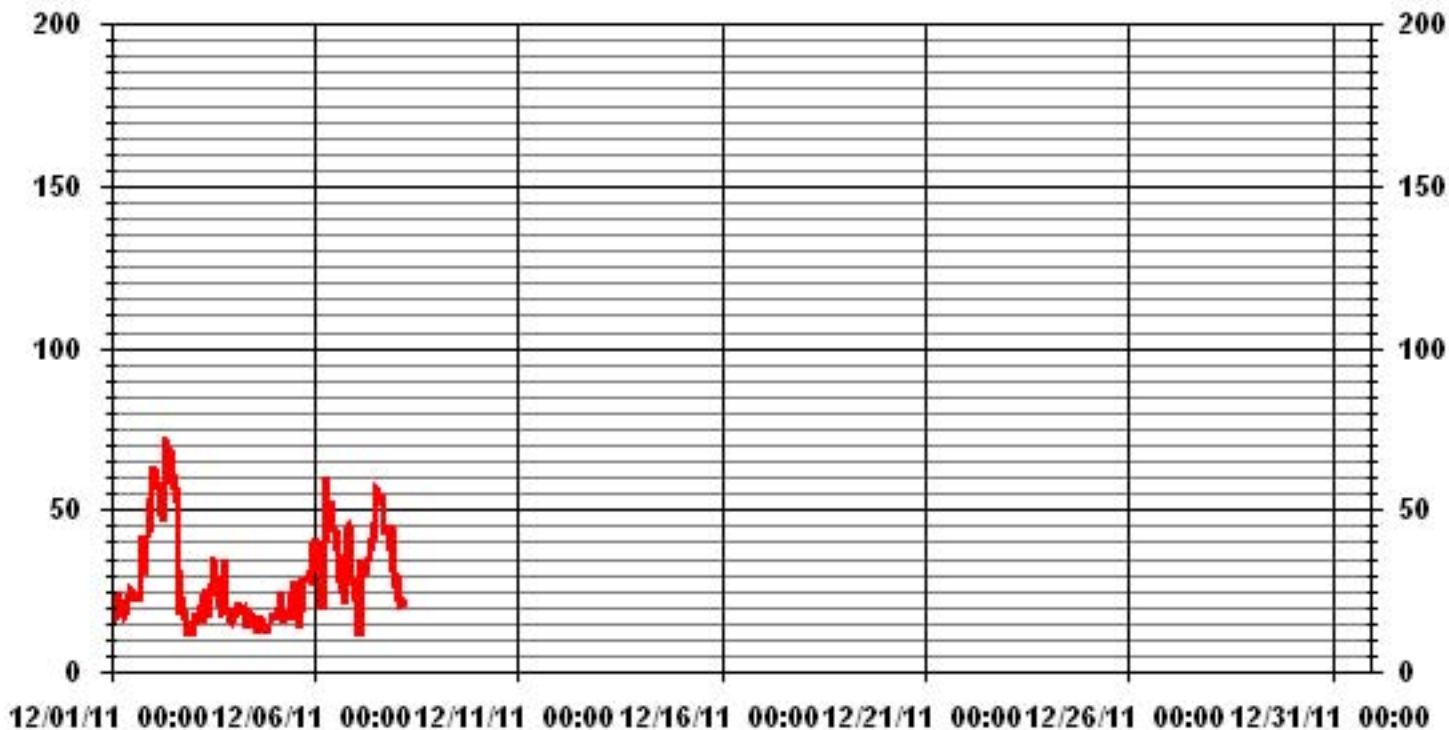
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	72.8	KPH	@ HOUR(S)	8
			ON DAY(S)	2

01 Hour Averages



LICA33
WSP / WDR Joint Frequency Distribution (Percent)

December 2011

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	.00	.00	.00	.00	.00	.00	.00	.00	1.15	1.15	.00	.00	.57	.00	.57	.00	3.46
< 12.0	.00	.00	.00	.00	.00	.00	.00	.00	6.35	4.04	10.98	5.20	1.73	5.20	1.73	4.62	39.88
< 20.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	10.40	3.46	2.89	8.09	2.31	2.89	30.05
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.73	1.15	2.31	8.67	6.93	.00	20.80
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.57	3.46	1.73	.00	5.78
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.00	.00	.00	.00	.00	.00	.00	.00	7.51	5.20	23.12	9.82	8.09	25.43	13.29	7.51	

Calm : .00 %

Total # Operational Hours : 173

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0									2	2			1		1		6
< 12.0									11	7	19	9	3	9	3	8	69
< 20.0											18	6	5	14	4	5	52
< 29.0											3	2	4	15	12		36
< 39.0													1	6	3		10
>= 39.0																	
Totals									13	9	40	17	14	44	23	13	

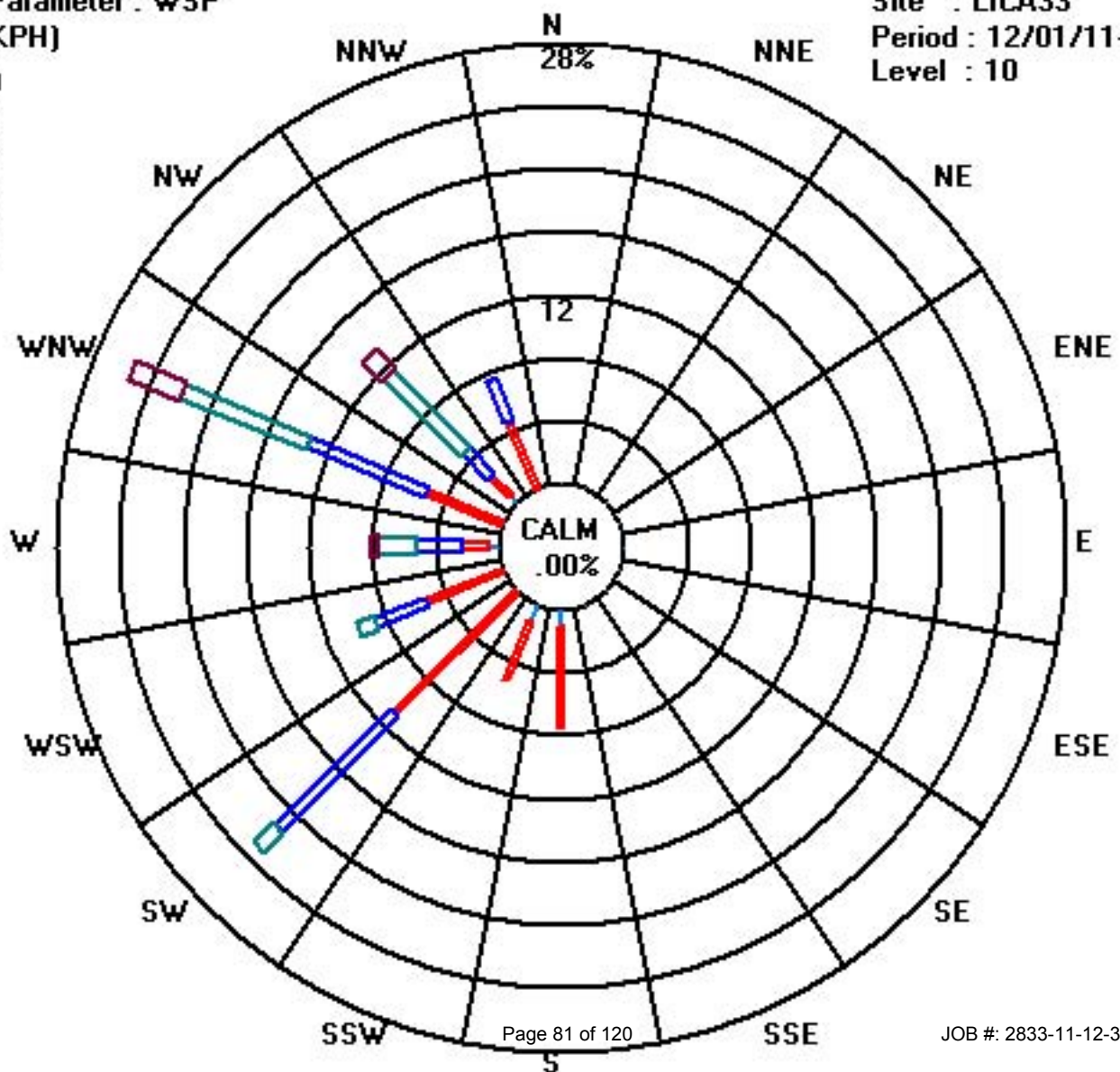
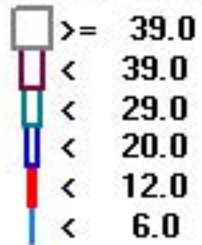
Calm : .00 %

Total # Operational Hours : 173

Class Limits (KPH)

Period : 12/01/11-12/31/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2011

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT		
DAY																												
1	224	227	228	231	238	236	234	237	235	236	228	235	229	231	229	224	223	219	240	230	235	256	281	282	239	WSW	24	
2	286	285	285	283	276	279	277	283	289	311	316	318	315	316	321	320	311	291	296	297	288	253	236	230	295	WNW	24	
3	228	224	226	208	210	224	241	230	245	257	271	289	297	301	327	336	341	344	340	345	334	335	337	321	288	WNW	24	
4	330	312	308	294	295	292	301	298	293	291	285	290	281	276	268	252	253	230	205	222	185	181	178	181	274	W	24	
5	194	185	188	194	207	195	183	189	180	186	191	207	191	199	217	191	216	231	230	235	239	236	234	228	214	SSW	24	
6	240	235	231	230	238	266	278	300	306	325	326	321	326	308	305	290	285	247	279	307	322	327	334	330	292	WNW	24	
7	323	228	237	236	265	282	291	292	297	290	292	292	294	293	297	307	306	300	301	300	302	300	299	299	293	WNW	24	
8	288	274	256	260	250																				267	W	5	
9																												0
10																												0
11																												0
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30																												0
31																												0
HOURLY AVG	330	312	308	294	295	292	301	300	306	325	326	321	326	316	327	336	341	344	340	345	334	335	337	330				

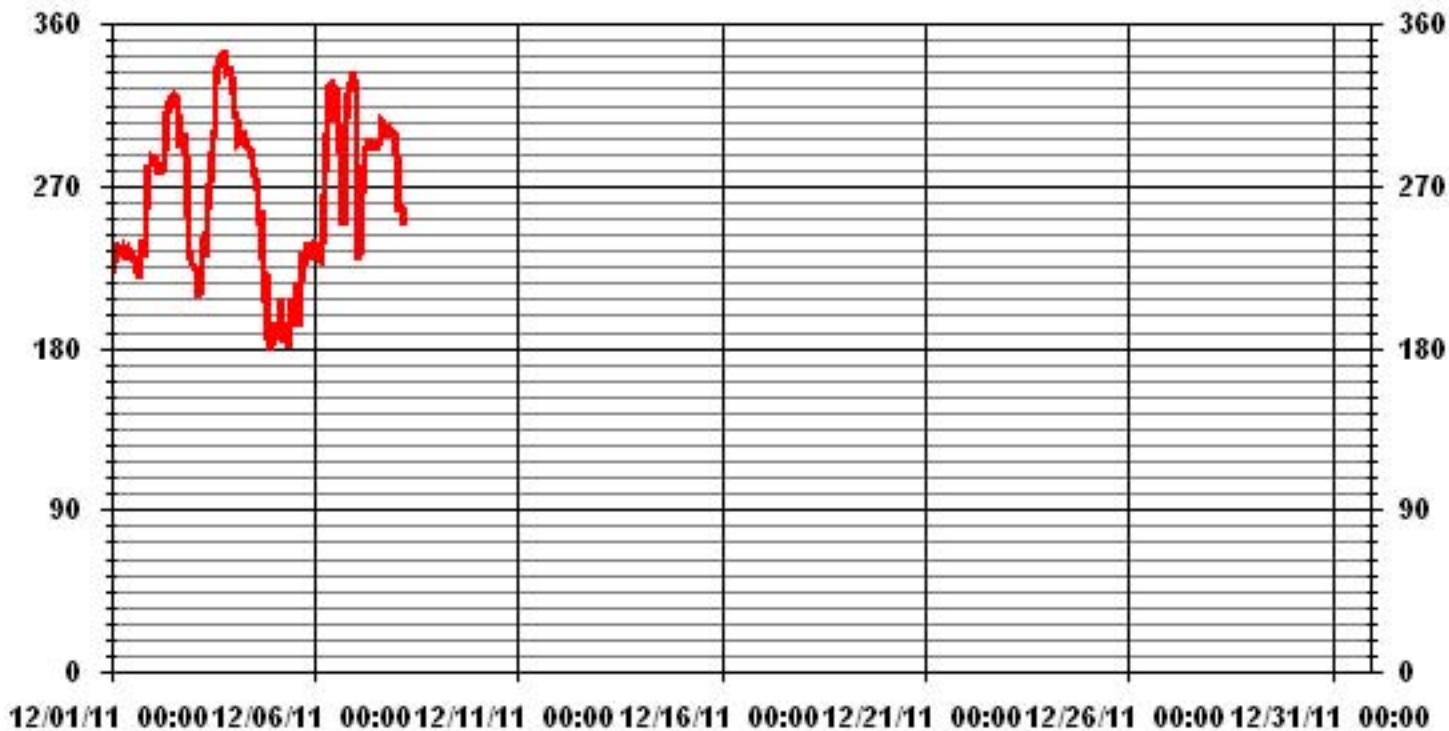
STATUS FLAG CODES

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:	173	HRS
STANDARD DEVIATION	44.25		AMD OPERATION UPTIME	23.3	%
			MONTHLY AVERAGE	277	DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *PORTABLE SITE*

DECEMBER 2011

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
HOUR START		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
HOUR END		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
DAY																										
1		4	5	7	8	9	7	8	8	9	9	9	9	8	8	9	9	8	16	12	9	8	10	8	9	
2		9	9	9	10	9	10	9	9	10	12	14	13	12	13	13	13	11	8	7	6	7	6	6	5	
3		6	5	8	22	22	14	10	8	10	11	11	9	9	10	14	12	12	12	13	14	13	13	13	11	
4		13	12	10	8	7	7	9	9	9	8	11	11	14	16	15	9	11	8	19	8	22	18	14	17	
5		23	19	21	25	23	23	18	21	17	21	24	20	16	22	25	24	21	9	7	8	8	8	6	8	
6		9	8	6	7	6	9	9	12	11	13	13	14	11	10	9	7	9	10	13	13	13	13	13	13	
7		15	5	4	6	9	9	8	9	10	9	10	11	11	10	11	11	11	10	10	10	10	10	10	8	
8		7	9	9	10	9																				
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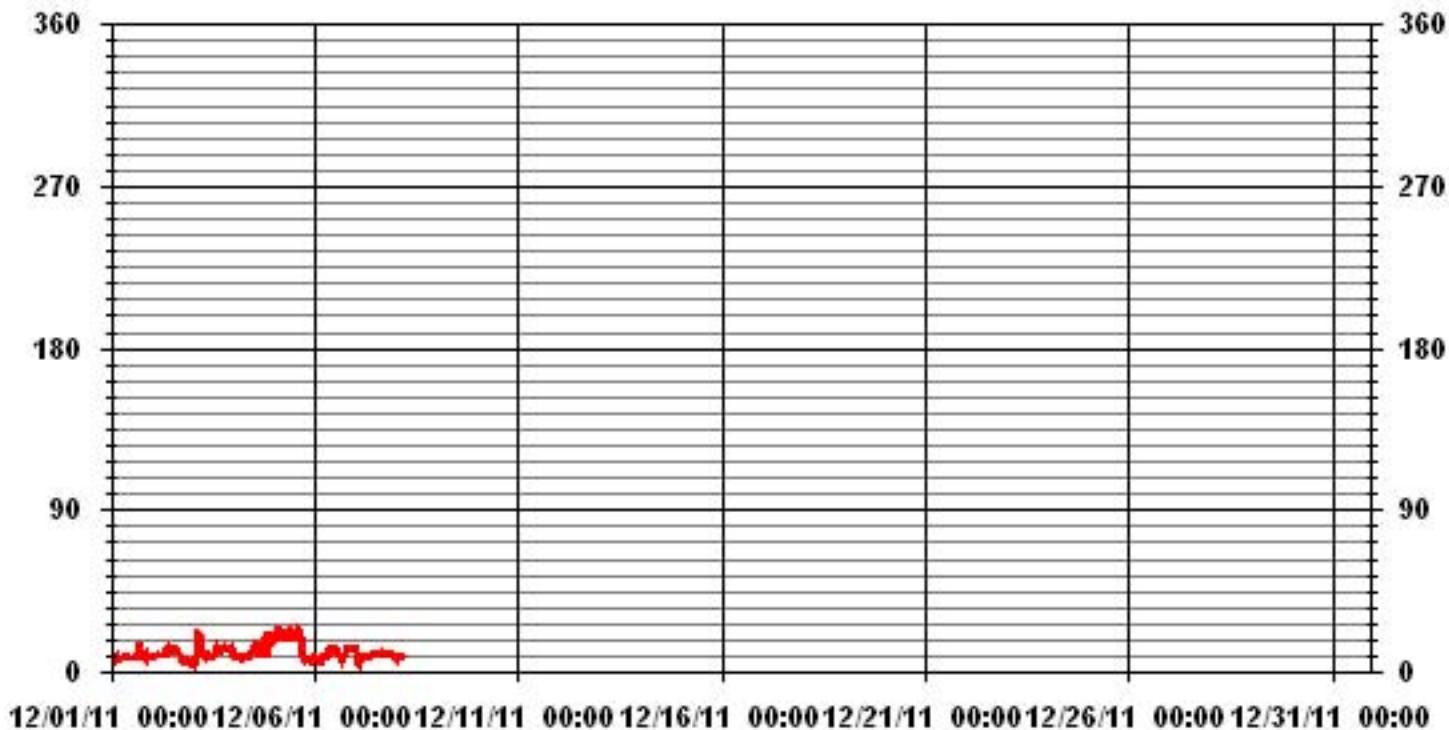
STATUS FLAG CODES

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
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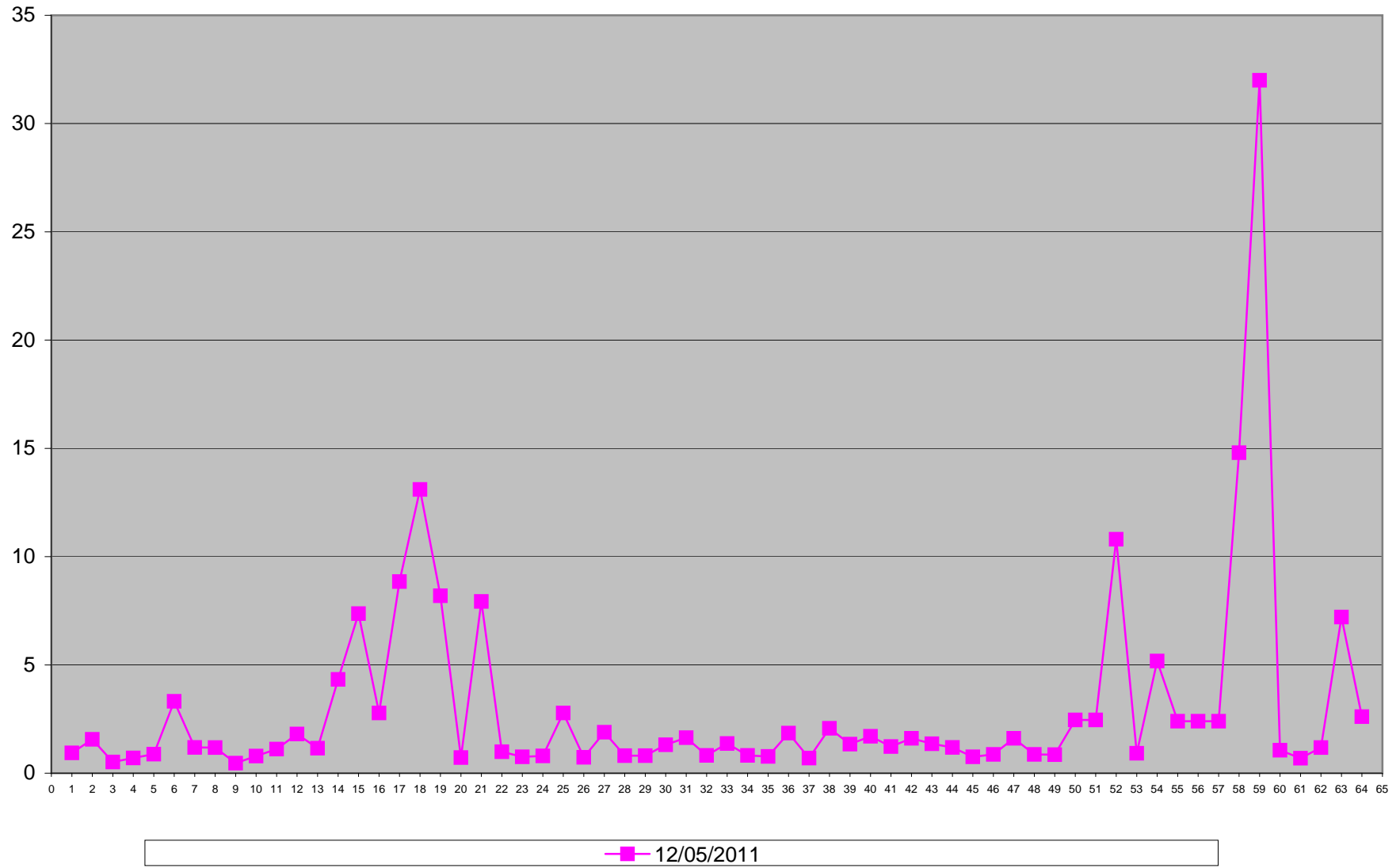
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME: 173 HRS
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01 Hour Averages



Volatile Organics

Volatile Organics in ug/m3 Site: LICA - Portable Site



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	Ethylbenzene
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Methyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

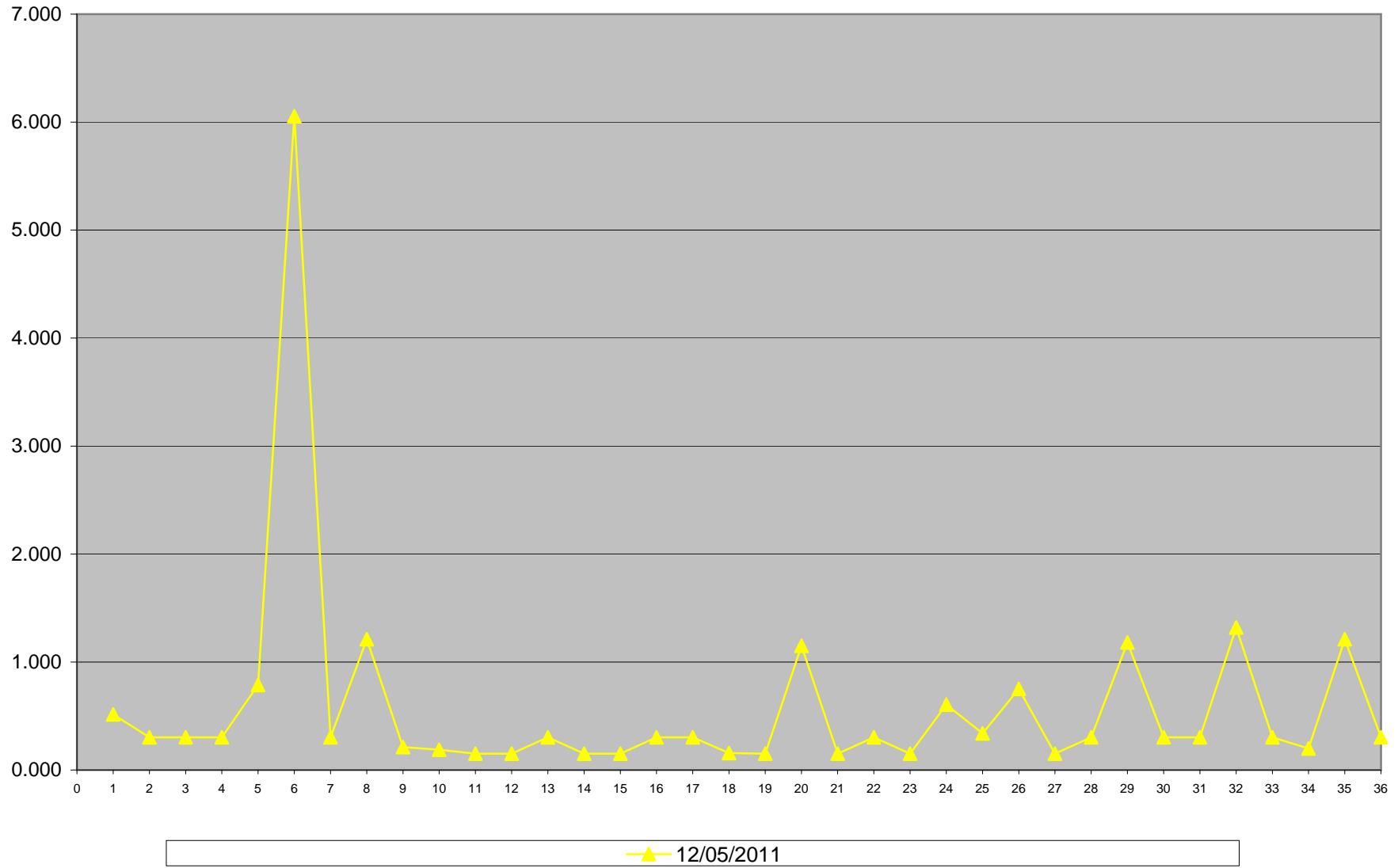
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2011
LICA- Portable Site
Unit: ng/m³

PAHs	12/05/2011
Sample Volume (unit: m3)	330.33
1 1-Methylnaphthalene	0.515
2 1-Methylphenanthrene	0.303
3 2-Chloronaphthalene	0.303
4 2-Methylantracene	0.303
5 2-Methylnaphthalene	0.787
6 3-Methylcholanthrene	6.055
7 7,12-Dimethylbenzo(a)anthracene	0.303
8 9,10-Dimethylantracene	1.211
9 Acenaphthene	0.212
10 Acenaphthylene	0.188
11 Anthracene	0.151
12 Benzo(a)anthracene	0.151
13 Benzo(a)fluorene	0.303
14 Benzo(a)pyrene	0.151
15 Benzo(b)fluoranthene	0.151
16 Benzo(b)fluorene	0.303
17 Benzo(e)pyrene	0.303
18 Benzo(g,h,i)perylene	0.157
19 Benzo(k)fluoranthene	0.151
20 Biphenyl	1.150
21 Chrysene	0.151
22 Coronene	0.303
23 Dibenz(a,h)anthracene	0.151
24 Dibenzo(a,e)pyrene	0.605
25 Fluoranthene	0.339
26 Fluorene	0.751
27 Indeno(1,2,3-cd)pyrene	0.151
28 m-Terphenyl	0.303
29 Naphthalene	1.181
30 o-Terphenyl	0.303
31 Perylene	0.303
32 Phenanthrene	1.320
33 p-Terphenyl	0.303
34 Pyrene	0.200
35 Quinoline	1.211
36 Tetralin	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.
- See analytical for details.

PAHs in ng/m3 Site: LICA - Portable Site



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,l)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

Volatile Organics Laboratory Analysis



Your C.O.C. #: 08991

Attention: Michael Bisaga

Maxxam Analytics
 2608 6A Ave.
 Cold Lake, AB
 CANADA T9M 2C7

Report Date: 2011/12/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1J4227

Received: 2011/12/09, 09:52

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/12/09	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/12/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/12/13	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 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 Job #: B1J4227
 Report Date: 2011/12/16

RESULTS OF ANALYSES OF AIR

Maxxam ID		LX6705		LX6706	
Sampling Date		2011/12/05		2011/12/05	
COC Number		08991		08991	
	Units	LICA VOC\CLS\DEC 05,11 - 7799	QC Batch	LICA VOC\PORT\DEC 05,11 - 7927	QC Batch

Volatile Organics					
Pressure on Receipt	psig	22	2712645	22	2711200

QC Batch = Quality Control Batch

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC/CLS/DEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2712644
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2712644
Propene	ppbv	1.73	0.30	2.97	0.516	2712644
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2712644
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2712644
Dichlorodifluoromethane (FREON 12)	ppbv	0.83	0.20	4.12	0.989	2712644
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2712644
Chloromethane	ppbv	0.63	0.30	1.30	0.620	2712644
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2712644
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2712644
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2712644
Trichlorofluoromethane (FREON 11)	ppbv	0.39	0.20	2.21	1.12	2712644
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2712644
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2712644
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2712644
2-Propanone	ppbv	1.33	0.80	3.16	1.90	2712644
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2712644
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2712644
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2712644
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2712644
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2712644
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2712644
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2712644
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2712644
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2712644
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2712644
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2712644
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2712644
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2712644
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2712644
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2712644
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC/CLSIDEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2712644
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2712644
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2712644
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2712644
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2712644
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2712644
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2712644
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2712644
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2712644
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2712644
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2712644
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2712644
Benzene	ppbv	0.33	0.18	1.07	0.575	2712644
Toluene	ppbv	0.31	0.20	1.17	0.753	2712644
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2712644
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2712644
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2712644
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2712644
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2712644
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2712644
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2712644
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2712644
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2712644
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2712644
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2712644
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2712644
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2712644
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2712644
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2712644
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2712644
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2712644
QC Batch = Quality Control Batch						

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6705				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\CLS\DEC 05,11 - 7799	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	100		N/A	N/A	2712644
D5-Chlorobenzene	%	99		N/A	N/A	2712644
Difluorobenzene	%	102		N/A	N/A	2712644

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

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\PORT\DEC 05,11 - 7927	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2711197
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2711197
Propene	ppbv	<0.30	0.30	<0.516	0.516	2711197
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2711197
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2711197
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.32	0.989	2711197
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2711197
Chloromethane	ppbv	0.57	0.30	1.18	0.620	2711197
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2711197
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2711197
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2711197
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.81	1.12	2711197
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2711197
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2711197
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2711197
2-Propanone	ppbv	1.17	0.80	2.78	1.90	2711197
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2711197
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2711197
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2711197
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2711197
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2711197
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2711197
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2711197
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2711197
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2711197
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2711197
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2711197
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2711197
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2711197
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2711197
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2711197

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA VOC\PORT\DEC 05,11 - 7927	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2711197
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2711197
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2711197
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2711197
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2711197
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2711197
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2711197
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2711197
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2711197
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2711197
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2711197
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2711197
Benzene	ppbv	0.37	0.18	1.19	0.575	2711197
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2711197
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2711197
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2711197
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2711197
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2711197
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2711197
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2711197
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2711197
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2711197
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2711197
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2711197
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2711197
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2711197
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2711197
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2711197
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2711197
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2711197
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2711197
QC Batch = Quality Control Batch						

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LX6706				
Sampling Date		2011/12/05				
COC Number		08991				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\DEC				
		05,11 - 7927				

Surrogate Recovery (%)						
Bromochloromethane	%	116		N/A	N/A	2711197
D5-Chlorobenzene	%	121		N/A	N/A	2711197
Difluorobenzene	%	114		N/A	N/A	2711197

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

Maxxam Job #: B1J4227
 Report Date: 2011/12/16

Test Summary

Maxxam ID LX6705
Sample ID LICA VOC\CLS\DEC 05,11 - 7799
Matrix AIR

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2712645	N/A	2011/12/13	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2712644	N/A	2011/12/13	MELANIE MABINI

Maxxam ID LX6706
Sample ID LICA VOC\PORT\DEC 05,11 - 7927
Matrix AIR

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2711200	N/A	2011/12/09	MELANIE MABINI
Volatile Organics in Air (TO-15)	GC/MS	2711197	N/A	2011/12/09	MELANIE MABINI

Maxxam Job #: B1J4227
Report Date: 2011/12/16

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2711197 MM2	Spiked Blank	Bromochloromethane	2011/12/09		122	%	60 - 140
		D5-Chlorobenzene	2011/12/09		118	%	60 - 140
		Difluorobenzene	2011/12/09		122	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/09		97	%	70 - 130
		Carbon Disulfide	2011/12/09		98	%	70 - 130
		Propene	2011/12/09		94	%	70 - 130
		Vinyl Acetate	2011/12/09		106	%	70 - 130
		Vinyl Bromide	2011/12/09		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/09		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/09		116	%	70 - 130
		Chloromethane	2011/12/09		108	%	70 - 130
		Vinyl Chloride	2011/12/09		113	%	70 - 130
		Chloroethane	2011/12/09		110	%	70 - 130
		1,3-Butadiene	2011/12/09		112	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/09		91	%	70 - 130
		Trichlorotrifluoroethane	2011/12/09		98	%	70 - 130
		Ethanol	2011/12/09		93	%	70 - 130
		2-propanol	2011/12/09		120	%	70 - 130
		2-Propanone	2011/12/09		93	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/09		99	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/09		100	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/09		103	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/09		98	%	70 - 130
		Ethyl Acetate	2011/12/09		104	%	70 - 130
		1,1-Dichloroethylene	2011/12/09		107	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/09		104	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/09		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/09		88	%	70 - 130
		Chloroform	2011/12/09		97	%	70 - 130
		Carbon Tetrachloride	2011/12/09		92	%	70 - 130
		1,1-Dichloroethane	2011/12/09		100	%	70 - 130
		1,2-Dichloroethane	2011/12/09		98	%	70 - 130
		Ethylene Dibromide	2011/12/09		107	%	70 - 130
		1,1,1-Trichloroethane	2011/12/09		94	%	70 - 130
		1,1,2-Trichloroethane	2011/12/09		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/09		115	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/09		106	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/09		106	%	70 - 130
		1,2-Dichloropropane	2011/12/09		105	%	70 - 130
		Bromomethane	2011/12/09		107	%	70 - 130
		Bromoform	2011/12/09		114	%	70 - 130
		Bromodichloromethane	2011/12/09		94	%	70 - 130
		Dibromochloromethane	2011/12/09		99	%	70 - 130
		Heptane	2011/12/09		96	%	70 - 130
		Trichloroethylene	2011/12/09		99	%	70 - 130
		Tetrachloroethylene	2011/12/09		101	%	70 - 130
		Benzene	2011/12/09		105	%	70 - 130
		Toluene	2011/12/09		105	%	70 - 130
		Ethylbenzene	2011/12/09		115	%	70 - 130
		p+m-Xylene	2011/12/09		112	%	70 - 130
		o-Xylene	2011/12/09		115	%	70 - 130
		Styrene	2011/12/09		116	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/09		117	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/09		117	%	70 - 130
		4-ethyltoluene	2011/12/09		113	%	70 - 130

Maxxam Analytics
 Attention: Michael Bisaga
 Client Project #:
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Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2711197 MM2	Spiked Blank	Chlorobenzene	2011/12/09		114	%	70 - 130
		Benzyl chloride	2011/12/09		125	%	70 - 130
		1,3-Dichlorobenzene	2011/12/09		123	%	70 - 130
		1,4-Dichlorobenzene	2011/12/09		123	%	70 - 130
		1,2-Dichlorobenzene	2011/12/09		120	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/09		119	%	70 - 130
		Hexachlorobutadiene	2011/12/09		114	%	70 - 130
		Hexane	2011/12/09		95	%	70 - 130
		Cyclohexane	2011/12/09		100	%	70 - 130
		Tetrahydrofuran	2011/12/09		107	%	70 - 130
		1,4-Dioxane	2011/12/09		108	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/09		95	%	60 - 140
		D5-Chlorobenzene	2011/12/09		100	%	60 - 140
		Difluorobenzene	2011/12/09		96	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/09	<0.20		ppbv	
		Carbon Disulfide	2011/12/09	<0.50		ppbv	
		Propene	2011/12/09	<0.30		ppbv	
		Vinyl Acetate	2011/12/09	<0.20		ppbv	
		Vinyl Bromide	2011/12/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/09	<0.17		ppbv	
		Chloromethane	2011/12/09	<0.30		ppbv	
		Vinyl Chloride	2011/12/09	<0.18		ppbv	
		Chloroethane	2011/12/09	<0.30		ppbv	
		1,3-Butadiene	2011/12/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/09	<0.15		ppbv	
		Ethanol	2011/12/09	<2.3		ppbv	
		2-propanol	2011/12/09	<3.0		ppbv	
		2-Propanone	2011/12/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/09	<0.20		ppbv	
		Ethyl Acetate	2011/12/09	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/09	<0.80		ppbv	
		Chloroform	2011/12/09	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/09	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/09	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/09	<0.20		ppbv	
		Ethylene Dibromide	2011/12/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/09	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/09	<0.40		ppbv	
		Bromomethane	2011/12/09	<0.18		ppbv	
		Bromoform	2011/12/09	<0.20		ppbv	
		Bromodichloromethane	2011/12/09	<0.20		ppbv	
		Dibromochloromethane	2011/12/09	<0.20		ppbv	
		Heptane	2011/12/09	<0.30		ppbv	

Maxxam Analytics
 Attention: Michael Bisaga
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Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2711197 MM2	Method Blank	Trichloroethylene	2011/12/09	<0.30		ppbv	
		Tetrachloroethylene	2011/12/09	<0.20		ppbv	
		Benzene	2011/12/09	<0.18		ppbv	
		Toluene	2011/12/09	<0.20		ppbv	
		Ethylbenzene	2011/12/09	<0.20		ppbv	
		p+m-Xylene	2011/12/09	<0.37		ppbv	
		o-Xylene	2011/12/09	<0.20		ppbv	
		Styrene	2011/12/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/09	<0.50		ppbv	
		4-ethyltoluene	2011/12/09	<2.2		ppbv	
		Chlorobenzene	2011/12/09	<0.20		ppbv	
		Benzyl chloride	2011/12/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/09	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/09	<3.0		ppbv	
		Hexane	2011/12/09	<0.30		ppbv	
		Cyclohexane	2011/12/09	<0.20		ppbv	
Tetrahydrofuran	2011/12/09	<0.40		ppbv			
1,4-Dioxane	2011/12/09	<2.0		ppbv			
Xylene (Total)	2011/12/09	<0.60		ppbv			
2712644 MM2	Spiked Blank	Bromochloromethane	2011/12/13		107	%	60 - 140
		D5-Chlorobenzene	2011/12/13		113	%	60 - 140
		Difluorobenzene	2011/12/13		111	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/13		90	%	70 - 130
		Carbon Disulfide	2011/12/13		89	%	70 - 130
		Propene	2011/12/13		92	%	70 - 130
		Vinyl Acetate	2011/12/13		96	%	70 - 130
		Vinyl Bromide	2011/12/13		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/13		103	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/13		120	%	70 - 130
		Chloromethane	2011/12/13		108	%	70 - 130
		Vinyl Chloride	2011/12/13		109	%	70 - 130
		Chloroethane	2011/12/13		106	%	70 - 130
		1,3-Butadiene	2011/12/13		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/13		103	%	70 - 130
		Trichlorotrifluoroethane	2011/12/13		101	%	70 - 130
		Ethanol	2011/12/13		88	%	70 - 130
		2-propanol	2011/12/13		94	%	70 - 130
		2-Propanone	2011/12/13		94	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13		93	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/13		91	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/13		99	%	70 - 130
		Ethyl Acetate	2011/12/13		95	%	70 - 130
		1,1-Dichloroethylene	2011/12/13		98	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/13		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/13		95	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/13		81	%	70 - 130
		Chloroform	2011/12/13		99	%	70 - 130
		Carbon Tetrachloride	2011/12/13		99	%	70 - 130
1,1-Dichloroethane	2011/12/13		94	%	70 - 130		
1,2-Dichloroethane	2011/12/13		104	%	70 - 130		

Maxxam Analytics
 Attention: Michael Bisaga
 Client Project #:
 P.O. #:
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Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2712644 MM2	Spiked Blank	Ethylene Dibromide	2011/12/13		103	%	70 - 130
		1,1,1-Trichloroethane	2011/12/13		101	%	70 - 130
		1,1,2-Trichloroethane	2011/12/13		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/13		94	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/13		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/13		106	%	70 - 130
		1,2-Dichloropropane	2011/12/13		93	%	70 - 130
		Bromomethane	2011/12/13		105	%	70 - 130
		Bromoform	2011/12/13		101	%	70 - 130
		Bromodichloromethane	2011/12/13		97	%	70 - 130
		Dibromochloromethane	2011/12/13		101	%	70 - 130
		Heptane	2011/12/13		88	%	70 - 130
		Trichloroethylene	2011/12/13		93	%	70 - 130
		Tetrachloroethylene	2011/12/13		101	%	70 - 130
		Benzene	2011/12/13		94	%	70 - 130
		Toluene	2011/12/13		98	%	70 - 130
		Ethylbenzene	2011/12/13		95	%	70 - 130
		p+m-Xylene	2011/12/13		94	%	70 - 130
		o-Xylene	2011/12/13		97	%	70 - 130
		Styrene	2011/12/13		94	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/13		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/13		99	%	70 - 130
		4-ethyltoluene	2011/12/13		94	%	70 - 130
		Chlorobenzene	2011/12/13		94	%	70 - 130
		Benzyl chloride	2011/12/13		99	%	70 - 130
		1,3-Dichlorobenzene	2011/12/13		99	%	70 - 130
		1,4-Dichlorobenzene	2011/12/13		97	%	70 - 130
		1,2-Dichlorobenzene	2011/12/13		94	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/13		80	%	70 - 130
		Hexachlorobutadiene	2011/12/13		102	%	70 - 130
		Hexane	2011/12/13		88	%	70 - 130
		Cyclohexane	2011/12/13		89	%	70 - 130
		Tetrahydrofuran	2011/12/13		94	%	70 - 130
		1,4-Dioxane	2011/12/13		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/13		99	%	60 - 140
		D5-Chlorobenzene	2011/12/13		88	%	60 - 140
		Difluorobenzene	2011/12/13		102	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/13	<0.20		ppbv	
		Carbon Disulfide	2011/12/13	<0.50		ppbv	
		Propene	2011/12/13	<0.30		ppbv	
		Vinyl Acetate	2011/12/13	<0.20		ppbv	
		Vinyl Bromide	2011/12/13	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/13	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/13	<0.17		ppbv	
		Chloromethane	2011/12/13	<0.30		ppbv	
		Vinyl Chloride	2011/12/13	<0.18		ppbv	
		Chloroethane	2011/12/13	<0.30		ppbv	
		1,3-Butadiene	2011/12/13	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/13	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/13	<0.15		ppbv	
		Ethanol	2011/12/13	<2.3		ppbv	
		2-propanol	2011/12/13	<3.0		ppbv	
		2-Propanone	2011/12/13	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/13	<3.2		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2712644	MM2	Method Blank					
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/13	<0.20		ppbv	
		Ethyl Acetate	2011/12/13	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/13	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/13	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/13	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/13	<0.80		ppbv	
		Chloroform	2011/12/13	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/13	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/13	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/13	<0.20		ppbv	
		Ethylene Dibromide	2011/12/13	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/13	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/13	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/13	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/13	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/13	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/13	<0.40		ppbv	
		Bromomethane	2011/12/13	<0.18		ppbv	
		Bromoform	2011/12/13	<0.20		ppbv	
		Bromodichloromethane	2011/12/13	<0.20		ppbv	
		Dibromochloromethane	2011/12/13	<0.20		ppbv	
		Heptane	2011/12/13	<0.30		ppbv	
		Trichloroethylene	2011/12/13	<0.30		ppbv	
		Tetrachloroethylene	2011/12/13	<0.20		ppbv	
		Benzene	2011/12/13	<0.18		ppbv	
		Toluene	2011/12/13	<0.20		ppbv	
		Ethylbenzene	2011/12/13	<0.20		ppbv	
		p+m-Xylene	2011/12/13	<0.37		ppbv	
		o-Xylene	2011/12/13	<0.20		ppbv	
		Styrene	2011/12/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/13	<0.50		ppbv	
		4-ethyltoluene	2011/12/13	<2.2		ppbv	
		Chlorobenzene	2011/12/13	<0.20		ppbv	
		Benzyl chloride	2011/12/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/13	<3.0		ppbv	
		Hexane	2011/12/13	<0.30		ppbv	
		Cyclohexane	2011/12/13	<0.20		ppbv	
		Tetrahydrofuran	2011/12/13	<0.40		ppbv	
		1,4-Dioxane	2011/12/13	<2.0		ppbv	
		Xylene (Total)	2011/12/13	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/12/13	NC		%	25
		Carbon Disulfide	2011/12/13	NC		%	25
		Propene	2011/12/13	NC		%	25
		Vinyl Acetate	2011/12/13	NC		%	25
		Vinyl Bromide	2011/12/13	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/12/13	5.2		%	25
		1,2-Dichlorotetrafluoroethane	2011/12/13	NC		%	25

Maxxam Analytics
 Attention: Michael Bisaga
 Client Project #:
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Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2712644 MM2	RPD - Sample/Sample Dup	Chloromethane	2011/12/13	NC		%	25
		Vinyl Chloride	2011/12/13	NC		%	25
		Chloroethane	2011/12/13	NC		%	25
		1,3-Butadiene	2011/12/13	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/12/13	NC		%	25
		Trichlorotrifluoroethane	2011/12/13	NC		%	25
		Ethanol	2011/12/13	NC		%	25
		2-propanol	2011/12/13	3.2		%	25
		2-Propanone	2011/12/13	3.7		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/12/13	5.4		%	25
		Methyl Isobutyl Ketone	2011/12/13	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/12/13	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/12/13	NC		%	25
		Ethyl Acetate	2011/12/13	NC		%	25
		1,1-Dichloroethylene	2011/12/13	8.8		%	25
		cis-1,2-Dichloroethylene	2011/12/13	NC		%	25
		trans-1,2-Dichloroethylene	2011/12/13	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/12/13	NC		%	25
		Chloroform	2011/12/13	5.0		%	25
		Carbon Tetrachloride	2011/12/13	NC		%	25
		1,1-Dichloroethane	2011/12/13	3.2		%	25
		1,2-Dichloroethane	2011/12/13	NC		%	25
		Ethylene Dibromide	2011/12/13	NC		%	25
		1,1,1-Trichloroethane	2011/12/13	3.7		%	25
		1,1,2-Trichloroethane	2011/12/13	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/12/13	NC		%	25
		cis-1,3-Dichloropropene	2011/12/13	NC		%	25
		trans-1,3-Dichloropropene	2011/12/13	NC		%	25
		1,2-Dichloropropane	2011/12/13	NC		%	25
		Bromomethane	2011/12/13	NC		%	25
		Bromoform	2011/12/13	NC		%	25
		Bromodichloromethane	2011/12/13	NC		%	25
		Dibromochloromethane	2011/12/13	NC		%	25
		Heptane	2011/12/13	NC		%	25
		Trichloroethylene	2011/12/13	0.5		%	25
		Tetrachloroethylene	2011/12/13	NC		%	25
		Benzene	2011/12/13	NC		%	25
		Toluene	2011/12/13	1.2		%	25
		Ethylbenzene	2011/12/13	NC		%	25
		p+m-Xylene	2011/12/13	NC		%	25
		o-Xylene	2011/12/13	NC		%	25
		Styrene	2011/12/13	NC		%	25
		1,3,5-Trimethylbenzene	2011/12/13	NC		%	25
		1,2,4-Trimethylbenzene	2011/12/13	NC		%	25
		4-ethyltoluene	2011/12/13	NC		%	25
		Chlorobenzene	2011/12/13	NC		%	25
		Benzyl chloride	2011/12/13	NC		%	25
		1,3-Dichlorobenzene	2011/12/13	NC		%	25
		1,4-Dichlorobenzene	2011/12/13	NC		%	25
		1,2-Dichlorobenzene	2011/12/13	NC		%	25
		1,2,4-Trichlorobenzene	2011/12/13	NC		%	25
		Hexachlorobutadiene	2011/12/13	NC		%	25
		Hexane	2011/12/13	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4227

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2712644 MM2	RPD - Sample/Sample Dup	Cyclohexane	2011/12/13	NC		%	25
		Tetrahydrofuran	2011/12/13	NC		%	25
		1,4-Dioxane	2011/12/13	NC		%	25
		Xylene (Total)	2011/12/13	NC		%	25

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

Your C.O.C. #: 08992

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

Report Date: 2011/12/15

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J4761****Received: 2011/12/09, 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	2011/12/10	2011/12/13	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

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Maxxam Job #: B1J4761
 Report Date: 2011/12/15

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

Maxxam ID		LX9071	LX9072		
Sampling Date		2011/12/05	2011/12/05		
COC Number		08992	08992		
	Units	LICA PUFF+QFF/CLS/DEC 05,11	LICA PUFF+QFF/PORT/DEC 05,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.14	0.17	0.10	2709304
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2709304
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2709304
2-Methylantracene	ug	<0.10	<0.10	0.10	2709304
2-Methylnaphthalene	ug	0.21	0.26	0.10	2709304
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2709304
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2709304
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2709304
Acenaphthene	ug	0.068	0.070	0.050	2709304
Acenaphthylene	ug	<0.050	0.062	0.050	2709304
Anthracene	ug	<0.050	<0.050	0.050	2709304
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2709304
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2709304
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2709304
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2709304
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2709304
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2709304
Benzo(g,h,i)perylene	ug	<0.050	0.052	0.050	2709304
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2709304
Biphenyl	ug	0.31	0.38	0.10	2709304
Chrysene	ug	<0.050	<0.050	0.050	2709304
Coronene	ug	<0.10	<0.10	0.10	2709304
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2709304
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2709304
Fluoranthene	ug	0.088	0.112	0.050	2709304
Fluorene	ug	0.226	0.248	0.050	2709304
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2709304
m-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Naphthalene	ug	0.256	0.390	0.072	2709304
o-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Perylene	ug	<0.10	<0.10	0.10	2709304

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J4761
 Report Date: 2011/12/15

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

Maxxam ID		LX9071	LX9072		
Sampling Date		2011/12/05	2011/12/05		
COC Number		08992	08992		
	Units	LICA PUFF+QFF/CLS/DEC 05,11	LICA PUFF+QFF/PORT/DEC 05,11	RDL	QC Batch

Phenanthrene	ug	0.378	0.436	0.050	2709304
p-Terphenyl	ug	<0.10	<0.10	0.10	2709304
Pyrene	ug	<0.050	0.066	0.050	2709304
Quinoline	ug	<0.40	<0.40	0.40	2709304
Tetralin	ug	<0.10	<0.10	0.10	2709304
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	76	86		2709304
D10-Fluoranthene	%	100	90		2709304
D10-Fluorene (FS)	%	25 (1)	47 (1)		2709304
D10-Phenanthrene	%	94	94		2709304
D12-Benzo(a)anthracene	%	104	100		2709304
D12-Benzo(a)pyrene	%	102	100		2709304
D12-Benzo(b)fluoranthene	%	96	98		2709304
D12-Benzo(ghi)perylene	%	94	94		2709304
D12-Benzo(k)fluoranthene	%	90	90		2709304
D12-Chrysene	%	84	88		2709304
D12-Indeno(1,2,3-cd)pyrene	%	96	94		2709304
D12-Perylene	%	90	90		2709304
D14-Dibenzo(a,h)anthracene	%	96	92		2709304
D14-Terphenyl (FS)	%	98	86		2709304
D8-Acenaphthylene	%	86	88		2709304
D8-Naphthalene	%	74	86		2709304

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.

Maxxam Job #: B1J4761
Report Date: 2011/12/15

Test Summary

Maxxam ID LX9071
Sample ID LICA PUFF+QFF/CLS/DEC 05,11
Matrix PUF AND FILTER

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2709304	2011/12/10	2011/12/13	JIE WU

Maxxam ID LX9072
Sample ID LICA PUFF+QFF/PORT/DEC 05,11
Matrix PUF AND FILTER

Collected 2011/12/05
Shipped
Received 2011/12/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2709304	2011/12/10	2011/12/13	JIE WU

Maxxam Job #: B1J4761
Report Date: 2011/12/15

GENERAL COMMENTS

PAHMS-F

9,10-Dimethylanthracene and 7,12-dimethylbenzo(a)anthracene are above 25% RSD in initial and continuing calibrations. No positives found for these 2 compounds.

Chrysene is statistically out of control at 84% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl.

Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Sample LX9071-01: Internal Std area response criteria was high. The vial was rerun with similar result. Original run reported.

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

Sample LX9072-01: 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.

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

Quality Assurance Report
 Maxxam Job Number: GB1J4761

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2709304 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/13		92	%	50 - 150
		D10-Fluoranthene	2011/12/13		86	%	50 - 150
		D10-Phenanthrene	2011/12/13		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		96	%	50 - 150
		D12-Chrysene	2011/12/13		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/12/13		92	%	50 - 150
		D12-Perylene	2011/12/13		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		92	%	50 - 150
		D8-Acenaphthylene	2011/12/13		86	%	50 - 150
		D8-Naphthalene	2011/12/13		96	%	50 - 150
		Acenaphthene	2011/12/13		82	%	60 - 130
	RPD	Acenaphthene	2011/12/13	2.8		%	50
	Spiked Blank	Acenaphthylene	2011/12/13		79	%	60 - 130
	RPD	Acenaphthylene	2011/12/13	0.3		%	50
	Spiked Blank	Anthracene	2011/12/13		73	%	60 - 130
	RPD	Anthracene	2011/12/13	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/13		80	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/13	0.6		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/13		78	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/13	3.6		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/13		82	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/13	4.8		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/13		83	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/13	0.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/13		94	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/13	10.4		%	50
	Spiked Blank	Chrysene	2011/12/13		85	%	60 - 130
	RPD	Chrysene	2011/12/13	0.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/13		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/13	0.6		%	50
	Spiked Blank	Fluoranthene	2011/12/13		80	%	60 - 130
	RPD	Fluoranthene	2011/12/13	4.6		%	50
	Spiked Blank	Fluorene	2011/12/13		80	%	60 - 130
	RPD	Fluorene	2011/12/13	0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/13		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/13	0.9		%	50
	Spiked Blank	Naphthalene	2011/12/13		86	%	60 - 130
	RPD	Naphthalene	2011/12/13	19.1		%	50
	Spiked Blank	Phenanthrene	2011/12/13		79	%	60 - 130
	RPD	Phenanthrene	2011/12/13	2.5		%	50
	Spiked Blank	Pyrene	2011/12/13		79	%	60 - 130
	RPD	Pyrene	2011/12/13	6.7		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/13		90	%	50 - 150
		D10-Fluoranthene	2011/12/13		94	%	50 - 150
		D10-Phenanthrene	2011/12/13		96	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		94	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		106	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		88	%	50 - 150
		D12-Chrysene	2011/12/13		90	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J4761

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2709304 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/13		94	%	50 - 150
		D12-Perylene	2011/12/13		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		94	%	50 - 150
		D8-Acenaphthylene	2011/12/13		88	%	50 - 150
		D8-Naphthalene	2011/12/13		90	%	50 - 150
		1-Methylnaphthalene	2011/12/13	<0.10		ug	
		1-Methylphenanthrene	2011/12/13	<0.10		ug	
		2-Chloronaphthalene	2011/12/13	<0.10		ug	
		2-Methylanthracene	2011/12/13	<0.10		ug	
		2-Methylnaphthalene	2011/12/13	<0.10		ug	
		3-Methylcholanthrene	2011/12/13	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/12/13	<0.10		ug	
		9,10-Dimethylanthracene	2011/12/13	<0.40		ug	
		Acenaphthene	2011/12/13	<0.050		ug	
		Acenaphthylene	2011/12/13	<0.050		ug	
		Anthracene	2011/12/13	<0.050		ug	
		Benzo(a)anthracene	2011/12/13	<0.050		ug	
		Benzo(a)fluorene	2011/12/13	<0.10		ug	
		Benzo(a)pyrene	2011/12/13	<0.050		ug	
		Benzo(b)fluoranthene	2011/12/13	<0.050		ug	
		Benzo(b)fluorene	2011/12/13	<0.10		ug	
		Benzo(e)pyrene	2011/12/13	<0.10		ug	
		Benzo(g,h,i)perylene	2011/12/13	<0.050		ug	
		Benzo(k)fluoranthene	2011/12/13	<0.050		ug	
		Biphenyl	2011/12/13	<0.10		ug	
		Chrysene	2011/12/13	<0.050		ug	
		Coronene	2011/12/13	<0.10		ug	
		Dibenz(a,h)anthracene	2011/12/13	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/12/13	<0.20		ug	
		Fluoranthene	2011/12/13	<0.050		ug	
		Fluorene	2011/12/13	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/12/13	<0.050		ug	
		m-Terphenyl	2011/12/13	<0.10		ug	
		Naphthalene	2011/12/13	<0.072		ug	
		o-Terphenyl	2011/12/13	<0.10		ug	
		Perylene	2011/12/13	<0.10		ug	
		Phenanthrene	2011/12/13	<0.050		ug	
		p-Terphenyl	2011/12/13	<0.10		ug	
		Pyrene	2011/12/13	<0.050		ug	
		Quinoline	2011/12/13	<0.40		ug	
		Tetralin	2011/12/13	<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 to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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.

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2011

Prepared By:



January 11, 2012

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

Lakeland Industry & Community Association

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: December 2011

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – ST. LINA

Continuous Ambient Monitoring – December 2011

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	0.24	4	11	0	19.5	323(NW)	0.9	15	99.9
H2S (PPB)	10	3	0	0	0.17	1	VAR	VAR	VAR	VAR	0.7	23	99.9
THC (PPM)	-	-	-	-	2.17	4.6	25	22	12.1	274(W)	2.5	15	97.0
OZONE (PPB)	82	-	0	-	26.1	38	1	VAR	VAR	VAR	34.3	6	99.5
NOx (PPB)	-	-	-	-	2.68	18	16	4	9	336(NNW)	7.4	17	99.9
NO (PPB)	-	-	-	-	0.34	3	17	VAR	VAR	VAR	1.6	17	99.9
NO2 (PPB)	159	-	0	-	2.23	16	16	4	9	336(NNW)	6.4	17	99.9
PM2.5 (ug/m3)	-	30	-	0	4.91	35.0	14	13	14.7	322(NW)	15.3	13	84.5
TEMPERATURE (DEGREE C)	-	-	-	-	-4.84	6.8	6	6	20.3	255(WSW)	1.5	24	100.0
BP (MILLIBAR)	-	-	-	-	924	945	4	VAR	VAR	VAR	941.4	4	100.0
RH (%)	-	-	-	-	68.43	87	29	VAR	VAR	VAR	79.2	15	100.0
PRECIPITATION (MM)	-	-	-	-	0.00	0.0	ALL	ALL	VAR	VAR	0.0	ALL	100.0
VECTOR WS (KPH)	-	-	-	-	11.34	30.6	2	10	-	359(N)	15.1	7	100.0
VECTOR WD (DEGREES)	-	-	-	-	297(WNW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – St. Lina

Sulphur Dioxide (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 14th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on December 13th. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

The analyzer was working well throughout the month. Following the as found points check on December 13th, both the analyzer inside pump and zero air pump were rebuilt. The analyzer was allowed to stabilize overnight. A multi-point calibration was performed on December 14th. The inlet filter was changed before the monthly calibration was started. The span gas cylinder was changed on December 14th. Hourly maximum concentration on December 12th at hour 13 was invalidated due to a small power outage. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Ozone (PPB)

Analyzer make / model –Thermo 49C, S/N: 49C-54926-302

Upon the arrival on December 13th, it was noticed that the analyzer had an intensity alarm. Cleared the alarm and cleaned the cell A and cell B following the as found points check. The cell A flow rate was still high and could not be adjusted. Suspected the issue was due to faulty flow sensor. The flow sensor will be replaced once the part is available. The inlet filter was changed before the monthly calibration was started on December 14th. 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 exhausting scrubber and the exhausting pump were replaced following the as found points check on December 13th. The analyzer was allowed time to stabilize before the monthly calibration was performed on December 13th. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

Analyzer make / model – Thermo Scientific Series 1405F, S/N: 1405A208301003

No operational issue was observed this month. A routine Teom audit and a leak check were performed on December 14th. Following the audit, the Teom filter and FDMS filter were replaced using new batch filters. It was noticed that many negative readings were recorded after the maintenance done on December 14th. The Teom unit was checked and noticed that the noise level was higher than normal, but still within the limited range. Both the Teom filter and FDMS filter were replaced again on December 27th. Reason for the negative readings were likely due to new batch filters. 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. 115 hours of data were invalidated as the data were above –3 ug/m3. The operational time was 84.5%.

Temperature (Degree C)

Analyzer make / model – Met One 060

No operational issue was observed during the month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Barometric Pressure (Millibar)

Analyzer make / model - Met One 092

No operational issue was observed during this month.

Relative Humidity (%)

Analyzer make / model - Met One 083

No operational issue was observed during this month.

Precipitation (MM)

Analyzer make / model - Met One 387

No operational issue was observed during this month.

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

System make / model – Met 50.5, S/N: H12635

The wind system is reported as vector wind speed and vector wind direction.

The wind system was working well throughout the month. Hourly maximum WS reading was invalidated due to a small power outage.

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.

General Monthly Summary

AQM STATION – LICA – St. Lina

Trailer

No issue was observed this month. The manifold was cleaned on December 14th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values recorded in December 2011 were within the Good range. The highest hourly concentration of Ozone was 38 ppb and an AQI value of 19, on December 1st, in various hours. The highest AQI value for PM2.5 was 21, on December 9th, hour of 2 and 3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

DECEMBER 2011

AIR QUALITY INDEX (AQI)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX
DAY	HOURLY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00		
1	10	11	10	10	10	10	9	11	9	10	10	11	12	12	11	-	14	15	16	19	18	19	19	19	19	19	19
2	19	18	17	17	17	17	17	17	17	16	15	15	16	17	-	18	17	17	17	16	16	16	16	16	16	15	19
3	14	14	14	12	10	9	9	9	10	10	12	13	14	-	15	16	15	16	16	15	15	15	15	15	15	15	16
4	14	14	15	16	16	16	16	15	15	14	14	14	-	16	17	17	16	15	15	16	15	14	13	13	17	17	
5	13	13	12	13	13	12	12	12	11	11	11	-	10	11	11	10	10	10	11	13	14	15	14	14	14	15	
6	16	17	17	17	18	19	19	18	19	18	-	17	17	17	17	17	17	16	18	18	18	18	18	17	18	19	
7	17	17	17	16	17	18	18	18	17	-	17	17	18	18	18	18	17	17	17	17	17	17	17	17	17	18	
8	16	16	16	16	15	15	15	15	-	14	14	14	15	16	16	16	16	16	16	16	16	15	14	14	12	16	
9	14	18	21	21	20	17	16	-	18	17	16	11	13	14	14	15	15	15	14	13	12	11	11	12	21	21	
10	12	12	10	8	9	10	-	10	10	12	13	13	11	11	11	11	10	11	14	14	16	17	16	15	17	17	
11	11	8	7	7	8	-	9	10	8	9	10	10	11	12	12	12	13	13	13	13	13	12	12	12	11	13	
12	11	11	11	12	-	12	12	12	12	12	12	12	12	12	11	11	10	10	11	11	11	11	10	10	10	12	
13	10	10	10	-	10	11	8	13	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	
14	10	11	-	15	16	16	16	15	15	-	-	-	-	-	-	-	14	14	-	-	-	-	-	16	-	28	
15	11	-	11	10	9	9	9	-	12	-	-	-	13	-	-	12	-	10	10	9	9	7	8	8	13	13	
16	11	-	14	13	15	10	15	11	15	8	10	10	13	14	14	15	14	-	13	12	11	10	11	10	11	15	
17	8	7	8	7	7	8	9	10	10	9	9	8	9	10	10	11	11	11	11	11	11	11	12	11	12	12	
18	12	-	-	13	13	13	-	14	-	-	-	-	-	-	-	16	16	-	15	-	-	14	-	-	-	16	
19	10	9	7	9	10	-	11	-	12	12	13	-	14	13	13	15	16	-	-	-	-	16	13	10	17	17	
20	10	-	14	-	16	16	-	17	-	17	-	-	17	-	-	-	-	16	-	-	-	15	14	-	17	17	
21	14	-	14	14	-	14	-	-	-	-	-	-	-	-	-	16	15	14	15	-	14	-	-	13	-	16	
22	10	10	10	10	10	10	11	-	14	15	15	16	16	-	-	17	-	-	16	16	16	16	15	14	17	17	
23	13	12	13	13	14	15	14	12	10	10	11	14	16	17	18	18	-	-	-	-	-	17	17	-	-	18	
24	17	18	18	-	18	17	17	17	17	17	-	-	18	-	-	-	-	16	-	-	-	-	-	-	-	18	
25	13	-	-	-	11	11	11	-	11	-	-	13	-	-	-	13	-	-	13	13	13	12	12	12	-	18	
26	17	16	18	18	17	-	17	15	15	-	13	-	-	-	-	13	-	13	13	13	12	12	12	-	12	18	
27	11	11	10	11	11	11	10	9	9	9	9	9	-	11	13	-	15	-	-	17	17	17	17	-	18	18	
28	15	15	14	13	13	12	12	11	11	12	14	-	-	17	16	-	14	14	-	13	13	13	13	12	12	17	
29	11	11	10	10	10	9	10	9	9	13	-	9	9	9	9	16	11	12	13	16	18	-	17	17	18	18	
30	16	16	-	16	15	15	15	17	-	15	14	12	12	12	13	14	13	13	13	13	12	12	12	14	17	17	
31	-	15	15	14	14	16	15	-	16	16	17	-	18	18	18	18	18	17	17	17	17	17	17	17	16	18	
PEAK	19	18	21	21	20	19	19	18	19	18	17	17	18	18	18	18	18	18	17	18	19	18	19	19	19	19	

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	527	70.8%	19	VAR	1	55	7.4%	21	2,3	9	0	0.0%	-	-	-	0	0.0%	-	-	-	582	78.2%
OVERALL	519	70.8%	-	-	-	167	7.4%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	744	78.2%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162	21.8%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	IZS	0	1	1	1	1	0	0	0	2	0.4	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	0	0	0	0	0	0	0	0	0	1	1	IZS	0	1	1	1	1	1	1	0	0	0	0	0	1	0.3	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
9	0	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2	24	
10	0	0	0	1	2	2	IZS	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	2	0.4	24	
11	4	3	1	1	1	IZS	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0.7	24	
12	0	0	0	1	IZS	0	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	2	1	1	1	2	0.8	24
13	1	1	1	IZS	0	0	0	0	0	1	1	1	C	M	3	2	1	1	0	0	C	0	0	2	3	0.8	23	
14	1	1	IZS	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	1	0.1	24	
15	1	IZS	1	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	
16	IZS	0	0	1	1	1	1	1	1	2	1	1	1	1	1	0	1	1	1	1	1	1	1	1	IZS	2	0.9	24
17	0	0	0	0	1	1	1	1	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0	IZS	0	2	0.4	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	1	1	1	1	0	0	0	0	0	IZS	0	1	2	2	0.3	24
20	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	2	0.3	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	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.2	24	
23	0	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	2	0.2	24	
24	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	
25	0	0	0	1	1	1	0	1	1	1	1	1	1	1	IZS	0	0	0	1	1	1	2	1	1	2	0.7	24	
26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.0	24	
27	0	0	1	1	1	1	0	0	0	1	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	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	
31	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX	4	3	1	1	2	2	2	1	1	2	1	1	1	1	3	2	2	2	2	2	2	2	2	1	2			
HOURLY AVG	0.3	0.2	0.2	0.3	0.4	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2				

STATUS FLAG CODES

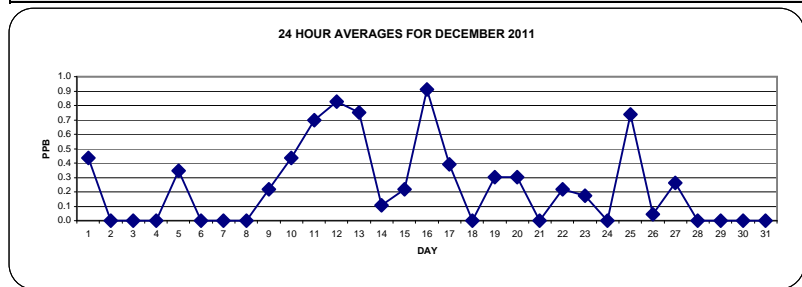
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

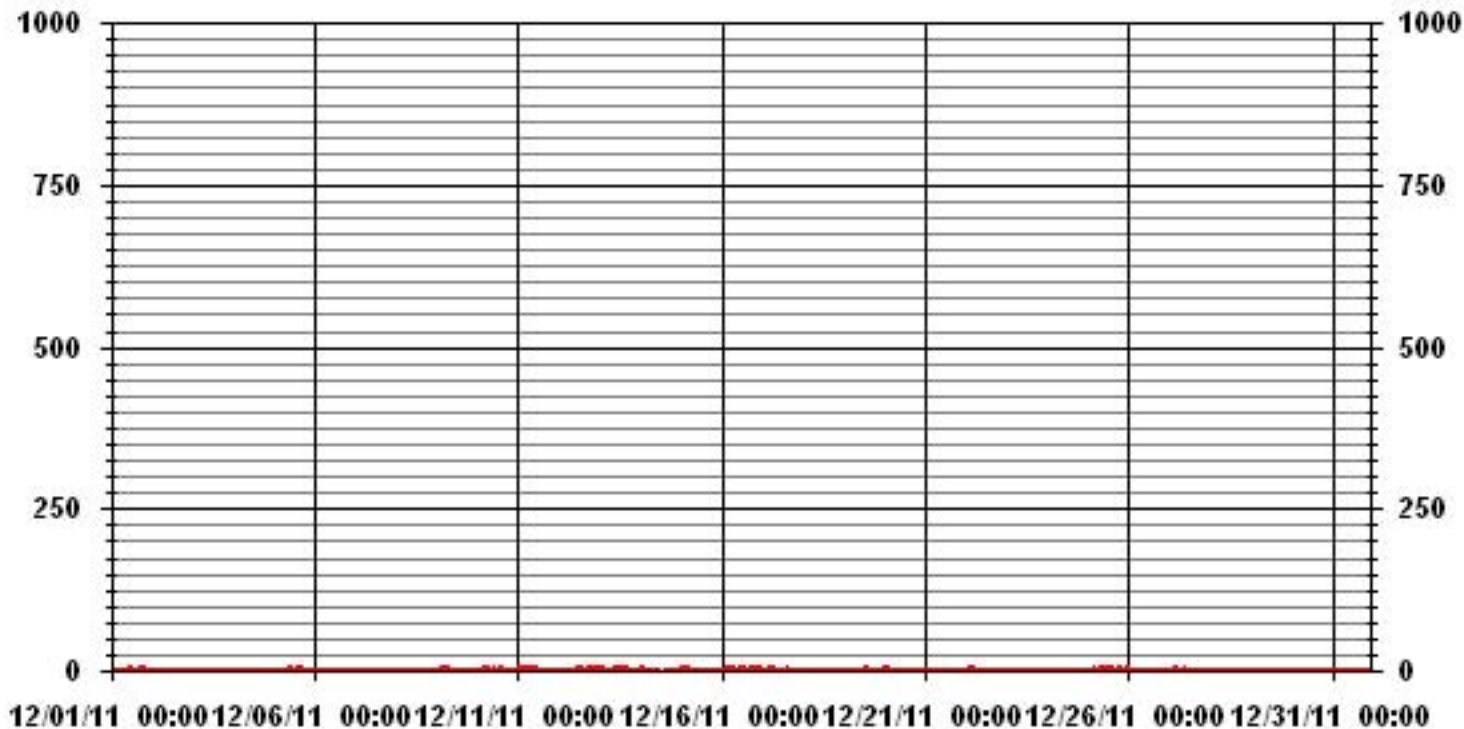
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	142
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) 0 ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	0.9 PPB ON DAY(S) 15
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	6 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.51
MONTHLY AVERAGE:	0.24 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

DECEMBER 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	IZS	1	2	2	2	2	1	1	1	3	1.4	24	
2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.5	24	
3	0	0	0	0	0	0	0	1	1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	1	1	1	0.1	24
5	1	1	1	1	1	1	1	1	1	1	2	2	IZS	1	2	3	2	2	2	2	1	1	1	1	1	3	1.4	24	
6	1	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	
7	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24	
8	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	1.0	24	
9	1	1	1	2	2	2	2	IZS	1	1	1	1	1	1	0	1	0	1	0	1	2	2	1	1	2	1	1.1	24	
10	1	1	1	2	3	3	IZS	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
11	7	4	3	2	2	IZS	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	7	1.8	24	
12	1	1	1	1	IZS	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	2	2	2	2	3	1.7	24	
13	2	2	2	IZS	1	1	1	1	1	2	2	3	C	M	4	3	2	2	1	C	C	1	1	3	4	1.8	24		
14	3	2	IZS	1	1	1	1	0	0	0	0	0	C	C	C	C	1	1	1	1	1	1	1	1	3	0.9	20		
15	1	IZS	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
16	IZS	1	1	1	2	2	2	2	2	3	3	2	2	1	2	1	1	2	1	2	1	2	2	1	IZS	3	1.7	24	
17	1	0	1	1	2	1	2	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	IZS	1	2	1.2	24	
18	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.3	24	
19	0	1	1	1	1	0	0	1	1	1	1	1	2	2	2	2	1	1	1	1	1	IZS	1	3	3	3	1.2	24	
20	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	3	1.2	24	
21	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.2	24	
22	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	IZS	0	0	0	0	1	0	2	1.0	24	
23	1	1	1	1	1	3	3	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	3	1.2	24		
24	1	1	0	1	1	0	0	0	1	1	0	0	0	0	0	IZS	0	0	0	0	0	0	1	1	1	1	0.4	24	
25	1	1	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1	1	1	2	2	2	3	3	1	3	1.8	24		
26	2	1	1	1	1	1	1	1	1	1	2	1	1	IZS	1	1	1	1	1	0	1	1	1	1	2	1.0	24		
27	1	1	3	3	1	1	1	1	1	1	1	1	IZS	1	1	0	0	0	0	0	0	0	0	0	3	0.8	24		
28	0	0	0	1	1	1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	1	1	0.3	24		
29	1	1	1	1	0	0	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24		
30	0	0	1	1	1	1	0	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24		
31	1	0	0	0	0	0	0	0	IZS	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0.2	24		
HOURLY MAX	7	4	3	3	3	3	3	2	2	3	3	3	2	2	4	3	3	3	3	3	3	2	3	3	3				
HOURLY AVG	1.2	1.0	1.1	1.2	1.1	1.0	1.0	0.9	0.9	1.0	1.1	1.0	0.9	0.9	1.1	0.9	0.7	0.8	0.8	0.7	0.7	0.9	0.9	0.9					

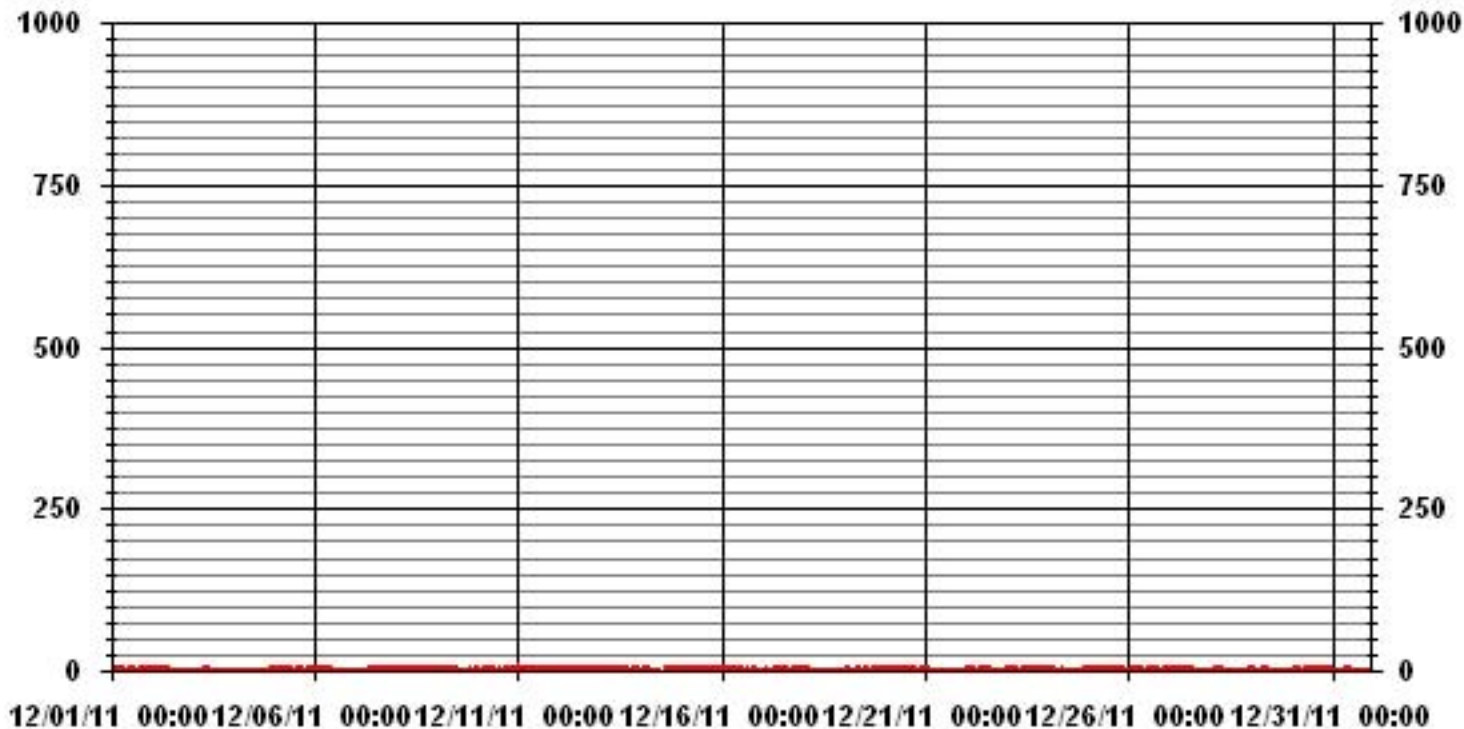
STATUS FLAG CODES

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:	502					
MAXIMUM INSTANTANEOUS VALUE:	7	PPB	@ HOUR(S)	0	ON DAY(S)	11
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.80					

01 Hour Averages



LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	9.36	3.82	2.26	2.41	1.56	2.26	3.82	2.41	2.41	2.97	6.38	9.78	10.49	16.87	14.75	8.36	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	9.36	3.82	2.26	2.41	1.56	2.26	3.82	2.41	2.41	2.97	6.38	9.78	10.49	16.87	14.75	8.36	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	66	27	16	17	11	16	27	17	17	21	45	69	74	119	104	59	705
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	66	27	16	17	11	16	27	17	17	21	45	69	74	119	104	59	

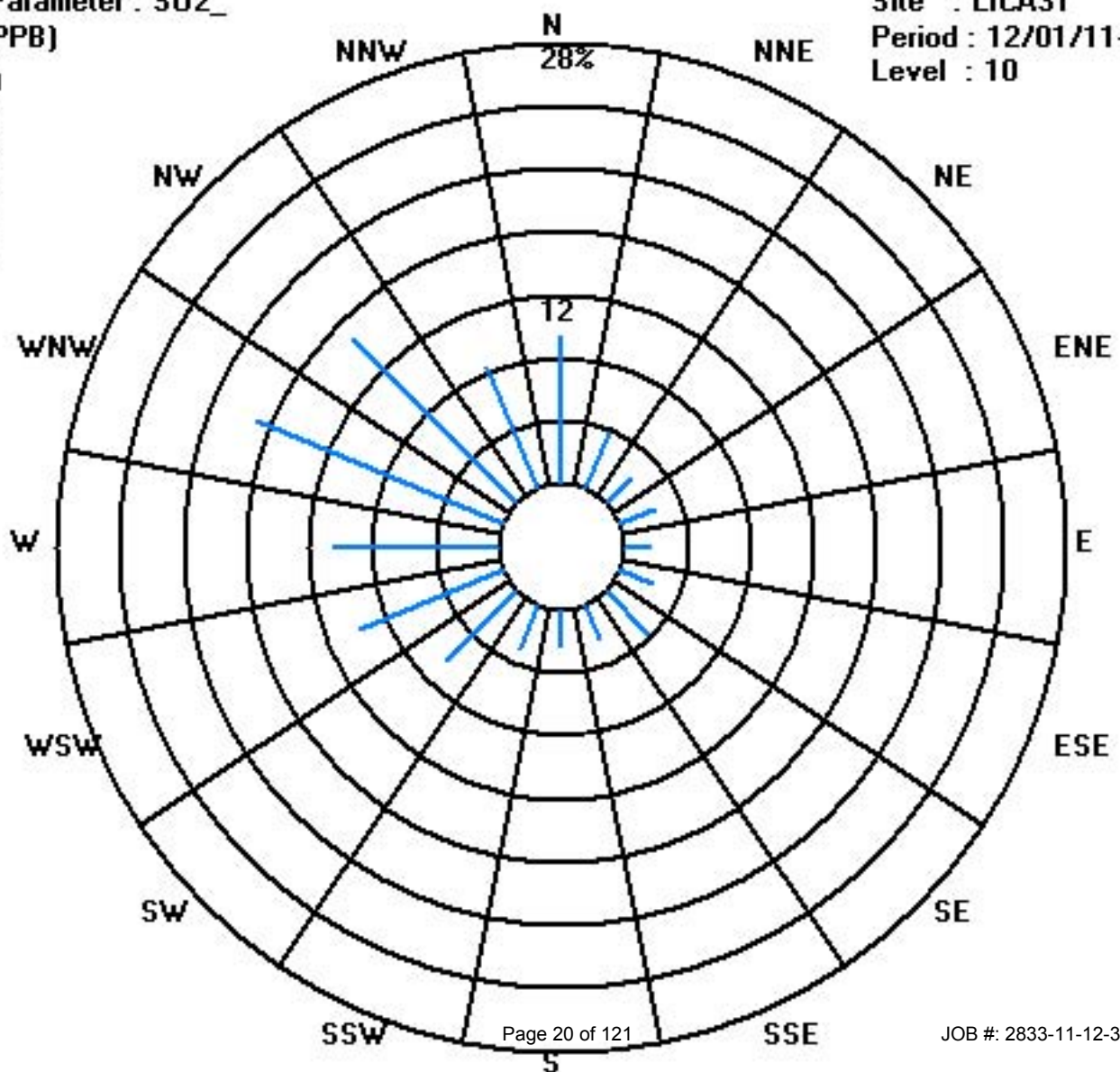
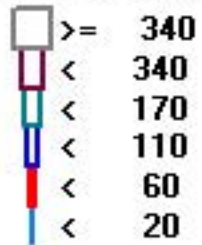
Calm : .00 %

Total # Operational Hours : 705

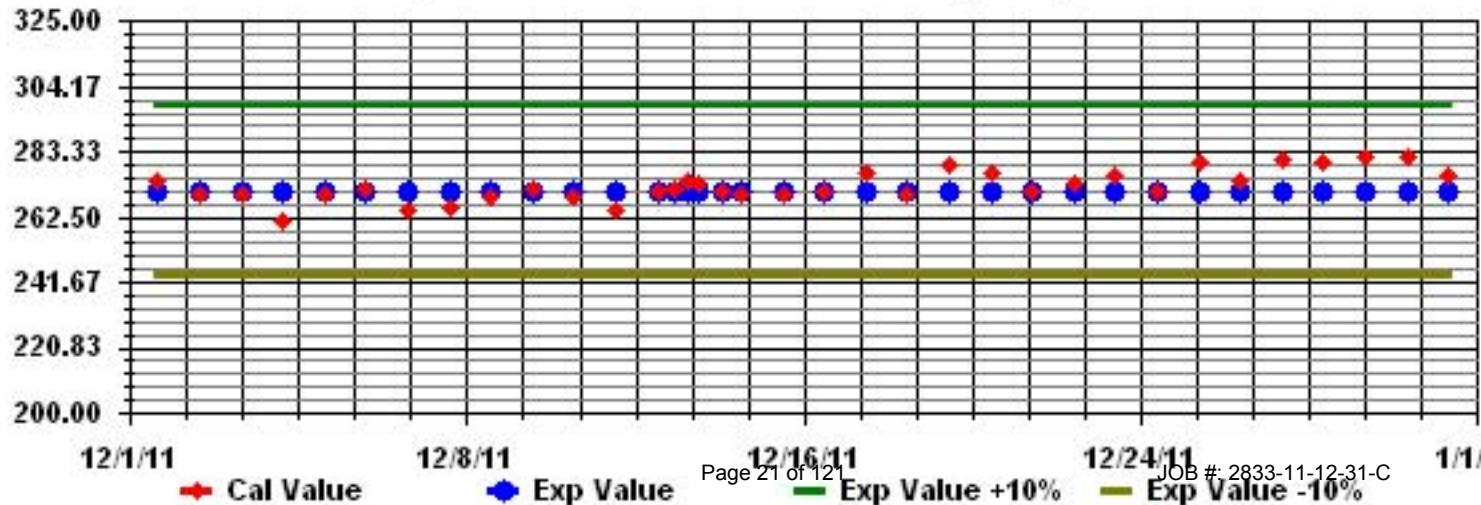
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

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

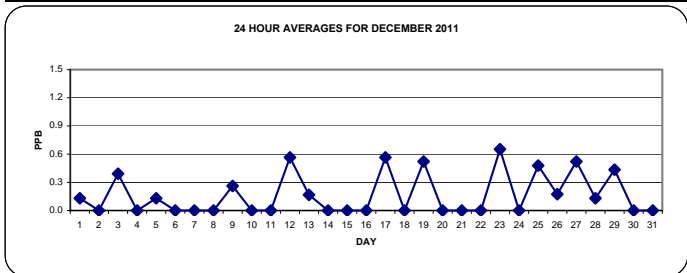
OBJECTIVE LIMIT:

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

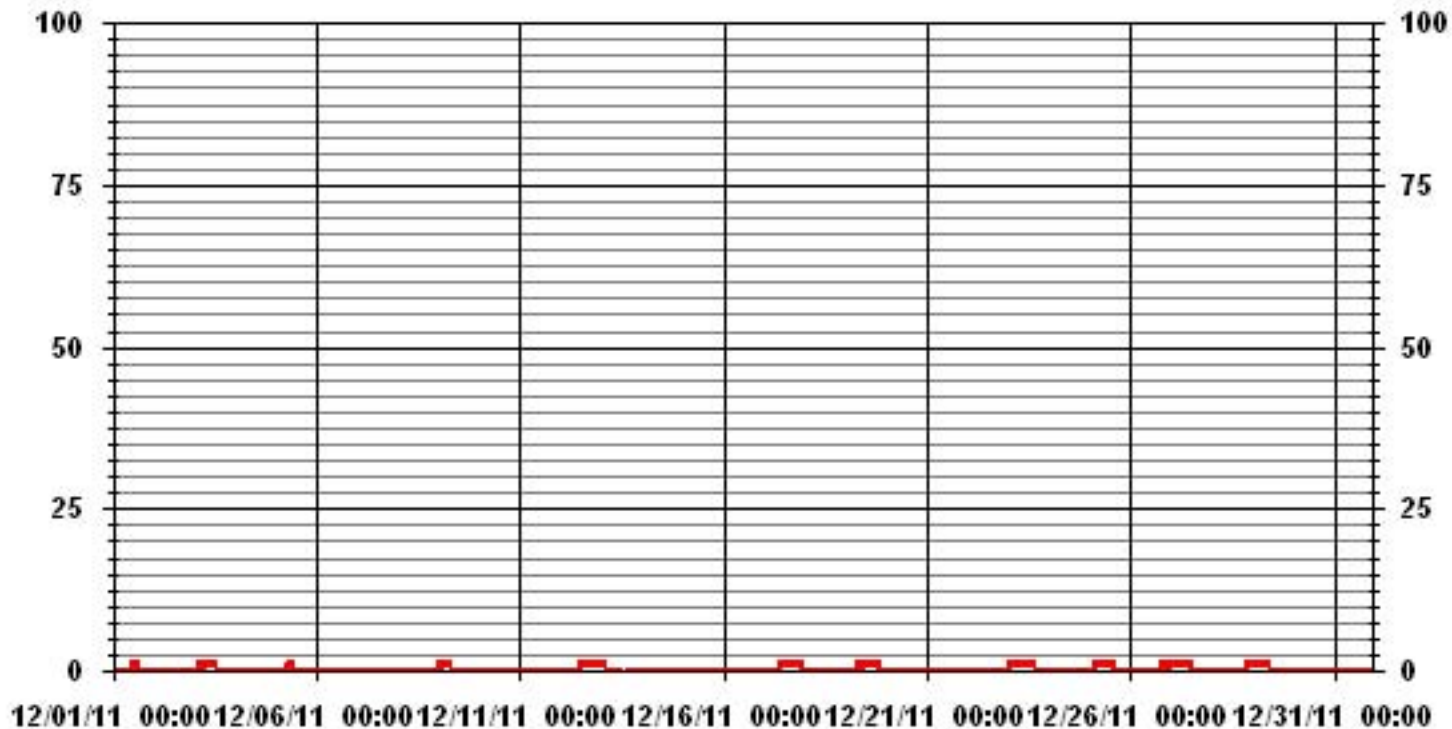
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	117
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.7 PPB VAR-VARIOUS ON DAY(S) 23
IZS CALIBRATION TIME:	32 HRS OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	5 HRS AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	0.37 MONTHLY AVERAGE: 0.17 PPB

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

DECEMBER 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

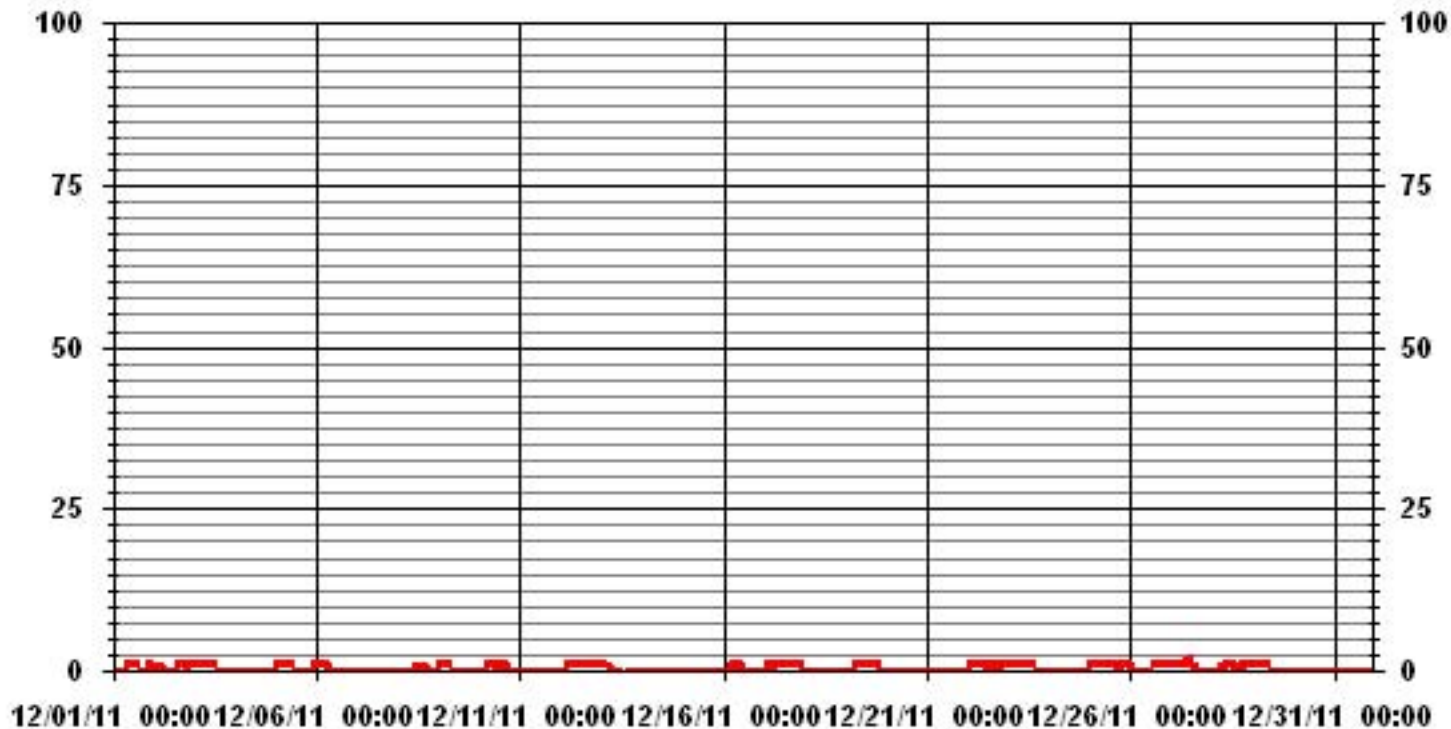
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	234					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	9, 11	ON DAY(S)	27
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.48					

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	9.06	3.82	2.40	2.40	1.55	2.26	3.82	2.40	2.40	2.97	6.37	9.77	10.48	16.99	15.01	8.21	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	9.06	3.82	2.40	2.40	1.55	2.26	3.82	2.40	2.40	2.97	6.37	9.77	10.48	16.99	15.01	8.21	

Calm : .00 %

Total # Operational Hours : 706

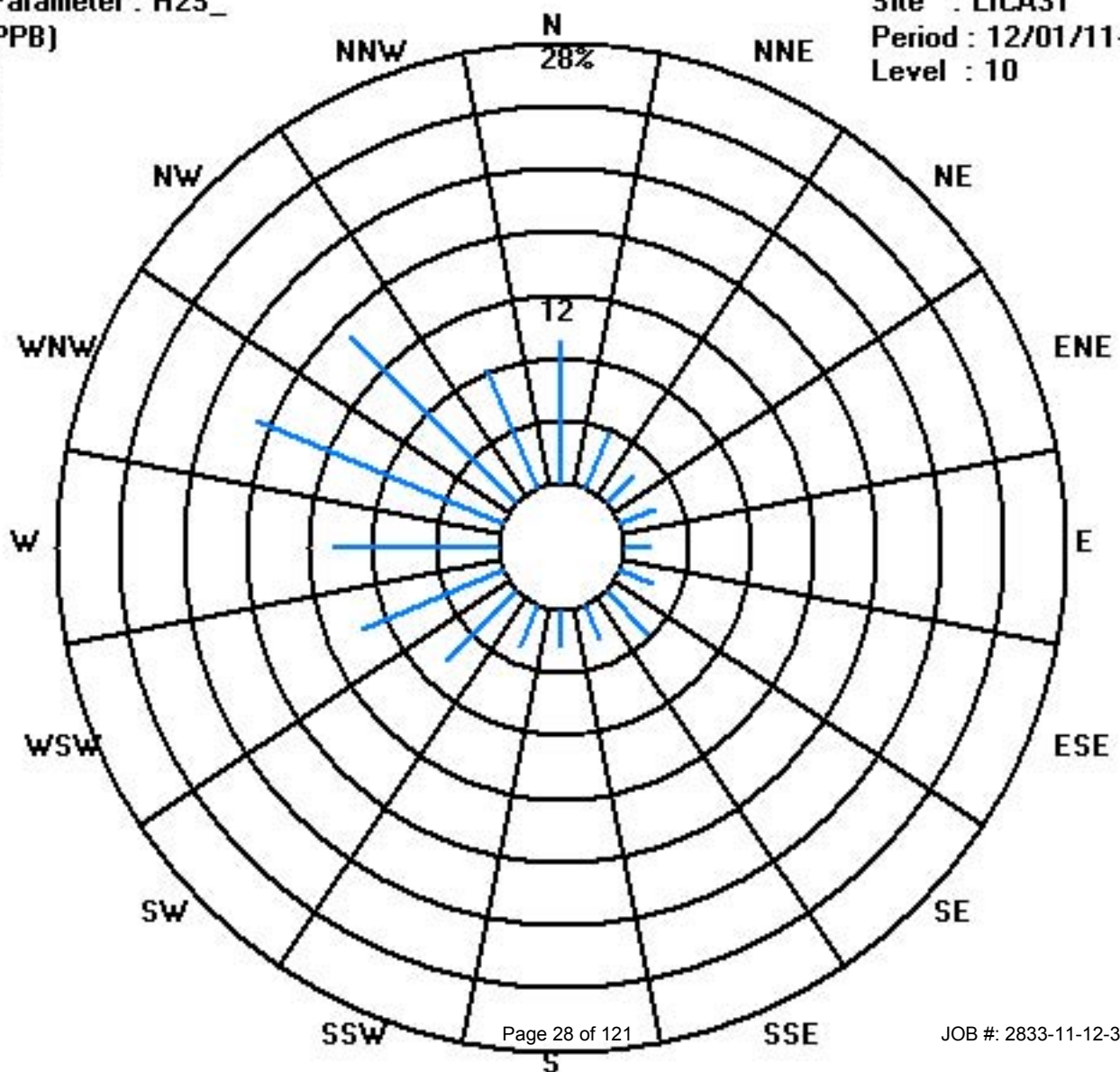
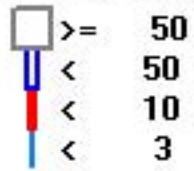
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	64	27	17	17	11	16	27	17	17	21	45	69	74	120	106	58	706
< 10																	
< 50																	
>= 50																	
Totals	64	27	17	17	11	16	27	17	17	21	45	69	74	120	106	58	

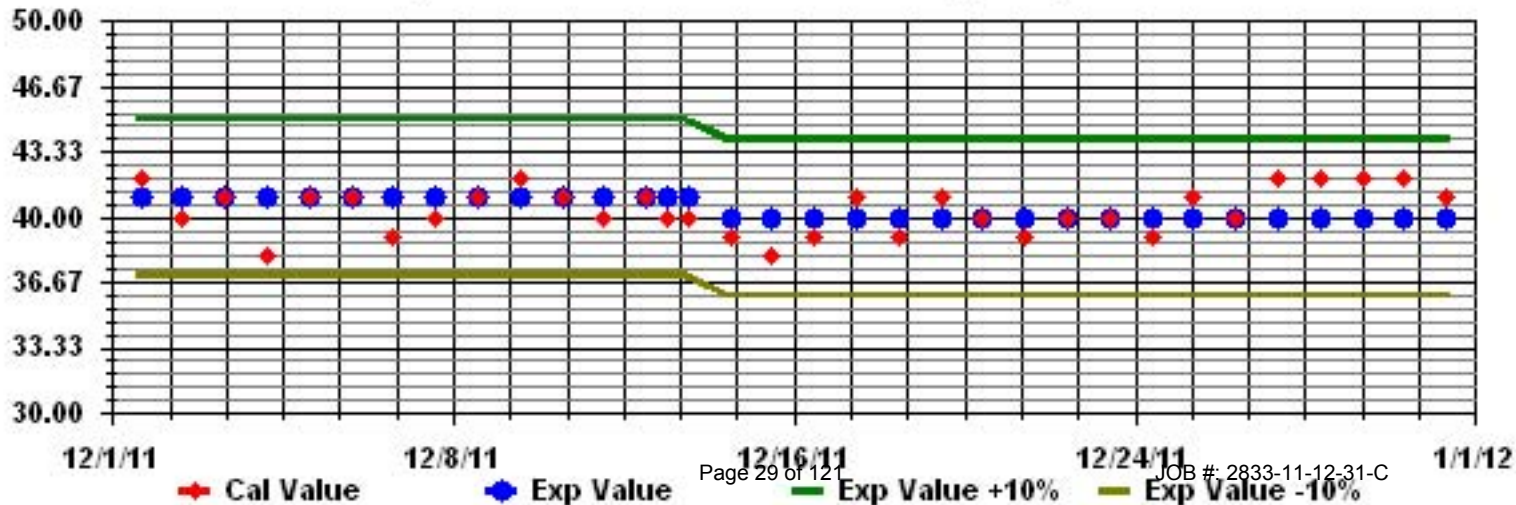
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

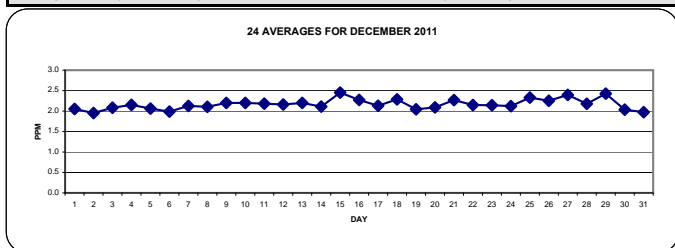
DECEMBER 2011

TOTAL HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1		2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2	2	IZS	2	2	1.9	1.9	1.9	1.9	1.8	1.8	2.2	2.1	24		
2		1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2.1	2	2.1	2.0	24	
3		2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	IZS	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	
4		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	24	
5		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	2	2	1.9	1.9	1.9	1.9	2.1	24		
6		1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	IZS	2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	24		
7		2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	24		
8		2.1	2.1	2	2	2.1	2	2	2.1	IZS	2.1	2.1	2.1	2.1	2	2.1	2.1	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.3	24		
9		2.3	2.3	2.2	2.2	2.2	2.2	IZS	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.3	24		
10		2.2	2.2	2.2	2.2	2.3	2.2	IZS	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.2	2.4	24		
11		2.1	2.2	2.3	2.2	2.2	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.3	2.3	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.4	24		
12		2.1	2.1	2.2	2.2	IZS	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	24		
13		2.1	2.1	2.1	IZS	2.2	2.2	2.2	2.3	2.3	2.3	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	2.2	12	
14		M	M	M	M	M	M	M	M	M	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	2.3	2.2	14	
15		2.4	IZS	2.3	2.8	2.5	2.8	2.4	2.2	2.5	2.6	2.6	2.6	2.3	2.2	2.2	2.3	2.3	2.6	2.7	2.4	2.4	2.4	2.4	2.5	2.8	2.5	24	
16		IZS	2.4	2.5	2.6	2.6	2.5	2.6	2.6	2.5	2.4	2.4	2.2	2	2	2	2	2	2	2	2.1	2.2	2.2	2.2	IZS	2.6	2.3	24	
17		2.2	2.3	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2	2	2.1	1.9	1.9	1.9	IZS	2.1	2.4	24		
18		2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.2	2.2	2.2	2.3	IZS	2.2	2.2	2.6	24		
19		2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2	2	2	2	2	1.9	1.9	2	1.9	1.9	1.8	1.8	IZS	2.1	2.2	2.3	2.3	24		
20		2.4	2.3	2.2	2.1	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2.1	2.1	2.1	2.4	24		
21		2.1	2.7	2.8	2.6	2.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.1	2.1	2.2	2.2	2.2	2.8	24		
22		2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2	2	2	2	IZS	2.1	2.1	2	2.1	2.1	2.1	2.1	2.4	24		
23		2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.1	2	2	1.9	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24		
24		2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	IZS	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.1	24		
25		2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2	IZS	2.1	2	2	2	2	2	2.1	2.3	4.6	4	4.6	24	
26		4.4	2.2	2	2	2	2	2	2	2.1	2.2	2.2	2.2	2.2	IZS	2.2	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	4.4	24		
27		2.3	2.7	2.8	2.9	2.8	3	3.2	3.4	3.2	2.9	2.6	2.4	IZS	2	2	2	2	1.9	1.9	1.8	1.8	1.9	1.8	1.8	3.4	24		
28		1.9	1.9	2	1.9	1.9	2	2	1.9	2.1	2	1.9	IZS	2.1	2.1	2.3	2.7	2.8	2.5	2.3	2.3	2.3	2.4	2.4	2.4	2.8	24		
29		2.6	2.7	3.4	3.8	3.2	3.2	3.3	3.2	3.4	3.3	IZS	2.6	2.3	2.1	2.2	1.9	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.5	3.8	24		
30		1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.7	IZS	2.2	2.3	3.1	3	2.4	2.1	2.1	2	2	2.1	2.3	2.5	2.3	1.8	3.1	24		
31		1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.6	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.0	24	
HOURLY MAX		4.4	2.7	3.4	3.8	3.2	3.2	3.3	3.4	3.4	3.3	2.6	2.6	3.1	3.0	2.4	2.7	2.8	2.6	2.7	2.4	2.4	2.5	4.6	4.0				
HOURLY AVG		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2				

STATUS FLAG CODES

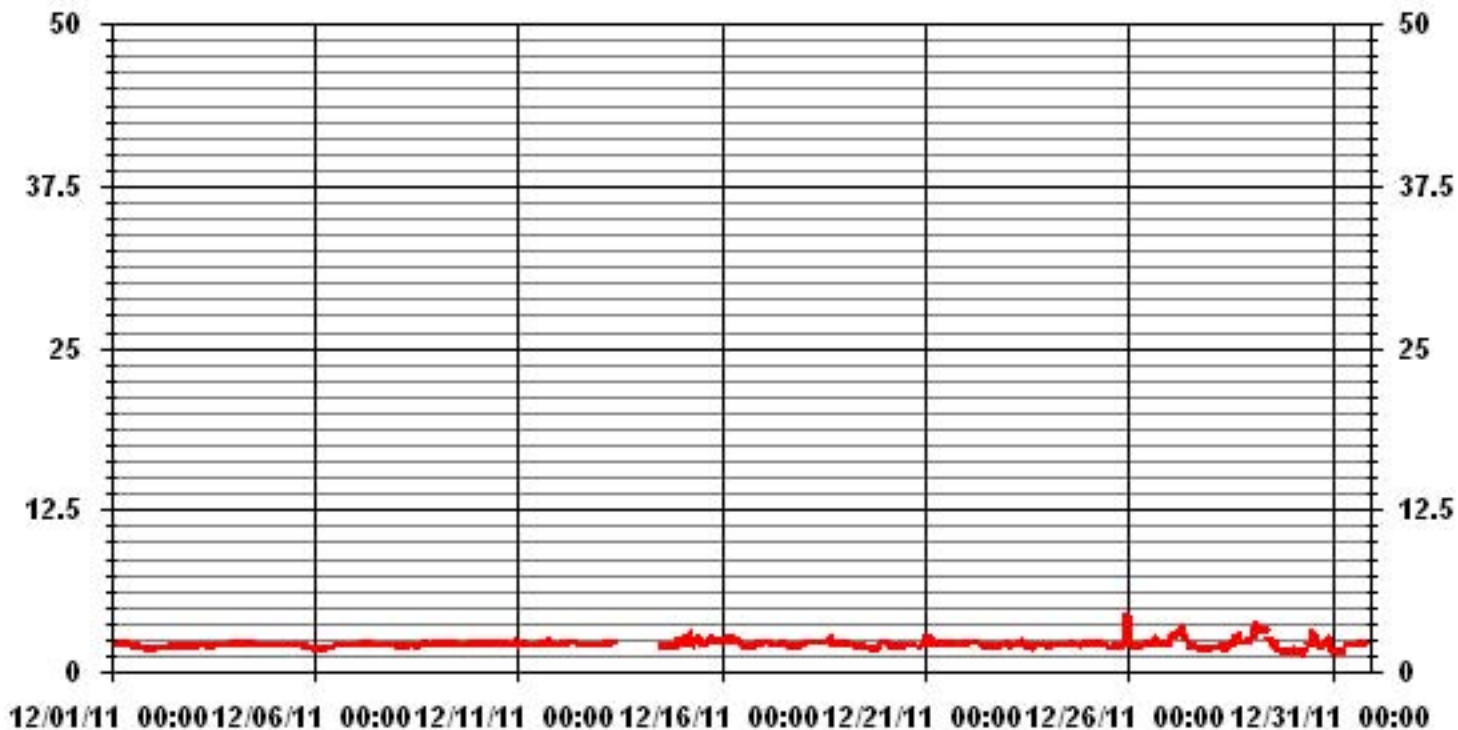
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	4.6	PPM	@ HOUR(S)	22	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	2.5	PPM			ON DAY(S)	15
					VAR- VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	722	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	97.0	%	
STANDARD DEVIATION:	0.30		MONTHLY AVERAGE:	2.17	PPM	

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2	IZS	2	2	2	1.9	1.9	1.9	2	1.9	2.2	2.1	24			
2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	IZS	2	2.1	2.1	2.2	2.1	2.1	2	2.1	2	2.2	2.0	24			
3	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	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	24			
4	4	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	IZS	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.2	24		
5	5	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	2	2	1.9	2.1	2.1	24		
6	6	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	2.1	2.2	IZS	2.2	2.3	2.4	2.6	3	2.4	2.3	2.4	2.3	2.3	2.3	2.2	2.4	3	2.2	24		
7	7	3.6	2.5	2.1	2.4	2.4	2.4	2.4	2.4	2.4	IZS	2.2	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	3.6	2.4	24		
8	8	2.6	2.4	2.1	2.1	2.1	2.1	2.1	IZS	2.2	2.1	3	2.3	2.4	2.6	3.3	2.9	3	2.8	3.4	2.1	2.1	2.1	2.2	3.4	2.4	2.4	24		
9	9	2.3	2.3	2.3	2.3	2.2	2.2	2.2	IZS	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.4	2.4	2.3	2.2	2.3	2.4	2.3	24		
10	10	2.3	2.4	2.3	2.3	2.3	2.3	IZS	2.2	2.3	2.2	4.3	2.2	2.3	2.3	2.8	2.3	2.4	2.3	2.2	2.2	2.1	2.5	8.2	3.6	8.2	2.7	24		
11	11	2.5	4.6	4.5	2.2	2.2	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.9	3	2.9	3.3	4.1	5.1	5.6	4.8	2.1	2.1	2.1	2.1	5.6	3.0	24		
12	12	2.2	2.2	2.2	2.2	IZS	2.2	2.3	2.3	2.3	2.3	2.3	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	2.3	2.2	24		
13	13	2.1	2.1	2.1	IZS	2.2	2.3	2.3	2.3	2.3	2.3	C	M	M	M	M	M	M	M	M	M	M	M	M	M	2.3	2.2	12		
14	14	M	M	M	M	M	M	M	M	C	C	C	C	2.1	2.1	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	22.9	4.1	22.9	4.4	14
15	15	3.6	IZS	3.7	5.4	3.6	4.7	2.5	2.5	2.6	2.6	2.7	2.7	2.4	2.2	2.3	2.3	2.4	2.9	3.4	2.5	2.5	2.5	2.5	2.5	5.4	2.9	24		
16	16	IZS	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.5	2.4	2.3	2.1	2.2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.2	IZS	2.7	2.3	23		
17	17	2.3	2.3	2.4	2.5	2.4	2.3	2.2	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.4	2.7	2.3	2.1	2.3	IZS	2.8	2.8	2.3	24		
18	18	2.8	2.7	2.7	2.6	2.7	2.5	2.6	2.8	2.9	2.6	2.6	2.4	2.4	2.5	2.5	3.3	3.5	2.8	2.3	2.3	IZS	2.2	2.2	3.5	2.6	24			
19	19	2.2	2.2	2.3	2.2	2.2	2.1	2.2	2.2	2.1	2	2	2	2	2	2	2	2.1	1.9	1.8	IZS	2.1	2.3	2.4	2.4	2.1	24			
20	20	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.4	2.5	2.1	2.1	2.5	2.1	IZS	2.1	2.1	2.1	2.1	2.5	2.2	24		
21	21	2.2	11.2	6	4.8	4.1	3.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.2	2.3	2.2	2.3	2.3	IZS	2.1	2.2	2.2	2.3	2.3	11.2	3.0	24		
22	22	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.4	2.3	2.5	2.2	IZS	2.2	2.1	2.1	2.1	2.2	2.1	2.5	2.3	24		
23	23	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.5	2.4	2.2	2.1	2	2	IZS	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.5	2.2	24		
24	24	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.5	2.4	2.7	2.6	IZS	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.7	2.2	24		
25	25	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2	IZS	2.1	2.1	2.1	2	2	3.3	3.8	12.8	18.9	18.9	3.5	24		
26	26	14.9	3.1	2	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.2	IZS	2.3	9.6	3.1	2.6	2.3	2.3	2.2	2.2	2.2	2.2	14.9	3.1	24		
27	27	2.5	2.8	3	3	3.1	3.2	3.4	3.4	3.3	3.1	2.7	2.5	IZS	2.1	2	2.1	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	3.4	2.5	24		
28	28	2	2	2	2	2	2	2	2	4.2	2.4	2	IZS	2.1	2.2	2.6	2.8	2.9	2.7	2.3	2.4	2.4	2.4	2.5	2.5	4.2	2.4	24		
29	29	3.5	2.9	4.2	4.3	3.8	3.8	3.7	5.1	4.6	3.4	IZS	2.8	2.4	2.2	2.3	2.1	2.1	1.7	1.7	1.6	1.5	1.6	1.6	5.1	2.8	24			
30	30	1.7	1.8	1.8	1.6	1.6	1.6	1.6	1.5	2.3	IZS	2.6	2.8	3.7	3.6	2.6	2.3	2.1	2.1	2.1	2.2	2.4	2.5	2.6	2	3.7	2.2	24		
31	31	1.7	1.6	1.6	1.6	1.6	1.7	1.7	IZS	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0	24		
HOURLY MAX		15	11	6	5	4	5	4	5	5	3	4	3	4	4	3	10	4	5	6	5	3	4	23	19					
HOURLY AVG		2.8	2.7	2.5	2.5	2.4	2.4	2.3	2.3	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.6	2.3	2.4	2.3	2.3	2.2	2.2	3.5	2.9					

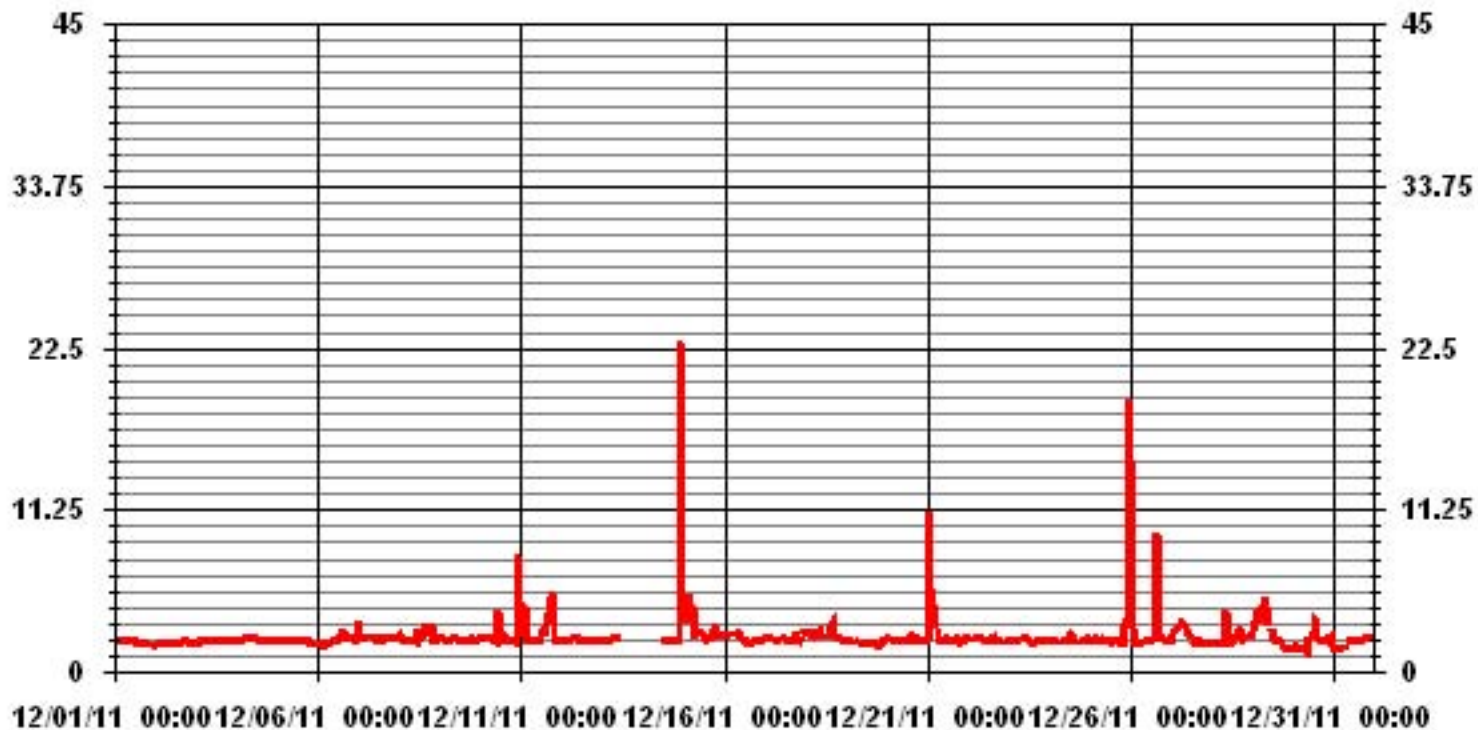
STATUS FLAG CODES

S - OUT OF SERVICE	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:	22.9 PPM @ HOUR(S) 22 ON DAY(S) 14
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	1.38
OPERATIONAL TIME:	721 HRS

01 Hour Averages



LICA31
 THC / WDR Joint Frequency Distribution (Percent)

December 2011

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	8.90	3.64	2.04	1.89	1.16	2.18	3.79	2.48	2.48	2.91	6.42	10.07	10.65	16.64	14.16	8.02	97.51
< 10.0	.14	.00	.29	.58	.43	.14	.14	.00	.00	.14	.14	.00	.14	.14	.00	.14	2.48
< 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	9.05	3.64	2.33	2.48	1.60	2.33	3.94	2.48	2.48	3.06	6.56	10.07	10.80	16.78	14.16	8.17	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	61	25	14	13	8	15	26	17	17	20	44	69	73	114	97	55	668
< 10.0	1		2	4	3	1	1			1	1		1	1		1	17
< 50.0																	
>= 50.0																	
Totals	62	25	16	17	11	16	27	17	17	21	45	69	74	115	97	56	

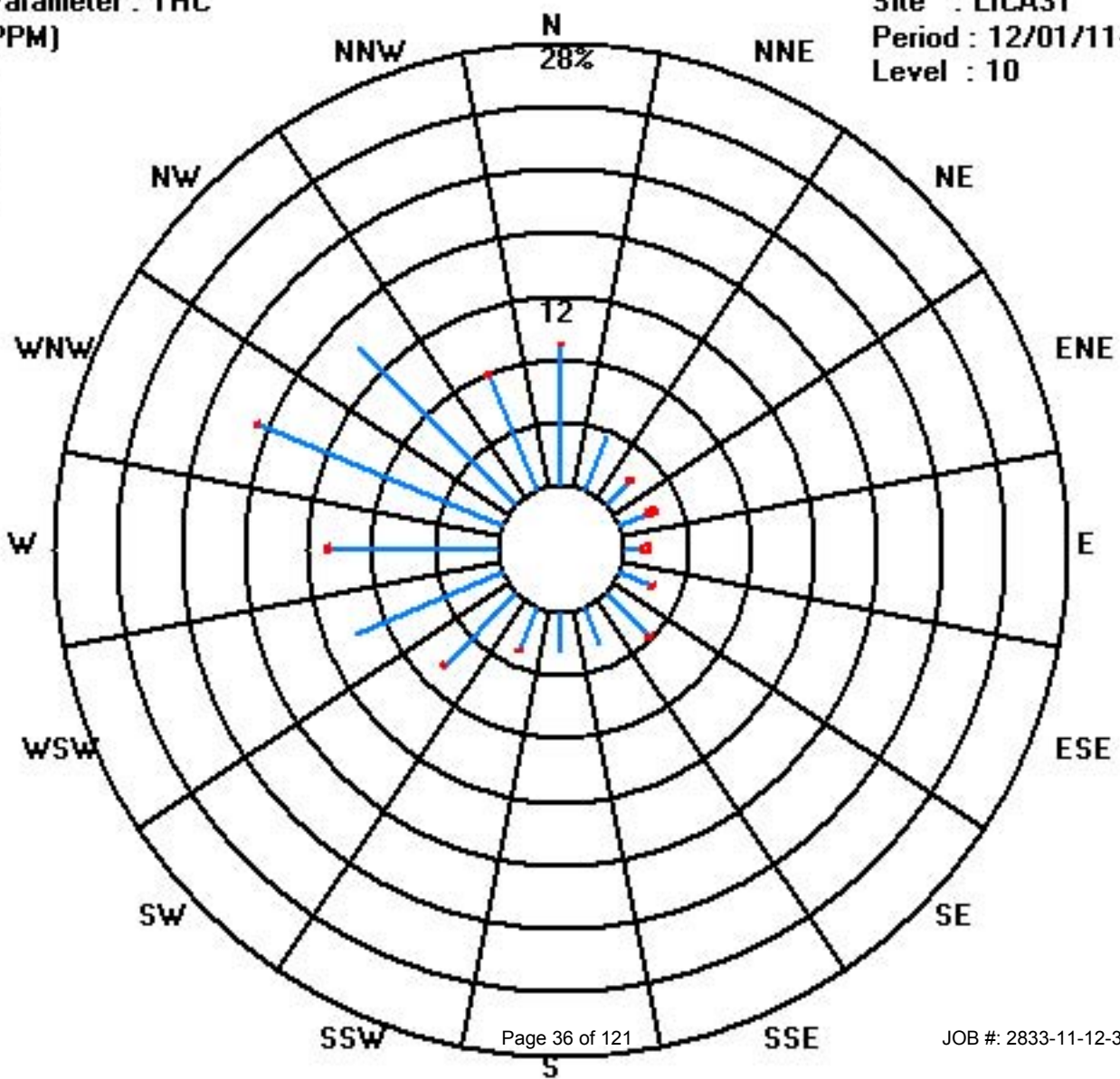
Calm : .00 %

Total # Operational Hours : 685

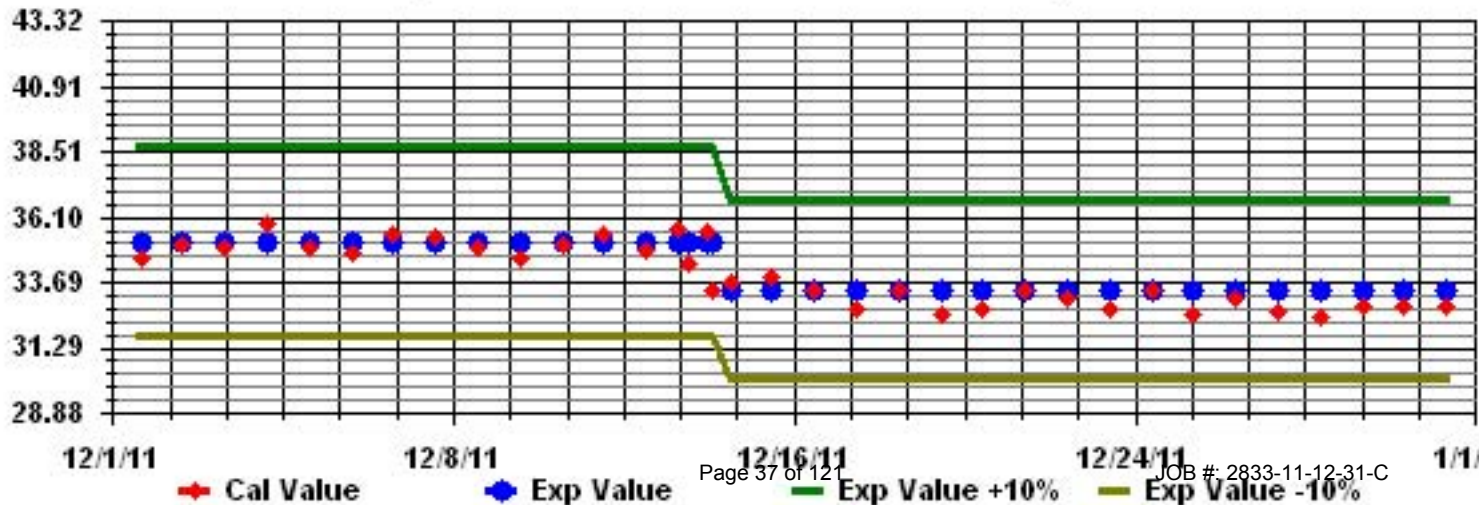
Class Limits (PPM)

Period : 12/01/11-12/31/11

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

OZONE (O₃) hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.			
1	16	17	18	19	19	18	17	17	18	19	19	22	24	23	22	IZS	28	29	32	38	35	37	38	38	38	24.5	24	
2	37	36	34	33	33	34	34	34	34	31	29	29	31	33	IZS	35	34	33	33	32	32	32	31	29	37	32.7	24	
3	28	28	27	23	19	18	18	17	18	19	24	26	28	IZS	30	31	30	31	31	30	30	29	29	29	31	25.8	24	
4	28	28	30	31	31	31	31	30	29	28	28	28	IZS	31	33	33	31	30	30	31	30	27	25	25	33	29.5	24	
5	25	25	24	25	25	24	24	23	22	21	21	IZS	20	21	21	20	19	20	21	25	28	29	28	28	29	23.4	24	
6	32	33	34	34	35	37	37	36	37	35	IZS	33	33	33	33	34	33	32	35	35	35	35	34	35	37	34.3	24	
7	34	34	33	32	34	35	35	35	34	IZS	34	34	35	35	35	35	34	34	33	33	33	34	34	33	35	34.0	24	
8	32	31	31	31	30	30	29	29	IZS	28	27	28	30	31	32	32	31	31	31	31	29	27	27	24	32	29.7	24	
9	17	13	15	17	18	17	16	IZS	16	16	17	22	26	27	28	29	29	29	28	26	24	22	22	23	29	21.6	24	
10	23	23	20	16	12	16	IZS	20	19	23	26	25	22	21	21	19	18	22	27	28	32	33	32	30	33	23.0	24	
11	22	15	13	14	16	IZS	17	16	16	17	19	20	21	24	24	24	25	26	26	25	24	23	23	22	26	20.5	24	
12	21	20	21	23	IZS	23	24	23	23	23	24	24	24	23	21	21	19	19	21	22	21	22	21	20	20	24	21.8	24
13	20	20	19	IZS	17	16	15	14	13	13	13	C	M	M	13	13	12	11	C	M	M	15	13	16	20	14.9	20	
14	16	21	IZS	29	32	32	32	30	29	28	30	30	C	C	C	C	28	28	30	31	32	32	31	28	32	28.9	24	
15	22	IZS	21	19	18	17	18	25	25	24	23	23	26	26	26	24	23	21	20	20	18	17	14	13	26	21.0	24	
16	IZS	10	7	4	4	7	9	10	15	19	20	25	28	28	29	28	29	27	26	24	21	20	21	IZS	29	18.7	24	
17	15	13	11	8	11	15	18	19	19	18	17	16	16	17	19	20	21	21	21	22	23	22	IZS	23	23	17.6	24	
18	24	25	25	26	25	25	26	27	27	28	29	30	31	31	31	31	30	30	29	28	IZS	26	23	31	27.7	24		
19	20	17	14	17	19	21	22	24	24	24	25	27	27	27	26	26	30	31	33	32	IZS	32	26	19	33	24.5	24	
20	19	24	28	30	31	32	32	34	34	34	33	34	34	31	28	31	34	32	30	IZS	27	29	28	29	34	30.3	24	
21	28	27	28	27	27	26	27	27	28	27	28	30	32	32	32	30	28	29	IZS	28	27	26	26	25	32	28.0	24	
22	23	19	19	20	20	20	22	25	28	30	30	31	32	33	33	33	33	IZS	31	32	31	31	30	28	33	27.6	24	
23	25	24	26	25	28	29	27	23	20	21	27	32	34	35	36	IZS	34	34	34	33	33	33	33	36	29.0	24		
24	34	36	35	35	35	34	34	34	34	34	34	35	35	35	35	IZS	32	31	31	30	30	27	24	24	36	32.5	24	
25	26	26	25	22	21	21	22	22	21	21	23	25	25	26	IZS	25	25	23	24	25	25	26	28	34	34	24.4	24	
26	33	32	35	35	34	33	33	30	29	27	26	25	25	IZS	26	26	26	25	25	24	23	23	24	23	35	27.9	24	
27	22	21	20	21	22	22	20	18	18	18	18	18	18	IZS	22	25	25	30	36	35	34	33	33	32	36	25.0	24	
28	30	29	28	26	26	24	23	22	21	23	28	IZS	31	33	31	29	27	27	27	26	25	25	24	23	33	26.4	24	
29	22	21	19	19	19	18	19	18	17	17	IZS	17	17	18	17	19	22	23	26	32	36	36	34	33	36	22.6	24	
30	32	31	31	31	30	30	30	34	33	IZS	30	28	24	23	23	25	27	26	26	25	24	23	24	27	34	27.7	24	
31	30	30	29	28	28	31	31	30	IZS	31	32	33	34	35	35	35	35	34	34	34	33	33	33	32	35	32.2	24	
HOURLY MAX	37	36	35	35	35	37	37	36	37	35	34	35	35	35	35	36	35	36	35	38	36	37	38	38				
HOURLY AVG	25.2	24.3	24.0	24.0	24.0	24.5	24.7	24.9	24.2	24.0	25.1	26.6	27.5	27.9	27.3	27.5	27.5	27.5	28.7	28.9	28.3	27.7	27.2	26.7				

STATUS FLAG CODES

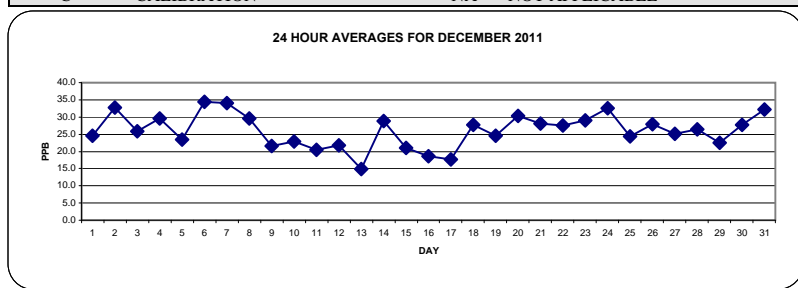
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

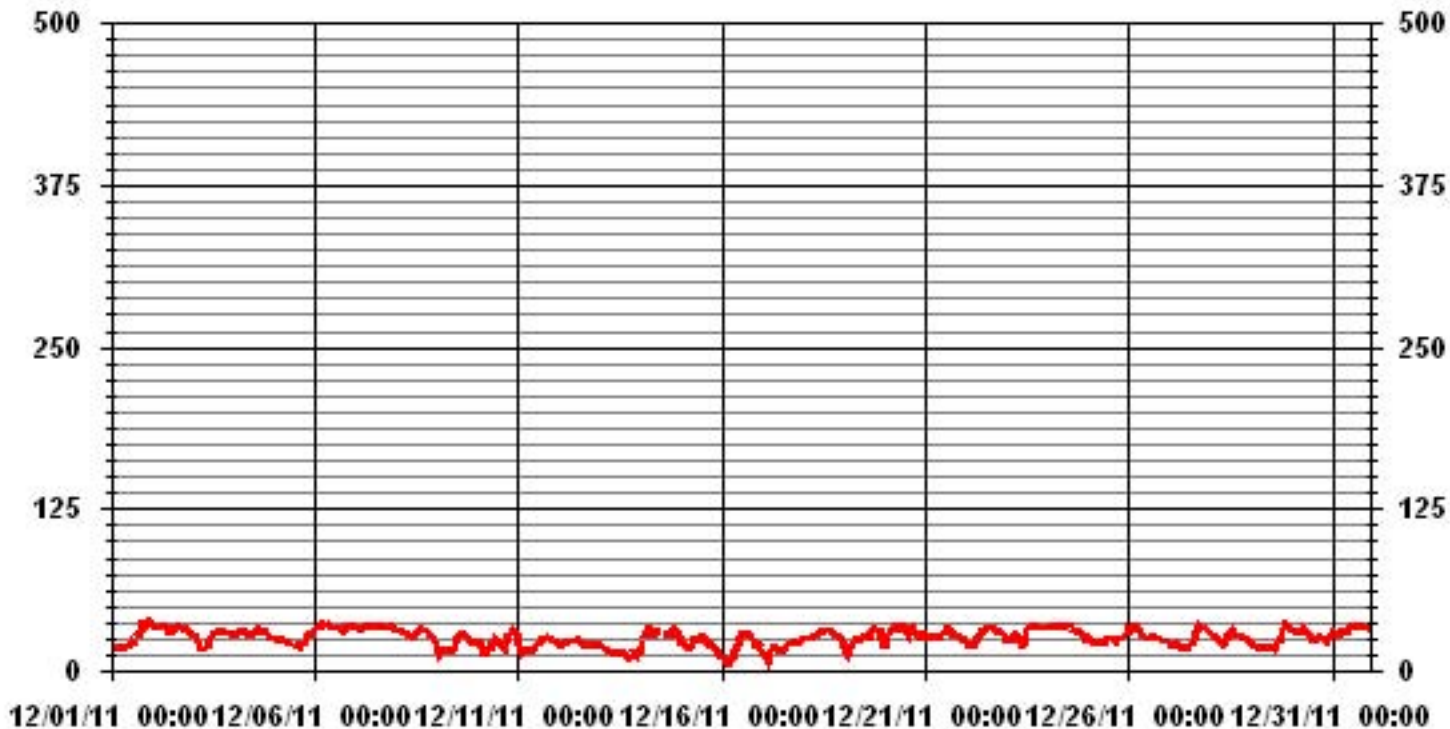
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	702				
MAXIMUM 1-HR AVERAGE:	38	PPB	@ HOUR(S)	VAR	ON DAY(S) 1
MAXIMUM 24-HR AVERAGE:	34.3	PPB			ON DAY(S) 6
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	740	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	99.5	%
STANDARD DEVIATION	6.34		MONTHLY AVERAGE	26.1	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	17	18	19	20	20	19	18	18	19	21	20	24	25	24	25	IZS	29	30	35	39	36	38	39	39	39	39	25.7	24
2	38	36	35	34	34	34	34	34	35	34	30	30	32	34	IZS	35	35	33	34	33	33	32	32	30	38	33.5	24	
3	30	28	28	25	21	19	18	18	19	21	26	28	29	IZS	31	31	31	32	31	31	31	30	30	30	32	26.9	24	
4	30	28	32	32	32	32	32	31	30	29	29	29	IZS	32	33	33	32	32	31	32	31	29	26	26	33	30.6	24	
5	25	25	25	26	26	25	24	24	23	22	21	IZS	21	21	22	22	20	22	21	28	29	29	29	30	30	24.3	24	
6	33	33	35	35	35	38	38	37	38	38	IZS	33	34	34	34	34	34	36	36	36	35	35	35	38	35.2	24		
7	35	35	34	34	35	36	36	36	35	IZS	35	35	35	35	35	35	34	34	34	34	34	34	34	34	36	34.7	24	
8	33	32	31	31	31	30	30	30	IZS	29	28	30	31	33	33	33	33	31	32	31	31	28	28	26	33	30.7	24	
9	21	14	16	19	19	18	18	IZS	16	16	19	24	27	27	28	29	30	30	30	28	25	23	23	25	30	22.8	24	
10	25	26	24	19	16	19	IZS	21	21	26	28	28	25	23	24	21	20	26	29	31	33	34	33	31	34	25.3	24	
11	28	19	14	15	18	IZS	19	17	17	19	20	21	24	25	25	26	27	27	26	25	24	24	23	28	28	22.1	24	
12	22	21	23	24	IZS	24	25	23	23	23	25	25	24	24	22	22	20	20	22	22	22	21	20	21	25	22.5	24	
13	21	20	20	IZS	18	16	16	15	14	14	C	C	M	M	14	14	13	14	C	M	M	20	15	16	21	16.3	20	
14	19	25	IZS	31	32	33	33	31	30	29	31	C	C	C	C	C	29	30	32	32	33	33	31	31	33	30.3	24	
15	23	IZS	22	22	18	18	22	27	27	24	24	25	27	27	27	25	24	23	21	21	19	19	16	14	27	22.4	24	
16	IZS	12	9	6	6	9	11	12	18	20	23	28	29	29	29	29	29	29	26	26	23	21	21	IZS	29	20.2	24	
17	17	14	12	10	14	17	19	20	19	19	17	17	18	19	21	22	22	22	23	23	23	IZS	24	24	24	18.7	24	
18	25	25	26	26	25	26	27	28	28	29	30	31	32	32	32	32	31	31	30	30	29	IZS	27	25	32	28.6	24	
19	22	19	15	19	21	23	23	25	25	25	27	28	27	27	28	31	32	33	33	IZS	33	30	21	33	25.8	24		
20	22	26	30	31	32	32	32	35	35	35	34	35	34	35	29	35	35	33	31	IZS	29	30	30	31	35	31.8	24	
21	30	28	29	27	27	27	27	28	29	28	29	32	32	33	32	32	29	29	IZS	29	28	27	27	26	33	28.9	24	
22	25	22	20	21	21	21	24	26	29	31	31	32	33	35	35	34	34	IZS	32	32	32	31	31	29	35	28.7	24	
23	28	25	27	27	30	30	28	26	21	20	23	30	34	35	36	36	IZS	35	35	34	34	34	34	36	36	30.3	24	
24	36	37	36	36	36	35	35	34	34	34	35	36	36	36	36	IZS	35	32	32	31	31	30	26	26	37	33.7	24	
25	27	27	26	24	22	22	23	23	22	22	25	25	26	28	IZS	26	26	24	25	25	26	27	34	35	35	25.7	24	
26	34	34	37	36	35	34	33	32	31	29	26	26	26	IZS	27	27	27	26	26	25	24	24	24	24	37	29.0	24	
27	23	21	21	22	23	23	21	19	19	19	19	18	IZS	25	27	27	37	37	36	34	34	34	34	33	37	26.3	24	
28	32	30	29	28	26	26	23	24	24	27	30	IZS	32	34	33	30	28	28	28	27	26	25	25	24	34	27.8	24	
29	23	22	21	19	20	19	19	19	19	18	IZS	17	18	20	19	21	24	24	29	35	37	36	36	34	37	23.9	24	
30	33	32	31	32	32	31	33	35	35	IZS	31	30	25	24	25	27	27	27	27	27	24	24	26	29	35	29.0	24	
31	30	31	30	29	30	32	32	31	IZS	32	33	34	35	35	36	36	35	35	35	34	34	34	33	33	36	33.0	24	
HOURLY MAX	38	37	37	36	36	38	38	37	38	38	35	36	36	36	36	37	37	36	39	37	38	39	39					
HOURLY AVG	26.9	25.5	25.2	25.3	25.2	25.6	25.8	26.0	25.3	25.3	26.8	27.8	28.5	29.1	28.4	28.6	28.7	28.7	29.7	30.0	29.4	28.7	28.4	28.0				

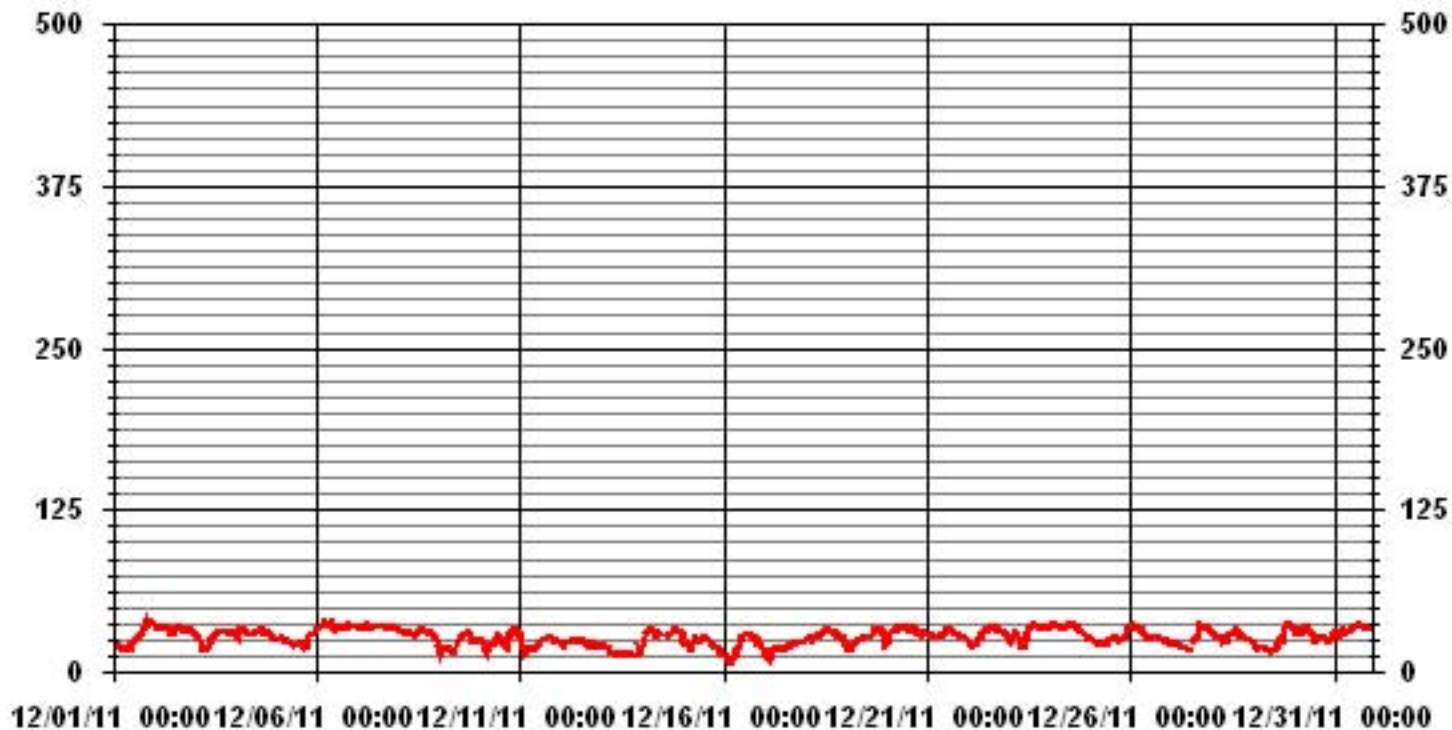
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	700					
MAXIMUM INSTANTANEOUS VALUE:	39	PPB	@ HOUR(S)	VAR	ON DAY(S)	1
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	6.18					

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	9.25	3.70	2.27	2.42	1.56	2.27	3.84	2.42	2.42	2.99	6.41	9.82	10.54	16.95	14.81	8.26	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	9.25	3.70	2.27	2.42	1.56	2.27	3.84	2.42	2.42	2.99	6.41	9.82	10.54	16.95	14.81	8.26	

Calm : .00 %

Total # Operational Hours : 702

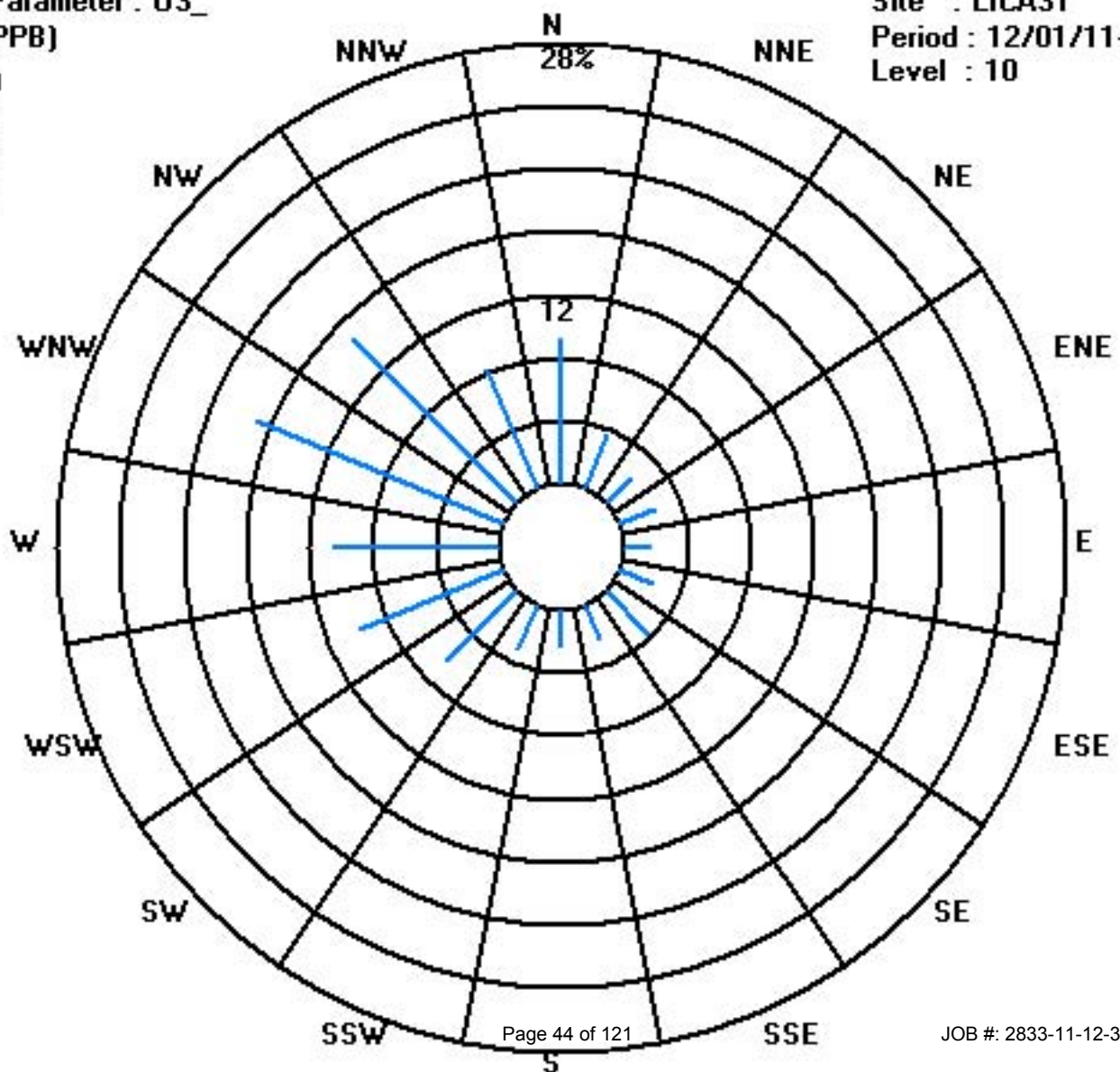
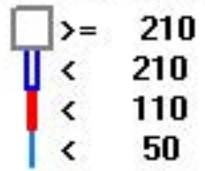
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	65	26	16	17	11	16	27	17	17	21	45	69	74	119	104	58	702
< 110																	
< 210																	
>= 210																	
Totals	65	26	16	17	11	16	27	17	17	21	45	69	74	119	104	58	

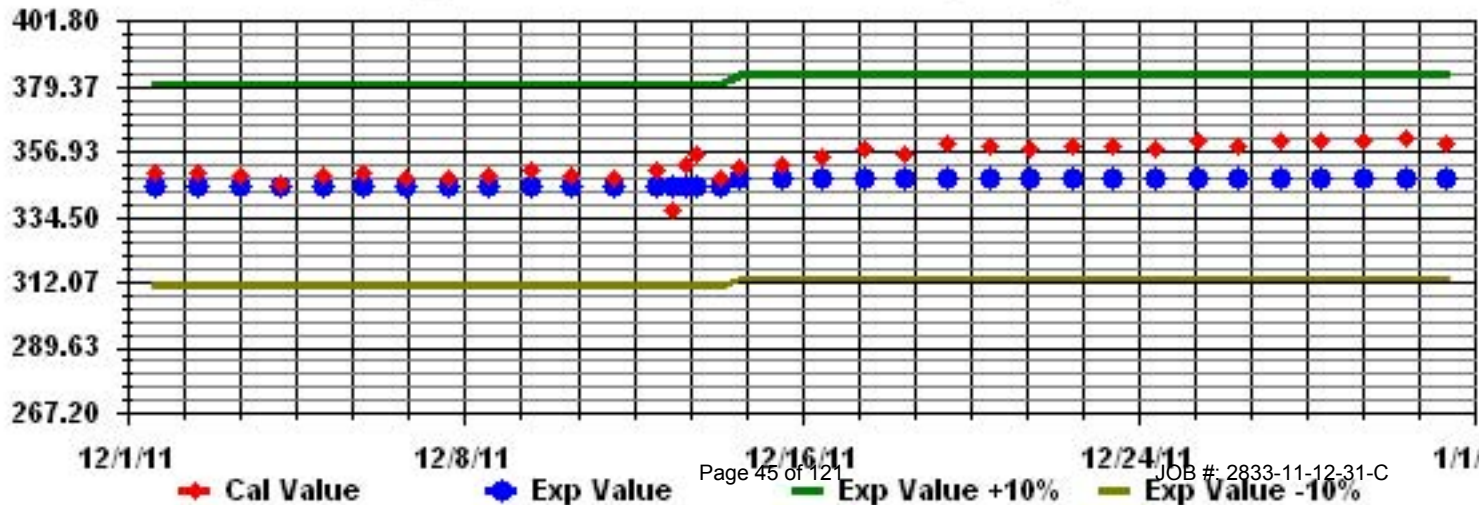
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	9	6	4	3	3	4	5	6	6	6	6	6	6	7	8	IZS	4	4	4	2	3	1	1	0	9	4.5	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	1	2	2	0.2	24	
3	2	1	1	3	4	4	4	5	5	4	3	2	1	IZS	0	0	0	0	0	0	0	0	0	0	5	1.7	24	
4	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0	0	1	1	2	3	3	0.5	24	
5	3	3	3	3	3	3	3	3	3	4	5	IZS	5	6	8	10	13	12	10	6	4	4	3	3	13	5.2	24	
6	2	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	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	1	2	2	1	0	0	1	1	1	1	1	2	2	3	3	0.8	24	
9	6	8	7	6	6	7	7	IZS	6	5	5	4	3	3	2	2	2	2	3	3	4	6	7	6	8	4.8	24	
10	6	5	7	10	15	9	IZS	5	6	5	4	5	5	6	7	7	7	6	4	4	2	1	0	0	15	5.5	24	
11	3	7	7	5	4	IZS	2	3	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	2	7	2.3	24	
12	2	2	2	1	IZS	1	1	1	2	1	2	1	2	2	2	3	4	4	3	3	3	3	3	3	4	2.2	24	
13	2	2	3	IZS	3	3	4	4	4	C	C	C	C	C	C	C	C	C	C	C	6	5	7	6	6	7	4.2	24
14	7	7	IZS	1	0	0	0	1	1	1	0	0	0	0	0	M	0	0	0	0	0	0	0	0	7	0.8	23	
15	2	IZS	1	2	3	3	3	1	1	1	2	2	1	1	1	1	2	3	3	3	4	4	5	5	5	2.3	24	
16	IZS	6	9	14	16	13	11	10	8	7	6	4	3	2	2	2	2	2	3	3	5	5	5	IZS	16	6.3	24	
17	9	11	12	14	10	6	5	5	4	5	6	6	6	6	8	8	7	6	5	4	2	2	IZS	1	14	6.4	24	
18	1	1	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	IZS	1	2	2	0.4	24	
19	3	5	6	5	4	2	2	3	3	3	3	3	4	4	4	7	4	2	1	1	IZS	1	3	8	8	3.5	24	
20	8	5	3	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	8	0.9	24
21	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	1	1	1	2	2	2	0.5	24	
22	2	6	7	5	6	6	5	3	2	1	1	1	1	0	0	0	0	IZS	1	1	1	1	1	2	7	2.3	24	
23	3	3	3	3	2	1	3	4	5	5	5	4	3	2	1	1	IZS	0	0	0	1	1	1	1	5	2.3	24	
24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	1	1	1	1	3	3	3	0.5	24	
25	2	2	2	2	3	3	3	3	3	3	2	2	2	2	IZS	2	2	3	3	2	2	3	2	1	3	2.3	24	
26	1	1	0	0	0	0	0	0	1	1	1	1	1	1	IZS	1	1	1	2	2	2	2	2	2	2	2	1.0	24
27	3	3	4	3	3	3	3	3	3	3	3	3	IZS	2	2	2	2	0	0	0	0	0	0	0	4	2.0	24	
28	1	0	1	1	2	2	2	2	3	2	1	IZS	1	0	1	2	2	2	1	1	1	1	1	1	3	1.3	24	
29	2	2	2	2	2	3	3	2	2	3	IZS	2	3	2	3	3	2	2	1	1	0	0	1	1	3	1.9	24	
30	1	1	1	2	2	2	2	1	1	IZS	2	3	6	6	5	4	2	3	2	2	4	4	3	2	6	2.7	24	
31	1	1	0	1	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
HOURLY MAX	9	11	12	14	16	13	11	10	8	7	6	6	6	7	8	10	13	12	10	6	5	7	7	8				
HOURLY AVG	2.8	3.0	2.9	2.9	3.1	2.6	2.3	2.2	2.4	2.3	2.2	1.9	2.0	1.9	2.1	2.2	2.1	2.0	1.7	1.6	1.7	1.8	1.9	2.0				

STATUS FLAG CODES

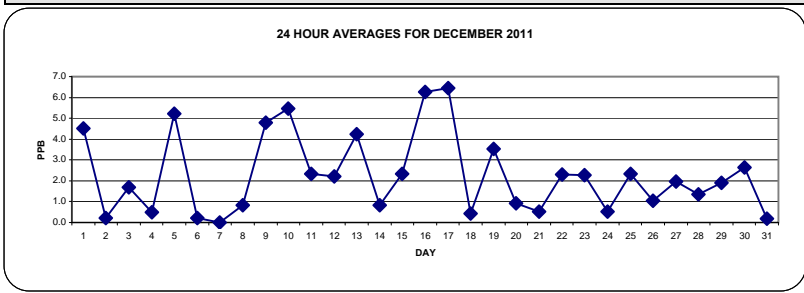
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

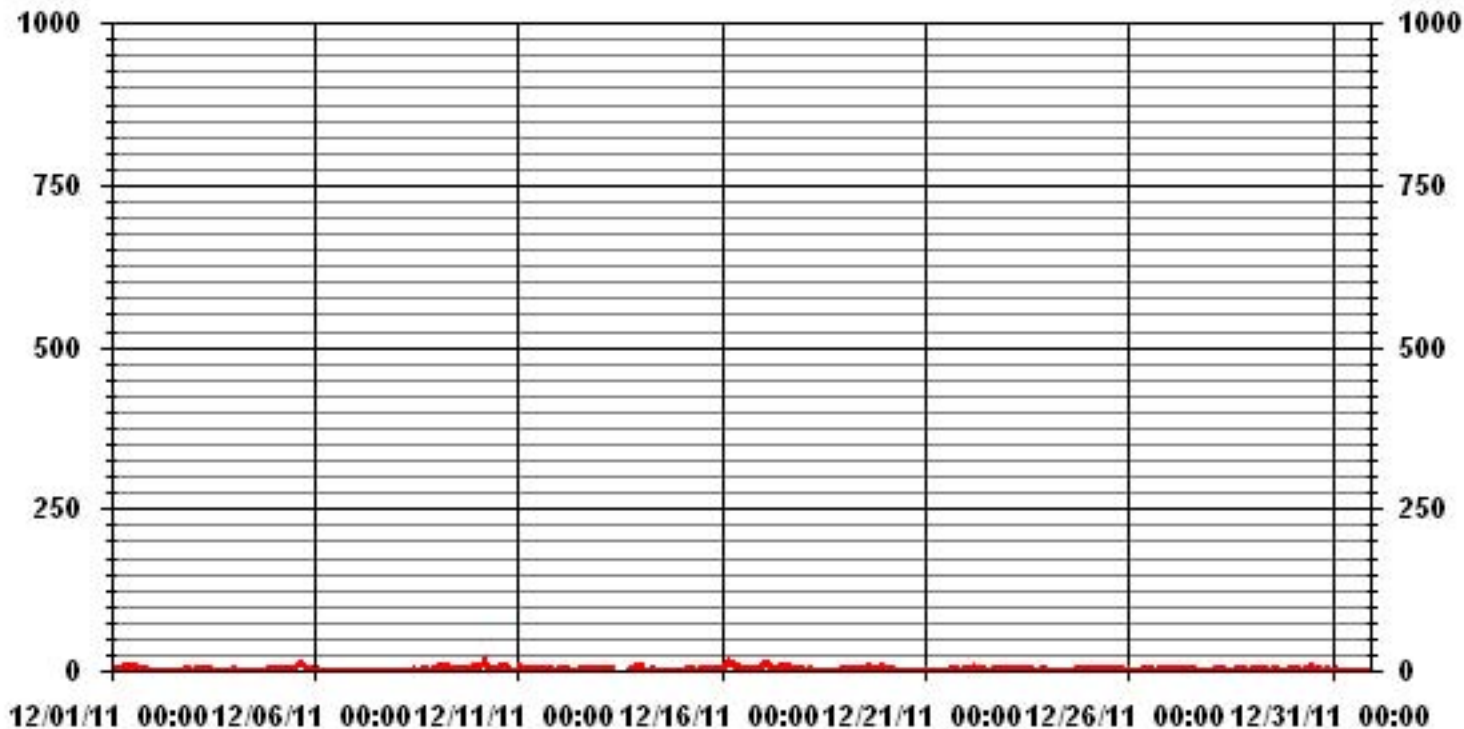
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	486					
MAXIMUM 1-HR AVERAGE:	16	PPB	@ HOUR(S)	4	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	6.4	PPB			ON DAY(S)	17
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	2.56		MONTHLY AVERAGE:	2.23	PPB	



01 Hour Averages



— LICA31 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	10	8	6	4	4	5	7	7	7	7	12	6	7	8	9	IZS	5	5	5	4	3	2	1	1	1	12	5.8	24
2	1	1	1	1	1	1	1	0	1	1	2	1	1	1	IZS	0	1	1	1	1	1	1	1	1	4	4	1.1	24
3	4	3	2	4	5	5	5	6	6	6	4	3	2	IZS	1	1	1	1	1	1	1	1	1	1	1	6	2.8	24
4	1	1	2	1	1	1	1	1	1	1	2	1	IZS	1	1	1	1	3	1	2	2	3	3	3	3	3	1.5	24
5	4	4	4	3	4	4	4	4	4	5	6	IZS	6	7	10	12	15	13	12	9	5	4	4	4	15	6.4	24	
6	3	2	1	1	1	1	1	1	1	1	IZS	0	1	1	0	0	1	1	1	1	1	1	0	1	3	1.0	24	
7	0	1	1	1	1	1	7	1	1	IZS	1	1	1	0	1	1	1	1	1	1	1	1	1	1	7	1.2	24	
8	1	1	1	1	1	1	1	1	IZS	2	2	3	2	1	1	2	1	2	2	2	2	2	3	3	4	4	1.7	24
9	8	10	8	7	7	7	8	IZS	9	6	6	5	4	3	3	2	2	3	4	4	5	7	8	8	10	5.8	24	
10	8	7	7	13	17	13	IZS	6	9	6	5	8	12	19	8	8	13	8	6	6	3	2	1	1	19	8.1	24	
11	6	9	9	6	5	IZS	3	3	3	3	3	2	2	2	3	3	3	2	2	2	2	2	2	2	9	3.4	24	
12	3	2	2	2	IZS	2	2	2	3	2	2	2	2	3	3	3	4	4	4	3	3	4	4	4	4	4	2.8	24
13	3	3	3	IZS	4	4	5	5	5	C	C	C	C	C	C	C	C	C	C	C	7	6	8	7	7	8	5.2	24
14	7	8	IZS	2	1	1	1	1	1	1	1	1	1	1	1	M	1	2	1	1	1	1	1	2	8	1.7	23	
15	2	IZS	2	4	4	3	3	2	2	2	2	3	2	2	2	2	3	4	4	4	4	5	6	11	5	11	3.4	24
16	IZS	8	11	16	18	15	12	11	9	8	8	6	3	3	3	3	2	4	3	4	6	6	6	6	IZS	18	7.5	24
17	10	13	13	16	13	8	6	6	5	6	6	14	7	8	9	9	9	7	7	5	3	2	IZS	2	16	8.0	24	
18	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	2	1.2	24
19	4	6	7	6	4	3	3	11	12	4	12	4	5	5	6	8	6	3	2	2	IZS	2	6	9	12	5.7	24	
20	10	7	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	10	1.9	24
21	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	IZS	2	2	2	3	3	3	3	1.5	24
22	4	8	8	6	7	7	7	5	3	2	2	1	1	1	1	1	1	IZS	1	1	1	2	3	4	8	3.3	24	
23	4	4	4	4	4	2	3	5	6	6	6	6	4	3	2	1	IZS	1	1	1	1	2	2	2	6	3.2	24	
24	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	2	2	2	2	4	4	4	4	1.5	24
25	2	2	3	3	4	3	3	3	4	4	3	3	3	3	IZS	3	3	3	3	3	3	4	4	2	4	3.1	24	
26	2	2	1	1	1	1	0	2	2	1	1	2	2	IZS	2	2	2	2	3	3	3	3	3	3	3	3	1.9	24
27	3	4	5	5	3	4	4	4	4	3	4	4	IZS	3	3	3	3	1	0	1	0	1	1	1	5	2.8	24	
28	2	1	1	2	3	3	3	4	4	3	3	IZS	2	1	2	2	2	2	2	2	2	2	2	2	4	2.3	24	
29	3	3	3	3	3	4	3	3	3	4	IZS	5	3	3	4	3	5	3	2	1	1	1	2	2	5	2.9	24	
30	2	2	2	2	3	3	3	1	2	IZS	3	5	7	7	7	7	3	5	3	4	5	5	4	3	7	3.8	24	
31	2	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
HOURLY MAX	10	13	13	16	18	15	12	11	12	8	12	14	12	19	10	12	15	13	12	9	6	8	11	9				
HOURLY AVG	3.8	4.2	3.9	4.0	4.2	3.6	3.4	3.3	3.8	3.2	3.6	3.3	3.0	3.3	3.1	3.0	3.2	3.0	2.7	2.7	2.4	2.7	3.1	3.0				

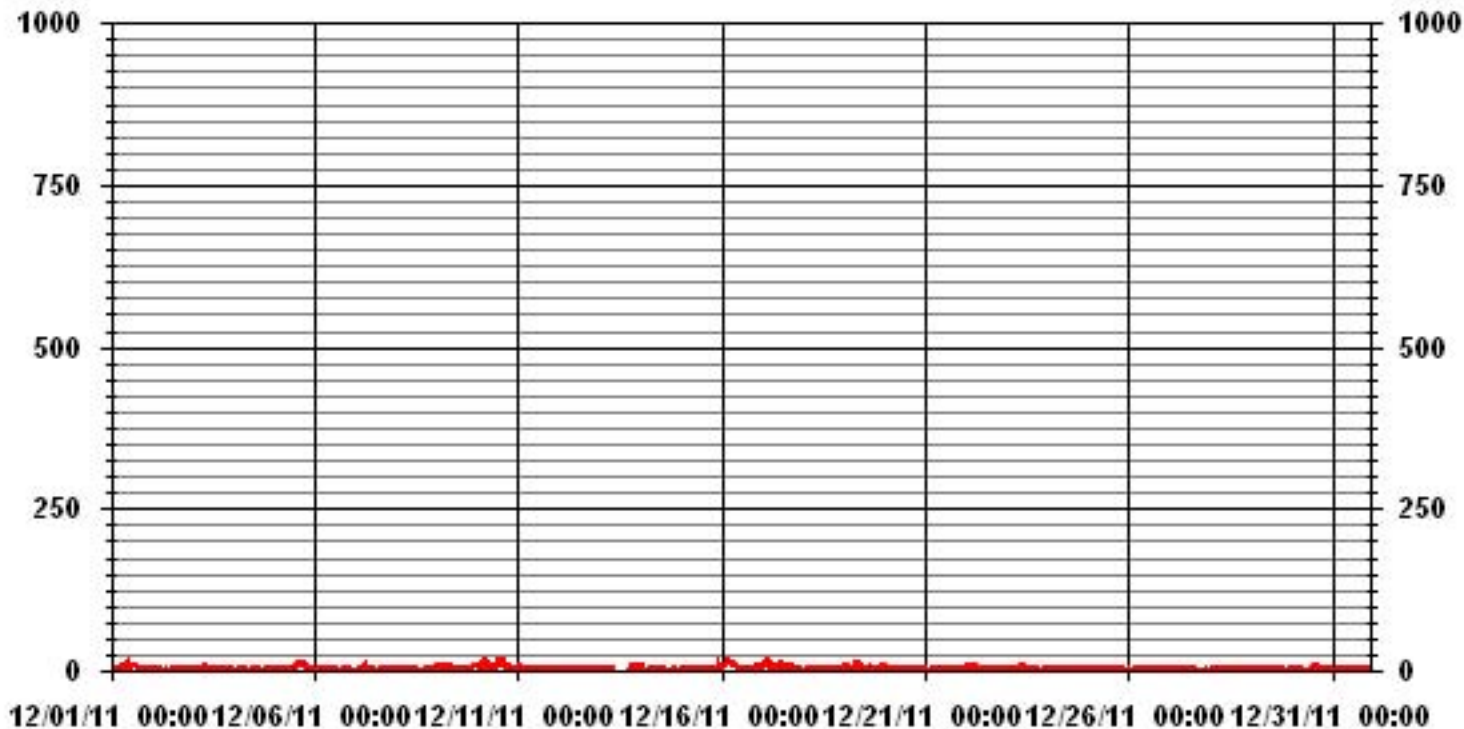
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690					
MAXIMUM INSTANTANEOUS VALUE:	19	PPB	@ HOUR(S)	13	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION	2.97					

01 Hour Averages



— LICA31 IIO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	

Calm : .00 %

Total # Operational Hours : 701

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	701
< 110																	
< 210																	
>= 210																	
Totals	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	

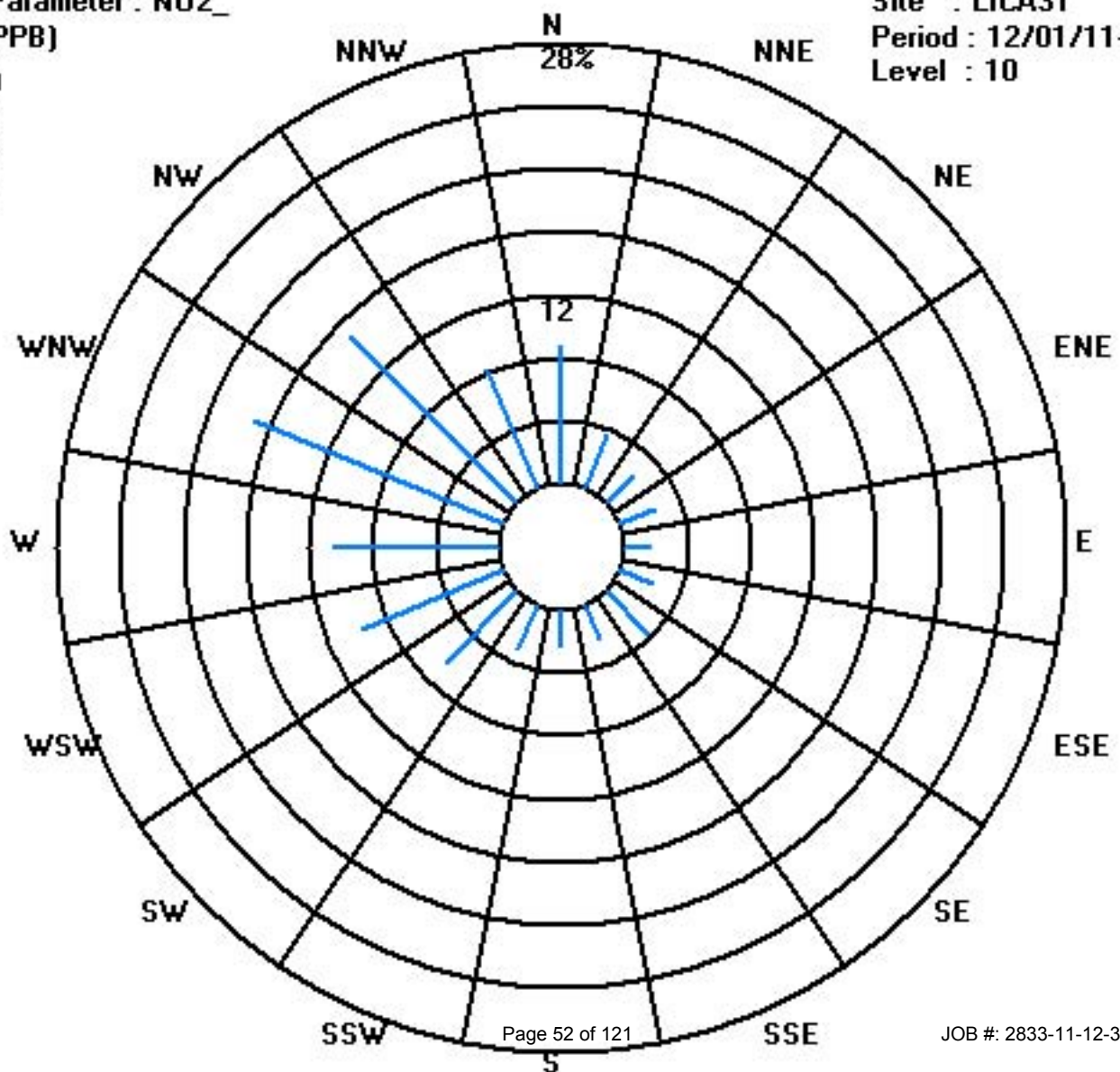
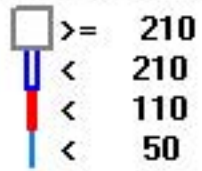
Calm : .00 %

Total # Operational Hours : 701

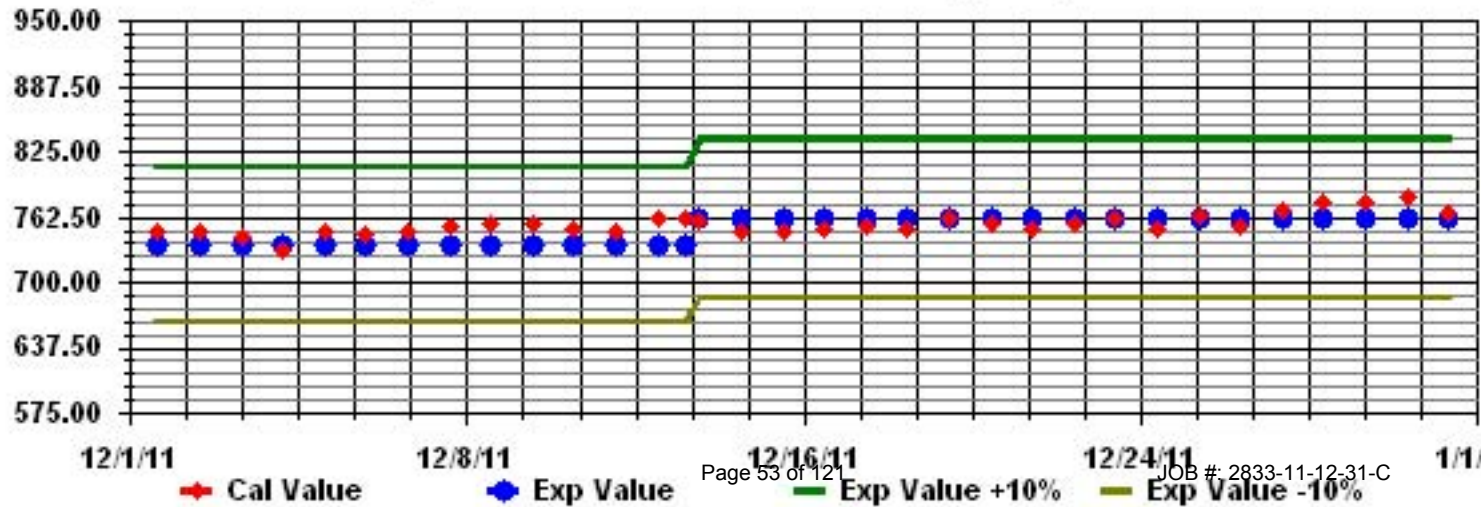
Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - ST. LINA

DECEMBER 2011

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	0	0	0	1	2	1	2	1	1	IZS	1	0	0	0	0	0	0	0	0	2	0.4	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	1	0	0	0	IZS	1	1	1	0	0	1	1	1	1	1	1	1	0.4	24
4	0	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	1	0.5	24
5	0	0	0	0	0	0	0	0	0	1	1	IZS	2	2	2	1	1	0	0	0	0	0	0	0	0	2	0.4	24
6	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
7	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
8	0	0	0	0	0	0	0	0	0	IZS	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0.8	24
9	1	1	2	1	1	1	1	IZS	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.7	24
10	0	0	0	1	1	1	IZS	1	1	1	1	1	2	2	1	1	0	0	0	0	0	0	0	0	2	0.6	24	
11	0	0	0	0	0	IZS	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
12	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24
13	1	1	1	IZS	1	0	0	0	0	C	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	1	0.3	24
14	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0.0	23
15	0	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	1.0	24
16	IZS	1	1	1	1	1	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5	24
17	2	2	2	2	1	1	1	1	1	1	2	3	3	3	2	2	1	1	1	1	1	1	1	1	3	1.6	24	
18	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0.2	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	IZS	0	0	0	0	1	0.7	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	1	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	1	0.0	24
23	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	IZS	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	0	0	0	IZS	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	IZS	1	0	0	0	0	0	0	0	0	0	1	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	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
30	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
31	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
HOURLY MAX	2	2	2	2	1	1	1	1	1	2	2	3	3	3	2	2	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.8	0.7	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2			

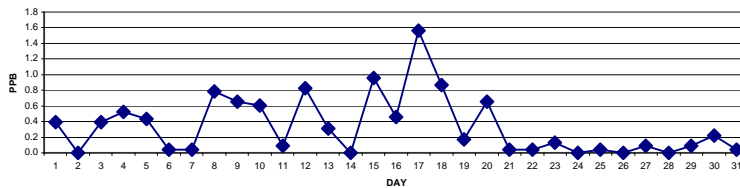
STATUS FLAG CODES

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

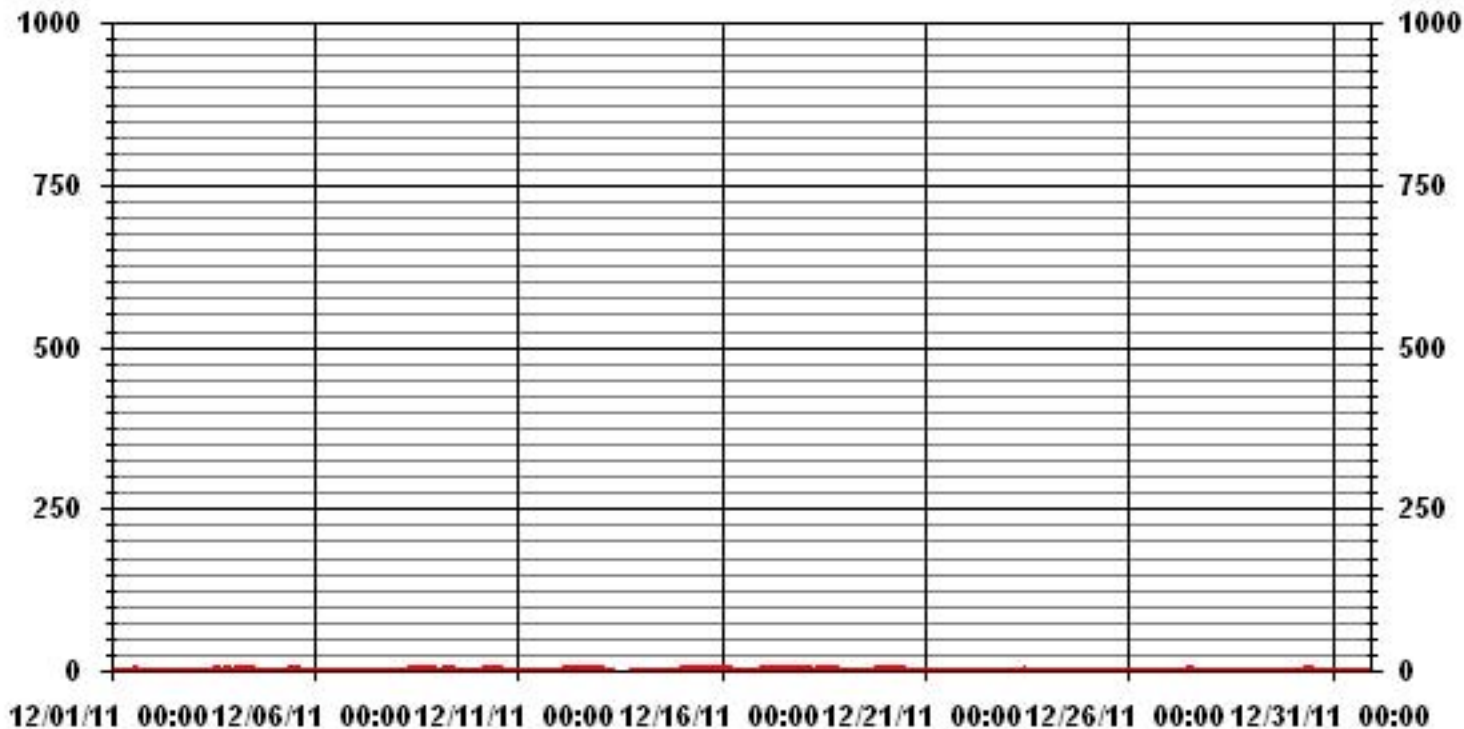
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	210
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) VAR ON DAY(S) 17
MAXIMUM 24-HR AVERAGE:	1.6 PPB ON DAY(S) 17
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	10 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.56
MONTHLY AVERAGE:	0.34 PPB

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	1	1	1	1	1	1	1	1	1	2	19	2	3	2	2	IZS	2	1	1	1	0	0	0	0	19	1.9	24	
2	0	0	1	0	0	0	0	0	1	0	1	1	0	1	IZS	2	0	1	1	1	0	0	1	0	2	0.5	24	
3	2	0	0	0	1	1	1	1	1	1	1	1	1	1	IZS	3	1	2	1	1	1	1	2	1	1	3	1.1	24
4	1	1	1	1	1	1	1	1	1	2	2	2	IZS	2	1	1	0	0	1	0	0	0	1	0	2	0.9	24	
5	0	0	0	1	0	1	1	1	1	1	2	IZS	3	3	2	2	2	1	1	1	1	1	1	1	3	1.2	24	
6	1	0	0	0	0	1	0	1	0	0	IZS	2	0	0	0	1	1	0	0	0	0	0	0	0	2	0.3	24	
7	0	0	0	0	0	0	7	1	0	IZS	2	1	1	1	0	0	1	0	0	1	0	0	0	1	7	0.7	24	
8	0	0	0	0	1	0	0	0	IZS	3	2	3	2	2	1	2	1	2	2	1	2	1	2	2	3	1.3	24	
9	2	2	2	2	2	2	2	IZS	11	3	3	2	2	1	1	1	1	1	0	1	1	1	1	1	11	2.0	24	
10	1	1	1	1	2	1	IZS	2	2	1	1	2	9	30	2	1	16	1	1	1	1	0	0	30	3.3	24		
11	1	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	2	0.9	24	
12	1	0	0	0	IZS	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1.6	24	
13	1	1	2	IZS	2	1	1	1	2	C	C	C	C	C	C	C	C	C	C	C	2	1	1	1	1	2	1.3	24
14	1	1	IZS	1	0	0	1	0	0	0	1	0	0	0	1	M	0	1	0	0	0	0	0	0	1	0.3	23	
15	0	IZS	3	1	1	1	2	1	1	1	1	2	2	2	1	1	2	2	3	2	2	2	13	2	13	2.1	24	
16	IZS	3	1	2	2	2	1	1	1	2	2	2	2	1	2	1	1	0	0	0	1	1	1	1	IZS	3	1.3	24
17	3	2	2	3	2	2	2	2	2	2	3	15	4	4	3	3	2	2	2	2	2	2	2	IZS	3	15	3.0	24
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	IZS	2	1	2	1.2	24	
19	0	1	1	1	1	0	0	15	8	1	21	1	2	1	2	1	0	0	0	0	IZS	2	2	2	2	21	2.7	24
20	2	2	1	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	IZS	2	0	0	0	2	1.1	24	
21	0	0	0	1	0	1	1	1	1	1	1	1	0	1	0	0	0	0	IZS	2	1	1	1	1	2	0.7	24	
22	0	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0	IZS	2	1	0	0	0	2	2	0.7	24	
23	1	1	1	0	1	0	0	1	1	1	2	9	9	1	1	0	IZS	2	1	0	0	0	0	0	9	1.4	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	IZS	2	1	0	0	1	0	0	0	2	0.2	24	
25	0	0	1	0	0	0	0	1	0	0	1	1	1	1	IZS	2	1	1	0	1	0	0	0	1	2	0.5	24	
26	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	3	1	0	0	0	0	0	0	0	0	3	0.3	24	
27	0	0	0	0	0	0	0	0	1	1	1	1	IZS	3	2	1	1	0	0	0	0	0	0	0	3	0.5	24	
28	0	0	0	0	0	0	0	0	1	1	1	IZS	2	1	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
29	1	1	0	0	0	1	0	0	0	1	IZS	11	1	1	2	1	5	0	0	0	1	0	0	0	11	1.1	24	
30	0	0	0	0	0	0	0	0	0	IZS	3	1	1	1	2	1	0	1	1	1	1	1	0	0	3	0.6	24	
31	0	0	0	0	0	0	0	0	0	IZS	2	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
HOURLY MAX	3	3	3	3	2	2	7	15	11	3	21	15	9	30	3	3	16	2	3	2	2	2	13	3				
HOURLY AVG	0.7	0.7	0.7	0.6	0.7	0.7	1.0	1.2	1.4	1.1	2.8	2.4	1.9	2.3	1.3	1.1	1.5	0.8	0.8	0.8	0.7	0.5	1.0	0.7				

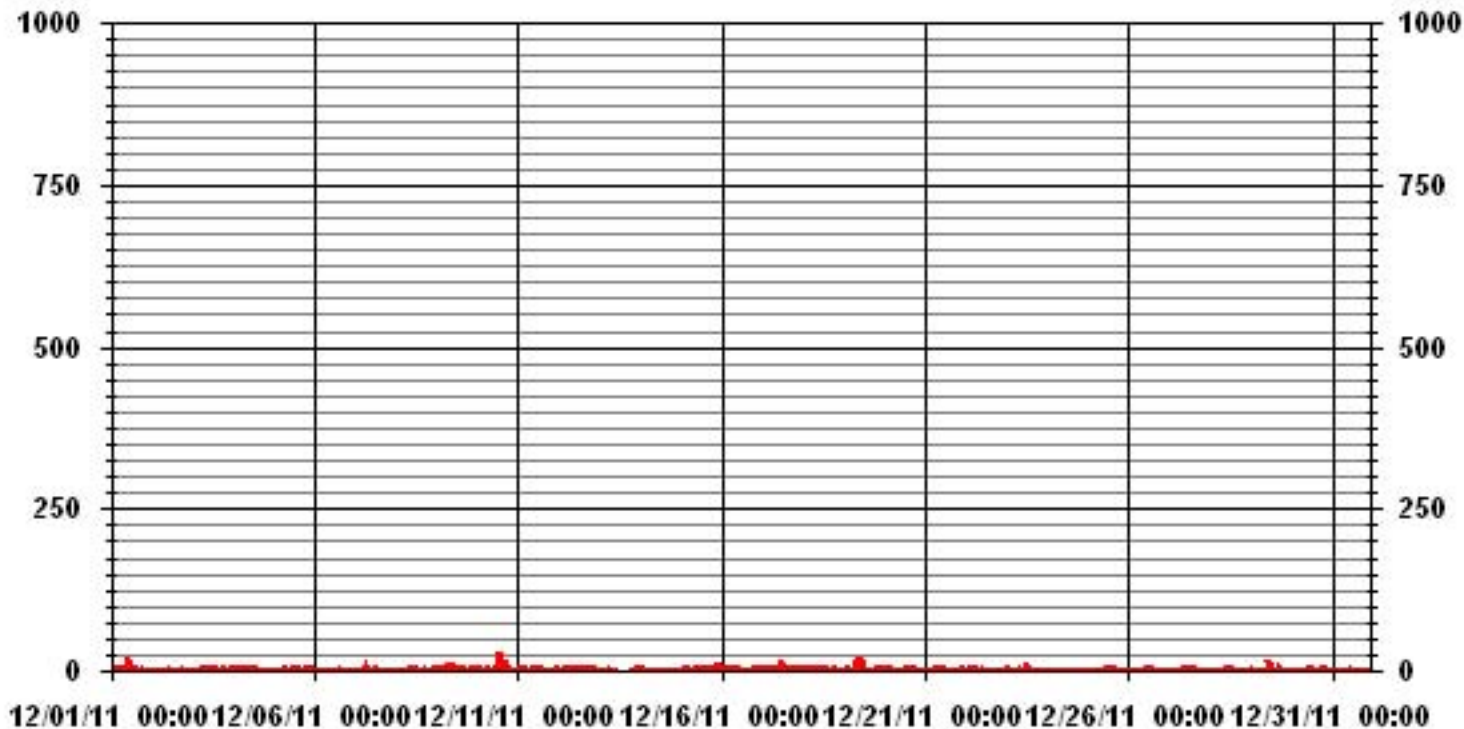
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	441					
MAXIMUM INSTANTANEOUS VALUE:	30	PPB	@ HOUR(S)	13	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION	2.17					

01 Hour Averages



— LICA31 IOMAX PPB

LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	

Calm : .00 %

Total # Operational Hours : 701

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	701
< 110																	
< 210																	
>= 210																	
Totals	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	

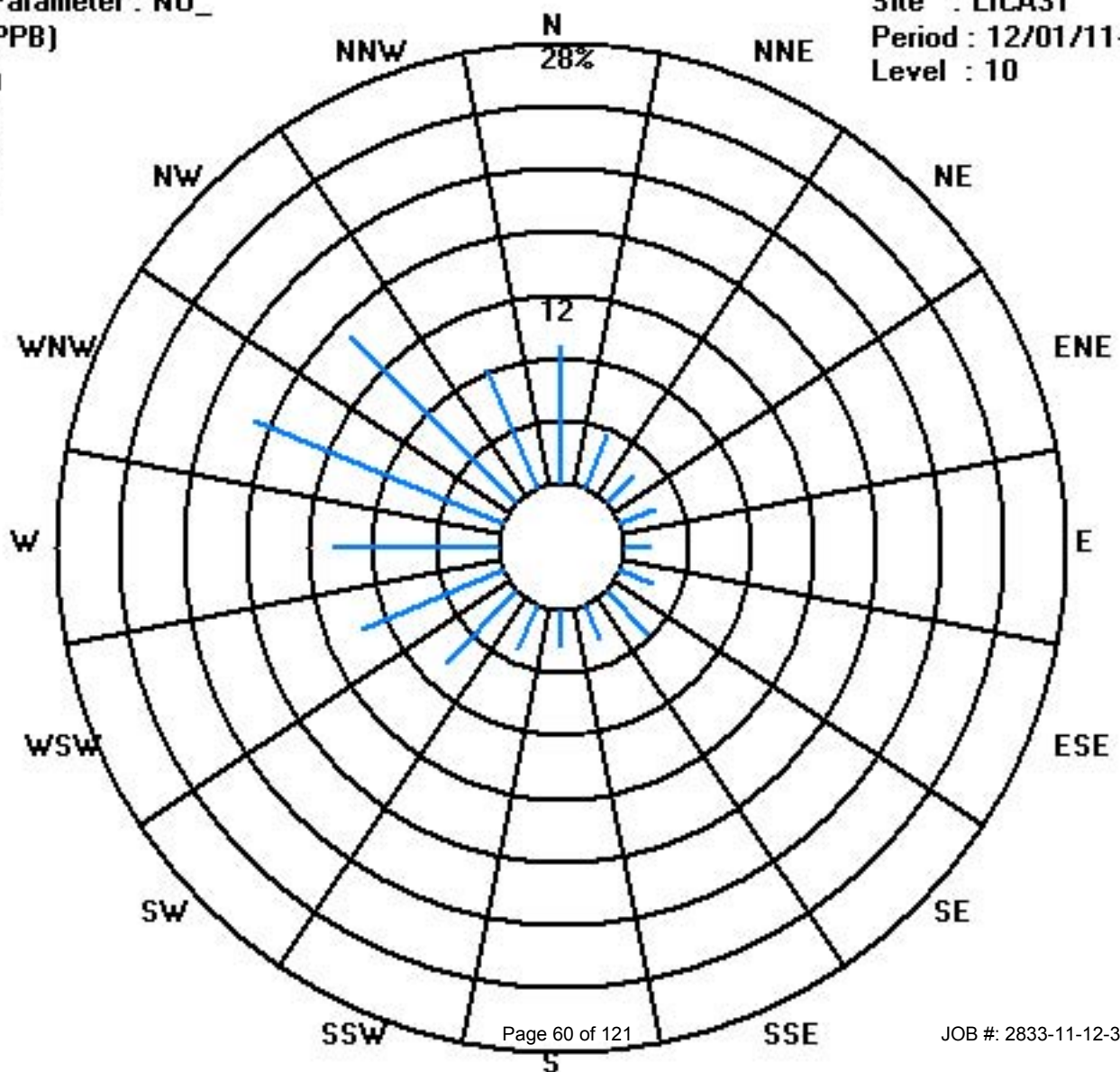
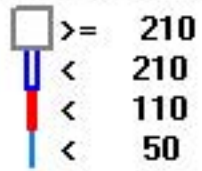
Calm : .00 %

Total # Operational Hours : 701

Class Limits (PPB)

Period : 12/01/11-12/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	9	7	5	4	4	4	6	7	7	7	9	7	9	9	9	IZS	5	4	4	2	3	1	0	0	0	9	5.3	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	1	0	1	2	2	2	0.2	24
3	2	1	2	3	4	5	4	5	5	5	3	2	1	IZS	1	1	1	0	0	0	0	0	0	0	5	2.0	24	
4	0	1	1	0	0	0	0	0	0	0	0	1	IZS	1	0	1	0	1	1	0	1	2	2	3	3	0.7	24	
5	3	3	3	3	3	3	3	3	4	5	6	IZS	7	7	9	11	13	12	10	6	3	3	3	3	13	5.5	24	
6	1	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
7	0	0	0	0	0	0	0	0	0	IZS	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0.7	24
8	1	1	1	1	1	1	1	2	IZS	3	4	4	3	2	1	2	1	2	2	2	2	3	3	4	4	2.0	24	
9	7	10	9	8	7	8	9	IZS	7	7	7	6	4	3	3	2	2	2	3	4	5	7	7	6	10	5.8	24	
10	6	6	7	11	16	10	IZS	6	7	6	5	6	8	8	8	8	8	6	5	4	2	1	0	1	16	6.3	24	
11	3	8	8	6	4	IZS	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	2	8	2.8	24	
12	2	1	1	1	IZS	3	3	3	3	3	3	3	3	4	4	4	5	5	4	4	4	4	4	4	5	3.3	24	
13	4	3	4	IZS	4	4	4	4	5	C	C	C	C	C	C	C	C	C	C	7	6	7	7	7	7	5.1	24	
14	7	7	IZS	1	0	0	0	1	1	1	0	0	0	0	0	M	0	1	0	0	0	0	0	0	7	0.9	23	
15	2	IZS	2	3	3	3	3	1	1	2	2	2	2	1	1	2	2	3	4	4	4	4	6	5	6	2.7	24	
16	IZS	7	10	15	18	14	12	10	9	8	8	6	3	3	3	2	2	3	3	4	5	5	5	IZS	18	7.0	24	
17	10	12	13	15	11	7	6	5	5	6	7	8	9	9	10	9	8	6	5	4	2	2	IZS	1	15	7.4	24	
18	1	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	IZS	2	2	2	0.6	24	
19	3	5	6	5	4	3	3	4	4	4	4	3	4	4	5	7	4	2	2	1	IZS	3	4	10	10	4.1	24	
20	10	7	5	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	IZS	1	0	0	0	10	1.9	24	
21	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	IZS	2	2	2	2	2	2	0.7	24	
22	2	6	7	6	6	7	6	4	2	1	1	1	1	1	1	1	1	IZS	2	1	1	1	1	2	7	2.7	24	
23	3	3	3	3	3	2	3	4	5	6	7	5	4	2	1	1	IZS	1	1	0	1	1	1	1	7	2.7	24	
24	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	IZS	1	1	1	1	1	1	3	3	3	0.7	24	
25	2	2	2	3	3	3	3	3	3	3	3	3	3	2	IZS	3	2	3	3	3	2	3	3	1	3	2.7	24	
26	1	1	0	0	0	0	0	0	0	1	1	1	1	IZS	1	1	1	1	1	1	2	1	1	1	2	0.7	24	
27	2	3	3	3	2	2	2	2	2	2	2	3	IZS	4	3	3	2	0	0	0	0	0	0	0	4	1.7	24	
28	0	0	1	2	2	2	2	3	3	3	3	1	IZS	1	1	1	2	2	1	1	1	1	1	2	3	1.5	24	
29	2	2	3	3	3	3	3	3	3	3	3	IZS	4	3	3	4	3	3	2	2	1	0	0	1	4	2.4	24	
30	1	1	1	2	2	2	2	1	1	IZS	4	6	8	8	8	5	4	4	3	4	5	5	4	3	8	3.7	24	
31	2	2	2	2	2	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.6	24	
HOURLY MAX	10	12	13	15	18	14	12	10	9	8	9	8	9	9	10	11	13	12	10	7	6	7	7	10				
HOURLY AVG	2.9	3.4	3.4	3.5	3.5	3.0	2.7	2.5	2.8	3.0	3.0	2.7	2.8	2.7	2.8	2.7	2.5	2.3	2.1	1.9	1.9	2.0	2.1	2.2				

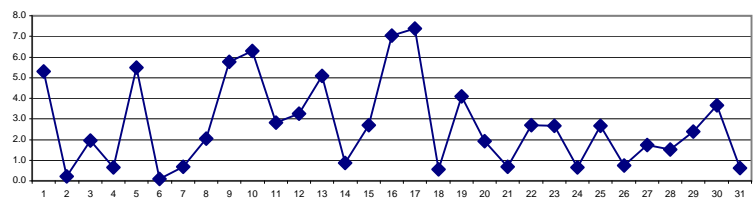
STATUS FLAG CODES

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

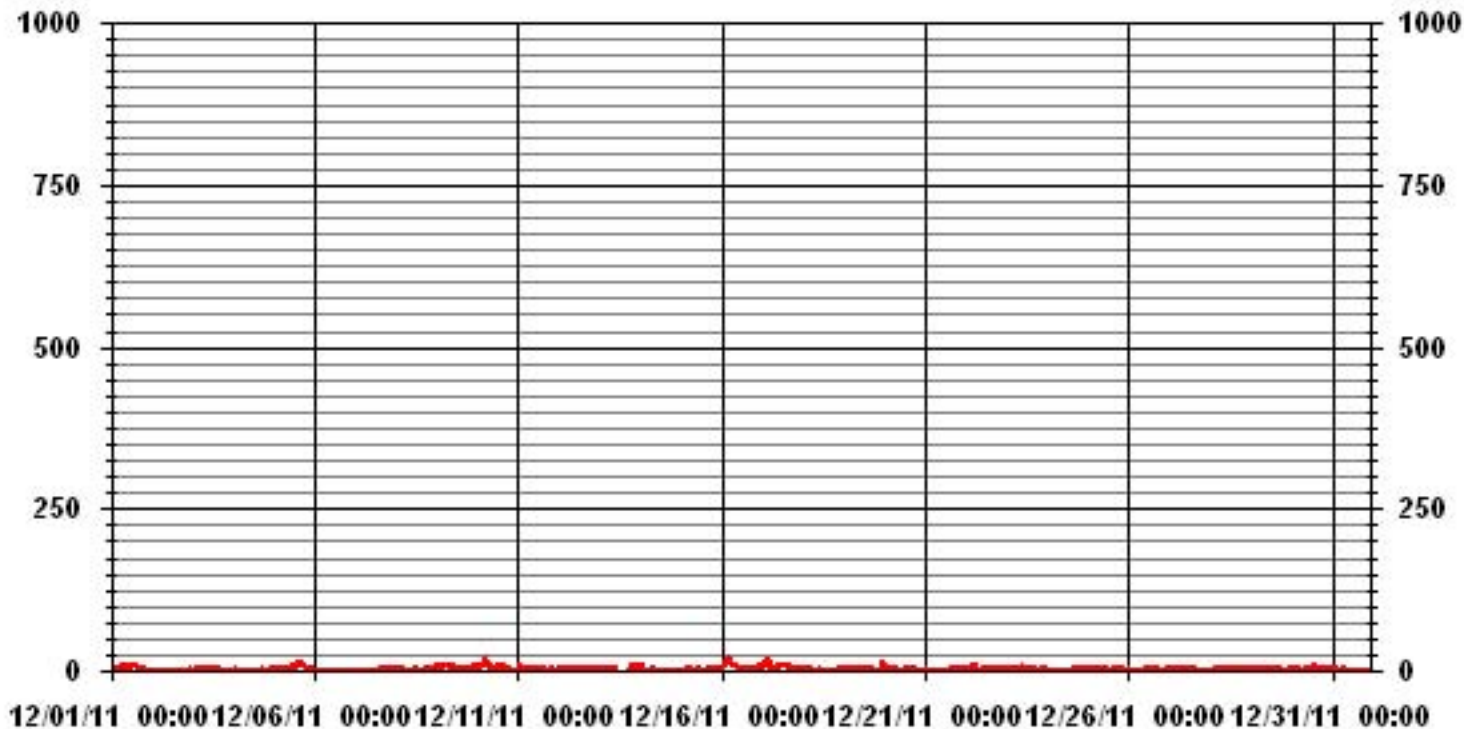
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	543					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	4	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	7.4	PPB			ON DAY(S)	17
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	2.84		MONTHLY AVERAGE:	2.68	PPB	

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		10	8	6	4	5	5	7	8	8	9	27	8	10	10	11	IZS	6	6	5	4	4	2	1	1	1	27	7.2	24
2		1	1	1	1	1	1	1	0	1	1	2	2	1	1	IZS	2	1	2	1	2	1	1	2	4	4	1.3	24	
3		5	3	2	4	6	5	5	6	7	7	5	3	2	IZS	2	1	3	1	1	1	1	1	1	1	7	3.2	24	
4		1	1	1	1	1	1	1	1	1	2	2	2	IZS	2	2	2	1	2	2	2	2	2	3	3	3	1.7	24	
5		4	4	4	4	4	4	4	4	5	6	7	IZS	8	8	11	12	15	13	12	9	4	5	3	3	15	6.7	24	
6		2	1	0	0	0	0	0	1	0	0	IZS	2	1	1	1	1	1	1	1	1	1	1	1	0	2	0.7	24	
7		1	0	1	1	1	1	13	2	1	IZS	3	2	3	2	2	1	2	2	2	2	2	2	2	2	13	2.2	24	
8		2	2	2	2	2	2	2	2	IZS	4	5	5	4	3	2	4	2	3	3	3	3	4	5	6	6	3.1	24	
9		9	11	10	9	8	9	10	IZS	17	9	9	8	6	4	4	3	3	3	4	6	6	8	8	8	17	7.5	24	
10		8	7	8	14	18	14	IZS	7	12	7	7	9	21	49	9	9	28	8	6	6	3	2	1	1	49	11.0	24	
11		7	9	9	7	6	IZS	4	4	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	9	3.9	24	
12		3	2	2	2	IZS	3	3	3	4	3	4	4	4	5	5	5	6	6	6	5	5	5	5	5	6	4.1	24	
13		5	4	4	IZS	5	4	5	5	7	C	C	C	C	C	C	C	C	C	C	8	6	8	8	8	8	5.9	24	
14		8	8	IZS	3	1	1	1	2	1	2	1	1	1	2	1	M	2	3	1	1	0	1	1	2	8	2.0	23	
15		2	IZS	3	4	4	4	4	2	2	3	3	2	3	2	2	4	4	6	5	5	7	22	6	22	4.4	24		
16		IZS	8	12	18	20	16	13	11	10	9	9	7	4	4	3	3	4	4	5	7	7	7	IZS	20	8.4	24		
17		12	14	15	17	13	8	7	6	6	7	8	25	10	10	11	10	9	7	8	5	3	3	IZS	3	25	9.4	24	
18		2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	IZS	4	4	4	1.5	24	
19		4	7	7	6	5	4	4	26	19	5	30	4	6	5	8	9	6	4	2	2	IZS	4	8	11	30	8.1	24	
20		11	8	6	3	3	2	3	2	2	3	2	2	2	3	2	2	2	2	3	IZS	2	1	1	1	11	3.0	24	
21		1	1	2	1	1	2	2	2	1	2	1	1	1	1	2	2	2	2	IZS	3	2	2	2	4	4	1.7	24	
22		4	8	8	6	8	8	7	5	3	2	2	2	1	2	2	2	2	IZS	2	2	1	2	3	6	8	3.8	24	
23		4	4	4	4	4	3	4	5	6	7	8	13	12	3	2	1	IZS	2	1	1	1	2	2	1	13	4.1	24	
24		1	1	2	2	1	1	1	1	1	1	1	1	1	0	IZS	1	2	2	2	2	2	2	4	4	4	1.5	24	
25		2	2	3	3	4	3	3	4	4	4	4	3	4	3	IZS	4	3	4	4	3	3	4	4	4	2	4	3.3	24
26		2	2	1	1	1	1	1	1	1	2	2	3	3	IZS	3	2	1	1	1	2	2	2	2	2	3	1.7	24	
27		3	3	4	4	3	3	3	3	3	3	3	3	3	IZS	5	5	4	4	1	1	0	1	1	1	5	2.7	24	
28		2	1	2	2	3	3	3	4	4	4	3	IZS	2	2	2	2	3	3	2	2	3	3	2	3	4	2.6	24	
29		4	3	3	3	3	4	4	3	3	5	IZS	16	4	4	5	4	10	3	3	1	1	1	2	2	16	4.0	24	
30		2	2	2	3	3	3	3	1	2	IZS	5	7	9	9	9	9	4	6	5	5	6	7	5	4	9	4.8	24	
31		3	3	2	2	2	2	2	2	IZS	2	2	1	1	0	1	0	0	0	1	0	0	1	1	1	3	1.3	24	
HOURLY MAX		12	14	15	18	20	16	13	26	19	9	30	25	21	49	11	12	28	13	12	9	7	8	22	11				
HOURLY AVG		4.2	4.3	4.2	4.4	4.6	4.0	4.0	4.1	4.7	4.0	5.8	5.0	4.5	5.2	4.0	3.7	4.4	3.4	3.2	3.1	2.7	3.1	3.8	3.4				

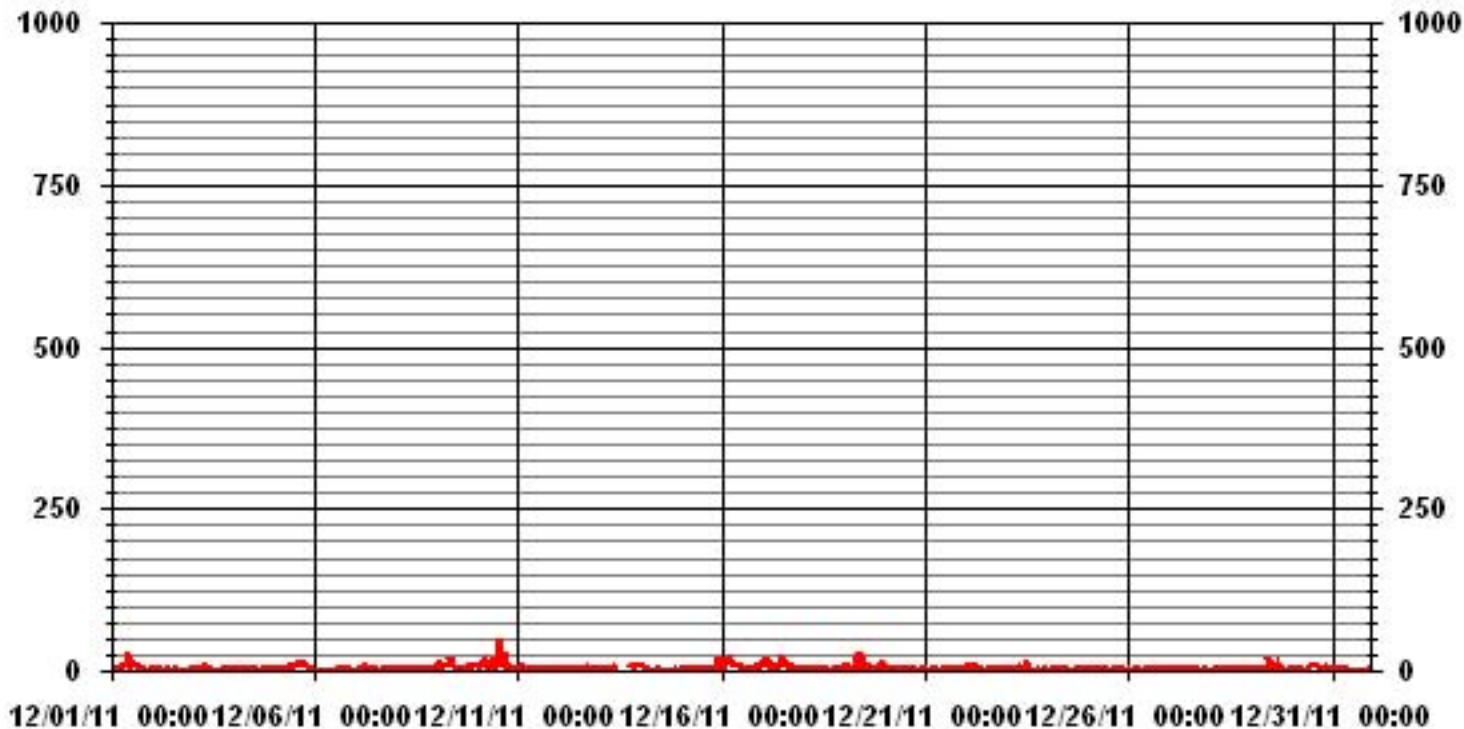
STATUS FLAG CODES

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:	682
MAXIMUM INSTANTANEOUS VALUE:	49 PPB @ HOUR(S) 13 ON DAY(S) 10
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	10 HRS
STANDARD DEVIATION	4.24
OPERATIONAL TIME:	743 HRS

01 Hour Averages



— LICA31 NOXMAX PPB

LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2011

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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	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	8.84	3.70	2.42	2.42	1.56	2.28	3.85	2.42	2.42	2.99	6.41	9.70	10.55	17.11	14.97	8.27	

Calm : .00 %

Total # Operational Hours : 701

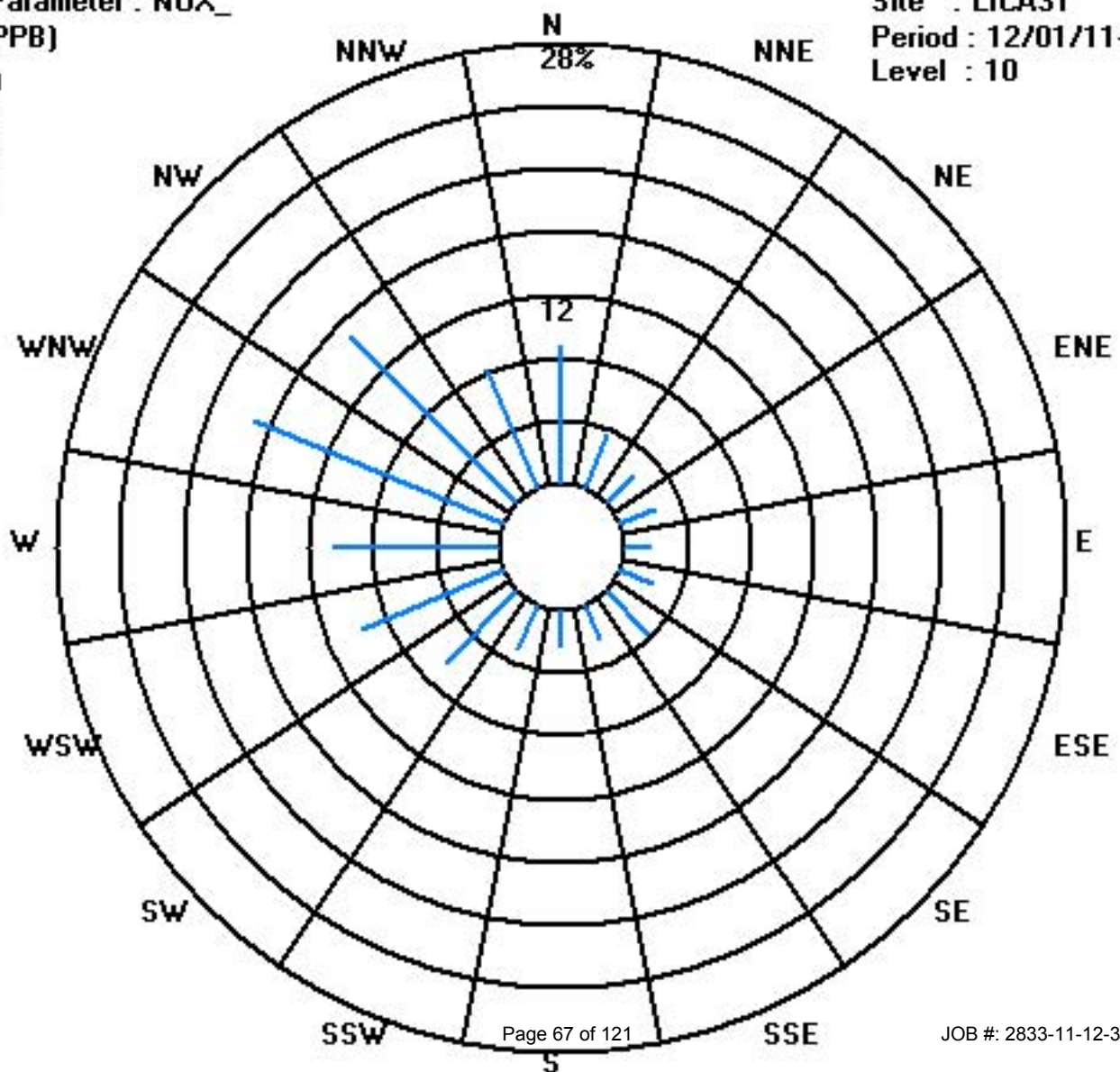
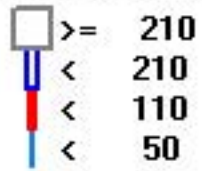
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	701
< 110																	
< 210																	
>= 210																	
Totals	62	26	17	17	11	16	27	17	17	21	45	68	74	120	105	58	

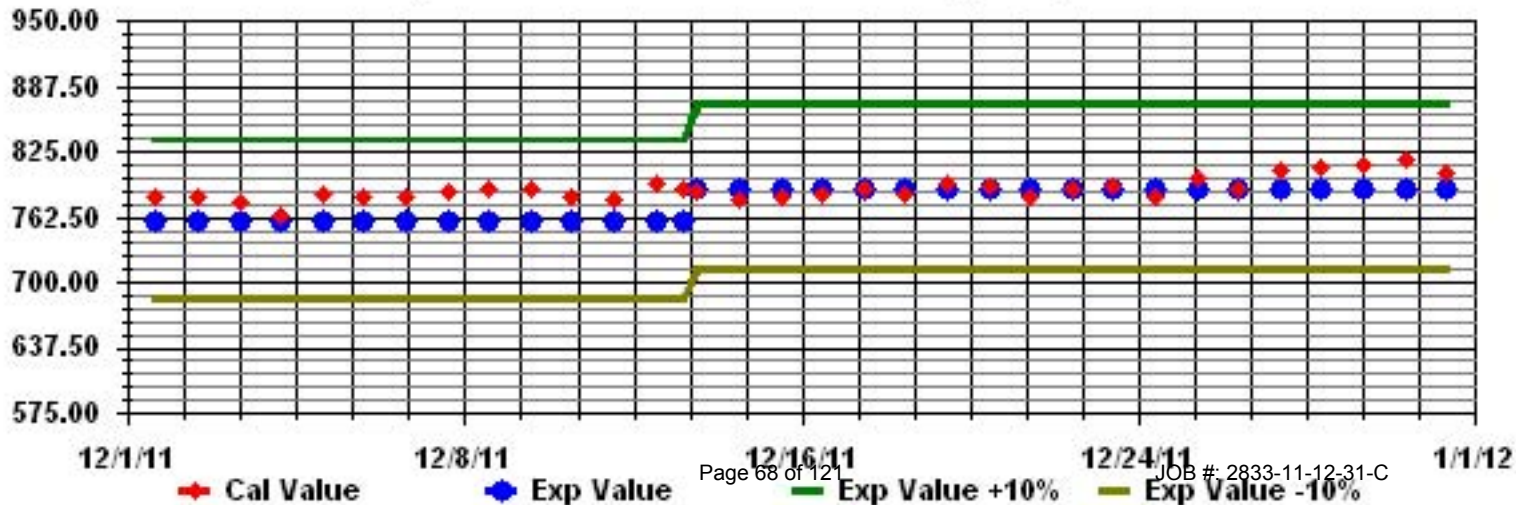
Calm : .00 %

Total # Operational Hours : 701

Class Limits (PPB)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

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

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	12.5	13.4	11.7	8.2	10	11.8	10.2	12.6	10.2	11	9	5.1	2.7	5.8	4.6	5.2	4	3.9	3.4	9.4	2.6	3	2.2	1	13.4	7.2	24	
2	2	4.6	1.4	0.3	0.4	0.3	1.2	2.4	1.2	3.7	4.1	2.3	0	0	1.7	1.3	0.5	1.5	4.7	2.9	2.9	0	2.1	4.7	1.7	24		
3	2	2	3.6	3.8	4.2	8.2	10.7	10.7	12.2	10.6	10.9	6.6	1.3	1	1.2	5.2	2.4	4	3.7	2.5	1.9	2.2	0.5	2.3	12.2	4.7	24	
4	2.6	4.6	5.5	4.4	1.5	3.6	0	0.2	1.4	1.9	0	1	0	5	2.4	3.1	0.9	2.8	0.6	0	1.6	0.6	4.2	7.6	7.6	2.3	24	
5	8.7	6.5	7.3	9.7	8.1	9.3	8.7	9.5	7.1	11.3	8.4	8.9	10	6.2	5	6.2	7.2	3.5	1.9	8.4	8.7	6.7	6.7	12.6	12.6	7.8	24	
6	11.2	10.8	3.4	3.3	6.6	2.9	2.7	4.4	1.2	0	0	3.4	3.4	2.1	5.5	2.5	0	1.5	5	0	1.9	3	0	1.5	11.2	3.2	24	
7	2.5	0	0.7	0	3.9	1.1	0.4	0	1.5	4.5	3	1	3.8	1.9	1	0	0	3.7	4.6	3.5	3.3	4.5	3	5.5	5.5	2.2	24	
8	5.7	3.7	2	0.6	3.9	8.2	2	1.7	5.2	4.8	5.9	4.9	4.2	5.1	6.1	12.5	7.5	7	7.5	9.9	9	6.5	9.3	13.6	13.6	6.1	24	
9	16.7	21.5	25.3	25.7	24.5	20.1	18.9	18.7	21.9	20.4	19.7	11.5	12.7	9.5	6.2	5.3	4	9	6.5	6.3	6.8	8.2	10.9	6	25.7	14.0	24	
10	7.7	11.1	9	9.8	10.4	12.2	10.9	10.5	9.9	7.1	8	10.6	9	6.2	10.6	13.3	11.8	12.5	6	11.5	6	3.2	1.4	4.1	13.3	8.9	24	
11	3.8	6.1	8.5	8.6	6.7	5.3	6.3	12.5	9.8	7	10.9	6.8	6	1.5	5.5	6	8.1	6	6.1	6.2	8.4	8.4	7.8	8.4	12.5	7.1	24	
12	9.1	13	13.6	14.6	9.9	4	6.6	4.5	9.2	10.3	5.5	7	11.3	6.5	9.9	12.5	10.9	10.9	12.7	10.4	8.1	5.4	9	9.9	14.6	9.4	24	
13	2.5	9.9	10.9	7	12	13.4	9.1	15.5	18.5	15.5	20.5	12.5	14	25.2	30.5	2.5	13	12.5	25	21	33.5	18.5	12	11.5	33.5	15.3	24	
14	11.5	12	11	6	0	3.5	4	4.5	2.5	C	C	C	C	35	17.4	25.5	8	0	N	N	N	N	0	N	35.0	9.4	19	
15	0.5	0.4	2.4	1.5	3	3.5	5	N	N	0.5	N	N	N	0	N	0	N	N	1.5	3	4	0	4	9.9	9.9	2.5	16	
16	10.5	16.4	15.5	17.4	11.5	18.4	13.5	17.4	9.5	1.9	9.5	0	1	0	3.5	0	N	N	0	1.5	4	0	0	3	18.4	7.0	22	
17	0	3.5	9.5	8	8	4.4	7.5	1.5	4	0.5	1	5.4	2.4	3	0	0	0	3.5	5.9	0	0	2	0	0	9.5	2.9	24	
18	0	N	N	0	0	0	0.5	N	0	N	N	N	N	N	3.5	0	N	0	N	N	0	N	N	N	3.5	0.4	10	
19	1.5	5	8.5	7.5	6.4	N	1	N	1.5	2.4	0	N	0	3.5	2.5	3.5	0	0	N	N	N	4	5	0	8.5	2.9	18	
20	6.9	N	0	N	5.4	12	5.9	N	N	0.5	N	N	6.4	N	N	N	N	0.4	N	N	N	0	1	N	12.0	3.9	10	
21	0	N	0	0	0	N	0	N	N	N	N	N	N	N	1.5	0	0	1.5	N	3	N	N	0	N	3.0	0.5	11	
22	N	1.5	2	4.4	0.5	0	0	N	1	0	1.9	0	0	N	N	4	N	3.5	0	0	0.5	1.5	4	0	4.4	1.3	19	
23	1.9	1.5	0	1.5	0	0	3	0	0	3.5	0	5.9	1	0.5	9.5	0	0	N	N	3	0	N	N	N	9.5	1.6	19	
24	5	0	1.9	N	0.4	1.9	2.4	0.9	0	1.9	N	N	0	N	N	N	N	1	N	N	N	N	N	N	5.0	1.4	11	
25	0	N	N	N	0	0	0.9	N	4	N	N	N	3	N	0	4.4	N	N	N	0.5	3.5	N	0	N	4.4	1.5	11	
26	0	0	5	0.5	5.4	N	0	9.9	3	N	0	N	N	4	5.9	N	0	0	0	5	1.9	0	N	0	9.9	2.3	18	
27	0	3	3	1	1.5	4	4	1.5	1	0	0	0	0	0.5	0	N	16.9	C	C	5.1	0	3.5	4.1	N	16.9	2.5	22	
28	2	3.6	3.5	4.1	1	0	1	1	1	1	3.6	2.5	N	0	0	N	0	2	N	0	2.5	3.1	0	0.5	4.1	1.5	21	
29	1	9.6	4.5	1.5	4.1	0	1.5	1.6	0	15	7.6	8	7.6	0.5	3.1	19.6	7.6	1.5	4.5	0	0.5	N	0	4.5	19.6	4.5	23	
30	1	2	N	0	4	3.5	0.5	0.5	N	0	0	3	0.5	0	0	2.5	3.6	3	0	0	1	0.5	0	0	4.0	1.2	22	
31	N	0	1	3	0	4.5	1.5	6.5	N	0	1	0	N	6	4.1	18	1.5	0.5	2.5	5.1	2.5	0	0	0	18.0	2.7	21	
HOURLY MAX	17	22	25	26	25	20	19	19	22	20	21	13	14	35	31	26	17	13	25	21	34	19	12	14				
HOURLY AVG	4.4	6.1	6.1	5.4	4.9	5.6	4.5	6.2	5.3	5.2	5.4	4.8	4.2	5.2	5.2	5.9	4.5	3.6	4.7	4.6	4.4	3.7	3.2	4.5				

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

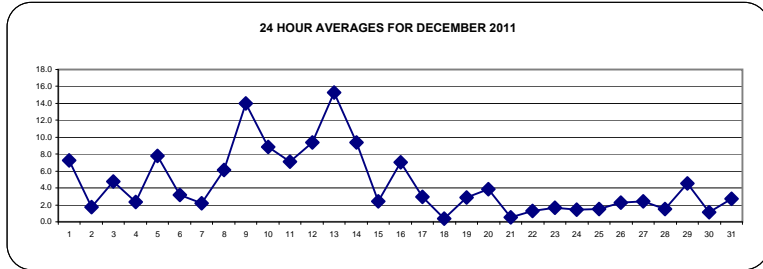
ALBERTA ENVIRONMENT:

1-HR	-	ug/m ³	24-HR	30	ug/m ³
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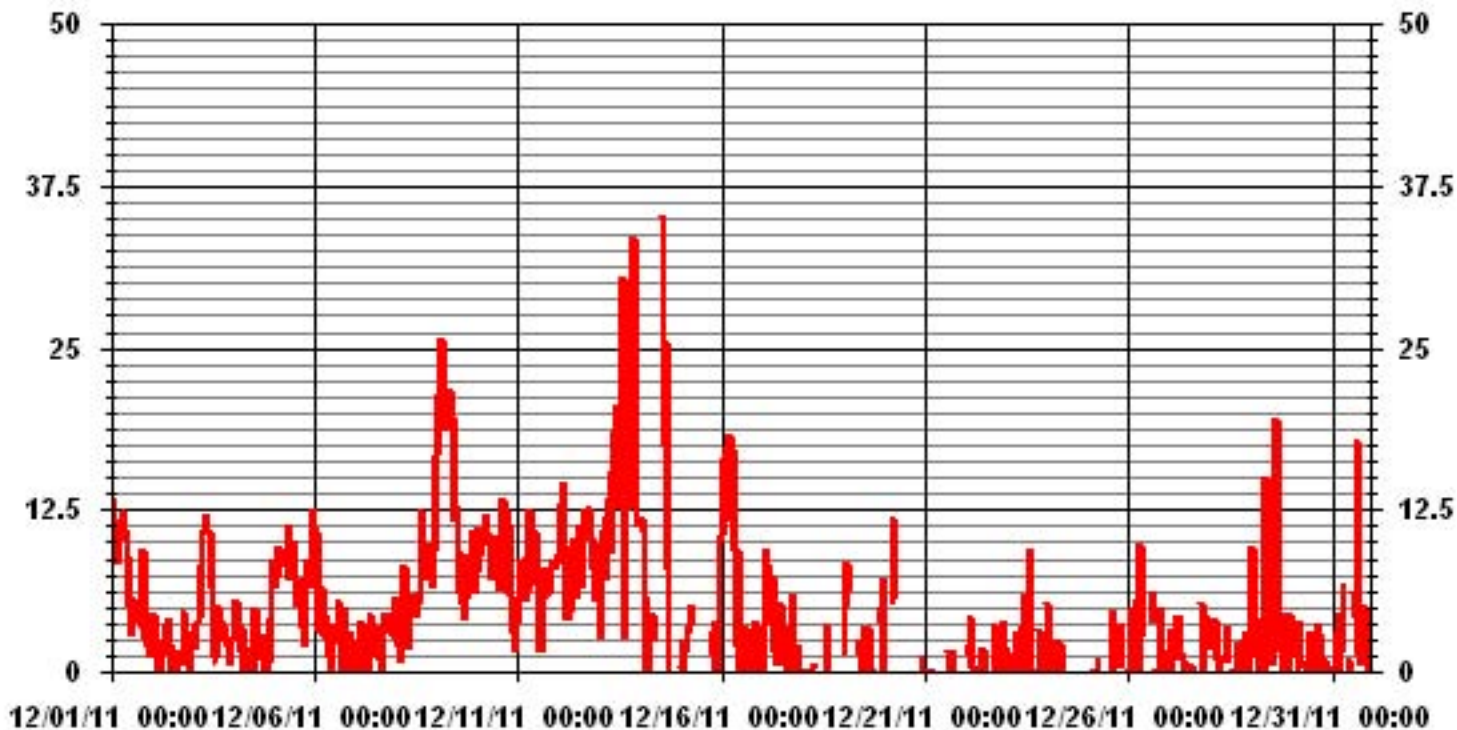
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-			
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE		
NUMBER OF NON-ZERO READINGS:	495			
MAXIMUM 1-HR AVERAGE:	35.0	UG/M ³	@ HOUR(S)	13 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	15.3	UG/M ³		ON DAY(S)
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	629 HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	84.5 %
STANDARD DEVIATION:	5.45		MONTHLY AVERAGE:	4.91 UG/M ³

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

December 2011

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
< 30.0	9.63	3.21	2.24	2.24	1.60	2.56	3.53	2.08	1.92	2.56	6.74	9.30	9.95	18.29	15.08	8.50	99.51
< 60.0	.16	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.48
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	9.79	3.21	2.40	2.24	1.60	2.56	3.53	2.08	1.92	2.56	6.74	9.30	9.95	18.29	15.24	8.50	

Calm : .00 %

Total # Operational Hours : 623

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	60	20	14	14	10	16	22	13	12	16	42	58	62	114	94	53	620
< 60.0	1		1												1		3
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	61	20	15	14	10	16	22	13	12	16	42	58	62	114	95	53	

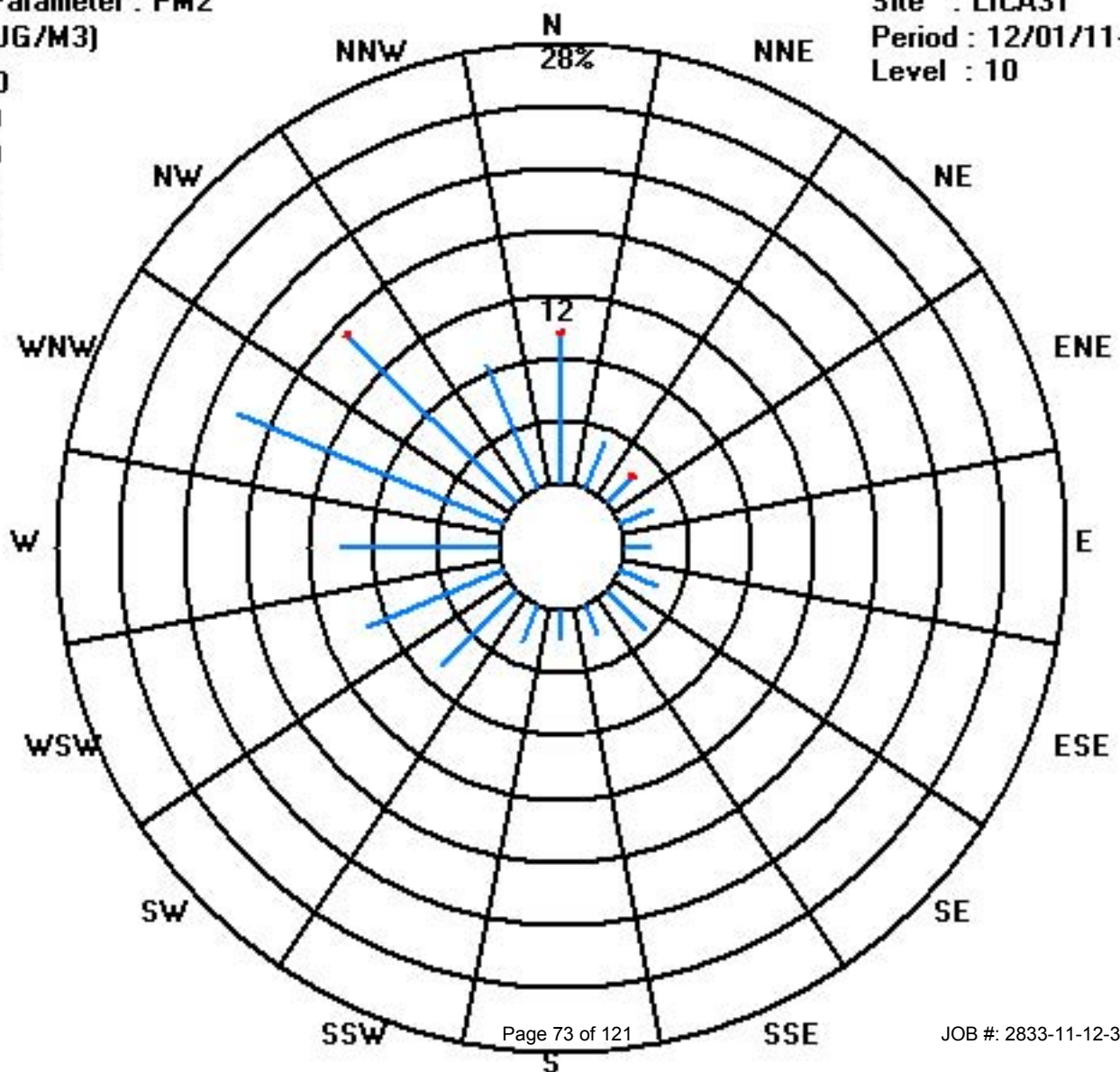
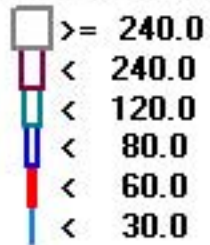
Calm : .00 %

Total # Operational Hours : 623

Class Limits (UG/M3)

Period : 12/01/11-12/31/11

Level : 10



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2011
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	24-HOUR
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1		-7.7	-8.7	-9.3	-9.3	-9.8	-10	-9.7	-9.3	-8.5	-7.6	-6.4	-4.3	-2.2	-1.4	-0.9	0.1	0.8	1.7	3.9	6.4	5.6	5.3	4.5	4.1	6.4	-3.0	24
2		3	2	-0.2	0	-0.3	-0.1	-0.1	0	0	-2.3	-3.9	-4.3	-5.1	-5.3	-5.3	-5.4	-6.2	-6.5	-7.3	-8.1	-8.4	-9.3	-10.3	-10.7	3.0	-3.9	24
3		-11	-11.2	-10.4	-10.3	-9.9	-9.2	-9.1	-8.8	-7.2	-6	-4.5	-4.3	-3.3	-3.1	-3.5	-4.2	-4.8	-5.1	-6.1	-6.8	-7.6	-8.4	-9.2	-9.5	-3.1	-7.2	24
4		-9.9	-10.4	-10.4	-10.6	-10.3	-10	-9.7	-9.5	-9.5	-8.8	-8.3	-8	-7.6	-7.6	-7.8	-8.3	-9.3	-10.5	-11.2	-11.3	-10.8	-10.4	-9.3	-8.7	-7.6	-9.5	24
5		-8.4	-8.2	-8.4	-8.6	-8.8	-9.2	-9.4	-9.9	-10	-8.7	-7.2	-5.7	-4.8	-3.3	-1.7	-1.2	-1	-0.2	-0.6	-0.3	0.3	1.2	1.2	1.7	1.7	-4.6	24
6		4.2	4.2	4.6	4.9	5.7	6.7	6.8	5.5	3.9	2.5	0.7	0	-0.6	-0.9	-1.3	-2	-2.4	-2.6	-2.5	-3.3	-4.9	-5.9	-6.7	-7.5	6.8	0.4	24
7		-8.1	-9.3	-10	-10.2	-9.6	-9.8	-10.3	-10.9	-11.1	-10.5	-9.9	-9.8	-9.5	-9.6	-9.9	-10.5	-11.5	-12.1	-12.9	-13.6	-14.1	-14.7	-15.1	-15.8	-8.1	-11.2	24
8		-16.7	-17.5	-17.6	-18	-18	-18.7	-19.1	-18.6	-18.6	-16.1	-13.4	-11.6	-11.2	-11.1	-11.7	-13.3	-15	-15.6	-15.8	-16.4	-17.3	-18.3	-18.3	-18.6	-11.1	-16.1	24
9		-18.9	-17.7	-16.3	-14.8	-13.4	-12.5	-11.6	-10.5	-9.4	-8.7	-6.6	-3.2	-1.2	-0.5	-0.4	-1.1	-1.9	-2	-2	-2.5	-2.8	-2.3	-1.9	-2.1	-0.4	-6.8	24
10		-2.1	-1.7	-2.3	-2.1	-1.5	-2	-2.7	-2.7	-3	-2.6	-0.6	-0.5	-0.3	0.2	0.8	-0.2	-1.1	-1.7	-1.7	-1	-0.8	-1	-0.8	-1.2	0.8	-1.4	24
11		-2.9	-4.4	-5.8	-6.1	-6.1	-6.2	-7.1	-8.6	-9.5	-8.8	-7.2	-6.6	-7.5	-7.8	-8.4	-8.9	-9.4	-9.7	-9.9	-10.2	-10.3	-10.4	-10.4	-10.4	-2.9	-8.0	24
12		-10.2	-10.2	-9.9	-9.7	-9.4	-9.3	-9.1	-9	-8.9	-8.6	-7.7	-6.6	-5.7	-4.8	-4.2	-5	-5.9	-6.5	-6.7	-7	-7.4	-8	-8.5	-4.2	-7.7	24	
13		-8.7	-8.6	-8.5	-8.9	-9	-9.3	-9.5	-10.2	-10.8	-9.1	-7.4	-4.9	-3.3	-2.5	-3.8	-4	-4	-3.5	-3.4	-3.2	-2.6	-3.5	-4.1	-4.1	-2.5	-6.1	24
14		-3.8	-3.6	-3.2	-2.8	-2.9	-3.2	-3.6	-4.2	-5.1	-5.1	-4.9	-4.9	-4.9	-5.2	-5.4	-5.8	-6.3	-6.6	-6.8	-7.1	-7.2	-7.5	-8.2	-8.2	-2.8	-5.3	24
15		-9.3	-9.7	-10	-10.6	-10.7	-10.6	-10.8	-10.4	-10.7	-10.2	-9.5	-8.5	-7.1	-6.7	-6.7	-7.1	-8	-8.6	-9.3	-9.7	-10.4	-11.2	-11.8	-12.1	-6.7	-9.6	24
16		-11.8	-12	-12.3	-11.6	-11.1	-9.8	-8.8	-8.2	-7.2	-5.4	-3.6	-0.8	0.4	0.4	-0.1	-1.7	-2.6	-2.8	-2.9	-3.6	-4.5	-4.6	-4.6	-5.1	0.4	-5.6	24
17		-5.4	-5.6	-5.4	-5.7	-5.2	-3.8	-2.9	-2.4	-2.3	-2.2	-1.8	-1.2	-0.8	1	2.2	2.1	1.3	0.5	0.4	0.6	0.8	0.5	0.2	-0.1	2.2	-1.5	24
18		-0.4	-0.7	-1	-1.4	-1.7	-2	-2.8	-3.1	-3.6	-2.9	-2.2	-1.7	-1.3	-1.2	-1.9	-2.8	-4.2	-5.3	-6	-6.6	-7.4	-8.2	-8.7	-9	-0.4	-3.6	24
19		-9.6	-9.8	-10.6	-10.3	-10	-9.6	-8.9	-6.7	-5	-4.8	-4	-2.7	-1.6	-1	-0.3	0.9	2.1	2.8	2.7	2.4	2.5	2.5	1.7	1.7	2.8	-3.2	24
20		1.9	3.1	3.6	4.1	4.1	3.2	2	2.6	2.2	2.5	3.3	3.6	3.8	2.9	1.6	0.3	-0.9	-1	-1.7	-1.9	-2	-2.8	-3.3	-3.9	4.1	1.1	24
21		-4.1	-4.7	-5.4	-5.5	-5.3	-5.2	-5.1	-5.1	-5.2	-4.2	-3.4	-2.6	-1.7	-1.2	-1.6	-3	-4.3	-4.7	-5.3	-5.6	-6.1	-6.3	-6.1	-6.6	-1.2	-4.5	24
22		-6.6	-6.5	-6.2	-6.1	-5.8	-5.1	-4.9	-4.3	-4.2	-3.4	-2.5	-1.6	-0.5	0.5	0.4	0.1	-1.2	-2.3	-2.5	-2.3	-3.1	-3.3	-3.7	-5.1	0.5	-3.3	24
23		-5.4	-5.8	-5.1	-5.4	-4.5	-3.7	-3.2	-3.8	-4	-3.9	-3	0.3	3.3	4.2	4.2	3.6	2.7	2	1.7	1	0.4	0.5	0.7	0.9	4.2	-0.9	24
24		1.1	2.7	1.2	2	2.9	1.9	1.2	1.1	1.2	1.9	3.8	5.1	5.7	5.7	5.2	4	0.9	-0.1	-0.7	-1.1	-1.5	-2.2	-2.6	-2.3	5.7	1.5	24
25		-1.7	-1	-0.9	-1.6	-2	-1.8	-1.5	-0.4	-0.6	-0.5	1.1	2.4	2.7	3.6	3.1	2.6	2.3	1.4	1.5	1.6	2.1	2.7	3.3	3.8	3.8	0.9	24
26		3.2	2	2.6	2.8	2.6	2.4	2.9	1.6	-1.2	-2.7	-2.8	-2.3	-1.9	-1	-2.1	-3.2	-4	-4.2	-4.9	-5.5	-5.7	-5.7	-5.7	3.2	-1.5	24	
27		-5.5	-5.7	-5.3	-4.7	-4.4	-4.3	-4.6	-4.9	-5	-4.9	-4.1	-3.9	-3	-0.3	1	-0.2	-1.2	-1.6	-2.8	-3.8	-4	-4.8	-4.9	-6.1	1.0	-3.7	24
28		-7.9	-8.9	-9.3	-9.7	-9.4	-9.2	-9.2	-8.7	-8.5	-7.6	-6.4	-5.1	-4.7	-4.2	-4.1	-4.3	-4.9	-5.9	-6.6	-7.1	-7.1	-7.4	-7.4	-7.4	-4.1	-7.1	24
29		-7.3	-7.4	-8.4	-9.3	-8.8	-8.8	-8.2	-7.6	-7.7	-7.2	-6.5	-5.5	-4.2	-2.5	-2.2	-0.8	-1.3	-2	-2	-2.5	-2.6	-3.7	-5.3	-6.4	-0.8	-5.3	24
30		-7.9	-7.9	-7.6	-7.4	-7.2	-7	-8	-5.5	-5.4	-7.3	-6.3	-6.5	-7.4	-7.4	-6.9	-6.4	-6.9	-7	-7.5	-8.2	-9	-9.6	-9.3	-7.9	-5.4	-7.4	24
31		-6.8	-6.4	-6.1	-6.1	-6	-5.4	-5	-5.4	-5.9	-5.1	-3.9	-3.2	-2.6	-2.9	-3.7	-4.3	-5.5	-5.8	-6.3	-7.3	-8	-8.4	-8.6	-9.8	-2.6	-5.8	24
HOURLY MAX		4.2	4.2	4.6	4.9	5.7	6.7	6.8	5.5	3.9	2.5	3.8	5.1	5.7	5.7	5.2	4.0	2.7	2.8	3.9	6.4	5.6	5.3	4.5	4.1			
HOURLY AVG		-6.0	-6.1	-6.3	-6.2	-6.0	-5.9	-5.9	-5.7	-5.8	-5.4	-4.5	-3.5	-2.9	-2.4	-2.4	-2.9	-3.6	-4.0	-4.3	-4.6	-4.9	-5.3	-5.6	-5.8			

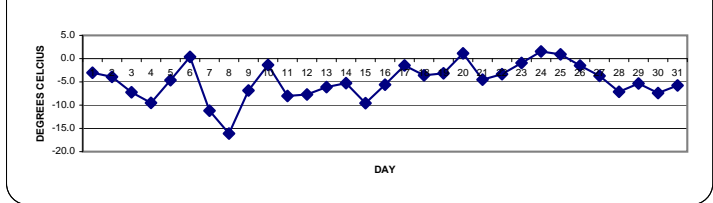
STATUS FLAG CODES

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

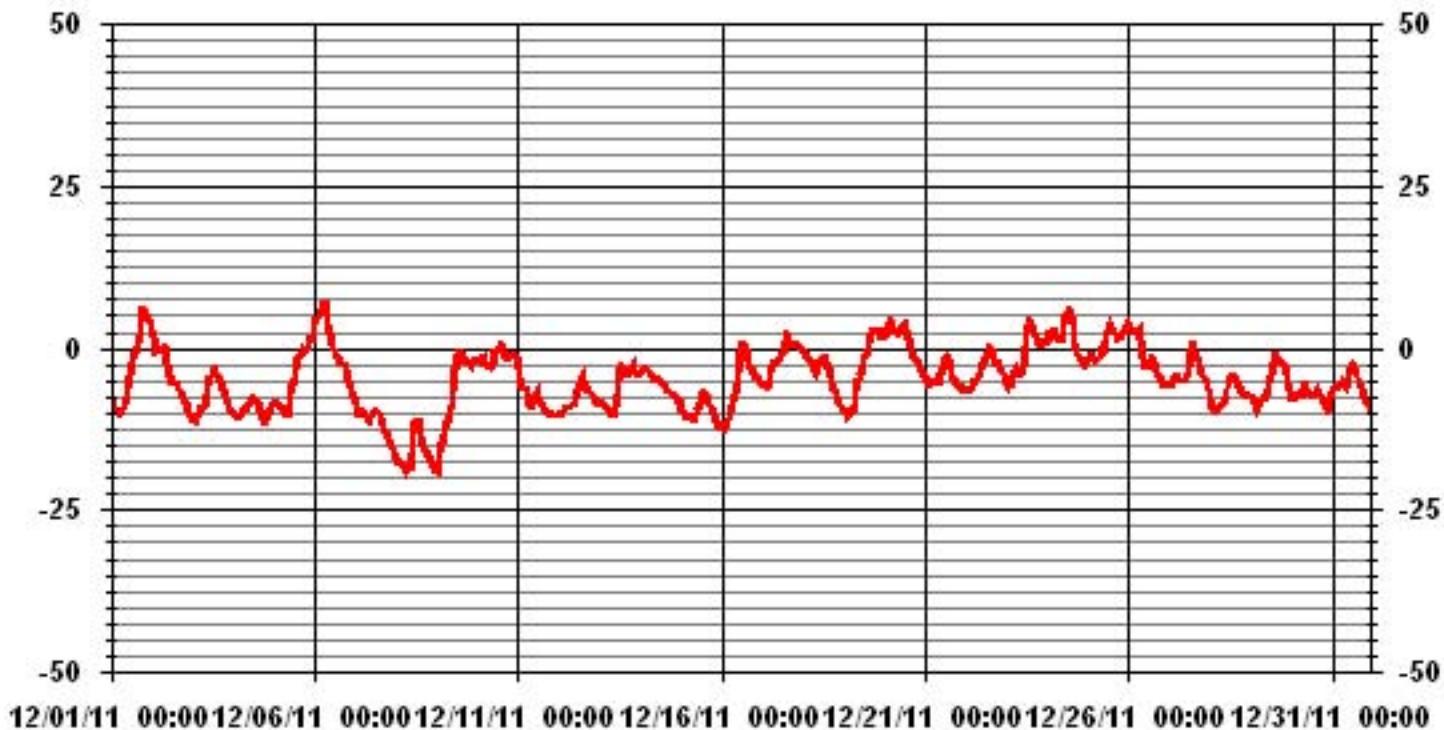
MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-19.1 °C	@ HOUR(S)	6	ON DAY(S)	8
MAXIMUM 1-HR AVERAGE:	6.8 °C	@ HOUR(S)	6	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	1.5 °C			ON DAY(S)	24
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS		
STANDARD DEVIATION:	4.87	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-4.84 °C		

24 HOUR AVERAGES FOR DECEMBER 2011



01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

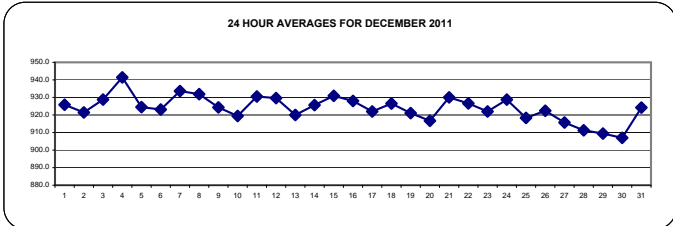
DECEMBER 2011

BAROMETRIC PRESSURE hourly averages (millibar)

MST																								DAILY	24-HOUR			
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					
DAY																												
1	939	938	937	936	935	934	933	933	931	929	928	927	925	923	921	919	918	916	915	914	913	913	912	939	925.8	24		
2	912	913	913	914	913	914	914	915	916	918	920	922	923	925	926	927	928	929	929	929	929	929	929	929	928	929	921.5	24
3	928	927	927	926	925	925	924	924	924	924	925	926	926	927	928	929	931	932	933	934	935	936	937	938	938	928.8	24	
4	939	940	941	942	943	943	944	944	944	945	945	945	944	944	943	943	942	941	940	938	937	936	936	935	945	941.4	24	
5	934	933	931	931	930	929	928	928	927	926	926	925	924	923	923	922	921	921	920	919	918	918	916	915	934	924.5	24	
6	915	914	914	914	914	915	916	918	919	921	923	925	926	926	927	927	928	928	929	930	931	931	932	932	932	923.1	24	
7	932	932	932	932	932	932	933	933	934	934	935	935	934	934	934	934	934	935	935	935	934	934	934	934	935	933.6	24	
8	934	933	933	933	932	932	931	931	931	931	932	932	932	932	932	932	932	932	932	932	932	932	931	931	930	934	931.9	24
9	929	928	928	927	926	925	924	923	923	923	923	923	923	924	924	924	924	924	924	924	923	923	923	923	929	924.3	24	
10	922	922	922	921	921	920	919	918	918	917	917	918	918	918	918	918	919	919	919	919	920	920	920	921	922	922	919.4	24
11	923	924	925	926	927	927	928	929	929	930	931	932	932	932	933	933	933	934	934	934	934	934	934	935	935	930.5	24	
12	935	935	935	934	934	934	934	933	932	932	931	931	930	929	929	927	927	926	925	925	924	923	923	923	935	929.6	24	
13	922	922	922	922	921	921	921	921	921	921	921	921	921	921	921	920	920	919	919	917	916	916	917	917	922	920.0	24	
14	917	917	918	920	920	921	922	923	923	924	925	926	927	928	929	929	930	930	931	931	931	931	931	931	931	931	925.6	24
15	931	931	931	930	930	930	930	929	929	930	931	931	931	931	931	932	932	932	932	932	932	932	931	931	931	932	930.9	24
16	930	930	929	928	927	927	927	926	926	927	927	927	928	928	928	928	928	928	928	929	929	929	929	929	928	930	928.0	24
17	928	927	927	927	926	925	924	924	923	922	921	921	920	920	920	920	920	919	919	919	919	919	919	919	919	928	922.0	24
18	919	920	920	921	922	922	923	924	924	925	926	927	928	929	929	930	931	931	931	931	931	931	931	931	931	931	926.5	24
19	930	929	928	927	927	925	924	923	923	922	921	920	919	918	918	918	918	918	918	917	917	916	915	915	930	921.1	24	
20	914	914	914	914	914	914	914	914	915	915	916	916	916	917	917	917	918	919	920	921	922	922	924	924	916.7	24		
21	925	926	927	928	929	929	930	930	931	931	932	932	932	932	931	931	931	931	931	931	931	930	930	930	932	930.0	24	
22	929	928	928	927	926	926	926	926	926	926	926	926	926	927	927	927	927	927	927	927	927	926	926	926	929	926.6	24	
23	925	924	923	923	921	920	920	919	920	921	921	921	921	921	921	922	922	923	923	923	924	924	924	925	922.0	24		
24	924	925	925	925	926	926	926	926	927	929	930	931	931	932	932	932	932	932	932	932	931	930	930	929	933	928.8	24	
25	928	927	926	925	924	923	922	921	921	920	920	919	919	918	916	915	914	912	911	911	911	911	913	913	928	918.3	24	
26	914	914	915	916	917	917	918	919	922	924	926	926	927	927	928	928	928	927	926	925	925	924	923	922	928	922.4	24	
27	921	920	919	918	917	915	915	914	913	913	913	913	913	914	915	915	916	916	916	916	916	917	916	916	921	915.7	24	
28	915	914	913	913	912	911	911	911	911	911	912	912	911	912	912	912	912	912	911	910	909	909	908	907	915	911.3	24	
29	905	905	904	904	904	904	904	905	905	906	908	909	909	911	912	913	914	915	915	915	915	915	914	915	909.4	24		
30	914	914	914	913	912	911	910	909	908	907	906	905	903	903	902	903	903	903	903	903	903	904	905	906	907	914	907.0	24
31	908	910	912	914	916	917	919	920	921	922	923	924	925	926	927	929	930	931	932	933	934	935	936	937	937	924.2	24	
HOURLY MAX	939	940	941	942	943	943	944	944	944	945	945	945	944	944	943	943	942	941	940	938	937	936	937	938				
HOURLY AVG	924	924	924	924	923	923	923	923	923	923	924	924	924	924	924	924	925	925	925	925	924	924	924	924				

STATUS FLAG CODES

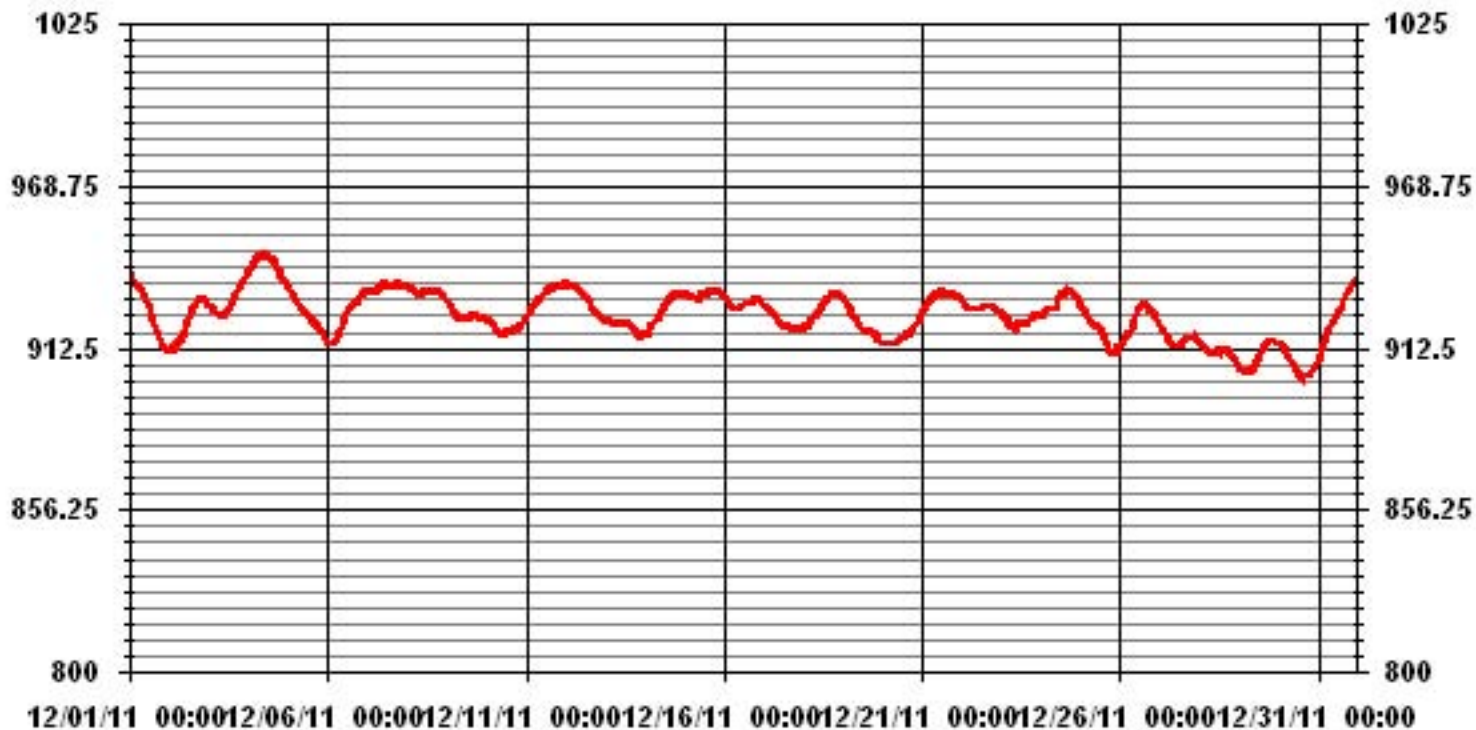
S	- OUT OF SERVICE	Izs	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	945	MB	@ HOUR(S)	VAR	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	941.4	MB			ON DAY(S)	4
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	8.24		MONTHLY AVERAGE:	924	MB	

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

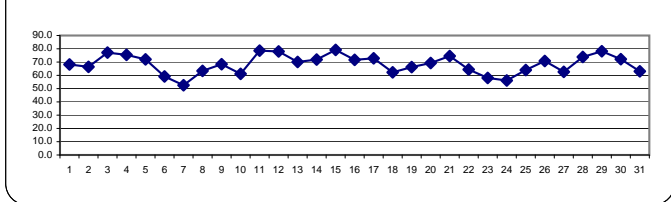
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	82	83	83	81	81	81	80	78	76	75	75	74	72	72	69	66	64	55	44	44	42	44	44	44	44	83	68.2	24
2	51	62	86	77	71	69	73	74	71	66	61	58	61	62	63	62	63	59	58	61	64	69	74	78	78	86	66.4	24
3	80	80	78	78	79	79	79	80	78	77	74	83	81	76	73	72	73	73	75	76	76	77	77	77	77	83	77.1	24
4	78	77	74	76	76	75	76	77	79	78	77	75	71	70	68	68	71	74	77	79	79	80	78	77	80	75.4	24	
5	75	75	74	73	73	74	74	76	76	73	72	70	69	68	68	69	70	69	72	73	73	71	72	70	76	72.0	24	
6	63	63	62	61	59	54	53	58	60	66	69	64	64	58	57	61	64	52	46	48	53	63	58	69	59.2	24		
7	61	65	69	65	56	51	51	53	54	53	52	50	49	48	46	46	46	48	50	52	50	49	46	51	69	52.5	24	
8	58	62	66	67	68	70	72	73	71	64	58	54	53	51	51	54	60	62	60	65	68	70	71	72	73	63.3	24	
9	74	74	74	73	71	71	72	74	76	76	72	66	61	59	59	61	64	65	66	68	69	67	64	65	76	68.4	24	
10	64	62	65	64	61	62	63	61	61	59	53	54	55	56	53	58	62	62	61	61	68	70	71	71	71	61.1	24	
11	73	75	78	79	78	77	80	82	82	79	73	72	76	75	76	78	80	81	82	83	83	82	82	81	83	78.6	24	
12	81	81	81	82	82	82	82	82	81	79	75	73	71	70	73	76	77	76	76	76	76	77	78	79	82	78.0	24	
13	79	78	77	78	79	79	80	81	75	69	63	58	57	60	61	63	64	65	66	66	69	70	66	81	70.1	24		
14	64	70	77	76	74	75	75	76	76	75	71	70	68	69	68	70	70	71	70	70	70	70	74	75	77	71.9	24	
15	78	79	79	80	81	81	81	81	81	80	79	78	74	73	73	75	78	80	82	83	82	81	81	80	83	79.2	24	
16	80	80	80	80	80	81	82	82	83	78	71	61	55	55	56	60	63	65	66	69	72	73	73	75	83	71.7	24	
17	76	77	77	78	77	74	71	70	70	68	66	65	65	61	59	65	72	76	78	80	81	82	81	79	82	72.8	24	
18	76	74	70	68	68	66	64	64	65	62	59	54	49	46	45	48	53	58	60	62	63	66	72	82	82	62.3	24	
19	83	82	82	80	77	74	71	67	63	63	60	56	54	55	57	58	58	58	61	64	66	66	67	67	83	66.2	24	
20	67	63	61	61	61	65	67	60	59	58	58	59	60	70	80	83	79	81	84	84	81	75	75	72	84	69.3	24	
21	73	75	76	80	81	83	83	84	85	82	80	70	61	59	59	66	74	74	74	75	74	72	74	85	74.5	24		
22	74	73	70	70	66	63	61	59	60	58	56	55	55	53	53	55	61	64	67	69	73	75	76	80	80	64.4	24	
23	79	77	72	70	66	65	63	63	65	64	62	51	41	40	42	44	48	53	55	56	57	55	53	52	79	58.0	24	
24	52	53	58	53	48	53	55	55	57	56	51	47	43	42	42	45	59	66	68	69	70	70	69	66	70	56.1	24	
25	64	62	63	67	70	71	69	66	67	67	63	60	60	57	59	62	64	68	67	66	63	60	59	62	71	64.0	24	
26	60	59	58	56	56	58	58	68	73	73	72	73	72	71	69	73	77	80	81	83	85	84	81	79	85	70.8	24	
27	76	75	74	72	71	71	73	75	75	75	72	72	69	63	63	67	54	35	38	40	43	47	50	53	76	62.6	24	
28	58	61	62	63	62	61	62	63	74	80	82	80	79	75	74	75	77	81	83	84	85	84	84	83	85	73.8	24	
29	80	80	81	83	84	84	84	83	83	84	84	85	86	87	87	87	86	83	74	62	53	53	59	63	87	78.1	24	
30	66	67	66	65	64	63	64	56	57	64	61	63	69	80	82	81	83	83	84	84	84	83	82	82	83	84	72.2	24
31	84	84	84	84	84	82	78	77	76	68	57	51	49	47	46	45	49	50	50	50	50	53	54	58	84	63.0	24	
HOURLY MAX	84	84	86	84	84	84	84	84	85	84	84	85	86	87	87	86	83	84	84	84	85	84	84	84	83			
HOURLY AVG	71.3	71.9	72.8	72.3	71.1	70.8	70.8	70.9	71.5	70.2	67.4	64.8	63.0	62.3	62.3	64.1	66.5	67.4	67.5	67.7	68.1	68.5	69.4	70.1				

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

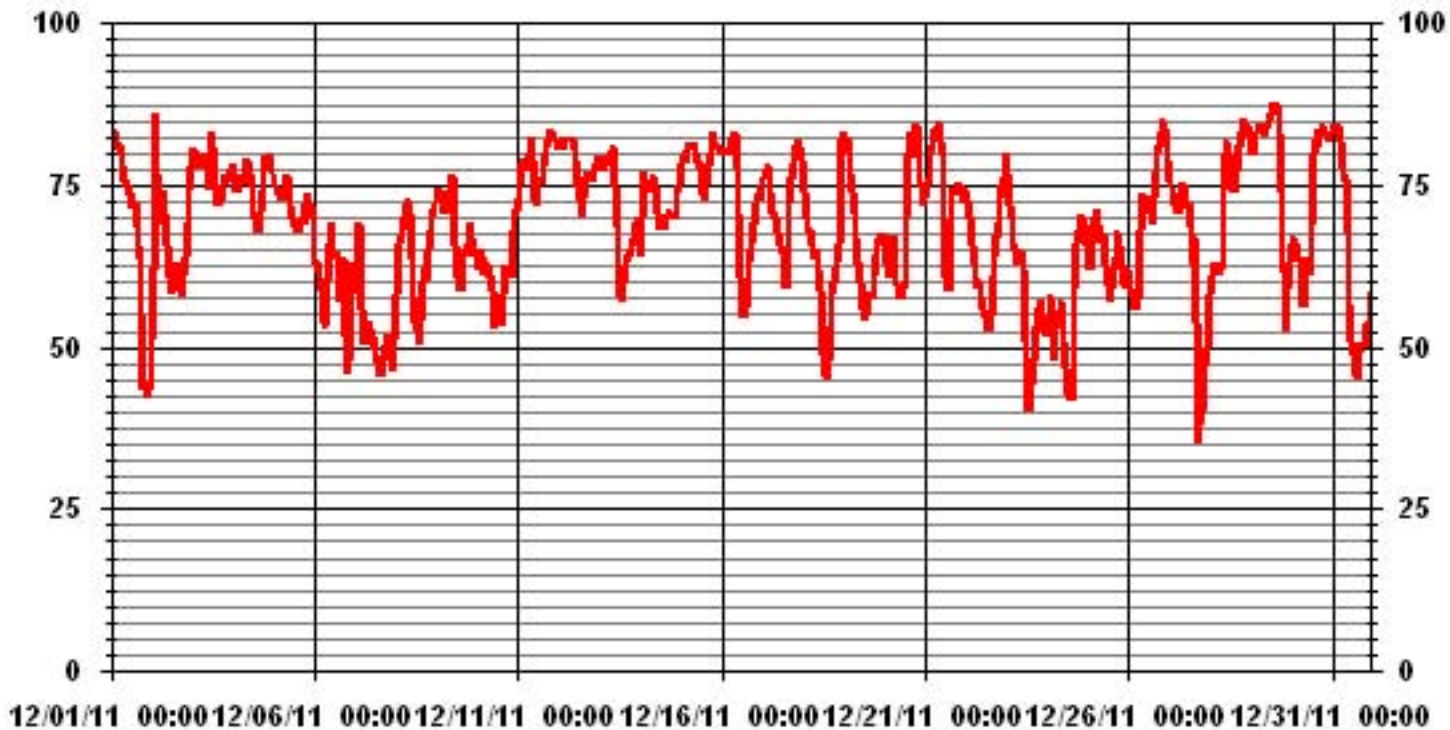
24 HOUR AVERAGES FOR DECEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	87	%	@ HOUR(S)	VAR	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	79.2	%			ON DAY(S)	15
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	10.72		MONTHLY AVERAGE:	68.43	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2011
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY		
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.	
DAY																													
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.0	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	0.0	24
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.0	24
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.0	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

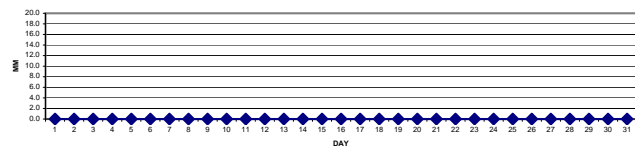
STATUS FLAG CODES

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

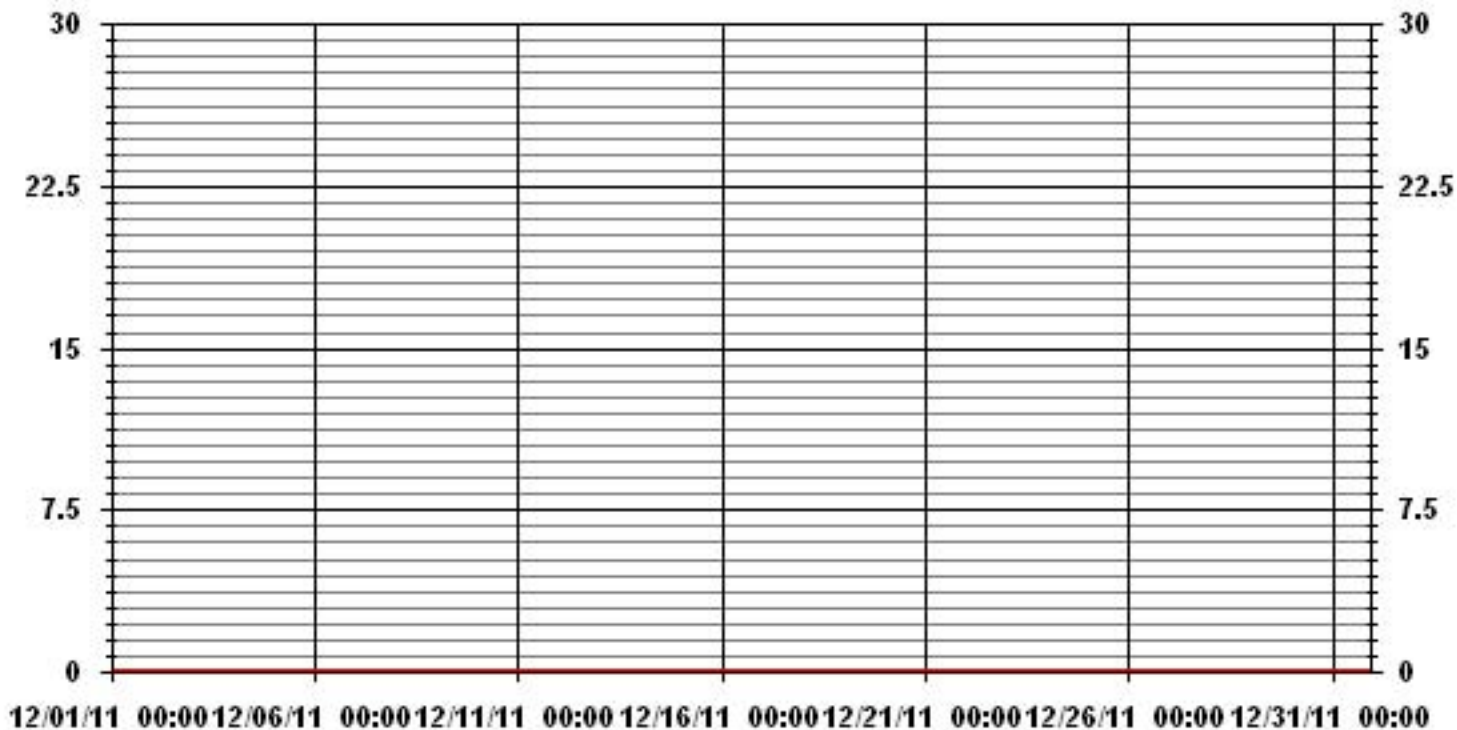
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.0	MM	HOUR(S)	ALL	ON DAY(S)	ALL
MAXIMUM DAILY TOTAL	0.0	MM			ON DAY(S)	ALL
MONTHLY TOTAL	0.0	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.00		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.00	MM	

DAILY TOTALS FOR DECEMBER 2011



01 Hour Averages



— LICA31 PRECIP MM

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2011

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	11.9	10.5	9.4	11.5	10	9.8	9.3	11.6	10.8	10.6	10.1	10.2	11.6	8.2	8.7	8.4	10.7	11.6	23.3	27.1	29.7	25	19.4	20.6	29.7	12.5	24
2	2	13	16.6	9.2	6.2	8.2	9.3	11.9	11.9	16.5	29.8	30.6	29	28.3	24.9	23.9	20.2	11.5	10.2	10.1	8.6	8.3	5.6	8.3	7.4	30.6	11.9	24
3	3	8.9	3.5	8.7	8.4	8.4	9.1	10.7	14.6	16.4	15.4	11.1	12.8	14.2	16.7	10.3	9.5	7.7	4	5.2	3.2	4.2	6.7	7.5	6.9	16.7	6.6	24
4	4	7.2	6	6.6	9.6	11.1	11.5	12.1	7.4	6.6	7.2	9	11	9.8	8.7	7.4	7.6	8.9	7.9	9.3	8.1	6.9	6.8	5.6	5.6	12.1	6.4	24
5	5	6.3	3.3	6.3	6.8	7.2	9.4	11	11.3	9.5	11.7	11.7	11.7	8.6	14.1	15.8	14.6	16.2	17.7	14.4	19	19.8	18.9	14.3	14.7	19.8	12.1	24
6	6	25.1	22.5	21.2	19.8	18.1	19.4	20.3	19.3	17.5	17.4	11.9	9.8	13.3	8.9	13.2	12.6	10.3	13.8	18.8	20.4	19.1	10.6	8.4	9	25.1	14.3	24
7	7	8.6	6.2	8.4	12.9	15.2	15.8	15.7	15.2	15.4	16.5	18.3	18.7	18.7	22.5	21.1	19.4	18.9	16	15.4	14.8	15.7	14.4	14.8	12.7	22.5	15.1	24
8	8	9.5	9.5	10.2	10.8	11.2	10.6	8.8	4.8	13.5	14	10.5	8	13.1	12.4	8.9	6.3	7.5	8.8	9.2	8.4	4.9	9.9	11.5	10.1	14	6	24
9	9	9.4	7.2	7.5	7.4	5.4	5.9	8.2	9.4	12.4	12.4	11.2	16.8	20.9	20.8	18.6	17.8	17.5	14.7	14.4	12.3	13.8	17.1	16.4	14.4	20.9	12.5	24
10	10	12.2	10.4	9.2	8.8	8.1	4.2	12.4	10.1	11.2	9.8	3.9	13.1	14.1	10	6.4	8.9	8.6	10.1	14.2	14.7	15	17.7	19.5	18.1	19.5	8.1	24
11	11	19.5	17.1	8.8	9.4	8.2	9.5	11.1	10.7	11.2	11.7	11.8	11.3	10.7	6.2	7.1	6.5	6.7	4.4	5.5	3.9	12.1	15.6	12.6	14.7	19.5	1.5	24
12	12	13.7	13.5	12.1	11.6	12.8	12.5	11.7	9.4	8.7	8.1	2.9	3.4	2.9	4.4	7.2	4.2	5.9	6.2	9.1	10.9	11.7	11.3	12.2	9.7	13.7	5.8	24
13	13	9.4	10.4	9.6	7.1	9.3	9.5	11.1	9.9	11.7	9.2	8.9	10.4	10.3	12.4	12.8	13.6	10.9	10.9	6.9	9.9	14	8.8	9.7	11.6	14	7.8	24
14	14	16.6	14.9	18.6	19.4	19.6	21.2	17.5	17.6	18.2	18.5	18.3	16.9	15.6	14.7	10.3	9.1	9	10.5	9.5	10	11.4	11.7	8.7	4.2	21.2	10.2	24
15	15	6.2	6.9	7.1	7.5	7.1	5.9	7.3	9.5	8.9	9.9	10.2	10.2	11	12	11.8	16.1	11.4	12.5	13	12.2	13.2	12.3	10.2	10.3	16.1	7.4	24
16	16	10	9.8	8.8	9.6	9	8.6	8.7	9.4	14.4	17.6	17.6	0.9	2.6	1.1	3.2	5.7	2.6	2.7	2.6	3.2	4.4	6.9	10.6	11.5	17.6	2.9	24
17	17	14.8	13.9	7.7	9.3	10.2	8	6.9	5.7	8.4	7.3	7.3	7.3	8.6	12.6	16.3	13.2	11	8.5	9.2	8.2	11.2	10.9	9.2	8.8	16.3	5.7	24
18	18	9.8	10	10.3	11.6	12.4	13.7	13.5	11.6	10.2	12.9	16.6	18.8	17.1	16.7	17.6	15.1	12.4	10.5	8.9	9.7	11.2	11.7	11.4	18.8	11.7	24	
19	19	12.3	9.9	7.9	10.4	6.8	5.5	6.5	9.9	10.7	10.2	10.2	19	23.2	20.4	17.4	19.7	22.2	22	22.7	20.5	17.6	15.8	14.4	15.6	23.2	13.5	24
20	20	14.4	17.5	20	22	23.6	19.6	18.6	15.3	15.8	15.6	17.6	16.4	13.2	9.7	7.9	3.9	11.8	12.8	10.7	11.8	9.4	8.6	7.4	8.2	23.6	8.8	24
21	21	10.5	10.4	13.2	12.1	13.2	9.6	10.7	8.7	10.3	9.2	6.4	4.1	2.9	1	4.7	7	4.5	3.1	3.5	4.2	5.6	7.4	11.7	14.7	14.7	4	24
22	22	13.1	14.8	12.8	11.9	10.3	9.5	6.6	3.1	2.9	2	3	5	4.4	4.5	6.8	8.2	8	6.1	6.4	5.1	7.8	7.9	13.2	15.5	15.5	7	24
23	23	16.9	15.6	16.1	15.7	14.3	5.8	8.1	12.2	11.6	12.1	13.4	16.2	19.9	22.7	27.2	25.6	25.7	22.4	19.3	16.2	15.3	18.7	20.8	21.2	27.2	11	24
24	24	19.2	17.7	16.4	10.2	8.3	5.3	7.8	6.7	8	5.5	2.8	3.3	4.1	5.4	5.7	5.9	7.2	4.9	11.4	12.7	16.6	9.4	12.3	12.4	19.2	4.1	24
25	25	8.6	4.1	4	5.9	7.3	8.8	9.7	13.7	12.1	9.8	11.5	12.7	10.5	11.1	9.3	9.9	7.9	8	8.7	12	13.3	10.8	12.1	13	13.7	8.1	24
26	26	14	13.1	15.8	17.7	25	6.3	6.7	20.1	24	20.9	15.6	14.8	12.3	11.5	11.1	7.6	6	8.5	8.9	8.5	7.4	5.4	5.2	5.8	25	5.4	24
27	27	7.4	6.3	6.7	11	12.1	9.1	5.1	4	6	6.8	6.6	9.9	11.8	9.8	9.9	13.4	17.7	16.3	13.9	15.1	13.1	13.6	10.2	10.4	17.7	5.6	24
28	28	13.2	11.3	8.8	4.2	13.5	12.2	11.5	11.8	12	6.9	13.7	11.8	8.5	9.9	10	8.8	9.1	8.2	5.6	5.6	5.4	7.6	5.1	5.2	13.7	6.6	24
29	29	12.1	9.9	10.8	12.4	14.5	12.6	7.7	4.8	6.4	0.7	11.7	13.5	9.9	8	9.7	7.7	9.4	12.4	12.4	13.2	14.4	11.3	9	8.9	14.5	2.5	24
30	30	13.1	9.8	9.7	5.8	6.5	11.2	9	15.4	14.5	9.9	0.5	5	3.8	6.3	10.6	8.4	13.3	3.9	6.7	10.2	11.1	9.2	10.2	13.1	15.4	3.9	24
31	31	14.7	12.5	16.3	18.3	17.9	17.8	18.8	15.2	14.3	19.4	7.3	8.6	10.3	11.8	14.8	14.6	9.9	9	10.1	9.5	7.4	7.7	8.6	6.3	19.4	10.3	24
HOURLY MAX		25.1	22.5	21.2	22.0	25.0	21.2	20.3	20.1	24.0	29.8	30.6	29.0	28.3	24.9	27.2	25.6	25.7	22.4	23.3	27.1	29.7	25.0	20.8	21.2			
HOURLY AVG		12.3	11.1	10.9	11.1	11.8	10.6	10.8	11.0	11.9	11.9	11.0	11.6	11.8	11.6	11.8	11.3	11.0	10.3	11.0	11.2	11.9	11.4	11.3	11.4			

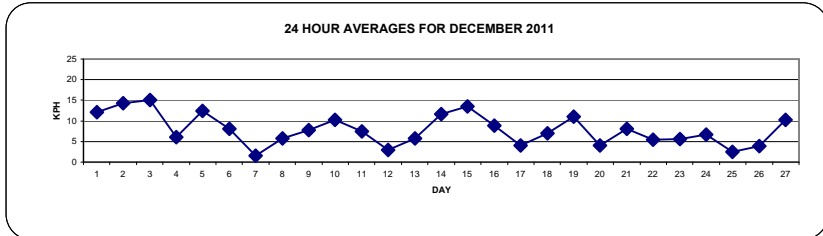
STATUS FLAG CODES

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

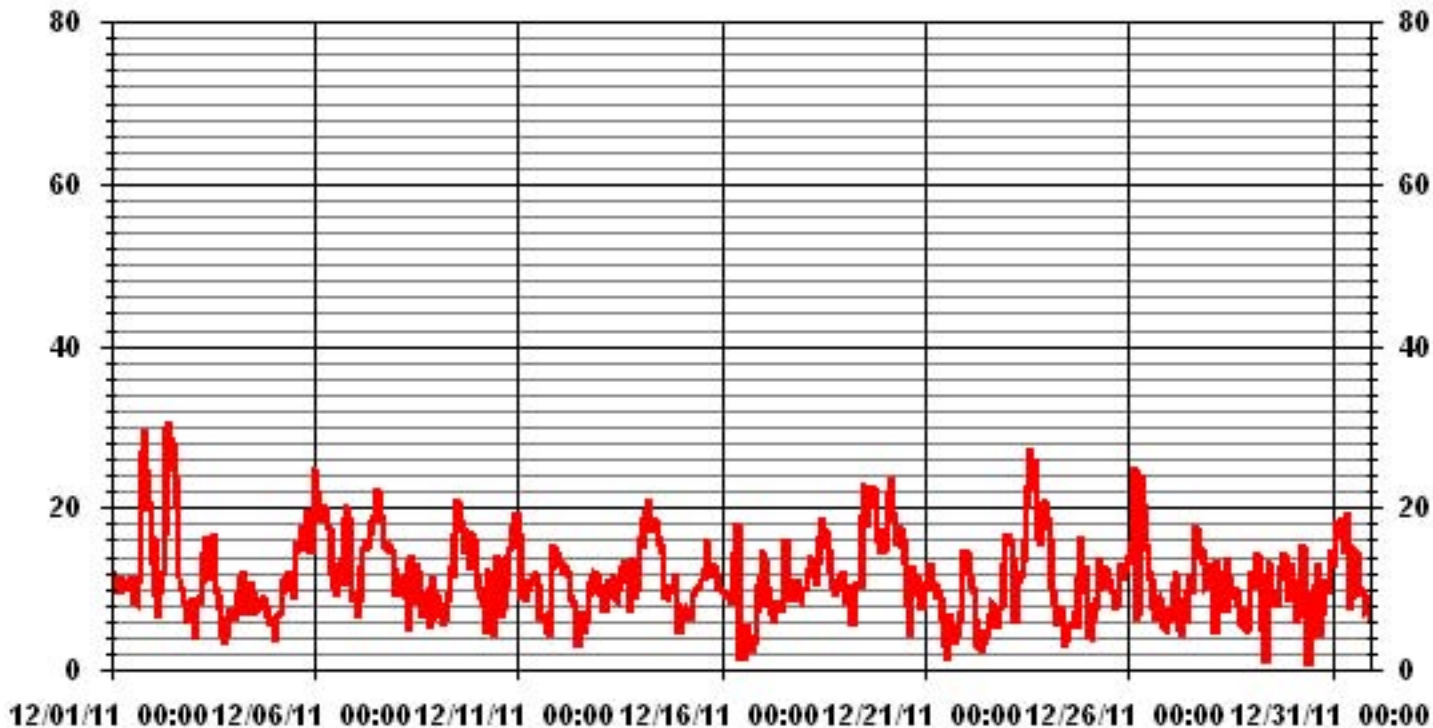
LAST CALIBRATION: June 17, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	30.6	KPH	@ HOUR(S)	10	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	15.1	KPH			ON DAY(S)	7
CALMS (≤ 0 KPH)	0.27	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	4.97		MONTHLY AVERAGE	11.34	KPH	



01 Hour Averages



— LICA31 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2011

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		26.7	18.8	16.4	20	13.4	14.9	14.2	20.4	17.1	16.9	16	16.5	20.8	19.7	17.7	22.3	25.6	29.1	48.8	58.4	59.1	55.6	55.6	57.1	59.1	
2		69.6	55.8	38.5	44	41.8	39.2	45.8	42.3	57.6	83	77.3	75.3	75.7	63	59.2	49	27.8	23	19.3	17.1	16.9	14.3	10.4	10.3	83	
3		13.2	16.4	17.6	18.6	18.9	17.3	14.1	19.5	19.5	19.1	25.2	27.6	31.5	39	37.2	29	22.3	21.2	19.7	42.8	20.6	17.8	18.4	20.9	42.8	
4		22.6	20.6	20.2	22.4	22.1	20.8	19.7	21.7	14.3	16.9	19.5	21.9	21.3	21	17.1	16.4	14	17.3	14.9	15.4	16	16.2	17.5	17.6	22.6	
5		16.2	39.6	19.7	17.3	18.6	24.8	22.1	20.9	22.6	24.3	23	22.6	20.4	25.8	25.4	25.2	25.2	31.6	22.6	27.6	26.7	29.6	23.2	34	39.6	
6		43.1	46.6	40.1	41	42.7	43.8	53	51.4	45.1	62.4	47.3	36.3	37.9	29.1	37.4	29	23.2	39.4	46.4	48.4	44	34.6	25	21.5	62.4	
7		21.7	13.4	15.6	31.8	37	40.5	31.3	33.5	33.8	40.5	42.9	49.1	54.3	53.9	55.4	48.2	49.3	35.3	33.1	34.6	37.9	32.7	34	25	55.4	
8		24.1	19.7	21.5	23.7	24.3	20.9	20.6	20.2	15.4	15.8	33.5	27.2	24.3	27.8	20.8	14	13.6	14.9	16	16.7	24.3	21	20.6	22.1	33.5	
9		21.7	18.9	18.9	20.6	18.9	33.1	19.5	19.6	21.5	17.3	16	23.4	29.6	28.5	28.9	24.8	22.6	21.5	20.6	16.9	19.1	22.1	24.5	18.2	33.1	
10		20.6	15.1	13.9	13.6	21.5	19.5	19.3	17.7	18.2	16.9	18.2	21	22.8	18	15.3	15.1	14.2	16	25.6	26.9	28.3	38.1	42.5	40.3	42.5	
11		48.8	39.9	32	19.1	21.5	21.9	21.9	22.4	21	22.3	22.6	21	22.3	23	21.9	25.2	23.7	14.7	14.7	25	22.1	30.2	22.6	23.9	48.8	
12		23.7	23	22.8	20.9	23.9	22.8	21.3	19.7	20.8	19.3	23	22.4	39.4	28	24.5	26.3	23.7	28	25.8	29.4	55.2	32.7	37.5	26.1	55.2	
13		26.3	25.8	22.6	16	18.2	15	16.7	14	16.3	22.6	20.6	16.2	17.1	21.3	20.4	22.6	20.2	20.2	20.6	18.2	22.8	19.5	18.2	21.7	26.3	
14		29.8	34.2	38.1	43.8	41.2	53.2	37.2	37.2	37.9	41.4	40.1	37.7	33.1	34.8	30.9	20.4	20.8	21.9	21	20.6	22.6	24.1	31.6	19.9	53.2	
15		16.2	15.4	16	17.1	18.4	16	20.4	19.5	18.2	19.1	20.2	21.9	22.1	21.9	20.8	25.4	26.5	26.5	15.6	15.1	21.7	16.4	18.6	18.9	26.5	
16		17.1	18.2	18	21	18.2	17.5	18.4	19.1	27.6	28.7	34	25	25	29.6	13.8	12.5	12.9	14	10.5	11.4	9.9	11.4	17.3	15.3	34	
17		19.1	16.4	23.4	18.2	19.3	16	15.3	18	16.7	16.9	17.7	16.7	17.5	21.5	25.5	23.9	24.1	15.8	20.8	16.9	21.5	20.6	19.1	19.5	25.5	
18		20.6	20.2	20.2	24.1	23.9	27.2	27.2	25.8	22.1	27.2	32.9	37.2	34.6	34.8	37	33.7	23.9	21.7	18	15.6	14.2	15.6	17.5	17.1	37.2	
19		19.7	21.7	16.9	26.7	19.7	21.5	23.2	28.3	31.4	24.5	28	37.2	41.2	40.3	32.4	32.6	36.8	42	41.6	34.2	29.1	23.9	25.6	21.9	42	
20		22.4	35.9	37.7	44.2	40.3	35.7	27.8	34.4	30.2	30.2	33.1	36.4	29.6	24.1	19.9	28.3	20.9	20.6	19.9	21.7	20.8	19.1	17.5	19.5	44.2	
21		20.2	18	22.1	20.4	22.3	20.2	21.5	16	17.8	18.6	33.5	23	24.5	16.7	16.2	22.6	16.5	16	12.7	11.6	11.4	11.2	18.2	23.2	33.5	
22		18	20.6	24.3	18	18.2	16.7	16.5	12.9	11	11.2	11.8	12.7	13.2	19.1	17.5	17.1	18.4	12.5	16.2	14.9	14	15.1	22.8	24.8	24.8	
23		25.2	20.9	22.1	29.1	33.5	22.8	20.6	24.5	16.2	17.3	19.5	26.7	36.8	38.8	51	46.6	44.7	46.2	33.7	26.5	28	30.9	32	36.3	51	
24		52.8	39.4	26.9	57.6	43.8	22.1	27.8	21.9	37.7	40.1	39.4	39.2	42.9	37	36	20.6	14	11.6	24.3	18	25	24.1	27.6	27.6	57.6	
25		27.4	15.3	17.3	16.9	15.8	16.9	21.9	24.5	18.4	15.8	25	20.4	16.6	19.3	16.4	14.5	21.5	17.1	14	18.8	20.4	21.2	44.1	21	44.1	
26		30.7	22.5	39	37.4	48.8	40.1	36.8	59.3	63.3	53.7	41.4	33.5	21	18.9	21.1	25.2	9.4	18.6	14.3	16.2	16.9	16	13.8	14.7	63.3	
27		15.1	15.3	17.1	19.5	20.2	21.2	20.8	21.5	19.1	17.8	17.3	19.7	19.3	19.5	23.4	27.8	44.2	33.1	26.8	30.2	30	26.3	28.9	16.7	44.2	
28		19.3	17.1	12.9	17.8	18.2	20.2	20.4	20.2	21.5	21.3	21.9	17.8	17.8	18.4	16.9	19.5	18.6	18.4	17.1	16.9	16.1	17.5	15.8	16.7	21.9	
29		19.3	19.1	21.3	22.6	26.7	23.7	30.7	25	19.3	21.3	18.4	21.2	17.7	16.4	13.4	11.6	15.8	22.8	21.9	23.2	28	18.6	13.2	13.4	30.7	
30		18.8	16.4	14.2	15.6	25.4	19.9	18.8	22.4	23.2	28.5	17.1	18.6	15	16.7	16.7	16	21.5	30	15.4	19.7	21	22.6	21.2	29.2	30	
31		35.9	25.4	35.3	38.5	39.6	39.4	47.1	34	28.7	46.9	56.7	41	47.3	48	50.1	47.7	43.4	36.8	35.5	28.5	23.4	26.5	26.7	16.3	56.7	
PEAK		69.6	55.8	40.1	57.6	48.8	53.2	53.0	59.3	63.3	83.0	77.3	75.3	75.7	63.0	59.2	49.0	49.3	46.2	48.8	58.4	59.1	55.6	55.6	57.1		

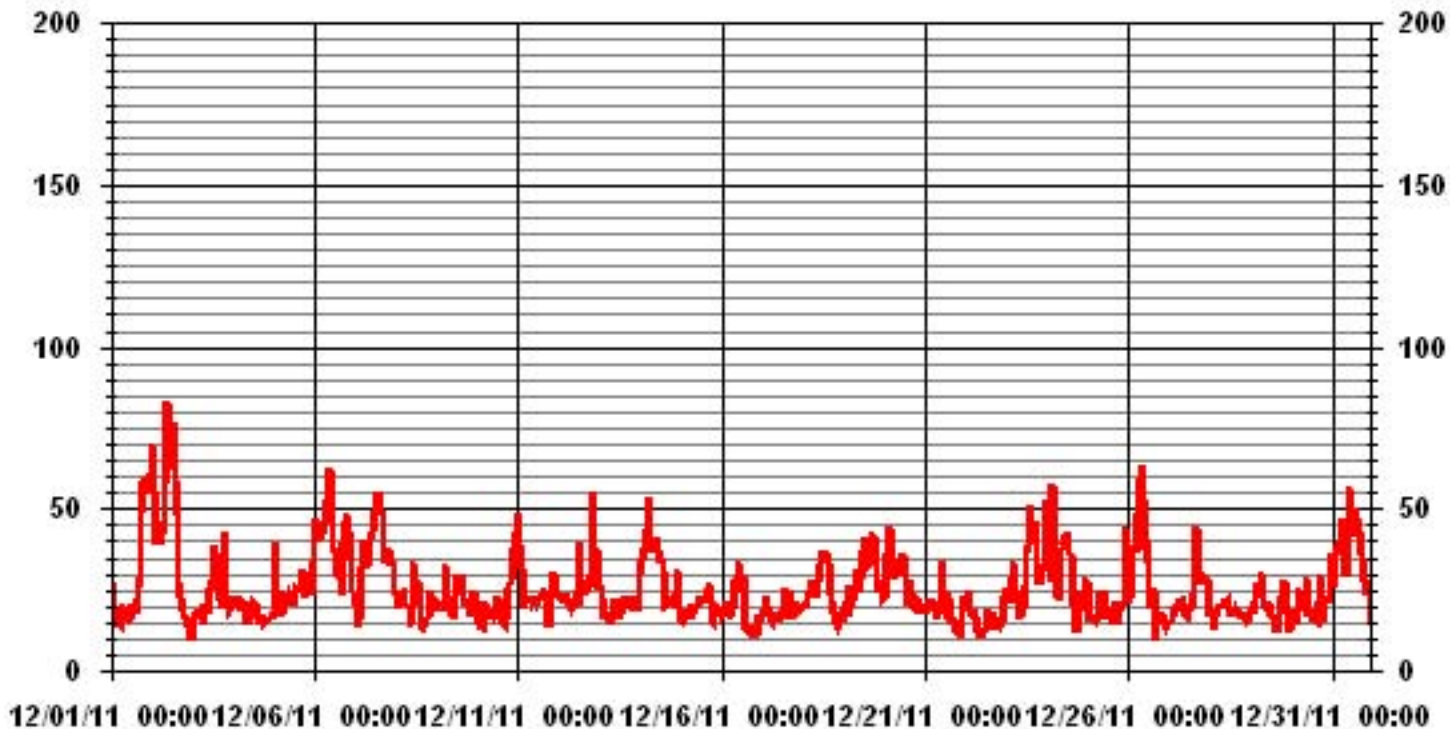
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	83	KPH	@ HOUR(S)	9
			ON DAY(S)	2

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

December 2011

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	.67	.67	.26	1.07	.26	.67	1.20	.53	.53	.40	.67	.53	.67	.67	1.07	1.47	11.42
< 12.0	4.83	2.55	1.34	1.20	1.07	1.34	1.20	1.34	1.61	1.88	4.30	4.43	4.43	7.52	6.18	5.51	50.80
< 20.0	2.55	.53	.67	.26	.26	.67	.94	.40	.40	.53	1.20	4.30	3.62	6.72	7.12	1.61	31.85
< 29.0	.94	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40	1.34	2.15	.26	.00	5.10
< 39.0	.40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.53
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	9.40	3.76	2.28	2.55	1.61	2.68	3.36	2.28	2.55	2.82	6.18	9.67	10.08	17.20	14.65	8.60	

Calm : .26 %

Total # Operational Hours : 744

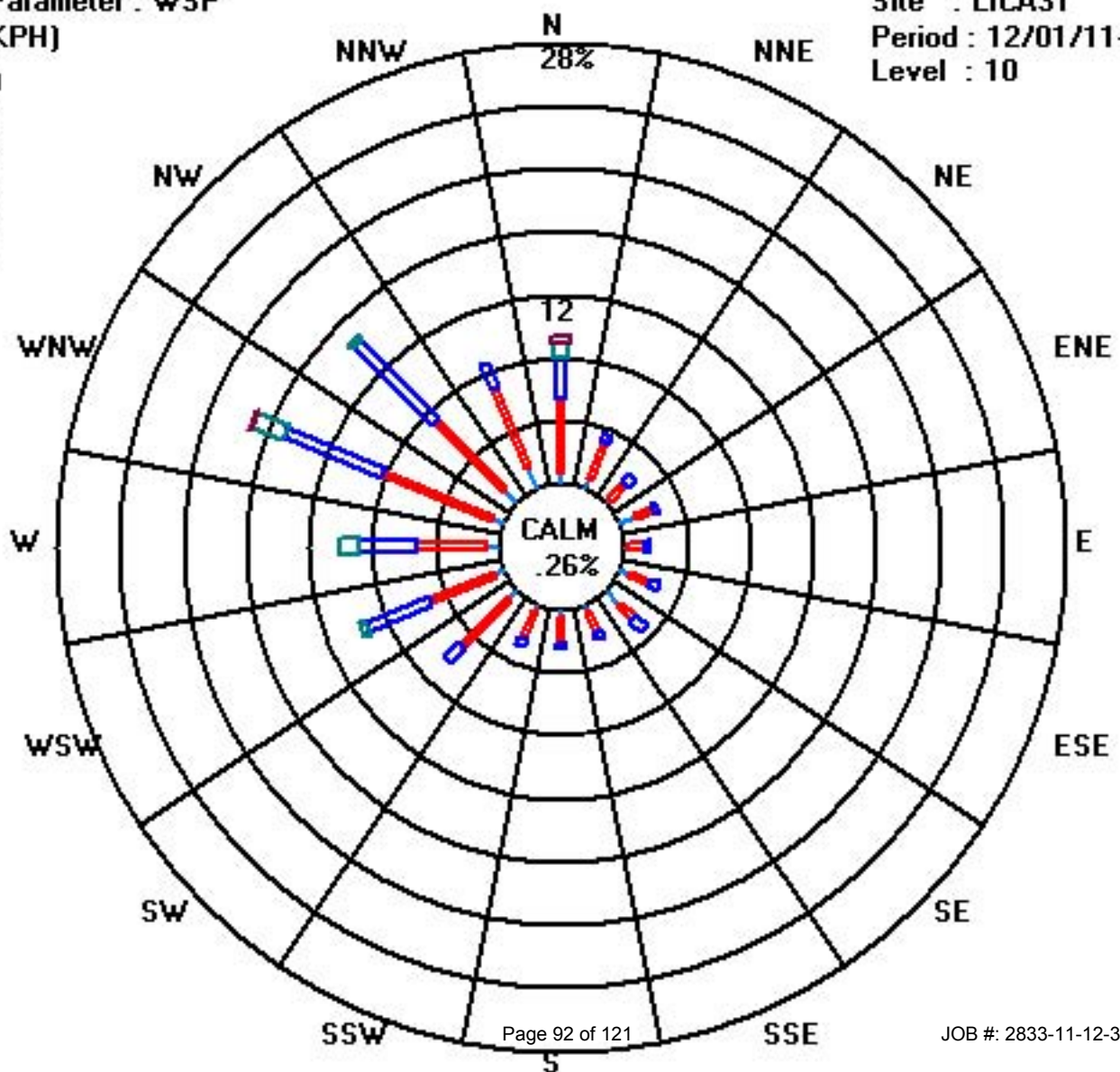
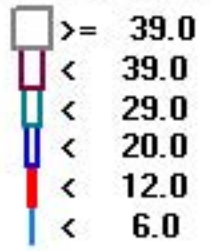
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	5	5	2	8	2	5	9	4	4	3	5	4	5	5	8	11	85
< 12.0	36	19	10	9	8	10	9	10	12	14	32	33	33	56	46	41	378
< 20.0	19	4	5	2	2	5	7	3	3	4	9	32	27	50	53	12	237
< 29.0	7											3	10	16	2		38
< 39.0	3														1		4
>= 39.0																	
Totals	70	28	17	19	12	20	25	17	19	21	46	72	75	128	109	64	

Calm : .26 %

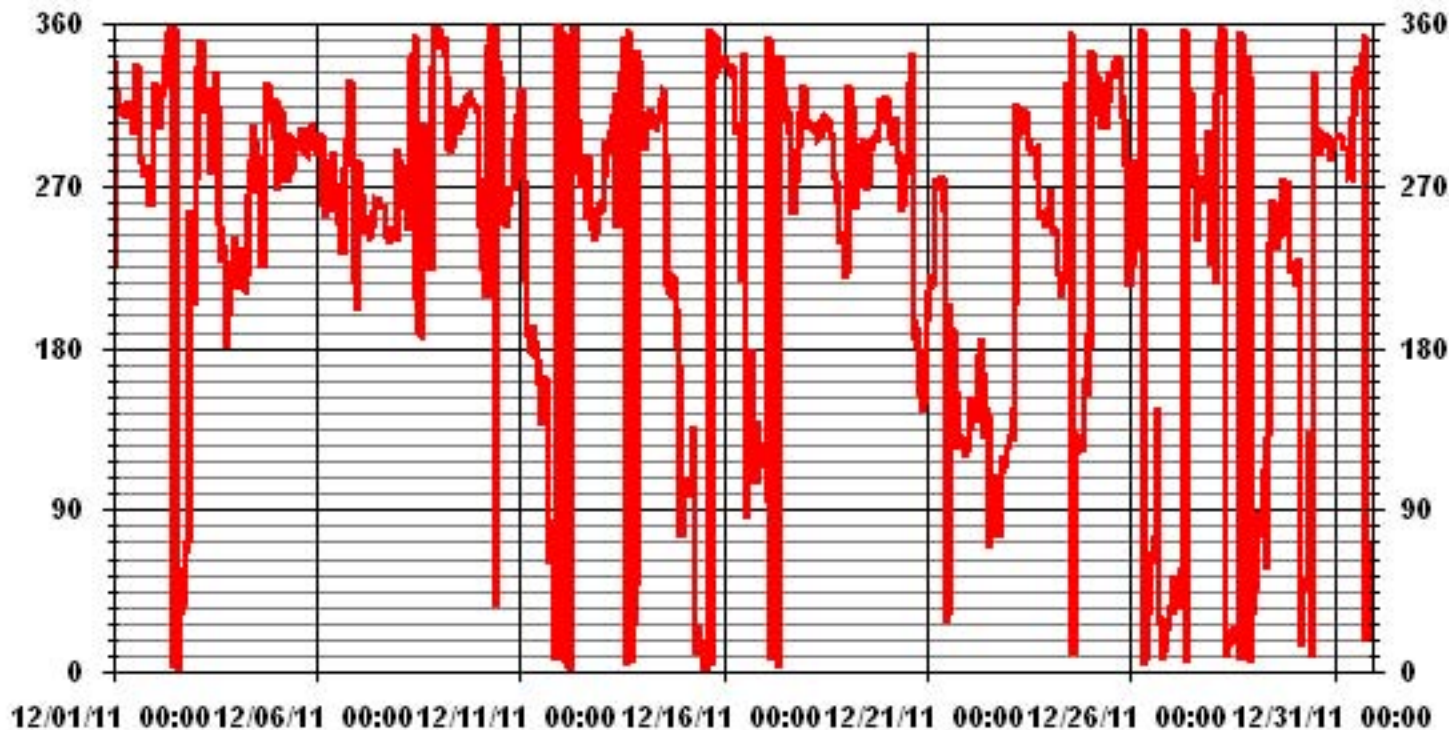
Total # Operational Hours : 744

Class Limits (KPH)



Vector Wind Direction

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2011

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
DAY																									
1	33	10	12	7	8	7	8	5	5	8	9	11	12	19	18	22	22	20	13	10	14	30	34	26	
2	44	34	52	64	55	51	43	38	34	22	18	18	18	24	20	18	21	22	14	16	13	43	4	5	
3	6	21	15	28	32	11	6	3	4	12	11	13	13	14	37	32	36	63	51	75	59	41	34	39	
4	40	48	45	23	17	15	14	21	15	15	15	14	16	18	18	14	8	23	12	18	24	29	39	42	
5	34	65	36	30	26	19	17	13	16	15	17	20	26	10	9	8	6	9	7	5	6	7	7	13	
6	10	10	21	26	38	31	26	21	20	28	36	40	29	31	25	17	20	13	15	14	13	34	31	23	
7	24	10	8	25	19	20	20	21	19	20	21	19	21	20	19	21	19	18	18	21	19	18	19	23	
8	14	12	12	9	10	5	5	39	3	2	31	38	14	15	18	13	11	9	10	32	39	19	11	16	
9	24	40	39	41	51	45	25	18	12	6	8	6	8	10	10	13	4	4	12	4	4	7	23	4	
10	14	7	6	6	10	13	15	25	16	23	43	8	24	18	19	9	5	5	8	12	12	14	14	13	
11	13	13	25	21	39	32	23	22	14	14	19	11	27	38	27	58	27	10	12	35	32	10	14	13	
12	8	7	9	13	9	11	13	22	25	35	65	65	72	58	36	64	41	48	32	28	29	31	26	28	
13	27	25	20	25	16	13	8	9	5	15	35	11	13	14	6	12	18	13	43	16	13	18	19	22	
14	21	14	14	14	14	13	14	14	14	14	14	14	14	14	21	29	30	20	25	22	16	15	57	18	
15	12	12	10	9	12	17	18	23	16	15	14	16	21	17	14	16	27	40	4	3	9	5	10	9	
16	10	11	15	15	17	19	22	19	11	13	19	87	83	86	58	23	59	58	54	43	19	10	6	4	
17	3	2	38	25	19	23	31	37	26	30	27	27	19	12	11	44	34	11	13	11	13	12	12	13	
18	12	13	12	12	12	12	12	12	13	14	13	13	14	14	13	14	13	12	10	8	5	4	5	6	
19	5	41	20	18	35	37	35	27	21	21	23	11	10	11	9	10	12	12	15	13	9	11	10	9	
20	9	23	22	16	15	27	16	41	30	10	9	14	15	16	14	51	21	8	14	19	22	21	28	38	
21	20	15	19	12	22	20	10	10	11	13	28	62	77	87	42	25	41	48	37	29	18	11	6	10	
22	6	7	12	10	11	14	20	46	51	65	54	24	32	48	32	24	14	17	25	36	13	13	7	25	
23	11	7	8	35	60	37	28	12	6	7	4	8	14	13	14	14	13	15	8	7	8	8	8	7	
24	9	13	7	41	40	46	27	32	29	41	76	83	77	62	55	37	17	25	20	4	19	50	39	49	
25	24	44	51	37	20	16	13	10	8	10	11	8	11	12	9	8	16	15	11	5	41	33	21	34	
26	12	24	15	12	10	58	62	28	19	23	28	23	14	14	13	42	10	38	12	31	33	36	33	29	
27	18	26	27	15	11	21	38	48	35	40	34	15	26	15	14	9	12	14	10	11	13	12	15	6	
28	8	5	4	41	4	8	17	20	33	45	5	12	23	26	14	25	28	38	49	45	38	31	44	46	
29	15	15	17	6	9	10	40	60	18	48	7	8	10	10	5	8	5	7	11	10	10	6	7	6	
30	5	7	5	24	38	11	15	9	30	36	72	46	49	32	8	16	10	62	12	12	12	16	14	14	
31	15	15	15	15	15	16	16	15	13	15	61	53	46	43	34	35	41	44	39	30	35	33	25	25	

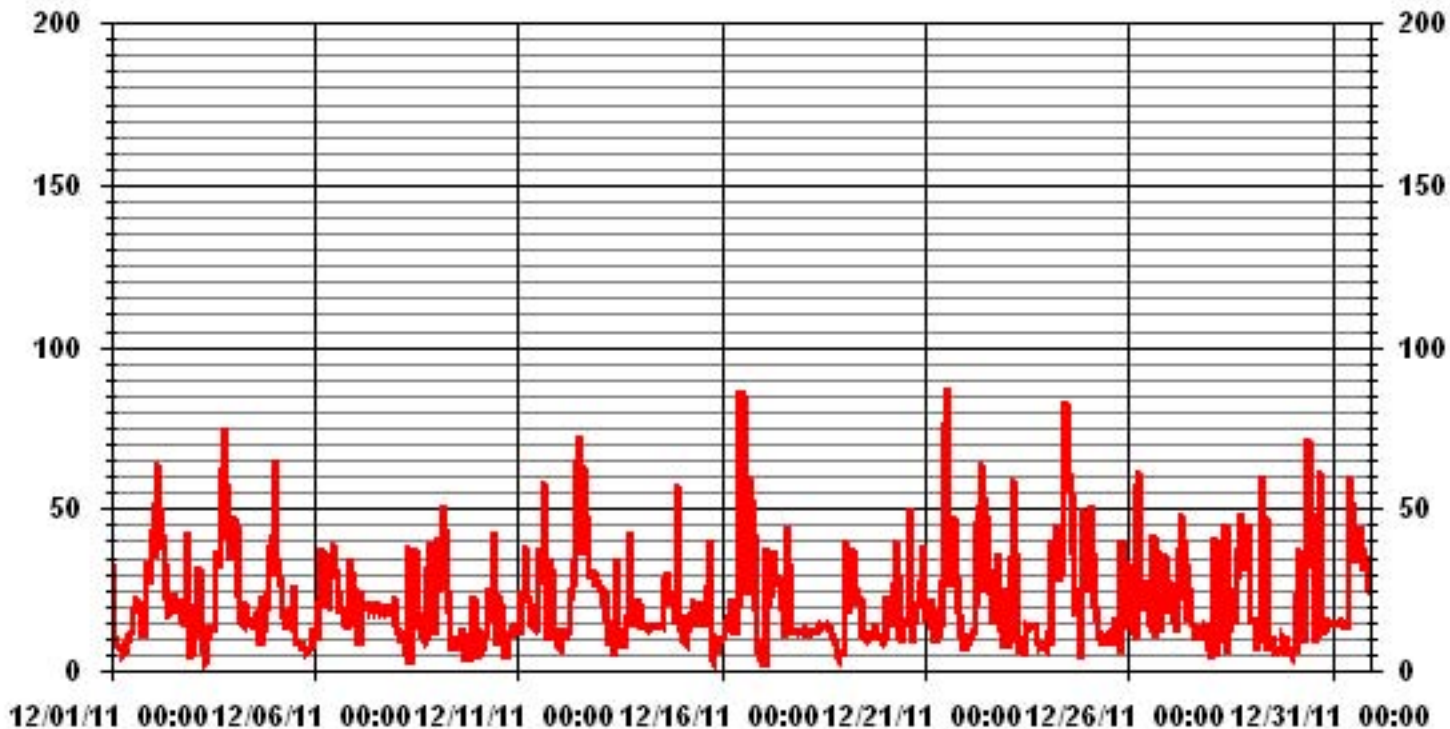
STATUS FLAG CODES

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: June 17, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	December 14, 2011	Previous Calibration	November 16, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	12:01	End Time (MST)	15:33
Reason:	Monthly Calibration		
Barometric Pressure	925 mBar	Station Temperature	20 Deg C
Cal Gas	48.3 ppm	Gas Cyl. #	LL103831
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 28, 2013
		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	531 ccm, 28.8 Deg C	535 ccm, 28.3 Deg C	
HVPS / Lamp Setting	540, 2357	540, 2351	
PMT / RxCell Temp	7.8 Deg C, 50 Deg C	7.9 Deg C, 50 Deg C	
Converter / IZS Temp	NA Deg C, 40 Deg C	NA Deg C, 40.0 Deg C	
Offset / Slope	78.4, 1.024	78.4, 1.038	

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.			
4919	77.6	750	737	1.0178
4919	77.6	750	749	1.0015
4954	41.4	400	402	0.9958
4981	17.6	170	170	1.0000
4997	0	0	0	N/A
		Sum of Least Squares		1.0124
		New Correction Factor		1.0015

Before Calibration

After Calibration

Auto Zero	1.1	0.4
Auto Span	273.0	271.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0178
Percent Change:	-1.7%

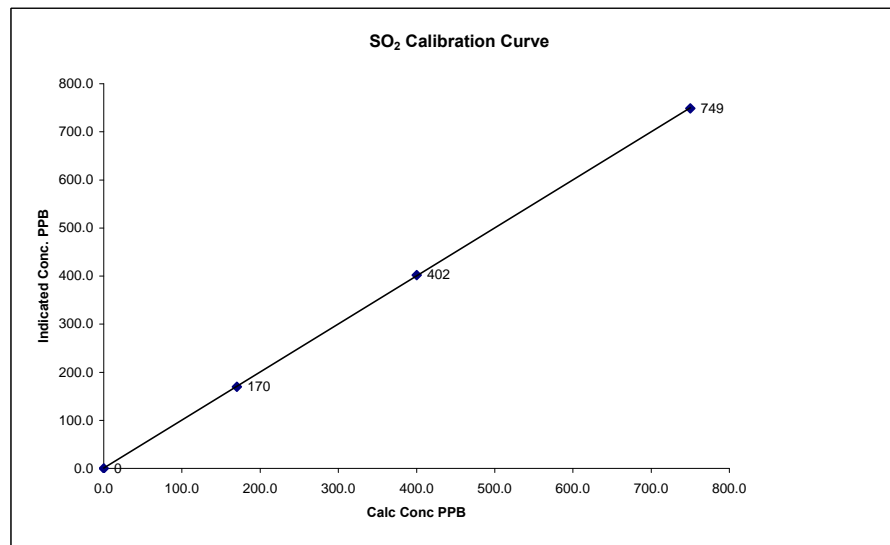
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

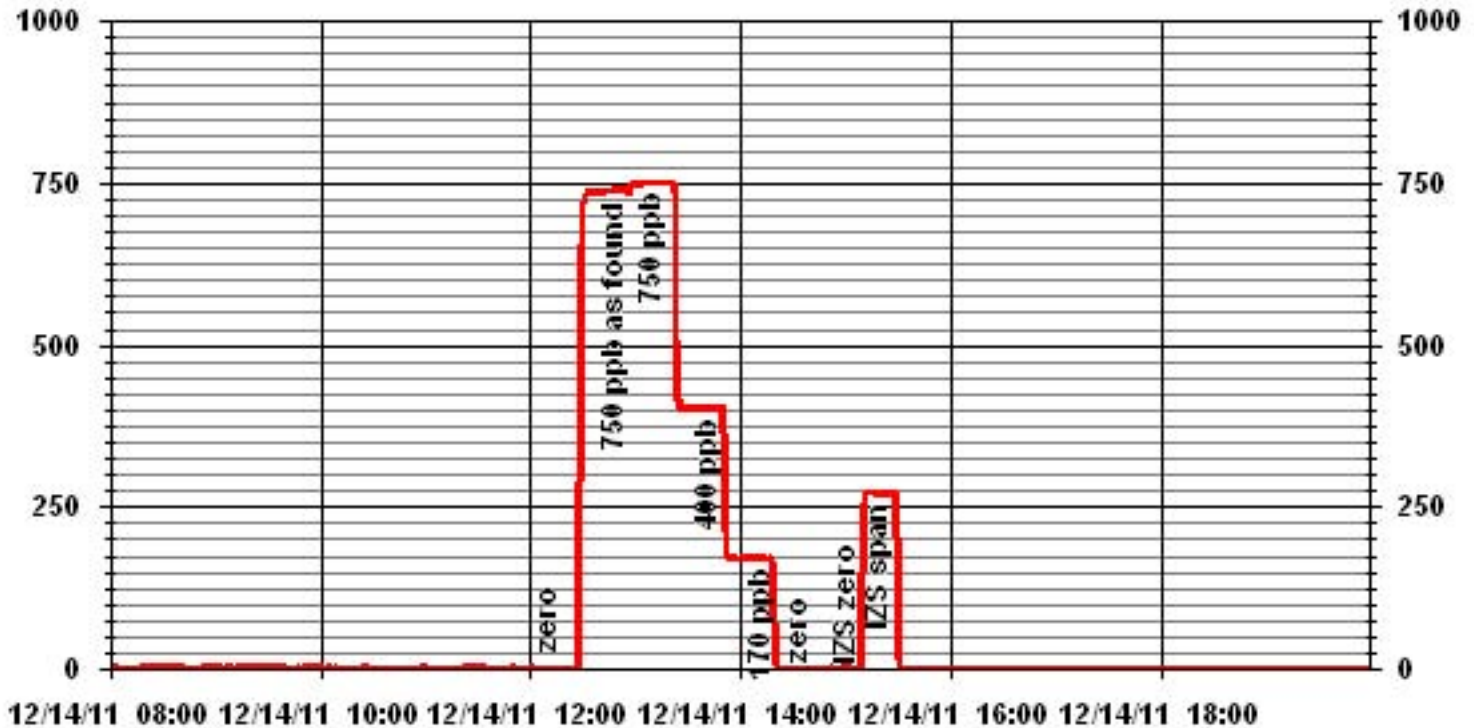
Calibration Date	December 14, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	12:01
End Time (MST)	15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999988
170	170	1.0004		0.998914
400	402	0.9958		0.487860
750	749	1.0015		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	December 13, 2011	Previous Calibration	November 25, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	11:32	End Time (MST)	15:31
Reason:	Monthly Calibration		
Barometric Pressure	921 mmHg	Station Temperature	22 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	bim000804
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 2, 2012
		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 :	A0717		
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			
Sample Flow / Box Temp	537 ccm	30.7 Deg C	535 ccm	31.5 Deg C
HV/PS / Lamp Setting	518	2470	518	2467
PMT / RxCell Temp	8.4 Deg C	50 Deg C	8.4 Deg C	50 Deg C
Converter / IZS Temp	314.7 Deg C	45 Deg C	314.4 Deg C	45.0 Deg C
Offset / Slope	70	1.04	73.4	1.037

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	2	NA
4996	0	0	0	1.0000
4959	39.2	80	82	0.9756
4959	39.2	80	80	1.0000
4980	19.6	40	40	1.0000
4986	11.2	23	24	0.9525
4996	0	0	0	NA
Sum of Least Squares				0.9969
New Correction Factor				1.0000

	Before Calibration	After Calibration
Auto Zero	2.0	0.5
Auto Span	41.4	39.9
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9756
Current Correction Factor Before Span Adjust:	0.9756
Percent Change:	0.0%

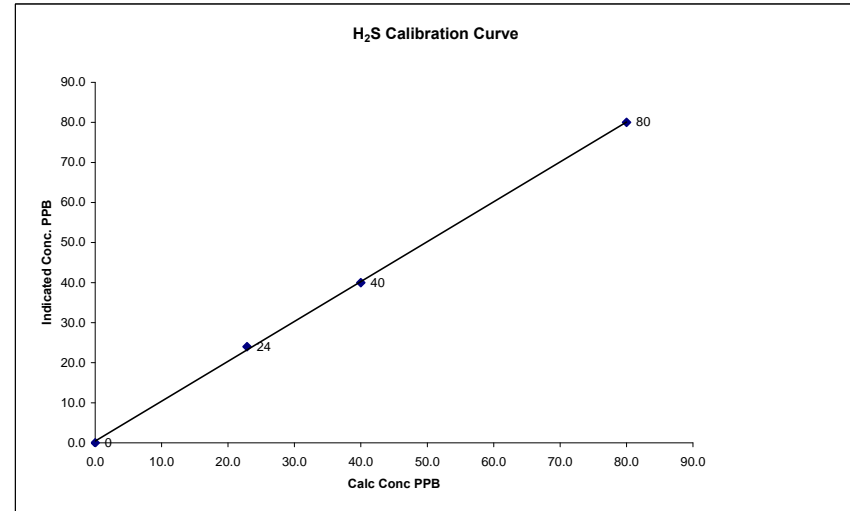
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

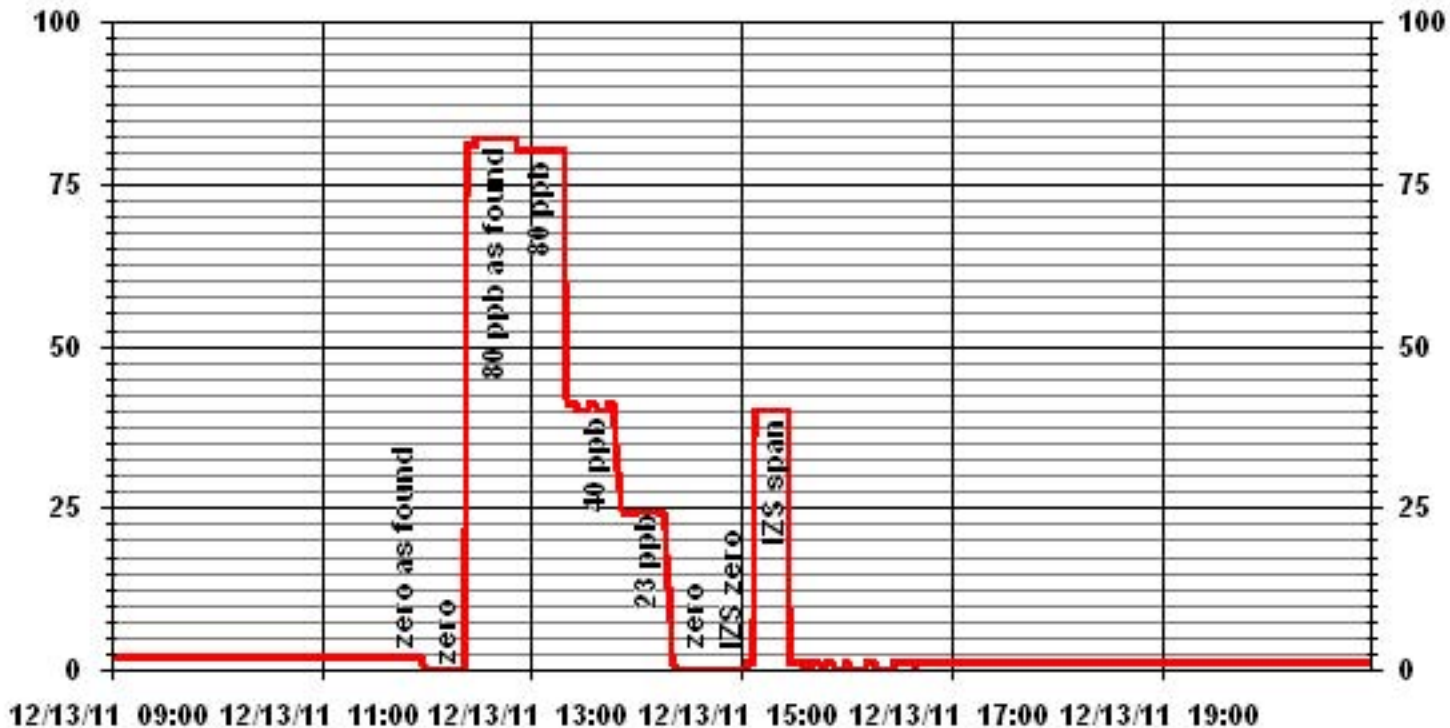
Calibration Date	December 13, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	11:32
End Time (MST)	15:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999734
0	0		Intercept	(± 3% F.S.)	0.439612
23	24	0.9525			
40	40	0.9997			0.995777
80	80	1.0000			



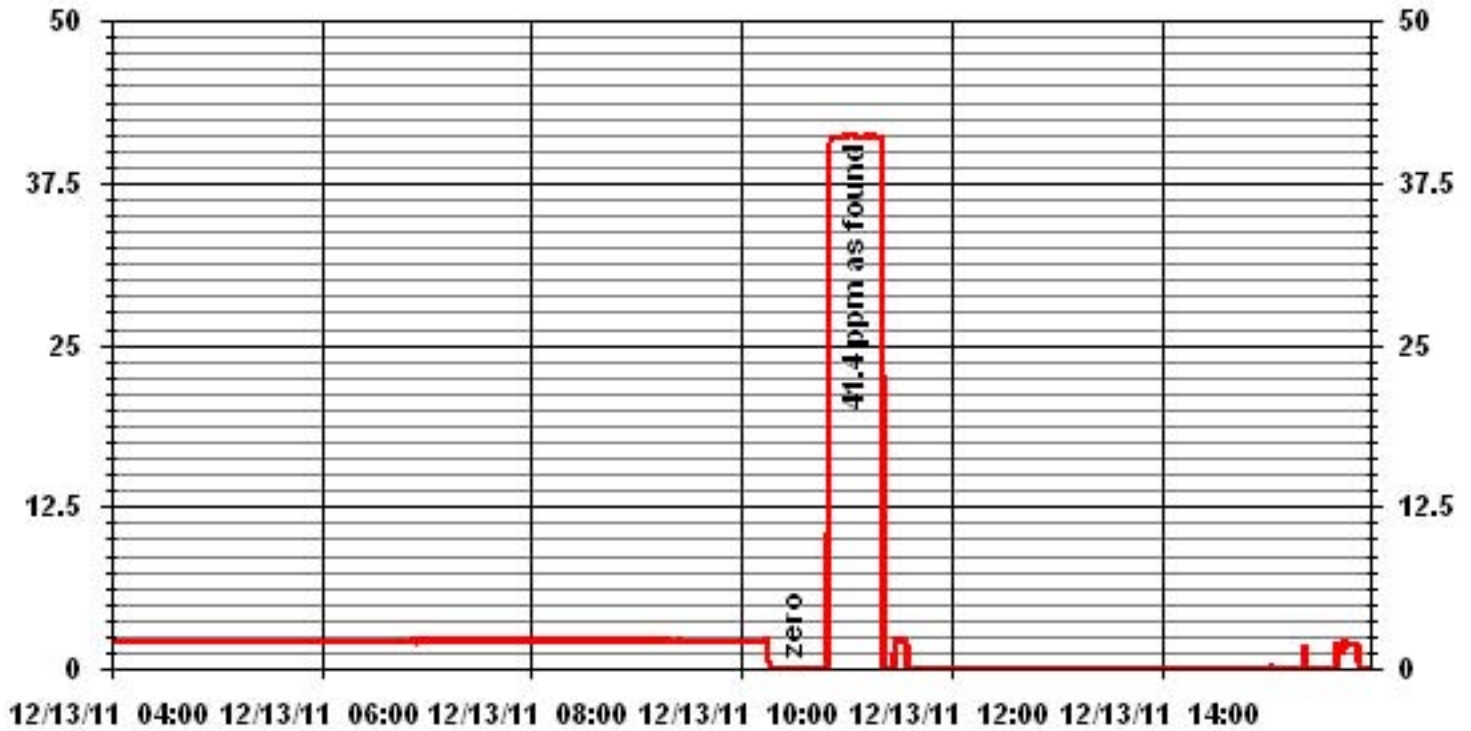
Notes:

01 Minute Averages



Total Hydrocarbons

01 Minute Averages



THC Calibration Report

Station Information			
Calibration Date:	December 14, 2011	Previous Calibration	December 13, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	9:19	End Time (MST)	12:42
Reason:	Monthly Calibration		
Barometric Pressure:	924 mmHg	Station Temperature:	20 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 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	6.9	psi	6.9	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	21	psi	21	psi

Calibration Data				
Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
3000	0.0	0.0	0.0	NA
	No Zero Adj.			
3000	70.0	41.4	41.7	0.9930
	No Span Adj.			
3000	35.0	20.9	20.9	1.0000
3000	20.0	12.0	12.0	1.0000
3000	0.0	0.0	0.0	NA
New Correction Factor:				0.9930

Percent Change	
Previous Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	0.9930
Percent Change:	#VALUE!

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	-1.8	0.0
Auto Span	34.4	35.6
Sample Lines Connected	YES	

Cylinder Pressures			
Span	2000 psi	Hydrogen	750 psi
Zero Air	34 psi		

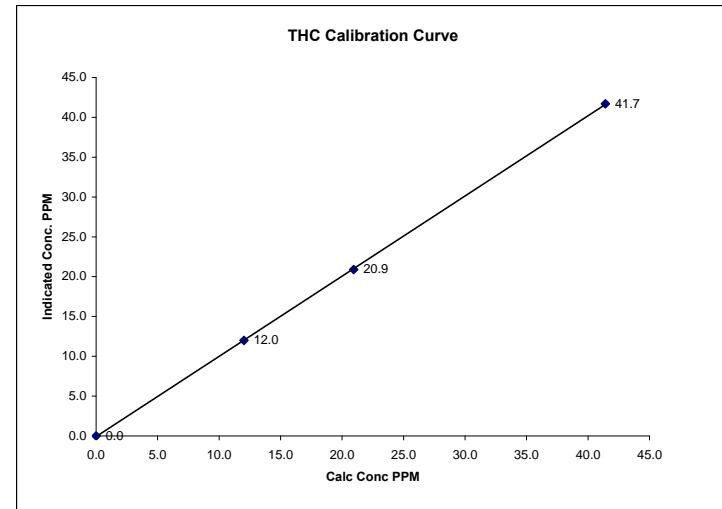
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

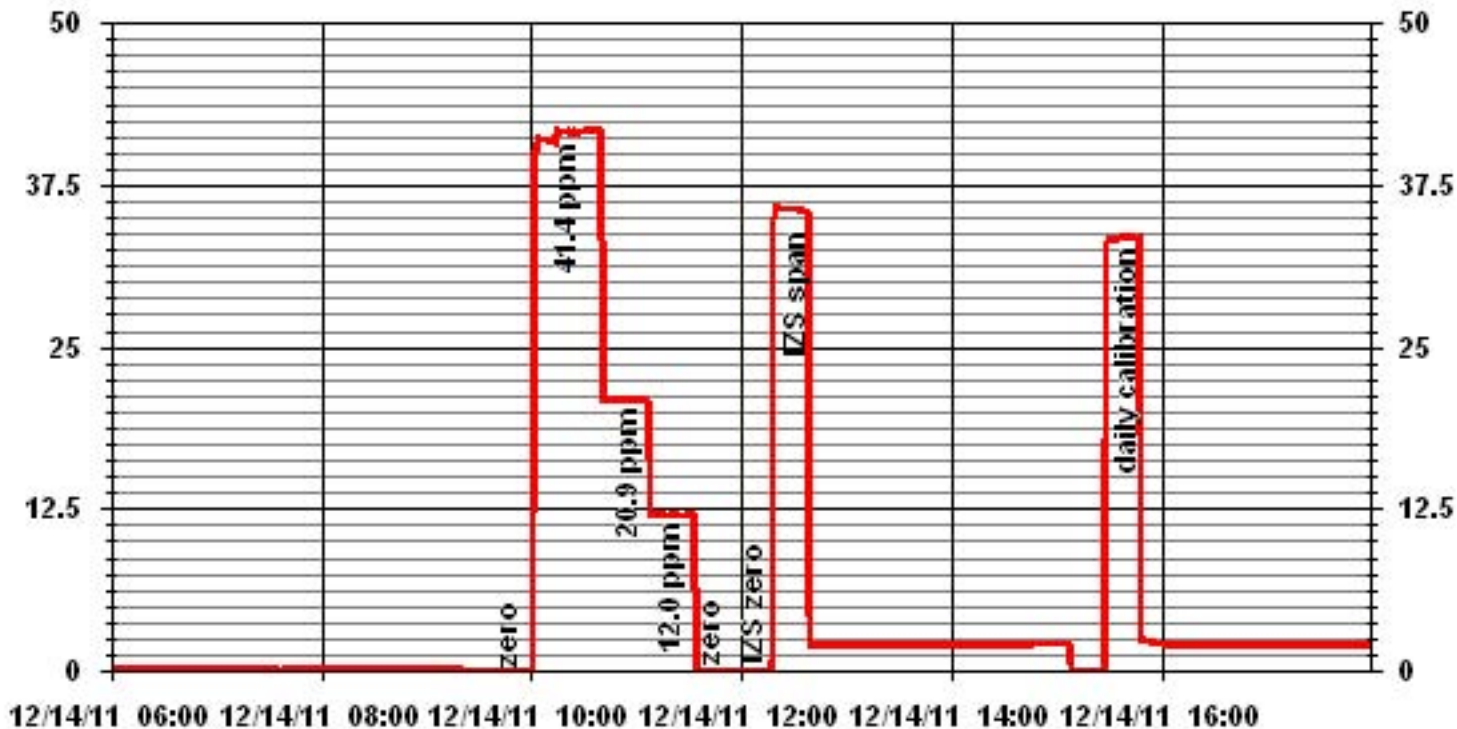
Calibration Date	December 14, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	9:19	End Time (MST)	12:42

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.999972	1.007384
12.0	12.0	1.0022		-0.08130
20.9	20.9	1.0020		
41.4	41.7	0.9930		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	December 13, 2011	Previous Calibration	November 8, 2011
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	12:05	End Time (MST)	18:47
Reason:	Monthly Calibration		
Barometric Pressure	921 mmHg	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 49.7 ppm	NO 49.4 ppm	Cal Gas Expiry date February 28, 2013
Cal Gas Cylinder #	LL103831	MFCF	1
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:	Envionics 6100	S/N :	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	Envionics 6100	S/N :	4760		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow/Conv. Temp	474 ccm 316.5 Deg C	473 ccm 315 Deg C	
Ozone Flow / Vacuum	73 ccm 5.7 Hg-A	72 ccm 4.1 Hg-A	
HVPS / A ZERO	662 Volts 18.9 MV	662 Volts 19.1 MV	
Rx/ Temp / PMT Temp	50.0 Deg C 6.8 Deg C	50.0 Deg C 6.9 Deg C	
Box Temp / IZS Temp	27.3 Deg C 45.0 Deg C	29.3 Deg C 45.3 Deg C	
Offset	0.9 NOx 0.5 NO	0.9 NOx 0.5 NO	
Slope	1.111 NOx 1.096 NO	1.282 NOx 1.264 NO	
NO2 COEF / Conv Efficiency	NA NO2 0.993	NA NO2 0.993	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	0	0	1	NA	NA
	No Zero Adj.									
4921	75.7	NA	753	748	NA	754	748	1	0.9986	1.0000
	No Span Adj.									
4960	35.3	NA	351	349	NA	351	349	3	1.0000	1.0000
4977	17.2	NA	171	170	NA	172	170	2	0.9952	1.0000
4994	0.0	NA	0	0	NA	0	1	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4920	75.7	NA	753	749	NA	755	750	6	NA	NA
4920	75.7	600	753	NA	549	756	207	549	1.0018	100.00%
	No Span Adj.									
4920	75.7	300	753	NA	280	756	476	280	1.0036	100.00%
4920	75.7	120	753	NA	118	756	638	119	1.0000	100.89%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.999	NO= 1.001	NO2=
				NOx= 0.9986	NO= 1.0000	NO2=
				Average Converter Efficiency=		

Before Calibration		After Calibration	
Auto Zero	1.2 NOx 1.1 NO2	- NOx - NO2	
Auto Span	794 NOx 761 NO2	- NOx - NO2	
Sample Lines Connected		YES	
Percent Change from Previous Calibration		NOx 0.2%	NO 0.1% NO2 -0.2%

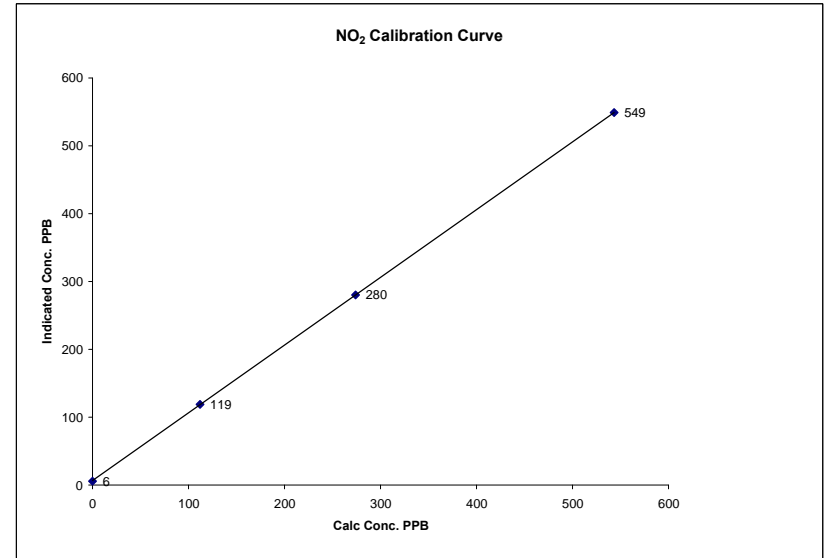
Notes: **NA : Not Applicable**
Additional GPT was done for O3 clibration. O3 set point 450, NO=340, NO2=416, NOx=757

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	December 13, 2011	Company	LICA
Plant / Location	St. Lina	Start Time (MST)	12:05
End Time (MST)	18:47		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999996
0	6	N/A	Intercept	(± 3% F.S.)	6.41753
112	119	0.9412			
274	280	0.9786			
543	549	0.9891			

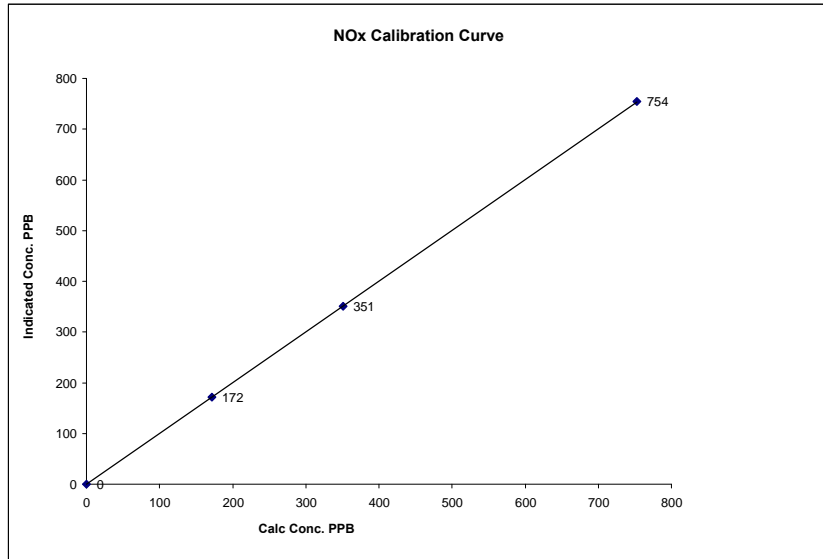


Notes:

NOx Calibration Curve

Calibration Date	December 13, 2011	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	12:05	End Time (MST) 18:47

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	N/A	Slope (0.85 to 1.15)	1.001034
171	172	0.9952	Intercept (± 3% F.S.)	0.08679
351	351	1.0006		
753	754	0.9986		

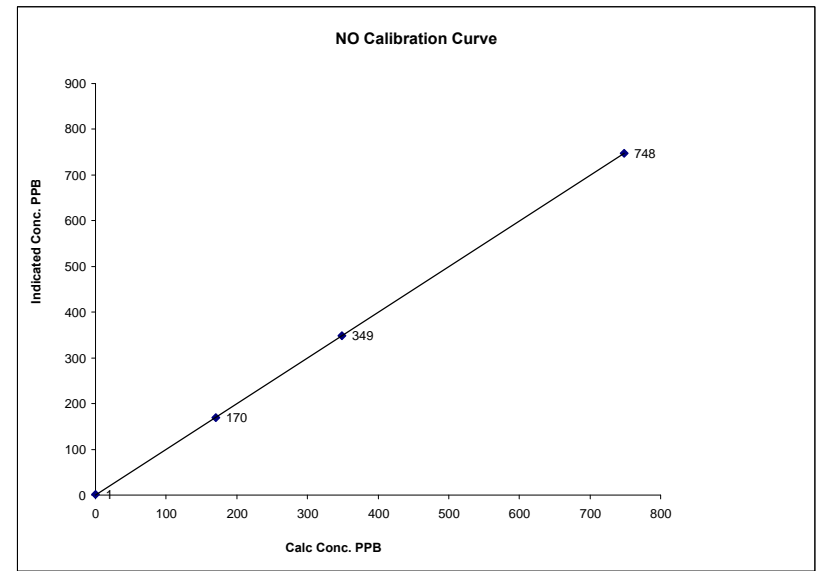


Notes:

NO Calibration Curve

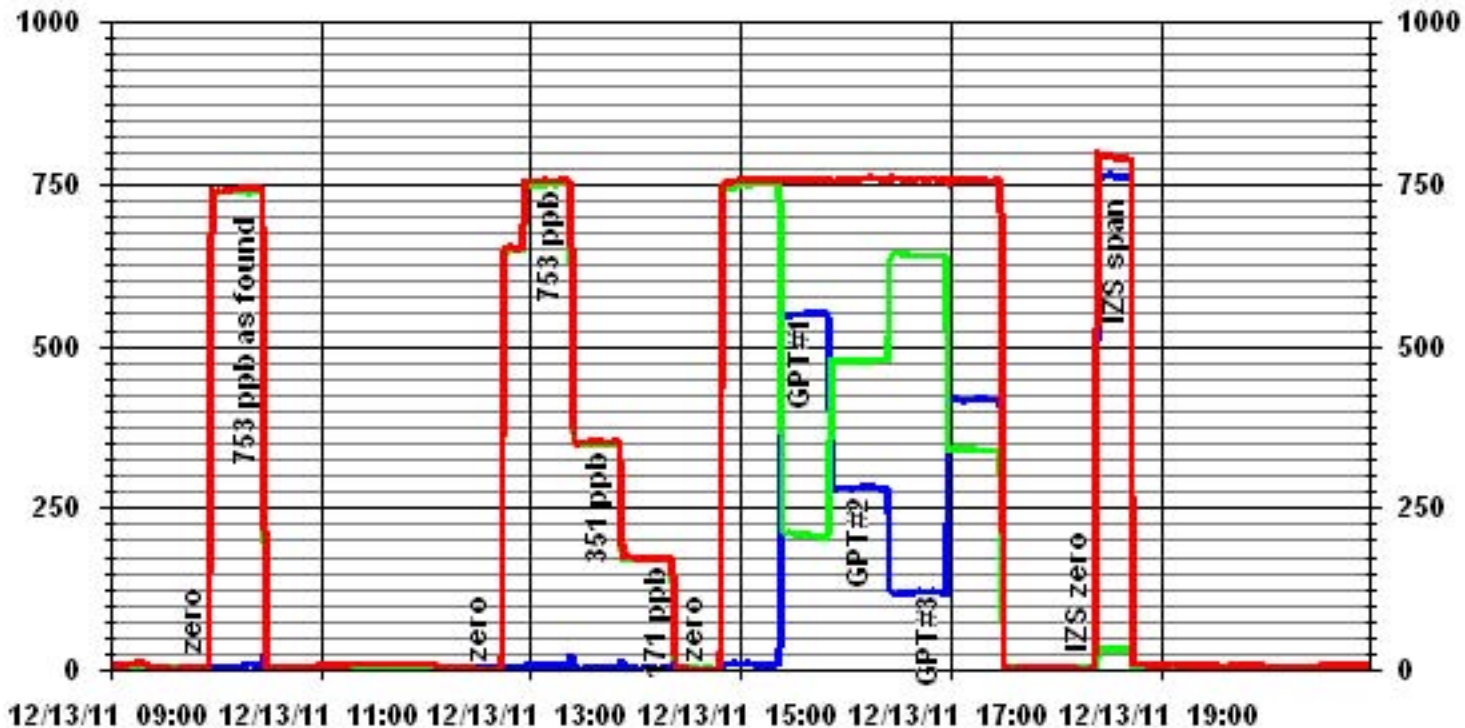
Calibration Date	December 13, 2011	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	12:05	End Time (MST) 18:47

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999999
0	1	N/A	Slope (0.85 to 1.15)	0.999469
170	170	1.0008	Intercept (± 3% F.S.)	0.1857
349	349	1.0003		
748	748	1.0005		



Notes:

01 Minute Averages



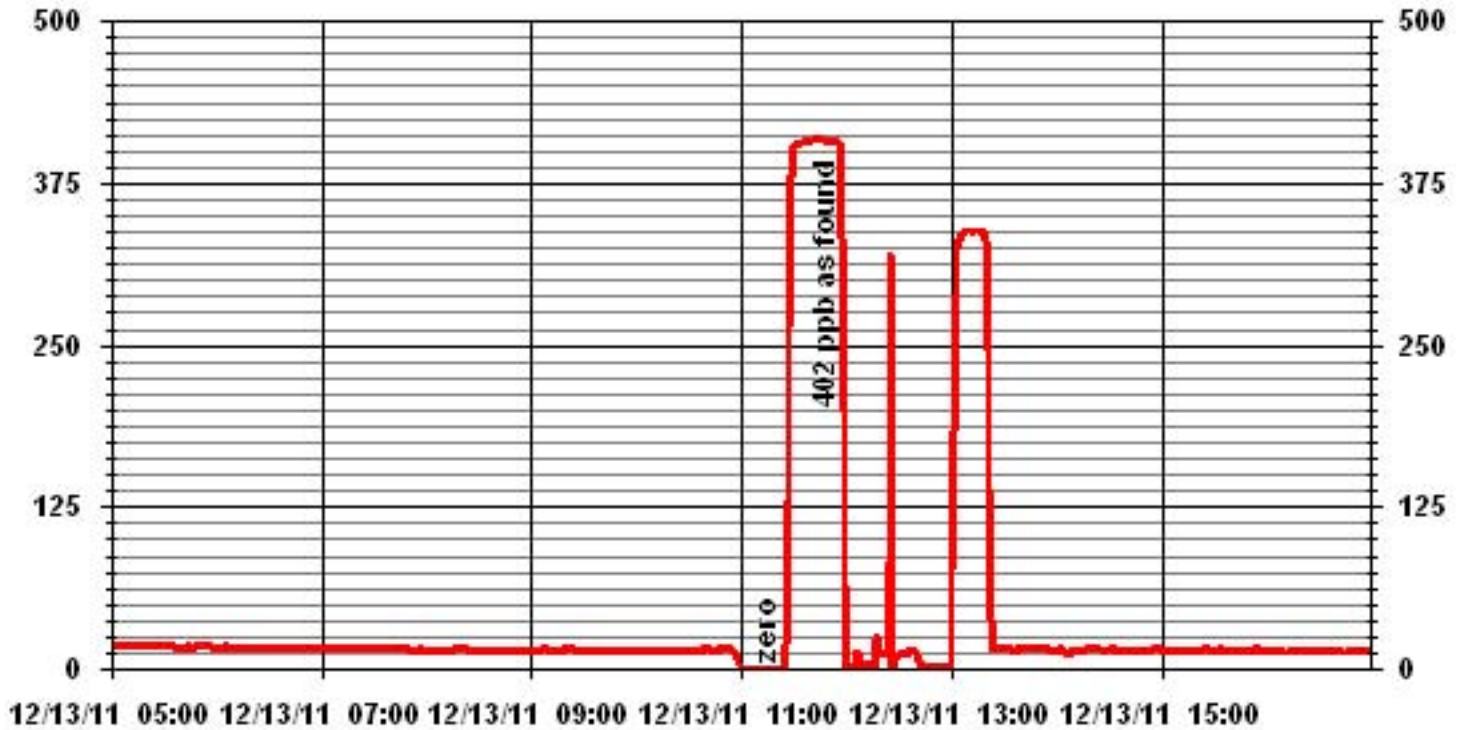
— LICA31 IIOX_ PPB

— LICA31 IIO_ PPB

— LICA31 IIO2_ PPB

Ozone

01 Minute Averages



O₃ Calibration Report

Station Information

Calibration Date	December 14, 2012	Previous Calibration	December 13, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	11:45	End Time (MST)	15:33
Reason:	Monthly Calibration		
Barometric Pressure	926 mm Hg	Station Temperature	21 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:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500		ppb	
Concentration Range	NA	762 ccm	NA	763 ccm
Cell A Flow / Cell B Flow	700.5 mmHg		703 mmHg	
Pressure	55.6 Deg C		55.2 Deg C	
Bench Temp	80 Deg C	30.2 Deg C	80 Deg C	29.2 Deg C
O3 Lamp / Box Temp	0.1		0.979	
Offset / Slope	0.1		0.986	

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj			
4994	450	410	406	1.0099
4994	450	410	411	0.9976
4994	300	274	276	0.9928
4994	120	112	112	1.0000
4994	0	0	0	N/A
Sum of Least Squares			N/A	
New Correction Factor			0.9976	

	Before Calibration	After Calibration
Auto Zero	0.9	0.9
Auto Span	356	348
Sample Lines Connected		YES
Percent Change from Previous Calibration		-2.2%

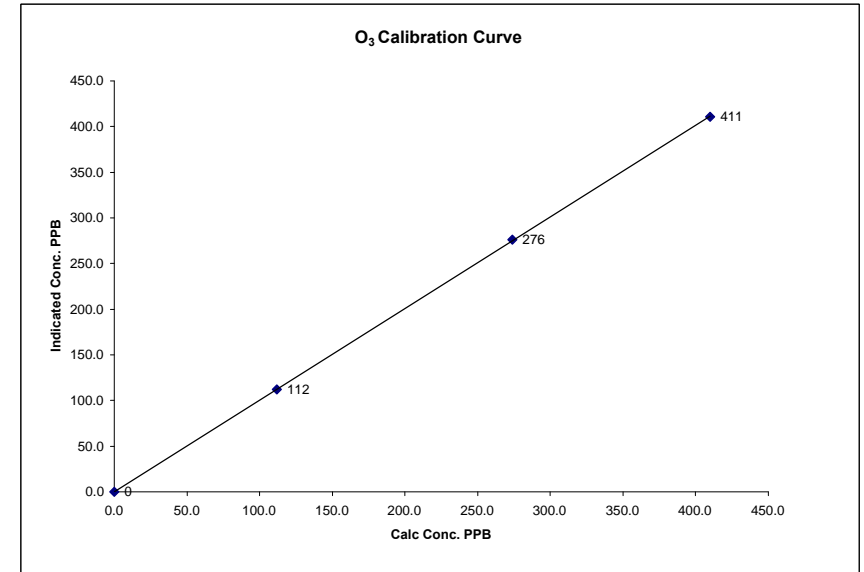
Note:

Calibration Performed by: Ting Xu

O₃ Calibration Curve

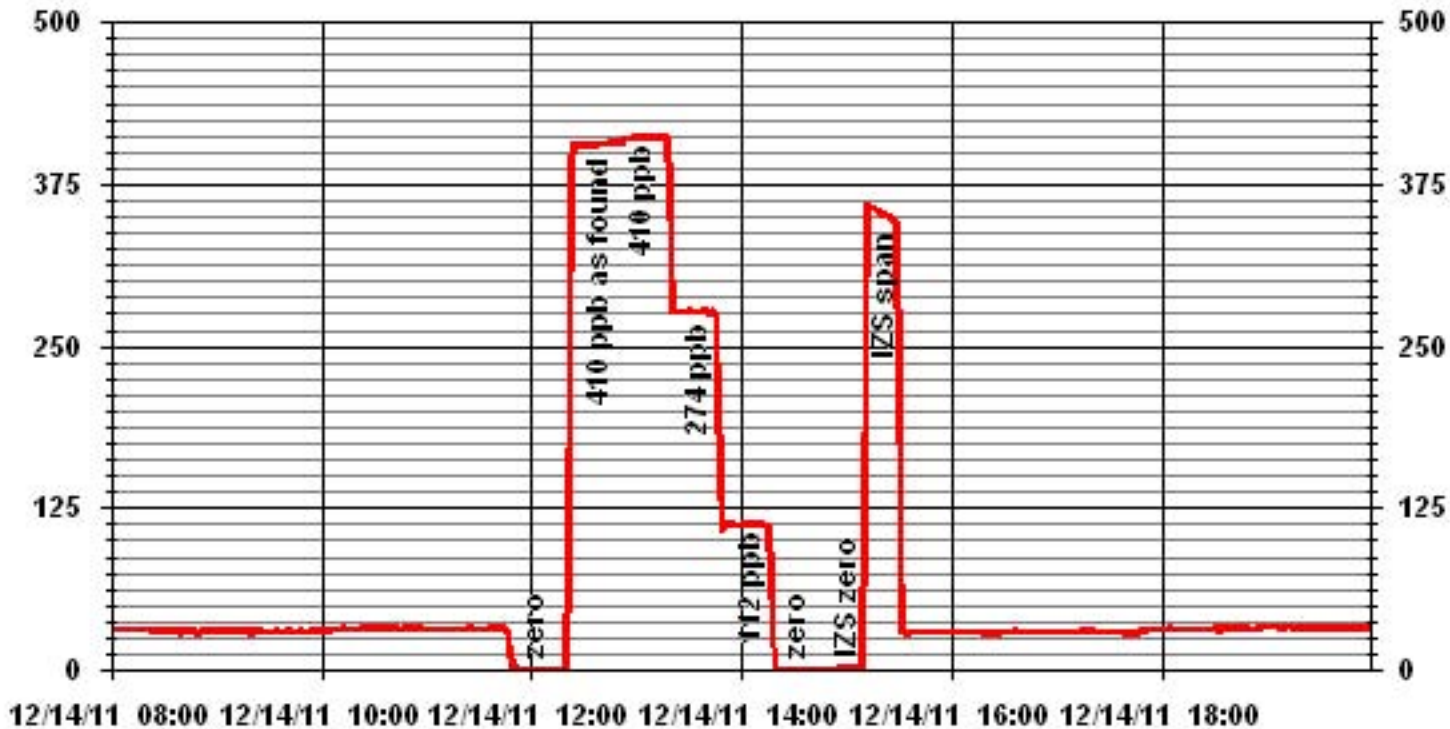
Calibration Date	December 14, 2012
Company	Lakeland Industry & Community Association
Plant / Location	St. Lina
Start Time (MST)	11:45
End Time (MST)	15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999986
0	0	n/a	Intercept	(0.85 to 1.15)	1.003710
112	112	1.0000		(± 3% F.S.)	0.011797
274	276	0.9928			
410	411	0.9976			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM0 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>December 14, 2011</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica St. Lina (CASA # 31)</u>	Serial Number:	<u>LO 091099, Hi 091001</u>
Location:	<u>St. Lina Station</u>	Cell s/n:	<u>NA</u>
Operator:	<u>LICA</u>	Thermometer s:	<u>Station Temp. Sensor</u>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A208301003</u>	Filter Load (%)	<u>40.2%</u>
Firmware Ver.	<u>1.52</u>	K _o Factor	<u>13125.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>-4.9</u>
		Press (ATM)	<u>0.916</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

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

Audit

Status			
Noise <0.10ug	<u>0.009</u>	Warnings	<u>None</u>
Pump Vacuum <0.4atm	<u>0.35</u>	Pump Gauge (inHg)	<u>19</u>
Temperature/Pressure			
Measured Temp (± 2 °C)	<u>-5.2</u>	D °C	<u>0.3</u>
Measured Press (± 0.01atm)	<u>0.914</u>	DATM	<u>0.002</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>0.36%</u>
Measured Main Flow (l/min)	<u>3.01</u>	Flow Adjusted to Measured?	<u>YES</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>2.34%</u>
Measured Bypass Flow (l/min)	<u>13.66</u>	Flow Adjusted to Measured?	<u>YES</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>Base=-0.01 Ref=-0.01</u>	<u>Flow Control = Active</u>	
Aux (< 0.6 l/min)	<u>ase=0.00 Ref=0.00</u>	<u>Report Conditions = Actual</u>	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 9:39 **Finish Time:** 12:46

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 21.2%

Comments: _____

Auditor/s: Ting Xu