

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

November 2011

Prepared By:



December 22, 2011

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Table of Contents	Page		Page
Introduction	3	Calibration Reports	108
Calibration Procedure	4	• Sulphur Dioxide	109
Monthly Continuous Summary	5	• Total Reduced Sulphur	112
Monthly Non-Continuous Summary	6	• Total Hydrocarbons	117
Volatile Organics Data Summary	7	• Particulate Matter 2.5	120
Polycyclic Aromatic Hydrocarbons Data Summary	8	• Nitrogen Dioxide	122
General Monthly Summary	9	• Ozone	128
Continuous Monitoring	13	Passive Bubble Maps	131
• Monthly Summaries, Graphs & Wind Roses	14	Passive Field Data	136
○ Air Quality Index	15	• Field Notes	137
○ Sulphur Dioxide	17	Passive Monitoring Laboratory Analysis	139
○ Total Reduced Sulphur	25	Volatile Organics Laboratory Analysis	147
○ Total Hydrocarbons	33	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	213
○ Particulate Matter 2.5	41		
○ Nitrogen Dioxide	46		
○ Nitric Oxide	54		
○ Oxides of Nitrogen	61		
○ Ozone	69		
○ Ambient Temperature	77		
○ Relative Humidity	80		
○ Vector Wind Speed	83		
○ Vector Wind Direction	90		
○ Standard Deviation Wind Direction	93		
Non-Continuous Monitoring	96		
Volatile Organics	101		
Polycyclic Aromatic Hydrocarbons	104		

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Cold Lake
Data Period: November 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 – November 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES					EXCEEDENCES		
PARAMETER	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO ₂ (PPB)	172	48	0	0	0.07	2	2	13, 14	3.8, 5.5	180(S), 138(SE)	0.5	2	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.9
NO ₂ (PPB)	159	-	0	-	5.17	37	28	17	1.6	113(ESE)	10.3	29	99.9
NO (PPB)	-	-	-	-	1.63	54	28	17	1.6	113(ESE)	5.6	23	99.9
NO _x (PPB)	-	-	-	-	6.80	83	28	17	1.6	113(ESE)	15.6	29	99.9
O ₃ (PPB)	82	-	0	-	19.79	38	27	VAR	VAR	VAR	30.6	8	100.0
THC (PPM)	-	-	-	-	2.30	5.4	6	9	2.3	241(WSW)	3.5	6	99.6
PM 2.5 (UG/M ³)	-	30	-	0	5.99	21.0	20	17	1.6	211(SSW)	11.0	21	99.3
TEMPERATURE (DEG C)	-	-	-	-	-6.08	8.6	27	14	8.1	243(WSW)	1.6	27	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	74.67	98	11	10	5.7	121(ESE)	96.3	11	100.0
VECTOR WS (KPH)	-	-	-	-	5.87	19.1	25	20	-	292(WNW)	12.0	17	100.0
VECTOR WD (DEGREES)	-	-	-	-	249(WSW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – November 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#14, #27	1.1	0.36
H ₂ S	#27	0.73	0.18
NO ₂	#28	5.0	2.0
O ₃	#32	28.4	22.5

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – November 5, 2011

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

Xontech Model 910A – November 11, 2011

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

Xontech Model 910A – November 17, 2011

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

Xontech Model 910A – November 23, 2011

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

Xontech Model 910A – November 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 – November 5, 2011

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

PUF cartridge – November 11, 2011

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

PUF cartridge – November 17, 2011

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

PUF cartridge – November 23, 2011

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

PUF cartridge – November 29, 2011

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

General Monthly Summary - Cold Lake

Equipment Operation

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

AQM STATION – LICA – COLD LAKE

Sulphur Dioxide (PPB)

- Analyzer make / model – Thermo 43i, S/N: 806528242

No operational issues 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 on November 3rd. The as found point check was performed on November 25th to check the analyzer's stability; the result was good. Data was corrected using daily zero information.

Ozone (PPB)

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

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.

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 inlet filter was changed before the monthly calibration was started on November 3rd. It was noticed that the water knock-out on the zero air supply was broken on November 25th; replaced a temporary one on the 25th and will install a new one when the part is available. As the daily zero/span results look fine and data look reasonable, all data were kept. 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 exhausting pump was replaced following the as found points on November 3rd. The analyzer was allowed time to stabilize, and then the monthly calibration was performed. The inlet filter was changed before the monthly calibration was started. Hourly maximum data for NOx and NO on November 28th at hour 17 went above the full scale (500ppb); the real concentration was likely higher than the recorded. 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 was performed on November 3rd. Both the Teom filter and the FDMS filter were changed and the sample pump was rebuilt on November 13th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. Five 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 November 3rd.

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 38 ppb and an AQI value of 19 on November 27th in various hours. The highest hourly concentration of PM2.5 was 21.0 ug/m3 and an AQI value of 18 on November 20th, hour of 17.

Passive Network

The 10% duplicate sampling program was run this month.
The H2S sample at station #26 was damaged.

Volatile Organics (VOCs)

The volatile organics were sampled from November 5th to November 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 November 5th to November 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 - COLD LAKE

NOVEMBER 2011
AIR QUALITY INDEX (AQI)

MST		DAILY																								
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
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	13	14	15	15	15	15	14	13	13	15	-	16	17	18	17	17	17	16	15	13	13	13	13	12	18	
1	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
2	8	7	7	7	11	8	8	5	5	-	11	12	14	15	14	13	13	11	10	10	10	10	10	9	15	
3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
4	9	10	9	9	8	7	7	11	-	-	-	-	-	-	-	12	12	10	13	15	17	14	11	17		
5	O3	O3	O3	O3	PM2	PM2	PM2	PM2	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3		
6	10	11	12	12	12	12	11	-	-	-	-	14	14	13	13	12	8	5	5	5	5	8	7	5	14	
7	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
8	5	7	8	3	2	4	-	8	7	10	8	9	9	11	12	11	7	8	9	7	7	5	3	7	12	
9	PM2	PM2	PM2	PM2	PM2	PM2	NA	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	
10	6	8	9	7	6	-	14	9	10	13	14	13	10	11	10	7	11	8	13	13	10	14	10	14	14	
11	PM2	PM2	PM2	PM2	PM2	NA	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	
12	8	7	6	6	-	9	9	12	14	15	15	12	13	12	11	8	9	14	13	12	12	11	10	15		
13	PM2	PM2	PM2	PM2	NA	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	
14	7	7	8	-	9	11	10	9	8	8	13	15	17	16	15	15	13	13	12	11	11	11	11	10	17	
15	PM2	O3	PM2	NA	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
16	10	10	-	5	6	8	8	7	8	9	11	13	13	16	16	11	5	8	10	15	15	13	14	15	16	
17	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	
18	15	-	16	16	15	14	13	12	11	11	10	10	9	7	6	8	10	12	10	9	8	8	8	8	16	
19	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
20	-	5	4	5	5	9	1	4	5	7	7	7	8	7	6	6	9	6	7	8	9	9	10	-	10	
21	NA	O3	O3	O3	PM2	PM2	O3	PM2	PM2	PM2	O3	O3	PM2	PM2	O3	O3	PM2	PM2	PM2	O3	O3	O3	O3	NA	O3	
22	12	13	11	11	11	11	11	10	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
23	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	
24	10	9	8	12	8	8	7	9	9	10	11	12	13	13	13	12	12	12	12	12	12	12	12	14	14	
25	O3	O3	O3	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	
26	14	13	12	12	13	14	14	14	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
27	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	
28	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	
29	12	12	12	12	12	12	11	11	12	11	12	12	12	12	12	14	14	13	10	-	5	7	5	4	14	
30	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
PEAK	16	16	16	16	16	16	16	16	17	17	17	17	17	18	17	17	19	19	19	19	18	18	18	17	17	
	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	%	
VERY POOR (101-255)	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%	
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	
GOOD (1-25)	496	68.9%	19	VAR	27	180	25.0%	18	17	20	0	0.0%	-	-	-	676	93.9%	
OVERALL	496	68.9%	-	-	-	180	25.0%	-	-	-	0	0.0%	-	-	-	676	93.9%	
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	6.1%	

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	0	IZS	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	IZS	0	1	1	2	2	1	1	1	1	1	1	0	0	0	2	0.5	24	
3	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	1	1	0	0	1	0	0	0	0	1	0.2	24	
4	0	0	0	0	0	0	0	0	IZS	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	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	
6	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0.1	24	
7	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	1	0.2	24	
8	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	
9	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	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	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	
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	IZS	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	IZS	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
20	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	1	0.2	24
21	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	1	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	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	1	1	1	1	1	1	0	0	0	0	0	0	1	0.2	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
HOURLY MAX	1	1	1	0	0	0	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	1	0				
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	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	NA	- NOT APPLICABLE

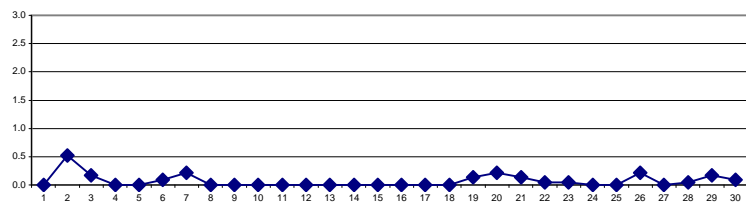
OBJECTIVE LIMIT:

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

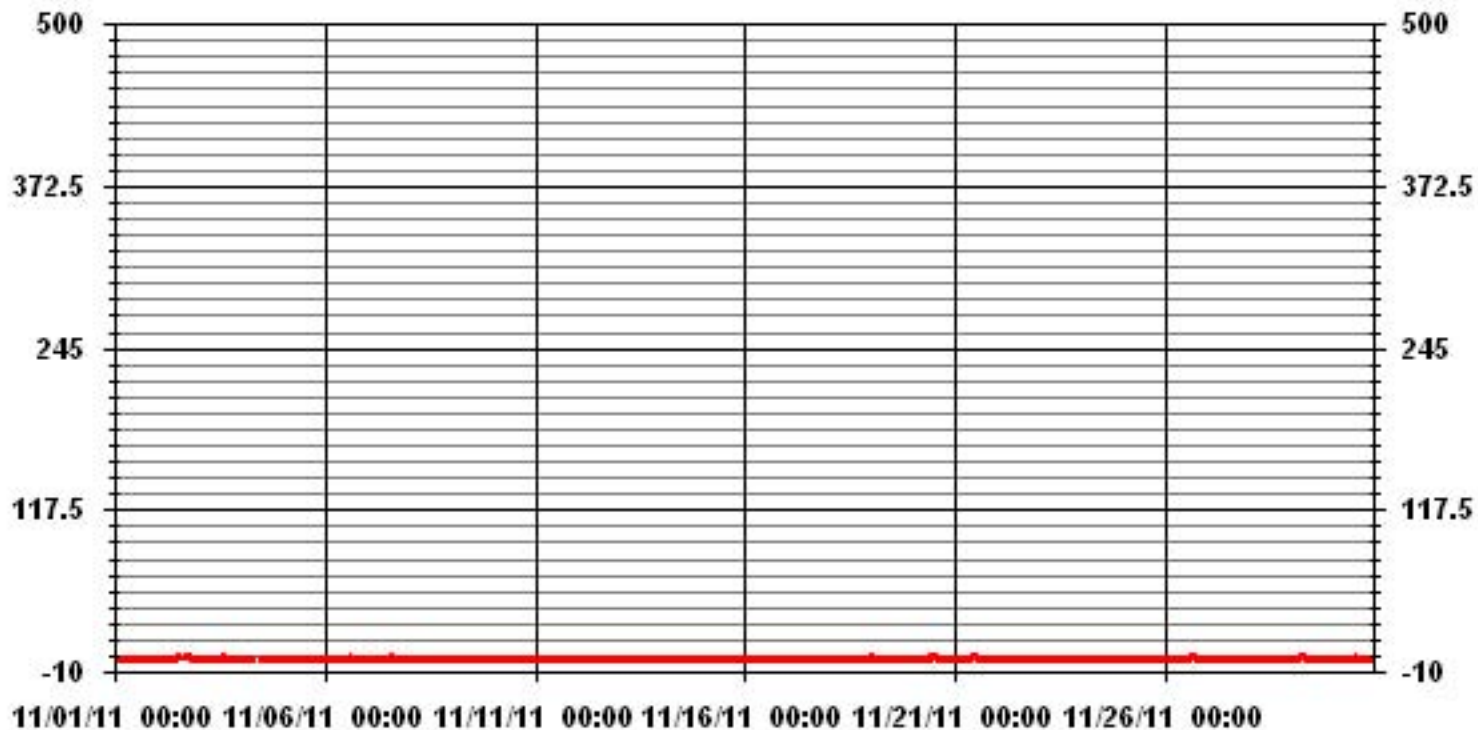
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	46
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 13, 14 ON DAY(S) 2
MAXIMUM 24-HR AVERAGE:	0.5 PPB ON DAY(S) 2
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.27
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.07 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

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

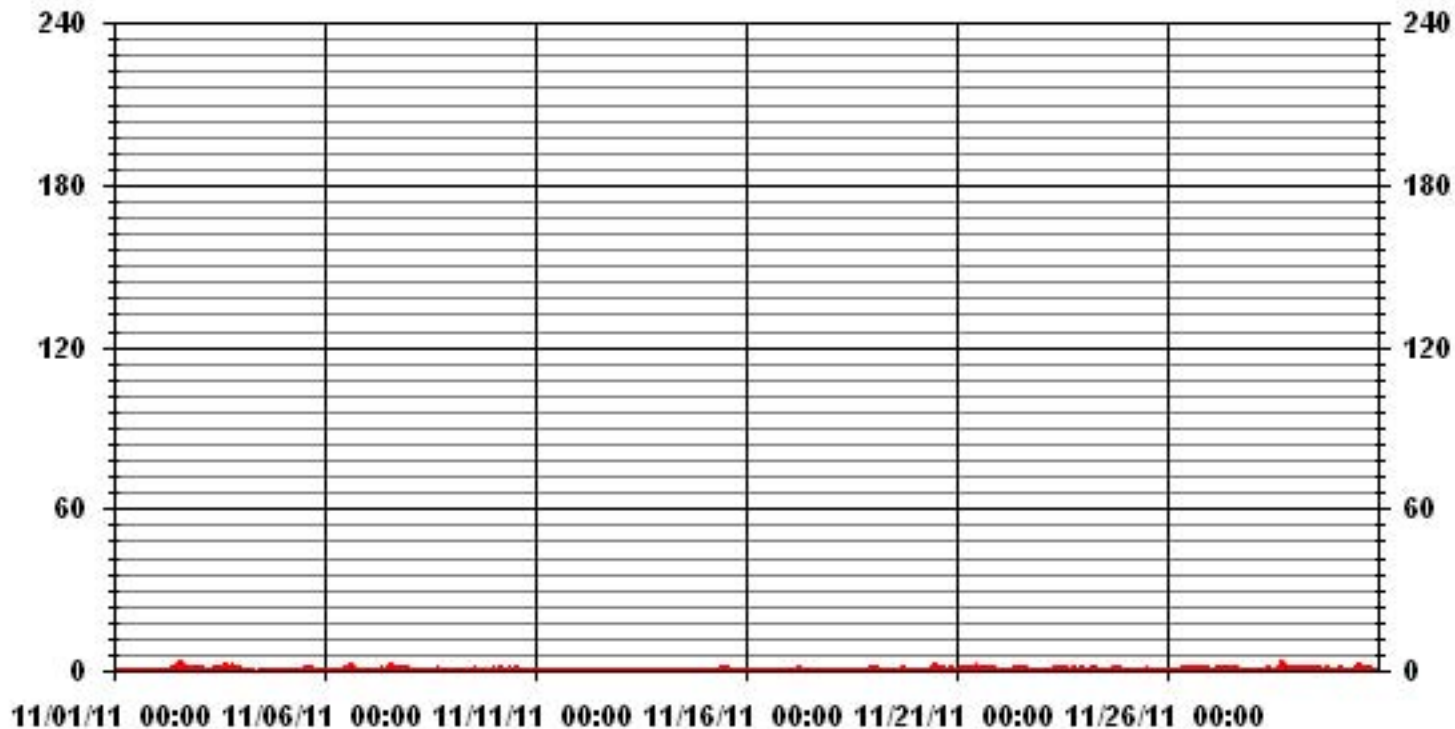
STATUS FLAG CODES

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:	167
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 17 ON DAY(S) 28
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.52
OPERATIONAL TIME:	720 HRS

01 Hour Averages



LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 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	.29	.58	2.91	3.21	8.02	3.21	18.39	3.94	2.77	5.54	15.03	11.97	7.29	7.59	7.29	1.89	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	.29	.58	2.91	3.21	8.02	3.21	18.39	3.94	2.77	5.54	15.03	11.97	7.29	7.59	7.29	1.89	

Calm : .00 %

Total # Operational Hours : 685

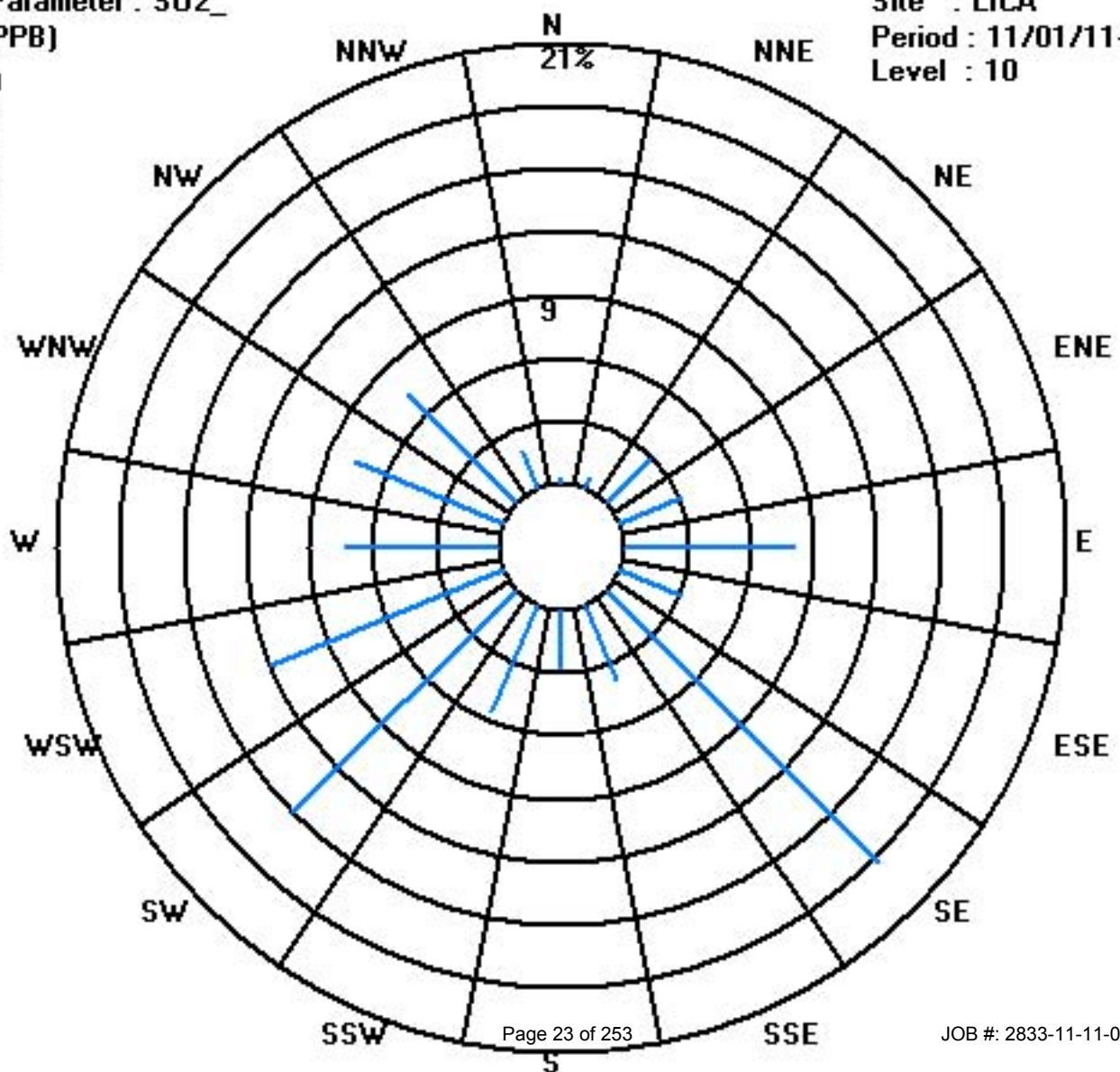
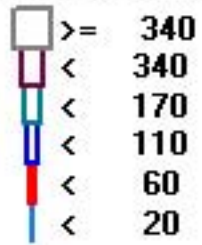
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2	4	20	22	55	22	126	27	19	38	103	82	50	52	50	13	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	2	4	20	22	55	22	126	27	19	38	103	82	50	52	50	13	

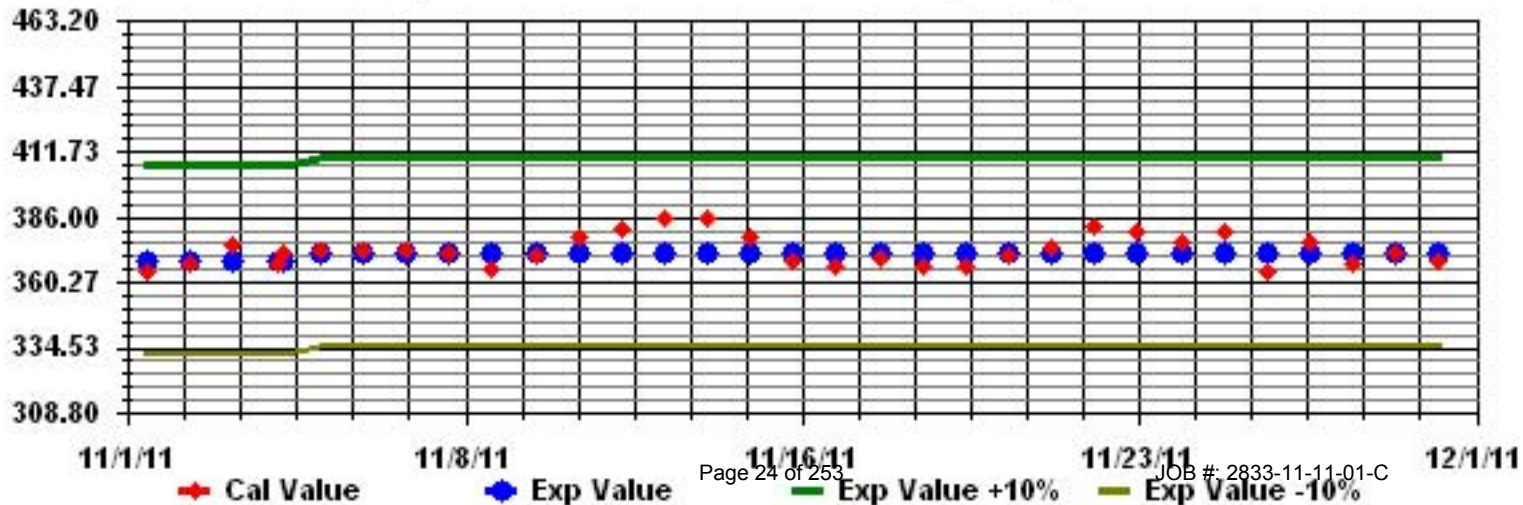
Calm : .00 %

Total # Operational Hours : 685

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

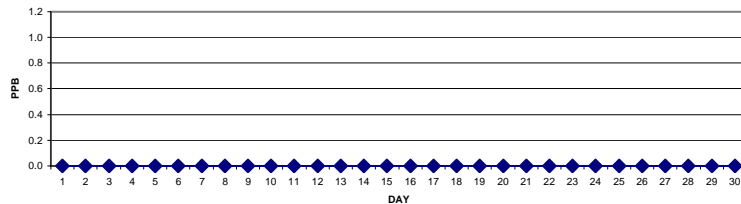
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	IZS	C	C	C	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	IZS	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23
5	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
6	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
7	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
8	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
9	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
10	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
11	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
12	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
13	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
14	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
15	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
16	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
17	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	0.0	24
18	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
19	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
20	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
21	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
22	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
23	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
24	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
25	0	0	0	0	0	0	0	C	C	C	C	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	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	0	IZS	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	IZS	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	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
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
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	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

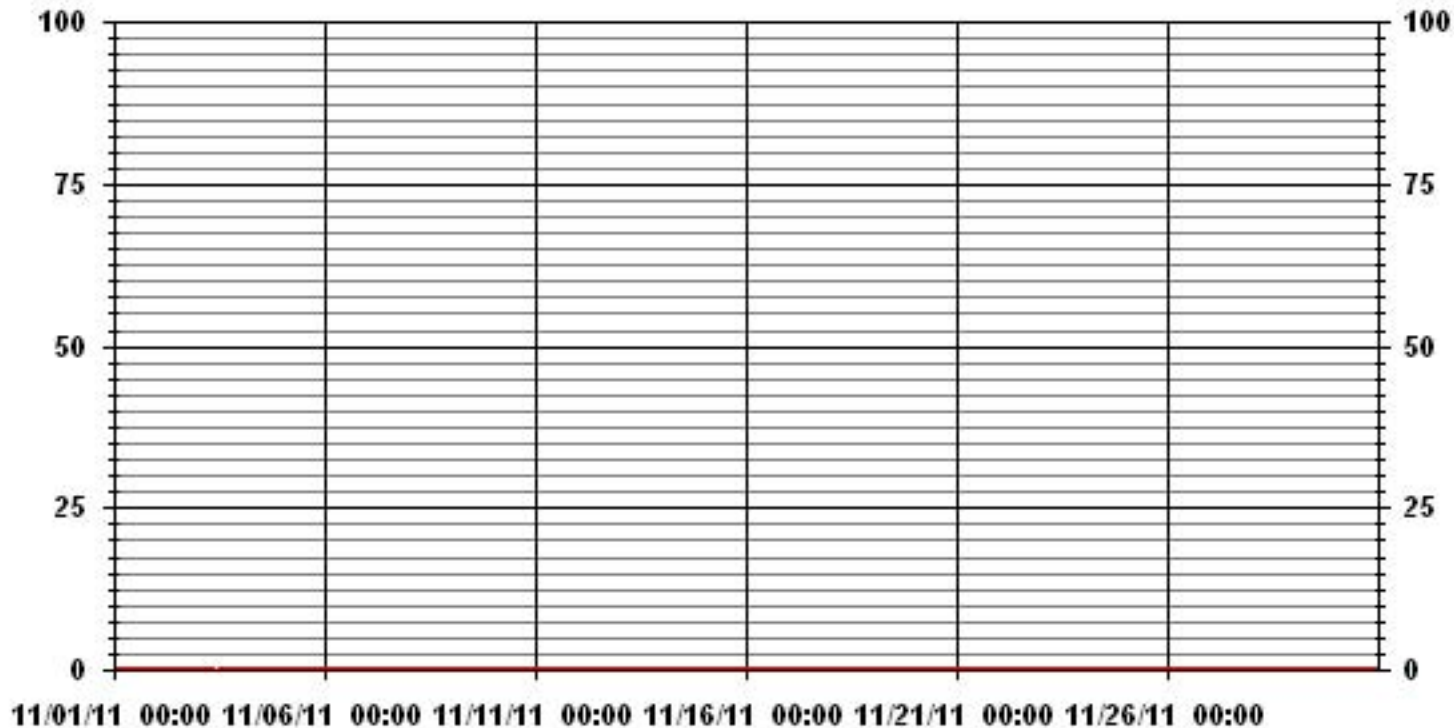
24 HOUR AVERAGES FOR NOVEMBER 2011



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 VAR-VARIOUS ON DAY(S) ALL
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION	0.00
OPERATIONAL TIME:	719 HRS
AMD OPERATION UPTIME	99.9 %
MONTHLY AVERAGE	0.00 PPB

01 Hour Averages



— LICA TRS PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

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

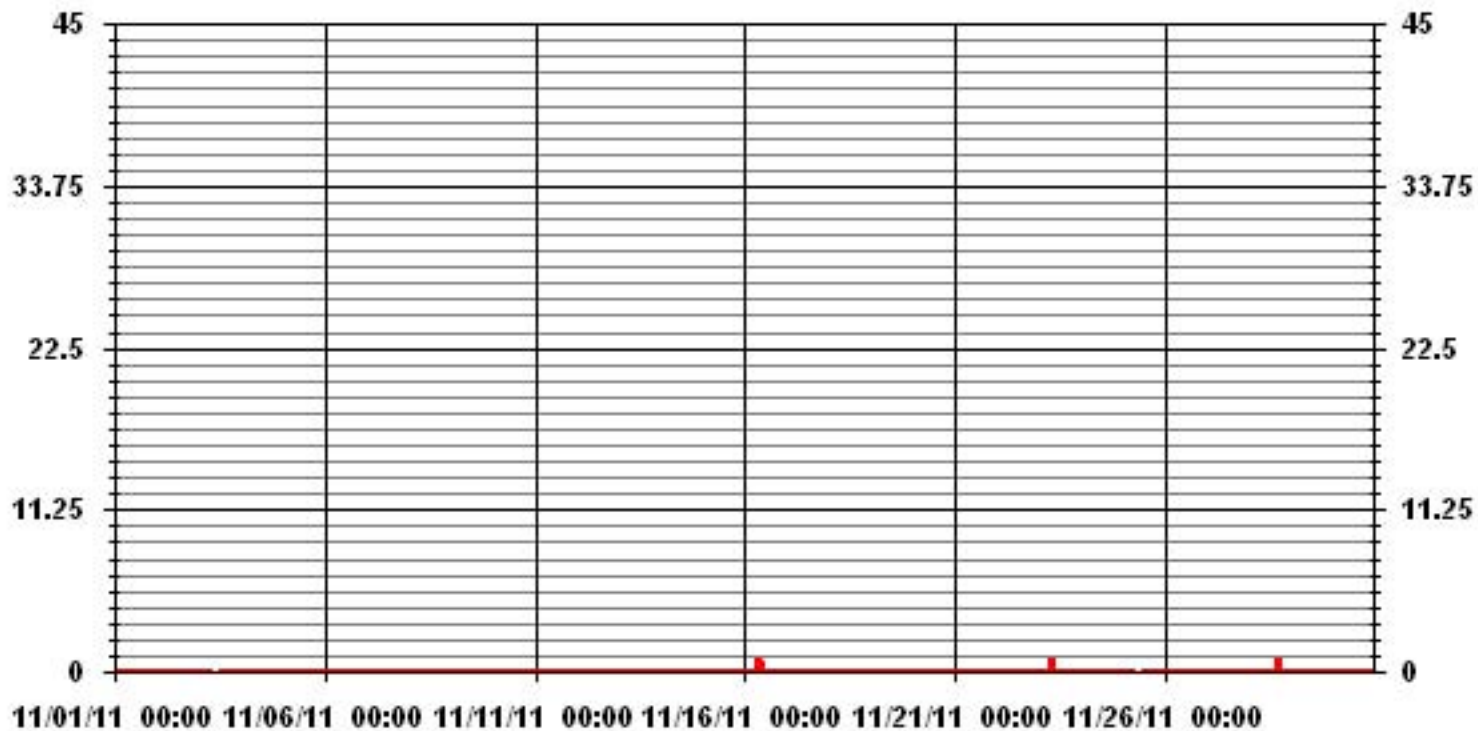
STATUS FLAG CODES

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:	3					
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
				VAR - VARIOUS		
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719 HRS		
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.07					

01 Hour Averages



LICA
 TRS_ / WD Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : TRS_
 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
< 3	.29	.58	2.93	3.22	8.06	3.22	18.03	3.95	2.78	5.42	15.10	11.73	7.47	7.91	7.33	1.90	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.29	.58	2.93	3.22	8.06	3.22	18.03	3.95	2.78	5.42	15.10	11.73	7.47	7.91	7.33	1.90	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	2	4	20	22	55	22	123	27	19	37	103	80	51	54	50	13	682
< 10																	
< 50																	
>= 50																	
Totals	2	4	20	22	55	22	123	27	19	37	103	80	51	54	50	13	

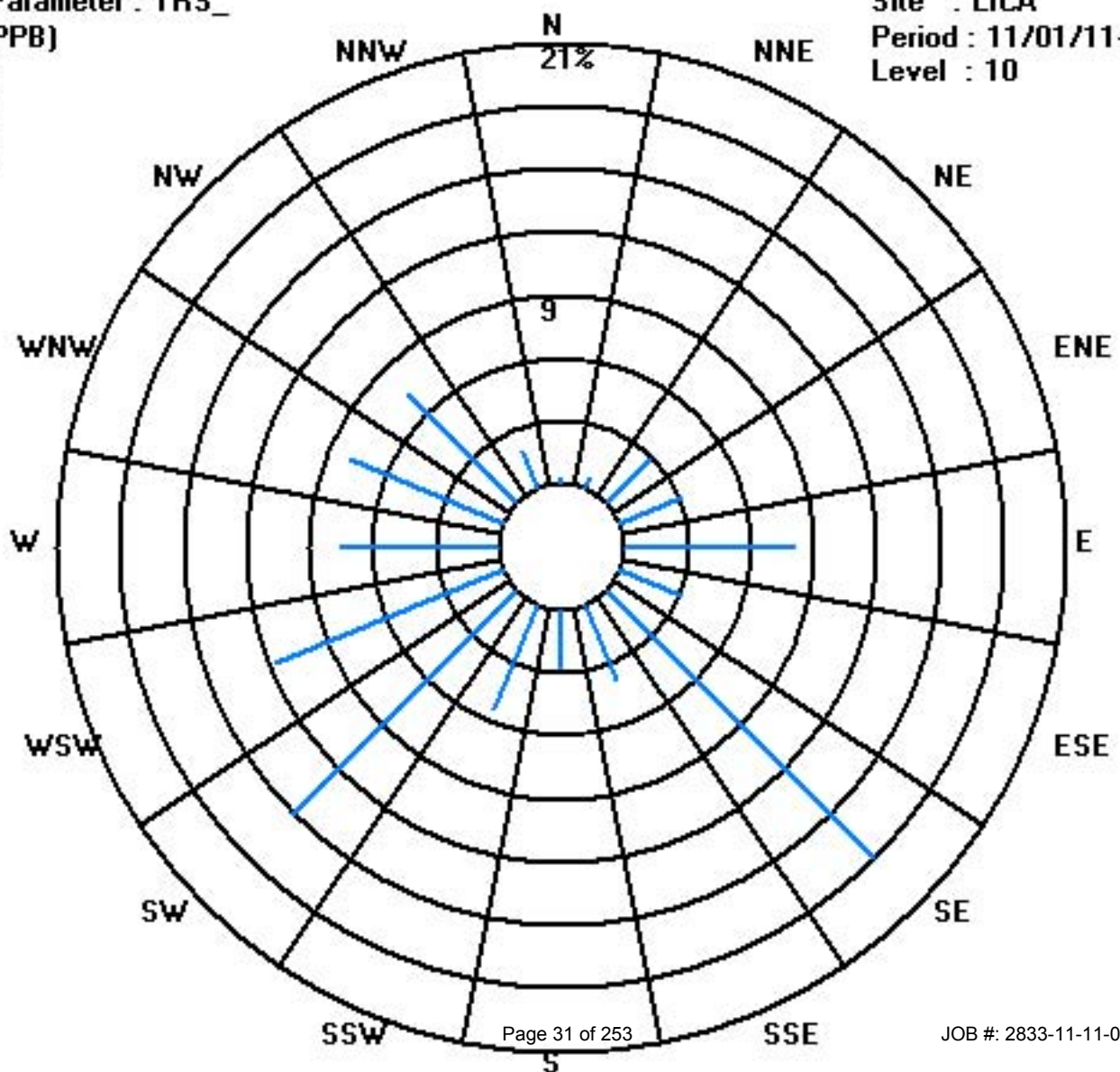
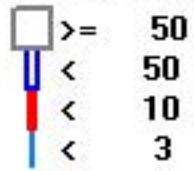
Calm : .00 %

Total # Operational Hours : 682

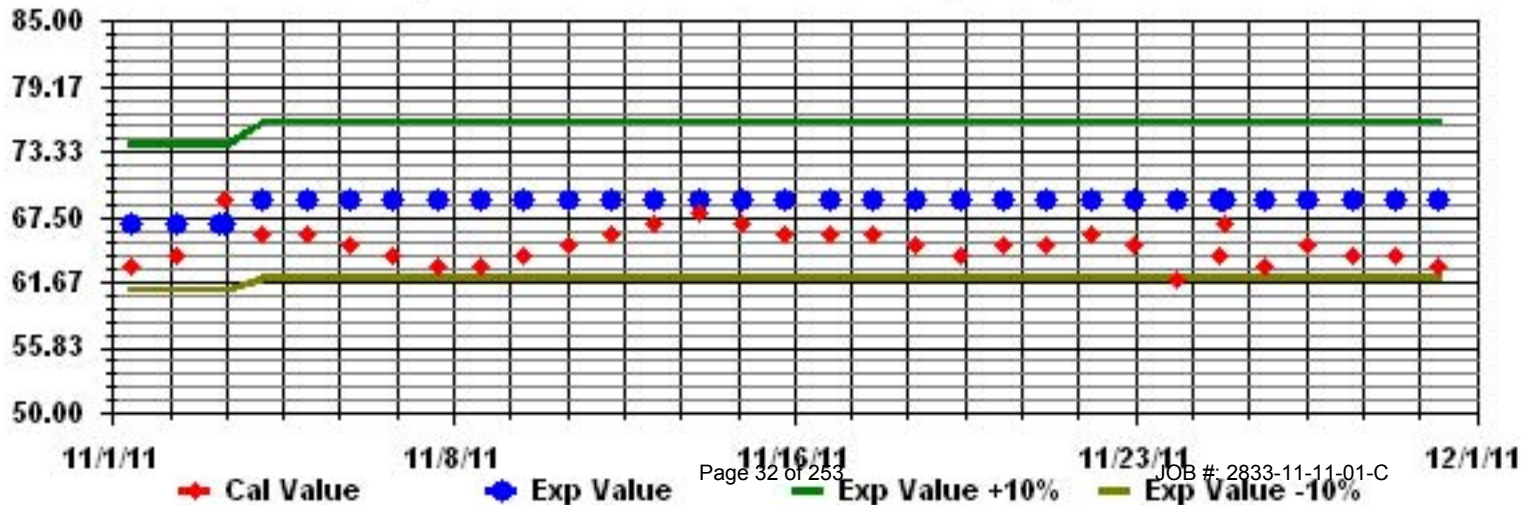
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

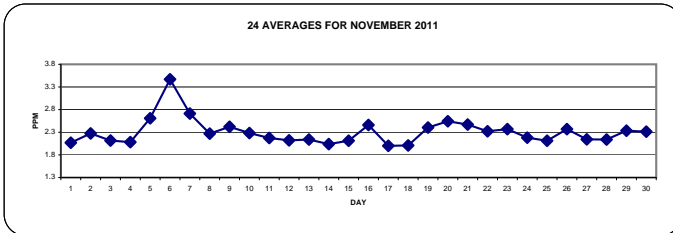
NOVEMBER 2011

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	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	2.2	2.1	2.1	2	2	2	2.1	2.2	2.2	2.1	IZS	2	1.9	2	2	2	2	2.1	2.1	2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.4		
2	2.1	2.1	2.2	2.2	2.4	2.3	2.3	2.3	2.3	IZS	2.5	2.4	2.2	2.2	2.1	2.1	2.2	2.4	2.5	2.6	2.4	2.2	2.2	2.1	2.2	2.1	2.6	2.3	24	
3	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	IZS	2.3	2.5	C	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2.5	2.1	24		
4	2	2	2	2	2.1	2.1	2.1	IZS	2.1	2.1	2	M	2	2	2.1	2	2	2	2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.1	23		
5	2.4	2.4	2.5	2.7	2.9	2.8	IZS	3.4	3.2	2.8	2.5	2.5	2.2	2.1	2.2	2.3	2.3	2.4	2.3	2.5	2.7	2.8	2.9	3.2	3.4	2.6	2.4			
6	3.2	3.2	3.7	3.4	3.5	IZS	5	4.9	5	5.4	4.9	3.9	3.3	3.1	2.8	2.4	2.3	2.5	2.7	2.8	2.9	2.9	3	3	5.4	3.5	2.4			
7	3.1	3.2	3.3	3.3	IZS	3.3	3.3	3	3.1	3	3.3	2.9	2.5	2.2	2.4	2.6	2.3	2.3	2.1	2.2	2.2	2.2	2.3	2.3	3.3	3.3	2.7	24		
8	2.3	2.4	2.4	IZS	2.5	2.8	2.9	2.5	2.3	2.2	2.1	2.1	2	2	2	2	2	2.2	2.2	2.2	2.4	2.2	2.2	2.3	2.9	2.3	2.4			
9	2.5	2.5	IZS	2.7	2.8	2.6	2.5	2.7	2.7	2.7	2.5	2.4	2.2	2.1	2.1	2.1	2.3	2.4	2.3	2.2	2.3	2.4	2.3	2.4	2.8	2.4	2.4			
10	2.4	IZS	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.3	2.4	2.6	2.5	2.2	2.1	2	2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.6	2.3	24		
11	IZS	2.3	2.3	2.3	2.5	2.5	2.7	2.7	2.6	2.2	2.1	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	IZS	2.7	2.2	2.4			
12	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2.1	2	2.1	2.2	2.2	2.3	2.5	IZS	2.5	2.5	2.1	2.4			
13	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.1	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2.3	2.1	24		
14	2	2	2.1	2.1	2	2	2	2	2	2	2	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2.1	2.0	24		
15	2	2	2	2	2	2	2	2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	IZS	2.3	2.6	2.6	2.7	2.7	2.1	2.4			
16	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.9	2.8	2.4	2.2	2.2	2.3	2.3	2.4	2.3	IZS	2.1	2	2	2	2	2	2.9	2.5	24		
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2.0	24		
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2	2	IZS	2	2	2	2.1	2	2	2	2	2.0	24		
19	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	IZS	2.3	2.4	2.5	2.6	2.9	3.3	3.6	3.4	3.6	2.4	24		
20	3	2.6	2.6	2.5	2.7	2.9	2.8	2.7	2.8	2.5	2.3	2.2	2.2	2.2	IZS	2.2	2.3	2.3	2.3	2.5	2.6	2.9	2.7	2.7	3.0	2.5	24			
21	2.6	2.5	2.5	2.5	2.5	2.6	2.7	2.8	2.9	3	2.7	2.6	2.5	IZS	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	3.0	2.5	24			
22	2.1	2.2	2.4	2.3	2.3	2.3	2.2	2.4	2.5	2.4	2.2	2.1	IZS	2.2	2.1	2.1	2.2	2.2	2.3	2.6	2.6	2.6	2.6	2.5	2.6	2.3	24			
23	2.5	2.5	2.5	2.6	2.7	2.8	2.9	3.1	3.1	2.9	2.6	IZS	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	3.1	2.4	24		
24	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.2	IZS	2.2	2.3	2.2	2.2	2.2	2.3	M	M	2.1	2.3	2.3	2.2	2.1	2.3	2.2	2.2			
25	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	IZS	2.2	2.3	2.4	2.5	2.4	2.1	2	2	2	2	2	2	2	2.1	2.5	2.1	24			
26	2.1	2.3	2.4	2.4	2.3	2.3	2.4	IZS	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.6	2.4	2.4	24			
27	2.4	2.4	2.3	2.3	2.4	2.4	2.5	IZS	2.3	2.3	2.2	2.1	2.1	2.1	1.9	2	2	1.9	2	1.9	1.9	1.9	2	2	2.5	2.1	24			
28	2	2	2	2	2	IZS	2.1	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.4	2.1	2.4				
29	2.2	2.1	2.1	2.1	2.2	IZS	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2	2.1	2.2	2.1	2.3	2.7	2.8	2.8	2.8	3.1	3	3.1	2.3	24			
30	3	3.1	3.3	3.2	IZS	2	2	2	2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.3	2.3	2.4	3.3	2.3	2.4			
HOURLY MAX		3.2	3.2	3.7	3.4	3.5	3.3	5.0	4.9	5.0	5.4	4.9	3.9	3.3	3.1	2.8	2.6	2.4	2.5	2.7	2.8	2.9	3.3	3.6	3.4					
HOURLY AVG		2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3					

STATUS FLAG CODES

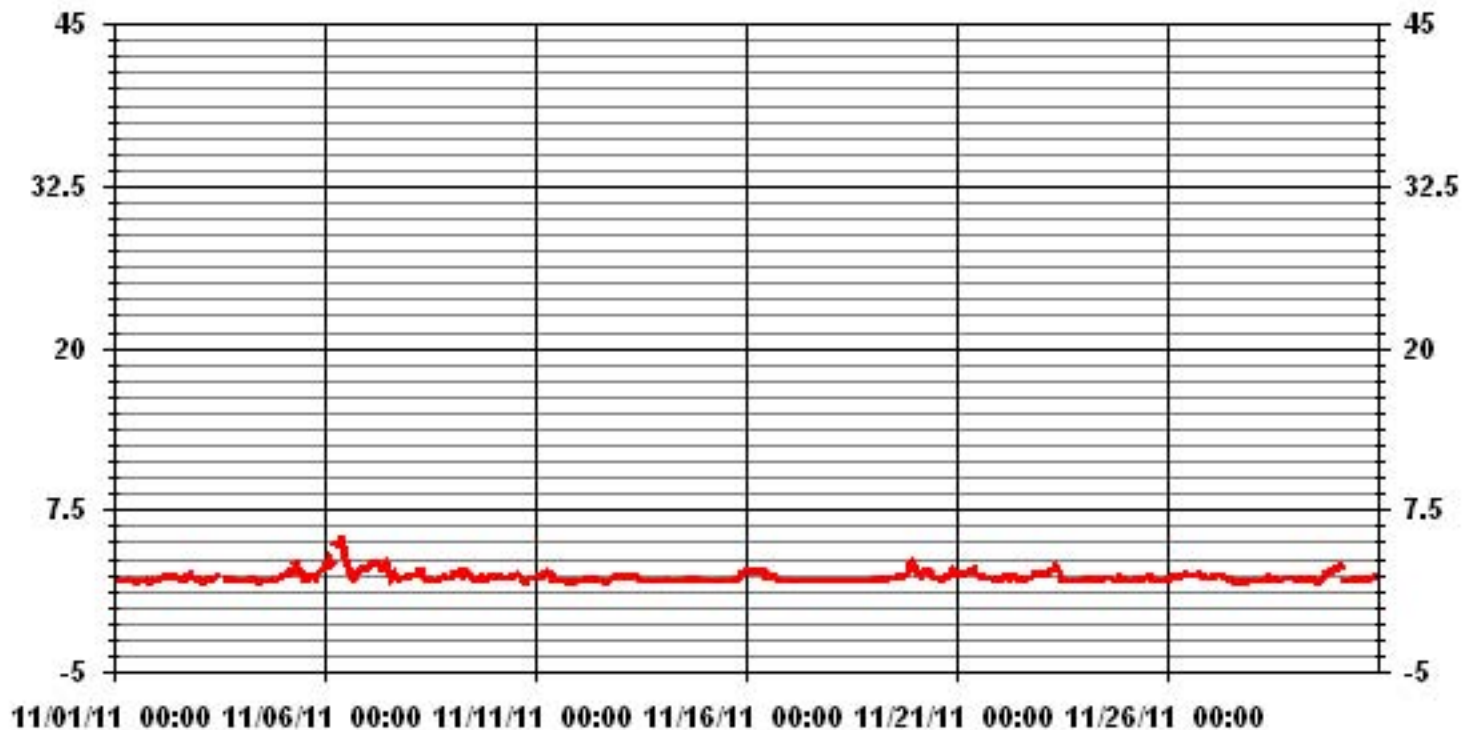
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681
MAXIMUM 1-HR AVERAGE:	5.4 PPM @ HOUR(S) 9 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	3.5 PPM ON DAY(S) 6
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.40
OPERATIONAL TIME:	717 HRS
AMD OPERATION UPTIME:	99.6 %
MONTHLY AVERAGE:	2.30 PPM

01 Hour Averages



— LICA THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST																									DAILY	24-HOUR		
HOURLY MAX	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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.	
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				
DAY																												
1	2.4	2.2	2.2	2	2	2.1	2.3	2.3	2.2	2.2	IZS	2	2	2	2	2	2.2	2.2	2.3	2.1	2.3	2.6	2.2	2.6	2.2	2.4		
2	2.2	3.7	2.7	2.5	2.5	2.6	2.5	2.5	2.4	IZS	2.6	2.5	2.4	2.4	2.2	2.3	2.3	2.5	2.7	2.6	2.5	2.3	2.2	2.2	3.7	2.5	24	
3	2.1	2.1	2.1	2.1	2.6	2.2	2.4	2.6	IZS	2.6	2.8	C	C	C	C	C	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.8	2.3	24	
4	2.1	2.1	2.1	2.1	2.1	2.1	2.2	IZS	2.2	2.1	2.1	M	2.1	2.2	2.2	2.2	2.3	2.1	2.5	2.3	2.3	2.3	2.8	3.1	3.1	2.3	23	
5	2.5	2.5	2.6	3	3.1	6.3	IZS	4.2	5	3.2	2.6	2.6	2.4	2.2	2.2	2.6	2.5	3.6	2.4	2.8	3	3.1	3.5	3.8	6.3	3.1	24	
6	3.9	3.7	4.6	3.8	4.7	IZS	5.2	5.2	5.7	6	5.2	4.4	3.7	3.2	3	2.5	2.5	2.6	2.9	3	3	3.1	3.1	3	6	3.8	24	
7	3.5	3.5	3.4	3.4	IZS	3.5	3.6	3.2	3.9	3.2	3.5	3.2	2.7	2.3	2.7	3.2	3	2.5	2.2	2.3	2.2	2.3	2.3	2.3	3.9	3.0	24	
8	2.5	2.5	2.6	IZS	2.6	3.3	4	2.8	2.4	2.4	2.3	2.2	2.4	2.1	2	2.1	2.2	2.3	2.3	2.5	2.6	2.3	2.3	2.5	4	2.5	24	
9	2.5	2.6	IZS	3	2.9	2.7	2.6	2.8	2.8	2.8	2.7	2.6	2.3	2.2	2.1	2.6	2.4	3.3	2.5	2.3	2.5	2.6	2.5	2.5	3.3	2.6	24	
10	2.5	IZS	2.4	2.3	2.5	2.5	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.7	2.9	2.6	2.4	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.9	2.4	24	
11	IZS	2.3	2.5	2.4	2.6	2.7	2.8	3	3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	IZS	3	2.3	24	
12	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.4	2.7	IZS	2.9	2.9	2.2	24
13	2.5	2.4	2.3	2.3	2.3	3.2	2.3	2.3	2.3	2.4	2.2	2.2	2.1	2.2	2.1	2.1	2	2.1	2.1	2.1	2	IZS	2	2	3.2	2.2	24	
14	2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2.2	2.1	24
15	2	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	2.1	2.1	2.1	IZS	2.4	2.7	2.7	2.8	2.8	2.2	24
16	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.9	3.1	3.3	2.5	2.5	2.4	2.4	2.5	2.5	2.4	IZS	2.1	2.1	2.1	2.1	2.1	3.3	2.6	24	
17	2.1	2	2.1	2.1	2	2.1	2	2.1	2.1	2	2	2	2.3	2	2	2.1	2.2	IZS	2	2	2	2	2	2.1	2.3	2.1	24	
18	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24	
19	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.4	2.4	2.4	2.4	IZS	2.5	2.5	2.7	2.9	3.4	3.8	4	3.7	4	2.6	24	
20	3.5	2.7	2.7	2.6	2.8	3	3	2.7	3.3	2.8	2.5	2.5	2.3	2.3	IZS	2.3	2.4	2.6	2.6	2.8	3	3.2	3	2.7	3.5	2.8	24	
21	2.7	2.6	2.5	2.6	2.6	2.7	2.8	3	3.1	3.1	2.9	2.7	2.6	IZS	2.7	2.7	2.4	2.3	2.4	2.4	2.7	3.5	2.2	2.2	3.5	2.7	24	
22	2.2	2.4	2.5	2.4	2.4	2.4	2.3	2.6	2.6	2.5	2.3	2.2	IZS	2.2	2.2	2.3	2.3	2.4	2.4	3.1	2.8	2.7	2.7	2.6	3.1	2.5	24	
23	2.6	2.6	2.6	2.8	2.8	3	4.6	3.5	3.9	3.1	2.9	IZS	2.2	2.4	2.1	2	2.2	2	2.3	2.1	2.1	2.1	2.1	4.6	2.6	24		
24	2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.2	2.4	IZS	2.3	2.4	2.3	2.4	2.4	M	M	M	2.2	5.2	2.4	2.3	2.2	5.2	2.4	21	
25	2.1	2	2.1	2.1	2.1	2.2	2.1	2.1	2.5	IZS	2.4	2.4	2.6	5.3	2.1	2.2	2	2	2	2	2.1	2.1	2.1	2.3	5.3	2.3	24	
26	2.2	2.5	2.5	2.6	2.4	2.4	2.4	2.5	IZS	2.9	2.5	2.4	2.4	2.5	3.4	3.6	2.5	2.5	2.6	2.5	2.4	2.4	2.5	2.4	3.6	2.6	24	
27	2.5	2.5	2.5	2.5	2.5	2.6	2.7	IZS	2.6	2.4	2.3	2.5	2.2	2.2	2.1	2.2	2.2	2	2	2	2	2	2	2	2.7	2.3	24	
28	2	2	2	2.1	2.1	2.1	IZS	2.4	2.7	2.5	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.7	2.3	2.3	2.3	2.2	2.2	2.3	2.7	2.3	24	
29	2.2	2.2	2.3	2.2	2.3	IZS	2.2	2.3	2.3	2.3	2.2	2.4	2.2	2.2	3.2	3.9	2.3	3	3	3	3.4	3	2.9	3.3	3.2	3.9	2.6	24
30	3.1	3.2	3.4	3.3	IZS	2.1	2.1	2.1	2.1	2.5	2.1	2.1	2.2	2.3	2.3	2.2	3	2.2	2.2	2.2	2.3	2.4	2.4	2.9	3.4	2.5	24	

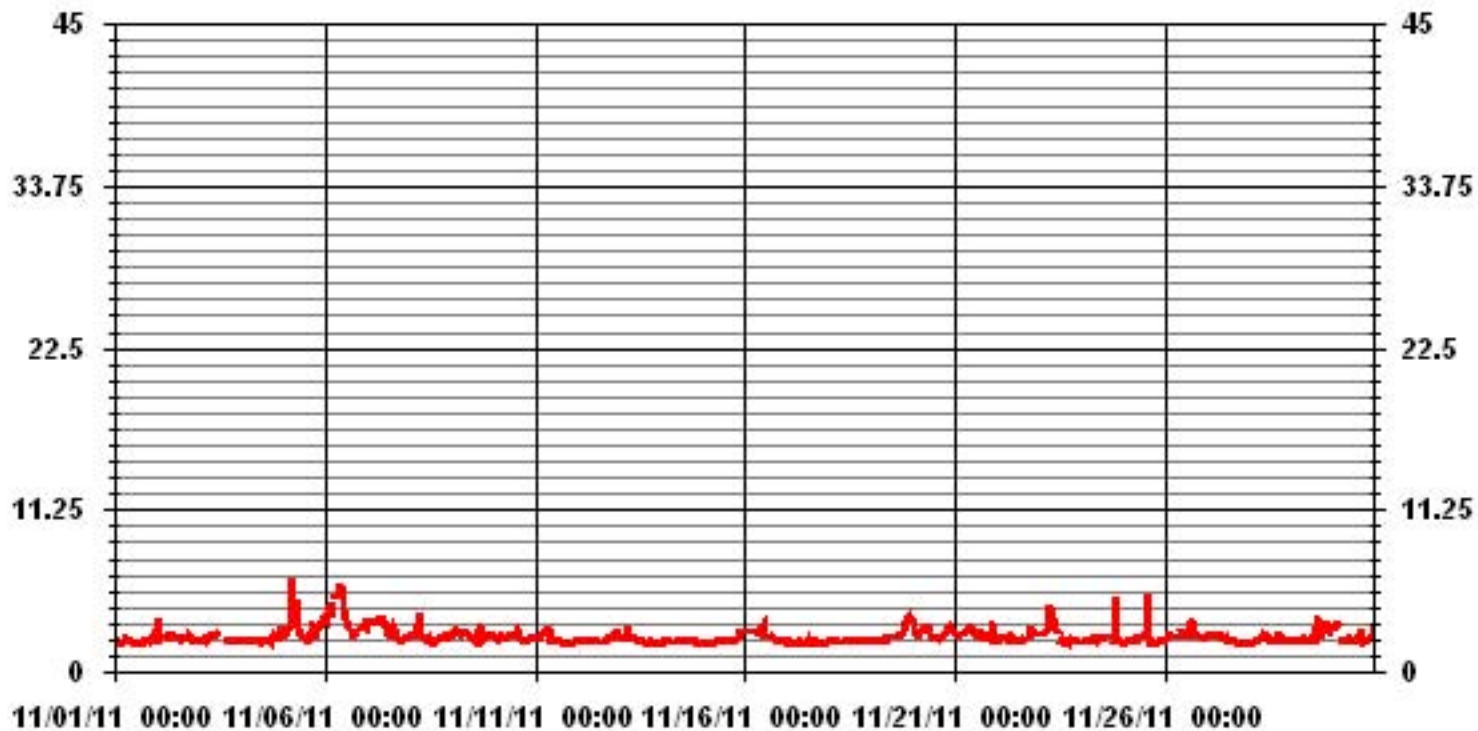
STATUS FLAG CODES

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:	680					
MAXIMUM INSTANTANEOUS VALUE:	6.3	PPM	@ HOUR(S)	5	ON DAY(S)	5
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	716 HRS		
MONTHLY CALIBRATION TIME:	5 HRS					
STANDARD DEVIATION:	0.56					

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

November 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	.29	.58	2.79	2.93	7.63	3.08	17.03	3.67	2.34	5.13	14.39	10.13	7.04	7.78	7.19	1.90	93.97
< 10.0	.00	.00	.14	.14	.44	.14	1.32	.29	.44	.44	.73	1.61	.29	.00	.00	.00	6.02
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.29	.58	2.93	3.08	8.07	3.23	18.35	3.96	2.79	5.58	15.12	11.74	7.34	7.78	7.19	1.90	

Calm : .00 %

Total # Operational Hours : 681

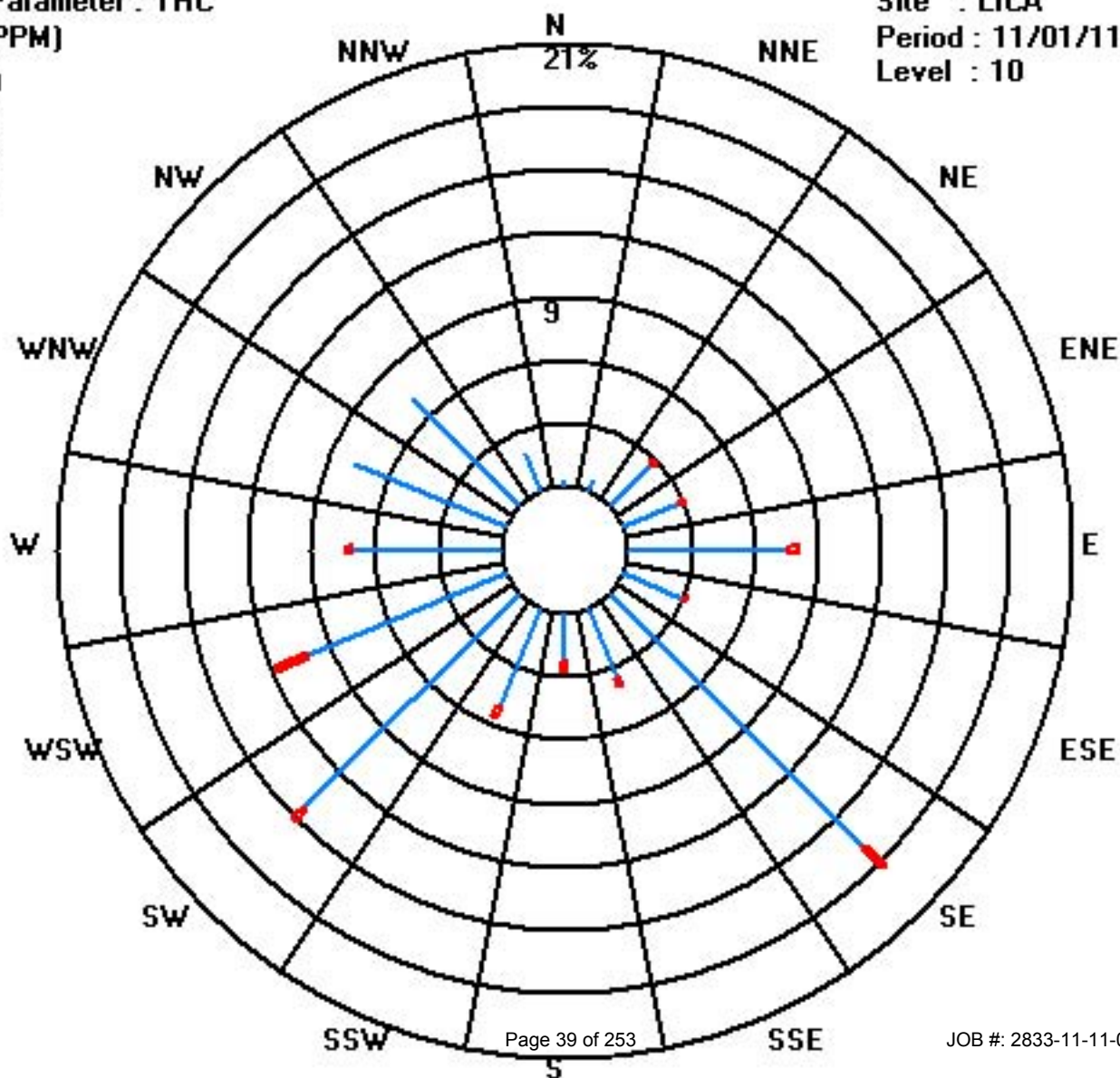
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	2	4	19	20	52	21	116	25	16	35	98	69	48	53	49	13	640
< 10.0			1	1	3	1	9	2	3	3	5	11	2				41
< 50.0																	
>= 50.0																	
Totals	2	4	20	21	55	22	125	27	19	38	103	80	50	53	49	13	

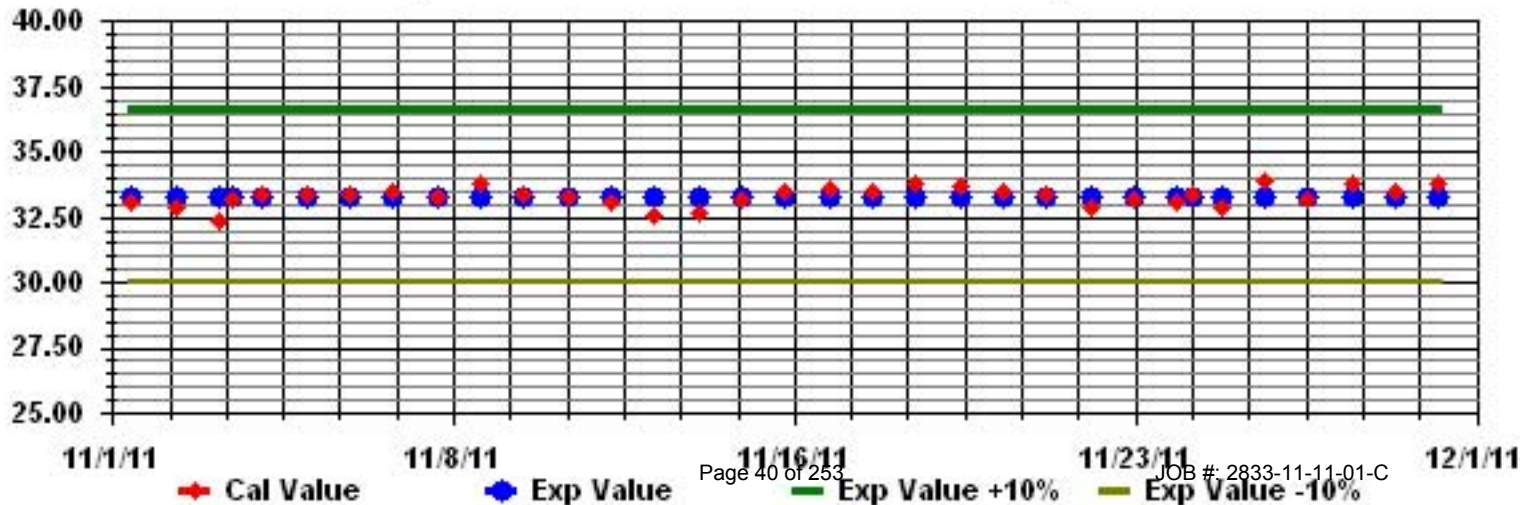
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPM)

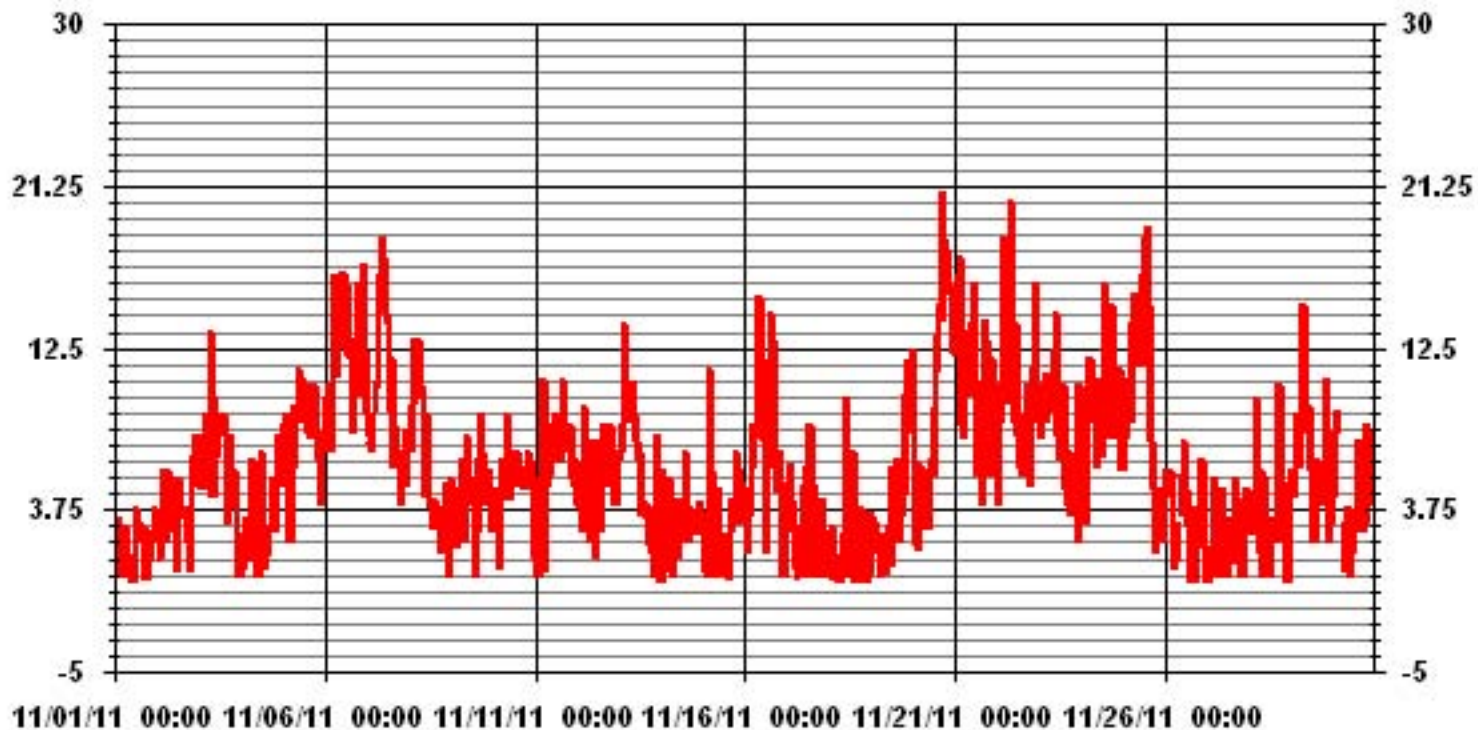


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN



Particulate Matter 2.5

01 Hour Averages



— LICA PM2 UG/M3

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	.28	.56	2.94	3.36	7.84	3.22	18.48	4.20	2.66	5.32	14.70	11.90	7.84	7.84	7.00	1.82	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	.28	.56	2.94	3.36	7.84	3.22	18.48	4.20	2.66	5.32	14.70	11.90	7.84	7.84	7.00	1.82	

Calm : .00 %

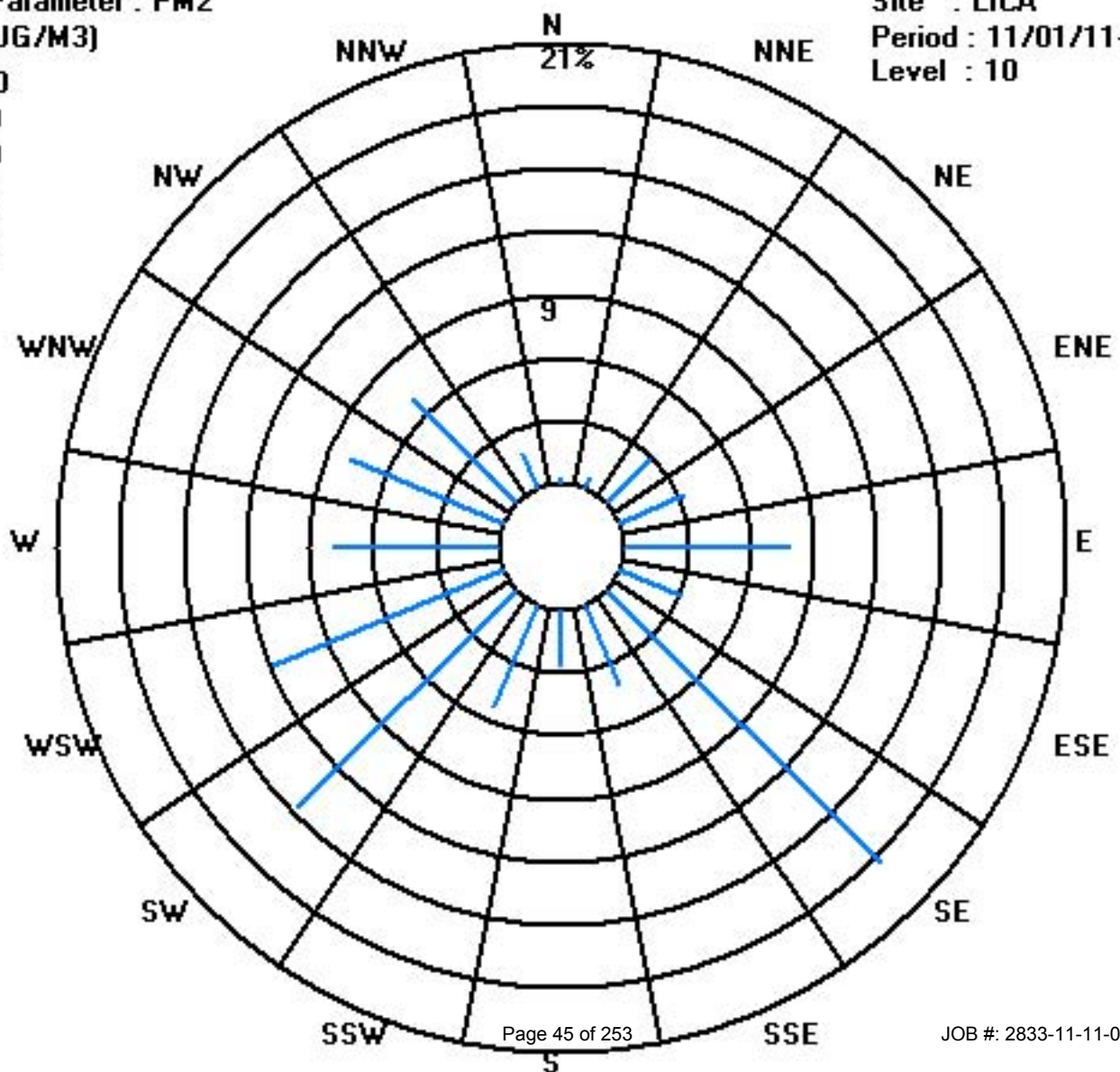
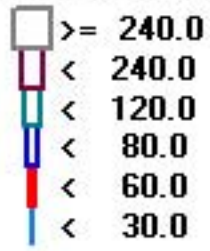
Total # Operational Hours : 714

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	2	4	21	24	56	23	132	30	19	38	105	85	56	56	50	13	714
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	2	4	21	24	56	23	132	30	19	38	105	85	56	56	50	13	

Calm : .00 %

Total # Operational Hours : 714



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

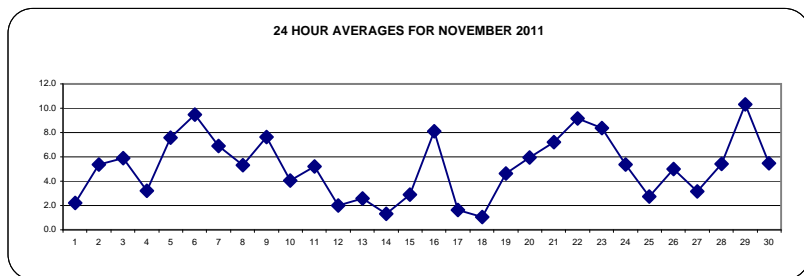
MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	3	2	1	0	0	1	3	4	3	2	IZS	1	1	1	1	2	2	3	5	4	4	3	3	2	5	2.2	24
2	2	2	2	3	4	6	9	9	11	IZS	5	5	4	5	6	9	8	5	6	6	5	4	4	4	11	5.4	24
3	4	3	4	4	7	8	13	13	IZS	C	C	C	C	C	C	C	7	7	10	6	3	2	1	2	13	5.9	24
4	2	2	1	2	3	2	3	IZS	3	2	1	M	1	1	2	2	3	6	9	6	5	4	5	6	9	3.2	23
5	6	5	5	5	7	10	IZS	7	8	4	3	3	4	3	4	11	16	13	12	12	11	12	10	16	7.6	24	
6	10	8	8	8	7	IZS	12	10	9	10	10	8	8	9	10	11	12	12	10	10	11	9	8	8	12	9.5	24
7	5	5	5	6	IZS	7	8	8	14	11	10	5	4	5	6	7	14	11	4	5	4	5	5	5	14	6.9	24
8	9	5	5	IZS	4	6	7	8	10	8	4	2	1	2	2	2	3	7	6	6	8	7	5	5	10	5.3	24
9	5	6	IZS	4	5	7	9	11	11	10	6	4	4	2	3	11	23	26	12	4	4	5	2	2	26	7.7	24
10	2	IZS	2	2	2	2	3	4	5	4	4	4	4	5	8	8	7	4	3	4	4	4	4	4	8	4.0	24
11	IZS	4	4	4	7	8	12	12	9	6	3	4	4	4	5	6	4	5	4	3	2	3	2	IZS	12	5.2	24
12	2	2	2	2	2	2	2	4	4	2	1	2	1	1	1	1	3	2	2	2	2	2	IZS	2	4	2.0	24
13	2	2	2	2	2	3	3	3	4	4	4	3	3	2	2	2	3	3	3	3	2	IZS	1	1	4	2.6	24
14	1	3	4	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	4	1.3	24
15	1	1	1	1	1	1	2	1	1	2	2	2	1	1	1	1	1	2	8	IZS	11	9	8	7	11	2.9	24
16	6	8	8	9	10	10	12	16	16	14	7	4	5	4	10	9	15	9	IZS	5	3	3	2	2	16	8.1	24
17	2	1	2	1	1	2	2	2	2	2	2	2	2	1	2	2	2	IZS	2	1	1	1	1	1	2	1.6	24
18	1	1	1	0	0	0	1	1	1	1	2	2	1	2	2	1	IZS	1	1	0	1	1	1	2	2	1.0	24
19	4	5	4	3	2	2	2	2	2	2	1	1	2	2	2	IZS	4	5	12	10	9	10	10	10	12	4.6	24
20	5	3	3	3	3	3	5	5	5	4	3	3	3	4	IZS	5	8	12	11	9	11	12	10	7	12	6.0	24
21	11	7	6	6	6	7	8	12	13	7	5	5	6	IZS	6	8	7	8	7	8	8	5	4	6	13	7.2	24
22	4	3	5	4	8	10	12	14	16	7	7	5	IZS	6	6	9	11	13	18	11	12	10	10	10	18	9.2	24
23	12	9	8	8	13	14	12	14	17	19	18	IZS	7	5	4	5	6	5	5	3	3	2	2	2	19	8.4	24
24	2	2	2	3	4	4	6	6	7	4	IZS	3	4	4	4	7	17	24	8	3	3	3	2	2	24	5.4	24
25	1	1	1	2	2	2	3	4	7	IZS	2	3	5	6	6	4	3	2	2	2	1	1	1	2	7	2.7	24
26	3	3	3	2	4	3	8	8	IZS	19	5	4	4	4	5	6	5	6	5	5	4	3	3	3	19	5.0	24
27	3	3	3	3	4	5	4	IZS	4	4	4	6	3	5	3	4	4	2	3	2	1	1	1	1	6	3.2	24
28	1	1	1	1	1	1	IZS	9	6	7	4	4	4	2	4	5	12	37	7	5	4	3	3	3	37	5.4	24
29	3	4	4	4	4	IZS	6	7	8	7	5	4	3	2	5	15	22	20	10	27	24	18	19	16	27	10.3	24
30	14	14	15	14	IZS	2	2	3	2	5	2	1	3	5	4	2	3	3	3	5	6	6	6	6	15	5.5	24
HOURLY MAX	14	14	15	14	13	14	13	16	17	19	18	8	8	9	10	15	23	37	18	27	24	18	19	16			
HOURLY AVG	4.3	4.0	3.9	3.7	4.1	4.6	6.1	7.1	7.1	6.2	4.5	3.4	3.3	3.4	4.1	5.3	7.6	8.9	6.6	5.8	5.8	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:

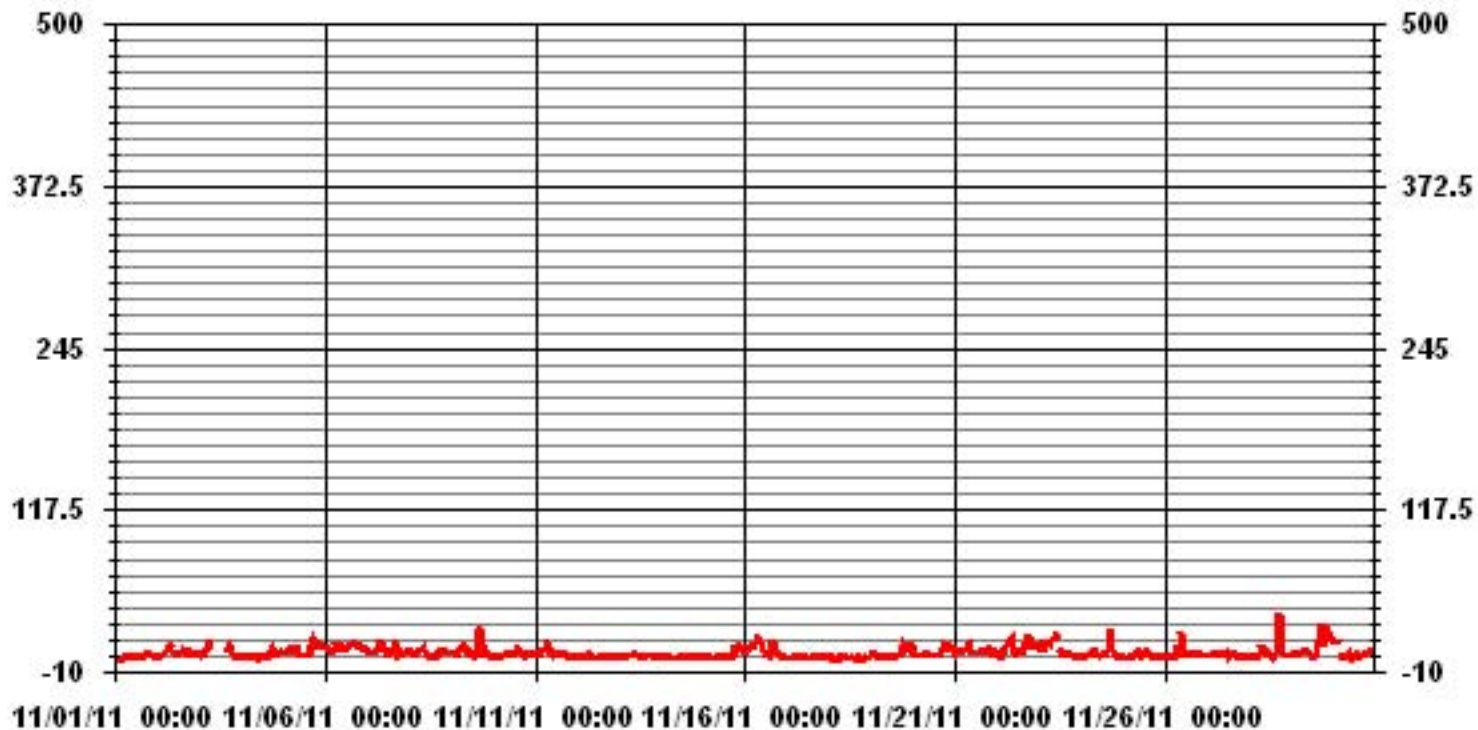
ALBERTA ENVIRONMENT: 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	675					
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	17	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	10.3	PPB			ON DAY(S)	29
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	4.36		MONTHLY AVERAGE	5.17	PPB	

01 Hour Averages



— LICA H02_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	4	2	1	1	2	7	7	4	3	IZS	2	1	2	8	2	3	5	9	6	6	5	4	3	9	4.1	24	
2	5	4	4	7	5	25	19	20	20	IZS	7	5	6	6	10	18	15	7	28	11	6	5	5	6	28	10.6	24	
3	6	5	7	6	17	19	23	18	IZS	C	C	C	C	C	C	12	10	20	6	5	2	2	3	23	10.1	24		
4	3	2	2	4	4	3	4	IZS	6	4	1	M	4	2	4	4	15	48	18	14	7	9	9	48	7.8	23		
5	12	10	7	9	12	15	IZS	10	11	6	4	4	5	5	5	6	34	24	18	15	16	14	14	13	34	11.7	24	
6	13	11	10	9	7	IZS	14	14	11	11	11	9	10	9	11	15	16	24	12	23	14	12	10	10	24	12.4	24	
7	6	7	8	8	IZS	15	9	11	24	16	12	7	6	8	7	12	37	24	8	9	5	5	5	7	37	11.1	24	
8	25	6	8	IZS	7	8	8	10	16	9	7	3	2	2	3	7	11	10	8	9	9	7	7	7	25	8.0	24	
9	6	7	IZS	6	9	9	10	14	13	14	9	6	6	3	4	28	32	39	24	6	16	19	3	3	39	12.4	24	
10	3	IZS	2	2	3	5	4	7	19	16	16	6	10	8	13	10	10	9	5	7	6	5	5	6	19	7.7	24	
11	IZS	9	5	5	13	14	9	16	16	12	5	6	5	7	12	26	8	7	20	9	5	4	4	IZS	26	9.9	24	
12	3	4	3	3	4	3	4	12	7	5	3	6	4	8	2	2	28	5	7	2	3	3	IZS	3	28	5.4	24	
13	4	3	2	3	3	3	3	4	6	5	5	4	4	3	3	4	7	4	4	3	IZS	2	2	7	3.7	24		
14	3	6	6	3	2	1	2	2	3	2	1	2	1	1	1	1	1	2	2	2	IZS	1	1	1	6	2.0	24	
15	1	2	1	1	1	1	3	2	2	3	2	2	2	1	2	3	2	7	15	IZS	12	11	13	8	15	4.2	24	
16	9	10	9	13	13	12	20	20	20	21	9	6	6	8	17	14	23	17	IZS	7	5	5	5	3	23	11.8	24	
17	2	2	3	2	2	8	4	4	4	4	7	5	2	3	4	3	6	IZS	8	3	2	3	1	2	8	3.7	24	
18	2	2	2	1	1	1	2	1	1	5	5	4	5	4	13	1	IZS	1	1	1	2	1	2	3	13	2.7	24	
19	5	7	5	5	3	4	3	4	3	3	5	2	9	6	5	IZS	5	12	19	18	12	17	13	18	19	8.0	24	
20	8	4	3	4	4	6	10	6	7	7	4	7	4	5	IZS	6	12	17	16	13	15	15	13	9	17	8.5	24	
21	13	9	9	8	8	8	12	15	22	11	8	7	8	IZS	8	11	10	10	11	10	14	12	6	8	22	10.3	24	
22	6	5	8	9	16	17	19	21	43	11	8	7	IZS	8	9	17	16	24	22	20	14	12	13	12	43	14.7	24	
23	14	14	12	15	16	23	15	18	22	23	27	IZS	10	7	6	9	9	7	7	4	7	3	3	4	27	12.0	24	
24	3	3	3	4	5	5	8	8	10	7	IZS	4	5	5	5	11	23	26	26	9	4	4	4	3	26	8.0	24	
25	2	2	2	2	2	5	4	7	27	IZS	3	6	6	8	13	6	5	3	2	3	2	2	4	27	5.1	24		
26	5	6	5	4	49	5	14	14	IZS	138	36	8	12	9	13	9	7	11	8	7	7	4	5	5	138	16.6	24	
27	4	3	5	4	6	9	6	IZS	7	8	25	89	7	6	4	7	6	4	3	3	2	2	1	1	89	9.2	24	
28	1	1	1	1	1	1	IZS	21	8	10	10	6	42	3	14	29	24	324	12	6	5	4	3	3	324	23.0	24	
29	4	5	6	5	6	IZS	7	9	9	10	6	6	4	3	40	27	30	32	15	44	31	24	23	19	44	15.9	24	
30	16	17	18	17	IZS	3	4	8	3	10	4	2	5	6	14	9	9	5	5	12	7	7	8	8	18	8.6	24	
HOURLY MAX	25	17	18	17	49	25	23	21	43	138	36	89	42	9	40	29	37	324	48	44	31	24	23	19				
HOURLY AVG	6.6	5.9	5.4	5.6	7.9	8.2	8.8	10.8	12.3	13.9	8.9	8.2	6.8	5.2	8.9	10.4	13.7	23.8	13.3	9.9	8.6	7.5	6.4	6.3				

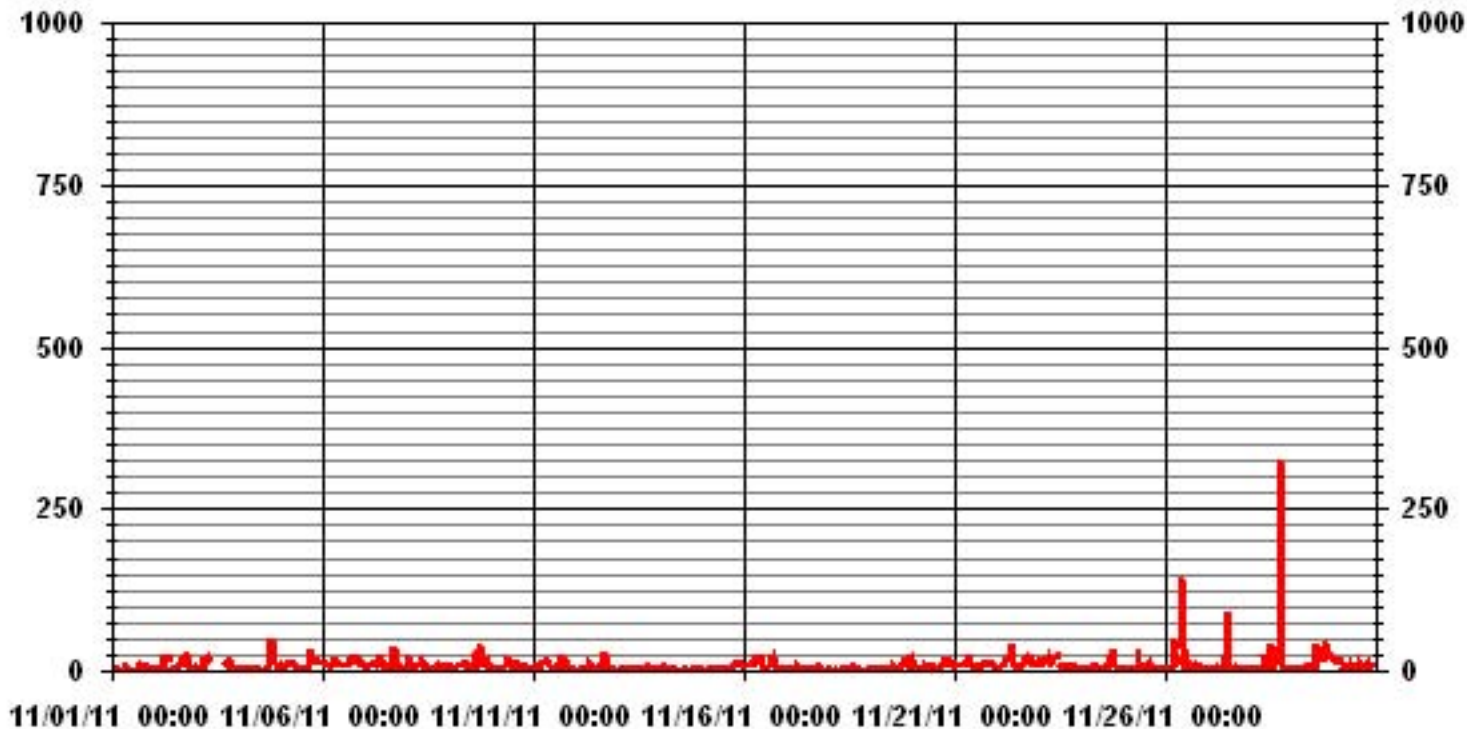
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681				
MAXIMUM INSTANTANEOUS VALUE:	324	PPB	@ HOUR(S)	17	ON DAY(S) 28
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	15.29				

01 Hour Averages



LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

November 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	.29	.58	2.93	3.23	8.07	3.23	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	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	.29	.58	2.93	3.23	8.07	3.23	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2	4	20	22	55	22	126	27	19	37	103	79	50	53	49	13	681
< 110																	
< 210																	
>= 210																	
Totals	2	4	20	22	55	22	126	27	19	37	103	79	50	53	49	13	

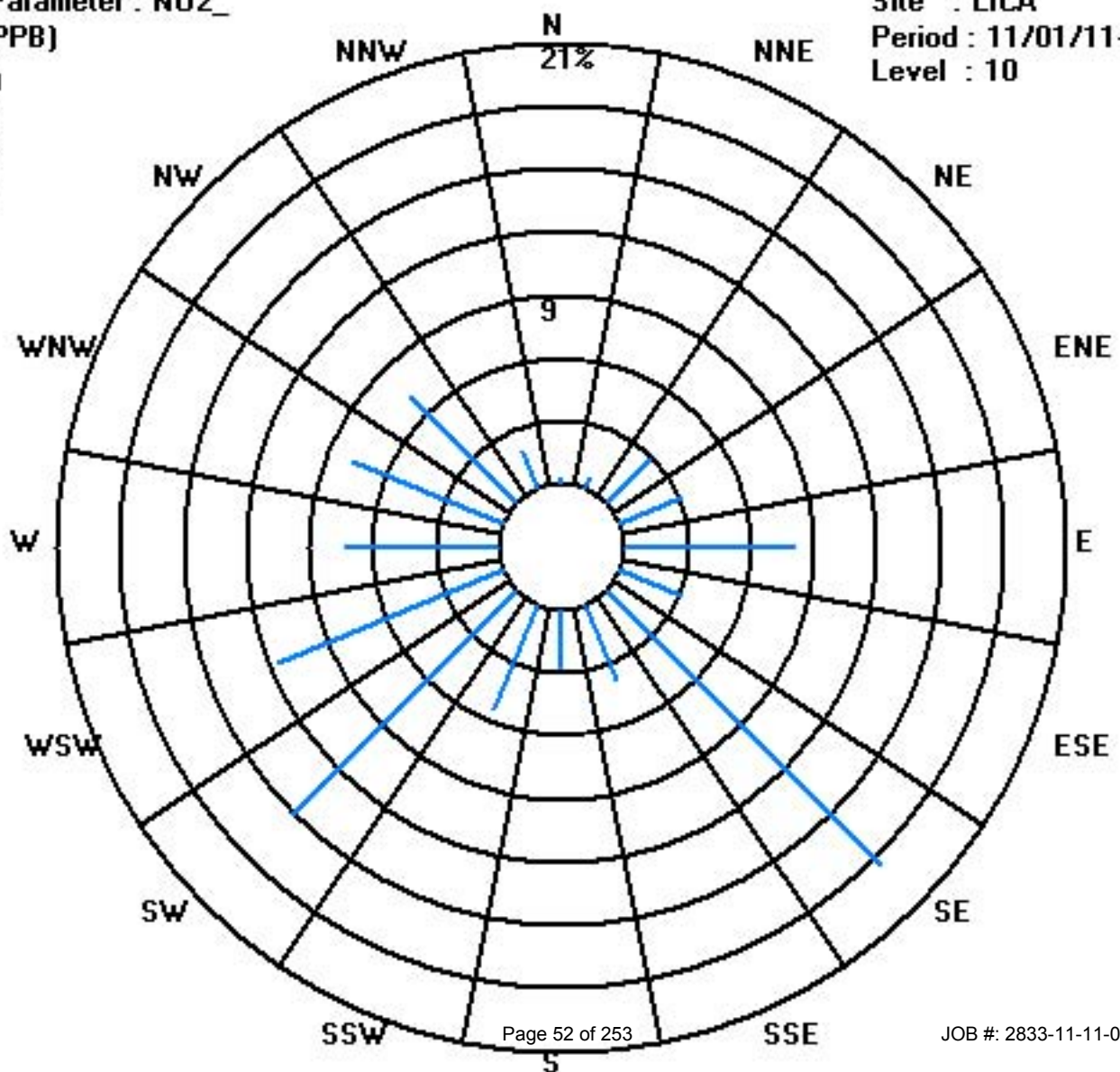
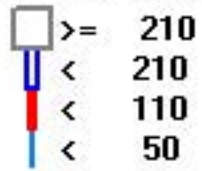
Calm : .00 %

Total # Operational Hours : 681

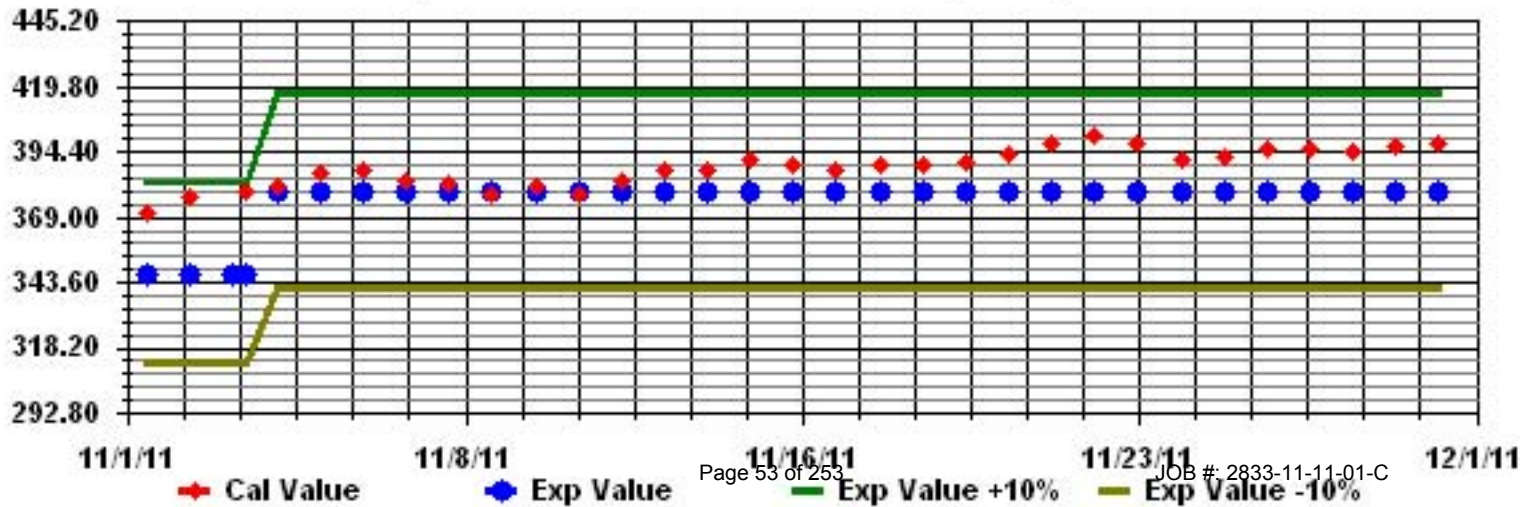
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	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
2	0	0	0	0	0	1	1	3	6	IZS	2	2	1	1	1	2	1	0	0	0	0	0	0	0	0	6	0.9	24
3	0	0	0	0	3	1	5	4	IZS	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	5	0.8	24	
4	0	0	0	0	0	0	0	IZS	0	0	0	M	0	1	1	0	0	0	2	2	2	0	0	0	2	0.4	23	
5	1	0	0	1	3	4	IZS	1	6	3	3	3	3	2	1	1	5	2	4	4	6	9	8	5	9	3.3	24	
6	2	3	3	2	2	IZS	8	5	11	15	16	10	8	6	5	3	2	1	0	1	3	2	2	3	16	4.9	24	
7	0	0	1	1	IZS	5	5	13	43	8	6	4	2	2	1	1	5	1	0	0	0	0	0	0	43	4.3	24	
8	1	0	0	IZS	0	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
9	0	0	IZS	0	0	0	0	1	3	4	3	2	1	1	1	3	3	8	2	0	1	3	0	0	8	1.6	24	
10	0	IZS	0	0	0	0	0	0	1	1	1	1	1	1	2	1	1	0	0	0	0	0	0	0	2	0.4	24	
11	IZS	0	0	0	1	3	15	22	12	2	1	1	1	1	1	3	1	1	1	1	0	1	1	IZS	22	3.1	24	
12	0	0	1	0	1	0	0	1	1	0	0	2	0	1	0	0	1	1	0	0	0	0	IZS	0	2	0.4	24	
13	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	IZS	0	0	1	0.3	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	1	0.2	24	
16	0	0	0	1	2	1	4	7	13	12	3	2	2	1	3	2	3	1	IZS	0	1	0	0	0	13	2.5	24	
17	0	0	0	0	0	1	0	1	1	1	2	1	1	1	1	1	1	IZS	1	1	0	0	0	0	2	0.6	24	
18	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	IZS	0	0	0	0	0	0	0	1	0.1	24	
19	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	IZS	0	0	1	1	0	1	1	2	2	0.4	24	
20	0	0	0	0	0	0	0	0	1	1	1	2	2	2	IZS	1	0	1	1	1	1	1	1	0	2	0.7	24	
21	1	0	0	0	0	0	1	2	6	4	5	5	4	IZS	3	3	1	1	1	1	0	2	0	0	6	1.7	24	
22	0	0	0	0	1	2	2	3	7	3	3	2	IZS	2	2	2	1	3	2	1	0	0	0	0	7	1.6	24	
23	0	0	0	1	2	8	12	26	27	27	19	IZS	2	1	1	1	1	1	0	0	0	0	0	0	27	5.6	24	
24	0	0	0	0	0	0	0	0	0	0	1	IZS	1	1	1	1	2	6	2	1	0	0	0	0	6	0.7	24	
25	0	0	0	0	0	0	0	0	2	IZS	1	1	1	2	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
26	0	0	0	0	2	0	1	0	IZS	9	2	1	2	2	1	1	0	0	0	1	0	0	0	0	9	1.0	24	
27	0	0	0	0	0	0	0	IZS	0	1	1	5	1	1	1	0	0	0	0	0	0	0	0	0	5	0.4	24	
28	0	0	0	0	0	0	IZS	1	1	2	2	1	3	0	1	1	2	54	0	0	0	0	0	0	54	3.0	24	
29	0	0	0	0	0	IZS	0	0	1	1	1	1	1	0	2	5	3	6	0	18	16	11	30	21	30	5.1	24	
30	16	22	25	21	IZS	0	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	0	0	0	25	3.9	24	
HOURLY MAX	16	22	25	21	3	8	15	26	43	27	19	10	8	6	5	5	5	54	4	18	16	11	30	21				
HOURLY AVG	0.7	0.9	1.0	0.9	0.6	0.9	1.9	3.3	5.2	3.7	2.9	1.9	1.4	1.2	1.2	1.3	1.1	3.0	0.6	1.1	1.0	1.0	1.5	1.1				

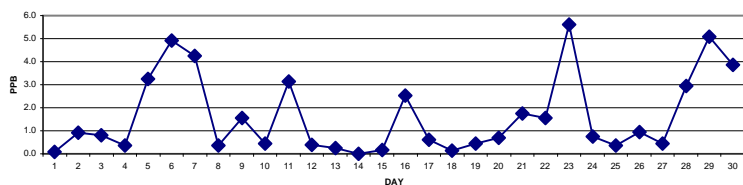
STATUS FLAG CODES

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

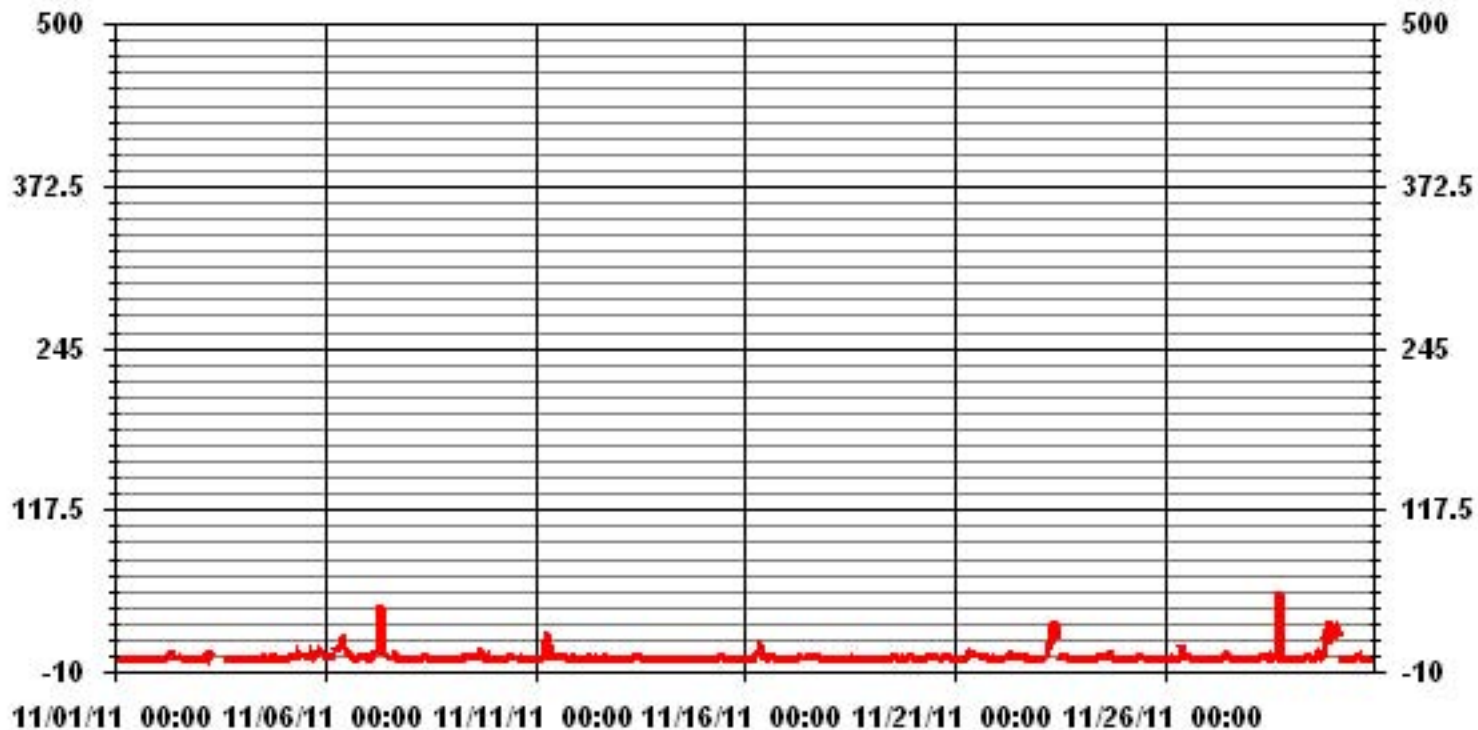
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	306
MAXIMUM 1-HR AVERAGE:	54 PPB @ HOUR(S) 17 ON DAY(S) 28
MAXIMUM 24-HR AVERAGE:	5.6 PPB ON DAY(S) 23
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	719 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION	4.45
MONTHLY AVERAGE	1.63 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	0	0	0	0	1	1	1	IZS	1	1	1	12	1	1	0	1	1	1	1	2	0	12	1.3	24	
2	0	1	0	1	1	17	7	12	17	IZS	4	3	5	4	5	9	13	4	14	11	4	1	1	2	17	5.9	24	
3	1	3	4	2	25	9	17	11	IZS	C	C	C	C	C	C	1	1	3	0	0	0	0	0	0	25	4.8	24	
4	0	0	0	0	0	0	0	IZS	1	1	0	M	3	3	3	5	2	1	44	25	43	1	2	1	44	6.1	23	
5	8	1	3	12	22	7	IZS	5	13	4	4	4	4	8	3	2	81	12	17	17	11	15	12	21	81	12.4	24	
6	10	7	10	7	7	IZS	12	7	21	17	19	12	11	8	6	6	18	14	1	24	12	8	7	24	24	11.7	24	
7	1	1	4	2	IZS	20	10	25	76	32	8	5	5	3	2	6	71	19	1	4	0	0	0	1	76	12.9	24	
8	5	0	4	IZS	3	3	2	1	5	4	3	1	1	0	0	0	0	1	3	3	1	1	1	1	5	1.9	24	
9	1	1	IZS	1	3	1	3	5	6	7	5	3	3	1	1	37	18	39	18	1	13	36	0	0	39	8.8	24	
10	0	IZS	0	0	1	3	1	2	14	14	2	2	9	9	9	2	17	12	1	5	2	2	3	3	17	4.9	24	
11	IZS	3	1	0	3	10	26	35	33	5	3	3	4	6	5	18	13	7	8	5	1	4	2	IZS	35	8.9	24	
12	1	3	2	2	14	2	2	10	4	3	1	20	1	7	6	0	18	12	5	1	1	5	IZS	2	20	5.3	24	
13	3	0	0	0	1	4	1	0	8	2	2	2	2	2	1	1	1	3	1	2	1	IZS	1	1	8	1.7	24	
14	3	2	2	2	1	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	IZS	0	0	1	3	0.7	24
15	0	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	0	1	4	IZS	1	2	3	1	4	1.0	24	
16	1	2	1	6	5	4	23	18	37	42	5	5	4	4	18	22	12	16	IZS	6	5	1	1	1	42	10.4	24	
17	1	1	1	1	1	13	1	3	5	2	44	5	1	2	1	11	4	IZS	6	1	1	1	1	1	44	4.7	24	
18	1	1	1	0	0	0	0	1	0	1	1	1	1	1	14	0	IZS	0	0	0	0	0	0	0	14	1.0	24	
19	0	1	1	2	1	1	1	1	0	2	4	1	12	6	6	IZS	2	1	4	22	1	6	7	29	29	4.8	24	
20	1	1	0	1	1	1	11	0	6	4	3	3	3	4	IZS	5	3	5	11	4	5	6	3	2	11	3.6	24	
21	1	0	3	1	1	1	3	5	17	6	8	7	11	IZS	6	14	5	7	5	2	2	9	1	2	17	5.1	24	
22	1	2	2	2	5	6	14	9	23	4	5	3	IZS	5	3	10	3	22	8	4	1	1	2	3	23	6.0	24	
23	3	5	3	6	5	21	27	35	56	40	31	IZS	5	3	2	7	13	3	2	4	3	2	1	1	56	12.1	24	
24	0	0	0	1	2	2	2	1	2	1	IZS	2	1	3	3	10	5	13	12	15	1	3	1	0	15	3.5	24	
25	0	0	1	0	1	6	0	1	40	IZS	6	7	2	5	4	1	0	0	0	0	1	0	1	0	1	40	3.3	24
26	1	1	1	0	45	3	15	3	IZS	85	26	7	11	6	6	3	3	2	1	5	6	1	6	1	85	10.3	24	
27	1	0	1	1	2	2	1	IZS	2	3	64	106	4	4	1	6	0	0	0	0	0	0	0	0	106	8.6	24	
28	0	0	0	0	0	0	IZS	3	3	7	8	3	45	1	11	24	9	500	2	0	0	0	0	0	500	26.8	24	
29	1	2	1	1	1	IZS	1	1	3	2	2	2	1	1	44	31	12	22	2	41	35	18	42	34	44	13.0	24	
30	25	27	32	30	IZS	2	1	5	1	1	1	0	1	2	9	102	2	1	0	0	1	3	1	1	102	10.8	24	
HOURLY MAX	25	27	32	30	45	21	27	35	76	85	64	106	45	9	44	102	81	500	44	41	43	36	42	34				
HOURLY AVG	2.4	2.3	2.8	2.8	5.4	4.9	6.5	7.2	14.1	10.8	9.6	7.8	5.5	3.6	6.5	11.9	11.3	24.8	6.0	7.0	5.2	4.4	3.4	4.6				

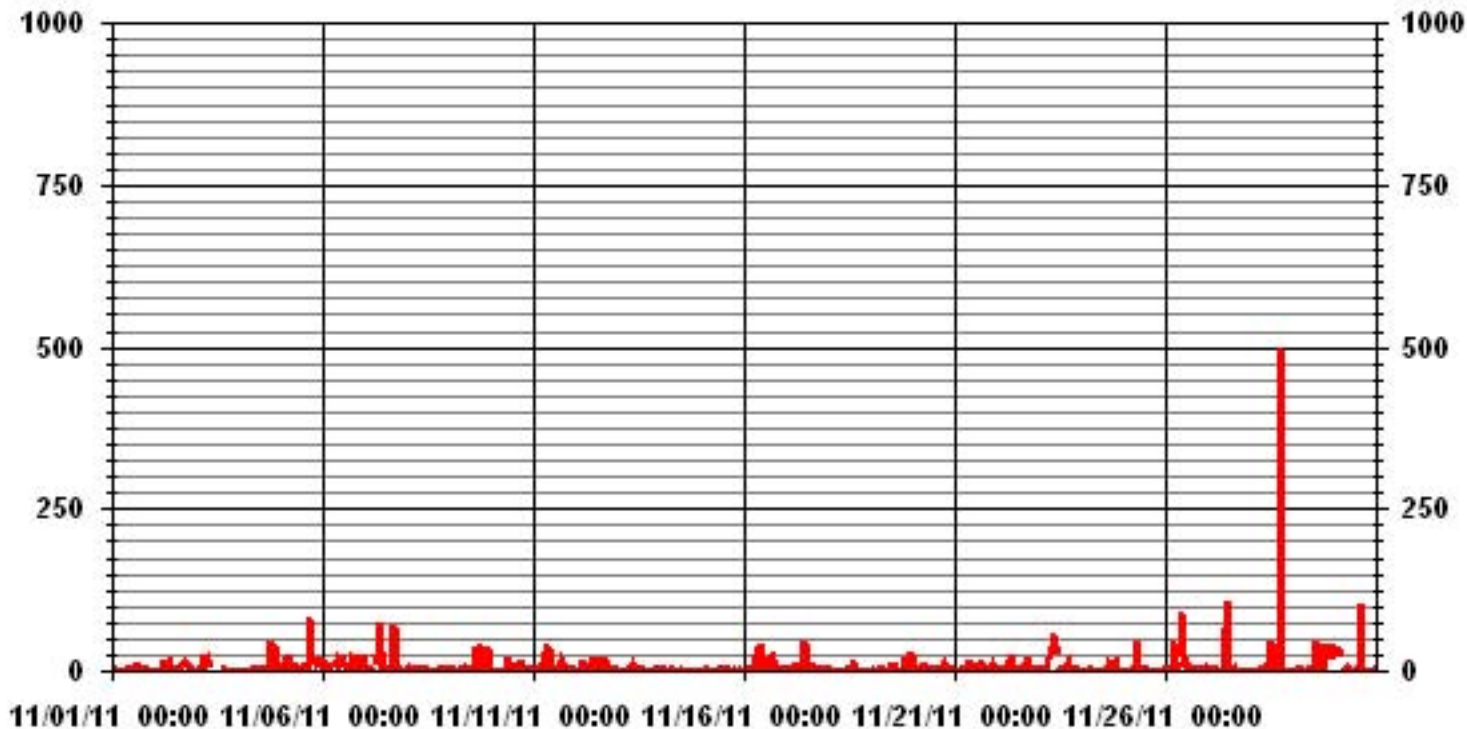
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	567					
MAXIMUM INSTANTANEOUS VALUE:	500	PPB	@ HOUR(S)	17	ON DAY(S)	28
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	22.28					

01 Hour Averages



— LICA NOMAX PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)

November 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	.29	.58	2.93	3.23	8.07	3.08	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	99.85
< 110	.00	.00	.00	.00	.00	.14	.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	.29	.58	2.93	3.23	8.07	3.23	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	

Calm : .00 %

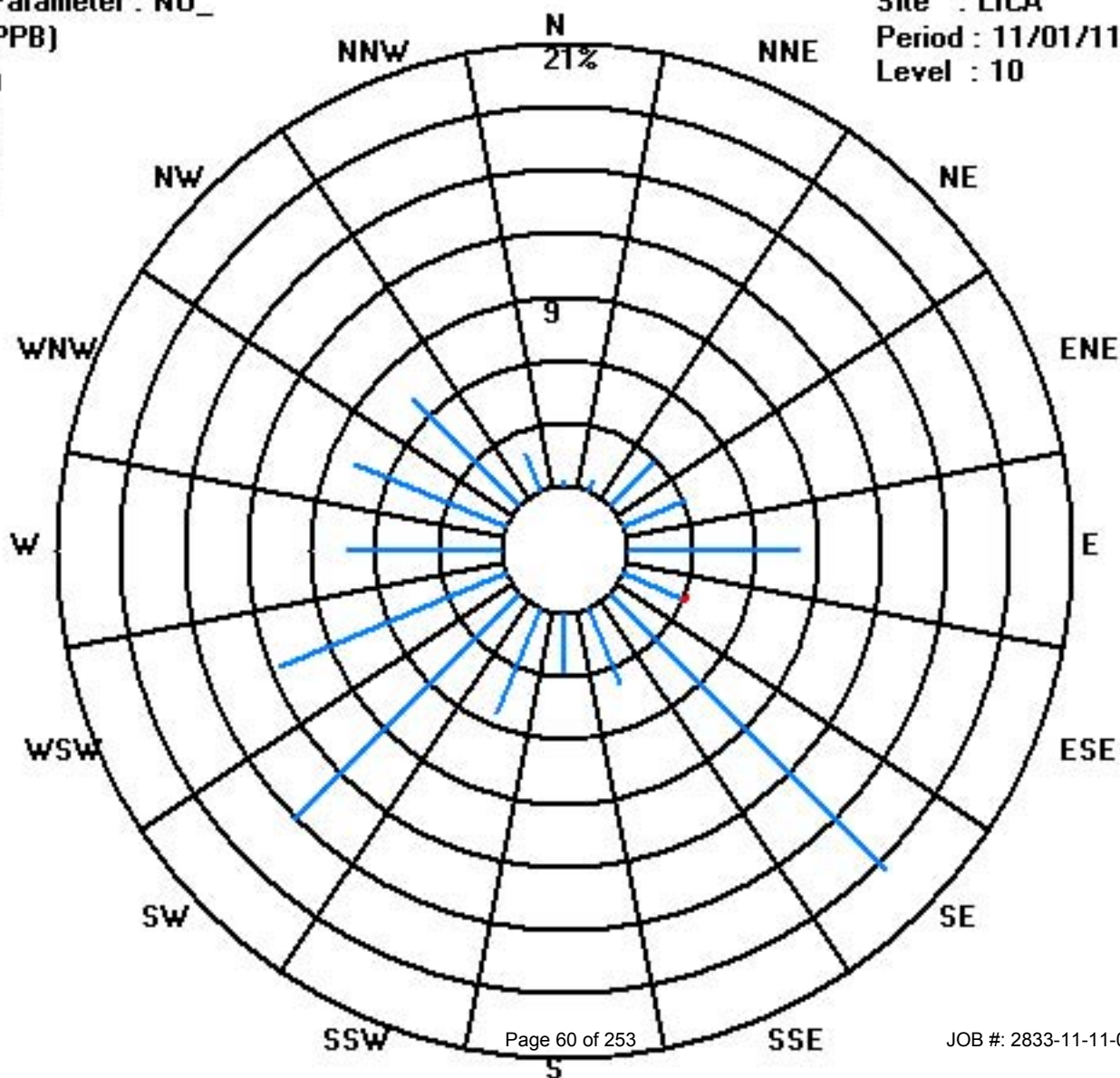
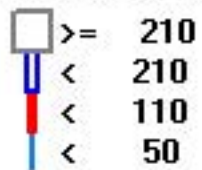
Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2	4	20	22	55	21	126	27	19	37	103	79	50	53	49	13	680
< 110						1											1
< 210																	
>= 210																	
Totals	2	4	20	22	55	22	126	27	19	37	103	79	50	53	49	13	

Calm : .00 %

Total # Operational Hours : 681



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	3	2	1	0	0	1	3	4	4	3	IZS	2	1	1	2	2	2	3	5	4	4	3	3	2	5	2.4	24	
2	2	2	2	3	4	7	10	12	17	IZS	7	7	5	6	7	11	10	5	7	6	5	4	4	5	17	6.4	24	
3	4	3	4	4	10	10	18	17	IZS	C	C	C	C	C	C	C	7	7	10	6	3	2	1	1	18	6.7	24	
4	2	2	1	2	3	2	3	IZS	3	2	1	M	1	2	2	2	3	6	11	8	7	5	5	6	11	3.6	23	
5	7	5	5	6	10	13	IZS	9	14	7	6	7	6	5	4	5	16	18	17	15	18	20	20	14	20	10.7	24	
6	12	12	11	10	9	IZS	20	15	19	25	26	18	17	15	15	14	14	12	10	11	14	11	10	10	26	14.3	24	
7	5	5	6	7	IZS	13	13	21	57	19	15	9	6	6	7	8	19	12	4	5	4	5	5	5	57	11.1	24	
8	9	5	5	IZS	4	6	7	9	12	10	5	3	1	2	2	2	3	7	6	7	8	7	5	5	12	5.7	24	
9	5	6	IZS	4	5	7	9	12	13	14	8	6	5	3	3	14	26	33	14	5	4	7	2	2	33	9.0	24	
10	2	IZS	2	2	2	2	3	4	6	5	5	6	6	6	9	9	8	4	3	4	4	4	4	4	9	4.5	24	
11	IZS	4	4	4	8	11	27	34	21	7	3	5	5	5	6	9	6	6	5	4	3	3	3	IZS	34	8.3	24	
12	2	2	3	2	2	2	2	5	5	2	1	3	1	2	2	1	4	3	2	2	2	3	IZS	2	5	2.4	24	
13	2	2	2	2	2	3	3	3	4	5	5	4	4	3	3	2	3	4	3	3	2	IZS	1	1	5	2.9	24	
14	1	3	4	2	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	IZS	1	1	1	4	1.3	24
15	1	1	1	1	1	1	2	1	1	3	2	3	2	1	1	1	1	2	8	IZS	11	9	9	7	11	3.0	24	
16	7	8	8	9	12	11	16	23	29	26	9	6	7	5	13	12	18	9	IZS	6	3	3	3	2	29	10.7	24	
17	2	2	2	2	2	3	3	3	3	3	4	3	2	2	2	3	3	IZS	3	2	1	1	1	1	4	2.3	24	
18	1	1	1	0	0	0	1	1	1	1	2	2	2	2	3	1	IZS	1	1	0	1	1	1	2	3	1.1	24	
19	4	5	4	4	2	2	2	2	2	2	2	2	3	2	3	IZS	4	5	12	10	9	11	11	12	12	5.0	24	
20	5	3	3	3	3	3	6	5	6	5	4	5	6	6	IZS	6	8	13	12	9	12	13	11	8	13	6.7	24	
21	11	7	6	6	6	7	9	14	20	11	10	11	10	IZS	9	11	9	9	8	9	9	7	4	6	20	9.1	24	
22	4	3	5	4	10	12	13	17	23	10	9	6	IZS	8	8	11	12	16	20	11	12	10	11	10	23	10.7	24	
23	12	9	8	9	14	23	24	40	43	46	37	IZS	9	6	5	6	7	6	5	3	3	3	3	2	46	14.0	24	
24	2	2	2	2	4	4	6	6	7	5	IZS	4	5	5	5	8	19	30	10	4	4	3	3	2	30	6.2	24	
25	1	1	1	1	2	2	3	5	9	IZS	3	4	6	8	8	5	3	2	2	2	1	1	1	2	9	3.2	24	
26	3	3	4	2	6	3	9	9	IZS	28	7	6	6	6	6	7	5	6	6	5	4	4	4	4	28	6.2	24	
27	3	3	3	3	4	6	4	IZS	4	5	5	10	4	6	3	5	4	2	3	2	1	1	1	1	10	3.6	24	
28	1	1	1	1	1	1	IZS	10	6	9	6	5	6	2	5	6	14	83	7	5	3	3	3	3	83	7.9	24	
29	3	4	4	4	4	IZS	6	7	8	9	7	6	4	3	7	20	25	26	10	46	40	29	49	37	49	15.6	24	
30	30	36	40	34	IZS	2	3	3	2	5	2	1	3	5	4	4	3	3	3	5	6	6	6	6	40	9.2	24	
HOURLY MAX	30	36	40	34	14	23	27	40	57	46	37	18	17	15	15	20	26	83	20	46	40	29	49	37				
HOURLY AVG	5.0	4.9	4.9	4.6	4.7	5.6	8.1	10.4	12.2	9.9	7.1	5.4	4.8	4.4	5.2	6.6	8.9	11.5	7.2	6.9	6.8	6.2	6.4	5.6				

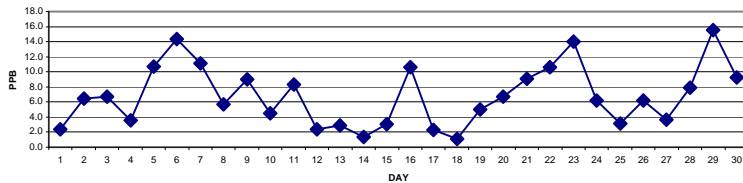
STATUS FLAG CODES

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

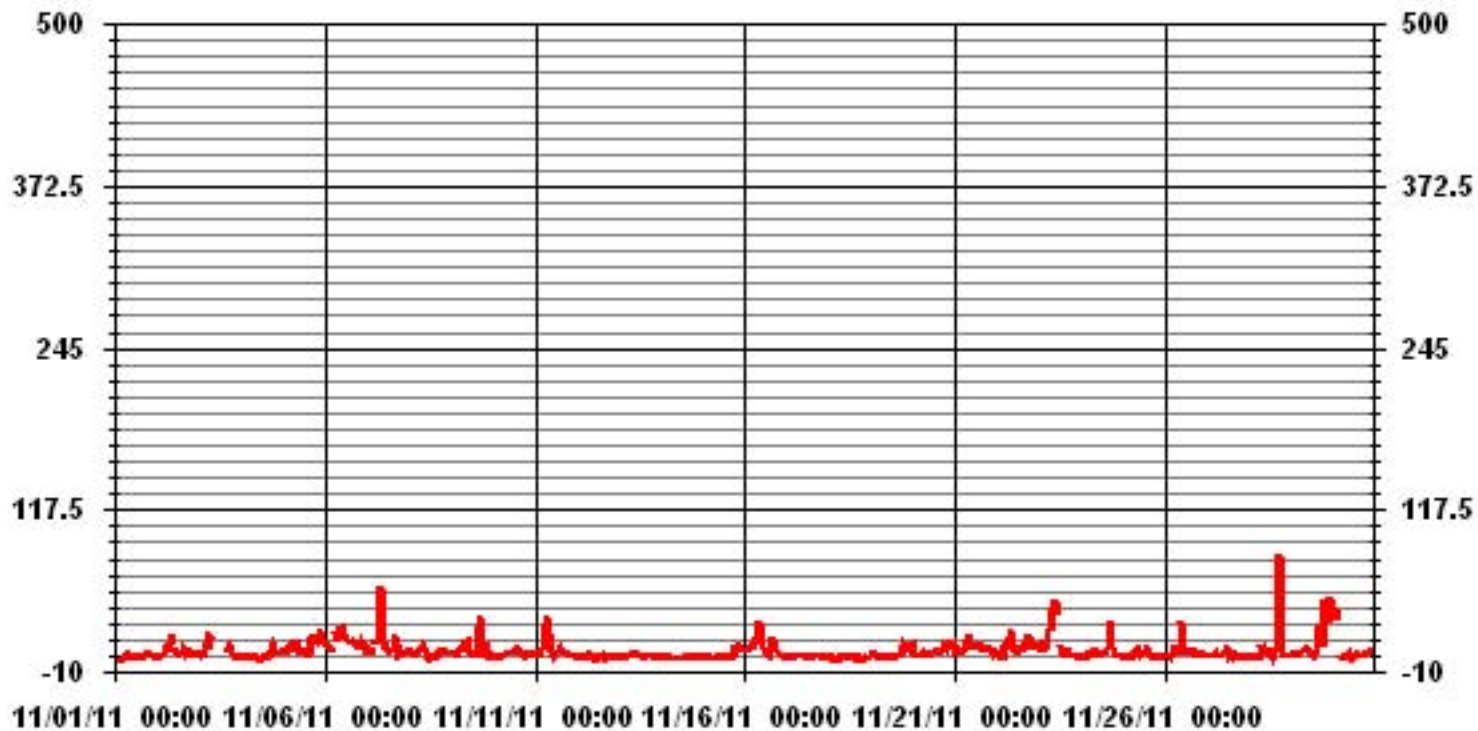
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	675					
MAXIMUM 1-HR AVERAGE:	83	PPB	@ HOUR(S)	17	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	15.6	PPB			ON DAY(S)	29
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	7.84		MONTHLY AVERAGE	6.80	PPB	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	5	3	1	1	3	7	7	5	4	IZS	3	2	3	17	3	3	5	10	7	7	6	5	3	17	5.1	24
2	5	4	4	9	5	37	26	32	36	IZS	10	8	10	8	14	27	27	9	39	22	7	6	5	7	39	15.5	24
3	7	7	11	7	42	27	39	30	IZS	C	C	C	C	C	C	13	11	23	6	5	2	2	3	42	14.7	24	
4	3	2	2	3	4	3	4	IZS	7	5	2	M	6	5	7	8	6	16	89	42	45	8	11	10	89	13.1	23
5	19	10	7	21	34	22	IZS	14	23	10	7	8	8	11	8	8	100	37	33	30	25	27	23	31	100	22.4	24
6	19	18	18	12	14	IZS	25	19	29	27	30	22	20	17	16	21	21	38	12	39	25	20	16	29	39	22.0	24
7	7	7	11	11	IZS	28	19	34	98	47	20	12	11	10	9	18	108	37	8	12	5	6	5	8	108	23.1	24
8	31	6	11	IZS	10	10	9	11	20	12	10	5	2	3	2	3	7	11	11	9	10	10	7	8	31	9.5	24
9	7	7	IZS	7	11	10	11	17	18	20	13	9	9	4	6	57	45	65	29	7	22	46	3	3	65	18.5	24
10	4	IZS	2	2	3	7	6	9	24	30	19	7	17	17	19	12	19	17	6	10	7	7	7	7	30	11.2	24
11	IZS	11	6	5	15	19	42	50	46	17	9	9	8	10	16	36	10	11	28	14	6	7	5	IZS	50	17.3	24
12	3	5	5	4	8	5	4	20	9	6	4	21	4	13	3	2	37	11	11	2	4	6	IZS	4	37	8.3	24
13	5	2	3	3	3	6	3	5	10	7	7	6	5	4	3	4	5	8	4	5	4	IZS	4	2	10	4.7	24
14	5	8	7	4	3	1	3	2	3	2	1	3	2	1	1	2	1	2	2	2	IZS	1	1	2	8	2.6	24
15	1	2	1	1	1	1	4	2	2	4	3	3	3	2	2	4	2	8	16	IZS	14	12	16	9	16	4.9	24
16	10	12	9	19	18	15	43	38	56	63	14	11	9	9	33	25	34	29	IZS	13	10	6	6	4	63	21.1	24
17	3	3	3	3	3	16	6	5	6	5	42	10	4	4	5	6	10	IZS	13	5	3	3	2	3	42	7.1	24
18	3	3	2	1	1	1	2	2	2	7	6	5	6	5	22	1	IZS	1	1	1	2	1	2	3	22	3.5	24
19	5	8	6	6	4	4	3	4	3	4	8	4	16	10	11	IZS	7	13	24	40	13	21	17	41	41	11.8	24
20	8	4	4	4	4	7	20	6	13	10	6	10	7	9	IZS	8	14	21	19	16	18	19	15	11	21	11.0	24
21	15	9	11	9	9	10	14	20	37	17	14	15	15	IZS	13	21	12	16	14	11	15	17	6	10	37	14.3	24
22	7	6	9	11	20	22	32	29	65	15	13	9	IZS	13	12	22	18	40	28	21	15	14	15	12	65	19.5	24
23	14	18	14	21	21	44	41	50	70	61	IZS	13	10	7	11	17	9	9	5	10	5	3	4	70	22.4	24	
24	3	3	3	4	7	7	9	9	12	8	IZS	6	6	7	7	21	27	39	37	20	5	4	4	3	39	10.9	24
25	2	2	2	2	3	10	4	8	65	IZS	9	11	7	13	15	7	5	3	2	3	2	3	2	5	65	8.0	24
26	5	6	6	4	91	6	24	17	IZS	220	61	12	22	16	17	11	8	13	9	10	10	5	7	6	220	25.5	24
27	4	4	6	5	8	10	7	IZS	8	11	81	125	9	9	5	13	6	4	3	3	2	2	1	1	125	14.2	24
28	1	1	1	1	1	1	IZS	24	9	14	18	9	56	4	25	53	29	500	13	6	5	4	4	3	500	34.0	24
29	5	6	6	5	6	IZS	8	9	11	12	8	8	6	4	71	54	41	52	16	84	57	41	62	52	84	27.1	24
30	40	43	50	45	IZS	4	5	10	4	10	6	2	6	7	23	17	11	6	6	12	8	9	8	9	50	14.8	24
HOURLY MAX	40	43	50	45	91	44	43	50	98	220	81	125	56	17	71	57	108	500	89	84	57	46	62	52			
HOURLY AVG	8.6	7.7	7.7	7.9	12.5	12.0	15.0	17.3	24.7	24.0	17.7	13.1	10.3	8.1	13.9	17.0	22.2	35.6	17.8	15.8	12.4	11.0	9.1	10.1			

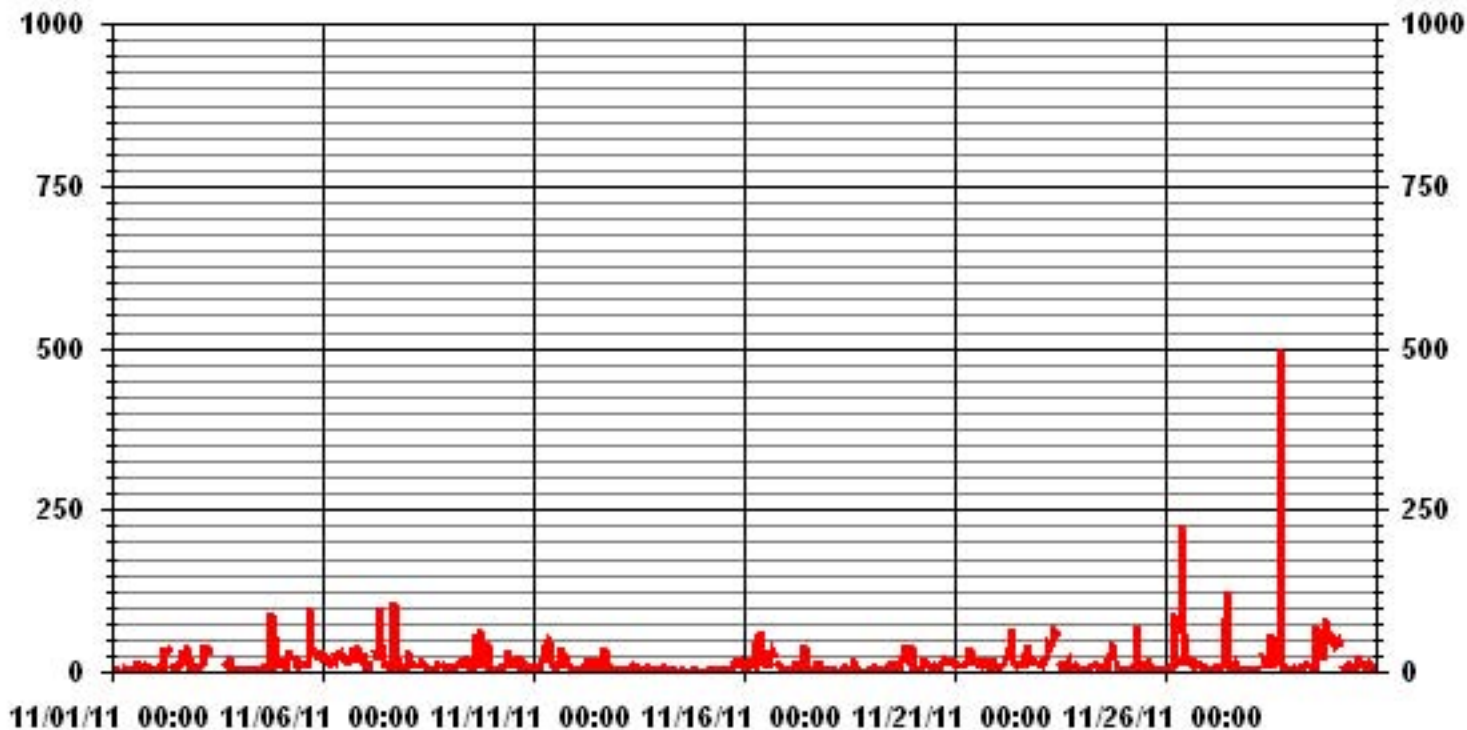
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681					
MAXIMUM INSTANTANEOUS VALUE:	500	PPB	@ HOUR(S)	17	ON DAY(S)	28
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	25.62					

01 Hour Averages



LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

November 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	.29	.58	2.93	3.23	8.07	2.93	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	99.70
< 110	.00	.00	.00	.00	.00	.29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
< 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	.29	.58	2.93	3.23	8.07	3.23	18.50	3.96	2.79	5.43	15.12	11.60	7.34	7.78	7.19	1.90	

Calm : .00 %

Total # Operational Hours : 681

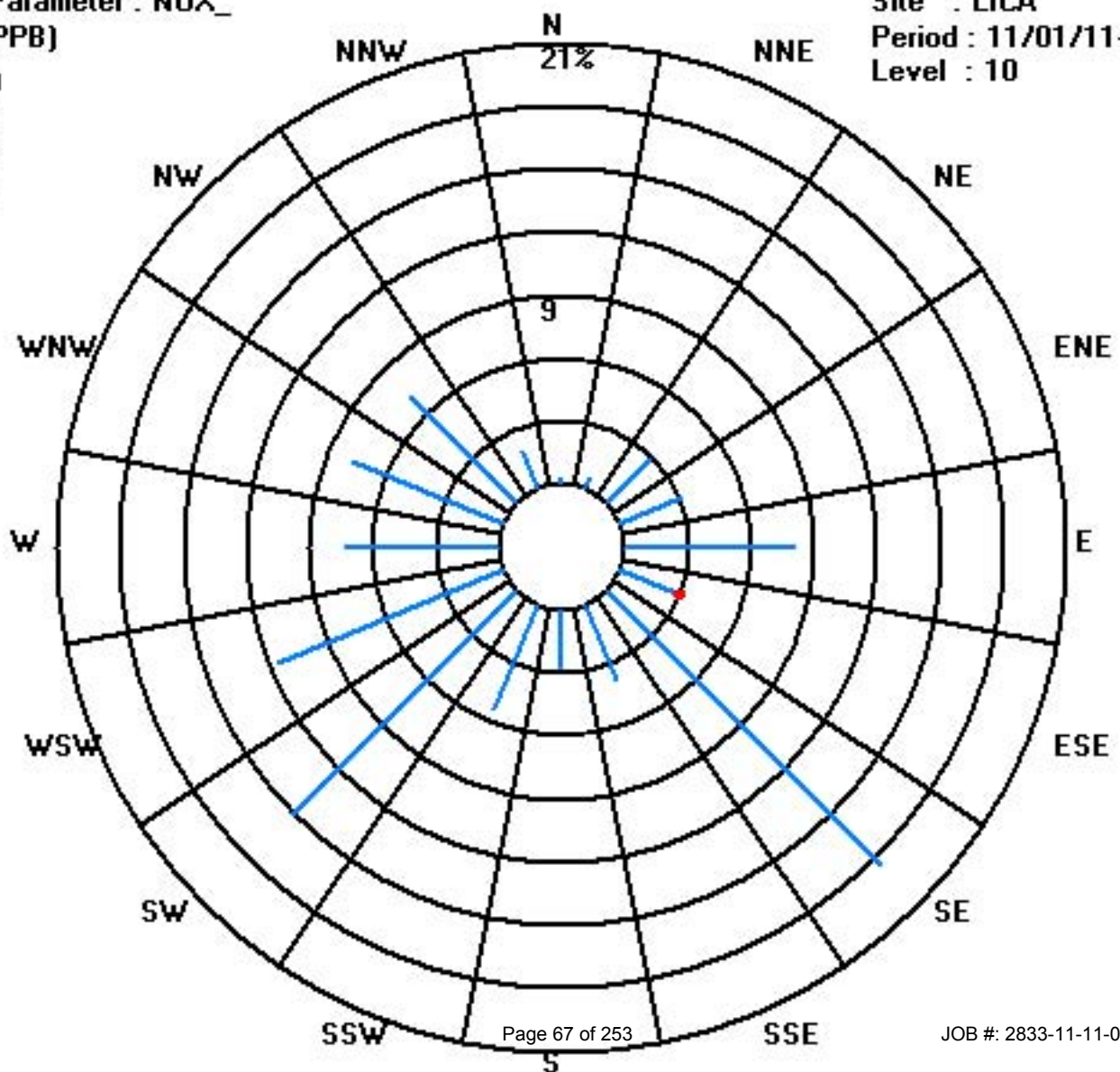
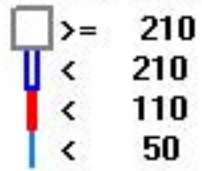
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2	4	20	22	55	20	126	27	19	37	103	79	50	53	49	13	679
< 110						2											2
< 210																	
>= 210																	
Totals	2	4	20	22	55	22	126	27	19	37	103	79	50	53	49	13	

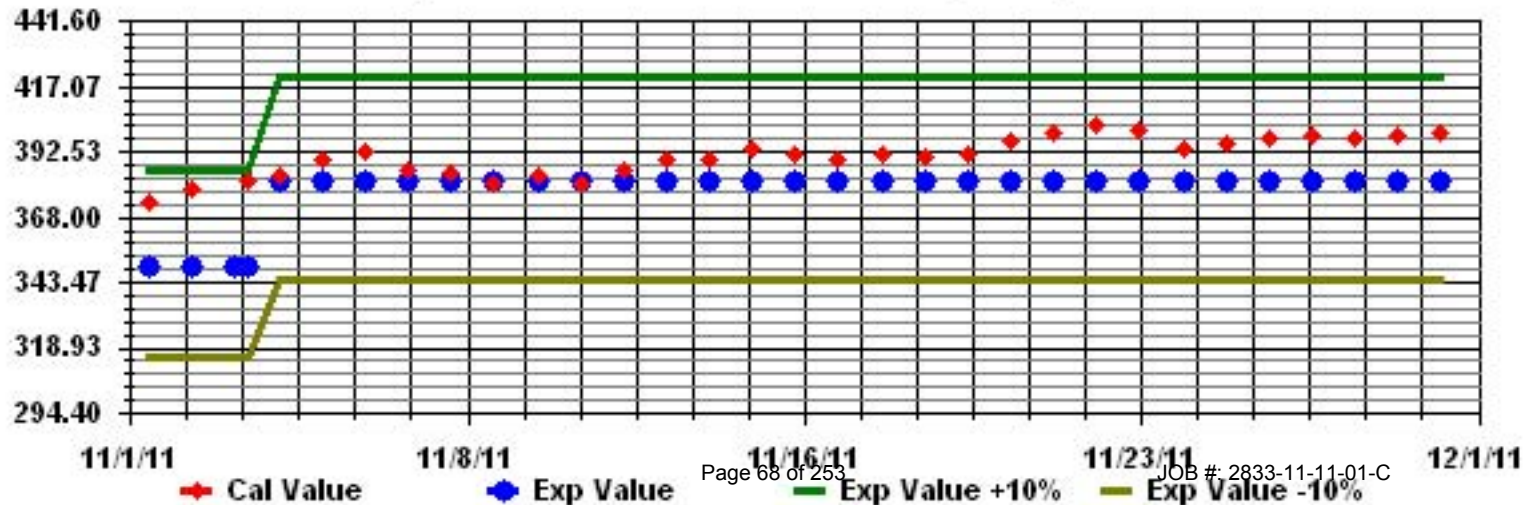
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

OZONE (O₃) hourly averages in ppb

MST

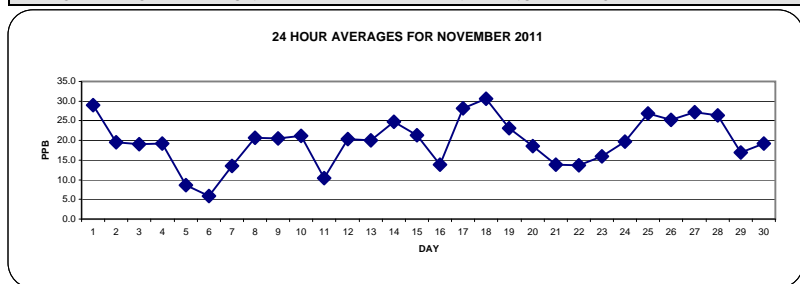
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	25	28	30	29	30	30	27	26	26	29	IZS	32	34	35	34	34	33	32	29	26	26	25	25	23	35	29.0	24	
2	16	13	14	14	21	16	15	10	9	IZS	21	24	28	29	28	25	25	25	21	19	19	19	19	18	29	19.5	24	
3	17	19	17	17	14	11	8	6	IZS	16	15	15	16	17	22	26	23	23	19	25	30	33	27	22	33	19.0	24	
4	19	21	23	24	23	23	22	IZS	C	C	C	C	27	27	25	25	23	16	10	10	10	15	14	9	27	19.3	24	
5	8	7	7	5	3	1	IZS	6	5	12	14	14	17	22	23	22	14	6	4	3	1	1	1	2	23	8.6	24	
6	2	1	1	1	1	IZS	0	1	2	4	6	8	11	13	15	15	11	11	11	9	4	3	3	3	15	5.9	24	
7	4	3	2	2	IZS	1	1	0	1	5	9	16	22	26	23	21	15	18	27	26	24	23	22	20	27	13.5	24	
8	13	14	10	IZS	7	12	13	13	12	16	25	29	33	31	30	30	30	26	25	23	21	21	21	19	33	20.6	24	
9	20	19	IZS	10	12	15	16	13	15	17	22	25	26	31	31	22	10	6	19	29	29	26	28	29	31	20.4	24	
10	29	IZS	31	31	30	28	25	23	22	22	21	19	19	18	14	12	15	20	23	20	17	16	15	15	31	21.1	24	
11	IZS	10	7	10	6	1	1	1	4	10	13	14	13	11	11	11	11	11	13	16	17	18	20	IZS	20	10.4	24	
12	23	25	21	21	21	21	19	18	19	19	19	19	20	19	19	21	20	20	21	21	21	21	IZS	19	25	20.4	24	
13	19	18	15	14	13	12	11	12	15	18	20	22	24	25	25	25	24	23	23	23	24	IZS	27	27	20.0	24		
14	27	25	23	24	26	27	27	27	25	27	28	24	24	24	24	24	24	23	22	23	IZS	24	24	24	28	24.8	24	
15	24	23	23	23	23	23	21	22	23	22	23	23	24	26	27	28	28	26	20	IZS	10	13	10	7	28	21.4	24	
16	6	5	5	4	1	2	2	1	3	8	16	20	21	22	19	18	11	15	IZS	23	28	27	29	31	31	13.8	24	
17	30	28	26	26	28	27	28	28	27	27	27	27	28	30	29	27	27	IZS	28	28	29	30	30	31	31	28.1	24	
18	31	30	31	31	32	32	32	32	33	33	33	33	32	32	30	30	IZS	29	29	29	28	28	27	27	33	30.6	24	
19	24	23	23	24	26	27	27	27	27	28	29	29	30	30	29	IZS	27	24	14	13	12	13	13	13	30	23.1	24	
20	22	25	26	26	24	20	17	21	22	24	25	24	24	24	IZS	21	17	10	9	10	7	7	10	12	26	18.6	24	
21	8	9	13	15	15	14	12	9	8	14	16	16	16	IZS	16	15	15	16	16	14	13	17	18	15	18	13.9	24	
22	14	13	15	13	8	10	10	8	9	17	19	22	IZS	20	21	19	17	12	6	13	12	13	12	13	22	13.7	24	
23	12	10	7	6	2	1	1	1	2	3	8	IZS	24	27	29	30	29	28	28	26	25	25	23	21	30	16.0	24	
24	21	21	21	21	18	17	15	16	18	22	IZS	22	20	20	20	18	8	2	21	26	24	26	28	29	29	19.7	24	
25	30	30	29	28	27	25	23	21	18	IZS	21	20	18	16	18	24	29	33	35	33	34	35	35	34	35	26.8	24	
26	31	29	29	30	28	27	16	12	IZS	16	27	28	28	29	28	28	29	26	25	24	23	23	22	21	31	25.2	24	
27	21	22	21	22	21	20	22	IZS	22	22	25	26	26	25	27	24	30	38	38	38	36	34	33	32	38	27.2	24	
28	31	31	32	32	31	31	IZS	20	23	23	25	28	29	32	29	26	18	13	20	24	27	28	27	26	32	26.3	24	
29	25	22	20	21	21	IZS	18	17	18	22	26	29	32	34	31	18	5	6	17	4	1	1	1	1	34	17.0	24	
30	1	1	1	0	IZS	26	27	27	27	23	25	25	24	25	27	26	24	25	27	23	19	18	13	9	27	19.3	24	
HOURLY MAX	31	31	32	32	32	32	32	32	33	33	33	33	34	35	34	34	33	38	38	38	36	35	35	34				
HOURLY AVG	19.1	18.1	18.0	18.1	18.3	17.9	16.4	15.0	16.1	18.5	20.7	22.6	23.8	24.8	24.3	22.9	20.4	19.4	20.7	20.7	19.7	20.1	19.9	19.0				

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

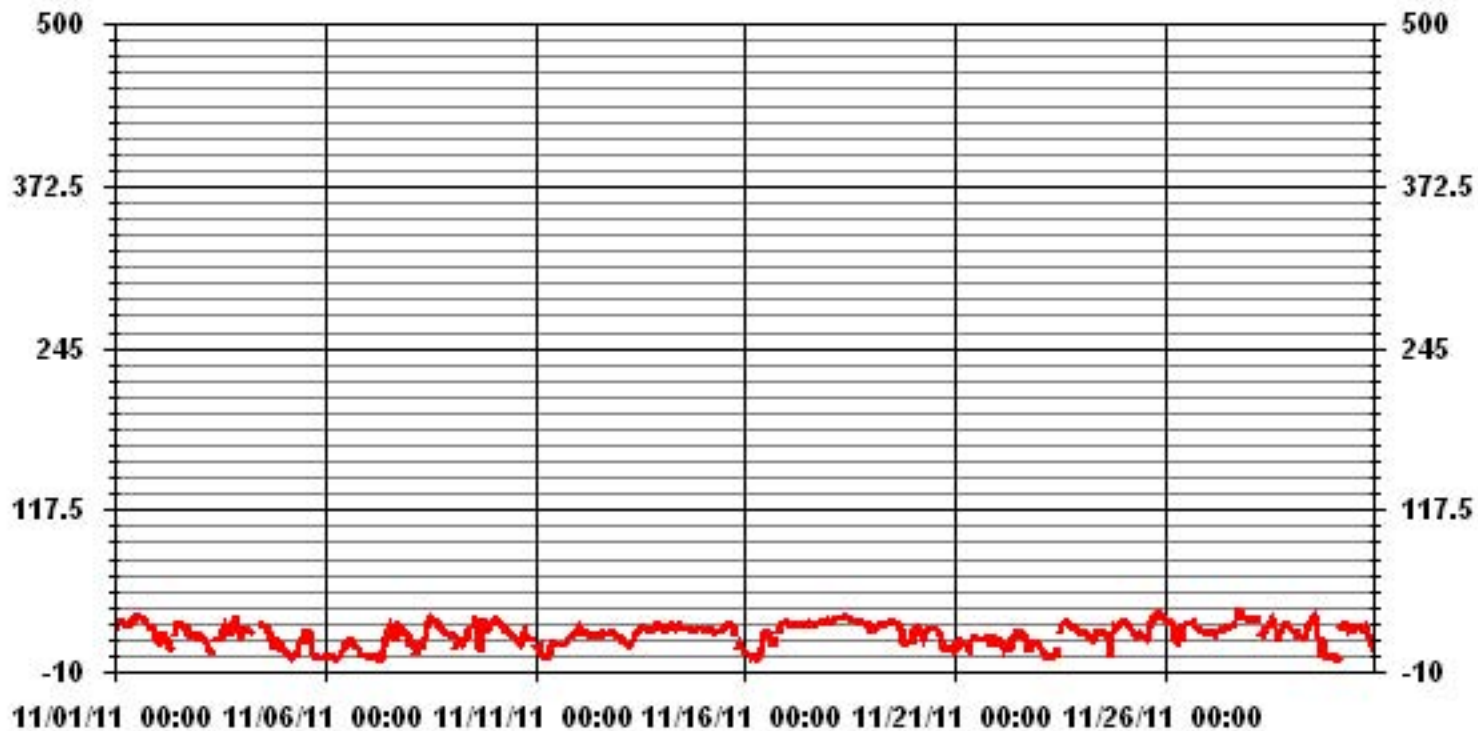
ALBERTA ENVIRONMENT: 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	682				
MAXIMUM 1-HR AVERAGE:	38	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	30.6	PPB			ON DAY(S)
					VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	100.0	%
STANDARD DEVIATION	8.75		MONTHLY AVERAGE	19.79	PPB

01 Hour Averages



— LICA 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	27	29	32	31	30	31	28	27	27	30	IZS	34	35	36	35	35	35	33	32	29	28	27	27	26	36	30.6	24	
2	21	17	18	20	23	22	21	19	17	IZS	23	26	30	30	28	27	27	24	20	19	19	19	19	19	30	22.6	24	
3	19	20	19	18	18	15	13	14	IZS	17	17	17	18	19	25	27	26	25	25	28	34	34	31	24	34	21.9	24	
4	20	22	25	25	25	25	24	IZS	C	C	C	C	28	28	27	26	25	22	14	14	14	18	19	12	28	21.7	24	
5	10	10	8	7	6	4	IZS	9	11	14	15	15	20	24	24	23	21	11	9	6	4	1	1	5	24	11.2	24	
6	2	1	2	1	1	IZS	1	1	3	5	7	10	13	15	16	18	17	15	14	12	6	5	6	5	18	7.7	24	
7	6	5	3	3	IZS	2	2	1	3	8	12	18	29	29	25	23	23	25	29	28	25	24	22	22	29	16.0	24	
8	18	19	16	IZS	9	13	14	14	15	20	27	31	34	32	31	31	31	27	27	25	22	22	23	21	34	22.7	24	
9	21	22	IZS	14	15	17	18	16	17	19	24	26	29	32	33	31	18	18	28	30	30	28	29	29	33	23.7	24	
10	29	IZS	32	32	31	30	27	25	24	23	22	20	20	19	17	14	19	22	25	23	19	18	16	16	32	22.7	24	
11	IZS	13	11	12	11	1	2	1	9	13	14	16	15	12	12	13	12	13	15	17	19	20	21	IZS	21	12.4	24	
12	28	27	24	22	22	23	22	21	20	20	21	20	21	20	21	22	21	21	22	21	21	21	21	IZS	19	28	21.7	24
13	20	19	17	15	14	12	12	13	17	19	22	24	25	26	26	26	26	24	24	24	27	IZS	28	28	28	21.2	24	
14	27	27	24	25	27	28	28	28	26	28	28	26	25	25	25	24	25	24	24	24	23	IZS	24	24	24	28	25.6	24
15	24	24	23	23	23	23	23	23	23	23	24	24	25	27	28	28	28	28	28	22	IZS	15	15	13	9	28	22.5	24
16	9	8	7	6	2	3	4	2	4	15	19	22	22	24	21	20	17	19	IZS	25	29	28	31	32	32	16.0	24	
17	31	29	27	27	29	28	28	29	28	28	28	28	29	30	30	29	28	IZS	29	29	30	30	31	31	31	29.0	24	
18	31	31	32	32	32	32	33	33	33	34	34	34	33	32	32	31	IZS	29	29	29	29	28	28	28	34	31.3	24	
19	26	24	24	26	27	28	28	28	29	29	29	30	42	30	30	IZS	28	27	21	18	15	20	19	20	42	26.0	24	
20	24	25	27	27	26	23	21	22	22	25	26	25	25	24	IZS	22	21	14	15	13	9	10	14	15	27	20.7	24	
21	11	12	15	16	15	15	14	11	11	15	17	17	17	IZS	17	17	16	17	17	16	18	19	19	18	19	15.7	24	
22	17	16	17	16	12	14	13	13	16	18	21	23	IZS	22	22	21	19	18	9	18	14	15	14	14	23	16.6	24	
23	14	14	11	8	4	1	3	2	4	3	16	IZS	27	29	30	31	31	30	30	27	26	25	25	23	31	18.0	24	
24	22	22	21	21	20	18	16	18	22	24	IZS	24	21	20	21	20	15	6	27	27	27	27	29	30	30	21.7	24	
25	30	30	30	29	27	26	25	23	21	IZS	22	21	19	18	23	25	33	35	36	34	36	35	36	35	36	28.2	24	
26	32	30	30	32	31	30	22	19	IZS	27	29	29	28	30	29	29	29	29	26	25	24	23	22	22	32	27.3	24	
27	22	22	22	23	22	22	23	IZS	23	25	27	28	28	27	29	26	35	39	39	39	39	37	36	35	33	39	28.8	24
28	32	32	33	33	32	32	IZS	29	24	25	26	30	29	33	31	28	24	20	24	25	28	29	28	27	33	28.4	24	
29	26	24	22	22	22	IZS	19	18	20	24	28	31	33	35	34	31	12	20	21	16	2	2	1	1	35	20.2	24	
30	1	1	1	1	IZS	28	29	28	28	27	27	26	26	27	29	29	27	27	29	27	23	19	17	12	29	21.3	24	
HOURLY MAX	32	32	33	33	32	32	33	33	33	34	34	34	42	36	35	35	35	39	39	39	37	36	36	35				
HOURLY AVG	20.7	19.8	19.8	19.6	19.9	19.5	18.3	17.4	18.4	20.7	22.4	24.1	25.7	26.0	26.0	25.1	23.8	22.9	23.7	23.0	21.7	21.4	21.7	20.7				

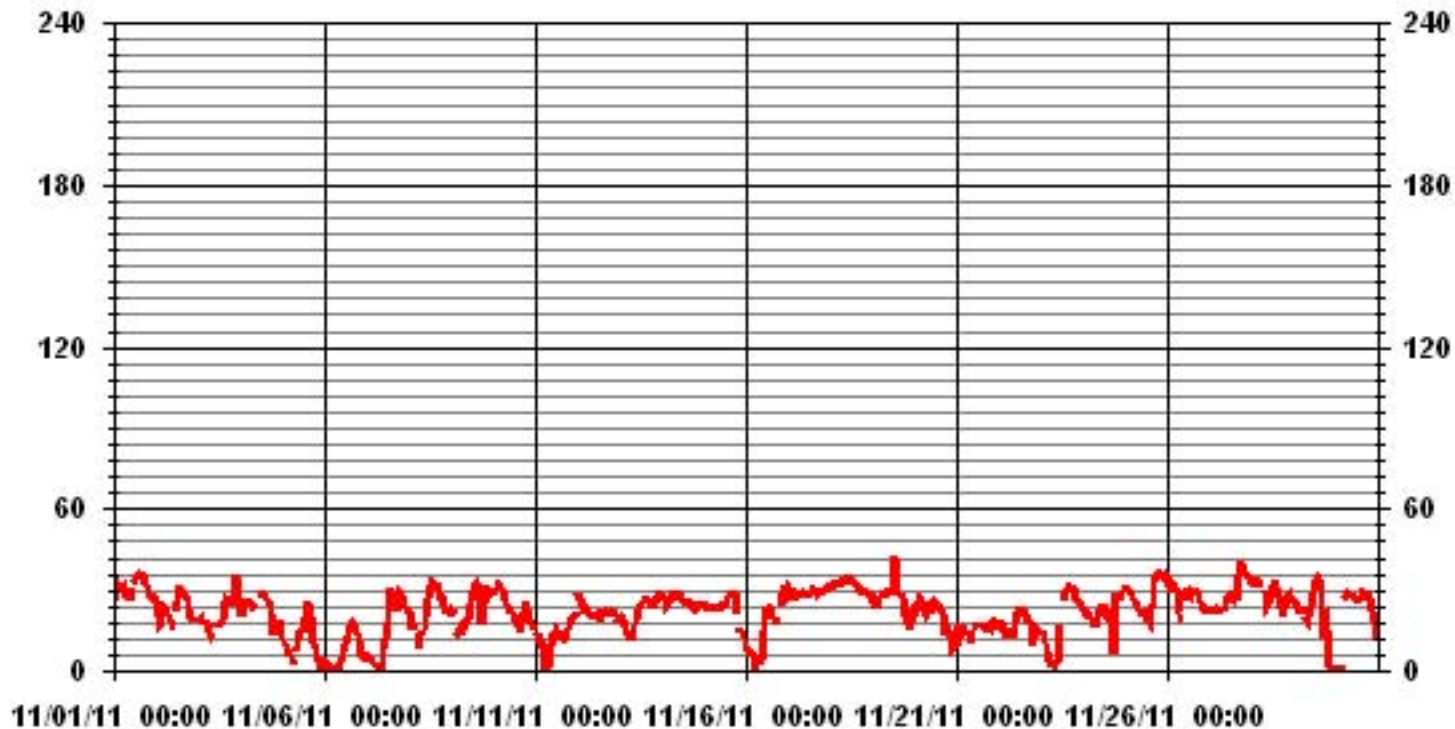
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685				
MAXIMUM INSTANTANEOUS VALUE:	42	PPB	@ HOUR(S)	12	ON DAY(S) 19
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	4	HRS			
STANDARD DEVIATION:	8.37				

01 Hour Averages



— LICA O3MAX PPB

LICA
 O3_ / WD Joint Frequency Distribution (Percent)

November 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	.29	.58	2.91	3.21	8.02	3.21	18.39	3.94	2.77	5.54	15.03	11.97	7.29	7.59	7.29	1.89	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	.29	.58	2.91	3.21	8.02	3.21	18.39	3.94	2.77	5.54	15.03	11.97	7.29	7.59	7.29	1.89	

Calm : .00 %

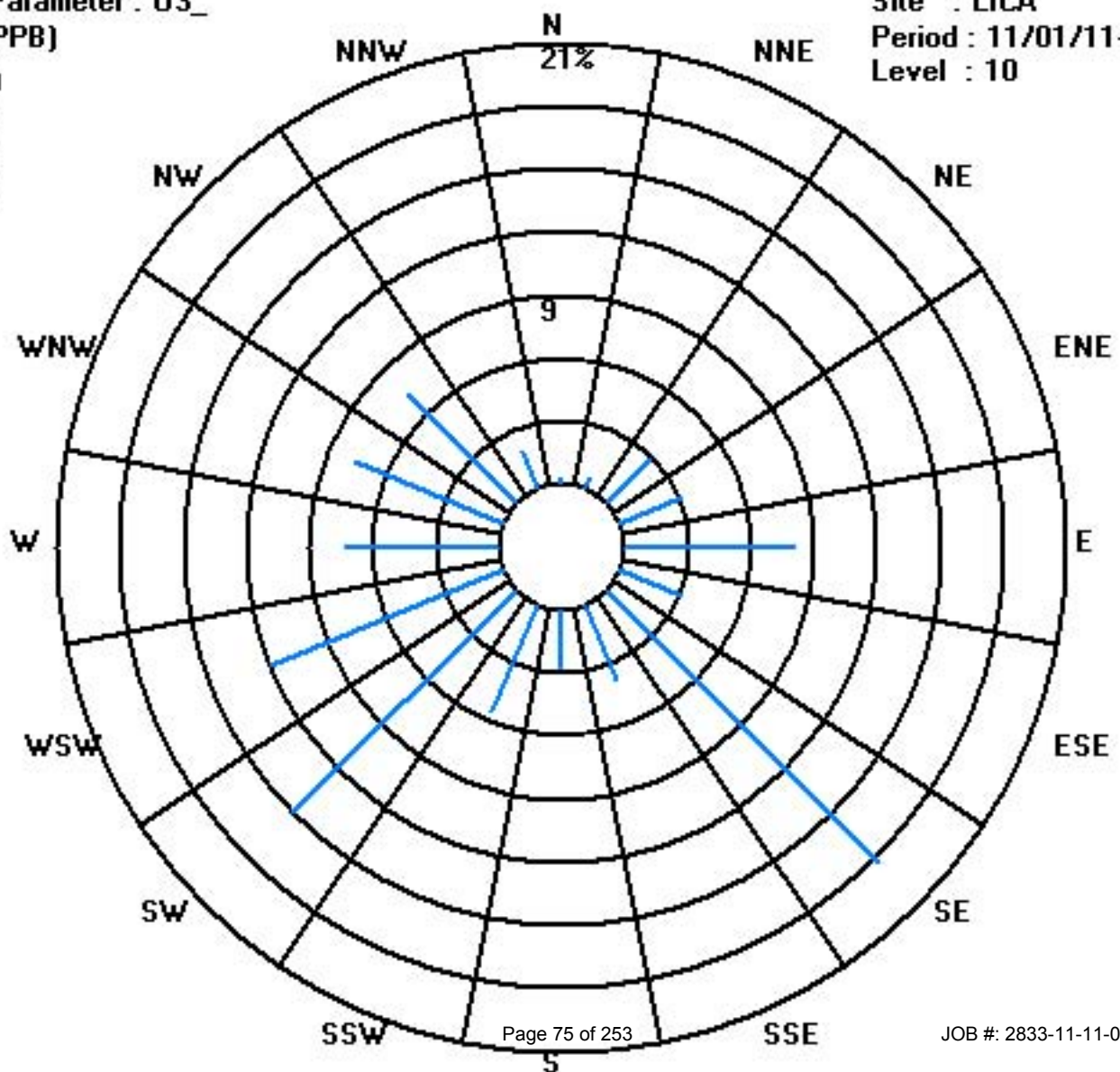
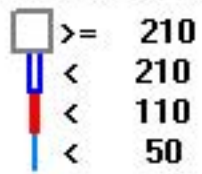
Total # Operational Hours : 685

Distribution By Samples

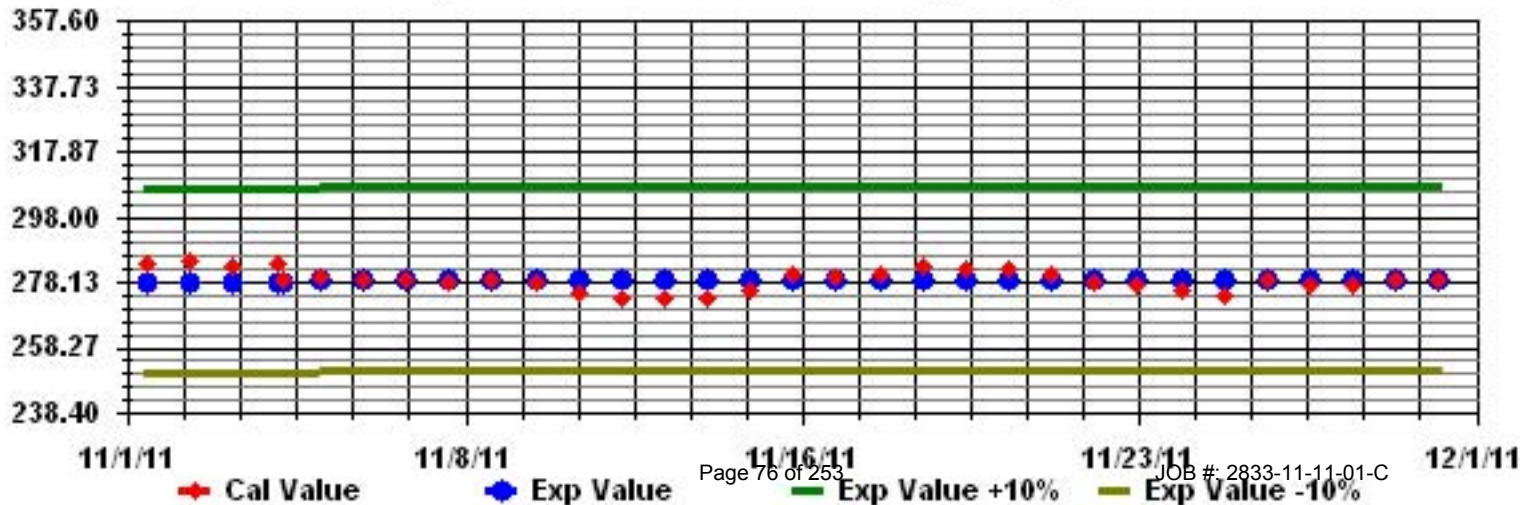
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2	4	20	22	55	22	126	27	19	38	103	82	50	52	50	13	685
< 110																	
< 210																	
>= 210																	
Totals	2	4	20	22	55	22	126	27	19	38	103	82	50	52	50	13	

Calm : .00 %

Total # Operational Hours : 685



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 2011

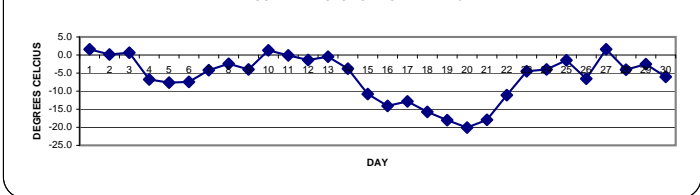
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	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	1.4	1	1.7	1.5	1.2	0.9	0.4	0.2	0.1	1.5	2.5	3.5	4.4	4.9	5.3	5.1	4	2.5	1.2	0.1	-0.3	-1.2	-1.9	-1.8	5.3	1.6	24	
2	2	-3.6	-4.2	-5	-4.7	-2.6	-3.5	-3.5	-4.4	-3.7	-1.1	2	4.2	5.6	6.7	6.7	6.1	4.7	3.1	1.5	0.4	0	-0.3	-0.2	-0.5	6.7	0.2	24	
3	3	-1.2	-0.7	-1.8	-2.2	-2.4	-3.1	-3.3	-4.3	-3.7	-1.8	-0.7	1.8	3.4	4.4	6.2	5.8	4.3	3.3	1.6	2.5	3	2.2	2.1	0	6.2	0.6	24	
4	4	-2.1	-3.3	-4.8	-6	-6.7	-7.4	-8	-8.4	-8.3	-6.7	-6	-5.6	-5.4	-4.3	-3.6	-4	-5.3	-6.9	-8.7	-9.6	-10.1	-9.5	-10.2	-11.5	-2.1	-6.8	24	
5	5	-12.1	-12.6	-13.2	-13.3	-13.4	-13.9	-14	-12.3	-10.4	-6.3	-4.6	-2.9	-0.5	0.8	1.4	1.6	-0.7	-3.7	-5.7	-7.4	-8.6	-9.6	-10.6	-11.2	1.6	-7.6	24	
6	6	-11.9	-12.4	-12.9	-13.3	-13.3	-12.9	-12.8	-13.1	-12.3	-9.6	-7.2	-3.7	-1.7	0.1	1.6	1.9	-0.9	-2.9	-3.6	-4.8	-6.5	-8	-8.7	-9.4	1.9	-7.4	24	
7	7	-10.2	-10.8	-11.3	-11.9	-12.2	-12.6	-13	-12.9	-10.1	-6.7	-4.2	0.1	3.4	3.9	3.9	4.1	1.8	0.6	0.5	0.3	0.1	-0.5	-1.1	-1.7	4.1	-4.2	24	
8	8	-3.5	-4.5	-6.2	-6.7	-6	-4.1	-3.7	-4.1	-3.7	-2.6	0	2.1	2.3	2	1.4	1.3	0.9	-0.7	-1.6	-2.5	-3.1	-3.6	-4.7	-6.5	2.3	-2.4	24	
9	9	-6.5	-6.6	-9.2	-10.6	-10.6	-9.2	-8.6	-9.1	-8	-5.5	-2.9	-0.8	0.2	1.2	1.9	0.5	-1.1	-1.9	-1.8	-1.4	-1.5	-1.7	-1.4	-0.8	1.9	-4.0	24	
10	10	-0.6	-0.4	0.1	0.2	0	-0.5	-0.6	-0.9	-1.1	-0.7	-0.3	0.9	2.9	4.3	3.4	3.4	3.4	3.2	4	3.4	2.6	2	1.5	1.2	4.3	1.3	24	
11	11	0.1	-0.1	-0.3	0	-1	-1.9	-2.1	-2	-1.2	-0.3	0.3	1.1	1.1	1	0.9	1.1	0.8	0.5	0.4	0.1	-0.2	-0.4	-0.2	-0.2	1.1	-0.1	24	
12	12	-0.3	-0.3	-0.4	-0.9	-1.1	-0.9	-1.3	-1.4	-1.5	-1.7	-1.4	-1.4	-1.4	-1.2	-1.2	-1.3	-1.5	-1.7	-1.9	-2	-2	-2	-2	-1.8	-0.3	-1.4	24	
13	13	-1.6	-1.3	-1	-0.8	-1	-1.2	-1.8	-2.1	-1.8	-1.1	-0.6	0.3	0.9	1.1	1.1	1	0.7	0.5	0.4	0.2	0	-0.4	-1	-1.4	1.1	-0.5	24	
14	14	-1.6	-1.8	-2	-1.9	-2	-2.4	-2.8	-2.9	-3.3	-3.6	-3.8	-3.9	-3.7	-3.5	-3.6	-3.9	-4.4	-4.6	-4.9	-5.2	-5.4	-5.9	-6.6	-7.1	-1.6	-3.8	24	
15	15	-7.5	-8.1	-8.5	-9.2	-10.2	-10.7	-10.9	-11	-10.9	-10.8	-10.2	-9.9	-9.4	-8.5	-8.4	-8.8	-9.8	-10.4	-11.3	-12.5	-13.9	-14.5	-16.2	-17.6	-7.5	-10.8	24	
16	16	-18.4	-19	-19.7	-19.7	-19.2	-19.4	-18.9	-18.5	-18	-15.6	-14	-12.4	-11	-10.3	-9.7	-9.1	-10.9	-10.3	-10	-10	-10.5	-10.9	-11	-11.3	-9.1	-14.1	24	
17	17	-11.7	-12	-12.2	-12.5	-13	-13.2	-13.1	-13	-12.8	-12.4	-12	-11.4	-11.5	-11.1	-11.7	-12.4	-13	-14.3	-14.8	-14.5	-14.2	-13.8	-13.8	-13.6	-11.1	-12.8	24	
18	18	-13.6	-13.7	-14.6	-16	-16.5	-16.7	-16.5	-16.9	-17.2	-16.8	-15.7	-15.5	-15.1	-14.9	-14.8	-15	-15.2	-15.5	-15.7	-16.1	-16.2	-16.3	-16.6	-16.6	-13.6	-15.7	24	
19	19	-16.7	-16.7	-16.8	-16.6	-16.5	-16.4	-16.5	-16.7	-16.7	-16.3	-15.9	-15.7	-15.8	-15.8	-16.3	-16.7	-18.4	-20.6	-22	-23.1	-23.1	-23.6	-23.9	-15.7	-18.0	24		
20	20	-22.6	-21.7	-21.1	-20.8	-21.2	-22.7	-22.5	-21.2	-20.5	-19.9	-19.3	-18.2	-17.4	-16.9	-16.6	-16.7	-17.9	-20	-20.5	-20.2	-20.9	-21.2	-20.7	-21.2	-16.6	-20.1	24	
21	21	-22.2	-22.9	-22.3	-21.1	-21.4	-21.7	-21.9	-22.1	-21.8	-20.7	-19	-17.3	-16.6	-16.1	-16	-15.3	-15	-14.2	-13.5	-13.7	-13.8	-13.1	-13.6	-15.1	-13.1	-17.9	24	
22	22	-15.9	-16.9	-16.4	-17.2	-17.6	-17	-15.9	-15.9	-13.4	-11.9	-10.7	-8.7	-8.1	-7.9	-7	-6.4	-5.8	-7.1	-7.9	-8.1	-8	-7.5	-7.5	-7.6	-5.8	-11.1	24	
23	23	-7.6	-9.3	-10.3	-11.1	-10.9	-11.6	-12.5	-12.4	-10.2	-6.6	-3.6	-1.2	0	1.2	1.5	1.4	0.8	0.4	0	-0.5	-0.8	-1.1	-1.6	-2.1	1.5	-4.5	24	
24	24	-2.8	-2.9	-3.1	-3.3	-3.1	-3.2	-4.4	-4.1	-3.7	-3.1	-2.7	-3.3	-4.3	-4.8	-5.3	-5.9	-6.5	-7.9	-5.7	-4.1	-3.3	-2.9	-2.6	-2.6	-2.6	-4.0	24	
25	25	-2.5	-2.4	-2.3	-2.2	-2	-1.9	-1.7	-1.5	-1.4	-1.2	-0.7	-1	-1.2	-1.3	-1.1	-0.1	0.5	0.7	0.2	0	-1	-2.3	-3.5	-4.7	0.7	-1.4	24	
26	26	-6.2	-7.6	-8.9	-8.8	-10	-9.8	-11.8	-12.9	-12.9	-9.8	-7.1	-6.3	-4.9	-2.7	-2.2	-2.2	-2.9	-3.3	-4	-4.7	-4.6	-4.5	-4.6	-4.7	-2.2	-6.6	24	
27	27	-4.8	-4.6	-5	-3.8	-4.4	-4.3	-3	-2.1	-1.6	-0.2	4.1	7.2	8	8	8.6	6.4	5.9	5.6	5.1	4.7	4.3	3.5	1.5	-0.6	8.6	1.6	24	
28	28	-2.1	-2.9	-3.9	-5.1	-6	-6.7	-7.3	-8.8	-8.8	-7.2	-5.4	-3.3	-2.3	-1.2	-1.4	-2	-3.1	-4.9	-4.8	-3.5	-2	-1.6	-1.4	-1.8	-1.2	-4.1	24	
29	29	-2	-2.6	-2.7	-2.7	-3.3	-3.5	-3.7	-3.5	-2.5	-1	0.3	1.6	2.8	3.4	2.7	0.6	-1.9	-3.2	-3.6	-4.7	-6.2	-7.7	-8.4	-8.7	3.4	-2.5	24	
30	30	-8.5	-7.6	-7.2	-7.1	-4	-3.6	-3.8	-3.4	-3.7	-4.3	-4	-4	-3.9	-3.8	-4	-4.3	-4.4	-5.2	-5.9	-7.5	-9.3	-10.2	-12	-13.2	-3.4	-6.0	24	
HOURLY MAX		1.4	1.0	1.7	1.5	1.2	0.9	0.4	0.2	0.1	1.5	4.1	7.2	8.0	8.0	8.6	6.4	5.9	5.6	5.1	4.7	4.3	3.5	2.1	1.2				
HOURLY AVG		-7.3	-7.6	-8.0	-8.3	-8.3	-8.5	-8.7	-8.7	-8.2	-6.8	-5.4	-4.1	-3.3	-2.7	-2.5	-2.8	-3.6	-4.6	-5.1	-5.4	-5.9	-6.2	-6.7	-7.3				

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

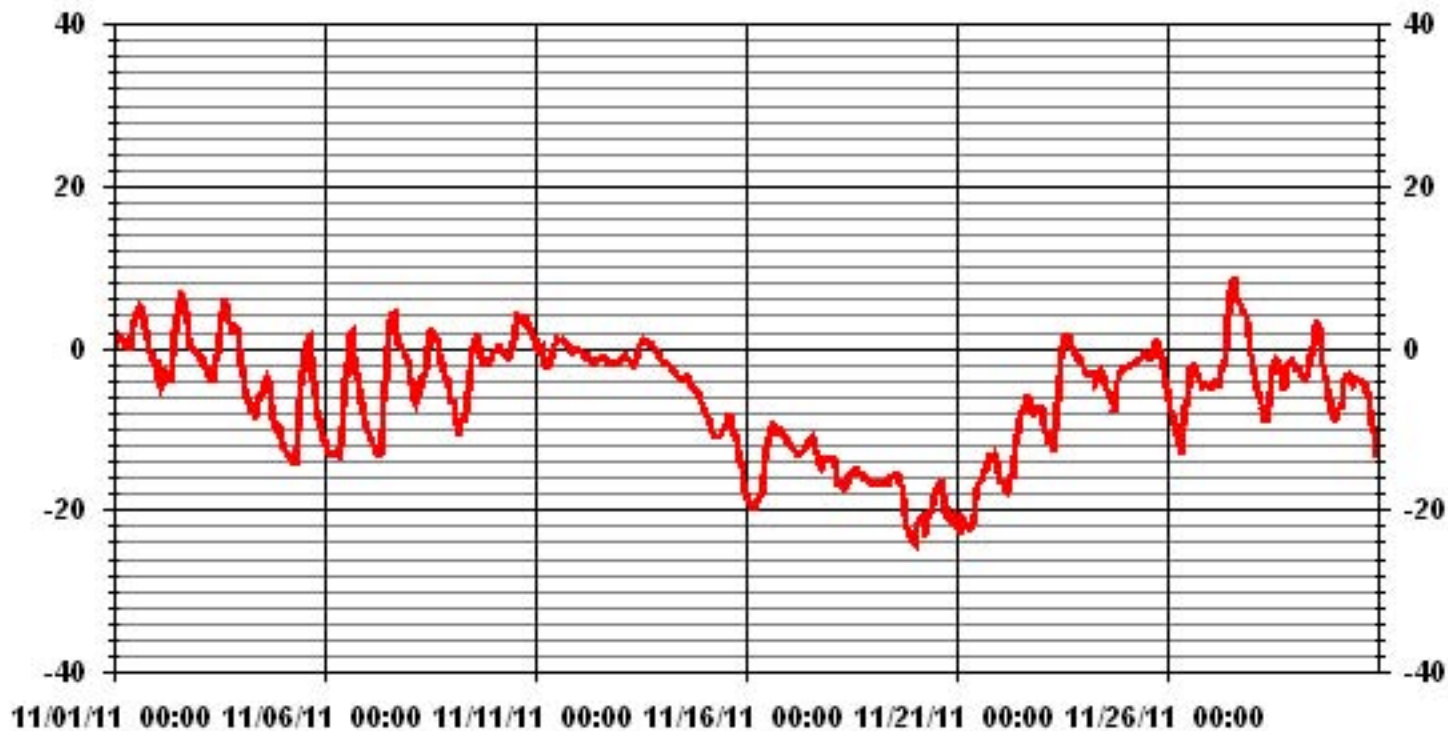
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-23.9 °C	@ HOUR(S)	23	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	8.6 °C	@ HOUR(S)	14	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	1.6 °C			ON DAY(S)	27
				VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	6.98		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	-6.08	°C

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	24:00	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																													
		64	66	73	85	81	78	79	81	81	72	63	53	46	43	40	39	41	46	50	57	60	63	64	63	85	62.0	24	
		72	76	79	75	62	67	65	71	70	63	48	42	36	32	32	34	37	41	47	51	54	57	57	59	79	55.3	24	
		63	60	65	65	66	70	70	73	70	63	60	53	48	47	42	41	47	54	63	66	68	72	71	71	73	61.2	24	
		69	65	63	62	64	66	69	72	70	61	56	54	51	48	49	52	58	65	73	76	78	73	75	81	81	64.6	24	
		83	83	83	83	81	82	82	85	79	77	73	71	62	54	51	50	60	71	76	81	84	85	85	84	85	75.2	24	
		84	83	83	83	83	87	86	83	84	83	83	77	72	62	55	54	65	71	73	78	82	85	84	86	87	77.8	24	
		86	86	85	84	84	83	83	83	84	85	83	69	56	47	46	45	52	56	58	63	67	66	67	71	86	70.4	24	
		78	80	83	85	83	78	74	74	74	73	63	57	58	58	63	66	66	71	74	78	80	79	79	82	85	73.2	24	
		79	78	84	86	85	83	82	83	81	76	70	61	59	52	48	52	59	63	60	55	54	56	55	54	86	67.3	24	
		55	55	52	49	50	59	67	73	72	70	73	77	69	62	81	87	90	92	89	91	94	95	95	95	95	74.7	24	
		96	96	96	96	96	96	95	96	97	98	97	96	96	96	97	97	96	97	97	96	97	95	95	96	97	98	96.3	24
		96	96	95	94	94	92	92	92	93	91	89	90	90	92	92	92	93	96	95	95	95	95	96	96	96	96	93.4	24
		96	96	95	94	94	94	94	93	90	86	90	91	88	89	89	90	91	92	93	91	87	86	81	81	96	90.5	24	
		81	83	85	84	81	76	77	75	79	76	76	74	72	71	72	73	75	76	75	77	74	73	72	85	76.2	24		
		76	78	76	76	76	75	77	76	78	77	71	68	66	63	65	67	71	74	79	83	83	84	82	80	84	75.0	24	
		79	80	78	79	79	79	82	81	80	82	83	84	83	83	84	83	87	87	85	82	81	81	81	81	81	87	81.8	24
		81	81	82	82	82	82	82	82	81	79	78	77	76	77	75	77	78	79	81	80	77	75	74	82	79.2	24		
		75	72	73	76	73	71	68	70	75	78	76	76	70	63	65	67	67	67	68	67	69	70	71	71	78	70.8	24	
		71	71	73	73	70	68	67	68	67	67	66	64	62	62	63	65	67	73	77	76	76	77	76	76	77	69.8	24	
		76	75	74	75	75	75	76	76	76	74	71	65	62	60	60	60	67	74	76	76	77	77	77	76	77	72.1	24	
		77	76	77	77	77	77	77	77	75	72	70	69	70	69	70	71	73	73	75	77	80	79	80	83	83	75.0	24	
		82	81	82	80	80	82	82	82	81	79	78	76	76	77	77	78	79	84	86	85	83	84	86	88	88	81.2	24	
		89	88	87	86	86	84	83	85	87	88	89	82	75	66	63	64	67	70	73	80	81	81	83	85	89	80.1	24	
		85	85	85	85	84	85	88	89	90	89	85	86	90	92	93	95	93	91	93	94	95	94	92	90	95	89.5	24	
		88	87	87	88	88	87	87	87	86	83	79	78	80	80	85	81	74	67	66	66	60	57	56	60	88	77.4	24	
		70	75	77	79	82	78	84	84	84	76	64	62	58	51	50	49	50	53	59	63	66	68	69	71	84	67.6	24	
		71	72	74	72	75	76	73	72	73	73	62	55	54	54	54	62	63	62	64	66	67	62	55	55	76	65.3	24	
		58	58	52	54	57	59	61	69	71	67	65	63	59	55	61	64	68	73	71	66	59	55	56	62	73	61.8	24	
		66	72	75	74	75	75	76	75	72	67	62	58	56	55	59	68	78	80	82	85	87	88	88	87	88	73.3	24	
		86	86	87	87	91	88	86	85	85	85	82	80	78	73	74	75	76	77	76	81	86	88	86	84	91	82.6	24	
		96	96	96	96	96	96	96	95	96	97	98	97	96	96	97	97	96	97	97	97	95	95	96	97	97			
		77.7	78.0	78.7	78.9	78.5	78.4	78.8	79.7	79.5	77.0	73.6	70.3	67.3	64.4	65.2	66.5	69.5	72.4	74.4	76.0	76.8	76.8	76.4	77.2				

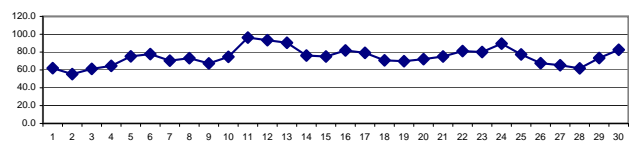
STATUS FLAG CODES

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

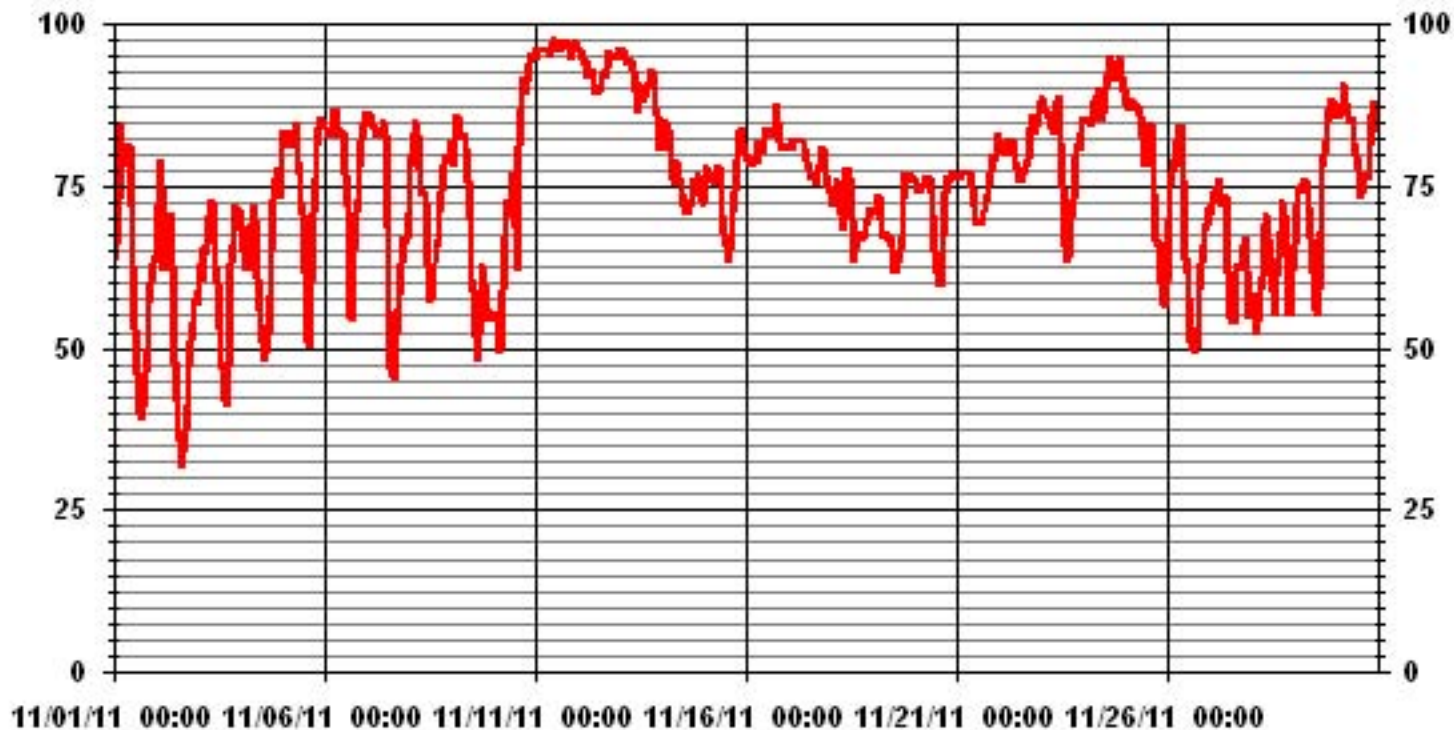
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR(S)	10	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	96.3	%			ON DAY(S)	11
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	12.91		MONTHLY AVERAGE:	74.67	%	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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		
DAY	HR	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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	7.5	6.7	11.2	12	11.4	8.4	7.1	8.6	9	10.1	12.2	12.8	13.7	14	13.3	12.6	9.9	7.7	7.1	6.1	6.9	4.3	4.3	3.4	3.4	14	8.7	24	
2	2.3	1	1.8	4.6	5.3	2.4	0.9	0.5	1.1	2.3	3.4	3.4	5.3	3.8	5.5	5.1	7.1	9	10	8.8	11.2	10.3	7.5	4.6	11.2	3.9	24		
3	4.5	5.5	4.7	3.8	3.8	1.2	3.4	1.7	2.3	2.8	5.5	6.6	7.1	7	7.8	11.4	4.5	4.4	4.5	6	7.2	7.4	10.2	12.3	12.3	2.7	24		
4	10.5	10.7	11.8	12.5	10.4	6.3	6.5	3.3	3.3	6.2	7.1	6.9	7.6	6.8	7.2	7.6	4.9	2.3	1.5	1.9	2.7	3.7	1.1	0.9	12.5	4.7	24		
5	1.2	0.5	0.8	1.1	0.4	0.7	1.3	2.4	0.9	2.3	2.6	3.5	3.6	4.3	3	2.8	1.3	1.1	0.8	0.6	0.1	0.3	0.6	0.6	0.6	4.3	1.5	24	
6	0.8	0.4	1.3	1	1.4	1.6	1.1	0.9	0.8	2.3	4.1	3.4	4.6	4.8	3.9	3.1	1.9	3.9	4.4	2.3	0.8	1.4	1.5	0.8	4.8	2.2	24		
7	0.9	0.4	0.6	0.4	1.2	0.5	0.9	0.6	0.7	0.9	2.9	3.3	4.3	9.5	7.3	3.4	3	3.7	2.7	3.2	3.2	4.1	2.6	1.7	9.5	2.6	24		
8	0.7	1.4	0.6	1.1	1.9	4.2	5.4	6.5	5.2	6	9.3	12.9	11.8	9.8	11.1	9.3	4.4	5.7	4.7	5.2	5.7	4.8	5	4.2	12.9	5.7	24		
9	5.5	4.3	0.4	1.9	4.6	5.2	5	5.2	6.4	5.5	6.6	5.5	6.5	6.9	4.6	1.5	1.4	2.3	4.4	6.3	5.8	6.5	9.4	12	12.0	5.2	24		
10	11.1	10.3	10.8	7	5.2	5.2	4.5	3.9	6.2	3.3	3	2.8	4.3	5.8	4.1	4.4	6.9	5.5	8.1	6	6	6.5	6.5	3.9	11.1	5.9	24		
11	4.6	2.6	2.9	3.5	0.4	0.6	1.5	0.8	2.7	3.8	5.7	4.7	4.9	4.5	5	4.9	4.8	6	6.6	8	6.4	5.1	6	5.6	8.0	4.2	24		
12	7.3	5.7	5.7	6.3	5.8	5.4	6.3	3.7	3.8	3.7	2	4.7	6	5	6.5	7.4	5.3	5.7	6.6	8.6	8.1	7.5	7.2	7.1	8.6	5.9	24		
13	5.8	3.9	3.8	3.9	3.3	2.9	4.4	4.3	5.7	5.7	6.5	7.5	9.4	8.3	8.7	9.2	8.4	9.7	9.6	8	6.1	5.8	7.5	9	9.7	6.6	24		
14	5.7	5.2	5.9	5.8	7.1	11.5	7	8.4	8.2	11	10.5	11.4	11.6	11.6	14	13	12.5	12.8	14	13.2	10.1	14.7	14.2	13.1	14.7	10.5	24		
15	10.6	8.4	9	9.7	9.8	9.2	6.4	9.3	8.5	10.2	12.5	12.5	12	12.2	11.7	10.2	7.5	4.9	4.1	4.8	3.2	4.1	1.5	0.6	12.5	8.0	24		
16	0.7	0.5	0.9	0.5	0.5	0.5	0.2	1.1	0.3	1.1	0.8	1.6	1.2	2.6	2.3	1.7	2.5	2.6	5.7	5.2	6.3	7.4	5.3	6.6	7.4	2.4	24		
17	8.4	10.7	10.2	12	14	11.3	11.5	12.6	12.7	9.3	12.9	11.4	14.2	15.8	13.8	13.4	12.7	12.2	9.6	14.2	12.7	11.6	11.1	10.2	15.8	12.0	24		
18	9.8	8.7	8.8	12	14.3	12.9	11.9	12.8	11.6	9.2	5.6	9.1	10.9	10.7	10	8.9	7.6	8.3	8.9	8.1	6.1	5.8	5.2	3.9	14.3	9.2	24		
19	2.6	4	4	4.7	3.5	3.1	1.9	2.6	2.5	4.3	3.9	3.8	4.7	5.1	4.1	5	2.5	1	0.9	1	1.7	1.9	1.7	1.8	5.1	3.0	24		
20	3.7	5	3.2	2.8	2.2	1	1.7	2.7	4.4	7.7	6.8	7.5	7.7	7.7	6.1	5	2.9	1.6	0.8	1.1	0.6	0.5	3.3	1.3	7.7	3.6	24		
21	1.1	0.3	3.9	3.4	3.3	3.5	2.9	3.7	3	5.1	3	5.3	7.1	6	7.5	6	7.8	7	5	1.6	1.8	5.2	2.7	1.9	7.8	4.1	24		
22	3	1.5	2.8	1.9	1.7	3.3	1.6	3.1	6.8	9.9	7.7	7.1	8	7.7	7	6.7	2	2.4	3.3	5.7	8.5	6.1	5.7	6.1	9.9	5.0	24		
23	5.4	1.9	0.5	1.5	0.9	0.2	0.8	1.9	2.5	2.5	4	4.6	7.7	10.1	11.9	8.8	7.1	7	5.7	9.6	8.1	9.5	8.4	6.7	11.9	5.3	24		
24	6.4	4.6	5.3	5.1	2.5	1.7	4	5.1	6.1	5.3	4.6	5.9	5.8	4.3	4.2	1.1	1.3	1.8	5.2	3.5	5.9	10.7	10.7	11.6	11.6	5.1	24		
25	15.3	13	11.4	11.8	10.6	8.3	7.1	4	2.9	5.3	5.4	6.2	7.4	7.5	9.5	12.8	14.4	17.9	18.7	16.4	19.1	13.9	12.1	9	19.1	10.8	24		
26	7.6	5.3	4.8	4.4	3.3	3.8	1.1	1	1.1	2.6	4.2	6.8	8.1	11	9.3	6.7	7	5.5	6	8.4	10.4	10.6	10.3	7.6	11.0	6.1	24		
27	7.8	4.7	7.2	3.9	4.7	4.6	6.3	7.2	6.1	2.7	2.7	5.4	5.6	5.4	8.1	6.9	8.8	9.9	10.4	13.2	14.6	15	15.6	15.6	15.6	8.0	24		
28	12.8	10.7	16.3	13.1	11.3	9	5.4	3.6	7.7	6.6	5.8	6.7	7.3	7.1	8.8	5.6	1.8	1.6	3.7	4.7	7.9	9.1	8.2	5.9	16.3	7.5	24		
29	5.5	6.3	6.5	5.7	6.3	9.1	8.5	7	6.6	8.2	8.6	8.8	9.5	9	3.6	1.3	0.9	3	2.8	0.6	0.5	0.7	1	1	9.5	5.0	24		
30	0.4	0.3	0.5	0.3	6.1	8.6	8.4	2.5	2.8	4.2	4.7	7.7	6.7	9.4	9	7.7	4.6	9.9	8.3	2.8	3.8	4.3	1.4	1.1	9.9	4.8	24		
HOURLY MAX		15.3	13.0	16.3	13.1	14.3	12.9	11.9	12.8	12.7	11.0	12.9	12.9	14.2	15.8	14.0	13.4	14.4	17.9	18.7	16.4	19.1	15.0	15.6	15.6				
HOURLY AVG		5.7	4.8	5.3	5.3	5.2	4.9	4.5	4.4	4.7	5.3	5.8	6.7	7.5	7.8	7.6	6.8	5.6	5.9	6.1	6.2	6.4	6.6	6.3	5.7				

STATUS FLAG CODES

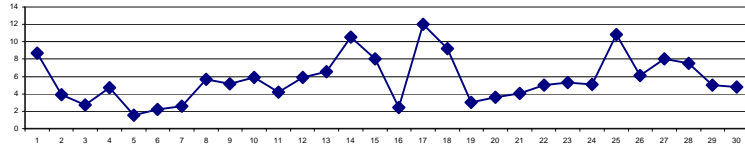
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 23, 2010

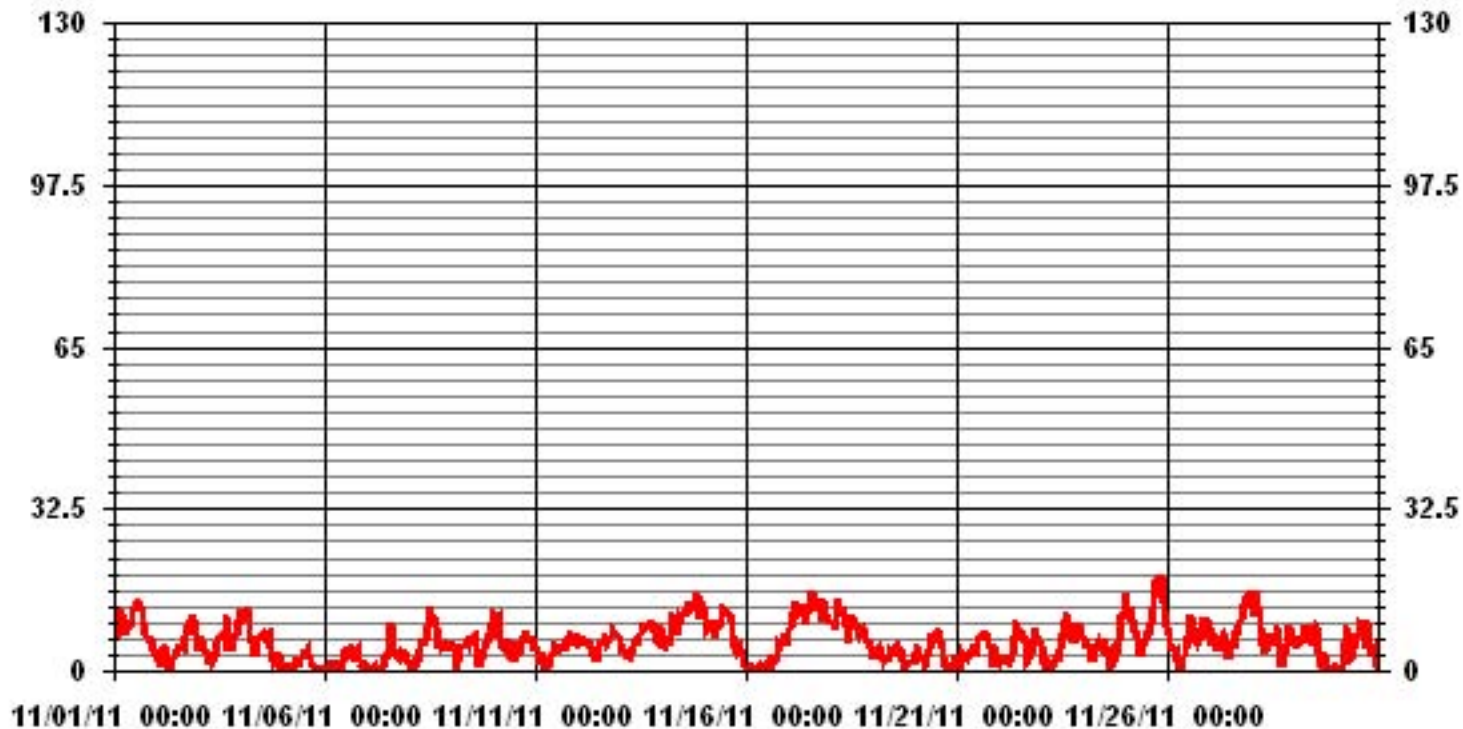
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	19.1 KPH	@ HOUR(S)	20	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	12.0 KPH			ON DAY(S)	17
CALMS (≤ 0 KPH)	1.08 %				
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS		
		AMD OPERATION UPTIME:	100.0 %		
STANDARD DEVIATION:	3.79	MONTHLY AVERAGE:	5.87 KPH		

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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		10.5	10.2	21.3	19.2	21.4	13.8	10.5	13.3	12.6	15.2	17.9	20.3	18	21.2	20.9	24.4	18	10.8	12.5	9.6	9.4	7.3	8.3	6.5	24.4	
2		4	3.5	4.8	7.2	7.3	6.9	3.4	4.2	7	7.8	8.2	7.9	10.1	8.1	8.2	8	10.3	13.3	13.5	12.7	14.4	15.9	12.8	9.3	15.9	
3		7.1	11.6	8.3	5.7	6.2	5.6	6.5	4.2	4.6	9.8	11	10.6	12.4	10.6	14.2	18.6	11.8	8	7.6	8.6	11.5	13.8	16.7	17.3	18.6	
4		15.4	14.8	17.8	18.9	15.2	10.8	9.8	5.7	6.3	12.9	12.5	12.8	13.8	12.2	11.2	13.6	8.3	5	2.7	3.2	4.7	7.1	3.6	2.5	18.9	
5		2.6	2.1	16.2	2	2.3	4.5	4.5	5.6	3.7	5.3	6.1	7.9	7.5	8.1	8.1	5.6	3.2	3.3	2.7	2.7	2.6	2.1	2.2	3.2	16.2	
6		2.3	2.5	4	2.9	3.7	4.2	2.9	3.2	3.4	4.5	7.2	7.2	7.3	7.5	8.5	5.6	3.2	5.8	5.2	5.2	2.7	5.5	5.7	1.9	8.5	
7		4.4	2.7	1.7	2.6	3	2.8	4.9	7.7	2.8	2.9	5.3	7.4	9.3	17.6	12.8	6.9	5.5	5.5	6.8	6.5	8.8	7	6.5	5.5	17.6	
8		2.3	5	3	3.7	4.9	7.6	8.1	9.7	7.5	9.8	17	18.1	17.8	18.2	17.7	17.4	7.6	8.1	7.1	9.3	9.5	7.6	8.5	6.2	18.2	
9		6.7	7.2	2.4	4.7	6.1	7.4	7	6.7	8	9.6	10.2	8.9	11.1	10.1	8.2	3.2	2.7	4.9	7.1	9.6	8.3	9.5	12.3	17.1	17.1	
10		16.6	14.4	15.1	11.6	7.8	9.4	7.8	9.2	12	8.4	6.5	8.1	8.6	11.3	10.5	6.9	9.7	10.4	13.4	8.7	8.6	10.1	8.2	7.1	16.6	
11		7.1	5	5.3	5.2	3.6	1.9	4.3	2.5	4.6	6.7	10.7	8	7.6	6.9	7.7	7.9	7.6	9.1	11.7	12.4	11.1	8.7	10.9	9.8	12.4	
12		10.2	8.4	8.8	9.2	9.3	8.7	9.7	7.7	6.4	6.7	5.5	8.6	10.3	9	10.5	10.8	8	8.1	9.4	11.5	11.3	10.7	10	10.9	11.5	
13		8.2	9.5	8.1	7.5	7.3	5	7.4	7.3	8.8	9.8	10.2	12	12.7	14.2	15.4	12.9	12.6	14.2	13.4	11.9	13.6	12	12	14.7	15.4	
14		9.2	8.9	9.1	8.7	12.6	16.8	16.8	14.7	14.6	16.2	17.4	16.8	16.3	19.9	19.5	19.4	19.9	20.2	20	22.3	17.2	22.3	20.2	21.9	22.3	
15		18	14.7	14.2	17.1	14.8	13.4	12.2	16.9	15.2	13.8	19.3	19	17.7	17.6	17.4	15.5	10.6	8.3	5.7	7	5.8	8.6	3.4	2.2	19.3	
16		3.6	2.3	2.4	2.7	2.3	2.9	3.4	3.9	2.6	4.4	3.1	4.8	4.7	6.6	5.5	4.1	4.2	4.9	9.3	8.4	9.8	11.8	11.4	11.4	11.8	
17		13.3	17.6	19	17.8	20.8	18.3	17.4	21.2	18.7	15.4	18.2	16.9	21	22.2	21.5	21.9	22.1	20.5	14.9	21.2	16.9	18.4	17	16.2	22.2	
18		16.6	15.6	14.3	18.5	22	17.5	18.6	18.3	18.9	15.4	10.2	14.4	16.9	14.8	14.2	13.9	11.3	11.3	11.8	11	8.9	10.1	10	7.7	22	
19		5.3	8.1	9.1	8.2	7.3	6.7	6	6.4	6.1	9	7.7	10.4	10	11.9	10.4	9.8	5.6	2.5	1.9	2.9	3.3	3.9	3.9	5.2	11.9	
20		5.5	7.5	6.7	5.5	3.9	3.6	4.3	5.4	7.9	12.3	10.1	11.7	12.5	12.3	10.7	9.3	5.6	3.3	3.6	4.1	2	2.7	6.8	4.6	12.5	
21		2.6	2.5	8.4	8.6	6.1	5.1	5.2	5.6	5.7	9.8	5.7	10.1	11.8	12.3	13	9.9	15.7	11.3	9.7	6.7	7.3	9.8	6.2	3.9	15.7	
22		5.4	4	6.5	5.1	3.3	7.4	5.4	6.1	12.3	13.9	12	20.6	14.2	12.1	10.4	10.4	6.3	8.5	7.5	10.3	12.4	9.3	8.1	8.5	20.6	
23		8.2	5.2	3.7	5.2	4.6	2.1	3.1	3.2	4.6	5	8.2	8.1	11.9	15.6	17.4	16	10.2	13	13.4	13.7	13.3	16.1	13.4	12	17.4	
24		12.8	8.4	8	8.9	6.1	5.1	6.9	7.9	9.8	10.6	10.2	10.1	12.3	8.3	8.8	4.9	3.8	3.4	9.3	6.9	14.1	18.2	16.9	21.4	21.4	
25		21.2	18.4	17.5	16.6	17	13.1	11.2	8.8	6.6	9.2	9.2	11	12.6	12.4	16.8	18.3	20.1	31.1	28.1	26.1	30.4	25.1	23.1	13.1	31.1	
26		10.6	9.6	7.1	9.3	6.4	6.4	3	2	4	4.5	7.1	10.1	12.4	18.9	12.8	11.9	12.7	8.6	10	13.7	15	14.7	14.8	11.6	18.9	
27		10.8	14.7	12.2	12.1	8.5	9.2	11.8	9.8	10.5	9.7	8	9.7	10	16.2	18.2	10.2	13.6	15.4	14.6	17.4	21.7	26.7	25.5	26.1	26.7	
28		25.1	18.3	29.7	20.6	17.1	13.1	12.9	8.1	10.8	10.3	9.9	11.6	11.3	13.9	13.7	9.4	3.6	3.3	9.7	8.7	12.4	14.7	14.8	9.7	29.7	
29		9	12.3	10	10.6	11.1	12.5	12.9	10.1	11.8	11.9	14.3	13.3	14.2	15	7.7	4.4	2.6	7.9	5.9	3.1	3.4	3.5	2.9	4.1	15	
30		3.5	2.2	2.2	3.8	11.1	15	11.7	5.5	7	12.4	9.4	11.4	11	14.8	13.6	13.8	10.6	15.3	15.3	7.4	8.7	8.3	3.9	3.1	15.3	
PEAK		25.1	18.4	29.7	20.6	22.0	18.3	18.6	21.2	18.9	16.2	19.3	20.6	21.0	22.2	21.5	24.4	22.1	31.1	28.1	26.1	30.4	26.7	25.5	26.1		

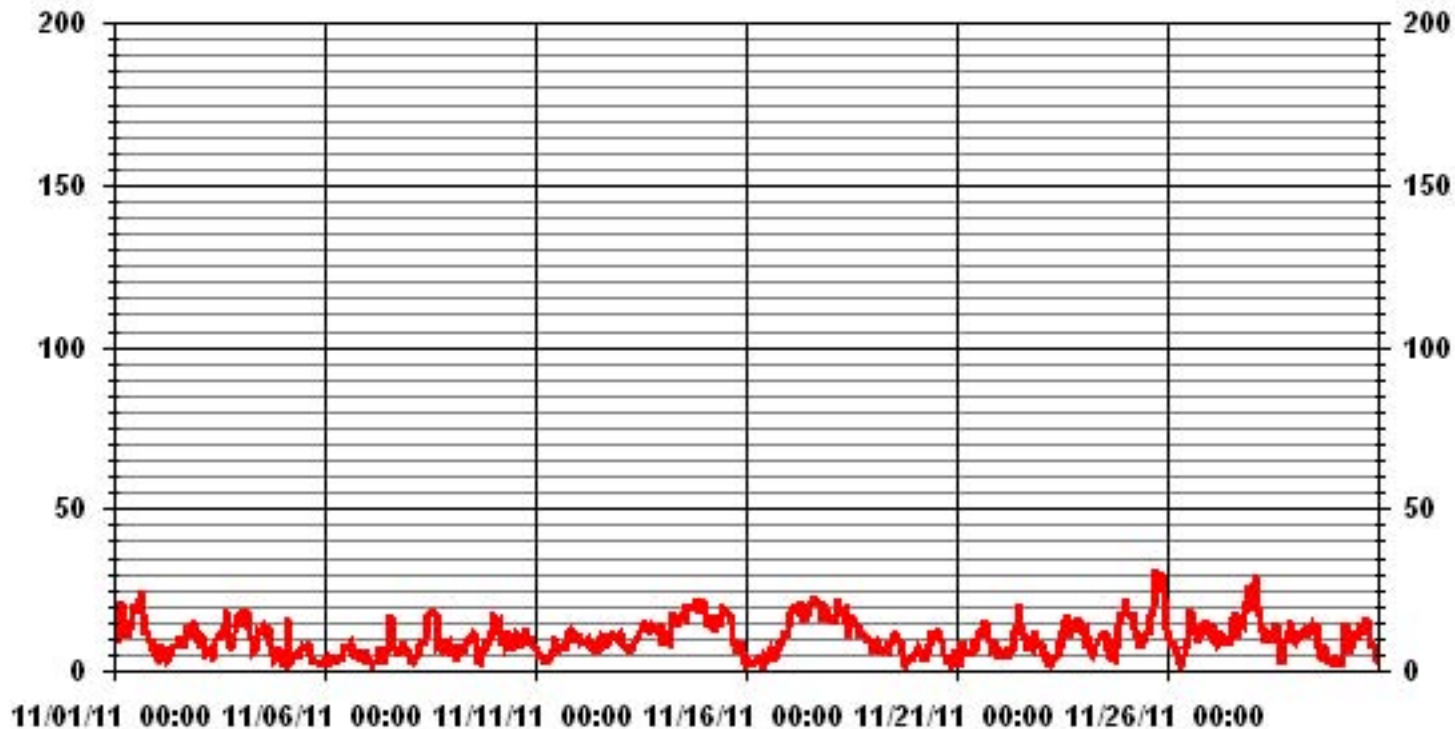
STATUS FLAG CODES

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	31.1	KPH	@ HOUR(S)	17
			ON DAY(S)	23

01 Hour Averages



LICA
WSP / WD Joint Frequency Distribution (Percent)

November 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	.13	.00	1.11	1.38	3.47	2.50	11.38	4.02	2.63	5.13	11.38	5.41	2.36	1.94	1.38	.27	54.58
< 12.0	.13	.69	1.38	.97	3.75	.55	6.66	.00	.00	.13	3.19	6.38	3.33	4.16	3.75	.97	36.11
< 20.0	.00	.00	.41	.83	.55	.00	.41	.00	.00	.00	.00	.00	1.94	1.66	1.80	.55	8.19
< 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	.27	.69	2.91	3.19	7.77	3.05	18.47	4.02	2.63	5.27	14.58	11.80	7.63	7.77	6.94	1.80	

Calm : 1.11 %

Total # Operational Hours : 720

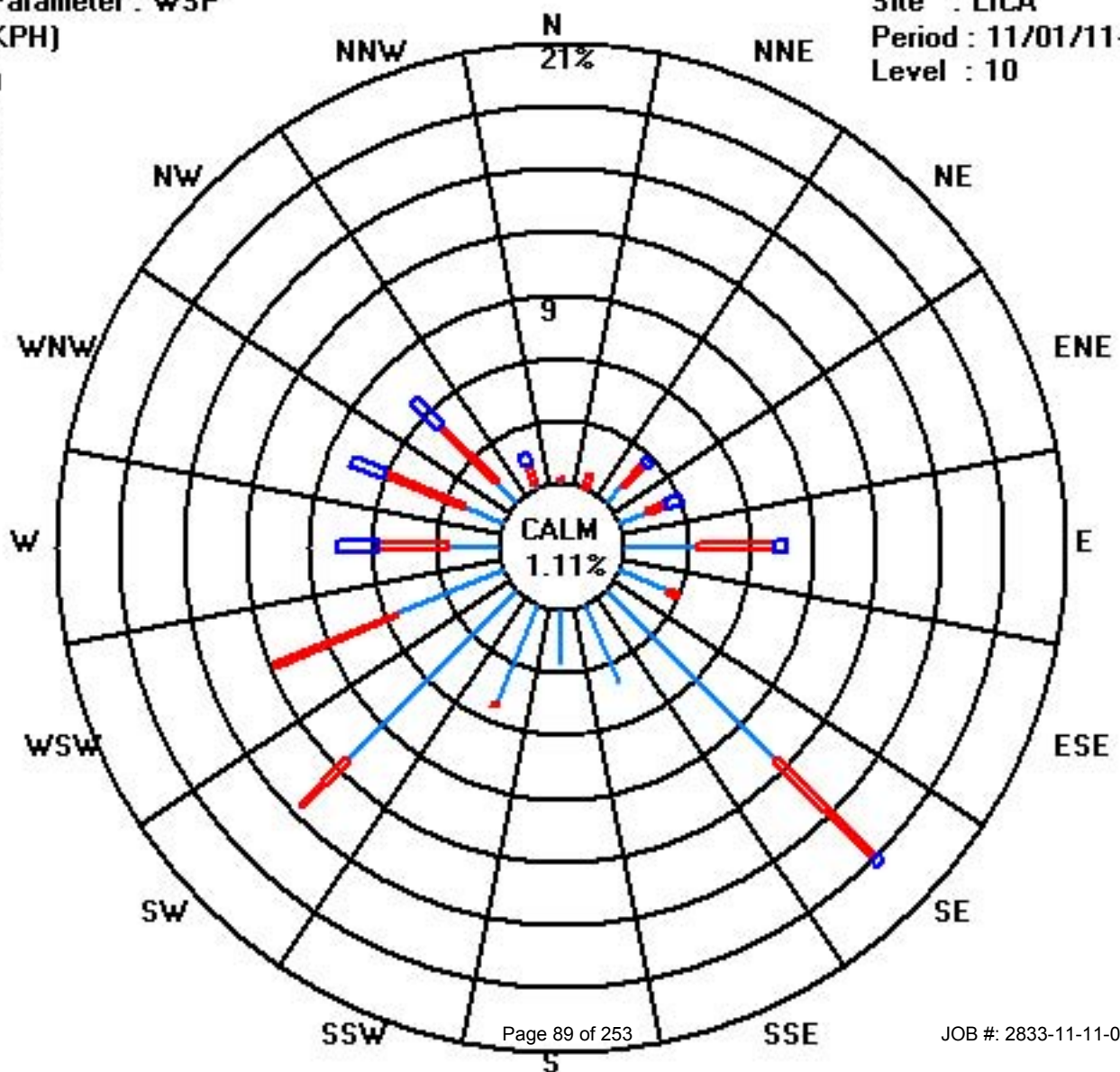
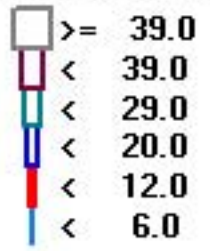
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1		8	10	25	18	82	29	19	37	82	39	17	14	10	2	393
< 12.0	1	5	10	7	27	4	48			1	23	46	24	30	27	7	260
< 20.0			3	6	4		3						14	12	13	4	59
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	2	5	21	23	56	22	133	29	19	38	105	85	55	56	50	13	

Calm : 1.11 %

Total # Operational Hours : 720

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	248	242	275	294	293	283	266	265	258	263	261	264	269	263	266	267	254	245	235	236	237	227	226	214	262	W	24	
2	219	165	226	224	232	210	184	232	208	238	211	144	149	180	138	128	128	129	128	127	126	126	126	107	146	SE	24	
3	89	118	87	106	87	57	104	177	153	193	245	239	256	264	288	315	287	282	287	301	297	303	304	310	287	WNW	24	
4	303	302	305	308	315	305	314	303	292	303	270	269	260	250	233	226	233	205	159	183	209	218	146	140	279	W	24	
5	145	191	304	145	72	199	136	131	164	210	197	284	210	226	212	248	235	146	168	130	276	149	137	194	206	SSW	24	
6	252	198	222	237	268	280	188	212	218	241	255	257	242	235	260	221	196	229	234	230	204	225	238	130	237	SW	24	
7	215	260	148	178	236	223	244	255	118	190	138	168	171	220	217	203	139	145	162	179	193	217	195	200	191	S	24	
8	154	216	196	166	234	233	229	235	236	248	256	271	290	278	285	300	285	249	243	239	233	233	232	239	258	WSW	24	
9	239	229	132	221	234	235	234	238	244	251	256	236	224	230	232	158	124	128	130	128	132	126	132	131	199	SSW	24	
10	132	128	135	137	135	137	140	134	128	146	158	188	218	224	224	234	253	250	267	255	243	241	250	266	187	S	24	
11	240	232	222	227	70	128	93	70	124	127	121	94	100	95	92	94	95	89	85	83	88	70	55	51	96	E	24	
12	57	61	52	52	50	44	57	71	81	128	185	138	136	139	136	133	134	135	133	128	133	132	132	134	109	ESE	24	
13	137	148	158	187	180	190	211	211	220	229	239	235	243	240	235	240	240	247	250	265	297	279	278	271	238	SW	24	
14	278	256	256	279	277	304	301	311	318	314	300	314	300	294	304	304	299	310	307	303	298	308	299	301	301	301	WNW	24
15	300	288	294	292	296	297	283	304	305	306	305	310	306	306	303	306	298	285	261	245	231	229	156	195	296	WNW	24	
16	220	160	224	306	217	216	317	281	289	192	128	126	98	254	220	141	141	134	126	110	110	94	100	92	123	ESE	24	
17	85	89	90	86	87	81	81	81	83	72	74	71	55	57	61	62	61	63	71	53	50	37	29	36	67	ENE	24	
18	44	32	16	340	336	334	336	331	333	334	340	333	331	326	317	316	314	319	327	319	325	316	321	319	335	NNW	24	
19	305	287	265	252	232	212	186	163	155	143	158	194	206	204	205	154	186	142	153	196	140	142	138	129	195	SSW	24	
20	136	135	145	144	159	224	162	208	234	248	245	239	226	241	232	225	241	211	158	162	130	135	131	136	211	SSW	24	
21	91	116	131	132	135	132	135	113	113	89	92	87	89	113	80	81	87	81	85	84	141	119	153	117	102	E	24	
22	143	165	121	132	102	110	122	101	92	92	90	123	101	94	92	94	104	260	246	228	245	238	240	242	127	SE	24	
23	237	226	195	267	138	65	39	59	52	56	91	69	84	88	85	80	74	73	45	41	42	41	26	3	61	ENE	24	
24	343	320	305	294	284	248	258	291	269	282	260	227	228	229	224	248	93	75	135	134	129	127	124	121	213	SSW	24	
25	130	127	126	130	129	128	127	124	128	138	142	233	242	241	259	267	275	273	275	279	292	286	283	263	238	SW	24	
26	247	231	239	216	241	231	179	145	95	124	128	134	130	127	125	124	131	130	127	126	130	130	133	131	143	SE	24	
27	131	141	127	136	130	123	127	130	127	145	195	234	246	274	243	234	254	260	267	268	277	292	304	305	249	WSW	24	
28	289	291	297	293	290	292	284	232	244	250	235	249	222	214	227	221	146	113	216	203	213	217	219	220	253	WSW	24	
29	223	245	224	222	228	243	242	235	238	238	250	268	265	270	256	220	212	230	246	86	267	168	80	246	243	WSW	24	
30	137	84	130	258	19	37	44	6	331	311	322	314	310	306	311	322	275	264	279	218	219	223	222	188	312	NW	24	
HOURLY AVG	343	320	305	340	336	334	336	331	333	334	340	333	331	326	317	322	314	319	327	319	325	316	321	319				

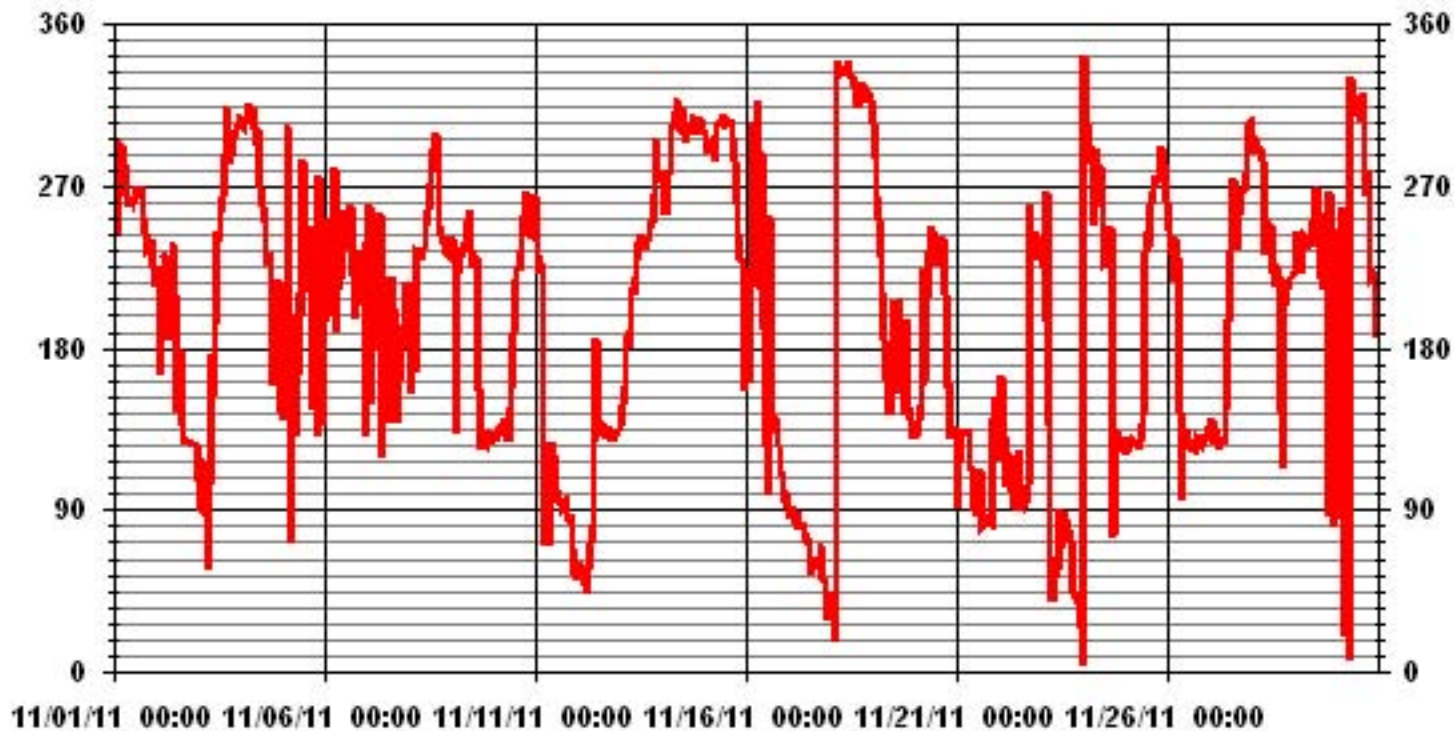
STATUS FLAG CODES

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:	720 HRS
STANDARD DEVIATION	79.73	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	249 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

NOVEMBER 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	16	17	17	17	16	17	18	17	16	19	19	21	20	20	20	19	16	14	18	17	17	15	15	22
2	15	25	25	13	12	28	70	41	40	37	29	34	28	39	18	14	11	13	13	14	14	15	17	21
3	20	21	19	21	25	38	20	39	50	38	20	24	22	19	18	14	16	15	14	12	13	14	15	13
4	14	15	15	15	15	15	11	16	22	21	25	26	26	25	23	20	18	18	32	23	23	21	48	59
5	31	56	49	35	59	45	51	30	57	33	46	39	42	31	45	26	36	54	57	39	62	60	50	42
6	26	59	46	34	41	41	37	39	61	27	23	33	26	26	35	19	17	11	10	25	42	35	46	30
7	51	58	43	45	33	64	48	68	53	41	23	35	30	22	26	30	27	28	43	42	43	32	52	40
8	52	45	44	32	31	17	17	15	16	15	19	20	19	19	19	16	17	12	14	14	15	13	11	16
9	10	13	59	59	8	12	12	11	12	17	20	25	23	20	23	25	17	14	11	12	12	14	13	13
10	13	13	14	18	16	21	28	29	22	35	41	36	26	19	25	19	16	16	19	15	15	16	13	16
11	12	28	23	13	24	40	22	54	20	19	17	21	21	20	18	21	20	17	17	18	19	18	15	16
12	17	17	15	15	16	18	18	22	20	21	26	26	16	20	16	15	14	14	13	12	12	13	12	12
13	16	33	33	37	37	33	25	24	21	21	23	22	18	19	19	18	20	17	16	18	18	21	19	19
14	20	18	16	19	18	14	17	14	14	14	16	15	18	17	15	16	15	15	14	14	15	13	16	15
15	16	19	17	17	15	16	18	15	15	13	15	16	16	16	16	13	13	19	15	10	11	18	35	60
16	36	55	57	40	69	76	55	43	74	44	70	57	42	33	46	54	22	19	17	22	22	21	23	21
17	20	19	19	18	18	18	19	20	19	18	19	19	15	16	18	17	18	20	20	17	16	19	20	21
18	20	22	21	16	14	14	16	12	14	15	30	19	16	16	14	14	13	12	13	13	14	16	14	26
19	20	22	20	21	30	26	37	37	32	27	36	40	40	37	33	33	36	36	29	42	25	27	26	25
20	13	14	38	32	29	28	44	29	20	19	19	20	21	19	21	19	26	22	44	41	54	58	44	45
21	42	57	32	22	15	14	23	23	26	22	35	24	20	22	20	21	19	19	24	54	49	33	33	28
22	28	48	25	40	33	32	36	29	22	16	19	20	20	19	20	19	48	31	29	27	16	14	12	10
23	8	29	41	47	67	66	52	16	18	23	14	23	19	19	17	19	17	18	27	18	18	18	18	22
24	20	20	16	18	30	42	18	16	16	19	23	22	26	31	29	54	61	26	26	26	18	16	17	21
25	14	16	19	15	14	17	16	19	23	22	28	21	18	19	18	18	21	21	19	19	16	19	18	17
26	14	20	15	24	17	19	27	34	52	22	17	15	12	14	16	16	16	15	25	15	13	14	13	12
27	12	46	20	38	19	15	17	15	13	39	43	29	19	22	22	15	17	16	18	17	18	17	14	14
28	18	16	15	17	17	16	17	21	14	17	19	20	19	27	19	17	30	46	32	28	24	21	19	21
29	16	17	20	22	20	19	16	19	17	19	18	18	19	19	19	17	37	15	24	43	46	49	26	45
30	57	64	69	78	22	17	16	23	23	18	46	15	16	14	15	14	20	19	19	25	20	31	34	37

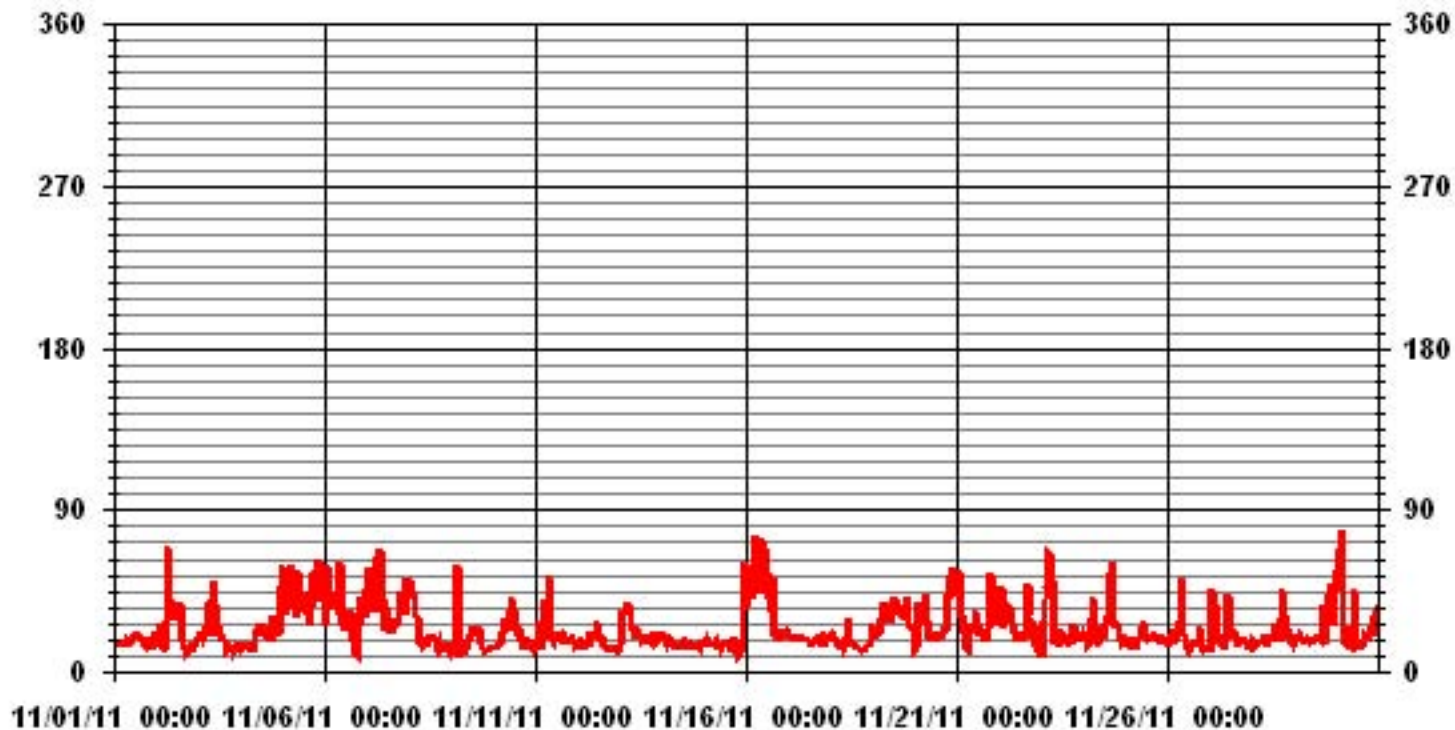
STATUS FLAG CODES

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: 720 HRS

01 Hour Averages



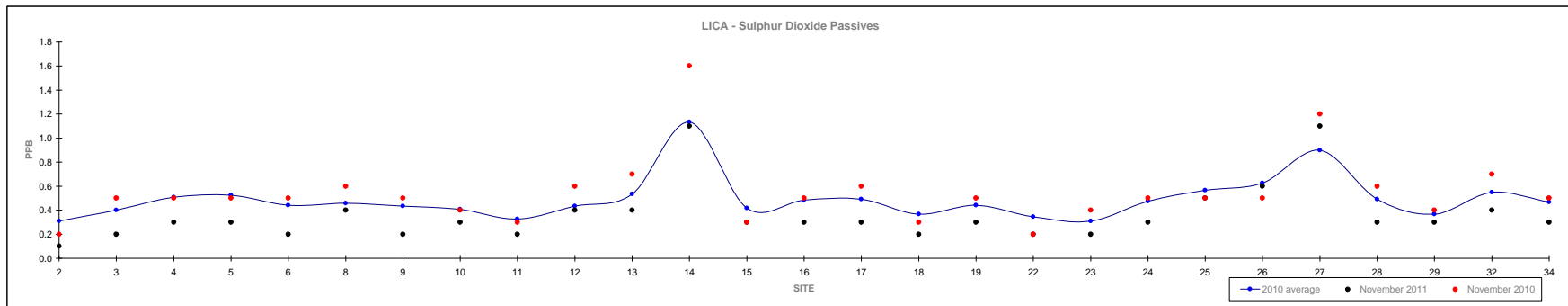
— LICA STDWDIR DEG

Non-Continuous Monitoring

Passive Summary Results for November 2011

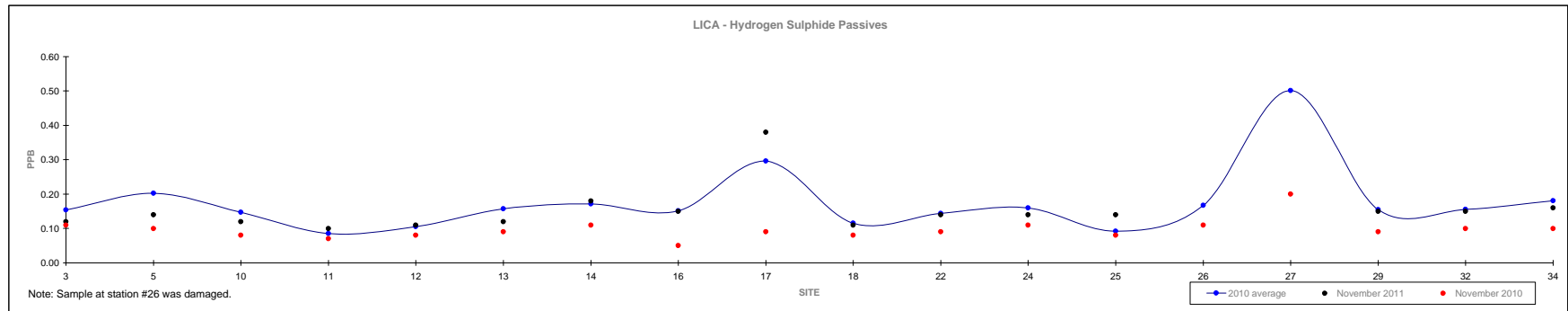
Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												November 2011	
	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	Reading	Site	
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	0.4	-	
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	0.1	#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	1.1	#14, #27	



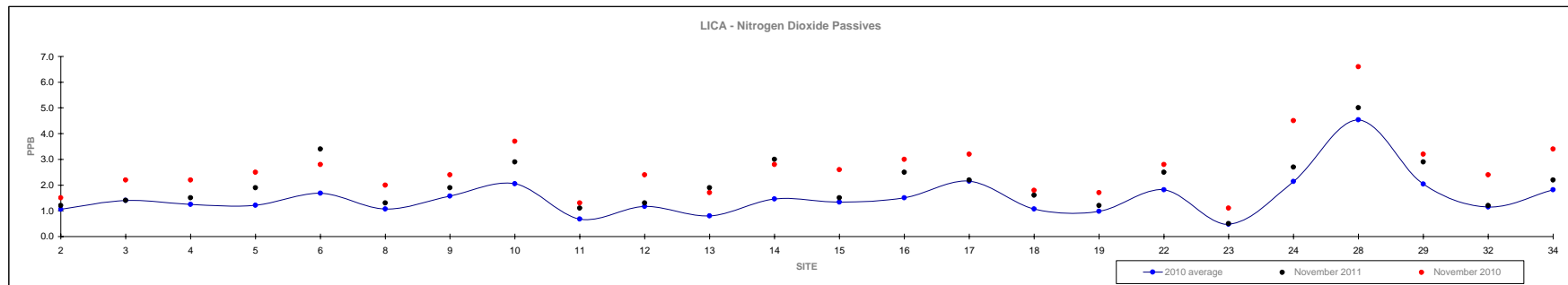
Passive Summary Results for November 2011 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb															November 2011				
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	34	Reading	Site
Mean	0.13	0.26	0.15	0.08	0.10	0.09	0.14	0.13	0.17	0.11	0.11	0.14	0.08	0.12	0.21	0.13	0.14	0.15	0.18	-
Minimum	0.05	0.10	0.08	0.03	0.05	0.03	0.08	0.04	0.09	0.04	0.02	0.07	0.05	0.07	0.07	0.06	0.08	0.10	0.10	#11
Maximum	0.21	0.47	0.22	0.18	0.24	0.16	0.20	0.24	0.27	0.20	0.19	0.23	0.16	0.20	0.55	0.20	0.19	0.21	0.73	#27



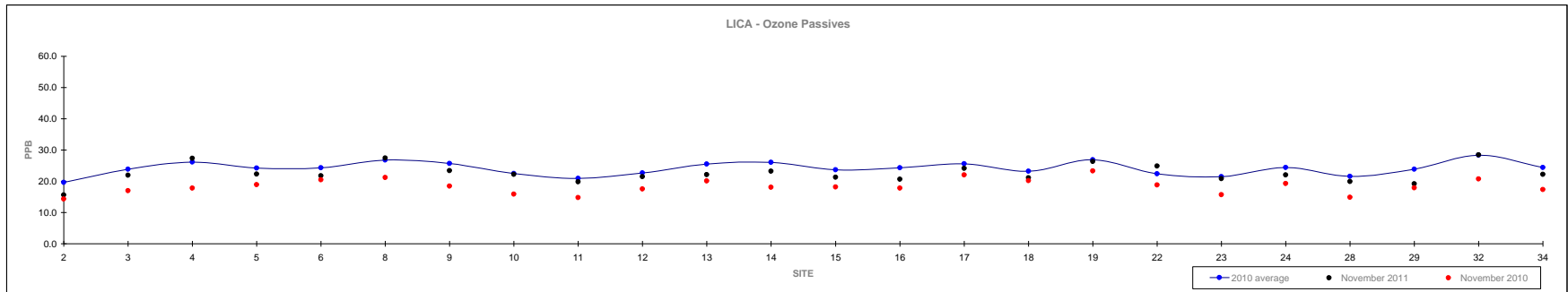
Passive Summary Results for November 2011 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																								November 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	2.0	-
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	0.5	#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	5.0	#28



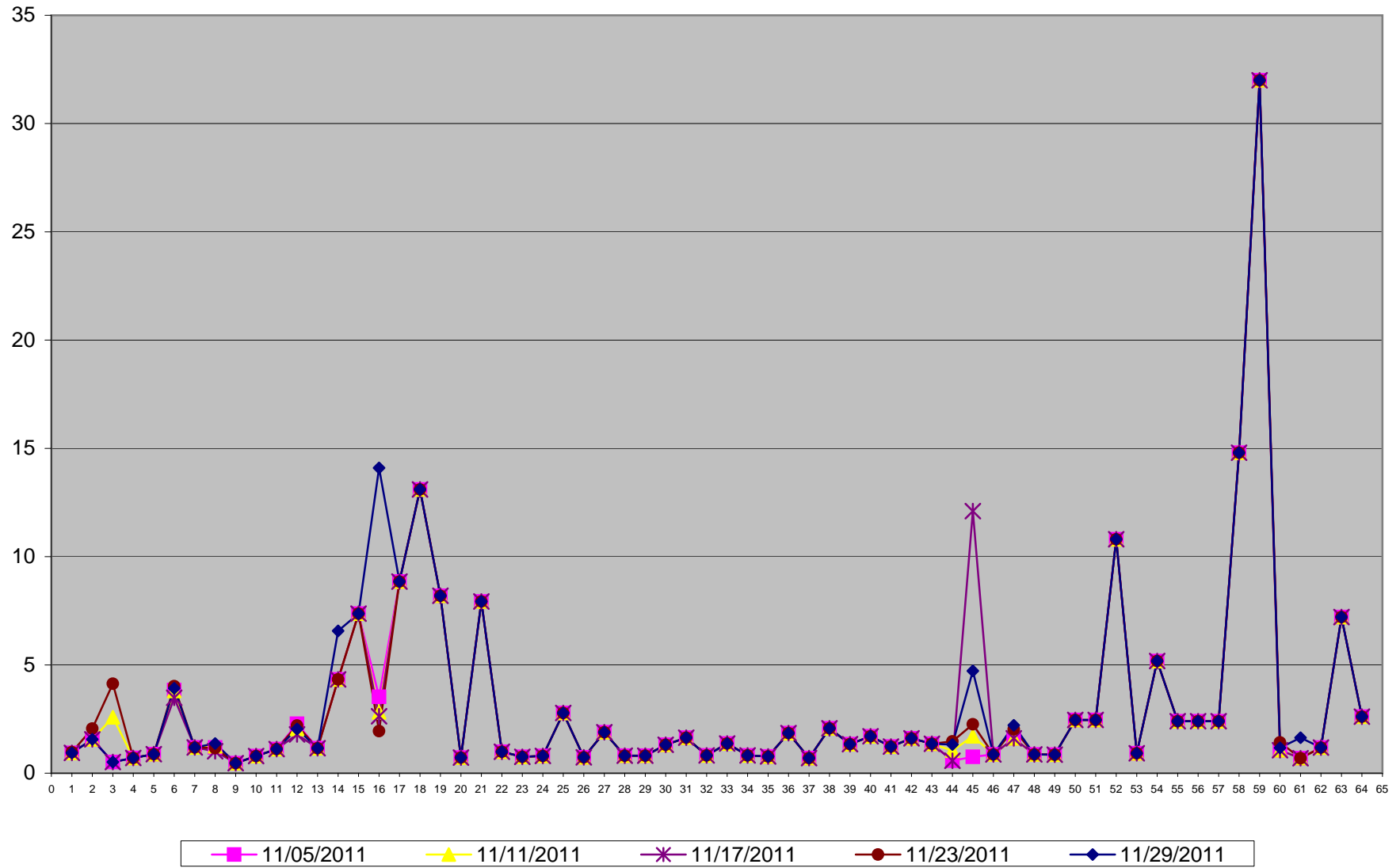
Passive Summary Results for November 2011 Lakeland Industry & Community Association

	Ozone ppb																												November 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	22.5	-				
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	15.6	#2				
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	28.4	#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)

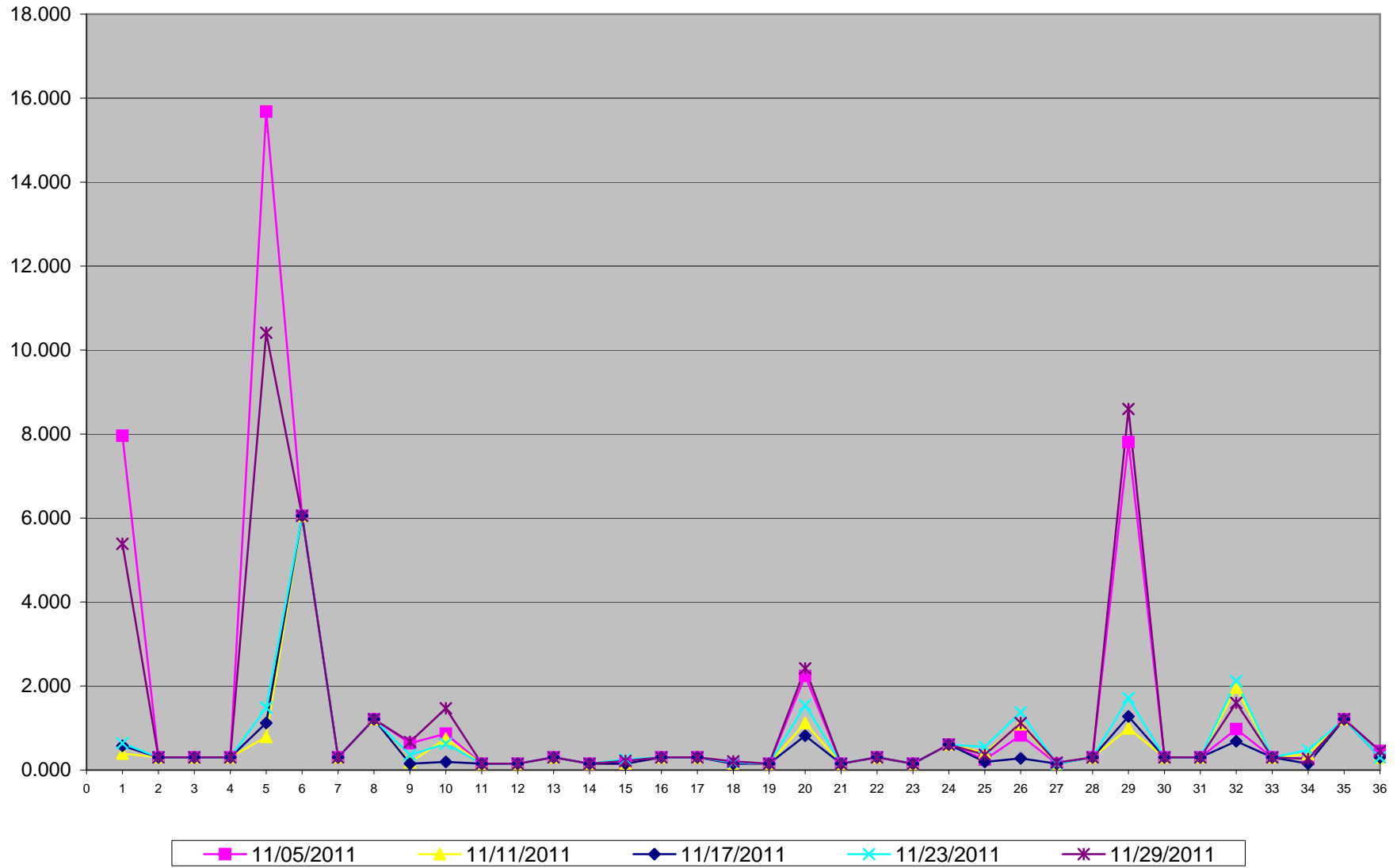
Polycyclic Aromatic Hydrocarbons

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

PAHs	11/05/2011	11/11/2011	11/17/2011	11/23/2011	11/29/2011
Sample Volume (unit: m3)	330.36	330.39	330.34	330.33	330.37
1 1-Methylnaphthalene	7.961	0.394	0.575	0.636	5.388
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	15.681	0.787	1.120	1.483	10.413
6 3-Methylcholanthrene	6.054	6.054	6.054	6.055	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8 9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.636	0.182	0.151	0.363	0.666
10 Acenaphthylene	0.866	0.745	0.194	0.624	1.471
11 Anthracene	0.151	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	0.151	0.157	0.151	0.254	0.218
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.157	0.151	0.182	0.206
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	2.240	1.120	0.817	1.544	2.422
21 Chrysene	0.151	0.151	0.151	0.157	0.151
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.248	0.412	0.194	0.551	0.363
26 Fluorene	0.823	1.090	0.279	1.374	1.120
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.176
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	7.810	0.993	1.277	1.713	8.596
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303	0.303
32 Phenanthrene	0.975	1.962	0.684	2.119	1.598
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.272	0.375	0.151	0.472	0.266
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.454	0.303	0.303	0.303	0.454

Note: - values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
- Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.

PAHs in ng/m3 Site: LICA - Cold Lake South



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methlyanthracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylanthracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,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	November 4, 2011	Previous Calibration	October 13, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:41	End Time (MST)	11:31
Reason:	Monthly Calibration		
Barometric Pressure	0.936 atm	Station Temperature	22 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	448 ccm	30.7 Deg C	447-632 ccm
HVPS / Lamp Setting	-632	743	-632
PMT / RxCell Temp	OK Deg C	45.3 Deg C	OK Deg C
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C
Offset / Slope	5.9	1.003	5.9
			1.011

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			
4954	41.4	400	395	1.0134
4954	41.4	400	401	0.9982
4977	23.3	225	227	0.9915
4986	12.9	125	127	0.9814
4995	0	0	0	N/A
		Sum of Least Squares		0.9955
		New Correction Factor		0.9982

Before Calibration

After Calibration

Auto Zero	0.0	-0.1
Auto Span	368.0	372.0
Sample Lines Connected		YES

Percent Change

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

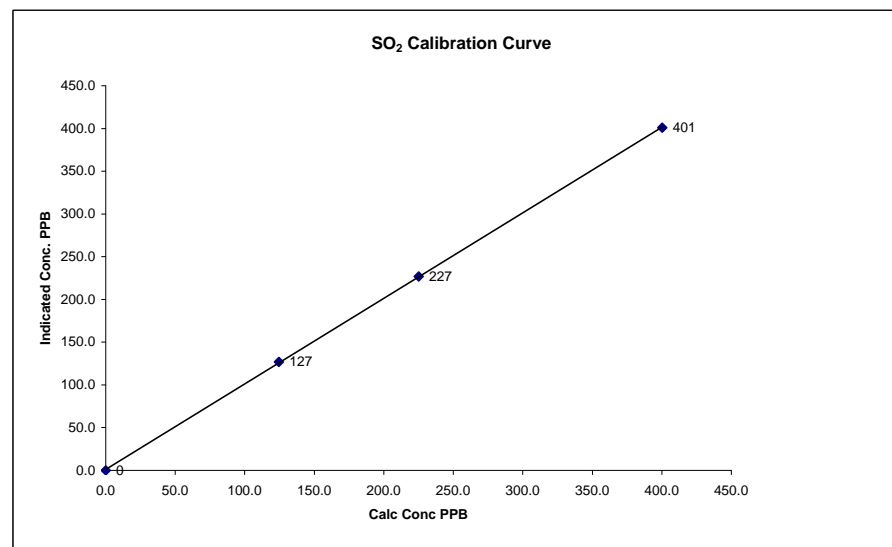
Notes: N/A : Not applicable

Calibration Performed by: Ting Xu

SO2 Calibration Curve

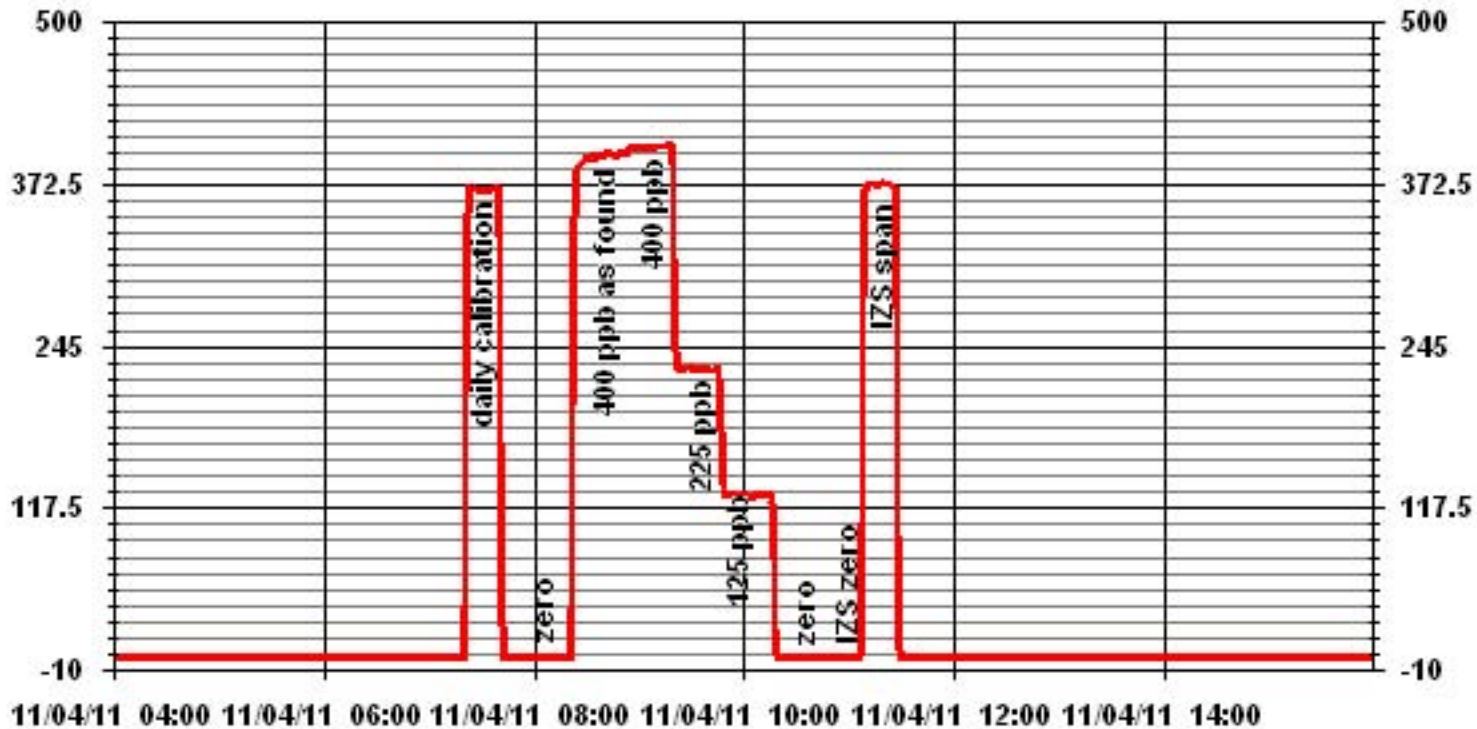
Calibration Date	November 4, 2011
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:41
End Time (MST)	11:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995)
0	0	n/a		0.999959
125	127	0.9814		1.000875
225	227	0.9915		1.086441
400	401	0.9982		



Notes:

01 Minute Averages



Total Reduced Sulphur

TRS Calibration Report
Station Information

Calibration Date	November 3, 2011	Previous Calibration	October 12, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:11	End Time (MST)	13:24
Reason:	Monthly Calibration		
Barometric Pressure	0.925 atm	Station Temperature	23 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	348 ccm, 31.9 Deg C	350 ccm, 32.5 Deg C	
HVPS / Lamp Setting	-622.7, 749	-623.1, 751	
PMT / RxCell Temp	OK Deg C, 45 Deg C	OK Deg C, 451 Deg C	
Converter / IZS Temp	810 Deg C, 45 Deg C	810 Deg C, 45.0 Deg C	
Offset / Slope	13, 1.251	13.3, 1.283	

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	77	1.0389
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	-0.3	After Calibration	-0.3
Auto Span	64.3		68.8
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9876
Current Correction Factor Before Span Adjust:	1.0389
Percent Change:	-4.9%

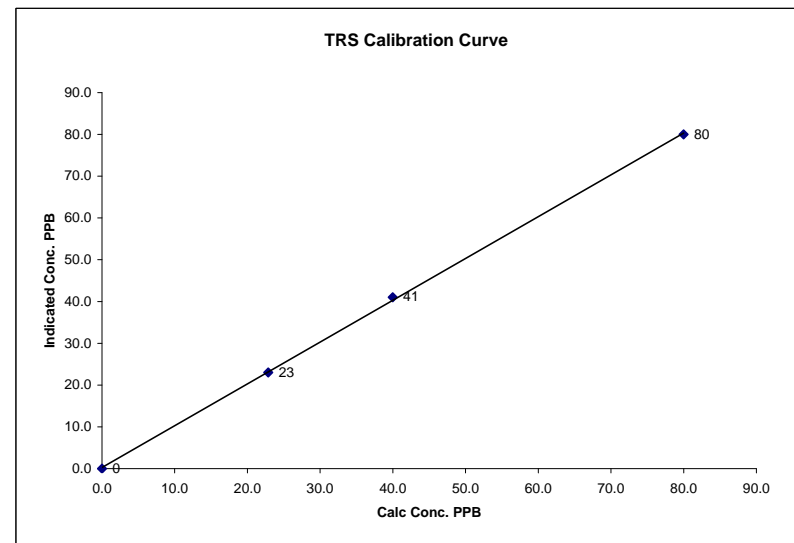
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

TRS Calibration Curve

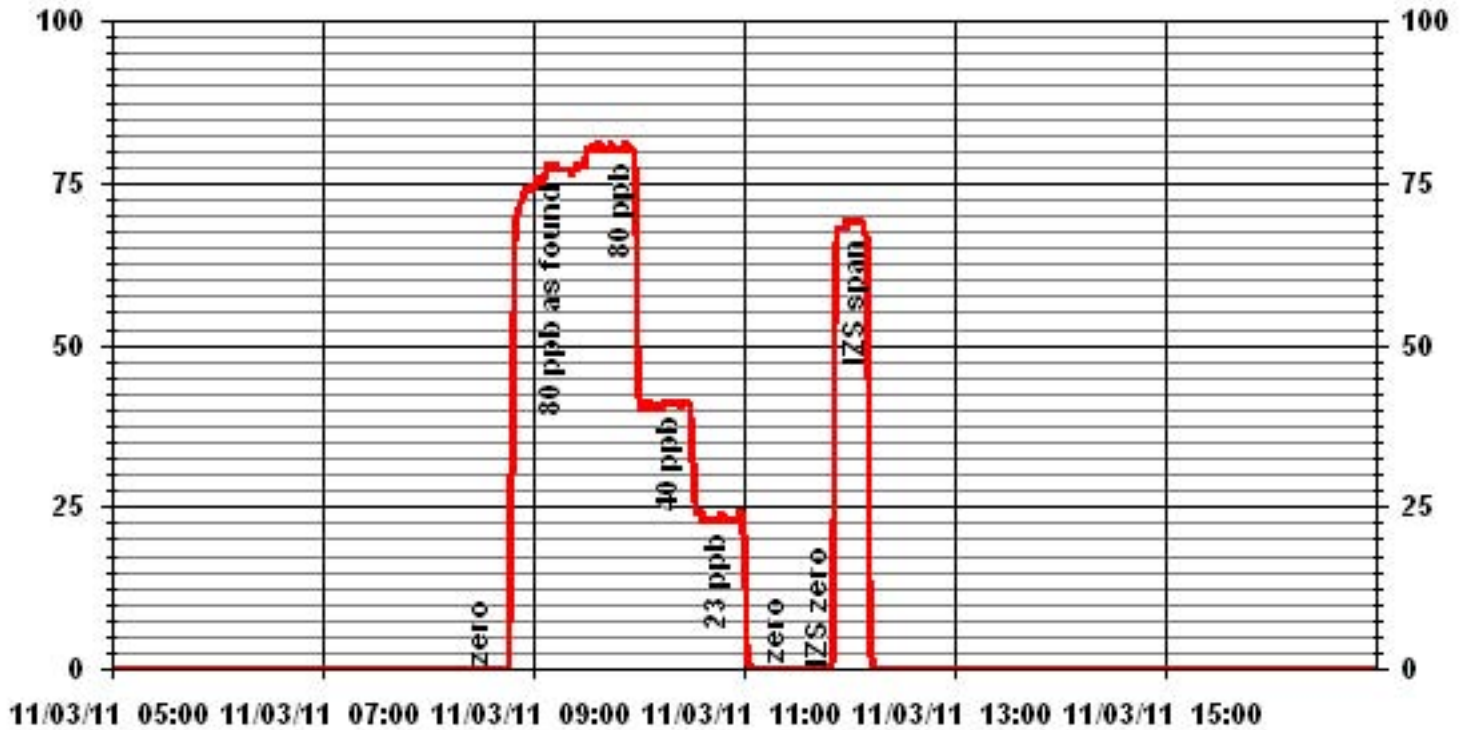
Calibration Date	November 3, 2011
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	8:11
End Time (MST)	13:24

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		0.999793
23	23	0.0000		1.000785
40	41	0.5576		0.260776
80	80	0.4998		



Notes:

01 Minute Averages



TRS Calibration Report

Station Information

Calibration Date	November 25, 2011	Previous Calibration	November 3, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:56	End Time (MST)	11:05
Reason:	As Found		
Barometric Pressure	0.919 atm	Station Temperature	21 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:	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	347 ccm	31.9 Deg C	348 ccm	31.9 Deg C
HVPS / Lamp Setting	-622.7	781	-623.1	750
PMT / RxCell Temp	OK Deg C	44.9 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	13.4	1.283	13.4	1.283

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4959	No Zero Adj 39.2	80	81	0.9876
Sum of Least Squares				
New Correction Factor				

	Before Calibration	After Calibration
Auto Zero	-0.4	-0.3
Auto Span	63.9	66.8
Sample Lines Connected		YES

Percent Change

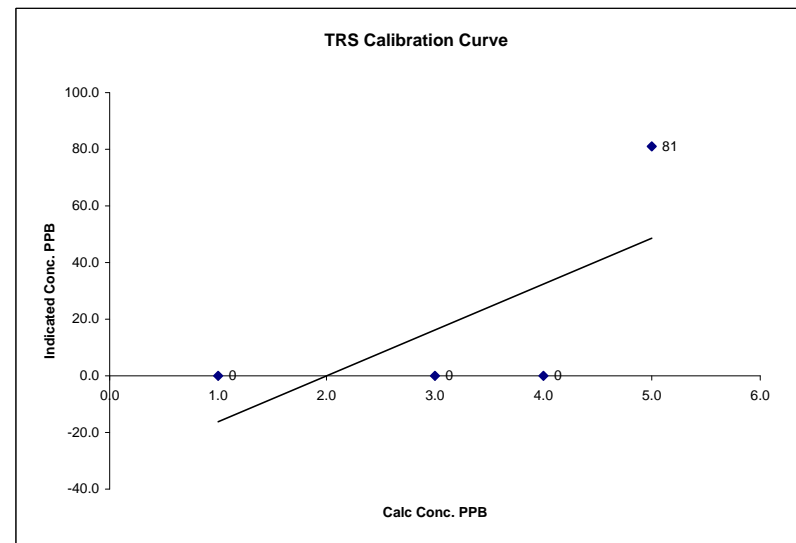
Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9876
Percent Change:	1.3%

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

TRS Calibration Curve

Calibration Date	November 25, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:56	End Time (MST)	11:05

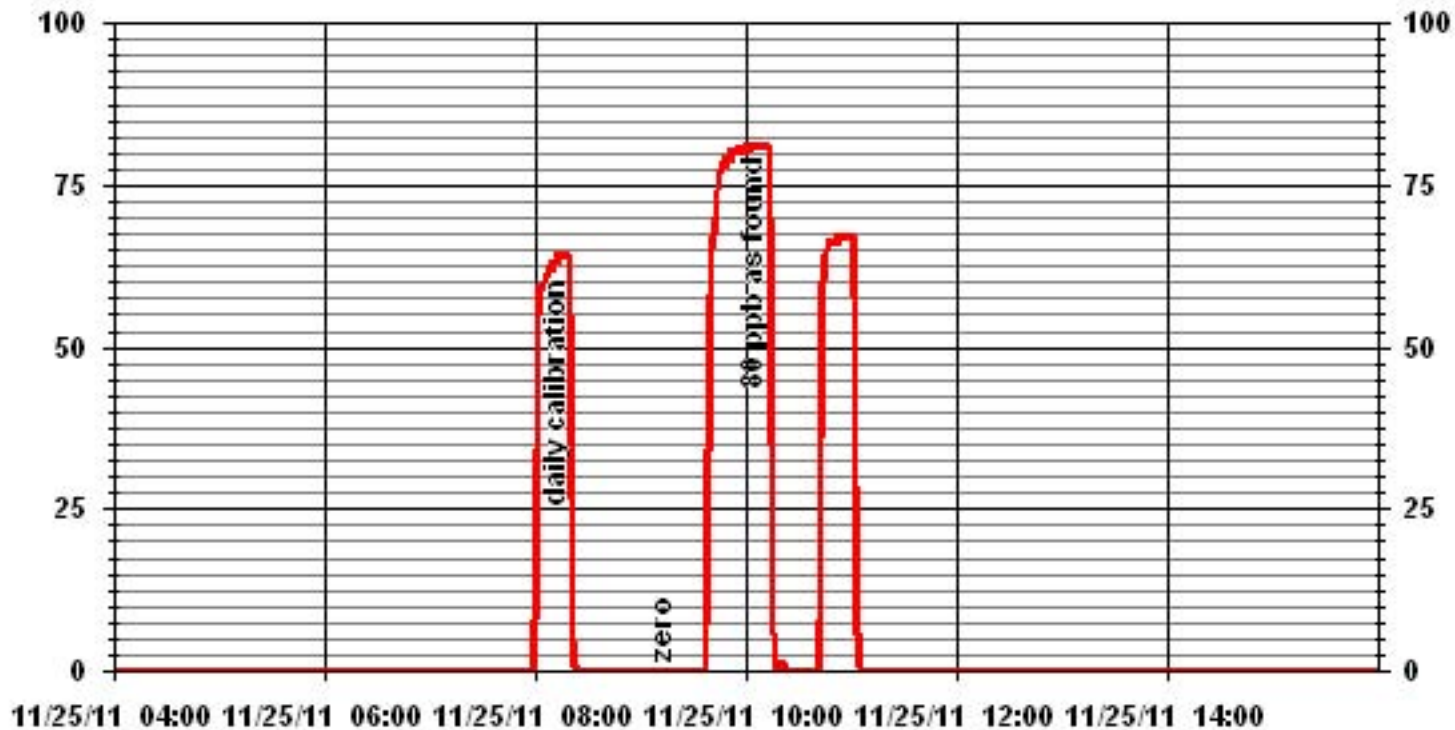
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	#DIV/0!
	0	n/a			
	0	#DIV/0!			#DIV/0!
	0	#VALUE!			#DIV/0!
80	81	#VALUE!			



Notes:

Calibration Performed by: Ting Xu

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	November 3, 2011	Previous Calibration	October 20, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	11:34	End Time (MST)	15:22
Reason:	Post Repair Calibration		
Barometric Pressure:	0.926 atm	Station Temperature:	23 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	-0.2	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	41.2	1.0050
3000	70.0	41.4	41.7	0.9930
3000	35.0	20.9	20.8	1.0068
3000	20.0	12.0	11.9	1.0106
3000	0.0	0.0	-0.1	NA
New Correction Factor:				0.9930

Percent Change	
Previous Calibration Correction Factor:	0.9954
Current Correction Factor Before Span Adjust:	1.0050
Percent Change:	-1.0%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	-0.3	0.0
Auto Span	32.4	33.2
Sample Lines Connected	YES	

Cylinder Pressures			
Span	500 psi	Hydrogen	1000 psi
Zero Air	32 psi		

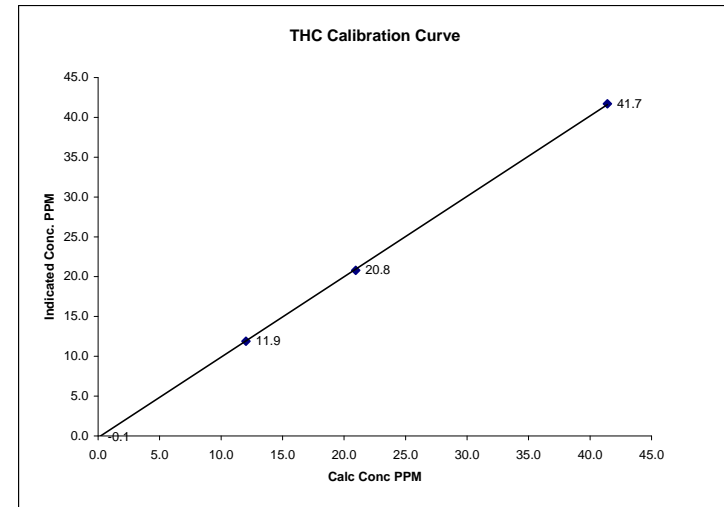
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

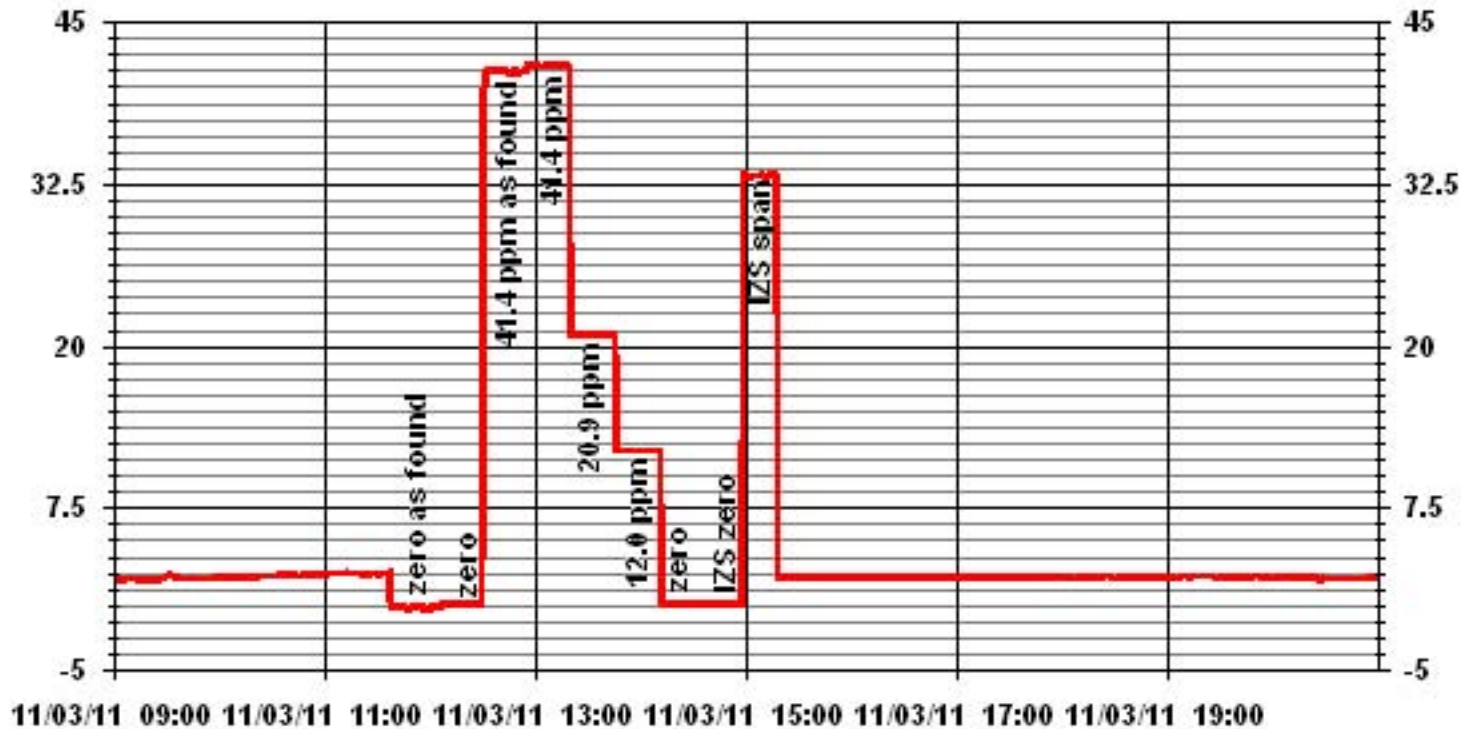
Calibration Date	November 3, 2011		
Company	Lakeland Industry and Community Association		
Plant / Location	LICA1/Cold Lake		
Start Time (MST)	11:34	End Time (MST)	15:22

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	-0.1	NA	0.999956	1.009878
12.0	11.9	1.0106		-0.20266
20.9	20.8	1.0068		
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:	November 3, 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 (%)	36.6%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	3.7
		Press (ATM)	0.927

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	0.33		
Temperature/Pressure			
Measured Temp (± 2 °C)	3.4	Δ °C	0.3
Measured Press (± 0.01atm)	0.934	DATM	-0.007
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.50%
Measured Main Flow (l/min)	2.98	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.80%
Measured Bypass Flow (l/min)	13.65	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	NA	Flow Control = Active	
Aux (< 0.6 l/min)	NA	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 12:17 **Finish Time:** 13:35

Sample Inlet Cleaned: Yes **New Filters Installed:** YES
New Filter Loading %: 20.0%

Comments:

Auditor/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	November 3, 2011	Previous Calibration	October 12, 2011
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	8:11	End Time (MST)	9:25
Reason:	As Found		
Barometric Pressure	0.925 atm	Station Temperature	23 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	0
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:	Enviro-nics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Enviro-nics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	731 ccm	317 Deg C		734 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	171.0 "Hg-A		OK ccm	173 "Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.9 Deg C	-2.4 Deg C		49.9 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	26.6 Deg C	OK Deg C		29.3 Deg C	OK Deg C		
Offset	3.7 NOx	3.4 NO		3.7 NOx	3.4 NO		
Slope	1.008 NOx	0.879 NO		1.008 NOx	0.879 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									
4955	40.4	NA	402	400	NA	403	400	3	0.9974	1.0000

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		

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= #VALUE!	NO= #VALUE!	NO2=
				NOx= 0.9974	NO= 1.0000	NO2=
Average Converter Efficiency=						

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2		
Auto Span	379 NOx	377 NO2		350 NOx	347 NO2		
Sample Lines Connected YES							

Percent Change from Previous Calibration	NOx 0.3%	NO 0.0%	NO2 -
--	----------	---------	-------

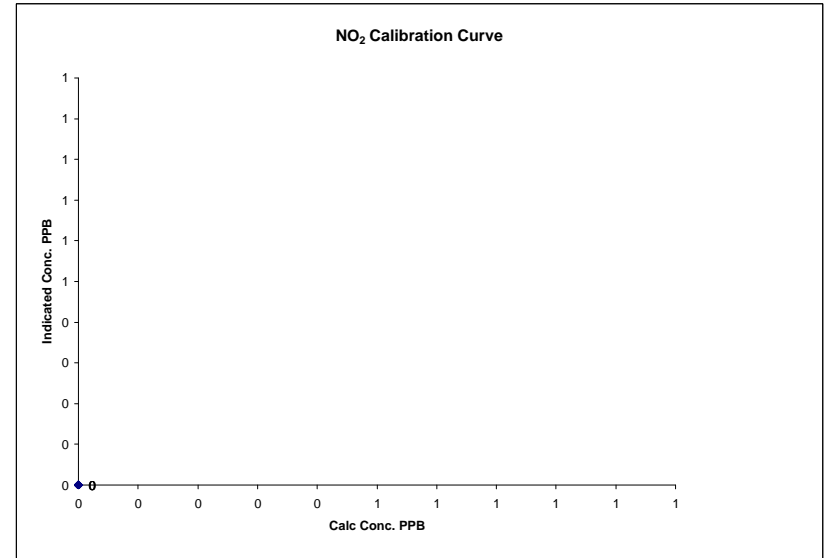
Notes: **NA : Not Applicable**
Following the as found points, the pump was replaced.

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	November 3, 2011
Company	LICA
Plant / Location	Cold Lake South
Start Time (MST)	8:11
End Time (MST)	9:25

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



Notes:

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	November 3, 2011	Previous Calibration	October 12, 2011
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	9:40	End Time (MST)	15:16
Reason:	Monthly Calibration		
Barometric Pressure	0.925 atm	Station Temperature	23 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	0
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	733 ccm	317 Deg C		722 ccm	316 Deg C		
Ozone Flow / Vacuum	OK ccm	173.6 Hg-A		OK ccm	172.1 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		49.8 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	29.5 Deg C	OK Deg C		29.5 Deg C	OK Deg C		
Offset	3.7 NOx	3.4 NO		3.8 NOx	3.5 NO		
Slope	1.008 NOx	0.879 NO		1.008 NOx	0.893 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	399	396	2	1.0076	1.0091
4954	40.4	NA	402	400	NA	404	401	3	0.9951	0.9965
4974	20.2	NA	201	200	NA	202	201	1	0.9952	0.9941
4985	10.1	NA	100	100	NA	103	102	1	0.9757	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	405	402	3	NA	NA
	No Adj. Required									
4954	40.4	350	402	NA	327	405	78	327	1.0000	100.00%
4954	40.4	150	402	NA	144	405	261	144	1.0000	100.00%
4954	40.4	75	402	NA	74	404	331	74	1.0000	100.00%

Linearity	Sum of Least Squares	NOx= 0.994	NO= 0.995	NO2= 1.000
OK?	Yes	NOx= 0.9951	NO= 0.9965	NO2= 1.0000
	Correction Factors:	Average Converter Efficiency= 100.00%		

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2		
Auto Span	379 NOx	377 NO2		382 NOx	379 NO2		
	Sample Lines Connected YES						
Percent Change from Previous Calibration	NOx -0.8%	NO -0.9%		NO2 -0.3%			

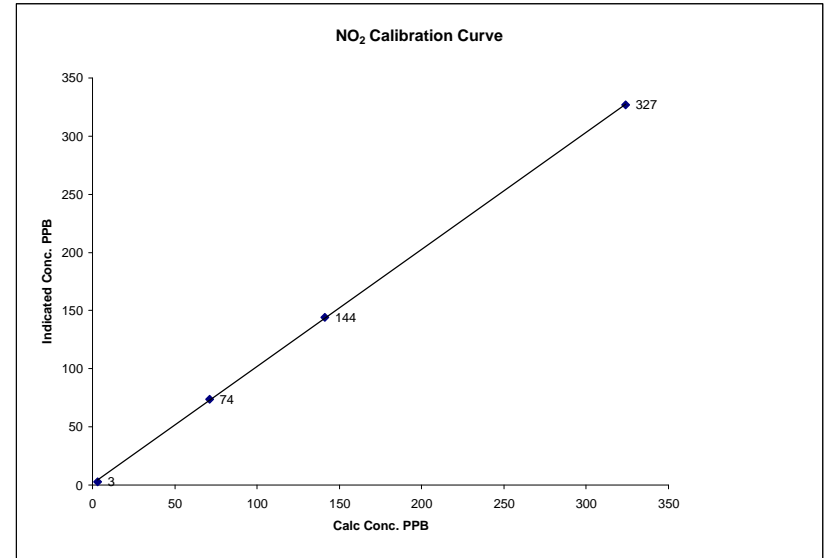
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	November 3, 2011
Company	LICA
Plant / Location	Cold Lake South
Start Time (MST)	9:40
End Time (MST)	15:16

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999931
3	3	N/A	Intercept	(± 3% F.S.)	1.32013
71	74	0.9595			
141	144	0.9792			
324	327	0.9908			

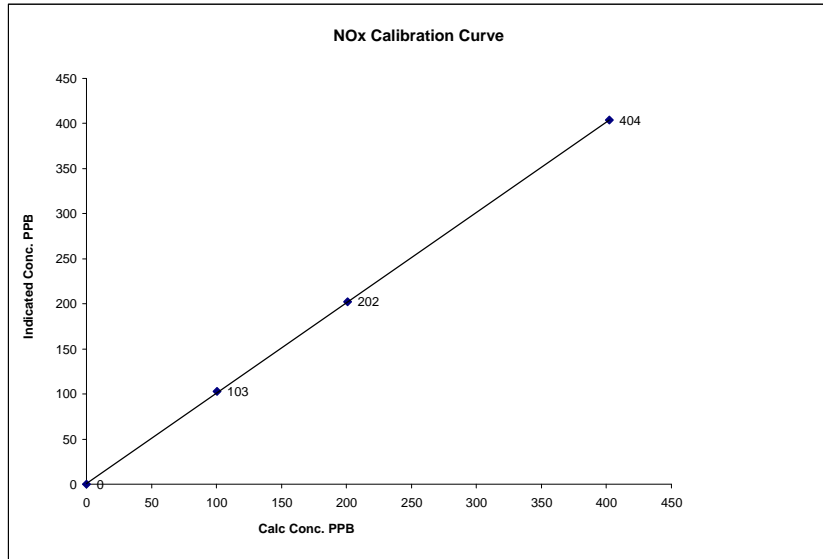


Notes:

NOx Calibration Curve

Calibration Date	November 3, 2011		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	9:40	End Time (MST)	15:16

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999969
0	0	N/A	Intercept	($\pm 3\%$ F.S.)	0.80408
100	103	0.9757			
201	202	0.9952			
402	404	0.9951			

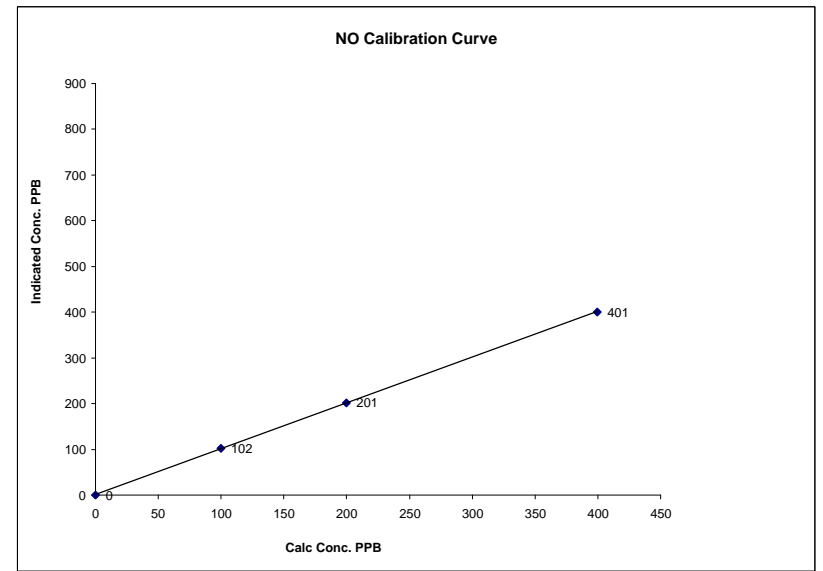


Notes:

NO Calibration Curve

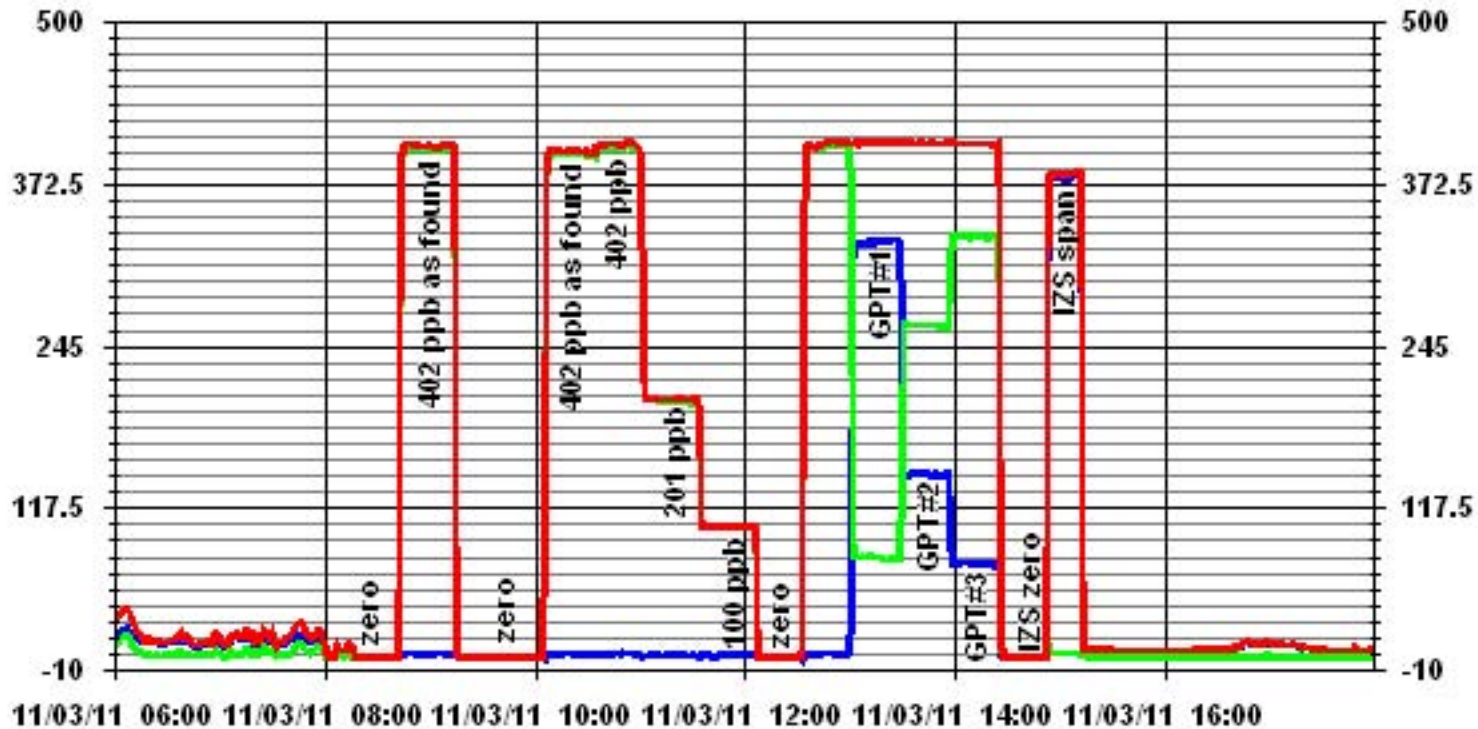
Calibration Date	November 3, 2011		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	9:40	End Time (MST)	15:16

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999978
0	0	N/A	Intercept	($\pm 3\%$ F.S.)	0.9840
100	102	0.9793			
200	201	0.9941			
400	401	0.9965			



Notes:

01 Minute Averages



— LICA

NOX_

PPB

— LICA

NO_

PPB

— LICA

NO2_

PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	November 4, 2011	Previous Calibration	October 13, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:41	End Time (MST)	11:31
Reason:	Monthly Calibration		
Barometric Pressure	0.936 atm	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	700419951	Method:	Photometric
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb		
Bench Lamp	29 Deg C	28.4	DegC
O ₃ Set Level	695 mmHg	702	mmHg
Bench Lamp / O ₃ Lamp	53.5 Deg C	53.5	DegC
Cell A Flow / Cell B Flow	703 LPM 746 LPM	709 LPM 750 LPM	
Offset / Slope	0.1 1.027	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	329	0.9848
4994	350	324	324	1.0000
4996	150	141	139	1.0144
4996	75	71	69	1.0290
4996	0	0	0	NA
Sum of Least Squares				1.0033
New Correction Factor				1.0000

Before Calibration		After Calibration	
Auto Zero	-0.1	0.0	
Auto Span	284.0	279.0	
Sample Lines Connected		YES	
Previous Calibration Correction Factor:		1.0000	
Current Correctio Factor Before Span Adjust:		1.0000	
Percent Change:		0.0%	

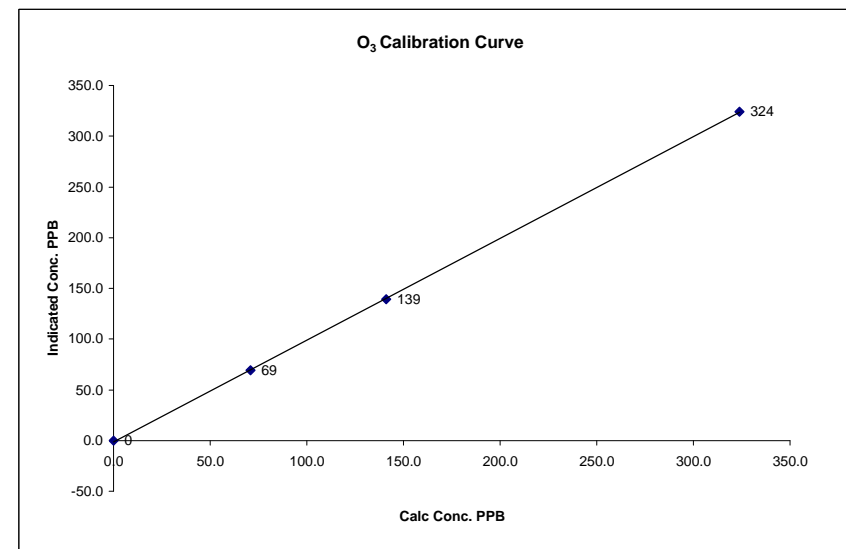
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

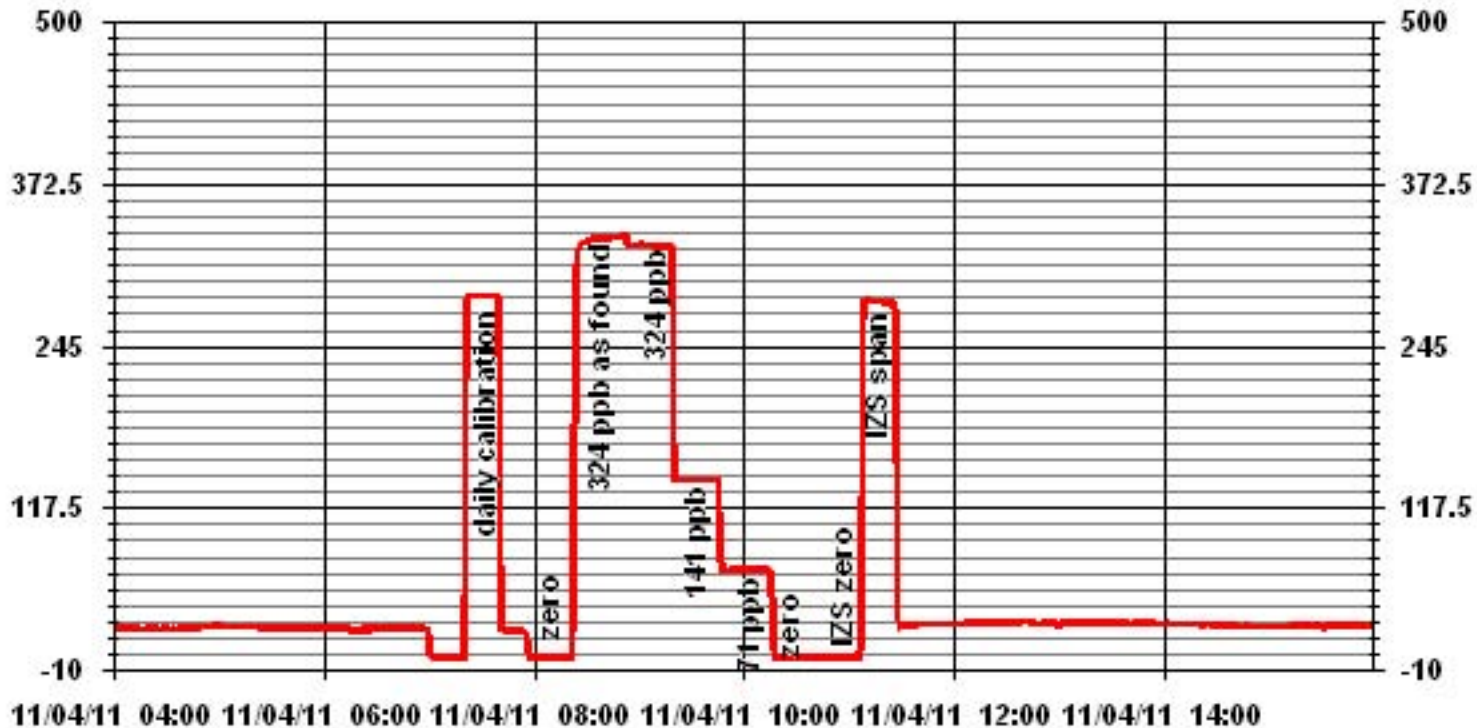
Calibration Date	November 4, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:41	End Time (MST)	11:31

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		0.999935
71	69	1.0290		1.001929
141	139	1.0144		-1.258429
324	324	1.0000		



Notes:

01 Minute Averages



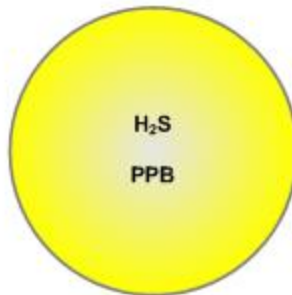
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

NOVEMBER 2011

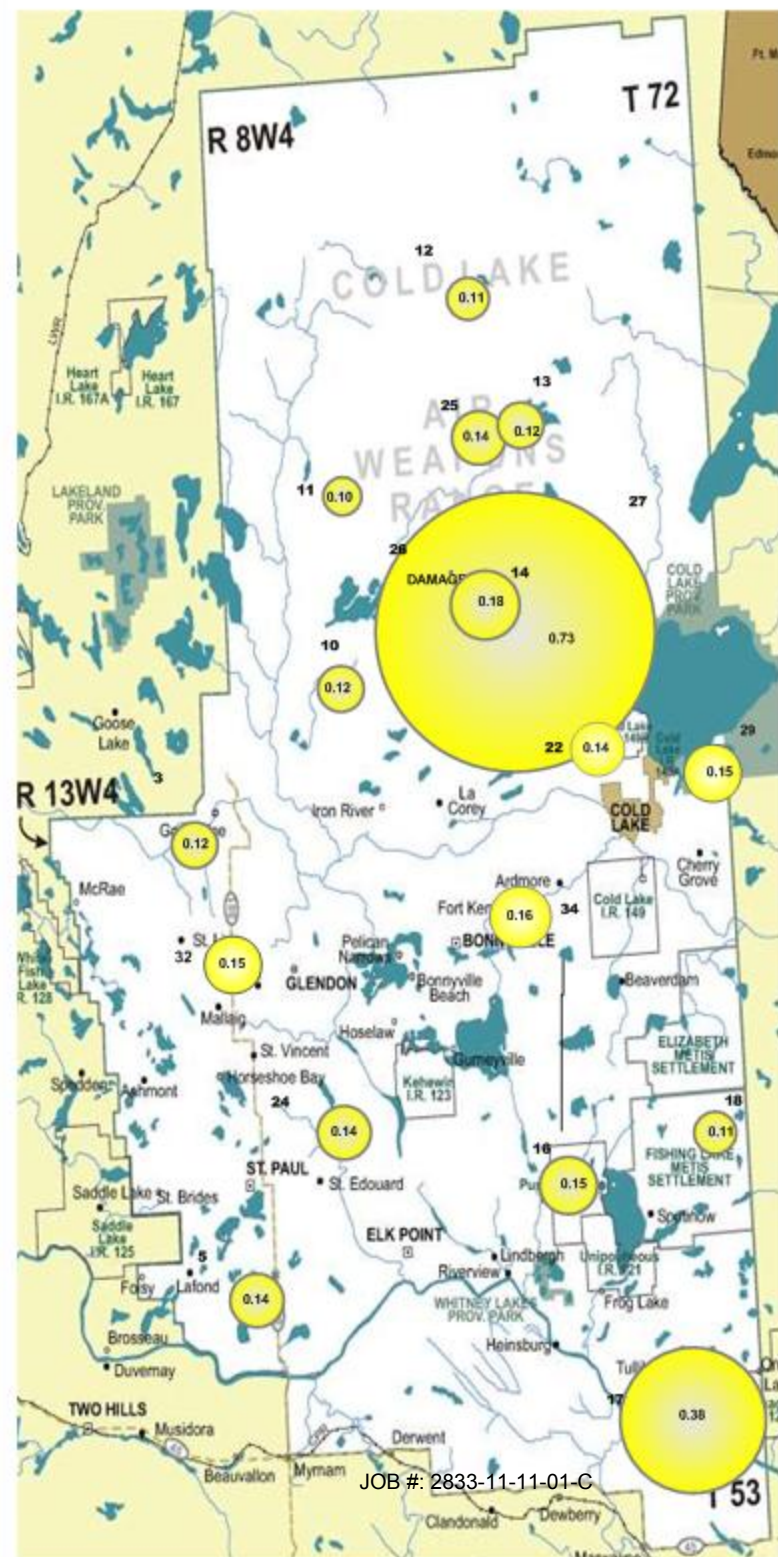
PASSIVE STATIONS

Station Number	Concentration	Duplicate
3 - Therien	0.12 PPB	NA
5 - Lake Eliza	0.14 PPB	NA
10 - La Corey	0.11 PPB	0.13 PPB
11 - Wolf Lake	0.10 PPB	0.09 PPB
12 - Foster Creek	0.11 PPB	NA
13 - Primrose	0.12 PPB	NA
14 - Maskwa	0.18 PPB	NA
16 - Frog Lake	0.15 PPB	NA
17 - Clear Range	0.38 PPB	NA
18 - Fishing Lake	0.11 PPB	NA
22 - Cold Lake South	0.14 PPB	NA
24 - Fort George	0.14 PPB	NA
25 - Burnt Lake	0.14 PPB	NA
26 - Mahihkan	DAMAGE	
27 - Mahkeses	0.73 PPB	NA
29 - Cold Lake South 2	0.15 PPB	NA
32 - St. Lina	0.25 PPB	NA
34 - Portable	0.16 PPB	NA



Summary

Minimum : 0.10 PPB - Wolf Lake
 Maximum: 0.73 PPB - Mahkeses
 Average: 0.18 PPB *Includes Duplicates



Lakeland Industry & Community Association NO₂ Passive Bubble Map

NOVEMBER 2011

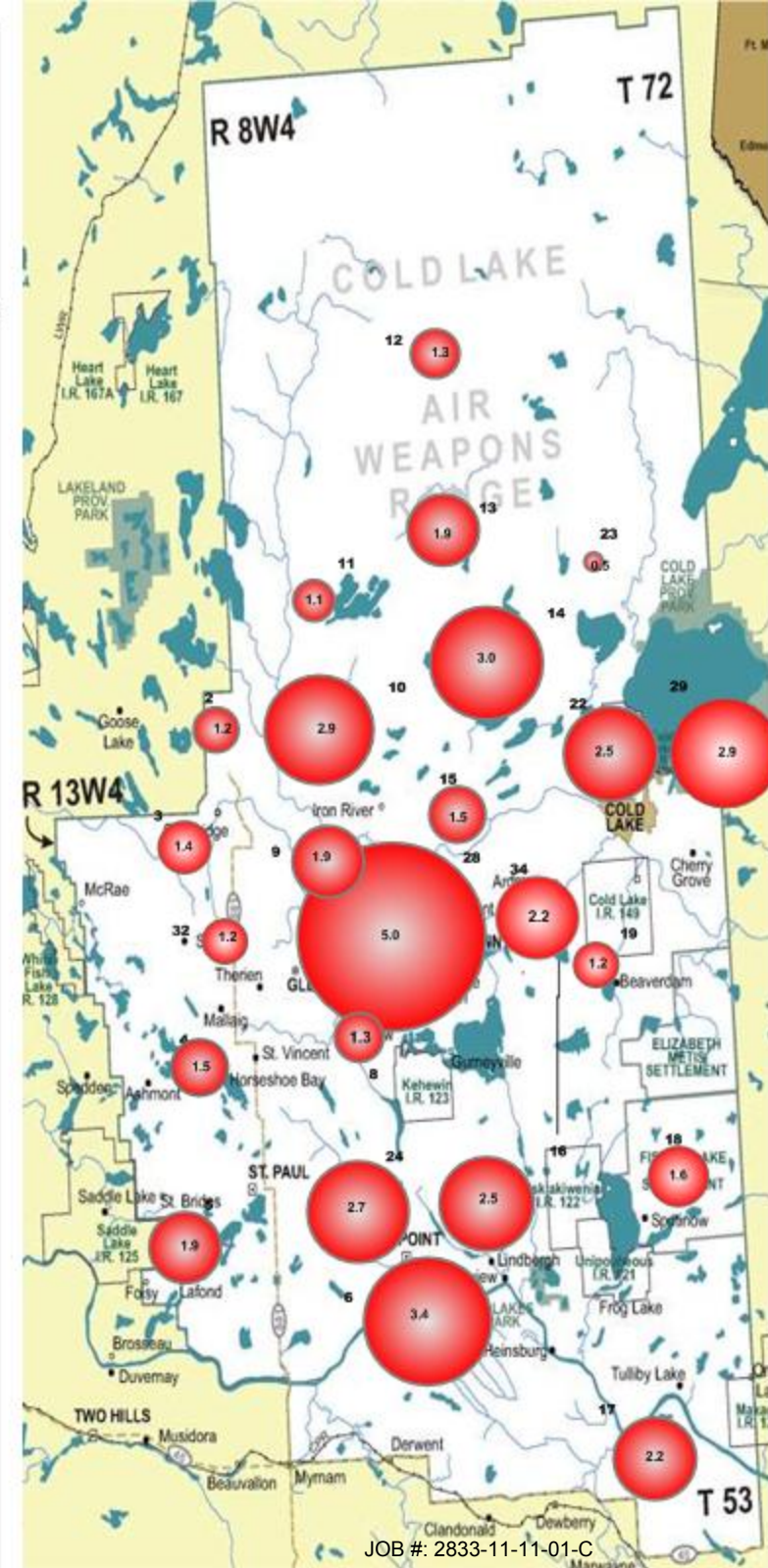
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	1.2 PPB	NA
3 – Therien	1.4 PPB	NA
4 – Flat Lake	1.4 PPB	1.7 PPB
5 – Lake Eliza	1.9 PPB	1.8 PPB
6 – Telegraph Creek	3.4 PPB	NA
8 – Muriel-Kehewin	1.3 PPB	NA
9 – Dupre	1.9 PPB	NA
10 – La Corey	2.9 PPB	NA
11 – Wolf Lake	1.1 PPB	NA
12 – Foster Creek	1.3 PPB	NA
13 – Primrose	1.9 PPB	NA
14 – Maskwa	3.0 PPB	NA
15 – Ardmore	1.5 PPB	NA
16 – Frog Lake	2.5 PPB	NA
17 – Clear Range	2.2 PPB	NA
18 – Fishing Lake	1.6 PPB	NA
19 – Beaverdam	1.2 PPB	NA
22 – Cold Lake South	2.5 PPB	NA
23 – Medley-Martineau	0.5 PPB	NA
24 – Fort George	2.7 PPB	NA
28 – Town of Bonnyville	5.0 PPB	NA
29 – Cold Lake South 2	2.9 PPB	NA
32 – St. Lina	1.2 PPB	NA
34 – Portable	2.2 PPB	NA



Summary

Minimum : 0.5 PPB – Medley-Martineau
Maximum: 5.0 PPB – Town of Bonnyville
Average: 2.0 PPB *Includes Duplicates

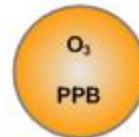


Lakeland Industry & Community Association O₃ Passive Bubble Map

NOVEMBER 2011

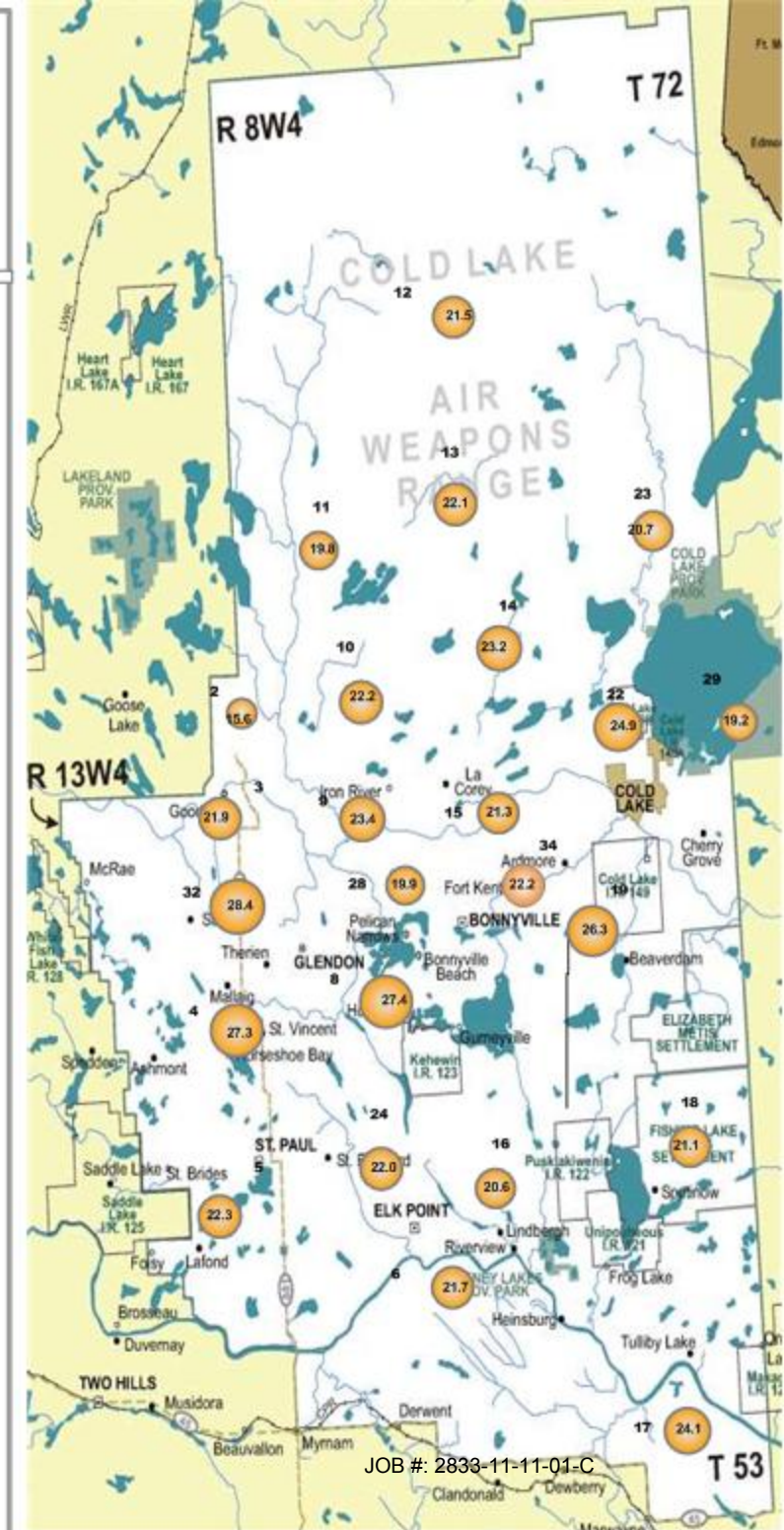
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	15.6 PPB	NA
3 – Therien	21.9 PPB	NA
4 – Flat Lake	24.5 PPB	30.1 PPB
5 – Lake Eliza	22.0 PPB	22.6 PPB
6 – Telegraph Creek	21.7 PPB	NA
8 – Muriel-Kehewin	27.4 PPB	NA
9 – Dupre	23.4 PPB	NA
10 – La Corey	22.2 PPB	NA
11 – Wolf Lake	19.8 PPB	NA
12 – Foster Creek	21.5 PPB	NA
13 – Primrose	22.1 PPB	NA
14 – Maskwa	23.2 PPB	NA
15 – Ardmore	21.3 PPB	NA
16 – Frog Lake	20.6 PPB	NA
17 – Clear Range	24.1 PPB	NA
18 – Fishing Lake	21.1 PPB	NA
19 – Beaverdam	26.3 PPB	NA
22 – Cold Lake South	24.9 PPB	NA
23 – Medley-Martineau	20.7 PPB	NA
24 – Fort George	22.0 PPB	NA
28 – Town of Bonnyville	19.9 PPB	NA
29 – Cold Lake South 2	19.2 PPB	NA
32 – St. Lina	28.4 PPB	NA
34 – Portable	22.2 PPB	NA



Summary

Minimum : 15.6 PPB – Sand River
 Maximum: 28.4 PPB –St. Lina
 Average: 22.5 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

NOVEMBER 2011

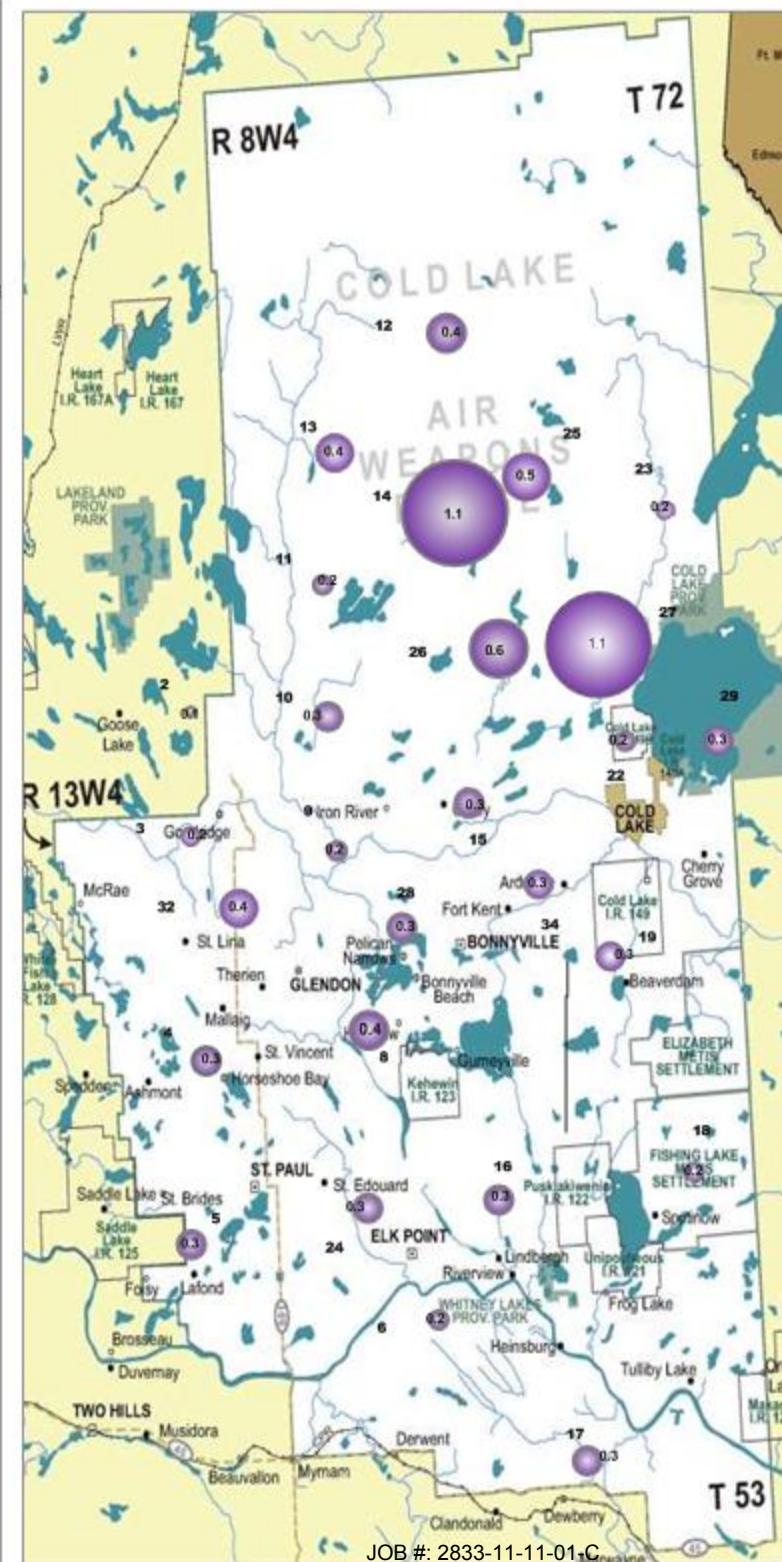
PASSIVE STATIONS

Station Number	SO ₂ Concentration (PPB)	Duplicate
2 – Sand River	0.1 PPB	NA
3 – Therien	0.2 PPB	NA
4 – Flat Lake	0.3 PPB	NA
5 – Lake Eliza	0.3 PPB	0.3 PPB
6 – Telegraph Creek	0.2 PPB	0.2 PPB
8 – Muriel-Kehewin	0.4 PPB	0.3 PPB
9 – Dupre	0.2 PPB	NA
10 – La Corey	0.3 PPB	NA
11 – Wolf Lake	0.2 PPB	NA
12 – Foster Creek	0.4 PPB	NA
13 – Primrose	0.4 PPB	NA
14 – Maskwa	1.1 PPB	NA
15 – Ardmore	0.3 PPB	NA
16 – Frog Lake	0.3 PPB	NA
17 – Clear Range	0.3 PPB	NA
18 – Fishing Lake	0.2 PPB	NA
19 – Beaverdam	0.3 PPB	NA
22 – Cold Lake South	0.2 PPB	NA
23 – Medley-Martineau	0.2 PPB	NA
24 – Fort George	0.3 PPB	NA
25 – Burnt Lake	0.5 PPB	NA
26 – Mahikan	0.6 PPB	NA
27 – Mahkeses	1.1 PPB	NA
28 – Town of Bonnyville	0.3 PPB	NA
29 – Cold Lake South 2	0.3 PPB	NA
32 – St. Lina	0.4 PPB	NA
34 – Portable	0.3 PPB	NA



Summary

Minimum : 0.1PPB –Sand River
 Maximum: 1.1 PPB –Maskwa and Mahkeses
 Average: 0.36 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	10/27/11	13:30	11/29/11	12:05	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	10/27/11	14:11	11/29/11	11:30	
4	SO ₂ /NO ₂ /O ₃	10/28/11	13:55	11/30/11	13:06	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	13:13	11/30/11	12:31	
6	SO ₂ /NO ₂ /O ₃	10/28/11	11:54	11/30/11	11:13	
8	SO ₂ /NO ₂ /O ₃	10/28/11	15:02	11/30/11	13:58	
9	SO ₂ /NO ₂ /O ₃	10/26/11	12:05	11/29/11	09:40	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	10/26/11	13:38	11/29/11	13:46	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	10/26/11	14:20	11/29/11	14:19	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	10/26/11	15:39	11/29/11	15:30	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	10/27/11	10:07	11/30/11	15:29	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	10/27/11	09:02	11/30/11	16:05	
15	SO ₂ /NO ₂ /O ₃	10/26/11	09:56	11/29/11	08:53	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	10:12	11/29/11	09:49	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	11:02	11/30/11	10:32	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	09:35	11/30/11	09:00	
19	SO ₂ /NO ₂ /O ₃	10/28/11	08:27	11/30/11	08:09	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	17:20	11/29/11	07:45	
23	SO ₂ /NO ₂ /O ₃	10/27/11	11:52	11/29/11	18:18	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	12:25	11/30/11	11:48	
25	H ₂ S/SO ₂	10/26/11	16:44	11/29/11	16:30	
26	H ₂ S/SO ₂	10/27/11	10:34	11/30/11	15:55	
27	H ₂ S/SO ₂	10/27/11	08:40	11/30/11	16:22	
28	SO ₂ /NO ₂ /O ₃	10/26/11	12:38	11/29/11	10:03	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	10/28/11	17:27	11/29/11	07:30	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	10/27/11	15:06	11/29/11	10:55	
34	H ₂ S/SO ₂ /NO ₂ /O ₃	10/26/11	11:43	11/29/11	09:20	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 5	SO ₂	10/22/11	13:13	11/30/11	12:31	
Duplicate # 6	SO ₂	10/28/11	11:54	11/30/11	11:13	
Duplicate # 8	SO ₂	10/28/11	15:02	11/30/11	13:58	
Duplicate # 10	H ₂ S	10/26/11	13:38	11/29/11	13:46	
Duplicate # 11	H ₂ S	10/26/11	14:20	11/29/11	14:19	
Duplicate # 4	NO ₂	10/28/11	13:55	11/30/11	13:06	
Duplicate # 5	NO ₂	10/28/11	13:13	11/30/11	12:31	
Duplicate # 4	O ₃	10/28/11	13:55	11/30/11	13:06	
Duplicate # 5	O ₃	10/28/11	13:13	11/30/11	12:31	

Passive Network Laboratory Analysis



Your Project #: 2011/10/27 - 2011/11/29
Site Location: LICA

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

Report Date: 2011/12/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1B7652
Received: 2011/12/05, 13:42

Sample Matrix: Air
Samples Received: 33

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis 0	20	2011/12/12	2011/12/12	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis 0	26	2011/12/07	2011/12/12	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis 0	26	2011/12/08	2011/12/12	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis 0	30	2011/12/07	2011/12/12	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 #: B1B7652
 Report Date: 2011/12/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/10/27 - 2011/11/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CH2024	CH2025	CH2026	CH2027	CH2028		
Sampling Date		2011/10/27 13:30	2011/10/27 14:11	2011/10/28 13:55	2011/10/28 13:13	2011/10/28 11:54		
	Units	2	3	4	5	6	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.12		0.14		0.02	5439908
Calculated NO2	ppb	1.2	1.4	1.4	1.9	3.4	0.1	5426647
Calculated O3	ppb	15.6	21.9	24.5	22.0	21.7	0.1	5430591
Calculated SO2	ppb	0.1	0.2	0.3	0.3	0.2	0.1	5426656

RDL = Reportable Detection Limit

Maxxam ID		CH2029	CH2030	CH2031	CH2032	CH2033		
Sampling Date		2011/10/28 15:02	2011/10/26 12:05	2011/10/26 13:38	2011/10/26 14:20	2011/10/26 15:39		
	Units	8	9	10	11	12	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.11	0.10	0.11	0.02	5439908
Calculated NO2	ppb	1.3	1.9	2.9	1.1	1.3	0.1	5426647
Calculated O3	ppb	27.4	23.4	22.2	19.8	21.5	0.1	5430591
Calculated SO2	ppb	0.4	0.2	0.3	0.2	0.4	0.1	5426656

RDL = Reportable Detection Limit

Maxxam ID		CH2034	CH2035	CH2036	CH2037	CH2038		
Sampling Date		2011/10/27 10:07	2011/10/27 09:02	2011/10/26 09:56	2011/10/28 10:12	2011/10/28 11:02		
	Units	13	14	15	16	17	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.12	0.18		0.15	0.38	0.02	5439908
Calculated NO2	ppb	1.9	3.0	1.5	2.5	2.2	0.1	5426647
Calculated O3	ppb	22.1	23.2	21.3	20.6	24.1	0.1	5430595
Calculated SO2	ppb	0.4	1.1	0.3	0.3	0.3	0.1	5426656

RDL = Reportable Detection Limit



Maxxam Job #: B1B7652
 Report Date: 2011/12/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/10/27 - 2011/11/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CH2039		CH2040	CH2041	CH2047		
Sampling Date		2011/10/28 08:35		2011/10/28 08:27	2011/10/28 17:20	2011/10/27 11:52		
	Units	18	QC Batch	19	22	23	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.11	5439908		0.14		0.02	5439908
Calculated NO2	ppb	1.6	5426647	1.2	2.5	0.5	0.1	5426648
Calculated O3	ppb	21.1	5430595	26.3	24.9	20.7	0.1	5430595
Calculated SO2	ppb	0.2	5426656	0.3	0.2	0.2	0.1	5426658
RDL = Reportable Detection Limit								

Maxxam ID		CH2048	CH2049	CH2050	CH2051	CH2052		
Sampling Date		2011/10/28 12:25	2011/10/26 16:44	2011/10/27 10:34	2011/10/27 08:40	2011/10/26 12:38		
	Units	24	25	26	27	28	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.14	0.14	DAMAGED	0.73		0.02	5439908
Calculated NO2	ppb	2.7				5.0	0.1	5426648
Calculated O3	ppb	22.0				19.9	0.1	5430595
Calculated SO2	ppb	0.3	0.5	0.6	1.1	0.3	0.1	5426658
RDL = Reportable Detection Limit								

Maxxam ID		CH2053	CH2054	CH2055	CH2058	CH2059		
Sampling Date		2011/10/28 17:27	2011/10/27 15:06	2011/10/26 11:43	2011/10/28 13:55	2011/10/28 13:13		
	Units	29	32	34	4 DUP	5 DUP	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.15	0.15	0.16			0.02	5439908
Calculated NO2	ppb	2.9	1.2	2.2	1.7	1.8	0.1	5426648
Calculated O3	ppb	19.2	28.4	22.2	30.1	22.6	0.1	5430595
Calculated SO2	ppb	0.3	0.4	0.3		0.3	0.1	5426658
RDL = Reportable Detection Limit								



Maxxam Job #: B1B7652
Report Date: 2011/12/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/10/27 - 2011/11/29
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		CH2060	CH2061	CH2091	CH2092		
Sampling Date		2011/10/28 11:54	2011/10/28 15:02	2011/10/26 13:38	2011/10/26 14:20		
	Units	6 DUP	8 DUP	10 DUP	11 DUP	RDL	QC Batch

Passive Monitoring							
Calculated H2S	ppb			0.13	0.09	0.02	5439908
Calculated SO2	ppb	0.2	0.3			0.1	5426658

RDL = Reportable Detection Limit



Maxxam Job #: B1B7652
Report Date: 2011/12/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/10/27 - 2011/11/29
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 #: 2011/10/27 - 2011/11/29
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB1B7652

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5426647 DF4	Calibration Check	Calculated NO2	2011/12/07		98	%	76 - 118
	Spiked Blank	Calculated NO2	2011/12/07		100	%	N/A
	Method Blank	Calculated NO2	2011/12/07	<0.1		ppb	
5426648 DF4	Calibration Check	Calculated NO2	2011/12/07		98	%	76 - 118
	Spiked Blank	Calculated NO2	2011/12/07		101	%	N/A
	Method Blank	Calculated NO2	2011/12/07	<0.1		ppb	
5426656 DF4	Calibration Check	Calculated SO2	2011/12/07		97	%	95 - 105
	Spiked Blank	Calculated SO2	2011/12/07		102	%	N/A
	Method Blank	Calculated SO2	2011/12/07	<0.1		ppb	
5426658 DF4	Calibration Check	Calculated SO2	2011/12/07		99	%	95 - 105
	Spiked Blank	Calculated SO2	2011/12/07		102	%	N/A
	Method Blank	Calculated SO2	2011/12/07	<0.1		ppb	
5430591 OZ	Calibration Check	Calculated O3	2011/12/08		98	%	91 - 107
	Spiked Blank	Calculated O3	2011/12/08		103	%	N/A
	Method Blank	Calculated O3	2011/12/08	<0.1		ppb	
5430595 OZ	Calibration Check	Calculated O3	2011/12/08		101	%	91 - 107
	Spiked Blank	Calculated O3	2011/12/08		101	%	N/A
	Method Blank	Calculated O3	2011/12/08	<0.1		ppb	
5439908 SS6	Calibration Check	Calculated H2S	2011/12/12		95	%	80 - 120
	Spiked Blank	Calculated H2S	2011/12/12		100	%	N/A

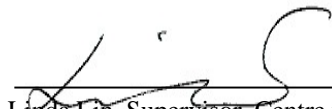
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical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

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

Validation Signature Page

Maxxam Job #: B1B7652

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 be "Linda Lin", 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: 7828
Station ID: Lica 1 Canister Installation Date/Time: Nov 04, 2011 @ 11:49 mst
Field Sample ID: LICA VOC/ CLS /Nov 05,11 Canister Removal Date/Time: Nov 07, 2011 @ 08:45 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-11	11/05/2011 0:00	11/06/2011 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 # 08198

Technician Signiture: Ting Xu

Your C.O.C. #: 08198

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/11/18****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1H6147****Received: 2011/11/09, 11:00**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/10	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 14

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

RESULTS OF ANALYSES OF AIR

Maxxam ID		LO2322	LO2323	
Sampling Date		2011/11/05	2011/11/05	
COC Number		08198	08198	
	Units	LICA VOC\CLSNOV 05,11 / 7828	LICA VOC\PORTNOV 05,11 / 136	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2678563

QC Batch = Quality Control Batch

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2678296
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2678296
Propene	ppbv	<0.30	0.30	<0.516	0.516	2678296
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2678296
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2678296
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	0.20	3.84	0.989	2678296
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2678296
Chloromethane	ppbv	0.58	0.30	1.19	0.620	2678296
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2678296
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2678296
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2678296
Trichlorofluoromethane (FREON 11)	ppbv	0.41	0.20	2.28	1.12	2678296
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2678296
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2678296
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2678296
2-Propanone	ppbv	1.49	0.80	3.53	1.90	2678296
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2678296
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2678296
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2678296
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2678296
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2678296
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2678296
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2678296
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2678296
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2678296
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2678296
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2678296
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2678296
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2678296

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2678296
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2678296
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2678296
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2678296
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2678296
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2678296
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2678296
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2678296
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2678296
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2678296
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2678296
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2678296
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2678296
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2678296
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2678296
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2678296
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2678296
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2678296
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2678296
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2678296
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2678296
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2678296
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2678296
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2678296
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2678296
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2678296
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2678296
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2678296
QC Batch = Quality Control Batch						

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNOV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2678296
D5-Chlorobenzene	%	75		N/A	N/A	2678296
Difluorobenzene	%	83		N/A	N/A	2678296

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

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC/PORTNOV 05,11 / 136	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2678296
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2678296
Propene	ppbv	<0.30	0.30	<0.516	0.516	2678296
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2678296
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2678296
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.58	0.989	2678296
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2678296
Chloromethane	ppbv	0.56	0.30	1.15	0.620	2678296
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2678296
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2678296
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2678296
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.12	1.12	2678296
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2678296
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2678296
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2678296
2-Propanone	ppbv	3.21	0.80	7.62	1.90	2678296
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2678296
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2678296
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2678296
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2678296
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2678296
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2678296
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2678296
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2678296
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2678296
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2678296
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2678296
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2678296
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2678296

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\PORT\NOV 05,11 / 136	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2678296
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2678296
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2678296
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2678296
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2678296
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2678296
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2678296
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2678296
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2678296
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2678296
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2678296
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2678296
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2678296
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2678296
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2678296
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2678296
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2678296
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2678296
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2678296
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2678296
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2678296
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2678296
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2678296
Hexane	ppbv	<0.40	0.40	<1.41	1.41	2678296
Cyclohexane	ppbv	0.44	0.20	1.52	0.688	2678296
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2678296
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2678296
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2678296
QC Batch = Quality Control Batch						

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\NOV				
		05,11 / 136				

Surrogate Recovery (%)						
Bromochloromethane	%	83		N/A	N/A	2678296
D5-Chlorobenzene	%	76		N/A	N/A	2678296
Difluorobenzene	%	85		N/A	N/A	2678296

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

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

Test Summary

Maxxam ID LO2322
Sample ID LICA VOC\CLS\NOV 05,11 / 7828
Matrix AIR

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2678563	N/A	2011/11/10	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2678296	N/A	2011/11/10	SPOMENKA SMILJANIC

Maxxam ID LO2323
Sample ID LICA VOC\PORT\NOV 05,11 / 136
Matrix AIR

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2678563	N/A	2011/11/10	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2678296	N/A	2011/11/10	SPOMENKA SMILJANIC

Maxxam Job #: B1H6147
Report Date: 2011/11/18

GENERAL COMMENTS

Sample LO2323-01: Increased DL for Hexane due to possible background.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Spiked Blank	Bromochloromethane	2011/11/10		131	%	60 - 140
		D5-Chlorobenzene	2011/11/10		129	%	60 - 140
		Difluorobenzene	2011/11/10		137	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/10		92	%	70 - 130
		Carbon Disulfide	2011/11/10		91	%	70 - 130
		Propene	2011/11/10		93	%	70 - 130
		Vinyl Acetate	2011/11/10		101	%	70 - 130
		Vinyl Bromide	2011/11/10		92	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/10		92	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/10		111	%	70 - 130
		Chloromethane	2011/11/10		102	%	70 - 130
		Vinyl Chloride	2011/11/10		100	%	70 - 130
		Chloroethane	2011/11/10		98	%	70 - 130
		1,3-Butadiene	2011/11/10		101	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/10		92	%	70 - 130
		Trichlorotrifluoroethane	2011/11/10		88	%	70 - 130
		Ethanol	2011/11/10		89	%	70 - 130
		2-propanol	2011/11/10		97	%	70 - 130
		2-Propanone	2011/11/10		88	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10		88	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/10		102	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10		106	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/10		84	%	70 - 130
		Ethyl Acetate	2011/11/10		99	%	70 - 130
		1,1-Dichloroethylene	2011/11/10		92	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/10		92	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/10		91	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/10		88	%	70 - 130
		Chloroform	2011/11/10		87	%	70 - 130
		Carbon Tetrachloride	2011/11/10		95	%	70 - 130
		1,1-Dichloroethane	2011/11/10		91	%	70 - 130
		1,2-Dichloroethane	2011/11/10		91	%	70 - 130
		Ethylene Dibromide	2011/11/10		88	%	70 - 130
		1,1,1-Trichloroethane	2011/11/10		90	%	70 - 130
		1,1,2-Trichloroethane	2011/11/10		88	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/10		90	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/10		91	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/10		93	%	70 - 130
		1,2-Dichloropropane	2011/11/10		91	%	70 - 130
		Bromomethane	2011/11/10		96	%	70 - 130
		Bromoform	2011/11/10		100	%	70 - 130
		Bromodichloromethane	2011/11/10		95	%	70 - 130
		Dibromochloromethane	2011/11/10		96	%	70 - 130
		Heptane	2011/11/10		98	%	70 - 130
		Trichloroethylene	2011/11/10		84	%	70 - 130
		Tetrachloroethylene	2011/11/10		84	%	70 - 130
		Benzene	2011/11/10		91	%	70 - 130
		Toluene	2011/11/10		89	%	70 - 130
		Ethylbenzene	2011/11/10		89	%	70 - 130
		p+m-Xylene	2011/11/10		89	%	70 - 130
		o-Xylene	2011/11/10		90	%	70 - 130
		Styrene	2011/11/10		82	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/10		87	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/10		85	%	70 - 130
		4-ethyltoluene	2011/11/10		88	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Spiked Blank	Chlorobenzene	2011/11/10		83	%	70 - 130
		Benzyl chloride	2011/11/10		93	%	70 - 130
		1,3-Dichlorobenzene	2011/11/10		82	%	70 - 130
		1,4-Dichlorobenzene	2011/11/10		82	%	70 - 130
		1,2-Dichlorobenzene	2011/11/10		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/10		66 (1)	%	70 - 130
		Hexachlorobutadiene	2011/11/10		74	%	70 - 130
		Hexane	2011/11/10		96	%	70 - 130
		Cyclohexane	2011/11/10		95	%	70 - 130
		Tetrahydrofuran	2011/11/10		98	%	70 - 130
		1,4-Dioxane	2011/11/10		90	%	70 - 130
		Xylene (Total)	2011/11/10		89	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/10		97	%	60 - 140
		D5-Chlorobenzene	2011/11/10		88	%	60 - 140
		Difluorobenzene	2011/11/10		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/10	<0.20		ppbv	
		Carbon Disulfide	2011/11/10	<0.50		ppbv	
		Propene	2011/11/10	<0.30		ppbv	
		Vinyl Acetate	2011/11/10	<0.20		ppbv	
		Vinyl Bromide	2011/11/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/10	<0.17		ppbv	
		Chloromethane	2011/11/10	<0.30		ppbv	
		Vinyl Chloride	2011/11/10	<0.18		ppbv	
		Chloroethane	2011/11/10	<0.30		ppbv	
		1,3-Butadiene	2011/11/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/10	<0.15		ppbv	
		Ethanol	2011/11/10	<2.3		ppbv	
		2-propanol	2011/11/10	<3.0		ppbv	
		2-Propanone	2011/11/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/10	<0.20		ppbv	
		Ethyl Acetate	2011/11/10	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/10	<0.80		ppbv	
		Chloroform	2011/11/10	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/10	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/10	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/10	<0.20		ppbv	
		Ethylene Dibromide	2011/11/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/10	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/10	<0.40		ppbv	
		Bromomethane	2011/11/10	<0.18		ppbv	
		Bromoform	2011/11/10	<0.20		ppbv	
		Bromodichloromethane	2011/11/10	<0.20		ppbv	
		Dibromochloromethane	2011/11/10	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Method Blank	Heptane	2011/11/10	<0.30		ppbv	
		Trichloroethylene	2011/11/10	<0.30		ppbv	
		Tetrachloroethylene	2011/11/10	<0.20		ppbv	
		Benzene	2011/11/10	<0.18		ppbv	
		Toluene	2011/11/10	<0.20		ppbv	
		Ethylbenzene	2011/11/10	<0.20		ppbv	
		p+m-Xylene	2011/11/10	<0.37		ppbv	
		o-Xylene	2011/11/10	<0.20		ppbv	
		Styrene	2011/11/10	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/10	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/10	<0.50		ppbv	
		4-ethyltoluene	2011/11/10	<2.2		ppbv	
		Chlorobenzene	2011/11/10	<0.20		ppbv	
		Benzyl chloride	2011/11/10	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/10	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/10	<3.0		ppbv	
		Hexane	2011/11/10	<0.30		ppbv	
		Cyclohexane	2011/11/10	<0.20		ppbv	
		Tetrahydrofuran	2011/11/10	<0.40		ppbv	
		1,4-Dioxane	2011/11/10	<2.0		ppbv	
		Xylene (Total)	2011/11/10	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/10	NC		%	25
		Carbon Disulfide	2011/11/10	0.4		%	25
		Propene	2011/11/10	NC		%	25
		Vinyl Acetate	2011/11/10	NC		%	25
		Vinyl Bromide	2011/11/10	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/10	1.9		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/10	NC		%	25
		Chloromethane	2011/11/10	NC		%	25
		Vinyl Chloride	2011/11/10	NC		%	25
		Chloroethane	2011/11/10	NC		%	25
		1,3-Butadiene	2011/11/10	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/10	NC		%	25
		Trichlorotrifluoroethane	2011/11/10	NC		%	25
		Ethanol	2011/11/10	NC		%	25
		2-propanol	2011/11/10	2.5		%	25
		2-Propanone	2011/11/10	1.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10	1.2		%	25
		Methyl Isobutyl Ketone	2011/11/10	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/10	NC		%	25
		Ethyl Acetate	2011/11/10	NC		%	25
		1,1-Dichloroethylene	2011/11/10	0.1		%	25
		cis-1,2-Dichloroethylene	2011/11/10	0.3		%	25
		trans-1,2-Dichloroethylene	2011/11/10	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/10	NC		%	25
		Chloroform	2011/11/10	0.2		%	25
		Carbon Tetrachloride	2011/11/10	NC		%	25
		1,1-Dichloroethane	2011/11/10	0.7		%	25
		1,2-Dichloroethane	2011/11/10	1.3		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/11/10	NC		%	25
		1,1,1-Trichloroethane	2011/11/10	1.6		%	25
		1,1,2-Trichloroethane	2011/11/10	0.8		%	25
		1,1,2,2-Tetrachloroethane	2011/11/10	NC		%	25
		cis-1,3-Dichloropropene	2011/11/10	NC		%	25
		trans-1,3-Dichloropropene	2011/11/10	NC		%	25
		1,2-Dichloropropane	2011/11/10	NC		%	25
		Bromomethane	2011/11/10	NC		%	25
		Bromoform	2011/11/10	NC		%	25
		Bromodichloromethane	2011/11/10	NC		%	25
		Dibromochloromethane	2011/11/10	NC		%	25
		Heptane	2011/11/10	NC		%	25
		Trichloroethylene	2011/11/10	1.6		%	25
		Tetrachloroethylene	2011/11/10	1.7		%	25
		Benzene	2011/11/10	NC		%	25
		Toluene	2011/11/10	1.1		%	25
		Ethylbenzene	2011/11/10	NC		%	25
		p+m-Xylene	2011/11/10	NC		%	25
		o-Xylene	2011/11/10	NC		%	25
		Styrene	2011/11/10	1.9		%	25
		1,3,5-Trimethylbenzene	2011/11/10	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/10	NC		%	25
		4-ethyltoluene	2011/11/10	NC		%	25
		Chlorobenzene	2011/11/10	NC		%	25
		Benzyl chloride	2011/11/10	NC		%	25
		1,3-Dichlorobenzene	2011/11/10	NC		%	25
		1,4-Dichlorobenzene	2011/11/10	NC		%	25
		1,2-Dichlorobenzene	2011/11/10	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/10	NC		%	25
		Hexachlorobutadiene	2011/11/10	NC		%	25
		Hexane	2011/11/10	NC		%	25
		Cyclohexane	2011/11/10	NC		%	25
		Tetrahydrofuran	2011/11/10	NC		%	25
		1,4-Dioxane	2011/11/10	2.2		%	25
		Xylene (Total)	2011/11/10	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: 137
Station ID: Lica 1 Canister Installation Date/Time: Nov 10, 2011 @ 08:52 mst
Field Sample ID: LICA VOC/ CLS /Nov 11,11 Canister Removal Date/Time: Nov 14, 2011 @ 08:58 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Nov-11	11/11/2011 0:00	11/12/2011 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 # 08450

Technician Signiture: Ting Xu



Your C.O.C. #: 08450

Attention: Michael Bisaga

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

Report Date: 2011/11/25

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1I0587

Received: 2011/11/16, 09:45

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/22	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/22	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Maxxam Job #: B110587
 Report Date: 2011/11/25

RESULTS OF ANALYSES OF AIR

Maxxam ID		LQ5660	LQ5661	
Sampling Date		2011/11/11	2011/11/11	
COC Number		08450	08450	
	Units	LICA VOC/CLS/NOV 11,11 / 137	LICA VOC/PORT/NOV 11,11 / 7845	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2692809

QC Batch = Quality Control Batch

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2692805
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2692805
Propene	ppbv	<1.5	1.5	<2.58	2.58	2692805
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2692805
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2692805
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	0.20	3.80	0.989	2692805
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2692805
Chloromethane	ppbv	0.60	0.30	1.24	0.620	2692805
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2692805
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2692805
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2692805
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2692805
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2692805
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2692805
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2692805
2-Propanone	ppbv	1.18	0.80	2.81	1.90	2692805
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2692805
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2692805
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2692805
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2692805
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2692805
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2692805
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2692805
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2692805
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2692805
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2692805
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2692805
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2692805
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2692805

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2692805
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2692805
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2692805
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2692805
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2692805
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2692805
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2692805
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2692805
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2692805
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2692805
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2692805
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2692805
Benzene	ppbv	0.33	0.18	1.04	0.575	2692805
Toluene	ppbv	0.45	0.20	1.70	0.753	2692805
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2692805
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2692805
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2692805
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2692805
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2692805
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2692805
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2692805
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2692805
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2692805
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2692805
Cyclohexane	ppbv	0.20	0.20	0.699	0.688	2692805
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2692805
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2692805
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2692805
QC Batch = Quality Control Batch						

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	79		N/A	N/A	2692805
D5-Chlorobenzene	%	79		N/A	N/A	2692805
Difluorobenzene	%	82		N/A	N/A	2692805

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

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/PORT/NOV 11,11 / 7845	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2692805
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2692805
Propene	ppbv	<2.5	2.5	<4.30	4.30	2692805
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2692805
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2692805
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	4.01	0.989	2692805
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2692805
Chloromethane	ppbv	0.59	0.30	1.22	0.620	2692805
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2692805
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2692805
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2692805
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2692805
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2692805
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2692805
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2692805
2-Propanone	ppbv	0.84	0.80	2.00	1.90	2692805
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2692805
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2692805
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2692805
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2692805
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2692805
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2692805
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2692805
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2692805
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2692805
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2692805
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2692805
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2692805
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2692805

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/PORT/NOV 11,11 / 7845	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2692805
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2692805
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2692805
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2692805
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2692805
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2692805
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2692805
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2692805
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2692805
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2692805
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2692805
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2692805
Benzene	ppbv	0.26	0.18	0.818	0.575	2692805
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2692805
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2692805
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2692805
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2692805
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2692805
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2692805
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2692805
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2692805
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2692805
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2692805
Hexane	ppbv	0.49	0.30	1.72	1.06	2692805
Cyclohexane	ppbv	0.73	0.20	2.52	0.688	2692805
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2692805
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2692805
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2692805
QC Batch = Quality Control Batch						

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/NOV				
		11,11 / 7845				

Surrogate Recovery (%)						
Bromochloromethane	%	78		N/A	N/A	2692805
D5-Chlorobenzene	%	78		N/A	N/A	2692805
Difluorobenzene	%	82		N/A	N/A	2692805

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

Maxxam Job #: B110587
 Report Date: 2011/11/25

Test Summary

Maxxam ID LQ5660
Sample ID LICA VOC/CLS/NOV 11,11 / 137
Matrix AIR

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2692809	N/A	2011/11/22	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2692805	N/A	2011/11/22	VALERIE RANDALL

Maxxam ID LQ5661
Sample ID LICA VOC/PORT/NOV 11,11 / 7845
Matrix AIR

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2692809	N/A	2011/11/22	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2692805	N/A	2011/11/22	VALERIE RANDALL

Maxxam Job #: B110587
Report Date: 2011/11/25

GENERAL COMMENTS

VOCTO15M-A
DLs raised for Propene due to matrix interference on possible positives.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Spiked Blank	Bromochloromethane	2011/11/22		98	%	60 - 140
		D5-Chlorobenzene	2011/11/22		101	%	60 - 140
		Difluorobenzene	2011/11/22		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/22		106	%	70 - 130
		Carbon Disulfide	2011/11/22		99	%	70 - 130
		Propene	2011/11/22		103	%	70 - 130
		Vinyl Acetate	2011/11/22		102	%	70 - 130
		Vinyl Bromide	2011/11/22		115	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/22		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/22		125	%	70 - 130
		Chloromethane	2011/11/22		110	%	70 - 130
		Vinyl Chloride	2011/11/22		106	%	70 - 130
		Chloroethane	2011/11/22		110	%	70 - 130
		1,3-Butadiene	2011/11/22		107	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/22		106	%	70 - 130
		Trichlorotrifluoroethane	2011/11/22		106	%	70 - 130
		Ethanol	2011/11/22		98	%	70 - 130
		2-propanol	2011/11/22		95	%	70 - 130
		2-Propanone	2011/11/22		112	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22		106	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/22		107	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22		104	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/22		97	%	70 - 130
		Ethyl Acetate	2011/11/22		104	%	70 - 130
		1,1-Dichloroethylene	2011/11/22		103	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/22		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/22		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/22		95	%	70 - 130
		Chloroform	2011/11/22		102	%	70 - 130
		Carbon Tetrachloride	2011/11/22		101	%	70 - 130
		1,1-Dichloroethane	2011/11/22		101	%	70 - 130
		1,2-Dichloroethane	2011/11/22		102	%	70 - 130
		Ethylene Dibromide	2011/11/22		100	%	70 - 130
		1,1,1-Trichloroethane	2011/11/22		100	%	70 - 130
		1,1,2-Trichloroethane	2011/11/22		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/22		101	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/22		96	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/22		89	%	70 - 130
		1,2-Dichloropropane	2011/11/22		103	%	70 - 130
		Bromomethane	2011/11/22		113	%	70 - 130
		Bromoform	2011/11/22		118	%	70 - 130
		Bromodichloromethane	2011/11/22		112	%	70 - 130
		Dibromochloromethane	2011/11/22		118	%	70 - 130
		Heptane	2011/11/22		110	%	70 - 130
		Trichloroethylene	2011/11/22		103	%	70 - 130
		Tetrachloroethylene	2011/11/22		109	%	70 - 130
		Benzene	2011/11/22		101	%	70 - 130
		Toluene	2011/11/22		103	%	70 - 130
		Ethylbenzene	2011/11/22		100	%	70 - 130
		p+m-Xylene	2011/11/22		96	%	70 - 130
		o-Xylene	2011/11/22		99	%	70 - 130
		Styrene	2011/11/22		74	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/22		97	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/22		94	%	70 - 130
		4-ethyltoluene	2011/11/22		104	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Spiked Blank	Chlorobenzene	2011/11/22		96	%	70 - 130
		Benzyl chloride	2011/11/22		60 (1)	%	70 - 130
		1,3-Dichlorobenzene	2011/11/22		86	%	70 - 130
		1,4-Dichlorobenzene	2011/11/22		80	%	70 - 130
		1,2-Dichlorobenzene	2011/11/22		89	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/22		60 (1)	%	70 - 130
		Hexachlorobutadiene	2011/11/22		111	%	70 - 130
		Hexane	2011/11/22		106	%	70 - 130
		Cyclohexane	2011/11/22		106	%	70 - 130
		Tetrahydrofuran	2011/11/22		105	%	70 - 130
		1,4-Dioxane	2011/11/22		99	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/22		83	%	60 - 140
		D5-Chlorobenzene	2011/11/22		79	%	60 - 140
		Difluorobenzene	2011/11/22		86	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/22	<0.20		ppbv	
		Carbon Disulfide	2011/11/22	<0.50		ppbv	
		Propene	2011/11/22	<0.30		ppbv	
		Vinyl Acetate	2011/11/22	<0.20		ppbv	
		Vinyl Bromide	2011/11/22	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/22	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/22	<0.17		ppbv	
		Chloromethane	2011/11/22	<0.30		ppbv	
		Vinyl Chloride	2011/11/22	<0.18		ppbv	
		Chloroethane	2011/11/22	<0.30		ppbv	
		1,3-Butadiene	2011/11/22	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/22	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/22	<0.15		ppbv	
		Ethanol	2011/11/22	<2.3		ppbv	
		2-propanol	2011/11/22	<3.0		ppbv	
		2-Propanone	2011/11/22	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/22	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/22	<0.20		ppbv	
		Ethyl Acetate	2011/11/22	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/22	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/22	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/22	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/22	<0.80		ppbv	
		Chloroform	2011/11/22	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/22	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/22	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/22	<0.20		ppbv	
		Ethylene Dibromide	2011/11/22	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/22	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/22	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/22	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/22	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/22	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/22	<0.40		ppbv	
		Bromomethane	2011/11/22	<0.18		ppbv	
		Bromoform	2011/11/22	<0.20		ppbv	
		Bromodichloromethane	2011/11/22	<0.20		ppbv	
		Dibromochloromethane	2011/11/22	<0.20		ppbv	
		Heptane	2011/11/22	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Method Blank	Trichloroethylene	2011/11/22	<0.30		ppbv	
		Tetrachloroethylene	2011/11/22	<0.20		ppbv	
		Benzene	2011/11/22	<0.18		ppbv	
		Toluene	2011/11/22	<0.20		ppbv	
		Ethylbenzene	2011/11/22	<0.20		ppbv	
		p+m-Xylene	2011/11/22	<0.37		ppbv	
		o-Xylene	2011/11/22	<0.20		ppbv	
		Styrene	2011/11/22	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/22	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/22	<0.50		ppbv	
		4-ethyltoluene	2011/11/22	<2.2		ppbv	
		Chlorobenzene	2011/11/22	<0.20		ppbv	
		Benzyl chloride	2011/11/22	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/22	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/22	<3.0		ppbv	
		Hexane	2011/11/22	<0.30		ppbv	
		Cyclohexane	2011/11/22	<0.20		ppbv	
		Tetrahydrofuran	2011/11/22	<0.40		ppbv	
		1,4-Dioxane	2011/11/22	<2.0		ppbv	
		Xylene (Total)	2011/11/22	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/22	NC		%	25
		Carbon Disulfide	2011/11/22	NC		%	25
		Propene	2011/11/22	NC		%	25
		Vinyl Acetate	2011/11/22	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/22	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/22	NC		%	25
		Chloromethane	2011/11/22	NC		%	25
		Chloroethane	2011/11/22	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/22	NC		%	25
		Ethanol	2011/11/22	NC		%	25
		2-propanol	2011/11/22	NC		%	25
		2-Propanone	2011/11/22	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22	NC		%	25
		Methyl Isobutyl Ketone	2011/11/22	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/22	NC		%	25
		Ethyl Acetate	2011/11/22	NC		%	25
		1,1-Dichloroethylene	2011/11/22	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/22	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/22	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/22	NC		%	25
		1,1-Dichloroethane	2011/11/22	NC		%	25
		1,1,1-Trichloroethane	2011/11/22	NC		%	25
		1,2-Dichloropropane	2011/11/22	NC		%	25
		Bromomethane	2011/11/22	NC		%	25
		Bromoform	2011/11/22	NC		%	25
		Heptane	2011/11/22	NC		%	25
		Tetrachloroethylene	2011/11/22	NC		%	25
		Toluene	2011/11/22	NC		%	25
		Ethylbenzene	2011/11/22	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	RPD - Sample/Sample Dup	p+m-Xylene	2011/11/22	NC		%	25
		o-Xylene	2011/11/22	NC		%	25
		Styrene	2011/11/22	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/22	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/22	NC		%	25
		4-ethyltoluene	2011/11/22	NC		%	25
		Chlorobenzene	2011/11/22	NC		%	25
		1,3-Dichlorobenzene	2011/11/22	NC		%	25
		1,4-Dichlorobenzene	2011/11/22	NC		%	25
		1,2-Dichlorobenzene	2011/11/22	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/22	NC		%	25
		Hexane	2011/11/22	NC		%	25
		Cyclohexane	2011/11/22	NC		%	25
		Tetrahydrofuran	2011/11/22	NC		%	25
		1,4-Dioxane	2011/11/22	NC		%	25
		Xylene (Total)	2011/11/22	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: 113
Station ID: Lica 1 Canister Installation Date/Time: Nov 16, 2011 @ 08:14 mst
Field Sample ID: LICA VOC/ CLS /Nov 17,11 Canister Removal Date/Time: Nov 18, 2011 @ 08:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-11	11/17/2011 0:00	11/18/2011 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 # 08482

Technician Signiture: Ting Xu



Your C.O.C. #: 08482

Attention: Michael Bisaga

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

Report Date: 2011/11/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B113349

Received: 2011/11/22, 09:30

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/25	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/25	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Maxxam Job #: B113349
 Report Date: 2011/11/30

RESULTS OF ANALYSES OF AIR

Maxxam ID		LS0313	LS0314	
Sampling Date		2011/11/17	2011/11/17	
COC Number		08482	08482	
	Units	LICA VOC/CLS/NOV 17,11 - 113	LICA VOC/PORT/NOV 17,11 - 7793	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2696088

QC Batch = Quality Control Batch

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA VOC/CLS/NOV 17,11 - 113	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 17,11 - 7793	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2696097
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2696097
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2696097
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2696097
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2696097
Dichlorodifluoromethane (FREON 12)	ppbv	0.70	3.48	0.989	0.69	0.20	3.42	0.989	2696097
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2696097
Chloromethane	ppbv	0.49	1.01	0.620	0.53	0.30	1.08	0.620	2696097
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2696097
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2696097
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2696097
Trichlorofluoromethane (FREON 11)	ppbv	0.32	1.79	1.12	0.32	0.20	1.78	1.12	2696097
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2696097
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2696097
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2696097
2-Propanone	ppbv	1.11	2.63	1.90	0.98	0.80	2.34	1.90	2696097
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2696097
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2696097
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2696097
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2696097
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2696097
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2696097
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2696097
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2696097
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2696097
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2696097
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2696097
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2696097
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2696097
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2696097
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2696097

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA VOC/CLS/NOV 17,11 - 113	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 17,11 - 7793	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2696097
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2696097
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2696097
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2696097
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2696097
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2696097
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2696097
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2696097
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2696097
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2696097
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2696097
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2696097
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2696097
Toluene	ppbv	3.21	12.1	0.753	<0.20	0.20	<0.753	0.753	2696097
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2696097
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2696097
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2696097
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2696097
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2696097
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2696097
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2696097
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2696097
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2696097
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2696097
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2696097
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2696097
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2696097
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2696097
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2696097
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2696097
QC Batch = Quality Control Batch									

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA VOC/CLS/NOV 17,11 - 113	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 17,11 - 7793	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	88		N/A	N/A	2696097
D5-Chlorobenzene	%	93	N/A	N/A	93		N/A	N/A	2696097
Difluorobenzene	%	89	N/A	N/A	89		N/A	N/A	2696097

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

Maxxam Job #: B113349
 Report Date: 2011/11/30

Test Summary

Maxxam ID LS0313
Sample ID LICA VOC/CLS/NOV 17,11 - 113
Matrix AIR

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2696088	N/A	2011/11/25	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2696097	N/A	2011/11/25	YAO LIANG SUN

Maxxam ID LS0314
Sample ID LICA VOC/PORT/NOV 17,11 - 7793
Matrix AIR

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2696088	N/A	2011/11/25	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2696097	N/A	2011/11/25	YAO LIANG SUN

Maxxam Job #: B113349
Report Date: 2011/11/30

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: GB1I3349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Spiked Blank	Bromochloromethane	2011/11/25		96	%	60 - 140
		D5-Chlorobenzene	2011/11/25		93	%	60 - 140
		Difluorobenzene	2011/11/25		97	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/25		95	%	70 - 130
		Carbon Disulfide	2011/11/25		98	%	70 - 130
		Propene	2011/11/25		91	%	70 - 130
		Vinyl Acetate	2011/11/25		122	%	70 - 130
		Vinyl Bromide	2011/11/25		98	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/25		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/25		114	%	70 - 130
		Chloromethane	2011/11/25		98	%	70 - 130
		Vinyl Chloride	2011/11/25		98	%	70 - 130
		Chloroethane	2011/11/25		97	%	70 - 130
		1,3-Butadiene	2011/11/25		77	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/25		99	%	70 - 130
		Trichlorotrifluoroethane	2011/11/25		101	%	70 - 130
		Ethanol	2011/11/25		70	%	70 - 130
		2-propanol	2011/11/25		98	%	70 - 130
		2-Propanone	2011/11/25		81	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25		84	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/25		88	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25		90	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/25		96	%	70 - 130
		Ethyl Acetate	2011/11/25		101	%	70 - 130
		1,1-Dichloroethylene	2011/11/25		97	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/25		97	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/25		96	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/25		87	%	70 - 130
		Chloroform	2011/11/25		99	%	70 - 130
		Carbon Tetrachloride	2011/11/25		132 (1)	%	70 - 130
		1,1-Dichloroethane	2011/11/25		97	%	70 - 130
		1,2-Dichloroethane	2011/11/25		94	%	70 - 130
		Ethylene Dibromide	2011/11/25		97	%	70 - 130
		1,1,1-Trichloroethane	2011/11/25		110	%	70 - 130
		1,1,2-Trichloroethane	2011/11/25		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/25		87	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/25		104	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/25		109	%	70 - 130
		1,2-Dichloropropane	2011/11/25		97	%	70 - 130
		Bromomethane	2011/11/25		98	%	70 - 130
		Bromoform	2011/11/25		136 (1)	%	70 - 130
		Bromodichloromethane	2011/11/25		111	%	70 - 130
		Dibromochloromethane	2011/11/25		119	%	70 - 130
		Heptane	2011/11/25		95	%	70 - 130
		Trichloroethylene	2011/11/25		102	%	70 - 130
		Tetrachloroethylene	2011/11/25		99	%	70 - 130
		Benzene	2011/11/25		101	%	70 - 130
		Toluene	2011/11/25		95	%	70 - 130
		Ethylbenzene	2011/11/25		99	%	70 - 130
		p+m-Xylene	2011/11/25		96	%	70 - 130
		o-Xylene	2011/11/25		93	%	70 - 130
		Styrene	2011/11/25		87	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/25		77	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/25		71	%	70 - 130
		4-ethyltoluene	2011/11/25		79	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Spiked Blank	Chlorobenzene	2011/11/25		104	%	70 - 130
		Benzyl chloride	2011/11/25		103	%	70 - 130
		1,3-Dichlorobenzene	2011/11/25		79	%	70 - 130
		1,4-Dichlorobenzene	2011/11/25		78	%	70 - 130
		1,2-Dichlorobenzene	2011/11/25		72	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/25		105	%	70 - 130
		Hexachlorobutadiene	2011/11/25		101	%	70 - 130
		Hexane	2011/11/25		95	%	70 - 130
		Cyclohexane	2011/11/25		97	%	70 - 130
		Tetrahydrofuran	2011/11/25		89	%	70 - 130
		1,4-Dioxane	2011/11/25		80	%	70 - 130
		Xylene (Total)	2011/11/25		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/25		90	%	60 - 140
		D5-Chlorobenzene	2011/11/25		93	%	60 - 140
		Difluorobenzene	2011/11/25		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/25	<0.20		ppbv	
		Carbon Disulfide	2011/11/25	<0.50		ppbv	
		Propene	2011/11/25	<0.30		ppbv	
		Vinyl Acetate	2011/11/25	<0.20		ppbv	
		Vinyl Bromide	2011/11/25	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/25	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/25	<0.17		ppbv	
		Chloromethane	2011/11/25	<0.30		ppbv	
		Vinyl Chloride	2011/11/25	<0.18		ppbv	
		Chloroethane	2011/11/25	<0.30		ppbv	
		1,3-Butadiene	2011/11/25	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/25	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/25	<0.15		ppbv	
		Ethanol	2011/11/25	<2.3		ppbv	
		2-propanol	2011/11/25	<3.0		ppbv	
		2-Propanone	2011/11/25	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/25	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/25	<0.20		ppbv	
		Ethyl Acetate	2011/11/25	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/25	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/25	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/25	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/25	<0.80		ppbv	
		Chloroform	2011/11/25	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/25	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/25	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/25	<0.20		ppbv	
		Ethylene Dibromide	2011/11/25	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/25	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/25	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/25	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/25	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/25	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/25	<0.40		ppbv	
		Bromomethane	2011/11/25	<0.18		ppbv	
		Bromoform	2011/11/25	<0.20		ppbv	
		Bromodichloromethane	2011/11/25	<0.20		ppbv	
		Dibromochloromethane	2011/11/25	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Method Blank	Heptane	2011/11/25	<0.30		ppbv	
		Trichloroethylene	2011/11/25	<0.30		ppbv	
		Tetrachloroethylene	2011/11/25	<0.20		ppbv	
		Benzene	2011/11/25	<0.18		ppbv	
		Toluene	2011/11/25	<0.20		ppbv	
		Ethylbenzene	2011/11/25	<0.20		ppbv	
		p+m-Xylene	2011/11/25	<0.37		ppbv	
		o-Xylene	2011/11/25	<0.20		ppbv	
		Styrene	2011/11/25	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/25	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/25	<0.50		ppbv	
		4-ethyltoluene	2011/11/25	<2.2		ppbv	
		Chlorobenzene	2011/11/25	<0.20		ppbv	
		Benzyl chloride	2011/11/25	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/25	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/25	<3.0		ppbv	
		Hexane	2011/11/25	<0.30		ppbv	
		Cyclohexane	2011/11/25	<0.20		ppbv	
		Tetrahydrofuran	2011/11/25	<0.40		ppbv	
		1,4-Dioxane	2011/11/25	<2.0		ppbv	
		Xylene (Total)	2011/11/25	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/25	NC		%	25
		Carbon Disulfide	2011/11/25	NC		%	25
		Propene	2011/11/25	NC		%	25
		Vinyl Acetate	2011/11/25	NC		%	25
		Vinyl Bromide	2011/11/25	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/25	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/25	NC		%	25
		Chloromethane	2011/11/25	NC		%	25
		Vinyl Chloride	2011/11/25	NC		%	25
		Chloroethane	2011/11/25	NC		%	25
		1,3-Butadiene	2011/11/25	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/25	NC		%	25
		Trichlorotrifluoroethane	2011/11/25	NC		%	25
		Ethanol	2011/11/25	NC		%	25
		2-propanol	2011/11/25	NC		%	25
		2-Propanone	2011/11/25	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25	NC		%	25
		Methyl Isobutyl Ketone	2011/11/25	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/25	NC		%	25
		Ethyl Acetate	2011/11/25	NC		%	25
		1,1-Dichloroethylene	2011/11/25	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/25	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/25	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/25	NC		%	25
		Chloroform	2011/11/25	NC		%	25
		Carbon Tetrachloride	2011/11/25	NC		%	25
		1,1-Dichloroethane	2011/11/25	NC		%	25
		1,2-Dichloroethane	2011/11/25	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/11/25	NC		%	25
		1,1,1-Trichloroethane	2011/11/25	NC		%	25
		1,1,2-Trichloroethane	2011/11/25	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/11/25	NC		%	25
		cis-1,3-Dichloropropene	2011/11/25	NC		%	25
		trans-1,3-Dichloropropene	2011/11/25	NC		%	25
		1,2-Dichloropropane	2011/11/25	NC		%	25
		Bromomethane	2011/11/25	NC		%	25
		Bromoform	2011/11/25	NC		%	25
		Bromodichloromethane	2011/11/25	NC		%	25
		Dibromochloromethane	2011/11/25	NC		%	25
		Heptane	2011/11/25	NC		%	25
		Trichloroethylene	2011/11/25	NC		%	25
		Tetrachloroethylene	2011/11/25	NC		%	25
		Benzene	2011/11/25	NC		%	25
		Toluene	2011/11/25	NC		%	25
		Ethylbenzene	2011/11/25	NC		%	25
		p+m-Xylene	2011/11/25	NC		%	25
		o-Xylene	2011/11/25	NC		%	25
		Styrene	2011/11/25	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/25	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/25	NC		%	25
		4-ethyltoluene	2011/11/25	NC		%	25
		Chlorobenzene	2011/11/25	NC		%	25
		Benzyl chloride	2011/11/25	NC		%	25
		1,3-Dichlorobenzene	2011/11/25	NC		%	25
		1,4-Dichlorobenzene	2011/11/25	NC		%	25
		1,2-Dichlorobenzene	2011/11/25	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/25	NC		%	25
		Hexachlorobutadiene	2011/11/25	NC		%	25
		Hexane	2011/11/25	NC		%	25
		Cyclohexane	2011/11/25	NC		%	25
		Tetrahydrofuran	2011/11/25	NC		%	25
		1,4-Dioxane	2011/11/25	NC		%	25
		Xylene (Total)	2011/11/25	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: 7866
Station ID: Lica 1 Canister Installation Date/Time: Nov 22, 2011 @ 08:42 mst
Field Sample ID: LICA VOC/ CLS /Nov 23,11 Canister Removal Date/Time: Nov 24, 2011 @ 08:37 mst

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

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

Comments: System leak check prior to sampling. COC # 08355

Technician Signiture: Ting Xu



Your C.O.C. #: 08355

Attention: Michael Bisaga

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

Report Date: 2011/12/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1I6654

Received: 2011/11/26, 10:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/29	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/29	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Maxxam Job #: B116654
 Report Date: 2011/12/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		LT7208	LT7209	
Sampling Date		2011/11/23	2011/11/23	
COC Number		08355	08355	
	Units	LICA VOC/CLS/NOV 23,11	LICA VOC/PORT/NOV 23,11	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	22	2697173

QC Batch = Quality Control Batch

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics									
2,2,4-Trimethylpentane	ppbv	0.21	0.972	0.934	<0.20	0.20	<0.934	0.934	2697172
Carbon Disulfide	ppbv	0.66	2.06	1.56	0.58	0.50	1.79	1.56	2697172
Propene	ppbv	<2.4	<4.13	4.13	<2.4	2.4	<4.13	4.13	2697172
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2697172
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2697172
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	4.02	0.989	0.82	0.20	4.06	0.989	2697172
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2697172
Chloromethane	ppbv	0.56	1.16	0.620	0.56	0.30	1.15	0.620	2697172
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2697172
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2697172
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2697172
Trichlorofluoromethane (FREON 11)	ppbv	0.39	2.20	1.12	0.41	0.20	2.30	1.12	2697172
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2697172
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2697172
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2697172
2-Propanone	ppbv	0.82	1.94	1.90	<0.80	0.80	<1.90	1.90	2697172
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2697172
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2697172
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2697172
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2697172
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2697172
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2697172
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2697172
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2697172
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2697172
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2697172
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2697172
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2697172
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2697172
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2697172
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2697172

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2697172
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2697172
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2697172
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2697172
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2697172
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2697172
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2697172
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2697172
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2697172
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2697172
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2697172
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2697172
Benzene	ppbv	0.46	1.47	0.575	0.30	0.18	0.947	0.575	2697172
Toluene	ppbv	0.60	2.26	0.753	0.23	0.20	0.874	0.753	2697172
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2697172
p+m-Xylene	ppbv	0.47	2.03	1.61	<0.37	0.37	<1.61	1.61	2697172
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2697172
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2697172
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2697172
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2697172
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2697172
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2697172
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2697172
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2697172
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2697172
Hexane	ppbv	0.40	1.42	1.06	0.57	0.30	2.02	1.06	2697172
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.64	0.20	2.19	0.688	2697172
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2697172
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2697172
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2697172
QC Batch = Quality Control Batch									

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	84		N/A	N/A	2697172
D5-Chlorobenzene	%	83	N/A	N/A	83		N/A	N/A	2697172
Difluorobenzene	%	87	N/A	N/A	85		N/A	N/A	2697172

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

Maxxam Job #: B116654
 Report Date: 2011/12/07

Test Summary

Maxxam ID LT7208
Sample ID LICA VOC/CLS/NOV 23,11
Matrix AIR

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2697173	N/A	2011/11/29	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2697172	N/A	2011/11/29	VALERIE RANDALL

Maxxam ID LT7209
Sample ID LICA VOC/PORT/NOV 23,11
Matrix AIR

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2697173	N/A	2011/11/29	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2697172	N/A	2011/11/29	VALERIE RANDALL

Maxxam Job #: B116654
Report Date: 2011/12/07

GENERAL COMMENTS

VOCTO15M-A
DL raised for Propene due to matrix interference on possible positives.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	Spiked Blank	Bromochloromethane	2011/11/29		102	%	60 - 140
		D5-Chlorobenzene	2011/11/29		102	%	60 - 140
		Difluorobenzene	2011/11/29		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/29		109	%	70 - 130
		Carbon Disulfide	2011/11/29		101	%	70 - 130
		Propene	2011/11/29		96	%	70 - 130
		Vinyl Acetate	2011/11/29		101	%	70 - 130
		Vinyl Bromide	2011/11/29		120	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/29		105	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/29		130	%	70 - 130
		Chloromethane	2011/11/29		109	%	70 - 130
		Vinyl Chloride	2011/11/29		109	%	70 - 130
		Chloroethane	2011/11/29		113	%	70 - 130
		1,3-Butadiene	2011/11/29		107	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/29		111	%	70 - 130
		Trichlorotrifluoroethane	2011/11/29		110	%	70 - 130
		Ethanol	2011/11/29		94	%	70 - 130
		2-propanol	2011/11/29		93	%	70 - 130
		2-Propanone	2011/11/29		101	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29		104	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/29		108	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29		109	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/29		93	%	70 - 130
		Ethyl Acetate	2011/11/29		102	%	70 - 130
		1,1-Dichloroethylene	2011/11/29		103	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/29		104	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/29		109	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/29		95	%	70 - 130
		Chloroform	2011/11/29		106	%	70 - 130
		Carbon Tetrachloride	2011/11/29		103	%	70 - 130
		1,1-Dichloroethane	2011/11/29		105	%	70 - 130
		1,2-Dichloroethane	2011/11/29		106	%	70 - 130
		Ethylene Dibromide	2011/11/29		117	%	70 - 130
		1,1,1-Trichloroethane	2011/11/29		104	%	70 - 130
		1,1,2-Trichloroethane	2011/11/29		115	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/29		111	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/29		107	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/29		103	%	70 - 130
		1,2-Dichloropropane	2011/11/29		108	%	70 - 130
		Bromomethane	2011/11/29		119	%	70 - 130
		Bromoform	2011/11/29		135 (1)	%	70 - 130
		Bromodichloromethane	2011/11/29		119	%	70 - 130
		Dibromochloromethane	2011/11/29		130	%	70 - 130
		Heptane	2011/11/29		111	%	70 - 130
		Trichloroethylene	2011/11/29		115	%	70 - 130
		Tetrachloroethylene	2011/11/29		123	%	70 - 130
		Benzene	2011/11/29		111	%	70 - 130
		Toluene	2011/11/29		115	%	70 - 130
		Ethylbenzene	2011/11/29		112	%	70 - 130
		p+m-Xylene	2011/11/29		109	%	70 - 130
		o-Xylene	2011/11/29		111	%	70 - 130
		Styrene	2011/11/29		102	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/29		108	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/29		106	%	70 - 130
		4-ethyltoluene	2011/11/29		122	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	Spiked Blank	Chlorobenzene	2011/11/29		113	%	70 - 130
		Benzyl chloride	2011/11/29		90	%	70 - 130
		1,3-Dichlorobenzene	2011/11/29		114	%	70 - 130
		1,4-Dichlorobenzene	2011/11/29		116	%	70 - 130
		1,2-Dichlorobenzene	2011/11/29		108	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/29		80	%	70 - 130
		Hexachlorobutadiene	2011/11/29		94	%	70 - 130
		Hexane	2011/11/29		106	%	70 - 130
		Cyclohexane	2011/11/29		109	%	70 - 130
		Tetrahydrofuran	2011/11/29		101	%	70 - 130
		1,4-Dioxane	2011/11/29		109	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/29		86	%	60 - 140
		D5-Chlorobenzene	2011/11/29		83	%	60 - 140
		Difluorobenzene	2011/11/29		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/29	<0.20		ppbv	
		Carbon Disulfide	2011/11/29	0.51, RDL=0.50		ppbv	
		Propene	2011/11/29	<0.30		ppbv	
		Vinyl Acetate	2011/11/29	<0.20		ppbv	
		Vinyl Bromide	2011/11/29	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/29	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/29	<0.17		ppbv	
		Chloromethane	2011/11/29	<0.30		ppbv	
		Vinyl Chloride	2011/11/29	<0.18		ppbv	
		Chloroethane	2011/11/29	<0.30		ppbv	
		1,3-Butadiene	2011/11/29	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/29	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/29	<0.15		ppbv	
		Ethanol	2011/11/29	<2.3		ppbv	
		2-propanol	2011/11/29	<3.0		ppbv	
		2-Propanone	2011/11/29	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/29	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/29	<0.20		ppbv	
		Ethyl Acetate	2011/11/29	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/29	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/29	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/29	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/29	<0.80		ppbv	
		Chloroform	2011/11/29	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/29	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/29	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/29	<0.20		ppbv	
		Ethylene Dibromide	2011/11/29	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/29	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/29	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/29	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/29	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/29	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/29	<0.40		ppbv	
		Bromomethane	2011/11/29	<0.18		ppbv	
		Bromoform	2011/11/29	<0.20		ppbv	
		Bromodichloromethane	2011/11/29	<0.20		ppbv	
		Dibromochloromethane	2011/11/29	<0.20		ppbv	
		Heptane	2011/11/29	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	Method Blank	Trichloroethylene	2011/11/29	<0.30		ppbv	
		Tetrachloroethylene	2011/11/29	<0.20		ppbv	
		Benzene	2011/11/29	<0.18		ppbv	
		Toluene	2011/11/29	<0.20		ppbv	
		Ethylbenzene	2011/11/29	<0.20		ppbv	
		p+m-Xylene	2011/11/29	<0.37		ppbv	
		o-Xylene	2011/11/29	<0.20		ppbv	
		Styrene	2011/11/29	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/29	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/29	<0.50		ppbv	
		4-ethyltoluene	2011/11/29	<2.2		ppbv	
		Chlorobenzene	2011/11/29	<0.20		ppbv	
		Benzyl chloride	2011/11/29	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/29	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/29	<3.0		ppbv	
		Hexane	2011/11/29	<0.30		ppbv	
		Cyclohexane	2011/11/29	<0.20		ppbv	
		Tetrahydrofuran	2011/11/29	<0.40		ppbv	
		1,4-Dioxane	2011/11/29	<2.0		ppbv	
		Xylene (Total)	2011/11/29	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/29	NC		%	25
		Carbon Disulfide	2011/11/29	1.2		%	25
		Propene	2011/11/29	0.07		%	25
		Vinyl Acetate	2011/11/29	NC		%	25
		Vinyl Bromide	2011/11/29	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/29	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/29	NC		%	25
		Chloromethane	2011/11/29	0.8		%	25
		Vinyl Chloride	2011/11/29	3.2		%	25
		Chloroethane	2011/11/29	NC		%	25
		1,3-Butadiene	2011/11/29	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/29	NC		%	25
		Trichlorotrifluoroethane	2011/11/29	NC		%	25
		Ethanol	2011/11/29	NC		%	25
		2-propanol	2011/11/29	NC		%	25
		2-Propanone	2011/11/29	1.4		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29	NC		%	25
		Methyl Isobutyl Ketone	2011/11/29	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/29	NC		%	25
		Ethyl Acetate	2011/11/29	NC		%	25
		1,1-Dichloroethylene	2011/11/29	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/29	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/29	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/29	1.9		%	25
		Chloroform	2011/11/29	0.6		%	25
		Carbon Tetrachloride	2011/11/29	NC		%	25
		1,1-Dichloroethane	2011/11/29	NC		%	25
		1,2-Dichloroethane	2011/11/29	NC		%	25
		Ethylene Dibromide	2011/11/29	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/11/29	NC		%	25
		1,1,2-Trichloroethane	2011/11/29	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/11/29	NC		%	25
		cis-1,3-Dichloropropene	2011/11/29	NC		%	25
		trans-1,3-Dichloropropene	2011/11/29	NC		%	25
		1,2-Dichloropropane	2011/11/29	NC		%	25
		Bromomethane	2011/11/29	0.6		%	25
		Bromoform	2011/11/29	NC		%	25
		Bromodichloromethane	2011/11/29	NC		%	25
		Dibromochloromethane	2011/11/29	NC		%	25
		Heptane	2011/11/29	0.7		%	25
		Trichloroethylene	2011/11/29	NC		%	25
		Tetrachloroethylene	2011/11/29	NC		%	25
		Benzene	2011/11/29	0.7		%	25
		Toluene	2011/11/29	0.7		%	25
		Ethylbenzene	2011/11/29	5.9		%	25
		p+m-Xylene	2011/11/29	4.6		%	25
		o-Xylene	2011/11/29	4.9		%	25
		Styrene	2011/11/29	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/29	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/29	NC		%	25
		4-ethyltoluene	2011/11/29	NC		%	25
		Chlorobenzene	2011/11/29	NC		%	25
		Benzyl chloride	2011/11/29	NC		%	25
		1,3-Dichlorobenzene	2011/11/29	NC		%	25
		1,4-Dichlorobenzene	2011/11/29	NC		%	25
		1,2-Dichlorobenzene	2011/11/29	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/29	NC		%	25
		Hexachlorobutadiene	2011/11/29	NC		%	25
		Hexane	2011/11/29	0.7		%	25
		Cyclohexane	2011/11/29	5.4		%	25
		Tetrahydrofuran	2011/11/29	NC		%	25
		1,4-Dioxane	2011/11/29	NC		%	25
		Xylene (Total)	2011/11/29	4.7		%	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: 122
Station ID: Lica 1 Canister Installation Date/Time: Nov 28, 2011 @ 08:26 mst
Field Sample ID: LICA VOC/ CLS /Nov 29,11 Canister Removal Date/Time: Dec 01, 2011 @ 8:43 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Nov-11	11/29/2011 0:00	11/30/2011 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 # 08930

Technician Signiture: Ting Xu



Your C.O.C. #: 08930

Attention: Michael Bisaga

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

Report Date: 2011/12/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1J0838

Received: 2011/12/03, 09:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/12/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/12/05	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

RESULTS OF ANALYSES OF AIR

Maxxam ID		LW0877	LW0878	
Sampling Date		2011/11/29	2011/11/29	
COC Number		08930	08930	
	Units	LICA VOC/CLS/NOV 29,11	LICA VOC/PORT/NOV 29,11	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	22	2704136

QC Batch = Quality Control Batch

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2704583
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2704583
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2704583
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2704583
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2704583
Dichlorodifluoromethane (FREON 12)	ppbv	0.79	3.92	0.989	0.78	0.20	3.86	0.989	2704583
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2704583
Chloromethane	ppbv	0.66	1.37	0.620	0.66	0.30	1.36	0.620	2704583
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2704583
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2704583
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2704583
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.04	1.12	0.36	0.20	2.02	1.12	2704583
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2704583
Ethanol	ppbv	3.5	6.57	4.33	<2.3	2.3	<4.33	4.33	2704583
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2704583
2-Propanone	ppbv	5.92	14.1	1.90	1.55	0.80	3.67	1.90	2704583
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2704583
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2704583
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2704583
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2704583
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2704583
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2704583
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2704583
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2704583
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2704583
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2704583
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2704583
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2704583
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2704583
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2704583
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2704583

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2704583
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2704583
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2704583
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2704583
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2704583
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2704583
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2704583
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2704583
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2704583
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2704583
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2704583
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2704583
Benzene	ppbv	0.41	1.32	0.575	0.23	0.18	0.749	0.575	2704583
Toluene	ppbv	1.25	4.72	0.753	<0.20	0.20	<0.753	0.753	2704583
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2704583
p+m-Xylene	ppbv	0.51	2.21	1.61	<0.37	0.37	<1.61	1.61	2704583
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2704583
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2704583
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2704583
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2704583
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2704583
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2704583
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2704583
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2704583
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2704583
Hexane	ppbv	0.33	1.17	1.06	<0.30	0.30	<1.06	1.06	2704583
Cyclohexane	ppbv	0.48	1.64	0.688	0.49	0.20	1.69	0.688	2704583
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2704583
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2704583
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2704583
QC Batch = Quality Control Batch									

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	90	N/A	N/A	88		N/A	N/A	2704583
D5-Chlorobenzene	%	92	N/A	N/A	91		N/A	N/A	2704583
Difluorobenzene	%	90	N/A	N/A	89		N/A	N/A	2704583

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

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

Test Summary

Maxxam ID LW0877
Sample ID LICA VOC/CLS/NOV 29,11
Matrix AIR

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2704136	N/A	2011/12/05	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2704583	N/A	2011/12/05	YAO LIANG SUN

Maxxam ID LW0878
Sample ID LICA VOC/PORT/NOV 29,11
Matrix AIR

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2704136	N/A	2011/12/05	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2704583	N/A	2011/12/05	YAO LIANG SUN

Maxxam Job #: B1J0838
Report Date: 2011/12/12

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: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Spiked Blank	Bromochloromethane	2011/12/05		99	%	60 - 140
		D5-Chlorobenzene	2011/12/05		98	%	60 - 140
		Difluorobenzene	2011/12/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/05		104	%	70 - 130
		Carbon Disulfide	2011/12/05		109	%	70 - 130
		Propene	2011/12/05		103	%	70 - 130
		Vinyl Acetate	2011/12/05		106	%	70 - 130
		Vinyl Bromide	2011/12/05		110	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/05		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/05		130	%	70 - 130
		Chloromethane	2011/12/05		116	%	70 - 130
		Vinyl Chloride	2011/12/05		117	%	70 - 130
		Chloroethane	2011/12/05		116	%	70 - 130
		1,3-Butadiene	2011/12/05		91	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/05		111	%	70 - 130
		Trichlorotrifluoroethane	2011/12/05		113	%	70 - 130
		Ethanol	2011/12/05		102	%	70 - 130
		2-propanol	2011/12/05		102	%	70 - 130
		2-Propanone	2011/12/05		107	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05		98	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/05		99	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/05		110	%	70 - 130
		Ethyl Acetate	2011/12/05		104	%	70 - 130
		1,1-Dichloroethylene	2011/12/05		112	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/05		113	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/05		108	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/05		97	%	70 - 130
		Chloroform	2011/12/05		109	%	70 - 130
		Carbon Tetrachloride	2011/12/05		111	%	70 - 130
		1,1-Dichloroethane	2011/12/05		106	%	70 - 130
		1,2-Dichloroethane	2011/12/05		111	%	70 - 130
		Ethylene Dibromide	2011/12/05		108	%	70 - 130
		1,1,1-Trichloroethane	2011/12/05		110	%	70 - 130
		1,1,2-Trichloroethane	2011/12/05		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/05		92	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/05		112	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/05		114	%	70 - 130
		1,2-Dichloropropane	2011/12/05		110	%	70 - 130
		Bromomethane	2011/12/05		115	%	70 - 130
		Bromoform	2011/12/05		103	%	70 - 130
		Bromodichloromethane	2011/12/05		106	%	70 - 130
		Dibromochloromethane	2011/12/05		106	%	70 - 130
		Heptane	2011/12/05		105	%	70 - 130
		Trichloroethylene	2011/12/05		112	%	70 - 130
		Tetrachloroethylene	2011/12/05		111	%	70 - 130
		Benzene	2011/12/05		112	%	70 - 130
		Toluene	2011/12/05		111	%	70 - 130
		Ethylbenzene	2011/12/05		108	%	70 - 130
		p+m-Xylene	2011/12/05		105	%	70 - 130
		o-Xylene	2011/12/05		102	%	70 - 130
		Styrene	2011/12/05		99	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/05		86	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/05		82	%	70 - 130
		4-ethyltoluene	2011/12/05		86	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Spiked Blank	Chlorobenzene	2011/12/05		110	%	70 - 130
		Benzyl chloride	2011/12/05		81	%	70 - 130
		1,3-Dichlorobenzene	2011/12/05		85	%	70 - 130
		1,4-Dichlorobenzene	2011/12/05		84	%	70 - 130
		1,2-Dichlorobenzene	2011/12/05		78	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/05		129	%	70 - 130
		Hexachlorobutadiene	2011/12/05		126	%	70 - 130
		Hexane	2011/12/05		108	%	70 - 130
		Cyclohexane	2011/12/05		110	%	70 - 130
		Tetrahydrofuran	2011/12/05		108	%	70 - 130
		1,4-Dioxane	2011/12/05		104	%	70 - 130
		Xylene (Total)	2011/12/05		104	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/05		92	%	60 - 140
		D5-Chlorobenzene	2011/12/05		96	%	60 - 140
		Difluorobenzene	2011/12/05		94	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/05	<0.20		ppbv	
		Carbon Disulfide	2011/12/05	<0.50		ppbv	
		Propene	2011/12/05	<0.30		ppbv	
		Vinyl Acetate	2011/12/05	<0.20		ppbv	
		Vinyl Bromide	2011/12/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/05	<0.17		ppbv	
		Chloromethane	2011/12/05	<0.30		ppbv	
		Vinyl Chloride	2011/12/05	<0.18		ppbv	
		Chloroethane	2011/12/05	<0.30		ppbv	
		1,3-Butadiene	2011/12/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/05	<0.15		ppbv	
		Ethanol	2011/12/05	<2.3		ppbv	
		2-propanol	2011/12/05	<3.0		ppbv	
		2-Propanone	2011/12/05	1.09, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/05	<0.20		ppbv	
		Ethyl Acetate	2011/12/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/05	<0.80		ppbv	
		Chloroform	2011/12/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/05	<0.20		ppbv	
		Ethylene Dibromide	2011/12/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/05	<0.40		ppbv	
		Bromomethane	2011/12/05	<0.18		ppbv	
		Bromoform	2011/12/05	<0.20		ppbv	
		Bromodichloromethane	2011/12/05	<0.20		ppbv	
		Dibromochloromethane	2011/12/05	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Method Blank	Heptane	2011/12/05	<0.30		ppbv	
		Trichloroethylene	2011/12/05	<0.30		ppbv	
		Tetrachloroethylene	2011/12/05	<0.20		ppbv	
		Benzene	2011/12/05	<0.18		ppbv	
		Toluene	2011/12/05	<0.20		ppbv	
		Ethylbenzene	2011/12/05	<0.20		ppbv	
		p+m-Xylene	2011/12/05	<0.37		ppbv	
		o-Xylene	2011/12/05	<0.20		ppbv	
		Styrene	2011/12/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/05	<0.50		ppbv	
		4-ethyltoluene	2011/12/05	<2.2		ppbv	
		Chlorobenzene	2011/12/05	<0.20		ppbv	
		Benzyl chloride	2011/12/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/05	<3.0		ppbv	
		Hexane	2011/12/05	<0.30		ppbv	
		Cyclohexane	2011/12/05	<0.20		ppbv	
		Tetrahydrofuran	2011/12/05	<0.40		ppbv	
		1,4-Dioxane	2011/12/05	<2.0		ppbv	
		Xylene (Total)	2011/12/05	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/12/05	NC		%	25
		Carbon Disulfide	2011/12/05	NC		%	25
		Propene	2011/12/05	0.03		%	25
		Vinyl Acetate	2011/12/05	NC		%	25
		Vinyl Bromide	2011/12/05	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/12/05	1.1		%	25
		1,2-Dichlorotetrafluoroethane	2011/12/05	0.5		%	25
		Chloromethane	2011/12/05	NC		%	25
		Vinyl Chloride	2011/12/05	2.0		%	25
		Chloroethane	2011/12/05	1.4		%	25
		1,3-Butadiene	2011/12/05	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/12/05	NC		%	25
		Trichlorotrifluoroethane	2011/12/05	NC		%	25
		Ethanol	2011/12/05	NC		%	25
		2-propanol	2011/12/05	NC		%	25
		2-Propanone	2011/12/05	2.7		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05	2.2		%	25
		Methyl Isobutyl Ketone	2011/12/05	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/12/05	NC		%	25
		Ethyl Acetate	2011/12/05	NC		%	25
		1,1-Dichloroethylene	2011/12/05	2.8		%	25
		cis-1,2-Dichloroethylene	2011/12/05	6.3		%	25
		trans-1,2-Dichloroethylene	2011/12/05	2.8		%	25
		Methylene Chloride(Dichloromethane)	2011/12/05	NC		%	25
		Chloroform	2011/12/05	NC		%	25
		Carbon Tetrachloride	2011/12/05	NC		%	25
		1,1-Dichloroethane	2011/12/05	NC		%	25
		1,2-Dichloroethane	2011/12/05	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/12/05	NC		%	25
		1,1,1-Trichloroethane	2011/12/05	NC		%	25
		1,1,2-Trichloroethane	2011/12/05	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/12/05	NC		%	25
		cis-1,3-Dichloropropene	2011/12/05	NC		%	25
		trans-1,3-Dichloropropene	2011/12/05	NC		%	25
		1,2-Dichloropropane	2011/12/05	NC		%	25
		Bromomethane	2011/12/05	NC		%	25
		Bromoform	2011/12/05	NC		%	25
		Bromodichloromethane	2011/12/05	NC		%	25
		Dibromochloromethane	2011/12/05	NC		%	25
		Heptane	2011/12/05	0.6		%	25
		Trichloroethylene	2011/12/05	0.1		%	25
		Tetrachloroethylene	2011/12/05	1.8		%	25
		Benzene	2011/12/05	6.7		%	25
		Toluene	2011/12/05	0.5		%	25
		Ethylbenzene	2011/12/05	0.8		%	25
		p+m-Xylene	2011/12/05	0.7		%	25
		o-Xylene	2011/12/05	1		%	25
		Styrene	2011/12/05	NC		%	25
		1,3,5-Trimethylbenzene	2011/12/05	2.5		%	25
		1,2,4-Trimethylbenzene	2011/12/05	1.9		%	25
		4-ethyltoluene	2011/12/05	NC		%	25
		Chlorobenzene	2011/12/05	NC		%	25
		Benzyl chloride	2011/12/05	NC		%	25
		1,3-Dichlorobenzene	2011/12/05	NC		%	25
		1,4-Dichlorobenzene	2011/12/05	NC		%	25
		1,2-Dichlorobenzene	2011/12/05	NC		%	25
		1,2,4-Trichlorobenzene	2011/12/05	NC		%	25
		Hexachlorobutadiene	2011/12/05	NC		%	25
		Hexane	2011/12/05	1.8		%	25
		Cyclohexane	2011/12/05	1.6		%	25
		Tetrahydrofuran	2011/12/05	0.8		%	25
		1,4-Dioxane	2011/12/05	NC		%	25
		Xylene (Total)	2011/12/05	0.8		%	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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

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

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Nov 04, 2011 @ 11:57 mst
 Removal Date/Time: Nov 07, 2011 @ 08:57 mst

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

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
02-Nov-11	07-Nov-11	14-Nov-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)
707	229	-6.0	330.36

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

Comments: COC# 08376
GB1F5093 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 05, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08376

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

Report Date: 2011/11/17

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1H6533**

Received: 2011/11/09, 09:30

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/11	2011/11/14	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1H6533
 Report Date: 2011/11/17

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

Maxxam ID		LO3974		LO3975		
Sampling Date		2011/11/05		2011/11/05		
COC Number		08376		08376		
	Units	LICA PUFF+CLS/QFF/NOV 05,11	RDL	LICA PUFF+PORT/QFF/NOV 05,11	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	2.63	0.10	0.33	0.10	2679162
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Methylnaphthalene	ug	5.18	0.10	0.60	0.10	2679162
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2679162
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2679162
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2679162
Acenaphthene	ug	<0.21	0.21	<0.067	0.067	2679162
Acenaphthylene	ug	0.286	0.050	0.382	0.050	2679162
Anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(b)fluoranthene	ug	0.050	0.050	0.092	0.050	2679162
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(g,h,i)perylene	ug	<0.050	0.050	0.052	0.050	2679162
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2679162
Biphenyl	ug	0.74	0.10	0.46	0.10	2679162
Chrysene	ug	<0.050	0.050	0.078	0.050	2679162
Coronene	ug	<0.10	0.10	<0.10	0.10	2679162
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2679162
Fluoranthene	ug	0.082	0.050	0.276	0.050	2679162
Fluorene	ug	0.272	0.050	0.274	0.050	2679162
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2679162
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Naphthalene	ug	2.58	0.072	0.608	0.072	2679162
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Perylene	ug	<0.10	0.10	<0.10	0.10	2679162

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1H6533
 Report Date: 2011/11/17

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

Maxxam ID		LO3974		LO3975		
Sampling Date		2011/11/05		2011/11/05		
COC Number		08376		08376		
	Units	LICA PUFF+CLS/QFF/NOV 05,11	RDL	LICA PUFF+PORT/QFF/NOV 05,11	RDL	QC Batch

Phenanthrene	ug	0.322	0.050	0.712	0.050	2679162
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Pyrene	ug	0.090	0.050	0.238	0.050	2679162
Quinoline	ug	<0.40	0.40	<0.40	0.40	2679162
Tetralin	ug	0.15	0.10	<0.10	0.10	2679162
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	78		76		2679162
D10-Fluoranthene	%	96		96		2679162
D10-Fluorene (FS)	%	39 (1)		47 (1)		2679162
D10-Phenanthrene	%	92		90		2679162
D12-Benzo(a)anthracene	%	98		98		2679162
D12-Benzo(a)pyrene	%	84		82		2679162
D12-Benzo(b)fluoranthene	%	94		92		2679162
D12-Benzo(ghi)perylene	%	78		78		2679162
D12-Benzo(k)fluoranthene	%	84		82		2679162
D12-Chrysene	%	80		80		2679162
D12-Indeno(1,2,3-cd)pyrene	%	80		80		2679162
D12-Perylene	%	82		82		2679162
D14-Dibenzo(a,h)anthracene	%	82		84		2679162
D14-Terphenyl (FS)	%	101		100		2679162
D8-Acenaphthylene	%	80		76		2679162
D8-Naphthalene	%	76		76		2679162

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 #: B1H6533
Report Date: 2011/11/17

Test Summary

Maxxam ID LO3974
Sample ID LICA PUFF+CLS/QFF/NOV 05,11
Matrix PUF AND FILTER

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2679162	2011/11/11	2011/11/14	JIE WU

Maxxam ID LO3975
Sample ID LICA PUFF+PORT/QFF/NOV 05,11
Matrix PUF AND FILTER

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2679162	2011/11/11	2011/11/14	JIE WU

Maxxam Job #: B1H6533
Report Date: 2011/11/17

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.

7,12-dimethylbenzo(a)anthracene is above 25% RSD in continuing calibrations.

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

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

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 LO3974-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample LO3975-01: 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: GB1H6533

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2679162 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/11/14		84	%	50 - 150
		D10-Fluoranthene	2011/11/14		96	%	50 - 150
		D10-Phenanthrene	2011/11/14		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/14		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/14		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/14		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/14		80	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/14		88	%	50 - 150
		D12-Chrysene	2011/11/14		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/14		80	%	50 - 150
		D12-Perylene	2011/11/14		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/14		84	%	50 - 150
		D8-Acenaphthylene	2011/11/14		82	%	50 - 150
		D8-Naphthalene	2011/11/14		82	%	50 - 150
		Acenaphthene	2011/11/14		81	%	60 - 130
	RPD	Acenaphthene	2011/11/14	0.6		%	50
	Spiked Blank	Acenaphthylene	2011/11/14		80	%	60 - 130
	RPD	Acenaphthylene	2011/11/14	0.6		%	50
	Spiked Blank	Anthracene	2011/11/14		86	%	60 - 130
	RPD	Anthracene	2011/11/14	0.6		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/14		79	%	60 - 130
	RPD	Benzo(a)anthracene	2011/11/14	0.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/14		71	%	60 - 130
	RPD	Benzo(a)pyrene	2011/11/14	5.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/14		82	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/11/14	3.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/14		70	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/11/14	2.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/14		85	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/11/14	0.9		%	50
	Spiked Blank	Chrysene	2011/11/14		79	%	60 - 130
	RPD	Chrysene	2011/11/14	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/14		77	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/11/14	2.9		%	50
	Spiked Blank	Fluoranthene	2011/11/14		90	%	60 - 130
	RPD	Fluoranthene	2011/11/14	1.1		%	50
	Spiked Blank	Fluorene	2011/11/14		84	%	60 - 130
	RPD	Fluorene	2011/11/14	0.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/14		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/11/14	2.4		%	50
	Spiked Blank	Naphthalene	2011/11/14		95	%	60 - 130
	RPD	Naphthalene	2011/11/14	3.8		%	50
	Spiked Blank	Phenanthrene	2011/11/14		83	%	60 - 130
	RPD	Phenanthrene	2011/11/14	0.9		%	50
	Spiked Blank	Pyrene	2011/11/14		84	%	60 - 130
	RPD	Pyrene	2011/11/14	1.2		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/11/14		86	%	50 - 150
		D10-Fluoranthene	2011/11/14		94	%	50 - 150
		D10-Phenanthrene	2011/11/14		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/14		88	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/14		82	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/14		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/14		76	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/14		88	%	50 - 150
		D12-Chrysene	2011/11/14		84	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6533

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2679162 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/14		78	%	50 - 150
		D12-Perylene	2011/11/14		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/14		82	%	50 - 150
		D8-Acenaphthylene	2011/11/14		82	%	50 - 150
		D8-Naphthalene	2011/11/14		86	%	50 - 150
		1-Methylnaphthalene	2011/11/14	<0.10		ug	
		1-Methylphenanthrene	2011/11/14	<0.10		ug	
		2-Chloronaphthalene	2011/11/14	<0.10		ug	
		2-Methylantracene	2011/11/14	<0.10		ug	
		2-Methylnaphthalene	2011/11/14	<0.10		ug	
		3-Methylcholanthrene	2011/11/14	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/14	<0.10		ug	
		9,10-Dimethylantracene	2011/11/14	<0.40		ug	
		Acenaphthene	2011/11/14	<0.050		ug	
		Acenaphthylene	2011/11/14	<0.050		ug	
		Anthracene	2011/11/14	<0.050		ug	
		Benzo(a)anthracene	2011/11/14	<0.050		ug	
		Benzo(a)fluorene	2011/11/14	<0.10		ug	
		Benzo(a)pyrene	2011/11/14	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/14	<0.050		ug	
		Benzo(b)fluorene	2011/11/14	<0.10		ug	
		Benzo(e)pyrene	2011/11/14	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/14	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/14	<0.050		ug	
		Biphenyl	2011/11/14	<0.10		ug	
		Chrysene	2011/11/14	<0.050		ug	
		Coronene	2011/11/14	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/14	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/14	<0.20		ug	
		Fluoranthene	2011/11/14	<0.050		ug	
		Fluorene	2011/11/14	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/14	<0.050		ug	
		m-Terphenyl	2011/11/14	<0.10		ug	
		Naphthalene	2011/11/14	<0.072		ug	
		o-Terphenyl	2011/11/14	<0.10		ug	
		Perylene	2011/11/14	<0.10		ug	
		Phenanthrene	2011/11/14	<0.050		ug	
		p-Terphenyl	2011/11/14	<0.10		ug	
		Pyrene	2011/11/14	<0.050		ug	
		Quinoline	2011/11/14	<0.40		ug	
		Tetralin	2011/11/14	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 Spiked Blank: A blank matrix 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/Nov 11,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 10, 2011 @ 08:58 mst
Removal Date/Time: Nov 14, 2011 @ 09:08 mst

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

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
08-Nov-11	14-Nov-11	21-Nov-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)
700	229	1.1	330.39

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# 08451

GB1F5094 PUFF # 1

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08451

Attention: Michael BisagaLakeland Industry & Community Assoc.
P.O. Box 8237
Bonnyville, AB
CANADA T9N 2J5

Report Date: 2011/11/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1I0330****Received: 2011/11/16, 09:47**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/17	2011/11/19	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=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B110330
 Report Date: 2011/11/21

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

Maxxam ID		LQ4553		LQ4554		
Sampling Date		2011/11/11		2011/11/11		
COC Number		08451		08451		
	Units	LICAPUFF/QFF/CLS/NOV11,2011	RDL	LICAPUFF/QFF/PORT/NOV11,2011	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.13	0.10	<0.10	0.10	2685378
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Methylnaphthalene	ug	0.26	0.10	0.13	0.10	2685378
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2685378
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2685378
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2685378
Acenaphthene	ug	<0.060	0.060	<0.050	0.050	2685378
Acenaphthylene	ug	0.246	0.050	0.144	0.050	2685378
Anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(b)fluoranthene	ug	0.052	0.050	<0.050	0.050	2685378
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(g,h,i)perylene	ug	0.052	0.050	<0.050	0.050	2685378
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2685378
Biphenyl	ug	0.37	0.10	0.32	0.10	2685378
Chrysene	ug	<0.050	0.050	<0.050	0.050	2685378
Coronene	ug	<0.10	0.10	<0.10	0.10	2685378
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2685378
Fluoranthene	ug	0.136	0.050	0.102	0.050	2685378
Fluorene	ug	0.360	0.050	0.286	0.050	2685378
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2685378
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Naphthalene	ug	0.328	0.072	0.190	0.072	2685378
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Perylene	ug	<0.10	0.10	<0.10	0.10	2685378
Phenanthrene	ug	0.648	0.050	0.448	0.050	2685378

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B110330
 Report Date: 2011/11/21

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

Maxxam ID		LQ4553		LQ4554		
Sampling Date		2011/11/11		2011/11/11		
COC Number		08451		08451		
	Units	LICAPUFF/QFF/CLS/NOV11,2011	RDL	LICAPUFF/QFF/PORT/NOV11,2011	RDL	QC Batch
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Pyrene	ug	0.124	0.050	0.082	0.050	2685378
Quinoline	ug	<0.40	0.40	<0.40	0.40	2685378
Tetralin	ug	<0.10	0.10	<0.10	0.10	2685378
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	90		84		2685378
D10-Fluoranthene	%	98		108		2685378
D10-Fluorene (FS)	%	17 (1)		15 (1)		2685378
D10-Phenanthrene	%	96		98		2685378
D12-Benzo(a)anthracene	%	102		108		2685378
D12-Benzo(a)pyrene	%	96		100		2685378
D12-Benzo(b)fluoranthene	%	94		98		2685378
D12-Benzo(ghi)perylene	%	94		98		2685378
D12-Benzo(k)fluoranthene	%	88		88		2685378
D12-Chrysene	%	84		80		2685378
D12-Indeno(1,2,3-cd)pyrene	%	92		98		2685378
D12-Perylene	%	90		94		2685378
D14-Dibenzo(a,h)anthracene	%	92		98		2685378
D14-Terphenyl (FS)	%	91		104		2685378
D8-Acenaphthylene	%	94		96		2685378
D8-Naphthalene	%	92		86		2685378
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 #: B110330
Report Date: 2011/11/21

Test Summary

Maxxam ID LQ4553
Sample ID LICAPUFF/QFF/CLS/NOV11,2011
Matrix PUF AND FILTER

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2685378	2011/11/17	2011/11/19	JIE WU

Maxxam ID LQ4554
Sample ID LICAPUFF/QFF/PORT/NOV11,2011
Matrix PUF AND FILTER

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2685378	2011/11/17	2011/11/19	JIE WU

Maxxam Job #: B110330
Report Date: 2011/11/21

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.

7,12-dimethylbenzo(a)anthracene is above 25% RSD in initial calibration.

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 LQ4553-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

Sample LQ4554-01: 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.

Lakeland Industry & Community Assoc.
 Attention: Michael Bisaga
 Client Project #:
 P.O. #:
 Site Location:

Quality Assurance Report
 Maxxam Job Number: GB110330

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2685378 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/11/19		94	%	50 - 150
		D10-Fluoranthene	2011/11/19		96	%	50 - 150
		D10-Phenanthrene	2011/11/19		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/19		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/19		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/19		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/19		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/19		90	%	50 - 150
		D12-Chrysene	2011/11/19		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/19		90	%	50 - 150
		D12-Perylene	2011/11/19		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/19		90	%	50 - 150
		D8-Acenaphthylene	2011/11/19		92	%	50 - 150
		D8-Naphthalene	2011/11/19		98	%	50 - 150
		Acenaphthene	2011/11/19		85	%	60 - 130
	RPD	Acenaphthene	2011/11/19	2.1		%	50
	Spiked Blank	Acenaphthylene	2011/11/19		86	%	60 - 130
	RPD	Acenaphthylene	2011/11/19	3.9		%	50
	Spiked Blank	Anthracene	2011/11/19		75	%	60 - 130
	RPD	Anthracene	2011/11/19	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/19		77	%	60 - 130
	RPD	Benzo(a)anthracene	2011/11/19	2.0		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/19		71	%	60 - 130
	RPD	Benzo(a)pyrene	2011/11/19	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/19		84	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/11/19	3.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/19		76	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/11/19	1		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/19		79	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/11/19	1.6		%	50
	Spiked Blank	Chrysene	2011/11/19		76	%	60 - 130
	RPD	Chrysene	2011/11/19	2.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/19		76	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/11/19	2.3		%	50
	Spiked Blank	Fluoranthene	2011/11/19		87	%	60 - 130
	RPD	Fluoranthene	2011/11/19	6.5		%	50
	Spiked Blank	Fluorene	2011/11/19		83	%	60 - 130
	RPD	Fluorene	2011/11/19	4.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/19		78	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/11/19	3.9		%	50
	Spiked Blank	Naphthalene	2011/11/19		89	%	60 - 130
	RPD	Naphthalene	2011/11/19	2.8		%	50
	Spiked Blank	Phenanthrene	2011/11/19		81	%	60 - 130
	RPD	Phenanthrene	2011/11/19	7.4		%	50
	Spiked Blank	Pyrene	2011/11/19		81	%	60 - 130
	RPD	Pyrene	2011/11/19	6.4		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/11/19		90	%	50 - 150
		D10-Fluoranthene	2011/11/19		96	%	50 - 150
		D10-Phenanthrene	2011/11/19		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/19		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/19		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/19		96	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/19		90	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/19		88	%	50 - 150
		D12-Chrysene	2011/11/19		82	%	50 - 150

Lakeland Industry & Community Assoc.
 Attention: Michael Bisaga
 Client Project #:
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB110330

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2685378 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/19		90	%	50 - 150
		D12-Perylene	2011/11/19		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/19		90	%	50 - 150
		D8-Acenaphthylene	2011/11/19		90	%	50 - 150
		D8-Naphthalene	2011/11/19		94	%	50 - 150
		1-Methylnaphthalene	2011/11/19	<0.10		ug	
		1-Methylphenanthrene	2011/11/19	<0.10		ug	
		2-Chloronaphthalene	2011/11/19	<0.10		ug	
		2-Methylanthracene	2011/11/19	<0.10		ug	
		2-Methylnaphthalene	2011/11/19	<0.10		ug	
		3-Methylcholanthrene	2011/11/19	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/19	<0.10		ug	
		9,10-Dimethylanthracene	2011/11/19	<0.40		ug	
		Acenaphthene	2011/11/19	<0.050		ug	
		Acenaphthylene	2011/11/19	<0.050		ug	
		Anthracene	2011/11/19	<0.050		ug	
		Benzo(a)anthracene	2011/11/19	<0.050		ug	
		Benzo(a)fluorene	2011/11/19	<0.10		ug	
		Benzo(a)pyrene	2011/11/19	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/19	<0.050		ug	
		Benzo(b)fluorene	2011/11/19	<0.10		ug	
		Benzo(e)pyrene	2011/11/19	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/19	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/19	<0.050		ug	
		Biphenyl	2011/11/19	<0.10		ug	
		Chrysene	2011/11/19	<0.050		ug	
		Coronene	2011/11/19	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/19	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/19	<0.20		ug	
		Fluoranthene	2011/11/19	<0.050		ug	
		Fluorene	2011/11/19	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/19	<0.050		ug	
		m-Terphenyl	2011/11/19	<0.10		ug	
		Naphthalene	2011/11/19	<0.072		ug	
		o-Terphenyl	2011/11/19	<0.10		ug	
		Perylene	2011/11/19	<0.10		ug	
		Phenanthrene	2011/11/19	<0.050		ug	
		p-Terphenyl	2011/11/19	<0.10		ug	
		Pyrene	2011/11/19	<0.050		ug	
		Quinoline	2011/11/19	<0.40		ug	
		Tetralin	2011/11/19	<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/Nov 17,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 16, 2011 @ 08:25 mst
Removal Date/Time: Nov 18, 2011 @ 08:53 mst

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

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Nov-11	18-Nov-11	22-Nov-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)
712	229	-12.7	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# 08483

GB1F5095 PUFF # 1

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08483

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

Report Date: 2011/11/30

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1I3784****Received: 2011/11/22, 09:30**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/23	2011/11/28	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B113784
 Report Date: 2011/11/30

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

Maxxam ID		LS2769	LS2770		
Sampling Date		2011/11/17	2011/11/17		
COC Number		08483	08483		
	Units	LICA PUFF+QFF/CLS/NOV 17,11	LICA PUFF+QFF/PORT/NOV 17,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.19	0.10	0.10	2690887
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2690887
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2690887
2-Methylantracene	ug	<0.10	<0.10	0.10	2690887
2-Methylnaphthalene	ug	0.37	0.16	0.10	2690887
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2690887
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2690887
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2690887
Acenaphthene	ug	<0.050	<0.050	0.050	2690887
Acenaphthylene	ug	0.064	<0.050	0.050	2690887
Anthracene	ug	<0.050	<0.050	0.050	2690887
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2690887
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2690887
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2690887
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2690887
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2690887
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2690887
Benzo(g,h,i)perylene	ug	0.050	<0.050	0.050	2690887
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2690887
Biphenyl	ug	0.27	0.22	0.10	2690887
Chrysene	ug	<0.050	<0.050	0.050	2690887
Coronene	ug	<0.10	<0.10	0.10	2690887
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2690887
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2690887
Fluoranthene	ug	0.064	<0.050	0.050	2690887
Fluorene	ug	0.092	0.060	0.050	2690887
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2690887
m-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Naphthalene	ug	0.422	0.256	0.072	2690887
o-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Perylene	ug	<0.10	<0.10	0.10	2690887

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B113784
 Report Date: 2011/11/30

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

Maxxam ID		LS2769	LS2770		
Sampling Date		2011/11/17	2011/11/17		
COC Number		08483	08483		
	Units	LICA PUFF+QFF/CLS/NOV 17,11	LICA PUFF+QFF/PORT/NOV 17,11	RDL	QC Batch
Phenanthrene	ug	0.226	0.112	0.050	2690887
p-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Pyrene	ug	<0.050	<0.050	0.050	2690887
Quinoline	ug	<0.40	<0.40	0.40	2690887
Tetralin	ug	<0.10	<0.10	0.10	2690887
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	86		2690887
D10-Fluoranthene	%	110	104		2690887
D10-Fluorene (FS)	%	69	54		2690887
D10-Phenanthrene	%	100	98		2690887
D12-Benzo(a)anthracene	%	110	108		2690887
D12-Benzo(a)pyrene	%	104	104		2690887
D12-Benzo(b)fluoranthene	%	102	106		2690887
D12-Benzo(ghi)perylene	%	104	104		2690887
D12-Benzo(k)fluoranthene	%	86	86		2690887
D12-Chrysene	%	76	80		2690887
D12-Indeno(1,2,3-cd)pyrene	%	106	104		2690887
D12-Perylene	%	98	96		2690887
D14-Dibenzo(a,h)anthracene	%	104	102		2690887
D14-Terphenyl (FS)	%	103	96		2690887
D8-Acenaphthylene	%	90	94		2690887
D8-Naphthalene	%	82	86		2690887
QC Batch = Quality Control Batch					

Maxxam Job #: B113784
 Report Date: 2011/11/30

Test Summary

Maxxam ID LS2769
Sample ID LICA PUFF+QFF/CLS/NOV 17,11
Matrix PUF AND FILTER

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2690887	2011/11/23	2011/11/28	WENDY ZHAO

Maxxam ID LS2770
Sample ID LICA PUFF+QFF/PORT/NOV 17,11
Matrix PUF AND FILTER

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2690887	2011/11/23	2011/11/28	WENDY ZHAO

Maxxam Job #: B113784
Report Date: 2011/11/30

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: GB113784

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2690887 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/11/28		76	%	50 - 150
		D10-Fluoranthene	2011/11/28		96	%	50 - 150
		D10-Phenanthrene	2011/11/28		88	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/28		104	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/28		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/28		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/28		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/28		90	%	50 - 150
		D12-Chrysene	2011/11/28		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/28		100	%	50 - 150
		D12-Perylene	2011/11/28		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/28		98	%	50 - 150
		RPD	D8-Acenaphthylene	2011/11/28		76	%
	D8-Naphthalene		2011/11/28		76	%	50 - 150
	Spiked Blank	Acenaphthene	2011/11/28		70	%	60 - 130
		Acenaphthene	2011/11/28	14.8		%	50
	RPD	Acenaphthylene	2011/11/28		69	%	60 - 130
		Acenaphthylene	2011/11/28	18.1		%	50
	Spiked Blank	Anthracene	2011/11/28		68	%	60 - 130
		Anthracene	2011/11/28	17.1		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/28		80	%	60 - 130
		Benzo(a)anthracene	2011/11/28	1.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/28		72	%	60 - 130
		Benzo(a)pyrene	2011/11/28	3.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/28		83	%	60 - 130
		Benzo(b)fluoranthene	2011/11/28	1.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/28		83	%	60 - 130
		Benzo(g,h,i)perylene	2011/11/28	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/28		78	%	60 - 130
		Benzo(k)fluoranthene	2011/11/28	1.9		%	50
	Spiked Blank	Chrysene	2011/11/28		74	%	60 - 130
		Chrysene	2011/11/28	2.1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/28		84	%	60 - 130
		Dibenz(a,h)anthracene	2011/11/28	2.1		%	50
	Spiked Blank	Fluoranthene	2011/11/28		85	%	60 - 130
		Fluoranthene	2011/11/28	10.1		%	50
	Spiked Blank	Fluorene	2011/11/28		72	%	60 - 130
		Fluorene	2011/11/28	14.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/28		84	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/11/28	2.6		%	50
Spiked Blank	Naphthalene	2011/11/28		77	%	60 - 130	
	Naphthalene	2011/11/28	13.4		%	50	
Spiked Blank	Phenanthrene	2011/11/28		74	%	60 - 130	
	Phenanthrene	2011/11/28	13.9		%	50	
Spiked Blank	Pyrene	2011/11/28		79	%	60 - 130	
	Pyrene	2011/11/28	10.2		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/11/28		80	%	50 - 150	
	D10-Fluoranthene	2011/11/28		90	%	50 - 150	
	D10-Phenanthrene	2011/11/28		88	%	50 - 150	
	D12-Benzo(a)anthracene	2011/11/28		92	%	50 - 150	
	D12-Benzo(a)pyrene	2011/11/28		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/11/28		98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/11/28		96	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/11/28		80	%	50 - 150	
	D12-Chrysene	2011/11/28		72	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113784

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2690887 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/28		96	%	50 - 150
		D12-Perylene	2011/11/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/28		94	%	50 - 150
		D8-Acenaphthylene	2011/11/28		84	%	50 - 150
		D8-Naphthalene	2011/11/28		80	%	50 - 150
		1-Methylnaphthalene	2011/11/28	<0.10		ug	
		1-Methylphenanthrene	2011/11/28	<0.10		ug	
		2-Chloronaphthalene	2011/11/28	<0.10		ug	
		2-Methylanthracene	2011/11/28	<0.10		ug	
		2-Methylnaphthalene	2011/11/28	<0.10		ug	
		3-Methylcholanthrene	2011/11/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/28	<0.10		ug	
		9,10-Dimethylanthracene	2011/11/28	<0.40		ug	
		Acenaphthene	2011/11/28	<0.050		ug	
		Acenaphthylene	2011/11/28	<0.050		ug	
		Anthracene	2011/11/28	<0.050		ug	
		Benzo(a)anthracene	2011/11/28	<0.050		ug	
		Benzo(a)fluorene	2011/11/28	<0.10		ug	
		Benzo(a)pyrene	2011/11/28	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/28	<0.050		ug	
		Benzo(b)fluorene	2011/11/28	<0.10		ug	
		Benzo(e)pyrene	2011/11/28	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/28	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/28	<0.050		ug	
		Biphenyl	2011/11/28	<0.10		ug	
		Chrysene	2011/11/28	<0.050		ug	
		Coronene	2011/11/28	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/28	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/28	<0.20		ug	
		Fluoranthene	2011/11/28	<0.050		ug	
		Fluorene	2011/11/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/28	<0.050		ug	
		m-Terphenyl	2011/11/28	<0.10		ug	
		Naphthalene	2011/11/28	<0.072		ug	
		o-Terphenyl	2011/11/28	<0.10		ug	
		Perylene	2011/11/28	<0.10		ug	
		Phenanthrene	2011/11/28	<0.050		ug	
		p-Terphenyl	2011/11/28	<0.10		ug	
		Pyrene	2011/11/28	<0.050		ug	
		Quinoline	2011/11/28	<0.40		ug	
		Tetralin	2011/11/28	<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/Nov 23,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 22, 2011 @ 09:15 mst
Removal Date/Time: Nov 24, 2011 @ 08:45 mst

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

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
18-Nov-11	24-Nov-11	30-Nov-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)
699	229	-3.2	330.33

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

Comments: COC# 08356

GB1F5097 PUFF # 1

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08356

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

Report Date: 2011/12/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1I6646****Received: 2011/11/26, 10:24**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/30	2011/12/01	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B116646
 Report Date: 2011/12/05

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

Maxxam ID		LT7184		LT7185		
Sampling Date		2011/11/23		2011/11/23		
COC Number		08356		08356		
	Units	LICA PUFF+QFF/CLS/NOV 23,11	RDL	LICA PUFF+QFF/PORT/NOV 23,11	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.21	0.10	0.12	0.10	2697821
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Methylnaphthalene	ug	0.49	0.10	0.18	0.10	2697821
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2697821
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2697821
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2697821
Acenaphthene	ug	<0.12	0.12	<0.050	0.050	2697821
Acenaphthylene	ug	0.206	0.050	<0.050	0.050	2697821
Anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(b)fluoranthene	ug	0.084	0.050	0.062	0.050	2697821
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(g,h,i)perylene	ug	0.060	0.050	<0.050	0.050	2697821
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2697821
Biphenyl	ug	0.51	0.10	0.45	0.10	2697821
Chrysene	ug	0.052	0.050	<0.050	0.050	2697821
Coronene	ug	<0.10	0.10	<0.10	0.10	2697821
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2697821
Fluoranthene	ug	0.182	0.050	0.134	0.050	2697821
Fluorene	ug	0.454	0.050	0.362	0.050	2697821
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2697821
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Naphthalene	ug	0.566	0.072	0.336	0.072	2697821
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Perylene	ug	<0.10	0.10	<0.10	0.10	2697821

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B116646
 Report Date: 2011/12/05

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

Maxxam ID		LT7184		LT7185		
Sampling Date		2011/11/23		2011/11/23		
COC Number		08356		08356		
	Units	LICA PUFF+QFF/CLS/NOV 23,11	RDL	LICA PUFF+QFF/PORT/NOV 23,11	RDL	QC Batch

Phenanthrene	ug	0.700	0.050	0.538	0.050	2697821
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Pyrene	ug	0.156	0.050	0.074	0.050	2697821
Quinoline	ug	<0.40	0.40	<0.40	0.40	2697821
Tetralin	ug	<0.10	0.10	<0.10	0.10	2697821
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	84		78		2697821
D10-Fluoranthene	%	100		102		2697821
D10-Fluorene (FS)	%	25 (1)		15 (1)		2697821
D10-Phenanthrene	%	96		96		2697821
D12-Benzo(a)anthracene	%	104		102		2697821
D12-Benzo(a)pyrene	%	96		96		2697821
D12-Benzo(b)fluoranthene	%	96		96		2697821
D12-Benzo(ghi)perylene	%	98		100		2697821
D12-Benzo(k)fluoranthene	%	88		88		2697821
D12-Chrysene	%	80		80		2697821
D12-Indeno(1,2,3-cd)pyrene	%	98		100		2697821
D12-Perylene	%	92		92		2697821
D14-Dibenzo(a,h)anthracene	%	96		98		2697821
D14-Terphenyl (FS)	%	91		87		2697821
D8-Acenaphthylene	%	90		88		2697821
D8-Naphthalene	%	84		76		2697821

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 #: B1I6646
 Report Date: 2011/12/05

Test Summary

Maxxam ID LT7184
Sample ID LICA PUFF+QFF/CLS/NOV 23,11
Matrix PUF AND FILTER

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2697821	2011/11/30	2011/12/01	JIE WU

Maxxam ID LT7185
Sample ID LICA PUFF+QFF/PORT/NOV 23,11
Matrix PUF AND FILTER

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2697821	2011/11/30	2011/12/01	JIE WU

Maxxam Job #: B116646
Report Date: 2011/12/05

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.

Naphthalene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

Internal Std area response criteria was high in Blank.

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 LT7184-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

Sample LT7185-01: 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: GB116646

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697821 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/01		88	%	50 - 150
		D10-Fluoranthene	2011/12/01		86	%	50 - 150
		D10-Phenanthrene	2011/12/01		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/01		88	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/01		88	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/01		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/01		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/01		88	%	50 - 150
		D12-Chrysene	2011/12/01		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/12/01		90	%	50 - 150
		D12-Perylene	2011/12/01		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/01		90	%	50 - 150
		D8-Acenaphthylene	2011/12/01		90	%	50 - 150
		D8-Naphthalene	2011/12/01		90	%	50 - 150
		Acenaphthene	2011/12/01		81	%	60 - 130
	RPD	Acenaphthene	2011/12/01	1.8		%	50
	Spiked Blank	Acenaphthylene	2011/12/01		81	%	60 - 130
	RPD	Acenaphthylene	2011/12/01	3.6		%	50
	Spiked Blank	Anthracene	2011/12/01		72	%	60 - 130
	RPD	Anthracene	2011/12/01	12.7		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/01		72	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/01	4.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/01		67	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/01	7.9		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/01		78	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/01	6.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/01		74	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/01	5.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/01		78	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/01	0.6		%	50
	Spiked Blank	Chrysene	2011/12/01		77	%	60 - 130
	RPD	Chrysene	2011/12/01	6.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/01		72	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/01	9.6		%	50
	Spiked Blank	Fluoranthene	2011/12/01		76	%	60 - 130
	RPD	Fluoranthene	2011/12/01	15.2		%	50
	Spiked Blank	Fluorene	2011/12/01		79	%	60 - 130
	RPD	Fluorene	2011/12/01	6.5		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/01		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/01	8.1		%	50
	Spiked Blank	Naphthalene	2011/12/01		96	%	60 - 130
	RPD	Naphthalene	2011/12/01	2.9		%	50
	Spiked Blank	Phenanthrene	2011/12/01		72	%	60 - 130
	RPD	Phenanthrene	2011/12/01	13.0		%	50
	Spiked Blank	Pyrene	2011/12/01		71	%	60 - 130
	RPD	Pyrene	2011/12/01	15.9		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/01		76	%	50 - 150
		D10-Fluoranthene	2011/12/01		106	%	50 - 150
		D10-Phenanthrene	2011/12/01		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/01		94	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/01		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/01		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/01		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/01		88	%	50 - 150
		D12-Chrysene	2011/12/01		76	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116646

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697821 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/01		100	%	50 - 150
		D12-Perylene	2011/12/01		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/01		98	%	50 - 150
		D8-Acenaphthylene	2011/12/01		86	%	50 - 150
		D8-Naphthalene	2011/12/01		74	%	50 - 150
		1-Methylnaphthalene	2011/12/01	<0.10		ug	
		1-Methylphenanthrene	2011/12/01	<0.10		ug	
		2-Chloronaphthalene	2011/12/01	<0.10		ug	
		2-Methylanthracene	2011/12/01	<0.10		ug	
		2-Methylnaphthalene	2011/12/01	<0.10		ug	
		3-Methylcholanthrene	2011/12/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/12/01	<0.10		ug	
		9,10-Dimethylanthracene	2011/12/01	<0.40		ug	
		Acenaphthene	2011/12/01	<0.050		ug	
		Acenaphthylene	2011/12/01	<0.050		ug	
		Anthracene	2011/12/01	<0.050		ug	
		Benzo(a)anthracene	2011/12/01	<0.050		ug	
		Benzo(a)fluorene	2011/12/01	<0.10		ug	
		Benzo(a)pyrene	2011/12/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/12/01	<0.050		ug	
		Benzo(b)fluorene	2011/12/01	<0.10		ug	
		Benzo(e)pyrene	2011/12/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/12/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/12/01	<0.050		ug	
		Biphenyl	2011/12/01	<0.10		ug	
		Chrysene	2011/12/01	<0.050		ug	
		Coronene	2011/12/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/12/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/12/01	<0.20		ug	
		Fluoranthene	2011/12/01	<0.050		ug	
		Fluorene	2011/12/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/12/01	<0.050		ug	
		m-Terphenyl	2011/12/01	<0.10		ug	
		Naphthalene	2011/12/01	0.072, RDL=0.072		ug	
		o-Terphenyl	2011/12/01	<0.10		ug	
		Perylene	2011/12/01	<0.10		ug	
		Phenanthrene	2011/12/01	<0.050		ug	
		p-Terphenyl	2011/12/01	<0.10		ug	
		Pyrene	2011/12/01	<0.050		ug	
		Quinoline	2011/12/01	<0.40		ug	
		Tetralin	2011/12/01	<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/Nov 29,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Nov 28, 2011 @ 08:41 mst
Removal Date/Time: Dec 01, 2011 @ 08:48 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
29-Nov-11	11/29/2011 0:00	11/30/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Nov-11	30-Nov-11	06-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	-1.2	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# 08931

GB1F5098 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Nov 29, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08931

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

Report Date: 2011/12/15

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J0840****Received: 2011/12/03, 09:50**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/12/06	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=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1J0840
 Report Date: 2011/12/15

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

Maxxam ID		LW0880	LW0881		
Sampling Date		2011/11/29	2011/11/29		
COC Number		08931	08931		
	Units	LICA PUFF+QFF/CLS/NOV 29,11	LICA PUFF+QFF/PORT/NOV 29,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	1.78	0.29	0.10	2703882
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2703882
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2703882
2-Methylantracene	ug	<0.10	<0.10	0.10	2703882
2-Methylnaphthalene	ug	3.44	0.50	0.10	2703882
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2703882
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2703882
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2703882
Acenaphthene	ug	0.220	0.076	0.050	2703882
Acenaphthylene	ug	0.486	0.080	0.050	2703882
Anthracene	ug	<0.050	<0.050	0.050	2703882
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2703882
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2703882
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2703882
Benzo(b)fluoranthene	ug	0.072	<0.050	0.050	2703882
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2703882
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2703882
Benzo(g,h,i)perylene	ug	0.068	0.052	0.050	2703882
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2703882
Biphenyl	ug	0.80	0.41	0.10	2703882
Chrysene	ug	<0.050	<0.050	0.050	2703882
Coronene	ug	<0.10	<0.10	0.10	2703882
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2703882
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2703882
Fluoranthene	ug	0.120	0.114	0.050	2703882
Fluorene	ug	0.370	0.250	0.050	2703882
Indeno(1,2,3-cd)pyrene	ug	0.058	<0.050	0.050	2703882
m-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Naphthalene	ug	2.84	0.632	0.072	2703882
o-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Perylene	ug	<0.10	<0.10	0.10	2703882

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J0840
 Report Date: 2011/12/15

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

Maxxam ID		LW0880	LW0881		
Sampling Date		2011/11/29	2011/11/29		
COC Number		08931	08931		
	Units	LICA PUFF+QFF/CLS/NOV 29,11	LICA PUFF+QFF/PORT/NOV 29,11	RDL	QC Batch

Phenanthrene	ug	0.528	0.458	0.050	2703882
p-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Pyrene	ug	0.088	0.066	0.050	2703882
Quinoline	ug	<0.40	<0.40	0.40	2703882
Tetralin	ug	0.15	<0.10	0.10	2703882
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	88		2703882
D10-Fluoranthene	%	94	96		2703882
D10-Fluorene (FS)	%	24 (1)	23 (1)		2703882
D10-Phenanthrene	%	92	96		2703882
D12-Benzo(a)anthracene	%	102	104		2703882
D12-Benzo(a)pyrene	%	100	98		2703882
D12-Benzo(b)fluoranthene	%	102	102		2703882
D12-Benzo(ghi)perylene	%	94	94		2703882
D12-Benzo(k)fluoranthene	%	86	88		2703882
D12-Chrysene	%	88	88		2703882
D12-Indeno(1,2,3-cd)pyrene	%	94	94		2703882
D12-Perylene	%	88	88		2703882
D14-Dibenzo(a,h)anthracene	%	92	94		2703882
D14-Terphenyl (FS)	%	89	88		2703882
D8-Acenaphthylene	%	88	92		2703882
D8-Naphthalene	%	82	88		2703882

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 #: B1J0840
 Report Date: 2011/12/15

Test Summary

Maxxam ID LW0880
Sample ID LICA PUFF+QFF/CLS/NOV 29,11
Matrix PUF AND FILTER

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2703882	2011/12/06	2011/12/13	JIE WU

Maxxam ID LW0881
Sample ID LICA PUFF+QFF/PORT/NOV 29,11
Matrix PUF AND FILTER

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2703882	2011/12/06	2011/12/13	JIE WU

Maxxam Job #: B1J0840
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.

Naphthalene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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 LW0880-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample LW0881-01: 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: GB1J0840

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2703882 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/13		88	%	50 - 150
		D10-Fluoranthene	2011/12/13		94	%	50 - 150
		D10-Phenanthrene	2011/12/13		98	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		90	%	50 - 150
		D12-Chrysene	2011/12/13		94	%	50 - 150
		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		96	%	50 - 150
		D8-Acenaphthylene	2011/12/13		92	%	50 - 150
		D8-Naphthalene	2011/12/13		86	%	50 - 150
		Acenaphthene	2011/12/13		81	%	60 - 130
	RPD	Acenaphthene	2011/12/13	1.5		%	50
	Spiked Blank	Acenaphthylene	2011/12/13		84	%	60 - 130
	RPD	Acenaphthylene	2011/12/13	0.6		%	50
	Spiked Blank	Anthracene	2011/12/13		82	%	60 - 130
	RPD	Anthracene	2011/12/13	0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/13		81	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/13	1.5		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/13		77	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/13	1.6		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/13		85	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/13	3.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/13		86	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/13	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/13		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/13	2.0		%	50
	Spiked Blank	Chrysene	2011/12/13		84	%	60 - 130
	RPD	Chrysene	2011/12/13	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/13		87	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/13	1.7		%	50
	Spiked Blank	Fluoranthene	2011/12/13		86	%	60 - 130
	RPD	Fluoranthene	2011/12/13	2.3		%	50
	Spiked Blank	Fluorene	2011/12/13		84	%	60 - 130
	RPD	Fluorene	2011/12/13	0.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/13		87	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/13	1.4		%	50
	Spiked Blank	Naphthalene	2011/12/13		88	%	60 - 130
	RPD	Naphthalene	2011/12/13	6.1		%	50
	Spiked Blank	Phenanthrene	2011/12/13		86	%	60 - 130
	RPD	Phenanthrene	2011/12/13	0.3		%	50
	Spiked Blank	Pyrene	2011/12/13		87	%	60 - 130
	RPD	Pyrene	2011/12/13	0.9		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/13		88	%	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		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		90	%	50 - 150
		D12-Chrysene	2011/12/13		86	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0840

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2703882 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/13		94	%	50 - 150
		D12-Perylene	2011/12/13		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		94	%	50 - 150
		D8-Acenaphthylene	2011/12/13		94	%	50 - 150
		D8-Naphthalene	2011/12/13		88	%	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	0.138, RDL=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

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
November 2011

Prepared By:



December 20, 2011

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Maskwa
Data Period: November 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 – November 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	0.86	16	27	22	12.1	309(NW)	5.7	14	99.7
H2S (PPB)	10	3	0	0	0.16	4	2, 3	23, 0	5.7, 6.3	111(ESE), 118(ESE)	1.2	21	98.1
THC (PPM)	-	-	-	-	2.20	3.3	6	9	NA	NA	2.5	VAR	99.9
NOx (PPB)	-	-	-	-	5.16	27	6	10	NA	NA	11.3	15	99.7
NO (PPB)	-	-	-	-	0.93	17	6	10	NA	NA	3.3	14, 15	99.7
NO ₂ (PPB)	159	-	0	-	4.07	18	9	8	2.2	275(W)	7.2	7	99.7
VECTOR WS (KPH)	-	-	-	-	5.54	18.0	17	15	-	26(NNE)	11.1	17	92.4
VECTOR WD (DEGREES)	-	-	-	-	270(W)	-	-	-	-	-	-	-	92.4
RELATIVE HUMIDITY (%)	-	-	-	-	71.99	91	11	8, 9	1.7, 0.6	61(ENE), 59(ENE)	89.2	11	100.0
TEMPERATURE (DEG C)	-	-	-	-	-6.14	8.9	27	13	5.7	252(WSW)	1.5	27	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	934	956	30	VAR	VAR	VAR	950.5	30	100.0
PRECIPITATION (MM)	-	-	-	-	0.01	0.6	27	13, 14	5.7, 8.2	252(WSW), 284(WNW0)	3.0	27	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. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

Following the as found points on November 1st, the exhaust pump was replaced. A multi-points calibration was performed after. It was noticed that the replaced pump failed after the daily calibration on November 1st. The pump was removed and a new pump was installed on November 2nd. The analyzer was allowed time to stabilize. A post-repair calibration was then performed. 11 hours of data were invalidated. The inlet filter was changed before the monthly calibration was started on November 1st. 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. 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. Data was corrected using daily zero information.

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

- System make / model - MetOne 50.5 Sonic, S/N: H10703 replaced to RM Young 5103 VK, S/N: 56589

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

The wind system failed on November 5th. A temporary wind system was installed on following an installation calibration November 7th. The range for the wind speed was changed to 0 –200 KPH. 55 hours of data between November 5th at hour 9 and November 7th at hour 14 were invalidated.

The MetOne wind system was sent back to the manufacturer for repair.

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 November 3rd.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
NOVEMBER 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	1	0	2	4	4	2	1	1	0	0	C	C	C	C	0	0	0	0	0	0	IZS	1	1	0	4	0.9	24
2	0	0	1	1	0	0	0	0	0	0	1	2	1	0	0	M	1	0	0	IZS	0	0	1	2	2	0.5	23
3	1	0	0	1	0	0	0	0	0	0	1	0	0	6	2	2	3	2	IZS	4	10	2	3	6	10	1.9	24
4	0	0	2	0	1	1	4	6	2	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	6	0.7	24
5	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
6	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	IZS	0	0	0	0	0	0	0	0	2	0.3	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	M	0	0	0	0	0	0	0	0	0	0.0	23
8	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	4	2	1	0	0	0	0	0	0	0	4	0.3	24
9	0	0	0	0	0	0	0	0	0	0	1	2	IZS	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24
10	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	3	3	0.1	24
11	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0	24
12	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0.3	24
13	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	0.5	24
14	0	0	0	0	4	7	7	IZS	3	0	4	8	9	9	8	11	12	4	11	9	7	6	3	8	12	5.7	24
15	4	4	12	12	3	12	IZS	10	8	2	0	5	5	7	6	9	11	13	2	2	2	0	0	0	13	5.6	24
16	0	0	0	0	0	IZS	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.1	24
17	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
18	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
19	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
20	0	IZS	0	0	0	0	0	0	0	0	2	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.3	24
21	IZS	0	1	1	2	1	1	1	1	1	3	3	1	2	1	1	0	0	1	1	1	1	0	IZS	3	1.1	24
22	0	0	0	0	0	0	0	0	0	0	0	2	3	4	3	1	0	0	0	1	0	IZS	0	4	0.6	24	
23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0.0	24
24	0	0	0	0	0	1	4	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	4	0.3	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	6	1	0	0	6	0.3	24
26	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	2	IZS	0	0	0	0	0	2	0.3	24	
27	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	2	7	16	8	16	2.1	24	
28	13	9	14	14	8	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	14	2.7	24
29	0	1	1	0	0	1	2	1	1	1	1	0	1	5	6	IZS	0	0	0	0	0	0	0	0	6	0.9	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	IZS	0	0	2	0	0	0	0	0	0	2	0.2	24
HOURLY MAX	13	9	14	14	8	12	7	10	8	2	4	8	9	9	8	11	12	13	11	9	10	7	16	8			
HOURLY AVG	0.7	0.6	1.2	1.2	0.8	1.0	0.8	0.8	0.6	0.2	0.5	0.9	0.8	1.4	1.2	1.2	1.1	0.8	0.6	0.6	1.1	0.7	0.9	1.1			

STATUS FLAG CODES

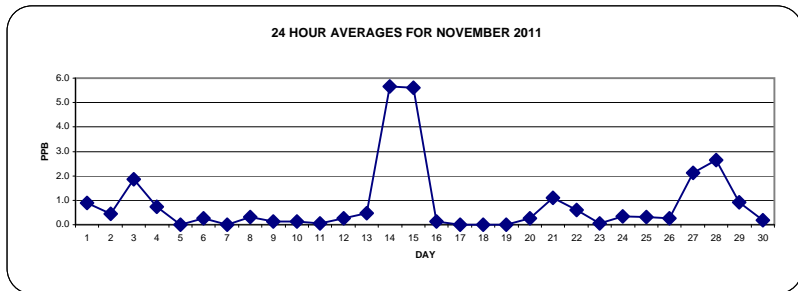
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

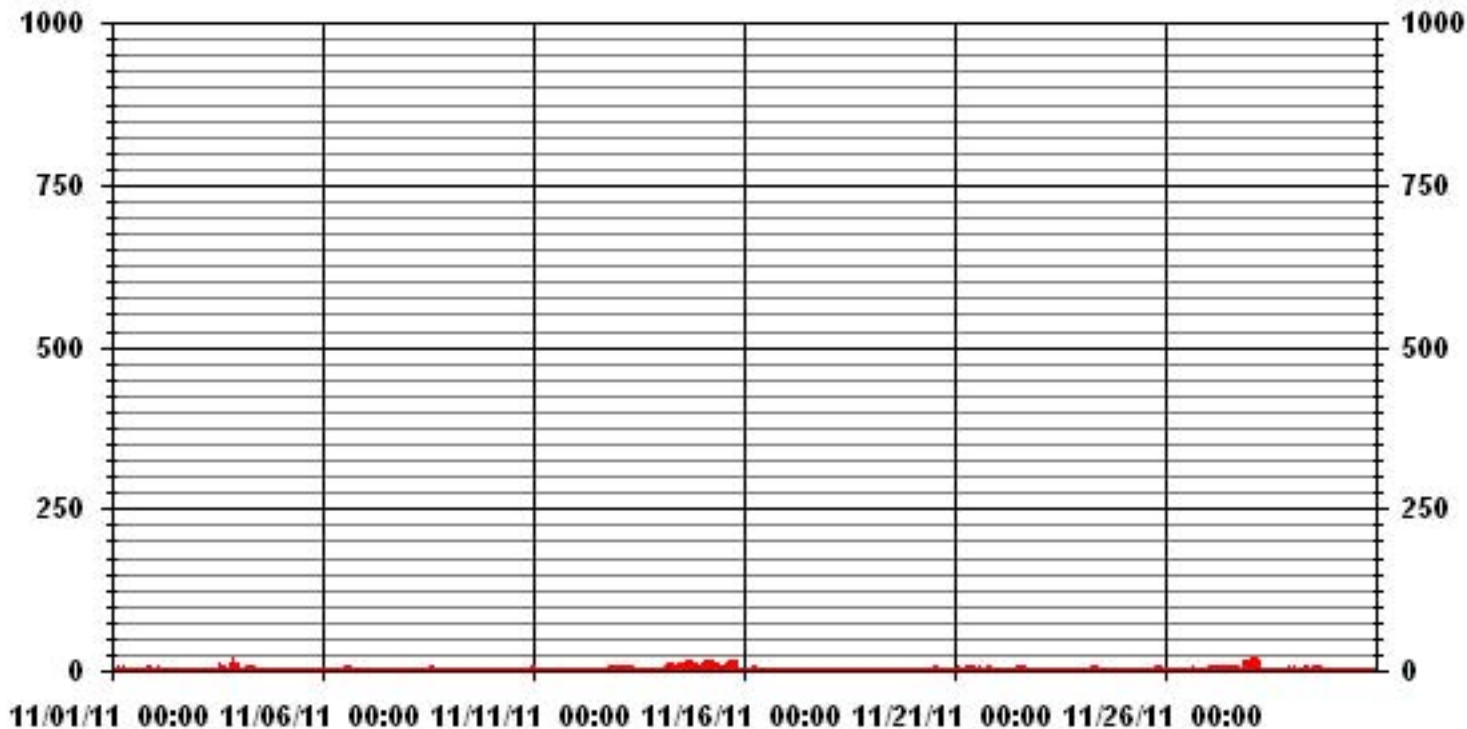
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
----------------------	------	-----	-----	-------	----	-----

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	186					
MAXIMUM 1-HR AVERAGE:	16	PPB	@ HOUR(S)	22	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	5.7	PPB			ON DAY(S)	14
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	2.26		MONTHLY AVERAGE:	0.86	PPB	



01 Hour Averages



— LICA30 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

NOVEMBER 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		
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		1	1	3	7	10	4	1	1	1	1	C	C	C	C	0	0	0	0	1	2	IZS	2	2	1	10	2.0	20	
2		0	1	2	2	1	0	0	1	1	1	2	3	1	1	1	M	1	1	1	IZS	1	1	4	3	4	1.3	24	
3		3	1	2	5	1	1	1	0	0	1	3	2	1	30	8	13	10	11	IZS	10	24	24	14	19	30	8.0	24	
4		2	2	9	2	5	4	9	16	7	3	0	2	4	0	1	0	0	IZS	0	0	0	1	2	1	16	3.0	24	
5		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.0	24	
6		0	0	0	0	0	0	0	1	1	1	2	M	2	4	4	IZS	1	0	0	0	0	0	0	0	4	0.7	23	
7		0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	M	1	1	1	1	1	1	1	1	1	0.5	23	
8		1	1	0	1	1	1	0	0	1	0	0	2	3	IZS	15	10	7	0	0	0	0	0	0	0	15	1.9	24	
9		0	0	0	0	0	0	2	2	1	2	2	5	IZS	0	1	0	0	0	1	1	1	1	0	0	5	0.8	24	
10		0	0	1	1	1	0	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0	0	0	1	9	9	1.1	24	
11		1	1	1	1	1	1	1	2	2	1	IZS	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
12		1	0	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
13		1	1	1	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	2	2	1	1	9	9	1.0	24	
14		1	0	2	1	14	15	12	IZS	11	7	11	14	16	16	17	18	22	18	18	19	15	8	19	22	12.7	24		
15		11	17	22	19	8	18	IZS	17	16	13	3	14	11	14	15	16	22	24	7	3	3	1	1	1	24	12.0	24	
16		0	0	0	0	0	IZS	7	2	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	7	0.6	24	
17		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	
18		0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0	24	
19		0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
20		0	IZS	0	0	0	0	0	0	2	1	2	2	2	2	2	1	1	1	1	1	0	1	1	1	2	0.9	24	
21		IZS	1	2	2	3	3	1	1	1	4	8	7	3	2	2	1	1	1	2	2	3	2	2	IZS	8	2.5	24	
22		0	0	0	0	0	0	1	0	1	1	1	4	6	6	5	4	1	1	0	2	1	IZS	3	6	1.6	24		
23		3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	3	0.2	24	
24		0	0	0	0	1	6	11	6	4	4	2	1	0	0	0	0	0	0	1	IZS	0	0	2	11	1.7	24		
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	14	5	2	1	14	1.0	24	
26		0	0	1	3	1	1	1	0	1	1	1	1	1	1	1	2	2	IZS	1	1	1	1	1	1	3	1.0	24	
27		1	2	2	1	2	1	2	2	2	3	2	1	1	2	2	4	4	IZS	0	0	15	16	25	19	25	4.7	24	
28		24	22	26	34	26	3	2	0	0	0	1	0	0	0	0	0	IZS	0	0	1	1	1	2	2	34	6.3	24	
29		1	1	2	1	1	2	2	2	2	2	1	1	6	16	11	IZS	1	1	1	1	1	1	0	0	16	2.5	24	
30		0	1	0	0	0	0	0	0	0	0	1	2	8	IZS	3	2	2	8	0	0	0	0	0	0	8	1.2	24	
HOURLY MAX		24	22	26	34	26	18	12	17	16	13	11	14	16	30	17	18	22	24	18	18	24	24	25	19				
HOURLY AVG		1.8	1.9	2.7	2.8	2.7	2.1	1.9	2.0	1.9	1.7	1.5	2.2	2.2	3.9	3.2	2.9	2.9	2.4	1.6	1.6	3.3	2.7	2.4	3.3				

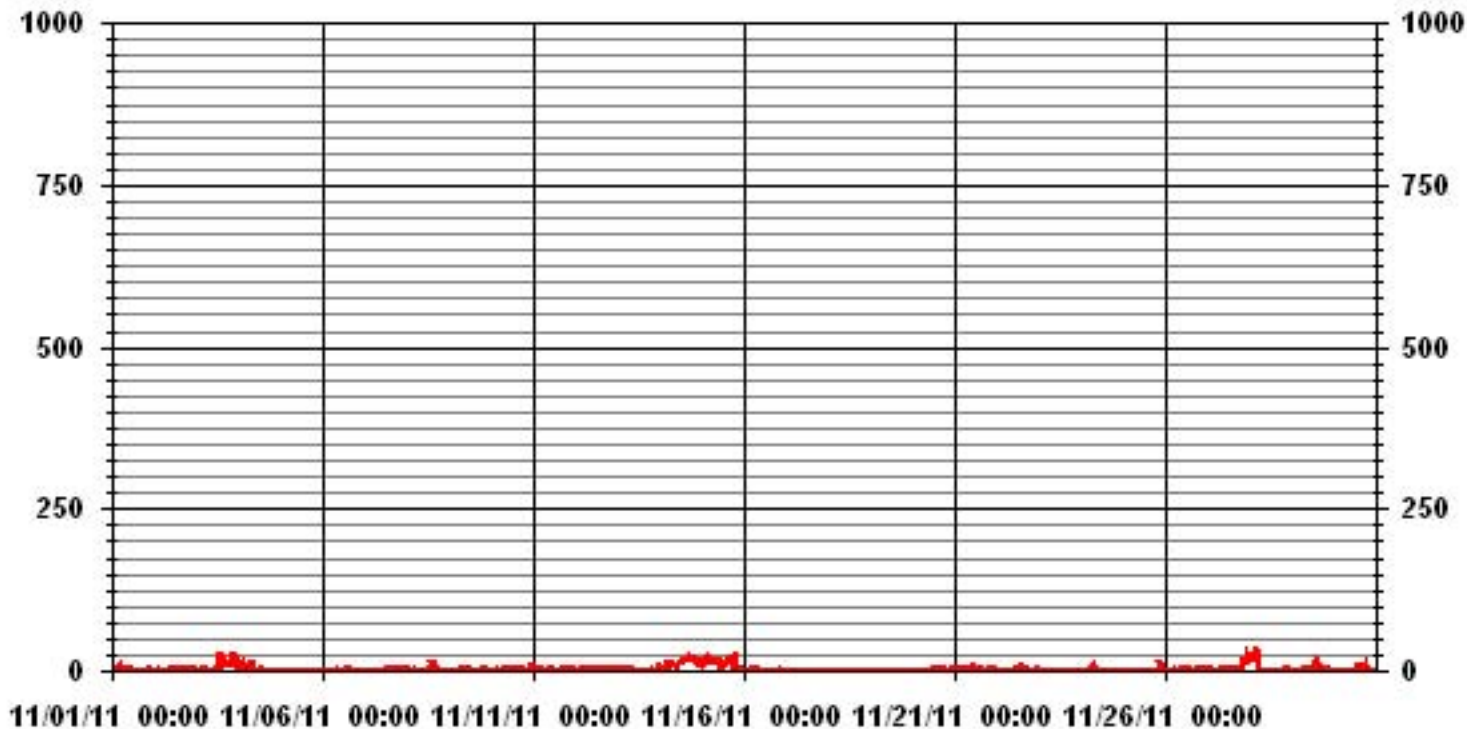
STATUS FLAG CODES

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:	391					
MAXIMUM INSTANTANEOUS VALUE:	34	PPB	@ HOUR(S)	3	ON DAY(S)	28
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	714	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	4.95					

01 Hour Averages



LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

November 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	4.27	7.13	5.70	3.64	1.90	3.48	6.33	5.70	4.43	12.04	12.20	3.64	5.86	12.99	8.39	2.21	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.27	7.13	5.70	3.64	1.90	3.48	6.33	5.70	4.43	12.04	12.20	3.64	5.86	12.99	8.39	2.21	

Calm : .00 %

Total # Operational Hours : 631

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	27	45	36	23	12	22	40	36	28	76	77	23	37	82	53	14	631
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	27	45	36	23	12	22	40	36	28	76	77	23	37	82	53	14	

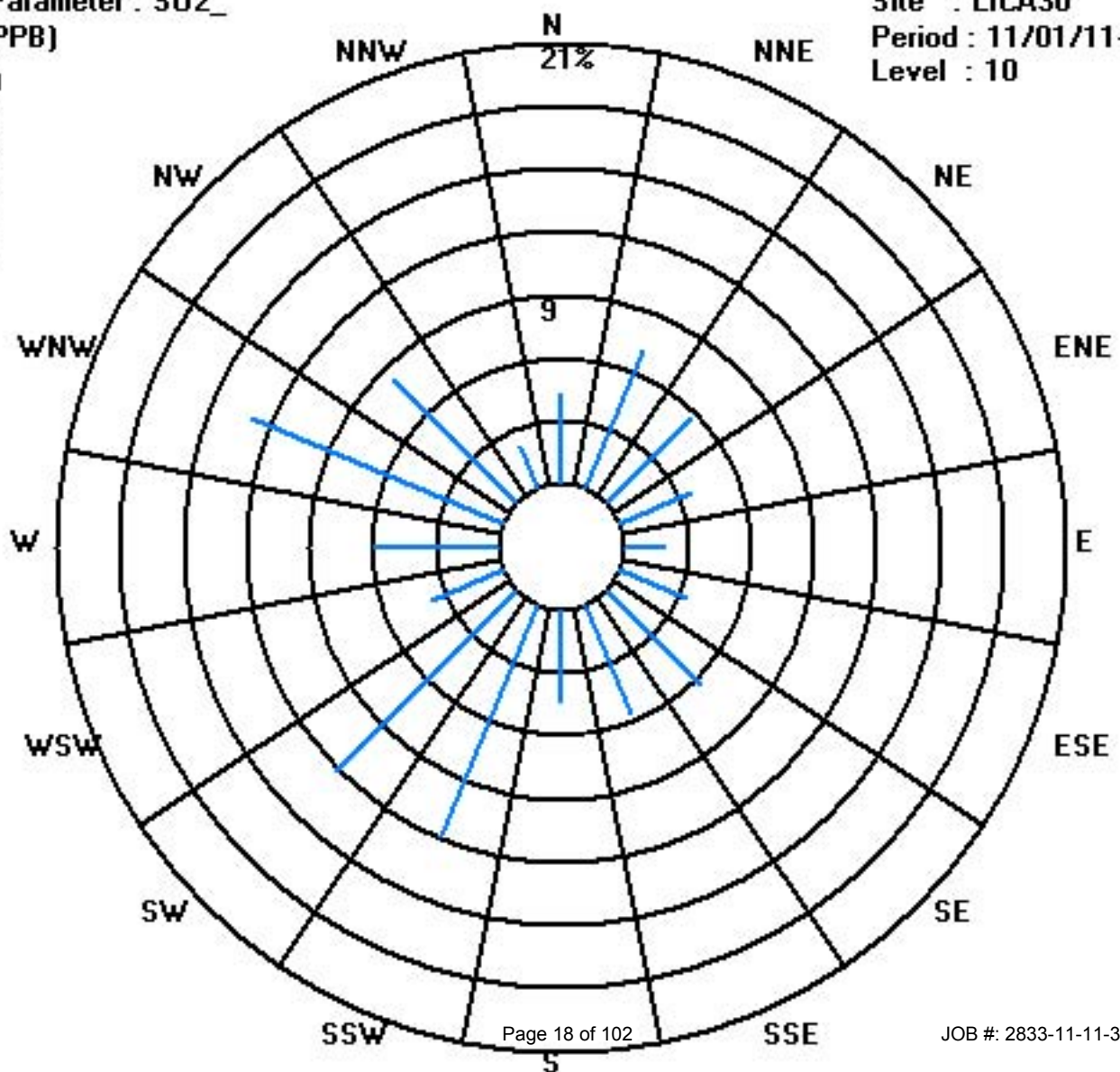
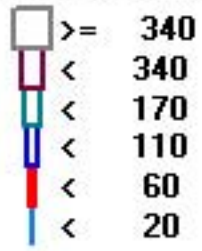
Calm : .00 %

Total # Operational Hours : 631

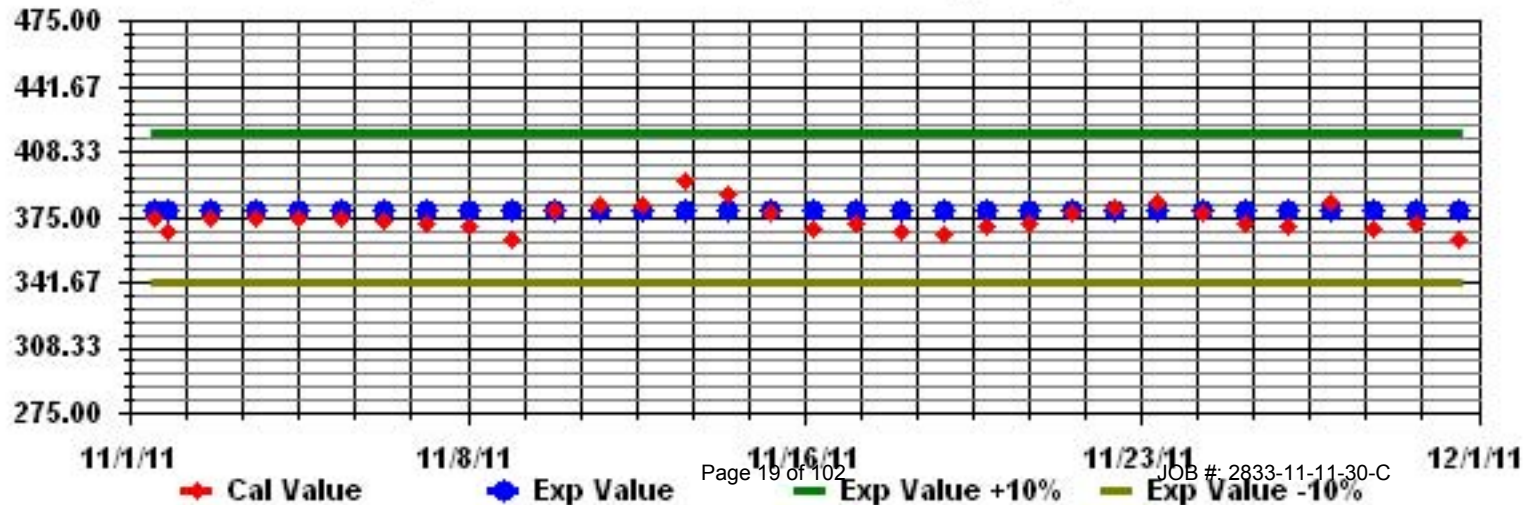
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10

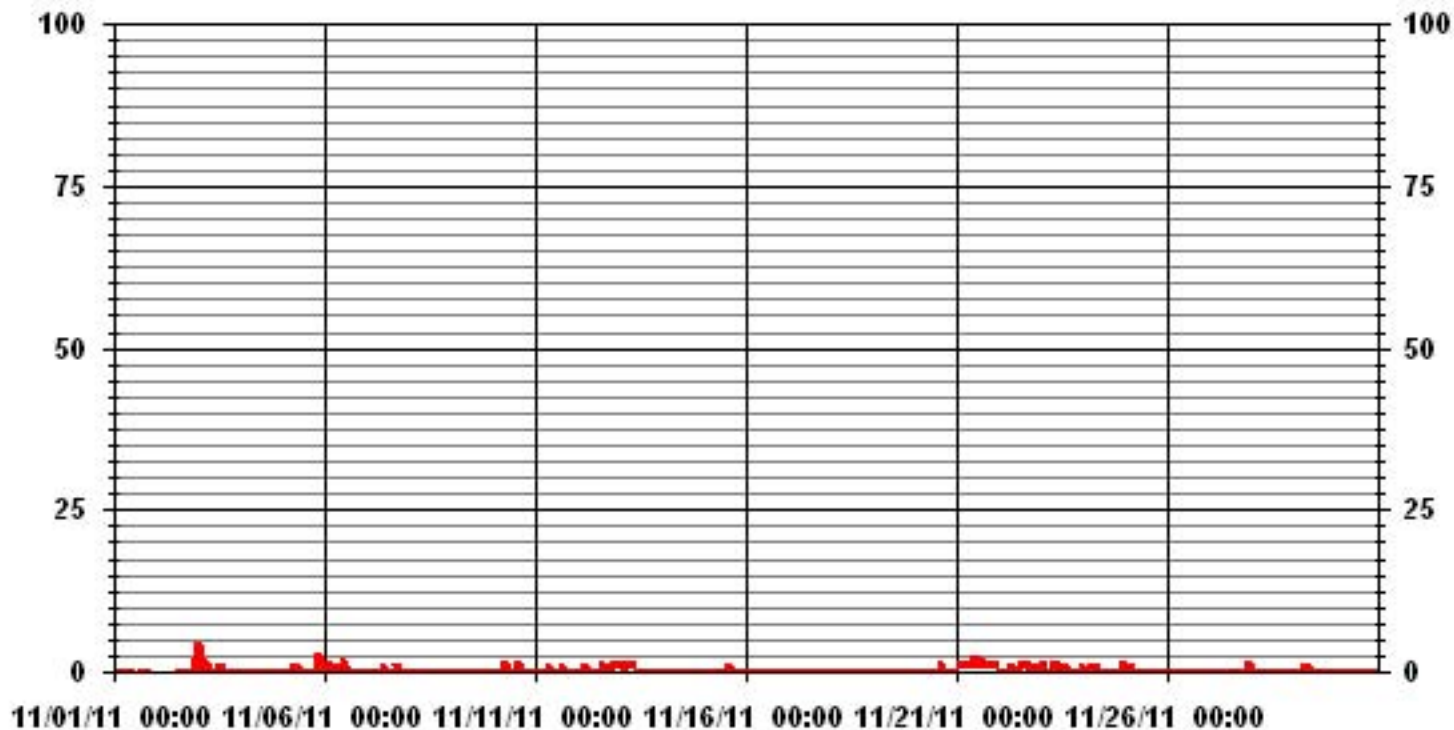


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: S02 Phase: SPAN



Hydrogen Sulphide

01 Hour Averages



— LICA30 H2S_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

NOVEMBER 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		
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		0	0	1	1	1	1	1	1	0	0	C	C	C	C	C	0	0	0	0	IZS	N	N	N	N	1	0.4	21	
2		N	N	N	N	N	N	N	N	N	C	C	C	C	1	0	M	0	1	1	IZS	1	3	4	5	5	5	1.8	14
3		5	2	4	3	2	1	1	1	1	0	1	1	1	1	0	0	0	1	IZS	0	1	1	1	1	5	1.3	24	
4		0	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	IZS	0	1	0	0	0	0	1	0.2	24	
5		1	1	0	0	0	0	6	1	3	1	1	1	0	0	1	1	IZS	0	0	3	9	2	0	0	9	1.3	24	
6		1	1	1	1	1	1	1	1	1	2	3	M	0	0	0	IZS	0	0	0	1	1	0	1	0	3	0.8	23	
7		0	1	1	0	0	0	1	1	1	1	0	0	1	0	IZS	M	1	1	1	1	1	1	0	1	1	0.6	23	
8		0	0	1	1	1	0	0	0	1	1	0	0	0	IZS	1	1	1	1	1	1	0	0	0	0	1	0.4	24	
9		0	0	0	0	0	1	0	2	1	0	0	1	IZS	0	0	0	0	0	1	1	0	0	0	0	2	0.3	24	
10		0	0	0	0	0	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0	1	0	0	0	0	1	0.5	24	
11		1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	2	2	2	1	1	0	0	1	1	0	1	2	1.0	24
12		1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
13		2	2	0	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
14		0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
15		0	0	0	0	0	0	IZS	1	1	1	0	0	1	0	1	1	1	1	0	0	0	0	0	0	1	0.3	24	
16		0	0	0	0	0	IZS	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
17		1	1	0	1	IZS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
18		0	0	0	IZS	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0.2	24	
19		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	
20		1	IZS	0	0	1	0	1	0	0	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0	1	0.4	24	
21		IZS	2	2	1	2	2	2	2	2	3	3	3	1	2	2	2	2	2	2	2	2	2	2	2	IZS	3	2.0	24
22		1	1	0	0	0	1	1	2	1	1	1	1	2	2	1	2	2	1	0	1	1	1	IZS	1	2	1.0	24	
23		1	1	1	1	0	1	2	1	1	1	0	1	1	1	1	1	1	1	1	1	0	IZS	1	1	2	0.9	24	
24		0	0	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0.8	24	
25		1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	IZS	1	0	1	0	1	1	0.7	24	
26		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	0	0	0	0	1	0.1	24	
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	2	1	2	0.2	24	
28		1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	1	0	0	2	0.3	24	
29		0	0	1	1	1	1	1	1	1	0	1	1	1	1	0	IZS	1	0	0	0	1	1	1	0	1	0.7	24	
30		1	0	0	1	0	1	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.2	24	
HOURLY MAX		5	2	4	3	2	2	6	2	3	3	3	3	2	2	2	2	2	2	2	3	9	3	4	5				
HOURLY AVG		0.7	0.6	0.6	0.6	0.6	1.0	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.4	0.5	0.8	0.6	0.5	0.5				

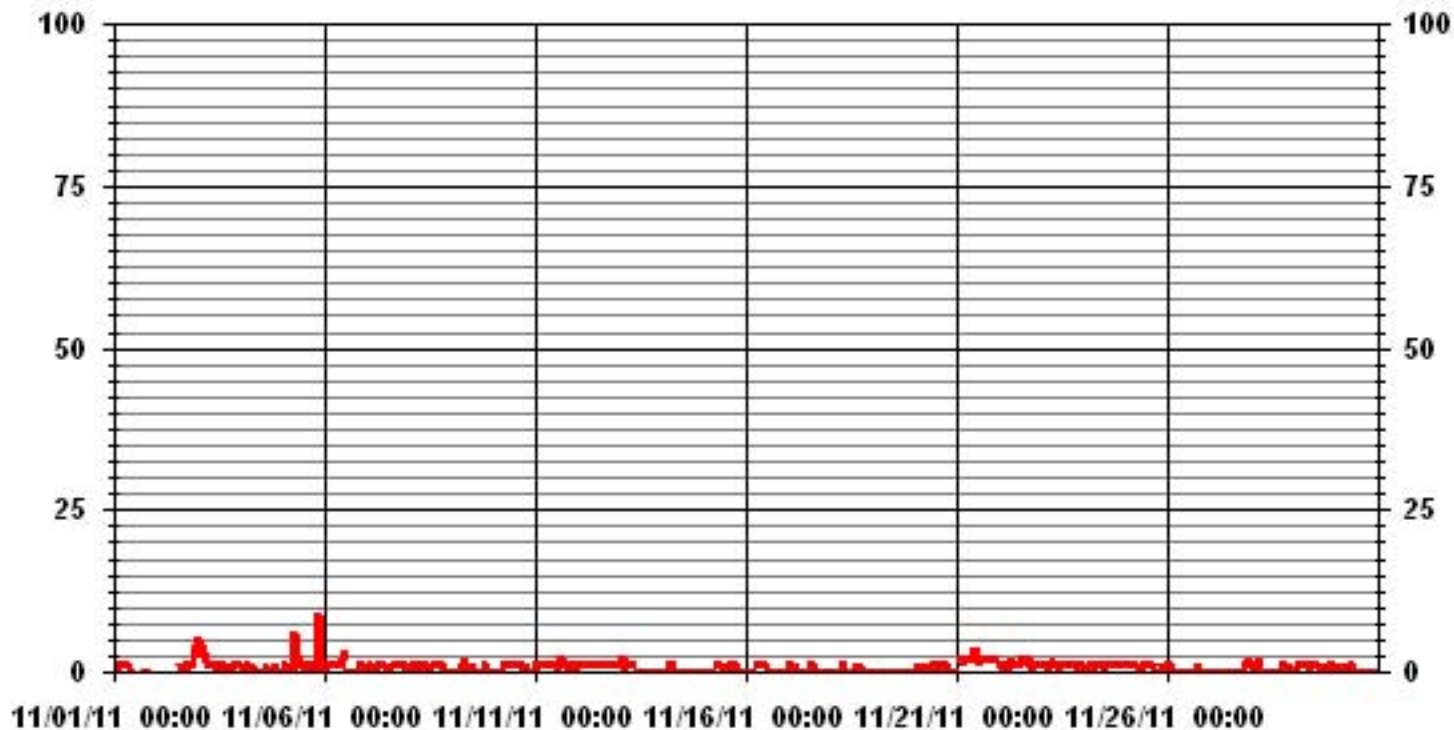
STATUS FLAG CODES

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:	317					
MAXIMUM INSTANTANEOUS VALUE:	9	PPB	@ HOUR(S)	20	ON DAY(S)	5
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	705	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	0.82					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

November 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	4.39	7.32	5.86	3.74	1.95	3.25	6.51	5.86	4.56	10.74	11.56	3.74	5.86	13.35	8.63	2.28	99.67
< 10	.00	.00	.00	.00	.00	.32	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.32
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.39	7.32	5.86	3.74	1.95	3.58	6.51	5.86	4.56	10.74	11.56	3.74	5.86	13.35	8.63	2.28	

Calm : .00 %

Total # Operational Hours : 614

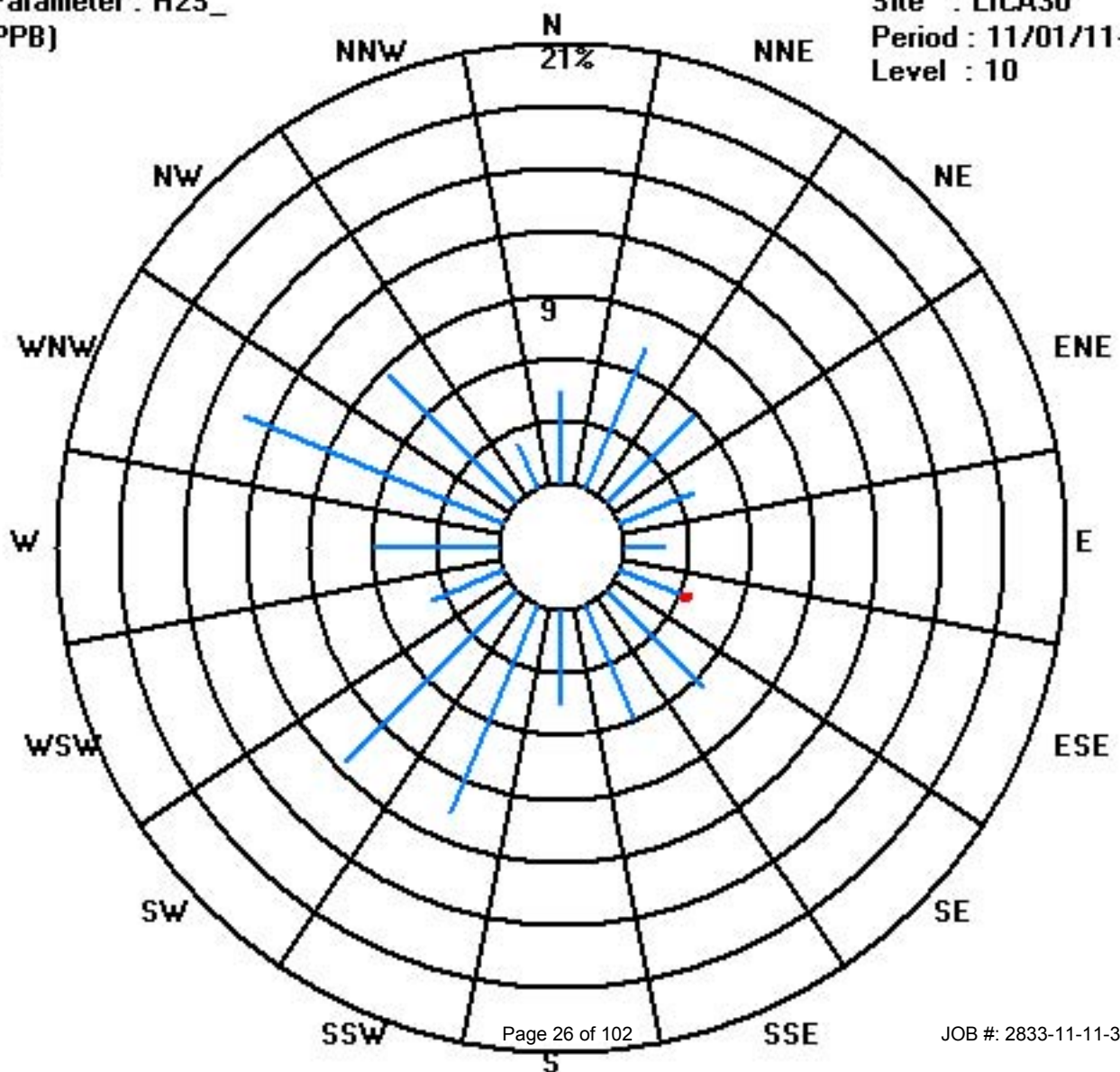
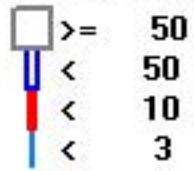
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	27	45	36	23	12	20	40	36	28	66	71	23	36	82	53	14	612
< 10						2											2
< 50																	
>= 50																	
Totals	27	45	36	23	12	22	40	36	28	66	71	23	36	82	53	14	

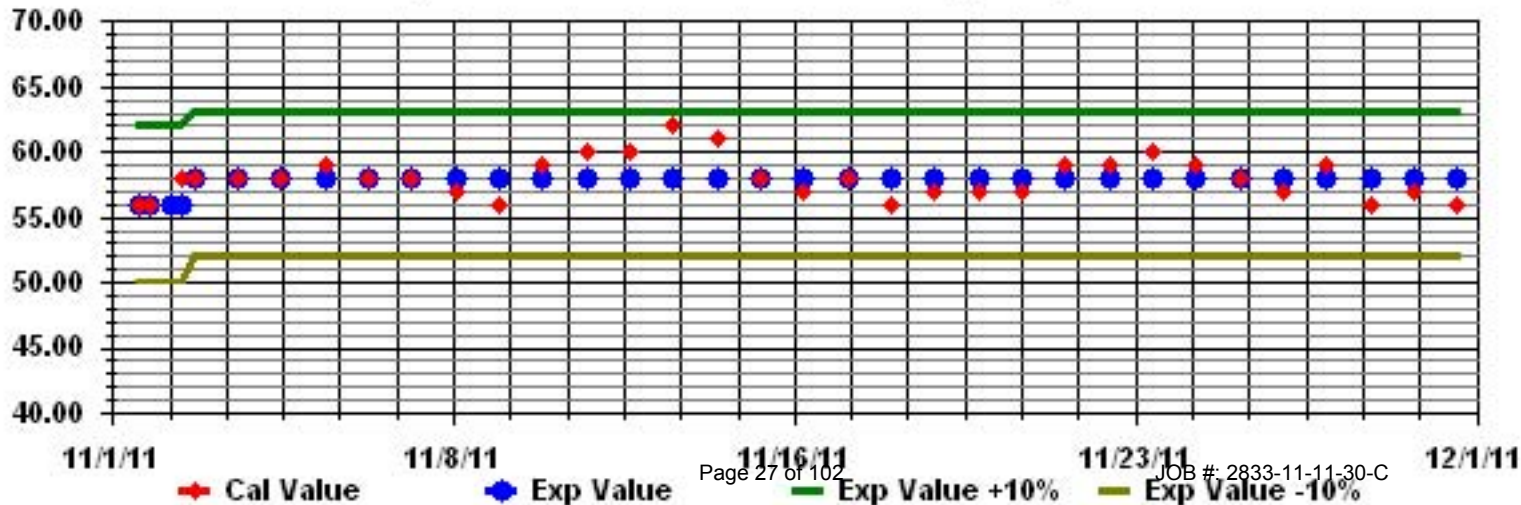
Calm : .00 %

Total # Operational Hours : 614

Class Limits (PPB)

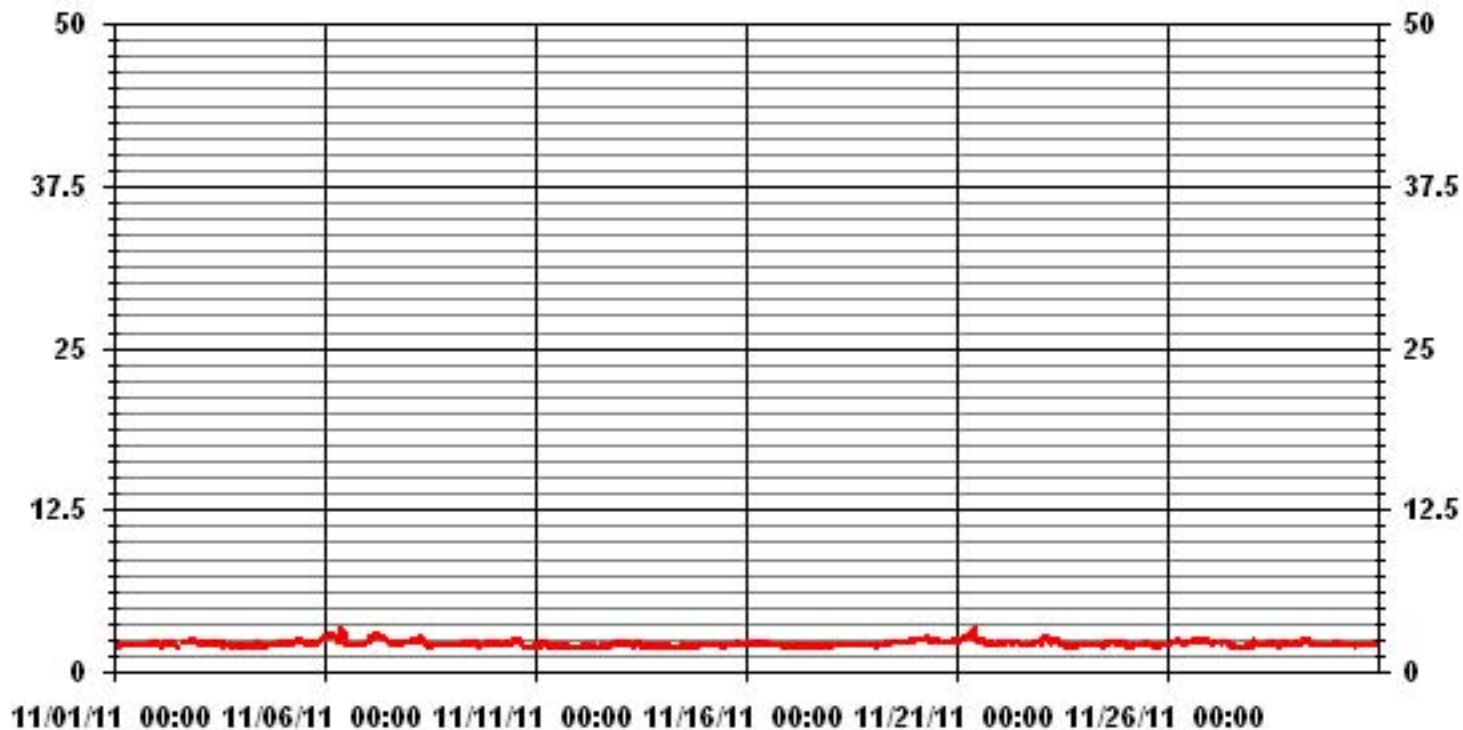


Calibration Graph for Site: LICA30 Parameter: H2S_ Sequence: H2S Phase: SPAll



Total Hydrocarbons

01 Hour Averages



— LICA30 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST																										DAILY	24-HOUR			
HOURLY MAX	HOURLY AVG	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	MAX.	AVG.	RDGS.
DAY																														
1		2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.3	2.1	2.1	2.1	2.2	2.3	IZS	2.3	2.3	2.2	2.3	2.2	2.3	2.2	24	
2		2.2	2.2	2.2	2.2	2.3	2.5	2.3	2.3	2.3	2.3	2.2	C	C	C	C	2.3	2.3	2.5	IZS	IZS	2.6	2.5	2.4	2.3	2.6	2.3	2.6	23	
3		2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.3	2.2	3.2	2.2	2.2	2.2	2.1	IZS	2.1	2.1	2	2.1	2.1	3.2	2.3	2.4	24	
4		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3	2.1	2.2	2.1	2	2	2.1	2.1	IZS	2.1	2.2	2.2	2.2	2.2	2.3	3	2.2	2.4	24	
5		2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.8	2.7	2.4	2.3	2.6	2.6	2.2	2.2	IZS	2.2	2.3	2.4	2.4	2.5	2.5	2.5	2.8	2.4	2.4	24	
6		3.5	2.9	2.9	3	3	2.9	2.8	2.7	2.6	5.2	3.5	M	2.6	2.2	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	5.2	2.7	23		
7		2.6	2.7	2.7	2.8	2.9	2.9	2.9	2.9	2.8	2.7	2.7	2.5	2.4	2.4	IZS	M	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.3	2.9	2.6	2.3	24	
8		2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.6	2.6	2.4	2.3	2.1	2.4	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.7	2.3	24		
9		2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	2.2	2.3	IZS	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.4	2.2	24		
10		2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.5	2.4	2.4	2.4	2.4	2	2	1.9	1.9	1.9	2	2.1	2.5	2.2	24		
11		2	2	2.1	2.3	2.4	2.4	2	2.1	2	2.1	IZS	2.3	2	2.1	2	2	2	2.1	2	2	1.9	1.9	2	2	2.4	2.1	24		
12		2	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2	2.1	2.2	2.3	2.3	2.3	2.3	2.1	24		
13		2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.3	2.2	2.2	2.2	2	2	2	2	2	2	2.2	2.2	2.1	2.1	2.1	2.3	2.1	24		
14		2.1	2	2.1	2.1	2.2	2.2	2.1	IZS	2	2.1	2.1	2	2.7	2.7	2.1	2.1	2.1	2	2.1	2.1	2.1	2.7	2.1	2.1	2.7	2.2	24		
15		2.1	2.3	2.5	2.2	2.1	2.1	IZS	2.1	2.3	2.2	2.1	2.1	2.5	2.3	2.1	2.1	2.2	2.2	2.2	2.4	2.3	2.2	2.1	2.2	2.5	2.2	24		
16		2.2	2.2	2.3	2.4	2.4	IZS	2.3	2.2	2.7	2.3	2.2	2.6	2.6	3	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3	2.3	24		
17		2.1	2.1	2.1	2.1	IZS	2	2	2	2	2	2	2.1	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	24		
18		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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	24		
19		2.2	2.2	IZS	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	23		
20		2.5	IZS	2.6	2.6	2.5	2.6	2.7	2.8	2.7	2.8	2.7	2.4	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	2.6	2.8	25		
21		IZS	2.5	2.6	2.6	2.7	2.7	2.8	2.8	3.1	3.2	3	2.6	2.5	2.4	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.1	IZS	3.2	2.6	24		
22		2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.4	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.4	IZS	2.4	2.5	23			
23		2.6	2.9	2.8	2.6	2.5	2.4	2.6	2.5	2.5	2.5	2.5	2.3	2.2	2.1	2	2	2	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.9	2.3	24		
24		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	IZS	2.3	2.3	2.3	2.5	2.2	24		
25		2.2	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2	2	IZS	2.2	2.2	2.2	2.2	2.3	2.1	24		
26		2.1	2.1	2.3	2.3	2.4	2.4	2.4	2.5	2.4	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.5	IZS	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.4	24		
27		2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.5	2.4	2.3	2.2	2.1	2.1	2	2	IZS	2.1	1.9	2.1	2	2.1	2.1	2.5	2.2	24		
28		3	2.4	2.6	2.4	2.7	2.2	2.1	2.1	2.2	2.3	2.4	2.3	2.3	2.2	2.2	2.2	IZS	2.3	2.2	2.3	2.3	2.2	2.2	2.2	3	2.3	24		
29		2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.5	2.4	2.4	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.3	2.2	24		
30		2.2	2.4	2.3	2.2	2.1	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	2.2	2.3	2.4	2.5	2.5	2.2	24		
HOURLY MAX		4	3	3	3	3	3	3	3	3	5	4	3	3	3	3	2	2	3	3	3	3	3	3	3					
HOURLY AVG		2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	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					

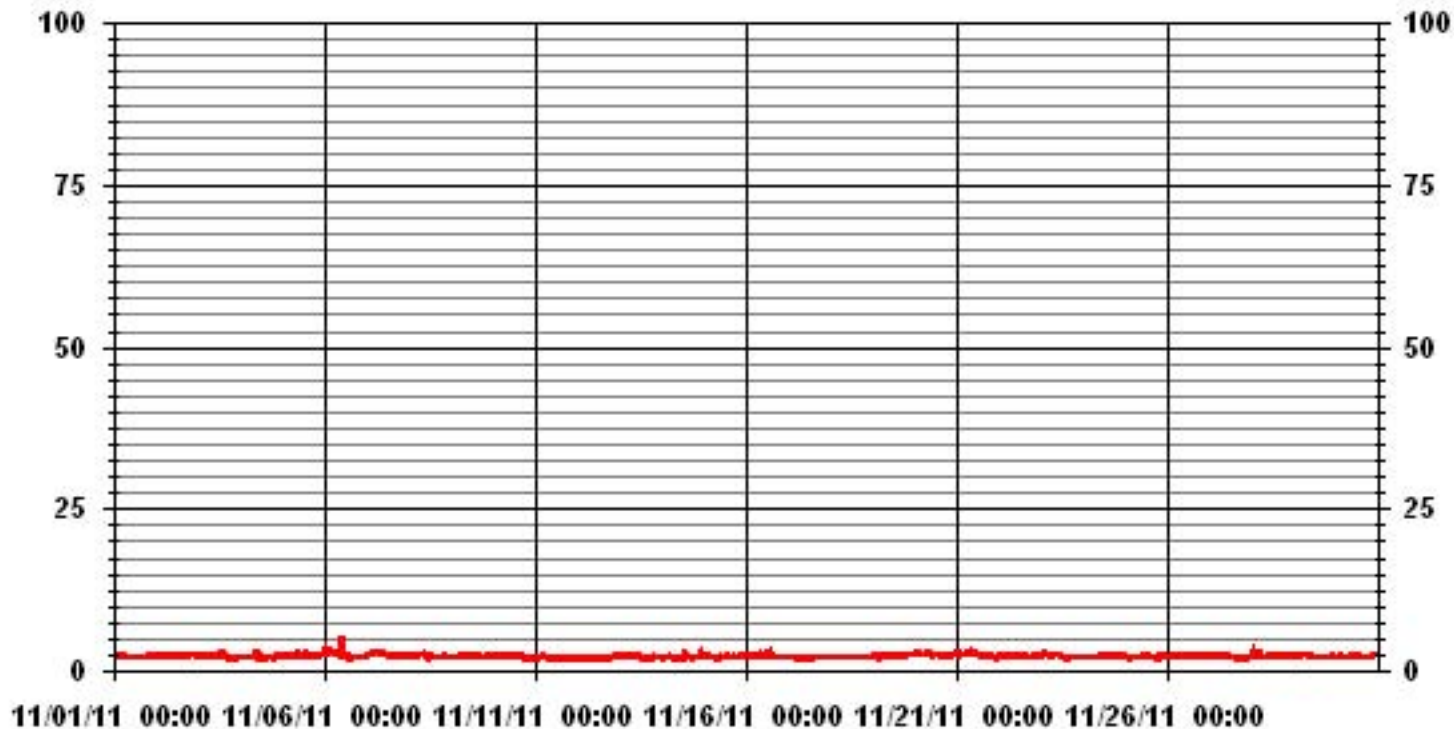
STATUS FLAG CODES

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:	683					
MAXIMUM INSTANTANEOUS VALUE:	5.2	PPM	@ HOUR(S)	9	ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718 HRS		
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.25					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

November 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	4.27	7.12	5.69	3.63	1.74	3.48	6.01	5.69	4.43	11.86	12.18	3.63	6.17	13.29	8.38	2.21	99.84
< 10.0	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.27	7.12	5.69	3.63	1.89	3.48	6.01	5.69	4.43	11.86	12.18	3.63	6.17	13.29	8.38	2.21	

Calm : .00 %

Total # Operational Hours : 632

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	27	45	36	23	11	22	38	36	28	75	77	23	39	84	53	14	631
< 10.0					1												1
< 50.0																	
>= 50.0																	
Totals	27	45	36	23	12	22	38	36	28	75	77	23	39	84	53	14	

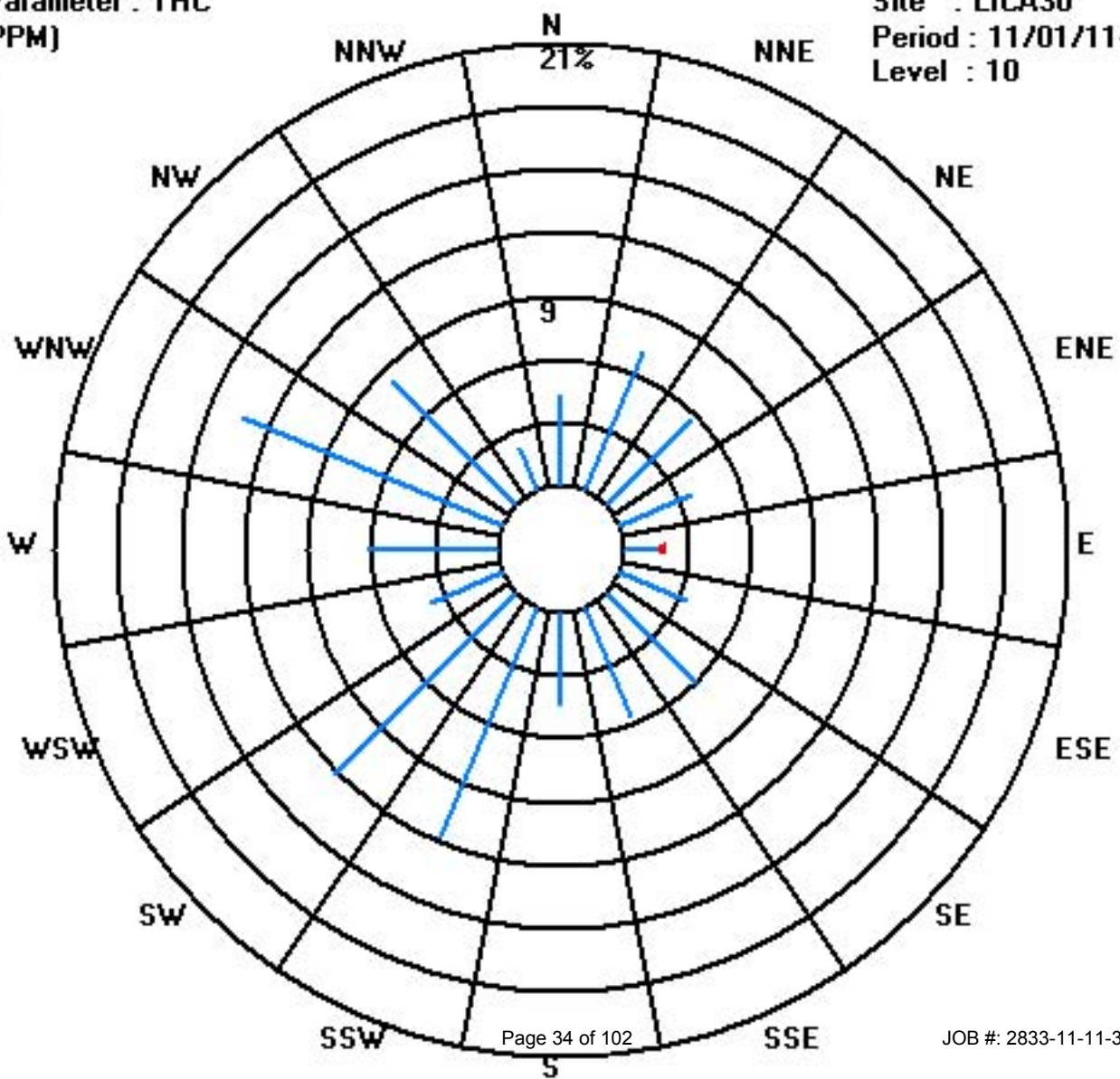
Calm : .00 %

Total # Operational Hours : 632

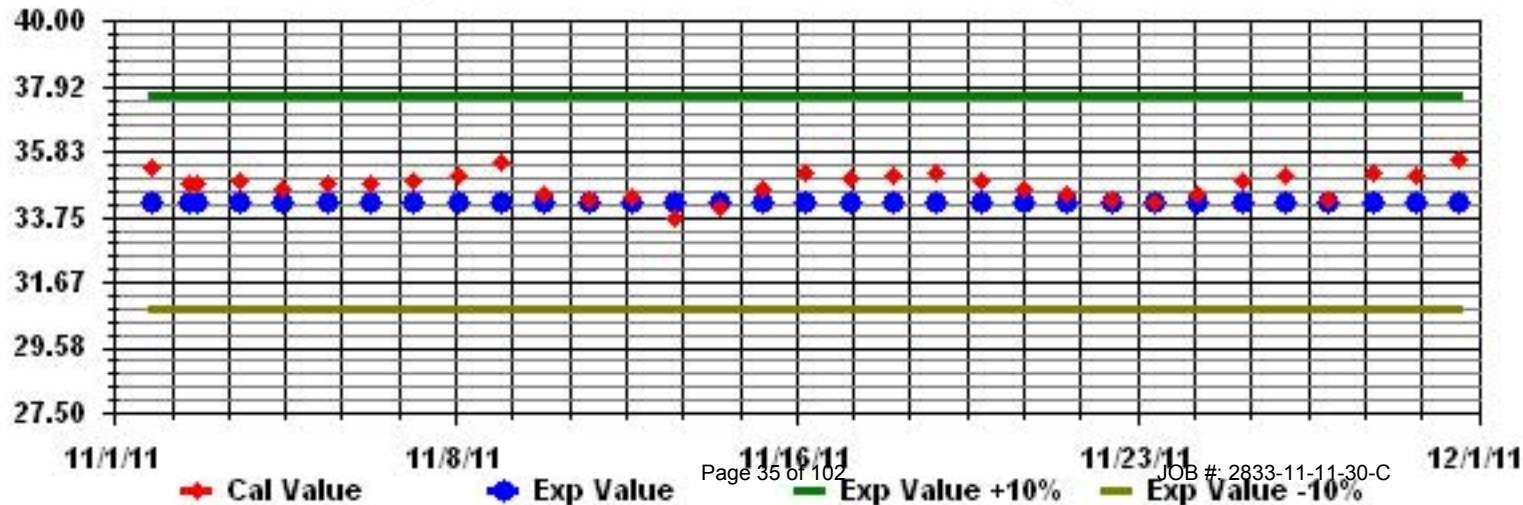
Class Limits (PPM)

Period : 11/01/11-11/30/11

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	1	1	8	13	13	10	4	3	3	3	2	2	1	1	1	1	1	1	1	4	IZS	5	6	3	13	3.8	24	
2	3	4	5	6	4	6	8	9	C	C	C	C	C	6	M	7	5	5	IZS	5	3	5	6	9	5.4	23		
3	4	2	2	6	2	2	3	7	8	5	6	4	4	9	5	6	6	5	IZS	6	11	2	4	5	11	5.0	24	
4	0	1	3	0	2	2	7	9	4	6	2	3	3	0	1	2	2	IZS	2	2	2	3	5	4	9	2.8	24	
5	5	4	4	5	4	4	5	6	5	5	4	3	4	4	4	IZS	3	3	3	3	3	3	3	2	6	3.9	24	
6	2	2	2	3	3	5	6	7	5	7	9	9	5	3	3	IZS	3	3	2	1	1	1	2	2	9	3.7	24	
7	4	12	9	11	11	12	11	14	11	9	8	7	5	5	IZS	M	4	5	5	4	3	3	3	3	14	7.2	23	
8	4	4	5	5	6	7	10	13	11	7	2	2	2	IZS	8	5	6	3	2	2	4	2	1	4	13	5.0	24	
9	1	1	1	1	2	5	14	17	18	12	8	11	IZS	5	4	5	4	4	5	3	5	4	2	2	18	5.8	24	
10	2	2	2	2	2	2	2	3	4	5	4	IZS	4	5	8	9	5	2	1	1	1	1	1	8	9	3.3	24	
11	3	3	2	4	5	3	2	6	11	8	IZS	3	2	4	3	3	1	3	1	1	1	0	1	0	11	3.0	24	
12	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	2	3	2	3	2	3	3	3	3	1.2	24	
13	2	1	2	2	2	3	4	5	IZS	5	4	4	2	1	1	1	1	1	1	5	5	6	6	7	7	3.1	24	
14	2	1	4	3	8	9	9	IZS	5	1	6	8	9	8	9	11	12	5	9	9	8	8	4	9	12	6.8	24	
15	5	6	12	12	5	13	IZS	11	10	3	1	5	4	6	6	10	13	15	5	6	9	4	1	2	15	7.1	24	
16	2	2	3	5	4	IZS	14	8	4	4	3	2	2	3	6	4	3	3	1	0	0	0	0	0	14	3.3	24	
17	0	0	0	0	IZS	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
18	0	0	0	IZS	0	0	0	3	3	2	1	1	1	1	1	1	1	2	1	1	1	1	2	2	3	1.1	24	
19	3	5	IZS	2	1	1	2	2	1	1	2	2	1	1	2	2	2	3	3	3	3	3	3	3	5	2.2	24	
20	3	IZS	3	3	3	3	4	7	6	4	7	5	5	5	6	5	6	8	7	7	7	8	8	10	10	5.7	24	
21	IZS	7	6	7	8	8	6	8	8	6	6	6	4	5	5	4	3	3	3	7	4	3	3	IZS	8	5.5	24	
22	4	3	2	4	4	5	6	5	4	5	4	4	6	10	13	12	9	7	7	4	7	8	IZS	8	13	6.1	24	
23	12	11	8	8	6	6	7	7	9	6	5	3	2	2	2	1	1	1	1	1	1	1	IZS	0	1	12	4.4	24
24	0	0	0	1	2	3	7	4	5	4	5	4	2	2	4	4	5	5	4	4	IZS	2	2	7	7	3.3	24	
25	2	1	1	1	1	2	2	2	3	3	4	4	4	4	4	3	2	1	1	IZS	7	5	4	1	7	2.7	24	
26	0	0	2	5	2	3	4	4	5	3	3	2	3	1	2	3	3	5	IZS	3	2	2	2	2	5	2.7	24	
27	2	3	3	2	2	2	2	3	5	8	3	3	2	2	4	5	6	IZS	0	0	4	7	14	7	14	3.9	24	
28	14	11	13	13	9	7	5	3	6	5	5	2	2	1	1	2	IZS	6	5	4	4	3	3	3	14	5.5	24	
29	3	4	5	4	5	9	12	12	12	9	7	5	4	6	7	IZS	10	5	4	7	5	3	2	2	12	6.2	24	
30	2	2	2	2	1	1	0	1	6	4	2	4	2	4	IZS	3	3	4	6	3	3	4	5	6	6	3.0	24	
HOURLY MAX	NA	12	13	13	13	13	14	17	18	12	9	11	9	10	13	12	13	15	9	9	11	8	14	10				
HOURLY AVG	NA	3.2	3.8	4.5	4.0	4.6	5.4	6.2	6.1	5.0	4.0	3.9	3.1	3.5	4.1	4.2	4.4	4.0	3.2	3.4	3.9	3.3	3.3	3.9				

STATUS FLAG CODES

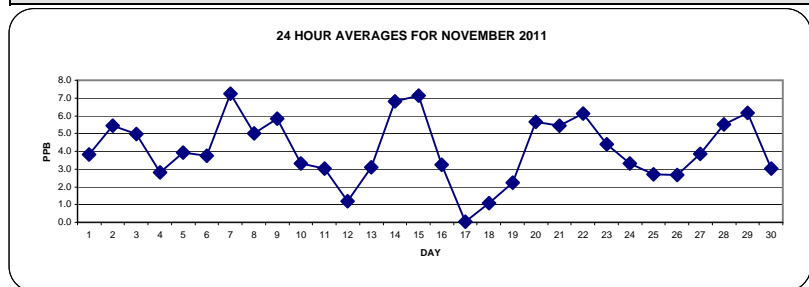
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

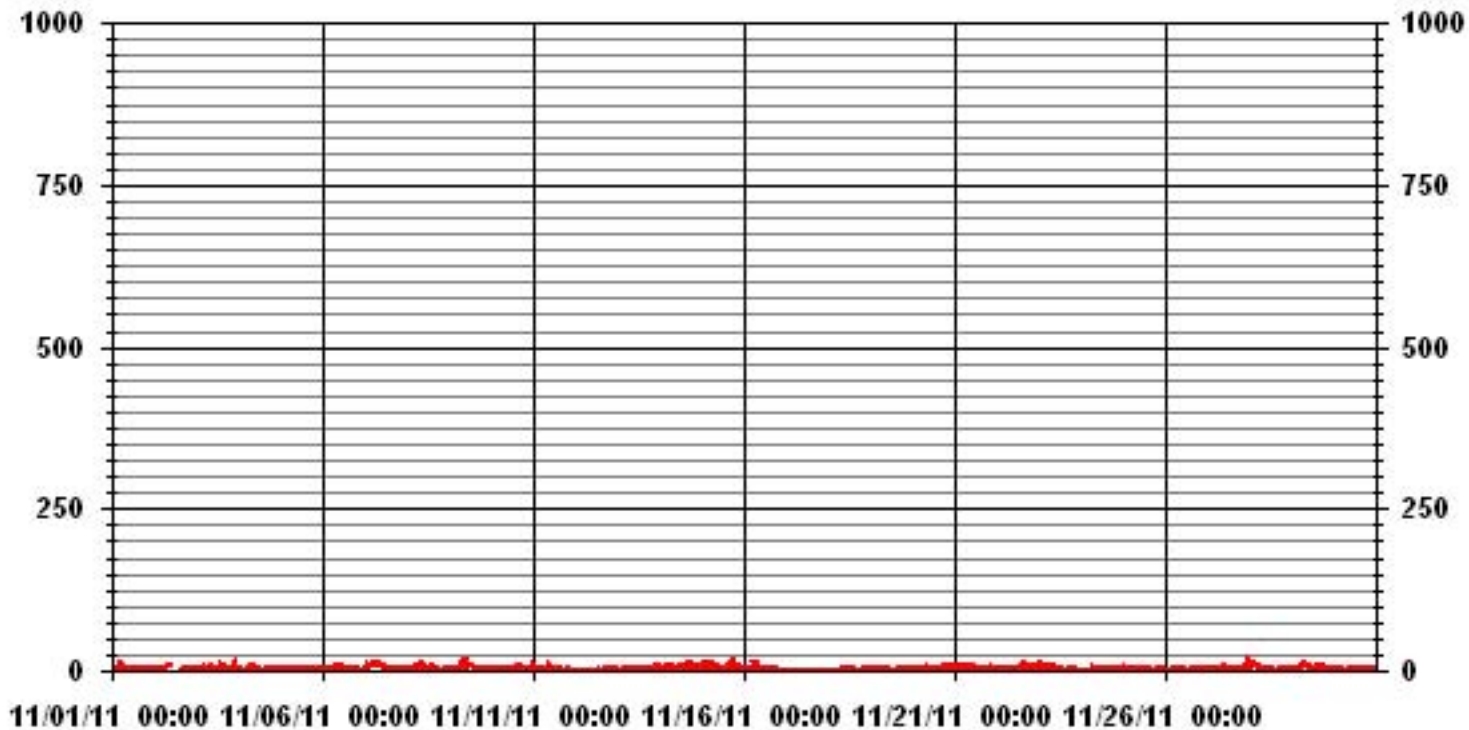
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	624					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	8	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	7.2	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	3.17		MONTHLY AVERAGE:	4.07	PPB	



01 Hour Averages



— LICA30 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	0:00	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	2	3	15	17	20	15	11	5	6	6	4	10	9	3	6	2	1	1	5	7	IZS	8	8	4	20	7.3	24	
2	4	5	7	7	5	10	19	22	C	C	C	C	C	C	M	9	5	6	IZS	6	5	11	10	22	8.7	23		
3	8	4	4	17	2	6	5	14	14	8	14	11	5	21	10	17	13	13	IZS	12	23	23	11	16	23	11.8	24	
4	2	2	8	2	6	6	11	17	9	9	5	5	6	1	2	2	3	IZS	4	3	3	4	8	6	17	5.4	24	
5	10	5	5	5	5	7	8	11	7	7	5	4	5	5	5	5	IZS	3	4	4	4	4	4	3	11	5.4	24	
6	4	3	3	4	5	6	9	16	10	9	11	M	8	6	7	IZS	5	4	4	2	2	2	5	3	16	5.8	23	
7	13	13	10	12	12	13	15	15	14	10	10	9	7	6	IZS	M	5	5	5	5	4	4	4	4	15	8.9	23	
8	5	5	5	5	6	8	13	19	12	10	6	5	8	IZS	19	15	12	6	4	3	5	3	2	9	19	8.0	24	
9	2	2	2	2	4	11	16	22	25	16	18	13	IZS	6	5	8	6	5	7	6	6	6	3	3	25	8.4	24	
10	3	2	2	3	2	3	3	6	6	7	5	IZS	5	9	9	13	10	3	2	1	1	2	3	14	14	5.0	24	
11	5	4	4	6	7	6	10	16	16	10	IZS	5	3	7	5	6	3	6	1	2	1	1	1	1	16	5.5	24	
12	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	3	5	5	3	4	3	4	4	5	2.2	24	
13	2	2	2	3	3	4	5	7	IZS	6	7	5	4	3	2	2	3	1	5	8	9	11	10	16	16	5.2	24	
14	4	2	6	6	18	17	14	IZS	13	9	11	13	14	14	16	16	18	14	14	14	17	14	8	16	18	12.5	24	
15	12	16	18	18	11	16	IZS	17	15	12	3	12	9	10	15	21	21	22	9	11	16	6	2	3	22	12.8	24	
16	3	3	5	6	6	IZS	25	21	6	6	5	3	4	4	4	23	12	6	5	2	1	1	1	1	25	6.7	24	
17	1	1	1	1	IZS	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
18	1	1	1	IZS	1	1	1	25	6	4	3	2	3	3	6	3	3	7	2	2	3	2	3	4	25	3.8	24	
19	5	6	IZS	3	2	2	3	4	2	2	3	2	2	2	2	5	4	4	4	3	4	4	4	4	6	3.3	24	
20	3	IZS	4	4	4	4	5	10	8	7	15	6	6	7	7	6	7	14	10	7	8	9	11	12	15	7.6	24	
21	IZS	10	9	8	9	10	7	10	12	10	10	9	6	7	8	5	5	5	9	11	9	7	6	IZS	12	8.3	24	
22	5	4	3	5	5	7	10	10	5	5	5	6	12	16	18	19	19	8	10	5	11	10	IZS	15	19	9.3	24	
23	14	13	11	9	7	7	21	11	13	8	7	4	3	3	2	2	2	2	2	2	1	IZS	1	1	21	6.3	24	
24	1	1	1	3	3	8	14	9	9	8	8	7	3	3	5	6	7	6	6	7	IZS	4	3	11	14	5.8	24	
25	5	2	2	2	2	3	3	4	4	5	19	5	6	6	4	3	2	2	IZS	12	10	11	12	19	5.5	24		
26	0	0	6	8	3	9	6	7	9	4	3	3	3	3	3	5	5	IZS	4	3	3	3	3	9	4.2	24		
27	3	4	4	3	3	3	5	4	13	47	17	4	3	4	9	14	14	IZS	0	0	15	15	21	17	47	9.7	24	
28	22	19	21	26	22	14	14	6	10	8	7	5	4	2	2	5	IZS	7	6	5	5	4	3	3	26	9.6	24	
29	3	5	7	5	7	12	15	13	16	11	9	7	6	15	11	IZS	33	9	5	15	8	5	3	4	33	9.7	24	
30	4	3	3	3	2	1	1	2	16	9	2	6	4	8	IZS	5	5	6	11	5	4	5	6	7	16	5.1	24	
HOURLY MAX	22	19	21	26	22	17	25	25	25	47	18	19	14	21	19	23	33	22	14	15	23	23	21	17				
HOURLY AVG	5.1	4.9	5.9	6.7	6.3	7.2	9.3	11.2	9.9	9.0	7.1	6.6	5.3	6.3	6.9	8.1	8.4	6.3	5.2	5.4	6.6	6.1	5.6	7.1				

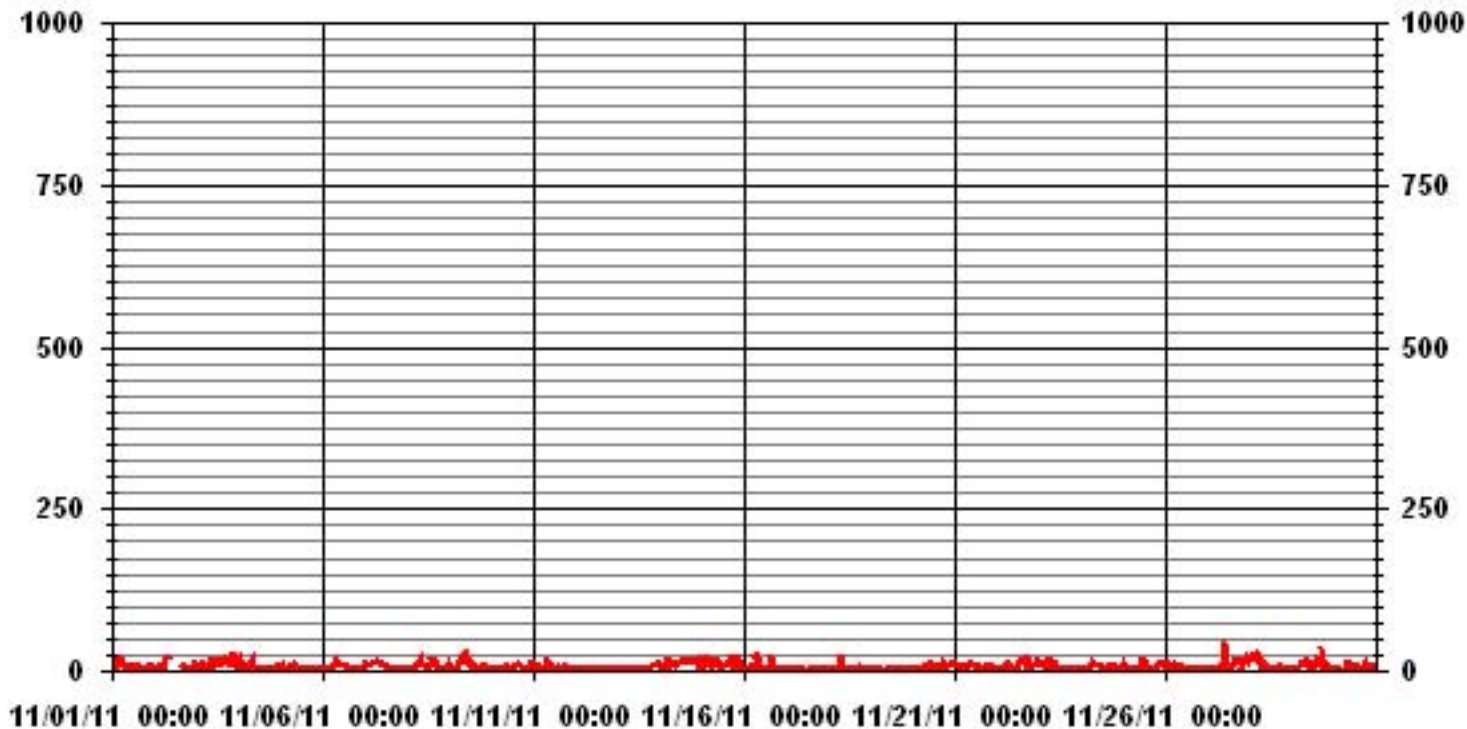
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	675					
MAXIMUM INSTANTANEOUS VALUE:	47	PPB	@ HOUR(S)	9	ON DAY(S)	27
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	5.53					

01 Hour Averages



— LICA30 IIO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

November 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	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	

Calm : .00 %

Total # Operational Hours : 629

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	629
< 110																	
< 210																	
>= 210																	
Totals	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	

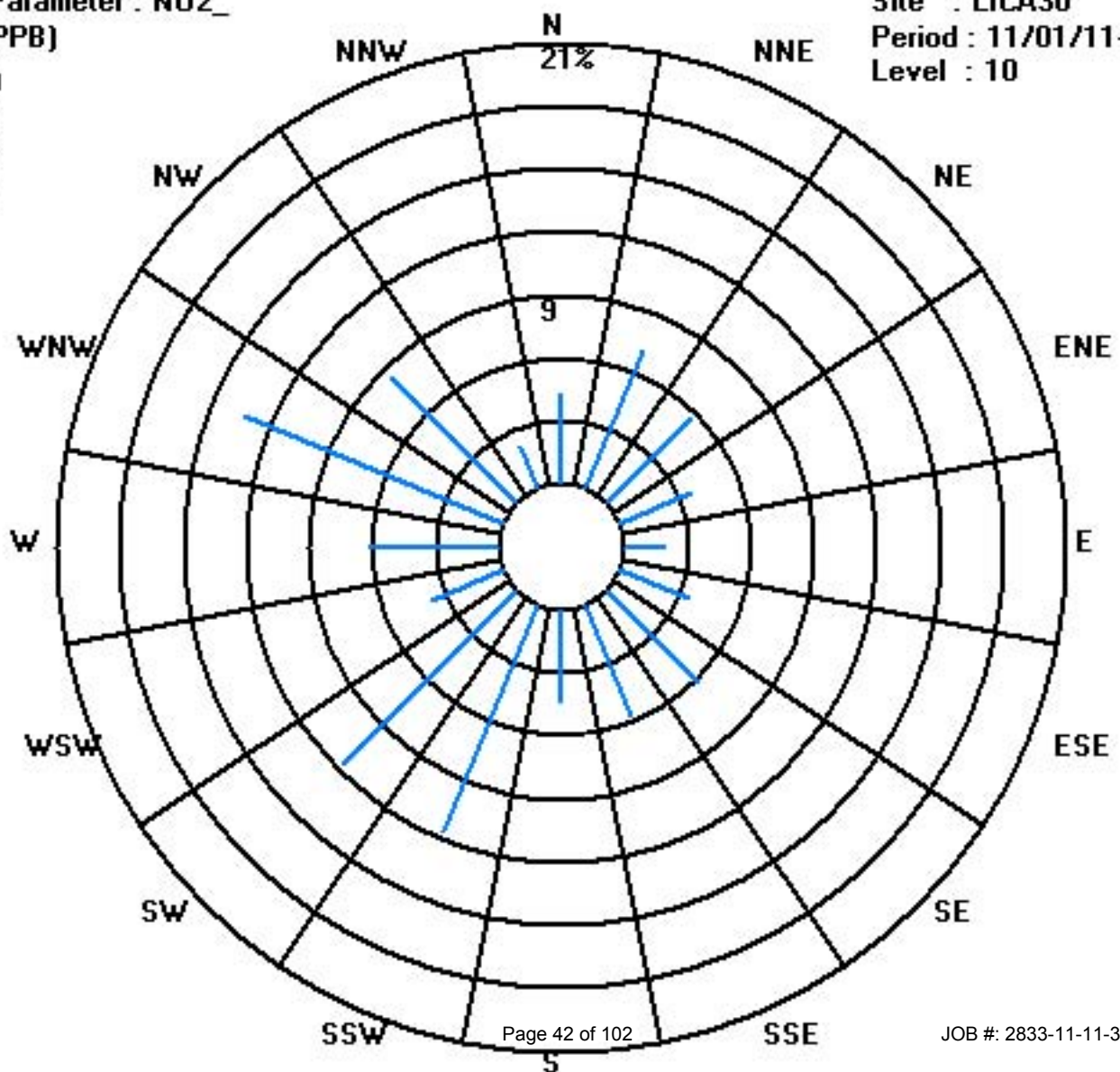
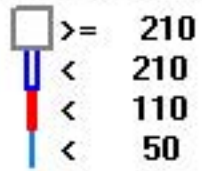
Calm : .00 %

Total # Operational Hours : 629

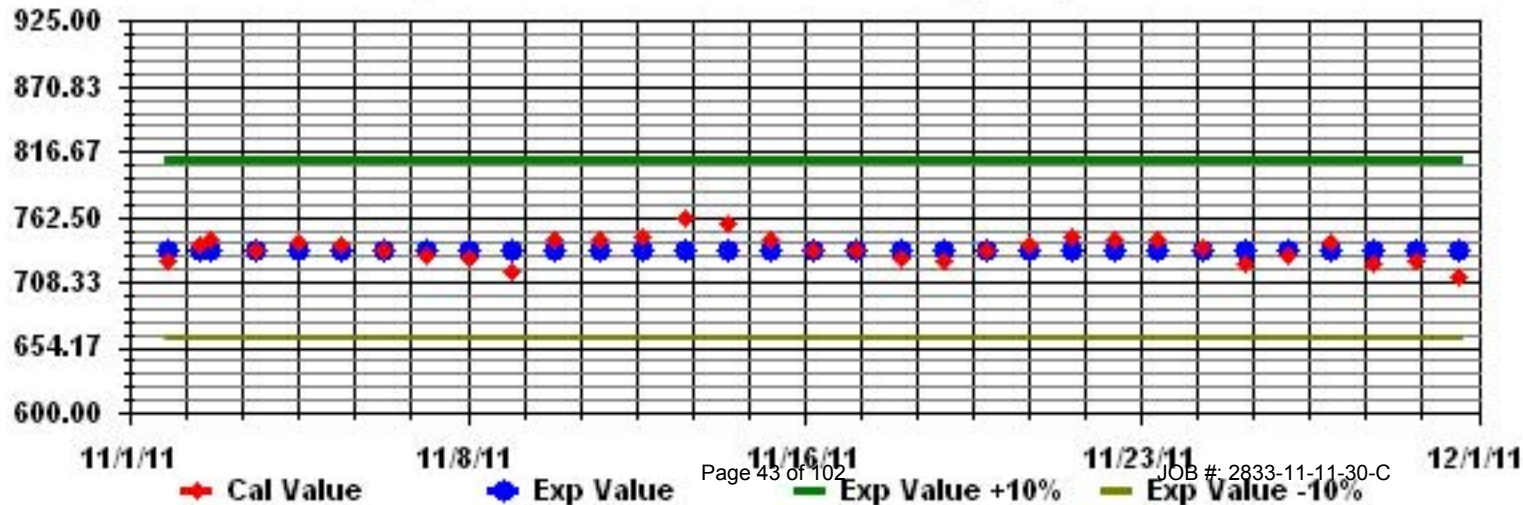
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

NOVEMBER 2011

NITRIC OXIDE 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	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	MAX.	AVG.	RDGS.	
1	1	0.4	1	1	2	5	4	2	1	1	2	1	2	1	1	1	1	1	1	0	1	IZS	0	0	0	5	1.3	24	
2	0	0.2	0	0	0	0	0	0	1	3	C	C	C	C	C	2	M	0	0	0	IZS	0	0	0	0	3	0.4	23	
3	0	0.7	0	0	0	1	0	0	0	2	2	2	5	3	2	7	2	1	0	IZS	1	4	1	3	4	7	1.8	24	
4	0	0.8	0	0	1	0	0	1	2	4	1	3	1	2	2	0	1	0	0	IZS	0	0	0	0	0	1	4	0.8	24
5	1	1.0	0	0	0	0	0	0	2	4	3	3	2	2	2	1	1	IZS	1	1	0	0	1	0	0	4	1.0	24	
6	0	2.7	0	0	1	0	0	1	3	5	6	12	17	10	4	2	1	IZS	0	0	0	0	0	0	0	17	2.7	24	
7	0	1.1	0	0	0	0	0	2	2	4	4	3	3	3	2	IZS	M	1	1	0	0	0	0	0	0	4	1.1	23	
8	0	0.9	0	0	0	0	0	0	1	4	3	3	1	1	1	IZS	3	2	1	0	0	0	0	0	0	1	4	0.9	24
9	0	1.4	0	0	0	0	0	0	1	3	8	6	4	6	IZS	2	1	1	0	0	0	0	0	0	0	0	8	1.4	24
10	0	0.4	0	0	0	0	0	0	0	0	0	1	1	IZS	1	1	2	3	0	0	0	0	0	0	0	1	3	0.4	24
11	0	0.2	0	0	0	0	0	0	0	0	2	IZS	1	0	1	0	1	0	0	0	0	0	0	0	0	2	0.2	24	
12	0	0.0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0	24	
13	0	0.4	0	0	0	0	0	0	1	IZS	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	1	2	0.4	24
14	0	3.3	0	0	0	0	3	4	3	IZS	1	0	2	6	6	5	6	6	7	2	6	5	4	4	1	5	7	3.3	24
15	2	3.3	2	2	9	8	1	8	IZS	6	7	1	0	4	3	5	4	5	5	6	0	0	0	0	0	0	9	3.3	24
16	0	0.5	0	0	0	0	0	IZS	10	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	10	0.5	24
17	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	0.0	24
18	0	0.3	0	0	0	IZS	0	0	0	3	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0.3	24
19	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	0.0	24
20	0	0.7	0	IZS	0	0	0	0	0	0	1	0	0	5	3	3	3	2	0	0	0	0	0	0	0	0	5	0.7	24
21	IZS	0.8	0	0	0	0	0	0	0	0	1	3	4	5	2	2	1	0	0	0	0	0	0	0	0	0	5	0.8	24
22	0	0.6	0	0	0	0	0	0	1	0	0	0	0	0	1	2	3	4	2	0	0	0	0	0	0	0	4	0.6	24
23	0	0.3	0	0	0	0	0	0	3	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
24	0	0.5	0	0	0	0	0	0	2	0	0	1	2	2	2	1	1	0	0	0	0	0	IZS	0	0	0	2	0.5	24
25	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	2	0	0	0	2	0.1	24
26	0	0.4	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	1	0.4	24
27	0	1.6	0	0	0	0	0	0	0	0	1	14	1	1	0	1	1	1	0	IZS	1	0	1	3	8	4	14	1.6	24
28	7	2.0	7	4	8	8	4	1	1	1	1	1	2	3	2	2	1	1	1	IZS	0	0	0	0	0	0	8	2.0	24
29	0	0.5	0	0	0	0	0	0	0	0	1	1	2	1	0	2	1	IZS	3	0	0	1	0	0	0	0	3	0.5	24
30	0	0.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.0	24
HOURLY MAX	7		7	4	9	8	4	8	10	6	8	14	17	10	6	7	6	6	7	6	6	5	4	4	8	5			
HOURLY AVG	0.4	0.2	0.7	0.8	0.4	0.6	1.1	1.3	1.6	2.3	2.1	2.1	2.1	1.4	1.5	1.3	1.1	0.7	0.4	0.3	0.3	0.4	0.3	0.4	0.6				

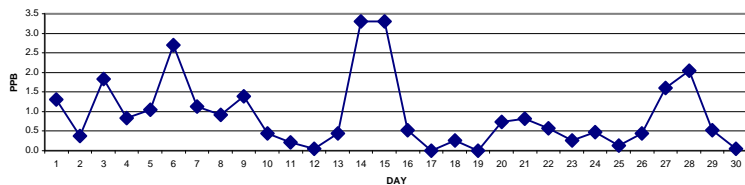
STATUS FLAG CODES

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

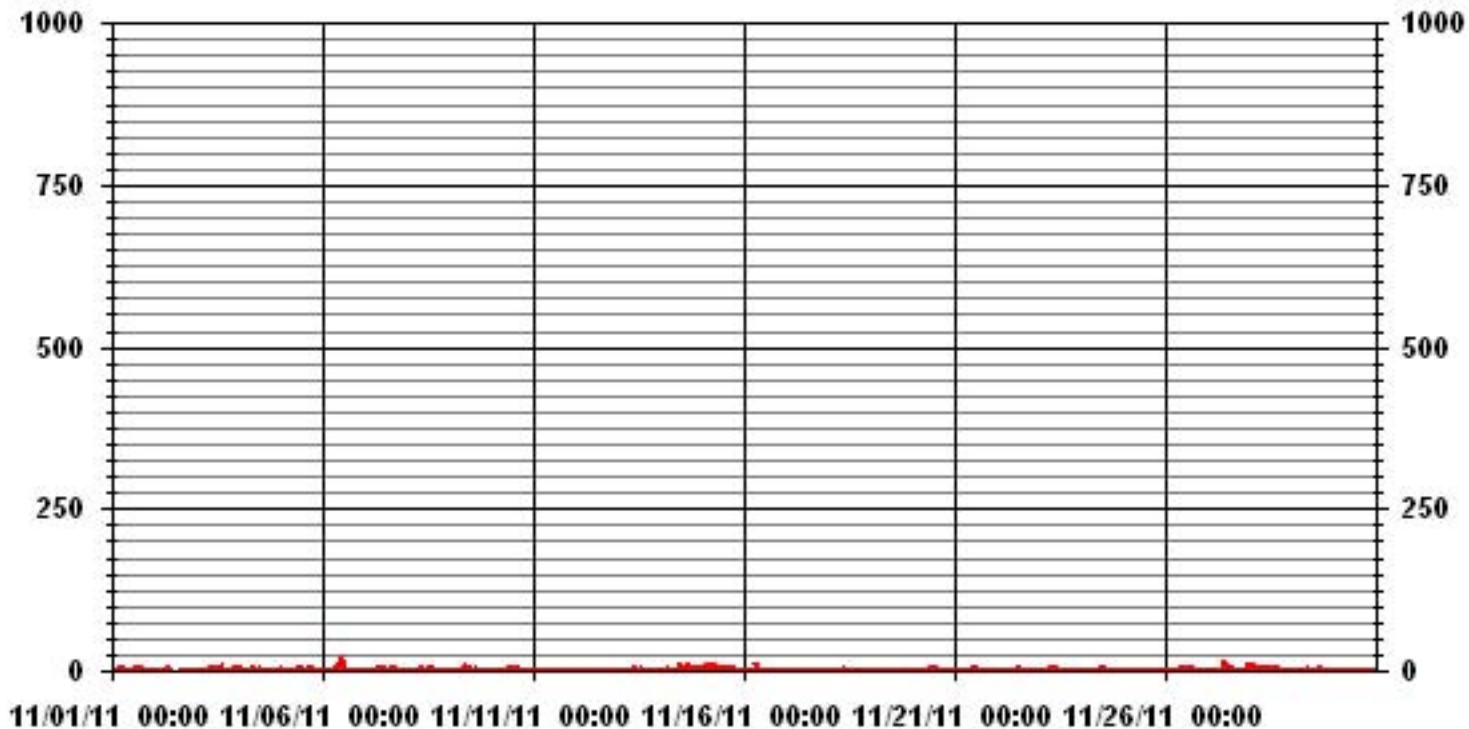
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	242					
MAXIMUM 1-HR AVERAGE:	17	PPB	@ HOUR(S)	10	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	3.3	PPB			ON DAY(S)	14, 15
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	1.88		MONTHLY AVERAGE:	0.93	PPB	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	2	2	3	9	11	4	2	2	3	3	3	5	5	3	12	1	1	1	1	1	IZS	1	1	1	12	3.3	24	
2	1	0	1	1	1	3	31	30	C	C	C	C	C	C	M	1	1	1	IZS	1	1	1	1	31	5.0	23		
3	1	1	1	7	1	4	1	6	4	3	29	9	4	37	6	5	3	2	IZS	3	14	13	11	17	37	7.9	24	
4	1	1	5	1	2	2	7	10	4	5	3	4	4	1	2	1	1	IZS	1	1	1	1	2	10	2.7	24		
5	7	1	1	1	1	2	1	7	10	4	4	4	3	3	3	2	IZS	1	1	1	1	1	1	1	10	2.7	24	
6	1	1	1	1	1	6	14	55	31	17	24	M	7	4	3	IZS	1	1	1	1	1	1	1	55	7.9	23		
7	1	1	1	1	1	1	39	4	10	6	4	4	4	3	IZS	M	1	1	1	1	1	1	1	39	4.0	23		
8	1	1	1	1	1	1	2	37	5	4	3	2	3	IZS	11	6	4	1	1	1	1	1	1	37	3.9	24		
9	1	1	1	1	1	2	4	9	23	7	23	7	IZS	3	2	2	1	1	1	1	1	1	1	23	4.1	24		
10	1	1	1	1	1	1	1	1	1	2	2	IZS	2	2	4	11	1	0	0	0	0	0	0	6	11	1.7	24	
11	0	0	0	0	0	0	0	0	1	7	IZS	2	1	3	1	2	1	2	1	1	1	1	1	7	1.1	24		
12	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
13	1	1	1	1	1	1	2	2	IZS	4	6	3	2	2	1	1	2	1	1	2	2	1	1	8	8	2.0	24	
14	1	1	1	1	13	10	6	IZS	5	3	6	11	13	12	14	12	16	10	12	13	14	10	4	14	16	8.8	24	
15	7	12	20	13	4	12	IZS	13	12	10	1	14	10	10	13	20	12	12	2	0	0	0	0	20	8.6	24		
16	0	0	0	0	0	IZS	29	8	3	1	1	2	3	3	1	6	1	0	0	0	0	0	0	29	2.5	24		
17	0	0	0	0	IZS	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	2	0.1	24		
18	0	0	0	IZS	0	0	0	27	4	2	2	1	2	2	10	2	1	7	0	0	0	0	0	27	2.6	24		
19	0	0	IZS	0	0	0	0	3	0	1	2	1	1	1	0	2	1	0	0	0	0	0	0	3	0.5	24		
20	0	IZS	0	0	0	0	0	4	1	2	38	4	4	6	4	2	1	4	2	0	0	0	0	38	3.1	24		
21	IZS	1	0	0	0	1	0	1	6	8	9	11	2	3	3	1	1	1	1	2	1	1	0	IZS	11	2.4	24	
22	1	1	0	0	0	0	4	3	1	1	1	2	5	9	8	5	10	0	0	0	1	1	IZS	1	10	2.3	24	
23	1	1	0	1	0	0	53	0	4	2	2	1	1	0	0	0	0	0	0	0	0	0	IZS	0	53	2.9	24	
24	0	0	0	0	0	3	7	3	2	3	4	5	3	3	1	2	1	0	0	0	IZS	0	0	2	7	1.7	24	
25	0	0	0	0	0	0	0	0	0	1	1	29	2	3	2	1	0	0	0	IZS	5	2	1	1	29	2.1	24	
26	1	1	1	1	1	3	3	6	2	1	2	2	2	1	2	1	1	1	IZS	0	0	0	0	0	6	1.4	24	
27	0	0	0	0	0	0	0	6	100	35	2	2	3	2	35	6	IZS	1	1	7	9	15	10	100	10.2	24		
28	13	11	16	20	14	1	3	2	3	3	4	4	3	2	2	2	IZS	1	0	0	0	0	0	0	20	4.5	24	
29	0	0	0	0	0	0	3	2	4	2	3	3	2	5	2	IZS	32	1	0	5	0	0	0	32	2.8	24		
30	0	0	0	0	0	0	0	1	24	1	0	1	1	2	IZS	1	0	1	3	1	0	0	0	24	1.6	24		
HOURLY MAX	13	12	20	20	14	12	53	55	31	100	38	29	13	37	14	35	32	12	12	13	14	13	15	17				
HOURLY AVG	1.5	1.4	1.9	2.1	1.9	2.0	7.3	8.2	6.1	7.3	7.6	5.0	3.3	4.5	4.1	4.8	3.6	1.8	1.1	1.3	1.9	1.6	1.4	2.4				

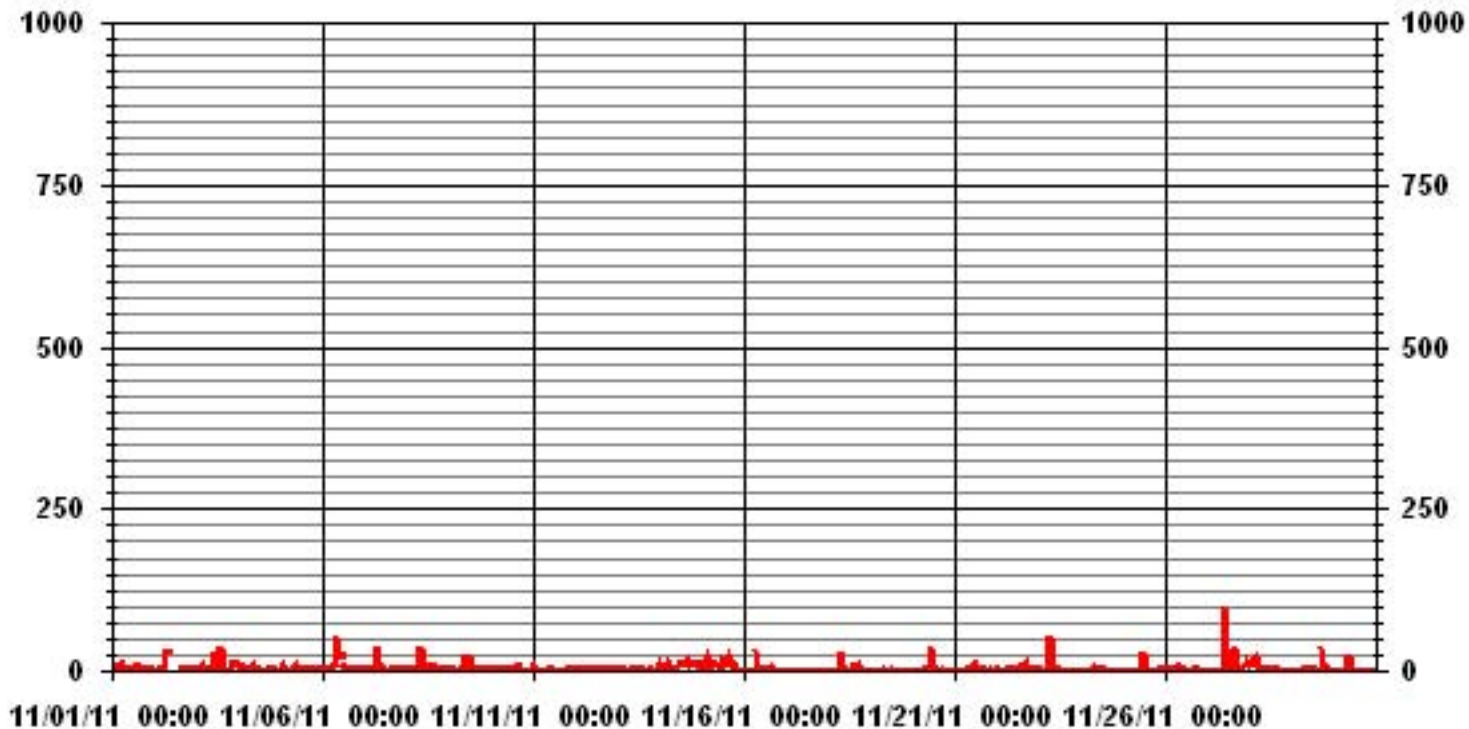
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	497
MAXIMUM INSTANTANEOUS VALUE:	100 PPB @ HOUR(S) 9 ON DAY(S) 27
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	7.41
OPERATIONAL TIME:	717 HRS

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

November 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	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	

Calm : .00 %

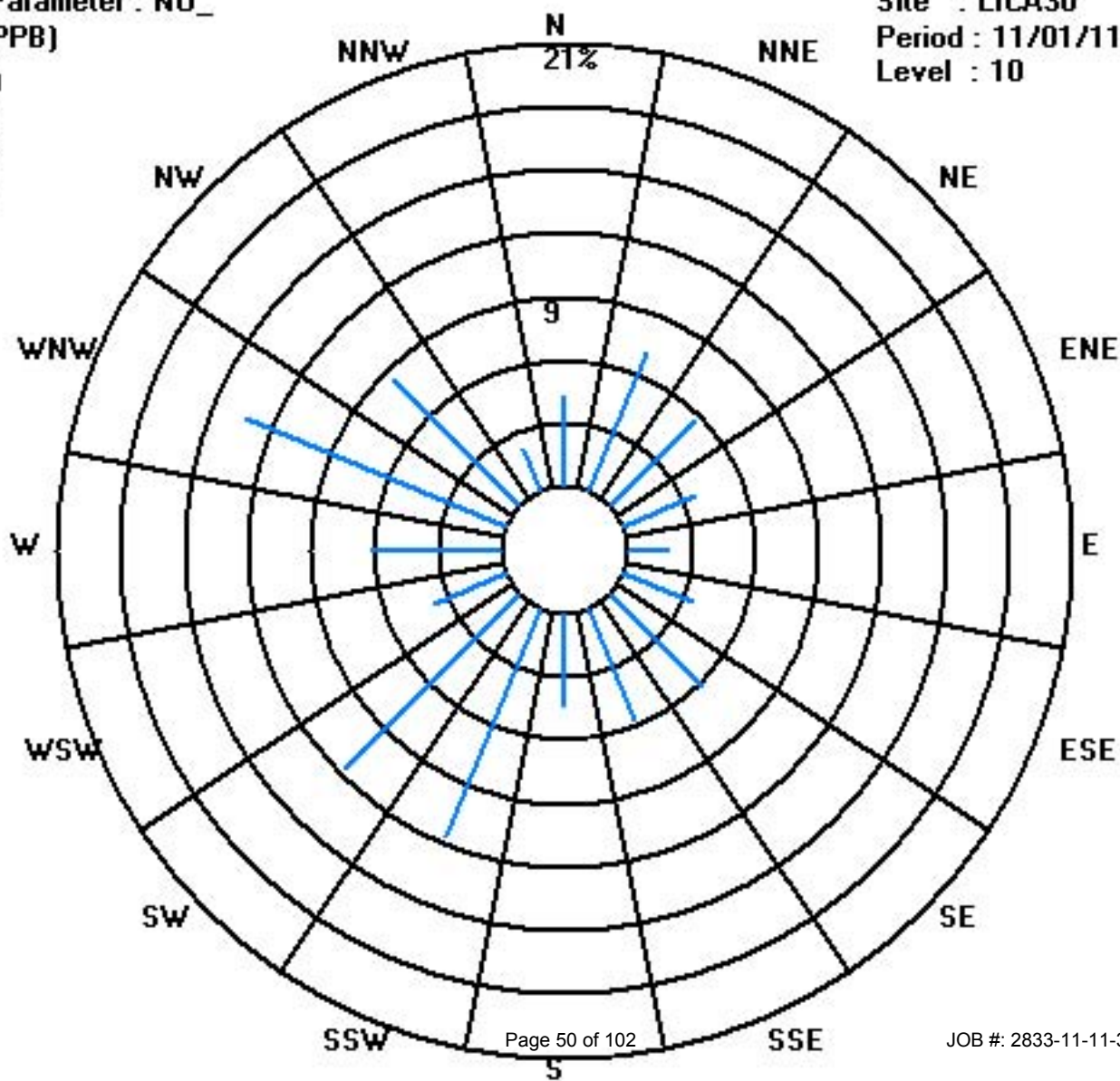
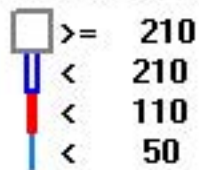
Total # Operational Hours : 629

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	629
< 110																	
< 210																	
>= 210																	
Totals	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	

Calm : .00 %

Total # Operational Hours : 629



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

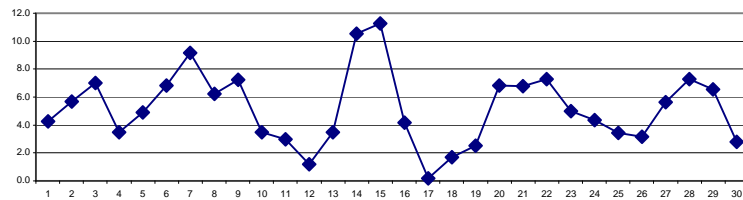
OXIDES OF NITROGEN hourly averages in ppb

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	1	1	9	16	16	11	4	3	4	3	2	2	1	1	1	1	1	1	2	4	IZS	6	6	2	16	4.3	24	
2	2	3	5	5	4	6	9	12	C	C	C	C	C	C	8	M	7	5	5	IZS	5	4	5	6	12	5.7	23	
3	5	2	3	7	2	2	3	9	11	7	11	8	6	16	7	8	7	5	IZS	7	15	3	7	10	16	7.0	24	
4	0	1	4	1	2	2	9	13	5	8	3	4	5	0	1	2	2	IZS	2	2	2	3	5	4	13	3.5	24	
5	6	5	5	5	4	5	5	8	9	8	6	5	6	6	5	4	IZS	3	3	3	3	4	3	2	9	4.9	24	
6	3	2	2	3	4	6	8	12	11	19	27	20	9	6	4	IZS	4	4	3	2	1	2	3	2	27	6.8	24	
7	4	12	10	11	12	12	14	16	16	13	12	11	9	8	IZS	M	6	6	6	5	4	5	5	5	16	9.2	23	
8	5	5	6	6	7	8	12	17	14	10	4	3	3	IZS	11	7	7	3	2	2	4	2	1	4	17	6.2	24	
9	1	1	1	1	2	5	15	21	25	18	12	17	IZS	7	5	5	4	4	5	3	5	4	3	2	25	7.2	24	
10	2	2	2	2	2	2	2	3	5	6	4	IZS	5	6	10	12	5	1	0	0	0	0	0	9	12	3.5	24	
11	2	2	1	3	5	2	1	5	11	10	IZS	4	2	5	3	4	2	3	1	1	1	0	0	11	3.0	24		
12	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	2	3	3	2	3	3	3	3	3	3	1.2	24	
13	2	1	2	2	2	3	4	5	IZS	7	6	5	3	2	1	1	1	1	1	6	5	6	6	8	8	3.5	24	
14	2	1	4	3	12	12	12	IZS	6	2	9	15	15	14	16	17	20	7	17	14	12	12	6	14	20	10.5	24	
15	8	10	22	21	7	22	IZS	19	18	5	1	10	8	12	12	16	19	21	5	6	10	4	1	2	22	11.3	24	
16	2	2	3	5	5	IZS	24	9	5	5	4	3	3	3	4	8	4	3	3	1	0	0	0	0	24	4.2	24	
17	0	0	0	0	IZS	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0.2	24	
18	0	0	0	IZS	0	0	0	7	4	4	2	1	2	1	2	2	2	4	1	1	1	1	2	2	7	1.7	24	
19	3	5	IZS	2	1	1	2	2	2	3	2	2	2	2	2	3	2	3	3	3	3	3	3	4	5	2.5	24	
20	3	IZS	4	4	4	3	4	8	6	5	12	8	9	9	8	6	6	9	7	7	7	7	8	9	11	12	6.8	24
21	IZS	8	7	7	9	8	6	9	10	10	11	11	7	7	7	4	4	3	4	7	4	3	3	IZS	11	6.8	24	
22	5	4	3	4	4	5	7	6	5	6	5	5	9	14	17	15	10	7	8	4	8	9	IZS	8	17	7.3	24	
23	12	11	8	8	6	6	10	7	11	8	8	4	3	3	2	1	1	1	1	1	1	IZS	1	1	12	5.0	24	
24	0	0	0	1	2	3	10	5	6	6	8	7	5	4	5	5	6	6	4	4	IZS	3	2	8	10	4.3	24	
25	2	1	1	1	1	2	2	3	3	4	5	6	5	6	5	4	3	1	1	IZS	10	6	5	2	10	3.4	24	
26	0	0	2	5	2	4	5	5	7	4	4	4	4	2	3	3	3	5	IZS	3	2	2	2	2	7	3.2	24	
27	2	3	3	2	3	2	3	3	6	22	5	4	3	3	5	7	6	IZS	0	0	5	10	22	11	22	5.7	24	
28	20	15	21	20	13	7	5	3	7	6	7	4	3	2	1	3	IZS	7	5	5	4	3	3	3	21	7.3	24	
29	3	4	5	4	5	9	12	13	13	10	9	6	5	9	9	IZS	12	4	4	7	4	2	1	1	13	6.6	24	
30	2	1	1	1	0	0	0	0	7	4	1	3	1	4	IZS	4	3	4	7	3	4	5	6	7	2.8	24		
HOURLY MAX	20	15	22	21	16	22	24	21	25	22	27	20	15	16	17	17	20	21	17	14	15	12	22	14				
HOURLY AVG	3.3	3.5	4.6	5.2	4.7	5.1	6.5	7.7	8.1	7.6	6.5	6.2	4.8	5.5	5.6	5.5	5.4	4.4	3.6	3.7	4.3	3.9	3.9	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

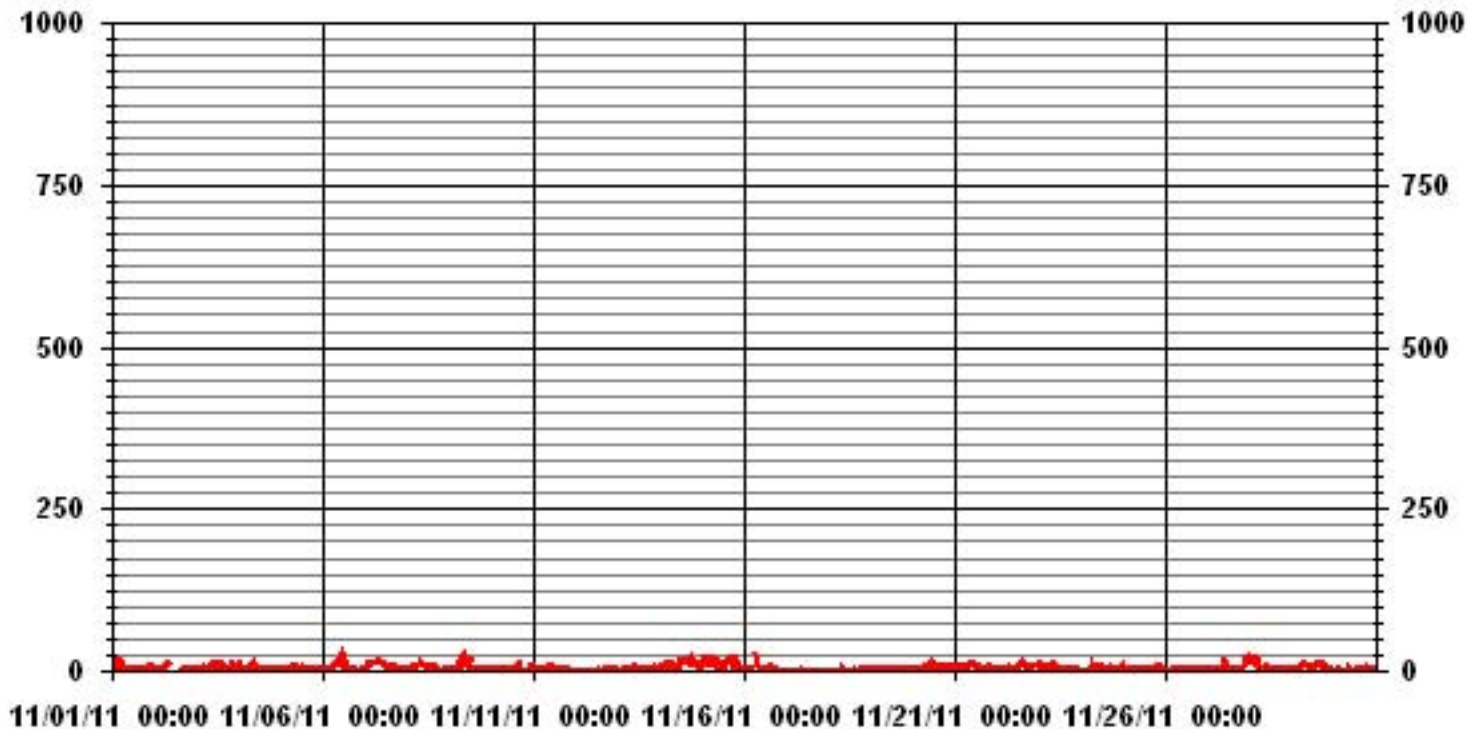
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	620					
MAXIMUM 1-HR AVERAGE:	27	PPB	@ HOUR(S)	10	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	11.3	PPB			ON DAY(S)	15
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	99.7	%	
STANDARD DEVIATION	4.65		MONTHLY AVERAGE	5.16	PPB	

01 Hour Averages



— LICA30 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	2	2	15	24	30	16	11	5	7	7	5	14	10	4	16	3	2	2	6	8	IZS	8	8	3	30	9.0	24	
2	4	4	6	7	4	11	47	49	C	C	C	C	C	C	C	M	10	6	6	IZS	7	6	12	10	49	12.6	23	
3	9	4	4	23	2	9	5	18	18	11	42	18	9	57	15	22	16	14	IZS	14	36	35	22	32	57	18.9	24	
4	2	3	13	3	7	8	18	26	13	13	7	8	9	2	3	3	3	IZS	4	3	3	4	8	7	26	7.4	24	
5	16	6	6	7	5	8	8	17	16	11	8	7	8	8	8	6	IZS	4	4	4	4	5	4	3	17	7.5	24	
6	4	3	3	4	5	12	18	65	37	26	34	M	15	10	10	IZS	6	5	4	3	2	2	6	4	65	12.6	23	
7	14	14	11	13	13	14	51	19	23	16	14	13	11	9	IZS	M	6	7	7	6	5	5	5	5	51	12.8	23	
8	6	6	7	7	8	9	15	48	18	15	10	8	11	IZS	30	21	15	6	4	3	5	3	2	9	48	11.6	24	
9	3	2	2	2	4	13	18	30	47	23	39	19	IZS	8	7	9	6	5	7	6	6	7	3	3	47	11.7	24	
10	2	2	2	3	2	3	4	7	6	9	6	IZS	7	10	13	23	10	3	1	0	0	1	2	20	23	5.9	24	
11	4	3	3	6	6	5	1	16	16	16	IZS	7	3	9	5	7	3	7	1	2	1	1	1	1	16	5.4	24	
12	1	1	1	1	1	1	1	1	1	IZS	1	1	2	2	2	3	5	5	3	5	3	4	4	4	5	2.3	24	
13	2	2	2	3	3	3	6	9	IZS	9	13	7	5	5	2	2	5	2	5	8	9	11	10	23	23	6.3	24	
14	5	2	7	6	30	27	19	IZS	18	12	18	24	27	26	30	29	35	25	27	27	32	24	13	30	35	21.4	24	
15	20	28	38	31	16	28	IZS	31	27	22	5	26	19	20	28	41	33	34	12	11	17	6	2	3	41	21.7	24	
16	3	3	5	6	6	IZS	55	29	10	7	6	5	7	8	5	29	14	6	5	2	1	1	1	1	55	9.3	24	
17	1	1	1	1	IZS	1	1	1	1	1	1	1	5	1	1	2	1	1	1	1	1	1	0	1	1	5	1.2	24
18	1	1	1	IZS	1	1	1	52	8	6	5	3	5	5	16	6	4	14	2	2	3	2	2	4	52	6.3	24	
19	5	6	IZS	3	2	2	3	7	2	3	5	3	3	3	3	7	5	4	4	4	4	4	4	4	4	7	3.9	24
20	4	IZS	4	4	4	4	6	14	10	9	49	10	11	12	12	8	8	18	13	8	8	10	12	12	49	10.9	24	
21	IZS	11	9	9	10	10	8	10	16	17	19	21	9	11	11	6	6	6	10	13	10	8	6	IZS	21	10.7	24	
22	5	5	4	5	5	7	14	12	5	6	6	9	17	25	25	24	22	9	10	5	11	10	IZS	15	25	11.1	24	
23	15	13	11	10	7	7	65	11	16	11	9	5	4	3	2	2	2	2	2	1	1	IZS	1	1	65	8.7	24	
24	1	1	1	3	3	11	21	13	11	11	12	13	7	6	6	8	7	7	6	7	IZS	5	3	14	21	7.7	24	
25	6	2	2	2	2	3	3	3	4	5	6	47	7	10	9	5	4	2	2	IZS	18	12	12	12	47	7.7	24	
26	0	1	7	9	4	12	10	12	11	6	6	5	5	4	4	4	5	5	IZS	4	3	3	3	3	12	5.5	24	
27	4	4	4	3	3	3	5	4	19	141	49	6	5	8	11	47	20	IZS	0	0	21	23	35	26	141	19.2	24	
28	35	29	36	45	35	15	16	6	12	10	10	8	6	3	2	7	IZS	8	7	5	5	4	4	3	45	13.5	24	
29	4	6	8	5	7	13	19	15	20	12	11	10	9	20	14	IZS	63	9	5	18	7	4	2	3	63	12.3	24	
30	3	2	2	2	1	0	0	3	37	9	2	6	3	10	IZS	7	6	6	14	5	4	5	6	7	37	6.1	24	
HOURLY MAX	35	29	38	45	35	28	65	65	47	141	49	47	27	57	30	47	63	34	27	27	36	35	35	32				
HOURLY AVG	6.2	5.8	7.4	8.5	7.8	8.8	15.5	18.4	15.3	15.9	14.2	11.4	8.4	10.7	10.8	12.7	11.5	7.9	6.1	6.3	8.1	7.3	6.7	9.1				

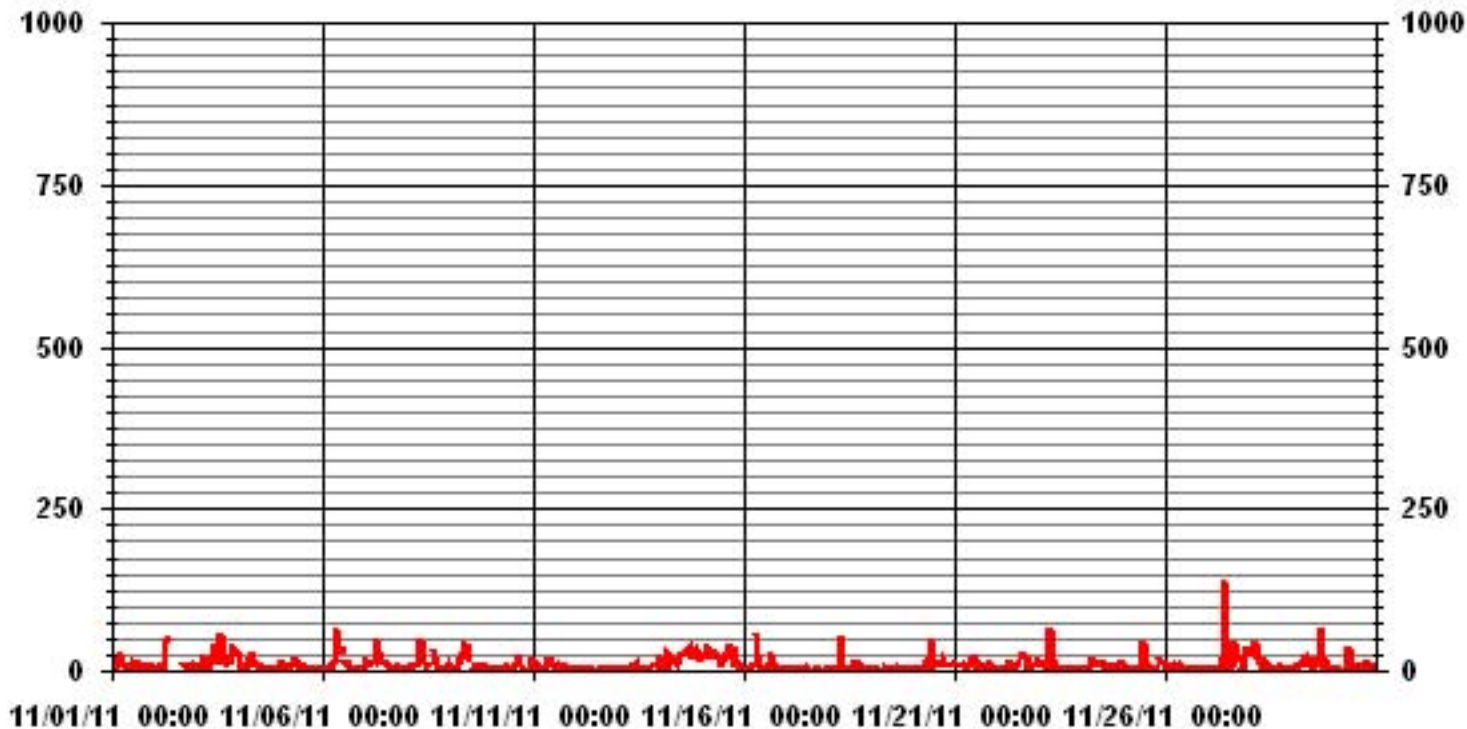
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	671				
MAXIMUM INSTANTANEOUS VALUE:	141	PPB	@ HOUR(S)	9	ON DAY(S) 27
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	11.57				

01 Hour Averages



LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

November 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	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.29	7.15	5.72	3.65	1.90	3.49	6.20	5.72	4.45	11.76	11.76	3.65	6.20	13.35	8.42	2.22	

Calm : .00 %

Total # Operational Hours : 629

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	629
< 110																	
< 210																	
>= 210																	
Totals	27	45	36	23	12	22	39	36	28	74	74	23	39	84	53	14	

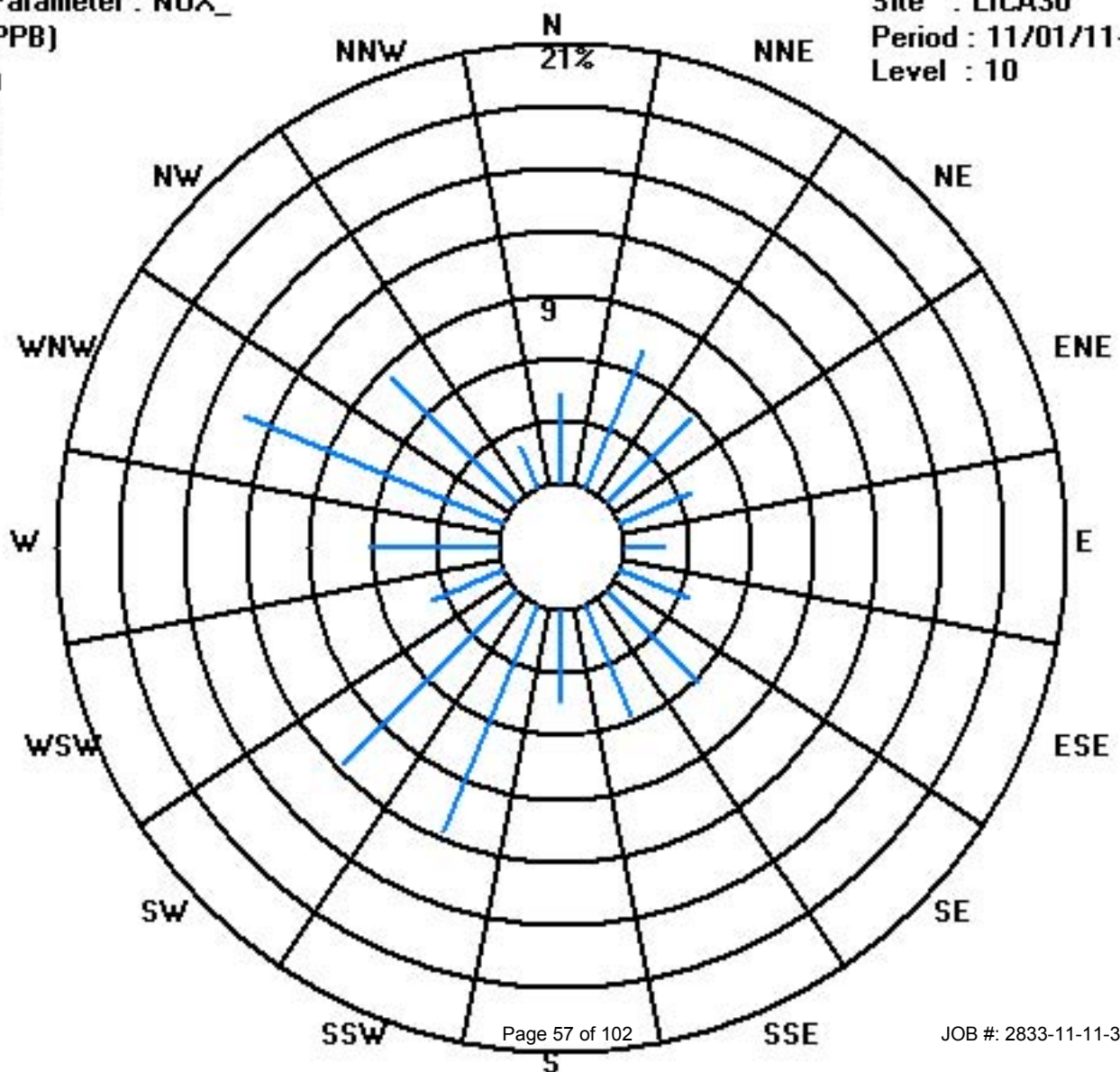
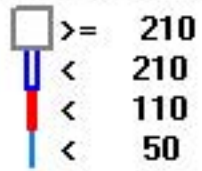
Calm : .00 %

Total # Operational Hours : 629

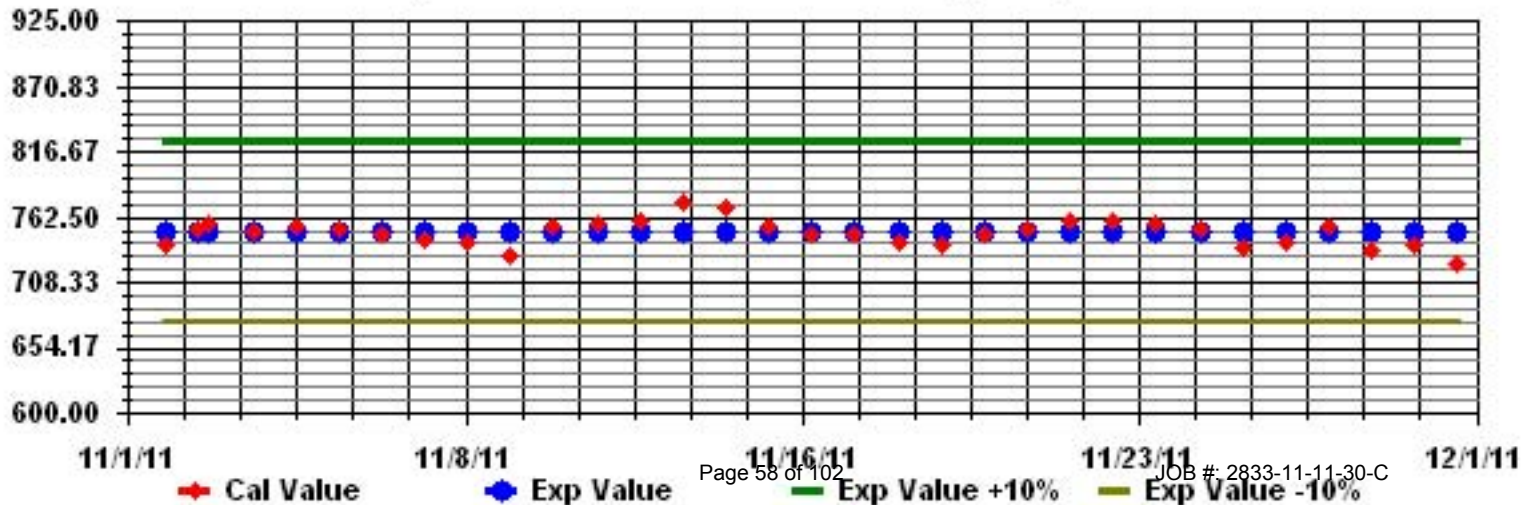
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

AMBIENT TEMPERATURE hourly averages (Degrees C)

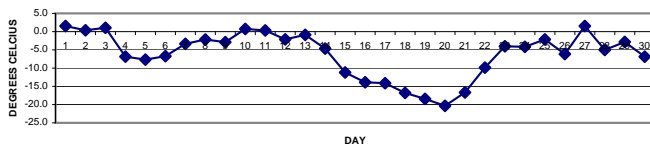
MST

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	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	1.8	1.5	1.4	0.7	0.1	-0.4	-0.2	-0.5	0.2	2.2	3.1	4.4	5.1	5.7	5.5	4.6	2.6	1.3	1	0.5	0.1	-1	-1.2	-1.4	5.7	1.5	24	
2	-1.7	-1.6	-1.9	-2.2	-2.4	-2.6	-3.1	-3	-2	-0.5	1.9	4.4	4.8	5.3	5.2	4.5	2.9	2.6	2	0.3	-0.8	-1.1	-1.2	-0.8	5.3	0.4	24	
3	-0.4	-0.7	-1.2	-1.2	-1.3	-2.2	-3	-3.9	-2.5	-0.7	1.9	4.3	5.9	6.6	5.9	4.7	3.4	2.4	2.6	3.1	2.6	1.6	-0.4	-2.3	6.6	1.1	24	
4	-3.7	-5.4	-6.5	-7.3	-8	-8.3	-8.6	-8.9	-8.4	-7.1	-5.8	-4.5	-3.7	-3.6	-3.2	-4.3	-5.9	-7.5	-8.5	-8.3	-8.5	-9.1	-9.4	-10	-3.2	-6.9	24	
5	-10.9	-10.7	-11.2	-10.7	-11.2	-12.7	-14.1	-14.4	-12	-5.9	-3.9	-2.2	-0.8	-0.3	0.6	-0.3	-2.8	-4.9	-6.7	-7.5	-9.3	-9.8	-10.8	-11.6	0.6	-7.7	24	
6	-11.9	-12.5	-13.1	-13.3	-13.1	-12.8	-12.8	-12.5	-10.6	-7.4	-3.1	-0.1	1.4	2.9	3.3	1.2	-1.3	-2.9	-4.8	-5.9	-6.7	-7.7	-8.4	-9.4	3.3	-6.7	24	
7	-8.3	-6.7	-7.1	-7.4	-8.8	-9.4	-9.4	-9.3	-8.5	-6.2	-4.1	-1.7	1.5	3.3	3.7	2.8	1	0.6	0.3	-0.3	-0.6	-1.4	-2	-2.2	3.7	-3.3	24	
8	-2.9	-3.4	-3.9	-3.5	-4.1	-4.2	-4.8	-5	-4.4	-2.7	1.6	1.8	1.5	0.8	1	1	-0.7	-1.9	-2.3	-2.4	-2.9	-3.2	-3.7	-3.6	1.8	-2.2	24	
9	-4.2	-4.8	-5.8	-7.2	-7.8	-8	-7.6	-8.2	-6.8	-3	0	2.4	2.1	0.8	0.7	-0.6	-1.4	-1.7	-1.7	-1.5	-1.2	-1.3	-1.1	-1.2	2.4	-2.9	24	
10	-1.1	-1.2	-1	-0.8	-0.6	-1.1	-1.5	-1.8	-1.6	-1.1	-0.3	0.8	2	3.2	1.8	2.1	2.7	2.7	2.3	2.7	2.5	2.4	2.6	2	3.2	0.7	24	
11	0.5	-0.5	-0.8	-0.4	-0.6	-0.3	0	-0.2	-0.2	0.4	0.8	0.9	1.4	1.5	1.5	1.4	1.2	1.1	0.9	0.5	0.2	0	-0.5	-0.8	1.5	0.3	24	
12	-1.1	-1.4	-1.7	-2.1	-2.7	-2.8	-2.9	-3	-3	-2.9	-2.7	-2.1	-1.4	-1.3	-1.4	-1.7	-1.9	-2	-2.1	-2.2	-2.2	-2.2	-2.1	-1.9	-1.1	-2.1	24	
13	-1.8	-1.6	-1.5	-1.4	-1.3	-1.3	-1.5	-2.2	-2.5	-1.6	-0.7	0.2	0.9	1.5	1.5	0.9	0.3	-0.2	-0.4	-0.7	-1.5	-2	-2.1	-2.3	1.5	-0.9	24	
14	-2.5	-2.6	-2.7	-2.8	-3.2	-3.7	-3.9	-4.2	-4.5	-4.6	-4.7	-4.1	-3.8	-4	-4.2	-4.7	-5.1	-5.5	-5.7	-6	-6.4	-7	-7.8	-8.2	-2.5	-4.7	24	
15	-8.5	-8.9	-9.8	-10.8	-11.5	-11.5	-11.7	-11.7	-11.6	-10.9	-10.4	-9	-7.9	-7.6	-8.2	-9.4	-10.3	-10.9	-11.9	-13.1	-14.1	-15.1	-16.6	-17.4	-7.6	-11.2	24	
16	-17.5	-18.9	-19.4	-20.4	-19.5	-18.1	-17.4	-16.7	-15.5	-14	-12.5	-11	-8.6	-7.9	-8.4	-9.8	-12.3	-13.9	-14.4	-11.5	-11.1	-11.2	-11.5	-11.7	-7.9	-13.9	24	
17	-12.2	-13	-13.3	-13.1	-13.3	-13.3	-13.4	-13.4	-13.3	-13.2	-13.2	-12.7	-12.1	-12.4	-13.5	-14.5	-15.6	-16.3	-16.8	-16.9	-16.5	-15.9	-15.7	-15.7	-12.1	-14.1	24	
18	-16	-16.8	-17.2	-17.2	-17.3	-17.2	-17.7	-18	-17.8	-17	-16.2	-15.6	-15	-14.9	-15.1	-15.7	-16.2	-16.5	-16.9	-17	-17.4	-17.8	-18.2	-18.2	-14.9	-16.8	24	
19	-18.1	-18.1	-17.9	-17.9	-17.7	-17.7	-17.8	-17.9	-17.7	-17.1	-16.5	-15.9	-15.9	-16.2	-16.6	-17.6	-18.2	-18.6	-19.9	-20.6	-21.7	-22.2	-22.8	-22.8	-15.9	-18.4	24	
20	-21.9	-21.4	-21.4	-21.2	-22.5	-23.1	-21.8	-21.4	-21.3	-20.6	-18.4	-17	-16.3	-15.7	-16.4	-18	-19.3	-21.1	-20.4	-20.2	-21.5	-22.2	-22.2	-22.9	-15.7	-20.3	24	
21	-21	-23.5	-22.5	-21.3	-21.4	-22	-22.6	-23	-22.4	-18.7	-15.2	-12.6	-13.1	-12.1	-11.8	-12.5	-12.7	-12.3	-11.6	-12	-11.8	-12	-13.1	-15.8	-11.6	-16.7	24	
22	-16.9	-17.6	-18.3	-19.1	-19.6	-19.1	-17.2	-13.4	-10.7	-8.9	-7.8	-6.2	-4	-4.4	-4.2	-4	-4	-4.8	-5.3	-5.6	-6.8	-7.5	-6.7	-4.8	-4.0	-9.9	24	
23	-4.8	-5.2	-6.4	-6.1	-5.7	-5.4	-8.4	-9.3	-9.7	-7.4	-5.1	-2.8	-0.8	0.1	1.1	0.4	-1.2	-2	-2.4	-2.3	-2.4	-2.9	-3.6	-4	1.1	-4.0	24	
24	-4.1	-4	-3.9	-3.7	-3.3	-4.7	-4.2	-3.9	-4.1	-2.9	-1	0.8	0.2	-3	-5.2	-6.3	-7.3	-9.2	-8.8	-5.9	-4.9	-4.1	-3.5	-3.2	0.8	-4.2	24	
25	-3.1	-3.2	-3.1	-3	-2.9	-2.7	-2.6	-2.5	-2.3	-1.7	-0.9	-0.5	-0.5	-0.5	-1.1	-0.8	-0.5	-0.4	-0.9	-0.9	-2.2	-3.7	-5	-6.2	-0.4	-2.1	24	
26	-7.6	-8.3	-9.1	-9.6	-10	-10.8	-10.2	-10.1	-9.8	-8	-6.5	-4.9	-2	-0.9	-0.6	-2.3	-3.4	-4.3	-4.6	-5.1	-4.8	-4.8	-5	-4.8	-0.6	-6.1	24	
27	-4.6	-4.1	-3	-3.7	-3.1	-2	-2	-1.7	-0.6	0	3.2	4.6	7.4	8.9	8.8	6.5	5.9	5.1	4.6	4.1	3.6	1.7	-0.4	-2.4	8.9	1.5	24	
28	-3.3	-4	-5.2	-6.3	-7.3	-8.1	-8.9	-9.7	-9.7	-7.7	-5.4	-3.1	-1.9	-2	-2.2	-2.9	-4.2	-4.4	-3.7	-3.7	-4.2	-4.3	-4.2	-3.9	-1.9	-5.0	24	
29	-3.7	-3.6	-3.4	-4.3	-4.9	-4.7	-4.3	-4	-3.9	-2	0.3	2.9	3.8	3.4	2.4	0.4	-2.1	-3	-3	-4.6	-6.1	-7.1	-8.1	-8.3	3.8	-2.8	24	
30	-7.7	-6.8	-6.4	-6.1	-6	-6	-6.1	-6.3	-6.7	-5.7	-5.4	-4.9	-4.9	-4.7	-5	-5.3	-5.5	-6.1	-7.5	-9.4	-10.2	-10.5	-10.7	-11	-4.7	-6.9	24	
HOURLY MAX	1.8	1.5	1.4	0.7	0.1	-0.3	0.0	-0.2	0.2	2.2	3.2	4.6	7.4	8.9	8.8	6.5	5.9	5.1	4.6	4.1	3.6	2.4	2.6	2.0				
HOURLY AVG	-7.4	-7.6	-7.9	-8.1	-8.4	-8.5	-8.7	-8.7	-8.1	-6.6	-4.9	-3.4	-2.5	-2.3	-2.5	-3.3	-4.4	-5.2	-5.6	-5.7	-6.2	-6.7	-7.2	-7.6				

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

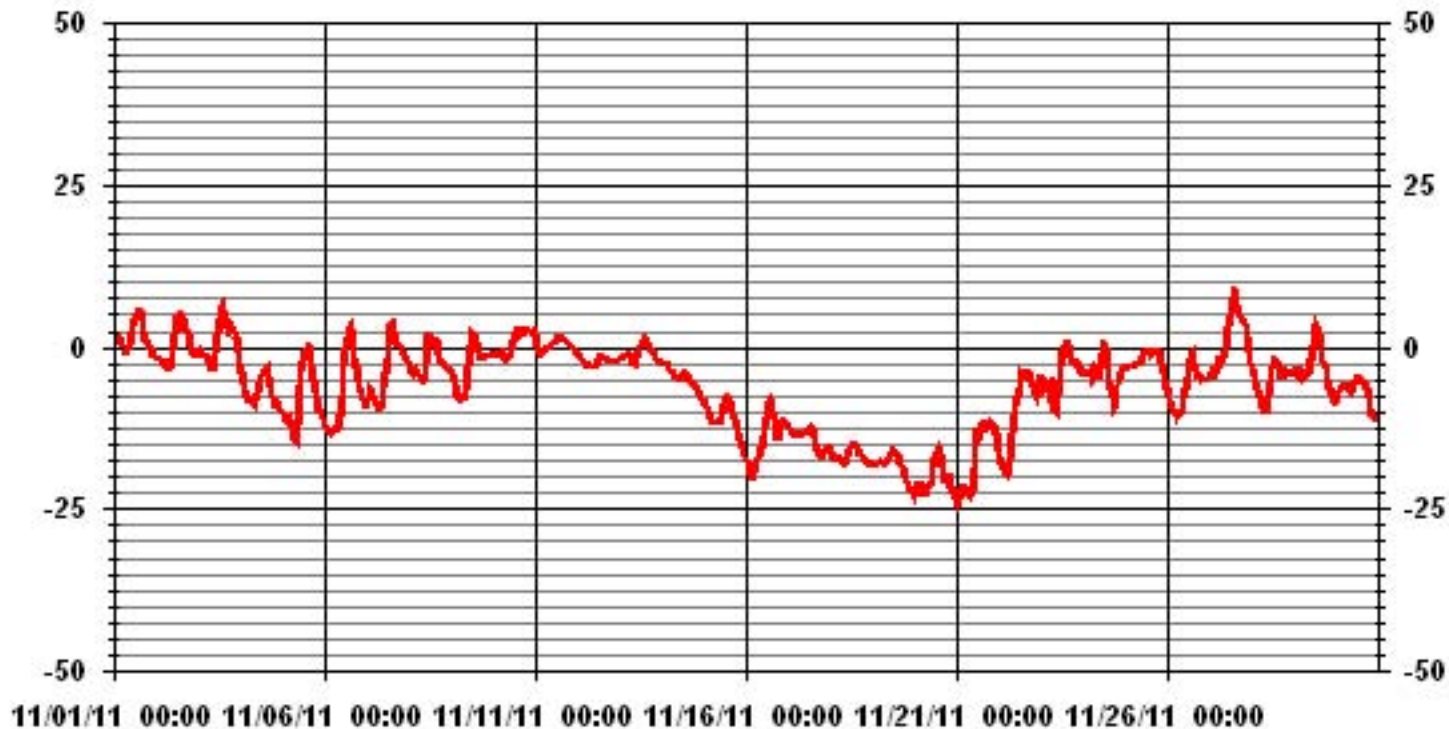
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-24	°C	@ HOUR(S)	0	ON DAY(S)	21
MAXIMUM 1-HR AVERAGE:	8.9	°C	@ HOUR(S)	13	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	1.5	°C			ON DAY(S)	27
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	6.92		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	-6.14	°C	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	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.	TOTAL	RDGS.
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
10	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	0.4	0.9	24
11	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	0.2	0.8	24
12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
13	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	0.1	0.2	24
14	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	0.1	0.1	24
15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
16	16	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18	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	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6	0.6	0.4	0.4	0.3	0.2	0.2	0.1	0	0	0.6	3.0	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	0	0	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	0	0	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	0	0	0	0	0.0	0.0	24
HOURLY MAX		0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.6	0.6	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.0	0.0			

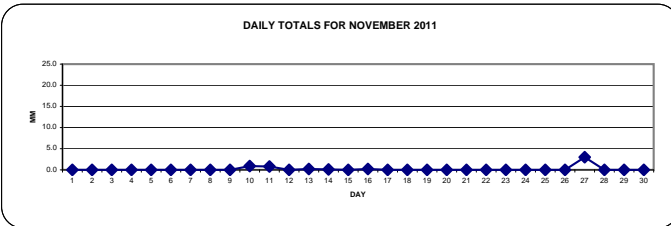
STATUS FLAG CODES

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

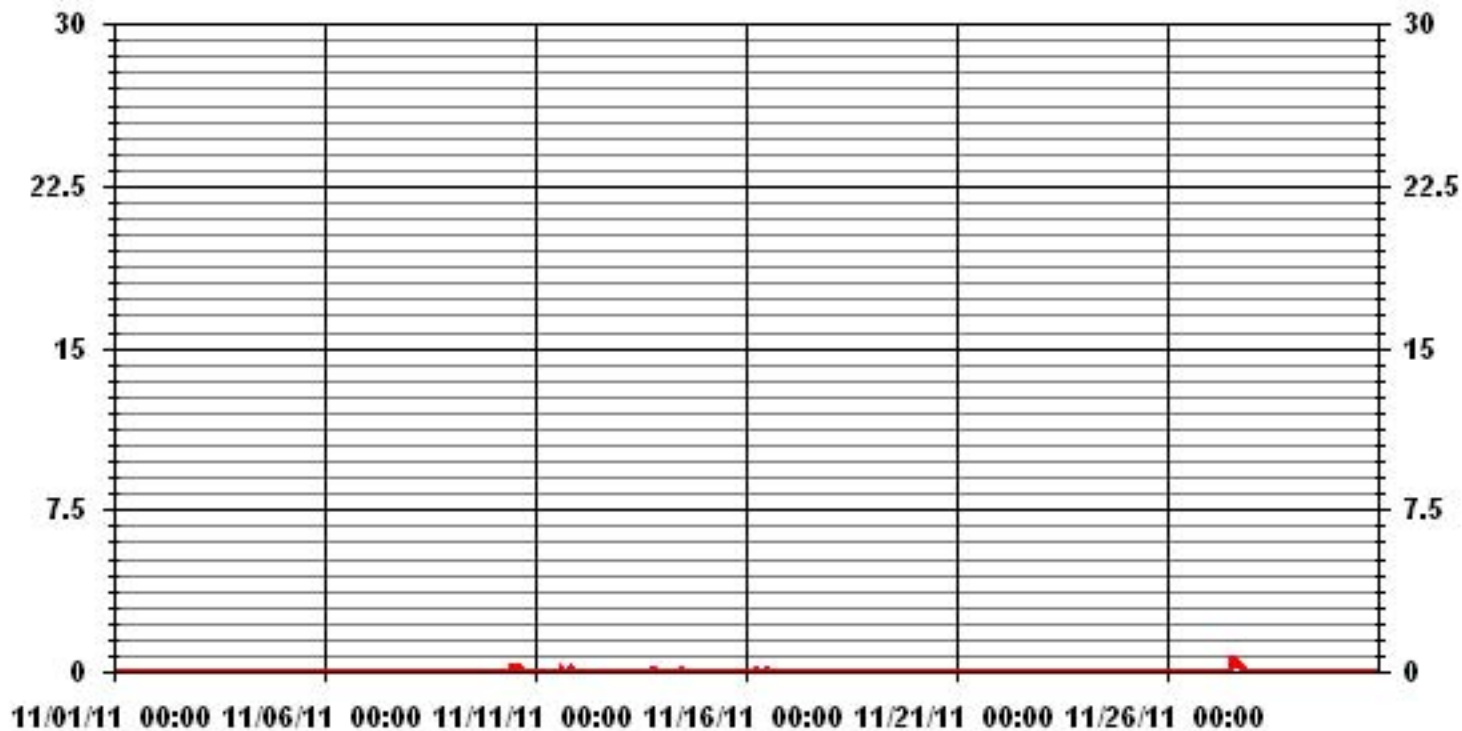
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.6	MM	HOUR(S)	13, 14	ON DAY(S)	27
MAXIMUM DAILY TOTAL	3.0	MM			ON DAY(S)	27
MONTHLY TOTAL	5.2	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	0.05		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.01	MM	

DAILY TOTALS FOR NOVEMBER 2011



01 Hour Averages



— LICA30 PRECIP MM

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

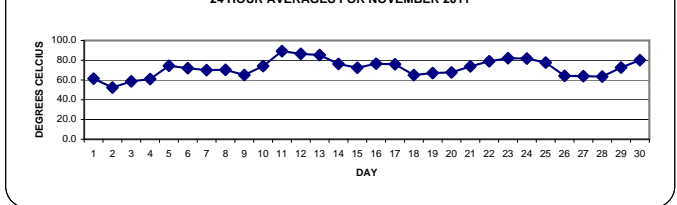
RELATIVE HUMIDITY hourly averages (%)

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 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		65	69	81	85	82	81	80	78	74	64	55	48	45	42	40	41	46	52	53	55	56	61	60	60	85	61.4	24	
2		60	59	58	60	60	60	61	61	60	55	46	39	41	42	42	39	44	45	44	50	55	57	59	60	61	52.4	24	
3		59	59	60	59	58	60	63	68	63	57	51	46	43	41	41	47	56	62	66	68	70	71	71	68	71	58.6	24	
4		66	63	64	65	67	67	68	65	63	57	52	46	44	46	46	54	59	64	67	66	66	68	69	71	71	61.0	24	
5		74	74	77	78	82	81	80	79	78	73	69	63	60	61	58	61	68	76	82	80	83	84	83	82	84	74.4	24	
6		82	81	80	80	80	80	80	81	81	80	76	66	58	51	44	50	55	62	68	73	75	79	82	83	83	72.0	24	
7		84	80	79	79	82	83	82	82	81	78	77	72	64	57	51	50	55	56	57	61	64	68	70	69	84	70.0	24	
8		71	72	74	72	72	72	74	76	74	70	60	61	62	64	66	66	71	74	76	76	75	70	70	70	76	70.3	24	
9		71	73	77	82	84	84	83	83	80	69	59	52	52	58	55	57	59	59	58	55	53	52	53	54	84	65.1	24	
10		56	58	58	59	56	65	71	77	75	74	70	71	69	67	82	85	86	87	87	85	85	86	85	84	87	74.1	24	
11		87	88	89	89	90	90	90	90	91	91	90	90	88	86	87	88	89	90	90	89	89	90	90	90	91	89.2	24	
12		89	89	89	88	87	86	86	86	86	86	85	85	83	83	84	85	87	87	87	87	87	88	88	88	88	89	86.5	24
13		88	88	88	88	88	88	88	88	87	85	84	84	83	82	82	85	88	87	87	85	80	81	82	81	88	85.3	24	
14		82	83	82	80	76	77	78	79	76	76	75	72	72	72	73	74	76	76	76	76	76	75	74	75	83	76.3	24	
15		74	75	73	75	75	75	74	74	73	70	66	63	60	61	63	67	72	75	77	80	80	80	78	78	80	72.4	24	
16		77	75	75	74	75	75	76	76	77	78	79	79	78	71	68	73	80	80	80	79	77	78	77	78	80	76.5	24	
17		79	78	79	79	79	79	79	79	79	78	77	76	75	74	73	70	72	73	74	75	75	74	74	73	79	76.0	24	
18		72	71	71	70	68	67	66	65	67	66	63	60	58	57	59	61	62	64	63	65	65	65	67	68	72	65.0	24	
19		68	68	69	70	69	67	66	67	66	65	63	61	61	59	60	63	66	68	72	73	73	71	71	71	73	67.0	24	
20		70	70	70	70	71	71	71	71	70	68	63	60	58	55	58	63	67	71	70	70	72	72	73	71	73	67.7	24	
21		71	71	72	72	72	71	71	71	69	65	67	76	76	75	76	78	77	78	81	80	77	76	78	81	81	73.8	24	
22		78	77	76	75	74	75	76	80	82	82	81	80	72	75	75	78	80	83	83	81	82	84	83	83	84	79.0	24	
23		83	83	86	87	86	86	83	85	83	83	85	84	80	78	73	76	81	81	82	81	81	81	81	81	81	87	82.1	24
24		81	81	81	82	81	85	84	84	86	80	71	63	66	76	85	86	85	83	85	86	87	87	88	88	88	81.7	24	
25		88	87	87	86	86	86	86	85	85	83	79	76	76	74	82	80	76	71	72	70	62	60	62	65	88	77.7	24	
26		71	74	77	78	79	81	76	73	71	64	66	65	48	43	44	47	51	53	56	61	63	65	68	68	81	64.3	24	
27		69	69	68	71	71	69	70	71	70	69	63	61	56	53	53	59	58	62	64	66	67	60	58	57	71	63.9	24	
28		57	57	56	56	57	59	63	68	69	64	61	58	56	59	62	65	70	71	69	69	70	70	68	69	71	63.5	24	
29		72	75	76	78	79	78	76	74	74	68	61	55	53	55	58	64	72	76	77	81	84	86	85	85	86	72.6	24	
30		85	85	84	84	84	84	83	82	84	81	77	76	74	73	75	76	75	76	75	81	83	83	83	83	85	80.1	24	
HOURLY MAX		89	89	89	89	90	90	90	90	91	91	90	90	88	86	87	88	89	90	90	89	89	90	90	90	90			
HOURLY AVG		74.3	74.4	75.2	75.7	75.7	76.1	76.1	76.6	75.9	72.8	69.0	66.0	63.7	63.0	63.7	66.2	69.5	71.3	72.5	73.5	73.8	74.2	74.3	74.4				

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

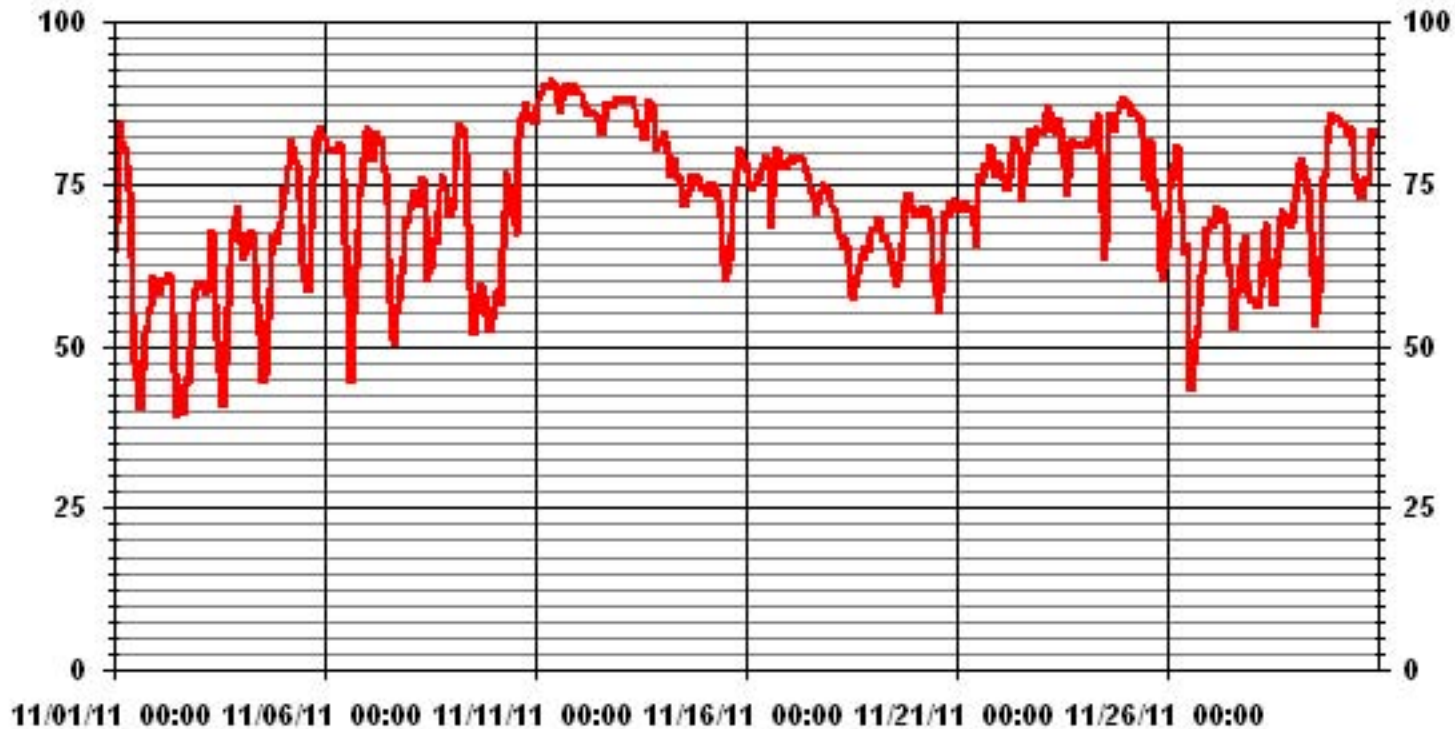
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	8, 9	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	89.2	%			ON DAY(S)	11
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	11.36		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	71.99	%	

01 Hour Averages



— LICA30 RH %

Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

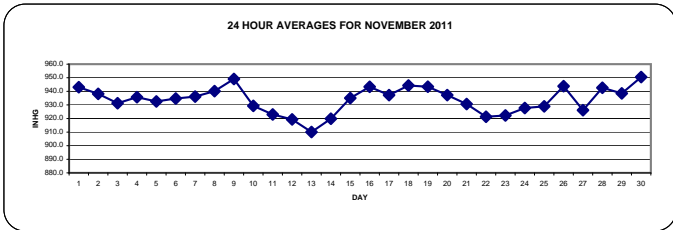
NOVEMBER 2011

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	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		937	938	939	940	941	941	942	943	943	944	945	945	945	945	945	945	945	945	945	945	944	944	944	943	945	943.0	24	
2		943	943	942	942	942	941	941	940	940	940	940	940	939	939	938	937	936	935	935	934	933	932	932	931	943	938.1	24	
3		930	930	929	929	928	928	928	928	928	928	929	930	931	931	931	932	933	934	934	935	935	936	936	937	937	931.3	24	
4		937	937	938	938	938	938	938	937	937	938	938	937	936	936	935	935	934	933	933	933	933	933	933	932	938	935.7	24	
5		932	932	931	932	931	931	931	931	932	933	933	933	933	933	933	933	933	933	933	933	933	934	934	934	934	938	932.5	24
6		934	934	933	933	933	933	933	933	934	934	935	935	935	936	936	936	935	935	936	936	936	936	936	936	936	936	934.7	24
7		936	937	937	937	937	937	936	937	937	937	937	937	937	937	936	936	935	935	935	935	935	935	935	935	934	937	936.1	24
8		934	934	935	935	935	936	936	937	937	938	939	939	940	941	942	943	944	944	945	946	946	947	947	947	947	940.2	24	
9		948	949	949	949	950	950	951	951	952	953	953	953	952	952	951	950	949	948	948	946	946	944	943	941	953	949.1	24	
10		940	938	937	936	934	933	932	931	929	929	928	927	927	926	926	925	925	925	925	926	926	926	926	926	926	940	929.3	24
11		926	925	926	926	925	924	924	924	924	923	923	923	922	922	922	922	922	922	921	920	921	921	921	922	926	923.0	24	
12		922	923	923	923	923	924	923	924	924	924	923	922	921	920	919	918	917	916	915	914	912	912	911	911	924	919.3	24	
13		910	910	909	909	908	908	908	908	908	909	909	909	910	910	911	911	912	912	913	913	913	914	914	914	914	910.0	24	
14		914	914	915	915	915	916	916	916	917	917	918	918	919	920	921	922	923	924	924	925	926	926	927	928	928	919.8	24	
15		928	928	929	930	930	931	931	932	933	934	935	935	936	936	937	938	938	939	939	940	940	940	941	941	941	935.0	24	
16		942	942	942	942	943	943	943	944	944	944	945	945	945	945	945	944	944	944	943	943	942	942	941	941	945	943.3	24	
17		940	939	939	938	937	936	936	935	935	935	935	935	935	936	937	937	938	938	939	939	939	940	940	940	940	937.2	24	
18		941	942	942	943	943	944	944	944	945	945	945	945	945	945	944	945	945	945	945	946	945	945	945	946	944.3	24		
19		945	945	945	945	945	945	945	945	945	944	944	943	943	943	942	942	942	942	941	941	940	940	940	940	945	943.4	24	
20		940	939	939	939	938	938	938	938	938	938	937	937	937	937	936	936	936	936	936	936	936	936	935	936	940	937.2	24	
21		935	935	935	934	934	934	933	933	932	932	932	931	930	930	929	928	928	927	927	927	927	927	927	927	935	930.7	24	
22		927	928	927	927	926	925	924	923	922	921	920	918	917	916	915	915	915	917	918	920	921	922	923	924	928	921.3	24	
23		925	925	925	925	925	925	925	925	924	924	923	922	921	920	920	919	919	919	920	919	920	921	921	922	925	922.3	24	
24		922	923	924	925	925	926	927	927	929	930	930	931	931	931	931	930	929	929	929	928	927	927	926	924	931	927.7	24	
25		924	923	922	922	921	921	921	922	923	924	925	926	928	929	931	933	934	936	938	940	942	944	945	945	945	929.0	24	
26		947	947	947	948	948	948	948	947	948	947	947	947	946	944	943	942	941	941	940	939	938	937	936	935	948	943.8	24	
27		934	932	931	930	928	928	926	925	924	923	922	922	921	922	922	922	923	923	924	925	927	929	931	933	934	926.1	24	
28		935	937	938	940	941	943	944	944	945	946	947	947	947	946	946	946	944	943	943	942	941	940	939	939	947	942.6	24	
29		938	938	937	936	936	936	936	936	937	937	939	939	940	940	939	940	940	940	940	940	940	940	940	940	940	938.5	24	
30		941	941	942	943	944	945	947	948	949	951	952	953	953	954	955	955	956	956	956	955	955	954	953	956	950.5	24		
HOURLY MAX		948	949	949	949	950	950	951	951	952	953	953	953	953	954	955	955	956	956	956	955	955	954	954	953				
HOURLY AVG		934	934	934	934	933	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934	934					

STATUS FLAG CODES

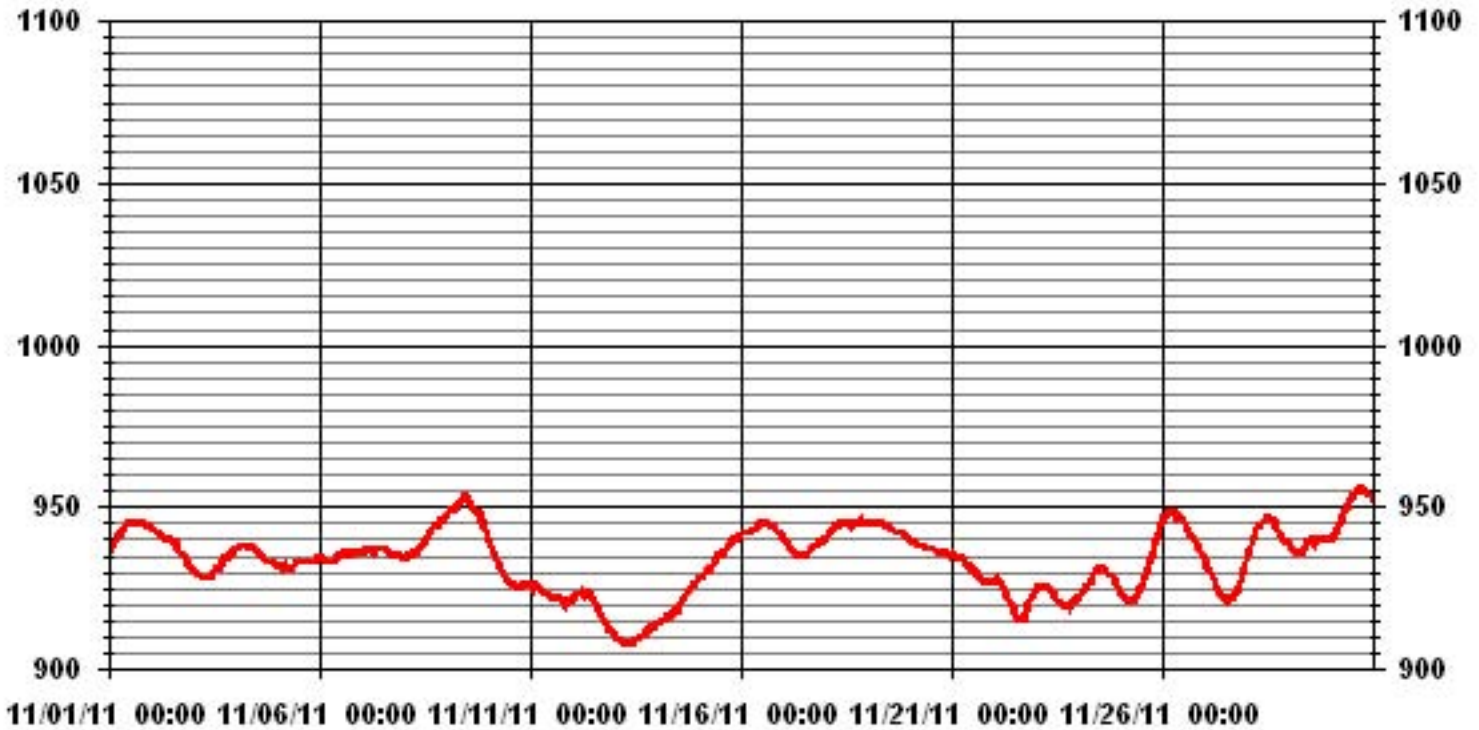
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	956	MB	@ HOUR(S)	VAR	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	950.5	MB			ON DAY(S)	30
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	10.09		MONTHLY AVERAGE:	934	MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	9	6.1	11.4	10.1	9	8.3	7.5	7.2	9.1	8.9	13.8	8.7	5.3	6.9	8.7	11.2	6.4	6	5.4	10.1	6.9	4.4	4.4	4.4	13.8	7	24
2	4.9	5.9	4.8	7.2	9	8.9	8.7	8.7	8.3	8.5	6.5	5	4	6.2	5.1	5.1	5.9	8.7	10.2	3.4	4.8	5.7	6.2	5.7	10.2	4.8	24
3	6.3	5.7	5.9	5.6	6.5	4.1	3.3	1.2	2.3	3.6	4.2	4.9	8.5	7.6	8.6	4.8	4.5	3.1	3.4	5.8	6.2	8.2	8.8	8.1	8.8	1.8	24
4	9.3	6.4	7.7	6.3	5	4.7	5.9	6.2	5.2	7.1	6.3	6.9	5.6	5	5.9	8	5.2	3.2	4.3	4.8	4.1	4.1	4.8	4.5	9.3	3.5	24
5	4.2	4.7	4.5	5.2	4.2	0.9	1.4	1.3	2.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	5.2	3.1	9
6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		0
7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	C	6.8	7.6	7.6	8.4	8.1	7.8	9.1	9.1	7.8	8
8	6.4	5.8	5.4	6.4	5.3	4.9	5	5.6	5	4.5	8.7	9.7	8.9	10.3	8.2	7.4	4.3	2.3	4.1	3.3	3	4.1	4.7	5.4	10.3	4.6	24
9	4.5	2.3	2	0.9	1.2	2.2	2.7	1.9	2.2	2.4	3.9	2.9	5.3	7.2	5.7	3	2.7	3.4	4.6	5.4	6	7.8	9.2	10.6	10.6	2.4	24
10	8.4	7.4	7.2	7	6	5.4	4.7	4.5	2.7	3.5	6.1	4.7	5.8	4.3	2.7	2.8	3.9	3.4	4	4.7	4.5	4.4	5.5	4.6	8.4	2.9	24
11	2.9	0.8	0.3	2.5	0.4	0.6	0.2	2	1.7	0.6	3.1	3	4.9	3.5	3.4	1.9	1.5	3.3	4.5	4.9	5	5.3	6.2	6.3	6.3	1.8	24
12	5.8	6.1	7.5	8.4	7.5	6.8	7.5	6.3	6.2	4.7	3.2	1.7	3.2	5.8	6.3	4.5	4.8	4.8	5.1	6.4	6.2	5.6	6.4	6.9	8.4	2.3	24
13	7.3	7.5	6	7.8	8.7	7	7	5.4	6.4	4.6	4.6	4.1	4	4.3	4.7	4.1	6	6.2	5.9	5.9	8.3	6.8	7.2	6.6	8.7	4.6	24
14	4.4	4.6	4.6	6.1	10.2	7.2	5.8	6.2	7.5	7.6	7.2	7.9	7.9	7.6	8.1	8.3	8.2	7.8	9.2	7.9	10	9.6	9	8.6	10.2	7.4	24
15	7.3	9.6	8.7	7.8	7.8	7.4	7.7	7.8	7.7	7.6	8.4	8	7.8	8.5	7.7	7.5	6.7	5.4	4.3	2.6	1.4	1.3	0.4	0.7	9.6	6.1	24
16	1.8	0.1	0.1	0.2	0.1	0	1.4	0.7	0.9	0.6	0.8	1.2	1.1	3.6	0.8	0.2	1.2	0.1	1	5.5	4.6	4.2	5.4	6.6	6.6	1.5	24
17	6.8	8.8	8.3	7.5	9.5	10.2	9.8	9.7	9.8	9.6	11.1	11.8	12.1	13	16	18	16.1	14.9	13.1	9.4	11	14.5	12.9	9.9	18	11.1	24
18	8.2	9.3	11.1	9.4	11.2	9.9	11.6	14.1	8.8	10.6	9.1	7.2	6.5	6.3	5.6	5.8	5.2	5.3	3.5	3.5	3.1	3	1.8	3.2	14.1	7.1	24
19	3.2	2.1	1.1	0.3	1.9	2.1	2.5	1.1	3	5	5.1	6.5	7.9	8.5	7.5	5.2	2.8	2.3	1.3	1.4	2.3	4	3.1	3.7	8.5	2.8	24
20	3.9	3	3.3	3.5	0.6	1.3	3.5	3.5	3.1	2.8	4.4	4.8	5.7	4.9	4.5	4.5	2.9	2.1	3.7	1.9	0.8	0.4	2.4	0.5	5.7	2.8	24
21	1.7	1.7	1.9	2.1	3.1	3.1	2.4	2.4	2	2.9	4	5.8	6	5.6	4.9	5.1	5.8	5.7	4.9	2.9	1.4	1.5	2.9	0.5	6	2.8	24
22	0.3	0.4	0.3	0	0.9	2.2	1.1	2.6	5.1	5.9	7.2	5.9	9.6	8.3	7.1	4.9	2.5	0.6	2.3	3.2	4.9	4.4	6.4	6.2	9.6	1.7	24
23	5.9	7.3	2.1	4.1	5.6	4.1	1.4	1.6	1.2	2.7	4.4	5.5	6	5.7	6.9	7.7	7.9	8.6	8.8	9.2	9.5	8.9	9.8	7.9	9.8	3.5	24
24	6.7	1.6	0.8	1.6	2.2	2.7	4.4	3.8	5.1	3.5	2	2.2	4.8	8	7	2.2	1.4	1	2.6	5	3	5.1	6.9	7.3	8	0.7	24
25	8.6	9.4	10.5	8.2	7.2	6.8	5.9	3.7	2.9	4.1	3.8	3.7	5.1	7.4	11	12.7	12	14.2	12.2	13.2	14.2	12	10.2	7.8	14.2	3.4	24
26	3.9	3.2	5.9	5.2	5.2	4	5.8	5.6	5.8	1.8	0.3	1.6	5.3	9.5	8.9	9	5.8	4.8	3.5	4.9	5.5	5.6	4.7	5.4	9.5	3.6	24
27	4.1	4.1	5.3	2.2	3.4	4.1	4.7	3.4	2.2	1.6	7.3	8	7.1	5.7	8.2	9.1	9.5	9.1	10	12.4	13.1	11.5	12.1	10.7	13.1	3.8	24
28	10.2	11	11.1	11.5	9.3	7.3	5.1	2.2	5.5	5.1	4.9	4.2	5.6	9.9	9.4	6.2	4.8	7.8	8.6	10.6	9	9.1	8.4	6.9	11.5	5.9	24
29	6.6	4.3	5.4	5.5	5.3	6.1	7.4	8.1	5	7.2	4.8	8.3	9.5	8.2	5.2	1.3	0.4	2.2	1.3	0.2	0.1	0.9	0.1	0	9.5	3.6	24
30	0.1	2.5	3.1	5.4	7.5	7.7	5.9	1.5	1.1	3.2	4.3	4.7	4.8	5.4	5.6	3.7	4.4	6.6	3.7	3.4	4.4	6.8	5.3	5.2	7.7	2	24
HOURLY MAX	10.2	11.0	11.4	11.5	11.2	10.2	11.6	14.1	9.8	10.6	13.8	11.8	12.1	13.0	16.0	18.0	16.1	14.9	13.1	13.2	14.2	14.5	12.9	10.7			
HOURLY AVG	5.5	5.1	5.2	5.3	5.5	5.0	5.0	4.6	4.6	4.8	5.5	5.5	6.2	6.9	6.8	6.1	5.3	5.3	5.5	5.7	5.8	6.0	6.2	5.8			

STATUS FLAG CODES

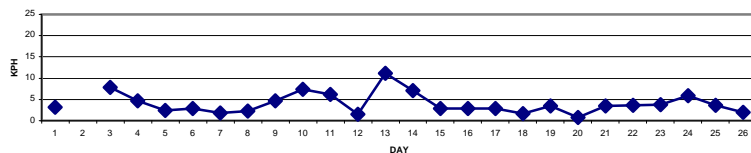
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 7, 2011

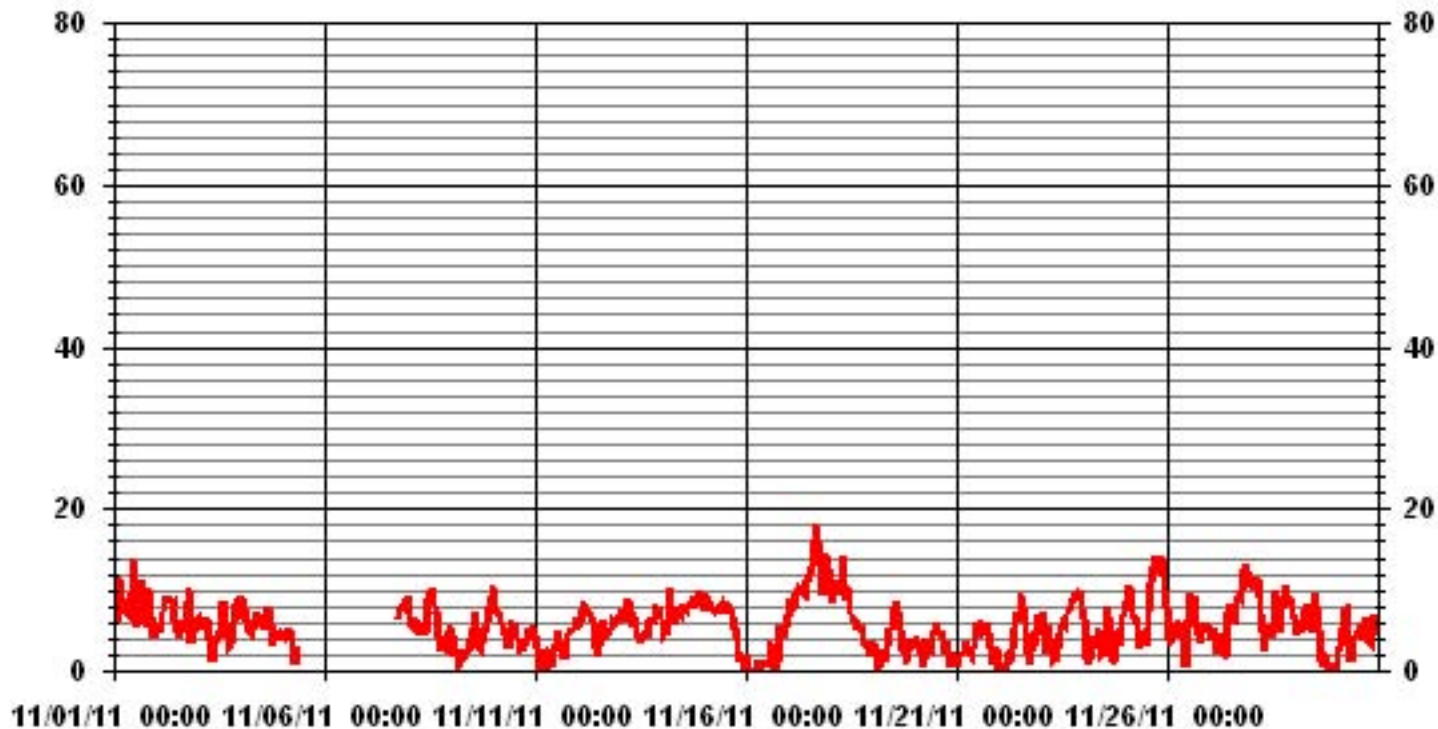
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	18.0	KPH	@ HOUR(S)	15	ON DAY(S)	17
MAXIMUM 24-HR AVERAGE:	11.1	KPH			ON DAY(S)	17
CALMS (≤ 1 KPH)	5.11	%	OPERATIONAL TIME:	665	HRS	
MONTHLY CALIBRATION TIME:	1	HRS	AMD OPERATION UPTIME	92.4	%	
STANDARD DEVIATION	3.09		MONTHLY AVERAGE	5.54	KPH	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA30 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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.
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		12	17.2	22.8	24.7	14.7	18.6	18.4	25.8	20.1	24.7	37.6	31	20.8	8.5	10.3	19.2	9.8	9.4	10.1	10.1	10.1	4.4	4.4	4.4	37.6	
2		11.6	11.6	6.3	14	16.6	11.6	8.7	8.7	8.7	8.5	9.4	11.6	10.3	10.4	13	15	11.1	21.2	23.2	14.4	17.2	21.2	14.9	17.5	23.2	
3		13.3	9.6	18.3	21.4	19.4	11.8	12.5	10	7	11.7	18.2	17.9	31.7	25.8	26	9.4	7	5.7	13.4	18.8	20.5	31.8	28.9	24.5	31.8	
4		22.7	22.3	21.4	19.1	15.8	17.1	19.5	21.5	18	19.1	19.3	20.2	17.7	14.9	18.8	17.5	13.3	14	10.5	12.5	14.2	14.9	10.5	10.3	22.7	
5		9.1	10.2	14.9	11.1	12.2	10.5	13.3	11.5	11.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	14.9	
6		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
7		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	C	17.2	20.3	18.7	18.2	18.1	16.8	18.3	20.3	
8		17.1	13.4	14.2	17	16.3	17.2	12.2	11	10.3	10.9	28.1	29.3	28.5	31.2	29.8	26.7	18	7.9	12.6	13.1	14	14.2	14.3	14.8	31.2	
9		14.6	10.8	11.8	6.7	9.1	9.6	11.5	9.7	9.2	9.6	10.4	9.8	14.1	16.3	14.6	7.6	6.4	9.2	11.3	14.4	17.8	19.9	25	30.2	30.2	
10		24.4	20.9	21	24	19.6	18.6	15	17.6	13.3	12.3	14.4	17.9	15.2	12.9	9.1	11.1	19	16.1	16.7	22	16.2	14.2	18.6	18.8	24.4	
11		9.6	5.4	5.1	6.8	4	5	4.5	8.2	8.8	5.4	11.4	10.6	14	11	11.1	9.4	6.4	15.6	15.8	17.5	14.2	15.5	13.9	15.1	17.5	
12		16.2	15.9	16.6	18.2	18.6	13.9	17.7	15.6	13.4	12	9.2	6.2	12	15.3	16.9	12.9	14.5	13.7	14.4	18.1	17.9	15.7	17.9	20.8	20.8	
13		19.8	22.6	15.8	19.5	21	18	16.3	14.1	17.9	16	14.9	16.2	15.8	18.9	17.3	15.6	25.9	22.6	20.5	23.3	23.8	23.3	21.9	22.8	25.9	
14		15.2	17	18.1	22.2	31.9	25.7	16.8	24.4	28.3	26.1	23.6	26.9	25.6	26.5	29.1	27.2	31	30.2	34.7	26.8	28.8	26.7	27	28.1	34.7	
15		31.3	31.9	39.2	24.3	22.4	26.3	29.1	27.2	31.1	25	27.7	24.7	28.6	24.9	28.4	28.7	19.5	15.6	12.9	13.2	12.2	5.5	4.5	4.2	39.2	
16		8	1.4	3.8	3.2	2.9	2.2	4.3	5	4.1	3.5	4.5	4.3	4.5	11	6.4	3.3	5.3	1.7	6.6	12.6	12.4	13.8	17.5	19.5	19.5	
17		15.7	23.9	18.3	28.6	29.1	27.3	30.6	29.2	28	28.7	28.9	29.3	29.5	33.1	34.7	40.8	32.2	31.9	27.3	24.8	28.8	32.8	28.5	23.8	40.8	
18		18.8	23.5	29	21.6	29.6	28.8	31.7	38.3	22.6	26.9	20.4	18.7	16.6	20.1	16.3	17.8	14.8	14.3	11.1	11.7	10.4	9.4	6.8	10	38.3	
19		8.8	6.7	4.6	4.3	9.2	8.5	10.5	5.8	13.5	15.3	15	17.7	21	19.2	17.7	15.4	10.9	9	4.4	5.2	5.4	10.8	8.8	9.5	21	
20		9.8	10.7	8.2	9.9	5	5.3	12.8	13.2	13.6	11.5	14.8	12.3	14.5	14.7	12.7	12.6	9.1	8.3	8.8	9.1	5	4.8	6.7	3.7	14.8	
21		5	6.3	6.9	9.5	8.3	7.5	6.2	6.9	7.4	10.4	14.3	16.5	18.7	19.5	15.1	16.1	16.6	17.8	16.9	15.3	8.7	10.7	11.6	4.6	19.5	
22		3.5	5.2	4.1	1.3	6.5	6.2	9.8	11.2	15.9	17.7	20.5	20.1	31.4	25	22.7	17.5	14.6	12.5	10.4	13.2	10.6	13.5	15.3	16.3	31.4	
23		13.4	16	11.3	10.3	13.6	11.9	5.7	6.1	5.3	6.9	9.9	18.3	15.6	18.4	24.8	21.6	23.2	26.9	19.7	22	22.6	21.4	20.9	20.3	26.9	
24		16.3	9.3	3.9	10.9	9	18.5	16.8	15.2	15.5	12.3	8.8	8.5	14.6	16.8	18.1	11.9	9.4	4.6	12.7	17.8	14.3	17.8	20.5	22.7	22.7	
25		26.1	26.3	29.6	25.1	23.9	19.4	15.7	12.5	8.3	11.1	11.2	11.7	21.9	22.1	43.1	35.1	47	48	41.7	39.7	44.2	43.1	29	26.2	48	
26		12	12.4	14.6	13.6	14.9	10.3	13.5	13	13.2	9.9	3.2	6.9	23.8	25.7	25.7	22.2	16.9	15.8	12.1	18.2	20.4	16.5	17.8	15	25.7	
27		14.8	15.1	18.1	11.7	18.7	18.1	14.4	14.7	9.7	10.9	22.3	19	22.1	26	28.9	27.9	29.7	28.7	34.1	44.7	41.9	50	37.9	39.7	50	
28		34.8	34.7	37	41	25.2	28	20.6	9.9	13	12.6	14	14.7	15.8	20.2	25.2	21.1	12.6	16.4	22.5	24	19.9	20.4	20.5	18	41	
29		20.1	12.4	15.4	18.4	16.4	16.6	15.6	14.7	12.2	14.9	16.1	21	28.6	28.1	19.7	7.9	5.8	7.7	5.1	3.7	1.5	4.6	1.5	1.4	28.6	
30		2.7	8	7.4	18.3	18	19.4	14.5	6	5.4	13.6	11.3	14.8	15.1	16.6	18	17.6	20.8	19.9	26.1	6.8	14.9	15.3	13.3	13.1	26.1	
PEAK		34.8	34.7	39.2	41.0	31.9	28.8	31.7	38.3	31.1	28.7	37.6	31.0	31.7	33.1	43.1	40.8	47.0	48.0	41.7	44.7	44.2	50.0	37.9	39.7		

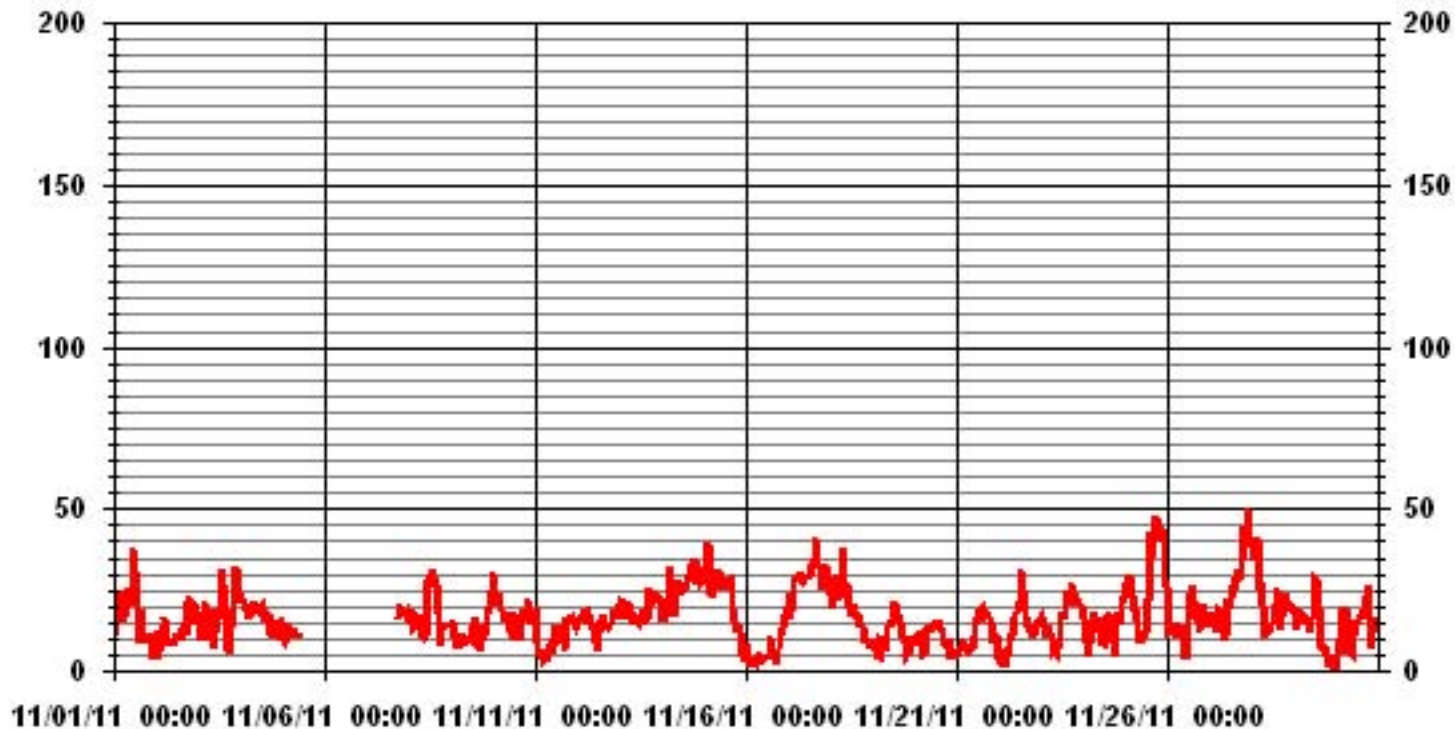
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	50	KPH	@ HOUR(S)	21
			ON DAY(S)	27

01 Hour Averages



— LICA30 WSMAX KPH

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

November 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	3.01	2.25	2.40	2.56	1.95	2.25	4.06	4.21	3.01	6.77	9.93	3.61	4.36	4.36	2.56	1.65	59.03
< 12.0	.90	3.61	2.86	1.05	.00	1.20	2.56	1.20	1.50	4.81	2.56	.00	1.50	7.22	5.57	.75	37.34
< 20.0	.00	1.20	.30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.50	.15	.00	3.16
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.91	7.07	5.57	3.61	1.95	3.46	6.62	5.42	4.51	11.59	12.50	3.61	5.87	13.10	8.28	2.40	

Calm : .45 %

Total # Operational Hours : 664

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	20	15	16	17	13	15	27	28	20	45	66	24	29	29	17	11	392
< 12.0	6	24	19	7		8	17	8	10	32	17		10	48	37	5	248
< 20.0		8	2											10	1		21
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	26	47	37	24	13	23	44	36	30	77	83	24	39	87	55	16	

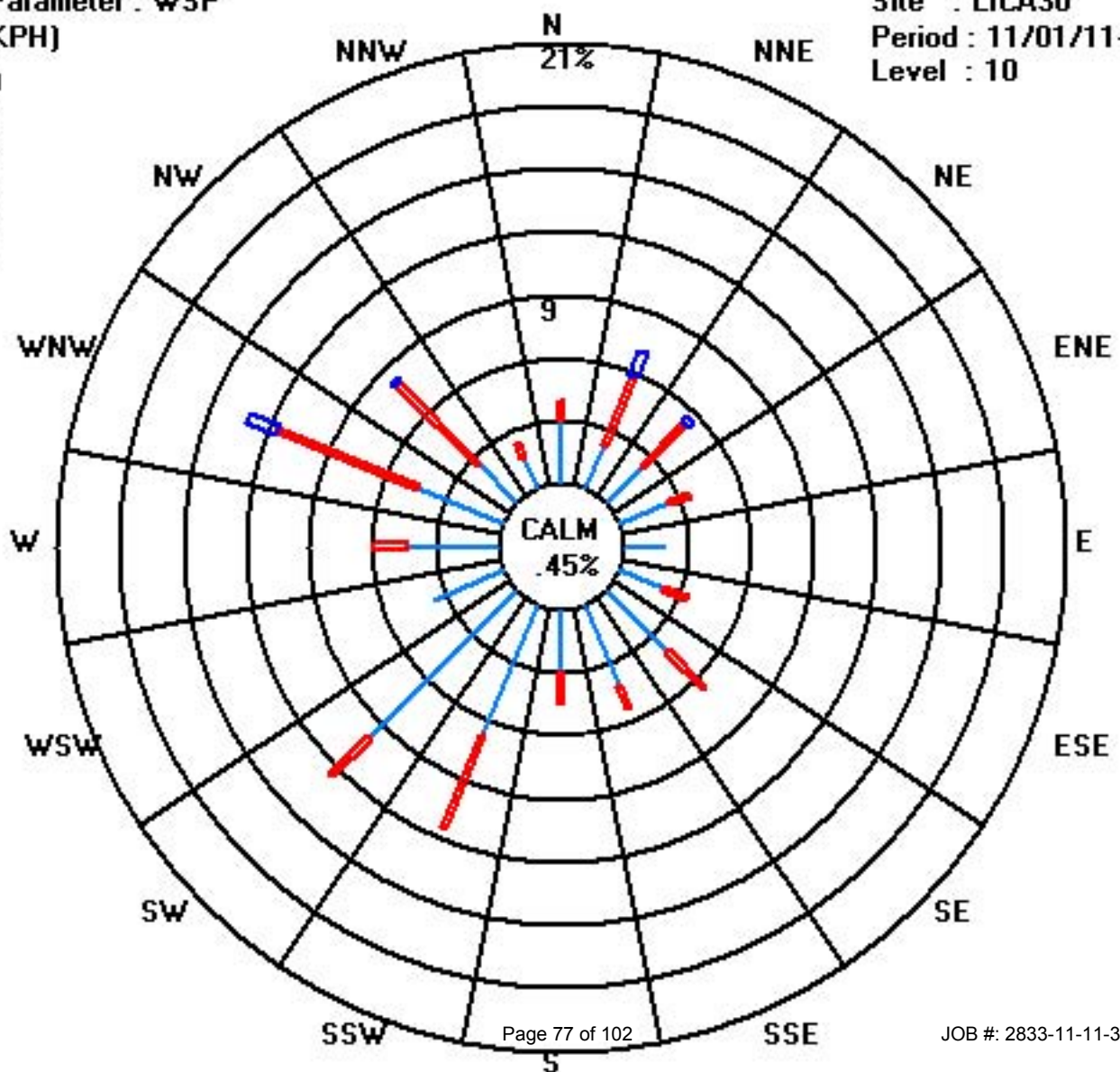
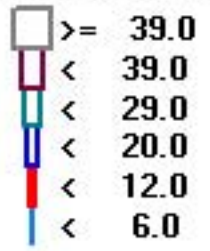
Calm : .45 %

Total # Operational Hours : 664

Class Limits (KPH)

Period : 11/01/11-11/30/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 2011

WIND DIRECTION 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	24-HOUR	24-HOUR		
DAY	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	AVG.	QUADRANT	RDGS.	
1		276	285	295	314	302	282	282	284	281	286	290	277	283	273	268	265	270	269	238	223	218	208	208	208	273	W	24	
2		210	219	221	220	206	198	198	198	222	232	217	202	204	139	124	140	129	137	146	142	98	103	103	111	177	S	24	
3		118	118	112	121	118	127	126	226	194	212	264	267	287	308	333	329	307	292	326	317	312	324	312	323	311	NW	24	
4		346	8	328	338	328	326	307	323	300	288	278	287	288	228	217	210	219	225	207	214	228	231	219	210	278	W	24	
5		208	210	206	197	196	188	121	199	218	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	202	SSW	9	
6		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0
7		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	C	177	184	190	198	200	205	207	195	SSW	8	
8		209	207	211	219	216	212	219	218	222	234	283	289	289	288	304	317	284	252	238	250	261	284	285	285	259	WSW	24	
9		282	267	271	267	257	262	277	285	275	261	289	290	220	214	211	206	179	165	142	141	152	144	150	146	194	SSW	24	
10		141	131	140	165	160	167	168	164	152	201	200	219	218	228	230	241	271	269	271	271	279	276	283	304	203	SSW	24	
11		298	325	219	210	230	279	108	47	61	59	169	146	128	97	99	93	85	70	73	72	68	49	33	36	73	ENE	24	
12		38	40	32	23	26	22	26	22	26	21	34	45	148	164	159	158	154	165	161	155	156	160	166	174	89	E	24	
13		182	189	184	189	197	204	208	217	219	230	241	244	265	257	266	258	272	283	283	292	292	286	288	292	242	WSW	24	
14		280	286	287	286	295	311	318	329	318	325	306	307	302	313	307	311	306	319	310	310	298	296	296	302	305	WNW	24	
15		311	296	306	304	297	303	312	311	317	321	323	311	314	305	313	312	306	298	293	285	279	265	181	222	307	NW	24	
16		226	325	274	348	87	83	26	24	17	16	29	3	2	7	1	12	40	321	2	28	28	45	72	61	35	NE	24	
17		38	35	35	48	60	63	64	59	53	49	45	39	38	34	27	26	28	27	26	23	22	21	21	18	36	NE	24	
18		15	7	18	14	15	11	14	21	24	26	15	5	1	3	4	357	6	11	348	353	356	359	345	355	11	NNE	24	
19		355	352	346	224	253	248	232	180	174	190	192	178	185	193	196	198	192	186	179	184	168	186	199	176	194	SSW	24	
20		191	180	197	200	205	210	193	226	241	241	225	220	215	232	219	211	221	220	204	213	186	213	155	199	212	SSW	24	
21		110	165	148	159	164	150	139	122	150	100	110	89	78	106	84	83	77	65	74	88	189	130	176	130	104	ESE	24	
22		230	221	61	325	50	61	45	61	65	66	78	81	112	107	106	105	74	276	252	260	226	230	227	222	110	ESE	24	
23		221	213	233	200	211	209	22	36	29	40	40	54	54	56	51	46	46	37	39	37	30	36	31	21	42	NE	24	
24		23	13	356	303	326	315	302	327	294	296	250	253	206	194	198	194	179	29	151	155	100	119	120	112	185	S	24	
25		138	130	132	134	133	129	133	123	117	148	190	239	279	283	285	284	285	283	282	293	295	291	287	284	260	WSW	24	
26		273	254	224	229	221	221	214	216	210	208	336	7	156	143	139	142	147	145	131	138	139	132	130	134	170	SSE	24	
27		142	155	146	131	167	159	133	138	138	176	199	207	231	252	284	286	287	286	288	285	297	313	309	311	268	W	24	
28		299	298	303	300	292	284	280	253	219	228	235	233	223	203	218	219	209	202	213	205	206	211	212	217	241	WSW	24	
29		225	234	215	220	223	223	211	208	219	200	248	283	288	294	304	255	262	232	242	293	339	217	320	355	241	WSW	24	
30		36	59	37	33	34	31	23	10	298	354	4	338	329	312	321	326	295	284	292	217	223	213	217	219	326	NW	24	
HOURLY AVG		355	352	356	348	328	326	318	329	318	354	336	338	329	313	333	357	307	321	348	353	356	359	345	355				

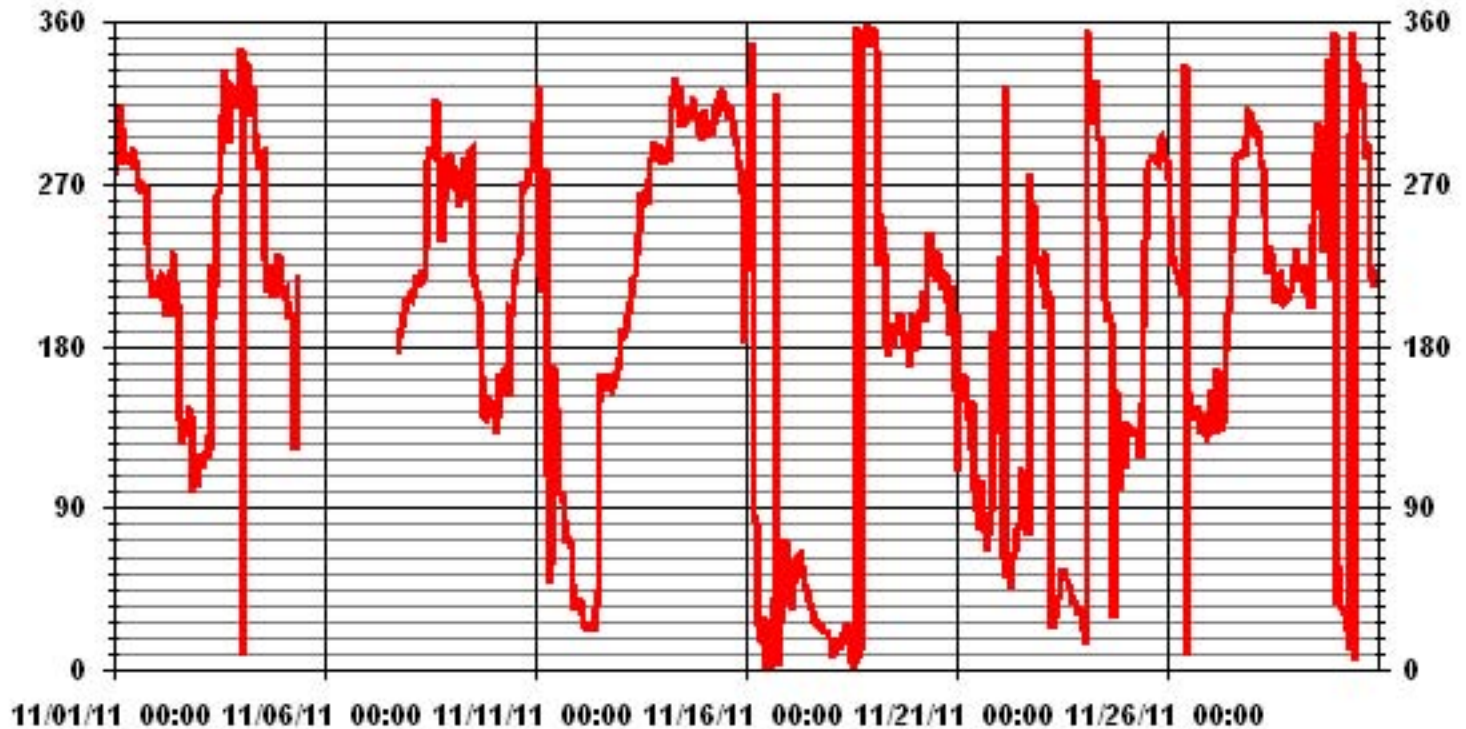
STATUS FLAG CODES

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
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	1 HRS	OPERATIONAL TIME:	665 HRS
STANDARD DEVIATION	97.54	AMD OPERATION UPTIME	92.4 %
		MONTHLY AVERAGE	270 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

NOVEMBER 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	23	15	12	23	24	19	19	24	10	18	19	13	6	4	2	4	9	13	10	0	2	0	0	0
2	5	16	16	8	11	7	0	0	6	0	6	47	20	21	20	21	13	15	15	18	26	22	18	18
3	16	12	23	19	17	22	21	63	50	44	37	30	27	30	25	25	7	29	29	27	31	33	31	28
4	23	30	28	29	30	34	27	32	42	23	30	29	33	34	30	18	20	23	13	17	24	20	14	12
5	12	15	15	12	11	33	50	56	33	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	C	20	21	19	16	14	15	15
8	25	22	22	19	20	17	15	14	13	19	26	24	24	24	27	29	21	22	18	26	26	20	17	20
9	20	21	20	23	25	27	25	20	23	27	19	22	28	22	19	23	27	25	24	24	28	24	23	23
10	26	25	24	28	27	29	29	38	62	41	25	32	25	31	31	28	30	25	27	27	22	26	21	27
11	20	16	33	21	39	27	63	22	43	21	38	51	32	33	33	37	34	30	28	28	26	23	18	20
12	22	21	16	14	16	14	16	17	15	18	21	32	39	27	28	30	32	30	26	27	26	27	27	25
13	24	23	26	20	18	20	17	22	20	27	28	33	35	35	31	35	29	25	26	25	23	22	23	24
14	26	24	25	24	26	26	27	30	28	31	28	28	26	30	27	27	27	30	29	27	24	23	22	25
15	30	23	29	24	22	26	27	29	30	31	30	29	30	26	28	26	23	20	18	21	19	18	36	22
16	30	8	13	10	39	26	23	22	25	24	25	22	18	21	23	18	28	21	12	16	19	26	29	26
17	21	19	19	24	26	25	26	25	25	25	23	21	21	20	15	15	15	15	13	13	14	15	16	17
18	17	20	19	19	19	21	20	18	16	17	21	23	26	24	23	22	21	19	21	21	24	21	21	18
19	18	18	14	43	35	32	35	67	52	29	32	27	27	22	22	23	28	36	43	45	16	19	22	21
20	23	33	34	24	22	21	23	26	28	29	27	26	26	30	28	19	20	23	18	30	48	34	28	32
21	38	48	38	47	21	25	28	32	44	33	39	29	30	29	32	31	27	26	47	32	55	60	34	57
22	44	43	32	23	22	18	36	35	24	25	26	28	25	27	27	32	52	75	36	27	18	17	16	19
23	17	16	26	20	19	23	35	26	22	23	17	21	25	24	25	22	22	21	20	19	19	21	18	18
24	15	21	11	25	22	26	27	24	23	23	37	30	27	16	23	45	63	22	42	36	37	30	32	33
25	24	28	28	27	31	25	28	32	36	29	31	32	29	24	25	23	25	26	26	25	24	24	22	20
26	21	23	15	18	19	18	16	20	18	66	8	18	57	26	24	23	30	28	35	34	32	32	31	25
27	34	44	31	54	43	41	30	39	62	60	20	21	29	31	23	22	22	22	22	24	24	29	29	29
28	23	24	26	23	21	22	21	23	17	21	25	31	29	18	22	25	20	15	19	17	16	17	18	21
29	25	28	22	21	22	19	14	14	17	14	25	24	25	24	20	24	47	25	23	16	15	41	10	18
30	19	22	20	17	19	18	14	16	23															

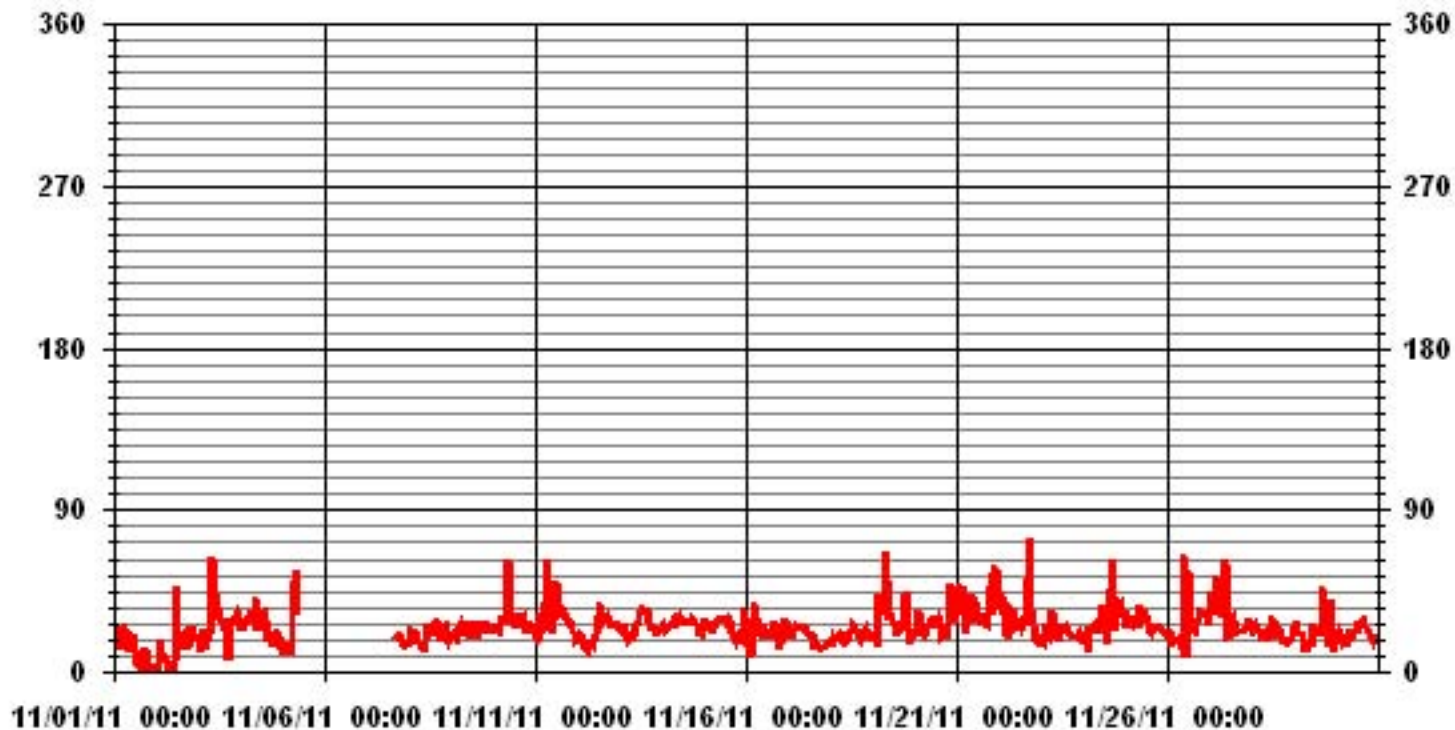
STATUS FLAG CODES

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: 1 HRS OPERATIONAL TIME: 664 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	November 1, 2011	Previous Calibration	October 4, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	10:04	End Time (MST)	13:38
Reason:	Monthly Calibration		
Barometric Pressure	944 mmHg	Station Temperature	22 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	601 ccm, 34.4 Deg C	598 ccm, 32.9 Deg C	
HVPS / Lamp Setting	494, 2740	494, 2376	
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, 1.102	42.2, 1.113	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
	No Zero Adj.			
4917	77.4	749	740	1.0115
4917	77.4	749	749	1.0000
4954	41.3	399	394	1.0135
4978	17.5	169	167	1.0132
4997	0	0	0	N/A
		Sum of Least Squares		1.0029
		New Correction Factor		1.0000

Before Calibration

After Calibration

Auto Zero	0.9	0.6
Auto Span	370.0	374.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9980
Current Correction Factor Before Span Adjust:	1.0115
Percent Change:	-1.3%

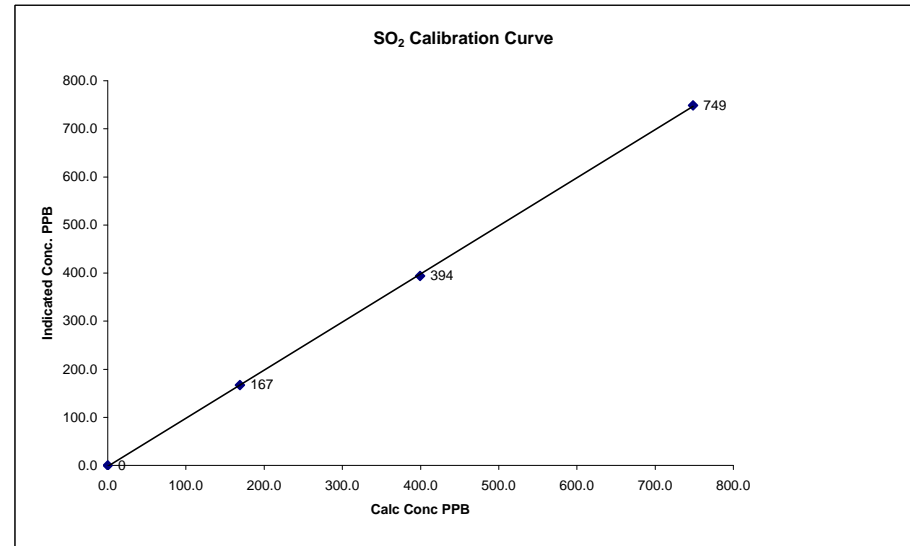
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

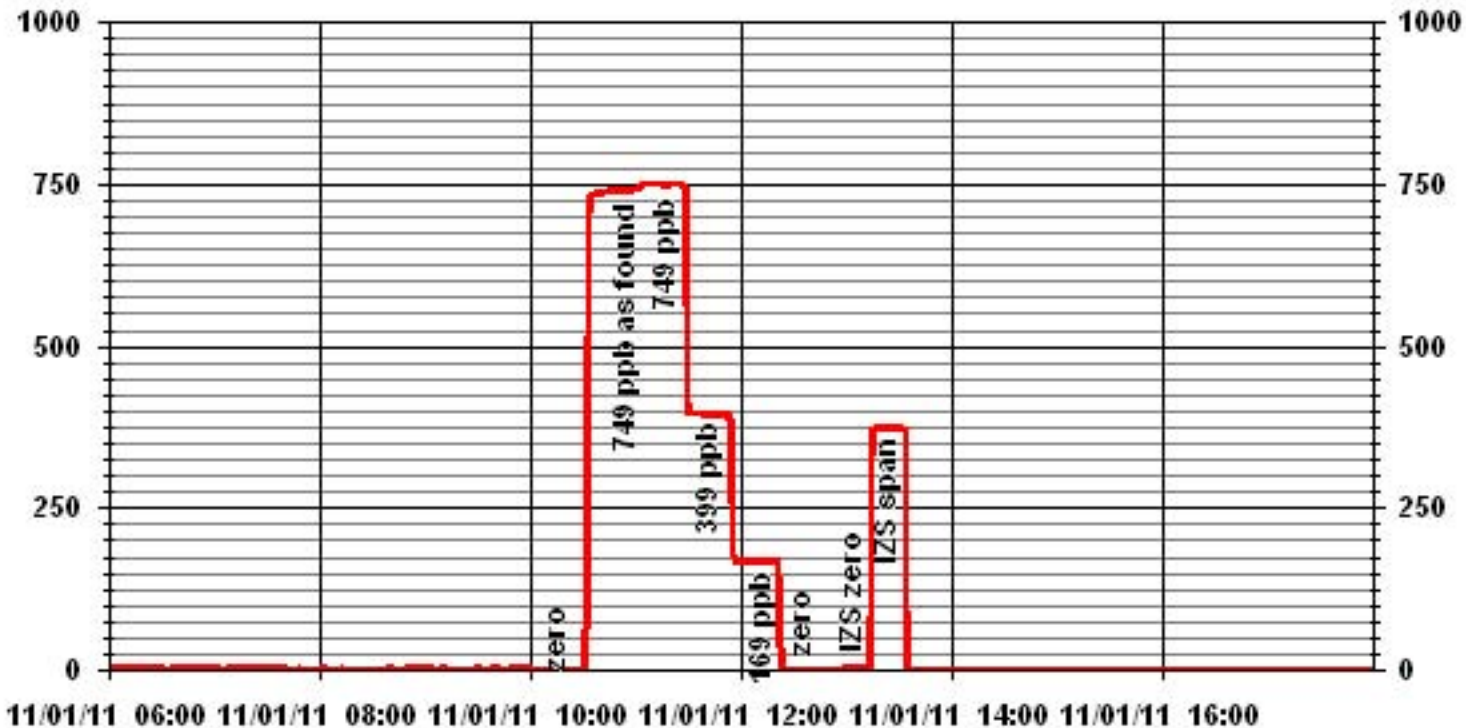
Calibration Date	November 1, 2011
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	10:04
End Time (MST)	13:38

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		0.999933
169	167	1.0132		1.000569
399	394	1.0135		-1.951833
749	749	0.9994		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 1, 2011	Previous Calibration	October 4, 2011
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	11:35	End Time (MST)	15:01
Reason:	Monthly Calibration		
Barometric Pressure	945 mBar	Station Temperature	23 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			
Sample Flow / Box Temp	525 ccm	30.8 Deg C	517 ccm	31.9 Deg C
HVPS / Lamp Setting	552	2035	552	2034
PMT / RxCell Temp	7.9 Deg C	50 Deg C	7.9 Deg C	50 Deg C
Converter / IZS Temp	314.7 Deg C	45 Deg C	314.5 Deg C	45.0 Deg C
Offset / Slope	29.9	1.016	29.9	1.042

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	NA
	No Zero Adj.			
4960	39.2	80	78	1.0254
4960	39.2	80	80	1.0000
4976	19.6	40	41	0.9761
4988	11.2	23	23	1.0000
4996	0	0	0	NA
Sum of Least Squares				0.9948
New Correction Factor				1.0000

Before Calibration

After Calibration

Auto Zero	-0.4	-0.2
Auto Span	54.6	55.9
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0254
Percent Change:	-2.5%

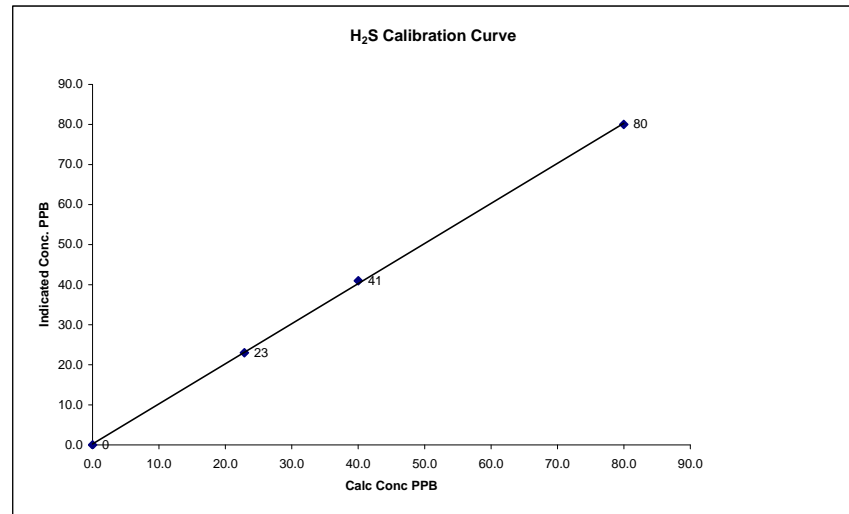
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

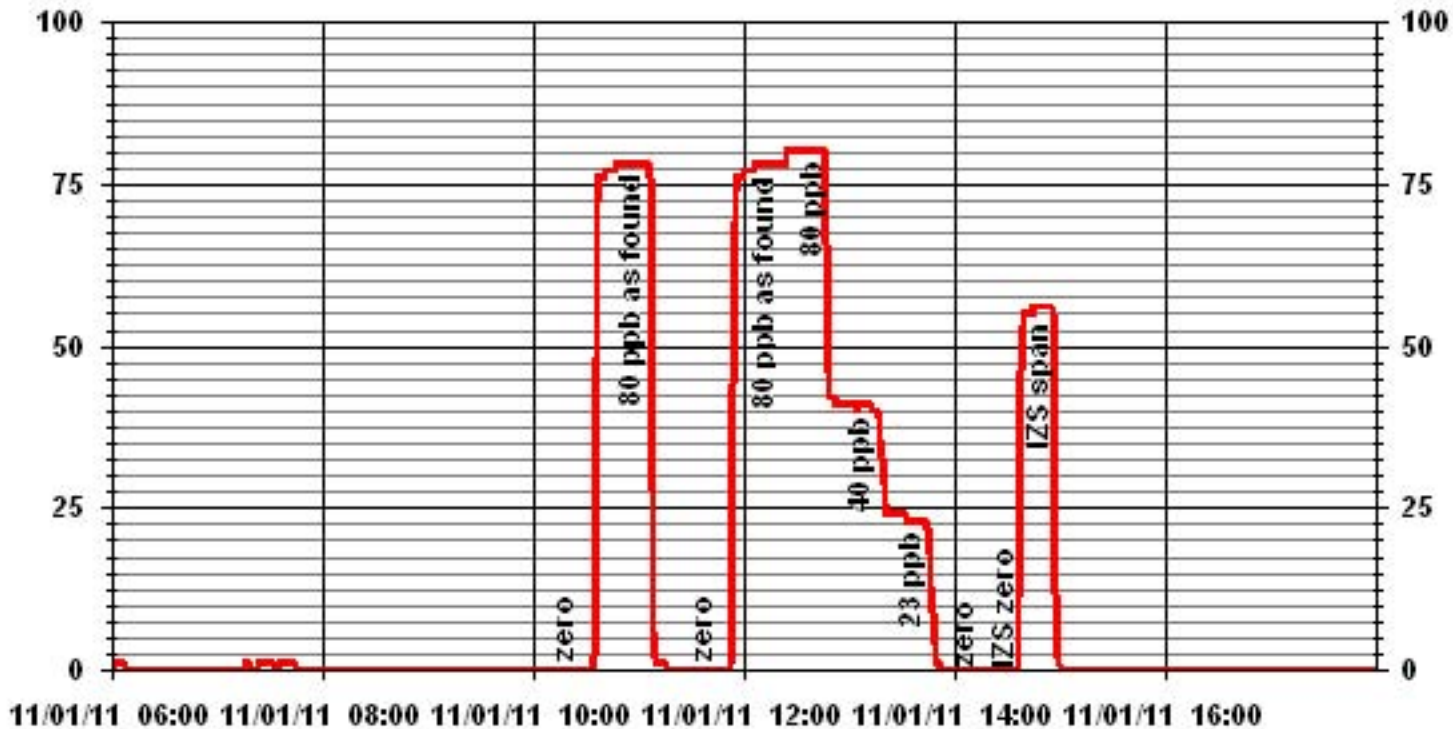
Calibration Date	November 1, 2011
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	11:35
End Time (MST)	15:01

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	(0.85 to 1.15)
0	0		Intercept		0.254015
23	23	0.9936			
40	41	0.9761			
80	80	0.9998			



Notes:

01 Minute Averages



H2S Calibration Report

Station Information

Calibration Date	November 2, 2011	Previous Calibration	November 1, 2011
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	9:06	End Time (MST)	12:52
Reason:	Post-Repair Calibration		
Barometric Pressure	940 mBar	Station Temperature	23 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	503 ccm 30.8 Deg C	498 ccm	31.8 Deg C
HVPS / Lamp Setting	552 2034	552	2031
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C	50 Deg C
Converter / IZS Temp	314.7 Deg C 45 Deg C	315.4 Deg C	45.0 Deg C
Offset / Slope	29.9 1.042	31.2	1.023

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	NA
	No Zero Adj.			
4960	39.2	80	82	0.9754
4960	39.2	80	80	1.0000
4976	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	-0.2	0.4
Auto Span	55.9	57.7
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	NA
Current Correction Factor Before Span Adjust:	0.9754
Percent Change:	#VALUE!

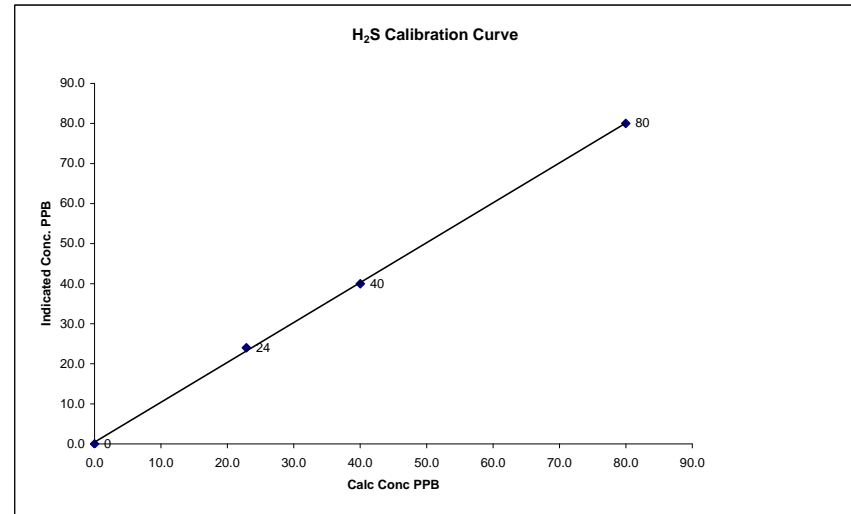
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

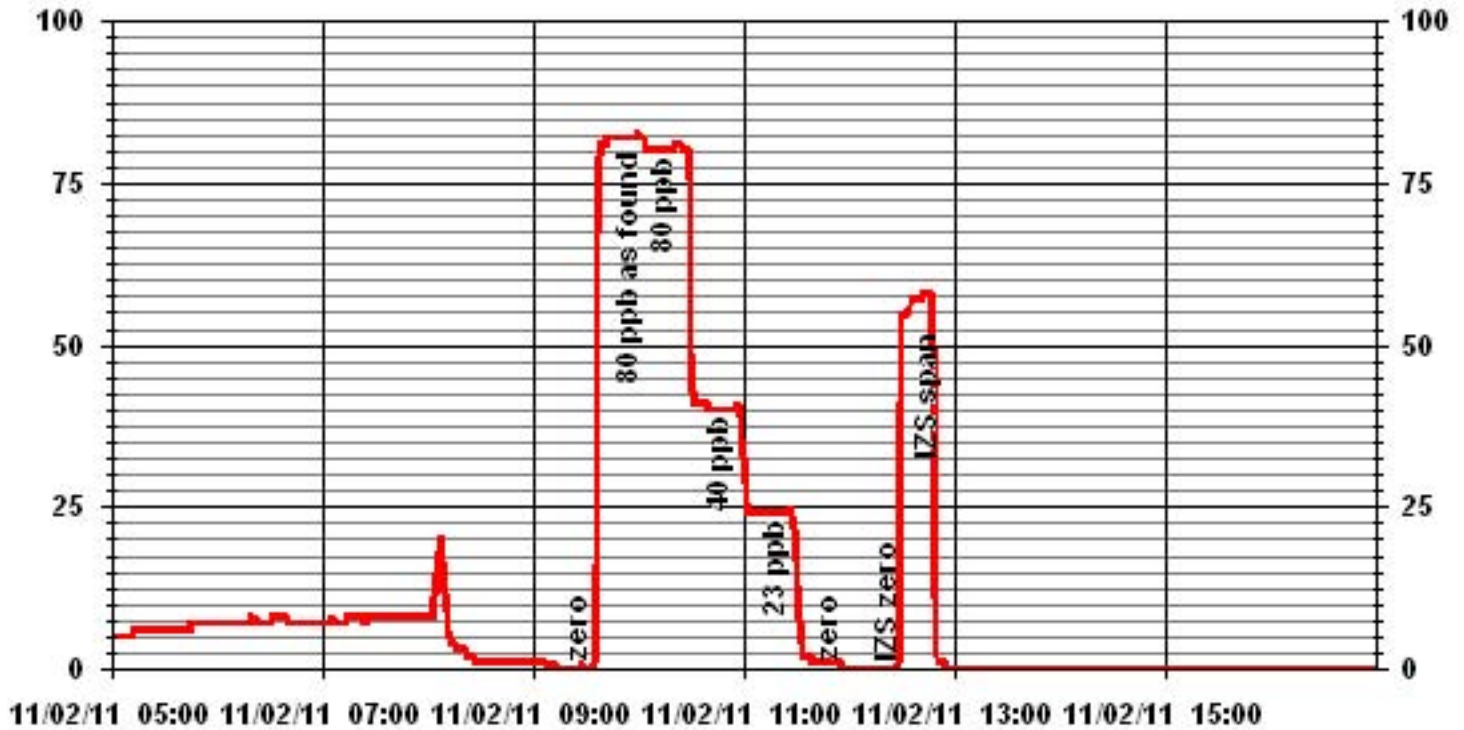
Calibration Date	November 2, 2011
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	9:06
End Time (MST)	12:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)
0	0		Intercept	0.429759
23	24	0.9525		
40	40	1.0005		0.995941
80	80	0.9998		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	November 2, 2011	Previous Calibration	October 5, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	12:12	End Time (MST)	15:56
Reason:	Monthly Calibration		
Barometric Pressure:	939 mmHg	Station Temperature:	24 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
--------------	---------------	-------	-----------	--------	------------------

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	0.1	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	41.8	0.9906
3000	70.0	41.4	41.6	0.9954
3000	35.0	20.9	20.9	1.0000
3000	20.0	12.0	12.1	0.9939
3000	0.0	0.0	0.0	NA
New Correction Factor:				0.9954

Percent Change

Previous Calibration Correction Factor:	0.9933
Current Correction Factor Before Span Adjust:	0.9906
Percent Change:	0.3%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	35.3	34.8
Sample Lines Connected		YES

Cylinder Pressures			
Span	1200 psi	Hydrogen	1000 psi
		Zero Air	32 psi

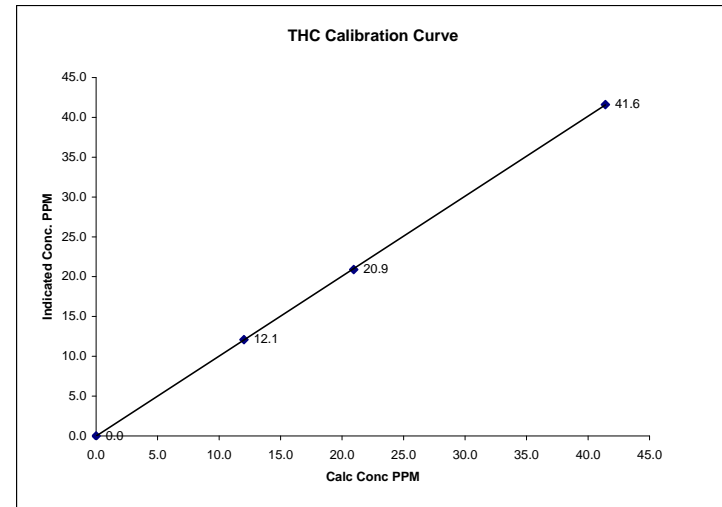
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

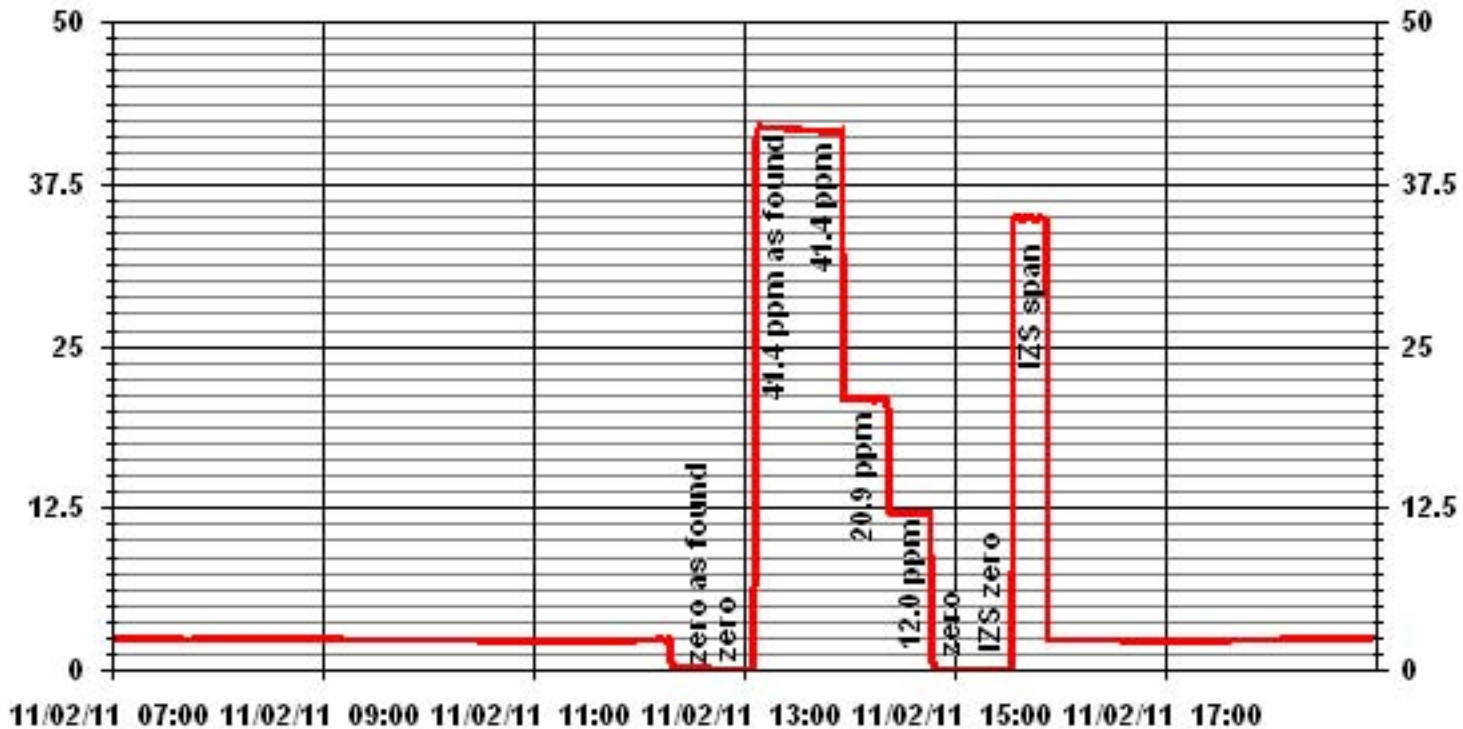
Calibration Date	November 2, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	12:12	End Time (MST)	15:56

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	0.99983	1.004172
12.0	12.1	0.9939		-0.02158
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	November 2, 2011	Previous Calibration	October 5, 2011
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	8:32	End Time (MST)	14:01
Reason:	Monthly Calibration		
Barometric Pressure	940 mBar	Station Temperature	23 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				
Sample Flow/Conv. Temp	456 ccm	317 Deg C	455 ccm	316 Deg C	
Ozone Flow / Vacuum	78 ccm	5.3 *Hg-A	79 ccm	5.3 *Hg-A	
HVPS / A ZERO	767 Volts	16.8 MV	767 Volts	17.1 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.5 Deg C	50.0 Deg C	6.6 Deg C	
Box Temp / IZS Temp	30.1 Deg C	45.1 Deg C	32.2 Deg C	45.1 Deg C	
Offset	0.6 NOx	0.3 NO	0.6 NOx	0.3 NO	
Slope	1.186 NOx	1.177 NO	1.186 NOx	1.177 NO	
NO2 COEF / Conv Efficiency	NA NO2	0.994	NA NO2	0.994	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	0	1	0	NA	NA
	No Zero Adj.									
4921	75.7	NA	753	748	NA	751	747	3	1.0026	1.0032
	No Span Adj.									
4961	35.3	NA	351	349	NA	350	348	2	1.0033	1.0058
4975	20.2	NA	201	200	NA	200	199	1	1.0049	1.0089
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			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	75.7	NA	753	748	NA	751	748	4	NA	NA
	No Adj needed									
4921	75.7	600	753	NA	528	751	224	528	1.0000	100.00%
4921	75.7	250	753	NA	225	753	527	226	0.9956	100.45%
4921	75.7	140	753	NA	127	752	625	127	1.0000	100.00%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.003	NO= 1.002	NO2= 0.999
				NOx= 1.0026	NO= 1.0032	NO2= 1.0000
Average Converter Efficiency= 100.15%						

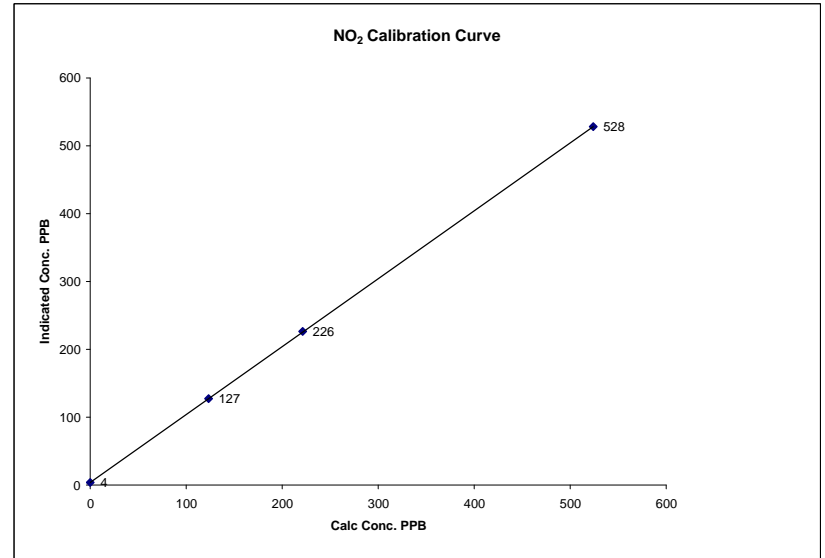
Before Calibration **After Calibration**

Auto Zero	0.5 NOx	0.5 NO2		0.4 NOx	0.4 NO2	
Auto Span	740 NOx	727 NO2		752 NOx	739 NO2	
Sample Lines Connected: YES						
Percent Change from Previous Calibration	NOx	-0.3%	NO	-0.3%	NO2	0.2%
Notes	NA : Not Applicable					
Calibration Performed by: Ting Xu.						

NO2 Calibration Curve

Calibration Date	November 2, 2011	Company	LICA
Plant / Location	Maskwa	Start Time (MST)	8:32
End Time (MST)	14:01		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999995
0	4	N/A	Intercept	(± 3% F.S.)	4.24422
123	127	0.9685			
221	226	0.9779			
524	528	0.9924			

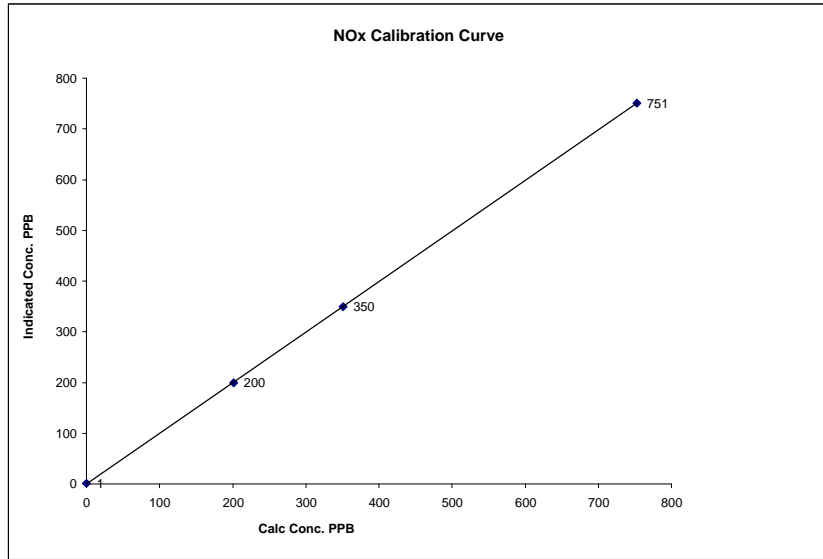


Notes:

NOx Calibration Curve

Calibration Date	November 2, 2011	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	8:32	End Time (MST) 14:01

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	1	N/A	Slope (0.85 to 1.15)	0.996503
201	200	1.0049	Intercept (± 3% F.S.)	0.37146
351	350	1.0033		
753	751	1.0026		

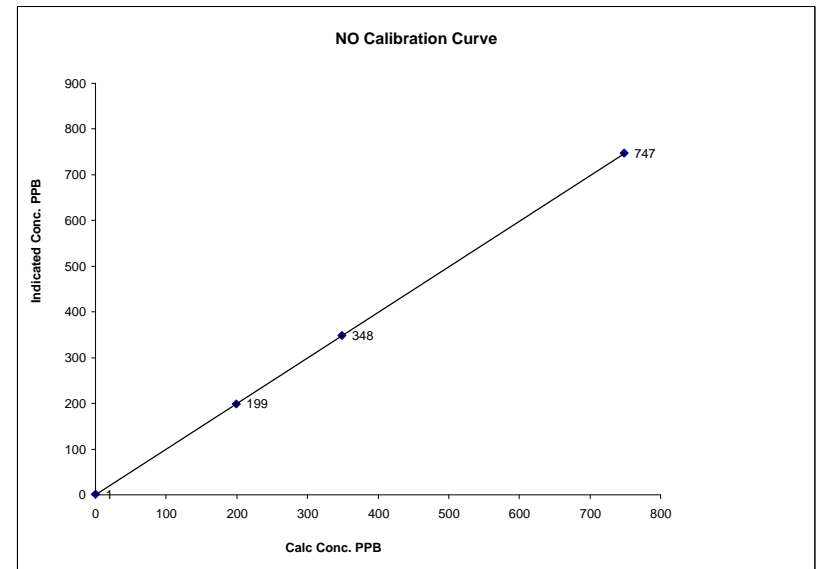


Notes:

NO Calibration Curve

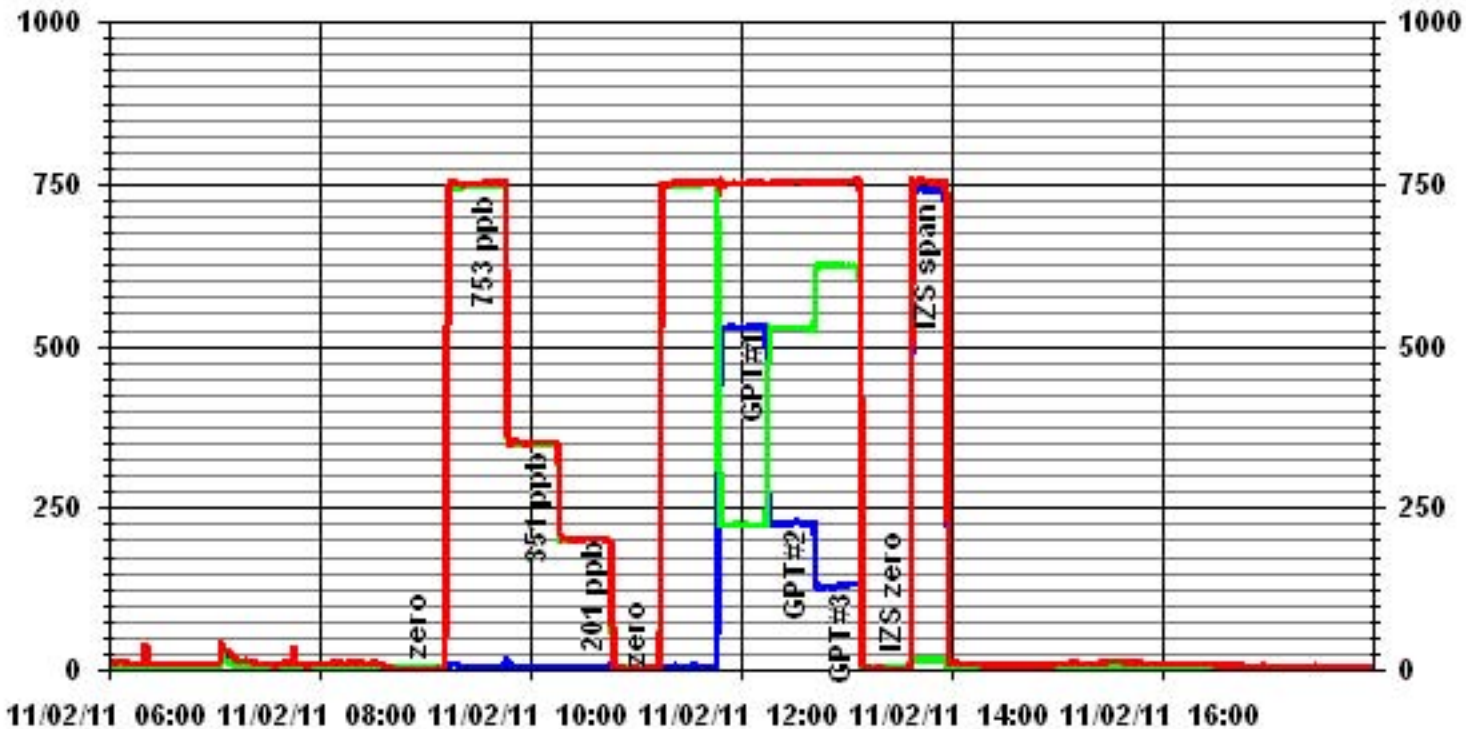
Calibration Date	November 2, 2011	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	8:32	End Time (MST) 14:01

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	1	N/A	Slope (0.85 to 1.15)	0.998871
200	199	1.0039	Intercept (± 3% F.S.)	-0.6835
349	348	1.0029		
748	747	1.0019		



Notes:

01 Minute Averages



Wind System

Meteorological Sensor Audit Report Station Information

Audit Date	November 7, 2011	Previous Audit	NA
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	15:39	End Time (MST)	16:05
Reason:	Installation Calibration (Temporary)		
Translator make/model:	RM Young 5103VK	S/N:	56589
DAS make/model:	ESC 8832	S/N:	AO 791

Wind Speed

Sensor make/model:	RM Young 5103VK	S/N:	56589
Calibrator:	RM Young 18802	Variable speed motor	3309
Output voltage range:	0-1 vdc	Output signal range:	0-200 kph
Sensor height:	>10M		

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.00	0.02	0.02	-
1000	17.64	17.83	17.76	0.99
2000	35.28	35.56	35.54	0.99
3000	52.92	53.32	53.33	0.99
4000	70.56	71.12	71.11	0.99
5000	88.20	88.93	88.92	0.99
6000	105.84	106.7	106.7	0.99
7000	123.48	124.5	124.5	0.99
8000	141.12	142.3	142.3	0.99
9000	158.76	160.1	160.1	0.99
10000	176.40	177.8	177.8	0.99
Average Correction Factor				0.99

Wind Direction

Sensor make/model:	RM Young 5103VK	S/N:	46553
Calibrator:	RM Young 18802	Direction wheel	N/A
Output voltage range:	0-1vdc	Output signal range:	0 - 360 degree
Sensor height:	>10M		

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	354.9	NA
45	42.5	1.06
90	90.1	1.00
135	135.5	1.00
180	181.0	0.99
225	225.9	1.00
270	269.7	1.00
315	313.5	1.00
360	355.1	NA
Average Correction Factor		1.01

Remarks: Wind system installed as a temporary replacement.
new wind speed bearings

Audit Performed by: Shea Beaton

Lakeland Industry & Community Association

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

Ambient Air Monitoring Data Report

For

November 2011

Prepared By:



December 22, 2011

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

Table of Contents

	Page		Page
Introduction	3	Volatile Organics	89
Calibration Procedure	4	Polycyclic Aromatic Hydrocarbons	92
Monthly Continuous Summary	5	Calibration Reports	96
Volatile Organics Data Summary	6	• Sulphur Dioxide	97
Polycyclic Aromatic Hydrocarbons Data Summary	7	• Hydrogen Sulphide	100
General Monthly Summary	8	• Particulate Matter 2.5	103
Continuous Monitoring	12	• Nitrogen Dioxide	105
• Monthly Summaries, Graphs & Wind Roses	13	• Ozone	109
○ Air Quality Index	14	• Total Hydrocarbons	115
○ Sulphur Dioxide	16	• Wind System	118
○ Hydrogen Sulphide	24	Volatile Organics Laboratory Analysis	121
○ Particulate Matter 2.5	32	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	188
○ Nitrogen Dioxide	37		
○ Nitric Oxide	45		
○ Oxides of Nitrogen	52		
○ Ozone	60		
○ Total Hydrocarbons	68		
○ Vector Wind Speed	76		
○ Vector Wind Direction	83		
○ Standard Deviation Wind Direction	86		

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: November 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 – November 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / DEVON WELLSITE 13-16-62-5 W4M SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES				EXCEEDENCES		MONTHLY AVERAGE	
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY		
SO ₂ (PPB)	172	48	0	0	0.12	3	7	13	11.3	219(SW)	0.7	2	99.9
H ₂ S (PPB)	10	3	0	0	0.02	1	VAR	VAR	VAR	VAR	0.4	27	99.9
THC (PPM)	-	-	-	-	2.60	15.9	30	2	4.9	26(NNE)	4.1	30	100.0
NO ₂ (PPB)	159	-	0	-	4.42	16	29	20	2.3	293(WNW)	9.8	6	100.0
NO (PPB)	-	-	-	-	1.15	49	6	9	3.1	293(WNW)	7.7	6	100.0
NO _x (PPB)	-	-	-	-	5.50	62	6	9	3.1	293(WNW)	17.4	6	100.0
O ₃ (PPB)	82	-	0	-	19.58	38	27	18	26	279(W)	28.6	1	99.7
PM 2.5 (UG/M ³)	-	30	-	0	6.60	28.8	20	22	6.6	121(ESE)	14.5	20	91.1
VECTOR WS (KPH)	-	-	-	-	9.88	32.2	25	19	-	288(WNW)	20.5	17	100.0
VECTOR WD (DEGREES)	-	-	-	-	259(WSW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

Xontech Model 910A – November 5, 2011

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

Xontech Model 910A – November 11, 2011

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

Xontech Model 910A – November 17, 2011

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

Xontech Model 910A – November 23, 2011

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

Xontech Model 910A – November 29, 2011

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

PUF cartridge – November 5, 2011

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

PUF cartridge – November 11, 2011

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

PUF cartridge – November 17, 2011

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

PUF cartridge – November 23, 2011

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

PUF cartridge – November 29, 2011

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

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

- Analyzer make / model – API 100E, S/N: 467

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed on November 11th. The zero-air filter for the daily calibration system was replaced on November 11th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed on November 10th. The zero-air filter for the daily calibration system was replaced on November 10th. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed on November 10th. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

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

A new exhaust pump was installed following the as found point check on November 11th, and the monthly calibration was performed. The inlet filter was replaced before the monthly calibration was performed. It was noticed that the daily span result went above the +10% of limited range on November 18th, likely due to faulty span pump. The span pump was rebuilt following the as found point check on November 19th. Hourly maximum data on November 30th at hour 20 was invalidated as less than 100% of the data was collected during that hour; reason unknown. Data was corrected using daily zero information.

THC (PPM)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed on November 10th. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

A routine Teom audit was performed on November 11th. The flow audit was failed, out by around 14% (measured 2.59 lpm, indicated 3 lpm). It was noticed that the V-ring seal for the mass transducer was damaged. The damaged was fixed temporary on November 15th, and the V-ring seal will be replaced when the part is available. The Teom pump, and the main flow inline filter, bypass flow inline filter, pump bulkhead filter were all replaced on November 15th. After the troubleshooting, both the flow and leak check passed the requirements. Since the flow check failed during the first audit, data between the last flow audit, which was October 18th, and November 15th may not present the cutoff of 2.5 ug/m³ of particulate matter. The Teom filter and FDMS filter were replaced on November 15th. 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. 47 hours of data were invalidated as they were below -3.0 ug/m³.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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

- System make / model – RM Young 5103VK, S/N: 41334 replaced to RM Young 5103VK, S/N: 43708

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

A removal calibration was performed on November 24th for the 2-Year audit/calibration, and a replacement wind system was installed. During the wind system removal calibration, we discovered that the configuration for the wind speed had been altered as far back to December 2010 with an incorrect maximum 180kph, instead of 200kph. As indicated by the calibration, 10% error in the wind speed was noticed. The correct wind speed range was input following the removal calibration.

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

No issue was observed this month.

The manifold was cleaned on November 10th.

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 November 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 November 20th, hour of 22.

Volatile Organics (VOCs)

The volatile organics were sampled from November 5th to November 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 November 5th to November 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

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	24:00	25:00	26:00	27:00	28:00	29:00	30:00	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	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		
2	1	0	0	0	0	0	0	1	0	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24		
3	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	0	0	0	0	0	0	0	0	0	1	0.5	24	
4	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	0	0	0	0	0	1	0.0	24	
5	1	1	1	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	0	0	0	0	0	1	0.3	24	
6	0	0	0	0	0	0	0	0	IZS	1	1	1	2	1	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
7	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	3	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24		
8	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	0	0	0	0	0	0	0.0	24	
9	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	0	0	0	0	0	0	0	0.1	24	
10	1	1	1	1	IZS	0	0	0	0	0	0	0	0	1	1	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	23	
11	0	0	0	IZS	0	0	0	0	0	0	C	C	C	C	C	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	0	0	0	0	0	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0	0	0	0	0.0	24	
14	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	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	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	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	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	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	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24
21	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	0	0	0	0	0	0	0	0	0.0	24	
22	0	0	0	0	0	0	0	0	0	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	0	0.2	24
23	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	0	0	0	0	0	0.0	24	
24	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	0	0	0	0	0	0	0	0.0	24	
25	0	1	0	1	1	1	1	1	1	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	0.3	24	
26	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	0	0	0	0	0	0	0	0.0	24	
27	0	0	0	0	0	0	0	0	1	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	0	0.1	24	
28	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	0	0	0	0	0	0	0	0.0	24	
29	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	0	0	0	0	0	0	0.0	24	
30	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	0	0	0	0	0	0	0.0	24	
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
HOURLY AVG	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			

STATUS FLAG CODES

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

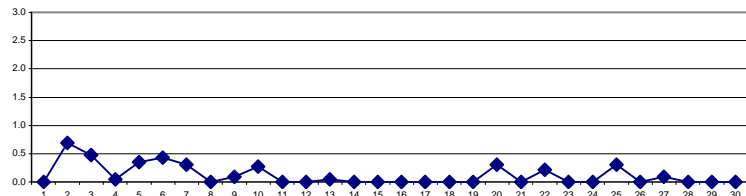
OBJECTIVE LIMIT:

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

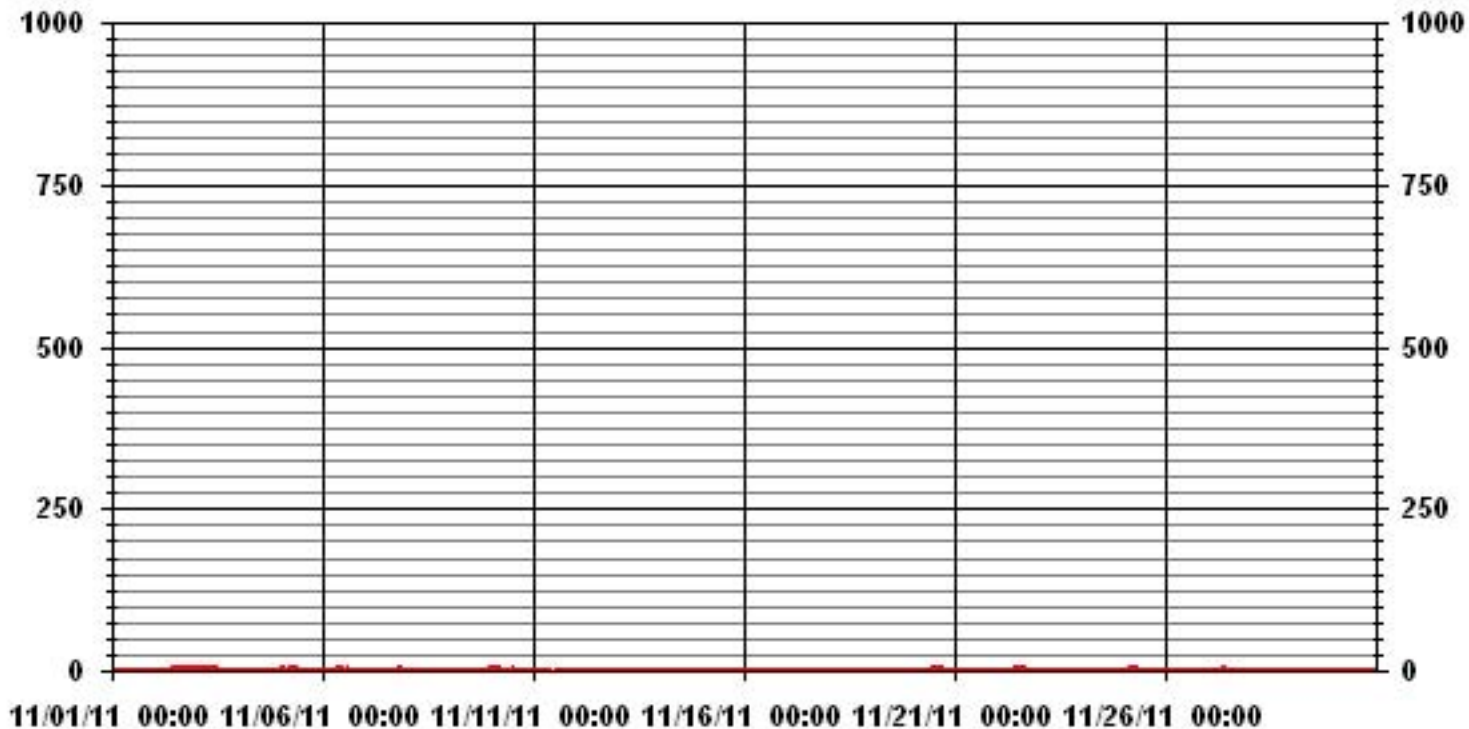
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	80					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	13	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S)	2
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.34		MONTHLY AVERAGE:	0.12	PPB	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

NOVEMBER 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		
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		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	1	0.4	24
2		2	1	1	1	1	1	1	2	1	2	3	3	IZS	3	3	3	3	2	2	2	2	2	2	2	2	3	2.0	24
3		2	2	2	2	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	0	0	0	1	0	2	1.3	24		
4		0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	2	2	1	1	1	2	1	1	2	0.7	24	
5		2	1	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	0	1	0	0	2	1.2	24	
6		1	1	1	1	2	1	1	1	IZS	2	2	2	3	2	2	2	2	2	2	3	2	1	2	2	3	1.7	24	
7		1	1	1	1	1	1	1	IZS	0	1	1	2	2	4	3	2	2	1	1	2	2	1	1	1	4	1.4	24	
8		1	1	1	1	3	1	IZS	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0.6	24	
9		0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	0.9	24	
10		2	2	2	2	IZS	1	1	1	1	1	1	1	2	2	1	2	M	1	1	1	1	1	1	2	2	1.4	23	
11		1	1	1	IZS	0	0	1	0	0	C	C	C	C	C	1	1	1	1	1	1	1	1	1	1	1	0.8	24	
12		1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1.1	24	
13		2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	2	0.9	24	
14		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
15		0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.1	24	
16		1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
17		1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	4	1	1	1	1	IZS	1	2	1	4	1.3	24	
18		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1.0	24	
19		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1.0	24	
20		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	IZS	0	1	1	1	0	0	2	1.2	24	
21		1	2	0	1	1	1	1	1	2	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	1.0	24	
22		1	0	1	1	1	1	2	1	1	1	2	2	2	2	2	IZS	1	1	1	0	0	0	0	0	2	1.0	24	
23		0	0	0	0	1	0	0	0	1	1	1	1	1	1	IZS	1	2	1	1	1	1	1	1	0	2	0.7	24	
24		1	1	1	1	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	0.6	24	
25		1	2	2	2	2	2	2	2	2	1	2	2	IZS	0	0	0	0	0	0	0	0	0	0	3	0	3	1.1	24
26		0	0	0	0	0	0	0	1	0	0	0	0	IZS	0	1	1	1	1	1	1	1	1	1	1	1	0.5	24	
27		1	1	1	1	1	1	1	1	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	0	0	2	1.0	24	
28		0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0	1	1	1	1	1	1	3	3	0.4	24	
29		1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
30		1	1	1	1	1	1	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
HOURLY MAX		2	2	2	2	3	2	2	2	2	2	3	3	3	4	3	4	3	2	2	3	2	2	3	3				
HOURLY AVG		0.9	0.9	0.8	0.9	0.9	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.0	1.1	1.0	0.9	0.9	0.9	0.8	0.8	1.0	0.9				

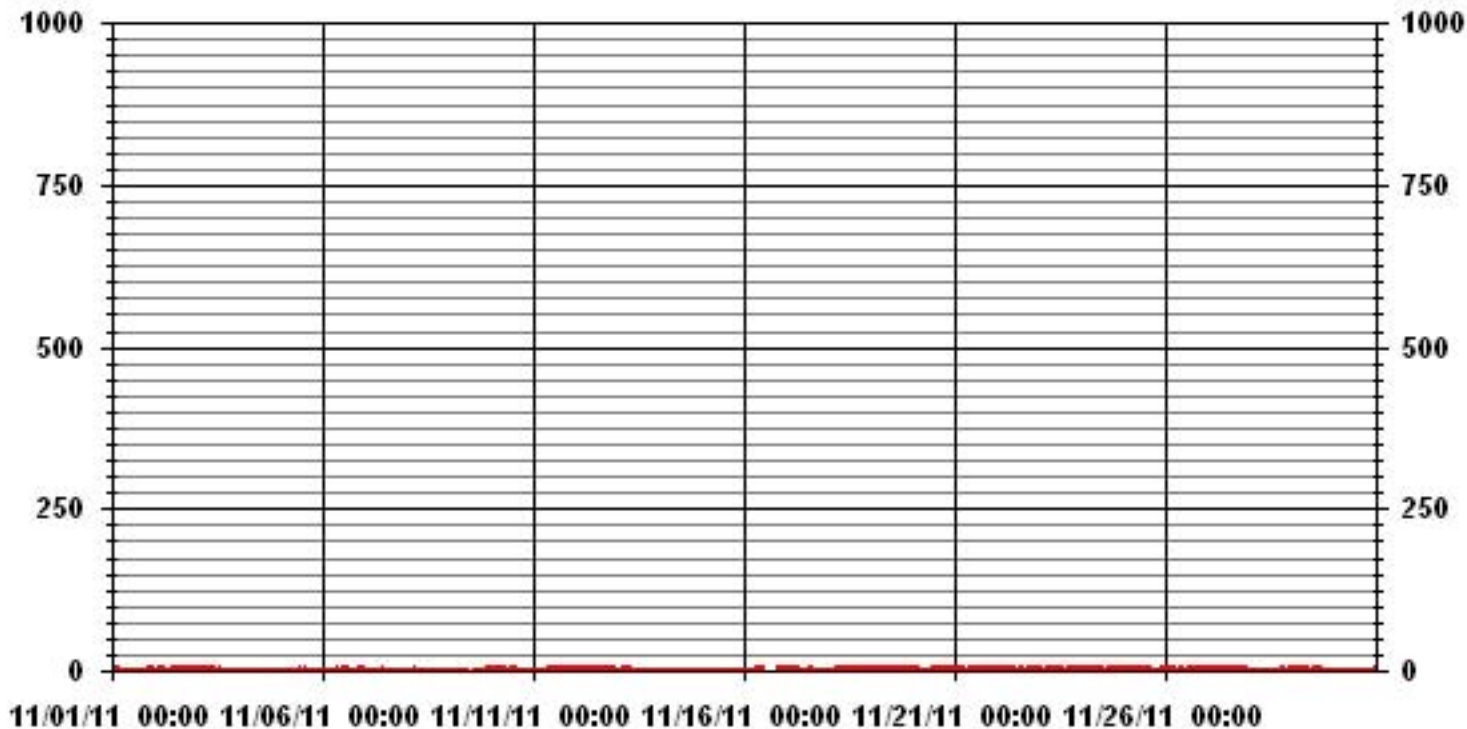
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	504
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 13, 15 ON DAY(S) 7, 17
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.70
OPERATIONAL TIME:	719 HRS

01 Hour Averages



LICA33
 SO2_ / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	1.61	3.66	3.22	5.13	9.82	4.39	6.30	4.83	5.86	5.86	12.02	9.38	8.50	14.80	3.22	1.31	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	1.61	3.66	3.22	5.13	9.82	4.39	6.30	4.83	5.86	5.86	12.02	9.38	8.50	14.80	3.22	1.31	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	11	25	22	35	67	30	43	33	40	40	82	64	58	101	22	9	682
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	11	25	22	35	67	30	43	33	40	40	82	64	58	101	22	9	

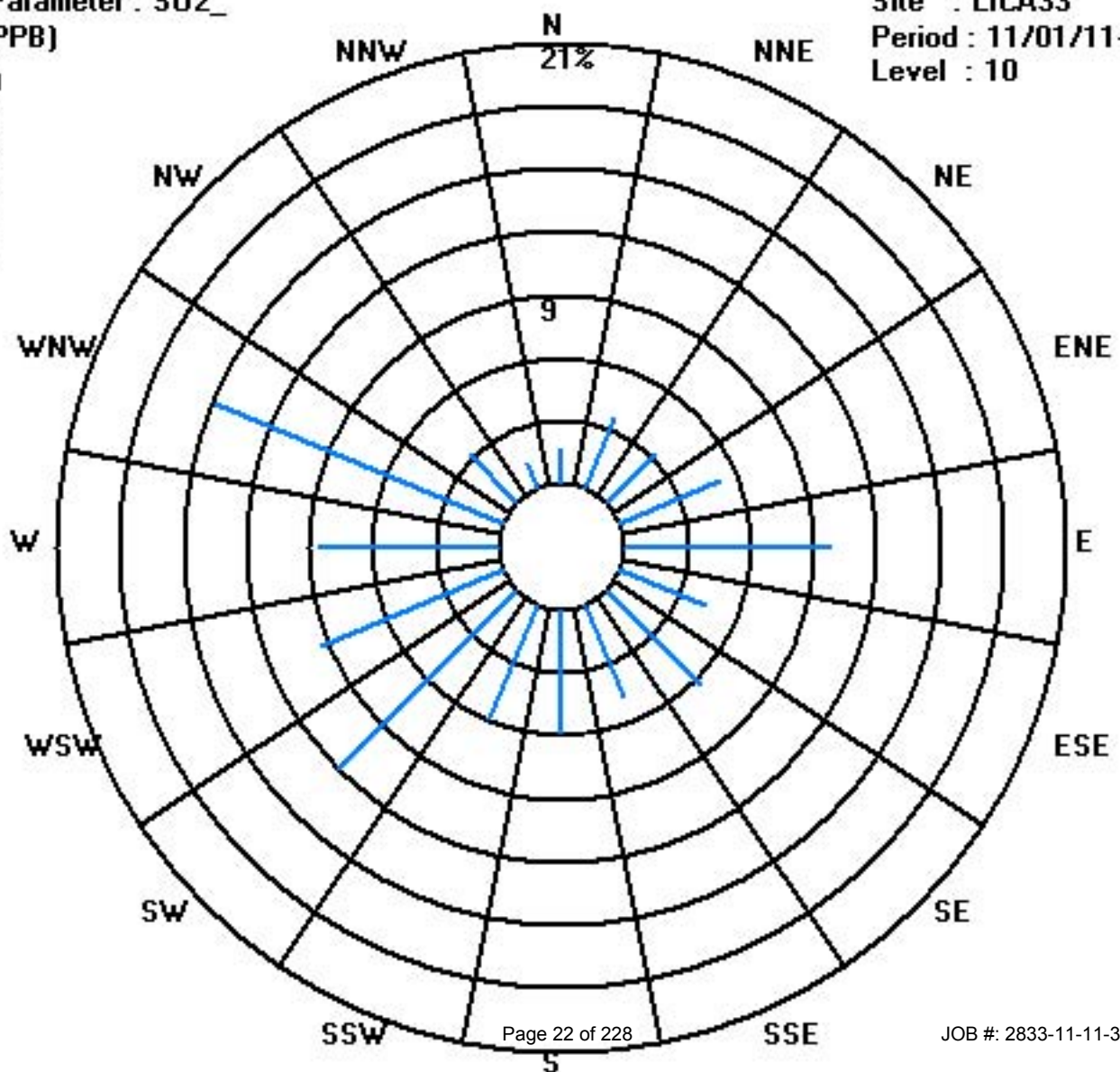
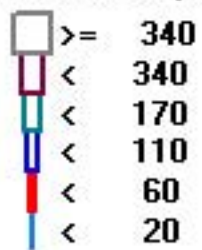
Calm : .00 %

Total # Operational Hours : 682

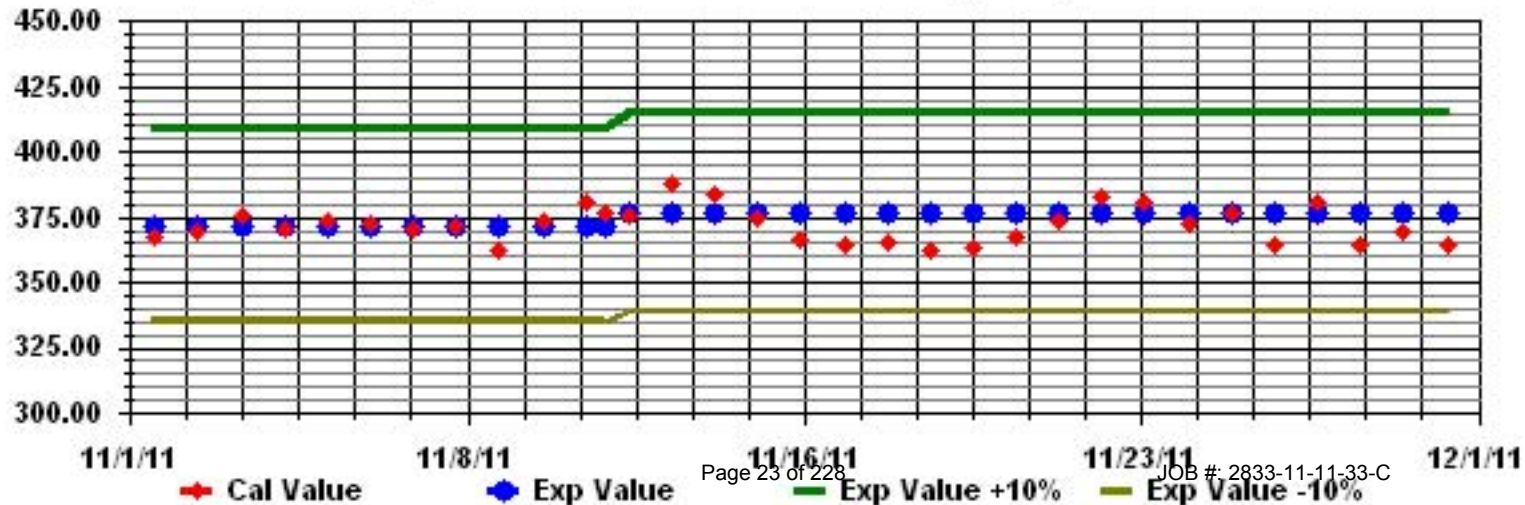
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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 MAX.	24-HOUR AVG.	RDGS.		
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					
DAY																														
1		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	0.0	24
2		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	0.0	24
3		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	0.0	24
4		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
5		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
6		0	0	0	0	0	0	0	0	IZS	1	0	0	0	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	IZS	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	IZS	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	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
10		0	0	1	1	IZS	0	0	0	0	0	0	C	C	C	C	0	0	M	0	0	0	0	0	0	0	1	0.1	23	
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	0.0	24	
12		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	
13		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	
14		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	
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	IZS	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	IZS	0	0	0	0	0	0	0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	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
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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX		0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
HOURLY AVG		0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	NA	- NOT APPLICABLE

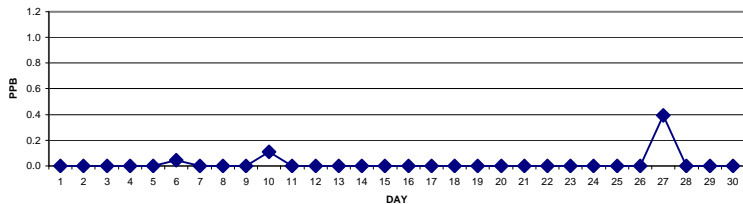
OBJECTIVE LIMIT:

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

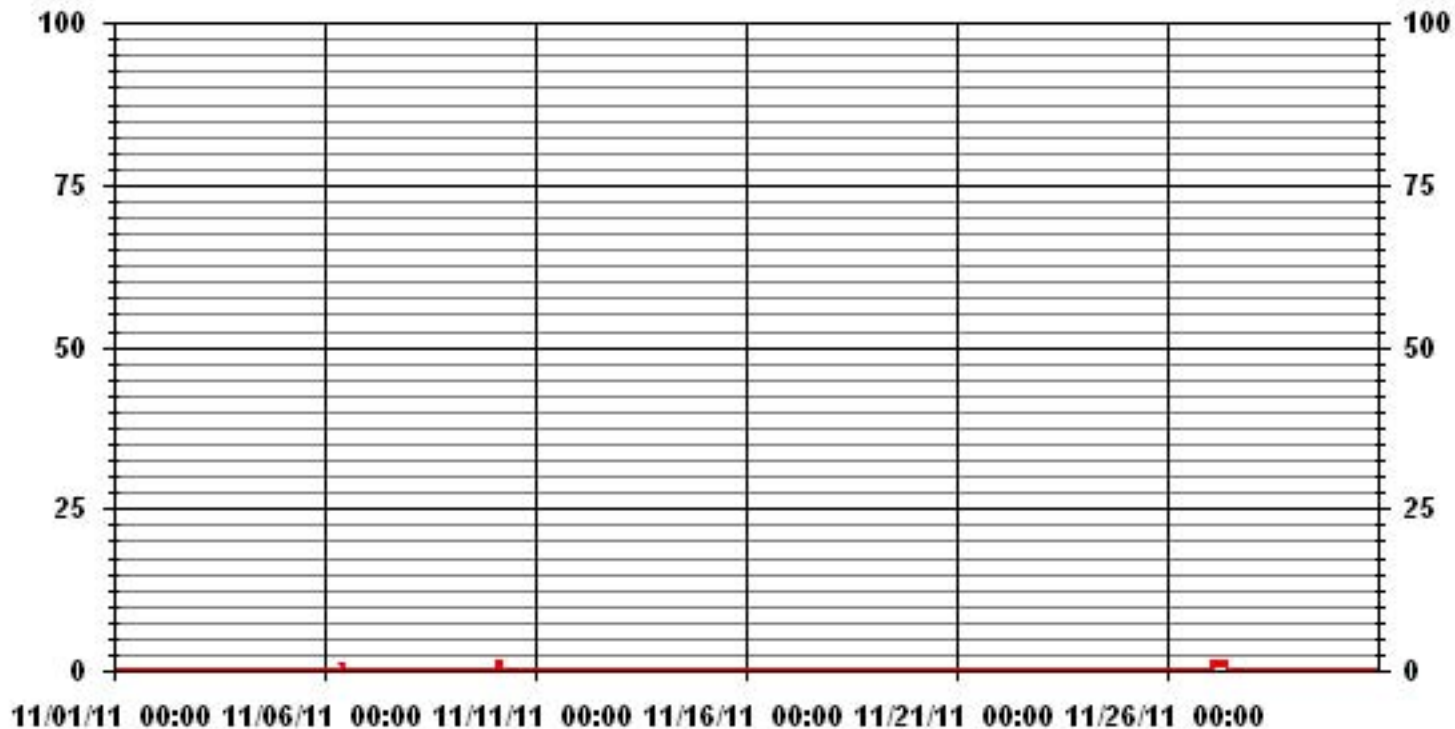
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	12			
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.4 PPB		ON DAY(S)	27
			VAR-VARIOUS	
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	719 HRS	
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME	99.9 %	
STANDARD DEVIATION	0.13	MONTHLY AVERAGE	0.02 PPB	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

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

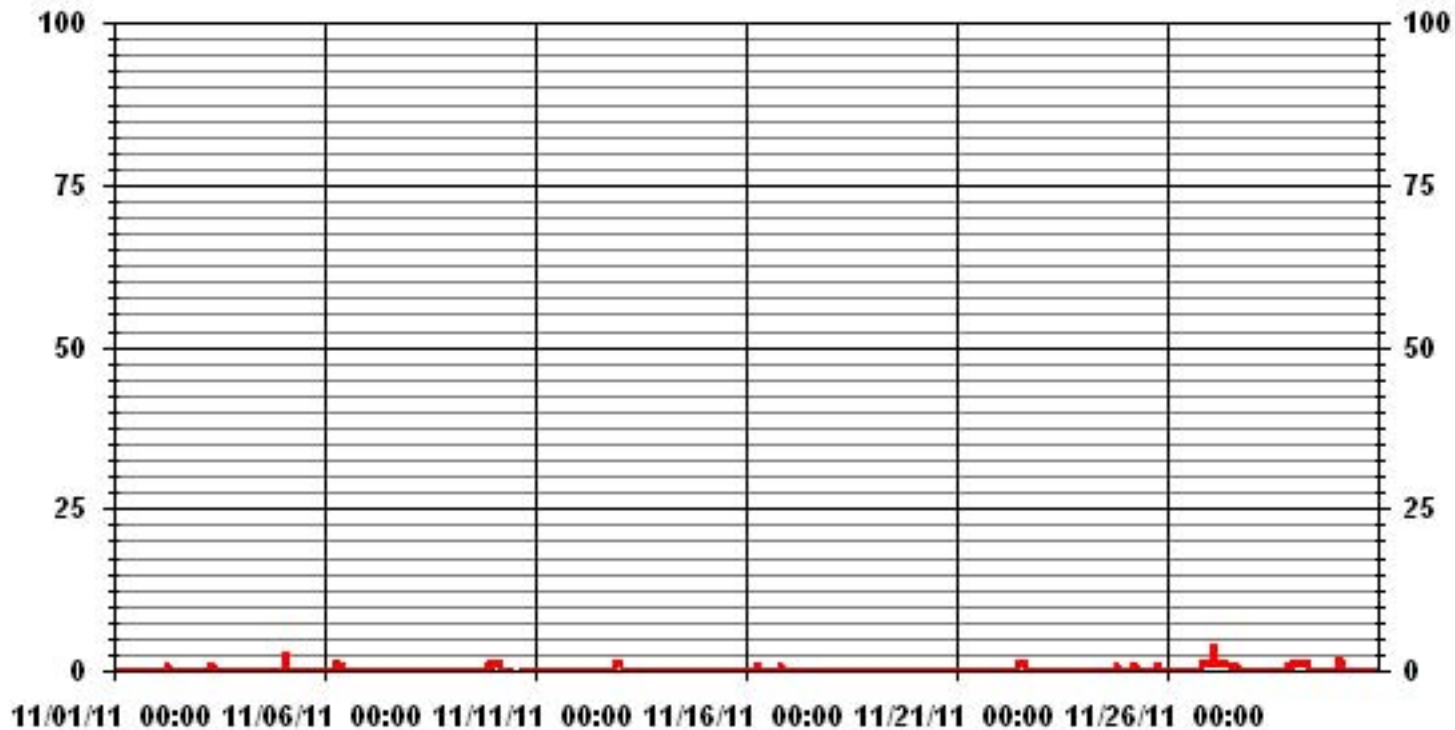
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	56					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	2	ON DAY(S)	27
	VAR - VARIOUS					
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.33					

01 Hour Averages



LICA33
H2S_ / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	1.61	3.66	3.22	5.56	10.10	4.39	6.29	4.83	5.85	5.71	11.71	9.22	8.49	14.78	3.22	1.31	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	1.61	3.66	3.22	5.56	10.10	4.39	6.29	4.83	5.85	5.71	11.71	9.22	8.49	14.78	3.22	1.31	

Calm : .00 %

Total # Operational Hours : 683

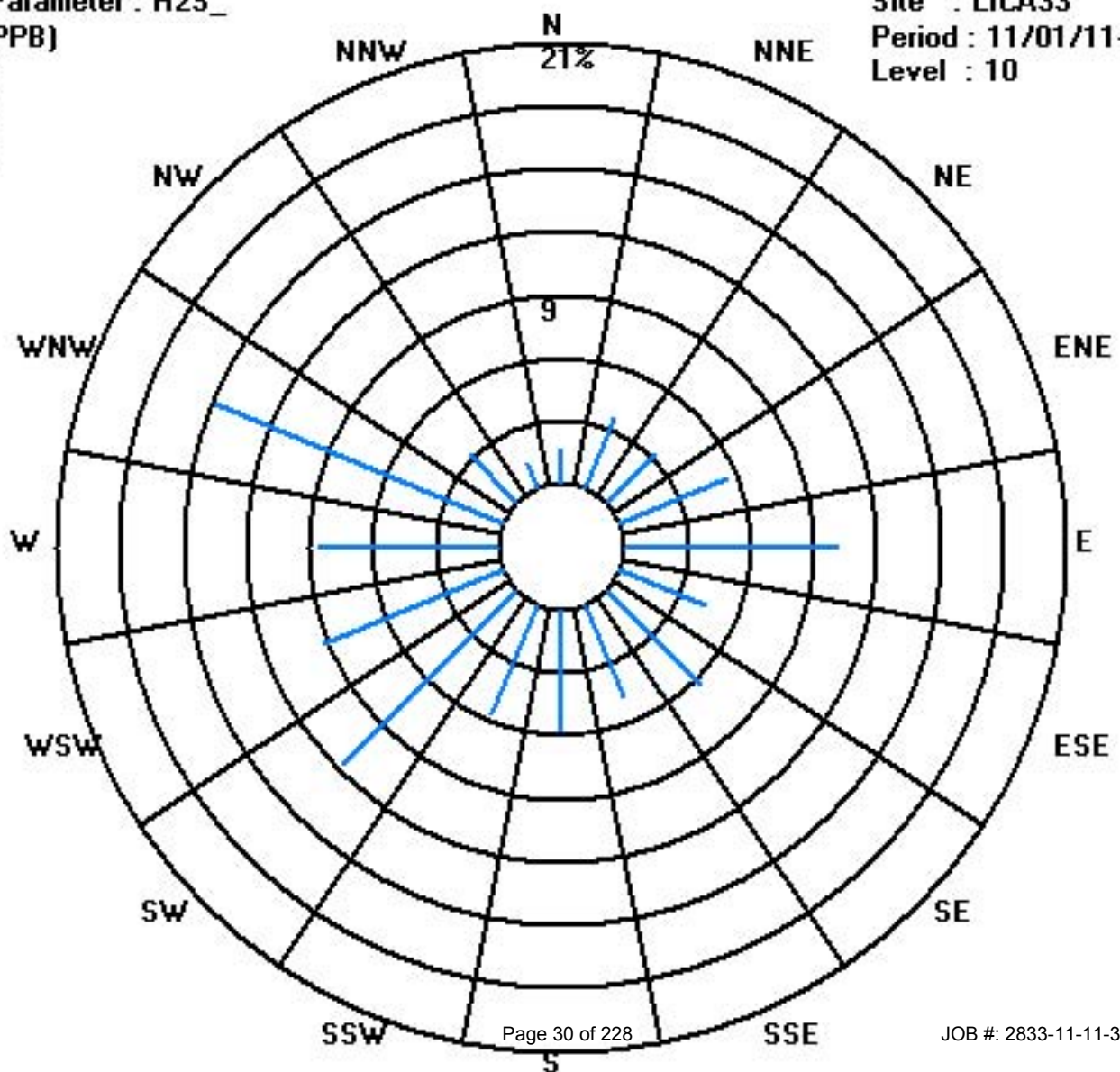
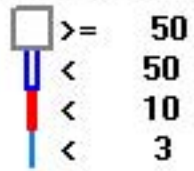
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	11	25	22	38	69	30	43	33	40	39	80	63	58	101	22	9	683
< 10																	
< 50																	
>= 50																	
Totals	11	25	22	38	69	30	43	33	40	39	80	63	58	101	22	9	

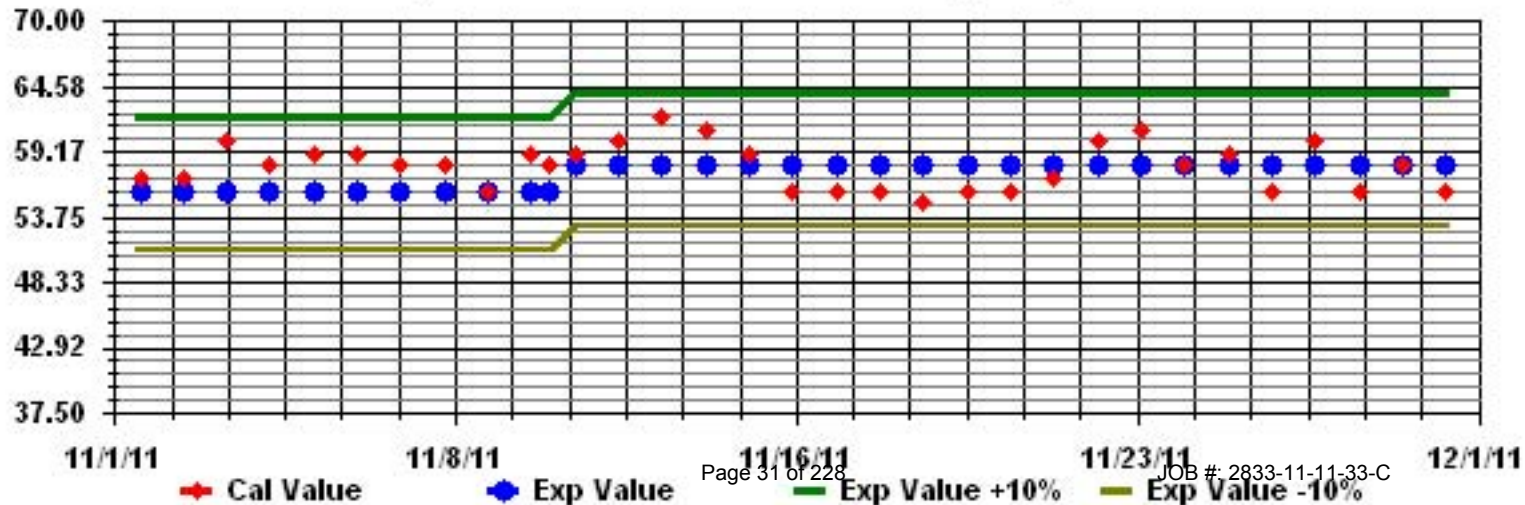
Calm : .00 %

Total # Operational Hours : 683

Class Limits (PPB)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 2011

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

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	N	0.3	8.4	0	0.3	3.8	0	0	4.3	0	11.3	8.4	4.3	2.8	4.3	4.8	1.8	1.8	0.8	1.3	5.8	1.8	5.8	6.9	11.3	3.4	23
2	3.3	2.8	3.3	3.8	3.8	4.8	7.3	6.3	5.8	5.8	8.8	7.8	7.3	2.3	0	6.3	5.8	4.8	2.3	4.3	3.8	2.8	9.3	2.3	9.3	4.8	24
3	11.8	6.8	6.8	6.3	5.3	8.4	4.8	1.8	5.8	9.3	7.3	9.8	10.8	8.4	6.8	7.8	2.8	5.3	4.3	4.8	5.3	2.3	3.3	1.8	11.8	6.2	24
4	5.8	0	3.3	0.9	9.8	0	N	N	3.3	2.8	1.3	8.4	1.8	6.8	5.3	4.3	2.4	0	2.8	10.8	10.8	10.3	9.3	1.3	10.8	4.6	22
5	N	8.8	0	1.9	14.3	5.8	N	8.8	13.4	11.3	15.3	20.3	12.8	8.8	7.8	13.3	10.3	6.8	10.3	10.3	7.8	12.3	13.3	9.8	20.3	10.2	22
6	4.3	6.3	16.3	14.8	22.3	15.3	19.4	2.8	9.8	17.3	10.3	8.8	11.8	16.9	8.8	9.8	14.8	13.8	9.8	14.3	12.3	17.3	7.4	6.8	22.3	0.0	24
7	13.8	16.3	17.3	19.8	16.3	19.4	9.8	2.8	13.3	19.4	7.8	8.8	9.3	8.3	7.3	1.8	7.8	2.3	2.8	5.8	4.3	6.8	8.3	7.8	19.8	9.9	24
8	9.3	4.8	12.8	7.3	9.3	5.3	9.8	5.3	5.3	6.8	6.3	4.8	4.8	4.3	0	N	7.3	6.8	1.3	4.8	4.8	2.3	6.8	0	12.8	5.7	23
9	1.3	8.3	N	10.8	2.8	N	0	0.3	4.8	5.8	2.8	2.8	4.8	5.3	3.8	2.8	2.8	2.8	6.3	3.8	4.3	4.3	5.8	1.8	10.8	4.0	22
10	2.3	0	6.8	4.3	0	1.3	0	9.3	6.3	11.3	9.3	5.3	5.3	3.8	4.3	5.8	3.9	0	0	4.8	0.3	3.3	0.8	11.3	3.9	24	
11	7.3	2.3	6.3	3.3	2.3	3.8	4.8	2.3	2.7	5.3	0.8	M	M	M	M	M	M	M	2.3	5.3	5.3	2.8	5.3	1.8	7.3	3.8	17
12	2.8	0.3	N	N	0.3	2.3	0.8	2.8	2.3	4.8	0	5.3	2.3	3.3	0.3	4.3	0	0.8	2.8	3.8	0.8	0	0	2.8	5.3	2.0	22
13	4.3	0.8	3.3	7.8	7.3	3.3	8.4	10.8	8.8	0	9.3	2.8	6.3	6.3	4.8	0	0	N	0	1.3	0	0	0.8	0	10.8	3.8	23
14	N	0	0.8	0.8	0.8	0	3.3	0	2.3	0	4.3	N	4.8	3.8	0	0.3	1.8	4.3	2.8	0.8	3.3	0	0	N	4.8	1.6	21
15	0	8.8	N	N	0	0	N	N	0	M	M	M	M	M	M	M	M	M	M	C	C	3.8	13.8	18.8	18.8	5.7	10
16	7.8	21.3	14.3	8.4	20.8	5.3	19.8	15.3	17.3	17.3	17.3	11.3	14.3	0.3	14.8	6.8	6.8	8.8	3.8	9.8	19.8	0.8	8.4	13.3	21.3	11.8	24
17	9.8	10.8	2.8	N	0	4.8	6.8	11.3	21.3	6.8	N	4.3	1.3	5.3	N	3.8	10.8	4.3	11.3	N	6.3	N	11.8	N	21.3	7.4	18
18	1.8	5.8	N	2.3	4.8	N	9.3	N	1.3	6.8	0.3	11.8	N	2.3	18.8	8.4	0	N	3.8	11.8	0.8	N	10.3	0	18.8	5.6	18
19	N	12.8	N	0	17.3	N	6.3	10.8	2.4	N	12.8	6.8	9.8	N	0	3.3	0.3	N	0	N	N	1.8	8.4	0	17.3	5.8	16
20	3.3	9.8	14.3	16.3	17.8	15.8	18.8	6.3	12.8	13.8	16.9	7.8	0	10.8	16.3	9.8	15.8	18.8	19.8	16.9	23.8	17.3	28.8	15.8	28.8	14.5	24
21	17.8	12.8	12.8	16.9	17.8	11.8	14.8	9.3	15.8	18.3	19.8	19.8	8.8	0	0.3	11.8	7.8	0	9.8	5.3	1.3	4.8	16.3	4.3	19.8	10.8	24
22	1.3	7.8	9.3	1.8	3.8	7.3	14.8	4.3	6.8	11.8	16.8	6.8	0	10.8	7.8	8.3	1.8	9.8	10.8	7.8	1.3	12.8	17.3	6.8	17.3	7.8	24
23	4.3	13.3	7.8	13.8	12.8	12.8	9.8	0	12.3	17.8	13.3	12.3	4.3	5.8	3.3	7.3	6.8	3.8	3.3	4.8	6.3	3.8	6.3	13.8	17.8	8.3	24
24	10.8	7.3	12.3	7.8	11.8	5.3	0.8	12.8	4.3	8.8	11.3	14.8	7.3	10.8	10.3	1.8	7.3	10.8	9.3	5.8	10.3	20.3	12.3	9.8	20.3	9.3	24
25	6.3	6.3	3.3	15.3	15.8	11.8	12.3	18.8	19.8	16.9	16.9	16.3	17.8	14.8	14.3	7.8	0	2.3	0	7.8	0	4.8	0	0	19.8	9.6	24
26	1.3	3.8	6.3	2.8	0	2.8	7.3	19.8	19.8	0	4.8	0	5.8	6.8	2.3	2.3	2.3	2.3	3.8	6.3	6.8	0	6.8	1.8	19.8	4.8	24
27	7.8	2.3	4.8	4.8	5.8	0	0	N	3.8	0	2.3	5.8	6.8	0	0	N	6.3	N	0	5.3	N	N	7.8	0.8	7.8	3.4	19
28	1.8	8.4	10.3	1.8	5.8	4.3	3.3	3.8	8.3	N	0.8	0	2.3	2.8	N	1.8	5.3	2.3	3.3	0.8	6.3	0	2.3	4.3	10.3	3.6	22
29	5.8	N	3.3	6.8	7.8	6.8	2.8	9.3	9.8	8.3	5.3	2.8	N	8.3	0	0	4.3	0.3	8.4	4.8	0	2.3	3.8	8.8	9.8	5.0	22
30	3.8	8.8	5.3	6.8	5.8	8.8	5.8	0.8	1.8	4.8	6.3	4.8	0.8	0	1.3	4.8	5.3	10.3	2.8	1.8	0	0	7.3	8.8	10.3	4.5	24
HOURLY MAX	18	21	17	20	22	19	20	20	21	19	20	20	18	17	19	13	16	19	20	17	24	20	29	19			
HOURLY AVG	5.8	6.8	7.7	6.9	8.1	6.3	7.4	6.8	8.2	8.6	8.6	8.1	6.4	6.0	5.5	5.3	5.2	5.3	4.8	5.9	5.8	5.0	8.0	5.4			

STATUS FLAG CODES

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

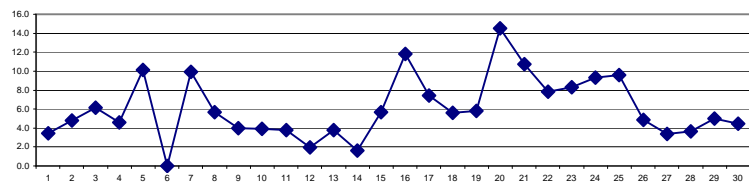
OBJECTIVE LIMIT:

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

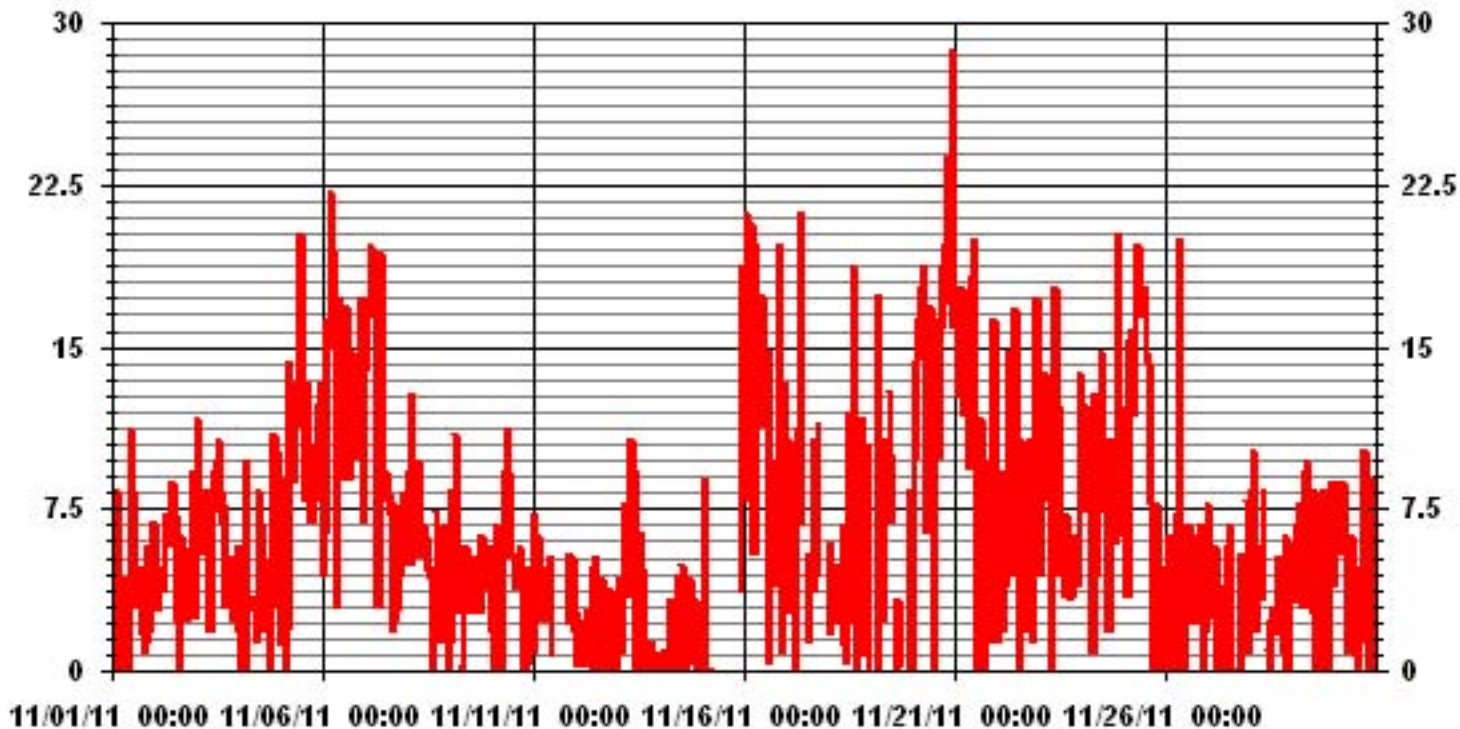
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0
PROPOSED CANADA WIDE GUIDELINE	
NUMBER OF NON-ZERO READINGS:	580
MAXIMUM 1-HR AVERAGE:	28.8 UG/M ³ @ HOUR(S) 22 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	14.5 UG/M ³ ON DAY(S) 20
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	2 HRS
OPERATIONAL TIME:	656 HRS
AMD OPERATION UPTIME:	91.1 %
STANDARD DEVIATION:	5.41
MONTHLY AVERAGE:	6.60 UG/M ³

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA33 PM2 UG/M3

LICA33
 PM2 / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	1.53	3.22	3.22	5.67	9.96	4.75	6.28	5.06	6.13	6.28	12.88	9.66	8.58	12.88	2.60	1.22	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	1.53	3.22	3.22	5.67	9.96	4.75	6.28	5.06	6.13	6.28	12.88	9.66	8.58	12.88	2.60	1.22	

Calm : .00 %

Total # Operational Hours : 652

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	10	21	21	37	65	31	41	33	40	41	84	63	56	84	17	8	652
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	10	21	21	37	65	31	41	33	40	41	84	63	56	84	17	8	

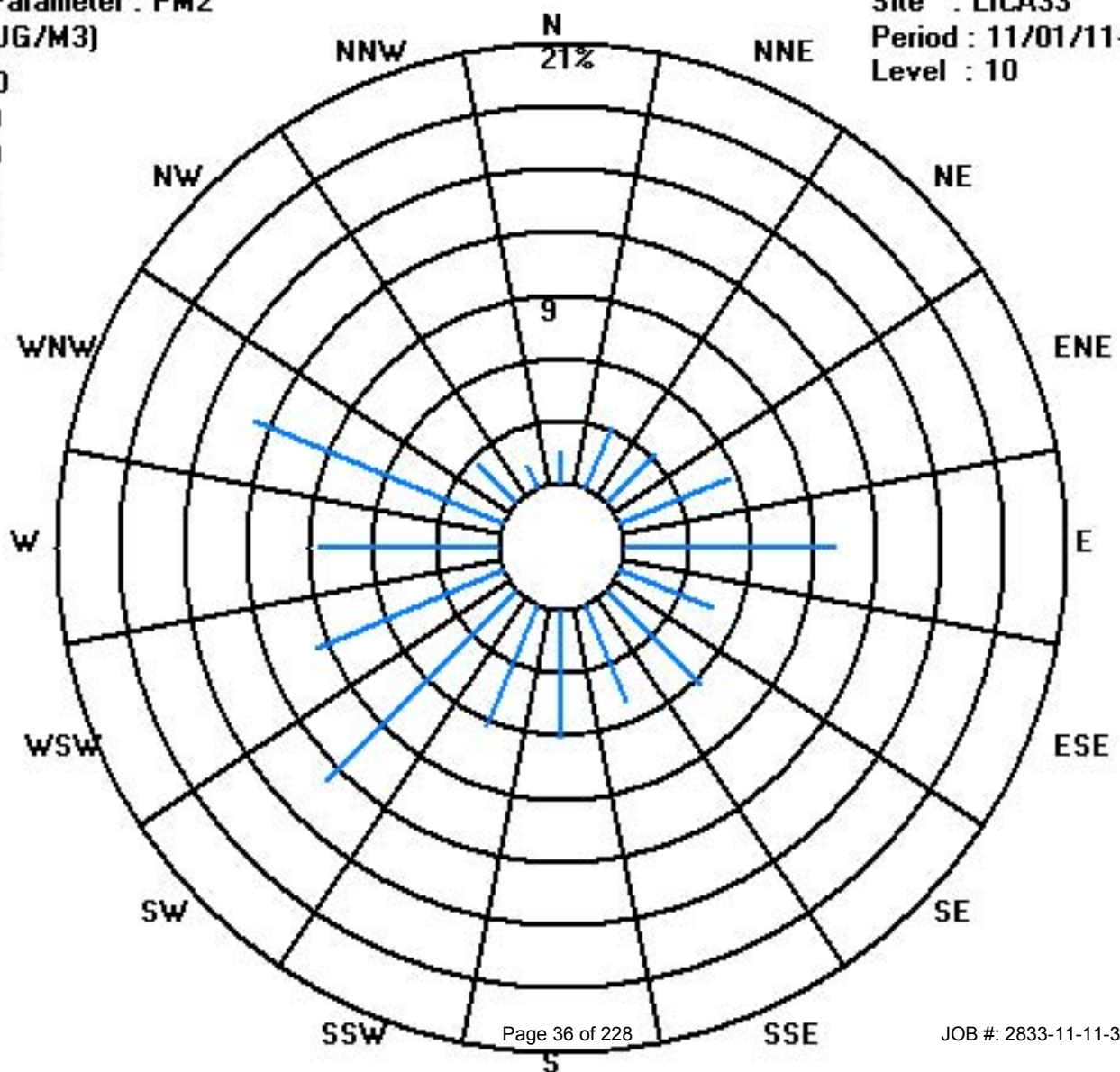
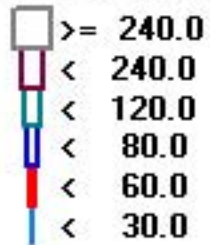
Calm : .00 %

Total # Operational Hours : 652

Class Limits (UG/M3)

Period : 11/01/11-11/30/11

Level : 10



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 2011

NITROGEN DIOXIDE hourly averages in ppb

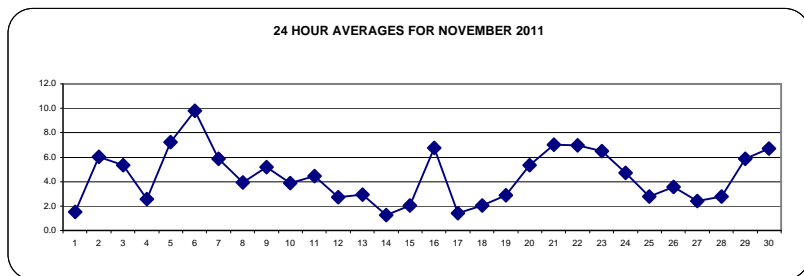
MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	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	1	1	0	1	1	2	2	2	2	1	1	1	1	IZS	1	1	3	3	3	1	1	1	2	3	3	1.5	24	
2	3	2	7	4	3	5	9	13	12	7	4	4	IZS	5	5	5	6	6	6	5	8	7	7	6	13	6.0	24	
3	6	4	4	5	4	10	6	12	9	8	6	IZS	5	5	5	5	7	6	9	3	1	1	1	1	12	5.3	24	
4	1	1	1	1	1	2	3	2	3	2	IZS	1	1	1	1	2	3	7	5	5	3	3	5	5	7	2.6	24	
5	5	9	11	7	9	7	7	9	9	IZS	5	4	4	3	3	5	7	7	9	9	12	11	11	12	12	7.2	24	
6	8	7	11	11	11	9	10	11	IZS	14	12	11	10	8	7	8	8	11	14	8	14	10	6	6	14	9.8	24	
7	6	5	5	6	5	6	11	IZS	12	11	7	4	4	4	4	5	6	6	3	4	6	5	5	5	12	5.9	24	
8	9	8	11	7	6	6	IZS	4	3	3	2	0	0	1	0	0	2	6	7	2	2	3	7	1	11	3.9	24	
9	3	12	4	12	11	IZS	11	7	5	4	3	3	2	3	2	3	5	6	6	4	4	3	3	3	12	5.2	24	
10	2	2	3	3	IZS	3	3	4	4	5	C	C	C	C	C	C	C	2	8	3	2	7	4	7	8	3.9	24	
11	9	6	3	IZS	2	2	3	9	6	8	8	7	6	4	3	3	3	4	4	2	2	2	2	4	9	4.4	24	
12	4	2	IZS	5	5	3	5	5	5	3	2	1	1	1	1	1	2	3	3	3	2	2	2	2	5	2.7	24	
13	2	IZS	2	3	3	4	5	5	4	5	3	2	2	2	5	2	4	3	3	4	2	1	1	1	5	3.0	24	
14	IZS	3	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	3	1.3	24
15	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	3	4	5	6	3	IZS	6	6	2.0	24	
16	6	3	3	3	3	3	14	14	12	10	8	7	6	5	5	4	10	8	12	11	4	IZS	3	1	14	6.7	24	
17	1	1	1	1	1	1	0	0	0	1	1	1	1	3	2	2	2	1	2	3	IZS	2	3	3	3	1.4	24	
18	4	4	2	2	2	2	3	2	1	2	1	1	1	1	1	1	1	2	2	IZS	3	4	3	2	4	2.0	24	
19	2	5	2	2	3	1	1	1	2	2	1	2	2	1	2	2	2	5	IZS	6	6	6	5	5	6	2.9	24	
20	4	4	3	3	3	4	4	4	6	4	3	3	3	4	5	6	7	IZS	8	8	9	7	9	12	5.3	24		
21	10	13	12	11	13	10	10	12	9	7	5	4	4	4	3	4	IZS	4	4	3	4	5	3	7	13	7.0	24	
22	5	4	5	10	12	8	7	8	7	5	5	4	4	4	4	IZS	7	7	12	9	9	7	9	8	12	7.0	24	
23	4	4	6	7	11	12	9	11	14	13	8	7	6	4	IZS	5	2	6	5	3	2	5	3	2	14	6.5	24	
24	5	7	5	5	3	5	4	5	7	4	2	2	2	IZS	5	4	3	5	11	8	7	4	3	2	11	4.7	24	
25	2	2	2	2	3	3	4	4	4	6	6	7	IZS	6	3	3	2	0	0	0	0	0	0	5	7	2.8	24	
26	1	2	1	0	1	2	2	4	8	6	7	IZS	4	4	4	4	5	5	5	4	4	3	3	3	8	3.6	24	
27	3	3	4	3	3	3	3	3	3	3	3	IZS	2	1	2	4	2	2	5	1	1	1	1	1	5	2.4	24	
28	1	1	1	1	1	1	2	6	6	IZS	2	2	1	1	3	4	7	6	4	4	3	3	2	2	7	2.8	24	
29	3	5	4	3	4	5	8	7	IZS	4	3	2	0	1	1	6	11	11	8	8	16	9	7	9	16	5.9	24	
30	13	15	14	15	15	9	4	IZS	5	7	6	2	2	3	2	2	3	3	6	6	8	7	5	2	15	6.7	24	
HOURLY MAX	13	15	14	15	15	12	14	14	14	14	12	11	10	8	7	8	11	11	14	11	16	12	11	12				
HOURLY AVG	4.3	4.7	4.5	4.7	4.9	4.5	5.2	6.0	5.8	5.3	4.2	3.2	2.8	3.0	3.0	3.2	4.3	4.9	5.6	4.6	4.8	4.3	4.0	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:

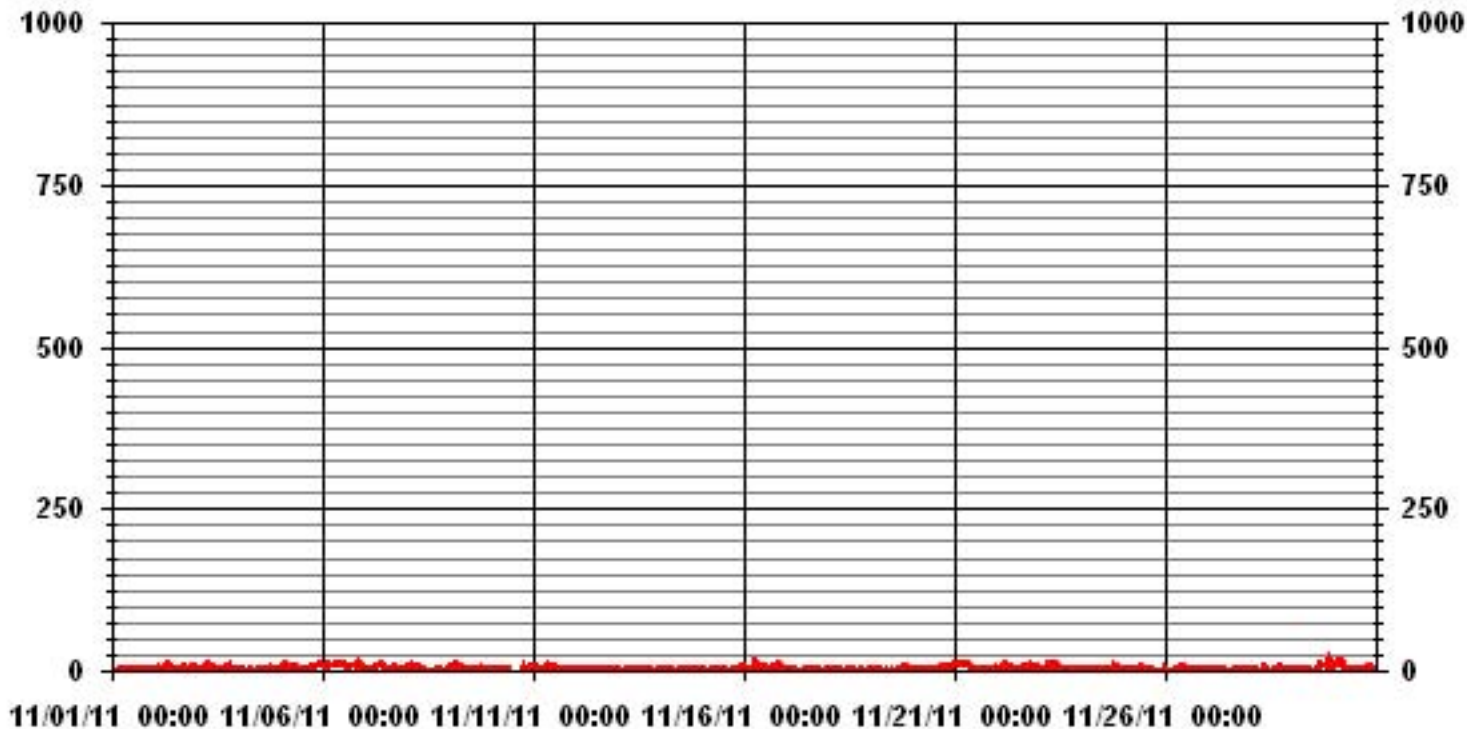
ALBERTA ENVIRONMENT: 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	666					
MAXIMUM 1-HR AVERAGE:	16	PPB	@ HOUR(S)	20	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE:	9.8	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	3.26		MONTHLY AVERAGE	4.42	PPB	

01 Hour Averages



— LICA33 H02_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3	2	1	1	3	3	3	4	3	2	1	1	2	IZS	1	1	7	6	8	2	2	2	3	4	8	2.8	24	
2	4	3	11	10	4	9	10	19	16	10	6	6	IZS	6	6	6	7	8	7	6	11	11	15	9	19	8.7	24	
3	9	7	4	7	6	14	12	22	15	10	7	IZS	6	6	6	18	7	15	7	2	2	2	2	2	22	8.3	24	
4	2	1	2	1	2	3	3	13	5	4	IZS	7	2	2	3	4	7	11	13	7	6	4	6	7	13	5.0	24	
5	6	12	15	15	12	10	9	11	11	IZS	6	5	5	4	4	4	10	11	10	12	14	16	16	16	16	10.2	24	
6	13	10	14	14	14	12	20	15	IZS	21	13	12	12	10	8	10	19	19	18	11	23	14	8	7	23	13.8	24	
7	7	6	7	8	7	9	16	IZS	14	12	10	6	5	5	16	6	8	8	4	5	12	8	5	6	16	8.3	24	
8	18	13	18	15	12	15	IZS	8	5	7	7	1	1	2	1	17	21	20	4	5	12	17	2	21	9.7	24		
9	9	19	12	16	19	IZS	22	14	13	6	4	4	3	5	3	5	6	8	8	6	5	4	4	4	22	8.7	24	
10	3	3	3	3	IZS	4	4	5	5	5	C	C	C	C	C	C	C	6	13	6	8	13	11	12	13	6.5	24	
11	14	15	4	IZS	5	4	7	11	8	9	10	10	8	8	5	4	4	6	6	3	3	4	4	6	15	6.9	24	
12	6	5	IZS	9	8	6	8	7	9	6	5	2	2	2	2	2	3	3	4	3	3	3	3	3	9	4.5	24	
13	3	IZS	3	3	4	4	7	6	5	7	4	3	3	4	7	4	6	4	6	8	3	1	2	2	8	4.3	24	
14	IZS	7	3	3	2	2	2	3	3	2	2	1	8	2	2	3	2	2	2	1	1	1	1	IZS	8	2.5	24	
15	1	1	2	3	3	3	3	2	2	2	2	1	1	1	2	2	2	5	5	9	10	5	IZS	8	10	3.3	24	
16	10	6	4	5	5	6	20	18	15	13	11	8	8	7	8	5	20	13	19	19	14	IZS	4	2	20	10.4	24	
17	2	2	2	2	1	2	1	1	1	1	1	2	4	4	3	4	3	2	3	5	IZS	4	5	8	8	2.7	24	
18	7	6	3	5	5	5	4	5	3	3	2	3	2	2	3	2	2	4	4	IZS	9	9	4	3	9	4.1	24	
19	3	9	4	2	7	2	2	2	5	3	2	2	2	2	2	3	3	11	IZS	10	9	7	6	6	11	4.5	24	
20	5	4	3	4	4	5	5	7	12	9	7	11	4	4	6	16	8	IZS	9	9	10	9	10	16	16	7.7	24	
21	12	19	14	13	16	11	11	15	13	10	5	4	5	5	4	6	IZS	4	5	5	5	6	6	10	19	8.9	24	
22	6	5	9	14	15	12	10	12	10	6	6	5	5	5	7	IZS	10	12	14	14	15	9	12	12	15	9.8	24	
23	5	5	7	9	18	20	12	15	19	23	12	9	10	6	IZS	11	7	17	9	5	5	8	6	4	23	10.5	24	
24	9	10	7	10	5	11	7	11	12	9	4	4	22	IZS	6	5	5	7	17	11	8	6	3	3	22	8.3	24	
25	2	3	3	3	3	4	4	5	12	11	7	9	IZS	20	4	8	3	1	1	1	1	1	1	11	20	5.1	24	
26	4	5	2	1	6	7	3	7	28	11	8	IZS	5	4	5	6	6	6	5	4	4	4	4	28	6.1	24		
27	4	4	4	4	4	4	4	4	4	4	IZS	3	3	7	8	11	3	9	2	2	1	1	1	2	11	4.0	24	
28	1	2	2	1	2	2	5	9	27	IZS	3	3	2	2	4	7	9	9	5	4	4	4	3	3	27	4.9	24	
29	3	10	5	4	5	6	13	8	IZS	5	5	6	1	3	3	10	14	15	12	18	23	16	11	15	23	9.2	24	
30	16	16	16	17	18	20	9	IZS	8	9	8	3	3	3	4	4	4	15	9	11	9	6	3	20	9.3	24		
HOURLY MAX	18	19	18	17	19	20	22	22	28	23	13	12	22	20	16	16	20	21	20	19	23	16	17	16				
HOURLY AVG	6.4	7.2	6.3	7.0	7.4	7.4	8.1	9.3	10.1	7.9	5.9	4.9	5.0	4.9	4.8	5.6	7.6	8.2	9.0	7.1	7.8	6.7	6.2	6.6				

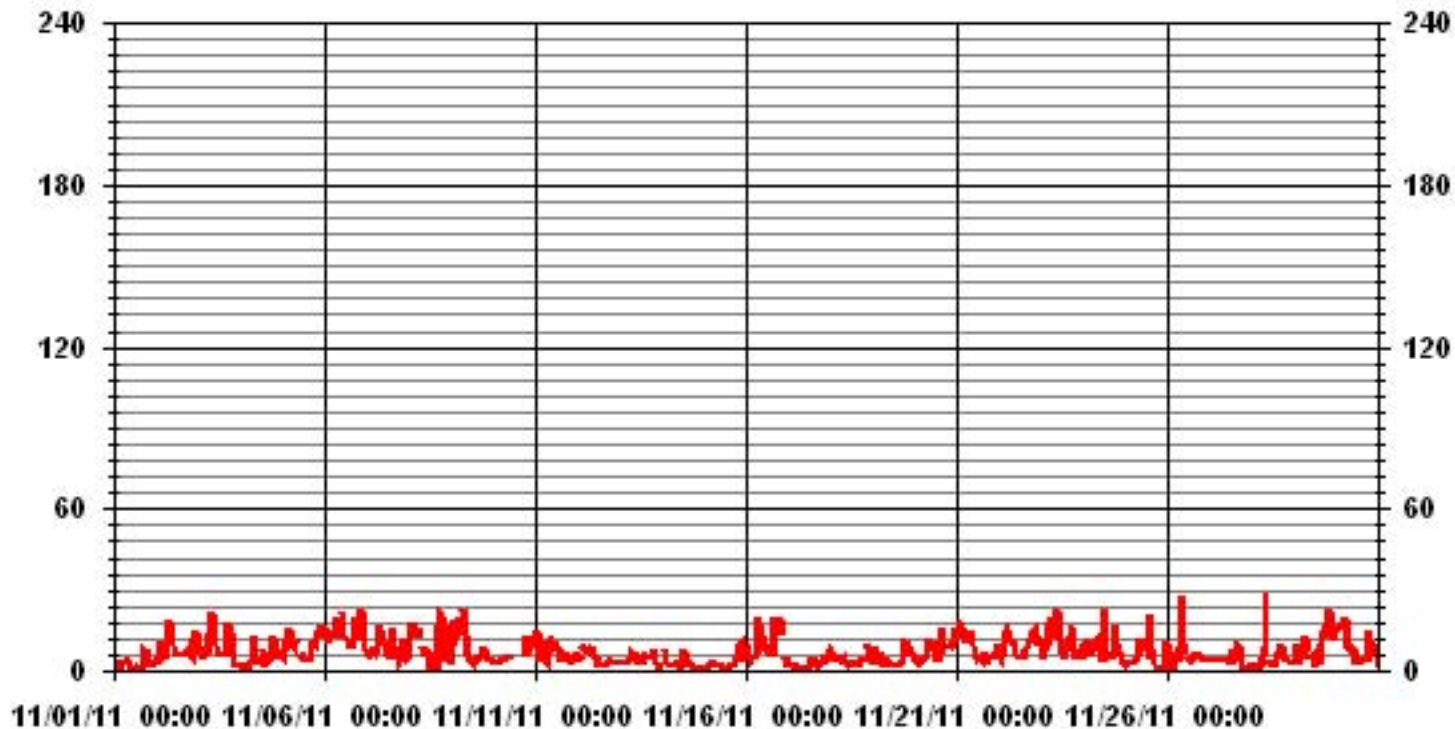
STATUS FLAG CODES

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:	682				
MAXIMUM INSTANTANEOUS VALUE:	28	PPB	@ HOUR(S)	8	ON DAY(S) 26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	5.02				

01 Hour Averages



— LICA33 IIO2MAX PPB

LICA33
 NO2_ / WDR Joint Frequency Distribution (Percent)

November 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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.83	3.23	1.32	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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.83	3.23	1.32	

Calm : .00 %

Total # Operational Hours : 681

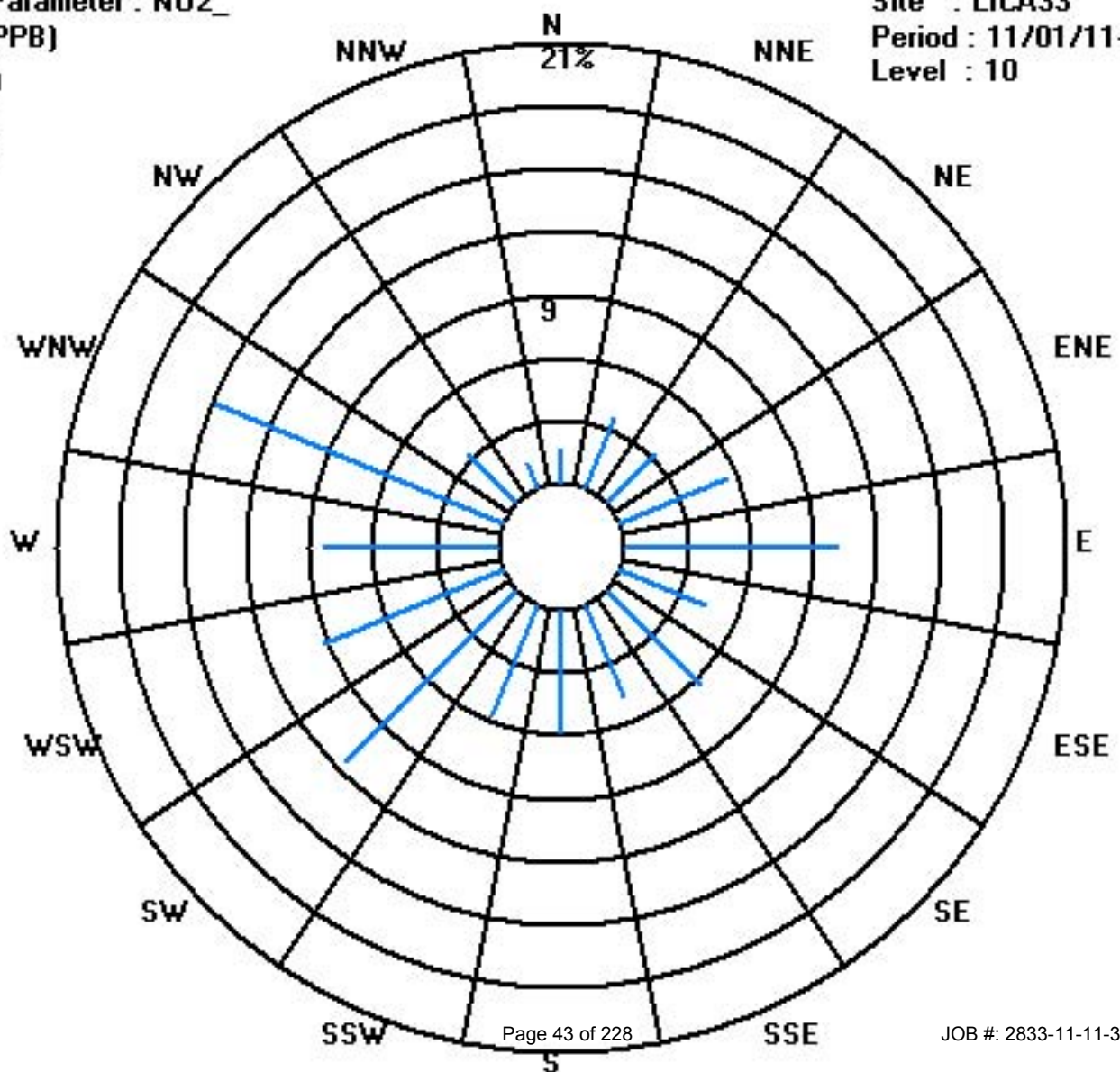
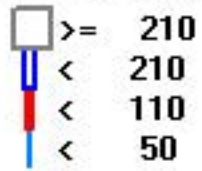
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	11	25	22	38	69	30	43	33	40	39	79	63	57	101	22	9	681
< 110																	
< 210																	
>= 210																	
Totals	11	25	22	38	69	30	43	33	40	39	79	63	57	101	22	9	

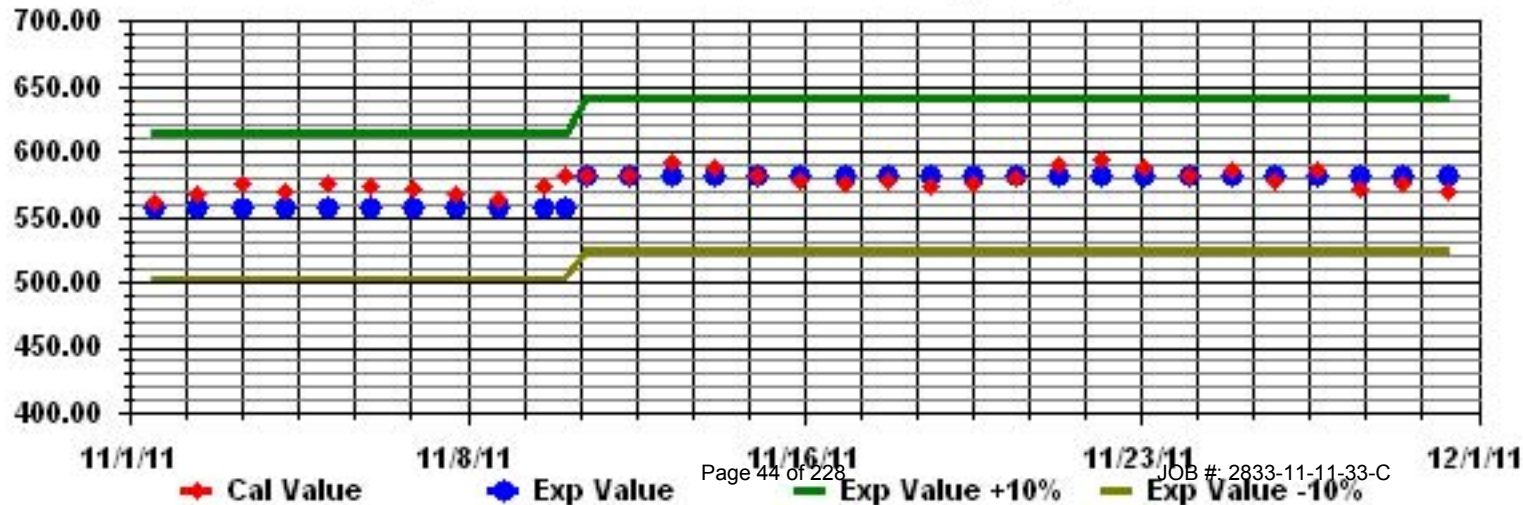
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
2	0	0	0	0	0	0	0	1	3	2	1	1	IZS	1	1	0	0	0	0	0	0	0	1	0	3	0.5	24	
3	0	0	0	0	0	2	0	8	6	5	4	IZS	3	3	2	1	1	1	1	1	1	1	1	1	8	1.8	24	
4	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
5	1	2	5	1	11	2	2	4	10	IZS	3	2	2	1	0	0	0	0	0	0	0	0	0	2	11	2.1	24	
6	0	0	1	3	5	5	21	26	IZS	49	26	17	13	4	2	1	1	0	3	0	1	0	0	0	49	7.7	24	
7	0	0	0	0	0	0	1	IZS	2	3	3	2	2	1	1	0	0	0	0	0	0	0	0	0	3	0.7	24	
8	1	0	3	0	0	2	IZS	0	1	1	1	0	0	0	0	0	0	2	0	0	0	1	3	0	3	0.7	24	
9	0	6	1	5	4	IZS	4	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6	1.1	24	
10	0	0	0	0	IZS	1	1	1	1	1	C	C	C	C	C	C	C	0	3	0	0	3	2	4	4	1.1	24	
11	6	2	0	IZS	0	0	0	7	1	4	6	5	2	1	0	0	0	0	0	0	0	0	0	0	7	1.5	24	
12	0	0	IZS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
13	0	IZS	1	1	1	1	1	1	2	2	2	2	1	2	4	1	1	1	1	1	0	0	1	1	4	1.2	24	
14	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	IZS	1	0.8	24	
15	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	1	0.9	24	
16	0	0	0	0	0	0	12	7	9	8	6	4	3	3	2	1	1	0	1	5	0	IZS	0	0	12	2.7	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	IZS	0	0	0	1	0.1	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0.2	24	
19	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	1	0.7	24	
20	0	0	0	0	0	0	0	0	2	1	1	1	1	1	2	1	0	IZS	0	0	0	0	0	1	2	0.5	24	
21	0	5	0	0	2	0	0	0	2	5	4	3	3	3	1	1	IZS	0	0	0	0	0	0	0	5	1.3	24	
22	0	0	0	0	6	0	0	0	1	1	2	2	1	1	1	IZS	0	0	0	0	1	0	0	0	6	0.7	24	
23	0	0	0	0	1	3	0	3	12	11	3	2	2	1	IZS	1	0	0	1	0	0	0	0	0	12	1.7	24	
24	0	0	0	0	0	1	0	0	4	2	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	4	0.5	24	
25	0	0	0	0	0	0	0	0	0	1	2	3	1	IZS	6	0	0	0	0	0	0	0	0	1	6	0.6	24	
26	0	0	0	0	0	0	0	0	1	2	3	IZS	1	1	1	0	0	0	0	0	0	0	0	0	3	0.4	24	
27	0	0	0	0	0	0	0	0	0	0	IZS	2	1	2	2	1	1	1	1	1	1	1	0	2	0.6	24		
28	0	0	0	0	0	1	0	1	2	IZS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
29	0	0	0	0	0	0	0	0	IZS	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0.2	24	
30	2	16	22	5	10	5	0	IZS	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	22	2.7	24	
HOURLY MAX	6	16	22	5	11	5	21	26	12	49	26	17	13	6	4	1	1	2	3	5	1	3	3	4				
HOURLY AVG	0.5	1.2	1.3	0.7	1.6	0.9	1.6	2.3	2.4	3.8	2.8	2.0	1.5	1.3	0.9	0.5	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.4				

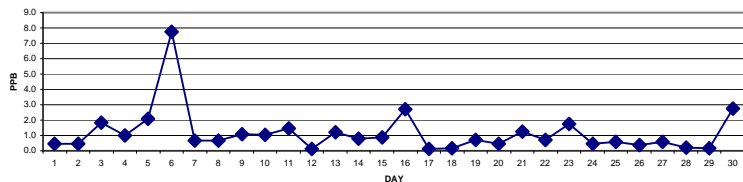
STATUS FLAG CODES

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

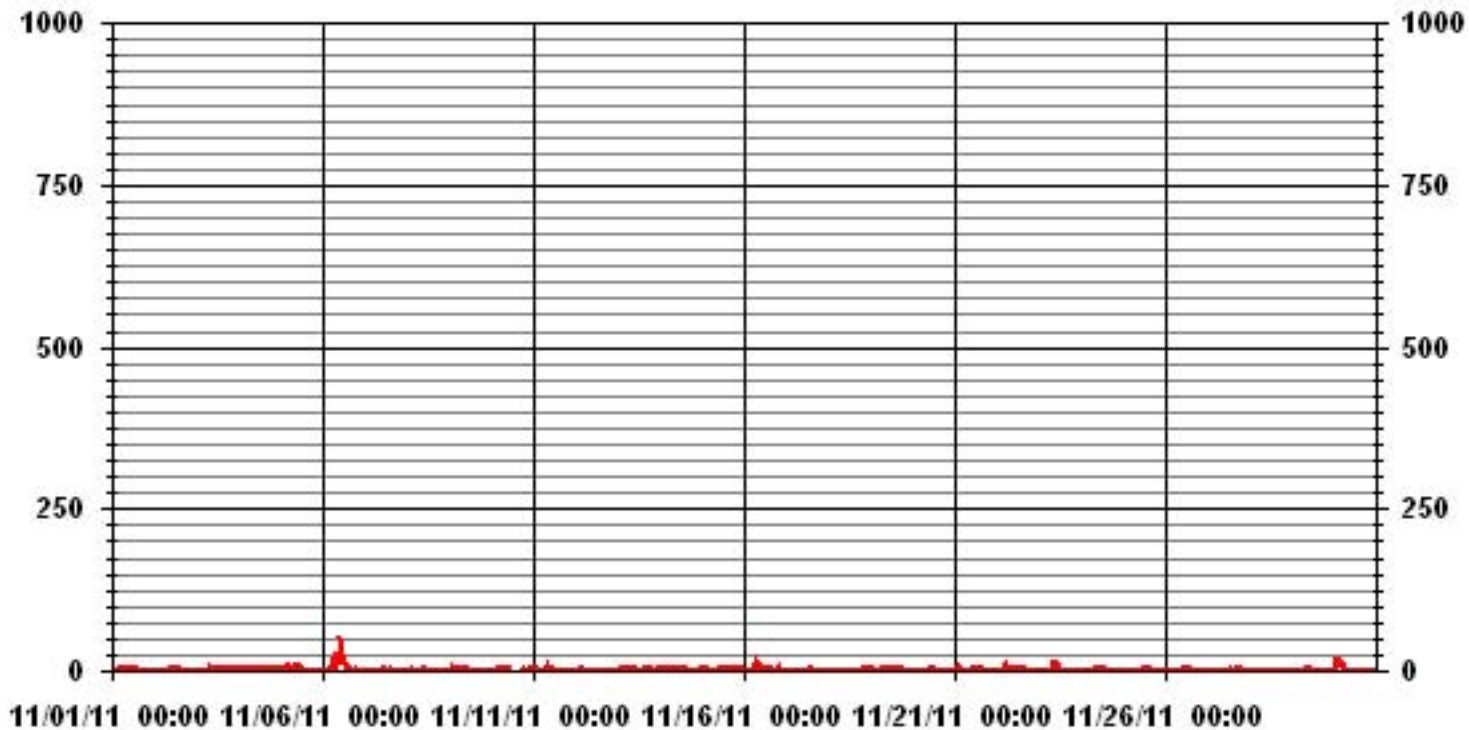
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	313
MAXIMUM 1-HR AVERAGE:	49 PPB @ HOUR(S) 9 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	7.7 PPB ON DAY(S) 6
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	720 HRS
AMT OPERATION UPTIME:	100.0 %
STANDARD DEVIATION	3.16
MONTHLY AVERAGE	1.15 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	3	1	1	1	IZS	2	0	1	1	0	0	0	0	0	0	0	3	0.8	24
2	0	0	0	0	0	0	1	4	9	3	2	2	IZS	2	1	1	1	0	0	1	1	7	0	9	1.5	24		
3	0	0	0	0	0	6	3	43	23	9	6	IZS	5	4	3	2	8	1	3	1	1	1	1	1	43	5.3	24	
4	1	1	1	1	1	1	1	16	5	3	IZS	16	2	2	2	2	2	2	2	2	2	1	1	1	16	3.0	24	
5	1	6	12	5	25	7	4	6	24	IZS	4	4	2	2	1	1	1	2	0	0	2	1	3	4	25	5.1	24	
6	1	2	4	7	9	13	90	39	IZS	91	37	21	18	8	2	3	22	4	7	2	8	0	0	0	91	16.9	24	
7	0	0	0	0	0	0	5	IZS	4	4	3	3	3	3	1	1	0	0	0	1	0	0	0	5	1.3	24		
8	5	2	8	3	6	17	IZS	1	3	2	6	0	0	1	1	9	13	4	0	0	5	10	0	17	4.2	24		
9	3	13	6	10	11	IZS	16	3	16	2	2	2	1	2	1	0	0	0	0	0	0	0	0	0	16	3.8	24	
10	0	0	0	0	IZS	1	1	1	1	2	C	C	C	C	C	C	C	3	6	2	2	11	9	9	11	3.0	24	
11	12	12	0	IZS	1	2	4	15	3	5	12	9	4	3	2	0	0	0	0	0	0	0	0	1	15	3.7	24	
12	1	0	IZS	5	3	2	3	2	3	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5	1.0	24	
13	0	IZS	1	1	1	1	1	2	4	3	3	4	2	4	6	3	3	2	2	2	2	1	1	1	6	2.1	24	
14	IZS	2	1	1	1	1	1	2	2	2	1	1	5	2	1	3	1	1	1	1	1	1	1	1	IZS	5	1.5	24
15	1	1	1	1	1	1	1	1	1	2	2	2	1	1	2	1	2	2	1	2	2	2	1	IZS	0	2	1.3	24
16	0	0	0	0	0	0	42	50	16	13	14	6	5	4	4	1	4	1	10	23	4	IZS	0	0	50	8.6	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	1	1	2	IZS	0	0	0	2	0.5	24	
18	0	0	0	1	1	1	1	1	1	1	0	1	1	0	1	0	0	2	0	IZS	2	1	1	1	2	0.7	24	
19	1	1	1	1	1	1	1	1	2	1	1	2	2	2	2	1	1	7	IZS	3	0	0	0	0	7	1.4	24	
20	0	0	0	0	0	0	0	2	7	5	10	13	3	2	3	20	0	IZS	1	0	0	0	0	3	20	3.0	24	
21	0	20	1	0	6	0	1	2	6	7	5	5	4	3	2	2	IZS	0	0	0	0	0	0	0	20	2.8	24	
22	0	0	0	6	19	1	0	1	1	2	2	2	2	1	2	IZS	2	3	3	2	4	1	1	1	19	2.4	24	
23	0	0	0	0	11	22	1	18	26	49	11	3	4	2	IZS	2	1	4	3	1	1	2	1	0	49	7.0	24	
24	0	0	0	2	0	6	3	2	11	7	3	3	2	IZS	3	1	0	0	2	0	0	0	0	0	11	2.0	24	
25	0	0	0	0	0	0	0	0	19	3	4	4	IZS	37	1	7	0	0	0	0	0	0	0	3	37	3.4	24	
26	0	0	0	0	0	0	0	0	29	4	4	IZS	3	2	1	1	0	0	0	0	0	0	0	0	29	1.9	24	
27	0	0	0	0	0	0	0	0	0	0	IZS	3	3	5	6	13	2	5	1	1	1	1	1	1	13	1.9	24	
28	1	1	1	1	1	1	1	3	43	IZS	1	2	0	0	1	3	0	0	0	0	0	0	0	0	43	2.6	24	
29	0	2	0	0	0	0	0	2	IZS	14	2	3	0	1	1	1	2	0	0	1	5	3	1	0	14	1.7	24	
30	6	26	53	8	24	29	3	IZS	3	2	2	1	0	0	2	0	1	1	4	0	1	0	0	0	53	7.2	24	
HOURLY MAX	12	26	53	10	25	29	90	50	43	91	37	21	18	37	6	20	22	13	10	23	8	11	10	9				
HOURLY AVG	1.2	3.1	3.1	1.9	4.2	3.9	6.4	7.8	9.4	8.6	5.2	4.2	2.8	3.5	2.0	2.6	2.3	1.9	1.8	1.6	1.3	1.1	1.3	0.9				

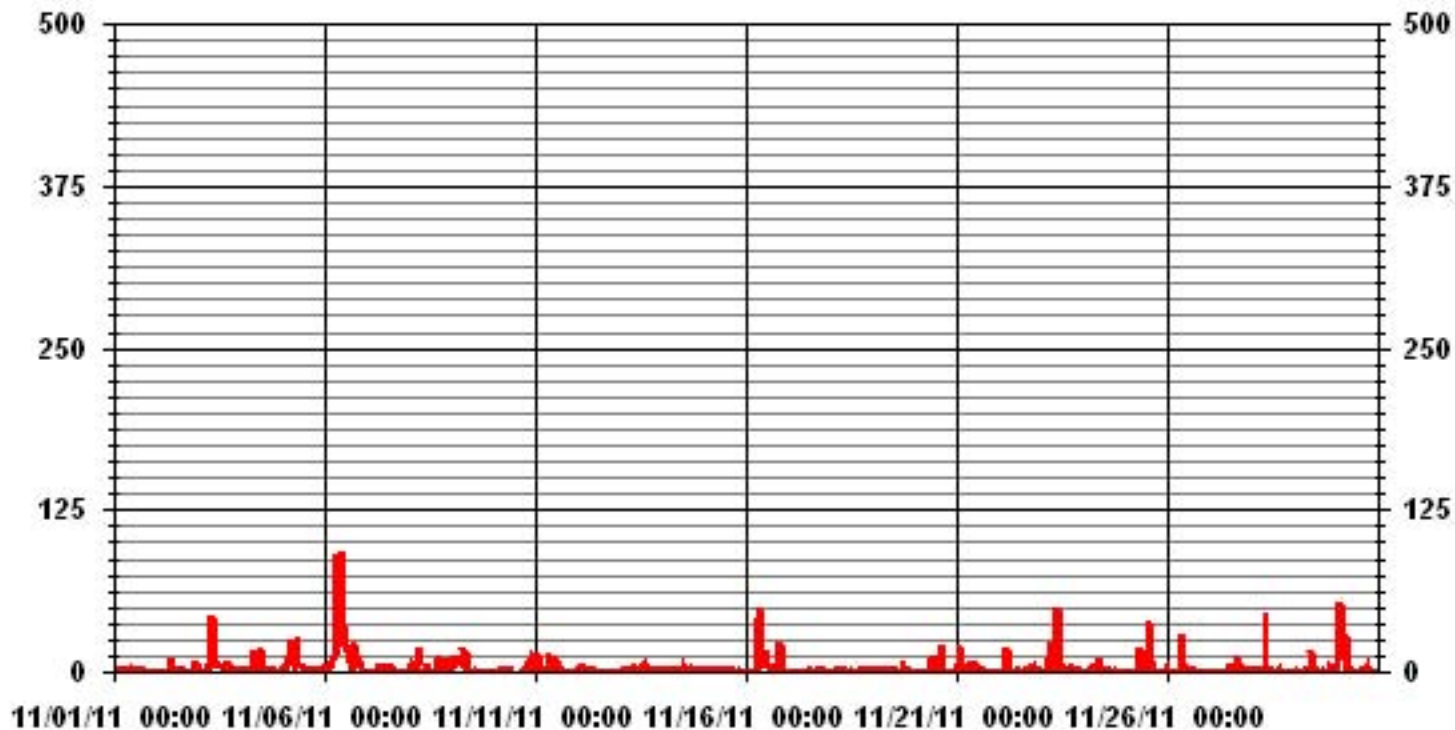
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	455					
MAXIMUM INSTANTANEOUS VALUE:	91	PPB	@ HOUR(S)	9	ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	8.03					

01 Hour Averages



LICA33
 NO_ / WDR Joint Frequency Distribution (Percent)

November 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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.83	3.23	1.32	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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.83	3.23	1.32	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	11	25	22	38	69	30	43	33	40	39	79	63	57	101	22	9	681
< 110																	
< 210																	
>= 210																	
Totals	11	25	22	38	69	30	43	33	40	39	79	63	57	101	22	9	

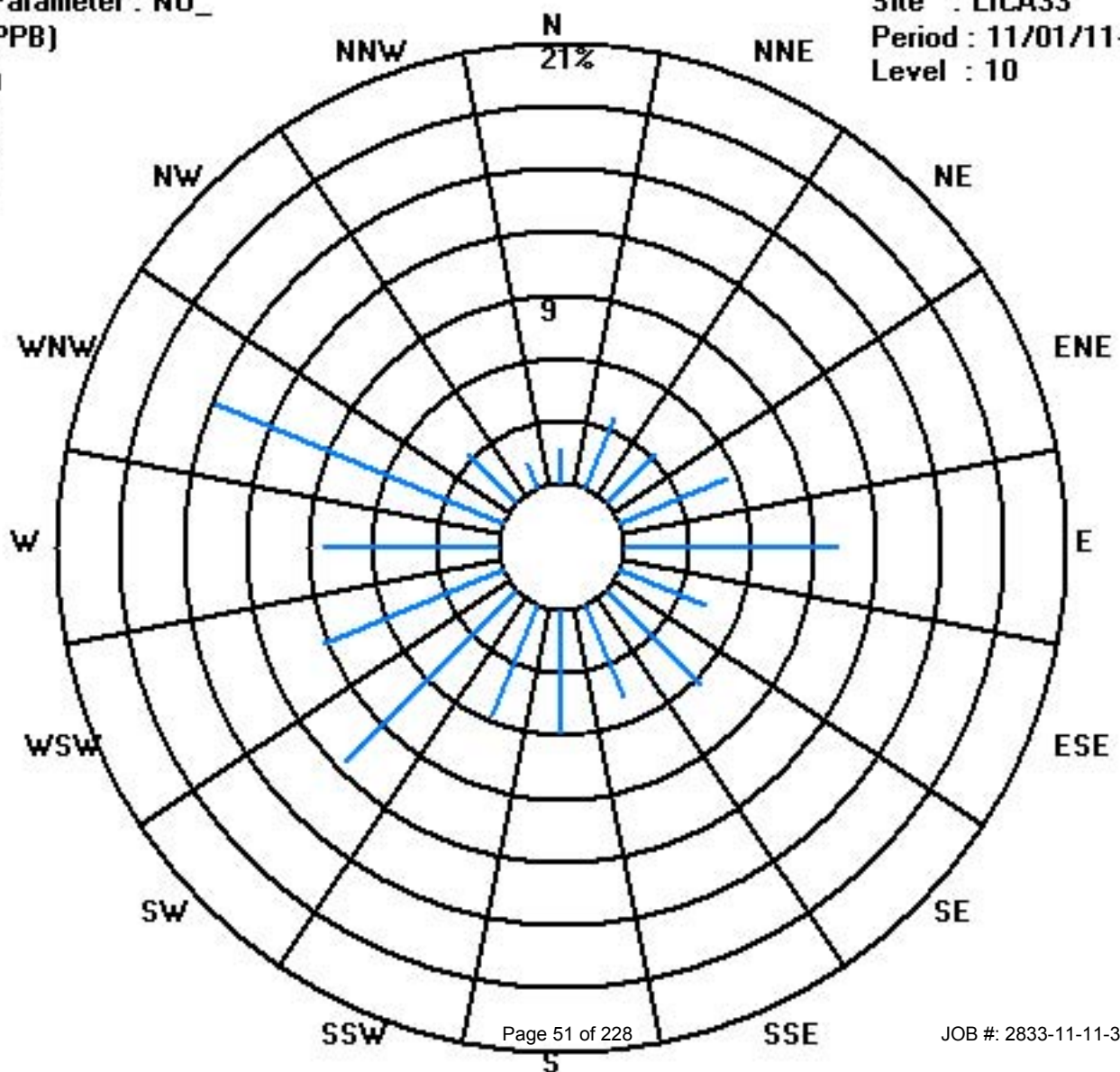
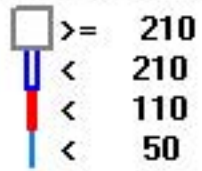
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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 MAX.	24-HOUR AVG.	RDGS.	
DAY																												
1	2	1	1	1	2	2	2	3	2	3	1	1	1	IZS	2	1	3	3	4	2	2	2	2	4	4	4	2.0	24
2	4	3	7	5	3	5	9	16	16	10	7	6	IZS	6	6	5	6	6	6	5	7	7	8	5	16	6.9	24	
3	5	4	3	4	3	12	6	20	15	13	10	IZS	8	7	6	6	8	7	10	4	2	2	1	2	20	6.9	24	
4	1	1	1	1	1	2	3	3	4	2	IZS	2	2	2	2	3	3	7	6	6	3	4	5	5	7	3.0	24	
5	6	10	16	8	20	10	8	13	19	IZS	8	7	6	4	3	3	4	7	7	9	9	12	11	13	20	9.3	24	
6	8	7	12	14	16	14	32	38	IZS	62	38	27	23	12	8	9	9	11	17	8	15	9	6	5	62	17.4	24	
7	5	5	5	5	5	6	12	IZS	14	14	9	6	5	5	4	5	6	6	3	3	6	4	4	5	14	6.2	24	
8	10	8	14	8	7	8	IZS	5	4	5	4	1	1	1	1	1	3	9	8	3	3	5	11	1	14	5.3	24	
9	4	19	5	18	16	IZS	15	7	6	5	4	3	2	3	2	2	4	6	6	4	3	3	2	2	19	6.1	24	
10	2	1	2	2	IZS	4	4	5	5	6	C	C	C	C	C	C	C	2	10	2	2	10	6	11	11	4.6	24	
11	15	7	3	IZS	2	2	4	16	7	12	14	12	8	4	3	3	2	4	3	1	1	1	2	4	16	5.7	24	
12	3	2	IZS	6	5	3	5	5	6	3	2	1	1	1	0	1	1	2	2	2	2	2	1	1	6	2.5	24	
13	1	IZS	2	2	2	3	5	4	5	6	4	3	2	3	7	2	4	2	2	4	1	0	0	1	7	2.8	24	
14	IZS	4	3	2	1	2	2	2	3	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	IZS	4	1.7	24
15	1	1	1	2	2	2	2	2	2	2	2	2	1	1	2	2	2	4	4	6	7	4	IZS	6	7	2.6	24	
16	5	3	3	3	3	3	25	21	21	18	15	11	9	8	6	4	11	7	13	16	3	IZS	3	1	25	9.2	24	
17	0	0	1	0	0	0	0	0	0	0	0	1	1	3	3	3	2	1	2	3	IZS	2	3	4	4	1.3	24	
18	5	4	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3	2	IZS	4	4	3	2	5	2.7	24	
19	3	5	3	2	3	2	1	2	3	2	2	2	2	2	2	2	2	6	IZS	6	6	6	5	4	6	3.2	24	
20	4	3	2	2	3	3	4	4	8	5	4	4	5	6	7	6	IZS	8	9	10	8	10	14	14	5.8	24		
21	11	19	12	11	16	11	11	13	12	13	10	8	8	7	5	6	IZS	3	4	3	4	4	3	7	19	8.7	24	
22	5	3	5	10	18	8	6	8	7	7	7	5	5	4	5	IZS	8	9	13	10	10	8	10	8	18	7.8	24	
23	4	5	6	7	13	15	10	15	27	25	12	10	8	5	IZS	6	3	7	6	3	3	6	4	3	27	8.8	24	
24	6	7	6	6	4	7	4	6	11	7	4	4	3	IZS	6	4	3	4	11	8	7	3	2	1	11	5.4	24	
25	1	1	1	2	2	2	3	3	4	7	8	9	IZS	12	3	2	1	0	0	0	0	0	0	6	12	2.9	24	
26	0	1	0	0	1	1	1	4	10	8	10	IZS	6	4	4	4	4	4	4	4	3	3	3	3	10	3.6	24	
27	3	3	3	3	3	3	3	3	3	3	IZS	4	2	4	5	3	2	6	1	1	1	1	1	1	6	2.7	24	
28	1	1	1	1	1	2	2	7	8	IZS	3	3	2	2	4	6	7	7	5	4	3	3	3	2	8	3.4	24	
29	3	6	4	4	4	5	9	8	IZS	6	5	4	1	2	1	7	12	12	8	8	18	10	8	10	18	6.7	24	
30	16	32	37	20	27	15	5	IZS	5	7	7	2	2	2	2	1	3	2	7	6	8	7	4	1	37	9.5	24	
HOURLY MAX	16	32	37	20	27	15	32	38	27	62	38	27	23	12	8	9	12	12	17	16	18	12	11	14				
HOURLY AVG	4.6	5.7	5.6	5.2	6.4	5.3	6.8	8.4	8.2	9.1	7.1	5.2	4.3	4.2	3.6	3.6	4.4	5.1	6.0	4.9	5.0	4.5	4.2	4.6				

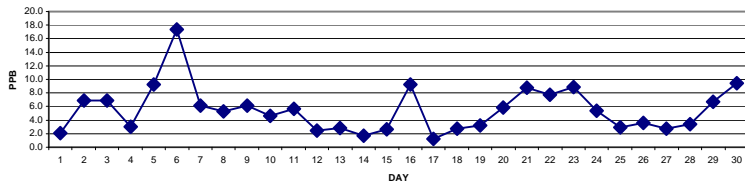
STATUS FLAG CODES

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

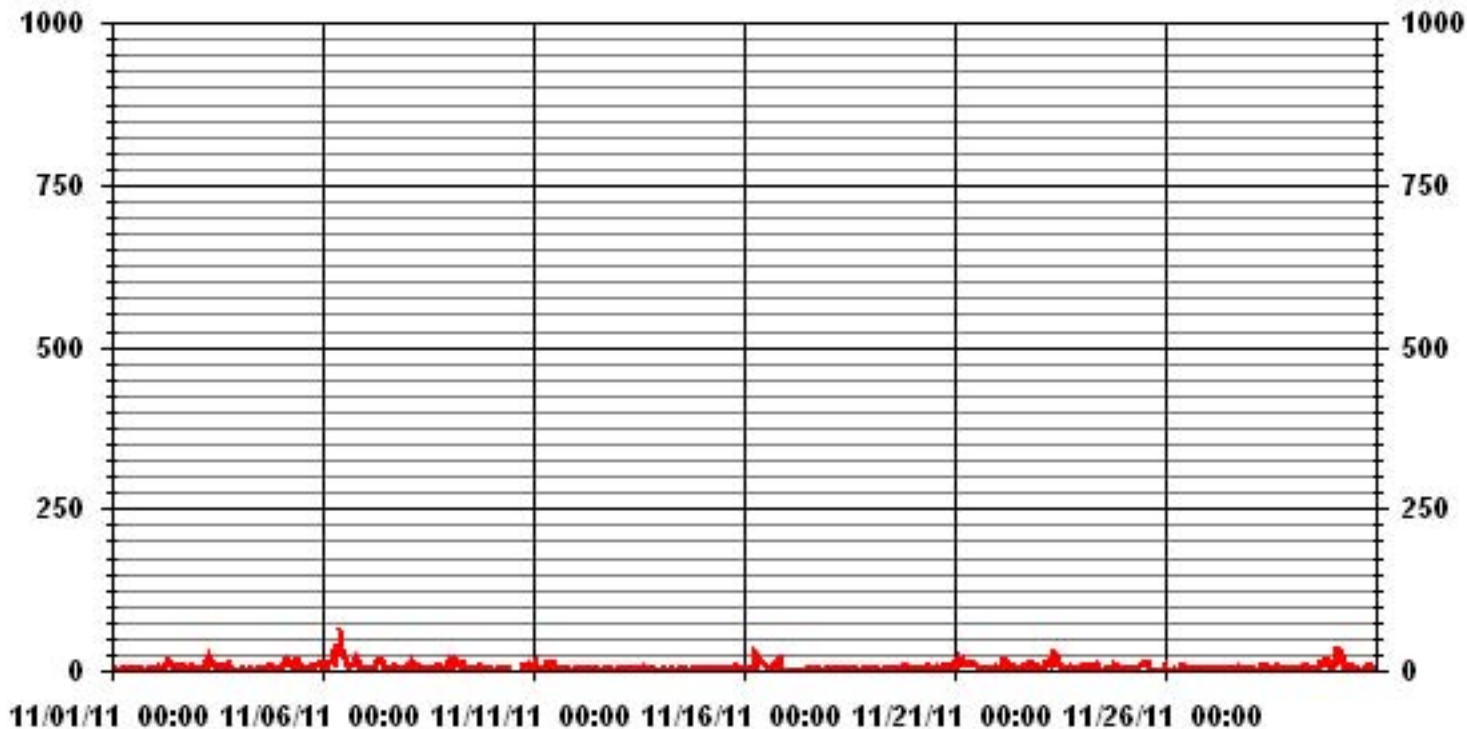
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	660
MAXIMUM 1-HR AVERAGE:	62 PPB @ HOUR(S) 9 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	17.4 PPB ON DAY(S) 6
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION	5.62
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME	100.0 %
MONTHLY AVERAGE	5.50 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA33 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	3	2	1	2	4	4	3	4	4	4	2	2	3	IZS	3	2	8	8	9	3	3	2	3	5	9	3.7	24	
2	4	3	12	11	4	9	11	24	26	13	8	8	IZS	7	7	6	7	7	7	6	11	11	22	9	26	10.1	24	
3	9	6	4	7	6	20	15	55	33	18	13	IZS	10	8	8	7	24	8	17	7	3	3	2	3	55	12.4	24	
4	2	2	2	2	2	3	4	25	9	7	IZS	18	3	4	5	8	12	14	8	7	5	7	7	7	25	7.0	24	
5	7	16	24	19	34	15	13	16	35	IZS	9	8	6	5	4	5	10	12	9	12	16	17	17	18	35	14.2	24	
6	13	12	16	19	21	23	98	52	IZS	108	50	33	29	18	9	13	37	22	24	13	30	14	8	7	108	29.1	24	
7	7	6	6	7	6	9	19	IZS	18	15	13	8	8	7	18	6	7	8	4	4	13	8	5	5	19	9.0	24	
8	22	14	26	18	17	32	IZS	9	8	9	13	1	1	2	2	2	27	35	25	4	5	18	28	3	35	14.0	24	
9	13	32	19	27	31	IZS	38	17	29	8	6	6	4	6	3	5	5	7	7	6	4	4	4	4	38	12.4	24	
10	2	2	3	3	IZS	4	5	5	6	6	C	C	C	C	C	C	C	8	19	8	8	22	20	21	22	8.9	24	
11	26	26	4	IZS	4	6	14	25	11	14	23	18	12	10	7	3	4	6	6	2	2	4	4	6	26	10.3	24	
12	6	5	IZS	14	10	8	10	8	12	8	6	2	2	2	1	2	2	3	3	3	2	2	2	2	14	5.0	24	
13	2	IZS	3	3	3	4	7	6	7	9	6	6	3	7	12	5	8	5	7	9	2	1	1	1	12	5.1	24	
14	IZS	8	4	4	2	2	3	4	4	3	2	2	13	2	3	4	2	2	2	2	2	2	1	IZS	13	3.3	24	
15	2	2	2	3	3	3	3	2	3	4	3	2	2	2	3	3	3	6	6	10	12	5	IZS	8	12	4.0	24	
16	10	6	3	4	5	6	57	68	31	23	24	14	12	10	12	5	24	14	29	41	17	IZS	4	2	68	18.3	24	
17	1	1	2	1	1	1	1	0	0	1	1	1	5	5	4	5	3	3	3	6	IZS	5	6	9	9	2.8	24	
18	8	6	4	6	6	7	5	6	4	4	3	4	3	3	4	3	3	7	4	IZS	10	10	4	3	10	5.1	24	
19	3	10	4	3	7	2	2	3	6	3	2	3	3	3	3	4	3	17	IZS	12	9	6	5	5	17	5.1	24	
20	4	4	3	3	4	4	5	8	19	13	14	19	6	5	8	37	7	IZS	9	10	10	10	11	19	37	10.1	24	
21	13	39	14	14	23	12	12	18	16	18	11	9	10	8	6	8	IZS	4	5	4	5	6	5	10	39	11.7	24	
22	6	5	8	19	32	12	10	12	11	8	7	6	6	5	8	IZS	11	15	17	16	17	10	13	13	32	11.6	24	
23	5	6	8	10	30	43	13	33	44	70	24	12	14	9	IZS	14	8	22	12	7	6	11	7	5	70	18.0	24	
24	9	11	8	13	5	17	10	13	24	17	8	8	25	IZS	8	5	5	6	19	10	8	6	3	2	25	10.4	24	
25	2	2	2	2	3	3	4	4	29	13	10	12	IZS	55	4	11	2	0	0	0	0	0	0	14	55	7.5	24	
26	4	5	1	0	5	6	3	7	57	14	12	IZS	7	5	5	6	5	5	5	4	3	4	3	57	7.4	24		
27	3	3	3	3	3	3	3	4	4	4	IZS	6	6	12	12	23	5	13	2	2	2	2	2	23	5.3	24		
28	2	2	2	2	2	2	5	12	66	IZS	5	6	2	3	6	11	9	10	5	5	4	4	3	3	66	7.4	24	
29	4	13	5	4	5	7	14	10	IZS	19	7	10	2	4	5	11	15	15	13	19	28	20	12	16	28	11.2	24	
30	23	43	70	25	42	49	13	IZS	8	10	10	3	3	3	5	3	5	3	18	9	11	8	6	2	70	16.2	24	
HOURLY MAX	26	43	70	27	42	49	98	68	66	108	50	33	29	55	18	37	37	35	29	41	30	22	28	21				
HOURLY AVG	7.4	10.1	9.1	8.6	11.0	10.9	13.8	16.1	18.7	15.8	10.8	8.4	7.4	7.8	6.3	7.6	9.2	9.8	10.3	8.4	8.7	7.6	7.2	7.1				

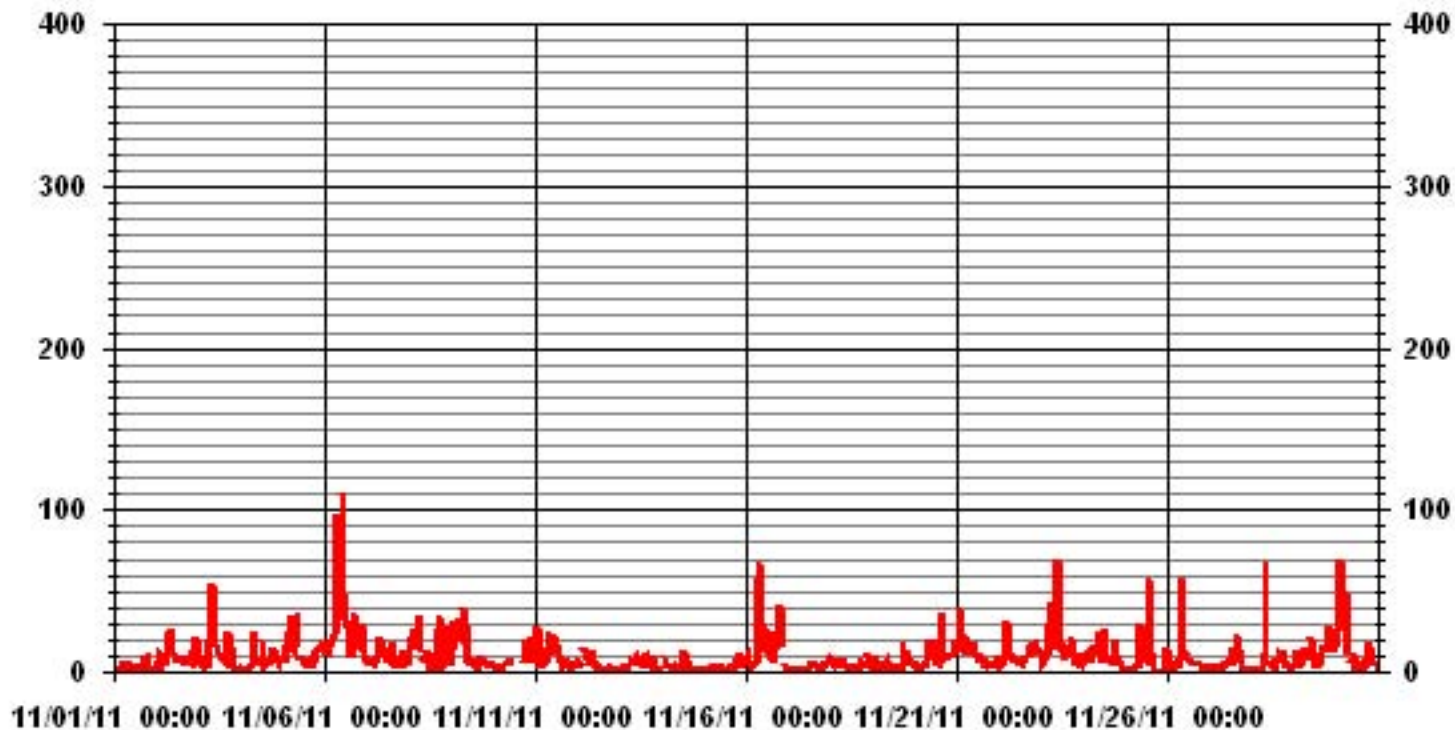
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	673
MAXIMUM INSTANTANEOUS VALUE:	108 PPB @ HOUR(S) 9 ON DAY(S) 6
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	11.31
OPERATIONAL TIME:	720 HRS

01 Hour Averages



— LICA33 NOXMAX PPB

LICA33
 NOX_ / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.68	3.23	1.32	99.85
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.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	1.61	3.67	3.23	5.58	10.13	4.40	6.31	4.84	5.87	5.72	11.60	9.25	8.37	14.83	3.23	1.32	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	11	25	22	38	69	30	43	33	40	39	79	63	57	100	22	9	680
< 110														1			1
< 210																	
>= 210																	
Totals	11	25	22	38	69	30	43	33	40	39	79	63	57	101	22	9	

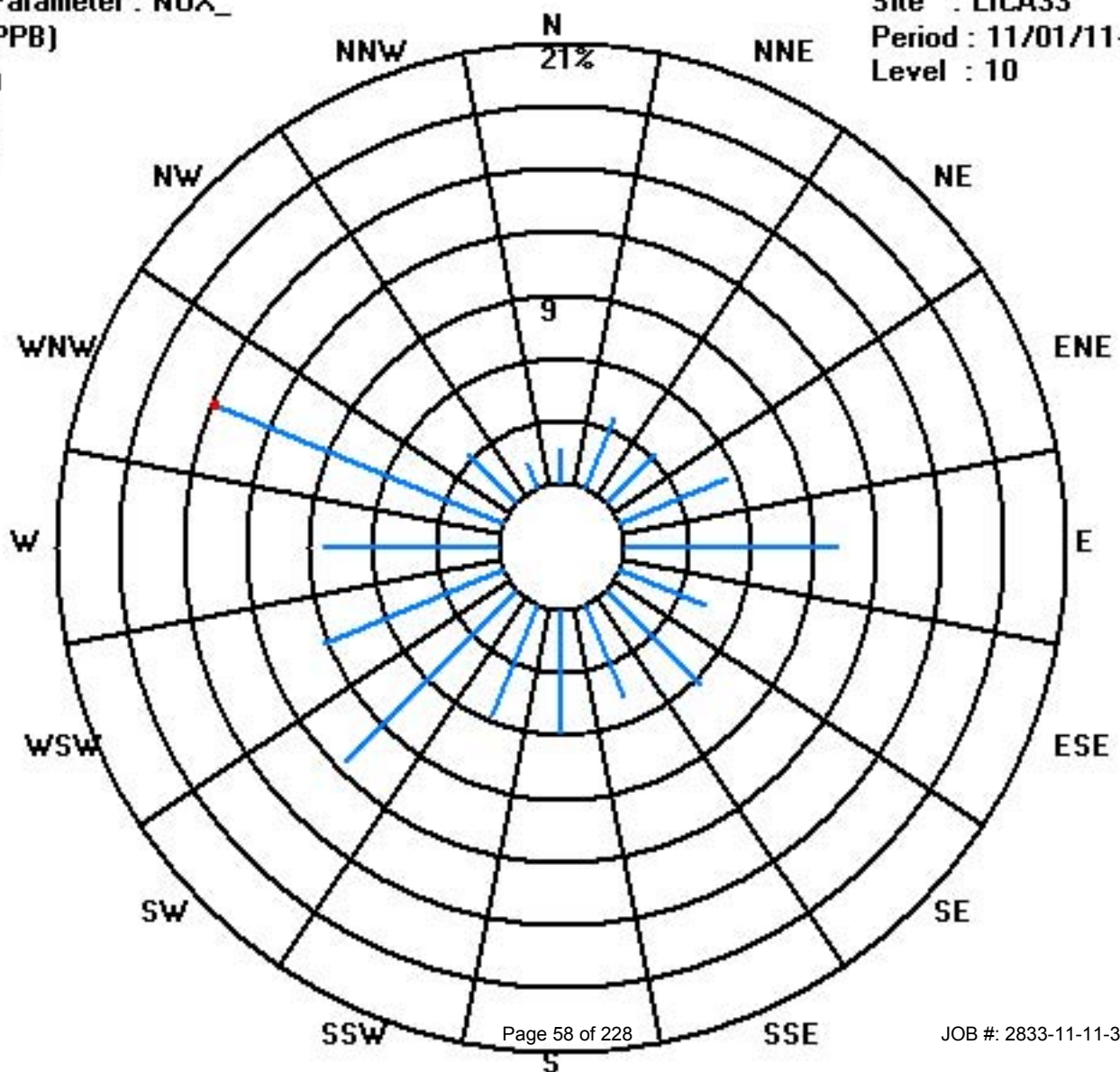
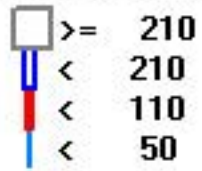
Calm : .00 %

Total # Operational Hours : 681

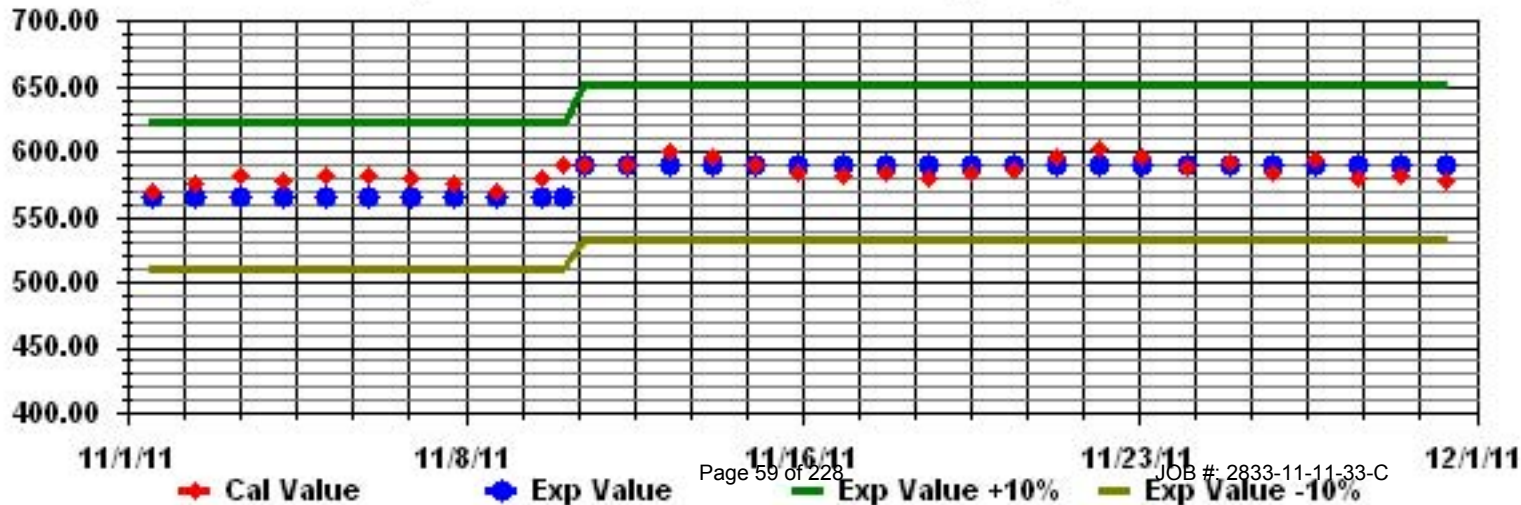
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 2011

OZONE (O₃) 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	31	32	30	29	27	26	27	27	28	29	31	33	33	IZS	33	34	30	28	26	27	26	25	24	22	34	28.6	24	
2	22	23	18	20	19	16	14	9	10	18	23	25	IZS	24	25	22	18	16	14	14	11	12	11	11	25	17.2	24	
3	11	12	13	10	12	6	10	4	4	8	13	IZS	21	23	24	23	20	20	18	30	31	25	20	20	31	16.4	24	
4	20	22	23	23	23	20	20	22	22	26	IZS	27	25	25	25	24	21	15	16	15	17	16	12	11	27	20.4	24	
5	14	5	2	9	1	3	3	1	4	IZS	15	19	21	26	26	25	22	16	13	10	9	3	3	2	26	11.0	24	
6	4	4	1	1	1	1	0	1	IZS	2	4	6	10	19	21	18	17	12	10	15	9	12	10	9	21	8.1	24	
7	9	6	6	6	5	5	3	IZS	7	9	17	24	25	24	25	22	20	22	25	24	20	20	19	18	25	15.7	24	
8	13	12	10	11	12	12	IZS	18	20	21	27	31	31	29	30	31	26	23	22	25	25	22	20	24	31	21.5	24	
9	23	16	23	15	17	IZS	15	19	21	22	24	28	30	30	29	25	18	17	19	21	19	21	23	25	30	21.7	24	
10	29	30	28	26	IZS	22	20	18	18	18	15	14	16	15	13	22	M	20	17	16	16	14	15	13	30	18.9	23	
11	10	12	13	IZS	14	8	5	2	3	C	C	C	C	C	C	9	9	8	8	10	12	14	16	15	16	9.9	24	
12	16	22	IZS	15	17	19	17	16	15	18	19	20	20	20	22	23	22	21	19	18	20	20	19	23	19.0	24		
13	19	IZS	16	14	13	11	9	14	17	18	22	24	25	25	23	26	23	23	21	22	28	28	26	28	28	20.4	24	
14	IZS	22	23	24	26	26	26	25	24	26	26	27	25	24	22	23	22	22	22	23	24	24	24	24	IZS	27	24.1	24
15	24	24	23	22	20	20	21	22	23	23	23	24	24	26	27	26	26	23	20	19	17	20	IZS	18	27	22.4	24	
16	16	15	13	12	11	10	3	4	6	9	13	16	19	20	22	21	14	12	8	12	21	IZS	27	29	14.5	24		
17	30	28	25	25	26	26	27	28	28	28	28	28	28	27	26	27	27	28	27	26	IZS	27	27	25	30	27.0	24	
18	23	25	28	28	28	29	29	31	32	32	32	32	32	32	31	30	30	29	27	27	IZS	25	25	25	25	32	28.5	24
19	25	22	24	25	24	27	28	29	28	C	29	C	M	C	31	29	27	23	IZS	18	17	19	20	22	31	24.6	23	
20	25	26	28	26	23	22	24	24	22	24	25	24	24	23	22	20	17	IZS	14	15	13	12	11	7	28	20.5	24	
21	9	4	6	7	3	6	6	4	9	12	14	16	15	15	16	16	IZS	17	16	17	16	15	15	11	17	11.5	24	
22	10	7	8	3	3	8	12	10	12	15	17	18	19	20	20	IZS	17	15	10	12	12	12	11	16	20	12.5	24	
23	23	21	15	12	6	5	5	4	7	9	17	20	23	26	IZS	25	29	24	23	24	24	21	22	21	29	17.7	24	
24	17	15	16	14	15	12	15	13	12	15	17	18	19	IZS	19	20	20	18	11	14	16	23	25	27	27	17.0	24	
25	28	27	26	24	23	22	20	19	15	14	16	15	IZS	18	24	27	30	35	34	33	34	34	33	27	35	25.1	24	
26	30	30	31	31	30	29	22	17	12	16	18	IZS	28	30	30	28	25	24	22	20	20	20	20	19	31	24.0	24	
27	20	21	22	22	22	22	22	22	24	26	IZS	25	28	26	26	34	35	35	38	37	34	31	31	30	38	27.5	24	
28	30	28	28	29	30	29	26	21	19	IZS	27	28	29	28	25	22	20	21	24	24	24	24	24	24	30	25.4	24	
29	22	18	18	18	19	18	16	19	IZS	23	25	29	34	33	32	24	17	17	13	13	6	5	4	3	34	18.5	24	
30	1	0	2	2	1	14	22	IZS	20	18	18	23	25	25	27	27	23	25	18	16	13	14	15	22	27	16.1	24	
HOURLY MAX	31	32	31	31	30	29	29	31	32	32	32	33	34	33	33	34	35	35	38	37	34	34	33	30				
HOURLY AVG	19.1	18.2	17.9	17.3	16.2	16.3	16.1	15.8	16.5	18.4	20.6	22.8	24.2	24.3	24.9	24.2	22.3	20.9	19.2	19.6	19.1	19.2	19.1	18.7				

STATUS FLAG CODES

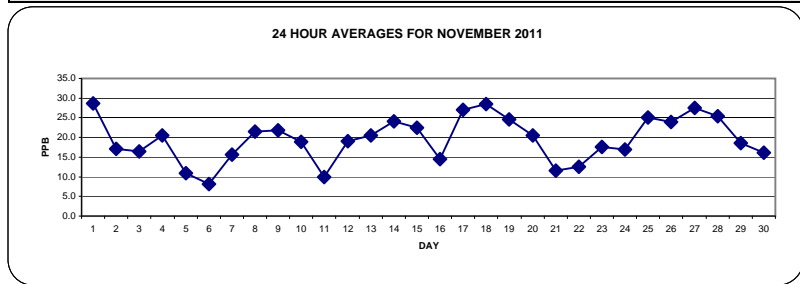
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

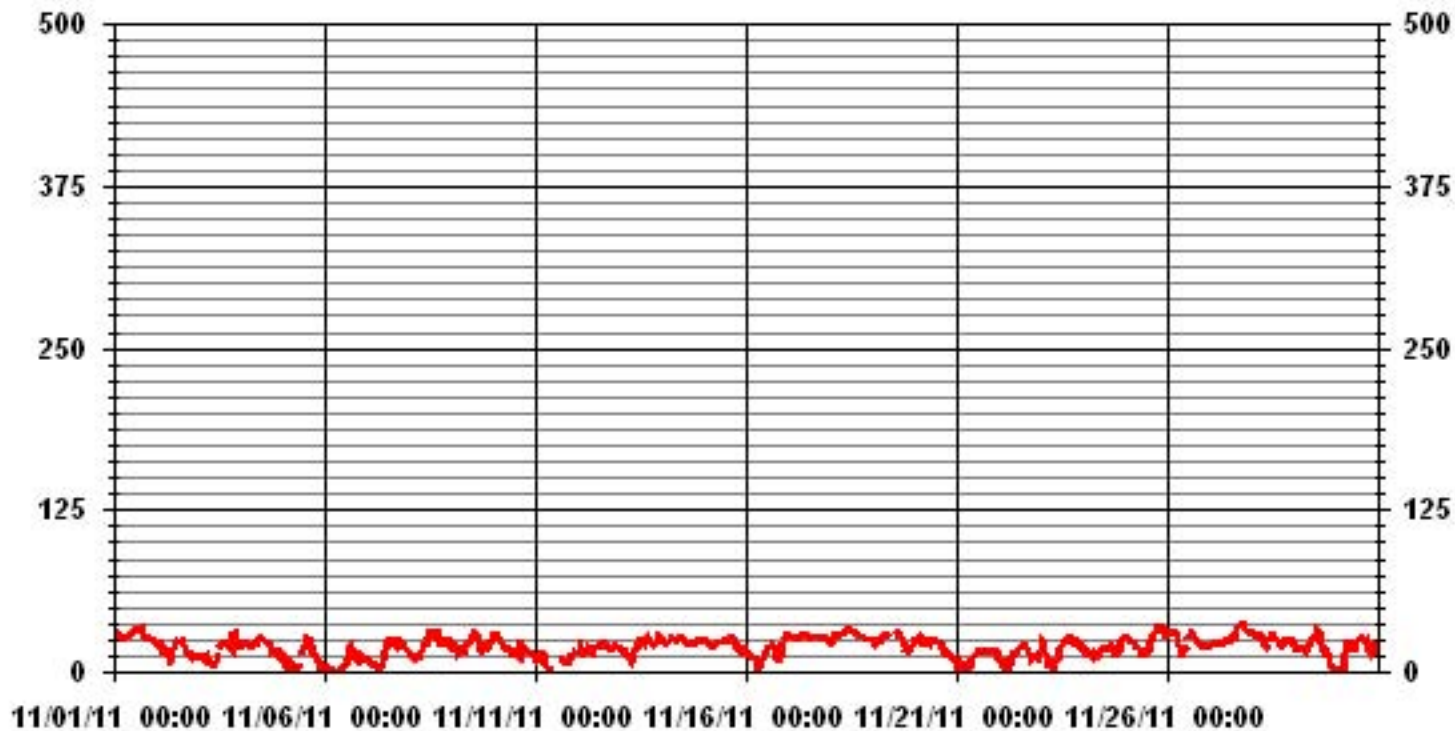
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	676					
MAXIMUM 1-HR AVERAGE:	38	PPB	@ HOUR(S)	18	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	28.6	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME	99.7	%	
STANDARD DEVIATION	7.86		MONTHLY AVERAGE	19.58	PPB	



01 Hour Averages



— LICA33_03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	32	33	32	30	29	28	29	29	29	31	32	34	34	IZS	34	34	33	30	30	28	27	26	25	24	34	30.1	24
2	24	25	23	22	21	19	16	13	13	22	26	26	IZS	25	26	24	20	18	17	16	14	15	15	15	26	19.8	24
3	13	14	14	14	13	8	12	9	7	12	14	IZS	23	24	25	24	23	22	24	33	33	29	21	21	33	18.8	24
4	22	23	23	24	24	22	21	23	23	28	IZS	28	26	27	26	25	23	22	20	18	20	19	17	15	28	22.6	24
5	15	12	7	14	5	6	5	3	4	IZS	16	21	24	28	28	26	26	22	17	13	14	5	5	4	28	13.9	24
6	10	9	2	2	2	2	1	1	IZS	3	6	7	13	23	23	20	20	17	16	20	15	15	16	13	23	11.1	24
7	15	9	9	11	9	9	5	IZS	8	13	21	27	26	25	26	25	21	25	26	26	23	21	20	20	27	18.3	24
8	18	15	15	13	14	15	IZS	21	23	25	31	32	32	31	32	33	32	28	26	26	26	26	26	26	33	24.6	24
9	26	25	26	20	23	IZS	22	23	24	24	27	30	32	33	31	29	22	20	23	24	22	24	25	28	33	25.3	24
10	30	31	30	27	IZS	23	21	20	18	18	18	16	17	18	17	25	M	22	22	21	18	19	18	20	31	21.3	23
11	16	16	14	IZS	17	13	8	5	4	C	C	C	C	C	C	11	10	9	10	11	15	16	17	18	18	12.4	24
12	19	25	IZS	22	20	20	19	18	18	20	21	21	21	21	23	24	24	22	21	20	21	21	21	19	25	20.9	24
13	20	IZS	17	15	14	12	11	16	18	20	24	25	26	27	27	27	25	25	24	24	25	30	29	28	30	22.1	24
14	IZS	24	24	26	27	27	27	26	25	28	27	28	27	24	24	24	22	23	23	24	24	24	25	IZS	28	25.1	24
15	24	24	24	23	21	21	22	23	23	23	24	24	25	27	28	27	27	25	22	21	20	21	IZS	20	28	23.4	24
16	20	20	16	16	16	12	9	10	12	13	15	18	22	24	24	23	19	16	12	18	25	IZS	29	30	30	18.2	24
17	30	30	26	26	26	27	28	29	29	29	29	28	29	29	29	28	28	29	29	28	IZS	28	28	26	30	28.2	24
18	25	28	29	30	30	30	31	32	33	33	33	33	32	32	31	30	29	29	29	IZS	28	27	27	26	33	29.9	24
19	25	25	26	26	28	29	29	30	C	C	29	C	M	C	C	31	29	26	IZS	22	21	20	22	24	31	26.0	23
20	26	27	29	28	25	23	25	26	25	25	25	24	24	23	25	19	IZS	15	16	14	13	12	11	29	22.0	24	
21	11	7	7	9	7	7	7	6	11	14	16	16	16	17	17	IZS	IZS	17	17	18	17	17	17	14	18	13.1	24
22	12	9	13	5	9	12	14	13	14	16	17	20	20	21	21	IZS	20	19	14	15	15	14	15	24	24	15.3	24
23	24	22	21	18	11	12	6	7	12	14	21	21	25	28	IZS	29	30	29	27	26	25	24	24	24	30	20.9	24
24	20	18	18	17	18	17	17	15	16	18	18	38	20	IZS	21	21	22	20	17	15	21	24	27	28	38	20.3	24
25	28	28	28	26	24	23	21	21	18	17	17	17	IZS	23	25	29	35	35	35	34	35	35	34	33	35	27.0	24
26	31	31	32	32	32	30	28	20	16	20	20	IZS	29	31	31	30	27	25	23	21	21	21	21	21	32	25.8	24
27	21	22	23	24	23	22	22	23	26	26	IZS	25	29	29	29	38	38	39	39	38	36	33	32	31	39	29.0	24
28	30	29	29	30	30	29	29	25	21	IZS	29	30	31	29	26	24	22	24	25	25	25	25	25	25	31	26.8	24
29	23	21	19	19	20	19	19	20	IZS	24	27	33	35	34	34	30	23	20	18	18	9	7	7	5	35	21.0	24
30	3	1	6	5	2	22	25	IZS	24	20	24	24	26	26	29	30	26	27	23	18	N	16	23	24	30	19.3	23
HOURLY MAX	32	33	32	32	32	30	31	32	33	33	33	38	35	34	34	38	38	39	39	38	36	35	34	33			
HOURLY AVG	21.1	20.8	20.1	19.8	18.6	18.6	18.2	18.1	18.3	20.6	22.5	24.9	25.5	26.1	26.3	26.3	24.8	23.6	22.2	22.0	21.8	21.2	21.5	21.3			

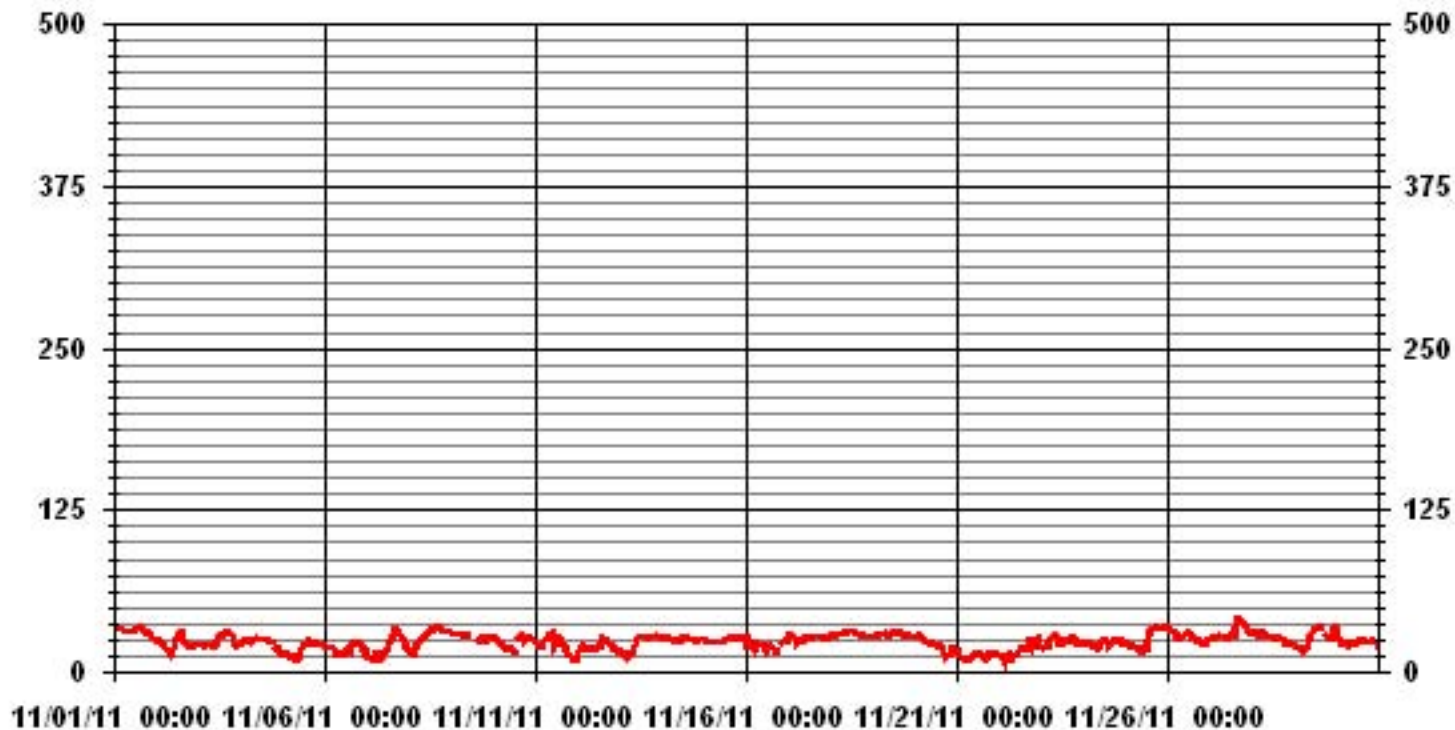
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	675					
MAXIMUM INSTANTANEOUS VALUE:	39	PPB	@ HOUR(S)	17, 18	ON DAY(S)	27
IZS CALIBRATION TIME:	31	HRS		OPERATIONAL TIME:	717	HRS
MONTHLY CALIBRATION TIME:	11	HRS				
STANDARD DEVIATION:	7.42					

01 Hour Averages



— LICA31 O3MAX PPB

LICA33
 O3_ / WDR Joint Frequency Distribution (Percent)

November 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	1.62	3.69	3.24	5.16	9.74	4.43	6.35	4.87	5.61	5.61	12.11	9.45	8.56	14.91	3.24	1.32	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	1.62	3.69	3.24	5.16	9.74	4.43	6.35	4.87	5.61	5.61	12.11	9.45	8.56	14.91	3.24	1.32	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	11	25	22	35	66	30	43	33	38	38	82	64	58	101	22	9	677
< 110																	
< 210																	
>= 210																	
Totals	11	25	22	35	66	30	43	33	38	38	82	64	58	101	22	9	

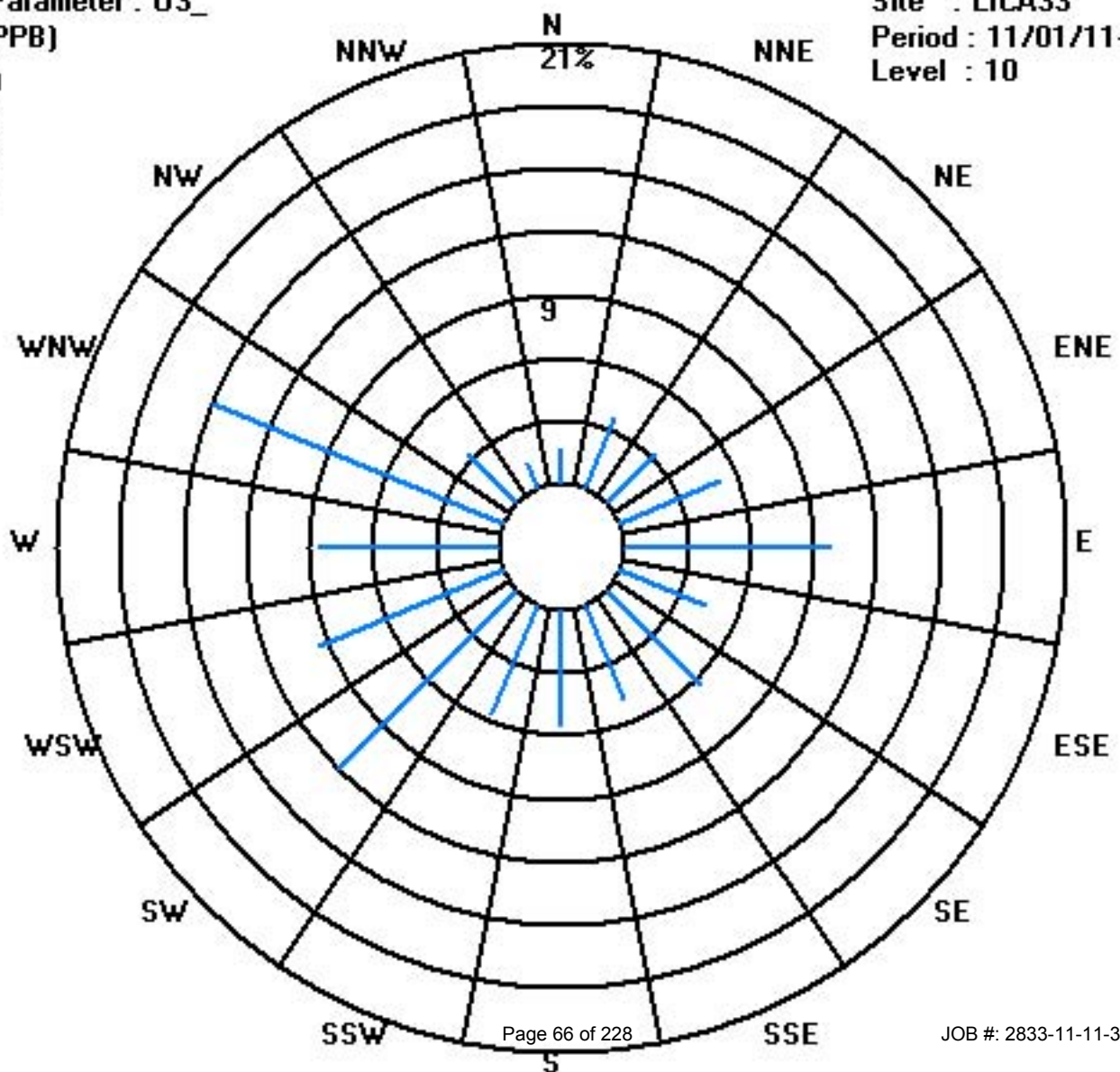
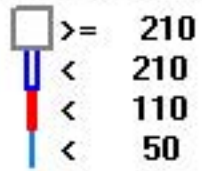
Calm : .00 %

Total # Operational Hours : 677

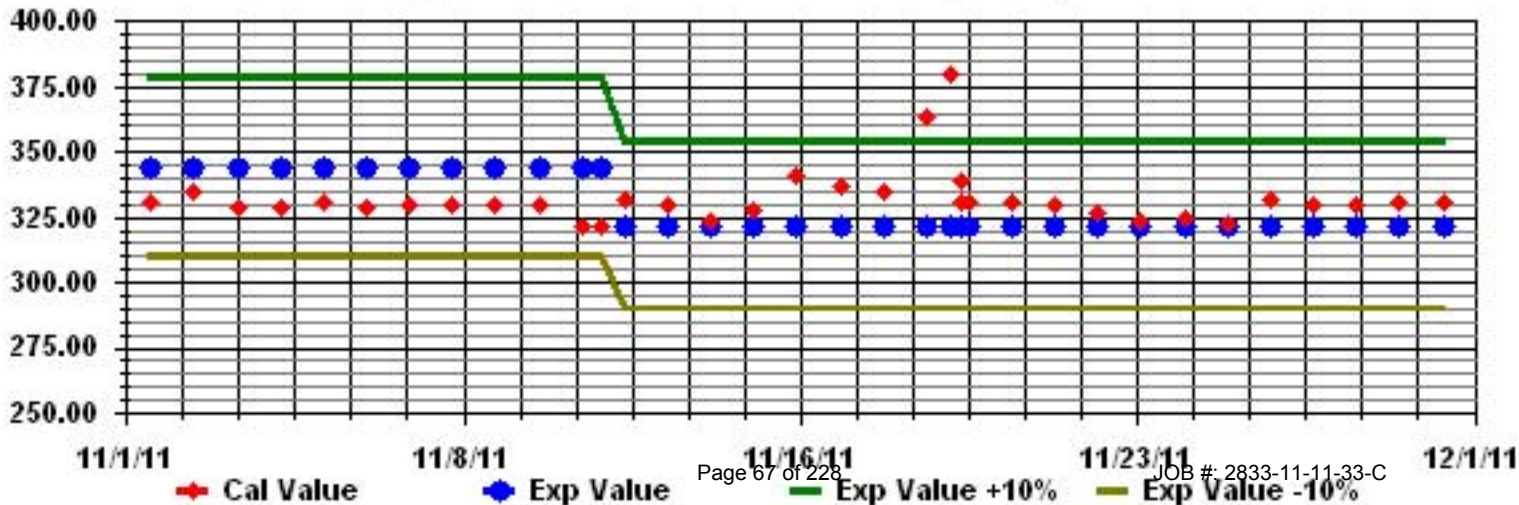
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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		
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		2	2	1.9	2	2	2	2	2.1	2	2	2	2	2	IZS	1.9	1.9	2.1	2	1.9	2	2	2	1.9	1.9	2.1	2.0	24	
2		1.9	1.9	2	2	2	2	2.1	2.4	2.3	2	2.1	2.1	IZS	2.3	2.2	2.2	2.4	2.7	2.7	2.8	3.4	2.9	2.8	2.6	3.4	2.3	24	
3		2.8	2.4	2.3	2.6	2.6	2.7	2.6	2.8	3.1	2.5	2.6	IZS	2.1	2	2	2	2.4	2.4	3.4	2.1	2	2	2	2	3.4	2.4	24	
4		2	2	2	2	2	2.1	2.1	2	2.1	2	IZS	1.9	2	1.9	1.9	2	2.2	1.9	1.9	1.9	2	2	2	2	2.1	2.2	24	
5		2	4	6.6	2.4	4.6	4.5	5.8	5.7	5.1	IZS	2.4	2.3	2.2	2.1	2.1	2	2	2.2	2.4	2.9	4.3	4.7	4.6	4.9	6.6	3.6	24	
6		3.4	4.4	4	5.4	3.7	4.8	5.6	5.2	IZS	6.4	5.4	4.4	3.5	2.5	2.4	2.5	2.4	2.4	3.6	2.3	2.4	2.5	2.5	2.7	6.4	3.7	24	
7		2.6	3.2	3.1	2.7	2.7	2.8	3.2	IZS	2.3	2.2	2.2	2	2	2.1	2	2.1	2.1	2	2	2.1	2.1	2.2	2.2	2.2	3.2	2.4	24	
8		2.2	2.6	2.4	2.4	2.6	2.6	IZS	2.1	2	2	2.1	1.9	1.9	1.9	1.9	1.9	3.4	2.5	2	2	2	3	3.7	2.2	3.7	2.3	24	
9		3.1	5	3.3	4.4	3.7	IZS	3.5	2.9	2.4	2.3	2.2	2.1	2.2	2.1	2	2	2.2	2.3	2.6	2.6	2.4	2.3	2.2	5.0	2.7	24		
10		2.2	2.1	2.2	2.2	IZS	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.2	C	C	C	C	2.1	3.3	2	2.3	3.4	3	3.7	3.7	2.5	24	
11		3.8	2.7	2	IZS	2.2	2.1	5.1	5	4.3	3.6	3.9	2.9	2.6	2.5	2.2	2.3	2.3	2.2	2.2	2	2	2.2	2.2	5.1	2.8	24		
12		2.2	2.1	IZS	2.2	2.1	2.1	2.2	2.8	2.3	2.2	2.1	2.2	2	2	1.9	2	2	2.1	2.2	2.3	2.2	2.2	2.1	2	2.8	2.2	24	
13		2	IZS	2.1	2.1	2.1	2.1	2.2	2	2	2	2	2.1	2.5	2.2	2.5	2.2	2.6	2.5	2.8	2.7	2	1.9	2	2	2.8	2.2	24	
14		IZS	2.8	2.1	2	2	2	2	2	2	2	2	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	IZS	2.8	2.1	24
15		1.9	1.9	1.9	2	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2	2	2.1	2.1	2.3	2.3	2.7	2.8	2.2	IZS	2.2	2.8	2.1	24
16		2.6	5	4.6	3.5	3	4	4.9	4.7	3.1	3	3	3.2	2.9	2.6	2.5	2.5	3.4	3	4.5	2.8	2.3	IZS	2.1	2	5.0	3.3	24	
17		2.1	2	2.1	2	2	2	2	2	1.9	2	2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2	2.1	IZS	2.4	2.1	2.6	2.1	24
18		2.7	2.6	2.6	2.2	2.1	2.1	2.2	2.3	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.3	2.3	2.4	2.5	IZS	2.8	2.3	2.3	2.1	2.8	2.3	24	
19		2.2	3.1	2.3	2.2	2.5	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.4	IZS	3.1	2.6	2.8	2.9	2.7	3.1	2.4	24	
20		2.5	2.4	2.3	3	2.5	2.6	2.6	2.7	3.1	2.2	2.1	2.1	2.1	2.3	2.1	2.1	IZS	2.2	2.2	2.5	2.6	3	3.7	3.7	2.5	24		
21		4.1	4.8	4	4	4.3	4.2	3.9	3.8	3.7	3.3	3.6	3	2.8	2.7	2.6	2.5	IZS	2.3	2.3	2.3	2.4	2.3	2.5	3.7	4.8	3.3	24	
22		3.9	3.8	4.6	7.2	4.3	3	2.6	2.7	2.7	2.5	2.5	2.4	2.2	2.2	2.2	IZS	2.4	2.5	2.7	2.6	4.2	3.2	4.9	4.3	7.2	3.3	24	
23		2.2	2.3	4.3	3.7	5.1	5.2	5.2	4.4	4.2	3.2	2.7	2.7	2.4	2.3	IZS	2.3	2.2	2.5	2.6	2.2	2.2	2.3	2.3	2.5	5.2	3.1	24	
24		2.7	3.2	2.5	2.6	2.3	4.6	2.5	2.7	3.8	2.7	2.6	2.5	2.3	IZS	2.1	2.2	2.3	2.5	3.5	3.1	2.7	2.3	2.4	2.2	4.6	2.7	24	
25		2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.5	IZS	2.5	2.1	2	2	2	2	2	2	2	2.1	2.2	3.1	3.1	2.2	24
26		2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	3.8	5.5	4.2	IZS	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.4	2.5	2.5	5.5	2.7	24	
27		2.5	2.3	2.3	2.4	2.3	2.5	2.5	2.4	2.2	2	IZS	2.1	1.9	2.2	2.2	2	2.1	2.5	2	2	2	2	2	2.1	2.1	2.5	2.2	24
28		2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.3	IZS	2.1	2.1	2	2	2.1	2	2.1	2.1	2	2	2	2	2	2	2	2.4	2.1	24
29		2	2.5	2	2	2	2.1	2.1	2.1	IZS	2.2	2.2	2.2	2.1	2.1	2.1	2.7	3	2.2	2.3	2.6	5.2	3.3	3.3	3.5	5.2	2.5	24	
30		5.4	12.8	15.9	8	9.6	4.4	2.4	IZS	2.2	2.3	2.4	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.5	2.3	2.3	2.4	2.5	2.2	15.9	4.1	24	
HOURLY MAX		5.4	12.8	15.9	8.0	9.6	5.2	5.8	5.7	5.1	6.4	5.4	4.4	3.5	2.7	2.6	2.7	3.4	3.0	4.5	3.1	5.2	4.7	4.9	4.9				
HOURLY AVG		2.6	3.2	3.2	3.0	2.9	2.8	2.9	2.9	2.7	2.6	2.6	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.5	2.4	2.6	2.5	2.6	2.6				

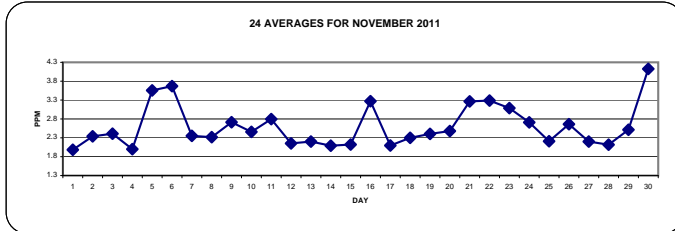
STATUS FLAG CODES

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

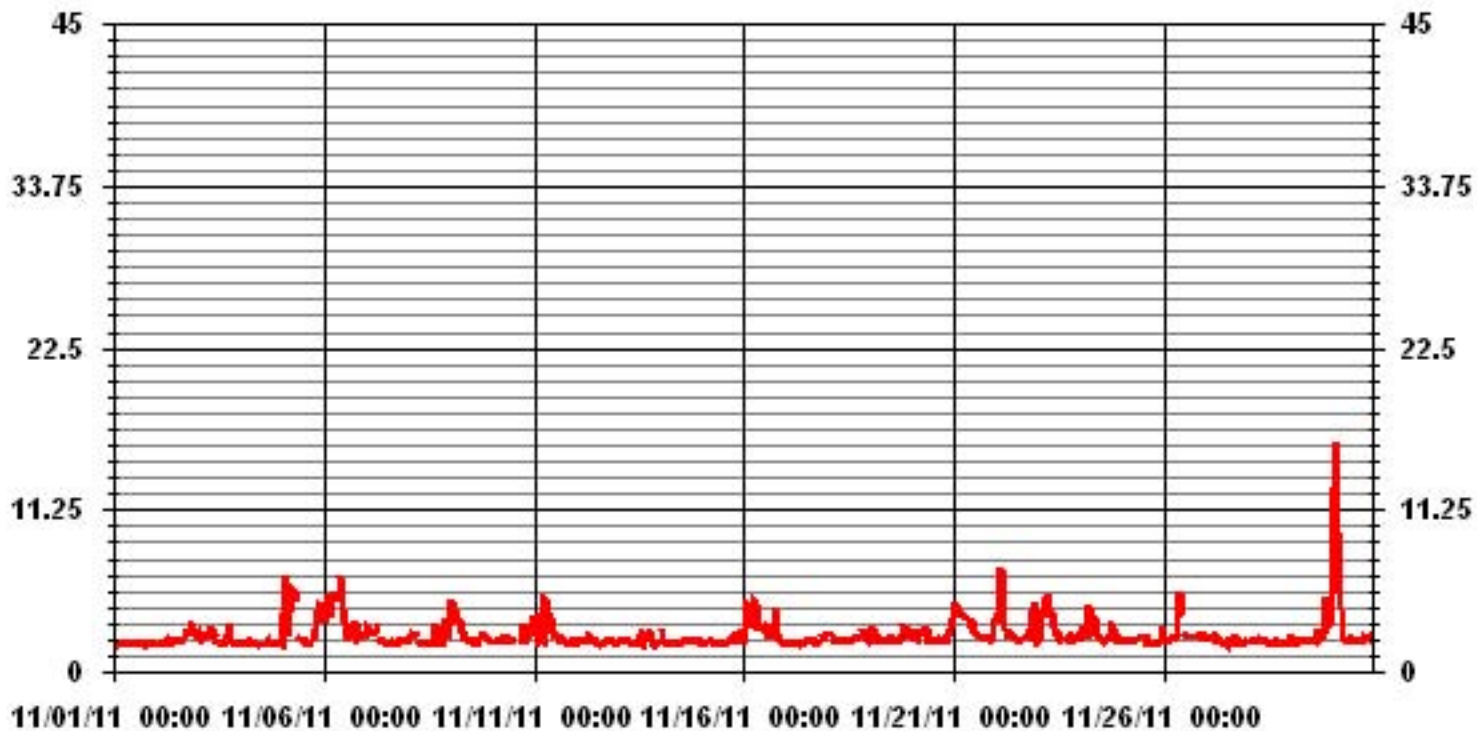
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685		
MAXIMUM 1-HR AVERAGE:	15.9	PPM @ HOUR(S)	2
MAXIMUM 24-HR AVERAGE:	4.1	PPM	ON DAY(S) 30
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME: 720 HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME: 100.0 %
STANDARD DEVIATION:	1.08		MONTHLY AVERAGE: 2.60 PPM

24 AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA33 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2.8	2	2	2	2.7	2.2	2.1	2.8	2.3	2.1	2.1	2.1	2.3	IZS	2	1.9	3	2.9	2.1	2	2	2	2	2	3	2.2	24	
2	2	2	2.1	2.1	4.7	4.5	2.7	3.7	3.4	2.1	2.1	2.2	IZS	2.7	2.3	2.3	4.2	5	4.3	3.9	4.9	4.2	9	4.1	9	3.5	24	
3	3.7	4.2	3.1	3.9	7	6.3	5.4	5	5	3.6	3.2	IZS	2.3	2.1	2	2.1	3.6	3.6	6.6	2.4	2.1	2.1	2	2.1	7	3.6	24	
4	2	2.1	2.1	2	2.1	2.3	2.1	2.1	2.2	2.2	IZS	2	2.1	2.2	2.4	2.7	3.6	2	3.2	3.7	2.2	3.2	3	4	4	2.5	24	
5	2.7	9.8	19.9	4.2	8.7	6.8	10.1	11.1	8.9	IZS	2.5	2.4	2.2	2.1	2.1	2.1	2.1	3.7	5.1	7.6	14.4	6.9	8	8.2	19.9	6.6	24	
6	8.3	17.9	6.7	13.9	4.1	9.9	12.2	6.5	IZS	8.1	6.1	4.9	4.2	3.1	2.6	3.5	2.5	2.5	6.2	5.4	5.1	8	8.2	11.4	17.9	7.0	24	
7	5.2	9.6	13	11.8	8.3	10.9	8.9	IZS	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	13	4.5	24	
8	2.3	12.3	3.8	2.7	6.2	6.9	IZS	3.9	2.4	3.1	3.4	1.9	1.9	1.9	1.9	2	16.2	7.7	2.3	2	2.1	6.5	7.1	3.7	16.2	4.5	24	
9	6.6	7.8	6	7.1	7.8	IZS	8.5	6	4.2	3.7	3.1	3	2.8	2.8	2	2.1	3.4	2.5	7.4	2.9	5.4	3.9	2.5	2.5	8.5	4.5	24	
10	2.2	2.2	2.2	2.2	IZS	2.3	2.5	3.6	3.4	4.3	2.6	2.3	2.2	C	C	C	C	C	5.7	2.8	6.3	6.9	6	6.4	6.9	3.7	24	
11	6.3	6.7	2	IZS	7.2	4.5	12.9	7.3	9.3	7.1	7.1	4.4	3.5	3.8	2.7	2.6	2.5	2.9	3.1	2.5	2.4	3	2.8	2.9	12.9	4.8	24	
12	3	2.9	IZS	2.8	2.7	3.1	2.7	4.1	3.2	4.5	3.8	3.4	2	2	2.1	2.1	2.1	2.1	2.3	2.4	2.3	2.3	2.2	2.1	4.5	2.7	24	
13	2	IZS	2.2	2.2	2.2	2.5	3.5	2.2	2.1	2.1	2.1	3.4	3.9	3.4	3.8	3	5.1	4.9	5.6	7.8	2.2	2	2	2.1	7.8	3.1	24	
14	IZS	7.1	2.5	2.2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	7.1	2.4	24
15	1.9	2	2	2.1	2.1	2.2	2.2	2	2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.6	2.5	7.1	8.1	2.3	IZS	2.8	8.1	2.7	24	
16	6.6	31.4	11.8	14.1	5.6	11.5	13.4	10	4.6	4.6	4.3	4.5	4.7	3.6	4.6	4.4	6.6	7.6	9.4	3.9	3.3	IZS	2.5	2.4	31.4	7.6	24	
17	2.5	2.3	2.3	2.1	2.2	2.1	2.2	2.1	2	2.3	2.3	2.3	3.4	2.5	2.4	2.5	2.4	2.4	2.2	2.3	IZS	4.1	2.3	4.4	4.4	2.5	24	
18	3.8	3.3	5	3.1	2.6	2.3	3	3.3	2.5	2.2	3.2	4.4	2.8	2.6	6.1	3.4	2.8	3.2	3.3	IZS	4.6	4.6	2.8	2.2	6.1	3.4	24	
19	4.1	6.5	2.7	3.3	3.8	2.9	2.1	2.1	2.3	2.3	2.4	2.4	2.3	2.4	2.3	2.2	3.1	5.4	IZS	9.5	3.6	3	7.5	2.8	9.5	3.5	24	
20	2.6	2.5	2.4	19.3	2.5	2.7	2.7	5.1	7.1	4.5	2.2	2.1	2.1	2.1	4.3	2.1	2.1	IZS	2.3	2.3	7.9	5.6	4	6.6	19.3	4.2	24	
21	7.9	8.9	5.9	7.9	7.1	7.7	8.3	5.1	6.1	3.9	6.9	3.4	3	3.2	2.8	3	IZS	2.5	2.7	2.9	3.1	3.5	4.2	6.9	8.9	5.1	24	
22	15.4	11.4	7.9	8.3	7.4	4.5	3.3	3.7	2.9	2.7	2.6	2.5	2.3	2.3	2.7	IZS	3.8	4.1	4.4	2.9	13.9	5.8	14.9	26.9	26.9	6.8	24	
23	2.4	3	14.1	8.6	11.5	10.2	15.3	6.3	10.6	7.1	3.6	3.2	3	2.7	IZS	2.8	2.8	6.9	7.2	2.5	2.6	2.8	2.8	3.6	15.3	5.9	24	
24	6.1	4.9	3.3	5.7	2.4	17.1	2.6	6.8	7.6	5.1	4	3.5	2.8	IZS	3.5	3.3	3.8	4.1	6.2	4.4	3.6	2.6	2.7	2.9	17.1	4.7	24	
25	2.7	2.7	2.4	2.2	2.2	2.4	2.4	3.8	4	5.3	2.6	4.2	IZS	4.7	2.2	2.1	2	2	2	2.1	2.1	2.1	2.2	5.9	5.9	2.9	24	
26	2.4	2.2	2.2	2.2	3.5	4.2	11	7	9.6	8.2	7.9	IZS	2.7	2.8	2.5	2.4	2.5	2.4	2.5	3.7	4.2	2.6	4.1	5.5	11	4.3	24	
27	4.8	2.5	2.4	4.2	2.4	3.9	3.3	2.7	3	2	IZS	2.3	2.1	6.4	4.4	2.1	2.2	5	2	2	2.1	2.1	2.1	2.2	6.4	3.0	24	
28	2.2	2.2	2.2	2.2	2.3	2.3	2.5	3.7	2.3	IZS	2.2	3.3	2.1	2.1	2.1	2.1	2.2	2.1	2	2	2	2	2	2	3.7	2.3	24	
29	2	5	2.4	3	2.1	2.1	2.2	2.1	IZS	2.2	2.5	3	2.1	2.2	2.2	4.9	20.6	3.3	6.5	8.9	12.1	9.8	12	9.7	20.6	5.3	24	
30	10	24	34.2	11.2	13.9	14.3	3.8	IZS	2.4	3.5	3.7	2.2	2.4	2.6	2.2	2.2	2.2	2.3	3.9	2.5	3.4	5.6	6.1	2.2	34.2	7.0	24	
HOURLY MAX	15	31	34	19	14	17	15	11	11	8	8	5	5	6	6	5	21	8	9	10	14	10	15	27				
HOURLY AVG	4.4	6.9	5.9	5.5	4.8	5.4	5.4	4.5	4.3	3.8	3.4	2.9	2.6	2.8	2.7	2.6	4.1	3.6	4.0	3.7	4.6	3.9	4.5	4.9				

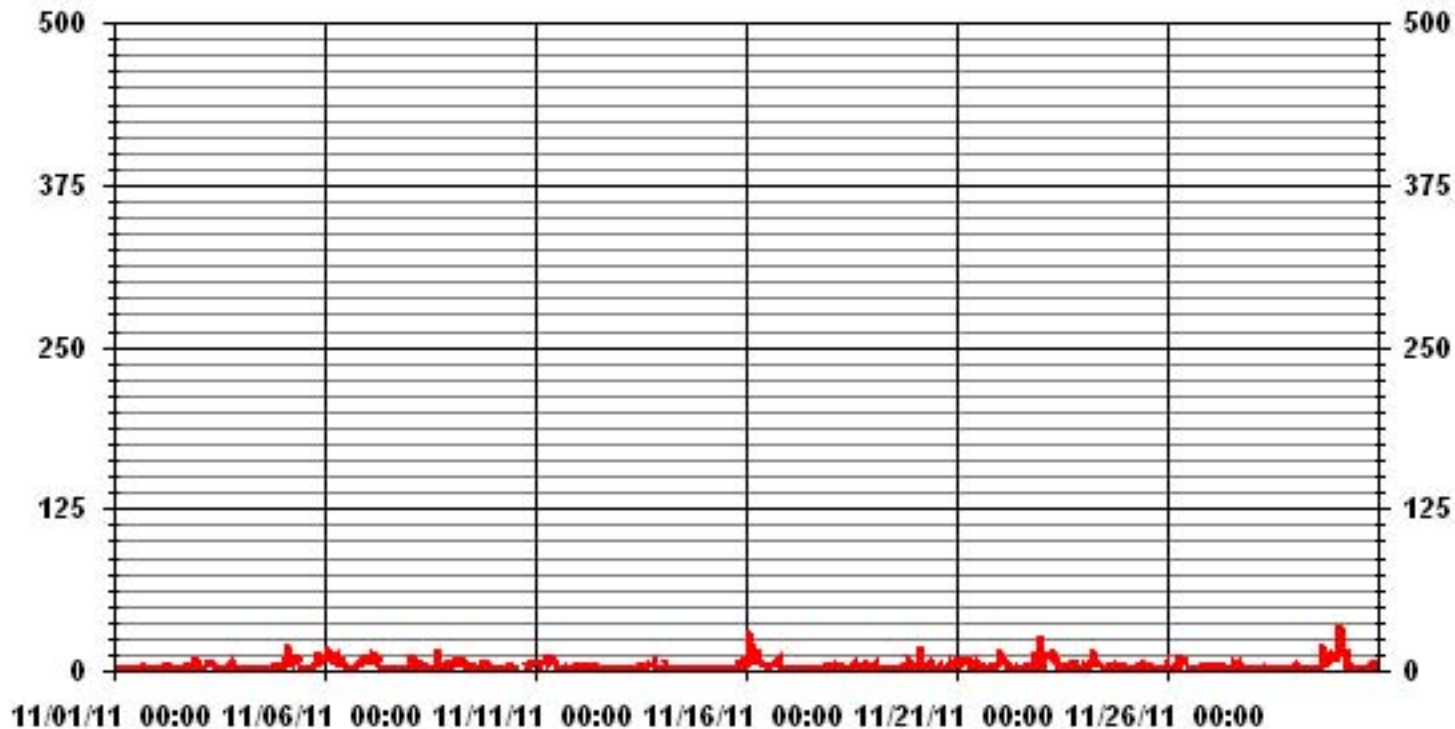
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM INSTANTANEOUS VALUE:	34.2 PPM @ HOUR(S) 2 ON DAY(S) 30
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	3.55
OPERATIONAL TIME:	720 HRS

01 Hour Averages



— LICA33 THCMAX PPM

LICA33
 THC / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 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	1.16	2.92	2.04	3.65	6.87	3.21	5.40	4.38	5.70	5.40	11.11	7.01	5.99	13.45	3.21	.87	82.45
< 10.0	.29	.58	1.16	1.90	3.21	1.16	.87	.43	.14	.43	.73	2.19	2.33	1.31	.00	.43	17.25
< 50.0	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.60	3.65	3.21	5.55	10.08	4.38	6.28	4.82	5.84	5.84	11.84	9.21	8.33	14.76	3.21	1.31	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	8	20	14	25	47	22	37	30	39	37	76	48	41	92	22	6	564
< 10.0	2	4	8	13	22	8	6	3	1	3	5	15	16	9		3	118
< 50.0	1	1															2
>= 50.0																	
Totals	11	25	22	38	69	30	43	33	40	40	81	63	57	101	22	9	

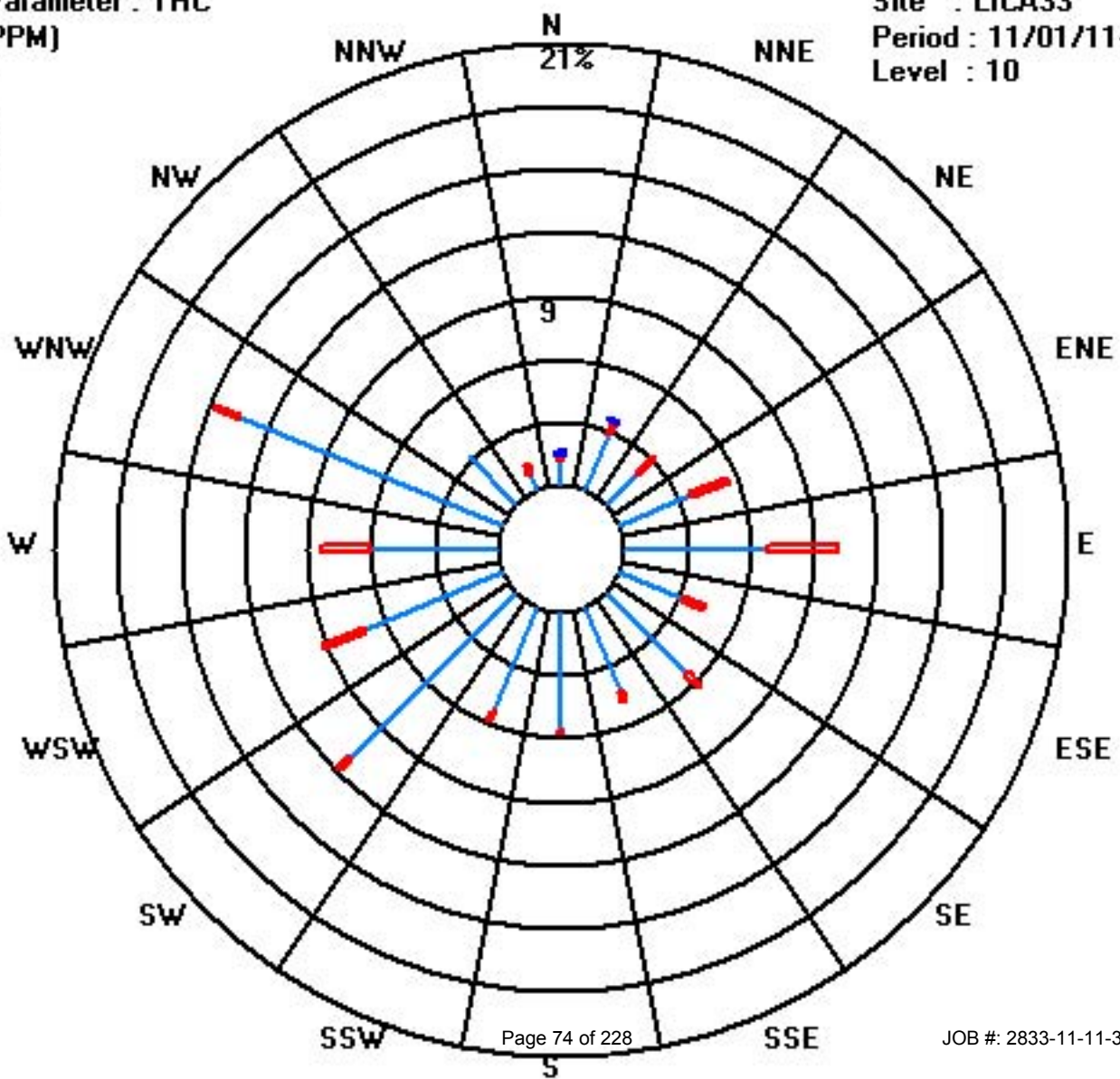
Calm : .00 %

Total # Operational Hours : 684

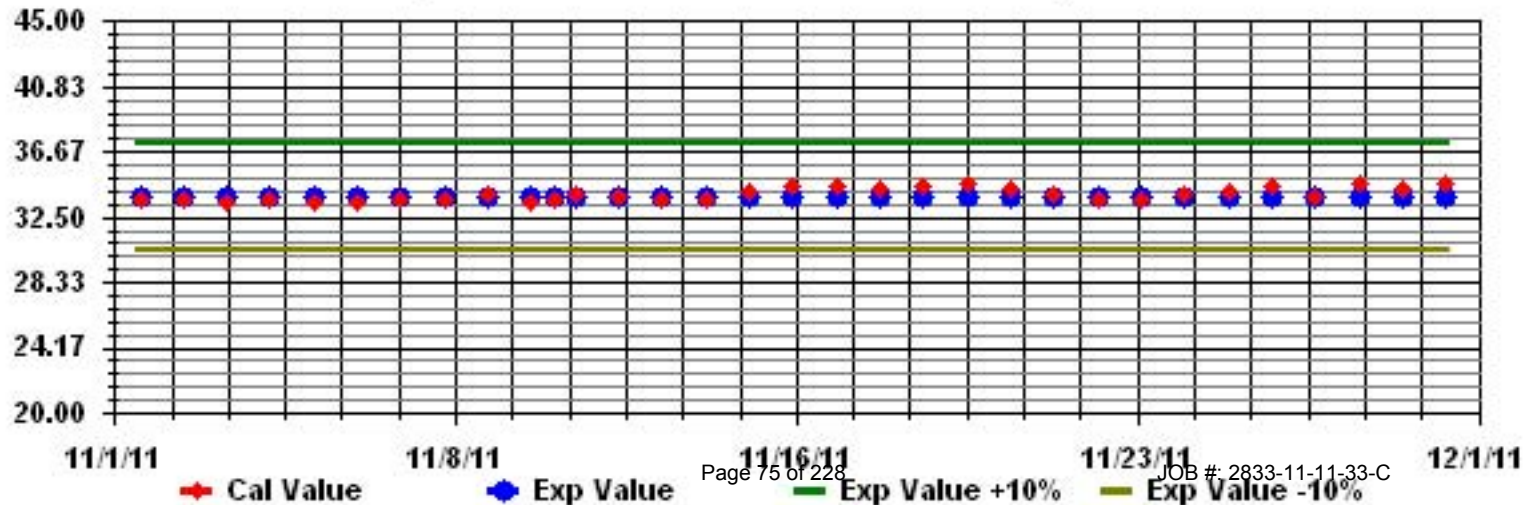
Class Limits (PPM)

Period : 11/01/11-11/30/11

Level : 10



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



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	
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		18.1	21.1	24.8	22.4	13.6	15	16.3	16	15.3	17	22.8	20.8	18.6	18.2	18.8	20.2	12.3	9.8	12.8	13.8	13.4	11.9	11.7	10.4	24.8	15.6	24
2		11.8	10.2	9.4	7.7	2.4	4.3	4.6	2.1	2.3	6.3	8.4	6.7	8.9	10	10.4	10.4	9.6	8.2	6.5	9.1	7.9	8.9	9.3	9.4	11.8	4.3	24
3		10.5	10	10.1	7.6	7.3	6	3.2	2.3	2.9	4.4	8.2	12.9	16	16.4	16.8	9.6	7	6	5.9	12	10.2	12.6	18.1	15.2	18.1	5.1	24
4		16	15.1	14.8	14.5	11.2	7.9	9.9	10.2	8.8	15.8	13.2	10.5	9.2	8.1	10.1	8.5	4.6	4.1	5	5.1	5.1	3.6	3	2.6	16	7.8	24
5		4.6	0.7	1.5	5.4	1.1	3.7	2.1	4.1	1.6	1.2	6.3	5.9	6.6	9.7	5.9	4.3	4.2	4.1	5	4.7	1.9	0.6	0.8	0.8	9.7	3.6	24
6		3.3	2	4.1	1.3	3.3	2.7	2.8	2.4	1.8	3.1	2.9	4.4	4.6	5.2	8	5.4	3.6	6	4	3.9	5.4	4.4	3	3.7	8.0	3.8	24
7		3.5	1.6	1.8	3.1	3.1	3.8	4.2	4	3.3	3.7	5.2	8.7	12	11.3	11.1	6.6	9.4	9.8	9.5	9.5	4.4	6	5.3	3.7	12.0	6.0	24
8		3.8	2.9	3.7	4.5	7.6	8.3	9	10.9	11.9	12.5	18.2	22.9	19	20.9	18.3	12.8	8.7	8.4	10.1	11.5	11.6	10.6	11.2	10.6	22.9	11.2	24
9		10.5	11.1	12.5	10.4	11.1	8.5	8.1	5.4	7.8	4.9	6.6	8.9	8.4	5.7	3.3	4.6	7	6.7	8.3	9.7	7.1	10.9	12	11.2	12.5	8.4	24
10		18.4	16.4	16	13.8	10.1	10.7	8.7	9.4	6.1	3.3	3.6	7.6	5.8	7.8	8.3	12.4	10.4	11.2	12.1	10.8	10.6	12.4	12	10.3	18.4	10.3	24
11		8.6	6.9	6.7	5.5	2.7	3.6	4.2	2.8	4	3.8	3.2	6.9	8	8	10.1	9.1	8.6	9.5	11	12	13.1	11.2	10.5	10.2	13.1	7.5	24
12		11.4	13.6	10.3	8.8	9.3	10.3	9.1	8.3	5.9	4.5	5.4	8	8.8	9	11.2	6.8	8.6	7.4	9.1	10.1	9.9	8	11.1	9.4	13.6	8.9	24
13		9.7	6.4	7.7	6.8	4.5	4.5	4.3	9.1	15	14.2	14.7	13.5	13.7	13.8	14.4	14.1	13.5	12.4	11.4	9.7	9.3	13.7	13.6	11.1	15.0	10.9	24
14		8.4	5.3	8.7	11.1	14.9	13.1	12	10.8	10.2	16	14.3	12	15.6	15.6	14.3	15.3	18.4	17.8	18.1	20.7	21.7	20.8	20.4	18.5	21.7	14.8	24
15		18.3	16.1	17.2	10	9.7	10.9	11.8	14.7	15.5	16.4	16.4	17.2	17.3	16.7	16.7	14.7	12	9.9	9.6	8.4	6	7	6	4.3	18.3	12.6	24
16		2.2	2.6	1.4	1.3	1.1	0.2	1.4	2.4	2.3	4.1	3.3	4	3.1	5.8	6.2	4.9	5.8	2.6	4.5	7.3	11.2	17.6	17.3	17.7	17.7	5.4	24
17		19.9	20.5	23.8	23.8	25	22.1	24.5	26.4	28.1	28.9	25.8	23.1	19.6	16.5	20.9	23.2	22.7	23.3	19	15.1	12.2	13.3	10.6	2.7	28.9	20.5	24
18		4.2	10.6	15.2	11.8	12.8	10	11.2	15.8	13.8	10.2	9.5	8.8	7.7	6.2	3.8	6.3	7.4	6.6	7.2	5.3	4.6	5.9	3.8	4.6	15.8	8.5	24
19		3.2	2.2	1.4	1.7	1.6	4.3	3.8	4.9	4.8	6.1	9.7	7.5	7.6	12.1	7.7	7.4	6.7	4.1	3.6	2.7	4.7	7.2	5.2	5.2	12.1	5.2	24
20		6.6	6	5.3	2.3	3	3.4	5	9	8.8	8.9	8.2	8.4	8.8	10.8	7.7	6.6	4.7	5.6	4	4.1	2.2	3.6	6.6	5.1	10.8	6.0	24
21		4.9	5	5.6	4.1	4.1	4.8	4.9	7.6	8.2	9.7	10.1	14.2	13.6	14.3	16.5	16.9	17.4	18.2	14.1	11.3	9.9	8.7	5.6	3.6	18.2	9.7	24
22		1.7	2.3	4.8	3.8	4.9	6.8	9.8	9.8	14	16.3	18	17.1	17.8	17.1	13.8	10.7	6	4.9	5.5	11.8	7.1	2.4	5.3	6.6	18.0	9.1	24
23		10.3	6.5	2.4	3.4	1.6	2.9	3.9	5.9	7.1	8.2	11	14.5	16.9	17.2	17.4	12.7	14.9	8.4	12.8	14.1	9.4	10.3	11.6	6.9	17.4	9.6	24
24		5.9	3.2	2.5	2.9	3.1	8.4	8.7	6.8	8.4	9.8	8.5	4.2	3.7	C	C	3.2	7	5.3	3.9	5.4	10.5	14.3	15.2	11.8	15.2	6.9	24
25		14.1	15.3	19.1	17.2	15.7	12.6	8.9	6.9	6.1	6.6	4.4	10.1	10.6	16.3	25.6	27.8	29.5	29.6	31.6	32.2	29.1	26.4	18.3	11.8	32.2	17.7	24
26		10.2	11	14	13.5	12.2	2.6	2.7	4	0.8	6.3	7.3	9	13.9	15.1	15.4	13.3	14.1	13.2	11.8	11.2	13	14.5	11.8	10.7	15.4	10.5	24
27		11.9	9.7	11.3	5.4	12.6	9.9	10.9	9.7	8.6	10.5	14.2	13.3	24.8	17.6	15.5	20.5	15.1	17.1	26	26.2	28	29.5	26.4	24.7	29.5	16.6	24
28		25.3	19	18.5	18.9	17	14	11.2	9.4	9.3	11.8	14.2	12.3	14.2	17.2	12.9	7.2	5.8	6.9	9.4	8.2	10.2	9.6	6.1	11.5	25.3	12.5	24
29		14.3	8	6.6	5.3	14.8	20	15.9	17.3	14.9	17	14.7	11.9	17.6	13.6	9.8	6.5	2.8	5.5	2.1	4.4	2.3	1.5	0.7	1.7	20.0	9.6	24
30		1.6	2.3	4.9	3.8	3.6	9.8	9.4	4.5	5.1	6.1	5.4	9.2	7.3	8.2	13.9	16.4	17	9.9	5.4	5.4	3.4	3.4	5.1	12.5	17.0	7.2	24
HOURLY MAX		25.3	21.1	24.8	23.8	25.0	22.1	24.5	26.4	28.1	28.9	25.8	23.1	24.8	20.9	25.6	27.8	29.5	29.6	31.6	32.2	29.1	29.5	26.4	24.7			
HOURLY AVG		9.8	8.8	9.5	8.4	8.2	8.2	8.1	8.4	8.4	9.6	10.5	11.2	12.0	12.6	12.6	11.3	10.5	9.8	10.0	10.5	9.8	10.4	9.9	9.0			

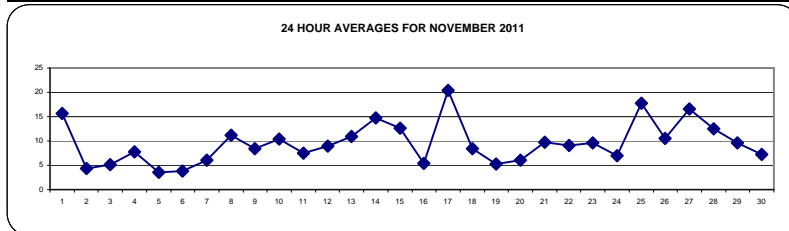
STATUS FLAG CODES

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

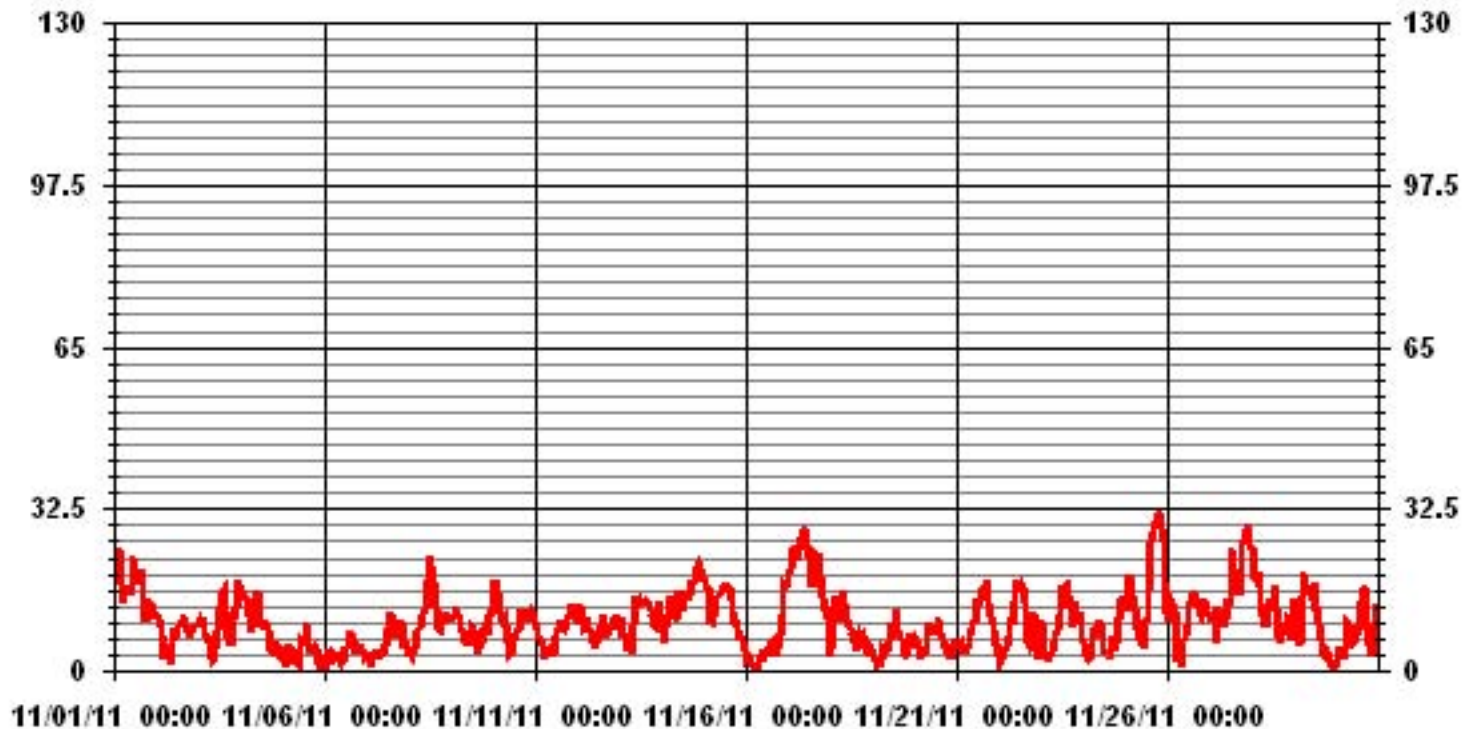
LAST CALIBRATION: November 24, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	32.2	KPH	@ HOUR(S)	19	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	20.5	KPH			ON DAY(S)	17
CALMS (≤ 1 KPH)	0.13	%				
MONTHLY CALIBRATION TIME:	2	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	5.98		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	9.88	KPH	



01 Hour Averages



— LICA33 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	35.6	42.2	42.6	40.8	29.7	24.3	26.7	27.2	27.9	31.9	37.7	42	33.6	33.7	37.2	35.1	25	18.1	20	19.7	18.6	17.5	19.5	16.8	42.6
2	18.6	17.8	17.1	13.2	8.5	10.1	14.2	10.6	9.2	16.5	15.5	16.2	19.5	15.4	16.9	16	14	13.7	11.5	13.2	12.3	14.2	16.4	14.1	19.5	
3	15.2	15.5	16	12.7	13.8	8.2	6.2	6.3	9.7	9.1	15.9	23.8	27.9	27.4	29.1	23.5	11.1	8.5	11.5	22	22.5	29.9	31.9	23.8	31.9	
4	26.3	27.3	23.2	23.9	19.6	14.6	16.2	18.1	16.8	26.7	24.6	18.7	19.8	17.1	18	15.6	9.6	6.5	9.1	8.6	11.1	7.8	7	9.3	27.3	
5	11.7	5.2	6.5	11.8	6.5	7.5	5.1	7.3	6.3	13.4	13.2	12.2	14	17.9	12.7	9.4	6.5	7.6	8.5	9.4	5.2	5.5	4.5	3.1	17.9	
6	6	4.7	6.2	4.9	6	4.9	6	4.9	3.3	5.5	5.6	8.4	9	12.5	13.4	9.8	7	8.9	7.4	6.7	9	10.6	6.2	7	13.4	
7	9.7	5.1	3.7	5.9	6.9	7.8	11	10.8	9	7.8	16.5	19.1	22	22.4	23.1	15.5	16.3	16.9	16.4	17.9	13.1	16.3	16.9	10.1	23.1	
8	11.3	9.5	10.4	9.5	13.6	12.7	12.6	16.9	17.5	21.5	35	38.8	30.2	38.8	30.1	26.2	17.5	13.1	14	15.5	17	15.2	18.5	14.9	38.8	
9	15	16.9	19.1	19	18.8	14.9	14.1	10.1	14.1	9.2	15.7	17.1	15.3	13.1	7.1	7.5	8.8	8.7	11.9	12.6	9.6	16.1	18.5	25.4	25.4	
10	29.9	36.2	31.4	22.6	16.1	17.7	14.3	16.2	14.3	8.3	10.3	16.1	14.1	13.8	15.7	20.1	17	17	23.6	18.1	16.4	22.6	19.4	19.1	36.2	
11	15.2	11.2	10.4	8.9	8.2	5.8	5.8	7.4	7.1	5.8	5.2	11.3	12.1	12.9	14.6	13.2	12.8	14.3	19.3	19.7	20.1	19.1	18	16.5	20.1	
12	17.5	22.1	15.6	14.6	16	19.2	14.1	13.5	10.8	7.8	9.3	11.6	11.6	14.1	15.7	14.2	13.7	11	13.2	14.8	15.6	14.5	16.2	15.9	22.1	
13	17.7	15.4	16.4	16.5	11	11.8	10.1	19	23.8	24.8	24.6	22.1	23.2	21.3	24.9	24.1	23.8	24.6	19.6	15.2	17.1	26.7	25.3	21.2	26.7	
14	17.9	12.7	18.6	22	24	23.2	19.9	20.8	21.8	28.5	28.4	26.7	25.5	25.7	26.3	28.3	30.9	31.2	29.1	34.3	41.1	36.6	34.2	32.9	41.1	
15	29.8	28	28.8	22.2	16.3	17.5	20.6	26.4	26.6	27.8	27.7	28.3	27.1	28.1	30.3	24.5	23.2	16.2	15.5	13.4	10.7	11	9.3	8.4	30.3	
16	6.2	4.7	3.2	4	3.5	2.7	4.2	4.4	4.5	7	5.3	6.5	6	9.8	10.7	7.3	8.8	5.1	8.6	12.2	20.4	24.3	25.2	26.4	26.4	
17	30.3	31.8	33.6	34.8	34.9	35.7	36.2	42.7	45.8	43.8	38.9	39.4	39.2	29.7	33.6	40	36.8	42.5	32.9	26.1	20.2	23.9	19	8.5	45.8	
18	11.6	21.6	24.5	22.8	21.8	19.8	21.6	27.3	24.1	17.7	16.4	18.4	15.5	13.7	8.5	17	15.5	15.2	14.1	9.8	9.9	13	7.2	8.1	27.3	
19	7.2	6.1	3.6	5.4	7.2	14	11.1	16.9	11.6	17.5	17.6	19.1	16.5	20	17.1	13.6	11	7.1	7.7	4	7.9	9.5	7.9	7.4	20	
20	9	10.2	10.1	8.5	6	7.2	13.8	16.1	15.6	13.4	12.9	14.2	13.6	16.4	14.1	12.5	10.7	9	8.5	9.8	6.5	8.2	10.6	9.5	16.4	
21	8.7	8.2	8.3	7.4	7.3	6.9	7.4	11.3	12.8	14.7	14.9	21.3	21	23.4	25.2	25.1	26.3	26.3	24.7	16.6	15.3	15.9	10.5	6.9	26.3	
22	4.7	4.6	6.5	6.6	10.4	12.1	14.7	18.7	21.3	24.4	29.7	29.1	27.6	26.1	19.7	16.2	10.8	11.6	12.4	18.7	16.2	7.9	9.7	13	29.7	
23	15.9	13.9	6.5	11.3	5.7	5.6	7.5	8	11.5	14.6	18.2	20.5	25.8	28.1	33.2	24.2	25.6	17.3	22.9	24.2	15.1	17.7	19.8	13.9	33.2	
24	13.3	6.3	5.9	6.4	6.6	19	18.1	14.8	16.7	16.9	14.6	10.5	8.8	C	C	C	11.7	9.2	6.9	11.8	15.7	21.4	21.9	21.9	21.9	
25	22.1	21.6	29.3	26.8	26	20	14.6	12.4	9.8	11.1	11.8	18.7	17.5	30.2	45.2	50.4	50.4	53.5	54.2	55.2	55.4	44.5	33.7	23.3	55.4	
26	15.4	16.2	19.8	22.6	26.5	10.1	7.3	7.3	5.5	9.4	10.5	14.6	20.8	25.6	26.4	22.6	25.8	24.4	24.9	15.1	16.7	18	16.4	15.5	26.5	
27	19.7	17.8	20.5	14.5	18.6	14.3	17.9	18.7	28.4	25	37.1	24.3	44.4	40.7	31.1	41.8	25.1	30.3	44	43.2	48	52.9	45.6	50.3	52.9	
28	43	36.2	36.1	33.2	31.3	27.2	21.2	14.8	13.5	16.1	20.4	19.8	22.6	29.8	25.7	14.7	16.8	21.4	19.3	22.7	24.6	24.1	16.7	22	43	
29	26.2	15.9	15.9	13	25.8	26.2	24.5	26.3	24	25.7	26.8	27.2	29.8	23.6	17.4	9.5	8	9.4	6.1	7.8	4.7	4.4	4.6	3.7	29.8	
30	5	4.4	7.6	7.4	8.7	16.7	16.3	12	12.2	11.4	16.5	18.3	15.1	18.7	28.8	30.8	29	26.8	11.7	10.5	10.9	9	17.2	19.4	30.8	
PEAK		43.0	42.2	42.6	40.8	34.9	35.7	36.2	42.7	45.8	43.8	38.9	42.0	44.4	40.7	45.2	50.4	50.4	53.5	54.2	55.2	55.4	52.9	45.6	50.3	

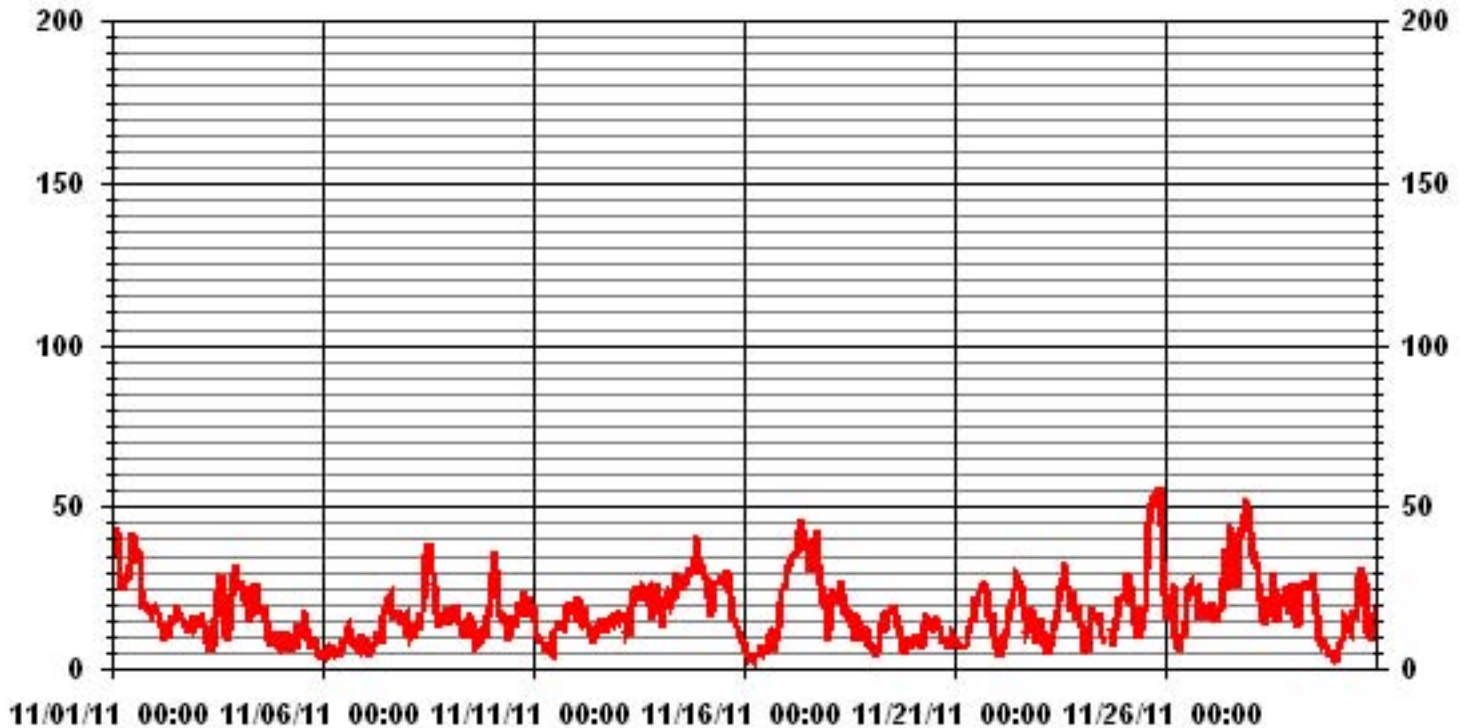
STATUS FLAG CODES

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	55.4	KPH	@ HOUR(S)	20
			ON DAY(S)	25

01 Hour Averages



LICA33
WSP / WDR Joint Frequency Distribution (Percent)

November 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	.55	1.11	.97	1.94	2.22	1.39	1.39	1.94	3.62	3.76	4.45	1.81	1.39	1.67	1.39	.97	30.64
< 12.0	.83	1.67	.97	1.81	4.03	1.53	4.03	1.94	2.08	1.94	5.29	4.45	3.89	2.78	.83	.55	38.71
< 20.0	.13	.83	.69	1.25	2.64	1.39	.69	.97	.13	.13	2.08	2.92	2.50	7.10	.83	.00	24.37
< 29.0	.00	.00	.55	.41	1.11	.00	.00	.00	.00	.00	.27	.00	.83	2.22	.00	.00	5.43
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.55	.00	.00	.83
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.53	3.62	3.20	5.43	10.02	4.31	6.12	4.87	5.84	5.84	12.11	9.19	8.91	14.34	3.06	1.53	

Calm : .00 %

Total # Operational Hours : 718

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	4	8	7	14	16	10	10	14	26	27	32	13	10	12	10	7	220
< 12.0	6	12	7	13	29	11	29	14	15	14	38	32	28	20	6	4	278
< 20.0	1	6	5	9	19	10	5	7	1	1	15	21	18	51	6		175
< 29.0			4	3	8						2		6	16			39
< 39.0													2	4			6
>= 39.0																	
Totals	11	26	23	39	72	31	44	35	42	42	87	66	64	103	22	11	

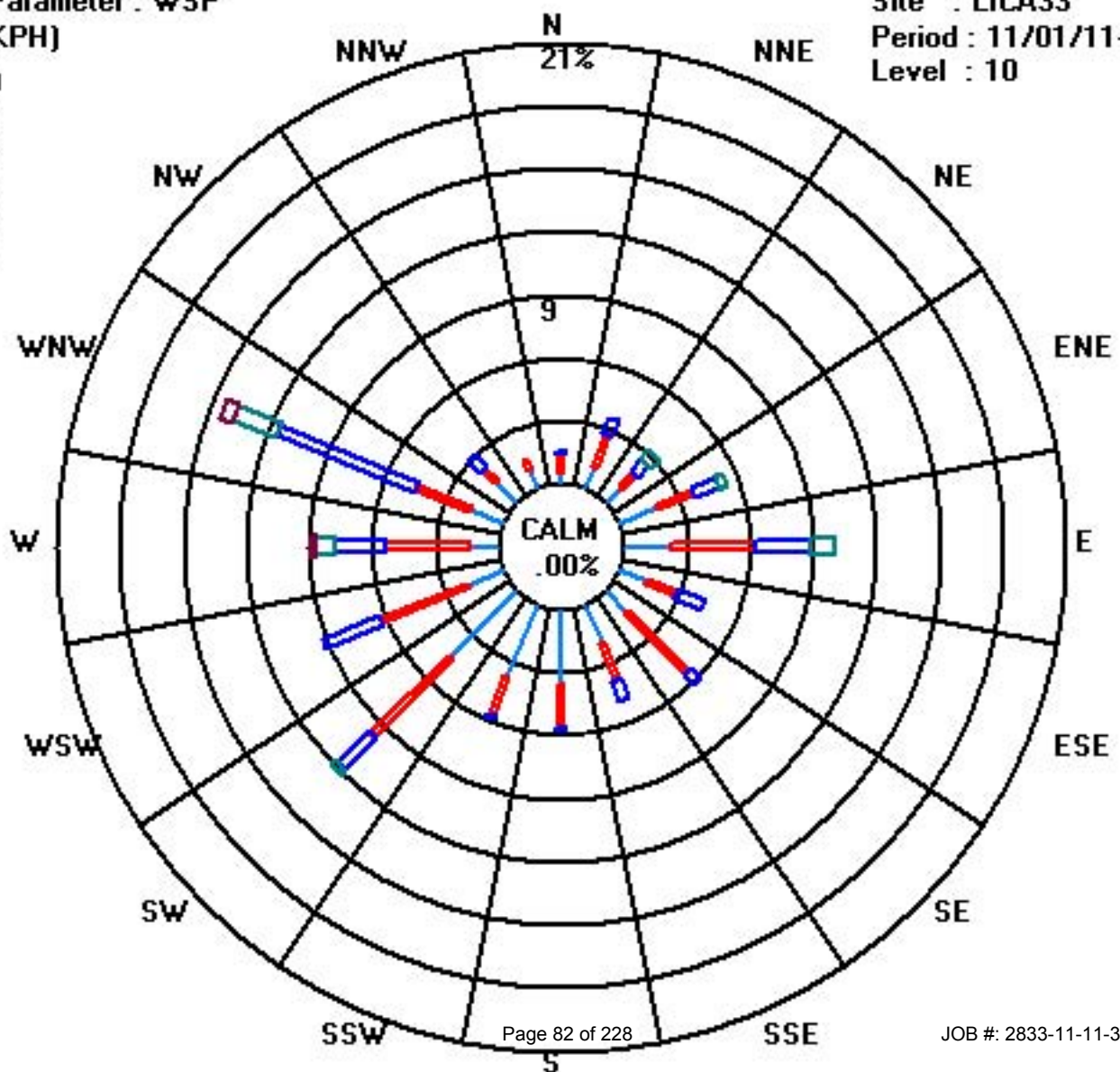
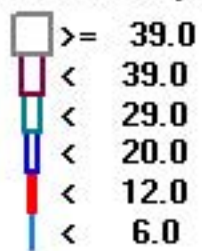
Calm : .00 %

Total # Operational Hours : 718

Class Limits (KPH)

Period : 11/01/11-11/30/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	269	276	291	298	286	270	270	268	270	274	280	281	267	269	281	280	266	244	239	237	237	235	230	225	269	W	24	
2	229	234	242	234	186	170	192	209	217	209	231	194	166	130	146	127	125	120	133	98	86	79	73	87	156	SSE	24	
3	94	78	86	88	80	68	76	153	272	236	271	276	285	296	300	299	276	277	280	310	319	310	299	302	306	NW	24	
4	301	299	295	298	306	289	299	297	295	294	301	293	275	257	249	249	246	235	215	223	214	211	191	187	281	W	24	
5	185	26	163	185	25	96	141	134	329	176	214	215	211	181	194	188	169	152	157	167	260	294	106	202	181	S	24	
6	151	224	295	282	286	290	280	235	263	293	291	282	275	288	283	252	212	228	254	235	232	224	203	217	256	WSW	24	
7	196	197	183	190	212	178	224	196	179	178	194	210	222	219	218	182	177	177	180	179	198	190	189	192	196	SSW	24	
8	201	181	190	221	235	232	244	248	247	239	273	289	293	294	297	304	279	249	230	233	244	255	259	252	263	W	24	
9	253	260	256	262	265	278	269	251	271	250	251	278	246	237	183	148	115	132	128	128	125	121	123	144	218	SW	24	
10	150	159	154	161	144	158	136	129	126	164	192	218	233	238	234	269	249	246	259	234	248	253	253	260	203	SSW	24	
11	261	233	231	229	188	162	90	89	88	77	66	68	96	85	79	81	84	90	79	78	83	68	59	61	85	E	24	
12	62	71	54	28	31	22	24	6	24	41	83	117	136	140	141	160	162	147	132	139	155	159	164	172	104	ESE	24	
13	175	185	185	192	187	197	193	227	237	244	245	248	255	251	256	251	254	255	257	271	299	302	293	286	248	WSW	24	
14	277	281	288	296	293	301	293	303	315	304	304	323	302	288	299	298	298	300	301	301	302	296	299	301	299	301	WNW	24
15	300	301	299	294	290	277	285	300	299	302	303	302	296	294	295	294	293	277	277	273	246	231	228	232	290	WNW	24	
16	212	242	278	231	117	117	50	61	36	39	56	70	52	26	65	83	68	131	61	49	83	93	92	89	78	ENE	24	
17	95	87	87	87	86	81	79	79	81	72	74	66	52	38	38	37	40	39	40	29	17	12	15	314	62	ENE	24	
18	323	3	8	23	20	20	16	24	22	21	17	7	345	335	321	352	342	349	333	352	329	324	302	3		N	24	
19	307	341	320	346	305	231	184	190	218	199	161	194	190	169	176	172	165	159	164	139	147	154	149	135	176	S	24	
20	131	150	202	199	218	214	201	241	251	239	231	235	231	229	240	226	219	225	214	177	187	90	121	71	214	SSW	24	
21	90	78	93	93	72	78	79	91	86	88	83	81	86	79	79	74	83	77	83	83	88	93	102	84	83	E	24	
22	115	131	105	92	75	88	83	89	81	84	85	84	85	87	77	70	64	294	266	237	243	241	246	236	88	E	24	
23	230	234	243	163	86	134	61	27	42	44	64	77	73	77	82	73	81	65	41	47	26	35	32	0	61	ENE	24	
24	12	345	317	264	219	256	287	249	252	270	272	258	209	C	C	118	120	120	73	80	83	116	103	113	153	SSE	24	
25	105	105	121	127	121	120	127	134	104	121	197	242	259	275	282	282	277	285	280	288	291	285	282	262	267	W	24	
26	244	236	234	233	241	204	130	146	120	94	87	112	128	132	145	158	154	153	151	120	116	123	124	129	153	SSE	24	
27	135	149	146	129	139	134	143	144	198	215	212	226	231	250	280	291	283	268	279	281	287	295	298	297	256	WSW	24	
28	298	298	298	295	299	293	289	234	228	233	232	235	224	222	225	218	185	203	212	188	209	210	208	223	251	WSW	24	
29	236	260	205	219	230	232	238	233	234	234	244	267	289	280	285	281	250	228	222	225	293	34	120	82	247	WSW	24	
30	19	355	26	2	355	34	34	335	312	286	319	325	318	317	295	296	300	296	239	211	195	191	223	228	306	NW	24	
HOURLY AVG	323	355	320	346	355	301	299	335	329	304	319	325	345	335	321	352	342	349	333	352	329	324	314					

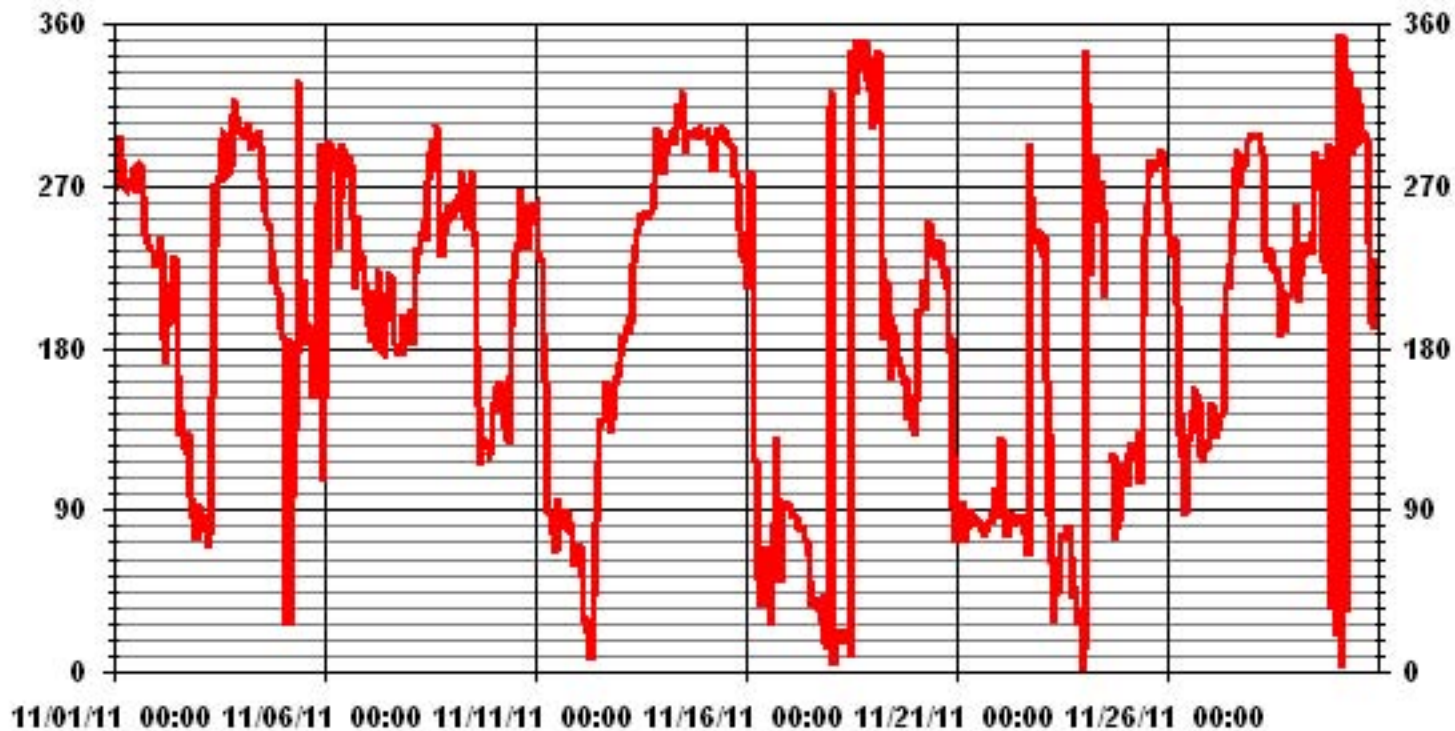
STATUS FLAG CODES

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:	2 HRS	OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION	89.53	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	259 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

NOVEMBER 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	11	10	9	10	9	9	9	10	11	11	9	10	13	13	11	9	9	7	8	7	6	7	7	8
2	8	8	8	11	30	25	28	33	47	15	12	22	14	9	9	7	7	13	10	7	8	10	12	7
3	5	6	10	19	8	6	32	24	49	26	13	12	11	11	10	8	7	5	6	11	12	11	9	9
4	9	9	9	8	9	7	9	8	11	11	12	14	19	21	16	13	9	8	20	16	18	20	21	19
5	23	33	43	21	43	21	30	7	59	50	18	22	24	18	23	22	6	9	5	13	15	16	44	37
6	15	19	8	31	7	7	11	14	18	9	11	15	21	26	10	13	22	6	10	15	8	14	17	14
7	21	16	20	15	22	22	25	19	19	14	21	21	16	17	18	16	9	10	13	14	28	23	25	25
8	27	25	26	24	10	10	5	6	6	9	11	10	10	10	10	11	8	6	6	6	6	6	7	5
9	6	7	7	7	9	6	8	11	10	17	13	15	15	22	19	5	5	5	4	4	5	4	6	9
10	8	9	8	8	10	9	15	13	12	35	23	16	19	13	13	10	8	7	10	8	6	7	7	10
11	8	8	7	13	20	9	8	32	11	9	12	6	7	7	7	7	6	6	7	7	7	7	7	6
12	6	7	8	9	9	10	8	13	11	12	7	7	6	6	7	10	7	6	6	6	7	7	7	10
13	12	18	17	20	23	21	17	12	9	9	10	11	11	10	10	9	9	10	9	8	9	10	9	9
14	8	17	16	9	9	11	8	10	12	11	11	14	10	10	11	11	9	10	10	10	11	9	9	10
15	10	10	10	8	6	8	8	11	10	10	11	10	9	9	9	9	8	7	6	7	13	7	7	7
16	22	10	18	32	29	46	36	29	25	10	15	10	15	13	11	9	4	16	9	9	7	6	6	6
17	6	7	6	7	7	7	7	7	7	7	7	7	9	10	9	9	9	9	10	10	10	11	11	18
18	15	15	11	10	13	10	13	11	11	13	14	18	18	20	27	18	14	15	17	13	18	15	18	15
19	17	25	23	27	43	25	20	19	22	21	12	21	24	15	15	11	7	6	5	8	5	3	5	6
20	7	10	15	18	14	20	18	10	10	9	10	10	12	10	11	10	18	11	21	16	25	15	4	18
21	7	7	7	9	7	7	9	5	8	7	5	6	6	6	7	6	7	7	6	7	10	8	8	13
22	19	20	6	10	15	8	6	7	7	6	6	6	6	6	6	7	20	14	39	9	21	42	11	11
23	7	7	25	34	40	15	12	7	6	8	11	7	8	6	7	6	7	13	15	8	11	9	13	16
24	15	25	15	18	18	8	11	12	10	12	13	28	29	C	C	62	9	10	11	7	8	6	6	9
25	6	6	7	7	7	6	8	12	7	10	18	8	10	11	9	8	9	9	9	9	9	9	8	9
26	6	4	4	5	11	24	27	18	20	4	8	9	6	7	7	8	8	8	7	4	4	4	5	8
27	6	8	21	40	6	6	8	8	19	24	22	8	8	14	10	8	8	10	9	9	9	9	9	10
28	9	9	9	9	8	9	6	11	7	5	7	10	12	10	7	14	22	24	21	22	24	24	26	10
29	10	13	19	22	6	6	7	7	8	7	9	10	9	10	6	5	19	8	15	11	15	38	35	12
30	12	7	9	11	14	8	10	13	20	15	14	13	14	12	10	9	10	9	13	18	22	21	12	5

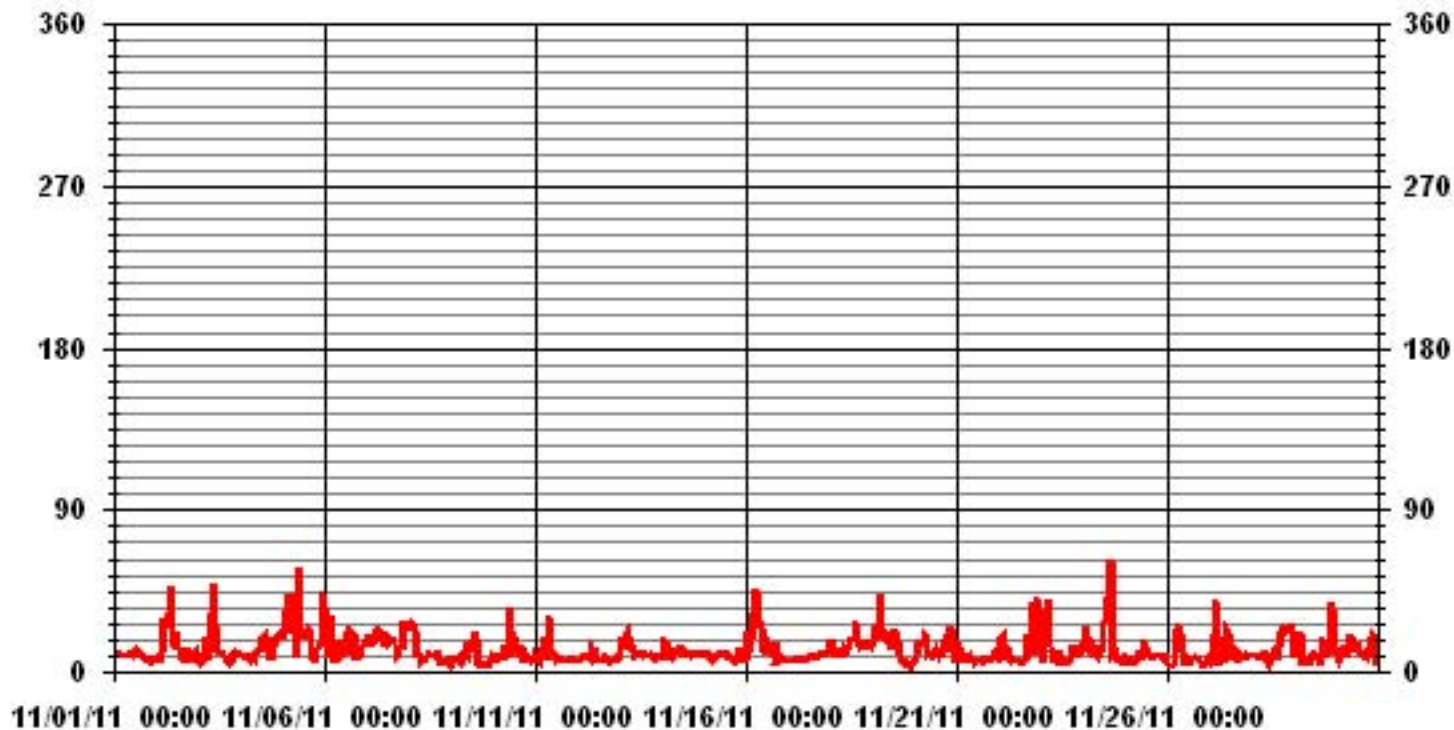
STATUS FLAG CODES

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

LAST CALIBRATION: November 24, 2011

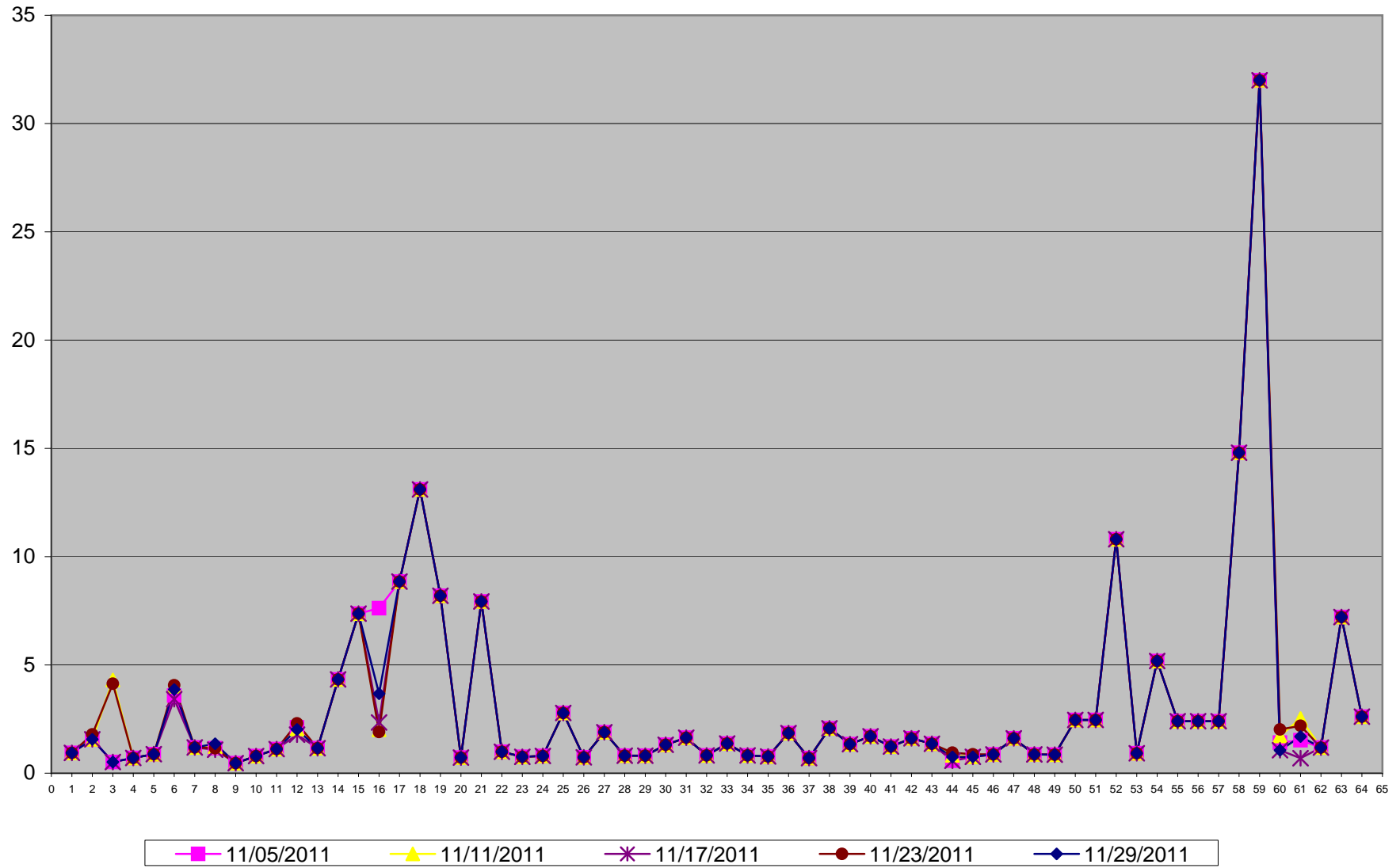
CALIBRATION TIME: 2 HRS OPERATIONAL TIME: 720 HRS

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 November 2011

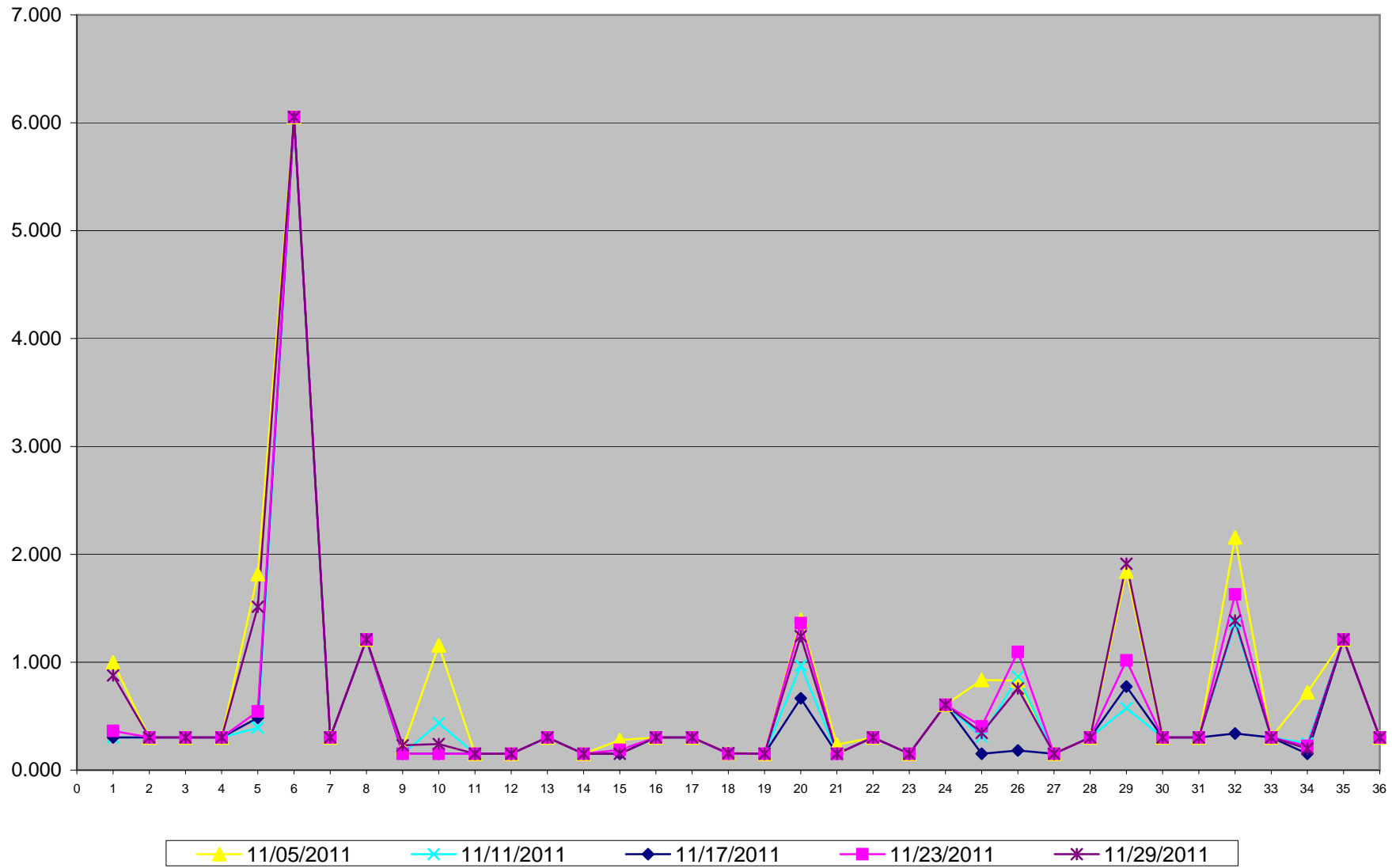
LICA- Portable Site

Unit: ng/m3

PAHs	11/05/2011	11/11/2011	11/17/2011	11/23/2011	11/29/2011
Sample Volume (unit: m3)	330.34	330.35	330.38	330.34	330.35
1 1-Methylnaphthalene	0.999	0.303	0.303	0.363	0.878
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	1.816	0.394	0.484	0.545	1.514
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8 9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.203	0.151	0.151	0.151	0.230
10 Acenaphthylene	1.156	0.436	0.151	0.151	0.242
11 Anthracene	0.151	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	0.279	0.151	0.151	0.188	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.157	0.151	0.151	0.151	0.157
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	1.393	0.969	0.666	1.362	1.241
21 Chrysene	0.236	0.151	0.151	0.151	0.151
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.836	0.309	0.151	0.406	0.345
26 Fluorene	0.829	0.866	0.182	1.096	0.757
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	1.841	0.575	0.775	1.017	1.913
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303	0.303
32 Phenanthrene	2.155	1.356	0.339	1.629	1.386
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.720	0.248	0.151	0.224	0.200
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.303	0.303	0.303	0.303	0.303

Note: - values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
 - Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.
 - 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

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	November 11, 2011	Previous Calibration	October 19, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:43	End Time (MST)	13:35
Reason:	Monthly Calibration		
Barometric Pressure	0.919 atm	Station Temperature	25 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 :	467	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000		ppb		
Sample Flow / Box Temp	564 ccm	33.3 Deg C	564 ccm	32.8	Deg C
HVPS / Lamp Setting	612	1911	612	1911	
PMT / RxCell Temp	8.1 Deg C	50 Deg C	8.1 Deg C	50	Deg C
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0	Deg C
Offset / Slope	87.2	1.008	90.7	0.998	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	N/A
4995	0	0	0	N/A
4919	77.7	751	757	0.9922
4919	77.7	751	752	0.9988
4958	41.4	400	404	0.9900
4983	17.6	170	171	0.9941
4995	0	0	0	N/A
Sum of Least Squares				0.9918
New Correction Factor				0.9988

Before Calibration

After Calibration

Auto Zero	2.7	1.3
Auto Span	381.0	377.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9988
Current Correction Factor Before Span Adjust:	0.9922
Percent Change:	0.7%

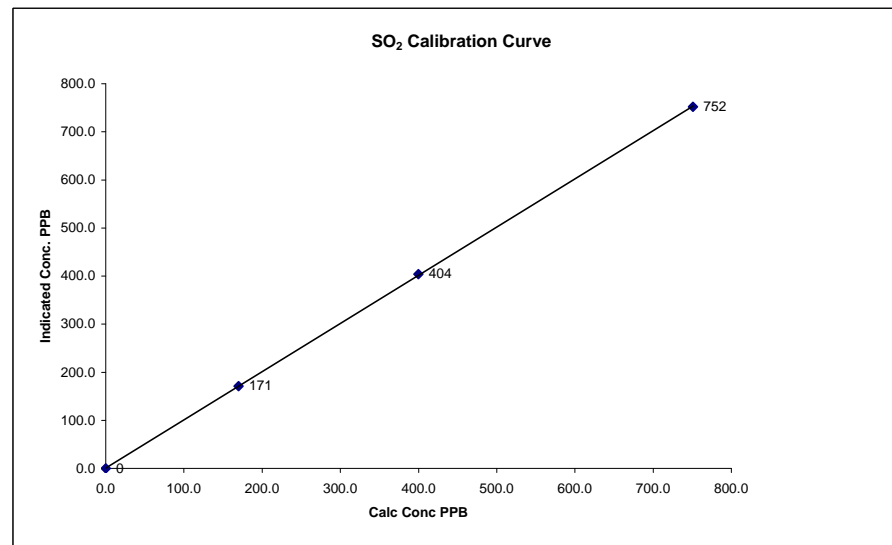
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

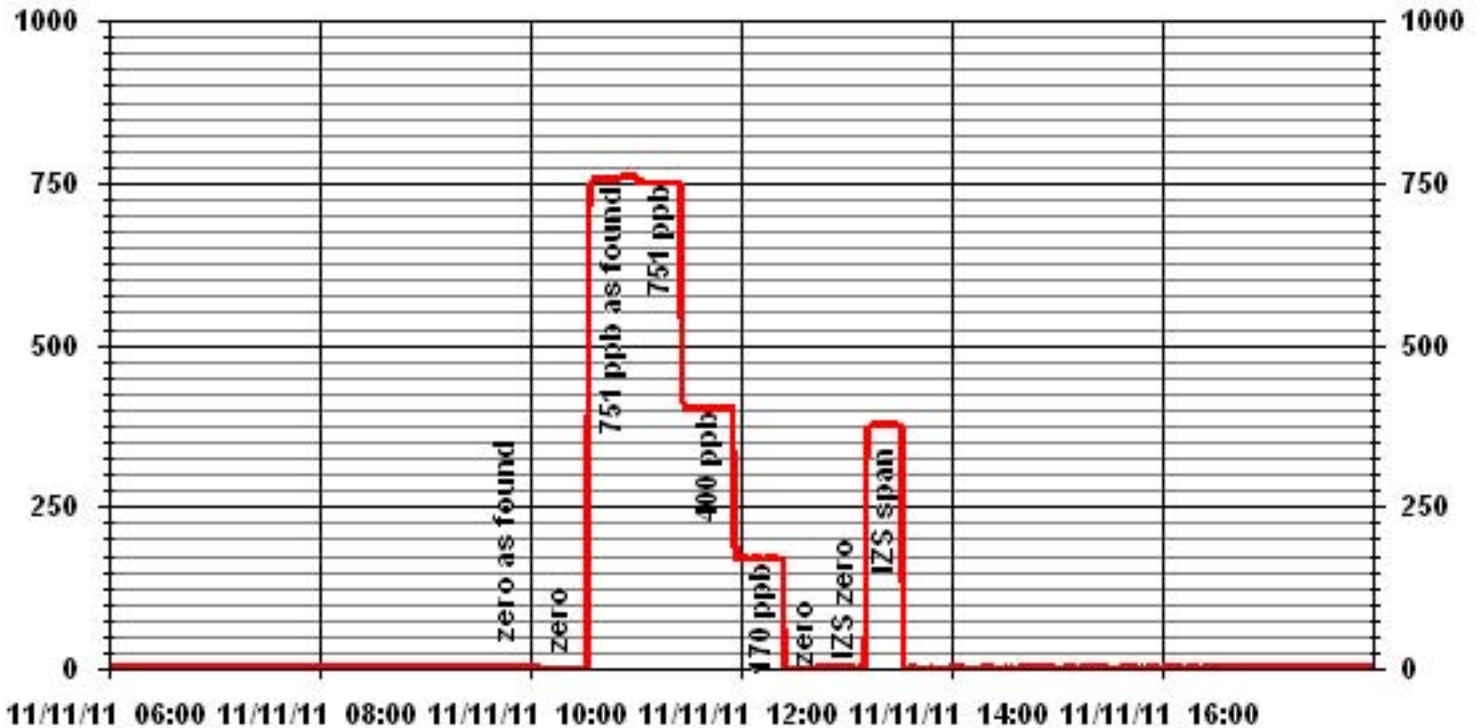
Calibration Date	November 11, 2011		
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:43	End Time (MST)	13:35

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995) 0.999974
0	0	n/a		1.001604
170	171	0.9941		0.958991
400	404	0.9900		
751	752	0.9988		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 10, 2011	Previous Calibration	October 18, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M		
Start Time (MST)	10:16	End Time (MST)	14:12
Reason:	Monthly Calibration		
Barometric Pressure	0.925 atm	Station Temperature	24 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 :	509	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100	ppb	
Sample Flow / Box Temp	517 ccm	32.7 Deg C	515 ccm
HVPS / Lamp Setting	540	1896	540
PMT / RxCell Temp	7.9 Deg C	50 Deg C	7.9 Deg C
Converter / IZS Temp	313.9 Deg C	45 Deg C	314.2 Deg C
Offset / Slope	65	1.036	68.1
			1.04

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	NA
4995	0	0	0	1.0000
4959	39.2	80	81	0.9876
4959	39.2	80	80	1.0000
4981	19.6	40	41	0.9751
4986	11.3	23	24	0.9610
4995	0	0	0	NA
Sum of Least Squares				0.9927
New Correction Factor				1.0000

Before Calibration		After Calibration	
Auto Zero	1.9		0.8
Auto Span	58.7		58.4
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%

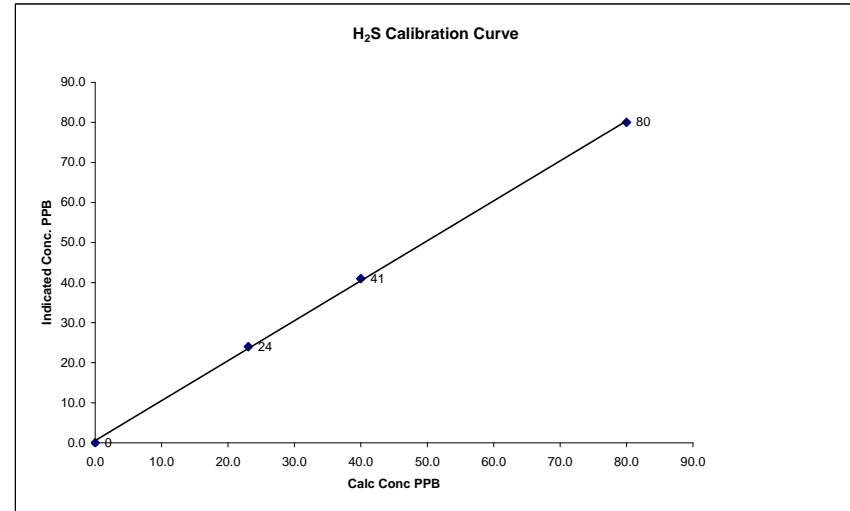
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

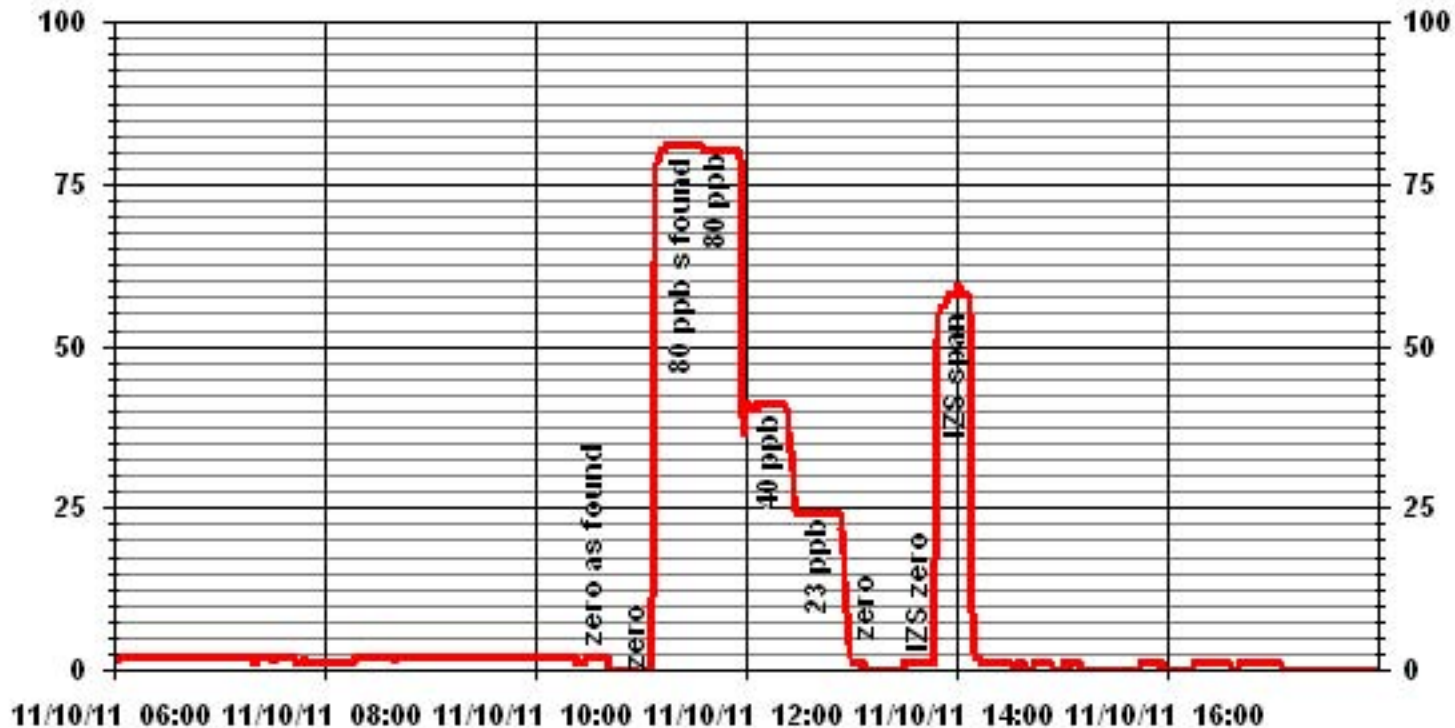
Calibration Date	November 10, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M
Start Time (MST)	10:16
End Time (MST)	14:12

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0			0.999723
23	24	0.9610		0.997824
40	41	0.9751		0.567686
80	80	1.0000		



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	November 15, 2011	Make/Model:	Streamline FTS
Station Name:	Lica Portable (CASA # 33)	Serial Number:	Hi 091001
Location:	Devon Wellsite 13-16-62-5 W4M	Cell s/n:	Lo 091099
Operator:	LICA	Thermometer s/n:	Fisher Brad 15-021B

	<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 #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A207691003	Filter Load (%)	28.3%
Firmware Ver.	1.51	K _o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-12.1
		Press (ATM)	0.937

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	0.003	Warnings	None
Pump Vacuum <0.40atm	0.33	Pump Gauge (inHg)	-19
Temperature/Pressure			
Measured Temp (± 2 °C)	-13.0	D °C	0.9
Measured Press (± 0.01atm)	0.936	DATM	0.001
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.08%
Measured Main Flow (l/min)	2.98	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	2.61%
Measured Bypass Flow (l/min)	13.89	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	NA	Flow Control = Active	
Aux (< 0.6 l/min)	NA	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 9:30 **Finish Time:** 21:00

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 23.7%

Comments:

Auditor/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	November 10, 2011		Previous Calibration	October 18, 2011	
Company	LICA		Plant/Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	10:16		End Time (MST)	16:24	
Reason:	Monthly Calibration				
Barometric Pressure	0.925 atm	Station Temperature	24 Deg C	MFCF	0
Cal Gas Concentration	NOx 49.7 ppm	NO	49.4 ppm	Cal Gas Expiry date	February 28, 2013
Cal Gas Cylinder #	LL103831				
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts		

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000				
Sample Flow/Conv. Temp	473 ccm	314 Deg C	471 ccm	316 Deg C	
Ozone Flow / Vacuum	78 ccm	4.9 "Hg-A	77 ccm	4.9 "Hg-A	
HVPS / A ZERO	646 Volts	6.5 MV	646 Volts	6.6 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.7 Deg C	50.0 Deg C	6.7 Deg C	
Box Temp / IZS Temp	32.0 Deg C	45.0 Deg C	33.3 Deg C	45.1 Deg C	
Offset	1.1 NOx	0.9 NO	1.1 NOx	0.9 NO	
Slope	1.015 NOx	0.998 NO	1.031 NOx	1.016 NO	
NO2 COEF / Conv Efficiency	NA NO2	0.996	NA NO2	0.996	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-1	0	0	NA	NA
	No Zero Adj									
4918	75.7	NA	753	749	NA	741	734	6	1.0154	1.0202
4918	75.7	NA	753	749	NA	754	748	7	0.9979	1.0011
4954	40.4	NA	402	400	NA	400	396	4	1.0026	1.0091
4974	20.2	NA	201	200	NA	200	198	2	1.0001	1.0091
4994	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4918	75.7	NA	753	749	NA	755	749	6	NA	NA
	No Adj Required									
4918	75.7	600	753	NA	552	755	203	551	1.0018	99.82%
4918	75.7	250	753	NA	235	756	520	236	0.9958	100.44%
4918	75.7	140	753	NA	135	756	620	136	0.9926	100.78%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.001 / 0.9979	NO= 1.003 / 1.0011	NO2= 1.000 / 1.0018	Average Converter Efficiency= 100.34%
---------------	-----	----	--	---------------------	--------------------	---------------------	---------------------------------------

Before Calibration			After Calibration		
Auto Zero	-0.6 NOx	0.1 NO2	-0.2 NOx	0.0 NO2	
Auto Span	580 NOx	573 NO2	591 NOx	582 NO2	
Sample Lines Connected	YES				
Percent Change from Previous Calibration	NOx -1.7%	NO -2.0%	NO2 -0.2%		

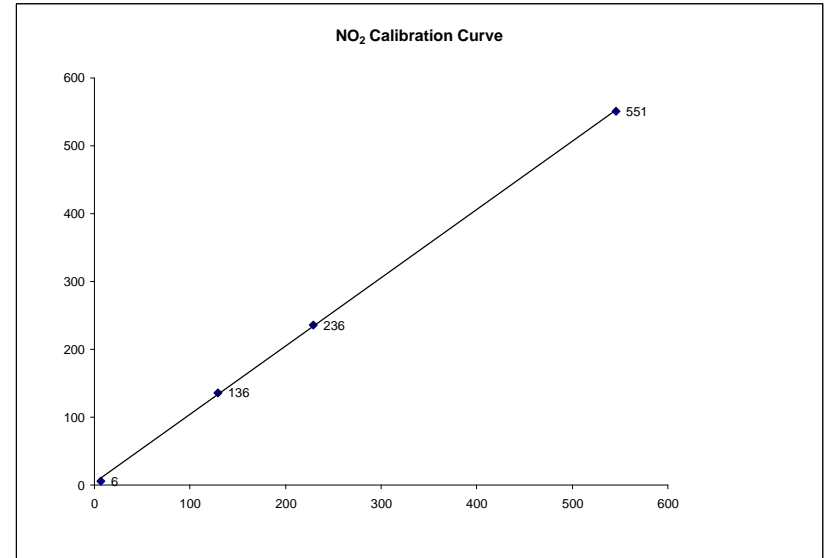
Notes: **NA : Not Applicable**
Additional GPT was done for O3 claibration. O3 set point 420, NOx=755, NO=365, NO2=390

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	November 10, 2011	
Company	LICA	
Plant / Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	10:16	End Time (MST) 16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999784
7	6	N/A	Intercept	(± 3% F.S.)	1.007070
129	136	0.9485			2.88988
229	236	0.9703			
546	551	0.9909			

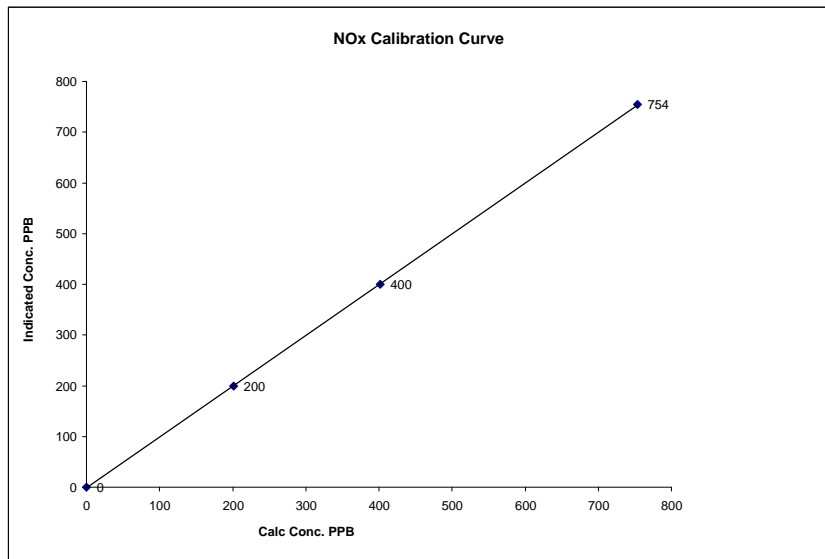


Notes:

NOx Calibration Curve

Calibration Date November 10, 2011
 Company LICA
 Plant / Location Portable/ 13-16-62-5W4M
 Start Time (MST) 10:16 End Time (MST) 16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999988
0	0	N/A	Slope (0.85 to 1.15)	1.000837
201	200	1.0051	Intercept (± 3% F.S.)	-0.89742
402	400	1.0051		
753	754	0.9992		

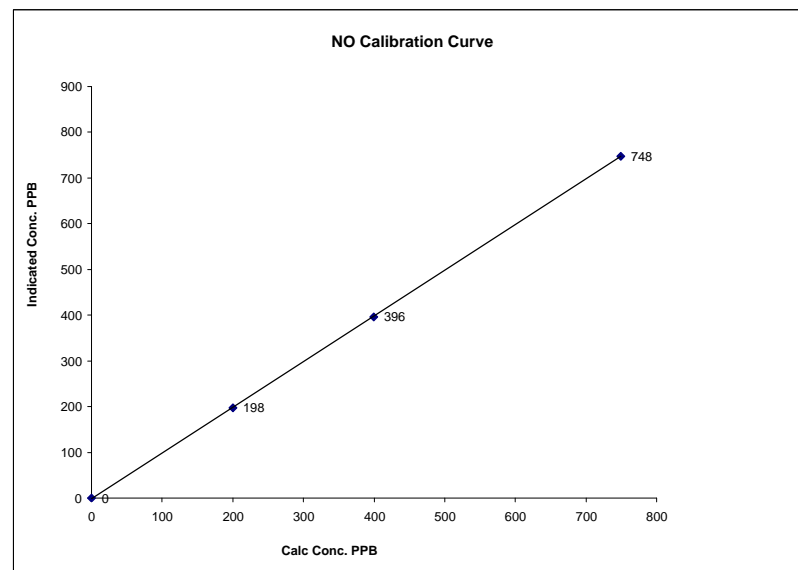


Notes:

NO Calibration Curve

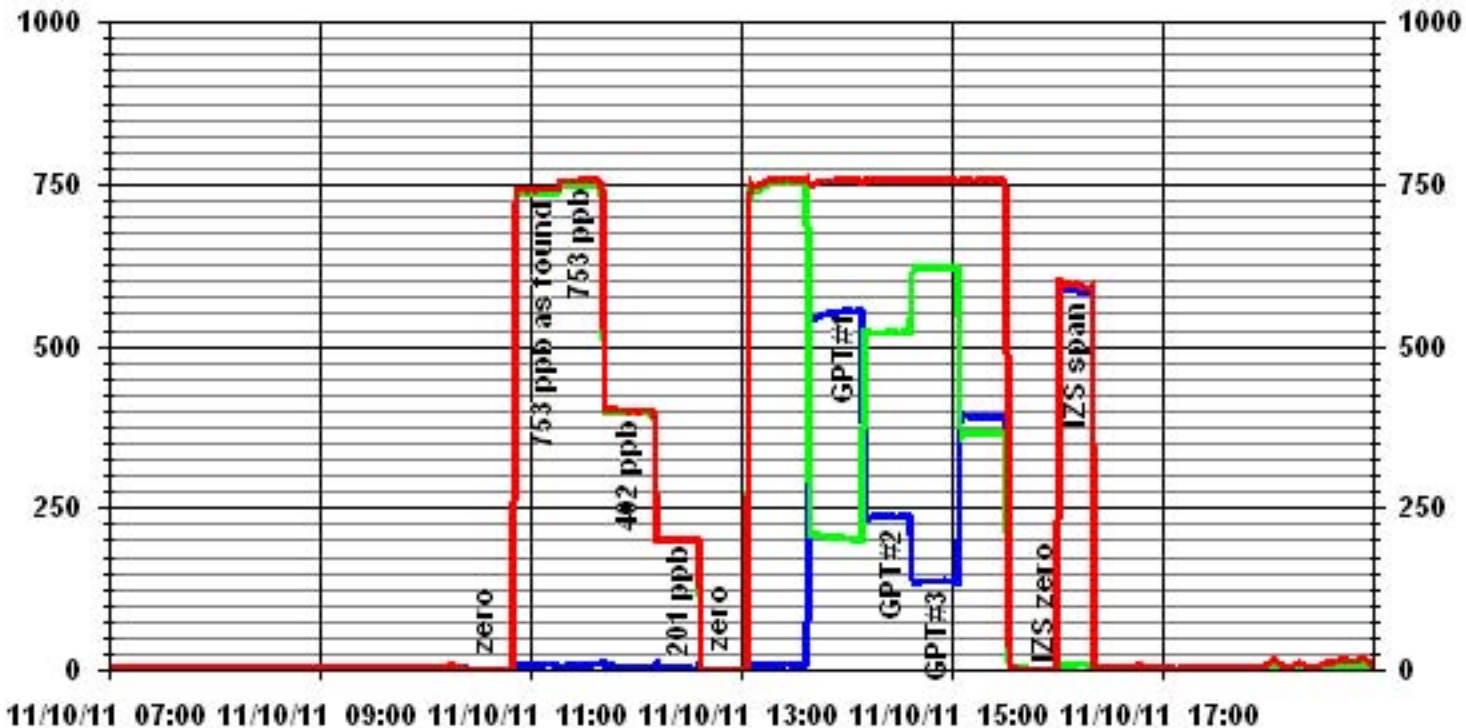
Calibration Date November 10, 2011
 Company LICA
 Plant / Location Portable/ 13-16-62-5W4M
 Start Time (MST) 10:16 End Time (MST) 16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999978
0	0	N/A	Slope (0.85 to 1.15)	1.002416
200	198	1.0091	Intercept (± 3% F.S.)	-6.7345
400	396	1.0091		
749	748	1.0011		



Notes:

01 Minute Averages



— LICA33 NOX_ PPB

— LICA33 NO_ PPB

— LICA33 NO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	November 11, 2011	Previous Calibration	October 19, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	11:15	End Time (MST)	14:25
Reason:	Monthly Calibration		
Barometric Pressure	0.92 atm	Station Temperature	25 Deg C
DAS Output Voltage	0 - 1 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	EnviroNics 2000		4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
Cell A Flow / Cell B Flow	751 ccm	758 ccm	749 ccm	756 ccm
Pressure	688 mmHg		686 mmHg	
Bench Lamp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	32.6 Deg C	68.2 Deg C	32.9 Deg C
Offset / Slope	0	0.976	0	0.984

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	NA
	No Zero Adj			
4995	420	384	385	0.9974
	No Span Adj.			
4995	250	229	230	0.9957
4995	140	129	129	1.0000
4995	0	0	0	NA
Sum of Least Squares				0.9972
New Correction Factor				0.9974

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	322.0	322.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		0.9974
Percent Change:		0.3%

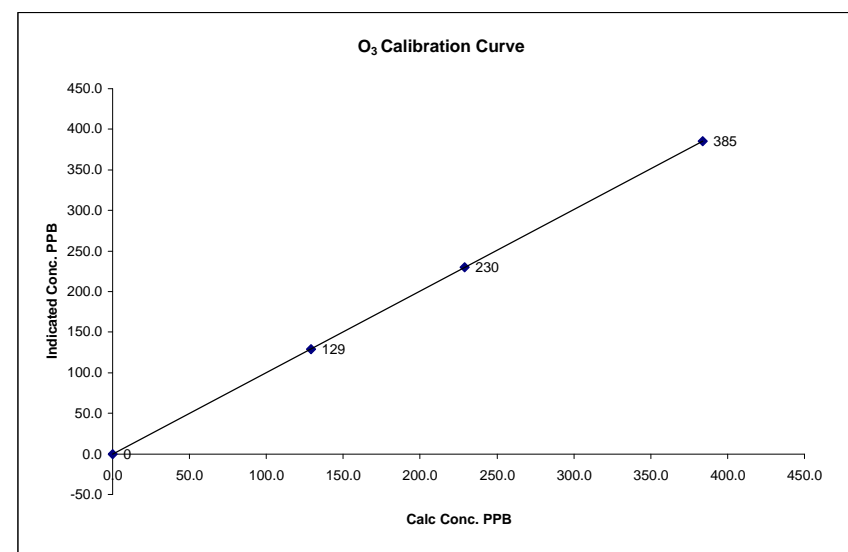
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

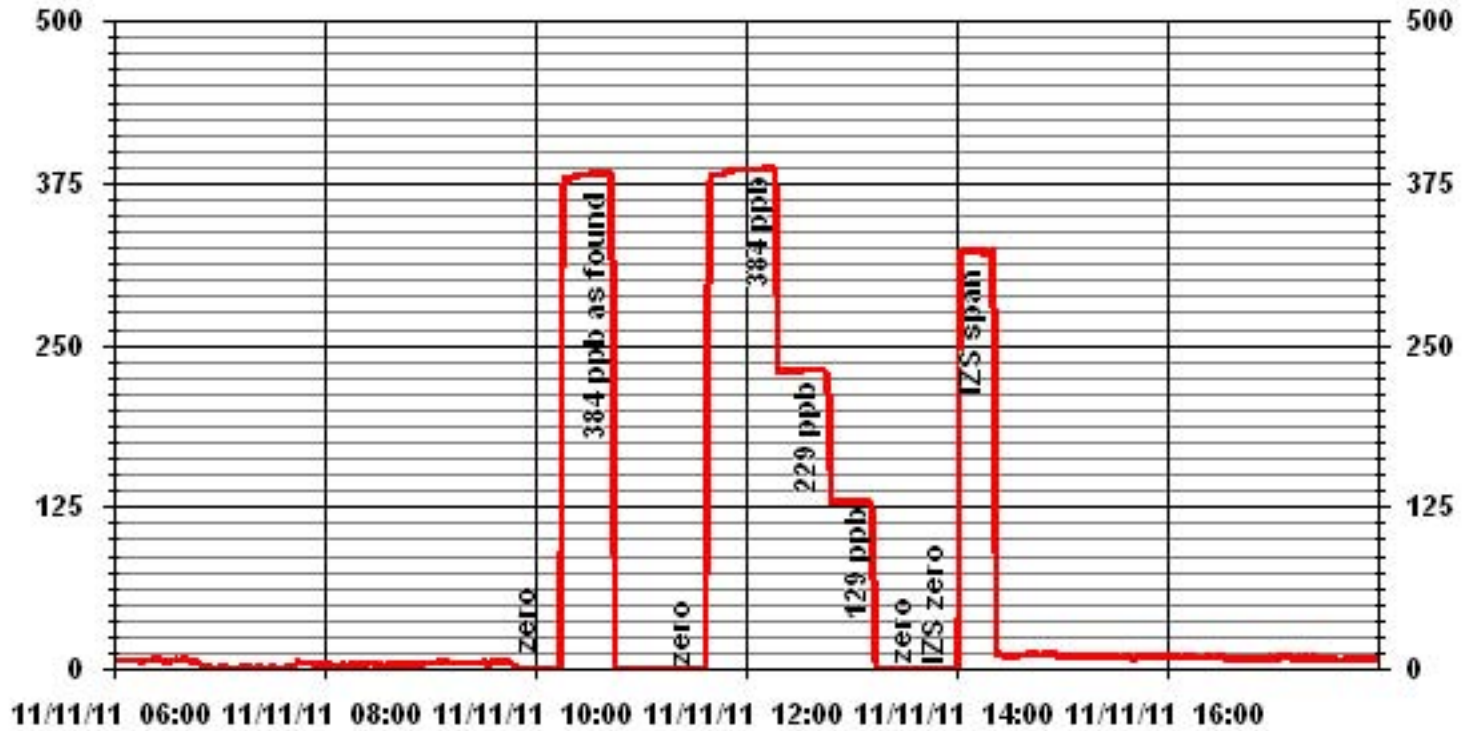
Calibration Date	November 11, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	11:15	End Time (MST)	14:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999997 1.003067 -0.068982
0	0	n/a			
129	129	1.0000			
229	230	0.9957			
384	385	0.9974			

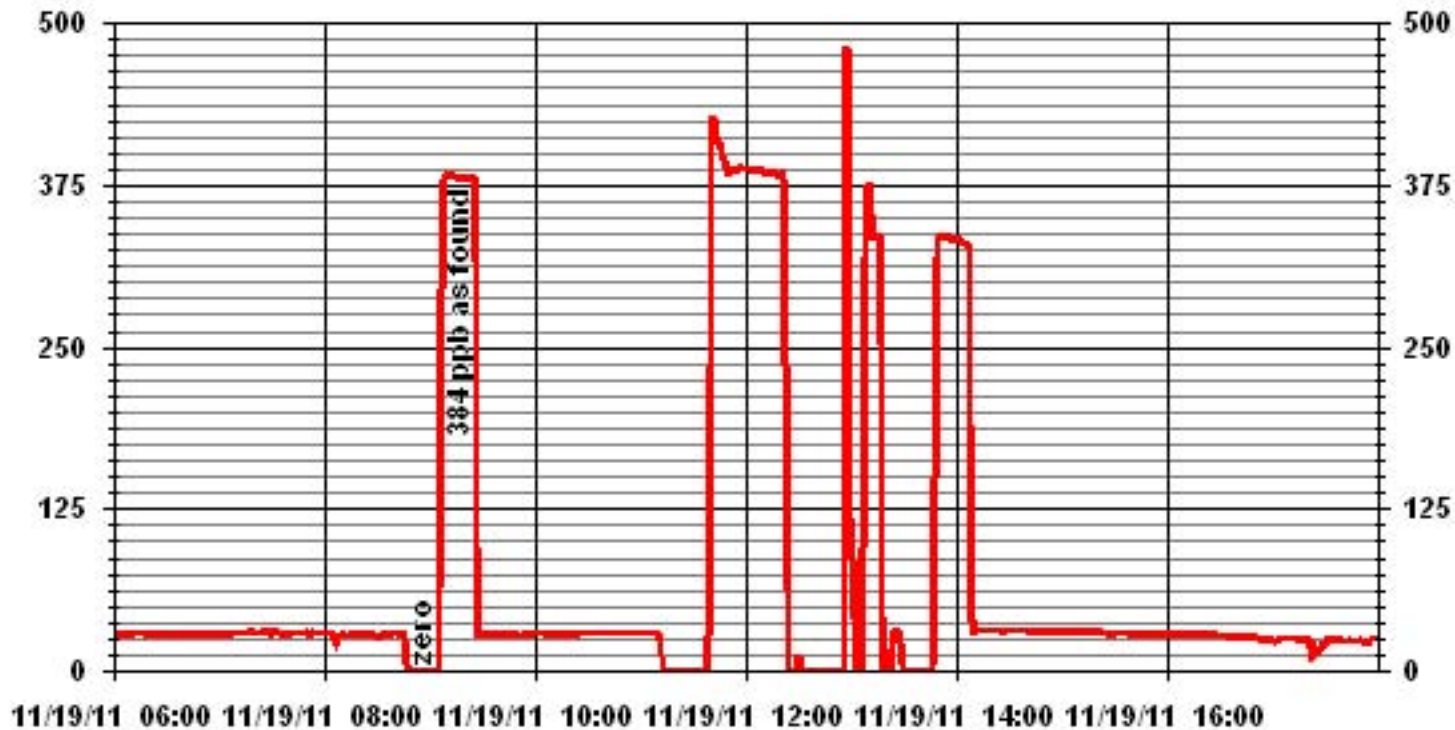


Notes:

01 Minute Averages



01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	November 10, 2011	Previous Calibration	October 18, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	13:31	End Time (MST)	17:08
Reason:	Monthly Calibration		
Barometric Pressure:	0.923 atm	Station Temperature:	24 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 - 1 VDC	Chart Speed:	NA mm/hr

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

Analyzer Settings				
	Before Calibration		After Calibration	
Concentration Range	0 - 50 ppm		0 - 50 ppm	
Sample Pressure	6.8 psi		6.8 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	-0.2	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	41.0	1.0099
3000	70.0	41.4	41.7	0.9930
3000	35.0	20.9	20.8	1.0068
3000	20.0	12.0	11.9	1.0106
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:	1.0099
Percent Change:	-1.7%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	33.4	33.8
Sample Lines Connected		YES

Cylinder Pressures			
Span	1800 psi	Hydrogen	1800 psi
Zero Air	35 psi		

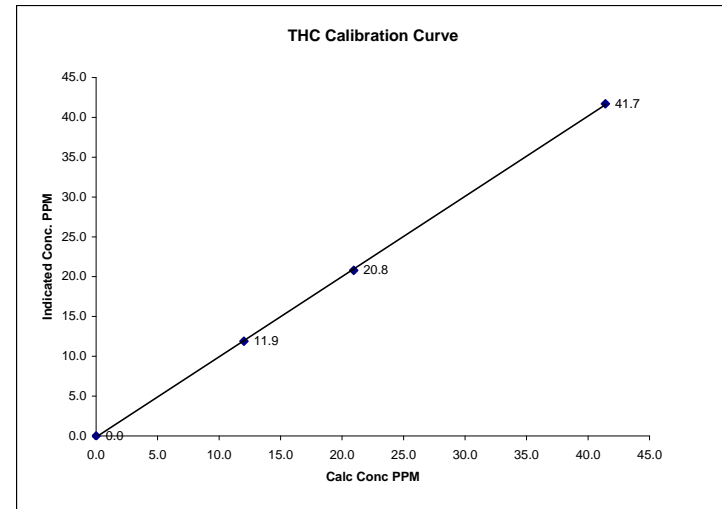
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

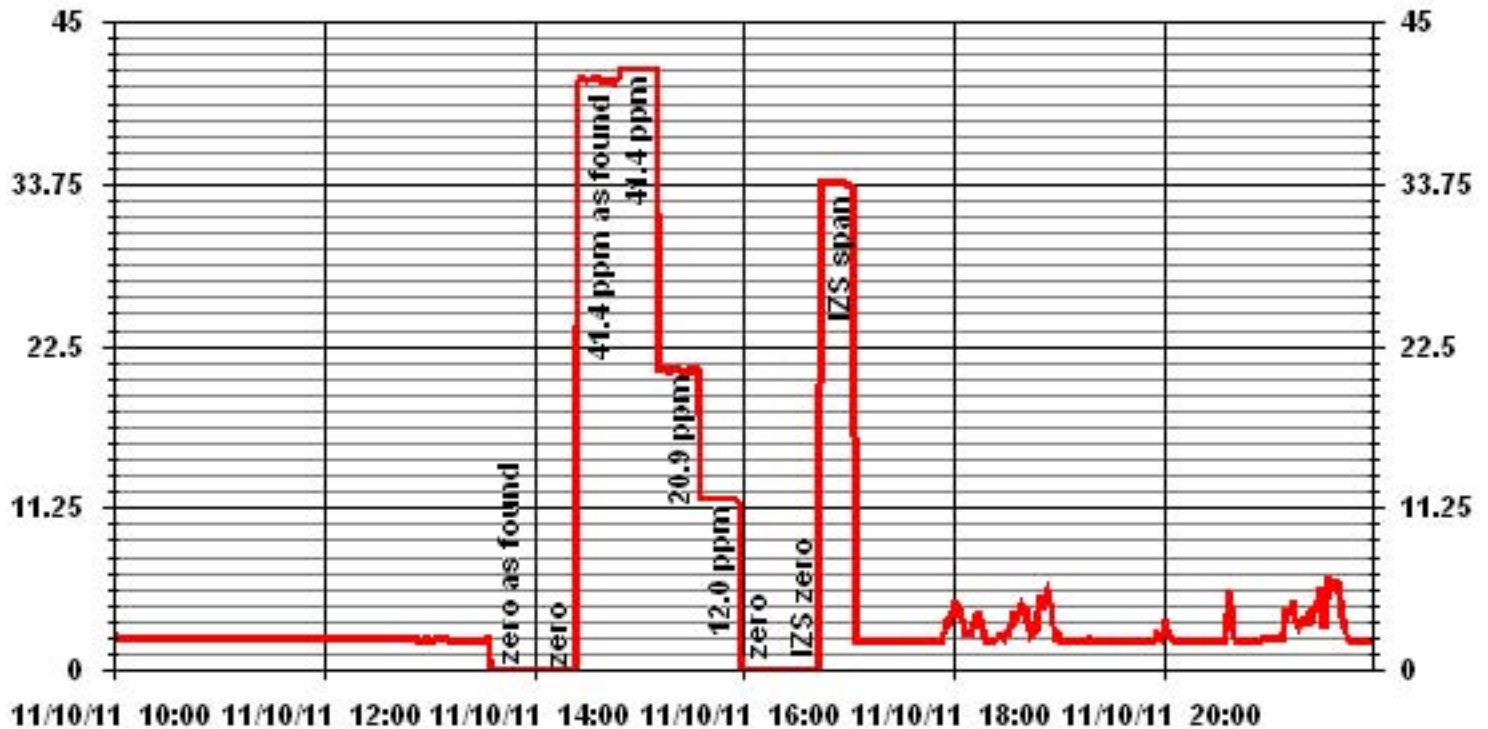
Calibration Date	November 10, 2011		
Company	Lakeland Industry and Community Association		
Plant / Location	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	13:31	End Time (MST)	17:08

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	
0.0	0.0	NA	Slope (0.85 to 1.15)	1.007845
12.0	11.9	1.0106	Intercept (±3% F.S.)	-0.13987
20.9	20.8	1.0068		
41.4	41.7	0.9930		



Notes:

01 Minute Averages



Wind System

Meteorological Sensor Audit Report Station Information

Audit Date	November 24, 2011	Previous Audit	NA
Company	LICA		
Plant / Location	Portable 13-16-62-5 W4M		
Start Time (MST)	13:36	End Time (MST)	13:55
Reason:	Removal Calibration		
Translator make/model:	RM Young 5103VK	S/N:	41334
DAS make/model:	ESC 8832	S/N:	AO 717

Wind Speed

Sensor make/model:	RM Young 5103VK	S/N:	41334
Calibrator:	RM Young 18802	Variable speed motor	3309
Output voltage range:	0-1 vdc	Output signal range:	0-200 kph
Sensor height:	>10M		

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.00	0.4	0.4	-
1000	17.64	16.2	16.2	1.09
2000	35.28	32	32	1.10
3000	52.92	47.8	47.9	1.11
4000	70.56	63.7	63.7	1.11
5000	88.20	79.5	79.5	1.11
6000	105.84	95.3	95.3	1.11
7000	123.48	111.2	111.2	1.11
8000	141.12	126.9	127	1.11
9000	158.76	142.8	142.8	1.11
10000	176.40	158.6	158.7	1.11
Average Correction Factor				1.11

Wind Direction

Sensor make/model:	RM Young 5103VK	S/N:	41334
Calibrator:	RM Young 18802	Direction wheel	N/A
Output voltage range:	0-1vdc	Output signal range:	0 - 360 degree
Sensor height:	>10M		

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	355.7	NA
45	42.9	1.05
90	87.6	1.03
135	134.0	1.01
180	179.8	1.00
225	224.5	1.00
270	270.0	1.00
315	313.1	1.01
360	355.9	NA
Average Correction Factor		1.01

Remarks: As Found

Audit Performed by: Shea Beaton

Meteorological Sensor Audit Report Station Information

Audit Date	November 24, 2011	Previous Audit	NA
Company	LICA		
Plant / Location	Portable 13-16-62-5 W4M		
Start Time (MST)	14:28	End Time (MST)	15:00
Reason:	Installation Calibration		
Translator make/model:	RM Young 5103VK	S/N:	43708
DAS make/model:	ESC 8832	S/N:	AO 717

Wind Speed

Sensor make/model:	RM Young 5103VK	S/N:	43708
Calibrator:	RM Young 18802	Variable speed motor	3309
Output voltage range:	0-1 vdc	Output signal range:	0-200 kph
Sensor height:	>10M		

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.00	0.1	0.1	-
1000	17.64	17.3	17.3	1.02
2000	35.28	34.6	34.6	1.02
3000	52.92	51.8	51.8	1.02
4000	70.56	69.1	69.1	1.02
5000	88.20	86.3	86.3	1.02
6000	105.84	103.6	103.6	1.02
7000	123.48	120.8	120.8	1.02
8000	141.12	138.1	138.1	1.02
9000	158.76	155.4	155.4	1.02
10000	176.40	172.6	172.6	1.02
Average Correction Factor				1.02

Wind Direction

Sensor make/model:	RM Young 5103VK	S/N:	43708
Calibrator:	RM Young 18802	Direction wheel	N/A
Output voltage range:	0-1vdc	Output signal range:	0 - 360 degree
Sensor height:	>10M		

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	0.7	NA
45	44.6	1.01
90	88.7	1.01
135	133.6	1.01
180	180.1	1.00
225	225.5	1.00
270	270.7	1.00
315	316.2	1.00
360	0.2	NA
Average Correction Factor		1.00

Remarks: _____

Audit Performed by: Shea Beaton

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 136
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Nov 04, 11 @ 13:02 mst
Field Sample ID: LICA VOC/PORT/ Nov 05, 11 Canister Removal Date/Time: Nov 07, 11 @ 10:34 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-11	11/05/2011 0:00	11/06/2011 0:00	24.0000

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

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

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

Comments: System leak check prior to sampling. COC # 08198

Technician Signiture: Ting Xu_____

Your C.O.C. #: 08198

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/11/18****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1H6147****Received: 2011/11/09, 11:00**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/10	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 14

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

RESULTS OF ANALYSES OF AIR

Maxxam ID		LO2322	LO2323	
Sampling Date		2011/11/05	2011/11/05	
COC Number		08198	08198	
	Units	LICA VOC\CLSNOV 05,11 / 7828	LICA VOC\PORTNOV 05,11 / 136	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2678563

QC Batch = Quality Control Batch

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2678296
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2678296
Propene	ppbv	<0.30	0.30	<0.516	0.516	2678296
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2678296
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2678296
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	0.20	3.84	0.989	2678296
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2678296
Chloromethane	ppbv	0.58	0.30	1.19	0.620	2678296
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2678296
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2678296
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2678296
Trichlorofluoromethane (FREON 11)	ppbv	0.41	0.20	2.28	1.12	2678296
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2678296
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2678296
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2678296
2-Propanone	ppbv	1.49	0.80	3.53	1.90	2678296
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2678296
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2678296
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2678296
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2678296
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2678296
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2678296
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2678296
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2678296
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2678296
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2678296
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2678296
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2678296
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2678296

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNOV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2678296
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2678296
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2678296
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2678296
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2678296
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2678296
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2678296
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2678296
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2678296
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2678296
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2678296
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2678296
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2678296
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2678296
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2678296
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2678296
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2678296
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2678296
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2678296
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2678296
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2678296
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2678296
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2678296
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2678296
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2678296
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2678296
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2678296
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2678296
QC Batch = Quality Control Batch						

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2322				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\CLSNOV 05,11 / 7828	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2678296
D5-Chlorobenzene	%	75		N/A	N/A	2678296
Difluorobenzene	%	83		N/A	N/A	2678296

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

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC/PORT/NOV 05,11 / 136	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2678296
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2678296
Propene	ppbv	<0.30	0.30	<0.516	0.516	2678296
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2678296
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2678296
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.58	0.989	2678296
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2678296
Chloromethane	ppbv	0.56	0.30	1.15	0.620	2678296
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2678296
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2678296
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2678296
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.12	1.12	2678296
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2678296
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2678296
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2678296
2-Propanone	ppbv	3.21	0.80	7.62	1.90	2678296
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2678296
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2678296
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2678296
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2678296
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2678296
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2678296
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2678296
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2678296
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2678296
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2678296
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2678296
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2678296
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2678296
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2678296

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA VOC\PORT\NOV 05,11 / 136	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2678296
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2678296
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2678296
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2678296
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2678296
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2678296
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2678296
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2678296
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2678296
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2678296
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2678296
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2678296
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2678296
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2678296
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2678296
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2678296
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2678296
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2678296
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2678296
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2678296
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2678296
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2678296
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2678296
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2678296
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2678296
Hexane	ppbv	<0.40	0.40	<1.41	1.41	2678296
Cyclohexane	ppbv	0.44	0.20	1.52	0.688	2678296
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2678296
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2678296
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2678296
QC Batch = Quality Control Batch						

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LO2323				
Sampling Date		2011/11/05				
COC Number		08198				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\NOV				
		05,11 / 136				

Surrogate Recovery (%)						
Bromochloromethane	%	83		N/A	N/A	2678296
D5-Chlorobenzene	%	76		N/A	N/A	2678296
Difluorobenzene	%	85		N/A	N/A	2678296

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

Maxxam Job #: B1H6147
 Report Date: 2011/11/18

Test Summary

Maxxam ID LO2322
Sample ID LICA VOC\CLS\NOV 05,11 / 7828
Matrix AIR

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2678563	N/A	2011/11/10	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2678296	N/A	2011/11/10	SPOMENKA SMILJANIC

Maxxam ID LO2323
Sample ID LICA VOC\PORT\NOV 05,11 / 136
Matrix AIR

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2678563	N/A	2011/11/10	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2678296	N/A	2011/11/10	SPOMENKA SMILJANIC

Maxxam Job #: B1H6147
Report Date: 2011/11/18

GENERAL COMMENTS

Sample LO2323-01: Increased DL for Hexane due to possible background.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Spiked Blank	Bromochloromethane	2011/11/10		131	%	60 - 140
		D5-Chlorobenzene	2011/11/10		129	%	60 - 140
		Difluorobenzene	2011/11/10		137	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/10		92	%	70 - 130
		Carbon Disulfide	2011/11/10		91	%	70 - 130
		Propene	2011/11/10		93	%	70 - 130
		Vinyl Acetate	2011/11/10		101	%	70 - 130
		Vinyl Bromide	2011/11/10		92	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/10		92	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/10		111	%	70 - 130
		Chloromethane	2011/11/10		102	%	70 - 130
		Vinyl Chloride	2011/11/10		100	%	70 - 130
		Chloroethane	2011/11/10		98	%	70 - 130
		1,3-Butadiene	2011/11/10		101	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/10		92	%	70 - 130
		Trichlorotrifluoroethane	2011/11/10		88	%	70 - 130
		Ethanol	2011/11/10		89	%	70 - 130
		2-propanol	2011/11/10		97	%	70 - 130
		2-Propanone	2011/11/10		88	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10		88	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/10		102	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10		106	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/10		84	%	70 - 130
		Ethyl Acetate	2011/11/10		99	%	70 - 130
		1,1-Dichloroethylene	2011/11/10		92	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/10		92	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/10		91	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/10		88	%	70 - 130
		Chloroform	2011/11/10		87	%	70 - 130
		Carbon Tetrachloride	2011/11/10		95	%	70 - 130
		1,1-Dichloroethane	2011/11/10		91	%	70 - 130
		1,2-Dichloroethane	2011/11/10		91	%	70 - 130
		Ethylene Dibromide	2011/11/10		88	%	70 - 130
		1,1,1-Trichloroethane	2011/11/10		90	%	70 - 130
		1,1,2-Trichloroethane	2011/11/10		88	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/10		90	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/10		91	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/10		93	%	70 - 130
		1,2-Dichloropropane	2011/11/10		91	%	70 - 130
		Bromomethane	2011/11/10		96	%	70 - 130
		Bromoform	2011/11/10		100	%	70 - 130
		Bromodichloromethane	2011/11/10		95	%	70 - 130
		Dibromochloromethane	2011/11/10		96	%	70 - 130
		Heptane	2011/11/10		98	%	70 - 130
		Trichloroethylene	2011/11/10		84	%	70 - 130
		Tetrachloroethylene	2011/11/10		84	%	70 - 130
		Benzene	2011/11/10		91	%	70 - 130
		Toluene	2011/11/10		89	%	70 - 130
		Ethylbenzene	2011/11/10		89	%	70 - 130
		p+m-Xylene	2011/11/10		89	%	70 - 130
		o-Xylene	2011/11/10		90	%	70 - 130
		Styrene	2011/11/10		82	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/10		87	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/10		85	%	70 - 130
		4-ethyltoluene	2011/11/10		88	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Spiked Blank	Chlorobenzene	2011/11/10		83	%	70 - 130
		Benzyl chloride	2011/11/10		93	%	70 - 130
		1,3-Dichlorobenzene	2011/11/10		82	%	70 - 130
		1,4-Dichlorobenzene	2011/11/10		82	%	70 - 130
		1,2-Dichlorobenzene	2011/11/10		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/10		66 (1)	%	70 - 130
		Hexachlorobutadiene	2011/11/10		74	%	70 - 130
		Hexane	2011/11/10		96	%	70 - 130
		Cyclohexane	2011/11/10		95	%	70 - 130
		Tetrahydrofuran	2011/11/10		98	%	70 - 130
		1,4-Dioxane	2011/11/10		90	%	70 - 130
		Xylene (Total)	2011/11/10		89	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/10		97	%	60 - 140
		D5-Chlorobenzene	2011/11/10		88	%	60 - 140
		Difluorobenzene	2011/11/10		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/10	<0.20		ppbv	
		Carbon Disulfide	2011/11/10	<0.50		ppbv	
		Propene	2011/11/10	<0.30		ppbv	
		Vinyl Acetate	2011/11/10	<0.20		ppbv	
		Vinyl Bromide	2011/11/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/10	<0.17		ppbv	
		Chloromethane	2011/11/10	<0.30		ppbv	
		Vinyl Chloride	2011/11/10	<0.18		ppbv	
		Chloroethane	2011/11/10	<0.30		ppbv	
		1,3-Butadiene	2011/11/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/10	<0.15		ppbv	
		Ethanol	2011/11/10	<2.3		ppbv	
		2-propanol	2011/11/10	<3.0		ppbv	
		2-Propanone	2011/11/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/10	<0.20		ppbv	
		Ethyl Acetate	2011/11/10	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/10	<0.80		ppbv	
		Chloroform	2011/11/10	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/10	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/10	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/10	<0.20		ppbv	
		Ethylene Dibromide	2011/11/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/10	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/10	<0.40		ppbv	
		Bromomethane	2011/11/10	<0.18		ppbv	
		Bromoform	2011/11/10	<0.20		ppbv	
		Bromodichloromethane	2011/11/10	<0.20		ppbv	
		Dibromochloromethane	2011/11/10	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	Method Blank	Heptane	2011/11/10	<0.30		ppbv	
		Trichloroethylene	2011/11/10	<0.30		ppbv	
		Tetrachloroethylene	2011/11/10	<0.20		ppbv	
		Benzene	2011/11/10	<0.18		ppbv	
		Toluene	2011/11/10	<0.20		ppbv	
		Ethylbenzene	2011/11/10	<0.20		ppbv	
		p+m-Xylene	2011/11/10	<0.37		ppbv	
		o-Xylene	2011/11/10	<0.20		ppbv	
		Styrene	2011/11/10	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/10	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/10	<0.50		ppbv	
		4-ethyltoluene	2011/11/10	<2.2		ppbv	
		Chlorobenzene	2011/11/10	<0.20		ppbv	
		Benzyl chloride	2011/11/10	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/10	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/10	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/10	<3.0		ppbv	
		Hexane	2011/11/10	<0.30		ppbv	
		Cyclohexane	2011/11/10	<0.20		ppbv	
		Tetrahydrofuran	2011/11/10	<0.40		ppbv	
		1,4-Dioxane	2011/11/10	<2.0		ppbv	
		Xylene (Total)	2011/11/10	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/10	NC		%	25
		Carbon Disulfide	2011/11/10	0.4		%	25
		Propene	2011/11/10	NC		%	25
		Vinyl Acetate	2011/11/10	NC		%	25
		Vinyl Bromide	2011/11/10	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/10	1.9		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/10	NC		%	25
		Chloromethane	2011/11/10	NC		%	25
		Vinyl Chloride	2011/11/10	NC		%	25
		Chloroethane	2011/11/10	NC		%	25
		1,3-Butadiene	2011/11/10	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/10	NC		%	25
		Trichlorotrifluoroethane	2011/11/10	NC		%	25
		Ethanol	2011/11/10	NC		%	25
		2-propanol	2011/11/10	2.5		%	25
		2-Propanone	2011/11/10	1.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/10	1.2		%	25
		Methyl Isobutyl Ketone	2011/11/10	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/10	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/10	NC		%	25
		Ethyl Acetate	2011/11/10	NC		%	25
		1,1-Dichloroethylene	2011/11/10	0.1		%	25
		cis-1,2-Dichloroethylene	2011/11/10	0.3		%	25
		trans-1,2-Dichloroethylene	2011/11/10	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/10	NC		%	25
		Chloroform	2011/11/10	0.2		%	25
		Carbon Tetrachloride	2011/11/10	NC		%	25
		1,1-Dichloroethane	2011/11/10	0.7		%	25
		1,2-Dichloroethane	2011/11/10	1.3		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6147

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2678296 S_S	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/11/10	NC		%	25
		1,1,1-Trichloroethane	2011/11/10	1.6		%	25
		1,1,2-Trichloroethane	2011/11/10	0.8		%	25
		1,1,2,2-Tetrachloroethane	2011/11/10	NC		%	25
		cis-1,3-Dichloropropene	2011/11/10	NC		%	25
		trans-1,3-Dichloropropene	2011/11/10	NC		%	25
		1,2-Dichloropropane	2011/11/10	NC		%	25
		Bromomethane	2011/11/10	NC		%	25
		Bromoform	2011/11/10	NC		%	25
		Bromodichloromethane	2011/11/10	NC		%	25
		Dibromochloromethane	2011/11/10	NC		%	25
		Heptane	2011/11/10	NC		%	25
		Trichloroethylene	2011/11/10	1.6		%	25
		Tetrachloroethylene	2011/11/10	1.7		%	25
		Benzene	2011/11/10	NC		%	25
		Toluene	2011/11/10	1.1		%	25
		Ethylbenzene	2011/11/10	NC		%	25
		p+m-Xylene	2011/11/10	NC		%	25
		o-Xylene	2011/11/10	NC		%	25
		Styrene	2011/11/10	1.9		%	25
		1,3,5-Trimethylbenzene	2011/11/10	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/10	NC		%	25
		4-ethyltoluene	2011/11/10	NC		%	25
		Chlorobenzene	2011/11/10	NC		%	25
		Benzyl chloride	2011/11/10	NC		%	25
		1,3-Dichlorobenzene	2011/11/10	NC		%	25
		1,4-Dichlorobenzene	2011/11/10	NC		%	25
		1,2-Dichlorobenzene	2011/11/10	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/10	NC		%	25
		Hexachlorobutadiene	2011/11/10	NC		%	25
		Hexane	2011/11/10	NC		%	25
		Cyclohexane	2011/11/10	NC		%	25
		Tetrahydrofuran	2011/11/10	NC		%	25
		1,4-Dioxane	2011/11/10	2.2		%	25
		Xylene (Total)	2011/11/10	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: 6200
Location: 13-16-62-5 W4M Canister ID: 7845
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Nov 10, 11 @ 15:48 mst
Field Sample ID: LICA VOC/PORT/ Nov 11, 11 Canister Removal Date/Time: Nov 14, 11 @ 10:12 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Nov-11	11/11/2011 0:00	11/12/2011 0:00	24.0000

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

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

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

Comments: System leak check prior to sampling. COC # 08450

Technician Signiture: Ting Xu_____



Your C.O.C. #: 08450

Attention: Michael Bisaga

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

Report Date: 2011/11/25

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1I0587

Received: 2011/11/16, 09:45

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/22	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/22	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Maxxam Job #: B110587
 Report Date: 2011/11/25

RESULTS OF ANALYSES OF AIR

Maxxam ID		LQ5660	LQ5661	
Sampling Date		2011/11/11	2011/11/11	
COC Number		08450	08450	
	Units	LICA VOC/CLS/NOV 11,11 / 137	LICA VOC/PORT/NOV 11,11 / 7845	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2692809

QC Batch = Quality Control Batch

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2692805
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2692805
Propene	ppbv	<1.5	1.5	<2.58	2.58	2692805
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2692805
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2692805
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	0.20	3.80	0.989	2692805
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2692805
Chloromethane	ppbv	0.60	0.30	1.24	0.620	2692805
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2692805
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2692805
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2692805
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2692805
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2692805
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2692805
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2692805
2-Propanone	ppbv	1.18	0.80	2.81	1.90	2692805
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2692805
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2692805
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2692805
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2692805
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2692805
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2692805
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2692805
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2692805
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2692805
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2692805
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2692805
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2692805
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2692805

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2692805
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2692805
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2692805
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2692805
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2692805
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2692805
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2692805
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2692805
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2692805
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2692805
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2692805
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2692805
Benzene	ppbv	0.33	0.18	1.04	0.575	2692805
Toluene	ppbv	0.45	0.20	1.70	0.753	2692805
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2692805
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2692805
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2692805
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2692805
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2692805
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2692805
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2692805
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2692805
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2692805
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2692805
Cyclohexane	ppbv	0.20	0.20	0.699	0.688	2692805
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2692805
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2692805
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2692805
QC Batch = Quality Control Batch						

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5660				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/CLS/NOV 11,11 / 137	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	79		N/A	N/A	2692805
D5-Chlorobenzene	%	79		N/A	N/A	2692805
Difluorobenzene	%	82		N/A	N/A	2692805

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

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/PORT/NOV 11,11 / 7845	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2692805
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2692805
Propene	ppbv	<2.5	2.5	<4.30	4.30	2692805
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2692805
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2692805
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	4.01	0.989	2692805
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2692805
Chloromethane	ppbv	0.59	0.30	1.22	0.620	2692805
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2692805
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2692805
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2692805
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2692805
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2692805
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2692805
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2692805
2-Propanone	ppbv	0.84	0.80	2.00	1.90	2692805
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2692805
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2692805
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2692805
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2692805
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2692805
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2692805
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2692805
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2692805
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2692805
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2692805
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2692805
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2692805
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2692805
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2692805

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA VOC/PORT/NOV 11,11 / 7845	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2692805
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2692805
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2692805
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2692805
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2692805
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2692805
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2692805
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2692805
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2692805
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2692805
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2692805
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2692805
Benzene	ppbv	0.26	0.18	0.818	0.575	2692805
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2692805
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2692805
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2692805
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2692805
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2692805
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2692805
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2692805
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2692805
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2692805
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2692805
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2692805
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2692805
Hexane	ppbv	0.49	0.30	1.72	1.06	2692805
Cyclohexane	ppbv	0.73	0.20	2.52	0.688	2692805
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2692805
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2692805
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2692805
QC Batch = Quality Control Batch						

Maxxam Job #: B110587
 Report Date: 2011/11/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LQ5661				
Sampling Date		2011/11/11				
COC Number		08450				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/NOV				
		11,11 / 7845				

Surrogate Recovery (%)						
Bromochloromethane	%	78		N/A	N/A	2692805
D5-Chlorobenzene	%	78		N/A	N/A	2692805
Difluorobenzene	%	82		N/A	N/A	2692805

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

Maxxam Job #: B110587
 Report Date: 2011/11/25

Test Summary

Maxxam ID LQ5660
Sample ID LICA VOC/CLS/NOV 11,11 / 137
Matrix AIR

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2692809	N/A	2011/11/22	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2692805	N/A	2011/11/22	VALERIE RANDALL

Maxxam ID LQ5661
Sample ID LICA VOC/PORT/NOV 11,11 / 7845
Matrix AIR

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2692809	N/A	2011/11/22	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2692805	N/A	2011/11/22	VALERIE RANDALL

Maxxam Job #: B110587
Report Date: 2011/11/25

GENERAL COMMENTS

VOCTO15M-A
DLs raised for Propene due to matrix interference on possible positives.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Spiked Blank	Bromochloromethane	2011/11/22		98	%	60 - 140
		D5-Chlorobenzene	2011/11/22		101	%	60 - 140
		Difluorobenzene	2011/11/22		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/22		106	%	70 - 130
		Carbon Disulfide	2011/11/22		99	%	70 - 130
		Propene	2011/11/22		103	%	70 - 130
		Vinyl Acetate	2011/11/22		102	%	70 - 130
		Vinyl Bromide	2011/11/22		115	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/22		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/22		125	%	70 - 130
		Chloromethane	2011/11/22		110	%	70 - 130
		Vinyl Chloride	2011/11/22		106	%	70 - 130
		Chloroethane	2011/11/22		110	%	70 - 130
		1,3-Butadiene	2011/11/22		107	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/22		106	%	70 - 130
		Trichlorotrifluoroethane	2011/11/22		106	%	70 - 130
		Ethanol	2011/11/22		98	%	70 - 130
		2-propanol	2011/11/22		95	%	70 - 130
		2-Propanone	2011/11/22		112	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22		106	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/22		107	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22		104	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/22		97	%	70 - 130
		Ethyl Acetate	2011/11/22		104	%	70 - 130
		1,1-Dichloroethylene	2011/11/22		103	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/22		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/22		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/22		95	%	70 - 130
		Chloroform	2011/11/22		102	%	70 - 130
		Carbon Tetrachloride	2011/11/22		101	%	70 - 130
		1,1-Dichloroethane	2011/11/22		101	%	70 - 130
		1,2-Dichloroethane	2011/11/22		102	%	70 - 130
		Ethylene Dibromide	2011/11/22		100	%	70 - 130
		1,1,1-Trichloroethane	2011/11/22		100	%	70 - 130
		1,1,2-Trichloroethane	2011/11/22		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/22		101	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/22		96	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/22		89	%	70 - 130
		1,2-Dichloropropane	2011/11/22		103	%	70 - 130
		Bromomethane	2011/11/22		113	%	70 - 130
		Bromoform	2011/11/22		118	%	70 - 130
		Bromodichloromethane	2011/11/22		112	%	70 - 130
		Dibromochloromethane	2011/11/22		118	%	70 - 130
		Heptane	2011/11/22		110	%	70 - 130
		Trichloroethylene	2011/11/22		103	%	70 - 130
		Tetrachloroethylene	2011/11/22		109	%	70 - 130
		Benzene	2011/11/22		101	%	70 - 130
		Toluene	2011/11/22		103	%	70 - 130
		Ethylbenzene	2011/11/22		100	%	70 - 130
		p+m-Xylene	2011/11/22		96	%	70 - 130
		o-Xylene	2011/11/22		99	%	70 - 130
		Styrene	2011/11/22		74	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/22		97	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/22		94	%	70 - 130
		4-ethyltoluene	2011/11/22		104	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Spiked Blank	Chlorobenzene	2011/11/22		96	%	70 - 130
		Benzyl chloride	2011/11/22		60 (1)	%	70 - 130
		1,3-Dichlorobenzene	2011/11/22		86	%	70 - 130
		1,4-Dichlorobenzene	2011/11/22		80	%	70 - 130
		1,2-Dichlorobenzene	2011/11/22		89	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/22		60 (1)	%	70 - 130
		Hexachlorobutadiene	2011/11/22		111	%	70 - 130
		Hexane	2011/11/22		106	%	70 - 130
		Cyclohexane	2011/11/22		106	%	70 - 130
		Tetrahydrofuran	2011/11/22		105	%	70 - 130
		1,4-Dioxane	2011/11/22		99	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/22		83	%	60 - 140
		D5-Chlorobenzene	2011/11/22		79	%	60 - 140
		Difluorobenzene	2011/11/22		86	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/22	<0.20		ppbv	
		Carbon Disulfide	2011/11/22	<0.50		ppbv	
		Propene	2011/11/22	<0.30		ppbv	
		Vinyl Acetate	2011/11/22	<0.20		ppbv	
		Vinyl Bromide	2011/11/22	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/22	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/22	<0.17		ppbv	
		Chloromethane	2011/11/22	<0.30		ppbv	
		Vinyl Chloride	2011/11/22	<0.18		ppbv	
		Chloroethane	2011/11/22	<0.30		ppbv	
		1,3-Butadiene	2011/11/22	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/22	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/22	<0.15		ppbv	
		Ethanol	2011/11/22	<2.3		ppbv	
		2-propanol	2011/11/22	<3.0		ppbv	
		2-Propanone	2011/11/22	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/22	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/22	<0.20		ppbv	
		Ethyl Acetate	2011/11/22	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/22	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/22	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/22	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/22	<0.80		ppbv	
		Chloroform	2011/11/22	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/22	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/22	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/22	<0.20		ppbv	
		Ethylene Dibromide	2011/11/22	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/22	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/22	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/22	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/22	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/22	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/22	<0.40		ppbv	
		Bromomethane	2011/11/22	<0.18		ppbv	
		Bromoform	2011/11/22	<0.20		ppbv	
		Bromodichloromethane	2011/11/22	<0.20		ppbv	
		Dibromochloromethane	2011/11/22	<0.20		ppbv	
		Heptane	2011/11/22	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	Method Blank	Trichloroethylene	2011/11/22	<0.30		ppbv	
		Tetrachloroethylene	2011/11/22	<0.20		ppbv	
		Benzene	2011/11/22	<0.18		ppbv	
		Toluene	2011/11/22	<0.20		ppbv	
		Ethylbenzene	2011/11/22	<0.20		ppbv	
		p+m-Xylene	2011/11/22	<0.37		ppbv	
		o-Xylene	2011/11/22	<0.20		ppbv	
		Styrene	2011/11/22	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/22	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/22	<0.50		ppbv	
		4-ethyltoluene	2011/11/22	<2.2		ppbv	
		Chlorobenzene	2011/11/22	<0.20		ppbv	
		Benzyl chloride	2011/11/22	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/22	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/22	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/22	<3.0		ppbv	
		Hexane	2011/11/22	<0.30		ppbv	
		Cyclohexane	2011/11/22	<0.20		ppbv	
		Tetrahydrofuran	2011/11/22	<0.40		ppbv	
		1,4-Dioxane	2011/11/22	<2.0		ppbv	
		Xylene (Total)	2011/11/22	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/22	NC		%	25
		Carbon Disulfide	2011/11/22	NC		%	25
		Propene	2011/11/22	NC		%	25
		Vinyl Acetate	2011/11/22	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/22	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/22	NC		%	25
		Chloromethane	2011/11/22	NC		%	25
		Chloroethane	2011/11/22	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/22	NC		%	25
		Ethanol	2011/11/22	NC		%	25
		2-propanol	2011/11/22	NC		%	25
		2-Propanone	2011/11/22	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/22	NC		%	25
		Methyl Isobutyl Ketone	2011/11/22	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/22	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/22	NC		%	25
		Ethyl Acetate	2011/11/22	NC		%	25
		1,1-Dichloroethylene	2011/11/22	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/22	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/22	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/22	NC		%	25
		1,1-Dichloroethane	2011/11/22	NC		%	25
		1,1,1-Trichloroethane	2011/11/22	NC		%	25
		1,2-Dichloropropane	2011/11/22	NC		%	25
		Bromomethane	2011/11/22	NC		%	25
		Bromoform	2011/11/22	NC		%	25
		Heptane	2011/11/22	NC		%	25
		Tetrachloroethylene	2011/11/22	NC		%	25
		Toluene	2011/11/22	NC		%	25
		Ethylbenzene	2011/11/22	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB110587

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2692805 VEA	RPD - Sample/Sample Dup	p+m-Xylene	2011/11/22	NC		%	25
		o-Xylene	2011/11/22	NC		%	25
		Styrene	2011/11/22	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/22	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/22	NC		%	25
		4-ethyltoluene	2011/11/22	NC		%	25
		Chlorobenzene	2011/11/22	NC		%	25
		1,3-Dichlorobenzene	2011/11/22	NC		%	25
		1,4-Dichlorobenzene	2011/11/22	NC		%	25
		1,2-Dichlorobenzene	2011/11/22	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/22	NC		%	25
		Hexane	2011/11/22	NC		%	25
		Cyclohexane	2011/11/22	NC		%	25
		Tetrahydrofuran	2011/11/22	NC		%	25
		1,4-Dioxane	2011/11/22	NC		%	25
		Xylene (Total)	2011/11/22	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: 6200
Location: 13-16-62-5 W4M Canister ID: 7793
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Nov 16, 11 @09:18 mst
Field Sample ID: LICA VOC/PORT/ Nov 17, 11 Canister Removal Date/Time: Nov 18, 11 @10:18 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-11	11/17/2011 0:00	11/18/2011 0:00	24.0000

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

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

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

Comments: System leak check prior to sampling. COC # 08482

Technician Signiture: Ting Xu_____

Your C.O.C. #: 08482

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

Report Date: 2011/11/30

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B113349****Received: 2011/11/22, 09:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/25	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/25	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 11

Maxxam Job #: B113349
 Report Date: 2011/11/30

RESULTS OF ANALYSES OF AIR

Maxxam ID		LS0313	LS0314	
Sampling Date		2011/11/17	2011/11/17	
COC Number		08482	08482	
	Units	LICA VOC/CLS/NOV 17,11 - 113	LICA VOC/PORT/NOV 17,11 - 7793	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2696088

QC Batch = Quality Control Batch

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA VOC/CLS/NOV 17,11 - 113	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 17,11 - 7793	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2696097
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2696097
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2696097
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2696097
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2696097
Dichlorodifluoromethane (FREON 12)	ppbv	0.70	3.48	0.989	0.69	0.20	3.42	0.989	2696097
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2696097
Chloromethane	ppbv	0.49	1.01	0.620	0.53	0.30	1.08	0.620	2696097
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2696097
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2696097
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2696097
Trichlorofluoromethane (FREON 11)	ppbv	0.32	1.79	1.12	0.32	0.20	1.78	1.12	2696097
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2696097
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2696097
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2696097
2-Propanone	ppbv	1.11	2.63	1.90	0.98	0.80	2.34	1.90	2696097
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2696097
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2696097
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2696097
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2696097
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2696097
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2696097
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2696097
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2696097
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2696097
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2696097
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2696097
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2696097
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2696097
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2696097
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2696097

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA VOC/CLS/NOV 17,11 - 113	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 17,11 - 7793	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2696097
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2696097
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2696097
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2696097
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2696097
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2696097
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2696097
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2696097
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2696097
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2696097
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2696097
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2696097
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2696097
Toluene	ppbv	3.21	12.1	0.753	<0.20	0.20	<0.753	0.753	2696097
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2696097
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2696097
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2696097
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2696097
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2696097
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2696097
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2696097
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2696097
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2696097
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2696097
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2696097
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2696097
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2696097
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2696097
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2696097
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2696097
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2696097
QC Batch = Quality Control Batch									

Maxxam Job #: B113349
 Report Date: 2011/11/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LS0313			LS0314				
Sampling Date		2011/11/17			2011/11/17				
COC Number		08482			08482				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/CLS/NOV			VOC/PORT/NOV				
		17,11 - 113			17,11 - 7793				

Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	88		N/A	N/A	2696097
D5-Chlorobenzene	%	93	N/A	N/A	93		N/A	N/A	2696097
Difluorobenzene	%	89	N/A	N/A	89		N/A	N/A	2696097

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

Maxxam Job #: B113349
 Report Date: 2011/11/30

Test Summary

Maxxam ID LS0313
Sample ID LICA VOC/CLS/NOV 17,11 - 113
Matrix AIR

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2696088	N/A	2011/11/25	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2696097	N/A	2011/11/25	YAO LIANG SUN

Maxxam ID LS0314
Sample ID LICA VOC/PORT/NOV 17,11 - 7793
Matrix AIR

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2696088	N/A	2011/11/25	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2696097	N/A	2011/11/25	YAO LIANG SUN

Maxxam Job #: B113349
Report Date: 2011/11/30

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: GB1I3349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Spiked Blank	Bromochloromethane	2011/11/25		96	%	60 - 140
		D5-Chlorobenzene	2011/11/25		93	%	60 - 140
		Difluorobenzene	2011/11/25		97	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/25		95	%	70 - 130
		Carbon Disulfide	2011/11/25		98	%	70 - 130
		Propene	2011/11/25		91	%	70 - 130
		Vinyl Acetate	2011/11/25		122	%	70 - 130
		Vinyl Bromide	2011/11/25		98	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/11/25		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/11/25		114	%	70 - 130
		Chloromethane	2011/11/25		98	%	70 - 130
		Vinyl Chloride	2011/11/25		98	%	70 - 130
		Chloroethane	2011/11/25		97	%	70 - 130
		1,3-Butadiene	2011/11/25		77	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/11/25		99	%	70 - 130
		Trichlorotrifluoroethane	2011/11/25		101	%	70 - 130
		Ethanol	2011/11/25		70	%	70 - 130
		2-propanol	2011/11/25		98	%	70 - 130
		2-Propanone	2011/11/25		81	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25		84	%	70 - 130
		Methyl Isobutyl Ketone	2011/11/25		88	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25		90	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/11/25		96	%	70 - 130
		Ethyl Acetate	2011/11/25		101	%	70 - 130
		1,1-Dichloroethylene	2011/11/25		97	%	70 - 130
		cis-1,2-Dichloroethylene	2011/11/25		97	%	70 - 130
		trans-1,2-Dichloroethylene	2011/11/25		96	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/11/25		87	%	70 - 130
		Chloroform	2011/11/25		99	%	70 - 130
		Carbon Tetrachloride	2011/11/25		132 (1)	%	70 - 130
		1,1-Dichloroethane	2011/11/25		97	%	70 - 130
		1,2-Dichloroethane	2011/11/25		94	%	70 - 130
		Ethylene Dibromide	2011/11/25		97	%	70 - 130
		1,1,1-Trichloroethane	2011/11/25		110	%	70 - 130
		1,1,2-Trichloroethane	2011/11/25		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/11/25		87	%	70 - 130
		cis-1,3-Dichloropropene	2011/11/25		104	%	70 - 130
		trans-1,3-Dichloropropene	2011/11/25		109	%	70 - 130
		1,2-Dichloropropane	2011/11/25		97	%	70 - 130
		Bromomethane	2011/11/25		98	%	70 - 130
		Bromoform	2011/11/25		136 (1)	%	70 - 130
		Bromodichloromethane	2011/11/25		111	%	70 - 130
		Dibromochloromethane	2011/11/25		119	%	70 - 130
		Heptane	2011/11/25		95	%	70 - 130
		Trichloroethylene	2011/11/25		102	%	70 - 130
		Tetrachloroethylene	2011/11/25		99	%	70 - 130
		Benzene	2011/11/25		101	%	70 - 130
		Toluene	2011/11/25		95	%	70 - 130
		Ethylbenzene	2011/11/25		99	%	70 - 130
		p+m-Xylene	2011/11/25		96	%	70 - 130
		o-Xylene	2011/11/25		93	%	70 - 130
		Styrene	2011/11/25		87	%	70 - 130
		1,3,5-Trimethylbenzene	2011/11/25		77	%	70 - 130
		1,2,4-Trimethylbenzene	2011/11/25		71	%	70 - 130
		4-ethyltoluene	2011/11/25		79	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Spiked Blank	Chlorobenzene	2011/11/25		104	%	70 - 130
		Benzyl chloride	2011/11/25		103	%	70 - 130
		1,3-Dichlorobenzene	2011/11/25		79	%	70 - 130
		1,4-Dichlorobenzene	2011/11/25		78	%	70 - 130
		1,2-Dichlorobenzene	2011/11/25		72	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/25		105	%	70 - 130
		Hexachlorobutadiene	2011/11/25		101	%	70 - 130
		Hexane	2011/11/25		95	%	70 - 130
		Cyclohexane	2011/11/25		97	%	70 - 130
		Tetrahydrofuran	2011/11/25		89	%	70 - 130
		1,4-Dioxane	2011/11/25		80	%	70 - 130
		Xylene (Total)	2011/11/25		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/25		90	%	60 - 140
		D5-Chlorobenzene	2011/11/25		93	%	60 - 140
		Difluorobenzene	2011/11/25		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/25	<0.20		ppbv	
		Carbon Disulfide	2011/11/25	<0.50		ppbv	
		Propene	2011/11/25	<0.30		ppbv	
		Vinyl Acetate	2011/11/25	<0.20		ppbv	
		Vinyl Bromide	2011/11/25	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/25	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/25	<0.17		ppbv	
		Chloromethane	2011/11/25	<0.30		ppbv	
		Vinyl Chloride	2011/11/25	<0.18		ppbv	
		Chloroethane	2011/11/25	<0.30		ppbv	
		1,3-Butadiene	2011/11/25	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/25	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/25	<0.15		ppbv	
		Ethanol	2011/11/25	<2.3		ppbv	
		2-propanol	2011/11/25	<3.0		ppbv	
		2-Propanone	2011/11/25	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/25	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/25	<0.20		ppbv	
		Ethyl Acetate	2011/11/25	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/25	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/25	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/25	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/25	<0.80		ppbv	
		Chloroform	2011/11/25	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/25	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/25	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/25	<0.20		ppbv	
		Ethylene Dibromide	2011/11/25	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/25	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/25	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/25	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/25	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/25	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/25	<0.40		ppbv	
		Bromomethane	2011/11/25	<0.18		ppbv	
		Bromoform	2011/11/25	<0.20		ppbv	
		Bromodichloromethane	2011/11/25	<0.20		ppbv	
		Dibromochloromethane	2011/11/25	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	Method Blank	Heptane	2011/11/25	<0.30		ppbv	
		Trichloroethylene	2011/11/25	<0.30		ppbv	
		Tetrachloroethylene	2011/11/25	<0.20		ppbv	
		Benzene	2011/11/25	<0.18		ppbv	
		Toluene	2011/11/25	<0.20		ppbv	
		Ethylbenzene	2011/11/25	<0.20		ppbv	
		p+m-Xylene	2011/11/25	<0.37		ppbv	
		o-Xylene	2011/11/25	<0.20		ppbv	
		Styrene	2011/11/25	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/25	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/25	<0.50		ppbv	
		4-ethyltoluene	2011/11/25	<2.2		ppbv	
		Chlorobenzene	2011/11/25	<0.20		ppbv	
		Benzyl chloride	2011/11/25	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/25	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/25	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/25	<3.0		ppbv	
		Hexane	2011/11/25	<0.30		ppbv	
		Cyclohexane	2011/11/25	<0.20		ppbv	
		Tetrahydrofuran	2011/11/25	<0.40		ppbv	
		1,4-Dioxane	2011/11/25	<2.0		ppbv	
		Xylene (Total)	2011/11/25	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/25	NC		%	25
		Carbon Disulfide	2011/11/25	NC		%	25
		Propene	2011/11/25	NC		%	25
		Vinyl Acetate	2011/11/25	NC		%	25
		Vinyl Bromide	2011/11/25	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/25	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/25	NC		%	25
		Chloromethane	2011/11/25	NC		%	25
		Vinyl Chloride	2011/11/25	NC		%	25
		Chloroethane	2011/11/25	NC		%	25
		1,3-Butadiene	2011/11/25	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/25	NC		%	25
		Trichlorotrifluoroethane	2011/11/25	NC		%	25
		Ethanol	2011/11/25	NC		%	25
		2-propanol	2011/11/25	NC		%	25
		2-Propanone	2011/11/25	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/25	NC		%	25
		Methyl Isobutyl Ketone	2011/11/25	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/25	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/25	NC		%	25
		Ethyl Acetate	2011/11/25	NC		%	25
		1,1-Dichloroethylene	2011/11/25	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/25	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/25	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/25	NC		%	25
		Chloroform	2011/11/25	NC		%	25
		Carbon Tetrachloride	2011/11/25	NC		%	25
		1,1-Dichloroethane	2011/11/25	NC		%	25
		1,2-Dichloroethane	2011/11/25	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113349

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2696097 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/11/25	NC		%	25
		1,1,1-Trichloroethane	2011/11/25	NC		%	25
		1,1,2-Trichloroethane	2011/11/25	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/11/25	NC		%	25
		cis-1,3-Dichloropropene	2011/11/25	NC		%	25
		trans-1,3-Dichloropropene	2011/11/25	NC		%	25
		1,2-Dichloropropane	2011/11/25	NC		%	25
		Bromomethane	2011/11/25	NC		%	25
		Bromoform	2011/11/25	NC		%	25
		Bromodichloromethane	2011/11/25	NC		%	25
		Dibromochloromethane	2011/11/25	NC		%	25
		Heptane	2011/11/25	NC		%	25
		Trichloroethylene	2011/11/25	NC		%	25
		Tetrachloroethylene	2011/11/25	NC		%	25
		Benzene	2011/11/25	NC		%	25
		Toluene	2011/11/25	NC		%	25
		Ethylbenzene	2011/11/25	NC		%	25
		p+m-Xylene	2011/11/25	NC		%	25
		o-Xylene	2011/11/25	NC		%	25
		Styrene	2011/11/25	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/25	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/25	NC		%	25
		4-ethyltoluene	2011/11/25	NC		%	25
		Chlorobenzene	2011/11/25	NC		%	25
		Benzyl chloride	2011/11/25	NC		%	25
		1,3-Dichlorobenzene	2011/11/25	NC		%	25
		1,4-Dichlorobenzene	2011/11/25	NC		%	25
		1,2-Dichlorobenzene	2011/11/25	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/25	NC		%	25
		Hexachlorobutadiene	2011/11/25	NC		%	25
		Hexane	2011/11/25	NC		%	25
		Cyclohexane	2011/11/25	NC		%	25
		Tetrahydrofuran	2011/11/25	NC		%	25
		1,4-Dioxane	2011/11/25	NC		%	25
		Xylene (Total)	2011/11/25	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: 6200
Location: 13-16-62-5 W4M Canister ID: 7821
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Nov 22, 11 @ 10:39 mst
Field Sample ID: LICA VOC/PORT/ Nov 23, 11 Canister Removal Date/Time: Nov 24, 11 @ 10:15 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Nov-11	11/23/2011 0:00	11/24/2011 0:00	24.0000

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

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

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

Comments: System leak check prior to sampling. COC # 08355

Technician Signiture: Ting Xu_____

Your C.O.C. #: 08355

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

Report Date: 2011/12/07

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1I6654****Received: 2011/11/26, 10:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/11/29	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/11/29	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 11

Maxxam Job #: B116654
 Report Date: 2011/12/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		LT7208	LT7209	
Sampling Date		2011/11/23	2011/11/23	
COC Number		08355	08355	
	Units	LICA VOC/CLS/NOV 23,11	LICA VOC/PORT/NOV 23,11	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	22	2697173

QC Batch = Quality Control Batch

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	0.21	0.972	0.934	<0.20	0.20	<0.934	0.934	2697172
Carbon Disulfide	ppbv	0.66	2.06	1.56	0.58	0.50	1.79	1.56	2697172
Propene	ppbv	<2.4	<4.13	4.13	<2.4	2.4	<4.13	4.13	2697172
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2697172
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2697172
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	4.02	0.989	0.82	0.20	4.06	0.989	2697172
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2697172
Chloromethane	ppbv	0.56	1.16	0.620	0.56	0.30	1.15	0.620	2697172
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2697172
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2697172
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2697172
Trichlorofluoromethane (FREON 11)	ppbv	0.39	2.20	1.12	0.41	0.20	2.30	1.12	2697172
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2697172
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2697172
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2697172
2-Propanone	ppbv	0.82	1.94	1.90	<0.80	0.80	<1.90	1.90	2697172
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2697172
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2697172
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2697172
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2697172
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2697172
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2697172
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2697172
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2697172
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2697172
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2697172
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2697172
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2697172
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2697172
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2697172
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2697172

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2697172
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2697172
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2697172
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2697172
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2697172
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2697172
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2697172
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2697172
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2697172
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2697172
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2697172
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2697172
Benzene	ppbv	0.46	1.47	0.575	0.30	0.18	0.947	0.575	2697172
Toluene	ppbv	0.60	2.26	0.753	0.23	0.20	0.874	0.753	2697172
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2697172
p+m-Xylene	ppbv	0.47	2.03	1.61	<0.37	0.37	<1.61	1.61	2697172
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2697172
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2697172
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2697172
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2697172
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2697172
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2697172
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2697172
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2697172
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2697172
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2697172
Hexane	ppbv	0.40	1.42	1.06	0.57	0.30	2.02	1.06	2697172
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.64	0.20	2.19	0.688	2697172
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2697172
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2697172
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2697172
QC Batch = Quality Control Batch									

Maxxam Job #: B116654
 Report Date: 2011/12/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LT7208			LT7209				
Sampling Date		2011/11/23			2011/11/23				
COC Number		08355			08355				
	Units	LICA VOC/CLS/NOV 23,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 23,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	84		N/A	N/A	2697172
D5-Chlorobenzene	%	83	N/A	N/A	83		N/A	N/A	2697172
Difluorobenzene	%	87	N/A	N/A	85		N/A	N/A	2697172

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

Maxxam Job #: B116654
 Report Date: 2011/12/07

Test Summary

Maxxam ID LT7208
Sample ID LICA VOC/CLS/NOV 23,11
Matrix AIR

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2697173	N/A	2011/11/29	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2697172	N/A	2011/11/29	VALERIE RANDALL

Maxxam ID LT7209
Sample ID LICA VOC/PORT/NOV 23,11
Matrix AIR

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2697173	N/A	2011/11/29	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2697172	N/A	2011/11/29	VALERIE RANDALL

Maxxam Job #: B116654
Report Date: 2011/12/07

GENERAL COMMENTS

VOCTO15M-A
DL raised for Propene due to matrix interference on possible positives.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB116654

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2697172	VEA	Spiked Blank						
		Bromochloromethane	2011/11/29		102	%	60 - 140	
		D5-Chlorobenzene	2011/11/29		102	%	60 - 140	
		Difluorobenzene	2011/11/29		101	%	60 - 140	
		2,2,4-Trimethylpentane	2011/11/29		109	%	70 - 130	
		Carbon Disulfide	2011/11/29		101	%	70 - 130	
		Propene	2011/11/29		96	%	70 - 130	
		Vinyl Acetate	2011/11/29		101	%	70 - 130	
		Vinyl Bromide	2011/11/29		120	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2011/11/29		105	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2011/11/29		130	%	70 - 130	
		Chloromethane	2011/11/29		109	%	70 - 130	
		Vinyl Chloride	2011/11/29		109	%	70 - 130	
		Chloroethane	2011/11/29		113	%	70 - 130	
		1,3-Butadiene	2011/11/29		107	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2011/11/29		111	%	70 - 130	
		Trichlorotrifluoroethane	2011/11/29		110	%	70 - 130	
		Ethanol	2011/11/29		94	%	70 - 130	
		2-propanol	2011/11/29		93	%	70 - 130	
		2-Propanone	2011/11/29		101	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29		104	%	70 - 130	
		Methyl Isobutyl Ketone	2011/11/29		108	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29		109	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2011/11/29		93	%	70 - 130	
		Ethyl Acetate	2011/11/29		102	%	70 - 130	
		1,1-Dichloroethylene	2011/11/29		103	%	70 - 130	
		cis-1,2-Dichloroethylene	2011/11/29		104	%	70 - 130	
		trans-1,2-Dichloroethylene	2011/11/29		109	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2011/11/29		95	%	70 - 130	
		Chloroform	2011/11/29		106	%	70 - 130	
		Carbon Tetrachloride	2011/11/29		103	%	70 - 130	
		1,1-Dichloroethane	2011/11/29		105	%	70 - 130	
		1,2-Dichloroethane	2011/11/29		106	%	70 - 130	
		Ethylene Dibromide	2011/11/29		117	%	70 - 130	
		1,1,1-Trichloroethane	2011/11/29		104	%	70 - 130	
		1,1,2-Trichloroethane	2011/11/29		115	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2011/11/29		111	%	70 - 130	
		cis-1,3-Dichloropropene	2011/11/29		107	%	70 - 130	
		trans-1,3-Dichloropropene	2011/11/29		103	%	70 - 130	
		1,2-Dichloropropane	2011/11/29		108	%	70 - 130	
		Bromomethane	2011/11/29		119	%	70 - 130	
		Bromoform	2011/11/29		135 (1)	%	70 - 130	
		Bromodichloromethane	2011/11/29		119	%	70 - 130	
		Dibromochloromethane	2011/11/29		130	%	70 - 130	
		Heptane	2011/11/29		111	%	70 - 130	
		Trichloroethylene	2011/11/29		115	%	70 - 130	
		Tetrachloroethylene	2011/11/29		123	%	70 - 130	
		Benzene	2011/11/29		111	%	70 - 130	
		Toluene	2011/11/29		115	%	70 - 130	
		Ethylbenzene	2011/11/29		112	%	70 - 130	
		p+m-Xylene	2011/11/29		109	%	70 - 130	
		o-Xylene	2011/11/29		111	%	70 - 130	
		Styrene	2011/11/29		102	%	70 - 130	
		1,3,5-Trimethylbenzene	2011/11/29		108	%	70 - 130	
		1,2,4-Trimethylbenzene	2011/11/29		106	%	70 - 130	
		4-ethyltoluene	2011/11/29		122	%	70 - 130	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	Spiked Blank	Chlorobenzene	2011/11/29		113	%	70 - 130
		Benzyl chloride	2011/11/29		90	%	70 - 130
		1,3-Dichlorobenzene	2011/11/29		114	%	70 - 130
		1,4-Dichlorobenzene	2011/11/29		116	%	70 - 130
		1,2-Dichlorobenzene	2011/11/29		108	%	70 - 130
		1,2,4-Trichlorobenzene	2011/11/29		80	%	70 - 130
		Hexachlorobutadiene	2011/11/29		94	%	70 - 130
		Hexane	2011/11/29		106	%	70 - 130
		Cyclohexane	2011/11/29		109	%	70 - 130
		Tetrahydrofuran	2011/11/29		101	%	70 - 130
		1,4-Dioxane	2011/11/29		109	%	70 - 130
	Method Blank	Bromochloromethane	2011/11/29		86	%	60 - 140
		D5-Chlorobenzene	2011/11/29		83	%	60 - 140
		Difluorobenzene	2011/11/29		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/11/29	<0.20		ppbv	
		Carbon Disulfide	2011/11/29	0.51, RDL=0.50		ppbv	
		Propene	2011/11/29	<0.30		ppbv	
		Vinyl Acetate	2011/11/29	<0.20		ppbv	
		Vinyl Bromide	2011/11/29	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/11/29	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/11/29	<0.17		ppbv	
		Chloromethane	2011/11/29	<0.30		ppbv	
		Vinyl Chloride	2011/11/29	<0.18		ppbv	
		Chloroethane	2011/11/29	<0.30		ppbv	
		1,3-Butadiene	2011/11/29	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/11/29	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/11/29	<0.15		ppbv	
		Ethanol	2011/11/29	<2.3		ppbv	
		2-propanol	2011/11/29	<3.0		ppbv	
		2-Propanone	2011/11/29	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/11/29	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/11/29	<0.20		ppbv	
		Ethyl Acetate	2011/11/29	<2.2		ppbv	
		1,1-Dichloroethylene	2011/11/29	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/11/29	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/11/29	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/11/29	<0.80		ppbv	
		Chloroform	2011/11/29	<0.15		ppbv	
		Carbon Tetrachloride	2011/11/29	<0.30		ppbv	
		1,1-Dichloroethane	2011/11/29	<0.20		ppbv	
		1,2-Dichloroethane	2011/11/29	<0.20		ppbv	
		Ethylene Dibromide	2011/11/29	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/11/29	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/11/29	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/11/29	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/11/29	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/11/29	<0.17		ppbv	
		1,2-Dichloropropane	2011/11/29	<0.40		ppbv	
		Bromomethane	2011/11/29	<0.18		ppbv	
		Bromoform	2011/11/29	<0.20		ppbv	
		Bromodichloromethane	2011/11/29	<0.20		ppbv	
		Dibromochloromethane	2011/11/29	<0.20		ppbv	
		Heptane	2011/11/29	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	Method Blank	Trichloroethylene	2011/11/29	<0.30		ppbv	
		Tetrachloroethylene	2011/11/29	<0.20		ppbv	
		Benzene	2011/11/29	<0.18		ppbv	
		Toluene	2011/11/29	<0.20		ppbv	
		Ethylbenzene	2011/11/29	<0.20		ppbv	
		p+m-Xylene	2011/11/29	<0.37		ppbv	
		o-Xylene	2011/11/29	<0.20		ppbv	
		Styrene	2011/11/29	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/11/29	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/11/29	<0.50		ppbv	
		4-ethyltoluene	2011/11/29	<2.2		ppbv	
		Chlorobenzene	2011/11/29	<0.20		ppbv	
		Benzyl chloride	2011/11/29	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/11/29	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/11/29	<2.0		ppbv	
		Hexachlorobutadiene	2011/11/29	<3.0		ppbv	
		Hexane	2011/11/29	<0.30		ppbv	
		Cyclohexane	2011/11/29	<0.20		ppbv	
		Tetrahydrofuran	2011/11/29	<0.40		ppbv	
		1,4-Dioxane	2011/11/29	<2.0		ppbv	
		Xylene (Total)	2011/11/29	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/11/29	NC		%	25
		Carbon Disulfide	2011/11/29	1.2		%	25
		Propene	2011/11/29	0.07		%	25
		Vinyl Acetate	2011/11/29	NC		%	25
		Vinyl Bromide	2011/11/29	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/11/29	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/11/29	NC		%	25
		Chloromethane	2011/11/29	0.8		%	25
		Vinyl Chloride	2011/11/29	3.2		%	25
		Chloroethane	2011/11/29	NC		%	25
		1,3-Butadiene	2011/11/29	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/11/29	NC		%	25
		Trichlorotrifluoroethane	2011/11/29	NC		%	25
		Ethanol	2011/11/29	NC		%	25
		2-propanol	2011/11/29	NC		%	25
		2-Propanone	2011/11/29	1.4		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/11/29	NC		%	25
		Methyl Isobutyl Ketone	2011/11/29	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/11/29	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/11/29	NC		%	25
		Ethyl Acetate	2011/11/29	NC		%	25
		1,1-Dichloroethylene	2011/11/29	NC		%	25
		cis-1,2-Dichloroethylene	2011/11/29	NC		%	25
		trans-1,2-Dichloroethylene	2011/11/29	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/11/29	1.9		%	25
		Chloroform	2011/11/29	0.6		%	25
		Carbon Tetrachloride	2011/11/29	NC		%	25
		1,1-Dichloroethane	2011/11/29	NC		%	25
		1,2-Dichloroethane	2011/11/29	NC		%	25
		Ethylene Dibromide	2011/11/29	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116654

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697172 VEA	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/11/29	NC		%	25
		1,1,2-Trichloroethane	2011/11/29	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/11/29	NC		%	25
		cis-1,3-Dichloropropene	2011/11/29	NC		%	25
		trans-1,3-Dichloropropene	2011/11/29	NC		%	25
		1,2-Dichloropropane	2011/11/29	NC		%	25
		Bromomethane	2011/11/29	0.6		%	25
		Bromoform	2011/11/29	NC		%	25
		Bromodichloromethane	2011/11/29	NC		%	25
		Dibromochloromethane	2011/11/29	NC		%	25
		Heptane	2011/11/29	0.7		%	25
		Trichloroethylene	2011/11/29	NC		%	25
		Tetrachloroethylene	2011/11/29	NC		%	25
		Benzene	2011/11/29	0.7		%	25
		Toluene	2011/11/29	0.7		%	25
		Ethylbenzene	2011/11/29	5.9		%	25
		p+m-Xylene	2011/11/29	4.6		%	25
		o-Xylene	2011/11/29	4.9		%	25
		Styrene	2011/11/29	NC		%	25
		1,3,5-Trimethylbenzene	2011/11/29	NC		%	25
		1,2,4-Trimethylbenzene	2011/11/29	NC		%	25
		4-ethyltoluene	2011/11/29	NC		%	25
		Chlorobenzene	2011/11/29	NC		%	25
		Benzyl chloride	2011/11/29	NC		%	25
		1,3-Dichlorobenzene	2011/11/29	NC		%	25
		1,4-Dichlorobenzene	2011/11/29	NC		%	25
		1,2-Dichlorobenzene	2011/11/29	NC		%	25
		1,2,4-Trichlorobenzene	2011/11/29	NC		%	25
		Hexachlorobutadiene	2011/11/29	NC		%	25
		Hexane	2011/11/29	0.7		%	25
		Cyclohexane	2011/11/29	5.4		%	25
		Tetrahydrofuran	2011/11/29	NC		%	25
		1,4-Dioxane	2011/11/29	NC		%	25
		Xylene (Total)	2011/11/29	4.7		%	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: 6200
Location: 13-16-62-5 W4M Canister ID: 112
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Nov 28, 11 @09:40 mst
Field Sample ID: LICA VOC/PORT/ Nov 29, 11 Canister Removal Date/Time: Dec 01, 11 @ 9:51 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Nov-11	11/29/2011 0:00	11/30/2011 0:00	24.0000

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

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

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

Comments: System leak check prior to sampling. COC # 08930

Technician Signiture: Ting Xu_____

Your C.O.C. #: 08930

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

Report Date: 2011/12/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J0838****Received: 2011/12/03, 09:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/12/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/12/05	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 11

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

RESULTS OF ANALYSES OF AIR

Maxxam ID		LW0877	LW0878	
Sampling Date		2011/11/29	2011/11/29	
COC Number		08930	08930	
	Units	LICA VOC/CLS/NOV 29,11	LICA VOC/PORT/NOV 29,11	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	22	2704136

QC Batch = Quality Control Batch

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2704583
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2704583
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2704583
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2704583
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2704583
Dichlorodifluoromethane (FREON 12)	ppbv	0.79	3.92	0.989	0.78	0.20	3.86	0.989	2704583
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2704583
Chloromethane	ppbv	0.66	1.37	0.620	0.66	0.30	1.36	0.620	2704583
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2704583
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2704583
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2704583
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.04	1.12	0.36	0.20	2.02	1.12	2704583
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2704583
Ethanol	ppbv	3.5	6.57	4.33	<2.3	2.3	<4.33	4.33	2704583
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2704583
2-Propanone	ppbv	5.92	14.1	1.90	1.55	0.80	3.67	1.90	2704583
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2704583
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2704583
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2704583
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2704583
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2704583
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2704583
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2704583
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2704583
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2704583
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2704583
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2704583
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2704583
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2704583
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2704583
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2704583
RDL = Reportable Detection Limit QC Batch = Quality Control Batch									

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2704583
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2704583
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2704583
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2704583
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2704583
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2704583
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2704583
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2704583
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2704583
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2704583
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2704583
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2704583
Benzene	ppbv	0.41	1.32	0.575	0.23	0.18	0.749	0.575	2704583
Toluene	ppbv	1.25	4.72	0.753	<0.20	0.20	<0.753	0.753	2704583
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2704583
p+m-Xylene	ppbv	0.51	2.21	1.61	<0.37	0.37	<1.61	1.61	2704583
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2704583
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2704583
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2704583
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2704583
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2704583
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2704583
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2704583
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2704583
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2704583
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2704583
Hexane	ppbv	0.33	1.17	1.06	<0.30	0.30	<1.06	1.06	2704583
Cyclohexane	ppbv	0.48	1.64	0.688	0.49	0.20	1.69	0.688	2704583
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2704583
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2704583
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2704583
QC Batch = Quality Control Batch									

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		LW0877			LW0878				
Sampling Date		2011/11/29			2011/11/29				
COC Number		08930			08930				
	Units	LICA VOC/CLS/NOV 29,11	ug/m3	DL (ug/m3)	LICA VOC/PORT/NOV 29,11	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	90	N/A	N/A	88		N/A	N/A	2704583
D5-Chlorobenzene	%	92	N/A	N/A	91		N/A	N/A	2704583
Difluorobenzene	%	90	N/A	N/A	89		N/A	N/A	2704583

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

Maxxam Job #: B1J0838
 Report Date: 2011/12/12

Test Summary

Maxxam ID LW0877
Sample ID LICA VOC/CLS/NOV 29,11
Matrix AIR

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2704136	N/A	2011/12/05	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2704583	N/A	2011/12/05	YAO LIANG SUN

Maxxam ID LW0878
Sample ID LICA VOC/PORT/NOV 29,11
Matrix AIR

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2704136	N/A	2011/12/05	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2704583	N/A	2011/12/05	YAO LIANG SUN

Maxxam Job #: B1J0838
Report Date: 2011/12/12

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: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Spiked Blank	Bromochloromethane	2011/12/05		99	%	60 - 140
		D5-Chlorobenzene	2011/12/05		98	%	60 - 140
		Difluorobenzene	2011/12/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/05		104	%	70 - 130
		Carbon Disulfide	2011/12/05		109	%	70 - 130
		Propene	2011/12/05		103	%	70 - 130
		Vinyl Acetate	2011/12/05		106	%	70 - 130
		Vinyl Bromide	2011/12/05		110	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/12/05		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/12/05		130	%	70 - 130
		Chloromethane	2011/12/05		116	%	70 - 130
		Vinyl Chloride	2011/12/05		117	%	70 - 130
		Chloroethane	2011/12/05		116	%	70 - 130
		1,3-Butadiene	2011/12/05		91	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/12/05		111	%	70 - 130
		Trichlorotrifluoroethane	2011/12/05		113	%	70 - 130
		Ethanol	2011/12/05		102	%	70 - 130
		2-propanol	2011/12/05		102	%	70 - 130
		2-Propanone	2011/12/05		107	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05		98	%	70 - 130
		Methyl Isobutyl Ketone	2011/12/05		99	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/12/05		110	%	70 - 130
		Ethyl Acetate	2011/12/05		104	%	70 - 130
		1,1-Dichloroethylene	2011/12/05		112	%	70 - 130
		cis-1,2-Dichloroethylene	2011/12/05		113	%	70 - 130
		trans-1,2-Dichloroethylene	2011/12/05		108	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/12/05		97	%	70 - 130
		Chloroform	2011/12/05		109	%	70 - 130
		Carbon Tetrachloride	2011/12/05		111	%	70 - 130
		1,1-Dichloroethane	2011/12/05		106	%	70 - 130
		1,2-Dichloroethane	2011/12/05		111	%	70 - 130
		Ethylene Dibromide	2011/12/05		108	%	70 - 130
		1,1,1-Trichloroethane	2011/12/05		110	%	70 - 130
		1,1,2-Trichloroethane	2011/12/05		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/12/05		92	%	70 - 130
		cis-1,3-Dichloropropene	2011/12/05		112	%	70 - 130
		trans-1,3-Dichloropropene	2011/12/05		114	%	70 - 130
		1,2-Dichloropropane	2011/12/05		110	%	70 - 130
		Bromomethane	2011/12/05		115	%	70 - 130
		Bromoform	2011/12/05		103	%	70 - 130
		Bromodichloromethane	2011/12/05		106	%	70 - 130
		Dibromochloromethane	2011/12/05		106	%	70 - 130
		Heptane	2011/12/05		105	%	70 - 130
		Trichloroethylene	2011/12/05		112	%	70 - 130
		Tetrachloroethylene	2011/12/05		111	%	70 - 130
		Benzene	2011/12/05		112	%	70 - 130
		Toluene	2011/12/05		111	%	70 - 130
		Ethylbenzene	2011/12/05		108	%	70 - 130
		p+m-Xylene	2011/12/05		105	%	70 - 130
		o-Xylene	2011/12/05		102	%	70 - 130
		Styrene	2011/12/05		99	%	70 - 130
		1,3,5-Trimethylbenzene	2011/12/05		86	%	70 - 130
		1,2,4-Trimethylbenzene	2011/12/05		82	%	70 - 130
		4-ethyltoluene	2011/12/05		86	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Spiked Blank	Chlorobenzene	2011/12/05		110	%	70 - 130
		Benzyl chloride	2011/12/05		81	%	70 - 130
		1,3-Dichlorobenzene	2011/12/05		85	%	70 - 130
		1,4-Dichlorobenzene	2011/12/05		84	%	70 - 130
		1,2-Dichlorobenzene	2011/12/05		78	%	70 - 130
		1,2,4-Trichlorobenzene	2011/12/05		129	%	70 - 130
		Hexachlorobutadiene	2011/12/05		126	%	70 - 130
		Hexane	2011/12/05		108	%	70 - 130
		Cyclohexane	2011/12/05		110	%	70 - 130
		Tetrahydrofuran	2011/12/05		108	%	70 - 130
		1,4-Dioxane	2011/12/05		104	%	70 - 130
		Xylene (Total)	2011/12/05		104	%	70 - 130
	Method Blank	Bromochloromethane	2011/12/05		92	%	60 - 140
		D5-Chlorobenzene	2011/12/05		96	%	60 - 140
		Difluorobenzene	2011/12/05		94	%	60 - 140
		2,2,4-Trimethylpentane	2011/12/05	<0.20		ppbv	
		Carbon Disulfide	2011/12/05	<0.50		ppbv	
		Propene	2011/12/05	<0.30		ppbv	
		Vinyl Acetate	2011/12/05	<0.20		ppbv	
		Vinyl Bromide	2011/12/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/12/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/12/05	<0.17		ppbv	
		Chloromethane	2011/12/05	<0.30		ppbv	
		Vinyl Chloride	2011/12/05	<0.18		ppbv	
		Chloroethane	2011/12/05	<0.30		ppbv	
		1,3-Butadiene	2011/12/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/12/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/12/05	<0.15		ppbv	
		Ethanol	2011/12/05	<2.3		ppbv	
		2-propanol	2011/12/05	<3.0		ppbv	
		2-Propanone	2011/12/05	1.09, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/12/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/12/05	<0.20		ppbv	
		Ethyl Acetate	2011/12/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/12/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/12/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/12/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/12/05	<0.80		ppbv	
		Chloroform	2011/12/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/12/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/12/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/12/05	<0.20		ppbv	
		Ethylene Dibromide	2011/12/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/12/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/12/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/12/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/12/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/12/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/12/05	<0.40		ppbv	
		Bromomethane	2011/12/05	<0.18		ppbv	
		Bromoform	2011/12/05	<0.20		ppbv	
		Bromodichloromethane	2011/12/05	<0.20		ppbv	
		Dibromochloromethane	2011/12/05	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	Method Blank	Heptane	2011/12/05	<0.30		ppbv	
		Trichloroethylene	2011/12/05	<0.30		ppbv	
		Tetrachloroethylene	2011/12/05	<0.20		ppbv	
		Benzene	2011/12/05	<0.18		ppbv	
		Toluene	2011/12/05	<0.20		ppbv	
		Ethylbenzene	2011/12/05	<0.20		ppbv	
		p+m-Xylene	2011/12/05	<0.37		ppbv	
		o-Xylene	2011/12/05	<0.20		ppbv	
		Styrene	2011/12/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/12/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/12/05	<0.50		ppbv	
		4-ethyltoluene	2011/12/05	<2.2		ppbv	
		Chlorobenzene	2011/12/05	<0.20		ppbv	
		Benzyl chloride	2011/12/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/12/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/12/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/12/05	<3.0		ppbv	
		Hexane	2011/12/05	<0.30		ppbv	
		Cyclohexane	2011/12/05	<0.20		ppbv	
		Tetrahydrofuran	2011/12/05	<0.40		ppbv	
		1,4-Dioxane	2011/12/05	<2.0		ppbv	
		Xylene (Total)	2011/12/05	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/12/05	NC		%	25
		Carbon Disulfide	2011/12/05	NC		%	25
		Propene	2011/12/05	0.03		%	25
		Vinyl Acetate	2011/12/05	NC		%	25
		Vinyl Bromide	2011/12/05	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/12/05	1.1		%	25
		1,2-Dichlorotetrafluoroethane	2011/12/05	0.5		%	25
		Chloromethane	2011/12/05	NC		%	25
		Vinyl Chloride	2011/12/05	2.0		%	25
		Chloroethane	2011/12/05	1.4		%	25
		1,3-Butadiene	2011/12/05	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/12/05	NC		%	25
		Trichlorotrifluoroethane	2011/12/05	NC		%	25
		Ethanol	2011/12/05	NC		%	25
		2-propanol	2011/12/05	NC		%	25
		2-Propanone	2011/12/05	2.7		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/12/05	2.2		%	25
		Methyl Isobutyl Ketone	2011/12/05	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/12/05	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/12/05	NC		%	25
		Ethyl Acetate	2011/12/05	NC		%	25
		1,1-Dichloroethylene	2011/12/05	2.8		%	25
		cis-1,2-Dichloroethylene	2011/12/05	6.3		%	25
		trans-1,2-Dichloroethylene	2011/12/05	2.8		%	25
		Methylene Chloride(Dichloromethane)	2011/12/05	NC		%	25
		Chloroform	2011/12/05	NC		%	25
		Carbon Tetrachloride	2011/12/05	NC		%	25
		1,1-Dichloroethane	2011/12/05	NC		%	25
		1,2-Dichloroethane	2011/12/05	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0838

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2704583 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/12/05	NC		%	25
		1,1,1-Trichloroethane	2011/12/05	NC		%	25
		1,1,2-Trichloroethane	2011/12/05	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/12/05	NC		%	25
		cis-1,3-Dichloropropene	2011/12/05	NC		%	25
		trans-1,3-Dichloropropene	2011/12/05	NC		%	25
		1,2-Dichloropropane	2011/12/05	NC		%	25
		Bromomethane	2011/12/05	NC		%	25
		Bromoform	2011/12/05	NC		%	25
		Bromodichloromethane	2011/12/05	NC		%	25
		Dibromochloromethane	2011/12/05	NC		%	25
		Heptane	2011/12/05	0.6		%	25
		Trichloroethylene	2011/12/05	0.1		%	25
		Tetrachloroethylene	2011/12/05	1.8		%	25
		Benzene	2011/12/05	6.7		%	25
		Toluene	2011/12/05	0.5		%	25
		Ethylbenzene	2011/12/05	0.8		%	25
		p+m-Xylene	2011/12/05	0.7		%	25
		o-Xylene	2011/12/05	1		%	25
		Styrene	2011/12/05	NC		%	25
		1,3,5-Trimethylbenzene	2011/12/05	2.5		%	25
		1,2,4-Trimethylbenzene	2011/12/05	1.9		%	25
		4-ethyltoluene	2011/12/05	NC		%	25
		Chlorobenzene	2011/12/05	NC		%	25
		Benzyl chloride	2011/12/05	NC		%	25
		1,3-Dichlorobenzene	2011/12/05	NC		%	25
		1,4-Dichlorobenzene	2011/12/05	NC		%	25
		1,2-Dichlorobenzene	2011/12/05	NC		%	25
		1,2,4-Trichlorobenzene	2011/12/05	NC		%	25
		Hexachlorobutadiene	2011/12/05	NC		%	25
		Hexane	2011/12/05	1.8		%	25
		Cyclohexane	2011/12/05	1.6		%	25
		Tetrahydrofuran	2011/12/05	0.8		%	25
		1,4-Dioxane	2011/12/05	NC		%	25
		Xylene (Total)	2011/12/05	0.8		%	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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Nov 05, 11

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 04, 2011 @ 13:16 mst
Removal Date/Time: Nov 07, 2011 @ 10:40 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
05-Nov-11	11/05/2011 0:00	11/06/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
02-Nov-11	07-Nov-11	14-Nov-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)
707	229	-7.1	330.34

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

Comments: COC# 08376

GB1F5093 Puff #2

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08376

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

Report Date: 2011/11/17

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1H6533****Received: 2011/11/09, 09:30**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/11	2011/11/14	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1H6533
 Report Date: 2011/11/17

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

Maxxam ID		LO3974		LO3975		
Sampling Date		2011/11/05		2011/11/05		
COC Number		08376		08376		
	Units	LICA PUFF+CLS/QFF/NOV 05,11	RDL	LICA PUFF+PORT/QFF/NOV 05,11	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	2.63	0.10	0.33	0.10	2679162
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2679162
2-Methylnaphthalene	ug	5.18	0.10	0.60	0.10	2679162
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2679162
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2679162
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2679162
Acenaphthene	ug	<0.21	0.21	<0.067	0.067	2679162
Acenaphthylene	ug	0.286	0.050	0.382	0.050	2679162
Anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2679162
Benzo(b)fluoranthene	ug	0.050	0.050	0.092	0.050	2679162
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2679162
Benzo(g,h,i)perylene	ug	<0.050	0.050	0.052	0.050	2679162
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2679162
Biphenyl	ug	0.74	0.10	0.46	0.10	2679162
Chrysene	ug	<0.050	0.050	0.078	0.050	2679162
Coronene	ug	<0.10	0.10	<0.10	0.10	2679162
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2679162
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2679162
Fluoranthene	ug	0.082	0.050	0.276	0.050	2679162
Fluorene	ug	0.272	0.050	0.274	0.050	2679162
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2679162
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Naphthalene	ug	2.58	0.072	0.608	0.072	2679162
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Perylene	ug	<0.10	0.10	<0.10	0.10	2679162

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		LO3974		LO3975		
Sampling Date		2011/11/05		2011/11/05		
COC Number		08376		08376		
	Units	LICA PUFF+CLS/QFF/NOV 05,11	RDL	LICA PUFF+PORT/QFF/NOV 05,11	RDL	QC Batch

Phenanthrene	ug	0.322	0.050	0.712	0.050	2679162
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2679162
Pyrene	ug	0.090	0.050	0.238	0.050	2679162
Quinoline	ug	<0.40	0.40	<0.40	0.40	2679162
Tetralin	ug	0.15	0.10	<0.10	0.10	2679162
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	78		76		2679162
D10-Fluoranthene	%	96		96		2679162
D10-Fluorene (FS)	%	39 (1)		47 (1)		2679162
D10-Phenanthrene	%	92		90		2679162
D12-Benzo(a)anthracene	%	98		98		2679162
D12-Benzo(a)pyrene	%	84		82		2679162
D12-Benzo(b)fluoranthene	%	94		92		2679162
D12-Benzo(ghi)perylene	%	78		78		2679162
D12-Benzo(k)fluoranthene	%	84		82		2679162
D12-Chrysene	%	80		80		2679162
D12-Indeno(1,2,3-cd)pyrene	%	80		80		2679162
D12-Perylene	%	82		82		2679162
D14-Dibenzo(a,h)anthracene	%	82		84		2679162
D14-Terphenyl (FS)	%	101		100		2679162
D8-Acenaphthylene	%	80		76		2679162
D8-Naphthalene	%	76		76		2679162

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 #: B1H6533
Report Date: 2011/11/17

Test Summary

Maxxam ID LO3974
Sample ID LICA PUFF+CLS/QFF/NOV 05,11
Matrix PUF AND FILTER

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2679162	2011/11/11	2011/11/14	JIE WU

Maxxam ID LO3975
Sample ID LICA PUFF+PORT/QFF/NOV 05,11
Matrix PUF AND FILTER

Collected 2011/11/05
Shipped
Received 2011/11/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2679162	2011/11/11	2011/11/14	JIE WU

Maxxam Job #: B1H6533
Report Date: 2011/11/17

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.

7,12-dimethylbenzo(a)anthracene is above 25% RSD in continuing calibrations.

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

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

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 LO3974-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample LO3975-01: 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: GB1H6533

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2679162 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/11/14		84	%	50 - 150
		D10-Fluoranthene	2011/11/14		96	%	50 - 150
		D10-Phenanthrene	2011/11/14		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/14		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/14		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/14		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/14		80	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/14		88	%	50 - 150
		D12-Chrysene	2011/11/14		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/14		80	%	50 - 150
		D12-Perylene	2011/11/14		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/14		84	%	50 - 150
		D8-Acenaphthylene	2011/11/14		82	%	50 - 150
		D8-Naphthalene	2011/11/14		82	%	50 - 150
		Acenaphthene	2011/11/14		81	%	60 - 130
	RPD	Acenaphthene	2011/11/14	0.6		%	50
	Spiked Blank	Acenaphthylene	2011/11/14		80	%	60 - 130
	RPD	Acenaphthylene	2011/11/14	0.6		%	50
	Spiked Blank	Anthracene	2011/11/14		86	%	60 - 130
	RPD	Anthracene	2011/11/14	0.6		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/14		79	%	60 - 130
	RPD	Benzo(a)anthracene	2011/11/14	0.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/14		71	%	60 - 130
	RPD	Benzo(a)pyrene	2011/11/14	5.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/14		82	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/11/14	3.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/14		70	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/11/14	2.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/14		85	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/11/14	0.9		%	50
	Spiked Blank	Chrysene	2011/11/14		79	%	60 - 130
	RPD	Chrysene	2011/11/14	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/14		77	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/11/14	2.9		%	50
	Spiked Blank	Fluoranthene	2011/11/14		90	%	60 - 130
	RPD	Fluoranthene	2011/11/14	1.1		%	50
	Spiked Blank	Fluorene	2011/11/14		84	%	60 - 130
	RPD	Fluorene	2011/11/14	0.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/14		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/11/14	2.4		%	50
	Spiked Blank	Naphthalene	2011/11/14		95	%	60 - 130
	RPD	Naphthalene	2011/11/14	3.8		%	50
	Spiked Blank	Phenanthrene	2011/11/14		83	%	60 - 130
	RPD	Phenanthrene	2011/11/14	0.9		%	50
	Spiked Blank	Pyrene	2011/11/14		84	%	60 - 130
	RPD	Pyrene	2011/11/14	1.2		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/11/14		86	%	50 - 150
		D10-Fluoranthene	2011/11/14		94	%	50 - 150
		D10-Phenanthrene	2011/11/14		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/14		88	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/14		82	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/14		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/14		76	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/14		88	%	50 - 150
		D12-Chrysene	2011/11/14		84	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1H6533

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2679162 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/14		78	%	50 - 150
		D12-Perylene	2011/11/14		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/14		82	%	50 - 150
		D8-Acenaphthylene	2011/11/14		82	%	50 - 150
		D8-Naphthalene	2011/11/14		86	%	50 - 150
		1-Methylnaphthalene	2011/11/14	<0.10		ug	
		1-Methylphenanthrene	2011/11/14	<0.10		ug	
		2-Chloronaphthalene	2011/11/14	<0.10		ug	
		2-Methylanthracene	2011/11/14	<0.10		ug	
		2-Methylnaphthalene	2011/11/14	<0.10		ug	
		3-Methylcholanthrene	2011/11/14	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/14	<0.10		ug	
		9,10-Dimethylanthracene	2011/11/14	<0.40		ug	
		Acenaphthene	2011/11/14	<0.050		ug	
		Acenaphthylene	2011/11/14	<0.050		ug	
		Anthracene	2011/11/14	<0.050		ug	
		Benzo(a)anthracene	2011/11/14	<0.050		ug	
		Benzo(a)fluorene	2011/11/14	<0.10		ug	
		Benzo(a)pyrene	2011/11/14	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/14	<0.050		ug	
		Benzo(b)fluorene	2011/11/14	<0.10		ug	
		Benzo(e)pyrene	2011/11/14	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/14	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/14	<0.050		ug	
		Biphenyl	2011/11/14	<0.10		ug	
		Chrysene	2011/11/14	<0.050		ug	
		Coronene	2011/11/14	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/14	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/14	<0.20		ug	
		Fluoranthene	2011/11/14	<0.050		ug	
		Fluorene	2011/11/14	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/14	<0.050		ug	
		m-Terphenyl	2011/11/14	<0.10		ug	
		Naphthalene	2011/11/14	<0.072		ug	
		o-Terphenyl	2011/11/14	<0.10		ug	
		Perylene	2011/11/14	<0.10		ug	
		Phenanthrene	2011/11/14	<0.050		ug	
		p-Terphenyl	2011/11/14	<0.10		ug	
		Pyrene	2011/11/14	<0.050		ug	
		Quinoline	2011/11/14	<0.40		ug	
		Tetralin	2011/11/14	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 Spiked Blank: A blank matrix 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: 13-16-62-5 W4M
 Station ID: Lica 33 (Portable)
 Field Sample ID: LICA PUF/PORT/Nov 11, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Nov 10, 2011 @ 15:56 mst
 Removal Date/Time: Nov 14, 2011 @ 10:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
11-Nov-11	11/11/2011 0:00	11/12/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
08-Nov-11	14-Nov-11	21-Nov-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)
698	339	0.3	330.35

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

Comments: COC# 08451
GB1F5094 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 11, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08451

Attention: Michael BisagaLakeland Industry & Community Assoc.
P.O. Box 8237
Bonnyville, AB
CANADA T9N 2J5

Report Date: 2011/11/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1I0330****Received: 2011/11/16, 09:47**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/17	2011/11/19	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

=====

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

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B110330
 Report Date: 2011/11/21

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

Maxxam ID		LQ4553		LQ4554		
Sampling Date		2011/11/11		2011/11/11		
COC Number		08451		08451		
	Units	LICAPUFF/QFF/CLS/NOV11,2011	RDL	LICAPUFF/QFF/PORT/NOV11,2011	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.13	0.10	<0.10	0.10	2685378
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2685378
2-Methylnaphthalene	ug	0.26	0.10	0.13	0.10	2685378
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2685378
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2685378
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2685378
Acenaphthene	ug	<0.060	0.060	<0.050	0.050	2685378
Acenaphthylene	ug	0.246	0.050	0.144	0.050	2685378
Anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2685378
Benzo(b)fluoranthene	ug	0.052	0.050	<0.050	0.050	2685378
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2685378
Benzo(g,h,i)perylene	ug	0.052	0.050	<0.050	0.050	2685378
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2685378
Biphenyl	ug	0.37	0.10	0.32	0.10	2685378
Chrysene	ug	<0.050	0.050	<0.050	0.050	2685378
Coronene	ug	<0.10	0.10	<0.10	0.10	2685378
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2685378
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2685378
Fluoranthene	ug	0.136	0.050	0.102	0.050	2685378
Fluorene	ug	0.360	0.050	0.286	0.050	2685378
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2685378
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Naphthalene	ug	0.328	0.072	0.190	0.072	2685378
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Perylene	ug	<0.10	0.10	<0.10	0.10	2685378
Phenanthrene	ug	0.648	0.050	0.448	0.050	2685378

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B110330
 Report Date: 2011/11/21

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

Maxxam ID		LQ4553		LQ4554		
Sampling Date		2011/11/11		2011/11/11		
COC Number		08451		08451		
	Units	LICAPUFF/QFF/CLS/NOV11,2011	RDL	LICAPUFF/QFF/PORT/NOV11,2011	RDL	QC Batch

p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2685378
Pyrene	ug	0.124	0.050	0.082	0.050	2685378
Quinoline	ug	<0.40	0.40	<0.40	0.40	2685378
Tetralin	ug	<0.10	0.10	<0.10	0.10	2685378
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	90		84		2685378
D10-Fluoranthene	%	98		108		2685378
D10-Fluorene (FS)	%	17 (1)		15 (1)		2685378
D10-Phenanthrene	%	96		98		2685378
D12-Benzo(a)anthracene	%	102		108		2685378
D12-Benzo(a)pyrene	%	96		100		2685378
D12-Benzo(b)fluoranthene	%	94		98		2685378
D12-Benzo(ghi)perylene	%	94		98		2685378
D12-Benzo(k)fluoranthene	%	88		88		2685378
D12-Chrysene	%	84		80		2685378
D12-Indeno(1,2,3-cd)pyrene	%	92		98		2685378
D12-Perylene	%	90		94		2685378
D14-Dibenzo(a,h)anthracene	%	92		98		2685378
D14-Terphenyl (FS)	%	91		104		2685378
D8-Acenaphthylene	%	94		96		2685378
D8-Naphthalene	%	92		86		2685378

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 #: B110330
 Report Date: 2011/11/21

Test Summary

Maxxam ID LQ4553
Sample ID LICAPUFF/QFF/CLS/NOV11,2011
Matrix PUF AND FILTER

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2685378	2011/11/17	2011/11/19	JIE WU

Maxxam ID LQ4554
Sample ID LICAPUFF/QFF/PORT/NOV11,2011
Matrix PUF AND FILTER

Collected 2011/11/11
Shipped
Received 2011/11/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2685378	2011/11/17	2011/11/19	JIE WU

Maxxam Job #: B110330
Report Date: 2011/11/21

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.

7,12-dimethylbenzo(a)anthracene is above 25% RSD in initial calibration.

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 LQ4553-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

Sample LQ4554-01: 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.

Lakeland Industry & Community Assoc.
 Attention: Michael Bisaga
 Client Project #:
 P.O. #:
 Site Location:

Quality Assurance Report
 Maxxam Job Number: GB110330

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2685378 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/11/19		94	%	50 - 150
		D10-Fluoranthene	2011/11/19		96	%	50 - 150
		D10-Phenanthrene	2011/11/19		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/19		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/19		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/19		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/19		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/19		90	%	50 - 150
		D12-Chrysene	2011/11/19		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/19		90	%	50 - 150
		D12-Perylene	2011/11/19		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/19		90	%	50 - 150
		D8-Acenaphthylene	2011/11/19		92	%	50 - 150
		D8-Naphthalene	2011/11/19		98	%	50 - 150
		Acenaphthene	2011/11/19		85	%	60 - 130
	RPD	Acenaphthene	2011/11/19	2.1		%	50
	Spiked Blank	Acenaphthylene	2011/11/19		86	%	60 - 130
	RPD	Acenaphthylene	2011/11/19	3.9		%	50
	Spiked Blank	Anthracene	2011/11/19		75	%	60 - 130
	RPD	Anthracene	2011/11/19	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/19		77	%	60 - 130
	RPD	Benzo(a)anthracene	2011/11/19	2.0		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/19		71	%	60 - 130
	RPD	Benzo(a)pyrene	2011/11/19	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/19		84	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/11/19	3.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/19		76	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/11/19	1		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/19		79	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/11/19	1.6		%	50
	Spiked Blank	Chrysene	2011/11/19		76	%	60 - 130
	RPD	Chrysene	2011/11/19	2.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/19		76	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/11/19	2.3		%	50
	Spiked Blank	Fluoranthene	2011/11/19		87	%	60 - 130
	RPD	Fluoranthene	2011/11/19	6.5		%	50
	Spiked Blank	Fluorene	2011/11/19		83	%	60 - 130
	RPD	Fluorene	2011/11/19	4.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/19		78	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/11/19	3.9		%	50
	Spiked Blank	Naphthalene	2011/11/19		89	%	60 - 130
	RPD	Naphthalene	2011/11/19	2.8		%	50
	Spiked Blank	Phenanthrene	2011/11/19		81	%	60 - 130
	RPD	Phenanthrene	2011/11/19	7.4		%	50
	Spiked Blank	Pyrene	2011/11/19		81	%	60 - 130
	RPD	Pyrene	2011/11/19	6.4		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/11/19		90	%	50 - 150
		D10-Fluoranthene	2011/11/19		96	%	50 - 150
		D10-Phenanthrene	2011/11/19		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/19		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/19		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/19		96	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/19		90	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/19		88	%	50 - 150
		D12-Chrysene	2011/11/19		82	%	50 - 150

Lakeland Industry & Community Assoc.
 Attention: Michael Bisaga
 Client Project #:
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB110330

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2685378 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/19		90	%	50 - 150
		D12-Perylene	2011/11/19		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/19		90	%	50 - 150
		D8-Acenaphthylene	2011/11/19		90	%	50 - 150
		D8-Naphthalene	2011/11/19		94	%	50 - 150
		1-Methylnaphthalene	2011/11/19	<0.10		ug	
		1-Methylphenanthrene	2011/11/19	<0.10		ug	
		2-Chloronaphthalene	2011/11/19	<0.10		ug	
		2-Methylantracene	2011/11/19	<0.10		ug	
		2-Methylnaphthalene	2011/11/19	<0.10		ug	
		3-Methylcholanthrene	2011/11/19	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/19	<0.10		ug	
		9,10-Dimethylantracene	2011/11/19	<0.40		ug	
		Acenaphthene	2011/11/19	<0.050		ug	
		Acenaphthylene	2011/11/19	<0.050		ug	
		Anthracene	2011/11/19	<0.050		ug	
		Benzo(a)anthracene	2011/11/19	<0.050		ug	
		Benzo(a)fluorene	2011/11/19	<0.10		ug	
		Benzo(a)pyrene	2011/11/19	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/19	<0.050		ug	
		Benzo(b)fluorene	2011/11/19	<0.10		ug	
		Benzo(e)pyrene	2011/11/19	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/19	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/19	<0.050		ug	
		Biphenyl	2011/11/19	<0.10		ug	
		Chrysene	2011/11/19	<0.050		ug	
		Coronene	2011/11/19	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/19	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/19	<0.20		ug	
		Fluoranthene	2011/11/19	<0.050		ug	
		Fluorene	2011/11/19	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/19	<0.050		ug	
		m-Terphenyl	2011/11/19	<0.10		ug	
		Naphthalene	2011/11/19	<0.072		ug	
		o-Terphenyl	2011/11/19	<0.10		ug	
		Perylene	2011/11/19	<0.10		ug	
		Phenanthrene	2011/11/19	<0.050		ug	
		p-Terphenyl	2011/11/19	<0.10		ug	
		Pyrene	2011/11/19	<0.050		ug	
		Quinoline	2011/11/19	<0.40		ug	
		Tetralin	2011/11/19	<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: 13-16-62-5 W4M
 Station ID: Lica 33 (Portable)
 Field Sample ID: LICA PUF/PORT/Nov 17, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Nov 16, 2011 @ 09:29 mst
 Removal Date/Time: Nov 18, 2011 @ 10:24 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
17-Nov-11	11/17/2011 0:00	11/18/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Nov-11	18-Nov-11	22-Nov-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)
710	229	-13.0	330.38

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

Comments: COC# 08483

GB1F5095 Puff #2

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08483

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/11/30****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B113784****Received: 2011/11/22, 09:30**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/23	2011/11/28	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B113784
 Report Date: 2011/11/30

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

Maxxam ID		LS2769	LS2770		
Sampling Date		2011/11/17	2011/11/17		
COC Number		08483	08483		
	Units	LICA PUFF+QFF/CLS/NOV 17,11	LICA PUFF+QFF/PORT/NOV 17,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.19	0.10	0.10	2690887
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2690887
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2690887
2-Methylantracene	ug	<0.10	<0.10	0.10	2690887
2-Methylnaphthalene	ug	0.37	0.16	0.10	2690887
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2690887
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2690887
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2690887
Acenaphthene	ug	<0.050	<0.050	0.050	2690887
Acenaphthylene	ug	0.064	<0.050	0.050	2690887
Anthracene	ug	<0.050	<0.050	0.050	2690887
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2690887
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2690887
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2690887
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2690887
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2690887
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2690887
Benzo(g,h,i)perylene	ug	0.050	<0.050	0.050	2690887
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2690887
Biphenyl	ug	0.27	0.22	0.10	2690887
Chrysene	ug	<0.050	<0.050	0.050	2690887
Coronene	ug	<0.10	<0.10	0.10	2690887
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2690887
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2690887
Fluoranthene	ug	0.064	<0.050	0.050	2690887
Fluorene	ug	0.092	0.060	0.050	2690887
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2690887
m-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Naphthalene	ug	0.422	0.256	0.072	2690887
o-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Perylene	ug	<0.10	<0.10	0.10	2690887

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B113784
 Report Date: 2011/11/30

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

Maxxam ID		LS2769	LS2770		
Sampling Date		2011/11/17	2011/11/17		
COC Number		08483	08483		
	Units	LICA PUFF+QFF/CLS/NOV 17,11	LICA PUFF+QFF/PORT/NOV 17,11	RDL	QC Batch
Phenanthrene	ug	0.226	0.112	0.050	2690887
p-Terphenyl	ug	<0.10	<0.10	0.10	2690887
Pyrene	ug	<0.050	<0.050	0.050	2690887
Quinoline	ug	<0.40	<0.40	0.40	2690887
Tetralin	ug	<0.10	<0.10	0.10	2690887
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	86		2690887
D10-Fluoranthene	%	110	104		2690887
D10-Fluorene (FS)	%	69	54		2690887
D10-Phenanthrene	%	100	98		2690887
D12-Benzo(a)anthracene	%	110	108		2690887
D12-Benzo(a)pyrene	%	104	104		2690887
D12-Benzo(b)fluoranthene	%	102	106		2690887
D12-Benzo(ghi)perylene	%	104	104		2690887
D12-Benzo(k)fluoranthene	%	86	86		2690887
D12-Chrysene	%	76	80		2690887
D12-Indeno(1,2,3-cd)pyrene	%	106	104		2690887
D12-Perylene	%	98	96		2690887
D14-Dibenzo(a,h)anthracene	%	104	102		2690887
D14-Terphenyl (FS)	%	103	96		2690887
D8-Acenaphthylene	%	90	94		2690887
D8-Naphthalene	%	82	86		2690887
QC Batch = Quality Control Batch					

Maxxam Job #: B113784
Report Date: 2011/11/30

Test Summary

Maxxam ID LS2769
Sample ID LICA PUFF+QFF/CLS/NOV 17,11
Matrix PUF AND FILTER

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2690887	2011/11/23	2011/11/28	WENDY ZHAO

Maxxam ID LS2770
Sample ID LICA PUFF+QFF/PORT/NOV 17,11
Matrix PUF AND FILTER

Collected 2011/11/17
Shipped
Received 2011/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2690887	2011/11/23	2011/11/28	WENDY ZHAO

Maxxam Job #: B113784
Report Date: 2011/11/30

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: GB113784

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2690887 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/11/28		76	%	50 - 150
		D10-Fluoranthene	2011/11/28		96	%	50 - 150
		D10-Phenanthrene	2011/11/28		88	%	50 - 150
		D12-Benzo(a)anthracene	2011/11/28		104	%	50 - 150
		D12-Benzo(a)pyrene	2011/11/28		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/11/28		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/11/28		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/11/28		90	%	50 - 150
		D12-Chrysene	2011/11/28		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/11/28		100	%	50 - 150
		D12-Perylene	2011/11/28		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/28		98	%	50 - 150
		RPD	D8-Acenaphthylene	2011/11/28		76	%
	D8-Naphthalene		2011/11/28		76	%	50 - 150
	Spiked Blank	Acenaphthene	2011/11/28		70	%	60 - 130
		Acenaphthene	2011/11/28	14.8		%	50
	RPD	Acenaphthylene	2011/11/28		69	%	60 - 130
		Acenaphthylene	2011/11/28	18.1		%	50
	Spiked Blank	Anthracene	2011/11/28		68	%	60 - 130
		Anthracene	2011/11/28	17.1		%	50
	Spiked Blank	Benzo(a)anthracene	2011/11/28		80	%	60 - 130
		Benzo(a)anthracene	2011/11/28	1.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/11/28		72	%	60 - 130
		Benzo(a)pyrene	2011/11/28	3.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/11/28		83	%	60 - 130
		Benzo(b)fluoranthene	2011/11/28	1.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/11/28		83	%	60 - 130
		Benzo(g,h,i)perylene	2011/11/28	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/11/28		78	%	60 - 130
		Benzo(k)fluoranthene	2011/11/28	1.9		%	50
	Spiked Blank	Chrysene	2011/11/28		74	%	60 - 130
		Chrysene	2011/11/28	2.1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/11/28		84	%	60 - 130
		Dibenz(a,h)anthracene	2011/11/28	2.1		%	50
	Spiked Blank	Fluoranthene	2011/11/28		85	%	60 - 130
		Fluoranthene	2011/11/28	10.1		%	50
	Spiked Blank	Fluorene	2011/11/28		72	%	60 - 130
		Fluorene	2011/11/28	14.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/11/28		84	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/11/28	2.6		%	50
Spiked Blank	Naphthalene	2011/11/28		77	%	60 - 130	
	Naphthalene	2011/11/28	13.4		%	50	
Spiked Blank	Phenanthrene	2011/11/28		74	%	60 - 130	
	Phenanthrene	2011/11/28	13.9		%	50	
Spiked Blank	Pyrene	2011/11/28		79	%	60 - 130	
	Pyrene	2011/11/28	10.2		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/11/28		80	%	50 - 150	
	D10-Fluoranthene	2011/11/28		90	%	50 - 150	
	D10-Phenanthrene	2011/11/28		88	%	50 - 150	
	D12-Benzo(a)anthracene	2011/11/28		92	%	50 - 150	
	D12-Benzo(a)pyrene	2011/11/28		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/11/28		98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/11/28		96	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/11/28		80	%	50 - 150	
	D12-Chrysene	2011/11/28		72	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB113784

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2690887 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/11/28		96	%	50 - 150
		D12-Perylene	2011/11/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/11/28		94	%	50 - 150
		D8-Acenaphthylene	2011/11/28		84	%	50 - 150
		D8-Naphthalene	2011/11/28		80	%	50 - 150
		1-Methylnaphthalene	2011/11/28	<0.10		ug	
		1-Methylphenanthrene	2011/11/28	<0.10		ug	
		2-Chloronaphthalene	2011/11/28	<0.10		ug	
		2-Methylanthracene	2011/11/28	<0.10		ug	
		2-Methylnaphthalene	2011/11/28	<0.10		ug	
		3-Methylcholanthrene	2011/11/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/11/28	<0.10		ug	
		9,10-Dimethylanthracene	2011/11/28	<0.40		ug	
		Acenaphthene	2011/11/28	<0.050		ug	
		Acenaphthylene	2011/11/28	<0.050		ug	
		Anthracene	2011/11/28	<0.050		ug	
		Benzo(a)anthracene	2011/11/28	<0.050		ug	
		Benzo(a)fluorene	2011/11/28	<0.10		ug	
		Benzo(a)pyrene	2011/11/28	<0.050		ug	
		Benzo(b)fluoranthene	2011/11/28	<0.050		ug	
		Benzo(b)fluorene	2011/11/28	<0.10		ug	
		Benzo(e)pyrene	2011/11/28	<0.10		ug	
		Benzo(g,h,i)perylene	2011/11/28	<0.050		ug	
		Benzo(k)fluoranthene	2011/11/28	<0.050		ug	
		Biphenyl	2011/11/28	<0.10		ug	
		Chrysene	2011/11/28	<0.050		ug	
		Coronene	2011/11/28	<0.10		ug	
		Dibenz(a,h)anthracene	2011/11/28	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/11/28	<0.20		ug	
		Fluoranthene	2011/11/28	<0.050		ug	
		Fluorene	2011/11/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/11/28	<0.050		ug	
		m-Terphenyl	2011/11/28	<0.10		ug	
		Naphthalene	2011/11/28	<0.072		ug	
		o-Terphenyl	2011/11/28	<0.10		ug	
		Perylene	2011/11/28	<0.10		ug	
		Phenanthrene	2011/11/28	<0.050		ug	
		p-Terphenyl	2011/11/28	<0.10		ug	
		Pyrene	2011/11/28	<0.050		ug	
		Quinoline	2011/11/28	<0.40		ug	
		Tetralin	2011/11/28	<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: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Nov 23, 11

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 22, 2011 @ 10:50 mst
Removal Date/Time: Nov 24, 2011 @ 10:21 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
23-Nov-11	11/23/2011 0:00	11/24/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
18-Nov-11	24-Nov-11	30-Nov-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)
698	229	-4.0	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# 08356

GB1F5097 Puff #2

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

Technician Signiture: Ting Xu

Your C.O.C. #: 08356

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/12/05****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1I6646****Received: 2011/11/26, 10:24**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/11/30	2011/12/01	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.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B116646
 Report Date: 2011/12/05

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

Maxxam ID		LT7184		LT7185		
Sampling Date		2011/11/23		2011/11/23		
COC Number		08356		08356		
	Units	LICA PUFF+QFF/CLS/NOV 23,11	RDL	LICA PUFF+QFF/PORT/NOV 23,11	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.21	0.10	0.12	0.10	2697821
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2697821
2-Methylnaphthalene	ug	0.49	0.10	0.18	0.10	2697821
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2697821
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2697821
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2697821
Acenaphthene	ug	<0.12	0.12	<0.050	0.050	2697821
Acenaphthylene	ug	0.206	0.050	<0.050	0.050	2697821
Anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2697821
Benzo(b)fluoranthene	ug	0.084	0.050	0.062	0.050	2697821
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2697821
Benzo(g,h,i)perylene	ug	0.060	0.050	<0.050	0.050	2697821
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2697821
Biphenyl	ug	0.51	0.10	0.45	0.10	2697821
Chrysene	ug	0.052	0.050	<0.050	0.050	2697821
Coronene	ug	<0.10	0.10	<0.10	0.10	2697821
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2697821
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2697821
Fluoranthene	ug	0.182	0.050	0.134	0.050	2697821
Fluorene	ug	0.454	0.050	0.362	0.050	2697821
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2697821
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Naphthalene	ug	0.566	0.072	0.336	0.072	2697821
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Perylene	ug	<0.10	0.10	<0.10	0.10	2697821

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B116646
 Report Date: 2011/12/05

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

Maxxam ID		LT7184		LT7185		
Sampling Date		2011/11/23		2011/11/23		
COC Number		08356		08356		
	Units	LICA PUFF+QFF/CLS/NOV 23,11	RDL	LICA PUFF+QFF/PORT/NOV 23,11	RDL	QC Batch

Phenanthrene	ug	0.700	0.050	0.538	0.050	2697821
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2697821
Pyrene	ug	0.156	0.050	0.074	0.050	2697821
Quinoline	ug	<0.40	0.40	<0.40	0.40	2697821
Tetralin	ug	<0.10	0.10	<0.10	0.10	2697821
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	84		78		2697821
D10-Fluoranthene	%	100		102		2697821
D10-Fluorene (FS)	%	25 (1)		15 (1)		2697821
D10-Phenanthrene	%	96		96		2697821
D12-Benzo(a)anthracene	%	104		102		2697821
D12-Benzo(a)pyrene	%	96		96		2697821
D12-Benzo(b)fluoranthene	%	96		96		2697821
D12-Benzo(ghi)perylene	%	98		100		2697821
D12-Benzo(k)fluoranthene	%	88		88		2697821
D12-Chrysene	%	80		80		2697821
D12-Indeno(1,2,3-cd)pyrene	%	98		100		2697821
D12-Perylene	%	92		92		2697821
D14-Dibenzo(a,h)anthracene	%	96		98		2697821
D14-Terphenyl (FS)	%	91		87		2697821
D8-Acenaphthylene	%	90		88		2697821
D8-Naphthalene	%	84		76		2697821

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 #: B116646
Report Date: 2011/12/05

Test Summary

Maxxam ID LT7184
Sample ID LICA PUFF+QFF/CLS/NOV 23,11
Matrix PUF AND FILTER

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2697821	2011/11/30	2011/12/01	JIE WU

Maxxam ID LT7185
Sample ID LICA PUFF+QFF/PORT/NOV 23,11
Matrix PUF AND FILTER

Collected 2011/11/23
Shipped
Received 2011/11/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2697821	2011/11/30	2011/12/01	JIE WU

Maxxam Job #: B116646
Report Date: 2011/12/05

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.

Naphthalene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

Internal Std area response criteria was high in Blank.

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 LT7184-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Mdl raised further for acenaphthene due to matrix interference on a possible positive.

Sample LT7185-01: 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: GB116646

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697821 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/01		88	%	50 - 150
		D10-Fluoranthene	2011/12/01		86	%	50 - 150
		D10-Phenanthrene	2011/12/01		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/01		88	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/01		88	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/01		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/01		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/01		88	%	50 - 150
		D12-Chrysene	2011/12/01		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/12/01		90	%	50 - 150
		D12-Perylene	2011/12/01		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/01		90	%	50 - 150
		D8-Acenaphthylene	2011/12/01		90	%	50 - 150
		D8-Naphthalene	2011/12/01		90	%	50 - 150
		Acenaphthene	2011/12/01		81	%	60 - 130
	RPD	Acenaphthene	2011/12/01	1.8		%	50
	Spiked Blank	Acenaphthylene	2011/12/01		81	%	60 - 130
	RPD	Acenaphthylene	2011/12/01	3.6		%	50
	Spiked Blank	Anthracene	2011/12/01		72	%	60 - 130
	RPD	Anthracene	2011/12/01	12.7		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/01		72	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/01	4.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/01		67	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/01	7.9		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/01		78	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/01	6.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/01		74	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/01	5.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/01		78	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/01	0.6		%	50
	Spiked Blank	Chrysene	2011/12/01		77	%	60 - 130
	RPD	Chrysene	2011/12/01	6.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/01		72	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/01	9.6		%	50
	Spiked Blank	Fluoranthene	2011/12/01		76	%	60 - 130
	RPD	Fluoranthene	2011/12/01	15.2		%	50
	Spiked Blank	Fluorene	2011/12/01		79	%	60 - 130
	RPD	Fluorene	2011/12/01	6.5		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/01		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/01	8.1		%	50
	Spiked Blank	Naphthalene	2011/12/01		96	%	60 - 130
	RPD	Naphthalene	2011/12/01	2.9		%	50
	Spiked Blank	Phenanthrene	2011/12/01		72	%	60 - 130
	RPD	Phenanthrene	2011/12/01	13.0		%	50
	Spiked Blank	Pyrene	2011/12/01		71	%	60 - 130
	RPD	Pyrene	2011/12/01	15.9		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/01		76	%	50 - 150
		D10-Fluoranthene	2011/12/01		106	%	50 - 150
		D10-Phenanthrene	2011/12/01		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/01		94	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/01		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/01		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/01		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/01		88	%	50 - 150
		D12-Chrysene	2011/12/01		76	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB116646

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2697821 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/01		100	%	50 - 150
		D12-Perylene	2011/12/01		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/01		98	%	50 - 150
		D8-Acenaphthylene	2011/12/01		86	%	50 - 150
		D8-Naphthalene	2011/12/01		74	%	50 - 150
		1-Methylnaphthalene	2011/12/01	<0.10		ug	
		1-Methylphenanthrene	2011/12/01	<0.10		ug	
		2-Chloronaphthalene	2011/12/01	<0.10		ug	
		2-Methylantracene	2011/12/01	<0.10		ug	
		2-Methylnaphthalene	2011/12/01	<0.10		ug	
		3-Methylcholanthrene	2011/12/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/12/01	<0.10		ug	
		9,10-Dimethylantracene	2011/12/01	<0.40		ug	
		Acenaphthene	2011/12/01	<0.050		ug	
		Acenaphthylene	2011/12/01	<0.050		ug	
		Anthracene	2011/12/01	<0.050		ug	
		Benzo(a)anthracene	2011/12/01	<0.050		ug	
		Benzo(a)fluorene	2011/12/01	<0.10		ug	
		Benzo(a)pyrene	2011/12/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/12/01	<0.050		ug	
		Benzo(b)fluorene	2011/12/01	<0.10		ug	
		Benzo(e)pyrene	2011/12/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/12/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/12/01	<0.050		ug	
		Biphenyl	2011/12/01	<0.10		ug	
		Chrysene	2011/12/01	<0.050		ug	
		Coronene	2011/12/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/12/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/12/01	<0.20		ug	
		Fluoranthene	2011/12/01	<0.050		ug	
		Fluorene	2011/12/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/12/01	<0.050		ug	
		m-Terphenyl	2011/12/01	<0.10		ug	
		Naphthalene	2011/12/01	0.072, RDL=0.072		ug	
		o-Terphenyl	2011/12/01	<0.10		ug	
		Perylene	2011/12/01	<0.10		ug	
		Phenanthrene	2011/12/01	<0.050		ug	
		p-Terphenyl	2011/12/01	<0.10		ug	
		Pyrene	2011/12/01	<0.050		ug	
		Quinoline	2011/12/01	<0.40		ug	
		Tetralin	2011/12/01	<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: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Nov 29, 11

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Nov 28, 2011 @ 09:49 mst
Removal Date/Time: Dec 01, 2011 @ 9:57 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
29-Nov-11	11/29/2011 0:00	11/30/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Nov-11	30-Nov-11	06-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)
710	229	-2.4	330.35

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

Comments: COC# 08931

GB1F5098 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Nov 29, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 08931

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

Report Date: 2011/12/15

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1J0840****Received: 2011/12/03, 09:50**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/12/06	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=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1J0840
 Report Date: 2011/12/15

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

Maxxam ID		LW0880	LW0881		
Sampling Date		2011/11/29	2011/11/29		
COC Number		08931	08931		
	Units	LICA PUFF+QFF/CLS/NOV 29,11	LICA PUFF+QFF/PORT/NOV 29,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	1.78	0.29	0.10	2703882
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2703882
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2703882
2-Methylantracene	ug	<0.10	<0.10	0.10	2703882
2-Methylnaphthalene	ug	3.44	0.50	0.10	2703882
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2703882
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2703882
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2703882
Acenaphthene	ug	0.220	0.076	0.050	2703882
Acenaphthylene	ug	0.486	0.080	0.050	2703882
Anthracene	ug	<0.050	<0.050	0.050	2703882
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2703882
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2703882
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2703882
Benzo(b)fluoranthene	ug	0.072	<0.050	0.050	2703882
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2703882
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2703882
Benzo(g,h,i)perylene	ug	0.068	0.052	0.050	2703882
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2703882
Biphenyl	ug	0.80	0.41	0.10	2703882
Chrysene	ug	<0.050	<0.050	0.050	2703882
Coronene	ug	<0.10	<0.10	0.10	2703882
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2703882
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2703882
Fluoranthene	ug	0.120	0.114	0.050	2703882
Fluorene	ug	0.370	0.250	0.050	2703882
Indeno(1,2,3-cd)pyrene	ug	0.058	<0.050	0.050	2703882
m-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Naphthalene	ug	2.84	0.632	0.072	2703882
o-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Perylene	ug	<0.10	<0.10	0.10	2703882

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J0840
 Report Date: 2011/12/15

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

Maxxam ID		LW0880	LW0881		
Sampling Date		2011/11/29	2011/11/29		
COC Number		08931	08931		
	Units	LICA PUFF+QFF/CLS/NOV 29,11	LICA PUFF+QFF/PORT/NOV 29,11	RDL	QC Batch

Phenanthrene	ug	0.528	0.458	0.050	2703882
p-Terphenyl	ug	<0.10	<0.10	0.10	2703882
Pyrene	ug	0.088	0.066	0.050	2703882
Quinoline	ug	<0.40	<0.40	0.40	2703882
Tetralin	ug	0.15	<0.10	0.10	2703882
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	88		2703882
D10-Fluoranthene	%	94	96		2703882
D10-Fluorene (FS)	%	24 (1)	23 (1)		2703882
D10-Phenanthrene	%	92	96		2703882
D12-Benzo(a)anthracene	%	102	104		2703882
D12-Benzo(a)pyrene	%	100	98		2703882
D12-Benzo(b)fluoranthene	%	102	102		2703882
D12-Benzo(ghi)perylene	%	94	94		2703882
D12-Benzo(k)fluoranthene	%	86	88		2703882
D12-Chrysene	%	88	88		2703882
D12-Indeno(1,2,3-cd)pyrene	%	94	94		2703882
D12-Perylene	%	88	88		2703882
D14-Dibenzo(a,h)anthracene	%	92	94		2703882
D14-Terphenyl (FS)	%	89	88		2703882
D8-Acenaphthylene	%	88	92		2703882
D8-Naphthalene	%	82	88		2703882

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 #: B1J0840
 Report Date: 2011/12/15

Test Summary

Maxxam ID LW0880
Sample ID LICA PUFF+QFF/CLS/NOV 29,11
Matrix PUF AND FILTER

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2703882	2011/12/06	2011/12/13	JIE WU

Maxxam ID LW0881
Sample ID LICA PUFF+QFF/PORT/NOV 29,11
Matrix PUF AND FILTER

Collected 2011/11/29
Shipped
Received 2011/12/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2703882	2011/12/06	2011/12/13	JIE WU

Maxxam Job #: B1J0840
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.

Naphthalene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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 LW0880-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample LW0881-01: 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: GB1J0840

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2703882 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/12/13		88	%	50 - 150
		D10-Fluoranthene	2011/12/13		94	%	50 - 150
		D10-Phenanthrene	2011/12/13		98	%	50 - 150
		D12-Benzo(a)anthracene	2011/12/13		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/12/13		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		98	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		90	%	50 - 150
		D12-Chrysene	2011/12/13		94	%	50 - 150
		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		96	%	50 - 150
		D8-Acenaphthylene	2011/12/13		92	%	50 - 150
		D8-Naphthalene	2011/12/13		86	%	50 - 150
		Acenaphthene	2011/12/13		81	%	60 - 130
	RPD	Acenaphthene	2011/12/13	1.5		%	50
	Spiked Blank	Acenaphthylene	2011/12/13		84	%	60 - 130
	RPD	Acenaphthylene	2011/12/13	0.6		%	50
	Spiked Blank	Anthracene	2011/12/13		82	%	60 - 130
	RPD	Anthracene	2011/12/13	0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/12/13		81	%	60 - 130
	RPD	Benzo(a)anthracene	2011/12/13	1.5		%	50
	Spiked Blank	Benzo(a)pyrene	2011/12/13		77	%	60 - 130
	RPD	Benzo(a)pyrene	2011/12/13	1.6		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/12/13		85	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/12/13	3.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/12/13		86	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/12/13	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/12/13		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/12/13	2.0		%	50
	Spiked Blank	Chrysene	2011/12/13		84	%	60 - 130
	RPD	Chrysene	2011/12/13	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/12/13		87	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/12/13	1.7		%	50
	Spiked Blank	Fluoranthene	2011/12/13		86	%	60 - 130
	RPD	Fluoranthene	2011/12/13	2.3		%	50
	Spiked Blank	Fluorene	2011/12/13		84	%	60 - 130
	RPD	Fluorene	2011/12/13	0.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/12/13		87	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/12/13	1.4		%	50
	Spiked Blank	Naphthalene	2011/12/13		88	%	60 - 130
	RPD	Naphthalene	2011/12/13	6.1		%	50
	Spiked Blank	Phenanthrene	2011/12/13		86	%	60 - 130
	RPD	Phenanthrene	2011/12/13	0.3		%	50
	Spiked Blank	Pyrene	2011/12/13		87	%	60 - 130
	RPD	Pyrene	2011/12/13	0.9		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/12/13		88	%	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		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/12/13		100	%	50 - 150
		D12-Benzo(ghi)perylene	2011/12/13		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/12/13		90	%	50 - 150
		D12-Chrysene	2011/12/13		86	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1J0840

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2703882 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/12/13		94	%	50 - 150
		D12-Perylene	2011/12/13		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/12/13		94	%	50 - 150
		D8-Acenaphthylene	2011/12/13		94	%	50 - 150
		D8-Naphthalene	2011/12/13		88	%	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	0.138, RDL=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
November 2011

Prepared By:



December 20, 2011

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

Table of Contents

	Page		Page
Introduction	3		
Calibration Procedure	4	Calibration Reports	99
Monthly Continuous Summary	5	• Sulphur Dioxide	100
General Monthly Summary	6	• Hydrogen Sulphide	106
Continuous Monitoring	10	• Total Hydrocarbons	114
• Monthly Summaries, Graphs & Wind Roses	11	• Nitrogen Dioxide	117
• Air Quality Index	12	• Ozone	121
• Sulphur Dioxide	14	• Particulate Matter 2.5	124
• Hydrogen Sulphide	22		
• Total Hydrocarbons	30		
• Ozone	38		
• Nitrogen Dioxide	46		
• Nitric Oxide	54		
• Oxides of Nitrogen	61		
• Particulate Matter 2.5	69		
• Temperature	74		
• Barometric Pressure	77		
• Relative Humidity	80		
• Precipitation	83		
• Vector Wind Speed	86		
• Vector Wind Direction	93		
• Standard Deviation Wind Direction	96		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

Lakeland Industry & Community Association

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: November 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 – November 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	0.18	4	2	15	11.6	149(SSE)	1.2	2	99.7
H2S (PPB)	10	3	0	0	0.11	1	VAR	VAR	VAR	VAR	1.0	21	99.6
THC (PPM)	-	-	-	-	2.17	4.1	16	18	10.3	89(E)	3.0	21	99.9
OZONE (PPB)	82	-	0	-	22.4	40	27	16, 17	14, 13.1	244(WSW), 268(W)	30.4	1	100.0
NOx (PPB)	-	-	-	-	3.02	14	20	17	11.2	356(N)	8.2	22	99.9
NO (PPB)	-	-	-	-	0.54	5	21	10	13.9	88(E)	1.7	7	99.9
NO2 (PPB)	159	-	0	-	2.61	14	20	17	11.2	356(N)	7.6	22	99.9
PM2.5 (ug/m3)	-	30	-	0	5.94	23.4	20	17	11.2	356(N)	12.7	21	99.7
TEMPERATURE (DEGREE C)	-	-	-	-	-5.65	8.7	27	13	22.6	276(W)	3.8	27	100.0
BP (MILLIBAR)	-	-	-	-	920	943	30	VAR	VAR	VAR	937.5	30	100.0
RH (%)	-	-	-	-	70.31	90	11, 12	VAR	VAR	VAR	88.3	12	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	1.8	27	10	10.9	257(WSW)	7.7	27	100.0
VECTOR WS (KPH)	-	-	-	-	10.48	22.6	27	13	-	276(W)	12.0	28	100.0
VECTOR WD (DEGREES)	-	-	-	-	348(NNW)	-	-	-	-	-	-	-	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 November 9th. The permeation tube was changed following the as found points on November 16th. Also, the orifice was cleaned, the UV lamp was peaked, and a factory calibration was done on the same day. The expected span value was changed after the perm tube was stabilized on November 22nd. A post-repair calibration was then performed. Hourly maximum concentration on November 12th at hour 13 was invalidated due to a small power outage. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

Analyzer make / model - API 101E, S/N: 510

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on November 8th. The scrubber material and the permeation tube were changed following the as found points on November 16th. Also, the orifice was cleaned, a factory calibration was done, and the charcoal for the daily calibration system was replaced on the same day. A post-repair calibration was then performed. Hourly maximum concentration on November 12th at hour 13 was invalidated due to a small power outage. Some daily span results went below –10% of the limited range due to the perm tube stabilization. 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. The inlet filter was changed before the monthly calibration was started. Hourly maximum concentration on November 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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started. Hourly maximum concentration on November 12th at hour 13 was invalidated due to a small power outage. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

Analyzer make / model - API 200E, S/N: 592

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started. Hourly maximum concentration on November 12th at hour 13 was invalidated due to a small power outage. 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 was performed on November 8th. Following the audit, the Teom filter and FDMS filter were replaced. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. Two hours of data were invalidated as the data were above –3 ug/m³.

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 November 9th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values recorded in November 2011 were within the Good range. The highest hourly concentration of Ozone was 40 ppb and an AQI value of 20, on November 27th, hour of 15 and 16. The highest hourly concentration of PM2.5 was 23.4 ug/m3 and an AQI value of 20, on November 20th, hour of 17.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

AIR QUALITY INDEX (AQI)

MST	HOUR																								DAILY	
	START	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	16	17	16	16	16	16	15	15	15	15	15	15	16	17	17	17	16	16	15	15	14	13	-	12	17	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3
1	12	12	11	10	9	9	8	7	8	9	10	13	14	15	14	12	11	10	10	10	10	10	-	11	11	15
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3
2	11	10	10	10	10	10	10	10	10	10	10	11	13	14	13	14	16	15	15	13	10	-	10	10	10	16
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3
3	11	11	12	12	12	12	12	13	13	13	13	12	12	12	12	13	12	11	11	-	9	8	8	8	13	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	
4	7	7	6	6	7	6	7	8	8	9	10	9	10	11	12	11	11	11	-	11	11	10	11	11	12	
	O3	O3	O3	O3	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	
5	10	11	13	13	10	14	13	14	15	18	16	16	14	16	15	13	11	-	11	12	10	10	11	13	18	
	O3	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	NA	O3	O3	PM2	PM2	PM2	PM2	PM2	
6	14	16	17	18	17	14	11	15	17	13	11	12	9	11	13	16	-	16	14	14	13	11	9	9	18	
	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	PM2	
7	8	7	8	10	11	12	12	13	14	-	-	-	-	-	-	-	-	17	16	15	15	16	16	16	17	
	O3	PM2	PM2	PM2	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	
8	15	14	14	14	14	14	14	14	14	14	-	-	-	-	-	-	-	14	12	13	13	12	13	14	13	15
	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3
9	14	13	12	11	10	10	9	9	8	8	8	8	8	8	8	13	14	14	14	12	13	13	13	13	12	14
	O3	O3	O3	O3	O3	O3	O3	O3	PM2	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3
10	11	9	9	9	11	12	12	12	14	14	10	-	13	12	10	10	5	6	5	4	4	5	5	5	14	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
11	7	9	9	9	8	9	9	9	9	9	9	9	11	13	12	12	11	11	10	9	9	9	9	8	13	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
12	7	7	6	7	5	7	7	8	9	11	-	13	13	13	14	13	13	13	13	13	13	14	14	13	14	
	O3	O3	O3	PM2	O3	PM2	PM2	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
13	13	13	13	13	13	13	12	12	12	-	12	13	13	13	13	13	13	13	13	13	12	12	12	13	13	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
14	12	12	12	11	12	12	12	12	-	11	12	12	12	13	13	13	14	13	13	13	13	13	12	12	14	
	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
15	9	9	10	11	10	10	11	10	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	
	O3	O3	PM2	PM2	O3	NA	O3	O3	O3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	O3	O3	PM2	
16	13	14	14	13	12	12	-	13	13	13	13	14	13	13	13	13	14	13	13	13	13	13	13	13	14	
	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
17	14	14	14	14	14	-	15	15	15	15	16	15	15	15	15	15	14	14	14	14	14	14	14	14	16	
	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
18	14	14	14	14	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	15	
	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
19	14	14	14	-	13	12	12	11	11	11	11	10	10	11	12	13	20	18	17	18	14	14	14	14	15	
	O3	O3	O3	NA	O3	O3	O3	O3	PM2	O3	O3	PM2	O3	O3	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	
20	16	13	-	12	12	10	12	13	12	12	10	14	17	12	9	10	10	6	6	7	7	10	7	7	17	
	PM2	PM2	NA	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	
21	12	-	12	15	15	15	13	14	13	13	13	10	10	9	9	8	12	11	10	11	12	12	11	10	15	
	PM2	NA	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	PM2	
22	-	15	17	16	16	13	14	14	13	12	10	11	11	12	12	12	12	12	13	12	11	11	11	-	17	
	NA	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	PM2	
23	11	11	11	11	11	9	10	9	9	10	11	12	12	11	10	10	10	12	12	12	12	12	12	-	12	13
	O3	O3	O3	O3	O3	O3	O3	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	PM2	
24	11	12	12	11	12	13	14	14	13	14	12	12	12	13	15	16	17	18	18	17	17	-	17	17	18	
	O3	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	
25	17	16	16	16	15	14	13	13	14	14	14	14	15	-	13	13	12	12	12	11	-	11	11	12	17	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	
26	12	13	13	13	13	14	14	14	14	13	13	13	14	14	16	20	20	19	-	17	16	15	15	20		
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	
27	15	15	15	15	15	15	15	15	14	13	13	14	13	12	13	13	13	13	12	-	11	11	11	10	15	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	
28	10	10	9	9	9	9	12	9	11	13	14	16	16	17	17	17	17	-	14	13	12	13	15	16	17	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	
29	15	13	12	8	11	11	11	11	11	11	11	10	11	12	12	12	-	12	12	11	12	12	11	9	15	
	O3	O3	O3	O3	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	
30	17	17	17	18	17	16	15	15	17	18	16	16	17	17	17	20	20	20	19	17	18	16	17	17		
	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	
PEAK																										

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	%	
VERY POOR (101-255)	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%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	0.0%
GOOD (1-25)	553	76.8%	20	15,16	27													

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
NOVEMBER 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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.		
DAY 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	24
2	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	4	2	1	1	1	1	1	1	0	0	4	1.2	24		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
6	0	0	0	0	0	0	0	0	0	1	1	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	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
9	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	1	1	0.1	24	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.6	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0.3	24	
13	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	22		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	24		
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
29	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX	1	1	1	1	2	1	1	2	1	1	1	2	2	1	1	4	2	1	1	1	1	1	1	1	1	1				
HOURLY AVG	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	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

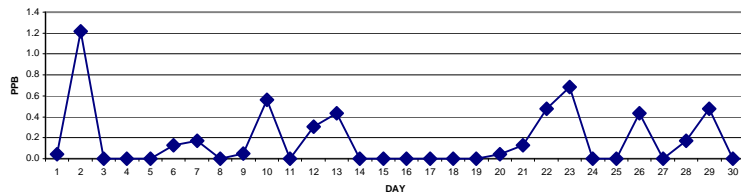
OBJECTIVE LIMIT:

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

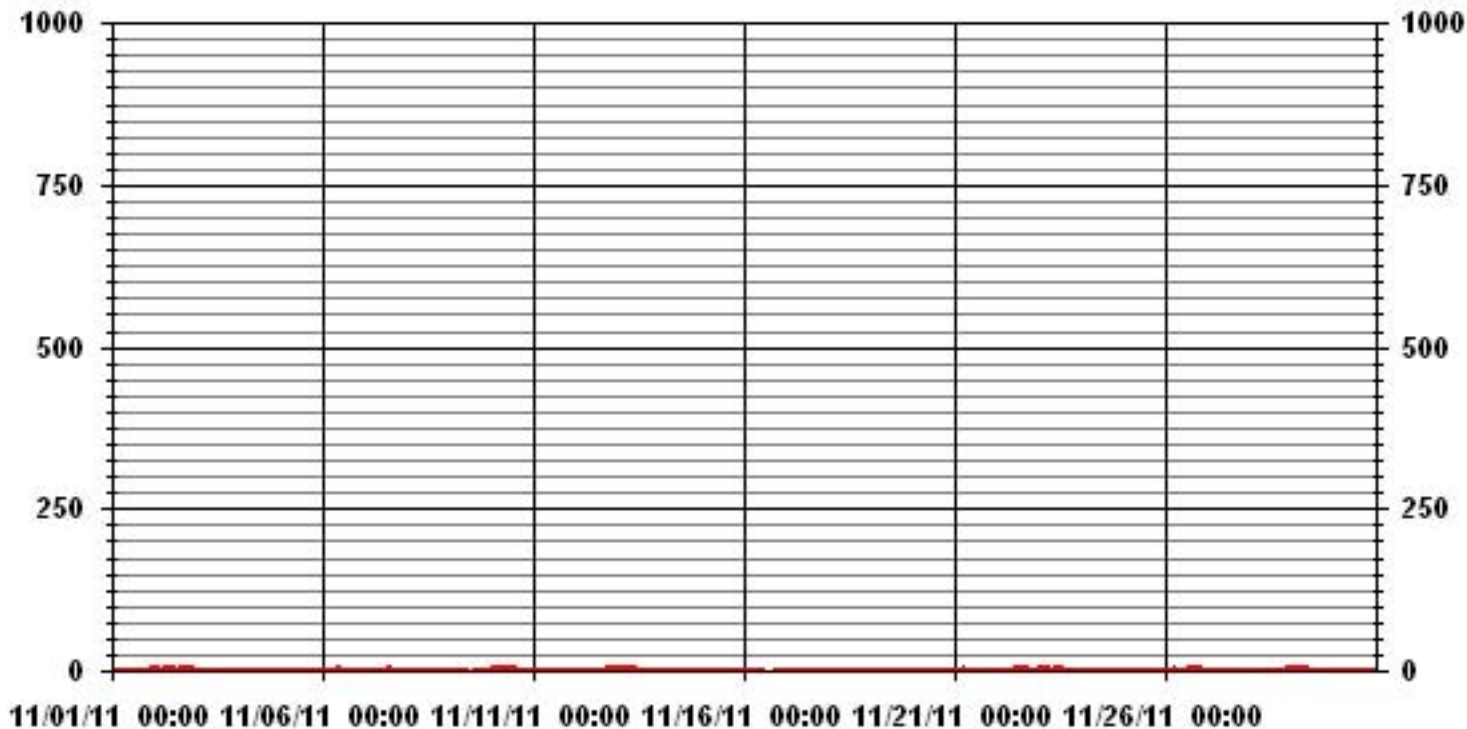
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	114
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) 15 ON DAY(S) 2
MAXIMUM 24-HR AVERAGE:	1.2 PPB ON DAY(S) 2
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	10 HRS
STANDARD DEVIATION:	0.42
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	0.18 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA31 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

NOVEMBER 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		
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		1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1	IZS	2	2	0.5	24		
2		2	1	1	2	2	2	2	1	2	1	2	3	3	2	5	6	3	2	2	2	2	IZS	1	1	6	2.2	24	
3		0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	IZS	0	0	0	1	0.6	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	1	0	1	0.1	24
5		0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	IZS	0	0	0	0	0	0	1	0.2	24
6		0	0	0	0	0	1	0	1	1	2	1	1	1	1	1	0	0	IZS	0	0	1	1	1	1	1	2	0.6	24
7		1	0	0	0	0	0	0	0	0	1	1	1	2	1	2	1	IZS	0	0	0	0	0	0	0	0	2	0.4	24
8		0	0	0	1	1	0	0	0	0	P	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.1	23
9		0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	1	1	1	1	1	0.2	24
10		1	1	1	1	1	1	1	1	1	1	2	2	2	2	IZS	0	1	0	0	0	0	0	0	0	0	2	0.7	24
11		0	0	0	0	0	0	1	1	1	1	1	1	M	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0.7	23
12		1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
13		2	1	2	2	2	2	2	2	2	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24
14		0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15		0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16		0	0	0	0	0	0	0	IZS	1	1	1	C	M	M	C	C	C	C	C	C	C	1	1	1	1	1	0.5	22
17		1	1	1	1	1	1	IZS	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.3	24
18		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
19		1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20		1	1	1	1	IZS	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
21		1	1	IZS	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24
22		1	IZS	1	1	2	2	1	1	1	1	1	1	2	2	2	2	1	2	1	1	1	1	1	1	1	2	1.3	24
23		IZS	2	2	1	2	2	2	3	3	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	IZS	3	1.6	24
24		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24
25		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	IZS	1	1	1	0.8	24	
26		1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	IZS	1	1	1	2	1.4	24
27		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	1	1.0	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	IZS	1	1	2	1	1	2	0.3	24	
29		2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	2	1.2	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	1	0.1	24	
HOURLY MAX		2	2	2	2	2	2	3	3	2	2	3	3	2	5	6	3	2	2	2	2	2	2	1	2				
HOURLY AVG		0.7	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.9	0.8	0.9	0.8	1.0	0.8	0.7	0.5	0.5	0.5	0.6	0.6	0.6	0.6				

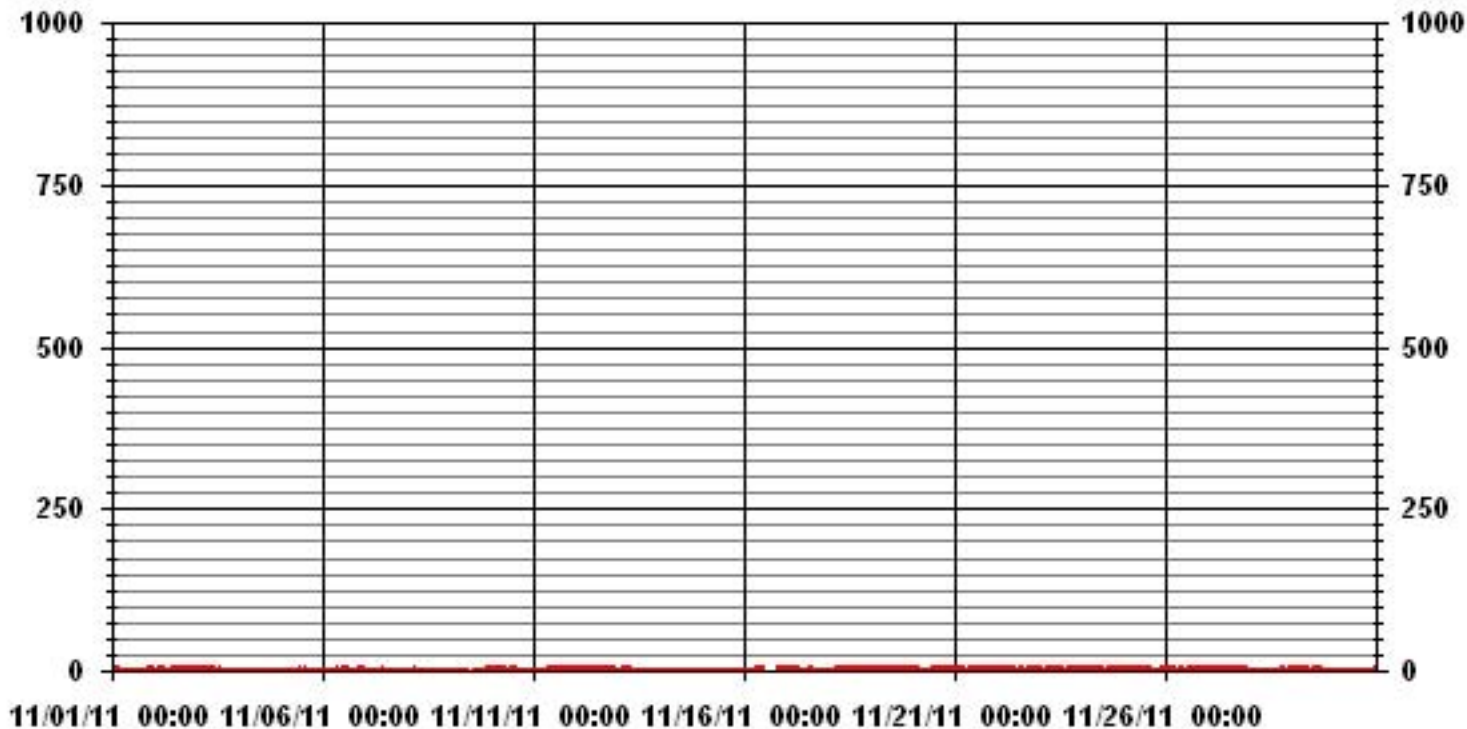
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	393
MAXIMUM INSTANTANEOUS VALUE:	6 PPB @ HOUR(S) 15 ON DAY(S) 2
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	0.73
OPERATIONAL TIME:	716 HRS

01 Hour Averages



LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

November 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	10.32	7.52	8.70	7.81	6.34	3.83	3.68	2.50	2.06	2.65	6.19	5.75	5.75	5.60	10.76	10.47	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	10.32	7.52	8.70	7.81	6.34	3.83	3.68	2.50	2.06	2.65	6.19	5.75	5.75	5.60	10.76	10.47	

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	70	51	59	53	43	26	25	17	14	18	42	39	39	38	73	71	678
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	70	51	59	53	43	26	25	17	14	18	42	39	39	38	73	71	

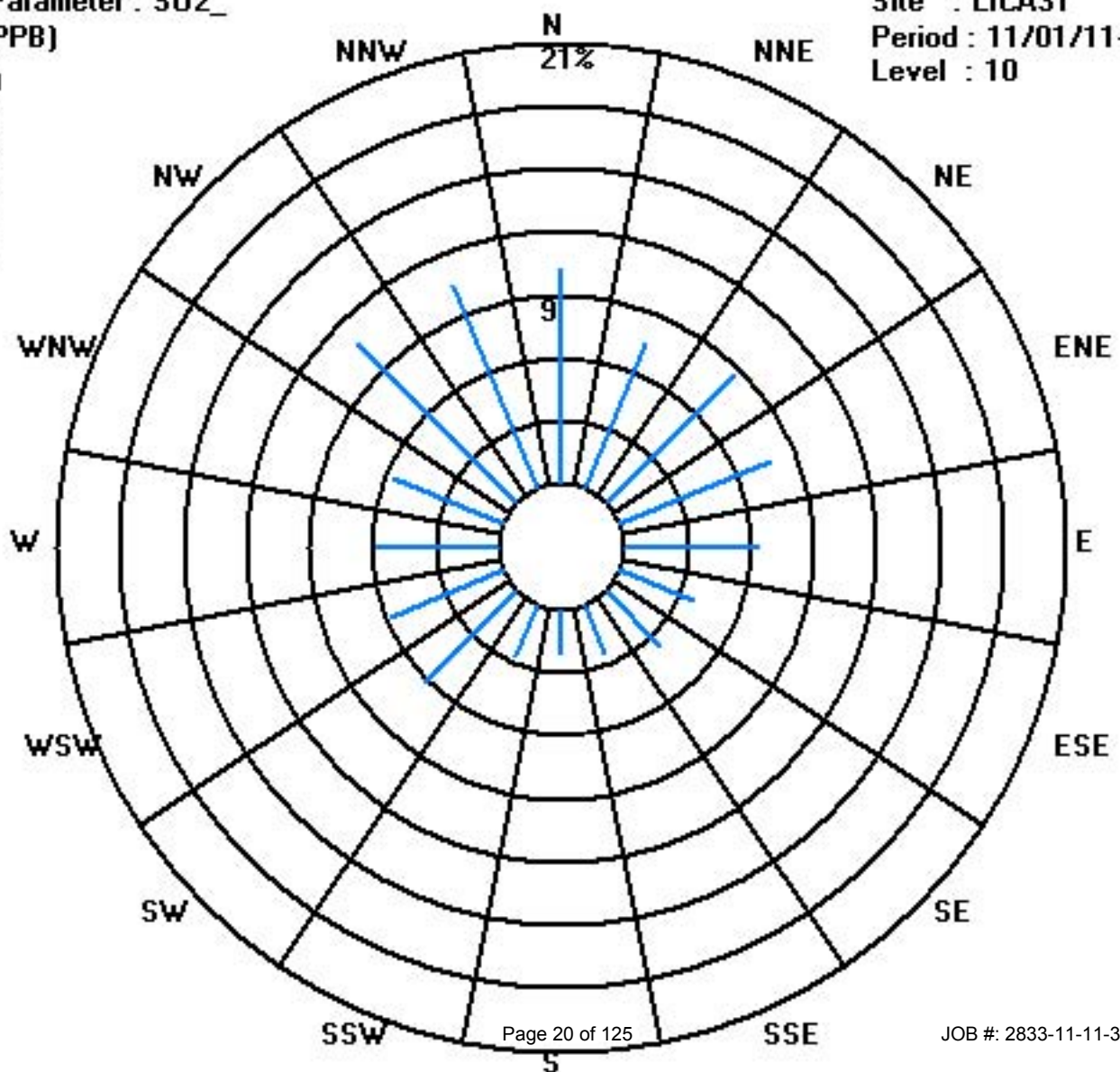
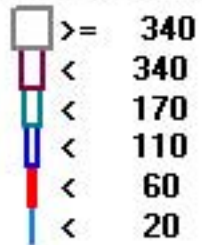
Calm : .00 %

Total # Operational Hours : 678

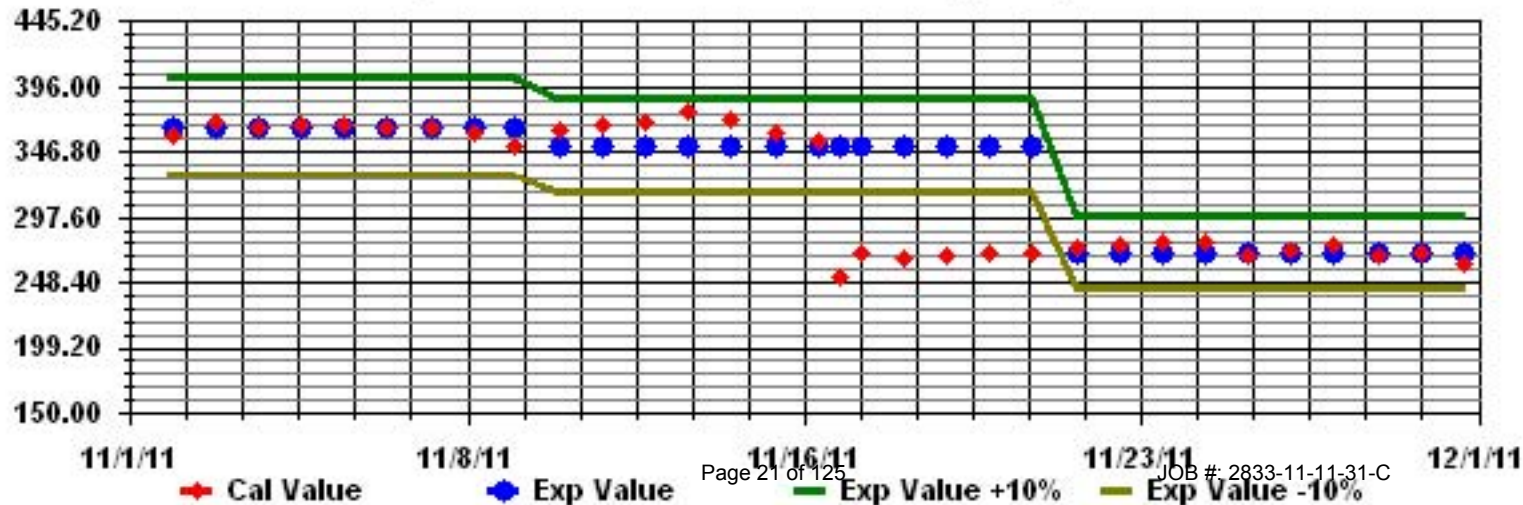
Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: S02_ Sequence: S02 Phase: SPAll



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	RDGS.	
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.		
DAY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	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	C	C	C	C	1	IZS	0	0	0	0	0	0	0	0	0	1	0.1	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	IZS	0	0	0	0	0	0	0	0	1	1	1	0.1	23
10	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	1	0.6	24
11	0	0	0	0	0	0	1	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	1	1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
14	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	0.0	24
15	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
16	0	0	0	0	0	0	0	0	IZS	0	0	0	C	M	M	C	C	C	C	C	0	0	0	0	0	0	0	0.0	22
17	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
18	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24	
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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0.1	24	
21	1	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
22	1	IZS	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.4	24
23	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	1	0.2	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	C	C	0	0	0	0	C	C	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	1	1	1	1	1	1	1	1	1	1	0	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	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			
HOURLY AVG		0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1			

STATUS FLAG CODES

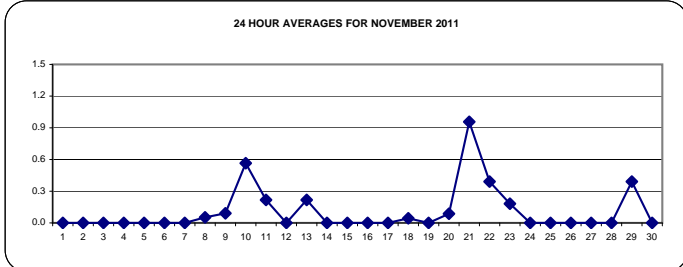
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

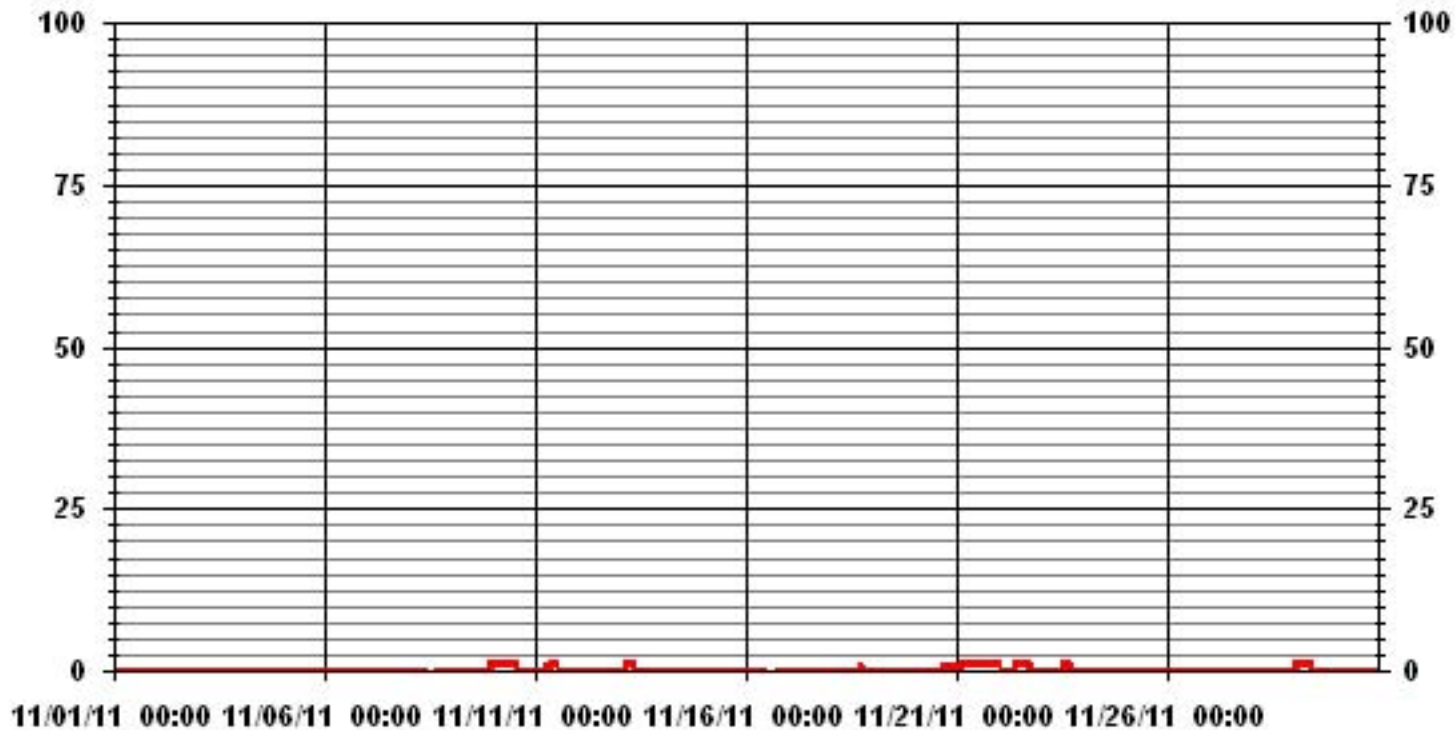
ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
----------------------	------	----	-----	-------	---	-----

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	73					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	21
				VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	13	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:	0.11	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

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

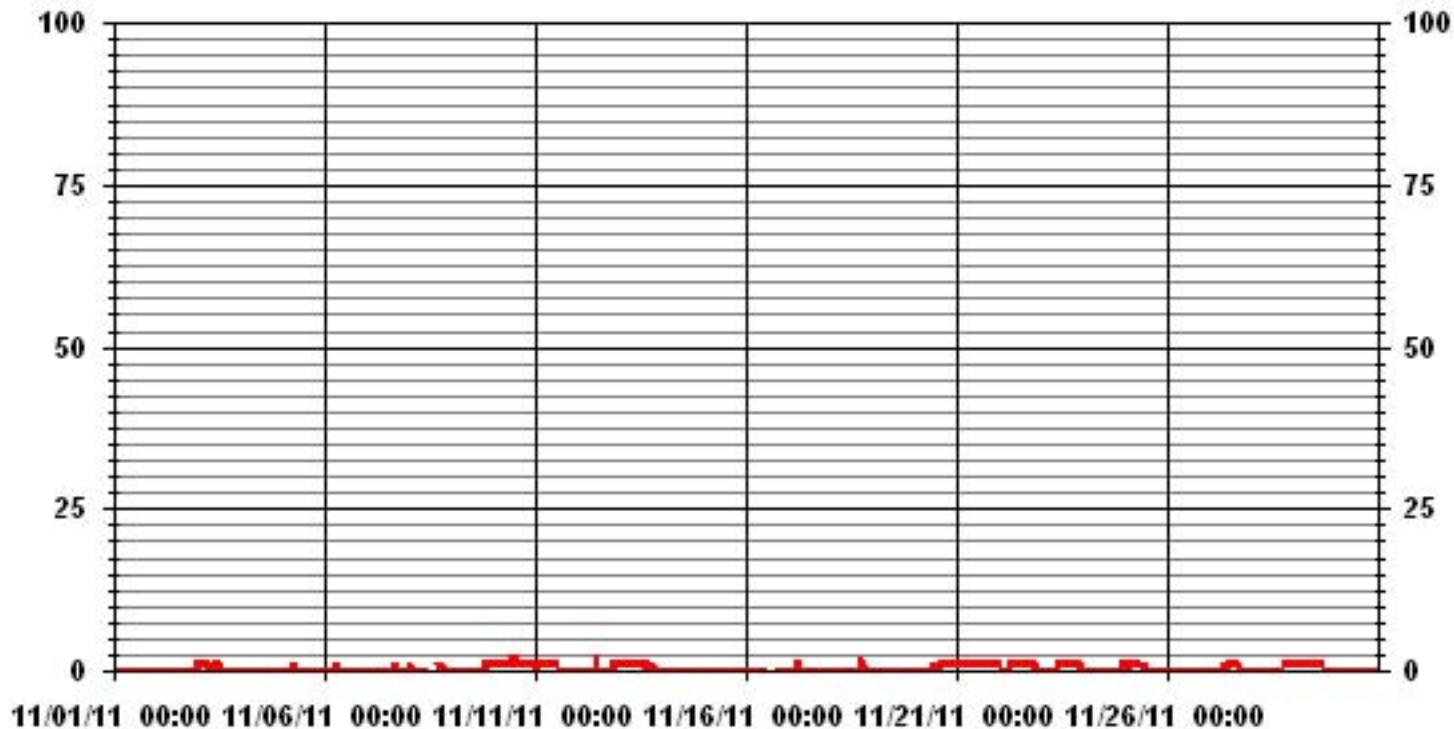
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	177					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	716	HRS	
MONTHLY CALIBRATION TIME:	16	HRS				
STANDARD DEVIATION:	0.46					

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

November 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	9.65	7.42	8.76	7.87	6.53	4.30	3.71	2.52	2.08	2.67	6.24	5.79	5.64	5.34	10.84	10.54	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	9.65	7.42	8.76	7.87	6.53	4.30	3.71	2.52	2.08	2.67	6.24	5.79	5.64	5.34	10.84	10.54	

Calm : .00 %

Total # Operational Hours : 673

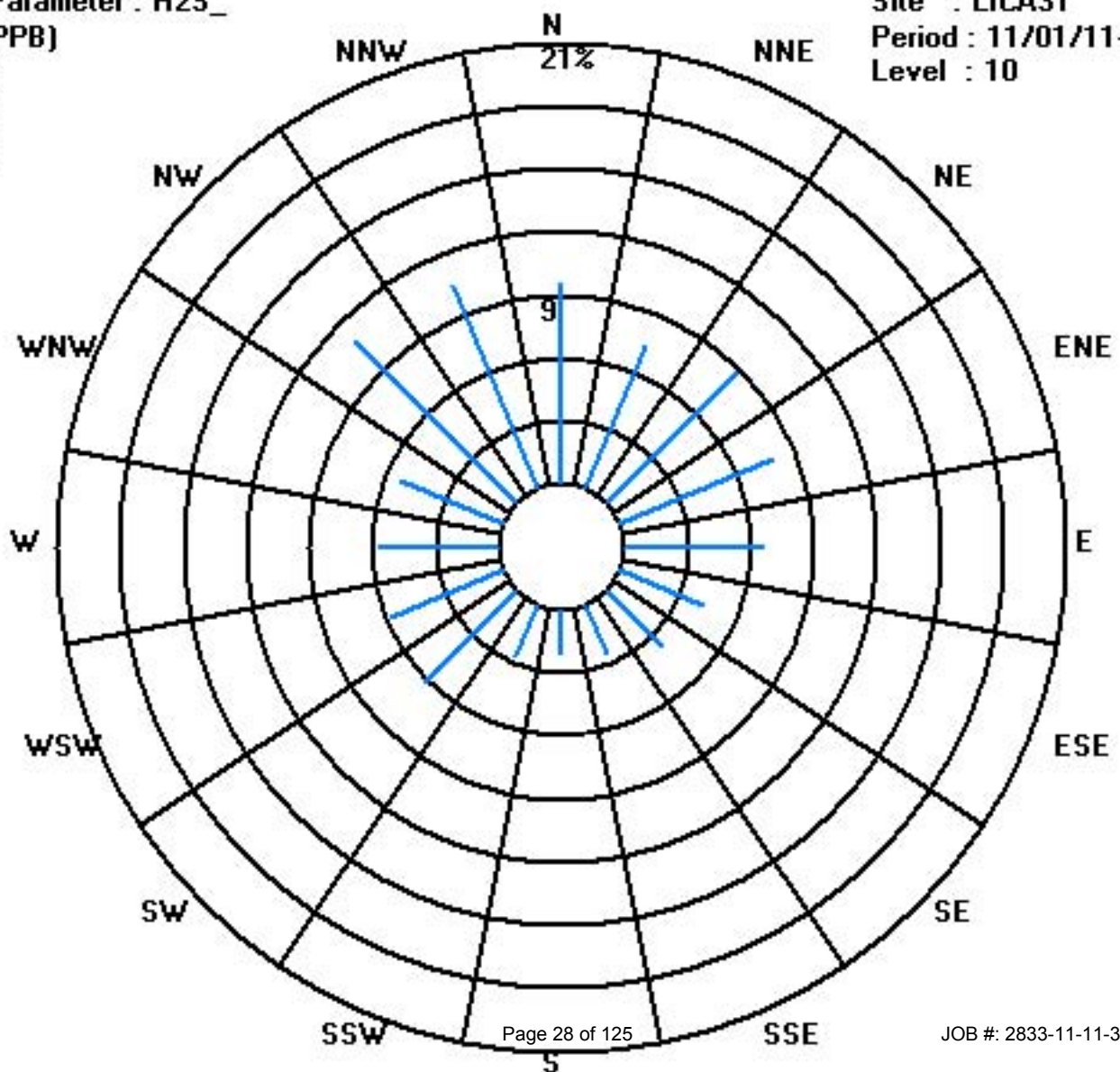
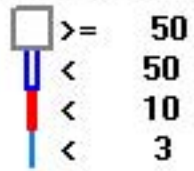
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	65	50	59	53	44	29	25	17	14	18	42	39	38	36	73	71	673
< 10																	
< 50																	
>= 50																	
Totals	65	50	59	53	44	29	25	17	14	18	42	39	38	36	73	71	

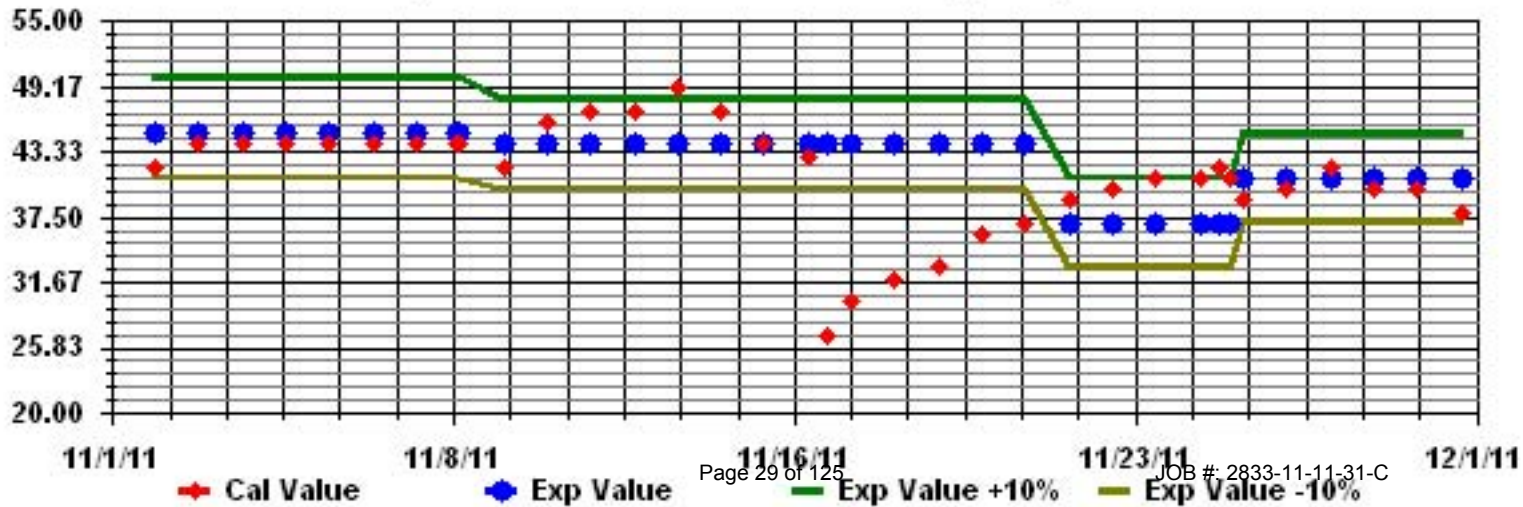
Calm : .00 %

Total # Operational Hours : 673

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAll



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

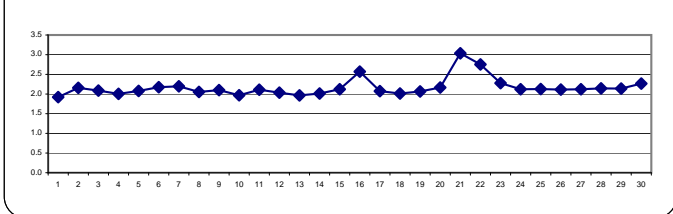
TOTAL HYDROCARBONS hourly averages in ppm

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 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		1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2.0	1.9	24
2		2	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	2.1	2.2	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.4	2.2	24
3		2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.3	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	2	2	2.1	2.1	24
5		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
6		2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	24
7		2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.4	2.2	2.2	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.4	2.2	24
8		2.1	2.2	2.2	2.2	2.1	2.1	2	2.1	2	2	2	2	2	2	C	C	C	C	C	2	2	2	2	2	2	2.2	2.1	2.1	24
9		2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	M	IZS	2.1	2.1	2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	23	
10		2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	2.1	24	
11		2	2	2	2	2	2	2	2	2	1.9	2.1	2.1	2.1	IZS	1.9	2	2.3	2.3	2.5	2.6	2.4	2.2	2.1	2	2.1	2.6	2.1	24	
12		2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2.1	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
13		2	2	2	2.1	2.1	2.1	2	2	2	2	2	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	24	
14		1.9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	24	
15		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	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24	
16		2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.1	2.1	2.3	2.3	2.5	3.1	2.6	2.7	3.1	3.5	4.1	3.2	2.8	2.3	2.6	2.4	4.1	2.6	2.4	24	
17		2.4	2.4	2.2	2.3	2.2	2.1	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.4	2.1	24	
18		2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	24	
19		2	2	2	2	IZS	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
20		2.1	2.1	2.1	IZS	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.5	2.5	2.2	2.2	24	
21		2.9	2.8	IZS	2.7	2.6	3.1	3.9	3	3.1	3.2	3.7	3.4	3.5	3.6	3.6	3.2	3.1	2.7	2.6	3	2.6	2.4	2.5	2.6	3.9	3.0	2.4	24	
22		2.7	IZS	2.8	2.7	2.4	2.9	3.4	3.3	3.3	3.4	3.4	3.2	3.1	3.2	3.1	2.7	2.2	2.3	2.4	2.2	2.1	2.1	2.2	2.2	3.4	2.8	2.4	24	
23		IZS	2.2	2.2	2.2	2.1	2.1	2	2	2.7	2.5	2.7	2.9	2.6	2.4	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.1	24	
24		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24	
25		2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2	2	2.3	24	
26		2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	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	
27		2.1	2.1	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	2	2.3	2.8	2.7	2	2.1	2.1	2.5	2.4	2.2	2.2	2.8	2.1	2.1	24	
28		2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24	
29		2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
30		2.1	2.2	2.4	2.9	2.5	2.4	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.9	2.3	2.4	24	
HOURLY MAX		2.9	2.8	2.8	2.9	2.6	3.1	3.9	3.3	3.3	3.4	3.7	3.4	3.5	3.6	3.6	3.2	3.1	3.5	4.1	3.2	2.8	2.5	2.6	2.6					
HOURLY AVG		2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1					

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

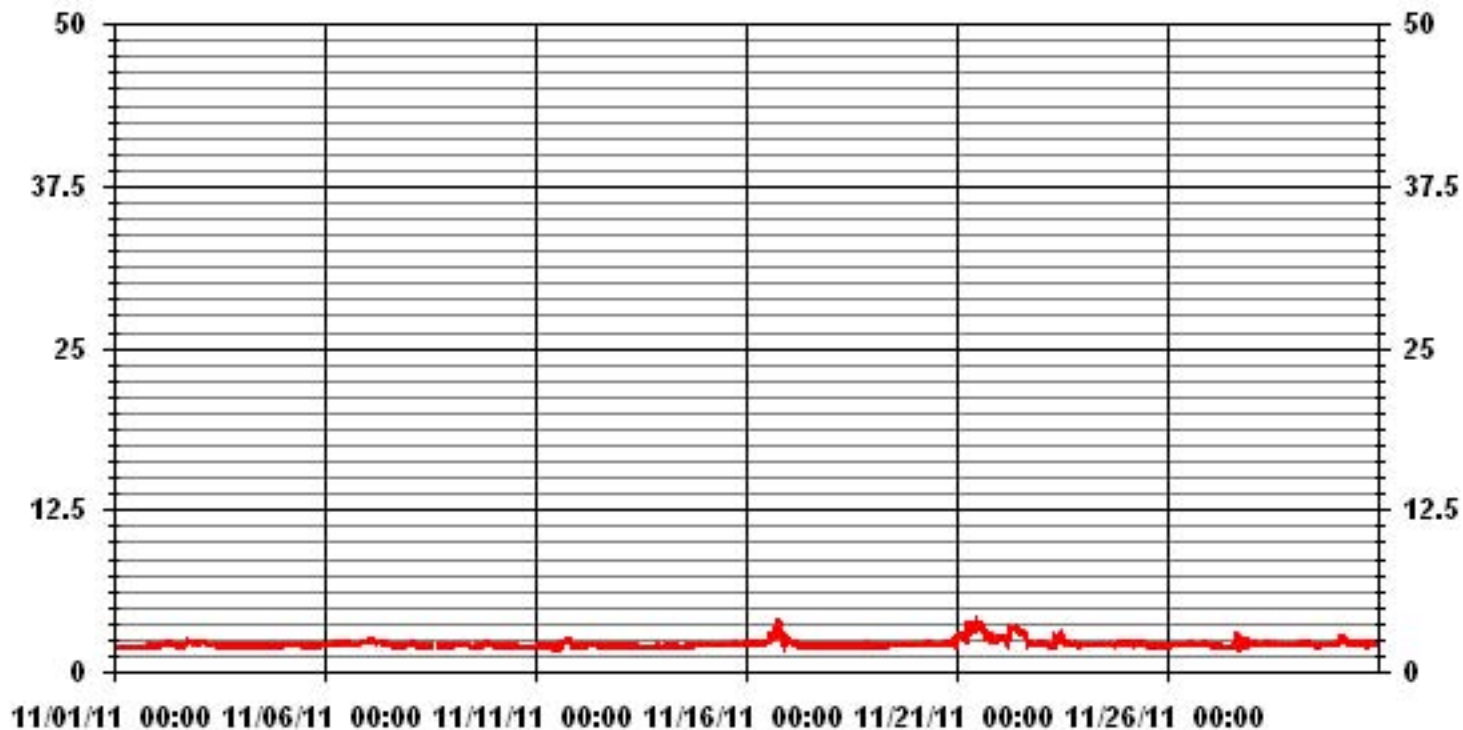
24 AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM 1-HR AVERAGE:	4.1 PPM @ HOUR(S) 18 ON DAY(S) 16
MAXIMUM 24-HR AVERAGE:	3.0 PPM ON DAY(S) 21
	VAR- VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.29
OPERATIONAL TIME:	719 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	2.17 PPM

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR				
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.			
DAY																														
1	1.9	1.9	1.9	2	1.9	1.9	1.9	2	1.9	1.9	1.9	2	2	1.9	2	2	1.9	2	2	2	2	2	2	2	2	2.1	2.1	2.0	24	
2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.2	2	2	2.2	2	2	2	2	2.2	2.2	2.5	2.2	24
3	2.2	2.3	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.3	2.1	2.2	2	2	2.2	2	2	2	2	2	2	2	2.1	2	2.4	2.2	24
4	2.1	2.1	2.1	2	2	2.1	2.1	2	2	2	2.3	2.1	2	2	2	2	2	2	2	2	2.1	2	2	2.1	2.1	2.1	2.3	2.1	24	
5	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24	
6	2.1	2.1	2.1	2.2	2.2	2.4	2.6	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.6	2.2	24
7	2.4	2.4	2.4	2.4	2.4	3.1	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2.1	2.1	2.1	3.1	2.2	24	
8	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2	2	2	2	2	2	2	2	2	2.1	2	2	2	2	2	2.2	2.1	23	
9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.1	2.1	2.3	2.1	23	
10	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4.5	2.1	2	24
11	2.1	2.1	2	2	2	2.1	2	2	2	2	2.8	2.5	2	2.1	2.6	3	3	3.2	2.7	2.6	2.3	2.1	2.1	2.1	2.1	2.1	3.2	2.3	24	
12	2.1	2	2	2	2.1	2.1	2.1	2.3	2.2	2.4	2.6	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2.6	2.1	24	
13	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	2	2.6	2.5	2.4	2.4	2.6	2.1	24	
14	2	2.5	2.9	2.4	2.7	2.8	2.9	3.3	2.1	2	2	2.2	2.2	2.2	2.6	2.9	2.6	2.6	2.4	2.7	2.6	2.6	2.5	2.5	3.3	2.5	2.4	24		
15	2.4	2.8	3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.3	2.6	2.7	2.9	3.1	3.5	2.8	2.1	2.1	3.1	3.1	3.1	3.5	2.6	24		
16	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	4.8	4.3	5.6	6.3	3.5	3.6	10.1	9.1	9.3	6.8	4.3	3.7	3.9	3.3	10.1	4.3	24		
17	3.5	3.4	3.4	3.2	3.1	2.8	2.5	2.6	2.4	2.9	3	2.4	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	3.5	2.5	24		
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	7.4	5	2.2	7.4	2.4	24	
19	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
20	2.1	2.1	2.1	2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	3.8	2.2	5.8	5.8	2.4	24		
21	11.9	8.4	2.8	2.8	2.5	7.2	6.1	5.3	4.8	4.8	5.5	6.1	4.7	5.4	7.3	6.5	2.5	3.1	2.7	2.4	2.1	2.2	2.2	2.2	7.3	4.1	24			
22	2.7	2.8	2.8	2.2	2.2	2.1	2	2.4	4.5	3.5	3.1	4.4	3.6	3.6	2.7	2.4	3.4	2.2	2.1	2.3	2.2	2.2	2.2	2.2	2.2	4.5	2.7	24		
23	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.4	3.3	2.6	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	2.2	24	
24	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	3	2.3	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3	2.2	24	
25	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	24	
26	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	3.1	4.1	7.6	11.9	2.8	4.3	2.8	3.8	5.5	4.7	3	11.9	3.4	24		
27	2.8	2.4	2.4	2.6	2.6	2.6	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.3	24	
28	2.2	2.2	2.1	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.6	2.4	2.9	3.4	3.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	3.4	2.4	24		
29	2.1	2.3	2.7	3.1	2.7	2.5	2.2	2.2	2.3	2.6	2.8	2.6	2.5	2.5	2.5	2.7	2.7	2.7	2.2	2.2	2.2	2.2	2.3	2.3	2.3	3.1	2.5	24		
30	12	8	3	3	3	12	10	5	5	5	6	6	6	6	7	8	12	9	9	7	6	7	5	6						
HOURLY MAX	12	8	3	3	3	12	10	5	5	5	6	6	6	6	7	8	12	9	9	7	6	7	5	6						
HOURLY AVG	2.5	2.4	2.3	2.3	2.3	2.7	2.6	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.7	3.0	2.6	2.6	2.6	2.6	2.4	2.6	2.5	2.4					

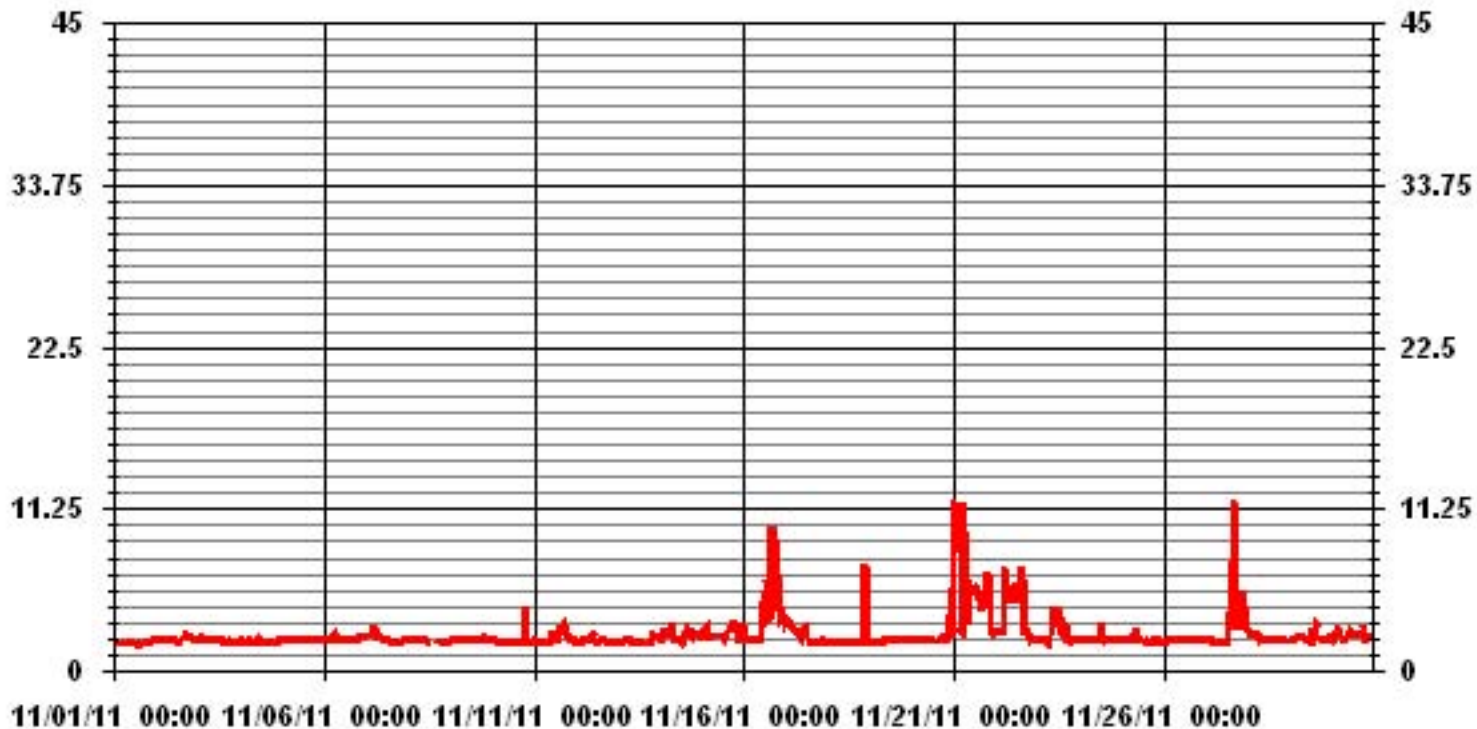
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM INSTANTANEOUS VALUE:	11.9	PPM	@ HOUR(S)	16	ON DAY(S)	27
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718 HRS		
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	1.21					

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

November 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	10.08	7.01	8.33	7.45	4.38	3.80	3.50	2.92	2.04	2.63	6.14	5.70	5.55	5.55	10.67	10.23	96.05
< 10.0	.00	.14	.29	.58	2.04	.29	.14	.14	.00	.00	.00	.00	.14	.00	.00	.14	3.94
< 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	10.08	7.16	8.62	8.04	6.43	4.09	3.65	3.07	2.04	2.63	6.14	5.70	5.70	5.55	10.67	10.38	

Calm : .00 %

Total # Operational Hours : 684

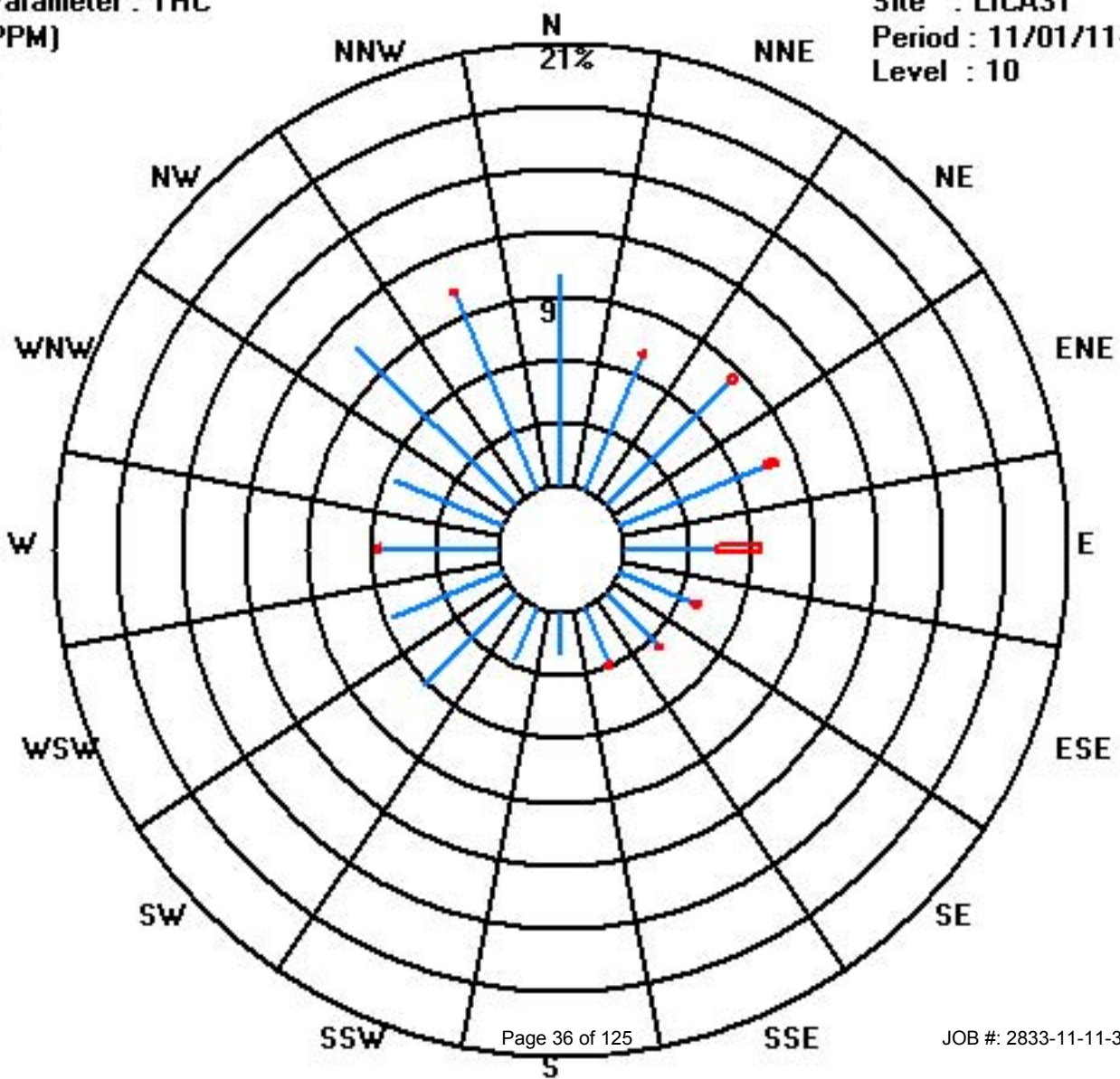
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	69	48	57	51	30	26	24	20	14	18	42	39	38	38	73	70	657
< 10.0		1	2	4	14	2	1	1					1			1	27
< 50.0																	
>= 50.0																	
Totals	69	49	59	55	44	28	25	21	14	18	42	39	39	38	73	71	

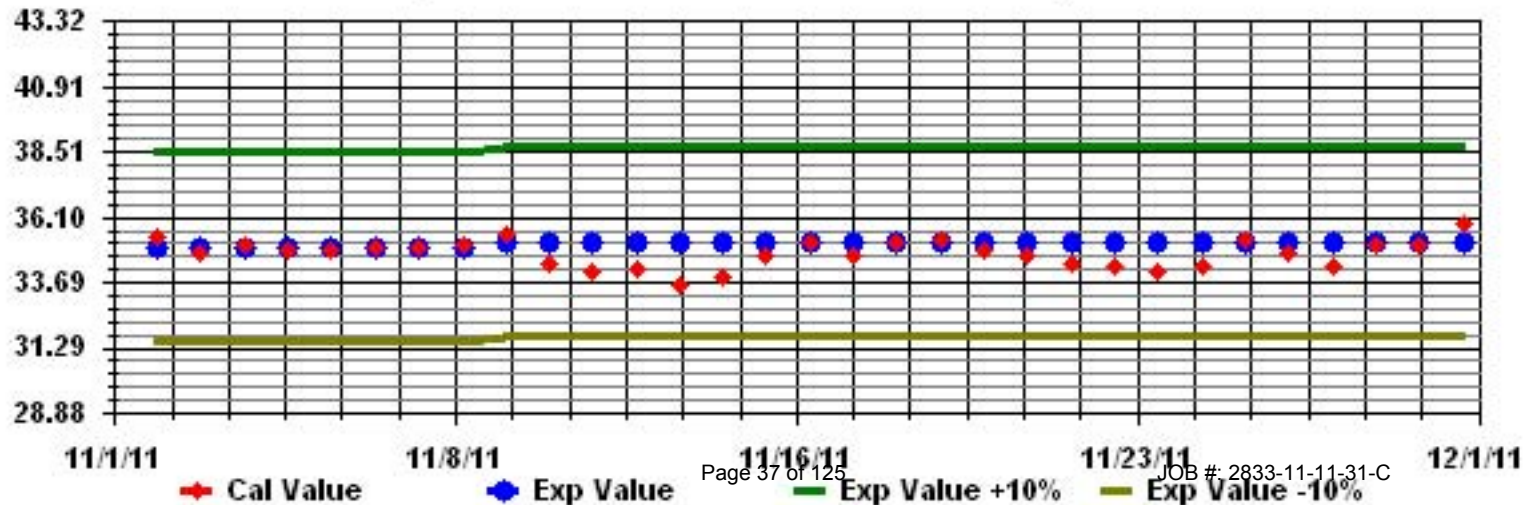
Calm : .00 %

Total # Operational Hours : 684

Class Limits (PPM)



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

OZONE (O₃) hourly averages in ppb

MST

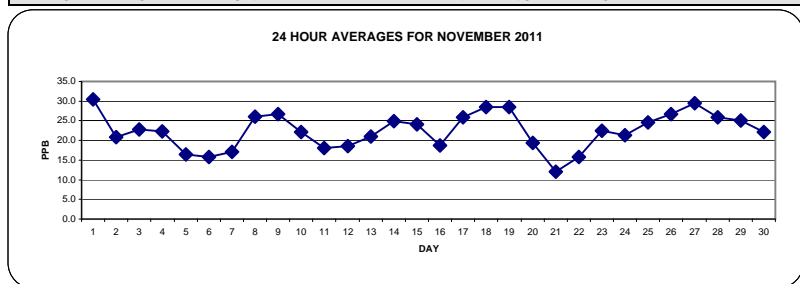
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	31	34	32	32	32	32	30	30	30	30	29	31	33	33	33	32	31	30	29	27	26	IZS	23	34	30.4	24		
2	24	23	22	20	18	17	16	13	15	17	20	25	28	30	28	23	21	20	19	19	19	IZS	21	21	30	20.8	24	
3	21	20	20	20	20	20	20	20	19	20	22	25	28	26	28	31	30	29	26	20	IZS	19	20	20	31	22.8	24	
4	21	22	24	24	23	23	23	25	25	25	25	24	24	24	24	25	23	22	21	IZS	18	16	16	15	25	22.3	24	
5	14	13	12	12	11	11	10	9	10	12	14	18	20	21	23	22	21	21	IZS	21	21	20	21	21	23	16.4	24	
6	19	16	18	18	15	13	13	12	12	12	12	14	14	17	16	19	21	IZS	21	23	18	16	15	11	23	15.9	24	
7	11	10	9	8	8	12	8	8	9	13	15	17	18	22	25	31	IZS	31	28	27	25	22	18	17	31	17.0	24	
8	15	13	13	15	19	21	24	24	26	27	29	31	30	30	32	IZS	33	33	32	30	30	31	31	31	33	26.1	24	
9	30	28	28	28	28	28	28	27	27	27	C	C	C	28	24	25	25	25	24	25	26	28	26	30	26.8	24		
10	27	26	24	22	20	19	18	18	16	16	16	16	15	IZS	26	28	27	24	26	26	25	25	25	24	28	22.1	24	
11	21	17	18	18	21	24	24	24	27	27	19	20	IZS	26	24	20	19	10	12	9	8	8	8	10	27	18.0	24	
12	14	17	17	18	16	17	17	17	17	17	17	17	IZS	18	22	25	24	23	22	21	20	18	17	17	15	25	18.5	24
13	14	14	12	10	10	12	14	15	18	22	IZS	26	26	26	27	26	26	26	26	26	27	27	27	26	27	21.0	24	
14	26	26	25	25	26	25	24	24	24	IZS	24	26	26	26	25	25	25	25	25	24	24	24	25	25	26	25.0	24	
15	24	24	23	22	23	23	23	23	IZS	22	23	23	24	25	25	25	27	26	26	26	26	24	23	24	27	24.1	24	
16	17	18	20	20	17	19	21	IZS	19	19	17	15	16	18	18	17	15	15	C	C	21	23	23	24	24	18.7	24	
17	26	28	28	25	23	24	IZS	25	25	26	26	27	26	25	26	26	27	26	26	26	26	26	25	27	28	25.9	24	
18	27	28	28	28	28	IZS	29	29	29	30	31	30	30	30	30	29	28	27	28	27	27	27	27	27	31	28.4	24	
19	27	27	27	28	IZS	29	29	29	29	29	29	30	30	30	30	29	29	28	28	28	28	28	27	27	30	28.4	24	
20	27	28	27	IZS	25	24	24	23	22	22	21	21	20	20	20	19	13	9	11	12	12	15	16	16	28	19.4	24	
21	15	14	IZS	11	11	10	9	9	10	12	13	13	13	14	13	11	10	12	11	13	13	14	13	13	15	12.0	24	
22	12	IZS	9	7	10	12	10	10	10	11	14	16	16	17	18	16	23	22	19	22	24	24	21	20	24	15.8	24	
23	IZS	17	18	19	21	24	27	28	26	23	19	20	21	22	23	24	24	24	26	23	21	21	22	IZS	28	22.4	24	
24	22	22	22	21	21	18	19	18	18	20	22	23	23	21	19	20	20	23	24	24	24	24	IZS	22	24	21.3	24	
25	21	21	20	19	19	19	18	17	17	16	16	17	21	25	29	32	34	35	35	34	33	IZS	34	34	35	24.6	24	
26	33	32	31	31	29	27	26	26	27	28	28	29	30	28	26	25	24	23	23	22	IZS	21	22	23	33	26.7	24	
27	24	25	26	26	26	27	27	27	26	26	26	26	27	27	31	39	40	40	38	IZS	34	31	29	29	40	29.5	24	
28	30	29	30	29	29	30	30	29	27	25	26	27	26	24	25	26	23	IZS	21	22	22	21	20	30	26.0	24		
29	20	19	18	18	16	16	17	17	22	26	28	31	32	34	33	33	33	IZS	28	25	24	25	29	32	34	25.0	24	
30	29	25	23	15	21	22	22	21	21	21	21	20	22	24	24	24	IZS	23	23	22	23	24	22	17	29	22.1	24	
HOURLY MAX	33	34	32	32	32	32	30	30	30	30	31	31	32	34	33	39	40	40	38	34	34	31	34	34				
HOURLY AVG	22.1	21.9	21.5	20.3	20.2	20.6	20.7	20.6	20.8	21.4	21.5	22.8	23.4	24.5	25.1	25.0	25.0	24.1	24.4	23.1	23.0	22.3	22.4	22.1				

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

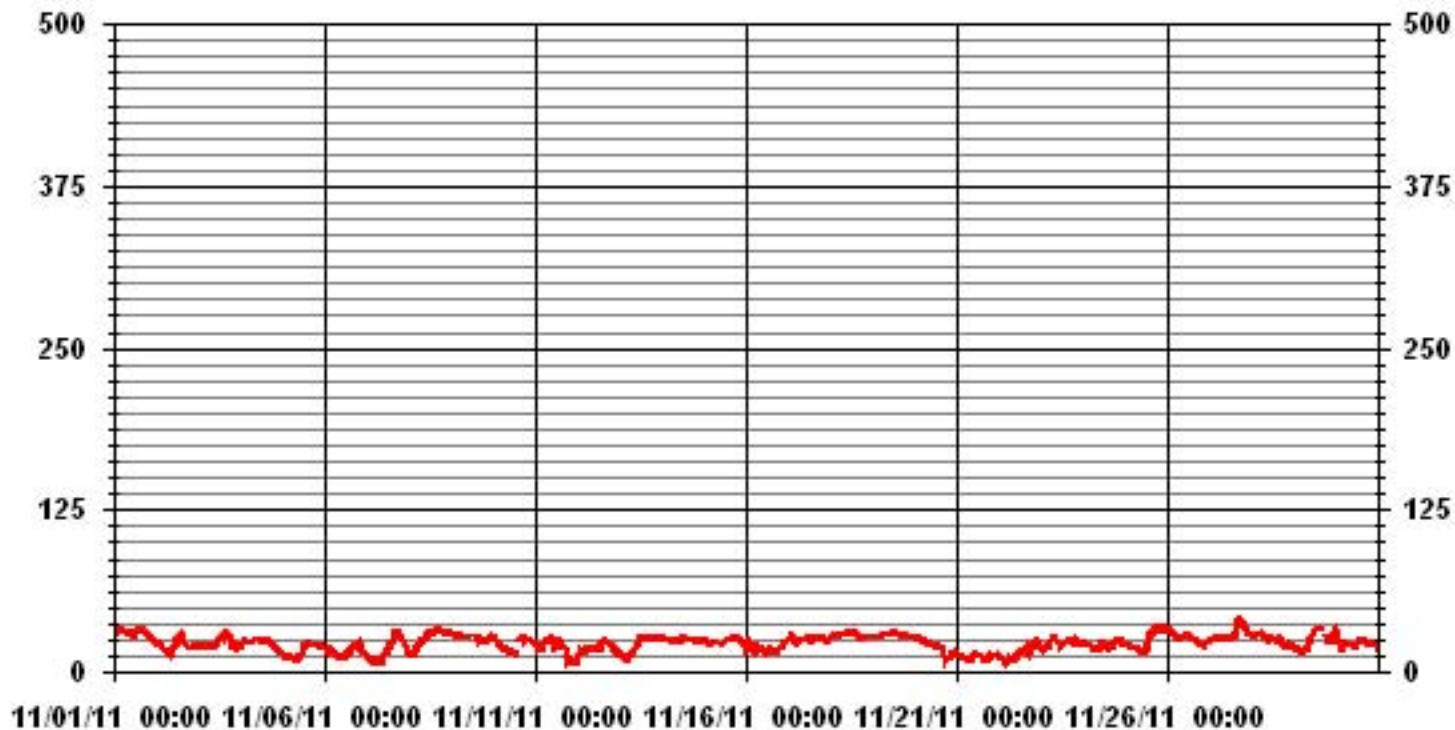
ALBERTA ENVIRONMENT: 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	40	PPB	@ HOUR(S)	16, 17	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	30.4	PPB			ON DAY(S)	1
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	6.16		MONTHLY AVERAGE	22.4	PPB	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	34	34	34	33	33	33	31	31	31	31	31	31	33	34	34	34	33	31	30	30	28	27	IZS	24	34	31.5	24	
2	25	24	22	22	20	18	17	14	16	18	24	26	29	31	31	24	22	22	20	19	20	IZS	21	21	31	22.0	24	
3	21	21	21	20	21	21	21	21	20	21	23	27	29	28	30	32	31	31	29	24	IZS	20	21	21	32	24.1	24	
4	22	23	25	24	24	23	24	25	26	26	25	25	25	25	25	26	25	23	23	IZS	19	18	16	16	26	23.2	24	
5	15	13	13	13	12	11	11	10	11	13	17	21	21	22	24	24	22	22	IZS	22	22	21	21	21	24	17.5	24	
6	21	19	19	20	19	14	14	13	13	13	13	16	17	19	17	21	24	IZS	23	24	22	17	17	13	24	17.7	24	
7	12	11	10	9	10	17	9	9	11	15	16	18	21	24	29	33	IZS	32	30	27	27	24	20	17	33	18.7	24	
8	16	14	14	18	22	23	25	26	27	P	31	32	32	32	33	IZS	34	34	33	32	31	31	32	31	34	27.4	23	
9	31	29	29	29	29	29	29	28	28	28	C	C	C	C	C	26	25	26	26	25	26	27	28	27	31	27.6	24	
10	28	27	25	24	21	20	19	18	17	17	17	17	16	IZS	27	29	29	25	27	27	26	26	26	25	29	23.2	24	
11	24	19	19	19	24	25	25	26	30	31	21	23	IZS	27	26	23	21	17	14	13	9	9	9	12	31	20.3	24	
12	16	18	18	20	20	18	17	18	18	18	18	IZS	19	26	26	25	24	22	22	21	19	18	18	17	26	19.8	24	
13	15	15	14	11	13	13	15	16	19	24	IZS	27	27	27	27	27	26	27	27	27	28	28	27	27	28	22.0	24	
14	26	27	26	27	26	25	25	24	25	IZS	25	27	27	28	26	26	25	25	25	25	24	25	26	25	28	25.7	24	
15	25	25	23	23	23	23	23	23	IZS	23	23	24	25	25	26	26	27	27	27	26	26	26	26	27	27	24.9	24	
16	20	20	22	22	18	21	23	IZS	22	20	20	16	18	20	20	19	16	16	IZS	IZS	23	24	24	25	25	20.4	22	
17	28	28	28	27	23	25	IZS	26	25	26	27	27	27	26	27	27	27	27	27	27	26	26	26	28	28	26.6	24	
18	28	28	28	28	29	IZS	29	29	30	31	31	31	31	31	30	30	29	28	28	28	28	27	27	27	31	29.0	24	
19	27	28	28	29	IZS	29	29	30	30	29	30	30	30	30	30	30	30	28	28	29	28	28	27	27	30	28.9	24	
20	27	28	28	IZS	26	26	25	23	23	22	22	22	21	20	21	21	15	11	12	13	14	17	17	17	28	20.5	24	
21	15	15	IZS	11	12	11	10	10	11	12	14	14	14	14	14	12	11	13	13	14	14	14	14	14	15	12.9	24	
22	13	IZS	11	8	13	14	11	10	12	13	15	17	17	18	18	18	24	24	20	23	25	26	22	21	26	17.1	24	
23	IZS	19	20	20	23	26	28	29	27	27	21	21	22	24	24	24	24	26	26	26	21	21	22	IZS	29	23.7	24	
24	23	23	23	22	22	20	20	20	19	22	24	24	24	24	20	21	22	24	25	25	24	25	IZS	22	25	22.5	24	
25	22	22	21	20	20	20	19	18	17	16	18	18	25	28	32	34	35	35	35	35	34	IZS	34	34	35	25.7	24	
26	34	33	32	31	31	28	27	26	28	29	29	30	30	29	27	26	25	24	24	23	IZS	22	22	24	34	27.6	24	
27	25	26	26	27	27	28	28	27	27	27	26	27	28	28	34	40	40	40	39	IZS	36	33	30	30	40	30.4	24	
28	30	30	31	30	29	31	31	30	29	27	27	28	27	25	25	27	27	26	IZS	22	22	23	22	21	31	27.0	24	
29	21	21	19	19	18	17	19	19	26	27	30	33	33	34	34	34	34	IZS	29	28	26	27	33	34	34	26.7	24	
30	31	28	26	19	22	23	23	21	22	22	22	22	23	25	25	25	IZS	24	23	23	25	25	24	20	31	23.6	24	
HOURLY MAX	34	34	34	33	33	33	31	31	31	31	31	33	33	34	34	40	40	40	39	35	36	33	34	34				
HOURLY AVG	23.3	23.0	22.6	21.6	21.7	21.8	21.6	21.4	22.1	22.4	22.9	24.1	24.7	25.9	26.3	26.3	26.0	25.4	25.4	24.4	24.0	23.4	23.3	23.0				

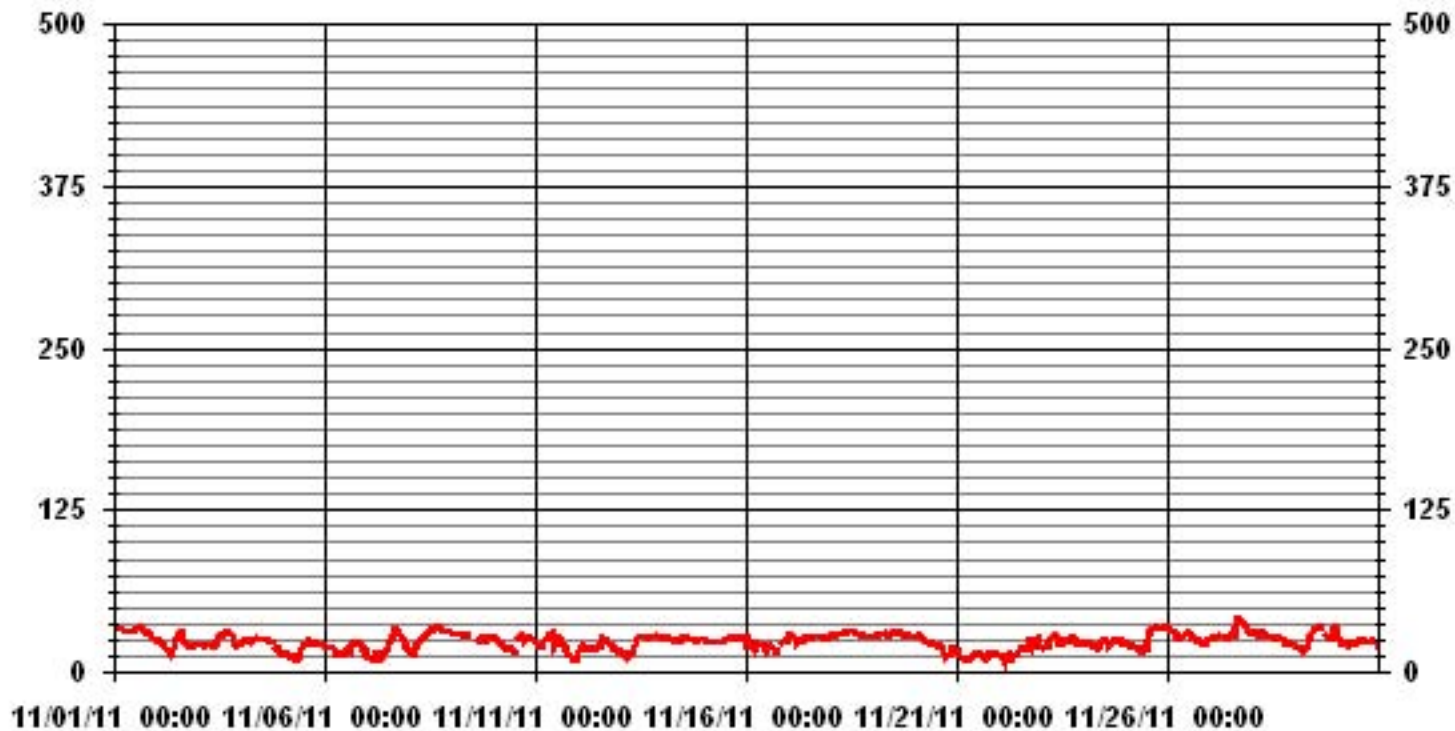
STATUS FLAG CODES

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:	682				
MAXIMUM INSTANTANEOUS VALUE:	40	PPB	@ HOUR(S)	VAR	ON DAY(S) 27
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	717	HRS
MONTHLY CALIBRATION TIME:	5	HRS			
STANDARD DEVIATION:	6.03				

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

November 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	10.23	7.45	8.62	8.04	6.28	3.80	3.65	3.07	2.04	2.63	6.14	5.70	5.70	5.55	10.67	10.38	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	10.23	7.45	8.62	8.04	6.28	3.80	3.65	3.07	2.04	2.63	6.14	5.70	5.70	5.55	10.67	10.38	

Calm : .00 %

Total # Operational Hours : 684

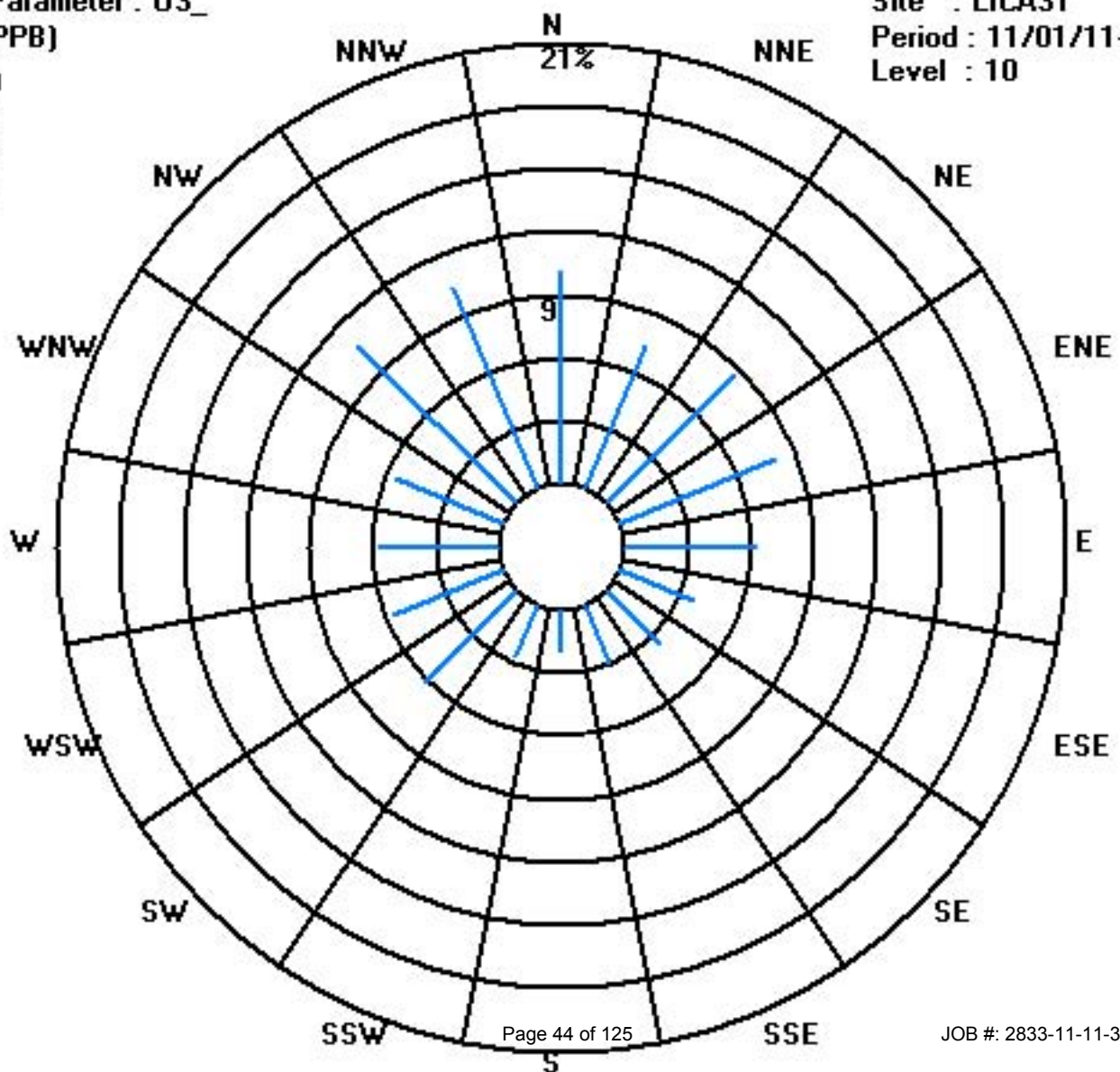
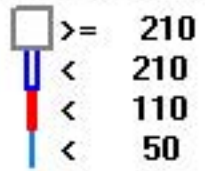
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	70	51	59	55	43	26	25	21	14	18	42	39	39	38	73	71	684
< 110																	
< 210																	
>= 210																	
Totals	70	51	59	55	43	26	25	21	14	18	42	39	39	38	73	71	

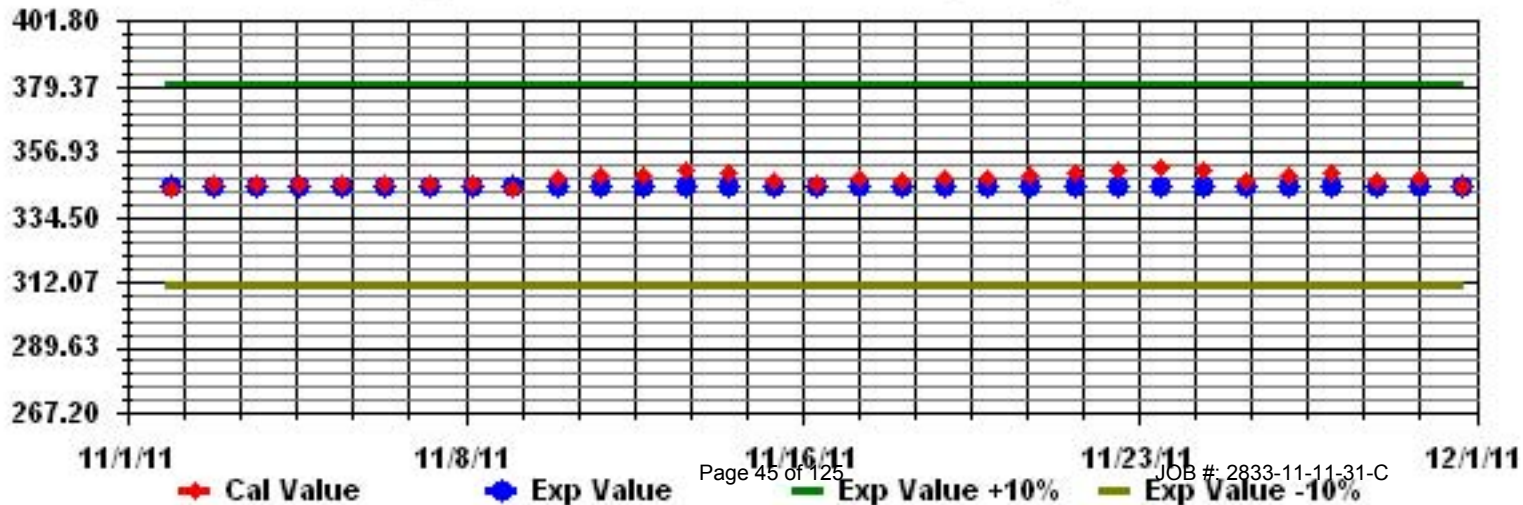
Calm : .00 %

Total # Operational Hours : 684

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: 03_ Sequence: 03 Phase: SPAN



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION. - ST. LINA

NOVEMBER 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 MAX.	24-HOUR AVG.	RDGS.	
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				
DAY																													
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	IZS	4	4	4	0.5	24	
2		4	4	4	5	6	5	5	6	6	5	5	5	4	3	3	6	6	7	6	5	5	IZS	2	2	7	4.7	24	
3		2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	2	2	3	4	2	IZS	0	0	0	4	2.2	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	IZS	3	4	5	5	5	0.9	24	
5		5	5	5	5	5	6	6	6	6	5	5	4	4	5	5	5	6	6	IZS	4	4	5	5	4	6	5.0	24	
6		5	7	6	4	6	7	7	7	7	7	5	5	5	5	5	5	6	IZS	4	3	7	7	8	10	10	6.0	24	
7		9	9	9	10	10	8	9	8	8	6	5	5	5	4	3	1	IZS	2	3	3	3	4	5	6	10	5.9	24	
8		6	6	6	6	5	4	2	2	1	1	C	C	C	C	C	C	C	0	1	1	0	1	0	1	6	2.5	24	
9		1	1	1	1	1	1	1	1	1	1	1	1	1	M	IZS	2	2	2	2	3	2	2	1	2	3	1.4	23	
10		1	1	2	2	2	2	2	2	3	3	3	3	4	IZS	1	0	0	0	0	0	0	0	0	0	4	1.3	24	
11		1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	4	3	3	2	2	2	1	4	1.4	24
12		1	1	1	1	2	1	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24	
13		1	1	2	3	4	4	4	4	4	2	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	4	1.3	24	
14		0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15		0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	0.2	24	
16		4	3	2	2	4	3	2	IZS	2	3	3	4	3	3	4	6	7	7	6	5	3	2	2	1	7	3.5	24	
17		1	0	0	1	1	1	IZS	0	1	1	1	0	1	1	1	0	0	0	0	0	1	1	1	0	1	0.6	24	
18		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	
19		0	0	0	0	IZS	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1.1	24	
20		2	2	2	IZS	2	3	3	3	4	4	4	4	4	4	5	6	11	14	12	11	11	8	7	7	14	5.8	24	
21		7	7	IZS	7	7	7	8	8	7	5	4	4	5	5	6	7	7	5	6	5	4	5	5	5	8	5.9	24	
22		6	IZS	8	12	12	11	10	10	9	9	8	7	7	7	7	7	5	5	6	6	5	5	6	6	12	7.6	24	
23		IZS	9	9	7	6	5	3	3	3	4	6	6	5	4	4	3	2	2	2	3	3	3	2	IZS	9	4.3	24	
24		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	IZS	2	1.1	24	
25		2	2	2	3	3	3	3	3	4	4	4	4	4	3	2	1	1	1	1	1	1	1	IZS	0	1	4	2.3	24
26		1	1	1	2	3	4	4	3	3	3	3	2	2	3	3	3	4	3	3	3	3	IZS	3	3	3	4	2.7	24
27		3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	IZS	0	0	0	3	1.7	24	
28		0	0	0	0	0	0	0	0	1	1	1	1	1	3	5	3	3	4	IZS	3	2	2	2	2	5	1.5	24	
29		3	3	3	4	6	7	7	7	5	3	2	1	1	1	1	1	1	IZS	2	4	4	4	2	1	7	3.2	24	
30		1	3	4	11	5	4	1	2	2	2	1	1	1	1	2	IZS	1	2	2	2	2	2	7	11	2.6	24		
HOURLY MAX		9	9	9	12	12	11	10	10	9	9	8	7	7	7	7	7	11	14	12	11	11	8	8	10				
HOURLY AVG		2.3	2.5	2.6	3.2	3.3	3.2	3.0	2.9	2.9	2.7	2.5	2.3	2.3	2.3	2.4	2.3	2.6	2.6	2.5	2.6	2.4	2.4	2.3	2.6				

STATUS FLAG CODES

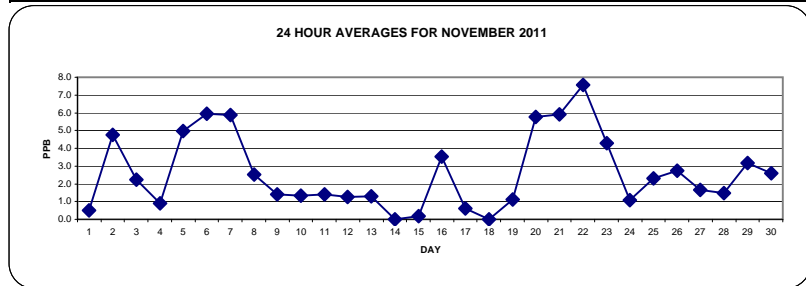
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

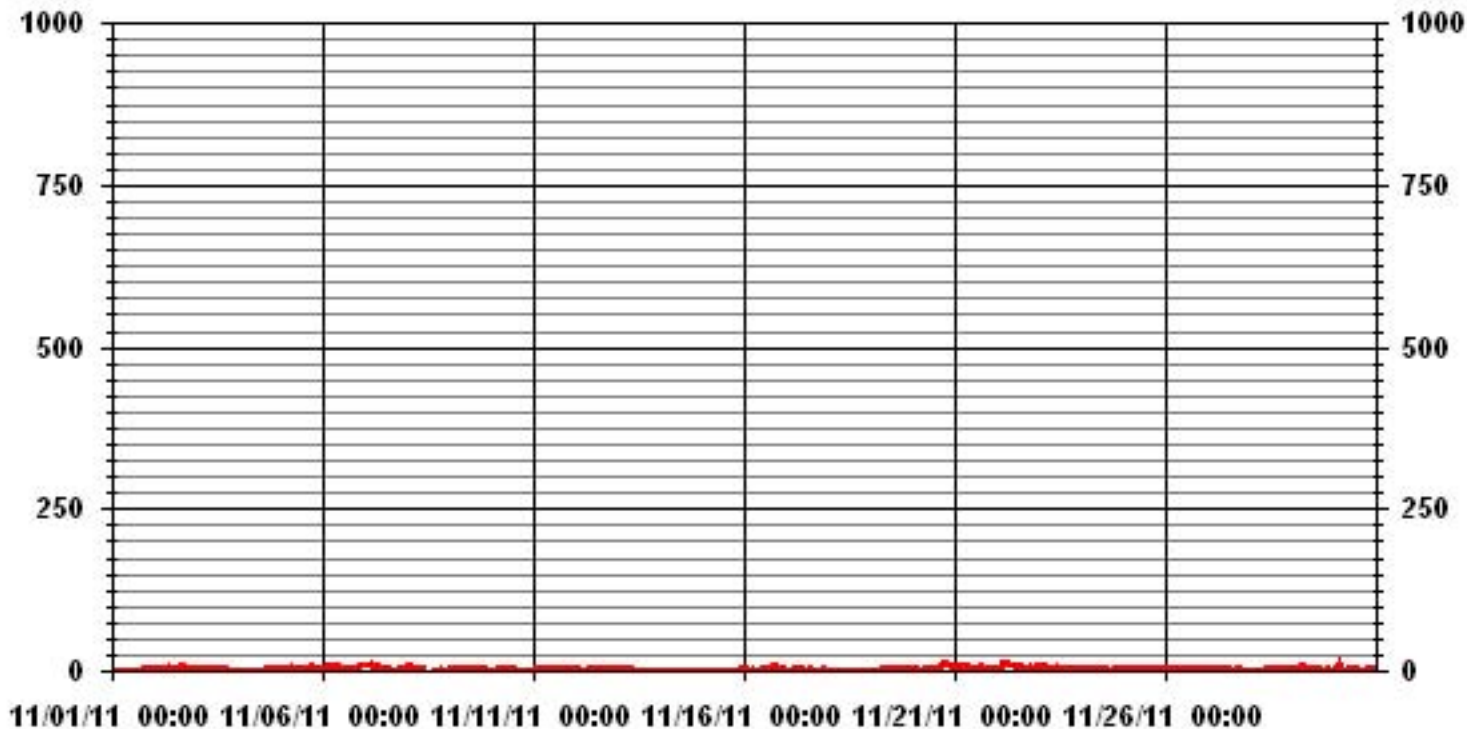
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	530					
MAXIMUM 1-HR AVERAGE:	14	PPB	@ HOUR(S)	17	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	7.6	PPB			ON DAY(S)	22
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	2.56		MONTHLY AVERAGE:	2.61	PPB	



01 Hour Averages



— LICA31 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	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	0	1	1	1	1	1	1	1	1	1	7	1	1	1	1	1	1	1	2	3	2	4	IZS	5	7	1.7	24	
2	5	5	5	6	7	6	6	11	7	6	6	6	6	4	6	7	7	7	7	6	5	IZS	3	3	11	6.0	24	
3	3	3	3	3	3	3	2	9	3	4	4	4	5	6	6	3	2	8	12	7	IZS	1	1	1	12	4.2	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	IZS	4	5	6	5	6	1.9	24	
5	6	6	6	6	6	7	7	7	6	6	6	5	11	5	6	8	10	9	IZS	5	5	6	5	5	11	6.5	24	
6	6	9	7	5	8	8	8	8	8	8	6	6	5	6	6	6	7	IZS	6	4	9	9	9	11	11	7.2	24	
7	10	10	10	11	11	10	10	10	9	7	6	5	6	5	4	3	IZS	3	4	4	4	5	6	6	11	6.9	24	
8	7	7	7	7	6	5	3	4	2	P	C	C	C	C	C	C	C	1	2	2	2	2	2	1	7	3.8	23	
9	2	2	2	2	1	1	1	2	2	2	1	1	2	M	IZS	3	3	3	3	4	3	3	2	2	4	2.1	23	
10	2	2	2	3	3	3	3	4	5	4	13	12	5	IZS	2	5	9	1	2	1	1	1	1	1	13	3.7	24	
11	2	2	3	2	2	2	2	2	2	1	2	2	IZS	1	2	2	2	5	5	4	3	2	2	2	5	2.3	24	
12	2	1	2	1	3	2	3	2	2	2	2	IZS	2	1	2	1	2	2	2	2	2	2	2	2	3	1.9	24	
13	2	2	3	4	4	5	5	6	9	4	IZS	1	1	1	1	1	1	1	1	1	2	1	1	1	9	2.5	24	
14	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.9	24	
15	1	1	1	1	1	1	1	1	IZS	0	1	4	1	1	1	1	1	1	1	2	1	1	2	3	4	1.3	24	
16	5	4	4	4	5	4	3	IZS	3	3	4	5	5	5	5	7	9	8	7	6	5	3	2	2	9	4.7	24	
17	2	1	1	1	2	1	IZS	1	2	2	2	1	1	2	2	2	1	1	1	1	2	1	1	1	2	1.4	24	
18	0	1	0	0	1	IZS	0	0	0	1	0	0	1	1	1	1	1	2	2	1	1	1	1	0	2	0.7	24	
19	1	2	1	1	IZS	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2.1	24	
20	2	3	3	IZS	3	5	4	4	5	5	15	5	5	5	6	10	14	15	15	13	12	9	8	8	15	7.6	24	
21	8	8	IZS	9	8	8	8	9	7	6	5	5	6	5	7	8	7	6	7	6	5	6	6	6	9	6.8	24	
22	7	IZS	10	15	14	12	11	11	11	9	9	7	8	8	8	8	7	7	7	7	6	6	7	7	15	8.8	24	
23	IZS	11	10	9	7	5	4	4	4	5	7	7	7	5	5	3	3	3	3	3	5	5	4	3	IZS	11	5.4	24
24	1	2	1	1	1	2	2	2	6	2	2	9	2	4	2	2	3	2	2	2	2	2	IZS	3	9	2.5	24	
25	3	3	3	3	3	4	4	4	4	4	4	5	5	4	3	2	2	2	2	2	2	IZS	1	1	5	3.0	24	
26	1	2	2	3	4	4	4	5	4	3	4	3	3	4	4	4	4	4	4	3	IZS	4	4	4	5	3.5	24	
27	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	IZS	1	1	1	1	4	2.6	24	
28	1	1	1	1	1	1	1	1	1	2	12	2	12	4	6	4	4	5	IZS	4	3	3	3	3	12	3.3	24	
29	3	3	4	5	7	8	8	8	7	4	3	8	2	1	2	2	2	IZS	3	5	6	4	5	2	8	4.4	24	
30	2	5	8	16	8	5	2	3	3	3	2	2	2	2	2	2	IZS	3	2	5	3	3	4	8	16	4.1	24	
HOURLY MAX	10	11	10	16	14	12	11	11	11	9	15	12	12	8	8	10	14	15	15	13	12	9	9	11				
HOURLY AVG	3.1	3.6	3.6	4.3	4.3	4.1	3.8	4.3	4.1	3.6	4.6	4.0	4.0	3.3	3.4	3.6	4.1	3.9	3.9	3.9	3.6	3.3	3.3	3.4				

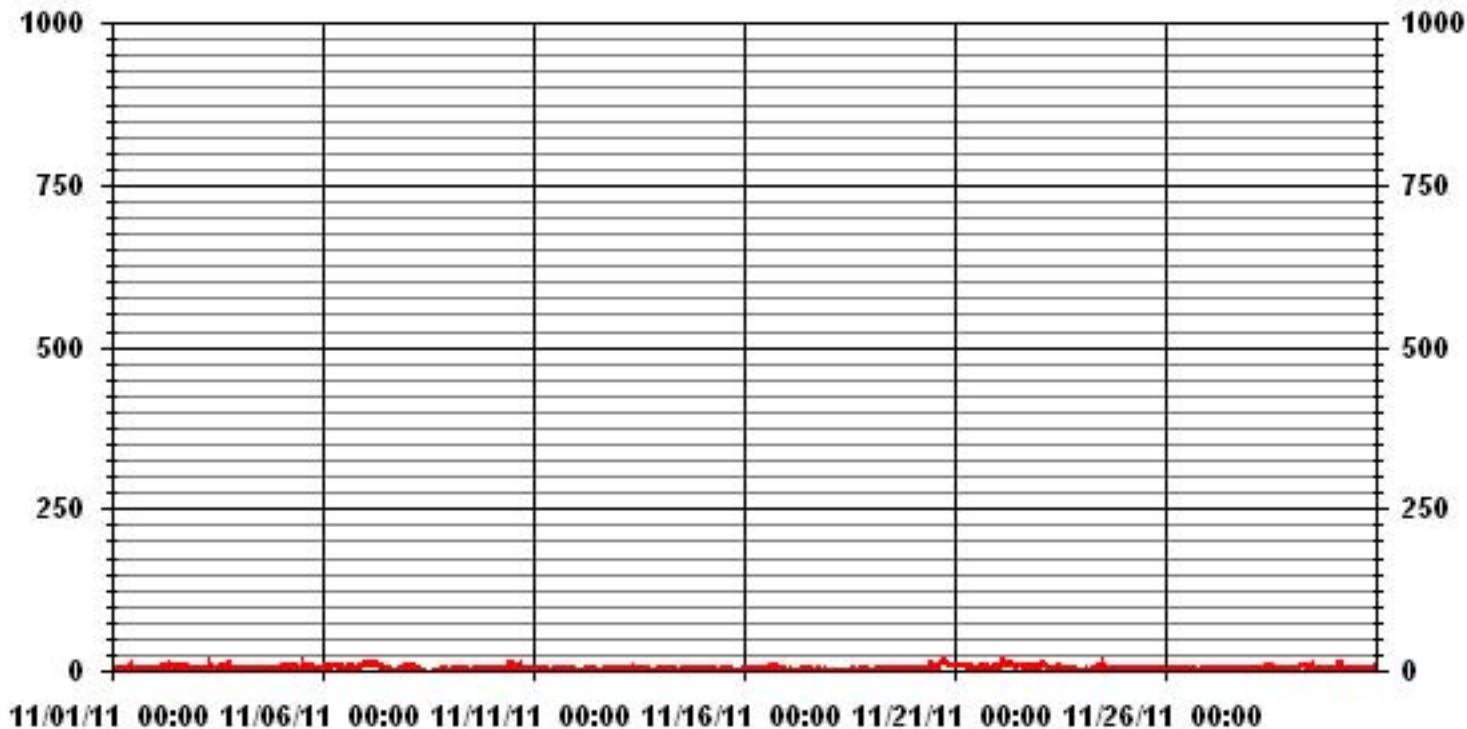
STATUS FLAG CODES

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:	668				
MAXIMUM INSTANTANEOUS VALUE:	16	PPB	@ HOUR(S)	3	ON DAY(S) 30
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	2.93				

01 Hour Averages



— LICA31 IIO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

November 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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	

Calm : .00 %

Total # Operational Hours : 682

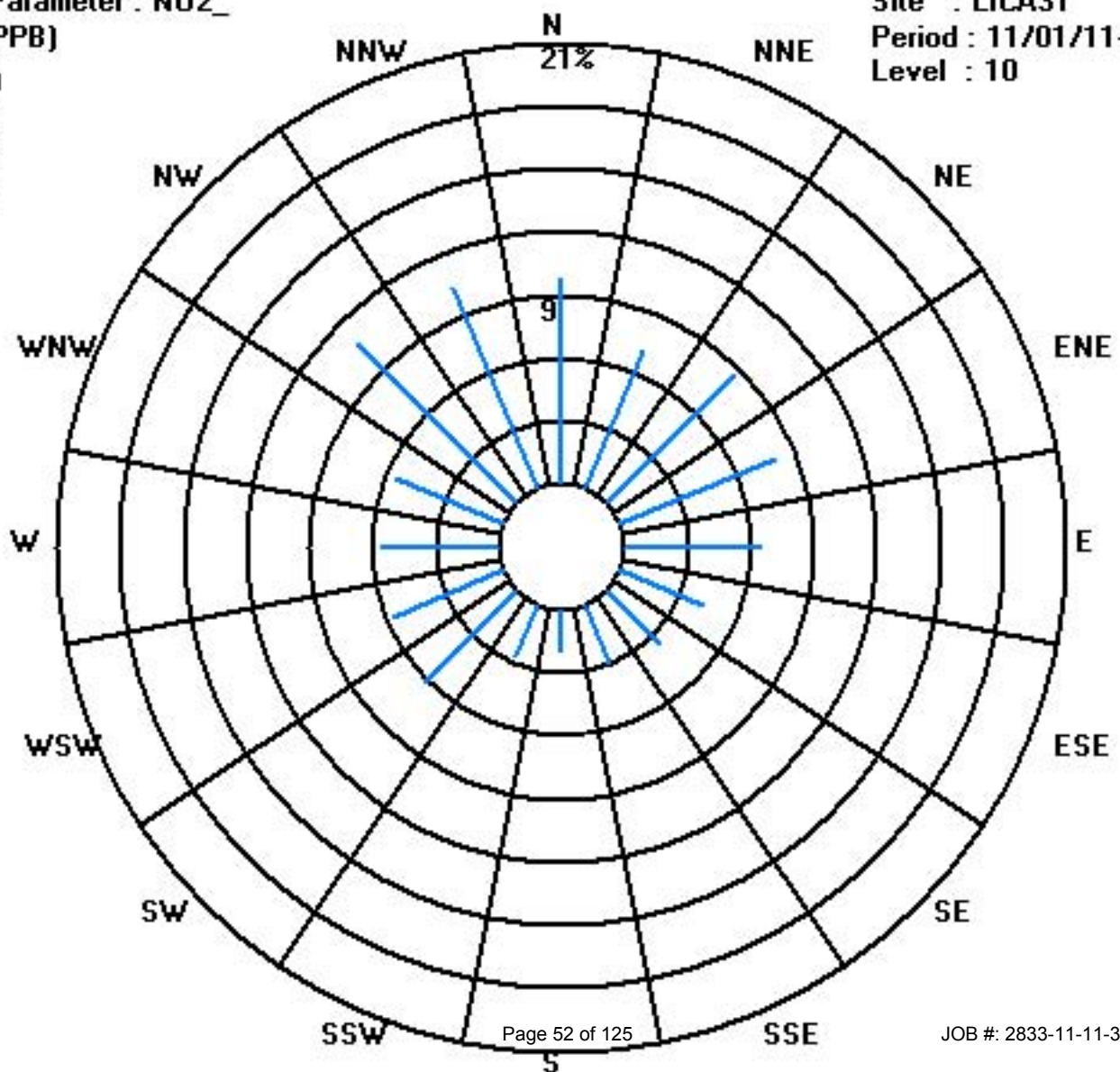
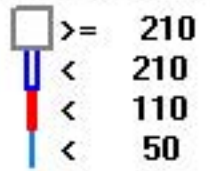
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	682
< 110																	
< 210																	
>= 210																	
Totals	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	

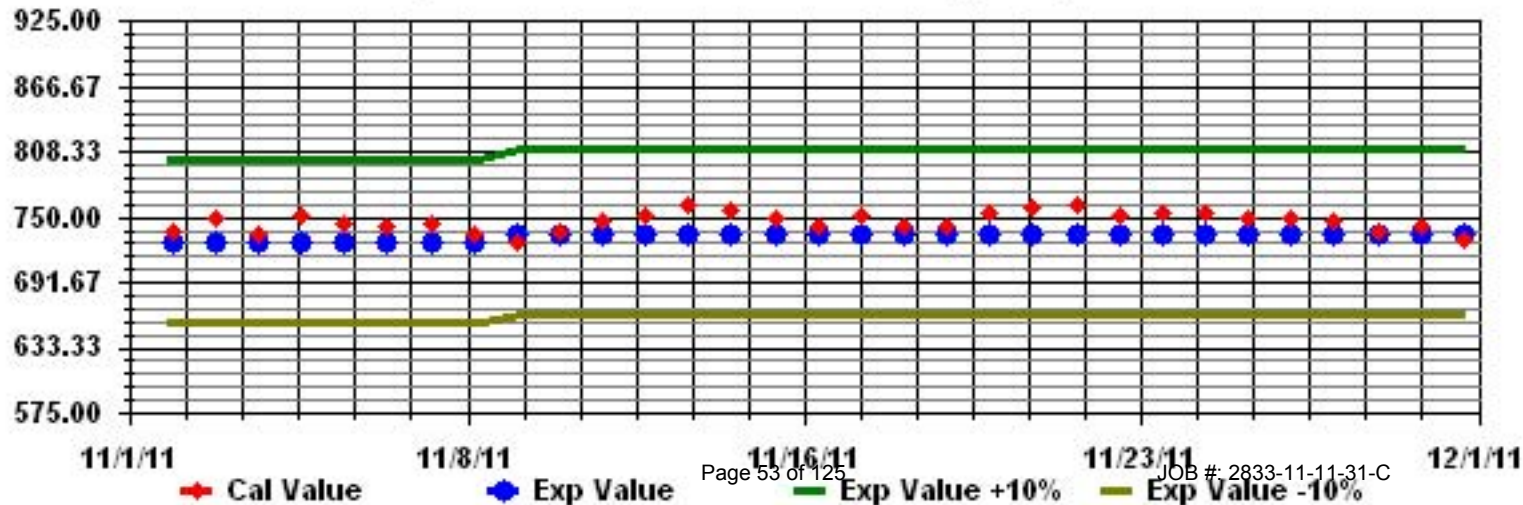
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	24	
2	0	0	0	0	0	0	0	0	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0.4	24
3	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.3	24	
4	0	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	0.8	24	
5	0	0	0	0	0	0	0	0	0	1	2	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	3	0.6	24	
6	0	0	0	0	0	0	0	0	0	1	3	3	3	3	2	2	1	1	0	0	0	0	0	0	0	0	1	2	3	1.2	24
7	1	2	2	2	2	2	2	2	2	2	4	4	4	4	2	2	1	0	0	0	0	0	0	0	0	0	0	4	1.7	24	
8	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	C	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	M	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	23
10	0	0	0	0	0	0	0	0	0	0	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
11	0	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	1	0.5	24	
12	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24		
13	0	0	0	0	0	0	0	0	0	1	0	IZS	2	1	1	1	1	1	0	1	0	1	0	1	1	1	1	2	0.5	24	
14	1	1	1	0	1	0	1	0	1	IZS	2	1	1	1	0	1	1	0	1	0	0	0	0	0	0	1	1	2	0.7	24	
15	1	1	0	0	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24	
16	1	1	1	1	1	1	1	1	IZS	1	0	1	2	3	2	2	0	1	0	0	0	0	0	0	0	0	3	0.9	24		
17	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
18	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
19	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
20	0	0	0	0	IZS	1	0	0	0	0	1	2	2	3	2	2	1	2	1	1	1	1	0	0	0	0	3	0.9	24		
21	0	0	IZS	2	1	1	1	1	2	4	5	4	4	4	4	2	1	0	1	0	0	0	0	0	0	5	1.6	24			
22	0	IZS	1	1	1	1	1	1	2	3	4	4	3	3	2	1	0	0	0	0	0	0	0	0	0	4	1.2	24			
23	IZS	1	1	1	0	0	0	0	0	1	2	3	3	1	1	0	0	0	0	0	0	0	0	0	0	3	0.6	24			
24	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.3	24			
25	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24			
26	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	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	1	0.2	24			
28	1	0	0	1	0	0	0	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	0.9	24			
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24		
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24			
HOURLY MAX	1	2	2	2	2	2	2	2	2	4	5	4	4	4	4	2	2	1	2	1	2	1	1	1	2						
HOURLY AVG	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.6	0.9	1.3	1.3	1.3	1.0	0.9	0.6	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3							

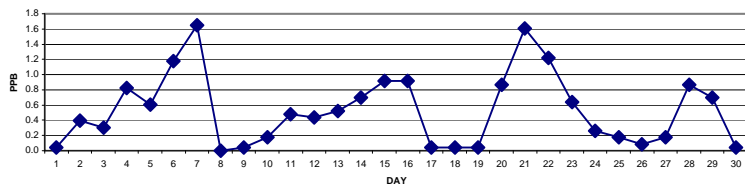
STATUS FLAG CODES

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

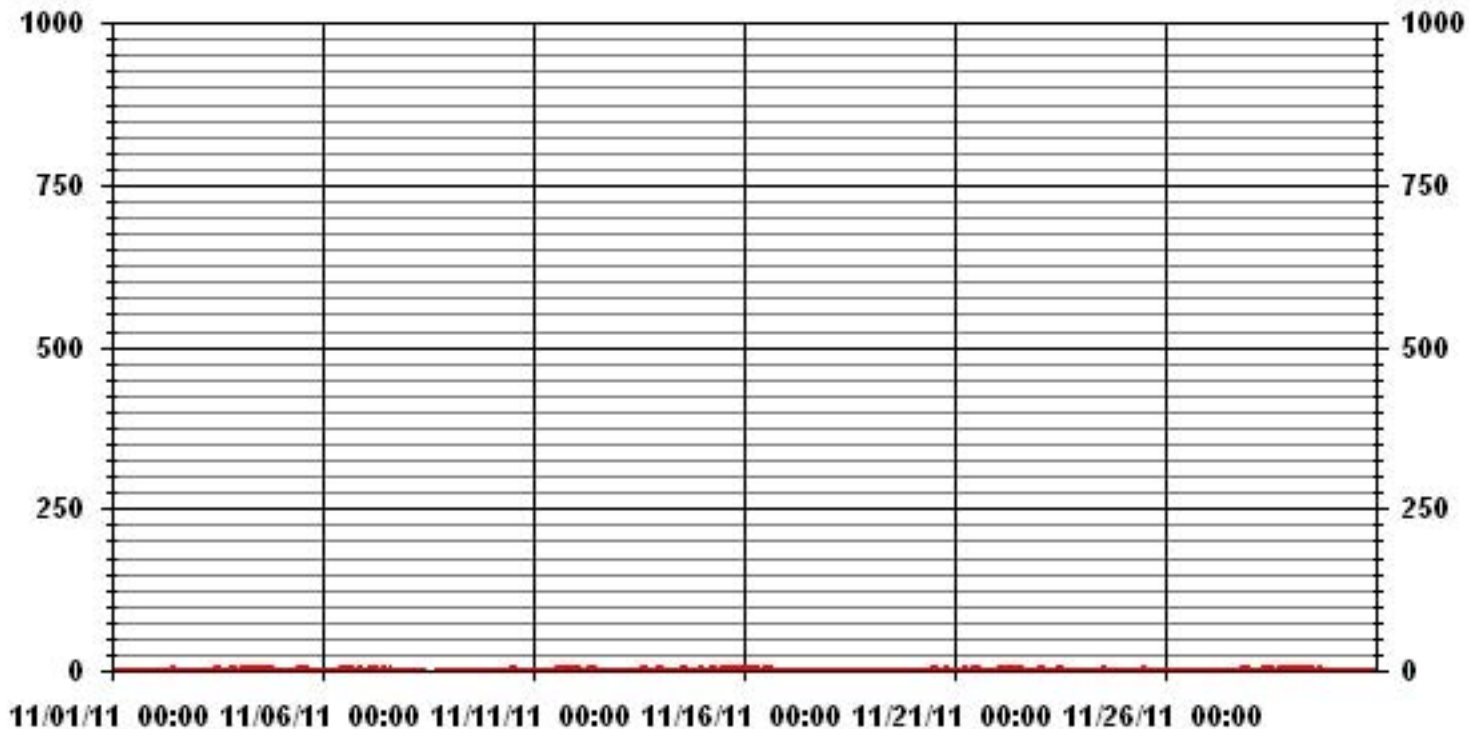
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	266					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	10	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	1.7	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.83		MONTHLY AVERAGE:	0.54	PPB	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	2	0	0	0	0	0	0	1	1	1	11	1	1	1	1	0	1	0	0	1	0	0	IZS	3	11	1.1	24	
2	1	1	1	1	1	1	1	26	2	3	4	2	2	1	1	1	1	1	1	1	1	IZS	2	1	26	2.5	24	
3	0	0	0	0	0	1	1	7	2	1	2	2	2	2	2	1	1	1	2	3	IZS	3	1	1	7	1.5	24	
4	1	1	1	1	1	1	2	1	2	2	2	1	1	2	2	2	2	2	2	IZS	2	1	1	1	2	1.5	24	
5	1	1	1	1	1	3	2	2	2	4	4	3	14	2	2	5	3	2	IZS	2	1	1	1	1	1	14	2.6	24
6	1	1	1	0	1	1	1	1	2	5	4	4	4	3	3	2	2	IZS	3	2	2	2	2	3	5	2.2	24	
7	2	2	2	2	2	2	4	4	3	4	5	4	7	4	3	3	IZS	2	1	1	1	1	1	1	7	2.7	24	
8	1	1	1	1	1	0	0	2	1	P	C	C	C	C	C	C	1	1	0	1	1	1	1	0	2	0.8	23	
9	0	0	0	0	1	1	0	1	1	1	1	2	1	M	IZS	2	1	1	0	0	1	0	0	0	2	0.6	23	
10	0	0	0	0	0	0	1	1	4	1	23	19	3	IZS	3	9	10	0	1	1	0	0	0	0	23	3.3	24	
11	1	0	1	1	0	0	0	1	1	0	1	0	IZS	2	1	1	1	2	2	1	1	1	1	1	2	0.9	24	
12	1	1	1	1	1	1	1	1	1	2	2	IZS	2	1	0	1	0	0	0	0	0	0	0	0	2	0.7	24	
13	0	0	0	0	0	1	1	1	9	1	IZS	3	2	2	2	1	2	1	2	1	1	1	1	1	9	1.4	24	
14	1	1	1	1	1	1	1	1	2	IZS	3	2	2	1	1	1	1	1	2	1	1	1	1	1	3	1.3	24	
15	1	1	1	1	2	1	1	1	IZS	4	2	4	2	2	2	2	1	2	1	2	2	1	1	1	4	1.6	24	
16	2	2	2	2	2	2	2	IZS	2	1	2	3	4	3	3	2	2	1	2	1	2	1	1	0	4	1.9	24	
17	0	0	0	0	0	1	IZS	2	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	2	0.5	24	
18	0	0	0	0	0	IZS	2	1	0	0	0	1	0	0	0	1	0	1	1	1	1	0	0	0	2	0.4	24	
19	0	0	0	0	IZS	3	1	0	0	0	1	1	1	1	1	0	0	0	1	0	0	1	1	1	3	0.6	24	
20	0	0	1	IZS	2	1	1	1	2	2	10	4	5	3	4	2	5	3	3	3	1	1	1	1	10	2.4	24	
21	1	1	IZS	3	2	2	2	2	3	5	6	5	5	5	5	4	1	1	1	1	1	1	1	1	6	2.6	24	
22	1	IZS	3	1	2	1	2	2	3	4	4	5	4	3	3	2	1	1	1	1	1	1	1	1	5	2.1	24	
23	IZS	2	2	1	1	1	1	1	1	2	4	4	4	2	2	1	0	1	0	1	1	1	1	IZS	4	1.5	24	
24	2	1	1	0	1	1	1	0	14	3	2	19	2	4	1	1	1	0	1	1	1	0	IZS	2	19	2.6	24	
25	1	0	1	0	0	0	1	0	1	1	2	2	2	1	0	1	1	0	0	0	0	0	IZS	2	1	2	0.7	24
26	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	IZS	2	1	0	2	0.8	24		
27	0	0	0	1	0	0	0	1	0	1	1	2	1	1	1	0	1	0	0	IZS	2	1	1	1	2	0.7	24	
28	1	1	1	1	1	1	1	2	2	2	6	2	6	3	3	3	2	2	IZS	3	2	2	2	1	6	2.2	24	
29	2	1	2	2	2	2	2	2	2	2	3	12	1	2	1	2	2	IZS	2	1	1	1	1	1	12	2.1	24	
30	0	1	0	1	1	1	0	0	1	2	2	1	1	1	1	1	IZS	3	1	3	1	1	0	1	3	1.0	24	
HOURLY MAX	2	2	3	3	2	3	4	26	14	5	23	19	14	5	5	9	10	3	3	3	3	2	3	2	3			
HOURLY AVG	0.8	0.7	0.9	0.8	0.9	1.1	1.1	2.3	2.3	2.0	3.9	3.9	2.9	2.0	1.8	1.8	1.7	1.0	1.1	1.1	0.9	0.9	1.0	0.9				

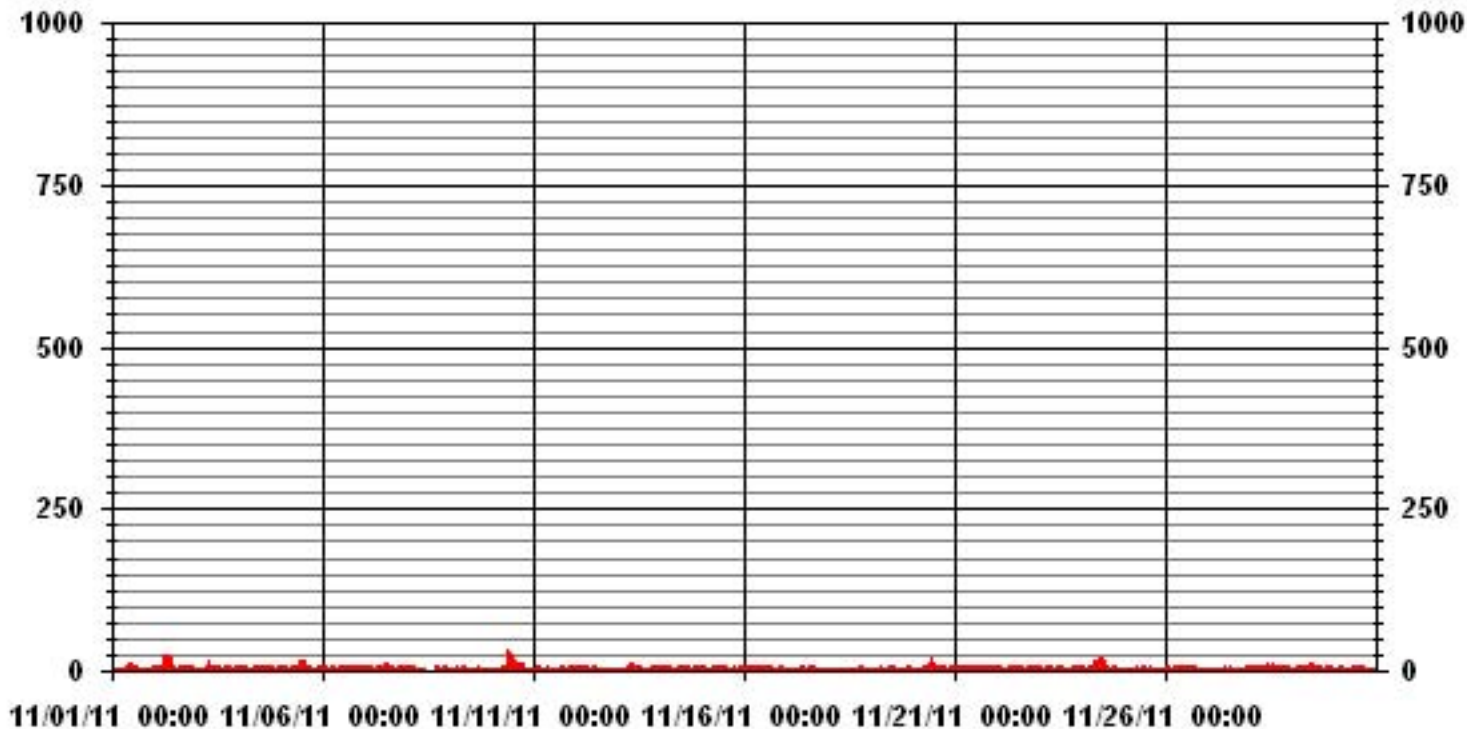
STATUS FLAG CODES

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:	541					
MAXIMUM INSTANTANEOUS VALUE:	26	PPB	@ HOUR(S)	7	ON DAY(S)	2
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	2.22					

01 Hour Averages



— LICA31 — NOMAX — PPB

LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

November 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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	682
< 110																	
< 210																	
>= 210																	
Totals	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	

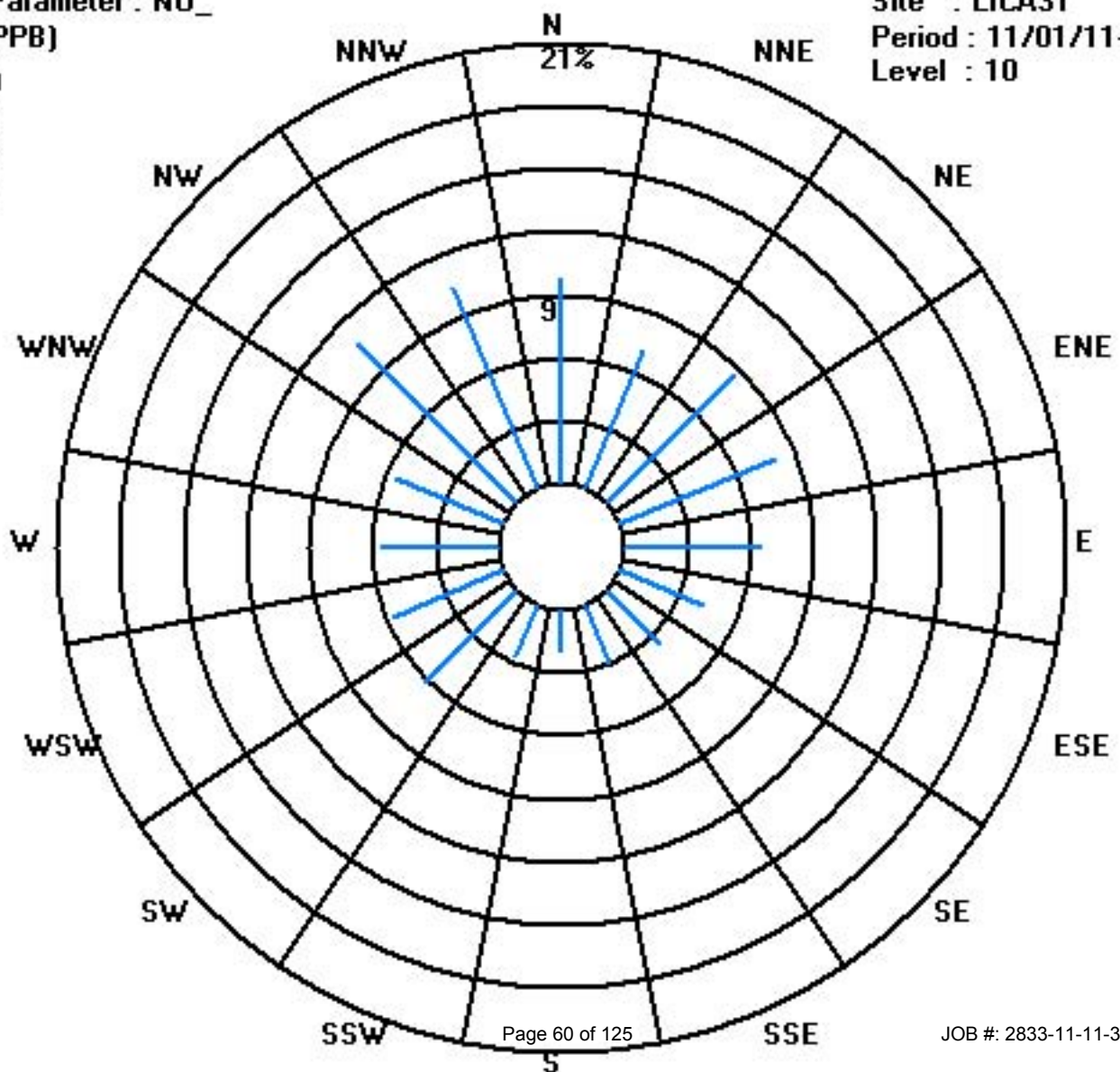
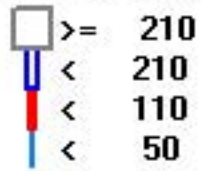
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)

Period : 11/01/11-11/30/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
NOVEMBER 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	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	3	3	4	IZS	6	6	1.7	24	
2	4	4	5	5	6	6	6	7	7	6	7	6	5	4	4	7	7	7	6	5	5	IZS	3	3	7	5.4	24	
3	2	2	2	2	2	2	2	2	3	4	5	4	4	5	4	2	2	3	4	3	IZS	1	0	0	5	2.6	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	IZS	5	5	5	5	5	1.1	24	
5	5	6	5	5	6	6	6	7	7	7	8	7	6	6	6	6	6	6	IZS	5	4	5	5	4	8	5.8	24	
6	5	7	6	4	7	7	7	8	9	10	9	8	8	7	7	6	6	IZS	5	4	7	8	8	11	11	7.1	24	
7	10	10	10	11	11	8	10	9	9	9	8	7	9	6	4	2	IZS	3	3	3	3	4	5	6	11	7.0	24	
8	6	7	7	7	5	4	2	3	2	1	C	C	C	C	C	C	C	C	1	1	1	1	1	1	1	7	3.0	24
9	1	1	1	1	1	1	1	1	1	1	1	1	2	M	IZS	3	2	3	2	3	3	2	1	2	3	1.6	23	
10	1	1	2	2	2	2	3	3	4	4	5	5	5	IZS	2	1	0	0	0	0	0	0	0	0	0	5	1.8	24
11	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	4	3	3	2	2	2	1	4	1.5	24	
12	1	1	1	1	2	1	2	2	2	2	2	IZS	2	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24	
13	1	1	2	3	4	4	4	5	5	3	IZS	1	1	1	1	0	1	0	0	0	0	0	0	0	5	1.6	24	
14	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
15	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	1	1	0	0	0	0	0	1	1	1	1	0.3	24	
16	4	3	3	2	5	3	2	IZS	3	3	4	6	7	6	7	7	8	8	7	6	4	2	2	1	8	4.5	24	
17	1	0	0	1	1	1	IZS	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	0.8	24	
18	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	
19	0	0	0	0	IZS	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
20	1	1	1	IZS	2	3	2	3	3	4	6	5	6	6	6	7	12	14	13	12	11	8	7	7	14	6.1	24	
21	7	7	IZS	9	9	8	9	9	9	9	9	9	9	9	10	9	8	6	7	5	5	5	6	6	10	7.8	24	
22	7	IZS	9	12	12	11	10	11	10	11	11	10	9	9	8	8	5	5	6	5	4	4	6	6	12	8.2	24	
23	IZS	10	10	8	6	5	3	3	4	5	8	9	8	6	5	3	3	3	2	3	4	3	2	IZS	10	5.1	24	
24	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	IZS	3	3	1.4	24	
25	2	2	3	3	3	3	3	3	4	4	5	6	5	4	3	2	1	1	1	1	1	IZS	0	0	6	2.6	24	
26	0	0	1	1	2	3	3	2	2	2	3	2	2	3	3	3	3	3	2	2	IZS	3	3	2	3	2.2	24	
27	2	2	2	2	1	1	1	2	1	2	2	2	2	2	1	0	0	0	0	IZS	0	0	0	0	2	1.1	24	
28	0	0	0	0	0	0	0	0	1	1	2	1	2	4	6	4	3	4	IZS	3	2	2	2	2	6	1.7	24	
29	3	3	3	5	6	7	8	8	6	4	3	2	1	1	0	1	1	IZS	3	4	5	4	3	1	8	3.6	24	
30	1	3	4	12	6	4	2	2	2	3	2	2	2	2	2	2	IZS	3	2	3	3	2	2	7	12	3.2	24	
HOURLY MAX	10	10	10	12	12	11	10	11	10	11	11	10	9	9	10	9	12	14	13	12	11	8	8	11				
HOURLY AVG	2.3	2.6	2.8	3.4	3.5	3.2	3.1	3.2	3.4	3.4	3.9	3.6	3.6	3.3	3.1	2.8	2.9	2.8	2.7	2.8	2.7	2.5	2.4	2.7				

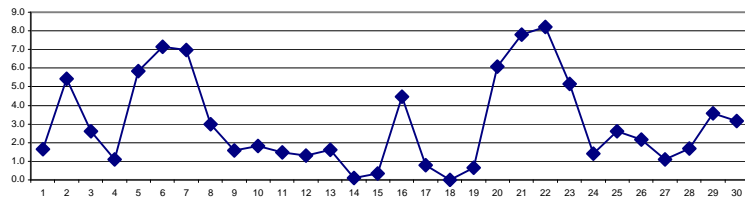
STATUS FLAG CODES

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

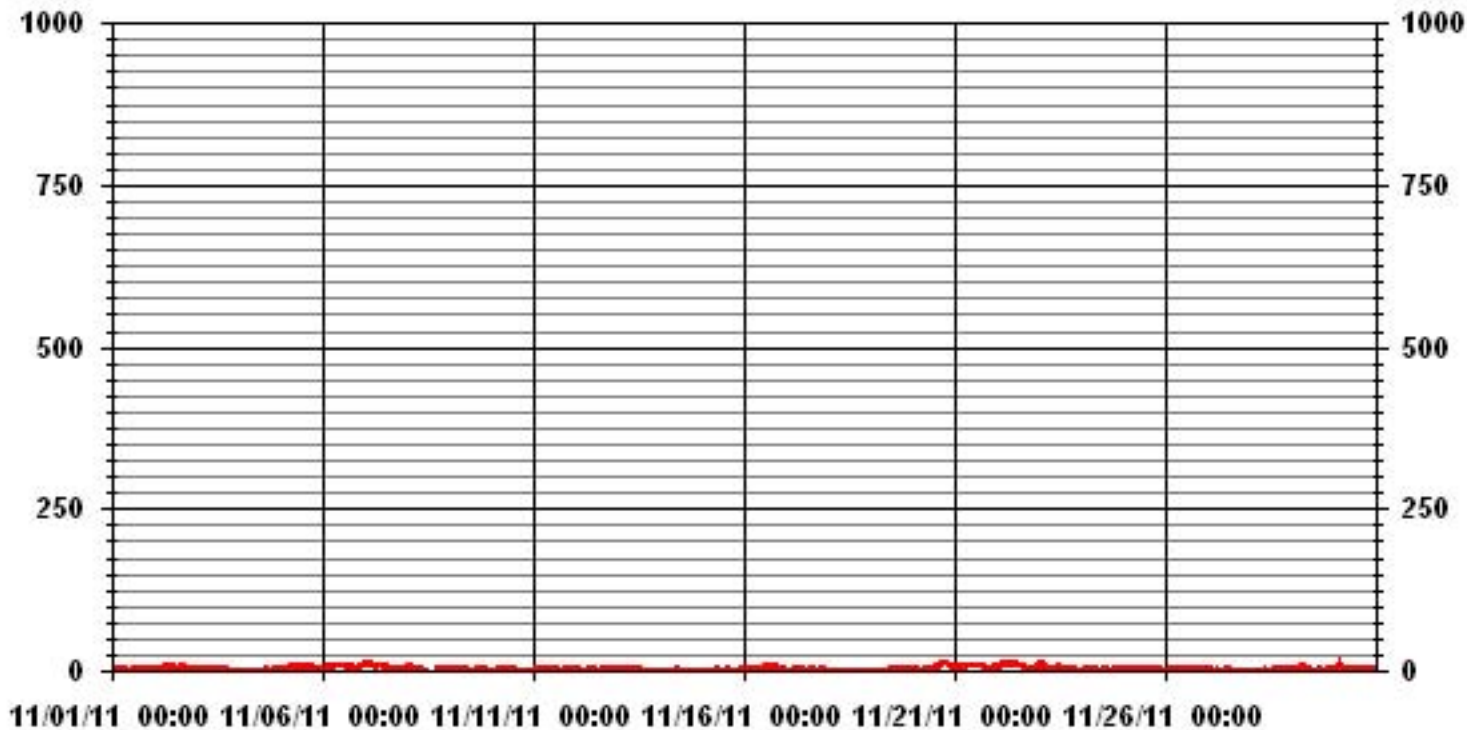
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	556		
MAXIMUM 1-HR AVERAGE:	14	PPB @ HOUR(S)	17 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	8.2	PPB	ON DAY(S)
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME: 719 HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME 99.9 %
STANDARD DEVIATION	2.96		MONTHLY AVERAGE 3.02 PPB

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	2	1	2	2	2	2	2	2	2	3	16	3	2	2	2	3	2	3	3	4	3	5	IZS	7	16	3.3	24	
2	5	5	5	7	7	7	6	33	9	8	9	7	7	5	6	8	8	8	7	6	6	IZS	5	3	33	7.7	24	
3	3	3	3	3	3	3	3	13	5	6	5	5	6	7	8	3	3	10	13	10	IZS	2	1	1	13	5.2	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	IZS	5	6	6	6	6	2.0	24	
5	6	6	6	6	6	9	8	9	8	10	10	8	21	6	7	12	12	12	IZS	6	5	6	6	5	21	8.3	24	
6	6	10	7	5	9	8	9	9	10	12	10	10	9	8	8	8	9	IZS	8	5	9	9	10	12	12	8.7	24	
7	11	11	11	12	12	11	13	14	10	10	9	8	12	7	5	5	IZS	4	5	5	4	5	6	7	14	8.6	24	
8	7	7	7	8	7	5	3	6	2	P	C	C	C	C	C	C	C	2	2	2	3	3	2	1	8	4.2	23	
9	1	2	2	2	1	1	1	3	3	2	2	2	3	M	IZS	3	4	4	4	4	4	3	2	3	4	2.5	23	
10	2	2	2	2	3	3	3	4	9	5	37	27	8	IZS	5	9	15	2	2	1	1	1	1	1	1	37	6.3	24
11	2	2	4	2	2	3	3	2	2	1	2	2	IZS	2	2	2	2	6	5	4	3	2	3	2	6	2.6	24	
12	2	1	1	1	3	2	2	2	2	2	3	IZS	3	2	1	2	1	2	2	2	2	2	2	2	3	1.9	24	
13	2	2	3	4	5	5	6	6	18	4	IZS	3	1	2	1	1	2	1	1	1	2	1	1	1	18	3.2	24	
14	1	1	1	1	1	1	1	1	2	IZS	2	2	2	1	1	1	1	1	1	2	1	1	1	1	1	2	1.2	24
15	1	1	1	1	1	1	1	1	IZS	3	1	7	1	1	1	1	2	1	2	3	1	1	2	3	7	1.7	24	
16	5	5	4	4	6	4	3	IZS	4	4	6	8	9	8	8	9	9	9	9	7	6	3	3	2	9	5.9	24	
17	2	1	1	1	1	1	IZS	2	2	2	2	1	2	2	2	2	2	1	1	1	2	1	1	1	2	1.5	24	
18	1	1	1	0	0	IZS	1	1	0	0	1	1	0	1	1	1	1	2	2	1	1	1	1	0	2	0.8	24	
19	1	2	1	1	IZS	2	1	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	1.6	24
20	2	2	2	IZS	3	4	3	3	5	6	23	8	10	7	9	10	17	17	16	15	13	9	8	8	23	8.7	24	
21	8	8	IZS	10	9	9	10	10	10	10	10	10	10	10	11	11	8	7	8	7	6	6	7	7	11	8.8	24	
22	8	IZS	10	15	14	12	12	12	12	11	12	12	11	10	10	9	7	6	7	6	6	5	7	6	15	9.4	24	
23	IZS	11	11	9	8	6	4	4	5	6	10	11	11	8	7	4	3	4	3	5	5	4	4	IZS	11	6.5	24	
24	3	3	1	1	2	2	2	2	17	5	3	29	3	7	3	3	3	2	3	2	2	2	IZS	4	29	4.5	24	
25	3	3	3	3	3	4	4	4	5	5	7	7	6	5	4	2	2	2	2	2	2	IZS	1	0	7	3.4	24	
26	1	1	2	2	3	4	4	4	5	3	3	4	3	3	4	4	4	3	3	3	3	IZS	4	4	3	5	3.2	24
27	3	3	2	3	2	2	2	3	2	2	3	3	3	3	3	2	1	1	1	IZS	1	1	1	1	3	2.1	24	
28	1	1	1	1	1	1	1	1	2	2	15	2	18	6	8	6	5	5	IZS	5	3	3	3	3	18	4.1	24	
29	4	3	5	5	7	8	9	9	8	5	4	18	2	2	2	4	3	IZS	4	6	6	5	5	2	18	5.5	24	
30	2	5	8	17	9	5	3	3	4	5	3	3	3	2	3	3	IZS	6	3	8	4	3	5	9	17	5.0	24	
HOURLY MAX	11	11	11	17	14	12	13	33	18	12	37	29	21	10	11	12	17	17	16	15	13	9	10	12				
HOURLY AVG	3.3	3.6	3.7	4.4	4.5	4.3	4.2	5.7	5.6	4.8	7.6	7.2	6.0	4.4	4.4	4.5	4.8	4.5	4.4	4.4	3.9	3.4	3.6	3.6				

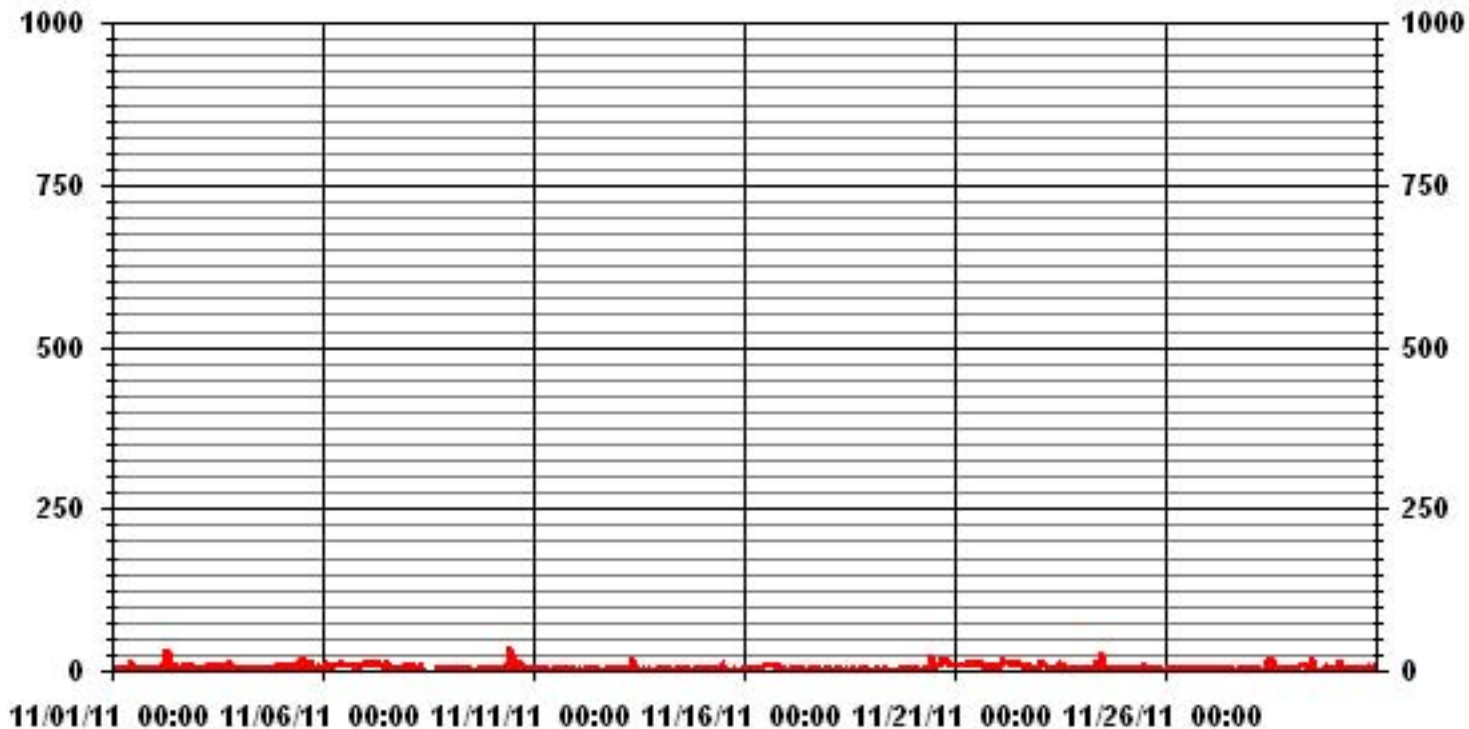
STATUS FLAG CODES

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:	674				
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	10	ON DAY(S) 10
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	4.22				

01 Hour Averages



— LICA31 NOXMAX PPB

LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

November 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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	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	9.82	7.18	8.65	8.06	6.45	4.25	3.66	3.07	2.05	2.63	6.15	5.71	5.57	5.57	10.70	10.41	

Calm : .00 %

Total # Operational Hours : 682

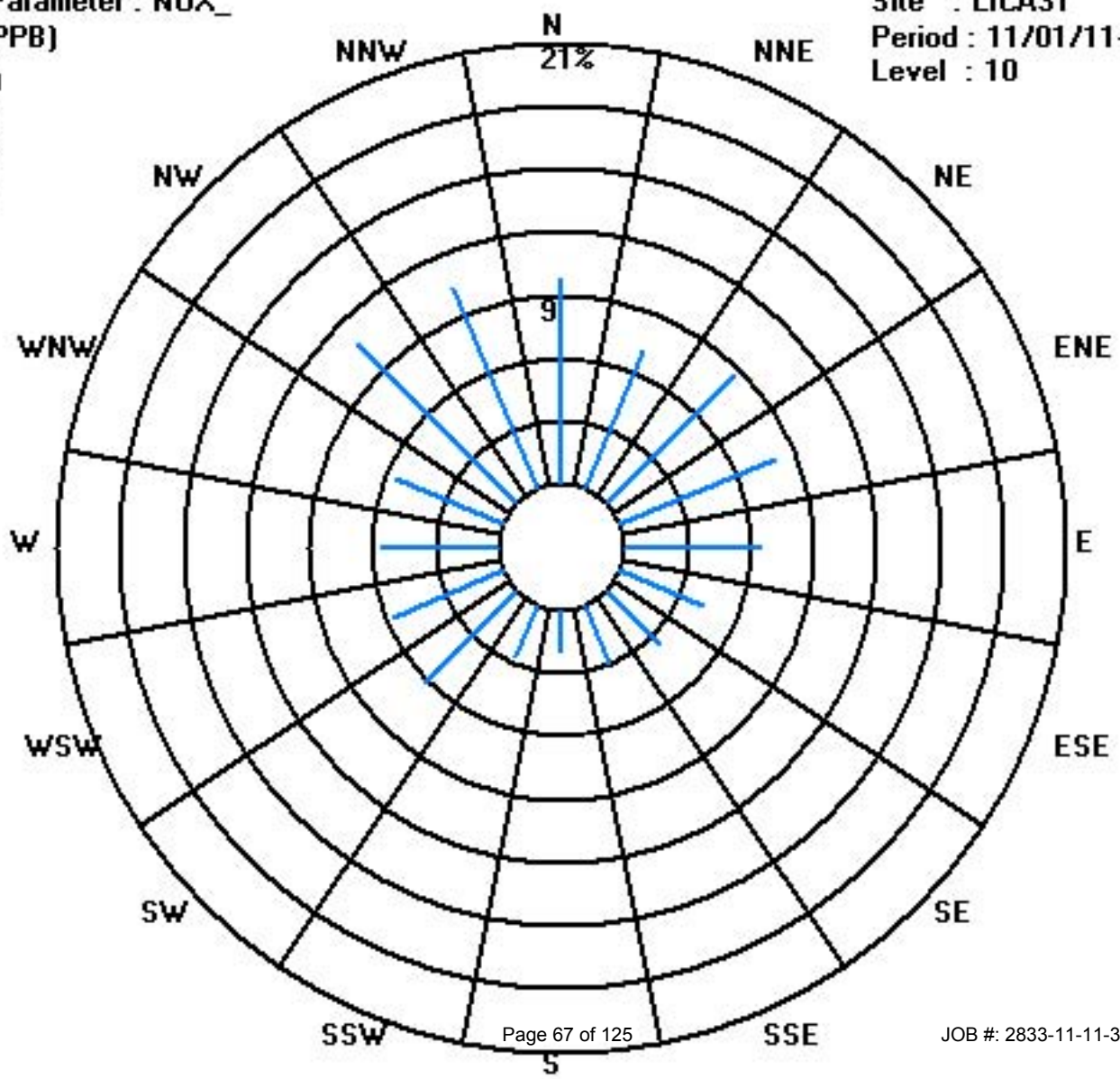
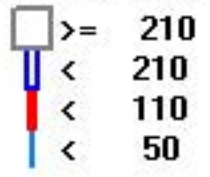
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	682
< 110																	
< 210																	
>= 210																	
Totals	67	49	59	55	44	29	25	21	14	18	42	39	38	38	73	71	

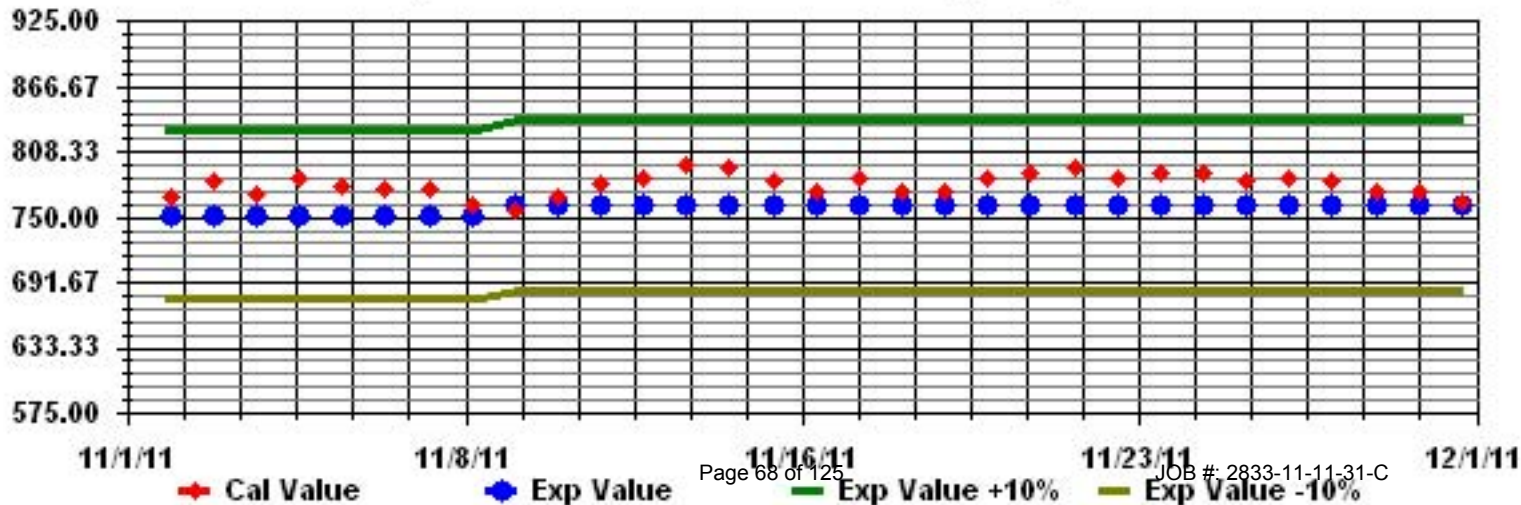
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

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

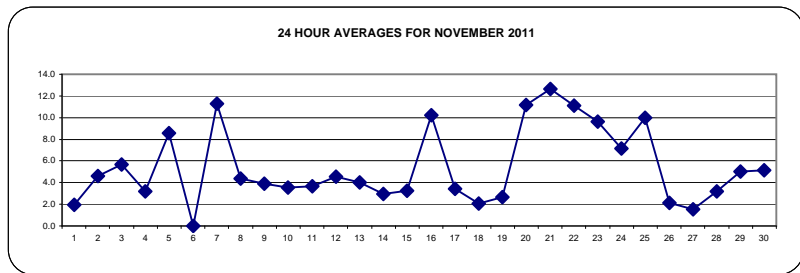
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	0	0.2	3	0	1.5	0	2.5	4.2	1	3.3	3.4	0	1.4	3.6	0.8	2.7	1	0	1.2	2.8	2.2	2.1	4.3	5.3	5.3	1.9	24
2	2	5.3	2.8	3	3	5	3.5	7.6	7.3	4.3	5.8	4.9	4.4	4.7	2	1.4	3.1	3.2	4.8	4.9	3.1	3.3	6.9	9.8	6.2	9.8	4.6	24
3	3	8.4	8.5	7.9	7.1	7.1	8	8.5	4.1	2.9	4.4	6.7	5.6	6.4	7.8	4.9	3.1	5.5	6.5	3.8	5.4	4.6	4.3	3.2	0.7	8.5	5.6	24
4	4	1.9	3	2.4	1.2	3.1	0	1.4	2.8	2.3	1.3	3.7	3.9	3	3.3	3.8	2.2	4	4.4	3.1	4.2	6	3.9	4.4	7.4	7.4	3.2	24
5	5	6.1	4.5	7.2	7.2	8	7	8.4	9.7	10.1	10.7	11.9	10.7	7	6.9	8.1	9	8.2	9.7	9.5	6.8	8.8	9.5	10.2	10	11.9	8.6	24
6	6	9.5	13.5	15.2	15	12.2	16.5	15.9	16.9	17.5	21.3	19.5	19.3	17.2	19	17.5	15	12.2	14.3	11.5	12.4	11.5	12.3	12.9	15.5	21.3	0.0	24
7	7	16.2	18.8	20	21.1	19.9	17	12.8	18.2	20	15.1	13.5	14.7	9.2	6.8	5.9	3.4	3.6	6.2	3.7	4.5	3.7	4.4	4.1	7.6	21.1	11.3	24
8	8	8.6	8.4	9.9	11.8	7.4	5.9	3.8	5	3.3	1.2	0	1.1	1.2	C	C	C	C	4.6	1.3	3.3	2.9	3.3	2.2	2.3	11.8	4.4	24
9	9	3.7	2.4	2	2.6	1.6	0	2.1	4.6	3.4	3.5	5.2	5.2	2	3.3	6.1	3.6	3.7	4.6	5.3	7.2	5.8	6.3	5.2	4.2	7.2	3.9	24
10	10	4.6	1.4	2.9	6.4	4.5	2.7	1.2	1.8	9.6	7.6	9.3	6.1	6	7.4	2.7	1.9	0	0	0.6	1.1	1.8	3.6	0	1.5	9.6	3.5	24
11	11	5.6	3.4	3.6	2.6	2.6	2.9	5.3	1.9	4.3	0.8	2.4	3.8	4	3.9	7	5.1	5.2	4.2	4.6	4.6	0.5	0	5.6	3.3	7.0	3.6	24
12	12	1.2	3.6	3.5	2.9	4.4	3.2	2.2	2.9	3.7	3.5	5	6.2	6.2	6.5	5.7	5.1	8.1	4.5	2	5.7	5.6	4	5.8	7.2	8.1	4.5	24
13	13	6.6	7	6.9	8.1	5.6	8.3	8.9	7.6	7.5	6.5	3.7	2	0.1	1.6	0	2	0	0	3.5	2.6	3.4	2.8	0	1.3	8.9	4.0	24
14	14	2.8	4.6	5.5	1.7	3.1	2.8	1.6	0.5	2.3	2.5	2.1	1.6	1.4	0.9	4.2	4.1	3.8	3.5	1.6	2.4	5.1	5.1	4.8	3	5.5	3.0	24
15	15	4.9	5.9	4.2	3	3.3	1.5	2.6	1.3	3.6	4.3	4.7	1.9	4.3	5.2	2.9	4.8	4.1	2.8	0.9	1.9	1.4	1.9	3.7	2.7	5.9	3.2	24
16	16	2.6	9.9	11.8	12.8	11.7	10.3	12.5	10.3	8.3	9.8	8.8	4.4	14.9	17	14.2	12.9	9.3	11.5	11.9	11.1	8.9	10	7.7	2.6	17.0	10.2	24
17	17	4.7	4.1	3.6	1.9	6.3	6.9	3.6	4.8	3.7	4	4.3	3.5	3.2	5	4.6	5	2.7	0	0	2.3	4.1	1	0.7	2.9	6.9	3.5	24
18	18	1.9	2.7	1.2	3.4	0.2	2.7	0.7	1.4	2.9	2.7	3.1	3.8	0.2	2	3.1	2.5	0	3.9	3.1	0	2.5	3.1	0.8	1.1	3.9	2.0	24
19	19	1.6	2.5	1.4	1.1	2.9	4.1	2.8	2.2	2.4	4.2	1	3.5	4.2	6	0.1	2.2	2.5	4.5	1.9	0.9	0.1	3.5	4.6	4.1	6.0	2.7	24
20	20	3.3	2.4	2.5	0.8	5.4	4.2	3.9	4.7	6.6	11.2	12.7	8.6	10.3	8.5	12.8	14	15.9	23.4	22.1	19.9	21.5	17.3	19.2	17.2	23.4	11.2	24
21	21	18.8	16	13.4	14.4	14.2	11.6	14.6	15.9	14.8	14	12.3	16.3	19.8	14.5	10.3	12.3	11.6	7.6	5.3	8.3	8.7	11.8	8.8	8.5	19.8	12.7	24
22	22	14.1	14.9	14.2	17.4	17.7	17.7	16.1	16.4	16	15	15	12.3	12.1	8.1	9.6	6.6	7.5	2.8	0	5.6	6.6	3	6.2	12.2	17.7	11.1	24
23	23	13.5	17.5	20.6	18.6	19	15.1	9.8	7.6	6.9	8.1	6.7	11.6	6.2	9.9	6.2	6.7	0.1	7.3	7.5	6.4	3.5	8.2	6.8	7.1	20.6	9.6	24
24	24	4.3	7.2	6.5	0.3	5.2	4.9	7.7	9.5	10.9	7.8	8.3	9	5.2	5.9	5.8	6.3	4.9	6	4.3	4.8	7.8	9.4	15.7	14.4	15.7	7.2	24
25	25	11.5	14.2	14.8	13	14.3	15.7	16.6	16.4	15.7	16.2	13.9	14.5	14.5	12.6	8.5	5.9	1.4	3	2.8	3.6	1.2	2.7	5.2	1.8	16.6	10.0	24
26	26	1.8	2	0	2.5	4.7	1.8	3.5	2.4	0.7	0	0	2.5	2.1	N	0	2.5	5	6.7	2.4	3.8	1.1	0	0.4	2.5	6.7	2.1	23
27	27	5.6	2.6	0	0	0	1.2	2.7	0.5	0.4	0.6	0	2.2	0	0	0	6	0	N	1.9	1.2	0	0	3.2	6.8	6.8	1.5	23
28	28	2.1	5.3	4.1	3.7	3.7	0.9	3.8	4.3	3.8	1.9	2.3	1.9	1.8	2.4	8.2	5.6	2.5	1.9	1.7	2.6	4.7	1.1	2	3.7	8.2	3.2	24
29	29	7.2	4.6	6.7	6.7	11.1	10.6	14.3	10.1	5.6	2.2	2.3	5.9	6	4.1	0	0	0	3.1	4.3	2.9	3.2	3.2	5	1.2	14.3	5.0	24
30	30	4.4	4.8	4.5	4.3	3.3	4.4	5.9	2.4	6.2	5.5	1.6	4.2	3.2	5.8	4.2	1.5	4.6	5.6	7.6	9.2	8.8	4.4	8.4	9.1	9.2	5.2	24
HOURLY MAX		19	19	21	21	20	18	17	18	20	21	20	19	20	19	18	15	16	23	22	20	22	17	19	17			
HOURLY AVG		6.1	6.6	6.8	6.5	7.0	6.4	6.8	6.6	6.7	6.5	6.3	6.4	5.9	6.4	5.5	5.3	4.5	5.4	4.5	5.0	5.0	5.0	5.7	5.8			

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

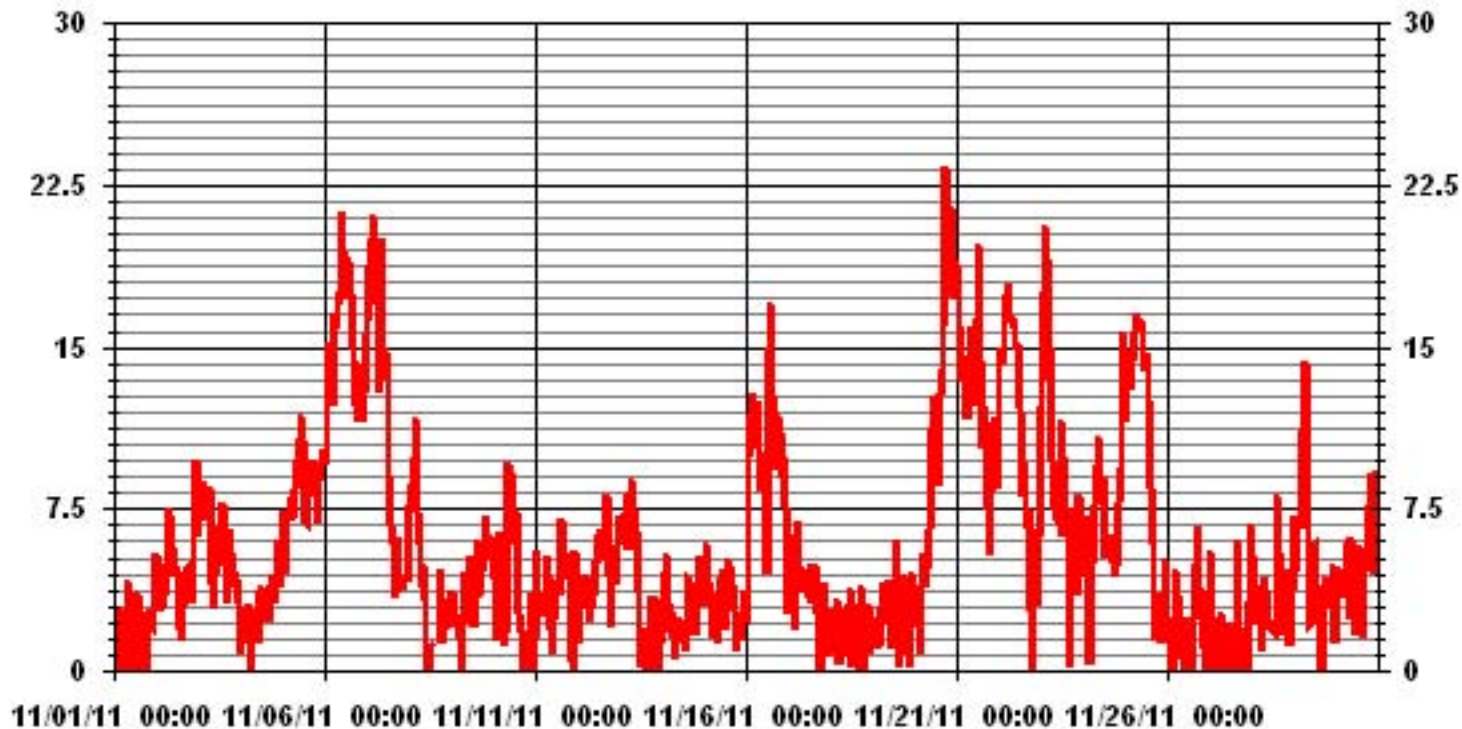
ALBERTA ENVIRONMENT:	1-HR	-	ug/m ³	24-HR	30	ug/m ³
----------------------	------	---	-------------------	-------	----	-------------------



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE
NUMBER OF NON-ZERO READINGS:	675
MAXIMUM 1-HR AVERAGE:	23.4 UG/M ³ @ HOUR(S) 17 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	12.7 UG/M ³ ON DAY(S) 21
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	4.90
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	5.94 UG/M ³

01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

November 2011

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 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	10.08	7.00	8.54	8.12	6.44	4.20	3.64	2.94	2.10	2.94	6.02	5.74	5.46	5.46	11.06	10.22	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	10.08	7.00	8.54	8.12	6.44	4.20	3.64	2.94	2.10	2.94	6.02	5.74	5.46	5.46	11.06	10.22	

Calm : .00 %

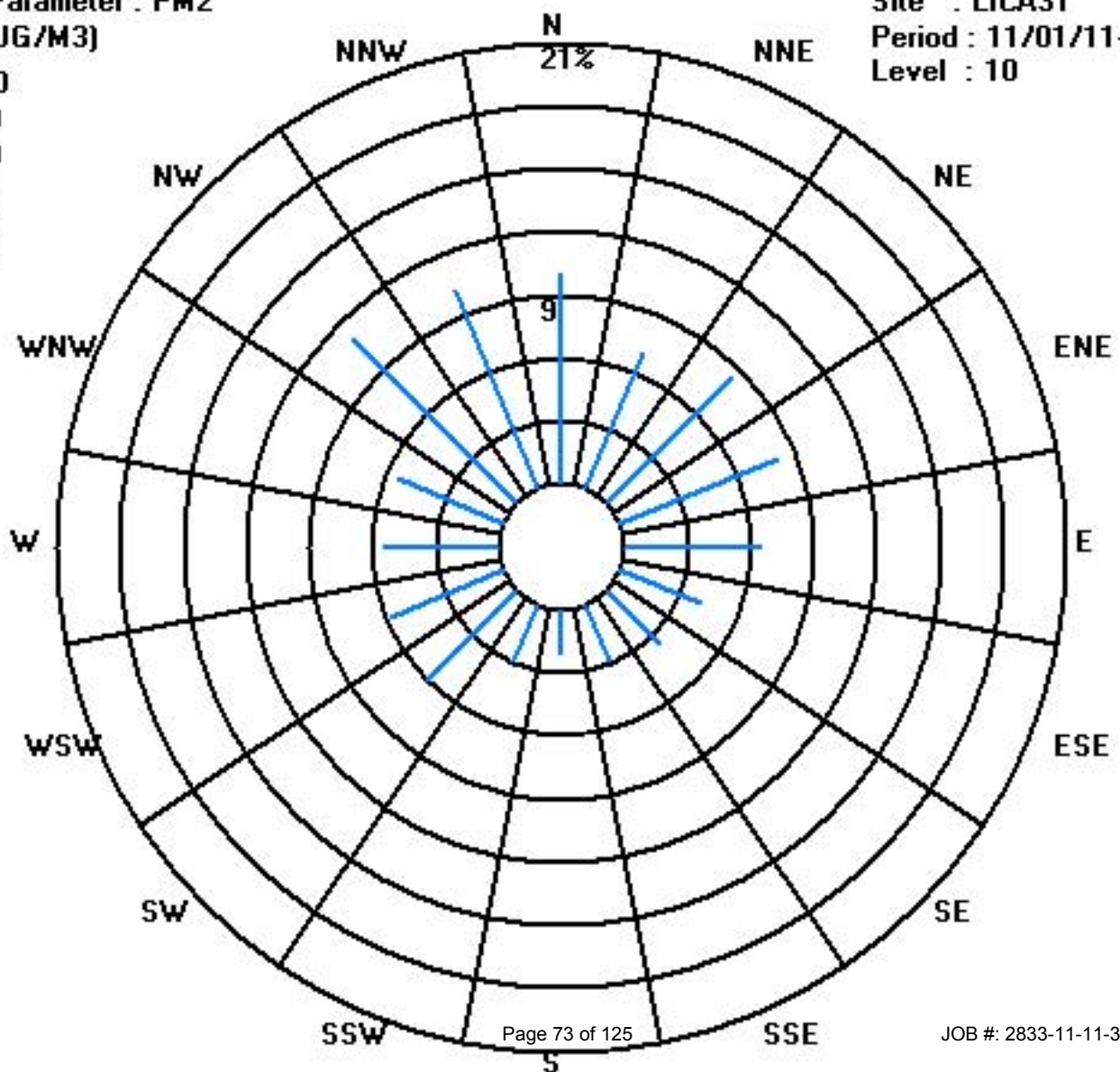
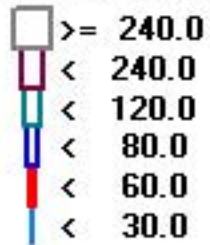
Total # Operational Hours : 714

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	72	50	61	58	46	30	26	21	15	21	43	41	39	39	79	73	714
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	72	50	61	58	46	30	26	21	15	21	43	41	39	39	79	73	

Calm : .00 %

Total # Operational Hours : 714



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

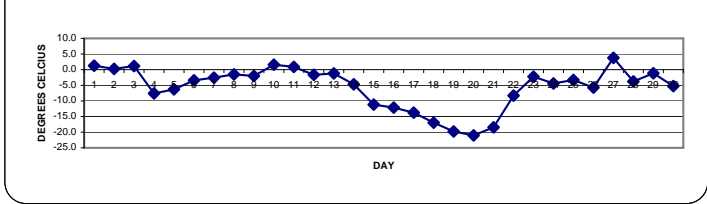
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	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	0.8	0.1	0	-0.3	-1.2	-1.2	-0.8	0	1.4	2.8	3.4	4.5	5.7	6	5.4	3.6	1.4	0.7	-0.1	-0.7	-0.3	-0.9	-1.1	6.0	1.3	24
2	-1.5	-1.9	-2.6	-2.6	-3.1	-3.8	-4.4	-5	-4.2	-2	1.3	3.8	5.5	6.1	5.7	4.8	3.9	2.3	1.5	0.8	0.6	0.5	0.3	0.1	6.1	0.3	24
3	0	-0.4	-0.6	-1	-1.1	-1.4	-1.7	-1.4	-1.1	0.7	2.6	5.3	6.7	6.4	5.8	4.7	3.9	3.5	3.3	1.7	-0.4	-1.5	-2.5	-3.7	6.7	1.2	24
4	-5.1	-6.2	-6.7	-7.5	-8.2	-8.2	-9.1	-9.8	-9.1	-7.8	-6.9	-6.9	-6.2	-5	-4.5	-5	-6.3	-7.8	-8.6	-9.1	-9.4	-9.5	-9.6	-10.2	-4.5	-7.6	24
5	-10.9	-11.3	-11.4	-11.2	-11.2	-11	-11.2	-11.4	-10.1	-7.9	-5.9	-3.3	-1.8	-0.6	-0.1	-0.2	-1.4	-2.8	-3.3	-3.9	-4.8	-5	-5	-5.7	-0.1	-6.3	24
6	-5.6	-5.7	-6.8	-8	-7.2	-5.9	-6.7	-6.7	-6	-3.4	-1	0.5	1.3	2.1	2.6	1.2	-0.9	-1.7	-2.7	-3.2	-3.5	-4.1	-4.8	-5.7	2.6	-3.4	24
7	-6	-7.1	-8	-8.6	-8.5	-6.7	-7.5	-7	-5.8	-3	-1.1	-0.3	1.4	3.3	4.9	5	3	1.3	-0.3	-1.2	-1.6	-1.8	-2.6	-3.2	5.0	-2.6	24
8	-4.1	-5.1	-5.5	-4.8	-3	-3.2	-3.1	-3.2	-2.1	-0.1	1.7	2.3	1.6	1.7	2.4	2.2	0.7	-0.8	-1.4	-2	-2.4	-2.4	-2.6	-3.2	2.4	-1.5	24
9	-3.7	-4.6	-4.8	-4.8	-5.1	-5.3	-5.7	-6	-4.3	-2.6	-1	1.7	1.8	1.6	0.8	0	-0.7	-0.9	-1.1	-1.1	-0.8	-0.6	-0.4	-0.4	1.8	-2.0	24
10	-0.6	-0.8	-0.8	-1.2	-1.3	-1.1	-0.9	-0.6	-0.7	-0.3	0.6	2.4	3.2	5.5	5.1	6.1	4.6	3.5	4	3.5	2.6	2	1.6	1.6	6.1	1.6	24
11	1	0.3	0.8	0.8	1	1.4	1.2	1.1	1.4	2	1.1	1.5	2.2	2.1	1.7	1.2	0.6	0.4	0.2	0.1	0	-0.2	-0.4	-0.5	2.2	0.9	24
12	-0.7	-0.8	-0.9	-1	-1.4	-1.9	-2.3	-2.5	-2.5	-2.3	-2.1	-1.7	-1.5	-1.3	-1.5	-1.8	-2.2	-2.1	-2	-1.8	-1.5	-1.4	-1.3	-1.1	-0.7	-1.7	24
13	-1.1	-1.7	-1.8	-2.5	-2.7	-3.4	-3.5	-3.3	-2	-1.1	-0.2	0	0.5	0.7	0.3	0.1	-0.2	-0.2	-0.4	-0.5	-0.9	-1.5	-1.8	-1.9	0.7	-1.2	24
14	-1.8	-1.8	-2.1	-2.3	-2.4	-2.7	-2.8	-2.8	-3.4	-3.6	-3.6	-3.8	-4.4	-5.1	-5.6	-5.8	-6	-6.3	-6.6	-7.2	-7.5	-7.8	-8.2	-8.8	-1.8	-4.7	24
15	-9.3	-10	-11.1	-11.5	-11.5	-11.5	-11.7	-11.9	-12.1	-11.2	-9.8	-9.2	-8.5	-8	-8.2	-9	-10.8	-12.2	-12.7	-12.6	-13.4	-13.9	-14	-13.8	-8.0	-11.2	24
16	-16.1	-16.2	-15.6	-15.1	-14.4	-13.4	-12.2	-11.4	-11.6	-10.6	-10.3	-10.6	-9.3	-7.1	-9.7	-10.5	-12.5	-12.9	-13.2	-12.6	-11.8	-11.4	-11.5	-11.3	-7.1	-12.1	24
17	-11.4	-11.9	-12.2	-12.2	-12.5	-13	-13.4	-13.8	-13.8	-13.7	-13.2	-12.5	-12.1	-12.4	-12.1	-12.7	-13.9	-14.7	-15.5	-16.3	-16.9	-17	-16.6	-16.1	-11.4	-13.7	24
18	-16.3	-16.5	-16.8	-17.2	-17.8	-18	-18	-17.9	-17.7	-17.3	-16.8	-16.1	-15.7	-15.5	-16.3	-16.9	-16.9	-16.9	-17.1	-17.2	-17.3	-17.6	-17.8	-17.8	-15.5	-17.0	24
19	-17.9	-17.9	-18	-18.1	-18.2	-18.5	-18.9	-19.2	-19.1	-18.8	-18.6	-18.6	-18.6	-18.6	-18.5	-18.7	-20.4	-21.4	-22	-22.3	-22.6	-23.1	-23.4	-23.1	-17.9	-19.8	24
20	-22.3	-22.7	-23.3	-22.9	-23	-22.9	-22.9	-23.1	-22.8	-21.6	-20.3	-18.7	-17.6	-16.9	-16.8	-17.7	-19.3	-20.8	-21.1	-21.2	-21.6	-21.6	-21.6	-21.9	-16.8	-21.0	24
21	-22.1	-22.3	-22.2	-22.3	-22	-22	-22.7	-22.7	-21.2	-20.3	-18.9	-18.2	-17.5	-15.8	-15.5	-15.9	-15.8	-15.9	-15.1	-14.6	-14.7	-14.7	-14.6	-14.6	-18.4	24	
22	-15	-15.2	-15.4	-14.7	-12.6	-11.1	-12.5	-12.3	-12.4	-11.7	-10.4	-9	-8	-6.9	-6	-5.9	-1.5	-1.2	-3.1	-2.2	-2	-2.1	-3.7	-4.4	-1.2	-8.3	24
23	-3.8	-3.5	-3.2	-3.2	-3.3	-2.7	-1.9	-0.6	-1.7	-2.5	-3.2	-1.9	-0.9	-1	-0.8	-1.4	-2.5	-2.6	-2.3	-2.2	-2.1	-2.2	-2.2	-2.1	-0.6	-2.2	24
24	-2.4	-2.6	-2.5	-3	-3.8	-3.8	-4	-5	-5.2	-5	-4.7	-4	-2.4	-3	-5.3	-7.2	-7.9	-6.4	-5.7	-4.9	-4.4	-4.2	-4.2	-4.2	-2.4	-4.4	24
25	-4	-3.8	-3.4	-3.1	-3	-3.1	-3.9	-4.8	-5.3	-5.6	-5.4	-4.5	-2.5	-1	0.1	0.5	-0.2	-1.2	-1.9	-2.9	-4	-4.8	-5.4	-6	0.5	-3.3	24
26	-6.9	-7.8	-8.9	-9.1	-9.4	-9.6	-9.7	-10.3	-8.4	-6.7	-5.3	-3.8	-2.4	-2.8	-3.1	-2.9	-3.6	-4.2	-4.2	-4.1	-4.1	-3.9	-3.9	-2.6	-2.4	-5.7	24
27	-0.9	0.1	1.2	1.6	1.8	2.8	3.7	4.5	4.5	5.5	6.8	7.9	8.5	8.7	7.8	6.3	5.1	4.6	4	3.2	2.7	1.6	0	-1.4	8.7	3.8	24
28	-2.3	-3.1	-4	-4.9	-5.5	-6	-6.9	-7.7	-7.9	-6.9	-4.7	-2.9	-2.3	-1.2	-0.2	-0.7	-1.7	-2.2	-2.6	-2.9	-3.1	-3.3	-3.5	-3.9	-0.2	-3.8	24
29	-3.6	-3.6	-3.6	-3.7	-4.4	-4.4	-3.9	-4	-3.3	-0.8	0.4	3.1	4.6	3.8	2.3	1.4	0.8	-0.3	-0.8	-1.6	-2.1	-2	-1.6	-0.7	4.6	-1.2	24
30	-1.9	-2.7	-2.7	-3.3	-3.4	-3.8	-4.2	-4.6	-4.9	-4.8	-3.8	-4.1	-3.6	-4.9	-4.6	-5	-6.4	-7.3	-8	-8.4	-8.5	-8.6	-8.5	-8.1	-1.9	-5.3	24
HOURLY MAX	1.1	0.8	1.2	1.6	1.8	2.8	3.7	4.5	4.5	5.5	6.8	7.9	8.5	8.7	7.8	6.3	5.1	4.6	4.0	3.5	2.7	2.0	1.6	1.6			
HOURLY AVG	-6.5	-6.9	-7.1	-7.2	-7.3	-7.2	-7.4	-7.5	-7.1	-6.1	-5.0	-3.9	-3.1	-2.6	-2.8	-3.3	-4.2	-4.9	-5.3	-5.6	-5.9	-6.1	-6.4	-6.5			

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-23.4 °C	@ HOUR(S)	22	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	8.7 °C	@ HOUR(S)	13	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	3.8 °C			ON DAY(S)	27
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS		
STANDARD DEVIATION:	7.08	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-5.65 °C		

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

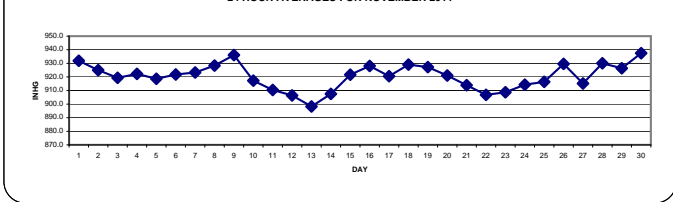
BAROMETRIC PRESSURE hourly averages (millibar)

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	DAILY	24-HOUR		
DAY	HR	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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	927	928	928	929	930	930	931	931	932	933	933	934	934	934	934	935	934	934	933	933	933	932	932	931	935	931.9	24	
2	2	931	930	930	930	929	928	927	927	927	927	927	927	927	926	925	924	923	922	921	920	919	918	918	917	931	925.0	24	
3	3	917	916	916	915	915	915	915	916	916	917	917	919	920	920	921	921	922	922	923	924	924	924	924	925	925	919.3	24	
4	4	925	925	925	925	924	925	924	924	924	924	924	924	923	922	922	921	920	920	920	919	919	919	918	918	925	922.3	24	
5	5	917	917	917	917	916	916	916	917	917	918	919	919	920	920	920	920	920	920	920	920	920	920	920	920	920	920	918.6	24
6	6	920	920	920	920	920	920	920	920	921	921	922	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	921.8	24
7	7	923	923	923	923	923	923	924	924	924	924	924	925	924	924	924	924	924	923	923	922	922	922	922	921	925	923.3	24	
8	8	921	921	921	922	923	924	924	925	926	927	927	928	929	930	931	932	932	932	933	933	934	934	935	936	936	925	928.3	24
9	9	936	936	937	937	937	938	938	939	939	940	940	940	940	939	938	937	936	935	934	933	932	930	928	927	940	936.1	24	
10	10	926	925	923	922	921	919	918	917	917	916	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	917.3	24
11	11	915	914	914	913	913	912	912	911	911	911	911	910	910	909	909	909	909	908	908	908	908	908	908	909	915	910.4	24	
12	12	909	909	910	910	910	911	911	911	911	911	910	909	908	907	906	905	904	903	902	901	900	899	898	898	911	906.4	24	
13	13	897	897	897	896	896	896	895	896	896	897	897	898	898	898	899	899	899	900	900	901	901	901	902	902	902	898.3	24	
14	14	902	903	903	903	903	904	904	904	905	906	906	907	908	908	909	910	911	912	913	913	914	914	914	915	915	907.5	24	
15	15	915	916	916	916	917	917	918	919	920	920	921	922	923	924	924	925	925	925	925	926	926	926	926	926	927	927	921.6	24
16	16	927	926	927	927	927	927	928	928	929	930	930	930	931	931	930	930	929	928	928	927	926	926	926	926	925	931	928.1	24
17	17	924	923	922	921	920	919	918	917	917	917	917	918	919	919	919	920	920	921	922	923	923	924	925	925	925	925	920.5	24
18	18	926	926	927	927	928	928	928	929	929	930	930	930	930	930	930	930	930	930	930	930	930	930	930	929	930	929.0	24	
19	19	929	929	929	929	929	929	929	929	929	929	929	929	928	928	927	927	926	926	925	925	925	924	924	923	929	927.2	24	
20	20	923	922	922	922	922	922	922	922	922	922	922	922	922	922	921	921	921	920	920	919	919	919	918	918	923	921.0	24	
21	21	918	918	917	918	917	917	916	916	916	915	914	914	913	912	912	911	911	910	911	911	911	912	912	912	912	913.9	24	
22	22	912	912	911	911	910	909	908	906	905	904	903	902	901	900	900	901	903	905	907	908	910	911	912	912	912	912	906.8	24
23	23	912	912	912	912	912	912	912	912	911	909	908	907	906	906	905	905	905	906	906	906	907	908	909	909	912	908.7	24	
24	24	910	911	912	912	913	914	914	915	916	917	917	918	918	918	917	916	915	915	915	914	913	912	911	910	918	914.3	24	
25	25	908	908	907	907	907	907	907	907	908	909	910	912	914	916	919	921	923	924	926	928	929	931	932	933	933	916.4	24	
26	26	934	934	934	935	934	934	933	933	933	933	933	932	931	930	929	928	927	926	925	924	923	922	922	921	935	929.6	24	
27	27	920	919	918	917	916	915	914	914	913	912	912	911	911	911	912	913	913	913	915	916	917	919	921	922	922	915.2	24	
28	28	924	925	927	928	929	930	931	931	932	932	933	934	934	934	934	933	932	931	930	929	928	927	927	926	934	930.0	24	
29	29	926	926	925	924	924	924	924	924	925	926	927	927	928	928	928	928	928	928	927	927	927	927	927	928	928	926.4	24	
30	30	928	928	929	930	931	932	933	935	936	938	939	940	941	941	942	943	943	943	942	942	941	941	941	940	943	937.5	24	
HOURLY MAX		936	936	937	937	937	938	938	939	939	940	940	940	941	941	942	943	943	943	942	942	941	941	941	940				
HOURLY AVG		920	920	920	920	920	920	920	920	920	920	921	921	921	921	921	921	921	921	921	921	921	921	921	921				

STATUS FLAG CODES

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

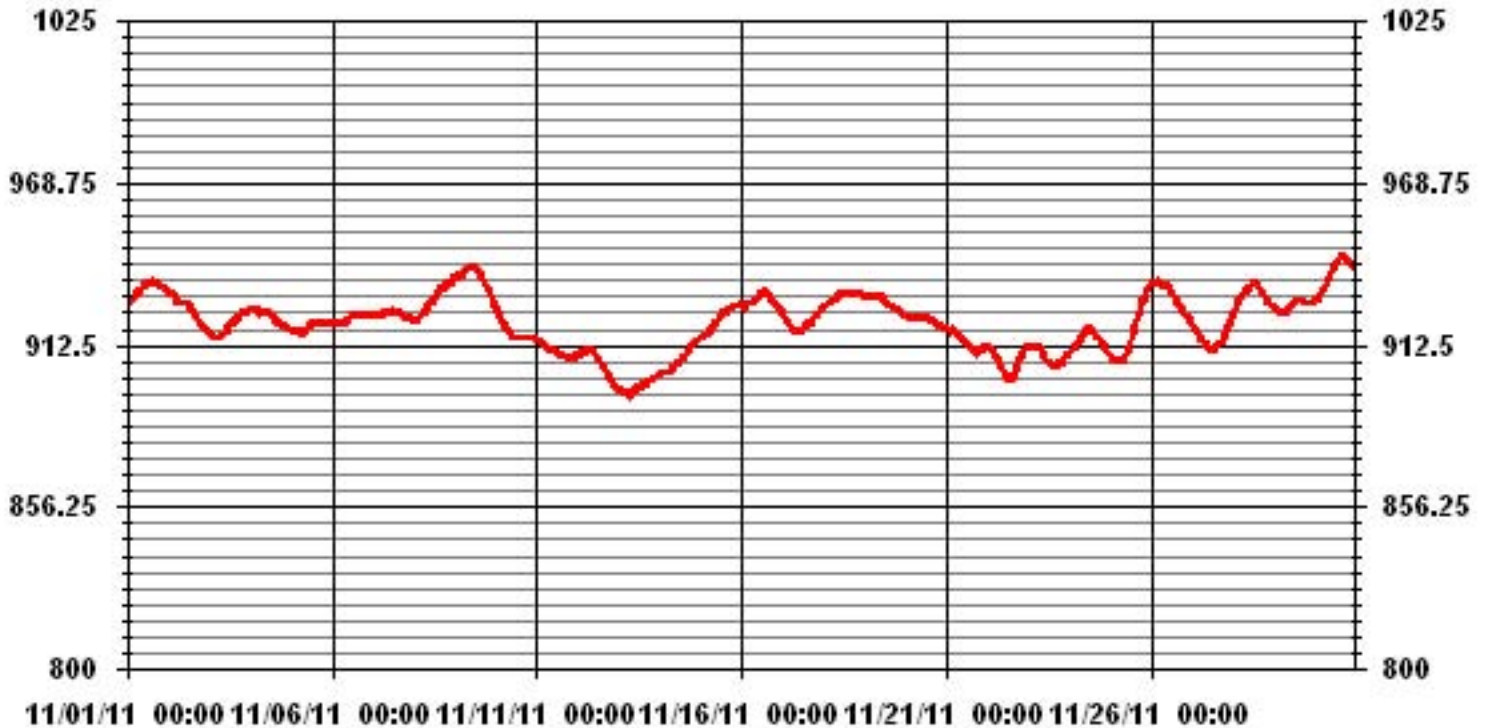
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	943	MB	@ HOUR(S)	VAR	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	937.5	MB			ON DAY(S)	30
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	9.90		MONTHLY AVERAGE:	920	MB	

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

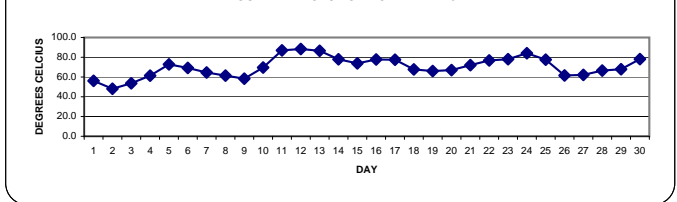
RELATIVE HUMIDITY hourly averages (%)

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		62	70	72	71	71	74	77	72	66	59	54	50	42	35	34	37	43	49	51	52	52	50	52	52	77	56.1	24	
2		51	51	53	53	55	58	60	64	61	55	47	37	33	30	32	36	38	43	46	48	50	51	52	51	64	48.1	24	
3		50	49	48	49	48	48	49	50	51	48	46	44	41	41	45	53	57	59	65	71	72	69	68	66	72	53.6	24	
4		63	63	61	63	66	66	67	66	62	61	60	59	58	53	49	49	53	58	61	63	65	68	68	71	71	61.4	24	
5		75	80	82	83	82	82	81	81	79	78	76	68	63	59	56	55	60	66	69	71	73	75	75	78	83	72.8	24	
6		78	78	82	84	85	81	82	81	77	71	64	62	60	54	52	54	59	61	65	66	63	65	67	70	85	69.2	24	
7		71	75	78	79	79	76	78	79	77	70	64	62	56	48	42	36	44	51	58	62	65	65	67	68	79	64.6	24	
8		70	74	74	69	62	65	66	67	63	58	51	49	57	58	58	57	61	65	63	59	57	56	57	58	74	61.4	24	
9		60	63	64	64	66	69	70	71	65	62	59	49	49	48	50	54	55	56	56	55	55	55	53	51	71	58.3	24	
10		49	51	51	57	60	58	58	59	64	67	69	69	72	74	82	78	80	83	80	80	81	82	83	83	83	69.6	24	
11		84	86	85	85	85	85	86	86	85	82	86	87	86	86	87	89	89	90	90	90	90	90	90	90	90	87.0	24	
12		90	90	90	89	89	89	88	88	88	87	87	87	87	87	86	87	88	89	89	89	89	89	89	89	90	88.3	24	
13		89	89	89	89	88	88	88	87	86	85	84	83	82	85	87	88	87	87	87	87	88	86	86	84	89	86.5	24	
14		83	79	81	79	78	80	82	82	79	79	78	75	75	76	75	75	78	77	77	77	78	77	76	75	83	78.0	24	
15		74	75	76	77	76	77	77	77	77	73	68	66	64	63	63	65	70	75	78	80	81	80	80	79	81	73.8	24	
16		78	78	79	78	78	78	79	79	79	78	76	72	66	71	74	81	82	81	80	80	80	80	80	80	82	77.8	24	
17		80	80	79	79	79	79	78	78	78	78	78	78	78	78	78	77	76	75	75	74	75	76	76	76	80	77.5	24	
18		75	75	75	74	74	73	72	72	71	68	65	62	60	60	62	63	64	65	65	65	65	66	66	67	75	67.7	24	
19		67	67	66	66	65	66	66	65	65	64	63	62	62	63	62	67	69	69	69	70	70	70	69	70	69	70	66.0	24
20		70	70	71	70	69	69	69	69	69	66	63	59	57	57	58	61	67	70	71	71	71	70	70	71	71	67.0	24	
21		71	71	72	72	71	71	71	69	68	67	68	70	68	69	72	74	74	75	75	75	75	76	78	79	79	72.0	24	
22		78	77	77	77	78	75	76	76	76	77	77	76	76	76	76	76	76	75	76	76	76	76	76	76	81	76.8	24	
23		80	80	81	82	82	79	77	72	74	77	80	76	75	76	75	75	77	77	77	79	81	81	80	80	82	78.0	24	
24		80	81	81	83	86	87	85	86	86	86	85	83	79	76	80	85	85	85	85	86	87	87	87	87	87	84.1	24	
25		87	87	87	88	87	87	87	87	86	85	85	85	85	84	78	67	62	62	64	65	64	62	62	68	88	77.5	24	
26		72	73	72	68	67	66	64	65	59	54	51	48	45	49	53	55	59	62	63	65	66	67	68	67	73	61.6	24	
27		66	65	64	64	65	64	63	63	64	62	58	55	53	53	56	58	61	62	66	72	70	62	63	62	72	62.1	24	
28		60	61	57	60	64	68	71	74	74	71	66	63	63	63	59	57	59	69	73	72	71	72	74	76	76	66.5	24	
29		75	75	75	74	75	75	73	73	71	63	60	54	50	54	59	62	64	68	69	73	74	73	72	68	75	67.9	24	
30		73	77	77	79	79	79	80	81	82	81	77	77	74	76	72	72	75	78	81	82	79	81	82	81	82	78.1	24	
HOURLY MAX		90	90	90	89	89	89	88	88	88	87	87	87	87	87	87	89	89	90	90	90	90	90	90	90				
HOURLY AVG		72.0	73.0	73.3	73.5	73.7	74.0	74.0	72.8	70.5	68.2	65.7	64.2	63.1	63.5	64.3	67.0	69.4	70.9	71.8	72.1	71.9	72.4	72.6					

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

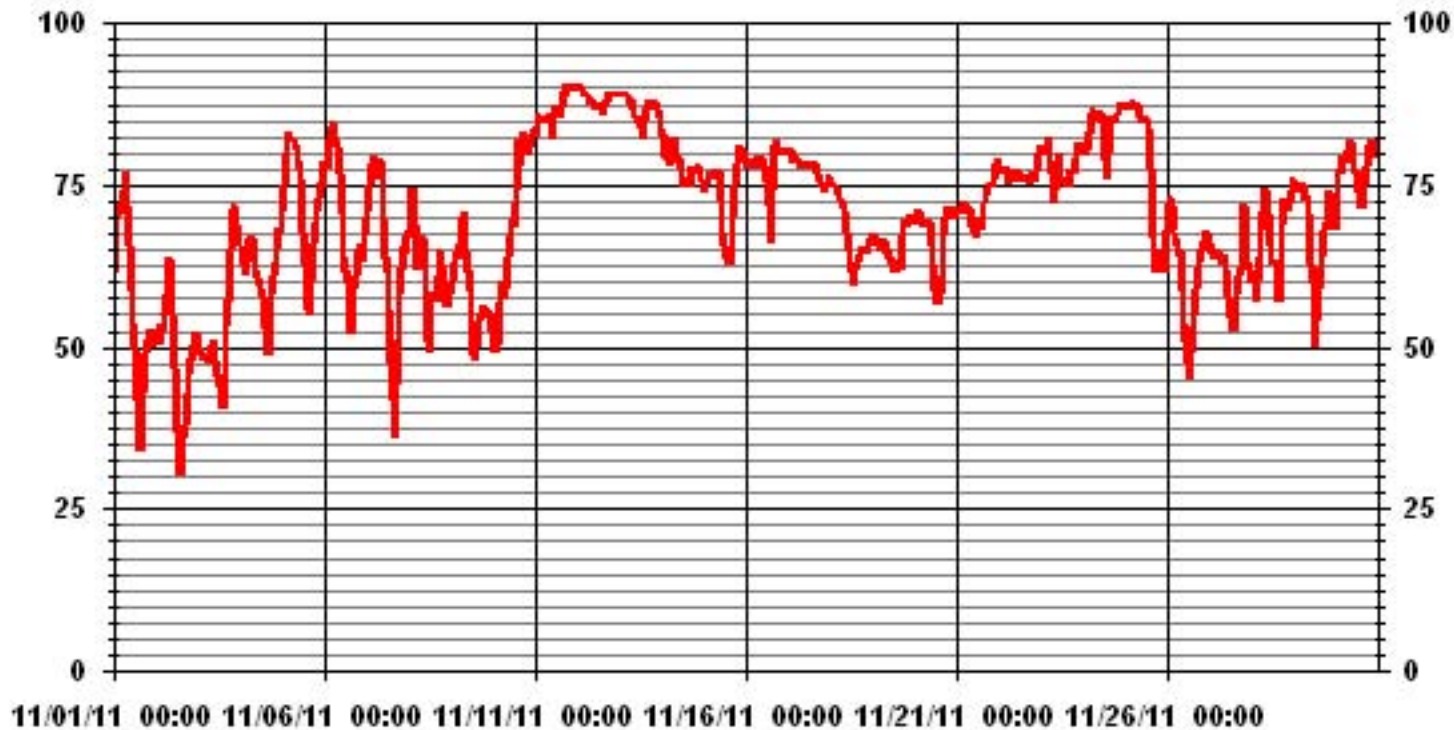
24 HOUR AVERAGES FOR NOVEMBER 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR(S)	VAR	ON DAY(S)	11, 12
MAXIMUM 24-HR AVERAGE:	88.3	%			ON DAY(S)	12
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	12.04		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	70.31	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	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	24
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
10		0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.8	0.1	0	0	0	0	0	0	0	0	0.8	1.3	24
11		0	0	0	0	0	0	0	0	0	0	0.2	0.4	0.1	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0	0	0	0	0.4	2.2	24
12		0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27		0	0	0	0.2	0.3	0.7	0.7	1	0.9	1.7	1.8	0.4	0	0	0	0	0	0	0	0	0	0	0	0	1.8	7.7	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		0.0	0.1	0.0	0.2	0.3	0.7	0.7	1.0	0.9	1.7	1.8	0.4	0.2	0.8	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0			

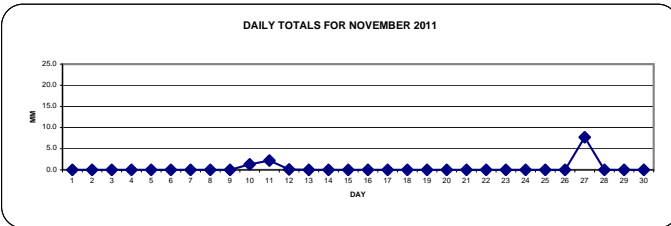
STATUS FLAG CODES

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

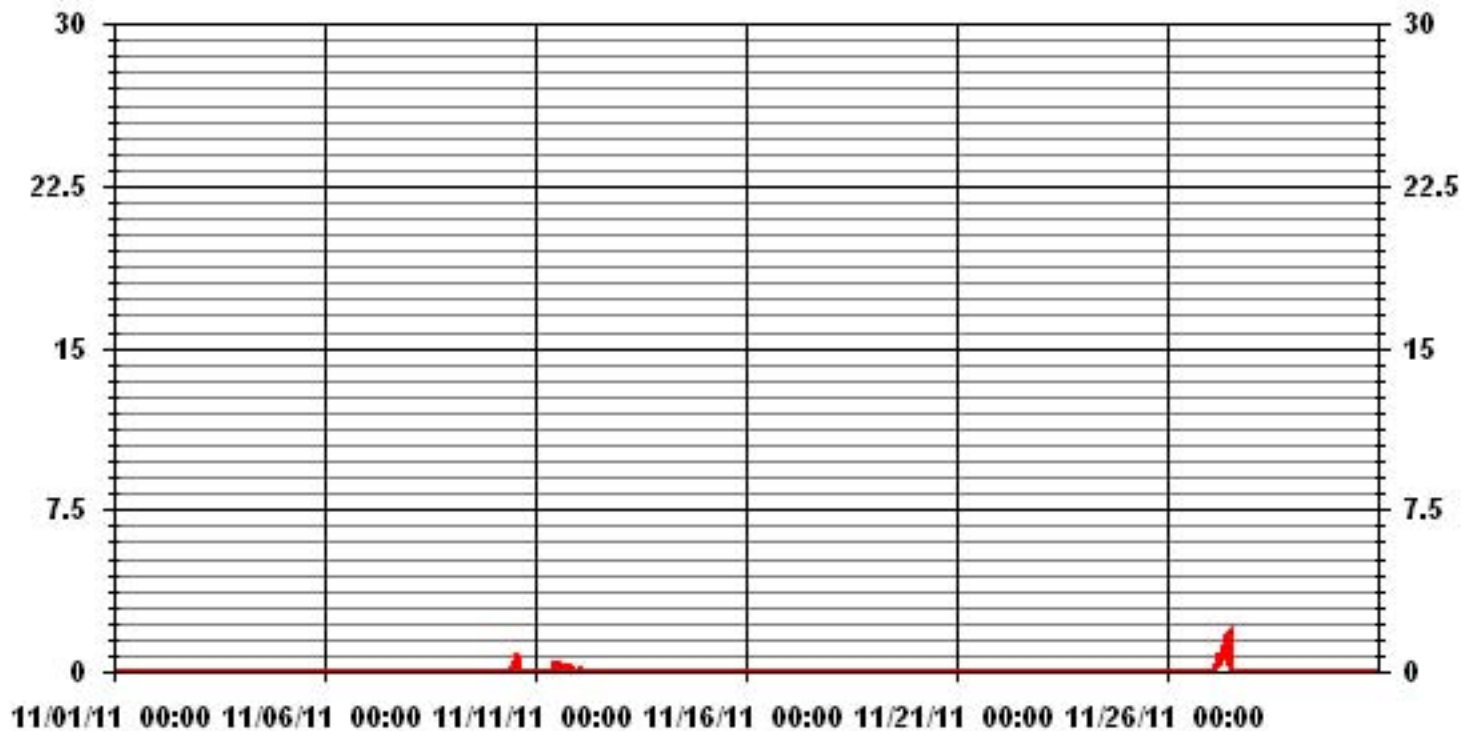
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.8	MM	HOUR(S)	10	ON DAY(S)	27
MAXIMUM DAILY TOTAL	7.7	MM			ON DAY(S)	27
MONTHLY TOTAL	11.3	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	0.12		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.02	MM	

DAILY TOTALS FOR NOVEMBER 2011



01 Hour Averages



— LICA31 PRECIP MM

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 2011

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	4.2	9.5	10.4	9.7	5.8	5.3	4.6	7.1	4.7	3.9	0.7	1.8	0.7	0.2	2.1	0.9	4.7	8	8.5	10.3	12.2	10.1	13.5	15.2	15.2	3.4	24
2	14.7	13	13.8	13.8	14.9	17	16.8	14.9	16.7	16.1	13.3	14.2	14.1	15.1	12.2	11.6	13.3	15.4	13.9	15.6	11.4	4.7	6.2	8.6	17	11.9	24
3	10	9.1	8.1	5.7	6.7	9.7	13.2	8.9	12.7	14.5	14.8	14.8	17	14.7	15.4	14	8	8.9	11.3	14.4	18.7	16.1	11.2	10.4	18.7	9.5	24
4	12.5	11.3	11.2	9.8	10	12	12.4	9.9	10.6	9.8	9.2	9	8.6	9.8	10.9	12.4	11.6	9.5	9.9	10.7	13	12.6	7.9	9.6	13	9.1	24
5	8.3	8.8	9.1	8.4	9.7	9.8	9.4	10.1	8.8	10.5	8.5	9.7	8.6	9.3	9.7	11.6	13.3	12.5	11.8	11.5	10.8	12.6	12.1	12.9	13.3	10.1	24
6	13.5	14.9	13.4	13.7	4.4	13.4	12.2	11	12.1	11.4	5.9	11.8	3.5	12.3	11.8	11.7	11.6	13.7	13.7	11	7.8	9.2	11.2	16	16	4	24
7	16.5	12.4	11.9	14.8	10.5	6.8	11	9.5	9.6	11.8	9.2	9.4	8.8	8.9	9.3	11.4	7.4	7	6.8	5.7	5.2	6.2	8	8.3	16.5	4	24
8	9.7	11.1	13.8	13.7	9.1	9.2	8.1	12.1	14	14.9	7.1	5.5	9.5	10	11.9	9.9	9.8	9.3	11.5	7.2	7.1	6.2	6.8	7	14.9	2.7	24
9	8.9	6.6	5.7	4.8	4.5	6.5	6.8	8.7	7.8	8.1	11	14	12.8	6.3	10.2	12.4	12.7	12.2	12.1	8.6	9.5	11.1	9.7	7.8	14	7.3	24
10	1.6	1.5	1.9	3.7	6.3	5	6.2	10.5	8.7	9.2	9.4	10.6	12.5	12.9	12	12.9	16	16.6	13.4	13.1	10.3	8.6	9	9.5	16.6	6.7	24
11	7.6	9.4	5.3	8.9	10.9	9.3	7.9	6.8	4.3	4.4	5.1	5.1	6.5	7.8	8.6	7.4	8.1	8.5	10.3	10	11.4	11.2	11.5	11.5	11.5	2.2	24
12	14.1	14.5	13	11.2	10.4	11.1	9.5	7.7	7.6	6.7	6.8	6.7	7.9	10.9	3.4	9.6	8.3	7.8	6.8	8.5	7	5.1	5	6	14.5	5.8	24
13	6.3	9.1	10.4	11.8	12.6	15.9	14.6	14.4	16.9	17	14.9	17.4	18	19.1	18.8	19.2	20	20.2	7	3.3	10.6	10.1	9	8.5	20.2	11.1	24
14	5.6	7.8	10.1	10	10.2	13.2	10.8	13	13.3	13.8	14.3	14.9	16.3	16.6	13.5	11.5	12.8	11.4	10.7	13	10.1	10.1	10.1	11.7	16.6	11.3	24
15	10.9	8.6	8.6	8.1	9	10.7	10	9.1	10.5	10	9.5	9.6	9.8	7.7	9.5	11	10.4	9.4	6.9	6.4	6	8.4	6.8	5.6	11	6.1	24
16	6.1	12.5	12.7	12.6	14.6	13.2	13.7	9.6	12.6	15.2	4.6	14.1	13.1	9	12.7	7.9	6.4	9.5	10.3	8.6	12.6	13.1	2.1	0.6	15.2	4.4	24
17	1.5	4	5.7	6.4	9.9	9.7	9.5	11.8	11.6	11.4	13.1	11.6	11.2	14.1	15.4	17.6	17.7	17.9	16.2	16.7	14.6	15	16	16.6	17.9	10.3	24
18	17.3	17.9	16.4	17	17.3	17.3	16.9	16.7	15.5	16	12.6	12.3	9.7	8.1	5.8	8.3	6.6	12.1	13.6	11	9.8	7.7	1.9	5.4	17.9	7.1	24
19	12.9	12.7	12.3	13.6	11.2	12	10.4	9.4	9.7	8.3	7.5	7	6.6	7.1	9.2	10.3	12.3	11.1	11.2	10.6	9.6	8.3	9.3	10.9	13.6	9.9	24
20	11.7	11.5	10.5	11.5	11.9	11.9	11.9	13.1	12.5	11.4	12.8	11.3	10.9	12.1	11.1	10.4	12	11.2	10.9	9.3	10.8	10.9	10.9	6	13.1	10.3	24
21	6.6	7.2	7.8	10.6	11.8	13.1	9.4	8.1	9.6	9.1	13.9	14.8	15.5	6.4	10.9	18.4	15.5	14.9	12.1	10.8	9.2	4	10.5	9.6	18.4	8.7	24
22	9.5	8.4	8.9	7	8.4	9.7	14.1	5.1	2.5	5.5	5.9	0.7	1.6	8.2	9.4	3.2	13.9	13.7	14.1	13.7	12.5	11.8	10.3	10.9	14.1	1.9	24
23	9.8	10.1	9.2	8.3	8.6	8.9	8.5	10.8	14.1	13.5	17.4	18.3	17.1	14.9	16.3	14.9	13.9	12	13	10.4	9.3	5.5	12.9	14.5	18.3	6.6	24
24	7.8	6.7	7.6	10.5	9.9	11.4	13.2	10.4	8.8	4.7	5.2	4.5	3.9	12.6	12.1	12.9	9.4	6.9	6.3	13	15.5	16.4	14.9	16.9	16.9	4.8	24
25	17.3	16.6	13.2	12.5	12.5	11.9	13.2	13.4	12.1	12.8	17	12.9	12.5	13.5	20.3	13.4	9.6	7.9	13.3	12.8	9.1	6	4.3	4.1	20.3	7.2	24
26	3.9	10.8	11.3	11.1	10.5	3.4	6.8	7.9	7.8	6.9	5.4	5.7	6.4	5.2	5.7	4.4	4.4	3.3	4.7	8.3	6.5	2.3	2.4	0.9	11.3	1.4	24
27	2.8	0.9	3.8	1.5	1.3	3.7	4.9	4.8	2.7	5.9	10.9	13.6	18.9	22.6	13.1	16	14	13.1	15.1	16.9	18.5	16.6	15.3	16.9	22.6	10.1	24
28	17	16.3	16.6	14.8	11.9	10.5	8.8	9.7	9.4	10	9.3	12.2	17.3	17.1	18.8	16.2	15.6	18.7	19.1	9.1	8.5	10.2	9.4	9.3	19.1	12	24
29	14.1	15.9	12.4	12.2	13	12.6	15.1	12.7	14.8	16	12.1	11.9	10	12.1	6.6	6	3.8	5.2	5.5	4.6	15	4.1	5	12.1	16	8.5	24
30	11.2	13.7	13.2	12.7	12.1	9.6	8.4	8.3	12.9	13.3	13.1	10.4	12.2	14.9	13.8	12.2	9.8	6.6	6.2	10.4	10.1	9.8	14.2	14	14.9	5.9	24
HOURLY MAX	17.3	17.9	16.6	17.0	17.3	17.3	16.9	16.7	16.9	17.0	17.4	18.3	18.9	22.6	20.3	19.2	20.0	20.2	19.1	16.9	18.7	16.6	16.0	16.9			
HOURLY AVG	9.8	10.4	10.3	10.3	10.0	10.5	10.6	10.2	10.5	10.7	10.0	10.5	10.7	11.3	11.4	11.3	11.1	11.2	10.9	10.5	10.8	9.5	9.2	9.9			

STATUS FLAG CODES

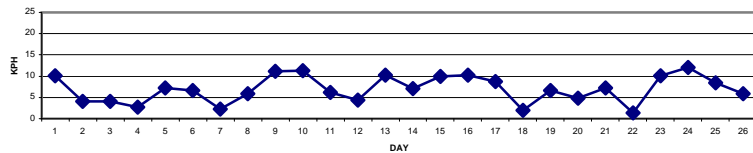
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: June 17, 2010

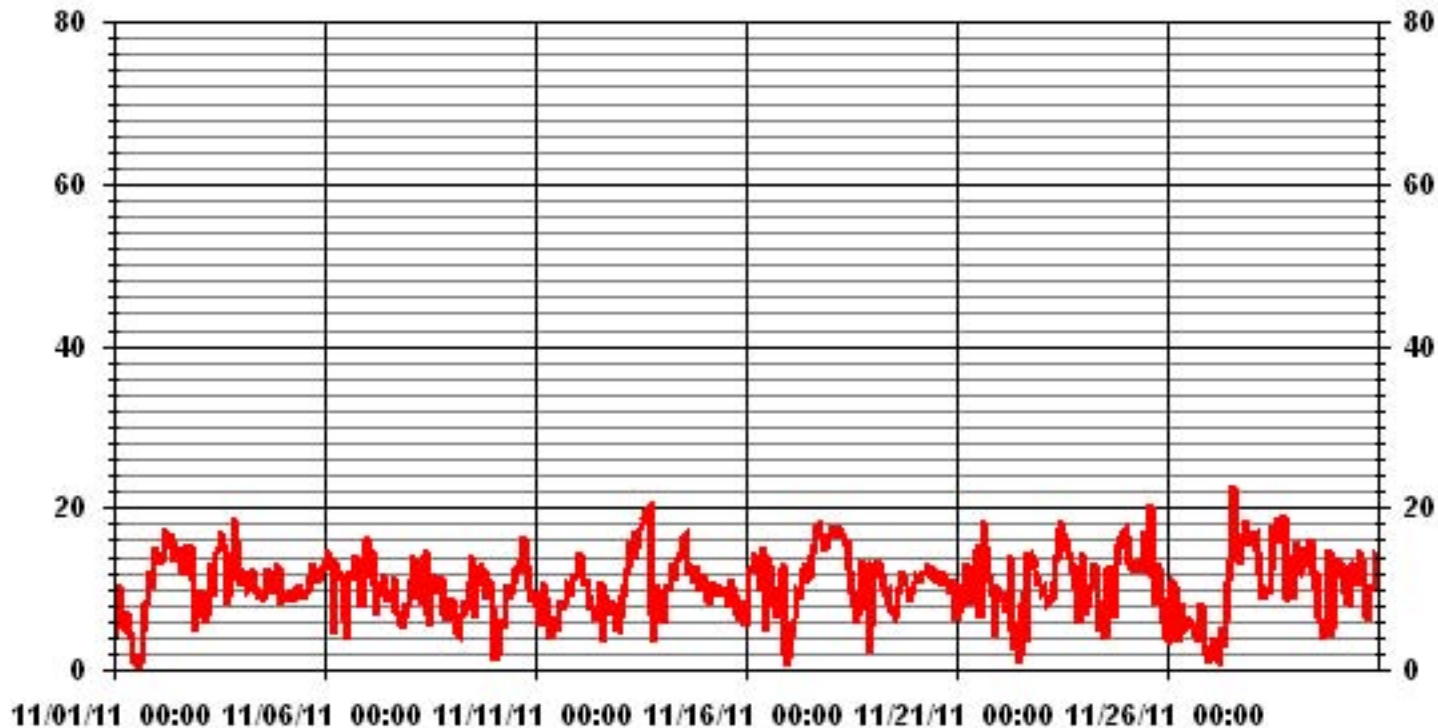
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	22.6	KPH	@ HOUR(S)	13	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	12.0	KPH			ON DAY(S)	28
CALMS (≤ 0 KPH)	0.67	%	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	3.88		MONTHLY AVERAGE	10.48	KPH	

24 HOUR AVERAGES FOR NOVEMBER 2011



01 Hour Averages



— LICA31 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	37	38.5	35.3	26.9	23.2	15.2	16.2	20.4	16.7	18.8	19.3	33.3	39	35.2	35.5	35.9	13.4	16.4	15.8	16	20.6	18.7	24.7	26.9	39
	2	20.8	18.2	19.1	16.9	19.5	26.7	24.3	22.8	25.8	26.1	30.4	30.7	33.8	35	29.1	26	25.4	31.6	29	33.1	32.6	18	17.3	18.5	35
	3	19.9	19.3	17.3	16	15.8	16.4	24.1	26.3	25.6	28.1	28.5	35.9	42.3	37.4	32.8	35.3	23	19.7	29.8	32.2	42.5	34.2	33.5	26	42.5
	4	32	28	29.8	20.2	22.1	24.8	25.4	22.1	26.7	24.1	18.2	19.5	18	19.5	19.7	19.3	17.8	13.6	15.3	14.7	18	17.3	18.9	19.9	32
	5	16.7	15.8	18	17.4	16	16.9	18.4	20.2	18	20.6	18.2	19.5	20.6	19.3	20.2	20.9	19.3	17.1	18.4	16.2	17.6	18.9	15.3	14.9	20.9
	6	15.2	16	16.4	16.7	27.6	20.2	17.5	19.3	20.4	23	23.7	24.5	22.6	21.7	20.2	18.2	17.1	19.5	19.5	13.6	11	12.1	15.1	20.2	27.6
	7	19.3	18.8	14.9	18.2	21.3	19.3	18.2	18	17.3	19.9	20.4	20.6	20.2	23.6	23.4	29.6	17.7	15.1	15.6	16.5	14.7	15.1	17.5	13.4	29.6
	8	13.8	14.2	18.2	19.7	19.9	14.1	16	22.3	23.2	P	34.8	28.5	34.4	40.7	30.5	23	17.1	13.8	16.2	11.4	14	14.9	13.8	13.4	40.7
	9	14.2	9.4	8.8	13.4	12.5	15.1	15.1	14.7	14.7	13.4	18.8	19.7	21	22.6	22.1	19.5	19.3	21.5	20.8	19.3	22.1	28.9	27.8	26.7	28.9
	10	27.4	41	24.7	23.2	17.1	17.3	24.5	21.5	17.8	16.7	17.3	16.5	19.9	35.5	31.1	34.4	23.6	32.6	36.8	27.4	22.3	18.8	15.6	15.8	41
	11	11	13.2	10.7	14.7	17.1	16	16.4	12.9	12.7	12.9	9.2	9.9	12.1	16.7	14.7	13.4	13.4	14.7	18.4	18.8	23.5	20.4	23	21.7	23.5
	12	25.4	25.4	24.1	21.7	24.3	23.9	19.7	16	15.3	12.1	14	16.4	16.2	26.1	24.7	19.7	18.5	18.2	16.7	17.5	17.1	16.5	17.3	17.1	26.1
	13	18.4	18.6	17.8	17.4	29.4	21.9	22.3	21.9	26.9	30.9	29.1	32.2	32	30.2	30.7	29.1	32.2	38.5	26.8	18.2	29.6	22.1	23.9	18.5	38.5
	14	17.5	22.3	21.5	34	19.6	22.8	18.6	23.4	24.5	26.9	28.5	32.7	34	36.2	39.7	26.5	28.9	33.4	32.9	35.3	27.8	32.9	35.3	30.9	39.7
	15	31.6	29.2	27	22.8	26.5	29.6	24.8	21.5	20.8	25.2	23.2	26.5	23.9	24.8	19.5	19.5	17.8	19.8	14.7	15.4	20	14.3	9.7	12.1	31.6
	16	24.3	14.9	20.4	22.8	23	21.7	24.1	21.9	24.1	28.5	25	25.2	21.9	24.8	24.1	14.1	12.7	18.4	19.7	24.3	27.4	28.1	16.5	18	28.5
	17	21.9	20.4	35.5	38.6	39.2	36.4	38.1	40.5	32.9	34	41.4	34.6	31.4	38.3	37.5	43.2	37.3	39	41.6	39.2	35.7	26.9	25.9	28.9	43.2
	18	29.8	33.5	32.2	32	32.4	37.9	36.2	32.4	31.8	28.7	30.3	26.7	27.8	26.7	26.1	26.3	24.8	28.5	35.1	28.7	37.5	32	33.8	27.2	37.9
	19	27	28.9	21	26.1	24.3	24.6	25.5	23	23	21.9	21.9	21	21.3	20.8	22.6	20.6	21.3	19.5	21.5	19.5	19.3	19.1	25	23.7	28.9
	20	25.2	21.9	16.9	14.7	16.2	15.1	15.4	16.9	16.3	14.7	16.7	16	23	22.1	24.8	23.9	23.7	26.1	23	21.5	23	26.5	23.7	23.7	26.5
	21	13.4	14.3	19.7	21.9	18.7	17.8	18	16	21.1	21.3	34.6	28.5	27.2	29.6	34	35.5	32.5	29.4	24.3	22.2	20.6	22.8	23.3	17.8	35.5
	22	15.8	15.6	15.1	17.8	16.7	19.5	30.2	29.4	18.2	30.9	30.7	12.5	10.8	23.7	19.9	21.7	29.6	31.8	23.4	21.5	18.4	21.5	16.7	19.3	31.8
	23	15.3	19.9	12.7	18.8	16.9	15.6	14.5	18.9	21.7	21.9	33.1	31.8	31.1	25.4	28.3	27.8	24.3	21.9	21.7	20.2	18.8	22.3	20.8	25.7	33.1
	24	25.2	19.5	17.3	21	22.6	30.9	31.1	23.7	18.9	11.6	19.1	9.7	24.1	24.2	22.3	20.8	17.5	23	23.5	23.2	27.6	33.5	32.4	38.8	38.8
	25	42.3	42.3	32.2	25.8	21	20.4	19.7	19.9	20.2	18.6	23.4	23.7	28.7	37.2	55.8	54.1	50.1	41.4	51.4	49.3	35.3	26.9	16.5	13.2	55.8
	26	13.6	14.7	16.5	16.9	15.6	18	19.6	17.5	17.8	15.4	14.7	18	19.1	21.2	17.3	17.4	15.6	15.6	16.4	20.4	17.8	19.5	16.7	21	21.2
	27	32	22.3	32.2	29.6	30.2	37	36.5	38.5	34	38.1	38.3	30.2	36.2	41.8	35	38.5	37.7	35.2	36.8	38.3	46	42.7	37.7	40.1	46
	28	42.7	35.9	40.9	24.3	26.1	28.5	19.7	13.2	13.4	14	16	21.2	29.8	26.3	29.8	25	30.7	33.3	32.9	30.9	24.1	23.7	23.9	22.4	42.7
	29	25.4	27.6	16.6	18.6	17.6	23.2	22.1	19.3	27.4	26.3	23.2	23.4	22.5	30.4	21.5	11.4	8.1	6.8	7.2	21.1	18.4	16.4	19.7	19.9	30.4
	30	14.7	16.7	17.1	17.7	16.7	15.8	16.7	17.3	29.4	25	24.5	26.3	29.1	34.2	31.7	29.8	21.5	12.7	13.2	13.8	12.9	16	20.8	21.9	34.2
PEAK		42.7	42.3	40.9	38.6	39.2	37.9	38.1	40.5	34.0	38.1	41.4	35.9	42.3	41.8	55.8	54.1	50.1	41.4	51.4	49.3	46.0	42.7	37.7	40.1	

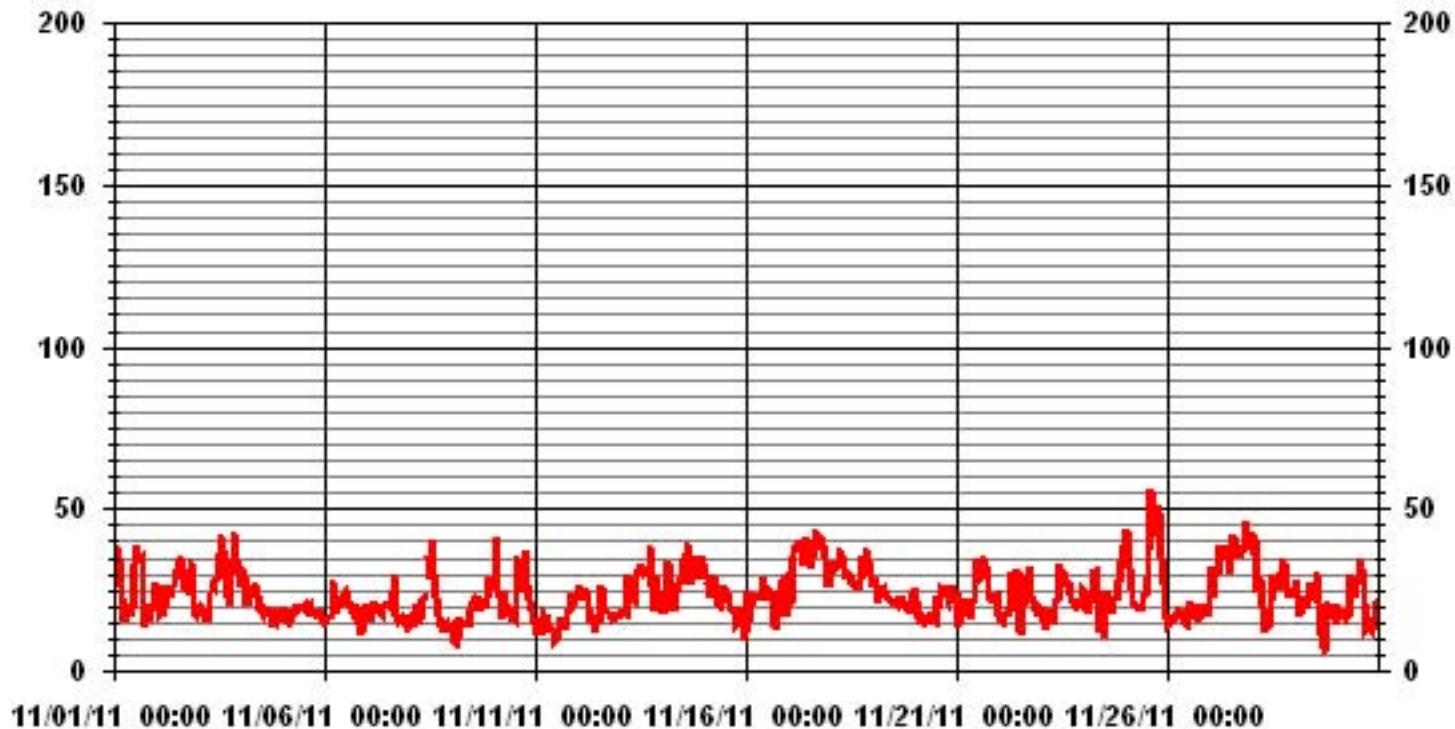
STATUS FLAG CODES

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	55.8	KPH	@ HOUR(S)	14
			ON DAY(S)	25

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

November 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	.97	.27	1.66	1.66	1.11	.69	.41	.27	.13	.27	1.11	1.11	.83	.27	.13	1.25	12.22
< 12.0	5.69	5.41	5.13	3.47	4.02	2.36	.83	1.38	.55	1.52	2.77	2.36	2.63	2.22	4.02	6.38	50.83
< 20.0	3.19	1.38	1.94	2.91	1.38	1.11	2.22	1.25	1.38	.97	2.08	2.22	1.80	2.50	6.80	2.50	35.69
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.41	.00	.00	.55
< 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	9.86	7.08	8.75	8.05	6.52	4.16	3.47	2.91	2.08	2.77	5.97	5.69	5.41	5.41	10.97	10.13	

Calm : .69 %

Total # Operational Hours : 720

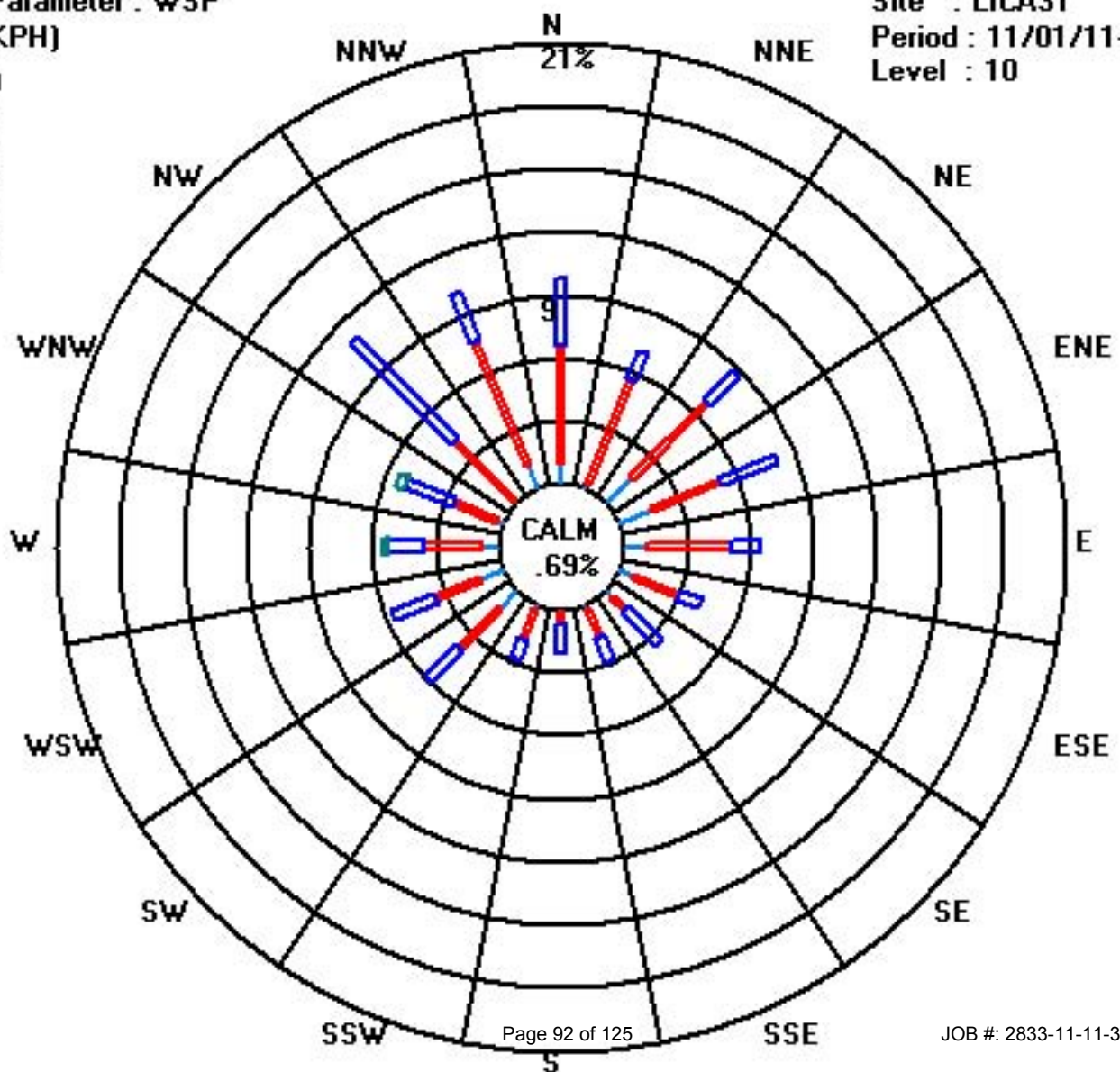
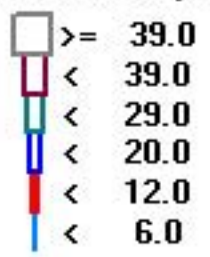
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	7	2	12	12	8	5	3	2	1	2	8	8	6	2	1	9	88
< 12.0	41	39	37	25	29	17	6	10	4	11	20	17	19	16	29	46	366
< 20.0	23	10	14	21	10	8	16	9	10	7	15	16	13	18	49	18	257
< 29.0													1	3			4
< 39.0																	
>= 39.0																	
Totals	71	51	63	58	47	30	25	21	15	20	43	41	39	39	79	73	

Calm : .69 %

Total # Operational Hours : 720

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATE - ST.LINA

NOVEMBER 2011

WIND DIRECTION 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	24-HOUR	24-HOUR AVG		
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	AVG.	QUADRANT	RDGS.	
DAY																													
1		2	346	10	24	49	88	77	45	63	52	205	233	358	263	359	340	136	143	154	144	143	150	129	130	99	E	24	
2		128	131	125	128	128	125	124	126	126	129	169	193	188	182	163	149	141	143	146	152	155	69	63	62	140	SE	24	
3		58	52	46	31	337	334	307	262	266	280	285	285	297	317	322	335	319	312	316	314	318	323	321	242	313	NW	24	
4		253	243	247	222	221	226	216	234	308	300	280	275	261	243	230	220	229	239	217	219	216	215	224	348	241	WSW	24	
5		342	332	333	332	331	338	335	336	339	305	323	329	341	340	356	351	351	347	345	351	4	351	344	335	341	NNW	24	
6		337	336	342	340	206	191	198	194	193	192	194	185	243	72	81	93	80	87	112	114	117	110	119	119	122	ESE	24	
7		116	123	122	119	124	284	343	349	343	348	333	324	325	300	304	286	326	346	346	338	328	331	338	328	347	NNW	24	
8		314	315	313	300	265	257	256	267	265	261	259	352	4	17	33	48	85	106	111	107	86	82	79	89	332	NNW	24	
9		101	110	107	83	79	76	85	81	90	100	104	102	116	197	351	10	31	47	47	43	61	71	81	92	75	ENE	24	
10		129	107	103	9	2	345	9	4	342	331	336	329	336	254	260	268	316	310	259	238	270	279	271	268	301	WNW	24	
11		235	227	229	230	256	271	258	257	317	34	94	86	98	110	102	94	85	75	68	58	61	57	49	48	75	ENE	24	
12		56	58	55	56	35	36	45	54	65	73	91	122	148	157	164	351	360	2	4	0	353	354	334	315	44	NE	24	
13		323	352	326	327	321	309	317	317	306	305	291	301	301	303	301	304	303	296	250	109	44	48	39	59	315	NW	24	
14		77	35	50	43	52	63	74	62	58	55	48	34	31	28	34	33	38	35	13	20	26	15	12	19	39	NE	24	
15		13	24	30	33	23	25	32	45	48	42	29	27	28	30	51	51	67	58	286	290	261	253	267	250	25	NNE	24	
16		318	329	349	354	356	5	11	11	4	359	135	168	165	162	162	63	63	82	89	85	88	96	272	29	43	NE	24	
17		34	58	44	53	57	53	46	46	42	38	30	28	358	350	0	5	12	358	352	348	339	318	300	313	6	N	24	
18		320	325	321	324	325	326	321	321	317	317	311	315	336	342	359	21	160	182	181	184	177	166	106	34	316	NW	24	
19		13	350	337	349	348	355	5	7	4	1	357	2	334	5	16	20	12	14	14	18	14	6	4	359	3	N	24	
20		353	346	329	323	329	325	322	316	320	319	320	328	342	329	343	335	344	356	342	355	5	17	15	90	339	NNW	24	
21		122	117	24	14	23	27	71	116	50	111	88	91	90	93	86	78	82	113	72	82	75	62	2	329	72	ENE	24	
22		307	315	330	349	26	90	83	61	347	56	80	146	259	90	97	47	314	253	273	252	248	230	213	213	291	WNW	24	
23		213	208	221	202	352	5	21	37	55	66	58	68	68	69	65	63	66	50	58	30	32	155	188	180	67	ENE	24	
24		189	263	283	302	299	314	309	285	276	300	248	225	345	358	358	11	39	52	43	53	56	61	67	69	360	N	24	
25		81	80	68	58	40	37	30	10	10	320	311	283	290	284	289	314	313	322	325	337	341	7	65	97	352	N	24	
26		215	239	212	213	213	235	1	354	18	25	33	58	76	56	52	72	46	63	52	63	74	64	355	291	44	NE	24	
27		281	87	270	342	222	215	251	253	238	249	257	262	279	276	231	242	244	268	244	268	254	249	254	247	256	WSW	24	
28		248	245	243	229	243	288	269	251	227	226	225	223	222	228	225	223	213	216	211	234	282	286	288	307	238	SW	24	
29		294	309	324	315	317	309	315	329	315	311	294	270	279	317	319	287	278	239	228	341	348	265	191	171	303	WNW	24	
30		159	154	155	162	148	143	136	133	175	196	213	264	303	318	301	301	311	301	238	222	232	219	227	225	214	SSW	24	
HOURLY AVG		353	352	349	354	356	355	343	354	347	359	357	352	358	358	359	351	360	358	352	355	353	354	355	359				

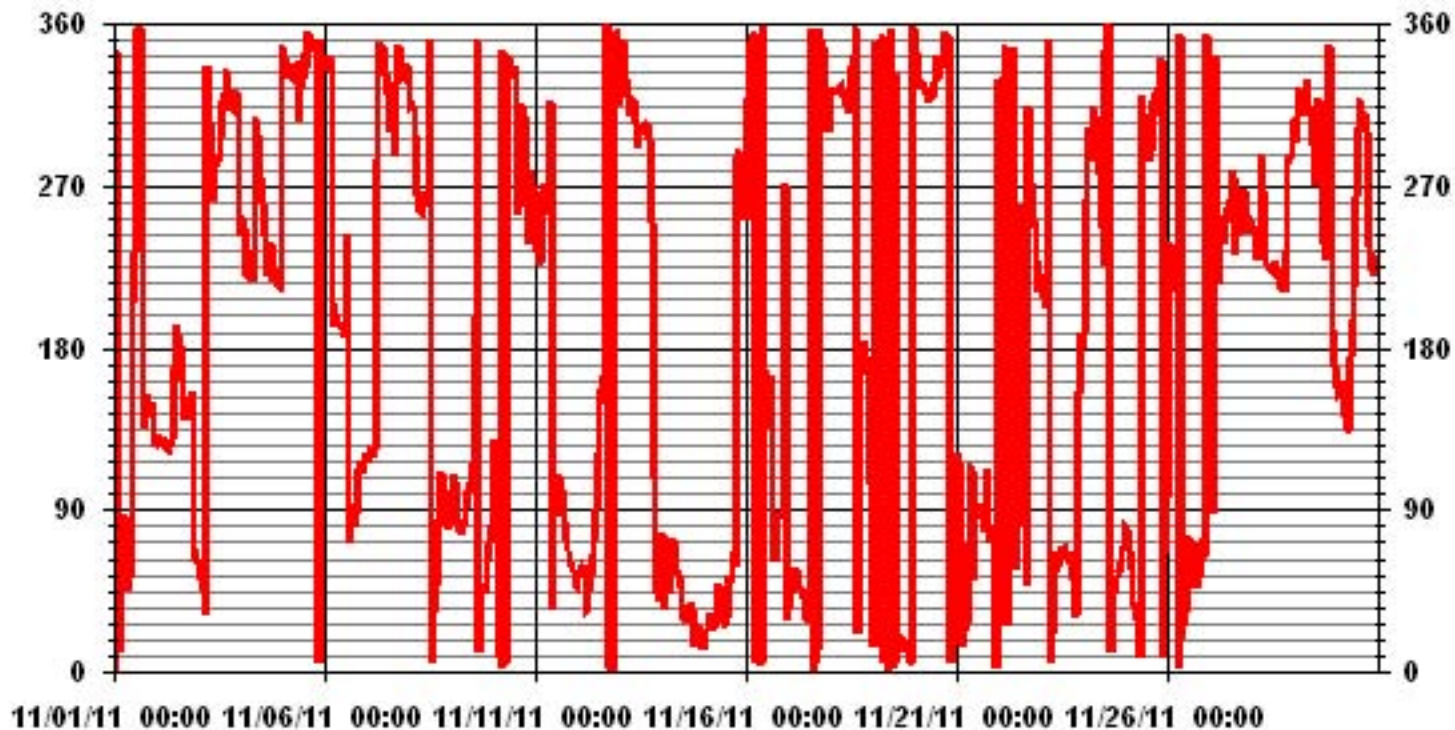
STATUS FLAG CODES

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
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION	119.91		AMD OPERATION UPTIME	100.0	%
			MONTHLY AVERAGE	348	DEG

01 Hour Averages



— LICA31 WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

NOVEMBER 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	58	43	31	29	40	37	45	33	49	61	85	88	82	91	83	88	41	13	14	9	10	14	12	12
2	9	7	5	4	5	14	12	9	14	14	21	11	12	12	13	12	11	11	13	11	34	39	27	21
3	18	20	22	33	26	15	26	31	10	12	14	16	15	15	14	14	13	11	13	13	12	13	29	23
4	23	25	24	21	20	20	17	25	14	20	21	20	15	18	14	10	7	5	6	5	5	5	20	27
5	18	12	10	19	11	11	13	10	21	16	25	16	27	23	21	14	4	3	4	7	23	5	5	4
6	2	1	3	5	44	17	5	8	7	27	62	50	53	22	28	8	6	7	4	3	4	3	2	3
7	3	3	2	2	34	45	8	23	17	11	18	17	18	23	22	21	20	25	26	34	38	31	17	11
8	7	6	4	13	11	6	9	9	8	9	64	65	40	35	22	19	10	5	5	9	16	21	18	12
9	8	4	7	24	29	18	13	9	8	8	7	7	32	47	40	8	8	13	14	23	23	24	30	37
10	82	85	77	57	32	47	54	19	19	16	17	13	11	40	49	52	28	24	49	43	28	12	9	8
11	11	5	9	7	6	11	10	11	15	12	16	13	12	12	10	11	10	10	10	10	10	10	10	11
12	10	10	10	11	13	12	12	12	12	11	13	14	14	13	49	28	33	35	41	33	38	50	49	37
13	34	27	16	9	8	8	6	7	8	16	41	28	25	17	22	15	12	24	55	53	21	19	25	22
14	37	34	18	21	19	12	12	20	13	21	21	25	19	21	21	20	19	23	31	23	27	31	35	24
15	31	29	28	30	30	25	23	22	18	20	26	26	24	37	24	15	10	34	11	12	29	5	9	8
16	37	4	6	10	6	7	7	45	17	17	26	19	29	34	21	9	8	5	7	12	12	14	72	97
17	84	64	52	52	37	39	39	33	32	34	28	32	29	20	20	19	21	19	20	18	19	14	20	22
18	24	30	33	30	24	18	22	23	26	22	22	43	57	55	66	61	41	22	28	47	62	42	57	38
19	28	40	10	15	29	16	23	29	28	37	45	48	47	44	26	18	7	7	8	9	18	25	20	17
20	18	8	7	6	7	6	6	6	5	5	6	7	11	8	13	13	14	30	17	20	16	18	12	21
21	11	8	35	11	7	6	19	29	17	12	15	9	9	66	52	9	18	19	10	11	10	54	21	10
22	11	15	11	45	24	16	11	60	73	50	61	82	71	36	10	47	11	25	14	6	5	7	6	6
23	6	6	3	22	27	29	6	10	22	9	8	9	10	9	9	9	11	9	9	9	10	36	11	13
24	41	15	14	12	13	14	14	15	15	25	26	15	38	40	15	10	17	32	42	17	16	17	19	17
25	18	21	21	20	14	15	9	12	7	8	6	26	15	16	15	38	50	56	41	35	44	50	48	38
26	29	7	7	6	6	40	56	38	24	27	39	35	38	48	35	44	43	54	45	23	29	65	63	77
27	70	79	59	75	88	76	50	48	68	50	25	21	12	25	18	19	40	43	37	40	29	19	21	19
28	22	20	18	18	27	14	9	4	5	6	9	10	9	8	8	7	8	8	9	33	27	21	21	19
29	11	11	6	8	7	9	8	8	21	24	18	13	16	15	14	12	21	4	5	26	2	18	39	9
30	5	4	5	5	8	15	20	22	18	11	18	24	15	14	15	14	11	12	8	5	4	7	6	6

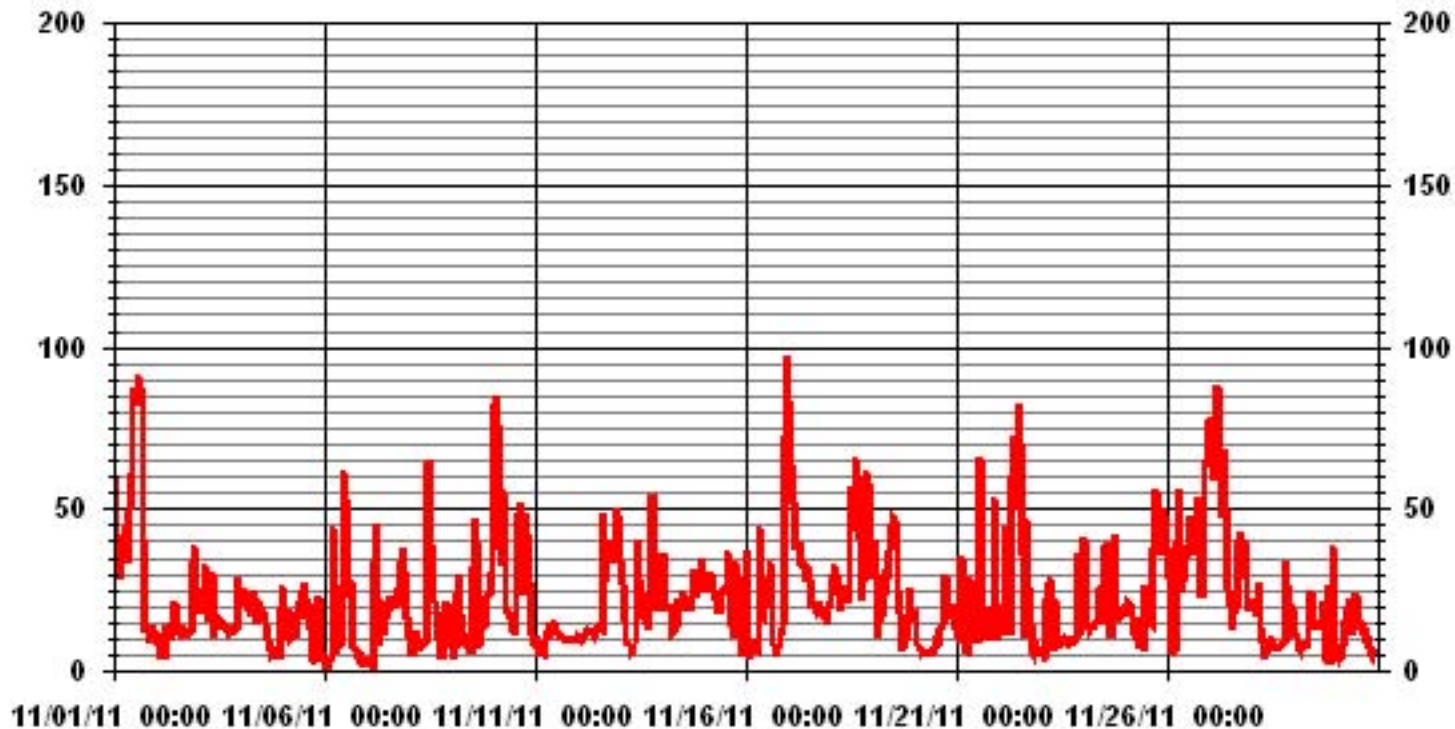
STATUS FLAG CODES

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

LAST CALIBRATION: June 17, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	November 9, 2011	Previous Calibration	October 7, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	10:00	End Time (MST)	14:03
Reason:	Monthly Calibration		
Barometric Pressure	940 mBar	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 :	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		
Sample Flow / Box Temp	543 ccm, 28.4 Deg C	542 ccm, 28.4 Deg C	
HVPS / Lamp Setting	529, 2893	529, 2892	
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	73.5, 1.102	71.8, 1.083	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	-1	N/A
4996	0	0	0	N/A
4919	77.7	751	759	0.9896
4919	77.7	751	750	1.0014
4953	41.4	400	402	0.9960
4980	17.6	170	172	0.9889
4997	0	0	0	N/A
Sum of Least Squares				0.9909
New Correction Factor				1.0014

	Before Calibration	After Calibration
Auto Zero	0.5	0.6
Auto Span	362.0	351.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9978
Current Correction Factor Before Span Adjust:	0.9896
Percent Change:	0.8%

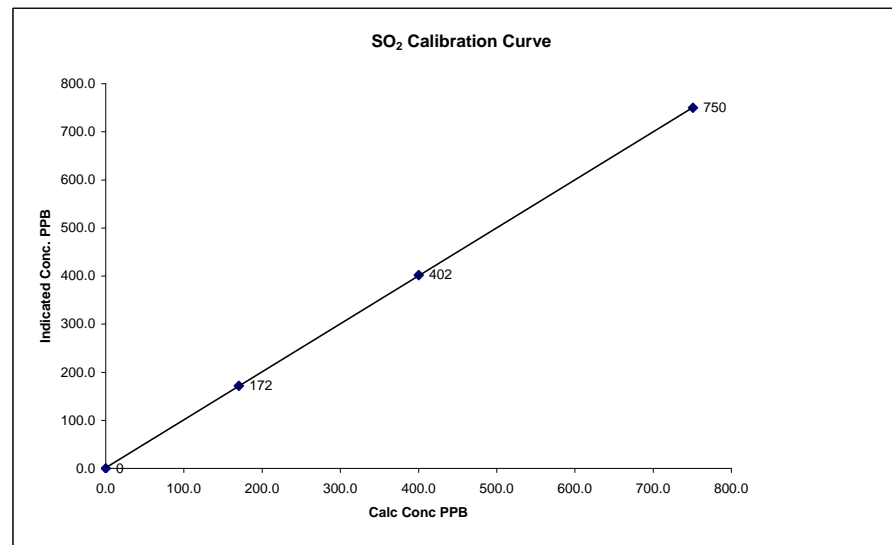
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

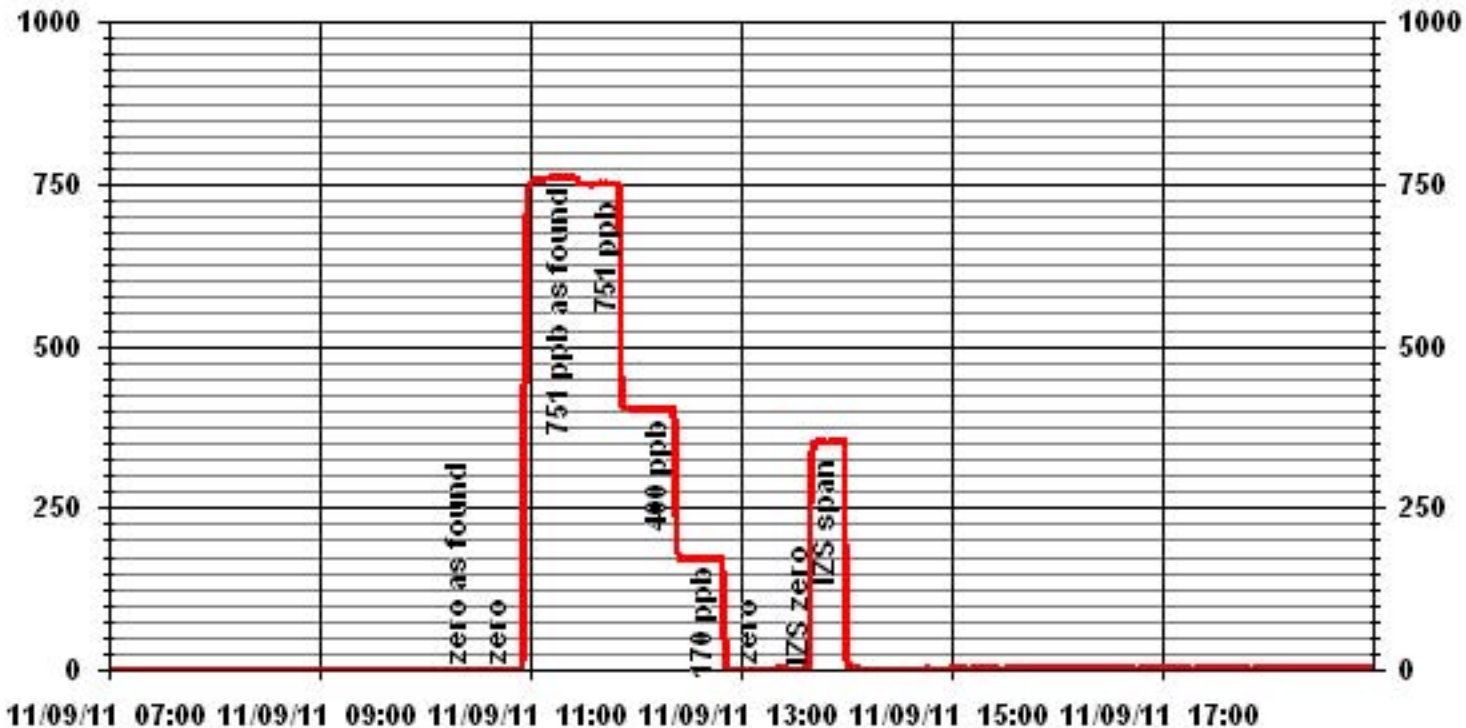
Calibration Date	November 9, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	10:00
End Time (MST)	14:03

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		0.999985
170	172	0.9889		0.997965
400	402	0.9960		1.285251
751	750	1.0014		



Notes:

01 Minute Averages



SO2 Calibration Report
Station Information

Calibration Date	November 16, 2011	Previous Calibration	November 9, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	15:48	End Time (MST)	19:13
Reason:	Post-Repair 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		
Sample Flow / Box Temp	538 ccm, 27.8 Deg C	525 ccm, 28.7 Deg C	
HVPS / Lamp Setting	529, 2388	540, 2398	
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	71.8, 1.083	78.4, 1.024	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4919	No Zero Adj. 77.4	748	748	1.0000
	No Span Adj.			
4953	41.2	398	396	1.0062
4978	17.6	170	170	1.0000
4997	0	0	0	N/A
Sum of Least Squares				#VALUE!
New Correction Factor				1.0000

Before Calibration

After Calibration

Auto Zero	1.4	0.6
Auto Span	356.0	351.0
Sample Lines Connected		YES

Percent Change

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

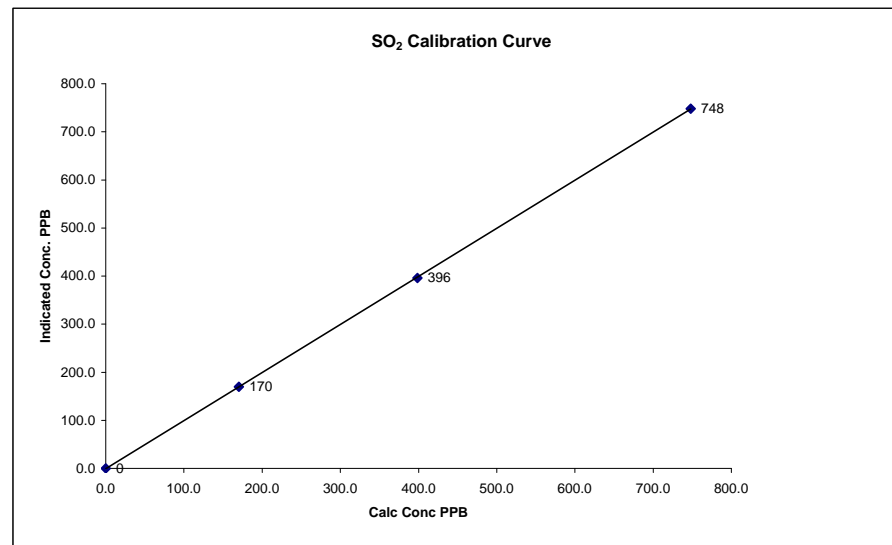
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

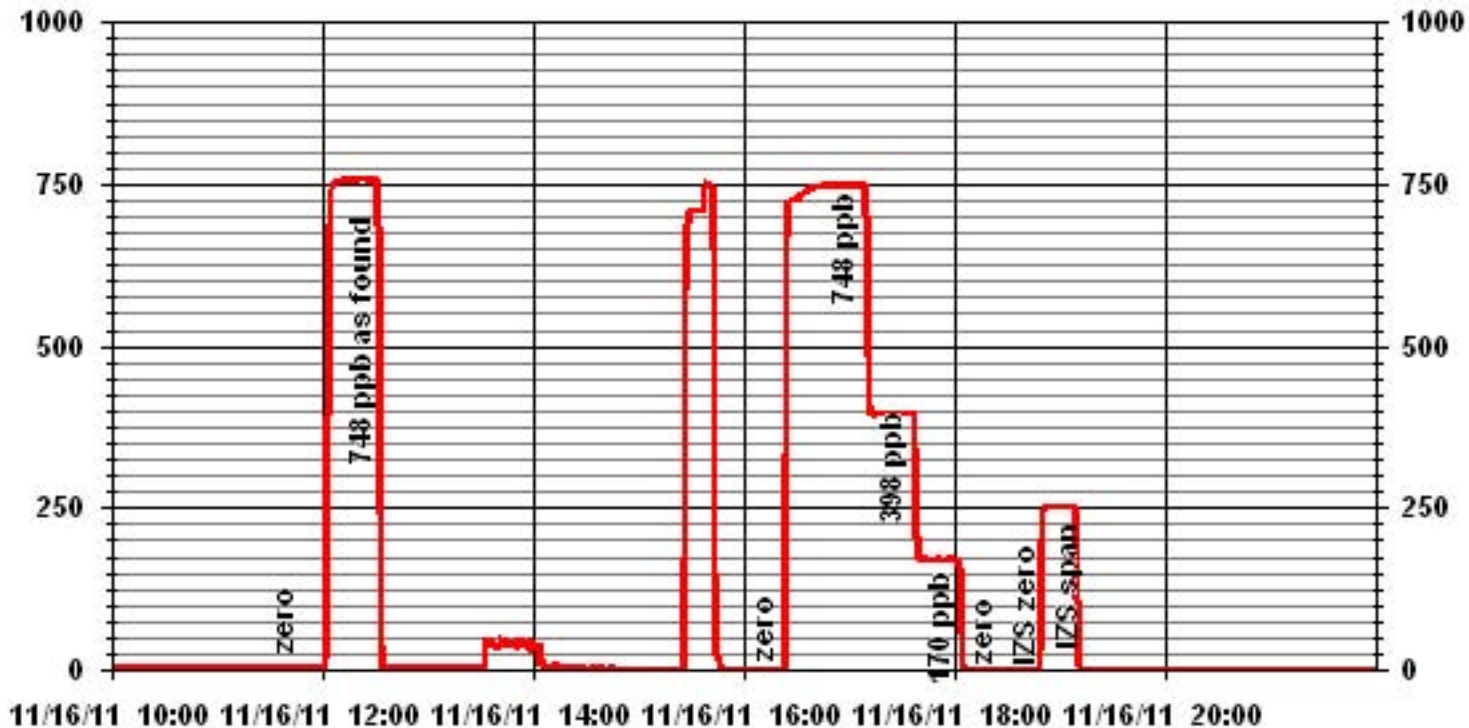
Calibration Date	November 16, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	15:48
End Time (MST)	19:13

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	1.0010		0.999246
398	396	1.0062		
748	748	1.0000		-0.462325



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	November 8, 2011	Previous Calibration	October 6, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	9:54	End Time (MST)	14:14
Reason:	Monthly Calibration		
Barometric Pressure	926 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 ppb		
Sample Flow / Box Temp	550 ccm 29.8 Deg C	551 ccm	31.1 Deg C
HVPS / Lamp Setting	518 2352	518	2351
PMT / RxCell Temp	8.4 Deg C 50 Deg C	8.4 Deg C	50 Deg C
Converter / IZS Temp	315.5 Deg C 45 Deg C	314.6 Deg C	45.0 Deg C
Offset / Slope	70.8 1.028	71.2	1.047

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	1	NA
4996	0	0	0	1.0000
4959	39.2	80	78	1.0256
4959	39.2	80	80	1.0000
4980	19.6	40	41	0.9753
4986	11.2	23	24	0.9525
4996	0	0	1	NA
Sum of Least Squares				0.9922
New Correction Factor				1.0000

Before Calibration		After Calibration	
Auto Zero	1.2		0.6
Auto Span	44.2		44.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0256
Percent Change:	-2.5%

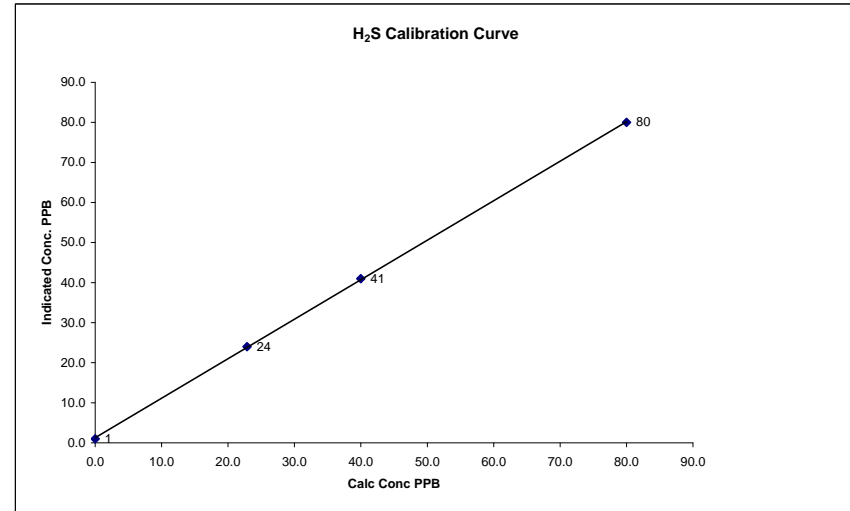
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

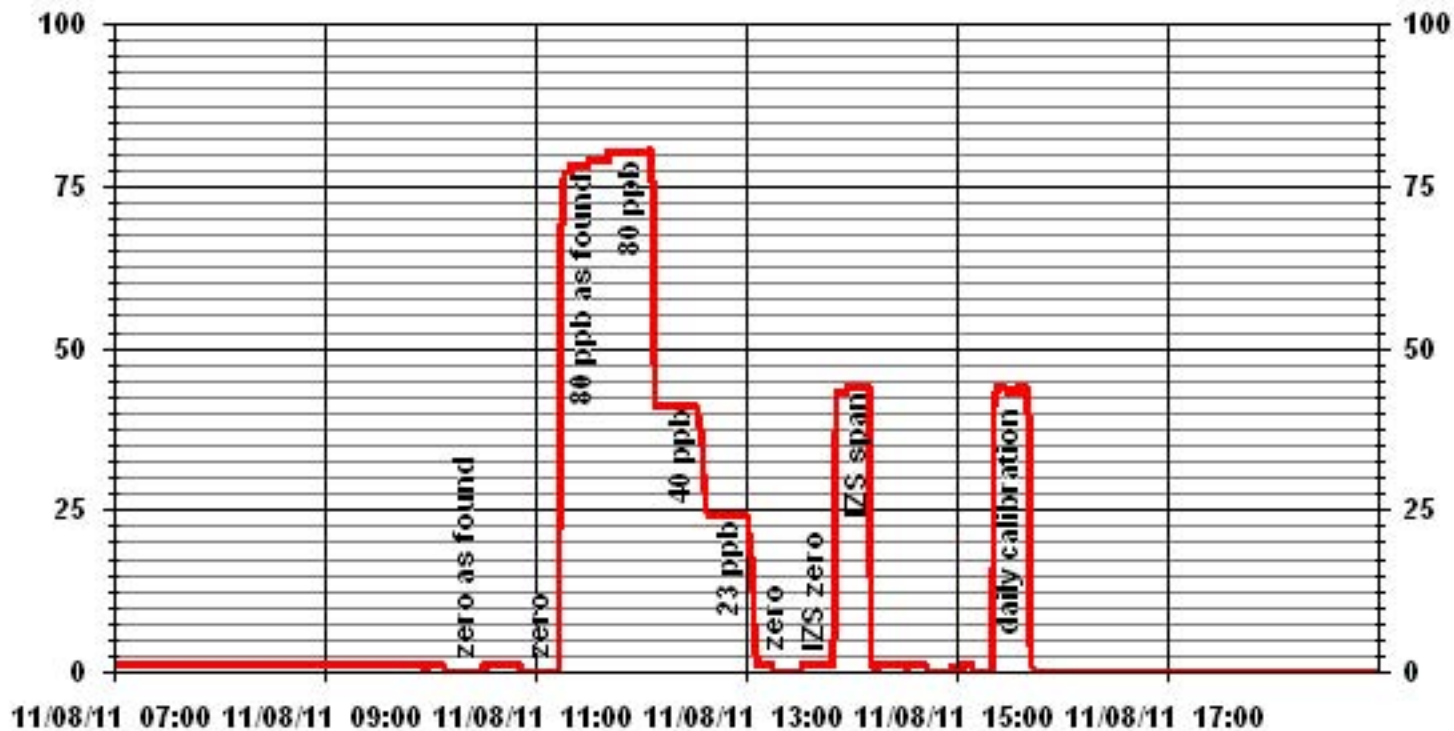
H₂S Calibration Curve

Calibration Date	November 8, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	9:54
End Time (MST)	14:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1			0.999934
23	24	0.9525		0.986585
40	41	0.9753		1.267862
80	80	1.0000		



Notes:



H2S Calibration Report

Station Information

Calibration Date	November 16, 2011	Previous Calibration	November 8, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	15:00	End Time (MST)	18:07
Reason:	Post-Repair Calibration		
Barometric Pressure	925 mmHg	Station Temperature	20 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		ppb	
Sample Flow / Box Temp	540 ccm	31.4 Deg C	541 ccm	30.9 Deg C
HV/PS / Lamp Setting	518	2345	518	2488
PMT / RxCell Temp	8.4 Deg C	50 Deg C	8.4 Deg C	50 Deg C
Converter / IZS Temp	314.5 Deg C	45 Deg C	315.4 Deg C	45.0 Deg C
Offset / Slope	70.8	1.028	70	1.04

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	NA
	No Zero Adj.			
4959	39.2	80	80	1.0000
	No Span Adj.			
4980	19.6	40	41	0.9753
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	2.3	0.8
Auto Span	41.6	26.9
Sample Lines Connected		YES

Percent Change

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

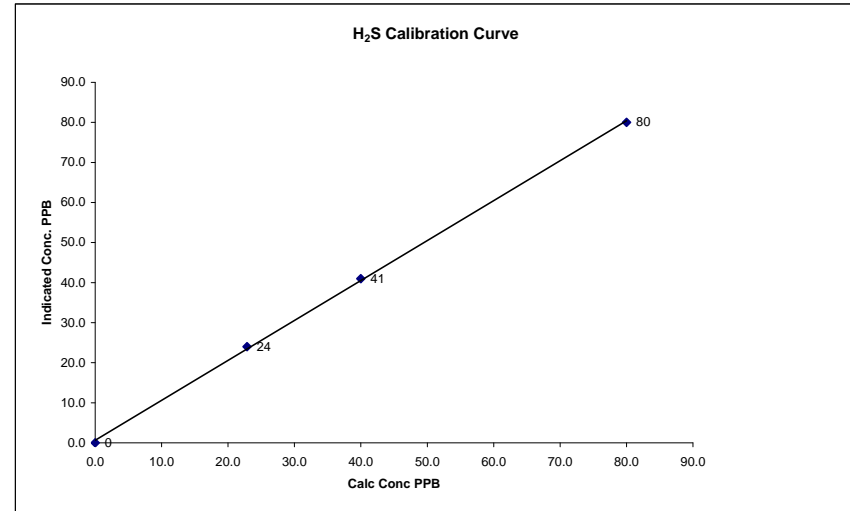
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

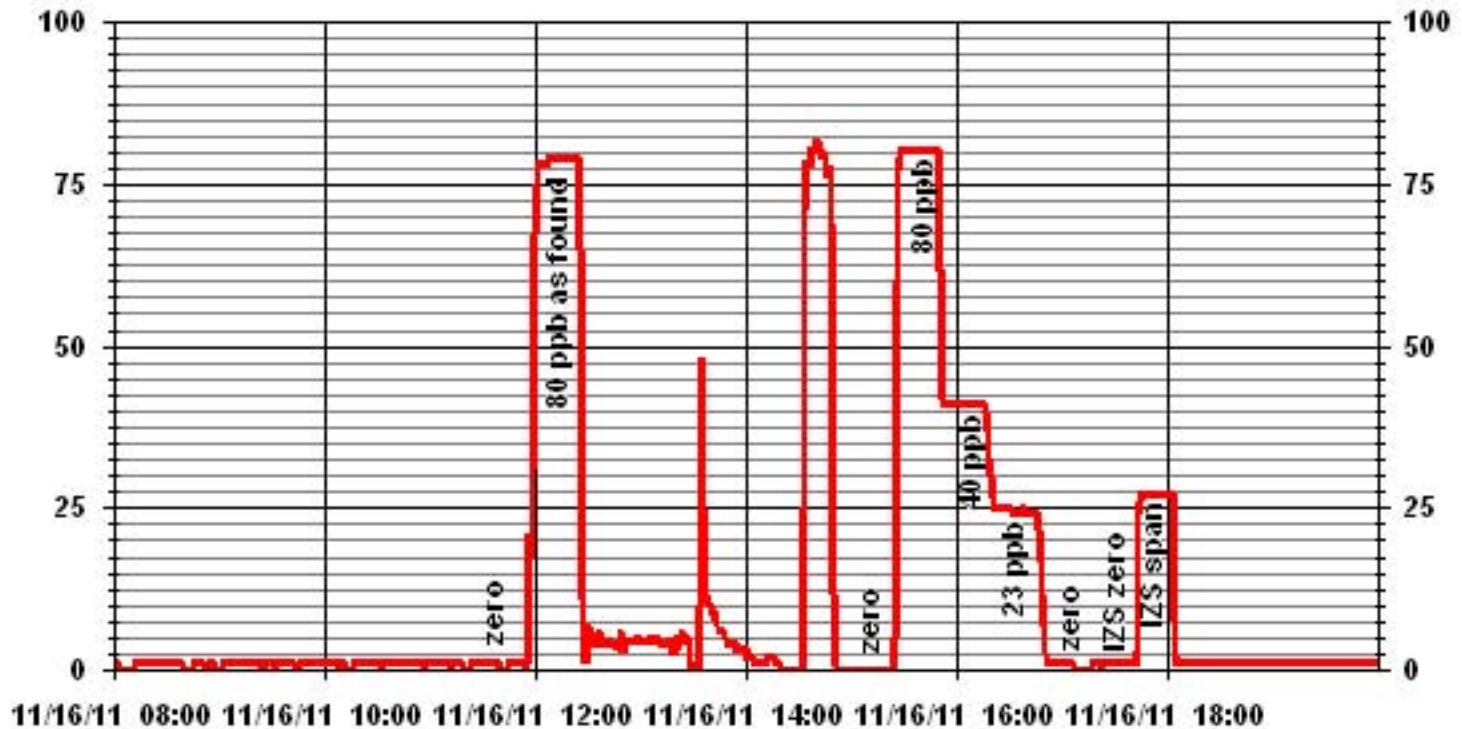
Calibration Date	November 16, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	15:00
End Time (MST)	18:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999667
0	0		Intercept	(± 3% F.S.)	0.644961
23	24	0.9525			
40	41	0.9753			
80	80	1.0000			

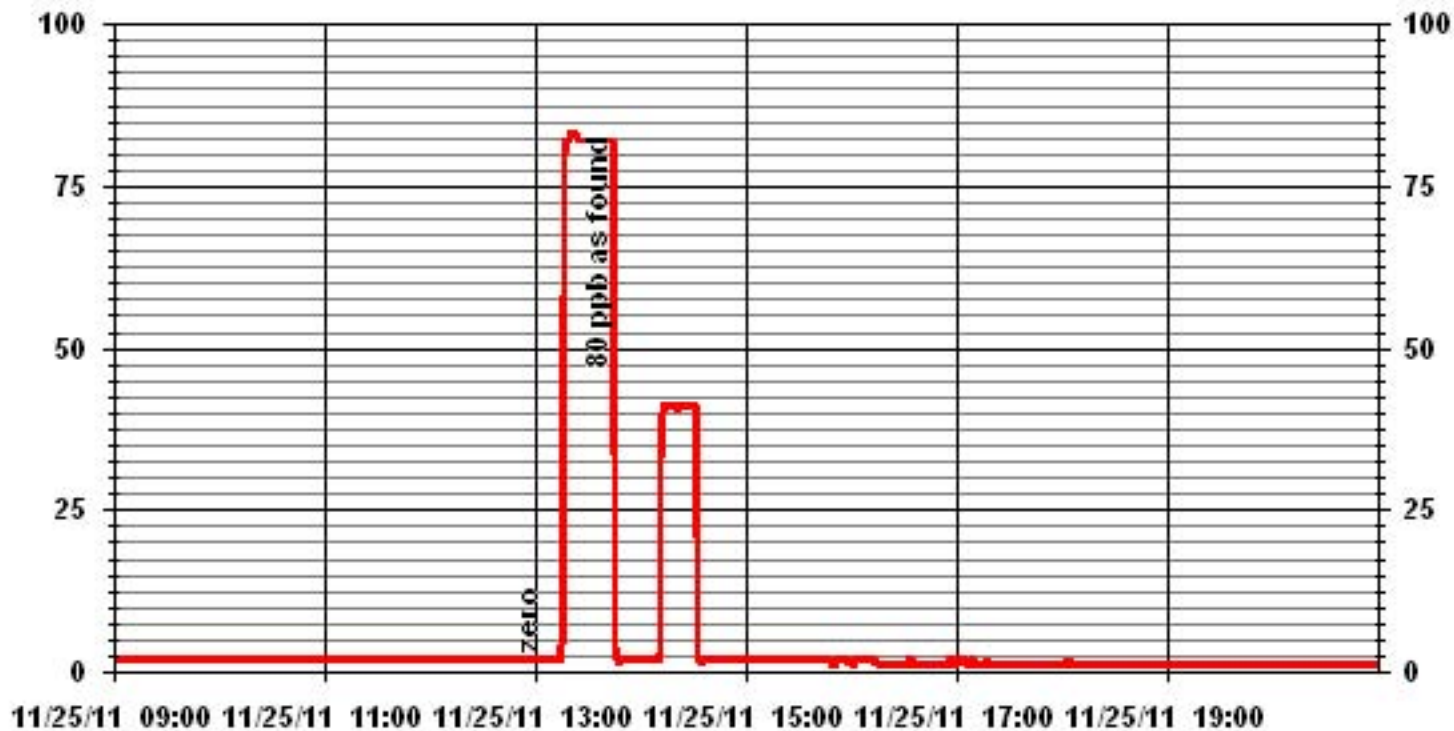


Notes:

01 Minute Averages



01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	November 8, 2011	Previous Calibration	October 6, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	13:33	End Time (MST)	17:22
Reason:	Monthly Calibration		
Barometric Pressure:	929 mmHg	Station Temperature:	22 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	0.1	NA
3000	0.0	0.0	0.0	1.0000
3000	70.0	41.4	41.9	0.9882
3000	70.0	41.4	41.6	0.9954
3000	35.0	20.9	20.7	1.0117
3000	20.0	12.0	11.9	1.0106
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:	0.9882
Percent Change:	0.7%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	35.0	35.2
Sample Lines Connected	YES	

Cylinder Pressures			
Span	1000 psi	Hydrogen	1400 psi
Zero Air	34 psi		

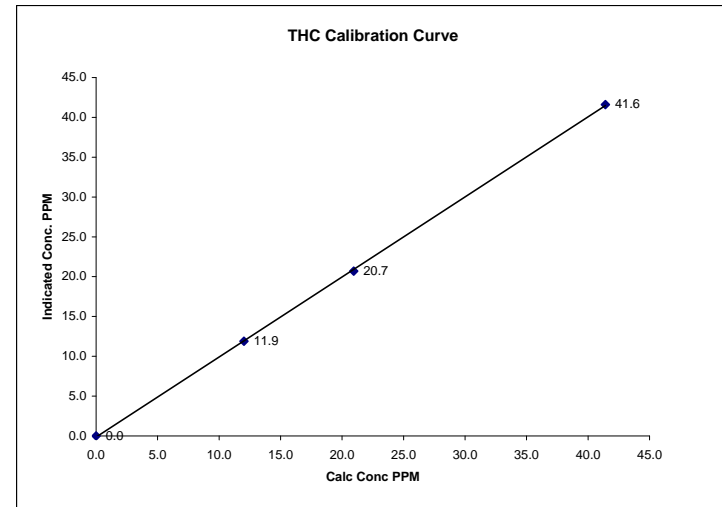
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

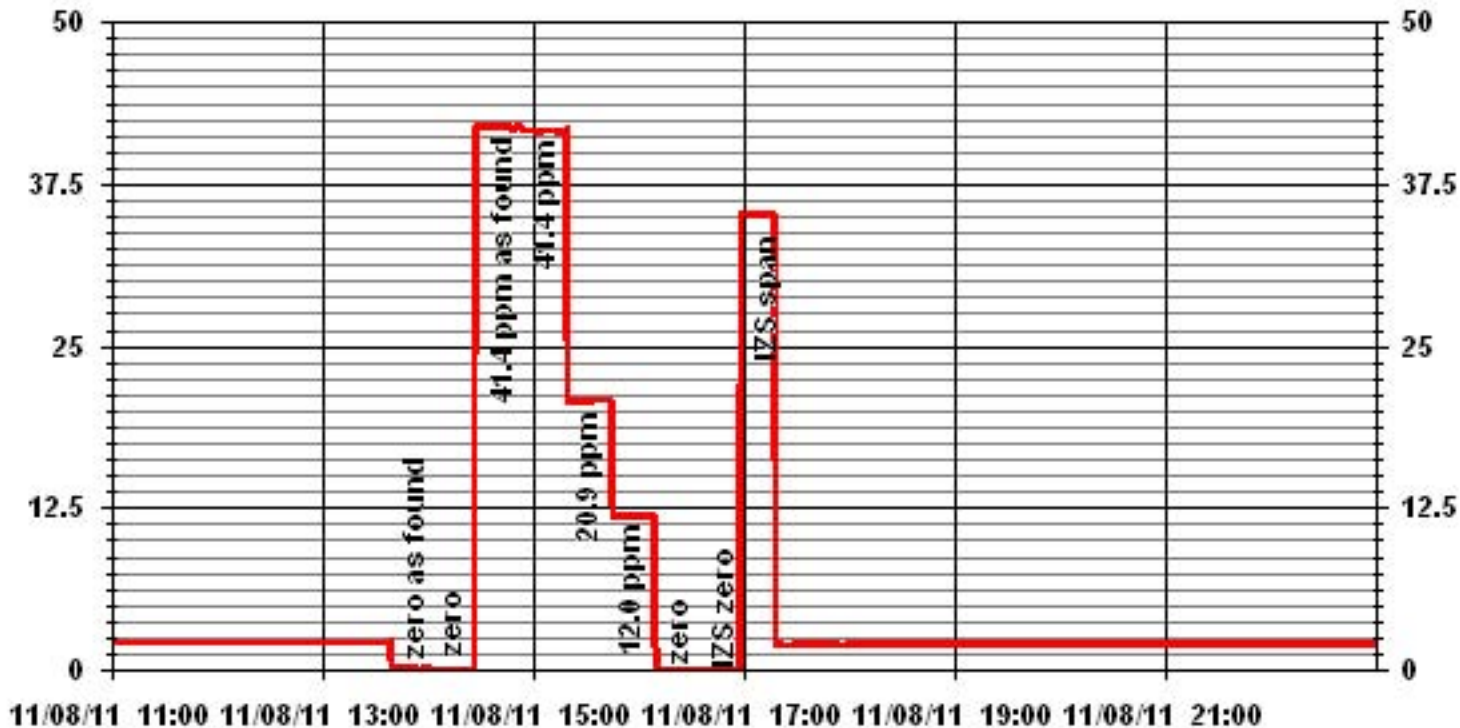
Calibration Date	November 8, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	13:33	End Time (MST)	17:22

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	0.999913	1.005095
12.0	11.9	1.0106		-0.13873
20.9	20.7	1.0117		
41.4	41.6	0.9954		



Notes:

01 Minute Averages



— LICA31 THC PPM

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	November 8, 2011	Previous Calibration	October 6, 2011
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	9:54	End Time (MST)	16:40
Reason:	Monthly Calibration		
Barometric Pressure	926 mmHg	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 - 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	477 ccm	314.6 Deg C	479 ccm	316 Deg C	
Ozone Flow / Vacuum	73 ccm	5.6 Hg-A	72 ccm	5.6 Hg-A	
HVPS / A ZERO	662 Volts	19.7 MV	662 Volts	20.3 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.9 Deg C	50.0 Deg C	6.9 Deg C	
Box Temp / IZS Temp	27.0 Deg C	45.1 Deg C	28.7 Deg C	45.1 Deg C	
Offset	0.9 NOx	0.5 NO	0.9 NOx	0.5 NO	
Slope	1.116 NOx	1.105 NO	1.111 NOx	1.096 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	1	0	1	NA	NA
	No Zero Adj.									
4919	75.7	NA	753	749	NA	755	754	1	0.9990	0.9930
4919	75.7	NA	753	749	NA	754	748	6	1.0003	1.0009
4960	35.3	NA	351	349	NA	351	348	3	1.0000	1.0031
4977	17.2	NA	171	170	NA	172	170	2	1.0010	1.0000
4994	0.0	NA	0	0	NA	0	1	1	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		
4919	75.7	NA	753	749	NA	754	748	6	NA	NA
	No Adj Required									
4919	75.7	600	753	NA	544	755	210	545	1.0000	100.19%
4919	75.7	300	753	NA	274	754	480	275	1.0000	100.37%
4919	75.7	120	753	NA	112	755	642	113	1.0000	100.94%

Linearity	Sum of Least Squares		NOx= 0.999	NO= 1.001	NO2= 0.998
OK?	Yes	No	Correction Factors: NOx= 1.0003	NO= 1.0009	NO2= 1.0000
Average Converter Efficiency= 100.50%					

Before Calibration			After Calibration		
Auto Zero	1.3 NOx	1.4 NO2	0.7 NOx	0.5 NO2	
Auto Span	776 NOx	745 NO2	760 NOx	736 NO2	
Sample Lines Connected: YES					
Percent Change from Previous Calibration			NOx -0.3%	NO 0.4%	NO2 -1.2%

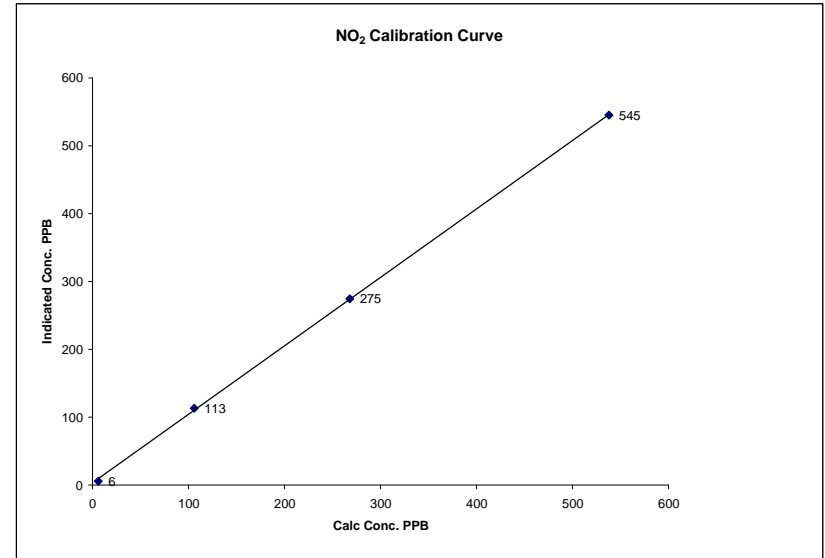
Notes: **NA : Not Applicable**
Additional GPT was done for O3 clibration. O3 set point 450, NO=346, NO2=409, NOx=757

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	November 8, 2011	Company	LICA
Plant / Location	St. Lina	Start Time (MST)	9:54
End Time (MST)	16:40		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999869
6	6	N/A	Intercept	(± 3% F.S.)	3.03169
106	113	0.9381			
268	275	0.9745			
538	545	0.9872			

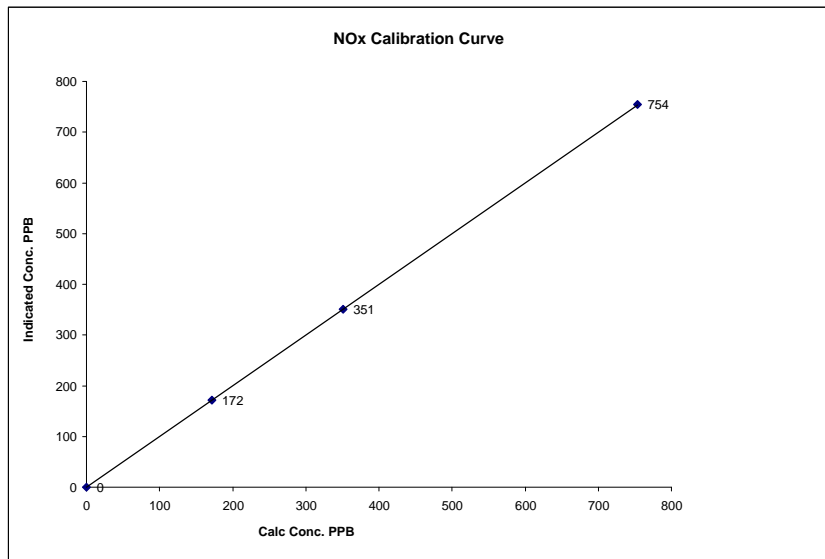


Notes:

NOx Calibration Curve

Calibration Date November 8, 2011
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 9:54 End Time (MST) 16:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999998
0	0	N/A	Intercept	(± 3% F.S.)	0.14475
171	172	0.9952			
351	351	1.0006			
753	754	0.9990			

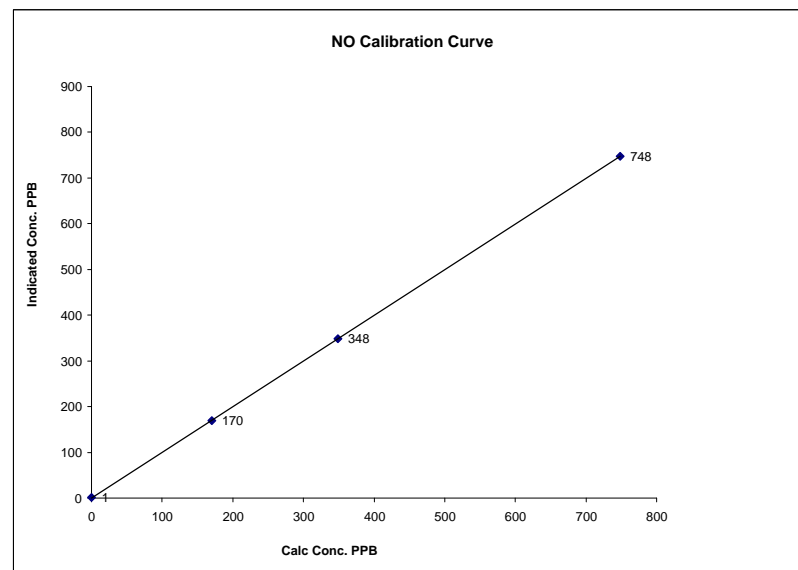


Notes:

NO Calibration Curve

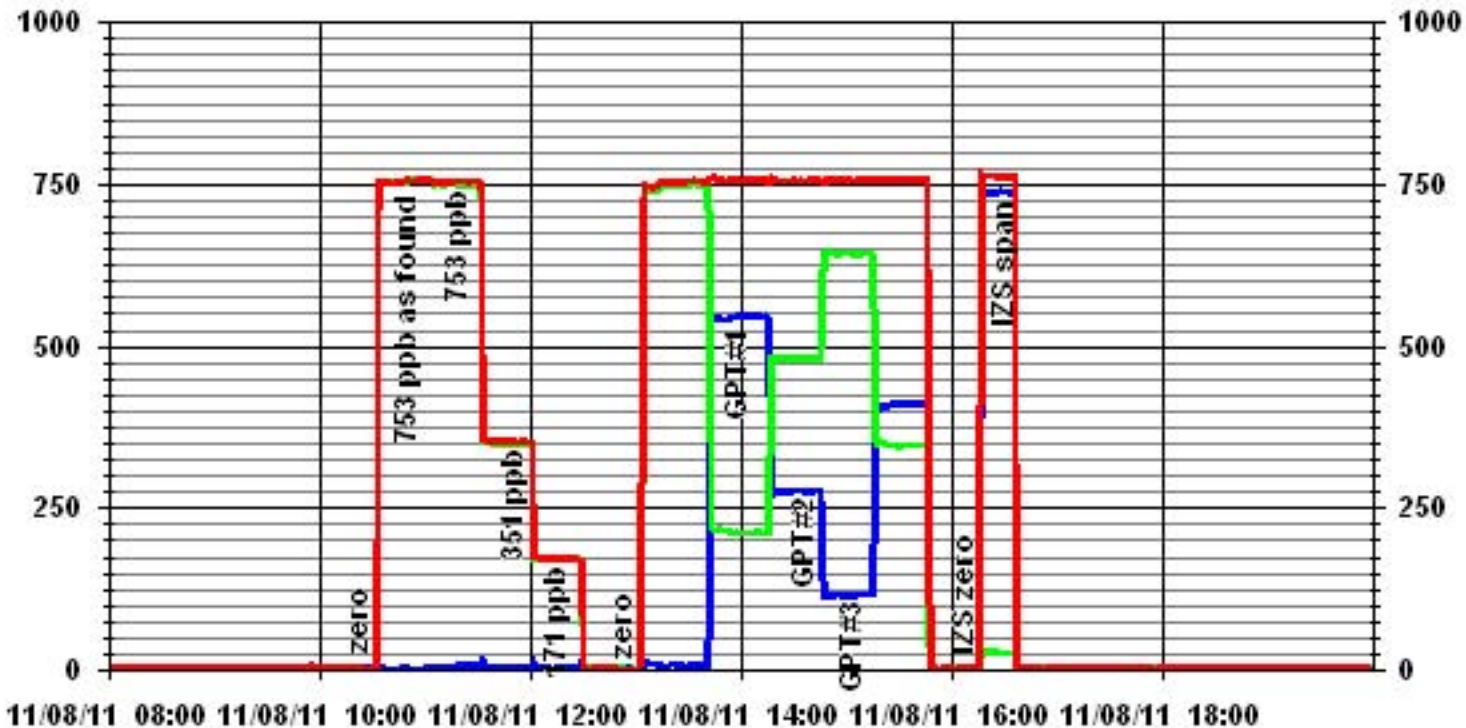
Calibration Date November 8, 2011
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 9:54 End Time (MST) 16:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999996
0	1	N/A	Intercept	(± 3% F.S.)	-1.4263
170	170	1.0008			
349	348	1.0031			
749	748	1.0009			



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report

Station Information

Calibration Date	November 9, 2011	Previous Calibration	October 7, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	10:00	End Time (MST)	14:03
Reason:	Monthly Calibration		
Barometric Pressure	940 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			
Concentration Range	ppb			
Cell A Flow / Cell B Flow	724 ccm	741 ccm	727 ccm	744 ccm
Pressure	704.9 mmHg		708.2 mmHg	
Bench Temp	55.3 Deg C		55.3 Deg C	
O3 Lamp / Box Temp	80 Deg C	29.5 Deg C	80 Deg C	30.1 Deg C
Offset / Slope	0.1	0.979	0.1	0.979

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	402	404	0.9950
	No Span Adj.			
4994	300	268	269	0.9963
4994	120	106	109	0.9725
4994	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				0.0000

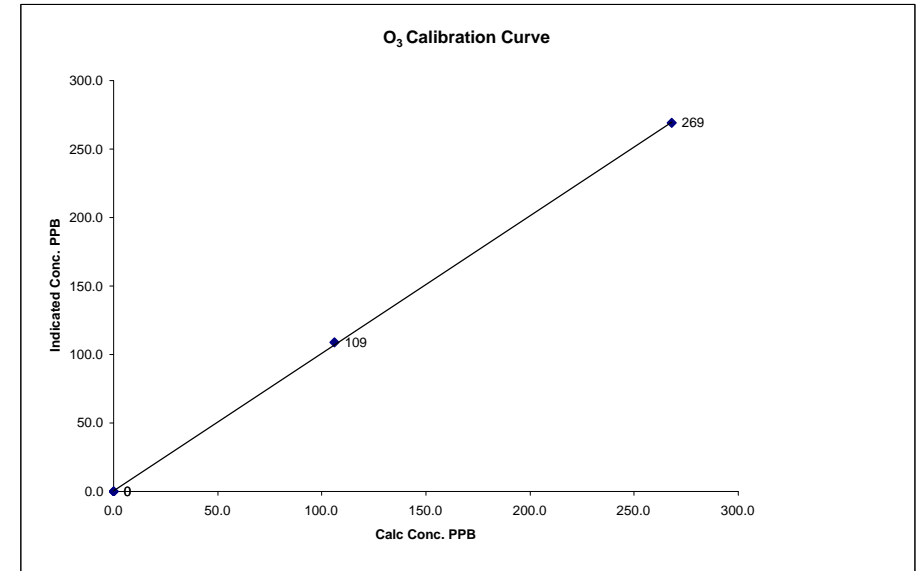
	Before Calibration	After Calibration
Auto Zero	1.1	1.1
Auto Span	346	344
Sample Lines Connected		YES
Percent Change from Previous Calibration		0.8%

Calibration Performed by: Ting Xu

O₃ Calibration Curve

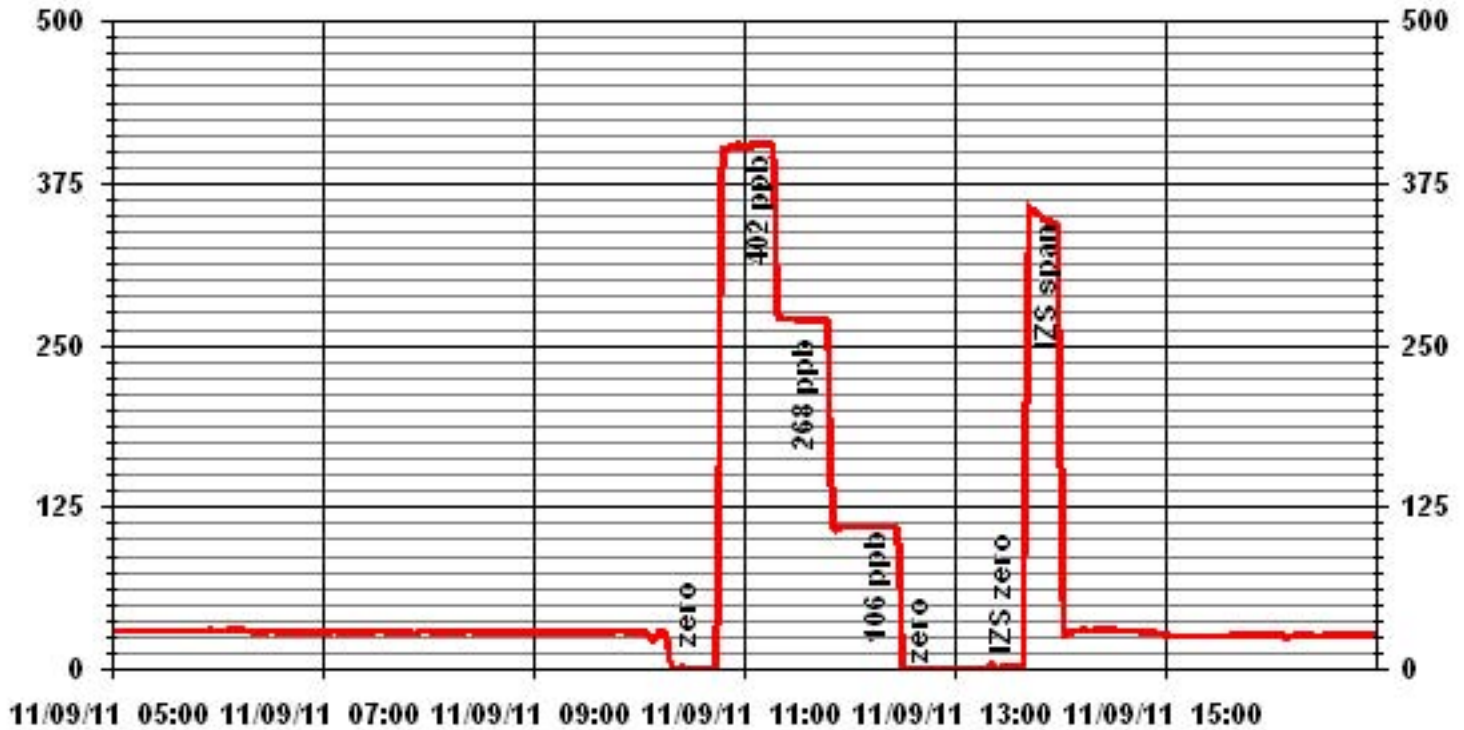
Calibration Date	November 9, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	10:00	End Time (MST)	14:03

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999896
0	0	n/a	Intercept	(± 3% F.S.)	0.587823
106	109	0.9725			
268	269	0.9963			
0	0	#DIV/0!			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOMÒ 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>November 8, 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>29.4%</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>2.2</u>
		Press (ATM)	<u>0.922</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>0.004</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>2.4</u>	D °C	<u>-0.2</u>
Measured Press (± 0.01atm)	<u>0.917</u>	DATM	<u>0.005</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>0.27%</u>
Measured Main Flow (l/min)	<u>3.02</u>	Flow Adjusted to Measured?	<u>YES</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>2.47%</u>
Measured Bypass Flow (l/min)	<u>13.84</u>	Flow Adjusted to Measured?	<u>YES</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>NA</u>	Flow Control = Active	
Aux (< 0.6 l/min)	<u>NA</u>	Report Conditions = Actual	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 13:32 **Finish Time:** 16:44

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 29.9%

Comments: _____

Auditor/s: Ting Xu